INTERNATIONAL CIVIL AVIATION ORGANIZATION

THE MIDDLE EAST AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (MIDANPIRG)

REPORT OF THE SIXTH MEETING OF THE CNS/MET SUB GROUP (CNS/MET SG/6)

(Cairo, 05 - 08 April 2004)

The views expressed in this Report should be taken as those of the MIDANPIRG AIS/MAP Task Force and not of the Organization. This Report will, however, be submitted to the MIDANPIRG and any formal action taken will be published in due course as a Supplement to the Report.

Approved by the Meeting
and published by authority of the Secretary General

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PART I – HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The sixth meeting of the MIDANPIRG CNS/MET Sub Group was held at the ICAO Middle East Regional Office, Cairo from 05 to 08 April 2002.

2. OPENING

2.1 Mr. A. Zerhouni, ICAO Middle East Office Regional Director Cairo, opened the meeting and warmly welcomed all the delegates to Cairo. Mr. Zerhouni explained the impact of the 11th Air Navigation Conference on the work of the present meeting, specially the influence of the new technology concept. He highlighted also issues related to deficiencies, AFTN contingency plan, ATN Planning document, OPMET data procedures and SADIS upgrade. Mr. Zerhouni wished the meeting every success in its deliberations.

2.2 Mr. Ali A. Mohamed from Bahrain, Chairman of the Sub Group conducted the deliberations of the CNS sessions and the whole meeting.

2.3 Mr. Ahmed H. Al-Harthy from Oman, Vice-chairman of the Sub Group conducted the deliberations of the MET sessions.

3. ATTENDANCE

3.1 The meeting was attended by a total of forty eight participants consisting generally, of specialists in CNS and MET from eleven States and two Organizations. The list of participants is at **Attachment A.**

4. OFFICERS AND SECRETARIAT

4.1 Mr. M. Traore, Regional Officer CNS, was the secretary of the meeting for CNS matters and Mr. B. Hellroth, Regional Officer Meteorology from ICAO Paris Office, was the secretary of the meeting for MET matters.

4.2 Mr. M. Khonji, Deputy Regional supported the meeting.

5. LANGUAGE

5.1 The discussions were conducted in English. Documentation was issued in English.

6. AGENDA

6.1 The following Agenda was adopted:

Agenda Item 1: Adoption of provisional agenda

Agenda Item 2: Follow-up of MIDANPIRG/8 and AFS/ATN TF/9 Decisions and Conclusions in respect of:

a) CNS; and
b) MET

Agenda Item 3: Discuss matters related to Aeronautical Telcommunciations:

3.1 Aeronautical Fixed Services

3.2 Aeronautical Mobile Services
3.3 Aeronautical Radio Navigation Service
3.4 MID VSAT Project
3.5 Latest developments in the ATN Field

Agenda Item 4: Discuss matters related to Meteorology

4.1 Implementation of the WAFS
4.2 SADIS Implementation
4.3 International Airways Volcano Watch (IAVW)
4.4 MID OPMET data procedures
4.5 Follow up of the MET Divisional Meeting (2002); Implementation of SIGMET requirements
4.6 Review of the MET part of the MID ANP/FASID
4.7 Future work programme for the CNS/MET SG

Agenda Item 5: Review of Deficiencies in:

a) CNS; and
b) MET

Agenda Item 6: Any other business.

7. CONCLUSIONS AND DECISIONS – DEFINITION

7.1 All MIDANPIRG Sub-Groups and Task Forces record their actions in the form of Conclusions and Decisions with the following significance:

a) **Conclusions** deal with the matters which, in accordance with the Group's terms of reference, merit directly the attention of States on which further action will be initiated by ICAO in accordance with established procedures; and

b) **Decisions** deal with matters of concern only to the MIDANPIRG and its contributory bodies

8. LIST OF DRAFT CONCLUSIONS AND DRAFT DECISIONS

DRAFT CONCLUSION 6/1: USE OF DIGITAL HIGH-SPEED CIRCUITS BETWEEN MAIN CENTRES

DRAFT CONCLUSION 6/2: UPGRADE OF THE KUWAIT-KARACHI CIRCUIT

DRAFT CONCLUSION 6/3: ADDITION OF THE BAGHDAD-KUWAIT CIRCUIT TO THE MID RATIONALIZED AFTN PLAN

DRAFT CONCLUSION 6/4: ADDITION OF THE CAIRO-TRIPOLI CIRCUIT TO THE MID RATIONALIZED AFTN PLAN

DRAFT CONCLUSION 6/5: PARTICIPATION OF THE MID COM CENTERS IN THE CIDIN MANAGEMENT CENTER (CMC) OF THE EUR REGION

DRAFT CONCLUSION 6/6: ESTABLISHMENT OF AND AD-HOC ACTION GROUP FOR THE SUPPORT OF AERONAUTICAL FREQUENCY BANDS

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DRAFT CONCLUSION 6/7:	HARMONIZATION BETWEEN VSAT NETWORKS
DRAFT CONCLUSION 6/8:	NON-IMPLEMENTATION OF ANNEX 3 PROVISIONS FOR METAR/SPECI AND TAF
DRAFT CONCLUSION 6/9:	REQUIREMENTS FOR TAF IN THE MID REGION
DRAFT CONCLUSION 6/10:	IMPLEMENTATION OF SIGMET REQUIREMENTS IN THE MID REGION
DRAFT CONCLUSION 6/11:	ESTABLISHMENT OF A MID TROPICAL CYCLONE ADVISORY CENTRE IN MUSCAT, OMAN
DRAFT DECISION 6/12:	INVITATION TO EMO FOR REGULAR PARTICIPATION IN THE MEETINGS OF THE MIDANPIRG CNS/MET SUBGROUP
DRAFT DECISION 6/13:	SURVEY OF MET DEFICIENCIES IN THE MID REGION

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Report on Agenda Item 1

PART II: REPORT ON AGENDA ITEMS

REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA

1.1 **Adoption of the Provisional Agenda**

1.1.1 The meeting reviewed and adopted the Provisional Agenda as shown in paragraph 6 of the History of the Meeting.

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Report on Agenda Item 2

REPORT ON AGENDA ITEM 2: FOLLOW UP OF MIDANPIRG/8 AND AFS/ATN TF/9 DECISIONS AND CONCLUSIONS IN RESPECT OF:
A) CNS; AND
B) MET

A) Communications Navigation and Surveillance (CNS)

2.1 The meeting noted that the Eighth Meeting of the Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG/8), (Cairo, 05- 11 September 2003), had adopted 3 Decisions and 7 Conclusions as in **Appendix 2A** to the report on Agenda Item 2.

2.2 The meeting noted that actions had been initiated for most of the Decisions and Conclusions mentioned above. The follow up on the other Decisions and Conclusions will be reviewed under the following Agenda items: 3, 4 and 5.

2.3 As regard to the Conclusion 8/46 **–** *Table of VHF Coverage*, the Sub Group expressed its concern on the lack of information received from States. Consequently, those States, which have not yet done so, are invited to fill in the relevant tables and to send them to this Office, as soon as possible.

2.4 The meeting also noted that the Ninth Meeting of the AFS/ATN TF (Cairo, 20 – 23 October 2003) had adopted 6 Conclusions and 2 Decisions as in **Appendix 2B** to the report on Agenda Item 2.

2.5 The meeting agreed that the follow up on these Conclusions and Decisions would be reviewed under the following Agenda items 3, 5 and 6.

B) Meteorology (MET)

2.6 The Meeting noted that MIDANPIRG/8 had adopted 4 Conclusions relevant to MET as in **Appendix 2C** to the report on Agenda Item 2.

2.7 The Conclusion 8/53 was followed up under agenda item 5 b) and the Conclusion 8/48 under agenda item 4.4. The Conclusion 8/49 and 8/50 had been noted by the Council and did not require any follow up in the MID Region.

MIDANPIRG/8 CONCLUSIONS AND DECISIONS RELATED TO CNS

CONCLUSION 8/40- MID VSAT FEASIBILITY STUDY

That,

a) MID States support and contribute to the MID VSAT feasibility study; and

b) Civil Aviation Authorities shall obtain timely the necessary authorization from their respective National Telecommunications Regulatory Authorities in order to install and operate VSAT equipments.

CONCLUSION 8/41- IMPROVEMENT IN THE TABLE CNS1 OF THE MID FASID

That, the current table CNS1 and explanatory note be deleted from the MID FASID and be replaced by the new tabular form and explanatory note as indicated at **Appendix 6S** to report on Agenda Item 6.

CONCLUSION 8/42- DEVELOPMENT OF MID REGIONAL AFTN CONTINGENCY PLAN

That, the MID Regional AFTN Contingency Plan be developed in order to ensure the continuity of AFTN in case of catastrophic failure at any point. States should provide to the ICAO MID Regional Office all the necessary information that would facilitate the development of the plan.

CONCLUSION 8/43- UPGRADE OF EXISTING COMMUNICATION INFRASTRUCTURES

That,

a) the States of the MID Region be encouraged, to deploy digital technology and high-speed links, as part of overall improvement of current ground-to-ground communications and provision of an infrastructure that would facilitate the transition to ATN; and

b) the ground-ground communications chapter of the MID FASID be amended in a view of taking into account the use of these new improvements regarding AFS communications.

DECISION 8/44- DEVELOPMENT OF THE MID REGIONAL ATN PLANNING DOCUMENT

That, the MID Regional ATN Planning Document (**Appendix 6T** to the report on Agenda Item 6) be developed in order to provide guidance and information necessary for ATN transition in the Region.

DECISION 8/45- ATN PLANNING GROUP

That,

a) the ground-to-ground ATN Study Group established by Decision 6/2 of the AFS/ATN TF/6 be replaced by a new ATN Planning Group consisting of the Experts from: Bahrain, Egypt, Iran, Kuwait, Oman, Pakistan, Saudi Arabia, UAE, Yemen, IATA and ICAO; and

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b) the new ATN Planning Group be tasked, in developing the draft of the MID Regional ATN Planning Document, to emphasize on the economical and operational justifications which are specific to the Region.

DECISION 8/46- TABLE OF VHF COVERAGE IN THE MID REGION

That, the table of VHF coverage attached in **Appendix 6U** to the report on Agenda Item 6 be adopted.

CONCLUSION 8/47- NEED TO MONITOR AFTN CIRCUIT OCCUPANCY

That, the concerned States closely monitor the occupancy of the following circuits and coordinate upgrading of the circuits capacity, in accordance with the LIM MID RAN meeting Conclusion 6/4

1. Abu Dhabi / Muscat
2. Amman / Cairo
3. Amman / Damascus
4. Bahrain / Singapore
5. Beirut / Kuwait
6. Cairo / Nairobi
7. Jeddah / Addis Ababa
8. Muscat / Mumbai

CONCLUSION 8/48- ADOPTION OF THE MID OPMET UPDATE PROCEDURES AND CREATION OF THE MID OPMET BULLETIN MANAGEMENT GROUP

That, the MID OPMET Update Procedure as attached in **Appendix 6V** be adopted and the MID OPMET Bulletin Management Group composed of the interregional OPMET gateways of the Region, the Focal Point of the Bulletin Management Group, IATA and ICAO, be created in order to manage the OPMET Update Procedure in the MID Region, in a coordinated manner.

CONCLUSION 8/54- ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE MID REGION

That, States:

a) allocate sufficient resources for the elimination of the air navigation deficiencies listed at **Appendices 8A, 8B, 8C and 8D** to the report of Agenda Item 8;

b) are encouraged to set up an internal group* of experts to examine the list of deficiencies and take appropriate actions with a view to recommend to their higher Civil Aviation Authorities solutions for elimination of deficiencies; and

c) formulate and review on a regular basis an action plan including the rationale for non-elimination of deficiencies, using the format presented as **Appendix 8G** to the report on Agenda Item 8. The first action plan to be submitted to the ICAO MID Regional Office for review, prior to the 31st December 2003.

**Note: Such group should also include other experts from out of the air navigation field as appropriate, for strengthening and effectiveness of recommendations.*

AFS/ATN TF/9 DRAFT CONCLUSIONS AND DECISIONS

DRAFT CONCLUSION 9/1- USE OF DIGITAL HIGH-SPEED CIRCUITS BETWEEN MAIN CENTERS

That, the main Centers of the MID AFTN are requested to use digital high-speed links in their circuits with other main centers in order to eliminate deficiencies related to the low speed circuits and to facilitate the migration to the ATN in the MID Region.

DRAFT CONCLUSION 9/2- UPGRADE OF KUWAIT-KARACHI CIRCUIT

That, based on the upgrade of Kuwait-Karachi circuit to 2.4K, the MID COM centers are requested to route via Kuwait center all traffic to Karachi (OP), Kabul (OA) and other destinations in ASIA PAC Region as appropriate.

DRAFT CONCLUSION 9/3- ADDITION OF BAGHDAD/KUWAIT CIRCUIT TO MID RATIONALIZED AFTN PLAN

That, the MID Rationalized AFTN Plan be amended to include the new circuit between Baghdad and Kuwait as a tributary circuit.

DRAFT CONCLUSION 9/4- ADDITION OF CAIRO/TRIPOLI CIRCUIT TO MID RATIONALIZED AFTN PLAN

That, the MID rationalized AFTN Plan be amended to include the existing circuit between Cairo and Tripoli as a tributary circuit.

DRAFT CONCLUSION 9/5- PARTICIPATION OF THE MID COM CENTERS IN THE CIDIN MANAGEMENT CENTER (CMC) OF THE EUR/NAT REGION

That, all MID Com Centers participate as external COM centers in the operation of CIDIN Management Center (CMC) in the EUR/NAT Region and designate a Cooperating CIDIN Center (CCC) operator for coordination process with Eurocontrol.

DRAFT DECISION 9/6- IMPROVEMENT OF THE WORK OF THE ATN PLANNING GROUP

That, in order to have the work on the development of the MID Regional ATN Planning Document fully coordinated and followed up, the ATN Planning Group is invited to establish a working methodology and to appoint a Rapporteur.

DRAFT CONCLUSION 9/7- HARMONIZATION BETWEEN VSAT NETWORKS

That, for the sake of harmonization in the Region and between MID Region with other Regions, the interconnectivity of the MID VSAT be done on the basis of hub-less network using a sole satellite in order to constitute an integrated and seamless network.

DRAFT DECISION 9/8- REVISED TERMS OF REFERENCE AND WORK PROGRAMME FOR THE AFS/ATN TASK FORCE

That, for the MIDANPIRG approves the revised Terms of reference and Work Programme of the AFS/ATN task force as presented in **Appendix 7A** to the Report on Agenda Item 7.

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Appendix 2C to the Report on Agenda Item 2

MIDANPIRG/8 CONCLUSIONS AND DECISIONS RELATED TO MET

CONCLUSION 8/48- ADOPTION OF THE MID OPMET UPDATE PROCEDURES AND CREATION OF THE MID OPMET BULLETIN MANAGEMENT GROUP

That, the MID OPMET Update Procedure as attached in Appendix 6V be adopted and the MID OPMENT Bulletin Management Group composed of the interregional OPMET gateway of the Region, the Focal Point of the Bulletin Management Group, IATA and ICAO, be created in order to manage the OPMET Update Procedure in the MID Region, in a coordinated manner.

CONCLUSION 8/49- IMPLEMENTATION OF THE SADIS SECOND-GENERATION SYSTEM (SADIS 2G)

That, subject to the successful completion of the trials, the SADIS second-generation broadcast (SADIS 2G) is endorsed for implementation.

CONCLUSION 8/50- DISCONTINUATION OF THE CURRENT FIRST-GENERATION SADIS TWO-WAY VSAT PROGRAMME

That, the MIDANPIRG endorse the discontinuation of the current first-generation SADIS two-way VSAT programme as of 1 January 2004.

CONCLUSION 8/53- SURVEY OF STATES IMPLEMENTATION OF MET SERVICES AND FACILITIES

That, the ICAO MID Regional office perform a second survey with a revised questionnaire concerning the status of implementation of MET services and facilities in the MID Region as a basis for a review of deficiencies in the MET field.

REPORT ON AGENDA ITEM 3: MATTERS RELATED TO AERONAUTICAL TELECOMMUNCIATIONS

3.1 Aeronautical Fixed Service

3.1.1 The meeting reviewed the report of the AFS/ATN TF/9 meeting held in Cairo from 20 to 23 October 2003.

3.1.2 Taking into account the fact that the use of high speed links based on digital technology would facilitate a smooth transition to the ATN, the meeting formulated the following draft conclusion:

DRAFT CONCLUSION 6/1: USE OF DIGITAL HIGH-SPEED CIRCUITS BETWEEN MAIN CENTERS

That, the main Centers of the MID AFTN are requested to use digital high-speed links in their circuits with other main centers in order to eliminate deficiencies related to the low speed circuits and to facilitate the migration to the ATN in the MID Region.

3.1.3 Accordingly, the CNS part 4 of the MID FASID has been amended to reflect different requirements, specially the need for the implementation of digital circuits for fixed communications. The amendment to be included in the MID FASID is in **Appendix 3A** to the report on Agenda Item 3.

3.1.4 The meeting noted that the upgrade of the Kuwait-Karachi circuit to 2.4K made the traffic much fluid with the ASIA/PAC Region and that the MID AFTN Centers could route via Kuwait Center all traffic to destination to Karachi and Kabul. The meeting therefore agreed on the following draft decision:

DRAFT CONCLUSION 6/2: UPGRADE OF THE KUWAIT-KARACHI CIRCUIT

That, based on the upgrade of the Kuwait-Karachi circuit to 2.4K, the MID COM centers are requested to route via Kuwait center all traffic to Karachi (OP), Kabul (OA) and other destinations in ASIA PAC Region as appropriate.

3.1.5 The meeting expressed its concern regarding the low speed Karachi-Mumbai circuit and the deletion of the bilateral circuit between Muscat and Karachi. This situation created a lack of alternate routing for Karachi center (OP) in case of breakdown of the Kuwait-Karachi circuit. The meeting agreed that the bilateral link between Karachi and Tehran could be used as alternate routing for OA and OP until the circuits specified in both AFTN Regional Plans (Middle East and ASIA/PAC) satisfy the operational requirements.

3.1.6 In the event of breakdown of the Karachi-Kuwait and Karachi-Mumbai circuits, the concerned centers may consider the related alternate routing as follows:

a) For Karachi-Kuwait: to be via Tehran
b) For Karachi- Mumbai: to be via Tehran-Bahrain-Muscat-Mumbai
c) For Mumbai-Karachi: to be via Muscat-Bahrain-Tehran-Karachi

The ASIA/PAC Region is also invited to use high-speed circuits within its network in order to route the alternate traffic between Karachi and Mumbai.

3.1.7 The meeting considered that the proposal made by Iran to insert the bilateral circuit Tehran-Karachi into the MID AFTN Rationalized Plan should be first submitted to the AFS/ATN TF for study. Moreover, this request should be justified by the necessary operational requirements.

3.1.8 The meeting agreed that the new AFTN VSAT circuit, established between Baghdad and Kuwait for operational reasons, be included in the MID Rationalized Plan as a tributary circuit. Therefore, the meeting formulated the following draft conclusion:

DRAFT CONCLUSION 6/3: ADDITION OF THE BAGHDAD-KUWAIT CIRCUIT TO THE MID RATIONALIZED AFTN PLAN

That, the MID Rationalized AFTN Plan be amended to include the new circuit between Baghdad and Kuwait as a tributary circuit.

3.1.9 Based on APIRG 14 Conclusion, the meeting agreed also to include the existing circuit between Cairo and Tripoli as a tributary circuit and therefore, developed the following draft conclusion:

DRAFT CONCLUSION 6/4: ADDITION OF THE CAIRO-TRIPOLI CIRCUIT TO THE MID RATIONALIZED AFTN PLAN

That, the MID Rationalized AFTN Plan be amended to include the existing circuit between Cairo and Tripoli as a tributary circuit.

3.1.10 The meeting requested that all the above amendments be included in the MID FASID as shown in the **Appendices 3B and 3C** to the report on Agenda Item 3**.**

3.1.11 The meeting agreeing on the proposal made by EUROCONTROL to allow the participation of the MID COM centers, as external COM centers, in the CIDIN Management Center (CMC) of EUR region, developed the following draft Conclusion:

DRAFT CONCLUSION 6/5: PARTICIPATION OF THE MID COM CENTERS IN THE CIDIN MANAGEMENT CENTER (CMC) OF THE EUR REGION

That, all MID COM Centers participate as external COM centers in the operation of CIDIN Management Center (CMC) in the EUR Region and designate a Cooperating CIDIN Center (CCC) operator for coordination process with EUROCONTROL.

3.1.12 The meeting, however, requested that information be provided on the action taken by MID States to designate a Cooperation CIDIN Centers (CCC) operator for the management process with the EUR Region.

3.1.13 The meeting updated the final version of the new MID AFTN/CIDIN Routing Directory, before its publication in the 3Q of 2004. The new version of the document is in **Appendix 3D** to the report on Agenda Item 3.

3.1.14 The meeting expressed its concern regarding the delay in the participation of the expert from a volunteering State, representing the MID Region in the work of the Aeronautical Use of Public Internet (AUPISG). Accordingly, Egypt confirmed that it would take necessary actions to join the study group which will accomplish its work by September 2004.

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3.2 Aeronautical Mobile Service

3.2.1 The meeting reviewed the outcomes of the Eleventh Air Navigation Conference regarding several aeronautical and non-aeronautical bands that were considered to have potential aeronautical use. In the light of new aeronautical requirements for frequency spectrum, the meeting agreed that the preparation of the WRC-07 should start earlier in the Region.

