



International Civil Aviation Organization

MIDANPIRG Steering Group

Fifth Meeting (MSG/5)
(Cairo, Egypt, 18 - 20 April 2016)

Agenda Item 4: MID Region Air Navigation Planning

CNS PLANNING MATTERS

(Presented by the Secretariat)

SUMMARY

This paper presents the AMHS planning matters through the review of the outcome of the MIDAMC STG/3 meeting for consideration of and/or endorsement by MSG. It also provides update on other CNS planning matters.

Action by the meeting is at paragraph 3.

REFERENCES

- MIDAMC STG/3 meeting Report

1. INTRODUCTION

1.1 The Third meeting of the MID ATS Message Management Center Steering Group (MIDAMC STG/3) was held at the ICAO Middle East Regional Office in Cairo, Egypt, from 26 to 28 January 2016.

1.2 The meeting was attended by a total of twenty four (24) participants, from Eight (8) States (Bahrain, Egypt, Iran, Jordan, Kuwait, Lebanon, Saudi Arabia and United Arab Emirates) and one (1) Organization (SITA).

1.3 The meeting developed four (4) Draft Conclusions and one (1) Draft Decision.

2. DISCUSSION

Removal of CIDIN

2.1 The meeting may wish to note that Five (5) MID States have CIDIN links (Bahrain, Egypt, Lebanon, Saudi, and UAE), and all these States already have AMHS system in place. The MIDAMC STG/3 meeting urged States to take necessary measures and seek the support from MIDAMC Team, and plan for removal of these outdated connection as soon as possible.

AMHS Communication Paths for ROC

2.2 The meeting may wish to note that the MIDAMC STG/3 reviewed and updated the plan to implement AMHS communication paths between Jeddah-Vienna, and Bahrain-Vienna, to enable the exchange of OPMET data in digital format between the MID and EUR Regions as at **Appendix A**. It was noted that Athens and Nicosia, which are the entry/exit points between the MID and EUR Regions, had progressed in the procurement of the AMHS.

AMHS gateway for the MID with SITA

2.3 The meeting may wish to note that SITA is currently engaged with Jordan to prepare for IP network connectivity and AMHS Interoperability Testing, which is progressing well. Similar effort is initiated for AMHS interconnection with Qatar, according to SITA-AMHS gateway interconnection topology. The MIDAMC STG/3 meeting supported the efforts and will follow-up the progress through the MIDAMC on quarterly basis or when necessary. Lebanon has an AFTN connection with SITA and is interested to migrate to IP in order to have additional connection for the Region. Furthermore, the MIDAMC STG/3 meeting discussed in detail the charges from SITA to State. SITA confirmed that they do not charge the State for the Set-up or the traffic exchange. Charges only occur if State signs contract with SITA for specific services.

2.4 The ICAO EUR AFSG/19 meeting proposed that FAA organize a Coordination Workshop in Atlanta, United States, where the SITA gateway and the Atlanta COM Centre reside in order to promote common principles, exchange information, experiences and resolve/clarify outstanding issues related to SITA interconnections and migration to AMHS.

2.5 Based on the above, the Workshop was organized (12-14 August 2015). It resulted in drafting the migration plan document and an update to the AMHS-SITA Interconnection Architecture document. The MIDAMC STG/3 meeting reviewed the current version of the document that integrated all comments received from the Workshop participants. The MIDAMC STG/3 meeting encouraged States to further review and provide comments to the ICAO MID Regional Office by 20 February 2016, in order to share with the other ICAO Regions. However no comments were received.

2.6 The meeting may wish to note that the introduction of SITA PRMD in EUR AMC, and the SITA users addresses published in AMC on 4 February 2016 and activated on AIRAC 1603 cycle on 3 March 2016. The MIDAMC STG/3 meeting tasked the MIDAMC team to closely follow the activity and provide necessary support, and reports to the ICAO MID Regional Office any difficulties in order to share it with all concerned. In this respect, this introduction was successfully carried out in the MID Region with the excellent support from the MIDAMC.

