Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	**INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES** **CHAPTER 1. GENERAL** *Introductory Note.— This Annex contains Standards and Recommended Practices (specifications) that prescribe the physical characteristics and obstacle limitation surfaces to be provided for at aerodromes, and certain facilities and technical services normally provided at an aerodrome. It also contains specifications dealing with obstacles outside those limitation surfaces. It is not intended that these specifications limit or regulate the operation of an aircraft.* *To a great extent, the specifications for individual facilities detailed in Annex 14, Volume I, have been interrelated by a reference code system, described in this chapter, and by the designation of the type of runway for which they are to be provided, as specified in the definitions. This not only simplifies the reading of Volume I of this Annex, but in most cases, provides for efficiently proportioned aerodromes when the specifications are followed.* *This document sets forth the minimum aerodrome specifications for aircraft which have the characteristics of those which are currently operating or for similar aircraft that are planned for introduction. Accordingly, any additional safeguards that might be considered appropriate*	Civil Aviation (CA) Act 1990 s2; CAR Part 1.	No Difference	NIL	NIL

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	to provide for more demanding aircraft are not taken into account. Such matters are left to appropriate authorities to evaluate and take into account as necessary for each particular aerodrome. Provisions for the accommodation of more demanding aircraft at existing aerodromes can be found in the PANS-Aerodromes (Doc 9981). Guidance on some possible effects of future aircraft on these specifications is given in the Aerodrome Design Manual *(Doc 9157)*, *Part 2.* *It is to be noted that the specifications for precision approach runway categories II and III are only applicable to runways intended to be used by aeroplanes in code numbers 3 and 4.* *Annex 14, Volume I, does not include specifications relating to the overall planning of aerodromes (such as separation between adjacent aerodromes or capacity of individual aerodromes), impact on the environment, or to economic and other non-technical factors that need to be considered in the development of an aerodrome. Information on these subjects is included in the* Airport Planning Manual *(Doc 9184)*, *Part 1. Guidance material on the environmental aspects of the development and operation of an aerodrome is included in the* Airport Planning Manual *(Doc 9184), Part 2*. *Aviation security is an integral part of aerodrome planning and operations. Annex 14, Volume I, contains several specifications aimed at enhancing the level of security at aerodromes. Specifications on other facilities related to security are given in Annex 17 —* Security *and detailed guidance on the subject is contained in the* Aviation Security Manual *(Doc 8973-Restricted).*				

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	1.1 Definitions When the following terms are used in this Annex they have the following meanings: ***Aerodrome.*** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.				
Chapter 1 Reference **Definition**	***Aerodrome beacon.*** Aeronautical beacon used to indicate the location of an aerodrome from the air.	Advisory Circular (AC) AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Aerodrome certificate.*** A certificate issued by the appropriate authority under applicable regulations for the operation of an aerodrome.	CAR 139.5.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Aerodrome elevation.*** The elevation of the highest point of the landing area.	AC139-6, 1.3; AIPNZ GEN 2.2.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Aerodrome identification sign.*** A sign placed on an aerodrome to aid in identifying the aerodrome from the air.	AC139-6, 5.4.70 to 74.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Aerodrome mapping data (AMD).*** Data collected for the purpose of compiling aerodrome mapping information for aeronautical uses. *Note.— Aerodrome mapping data are collected for purposes that include the improvement of the user's situational awareness, surface navigation operations, training, charting and planning.*	CARs.	Less protective or partially implemented or not implemented	Not specifically defined.	NIL
Chapter 1 Reference **Definition**	***Aerodrome mapping database (AMDB).*** A collection of aerodrome mapping data organized and arranged as a structured data set.	CARs.	Less protective or partially implemented or not implemented	Not specifically defined	NIL
Chapter 1 Reference **Definition**	***Aerodrome reference point.*** The designated geographical location of an aerodrome.	AC139-6, 1.3; AIPNZ GEN 2.2.	No Difference	NIL	NIL

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Chapter 1 Reference **Definition**	***Aerodrome traffic density.*** a) *Light*. Where the number of movements in the mean busy hour is not greater than 15 per runway or typically less than 20 total aerodrome movements. b) *Medium*. Where the number of movements in the mean busy hour is of the order of 16 to 25 per runway or typically between 20 to 35 total aerodrome movements. c) *Heavy*. Where the number of movements in the mean busy hour is of the order of 26 or more per runway or typically more than 35 total aerodrome movements. *Note 1.— The number of movements in the mean busy hour is the arithmetic mean over the year of the number of movements in the daily busiest hour.* *Note 2.— Either a take-off or a landing constitutes a movement.*	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Aeronautical beacon.*** An aeronautical ground light visible at all azimuths, either continuously or intermittently, to designate a particular point on the surface of the earth.	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Aeronautical ground light.*** Any light specially provided as an aid to air navigation, other than a light displayed on an aircraft.	AC139-6, 1.3.	No Difference	NIL	NIL

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Chapter 1 Reference **Definition**	***Aeroplane reference field length.*** The minimum field length required for take-off at maximum certificated take-off mass, sea level, standard atmospheric conditions, still air and zero runway slope, as shown in the appropriate aeroplane flight manual prescribed by the certificating authority or equivalent data from the aeroplane manufacturer. Field length means balanced field length for aeroplanes, if applicable, or take-off distance in other cases. *Note.— Attachment A, Section 2, provides information on the concept of balanced field length and the* Airworthiness Manual *(Doc 9760) contains detailed guidance on matters related to take-off distance.*	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Aircraft classification number (ACN).†*** A number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category. *Note.— The aircraft classification number is calculated with respect to the centre of gravity (CG) position which yields the critical loading on the critical gear. Normally the aftmost CG position appropriate to the maximum gross apron (ramp) mass is used to calculate the ACN. In exceptional cases the forwardmost CG position may result in the nose gear loading being more critical.* --- † Applicable until 27 November 2024.	AC139-6, 1.3.	No Difference	NIL	NIL

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Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Aircraft classification rating (ACR).††*** A number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category. *Note.— The aircraft classification rating is calculated with respect to the centre of gravity (CG) position which yields the critical loading on the critical gear. Normally the aftmost CG position appropriate to the maximum gross apron (ramp) mass is used to calculate the ACR. In exceptional cases the forwardmost CG position may result in the nose gear loading being more critical.* -- †† Applicable as of 28 November 2024.	NIL	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Aircraft stand.*** A designated area on an apron intended to be used for parking an aircraft.	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Apron.*** A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.	CAR Part 1.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Apron management service.*** A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.	CAR Part 1.	No Difference	NIL	NIL

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Chapter 1 Reference **Definition**	***Arresting system.*** A system designed to decelerate an aeroplane overrunning the runway.	NIL	No Difference	NIL	None used in New Zealand.
Chapter 1 Reference **Definition**	***Autonomous runway incursion warning system (ARIWS).*** A system which provides autonomous detection of a potential incursion or of the occupancy of an active runway and a direct warning to a flight crew or a vehicle operator.	NIL	Not Applicable	NIL	None in use in New Zealand at present.
Chapter 1 Reference **Definition**	***Balked landing.*** A landing manoeuvre that is unexpectedly discontinued at any point below the obstacle clearance altitude/height (OCA/H).	CARs.	Less protective or partially implemented or not implemented	Not specifically defined in CARs.	Common usage term.
Chapter 1 Reference **Definition**	***Barrette.*** Three or more aeronautical ground lights closely spaced in a transverse line so that from a distance they appear as a short bar of light.	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Calendar.*** Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108∗). -- ∗ ISO Standard 19108, *Geographic information — Temporal schema*	Australian/New Zealand Standard AS/NZ ISO 19108: 2003.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Certified aerodrome.*** An aerodrome whose operator has been granted an aerodrome certificate.	CARs.	No Difference	Not specifically defined, but see CAR Part 139.	
Chapter 1 Reference **Definition**	***Clearway.*** A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height.	CAR Part 1.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Cyclic redundancy check (CRC).*** A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.	CARs.	Less protective or partially implemented or not implemented	Not specifically defined.	
Chapter 1 Reference **Definition**	***Data accuracy.*** A degree of conformance between the estimated or measured value and the true value.	Civil Aviation Rules (CAR) Part 1.	Less protective or partially implemented or not implemented	Not specifically defined (common usage term).	The Civil Aviation Act, Civil Aviation Rules, and Advisory Circulars are available on the CAANZ website, http://www.caa.govt.nz/. AIP New Zealand is available on http://www.aip.net.nz/.

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Chapter 1 Reference **Definition**	***Data integrity (assurance level).*** A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	
Chapter 1 Reference **Definition**	***Data quality.*** A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution and integrity (or equivalent assurance level), traceability, timeliness, completeness and format.	CARs.	Less protective or partially implemented or not implemented	Not specifically defined.	
Chapter 1 Reference **Definition**	***Datum.*** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104**). --- ** ISO Standard 19104, *Geographic information — Terminology*	ISO/TS 19104: 2008.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***De-icing/anti-icing facility.*** A facility where frost, ice or snow is removed (de-icing) from the aeroplane to provide clean surfaces, and/or where clean surfaces of the aeroplane receive protection (anti-icing) against the formation of frost or ice and accumulation of snow or slush for a limited period of time. *Note.— Further guidance is given in the* Manual of Aircraft Ground De-icing/Anti-icing Operations *(Doc 9640)*.	AC139-6, 1.3.	No Difference	NIL	NIL

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Chapter 1 Reference **Definition**	***De-icing/anti-icing pad.*** An area comprising an inner area for the parking of an aeroplane to receive de-icing/anti-icing treatment and an outer area for the manoeuvring of two or more mobile de-icing/anti-icing equipment.	AC139-6, 1.3.	No Difference		
Chapter 1 Reference **Definition**	***Declared distances.*** a) *Take-off run available (TORA).* The length of runway declared available and suitable for the ground run of an aeroplane taking off. b) *Take-off distance available (TODA).* The length of the take-off run available plus the length of the clearway, if provided. c) *Accelerate-stop distance available (ASDA).* The length of the take-off run available plus the length of the stopway, if provided. d) *Landing distance available (LDA).* The length of runway which is declared available and suitable for the ground run of an aeroplane landing.	CAR Part 1; AC139-6, 2.7.	No Difference		Note: Part 1 defines each element separately. See the AC for full details.
Chapter 1 Reference **Definition**	***Dependent parallel approaches.*** Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are prescribed.	AC139-6, 1.3.	No Difference		

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Chapter 1 Reference **Definition**	***Displaced threshold.*** A threshold not located at the extremity of a runway.	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Effective intensity.*** The effective intensity of a flashing light is equal to the intensity of a fixed light of the same colour which will produce the same visual range under identical conditions of observation.	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Ellipsoid height (Geodetic height).*** The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	
Chapter 1 Reference **Definition**	***Fixed light.*** A light having constant luminous intensity when observed from a fixed point.	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Foreign object debris (FOD).*** An inanimate object within the movement area which has no operational or aeronautical function and which has the potential to be a hazard to aircraft operations.	AC139-3, 1.9.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Frangible object.*** An object of low mass designed to break, distort or yield on impact so as to present the minimum hazard to aircraft. *Note.— Guidance on design for frangibility is contained in the* Aerodrome Design Manual *(Doc 9157), Part 6.*	AC139-6, 1.3.	Different in character or other means of compliance	"Frangibility".	NIL
Chapter 1 Reference **Definition**	***Geodetic datum.*** A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	Common usage term.
Chapter 1 Reference **Definition**	***Geoid.*** The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents. *Note.— The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.*	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	NIL
Chapter 1 Reference **Definition**	***Geoid undulation.*** The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid. *Note.— In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.*	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	nil

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Chapter 1 Reference **Definition**	***Gregorian calendar.*** Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108***). *Note.— In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.* -- *** ISO Standard 19108, *Geographic information — Temporal schema*	No specific reference, but used in New Zealand.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Hazard beacon.*** An aeronautical beacon used to designate a danger to air navigation.	AC139-6, 1.3.	No Difference		
Chapter 1 Reference **Definition**	***Heliport.*** An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.	CAR Part 1.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Holding bay.*** A defined area where aircraft can be held, or bypassed, to facilitate efficient surface movement of aircraft.	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Holdover time.*** The estimated time the anti-icing fluid (treatment) will prevent the formation of ice and frost and the accumulation of snow on the protected (treated) surfaces of an aeroplane.	NIL	Not Applicable	NIL	NIL
Chapter 1 Reference **Definition**	***Hot spot.*** A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.	CARs.	Less protective or partially implemented or not implemented	Not specifically defined.	nil
Chapter 1 Reference **Definition**	***Human Factors principles.*** Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	Common usage term.
Chapter 1 Reference **Definition**	***Human performance.*** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	Common usage term.
Chapter 1 Reference **Definition**	***Identification beacon.*** An aeronautical beacon emitting a coded signal by means of which a particular point of reference can be identified.	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Independent parallel approaches.*** Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are not prescribed.	AC139-6, 1.3.	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Independent parallel departures.*** Simultaneous departures from parallel or near-parallel instrument runways.	AC139-6, 1.3.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Instrument runway.*** One of the following types of runways intended for the operation of aircraft using instrument approach procedures: a) *Non-precision approach runway.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type A and a visibility not less than 1 000 m. b) *Precision approach runway, category I.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) not lower than 60 m (200 ft) and either a visibility not less than 800 m or a runway visual range not less than 550 m. c) *Precision approach runway, category II.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 300 m. d) *Precision approach runway, category III.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 30 m (100 ft), or no decision height and a runway visual range less than 300 m, or no runway visual range limitations. *Note 1.— Visual aids need not necessarily be matched to the scale of non-visual aids provided. The criterion for the selection of visual aids is the conditions in which operations*	CAR Part 1; details in AC139-6, 1.3.	No Difference	nil	nil

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	are intended to be conducted. *Note 2.— Refer to Annex 6 —* Operation of Aircraft *for instrument approach operation types.*				
Chapter 1 Reference **Definition**	***Integrity classification (aeronautical data).*** Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as: a) routine data: there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; b) essential data: there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and c) critical data: there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.	CARs.	Less protective or partially implemented or not implemented	Not specifically defined.	nil
Chapter 1 Reference **Definition**	***Intermediate holding position.*** A designated position intended for traffic control at which taxiing aircraft and vehicles shall stop and hold until further cleared to proceed, when so instructed by the aerodrome control tower.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Landing area.*** That part of a movement area intended for the landing or take-off of aircraft.	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Landing direction indicator.*** A device to indicate visually the direction currently designated for landing and for take-off.	nil	Not Applicable	nil	No longer used in New Zealand.
Chapter 1 Reference **Definition**	***Laser-beam critical flight zone (LCFZ).*** Airspace in the proximity of an aerodrome but beyond the LFFZ where the irradiance is restricted to a level unlikely to cause glare effects.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	NIL
Chapter 1 Reference **Definition**	***Laser-beam free flight zone (LFFZ).*** Airspace in the immediate proximity of the aerodrome where the irradiance is restricted to a level unlikely to cause any visual disruption.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	
Chapter 1 Reference **Definition**	***Laser-beam sensitive flight zone (LSFZ).*** Airspace outside, and not necessarily contiguous with, the LFFZ and LCFZ where the irradiance is restricted to a level unlikely to cause flash-blindness or after-image effects.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	NIL
Chapter 1 Reference **Definition**	***Lighting system reliability.*** The probability that the complete installation operates within the specified tolerances and that the system is operationally usable.	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Manoeuvring area.*** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.	CA Act 1990 s2; CAR Part 1.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Marker.*** An object displayed above ground level in order to indicate an obstacle or delineate a boundary.	AC 139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Marking.*** A symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information.	AC 139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Movement area.*** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).	CAR Part 1.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Near-parallel runways.*** Non-intersecting runways whose extended centre lines have an angle of convergence/divergence of 15 degrees or less.	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Non-instrument runway.*** A runway intended for the operation of aircraft using visual approach procedures or an instrument approach procedure to a point beyond which the approach may continue in visual meteorological conditions. *Note.— Visual meteorological conditions (VMC) are described in Chapter 3 of Annex 2 —* Rules of the Air.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Normal flight zone (NFZ).*** Airspace not defined as LFFZ, LCFZ or LSFZ but which must be protected from laser radiation capable of causing biological damage to the eye.	CARs.	Less protective or partially implemented or not implemented	Not defined.	nil
Chapter 1 Reference **Definition**	***Obstacle.*** All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that: a) are located on an area intended for the surface movement of aircraft; or b) extend above a defined surface intended to protect aircraft in flight; or c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Obstacle free zone (OFZ).*** The airspace above the inner approach surface, inner transitional surfaces, and balked landing surface and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than a low-mass and frangibly mounted one required for air navigation purposes.	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Orthometric height.*** Height of a point related to the geoid, generally presented as an MSL elevation.	CARs.	Less protective or partially implemented or not implemented	Not defined.	nil
Chapter 1 Reference **Definition**	***Outer main gear wheel span (OMGWS).*** The distance between the outside edges of the main gear wheels.	AC139-6.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Pavement classification number (PCN).*** A number expressing the bearing strength of a pavement for unrestricted operations. -- Applicable until 27 November 2024.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Pavement classification rating (PCR).††*** A number expressing the bearing strength of a pavement. -- †† Applicable as of 28 November 2024.	NIL	No Difference	NIL	NIL
Chapter 1 Reference **Definition**	***Precision approach runway,*** see ***Instrument runway.***	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Primary runway(s).*** Runway(s) used in preference to others whenever conditions permit.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Protected flight zones.*** Airspace specifically designated to mitigate the hazardous effects of laser radiation.	CARs.	Less protective or partially implemented or not implemented	Not defined.	nil
Chapter 1 Reference **Definition**	***Road.*** An established surface route on the movement area meant for the exclusive use of vehicles.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Road-holding position.*** A designated position at which vehicles may be required to hold.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Runway.*** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.	CAR Part 1.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Runway condition assessment matrix (RCAM).*** § A matrix allowing the assessment of the runway condition code, using associated procedures, from a set of observed runway surface condition(s) and pilot report of braking action. -- § Applicable as of 4 November 2021.	nil	Not Applicable	nil	To be considered for implementation date of 5 November 2020.
Chapter 1 Reference **Definition**	***Runway condition code (RWYCC).*** § A number describing the runway surface condition to be used in the runway condition report. *Note.— The purpose of the runway condition code is to permit an operational aeroplane performance calculation by the flight crew. Procedures for the determination of the runway condition code are described in the PANS-Aerodromes (Doc 9981).* -- § Applicable as of 4 November 2021.	nil	Not Applicable	nil	To be considered for implementation date of 5 November 2020.
Chapter 1 Reference **Definition**	***Runway condition report (RCR).*** § A comprehensive standardized report relating to runway surface condition(s) and its effect on the aeroplane landing and take-off performance. -- § Applicable as of 4 November 2021.	nil	Not Applicable	nil	To be considered for implementation date of 5 November 2020.
Chapter 1 Reference **Definition**	***Runway end safety area (RESA).*** An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.	CAR Part 1.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Runway guard lights.*** A light system intended to caution pilots or vehicle drivers that they are about to enter an active runway.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Runway-holding position.*** A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower. *Note.— In radiotelephony phraseologies, the expression "holding point" is used to designate the runway-holding position.*	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Runway strip.*** A defined area including the runway and stopway, if provided, intended: a) to reduce the risk of damage to aircraft running off a runway; and b) to protect aircraft flying over it during take-off or landing operations.	CAR Part 1.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Runway surface condition(s)***. §A description of the condition(s) of the runway surface used in the runway condition report which establishes the basis for the determination of the runway condition code for aeroplane performance purposes. *Note 1.— The runway surface conditions used in the runway condition report establish the performance requirements between the aerodrome operator, aeroplane manufacturer and aeroplane operator.* *Note 2.— Aircraft de-icing chemicals and other contaminants are also reported but are not included in the list of runway surface condition descriptors because their effect on runway surface friction characteristics and the runway condition code cannot be evaluated in a standardized manner.* *Note 3.— Procedures on determining runway surface conditions are available in the PANS-Aerodromes (Doc 9981).* a) *Dry runway*. A runway is considered dry if its surface is free of visible moisture and not contaminated within the area intended to be used. b) *Wet runway*. The runway surface is covered by any visible dampness or water up to and including 3 mm deep within the intended area of use. c) *Slippery wet runway*. A wet runway where the surface friction characteristics of a significant portion of the runway have been determined to be degraded.	nil	Not Applicable	nil	To be considered for implementation date of 5 November 2020.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	d) *Contaminated runway*. A runway is contaminated when a significant portion of the runway surface area (whether in isolated areas or not) within the length and width being used is covered by one or more of the substances listed in the runway surface condition descriptors. *Note.— Procedures on determination of contaminant coverage on runway are available in the PANS-Aerodromes (Doc 9981).* e) *Runway surface condition descriptors*. One of the following elements on the surface of the runway: *Note.— The descriptions for e) i) to viii) are used solely in the context of the runway condition report and are not intended to supersede or replace any existing WMO definitions.* i) *Compacted snow*. Snow that has been compacted into a solid mass such that aeroplane tires, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface. ii) *Dry snow*. Snow from which a snowball cannot readily be made. iii) *Frost*. Frost consists of ice crystals formed from airborne moisture on a surface whose temperature is below freezing. Frost differs from ice in that the frost crystals grow independently and therefore have a more				

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	granular texture. *Note 1.— Below freezing refers to air temperature equal to or less than the freezing point of water (0 degree Celsius).* *Note 2.— Under certain conditions frost can cause the surface to become very slippery and it is then reported appropriately as reduced braking action.* iv) *Ice*. Water that has frozen or compacted snow that has transitioned into ice, in cold and dry conditions. v) *Slush*. Snow that is so water-saturated that water will drain from it when a handful is picked up or will splatter if stepped on forcefully. vi) *Standing water*. Water of depth greater than 3 mm. *Note.— Running water of depth greater than 3 mm is reported as standing water by convention.* vii) *Wet ice*. Ice with water on top of it or ice that is melting. *Note.— Freezing precipitation can lead to runway conditions associated with wet ice from an aeroplane performance point of view. Wet ice can cause the surface to become very slippery. It is then reported appropriately as reduced braking action*				

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	in line with procedures in the PANS-Aerodromes (Doc 9981). viii) *Wet snow*. Snow that contains enough water content to be able to make a well-compacted, solid snowball, but water will not squeeze out. -- § Applicable as of 4 November 2021.				
Chapter 1 Reference **Definition**	***Runway turn pad.*** A defined area on a land aerodrome adjacent to a runway for the purpose of completing a 180-degree turn on a runway.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Runway visual range (RVR).*** The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.	CAR Part 1.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Safety management system (SMS).*** A systematic approach to managing safety including the necessary organizational structure, accountabilities, policies and procedures.	AC100-1 contains the definition; CAR Part 100, Safety Management, sets out the requirement.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Segregated parallel operations.*** Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Shoulder.*** An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Sign.*** a) *Fixed message sign*. A sign presenting only one message. b) *Variable message sign*. A sign capable of presenting several predetermined messages or no message, as applicable.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Signal area.*** An area on an aerodrome used for the display of ground signals.	nil	Not Applicable	nil	No longer used in New Zealand.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Slush.*** *†* Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8. *Note.— Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.* --- † Applicable until 3 November 2021.	CARs.	Less protective or partially implemented or not implemented	Not specifically defined.	See AC139-3, 4.2.2.
Chapter 1 Reference **Definition**	***Snow (on the ground).***† a) *Dry snow.* Snow which can be blown if loose or, if compacted by hand, will fall apart again upon release; specific gravity: up to but not including 0.35. b) *Wet snow.* Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5. c) *Compacted snow.* Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over. --- † Applicable until 3 November 2021.	CARs.	Less protective or partially implemented or not implemented	Not defined to this level of detail.	

Report on entire Annex

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Station declination.*** An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.	CARs.	Less protective or partially implemented or not implemented	Not defined in CARs.	
Chapter 1 Reference **Definition**	***Stopway.*** A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.	CAR Part 1.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Switch-over time (light).*** The time required for the actual intensity of a light measured in a given direction to fall from 50 per cent and recover to 50 per cent during a power supply changeover, when the light is being operated at intensities of 25 per cent or above.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Take-off runway.*** A runway intended for take-off only.	CARs.	Less protective or partially implemented or not implemented	Not specifically defined in CARs.	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Taxiway.*** A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including: a) *Aircraft stand taxilane.* A portion of an apron designated as a taxiway and intended to provide access to aircraft stands only. b) *Apron taxiway.* A portion of a taxiway system located on an apron and intended to provide a through taxi-route across the apron. c) *Rapid exit taxiway.* A taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimizing runway occupancy times.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Taxiway intersection.*** A junction of two or more taxiways.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Taxiway strip.*** An area including a taxiway intended to protect an aircraft operating on the taxiway and to reduce the risk of damage to an aircraft accidentally running off the taxiway.	AC139-6, 1.3.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **Definition**	***Threshold.*** The beginning of that portion of the runway usable for landing.	AC139-6, 1.3.	No Difference	nil	Note: CAR Parts 121, 125 and 135 define Threshold as "that point where a 1:20 obstacle-free approach surface intersects the runway surface".
Chapter 1 Reference **Definition**	***Touchdown zone.*** The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **Definition**	***Usability factor.*** The percentage of time during which the use of a runway or system of runways is not restricted because of the crosswind component. *Note.— Crosswind component means the surface wind component at right angles to the runway centre line.*	AC139-6, 1.3.	No Difference	nil	nil
Chapter 1 Reference **1.2.1** **Standard**	**1.2 Applicability** 1.2.1 The interpretation of some of the specifications in the Annex expressly requires the exercising of discretion, the taking of a decision or the performance of a function by the appropriate authority. In other specifications, the expression appropriate authority does not actually appear although its inclusion is implied. In both cases, the responsibility for whatever determination or action is necessary shall rest with the State having jurisdiction over the aerodrome.	CAR Part 139.	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.2.2** **Standard**	1.2.2 The specifications, unless otherwise indicated in a particular context, shall apply to all aerodromes open to public use in accordance with the requirements of Article 15 of the Convention. The specifications of Annex 14, Volume I, Chapter 3, shall apply only to land aerodromes. The specifications in this volume shall apply, where appropriate, to heliports but shall not apply to stolports. *Note.— Although there are at present no specifications relating to stolports, it is intended that specifications for these aerodromes will be included as they are developed. In the interim, guidance material on stolports is given in the* Stolport Manual *(Doc 9150)*.	CAR 139.5.	Less protective or partially implemented or not implemented	Only aerodromes used for regular air transport operations by aircraft with more than 30 passenger seats are required to be certificated.	
Chapter 1 Reference **1.2.3** **Standard**	1.2.3 Wherever a colour is referred to in this Annex, the specifications for that colour given in Appendix 1 shall apply.	CARs.	Less protective or partially implemented or not implemented	Not specifically mandated in CARs.	
Chapter 1 Reference **1.3.1** **Standard**	**1.3 Common reference systems** 1.3.1 Horizontal reference system World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system. Reported aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum. *Note.— Comprehensive guidance material concerning WGS-84 is contained in the* World Geodetic System — 1984 (WGS-84) Manual *(Doc 9674).*	AIPNZ GEN 2.1, 3.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 1 Reference **1.3.2** **Standard**	1.3.2 Vertical reference system Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system. *Note 1.— The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.* *Note 2.— Gravity-related heights (elevations) are also referred to as orthometric heights while distances of points above the ellipsoid are referred to as ellipsoidal heights.*	CAR Part 1.	No Difference		See definitions "altitude" and "elevation" for application of datum.
Chapter 1 Reference **1.3.3.1** **Standard**	1.3.3 Temporal reference system 1.3.3.1 The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system.	AIPNZ GEN 2.1, 2.	No Difference		Use of UTC implies use of Gregorian Calendar.
Chapter 1 Reference **1.3.3.2** **Standard**	1.3.3.2 When a different temporal reference system is used, this shall be indicated in GEN 2.1.2 of the Aeronautical Information Publication (AIP). *Note.— See PANS-AIM (Doc 10066), Appendix 2.*		Not Applicable		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.4.1** **Standard**	**1.4 Certification of aerodromes** *Note.— The intent of these specifications is to ensure the establishment of a regulatory regime so that compliance with the specifications in this Annex can be effectively enforced. It is recognized that the methods of ownership, operation and surveillance of aerodromes differ among States. The most effective and transparent means of ensuring compliance with applicable specifications is the availability of a separate safety oversight entity and a well-defined safety oversight mechanism with support of appropriate legislation to be able to carry out the function of safety regulation of aerodromes. When an aerodrome is granted a certificate, it signifies to aircraft operators and other organizations operating on the aerodrome that, at the time of certification, the aerodrome meets the specifications regarding the facility and its operation, and that it has, according to the certifying authority, the capability to maintain these specifications for the period of validity of the certificate. The certification process also establishes the baseline for continued monitoring of compliance with the specifications. Information on the status of certification of aerodromes would need to be provided to the appropriate aeronautical information services for promulgation in the Aeronautical Information Publication (AIP). See 2.13.1 and PANS-AIM (Doc 10066), Appendix 2, AD 1.5.* 1.4.1 States shall certify aerodromes used for international operations in accordance with the specifications contained in this Annex as well as other relevant ICAO specifications through an appropriate regulatory framework. *Note.— Specific procedures on the stages of certifying an aerodrome are given in the PANS-Aerodromes (Doc 9981). Further guidance on aerodrome certification can be found in the* Manual on Certification of Aerodromes *(Doc 9774).*	CAR Part 139.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.4.2** **Recommendation**	1.4.2 **Recommendation.—** *States should certify aerodromes open to public use in accordance with these specifications as well as other relevant ICAO specifications through an appropriate regulatory framework*.	CAR Part 139.	Less protective or partially implemented or not implemented	Only aerodromes used for regular air transport operations by aircraft with more than 30 passenger seats are required to be certificated.	
Chapter 1 Reference **1.4.3** **Standard**	1.4.3 The regulatory framework shall include the establishment of criteria and procedures for the certification of aerodromes. *Note.— Guidance on a regulatory framework is given in the* Manual on Certification of Aerodromes *(Doc 9774).*	CAR Part 139 Subpart B.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.4.4** **Standard**	1.4.4 As part of the certification process, States shall ensure that an aerodrome manual which will include all pertinent information on the aerodrome site, facilities, services, equipment, operating procedures, organization and management including a safety management system, is submitted by the applicant for approval/acceptance prior to granting the aerodrome certificate. *Note 1.— Contents of an aerodrome manual, including procedures for its submission and approval/acceptance, verification of compliance and granting of an aerodrome certificate, are available in the PANS-Aerodromes (Doc 9981).* *Note 2.— The intent of a safety management system is to have in place an organized and orderly approach in the management of aerodrome safety by the aerodrome operator. Annex 19 —* Safety Management *contains the safety management provisions applicable to certified aerodromes. Overarching guidance on safety management systems is provided in the* Safety Management Manual (SMM) *(Doc 9859) and in the* Manual on Certification of Aerodromes *(Doc 9774). Procedures on the management of change, conduct of safety assessment, reporting and analyses of safety occurrences at aerodromes, runway safety, and continuous monitoring to enforce compliance with applicable specifications so that hazards are identified and risks are assessed and mitigated, are specified in the PANS-Aerodromes (Doc 9981).*	CAR 139.77.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.5.1** **Standard**	**1.5 Airport design** *Applicable until 2 November 2022* 1.5.1 Architectural and infrastructure-related requirements for the optimum implementation of international civil aviation security measures shall be integrated into the design and construction of new facilities and alterations to existing facilities at an aerodrome. *Note.— Guidance on all aspects of the planning of aerodromes including security considerations is contained in the* Airport Planning Manual *(Doc 9184), Part 1.*	CAR 139.203.	Less protective or partially implemented or not implemented	Not specified in these terms.	NIL
Chapter 1 Reference **1.5.2** **Recommendation**	1.5.2 **Recommendation.—** *The design of aerodromes should take into account, where appropriate, land-use and environmental control measures.* *Note.— Guidance on land-use planning and environmental control measures is contained in the* Airport Planning Manual *(Doc 9184), Part 2.*	CAR 139.71.	Less protective or partially implemented or not implemented	Rule provides for environmental management programme to minimise or eliminate wildlife hazards.	Note: Resource Management Act 1991 also has some application.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.5.1** **Recommendation**	***1.5* Airport design and master plan** *Applicable as of 3 November 2022* *Introductory Note.— A master plan for the long-term development of an aerodrome conveys the ultimate development in a phased manner and reports the data and logic upon which the plan is based. Master plans are prepared to support modernization of existing aerodromes and creation of new aerodromes, regardless of size, complexity or role. It is important to note that a master plan does not constitute a confirmed implementation programme. It provides information on the types of improvements to be undertaken in a phased manner. Guidance on all aspects of the planning of aerodromes is contained in the* Airport Planning Manual *(Doc 9184), Part 1.* *1.5.1* **Recommendation.—** *A master plan containing detailed plans for the development of aerodrome infrastructure should be established for aerodromes deemed relevant by States.* *Note 1.— A master plan represents the development plan of a specific aerodrome . It is developed by the aerodrome operator based on economic feasibility, traffic forecasts, and current and future requirements provided by, among others, aircraft operators (see 1.5.3).* *Note 2.— A master plan may be required when the lack of capacity at an airport, due to conditions such as, but not limited to expected traffic growth, changing weather and climatic conditions or major works to address safety or environmental concerns, would put the connectivity of a geographical area at risk or cause severe disruption to the air transport network.*	nil	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.5.2** **Recommendation**	*1.5.2* **Recommendation.—** *The master plan should:* *a) contain a schedule of priorities including a phased implementation plan; and* *b) be reviewed periodically to take into account current and future aerodrome traffic.*	NIL	No Difference	NIL	NIL
Chapter 1 Reference **1.5.3** **Recommendation**	*1.5.3* **Recommendation.—** *Aerodrome stakeholders, particularly aircraft operators, should be consulted in order to facilitate the master planning process using a consultative and collaborative approach.* *Note 1.— Provision of advanced planning data to facilitate the planning process includes future aircraft types, characteristics and numbers of aircraft expected to be used, anticipated growth of aircraft movements, and number of passengers and amount of cargo projected to be handled.* *Note 2.— See Annex 9, Chapter 6 on the need for aircraft operators to inform aerodrome operators concerning the former's service, schedule and fleet plans to enable rational planning of facilities and services in relation to the traffic anticipated.* *Note 3.— See* ICAO's Policies on Charges for Airports and Air Navigation Services *(Doc 9082), Section 1, regarding consultation with users concerning provision of advance planning data and protection of commercially sensitive data.*	NIL	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.5.4** **Standard**	*1.5.4* Architectural and infrastructure-related requirements for the optimum implementation of international civil aviation security measures shall be integrated into the design and construction of new facilities and alterations to existing facilities at an aerodrome.	NIL	No Difference	NIL	NIL
Chapter 1 Reference **1.5.5** **Recommendation**	*1.5.5* **Recommendation.—** *The design of aerodromes should take into account land-use and environmental control measures.* *Note.— Guidance on land-use planning and environmental control measures is contained in the* Airport Planning Manual *(Doc 9184), Part 2.*	NIL	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.6.1** **Standard**	**1.6 Aerodrome reference code** *Introductory Note.— The intent of the reference code is to provide a simple method for interrelating the numerous specifications concerning the characteristics of aerodromes so as to provide a series of aerodrome facilities that are suitable for the aeroplanes that are intended to operate at the aerodrome. The code is not intended to be used for determining runway length or pavement strength requirements. The code is composed of two elements which are related to the aeroplane performance characteristics and dimensions. Element 1 is a number based on the aeroplane reference field length and element 2 is a letter based on the aeroplane wingspan. The code letter or number within an element selected for design purposes is related to the critical aeroplane characteristics for which the facility is provided. When applying Annex 14, Volume I, first identify the aeroplanes which the aerodrome is intended to serve and then determine the two elements of the code.* 1.6.1 An aerodrome reference code — code number and letter — which is selected for aerodrome planning purposes shall be determined in accordance with the characteristics of the aeroplane for which an aerodrome facility is intended.	CAR Part 139, Appendix B.	No Difference		
Chapter 1 Reference **1.6.2** **Standard**	1.6.2 The aerodrome reference code numbers and letters shall have the meanings assigned to them in Table 1-1.	CAR Part 139, Appendix B.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.6.3** **Standard**	1.6.3 The code number for element 1 shall be determined from Table 1-1 selecting the code number corresponding to the highest value of the aeroplane reference field lengths of the aeroplanes for which the runway is intended. *Note 1.— The determination of the aeroplane reference field length is solely for the selection of a code number and is not intended to influence the actual runway length provided.* *Note 2.— Guidance on determining the runway length is given in the* Aerodrome Design Manual *(Doc 9157), Part 1.*	CAR Part 139, Appendix B.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.6.4** **Standard**	1.6.4 The code letter for element 2 shall be determined from Table 1-1 by selecting the code letter which corresponds to the greatest wingspan of the aeroplanes for which the facility is intended. *Note.— Guidance on determining the aerodrome reference code is given in the* Aerodrome Design Manual *(Doc 9157), Parts 1 and 2.* **Table 1-1. Aerodrome reference code** *(see 1.6.2 to 1.6.4)* *Note 1.— Guidance on planning for aeroplanes with wingspans greater than 80 m is given in the* Aerodrome Design Manual *(Doc 9157), Parts 1 and 2.* *Note 2.— Procedures on conducting an aerodrome compatibility study to accommodate aeroplanes with folding wing tips spanning two code letters are given in the PANS-Aerodromes (Doc 9981). Further guidance can be found in the manufacturer's manual on aircraft characteristics for airport planning.*	CAR Part 139, Appendix B.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.7.1** **Standard**	**1.7 Specific procedures for aerodrome operations** *Introductory Note.— This section introduces PANS-Aerodromes (Doc 9981) for use by an aerodrome undertaking an assessment of its compatibility with the type of traffic or operation it is intending to accommodate. The material in the PANS-Aerodromes addresses operational issues faced by existing aerodromes and provides the necessary procedures to ensure the continued safety of operations. Where alternative measures, operational procedures and operating restrictions have been developed, these are detailed in the aerodrome manual and reviewed periodically to assess their continued validity. The PANS-Aerodromes does not substitute nor circumvent the provisions contained in this Annex. It is expected that infrastructure on an existing aerodrome or a new aerodrome will fully comply with the requirements in this Annex. See Annex 15, 5.2.2 c) on a State's responsibilities for the listing of its differences to the related ICAO Procedures in its Aeronautical Information Publication.* 1.7.1 When the aerodrome accommodates an aeroplane that exceeds the certificated characteristics of the aerodrome, the compatibility between the operation of the aeroplane and aerodrome infrastructure and operations shall be assessed and appropriate measures developed and implemented in order to maintain an acceptable level of safety during operations. *Note.— Procedures to assess the compatibility of the operation of a new aeroplane with an existing aerodrome can be found in the PANS-Aerodromes (Doc 9981).*	CAR 139.131.	Different in character or other means of compliance	Although not specifically mentioned in the rule, this would be a trigger for an aeronautical study required by the rule.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 1 Reference **1.7.2** **Standard**	1.7.2 Information concerning alternative measures, operational procedures and operating restrictions implemented at an aerodrome arising from 1.7.1 shall be promulgated. *Note 1.— See PANS-AIM (Doc 10066), Appendix 2, AD 2.20, on the provision of a detailed description of local traffic regulations.* *Note 2.— See PANS-Aerodromes (Doc 9981), Chapter 3, section 3.6, on promulgation of safety information.*	CARs 139.73 and 139.131.	No Difference		Rule 139.73 requires notification of aerodrome data and information to the AIS provider; and rule 139.131(c)(2) requires that the results of an aeronautical study be provided to the Director.
Chapter 2 Reference **2.1.1** **Standard**	**CHAPTER 2. AERODROME DATA** **2.1 Aeronautical data** 2.1.1 Determination and reporting of aerodrome-related aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-users of aeronautical data. *Note.— Specifications concerning the accuracy and integrity classification related to aerodrome-related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.*	CARs.	Less protective or partially implemented or not implemented	Not specified in CARs.	

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Chapter 2 Reference **2.1.2** **Recommendation**	2.1.2 **Recommendation.—** *Aerodrome mapping data should be made available to the aeronautical information services for aerodromes deemed relevant by States where safety and/or performance-based operations suggest possible benefits.* *Note 1.— Aerodrome mapping databases related provisions are contained in Annex 15, Chapter 5 and PANS-AIM (Doc 10066), Chapter 5.* *Note 2.— Guidance material concerning the application of aerodrome mapping databases is provided in Attachment A, Section 23.*	CARs.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 2 Reference **2.1.3** **Standard**	2.1.3 Where made available in accordance with 2.1.2, the selection of the aerodrome mapping data features to be collected shall be made with consideration of the intended applications. *Note 1.— It is intended that the selection of the features to be collected match a defined operational need.* *Note 2.— Aerodrome mapping databases can be provided at one of two levels of quality — fine or medium. These levels and the corresponding numerical requirements are defined in RTCA Document DO-272B and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-99C —* User Requirements for Aerodrome Mapping Information.	CARs.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.1.4** **Standard**	2.1.4 Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets. *Note.— Detailed specifications concerning digital data error detection techniques are contained in PANS-AIM (Doc 10066).*	CARs.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 2 Reference **2.2.1** **Standard**	**2.2 Aerodrome reference point** 2.2.1 An aerodrome reference point shall be established for an aerodrome.	AC139-6, 2.1.1.	No Difference		
Chapter 2 Reference **2.2.2** **Standard**	2.2.2 The aerodrome reference point shall be located near the initial or planned geometric centre of the aerodrome and shall normally remain where first established.	AC139-6, 2.1.2.	No Difference		
Chapter 2 Reference **2.2.3** **Standard**	2.2.3 The position of the aerodrome reference point shall be measured and reported to the aeronautical information services authority in degrees, minutes and seconds.	AC139-6, 2.1.3.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.3.1** **Standard**	**2.3 Aerodrome and runway elevations** 2.3.1 The aerodrome elevation and geoid undulation at the aerodrome elevation position shall be measured to the accuracy of one-half metre or foot and reported to the aeronautical information services authority.	AC139-6, 2.2.1.	No Difference		
Chapter 2 Reference **2.3.2** **Standard**	2.3.2 For an aerodrome used by international civil aviation for non-precision approaches, the elevation and geoid undulation of each threshold, the elevation of the runway end and any significant high and low intermediate points along the runway shall be measured to the accuracy of one-half metre or foot and reported to the aeronautical information services authority.	AC139-6, 2.2.2.	No Difference		
Chapter 2 Reference **2.3.3** **Standard**	2.3.3 For precision approach runway, the elevation and geoid undulation of the threshold, the elevation of the runway end and the highest elevation of the touchdown zone shall be measured to the accuracy of one-quarter metre or foot and reported to the aeronautical information services authority. *Note.— Geoid undulation must be measured in accordance with the appropriate system of coordinates.*	AC139-6, 2.2.2.	No Difference		
Chapter 2 Reference **2.4.1** **Standard**	**2.4 Aerodrome reference temperature** 2.4.1 An aerodrome reference temperature shall be determined for an aerodrome in degrees Celsius.	AC139-6, 2.3.1.	No Difference		

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Chapter 2 Reference **2.4.2** **Recommendation**	2.4.2 **Recommendation.—** *The aerodrome reference temperature should be the monthly mean of the daily maximum temperatures for the hottest month of the year (the hottest month being that which has the highest monthly mean temperature). This temperature should be averaged over a period of years.*	AC139-6, 2.3.2.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.5.1** **Standard**	**2.5 Aerodrome dimensions and related information** 2.5.1 The following data shall be measured or described, as appropriate, for each facility provided on an aerodrome: a) runway — true bearing to one-hundredth of a degree, designation number, length, width, displaced threshold location to the nearest metre or foot, slope, surface type, type of runway and, for a precision approach runway category I, the existence of an obstacle free zone when provided; b) strip runway end safety area length, width to the nearest metre or stopway foot, surface type; and arresting system — location (which runway end) and description; c) taxiway — designation, width, surface type; d) apron — surface type, aircraft stands; e) the boundaries of the air traffic control service; f) clearway — length to the nearest metre or foot, ground profile; g) visual aids for approach procedures, marking and lighting of runways, taxiways and aprons, other visual guidance and control aids on taxiways and aprons, including taxi-holding positions and stopbars, and location and type of visual docking guidance systems; h) location and radio frequency of any VOR aerodrome checkpoint;	AC139-6, 2.4.1.	No Difference		Note: b) arresting system not applicable.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	i) location and designation of standard taxi-routes; and j) distances to the nearest metre or foot of localizer and glide path elements comprising an instrument landing system (ILS) or azimuth and elevation antenna of a microwave landing system (MLS) in relation to the associated runway extremities.				
Chapter 2 Reference **2.5.2** **Standard**	2.5.2 The geographical coordinates of each threshold shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and hundredths of seconds.	AC139-6, 2.4.2.	Less protective or partially implemented or not implemented	Measured to the nearest second only.	
Chapter 2 Reference **2.5.3** **Standard**	2.5.3 The geographical coordinates of appropriate taxiway centre line points shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and hundredths of seconds.	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 2 Reference **2.5.4** **Standard**	2.5.4 The geographical coordinates of each aircraft stand shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and hundredths of seconds.	AC139-6, 2.4.3.	No Difference		Although AC139-6 specifies the position to at least one-tenth of a minute, published coordinates meet the Standard.

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Chapter 2 Reference **2.5.5** **Standard**	2.5.5 The geographical coordinates of obstacles in Area 2 (the part within the aerodrome boundary) and in Area 3 shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and tenths of seconds. In addition, the top elevation, type, marking and lighting (if any) of obstacles shall be reported to the aeronautical information services authority. *Note.— PANS-AIM (Doc 10066), Appendix 8, provides requirements for obstacle data determination in Areas 2 and 3.*	AC139-9, 7 and Appendix 3.	No Difference		
Chapter 2 Reference **2.6.1** **Standard**	**2.6 Strength of pavements** *Applicable until 27 November 2024.* 2.6.1 The bearing strength of a pavement shall be determined.	AC139-6, 2.5.1.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.6.2** **Standard**	2.6.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification number-pavement classification number (ACN-PCN) method by reporting all of the following information: a) pavement classification number (PCN); b) pavement type for ACN-PCN determination; c) subgrade strength category; d) maximum allowable tire pressure category or maximum allowable tire pressure value; and e) evaluation method. *Note.— If necessary, PCNs may be published to an accuracy of one-tenth of a whole number.*	AC139-6, 2.5.2.	No Difference	NIL	NIL
Chapter 2 Reference **2.6.3** **Standard**	2.6.3 The PCN reported shall indicate that aircraft with an aircraft classification number (ACN) equal to or less than the reported PCN can operate on the pavement subject to any limitation on the tire pressure or aircraft all-up mass for specified aircraft type(s). *Note.— Different PCNs may be reported if the strength of the pavement is subject to significant seasonal variation.*	AC139-6, 2.5.3.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.6.4** **Standard**	2.6.4 The ACN of an aircraft shall be determined in accordance with the standard procedures associated with the ACN-PCN method. *Note.— The standard procedures for determining the ACN of an aircraft are given in the* Aerodrome Design Manual *(Doc 9157), Part 3. For convenience, several aircraft types currently in use have been evaluated on rigid and flexible pavements founded on the four subgrade categories in 2.6.6 b) below and the results tabulated in that manual.*	AC139-6, 2.5.4.	No Difference	NIL	NIL
Chapter 2 Reference **2.6.5** **Standard**	2.6.5 For the purposes of determining the ACN, the behaviour of a pavement shall be classified as equivalent to a rigid or flexible construction.	AC139-6, 2.5.5.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.6.6** **Standard**	2.6.6 Information on pavement type for ACN-PCN determination, subgrade strength category, maximum allowable tire pressure category and evaluation method shall be reported using the following codes: a) *Pavement type for ACN-PCN determination:* b) *Subgrade strength category:* c) *Maximum allowable tire pressure category:* d) *Evaluation method:* *Note.— The following examples illustrate how pavement strength data are reported under the ACN-PCN method.* *Example 1.—* If the bearing strength of a rigid pavement, resting on a medium-strength subgrade, has been assessed by technical evaluation to be PCN 80 and there is no tire pressure limitation, then the reported information would be: PCN 80 / R / B / W / T *Example 2.—* If the bearing strength of a composite pavement, behaving like a flexible pavement and resting on a high-strength subgrade, has been assessed by using aircraft experience to be PCN 50 and the maximum allowable tire pressure is 1.25 MPa, then the reported information would be: PCN 50 / F / A / Y / U *Note.— Composite construction.* *Example 3.—* If the bearing strength of a flexible pavement, resting on a medium strength subgrade, has been assessed by technical evaluation to be PCN 40 and the	AC139-6, 2.5.6.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	maximum allowable tire pressure is 0.80 MPa, then the reported information would be: PCN 40 / F / B / 0.80 MPa /T *Example 4.—* If a pavement is subject to a B747-400 all-up mass limitation of 390 000 kg, then the reported information would include the following note. *Note.— The reported PCN is subject to a B747-400 all-up mass limitation of 390 000 kg.*				
Chapter 2 Reference **2.6.7** **Recommendation**	2.6.7 **Recommendation.—** *Criteria should be established to regulate the use of a pavement by an aircraft with an ACN higher than the PCN reported for that pavement in accordance with 2.6.2 and 2.6.3.* *Note.— Attachment A, Section 20, details a simple method for regulating overload operations while the* Aerodrome Design Manual *(Doc 9157), Part 3, includes the descriptions of more detailed procedures for evaluation of pavements and their suitability for restricted overload operations.*	AC139-6, 2.5.7.	No Difference	NIL	NIL
Chapter 2 Reference **2.6.8** **Standard**	2.6.8 The bearing strength of a pavement intended for aircraft of apron (ramp) mass equal to or less than 5 700 kg shall be made available by reporting the following information: a) maximum allowable aircraft mass; and b) maximum allowable tire pressure. *Example:* 4 000 kg/0.50 MPa	AC139-6, 2.5.8.	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.6.1** **Standard**	**2.6 Strength of pavements** *Applicable as of 28 November 2024.* 2.6.1 The bearing strength of a pavement shall be determined.	NIL	No Difference	NIL	NIL
Chapter 2 Reference **2.6.2** **Standard**	2.6.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification rating-pavement classification rating (ACR-PCR) method by reporting all of the following information: a) pavement classification rating (PCR) and numerical value; b) pavement type for ACR-PCR determination; c) subgrade strength category; d) maximum allowable tire pressure category or maximum allowable tire pressure value; and e) evaluation method. *Note.— Guidance on reporting and publishing of PCRs is contained in the* Aerodrome Design Manual *(Doc 9157, Part 3).*	nil	No Difference	nil	nil
Chapter 2 Reference **2.6.3** **Standard**	2.6.3 The PCR reported shall indicate that aircraft with an aircraft classification rating (ACR) equal to or less than the reported PCR may operate on the pavement subject to any limitation on the tire pressure or aircraft all-up mass for specified aircraft type(s). *Note.— Different PCRs may be reported if the strength of the pavement is subject to significant seasonal variation.*	nil	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.6.4** **Standard**	2.6.4 The ACR of an aircraft shall be determined in accordance with the standard procedures associated with the ACR-PCR method. *Note.— The standard procedures for determining the ACR of an aircraft are given in the* Aerodrome Design Manual *(Doc 9157), Part 3. For convenience, dedicated software is available on the ICAO website for computing any aircraft ACR at any mass on rigid and flexible pavements for the four standard subgrade strength categories detailed in 2.6.6 b) below.*	nil	No Difference	nil	nil
Chapter 2 Reference **2.6.5** **Standard**	2.6.5 For the purposes of determining the ACR, the behaviour of a pavement shall be classified as equivalent to a rigid or flexible construction.	nil	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.6.6** **Standard**	2.6.6 Information on pavement type for ACR-PCR determination, subgrade strength category, maximum allowable tire pressure category and evaluation method shall be reported using the following codes: a) *Pavement type for ACR-PCR determination:* b) *Subgrade strength category:* c) *Maximum allowable tire pressure category:* d) *Evaluation method:* *Note.— The following examples illustrate how pavement strength data are reported under the ACR-PCR method. Further guidance on this topic is contained in the* Aerodrome Design Manual *(Doc 9157), Part 3*. *Example 1.—* If the bearing strength of a rigid pavement, resting on a medium-strength subgrade, has been assessed by technical evaluation to be PCR 760 and there is no tire pressure limitation, then the reported information would be: PCR 760 / R / B / W / T *Example 2.—* If the bearing strength of a composite pavement, behaving like a flexible pavement and resting on a high-strength subgrade, has been assessed by using aircraft experience to be PCR 550 and the maximum allowable tire pressure is 1.25 MPa, then the reported information would be: PCR 550 / F / A / Y / U *Note.— Composite construction.*	nil	No Difference	nil	nil

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.6.7** **Recommendation**	2.6.7 **Recommendation.—** *Criteria should be established to regulate the use of a pavement by an aircraft with an ACR higher than the PCR reported for that pavement in accordance with 2.6.2 and 2.6.3.* *Note.— Attachment A, Section 20, details a simple method for regulating overload operations while the* Aerodrome Design Manual *(Doc 9157), Part 3, includes the descriptions of more detailed procedures for evaluation of pavements and their suitability for restricted overload operations.*	nil	No Difference	nil	nil
Chapter 2 Reference **2.6.8** **Standard**	2.6.8 The bearing strength of a pavement intended for aircraft of apron (ramp) mass equal to or less than 5 700 kg shall be made available by reporting the following information: a) maximum allowable aircraft mass; and b) maximum allowable tire pressure. *Example:* 4 800 kg/0.60 MPa.	nil	No Difference	nil	nil
Chapter 2 Reference **2.7.1** **Standard**	**2.7 Pre-flight altimeter check location** 2.7.1 One or more pre-flight altimeter check locations shall be established for an aerodrome.	AC139-6, 2.6.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.7.2** **Recommendation**	2.7.2 **Recommendation.—** *A pre-flight check location should be located on an apron.* *Note 1.— Locating a pre-flight altimeter check location on an apron enables an altimeter check to be made prior to obtaining taxi clearance and eliminates the need for stopping for that purpose after leaving the apron.* *Note 2.— Normally an entire apron can serve as a satisfactory altimeter check location.*	AC139-6, 2.6.2.	No Difference		
Chapter 2 Reference **2.7.3** **Standard**	2.7.3 The elevation of a pre-flight altimeter check location shall be given as the average elevation, rounded to the nearest metre or foot, of the area on which it is located. The elevation of any portion of a pre-flight altimeter check location shall be within 3 m (10 ft) of the average elevation for that location.	AC139-6, 2.6.3.	No Difference		
Chapter 2 Reference **2.8** **Standard**	**2.8 Declared distances** The following distances shall be calculated to the nearest metre or foot for a runway intended for use by international commercial air transport: a) take-off run available; b) take-off distance available; c) accelerate-stop distance available; and d) landing distance available. *Note.— Guidance on calculation of declared distances is given in Attachment A, Section 3.*	AC139-6, 2.7.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.9.1** **Standard**	**2.9 Condition of the movement area and related facilities** 2.9.1 Information on the condition of the movement area and the operational status of related facilities shall be provided to the appropriate aeronautical information services units, and similar information of operational significance to the air traffic services units, to enable those units to provide the necessary information to arriving and departing aircraft. The information shall be kept up to date and changes in conditions reported without delay. *Note.— The nature, format and conditions of the information to be provided are specified in the PANS-AIM (Doc 10066) and the PANS-ATM (Doc 4444). Specific procedures pertaining to works in progress on the movement area and to the reporting of such works are included in the PANS-Aerodromes (Doc 9981).*	CAR 139.123; AC139-3.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.9.2** **Standard**	2.9.2 The condition of the movement area and the operational status of related facilities shall be monitored, and reports on matters of operational significance affecting aircraft and aerodrome operations shall be provided in order to take appropriate action, particularly in respect of the following: a) construction or maintenance work; b) rough or broken surfaces on a runway, a taxiway or an apron; c) snow, slush, ice, or frost on a runway, a taxiway or an apron; [*applicable until 3 November 2021*] d) water on a runway, a taxiway or an apron; [*applicable until 3 November 2021*] e) anti-icing or de-icing liquid chemicals or other contaminants on a runway, taxiway or apron; f) snow banks or drifts adjacent to a runway, a taxiway or an apron; g) other temporary hazards, including parked aircraft; h) failure or irregular operation of part or all of the aerodrome visual aids; and i) failure of the normal or secondary power supply. *Note 1.— Until 3 November 2021, other contaminants may include mud, dust, sand, volcanic ash, oil and rubber. Annex 6, Part I —* International Commercial Air Transport — Aeroplanes, *Attachment C provides guidance on the description of runway surface conditions. Additional guidance is included in the* Airport Services Manual *(Doc*	CAR 139.117; 139.125; AC139-3.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	9137), Part 2. *Note 2. — Until 3 November 2021, particular attention would have to be given to the simultaneous presence of snow, slush, ice, wet ice, snow on ice with anti-icing or de-icing liquid chemicals.* *Note 3. — Until 3 November 2021, see 2.9.11 for a list of winter contaminants to be reported.*				

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.9.2** **Standard**	2.9.2 The condition of the movement area and the operational status of related facilities shall be monitored, and reports on matters of operational significance affecting aircraft and aerodrome operations shall be provided in order to take appropriate action, particularly in respect of the following: a) construction or maintenance work; b) rough or broken surfaces on a runway, a taxiway or an apron; *c)* water, snow, slush, ice, or frost on a runway, a taxiway or an apron; *[applicable 4 November 2021]* d) water on a runway, a taxiway or an apron; [*applicable until 3 November 2021*] e) anti-icing or de-icing liquid chemicals or other contaminants on a runway, taxiway or apron; f) snow banks or drifts adjacent to a runway, a taxiway or an apron; g) other temporary hazards, including parked aircraft; h) failure or irregular operation of part or all of the aerodrome visual aids; and i) failure of the normal or secondary power supply. *Note 1.— As of 4 November 2021, other contaminants may include mud, dust, sand, volcanic ash, oil and rubber. Procedures for monitoring and reporting the conditions of*	CAR 139.117; CAR 139.123; CAR 139.125; AC139-3.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	the movement area are included in the PANS-Aerodromes (Doc 9981). *Note 2.— As of 4 November 2021, the* Aeroplane Performance Manual *(Doc 10064) provides guidance on aircraft performance calculation requirements regarding the description of runway surface conditions in 2.9.2 c), e) and f).* *Note 3.— As of 4 November 2021, origin and evolution of data, assessment process and the procedures are prescribed in the PANS-Aerodromes (Doc 9981). These procedures are intended to fulfil the requirements to achieve the desired level of safety for aeroplane operations prescribed by Annex 6 and Annex 8 and to provide the information fulfilling the syntax requirements for dissemination specified in Annex 15, PANS-AIM (Doc 10066) and the PANS-ATM (Doc 4444).*				
Chapter 2 Reference **2.9.3** **Standard**	2.9.3 Until 3 November 2021, to facilitate compliance with 2.9.1 and 2.9.2, inspections of the movement area shall be carried out each day at least once where the code number is 1 or 2 and at least twice where the code number is 3 or 4. *Note.— Guidance on carrying out daily inspections of the movement area is given in the* Airport Services Manual *(Doc 9137), Part 8 and in the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476).*	AC139-3, 3.2 for a) and 4.2 for b).	Different in character or other means of compliance	The AC reference recommends two daily inspections, one before flight operations commence, and one at dusk when night operations are anticipated.	

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 2 Reference **2.9.3** **Standard**	*2.9.3* As of 4 November 2021, to facilitate compliance with 2.9.1 and 2.9.2, the following inspections shall be carried out each day: a) for the movement area, at least once where the aerodrome reference code number is 1 or 2 and at least twice where the aerodrome reference code number is 3 or 4; and b) for the runway(s), inspections in addition to a) whenever the runway surface conditions may have changed significantly due to meteorological conditions. *Note 1.— Procedures on carrying out daily inspections of the movement area are given in the PANS-Aerodromes (Doc 9981). Further guidance is available in the* Airport Services Manual *(Doc 9137), Part 8, in the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476) and in the* Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual *(Doc 9830).* *Note 2.— The PANS-Aerodromes (Doc 9981) contains clarifications on the scope of a significant change in the runway surface conditions.*	AC139-3, 3.2 for a) and 4.2 for b).	Different in character or other means of compliance	The AC reference recommends two daily inspections, one before flight operations commence, and one at dusk when night operations are anticipated.	
Chapter 2 Reference **2.9.4** **Recommendation**	2.9.4 **Recommendation.—** *Until 3 November 2021, personnel assessing and reporting runway surface conditions required in 2.9.2 and 2.9.8 should be trained and competent to meet criteria set by the State.* *Note.— Guidance on criteria is included in the* Airport Services Manual *(Doc 9137), Part 8, Chapter 7.*	CAR 139.55; AC139-3, 1.7.	No Difference		

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Chapter 2 Reference **2.9.4** **Standard**	*2.9.4* As of 4 November 2021, personnel assessing and reporting runway surface conditions required in 2.9.2 and 2.9.5 shall be trained and competent to perform their duties. *Note 1.— Guidance on training of personnel is given in Attachment A, Section 6 [applicable 4 November 2021].* *Note 2.— Information on training for personnel assessing and reporting runway surface conditions is available in the PANS-Aerodromes (Doc 9981).*	CAR 139.55; AC139-3, 1.7.	No Difference		
Chapter 2 Reference **2.9.5** **Recommendation**	***Water on a runway [applicable until 3 November 2021]*** 2.9.5 **Recommendation.—** *Whenever water is present on a runway, a description of the runway surface conditions should be made available using the following terms:* *DAMP — the surface shows a change of colour due to moisture.* *WET — the surface is soaked but there is no standing water.* *STANDING WATER — for aeroplane performance purposes, a runway where more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by water more than 3 mm deep.*	AC139-3, 4.2.2.	No Difference		
Chapter 2 Reference **2.9.6** **Standard**	2.9.6 Information that a runway or portion thereof may be slippery when wet shall be made available. *Note.— The determination that a runway or portion thereof may be slippery when wet is not based solely on the friction measurement obtained using a continuous friction measuring device. Supplementary tools to undertake this assessment are described in the* Airport Services Manual *(Doc 9137), Part 2.*	CAR 129.123.	No Difference		

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Chapter 2 Reference **2.9.7** **Standard**	2.9.7 Notification shall be given to aerodrome users when the friction level of a paved runway or portion thereof is less than that specified by the State in accordance with 10.2.3. *Note.— Guidance on conducting a runway surface friction characteristics evaluation programme that includes determining and expressing the minimum friction level is provided in Attachment A, Section 7.*	CAR 139;123; CAR 139.125.	No Difference		
Chapter 2 Reference **2.9.8** **Standard**	***Snow, slush, ice or frost on a runway [applicable until 3 November 2021]*** *Note 1.— The intent of these specifications is to satisfy the SNOWTAM and NOTAM promulgation requirements contained in Annex 15 and the PANS-AIM (Doc 10066).* *Note 2.— Runway surface condition sensors may be used to detect and continuously display current or predicted information on surface conditions such as the presence of moisture, or imminent formation of ice on pavements.* 2.9.8 Whenever an operational runway is contaminated by snow, slush, ice or frost, the runway surface condition shall be assessed and reported. *Note.— Guidance on assessment of snow- and ice-covered paved surfaces is provided in Attachment A, Section 6.*	CAR 139.123; CAR 139.125; AC139-3, 4.2.2.	No Difference		
Chapter 2 Reference **2.9.9** **Recommendation**	2.9.9 **Recommendation.—** *Runway surface friction measurements made on a runway that is contaminated by slush, wet snow or wet ice should not be reported unless the reliability of the measurement relevant to its operational use can be assured.* *Note.— Contaminant drag on the equipment's measuring wheel, amongst other factors, may cause readings obtained in these conditions to be unreliable.*	AC139.13.	Less protective or partially implemented or not implemented	Although the AC provides detailed guidance on runway surface friction measurement, it does nor specifically address this Recommendation..	