3.2.2 The meeting was of the view that the awareness of aviation community as well as telecommunication regulatory authorities should be raised accordingly in order to strengthen the forthcoming position of ICAO in WRC-07. Therefore, the meeting developed the following draft Conclusion:

DRAFT CONCLUSION 6/6: ***ESTABLISHMENT OF AN AD-HOC ACTION GROUP FOR THE SUPPORT OF AERONAUTICAL FREQUENCY BANDS***

That, an Ad-Hoc Group be established and aimed at raising the awareness of the National Telecommunication Regulatory Authorities, Airlines and Civil Aviation Authorities on the aviation spectrum use and requirements to ensure Air navigation Safety in the MID Region.

3.3 Aeronautical Radio Navigation Service

3.3.1 The meeting expressed its concern regarding the compatibility issues between radio navigation systems and FM broadcasting stations in the Region. In this regard, the meeting agreed on the Eleven Air Navigation Conference Recommendation 5/2- ICAO activities on interference, to develop a guidance material on the control and removal of interference to aeronautical systems.

3.4 MID VSAT Project

3.4.1 After extensive discussions on the technical and institutional aspects of the MID VSAT Project, the meeting agreed that States, which have not yet done so, are invited to:

a) Provide ICAO MID Regional Office with their cost benefit analysis (CBA) on the use of VSAT technology, preferably before July 2004. For the time being only Egypt submitted the requested information.
b) Obtain, preferably before December 2004, the necessary authorization from their respective National Telecommunications Regulatory Authorities in order to install and operate VSAT equipments

3.4.2 The meeting was of the view that ICAO MID Office should complete the site visits of the remaining States of the Region in order to update and make the MID VSAT Feasibility Study more comprehensive.

3.4.3 The expert of ND Satcom briefed the meeting through a presentation on the Frequency Modulation Time Division Multiplex Access (FM-TDMA) technique used on domestic VSAT equipments operating in Iraq and Kuwait. This new technique, compared to the MCPC technique seemed to be more flexible and more cost effective. The meeting suggested that the harmonization process and the interoperability requirements within the Region and with the adjacent Regions, take into account this advantage. Accordingly, the meeting formulated the following draft Conclusion:

DRAFT CONCLUSION 6/7: **HARMONIZATION BETWEEN VSAT NETWORKS**

That, for the sake of harmonization in the Region and between MID Region and other Regions, the interconnectivity of the MID VSAT be done on the basis of hub-less network using a sole satellite in order to constitute an integrated and seamless network.

3.4.4 Reviewing the three scenarios of the management concept of the MID VSAT feasibility study, the meeting was of the view that scenario 1 would be more convenient for the overhaul management of the MID VSAT network.

3.4.5 The preferred scenario 1 comprises of: the Participating States, a Management Committee and an International Network Provider. In this regard, special care should be taken for the definition of the terms of reference of the Management Committee as well as the choice of the International Network Provider.

3.5 **Latest Developments in the ATN Field**

3.5.1 The meeting, reviewing the draft version of the second edition of the MID Regional ATN Planning Document, agreed on the work of the core team to split the previous document into five chapters as indicated in the **Appendix 3E** to the report on Agenda Item 3. On the same trend, the meeting agreed on the proposal made by Egypt to nominate Mr. Raouf Mostafa Moharam as Rapporteur of the ATN Planning Group. It was also agreed that the Rapporteur and the other members of the ATN Planning Group should coordinate the further work on the MID ATN Planning Document, using e-mail and web based FORUM.

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Appendix 3A to the Report on Agenda Item 3

Part IV

COMMUNICATIONS - NAVIGATION - SURVEILLANCE (CNS)

INTRODUCTION

1. The standards, Recommended Practices and Procedures to be applied are as listed in Part IV - CNS of the basic MID ANP. The material in this Part complements that contained in Part I - BORPC of the MID ANP and should be taken into consideration in the overall planning processes for the MID Region.

2. This Part contains a detailed description/list of the facilities and/or services to be provided to fulfil the basic requirements of the Plan and are as agreed between the provider and user States concerned. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. This element of the FASID, in conjunction with the MID Basic ANP, is kept under constant review by the MIDANPIRG in accordance with its schedule of management, in consultation with user and provider States and with the assistance of the ICAO Middle East Regional Office, Cairo.

3. States concerned should take urgent action to implement the main COM centres and trunk circuits of the new rationalized AFTN plan described in FASID Table CNS 1, and implement/promulgate, as soon as practicable, the tributary centres and circuits of the new rationalized AFTN plan in co-ordination with the States responsible for the corresponding main COM centres (MID/3 Rec. 5/37LIM MID (COM/MET/RAC Rec 6/6).

4. States are encouraged to deploy digital and high-speed links, as part of overall improvement of current ground-to-ground communications and provision of an infrastructure that would facilitate the transition to ATN (MID/8 Con.8/42).

5. States, as a matter of urgency should take action to implement the ATS direct speech plan. (FASID Table CNS 1C).

AERONAUTICAL FIXED SERVICE (AFS)

(FASID Tables CNS-1, 1A,1B and 1C, Charts CNS-1, 2 and 3)

Table CNS 1- Rationalized AFTN Plan

Chart CNS 1- Rationalized AFTN Centres and Circuits

Table CNS 1A - Designated AFTN Circuits required for international operations that should be retained until the Rationalized Plan in table CNS 1 is implemented.

The guidance material for ATN transition adopted by MIDANPIRG is a living document which provides technical guidance for regional transition planning, primarily focusing on ATN initial ground-to-ground application (MID/8 Dec. 8/43).

Table CNS 1B - ATN Plan

Table CNS 1C - ATS speech circuits plan

Chart CNS 2 - ATS direct speech circuits

Chart CNS 3 - Coverage of the Satellite Distribution System for WAFS Products (SADIS)

AERONAUTICAL MOBILE SERVICE (AMS) AND AERONAUTICAL MOBILE SATELLITE SERVICE (AMSS)

(FASID Table CNS-2, Chart CNS-4)

Table CNS 2 - Aeronautical mobile service

Appendix A to table CNS 2 indicates the geographical separation for co-channel VHF assignments

Appendix B to table CNS 2 contains the VHF frequency utilization plan

Table CNS 2A indicates the form of harmful interference report

Table CNS 2B – VHF Coverage in the Region

Chart CNS 4- HF en route radiotelephony network

Appendix to Chart CNS 4 indicates the ITU allotment area

AERONAUTICAL RADIO NAVIGATION SERVICE

(FASID Table CNS 3, Chart CNS 5 and 6)

Table CNS 3 - Table of radio navigation aids

Appendix to table CNS 3 shows the geographic separation criteria for VOR, VOR/DME and ILS installations

Chart CNS 5 - En-route radionavigation aids

Chart CNS 6 - Aids to final approach and landing

SURVEILLANCE SERVICE

(FASID Table CNS 4, chart CNS 7)

Table CNS 4 - Surveillance Systems

Chart CNS 7 - Radar facilities

CNS/MET SG/6
Appendix 3B to the Report on Agenda Item 3

Table CNS 1 – AFTN Plan

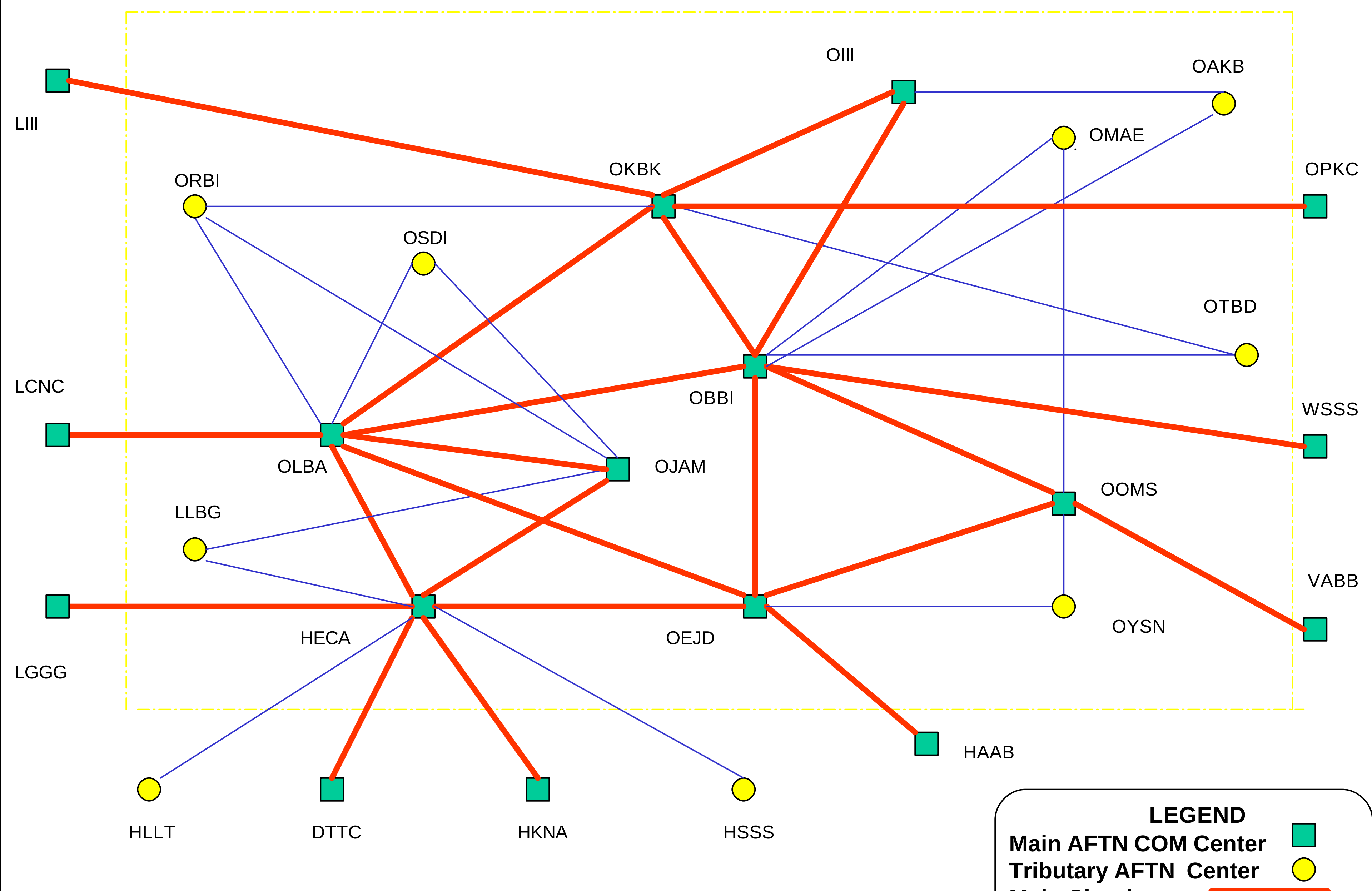
State/Station	Cat	Current				Planned				Target date of implementation	Remarks
		Type	Signaling Speed	Protocol	Code	Type	Signaling Speed	Protocol	Code		
1	2	3	4	5	6	7	8	9	10	11	12
BAHRAIN											
BAHRAIN											
ABU DHABI	T		9600 bps	CIDIN	IA-5						
BEIRUT	M		9600 bps	CIDIN	IA-5						
DOHA	T		200 baud	None	ITA-2						
JEDDAH	M		200 baud	None	ITA-2		9600 bps			2003	
KABUL	T		-								
KUWAIT	M		9600 bps	None	ITA-2						
MUSCAT/SEEB	M		300 baud	None	IA-5						
SINGAPORE	M	LTT	200 baud	None	IA-5		2400 bps			2003	
TEHRAN	M		300 baud	None	IA-5						

State/Station	Cat	Current				Planned				Target date of implementation	Remarks
		Type	Signaling Speed	Protocol	Code	Type	Signaling Speed	Protocol	Code		
1	2	3	4	5	6	7	8	9	10	11	12
EGYPT											
CAIRO											
AMMAN	M		50 baud	None	ITA-2		100 baud			2003	
ATHENS	M		9600 bps CIDIN	CIDIN	IA-5						
BEN GURION	T		50 baud	None	ITA-2						
BEIRUT	M		9600 bps CIDIN	CIDIN	IA-5						
JEDDAH	M		9600 bps CIDIN	CIDIN	IA-5						
KHARTOUM	T		baud	None	ITA-2					2003	
NAIROBI	M		50 baud	None	ITA-2		2400 bps				
TUNIS	M		100 baud	None	ITA-2		1200 bps				
IRAN											
TEHRAN											
BAHRAIN	M		300 baud	None	IA-5						
KABUL	T		-								
KUWAIT	M		100 baud	None	ITA-2		300 baud			2003	
JORDAN											
AMMAN											
BAGHDAD	T		50 baud	None	ITA-2						
BEIRUT	M		-								
BEN GURION	T		1.2 K								
CAIRO	M		50 baud	None	ITA-2						
DAMASCUS	T		50 baud	none	ITA-2						
JERUSALEM	S										

State/Station	Cat	**Current**				**Planned**				Target date of implementation	Remarks
		Type	Signaling Speed	Protocol	Code	Type	Signaling Speed	Protocol	Code		
1	2	3	4	5	6	7	8	9	10	11	12
KUWAIT											
KUWAIT											
BAHRAIN	M		9600 bps	None							
BEIRUT	M		100 baud	None			200 baud				
DOHA	T		100 baud	None							
(EUR)	-		100 baud	None							
KARACHI	M		2.4 K	None							
TEHRAN	M		100 baud	None							
LEBANON											
BEIRUT											
AMMAN	M		-								
BAGHDAD	T		50 baud	None	ITA-2						
BAHRAIN	M		9600 bps	CIDIN	IA-5						
CAIRO	M		9600 bps	CIDIN	IA-5						
DAMASCUS	T		100 baud	None	ITA-2						
JEDDAH	M		100 baud	None	ITA-2		200 baud				
KUWAIT	M		100 baud	None	ITA-2		300 baud				
NICOSIA	M		9600 bps	CICIN							
OMAN											
MUSCAT/SEEB											
ABU DHABI	T		50 baud	None			200 baud				
BAHRAIN	M		300 baud	None							
MUMBAI	M		300 baud	None			9600 bps	X25			
JEDDAH	M		300 baud	None							
SANA'A	T		100 baud	None							

State/Station	Cat	Current				Planned				Target date of implementation	Remarks
		Type	Signaling Speed	Protocol	Code	Type	Signaling Speed	Protocol	Code		
1	2	3	4	5	6	7	8	9	10	11	12
SAUDI ARABIA											
JEDDAH											
ADDIS-ABABA	M		50 baud	None							
BAHRAIN	M		200 baud	None			9600 bps			2003	
BEIRUT	M		100 baud	None			300 baud			2003	
CAIRO	M		9600 bps	CIDIN							
MUSCAT/SEEB	M		300 baud	None							
SANA'A	T		100 baud	None							

CNS1 - Rationalized AFTN Plan for the MID Region



Note: This chart does not illustrate the status of implementation

INTERNATIONAL CIVIL AVIATION ORGANIZATION

MIDDLE EAST OFFICE

Routing Directory for

AFTN and CIDIN Centres

in the MID Region

Version 0.2 draft

Table of COM Centres

(listed in alphabetical order by COM Centre location indicator)

Location Indicator	Located	State	Table name
HECA	Cairo	Egypt	HECA
OAKB	Kabul	Afganistan	OAKB
OBBI	Bahrain	Bahrain	OBBI
OEJD	Jeddah	Saudi Arabia	OEJD
OIII	Tehran	Iran	OIII
OJAM	Amman	Jordan	OJAM
OKBK	Kuwait	Kuwait	OKBK
OLLL	Beirut	Lebanon	OLLL
OMAE	Abu Dhabi	U.A.E.	OMAE
OOMS	Muscat	Oman	OOMS
OPKC	Karachi	Pakistan	OPKC
ORBI	Bagdad	Iraq	ORBI
OSDI	Damascus	Syria	OSDI
OTBD	Doha	Qatar	OTBD
OYSN	Sanaa	Yemen	OYSN

(listed in alphabetical order by State name)

State	Location Indicator	Located	Table name
Afganistan	OAKB	Kabul	OAKB
Bahrain	OBBI	Bahrain	OBBI
Egypt	HECA	Cairo	HECA
Iran	OIII	Tehran	OIII
Iraq	ORBI	Bagdad	ORBI
Jordan	OJAM	Amman	OJAM
Kuwait	OKBK	Kuwait	OKBK
Lebanon	OLLL	Beirut	OLLL
Oman	OOMS	Muscat	OOMS
Pakistan	OPKC	Karachi	OPKC
Qatar	OTBD	Doha	OTBD
Saudi Arabia	OEJD	Jeddah	OEJD
Syria	OSDI	Damascus	OSDI
U.A.E.	OMAE	Abu Dhabi	OMAE
Yemen	OYSN	Sanaa	OYSN

1. Explanation of the Tables

(Remark: All tables show examples and do not reflect the real situation)

1.1. Information (COM Centre Characteristic Table)

The COM Centre Characteristic Table gives an overview about operational, technical and administrative information of the COM Centre itself.

1.2. AFTN Routeing table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	WS	OO		
B	LCNCA	(OE)		
C	LCNCA	(OE)		
D*	OE	OO		
DT	HE	(LCNCA)	HECAA	LCNCA

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	WS	OO		
OB	N	N		
OE*	OE	OO		
OED	OED	(OE)		
OI	OI	OM		

Desti-nation First letters of an AFTN address (8 letter address) relevant for the Routeing

D* All destination addresses starting with D except those indicated directly below (DT)

DT Destination addresses starting with DT

Actual Main Actual main outgoing AFTN circuit or CIDIN Ax for this Destination address used actual in the AFTN/CIDIN Centre

WS Represents the outgoing AFTN circuit

LCNCA Defined Exit address (Ax) for the Destination address (Ad) starting with these letters

N Represents the national Routing responsibility

Actual Altn. Alternate outgoing AFTN circuit or CIDIN Ax for this Destination address used if the Main is not available.

(OE) Represents the outgoing AFTN circuit as Alternate

(LCNCA) Defined the Exit address (Ax) as alternate for the Destination address (Ad)

N Represents the national Routing responsibility

(Terms in brackets: For the use of the Exit Address or the AFTN circuit as alternate, co-ordination is required).

Planned Main Planned to replace the Actual Main in the future on a defined date

Planned Altn. Planned to replace the Actual Alternate in the future on a defined date

1.3. CIDIN Routeing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA_	OLLL	LCNC	HECA	OLLL
LCNC_	LCNC	OLLL		

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG

CIDIN Exit Address First four letters of the Exit addresses (Ax) relevant for the selection of connection to be used.

Actual Main VCG Shows the first outgoing direction (main connection path to an adjacent COM Centre) used at first or reaching the Exit centre (Ax). This path is represented by a Virtual Circuit Group (VCG), see 5.4.

Actual Altn. VCG Shows the alternate outgoing direction (main connection path to an other adjacent COM Centre) used in case of unavailability of the main VCG for reaching the Exit centre (Ax). This path is represented by a Virtual Circuit Group (VCG), see 5.4.

(Terms in brackets: For the use of the Actual Alternate VCG, co-ordination is required.)

Planned Main VCG Planned to replace the Actual Main VCG in the future on a defined date.

Planned Altn. VCG Planned to replace the Actual Alternate VCG in the future on a defined date.

1.4. Virtual Circuit Groups (VCG)

Actual VCG	Actual Prim.VC	Actual Secondary VC's		
LCNC	LCNC1			
OLLL	OLLL1			

Planned VCG	Planned Prim.VC	Planned Secondary VC's		
HECA	HECA1			
		OLLL2		

Actual VCG A Virtual Circuit Group consists of a number of Virtual Circuits (VC) that connect two, and only two CIDIN Centres. A Primary-type VC is always present and a Secondary-type VC is optional. Within this group, the selection of the VC is local matter. VC groups form redundant connections between adjacent CIDIN Centres.

Actual Primary VC Primary Virtual Circuit, established actual either as a PVC (Permanent Virtual Circuit) or SVC (Switched Virtual Circuit). In case of SVC no Secondary Virtual Circuits are recommended.

Actual Secon-dary VC's Actual Secondary VC's: Secondary Virtual Circuits, established actual either as a set of PVC (Permanent Virtual Circuit) and/or a SVC (Switched Virtual Circuit). There is no maximum limit to the number of PVC's forming a VCG.

Planned Primary VC The planned Primary Virtual Circuit will replace the Actual Primary VC in the future on a planned date.

Planned Secon-dary VC's The planned Secondary Virtual Circuits will replace the Actual Alternate VC (see below).

1.5. Circuit Characteristics

Situation recorded in Nov 1998		
Link to	Protocol	Capacity (bps)
HECA	AFTN	2 x 2.4k
OLLL	CIDIN	1 x 9.6k
OKBK	AFTN	1 x 300
OOMS	AFTN	1 x 50
VTBB	AFTN	1 x 2.4k

Planned		
Protocol	Capacity(bps)	"O" date
CIDIN	1 x 9.6k	TBD

Link to Connection to the COM Centre represented by the location indicator.

Protocol Protocol used actual on this link (conventional AFTN, AFTN over X.25, CIDIN via PVC or CIDIN via SVC).