File Transfer Body Part (FTBP) Trial

2.7 The meeting may recall that the World Metrological Organization (WMO) initially decided to migrate from alphanumeric codes to BUFR for the representation of Meteorological data; therefore, ATS Extended service was introduced to meet the Metrological requirement. At a later stage, the WMO decided to use XML.

2.8 The meeting may wish to note that most of the AHMS systems in the MID Region can run the extended services and especially File Transfer Body Part (FTBP), and these services can provide significant operational improvements. Accordingly, the MIDANPIRG/15 meeting agreed that trials be conducted for the use of extended services.

2.9 Based on the above, the MIDAMC STG/3 meeting agreed that a trial will be conducted between Jordan and Egypt (May 2016). In this regard, MIDAMC STG/3 meeting reviewed and updated the ATS Extended Trial Team members. Furthermore, the MIDAMC STG/3 developed testing document for the FTBP trial, as at **Appendix B**, and agreed to the following Draft Conclusion:

DRAFT CONCLUSION 3/2: FTBP TESTING DOCUMENT

That, the first edition of File Transfer Body Part trial and testing document at Appendix 4C (Appendix B) is endorsed; and be published as MID Document.

B0-FICE Plan and Implementation Monitoring

2.10 The ASBU B0-FICE plan and monitoring Table contained in the MID Air Navigation Plan Volume III, is shown in **Appendix C**. The MIDAMC STG/3 meeting had concern on the low level of implementation of the AIDC/OLDI implementation. Accordingly, the meeting encouraged States to use the MID Doc 006 (MID Region Guidance for the implementation of AIDC/OLDI), and conduct bilateral Workshops/Meetings to expedite the implementation in order to achieve the MID Air Navigation Strategy performance targets related to AIDC/OLDI implementation.

ADS-B out plan and Monitoring

2.11 The meeting may wish to recognize that ADS-B is one of the key technologies included in the GANP which supports many ASBU Modules in particular ASUR, SNET, ASEP, and OPFL.

2.12 MIDANPIRG/15 meeting reiterated that States share surveillance data and mainly the ADS-B, when available, to enhance safety, increase efficiency and achieve seamless surveillance. Accordingly, the meeting requested States to provide their plans/progress reports related to ADS-B implementation. Accordingly, MIDANPIRG/15 tasked the CNS SG to further review/update the template at **Appendix D**. However since the CNS SG/7 meeting has not yet convened, the meeting may wish to review the template used in the APAC Region as at **Appendix E** and agree on the way forward.

GNSS Plans

2.13 The frequency band 1559-1610 MHz is used for elements of GNSS, frequency interference-free operation of GNSS is essential, and this band need to be protected. The meeting may wish to note that footnotes 5.362B and/or 5.362C have been suppressed although some MID States until the last days didn't delete their names from these footnotes. Accordingly, the meeting may wish to urge MID States provide enough protection to this band and make proper regulations, also to have proper procedures for the follow up of any intentional/unintentional interference in this band .

2.14 The meeting may wish to note that Joint ACAC/ICAO MID Workshop on GNSS was organized in Rabat, Morocco, 5 April 2016. The workshop among other subjects covered the following:

- an overview about the latest developments related to GNSS; including SBAS and GBAS;
- the African experience related to the GNSS initiatives in aeronautical domain;
- information on the European Geostationary Navigation Overlay Service (EGNOS) status, development and its roadmap; and
- awareness on some of the projects launched by European Commission to support the EGNOS extension to tiers States.
- GAGAN status and plans

2.15 The Workshop was a good opportunity for detailed discussions on topics to support the elaboration of a suitable strategy on GNSS, such as possible GNSS options, roadmap and synergy with regional Initiative. Representatives from ACAC and ICAO MID Region States and relevant stakeholders including airlines and industry participated in the Workshop and shared their views and perspectives. The workshop recommendations are at **Appendix F**.

2.16 The meeting may wish to note that ICAO NSP/2 meeting (1-11 December 2015) developed new guidance on GNSS monitoring for inclusion in the GNSS Manual. Corresponding updates to Annex 10 to become applicable by November 2018.

