

NAVIGATE TOMORROW'S FUTURE AIRSPACE TODAY

Honeywell IMMR

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HONEYWELL'S NEXT-GENERATION MULTIPLE-MODE NAVIGATION RADIO OFFERS IMPROVED GPS NAVIGATION ACCURACY, INTEGRITY, CONTINUITY AND AVAILABILITY.

The Honeywell IMMR fully meets or exceeds worldwide mandates for ADS-B position source accuracy and integrity. The IMMR provides high levels of reliability while attaining previously unachievable levels of GNSS position continuity and availability to airborne avionics.

PROBLEM STATEMENT

In accordance with the FAA's new DO-260B airspace regulations, operations with aircraft equipped with non-SA aware GPS position sources supplying the ADS-B Out transponder will be required to use the Service Availability Prediction Tool (SAPT) prior to each flight. This can cause flight delays as well as unnecessary costs. Furthermore, by the end of 2024, all aircraft operating in U.S. airspace must be equipped with GPS receivers that satisfy U.S. ADS-B Out requirements for improved position source accuracy, integrity, continuity and availability provided by full support of the U.S. SBAS system (WAAS).

Equipping your fleet with IMMR today provides compliance with the U.S. and all other DO-260B mandates worldwide.

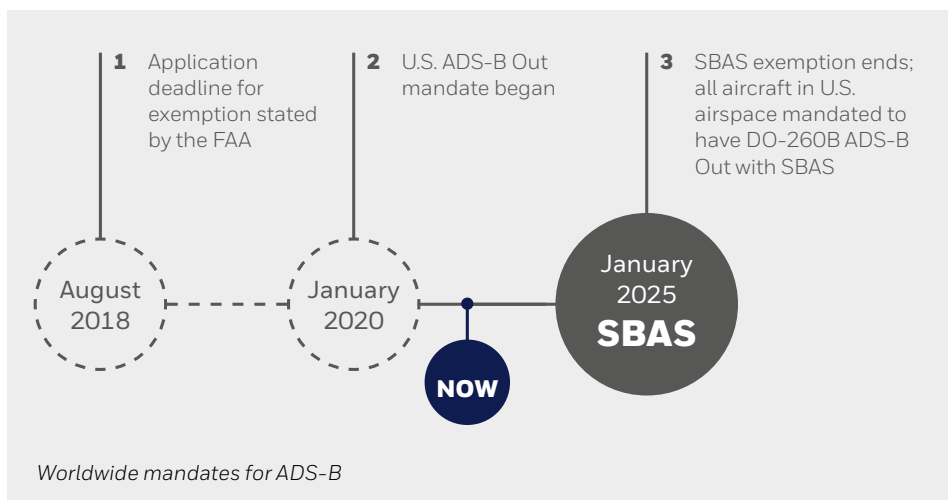
In addition, with the SBAS functionality enabled, it is possible to enable new functionality such as LPV approach in the near future. Equip now and you'll also benefit from our early-adopter incentives.

Start thinking today about the airspace of tomorrow

SBAS-capable equipment will be mandatory for the U.S. airspace by January 2025. We recommend you begin to equip your fleet with SBAS now. The earlier you start to equip your fleet the more you limit the risk of any capacity problems at MRO service providers and cost-intensive aircraft downtime. Start now and benefit from our early-adopter incentives.

ADVANTAGES OF IMMR

- Next-generation GNSS receiver, SA-aware and fully compliant with Satellite Based Augmentation of the GPS GNSS which meets all existing position source mandates worldwide
- Improves the accuracy and reliability of GPS information by correcting signal measurement errors and by providing information to airborne avionics about the accuracy, integrity, continuity and availability of its signals through the default SBAS functionality available via the WAAS (U.S., Canada and Mexico), EGNOS (EUROCONTROL countries), GAGAN (India), and MSAS (Japan) operational SBAS systems today
- Enhanced safety
- Reduces overall costs of ownership
- Increases schedule reliability
- 35% fewer parts resulting in a warranted MTBF of 30,000 hours
- The iMMR comes with a standard five-year warranty.



GO ONE STEP BEYOND WITH HONEYWELL'S IMMR

Honeywell's integrated Multi-Mode Receiver (iMMR) has a new, modern hardware design that has significantly fewer components and takes full advantage of advances in avionics manufacturing. It also benefits from a "clean sheet" design that emphasizes modular hardware and future functionality updates via software upgrades through a data loading port that that enables on-wing loading.

The iMMR has been designed to meet and exceed ADS-B Out position source mandates worldwide. Today, it fully supports both Ground Based Augmentation and Satellite Based Augmentation of the U.S. GPS constellation, known as GBAS and SBAS respectively. These two types of augmentation systems are different approaches to improving the navigation system's attributes, such as accuracy, reliability, and availability, through the integration of external information into the position calculation process of the navigation radio. The external information is generally a differential correction message received and utilized in the position calculation.

In the case of GBAS, the differential correction message is continually broadcast by a ground transmitter using a VHF frequency broadcast (VDB) with reception limited to a relatively small radius around an airport equipped with a GBAS ground station. GBAS is used today to facilitate GPS-based precision approaches (GLS approaches) which are more flexible in design than is possible with ILS. Because of the highly-localized correction information, GBAS is often referred to as a Local Area Augmentation System.

SBAS on the other hand is a wide area differential correction system which uses a number of geostationary satellites, able to cover vast areas, to broadcast primary GNSS data which has been provided with ranging, integrity and correction information by a network of SBAS ground stations. The first operational SBAS system which augments the GPS GNSS was the U.S. WAAS system, and now covers the continental US plus Canada, Alaska and Mexico.



This has enabled the development of LPV approach procedures at nearly 1000 airports. The European EGNOS system and Indian GAGAN systems are equivalents of the U.S. WAAS system providing GPS augmentation and LPV approach capabilities in those regions. There are nearly 1000 LPV approaches published in the EUROCONTROL region.

The IMMR is the first fully-digital navigation receiver that integrates:

- Instrument Landing Systems (ILS) and Marker Beacon (MB).
- GNSS with support of GPS constellation today and support in the future through firmware and software upgrades for multi-constellation operations (e.g., BeiDou or GALILEO as constellations become fully operational).
- Ground Based Augmentation Systems (GBAS) for support of of GLS Cat I approaches today, and support of GLS Cat II/III approaches in the future via a software upgrade, when GLS Cat II/III approach are operationally approved and GBAS and other ground infrastructure is upgraded to support GLS Cat II/III.
- Satellite Based Augmentation System (SBAS) for augmentation of GPS position provided by WAAS in the U.S., EGNOS throughout Europe, and GAGAN in India, the Multi-functional Satellite Augmentation System (MSAS) in Japan, as well as other GPS SBAS systems as they are deployed.



 **GPS RECEIVER**

 **WIRING KIT**

 **INSTALLATION**

 **CERTIFICATION/ APPROVALS**

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**THE
FUTURE
IS
WHAT
WE
MAKE IT**

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