



## INTERNATIONAL CIVIL AVIATION ORGANIZATION

**Fourth Meeting of the APIRG Infrastructure and Information Management Sub-Group (IIM/SG4)***(Virtual, 31 August – 3 September 2021)***Agenda Item 05: Implementation of ASBU Modules****Update on CNS ASBU modules***(Presented by the secretariat)***SUMMARY**

This working paper outlines the update on CNS related ASBU modules following the sixth edition of the Global air navigation plan ;

Action by the meeting in paragraph 3

**REFERENCE(S):**

- Global Air Navigation Plan (Doc 9750 5<sup>th</sup> & 6<sup>th</sup> Editions)
- Reports of APIRG/19 and further meetings
- AFI Air Navigation Plan (AFI ANP Doc 7474) and AFI e-ANP – Volume III

This working document relates to ICAO Strategic Objectives: **Safety, Capacity and Efficiency, to ASBU Performance Improvement Areas: PIA 1, PIA 2, PIA 3, PIA 4 and concerned Modules & Threads: APTA, SURF, FICE, ASUR, ASEP, ACAS, SNET, TBO,**

**1. INTRODUCTION**

- 1.1 The Global Air Navigation Plan (GANP Doc; 9750) was developed to assist States and regional planning groups in identifying the most appropriate operational improvements to achieve near - and medium-term benefits on the basis of current and foreseen aircraft capabilities and ATM infrastructure, while the *Global Air Traffic Management Operational Concept* (GATMOC-Doc 9854) provided the overall vision of a performance based ATM system.
- 1.2 The GANP is therefore an important planning tool for setting global priorities to drive the evolution of the global air navigation system and ensure that the vision of an integrated, harmonized, globally interoperable and seamless system becomes a reality.
- 1.3 The nineteenth meeting of the APIRG held from 28 to 31 October 2013, in Dakar, Senegal, adopted through its Conclusion 19/06 the AFI Regional Air Navigation System Implementation Action Plan aligned with the ICAO Aviation System Block Upgrades (ASBUs). This action plan was then integrated into the AFI Air Navigation Plan (eANP) Volume III, with allocation of priority to the 18 modules of ASBU Block 0 for implementation within the AFI Region.

## 2. DISCUSSIONS

2.1 The fifth Edition of the GANP defined a Roadmap for Communications, Navigation and Surveillance (CNS) technologies to support the implementation of ASBUs threads and Modules throughout the ASBUs Performance Improvement Areas: PIA 1, PIA 2, PIA 3 and PIA 4.

2.2 The nineteenth meeting of the APIRG (Dakar, Senegal, 28-31 October 2013) adopted Conclusion 19/06 ( *AFI Regional Air Navigation System Implementation Action Plan aligned with the ICAO Aviation System Block Upgrades (ASBUs)*) that reads as follows:

**Conclusion 19/06: Adoption of AFI Regional Air Navigation system Implementation Action Plan aligned with ICAO Aviation System Block Upgrades (ASBU)**

**That:**

a) **AFI States adopt the Regional Air Navigation System Implementation Plan aligned with the 18 Block 0 Modules of the ICAO Aviation System Block Upgrades (ASBU) Methodology, as provided at Appendix 3.0A to this report;**

b) **That AFI States implement the adopted modules based on their operational needs, the categorization and the prioritization defined in the Action Plan;**

c) **The Secretariat finalize the implementation targets set for the adopted ASBU Block 0 Modules, and ensure that these targets are aligned with existing regional programmes aimed at enhancing air navigation capacity and efficiency and aviation safety;**

d) **The APIRG and the ICAO Regional Offices coordinate the implementation of the ASBU Block 0 Modules related to Safety Key Performance Area with regional aviation safety mechanisms (RASG-AFI, AFI Plan) and other relevant safety initiatives for the AFI Region;**

e) **ICAO continually provide capacity building through workshops and seminars to AFI States and regional stakeholders as the needs arise in the different levels of ASBUs; and**

f) **The African Civil Aviation Commission (AFCAC), Regional Economic Communities and Financial institutions to provide their support and assist States the implementation of the AFI Regional Air Navigation System Implementation Action Plan.**

2.3 In this Action Plan CNS related ASBUs Modules are identified under each Performance Improvement Area to directly or implicitly concur to the key performance of the system as summarized in the table below:

PIA	ASBU Module (CNS)	Priority	Category
PIA 1: Airport Operations	<b>B0-APTA:</b> Optimization of Approach Procedures including vertical guidance	1	E
	<b>B0-SURF:</b> Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	2	O
PIA 2: Globally Interoperable Systems and Data-Through Globally Interoperable System Wide Information Management	<b>B0-FICE:</b> Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	1	E
PIA 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM	<b>B0-ASUR:</b> Initial capability for ground surveillance	2	D
	<b>B0-ASEP:</b> Air Traffic Situational Awareness (ATSA)	2	S
	<b>B0-OPFL:</b> Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	2	S
	<b>B0-ACAS:</b> ACAS Improvements	1	E
	<b>B0-SNET:</b> Increased Effectiveness of Ground-Based Safety Nets	2	D
PIA 4: Efficient Flight Path–Through Trajectory-based Operations	<b>B0-TBO:</b> Improved Safety and Efficiency through the initial application of Data Link En-Route	2	D

Note : ABU Modules are globally categorized as following:

**Essential (E):** These ASBU modules provide substantial contribution towards global interoperability, safety or regularity.

**Desirable (D):** These ASBU modules are **recommended** for implementation almost everywhere.

**Specific (S):** These ASBU modules are **recommended** for implementation to address a **particular operational environment or mitigate identified risks**.

**Optional (O):** These are the ASBU modules that **address particular operational requirements** and provide **additional benefits that may not be common** everywhere.