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Chapter 2 Reference **2.9.10** **Recommendation**	2.9.10 **Recommendation.—** *When friction measurements are taken as part of the assessment, the performance of the friction measuring device on compacted snow- or ice-covered surfaces should meet the standard and correlation criteria set or agreed by the State.* *Note.— Guidance on criteria for, and correlation between, friction measuring devices is included in the* Airport Services Manual *(Doc 9137), Part 2.*		Not Applicable		AC139-13 provides details on friction testing, and at 3.5, recommends that testing be done on a dry runway, but at 2.8 recommends testing following reports of poor braking action.
Chapter 2 Reference **2.9.11** **Recommendation**	2.9.11 **Recommendation.—** *Whenever snow, slush, ice or frost is present and reported, the description of the runway surface condition should use the following terms:* *DRY SNOW;* *WET SNOW;* *COMPACTED SNOW;* *WET COMPACTED SNOW;* *SLUSH;* *ICE;* *WET ICE;* *FROST;* *DRY SNOW ON ICE;* *WET SNOW ON ICE;* *CHEMICALLY TREATED;* *SANDED* *and should include, where applicable, the assessment of contaminant depth.*	AC139-3.	Less protective or partially implemented or not implemented	The description list in the AC has yet to be expanded to include these terms.	
Chapter 2 Reference **2.9.12** **Recommendation**	2.9.12 **Recommendation.—** *Whenever dry snow, wet snow or slush is present on a runway, an assessment of the mean depth over each third of the runway should be made to an accuracy of approximately 2 cm for dry snow, 1 cm for wet snow and 0.3 cm for slush.*	AC139-3, 4.2.2(b).	No Difference		

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Chapter 2 Reference **2.9.5** **Standard**	***Runway surface condition(s) for use in the runway condition report [applicable as of 4 November 2021]*** *Introductory Note.— The philosophy of the runway condition report is that the aerodrome operator assesses the runway surface conditions whenever water, snow, slush, ice or frost are present on an operational runway. From this assessment, a runway condition code (RWYCC) and a description of the runway surface are reported which can be used by the flight crew for aeroplane performance calculations. This report, based on the type, depth and coverage of contaminants, is the best assessment of the runway surface condition by the aerodrome operator; however, all other pertinent information may be taken into consideration. See Attachment A, Section 6, for further details. The PANS-Aerodromes (Doc 9981) contains procedures on the use of the runway condition report and assignment of the RWYCC in accordance with the runway condition assessment matrix (RCAM).* 2.9.5 The runway surface condition shall be assessed and reported through a runway condition code (RWYCC) and a description using the following terms: COMPACTED SNOW DRY DRY SNOW DRY SNOW ON TOP OF COMPACTED SNOW DRY SNOW ON TOP OF ICE FROST ICE SLUSH STANDING WATER WATER ON TOP OF COMPACTED SNOW WET WET ICE		Not Applicable		To be considered for implementation date of 5 November 2020. AC 139-3, 4.2 applies in the meantime.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	WET SNOW WET SNOW ON TOP OF COMPACTED SNOW WET SNOW ON TOP OF ICE CHEMICALLY TREATED LOOSE SAND *Note 1.— The runway surface conditions are those conditions for which, by means of the methods described in the PANS-Aerodromes (Doc 9981), the flight crew can derive appropriate aeroplane performance.* *Note 2.— The conditions, either singly or in combination with other observations, are criteria for which the effect on aeroplane performance is sufficiently deterministic to allow assignment of a specific runway condition code.* *Note 3.— The terms CHEMICALLY TREATED and LOOSE SAND do not appear in the aeroplane performance section but are used in the situational awareness section of the runway condition report.*				
Chapter 2 Reference **2.9.6** **Standard**	2.9.6 Whenever an operational runway is contaminated, an assessment of the contaminant depth and coverage over each third of the runway shall be made and reported. *Note.— Procedures on depth and coverage reporting are found in the PANS-Aerodromes (Doc 9981).*		Not Applicable		To be considered for implementation date of 5 November 2020. See AC 139-3, 4.2 in the meantime.
Chapter 2 Reference **2.9.7** **Standard**	2.9.7 When friction measurements are used as part of the overall runway surface assessment on compacted snow- or ice-covered surfaces, the friction measuring device shall meet the standard set or agreed by the State.		Not Applicable		To be considered for implementation date of 5 November 2020. See AC139-13 in the meantime.

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 2 Reference **2.9.8** **Recommendation**	2.9.8 **Recommendation.**— *Friction measurements made on runway surface conditions with contaminants other than compacted snow and ice should not be reported.* *Note.— Friction measurements on loose contaminants such as snow and slush, in particular, are unreliable due to drag effects on the measurement wheel.*		Not Applicable		To be considered for implementation date of 5 November 2020. See AC139-13 in the meantime.
Chapter 2 Reference **2.9.9** **Standard**	2.9.9 Information that a runway or portion thereof is slippery wet shall be made available. *Note 1.— The surface friction characteristics of a runway or a portion thereof can be degraded due to rubber deposits, surface polishing, poor drainage or other factors. The determination that a runway or portion thereof is slippery wet stems from various methods used solely or in combination. These methods may be functional friction measurements, using a continuous friction measuring device, that fall below a minimum standard as defined by the State, observations by aerodrome maintenance personnel, repeated reports by pilots and aircraft operators based on flight crew experience, or through analysis of aeroplane stopping performance that indicates a substandard surface. Supplementary tools to undertake this assessment are described in the PANS-Aerodromes (Doc 9981).* *Note 2.— See 2.9.1 and 2.13 concerning the provision of information to, and coordination between, appropriate authorities.*	AC139-3, 4.2.	No Difference		Although this Standard is not applicable until 5 November 2020, AC139-3, 4.2 applies in the meantime.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.9.10** **Standard**	2.9.10 Notification shall be given to relevant aerodrome users when the friction level of a paved runway or portion thereof is less than the minimum friction level specified by the State in accordance with 10.2.3. *Note 1.— Guidance on determining and expressing the minimum friction level is provided in* Assessment, Measurement and Reporting of Runway Surface Conditions *(Cir 329).* *Note 2.— Procedures on conducting a runway surface friction characteristics evaluation programme are provided in the PANS-Aerodromes (Doc 9981).* *Note 3.— Information to be promulgated in a NOTAM includes specifying which portion of the runway is below the minimum friction level and its location on the runway.*	AC139-13, 2.1.6.	No Difference		
Chapter 2 Reference **2.10.1** **Recommendation**	**2.10 Disabled aircraft removal** *Note.— See 9.3 for information on disabled aircraft removal services.* 2.10.1 **Recommendation.—** *The telephone/telex number(s) of the office of the aerodrome coordinator of operations for the removal of an aircraft disabled on or adjacent to the movement area should be made available, on request, to aircraft operators.*	AC139-6, 2.8.2.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.10.2** **Recommendation**	2.10.2 **Recommendation.—** *Information concerning the capability to remove an aircraft disabled on or adjacent to the movement area should be made available.* *Note.— The capability to remove a disabled aircraft may be expressed in terms of the largest type of aircraft which the aerodrome is equipped to remove.*	AC139-6, 2.8.1.	No Difference		
Chapter 2 Reference **2.11.1** **Standard**	**2.11 Rescue and firefighting** *Note.— See 9.2 for information on rescue and firefighting services.* 2.11.1 Information concerning the level of protection provided at an aerodrome for aircraft rescue and firefighting purposes shall be made available.	AC139-6, 2.9.1.	No Difference		
Chapter 2 Reference **2.11.2** **Recommendation**	2.11.2 **Recommendation.—** *The level of protection normally available at an aerodrome should be expressed in terms of the category of the rescue and firefighting services as described in 9.2 and in accordance with the types and amounts of extinguishing agents normally available at the aerodrome.*	CAR 139.59, 139.61.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.11.3** **Standard**	2.11.3 Changes in the level of protection normally available at an aerodrome for rescue and firefighting shall be notified to the appropriate air traffic services units and aeronautical information services units to enable those units to provide the necessary information to arriving and departing aircraft. When such a change has been corrected, the above units shall be advised accordingly. *Note.— Changes in the level of protection from that normally available at the aerodrome could result from a change in the availability of extinguishing agents, equipment to deliver the agents or personnel to operate the equipment, etc.*	AC139-6, 2.9.3.	No Difference		
Chapter 2 Reference **2.11.4** **Recommendation**	2.11.4 **Recommendation.—** *A change should be expressed in terms of the new category of the rescue and firefighting service available at the aerodrome.*	AC139-6, 2.9.4.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.12** **Standard**	**2.12 Visual approach slope indicator systems** The following information concerning a visual approach slope indicator system installation shall be made available: a) associated runway designation number; b) type of system according to 5.3.5.2. For an AT-VASIS, PAPI or APAPI installation, the side of the runway on which the lights are installed, i.e. left or right, shall be given; c) where the axis of the system is not parallel to the runway centre line, the angle of displacement and the direction of displacement, i.e. left or right, shall be indicated; d) nominal approach slope angle(s). For a T-VASIS or an AT-VASIS this shall be angle Θ according to the formula in Figure 5-18 and for a PAPI and an APAPI this shall be angle (B + C) ÷ 2 and (A + B) ÷ 2, respectively as in Figure 5-20; and e) minimum eye height(s) over the threshold of the on-slope signal(s). For a T-VASIS or an AT-VASIS this shall be the lowest height at which only the wing bar(s) are visible; however, the additional heights at which the wing bar(s) plus one, two or three fly-down light units come into view may also be reported if such information would be of benefit to aircraft using the approach. For a PAPI this shall be the setting angle of the third unit from the runway minus 2′, i.e. angle B minus 2′, and for an APAPI this shall be the setting angle of the unit farther from the runway minus 2′, i.e. angle A minus 2′.	AC 139-6, 2.10.	No Difference		

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Chapter 2 Reference **2.13.1** **Standard**	**2.13 Coordination between aeronautical information services and aerodrome authorities** 2.13.1 To ensure that aeronautical information services units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information, arrangements shall be made between aeronautical information services and aerodrome authorities responsible for aerodrome services to report to the responsible aeronautical information services unit, with a minimum of delay: a) information on the status of certification of aerodromes and aerodrome conditions (ref. 1.4, 2.9, 2.10, 2.11 and 2.12); b) the operational status of associated facilities, services and navigation aids within their area of responsibility; c) any other information considered to be of operational significance.	CAR 139.123.	No Difference		
Chapter 2 Reference **2.13.2** **Standard**	2.13.2 Before introducing changes to the air navigation system, due account shall be taken by the services responsible for such changes of the time needed by aeronautical information services for the preparation, production and issue of relevant material for promulgation. To ensure timely provision of the information to aeronautical information services, close coordination between those services concerned is therefore required.	AC139-9, 4.2.	Different in character or other means of compliance	The AC provides generalised requirements for the provision of data, accuracy and timeliness of delivery to the AIS provider.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.13.3** **Standard**	2.13.3 Of a particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the aeronautical information regulation and control (AIRAC) system, as specified in Annex 15, Chapter 6. The predetermined, internationally agreed AIRAC effective dates shall be observed by the responsible aerodrome services when submitting the raw information/data to aeronautical information services. *Note.— Detailed specifications concerning the AIRAC system are contained in PANS-AIM (Doc 10066), Chapter 6.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 2 Reference **2.13.4** **Standard**	2.13.4 The aerodrome services responsible for the provision of raw aeronautical information/data to the aeronautical information services shall do that while taking into account accuracy and integrity requirements necessary to meet the needs of the end-user of aeronautical data. *Note 1.— Specifications concerning the accuracy and integrity classification of aerodrome-related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.* *Note 2.— Specifications for the issue of NOTAM and SNOWTAM are contained in Annex 15, Chapter 6 and PANS-AIM (Doc 10066), Appendices 3 and 4, respectively.* *Note 3.— AIRAC information is distributed by the AIS at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.* *Note 4.— The schedule of the predetermined internationally agreed AIRAC common effective dates at intervals of 28 days and guidance for the AIRAC use are contained in the* Aeronautical Information Services Manual *(Doc 8126, Chapter 2).*	AC139-9, 4.2.	Different in character or other means of compliance	The AC is not as specific, but covers the Standard anyway.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.1** **Recommendation**	**CHAPTER 3. PHYSICAL CHARACTERISTICS** **3.1 Runways** ***Number and orientation of runways*** *Introductory Note.— Many factors affect the determination of the orientation, siting and number of runways.* *One important factor is the usability factor, as determined by the wind distribution, which is specified hereunder. Another important factor is the alignment of the runway to facilitate the provision of approaches conforming to the approach surface specifications of Chapter 4. In Attachment A, Section 1, information is given concerning these and other factors.* *When a new instrument runway is being located, particular attention needs to be given to areas over which aeroplanes will be required to fly when following instrument approach and missed approach procedures, so as to ensure that obstacles in these areas or other factors will not restrict the operation of the aeroplanes for which the runway is intended.* 3.1.1 **Recommendation.—** *The number and orientation of runways at an aerodrome should be such that the usability factor of the aerodrome is not less than 95 per cent for the aeroplanes that the aerodrome is intended to serve.*	AC139-6, 3.1.1.	No Difference		

Annex Reference	AERODROMES **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 3 Reference **3.1.2** **Recommendation**	3.1.2 **Recommendation.—** *The siting and orientation of runways at an aerodrome should, where possible, be such that the arrival and departure tracks minimize interference with areas approved for residential use and other noise-sensitive areas close to the aerodrome in order to avoid future noise problems*. *Note.— Guidance on how to address noise problems is provided in the* Airport Planning Manual *(Doc 9184), Part 2, and in* Guidance on the Balanced Approach to Aircraft Noise Management *(Doc 9829).*	CARs.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.3.1** **Recommendation**	3.1.3 Choice of maximum permissible crosswind components **Recommendation.—** *In the application of 3.1.1 it should be assumed that landing or take-off of aeroplanes is, in normal circumstances, precluded when the crosswind component exceeds:* — *37 km/h (20 kt) in the case of aeroplanes whose reference field length is 1 500 m or over, except that when poor runway braking action owing to an insufficient longitudinal coefficient of friction is experienced with some frequency, a crosswind component not exceeding 24 km/h (13 kt) should be assumed;* — *24 km/h (13 kt) in the case of aeroplanes whose reference field length is 1 200 m or up to but not including 1 500 m; and* — *19 km/h (10 kt) in the case of aeroplanes whose reference field length is less than 1 200 m.* *Note.— In Attachment A, Section 1, guidance is given on factors affecting the calculation of the estimate of the usability factor and allowances which may have to be made to take account of the effect of unusual circumstances.*	AC139-6, 3.1.2.	No Difference		

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Chapter 3 Reference **3.1.4.1** **Recommendation**	3.1.4 Data to be used **Recommendation.—** *The selection of data to be used for the calculation of the usability factor should be based on reliable wind distribution statistics that extend over as long a period as possible, preferably of not less than five years. The observations used should be made at least eight times daily and spaced at equal intervals of time.* *Note.— These winds are mean winds. Reference to the need for some allowance for gusty conditions is made in Attachment A, Section 1.*	AC139-6, 3.1.3.	No Difference		
Chapter 3 Reference **3.1.5** **Recommendation**	***Location of threshold*** 3.1.5 **Recommendation.—** *A threshold should normally be located at the extremity of a runway unless operational considerations justify the choice of another location.* *Note.— Guidance on the siting of the threshold is given in Attachment A, Section 11.*	AC139-6, 3.1.4.	Different in character or other means of compliance	Threshold 60 m from approach surface inner edge; 30 m for Code 1 runway.	
Chapter 3 Reference **3.1.6** **Recommendation**	3.1.6 **Recommendation.—** *When it is necessary to displace a threshold, either permanently or temporarily, from its normal location, account should be taken of the various factors which may have a bearing on the location of the threshold. Where this displacement is due to an unserviceable runway condition, a cleared and graded area of at least 60 m in length should be available between the unserviceable area and the displaced threshold. Additional distance should also be provided to meet the requirements of the runway end safety area as appropriate.* *Note.— Guidance on factors which may be considered in the determination of the location of a displaced threshold is given in Attachment A, Section 11.*	AC139-6, 3.1.5.	Less protective or partially implemented or not implemented	Not specified in the AC.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.7.1** **Recommendation**	***Actual length of runways*** 3.1.7 Primary runway **Recommendation.—** *Except as provided in 3.1.9, the actual runway length to be provided for a primary runway should be adequate to meet the operational requirements of the aeroplanes for which the runway is intended and should be not less than the longest length determined by applying the corrections for local conditions to the operations and performance characteristics of the relevant aeroplanes.* *Note 1.— This specification does not necessarily mean providing for operations by the critical aeroplane at its maximum mass.* *Note 2.— Both take-off and landing requirements need to be considered when determining the length of runway to be provided and the need for operations to be conducted in both directions of the runway.* *Note 3.— Local conditions that may need to be considered include elevation, temperature, runway slope, humidity and the runway surface characteristics.* *Note 4.— When performance data on aeroplanes for which the runway is intended are not known, guidance on the determination of the actual length of a primary runway by application of general correction factors is given in the* Aerodrome Design Manual *(Doc 9157), Part 1.*	AC139-6, 3.1.6.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.8.1** **Recommendation**	3.1.8 Secondary runway **Recommendation.—** *The length of a secondary runway should be determined similarly to primary runways except that it needs only to be adequate for those aeroplanes which require to use that secondary runway in addition to the other runway or runways in order to obtain a usability factor of at least 95 per cent.*	AC139-6, 3.1.7.	Less protective or partially implemented or not implemented	Usability factor not specified.	
Chapter 3 Reference **3.1.9.1** **Recommendation**	3.1.9 Runways with stopways or clearways **Recommendation.—** *Where a runway is associated with a stopway or clearway, an actual runway length less than that resulting from application of 3.1.7 or 3.1.8, as appropriate, may be considered satisfactory, but in such a case any combination of runway, stopway and clearway provided should permit compliance with the operational requirements for take-off and landing of the aeroplanes the runway is intended to serve.* *Note.— Guidance on use of stopways and clearways is given in Attachment A, Section 2.*	AC139-6, 3.1.8.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.10** **Recommendation**	***Width of runways*** 3.1.10 **Recommendation.—** *The width of a runway should be not less than the appropriate dimension specified in the following tabulation:* *Note 1.— The combinations of code numbers and OMGWS for which widths are specified have been developed for typical aeroplane characteristics.* *Note 2.— Factors affecting runway width are given in the* Aerodrome Design Manual *(Doc 9157), Part 1.* *Note 3.— See 3.2 concerning the provision of runway shoulders, in particular for Code F aeroplanes with four (or more) engines.*	AC139-6, 3.1.9.	No Difference		
Chapter 3 Reference **3.1.11** **Recommendation**	***Minimum distance between parallel runways*** 3.1.11 **Recommendation.—** *Where parallel non-instrument runways are intended for simultaneous use, the minimum distance between their centre lines should be:* — *210 m where the higher code number is 3 or 4;* — *150 m where the higher code number is 2; and* — *120 m where the higher code number is 1.* *Note.— Procedures for wake turbulence categorization of aircraft and wake turbulence separation minima are contained in the PANS-ATM (Doc 4444), Chapter 4, 4.9 and Chapter 5, 5.8, respectively.*	AC139-6, 3.1.10.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.12** **Recommendation**	3.1.12 **Recommendation.—** *Where parallel instrument runways are intended for simultaneous use subject to conditions specified in the PANS-ATM (Doc 4444) and the PANS-OPS (Doc 8168), Volume I, the minimum distance between their centre lines should be:* — *1 035 m for independent parallel approaches;* — *915 m for dependent parallel approaches;* — *760 m for independent parallel departures;* — *760 m for segregated parallel operations;* *except that:* *a) for segregated parallel operations the specified minimum distance:* *1) may be decreased by 30 m for each 150 m that the arrival runway is staggered toward the arriving aircraft, to a minimum of 300 m; and* *2) should be increased by 30 m for each 150 m that the arrival runway is staggered away from the arriving aircraft;* *b) for independent parallel approaches, combinations of minimum distances and associated conditions other than those specified in the PANS-ATM (Doc 4444) may be applied when it is determined that such combinations would not adversely affect the safety of aircraft operations.* *Note.— Procedures and facilities requirements for simultaneous operations on parallel or near-parallel instrument runways are contained in the PANS-ATM (Doc*	AC139-6, 3.1.11.	No Difference		

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	4444), Chapter 6 and the PANS-OPS (Doc 8168), Volume I, Part III, Section 2, and Volume II, Part I, Section 3; Part II, Section 1; and Part III, Section 3, and relevant guidance is contained in the Manual on Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR) *(Doc 9643).*				
Chapter 3 Reference **3.1.13.1** **Recommendation**	***Slopes on runways*** 3.1.13 Longitudinal slopes **Recommendation.—** *The slope computed by dividing the difference between the maximum and minimum elevation along the runway centre line by the runway length should not exceed:* — *1 per cent where the code number is 3 or 4; and* — *2 per cent where the code number is 1 or 2.*	AC139-6, 3.1.13.	No Difference		

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Chapter 3 Reference **3.1.14** **Recommendation**	3.1.14 **Recommendation.—** *Along no portion of a runway should the longitudinal slope exceed:* — *1.25 per cent where the code number is 4, except that for the first and last quarter of the length of the runway the longitudinal slope should not exceed 0.8 per cent;* — *1.5 per cent where the code number is 3, except that for the first and last quarter of the length of a precision approach runway category II or III the longitudinal slope should not exceed 0.8 per cent; and* — *2 per cent where the code number is 1 or 2.*	AC139-6, 3.1.14.	No Difference		
Chapter 3 Reference **3.1.15.1** **Recommendation**	3.1.15 Longitudinal slope changes **Recommendation.—** *Where slope changes cannot be avoided, a slope change between two consecutive slopes should not exceed:* — *1.5 per cent where the code number is 3 or 4; and* — *2 per cent where the code number is 1 or 2.* *Note.— Guidance on slope changes before a runway is given in Attachment A, Section 4.*	AC139-6, 3.1.15.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 3 Reference **3.1.16** **Recommendation**	3.1.16 **Recommendation.—** *The transition from one slope to another should be accomplished by a curved surface with a rate of change not exceeding:* *— 0.1 per cent per 30 m (minimum radius of curvature of 30 000 m) where the code number is 4;* *— 0.2 per cent per 30 m (minimum radius of curvature of 15 000 m) where the code number is 3; and* *— 0.4 per cent per 30 m (minimum radius of curvature of 7 500 m) where the code number is 1 or 2.*	AC139-6, 3.1.16.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.17.1** **Recommendation**	3.1.17 Sight distance **Recommendation.—** *Where slope changes cannot be avoided, they should be such that there will be an unobstructed line of sight from:* — *any point 3 m above a runway to all other points 3 m above the runway within a distance of at least half the length of the runway where the code letter is C, D, E or F;* — *any point 2 m above a runway to all other points 2 m above the runway within a distance of at least half the length of the runway where the code letter is B; and* — *any point 1.5 m above a runway to all other points 1.5 m above the runway within a distance of at least half the length of the runway where the code letter is A.* *Note.— Consideration will have to be given to providing an unobstructed line of sight over the entire length of a single runway where a full-length parallel taxiway is not available. Where an aerodrome has intersecting runways, additional criteria on the line of sight of the intersection area would need to be considered for operational safety. See the* Aerodrome Design Manual *(Doc 9157), Part 1.*	AC139-6, 3.1.17.	No Difference		

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Chapter 3 Reference **3.1.18.1** **Recommendation**	3.1.18 Distance between slope changes **Recommendation.—** *Undulations or appreciable changes in slopes located close together along a runway should be avoided. The distance between the points of intersection of two successive curves should not be less than:* *a) the sum of the absolute numerical values of the corresponding slope changes multiplied by the appropriate value as follows:* *— 30 000 m where the code number is 4;* *— 15 000 m where the code number is 3; and* *— 5 000 m where the code number is 1 or 2; or* *b) 45 m;* *whichever is greater.* *Note.— Guidance on implementing this specification is given in Attachment A, Section 4.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.1.19.1** **Recommendation**	3.1.19 Transverse slopes **Recommendation.—** *To promote the most rapid drainage of water, the runway surface should, if practicable, be cambered except where a single crossfall from high to low in the direction of the wind most frequently associated with rain would ensure rapid drainage. The transverse slope should ideally be:* — *1.5 per cent where the code letter is C, D, E or F; and* — *2 per cent where the code letter is A or B;* *but in any event should not exceed 1.5 per cent or 2 per cent, as applicable, nor be less than 1 per cent except at runway or taxiway intersections where flatter slopes may be necessary.* *For a cambered surface the transverse slope on each side of the centre line should be symmetrical.* *Note.— On wet runways with crosswind conditions the problem of aquaplaning from poor drainage is apt to be accentuated. Additional guidance is included in the* Aerodrome Design Manual *(Doc 9157), Parts 1 and 3.*	AC139-6, 3.1.19.	No Difference		
Chapter 3 Reference **3.1.20** **Recommendation**	3.1.20 **Recommendation.—** *The transverse slope should be substantially the same throughout the length of a runway except at an intersection with another runway or a taxiway where an even transition should be provided taking account of the need for adequate drainage.* *Note.— Guidance on transverse slope is given in the* Aerodrome Design Manual *(Doc 9157), Part 3.*	AC139-6, 3.1.18.	No Difference		

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Chapter 3 Reference **3.1.21** **Recommendation**	***Strength of runways*** 3.1.21 **Recommendation.—** *A runway should be capable of withstanding the traffic of aeroplanes the runway is intended to serve.*	AC139-6, 3.1.19.	No Difference		
Chapter 3 Reference **3.1.22** **Standard**	***Surface of runways*** 3.1.22 The surface of a runway shall be constructed without irregularities that would impair the runway surface friction characteristics or otherwise adversely affect the take-off or landing of an aeroplane. *Note 1.— Surface irregularities may adversely affect the take-off or landing of an aeroplane by causing excessive bouncing, pitching, vibration, or other difficulties in the control of an aeroplane.* *Note 2.— Guidance on design tolerances and other information is given in Attachment A, Section 5. Additional guidance is included in the* Aerodrome Design Manual *(Doc 9157), Part 3.*	CAR Part 139, App C, C.1(a).	No Difference		
Chapter 3 Reference **3.1.23** **Standard**	3.1.23 A paved runway shall be so constructed or resurfaced as to provide surface friction characteristics at or above the minimum friction level set by the State.	CAR Part 139, App C, C.1(b).	No Difference		

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Chapter 3 Reference **3.1.24** **Recommendation**	3.1.24 **Recommendation.—** *The surface of a paved runway should be evaluated when constructed or resurfaced to determine that the surface friction characteristics achieve the design objectives.* *Note.— Additional guidance is included in the* Airport Services Manual *(Doc 9137), Part 2.*	AC139-13, 2.7.	No Difference		
Chapter 3 Reference **3.1.25** **Recommendation**	3.1.25 **Recommendation.—** *Measurements of the surface friction characteristics of a new or resurfaced paved runway should be made with a continuous friction measuring device using self-wetting features.* *Note.— Additional guidance is included in the* Airport Services Manual *(Doc 9137), Part 2.*	AC139-6, 3.1.22.	No Difference		
Chapter 3 Reference **3.1.26** **Recommendation**	3.1.26 **Recommendation.—** *The average surface texture depth of a new surface should be not less than 1.0 mm.* *Note 1.— Macrotexture and microtexture are taken into consideration in order to provide the required surface friction characteristics. Guidance on surface design is given in Attachment A, Section 8.* *Note 2.— Guidance on methods used to measure surface texture is given in the* Airport Services Manual *(Doc 9137), Part 2.* *Note 3.— Guidance on design and methods for improving surface texture is given in the* Aerodrome Design Manual *(Doc 9157), Part 3.*	AC139-6, 3.1.23.	No Difference		

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Chapter 3 Reference **3.1.27** **Recommendation**	3.1.27 **Recommendation.—** *When the surface is grooved or scored, the grooves or scorings should be either perpendicular to the runway centre line or parallel to non-perpendicular transverse joints, where applicable.* *Note.— Guidance on methods for improving the runway surface texture is given in the* Aerodrome Design Manual *(Doc 9157), Part 3.*	AC139-6, 3.1.24.	No Difference		
Chapter 3 Reference **3.2.1** **Recommendation**	**3.2 Runway shoulders** ***General*** *Note.— Guidance on characteristics and treatment of runway shoulders is given in Attachment A, Section 9, and in the* Aerodrome Design Manual *(Doc 9157), Part 1.* 3.2.1 **Recommendation.—** *Runway shoulders should be provided for a runway where the code letter is D, E or F.*	AC139-6, 3.2.1.	No Difference		

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Chapter 3 Reference **3.2.2** **Recommendation**	***Width of runway shoulders*** 3.2.2 **Recommendation.—** *For aeroplanes with OMGWS from 9 m up to but not including 15 m, the runway shoulders should extend symmetrically on each side of the runway so that the overall width of the runway and its shoulders is not less than:* — *60 m where the code letter is D or E;* — *60 m where the code letter is F with two- or three-engined aeroplanes; and* — *75 m where the code letter is F with four (or more)-engined aeroplanes.*	AC139-6, 3.2.3.	No Difference		
Chapter 3 Reference **3.2.3** **Recommendation**	***Slopes on runway shoulders*** 3.2.3 **Recommendation.—** *The surface of the shoulder that abuts the runway should be flush with the surface of the runway and its transverse slope should not exceed 2.5 per cent.*	AC139-6, 3.2.4.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.2.4** **Recommendation**	***Strength of runway shoulders*** 3.2.4 **Recommendation.—** *The portion of a runway shoulder between the runway edge and a distance of 30 m from the runway centre line should be prepared or constructed so as to be capable, in the event of an aeroplane running off the runway, of supporting the aeroplane without inducing structural damage to the aeroplane and of supporting ground vehicles which may operate on the shoulder.* *Note.— Guidance on strength of runway shoulders is given in the* Aerodrome Design Manual *(Doc 9157), Part 1.*	AC139-6, 3.2.5.	No Difference		
Chapter 3 Reference **3.2.5** **Recommendation**	***Surface of runway shoulders*** 3.2.5 **Recommendation.—** *A runway shoulder should be prepared or constructed so as to resist erosion and the ingestion of the surface material by aeroplane engines.*	AC139-6, 3.2.	No Difference		
Chapter 3 Reference **3.2.6** **Recommendation**	3.2.6 **Recommendation.—** *Runway shoulders for code letter F aeroplanes should be paved to a minimum overall width of runway and shoulder of not less than 60 m.* *Note.— Guidance on surface of runway shoulders is given in the* Aerodrome Design Manual*, (Doc 9157), Part 1.*	AC139-6, 3.2.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.3.1** **Standard**	**3.3 Runway turn pads** ***General*** 3.3.1 Where the end of a runway is not served by a taxiway or a taxiway turnaround and where the code letter is D, E or F, a runway turn pad shall be provided to facilitate a 180-degree turn of aeroplanes. (See Figure 3-1.) **Figure 3-1. Typical turn pad layout**	CAR Part 139, App C, C.3; AC139-6, 3.4.1.	No Difference		
Chapter 3 Reference **3.3.2** **Recommendation**	3.3.2 **Recommendation.—** *Where the end of a runway is not served by a taxiway or a taxiway turnaround and where the code letter is A, B or C, a runway turn pad should be provided to facilitate a 180-degree turn of aeroplanes.* *Note 1.— Such areas may also be useful if provided along a runway to reduce taxiing time and distance for aeroplanes which may not require the full length of the runway.* *Note 2.— Guidance on the design of the runway turn pads is available in the* Aerodrome Design Manual *(Doc 9157), Part 1. Guidance on taxiway turnaround as an alternate facility is available in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	CAR Part 139, App C, C.3.: AC139-6, 3.4.1.	No Difference		
Chapter 3 Reference **3.3.3** **Recommendation**	3.3.3 **Recommendation.—** *The runway turn pad may be located on either the left or right side of the runway and adjoining the runway pavement at both ends of the runway and at some intermediate locations where deemed necessary.* *Note.— The initiation of the turn would be facilitated by locating the turn pad on the left side of the runway, since the left seat is the normal position of the pilot-in-command.*	AC139-6, 3.4.2.	No Difference		

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Chapter 3 Reference **3.3.4** **Recommendation**	3.3.4 **Recommendation.—** *The intersection angle of the runway turn pad with the runway should not exceed 30 degrees.*	AC139-6, 3.4.3.	No Difference		
Chapter 3 Reference **3.3.5** **Recommendation**	3.3.5 **Recommendation.—** *The nose wheel steering angle to be used in the design of the runway turn pad should not exceed 45 degrees.*	AC139-6, 3.4.4.	No Difference		
Chapter 3 Reference **3.3.6** **Standard**	3.3.6 The design of a runway turn pad shall be such that, when the cockpit of the aeroplane for which the turn pad is intended remains over the turn pad marking, the clearance distance between any wheel of the aeroplane landing gear and the edge of the turn pad shall be not less than that given by the following tabulation: *Note.— Wheel base means the distance from the nose gear to the geometric centre of the main gear.*	CAR Part 139, App C, C.3.1; AC139-6, 3.4.5.	No Difference		
Chapter 3 Reference **3.3.7** **Recommendation**	***Slopes on runway turn pads*** 3.3.7 **Recommendation.—** *The longitudinal and transverse slopes on a runway turn pad should be sufficient to prevent the accumulation of water on the surface and facilitate rapid drainage of surface water. The slopes should be the same as those on the adjacent runway pavement surface.*	AC139-6, 3.4.7.	No Difference		

Annex Reference	AERODROMES **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 3 Reference **3.3.8** **Recommendation**	***Strength of runway turn pads*** 3.3.8 **Recommendation.—** *The strength of a runway turn pad should be at least equal to that of the adjoining runway which it serves, due consideration being given to the fact that the turn pad will be subjected to slow-moving traffic making hard turns and consequent higher stresses on the pavement.* *Note.— Where a runway turn pad is provided with flexible pavement, the surface would need to be capable of withstanding the horizontal shear forces exerted by the main landing gear tires during turning manoeuvres.*	AC139-6, 3.4.8.	No Difference		
Chapter 3 Reference **3.3.9** **Standard**	***Surface of runway turn pads*** 3.3.9 The surface of a runway turn pad shall not have surface irregularities that may cause damage to an aeroplane using the turn pad.	CAR Part 139, App C, C.3.2.	No Difference		
Chapter 3 Reference **3.3.10** **Recommendation**	3.3.10 **Recommendation.—** *The surface of a runway turn pad should be so constructed or resurfaced as to provide surface friction characteristics at least equal to that of the adjoining runway.*	AC139-6, 3.4.10.	Different in character or other means of compliance	The wording is "...as to provide good friction characteristics ..."	

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Chapter 3 Reference **3.3.11** **Recommendation**	***Shoulders for runway turn pads*** 3.3.11 **Recommendation.—** *The runway turn pads should be provided with shoulders of such width as is necessary to prevent surface erosion by the jet blast of the most demanding aeroplane for which the turn pad is intended, and any possible foreign object damage to the aeroplane engines.* *Note.— As a minimum, the width of the shoulders would need to cover the outer engine of the most demanding aeroplane and thus may be wider than the associated runway shoulders.*	AC139-6, 3.4.11.	No Difference		
Chapter 3 Reference **3.3.12** **Recommendation**	3.3.12 **Recommendation.—** *The strength of runway turn pad shoulders should be capable of withstanding the occasional passage of the aeroplane it is designed to serve without inducing structural damage to the aeroplane and to the supporting ground vehicles that may operate on the shoulder.*	AC139-6, 3.4.8.	No Difference		
Chapter 3 Reference **3.4.1** **Standard**	**3.4 Runway strips** ***General*** 3.4.1 A runway and any associated stopways shall be included in a strip.	CAR Part 139, App C, C.2.	No Difference		

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Chapter 3 Reference **3.4.2** **Standard**	***Length of runway strips*** 3.4.2 A strip shall extend before the threshold and beyond the end of the runway or stopway for a distance of at least: — 60 m where the code number is 2, 3 or 4; — 60 m where the code number is 1 and the runway is an instrument one; and — 30 m where the code number is 1 and the runway is a non-instrument one.	CAR Part 139, App C, C.2.1.	Less protective or partially implemented or not implemented	60 m where the code number is 3 or 4; 30 m where the code number is 2, and 10 m where the code number is 1.	
Chapter 3 Reference **3.4.3** **Standard**	***Width of runway strips*** 3.4.3 A strip including a precision approach runway shall, wherever practicable, extend laterally to a distance of at least: — 140 m where the code number is 3 or 4; and — 70 m where the code number is 1 or 2; on each side of the centre line of the runway and its extended centre line throughout the length of the strip.	CAR Part 139, App C, C.2.2.	More Exacting or Exceeds	The rule applies the higher standards applicable prior to the applicability of Amendment 14.	Note: all international aerodromes, and all domestic aerodromes served by RPT exceed the current standard.
Chapter 3 Reference **3.4.4** **Recommendation**	3.4.4 **Recommendation.—** *A strip including a non-precision approach runway should extend laterally to a distance of at least:* — *140 m where the code number is 3 or 4; and* — *70 m where the code number is 1 or 2;* *on each side of the centre line of the runway and its extended centre line throughout the length of the strip.*	CAR Part 139, App C, C.2.2.	More Exacting or Exceeds	The rule applies the higher standards applicable prior to the applicability of Amendment 14.	Note: all international aerodromes, and all domestic aerodromes served by RPT exceed the current standard.

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Chapter 3 Reference **3.4.5** **Recommendation**	3.4.5 **Recommendation.—** *A strip including a non-instrument runway should extend on each side of the centre line of the runway and its extended centre line throughout the length of the strip, to a distance of at least:* — *75 m where the code number is 3 or 4;* — *40 m where the code number is 2; and* — *30 m where the code number is 1.*	CAR Part 139, App C, C.2.2.	No Difference		

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Chapter 3 Reference **3.4.6** **Recommendation**	***Objects on runway strips*** *Note.— See 9.9 for information regarding siting of equipment and installations on runway strips.* 3.4.6 **Recommendation.—** *An object situated on a runway strip which may endanger aeroplanes should be regarded as an obstacle and should, as far as practicable, be removed.* *Note 1.— Consideration will have to be given to the location and design of drains on a runway strip to prevent damage to an aeroplane accidentally running off a runway. Suitably designed drain covers may be required. For further guidance, see the* Aerodrome Design Manual *(Doc 9157), Part 1.* *Note 2.— Where open-air or covered storm water conveyances are installed, consideration will have to be given to ensure that their structure does not extend above the surrounding ground so as not to be considered an obstacle. See also Note 1 to 3.4.16.* *Note 3.— Particular attention needs to be given to the design and maintenance of an open-air storm water conveyance in order to prevent wildlife attraction, notably birds. If needed, it can be covered by a net. Procedures on wildlife management are specified in the PANS-Aerodromes (Doc 9981). Further guidance can be found in the* Airport Services Manual *(Doc 9137), Part 3.*	AC139-6, 3.5.4.	No Difference		

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Chapter 3 Reference **3.4.7** **Standard**	3.4.7 No fixed object, other than visual aids required for air navigation or those required for aircraft safety purposes and which must be sited on the runway strip, and satisfying the relevant frangibility requirement in Chapter 5, shall be permitted on any part of a runway strip of a precision approach runway delineated by the lower edges of the inner transitional surfaces. No mobile object shall be permitted on this part of the runway strip during the use of the runway for landing or take-off. *Note.— See Chapter 4, section 4.1, for characteristics of inner transitional surfaces.*	CAR Part 139, App C, C.2.3.	No Difference		
Chapter 3 Reference **3.4.8** **Recommendation**	***Grading of runway strips*** 3.4.8 **Recommendation.—** *That portion of a strip of an instrument runway within a distance of at least:* — *75 m where the code number is 3 or 4; and* — *40 m where the code number is 1 or 2;* *from the centre line of the runway and its extended centre line should provide a graded area for aeroplanes which the runway is intended to serve in the event of an aeroplane running off the runway.* *Note.— Guidance on grading of a greater area of a strip including a precision approach runway where the code number is 3 or 4 is given in Attachment A, Section 9.*	AC139-6, 3.4.7 and 3.4.16.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.4.9** **Recommendation**	3.4.9 **Recommendation.—** *That portion of a strip of a non-instrument runway within a distance of at least:* — *75 m where the code number is 3 or 4;* — *40 m where the code number is 2; and* — *30 m where the code number is 1;* *from the centre line of the runway and its extended centre line should provide a graded area for aeroplanes which the runway is intended to serve in the event of an aeroplane running off the runway.*	AC139-6, 3.4.7.	No Difference		Note: widths are expressed overall rather than as distance from centre line.
Chapter 3 Reference **3.4.10** **Standard**	3.4.10 The surface of that portion of a strip that abuts a runway, shoulder or stopway shall be flush with the surface of the runway, shoulder or stopway.	CAR Part 139, App C, C.2.4.	No Difference		
Chapter 3 Reference **3.4.11** **Recommendation**	3.4.11 **Recommendation.—** *That portion of a strip to at least 30 m before the start of a runway should be prepared against blast erosion in order to protect a landing aeroplane from the danger of an exposed edge.* *Note 1.— The area provided to reduce the erosive effects of jet blast and propeller wash may be referred to as a blast pad.* *Note 2.— Guidance on protection against aeroplane engine blast is available in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.5.10.	No Difference		

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Chapter 3 Reference **3.4.12** **Recommendation**	3.4.12 **Recommendation.—** *Where the areas in 3.4.11 have paved surfaces, they should be able to withstand the occasional passage of the critical aeroplane for runway pavement design.*	AC139-6, 3.5.10.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 3 Reference **3.4.13.1** **Recommendation**	***Slopes on runway strips*** 3.4.13 Longitudinal slopes **Recommendation.—** *A longitudinal slope along that portion of a strip to be graded should not exceed:* — *1.5 per cent where the code number is 4;* — *1.75 per cent where the code number is 3; and* — *2 per cent where the code number is 1 or 2.*	AC139-6, 3.5.11.	No Difference		
Chapter 3 Reference **3.4.14.1** **Recommendation**	3.4.14 Longitudinal slope changes **Recommendation.—** *Slope changes on that portion of a strip to be graded should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided.*	AC139-6, 3.5.12.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.4.15.1** **Recommendation**	3.4.15 Transverse slopes **Recommendation.—** *Transverse slopes on that portion of a strip to be graded should be adequate to prevent the accumulation of water on the surface but should not exceed:* — *2.5 per cent where the code number is 3 or 4; and* — *3 per cent where the code number is 1 or 2;* *except that to facilitate drainage the slope for the first 3 m outward from the runway, shoulder or stopway edge should be negative as measured in the direction away from the runway and may be as great as 5 per cent.*	AC139-6, 3.5.14.	No Difference		
Chapter 3 Reference **3.4.16** **Recommendation**	3.4.16 **Recommendation.—** *The transverse slopes of any portion of a strip beyond that to be graded should not exceed an upward slope of 5 per cent as measured in the direction away from the runway.* *Note 1.— Where deemed necessary for proper drainage, an open-air storm water conveyance may be allowed in the non-graded portion of a runway strip and would be placed as far as practicable from the runway.* *Note 2.— The aerodrome rescue and firefighting (RFF) procedure would need to take into account the location of open-air water conveyances within the non-graded portion of a runway strip.*	AC139-6, 3.5.15.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.4.17** **Recommendation**	***Strength of runway strips*** 3.4.17 **Recommendation.—** *That portion of a strip of an instrument runway within a distance of at least:* — *75 m where the code number is 3 or 4; and* — *40 m where the code number is 1 or 2;* *from the centre line of the runway and its extended centre line should be so prepared or constructed as to minimize hazards arising from differences in load-bearing capacity to aeroplanes which the runway is intended to serve in the event of an aeroplane running off the runway.* *Note.— Guidance on preparation of runway strips is given in the* Aerodrome Design Manual *(Doc 9157), Part 1.*	AC139-6, 3.5.16.	Different in character or other means of compliance	The AC does not list specific distances, but adds a recommendation to strengthen the runway shoulders if large turbine aeroplanes use the runway.	
Chapter 3 Reference **3.4.18** **Recommendation**	3.4.18 **Recommendation.—** *That portion of a strip containing a non-instrument runway within a distance of at least:* — *75 m where the code number is 3 or 4;* — *40 m where the code number is 2; and* — *30 m where the code number is 1;* *from the centre line of the runway and its extended centre line should be so prepared or constructed as to minimize hazards arising from differences in load-bearing capacity to aeroplanes which the runway is intended to serve in the event of an aeroplane running off the runway.*	AC139-6, 3.4.16.	Different in character or other means of compliance	The AC does not list specific distances, but adds a recommendation to strengthen the runway shoulders if large turbine aeroplanes use the runway.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.5.1** **Standard**	**3.5 Runway end safety areas** ***General*** 3.5.1 A runway end safety area shall be provided at each end of a runway strip where: — the code number is 3 or 4; and — the code number is 1 or 2 and the runway is an instrument one. *Note.— Guidance on runway end safety areas is given in Attachment A, Section 10.*	CAR 139.51(b).	Different in character or other means of compliance	A RESA is required when - 1) the runway is ised for regular international air transport services; 2) the runway is used by regular air transport services by aroplanes with a (passenger) seating capacity greater than 30.	
Chapter 3 Reference **3.5.2** **Recommendation**	3.5.2 **Recommendation.—** *A runway end safety area should be provided at each end of a runway strip where the code number is 1 or 2 and the runway is a non-instrument one.*	CAR 139.51(b).	Less protective or partially implemented or not implemented	The rule requirement does not extend to this level.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.5.3** **Standard**	***Dimensions of runway end safety areas*** 3.5.3 A runway end safety area shall extend from the end of a runway strip to a distance of at least 90 m where: — the code number is 3 or 4; and — the code number is 1 or 2 and the runway is an instrument one. If an arresting system is installed, the above length may be reduced, based on the design specification of the system, subject to acceptance by the State. *Note.— Guidance on arresting systems is given in Attachment A, Section 10.*	CAR 139.51(b) and Appendix A, A.1.	No Difference		
Chapter 3 Reference **3.5.4** **Recommendation**	3.5.4 **Recommendation.—** *A runway end safety area should, as far as practicable, extend from the end of a runway strip to a distance of at least:* — *240 m where the code number is 3 or 4; or a reduced length when an arresting system is installed;* — *120 m where the code number is 1 or 2 and the runway is an instrument one; or a reduced length when an arresting system is installed; and* — *30 m where the code number is 1 or 2 and the runway is a non-instrument one.*	CAR 139.51(b) and Appendix A, A.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.5.5** **Standard**	3.5.5 The width of a runway end safety area shall be at least twice that of the associated runway.	CAR Part 139, Appendix A, A.1.	No Difference		
Chapter 3 Reference **3.5.6** **Recommendation**	3.5.6 **Recommendation.—** *The width of a runway end safety area should, wherever practicable, be equal to that of the graded portion of the associated runway strip.*	CAR Part 139, Appendix A, A.1.	No Difference		
Chapter 3 Reference **3.5.7** **Recommendation**	***Objects on runway end safety areas*** *Note.— See 9.9 for information regarding siting of equipment and installations on runway end safety areas.* 3.5.7 **Recommendation.—** *An object situated on a runway end safety area which may endanger aeroplanes should be regarded as an obstacle and should, as far as practicable, be removed.*	CAR Part 139, Appendix A, A.1.	No Difference		
Chapter 3 Reference **3.5.8** **Recommendation**	***Clearing and grading of runway end safety areas*** 3.5.8 **Recommendation.—** *A runway end safety area should provide a cleared and graded area for aeroplanes which the runway is intended to serve in the event of an aeroplane undershooting or overrunning the runway.* *Note.— The surface of the ground in the runway end safety area does not need to be prepared to the same quality as the runway strip. See, however, 3.5.12.*	CAR Part 139, Appendix A, A.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.5.9.1** **Recommendation**	***Slopes on runway end safety areas*** 3.5.9 General **Recommendation.—** *The slopes of a runway end safety area should be such that no part of the runway end safety area penetrates the approach or take-off climb surface.*	CAR Part 139, Appendix A, A.1.	No Difference		
Chapter 3 Reference **3.5.10.1** **Recommendation**	3.5.10 Longitudinal slopes **Recommendation.—** *The longitudinal slopes of a runway end safety area should not exceed a downward slope of 5 per cent. Longitudinal slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided.*	CAR Part 139, Appendix A, A.1.	No Difference		
Chapter 3 Reference **3.5.11.1** **Recommendation**	3.5.11 Transverse slopes **Recommendation.—** *The transverse slopes of a runway end safety area should not exceed an upward or downward slope of 5 per cent. Transitions between differing slopes should be as gradual as practicable.*	CAR Part 139, Appendix A, A.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.5.12** **Recommendation**	***Strength of runway end safety areas*** 3.5.12 **Recommendation.—** *A runway end safety area should be so prepared or constructed as to reduce the risk of damage to an aeroplane undershooting or overrunning the runway, enhance aeroplane deceleration and facilitate the movement of rescue and firefighting vehicles as required in 9.2.34 to 9.2.36.* *Note.— Guidance on the strength of a runway end safety area is given in the* Aerodrome Design Manual *(Doc 9157), Part 1.*	AC139-6, 3.6.1.	No Difference		
Chapter 3 Reference **3.6.1** **Recommendation**	**3.6 Clearways** *Note.— The inclusion of detailed specifications for clearways in this section is not intended to imply that a clearway has to be provided. Attachment A, Section 2, provides information on the use of clearways.* ***Location of clearways*** 3.6.1 **Recommendation.—** *The origin of a clearway should be at the end of the take-off run available.*	AC139-6, 3.7.1.	No Difference		
Chapter 3 Reference **3.6.2** **Recommendation**	***Length of clearways*** 3.6.2 **Recommendation.—** *The length of a clearway should not exceed half the length of the take-off run available.*	AC139-6, 3.7.2.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.6.3** **Recommendation**	***Width of clearways*** 3.6.3 **Recommendation.—** *A clearway should extend laterally on each side of the extended centre line of the runway, to a distance of at least:* *a) 75 m for instrument runways; and* *b) half of the width of the runway strip for non-instrument runways.*	AC139-6, 3.7.3.	No Difference		
Chapter 3 Reference **3.6.4** **Recommendation**	***Slopes on clearways*** 3.6.4 **Recommendation.—** *The ground in a clearway should not project above a plane having an upward slope of 1.25 per cent, the lower limit of this plane being a horizontal line which:* *a) is perpendicular to the vertical plane containing the runway centre line; and* *b) passes through a point located on the runway centre line at the end of the take-off run available.* *Note.— Because of transverse or longitudinal slopes on a runway, shoulder or strip, in certain cases the lower limit of the clearway plane specified above may be below the corresponding elevation of the runway, shoulder or strip. It is not intended that these surfaces be graded to conform with the lower limit of the clearway plane nor is it intended that terrain or objects which are above the clearway plane beyond the end of the strip but below the level of the strip be removed unless it is considered they may endanger aeroplanes.*	AC139-6, 3.7.4 and 3.7.5.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.6.5** **Recommendation**	3.6.5 **Recommendation.—** *Abrupt upward changes in slope should be avoided when the slope on the ground in a clearway is relatively small or when the mean slope is upward. In such situations, in that portion of the clearway within a distance of 22.5 m or half the runway width whichever is greater on each side of the extended centre line, the slopes, slope changes and the transition from runway to clearway should generally conform with those of the runway with which the clearway is associated.*	AC139-6, 3.7.6.	No Difference		
Chapter 3 Reference **3.6.6** **Recommendation**	***Objects on clearways*** *Note.— See 9.9 for information regarding siting of equipment and installations on clearways.* 3.6.6 **Recommendation.—** *An object situated on a clearway which may endanger aeroplanes in the air should be regarded as an obstacle and should be removed.*	AC139-6, 3.7.7.	No Difference		
Chapter 3 Reference **3.7.1** **Standard**	**3.7 Stopways** *Note.— The inclusion of detailed specifications for stopways in this section is not intended to imply that a stopway has to be provided. Attachment A, Section 2, provides information on the use of stopways.* ***Width of stopways*** 3.7.1 A stopway shall have the same width as the runway with which it is associated.	CAR Part 139, App C, C.4; AC139-6, 3.8.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.7.2** **Recommendation**	***Slopes on stopways*** 3.7.2 **Recommendation.—** *Slopes and changes in slope on a stopway, and the transition from a runway to a stopway, should comply with the specifications of 3.1.13 to 3.1.19 for the runway with which the stopway is associated except that:* *a) the limitation in 3.1.14 of a 0.8 per cent slope for the first and last quarter of the length of a runway need not be applied to the stopway; and* *b) at the junction of the stopway and runway and along the stopway the maximum rate of slope change may be 0.3 per cent per 30 m (minimum radius of curvature of 10 000 m) for a runway where the code number is 3 or 4.*	AC139-6, 3.8.2.	No Difference		
Chapter 3 Reference **3.7.3** **Recommendation**	***Strength of stopways*** 3.7.3 **Recommendation.—** *A stopway should be prepared or constructed so as to be capable, in the event of an abandoned take-off, of supporting the aeroplane which the stopway is intended to serve without inducing structural damage to the aeroplane.* *Note.— Attachment A, Section 2, presents guidance relative to the support capability of a stopway.*	AC139-6, 3.8.3.	No Difference		
Chapter 3 Reference **3.7.4** **Standard**	***Surface of stopways*** 3.7.4 The surface of a paved stopway shall be so constructed or resurfaced as to provide surface friction characteristics at or above those of the associated runway.	AC139-6, 3.8.4.	No Difference		

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Chapter 3 Reference **3.8.1** **Recommendation**	**3.8 Radio altimeter operating area** ***General*** 3.8.1 **Recommendation.—** *A radio altimeter operating area should be established in the pre-threshold area of a precision approach runway.*	CAR 139.51.	Less protective or partially implemented or not implemented	Not implemented.	
Chapter 3 Reference **3.8.2** **Recommendation**	***Length of the area*** 3.8.2 **Recommendation.—** *A radio altimeter operating area should extend before the threshold for a distance of at least 300 m.*	CAR 139.51.	Less protective or partially implemented or not implemented	Not implemented.	
Chapter 3 Reference **3.8.3** **Recommendation**	***Width of the area*** 3.8.3 **Recommendation.—** *A radio altimeter operating area should extend laterally, on each side of the extended centre line of the runway, to a distance of 60 m, except that, when special circumstances so warrant, the distance may be reduced to no less than 30 m if an aeronautical study indicates that such reduction would not affect the safety of operations of aircraft.*	CAR 139.51.	Less protective or partially implemented or not implemented	Not implemented.	