3. ACTION BY THE MEETING:

3.1 The meeting is invited to urge States to:

- a) remove the outdated CIDIN connections;
- b) actively participate in the FTBP trials;
- c) accelerate B0-FICE implementation;
- d) review the APAC ADS-B out report template and agree on the way forward to adopt/adapt a similar template for the MID Region; and
- e) protect the GNSS Frequency band and promulgate the necessary regulations.

APPENDIX A

AMHS Plan for ROC in Jeddah and Bahrain					
	Task	Timeframe	Assigned to	Champion	Status
<i>AMHS Intra-regional Trunk Connections</i>					
1	Establish Jeddah – Beirut IP Network	Jul 2015	Saudi Lebanon	IM MS	
2	Establish Bahrain – Beirut IP Network	Feb 2016	Bahrain Lebanon	YH MS	Already in progress
3	Establish Cairo – Beirut IP Network	Jun 2016	Egypt Lebanon	AF//MR MS	
4	Establish Bahrain – Jeddah IP Network	Mar 2016	Bahrain Saudi	IM YH	
5	Perform the Interoperability test between Jeddah and Beirut COM centers	July 2015	Saudi Lebanon	IB MS	DONE
6	Perform the Interoperability test between Bahrain and Beirut COM centers	Feb 2016	Bahrain Lebanon	MS YH	
7	Perform the Interoperability test between Cairo and Beirut COM centers	June 2016	Egypt Lebanon	AF/TZ/MR MS/EK	Depends on IP network availability
8	Perform the Interoperability test between Bahrain and Jeddah COM centers	Mar 2016	Bahrain Saudi	YH IM	
9	Perform the Pre-operational test between Jeddah and Beirut COM centers	July 2015	Saudi Lebanon	IM MS	Done
10	Perform the Pre-operational test between Bahrain and Beirut COM centers	Feb 2016	Bahrain Lebanon	YH MS	
11	Perform the Pre-operational test between Cairo and Beirut COM centers	July 2016	Egypt Lebanon	AF/ /MR MS/EK	
12	Perform the Pre-operational test between Bahrain and Saudi COM centers	July 2016	Bahrain Saudi	YH IM	
13	Place the AMHS link into operation between Jeddah and Beirut COM centers, and updating the Routing tables	Jul 2015	Saudi Lebanon MID AMC	IM MS/EK MN	Done
14	Place the AMHS link into operation between Bahrain and Beirut COM centers , and updating the Routing tables	Mar 2016	Bahrain Lebanon MID AMC	YH MS/EK MN	
15	Place the AMHS link into operation between Cairo and Beirut COM centers, and updating the Routing tables	Aug 2016	Egypt Lebanon MID AMC	AF/TZ/MR MS/EK MN	
16	Evaluate the Trunks connections bandwidth and increase it if required between (Bahrain, Beirut, Cairo and Jeddah)	Jun 2016	Bahrain Beirut Cairo Jeddah	YH MS/EK AF/TZ IM	Depends on testing of digital data exchanged

<i>The AMHS Interconnection with EUR Region Depends on Nicosia and Athens</i>					
17	Establish Cairo – Tunis IP Network	<i>March2016 July 2016</i>		AF/TZ/MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
18	Establish Nicosia – Beirut IP Network	<i>Awaiting reply from EUR</i>		MS/EK	Lebanon ready
19	Establish Nicosia – Jeddah IP Network	Dec 2016		IM	Saudi Arabia ready
20	Establish Bahrain – Nicosia IP Network	Dec 2016		YH	
21	Establish Cairo – Athens IP Network	Dec 2016		AF/TZ/MR	Egypt Ready Link is ready as same CIDIN link will be used
22	Perform the Interoperability test between Cairo and Tunis COM centers	<i>April 2016 August 2016</i>		AF/ /MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
23	Perform the pre operational test between Cairo and Tunis COM centers	<i>Q2 2016</i>		AF/ /MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
24	Place the AMHS link into operation between Cairo and Tunis COM centers, and updating the Routing tables	<i>May 2016</i>		AF/ /MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
25	Perform the Interoperability test between Athens and Cairo COM centers	Mar 2017		AF/TZ/MR IB/MA	Athens advised that their system will be installed by Dec. 2016
26	Perform the Interoperability test between Bahrain and Nicosia COM centers	Q1 2017		YH	
27	Perform the Interoperability test between Nicosia and Jeddah COM centers	Q1 2017		IM	
28	Perform the Interoperability test between Nicosia and Beirut COM centers	Q1 2017		MS/EK	Nicosia in tender process
29	Perform the Pre-operational test between Athens and Cairo COM centers	Mar 2017		AF/TZ/MR	Athens advised that their system will be installed by Dec 2016
30	Perform the Pre-operational test between Bahrain and Nicosia	Q1 2017		YH	

