CACAS WORKSHOP EXERCISE

Mogadishu FIR ASBU Exercise

Participants:

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Infrastructure

- **Air navigation infrastructure of Mogadishu FIR**
- **Communications**:
- a) Mogadishu FIC
- - Ground/air Voice – HF radio
- - Ground/ground Speech - dedicated (NAFISAT) links with adjacent centres of Nairobi, Addis, Sanaa, Seychelles and Djibouti APP/TWR
- - Back up ground/ground speech: PSTN with Mumbai and AFIS stations within Somalia
- - Ground/Ground telecom: AFTN
- b) AFIS Stations Hargeysa(HCMH), Berbera (HCMI) and Bosaso (HCMF)
- - ground/air Voice –VHF radio
- - Ground/ground Speech - PSTN with HF voice and fax ground/ground as back up

Infrastructure

- **Navigation infrastructure**: NIL
- **Airports:**
- BERBERA: LOCATION 102234.68N 445539.13E ,RWY 05/23 TORA,TODA,LDA ASDA=4140 M ELEVATION 134FT, AVG TFC MONTHLY 87
- HARGEYSA: LOCATION 093043.96N 440452.03E RWY 06/24 TORA,TODA,LDA ASDA=2440 M ELEVATION 4482FT AVG TFC MONTHLY 391
- BOSASO: LOCATION 111631.04N 490829.51E RWY 09/27 TORA,TODA,LDA ASDA=1700 M ELEVATION 34FT AVG TFC MONTHLY 180
- OVERFLYING AVG TFC MONTHLY 3659 (70%)
- AVG TIME ACFT TAKES TO TRANSIT FIR 76 MINS

1. Airport Operations

Block	Needed
1. B0-65 Optimization of approach procedures including vertical guidance This is the first step toward universal implementation of GNSS-based approaches.	Y
2. B0-70 Increased Runway Throughput through Wake Turbulence Separation Improved throughput on departure and arrival runways through the revision of current ICAO wake vortex separation minima and procedures.	N
3. B0-75 Improved Runway Safety (A-SMGCS Level 1-2 and Cockpit Moving Map) Airport surface surveillance for ANSP	N
4 B0-80 Improved Airport Operations through Airport-CDM Airport operational improvements through the way operational partners at airports work together	N
5. B0-15 Improved Runway Traffic Flow through Sequencing (AMAN/DMAN) Time-based metering to sequence departing and arriving flights	N

Globally Interoperable Systems and Data – Through Globally Interoperable System Wide Information Management

6. B0-25 **Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration** **Supports the coordination of ground-ground data communication between ATSU based on ATS inter-facility data communication (AIDC) defined by ICAO Doc 9694, Manual of Air Traffic Services Data Link Applications**	**Y**
7. B0-30 **Service Improvement through Digital Aeronautical Information Management** **Initial introduction of digital processing and management of information through the implementation of AIS/AIM making use of AIXM, moving to electronic AIP and better quality and availability of data**	Y
8. B0-105 Meteorological information supporting enhance operational efficiency and safety	Y

Optimum Capacity and Flexible Flights – Through Global Collaborative ATM

9. B0-10 Improved Operations through Enhanced En-route Trajectories Implementation of performance-based navigation (PBN) and flex tracking to avoid significant weather and to offer greater fuel efficiency, flexible use of airspace (FUA) through special activity airspace allocation, airspace planning and time-based metering, and collaborative decision-making (CDM) for en-route airspace with increased information exchange among ATM stakeholders	Y
10. B0-35 Improved Flow Performance through Planning Based on a Network-wide View Collaborative ATFM measure to regulate peak flows involving departure slots, managed rate of entry into a given piece of airspace for traffic along a certain axis, requested time at a way-point or an FIR/sector boundary along the flight, use of miles-in-trail to smooth flows along a certain traffic axis and re-routing of traffic to avoid saturated areas	N
11. B0-84 Initial capability for ground surveillance	N
12. B0-85 Air Traffic Situational Awareness (ATSA) This module comprises two ATSA (air traffic situational awareness) applications which will enhance safety and efficiency by providing pilots with the means to achieve quicker visual acquisition of targets: • AIRB (enhanced traffic situational awareness during flight operations) • VSA (enhanced visual separation on approach).	N

13. B0-86 **Improved Access to Optimum Flight Levels through Climb/Descent Procedures Using ADS-B** **The aim of this module is to prevent flights to be trapped at an unsatisfactory altitude for a prolonged period of time. The in trail procedure (ITP) uses ADS-B-based separation minima to enable an aircraft to climb or descend through the altitude of other aircraft when the requirements for procedural separation cannot be met.**	Y
14. B0-101 **ACAS Improvements** **Implementation of ACAS with enhanced optional features such as altitude capture laws reducing nuisance alerts, linking to the autopilot for automatic following of resolution advisories**	Y
15. B0-102 **Increased effectiveness of ground based safety nets.**	N

Efficient Flight Path – Through Trajectory-based Operations.