Capacity (bps) Actual capacity available (bit per seconds). An asterisk (*) indicates a network connection.

Planned Protocol Protocol planned to be used on the upgraded/new link.

Capacity (bps) Planned capacity of the link (bit per seconds).

"O" date Planned operational date of the upgraded/new link.

OAKB - Kabul - Afganistan

Information

Operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OAKB - Kabul - Afganistan

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	VI	OI		
B	OI	VI		
C	OI	VI		
D	OI	VI		
E	OI	VI		
F	OI	VI		
G	OI	VI		
H*	OI	VI		
HA				
HC	OI	VI		
HD	OI	VI		
HE	OI	VI		
HH				
HL	OI	VI		
HS	OI	VI		
K	OI	VI		
L*	OI	VI		
LB	OI	VI		
LL				
LT	OI	VI		
M	OI	VI		
N	VI	OI		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	N	N		
OB	OI	VI		
OE	OI	VI		
OI	OI	VI		
OJ	OI	VI		
OK	OI	VI		
OL	OI	VI		
OM	OI	VI		
OO	OI	VI		
OP	OP	OI		
OR	OI	VI		
OS	OI	VI		
OT	OI	VI		
OY	OI	VI		
P	VI	OI		
R	VI	OI		
S	OI	VI		
T	OI	VI		
U	VT	VI		
V*	VI	OI		
VA	VI	OI		
VE	VI	OI		
VI	VI	OI		
VN	VI	OI		
VO	VI	OI		
W	VI	OI		
Y	VI	OI		
Z	VI	OI		

OAKB - Kabul - Afganistan

Circuit Characteristics

Situation recorded in March 2001			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date

OBBI - Bahrain - Bahrain

Information

Operator:		
Phone:	+973 321185	
- -	+973 321184	
Fax:	+973 321905	
Telex:	+490 9186 AIRCIV BN	
Email:	---	
AFTN:	OBBIYFYX	
CIDIN/AFTN:	OBBIM	
CIDIN/OPMET:	---	
SITA:	BAHAPYF	

Technical operator:	
Phone:	+973 883620
- -	+973 883621
Fax:	+973 883461
Telex:	+490 8000
Email:	ns611t@btc.com.bh
AFTN:	OBBIZZZZ
CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	---
SITA:	---

Supervisor:		
Name:	MOHAMED ALI SALEH	
Phone:	+973 321186	
Fax:	+973 321992	
Telex:	9186 AIRCIV BN	
Email:	masaleh@bahrain.gov.bh	
AFTN:	OBBIYTYX	
CIDIN/AFTN:	OBBIM	
CIDIN/OPMET:	---	
SITA:	BAHAPYF	

Technical supervisor:	
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Fax:	+973 883461
Telex:	+490 8000
Email:	ns61@btc.com.bh
AFTN:	OBBIZZZZ
CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	---
SITA:	---

Management:	
Name:	ALI AHMED MOHAMED
Phone:	+973 321187
Fax:	+973 321992
Telex:	9186 AIRCIV BN
Email:	aliahmed@bahrain.gov.bh
AFTN:	OBBIYTYX
CIDIN/AFTN:	OBBIM
CIDIN/OPMET:	--
SITA:	BAHAPYF

Postal Address:
CIVIL AVIATION AFFAIRS
AIR NAVIGATION DIRECTORATE
P.O.BOX: 586
MUHARRAQ
BAHRAIN

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OBBIA
AFTN OPM/NM:	OBBIM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA	Yes	

OBBI - Bahrain - Bahrain

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	WS	OO		
B	LCNCA	OE	LCNCA	OLBAA
C	LCNCA	OE	LCNCA	OLBAA
D	OE	OO		
E	LCNCA	OE	LCNCA	OLBAA
F	OE	OO		
G	OE	OO		
H*	OE	OO		
HA	OE	OO		
HC	OE	OO		
HD	OE	OO		
HE	OE	OO		
HH	OE	OO		
HL	OE	OO		
HS	OE	OO		
K	LCNCA	OE	LCNCA	OLBAA
L*	LCNCA	OE	LCNCA	OLBAA
LB	LT	LCNCA		
LL				
LT	LT	LCNCA		
M	LCNCA	OE	LCNCA	OLBAA
N	WS	OO		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OKBK	OO		
OB	N	N		
OE*	OE	OO		
OED	OED	OE		
OI	OI	OMAEA		
OJ	OE	OLBAA		
OK	OK	OLBAA		
OL	OLBAA	OK		
OM	OMAEA	OO		
OO	OO	OE		
OP	OO	OE		
OR	OLBAA			
OS	OLBAA	OK		
OT	OT	OK		
OY	OE	OO		
P	LCNCA	OE	LCNCA	OLBAA
R	WS	OO		
S	LCNCA	OLBAA	LCNCA	OLBAA
T	LCNCA	OLBAA	LCNCA	OLBAA
U	LC	OE		
V*	WS	OO		
VA	OO	OE		
VE	OO	OE		
VI	OO	OE		
VN	OO	OE		
VO	OO	OE		
W	WS	OO		
Y	WS	OO		
Z	OO	OE		

OBBI - Bahrain - Bahrain

CIDIN Routeing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA	OLLL	LCNC							
LCNC	LCNC	OLLL							
OBBI									
OLBA	OLLL	LCNC							
OMAE	OMAE								

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
LCNC	LCNC1								
OLLL	OLLL1								
OMAE	OMAE1								

OBBI - Bahrain - Bahrain

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
LCNC	CIDIN	1 x 9.6K			
LTAA	AFTN	1 x 50			
OEDR	AFTN	1 x 50			
OEJD	AFTN	1 x 200	CIDIN	1 x 9.6K	II/2004
OIII	AFTN	1 x 300			
OKBK	AFTN	1 x 9.6K			
OLBA	CIDIN	1 x 9.6K			
OMAE	CIDIN	1 x 9.6K			
OOMS	AFTN	1 x 300			
OTBT	AFTN	1 x 200			
WSSS	AFTN	1 x 200	AFTN	1 x 2400	End 2004

HECA - Cairo - Egypt
Information

Operator:	
Phone:	202 6375639
- -	202 2654006
Fax:	202 2678546
Telex:	202 92443 UN
Email:	
AFTN:	HECAYFYX
CIDIN/AFTN:	HECAM
CIDIN/OPMET:	
SITA:	CAIXYYF

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	
Phone:	202 6375639
Fax:	202 2678546
Telex:	202 92443 UN
Email:	
AFTN:	HECAYFYS
CIDIN/AFTN:	HECAM
CIDIN/OPMET:	
SITA:	CAIXYYF

Technical supervisor:	
Name:	Eng Azmy Nabih
Phone:	202 4182964
Fax:	202 6374471
Telex:	202 92443 UN
Email:	
AFTN:	HECAYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Magdy Abdel Messih Wahba
Phone:	202 6375639
Fax:	202 2680629
Telex:	202 92443 UN
Email:	xramadan@hotmail.com
AFTN:	HECAYTYX
CIDIN/AFTN:	HECAM
CIDIN/OPMET:	
SITA:	CAIXYYT

Postal Address:
National Air Navigation Services
Company
Cairo Air Navigation Centre
Cairo Airport Road
Cairo, Egypt

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	HECAA
AFTN OPM/NM:	HECAM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA	Yes	

HECA - Cairo - Egypt

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OEJNA	LGGGA		
B	LGGGA	OLBAA		
C	LGGGA	OLBAA		
D	DT	LGGGA		
EB	LGGGA	OLBAA		
ED	LGGGA	OLBAA		
EE	LGGGA	OLBAA		
EF	LGGGA	OLBAA		
EG	LGGGA	OLBAA		
EH	LGGGA	OLBAA		
EI	LGGGA	OLBAA		
EK	LGGGA	OLBAA		
EL	LGGGA	OLBAA		
EN	LGGGA	OLBAA		
EP	LGGGA	OLBAA		
ES	LGGGA	OLBAA		
ET	LGGGA	OLBAA		
EV	LGGGA	OLBAA		
EY	LGGGA	OLBAA		
F*	HK	OEJNA		
FH	LGGGA	OLBAA		
FJ	LGGGA	OLBAA		
G	DT	LGGGA		
H*	HK	OEJNA		
HA	OEJNA	HK		
HC	HK	OEJNA		
HD	OEJNA	HK		
HE	N	N		
HH	HHAS	HK		
HL	HL	DT		
HS	HS	OEJNA		
K	LGGGA	OLBAA		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
L*	LGGGA	OLBAA		
LA	LGGGA	OLBAA		
LI	LGGGA	OLBAA		
LL	LL	LGGGA		
LM	LGGGA	OLBAA		
M	LGGGA	OLBAA		
N	OE	OLBAA		
OA	OLBAA	LGGGA	OBBIA	
OB	OE	OLBAA	OBBIA	
OE	OEJD	LGGGA		
OJ	OJ	OE		
OI	OLBAA	LGGGA	OBBIA	
OK	OLBAA	LGGGA		
OL	OLBAA	LGGGA		
OM	OLBAA	LGGGA		
OO	OE	LGGGA		
OP	OLBAA	LGGGA		
OR				
OS	OS	OJ		
OT	OLBAA	LGGGA	OBBIA	
OY	OE	LGGGA		
P	OLBAA	LGGGA		
R	OE	LGGGA	OBBIA	
S	LGGGA	OLBAA		
T	LGGGA	OLBAA		
U	LGGGA	OLBAA		
V	OLBAA	LGGGA	OBBIA	
W	OE	LGGGA	OBBIA	
Y	OE	LGGGA	OBBIA	
Z	OLBAA	LGGGA	OBBIA	

HECA - Cairo - Egypt

CIDIN Routeing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA_									
LGGG_	LGGG	(OLBA)							
OLBA_	OLLL	(LGGG)							

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
LGGG	LGGG1								
OLBA	OLBA1								

HECA - Cairo - Egypt

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
DTTC	AFTN	1 x 100	AFTN	1 x 1200	2004
HKNA	AFTN	1 x 50	AFTN	9.6K	2004
HLLT	AFTN	1 x 50			
HSSS	AFTN	1 x 50			
LGGG	CIDIN	9.6K			
LIII	AFTN	1 x 50			
LLBG	AFTN	1 x 50			
OEJD	CIDIN	9.6			
OJAM	AFTN	1 x 50	AFTN	1 x 100	2004
OLLL	CIDIN	9.6K			
OSDI	AFTN	1 x 50			

OIII - Tehran - Iran

Information

Operator:	
Phone:	0098 21-91022325
- -	
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	
AFTN:	OIIIYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Technical operator:	
Phone:	0098 21-91022330
- -	
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	
AFTN:	OIIIYTYC
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Supervisor:	
Name:	Abutaleb Mosaie
Phone:	0098 21-9122330
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	alicom64@hotmail.com
AFTN:	OIIIYTYC
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Technical supervisor:	
Name:	Gholamali Barzegari Naeini
Phone:	0098 21-6036645
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	AFTN@IRAFTN.COM
AFTN:	OIIIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Management:	
Name:	Gholamali Barzegari Naeini
Phone:	0098 21-6036645
Fax:	0098 21-6025101
Telex:	213889 EPD IR
Email:	AFTN@ARAFTN.COM
AFTN:	OIIIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	THRXTYF

Postal Address:
Civil Aviation Organization
P.O. Box 1798, 13445
Mehrabad Intl Airport
Tehran
Islamic Republic of Iran

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET	Yes	
SITA	Yes	

OIII - Tehran - Iran

AFTN Routeing Table

Destination	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OB	OP	OB	OP
B	LT	OB	LT	OB
C	LT	OB	LT	OB
D	OK	OB	OB	OK
E	LT	OB	LT	OB
F	OK	OB	OB	OK
G	OK	OB	OB	OK
H	OK	OB	OB	OK
K	LT	OB	LT	OB
L	LT	OB	LT	OB
LC	OB	OM	OB	OK
M	LT	OB	LT	OB
N	OB	OP	OB	OP

Destination	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OK	OP	OP	OK
OB	OB	OM	OB	OM
OE	OB	OM	OB	OM
OI	N	N	N	N
OJ	OS	OB	OS	OB
OK	OK	OB	OK	OB
OL	OB	OK	OB	OK
OM	OM	OB	OM	OB
OO	OB	OP	OB	OK
OP	OP	OK	OP	OK
OR	OK	OB	OK	OB
OS	OS	OB	OS	OK
OT	OB	OK	OB	OK
OY	OB	OM	OB	OK
P	OK	OB	OK	OB
R	OB	OK	OB	OK
S	LT	OB	LT	OB
T	LT	OB	LT	OB
U	LT	OB	OB	OK
V	OK	OB	OP	OK
VA	OK	OB	OP	OK
VI	OK	OB	OP	OK
VN	OK	OB	OP	OK
VO	OK	OB	OP	OK
W	OB	OP	OB	OP
Y	OB	OP	OB	OP
Z	OK	OB	OP	OK

OIII - Tehran - Iran

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
LTAA	AFTN	1 x 50	AFTN	9.6K	2004
OBBI	AFTN	1 x 300	AFTN	9.6K	2004
OKBK	AFTN	1 x 100	AFTN	9.6K	2004
OMAE	AFTN	1 x 100			
OPKC	AFTN	1 x 200			
OSDI	AFTN	1 x 50			

ORBI - Bagdad - Iraq

Information

Operator: Keetam A. Alrazaq	
Phone:	+ 9641 8132480
- -	
Fax:	
Telex:	
Email:	ibiap1@yahoo.com
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator: Basema Jaleel	
Phone:	+ 9641 8132480
- -	
Fax:	
Telex:	
Email:	ibiap1@yahoo.com
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Maher Yassen J.
Phone:	+ 964 7901 403251
Fax:	
Telex:	
Email:	ibiap1@yahoo.com
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Eman Zeedan
Phone:	+ 9641 8132480
Fax:	
Telex:	
Email:	ibiap1@yahoo.com
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	Yes
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

ORBI - Bagdad - Iraq

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OK			OI
B	OK			OI
C	OK			OI
D	OK			OI
E	OK			OI
F	OK			OI
G	OK			OI
H	OK			OI
K	OK			OI
L*	OK			OI
LL				
M	OK			OI
N	OK			OI

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OK			OI
OB	OK			OI
OE	OK			OI
OI	OK			OI
OJ	OK			OI
OK	OK			OI
OL	OK			OI
OM	OK			OI
OO	OK			OI
OP	OK			OI
OR	OK			OI
OS	OK			OI
OT	OK			OI
OY	OK			OI
P	OK			OI
R	OK			OI
S	OK			OI
T	OK			OI
U	OK			OI
V	OK			OI
W	OK			OI
Y	OK			OI
Z	OK			OI

ORBI - Bagdad - Iraq

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OKBK	AFTN	9.6K			

OJAM - Amman - Jordan

Information

Operator:	Mona al - Nadaf
Phone:	+962 6 4891401/3261
- -	
Fax:	
Telex:	
Email:	alnadaf@yahoo.com
AFTN:	OJAMYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	AMMXYYA

Technical operato	Targrred Ghazi
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- -	
Fax:	
Telex:	
Email:	
AFTN:	OJAMYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisc	Majdolin Al - Trad
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Email:	majdolin@yahoo.com
AFTN:	OJAMYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	AMMXYYA

Technical supervi	Marwan Badawi
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Fax:	+ 962 6 4875102
Telex:	
Email:	
AFTN:	OJAMYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	Nader A. Kaled
Name:	Nader A. Kaled
Phone:	4891401133260
Fax:	
Telex:	
Email:	aftn_am@yahoo.com
AFTN:	OJAMYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Civil Aviation Authority
P.O.Box 7547
Amman -Jordan

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	Yes
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OJAM - Amman - Jordan

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OE	HE		
B	OS	HE		
C	OS	HE		
D	HE	OS		
E	OS	HE		
F	HE	OS		
G	HE	OS		
H*	HE	OL		
HE	HE	OS		
HL	HE	OS		
HS	HE	OE		
K	OS	HE		
L*	OS	HE		
LC	OS	HE		
LL	HE	HE		
LT	OS	HE		
M	OS	HE		
N	OE	HE		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OE	HE		
OB	OE	HE		
OE	OE	HE		
OI	OS	OE		
OJ	N	N		
OK	OE	HE		
OL	HE	OS		
OM	OE	HE		
OO	OE	HE		
OP	OE	HE		
OR	OR	OS		
OS	OS	HE		
OT	OE	HE		
OY	OE	HE		
P	OS	HE		
R	OE	HE		
S	OS	HE		
T	OS	HE		
U	OS	HE		
V*	OE	HE		
VA	OE	HE		
VE	OE	HE		
VI	OE	HE		
VN	OE	HE		
VO	OE	HE		
W	OE	HE		
Y	OE	HE		
Z	HE	OS		

OJAM - Amman - Jordan

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
HECA	AFTN	1 x 50	AFTN	1 x 100	End 2004
OEJD	AFTN	1 x 100			
ORBI	AFTN	1 x 50			
OSDI	AFTN	1 x 50			
LLBG	AFTN	1.2 K			

OKBK - Kuwait - Kuwait

Information

Operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OKBK - Kuwait - Kuwait

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OP	OB		
B	LI	OL		
C	LI	OL		
D	OL	OB		
E	LI	OL		
F	OB	OL		
G	OL	OB		
H*	OL	OB		
HE	OL	OB		
HL	OL	OB		
HS	OL	OB		
K	LI	OL		
L*	LI	OL		
LC	OL	LI		
LL				
LT	LI	OL		
M	LI	OL		
N	OP	OB		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OB	OP		
OB	OB	OL		
OE	OB	OL		
OI	OI	OB		
OJ	OL	OS		
OK	N	N		
OL	OL	OB		
OM	OB	OL		
OO	OB	OL		
OP	OP	OB		
OR	OS	OL		
OS	OS	OL		
OT	OT	OB		
OY	OB	OL		
P	LI	OL		
R	OP	OB		
S	LI	OL		
T	LI	OL		
U	LI	OL		
V*	OP	OB		
VA	OP	OB		
VE	OP	OB		
VI	OP	OB		
VN	OP	OB		
VO	OP	OB		
W	OP	OB		
Y	OP	OB		
Z	OP	OB		

OKBK - Kuwait - Kuwait

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
LIII	AFTN	1 x 100			
OBBI	AFTN	9.6K			
OIII	AFTN	1 x 100			
OLBA	AFTN	1 x 100	AFTN	200	TBD
OPKC	AFTN	2.4K			
OSDI	AFTN	1 x 50			
OTBD	AFTN	1 x 100			
ORBI	AFTN	9.6K			

OLLL - Beirut - Lebanon

Information

Operator:	
Phone: + 961 1 628161	
- -	
Fax: +961 1 629035	
Telex:	
Email: hatemh@beirutairport.gov.lb	
AFTN: OLBAYFYX	
CIDIN/AFTN:	OLBAM
CIDIN/OPMET:	OLBAYMYX
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name: Chawki Hatem	
Phone: +961 1 628161	
Fax: +961 1 629035	
Telex:	
Email:	
AFTN: OLBAYFYX	
CIDIN/AFTN: OLBAM	
CIDIN/OPMET: OLBAYMY|X	
SITA:	

Technical supervisor:	
Name: Mouhammad Saad	
Phone: +961 3 280299 - 961 628000/3049	
Fax: +961 1 628198	
Telex:	
Email: msaad@beirutairport.gov.lb	
AFTN: OLBAYTYX	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name: Chawki Hatem	
Phone: +961 1 628150	
Fax: +961 1 629035	
Telex:	
Email: ```	
AFTN: OLBAYTYX	
CIDIN/AFTN:	OLBAM
CIDIN/OPMET:	OLBAYMYX
SITA:	

Postal Address:
Beirut International Airport
Telecom Department
Beirut-Lebanon

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OLBAA
AFTN OPM/NM:	OLBAM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS	Yes	
MOTNE		
OPMET	Yes	
SITA	Yes	

OLLL - Beirut - Lebanon

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OBBIA	OE		
B	LCNCA	HECAA		
C	LCNCA	HECAA		
D	HECAA	LCNCA		
E	LCNCA	HECAA		
F	OE	HECAA		
G	HECAA	OE		
H	HECAA	OE		
K	LCNCA	HECAA		
L*	LCNCA	HECAA		
LL				
LT	LCNCA	HECAA		
M	LCNCA	HECAA		
N	OK	OE		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OK	OE		
OB	OBBIA	OE		
OE	OE	OBBIA		
OI	OBBIA	OK		
OJ	HECAA	OE		
OK	OK	OBBIA		
OL	N	N		
OM	OBBIA	OE		
OO	OBBIA	OE		
OP	OK	OBBIA		
OR	OR	OS		
OS	OS	HECAA		
OT	OBBIA	OK		
OY	OE	OBBIA		
P	LCNCA	HECAA		
R	OBBIA	OE		
S	LCNCA	HECAA		
T	LCNCA	HECAA		
U	LCNCA	HECAA		
V*	OK	OBBIA		
VA	OK	OBBIA		
VE	OK	OBBIA		
VI	OK	OBBIA		
VN	OK	OBBIA		
VO	OK	OBBIA		
W	OBBIA	OK		
Y	OBBIA	OE		
Z	OK	OE		

OLLL - Beirut - Lebanon

CIDIN Routeing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
OLBA_	OLBA	(LCNC)							
LCNC_	OLBA	(OBBI)							
OBBI_	OLBA	HECA							

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
HECA	HECA1								
LCNC	LCNC1								
OBBI	OBBI1								

