



ICAO

UNITING AVIATION

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Agenda Item 5- Air Navigation Planning, Deficiencies and Reporting in the CNS Areas

Presented by:

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OUTLINE

- **Minimum reporting in the Ground/Ground & Air/Ground Communication area**
- **Minimum reporting in the Navigation area**
- **Minimum reporting in the Surveillance area**
- **Minimum reporting in the Spectrum area**



Minimum Reporting Areas Communication, Navigation, Surveillance and Spectrum

- **Communication**

- Ground/Ground (ATS/DS, AIDC, VoIP, AFTN and AMHS)
- Air/Ground (HF/VHF voice com, HF/VHF DL and CPDLC)

- **Aeronautical Spectrum**

- **Navigation**

- Conventional Nav'Aids and GNSS (Basic GNSS, ABAS/SBAS/SBAS)

- **Surveillance**

- SSR, ADS-C/B and Mlat



ICAO Framework

...in relation to CNS

Chicago
Convention

Annexes
(SARPs)

PANS and SUPPS

Guidance
Documents

(Manuals + Circulars)

Annexes (SARPs) :

Annex 10 - Vols I, II, III, IV, V and VI (under development)
and Annex 11

Operational procedure:

PANS-ATM (Doc 4444), PANS-OPS (Doc 8168), PANS AIM
(Doc 10066 AIM), Training (Doc 9868 Training)

Regional requirements/procedure:

SUPPS

Technical Requirement and Guidance Materials :

Docs 9924, 9896, 9380, 9694, 10037, 9994, 9871, 9849, 8071, etc..

Supporting implementation:

Different Circulars and other related documents such as
GANP/ASBU/technology roadmap.



Minimum reporting in the Communication area

Ground/Ground Communication (1)

- **Deficiencies result when:**
 - Air Traffic Service/Direct Speech (ATS/DS) in accordance with the operational requirements of Annex 11, Air Traffic Service Chapter 6, Doc 4444 Procedures for Air Navigation Services Chapter 10 and the provision of Annex 10 Volume
 - Is not implemented between two ATSUs, or not restored
 - Air Traffic Service Interfacilities Data Communication (AIDC) in accordance with the requirements of Annexes 10 and 11 and the relevant supporting guidance documents (Doc 4444, Doc 9694...)
 - Is not implemented between Air Traffic Service Units, or not restored as it appears to complement ATS/DS
 - VoIP
 - Is not implemented as it will bring more flexibility and increase the availability of vocal coordination communication.



Minimum reporting in the Communication area Ground/Ground Communication (2)

- **Deficiencies result when:**
 - Aeronautical Fixed Service Network (AFTN) and Air Traffic Service Message Handling System (AMHS) in accordance with the operational requirements of Annex 3 Aeronautical Meteorology, Annex 10 Volume II Aeronautical telecommunication, Annex 11 Air Traffic Service, Annex 15 Aeronautical Information Service, and the relevant supporting guidance documents (Doc 9896 Manual for the ATN using IPS Standards and Protocols, Doc 9880 Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols, Doc 9694 Manual on Air Traffic Services Data Link Applications.
 - Are not implemented between telecommunication centers/States, or not restored
 - Rejected or missing Flight Plans



Minimum reporting in the Air/Ground Communication area

- **Deficiencies result when:**

- High Frequency/Very High Frequency (HF/VHF) voice
- High frequency/Very High Frequency Data Link Communication (HF/VHF DL)
- Controller Pilot Data Link Communication (CPDLC)

In accordance with the operational requirements of ICAO Annex 10 Volume II & III Aeronautical Telecommunication, Annex 11 Air Traffic Service and relevant supporting guidance documents (Doc 4444 Procedures for Air Navigation Service (PANS-ATM) Doc 9694 Manual on Air Traffic Services Data Link Applications, Doc 10037 Global Operational Data Link Document (GOLD)

- Are not implemented, or not covering all airspaces and Air Traffic Control Centers involved in the provision of air navigation service for international civil aviation, or not restored after breakdown/failure.
- Full VHF radio coverage not implemented (non availability of two way communication between ATS and aircraft)