	COM centers				
31	Perform the Pre-operational test between Nicosia and Beirut COM centers	Q1 2017		MS/EK	
32	Perform the Pre-operational test between Nicosia and Jeddah COM centers	Q1 2017		IM	
33	Place the AMHS link into operation between Athens and Cairo COM centers, and updating the Routing tables	Q1 2017		MIDAMC AF/ /MR	same
34	Place the AMHS link into operation between Bahrain and Nicosia COM centers , and updating the Routing tables	Q1 2017		MID AMC YH	
35	Place the AMHS link into operation between Nicosia and Jeddah COM centers, and updating the Routing tables	Q1 2017		MID AMC IM	
36	Place the AMHS link into operation between Nicosia and Beirut COM centers, and updating the Routing tables	Q1 2017		MS/EK	
37	Evaluate the inter-region connections bandwidth and increase it if required	Q1 2017		MID AMC	
38	Transition of all regional AFTN/CIDIN Connections to AMHS	Q2 2017	All MID States		

Champions:

Bahrain: (YH: Yaseen Hasan)

Egypt: (AF:Ahmed Farghally/TZ:Tarek Zaki/MR: Mohamed Ramzi/Essam Helmi: EH)

Lebanon: (MS: Mohamad Saad / EK: Elias El-Khoury)

Saudi Arabia: (IM: Mr. Ibraheem Mohamed Basheikh)

Tunis: IB: Issam Bouzid / MA: Mr. Mohamed Ali)

MID AMC/Jordan: MN: Muna Ribhi Alnadaf

APPENDIX B



**ATS Extended Services Trial
File Transfer Body Part (FTBP) Testing Document**

Author: ATS extended Services Trial Team (ASTT)
Date: 10/1/2016
Version: 0.1 (Initial Draft)

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References

- [1] ICAO Annex 10 – Aeronautical Telecommunication; Vol.II, Communication Procedure
- [2] ICAO doc 9880- Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols, Part II – Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS), First Edition – 2010
- [3] EUR Doc 020 – AMHS Manual