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Chapter 3 Reference **3.8.4** **Recommendation**	***Longitudinal slope changes*** 3.8.4 **Recommendation.—** *On a radio altimeter operating area, slope changes should be avoided or kept to a minimum. Where slope changes cannot be avoided, the slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided. The rate of change between two consecutive slopes should not exceed 2 per cent per 30 m.* *Note.— Guidance on radio altimeter operating area is given in Attachment A, Section 4.3, and in the* Manual of All-Weather Operations, *(Doc 9365), Section 5.2. Guidance on the use of radio altimeter is given in the PANS-OPS, Volume II, Part II, Section 1.*	CAR 139.51.	Less protective or partially implemented or not implemented	Not implemented.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.9.1** **Recommendation**	**3.9 Taxiways** *Note 1.— Unless otherwise indicated, the requirements in this section are applicable to all types of taxiways.* *Note 2.— See section 5.4.3 for a standardized scheme for the nomenclature of taxiways which may be used to improve situational awareness and as a part of an effective runway incursion prevention measure.* *Note 3.— See Attachment A, Section 22, for specific taxiway design guidance which may assist in the prevention of runway incursions when developing a new taxiway or improving existing ones with known runway incursion safety risks.* ***General*** 3.9.1 **Recommendation.—** *Taxiways should be provided to permit the safe and expeditious surface movement of aircraft.* *Note.— Guidance on layout and standardized nomenclature of taxiways is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.9.1.	No Difference		
Chapter 3 Reference **3.9.2** **Recommendation**	3.9.2 **Recommendation.—** *Sufficient entrance and exit taxiways for a runway should be provided to expedite the movement of aeroplanes to and from the runway and provision of rapid exit taxiways considered when traffic volumes are high.*	AC139-6, 3.9.2.	No Difference		

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Chapter 3 Reference **3.9.3** **Standard**	3.9.3 The design of a taxiway shall be such that, when the cockpit of the aeroplane for which the taxiway is intended remains over the taxiway centre line markings, the clearance distance between the outer main wheel of the aeroplane and the edge of the taxiway shall be not less than that given by the following tabulation: *Note.— Wheel base means the distance from the nose gear to the geometric centre of the main gear.*	CAR Part 139, App C, C.5.	No Difference		
Chapter 3 Reference **3.9.4** **Recommendation**	***Width of taxiways*** 3.9.4 **Recommendation.—** *A straight portion of a taxiway should have a width of not less than that given by the following tabulation:* *Note.— Guidance on width of taxiways is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.9.6.	No Difference		

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Chapter 3 Reference **3.9.5** **Recommendation**	***Taxiway curves*** 3.9.5 **Recommendation.—** *Changes in direction of taxiways should be as few and small as possible. The radii of the curves should be compatible with the manoeuvring capability and normal taxiing speeds of the aeroplanes for which the taxiway is intended. The design of the curve should be such that, when the cockpit of the aeroplane remains over the taxiway centre line markings, the clearance distance between the outer main wheels of the aeroplane and the edge of the taxiway should not be less than those specified in 3.9.3.* *Note 1.— An example of widening taxiways to achieve the wheel clearance specified is illustrated in Figure 3-2. Guidance on the values of suitable dimensions is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.* *Note 2.— The location of taxiway centre line markings and lights is specified in 5.2.8.6 and 5.3.17.12.* *Note 3.— Compound curves may reduce or eliminate the need for extra taxiway width.*	AC139-6, 3.9.7.	No Difference		

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Chapter 3 Reference **3.9.6** **Recommendation**	***Junctions and intersections*** 3.9.6 **Recommendation.—** *To facilitate the movement of aeroplanes, fillets should be provided at junctions and intersections of taxiways with runways, aprons and other taxiways. The design of the fillets should ensure that the minimum wheel clearances specified in 3.9.3 are maintained when aeroplanes are manoeuvring through the junctions or intersections.* *Note.— Consideration will have to be given to the aeroplane datum length when designing fillets. Guidance on the design of fillets and the definition of the term aeroplane datum length are given in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.9.8.	No Difference		

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Chapter 3 Reference **3.9.7** **Recommendation**	***Taxiway minimum separation distances*** 3.9.7 **Recommendation.—** *The separation distance between the centre line of a taxiway and the centre line of a runway, the centre line of a parallel taxiway or an object should not be less than the appropriate dimension specified in Table 3-1, except that it may be permissible to operate with lower separation distances at an existing aerodrome if an aeronautical study indicates that such lower separation distances would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes.* *Note 1.— Guidance on factors which may be considered in the aeronautical study is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.* *Note 2.— ILS and MLS installations may also influence the location of taxiways due to interferences to ILS and MLS signals by a taxiing or stopped aircraft. Information on critical and sensitive areas surrounding ILS and MLS installations is contained in Annex 10 —* Aeronautical Telecommunications, *Volume I —* Radio Navigation Aids, *Attachments C and G (respectively).* *Note 3.— The separation distances of Table 3-1, column 10, do not necessarily provide the capability of making a normal turn from one taxiway to another parallel taxiway. Guidance for this condition is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.* *Note 4.— The separation distance between the centre line of an aircraft stand taxilane and an object shown in Table 3-1, column 13, may need to be increased when jet exhaust wake velocity may cause hazardous conditions for ground servicing.*	AC139-6, 3.9.9.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 3 Reference **3.9.8.1** **Recommendation**	***Slopes on taxiways*** 3.9.8 Longitudinal slopes **Recommendation.—** *The longitudinal slope of a taxiway should not exceed:* — *1.5 per cent where the code letter is C, D, E or F; and* — *3 per cent where the code letter is A or B.*	AC139-6, 3.9.10.	No Difference		
Chapter 3 Reference **3.9.9.1** **Recommendation**	3.9.9 Longitudinal slope changes **Recommendation.—** *Where slope changes on a taxiway cannot be avoided, the transition from one slope to another slope should be accomplished by a curved surface with a rate of change not exceeding:* — *1 per cent per 30 m (minimum radius of curvature of 3 000 m) where the code letter is C, D, E or F; and* — *1 per cent per 25 m (minimum radius of curvature of 2 500 m) where the code letter is A or B.* **Table 3-1. Taxiway minimum separation distances**	AC139-6, 3.9.11.	No Difference		

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Chapter 3 Reference **3.9.10.1** **Recommendation**	3.9.10 Sight distance **Recommendation.—** *Where a change in slope on a taxiway cannot be avoided, the change should be such that, from any point:* — *3 m above the taxiway, it will be possible to see the whole surface of the taxiway for a distance of at least 300 m from that point, where the code letter is C, D, E or F;* — *2 m above the taxiway, it will be possible to see the whole surface of the taxiway for a distance of at least 200 m from that point, where the code letter is B; and* — *1.5 m above the taxiway, it will be possible to see the whole surface of the taxiway for a distance of at least 150 m from that point, where the code letter is A.*	AC139-6, 3.9.12.	No Difference		
Chapter 3 Reference **3.9.11.1** **Recommendation**	3.9.11 Transverse slopes **Recommendation.**— *The transverse slopes of a taxiway should be sufficient to prevent the accumulation of water on the surface of the taxiway but should not exceed:* — *1.5 per cent where the code letter is C, D, E or F; and* — *2 per cent where the code letter is A or B.* *Note.— See 3.13.4 regarding transverse slopes on an aircraft stand taxilane.*	AC139-6, 3.9.13.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.9.12** **Recommendation**	***Strength of taxiways*** 3.9.12 **Recommendation.—** *The strength of a taxiway should be at least equal to that of the runway it serves, due consideration being given to the fact that a taxiway will be subjected to a greater density of traffic and, as a result of slow moving and stationary aeroplanes, to higher stresses than the runway it serves.* *Note.— Guidance on the relation of the strength of taxiways to the strength of runways is given in the* Aerodrome Design Manual *(Doc 9157), Part 3.*	AC139-6, 3.9.14.	No Difference		
Chapter 3 Reference **3.9.13** **Recommendation**	***Surface of taxiways*** 3.9.13 **Recommendation.—** *The surface of a taxiway should not have irregularities that cause damage to aeroplane structures.*	AC139-6, 3.9.15.	No Difference		
Chapter 3 Reference **3.9.14** **Recommendation**	3.9.14 **Recommendation.—** *The surface of a paved taxiway should be so constructed or resurfaced as to provide suitable surface friction characteristics.* *Note.— Suitable surface friction characteristics are those surface properties required on taxiways that assure safe operation of aeroplanes.*	AC139-6, 3.9.16.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.9.15** **Recommendation**	***Rapid exit taxiways*** *Note.— The following specifications detail requirements particular to rapid exit taxiways. See Figure 3-3. General requirements for taxiways also apply to this type of taxiway. Guidance on the provision, location and design of rapid exit taxiways is included in the* Aerodrome Design Manual *(Doc 9157), Part 2.* 3.9.15 **Recommendation.—** *A rapid exit taxiway should be designed with a radius of turn-off curve of at least:* — *550 m where the code number is 3 or 4; and* — *275 m where the code number is 1 or 2;* *to enable exit speeds under wet conditions of:* — *93 km/h where the code number is 3 or 4; and* — *65 km/h where the code number is 1 or 2.* *Note.— The locations of rapid exit taxiways along a runway are based on several criteria described in the* Aerodrome Design Manual *(Doc 9157), Part 2, in addition to different speed criteria.*	AC139-6, 3.9.19.	No Difference		
Chapter 3 Reference **3.9.16** **Recommendation**	3.9.16 **Recommendation.—** *The radius of the fillet on the inside of the curve at a rapid exit taxiway should be sufficient to provide a widened taxiway throat in order to facilitate early recognition of the entrance and turn-off onto the taxiway.*	AC139-6, 3.9.20.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.9.17** **Recommendation**	3.9.17 **Recommendation.—** *A rapid exit taxiway should include a straight distance after the turn-off curve sufficient for an exiting aircraft to come to a full stop clear of any intersecting taxiway.*	AC139-6, 3.9.21.	No Difference		
Chapter 3 Reference **3.9.18** **Recommendation**	3.9.18 **Recommendation.—** *The intersection angle of a rapid exit taxiway with the runway should not be greater than 45° nor less than 25° and preferably should be 30°.* **Figure 3-3. Rapid exit taxiway**	AC139-6, 3.9.22.	No Difference		
Chapter 3 Reference **3.9.19** **Standard**	***Taxiways on bridges*** 3.9.19 The width of that portion of a taxiway bridge capable of supporting aeroplanes, as measured perpendicularly to the taxiway centre line, shall not be less than the width of the graded area of the strip provided for that taxiway, unless a proven method of lateral restraint is provided which shall not be hazardous for aeroplanes for which the taxiway is intended.	CAR Part 139, App C, C.6.	No Difference		
Chapter 3 Reference **3.9.20** **Recommendation**	3.9.20 **Recommendation.—** *Access should be provided to allow rescue and firefighting vehicles to intervene in both directions within the specified response time to the largest aeroplane for which the taxiway bridge is intended.* *Note.— If aeroplane engines overhang the bridge structure, protection of adjacent areas below the bridge from engine blast may be required.*	AC139-6, 3.9.17.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 3 Reference **3.9.21** **Recommendation**	3.9.21 **Recommendation.—** *A bridge should be constructed on a straight section of the taxiway with a straight section on both ends of the bridge to facilitate the alignment of aeroplanes approaching the bridge.*	AC139-6, 3.9.18.	No Difference		
Chapter 3 Reference **3.10.1** **Recommendation**	**3.10 Taxiway shoulders** *Note.— Guidance on characteristics of taxiway shoulders and on shoulder treatment is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.* 3.10.1 **Recommendation.—** *Straight portions of a taxiway where the code letter is C, D, E or F should be provided with shoulders which extend symmetrically on each side of the taxiway so that the overall width of the taxiway and its shoulders on straight portions is not less than:* — *44 m where the code letter is F;* — *38 m where the code letter is E;* — *34 m where the code letter is D; and* — *25 m where the code letter is C.* *On taxiway curves and on junctions or intersections where increased pavement is provided, the shoulder width should be not less than that on the adjacent straight portions of the taxiway.*	AC139-6, 3.10.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.10.2** **Recommendation**	3.10.2 **Recommendation.—** *When a taxiway is intended to be used by turbine-engined aeroplanes, the surface of the taxiway shoulder should be so prepared as to resist erosion and the ingestion of the surface material by aeroplane engines.*	AC139-6, 3.10.2.	No Difference		
Chapter 3 Reference **3.11.1** **Standard**	**3.11 Taxiway strips** *Note.— Guidance on characteristics of taxiway strips is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.* ***General*** 3.11.1 A taxiway, other than an aircraft stand taxilane, shall be included in a strip.	CAR Part 139, App C, C.7.	No Difference		
Chapter 3 Reference **3.11.2** **Recommendation**	***Width of taxiway strips*** 3.11.2 **Recommendation.—** *A taxiway strip should extend symmetrically on each side of the centre line of the taxiway throughout the length of the taxiway to at least the distance from the centre line given in Table 3-1, column 11.*	AC139-6, 3.11.2.	No Difference		

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Chapter 3 Reference **3.11.3** **Recommendation**	***Objects on taxiway strips*** *Note.— See 9.9 for information regarding siting of equipment and installations on taxiway strips.* 3.11.3 **Recommendation.—** *The taxiway strip should provide an area clear of objects which may endanger taxiing aeroplanes.* *Note 1.— Consideration will have to be given to the location and design of drains on a taxiway strip to prevent damage to an aeroplane accidentally running off a taxiway. Suitably designed drain covers may be required. For further guidance, see the* Aerodrome Design Manual *(Doc 9157), Part 2.* *Note 2.— Where open-air or covered storm water conveyances are installed, consideration will have to be given to ensure that their structure does not extend above the surrounding ground so as not to be considered an obstacle. See also Note 1 to 3.11.6.* *Note 3.— Particular attention needs to be given to the design and maintenance of an open-air storm water conveyance in order to prevent wildlife attraction, notably birds. If needed, it can be covered by a net. Guidance on wildlife control and reduction can be found in the* Airport Services Manual *(Doc 9137), Part 3.*	AC139-6, 3.11.3.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 3 Reference **3.11.4** **Recommendation**	***Grading of taxiway strips*** 3.11.4 **Recommendation.—** *The centre portion of a taxiway strip should provide a graded area to a distance from the centre line of the taxiway of not less than that given by the following tabulation:* *— 10.25 m where the OMGWS is up to but not including 4.5 m;* *— 11 m where the OMGWS is 4.5 m up to but not including 6 m;* *— 12.50 m where the OMGWS is 6 m up to but not including 9 m;* *— 18.50 m where the OMGWS is 9 m up to but not including 15 m, where the code letter is D;* *— 19 m where the OMGWS is 9 m up to but not including 15 m, where the code letter is E;* *— 22 m where the OMGWS is 9 m up to but not including 15 m, where the code letter is F.* *Note.— Guidance on width of the graded portion of a taxiway is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.11.4.	No Difference		

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Chapter 3 Reference **3.11.5** **Recommendation**	***Slopes on taxiway strips*** 3.11.5 **Recommendation.—** *The surface of the strip should be flush at the edge of the taxiway or shoulder, if provided, and the graded portion should not have an upward transverse slope exceeding:* — *2.5 per cent for strips where the code letter is C, D, E or F; and* — *3 per cent for strips of taxiways where the code letter is A or B;* *the upward slope being measured with reference to the transverse slope of the adjacent taxiway surface and not the horizontal. The downward transverse slope should not exceed 5 per cent measured with reference to the horizontal.*	AC139-6, 3.11.5.	No Difference		
Chapter 3 Reference **3.11.6** **Recommendation**	3.11.6 **Recommendation.—** *The transverse slopes on any portion of a taxiway strip beyond that to be graded should not exceed an upward or downward slope of 5 per cent as measured in the direction away from the taxiway.* *Note 1.— Where deemed necessary for proper drainage, an open-air storm water conveyance may be allowed in the non-graded portion of a taxiway strip and would be placed as far as practicable from the taxiway.* *Note 2.— The aerodrome RFF procedure would need to take into account the location of open-air storm water conveyances within the non-graded portion of a taxiway strip.*	AC139-6, 3.11.7.	No Difference		

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Chapter 3 Reference **3.12.1** **Recommendation**	**3.12 Holding bays, runway-holding positions, intermediate holding positions and road-holding positions** ***General*** 3.12.1 **Recommendation.—** *Holding bay(s) should be provided when the traffic density is medium or heavy.*	AC139-6, 3.12.1.	No Difference		
Chapter 3 Reference **3.12.2** **Standard**	3.12.2 A runway-holding position or positions shall be established: a) on the taxiway, at the intersection of a taxiway and a runway; and b) at an intersection of a runway with another runway when the former runway is part of a standard taxi-route.	AC139-6, 3.12.2.	No Difference		
Chapter 3 Reference **3.12.3** **Standard**	3.12.3 A runway-holding position shall be established on a taxiway if the location or alignment of the taxiway is such that a taxiing aircraft or vehicle can infringe an obstacle limitation surface or interfere with the operation of radio navigation aids.	CAR Part 139, App C, C.8(b).	No Difference		
Chapter 3 Reference **3.12.4** **Recommendation**	3.12.4 **Recommendation.—** *An intermediate holding position should be established on a taxiway at any point other than a runway-holding position where it is desirable to define a specific holding limit.*	AC139-6, 3.12.4.	No Difference		

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Chapter 3 Reference **3.12.5** **Standard**	3.12.5 A road-holding position shall be established at an intersection of a road with a runway.	CAR Part 139, App C, C.8(c).	No Difference		
Chapter 3 Reference **3.12.6** **Standard**	***Location*** 3.12.6 The distance between a holding bay, runway-holding position established at a taxiway/runway intersection or road-holding position and the centre line of a runway shall be in accordance with Table 3-2 and, in the case of a precision approach runway, such that a holding aircraft or vehicle will not interfere with the operation of radio navigation aids or penetrate the inner transitional surface. *Note.— Guidance for the positioning of runway-holding positions is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.12.6.	No Difference		
Chapter 3 Reference **3.12.7** **Recommendation**	3.12.7 **Recommendation.—** *At elevations greater than 700 m (2 300 ft) the distance of 90 m specified in Table 3-2 for a precision approach runway code number 4 should be increased as follows:* *a) up to an elevation of 2 000 m (6 600 ft); 1 m for every 100 m (330 ft) in excess of 700 m (2 300 ft);* *b) elevation in excess of 2 000 m (6 600 ft) and up to 4 000 m (13 320 ft); 13 m plus 1.5 m for every 100 m (330 ft) in excess of 2 000 m (6 600 ft); and* *c) elevation in excess of 4 000 m (13 320 ft) and up to 5 000 m (16 650 ft); 43 m plus 2 m for every 100 m (330 ft) in excess of 4 000 m (13 320 ft).*	AC139-6, 3.12.7.	No Difference		

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Chapter 3 Reference **3.12.8** **Recommendation**	3.12.8 **Recommendation.—** *If a holding bay, runway-holding position or road-holding position for a precision approach runway code number 4 is at a greater elevation compared to the threshold, the distance specified in Table 3-2 should be further increased 5 m for every metre the bay or position is higher than the threshold.*	AC139-6, 3.12.8.	No Difference		
Chapter 3 Reference **3.12.9** **Standard**	3.12.9 The location of a runway-holding position established in accordance with 3.12.3 shall be such that a holding aircraft or vehicle will not infringe the obstacle free zone, approach surface, take-off climb surface or ILS/MLS critical/ sensitive area or interfere with the operation of radio navigation aids. **Table 3-2. Minimum distance from the runway centre line to a holding bay, runway-holding position or road-holding position**	AC139-6, 3.12.9.	No Difference		
Chapter 3 Reference **3.13.1** **Recommendation**	**3.13 Aprons** ***General*** 3.13.1 **Recommendation.—** *Aprons should be provided where necessary to permit the on- and off-loading of passengers, cargo or mail as well as the servicing of aircraft without interfering with the aerodrome traffic.*	AC139-6, 3.13.1.	No Difference		

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Chapter 3 Reference **3.13.2** **Recommendation**	***Size of aprons*** 3.13.2 **Recommendation.—** *The total apron area should be adequate to permit expeditious handling of the aerodrome traffic at its maximum anticipated density.*	AC139-6, 3.13.2.	No Difference		
Chapter 3 Reference **3.13.3** **Recommendation**	***Strength of aprons*** 3.13.3 **Recommendation.—** *Each part of an apron should be capable of withstanding the traffic of the aircraft it is intended to serve, due consideration being given to the fact that some portions of the apron will be subjected to a higher density of traffic and, as a result of slow moving or stationary aircraft, to higher stresses than a runway.*	AC139-6, 3.13.3.	No Difference		
Chapter 3 Reference **3.13.4** **Recommendation**	***Slopes on aprons*** 3.13.4 **Recommendation.—** *Slopes on an apron, including those on an aircraft stand taxilane, should be sufficient to prevent accumulation of water on the surface of the apron but should be kept as level as drainage requirements permit.*	AC139-6, 3.13.4.	No Difference		
Chapter 3 Reference **3.13.5** **Recommendation**	3.13.5 **Recommendation.—** *On an aircraft stand the maximum slope should not exceed 1 per cent.*	AC139-6, 3.13.5.	More Exacting or Exceeds	Also requires down-slope to be away from terminal buildings.	

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Chapter 3 Reference **3.13.6** **Recommendation**	***Clearance distances on aircraft stands*** 3.13.6 **Recommendation.—** *An aircraft stand should provide the following minimum clearances between an aircraft entering or exiting the stand and any adjacent building, aircraft on another stand and other objects:* *When special circumstances so warrant, these clearances may be reduced at a nose-in aircraft stand, where the code letter is D, E or F:* *a) between the terminal, including any fixed passenger bridge, and the nose of an aircraft; and* *b) over any portion of the stand provided with azimuth guidance by a visual docking guidance system.* *Note.— On aprons, consideration also has to be given to the provision of service roads and to manoeuvring and storage area for ground equipment (see the* Aerodrome Design Manual *(Doc 9157), Part 2, for guidance on storage of ground equipment).*	AC139-6, 3.13.6.	No Difference		
Chapter 3 Reference **3.14.1** **Standard**	**3.14 Isolated aircraft parking position** 3.14.1 An isolated aircraft parking position shall be designated or the aerodrome control tower shall be advised of an area or areas suitable for the parking of an aircraft which is known or believed to be the subject of unlawful interference, or which for other reasons needs isolation from normal aerodrome activities.	CAR 139.203(d)(1).	No Difference		

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Chapter 3 Reference **3.14.2** **Recommendation**	3.14.2 **Recommendation.—** *The isolated aircraft parking position should be located at the maximum distance practicable and in any case never less than 100 m from other parking positions, buildings or public areas, etc. Care should be taken to ensure that the position is not located over underground utilities such as gas and aviation fuel and, to the extent feasible, electrical or communication cables.*	AC139-6, 3.14.2.	No Difference		
Chapter 3 Reference **3.15.1** **Recommendation**	**3.15 De-icing/anti-icing facilities** *Note.— Safe and efficient aeroplane operations are of primary importance in the development of an aeroplane de-icing/ anti-icing facility. For further guidance, see the* Manual on Aircraft Ground De-icing/Anti-icing Operations *(Doc 9640).* ***General*** 3.15.1 **Recommendation.—** *Aeroplane de-icing/anti-icing facilities should be provided at an aerodrome where icing conditions are expected to occur.*	AC139-6, 3.15.1.	No Difference		

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Chapter 3 Reference **3.15.2** **Recommendation**	***Location*** 3.15.2 **Recommendation.—** *De-icing/anti-icing facilities should be provided either at aircraft stands or at specified remote areas along the taxiway leading to the runway meant for take-off, provided that adequate drainage arrangements for the collection and safe disposal of excess de-icing/anti-icing fluids are available to prevent ground water contamination. The effect of volume of traffic and departure flow rates should also be considered.* *Note 1.— One of the primary factors influencing the location of a de-icing/anti-icing facility is to ensure that the holdover time of the anti-icing treatment is still in effect at the end of taxiing and when take-off clearance of the treated aeroplane is given.* *Note 2.— Remote facilities compensate for changing weather conditions when icing conditions or blowing snow are expected to occur along the taxi-route taken by the aeroplane to the runway meant for take-off.*	AC139-6, 3.15.2.	No Difference		
Chapter 3 Reference **3.15.3** **Recommendation**	3.15.3 **Recommendation.—** *The remote de-icing/anti-icing facility should be located to be clear of the obstacle limitation surfaces specified in Chapter 4, not cause interference to the radio navigation aids and be clearly visible from the air traffic control tower for clearing the treated aeroplane.*	AC139-6, 3.15.3.	No Difference		

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Chapter 3 Reference **3.15.4** **Recommendation**	3.15.4 **Recommendation.—** *The remote de-icing/anti-icing facility should be so located as to provide for an expeditious traffic flow, perhaps with a bypass configuration, and not require unusual taxiing manoeuvre into and out of the pads.* *Note.— The jet blast effects caused by a moving aeroplane on other aeroplanes receiving the anti-icing treatment or taxiing behind will have to be taken into account to prevent degradation of the treatment.*	AC139-6, 3.15.4.	No Difference		
Chapter 3 Reference **3.15.5** **Recommendation**	***Size and number of de-icing/anti-icing pads*** *Note.— An aeroplane de-icing/anti-icing pad consists of a) an inner area for parking of an aeroplane to be treated, and b) an outer area for movement of two or more mobile de-icing/anti-icing equipment.* 3.15.5 **Recommendation.—** *The size of a de-icing/anti-icing pad should be equal to the parking area required by the most demanding aeroplane in a given category with at least 3.8 m clear paved area all round the aeroplane for the movement of the de-icing/anti-icing vehicles.* *Note.— Where more than one de-icing/anti-icing pad is provided, consideration will have to be given to providing de-icing/anti-icing vehicle movement areas of adjacent pads that do not overlap, but are exclusive for each pad. Consideration will also need to be given to bypassing of the area by other aeroplanes with the clearances specified in 3.15.9 and 3.15.10.*	AC139-6, 3.15.5.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 3 Reference **3.15.6** **Recommendation**	3.15.6 **Recommendation.—** *The number of de-icing/anti-icing pads required should be determined based on the meteorological conditions, the type of aeroplanes to be treated, the method of application of de-icing/anti-icing fluid, the type and capacity of the dispensing equipment used, and the departure flow rates.* *Note.— See the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.15.6.	No Difference		
Chapter 3 Reference **3.15.7** **Recommendation**	***Slopes on de-icing/anti-icing pads*** 3.15.7 **Recommendation.—** *The de-icing/anti-icing pads should be provided with suitable slopes to ensure satisfactory drainage of the area and to permit collection of all excess de-icing/anti-icing fluid running off an aeroplane. The maximum longitudinal slope should be as little as practicable and the transverse slope should not exceed 1 per cent.*	AC139-6, 3.15.7.	No Difference		
Chapter 3 Reference **3.15.8** **Recommendation**	***Strength of de-icing/anti-icing pads*** 3.15.8 **Recommendation.—** *The de-icing/anti-icing pad should be capable of withstanding the traffic of the aircraft it is intended to serve, due consideration being given to the fact that the de-icing/anti-icing pad (like an apron) will be subjected to a higher density of traffic and, as a result of slow-moving or stationary aircraft, to higher stresses than a runway.*	AC139-6, 3.15.8.	No Difference		

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Chapter 3 Reference **3.15.9** **Recommendation**	***Clearance distances on a de-icing/anti-icing pad*** 3.15.9 **Recommendation.—** *A de-icing/anti-icing pad should provide the minimum clearances specified in 3.13.6 for aircraft stands. If the pad layout is such as to include bypass configuration, the minimum separation distances specified in Table 3-1, column 13, should be provided.*	AC139-6, 3.15.9.	No Difference		
Chapter 3 Reference **3.15.10** **Recommendation**	3.15.10 **Recommendation.—** *Where the de-icing/anti-icing facility is located adjoining a regular taxiway, the taxiway minimum separation distance specified in Table 3-1, column 11, should be provided. (See Figure 3-4.)*	AC139-6, 3.15.10.	No Difference		
Chapter 3 Reference **3.15.11** **Recommendation**	***Environmental considerations*** *Note.— The excess de-icing/anti-icing fluid running off an aeroplane poses the risk of contamination of ground water in addition to affecting the pavement surface friction characteristics.* 3.15.11 **Recommendation.—** *Where de-icing/anti-icing activities are carried out, the surface drainage should be planned to collect the run-off separately, preventing its mixing with the normal surface run-off so that it does not pollute the ground water.* **Figure 3-4. Minimum separation distance on a de-icing/anti-icing facility**	AC139-6, 3.15.11.	No Difference		

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Chapter 4 Reference **4.1.1** **Standard**	**CHAPTER 4. OBSTACLE RESTRICTION AND REMOVAL** *Note 1.— The objectives of the specifications in this chapter are to define the airspace around aerodromes to be maintained free from obstacles so as to permit the intended aeroplane operations at the aerodromes to be conducted safely and to prevent the aerodromes from becoming unusable by the growth of obstacles around the aerodromes. This is achieved by establishing a series of obstacle limitation surfaces that define the limits to which objects may project into the airspace.* *Note 2.— Objects which penetrate the obstacle limitation surfaces contained in this chapter may in certain circumstances cause an increase in the obstacle clearance altitude/height for an instrument approach procedure or any associated visual circling procedure or have other operational impact on flight procedure design. Criteria for flight procedure design are contained in the* Procedures for Air Navigation Services — Aircraft Operations *(PANS-OPS, Doc 8168).* *Note 3.— The establishment of, and requirements for, an obstacle protection surface for visual approach slope indicator systems are specified in 5.3.5.42 to 5.3.5.46.* **4.1 Obstacle limitation surfaces** *Note.— See Figure 4-1.*	AC139-6, 4.1.1.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	Outer horizontal surface *Note.— Guidance on the need to provide an outer horizontal surface and its characteristics is contained in the* Airport Services Manual *(Doc 9137), Part 6.* ***Conical surface*** 4.1.1 *Description.— Conical surface.* A surface sloping upwards and outwards from the periphery of the inner horizontal surface.				
Chapter 4 Reference **4.1.2** **Standard**	4.1.2 *Characteristics.—* The limits of the conical surface shall comprise: a) a lower edge coincident with the periphery of the inner horizontal surface; and b) an upper edge located at a specified height above the inner horizontal surface.	AC139-6, 4.1.2.	No Difference		New Zealand has uniform upper limit of 150 m above aerodrome datum level.
Chapter 4 Reference **4.1.3** **Standard**	4.1.3 The slope of the conical surface shall be measured in a vertical plane perpendicular to the periphery of the inner horizontal surface.	AC139-6, 4.1.3.	No Difference		
Chapter 4 Reference **4.1.4** **Standard**	***Inner horizontal surface*** 4.1.4 *Description.— Inner horizontal surface.* A surface located in a horizontal plane above an aerodrome and its environs.	AC139-6, 4.1.4.	No Difference		

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Chapter 4 Reference **4.1.5** **Standard**	4.1.5 *Characteristics.—* The radius or outer limits of the inner horizontal surface shall be measured from a reference point or points established for such purpose. *Note.— The shape of the inner horizontal surface need not necessarily be circular. Guidance on determining the extent of the inner horizontal surface is contained in the* Airport Services Manual *(Doc 9137), Part 6.*	AC139-6, 4.1.5.	No Difference		Reference is the periphery of the runway strip.
Chapter 4 Reference **4.1.6** **Standard**	4.1.6 The height of the inner horizontal surface shall be measured above an elevation datum established for such purpose. *Note.— Guidance on determining the elevation datum is contained in the* Airport Services Manual *(Doc 9137), Part 6.*	AC139-6, 4.1.6.	No Difference		
Chapter 4 Reference **4.1.7** **Standard**	***Approach surface*** 4.1.7 *Description.— Approach surface.* An inclined plane or combination of planes preceding the threshold.	AC139-6, 4.1.10.	No Difference		

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Chapter 4 Reference **4.1.8** **Standard**	4.1.8 *Characteristics.—* The limits of the approach surface shall comprise: a) an inner edge of specified length, horizontal and perpendicular to the extended centre line of the runway and located at a specified distance before the threshold; b) two sides originating at the ends of the inner edge and diverging uniformly at a specified rate from the extended centre line of the runway; c) an outer edge parallel to the inner edge; and d) the above surfaces shall be varied when lateral offset, offset or curved approaches are utilized, specifically, two sides originating at the ends of the inner edge and diverging uniformly at a specified rate from the extended centre line of the lateral offset, offset or curved ground track.	AC139-6, 4.1.11, 4.1.12.	No Difference		Item d) not applicable.
Chapter 4 Reference **4.1.9** **Standard**	4.1.9 The elevation of the inner edge shall be equal to the elevation of the midpoint of the threshold.	AC139-6, 4.1.13.	Different in character or other means of compliance	The elevation of the inner edge of the approach fan should be the same as the highest point on the extended centre line between the threshold and the inner edge.	
Chapter 4 Reference **4.1.10** **Standard**	4.1.10 The slope(s) of the approach surface shall be measured in the vertical plane containing the centre line of the runway and shall continue containing the centre line of any lateral offset or curved ground track. *Note.— See Figure 4-2.*	AC139-6, 4.1.14.	No Difference		

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Chapter 4 Reference **4.1.11** **Standard**	***Inner approach surface*** 4.1.11 *Description.— Inner approach surface.* A rectangular portion of the approach surface immediately preceding the threshold.	AC139-6, 4.1.15.	No Difference		
Chapter 4 Reference **4.1.12** **Standard**	4.1.12 *Characteristics.—* The limits of the inner approach surface shall comprise: a) an inner edge coincident with the location of the inner edge of the approach surface but of its own specified length; b) two sides originating at the ends of the inner edge and extending parallel to the vertical plane containing the centre line of the runway; and c) an outer edge parallel to the inner edge.	AC139-6, 4.1.16.	No Difference		
Chapter 4 Reference **4.1.13** **Standard**	***Transitional surface*** 4.1.13 *Description.— Transitional surface.* A complex surface along the side of the strip and part of the side of the approach surface, that slopes upwards and outwards to the inner horizontal surface.	AC139-6, 4.1.17.	No Difference		

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Chapter 4 Reference **4.1.14** **Standard**	4.1.14 *Characteristics.—* The limits of a transitional surface shall comprise: a) a lower edge beginning at the intersection of the side of the approach surface with the inner horizontal surface and extending down the side of the approach surface to the inner edge of the approach surface and from there along the length of the strip parallel to the runway centre line; and b) an upper edge located in the plane of the inner horizontal surface.	AC139-6, 4.1.15, and Figures 4-1 & 4-2.	No Difference		
Chapter 4 Reference **4.1.15** **Standard**	4.1.15 The elevation of a point on the lower edge shall be: a) along the side of the approach surface — equal to the elevation of the approach surface at that point; and b) along the strip — equal to the elevation of the nearest point on the centre line of the runway or its extension. *Note.— As a result of b) the transitional surface along the strip will be curved if the runway profile is curved, or a plane if the runway profile is a straight line. The intersection of the transitional surface with the inner horizontal surface will also be a curved or a straight line depending on the runway profile.*	AC139-6, 4.1.18.	No Difference		
Chapter 4 Reference **4.1.16** **Standard**	4.1.16 The slope of the transitional surface shall be measured in a vertical plane at right angles to the centre line of the runway.	AC139-6, Figures 4-1 & 4-2.	No Difference		

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Chapter 4 Reference **4.1.17** **Standard**	***Inner transitional surface*** *Note.— It is intended that the inner transitional surface be the controlling obstacle limitation surface for navigation aids, aircraft and other vehicles that must be near the runway and which is not to be penetrated except for frangible objects. The transitional surface described in 4.1.13 is intended to remain as the controlling obstacle limitation surface for buildings, etc.* 4.1.17 *Description.— Inner transitional surface*. A surface similar to the transitional surface but closer to the runway.	AC139-6, 4.1.19.	No Difference		
Chapter 4 Reference **4.1.18** **Standard**	4.1.18 *Characteristics.—* The limits of an inner transitional surface shall comprise: a) a lower edge beginning at the end of the inner approach surface and extending down the side of the inner approach surface to the inner edge of that surface, from there along the strip parallel to the runway centre line to the inner edge of the balked landing surface and from there up the side of the balked landing surface to the point where the side intersects the inner horizontal surface; and b) an upper edge located in the plane of the inner horizontal surface.	AC139-6, 4.1.20.	No Difference		

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Chapter 4 Reference **4.1.19** **Standard**	4.1.19 The elevation of a point on the lower edge shall be: a) along the side of the inner approach surface and balked landing surface — equal to the elevation of the particular surface at that point; and b) along the strip — equal to the elevation of the nearest point on the centre line of the runway or its extension. *Note.— As a result of b) the inner transitional surface along the strip will be curved if the runway profile is curved or a plane if the runway profile is a straight line. The intersection of the inner transitional surface with the inner horizontal surface will also be a curved or straight line depending on the runway profile.*	AC139-6, 4.1.21.	No Difference		
Chapter 4 Reference **4.1.20** **Standard**	4.1.20 The slope of the inner transitional surface shall be measured in a vertical plane at right angles to the centre line of the runway.	AC139-6, 4.1.22.	No Difference		
Chapter 4 Reference **4.1.21** **Standard**	***Balked landing surface*** 4.1.21 *Description.— Balked landing surface.* An inclined plane located at a specified distance after the threshold, extending between the inner transitional surface.	AC139-6, 4.1.23.	No Difference		

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Chapter 4 Reference **4.1.22** **Standard**	4.1.22 *Characteristics.—* The limits of the balked landing surface shall comprise: a) an inner edge horizontal and perpendicular to the centre line of the runway and located at a specified distance after the threshold; b) two sides originating at the ends of the inner edge and diverging uniformly at a specified rate from the vertical plane containing the centre line of the runway; and c) an outer edge parallel to the inner edge and located in the plane of the inner horizontal surface.	AC139-6, 4.1.21.	No Difference		
Chapter 4 Reference **4.1.23** **Standard**	4.1.23 The elevation of the inner edge shall be equal to the elevation of the runway centre line at the location of the inner edge.	AC139-6, 4.1.22.	No Difference		
Chapter 4 Reference **4.1.24** **Standard**	4.1.24 The slope of the balked landing surface shall be measured in the vertical plane containing the centre line of the runway.	AC139-6, 4.1.23.	No Difference		
Chapter 4 Reference **4.1.25** **Standard**	***Take-off climb surface*** 4.1.25 *Description.— Take-off climb surface.* An inclined plane or other specified surface beyond the end of a runway or clearway.	AC139-6, Figure 4-5.	Different in character or other means of compliance	Diagrammatic rather than textual description.	

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Chapter 4 Reference **4.1.26** **Standard**	4.1.26 *Characteristics.—* The limits of the take-off climb surface shall comprise: a) an inner edge horizontal and perpendicular to the centre line of the runway and located either at a specified distance beyond the end of the runway or at the end of the clearway when such is provided and its length exceeds the specified distance; b) two sides originating at the ends of the inner edge, diverging uniformly at a specified rate from the take-off track to a specified final width and continuing thereafter at that width for the remainder of the length of the take-off climb surface; and c) an outer edge horizontal and perpendicular to the specified take-off track.	AC139-6, Figure 4-5.	Different in character or other means of compliance	Diagrammatic rather than textual description.	Note: the specified final width in b) is in AC139-6, Table 4-2.
Chapter 4 Reference **4.1.27** **Standard**	4.1.27 The elevation of the inner edge shall be equal to the highest point on the extended runway centre line between the end of the runway and the inner edge, except that when a clearway is provided the elevation shall be equal to the highest point on the ground on the centre line of the clearway.	AC139-6, 4.1.17.	No Difference		
Chapter 4 Reference **4.1.28** **Standard**	4.1.28 In the case of a straight take-off flight path, the slope of the take-off climb surface shall be measured in the vertical plane containing the centre line of the runway.	AC139-6, 4.1.18.	No Difference		

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Chapter 4 Reference **4.1.29** **Standard**	4.1.29 In the case of a take-off flight path involving a turn, the take-off climb surface shall be a complex surface containing the horizontal normals to its centre line, and the slope of the centre line shall be the same as that for a straight take-off flight path.	AC139-6, 4.1.19.	No Difference		
Chapter 4 Reference **4.2.1** **Standard**	**4.2 Obstacle limitation requirements** *Note.— The requirements for obstacle limitation surfaces are specified on the basis of the intended use of a runway, i.e. take-off or landing and type of approach, and are intended to be applied when such use is made of the runway. In cases where operations are conducted to or from both directions of a runway, then the function of certain surfaces may be nullified because of more stringent requirements of another lower surface.* ***Non-instrument runways*** 4.2.1 The following obstacle limitation surfaces shall be established for a non-instrument runway: — conical surface; — inner horizontal surface; — approach surface; and — transitional surfaces.	CAR Part 139, App D, D.1(a).	No Difference		
Chapter 4 Reference **4.2.2** **Standard**	4.2.2 The heights and slopes of the surfaces shall not be greater than, and their other dimensions not less than, those specified in Table 4-1.	AC139-6, 4.2.3.	No Difference		Note: the AC reference is the second 4.2.3 (same number has been repeated).

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Chapter 4 Reference **4.2.3** **Standard**	4.2.3 New objects or extensions of existing objects shall not be permitted above an approach or transitional surface except when, in the opinion of the appropriate authority, the new object or extension would be shielded by an existing immovable object. *Note.— Circumstances in which the shielding principle may reasonably be applied are described in the* Airport Services Manual *(Doc 9137), Part 6.*	AC139-6, 4.2.4.	No Difference		
Chapter 4 Reference **4.2.4** **Recommendation**	4.2.4 **Recommendation.—** *New objects or extensions of existing objects should not be permitted above the conical surface or inner horizontal surface except when, in the opinion of the appropriate authority, the object would be shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes*.	AC139-6, 4.2.5.	No Difference		
Chapter 4 Reference **4.2.5** **Recommendation**	4.2.5 **Recommendation.—** *Existing objects above any of the surfaces required by 4.2.1 should as far as practicable be removed except when, in the opinion of the appropriate authority, the object is shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes*. *Note.— Because of transverse or longitudinal slopes on a strip, in certain cases the inner edge or portions of the inner edge of the approach surface may be below the corresponding elevation of the strip. It is not intended that the strip be graded to conform with the inner edge of the approach surface, nor is it intended that terrain or objects which are above the approach surface beyond the end of the strip, but below the level of the strip, be removed unless it is considered they may endanger aeroplanes*.	AC139-6, 4.2.6.	No Difference		

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Chapter 4 Reference **4.2.6** **Recommendation**	4.2.6 **Recommendation.—** *In considering proposed construction, account should be taken of the possible future development of an instrument runway and consequent requirement for more stringent obstacle limitation surfaces*.	AC139-6, 4.2.7.	No Difference		
Chapter 4 Reference **4.2.7** **Standard**	***Non-precision approach runways*** 4.2.7 The following obstacle limitation surfaces shall be established for a non-precision approach runway: — conical surface; — inner horizontal surface; — approach surface; and — transitional surfaces.	CAR Part 139, App D, D.1(a).	No Difference		
Chapter 4 Reference **4.2.8** **Standard**	4.2.8 The heights and slopes of the surfaces shall not be greater than, and their other dimensions not less than, those specified in Table 4-1, except in the case of the horizontal section of the approach surface (see 4.2.9).	AC139-6, 4.2.3.	No Difference		Note: the AC reference is the second 4.2.3 (number repeated).

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Chapter 4 Reference **4.2.9** **Standard**	4.2.9 The approach surface shall be horizontal beyond the point at which the 2.5 per cent slope intersects: a) a horizontal plane 150 m above the threshold elevation; or b) the horizontal plane passing through the top of any object that governs the obstacle clearance altitude/height (OCA/H); whichever is the higher. **Table 4-1. Dimensions and slopes of obstacle limitation surfaces — Approach runways** APPROACH RUNWAYS	AC139-6, Ch 4.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 4 Reference **4.2.10** **Standard**	4.2.10 New objects or extensions of existing objects shall not be permitted above an approach surface within 3 000 m of the inner edge or above a transitional surface except when, in the opinion of the appropriate authority, the new object or extension would be shielded by an existing immovable object. *Note.— Circumstances in which the shielding principle may reasonably be applied are described in the* Airport Services *Manual* (Doc 9137), *Part 6*.	CAR Part 139, App D, D.1(d).	No Difference		
Chapter 4 Reference **4.2.11** **Recommendation**	4.2.11 **Recommendation.—** *New objects or extensions of existing objects should not be permitted above the approach surface beyond 3 000 m from the inner edge, the conical surface or inner horizontal surface except when, in the opinion of the appropriate authority, the object would be shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes.*	AC139-6, 4.2.5.	Less protective or partially implemented or not implemented	The 3000 m dimension is not specified.	

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Chapter 4 Reference **4.2.12** **Recommendation**	4.2.12 **Recommendation.—** *Existing objects above any of the surfaces required by 4.2.7 should as far as practicable be removed except when, in the opinion of the appropriate authority, the object is shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes*. *Note.— Because of transverse or longitudinal slopes on a strip, in certain cases the inner edge or portions of the inner edge of the approach surface may be below the corresponding elevation of the strip. It is not intended that the strip be graded to conform with the inner edge of the approach surface, nor is it intended that terrain or objects which are above the approach surface beyond the end of the strip, but below the level of the strip, be removed unless it is considered they may endanger aeroplanes*.	AC139-6, 4.2.6.	No Difference		
Chapter 4 Reference **4.2.13** **Standard**	***Precision approach runways*** *Note 1.— See 9.9 for information regarding siting of equipment and installations on operational areas*. *Note 2.— Guidance on obstacle limitation surfaces for precision approach runways is given in the* Airport Services Manual *(Doc 9137), Part 6.* 4.2.13 The following obstacle limitation surfaces shall be established for a precision approach runway category I: — conical surface; — inner horizontal surface; — approach surface; and — transitional surfaces.	CAR Part 139, App D, D.1(a).	No Difference		

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Chapter 4 Reference **4.2.14** **Recommendation**	4.2.14 **Recommendation.—** *The following obstacle limitation surfaces should be established for a precision approach runway category I:* — inner approach surface; — inner transitional surfaces; and — balked landing surface.	AC139-6, 4.2.3.	No Difference		Note: the AC reference is the first 4.2.3 (number repeated).
Chapter 4 Reference **4.2.15** **Standard**	4.2.15 The following obstacle limitation surfaces shall be established for a precision approach runway category II or III: — conical surface; — inner horizontal surface; — approach surface and inner approach surface; — transitional surfaces; — inner transitional surfaces; and — balked landing surface.	CAR Part 139, App D, D.1(a) and (b).	No Difference		
Chapter 4 Reference **4.2.16** **Standard**	4.2.16 The heights and slopes of the surfaces shall not be greater than, and their other dimensions not less than, those specified in Table 4-1, except in the case of the horizontal section of the approach surface (see 4.2.17).	AC139-6, 4.2.3.	No Difference		Note: the AC reference is the second 4.2.3 (number repeated).
Chapter 4 Reference **4.2.17** **Standard**	4.2.17 The approach surface shall be horizontal beyond the point at which the 2.5 per cent slope intersects: a) a horizontal plane 150 m above the threshold elevation; or b) the horizontal plane passing through the top of any object that governs the obstacle clearance limit; whichever is the higher.	AC139-6, Ch 4.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 4 Reference **4.2.18** **Standard**	4.2.18 Fixed objects shall not be permitted above the inner approach surface, the inner transitional surface or the balked landing surface, except for frangible objects which because of their function must be located on the strip. Mobile objects shall not be permitted above these surfaces during the use of the runway for landing.	AC139-6, Ch 4.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 4 Reference **4.2.19** **Standard**	4.2.19 New objects or extensions of existing objects shall not be permitted above an approach surface or a transitional surface except when, in the opinion of the appropriate authority, the new object or extension would be shielded by an existing immovable object. *Note.— Circumstances in which the shielding principle may reasonably be applied are described in the* Airport Services Manual *(Doc 9137), Part 6.*	CAR Part 139, App D, D.1(f).	No Difference		
Chapter 4 Reference **4.2.20** **Recommendation**	4.2.20 **Recommendation.—** *New objects or extensions of existing objects should not be permitted above the conical surface and the inner horizontal surface except when, in the opinion of the appropriate authority, an object would be shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes*.	AC139-6, 4.2.5.	No Difference		

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Chapter 4 Reference **4.2.21** **Recommendation**	4.2.21 **Recommendation.—** *Existing objects above an approach surface, a transitional surface, the conical surface and inner horizontal surface should as far as practicable be removed except when, in the opinion of the appropriate authority, an object is shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes.* *Note.— Because of transverse or longitudinal slopes on a strip, in certain cases the inner edge or portions of the inner edge of the approach surface may be below the corresponding elevation of the strip. It is not intended that the strip be graded to conform with the inner edge of the approach surface, nor is it intended that terrain or objects which are above the approach surface beyond the end of the strip, but below the level of the strip, be removed unless it is considered they may endanger aeroplanes.*	AC139-6, 4.2.6.	No Difference		
Chapter 4 Reference **4.2.22** **Standard**	***Runways meant for take-off*** 4.2.22 The following obstacle limitation surface shall be established for a runway meant for take-off: — take-off climb surface.	CAR Part 139, App D, D.2(a).	No Difference		
Chapter 4 Reference **4.2.23** **Standard**	4.2.23 The dimensions of the surface shall be not less than the dimensions specified in Table 4-2, except that a lesser length may be adopted for the take-off climb surface where such lesser length would be consistent with procedural measures adopted to govern the outward flight of aeroplanes.	AC139-6, 4.2.9.	No Difference		

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Chapter 4 Reference **4.2.24** **Recommendation**	4.2.24 **Recommendation.—** *The operational characteristics of aeroplanes for which the runway is intended should be examined to see if it is desirable to reduce the slope specified in Table 4-2 when critical operating conditions are to be catered to. If the specified slope is reduced, corresponding adjustment in the length of the take-off climb surface should be made so as to provide protection to a height of 300 m.* *Note.— When local conditions differ widely from sea level standard atmospheric conditions, it may be advisable for the slope specified in Table 4-2 to be reduced. The degree of this reduction depends on the divergence between local conditions and sea level standard atmospheric conditions, and on the performance characteristics and operational requirements of the aeroplanes for which the runway is intended.*	AC139-6, 4.2.10.	No Difference		
Chapter 4 Reference **4.2.25** **Standard**	4.2.25 New objects or extensions of existing objects shall not be permitted above a take-off climb surface except when, in the opinion of the appropriate authority, the new object or extension would be shielded by an existing immovable object. *Note.— Circumstances in which the shielding principle may reasonably be applied are described in the* Airport Services Manual *(Doc 9137), Part 6.*	AC139-6, 4.2.11.	No Difference		

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Chapter 4 Reference **4.2.26** **Recommendation**	4.2.26 **Recommendation.—** *If no object reaches the 2 per cent (1:50) take-off climb surface, new objects should be limited to preserve the existing obstacle free surface or a surface down to a slope of 1.6 per cent (1:62.5).* **Table 4-2. Dimensions and slopes of obstacle limitation surfaces** RUNWAYS MEANT FOR TAKE-OFF	AC139-6, 4.2.12.	No Difference		
Chapter 4 Reference **4.2.27** **Recommendation**	4.2.27 **Recommendation.—** *Existing objects that extend above a take-off climb surface should as far as practicable be removed except when, in the opinion of the appropriate authority, an object is shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes.* *Note.— Because of transverse slopes on a strip or clearway, in certain cases portions of the inner edge of the take-off climb surface may be below the corresponding elevation of the strip or clearway. It is not intended that the strip or clearway be graded to conform with the inner edge of the take-off climb surface, nor is it intended that terrain or objects which are above the take-off climb surface beyond the end of the strip or clearway, but below the level of the strip or clearway, be removed unless it is considered they may endanger aeroplanes. Similar considerations apply at the junction of a clearway and strip where differences in transverse slopes exist.*	AC139-6, 4.2.13.	No Difference		

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Chapter 4 Reference **4.3.1** **Recommendation**	**4.3 Objects outside the obstacle limitation surfaces** 4.3.1 **Recommendation.—** *Arrangements should be made to enable the appropriate authority to be consulted concerning proposed construction beyond the limits of the obstacle limitation surfaces that extend above a height established by that authority, in order to permit an aeronautical study of the effect of such construction on the operation of aeroplanes*.	CAR 77.5.	No Difference		
Chapter 4 Reference **4.3.2** **Recommendation**	4.3.2 **Recommendation.—** *In areas beyond the limits of the obstacle limitation surfaces, at least those objects which extend to a height of 150 m or more above ground elevation should be regarded as obstacles, unless a special aeronautical study indicates that they do not constitute a hazard to aeroplanes*. *Note.— This study may have regard to the nature of operations concerned and may distinguish between day and night operations.*	CAR 77.19(a).	More Exacting or Exceeds	Applicable to structures 120 m or higher above ground level.	
Chapter 4 Reference **4.4.1** **Recommendation**	**4.4 Other objects** 4.4.1 **Recommendation.—** *Objects which do not project through the approach surface but which would nevertheless adversely affect the optimum siting or performance of visual or non-visual aids should, as far as practicable, be removed.*	AC139-6, 4.3.1.	No Difference		

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Chapter 4 Reference **4.4.2** **Recommendation**	4.4.2 **Recommendation.—** *Anything which may, in the opinion of the appropriate authority after aeronautical study, endanger aeroplanes on the movement area or in the air within the limits of the inner horizontal and conical surfaces should be regarded as an obstacle and should be removed in so far as practicable.* *Note.— In certain circumstances, objects that do not project above any of the surfaces enumerated in 4.1 may constitute a hazard to aeroplanes as, for example, where there are one or more isolated objects in the vicinity of an aerodrome.*	AC139-6, 4.3.2.	No Difference		
Chapter 5 Reference **5.1.1.1** **Standard**	**CHAPTER 5. VISUAL AIDS FOR NAVIGATION** **5.1 Indicators and signalling devices** 5.1.1 Wind direction indicator ***Application*** 5.1.1.1 An aerodrome shall be equipped with at least one wind direction indicator.	CAR Part 139, App E, E.1(a). AC 139-6, 5.1.1 and 5.3.110.	More Exacting or Exceeds	One required adjacent to each paved runway threshold. AC also specifies ne required to the left of each runway or strip threshold, and to be illuminated at night (5.3.110).	

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Chapter 5 Reference **5.1.1.2** **Standard**	***Location*** 5.1.1.2 A wind direction indicator shall be located so as to be visible from aircraft in flight or on the movement area and in such a way as to be free from the effects of air disturbances caused by nearby objects.	AC139-6, 5.1.2.	No Difference		
Chapter 5 Reference **5.1.1.3** **Recommendation**	***Characteristics*** 5.1.1.3 **Recommendation.—** *The wind direction indicator should be in the form of a truncated cone made of fabric and should have a length of not less than 3.6 m and a diameter, at the larger end, of not less than 0.9 m. It should be constructed so that it gives a clear indication of the direction of the surface wind and a general indication of the wind speed. The colour or colours should be so selected as to make the wind direction indicator clearly visible and understandable from a height of at least 300 m, having regard to background. Where practicable, a single colour, preferably white or orange, should be used. Where a combination of two colours is required to give adequate conspicuity against changing backgrounds, they should preferably be orange and white, red and white, or black and white, and should be arranged in five alternate bands, the first and last bands being the darker colour.*	AC139-6, 5.1.3.	No Difference		
Chapter 5 Reference **5.1.1.4** **Recommendation**	5.1.1.4 **Recommendation.—** *The location of at least one wind direction indicator should be marked by a circular band 15 m in diameter and 1.2 m wide. The band should be centred about the wind direction indicator support and should be in a colour chosen to give adequate conspicuity, preferably white.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.1.1.5** **Recommendation**	5.1.1.5 **Recommendation.—** *Provision should be made for illuminating at least one wind indicator at an aerodrome intended for use at night.*	CAR Part 139, App E, E.1(b). AC139-6, 5.3.110.	More Exacting or Exceeds	The AC specification is for each to be illuminated.	
Chapter 5 Reference **5.1.2.1** **Standard**	5.1.2 Landing direction indicator ***Location*** 5.1.2.1 Where provided, a landing direction indicator shall be located in a conspicuous place on the aerodrome.		Not Applicable		No longer used in New Zealand.
Chapter 5 Reference **5.1.2.2** **Recommendation**	***Characteristics*** 5.1.2.2 **Recommendation.—** *The landing direction indicator should be in the form of a "T".* **Figure 5-1. Landing direction indicator**		Not Applicable		
Chapter 5 Reference **5.1.2.3** **Standard**	5.1.2.3 The shape and minimum dimensions of a landing "T" shall be as shown in Figure 5-1. The colour of the landing "T" shall be either white or orange, the choice being dependent on the colour that contrasts best with the background against which the indicator will be viewed. Where required for use at night the landing "T" shall either be illuminated or outlined by white lights.		Not Applicable		

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Chapter 5 Reference **5.1.3.1** **Standard**	5.1.3 Signalling lamp ***Application*** 5.1.3.1 A signalling lamp shall be provided at a controlled aerodrome in the aerodrome control tower.	CAR 172.57(b)(5)(ix).	No Difference		
Chapter 5 Reference **5.1.3.2** **Recommendation**	***Characteristics*** 5.1.3.2 **Recommendation.—** *A signalling lamp should be capable of producing red, green and white signals, and of:* *a) being aimed manually at any target as required;* *b) giving a signal in any one colour followed by a signal in either of the two other colours; and* *c) transmitting a message in any one of the three colours by Morse Code up to a speed of at least four words per minute.* *When selecting the green light, use should be made of the restricted boundary of green as specified in Appendix 1, 2.1.2.*	CAR 172.57(b)(5)(ix); MATS EQP.	Less protective or partially implemented or not implemented	Colours only specified.	In practice, the lights currently used meet the recommended characteristics.
Chapter 5 Reference **5.1.3.3** **Recommendation**	5.1.3.3 **Recommendation.—** *The beam spread should be not less than 1° nor greater than 3°, with negligible light beyond 3°. When the signalling lamp is intended for use in the daytime the intensity of the coloured light should be not less than 6 000 cd.*	CAR 172.57(b)(5)(ix).	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.1.4.1** **Recommendation**	5.1.4 Signal panels and signal area *Note.— The inclusion of detailed specifications for a signal area in this section is not intended to imply that one has to be provided. Attachment A, Section 17, provides guidance on the need to provide ground signals. Annex 2, Appendix 1, specifies the shape, colour and use of visual ground signals. The* Aerodrome Design Manual *(Doc 9157), Part 4, provides guidance on their design.* ***Location of signal area*** 5.1.4.1 **Recommendation.—** *The signal area should be located so as to be visible for all angles of azimuth above an angle of 10° above the horizontal when viewed from a height of 300 m.*		Not Applicable		No longer used in New Zealand.
Chapter 5 Reference **5.1.4.2** **Standard**	***Characteristics of signal area*** 5.1.4.2 The signal area shall be an even horizontal surface at least 9 m square.		Not Applicable		
Chapter 5 Reference **5.1.4.3** **Recommendation**	5.1.4.3 **Recommendation.—** *The colour of the signal area should be chosen to contrast with the colours of the signal panels used, and it should be surrounded by a white border not less than 0.3 m wide.*		Not Applicable		

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Chapter 5 Reference **5.2.1.1** **Standard**	**5.2 Markings** 5.2.1 General ***Interruption of runway markings*** 5.2.1.1 At an intersection of two (or more) runways the markings of the more important runway, except for the runway side stripe marking, shall be displayed and the markings of the other runway(s) shall be interrupted. The runway side stripe marking of the more important runway may be either continued across the intersection or interrupted.	CAR Part 139, App E, E.2.3(a). AC139-6, 5.2.2.	No Difference		
Chapter 5 Reference **5.2.1.2** **Recommendation**	5.2.1.2 **Recommendation.—** *The order of importance of runways for the display of runway markings should be as follows:* *1st — precision approach runway;* *2nd — non-precision approach runway; and* *3rd — non-instrument runway.*	AC139-6, 5.2.3.	No Difference		
Chapter 5 Reference **5.2.1.3** **Standard**	5.2.1.3 At an intersection of a runway and taxiway the markings of the runway shall be displayed and the markings of the taxiway interrupted, except that runway side stripe markings may be interrupted. *Note.— See 5.2.8.7 regarding the manner of connecting runway and taxiway centre line markings.*	CAR Part 139, App E, E.2.3(b)..	No Difference		

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Chapter 5 Reference **5.2.1.4** **Standard**	***Colour and conspicuity*** 5.2.1.4 Runway markings shall be white. *Note 1.— It has been found that, on runway surfaces of light colour, the conspicuity of white markings can be improved by outlining them in black.* *Note 2.— It is preferable that the risk of uneven friction characteristics on markings be reduced in so far as practicable by the use of a suitable kind of paint.* *Note 3.— Markings may consist of solid areas or a series of longitudinal stripes providing an effect equivalent to the solid areas.*	CAR Part 139, App E, E.2.1(a). AC139-6, 5.2.5.	No Difference		
Chapter 5 Reference **5.2.1.5** **Standard**	5.2.1.5 Taxiway markings, runway turn pad markings and aircraft stand markings shall be yellow.	CAR Part 139, App E, E.2.1(b). AC139-6, 5.2.6.	No Difference		
Chapter 5 Reference **5.2.1.6** **Standard**	5.2.1.6 Apron safety lines shall be of a conspicuous colour which shall contrast with that used for aircraft stand markings.	CAR Part 139, App E, E.2.1(c). AC139-6, 5.2.7.	No Difference		

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Chapter 5 Reference **5.2.1.7** **Recommendation**	5.2.1.7 **Recommendation.—** *At aerodromes where operations take place at night, pavement markings should be made with reflective materials designed to enhance the visibility of the markings.* *Note.— Guidance on reflective materials is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 5.2.5 Note 2.	No Difference		
Chapter 5 Reference **5.2.1.8** **Recommendation**	***Unpaved taxiways*** 5.2.1.8 **Recommendation.—** *An unpaved taxiway should be provided, so far as practicable, with the markings prescribed for paved taxiways.*	AC139-6, 5.2.8.	No Difference		
Chapter 5 Reference **5.2.2.1** **Standard**	5.2.2 Runway designation marking ***Application*** 5.2.2.1 A runway designation marking shall be provided at the thresholds of a paved runway.	CAR Part 139, App E, E.2.2. AC139-6, 5.2.9.	No Difference		
Chapter 5 Reference **5.2.2.2** **Recommendation**	5.2.2.2 **Recommendation.—** *A runway designation marking should be provided, so far as practicable, at the thresholds of an unpaved runway.*	AC 139-6, 5.2.9.	No Difference		

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Chapter 5 Reference **5.2.2.3** **Standard**	***Location*** 5.2.2.3 A runway designation marking shall be located at a threshold as shown in Figure 5-2 as appropriate. *Note.— If the runway threshold is displaced from the extremity of the runway, a sign showing the designation of the runway may be provided for aeroplanes taking off.*	AC139-6, 5.2.10.	No Difference		
Chapter 5 Reference **5.2.2.4** **Standard**	***Characteristics*** 5.2.2.4 A runway designation marking shall consist of a two-digit number and on parallel runways shall be supplemented with a letter. On a single runway, dual parallel runways and triple parallel runways the two-digit number shall be the whole number nearest the one-tenth of the magnetic North when viewed from the direction of approach. On four or more parallel runways, one set of adjacent runways shall be numbered to the nearest one-tenth magnetic azimuth and the other set of adjacent runways numbered to the next nearest one-tenth of the magnetic azimuth. When the above rule would give a single digit number, it shall be preceded by a zero.	AC139-6, 5.2.11 to 5.2.12.	No Difference		

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Chapter 5 Reference **5.2.2.5** **Standard**	5.2.2.5 In the case of parallel runways, each runway designation number shall be supplemented by a letter as follows, in the order shown from left to right when viewed from the direction of approach: — for two parallel runways: "L" "R"; — for three parallel runways: "L" "C" "R"; — for four parallel runways: "L" "R" "L" "R"; — for five parallel runways: "L" "C" "R" "L" "R" or "L" "R" "L" "C" "R"; and — for six parallel runways: "L" "C" "R" "L" "C" "R".	AC139-6, 5.2.13.	No Difference		No aerodromes in New Zealand with more than two parallel runways.
Chapter 5 Reference **5.2.2.6** **Standard**	5.2.2.6 The numbers and letters shall be in the form and proportion shown in Figure 5-3. The dimensions shall be not less than those shown in Figure 5-3, but where the numbers are incorporated in the threshold marking, larger dimensions shall be used in order to fill adequately the gap between the stripes of the threshold marking.	AC139-6, 5.2.14.	No Difference		
Chapter 5 Reference **5.2.3.1** **Standard**	5.2.3 Runway centre line marking ***Application*** 5.2.3.1 A runway centre line marking shall be provided on a paved runway.	CAR Part 139, App E, E.2.2. AC139-6, 5.2.15.	No Difference		

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Chapter 5 Reference **5.2.3.2** **Standard**	***Location*** 5.2.3.2 A runway centre line marking shall be located along the centre line of the runway between the runway designation markings as shown in Figure 5-2, except when interrupted in compliance with 5.2.1.1.	AC139-6, 5.2.16.	No Difference		
Chapter 5 Reference **5.2.3.3** **Standard**	***Characteristics*** 5.2.3.3 A runway centre line marking shall consist of a line of uniformly spaced stripes and gaps. The length of a stripe plus a gap shall be not less than 50 m or more than 75 m. The length of each stripe shall be at least equal to the length of the gap or 30 m, whichever is greater.	AC139-6, 5.2.17.	No Difference		
Chapter 5 Reference **5.2.3.4** **Standard**	5.2.3.4 The width of the stripes shall be not less than: — 0.90 m on precision approach category II and III runways; — 0.45 m on non-precision approach runways where the code number is 3 or 4, and precision approach category I runways; and — 0.30 m on non-precision approach runways where the code number is 1 or 2, and on non-instrument runways.	AC139-6, 5.2.18.	No Difference		

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Chapter 5 Reference **5.2.4.1** **Standard**	5.2.4 Threshold marking ***Application*** 5.2.4.1 A threshold marking shall be provided at the threshold of a paved instrument runway, and of a paved non-instrument runway where the code number is 3 or 4 and the runway is intended for use by international commercial air transport.	CAR Part 139, App E, E.2.2. AC139-6, 5.2.20.	No Difference		
Chapter 5 Reference **5.2.4.2** **Recommendation**	5.2.4.2 **Recommendation.—** *A threshold marking should be provided at the threshold of a paved non-instrument runway where the code number is 3 or 4 and the runway is intended for use by other than international commercial air transport.*	CAR Part 139, App E, E.2.2. AC139-6, 5.2.19.	No Difference		
Chapter 5 Reference **5.2.4.3** **Recommendation**	5.2.4.3 **Recommendation.—** *A threshold marking should be provided, so far as practicable, at the thresholds of an unpaved runway.* *Note.— The* Aerodrome Design Manual *(Doc 9157), Part 4, shows a form of marking which has been found satisfactory for the marking of downward slopes immediately before the threshold.*	AC139-7, 5.2.3.	Less protective or partially implemented or not implemented	Specification applies only to paved runways.	
Chapter 5 Reference **5.2.4.4** **Standard**	***Location*** 5.2.4.4 The stripes of the threshold marking shall commence 6 m from the threshold.	AC139-6, 5.2.20.	No Difference		

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Chapter 5 Reference **5.2.4.5** **Standard**	***Characteristics*** 5.2.4.5 A runway threshold marking shall consist of a pattern of longitudinal stripes of uniform dimensions disposed symmetrically about the centre line of a runway as shown in Figure 5-2 (A) and (B) for a runway width of 45 m. The number of stripes shall be in accordance with the runway width as follows: *Runway width* — *Number of stripes* 18 m — 4 23 m — 6 30 m — 8 45 m — 12 60 m — 16 except that on non-precision approach and non-instrument runways 45 m or greater in width, they may be as shown in Figure 5-2 (C).	AC139-6, 5.2.22.	No Difference		

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Chapter 5 Reference **5.2.4.6** **Standard**	5.2.4.6 The stripes shall extend laterally to within 3 m of the edge of a runway or to a distance of 27 m on either side of a runway centre line, whichever results in the smaller lateral distance. Where a runway designation marking is placed within a threshold marking there shall be a minimum of three stripes on each side of the centre line of the runway. Where a runway designation marking is placed above a threshold marking, the stripes shall be continued across the runway. The stripes shall be at least 30 m long and approximately 1.80 m wide with spacings of approximately 1.80 m between them except that, where the stripes are continued across a runway, a double spacing shall be used to separate the two stripes nearest the centre line of the runway, and in the case where the designation marking is included within the threshold marking this spacing shall be 22.5 m.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not implemented.	
Chapter 5 Reference **5.2.4.7** **Recommendation**	***Transverse stripe*** 5.2.4.7 **Recommendation.—** *Where a threshold is displaced from the extremity of a runway or where the extremity of a runway is not square with the runway centre line, a transverse stripe as shown in Figure 5-4 (B) should be added to the threshold marking.*	CAR Part 139, App E, E.2.4. AC139-6, 5.2.23.	No Difference		
Chapter 5 Reference **5.2.4.8** **Standard**	5.2.4.8 A transverse stripe shall be not less than 1.80 m wide.	AC139-6, 5.2.24.	No Difference		

