ICAO DAKAR UNITING AVIATION

Report on CNS-SG/6th to APIRG 20th Meeting

François-Xavier SALAMBANGA

Regional Officer CNS ICAO WACAF-Dakar

Yamoussoukro, 30 November-3 December 2015

Outline

I. CNS/SG/6 Meeting

II. Aeronautical Fixed and Mobile Communication Services

III. Aeronautical Conventional Navigation Systems and Global Navigation Satellite Systems

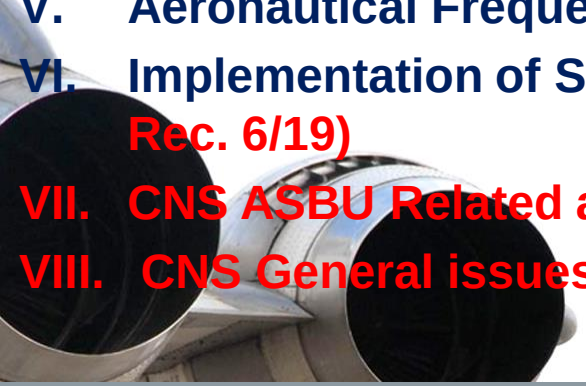
IV. Aeronautical Surveillance systems

V. Aeronautical Frequencies Spectrum

VI. Implementation of Sp AFI/RAN Recommendation related to CNS (Rec. 6/18 & Rec. 6/19)

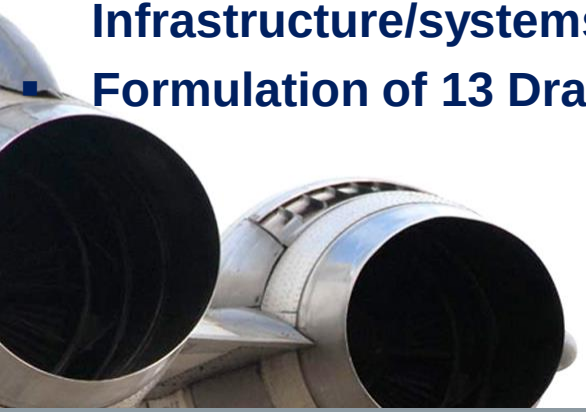
VII. CNS ASBU Related activities

VIII. CNS General issues & Next steps



CNS/SG/6th Meeting

- Held in Dakar, Senegal, 18-22 May 2015
- 52 participants from Seventeen (17) Contracting States, three international organizations namely AFCAC, ASECNA and the Roberts FIR.
- Deliberation on C, N, S and spectrum issues including both Infrastructure/systems and human capacity building
- Formulation of 13 Draft Conclusions and 3 Decisions



Aeronautical Fixed and Mobile Communication Services (WP 08A)

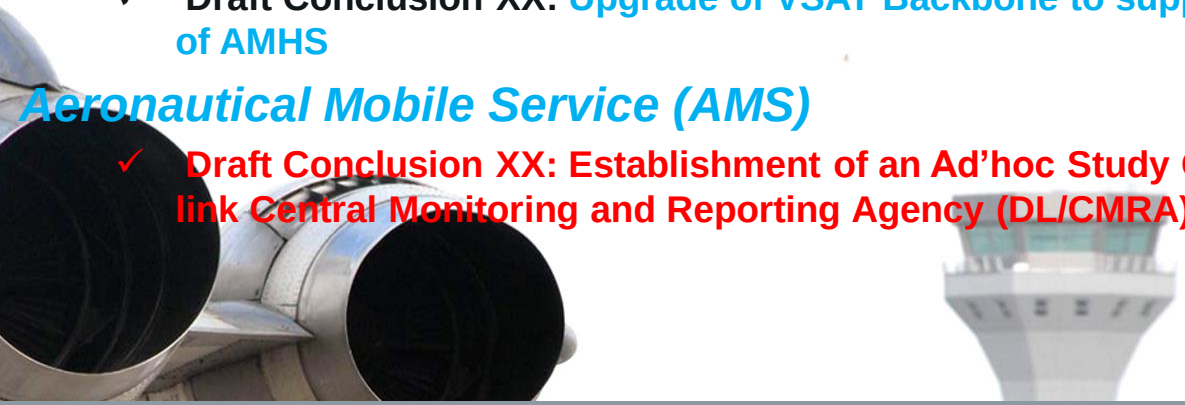
- **Identification of deficiencies**
- **Proposal of remedial actions**

Aeronautical Fixed Service (AFS)

- ✓ **Draft conclusion XX: Restoration of the performance of AFS circuits**
- ✓ **Draft Conclusion XX: Implementation of AMHS**
- ✓ **Draft Conclusion XX: Upgrade of VSAT Backbone to support the interconnection and operation of AMHS**