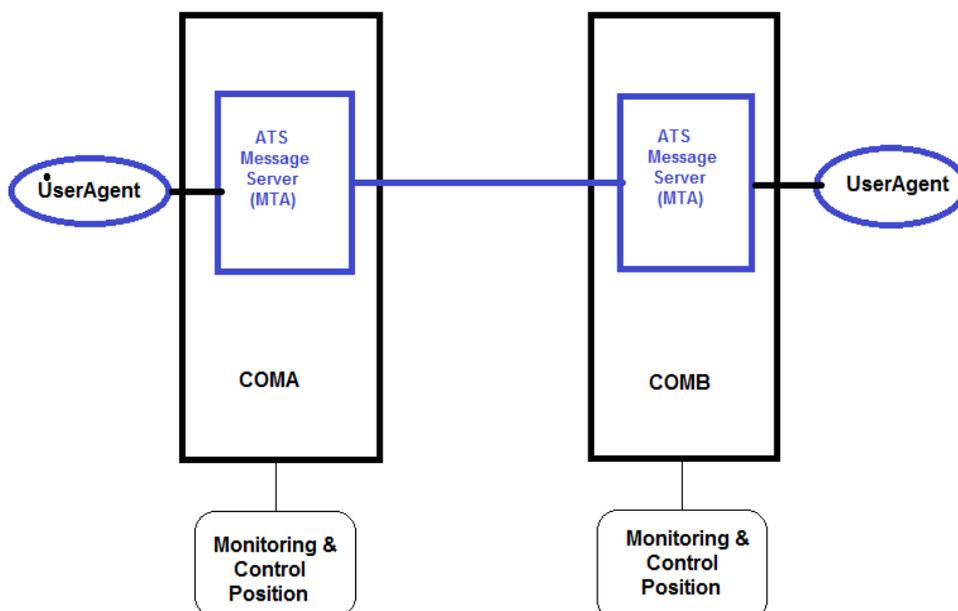
1. Introduction

The Message Handling service provided in the ATN is called the ATS Message Handling Service (ATSMHS). This service is specified using X.400 standards. There are two levels of ATSMHS service: Basic ATS Message Service and Extended ATS Message Service. Basic ATS Message Service provides a nominal capability equivalent from a user perspective to those provided by AFTN. And Extended ATS Message Service provides enhanced features such as supporting transfer of more complex message structures (body parts), use of the directory service, and support for security.

The purpose of this document is to define the functional tests for ATS Extended Service handling specially File Transfer body part (FTBP) in order to ensure the end-to-end capability of AMHS systems and network to exchange this type of messages. These tests are performed after the successful operation of AMHS basic services, through which the compliance of all systems to the AMHS technical specifications has been demonstrated and proved.

2. Test Environment

Both test systems should have operational AMHS link, and P1 connection setup. Two User Agents should be used to exchange traffic with File Transfer Body Part. The testing environment is as shown in the figure below:



The test can be performed in AMHS Network and unnecessary to have direct AMHS link between the two COM centers, the traffic can be exchanged via intermediary(ies) COM center(s), which should be involved in the test activities.

The User Agent address at COM A could be "COMAASTT", and at COM B "COMBASTT". The User Agent can be either P3 or P7 User Agent.

Network Analysis software can be used to monitor X.400 traffic and its effect on network Bandwidth. The software can be agreed on prior the test.

3. Test Procedure

Before the tests, the test partners should coordinate and document the type of body part used in IPMs submitted by their User Agents when submitting text messages, either as:

- IPMs containing a basic ia5-text body part, or
- IPMs containing an extended ia5-text body part, or
- IPMs containing a general-text body part with ISO646 repertoire.

3.1 Submission, Transfer and Delivery of a message including Binary file from UserAgent to UserAgent.

Test01	Submission of Binary file
Test Criteria	The Test is successful if COMB receive the message with Binary file attached with text message from COMA
Scenario Description	<p>From the UA of COMA send a sequence of five ATS messages (IPMs) to the COMB addressing the COMBASTT.</p> <ul style="list-style-type: none"> • Message 1 (Test011) shall have ATS-message-priority KK and binary file • Message 2 (Test012) shall have ATS-message-priority GG and binary file • Message 3 (Test013) shall have ATS-message-priority FF and binary file • Message 4 (Test014) shall have ATS-message-priority DD and binary file attached • Message 5 (Test015) shall have ATS-message-priority SS and binary file attached <p>Each message shall have different ATS-filing-time and ATS-message-text.</p> <p>Verify the messages received by the remote UA.</p> <p>In particular, verify:</p> <ul style="list-style-type: none"> • ATS-message-priority, • ATS-message-filing-time, • ATS-message-text. • The Binary file
Reference	9880