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Chapter 5 Reference **5.2.4.9** **Standard**	***Arrows*** 5.2.4.9 Where a runway threshold is permanently displaced, arrows conforming to Figure 5-4 (B) shall be provided on the portion of the runway before the displaced threshold.	CAR Part 139, App E, E.2.5. AC139-6, 5.2.26.	No Difference		
Chapter 5 Reference **5.2.4.10** **Standard**	5.2.4.10 When a runway threshold is temporarily displaced from the normal position, it shall be marked as shown in Figure 5-4 (A) or 5-4 (B) and all markings prior to the displaced threshold shall be obscured except the runway centre line marking, which shall be converted to arrows. *Note 1.— In the case where a threshold is temporarily displaced for only a short period of time, it has been found satisfactory to use markers in the form and colour of a displaced threshold marking rather than attempting to paint this marking on the runway.* *Note 2.— When the runway before a displaced threshold is unfit for the surface movement of aircraft, closed markings, as described in 7.1.4, are required to be provided.*	AC139-6, 5.2.27.	No Difference		
Chapter 5 Reference **5.2.5.1** **Standard**	5.2.5 Aiming point marking ***Application*** 5.2.5.1 An aiming point marking shall be provided at each approach end of a paved instrument runway where the code number is 2, 3 or 4.	CAR Part 139, App E, E.2.6. AC139-6, 5.2.28.	No Difference		

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Chapter 5 Reference **5.2.5.2** **Recommendation**	5.2.5.2 **Recommendation.—** *An aiming point marking should be provided at each approach end of:* *a) a paved non-instrument runway where the code number is 3 or 4;* *b) a paved instrument runway where the code number is 1;* *when additional conspicuity of the aiming point is desirable.*	AC139-6, 5.2.28.	No Difference		
Chapter 5 Reference **5.2.5.3** **Standard**	***Location*** 5.2.5.3 The aiming point marking shall commence no closer to the threshold than the distance indicated in the appropriate column of Table 5-1, except that, on a runway equipped with a visual approach slope indicator system, the beginning of the marking shall be coincident with the visual approach slope origin.	AC139-6, 5.2.29.	No Difference		
Chapter 5 Reference **5.2.5.4** **Standard**	5.2.5.4 An aiming point marking shall consist of two conspicuous stripes. The dimensions of the stripes and the lateral spacing between their inner sides shall be in accordance with the provisions of the appropriate column of Table 5-1. Where a touchdown zone marking is provided, the lateral spacing between the markings shall be the same as that of the touchdown zone marking.	AC139-6, 5.2.30.	No Difference		

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Chapter 5 Reference **5.2.6.1** **Standard**	5.2.6 Touchdown zone marking ***Application*** 5.2.6.1 A touchdown zone marking shall be provided in the touchdown zone of a paved precision approach runway where the code number is 2, 3 or 4.	CAR Part 139, App E, E.2.7. AC139-6, 5.2.32.	No Difference		
Chapter 5 Reference **5.2.6.2** **Recommendation**	5.2.6.2 **Recommendation.—** *A touchdown zone marking should be provided in the touchdown zone of a paved non-precision approach or non-instrument runway where the code number is 3 or 4 and additional conspicuity of the touchdown zone is desirable.* **Table 5-1. Location and dimensions of aiming point marking**	AC139-6, 5.2.32.	No Difference		
Chapter 5 Reference **5.2.6.3** **Standard**	***Location and characteristics*** 5.2.6.3 A touchdown zone marking shall consist of pairs of rectangular markings symmetrically disposed about the runway centre line with the number of such pairs related to the landing distance available and, where the marking is to be displayed at both the approach directions of a runway, the distance between the thresholds, as follows:	AC139-6, 5.2.33.	No Difference		

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Chapter 5 Reference **5.2.6.4** **Standard**	5.2.6.4 A touchdown zone marking shall conform to either of the two patterns shown in Figure 5-5. For the pattern shown in Figure 5-5 (A), the markings shall be not less than 22.5 m long and 3 m wide. For the pattern shown in Figure 5-5 (B), each stripe of each marking shall be not less than 22.5 m long and 1.8 m wide with a spacing of 1.5 m between adjacent stripes. The lateral spacing between the inner sides of the rectangles shall be equal to that of the aiming point marking where provided. Where an aiming point marking is not provided, the lateral spacing between the inner sides of the rectangles shall correspond to the lateral spacing specified for the aiming point marking in Table 5-1 (columns 2, 3, 4 or 5, as appropriate). The pairs of markings shall be provided at longitudinal spacings of 150 m beginning from the threshold, except that pairs of touchdown zone markings coincident with or located within 50 m of an aiming point marking shall be deleted from the pattern.	AC139-6, 5.2.34.	No Difference		
Chapter 5 Reference **5.2.6.5** **Recommendation**	5.2.6.5 **Recommendation.—** *On a non-precision approach runway where the code number is 2, an additional pair of touchdown zone marking stripes should be provided 150 m beyond the beginning of the aiming point marking.*	AC139-6, 5.2.35.	No Difference		
Chapter 5 Reference **5.2.7.1** **Standard**	5.2.7 Runway side stripe marking ***Application*** 5.2.7.1 A runway side stripe marking shall be provided between the thresholds of a paved runway where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain.	CAR Part 139, App E, E.2.8. AC139-6, 5.2.39.	No Difference		

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Chapter 5 Reference **5.2.7.2** **Recommendation**	5.2.7.2 **Recommendation.—** *A runway side stripe marking should be provided on a precision approach runway irrespective of the contrast between the runway edges and the shoulders or the surrounding terrain.*	AC139-6, 5.2.39.	Less protective or partially implemented or not implemented	Specified only when there is inadequate visual differentiation between the edge of the runway and the shoulder.	
Chapter 5 Reference **5.2.7.3** **Recommendation**	***Location*** 5.2.7.3 **Recommendation.—** *A runway side stripe marking should consist of two stripes, one placed along each edge of the runway with the outer edge of each stripe approximately on the edge of the runway, except that, where the runway is greater than 60 m in width, the stripes should be located 30 m from the runway centre line.*	AC139-6, 5.2.40.	No Difference		
Chapter 5 Reference **5.2.7.4** **Recommendation**	5.2.7.4 **Recommendation.—** *Where a runway turn pad is provided, the runway side stripe marking should be continued between the runway and the runway turn pad.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.2.7.5** **Recommendation**	***Characteristics*** 5.2.7.5 **Recommendation.—** *A runway side stripe should have an overall width of at least 0.9 m on runways 30 m or more in width and at least 0.45 m on narrower runways.*	AC139-6, 5.2.41.	No Difference		

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Chapter 5 Reference **5.2.8.1** **Standard**	5.2.8 Taxiway centre line marking ***Application*** 5.2.8.1 Taxiway centre line marking shall be provided on a paved taxiway, de-icing/anti-icing facility and apron where the code number is 3 or 4 in such a way as to provide continuous guidance between the runway centre line and aircraft stands.	CAR Part 139, App E, E.2.9(a). AC139-6, 5.2.42.	No Difference		
Chapter 5 Reference **5.2.8.2** **Recommendation**	5.2.8.2 **Recommendation.—** *Taxiway centre line marking should be provided on a paved taxiway, de-icing/anti-icing facility and apron where the code number is 1 or 2 in such a way as to provide continuous guidance between the runway centre line and aircraft stands.*	AC139-6, 5.2.42.	Less protective or partially implemented or not implemented	Specified only for code 3 or 4.	
Chapter 5 Reference **5.2.8.3** **Standard**	5.2.8.3 Taxiway centre line marking shall be provided on a paved runway when the runway is part of a standard taxi-route and: a) there is no runway centre line marking; or b) where the taxiway centre line is not coincident with the runway centre line.	CAR Part 139, App E, E.2.9(b). AC139-6, 5.2.43.	No Difference		
Chapter 5 Reference **5.2.8.4** **Recommendation**	5.2.8.4 **Recommendation.—** *Where it is necessary to denote the proximity of a runway-holding position, enhanced taxiway centre line marking should be provided.* *Note.— The provision of enhanced taxiway centre line marking may form part of runway incursion prevention measures.*	AC139-6, 5.2.44.	No Difference		

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Chapter 5 Reference **5.2.8.5** **Standard**	5.2.8.5 Where provided, enhanced taxiway centre line marking shall be installed at each taxiway/runway intersection.	AC139-6, 5.2.45.	No Difference		
Chapter 5 Reference **5.2.8.6** **Recommendation**	***Location*** 5.2.8.6 **Recommendation.—** *On a straight section of a taxiway the taxiway centre line marking should be located along the taxiway centre line. On a taxiway curve the marking should continue from the straight portion of the taxiway at a constant distance from the outside edge of the curve.* *Note.— See 3.9.5 and Figure 3-2.*	AC139-6, 5.2.46.	No Difference		
Chapter 5 Reference **5.2.8.7** **Recommendation**	5.2.8.7 **Recommendation.—** *At an intersection of a taxiway with a runway where the taxiway serves as an exit from the runway, the taxiway centre line marking should be curved into the runway centre line marking as shown in Figures 5-6 and 5-26. The taxiway centre line marking should be extended parallel to the runway centre line marking for a distance of at least 60 m beyond the point of tangency where the code number is 3 or 4, and for a distance of at least 30 m where the code number is 1 or 2.*	AC139-6, 5.2.47.	No Difference		
Chapter 5 Reference **5.2.8.8** **Recommendation**	5.2.8.8 **Recommendation.—** *Where taxiway centre line marking is provided on a runway in accordance with 5.2.8.3, the marking should be located on the centre line of the designated taxiway.*	AC139-6, 5.2.48.	No Difference		

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Chapter 5 Reference **5.2.8.9** **Standard**	5.2.8.9 Where provided: a) An enhanced taxiway centre line marking shall extend from the runway-holding position Pattern A (as defined in Figure 5-6, Taxiway markings) to a distance of up to 47 m in the direction of travel away from the runway. See Figure 5-7 (a).	AC139-6, 5.2.49.	Less protective or partially implemented or not implemented	Not specified except for a); the distance is 45 m instead of 47.	
Chapter 5 Reference **5.2.8.10** **Standard**	***Characteristics*** 5.2.8.10 A taxiway centre line marking shall be at least 15 cm in width and continuous in length except where it intersects with a runway-holding position marking or an intermediate holding position marking as shown in Figure 5-6.	AC139-6, 5.2.50.	No Difference		
Chapter 5 Reference **5.2.8.11** **Standard**	5.2.8.11 Enhanced taxiway centre line marking shall be as shown in Figure 5-7.	AC139-6, 5.2.51 and Figure 5-7.	No Difference		
Chapter 5 Reference **5.2.9.1** **Standard**	5.2.9 Runway turn pad marking ***Application*** 5.2.9.1 Where a runway turn pad is provided, a runway turn pad marking shall be provided for continuous guidance to enable an aeroplane to complete a 180-degree turn and align with the runway centre line.	CAR Part 139, App E, E.2.10. AC139-6, 5.2.52.	No Difference		

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Chapter 5 Reference **5.2.9.2** **Recommendation**	***Location*** 5.2.9.2 **Recommendation.—** *The runway turn pad marking should be curved from the runway centre line into the turn pad. The radius of the curve should be compatible with the manoeuvring capability and normal taxiing speeds of the aeroplanes for which the runway turn pad is intended. The intersection angle of the runway turn pad marking with the runway centre line should not be greater than 30 degrees.*	AC139-6, 5.2.53.	No Difference		
Chapter 5 Reference **5.2.9.3** **Recommendation**	5.2.9.3 **Recommendation.—** *The runway turn pad marking should be extended parallel to the runway centre line marking for a distance of at least 60 m beyond the point of tangency where the code number is 3 or 4, and for a distance of at least 30 m where the code number is 1 or 2.*	AC139-6, 5.2.54.	No Difference		
Chapter 5 Reference **5.2.9.4** **Recommendation**	5.2.9.4 **Recommendation.—** *A runway turn pad marking should guide the aeroplane in such a way as to allow a straight portion of taxiing before the point where a 180-degree turn is to be made. The straight portion of the runway turn pad marking should be parallel to the outer edge of the runway turn pad.*	AC139-6, 5.2.55.	No Difference		
Chapter 5 Reference **5.2.9.5** **Recommendation**	5.2.9.5 **Recommendation.—** *The design of the curve allowing the aeroplane to negotiate a 180-degree turn should be based on a nose wheel steering angle not exceeding 45 degrees.*	AC139-6, 5.2.56.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 5 Reference **5.2.9.6** **Recommendation**	5.2.9.6 **Recommendation.—** *The design of the turn pad marking should be such that, when the cockpit of the aeroplane remains over the runway turn pad marking, the clearance distance between any wheel of the aeroplane landing gear and the edge of the runway turn pad should be not less than those specified in 3.3.6.* *Note.— For ease of manoeuvring, consideration may be given to providing a larger wheel-to-edge clearance for codes E and F aeroplanes.*	AC139-6, 5.2.57.	No Difference		
Chapter 5 Reference **5.2.9.7** **Standard**	***Characteristics*** 5.2.9.7 A runway turn pad marking shall be at least 15 cm in width and continuous in length.	AC139-6, 5.2.58.	No Difference		
Chapter 5 Reference **5.2.10.1** **Standard**	5.2.10 Runway-holding position marking ***Application and location*** 5.2.10.1 A runway-holding position marking shall be displayed along a runway-holding position. *Note.— See 5.4.2 concerning the provision of signs at runway-holding positions.*	CAR Part 139, App E, E.2.12. AC139-6, 5.2.60.	No Difference		

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Chapter 5 Reference **5.2.10.2** **Standard**	***Characteristics*** 5.2.10.2 At an intersection of a taxiway and a non-instrument, non-precision approach or take-off runway, the runway-holding position marking shall be as shown in Figure 5-6, pattern A.	AC139-6, 5.2.61.	Less protective or partially implemented or not implemented	The AC reference omits the type of runway and the reference to pattern A.	
Chapter 5 Reference **5.2.10.3** **Standard**	5.2.10.3 Where a single runway-holding position is provided at an intersection of a taxiway and a precision approach category I, II or III runway, the runway-holding position marking shall be as shown in Figure 5-6, pattern A. Where two or three runway-holding positions are provided at such an intersection, the runway-holding position marking closer (closest) to the runway shall be as shown in Figure 5-6, pattern A and the markings farther from the runway shall be as shown in Figure 5-6, pattern B.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	This reference has been omitted in Rev 5 of the AC.
Chapter 5 Reference **5.2.10.4** **Standard**	5.2.10.4 The runway-holding position marking displayed at a runway-holding position established in accordance with 3.12.3 shall be as shown in Figure 5-6, pattern A.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	This reference has been omitted in Rev 5 of the AC.
Chapter 5 Reference **5.2.10.5** **Standard**	5.2.10.5 Until 26 November 2026, the dimensions of runway-holding position markings shall be as shown in Figure 5-8, pattern A1 (or A2) or pattern B1 (or B2), as appropriate.		Not Applicable		To be considered for adoption by applicable date.

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Chapter 5 Reference **5.2.10.6** **Standard**	5.2.10.6 As of 26 November 2026, the dimensions of runway-holding position markings shall be as shown in Figure 5-8, pattern A2 or pattern B2, as appropriate.		Not Applicable		To be considered for adoption by applicable date.
Chapter 5 Reference **5.2.10.7** **Recommendation**	5.2.10.7 **Recommendation.—** *Where increased conspicuity of the runway-holding position is required, the dimensions of runway-holding position marking should be as shown in Figure 5-8, pattern A2 or pattern B2, as appropriate.* *Note.— An increased conspicuity of the runway-holding position can be required, notably to avoid incursion risks.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	This reference has been omitted in Rev 5 of the AC.
Chapter 5 Reference **5.2.10.8** **Recommendation**	5.2.10.8 **Recommendation.—** *Where a pattern B runway-holding position marking is located on an area where it would exceed 60 m in length, the term "CAT II" or "CAT III" as appropriate should be marked on the surface at the ends of the runway-holding position marking and at equal intervals of 45 m maximum between successive marks. The letters should be not less than 1.8 m high and should be placed not more than 0.9 m beyond the holding position marking.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.2.10.9** **Standard**	5.2.10.9 The runway-holding position marking displayed at a runway/runway intersection shall be perpendicular to the centre line of the runway forming part of the standard taxi-route. The pattern of the marking shall be as shown in Figure 5-8, pattern A2.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	This reference has been omitted in Rev 5 of the AC.

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Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 5 Reference **5.2.11.1** **Recommendation**	5.2.11 Intermediate holding position marking ***Application and location*** 5.2.11.1 **Recommendation.—** *An intermediate holding position marking should be displayed along an intermediate holding position.*	AC139-6, 5.2.62.	No Difference		
Chapter 5 Reference **5.2.11.2** **Recommendation**	5.2.11.2 **Recommendation.—** *An intermediate holding position marking should be displayed at the exit boundary of a remote de-icing/anti-icing facility adjoining a taxiway.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	This reference has been omitted in Rev 5 of the AC.
Chapter 5 Reference **5.2.11.3** **Standard**	5.2.11.3 Where an intermediate holding position marking is displayed at an intersection of two paved taxiways, it shall be located across the taxiway at sufficient distance from the near edge of the intersecting taxiway to ensure safe clearance between taxiing aircraft. It shall be coincident with a stop bar or intermediate holding position lights, where provided.	AC139-6, 5.2.63.	No Difference		
Chapter 5 Reference **5.2.11.4** **Standard**	5.2.11.4 The distance between an intermediate holding position marking at the exit boundary of a remote de-icing/ anti-icing facility and the centre line of the adjoining taxiway shall not be less than the dimension specified in Table 3-1, column 11.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	This reference has been omitted in Rev 5 of the AC.

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Chapter 5 Reference **5.2.11.5** **Standard**	***Characteristics*** 5.2.11.5 An intermediate holding position marking shall consist of a single broken line as shown in Figure 5-6.	AC139-6, 5.2.64.	No Difference		
Chapter 5 Reference **5.2.12.1** **Standard**	5.2.12 VOR aerodrome checkpoint marking ***Application*** 5.2.12.1 When a VOR aerodrome checkpoint is established, it shall be indicated by a VOR aerodrome checkpoint marking and sign. *Note.— See 5.4.4 for VOR aerodrome checkpoint sign.*	CAR Part 139, App E. E.2.12. AC139-6, 5.2.68.	No Difference		
Chapter 5 Reference **5.2.12.3** **Standard**	5.2.12.2 *Site selection* *Note.— Guidance on the selection of sites for VOR aerodrome checkpoints is given in Annex 10, Volume I, Attachment E.* ***Location*** 5.2.12.3 A VOR aerodrome checkpoint marking shall be centred on the spot at which an aircraft is to be parked to receive the correct VOR signal.	AC139-6, 5.2.69.	No Difference		

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Chapter 5 Reference **5.2.12.4** **Standard**	***Characteristics*** 5.2.12.4 A VOR aerodrome checkpoint marking shall consist of a circle 6 m in diameter and have a line width of 15 cm (see Figure 5-9 (A)).	AC139-6, 5.2.70.	No Difference		
Chapter 5 Reference **5.2.12.5** **Recommendation**	5.2.12.5 **Recommendation.—** *When it is preferable for an aircraft to be aligned in a specific direction, a line should be provided that passes through the centre of the circle on the desired azimuth. The line should extend 6 m outside the circle in the desired direction of heading and terminate in an arrowhead. The width of the line should be 15 cm (see Figure 5-9 (B)).* **Figure 5-9. VOR aerodrome checkpoint marking**	AC139-6, 5.2.71.	No Difference		
Chapter 5 Reference **5.2.12.6** **Recommendation**	5.2.12.6 **Recommendation.—** *A VOR aerodrome checkpoint marking should preferably be white in colour but should differ from the colour used for the taxiway markings.* *Note.— To provide contrast, markings may be bordered with black.*	AC139-6, 5.2.68 to 71.	Less protective or partially implemented or not implemented	No provision for different colour.	This reference has been omitted in Rev 5 of the AC.

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Chapter 5 Reference **5.2.13.1** **Recommendation**	5.2.13 Aircraft stand marking *Note.— Guidance on the layout of aircraft stand markings is contained in the* Aerodrome Design Manual *(Doc 9157), Part 4.* ***Application*** 5.2.13.1 **Recommendation.—** *Aircraft stand markings should be provided for designated parking positions on a paved apron and on a de-icing/anti-icing facility.*	AC139-6, 5.2.72.	Less protective or partially implemented or not implemented	No reference to de-icing facility.	This reference has been omitted in Rev 5 of the AC.
Chapter 5 Reference **5.2.13.2** **Recommendation**	***Location*** 5.2.13.2 **Recommendation.—** *Aircraft stand markings on a paved apron and on a de-icing/anti-icing facility should be located so as to provide the clearances specified in 3.13.6 and in 3.15.9, respectively, when the nose wheel follows the stand marking.*	AC139-6, 5.2.73.	Less protective or partially implemented or not implemented	No reference to de-icing facility.	This reference has been omitted in Rev 5 of the AC.
Chapter 5 Reference **5.2.13.3** **Recommendation**	***Characteristics*** 5.2.13.3 **Recommendation.—** *Aircraft stand markings should include such elements as stand identification, lead-in line, turn bar, turning line, alignment bar, stop line and lead-out line, as are required by the parking configuration and to complement other parking aids.*	AC139-6, 5.2.74.	No Difference		
Chapter 5 Reference **5.2.13.4** **Recommendation**	5.2.13.4 **Recommendation.—** *An aircraft stand identification (letter and/or number) should be included in the lead-in line a short distance after the beginning of the lead-in line. The height of the identification should be adequate to be readable from the cockpit of aircraft using the stand.*	AC139-6, 5.2.78.	Less protective or partially implemented or not implemented	No reference to height of identification.	

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Chapter 5 Reference **5.2.13.5** **Recommendation**	5.2.13.5 **Recommendation.—** *Where two sets of aircraft stand markings are superimposed on each other in order to permit more flexible use of the apron and it is difficult to identify which stand marking should be followed, or safety would be impaired if the wrong marking was followed, then identification of the aircraft for which each set of markings is intended should be added to the stand identification.* *Note.— Example: 2A-B747, 2B-F28.*	AC139-6, 5.2.81.	No Difference		
Chapter 5 Reference **5.2.13.6** **Recommendation**	5.2.13.6 **Recommendation.—** *Lead-in, turning and lead-out lines should normally be continuous in length and have a width of not less than 15 cm. Where one or more sets of stand markings are superimposed on a stand marking, the lines should be continuous for the most demanding aircraft and broken for other aircraft.*	AC139-6, 5.2.75.	No Difference		
Chapter 5 Reference **5.2.13.7** **Recommendation**	5.2.13.7 **Recommendation.—** *The curved portions of lead-in, turning and lead-out lines should have radii appropriate to the most demanding aircraft type for which the markings are intended.*	AC139-6, 5.2.76.	No Difference		
Chapter 5 Reference **5.2.13.8** **Recommendation**	5.2.13.8 **Recommendation.—** *Where it is intended that an aircraft proceed in one direction only, arrows pointing in the direction to be followed should be added as part of the lead-in and lead-out lines.*	AC139-6, 5.2.77.	No Difference		

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Chapter 5 Reference **5.2.13.9** **Recommendation**	5.2.13.9 **Recommendation.—** *A turn bar should be located at right angles to the lead-in line, abeam the left pilot position at the point of initiation of any intended turn. It should have a length and width of not less than 6 m and 15 cm, respectively, and include an arrowhead to indicate the direction of turn.* *Note.— The distances to be maintained between the turn bar and the lead-in line may vary according to different aircraft types, taking into account the pilot's field of view.*	AC139-6, 5.2.82.	Different in character or other means of compliance	Abeam the nose wheel position at the point of initiation of any intended turn, rather than abeam the left pilot position.	
Chapter 5 Reference **5.2.13.10** **Recommendation**	5.2.13.10 **Recommendation.—** *If more than one turn bar and/or stop line is required, they should be coded.*	AC139-6, 5.2.85.	No Difference		
Chapter 5 Reference **5.2.13.11** **Recommendation**	5.2.13.11 **Recommendation.—** *An alignment bar should be placed so as to be coincident with the extended centre line of the aircraft in the specified parking position and visible to the pilot during the final part of the parking manoeuvre. It should have a width of not less than 15 cm.*	AC139-6, 5.2.86.	No Difference		
Chapter 5 Reference **5.2.13.12** **Recommendation**	5.2.13.12 **Recommendation.—** *A stop line should be located at right angles to the alignment bar, abeam the left pilot position at the intended point of stop. It should have a length and width of not less than 6 m and 15 cm, respectively.* *Note.— The distances to be maintained between the stop line and the lead-in line may vary according to different aircraft types, taking into account the pilot's field of view.*	AC139-6, 5.2.87.	Different in character or other means of compliance	Abeam the nose wheel stop block position at the intended point of stop, rather than abeam the left pilot position.	

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Chapter 5 Reference **5.2.14.1** **Recommendation**	5.2.14 Apron safety lines *Note.— Guidance on apron safety lines is contained in the* Aerodrome Design Manual *(Doc 9157), Part 4.* ***Application*** 5.2.14.1 **Recommendation.—** *Apron safety lines should be provided on a paved apron as required by the parking configurations and ground facilities*.	AC139-6, 5.2.93 to 105.	No Difference		
Chapter 5 Reference **5.2.14.2** **Standard**	***Location*** 5.2.14.2 Apron safety lines shall be located so as to define the areas intended for use by ground vehicles and other aircraft servicing equipment, etc., to provide safe separation from aircraft.	AC139-6, 5.2.93 to 105.	No Difference		
Chapter 5 Reference **5.2.14.3** **Recommendation**	***Characteristics*** 5.2.14.3 **Recommendation.—** *Apron safety lines should include such elements as wing tip clearance lines and service road boundary lines as required by the parking configurations and ground facilities*.	AC139-6, 5.2.93 to 105.	No Difference		
Chapter 5 Reference **5.2.14.4** **Recommendation**	5.2.14.4 **Recommendation.—** *An apron safety line should be continuous in length and at least 10 cm in width.*	AC139-6, 5.2.93 to 105.	No Difference		

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Chapter 5 Reference **5.2.15.1** **Standard**	5.2.15 Road-holding position marking ***Application*** 5.2.15.1 A road-holding position marking shall be provided at all road entrances to a runway.	CAR Part 139, App E. E.2.13. AC139-6, 5.2.110.	No Difference		
Chapter 5 Reference **5.2.15.2** **Standard**	***Location*** 5.2.15.2 The road-holding position marking shall be located across the road at the holding position.	AC139-6, 5.2.111.	No Difference		
Chapter 5 Reference **5.2.15.3** **Standard**	***Characteristics*** 5.2.15.3 The road-holding position marking shall be in accordance with the local road traffic regulations.	AC139-6, 5.2.112.	No Difference		
Chapter 5 Reference **5.2.16.1** **Standard**	5.2.16 Mandatory instruction marking *Note.— Guidance on mandatory instruction marking is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.* ***Application*** 5.2.16.1 Where it is impracticable to install a mandatory instruction sign in accordance with 5.4.2.1, a mandatory instruction marking shall be provided on the surface of the pavement.	CAR Part 139, App E, E.2.14. AC139-6, 5.2.113.	No Difference		

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Chapter 5 Reference **5.2.16.2** **Recommendation**	5.2.16.2 **Recommendation.—** *Where operationally required, such as on taxiways exceeding 60 m in width, or to assist in the prevention of a runway incursion, a mandatory instruction sign should be supplemented by a mandatory instruction marking.*	AC139-6, 5.2.114.	No Difference		
Chapter 5 Reference **5.2.16.3** **Standard**	***Location*** 5.2.16.3 The mandatory instruction marking on taxiways where the code letter is A, B, C or D shall be located across the taxiway equally placed about the taxiway centre line and on the holding side of the runway-holding position marking as shown in Figure 5-10 (A). The distance between the nearest edge of the marking and the runway-holding position marking or the taxiway centre line marking shall be not less than 1 m. **Figure 5-10. Mandatory instruction marking**	AC139-6, 5.2.115.	No Difference		
Chapter 5 Reference **5.2.16.4** **Standard**	5.2.16.4 The mandatory instruction marking on taxiways where the code letter is E or F shall be located on both sides of the taxiway centre line marking and on the holding side of the runway-holding position marking as shown in Figure 5-10 (B). The distance between the nearest edge of the marking and the runway-holding position marking or the taxiway centre line marking shall be not less than 1 m.	AC139-6, 5.2.116.	No Difference		
Chapter 5 Reference **5.2.16.5** **Recommendation**	5.2.16.5 **Recommendation.—** *Except where operationally required, a mandatory instruction marking should not be located on a runway.*	AC139-6, 5.2.116 Note.	No Difference		

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Chapter 5 Reference **5.2.16.6** **Standard**	***Characteristics*** 5.2.16.6 A mandatory instruction marking shall consist of an inscription in white on a red background. Except for a NO ENTRY marking, the inscription shall provide information identical to that of the associated mandatory instruction sign.	AC139-6, 5.2.117.	No Difference		
Chapter 5 Reference **5.2.16.7** **Standard**	5.2.16.7 A NO ENTRY marking shall consist of an inscription in white reading NO ENTRY on a red background.	AC139-6, 5.2.118.	No Difference		
Chapter 5 Reference **5.2.16.8** **Standard**	5.2.16.8 Where there is insufficient contrast between the marking and the pavement surface, the mandatory instruction marking shall include an appropriate border, preferably white or black.	AC139-6, 5.2.119.	No Difference		
Chapter 5 Reference **5.2.16.9** **Recommendation**	5.2.16.9 **Recommendation.—** *The character height should be 4 m for inscriptions where the code letter is C, D, E or F, and 2 m where the code letter is A or B. The inscriptions should be in the form and proportions shown in Appendix 3.*	AC139-6, 5.2.120.	No Difference		
Chapter 5 Reference **5.2.16.10** **Recommendation**	5.2.16.10 **Recommendation.—** *The background should be rectangular and extend a minimum of 0.5 m laterally and vertically beyond the extremities of the inscription.*	AC139-6, 5.2.121.	No Difference		

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Chapter 5 Reference **5.2.17.1** **Standard**	5.2.17 Information marking *Note.— Guidance on information marking is contained in the* Aerodrome Design Manual *(Doc 9157), Part 4.* ***Application*** 5.2.17.1 Where an information sign would normally be installed and is impractical to install, as determined by the appropriate authority, an information marking shall be displayed on the surface of the pavement.	CAR Part 139, App E, E2.15; AC139-6, 5.2.122.	No Difference		
Chapter 5 Reference **5.2.17.2** **Recommendation**	5.2.17.2 **Recommendation.—** *Where operationally required an information sign should be supplemented by an information marking.*	AC139-6, 5.2.123.	No Difference		
Chapter 5 Reference **5.2.17.3** **Recommendation**	5.2.17.3 **Recommendation.—** *An information (location/direction) marking should be displayed prior to and following complex taxiway intersections and where operational experience has indicated the addition of a taxiway location marking could assist flight crew ground navigation.*		Not Applicable		No New Zealand aerodromes with complex taxiway intersections.
Chapter 5 Reference **5.2.17.4** **Recommendation**	5.2.17.4 **Recommendation.—** *An information (location) marking should be displayed on the pavement surface at regular intervals along taxiways of great length.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.2.17.5** **Recommendation**	***Location*** 5.2.17.5 **Recommendation.—** *The information marking should be displayed across the surface of the taxiway or apron where necessary and positioned so as to be legible from the cockpit of an approaching aircraft.*	AC139-6, 5.2.124.	No Difference		
Chapter 5 Reference **5.2.17.6** **Standard**	***Characteristics*** 5.2.17.6 An information marking shall consist of: a) an inscription in yellow upon a black background, when it replaces or supplements a location sign; and b) an inscription in black upon a yellow background, when it replaces or supplements a direction or destination sign.	AC139-6, 5.2.125.	No Difference		
Chapter 5 Reference **5.2.17.7** **Standard**	5.2.17.7 Where there is insufficient contrast between the marking background and the pavement surface, the marking shall include: a) a black border where the inscriptions are in black; and b) a yellow border where the inscriptions are in yellow.	AC139-6, 5.2.126.	No Difference		
Chapter 5 Reference **5.2.17.8** **Recommendation**	5.2.17.8 **Recommendation.—** *The character height should be 4 m. The inscriptions should be in the form and proportions shown in Appendix 3.*	AC139-6, 5.2.127.	No Difference		

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Chapter 5 Reference **5.3.1.1** **Standard**	**5.3 Lights** 5.3.1 General ***Lights which may endanger the safety of aircraft*** 5.3.1.1 A non-aeronautical ground light near an aerodrome which might endanger the safety of aircraft shall be extinguished, screened or otherwise modified so as to eliminate the source of danger.	AC139-6, 5.3.1.	No Difference		

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Chapter 5 Reference **5.3.1.2** **Recommendation**	***Laser emissions which may endanger the safety of aircraft*** 5.3.1.2 **Recommendation.—** *To protect the safety of aircraft against the hazardous effects of laser emitters, the following protected zones should be established around aerodromes:* — *a laser-beam free flight zone (LFFZ)* — *a laser-beam critical flight zone (LCFZ)* — *a laser-beam sensitive flight zone (LSFZ).* *Note 1.— Figures 5-11, 5-12 and 5-13 may be used to determine the exposure levels and distances that adequately protect flight operations.* *Note 2.— The restrictions on the use of laser beams in the three protected flight zones, LFFZ, LCFZ and LSFZ, refer to visible laser beams only. Laser emitters operated by the authorities in a manner compatible with flight safety are excluded. In all navigable airspace, the irradiance level of any laser beam, visible or invisible, is expected to be less than or equal to the maximum permissible exposure (MPE) unless such emission has been notified to the authority and permission obtained.* *Note 3.— The protected flight zones are established in order to mitigate the risk of operating laser emitters in the vicinity of aerodromes.* *Note 4.— Further guidance on how to protect flight operations from the hazardous effects of laser emitters is contained in the* Manual on Laser Emitters and Flight Safety *(Doc 9815).* *Note 5.— See also Annex 11 —* Air Traffic Services, *Chapter 2.*	CAR 77.7(b).	Less protective or partially implemented or not implemented	Zones are not specified, but laser light operation in navigable airspace must be notified in advance to the Director.	

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Chapter 5 Reference **5.3.1.3** **Recommendation**	***Lights which may cause confusion*** 5.3.1.3 **Recommendation.—** *A non-aeronautical ground light which, by reason of its intensity, configuration or colour, might prevent, or cause confusion in, the clear interpretation of aeronautical ground lights should be extinguished, screened or otherwise modified so as to eliminate such a possibility. In particular, attention should be directed to a non-aeronautical ground light visible from the air within the areas described hereunder:* *a) Instrument runway — code number 4:* *within the areas before the threshold and beyond the end of the runway extending at least 4 500 m in length from the threshold and runway end and 750 m either side of the extended runway centre line in width.* *b) Instrument runway — code number 2 or 3:* *as in a), except that the length should be at least 3 000 m.* *c) Instrument runway — code number 1; and non-instrument runway:* *within the approach area.*	AC139-6, 5.3.2.	No Difference		

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Chapter 5 Reference **5.3.1.4** **Standard**	***Aeronautical ground lights which may cause confusion to mariners*** *Note.— In the case of aeronautical ground lights near navigable waters, consideration needs to be given to ensuring that the lights do not cause confusion to mariners.* ***Light fixtures and supporting structures*** *Note.— See 9.9 for information regarding siting of equipment and installations on operational areas, and the* Aerodrome Design Manual *(Doc 9157), Part 6, for guidance on frangibility of light fixtures and supporting structures*. ***Elevated approach lights*** 5.3.1.4 Elevated approach lights and their supporting structures shall be frangible except that, in that portion of the approach lighting system beyond 300 m from the threshold: a) where the height of a supporting structure exceeds 12 m, the frangibility requirement shall apply to the top 12 m only; and b) where a supporting structure is surrounded by non-frangible objects, only that part of the structure that extends above the surrounding objects shall be frangible.	CAR Part 139, App E, E.3.1(a); AC139-6, 5.3.3.	No Difference		

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Chapter 5 Reference **5.3.1.5** **Standard**	5.3.1.5 When an approach light fixture or supporting structure is not in itself sufficiently conspicuous, it shall be suitably marked.	CAR Part 139, App E, E.3.1(b);AC139-6, 5.3.3.	No Difference		
Chapter 5 Reference **5.3.1.6** **Standard**	***Elevated lights*** 5.3.1.6 Elevated runway, stopway and taxiway lights shall be frangible. Their height shall be sufficiently low to preserve clearance for propellers and for the engine pods of jet aircraft.	CAR Part 139, App E, E.3.2; AC139-6, 5.3.4.	No Difference		
Chapter 5 Reference **5.3.1.7** **Standard**	***Surface lights*** 5.3.1.7 Light fixtures inset in the surface of runways, stopways, taxiways and aprons shall be so designed and fitted as to withstand being run over by the wheels of an aircraft without damage either to the aircraft or to the lights themselves.	CAR Part 139, App E, E.3.3; AC139-6, 5.3.5.	No Difference		
Chapter 5 Reference **5.3.1.8** **Recommendation**	5.3.1.8 **Recommendation.—** *The temperature produced by conduction or radiation at the interface between an installed inset light and an aircraft tire should not exceed 160°C during a 10-minute period of exposure.* *Note.— Guidance on measuring the temperature of inset lights is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.1.9** **Standard**	***Light intensity and control*** *Note.— In dusk or poor visibility conditions by day, lighting can be more effective than marking. For lights to be effective in such conditions or in poor visibility by night, they must be of adequate intensity. To obtain the required intensity, it will usually be necessary to make the light directional, in which case the arcs over which the light shows will have to be adequate and so orientated as to meet the operational requirements. The runway lighting system will have to be considered as a whole, to ensure that the relative light intensities are suitably matched to the same end. (See Attachment A, Section 16, and the* Aerodrome Design Manual *(Doc 9157), Part 4).* 5.3.1.9 The intensity of runway lighting shall be adequate for the minimum conditions of visibility and ambient light in which use of the runway is intended, and compatible with that of the nearest section of the approach lighting system when provided. *Note.— While the lights of an approach lighting system may be of higher intensity than the runway lighting, it is good practice to avoid abrupt changes in intensity as these could give a pilot a false impression that the visibility is changing during approach.*	CAR Part 139, App E, E.3.4(a); AC139-6, 5.3.6.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 5 Reference **5.3.1.10** **Standard**	5.3.1.10 Where a high-intensity lighting system is provided, a suitable intensity control shall be incorporated to allow for adjustment of the light intensity to meet the prevailing conditions. Separate intensity controls or other suitable methods shall be provided to ensure that the following systems, when installed, can be operated at compatible intensities: — approach lighting system; — runway edge lights; — runway threshold lights; — runway end lights; — runway centre line lights; — runway touchdown zone lights; and — taxiway centre line lights.	CAR Part 139, App E, E.3.4(b); AC139-6, 5.3.7.	No Difference		
Chapter 5 Reference **5.3.1.11** **Standard**	5.3.1.11 On the perimeter of and within the ellipse defining the main beam in Appendix 2, Figures A2-1 to A2-10, the maximum light intensity value shall not be greater than three times the minimum light intensity value measured in accordance with Appendix 2, collective notes for Figures A2-1 to A2-11 and A2-26, Note 2.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.1.12** **Standard**	5.3.1.12 On the perimeter of and within the rectangle defining the main beam in Appendix 2, Figures A2-12 to A2-20, the maximum light intensity value shall not be greater than three times the minimum light intensity value measured in accordance with Appendix 2, collective notes for Figures A2-12 to A2-21, Note 2.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.2.1** **Recommendation**	5.3.2 Emergency lighting ***Application*** 5.3.2.1 **Recommendation.—** *At an aerodrome provided with runway lighting and without a secondary power supply, sufficient emergency lights should be conveniently available for installation on at least the primary runway in the event of failure of the normal lighting system.* *Note.— Emergency lighting may also be useful to mark obstacles or delineate taxiways and apron areas.*		Not Applicable		
Chapter 5 Reference **5.3.2.2** **Recommendation**	***Location*** 5.3.2.2 **Recommendation.—** *When installed on a runway the emergency lights should, as a minimum, conform to the configuration required for a non-instrument runway.*		Not Applicable		
Chapter 5 Reference **5.3.2.3** **Recommendation**	***Characteristics*** 5.3.2.3 **Recommendation.—** *The colour of the emergency lights should conform to the colour requirements for runway lighting, except that, where the provision of coloured lights at the threshold and the runway end is not practicable, all lights may be variable white or as close to variable white as practicable.*		Not Applicable		

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Chapter 5 Reference **5.3.3.1** **Standard**	5.3.3 Aeronautical beacons ***Application*** 5.3.3.1 Where operationally necessary an aerodrome beacon or an identification beacon shall be provided at each aerodrome intended for use at night.	CAR Part 139, App E, E.3.5; AC139-6, 5.3.8 and 5.3.11.	No Difference		
Chapter 5 Reference **5.3.3.2** **Standard**	5.3.3.2 The operational requirement shall be determined having regard to the requirements of the air traffic using the aerodrome, the conspicuity of the aerodrome features in relation to its surroundings and the installation of other visual and non-visual aids useful in locating the aerodrome.	CAR Part 139, App E, E.3.5; AC139-6, 5.3.8.	No Difference		
Chapter 5 Reference **5.3.3.3** **Standard**	***Aerodrome beacon*** 5.3.3.3 An aerodrome beacon shall be provided at an aerodrome intended for use at night if one or more of the following conditions exist: a) aircraft navigate predominantly by visual means; b) reduced visibilities are frequent; or c) it is difficult to locate the aerodrome from the air due to surrounding lights or terrain.	CAR Part 139, App E, E.3.5; AC139-6, 5.3.8.	No Difference		
Chapter 5 Reference **5.3.3.4** **Standard**	***Location*** 5.3.3.4 The aerodrome beacon shall be located on or adjacent to the aerodrome in an area of low ambient background lighting.	AC139-6, 5.3.9.	No Difference		

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Chapter 5 Reference **5.3.3.5** **Recommendation**	5.3.3.5 **Recommendation.—** *The location of the beacon should be such that the beacon is not shielded by objects in significant directions and does not dazzle a pilot approaching to land.*	AC139-6, 5.3.9.	No Difference		
Chapter 5 Reference **5.3.3.6** **Standard**	***Characteristics*** 5.3.3.6 The aerodrome beacon shall show either coloured flashes alternating with white flashes, or white flashes only. The frequency of total flashes shall be from 20 to 30 per minute. Where used, the coloured flashes emitted by beacons at land aerodromes shall be green, and coloured flashes emitted by beacons at water aerodromes shall be yellow. In the case of a combined water and land aerodrome, coloured flashes, if used, shall have the colour characteristics of whichever section of the aerodrome is designated as the principal facility.	AC139-6, 5.3.10.	No Difference		Notes: the AC reference mentions only white flashes. Water aerodromes not applicable.
Chapter 5 Reference **5.3.3.7** **Standard**	5.3.3.7 The light from the beacon shall show at all angles of azimuth. The vertical light distribution shall extend upwards from an elevation of not more than 1° to an elevation determined by the appropriate authority to be sufficient to provide guidance at the maximum elevation at which the beacon is intended to be used, and the effective intensity of the flash shall be not less than 2 000 cd. *Note.— At locations where a high ambient background lighting level cannot be avoided, the effective intensity of the flash may be required to be increased by a factor up to a value of 10.*	AC139-6, 5.3.10 and 5.3.13.	No Difference		

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Chapter 5 Reference **5.3.3.8** **Standard**	***Identification beacon*** ***Application*** 5.3.3.8 An identification beacon shall be provided at an aerodrome which is intended for use at night and cannot be easily identified from the air by other means.	AC139-6, 5.3.11.	No Difference		
Chapter 5 Reference **5.3.3.9** **Standard**	***Location*** 5.3.3.9 The identification beacon shall be located on the aerodrome in an area of low ambient background lighting.	AC139-6, 5.3.12.	No Difference		
Chapter 5 Reference **5.3.3.10** **Recommendation**	5.3.3.10 **Recommendation.—** *The location of the beacon should be such that the beacon is not shielded by objects in significant directions and does not dazzle a pilot approaching to land.*	AC139-6, 5.3.12.	No Difference		

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Chapter 5 Reference **5.3.3.11** **Standard**	***Characteristics*** 5.3.3.11 An identification beacon at a land aerodrome shall show at all angles of azimuth. The vertical light distribution shall extend upwards from an elevation of not more than 1° to an elevation determined by the appropriate authority to be sufficient to provide guidance at the maximum elevation at which the beacon is intended to be used, and the effective intensity of the flash shall be not less than 2 000 cd. *Note.— At locations where a high ambient background lighting level cannot be avoided, the effective intensity of the flash may be required to be increased by a factor up to a value of 10.*	AC139-6, 5.3.13.	No Difference		
Chapter 5 Reference **5.3.3.12** **Standard**	5.3.3.12 An identification beacon shall show flashing-green at a land aerodrome and flashing-yellow at a water aerodrome.	AC139-6, 5.3.13.	No Difference		Note: water aerodromes not applicable.
Chapter 5 Reference **5.3.3.13** **Standard**	5.3.3.13 The identification characters shall be transmitted in the International Morse Code.	AC139-6, 5.3.13.	No Difference		
Chapter 5 Reference **5.3.3.14** **Recommendation**	5.3.3.14 **Recommendation.—** *The speed of transmission should be between six and eight words per minute, the corresponding range of duration of the Morse dots being from 0.15 to 0.2 seconds per dot.*	AC139-6, 5.3.13.	Less protective or partially implemented or not implemented	Not specified.	No beacons of this type in New Zealand.

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Chapter 5 Reference **5.3.4.1** **Recommendation**	5.3.4 Approach lighting systems ***Application*** 5.3.4.1 *Application* A.— Non-instrument runway **Recommendation.—** *Where physically practicable, a simple approach lighting system as specified in 5.3.4.2 to 5.3.4.9 should be provided to serve a non-instrument runway where the code number is 3 or 4 and intended for use at night, except when the runway is used only in conditions of good visibility and sufficient guidance is provided by other visual aids.* *Note.— A simple approach lighting system can also provide visual guidance by day.* B.— Non-precision approach runway Where physically practicable, a simple approach lighting system as specified in 5.3.4.2 to 5.3.4.9 shall be provided to serve a non-precision approach runway, except when the runway is used only in conditions of good visibility or sufficient guidance is provided by other visual aids. *Note.— It is advisable to give consideration to the installation of a precision approach category I lighting system or to the addition of a runway lead-in lighting system.* C.— Precision approach runway category I Where physically practicable, a precision approach category I lighting system as specified in 5.3.4.10 to 5.3.4.21 shall be provided to serve a precision approach runway category I.	A - AC139-6, 5.3.17. B - CAR Part 139, App E, E.3.6(a). C - CAR Part 139, App E, E.3.6(b). D - CAR Part 139, App E, E.3.6(c).	No Difference		

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	D.— Precision approach runway categories II and III A precision approach category II and III lighting system as specified in 5.3.4.22 to 5.3.4.39 shall be provided to serve a precision approach runway category II or III.				
Chapter 5 Reference **5.3.4.2** **Standard**	***Simple approach lighting system*** ***Location*** 5.3.4.2 A simple approach lighting system shall consist of a row of lights on the extended centre line of the runway extending, whenever possible, over a distance of not less than 420 m from the threshold with a row of lights forming a crossbar 18 m or 30 m in length at a distance of 300 m from the threshold.	AC139-6, 5.3.18.	No Difference		
Chapter 5 Reference **5.3.4.3** **Standard**	5.3.4.3 The lights forming the crossbar shall be as nearly as practicable in a horizontal straight line at right angles to, and bisected by, the line of the centre line lights. The lights of the crossbar shall be spaced so as to produce a linear effect, except that, when a crossbar of 30 m is used, gaps may be left on each side of the centre line. These gaps shall be kept to a minimum to meet local requirements and each shall not exceed 6 m. *Note 1.— Spacings for the crossbar lights between 1 m and 4 m are in use. Gaps on each side of the centre line may improve directional guidance when approaches are made with a lateral error, and facilitate the movement of rescue and firefighting vehicles.* *Note 2.— See Attachment A, Section 12, for guidance on installation tolerances.*	AC139-6, 5.3.20.	No Difference		

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Chapter 5 Reference **5.3.4.4** **Standard**	5.3.4.4 The lights forming the centre line shall be placed at longitudinal intervals of 60 m, except that, when it is desired to improve the guidance, an interval of 30 m may be used. The innermost light shall be located either 60 m or 30 m from the threshold, depending on the longitudinal interval selected for the centre line lights.	AC139-6, 5.3.19.	No Difference		
Chapter 5 Reference **5.3.4.5** **Recommendation**	5.3.4.5 **Recommendation.—** *If it is not physically possible to provide a centre line extending for a distance of 420 m from the threshold, it should be extended to 300 m so as to include the crossbar. If this is not possible, the centre line lights should be extended as far as practicable, and each centre line light should then consist of a barrette at least 3 m in length. Subject to the approach system having a crossbar at 300 m from the threshold, an additional crossbar may be provided at 150 m from the threshold.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not implemented.	
Chapter 5 Reference **5.3.4.6** **Standard**	5.3.4.6 The system shall lie as nearly as practicable in the horizontal plane passing through the threshold, provided that: a) no object other than an ILS or MLS azimuth antenna shall protrude through the plane of the approach lights within a distance of 60 m from the centre line of the system; and b) no light other than a light located within the central part of a crossbar or a centre line barrette (not their extremities) shall be screened from an approaching aircraft. Any ILS or MLS azimuth antenna protruding through the plane of the lights shall be treated as an obstacle and marked and lighted accordingly.	AC139-6, 5.3.21.	No Difference		

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Chapter 5 Reference **5.3.4.7** **Standard**	***Characteristics*** 5.3.4.7 The lights of a simple approach lighting system shall be fixed lights and the colour of the lights shall be such as to ensure that the system is readily distinguishable from other aeronautical ground lights, and from extraneous lighting if present. Each centre line light shall consist of either: a) a single source; or b) a barrette at least 3 m in length. *Note 1.— When the barrette as in b) is composed of lights approximating to point sources, a spacing of 1.5 m between adjacent lights in the barrette has been found satisfactory.* *Note 2.— It may be advisable to use barrettes 4 m in length if it is anticipated that the simple approach lighting system will be developed into a precision approach lighting system.* *Note 3.— At locations where identification of the simple approach lighting system is difficult at night due to surrounding lights, sequence flashing lights installed in the outer portion of the system may resolve this problem.*	AC139-6, 5.3.22.	Different in character or other means of compliance	The option of either a) or b) is not provided.	
Chapter 5 Reference **5.3.4.8** **Recommendation**	5.3.4.8 **Recommendation.—** *Where provided for a non-instrument runway, the lights should show at all angles in azimuth necessary to a pilot on base leg and final approach. The intensity of the lights should be adequate for all conditions of visibility and ambient light for which the system has been provided.*	AC139-6, 5.3.23.	No Difference		

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Chapter 5 Reference **5.3.4.9** **Recommendation**	5.3.4.9 **Recommendation.—** *Where provided for a non-precision approach runway, the lights should show at all angles in azimuth necessary to the pilot of an aircraft which on final approach does not deviate by an abnormal amount from the path defined by the non-visual aid. The lights should be designed to provide guidance during both day and night in the most adverse conditions of visibility and ambient light for which it is intended that the system should remain usable.*	AC139-6,5.3.23.	Different in character or other means of compliance	No reference to deviating by an abnormal amount on final approach.	
Chapter 5 Reference **5.3.4.10** **Standard**	***Precision approach category I lighting system*** ***Location*** 5.3.4.10 A precision approach category I lighting system shall consist of a row of lights on the extended centre line of the runway extending, wherever possible, over a distance of 900 m from the runway threshold with a row of lights forming a crossbar 30 m in length at a distance of 300 m from the runway threshold. *Note.— The installation of an approach lighting system of less than 900 m in length may result in operational limitations on the use of the runway. See Attachment A, Section 12.*	AC139-6, 5.3.32.	More Exacting or Exceeds	Five crossbars are specified.	

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Chapter 5 Reference **5.3.4.11** **Standard**	5.3.4.11 The lights forming the crossbar shall be as nearly as practicable in a horizontal straight line at right angles to, and bisected by, the line of the centre line lights. The lights of the crossbar shall be spaced so as to produce a linear effect, except that gaps may be left on each side of the centre line. These gaps shall be kept to a minimum to meet local requirements and each shall not exceed 6 m. *Note 1.— Spacings for the crossbar lights between 1 m and 4 m are in use. Gaps on each side of the centre line may improve directional guidance when approaches are made with a lateral error, and facilitate the movement of rescue and firefighting vehicles.* *Note 2.— See Attachment A, Section 12, for guidance on installation tolerances.*	AC139-6, 5.3.36.	No Difference		
Chapter 5 Reference **5.3.4.12** **Standard**	5.3.4.12 The lights forming the centre line shall be placed at longitudinal intervals of 30 m with the innermost light located 30 m from the threshold.	AC139-6, 5.3.33.	No Difference		

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Chapter 5 Reference **5.3.4.13** **Standard**	5.3.4.13 The system shall lie as nearly as practicable in the horizontal plane passing through the threshold, provided that: a) no object other than an ILS or MLS azimuth antenna shall protrude through the plane of the approach lights within a distance of 60 m from the centre line of the system; and b) no light other than a light located within the central part of a crossbar or a centre line barrette (not their extremities) shall be screened from an approaching aircraft. Any ILS or MLS azimuth antenna protruding through the plane of the lights shall be treated as an obstacle and marked and lighted accordingly.	AC139-6, 5.3.37.	No Difference		
Chapter 5 Reference **5.3.4.14** **Standard**	***Characteristics*** 5.3.4.14 The centre line and crossbar lights of a precision approach category I lighting system shall be fixed lights showing variable white. Each centre line light position shall consist of either: a) a single light source in the innermost 300 m of the centre line, two light sources in the central 300 m of the centre line and three light sources in the outer 300 m of the centre line to provide distance information; or b) a barrette.	AC139-6, 5.3.33 to 35, 5.3.38.	No Difference		

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Chapter 5 Reference **5.3.4.15** **Standard**	5.3.4.15 Where the serviceability level of the approach lights specified as a maintenance objective in 10.5.10 can be demonstrated, each centre line light position may consist of either: a) a single light source; or b) a barrette.	AC139-6, Ch 5.	More Exacting or Exceeds	The alternative option is not provided for.	
Chapter 5 Reference **5.3.4.16** **Standard**	5.3.4.16 The barrettes shall be at least 4 m in length. When barrettes are composed of lights approximating to point sources, the lights shall be uniformly spaced at intervals of not more than 1.5 m.		Not Applicable		
Chapter 5 Reference **5.3.4.17** **Recommendation**	5.3.4.17 **Recommendation.—** *If the centre line consists of barrettes as described in 5.3.4.14 b) or 5.3.4.15 b), each barrette should be supplemented by a flashing light, except where such lighting is considered unnecessary taking into account the characteristics of the system and the nature of the meteorological conditions.*		Not Applicable		
Chapter 5 Reference **5.3.4.18** **Standard**	5.3.4.18 Each flashing light as described in 5.3.4.17 shall be flashed twice a second in sequence, beginning with the outermost light and progressing toward the threshold to the innermost light of the system. The design of the electrical circuit shall be such that these lights can be operated independently of the other lights of the approach lighting system.		Not Applicable		

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Chapter 5 Reference **5.3.4.19** **Standard**	5.3.4.19 If the centre line consists of lights as described in 5.3.4.14 a) or 5.3.4.15 a), additional crossbars of lights to the crossbar provided at 300 m from the threshold shall be provided at 150 m, 450 m, 600 m and 750 m from the threshold. The lights forming each crossbar shall be as nearly as practicable in a horizontal straight line at right angles to, and bisected by, the line of the centre line lights. The lights shall be spaced so as to produce a linear effect, except that gaps may be left on each side of the centre line. These gaps shall be kept to a minimum to meet local requirements and each shall not exceed 6 m. *Note.— See Attachment A, Section 12, for detailed configuration.*	AC139-6, 5.3.32.	No Difference		
Chapter 5 Reference **5.3.4.20** **Standard**	5.3.4.20 Where the additional crossbars described in 5.3.4.19 are incorporated in the system, the outer ends of the crossbars shall lie on two straight lines that either are parallel to the line of the centre line lights or converge to meet the runway centre line 300 m from threshold.	AC139-6, 5.3.36.	No Difference		
Chapter 5 Reference **5.3.4.21** **Standard**	5.3.4.21 The lights shall be in accordance with the specifications of Appendix 2, Figure A2-1. *Note.— The flight path envelopes used in the design of these lights are given in Attachment A, Figure A-6.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.4.22** **Standard**	***Precision approach category II and III lighting system*** ***Location*** 5.3.4.22 The approach lighting system shall consist of a row of lights on the extended centre line of the runway, extending, wherever possible, over a distance of 900 m from the runway threshold. In addition, the system shall have two side rows of lights, extending 270 m from the threshold, and two crossbars, one at 150 m and one at 300 m from the threshold, all as shown in Figure 5-14. Where the serviceability level of the approach lights specified as maintenance objectives in 10.5.7 can be demonstrated, the system may have two side rows of lights, extending 240 m from the threshold, and two crossbars, one at 150 m and one at 300 m from the threshold, all as shown in Figure 5-15. *Note.— The length of 900 m is based on providing guidance for operations under category I, II and III conditions. Reduced lengths may support category II and III operations but may impose limitations on category I operations. See Attachment A, Section 12.*	AC139-6, 5.3.40.	More Exacting or Exceeds	The alternative option to maintenance objectives in 10.5.7 is not specified.	
Chapter 5 Reference **5.3.4.23** **Standard**	5.3.4.23 The lights forming the centre line shall be placed at longitudinal intervals of 30 m with the innermost lights located 30 m from the threshold.	AC139-6, 5.3.40.	No Difference		

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Chapter 5 Reference **5.3.4.24** **Standard**	5.3.4.24 The lights forming the side rows shall be placed on each side of the centre line, at a longitudinal spacing equal to that of the centre line lights and with the first light located 30 m from the threshold. Where the serviceability level of the approach lights specified as maintenance objectives in 10.5.7 can be demonstrated, lights forming the side rows may be placed on each side of the centre line, at a longitudinal spacing of 60 m with the first light located 60 m from the threshold. The lateral spacing (or gauge) between the innermost lights of the side rows shall be not less than 18 m nor more than 22.5 m, and preferably 18 m, but in any event shall be equal to that of the touchdown zone lights.	AC139-6, 5.3.40.	More Exacting or Exceeds	The alternative option to maintenance objectives in 10.4.7 is not specified.	
Chapter 5 Reference **5.3.4.25** **Standard**	5.3.4.25 The crossbar provided at 150 m from the threshold shall fill in the gaps between the centre line and side row lights.	AC139-6, 5.3.41.	No Difference		
Chapter 5 Reference **5.3.4.26** **Standard**	5.3.4.26 The crossbar provided at 300 m from the threshold shall extend on both sides of the centre line lights to a distance of 15 m from the centre line.	AC139-6, 5.3.41.	No Difference		
Chapter 5 Reference **5.3.4.27** **Standard**	5.3.4.27 If the centre line beyond a distance of 300 m from the threshold consists of lights as described in 5.3.4.31 b) or 5.3.4.32 b), additional crossbars of lights shall be provided at 450 m, 600 m and 750 m from the threshold.	AC139-6, 5.3.42.	No Difference		

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Chapter 5 Reference **5.3.4.28** **Standard**	5.3.4.28 Where the additional crossbars described in 5.3.4.27 are incorporated in the system, the outer ends of these crossbars shall lie on two straight lines that either are parallel to the centre line or converge to meet the runway centre line 300 m from the threshold.	AC139-6, 5.3.42.	No Difference		
Chapter 5 Reference **5.3.4.29** **Standard**	5.3.4.29 The system shall lie as nearly as practicable in the horizontal plane passing through the threshold, provided that: a) no object other than an ILS or MLS azimuth antenna shall protrude through the plane of the approach lights within a distance of 60 m from the centre line of the system; and b) no light other than a light located within the central part of a crossbar or a centre line barrette (not their extremities) shall be screened from an approaching aircraft. Any ILS or MLS azimuth antenna protruding through the plane of the lights shall be treated as an obstacle and marked and lighted accordingly.	AC139-6, 5.3.43.	No Difference		

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Chapter 5 Reference **5.3.4.30** **Standard**	***Characteristics*** 5.3.4.30 The centre line of a precision approach category II and III lighting system for the first 300 m from the threshold shall consist of barrettes showing variable white, except that, where the threshold is displaced 300 m or more, the centre line may consist of single light sources showing variable white. Where the serviceability level of the approach lights specified as maintenance objectives in 10.5.7 can be demonstrated, the centre line of a precision approach category II and III lighting system for the first 300 m from the threshold may consist of either: a) barrettes, where the centre line beyond 300 m from the threshold consists of barrettes as described in 5.3.4.32 a); or b) alternate single light sources and barrettes, where the centre line beyond 300 m from the threshold consists of single light sources as described in 5.3.4.32 b), with the innermost single light source located 30 m and the innermost barrette located 60 m from the threshold; or c) single light sources where the threshold is displaced 300 m or more; all of which shall show variable white.	AC139-6, 5.3.44.	More Exacting or Exceeds	The alternative option to maintenance objectives in 10.5.7 is not specified.	

