UAT-WP-2-08
20 February 2001

RTCA Special Committee 186, Working Group 5

ADS-B UAT MOPS

Meeting #2

UAT SARPS Initiation

(Presented by Brent Phillips)
AMCP U.S. Member

SUMMARY
Review of AMCP Structure and status with presentation given on UAT SARPS Initiation

Aeronautical Mobile Communications Panel (AMCP)

UAT SARPS Initiation

Brent Phillips
AMCP U.S. Member
20 Feb. 2000

Air Navigation Commission Panels

- **Aeronautical Mobile Communications Panel (AMCP)**
- **Air Traffic Management Operational Concept Panel (ATMCP)**
- **Aeronautical Telecommunication Network Panel (ATNP)**
- Airworthiness Panel (AIRP)
- Dangerous Goods Panel (DGP)
- Flight Recorder Panel (FLIRECP)
- Global Navigation Satellite System Panel (GNSSP)
- Obstacle Clearance Panel (OCP)
- **Operational Data Link Panel (OPLINKP)**
- Operations Panel (OPSP)
- Review of General Concept of Separation Panel (RGCSP)
- **Secondary Surveillance Radar Improvements and Collision Avoidance Systems Panel (SICASP)**
- Visual Aids Panel (VAP)

AMCP Work Group Structure

- **WG-B; complete VDL Modes 3 and 4 frequency planning criteria**
- **WG-C; continuation of studies for development of future air/ground data links**
- **WG-M; maintenance of manuals for air/ground data links**
- **WG-F; Frequency issues and prep for the next WRC**

AMCP Status

- **VDL Mode 3&4 SARPs recommended for adoption**
  - Continuing Technical Manual completion
- **NGSS Core SARPs accepted as complete**
- **AMSS and HFDL SARPs approved**

Future Work

- **Address Tech Manual Issues with VDL Mode 4 including:**
  - **Validate against full set of Operational requirement for ADS-B**
  - **Identify two VHF global signaling channels (frequencies)**
  - **Validate compatibility with ATN**
- **Investigate UAT SARPS for surveillance applications**
- **Study future communications system**
- **Continue development of frequency planning criteria for VDL Modes 3 and 4.**
- **Continue frequency work in support of WRC**

UAT SARPS Supporting Rationale

- **The FAA believes that now is the time to begin SARPS on the UAT for the following reasons:**
  - The time alignment with RTCA SC-186 WG5 would be good.
  - Without ICAO involvement at this time, we run the risk of precluding UAT use outside the US with the publication of the UAT MOPS.
  - The interest and support for SARPs development appears to be available.
  - It is important for the global community to get exposure to this alternative and its capabilities through an ICAO standard.
  - Spectrum congestion
  - Working Group C has the experience and technical expertise to manage this effort.

SARPS Development Process

- FAA Internal Agency Support
- Interagency Group on International Aviation (IGIA) Coordination
- International AMCP Approval
- ICAO Aeronautical Navigation Commission Approval
- Core SARPS and Technical Manual (MOPS) development
- Frequency Planning and Allocation
- Implementation Plan development
- SARPS Validation by VSG
- AMC Panel Approval
- ANC Approval and Documentation

UAT Description

The UAT will:

- enable new air-air and air-ground procedures
- support the uplink of traffic information from existing radars.(TIS-B)
- support the uplink of ground-based weather radar imagery (FIS-B)
- support all RTCA DO-242 MASPS requirements in the highest density airspace
- operates on a single 1 MHz common channel in all airspace
- operates in the less congested L-band (960-1215 MHz)
- uses Continuous Phase Frequency Shift Keying to optimize power efficiency and performance in a self-interference environment.
- uses a simple one second frame period for pseudorandom media access to eliminate dependence on sensing of channel environment and complex slot management techniques.
- State Vector elements are uncompressed and conveyed in unsegmented messages
- measures message time-of-receipt to allow for validation of ADS-B messages support of antispoofing.