Test02	Submission of Binary file
Test Criteria	The Test is successful if COMA receive the message with Binary file attached with text message from COMB
Scenario Description	<p>From the UA of COMB send a sequence of five ATS messages (IPMs) to the COMA addressing the COMAASTT.</p> <ul style="list-style-type: none"> • Message 1 (Test021) shall have ATS-message-priority KK and binary file • Message 2 (Test022) shall have ATS-message-priority GG and binary file • Message 3 (Test023) shall have ATS-message-priority FF and binary file • Message 4 (Test024) shall have ATS-message-priority DD and binary file attached • Message 5 (Test025) shall have ATS-message-priority SS and binary file attached <p>Each message shall have different ATS-filing-time and ATS-message-text.</p> <p>Verify the messages received by the remote UA.</p> <p>In particular, verify:</p> <ul style="list-style-type: none"> • ATS-message-priority, • ATS-message-filing-time, • ATS-message-text. • The Binary file
Reference	9880

3.2 Submission, Transfer and Delivery of a message including Binary file from UserAgent to AFTN User

Test031	Submission of Binary file to AFTN User
Test Criteria	The Test is successful if COMA receive Non Delivery report (NDR) from the Gateway of COMB
Scenario Description	<p>From the UA of COMB send an ATS messages (IPMs) with binary file attached to the COMA addressing an AFTN user like the control tower COMAZTZX.</p> <ul style="list-style-type: none"> • Message 1 (Test031) shall have ATS-message-priority FF and binary file <p>Verify the messages not received by the remote AFTN User and that the sender receive NDR</p>
Reference	9880

Test032	Submission of Binary file to AFTN User
Test Criteria	The Test is successful if COMB receive Non Delivery report (NDR) from the Gateway of COMA
Scenario Description	<p>From the UA of COMA send an ATS messages (IPMs) with binary file attached to the COMB addressing an AFTN user like the control tower COMBZTZX.</p> <ul style="list-style-type: none"> • Message 1 (Test032) shall have ATS-message-priority FF and binary file <p>Verify the messages not received by the remote AFTN User and that the sender receive NDR</p>
Reference	9880

4. Test Summary

Use the Network Analysis software to analyze the traffic overhead occurred when sending binary files with the message. Also document the message size on system hard disks. Monitor any warning message or alarm during the tests.

Stress tests can be performed, by sending 20, 50 messages repeating test Test01 and Test02. Network and system response should be carefully monitored in order not affecting the life traffic.

5. ATS Extended Services Trial Team (ASTT)

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APPENDIX C

B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration

Description and purpose

To improve coordination between air traffic service units (ATSUs) by using ATS Interfacility Data Communication (AIDC) defined by the ICAO *Manual of Air Traffic Services Data Link Applications* (Doc 9694). The transfer of communication in a data link environment improves the efficiency of this process particularly for oceanic ATSUs.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	N	Y

Applicability consideration:

Applicable to at least two area control centres (ACCs) dealing with enroute and/or terminal control area (TMA) airspace. A greater number of consecutive participating ACCs will increase the benefits.

B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration

<i>Elements</i>	<i>Applicability</i>	<i>Performance Indicators/Supporting Metrics</i>	<i>Targets</i>
AMHS capability	<i>All States</i>	Indicator: % of States with AMHS capability Supporting metric: Number of States with AMHS capability	70% of States with AMHS capability by Dec. 2017
AMHS implementation /interconnection	<i>All States</i>	Indicator: % of States with AMHS implemented (interconnected with other States AMHS) Supporting metric: Number of States with AMHS implemented (interconnections with other States AMHS)	60% of States with AMHS interconnected by Dec. 2017
Implementation of AIDC/OLDI between adjacent ACCs	<i>All ACCs</i>	Indicator: % of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC/OLDI with neighboring ACCs Supporting metric: Number of AIDC/OLDI interconnections implemented between adjacent ACCs	70% by Dec. 2017

TABLE B0-FICE

EXPLANATION OF THE TABLE

Column

- 1 Name of the State
- 2, 3, 4 Status of AMHS Capability and Interconnection and AIDC/OLDI Capability, where:
Y – Fully Implemented
N – Not Implemented
- 5 Status of AIDC/OLDI Implementation, where:
Y – If AIDC/OLDI is implemented at least with one neighbouring ACC
N – Not Implemented
- 6 Action plan — short description of the State’s Action Plan with regard to the implementation of B0-FICE.
- 7 Remarks

