



Next**GEN**

The FAA/NextGen perspective

SATCOM Awareness Campaign
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11th Air Navigation Position

- Aeronautical air-to-ground VHF channel capacity for Air Traffic Management (ATM) is reaching saturation
 - Most severe in Europe and parts of the United States
- Various proposals to address this problem have been offered and approved independently; none has achieved global endorsement
- ICAO is seeking a common, global solution through the Aeronautical Communications Panel (ACP)



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AIR TRAFFIC ORGANIZATION



QinetiQ



FAA/EUROCONTROL Joint Future Communications Study

CCOM FAA/EUROCONTROL Coordination Committee



- The FAA and EUROCONTROL initiated a bi-lateral study of the problem with the support of NASA to provide major input to ICAO ACP in its search for a global solution

– Objectives:

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- Identification of requirements and operating concepts
- Investigation into new mobile communication technologies
- Investigation of a flexible avionics architecture



➤ Development of a Future Communications Roadmap

- Creation of industry buy-in
- Improvements to maximise utilisation of current spectrum

* *Federal Aviation Administration/EUROCONTROL, Cooperative Research and Development Action Plan 17: Future Communications Study (AP 17-04)*

Common Technology Screening Results

NASA – ITT	Common Recommendations		Eurocontrol
Continental	<ul style="list-style-type: none"> • P-34 • Broadband-VHF • Wideband CDMA • Enhanced TDMA • L-band Datalink [(x)DL3] 	<ul style="list-style-type: none"> • P-34 • Broadband-VHF • Wideband CDMA • Enhanced TDMA • L-band Datalink [(x)DL3] 	Continental <ul style="list-style-type: none"> • [(x)DL4]
Oceanic	<ul style="list-style-type: none"> • Custom Satellite • INMARSAT • Swift Broadband 	<ul style="list-style-type: none"> • Custom Satellite • INMARSAT • Swift Broadband 	Oceanic
Airport	<ul style="list-style-type: none"> • IEEE 802.16 	<ul style="list-style-type: none"> • IEEE 802.16 	Airport

Figure 1: FAA/NASA and EUROCONTROL shortlists of candidate technologies - September 2006