OLLL - Beirut - Lebanon

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
HECA	CIDIN	1 x 9.6K			
LCNC	CIDIN	1 x 9.6K			
OBBI	CIDIN	1 x 9.6K			
OEJD	AFTN	1 x 100	AFTN	1 x 9.6K	2005
OKBK	AFTN	1 x 100	AFTN	1 x 9.6K	2005
OSDI	AFTN	2 x 50			
ORBI	AFTN	1 x 50			

OOMS - Muscat - Oman

Information

Operator:	Mushal Abdul Aziz
Phone:	968 519209/332
- -	
Fax:	968 510617
Telex:	5418 DGCAOMAN ON
Email:	aircomms@dgcam.gov.om
AFTN:	OOMSYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	Ahmed Issa
Phone:	968 519492
- -	
Fax:	968 510617
Telex:	5418 DGCAOMAN ON
Email:	ahmedissa@dgcam.gov.om
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Akhtar Kareem Al-Balu
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Telex:	5418 DGCAOMAN ON
Email:	aircomms@dgcam.gov.om
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Mohd Hamed Al-Mauly
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Fax:	968 510617
Telex:	5418 DGCAOMAN ON
Email:	mody07@hotmail.com
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Ali Humaid Al-Adawi
Phone:	968 519207/699
Fax:	968 519930
Telex:	5418 DGCAOMAN ON
Email:	alialadawi@dgcam.gov.com
AFTN:	OOMSYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:	
	P.O. BOX 1
	Postal Code 111
	Seeb Int. Airport
	Sultanate of Oman

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS	Yes	
MOTNE		
OPMET		
SITA		

OOMS - Muscat - Oman

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OB	VA		
B	OB	OE		
C	OB	OE		
D	OE	OB		
E	OB	OE		
F	OE	VA		
G	OE	OB		
H	OE	VA		
K	OB	OB		
L* EX. LL	OB	OE		
M	OB	OE		
N	OB	VA		
OA	OB	OP		
OB	OB	OMA		
OE	OE	OB		
0I	OB	OP		
OJ	OE	OB		
OK	OB	OE		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OB	OP		
OB	OB	OM		
OE	OE	OB		
OI	OB	OP		
OJ	OE	OB		
OK	OB	OE		
OL	OB	OE		
OM	OMA	OB		
OO	N	N		
OP	OP	VA		
OR	OB	OE		
OS	OE	OB		
OT	OB	OMA		
OY	OYS	OE		
P	OB	OP		
R	OB	VA		
S	OB	OE		
T	OB	OE		
U	VA	OP		
V*	OB	VA		
VA	VA	OP		
VE	VA	OP		
VI	VA	OP		
VN	VA	OP		
VO	VA	OP		
W	OB	VA		
Y	OB	VA		
Z	OP	VA		

OOMS - Muscat - Oman

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
OBBI	AFTN	1 x 300		9.6k	04/05
OEJD	AFTN	1 x 300		9.6k	04/05
OMAE	AFTN	1 x 50	AFTN	9.6k	04/05
OYSN	AFTN	1 x 100		9.6k	04/05
VABB	AFTN	1 x 300	AFTN (X.25)	9.6k	04/05

OPKC - Karachi - Pakistan

Information

Operator:	
Phone:	92-21-45791943
- -	45797232
Fax:	92-21-9218216
Telex:	29336 CAA PK
Email:	
AFTN:	OPKCYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	OPKCYZYX
SITA:	

Technical operator:	
Phone:	92-21-45791944
- -	45797519
Fax:	
Telex:	29336 CAA PK
Email:	
AFTN:	OPKCYFYT
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Mr. Fasihuzzaman
Phone:	92-21-9218242
Fax:	92-21-9218216
Telex:	29336 CAA PK
Email:	
AFTN:	OPKCYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Mr. Nadeem Sharif Pasha
Phone:	92-21-9218174
Fax:	
Telex:	29336 CAA PK
Email:	Ctoqiap@sat.net.pk
AFTN:	OPKCYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Air Cdre Qamaruddin
Phone:	92-21-9218732
Fax:	92-21-9218733
Telex:	29534 DG CAA PK
Email:	q-uddin@yahoo.Com
AFTN:	OPHQZXCM
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Comm-Ops branch, HQ.CAA
Technical Devision
Terminal-1
QIAP, Karachi-75200
Pakistan

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS	Yes	
MOTNE		
OPMET	Yes	
SITA		

OPKC - Karachi - Pakistan

AFTN Routeing Table

Desti- nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	VA	00		
B	OK	00		
C	OK	OI		
D	OK	OO		
E	OK	OI		
F	OK	OO		
G	OK	OO		
H	OK	OO		
K	OK	OI		
L*	OK	0I		
LL				
LT	OI	OK		
M	OK	OI		
N	VA	OI		

Desti- nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OA	N		
OB	OO	OI		
OE	OO	OK		
OI	OI	OO		
OJ	OK	OI		
OK	OK	OO		
OL	OO	OK		
OM	OO	OI		
OO	OO	OI		
OP	N	N		
OR	OO	OK		
OS	OI	OO		
OT	OO	OI		
OY	OO	OI		
P	VA	OO		
R	VA	OO		
S	OK	OI		
T	OK	OI		
U	OI	OK		
V*	VA	OO		
VN	ZB	VA		
W	VA	OO		
Y	VA	OO		
Z	ZB	VA		

OPKC - Karachi - Pakistan

Circuit Characteristics

Situation recorded in October 2003		
Link	**Protocol**	**Capacity (bps)**
OIII	AFTN	1 x 200
OKBK	AFTN	2.4K
OOMS	AFTN	1 x 300
ZBBB	AFTN	1 x 50
VABB	AFTN	1 x 200
OAKB	AFTN (VSAT)	1 x 2400

Planned		
Protocol	**Capacity (bps)**	**"O" date**

OTBD - Doha - Qatar

Information

Operator:	
Phone:	00974 4656220/268
- -	00974 4622510
Fax:	
Telex:	
Email:	
AFTN:	OTBDYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	DOHXYYF

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Mr. Ahmed Al-Mannai
Phone:	00974 4622510
Fax:	00974 4622052
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	OTBDYTYX
CIDIN/OPMET:	
SITA:	DOHXYYF

Technical supervisor:	
Name:	Mr.Said Othman Baywazir
Phone:	00974 465500
Fax:	00974 4622620
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Civil Aviation Authority
P.O.Box 3000
Doha Qatar

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OTBD - Doha - Qatar

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OB	OK		
B	OB	OK		
C	OB	OK		
D	OB	OK		
E	OB	OK		
F	OB	OK		
G	OB	OK		
H	OB	OK		
K	OB	OK		
L*	OB	OK		
LL				
M	OB	OK		
N	OB	OK		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OB	OK		
OB	OB	OK		
OE	OB	OK		
OI	OK	OB		
OJ	OB	OK		
OK	OB	OK		
OL	OB	OK		
OM	OB	OK		
OO	OB	OK		
OP	OK	OB		
OR	OK	OB		
OS	OB	OK		
OT	N	N		
OY	OB	OK		
P	OB	OK		
R	OB	OK		
S	OB	OK		
T	OB	OK		
U	OB	OK		
V	OB	OK		
W	OB	OK		
Y	OB	OK		
Z	OB	OK		

OTBD - Doha - Qatar

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OBBI	AFTN	1 x 200			
OKBK	AFTN	1 x 100			

OEJD - Jeddah - Saudi Arabia

Information

Operator:	
Phone:	+966 2 685 0532
- -	+966 2 685 4576
Fax:	+966 2 685 4016
Telex:	603807 KAIAP
Email:	
AFTN:	OEJNYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
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Fax:	+966 2 685 5718
Telex:	
Email:	
AFTN:	OEJNYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
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Email:	
AFTN:	OEJNYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
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Telex:	
Email:	dc97sha@hotmail.com
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
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Phone:	+966 2 640 5000 ext: 5564
Fax:	+966 2 640 1477
Telex:	601093 CIVAIR SJ
Email:	albishi_h@yahoo.com
AFTN:	OEJDYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:
Manager
ATS Comm. Ops and Procedures
Presidency of Civil Aviation
P.O. Box 929
JEDDAH 21421
SAUDI ARABIA

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OEJNA
AFTN OPM/NM:	OEJNM
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET	No	
AIS	No	
MOTNE	No	
OPMET	No	
SITA	No	

OEJD - Jeddah - Saudi Arabia

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OBBIA	OO		
B	LCNCA	OBBIA		
C	LCNCA	OBBIA		
D	HECAA	LCNCA		
E	LCNCA	OBBIA		
F	HA	HECAA		
G	HECAA	LCNCA		
H*	HA	HECAA		
HECAA	HECAA	LCNCA		
HL	HECAA	LCNCA		
HS	HS	HECAA		
K	LCNCA	OBBIA		
L*	HECAA	LCNCA		
LCNCA	LCNCA	OBBIA		
LK	LCNCA	OBBIA		
LL				
LT	OBBIA	OO		
M	HECAA	LCNCA		
N	OBBIA	OO		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OBBIA	OO		
OBBIA	OBBIA	OO		
OE	N	N		
OI	OBBIA	OO		
OJ	OJ	HECAA		
OK	OBBIA	OO		
OL	OL	HECAA		
OM	OBBIA	OO		
OO	OO	OBBIA		
OP	OO	OBBIA		
OR	OL	HECAA		
OS	OL	HECAA		
OT	OBBIA	OO		
OY	OYS	OO		
P	OBBIA	OO		
R	OBBIA	00		
S	HECAA	LCNCA		
T	HECAA	LCNCA		
U	LCNCA	OBBIA		
V*	OBBIA	OO		
VA	OO	OBBIA		
VE	OO	OBBIA		
VI	OO	OBBIA		
VN	OO	OBBIA		
VO	OO	OBBIA		
W	OBBIA	OO		
Y	OBBIA	OO		
Z	OO	OBBIA		

OEJD - Jeddah - Saudi Arabia

CIDIN Routeing Table

CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG	CIDIN Exit Address	Actual Main VCG	Actual Altn. VCG	Planned Main VCG	Planned Altn. VCG
HECA_	HECA								
LCNC_	LCNC	OBBI							
OBBI_	OBBI	LCNC							

CIDIN Virtual Circuit Group

Actual VCG	Actual Prim.VC	Actual Secondary VC's			Planned VCG	Planned Prim.VC	Planned Secondary VC's		
HECA	HECA1								
LCNC	LCNC1								
OBBI	OBBI1								

OEJD - Jeddah - Saudi Arabia

Circuit Characteristics

Situation recorded in April 2004			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
HAAB	AFTN	1 x 50			
OJAM	AFTN	1 x 100			
OBBI	CIDIN	9.6 K			
OLBA	AFTN	1 x 100	AFTN	1 x 300	2004
HECA	CIDIN	9.6 K			
HSSS	AFTN	1 x 50			
OOMS	AFTN	1 x 300			
LCNC	CIDIN	9.6 K			
OYSN	AFTN	1 x 100			

OSDI - Damascus - Syria

Information

Operator:	
Phone:	011-544 5985/4165
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	011-544 5985/4106
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	Abdu Al Kani Shahada
Phone:	011-544 5985/4164
Fax:	
Telex:	
Email:	Planned
AFTN:	OSDIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	Samir Abou Chameh
Phone:	011-544 5985/4106
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	Eng. Donnia Aloul
Phone:	011-544 5985/4160
Fax:	
Telex:	
Email:	
AFTN:	OSDIYTYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OSDI - Damascus - Syria

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OI	HE		
B	LG	HE		
C	LG	HE		
D	HE	LG		
E	LG	HE		
F	HE	LG		
G	HE	LG		
H	HE	LG		
K	LG	HE		
L*	LG	HE		
LL				
M	LG	HE		
N	HE	LG		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OI	HE	OI	OH
OB	OI	OK		
OE	OJ	OK	OJ	HE
OI	OI	OK	OI	OK
OJ	OJ	HE		
OK	OK	OI		
OL	OL	HE		
OM	OI	OK		
OO	OI	OK		
OP	OI	OK		
OR	OR	OJ	OR	OJ
OS	N	N	N	N
OT	OI	OK	OI	OK
OY	OJ	HE		
P	LG	HE		
R	HE	LG	OK	OL
S	LG	HE		
T	LG	HE		
U	LG	HE		
V	OI	OK		
W	HE	OI	OK	OI
Y	OI	OK		
Z	HE	LG	OK	OI

OSDI - Damascus - Syria

Circuit Characteristics

Situation recorded in November 2003			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
HECA	AFTN	1 x 50	AFTN	300	2004
LGGG	AFTN	2 x 50	AFTN	300	2004
OIII	AFTN	1 x 50	AFTN	300	2005
OJAM	AFTN	1 x 50	AFTN	300	2004
OKBK	AFTN	1 x 50	AFTN	300	2005
OLBA	AFTN	2 x 50	AFTN	1.2K	2004
ORBI	AFTN	1 x 50	AFTN	300	2004
SITA	AFTN	1 X 50	AFTN	300	

*) The COM Centre will be able to upgrade links t0 100 - 300 bouds in 2001.

OMAE - Abu Dhabi - U.A.E.

Information

Operator:	
Phone:	00971 2 4054217
- -	
Fax:	00971 2 4054373
Telex:	
Email:	peter.comber@gcaa-uae.gov.ae
AFTN:	OMAEYFYX
CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	00971 2 4054337
- -	
Fax:	00971 2 4054334
Telex:	
Email:	gcaa1@emirates.net.ae
AFTN:	
CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Supervisor:	
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Email:	aftnuae@emirates.net.ae
AFTN:	OMAEYFYX
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
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Phone:	00971 2 4054203
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Telex:	
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AFTN:	
CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Management:	
Name:	P. Comber
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Telex:	
Email:	aftnuae@emirates.net.ae
AFTN:	OMAEYTSC
CIDIN/AFTN:	OMAEM
CIDIN/OPMET:	
SITA:	

Postal Address:
GCAA
P.O. Box 6558
Abu Dhabi
United Arab Emirates

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	OMAEA
AFTN OPM/NM:	OMAEYPYX
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN	Yes	
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

'.ae

OMAE - Abu Dhabi - U.A.E.

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.	Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OBBIA	OO			OA	OBBIA	OO		
B	OBBIA	OO			OB	OBBIA	OO		
C	OBBIA	OO			OE	OBBIA	OO		
D	OBBIA	OO			OI	OI	OBBIA		
E	OBBIA	OO			OJ	OBBIA	OO		
F	OBBIA	OO			OK	OBBIA	OI		
G	OBBIA	OO			OL	OBBIA	OO		
H	OBBIA	OO			OM	N	N		
K	OBBIA	OO			OO	OO	OBBIA		
L*	OBBIA	OO			OP	OO	OBBIA		
LL					OR	OBBIA	OI		
LT	OBBIA	OO			OS	OBBIA	OI		
M	OBBIA	OO			OT	OBBIA	OI		
N	OBBIA	OO			OY	OO	OBBIA		
					P	OBBIA	OO		
					R	OBBIA	OO		
					S	OBBIA	OO		
					T	OBBIA	OO		
					U	OBBIA	OO		
					V*	OBBIA	OO		
					VA	OO	OBBIA		
					VE	OO	OBBIA		
					VI	OO	OBBIA		
					VN	OO	OBBIA		
					VO	OO	OBBIA		
					W	OBBIA	OO		
					Y	OBBIA	OO		
					Z	OO	OBBIA		

OMAE - Abu Dhabi - U.A.E.

Circuit Characteristics

Situation recorded in March 2001			Planned		
Link	Protocol	Capacity (bps)	Protocol	Capacity (bps)	"O" date
OBBI	CIDIN	1 x 9.6K			
OIII	AFTN	1 x 50	AFTN	1 x 200	in 2002
OOMS	AFTN	1 x 50	AFTN	1 x 200	IV/2001

OYSN - Sanaa - Yemen

Information

Operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical operator:	
Phone:	
- -	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Technical supervisor:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Management:	
Name:	
Phone:	
Fax:	
Telex:	
Email:	
AFTN:	
CIDIN/AFTN:	
CIDIN/OPMET:	
SITA:	

Postal Address:

CIDIN Entry/Exit Addresses:	
AFTN Ae/Ax:	
AFTN OPM/NM:	
OPMET Ae/Ax:	
OPMET OPM/NM:	

Other:	

Functions:		
Conv. AFTN	Yes	
CIDIN/AFTN		
CIDIN/OPMET		
AIS		
MOTNE		
OPMET		
SITA		

OYSN - Sanaa - Yemen

AFTN Routeing Table

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
A	OO	OE		
B	OO	OE		
C	OO	OE		
D	OO	OE		
E	OO	OE		
F	OE	OO		
G	OE	OO		
H	OE	OO		
K	OO	OE		
L*	OO	OE		
LL				
M	OO	OE		
N	OO	OE		

Desti-nation	Actual Main	Actual Altn.	Planned Main	Planned Altn.
OA	OO	OE		
OB	OO	OE		
OE	OE	OO		
OI	OO	OE		
OJ	OO	OE		
OK	OO	OE		
OL	OE	OO		
OM	OO	OE		
OO	OO	OE		
OP	OO	OE		
OR	OO	OE		
OS	OO	OE		
OT	OO	OE		
OY	N	N		
P	OO	OE		
R	OO	OE		
S	OO	OE		
T	OO	OE		
U	OO	OE		
V	OO	OE		
W	OO	OE		
Y	OO	OE		
Z	OO	OE		

OYSN - Sanaa - Yemen

Circuit Characteristics

Situation recorded in Feb.2000			Planned		
Link	**Protocol**	**Capacity (bps)**	**Protocol**	**Capacity (bps)**	**"O" date**
OEJD	AFTN	1 x 100			
OOMS	AFTN	1 x 100			

CNS/MET SG/6
Appendix 3E to the Report on Agenda Item 3

MID REGIONAL ATN PLANNING DOCUMENT

Document Reference:	MIDANPIRG AFS/ATN – TF/APG
Author:	ATN Planning Group
Revision Number:	Version 03 / 2004
Date:	April 2004

CHAPTER ONE

ATN Transition Plan

Table of Contents

EXECUTIVE SUMMARY

This transition plan provides technical guidance on the transition from the ground infrastructure support of the Aeronautical Fixed Telecommunication Network (AFTN) and the Common ICAO Data Interchange Network (CIDIN) services to the Aeronautical Telecommunication Network (ATN) for the Middle East Region.

The Middle East ATN Ground Transition Plan outlines the requirements to increase bandwidth and upgrade protocols for those trunks that will support the main data flow of traffic through the Middle East Region. The plan also provides target dates in which these trunks and implementation of BBISs and BISs will need to occur to ensure a smooth transition of the ATN within the region, taking into account proper interface with adjacent regions.

This chapter presents a plan on the ATN ground transition activities applicable to the Middle East Region. It provides also information on the ground infrastructure required to support the ATN and takes into consideration progressively the ATN air-to-ground requirements of the region.

1. INTRODUCTION

This chapter presents a plan on the ATN ground activities applicable to the Middle East Region. It provides also information on the ground infrastructures required to support the ATN and to take into consideration progressively the ATN air-to-ground requirements of the Region.

1.1 Objective

1.2 Scope

The scope of the chapter one includes:

- A brief description of the current ground infrastructure and upgrade plans based on AFTN/CIDIN;
- The types of ATN applications that will be used over the ground infrastructure;
- The types of trunks that will need to be upgraded to cater for ATN traffic; and
- A proposed implementation schedule on how the ATN should be transitioned within the region.

1.3 References

Reference 1 Manual of Technical Provisions for the ATN (Doc 9705-AN/956) Second Edition 1999

Reference 2 Comprehensive Aeronautical Telecommunication Network (ATN) Manual (Doc 9739-AN/961) First Edition 2000

Reference 3 Middle East AFTN/CIDIN Routing Directory

Reference 4 ICAO Location Indicators – Document 7910

Reference 5 Middle East CNS Facilities and Services Implementation Document (FASID) – Doc. 9708

Reference 6 ASIA/PAC Regional Aeronautical Telecommunication Network (ATN) Planning Document (if you wish)

2. CURRENT GROUND INFRASTRUCTURE AND UPGRADE PLANS

2.1 The present ground-ground data communications system in the Middle Region comprises AFTN circuits and centers (tributary and main) that allow the exchange of ATS and other operational messages.

2.2 Five States of the Region already implemented the Common ICAO Data Interchange Network (CIDIN) as an upgrade of the low speed AFTN circuits to improve the efficiency and reliability of message exchange. These CIDIN circuits are operating at 9600Bps and the remaining circuits at 50 Bps to 300 Bps, using asynchronous protocols.

2.3 The detail of international circuits operating within the Region and between neighboring regions. is documented in Table CNS 1A of the ICAO MID CNS Facilities and Services Implementation Document (FASID).

2.4 The current AFTN topology in the Region shows that the majority of circuits will not be suitable to be used for the ATN without some form of upgrade. In later stage, it will be necessary to identify those circuits that need to be upgraded in both bandwidth and protocols.

2.5 With regard to bandwidth requirements, it is assumed that 9600Bps could be used for Intra-regional connections while 19200Bps or higher speed could be preferred for Inter-Regional connections when full ATN is implemented.

2.6 However, lower speeds may be introduced in the initial implementation phases between some centers by bilateral arrangements. Centers will be expected to monitor the performance of these links and increase bandwidth requirements as traffic load increases.