State	AMHS Capability	AMHS Interconnection	AIDC/OLDI Capability	AIDC/OLDI Implementation	Action Plan	Remarks
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
Bahrain	Y	N	Y	N	Feb 2016 for AMHS Int.	OLDI Under test with Doha
Egypt	Y	Y	Y	Y		
Iran	N	N	Y	N		Contract signed for AMHS
Iraq	Y	N	N	N	AMHS Conn with AMMAN in Mar 2016	
Jordan	Y	Y	Y	N		
Kuwait	Y	N	Y	N	July 2016 for AMHS Int.	
Lebanon	Y	Y	Y	MS to confirm		OLDI implemented by no LOA
Libya	Y	N	Y	N		
Oman	Y	Y	Y	N		
Qatar	Y	Y	Y	Y		local implementation for OLDI
Saudi Arabia	Y	Y	Y	Y		local implementation for AIDC
Sudan	Y	Y	Y	N		
Syria	N	N	N	N		
UAE	Y	Y	Y	Y	Q2-2016	Local implementation for OLDI
Yemen	N	N	N	N		Contract signed for AMHS
Total Percentage	80%	53 %	80%	26.6%		

APPENDIX D

ADS-B OUT implementation

State	Mandate	Ground Station Capabilities	Flight Level	ATC Procedure	Data sharing Protocol	Data sharing States
Bahrain						
Egypt						
Iran						
Iraq						
Jordan						
Kuwait	April 2016	ADS-B GS Accept DO260,DO260A,DO260B	Will Be Implemented by April 2016	Will be Published by April 2016	ASTERIX (Cat 21 Ver 0.26)	N/A
Lebanon						
Libya						
Oman						
Qatar						
Saudi Arabia						
Sudan						
Syria						
UAE						
Yemen						

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ADS-B IMPLEMENTATION STATUS IN THE APAC REGION

State/ Administration	ADS-B Ground Infrastructure and ATC System readiness or Implementation plan	Date of issue/effectiveness date of equipage mandate	Mandated Airspace and/or ATS-routes	Intended separation criteria to be applied	Remarks
AFGHANISTAN	ADS-B & Multi Lateration system installed.				subject to safety assessment
AUSTRALIA	<p>A total of 33 ADS-B stations and 28 WAM stations are currently used.</p> <p>ATC system readiness since 2004.</p> <p>ADS-B data sharing with Indonesia operational since 2/2011.</p> <p>ASMGCS using multilateration is operational in Brisbane, Sydney & Melbourne. It is being installed in Perth.</p> <p>Additional 13 ADS-B stations from 2014-2016.</p> <p>OneSKY replacing current ATM system is estimated for full operational around 2020.</p>	<p>2009/effective date of mandating in UAP 12/12/2013.</p> <p>A forward fit ADS-B mandate also applies from 2/2014 for all IFR aircraft at all flight levels.</p> <p>An ADS-B for all IFR aircraft applies from 2/2017.</p>	<p>at/above FL290 UAP from 12/2013 for domestic & foreign aircraft.</p> <p>Mandates for additional flight level are considered for 2015 & 2017.</p> <p>WAM is operating in Tasmania since 2010 delivery 5 Nm separation service.</p> <p>WAM is also operating in Sydney for 3 Nm separation service in TMA and for precision runway monitoring function.</p>	<p>5 NM</p> <p>3 NM SYDWAN</p>	