16. B0-05 **Improved Flexibility and Efficiency in Descent Profiles (CDOs)** **Deployment of performance-based airspace and arrival procedures that allow aircraft to fly their optimum aircraft profile taking account of airspace and traffic complexity with continuous descent operations (CDOs)**	Y
17. B0-40 **Improved Safety and Efficiency through the Initial Application of Data Link En-route** **Implementation of an initial set of data link applications for surveillance and communications in ATC**	Y
18. B0-20 **Improved Flexibility and Efficiency in Departure Profiles** **Deployment of departure procedures that allow the aircraft to fly their optimum aircraft profile taking account of airspace and traffic complexity with continuous climb operations (CCOs)**	Y

1. Performance Improvement Area 1: Airport Operations

Airport Accessibility: B0-65: Optimization of Approach Procedures including vertical guidance

ASBU B0-65: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	Y

ASBU B0-65 : Implementation Progress

Elements	Implementation Status (Ground and Air)
1. APV with Baro VNAV	TO BE IMPLEMENTED
2. APV with SBAS	TO BE IMPLEMENTED
3. APV with GBAS	TO BE IMPLEMENTED

ASBU B0-65: Implementation Roadblocks/Issues

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. APV with Baro VNAV	NOT REQUIRED	Basic GNSS	TO BE DEVELOPED (TBD)	N/A
2. APV with SBAS	NOT REQUIRED	Basic GNSS	TBD	N/A
3. APV with GBAS	NOT REQUIRED	Basic GNSS	TBD	N/A

ASBU B0-65: Performance Monitoring and Measurement (Infrastructure)

Infrastructure/Implementation referring to elements of the Module	Performance Metrics
1. APV with Baro VNAV	N/A
2. APV with SBAS	N/A
3. APV with GBAS	N/A

ASBU B0-65: Performance Monitoring and Measurement(KPAs)

Module benefits to Key Performance Areas	Performance Metrics
Access & Equity	N/A
Capacity	N/A
Efficiency	N/A
Environment	N/A
Safety	N/A

Performance Improvement Area 3: Optimum Capacity and Flexible Flights – *Through Global Collaborative ATM* : B0-10: Improved Operations through Enhanced En-Route trajectories.

6.ASBU B0-10: Impact on Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	Y	Y	Y	Y	N

ASBU B0-10 : Implementation Progress

Elements	Implementation Status ENROUTE
1 Airspace Planning	IMPLEMENTED
2 Element 2 FUA: Flexible Use of Airspace	IMPLEMENTED
3. Element 3 Flexible Routing	IMPLEMENTED

ASBU B0-10: Implementation Roadblocks/Issues

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1 Airspace Planning	ADS/CPDLC	FANS1/A	AVBL	TBD
2 Element 2 FUA: Flexible Use of Airspace	ADS/CPDLC	FANS1/A	AVBL	TBD
3. Element 3 Flexible Routing	ADS/CPDLC	FANS1/A	AVBL	TBD

ASBU B0-10: Performance Monitoring and Measurement (Infrastructure)

Infrastructure/Implementation referring to elements of the Module	Performance Metrics
1 Airspace Planning	TO BE INITIATED
2 Element 2 FUA: Flexible Use of Airspace	TO BE INITIATED
3. Element 3 Flexible Routing	TO BE INITIATED

ASBU B0-10: Performance Monitoring and Measurement (Infrastructure)

ASBU B0-10: Performance Monitoring and Measurement(KPAs)	
Module benefits to Key Performance Areas	Performance Metrics
Access & Equity	TO BE INITIATED
Capacity	TO BE INITIATED
Efficiency	TO BE INITIATED
Environment	TO BE INITIATED
Safety	TO BE INITIATED

- **Performance Improvement Area 4: Efficient Flight Path – *Through Trajectory-based Operations:***: Trajectory-Based :B0-40: Improved Safety and Efficiency through the initial application of Data Link En-Route

ASBU B0-40: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	N	Y

ASBU B0-40 : Implementation Progress

Elements	Implementation Status ENROUTE
1 ADS-C OVER OCEANIC AND REMOTE AREAS USING FANS1/A OR ATN B1	TO BE IMPLEMENTED
2 VDL MODE 2/CONTINENTAL CPDLC	TO BE IMPLEMENTED

ASBU B0-40: Implementation Roadblocks/Issues

Elements	Implementation Area			
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1 ADS-C OVER OCEANIC AND REMOTE AREAS USING FANS1/A OR ATN B1	ADS/CPDLC	FANS1/A	TBD	TBD
2 VDL MODE 2/CONTINENTAL CPDLC	ADS/CPDLC	FANS1/A	TBD	TBD

ASBU B0-40: Performance Monitoring and Measurement (Infrastructure)

Infrastructure/Implementation referring to elements of the Module	Performance Metrics
1 ADS-C OVER OCEANIC AND REMOTE AREAS USING FANS1/A OR ATN B1	TO BE INITIATED
2 VDL MODE 2/CONTINENTAL CPDLC	TO BE INITIATED

and Measurement(KPAs)

Module benefits to Key Performance Areas	Performance Metrics
Access & Equity	TO BE INITIATED
Capacity	TO BE INITIATED
Efficiency	TO BE INITIATED
Environment	TO BE INITIATED
Safety	TO BE INITIATED

THANK YOU FOR YOUR ATTENTION. WE APPLAUD THE PRESENTERS OF THIS SIP FOR QUALITY WHICH ENHANCED OUR KNOWLEDGE IN ASBU AS THIS WILL ASSIST IN ITS IMPLEMENTATION. SEE YO AGAIN SOON.