



International Civil Aviation Organization

MIDANPIRG Communication, Navigation and Surveillance Sub-Group

Twelfth Meeting (CNS SG/12)
(Amman, Jordan, 2-4 May 2023)

Agenda Item 5: ASBU Threads/ Elements related to CNS

CURRENT STATUS FOR ASBU CNS IMPLEMENTATION IN JORDAN

(Presented by Jordan)

SUMMARY

This paper presents the information on the current status for Aviation System Block Upgrades (ASBU) implementation in Jordan in terms of the following modules of ASBU: Airborne Collision Avoidance Systems (ACAS), Flow Information for a Collaborative Environment (FICE), Safety NETs (SNET), Automatic Surveillance (ASUR), Navigations (NAVS), Communication Infrastructure (COMI) and Communication Service (COMS)

Action by the meeting is at paragraph 3.

REFERENCES

- <https://www4.icao.int/ganpportal/ASBU>
- <https://carc.gov.jo/en>

1. INTRODUCTION

1.1 Jordan is one of the Pioneer States in the Middle East Region in aviation. For instance, in 1950, the pioneer airport in the region was founded, commonly known as Marka International Airport (presently, Amman Civil Airport). The first airline in Jordan was founded in 1963 and formerly known as Alia Royal Jordanian Airline (at present, Royal Jordanian). In 1983, Amman Area Control Centre (ACC) was established in Queen Alia International Airport. Since then, Jordan is committed for moving forward to utilize the latest CNS/ ATM systems with the goal of optimizing the Jordan's airspace and providing the Air Traffic Services (ATS) with the recommended safety criteria. This paper presents the current status for ASBU (Aviation System Block Upgrade) implementation in Jordan.

1.2 The Civil Aviation Regulatory Commission (CARC) developed its strategy on the basis of the developing Air Traffic Control (ATC) and CNS systems to reach international standards and to adhere to the rules related to ATM in accordance with international agreements and the requirements of the International Civil Aviation Organization (ICAO) to enable and support the growth of the civil aviation sector in Jordan and increase the efficiency of its use.

1.3 To get to the future, we need to prepare now. The actions of today are necessary for us to continue on a progressive path of solutions to address the current status of ASBU in Jordan, apparently, this is the main objective of this paper. To reach this goal, CARC would deploy the implementation plan of its strategy by conducting SWOT (Strength, weakness, opportunities and threat) analysis to enhance the current CNS/ATM systems and to develop (adopt) more advance systems in its implementation plan of ASBU.

2. DISCUSSION

2.1 The initiative ASBU (Aviation System Block Upgrades) which was led by the (ICAO) to modernize and harmonize the global air traffic management system. ASBU structure is made up of four components including four performance improvement area (PIA 1: Airport Operations, PIA 2: Globally Interoperable Systems & Data, PIA 3: Optimum Capacity and Flexible Flights, PIA 4: Efficient Flight Paths), four blocks (Block 0, Block 1, Block 2, and Block 3) and each block provides a specific set threads and capabilities (elements). ASBU are designed so that regions and states can select Module Elements and implement them based on their operational needs according to their schedule.

2.2 Firstly, in terms of implementation approach, the measure criteria such as cost effectiveness, achievability and efficiency should be taken into consideration and the following questions should be answered. For instance, which Elements do we need? What is the expected benefit? How much does it cost? What is our implementation schedule? What is our implementation status? However, ASBU elements should be analysed to decide its implementation in a process starts with needs, planning, developing, partially implemented and at last implementation. In each implementation process phase, the elements are re-evaluated or an assessment is made to ensure the effectiveness and the efficiency of the capability.

2.3 The following are ASBU Air Navigation Reporting Form (ANRF) for the following CNS related modules: Airborne Collision Avoidance Systems (ACAS), Flow Information for a Collaborative Environment (FICE), Safety NETs (SNET), Automatic Surveillance (ASUR), Navigations (NAVS), Communication Infrastructure (COMI) and Communication Service (COMS).

		State: Jordan	ASBU Air Navigation Reporting Form (ANRF)		
PIA	3	Block-Module	B1- ACAS	Date	Month 5/2023
Module Description: To provide short-term improvements to exciting airborne collision avoidance systems to reduce nuisance alerts while maintaining existing levels of safety. This will reduce trajectory deviations and increase safety in case where there is a breakdown of separation.					
Element Implementation status					
1	Element Description: ACAS II (TCAS version 7.1)	Date Implemented 2007		Status Implemented	
Status Details The CARC has authorized ACAS in accordance with Jordan Civil Aviation Regulation (JCAR) which was adopted under the authority and provisions of the Civil Aviation Law No. (41) dated 2007 part 91					

		State: Jordan	ASBU Air Navigation Reporting Form (ANRF)		
PIA	3	Block-Module	B0- FICE	Date	Month 5/2023
Module Description: To improve coordination between air traffic services units (ATSUs) by using ATS interfacility data communication (AIDC) defined by ICAO's Manual of Air Traffic Services Data Link applications (Doc 9694)					
Element Implementation status					
1	Element Description: AIDC to provide initial data to adjacent ATCUs	Date Planned 2023	Status: Planning		
Status Details ground system infrastructure in CARC including connectivity between ATSU systems through IP, AMHS, etc. could enable CARC to amend the national regulatory provisions on the use of AIDC and to set up the Procedures for message composition and exchange in accordance with PANS-ATM ICAO Doc 4444.					
2	Element Description: AIDC to update previously coordinated flight data	Date Planned 2023	Status planning		
Status Details update the national regulatory provisions and Procedures for message composition.					
3	Element Description: AIDC for control transfer	Date Planned 2023	Status planning		
Status Details Amend the national regulatory provisions and message composition and exchange procedures.					
4	Element Description: AIDC to transfer CPDLC logon information to the next data authority	Date Planned / Implemented Not applicable	Status not implemented		
Status Details Jordan is not planning CPDLC in near future.					