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Chapter 5 Reference **5.3.4.31** **Standard**	5.3.4.31 Beyond 300 m from the threshold each centre line light position shall consist of either: a) a barrette as used on the inner 300 m; or b) two light sources in the central 300 m of the centre line and three light sources in the outer 300 m of the centre line; all of which shall show variable white.	AC139-6, 5.3.45.	No Difference		
Chapter 5 Reference **5.3.4.32** **Standard**	5.3.4.32 Where the serviceability level of the approach lights specified as maintenance objectives in 10.5.7 can be demonstrated, beyond 300 m from the threshold each centre line light position may consist of either: a) a barrette; or b) a single light source; all of which shall show variable white.	AC139-6, Ch 5.	More Exacting or Exceeds	The alternative option to maintenance objectives in 10.5.7 is not specified.	
Chapter 5 Reference **5.3.4.33** **Standard**	5.3.4.33 The barrettes shall be at least 4 m in length. When barrettes are composed of lights approximating to point sources, the lights shall be uniformly spaced at intervals of not more than 1.5 m.		Not Applicable		
Chapter 5 Reference **5.3.4.34** **Recommendation**	5.3.4.34 **Recommendation.—** *If the centre line beyond 300 m from the threshold consists of barrettes as described in 5.3.4.31 a) or 5.3.4.32 a), each barrette beyond 300 m should be supplemented by a flashing light, except where such lighting is considered unnecessary taking into account the characteristics of the system and the nature of the meteorological conditions.*	AC139-6, 5.3.46.	No Difference		

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Chapter 5 Reference **5.3.4.35** **Standard**	5.3.4.35 Each flashing light as described in 5.3.4.34 shall be flashed twice a second in sequence, beginning with the outermost light and progressing toward the threshold to the innermost light of the system. The design of the electrical circuit shall be such that these lights can be operated independently of the other lights of the approach lighting system.	AC139-6, 5.3.46.	No Difference		
Chapter 5 Reference **5.3.4.36** **Standard**	5.3.4.36 The side row shall consist of barrettes showing red. The length of a side row barrette and the spacing of its lights shall be equal to those of the touchdown zone light barrettes.	AC139-6, 5.3.47.	No Difference		
Chapter 5 Reference **5.3.4.37** **Standard**	5.3.4.37 The lights forming the crossbars shall be fixed lights showing variable white. The lights shall be uniformly spaced at intervals of not more than 2.7 m.	AC139-6, 5.3.48.	No Difference		
Chapter 5 Reference **5.3.4.38** **Standard**	5.3.4.38 The intensity of the red lights shall be compatible with the intensity of the white lights.	AC139-6, 5.3.47.	No Difference		
Chapter 5 Reference **5.3.4.39** **Standard**	5.3.4.39 The lights shall be in accordance with the specifications of Appendix 2, Figures A2-1 and A2-2. *Note.— The flight path envelopes used in the design of these lights are given in Attachment A, Figure A-6.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.5.1** **Standard**	5.3.5 Visual approach slope indicator systems ***Application*** 5.3.5.1 A visual approach slope indicator system shall be provided to serve the approach to a runway whether or not the runway is served by other visual approach aids or by non-visual aids, where one or more of the following conditions exist: a) the runway is used by turbojet or other aeroplanes with similar approach guidance requirements; b) the pilot of any type of aeroplane may have difficulty in judging the approach due to: 1) inadequate visual guidance such as is experienced during an approach over water or featureless terrain by day or in the absence of sufficient extraneous lights in the approach area by night; or 2) misleading information such as is produced by deceptive surrounding terrain or runway slopes; c) the presence of objects in the approach area may involve serious hazard if an aeroplane descends below the normal approach path, particularly if there are no non-visual or other visual aids to give warning of such objects; d) physical conditions at either end of the runway present a serious hazard in the event of an aeroplane undershooting or overrunning the runway; and e) terrain or prevalent meteorological conditions are	CAR Part 139, App E, E.3.7(a); AC 139-6, 5.3.49.	No Difference		

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	such that the aeroplane may be subjected to unusual turbulence during approach. *Note.— Guidance on the priority of installation of visual approach slope indicator systems is contained in Attachment A, Section12.* **Figure 5-16. Visual approach slope indicator systems**				
Chapter 5 Reference **5.3.5.2** **Standard**	5.3.5.2 The standard visual approach slope indicator systems shall consist of the following: a) T-VASIS and AT-VASIS conforming to the specifications contained in 5.3.5.7 to 5.3.5.23 inclusive; b) PAPI and APAPI systems conforming to the specifications contained in 5.3.5.24 to 5.3.5.41 inclusive; as shown in Figure 5-16.	AC139-6, 5.3.50.	No Difference		
Chapter 5 Reference **5.3.5.3** **Standard**	5.3.5.3 PAPI, T-VASIS or AT-VASIS shall be provided where the code number is 3 or 4 when one or more of the conditions specified in 5.3.5.1 exist.	CAR Part 139, App E, E.3.7(b); AC139-6, 5.3.51.	No Difference		
Chapter 5 Reference **5.3.5.4** **Recommendation**	5.3.5.4 **Recommendation.**— *As of 1 January 2020, the use of T-VASIS and AT-VASIS as standard visual approach slope indicator systems should be discontinued*.		Not Applicable		To be considered for adoption by applicable date.

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Chapter 5 Reference **5.3.5.5** **Standard**	5.3.5.5 PAPI or APAPI shall be provided where the code number is 1 or 2 when one or more of the conditions specified in 5.3.5.1 exist.	AC139-6, 5.3.52.	No Difference		Note: reference also provides for AT-VASIS.
Chapter 5 Reference **5.3.5.6** **Recommendation**	5.3.5.6 **Recommendation.—** *Where a runway threshold is temporarily displaced from the normal position and one or more of the conditions specified in 5.3.5.1 exist, a PAPI should be provided except that where the code number is 1 or 2 an APAPI may be provided.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not provided for.	
Chapter 5 Reference **5.3.5.7** **Standard**	***T-VASIS and AT-VASIS*** ***Description*** 5.3.5.7 The T-VASIS shall consist of twenty light units symmetrically disposed about the runway centre line in the form of two wing bars of four light units each, with bisecting longitudinal lines of six lights, as shown in Figure 5-17.	AC139-6, 5.3.69.	No Difference		
Chapter 5 Reference **5.3.5.8** **Standard**	5.3.5.8 The AT-VASIS shall consist of ten light units arranged on one side of the runway in the form of a single wing bar of four light units with a bisecting longitudinal line of six lights.	AC139-6, 5.3.70.	No Difference		

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Chapter 5 Reference **5.3.5.9** **Standard**	5.3.5.9 The light units shall be constructed and arranged in such a manner that the pilot of an aeroplane during an approach will: a) when above the approach slope, see the wing bar(s) white, and one, two or three fly-down lights, the more fly-down lights being visible the higher the pilot is above the approach slope; b) when on the approach slope, see the wing bar(s) white; and c) when below the approach slope, see the wing bar(s) and one, two or three fly-up lights white, the more fly-up lights being visible the lower the pilot is below the approach slope; and when well below the approach slope, see the wing bar(s) and the three fly-up lights red. When on or above the approach slope, no light shall be visible from the fly-up light units; when on or below the approach slope, no light shall be visible from the fly-down light units.	AC139-6, 5.3.71, 5.3.72.	No Difference		

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Chapter 5 Reference **5.3.5.10** **Standard**	***Siting*** 5.3.5.10 The light units shall be located as shown in Figure 5-17, subject to the installation tolerances given therein. *Note.— The siting of T-VASIS will provide, for a 3° slope and a nominal eye height over the threshold of 15 m (see 5.3.5.7 and 5.3.5.20), a pilot's eye height over threshold of 13 m to 17 m when only the wing bar lights are visible. If increased eye height at the threshold is required (to provide adequate wheel clearance), then the approaches may be flown with one or more fly-down lights visible. The pilot's eye height over the threshold is then of the following order:* *Wing bar lights and one fly-down light visible 17 m to 22 m* *Wing bar lights and two fly-down lights visible 22 m to 28 m* *Wing bar lights and three fly-down lights visible 28 m to 54 m.*	AC139-6, 5.3.73.	No Difference		
Chapter 5 Reference **5.3.5.11** **Standard**	***Characteristics of the light units*** 5.3.5.11 The systems shall be suitable for both day and night operations.	AC139-6, 5.3.74.	No Difference		

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Chapter 5 Reference **5.3.5.12** **Standard**	5.3.5.12 The light distribution of the beam of each light unit shall be of fan shape showing over a wide arc in azimuth in the approach direction. The wing bar light units shall produce a beam of white light from 1°54′ vertical angle up to 6° vertical angle and a beam of red light from 0° to 1°54′ vertical angle. The fly-down light units shall produce a white beam extending from an elevation of 6° down to approximately the approach slope, where it shall have a sharp cut-off. The fly-up light units shall produce a white beam from approximately the approach slope down to 1°54′ vertical angle and a red beam below a 1°54′ vertical angle. The angle of the top of the red beam in the wing bar units and fly-up units may be increased to comply with 5.3.5.22.	AC139-6, 5.3.75.	No Difference		
Chapter 5 Reference **5.3.5.13** **Standard**	5.3.5.13 The light intensity distribution of the fly-down, wing bar and fly-up light units shall be as shown in Appendix 2, Figure A2-22. **Figure 5-17. Siting of light units for T-VASIS**	AC139-6, 5.3.76.	No Difference		
Chapter 5 Reference **5.3.5.14** **Standard**	5.3.5.14 The colour transition from red to white in the vertical plane shall be such as to appear to an observer, at a distance of not less than 300 m, to occur over a vertical angle of not more than 15′.	AC139-6, 5.3.77.	No Difference		
Chapter 5 Reference **5.3.5.15** **Standard**	5.3.5.15 At full intensity the red light shall have a Y coordinate not exceeding 0.320.	AC139-6, 5.3.78.	No Difference		

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Chapter 5 Reference **5.3.5.16** **Standard**	5.3.5.16 A suitable intensity control shall be provided to allow adjustments to meet the prevailing conditions and to avoid dazzling the pilot during approach and landing.	AC139-6, 5.3.79.	No Difference		
Chapter 5 Reference **5.3.5.17** **Standard**	5.3.5.17 The light units forming the wing bars, or the light units forming a fly-down or a fly-up matched pair, shall be mounted so as to appear to the pilot of an approaching aeroplane to be substantially in a horizontal line. The light units shall be mounted as low as possible and shall be frangible.	AC139-6, 5.3.80.	No Difference		
Chapter 5 Reference **5.3.5.18** **Standard**	5.3.5.18 The light units shall be so designed that deposits of condensation, dirt, etc., on optically transmitting or reflecting surfaces shall interfere to the least possible extent with the light signals and shall in no way affect the elevation of the beams or the contrast between the red and white signals. The construction of the light units shall be such as to minimize the probability of the slots being wholly or partially blocked by snow or ice where these conditions are likely to be encountered.	AC139-6, 5.3.81.	No Difference		
Chapter 5 Reference **5.3.5.19** **Standard**	***Approach slope and elevation setting of light beams*** 5.3.5.19 The approach slope shall be appropriate for use by the aeroplanes using the approach.	AC139-6, 5.3.82.	No Difference		

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Chapter 5 Reference **5.3.5.20** **Standard**	5.3.5.20 When the runway on which a T-VASIS is provided is equipped with an ILS and/or MLS, the siting and elevations of the light units shall be such that the visual approach slope conforms as closely as possible with the glide path of the ILS and/or the minimum glide path of the MLS, as appropriate.	AC139-6, 5.3.83.	No Difference		
Chapter 5 Reference **5.3.5.21** **Standard**	5.3.5.21 The elevation of the beams of the wing bar light units on both sides of the runway shall be the same. The elevation of the top of the beam of the fly-up light unit nearest to each wing bar, and that of the bottom of the beam of the fly-down light unit nearest to each wing bar, shall be equal and shall correspond to the approach slope. The cut-off angle of the top of the beams of successive fly-up light units shall decrease by 5′ of arc in angle of elevation at each successive unit away from the wing bar. The cut-in angle of the bottom of the beam of the fly-down light units shall increase by 7′ of arc at each successive unit away from the wing bar (see Figure 5-18).	AC139-6, 5.3.84.	No Difference		
Chapter 5 Reference **5.3.5.22** **Standard**	5.3.5.22 The elevation setting of the top of the red light beams of the wing bar and fly-up light units shall be such that, during an approach, the pilot of an aeroplane to whom the wing bar and three fly-up light units are visible would clear all objects in the approach area by a safe margin if any such light did not appear red.	AC139-6, 5.3.85.	No Difference		

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Chapter 5 Reference **5.3.5.23** **Standard**	5.3.5.23 The azimuth spread of the light beam shall be suitably restricted where an object located outside the obstacle protection surface of the system, but within the lateral limits of its light beam, is found to extend above the plane of the obstacle protection surface and an aeronautical study indicates that the object could adversely affect the safety of operations. The extent of the restriction shall be such that the object remains outside the confines of the light beam. *Note.— See 5.3.5.42 to 5.3.5.46 concerning the related obstacle protection surface.*	AC139-6, 5.3.86.	No Difference		
Chapter 5 Reference **5.3.5.24** **Standard**	***PAPI and APAPI*** ***Description*** 5.3.5.24 The PAPI system shall consist of a wing bar of four sharp transition multi-lamp (or paired single lamp) units equally spaced. The system shall be located on the left side of the runway unless it is physically impracticable to do so. *Note.— Where a runway is used by aircraft requiring visual roll guidance which is not provided by other external means, then a second wing bar may be provided on the opposite side of the runway.*	AC139-6, 5.3.87.	No Difference		

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Chapter 5 Reference **5.3.5.25** **Standard**	5.3.5.25 The APAPI system shall consist of a wing bar of two sharp transition multi-lamp (or paired single lamp) units. The system shall be located on the left side of the runway unless it is physically impracticable to do so. *Note.— Where a runway is used by aircraft requiring visual roll guidance which is not provided by other external means, then a second wing bar may be provided on the opposite side of the runway.*	AC139-6, 5.3.88.	No Difference		
Chapter 5 Reference **5.3.5.26** **Standard**	5.3.5.26 The wing bar of a PAPI shall be constructed and arranged in such a manner that a pilot making an approach will: a) when on or close to the approach slope, see the two units nearest the runway as red and the two units farthest from the runway as white; b) when above the approach slope, see the one unit nearest the runway as red and the three units farthest from the runway as white; and when further above the approach slope, see all the units as white; and c) when below the approach slope, see the three units nearest the runway as red and the unit farthest from the runway as white; and when further below the approach slope, see all the units as red.	AC139-6, 5.3.89.	No Difference		

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Chapter 5 Reference **5.3.5.27** **Standard**	5.3.5.27 The wing bar of an APAPI shall be constructed and arranged in such a manner that a pilot making an approach will: a) when on or close to the approach slope, see the unit nearer the runway as red and the unit farther from the runway as white; b) when above the approach slope, see both the units as white; and c) when below the approach slope, see both the units as red.	AC139-6, 5.3.90.	No Difference		
Chapter 5 Reference **5.3.5.28** **Standard**	***Siting*** 5.3.5.28 The light units shall be located as in the basic configuration illustrated in Figure 5-19, subject to the installation tolerances given therein. The units forming a wing bar shall be mounted so as to appear to the pilot of an approaching aeroplane to be substantially in a horizontal line. The light units shall be mounted as low as possible and shall be frangible.	AC139-6, 5.3.91.	No Difference		
Chapter 5 Reference **5.3.5.29** **Standard**	***Characteristics of the light units*** 5.3.5.29 The system shall be suitable for both day and night operations.	AC139-6, 5.3.92.	No Difference		

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Chapter 5 Reference **5.3.5.30** **Standard**	5.3.5.30 The colour transition from red to white in the vertical plane shall be such as to appear to an observer, at a distance of not less than 300 m, to occur within a vertical angle of not more than 3′.	AC139-6, 5.3.93.	No Difference		
Chapter 5 Reference **5.3.5.31** **Standard**	5.3.5.31 At full intensity the red light shall have a Y coordinate not exceeding 0.320.	AC139-6, 5.3.94.	No Difference		
Chapter 5 Reference **5.3.5.32** **Standard**	5.3.5.32 The light intensity distribution of the light units shall be as shown in Appendix 2, Figure A2-23. *Note.— See the* Aerodrome Design Manual *(Doc 9157), Part 4, for additional guidance on the characteristics of light units.*	AC139-6, 5.3.95.	No Difference		
Chapter 5 Reference **5.3.5.33** **Standard**	5.3.5.33 Suitable intensity control shall be provided so as to allow adjustment to meet the prevailing conditions and to avoid dazzling the pilot during approach and landing.	AC139-6, 5.3.96.	No Difference		
Chapter 5 Reference **5.3.5.34** **Standard**	5.3.5.34 Each light unit shall be capable of adjustment in elevation so that the lower limit of the white part of the beam may be fixed at any desired angle of elevation between 1°30′ and at least 4°30′ above the horizontal.	AC139-6, 5.3.97.	No Difference		

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Chapter 5 Reference **5.3.5.35** **Standard**	5.3.5.35 The light units shall be so designed that deposits of condensation, snow, ice, dirt, etc., on optically transmitting or reflecting surfaces shall interfere to the least possible extent with the light signals and shall not affect the contrast between the red and white signals and the elevation of the transition sector. **Figure 5-19. Siting of PAPI and APAPI**	AC139-6, 5.3.98.	No Difference		
Chapter 5 Reference **5.3.5.36** **Standard**	***Approach slope and elevation setting of light units*** 5.3.5.36 The approach slope as defined in Figure 5-20 shall be appropriate for use by the aeroplanes using the approach.	AC139-6, 5.3.99.	No Difference		
Chapter 5 Reference **5.3.5.37** **Standard**	5.3.5.37 When the runway is equipped with an ILS and/or MLS, the siting and the angle of elevation of the light units shall be such that the visual approach slope conforms as closely as possible with the glide path of the ILS and/or the minimum glide path of the MLS, as appropriate.	AC139-6, 5.3.100.	No Difference		

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Chapter 5 Reference **5.3.5.38** **Standard**	5.3.5.38 The angle of elevation settings of the light units in a PAPI wing bar shall be such that, during an approach, the pilot of an aeroplane observing a signal of one white and three reds will clear all objects in the approach area by a safe margin (see Table 5-2).	AC139-6, 5.3.101.	No Difference		
Chapter 5 Reference **5.3.5.39** **Standard**	5.3.5.39 The angle of elevation settings of the light units in an APAPI wing bar shall be such that, during an approach, the pilot of an aeroplane observing the lowest onslope signal, i.e. one white and one red, will clear all objects in the approach area by a safe margin (see Table 5-2).	AC139-6, 5.3.102.	No Difference		
Chapter 5 Reference **5.3.5.40** **Standard**	5.3.5.40 The azimuth spread of the light beam shall be suitably restricted where an object located outside the obstacle protection surface of the PAPI or APAPI system, but within the lateral limits of its light beam, is found to extend above the plane of the obstacle protection surface and an aeronautical study indicates that the object could adversely affect the safety of operations. The extent of the restriction shall be such that the object remains outside the confines of the light beam. *Note.— See 5.3.5.42 to 5.3.5.46 concerning the related obstacle protection surface.*	AC139-6, 5.3.103.	No Difference		
Chapter 5 Reference **5.3.5.41** **Standard**	5.3.5.41 Where wing bars are installed on each side of the runway to provide roll guidance, corresponding units shall be set at the same angle so that the signals of each wing bar change symmetrically at the same time.	AC139-6, 5.3.104.	No Difference		

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Chapter 5 Reference **5.3.5.42** **Standard**	***Obstacle protection surface*** *Note.— The following specifications apply to T-VASIS, AT-VASIS, PAPI and APAPI.* 5.3.5.42 An obstacle protection surface shall be established when it is intended to provide a visual approach slope indicator system.	AC139-6, 5.3.105.	No Difference		
Chapter 5 Reference **5.3.5.43** **Standard**	5.3.5.43 The characteristics of the obstacle protection surface, i.e. origin, divergence, length and slope, shall correspond to those specified in the relevant column of Table 5-3 and in Figure 5-21.	AC139-6, 5.3.106.	No Difference		
Chapter 5 Reference **5.3.5.44** **Standard**	5.3.5.44 New objects or extensions of existing objects shall not be permitted above an obstacle protection surface except when, in the opinion of the appropriate authority, the new object or extension would be shielded by an existing immovable object. *Note.— Circumstances in which the shielding principle may reasonably be applied are described in the* Airport Services Manual *(Doc 9137), Part 6.*	AC139-6, 5.3.107.	No Difference		
Chapter 5 Reference **5.3.5.45** **Standard**	5.3.5.45 Existing objects above an obstacle protection surface shall be removed except when, in the opinion of the appropriate authority, the object is shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety of operations of aeroplanes. **Table 5-3. Dimensions and slopes of the obstacle protection surface**	AC139-6, 5.3.108.	No Difference		

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Chapter 5 Reference **5.3.5.46** **Standard**	5.3.5.46 Where an aeronautical study indicates that an existing object extending above an obstacle protection surface (OPS) could adversely affect the safety of operations of aeroplanes, one or more of the following measures shall be taken: a) remove the object; b) suitably raise the approach slope of the system; c) reduce the azimuth spread of the system so that the object is outside the confines of the beam; d) displace the axis of the system and its associated obstacle protection surface by no more than 5°; and e) suitably displace the system upwind of the threshold such that the object no longer penetrates the OPS. *Note 1.— Guidance on this issue is contained in the* Aerodrome Design Manual *(Doc 9157), Part 4.* *Note 2.— The displacement of the system upwind of the threshold reduces the operational landing distance*.	AC139-6, 5.3.109.	No Difference		
Chapter 5 Reference **5.3.6.1** **Recommendation**	5.3.6 Circling guidance lights ***Application*** 5.3.6.1 **Recommendation.—** *Circling guidance lights should be provided when existing approach and runway lighting systems do not satisfactorily permit identification of the runway and/or approach area to a circling aircraft in the conditions for which it is intended the runway be used for circling approaches.*	AC139-6, 5.3.111.	No Difference		

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Chapter 5 Reference **5.3.6.2** **Recommendation**	***Location*** 5.3.6.2 **Recommendation.—** *The location and number of circling guidance lights should be adequate to enable a pilot, as appropriate, to:* *a) join the downwind leg or align and adjust the aircraft's track to the runway at a required distance from it and to distinguish the threshold in passing; and* *b) keep in sight the runway threshold and/or other features which will make it possible to judge the turn on to base leg and final approach, taking into account the guidance provided by other visual aids.*	AC139-6, 5.3.112.	No Difference		
Chapter 5 Reference **5.3.6.3** **Recommendation**	5.3.6.3 **Recommendation.—** *Circling guidance lights should consist of:* *a) lights indicating the extended centre line of the runway and/or parts of any approach lighting system; or* *b) lights indicating the position of the runway threshold; or* *c) lights indicating the direction or location of the runway;* *or a combination of such lights as is appropriate to the runway under consideration.* *Note.— Guidance on installation of circling guidance lights is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 5.3.113.	No Difference		

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Chapter 5 Reference **5.3.6.4** **Recommendation**	***Characteristics*** 5.3.6.4 **Recommendation.—** *Circling guidance lights should be fixed or flashing lights of an intensity and beam spread adequate for the conditions of visibility and ambient light in which it is intended to make visual circling approaches. The flashing lights should be white, and the steady lights either white or gaseous discharge lights.*	AC139-6, 5.3.114.	Different in character or other means of compliance	The reference recommends amber lights.	
Chapter 5 Reference **5.3.6.5** **Recommendation**	5.3.6.5 **Recommendation.—** *The lights should be designed and be installed in such a manner that they will not dazzle or confuse a pilot when approaching to land, taking off or taxiing.*	AC139-6, 5.3.115.	No Difference		
Chapter 5 Reference **5.3.7.1** **Recommendation**	5.3.7 Runway lead-in lighting systems ***Application*** 5.3.7.1 **Recommendation.—** *A runway lead-in lighting system should be provided where it is desired to provide visual guidance along a specific approach path, for reasons such as avoiding hazardous terrain or for purposes of noise abatement.* *Note.— Guidance on providing lead-in lighting systems is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 5.3.116.	No Difference		

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Chapter 5 Reference **5.3.7.2** **Recommendation**	***Location*** 5.3.7.2 **Recommendation.—** *A runway lead-in lighting system should consist of groups of lights positioned so as to define the desired approach path and so that one group may be sighted from the preceding group. The interval between adjacent groups should not exceed approximately 1 600 m.* *Note.— Runway lead-in lighting systems may be curved, straight or a combination thereof.*	AC139-6, 5.3.117.	No Difference		
Chapter 5 Reference **5.3.7.3** **Recommendation**	5.3.7.3 **Recommendation.—** *A runway lead-in lighting system should extend from a point as determined by the appropriate authority, up to a point where the approach lighting system, if provided, or the runway or the runway lighting system is in view.*	AC139-6, 5.3.118.	No Difference		
Chapter 5 Reference **5.3.7.4** **Recommendation**	***Characteristics*** 5.3.7.4 **Recommendation.—** *Each group of lights of a runway lead-in lighting system should consist of at least three flashing lights in a linear or cluster configuration. The system may be augmented by steady burning lights where such lights would assist in identifying the system.*	AC139-6, 5.3.119.	Different in character or other means of compliance	The main lights of lead-in lighting should be fixed intensity red. The line of lead-in lights should be provided either with 2 amber portal beacons at the outer limit of the line, or the outermost light of the line will be amber. These outer limit lights may be either fixed or flashing.	

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Chapter 5 Reference **5.3.7.5** **Recommendation**	5.3.7.5 **Recommendation.—** *The flashing lights and the steady burning lights should be white.*	AC139-6, 5.3.119.	Different in character or other means of compliance	The main lights of lead-in lighting should be fixed intensity red. The line of lead-in lights should be provided either with 2 amber portal beacons at the outer limit of the line or the outermost light of the line will be amber. These outer limit lights may be either fixed or flashing.	
Chapter 5 Reference **5.3.7.6** **Recommendation**	5.3.7.6 **Recommendation.—** *Where practicable, the flashing lights in each group should flash in sequence towards the runway.*	AC139-6, 5.3.119.	Less protective or partially implemented or not implemented	Not implemented.	
Chapter 5 Reference **5.3.8.1** **Recommendation**	5.3.8 Runway threshold identification lights ***Application*** 5.3.8.1 **Recommendation.—** *Runway threshold identification lights should be installed:* *a) at the threshold of a non-precision approach runway when additional threshold conspicuity is necessary or where it is not practicable to provide other approach lighting aids; and* *b) where a runway threshold is permanently displaced from the runway extremity or temporarily displaced from the normal position and additional threshold conspicuity is necessary.*	AC139-6, 5.3.120.	Less protective or partially implemented or not implemented	b) not implemented.	

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Chapter 5 Reference **5.3.8.2** **Standard**	***Location*** 5.3.8.2 Runway threshold identification lights shall be located symmetrically about the runway centre line, in line with the threshold and approximately 10 m outside each line of runway edge lights.	AC139-6, 5.3.121.	No Difference		
Chapter 5 Reference **5.3.8.3** **Recommendation**	***Characteristics*** 5.3.8.3 **Recommendation.—** *Runway threshold identification lights should be flashing white lights with a flash frequency between 60 and 120 per minute.*	AC139-6, 5.3.122.	No Difference		
Chapter 5 Reference **5.3.8.4** **Standard**	5.3.8.4 The lights shall be visible only in the direction of approach to the runway.	AC139-6, 5.3.122.	No Difference		
Chapter 5 Reference **5.3.9.1** **Standard**	5.3.9 Runway edge lights ***Application*** 5.3.9.1 Runway edge lights shall be provided for a runway intended for use at night or for a precision approach runway intended for use by day or night.	CAR Part 139, App E, E.3.9.	No Difference		

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Chapter 5 Reference **5.3.9.2** **Recommendation**	5.3.9.2 **Recommendation.—** *Runway edge lights should be provided on a runway intended for take-off with an operating minimum below an RVR of the order of 800 m by day.*	AC139-6, 5.3.123.	No Difference		
Chapter 5 Reference **5.3.9.3** **Standard**	***Location*** 5.3.9.3 Runway edge lights shall be placed along the full length of the runway and shall be in two parallel rows equidistant from the centre line.	AC139-6, 5.3.124.	No Difference		
Chapter 5 Reference **5.3.9.4** **Standard**	5.3.9.4 Runway edge lights shall be placed along the edges of the area declared for use as the runway or outside the edges of the area at a distance of not more than 3 m.	AC139-6, 5.3.124.	No Difference		
Chapter 5 Reference **5.3.9.5** **Recommendation**	5.3.9.5 **Recommendation.—** *Where the width of the area which could be declared as runway exceeds 60 m, the distance between the rows of lights should be determined taking into account the nature of the operations, the light distribution characteristics of the runway edge lights, and other visual aids serving the runway.*	AC139-6, 5.3.125.	No Difference		

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Chapter 5 Reference **5.3.9.6** **Standard**	5.3.9.6 The lights shall be uniformly spaced in rows at intervals of not more than 60 m for an instrument runway, and at intervals of not more than 100 m for a non-instrument runway. The lights on opposite sides of the runway axis shall be on lines at right angles to that axis. At intersections of runways, lights may be spaced irregularly or omitted, provided that adequate guidance remains available to the pilot.	AC139-6, 5.3.124.	No Difference		
Chapter 5 Reference **5.3.9.7** **Standard**	***Characteristics*** 5.3.9.7 Runway edge lights shall be fixed lights showing variable white, except that: a) in the case of a displaced threshold, the lights between the beginning of the runway and the displaced threshold shall show red in the approach direction; and b) a section of the lights 600 m or one-third of the runway length, whichever is the less, at the remote end of the runway from the end at which the take-off run is started, may show yellow.	AC139-6, 5.3.126.	No Difference		
Chapter 5 Reference **5.3.9.8** **Standard**	5.3.9.8 The runway edge lights shall show at all angles in azimuth necessary to provide guidance to a pilot landing or taking off in either direction. When the runway edge lights are intended to provide circling guidance, they shall show at all angles in azimuth (see 5.3.6.1).	AC139-6, 5.3.126.	No Difference		

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Chapter 5 Reference **5.3.9.9** **Standard**	5.3.9.9 In all angles of azimuth required in 5.3.9.8, runway edge lights shall show at angles up to 15° above the horizontal with an intensity adequate for the conditions of visibility and ambient light in which use of the runway for take-off or landing is intended. In any case, the intensity shall be at least 50 cd except that at an aerodrome without extraneous lighting, the intensity of the lights may be reduced to not less than 25 cd to avoid dazzling the pilot.	AC139-6, 5.3.127.	No Difference		
Chapter 5 Reference **5.3.9.10** **Standard**	5.3.9.10 Runway edge lights on a precision approach runway shall be in accordance with the specifications of Appendix 2, Figure A2-9 or A2-10.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.10.1** **Standard**	5.3.10 Runway threshold and wing bar lights (see Figure 5-22) ***Application of runway threshold lights*** 5.3.10.1 Runway threshold lights shall be provided for a runway equipped with runway edge lights, except on a non-instrument or non-precision approach runway where the threshold is displaced and wing bar lights are provided.	CAR Part 139, App E, E.3.10(a).	No Difference		
Chapter 5 Reference **5.3.10.2** **Standard**	***Location of runway threshold lights*** 5.3.10.2 When a threshold is at the extremity of a runway, the threshold lights shall be placed in a row at right angles to the runway axis as near to the extremity of the runway as possible and, in any case, not more than 3 m outside the extremity.	AC139-6, 5.3.129.	No Difference		

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Chapter 5 Reference **5.3.10.3** **Standard**	5.3.10.3 When a threshold is displaced from the extremity of a runway, threshold lights shall be placed in a row at right angles to the runway axis at the displaced threshold.	AC139-6, 5.3.130.	No Difference		
Chapter 5 Reference **5.3.10.4** **Standard**	5.3.10.4 Threshold lighting shall consist of: a) on a non-instrument or non-precision approach runway, at least six lights; b) on a precision approach runway category I, at least the number of lights that would be required if the lights were uniformly spaced at intervals of 3 m between the rows of runway edge lights; and c) on a precision approach runway category II or III, lights uniformly spaced between the rows of runway edge lights at intervals of not more than 3 m.	AC139-6, 5.3.131.	No Difference		
Chapter 5 Reference **5.3.10.5** **Recommendation**	5.3.10.5 **Recommendation.—** *The lights prescribed in 5.3.10.4 a) and b) should be either:* *a) equally spaced between the rows of runway edge lights; or* *b) symmetrically disposed about the runway centre line in two groups, with the lights uniformly spaced in each group and with a gap between the groups equal to the gauge of the touchdown zone marking or lighting, where such is provided, or otherwise not more than half the distance between the rows of runway edge lights.*	AC139-6, 5.3.131.	No Difference		

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Chapter 5 Reference **5.3.10.6** **Recommendation**	***Application of wing bar lights*** 5.3.10.6 **Recommendation.—** *Wing bar lights should be provided on a precision approach runway when additional conspicuity is considered desirable.*	AC139-6, 5.3.133.	No Difference		
Chapter 5 Reference **5.3.10.7** **Standard**	5.3.10.7 Wing bar lights shall be provided on a non-instrument or non-precision approach runway where the threshold is displaced and runway threshold lights are required, but are not provided.	CAR Part 139, App E, E.3.10(b).	No Difference		
Chapter 5 Reference **5.3.10.8** **Standard**	***Location of wing bar lights*** 5.3.10.8 Wing bar lights shall be symmetrically disposed about the runway centre line at the threshold in two groups, i.e. wing bars. Each wing bar shall be formed by at least five lights extending at least 10 m outward from, and at right angles to, the line of the runway edge lights, with the innermost light of each wing bar in the line of the runway edge lights. ***This page reserved for Figure 5-22 which is a CorelDraw file.***	AC139-6, 5.3.135.	No Difference		
Chapter 5 Reference **5.3.10.9** **Standard**	***Characteristics of runway threshold and wing bar lights*** 5.3.10.9 Runway threshold and wing bar lights shall be fixed unidirectional lights showing green in the direction of approach to the runway. The intensity and beam spread of the lights shall be adequate for the conditions of visibility and ambient light in which use of the runway is intended.	AC139-6, 5.3.136.	No Difference		

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Chapter 5 Reference **5.3.10.10** **Standard**	5.3.10.10 Runway threshold lights on a precision approach runway shall be in accordance with the specifications of Appendix 2, Figure A2-3.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.10.11** **Standard**	5.3.10.11 Threshold wing bar lights on a precision approach runway shall be in accordance with the specifications of Appendix 2, Figure A2-4.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.11.1** **Standard**	5.3.11 Runway end lights (see Figure 5-22) ***Application*** 5.3.11.1 Runway end lights shall be provided for a runway equipped with runway edge lights. *Note.— When the threshold is at the runway extremity, fittings serving as threshold lights may be used as runway end lights.*	CAR Part 139, App E, E.3.9; AC139-6, 5.3.137.	No Difference		
Chapter 5 Reference **5.3.11.2** **Standard**	***Location*** 5.3.11.2 Runway end lights shall be placed on a line at right angles to the runway axis as near to the end of the runway as possible and, in any case, not more than 3 m outside the end.	AC139-6, 5.3.138.	No Difference		

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Chapter 5 Reference **5.3.11.3** **Recommendation**	5.3.11.3 **Recommendation.—** *Runway end lighting should consist of at least six lights. The lights should be either:* *a) equally spaced between the rows of runway edge lights; or* *b) symmetrically disposed about the runway centre line in two groups with the lights uniformly spaced in each group and with a gap between the groups of not more than half the distance between the rows of runway edge lights.* *For a precision approach runway category III, the spacing between runway end lights, except between the two innermost lights if a gap is used, should not exceed 6 m.*	AC139-6, 5.3.139.	No Difference		
Chapter 5 Reference **5.3.11.4** **Standard**	***Characteristics*** 5.3.11.4 Runway end lights shall be fixed unidirectional lights showing red in the direction of the runway. The intensity and beam spread of the lights shall be adequate for the conditions of visibility and ambient light in which use of the runway is intended.	AC139-6, 5.3.140.	No Difference		
Chapter 5 Reference **5.3.11.5** **Standard**	5.3.11.5 Runway end lights on a precision approach runway shall be in accordance with the specifications of Appendix 2, Figure A2-8.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.12.1** **Standard**	5.3.12 Runway centre line lights ***Application*** 5.3.12.1 Runway centre line lights shall be provided on a precision approach runway category II or III.	CAR Part 139, App E, E.3.11(a).	No Difference		
Chapter 5 Reference **5.3.12.2** **Recommendation**	5.3.12.2 **Recommendation.—** *Runway centre line lights should be provided on a precision approach runway category I, particularly when the runway is used by aircraft with high landing speeds or where the width between the runway edge lights is greater than 50 m.*	AC139-6, 5.3.141.	No Difference		
Chapter 5 Reference **5.3.12.3** **Standard**	5.3.12.3 Runway centre line lights shall be provided on a runway intended to be used for take-off with an operating minimum below an RVR of the order of 400 m.	AC139-6, 5.3.141.	No Difference		
Chapter 5 Reference **5.3.12.4** **Recommendation**	5.3.12.4 **Recommendation.—** *Runway centre line lights should be provided on a runway intended to be used for take-off with an operating minimum of an RVR of the order of 400 m or higher when used by aeroplanes with a very high take-off speed, particularly where the width between the runway edge lights is greater than 50 m.*	AC139-6, 5.3.141.	No Difference		

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Chapter 5 Reference **5.3.12.5** **Standard**	***Location*** 5.3.12.5 Runway centre line lights shall be located along the centre line of the runway, except that the lights may be uniformly offset to the same side of the runway centre line by not more than 60 cm where it is not practicable to locate them along the centre line. The lights shall be located from the threshold to the end at longitudinal spacing of approximately 15 m. Where the serviceability level of the runway centre line lights specified as maintenance objectives in 10.5.7 or 10.5.11, as appropriate, can be demonstrated and the runway is intended for use in runway visual range conditions of 350 m or greater, the longitudinal spacing may be approximately 30 m. *Note.— Existing centre line lighting where lights are spaced at 7.5 m need not be replaced.*	AC139-6, 5.3.142.	Different in character or other means of compliance	Logitudinal spacing of 7.5 m or 15 m for a precision approach runway Category III; 7.5 m, 15 m or 30 m for a precision approach runway Category II or other runway on which the lights are provided. No reference to maintenance objectives in 10.4.7 or 10.4.11.	

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Chapter 5 Reference **5.3.12.6** **Recommendation**	5.3.12.6 **Recommendation.—** *Centre line guidance for take-off from the beginning of a runway to a displaced threshold should be provided by:* *a) an approach lighting system if its characteristics and intensity settings afford the guidance required during take-off and it does not dazzle the pilot of an aircraft taking off; or* *b) runway centre line lights; or* *c) barrettes of at least 3 m in length and spaced at uniform intervals of 30 m, as shown in Figure 5-23, designed so that their photometric characteristics and intensity setting afford the guidance required during take-off without dazzling the pilot of an aircraft taking off.* *Where necessary, provision should be made to extinguish those centre line lights specified in b) or reset the intensity of the approach lighting system or barrettes when the runway is being used for landing. In no case should only the single source runway centre line lights show from the beginning of the runway to a displaced threshold when the runway is being used for landing.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not provided for.	
Chapter 5 Reference **5.3.12.7** **Standard**	***Characteristics*** 5.3.12.7 Runway centre line lights shall be fixed lights showing variable white from the threshold to the point 900 m from the runway end; alternate red and variable white from 900 m to 300 m from the runway end; and red from 300 m to the runway end, except that for runways less than 1 800 m in length, the alternate red and variable white lights shall extend from the midpoint of the runway usable for landing to 300 m from the runway end.	AC139-6, 5.3.143.	No Difference		

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Chapter 5 Reference **5.3.12.8** **Standard**	5.3.12.8 Runway centre line lights shall be in accordance with the specifications of Appendix 2, Figure A2-6 or A2-7.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.13.1** **Standard**	5.3.13 Runway touchdown zone lights ***Application*** 5.3.13.1 Touchdown zone (TDZ) lights shall be provided in the touchdown zone of a precision approach runway category II or III.	CAR Part 139, App E, E.3.12.	No Difference		
Chapter 5 Reference **5.3.13.2** **Standard**	***Location*** 5.3.13.2 Touchdown zone lights shall extend from the threshold for a longitudinal distance of 900 m, except that, on runways less than 1 800 m in length, the system shall be shortened so that it does not extend beyond the midpoint of the runway. The pattern shall be formed by pairs of barrettes symmetrically located about the runway centre line. The lateral spacing between the innermost lights of a pair of barrettes shall be equal to the lateral spacing selected for the touchdown zone marking. The longitudinal spacing between pairs of barrettes shall be either 30 m or 60 m. *Note.— To allow for operations at lower visibility minima, it may be advisable to use a 30 m longitudinal spacing between barrettes.*	AC139-6, 5.3.146.	No Difference		

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Chapter 5 Reference **5.3.13.3** **Standard**	***Characteristics*** 5.3.13.3 A barrette shall be composed of at least three lights with a spacing between the lights of not more than 1.5 m.	AC139-6, 5.3.147.	No Difference		
Chapter 5 Reference **5.3.13.4** **Recommendation**	5.3.13.4 **Recommendation.—** *A barrette should be not less than 3 m nor more than 4.5 m in length.*	AC139-6, 5.3.147.	Different in character or other means of compliance	Not more than 4 m in length.	
Chapter 5 Reference **5.3.13.5** **Standard**	5.3.13.5 Touchdown zone lights shall be fixed unidirectional lights showing variable white.	AC139-6, 5.3.147.	No Difference		
Chapter 5 Reference **5.3.13.6** **Standard**	5.3.13.6 Touchdown zone lights shall be in accordance with the specifications of Appendix 2, Figure A2-5.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.14.1** **Recommendation**	5.3.14 Simple touchdown zone lights *Note.— The purpose of simple touchdown zone lights is to provide pilots with enhanced situational awareness in all visibility conditions and to help enable pilots to decide whether to commence a go-around if the aircraft has not landed by a certain point on the runway. It is essential that pilots operating at aerodromes with simple touchdown zone lights be familiar with the purpose of these lights.* ***Application*** 5.3.14.1 **Recommendation.—** *Except where TDZ lights are provided in accordance with paragraph 5.3.13, at an aerodrome where the approach angle is greater than 3.5 degrees and/or the Landing Distance Available combined with other factors increases the risk of an overrun, simple touchdown zone lights should be provided.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.14.2** **Standard**	***Location*** 5.3.14.2 Simple touchdown zone lights shall be a pair of lights located on each side of the runway centre line 0.3 m beyond the upwind edge of the final touchdown zone marking. The lateral spacing between the inner lights of the two pairs of lights shall be equal to the lateral spacing selected for the touchdown zone marking. The spacing between the lights of the same pair shall not be more than 1.5 m or half the width of the touchdown zone marking, whichever is greater. (See Figure 5-24.)	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.14.3** **Recommendation**	5.3.14.3 **Recommendation.—** *Where provided on a runway without TDZ markings, simple touchdown zone lights should be installed in such a position that provides the equivalent TDZ information.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.14.4** **Standard**	***Characteristics*** 5.3.14.4 Simple touchdown zone lights shall be fixed unidirectional lights showing variable white, aligned so as to be visible to the pilot of a landing aeroplane in the direction of approach to the runway.	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.14.5** **Standard**	5.3.14.5 Simple touchdown zone lights shall be in accordance with the specifications in Appendix 2, Figure A2-5. *Note.— As a good operating practice, simple touchdown zone lights are supplied with power on a separate circuit to other runway lighting so that they may be used when other lighting is switched off.* **Figure 5-24. Simple touchdown zone lighting**	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.15.1** **Recommendation**	5.3.15 Rapid exit taxiway indicator lights *Note.— The purpose of rapid exit taxiway indicator lights (RETILs) is to provide pilots with distance-to-go information to the nearest rapid exit taxiway on the runway, to enhance situational awareness in low visibility conditions and enable pilots to apply braking action for more efficient roll-out and runway exit speeds. It is essential that pilots operating at aerodromes with runway(s) displaying rapid exit taxiway indicator lights be familiar with the purpose of these lights.* ***Application*** 5.3.15.1 **Recommendation.—** *Rapid exit taxiway indicator lights should be provided on a runway intended for use in runway visual range conditions less than a value of 350 m and/or where the traffic density is heavy.* *Note.— See Attachment A, Section 15.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.15.2** **Standard**	5.3.15.2 Rapid exit taxiway indicator lights shall not be displayed in the event of any lamp failure or other failure that prevents the display of the light pattern depicted in Figure 5-25, in full.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.15.3** **Standard**	***Location*** 5.3.15.3 A set of rapid exit taxiway indicator lights shall be located on the runway on the same side of the runway centre line as the associated rapid exit taxiway, in the configuration shown in Figure 5-25. In each set, the lights shall be located 2 m apart and the light nearest to the runway centre line shall be displaced 2 m from the runway centre line.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.15.4** **Standard**	5.3.15.4 Where more than one rapid exit taxiway exists on a runway, the set of rapid exit taxiway indicator lights for each exit shall not overlap when displayed.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.15.5** **Standard**	***Characteristics*** 5.3.15.5 Rapid exit taxiway indicator lights shall be fixed unidirectional yellow lights, aligned so as to be visible to the pilot of a landing aeroplane in the direction of approach to the runway.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.15.6** **Standard**	5.3.15.6 Rapid exit taxiway indicator lights shall be in accordance with the specifications in Appendix 2, Figure A2-6 or Figure A2-7, as appropriate.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.15.7** **Recommendation**	5.3.15.7 **Recommendation.—** *Rapid exit taxiway indicator lights should be supplied with power on a separate circuit to other runway lighting so that they may be used when other lighting is switched off.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 5 Reference **5.3.16.1** **Standard**	5.3.16 Stopway lights ***Application*** 5.3.16.1 Stopway lights shall be provided for a stopway intended for use at night.	CAR Part 139, App E, E.3.13.	No Difference		
Chapter 5 Reference **5.3.16.2** **Standard**	***Location*** 5.3.16.2 Stopway lights shall be placed along the full length of the stopway and shall be in two parallel rows that are equidistant from the centre line and coincident with the rows of the runway edge lights. Stopway lights shall also be provided across the end of a stopway on a line at right angles to the stopway axis as near to the end of the stopway as possible and, in any case, not more than 3 m outside the end.	AC139-6, 5.3.152.	More Exacting or Exceeds	Specification is for nine lights across the end of the stopway for a precision approach runway Category I, II or III, or at least six lights for other runways.	
Chapter 5 Reference **5.3.16.3** **Standard**	***Characteristics*** 5.3.16.3 Stopway lights shall be fixed unidirectional lights showing red in the direction of the runway.	AC139-6, 5.3.153.	No Difference		

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Chapter 5 Reference **5.3.17.1** **Standard**	5.3.17 Taxiway centre line lights ***Application*** 5.3.17.1 Taxiway centre line lights shall be provided on an exit taxiway, taxiway, de-icing/anti-icing facility and apron intended for use in runway visual range conditions less than a value of 350 m in such a manner as to provide continuous guidance between the runway centre line and aircraft stands, except that these lights need not be provided where the traffic density is light and taxiway edge lights and centre line marking provide adequate guidance.	CAR Part 139, App E, E.3.14(a).	No Difference		
Chapter 5 Reference **5.3.17.2** **Recommendation**	5.3.17.2 **Recommendation.—** *Taxiway centre line lights should be provided on a taxiway intended for use at night in runway visual range conditions of 350 m or greater, and particularly on complex taxiway intersections and exit taxiways, except that these lights need not be provided where the traffic density is light and taxiway edge lights and centre line marking provide adequate guidance.* *Note.— Where there may be a need to delineate the edges of a taxiway, e.g. on a rapid exit taxiway, narrow taxiway or in snow conditions, this may be done with taxiway edge lights or markers.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.17.3** **Recommendation**	5.3.17.3 **Recommendation.—** *Taxiway centre line lights should be provided on an exit taxiway, taxiway, de-icing/anti-icing facility and apron in all visibility conditions where specified as components of an advanced surface movement guidance and control system in such a manner as to provide continuous guidance between the runway centre line and aircraft stands.*	CAR Part 139, App E, E.3.14(a).	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 5 Reference **5.3.17.4** **Standard**	5.3.17.4 Taxiway centre line lights shall be provided on a runway forming part of a standard taxi-route and intended for taxiing in runway visual range conditions less than a value of 350 m, except that these lights need not be provided where the traffic density is light and taxiway edge lights and centre line marking provide adequate guidance. *Note.— See 8.2.3 for provisions concerning the interlocking of runway and taxiway lighting systems.*	CAR Part 139, App E, E.3.14(b).	No Difference		
Chapter 5 Reference **5.3.17.5** **Recommendation**	5.3.17.5 **Recommendation.—** *Taxiway centre line lights should be provided in all visibility conditions on a runway forming part of a standard taxi-route where specified as components of an advanced surface movement guidance and control system.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	No reference to runway forming part of a standard taxi route.	
Chapter 5 Reference **5.3.17.6** **Standard**	***Characteristics*** 5.3.17.6 Except as provided for in 5.3.17.8, taxiway centre line lights on a taxiway other than an exit taxiway and on a runway forming part of a standard taxi-route shall be fixed lights showing green with beam dimensions such that the light is visible only from aeroplanes on or in the vicinity of the taxiway.	AC139-6, 5.3.164.	No Difference		

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Chapter 5 Reference **5.3.17.7** **Standard**	5.3.17.7 Taxiway centre line lights on an exit taxiway shall be fixed lights. Alternate taxiway centre line lights shall show green and yellow from their beginning near the runway centre line to the perimeter of the ILS/MLS critical/sensitive area or the lower edge of the inner transitional surface, whichever is farthest from the runway; and thereafter all lights shall show green (Figure 5-26). The first light in the exit centre line shall always show green, and the light nearest to the perimeter shall always show yellow. *Note 1.— Care is necessary to limit the light distribution of green lights on or near a runway so as to avoid possible confusion with threshold lights.* *Note 2.— For yellow filter characteristics see Appendix 1, 2.2.* *Note 3.— The size of the ILS/MLS critical/sensitive area depends on the characteristics of the associated ILS/MLS and other factors. Guidance is provided in Annex 10, Volume I, Attachments C and G.* *Note 4.— See 5.4.3 for specifications on runway vacated signs.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.17.8** **Recommendation**	5.3.17.8 **Recommendation.—** *Where it is necessary to denote the proximity to a runway, taxiway centre line lights should be fixed lights showing alternating green and yellow from the perimeter of the ILS/MLS critical/sensitive area or the lower edge of the inner transitional surface, whichever is farthest from the runway, to the runway and continue alternating green and yellow until:* *a) their end point near the runway centre line; or* *b) in the case of the taxiway centre line lights crossing the runway, to the opposite perimeter of the ILS/MLS critical/sensitive area or the lower edge of the inner transitional surface, whichever is farthest from the runway.* *Note 1.— Care is necessary to limit the light distribution of green lights on or near a runway so as to avoid possible confusion with threshold lights.* *Note 2.— The provisions of 5.3.17.8 can form part of effective runway incursion prevention measures.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.17.9** **Standard**	5.3.17.9 Taxiway centre line lights shall be in accordance with the specifications of: a) Appendix 2, Figure A2-12, A2-13, or A2-14, for taxiways intended for use in runway visual range conditions of less than a value of 350 m; and b) Appendix 2, Figure A2-15 or A2-16, for other taxiways.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.17.10** **Recommendation**	5.3.17.10 **Recommendation.—** *Where higher intensities are required, from an operational point of view, taxiway centre line lights on rapid exit taxiways intended for use in runway visual range conditions less than a value of 350 m should be in accordance with the specifications of Appendix 2, Figure A2-12. The number of levels of brilliancy settings for these lights should be the same as that for the runway centre line lights.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.17.11** **Recommendation**	5.3.17.11 **Recommendation.—** *Where taxiway centre line lights are specified as components of an advanced surface movement guidance and control system and where, from an operational point of view, higher intensities are required to maintain ground movements at a certain speed in very low visibilities or in bright daytime conditions, taxiway centre line lights should be in accordance with the specifications of Appendix 2, Figure A2-17, A2-18 or A2-19.* *Note.— High-intensity centre line lights should only be used in case of an absolute necessity and following a specific study.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.17.12** **Recommendation**	***Location*** 5.3.17.12 **Recommendation.—** *Taxiway centre line lights should normally be located on the taxiway centre line marking, except that they may be offset by not more than 30 cm where it is not practicable to locate them on the marking.*	AC139-6, 5.3.162.	No Difference		

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Chapter 5 Reference **5.3.17.13** **Recommendation**	***Taxiway centre line lights on taxiways*** ***Location*** 5.3.17.13 **Recommendation.—** *Taxiway centre line lights on a straight section of a taxiway should be spaced at longitudinal intervals of not more than 30 m, except that:* *a) larger intervals not exceeding 60 m may be used where, because of the prevailing meteorological conditions, adequate guidance is provided by such spacing;* *b) intervals less than 30 m should be provided on short straight sections; and* *c) on a taxiway intended for use in RVR conditions of less than a value of 350 m, the longitudinal spacing should not exceed 15 m.*	AC139-6, 5.3.162.	Different in character or other means of compliance	Precision approach Category III specified, rather than the RVR value in item c).	
Chapter 5 Reference **5.3.17.14** **Recommendation**	5.3.17.14 **Recommendation.—** *Taxiway centre line lights on a taxiway curve should continue from the straight portion of the taxiway at a constant distance from the outside edge of the taxiway curve. The lights should be spaced at intervals such that a clear indication of the curve is provided.*	AC139-6, 5.3.162.	Different in character or other means of compliance	Spacing of 7.5 m on curves specified.	

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Chapter 5 Reference **5.3.17.15** **Recommendation**	5.3.17.15 **Recommendation.—** *On a taxiway intended for use in RVR conditions of less than a value of 350 m, the lights on a curve should not exceed a spacing of 15 m, and on a curve of less than 400 m radius the lights should be spaced at intervals of not greater than 7.5 m. This spacing should extend for 60 m before and after the curve.* *Note 1.— Spacings on curves that have been found suitable for a taxiway intended for use in RVR conditions of 350 m or greater are:* Curve radius — Light spacing *up to 400 m — 7.5 m* *401 m to 899 m — 15 m* *900 m or greater — 30 m.* *Note 2.— See 3.9.5 and Figure 3-2.*	AC139-6, 5.3.162.	Less protective or partially implemented or not implemented	Not specified, except for 7.5. m spacing on curves.	
Chapter 5 Reference **5.3.17.16** **Recommendation**	***Taxiway centre line lights on rapid exit taxiways*** ***Location*** 5.3.17.16 **Recommendation.—** *Taxiway centre line lights on a rapid exit taxiway should commence at a point at least 60 m before the beginning of the taxiway centre line curve and continue beyond the end of the curve to a point on the centre line of the taxiway where an aeroplane can be expected to reach normal taxiing speed. The lights on that portion parallel to the runway centre line should always be at least 60 cm from any row of runway centre line lights, as shown in Figure 5-27.*	AC139-6, 5.3.163.	No Difference		

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Chapter 5 Reference **5.3.17.17** **Recommendation**	5.3.17.17 **Recommendation.—** *The lights should be spaced at longitudinal intervals of not more than 15 m, except that, where runway centre line lights are not provided, a greater interval not exceeding 30 m may be used.*	AC139-6, 5.3.163.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.17.18** **Recommendation**	***Taxiway centre line lights on other exit taxiways*** ***Location*** 5.3.17.18 **Recommendation.—** *Taxiway centre line lights on exit taxiways other than rapid exit taxiways should commence at the point where the taxiway centre line marking begins to curve from the runway centre line, and follow the curved taxiway centre line marking at least to the point where the marking leaves the runway. The first light should be at least 60 cm from any row of runway centre line lights, as shown in Figure 5-27.*	AC139-6, 5.3.164.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.17.19** **Recommendation**	5.3.17.19 **Recommendation.—** *The lights should be spaced at longitudinal intervals of not more than 7.5 m.*	AC139-6, 5.3.162.	No Difference		

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Chapter 5 Reference **5.3.17.20** **Recommendation**	***Taxiway centre line lights on runways*** ***Location*** 5.3.17.20 **Recommendation.—** *Taxiway centre line lights on a runway forming part of a standard taxi-route and intended for taxiing in runway visual range conditions less than a value of 350 m should be spaced at longitudinal intervals not exceeding 15 m.*	AC139-6, 5.3.163.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.18.1** **Standard**	5.3.18 Taxiway edge lights ***Application*** 5.3.18.1 Taxiway edge lights shall be provided at the edges of a runway turn pad, holding bay, de-icing/anti-icing facility, apron, etc., intended for use at night and on a taxiway not provided with taxiway centre line lights and intended for use at night, except that taxiway edge lights need not be provided where, considering the nature of the operations, adequate guidance can be achieved by surface illumination or other means. *Note.— See 5.5.5 for taxiway edge markers.*	CAR Part 139, App E, E.3.15.	No Difference		
Chapter 5 Reference **5.3.18.2** **Standard**	5.3.18.2 Taxiway edge lights shall be provided on a runway forming part of a standard taxi-route and intended for taxiing at night where the runway is not provided with taxiway centre line lights. *Note.— See 8.2.3 for provisions concerning the interlocking of runway and taxiway lighting systems.*	CAR Part 139, App E, E.3.15(b).	No Difference		

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Chapter 5 Reference **5.3.18.3** **Recommendation**	***Location*** 5.3.18.3 **Recommendation.—** *Taxiway edge lights on a straight section of a taxiway and on a runway forming part of a standard taxi-route should be spaced at uniform longitudinal intervals of not more than 60 m. The lights on a curve should be spaced at intervals less than 60 m so that a clear indication of the curve is provided.* *Note.— Guidance on the spacing of taxiway edge lights on curves is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 5.3.167.	No Difference		
Chapter 5 Reference **5.3.18.4** **Recommendation**	5.3.18.4 **Recommendation.—** *Taxiway edge lights on a holding bay, de-icing/anti-icing facility, apron, etc., should be spaced at uniform longitudinal intervals of not more than 60 m.*	AC139-6, 5.3.168.	No Difference		
Chapter 5 Reference **5.3.18.5** **Recommendation**	5.3.18.5 **Recommendation.—** *Taxiway edge lights on a runway turn pad should be spaced at uniform longitudinal intervals of not more than 30 m.*	AC139-6, 5.3.169.	No Difference		
Chapter 5 Reference **5.3.18.6** **Recommendation**	5.3.18.6 **Recommendation.—** *The lights should be located as near as practicable to the edges of the taxiway, runway turn pad, holding bay, de-icing/anti-icing facility, apron or runway, etc., or outside the edges at a distance of not more than 3 m.*	AC139-6, 5.3.170.	No Difference		

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Chapter 5 Reference **5.3.18.7** **Standard**	***Characteristics*** 5.3.18.7 Taxiway edge lights shall be fixed lights showing blue. The lights shall show up to at least 75° above the horizontal and at all angles in azimuth necessary to provide guidance to a pilot taxiing in either direction. At an intersection, exit or curve the lights shall be shielded as far as practicable so that they cannot be seen in angles of azimuth in which they may be confused with other lights.	AC139-6, 5.3.171.	No Difference		
Chapter 5 Reference **5.3.18.8** **Standard**	5.3.18.8 The intensity of taxiway edge lights shall be at least 2 cd from 0° to 6° vertical, and 0.2 cd at any vertical angles between 6° and 75°.	AC139-6, 5.3.171.	No Difference	Intensity not specified.	
Chapter 5 Reference **5.3.19.1** **Standard**	5.3.19 Runway turn pad lights ***Application*** 5.3.19.1 Runway turn pad lights shall be provided for continuous guidance on a runway turn pad intended for use in runway visual range conditions less than a value of 350 m, to enable an aeroplane to complete a 180-degree turn and align with the runway centre line.	CAR Part 139, App E, E.3.16.	No Difference		
Chapter 5 Reference **5.3.19.2** **Recommendation**	5.3.19.2 **Recommendation.—** *Runway turn pad lights should be provided on a runway turn pad intended for use at night.*	AC139-6, 5.3.172.	No Difference		

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Chapter 5 Reference **5.3.19.3** **Recommendation**	***Location*** 5.3.19.3 **Recommendation.—** *Runway turn pad lights should normally be located on the runway turn pad marking, except that they may be offset by not more than 30 cm where it is not practicable to locate them on the marking.*	AC139-6, 5.3.173.	No Difference		
Chapter 5 Reference **5.3.19.4** **Recommendation**	5.3.19.4 **Recommendation.—** *Runway turn pad lights on a straight section of the runway turn pad marking should be spaced at longitudinal intervals of not more than 15 m.*	AC139-6, 5.3.173.	No Difference		
Chapter 5 Reference **5.3.19.5** **Recommendation**	5.3.19.5 **Recommendation.—** *Runway turn pad lights on a curved section of the runway turn pad marking should not exceed a spacing of 7.5 m.*	AC139-6, 5.3.173.	No Difference		
Chapter 5 Reference **5.3.19.6** **Standard**	***Characteristics*** 5.3.19.6 Runway turn pad lights shall be unidirectional fixed lights showing green with beam dimensions such that the light is visible only from aeroplanes on or approaching the runway turn pad.	AC139-6, 5.3.174.	No Difference		
Chapter 5 Reference **5.3.19.7** **Standard**	5.3.19.7 Runway turn pad lights shall be in accordance with the specifications of Appendix 2, Figure A2-13, A2-14 or A2-15, as appropriate.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.20.1** **Standard**	5.3.20 Stop bars ***Application*** *Note 1.— A stop bar is intended to be controlled either manually or automatically by air traffic services.* *Note 2.— Runway incursions may take place in all visibility or weather conditions. The provision of stop bars at runway-holding positions and their use at night and in visibility conditions greater than 550 m runway visual range can form part of effective runway incursion prevention measures.* 5.3.20.1 A stop bar shall be provided at every runway-holding position serving a runway when it is intended that the runway will be used in runway visual range conditions less than a value of 550 m, except where: a) appropriate aids and procedures are available to assist in preventing inadvertent incursions of traffic onto the runway; or b) operational procedures exist to limit, in runway visual range conditions less than a value of 550 m, the number of: 1) aircraft on the manoeuvring area to one at a time; and 2) vehicles on the manoeuvring area to the essential minimum.	CAR Part 139, App E, E.3.17.	No Difference		

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Chapter 5 Reference **5.3.20.2** **Standard**	5.3.20.2 Where there is more than one stop bar associated with a taxiway/runway intersection, only one shall be illuminated at any given time.	CAR Part 139, App E. E.3.17(b).	No Difference		
Chapter 5 Reference **5.3.20.3** **Recommendation**	5.3.20.3 **Recommendation.—** *A stop bar should be provided at an intermediate holding position when it is desired to supplement markings with lights and to provide traffic control by visual means.*	AC139-6, 5.3.175.	Different in character or other means of compliance	Specified for runway holding position used in conjunction with a precision approach runway category II or III.	
Chapter 5 Reference **5.3.20.4** **Standard**	***Location*** 5.3.20.4 Stop bars shall be located across the taxiway at the point where it is desired that traffic stop. Where the additional lights specified in 5.3.20.6 are provided, these lights shall be located not less than 3 m from the taxiway edge.	AC139-6, 5.3.177.	No Difference		
Chapter 5 Reference **5.3.20.5** **Standard**	***Characteristics*** 5.3.20.5 Stop bars shall consist of lights spaced at uniform intervals of no more than 3 m across the taxiway, showing red in the intended direction(s) of approach to the intersection or runway-holding position. *Note.— Where necessary to enhance conspicuity of an existing stop bar, extra lights are installed uniformly.*	AC139-6, 5.3.178.	No Difference		