Aeronautical Mobile Service (AMS)

- ✓ **Draft Conclusion XX: Establishment of an Ad'hoc Study Group for the Implementation of a Data link Central Monitoring and Reporting Agency (DL/CMRA)**



Aeronautical Conventional Navigation Systems and Global Navigation Satellite Systems (WP08B)

Conventional Aeronautical Radio Navigation Service (ARNS)

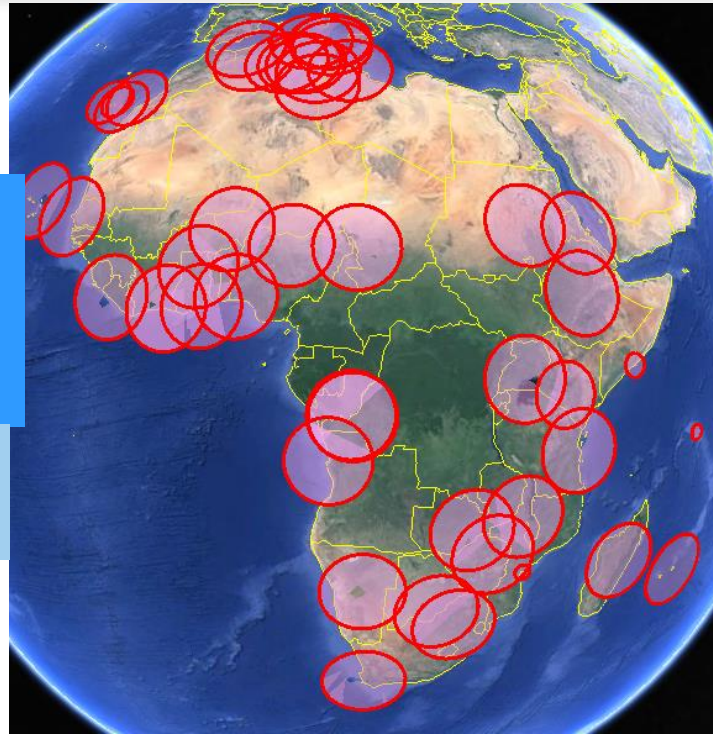
- Deficiencies in Table in Appendix to WP08B

Global Navigation Satellite System (GNSS) for Aeronautical Radio Navigation Service (ARNS)

- ✓ Cost benefit study for SBAS (called upon by APIRG **Conc. 17/29, Conc.18/33 &Conc. 19/29**) not conducted due to lack of funding for the cost of the study
- ✓ Trials conducted by ANSPS (ASECNA) on the implementation of GBAS-Dakar
- ✓ Results of studies on the impact of the equatorial ionosphere on GNSS (ASECNA in partnership with Thales Alenia Space and CNES France)
- ✓ **Draft Conclusion XX: Sharing of study on GNSS**

Aeronautical Surveillance systems (1/3) WP08C

Example of SSR Coverage

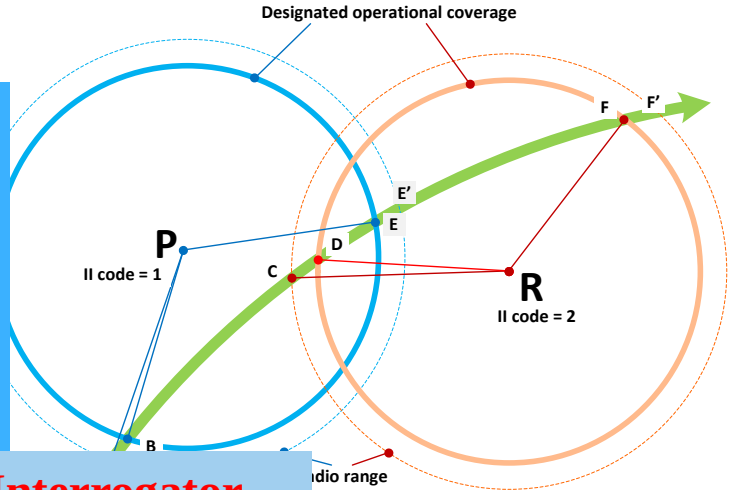


Opportunity to ensure continuity of surveillance service in order to provide to the ATM community, more efficiency and flexibility by ensuring to ATCs more accurate awareness of the traffic.