		State: Jordan	ASBU Air Navigation Reporting Form (ANRF)		
PIA	3	Block-Module	B0- ASUR	Date	Month 5/2023
Module Description: To provide initial capacity for lower cost ground surveillance supported by new technologies such as ADS-B OUT and wide area multilateration (MLAT) systems. This capability will be expressed in various ATM services e.g. traffic information, search and separation provision.					
Element Implementation status					
1	Element Description: ADS-B	Date Implemented	Status implemented		
Status Details Queen Alia Control Centre provided by five (ADS-B) Sites: Queen Alia International (QAIA), King Hussein International Aqaba (KHIA), Marka International Amman (MARKA), AL-Reesha Site, south of Jordan (REESHA) and Mode-S Radar imbedded with ADS-B manufactured by ELDIS (CZECH) Near Queen Alia International Airport.					
2	Element Description: MLAT	Date Planned 2023	Status planning		
Status Details To be used in King Hussein International Airport (AQABA) due to absence of radar coverage					

		State: Jordan	ASBU Air Navigation Reporting Form (ANRF)		
PIA	3	Block-Module	B0- SNET	Date	Month 5/2023
<p>Module Description: To enable monitoring of flights while airborne to provide timely alerts to air traffic controllers of potentials risks to flight safety. Alerts from short-term conflict alert (STCA), area proximity warnings (APW) and minimum safe altitude warnings (MSAW) are proposed. Ground-based safety nets make an essential contribution to safety and remain required as long as the operational concept remains human centered.</p>					
Element Implementation status					
1	Element Description: SATCA	Date Implemented 2010	Status implemented		
	Status Details Indra radar is capable to indicate alerts on the radar screen of the controller working positions.				
2	Element Description: APW	Date Implemented 2010	Status implemented		
	Status Details Indra radar is capable to indicate alerts on the radar screen of the controller working positions.				
3	Element Description: MSAW	Date Implemented 2010	Status implemented		
	Status Details Indra radar is capable to indicate alerts on the radar screen of the controller working positions.				
4	Element Description: Medium –term conflict alert (MTCA)	Date Implemented 2010	Status implemented		
	Status Details Indra radar is capable to indicate alerts on the radar screen of the controller working positions.				

		State: Jordan	ASBU Air Navigation Reporting Form (ANRF)		
PIA	3	Block-Module	B0- NAVS	Date	Month 5/2023
<p>Module Description: Support Precision Approach and landing operations at a specific airport (one system may support all runway ends). As an option, may support arrival and departure phases of flight. Ground Based Augmentation Systems (GBAS) Support Precision Approach and landing operations at a specific airport and Satellite Based Augmentation Systems (SBAS) Support PBN in all phases of flight with an increased accuracy and Increases accuracy and integrity for the vertical guidance. Aircraft Based Augmentation Systems (ABAS) Support non-precision (LNAV) and vertically guided (LNAV/VNAV) approaches with terminal and enroute navigations. ABAS supports all PBN navigation specifications with the exception of RNP APCH down to LPV/LP minima.</p>					
Element Implementation status					
1	Element Description: GBAS	Date Planned	Status planned		
	Status Details				

2	Element Description: SBAS	Date Planned 2023	Status planned
	Status Details At present, CARC is developing (re-evaluating) the procedures such as Area Navigation (RNAV) and Required Navigation Performance (RNP), which will generally give rise to safety improvements and operational efficiencies like capacity and predictability, in addition to reduced environmental impacts. To improve this facility, CARC is planned to study the possibility to utilize this element.		
3	Element Description: ABAS	Date planned 2023	Status planned
	Status Details		
	Status Details		

		State: Jordan	ASBU Air Navigation Reporting Form (ANRF)		
PIA	3	Block-Module	B0- COMS	Date	Month 5/2023
Module Description: CPDLC Supports: reduction of voice channel congestion and increase of capacity in domestic airspace, improvement of communication and surveillance in airspace where procedural separation is being applied. The ADS-C capability provides automatically, without pilot intervention, an ATS unit with information concerning the aircraft position and projected profile for the flight at time intervals, events or on demand dictated by the ground needs.					
Element Implementation status					
1	Element Description: CPDLC	Date Planned 2023	Status Planned		
	Status Details Cost effectiveness study is conducting to determine its use in Jordan				
2	Element Description: ADS-C	Date Implemented	Status implemented		
	Status Details				

		State: Jordan	ASBU Air Navigation Reporting Form (ANRF)		
PIA	3	Block-Module	B0- COMI	Date	Month 5/2023
Module Description: The Aircraft Communications Addressing and Reporting System (ACARS) is a digital datalink system for transmission of messages between aircraft and ground stations via VHF or satellites. ACARS provides the network for the controller and pilot with the ability to exchange datalink messages and thus provides a backup to voice communications.					
Element Implementation status					
1	Element Description: ACARS	Date Planned 2023	Status Planned		
	Status Details Cost effectiveness study is conducting to determine its use in Jordan				

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) update the status of implementation of CNS related threads/elements in the MID Air Navigation report for 2022;
- b) review and update, as appropriate, priority 2 of CNS related ASBU threads/elements in the MID REGION Air navigation strategy (ICAO MID Doc 002); and
- c) discuss any related matters.

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