2.7 It is important to note that some States have already started the establishment of a communication infrastructure that would serve the ATN. There have been implementations of high speed point-to-point digital links operating at 64KBPS and carrying voice and data traffic.

2.8 In respect to the upgrade of protocols, it is expected that they will be implemented on a bilateral arrangements between States according to the preferred protocols: X.25~~,~~ **Frame Relay or Asynchronous Transfer Mode (ATM) or any other protocol that will be included in the ICAO Standards in future.**

2.9 It can happen that due to different planning activities, ~~by States, which~~ not all States within the Region will be migrating to the ATN at the same time. Therefore, there will be a need to maintain the existing AFTN circuits to operate in parallel with any new implementation of high-speed links to meet ATN requirements.

3. ATN END SYSTEM APPLICATIONS

3.1 According to the Manual of Technical Provisions for ATN (Doc. 9705- AN/956) and Comprehensive Aeronautical Telecommunication Network (ATN) Manual (Doc 9739-AN/961), there are currently six end system applications. The table below lists these applications and provides a brief summary of their functions:

Applications	Functions
Context Management (CM)	An ATN application that provides a logon service allowing initial aircraft introduction into the ATN and provides also a directory of all other data link applications on the aircraft.
Automatic Dependent Surveillance (ADS)	An ATN application that provides data from the aircraft to the ATS unit(s) for surveillance purpose.
Controller Pilot Data Link Communication (CPDLC)	An ATN application that provides a means of ATC data communication between controlling, receiving or downstream ATS units and the aircraft, using air-ground and ground-ground sub-networks.
Flight Information Service (FIS)	An ATN application that provides to aircraft information and advice those are useful for the safe and efficient conduct of flight.
ATS Message Handling Service (ATSMHS)	**A set of computing and communication resources that are implemented by ATS organizations to provide the ATS message service.**
ATS Inter-facility Data Communication (AIDC)	**An ATN application dedicated to exchanges between ATS units of ATC information in support of flight notification, flight coordination, transfer of control, transfer of communication, transfer of surveillance data and transfer of general data.**

4. ATN TRAFFIC

4.1 Ground-Ground Traffic

4.1.1 ATS Message Handling System (AMHS)

4.1.1.1 With the introduction of AMHS as the replacement for AFTN/CIDIN, a number of AFTN circuit links between centers will need to be upgraded to cater for the increase of traffic load generated by AMHS overheads. Analysis carried out in other Regions showed that there will be significant overheads generated by AMHS for a typical message of about 250 bytes. As the message size increases the amount of overheads generated becomes less significant to the size of the body of the message. In transitioning from AFTN/CIDIN to AMHS, States will have to anticipate this increase in bandwidth to accommodate AMHS traffic so as to maintain current or better performance of traffic delivery.

4.1.2 ATS Interfacility Data Communication (AIDC)

4.1.2.1 It is also important to note that there will also be an increase in other forms of data traffic due to implementation of other ATN applications such as the ATS Inter-facility Data Communication (AIDC) application. AIDC will generally be used by Flight Data Processors (FDP) to communicate between each other, which are normally established in each Fight Information Region (FIR). It can therefore be expected that data generated by this application will increase bandwidth requirements on those links that are required to pass this information between FIRs.

4.1.2.2 States will need to ensure that not only are the links that are established between States are capable of transferring data in a timely manner but also for those links that provide an alternate path for the applications to use in times of disruption to the primary links.

4.2 Air-Ground Traffic

4.2.1 With the implementation of the air-ground applications it is important to ensure that transit response times are kept to a minimum level so as not to affect the overall response time that it takes for traffic such as ADS reports and CPDLC messages to be delivered to their final destination. This again reflects the need to ensure that critical ground links within the Region are capable of handling this information efficiently.

4.2.2 Another important factor with air-ground traffic is the generation of routing information that is caused by aircraft that will move between various ATN routing domains. To maintain this information in a defined area requires a minimum number of backbone routers to be implemented which protects the majority of all other ATN routers from being flooded with routing information.

5. ATN ROUTING ARCHITECTURE

5.1 The ATN infrastructure can be divided into two main areas to support both the air-ground and ground-ground applications that will operate over the ATN.

5.2 For air-ground support the ATN needs to support an ATN Routing Backbone network so that routing information about where an aircraft is can be maintained by this backbone. As aircraft move through various coverage media and FIR boundaries the ATN Routing Backbone will be notified of the changing routing data for each mobile aircraft in the region. The type of ATN Routing Backbone architecture for the Middle East Region is documented in the Middle East ATN Routing Architecture Plan (Reference) and is summarized in Figure 5-1 of this document.

5.3 It is anticipated that the trunks used for the ATN Routing Backbone will also be used to carry ground-ground application data such as the AMHS. This of course depends upon the routing policies set up between each router, which determine which links are to be used for the different classes of traffic that can be expected to transverse the network.

5.4

5.5 **Figure 5-1** shows the proposed ATN Routing Backbone for the Middle East Region. The ATN Router Backbone tries to use existing trunks that have already been established between the nominated States who will operate the backbone that is currently used for the AFTN. Virtually these trunks will need to be upgraded to cater for the increase in traffic load that will be handled by the ATN. Further details about these trunks are documented in Section 6.

5.6 To improve the resilience and redundancy aspects of the ATN routing backbone, it is proposed that additional trunks be incorporated to ensure minimal disruption to the air-ground applications. This effectively ensures that the Middle East Region can function on its own without support from other regions relaying information on behalf of a failed router or trunk service within the Middle East Region. These additional trunks have been shown as dashed lines in Figure 5-1. Also shown are the inter-regional connections between the Middle Region and its neighboring Regions. Additional inter-regional connections are also proposed and are further documented in Section 6.

5.7 It is important to also note that costs will increase due to implementing higher bandwidth links. Therefore the region should review its requirements in having to use point to point circuits every where when a number of strategically placed links may suffice with alternate dial up on demand capabilities being deployed between key sites. This may help to offset the costs and still provide for an efficient ground-ground network for the ATN.

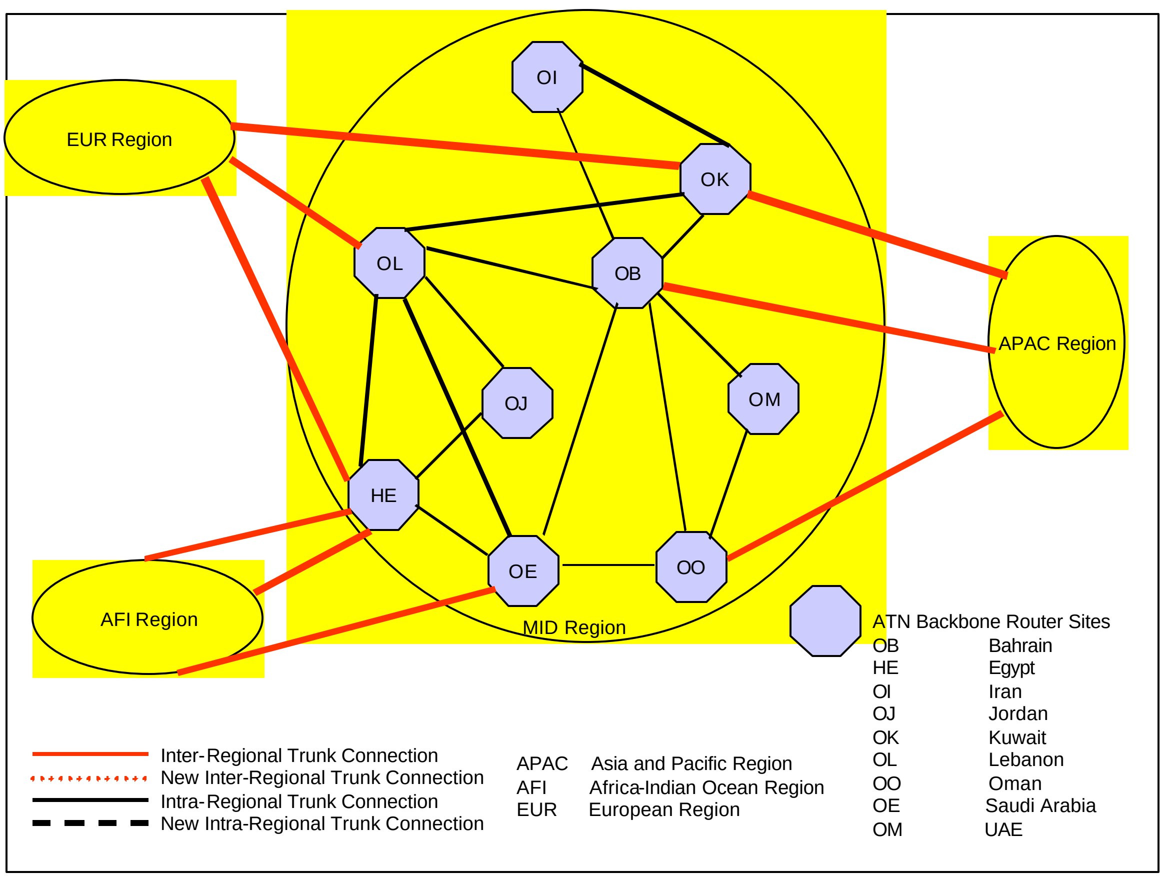

Figure 5-1 MID ATN Backbone Routing Architecture

6. ATN BACKBONE TRUNKS

6.1 Table 6-1 provides a list of existing or proposed upgrading of AFTN/CIDIN circuits that have been selected for the transition to the ATN routing backbone. Also provided in the table are proposed additional new trunks that should be considered to provide the necessary redundancy and backup services for the ATN for the region.

6.2 As part of the transition from AFTN to the ATN, the existing link capacity, especially those using CIDIN Protocol must be able to handle both AFTN and ATN for those States who do not intent to migrate to AMHS straight away. It is assumed that States that have been nominated to provide the ATN backbone routing environment will do so in a timely manner so as to allow those States who are ready to start their implementation programs can do so without too much restriction within the region. Where a nominated State cannot provide the ATN backbone then an alternative arrangement should be put in place for another State, who is willing to provide the service.

AFTN Circuit Upgrade and Backbone BIS Implementation

Nominated State	ATN Backbone Connection		Target Date Of Implementation		Trunk Type	Comments
	Speed	Protocol	Circuit	BBIS		
Bahrain				2007		
Singapore	19200 bps	X.25	2005		Inter-Regional	Upgrade of circuit
Egypt				2007		
Greece	64000bps	TBD	2005		Inter-Regional	Upgrade of circuit
Kenya	19200 bps	TBD	2005		Inter-Regional	Upgrade of circuit
Tunisia	19200 bps	TBD	2005		Inter-Regional	Upgrade of circuit
Kuwait				2007	Inter-Regional	
Italy (check EUR)	19200 bps	TBD	2005			Upgrade of circuit
Pakistan (check ASIA/PAC)	64000bps	TBD	2005		Inter-Regional	Upgrade of circuit
Lebanon				2007	Inter-Regional	
Cyprus	64000bps	TBD	2005			Upgrade of circuit
Oman				2007	Inter-Regional	
Mumbai	64000bps	X.25	2005			Upgrade of circuit
Saudi Arabia				2007	Inter-Regional	
Ethiopia	64000bps	TBD	2005			Upgrade of circuit

7. INTERCONNECTION OF ATN ROUTERS

7.1 This section describes the interconnection requirements for ATN routers for the Middle East Region. Table 7 – 1 shows a pictorial view of the interconnection between various States in the Region.

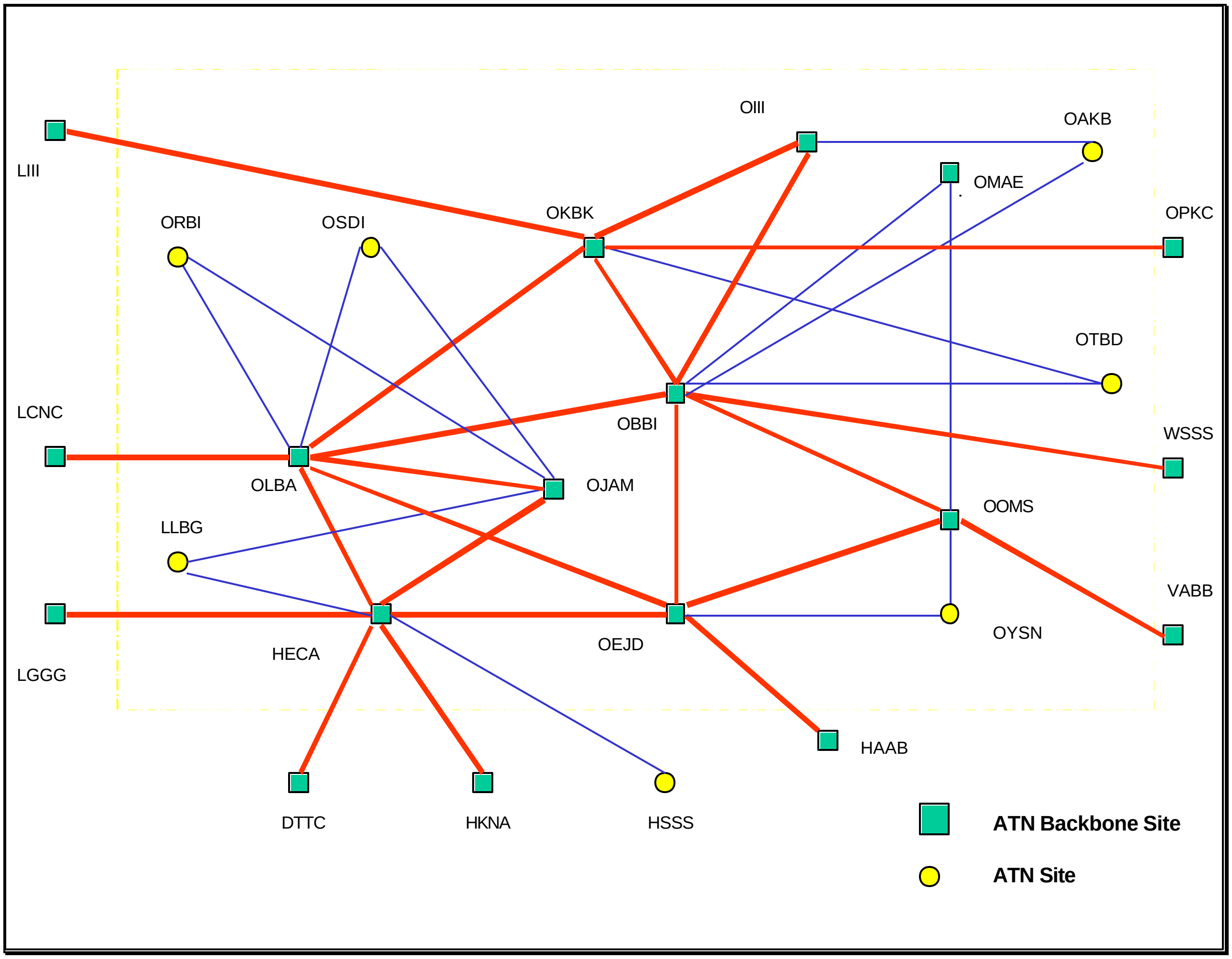

Figure 7 – 1 MID ATN Router Interconnection
(This needs to be updated based on the proposed additional intra-regional trunk)

7.2 It is proposed that all existing AFTN circuits are upgraded as soon as practicable to CIDIN or other modern protocols that are compatible with the ATN Lower Layers. In doing so, these links would be sized to cater for both AFTN and ATN. This would allow the region to set-up a sub-network that could support current operational requirements for AFTN and to allow trials and operation services of the ATN to be implemented at minimal cost to the region.

7.3 Further details have been provided in Table 7-1, which lists all international connections between countries and their proposed bandwidth requirements and implementation dates.

MID Region BIS Routing Interconnections

Backbone State	ATN Interconnection		Target Date Of Implementation		Connection Type	Comments
	Speed	Protocol	Circuit	BIS		
Bahrain				2007		
Abu Dhabi	9600bps	TBD	2003	2007	Intra-Regional	Circuit upgraded
Beirut	9600bps	TBD	2000	2007	Intra-Regional	Circuit upgraded
Doha	9600bps	TBD	2003	2007	Intra-Regional	Circuit upgraded
Jeddah	9600bps	TBD	2004	2007	Intra-Regional	Upgrade of circuit required
Kabul	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Kuwait	9600bps	TBD	2004	2007	Intra-Regional	Upgrade of circuit required
Muscat	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Tehran	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Egypt				2007		
Amman	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Ben Gurion	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Beirut	9600bps	TBD	2000	2007	Intra-Regional	Circuit upgraded
Jeddah	9600bps	TBD	2003	2007	Intra-Regional	Circuit upgraded
Iran				2007		
Bahrain	9600bps	TBD	2004	2007	Intra-Regional	Upgrade of circuit required
Kuwait	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Jordan						
Baghdad	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Ben Gurion	9600bps	TBD	2003	2007	Intra-Regional	Circuit upgraded
Beirut	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Cairo	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Damascus	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Kuwait				2007		
Baghdad	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Bahrain	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Beirut	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Tehran	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Lebanon				2007		
Amman	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Baghdad	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Bahrain	9600bps	TBD	2000	2007	Intra-Regional	Circuit upgraded
Cairo	9600bps	TBD	2000	2007	Intra-Regional	Circuit upgraded

Backbone State	ATN Interconnection		Target Date Of Implementation		Connection Type	Comments
	Speed	Protocol	Circuit	BIS		
Damascus	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Kuwait	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Jeddah	9600bps	TBD	2004	2007	Intra-Regional	Upgrade of circuit required
Oman				2007		
Abu Dhabi	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Bahrain	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Jeddah	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Sana'a	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Saudi Arabia				2007		
Bahrain	9600bps	TBD	2004	2007	Intra-Regional	Upgrade of circuit required
Beirut	9600bps	TBD	2004	2007	Intra-Regional	Upgrade of circuit required
Cairo	9600bps	TBD	2003	2007	Intra-Regional	Circuit upgraded
Muscat	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
Sana'a	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required
UAE				2007		
Bahrain	9600bps	TBD	2003	2007	Intra-Regional	Circuit upgraded
Muscat	9600bps	TBD	2005	2007	Intra-Regional	Upgrade of circuit required

Table 7 - 1 – MID Region BIS Routing Interconnections

Note: Speed requirements are an indication only and may vary between sites to meet different performance requirements for the type of ATN services and applications that are operating over each link.

8. TRANSITION ACTIVITIES

It is recommended that there will be three phases in the implementation of the ATN infrastructure.

- Phase 1, Upgrade of existing sub network infrastructures to support the Backbone BISs (BBISs);
- Phase 2, Implementation of the ATN Regional BBISs; and
- Phase 3, Implementation of supporting ATN BISs.

8.1 Phase 1

8.1.1 This phase consists of upgrading existing AFTN circuits where possible that will support the introduction of the ATN Backbone BISs. Table 6-1 identifies those circuits that will need to be upgraded in both bandwidth and protocols.

8.1.2 In regards to bandwidth requirements, Table 6-1 proposes a preferred speed that will be required when full ATN is implemented. However, lower speeds may be introduced in the initial implementation phases between some locations by bilateral arrangements between States. States will be expected to monitor the performance of these links and increase bandwidth requirements as traffic load increases.

8.1.3 Where new circuits have been identified these will only need to be introduced on a case-by-case basis as BBISs are implemented.

8.1.4 In respect to the upgrade of protocols between States, it is recommend that any efficient Wide Area Network protocols is implemented in ATN routers such as Frame Relay and Asynchronous Transfer Mode (ATM). This implementation of these protocols will be done on a bilateral arrangement between States.

8.2 **Phase 2**

8.2.1 Phase 2 consists of implementing the Backbone BISs (BBISs) that will support the MID Region. The BBISs are important to the success of the ATN implementation program for the region and will need to be reviewed regularly to determine if contingency arrangements should be put in place where nominated States fail to provide the infrastructure in a timely manner.

Note: Implementation of Inter-Regional BBIS connections between MID Region and neighboring regions will also need to be determined and encouraged during this phase.

8.3 **Phase 3**

8.3.1 Phase 3 is the implementation of all other BISs that will connect to the Backbone BISs.
Further information including initial target dates for the upgrade of the sub-network links and protocols and implementation of the BISs for each State can be found in the table CNS 1B – ATN Router Plan of the FASID. Refinement of the target dates will continue to be updated as States start to develop their implementation programs and can provide feedback to the ICAO MID Regional Office.

CHAPTER TWO

Routing Architecture Plan

Table of Contents

EXECUTIVE SUMMARY

This document provides technical guidance on the Planning and Implementation of the transition to the Aeronautical Telecommunication Network (ATN) for the ground data communications of the ICAO MID Region.

The material presented here is technical in nature. The ATN Transition Plan includes information about the implementation of Regional ATN Routing Architecture as presented in this document.

The routing architecture is based upon the need for a ground-ground infrastructure to eventually replace the existing AFTN/CIDIN infrastructure. For this reason, the routing architecture uses the existing AFTN/CIDIN infrastructure as a guideline for the positioning of ATN equipment.

The routing architecture is designed primarily for the ground-ground environment. It is intended that this architecture will also be suitable as the routing architecture for the introduction of the air-ground communication requirements.

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1. INTRODUCTION

This initial plan provides technical guidance on the routing architecture for the Middle East Region.

1.1 Terms used

1.1.1 ***Aeronautical Fixed Telecommunication Network (AFTN)***: a low-speed network providing the majority of ground-ground data communication services within the ICAO realm. This term is defined in ICAO Annex 10.