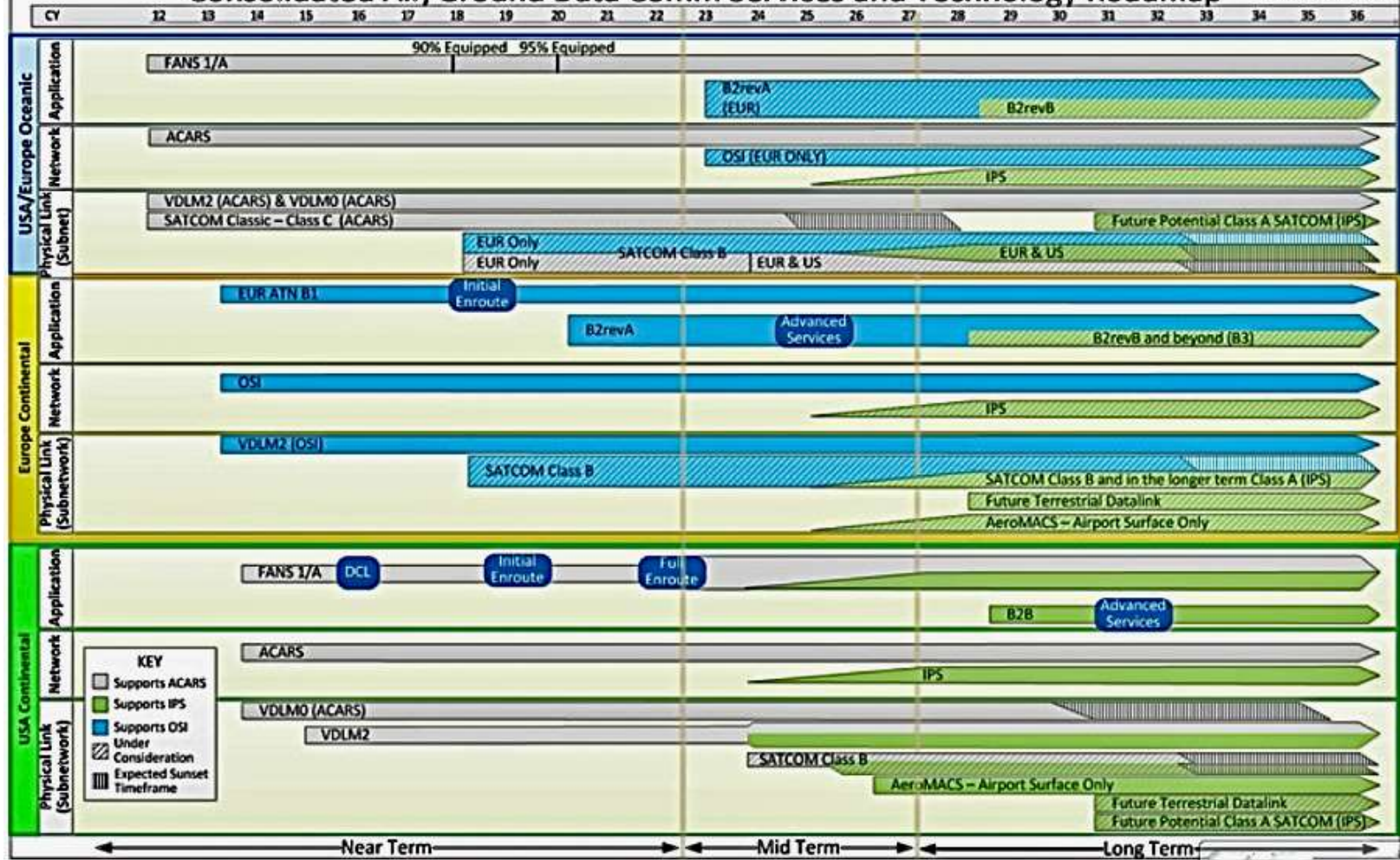
US Domestic SATCOM Strategy

- Will introduce SATCOM Domestically when and if needed to supplement Data Comm.
 - SATCOM Class B (Swift Broadband Safety and IRIDIUM Certus) in the mid-to-far term FY2030
 - Planned support for IPS
- Ensuring that aircraft can operate seamlessly between geographically distributed systems.
- Ensuring that common standards are available where needed.
- Harmonization of cybersecurity activities.
- Will consider the use of Commercially available Satellite systems to meet Performance Based requirements in the mid-far term



Consolidated Air/Ground Data Comm Services and Technology Roadmap

Version 0.12A 20/JUN/2017



BACK-UP Slides



Performance Based Satcom Developments

- Currently operational Satcom Performance Class C systems:
 - Continue to be used in oceanic and remote regions
 - Are part of the commercially available constellations of different Satellite Service Providers and vendors Satcom Systems, achieving the required performance to support Safety Critical FANS-1A+ Operations.
 - Meet the performance requirements defined in the 2nd edition of the AMS(R)S SARPs (July 2007).
- New NextGen SATCOM Performance Class B systems will:
 - support IPS with Security measures, support Voice and Data Communications, support Performance Based operations,
 - allow TBO Operations in Oceanic Regions,
 - support future Domestic Operations when Data Comm is saturated.
- Satcom Performance Class B meets the requirements for data (ATN/OSI and ATN/IPS) and voice services, with more stringent performance requirements compared to Class C to support more demanding operational environments.
 - For data services, Class B performance requirements are based on RCP120 and RSP160 for CPDLC and ADS-C services in ED242C/DO343D, applicable in continental airspace.
 - For voice services, Class B performance requirements are based on ED242C/DO343D, applicable in continental or other designated airspace.
 - When ICAO publishes specifications for new voice services RCP values, definitions maybe adapted.



Satcom Standards Development - Status

- ARINC 781 – completed 16 Jan 2019
- RTCA DO-210D Inmarsat Change 5 MOPS - completed Jul 26 2021
- RTCA DO-343D / ED-242C Inmarsat / Iridium NGSS MASPS - completed Jul 26 2021
- RTCA DO262F / ED-243C MOPS Iridium Appendix (F) - completed Mar 18 2021
- ICAO NextGen SARPs Volume III- in process
- ICAO Doc 9925 Technical Guidance Manual - in process



SATCOM related IPS industry standards in progress

- Completion anticipated by end 2022

- RTCA SC-223/EUROCAE WG-108 - IPS Profiles DO-379 /ED-262
- IPS MASPS DO-yyy/ED-zzz
- RTCA SC-228/DO-377 - UAS C2 Link UAS C2 Link (terrestrial)
- ICAO DCIWG/ WG 1 - IPS Technical Manual Doc.9896 Ed.3
- IPS SARPs- Annex10, Vol II and Volume III
- IPS Secure Services Doc. 10090
- IPS Secure Dialog Service Technical Manual Doc. 10094
- IPS PKI Security Policy Doc. 10095
- IPS Security Risk Assessment Doc.10145
- DCIWG/WG-M - Amendments of Manual on Detailed Technical Specifications for ATN Doc. 9880