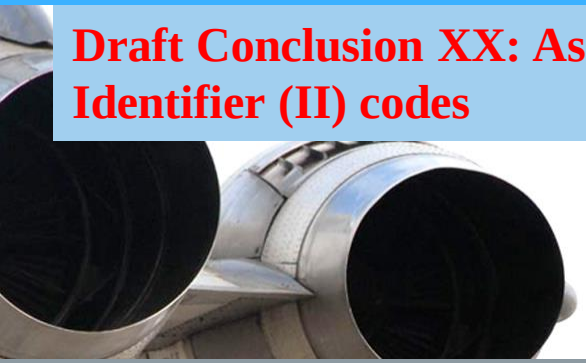
Draft Conclusion XX: Interconnection of Surveillance systems

Aeronautical Surveillance systems (2/3) WP08C

- SSR Mode S stations implementation ongoing
- Need of coordination to operate in the overlapping areas
- Difficulties encountered to assign SSR Mode S Interrogator Identifier (II) Codes due to lack of coordinates of SSR Mode S stations



Draft Conclusion XX: Assignment of SSR Mode S Interrogator Identifier (II) codes



Aeronautical Surveillance systems (3/3) WP08C

AFI II code Assignment planning criteria and Assignment Procédure developed

Draft Conclusion XX: AFI Interrogator Identifier (II) code assignement Planning criteria and procedure

Aeronautical Frequencies Spectrum WP08D (1/4)

Coordination actions in the framework of the AFI Frequency Management Group (AFI/FMG) and VSAT C band protection.

- **Attendance by the AFI Civil Aviation community to 1st and 3rd ATU preparatory meetings to WRC Dakar, 18-20 March 2013 & Abuja 26 -30 January 2015.**
- **WRC-15 Geneva (CICG), 2- 27 November 2015.**
- **4100 participants against 3200 for the last conference**
- **ICAO position on the WRC-15 Agenda Items of particular importance to civil aviation (1.1; 1.5; 1.17 and 9.1.5)**

Aeronautical Frequencies Spectrum WP08D (2/4)

Outcome of the ITU World Radiocommunication Conference (WRC-15)

- **Support to ICAO position leading to 100% success in promoting/defending the ICAO Position.**
- **1.17 Wireless Avionics Intra-Communications (WAIC) allocation of 4200-4400MHZ**
- **Agenda item 1.5 Resolution allocating for UAS CNPC links**

Aeronautical Frequencies Spectrum (3/4)

Outcome of the ITU World Radiocommunication Conference (WRC-15)

- Agenda 1.1 dealing inter alia with aeronautical frequencies no change in their allocation for IMTs

Frequency Bands	Aeronautical Service
400 – 406 MHz	ELT
960 – 1215 MHz	DME, SSR, 1090ES, MLAT, ACAS, UAT, GNSS, LDACS
1215 – 1350 MHz	PSR
1559 – 1610 MHz	GNSS
1.5 / 1.6 GHz	AMS(R)S (sub-bands)
2700 – 3100 MHz	PSR (airport approach
3400 – 4200 MHz	FSS used extensively in the AFI region for aeronautical ground-ground and Air Ground communications carrying safety critical data (VSAT). See also Agenda Item 9.1.5.
4200 – 4400 MHz	Radio Altimeters, WAIC
5000 – 5250 MHz	MLS, UAS Terrestrial & Satellite, AeroMACS, Aeronautical Telemetry
5350 – 5470 MHz	Airborne Weather Radar

Aeronautical Frequencies Spectrum (4/4)

Outcome of the ITU World Radiocommunication Conference (WRC-15)

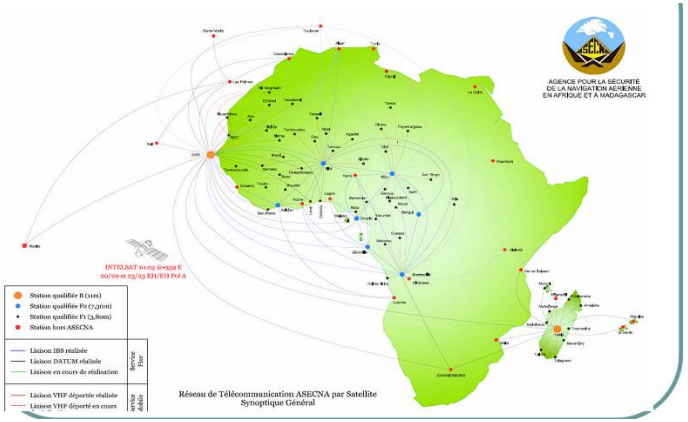
- **Agenda item 9.1.5 related to the protection of the C Band lead to the revision of Resolution 154 WRC-15**

- ✓ **Draft Conclusion XX: Support to ICAO position**
- ✓ **Draft Conclusion XX: Protection of C band Spectrum**

Implementation Sp AFI/RAN Recommendation related to CNS (Rec. 6/18 & Rec. 6/19)