1.1.2 ***Boundary Intermediate Systems (BIS)***: a router that supports IDRP and routes PDUs to more than one routing domain. This term is defined in ICAO Doc. 9705-AN/956 and 9739-AN/961.

1.1.3 ***Backbone Boundary Intermediate Systems (BBIS)***: a router that primarily routes PDUs between routing domains and does not support End Systems*.*

Note: This definition is similar to that found in ICAO Doc. 9705 and is meant to be consistent with that definition. This definition is made on the assumption that this version of the routing architecture is limited to the ground-ground infrastructure.

1.1.4 ***Common ICAO Data Interchange Network (CIDIN)***: a part of the aeronautical fixed service which uses bit-oriented procedures and packet switching techniques.

1.1.5 ***End Boundary Intermediate Systems (EBIS)***: a router that primarily routes PDUs between routing domains and connected End Systems.

1.1.6 ***End Systems (ES)***: an ATN system that supports one or more applications and that is a source and/or destination for PDUs.

1.1.7 ***Inter Regional Boundary Intermediate Systems (IRBIS):*** a router that routes PDUs between systems (both End Systems and Boundary Intermediate Systems) within the Region with routers outside of the Region. These routers are the entry points into the Region and exit points from the Region for PDUs.

1.1.8 ***Network Service Access Point (NSAP)*** address: a 20-octet value that uniquely identifies an interface between the Transport Layer and the Network Layer. In the ATN it provides the address of transport entity providing ATN Internet services.

1.2 Acronyms used

AFTN - Aeronautical Fixed Telecommunication Network
BIS - Boundary Intermediate Systems
BBIS - Backbone Boundary Intermediate Systems
CIDIN - Common ICAO Data Interchange Network
CLNP - Connectionless Network Protocol
EBIS - End Boundary Intermediate Systems
ES - End System
IDRP - Inter-Domain Routing Protocol
IS - Intermediate System
PDU - Protocol Data Unit

2. ROUTING DOMAIN FUNDZAMENTALS

The ATN consists of a set of End-Systems (ESs) and a set of Intermediate Systems (ISs). ESs are the source and destination of all data and are where the applications reside. ISs are better known as routers and relay PDUs from one system to another.

The ISs and ESs are organized into *Routing Domains*. Routing Domains are used to define sets of systems (that typically operate together) into clusters. These clusters have two major properties:

- they are controlled by a single organization, and
- a significant amount of the traffic is internal to the cluster.

The single most important characteristic is that they are controlled by a single organization. This characteristic is manifested in technical terms by mutual trust between all routers in a routing domain. Routing protocols are based on the fact that the information exchanged between *intra*-domain routers can be trusted. No special reliability or trust is required to accept information about advertised routes.

The second characteristic, most traffic is internal to a routing domain, is more an artifact of proper network engineering. Routing domains are established through the NSAP addressing conventions established for the ATN in Doc. 9705, Sub-Volume 5. All systems with NSAP addresses defined with the same address prefix are by definition in the same routing domain.

2.1 Intra-Domain Routing

2.1.1 Intra-domain routing is the routing of PDUs from the source to destination where both are in the same domain. Intra-domain routing implies one or more ISs capable of routing PDUs across the domain. Examples of intra-domain routing would be CLNP-capable routers exchanging PDUs between two Local Area Networks.

2.1.2 Since the ATN is specified across State boundaries, there are no SARPs developed for intra-domain routing. The choice and configuration of internal routers is a local matter.

2.2 Inter-Domain Routing

2.2.1 The central definition of routing in the ATN is concerned with inter-domain routing. This is a particularly difficult problem since by the very nature of inter-domain routing; the information received cannot be fully trusted.

2.2.2 Inter-domain routing is based upon the mutual distrust of the received routing information. First, reliability mechanisms must be built-in to ensure the reliable transfer of the information. Second, the received information must be filtered to ensure that it meets the suitability constraints of the received system (in other words, can it be believed).

2.2.3 After receiving the routing information, the inter-domain router must build routing tables based upon its internal policy about routing its data.

2.3 Types of Routing Domains

2.3.1 There are two basic types of routing domains: end routing domains, and transit routing domains. An end routing domain routes PDUs to and from end-systems within its routing domain. Figure 1 shows an end routing domain.

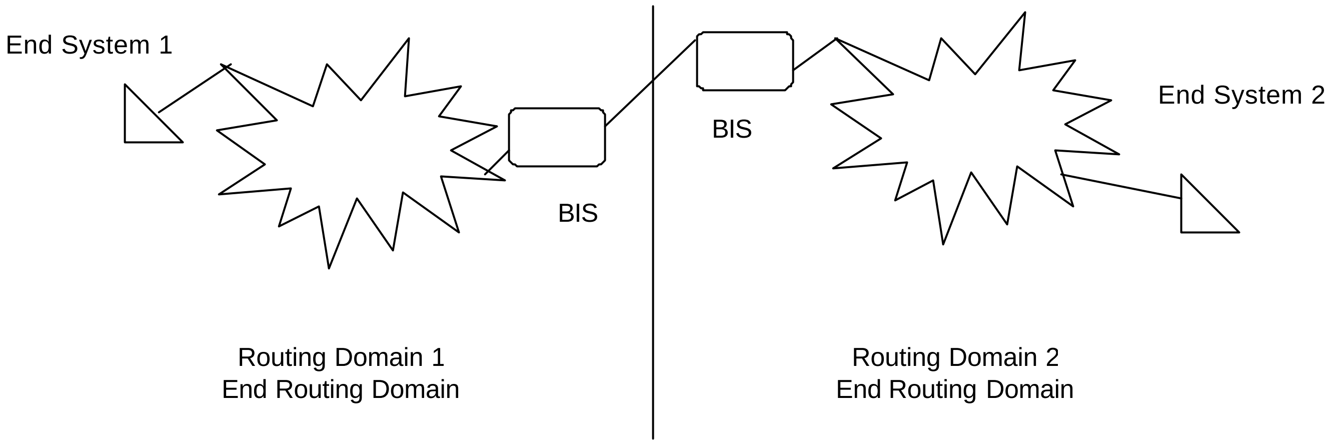


Figure 1 – End Routing Domains

A transit routing domain routes PDUs between two or more routing domains, and may as an option also act as an end routing domain. An example of a transit domain is where a set of backbone routers is configured in their own routing domain with all of the end systems in end routing domains attached to the backbone.

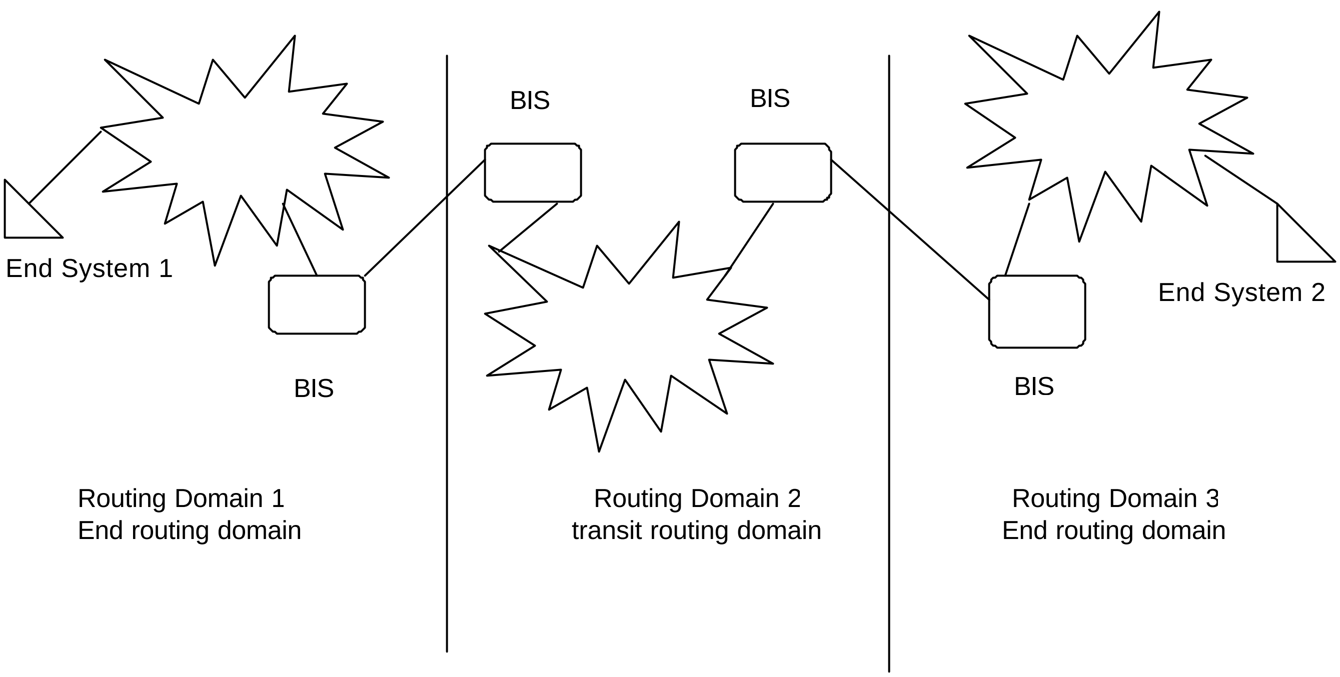


Figure 2 – Transit Routing Domains

Note: A transit routing domain may or may not be part of the backbone. A transit routing domain may consist of BISs none of which are backbone routers.

2.4 Routing Domain Construction

2.4.1 Based on the above, a routing domain consists of at least one inter-domain router.

Note: There must be at least one BIS. There is no requirement for any other equipment.
Routing domains are elements of the physical structure of the ATN.

3. ROUTER FUNDAMENTALS

All routers discussed within this document are ICAO Doc. 9705 and 9739 compliant Boundary Intermediate Systems (BISs).

NOTE: INDIVIDUAL STATES MAY ELECT TO USE OTHER ROUTERS THAT DO NOT COMPLY WITH THE ATN IDRP REQUIREMENTS AS FOUND IN ICAO DOC. 9705 WITHIN THE LIMITS OF THEIR OWN STATES. THESE ROUTER ARE INTERNAL STATE ISSUES AND OUTSIDE THE SCOPE OF THIS DOCUMENT.

3.1 Boundary Intermediate System Overview

3.1.1 Boundary Intermediate Systems comprise the interfaces between networks, and in particular, between different routing domains. The term "Boundary Intermediate System" can often be replaced with the more common term "router".

3.1.2 An important consideration in developing the routing architecture is the different roles that routers take within the ATN environment.

3.2 Router Types

There will be two primary types of BISs employed within the Region:

- Backbone BISs (BBISs), and
- End BISs (EBISs).

Note: A third type of BIS is supported within this routing architecture but since its use is subject primarily to bi-lateral agreements between States and Organizations, it is not fully described here. This third type of BIS is non-BBIS that acts as a transit router between two RDs but is not part of the Regional backbone.

3.2.1 Backbone BISs

3.2.1.1 A BBIS is a router that primarily routes PDUs between routing domains. These routers are typically higher performance routers that aid in the efficient flow of data between domains. BBISs may have End-Systems connected to them, but often are limited to only router-to-router connections.

3.2.1.2 Within the context of the MID Region, BBISs can be further subdivided into Regional BBISs, and Inter-Regional BBISs. Regional BBISs are backbone routers that only connect to routers within the Region. Inter-regional Backbone BBISs are those backbone routers that connect to BBISs in other Regions.

Note: A single, high-performance router may act as both a Regional BBIS and an Inter-Regional BBIS based upon meeting the requirements for performance and reliability.
Note: For completeness of the routing architecture, it must be mentioned that the routers out-side of the Region to which Inter-Regional Backbone BISs attach are, in fact, Inter-Regional Backbone BISs in the other Region.

Note: The interconnections of backbone BISs typically require higher capacity communication lines based on the consolidation of traffic through those backbone routers. Even though the architecture takes into account existing AFTN infrastructure facilities, the need to upgrade the communication facilities as traffic through the backbone increases may be necessary.

Note: It is possible for some States to provide transit routing from its routing domain(s) to the routing domains of other States using BISs that are not backbone routers. For the purposes of this routing architecture, it is not possible to distinguish between these transit routing domain routers and BBISs.

3.2.2 END BISs

3.2.2.1 End BISs are connected to one or more BBISs and provide routing services to a single routing domain. Further, End BISs do not act as a transit router for passing PDUs between other routing domains.

4. MID REGION ROUTING ARCHITECTURE

The MID Region routing architecture is based upon several concepts:

1. From a routing domain point of view, the Region can be considered an "autonomous" area, that is, there is a difference between routers located within the Region and outside the Region.
2. Routing domains and confederations of routing domains may be applied to areas within the Region.
3. States will make their own implementation and transition decisions.

The routing architecture can be divided into several distinct parts:

- the definition of the backbone routing structure for passing information between routing domains within the Region;
- the definition of the routing structure between routing domains not on the backbone;
- the definition of the routing structure for use in end-routing domains; and
- the definition of the routing structure for passing information from this Region to other Regions.

The first component is the definition of the backbone routing structure that supports the exchange of data within the Region. This part defines the interconnection of the major communication facilities in the Region and how they cooperate to link all of the systems in the Region.

The second component is the definition of the structure that allows end routing domains to exchange data across the backbone to another end routing domain. This part defines how the end routing domains connect through the backbone.

The third component defines the routing structure that is used within an end routing domain. This part defines how the individual routing domains may be used to pass data.

The fourth part is needed to define how data will be routed between the systems within the Region with those systems outside the Region. More importantly, the structure describes how all-global ATN systems are accessible from systems in the Region.

4.1 MID Region Backbone

4.1.1 Regional Backbone

4.1.1.1 The definition of a Regional Backbone is based upon the efficiencies that may be realized by concentrating ATN traffic at major communication centers and using the economy of scale in passing this information between major communication centers.

4.1.1.2 The rationale for defining Regional Backbone sites is based upon existing major AFTN center sites and on the flow of both AFTN traffic and possible future air-ground ATN traffic.

4.1.1.3 Within the Region there do exist main AFTN communication centers that can be used to simplify the definition of backbone architecture.

4.1.1.4 However, it must be understood that the expected growth in communication traffic over the ATN could quickly exceed the capabilities of the existing communication infrastructure. Planning for the increased traffic loads will be needed as soon as ATN traffic begins to flow.

4.1.1.5 The architecture and communication requirements define a routing plan that incorporates alternate routing and communication paths so that no single router or communication failure can isolate major parts of the Region.

4.1.1.6 The nine (9) BBIS sites defined in Table 4.1-1 are based on the expected traffic flows. A current AFTN center site identified as a potential backbone router site. This site is listed first and in bold text as follows:

ATN Backbone router site	State
1	**BAHRAIN (Bahrain)**
2	**EGYPT (Cairo)**
3	**IRAN (Tehran)**
4	**JORDAN (Amman)**
5	**KUWAIT (Kuwait)**
6	**LEBANON (Beirut)**
7	**OMAN (Muscat)**
8	**SAUDI ARABIA (Jeddah)**
9	**UAE (Abu Dhabi)**

Table 4.1-1 – Definition of MID Region Backbone Sites

4.1.1.7 At each ATN Backbone router site, there should be at least one BBIS. States committing to operate backbone routers are presented in the table above.

4.1.1.8 Summarizing the information presented above, the MID Region Backbone network will consist of at least one BBIS router at each of the backbone sites identified above. The actual location of the routers will be based upon implementation schedules and the choices of States.

4.1.2 Backbone Router Requirements

The definition of BBIS and the location of these routers may be affected by the requirements for backbone routers. A backbone router must meet several performance and reliability requirements:

- Availability,
- Reliability,
- Capacity, and
- Alternative routing

4.1.2.1 Availability

A backbone router must provide a high-level of availability (24 hours a day, 7 days a week).

4.1.2.2 Reliability

A backbone router must be a very reliable system that may require either redundant hardware or more than one router per site.

4.1.2.3 Capacity

As a communication concentrator site, backbone routers must be capable of supporting significantly more traffic than other ATN routers.

4.1.2.4 Alternative Routing

Based upon the need for continuity of service, backbone routers will require multiple communication links with a minimum of two and preferably three or more other backbone routers to guarantee alternate routing paths in case of link or router failure.

4.1.3 Routing Policies

4.1.3.1 States providing Regional BBISs must be capable of supporting routing policies that allow for Regional transit traffic and for dynamic re-routing of traffic based upon loading or link/router failures.

4.2 Inter-Regional Backbone

The second component of the MID Region Routing Architecture is the definition and potential location of Inter-Regional Backbone Routers. The manner in which this architecture was developed was to ensure that the use of the existing communication infrastructure is possible to the greatest degree. The use of the existing communication infrastructure should reduce the overall cost of transitioning to the ATN.

As already indicated, the Inter-Regional BBISs provide communication from routers within the MID Region to routers in other regions. These Inter-Regional BBISs provide vital communications across regions and therefore need to have redundant communication paths and high availability. (Note: This can be accomplished through multiple routers at different locations.)

Based upon the current AFTN circuit environment, the following States have been identified as potential sites for Inter-Regional BBISs. The States currently have circuits with States outside of the MID Region are found in Table 4.2-1 below.

State	Neighboring Region	Current circuit
Bahrain	Asia-Pac	to be upgraded
Egypt	Africa Europe	to be upgraded
Kuwait	Asia-Pac Europe	to be upgraded
Lebanon	Europe	to be upgraded
Oman	Asia-Pac	to be upgraded
Saudi Arabia	Africa	to be upgraded

Table 4.2-1 Table of Circuits with other ICAO Regions

For the transition to the ATN, connectivity to the other Regions should be a priority. This is especially important as other Regions begin the transition to the ATN and begin deploying ATN BISs.

4.2.1 Long Term Implementation

4.2.1.1 The transition to a fully implemented ATN requires that connectivity amongst the IACO Regions be robust. That is, there is the need to ensure alternate paths and reliable communication. Table 4.2-1 presents a minimal Inter-Regional Backbone that provides a minimum of 2 circuits to other ICAO Regions that communicate directly with the MID Region. For the long-term implementation of ATN, it would be advisable to have 3 circuits to each Region. The addition of circuits to Africa should be considered.
Note: Information is needed on States Plan in implementing ATN.

4.2.2 Initial Implementation

4.2.2.1 The initial implementation of the ATN, outside of the MID Region, will most likely be in ASIA/PAC and Europe. Therefore, initial transition planning may focus on those locations.
Note: Information is needed on States Plan in implementing ATN.

4.2.2.2 For connecting to other Regions, there should be a minimum of two (2) Inter-Regional BBISs. The location of these Inter-Regional BBISs may be located at the centers where the AFTN/CIDIN centers already exist.

Note: The locations presented above are examples of possible router sites. The selection of actual locations will be based on implementation schedules and circuit availabilities.

Note: For additional reliability, a third Inter-Regional BBIS would be preferred.

4.2.2.3 For connecting to Africa, an Inter-Regional BBISs may be located at the location of the existing AFTN centers: Cairo or Jeddah. However, this router would not be needed until such time as ATN traffic is destined for that Region and the location of the router would be determined at that time.

Note: Future work is still required for the definition of policy descriptions for the backbone architecture.

Note: Future work is still required for the definition of policy descriptions for the backbone architecture.

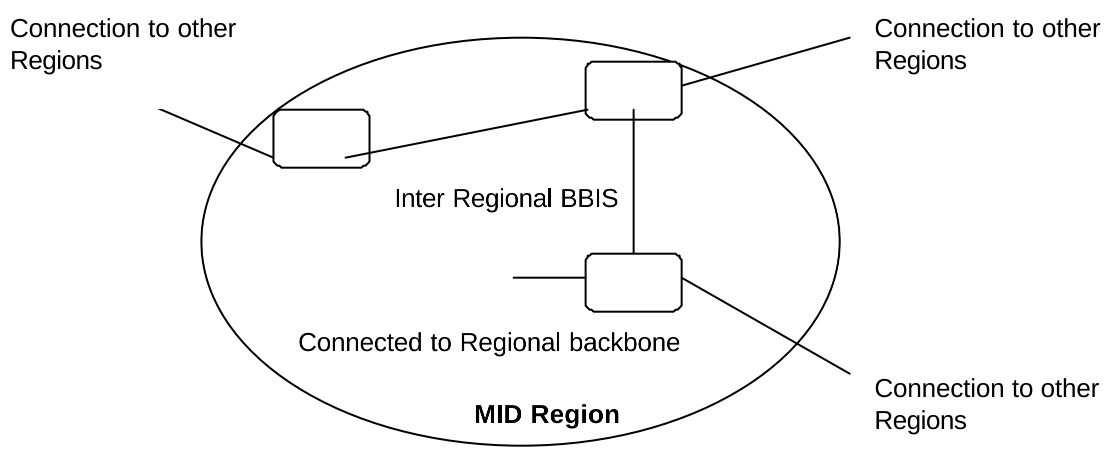


Figure 3 – Inter-Regional Backbone Routers

4.2.3 Transition Issues

4.2.3.1 The transition issues relating to the regional routing architecture is described in the ATN Transition Plan.

4.3 End BISs

4.3.1 It is assumed that naming and addressing (and routing domain definition) will be done on a Regional basis. Further, that for areas within the Region that may utilize an End BIS serving more than one State, the naming structure will be based on the Regional NSAP format defined in Doc. 9705. Further, States may choose to either implement the Regional (or Sub-Regional) NSAP format or the State NSAP format based on whether it installs a BIS.