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Chapter 5 Reference **5.3.20.6** **Recommendation**	5.3.20.6 **Recommendation.—** *A pair of elevated lights should be added to each end of the stop bar where the in-pavement stop bar lights might be obscured from a pilot's view, for example, by snow or rain, or where a pilot may be required to stop the aircraft in a position so close to the lights that they are blocked from view by the structure of the aircraft.*	AC139-6, 5.3.176.	No Difference		
Chapter 5 Reference **5.3.20.7** **Standard**	5.3.20.7 Stop bars installed at a runway-holding position shall be unidirectional and shall show red in the direction of approach to the runway.	AC139-6, 5.3.178.	No Difference		
Chapter 5 Reference **5.3.20.8** **Standard**	5.3.20.8 Where the additional lights specified in 5.3.20.6 are provided, these lights shall have the same characteristics as the lights in the stop bar, but shall be visible to approaching aircraft up to the stop bar position.	AC139-6, 5.3.180.	No Difference		
Chapter 5 Reference **5.3.20.9** **Standard**	5.3.20.9 The intensity in red light and beam spreads of stop bar lights shall be in accordance with the specifications in Appendix 2, Figures A2-12 through A2-16, as appropriate.	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.20.10** **Recommendation**	5.3.20.10 **Recommendation.—** *Where stop bars are specified as components of an advanced surface movement guidance and control system and where, from an operational point of view, higher intensities are required to maintain ground movements at a certain speed in very low visibilities or in bright daytime conditions, the intensity in red light and beam spreads of stop bar lights should be in accordance with the specifications of Appendix 2, Figure A2-17, A2-18 or A2-19.* *Note.— High-intensity stop bars should only be used in case of an absolute necessity and following a specific study.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.20.11** **Recommendation**	5.3.20.11 **Recommendation.—** *Where a wide beam fixture is required, the intensity in red light and beam spreads of stop bar lights should be in accordance with the specifications of Appendix 2, Figure A2-17 or A2-19.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.20.12** **Standard**	5.3.20.12 The lighting circuit shall be designed so that: a) stop bars located across entrance taxiways are selectively switchable; b) stop bars located across taxiways intended to be used only as exit taxiways are switchable selectively or in groups; c) when a stop bar is illuminated, any taxiway centre line lights installed beyond the stop bar shall be extinguished for a distance of at least 90 m; and d) stop bars are interlocked with the taxiway centre line lights so that when the centre line lights beyond the stop bar are illuminated the stop bar is extinguished and vice versa. *Note.— Care is required in the design of the electrical system to ensure that all of the lights of a stop bar will not fail at the same time. Guidance on this issue is given in the* Aerodrome Design Manual *(Doc 9157), Part 5.*	AC139-6, 5.3.175.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.21.1** **Standard**	5.3.21 Intermediate holding position lights *Note.— See 5.2.11 for specifications on intermediate holding position marking.* ***Application*** 5.3.21.1 Except where a stop bar has been installed, intermediate holding position lights shall be provided at an intermediate holding position intended for use in runway visual range conditions less than a value of 350 m.	CAR Part 139, App E, E.3.18.	No Difference		

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Chapter 5 Reference **5.3.21.2** **Recommendation**	5.3.21.2 **Recommendation.—** *Intermediate holding position lights should be provided at an intermediate holding position where there is no need for stop-and-go signals as provided by a stop bar.*	AC139-6, 5.3.181.	No Difference		
Chapter 5 Reference **5.3.21.3** **Standard**	***Location*** 5.3.21.3 Intermediate holding position lights shall be located along the intermediate holding position marking at a distance of 0.3 m prior to the marking.	AC139-6, 5.3.182.	No Difference		
Chapter 5 Reference **5.3.21.4** **Standard**	***Characteristics*** 5.3.21.4 Intermediate holding position lights shall consist of three fixed unidirectional lights showing yellow in the direction of approach to the intermediate holding position with a light distribution similar to taxiway centre line lights if provided. The lights shall be disposed symmetrically about and at right angle to the taxiway centre line, with individual lights spaced 1.5 m apart.	AC139-6, 5.3.183.	No Difference		
Chapter 5 Reference **5.3.22.1** **Recommendation**	5.3.22 De-icing/anti-icing facility exit lights ***Application*** 5.3.22.1 **Recommendation.—** *De-icing/anti-icing facility exit lights should be provided at the exit boundary of a remote de-icing/anti-icing facility adjoining a taxiway.*	AC139-6, 5.3.184.	No Difference		

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Chapter 5 Reference **5.3.22.2** **Standard**	***Location*** 5.3.22.2 De-icing/anti-icing facility exit lights shall be located 0.3 m inward of the intermediate holding position marking displayed at the exit boundary of a remote de-icing/anti-icing facility.	AC139-6, 5.3.185.	No Difference		
Chapter 5 Reference **5.3.22.3** **Standard**	***Characteristics*** 5.3.22.3 De-icing/anti-icing facility exit lights shall consist of in-pavement fixed unidirectional lights spaced at intervals of 6 m showing yellow in the direction of the approach to the exit boundary with a light distribution similar to taxiway centre line lights (see Figure 5-28).	AC139-6, 5.3.186.	No Difference		

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Chapter 5 Reference **5.3.23.1** **Standard**	5.3.23 Runway guard lights *Note.— Runway incursions may take place in all visibility or weather conditions. The use of runway guard lights at runway-holding positions can form part of effective runway incursion prevention measures. Runway guard lights warn pilots and drivers of vehicles, when operating on taxiways, that they are about to enter a runway. There are two standard configurations of runway guard lights as illustrated in Figure 5-29.* ***Application*** 5.3.23.1 Runway guard lights, Configuration A, shall be provided at each taxiway/runway intersection associated with a runway intended for use in: a) runway visual range conditions less than a value of 550 m where a stop bar is not installed; and b) runway visual range conditions of values between 550 m and 1 200 m where the traffic density is heavy. *Note 1.— Runway guard lights, Configuration B, may supplement runway guard lights, Configuration A, when deemed necessary.* *Note 2.— Guidance on the design, operation and location of runway guard lights, Configuration B, is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	CAR Part 139, App E, E.3.19; AC139-6, 5.3.187.	No Difference		

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Chapter 5 Reference **5.3.23.2** **Recommendation**	5.3.23.2 **Recommendation.—** *As part of runway incursion prevention measures, runway guard lights, Configuration A or B, should be provided at each taxiway/runway intersection where runway incursion hot spots have been identified, and used under all weather conditions during day and night.*	AC139-6, 5.3.188.	No Difference		
Chapter 5 Reference **5.3.23.3** **Recommendation**	5.3.23.3 **Recommendation.—** *Configuration B runway guard lights should not be collocated with a stop bar.*	AC139-6, 5.3.188.	No Difference		

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Chapter 5 Reference **5.3.23.4** **Standard**	5.3.23.4 Where more than one runway-holding positions exist at a runway/taxiway intersection, only the set of runway guard lights associated with the operational runway-holding position shall be illuminated. **Figure 5-29. Runway guard lights**	NIL	No Difference	NIL	NIL
Chapter 5 Reference **5.3.23.5** **Standard**	***Location*** 5.3.23.5 Runway guard lights, Configuration A, shall be located at each side of the taxiway on the holding side of the runway-holding position marking.	AC139-6, 5.3.190.	No Difference		

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Chapter 5 Reference **5.3.23.6** **Standard**	5.3.23.6 Runway guard lights, Configuration B, shall be located across the taxiway on the holding side of the runway-holding position marking.	AC139-6, 5.3.191.	No Difference		
Chapter 5 Reference **5.3.23.7** **Standard**	***Characteristics*** 5.3.23.7 Runway guard lights, Configuration A, shall consist of two pairs of yellow lights.	AC139-6, 5.3.192 and Figure 5-25.	No Difference		
Chapter 5 Reference **5.3.23.8** **Recommendation**	5.3.23.8 **Recommendation.—** *Where there is a need to enhance the contrast between the on and off state of runway guard lights, Configuration A, intended for use during the day, a visor of sufficient size to prevent sunlight from entering the lens without interfering with the function of the fixture should be located above each lamp.* *Note.— Some other device or design, e.g. specially designed optics, may be used in lieu of the visor.*	AC139-6, 5.3.192.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.23.9** **Standard**	5.3.23.9 Runway guard lights, Configuration B, shall consist of yellow lights spaced at intervals of 3 m across the taxiway.	AC139-6, 5.3.193 and Figure 5-25.	No Difference		

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Chapter 5 Reference **5.3.23.10** **Standard**	5.3.23.10 The light beam shall be unidirectional and shall show yellow in the direction of approach to the runway-holding position. *Note.— For guidance on orientation and aiming of runway guard lights, see the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 5.3.193.	No Difference		
Chapter 5 Reference **5.3.23.11** **Recommendation**	5.3.23.11 **Recommendation.—** *The intensity in yellow light and beam spreads of lights of Configuration A should be in accordance with the specifications in Appendix 2, Figure A2-24.*	AC139-6, 5.3.192.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.23.12** **Recommendation**	5.3.23.12 **Recommendation.—** *Where runway guard lights are intended for use during the day, the intensity in yellow light and beam spreads of lights of Configuration A should be in accordance with the specifications in Appendix 2, Figure A2-25.*	AC139-6, 5.3.192.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.23.13** **Recommendation**	5.3.23.13 **Recommendation.—** *Where runway guard lights are specified as components of an advanced surface movement guidance and control system where higher light intensities are required, the intensity in yellow light and beam spreads of lights of Configuration A should be in accordance with the specifications in Appendix 2, Figure A2 -25.* *Note.— Higher light intensities may be required to maintain ground movement at a certain speed in low visibilities.*	AC139-6, 5.3.192.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.23.14** **Recommendation**	5.3.23.14 **Recommendation.—** *The intensity in yellow light and beam spreads of lights of Configuration B should be in accordance with the specifications in Appendix 2, Figure A2-12.*	AC139-6, 5.3.185.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.23.15** **Recommendation**	5.3.23.15 **Recommendation.—** *Where runway guard lights are intended for use during the day, the intensity in yellow light and beam spreads of lights of Configuration B should be in accordance with the specifications in Appendix 2, Figure A2-20.*	AC139-6, 5.3.192.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.23.16** **Recommendation**	5.3.23.16 **Recommendation.—** *Where runway guard lights are specified as components of an advanced surface movement guidance and control system where higher light intensities are required, the intensity in yellow light and beam spreads of lights of Configuration B should be in accordance with the specifications in Appendix 2, Figure A2 -20.*	AC139-6, 5.3.192.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.23.17** **Standard**	5.3.23.17 The lights in each unit of Configuration A shall be illuminated alternately.	AC139-6, 5.3.192.	No Difference		
Chapter 5 Reference **5.3.23.18** **Standard**	5.3.23.18 For Configuration B, adjacent lights shall be alternately illuminated and alternative lights shall be illuminated in unison.	AC139-6, 5.3.193.	No Difference		

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Chapter 5 Reference **5.3.23.19** **Standard**	5.3.23.19 The lights shall be illuminated between 30 and 60 cycles per minute and the light suppression and illumination periods shall be equal and opposite in each light. *Note.— The optimum flash rate is dependent on the rise and fall times of the lamps used. Runway guard lights, Configuration A, installed on 6.6 ampere series circuits have been found to look best when operated at 45 to 50 flashes per minute per lamp. Runway guard lights, Configuration B, installed on 6.6 ampere series circuits have been found to look best when operated at 30 to 32 flashes per minute per lamp.*	AC139-6, 5.3.192 and 193.	No Difference		
Chapter 5 Reference **5.3.24.1** **Recommendation**	5.3.24 Apron floodlighting *(see also 5.3.17.1 and 5.3.18.1)* ***Application*** 5.3.24.1 **Recommendation.—** *Apron floodlighting should be provided on an apron, on a de-icing/anti-icing facility and on a designated isolated aircraft parking position intended to be used at night.* *Note 1.— Where a de-icing/anti-icing facility is located in close proximity to the runway and permanent floodlighting could be confusing to pilots, other means of illumination of the facility may be required.* *Note 2.— The designation of an isolated aircraft parking position is specified in 3.14.* *Note 3.— Guidance on apron floodlighting is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 5.3.194 to 200.	No Difference		Note: reference to de-icing facility implied; was not applicable when AC first drafted, and was missed in Rev 5.

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Chapter 5 Reference **5.3.24.2** **Recommendation**	***Location*** 5.3.24.2 **Recommendation.—** *Apron floodlights should be located so as to provide adequate illumination on all apron service areas, with a minimum of glare to pilots of aircraft in flight and on the ground, aerodrome and apron controllers, and personnel on the apron. The arrangement and aiming of floodlights should be such that an aircraft stand receives light from two or more directions to minimize shadows.*	AC139-6, 5.3.195.	No Difference		
Chapter 5 Reference **5.3.24.3** **Standard**	***Characteristics*** 5.3.24.3 The spectral distribution of apron floodlights shall be such that the colours used for aircraft marking connected with routine servicing, and for surface and obstacle marking, can be correctly identified.	AC139-6, 5.3.197.	No Difference		

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Chapter 5 Reference **5.3.24.4** **Recommendation**	5.3.24.4 **Recommendation.—** *The average illuminance should be at least the following:* *Aircraft stand:* — *horizontal illuminance — 20 lux with a uniformity ratio (average to minimum) of not more than 4 to 1; and* — *vertical illuminance — 20 lux at a height of 2 m above the apron in relevant directions.* *Other apron areas:* — *horizontal illuminance — 50 per cent of the average illuminance on the aircraft stands with a uniformity ratio (average to minimum) of not more than 4 to 1.*	AC139-6, 5.3.198.	No Difference		

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Chapter 5 Reference **5.3.25.1** **Standard**	5.3.25 Visual docking guidance system ***Application*** 5.3.25.1 A visual docking guidance system shall be provided when it is intended to indicate, by a visual aid, the precise positioning of an aircraft on an aircraft stand and other alternative means, such as marshallers, are not practicable. *Note.— The factors to be considered in evaluating the need for a visual docking guidance system are in particular: the number and type(s) of aircraft using the aircraft stand, weather conditions, space available on the apron and the precision required for manoeuvring into the parking position due to aircraft servicing installation, passenger loading bridges, etc. See the* Aerodrome Design Manual *(Doc 9157), Part 4 —* Visual Aids *for guidance on the selection of suitable systems.*	CAR Part 139, App E, E.3.20.	No Difference		
Chapter 5 Reference **5.3.25.2** **Standard**	***Characteristics*** 5.3.25.2 The system shall provide both azimuth and stopping guidance.	AC139-6, 5.3.202.	No Difference		

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Chapter 5 Reference **5.3.25.3** **Standard**	5.3.25.3 The azimuth guidance unit and the stopping position indicator shall be adequate for use in all weather, visibility, background lighting and pavement conditions for which the system is intended, both by day and night, but shall not dazzle the pilot. *Note.— Care is required in both the design and on-site installation of the system to ensure that reflection of sunlight, or other light in the vicinity, does not degrade the clarity and conspicuity of the visual cues provided by the system.*	AC139-6, 5.3.203.	No Difference		
Chapter 5 Reference **5.3.25.4** **Standard**	5.3.25.4 The azimuth guidance unit and the stopping position indicator shall be of a design such that: a) a clear indication of malfunction of either or both is available to the pilot; and b) they can be turned off.	AC139-6, 5.3.204.	No Difference		
Chapter 5 Reference **5.3.25.5** **Standard**	5.3.25.5 The azimuth guidance unit and the stopping position indicator shall be located in such a way that there is continuity of guidance between the aircraft stand markings, the aircraft stand manoeuvring guidance lights, if present, and the visual docking guidance system.	AC139-6, 5.3.205.	No Difference		
Chapter 5 Reference **5.3.25.6** **Standard**	5.3.25.6 The accuracy of the system shall be adequate for the type of loading bridge and fixed aircraft servicing installations with which it is to be used.	AC139-6, 5.3.206.	No Difference		

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Chapter 5 Reference **5.3.25.7** **Recommendation**	5.3.25.7 **Recommendation.—** *The system should be usable by all types of aircraft for which the aircraft stand is intended, preferably without selective operation.*	AC139-6, 5.3.207.	No Difference		
Chapter 5 Reference **5.3.25.8** **Standard**	5.3.25.8 If selective operation is required to prepare the system for use by a particular type of aircraft, then the system shall provide an identification of the selected aircraft type to both the pilot and the system operator as a means of ensuring that the system has been set properly.	AC139-6, 5.3.208.	No Difference		
Chapter 5 Reference **5.3.25.9** **Standard**	***Azimuth guidance unit*** ***Location*** 5.3.25.9 The azimuth guidance unit shall be located on or close to the extension of the stand centre line ahead of the aircraft so that its signals are visible from the cockpit of an aircraft throughout the docking manoeuvre and aligned for use at least by the pilot occupying the left seat.	AC139-6, 5.3.209.	No Difference		
Chapter 5 Reference **5.3.25.10** **Recommendation**	5.3.25.10 **Recommendation.—** *The azimuth guidance unit should be aligned for use by the pilots occupying both the left and right seats.*	AC139-6, 5.3.209.	No Difference		Note: reference to right seat is in 5.3.212.

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Chapter 5 Reference **5.3.25.11** **Standard**	***Characteristics*** 5.3.25.11 The azimuth guidance unit shall provide unambiguous left/right guidance which enables the pilot to acquire and maintain the lead-in line without over-controlling.	AC139-6, 5.3.210.	No Difference		
Chapter 5 Reference **5.3.25.12** **Standard**	5.3.25.12 When azimuth guidance is indicated by colour change, green shall be used to identify the centre line and red for deviations from the centre line.	AC139-6, 5.3.211.	No Difference		
Chapter 5 Reference **5.3.25.13** **Standard**	***Stopping position indicator*** ***Location*** 5.3.25.13 The stopping position indicator shall be located in conjunction with, or sufficiently close to, the azimuth guidance unit so that a pilot can observe both the azimuth and stop signals without turning the head.	AC139-6, 5.3.212.	No Difference		
Chapter 5 Reference **5.3.25.14** **Standard**	5.3.25.14 The stopping position indicator shall be usable at least by the pilot occupying the left seat.	AC139-6, 5.3.212.	No Difference		Note: reference specifies both left and right seats.

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Chapter 5 Reference **5.3.25.15** **Recommendation**	5.3.25.15 **Recommendation.—** *The stopping position indicator should be usable by the pilots occupying both the left and right seats.*	AC139-6, 5.3.212.	No Difference		
Chapter 5 Reference **5.3.25.16** **Standard**	***Characteristics*** 5.3.25.16 The stopping position information provided by the indicator for a particular aircraft type shall account for the anticipated range of variations in pilot eye height and/or viewing angle.	AC139-6, 5.3.213.	No Difference		
Chapter 5 Reference **5.3.25.17** **Standard**	5.3.25.17 The stopping position indicator shall show the stopping position for the aircraft for which guidance is being provided and shall provide closing rate information to enable the pilot to gradually decelerate the aircraft to a full stop at the intended stopping position.	AC139-6, 5.3.214.	No Difference		
Chapter 5 Reference **5.3.25.18** **Recommendation**	5.3.25.18 **Recommendation.—** *The stopping position indicator should provide closing rate information over a distance of at least 10 m.*	AC139-6, 5.3.212 to 215.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.25.19** **Standard**	5.3.25.19 When stopping guidance is indicated by colour change, green shall be used to show that the aircraft can proceed and red to show that the stop point has been reached ,except that for a short distance prior to the stop point a third colour may be used to warn that the stopping point is close.	AC139-6, 5.3.212 to 215.	Less protective or partially implemented or not implemented	Third colour not provided for.	

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Chapter 5 Reference **5.3.26.1** **Recommendation**	5.3.26 Advanced visual docking guidance system ***Application*** *Note 1.— Advanced visual docking guidance systems (A-VDGS) include those systems that, in addition to basic and passive azimuth and stop position information, provide pilots with active (usually sensor-based) guidance information, such as aircraft type indication (in accordance with Doc 8643 —* Aircraft Type Designators*), distance-to-go information and closing speed. Docking guidance information is usually provided on a single display unit.* *Note 2.— An A-VDGS may provide docking guidance information in three stages: the acquisition of the aircraft by the system, the azimuth alignment of the aircraft, and the stopping position information.* 5.3.26.1 **Recommendation.—** *An A-VDGS should be provided where it is operationally desirable to confirm the correct aircraft type for which guidance is being provided and/or to indicate the stand centre line in use, where more than one is provided for.*		Not Applicable		Not utilized in New Zealand.
Chapter 5 Reference **5.3.26.2** **Standard**	5.3.26.2 The A-VDGS shall be suitable for use by all types of aircraft for which the aircraft stand is intended.		Not Applicable		

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Chapter 5 Reference **5.3.26.3** **Standard**	5.3.26.3 The A-VDGS shall be used only in conditions in which its operational performance is specified. *Note 1.— The use of the A-VDGS in conditions such as weather, visibility and background lighting, both by day and night, would need to be specified.* *Note 2.— Care is required in both the design and on-site installation of the system to ensure that glare, reflection of sunlight, or other light in the vicinity, does not degrade the clarity and conspicuity of the visual cues provided by the system.*		Not Applicable		
Chapter 5 Reference **5.3.26.4** **Standard**	5.3.26.4 The docking guidance information provided by an A-VDGS shall not conflict with that provided by a conventional visual docking guidance system on an aircraft stand if both types are provided and are in operational use. A method of indicating that the A-VDGS is not in operational use or is unserviceable shall be provided.		Not Applicable		
Chapter 5 Reference **5.3.26.5** **Standard**	***Location*** 5.3.26.5 The A-VDGS shall be located such that unobstructed and unambiguous guidance is provided to the person responsible for, and persons assisting, the docking of the aircraft throughout the docking manoeuvre. *Note.— Usually the pilot-in-command is responsible for the docking of the aircraft. However, in some circumstances, another person could be responsible and this person may be the driver of a vehicle that is towing the aircraft.*		Not Applicable		

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Chapter 5 Reference **5.3.26.6** **Standard**	***Characteristics*** 5.3.26.6 The A-VDGS shall provide, at minimum, the following guidance information at the appropriate stage of the docking manoeuvre: a) an emergency stop indication; b) the aircraft type and model for which the guidance is provided; c) an indication of the lateral displacement of the aircraft relative to the stand centre line; d) the direction of azimuth correction needed to correct a displacement from the stand centre line; e) an indication of the distance to the stop position; f) an indication when the aircraft has reached the correct stopping position; and g) a warning indication if the aircraft goes beyond the appropriate stop position.		Not Applicable		
Chapter 5 Reference **5.3.26.7** **Standard**	5.3.26.7 The A-VDGS shall be capable of providing docking guidance information for all aircraft taxi speeds encountered during the docking manoeuvre. *Note.— See the* Aerodrome Design Manual *(Doc 9157), Part 4, for an indication of the maximum aircraft speeds relative to distance to the stopping position.*		Not Applicable		

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Chapter 5 Reference **5.3.26.8** **Standard**	5.3.26.8 The time taken from the determination of the lateral displacement to its display shall not result in a deviation of the aircraft, when operated in normal conditions, from the stand centre line greater than 1 m.		Not Applicable		
Chapter 5 Reference **5.3.26.9** **Recommendation**	5.3.26.9 **Recommendation.—** *The information on displacement of the aircraft relative to the stand centre line and distance to the stopping position, when displayed, should be provided with the accuracy specified in Table 5-4.*		Not Applicable		
Chapter 5 Reference **5.3.26.10** **Standard**	5.3.26.10 Symbols and graphics used to depict guidance information shall be intuitively representative of the type of information provided. *Note.— The use of colour would need to be appropriate and need to follow signal convention, i.e. red, yellow and green mean hazard, caution and normal/correct conditions, respectively. The effects of colour contrasts would also need to be considered.*		Not Applicable		
Chapter 5 Reference **5.3.26.11** **Standard**	5.3.26.11 Information on the lateral displacement of the aircraft relative to the stand centre line shall be provided at least 25 m prior to the stop position. *Note.— The indication of the distance of the aircraft from the stop position may be colour-coded and presented at a rate and distance proportional to the actual closure rate and distance of the aircraft approaching the stop point.*		Not Applicable		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 5 Reference **5.3.26.12** **Standard**	5.3.26.12 Continuous closure distance and closure rate shall be provided from at least 15 m prior to the stop position.		Not Applicable		
Chapter 5 Reference **5.3.26.13** **Recommendation**	5.3.26.13 **Recommendation.—** *Where provided, closure distance displayed in numerals should be provided in metre integers to the stop position and displayed to 1 decimal place at least 3 m prior to the stop position.* **Table 5-4. A-VDGS recommended displacement accuracy**		Not Applicable		
Chapter 5 Reference **5.3.26.14** **Standard**	5.3.26.14 Throughout the docking manoeuvre, an appropriate means shall be provided on the A-VDGS to indicate the need to bring the aircraft to an immediate halt. In such an event, which includes a failure of the A-VDGS, no other information shall be displayed.		Not Applicable		
Chapter 5 Reference **5.3.26.15** **Standard**	5.3.26.15 Provision to initiate an immediate halt to the docking procedure shall be made available to personnel responsible for the operational safety of the stand.		Not Applicable		

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Chapter 5 Reference **5.3.26.16** **Recommendation**	5.3.26.16 **Recommendation.—** *The word "stop" in red characters should be displayed when an immediate cessation of the docking manoeuvre is required.*		Not Applicable		
Chapter 5 Reference **5.3.27.1** **Recommendation**	5.3.27 Aircraft stand manoeuvring guidance lights ***Application*** 5.3.27.1 **Recommendation.—** *Aircraft stand manoeuvring guidance lights should be provided to facilitate the positioning of an aircraft on an aircraft stand on a paved apron or on a de-icing/anti-icing facility intended for use in poor visibility conditions, unless adequate guidance is provided by other means.*	AC139-6, 5.3.216.	No Difference		Note: reference to de-icing facility not applicable.
Chapter 5 Reference **5.3.27.2** **Standard**	***Location*** 5.3.27.2 Aircraft stand manoeuvring guidance lights shall be collocated with the aircraft stand markings.	AC139-6, 5.3.217.	No Difference		
Chapter 5 Reference **5.3.27.3** **Standard**	***Characteristics*** 5.3.27.3 Aircraft stand manoeuvring guidance lights, other than those indicating a stop position, shall be fixed yellow lights, visible throughout the segments within which they are intended to provide guidance.	AC139-6, 5.3.218.	No Difference		

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Chapter 5 Reference **5.3.27.4** **Recommendation**	5.3.27.4 **Recommendation.—** *The lights used to delineate lead-in, turning and lead-out lines should be spaced at intervals of not more than 7.5 m on curves and 15 m on straight sections.*	AC139-6, 5.3.219.	No Difference		
Chapter 5 Reference **5.3.27.5** **Standard**	5.3.27.5 The lights indicating a stop position shall be fixed unidirectional lights showing red.	AC139-6, 5.3.220.	No Difference		
Chapter 5 Reference **5.3.27.6** **Recommendation**	5.3.27.6 **Recommendation.—** *The intensity of the lights should be adequate for the condition of visibility and ambient light in which the use of the aircraft stand is intended.*	AC139-6, 5.3.221.	No Difference		
Chapter 5 Reference **5.3.27.7** **Recommendation**	5.3.27.7 **Recommendation.—** *The lighting circuit should be designed so that the lights may be switched on to indicate that an aircraft stand is to be used and switched off to indicate that it is not to be used.*	AC139-6, 5.3.222.	No Difference		

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Chapter 5 Reference **5.3.28.1** **Standard**	5.3.28 Road-holding position light ***Application*** 5.3.28.1 A road-holding position light shall be provided at each road-holding position serving a runway when it is intended that the runway will be used in runway visual range conditions less than a value of 350 m.	CAR Part 139, App E, E.3.21.	No Difference		
Chapter 5 Reference **5.3.28.2** **Recommendation**	5.3.28.2 **Recommendation.—** *A road-holding position light should be provided at each road-holding position serving a runway when it is intended that the runway will be used in runway visual range conditions of values between 350 m and 550 m.*	AC139-6, 5.3.228.	No Difference		
Chapter 5 Reference **5.3.28.3** **Standard**	***Location*** 5.3.28.3 A road-holding position light shall be located adjacent to the holding position marking 1.5 m (±0.5 m) from one edge of the road, i.e. left or right as appropriate to the local traffic regulations. *Note.— See 9.9 for the mass and height limitations and frangibility requirements of navigation aids located on runway strips.*	AC139-6, 5.3.229.	No Difference		Note: the 'first' 5.3.229 - the number is accidentally repeated in Rev 5 of the AC.

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Chapter 5 Reference **5.3.28.4** **Standard**	***Characteristics*** 5.3.28.4 The road-holding position light shall comprise: a) a controllable red (stop)/green (go) traffic light; or b) a flashing-red light. *Note.— It is intended that the lights specified in sub-paragraph a) be controlled by the air traffic services.*	AC139-6, 5.3.229.	No Difference	Not specified.	Note: the 'second' 5.3.229 - the number is accidentally repeated in Rev 5 of the AC.
Chapter 5 Reference **5.3.28.5** **Standard**	5.3.28.5 The road-holding position light beam shall be unidirectional and aligned so as to be visible to the driver of a vehicle approaching the holding position.	AC139-6, 5.3.230.	No Difference		
Chapter 5 Reference **5.3.28.6** **Standard**	5.3.28.6 The intensity of the light beam shall be adequate for the conditions of visibility and ambient light in which the use of the holding position is intended, but shall not dazzle the driver. *Note.— The commonly used traffic lights are likely to meet the requirements in 5.3.28.5 and 5.3.28.6.*	AC139-6, 5.3.230.	No Difference		
Chapter 5 Reference **5.3.28.7** **Standard**	5.3.28.7 The flash frequency of the flashing-red light shall be between 30 and 60 flashes per minute.	AC139-6, 5.3.231.	No Difference		

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Chapter 5 Reference **5.3.29.1** **Recommendation**	5.3.29 No-entry bar *Note.— Runway incursions may take place in all visibility or weather conditions. The use of no-entry bars can form part of effective runway incursion prevention measures.* ***Application*** 5.3.29.1 **Recommendation.—** *A no-entry bar should be provided across a taxiway which is intended to be used as an exit only taxiway to assist in preventing inadvertent access of traffic to that taxiway.*	AC139-6, Ch 5.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.29.2** **Recommendation**	***Location*** 5.3.29.2 **Recommendation.**— *A no-entry bar should be located across the taxiway at the end of an exit only taxiway where it is desired to prevent traffic from entering the taxiway in the wrong direction.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.29.3** **Recommendation**	5.3.29.3 **Recommendation.—** *A no-entry bar should be collocated with a no-entry sign and/or a no-entry marking.*	NIL	No Difference	NIL	NIL

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Chapter 5 Reference **5.3.29.4** **Recommendation**	***Characteristics*** 5.3.29.4 **Recommendation.—** *A no-entry bar should consist of unidirectional lights spaced at uniform intervals of no more than 3 m showing red in the intended direction(s) of approach to the runway.* *Note.— Where necessary to enhance conspicuity, extra lights are installed uniformly.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.29.5** **Recommendation**	5.3.29.5 **Recommendation.—** *A pair of elevated lights should be added to each end of the no-entry bar where the in-pavement no entry bar lights might be obscured from a pilot's view, for example, by snow or rain, or where a pilot may be required to stop the aircraft in a position so close to the lights that they are blocked from view by the structure of the aircraft.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.29.6** **Standard**	5.3.29.6 The intensity in red light and beam spreads of no-entry bar lights shall be in accordance with the specifications in Appendix 2, Figures A2-12 through A2-16, as appropriate.	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.3.29.7** **Recommendation**	5.3.29.7 **Recommendation.—** *Where no-entry bars are specified as components of an advanced surface movement guidance and control system and where, from an operational point of view, higher intensities are required to maintain ground movements at a certain speed in very low visibilities or in bright daytime conditions, the intensity in red light and beam spreads of no-entry bar lights should be in accordance with the specifications of Appendix 2, Figure A2-17, A2-18 or A2-19.* *Note.— High-intensity no-entry bars are typically used only in case of an absolute necessity and following a specific study.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.29.8** **Recommendation**	5.3.29.8 **Recommendation.—** *Where a wide beam fixture is required, the intensity in red light and beam spreads of no-entry bar lights should be in accordance with the specifications of Appendix 2, Figure A2-17 or A2-19.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 5 Reference **5.3.29.9** **Standard**	5.3.29.9 Taxiway centre line lights installed beyond the no-entry bar, looking in the direction of the runway, shall not be visible when viewed from the taxiway.	NIL	No Difference	NIL	NIL

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Chapter 5 Reference **5.3.30.1** **Standard**	5.3.30 Runway status lights *Introductory Note.— Runway status lights (RWSL) is a type of autonomous runway incursion warning system (ARIWS). The two basic visual components of RWSL are runway entrance lights (RELs) and take-off hold lights (THLs). Either component may be installed by itself, but the two components are designed to be complementary to each other.* ***Location*** 5.3.30.1 Where provided, RELs shall be offset 0.6 m from the taxiway centre line on the opposite side to the taxiway centre line lights and begin 0.6 m before the runway-holding position extending to the edge of the runway. An additional single light shall be placed on the runway 0.6 m from the runway centre line and aligned with the last two taxiway RELs. *Note.— Where two or more runway-holding positions are provided, the runway-holding position referred is that closest to the runway.*		Not Applicable		Not currently used in New Zealand.
Chapter 5 Reference **5.3.30.2** **Standard**	5.3.30.2 RELs shall consist of at least five light units and shall be spaced at a minimum of 3.8 m and a maximum of 15.2 m longitudinally, depending upon the taxiway length involved, except for a single light installed near the runway centre line.		Not Applicable		Not currently used in New Zealand.

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Chapter 5 Reference **5.3.30.3** **Standard**	5.3.30.3 Where provided, THLs shall be offset 1.8 m on each side of the runway centre line lights and extend, in pairs, starting at a point 115 m from the beginning of the runway and, thereafter, every 30 m for at least 450 m. *Note.— Additional THLs may be similarly provided at the starting point of the take-off roll.*		Not Applicable		Not currently used in New Zealand.
Chapter 5 Reference **5.3.30.4** **Standard**	***Characteristics*** 5.3.30.4 Where provided, RELs shall consist of a single line of fixed in pavement lights showing red in the direction of aircraft approaching the runway.		Not Applicable		Not currently used in New Zealand.
Chapter 5 Reference **5.3.30.5** **Standard**	5.3.30.5 RELs shall illuminate as an array at each taxiway/runway intersection where they are installed less than two seconds after the system determines a warning is needed.		Not Applicable		Not currently used in New Zealand.
Chapter 5 Reference **5.3.30.6** **Standard**	5.3.30.6 Intensity and beam spread of RELs shall be in accordance with the specifications of Appendix 2, Figures A2-12 and A2-14. *Note.— Consideration for reduced beam width may be required for some REL lights at acute angled runway/taxiway intersections to ensure the RELs are not visible to aircraft on the runway.*		Not Applicable		Not currently used in New Zealand.

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Chapter 5 Reference **5.3.30.7** **Standard**	5.3.30.7 Where provided, THLs shall consist of two rows of fixed in pavement lights showing red facing the aircraft taking off.		Not Applicable		Not currently used in New Zealand.
Chapter 5 Reference **5.3.30.8** **Standard**	5.3.30.8 THLs shall illuminate as an array on the runway less than two seconds after the system determines a warning is needed.		Not Applicable		Not currently used in New Zealand.
Chapter 5 Reference **5.3.30.9** **Standard**	5.3.30.9 Intensity and beam spread of THLs shall be in accordance with the specifications of Appendix 2, Figure A2-26.		Not Applicable		Not currently used in New Zealand.
Chapter 5 Reference **5.3.30.10** **Recommendation**	5.3.30.10 **Recommendation.**— *RELs and THLs should be automated to the extent that the only control over each system will be to disable one or both systems.*		Not Applicable		Not currently used in New Zealand.

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Chapter 5 Reference **5.4.1.1** **Standard**	**5.4 Signs** 5.4.1 General *Note.— Signs shall be either fixed message signs or variable message signs. Guidance on signs is contained in the* Aerodrome Design Manual *(Doc 9157), Part 4.* ***Application*** 5.4.1.1 Signs shall be provided to convey a mandatory instruction, information on a specific location or destination on a movement area or to provide other information to meet the requirements of 9.8.1. *Note.— See 5.2.17 for specifications on information marking.*	CAR Part 139, App E, E.4.1; AC139-6, 5.4.1.	No Difference		
Chapter 5 Reference **5.4.1.2** **Recommendation**	5.4.1.2 **Recommendation.—** *A variable message sign should be provided where:* *a) the instruction or information displayed on the sign is relevant only during a certain period of time; and/or* *b) there is a need for variable predetermined information to be displayed on the sign to meet the requirements of 9.8.1.*	AC139-6, 5.4.2.	No Difference		

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Chapter 5 Reference **5.4.1.3** **Standard**	***Characteristics*** 5.4.1.3 Signs shall be frangible. Those located near a runway or taxiway shall be sufficiently low to preserve clearance for propellers and the engine pods of jet aircraft. The installed height of the sign shall not exceed the dimension shown in the appropriate column of Table 5-5. **Table 5-5. Location distances for taxiing guidance signs including runway exit signs**	AC139-6, 5.4.3 and Table 5-4.	No Difference		
Chapter 5 Reference **5.4.1.4** **Standard**	5.4.1.4 Signs shall be rectangular, as shown in Figures 5 -30 and 5-31 with the longer side horizontal.	AC139-6, 5.4.4.	No Difference		
Chapter 5 Reference **5.4.1.5** **Standard**	5.4.1.5 The only signs on the movement area utilizing red shall be mandatory instruction signs.	AC139-6, 5.4.5.	No Difference		
Chapter 5 Reference **5.4.1.6** **Standard**	5.4.1.6 The inscriptions on a sign shall be in accordance with the provisions of Appendix 4.	AC 139-6, 5.4.6 and Appendix 1.	No Difference		

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Chapter 5 Reference **5.4.1.7** **Standard**	5.4.1.7 Signs shall be illuminated in accordance with the provisions of Appendix 4 when intended for use: a) in runway visual range conditions less than a value of 800 m; or b) at night in association with instrument runways; or c) at night in association with non-instrument runways where the code number is 3 or 4.	AC139-6, 5.4.10.	No Difference		
Chapter 5 Reference **5.4.1.8** **Standard**	5.4.1.8 Signs shall be retroreflective and/or illuminated in accordance with the provisions of Appendix 4 when intended for use at night in association with non-instrument runways where the code number is 1 or 2.	AC139-6, 5.4.7.	No Difference		
Chapter 5 Reference **5.4.1.9** **Standard**	5.4.1.9 A variable message sign shall show a blank face when not in use.	AC139-6, 5.4.8.	No Difference		
Chapter 5 Reference **5.4.1.10** **Standard**	5.4.1.10 In case of failure, a variable message sign shall not provide information that could lead to unsafe action from a pilot or a vehicle driver.	AC139-6, 5.4.8.	No Difference		

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Chapter 5 Reference **5.4.1.11** **Recommendation**	5.4.1.11 **Recommendation.—** *The time interval to change from one message to another on a variable message sign should be as short as practicable and should not exceed 5 seconds.*	AC139-6, 5.4.9.	No Difference		
Chapter 5 Reference **5.4.2.1** **Standard**	5.4.2 Mandatory instruction signs *Note.— See Figure 5-30 for pictorial representation of mandatory instruction signs and Figure 5-32 for examples of locating signs at taxiway/runway intersections.* ***Application*** 5.4.2.1 A mandatory instruction sign shall be provided to identify a location beyond which an aircraft taxiing or vehicle shall not proceed unless authorized by the aerodrome control tower.	CAR Part 139, App E, E.4.3(a).	No Difference		
Chapter 5 Reference **5.4.2.2** **Standard**	5.4.2.2 Mandatory instruction signs shall include runway designation signs, category I, II or III holding position signs, runway-holding position signs, road-holding position signs and NO ENTRY signs. *Note.— See 5.4.7 for specifications on road-holding position signs.*	CAR Part 139, App E, E.4.3(b).	No Difference		
Chapter 5 Reference **5.4.2.3** **Standard**	5.4.2.3 A pattern “A” runway-holding position marking shall be supplemented at a taxiway/runway intersection or a runway/runway intersection with a runway designation sign.	AC139-6, 5.4.14.	No Difference		

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Chapter 5 Reference **5.4.2.4** **Standard**	5.4.2.4 A pattern "B" runway-holding position marking shall be supplemented with a category I, II or III holding position sign.	AC139-6, 5.4.15.	No Difference		
Chapter 5 Reference **5.4.2.5** **Standard**	5.4.2.5 A pattern "A" runway-holding position marking at a runway-holding position established in accordance with 3.12.3 shall be supplemented with a runway-holding position sign. *Note.— See 5.2.10 for specifications on runway-holding position marking.*	AC139-6, 5.4.16.	No Difference		
Chapter 5 Reference **5.4.2.6** **Recommendation**	5.4.2.6 **Recommendation.—** *A runway designation sign at a taxiway/runway intersection should be supplemented with a location sign in the outboard (farthest from the taxiway) position, as appropriate.* *Note.— See 5.4.3 for characteristics of location signs.*	AC139-6, 5.4.17.	No Difference		
Chapter 5 Reference **5.4.2.7** **Standard**	5.4.2.7 A NO ENTRY sign shall be provided when entry into an area is prohibited. **Figure 5-32. Examples of sign positions at taxiway/runway intersections**	CAR Part 139, App E, E.4.3(g).	No Difference		
Chapter 5 Reference **5.4.2.8** **Standard**	***Location*** 5.4.2.8 A runway designation sign at a taxiway/runway intersection or a runway/runway intersection shall be located on each side of the runway-holding position marking facing the direction of approach to the runway.	AC139-6, 5.4.19.	No Difference		

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Chapter 5 Reference **5.4.2.9** **Standard**	5.4.2.9 A category I, II or III holding position sign shall be located on each side of the runway-holding position marking facing the direction of the approach to the critical area.	AC139-6, 5.4.20.	No Difference		
Chapter 5 Reference **5.4.2.10** **Standard**	5.4.2.10 A NO ENTRY sign shall be located at the beginning of the area to which entrance is prohibited on each side of the taxiway as viewed by the pilot.	AC139-6, 5.4.21.	No Difference		
Chapter 5 Reference **5.4.2.11** **Standard**	5.4.2.11 A runway-holding position sign shall be located on each side of the runway-holding position established in accordance with 3.12.3, facing the approach to the obstacle limitation surface or ILS/MLS critical/sensitive area, as appropriate.	AC139-6, 5.4.22.	No Difference		
Chapter 5 Reference **5.4.2.12** **Standard**	***Characteristics*** 5.4.2.12 A mandatory instruction sign shall consist of an inscription in white on a red background.	AC139-6, 5.4.23.	No Difference		
Chapter 5 Reference **5.4.2.13** **Recommendation**	5.4.2.13 **Recommendation.—** *Where, owing to environmental or other factors, the conspicuity of the inscription on a mandatory instruction sign needs to be enhanced, the outside edge of the white inscription should be supplemented by a black outline measuring 10 mm in width for runway code numbers 1 and 2, and 20 mm in width for runway code numbers 3 and 4.*	AC139-6, 5.4.23.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 5 Reference **5.4.2.14** **Standard**	5.4.2.14 The inscription on a runway designation sign shall consist of the runway designations of the intersecting runway properly oriented with respect to the viewing position of the sign, except that a runway designation sign installed in the vicinity of a runway extremity may show the runway designation of the concerned runway extremity only.	AC139-6, 5.4.24.	No Difference		
Chapter 5 Reference **5.4.2.15** **Standard**	5.4.2.15 The inscription on a category I, II, III, joint II/III or joint I/II/III holding position sign shall consist of the runway designator followed by CAT I, CAT II, CAT III, CAT II/III or CAT I/II/III, as appropriate.	AC139-6, 5.4.25.	No Difference		
Chapter 5 Reference **5.4.2.16** **Standard**	5.4.2.16 The inscription on a NO ENTRY sign shall be in accordance with Figure 5-30.	AC139-6, 5.4.26 and Figure 5-28.	No Difference		
Chapter 5 Reference **5.4.2.17** **Standard**	5.4.2.17 The inscription on a runway-holding position sign at a runway-holding position established in accordance with 3.12.3 shall consist of the taxiway designation and a number.	AC139-6, 5.4.27.	No Difference		
Chapter 5 Reference **5.4.2.18** **Standard**	5.4.2.18 Where installed, the inscriptions/symbol of Figure 5-30 shall be used.	AC139-6, 5.4.28 and Figure 5-28.	No Difference		

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Chapter 5 Reference **5.4.3.1** **Standard**	5.4.3 Information signs *Note.— See Figure 5-31 for pictorial representations of information signs.* ***Application*** 5.4.3.1 An information sign shall be provided where there is an operational need to identify by a sign, a specific location, or routing (direction or destination) information.	CAR Part 139, App E, E.4.4(a).	No Difference		
Chapter 5 Reference **5.4.3.2** **Standard**	5.4.3.2 Information signs shall include: direction signs, location signs, destination signs, runway exit signs, runway vacated signs and intersection take-off signs.	CAR Part 139, App E, E.4.4(b).	No Difference		
Chapter 5 Reference **5.4.3.3** **Standard**	5.4.3.3 A runway exit sign shall be provided where there is an operational need to identify a runway exit.	CAR Part 139, App E, E.4.4(c).	No Difference		
Chapter 5 Reference **5.4.3.4** **Standard**	5.4.3.4 A runway vacated sign shall be provided where the exit taxiway is not provided with taxiway centre line lights and there is a need to indicate to a pilot leaving a runway the perimeter of the ILS/MLS critical/sensitive area or the lower edge of the inner transitional surface, whichever is farther from the runway centre line. *Note.— See 5.3.17 for specifications on colour coding taxiway centre line lights.*	CAR Part 139, App E, E.4.4(d).	No Difference		

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Chapter 5 Reference **5.4.3.5** **Recommendation**	5.4.3.5 **Recommendation.—** *An intersection take-off sign should be provided when there is an operational need to indicate the remaining take-off run available (TORA) for intersection take-offs.*	AC139-6, 5.4.33.	No Difference		
Chapter 5 Reference **5.4.3.6** **Recommendation**	5.4.3.6 **Recommendation.—** *Where necessary, a destination sign should be provided to indicate the direction to a specific destination on the aerodrome, such as cargo area, general aviation, etc.*	AC139-6, 5.4.34.	No Difference		
Chapter 5 Reference **5.4.3.7** **Standard**	5.4.3.7 A combined location and direction sign shall be provided when it is intended to indicate routing information prior to a taxiway intersection.	CAR Part 139, App E, E.4.4(e).	No Difference		
Chapter 5 Reference **5.4.3.8** **Standard**	5.4.3.8 A direction sign shall be provided when there is an operational need to identify the designation and direction of taxiways at an intersection.	CAR Part 139, App E, E.4.4(f).	No Difference		
Chapter 5 Reference **5.4.3.9** **Recommendation**	5.4.3.9 **Recommendation.—** *A location sign should be provided at an intermediate holding position.*	AC139-6, 5.4.37.	No Difference		

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Chapter 5 Reference **5.4.3.10** **Standard**	5.4.3.10 A location sign shall be provided in conjunction with a runway designation sign except at a runway/runway intersection.	CAR Part 139, App E, E.4.4(g).	No Difference		
Chapter 5 Reference **5.4.3.11** **Standard**	5.4.3.11 A location sign shall be provided in conjunction with a direction sign, except that it may be omitted where an aeronautical study indicates that it is not needed.	CAR Part 139, App E, E.4.4(h).	No Difference		
Chapter 5 Reference **5.4.3.12** **Recommendation**	5.4.3.12 **Recommendation.—** *Where necessary, a location sign should be provided to identify taxiways exiting an apron or taxiways beyond an intersection.*	AC139-6, 5.4.40.	No Difference		
Chapter 5 Reference **5.4.3.13** **Recommendation**	5.4.3.13 **Recommendation.—** *Where a taxiway ends at an intersection such as a "T" and it is necessary to identify this, a barricade, direction sign and/or other appropriate visual aid should be used.*	AC139-6, 5.4.41.	No Difference		
Chapter 5 Reference **5.4.3.14** **Standard**	***Location*** 5.4.3.14 Except as specified in 5.4.3.16 and 5.4.3.24 information signs shall, wherever practicable, be located on the left-hand side of the taxiway in accordance with Table 5-5.	AC139-6, 5.4.42 and Table 5-4.	No Difference		

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Chapter 5 Reference **5.4.3.15** **Standard**	5.4.3.15 At a taxiway intersection, information signs shall be located prior to the intersection and in line with the intermediate holding position marking. Where there is no intermediate holding position marking, the signs shall be installed at least 60 m from the centre line of the intersecting taxiway where the code number is 3 or 4, and at least 40 m where the code number is 1 or 2. *Note.— A location sign installed beyond a taxiway intersection may be installed on either side of a taxiway.*	AC139-6, 5.4.43.	No Difference		
Chapter 5 Reference **5.4.3.16** **Standard**	5.4.3.16 A runway exit sign shall be located on the same side of the runway as the exit is located (i.e. left or right) and positioned in accordance with Table 5-5.	AC139-6, 5.4.44.	No Difference		
Chapter 5 Reference **5.4.3.17** **Standard**	5.4.3.17 A runway exit sign shall be located prior to the runway exit point in line with a position at least 60 m prior to the point of tangency where the code number is 3 or 4, and at least 30 m where the code number is 1 or 2.	AC139-6, 5.4.45.	No Difference		
Chapter 5 Reference **5.4.3.18** **Standard**	5.4.3.18 A runway vacated sign shall be located at least on one side of the taxiway. The distance between the sign and the centre line of a runway shall be not less than the greater of the following: a) the distance between the centre line of the runway and the perimeter of the ILS/MLS critical/sensitive area; or b) the distance between the centre line of the runway and the lower edge of the inner transitional surface.	AC139-6, 5.4.46.	No Difference		

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Chapter 5 Reference **5.4.3.19** **Standard**	5.4.3.19 Where provided in conjunction with a runway vacated sign, the taxiway location sign shall be positioned outboard of the runway vacated sign.	AC139-6, 5.4.47.	No Difference		
Chapter 5 Reference **5.4.3.20** **Standard**	5.4.3.20 An intersection take-off sign shall be located at the left-hand side of the entry taxiway. The distance between the sign and the centre line of the runway shall be not less than 60 m where the code number is 3 or 4, and not less than 45 m where the code number is 1 or 2.	AC139-6, 5.4.48.	No Difference		
Chapter 5 Reference **5.4.3.21** **Standard**	5.4.3.21 A taxiway location sign installed in conjunction with a runway designation sign shall be positioned outboard of the runway designation sign.	AC139-6, 5.4.49.	No Difference		
Chapter 5 Reference **5.4.3.22** **Recommendation**	5.4.3.22 **Recommendation.—** *A destination sign should not normally be collocated with a location or direction sign*.	AC139-6, 5.4.50.	No Difference		
Chapter 5 Reference **5.4.3.23** **Standard**	5.4.3.23 An information sign other than a location sign shall not be collocated with a mandatory instruction sign.	AC139-6, 5.4.51.	No Difference		

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Chapter 5 Reference **5.4.3.24** **Recommendation**	5.4.3.24 **Recommendation.—** *A direction sign, barricade and/or other appropriate visual aid used to identify a "T" intersection should be located on the opposite side of the intersection facing the taxiway.*	AC139-6, 5.4.52.	No Difference		
Chapter 5 Reference **5.4.3.25** **Standard**	***Characteristics*** 5.4.3.25 An information sign other than a location sign shall consist of an inscription in black on a yellow background.	AC139-6, 5.4.53.	No Difference		
Chapter 5 Reference **5.4.3.26** **Standard**	5.4.3.26 A location sign shall consist of an inscription in yellow on a black background and where it is a stand-alone sign shall have a yellow border.	AC139-6, 5.4.54.	No Difference		
Chapter 5 Reference **5.4.3.27** **Standard**	5.4.3.27 The inscription on a runway exit sign shall consist of the designator of the exit taxiway and an arrow indicating the direction to follow.	AC139-6, 5.4.55.	No Difference		
Chapter 5 Reference **5.4.3.28** **Standard**	5.4.3.28 The inscription on a runway vacated sign shall depict the pattern A runway-holding position marking as shown in Figure 5-31.	AC139-6, 5.4.56.	No Difference		

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Chapter 5 Reference **5.4.3.29** **Standard**	5.4.3.29 The inscription on an intersection take-off sign shall consist of a numerical message indicating the remaining take-off run available in metres plus an arrow, appropriately located and oriented, indicating the direction of the take-off as shown in Figure 5-31.	AC139-6, 5.4.57 and Figure 5-29.	No Difference		
Chapter 5 Reference **5.4.3.30** **Standard**	5.4.3.30 The inscription on a destination sign shall comprise an alpha, alphanumerical or numerical message identifying the destination plus an arrow indicating the direction to proceed as shown in Figure 5-31.	AC139-6, 5.4.58 and Figure 5-29.	No Difference		
Chapter 5 Reference **5.4.3.31** **Standard**	5.4.3.31 The inscription on a direction sign shall comprise an alpha or alphanumerical message identifying the taxiway(s) plus an arrow or arrows appropriately oriented as shown in Figure 5-31.	AC139-6, 5.4.59 and Figure 5-29.	No Difference		
Chapter 5 Reference **5.4.3.32** **Standard**	5.4.3.32 The inscription on a location sign shall comprise the designation of the location taxiway, runway or other pavement the aircraft is on or is entering and shall not contain arrows.	AC139-6, 5.4.60.	No Difference		
Chapter 5 Reference **5.4.3.33** **Recommendation**	5.4.3.33 **Recommendation.—** *Where it is necessary to identify each of a series of intermediate holding positions on the same taxiway, the location sign should consist of the taxiway designation and a number.*	AC139-6, 5.4.61.	No Difference		

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Chapter 5 Reference **5.4.3.34** **Standard**	5.4.3.34 Where a location sign and direction signs are used in combination: a) all direction signs related to left turns shall be placed on the left side of the location sign, and all direction signs related to right turns shall be placed on the right side of the location sign, except that where the junction consists of one intersecting taxiway, the location sign may alternatively be placed on the left-hand side; b) the direction signs shall be placed such that the direction of the arrows departs increasingly from the vertical with increasing deviation of the corresponding taxiway; c) an appropriate direction sign shall be placed next to the location sign where the direction of the location taxiway changes significantly beyond the intersection; and d) adjacent direction signs shall be delineated by a vertical black line as shown in Figure 5-31.	AC139-6, 5.4.62.	No Difference		
Chapter 5 Reference **5.4.3.35** **Standard**	5.4.3.35 A taxiway shall be identified by a designator that is used only once on an aerodrome and comprise a single letter, two letters, or a combination of a letter or letters followed by a number.	AC139-6, 5.4.63.	No Difference		

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Chapter 5 Reference **5.4.3.36** **Recommendation**	5.4.3.36 **Recommendation.—** *When designating taxiways, the use of words such as "inner" and "outer" should be avoided wherever possible.*	AC139-6, 5.4.64.	No Difference		
Chapter 5 Reference **5.4.3.37** **Standard**	5.4.3.37 When designating taxiways, the letters I, O and X shall not be used to avoid confusion with the numerals 1 and 0, and the closed marking.	AC139-6, 5.4.65.	No Difference		
Chapter 5 Reference **5.4.3.38** **Standard**	5.4.3.38 The use of numbers alone on the manoeuvring area shall be reserved for the designation of runways.	NIL	No Difference	NIL	NIL
Chapter 5 Reference **5.4.3.39** **Recommendation**	5.4.3.39 **Recommendation.—** *Apron stand designators should not be the same as taxiway designators.*	NIL	No Difference	NIL	NIL

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Chapter 5 Reference **5.4.4.1** **Standard**	5.4.4 VOR aerodrome checkpoint sign ***Application*** 5.4.4.1 When a VOR aerodrome checkpoint is established, it shall be indicated by a VOR aerodrome checkpoint marking and sign. *Note.— See 5.2.12 for VOR aerodrome checkpoint marking.*	CAR Part 139, App E, E.4.5.	No Difference		
Chapter 5 Reference **5.4.4.2** **Standard**	***Location*** 5.4.4.2 A VOR aerodrome checkpoint sign shall be located as near as possible to the checkpoint and so that the inscriptions are visible from the cockpit of an aircraft properly positioned on the VOR aerodrome checkpoint marking.	AC139-6, 5.4.67.	No Difference		
Chapter 5 Reference **5.4.4.3** **Standard**	***Characteristics*** 5.4.4.3 A VOR aerodrome checkpoint sign shall consist of an inscription in black on a yellow background.	AC139-6, 5.4.68.	No Difference		

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Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 5 Reference **5.4.4.4** **Recommendation**	5.4.4.4 **Recommendation.—** *The inscriptions on a VOR checkpoint sign should be in accordance with one of the alternatives shown in Figure 5-33 in which:* *VOR* *is an abbreviation identifying this as a VOR checkpoint;* *116.3* *is an example of the radio frequency of the VOR concerned;* *147°* *is an example of the VOR bearing, to the nearest degree, which should be indicated at the VOR checkpoint; and* *4.3 NM* *is an example of the distance in nautical miles to a DME collocated with the VOR concerned.* **Figure 5-33. VOR aerodrome checkpoint sign** *Note.— Tolerances for the bearing value shown on the sign are given in Annex 10, Volume I, Attachment E. It will be noted that a checkpoint can only be used operationally when periodic checks show it to be consistently within ±2 degrees of the stated bearing.*	AC139-6, 5.4.69.	No Difference		
Chapter 5 Reference **5.4.5.1** **Recommendation**	5.4.5 Aerodrome identification sign ***Application*** 5.4.5.1 **Recommendation.—** *An aerodrome identification sign should be provided at an aerodrome where there is insufficient alternative means of visual identification.*	AC139-6, 5.4.70.	No Difference		

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Chapter 5 Reference **5.4.5.2** **Recommendation**	***Location*** 5.4.5.2 **Recommendation.—** *The aerodrome identification sign should be placed on the aerodrome so as to be legible, in so far as is practicable, at all angles above the horizontal.*	AC139-6, 5.4.71.	No Difference		
Chapter 5 Reference **5.4.5.3** **Standard**	***Characteristics*** 5.4.5.3 The aerodrome identification sign shall consist of the name of the aerodrome.	AC139-6, 5.4.72.	No Difference		
Chapter 5 Reference **5.4.5.4** **Recommendation**	5.4.5.4 **Recommendation.—** *The colour selected for the sign should give adequate conspicuity when viewed against its background.*	AC139-6, 5.4.73.	No Difference		
Chapter 5 Reference **5.4.5.5** **Recommendation**	5.4.5.5 **Recommendation.—** *The characters should have a height of not less than 3 m.*	AC139-6, 5.4.74.	No Difference		

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Chapter 5 Reference **5.4.6.1** **Recommendation**	5.4.6 Aircraft stand identification signs ***Application*** 5.4.6.1 **Recommendation.—** *An aircraft stand identification marking should be supplemented with an aircraft stand identification sign where feasible.*	AC139-6, 5.4.75.	No Difference		
Chapter 5 Reference **5.4.6.2** **Recommendation**	***Location*** 5.4.6.2 **Recommendation.—** *An aircraft stand identification sign should be located so as to be clearly visible from the cockpit of an aircraft prior to entering the aircraft stand.*	AC139-6, 5.4.76.	No Difference		
Chapter 5 Reference **5.4.6.3** **Recommendation**	***Characteristics*** 5.4.6.3 **Recommendation.—** *An aircraft stand identification sign should consist of an inscription in black on a yellow background.*	AC139-6, 5.4.77.	No Difference		
Chapter 5 Reference **5.4.7.1** **Standard**	5.4.7 Road-holding position sign 5.4.7.1 A road-holding position sign shall be provided at all road entrances to a runway.	CAR Part 139, App E, E.4.6.	No Difference		

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Chapter 5 Reference **5.4.7.2** **Standard**	***Location*** 5.4.7.2 The road-holding position sign shall be located 1.5 m from one edge of the road (left or right as appropriate to the local traffic regulations) at the holding position.	AC139-6, 5.4.79.	No Difference		
Chapter 5 Reference **5.4.7.3** **Standard**	***Characteristics*** 5.4.7.3 A road-holding position sign shall consist of an inscription in white on a red background.	AC139-6, 5.4.80.	No Difference		
Chapter 5 Reference **5.4.7.4** **Standard**	5.4.7.4 The inscription on a road-holding position sign shall be in the national language, be in conformity with the local traffic regulations and include the following: a) a requirement to stop; and b) where appropriate: 1) a requirement to obtain ATC clearance; and 2) location designator. *Note.— Examples of road-holding position signs are contained in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 5.4.81.	No Difference		
Chapter 5 Reference **5.4.7.5** **Standard**	5.4.7.5 A road-holding position sign intended for night use shall be retroreflective or illuminated.	AC139-6, 5.4.82.	No Difference		

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Chapter 5 Reference **5.5.1** **Standard**	**5.5 Markers** 5.5.1 General Markers shall be frangible. Those located near a runway or taxiway shall be sufficiently low to preserve clearance for propellers and for the engine pods of jet aircraft. *Note 1.— Anchors or chains, to prevent markers which have broken from their mounting from blowing away, are sometimes used.* *Note 2.— Guidance on frangibility of markers is given in the* Aerodrome Design Manual *(Doc 9157), Part 6.*	CAR Part 139, App E, E.4.7.	No Difference		
Chapter 5 Reference **5.5.2.1** **Recommendation**	5.5.2 Unpaved runway edge markers ***Application*** 5.5.2.1 **Recommendation.—** *Markers should be provided when the extent of an unpaved runway is not clearly indicated by the appearance of its surface compared with that of the surrounding ground.*	AC139-6, 5.5.2.	No Difference		
Chapter 5 Reference **5.5.2.2** **Recommendation**	***Location*** 5.5.2.2 **Recommendation.—** *Where runway lights are provided, the markers should be incorporated in the light fixtures. Where there are no lights, markers of flat rectangular or conical shape should be placed so as to delimit the runway clearly.*	AC139-6, 5.5.3.	No Difference		

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Chapter 5 Reference **5.5.2.3** **Recommendation**	***Characteristics*** 5.5.2.3 **Recommendation.—** *The flat rectangular markers should have a minimum size of 1 m by 3 m and should be placed with their long dimension parallel to the runway centre line. The conical markers should have a height not exceeding 50 cm.*	AC139-6, 5.5.4.	No Difference		
Chapter 5 Reference **5.5.3.1** **Recommendation**	5.5.3 Stopway edge markers ***Application*** 5.5.3.1 **Recommendation.—** *Stopway edge markers should be provided when the extent of a stopway is not clearly indicated by its appearance compared with that of the surrounding ground.*	AC139-6, 5.5.5.	No Difference		
Chapter 5 Reference **5.5.3.2** **Standard**	***Characteristics*** 5.5.3.2 The stopway edge markers shall be sufficiently different from any runway edge markers used to ensure that the two types of markers cannot be confused. *Note.— Markers consisting of small vertical boards camouflaged on the reverse side, as viewed from the runway, have proved operationally acceptable.*	AC139-6, 5.5.6.	No Difference		

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Chapter 5 Reference **5.5.4.1** **Recommendation**	5.5.4 Edge markers for snow-covered runways ***Application*** 5.5.4.1 **Recommendation.—** *Edge markers for snow-covered runways should be used to indicate the usable limits of a snow-covered runway when the limits are not otherwise indicated.* *Note.— Runway lights could be used to indicate the limits.*	AC139-6, 5.5.7.	No Difference		
Chapter 5 Reference **5.5.4.2** **Recommendation**	***Location*** 5.5.4.2 **Recommendation.—** *Edge markers for snow-covered runways should be placed along the sides of the runway at intervals of not more than 100 m, and should be located symmetrically about the runway centre line at such a distance from the centre line that there is adequate clearance for wing tips and powerplants. Sufficient markers should be placed across the threshold and end of the runway.*	AC139-6, 5.5.8.	No Difference		
Chapter 5 Reference **5.5.4.3** **Recommendation**	***Characteristics*** 5.5.4.3 **Recommendation.—** *Edge markers for snow-covered runways should consist of conspicuous objects such as evergreen trees about 1.5 m high, or light-weight markers.*	AC139-6, 5.5.9.	No Difference		Light-weight frangible markers, height not exceeding 0.5 m above snow level.

