

ADS-B FAA/Industry Meeting
Spectrum Availability

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Spectrum Quandary

- ICAO says surveillance needs highest level of protection – ARNS band
- Problem: ARNS definition requires
“The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of waves”
Classically ADS-B doesn’t meet this reqt.
- So how do we proceed?

Candidate Links

- 1090 Squitter
- VDL-4
 - VHF band
- Universal Access Transceiver (UAT)
 - 960-1215 MHz band

1090 Squitter

- Overlay on existing 1030/1090 SSR use
 - Spectrum authorities have accepted Mode-S data link as acceptable for ARNS band
- Capacity studies performed
 - JSC (1999): airborne squitter acceptable; ground use review incomplete
 - Volpe (2000): Ground use also acceptable
- Conclusion: MOPS-level squitter (6.2/sec airborne, less for ground) acceptable. Need to revisit if changes proposed.

VDL-4

- Designed for VHF band, need global signaling channels (2) plus regional channels as necessary
 - 108-117.975 MHz ARNS
 - Heavily congested (ILS, VOR, GBAS)
 - Currently ground-coordinated only
 - 118-137 MHz AM(R)S band
 - Use communications band for surveillance?
- Issue with ADS-B in ARNS band
 - WRC-03 Agenda Item to address GBAS (LAAS) issues may be broadened
- FAA participating in the ICAO process, but have not identified suitable US spectrum at this time.

UAT

- ASR actively participating in UAT standardization efforts
 - Believe we have identified candidate frequency
 - DME channel paired with unusable VOR frequency
 - Not used in US
 - Lightly used in Europe
- Addressing ARNS issue with regulatory authorities
 - Band also allows “electronic aids to airborne navigation” as fallback route
- Working with US DOD to consider impacts of JTIDS/MIDS