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State/ Administration	ADS-B Ground Infrastructure and ATC System readiness or Implementation plan	Date of issue/effectiveness date of equipage mandate	Mandated Airspace and/or ATS-routes	Intended separation criteria to be applied	Remarks
BANGLADESH	Bangladesh has a plan to commission four ADS-B ground stations to be installed at Dhaka, Cox's Bazar, Saidpur and Barisal Airports by 2016. ADS-B data will be integrated with new ATS system at Dhaka.				
CAMBODIA	3 ADS-B ground stations installed at Phnom Penh, Siem Reap and Stung Treng City since 2011 and able to provide full surveillance coverage for Phnom Penh FIR. Cambodia is willing to share data with others.				
CHINA	<p>5 UAT ADS-B sites are used for flight training of CAFUC.</p> <p>8 ADS-B stations installed by end of 2012. 200 ADS-B stations nationwide will deployed as 1st phase.</p> <p>1 ADS-B station operational in Sanya FIR since 2008. Sanya ATC system ready since July 2009 to support L642 nd M771.</p> <p>Chengdu-Jiuzhai project finished in 2008 with 2 ADS-B stations and</p>	NOTAM issued on ADS-B trial operation			ADS-B signal alone won't be used for ATC separation

CNS SG/19
Appendix J to the Report

State/ Administration	ADS-B Ground Infrastructure and ATC System readiness or Implementation plan	Date of issue/effectiveness date of equipage mandate	Mandated Airspace and/or ATS-routes	Intended separation criteria to be applied	Remarks
	<p>additional site is planned to enhance the surveillance coverage.</p> <p>Chengdu - Lhasa route surveillance project completed with 5 ADS-B stations using 1090ES since 2010. Trials planned from May 2011.</p> <p>1 ADS-B site installed in Sanya FIR since 2008. 3 additional ground stations planned, Trial planned for Jun, 2011.</p>				
HONG KONG CHINA	<p>A larger-scale A-SMGCS covering the whole Hong Kong International Airport put into operational use in April 2009.</p> <p>Data collection/analysis on aircraft ADS-B equipage in Hong Kong airspace conducted on quarterly basis since 2004.</p> <p>ADS-B trial using a dedicated ADS-B system completed in 2007.</p> <p>ADS-B out operations over PBN routes L642 and M771 at or above</p>	<p>AIP supplement issued on 29 Oct.2013/12 Dec. 2013 as effective date.</p>	<p>L642/M771 ATS routes.</p>	<p>To be determined.</p>	<p>ADS-B signals being fed to ATC controllers under an operational trial programme.</p> <p>ADS-B operation in Hong Kong FIR re-scheduled for Dec. 2016. An AIP Supplement was issued on 29 Aug. 2014.</p>

APPENDIX F

ACAC/ ICAO MID GNSS WORKSHOP

- ACAC GNSS WG Provide regular working papers to the MIDANPIRG CNS SG
- States to provide effective spectrum management and protection of global navigation satellite system (GNSS) frequencies to reduce the likelihood of unintentional interference or degradation of GNSS performance
- States engage all Stake holders in all planning process
- Plan the upgrade of Air Navigation systems based on the identification of needs and expectation of the air space users and the identification of the optimum solution from operational and economic perspective. Maximize the use of the available technologies before investing in any new technologies
- States to share experience on GNSS and ASBU B0 Modules implementation including sharing of training and implementation packages and visits to other states
- State to identify operational requirements/Scope and improvements and plan for implementation accordingly taking into account the cost benefits of the different Augmentation systems available
- GAGAN (ISRO/AAI) to provide to CNS SG/7 and GNSS WG details on the services and the requirement for extension of these services to the MID Region
- EC to provide working papers to the CNS SG/7 on the progress achieved in the MID/ACAC States from the MEDUSA including the work programme for the workshop in October 2016 which will discuss the template of the International agreements, and ACAC/ICAO to attend
- States participated in the MEDUSA interested in further progress on EGNOS activities need to send official letters to EC, and provide updates on their GNSS plans and implementations Status to the CNS SG/7 and the GNSS WG
- EC is ready to assist ACAC States not participated in MEDUSA for the conduct of the cost benefit analysis free of charge upon official request from the CAA or ACAC
- JPO and MID Region to share their experience on legal and institutional frame work on EGNOS implementation. JPO is also ready to provide support to interested African States
- ACAC GNSS WG with ICAO Support to carry out the study to assess the likelihood and effects of global navigation satellite system vulnerabilities in the MID Region airspace
- CNS SG and GNSS WG to develop MID Region GNSS mitigation strategy