

Existing ADS-B Transmit Equipment Capability Study

**Don Walker
Flight Safety COE
913-712-2193
don.walker@honeywell.com**

Review Assumptions From EVAcq Study

- **Some existing DO-260 Installations may allow the use of HFOM or EPU when HPL is not available to encode NUC**
 - NUC of 4 is interpreted as NIC=5, NAC=5, SIL=2 refer to DO-289 Table AE-3
 - NUC of 4 may be encoded by HPL < 1.0 Nm or HFOM(EPU) < 0.5 Nm refer to DO-260 Table 2-11
- **All Honeywell GPS transmit either HPL(HIL) or an indication that RAIM is unavailable**
- **Honeywell FMS do not transmit Label 130 (HIL) or Label 247 (HFOM) so Honeywell FMS with Honeywell Transponder solutions will always transmit NUC=0**
- **DO-289 does not require integrity for EVAcq**
 - Jonathon Hammer clarified a note in DO-289 at the August Meeting.

New Considerations

- **Some Rockwell Collins Transponders did encode NUC using EPU Label 167. Bob Saffell has assured me that those models have been upgraded and no longer perform that way.**
- **ACSS has made a similar modification. Tom Eich can provide the details.**
- **Tom Mosher of Garmin confirmed that they do not currently broadcast 1090 MHz ADS-B**
- **It is possible that there are a few units left in the field that will encode NUC using an accuracy metric based on ground Nav Aids like DME via the EPU label from FMS. Those units would be a small minority.**

New Considerations

- **According to Honeywell FMS personnel, the EPU and ANP should conservatively bound ground based Nav Aid performance when in U.S. or European airspace under fault-free conditions (95% accuracy). Nav Aid performance outside of those airspaces is not guaranteed due to poor surveys.**
- **Verified at least some Canadian Marconi GPS transmit HPL(HIL). It is likely they all do.**
- **Rockwell Collins verified that all their GPS transmit HPL(HIL) and/or an indication that RAIM is unavailable.**
- **Smiths and Honeywell have FMS flavors that transmit EPU.**
- **Latency in some existing installations may exceed the requirements for future applications, but meets the requirements in DO-289 Table 2-3.**

New Considerations

- **At least one Rockwell Collins transponder is transmitting DO-260A.**
- **Honeywell will transmit DO-260A on A380 and two other new programs.**
- **ACSS will transmit DO-260A on UPS Fleet**
- **Implementation of STP MOPS is not required at this point. Encourage FAA to update status of certification guidance.**

Conclusions

- **Coarse system study indicates that fielded equipment is predominantly transmitting NUC based on HPL(HIL) or other Integrity indicators.**
 - Some may encode NUC=0
 - Very few will encode NUC based on HFOM, EPU
- **EVAcq can be conducted using fielded transmit equipment with little risk.**

Next Steps

- **Propose using same methodology to evaluate the risk of using existing equipment for each of the initial applications.**
- **May need to have some additional modeling performed on the GPS constellation. Mitre has volunteered to support that activity.**