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Chapter 5 Reference **5.5.5.1** **Recommendation**	5.5.5 Taxiway edge markers ***Application*** 5.5.5.1 **Recommendation.—** *Taxiway edge markers should be provided on a taxiway where the code number is 1 or 2 and taxiway centre line or edge lights or taxiway centre line markers are not provided.*	AC139-6, 5.5.10.	No Difference		
Chapter 5 Reference **5.5.5.2** **Recommendation**	***Location*** 5.5.5.2 **Recommendation.—** *Taxiway edge markers should be installed at least at the same locations as would the taxiway edge lights had they been used.*	AC139-6, 5.5.11.	No Difference		
Chapter 5 Reference **5.5.5.3** **Standard**	***Characteristics*** 5.5.5.3 A taxiway edge marker shall be retroreflective blue.	AC139-6, 5.5.12.	Less protective or partially implemented or not implemented	Blue not specified.	
Chapter 5 Reference **5.5.5.4** **Recommendation**	5.5.5.4 **Recommendation.—** *The marked surface as viewed by the pilot should be a rectangle and should have a minimum viewing area of 150 cm2.*	AC139-6, 5.5.13.	No Difference		

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Chapter 5 Reference **5.5.5.5** **Standard**	5.5.5.5 Taxiway edge markers shall be frangible. Their height shall be sufficiently low to preserve clearance for propellers and for the engine pods of jet aircraft.	AC139-6, 5.5.14.	No Difference		
Chapter 5 Reference **5.5.6.1** **Recommendation**	5.5.6 Taxiway centre line markers ***Application*** 5.5.6.1 **Recommendation.—** *Taxiway centre line markers should be provided on a taxiway where the code number is 1 or 2 and taxiway centre line or edge lights or taxiway edge markers are not provided.*	AC139-6, 5.5.15.	No Difference		
Chapter 5 Reference **5.5.6.2** **Recommendation**	5.5.6.2 **Recommendation.—** *Taxiway centre line markers should be provided on a taxiway where the code number is 3 or 4 and taxiway centre line lights are not provided if there is a need to improve the guidance provided by the taxiway centre line marking.*	AC139-6, 5.5.16.	No Difference		
Chapter 5 Reference **5.5.6.3** **Recommendation**	***Location*** 5.5.6.3 **Recommendation.—** *Taxiway centre line markers should be installed at least at the same location as would taxiway centre line lights had they been used.* *Note.— See 5.3.17.12 for the spacing of taxiway centre line lights.*	AC139-6, 5.5.17.	No Difference		

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Chapter 5 Reference **5.5.6.4** **Recommendation**	5.5.6.4 **Recommendation.—** *Taxiway centre line markers should normally be located on the taxiway centre line marking except that they may be offset by not more than 30 cm where it is not practicable to locate them on the marking.*	AC139-6, 5.5.18.	No Difference		
Chapter 5 Reference **5.5.6.5** **Standard**	***Characteristics*** 5.5.6.5 A taxiway centre line marker shall be retroreflective green.	AC139-6, 5.5.19.	No Difference		
Chapter 5 Reference **5.5.6.6** **Recommendation**	5.5.6.6 **Recommendation.—** *The marked surface as viewed by the pilot should be a rectangle and should have a minimum viewing area of 20 cm2.*	AC139-6, 5.5.20.	No Difference		Note: AC is in error - 5.5.20 states 2 m2 where it should read 20 cm2. Update in progress.
Chapter 5 Reference **5.5.6.7** **Standard**	5.5.6.7 Taxiway centre line markers shall be so designed and fitted as to withstand being run over by the wheels of an aircraft without damage either to the aircraft or to the markers themselves.	AC139-6, 5.5.21.	No Difference		

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Chapter 5 Reference **5.5.7.1** **Recommendation**	5.5.7 Unpaved taxiway edge markers ***Application*** 5.5.7.1 **Recommendation.—** *Where the extent of an unpaved taxiway is not clearly indicated by its appearance compared with that of the surrounding ground, markers should be provided.*	AC139-6, 5.5.22.	No Difference		
Chapter 5 Reference **5.5.7.2** **Recommendation**	***Location*** 5.5.7.2 **Recommendation.—** *Where taxiway lights are provided, the markers should be incorporated in the light fixtures. Where there are no lights, markers of conical shape should be placed so as to delimit the taxiway clearly.*	AC139-6, 5.5.23.	No Difference		
Chapter 5 Reference **5.5.8.1** **Standard**	5.5.8 Boundary markers ***Application*** 5.5.8.1 Boundary markers shall be provided at an aerodrome where the landing area has no runway.	AC139-6, 5.5.24.	No Difference		
Chapter 5 Reference **5.5.8.2** **Standard**	***Location*** 5.5.8.2 Boundary markers shall be spaced along the boundary of the landing area at intervals of not more than 200 m, if the type shown in Figure 5-34 is used, or approximately 90 m, if the conical type is used with a marker at any corner.	AC139-6, 5.5.25 and Figure 5-32.	No Difference		

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Chapter 5 Reference **5.5.8.3** **Recommendation**	***Characteristics*** 5.5.8.3 **Recommendation.—** *Boundary markers should be of a form similar to that shown in Figure 5-34, or in the form of a cone not less than 50 cm high and not less than 75 cm in diameter at the base. The markers should be coloured to contrast with the background against which they will be seen. A single colour, orange or red, or two contrasting colours, orange and white or alternatively red and white, should be used, except where such colours merge with the background.* **Figure 5-34. Boundary markers**	AC139-6, 5.5.26.	No Difference		

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Chapter 6 Reference **6.1.1.1** **Standard**	**CHAPTER 6. VISUAL AIDS FOR DENOTING OBSTACLES** **6.1 Objects to be marked and/or lighted** *Note 1.— The marking and/or lighting of obstacles is intended to reduce hazards to aircraft by indicating the presence of the obstacles. It does not necessarily reduce operating limitations which may be imposed by an obstacle.* *Note 2.— An autonomous aircraft detection system may be installed on or near an obstacle (or group of obstacles such as wind farms), designed to operate the lighting only when the system detects an aircraft approaching the obstacle, in order to reduce light exposure to local residents. Guidance on the design and installation of an autonomous aircraft detection system is available in the* Aerodrome Design Manual *(Doc 9157), Part 4. The availability of such guidance is not intended to imply that such a system has to be provided.* 6.1.1 Objects within the lateral boundaries of the obstacle limitation surfaces 6.1.1.1 Vehicles and other mobile objects, excluding aircraft, on the movement area of an aerodrome are obstacles and shall be marked and, if the vehicles and aerodrome are used at night or in conditions of low visibility, lighted, except that aircraft servicing equipment and vehicles used only on aprons may be exempt.	CAR Part 139, App F, F.1(c).	No Difference		

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Chapter 6 Reference **6.1.1.2** **Standard**	6.1.1.2 Elevated aeronautical ground lights within the movement area shall be marked so as to be conspicuous by day. Obstacle lights shall not be installed on elevated ground lights or signs in the movement area.	CAR Part 139, App F, F.1(d).	No Difference		
Chapter 6 Reference **6.1.1.3** **Standard**	6.1.1.3 All obstacles within the distance specified in Table 3-1, column 11 or 12, from the centre line of a taxiway, an apron taxiway or aircraft stand taxilane shall be marked and, if the taxiway, apron taxiway or aircraft stand taxilane is used at night, lighted.	CAR Part 139, App F, F.1(e).	No Difference		
Chapter 6 Reference **6.1.1.4** **Recommendation**	6.1.1.4 **Recommendation.—** *A fixed obstacle that extends above a take-off climb surface within 3 000 m of the inner edge of the take-off climb surface should be marked and, if the runway is used at night, lighted, except that:* *a) such marking and lighting may be omitted when the obstacle is shielded by another fixed obstacle;* *b) the marking may be omitted when the obstacle is lighted by medium-intensity obstacle lights, Type A, by day and its height above the level of the surrounding ground does not exceed 150 m;* *c) the marking may be omitted when the obstacle is lighted by high-intensity obstacle lights by day; and* *d) the lighting may be omitted where the obstacle is a lighthouse and an aeronautical study indicates the lighthouse light to be sufficient.*	CAR Part 139, App F, F.1(a).	No Difference		

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Chapter 6 Reference **6.1.1.5** **Recommendation**	6.1.1.5 **Recommendation.—** *A fixed object, other than an obstacle, adjacent to a take-off climb surface should be marked and, if the runway is used at night, lighted, if such marking and lighting is considered necessary to ensure its avoidance, except that the marking may be omitted when:* *a) the object is lighted by medium-intensity obstacle lights, Type A, by day and its height above the level of the surrounding ground does not exceed 150 m; or* *b) the object is lighted by high-intensity obstacle lights by day.*	AC139-6, 6.1.2.	No Difference		
Chapter 6 Reference **6.1.1.6** **Standard**	6.1.1.6 A fixed obstacle that extends above an approach surface within 3 000 m of the inner edge or above a transitional surface shall be marked and, if the runway is used at night, lighted, except that: a) such marking and lighting may be omitted when the obstacle is shielded by another fixed obstacle; b) the marking may be omitted when the obstacle is lighted by medium-intensity obstacle lights, Type A, by day and its height above the level of the surrounding ground does not exceed 150 m; c) the marking may be omitted when the obstacle is lighted by high-intensity obstacle lights by day; and d) the lighting may be omitted where the obstacle is a lighthouse and an aeronautical study indicates the lighthouse light to be sufficient.	CAR Part 139, App F, F.1(a).	No Difference		

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Chapter 6 Reference **6.1.1.7** **Recommendation**	6.1.1.7 **Recommendation.—** *A fixed obstacle that extends above a horizontal surface should be marked and, if the aerodrome is used at night, lighted, except that:* *a) such marking and lighting may be omitted when:* *1) the obstacle is shielded by another fixed obstacle; or* *2) for a circuit extensively obstructed by immovable objects or terrain, procedures have been established to ensure safe vertical clearance below prescribed flight paths; or* *3) an aeronautical study shows the obstacle not to be of operational significance;* *b) the marking may be omitted when the obstacle is lighted by medium-intensity obstacle lights, Type A, by day and its height above the level of the surrounding ground does not exceed 150 m;* *c) the marking may be omitted when the obstacle is lighted by high-intensity obstacle lights by day; and* *d) the lighting may be omitted where the obstacle is a lighthouse and an aeronautical study indicates the lighthouse light to be sufficient.*	AC139-6, 6.1.3.	No Difference		
Chapter 6 Reference **6.1.1.8** **Standard**	6.1.1.8 A fixed object that extends above an obstacle protection surface shall be marked and, if the runway is used at night, lighted. *Note.— See 5.3.5 for information on the obstacle protection surface.*	CAR Part 139, App F, F.1(b).	No Difference		

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Chapter 6 Reference **6.1.1.9** **Recommendation**	6.1.1.9 **Recommendation.—** *Other objects inside the obstacle limitation surfaces should be marked and/or lighted if an aeronautical study indicates that the object could constitute a hazard to aircraft (this includes objects adjacent to visual routes e.g. waterway or highway).* *Note.— See note accompanying 4.4.2.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 6 Reference **6.1.1.10** **Recommendation**	6.1.1.10 **Recommendation.—** *Overhead wires, cables, etc., crossing a river, waterway, valley or highway should be marked and their supporting towers marked and lighted if an aeronautical study indicates that the wires or cables could constitute a hazard to aircraft.*	AC139-6, 6.1.9.	No Difference		
Chapter 6 Reference **6.1.2.1** **Recommendation**	6.1.2 Objects outside the lateral boundaries of the obstacle limitation surfaces 6.1.2.1 **Recommendation.—** *Obstacles in accordance with 4.3.2 should be marked and lighted, except that the marking may be omitted when the obstacle is lighted by high-intensity obstacle lights by day.*	AC139-6, 6.1.8.	No Difference		
Chapter 6 Reference **6.1.2.2** **Recommendation**	6.1.2.2 **Recommendation.—** *Other objects outside the obstacle limitation surfaces should be marked and/or lighted if an aeronautical study indicates that the object could constitute a hazard to aircraft (this includes objects adjacent to visual routes e.g. waterway, highway).*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 6 Reference **6.1.2.3** **Recommendation**	6.1.2.3 **Recommendation.—** *Overhead wires, cables, etc., crossing a river, waterway, valley or highway should be marked and their supporting towers marked and lighted if an aeronautical study indicates that the wires or cables could constitute a hazard to aircraft.*	AC139-6, 6.1.9.	No Difference		

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Chapter 6 Reference **6.2.1.1** **Standard**	**6.2 Marking and/or lighting of objects** 6.2.1 General 6.2.1.1 The presence of objects which must be lighted, as specified in 6.1, shall be indicated by low-, medium- or high-intensity obstacle lights, or a combination of such lights.	CAR Part 77, Appendix B, B7(a); AC139-6, 6.3.3.	No Difference		
Chapter 6 Reference **6.2.1.2** **Standard**	6.2.1.2 Low-intensity obstacle lights, Types A B, C, D and E, medium-intensity obstacle lights, Types A, B and C, high-intensity obstacle lights Type A and B, shall be in accordance with the specifications in Table 6-1 and Appendix 1.	AC139-6, Table 6-2.	No Difference		
Chapter 6 Reference **6.2.1.3** **Standard**	6.2.1.3 The number and arrangement of low-, medium- or high-intensity obstacle lights at each level to be marked shall be such that the object is indicated from every angle in azimuth. Where a light is shielded in any direction by another part of the object, or by an adjacent object, additional lights shall be provided on that adjacent object or the part of the object that is shielding the light, in such a way as to retain the general definition of the object to be lighted. If the shielded light does not contribute to the definition of the object to be lighted, it may be omitted.	AC139-6, 6.3.	No Difference		
Chapter 6 Reference **6.2.2.1** **Standard**	6.2.2 Mobile objects ***Marking*** 6.2.2.1 All mobile objects to be marked shall be coloured or display flags.	AC139-6, 6.2.2.	No Difference		

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Chapter 6 Reference **6.2.2.2** **Recommendation**	***Marking by colour*** 6.2.2.2 **Recommendation.—** *When mobile objects are marked by colour, a single conspicuous colour, preferably red or yellowish green for emergency vehicles and yellow for service vehicles, should be used.*	AC139-6, 6.2.8.	No Difference		
Chapter 6 Reference **6.2.2.3** **Standard**	***Marking by flags*** 6.2.2.3 Flags used to mark mobile objects shall be displayed around, on top of, or around the highest edge of the object. Flags shall not increase the hazard presented by the object they mark.	AC139-6, 6.2.17.	No Difference		

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Chapter 6 Reference **6.2.2.4** **Standard**	6.2.2.4 Flags used to mark mobile objects shall not be less than 0.9 m on each side and shall consist of a chequered pattern, each square having sides of not less than 0.3 m. The colours of the pattern shall contrast each with the other and with the background against which they will be seen. Orange and white or alternatively red and white shall be used, except where such colours merge with the background. **Table 6-1. Characteristics of obstacle lights** **Table 6-2. Light distribution for low-intensity obstacle lights** *Note.— This table does not include recommended horizontal beam spreads. 6.2.1.3 requires 360° coverage around an obstacle. Therefore, the number of lights needed to meet this requirement will depend on the horizontal beam spreads of each light as well as the shape of the obstacle. Thus, with narrower beam spreads, more lights will be required.* a) 360° horizontal. For flashing lights, the intensity is read into effective intensity, as determined in accordance with the *Aerodrome Design Manual* (Doc 9157), Part 4. b) Between 2 and 10° vertical. Elevation vertical angles are referenced to the horizontal when the light is levelled. c) Between 2 and 20° vertical. Elevation vertical angles are referenced to the horizontal when the light is levelled. d) Peak intensity should be located at approximately 2.5° vertical. e) Peak intensity should be located at approximately 17° vertical. f) Beam spread is defined as the angle between the horizontal plane and the directions for which the intensity exceeds that mentioned in the "intensity" column. **Table 6-3. Light distribution for medium- and high-intensity obstacle lights according to benchmark intensities of Table 6-1**	AC139-6, 6.2.18 to 6.2.20.	No Difference		

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	Note.— This table does not include recommended horizontal beam spreads. 6.2.1.3 requires 360° coverage around an obstacle. Therefore, the number of lights needed to meet this requirement will depend on the horizontal beam spreads of each light as well as the shape of the obstacle. Thus, with narrower beam spreads, more lights will be required. a) 360° horizontal. All intensities are expressed in Candela. For flashing lights, the intensity is read into effective intensity, as determined in accordance with the *Aerodrome Design Manual* (Doc 9157), Part 4. b) Elevation vertical angles are referenced to the horizontal when the light unit is levelled. c) Beam spread is defined as the angle between the horizontal plane and the directions for which the intensity exceeds that mentioned in the "intensity" column. *Note.— An extended beam spread may be necessary under specific configuration and justified by an aeronautical study.*				
Chapter 6 Reference **6.2.2.5** **Standard**	***Lighting*** 6.2.2.5 Low-intensity obstacle lights, Type C, shall be displayed on vehicles and other mobile objects excluding aircraft. *Note.— See Annex 2 for lights to be displayed by aircraft.*	AC139-6, 6.3.6.	No Difference		
Chapter 6 Reference **6.2.2.6** **Standard**	6.2.2.6 Low-intensity obstacle lights, Type C, displayed on vehicles associated with emergency or security shall be flashing-blue and those displayed on other vehicles shall be flashing-yellow.	AC139-6, Table 6-2.	Different in character or other means of compliance	In New Zealand, flashing red generally denotes fire, ambulance or aviation security; flashing red/blue is police; flashing yellow is used bu service vehicles.	

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Chapter 6 Reference **6.2.2.7** **Standard**	6.2.2.7 Low-intensity obstacle lights, Type D, shall be displayed on follow-me vehicles.	AC139-6, 6.3.7.	No Difference		
Chapter 6 Reference **6.2.2.8** **Standard**	6.2.2.8 Low-intensity obstacle lights on objects with limited mobility such as aerobridges shall be fixed-red, and as a minimum be in accordance with the specifications for low-intensity obstacle lights, Type A, in Table 6-1. The intensity of the lights shall be sufficient to ensure conspicuity considering the intensity of the adjacent lights and the general levels of illumination against which they would normally be viewed.	AC139-6, Ch 6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 6 Reference **6.2.3.1** **Standard**	6.2.3 Fixed objects *Note.— The fixed objects of wind turbines are addressed separately in 6.2.4 and the fixed objects of overhead wires, cables, etc., and supporting towers are addressed separately in 6.2.5.* ***Marking*** 6.2.3.1 All fixed objects to be marked shall, whenever practicable, be coloured, but if this is not practicable, markers or flags shall be displayed on or above them, except that objects that are sufficiently conspicuous by their shape, size or colour need not be otherwise marked.	AC139-6, 6.2.1.	No Difference		

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Chapter 6 Reference **6.2.3.2** **Recommendation**	***Marking by colour*** 6.2.3.2 **Recommendation.—** *An object should be coloured to show a chequered pattern if it has essentially unbroken surfaces and its projection on any vertical plane equals or exceeds 4.5 m in both dimensions. The pattern should consist of rectangles of not less than 1.5 m and not more than 3 m on a side, the corners being of the darker colour. The colours of the pattern should contrast each with the other and with the background against which they will be seen. Orange and white or alternatively red and white should be used, except where such colours merge with the background. (See Figure 6-1.)*	AC139-6, 6.2.3.	No Difference		

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Chapter 6 Reference **6.2.3.3** **Recommendation**	6.2.3.3 **Recommendation.—** *An object should be coloured to show alternating contrasting bands if:* *a) it has essentially unbroken surfaces and has one dimension, horizontal or vertical, greater than 1.5 m, and the other dimension, horizontal or vertical, less than 4.5 m; or* *b) it is of skeletal type with either a vertical or a horizontal dimension greater than 1.5 m.* *The bands should be perpendicular to the longest dimension and have a width approximately 1/7 of the longest dimension or 30 m, whichever is less. The colours of the bands should contrast with the background against which they will be seen. Orange and white should be used, except where such colours are not conspicuous when viewed against the background. The bands on the extremities of the object should be of the darker colour. (See Figures 6-1 and 6-2.)* *Note.— Table 6-4 shows a formula for determining band widths and for having an odd number of bands, thus permitting both the top and bottom bands to be of the darker colour.*	AC139-6, 6.2.4 to 6.2.6.	No Difference		
Chapter 6 Reference **6.2.3.4** **Recommendation**	6.2.3.4 **Recommendation.—** *An object should be coloured in a single conspicuous colour if its projection on any vertical plane has both dimensions less than 1.5 m. Orange or red should be used, except where such colours merge with the background.* *Note.— Against some backgrounds it may be found necessary to use a different colour from orange or red to obtain sufficient contrast.*	AC139-6, 6.2.7.	No Difference		

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Chapter 6 Reference **6.2.3.5** **Standard**	***Marking by flags*** 6.2.3.5 Flags used to mark fixed objects shall be displayed around, on top of, or around the highest edge of, the object. When flags are used to mark extensive objects or groups of closely spaced objects, they shall be displayed at least every 15 m. Flags shall not increase the hazard presented by the object they mark.	AC139-6, 6.2.17.	No Difference		
Chapter 6 Reference **6.2.3.6** **Standard**	6.2.3.6 Flags used to mark fixed objects shall not be less than 0.6 m on each side.	AC139-6, 6.2.18.	No Difference		
Chapter 6 Reference **6.2.3.7** **Recommendation**	6.2.3.7 **Recommendation.—** *Flags used to mark fixed objects should be orange in colour or a combination of two triangular sections, one orange and the other white, or one red and the other white, except that where such colours merge with the background, other conspicuous colours should be used.*	AC139-6, 6.2.19.	No Difference		
Chapter 6 Reference **6.2.3.8** **Standard**	***Marking by markers*** 6.2.3.8 Markers displayed on or adjacent to objects shall be located in conspicuous positions so as to retain the general definition of the object and shall be recognizable in clear weather from a distance of at least 1 000 m for an object to be viewed from the air and 300 m for an object to be viewed from the ground in all directions in which an aircraft is likely to approach the object. The shape of markers shall be distinctive to the extent necessary to ensure that they are not mistaken for markers employed to convey other information, and they shall be such that the hazard presented by the object they mark is not increased.	AC139-6, 6.2.12.	No Difference		

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Chapter 6 Reference **6.2.3.9** **Recommendation**	6.2.3.9 **Recommendation.—** *A marker should be of one colour. When installed, white and red, or white and orange markers should be displayed alternately. The colour selected should contrast with the background against which it will be seen.*	AC139-6, 6.2.16.	No Difference		
Chapter 6 Reference **6.2.3.10** **Standard**	***Lighting*** 6.2.3.10 In the case of an object to be lighted, one or more low-, medium- or high-intensity obstacle lights shall be located as close as practicable to the top of the object. *Note.— Recommendations on how a combination of low-, medium- and/or high-intensity lights on obstacles should be displayed are given in Appendix 5.*	AC139-6, 6.3.13.	No Difference		
Chapter 6 Reference **6.2.3.11** **Recommendation**	6.2.3.11 **Recommendation.—** *In the case of chimney or other structure of like function, the top lights should be placed sufficiently below the top so as to minimize contamination by smoke, etc. (See Figure 6-2).*	AC139-6, 6.3.14.	No Difference		
Chapter 6 Reference **6.2.3.12** **Standard**	6.2.3.12 In the case of a tower or antenna structure indicated by high-intensity obstacle lights by day with an appurtenance, such as a rod or an antenna, greater than 12 m where it is not practicable to locate a high-intensity obstacle light on the top of the appurtenance, such a light shall be located at the highest practicable point and, if practicable, a medium-intensity obstacle light, Type A, mounted on the top.	AC139-6, 6.3.15.	No Difference		

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Chapter 6 Reference **6.2.3.13** **Standard**	6.2.3.13 In the case of an extensive object or of a group of closely spaced objects to be lighted that are: a) penetrating a horizontal obstacle limitation surface (OLS) or located outside an OLS, the top lights shall be so arranged as to at least indicate the points or edges of the object highest in relation to the obstacle limitation surface or above the ground, and so as to indicate the general definition and the extent of the objects; and b) penetrating a sloping OLS, the top lights shall be so arranged as to at least indicate the points or edges of the object highest in relation to the OLS, and so as to indicate the general definition and the extent of the objects. If two or more edges are of the same height, the edge nearest the landing area shall be marked.	AC139-6, 6.3.16.	No Difference		
Chapter 6 Reference **6.2.3.14** **Recommendation**	6.2.3.14 **Recommendation.—** *When the obstacle limitation surface concerned is sloping and the highest point above the OLS is not the highest point of the object, additional obstacle lights should be placed on the highest point of the object.*	AC139-6, 6.3.17.	No Difference		
Chapter 6 Reference **6.2.3.15** **Standard**	6.2.3.15 Where lights are applied to display the general definition of an extensive object or a group of closely spaced objects, and a) low-intensity lights are used, they shall be spaced at longitudinal intervals not exceeding 45 m; and b) medium-intensity lights are used, they shall be spaced at longitudinal intervals not exceeding 900 m.	AC139-6, 6.3.16.	No Difference		

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Chapter 6 Reference **6.2.3.16** **Standard**	6.2.3.16 High-intensity obstacle lights, Type A, and medium-intensity obstacle lights, Types A and B, located on an object shall flash simultaneously.	AC139-6, 6.2.33.	Less protective or partially implemented or not implemented	Only high-intensity llights are mentioned.	
Chapter 6 Reference **6.2.3.17** **Recommendation**	6.2.3.17 **Recommendation.—** *The installation setting angles for high-intensity obstacle lights, Type A, should be in accordance with Table 6-5.* *Note.— High-intensity obstacle lights are intended for day use as well as night use. Care is needed to ensure that these lights do not create disconcerting dazzle. Guidance on the design, location and operation of high-intensity obstacle lights is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 6.3.23 and Table 6-1.	No Difference		
Chapter 6 Reference **6.2.3.18** **Recommendation**	6.2.3.18 **Recommendation.—** *Where, in the opinion of the appropriate authority, the use of high-intensity obstacle lights, Type A, or medium-intensity obstacle lights, Type A, at night may dazzle pilots in the vicinity of an aerodrome (within approximately 10 000 m radius) or cause significant environmental concerns, a dual obstacle lighting system should be provided. This system should be composed of high-intensity obstacle lights, Type A, or medium-intensity obstacle lights, Type A, as appropriate, for daytime and twilight use and medium-intensity obstacle lights, Type B or C, for night-time use.*	AC139-6, 6.3.12.	No Difference		

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Chapter 6 Reference **6.2.3.19** **Recommendation**	***Lighting of objects with a height less than 45 m above ground level*** 6.2.3.19 **Recommendation.—** *Low-intensity obstacle lights, Type A or B, should be used where the object is a less extensive one and its height above the surrounding ground is less than 45 m.*	AC139-6, 6.3.4.	No Difference		
Chapter 6 Reference **6.2.3.20** **Recommendation**	6.2.3.20 **Recommendation.—** *Where the use of low-intensity obstacle lights, Type A or B, would be inadequate or an early special warning is required, then medium- or high-intensity obstacle lights should be used.*	AC139-6, 6.3.5.	No Difference		
Chapter 6 Reference **6.2.3.21** **Recommendation**	6.2.3.21 **Recommendation.—** *Low-intensity obstacle lights, Type B, should be used either alone or in combination with medium-intensity obstacle lights, Type B, in accordance with 6.2.3.22.*	AC139-6, 6.3.8.	No Difference		
Chapter 6 Reference **6.2.3.22** **Recommendation**	6.2.3.22 **Recommendation.—** *Medium-intensity obstacle lights, Type A, B or C, should be used where the object is an extensive one. Medium-intensity obstacle lights, Types A and C, should be used alone, whereas medium-intensity obstacle lights, Type B, should be used either alone or in combination with low-intensity obstacle lights, Type B.* *Note.— A group of buildings is regarded as an extensive object.*	AC139-6, 6.3.9.	No Difference		

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Chapter 6 Reference **6.2.3.23** **Recommendation**	***Lighting of objects with a height 45 m to a height less than 150 m above ground level*** 6.2.3.23 **Recommendation.—** *Medium-intensity obstacle lights, Type A, B or C, should be used. Medium-intensity obstacle lights, Types A and C, should be used alone, whereas medium-intensity obstacle lights, Type B, should be used either alone or in combination with low-intensity obstacle lights, Type B.*	AC139-6, 6.3.9.	No Difference		
Chapter 6 Reference **6.2.3.24** **Standard**	6.2.3.24 Where an object is indicated by medium-intensity obstacle lights, Type A, and the top of the object is more than 105 m above the level of the surrounding ground or the elevation of tops of nearby buildings (when the object to be marked is surrounded by buildings), additional lights shall be provided at intermediate levels. These additional intermediate lights shall be spaced as equally as practicable, between the top lights and ground level or the level of tops of nearby buildings, as appropriate, with the spacing not exceeding 105 m.	AC139-6, 6.3.18.	No Difference		
Chapter 6 Reference **6.2.3.25** **Standard**	6.2.3.25 Where an object is indicated by medium-intensity obstacle lights, Type B, and the top of the object is more than 45 m above the level of the surrounding ground or the elevation of tops of nearby buildings (when the object to be marked is surrounded by buildings), additional lights shall be provided at intermediate levels. These additional intermediate lights shall be alternately low-intensity obstacle lights, Type B, and medium-intensity obstacle lights, Type B, and shall be spaced as equally as practicable between the top lights and ground level or the level of tops of nearby buildings, as appropriate, with the spacing not exceeding 52 m.	AC139-6, 6.3.19.	No Difference		

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Chapter 6 Reference **6.2.3.26** **Standard**	6.2.3.26 Where an object is indicated by medium-intensity obstacle lights, Type C, and the top of the object is more than 45 m above the level of the surrounding ground or the elevation of tops of nearby buildings (when the object to be marked is surrounded by buildings), additional lights shall be provided at intermediate levels. These additional intermediate lights shall be spaced as equally as practicable, between the top lights and ground level or the level of tops of nearby buildings, as appropriate, with the spacing not exceeding 52 m.	AC139-6, 6.3.20.	No Difference		
Chapter 6 Reference **6.2.3.27** **Standard**	6.2.3.27 Where high-intensity obstacle lights, Type A, are used, they shall be spaced at uniform intervals not exceeding 105 m between the ground level and the top light(s) specified in 6.2.3.10, except that where an object to be marked is surrounded by buildings, the elevation of the tops of the buildings may be used as the equivalent of the ground level when determining the number of light levels.	AC139-6, 6.3.21.	No Difference		
Chapter 6 Reference **6.2.3.28** **Recommendation**	***Lighting of objects with a height 150 m or more above ground level*** 6.2.3.28 **Recommendation.—** *High-intensity obstacle lights, Type A, should be used to indicate the presence of an object if its height above the level of the surrounding ground exceeds 150 m and an aeronautical study indicates such lights to be essential for the recognition of the object by day*.	AC139-6, 6.3.10.	No Difference		
Chapter 6 Reference **6.2.3.29** **Standard**	6.2.3.29 Where high-intensity obstacle lights, Type A, are used, they shall be spaced at uniform intervals not exceeding 105 m between the ground level and the top light(s) specified in 6.2.3.10, except that where an object to be marked is surrounded by buildings, the elevation of the tops of the buildings may be used as the equivalent of the ground level when determining the number of light levels.	AC139-6, 6.3.21.	No Difference		

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Chapter 6 Reference **6.2.3.30** **Standard**	6.2.3.30 **Recommendation.—** *Where, in the opinion of the appropriate authority, the use of high-intensity obstacle lights, Type A, at night may dazzle pilots in the vicinity of an aerodrome (within approximately 10 000 m radius) or cause significant environmental concerns, medium-intensity obstacle lights, Type C, should be used alone, whereas medium-intensity obstacle lights, Type B, should be used either alone or in combination with low-intensity obstacle lights, Type B.*	AC139-6, 6.3.12.	No Difference		
Chapter 6 Reference **6.2.3.31** **Standard**	6.2.3.31 Where an object is indicated by medium-intensity obstacle lights, Type A, additional lights shall be provided at intermediate levels. These additional intermediate lights shall be spaced as equally as practicable, between the top lights and ground level or the level of tops of nearby buildings, as appropriate, with the spacing not exceeding 105 m.	AC139-6, 6.3.18.	No Difference		
Chapter 6 Reference **6.2.3.32** **Standard**	6.2.3.32 Where an object is indicated by medium-intensity obstacle lights, Type B, additional lights shall be provided at intermediate levels. These additional intermediate lights shall be alternately low-intensity obstacle lights, Type B, and medium-intensity obstacle lights, Type B, and shall be spaced as equally as practicable between the top lights and ground level or the level of tops of nearby buildings, as appropriate, with the spacing not exceeding 52 m.	AC139-6, 6.3.19.	No Difference		
Chapter 6 Reference **6.2.3.33** **Standard**	6.2.3.33 Where an object is indicated by medium-intensity obstacle lights, Type C, additional lights shall be provided at intermediate levels. These additional intermediate lights shall be spaced as equally as practicable, between the top lights and ground level or the level of tops of nearby buildings, as appropriate, with the spacing not exceeding 52 m.	AC139-6, 6.3.20.	No Difference		

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Chapter 6 Reference **6.2.4.1** **Standard**	6.2.4 Wind turbines 6.2.4.1 A wind turbine shall be marked and/or lighted if it is determined to be an obstacle. *Note 1.— Additional lighting or markings may be provided where in the opinion of the State such lighting or markings are deemed necessary.* *Note 2.— See 4.3.1 and 4.3.2*	CAR Part 77, Appendix B, B.2(b).	No Difference		
Chapter 6 Reference **6.2.4.2** **Recommendation**	***Markings*** 6.2.4.2 **Recommendation.—** *The rotor blades, nacelle and upper 2/3 of the supporting mast of wind turbines should be painted white, unless otherwise indicated by an aeronautical study.*	No specific reference, but standard practice.	No Difference		Note: entire structure is white in all cases.

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Chapter 6 Reference **6.2.4.3** **Recommendation**	***Lighting*** 6.2.4.3 **Recommendation.—** *When lighting is deemed necessary, in the case of a wind farm, i.e. a group of two or more wind turbines, the wind farm should be regarded as an extensive object and the lights should be installed:* *a) to identify the perimeter of the wind farm;* *b) respecting the maximum spacing, in accordance with 6.2.3.15, between the lights along the perimeter, unless a dedicated assessment shows that a greater spacing can be used;* *c) so that, where flashing lights are used, they flash simultaneously throughout the wind farm;* *d) so that, within a wind farm, any wind turbines of significantly higher elevation are also identified wherever they are located; and* *e) at locations prescribed in a), b) and d), respecting the following criteria:* *i) for wind turbines of less than 150 m in overall height (hub height plus vertical blade height), medium-intensity lighting on the nacelle should be provided;* *ii) for wind turbines from 150 m to 315 m in overall height, in addition to the medium-intensity light installed on the nacelle, a second light serving as an alternate should be provided in case of failure of the operating light. The lights should be installed to assure that the output of either light is not blocked by the other; and*	CAR Part 77, Appendix B, B.8(g); AC139-6, 6.3.	No Difference		

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	iii) in addition, for wind turbines from 150 m to 315 m in overall height, an intermediate level at half the nacelle height of at least three low-intensity Type E lights, as specified in 6.2.1.3, should be provided. If an aeronautical study shows that low-intensity Type E lights are not suitable, low-intensity Type A or B lights may be used. *Note.— The above 6.2.4.3 e) does not address wind turbines of more than 315 m of overall height. For such wind turbines, additional marking and lighting may be required as determined by an aeronautical study.*				
Chapter 6 Reference **6.2.4.4** **Recommendation**	6.2.4.4 **Recommendation.—** *The obstacle lights should be installed on the nacelle in such a manner as to provide an unobstructed view for aircraft approaching from any direction.*	CAR Part 77, Appendix B, B.8(a); AC139-6, 6.3.	No Difference		
Chapter 6 Reference **6.2.4.5** **Recommendation**	6.2.4.5 **Recommendation.—** *Where lighting is deemed necessary for a single wind turbine or short line of wind turbines, the installation should be in accordance with 6.2.4.3 e) or as determined by an aeronautical study.*	AC139-6, Ch 6.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 6 Reference **6.2.5.1** **Recommendation**	6.2.5 Overhead wires, cables, etc., and supporting towers ***Marking*** 6.2.5.1 **Recommendation.—** *The wires, cables, etc., to be marked should be equipped with markers; the supporting tower should be coloured.*	AC139-6, 6.1.9.	No Difference		

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Chapter 6 Reference **6.2.5.2** **Recommendation**	***Marking by colours*** 6.2.5.2 **Recommendation.—** *The supporting towers of overhead wires, cables, etc., that require marking should be marked in accordance with 6.2.3.1 to 6.2.3.4, except that the marking of the supporting towers may be omitted when they are lighted by high-intensity obstacle lights by day.*	AC139-6, 6.1.9.	No Difference		
Chapter 6 Reference **6.2.5.3** **Standard**	***Marking by markers*** 6.2.5.3 Markers displayed on or adjacent to objects shall be located in conspicuous positions so as to retain the general definition of the object and shall be recognizable in clear weather from a distance of at least 1 000 m for an object to be viewed from the air and 300 m for an object to be viewed from the ground in all directions in which an aircraft is likely to approach the object. The shape of markers shall be distinctive to the extent necessary to ensure that they are not mistaken for markers employed to convey other information, and they shall be such that the hazard presented by the object they mark is not increased.	AC139-6, 6.2.12.	No Difference		
Chapter 6 Reference **6.2.5.4** **Recommendation**	6.2.5.4 **Recommendation.—** *A marker displayed on an overhead wire, cable, etc., should be spherical and have a diameter of not less than 60 cm.*	AC139-6, 6.2.13.	No Difference		

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Chapter 6 Reference **6.2.5.5** **Recommendation**	6.2.5.5 **Recommendation.—** *The spacing between two consecutive markers or between a marker and a supporting tower should be appropriate to the diameter of the marker, but in no case should the spacing exceed:* *a) 30 m where the marker diameter is 60 cm progressively increasing with the diameter of the marker to* *b) 35 m where the marker diameter is 80 cm and further progressively increasing to a maximum of* *c) 40 m where the marker diameter is of at least 130 cm.* *Where multiple wires, cables, etc., are involved, a marker should be located not lower than the level of the highest wire at the point marked.*	AC139-6, 6.2.14 and 6.2.15.	No Difference		
Chapter 6 Reference **6.2.5.6** **Recommendation**	6.2.5.6 **Recommendation.—** *A marker should be of one colour. When installed, white and red, or white and orange markers should be displayed alternately. The colour selected should contrast with the background against which it will be seen.*	AC139-6, 6.2.16.	No Difference		
Chapter 6 Reference **6.2.5.7** **Recommendation**	6.2.5.7 **Recommendation.—** *When it has been determined that an overhead wire, cable, etc., needs to be marked but it is not practicable to install markers on the wire, cable, etc., then high-intensity obstacle lights, Type B, should be provided on their supporting towers.*	AC139-6, 6.1.10.	No Difference		

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Chapter 6 Reference **6.2.5.8** **Recommendation**	***Lighting*** 6.2.5.8 **Recommendation.—** *High-intensity obstacle lights, Type B, should be used to indicate the presence of a tower supporting overhead wires, cables, etc., where:* *a) an aeronautical study indicates such lights to be essential for the recognition of the presence of wires, cables, etc.; or* *b) it has not been found practicable to install markers on the wires, cables, etc.*	AC139-6, 6.3.11.	No Difference		
Chapter 6 Reference **6.2.5.9** **Standard**	6.2.5.9 Where high-intensity obstacle lights, Type B, are used, they shall be located at three levels: — at the top of the tower; — at the lowest level of the catenary of the wires or cables; and — at approximately midway between these two levels. *Note.— In some cases, this may require locating the lights off the tower.*	AC139-6, 6.3.22.	No Difference		

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Chapter 6 Reference **6.2.5.10** **Recommendation**	6.2.5.10 **Recommendation.—** *High-intensity obstacle lights, Type B, indicating the presence of a tower supporting overhead wires, cables, etc., should flash sequentially; first the middle light, second the top light and last, the bottom light. The intervals between flashes of the lights should approximate the following ratios:* *Note.— High-intensity obstacle lights are intended for day use as well as night use. Care is needed to ensure that these lights do not create disconcerting dazzle. Guidance on the design, operation and the location of high-intensity obstacle lights is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 6.3.34.	No Difference		
Chapter 6 Reference **6.2.5.11** **Recommendation**	6.2.5.11 **Recommendation.—** *Where, in the opinion of the appropriate authority, the use of high-intensity obstacle lights, Type B, at night may dazzle pilots in the vicinity of an aerodrome (within approximately 10 000 m radius) or cause significant environmental concerns, a dual obstacle lighting system should be provided. This system should be composed of high-intensity obstacle lights, Type B, for daytime and twilight use and medium-intensity obstacle lights, Type B, for night-time use. Where medium-intensity lights are used they should be installed at the same level as the high-intensity obstacle light Type B.*	AC139-6, 6.3.12.	No Difference		

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Chapter 6 Reference **6.2.5.12** **Recommendation**	6.2.5.12 ***Recommendation.—*** *The installation setting angles for high-intensity obstacle lights, Type B, should be in accordance with Table 6-5.* **Table 6-5. Installation setting angles for high-intensity obstacle lights**	AC139-6, 6.3.23and Table 6-1.	No Difference		
Chapter 7 Reference **7.1.1** **Standard**	**CHAPTER 7. VISUAL AIDS FOR DENOTING RESTRICTED USE AREAS** **7.1 Closed runways and taxiways, or parts thereof** ***Application*** 7.1.1 A closed marking shall be displayed on a runway or taxiway or portion thereof which is permanently closed to the use of all aircraft.	CAR Part 139, App G, G.1.	No Difference		
Chapter 7 Reference **7.1.2** **Recommendation**	7.1.2 **Recommendation.—** *A closed marking should be displayed on a temporarily closed runway or taxiway or portion thereof, except that such marking may be omitted when the closing is of short duration and adequate warning by air traffic services is provided.*	AC139-6, 7.1.2.	No Difference		

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Chapter 7 Reference **7.1.3** **Standard**	***Location*** 7.1.3 On a runway a closed marking shall be placed at each end of the runway, or portion thereof, declared closed, and additional markings shall be so placed that the maximum interval between markings does not exceed 300 m. On a taxiway a closed marking shall be placed at least at each end of the taxiway or portion thereof closed.	AC139-6, 7.1.3.	No Difference		
Chapter 7 Reference **7.1.4** **Standard**	***Characteristics*** 7.1.4 The closed marking shall be of the form and proportions as detailed in Figure 7-1, Illustration a), when displayed on a runway, and shall be of the form and proportions as detailed in Figure 7-1, Illustration b), when displayed on a taxiway. The marking shall be white when displayed on a runway and shall be yellow when displayed on a taxiway. *Note 1.— When an area is temporarily closed, frangible barriers or markings utilizing materials other than paint or other suitable means may be used to identify the closed area.* *Note 2.— Procedures pertaining to the planning, coordination, monitoring and safety management of works in progress on the movement area are specified in the PANS-Aerodromes (Doc 9981).*	AC139-6, 7.1.4.	No Difference		
Chapter 7 Reference **7.1.5** **Standard**	7.1.5 When a runway or taxiway or portion thereof is permanently closed, all normal runway and taxiway markings shall be obliterated.	AC139-6, 7.1.5.	No Difference		

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Chapter 7 Reference **7.1.6** **Standard**	7.1.6 Lighting on a closed runway or taxiway or portion thereof shall not be operated, except as required for maintenance purposes.	AC139-6, 7.1.5.	No Difference		
Chapter 7 Reference **7.1.7** **Standard**	7.1.7 In addition to closed markings, when the runway or taxiway or portion thereof closed is intercepted by a usable runway or taxiway which is used at night, unserviceability lights shall be placed across the entrance to the closed area at intervals not exceeding 3 m (see 7.4.4). **Figure 7-1. Closed runway and taxiway markings**	AC139-6, 7.1.6.	No Difference		
Chapter 7 Reference **7.2.1** **Standard**	**7.2 Non-load-bearing surfaces** ***Application*** 7.2.1 Shoulders for taxiways, runway turn pads, holding bays and aprons and other non-load-bearing surfaces which cannot readily be distinguished from load-bearing surfaces and which, if used by aircraft, might result in damage to the aircraft shall have the boundary between such areas and the load-bearing surface marked by a taxi side stripe marking. *Note.— The marking of runway sides is specified in 5.2.7.*	CAR Part 139, App G, G.2.	No Difference		

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Chapter 7 Reference **7.2.2** **Recommendation**	***Location*** 7.2.2 **Recommendation.—** *A taxi side stripe marking should be placed along the edge of the load-bearing pavement, with the outer edge of the marking approximately on the edge of the load-bearing pavement.*	AC139-6, 7.2.2.	No Difference		
Chapter 7 Reference **7.2.3** **Recommendation**	***Characteristics*** 7.2.3 **Recommendation.—** *A taxi side stripe marking should consist of a pair of solid lines, each 15 cm wide and spaced 15 cm apart and the same colour as the taxiway centre line marking.* *Note.— Guidance on providing additional transverse stripes at an intersection or a small area on the apron is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 7.2.3.	No Difference		
Chapter 7 Reference **7.3.1** **Recommendation**	**7.3 Pre-threshold area** ***Application*** 7.3.1 **Recommendation.—** *When the surface before a threshold is paved and exceeds 60 m in length and is not suitable for normal use by aircraft, the entire length before the threshold should be marked with a chevron marking.*	AC139-6, 7.3.1.	No Difference		

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Chapter 7 Reference **7.3.2** **Recommendation**	***Location*** 7.3.2 **Recommendation.—** *A chevron marking should point in the direction of the runway and be placed as shown in Figure 7-2.*	AC139-6, 7.3.2.	No Difference		
Chapter 7 Reference **7.3.3** **Recommendation**	***Characteristics*** 7.3.3 **Recommendation.—** *A chevron marking should be of conspicuous colour and contrast with the colour used for the runway markings; it should preferably be yellow. It should have an overall width of at least 0.9 m.*	AC139-6, 7.3.3.	No Difference		

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Chapter 7 Reference **7.4.1** **Standard**	**7.4 Unserviceable areas** ***Application*** 7.4.1 Unserviceability markers shall be displayed wherever any portion of a taxiway, apron or holding bay is unfit for the movement of aircraft but it is still possible for aircraft to bypass the area safely. On a movement area used at night, unserviceability lights shall be used. *Note 1.— Unserviceability markers and lights are used for such purposes as warning pilots of a hole in a taxiway or apron pavement or outlining a portion of pavement, such as on an apron, that is under repair. They are not suitable for use when a portion of a runway becomes unserviceable, nor on a taxiway when a major portion of the width becomes unserviceable. In such instances, the runway or taxiway is normally closed.* *Note 2.— Procedures pertaining to the planning, coordination, monitoring and safety management of works in progress on the movement area are specified in the PANS-Aerodromes (Doc 9981).*	CAR Part 139, App G, G.3.	No Difference		
Chapter 7 Reference **7.4.2** **Standard**	***Location*** 7.4.2 Unserviceability markers and lights shall be placed at intervals sufficiently close so as to delineate the unserviceable area. *Note.— Guidance on the location of unserviceability lights is given in Attachment A, Section 14.*	AC139-6, 7.4.2.	No Difference		

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Chapter 7 Reference **7.4.3** **Standard**	***Characteristics of unserviceability markers*** 7.4.3 Unserviceability markers shall consist of conspicuous upstanding devices such as flags, cones or marker boards.	AC139-6, 7.4.3.	No Difference		
Chapter 7 Reference **7.4.4** **Standard**	***Characteristics of unserviceability lights*** 7.4.4 An unserviceability light shall consist of a red fixed light. The light shall have an intensity sufficient to ensure conspicuity considering the intensity of the adjacent lights and the general level of illumination against which it would normally be viewed. In no case shall the intensity be less than 10 cd of red light.	AC139-6, 7.4.4.	Less protective or partially implemented or not implemented	Either fixed red or yellow flahing. Minimum intensity 5 cd.	
Chapter 7 Reference **7.4.5** **Recommendation**	***Characteristics of unserviceability cones*** 7.4.5 ***Recommendation.****— An unserviceability cone should be at least 0.5 m in height and red, orange or yellow or any one of these colours in combination with white.*	AC139-6, 7.4.5.	No Difference		
Chapter 7 Reference **7.4.6** **Recommendation**	***Characteristics of unserviceability flags*** 7.4.6 **Recommendation.—** *An unserviceability flag should be at least 0.5 m square and red, orange or yellow or any one of these colours in combination with white.*	AC139-6, 7.4.6.	No Difference		

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Chapter 7 Reference **7.4.7** **Recommendation**	***Characteristics of unserviceability marker boards*** 7.4.7 **Recommendation.—** *An unserviceability marker board should be at least 0.5 m in height and 0.9 m in length, with alternate red and white or orange and white vertical stripes.*	AC139-6, 7.4.7.	Different in character or other means of compliance	Marker board should not exceed 0.9 m in witdh. If more than 3 m in length, the stripes are required.	
Chapter 8 Reference **8.1.1** **Standard**	**CHAPTER 8. ELECTRICAL SYSTEMS** **8.1 Electrical power supply systems for air navigation facilities** *Introductory Note.— The safety of operations at aerodromes depends on the quality of the supplied power. The total electrical power supply system may include connections to one or more external sources of electric power supply, one or more local generating facilities and to a distribution network including transformers and switchgear. Many other aerodrome facilities supplied from the same system need to be taken into account while planning the electrical power system at aerodromes.* 8.1.1 Adequate primary power supply shall be available at aerodromes for the safe functioning of air navigation facilities.	CAR Part 139, App H, H.1(a).	No Difference		

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Chapter 8 Reference **8.1.2** **Standard**	8.1.2 The design and provision of electrical power systems for aerodrome visual and radio navigation aids shall be such that an equipment failure will not leave the pilot with inadequate visual and non-visual guidance or misleading information. *Note.— The design and installation of the electrical systems need to take into consideration factors that can lead to malfunction, such as electromagnetic disturbances, line losses, power quality, etc. Additional guidance is given in the* Aerodrome Design Manual *(Doc 9157), Part 5.*	CAR Part 139, App H, H.1(b).	No Difference		
Chapter 8 Reference **8.1.3** **Recommendation**	8.1.3 **Recommendation.—** *Electric power supply connections to those facilities for which secondary power is required should be so arranged that the facilities are automatically connected to the secondary power supply on failure of the primary source of power.*	AC139-6, 8.1.2.	No Difference		
Chapter 8 Reference **8.1.4** **Recommendation**	8.1.4 **Recommendation.—** *The time interval between failure of the primary source of power and the complete restoration of the services required by 8.1.10 should be as short as practicable, except that for visual aids associated with non-precision, precision approach or take-off runways the requirements of Table 8-1 for maximum switch-over times should apply.* *Note.— A definition of switch-over time is given in Chapter 1.*	AC139-6, 8.1.3 and Part 139, Appendix H, Table H-1.	No Difference		

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Chapter 8 Reference **8.1.5** **Standard**	8.1.5 The provision of a definition of switch-over time shall not require the replacement of an existing secondary power supply before 1 January 2010. However, for a secondary power supply installed after 4 November 1999, the electric power supply connections to those facilities for which secondary power is required shall be so arranged that the facilities are capable of meeting the requirements of Table 8-1 for maximum switch-over times as defined in Chapter 1.	AC139-6, Table 8-1.	No Difference		
Chapter 8 Reference **8.1.6** **Standard**	***Visual aids*** ***Application*** 8.1.6 For a precision approach runway, a secondary power supply capable of meeting the requirements of Table 8-1 for the appropriate category of precision approach runway shall be provided. Electric power supply connections to those facilities for which secondary power is required shall be so arranged that the facilities are automatically connected to the secondary power supply on failure of the primary source of power.	CAR Part 139, App H, H.2(a).	No Difference		
Chapter 8 Reference **8.1.7** **Standard**	8.1.7 For a runway meant for take-off in runway visual range conditions less than a value of 800 m, a secondary power supply capable of meeting the relevant requirements of Table 8-1 shall be provided.	CAR Part 139, App H, H.2(b).	No Difference		

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Chapter 8 Reference **8.1.8** **Recommendation**	8.1.8 **Recommendation.—** *At an aerodrome where the primary runway is a non-precision approach runway, a secondary power supply capable of meeting the requirements of Table 8-1 should be provided except that a secondary power supply for visual aids need not be provided for more than one non-precision approach runway.*	AC139-6, 8.1.6.	No Difference		
Chapter 8 Reference **8.1.9** **Recommendation**	8.1.9 **Recommendation.—** *At an aerodrome where the primary runway is a non-instrument runway, a secondary power supply capable of meeting the requirements of 8.1.4 should be provided, except that a secondary power supply for visual aids need not be provided when an emergency lighting system in accordance with the specification of 5.3.2 is provided and capable of being deployed in 15 minutes.*	AC139-6, 8.1.5.	No Difference		

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Chapter 8 Reference **8.1.10** **Recommendation**	8.1.10 **Recommendation.—** *The following aerodrome facilities should be provided with a secondary power supply capable of supplying power when there is a failure of the primary power supply:* *a) the signalling lamp and the minimum lighting necessary to enable air traffic services personnel to carry out their duties;* *Note.— The requirement for minimum lighting may be met by other than electrical means.* *b) all obstacle lights which, in the opinion of the appropriate authority, are essential to ensure the safe operation of aircraft;* *c) approach, runway and taxiway lighting as specified in 8.1.6 to 8.1.9;* *d) meteorological equipment;* *e) essential security lighting, if provided in accordance with 9.11;* *f) essential equipment and facilities for the aerodrome responding emergency agencies;* *g) floodlighting on a designated isolated aircraft parking position if provided in accordance with 5.3.24.1; and* *h) illumination of apron areas over which passengers may walk.* *Note.— Specifications for secondary power supply for radio navigation aids and ground elements of communications systems are given in Annex 10, Volume I,*	AC139-6, 8.1.1.	Less protective or partially implemented or not implemented	Items e) and h) not specified.	

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
	Chapter 2.				
Chapter 8 Reference **8.1.11** **Recommendation**	8.1.11 **Recommendation.—** *Requirements for a secondary power supply should be met by either of the following:* — *independent public power, which is a source of power supplying the aerodrome service from a substation other than the normal substation through a transmission line following a route different from the normal power supply route and such that the possibility of a simultaneous failure of the normal and independent public power supplies is extremely remote; or* — *standby power unit(s), which are engine generators, batteries, etc., from which electric power can be obtained.* *Note.— Guidance on electrical systems is included in the* Aerodrome Design Manual *(Doc 9157), Part 5.* **Table 8-1. Secondary power supply requirements** *(see 8.1.4)*	AC139-6, 8.1.4.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Chapter 8 Reference **8.2.1** **Standard**	**8.2 System design** 8.2.1 For a runway meant for use in runway visual range conditions less than a value of 550 m, the electrical systems for the power supply, lighting and control of the lighting systems included in Table 8-1 shall be so designed that an equipment failure will not leave the pilot with inadequate visual guidance or misleading information. *Note.— Guidance on means of providing this protection is given in the* Aerodrome Design Manu*al (Doc 9157), Part 5.*	CAR Part 139, App H, H.3(a).	No Difference		
Chapter 8 Reference **8.2.2** **Standard**	8.2.2 Where the secondary power supply of an aerodrome is provided by the use of duplicate feeders, such supplies shall be physically and electrically separate so as to ensure the required level of availability and independence.	CAR Part 139, App H, H.3(b).	No Difference		
Chapter 8 Reference **8.2.3** **Standard**	8.2.3 Where a runway forming part of a standard taxi-route is provided with runway lighting and taxiway lighting, the lighting systems shall be interlocked to preclude the possibility of simultaneous operation of both forms of lighting.	CAR Part 139, App H, H.3.(c).	No Difference		
Chapter 8 Reference **8.3.1** **Recommendation**	**8.3 Monitoring** *Note.— Guidance on this subject is given in the* Aerodrome Design Manual *(Doc 9157), Part 5.* 8.3.1 **Recommendation.—** *A system of monitoring should be employed to indicate the operational status of the lighting systems.*	AC139-6, 8.3.1.	No Difference		

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Chapter 8 Reference **8.3.2** **Standard**	8.3.2 Where lighting systems are used for aircraft control purposes, such systems shall be monitored automatically so as to provide an indication of any fault which may affect the control functions. This information shall be automatically relayed to the air traffic services unit.	CAR Part 139, App H, H.4.	No Difference		
Chapter 8 Reference **8.3.3** **Recommendation**	8.3.3 **Recommendation.—** *Where a change in the operational status of lights has occurred, an indication should be provided within two seconds for a stop bar at a runway-holding position and within five seconds for all other types of visual aids.*	CAR Part 139, Appendix H, Table H-1.	Different in character or other means of compliance	The switch-over times vary according to the type of runway. For a precision approach category II/III runway the times are 1 second for the inner 300 m of the approach lights, all runway lights, and all stop bars. All others (eg, obstacles, essential taxiways) 15 seconds.	
Chapter 8 Reference **8.3.4** **Recommendation**	8.3.4 **Recommendation.—** *For a runway meant for use in runway visual range conditions less than a value of 550 m, the lighting systems detailed in Table 8-1 should be monitored automatically so as to provide an indication when the serviceability level of any element falls below the minimum serviceability level specified in 10.5.7 to 10.5.11, as appropriate. This information should be automatically relayed to the maintenance crew.*	AC139-6, 8.3.3.	No Difference		

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Chapter 8 Reference **8.3.5** **Recommendation**	8.3.5 **Recommendation.—** *For a runway meant for use in runway visual range conditions less than a value of 550 m, the lighting systems detailed in Table 8-1 should be monitored automatically to provide an indication when the serviceability level of any element falls below the minimum level specified by the appropriate authority below which operations should not continue. This information should be automatically relayed to the air traffic services unit and displayed in a prominent position.* *Note.— Guidance on air traffic control interface and visual aids monitoring is included in the* Aerodrome Design Manual *(Doc 9157), Part 5.*	AC139-6, 8.3.4.	No Difference		

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Chapter 9 Reference **9.1.1** **Standard**	**CHAPTER 9. AERODROME OPERATIONAL SERVICES, EQUIPMENT AND INSTALLATIONS** **9.1 Aerodrome emergency planning** ***General*** *Introductory Note.— Aerodrome emergency planning is the process of preparing an aerodrome to cope with an emergency occurring at the aerodrome or in its vicinity. The objective of aerodrome emergency planning is to minimize the effects of an emergency, particularly in respect of saving lives and maintaining aircraft operations. The aerodrome emergency plan sets forth the procedures for coordinating the response of different aerodrome agencies (or services) and of those agencies in the surrounding community that could be of assistance in responding to the emergency. Guidance material to assist the appropriate authority in establishing aerodrome emergency planning is given in the* Airport Services Manual *(Doc 9137), Part 7.* 9.1.1 An aerodrome emergency plan shall be established at an aerodrome, commensurate with the aircraft operations and other activities conducted at the aerodrome.	CAR 139.57.	No Difference		

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Chapter 9 Reference **9.1.2** **Standard**	9.1.2 The aerodrome emergency plan shall provide for the coordination of the actions to be taken in an emergency occurring at an aerodrome or in its vicinity. *Note 1.— Examples of emergencies are: aircraft emergencies, sabotage including bomb threats, unlawfully seized aircraft, dangerous goods occurrences, building fires, natural disaster and public health emergencies.* *Note 2.— Examples of public health emergencies are increased risk of travellers or cargo spreading a serious communicable disease internationally through air transport and severe outbreak of a communicable disease potentially affecting a large proportion of aerodrome staff.*	CAR 139.57.	No Difference		
Chapter 9 Reference **9.1.3** **Standard**	9.1.3 The plan shall coordinate the response or participation of all existing agencies which, in the opinion of the appropriate authority, could be of assistance in responding to an emergency. *Note 1.— Examples of agencies are:* *— on the aerodrome: air traffic control units, rescue and firefighting services, aerodrome administration, medical and ambulance services, aircraft operators, security services, and police;* *— off the aerodrome: fire departments, police, health authorities (including medical, ambulance, hospital and public health services), military, and harbour patrol or coast guard.* *Note 2.— Public health services include planning to minimize adverse effects to the community from health-related events and deal with population health issues rather than provision of health services to individuals.*	CAR 139.57(c); AC139-14, B.5.	No Difference		

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Chapter 9 Reference **9.1.4** **Recommendation**	9.1.4 **Recommendation.—** *The plan should provide for cooperation and coordination with the rescue coordination centre, as necessary.*	AC139-14, 2.3.4.	No Difference		
Chapter 9 Reference **9.1.5** **Recommendation**	9.1.5 **Recommendation.—** *The aerodrome emergency plan document should include at least the following:* a) *types of emergencies planned for;* b) *agencies involved in the plan;* c) *responsibility and role of each agency, the emergency operations centre and the command post, for each type of emergency;* d) *information on names and telephone numbers of offices or people to be contacted in the case of a particular emergency; and* e) *a grid map of the aerodrome and its immediate vicinity.*	CAR 139.57(b).	No Difference		

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Chapter 9 Reference **9.1.6** **Standard**	9.1.6 The plan shall observe human factors principles to ensure optimum response by all existing agencies participating in emergency operations. *Note 1.— Guidance material on human factors principles can be found in the* Human Factors Training Manual *(Doc 9683).* *Note 2.— General principles and procedures on the training of aerodrome personnel, including training programmes and competence checks, are specified in the PANS-Aerodromes (Doc 9981).*	AC139-14, 2.3.4.	No Difference		
Chapter 9 Reference **9.1.7** **Recommendation**	***Emergency operations centre and command post*** 9.1.7 **Recommendation.—** *A fixed emergency operations centre and a mobile command post should be available for use during an emergency.*	CAR 139.57(b)(5).	No Difference		
Chapter 9 Reference **9.1.8** **Recommendation**	9.1.8 **Recommendation.—** *The emergency operations centre should be a part of the aerodrome facilities and should be responsible for the overall coordination and general direction of the response to an emergency.*	AC139-14, 2.3.5.	No Difference		
Chapter 9 Reference **9.1.9** **Recommendation**	9.1.9 **Recommendation.—** *The command post should be a facility capable of being moved rapidly to the site of an emergency, when required, and should undertake the local coordination of those agencies responding to the emergency.*	AC139-14, 2.3.5.	No Difference		

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Chapter 9 Reference **9.1.10** **Recommendation**	9.1.10 **Recommendation.—** *A person should be assigned to assume control of the emergency operations centre and, when appropriate, another person the command post.*	AC139-14, 2.3.5.	No Difference		
Chapter 9 Reference **9.1.11** **Recommendation**	***Communication system*** 9.1.11 **Recommendation.—** *Adequate communication systems linking the command post and the emergency operations centre with each other and with the participating agencies should be provided in accordance with the plan and consistent with the particular requirements of the aerodrome.*	AC139-14, B.5.1.	No Difference		
Chapter 9 Reference **9.1.12** **Standard**	***Aerodrome emergency exercise*** 9.1.12 The plan shall contain procedures for periodic testing of the adequacy of the plan and for reviewing the results in order to improve its effectiveness. *Note.— The plan includes all participating agencies and associated equipment.*	CAR 139.109.	No Difference		

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Chapter 9 Reference **9.1.13** **Standard**	9.1.13 The plan shall be tested by conducting: a) a full-scale aerodrome emergency exercise at intervals not exceeding two years and partial emergency exercises in the intervening year to ensure that any deficiencies found during the full-scale aerodrome emergency exercise have been corrected; or b) a series of modular tests commencing in the first year and concluding in a full-scale aerodrome emergency exercise at intervals not exceeding three years; and reviewed thereafter, or after an actual emergency, so as to correct any deficiency found during such exercises or actual emergency. *Note 1.— The purpose of a full-scale exercise is to ensure the adequacy of the plan to cope with different types of emergencies. The purpose of a partial exercise is to ensure the adequacy of the response to individual participating agencies and components of the plan, such as the communications system. The purpose of modular tests is to enable concentrated effort on specific components of established emergency plans.* *Note 2.— Guidance material on airport emergency planning is available in the* Airport Services Manual *(Doc 9137), Part 7.*	CAR 139.109.	No Difference		
Chapter 9 Reference **9.1.14** **Standard**	***Emergencies in difficult environments*** 9.1.14 The plan shall include the ready availability of, and coordination with, appropriate specialist rescue services to be able to respond to emergencies where an aerodrome is located close to water and/or swampy areas and where a significant portion of approach or departure operations takes place over these areas.	CAR 139.109; AC139-4, 5.4; AC139-14, A.3.3.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 9 Reference **9.1.15** **Recommendation**	9.1.15 **Recommendation.—** *At those aerodromes located close to water and/or swampy areas, or difficult terrain, the aerodrome emergency plan should include the establishment, testing and assessment at regular intervals of a predetermined response for the specialist rescue services.*	CAR 139.109; AC139-4, 5.4, second paragraph.	No Difference		
Chapter 9 Reference **9.1.16** **Recommendation**	9.1.16 **Recommendation.—** *An assessment of the approach and departure areas within 1 000 m of the runway threshold should be carried out to determine the options available for intervention.* *Note.— Guidance material on assessing approach and departure areas within 1 000 m of runway thresholds can be found in Chapter 13 of the* Airport Services Manual *(Doc 9137), Part 1.*	AC139-4, 5.4, fifth paragraph.	No Difference		

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Chapter 9 Reference **9.2.1** **Standard**	**9.2 Rescue and firefighting** ***General*** *Introductory Note.— The principal objective of a rescue and firefighting service is to save lives in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome. The rescue and firefighting service is provided to create and maintain survivable conditions, to provide egress routes for occupants and to initiate the rescue of those occupants unable to make their escape without direct aid. The rescue may require the use of equipment and personnel other than those assessed primarily for rescue and firefighting purposes.* *The most important factors bearing on effective rescue in a survivable aircraft accident are: the training received, the effectiveness of the equipment and the speed with which personnel and equipment designated for rescue and firefighting purposes can be put into use.* *Requirements to combat building and fuel farm fires, or to deal with foaming of runways, are not taken into account.* ***Application*** 9.2.1 Rescue and firefighting equipment and services shall be provided at an aerodrome. *Note.— Public or private organizations, suitably located and equipped, may be designated to provide the rescue and firefighting service. It is intended that the fire station housing these organizations be normally located on the aerodrome, although an off-aerodrome location is not precluded provided the response time can be met.*	CAR 139.111.	Different in character or other means of compliance	Required at certificated aerodromes during regular air transport operations by aeroplanes having a certified seating capacity of more than 30 passengers.	