2.4 Furthermore the APIRG twentieth meeting (*Yamoussoukro, Cote d'Ivoire, 30 November – 2 December 2015*) discussed the establishment and operationalization of a New Structure of APIRG and its Contributory Bodies.

2.5 The meeting through its Conclusion 20/49 identified priority Projects and addressed implementation issues as stated below:

**Conclusion 20/49: Projects Identification and Implementation issues**

**That:**

a) **The initial set of projects identified by APIRG Sub-groups as shown at Appendix 4.4.8A through Appendices 4.4.8B, 4.4.8C, 4.4.8D1, 4.4.8D2, 4.4.8D3, 4.4.8E1, 4.4.8E2 and 4.4.8E3 are adopted;**

b) **The Secretariat develop a consolidated catalogue of all identified projects, using a standard format, to be endorsed by the APCC. In doing so, projects should be structured according to applicable areas of routing;**

c) **The APIRG through its APCC explore assistance and funding mechanisms in cooperation with regional and sub-regional organizations such as the African Union, the African Civil Aviation Commission, Regional Economic Communities (RECs) and financial institutions; and**

d) **The ICAO Regional Offices, AFCAC and AFRAA pursue interregional coordination to achieve harmonization and interoperability of air navigation systems, as well as seamless air transport operations across the regions.**

2.6 In view of the above, the implementation of the CNS related ABUS Modules and threads in the AFI Region is achievable at national level through the identified APIRG Projects linked to the Modules and Threads under the coordination of the AFPIRG CNS Projects Teams.

2.7 The linkage of CNS related projects to ASBUs Modules and the status of implementation are summarized in the table below:

<b>Regional Projects</b>	<b>Status of implementation</b>	<b>ASBU Module (CNS) involved</b>
<b>COM PROJECT.1: Implementation of Ground/Ground communication (ATS/DS, AIDC, VoIP)</b>	<ul style="list-style-type: none"> <li>▪ ATS/DS completed</li> <li>▪ AIDC on going</li> <li>▪ VoIP not start</li> </ul>	<b>AFI B0-FICE</b> <b>AFI B0-ASEP</b> <b>AFI B0-SNET</b>
<b>COM PROJECT.2: Implementation of Ground/Ground communication (AFTN, AMHS)</b>	<ul style="list-style-type: none"> <li>▪ AFTN completed</li> <li>▪ AMHS on going</li> </ul>	<b>AFI B0-FICE</b> <b>AFI B0-ASEP</b> <b>AFI B0-SNET</b>
<b>COM Project 3: Implementation of Air/Ground communication (HF/VHF voice data, CPDLC)</b>	<ul style="list-style-type: none"> <li>▪ HF/VHF Voice implemented</li> <li>▪ HF/VHF Data not started</li> <li>▪ CPDLC implemented</li> </ul>	<b>AFI B0-ASEP</b> <b>AFI B0-FRTO</b> <b>AFI B0-CDO</b> <b>AFI B0-CCO</b>
<b>COM PROJECT.4: Integrated Aeronautical Telecommunication Infrastructure</b>	<ul style="list-style-type: none"> <li>▪ VSAT nodes implemented</li> <li>▪ Interconnection/Interoperability on going</li> </ul>	<b>AFI B0-FICE</b> <b>AFI B0-DATM</b> <b>AFI B0-AMET</b> <b>AFI B0-OPFL</b> <b>AFI B0-TBO</b>
<b>COM Project 5: Assessment of AFI Aeronautical Networks Cyber Security</b>	<ul style="list-style-type: none"> <li>▪ Project launched</li> <li>▪ Assessment to be conducted case by case</li> </ul>	<b>AFI B0-FICE</b> <b>AFI B0-DATM</b> <b>AFI B0-AMET</b>

		<b>AFI B0-OPFL</b> <b>AFI B0-TBO</b>
<b>RADIONAV&amp; GNSS PROJECT: Implementation of Conventional Nav'Aids and GNSS (Core and Augmented)</b>	<ul style="list-style-type: none"> <li>▪ <b>Conventional Nav'Aids implemented</b></li> <li>▪ <b>GNSS Strategy to be updated after CBA on SBAS</b></li> <li>▪ <b>Ongoing initiatives on SBAS implementation</b></li> </ul>	<b>AFI B0-APTA</b> <b>AFI B0-FRTO</b> <b>AFI B0-CDO</b> <b>AFI B0-CCO</b>
<b>SUR PROJECT: Implementation of Surveillance systems</b>	<ul style="list-style-type: none"> <li>▪ <b>SSR &amp; ADS-C implemented</b></li> <li>▪ <b>ADS-B ground &amp; space on going</b></li> </ul>	<b>AFI B0-ASUR,</b> <b>AFI B0 -SNET,</b> <b>AFI B0-ASEP</b>

- 2.8 The sixth edition of the GANP updated the ASBU framework and related modules and threads. Communication, Navigation and Surveillance elements are made more visible since they have been gathered under COM, NAV, SUR and other ASBUs elements supported by CNS Technologies.
- 2.9 The details on the updated ASBUS Modules are available at the ICAO Webpage: <https://www4.icao.int/ganportal/ASBU>.
- 2.10 The ASBUs methodology developed the Air Navigation Reporting Forms (ANRFs) as tool to for the assessment of the maturity of Modules and Threads performance. However the pace of reporting by States so low to enable the development of consistent dashboard for ASBUS implementation. States are once again encouraged to fill the ANRFs and forward them to the Secretariat for compilation.

### **3. ACTIONS BY THE MEETING**

- 3.1 The meeting is invited to:
- a) Note the information provided in this document,
  - b) Update the Secretariat with the status of implementation of the ASBUS Modules
  - c) Consider draft conclusion as formulated in the WP5.1A

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