Rec. 6/18: Audit of AFISNET

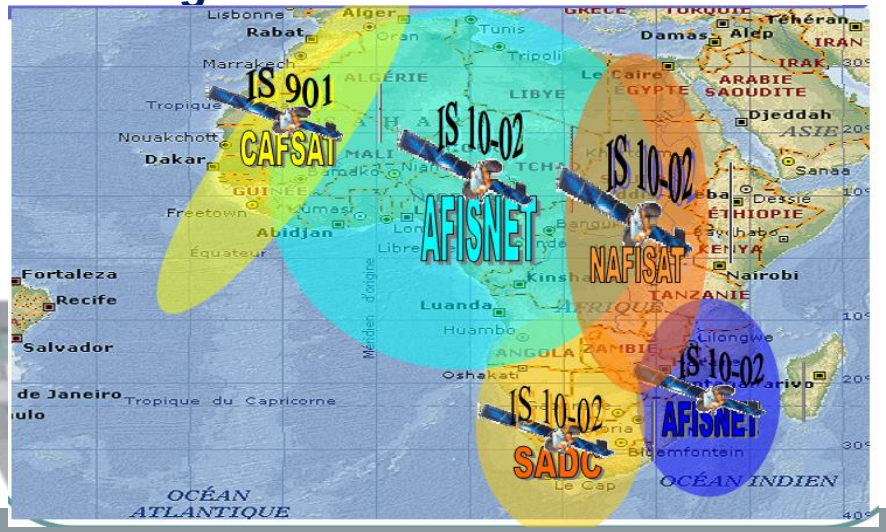
- **Audit completed and reported on 16 October 2015 to SNMC Board**
- **Deficiencies identified**
- **Re engineering Action Plan under development**



Implementation Sp AFI/RAN Recommendation related to CNS (Rec. 6/18 & Rec. 6/19)

Rec. 6/19: Panning, implementation and operation of VSAT networks in the AFI Region

- **Regular coordination meetings of Network Mangement Committees**
  - ✓ **SNMC**
  - ✓ **CNMC**
  - ✓ **SADC and NAFISAT Management Boards**
- **Re**



CNS/SG/6 ASBU Related activities (Details in A.Is 4.5)

- Identification of remaining and new tasks to be conducted in CNS field
- Identification and development of AFI Regional Air Navigation Service Implementation projects
- Update of the AFI ANRFs

CNS/SG/6 ASBU Related activities

Example of identified SUR Project (Details in Agenda items 4.5)

Operational Requirements	CNS Services	Identified projects components	Identified Tasks	To be completed	New Task	ASBU PIA	ASBU Module
Increase situational awareness	ASS	Implementation of Surveillance systems	Implementation of SSR Mode S	x		3 3 3	B0 - ASUR B0 – SNET B0-ASEP
			Implementation of ADS-C	x		4	B0- TBO
			Implementation of ADS-B (Ground & Space)		x	3 3 3	B0-ASUR B0- SNET B0- OPFL B0-ASEP
			Implementation of MLAT/WAM		x	3 3	B0-ASUR B0-SNET B0-ASEP

CNS/SG/6 General activities

- Development of the AFI e-ANP (Details under A.I 3)
- Reinforcement of the capacity of AFI CNS personnel

Draft conclusion XX: Reinforcement of the capacity of AFI CNS personnel

That;

- ***In order to ensure an effective implementation of the APIRG identified projects,***
- ***Administrations/Organization pursue their efforts in developing CNS personnel capacity building through consolidated training plans and programmes***
- ***ICAO continue to support CNS personnel capacity building through workshops and seminars***

What to do and where to go???

CNS/SG Next steps

- CNS/SG activities across the two New APIRG SGs
- Projects sharing the same ASBU PIAs and B0
- Need for close collaboration of Stake holders

Draft conclusion XX: Coordination for air navigation service planning and implementation

That;

- ***In the framework of APIRG new structure and project approach, appropriate mechanisms be established between ANS sectors (ATM, AIM, SAR, MET, CNS, AGA) in order to ensure an efficient coordination for air navigation service planning and implementation.***

Communications, Navigation and Surveillance (CNS)

ICAO

North American Central American and Caribbean (NACC) Office
Mexico City

South American (SAM) Office
Lima

ICAO Headquarters
Montréal

Western and Central African (WACAF) Office
Dakar

European and North Atlantic (EUR/NAT) Office
Paris

Middle East (MID) Office
Cairo

Eastern and Southern African (ESAF) Office
Nairobi

Asia and Pacific (APAC) Sub-office
Beijing

Asia and Pacific (APAC) Office
Bangkok

THANK YOU