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Chapter 9 Reference **9.2.2** **Standard**	9.2.2 Where an aerodrome is located close to water/swampy areas, or difficult terrain, and where a significant portion of approach or departure operations takes place over these areas, specialist rescue services and firefighting equipment appropriate to the hazard and risk shall be available. *Note 1.— Special firefighting equipment need not be provided for water areas; this does not prevent the provision of such equipment if it would be of practical use, such as when the areas concerned include reefs or islands.* *Note 2.— The objective is to plan and deploy the necessary life-saving flotation equipment as expeditiously as possible in a number commensurate with the largest aeroplane normally using the aerodrome.* *Note 3.— Additional guidance is available in Chapter 13 of the* Airport Services Manual *(Doc 9137), Part 1.*	AC139-4, 5.4.	No Difference		
Chapter 9 Reference **9.2.3** **Standard**	***Level of protection to be provided*** 9.2.3 The level of protection provided at an aerodrome for rescue and firefighting shall be appropriate to the aerodrome category determined using the principles in 9.2.5 and 9.2.6, except that, where the number of movements of the aeroplanes in the highest category normally using the aerodrome is less than 700 in the busiest consecutive three months, the level of protection provided shall be not less than one category below the determined category. *Note.— Either a take-off or a landing constitutes a movement.*	CAR 139.59.	Less protective or partially implemented or not implemented	Not specified	

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Chapter 9 Reference **9.2.4** **Recommendation**	9.2.4 **Recommendation.—** *The level of protection provided at an aerodrome for rescue and firefighting should be equal to the aerodrome category determined using the principles in 9.2.5 and 9.2.6.*	CAR 139.59.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 9 Reference **9.2.5** **Standard**	9.2.5 The aerodrome category shall be determined from Table 9-1 and shall be based on the longest aeroplanes normally using the aerodrome and their fuselage width. *Note.— To categorize the aeroplanes using the aerodrome, first evaluate their overall length and second, their fuselage width.*	CAR 139.59.	No Difference		
Chapter 9 Reference **9.2.6** **Standard**	9.2.6 If, after selecting the category appropriate to the longest aeroplane's overall length, that aeroplane's fuselage width is greater than the maximum width in Table 9-1, column 3, for that category, then the category for that aeroplane shall actually be one category higher. *Note 1.— See guidance in the* Airport Services Manual *(Doc 9137), Part 1, for categorizing aerodromes, including those for all-cargo aircraft operations, for rescue and firefighting purposes.* *Note 2.— Principles and procedures on training, including training programmes and competence checks, are specified in the PANS-Aerodromes (Doc 9981). Further guidance on the training of personnel, rescue equipment for difficult environments, and other facilities and services for rescue and firefighting is given in Attachment A, Section 18, and in the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.59, Table 1.	No Difference		

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Chapter 9 Reference **9.2.7** **Standard**	9.2.7 During anticipated periods of reduced activity, the level of protection available shall be no less than that needed for the highest category of aeroplane planned to use the aerodrome during that time irrespective of the number of movements. **Table 9-1. Aerodrome category for rescue and firefighting**	CAR 139.59, 139.111.	No Difference		
Chapter 9 Reference **9.2.8** **Recommendation**	***Extinguishing agents*** 9.2.8 **Recommendation.—** *Both principal and complementary agents should normally be provided at an aerodrome.* *Note.— Descriptions of the agents may be found in the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.61.	No Difference		

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Chapter 9 Reference **9.2.9** **Recommendation**	9.2.9 **Recommendation.—** *The principal extinguishing agent should be:* *a) a foam meeting the minimum performance level A; or* *b) a foam meeting the minimum performance level B; or* *c) a foam meeting the minimum performance level C; or* *d) a combination of these agents;* *except that the principal extinguishing agent for aerodromes in categories 1 to 3 should preferably meet a performance level B or C foam.* *Note.— Information on the required physical properties and fire extinguishing performance criteria needed for a foam to achieve an acceptable performance level A, B or C rating is given in the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.61 Table 2.	No Difference		
Chapter 9 Reference **9.2.10** **Recommendation**	9.2.10 **Recommendation.—** *The complementary extinguishing agent should be a dry chemical powder suitable for extinguishing hydrocarbon fires.* *Note 1.— When selecting dry chemical powders for use with foam, care must be exercised to ensure compatibility.* *Note 2.— Alternate complementary agents having equivalent firefighting capability may be utilized. Additional information on extinguishing agents is given in the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.61, Table 2.	No Difference		

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Chapter 9 Reference **9.2.11** **Standard**	9.2.11 The amounts of water for foam production and the complementary agents to be provided on the rescue and firefighting vehicles shall be in accordance with the aerodrome category determined under 9.2.3, 9.2.4, 9.2.5, 9.2.6 and Table 9-2, except that for aerodrome categories 1 and 2 up to 100 per cent of the water may be substituted with complementary agent. For the purpose of agent substitution, 1 kg of complementary agent shall be taken as equivalent to 1.0 L of water for production of a foam meeting performance level A. *Note 1.— The amounts of water specified for foam production are predicated on an application rate of 8.2 L/min/m2 for a foam meeting performance level A, 5.5 L/min/m2 for a foam meeting performance level B and 3.75 L/min/m2 for a foam meeting performance level C.* *Note 2.— When any other complementary agent is used, the substitution ratios need to be checked.*	CAR Part 139, Table 2; AC139-4, 6.4.	More Exacting or Exceeds	No provision for substitution, although the equivalent units are given in the AC.	
Chapter 9 Reference **9.2.12** **Recommendation**	9.2.12 **Recommendation.—** *At aerodromes where operations by aeroplanes larger than the average size in a given category are planned, the quantities of water should be recalculated and the amount of water for foam production and the discharge rates for foam solution should be increased accordingly.* *Note.— Guidance on the determination of quantities of water and discharge rates based on the largest theoretical aeroplane in a given category is available in Chapter 2 of the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.59.	Different in character or other means of compliance	Notes 1 and 2 to the rule provide a means to raise the RFF category by 1 for aeroplanes of greater than average size.	

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Chapter 9 Reference **9.2.13** **Standard**	9.2.13 From 1 January 2015, at aerodromes where operations by aeroplanes larger than the average size in a given category are planned, the quantities of water shall be recalculated and the amount of water for foam production and the discharge rates for foam solution shall be increased accordingly. *Note.— Guidance on the determination of quantities of water and discharge rates based on the largest overall length of aeroplane in a given category is available in Chapter 2 of the* Airport Services Manual *(Doc 9137), Part 1.* **Table 9-2. Minimum usable amounts of extinguishing agents**	CAR 139.59.	Different in character or other means of compliance	Notes 1 and 2 to the rule provide a means to raise the RFF category by 1 for aeroplanes of greater than average size.	
Chapter 9 Reference **9.2.14** **Standard**	9.2.14 The quantity of foam concentrates separately provided on vehicles for foam production shall be in proportion to the quantity of water provided and the foam concentrate selected.	AC139-4, 6.4.	No Difference		
Chapter 9 Reference **9.2.15** **Recommendation**	9.2.15 **Recommendation.—** *The amount of foam concentrate provided on a vehicle should be sufficient to produce at least two loads of foam solution.*	AC139-4, 6.5.	No Difference		

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Chapter 9 Reference **9.2.16** **Recommendation**	9.2.16 **Recommendation.—** *Supplementary water supplies, for the expeditious replenishment of rescue and firefighting vehicles at the scene of an aircraft accident, should be provided.*	AC139-4, 6.6.	No Difference		
Chapter 9 Reference **9.2.17** **Recommendation**	9.2.17 **Recommendation.—** *When a combination of different performance level foams are provided at an aerodrome, the total amount of water to be provided for foam production should be calculated for each foam type and the distribution of these quantities should be documented for each vehicle and applied to the overall rescue and firefighting requirement.*	AC139-4, 6.4.	Different in character or other means of compliance	Specification is to meet or exceed ICAO performance level B.	
Chapter 9 Reference **9.2.18** **Standard**	9.2.18 The discharge rate of the foam solution shall not be less than the rates shown in Table 9-2.	CAR Part 139, Table 2.	No Difference		
Chapter 9 Reference **9.2.19** **Standard**	9.2.19 The complementary agents shall comply with the appropriate specifications of the International Organization for Standardization (ISO).* -- * See ISO Publication 7202 (Powder).	AC139-4, 6.1.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 9 Reference **9.2.20** **Recommendation**	9.2.20 **Recommendation.—** *The discharge rate of complementary agents should be no less than the values shown in Table 9-2.*	CAR 139.61, Table 2.	No Difference		

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 9 Reference **9.2.21** **Recommendation**	9.2.21 **Recommendation.—** *Dry chemical powders should only be substituted with an agent that has equivalent or better firefighting capabilities for all types of fires where complementary agent is expected to be used.* *Note.— Guidance on the use of complementary agents can be found in the* Airport Services Manual *(Doc 9137), Part 1.*	AC139-4, 6.1.	No Difference		
Chapter 9 Reference **9.2.22** **Recommendation**	9.2.22 **Recommendation.—** *A reserve supply of foam concentrate, equivalent to 200 per cent of the quantities identified in Table 9-2, should be maintained on the aerodrome for vehicle replenishment purposes.* *Note.— Foam concentrate carried on fire vehicles in excess of the quantity identified in Table 9-2 can contribute to the reserve.*	AC139-4, 6.5.	No Difference		
Chapter 9 Reference **9.2.23** **Recommendation**	9.2.23 **Recommendation.—** *A reserve supply of complementary agent, equivalent to 100 per cent of the quantity identified in Table 9-2, should be maintained on the aerodrome for vehicle replenishment purposes. Sufficient propellant gas should be included to utilize this reserve complementary agent.*	CAR 139.61.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 9 Reference **9.2.24** **Recommendation**	9.2.24 **Recommendation.—** *Category 1 and 2 aerodromes that have replaced up to 100 per cent of the water with complementary agent should hold a reserve supply of complementary agent of 200 per cent.*	CAR 139.61.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 9 Reference **9.2.25** **Recommendation**	9.2.25 **Recommendation.—** *Where a major delay in the replenishment of the supplies is anticipated, the amount of reserve supply in 9.2.22, 9.2.23 and 9.2.24 should be increased as determined by a risk assessment.* *Note.— See the* Airport Services Manual *(Doc 9137), Part 1 for guidance on the conduct of a risk analysis to determine the quantities of reserve extinguishing agents.*	CAR 139.61.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 9 Reference **9.2.26** **Recommendation**	***Rescue equipment*** 9.2.26 **Recommendation.—** *Rescue equipment commensurate with the level of aircraft operations should be provided on the rescue and firefighting vehicle(s).* *Note.— Guidance on the rescue equipment to be provided at an aerodrome is given in the* Airport Services Manual *(Doc 9137), Part 1.*	AC139-4, 5.2.	No Difference		
Chapter 9 Reference **9.2.27** **Standard**	***Response time*** 9.2.27 The operational objective of the rescue and firefighting service shall be to achieve a response time not exceeding three minutes to any point of each operational runway, in optimum visibility and surface conditions.	CAR 139.67.	No Difference		
Chapter 9 Reference **9.2.28** **Recommendation**	9.2.28 **Recommendation.—** *The operational objective of the rescue and firefighting service should be to achieve a response time not exceeding two minutes to any point of each operational runway, in optimum visibility and surface conditions.*	CAR 139.67.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Chapter 9 Reference **9.2.29** **Recommendation**	9.2.29 **Recommendation.—** *The operational objective of the rescue and firefighting service should be to achieve a response time not exceeding three minutes to any other part of the movement area, in optimum visibility and surface conditions.* *Note 1.— Response time is considered to be the time between the initial call to the rescue and firefighting service, and the time when the first responding vehicle(s) is (are) in position to apply foam at a rate of at least 50 per cent of the discharge rate specified in Table 9-2.* *Note 2.— Optimum visibility and surface conditions are defined as daytime, good visibility, no precipitation with normal response route free of surface contamination, e.g. water, ice or snow.*	CAR 139.67.	No Difference		
Chapter 9 Reference **9.2.30** **Recommendation**	9.2.30 **Recommendation.—** *To meet the operational objective as nearly as possible in less than optimum conditions of visibility, especially during low visibility operations, suitable guidance, equipment and/or procedures for rescue and firefighting services should be provided.* *Note.— Additional guidance is available in the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.67.	Less protective or partially implemented or not implemented	Not specifically provided for.	
Chapter 9 Reference **9.2.31** **Standard**	9.2.31 Any vehicles, other than the first responding vehicle(s), required to deliver the amounts of extinguishing agents specified in Table 9-2 shall ensure continuous agent application and shall arrive no more than four minutes from the initial call.	CAR 139.67.	No Difference		

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Chapter 9 Reference **9.2.32** **Recommendation**	9.2.32 **Recommendation.—** *Any vehicles, other than the first responding vehicles(s), required to deliver the amounts of extinguishing agents specified in Table 9-2 should ensure continuous agent application and should arrive no more than three minutes from the initial call.*	CAR 139.67.	Less protective or partially implemented or not implemented	Four minutes as per 9.2.31.	
Chapter 9 Reference **9.2.33** **Recommendation**	9.2.33 **Recommendation.—** *A system of preventive maintenance of rescue and firefighting vehicles should be employed to ensure effectiveness of the equipment and compliance with the specified response time throughout the life of the vehicle.*	CAR 139.111(e).	No Difference		
Chapter 9 Reference **9.2.34** **Recommendation**	***Emergency access roads*** 9.2.34 **Recommendation.—** *Emergency access roads should be provided on an aerodrome where terrain conditions permit their construction, so as to facilitate achieving minimum response times. Particular attention should be given to the provision of ready access to approach areas up to 1 000 m from the threshold, or at least within the aerodrome boundary. Where a fence is provided, the need for convenient access to outside areas should be taken into account.* *Note.— Aerodrome service roads may serve as emergency access roads when they are suitably located and constructed.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 9 Reference **9.2.35** **Recommendation**	9.2.35 **Recommendation.—** *Emergency access roads should be capable of supporting the heaviest vehicles which will use them, and be usable in all weather conditions. Roads within 90 m of a runway should be surfaced to prevent surface erosion and the transfer of debris to the runway. Sufficient vertical clearance should be provided from overhead obstructions for the largest vehicles.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 9 Reference **9.2.36** **Recommendation**	9.2.36 **Recommendation.—** *When the surface of the road is indistinguishable from the surrounding area, or in areas where snow may obscure the location of the roads, edge markers should be placed at intervals of about 10 m.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 9 Reference **9.2.37** **Recommendation**	***Fire stations*** 9.2.37 **Recommendation.—** *All rescue and firefighting vehicles should normally be housed in a fire station. Satellite fire stations should be provided whenever the response time cannot be achieved from a single fire station.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	Note: standard practice (except no requirement to provide satellite fire stations).
Chapter 9 Reference **9.2.38** **Recommendation**	9.2.38 **Recommendation.—** *The fire station should be located so that the access for rescue and firefighting vehicles into the runway area is direct and clear, requiring a minimum number of turns.*	CAR 139.111.	Less protective or partially implemented or not implemented	Not specified.	Applied in practice.
Chapter 9 Reference **9.2.39** **Recommendation**	***Communication and alerting systems*** 9.2.39 **Recommendation.—** *A discrete communication system should be provided linking a fire station with the control tower, any other fire station on the aerodrome and the rescue and firefighting vehicles.*	CAR 139.67A(b).	No Difference		

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Chapter 9 Reference **9.2.40** **Recommendation**	9.2.40 **Recommendation.—** *An alerting system for rescue and firefighting personnel, capable of being operated from that station, should be provided at a fire station, any other fire station on the aerodrome and the aerodrome control tower.*	AC139-14, B.1.	Less protective or partially implemented or not implemented	Not specified, although discussed in reference.	
Chapter 9 Reference **9.2.41** **Recommendation**	***Number of rescue and firefighting vehicles*** 9.2.41 **Recommendation.—** *The minimum number of rescue and firefighting vehicles provided at an aerodrome should be in accordance with the following tabulation:* *Note.— Guidance on minimum characteristics of rescue and firefighting vehicles is given in the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.63, Table 3.	No Difference		
Chapter 9 Reference **9.2.42** **Standard**	***Personnel*** 9.2.42 All rescue and firefighting personnel shall be properly trained to perform their duties in an efficient manner and shall participate in live fire drills commensurate with the types of aircraft and type of rescue and firefighting equipment in use at the aerodrome, including pressure-fed fuel fires. *Note 1.— Guidance to assist the appropriate authority in providing proper training is given in Attachment A, Section 18, and the* Airport Services Manual *(Doc 9137), Part 1.* *Note 2.— Fires associated with fuel discharged under very high pressure from a ruptured fuel tank are known as "pressure-fed fuel fires".*	139.65; AC139-4, section 4.	No Difference		

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Chapter 9 Reference **9.2.43** **Standard**	9.2.43 The rescue and firefighting personnel training programme shall include training in human performance, including team coordination. *Note.— Guidance material to design training programmes on human performance and team coordination can be found in the* Human Factors Training Manual *(Doc 9683).*	AC139-4, 4.1 and 4.2.	No Difference		
Chapter 9 Reference **9.2.44** **Recommendation**	9.2.44 **Recommendation.—** *During flight operations, sufficient trained and competent personnel should be designated to be readily available to ride the rescue and firefighting vehicles and to operate the equipment at maximum capacity. These personnel should be deployed in a way that ensures that minimum response times can be achieved and that continuous agent application at the appropriate rate can be fully maintained. Consideration should also be given for personnel to use hand lines, ladders and other rescue and firefighting equipment normally associated with aircraft rescue and firefighting operations.*	CAR 139.65(4).	No Difference		
Chapter 9 Reference **9.2.45** **Recommendation**	9.2.45 **Recommendation.—** *In determining the minimum number of rescue and firefighting personnel required, a task resource analysis should be completed and the level of staffing documented in the Aerodrome Manual.* *Note.— Guidance on the use of a task resource analysis can be found in the* Airport Services Manual *(Doc 9137), Part 1.*	CAR 139.65(4); 139.77(8); AC139-4, 3.8.	No Difference		
Chapter 9 Reference **9.2.46** **Standard**	9.2.46 All responding rescue and firefighting personnel shall be provided with protective clothing and respiratory equipment to enable them to perform their duties in an effective manner.	139.65(1); AC139-4, 3.7.	No Difference		

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Chapter 9 Reference **9.3.1** **Recommendation**	**9.3 Disabled aircraft removal** *Note.— Guidance on removal of a disabled aircraft, including recovery equipment, is given in the* Airport Services Manual *(Doc 9137), Part 5. See also Annex 13 —* Aircraft Accident and Incident Investigation *concerning protection of evidence, custody and removal of aircraft.* 9.3.1 **Recommendation.—** *A plan for the removal of an aircraft disabled on, or adjacent to, the movement area should be established for an aerodrome, and a coordinator designated to implement the plan, when necessary.*	AC139-14, A.3.2 and A.6.3.	No Difference		
Chapter 9 Reference **9.3.2** **Recommendation**	9.3.2 **Recommendation.—** *The disabled aircraft removal plan should be based on the characteristics of the aircraft that may normally be expected to operate at the aerodrome, and include among other things:* *a) a list of equipment and personnel on, or in the vicinity of, the aerodrome which would be available for such purpose; and* *b) arrangements for the rapid receipt of aircraft recovery equipment kits available from other aerodromes.*	AC139-4, A.6.3.	No Difference		

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Chapter 9 Reference **9.4.1** **Standard**	**9.4 Wildlife strike hazard reduction** *Note.— The presence of wildlife (birds and other animals) on, or in the vicinity of an aerodrome poses a serious threat to aircraft operational safety.* 9.4.1 The wildlife strike hazard on, or in the vicinity of, an aerodrome shall be assessed through: a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft; b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and c) an ongoing evaluation of the wildlife hazard by competent personnel. *Note.— See Annex 15, Chapter 5.*	CAR 12.55(c); CAR 139.71.	Less protective or partially implemented or not implemented	Rule 12.55(c) provides the mechanism for reporting bird incidents, but 139.71, although requiring an environmental management programme to minimize wildlife hazards, does not provide for the requirements of b) or c).	
Chapter 9 Reference **9.4.2** **Standard**	9.4.2 Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database. *Note.— The IBIS is designed to collect and disseminate information on wildlife strikes to aircraft. Information on the system is included in the* Manual on the ICAO Bird Strike Information System (IBIS) *(Doc 9332)*.	Intelligence, Risk and Safety Management procedures; reports supplied regularly.	No Difference		

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Chapter 9 Reference **9.4.3** **Standard**	9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft. *Note.— Procedures on the management of wildlife hazards on and in the vicinity of an aerodrome, including the establishment of a wildlife hazard management programme (WHMP), wildlife risk assessment, land-use management and personnel training, are specified in the PANS-Aerodromes (Doc 9981), Part II, Chapters 1 and 6. Further guidance is given in the* Airport Services Manual *(Doc 9137), Part 3.*	CAR 139.71.	No Difference		
Chapter 9 Reference **9.4.4** **Standard**	9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.	CAR 139.71.	Less protective or partially implemented or not implemented	No specific mention of garbage disposal dumps.	Note: guidance material available on CAANZ web site www.caa.govt.nz/aerodromes.
Chapter 9 Reference **9.4.5** **Recommendation**	9.4.5 **Recommendation.—** *States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife.*	Guidance material published on CAANZ web site www.caa.nz/aerodromes.	No Difference		

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Chapter 9 Reference **9.5.1** **Recommendation**	**9.5 Apron management service** 9.5.1 **Recommendation.—** *When warranted by the volume of traffic and operating conditions, an appropriate apron management service should be provided on an apron by an aerodrome ATS unit, by another aerodrome operating authority, or by a cooperative combination of these, in order to:* *a) regulate movement with the objective of preventing collisions between aircraft, and between aircraft and obstacles;* *b) regulate entry of aircraft into, and coordinate exit of aircraft from, the apron with the aerodrome control tower; and* *c) ensure safe and expeditious movement of vehicles and appropriate regulation of other activities.*	CAR 139.115.	No Difference		
Chapter 9 Reference **9.5.2** **Recommendation**	9.5.2 **Recommendation.—** *When the aerodrome control tower does not participate in the apron management service, procedures should be established to facilitate the orderly transition of aircraft between the apron management unit and the aerodrome control tower.* *Note.— Procedures on apron safety are specified in the PANS-Aerodromes (Doc 9981). Guidance on an apron management service is given in the* Airport Services Manual *(Doc 9137), Part 8, and in the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476).*	CAR 139.115, 172.67(a)(8).	No Difference		

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Chapter 9 Reference **9.5.3** **Standard**	9.5.3 An apron management service shall be provided with radiotelephony communications facilities.	CAR 139.115.	Less protective or partially implemented or not implemented	Not specifically stated, although standard practice.	
Chapter 9 Reference **9.5.4** **Standard**	9.5.4 Where low visibility procedures are in effect, persons and vehicles operating on an apron shall be restricted to the essential minimum. *Note.— Guidance on related special procedures is given in the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476).*	CAR 139.125.	Less protective or partially implemented or not implemented	Not specified.	Note: applies only to Auckland (NZAA). Aerodrome operator has low visibilty operations procedures in place.
Chapter 9 Reference **9.5.5** **Standard**	9.5.5 An emergency vehicle responding to an emergency shall be given priority over all other surface movement traffic.	CAR 172.77(5).	No Difference		
Chapter 9 Reference **9.5.6** **Standard**	9.5.6 A vehicle operating on an apron shall: a) give way to an emergency vehicle; an aircraft taxiing, about to taxi, or being pushed or towed; and b) give way to other vehicles in accordance with local regulations.	CAR 139.119, 172.77(6).	Less protective or partially implemented or not implemented	The rules require an aerodrome operator and an aerodrome control service provider to establish procedures, but do not state the specifics of this Standard.	

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Chapter 9 Reference **9.5.7** **Standard**	9.5.7 An aircraft stand shall be visually monitored to ensure that the recommended clearance distances are provided to an aircraft using the stand. *Note.— Procedures on the training of operational personnel, and on apron safety and operations, are specified in the PANS-Aerodromes (Doc 9981), Part II, Chapters 1 and 7.*	AC139-6, Ch 3.	Less protective or partially implemented or not implemented	Not specified.	
Chapter 9 Reference **9.6.1** **Standard**	**9.6 Ground servicing of aircraft** 9.6.1 Fire extinguishing equipment suitable for at least initial intervention in the event of a fuel fire and personnel trained in its use shall be readily available during the ground servicing of an aircraft, and there shall be a means of quickly summoning the rescue and firefighting service in the event of a fire or major fuel spill.	CARs.	Less protective or partially implemented or not implemented	Not specified in rules.	
Chapter 9 Reference **9.6.2** **Standard**	9.6.2 When aircraft refuelling operations take place while passengers are embarking, on board or disembarking, ground equipment shall be positioned so as to allow: a) the use of a sufficient number of exits for expeditious evacuation; and b) a ready escape route from each of the exits to be used in an emergency.	CAR 121.91(a).	Different in character or other means of compliance	The rule requires the aircraft operator to ensure that safety and evacuation precautions are taken in accordance with the operator's exposition.	

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Chapter 9 Reference **9.7.1** **Standard**	**9.7 Aerodrome vehicle operations** *Note 1.— Procedures on the establishment of an airside driver permit scheme and vehicle/equipment safety requirements, including detailed personnel training, are specified in the PANS-Aerodromes (Doc 9981), Part II, Chapter 9.* *Note 2.— Guidance on aerodrome vehicle operations is contained in Attachment A, Section 19, and on traffic rules and regulations for vehicles in the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476)*. *Note 3.— It is intended that roads located on the movement area be restricted to the exclusive use of aerodrome personnel and other authorized persons, and that access to the public buildings by an unauthorized person will not require use of such roads*. 9.7.1 A vehicle shall be operated: a) on a manoeuvring area only as authorized by the aerodrome control tower; and b) on an apron only as authorized by the appropriate designated authority.	CAR 139.119.	No Difference		
Chapter 9 Reference **9.7.2** **Standard**	9.7.2 The driver of a vehicle on the movement area shall comply with all mandatory instructions conveyed by markings and signs unless otherwise authorized by: a) the aerodrome control tower when on the manoeuvring area; or b) the appropriate designated authority when on the apron.	CAR 139.119.	Different in character or other means of compliance	The rule requires an aerodrome operator to have procedures in place to control ground vehicle movements.	

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Chapter 9 Reference **9.7.3** **Standard**	9.7.3 The driver of a vehicle on the movement area shall comply with all mandatory instructions conveyed by lights.	CAR 139.119.	Different in character or other means of compliance	The rule requires an aerodrome operator to have procedures in place to control ground vehicle movements.	
Chapter 9 Reference **9.7.4** **Standard**	9.7.4 The driver of a vehicle on the movement area shall be appropriately trained for the tasks to be performed and shall comply with the instructions issued by: a) the aerodrome control tower, when on the manoeuvring area; and b) the appropriate designated authority, when on the apron.	CAR 139.119.	Different in character or other means of compliance	The rule requires an aerodrome operator to have procedures in place to control ground vehicle movements.	
Chapter 9 Reference **9.7.5** **Standard**	9.7.5 The driver of a radio-equipped vehicle shall establish satisfactory two-way radio communication with the aerodrome control tower before entering the manoeuvring area and with the appropriate designated authority before entering the apron. The driver shall maintain a continuous listening watch on the assigned frequency when on the movement area.	CAR 139.119(2).	Different in character or other means of compliance	The rule requires an aerodrome operator to have procedures in place to control ground vehicle movements.	

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Chapter 9 Reference **9.8.1** **Standard**	**9.8 Surface movement guidance and control systems** ***Application*** 9.8.1 A surface movement guidance and control system (SMGCS) shall be provided at an aerodrome. *Note.— Guidance on surface movement guidance and control systems is contained in the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476)*.	AC139-6, 8.5.1.	No Difference		
Chapter 9 Reference **9.8.2** **Recommendation**	***Characteristics*** 9.8.2 **Recommendation.—** *The design of an SMGCS should take into account:* *a) the density of air traffic;* *b) the visibility conditions under which operations are intended;* *c) the need for pilot orientation;* *d) the complexity of the aerodrome layout; and* *e) movements of vehicles.*	AC139-6, 8.5.2.	No Difference		
Chapter 9 Reference **9.8.3** **Recommendation**	9.8.3 **Recommendation.—** *The visual aid components of an SMGCS, i.e. markings, lights and signs, should be designed to conform with the relevant specifications in 5.2, 5.3 and 5.4, respectively.*	AC139-6, 8.5.3.	No Difference		

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Chapter 9 Reference **9.8.4** **Recommendation**	9.8.4 **Recommendation.—** *An SMGCS should be designed to assist in the prevention of inadvertent incursions of aircraft and vehicles onto an active runway.*	AC139-6, 8.5.4.	No Difference		
Chapter 9 Reference **9.8.5** **Recommendation**	9.8.5 **Recommendation.—** *The system should be designed to assist in the prevention of collisions between aircraft, and between aircraft and vehicles or objects, on any part of the movement area.* *Note.— Guidance on control of stop bars through induction loops and on a visual taxiing guidance and control system is contained in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 8.5.5.	No Difference		

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Chapter 9 Reference **9.8.6** **Standard**	9.8.6 Where an SMGCS is provided by selective switching of stop bars and taxiway centre line lights, the following requirements shall be met: a) taxiway routes which are indicated by illuminated taxiway centre line lights shall be capable of being terminated by an illuminated stop bar; b) the control circuits shall be so arranged that when a stop bar located ahead of an aircraft is illuminated, the appropriate section of taxiway centre line lights beyond it is suppressed; and c) the taxiway centre line lights are activated ahead of an aircraft when the stop bar is suppressed. *Note 1.— See Sections 5.3.17 and 5.3.20 for specifications on taxiway centre line lights and stop bars, respectively.* *Note 2.— Guidance on installation of stop bars and taxiway centre line lights in SMGCSs is given in the* Aerodrome Design Manual *(Doc 9157), Part 4.*	AC139-6, 8.5.6.	No Difference		
Chapter 9 Reference **9.8.7** **Recommendation**	9.8.7 **Recommendation.—** *Surface movement radar for the manoeuvring area should be provided at an aerodrome intended for use in runway visual range conditions less than a value of 350 m.*	AC139-6, 8.5.7.	No Difference		Note: applicable only to Auckland (NZAA). Non-radar surface movement monitoring (using MLAT) is available.

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Chapter 9 Reference **9.8.8** **Recommendation**	9.8.8 **Recommendation.—** *Surface movement radar for the manoeuvring area should be provided at an aerodrome other than that in 9.8.7 when traffic density and operating conditions are such that regularity of traffic flow cannot be maintained by alternative procedures and facilities.* *Note.— Guidance on the use of surface movement radar is given in the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476) and in the* Air Traffic Services Planning Manual *(Doc 9426).*	AC139-6, 8.5.8.	No Difference		Note: applicable only to Auckland (NZAA). Non-radar surface movement monitoring (using MLAT) is available.
Chapter 9 Reference **9.9.1** **Standard**	**9.9 Siting of equipment and installations on operational areas** *Note 1.— Requirements for obstacle limitation surfaces are specified in 4.2.* *Note 2.— The design of light fixtures and their supporting structures, light units of visual approach slope indicators, signs, and markers, is specified in 5.3.1, 5.3.5, 5.4.1 and 5.5.1, respectively. Guidance on the frangible design of visual and non-visual aids for navigation is given in the* Aerodrome Design Manual *(Doc 9157), Part 6.* 9.9.1 Unless its function requires it to be there for air navigation or for aircraft safety purposes, no equipment or installation shall be: a) on a runway strip, a runway end safety area, a taxiway strip or within the distances specified in Table 3-1, column 11, if it would endanger an aircraft; or b) on a clearway if it would endanger an aircraft in the air.	AC 139-6, 8.4.1.	No Difference		

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Chapter 9 Reference **9.9.2** **Standard**	9.9.2 Any equipment or installation required for air navigation or for aircraft safety purposes which must be located: a) on that portion of a runway strip within: 1) 75 m of the runway centre line where the code number is 3 or 4; or 2) 45 m of the runway centre line where the code number is 1 or 2; or b) on a runway end safety area, a taxiway strip or within the distances specified in Table 3-1; or c) on a clearway and which would endanger an aircraft in the air; shall be frangible and mounted as low as possible.	AC139-6, 8.4.3.	Different in character or other means of compliance	The frangibility requirements apply to: any equipment or installation required for air navigation purposes which must be located on or near a strip of a precision approach runway Category I, II or III and which: (a) situated on that portion of the strip within 77.5 m of the runway centre line where the code number is 4 and the code letter is F; or (b) is situated within 240m from the end of the strip and within: (i) 60 m of the runway centre line where the code number is 3 or 4; or (ii) 45 m of the runway centre line where the code number is 1 or 2; or (c) penetrates the inner approach surface, the inner transitional surface or the balked landing surface.	
Chapter 9 Reference **9.9.3** **Recommendation**	9.9.3 **Recommendation.—** *Any equipment or installation required for air navigation or for aircraft safety purposes which must be located on the non-graded portion of a runway strip should be regarded as an obstacle and should be frangible and mounted as low as possible.* *Note.— Guidance on the siting of navigation aids is contained in the* Aerodrome Design Manual *(Doc 9157), Part 6.*	AC139-6, 8.4.2.	No Difference		

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Chapter 9 Reference **9.9.4** **Standard**	9.9.4 Unless its function requires it to be there for air navigation or for aircraft safety purposes, no equipment or installation shall be located within 240 m from the end of the strip and within: a) 60 m of the extended centre line where the code number is 3 or 4; or b) 45 m of the extended centre line where the code number is 1 or 2; of a precision approach runway category I, II or III.	AC139-6, 8.4.3.	No Difference		
Chapter 9 Reference **9.9.5** **Standard**	9.9.5 Any equipment or installation required for air navigation or for aircraft safety purposes which must be located on or near a strip of a precision approach runway category I, II or III and which: a) is situated within 240 m from the end of the strip and within: 1) 60 m of the extended runway centre line where the code number is 3 or 4; or 2) 45 m of the extended runway centre line where the code number is 1 or 2; or b) penetrates the inner approach surface, the inner transitional surface or the balked landing surface; shall be frangible and mounted as low as possible.	AC139-6, 8.4.3.	No Difference		

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Chapter 9 Reference **9.9.6** **Recommendation**	9.9.6 **Recommendation.—** *Any equipment or installation required for air navigation or for aircraft safety purposes which is an obstacle of operational significance in accordance with 4.2.4, 4.2.11, 4.2.20 or 4.2.27 should be frangible and mounted as low as possible.*	AC139-6, 8.4.4.	No Difference		
Chapter 9 Reference **9.10.1** **Standard**	**9.10 Fencing** ***Application*** 9.10.1 A fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.	CAR 139.69.	No Difference		
Chapter 9 Reference **9.10.2** **Standard**	9.10.2 A fence or other suitable barrier shall be provided on an aerodrome to deter the inadvertent or premeditated access of an unauthorized person onto a non-public area of the aerodrome. *Note 1.— This is intended to include the barring of sewers, ducts, tunnels, etc., where necessary to prevent access.* *Note 2.— Special measures may be required to prevent the access of an unauthorized person to runways or taxiways which overpass public roads.*	CAR 139.69.	No Difference		
Chapter 9 Reference **9.10.3** **Standard**	9.10.3 Suitable means of protection shall be provided to deter the inadvertent or premeditated access of unauthorized persons into ground installations and facilities essential for the safety of civil aviation located off the aerodrome.	CAR 171.55, 172.119.	No Difference		

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Chapter 9 Reference **9.10.4** **Standard**	***Location*** 9.10.4 The fence or barrier shall be located so as to separate the movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft from areas open to public access.	CAR 139.69.	No Difference		
Chapter 9 Reference **9.10.5** **Recommendation**	9.10.5 **Recommendation.—** *When greater security is thought necessary, a cleared area should be provided on both sides of the fence or barrier to facilitate the work of patrols and to make trespassing more difficult. Consideration should be given to the provision of a perimeter road inside the aerodrome fencing for the use of both maintenance personnel and security patrols.*	CAR 139.203.	Less protective or partially implemented or not implemented	Not specified.	Applied in practice where necessary.
Chapter 9 Reference **9.11.1** **Recommendation**	**9.11 Security lighting** **Recommendation.—** *At an aerodrome where it is deemed desirable for security reasons, a fence or other barrier provided for the protection of international civil aviation and its facilities should be illuminated at a minimum essential level. Consideration should be given to locating lights so that the ground area on both sides of the fence or barrier, particularly at access points, is illuminated.*	CAR 139.203.	Less protective or partially implemented or not implemented	Not specified.	

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Chapter 9 Reference **9.12.1** **Standard**	**9.12 Autonomous runway incursion warning system** *Note 1.— The inclusion of detailed specifications for an autonomous runway incursion warning system (ARIWS) in this section is not intended to imply that an ARIWS has to be provided at an aerodrome.* *Note 2.— The implementation of an ARIWS is a complex issue deserving careful consideration by aerodrome operators, air traffic services and States, and in coordination with the aircraft operators.* *Note 3.— Attachment A, Section 21, provides a description of an ARIWS and information on its use.* ***Characteristics*** 9.12.1 Where an ARIWS is installed at an aerodrome: a) it shall provide autonomous detection of a potential incursion or of the occupancy of an active runway and a direct warning to a flight crew or vehicle operator; b) it shall function and be controlled independently of any other visual system on the aerodrome; c) its visual aid components, i.e. lights, shall be designed to conform with the relevant specifications in 5.3; and d) failure of part or all of it shall not interfere with normal aerodrome operations. To this end, provision shall be made to allow the ATC unit to partially or entirely shut down the system.		Not Applicable		None in operation at present.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	Note 1.— An ARIWS may be installed in conjunction with enhanced taxiway centre line markings, stop bars or runway guard lights. *Note 2.— It is intended that the system(s) be operational under all weather conditions, including low visibility.* *Note 3.— An ARIWS may share common sensory components of an SMGCS or A-SMGCS, however, it operates independently of either system.*				
Chapter 9 Reference **9.12.2** **Standard**	9.12.2 Where an ARIWS is installed at an aerodrome, information on its characteristics and status shall be provided to the appropriate aeronautical information services for promulgation in the AIP with the description of the aerodrome surface movement guidance and control system and markings as specified in Annex 15. *Note.— Detailed specifications concerning the AIP are contained in PANS-AIM (Doc 10066).*		Not Applicable		None in operation at present.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.1.1** **Standard**	**CHAPTER 10. AERODROME MAINTENANCE** **10.1 General** 10.1.1 A maintenance programme, including preventive maintenance where appropriate, shall be established at an aerodrome to maintain facilities in a condition which does not impair the safety, regularity or efficiency of air navigation. *Note 1.— Preventive maintenance is programmed maintenance work done in order to prevent a failure or degradation of facilities.* *Note 2.— "Facilities" are intended to include such items as pavements, visual aids, fencing, drainage systems, electrical systems and buildings.*	CAR 139.103(a).	No Difference		
Reference **10.1.2** **Recommendation**	10.1.2 **Recommendation.—** *The design and application of the maintenance programme should observe human factors principles*. *Note 1.— Guidance material on human factors principles can be found in the* Human Factors Training Manual *(Doc 9683) and in the* Airport Services Manual *(Doc 9137), Part 8.* *Note 2.— General principles and procedures on the training of aerodrome personnel, including training programmes and competence checks, are specified in the PANS-Aerodromes (Doc 9981).*	CAR 139.103.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.2.1** **Standard**	**10.2 Pavements** 10.2.1 The surfaces of all movement areas including pavements (runways, taxiways and aprons) and adjacent areas shall be inspected and their conditions monitored regularly as part of an aerodrome preventive and corrective maintenance programme with the objective of avoiding and eliminating any foreign object debris (FOD) that might cause damage to aircraft or impair the operation of aircraft systems. *Note 1.— See 2.9.3 for inspections of movement areas.* *Note 2.— Procedures on carrying out daily inspections of the movement area and control of FOD are given in the PANS-Aerodromes (Doc 9981), the* Manual of Surface Movement Guidance and Control Systems (SMGCS) *(Doc 9476) and the* Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual *(Doc 9830)*. *Note 3.— Additional guidance on sweeping/cleaning of surfaces is contained in the* Airport Services Manual *(Doc 9137), Part 9.* *Note 4.— Guidance on precautions to be taken in regard to the surface of shoulders is given in Attachment A, Section 9, and the* Aerodrome Design Manual *(Doc 9157), Part 2.* *Note 5.— Where the pavement is used by large aircraft or aircraft with tire pressures in the upper categories referred to in 2.6.6 c), particular attention should be given to the integrity of light fittings in the pavement and pavement joints.*	CAR 139.103(b).	No Difference		

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Reference **10.2.2** **Standard**	10.2.2 The surface of a runway shall be maintained in a condition such as to prevent formation of harmful irregularities. *Note.— See Attachment A, Section 5.*	CAR 139.103(b)(2).	Different in character or other means of compliance	Rule requires operator to maintain the surface of paved runways in a condition so as to provide good friction characteristics and low rolling resistance.	
Reference **10.2.3** **Standard**	10.2.3 A paved runway shall be maintained in a condition so as to provide surface friction characteristics at or above the minimum friction level specified by the State. *Note.— Until 3 November 2021, the* Airport Services Manual *(Doc 9137), Part 2, contains further information on this subject.* *Note.— As of 4 November 2021,* Assessment, Measurement and Reporting of Runway Surface Conditions *(Cir 329) contains further information on this subject*.	NIL	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.2.4** **Standard**	10.2.4 Runway surface friction characteristics for maintenance purposes shall be periodically measured with a continuous friction measuring device using self-wetting features and documented. The frequency of these measurements shall be sufficient to determine the trend of the surface friction characteristics of the runway. *Note 1.— Until 3 November 2021, guidance on evaluating the friction characteristics of a runway is provided in Attachment A, Section 7. Additional guidance is included in the* Airport Services Manual *(Doc 9137), Part 2.* *Note 2.— Until 3 November 2021, the objective of 10.2.3, 10.2.4, 10.2.7 and 10.2.8 is to ensure that the surface friction characteristics for the entire runway remain at or above a minimum friction level specified by the State.* *Note 3.— Until 3 November 2021, guidance for the determination of the required frequency is provided in Attachment A, Section 7 and in the* Airport Services Manual *(Doc 9137), Part 2, Appendix 5.*	NIL	No Difference	NIL	NIL

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.2.4** **Standard**	10.2.4 Runway surface friction characteristics for maintenance purposes shall be periodically measured with a continuous friction measuring device using self-wetting features and documented. The frequency of these measurements shall be sufficient to determine the trend of the surface friction characteristics of the runway. *Note 1.— As of 4 November 2021, guidance on evaluating the runway surface friction characteristics is provided in* Assessment, Measurement and Reporting of Runway Surface Conditions *(Cir 329).* *Note 2.— As of 4 November 2021, the objective of 10.2.3 to 10.2.7 and 10.2.9 is to ensure that the surface friction characteristics for the entire runway remain at or above a minimum friction level specified by the State.* *Note 3.— Until 3 November 2021, guidance for the determination of the required frequency is provided in Attachment A, Section 7 and in the* Airport Services Manual *(Doc 9137), Part 2, Appendix 5.*	nil	No Difference	nil	nil
Reference **10.2.5** **Standard**	*10.2.5* As of 4 November 2021, when runway surface friction measurements are made for maintenance purposes using a self-wetting continuous friction measuring device, the performance of the device shall meet the standard set or agreed by the State.	AC139-13, 3.2.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.2.6** **Standard**	*10.2.6* As of 4 November 2021, personnel measuring runway surface friction required in 10.2.5 shall be trained to fulfil their duties.	AC139-13, 3.4.	No Difference		
Reference **10.2.7** **Standard**	10.2.7 Corrective maintenance action shall be taken to prevent the runway surface friction characteristics for either the entire runway or a portion thereof from falling below a minimum friction level specified by the State. *Note.— A portion of runway in the order of 100 m long may be considered significant for maintenance or reporting action.*	CAR 139.103(b)(2); AC139-13.	No Difference		
Reference **10.2.8** **Recommendation**	10.2.8 **Recommendation.—** *Until 3 November 2021, when there is reason to believe that the drainage characteristics of a runway, or portions thereof, are poor due to slopes or depressions, then the runway surface friction characteristics should be assessed under natural or simulated conditions that are representative of local rain, and corrective maintenance action should be taken as necessary.*	AC139-3, Aerodrome inspection programme and condition reporting, 3.3 and 4.	No Difference		
Reference **10.2.8** **Recommendation**	*10.2.8* **Recommendation**.— *As of 4 November 2021, the runway surface should be visually assessed, as necessary, under natural or simulated rain conditions for ponding or poor drainage and where required, corrective maintenance action taken.*	AC139-3, Aerodrome inspection programme and condition reporting, 3.3 and 4.	No Difference		

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Reference **10.2.10** **Recommendation**	10.2.10 **Recommendation.—** *When a taxiway is used by turbine-engined aeroplanes, the surface of the taxiway shoulders should be maintained so as to be free of any loose stones or other objects that could be ingested by the aeroplane engines.* *Note.— Guidance on this subject is given in the* Aerodrome Design Manual *(Doc 9157), Part 2.*	AC139-6, 3.10.2.	No Difference		
Reference **10.3.1** **Standard**	**10.3 Removal of contaminants** 10.3.1 Snow, slush, ice, standing water, mud, dust, sand, oil, rubber deposits and other contaminants shall be removed from the surface of runways in use as rapidly and completely as possible to minimize accumulation. *Note.— Until 3 November 2021, the above requirement does not imply that winter operations on compacted snow and ice are prohibited. Guidance on snow removal and ice control and removal of other contaminants is given in the* Aerodrome Services Manual *(Doc 9137), Parts 2 and 9.* *Note.— As of 4 November 2021, the above requirement does not imply that winter operations on compacted snow and ice are prohibited. Information on snow removal and ice control and removal of other contaminants is given in the PANS-Aerodromes (Doc 9981).*	CAR 139.103(b).	Different in character or other means of compliance	Not specified to this level of detail, but the intent is the same.	
Reference **10.3.2** **Recommendation**	10.3.2 **Recommendation.—** *Taxiways should be kept clear of snow, slush, ice, etc., to the extent necessary to enable aircraft to be taxied to and from an operational runway.*	CAR 139.103.	Less protective or partially implemented or not implemented	Not specifically required.	Carried out in practice when necessary.

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.3.3** **Recommendation**	10.3.3 **Recommendation.—** *Aprons should be kept clear of snow, slush, ice, etc., to the extent necessary to enable aircraft to manoeuvre safely or, where appropriate, to be towed or pushed.*	CAR 139.103.	Less protective or partially implemented or not implemented	Not specifically required.	Carried out in practice when necessary.
Reference **10.3.4** **Recommendation**	10.3.4 **Recommendation.—** *Whenever the clearance of snow, slush, ice, etc., from the various parts of the movement area cannot be carried out simultaneously, the order of priority after the runway(s) in use should be set in consultation with the affected parties such as rescue and firefighting service and documented in a snow plan.* *Note 1.— See PANS-AIM (Doc 10066), Appendix 2, Part 3, AD 1.2.2 for information to be promulgated in an AIP concerning a snow plan. The* Aeronautical Information Services Manual *(Doc 8126) contains guidance on the description of a snow plan including general policy concerning operational priorities established for the clearance of movement areas.* *Note 2.— Until 3 November 2021, the* Airport Services Manual *(Doc 9137), Part 8, Chapter 6, specifies that an aerodrome snow plan clearly defines, inter alia, the priority of surfaces to be cleared.*	CAR 139.103.	Less protective or partially implemented or not implemented	Not specified at this level of detail.	

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Reference **10.3.5** **Recommendation**	10.3.5 **Recommendation.—** *Chemicals to remove or to prevent the formation of ice and frost on aerodrome pavements should be used when conditions indicate their use could be effective. Caution should be exercised in the application of the chemicals so as not to create a more slippery condition.* *Note.— Until 3 November 2021, guidance on the use of chemicals for aerodrome pavements is given in the* Airport Services Manual *(Doc 9137), Part 2.* *Note.— As of 4 November 2021, information on the use of chemicals for aerodrome pavements is given in the PANS-Aerodromes (Doc 9981)*.	CAR 139.103.	Less protective or partially implemented or not implemented	Not specified.	
Reference **10.3.6** **Standard**	10.3.6 Chemicals which may have harmful effects on aircraft or pavements, or chemicals which may have toxic effects on the aerodrome environment, shall not be used.	CAR 139.103.	Less protective or partially implemented or not implemented	Not specified.	

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Reference **10.4.1** **Standard**	**10.4 Runway pavement overlays** *Note.— The following specifications are intended for runway pavement overlay projects when the runway is to be returned temporarily to an operational status before resurfacing is complete. This may necessitate a temporary ramp between the new and old runway surfaces. Guidance on overlaying pavements and assessing their operational status is given in the* Aerodrome Design Manual *(Doc 9157), Part 3.* 10.4.1 The longitudinal slope of the temporary ramp, measured with reference to the existing runway surface or previous overlay course, shall be: a) 0.5 to 1.0 per cent for overlays up to and including 5 cm in thickness; and b) not more than 0.5 per cent for overlays more than 5 cm in thickness.	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	
Reference **10.4.2** **Recommendation**	10.4.2 **Recommendation.—** *Overlaying should proceed from one end of the runway toward the other end so that based on runway utilization most aircraft operations will experience a down ramp.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	
Reference **10.4.3** **Recommendation**	10.4.3 **Recommendation.—** *The entire width of the runway should be overlaid during each work session.*	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.4.4** **Standard**	10.4.4 Before a runway being overlaid is returned to a temporary operational status, a runway centre line marking conforming to the specifications in Section 5.2.3 shall be provided. Additionally, the location of any temporary threshold shall be identified by a 3.6 m wide transverse stripe.	CAR Part 139.	Less protective or partially implemented or not implemented	Not specified.	
Reference **10.4.5** **Recommendation**	10.4.5 **Recommendation.—** *The overlay should be constructed and maintained above the minimum friction level specified in 10.2.3.*	AC139-6.	Less protective or partially implemented or not implemented	Not specified.	

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.5.1** **Standard**	**10.5 Visual aids** *Note 1.— These specifications are intended to define the maintenance performance level objectives. They are not intended to define whether the lighting system is operationally out of service.* *Note 2.— The energy savings of light emitting diodes (LEDs) are due in large part to the fact that they do not produce the infra-red heat signature of incandescent lamps. Aerodrome operators who have come to expect the melting of ice and snow by this heat signature may wish to evaluate whether or not a modified maintenance schedule is required during such conditions, or evaluate the possible operational value of installing LED fixtures with heating elements.* *Note 3.— Enhanced vision systems (EVS) technology relies on the infra-red heat signature provided by incandescent lighting. Annex 15 protocols provide an appropriate means of notifying aerodrome users of EVS when lighting systems are converted to LED.* 10.5.1 A light shall be deemed to be unserviceable when the main beam average intensity is less than 50 per cent of the value specified in the appropriate figure in Appendix 2. For light units where the designed main beam average intensity is above the value shown in Appendix 2, the 50 per cent value shall be related to that design value.	AC139-6, 8.6.1.	No Difference		
Reference **10.5.2** **Standard**	10.5.2 A system of preventive maintenance of visual aids shall be employed to ensure lighting and marking system reliability. *Note.— Guidance on preventive maintenance of visual aids is given in the* Airport Services Manual *(Doc 9137), Part 9.*	CAR 139.105.	No Difference		

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Reference **10.5.3** **Recommendation**	10.5.3 **Recommendation.—** *The system of preventive maintenance employed for a precision approach runway category II or III should include at least the following checks:* *a) visual inspection and in-field measurement of the intensity, beam spread and orientation of lights included in the approach and runway lighting systems;* *b) control and measurement of the electrical characteristics of each circuitry included in the approach and runway lighting systems; and* *c) control of the correct functioning of light intensity settings used by air traffic control.*	CAR 139.105; AC139-3; AC139-6, 8.6.3.	No Difference		
Reference **10.5.4** **Recommendation**	10.5.4 **Recommendation.—** *In-field measurement of intensity, beam spread and orientation of lights included in approach and runway lighting systems for a precision approach runway category II or III should be undertaken by measuring all lights, as far as practicable, to ensure conformance with the applicable specification of Appendix 2.*	CAR 139.105; AC139-3; AC139-6, 8.6.4.	No Difference		
Reference **10.5.5** **Recommendation**	10.5.5 **Recommendation.—** *Measurement of intensity, beam spread and orientation of lights included in approach and runway lighting systems for a precision approach runway category II or III should be undertaken using a mobile measuring unit of sufficient accuracy to analyse the characteristics of the individual lights.*	CAR 139.105; AC139-3; AC139-6, 8.6.5.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.5.6** **Recommendation**	10.5.6 **Recommendation.—** *The frequency of measurement of lights for a precision approach runway category II or III should be based on traffic density, the local pollution level, the reliability of the installed lighting equipment and the continuous assessment of the results of the in-field measurements but, in any event, should not be less than twice a year for in-pavement lights and not less than once a year for other lights.*	CAR 139.105; AC139-3; AC139-6, 8.6.6.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
Reference **10.5.7** **Standard**	10.5.7 The system of preventive maintenance employed for a precision approach runway category II or III shall have as its objective that, during any period of category II or III operations, all approach and runway lights are serviceable and that, in any event, at least: a) 95 per cent of the lights are serviceable in each of the following particular significant elements: 1) precision approach category II and III lighting system, the inner 450 m; 2) runway centre line lights; 3) runway threshold lights; and 4) runway edge lights; b) 90 per cent of the lights are serviceable in the touchdown zone lights; c) 85 per cent of the lights are serviceable in the approach lighting system beyond 450 m; and d) 75 per cent of the lights are serviceable in the runway end lights. In order to provide continuity of guidance, the allowable percentage of unserviceable lights shall not be permitted in such a way as to alter the basic pattern of the lighting system. Additionally, an unserviceable light shall not be permitted adjacent to another unserviceable light, except in a barrette or a crossbar where two adjacent unserviceable lights may be permitted. *Note.— With respect to barrettes, crossbars and runway edge lights, lights are considered to be adjacent if located consecutively and:*	CAR 139.105; AC139-3; AC139-6, 8.6.7.	No Difference		

Annex Reference	AERODROMES Standard or Recommended Practice	State Legislation, Regulation or Document Reference	Level of implementation of SARP's	Text of the difference to be notified to ICAO	Comments including the reason for the difference
	— *laterally: in the same barrette or crossbar; or* — *longitudinally: in the same row of edge lights or barrettes.*				
Reference **10.5.8** **Standard**	10.5.8 The system of preventive maintenance employed for a stop bar provided at a runway-holding position used in conjunction with a runway intended for operations in runway visual range conditions less than a value of 350 m shall have the following objectives: a) no more than two lights will remain unserviceable; and b) two adjacent lights will not remain unserviceable unless the light spacing is significantly less than that specified.	CAR 139.105; AC139-3; AC139-6, 8.6.8.	No Difference		
Reference **10.5.9** **Standard**	10.5.9 The system of preventive maintenance employed for a taxiway intended for use in runway visual range conditions less than a value of 350 m shall have as its objective that no two adjacent taxiway centre line lights be unserviceable.	CAR 139.105; AC139-3; AC139-6, 8.6.9.	No Difference		

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Reference **10.5.10** **Standard**	10.5.10 The system of preventive maintenance employed for a precision approach runway category I shall have as its objective that, during any period of category I operations, all approach and runway lights are serviceable and that, in any event, at least 85 per cent of the lights are serviceable in each of the following: a) precision approach category I lighting system; b) runway threshold lights; c) runway edge lights; and d) runway end lights. In order to provide continuity of guidance an unserviceable light shall not be permitted adjacent to another unserviceable light unless the light spacing is significantly less than that specified. *Note.— In barrettes and crossbars, guidance is not lost by having two adjacent unserviceable lights.*	CAR 139.105; AC139-3; AC139-6, 8.6.10.	No Difference	Details not specified.	

Annex Reference	**AERODROMES** **Standard or Recommended Practice**	**State Legislation, Regulation or Document Reference**	**Level of implementation of SARP's**	**Text of the difference to be notified to ICAO**	**Comments including the reason for the difference**
Reference **10.5.11** **Standard**	10.5.11 The system of preventive maintenance employed for a runway meant for take-off in runway visual range conditions less than a value of 550 m shall have as its objective that, during any period of operations, all runway lights are serviceable and that in any event: a) at least 95 per cent of the lights are serviceable in the runway centre line lights (where provided) and in the runway edge lights; and b) at least 75 per cent of the lights are serviceable in the runway end lights. In order to provide continuity of guidance, an unserviceable light shall not be permitted adjacent to another unserviceable light.	CAR 139.105; AC139-3; AC139-6, 8.6.11.	No Difference		
Reference **10.5.12** **Standard**	10.5.12 The system of preventive maintenance employed for a runway meant for take-off in runway visual range conditions of a value of 550 m or greater shall have as its objective that, during any period of operations, all runway lights are serviceable and that, in any event, at least 85 per cent of the lights are serviceable in the runway edge lights and runway end lights. In order to provide continuity of guidance, an unserviceable light shall not be permitted adjacent to another unserviceable light.	CAR 139.105; AC139-3; AC139-6, 8.6.12.	No Difference		
Reference **10.5.13** **Recommendation**	10.5.13 **Recommendation.—** *During low visibility procedures the appropriate authority should restrict construction or maintenance activities in the proximity of aerodrome electrical systems.*	AC139-6, 8.6.13.	No Difference		

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