5. ROUTING DOMAINS

5.1 Each State is expected to have one or more routing domains. Where a State chooses not to implement an ATN BIS, it may choose to incorporate its systems into a routing domain of another State.

5.2 The MID Regional ATN Backbone will consist of routers from the selected States. Each of these routers will be part of its State's routing domain.

Note: This means that the backbone will not be configured with its own routing domain. Routing to the backbone and between backbone routers will be controlled through IDRP routing policies.

5.3 Each State will be responsible for the designation of routing policies for its End Systems and End BISs. Individual States will also be responsible for establishing routing policies for routing to its designated BBIS.
The use of routing confederations is for further study.

6. ATN TRANSITION

Based upon the previous sections, the implementation of the ATN within the MID Region may require considerable planning for the transition of the AFTN/CIDIN.

6.1 Initial Regional Implementations

6.1.1 The very beginning of ATN implementation will be bilateral testing between States. for this scenario, each State will need at a minimum:

- an ATN router,
- a means for managing the router,
- an ATN application, and
- a circuit connecting the States.

6.1.2 States involved in bilateral ATN trials should consider the use of the trial infrastructure in expanding the ATN throughout the Region.

6.2 Regional ATN Implementation

6.2.1 At a certain time, sufficient bilateral trials will be underway to permit a Region-wide ATN network based upon the plan presented above. As each State implements the ATN applications and network infrastructure, it will be added to the Regional infrastructure according to this plan.

CHAPTER THREE

AMHS Naming Plan

(to be developed)

CHAPTER FOUR

NSAP Addressing Plan

(to be developed)

CHAPTER FIVE

NSAP Address Registration Form

(to be developed)

CNS/MET SG/6
Report on Agenda Item 4

REPORT ON AGENDA ITEM 4: MATTERS RELATED TO METEOROLOGY

4.1 World Area Forecast System (WAFS) Implementation

4.1.1 The Meeting was informed about the establishment of the World Area Forecast System Operations Group (WAFSOPSG). With regard to the future regional planning of the WAFS, the Meeting noted that, the regional procedures related to the WAFS would become de facto global, and that any changes in one ICAO region would imply changes in all other ICAO regions. Moreover, with the establishment of the WAFSOPSG, most of the regional planning related to the WAFS would be carried out by that group, in accordance with its terms of reference. The CNS/MET SG, could, of course, continue to propose amendments to the regional procedures related to the WAFS, but any such draft amendment should be formulated as a draft conclusion and be addressed to the WAFSOPSG, which would consider the proposal from the global perspective.

4.1.2 In this context IATA presented a proposal to the Meeting to consider the deletion of the requirement for the MID Significant Medium Level (SWM) or at least to simplify the production by the exclusion of cloud type. The proposal was not supported by the Meeting in view of the operational needs for flights below FL 250.

4.1.3 With regard to the WAFS implementation, the role of the MIDANPIRG would not change and the CNS/MET/SG should continue to address all the implementation issues.

4.1.4 The Meeting noted the executive summary of WAFSOPSG/1 Meeting, (Lima, 10 to 13 November 2003), presented by the delegate from the United Kingdom being one of the WAFC Provider States.

4.2 SADIS Implementation

4.2.1 The Meeting noted the executive summary from the SADISOPSG/8 (Bangkok, Thailand, 7-10 July 2003) and information about the SADIS Second Generation Broadcast, (SADIS 2G), complemented by information from the UK concerning recent developments. The Meeting noted that MIDANPIRG/8 had endorsed the implementation of the SADIS 2G through its Conclusion 8/49.

4.2.2 The Meeting noted with satisfaction the successful outcome of the "Training workshop on workstation operation and display of WAFS products using GRIB and BUFR code forms" hosted by Oman in Muscat 8-9 December 2003 and performed by the UK on behalf of ICAO in coordination with WMO. The workshop had been attended by 38 experts from 7 States in the MID Region. Demonstrations had been provided of different types of software and the operational implementation of the BUFR code for WAFS products had been discussed.

4.2.3 The Meeting agreed that there would be a future requirement for training in the use of individual SADIS workstation software, so that States could get “hands on” training on the software packages they would purchase. It was felt that the quality of the training provided by the manufacturers was lacking in this regard. The WAFC London representative was asked to bring this to the attention to the SADISOPSG.

4.2.4 The Meeting was reminded of the need to purchase upgraded SADIS workstation software in order to be able to decode the bulletins in the GRIB and BUFR code forms in good time before the cessation of the T4 charts on 1 July 2005.

4.2.5 The meeting was advised to check the SADIS website (www.metoffice.com/sadis) after the SADISOPSG meeting in June 2004 to get the list of manufacturers whose software complies with the quality criteria agreed by the SADISOPSG.

4.2.6 The expert from Iran informed the Meeting that they had recently purchased a SADIS 1G system that was being used in a trial mode, combined with a question concerning the SADIS 2nd generation 2 way system, on which information was provided by the WAFC representative.

4.2.7 The meeting was presented with a draft version of the SADIS strategic assessment tables for the period 2004 to 2008 (inclusive), developed by the SADIS Provider State and expressing the projected volumes of data and products to be provided from the MID Region to EUR for the SADIS Gateway. In accordance with procedures established on the basis of MIDANPIRG/5 Decision 5/15, the Group was asked to maintain these tables on an annual basis and forward them to the SADISOPSG. The endorsed tables are enclosed at **Appendix 4A** to the report on Agenda Item 4 would be forwarded accordingly.

4.3 International Airways Volcano Watch

4.3.1 The Meeting was informed about the establishment of the International Airways Volcano Watch Operations Group (IAVWOPSG). With regard to the future regional planning of the IAVW, the Meeting noted that, the IAVW was de facto global, and that any changes in one ICAO region would imply changes in all other ICAO regions. Moreover, with the establishment of the IAVWOPSG, most of the regional planning related to the IAVW would be carried out by that group, in accordance with its terms of reference. The CNS/MET SG, could, of course, propose amendments to the regional procedures related to the IAVW, but any such draft amendment should be formulated as a draft conclusion and be addressed to the IAVWOPSG, which would consider the proposal from the global perspective.

4.4 Mid OPMET Data Procedures

METAR/SPECI and TAF procedures

4.4.1 The Meeting noted that several States had not implemented the correct format as provided in Annex 3 Appendix 2 and 4, causing problems in automated systems for exchange and storage of OPMET data. It was also noted a lack of harmonized implementation of the regional procedures concerning the filing time for transmission and the period of validity for TAF in the MID Region. All States were issuing TAFs with a validity time of 18 or 24 hours in accordance with the MID ANP, while some States also were issuing TAFs with a validity time of 9 hours to meet the requirement for short haul flights It was agreed that the MID States should be invited to review their procedures coordinated with the introduction of the new edition of the ROBEX Handbook.

DRAFT CONCLUSION 6/8: NON-IMPLEMENTATION OF ANNEX 3 PROVISIONS FOR METAR/SPECI AND TAF

That, the ICAO MID Regional Office, invite the MID States to review their procedures concerning the format for METAR/SPECI and TAF in accordance with Annex 3 and the MID ANP, coordinated with the introduction of the new edition of the ROBEX Handbook.

4.4.2 The Meeting agreed that there was an operational requirement for all international airports in the MID Region to issue TAF with a validity time of 9 hours to be filed one hour before the commencement of their period of validity in order to meet the requirement for short haul flights, which should be included in the MID ANP.

DRAFT CONCLUSION 6/9: REQUIREMENTS FOR TAF IN THE MID REGION

That the MIDANPIRG consider an amendment proposal to the MID ANP/FASID to include a requirement to issue TAF for all international airports with a validity time of 9 hours and to be filed for transmission one hour before the commencement of their period of validity to meet the requirement for short haul flights.

4.4.3 In the same context IATA expressed a requirement for the 24 hour TAFs to be filed for transmission 6 hours before the commencement of their period of validity to meet the requirement for long haul flights. The Meeting was informed that the TAF concept for long haul flights was under review on the global level and it was therefore considered premature to consider any regional change in this direction.

4.4.4 IATA also presented a list of MID aerodromes from which the OPMET data were missing. It was agreed that this should be further investigated by the OPMET BMG.

Review of the Regional Operational Meteorological (OPMET) Bulletin Exchange (ROBEX) Handbook

4.4.5 The Meeting was invited to review the draft new edition of the ROBEX Handbook including guidance material on the detailed procedures for OPMET exchange in the ASIA/PAC and MID Regions, published by the ICAO Office, Bangkok in consultation with the ICAO Office, Cairo. It was agreed that the review should be performed by correspondence with comments to be sent by email to the Focal Point of the Bulletin Management Group (FP/BMG), Mr A. Alharthy before 1 May 2004, with a copy to the MET Secretary of the CNS/MET SG. The FP/BMG would then consolidate the comments and forward them to the ICAO Office Bangkok.

4.4.6 A need was also identified to change some of the OPMET bulletin headers to be included in the revised version of the ROBEX Handbook. This would also be coordinated by the FP/BMG.

Migration to BUFR coded meteorological messages (METAR/SPECI and TAF)

4.4.7 The Meeting noted recommendation 2/5 from the MET Divisional Meeting (Montreal 9-27 September 2002), which recommended the development of a migration plan for the use of the BUFR code for the dissemination of METAR/SPECI and TAF, based on a previous decision by WMO. Consequently, all PIRGs had been invited to commence work on regional transition plans. It was pointed out that the migration would not influence the presentation to end-users, which would remain unchanged.

4.4.8 It was recognized that the Aeronautical Fixed Telecommunication Network (AFTN), was a character-based system and so could not be used for the digital codes such as Binary Universal Form for the Representation of meteorological data (BUFR). The planned Aeronautical Telecommunication Network (ATN) ATS Message Handling Service (ATSMHS) had the potential to meet BUFR requirements, but only in its extended service form, which was not yet finalized. The Common ICAO Data Interchange Network (CIDIN) had the capability to include an additional application definition to accommodate BUFR, but was not the required global solution. Internet and the new SADIS second-generation two-way system had been identified as possible alternate communications solutions for BUFR messages.

4.4.9 With regard to the timing of the migration, it was noted that it was planned that enabling clauses would be introduced in Annex 3 — *Meteorological Service for International Air Navigation* as part of Amendment 74 (applicable in November 2007) and that some States might start using the BUFR code at that time on the basis of bilateral agreements. It was however pointed out that all States should have completed the migration by around the year 2015. The combination of the use of BUFR codes and their transition by the AMHS in parallel with the same information on AFTN would add significantly to the total AFS traffic. This and other cost implications would need careful analysis to ensure that the most cost effective global implementation strategy would be developed.

4.4.10 The Meeting considered that there were many issues, including those identified above, that required very well coordinated inter-regional planning. It was considered that more specific technical details and guidance for the transition to BUFR codes were required to enable more uniform regional and inter-regional implementation planning. The Meeting noted that the EANPG/45 (Paris 1-3 December 2003) had agreed on a conclusion, asking ICAO to provide guidance to achieve a uniform global approach to the implementation of BUFR coded Operational Meteorological Information (OPMET) messages, including early advise of the likely timeframe for the development of the provisions necessary for ATSMHS extended services to accommodate BUFR coded messages.

4.4.11 Following the EANPG/45, a EUR task force had been formed to progress on the identification of BUFR MET code migration options, with UK in the lead role. In view of the need to take into account both the intra- and inter-regional exchange of OPMET data, the Meeting agreed that the first step for the planning in the MID Region should be to closely monitor the ongoing work in the EUR Region by the ICAO Cairo Office in direct contact with the Rapporteur of the EUR task force.

Second Version of the MID OPMET Procedures

4.4.12 The meeting reviewed and updated the MID OPMET Procedure (version 2) as attached in **Appendix 4B** to the report on Agenda Item 4. By doing so, the meeting was with a view that the scope of work and functions of the Management Bulletin Group (BMG) became similar to those being practiced for the EUR OPMET BMG and ASIA/PAC OPMET Management Task Force. In this regard, the meeting formulated a new terms of reference of the MID OPMET BMG as shown in **Appendix 4C** to the report on Agenda Item 4.

4.4.13 The ICAO Office will request States to provide their OPMET Centre contacts so that the MID Management Bulletin Group could start its work efficiently. The APPENDIX 4 of the MID OPMET Procedure will be updated, accordingly.

Establishment of a MID OPMET Data Bank

4.4.14 A need had been identified to establish a MID OPMET Data Bank to serve the States and Operators in the Region in view of the number of flights in the Region and experienced difficulties to retrieve the required OPMET information from the existing data banks in the ASIA/PAC and EUR Regions.

4.4.15 It was however agreed that a further analysis should be done to establish a clear business case. This analysis should include a survey among the MID States concerning the difficulties in terms of time for retrieval as well as availability of required OPMET information from the existing OPMET data banks. The survey would be performed by the FP/BMG and reported to CNS/MET SG/7.

4.5 **Implementation of SIGMET Procedures**

4.5.1 The MET Divisional Meeting Montreal (9-27 September 2002) had emphasized that the correct implementation of SIGMET procedures was a serious safety issue and recommended ICAO to initiate regional surveys of the issuance of SIGMET messages and particularly those for volcanic ash and to review the regional SIGMET guides.

4.5.2 The Meeting considered how to deal with all types of SIGMETs and agreed that this was an important but difficult issue to get a precise, complete and useful overview of the quality of the SIGMET production in the MID region. The meeting was informed about the ongoing surveys for the EUR Region and it was agreed to initially monitor the result of these surveys as a basis for future considerations at CNS/MET SG/7 concerning similar surveys for the MID Region.

4.5.3 The Meeting then reviewed and endorsed a new MID SIGMET guide **(Appendix 4D)** to be published as MID guidance material. The ICAO Cairo Office should also draw States attention to these guides, together with a request that States review the operations of the MWOs to ensure that SIGMET messages are being issued as required. In this context the value of operational feed back from the users through the State safety oversight programmes was emphasized.

4.5.4 Concerning the issuance of SIGMETs for volcanic ash, the Meeting was informed about the planned EUR test procedures involving the VAAC Toulouse, responsible also for the MID Region. It was agreed to closely monitor the ongoing work in the EUR Region, as managed through the EUR OPMET Bulleting Management Group, and that the ICAO Cairo Office should invite VAAC Toulouse to perform the same type of tests for the MID region.

DRAFT CONCLUSION 6/10: IMPLEMENTATION OF SIGMET REQUIREMENTS IN THE MID REGION

That the ICAO MID Regional Office,

a) *publish the MID SIGMET guide;*
b) *request the MID States to review and monitor their procedures to ensure that SIGMET messages are issued as required, and*
c) *coordinate the planning of special tests concerning SIGMETs for volcanic ash.*

4.6 **Establishment Of MID Tropical Cyclone Advisory Centre In Muscat, Oman**

4.6.1 The Meeting was presented a proposal from Oman to establish a Tropical Cyclone Advisory Centre (TCAC) in Muscat for the MID Region west of 65 deg. East, an area currently under the responsibility of TCAC New Dehli. The main advantage with the proposed arrangement would be that this part of the MID Region, mostly exposed for tropical cyclones, was the prime area of interest also for the Muscat MWO and therefore continuously monitored.

4.6.2 The Meeting was informed that Oman had all the necessary infrastructure and that the function as a TCAC would be accommodated without any additional costs for the civil aviation.

4.6.3 The proposal was supported by the Meeting, which agreed on the following draft conclusion:

DRAFT CONCLUSION 6/11: ESTABLISHMENT OF A MID TROPICAL CYCLONE ADVISORY CENTRE IN MUSCAT, OMAN

That the MIDANPIRG consider an amendment proposal to the MID ANP/FASID for the establishment of a Tropical Cyclone Advisory Centre (TCAC) in Muscat, Oman for the MID Region west of 65 degrees East.

4.7 **Review of MID ANP/FASID part MET**

4.7.1 The Meeting reviewed a draft of the MID ANP/FASID part MET as developed by the Secretariat.

4.7.2 The Meeting supported the deletion of provisions for non-regular exchange of METAR, SPECI and TAF (< five flights per week) in view of the improvement of the AFTN and the regular distribution of OPMET information by SADIS.

4.7.3 The Meeting viewed that the current provisions in the MID ANP for the issuance of half-hourly METAR at aerodromes included in VOLMET broadcast were not motivated from the meteorological point of view taking into account the prevailing weather conditions in the Region and considered that hourly METAR and SPECI should be sufficient.

4.7.4 It was agreed that an in-depth review of FASID Tables related to the exchange requirements was needed and the FP/BMG accepted the task to support the Secretariat on this issue.

4.8 **Future MET working arrangements**

4.8.1 The Meeting expressed its appreciation of the input from IATA by correspondence and partial representation in the MET part of this meeting and would appreciate if this could be arranged on a regular basis.

4.8.2 The Meeting also expressed its appreciation of the input from the representative of the WAFC London in issues related to the implementation of WAFS and SADIS in the MID Region and would appreciate if this would continue in the same form

4.8.3 The Meeting agreed that participation by WMO in the same way as in CNS/MET Subgroups in other Regions would be valuable and facilitate the work of the SG.

DRAFT DECISION 6/12: INVITATION TO WMO FOR REGULAR PARTICIPATION IN THE MEETINGS OF THE MIDANPIRG CNS/MET SUBGROUP

That WMO be invited to participate in the meetings of the MIDANPIRG CNS/MET Subgroup.

CNS/MET SG/6
Appendix 4A to the Report on Agenda Item 4

SADIS STRATEGIC ASSESSMENT TABLES FOR THE PERIOD 2004-2008 (inclusive)

A summary of the Strategic Assessment Tables, for the MID Region, is identified in TABLE A.

TABLE A

OPMET (Kbytes)

OPMET	**2004**	**2005**	**2006**	**2007**	**2008**
MID	178K	178K	179K	180K	182K

BUFR(Kbytes)

BUFR	**2004**	**2005**	**2006**	**2007**	**2008**
MID	No requirement	No requirement	No requirement	No requirement	No requirement

AIS(Kbytes)

AIS	**2004**	**2005**	**2006**	**2007**	**2008**
MID	No requirement	No requirement	No requirement	No requirement	No requirement

Summary of Abbreviations

FC	Short (9-hour) TAFs
FT	Long (18/24 hour) TAFs
SA	METARs
SP	SPECIs
WS	SIGMETs
FK	Tropical Cyclone Advisories
SWM	Medium Level SIGWX
SWL	Low Level SIGWX

Table 1. MID— OPMET data volumes

Main routing(s): AFTN

OPMET data	*Current 2004*	*Projected 2005*	*Projected 2006*	*Projected 2007*	*Projected 2008*
ALPHANUMERIC DATA					
Number of **FC bulletins** issued per day	27	28	29	30	31
Average number of stations per FC bulletin	2	2	2	2	2
Number of **FT bulletins** issued per day	77	78	79	80	81
Average number of stations per FT bulletin	3	3	3	3	3
Number of **SA bulletins** issued per day	437	440	442	444	446
Average number of stations per SA bulletin	4	4	4	4	4
Number of **SP bulletins** issued per day	21	20	20	20	20
Number of **SIGMET** bulletins issued per day	2	2	2	2	2
Number of **FK bulletins** issued per day	0	0	0	0	0
BINARY DATA Number of other bulletins issued per day	0	0	0	0	0
(please specify header(s))					
Average number of stations per bulletin	0	0	0	0	0
TOTALS					
Total number of OPMET bulletins per day	564	568	572	576	580
Average size of OPMET bulletin (bytes)	313	313	313	313	313
Total estimated OPMET data volume per day (bytes)	178K	178K	179K	180K	182K

Table 2. MID — BUFR data volumes

No requirements

Table 3. MID — AIS data volumes

No requirements

MIDANPIRG

CNS/MET SUB GROUP

MID OPMET UPDATE PROCEDURE

Version 02

F.1 DOCUMENT IDENTIFICATION SHEET

DOCUMENT DESCRIPTION	
Document title: MID Opmet Update Procedure.	
Document Reference Number:	**Issue:** Draft version
	Date Of Issue: 21/10/2002
Contact: Mr. Ahmed Hamoud Al Harthy	**Phone:** 968 519649 **Fax:** ++ 968 519363 **E-mail:** a.alharthy@met.gov.om
Authority for Approval: MIDANPIRG	

F.2 DOCUMENT CIRCULATION

State or Organisation	Recipient Name
CNS/MET SG	Distribution: CNS/ATM/IC/SG
CNS/ATM/IC/SG	

F.3 DOCUMENT CHANGE RECORD

ISSUE	DATE	REASON FOR CHANGE
0.1	21/10/2002	Draft version for discussion at the CNS/MET SG/5 meeting
0.1	11/09/2003	Version for discussion at the MIDANPIRG/8 meeting
0.2	08/04/2004	Version for discussion at the CNS/MET SG/6 meeting

F.4 CONTENT LIST

MID OPMET Update Procedure

MID OPMET Data Update Procedure

I. MID OPMET DATA REQUESTS:

1. OPMET Data:
- Scheduled (Routine) Bulletins: TT = SA (SP), FC, FT;
- Unscheduled (Non-routine) Bulletins: TT = FK, FV, WA, WC, WT, WV, UA.

