

Navigating our New S



New Southern Sky is New Zealand's proposed response to increasing air traffic and demands for safer, more efficient airspace management. It's a proposed move to performance-based navigation. Under this proposal, all aircraft wanting to operate in controlled airspace would need operational ADS-B equipment by December 2021.

Having started last year, New Southern Sky (NSS) will continue until late 2023. It considers the effects proposed changes will have on the aviation system as a whole – and the participants within it.

NSS and its proposed associated regulatory framework would define aircraft equipment, operator procedures, training, and approvals required to operate in certain airspace, and to fly specified instrument procedures.

Stage one – which runs until December 2015 – focusses on changes to IFR navigation, and surveillance systems.

You can find a programme timeline and other information at www.nss.govt.nz.

Our Current Focus

During stage one, the NSS Safety Group, comprised of the CAA, Airways,

and the Ministry of Transport, is examining if satellites can be used as the sole means of navigation for aircraft flying under IFR. This is known as operating in a 'Global Navigation Satellite System (GNSS) sole means' environment. IFR navigation using GPS with back-up from a ground-based navigation aid, such as a VOR/DME or NDB, is known as operating in a 'GNSS primary means' environment.

Stage one considers the implications of GNSS sole means in the New Zealand domestic Flight Information Region.

Safety criteria will be developed around:

» performance-based navigation (PBN) operations, including aircraft equipment and operator approvals. PBN is a term used to describe technologies that are moving aviation away from a ground-based navigation system toward a system that relies

more on equipment on board the aircraft;

- » ground-based navigation aids in New Zealand;
- » the Airways surveillance system (linked to GNSS through the dependency on satellite-derived information); and
- » airspace design.

The criteria will guide decision-making and the development of any new rules and advisory circulars.

GNSS IFR Operations

While any rule development affecting IFR/PBN operations will be strongly influenced by decisions on the use of GNSS, emphasis will also be placed on routes, instrument procedures, and destination/alternate suitability.

Under NSS, the current Part 19, Subpart D *IFR Operations: GNSS* will be



If you need to upgrade now, or require advice, talk to your avionics supplier, or contact the CAA.

reviewed. The review will encompass aircraft equipment, pilot qualifications, and rules surrounding IFR flight operations.

Surveillance

New Zealand's radar surveillance network needs to be replaced by 2021. As signalled by NSS in June 2014, Airways proposes to base the new system around Automatic Dependent Surveillance – Broadcast (ADS-B). ADS-B's accuracy is greater than conventional radar surveillance.

ADS-B needs a transponder and GNSS receiver to transmit position data. A GNSS receiver processes information from a GNSS satellite constellation in order to provide position, velocity, and a timing reference.

Under the ADS-B proposal, these technologies would be integrated with Airways' air traffic management system. Information available to air traffic controllers would be updated more frequently and in greater detail.

Airways is defining system requirements, including contingency needs of aircraft that experience an equipment failure or loss of satellite coverage.

Have Your Say

All new policy and any proposed rules arising from NSS (including surveillance and navigation rules) will undergo two rounds of consultation.

Later in 2015, we'll be asking for feedback on potential options and issues identified. That feedback will shape the Notice of Proposed Rulemaking (NPRM).

More information on proposed surveillance and navigation systems will be available soon. To stay informed about consultation opportunities, subscribe to our NSS email notification list on the CAA web site, www.caa.govt.nz, "Email Notification Service", and sign up to *Flight Path* – the monthly NSS newsletter, at www.nss.govt.nz.

ADS-B Equipment

Under the ADS-B proposal, the expected implementation dates for ADS-B are:

- » all aircraft flying above FL 245 would need operational ADS-B equipment by 31 December 2018;
- » all aircraft in controlled airspace would need operational ADS-B equipment by 31 December 2021.

If you fly only in uncontrolled airspace,

you would not need to be equipped for ADS-B.

Need to Upgrade?

Any new rules and advisory circulars will provide information on equipment requirements. We're aware that new types of ADS-B equipment are appearing on the market as other countries implement ADS-B – we'll keep you updated.

Buyer Beware

If you need to upgrade now, or require advice, talk to your avionics supplier, or contact the CAA at nss@caa.govt.nz.

Be careful if buying second-hand equipment – it may not be suitable for use in an ADS-B and/or PBN environment in New Zealand.

Note that Universal Access Transceiver (UAT) equipment from the United States won't work in New Zealand. UAT is a system that requires a dedicated ground infrastructure that will not be implemented here.

UAT equipment is often advertised as ADS-B, so before buying, check the equipment labelling and make sure it's not operating at 987 MHz. ■