Minimum reporting in the Navigation area

- **Deficiencies result when:**
 - Conventional Radio Navigation in accordance with the AFI Air Navigation Plan (ANP), FASSID Table CNS3 (Radio Navigation Aids and GNSS in support of PBN implementation), and in the framework of the Roadmap for Navigation in the GANP and the AFI strategy.
 - Conventional Radionavigation stations (VOR, DME, ILS) are not implemented
 - Conventional Radio Navigations are out of services and not restored
 - Periodic flight calibration of NavAids in accordance with ICAO Doc 8701 are not being carried out
 - Global Navigation Satellite System (GNSS) and its Augmented Systems (ABAS/GBAS/SBAS)
 - WGS-84 System is not implemented; or not fully implemented;
 - National Regulation on GNSS is not promulgated.

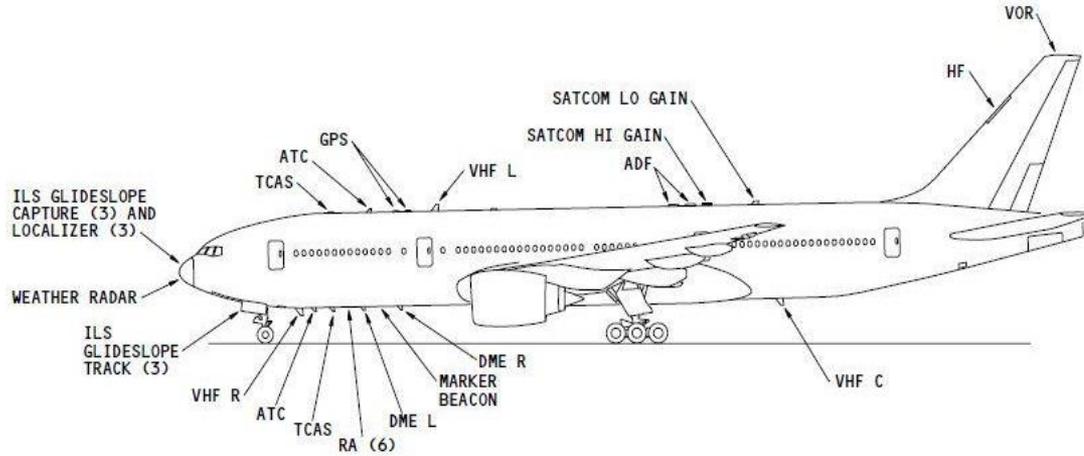


Minimum reporting in the Surveillance area

- **Deficiencies result when:**
 - In the framework of the technology Roadmap for Surveillance defined in the GANP and AFI strategy the provision of air traffic surveillance will cover all areas of routing and homogeneous traffic flow in the AFI Region and will address all Centers involved in the provision of air navigation service for international civil aviation.
 - State:
 - has not developed and applied procedures for 24-bit aircraft address assignment
 - has a lack of essential surveillance facilities to support the provisions of ATS
 - has not implemented Required Surveillance Performance RSP
 - has not implemented SSR Mode S in continental airspace
 - has not implemented ADS-C in the oceanic and continental remote airspace



Minimum reporting in the Spectrum area



00-00-00-000 Rev 5 04/17/1997

777 GENERAL - ANTENNA LOCATIONS



Minimum reporting in the Spectrum area

- **Deficiencies result when:**

- In the framework of the technology Roadmap for Spectrum defined in the GANP and AFI strategy the provision of adequate spectrum to aeronautical CNS and ATM services will cover all airspaces involve all phases of flights and all ATCs. The implementation schemes will be in accordance with the requirements of the provision of Aeronautical spectrum as defined in the Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc. 9718) and the provision of the AFI Air Navigation Plan (AFI/RAN Abuja 1997)

State:

- has not registered aeronautical frequencies in use at their Telecommunication/Communication Authority
- Experienced Harmful interferences
- has a lack of coordination for aeronautical frequency assignments or non use of appropriate frequency bands
- Has not registered VSAT frequency in the ITU Master International Frequency Register (IMIFR)



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Asia and Pacific
(APAC) Office
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THANK YOU