2. AIRAC cycle:
- AIRAC: Aeronautical Information Regulation and Control;
- AIRAC Date: Internationally agreed effective date as indicated in the ICAO Aeronautical Information Services Manual Chapter 6, Annex 15;
- AIRAC Cycle: time period between two AIRAC Dates: [AIRAC 1 and AIRAC 2];
- AIRAC 1: the earliest AIRAC Date;
- AIRAC 2: the next AIRAC Date after AIRAC 1.

The AIRAC Dates for the years 2001 to 2004 are contained in Appendix 3 of this procedure.

3. Amendments to the MID OPMET Data shall be executed as determined by the MID OPMET Data Update Procedure following the AIRAC Cycles.

4. The AIRAC Dates included by the AIRAC Cycle will be used as the latest date for OPMET Data modification requests: AIRAC 1, and as the date of implementation of the modification requests agreed upon: AIRAC 2.

5. Modification requests received from users via their national Met Authority to the Responsible OPMET Centre (ROC) up until AIRAC 1 shall be forwarded to the Focal Point (FP) of the MID OPMET Bulletin Management Group

6. At the latest 7 days after AIRAC 1, the Focal Point (FP) will present the modification requests by email to the Bulletin Management Group for acceptance.
The addresses of the FP and the Bulletin Management Group are contained in Appendix 4 of this procedure.

7. Comments to the requested amendments shall be communicated to the FP at the latest 14 days after AIRAC 1. Nil comments shall be considered as a positive response.

8. The follow up of a NOT accepted modification request is conducted in the CNS/MET SG according to the ICAO Regional Amendment Procedures as contained in Appendix 2.

9. At (AIRAC 1 + 21 days), the FP shall announce the list of accepted amendments to the ICAO Regional Office, the ROCs by means of a standard GTS formatted METNO message for routine meteorological information sent via AFTN. The header of the METNO bulletin is: NOXX99 CCCC YYGGgg, where XX is the geographical designator and CCCC the AFTN location indicator of the FP Centre. All Bulletin Management Group and Contacts receive a confirmation by email.
The content of the METNO messages including the list of AFTN addressee indicators to be used are explained in Appendix 5.

10. The ROCs in turn will notify the users of the result of their requested modifications.

11. All affected Centres on AIRAC 2 shall implement the modifications. At the same date the updated OPMET inventory shall be electronically made available in the agreed format. A printed version of the catalogue shall be made available to the Regional ICAO Office one month before the CNS/MET SG meeting where it shall be presented as a working paper.

12. For planning purposes, any user or centre should notify its intention to make major changes much further in advance (e.g. new bulletins) to allow full assessment by the Bulletin Management Group and to provide confirmation to the originator that all changes will be made at the required date.

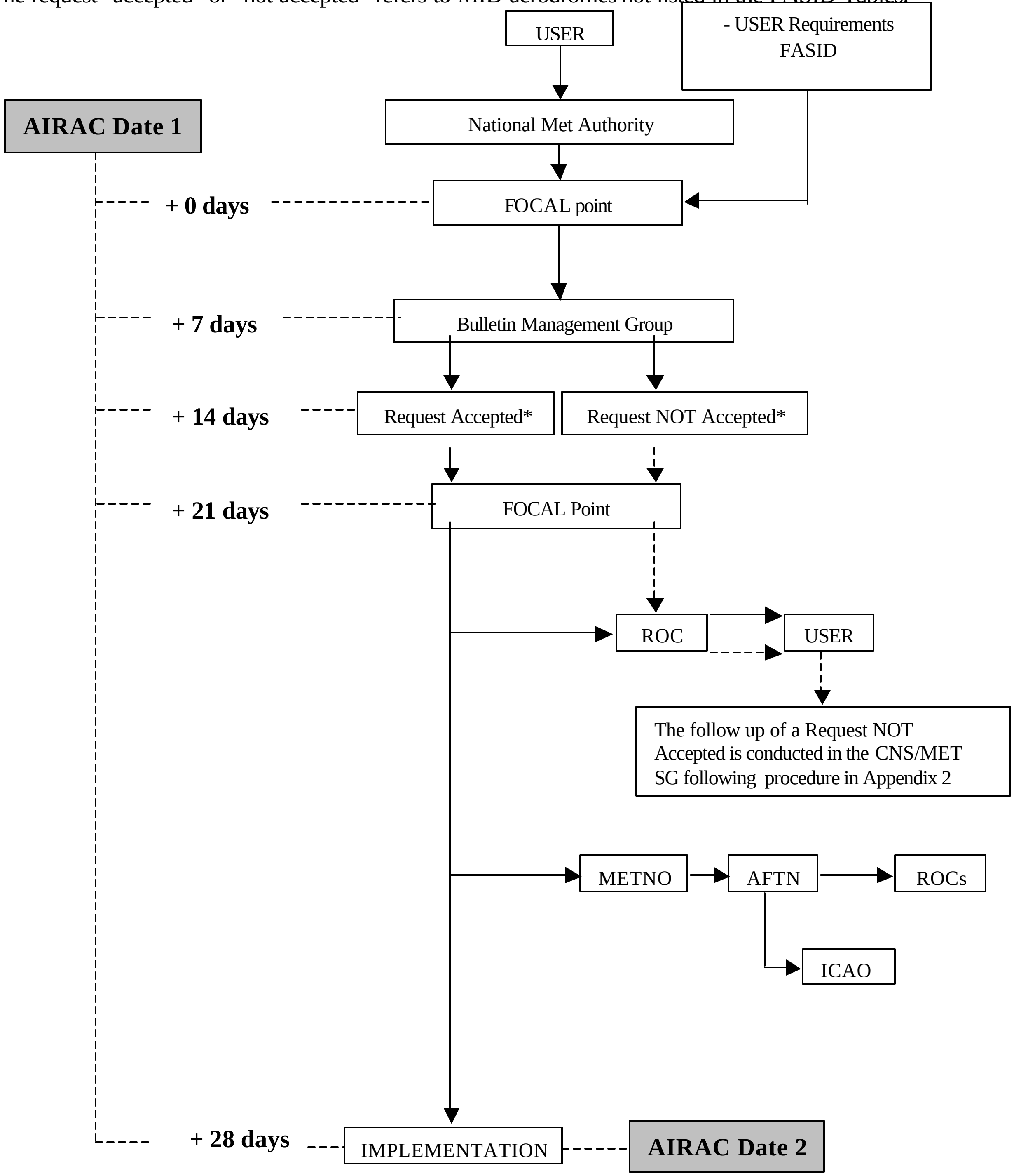
13. In order to avoid difficulties in processing MID OPMET Data modifications within major holidays, the Bulletin Management Group can decide not to use a particular AIRAC Cycle occurring in these periods.

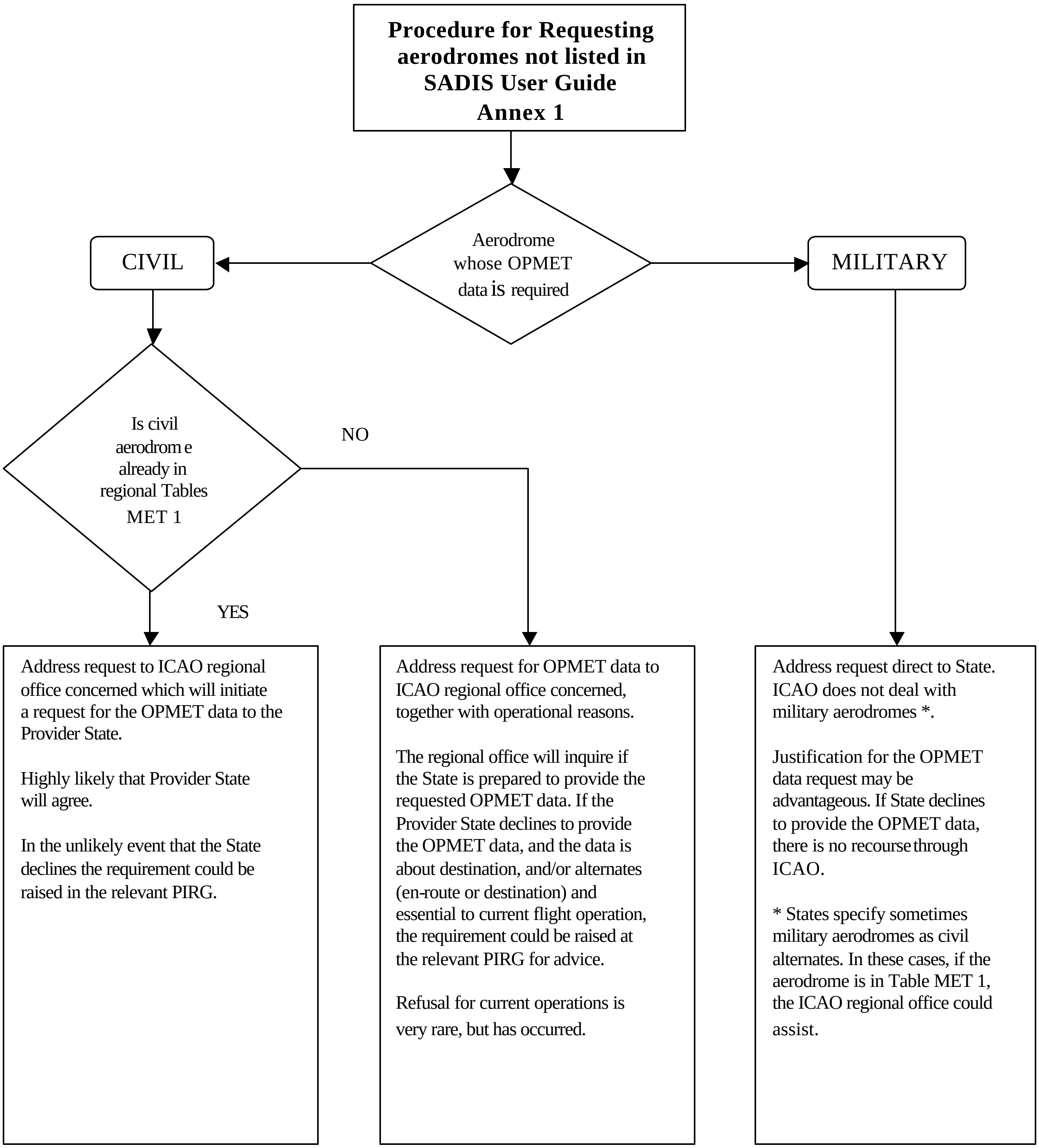
II. INTER-REGIONAL OPMET DATA REQUESTS:

1. The draft procedure for requesting Non MID OPMET Data and the application form to be used are presented in Appendix 6 for further discussion and evaluation by the CNS/MET SG meeting.

MID OPMET Data update Procedure Flow Diagram

* The request "accepted" or "not accepted" refers to MID aerodromes not listed in the FASID Tables.





Note: For civil aerodromes, changes to the requirements for OPMET data will be reflected in the relevant Regional Air Navigation (RAN) Plan and, as necessary, in the SADIS User Guide, Annex 1.

Schedule of AIRAC effective dates, 2003 – 2010

2003	2004	2005	2006
23 January	22 January	20 January	19 January
20 February	19 February	17 February	16 February
20 March	18 March	17 March	16 March
17 April	15 April	14 April	13 April
15 May	13 May	12 May	11 May
12 June	10 June	9 June	8 June
10 July	8 July	7 July	6 July
7 August	5 August	4 August	3 August
4 September	2 September	1 September	31 August
2 October 30 October	30 September 28 October	29 September 27 October	28 September 26 October
27 November	25 November	24 November	23 November
25 December	23 December	22 December	21 December

2007	2008	2009	2010
18 January	17 January	15 January	14 January
15 February	14 February	12 February	11 February
15 March	13 March	12 March	11 March
12 April	10 April	9 April	8 April
10 May	8 May	7 May	6 May
7 June	5 June	4 June	3 June
5 July	3 July	2 July	1 July
2 August 30 August	31 July 28 August	30 July 27 August	29 July 26 August
27 September	25 September	24 September	23 September
25 October	23 October	22 October	21 October
22 November	20 November	19 November	18 November
20 December	18 December	17 December	16 December

Greyed dates: no MID OPMET Catalogue Updates.

Co-ordination and Address Details

Co-ordinating MID OPMET Centre	
Administration	Directorate General of Civil Aviation and Meteorology
Service	Meteorology
Name	Mr. Ahmed Hamoud Al Harthy
Address	P.O. Box 1, Post Code 111, Seeb Airport
City	Muscat, Sultanate of Oman
Telephone	968 519649
Fax	968 519363
AFTN	
Email	a.alharthy@met.gov.om

Bulletin Management Group Members List

State / Organisation	Name	E-mail	Fax
Lebanon	Chaouki Hatem	hatemc@beirutairport.gov.lb	961 1 629035
Saudi Arabia	Faiq A. Metwalli	faiq@pme.gov.sa	966 2 653 4172
IATA	Jehad Faqir	faqirj@iata.org	962 6 560 4548
ICAO	Mamadou Traore	mtraore@cairo.icao.int	202 267 4845

List of OPMET Centre Contacts

State	Name	E-mail	Fax

METNO BULLETIN FOR MID OPMET Catalogue Data Changes

FORMAT Content:

Priority	GG
Addressees of OPMET Centres + ICAO MID Office Origin	 ddhhmm
Abbreviated header	NO<XX>99 CCCC YYGGgg
Message Identifier + Product Description + AIRAC Date New Bulletin (**NEWBUL**)| Delete Bulletin (**DELBUL**)| Add Report to existing bulletin (**ADDRPT**)| Remove Report from existing bulletin (**RMVRPT**) + Bulletin/Report key (TTAAii CCCC Station)(1) End of METNO	 METNO MID OPMET YYMMDD NEWBUL DELBUL ADDRPT .... RMVRPT .... END

(1) The METNO Bulletin/Report reference only contains the Bulletin/Report index TTAAii CCCC$_1$ CCCC$_2$ where:

- TTAAii is the abbreviated header
- CCCC$_1$ the compiling centre
- CCCC$_2$ the Report | FIR location indicator.

The index refers to the modified record in the OPMET catalogue published. The dates on the relevant records shall contain the AIRAC date in the line after the abbreviated header.

Example of a METNO message in AFTN format:

```
GG ADDRESONE ADDRESTWO
281420 ADDRESSFP
NO<XX>99 CCCC 281420
METO MID OPMET 021128
DELBUL SAPK32 OPKC
NEWBUL SAPK33 OPKC OPAA OPBB OPCC OPDD OPEE OPFF
ADDRPT SAOM31 OMAA OMTT
RMVRPT SASD31 OEJD OERD
END
```

DEFINITION OF THE PROCEDURE AND THE APPLICATION FORM FOR REQUESTING NON- MID OPMET DATA:

1. Preliminary requirements:

- The MID distribution of all types of OPMET Data, including routine and non-routine, of both aerodromes and FIRs can be applied for.
- The request form will be passed via the MID ICAO Office to the State concerned
- Explanation to the draft application form following hereafter:

REQUESTING USER: Company or OPMET Centre that is requesting the information.

APPLICATION REFERENCE NUMBER: MID OPMET Req A_1A_1– DD / MM / YYYY– nnn

MID OPMET Req: prefix number;
A_1A_1: WMO Area designator of the applying OPMET Centre, for example "SD" for Saudi Arabia
DD / MM / YYYY: Application date;
nnn: Number of request at that specific day.

Example: " MID OPMET Req SD – 30/11/2002 – 001".

OPMET Centre: part to be filled out by the OPMET Centre originating the request.

FOCAL Point: The FP of the Bulletin Management Group specifies the most relevant AFTN Address of the I/R Gateway Centre for the MID distribution of the OPMET Data applied for.

Regional ICAO Office / Asked Centre: part to be filled out by the relevant Regional ICAO Office or by the OPMET Centre compiling the requested data, specifying:

The Provider State and Region;
On acceptance:
The Bulletin Header used for the MID distribution: TTAAii CCCC;
The nearest following AIRAC Date on which the data will be provided via the MID I/R Gateway Centre: DD/MM/YYYY;
All useful information on the availability and the regularity of the required OPMET Data;
If the request is declined:
Explanation for rejecting the MID distribution of the OPMET Data applied for.

Date: Deliberation date, DD/MM/YYYY.
Name: Name of the person endorsing the decision.
Signature: Signature of the responsible person.

Middle East Office

INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO)

POSTAL ADDRESS : P.O. BOX 85, AIRPORT POST OFFICER TERMINAL ONE CAIRO 11776 A.R.E

TEL : 20 2 267 4841/45/46
Fax :+20 2 2674843

e-mail : icaomid@cairo.icao.int
http://www.icao.int/mid

APPENDIX 6

REQUEST FOR NON- MID OPMET DATA FROM CIVIL AERODROMES OR FIR/UIR

REQUESTING USER: ....

APPLICATION REFERENCE NUMBER: MID OPMET Req A_1A_1– DD / MM / YYYY – nnn

Reserved to: **OPMET Centre**	Requested ICAO-Location Indicator: Name of requested aerodrome / FIR: .... Requested Report: SA / SP FC FT WS Other: .... Reasons: ....
Reserved to: **FOCAL Point** **(Tick the appropriate check box)**	AFTN – Destination Address to I/R Gateway Centre: **OLBA** **OEJN**
Reserved to: **Regional ICAO Office/ Asked Centre**	Provider State: .... Region: .... a) The proposal is acceptable: Bulletin Header used (TTAAii CCCC): .... Start AIRAC Date: DD/MM/YYYY (Any useful information on the requested data) .... b) The proposal is NOT acceptable: (Because) .... → ***Please return to ICAO Office CAIRO***

Date: **Name:** **Signature:**

DD/MM/YYYY ....

2. The procedure for requests of Non- MID OPMET Data:

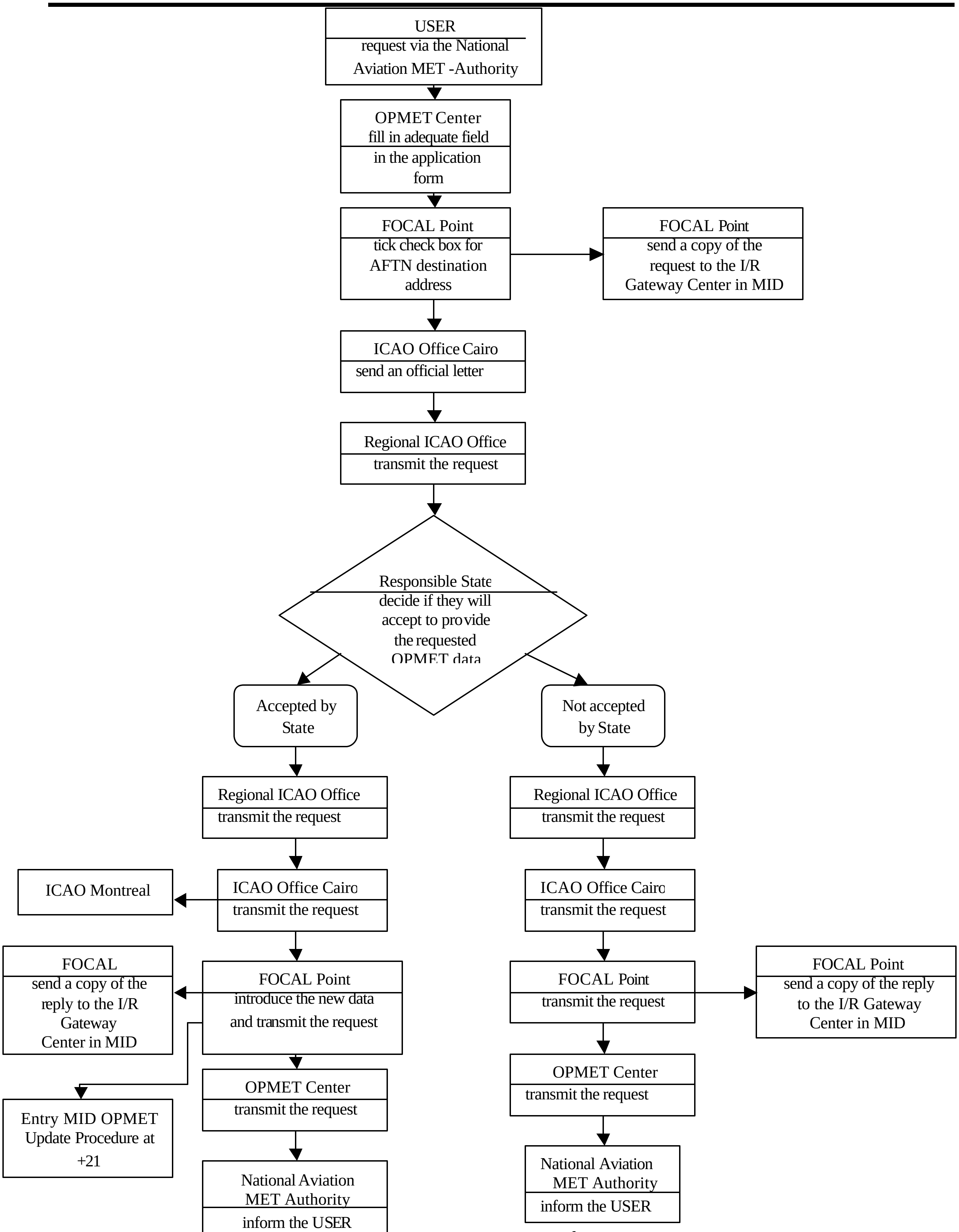
The data flow, as showed on next page, is described on the example that the airline of Saudi Arabia (SVA) is stating a request for METARs and FT messages from Luton (EGGW) in Europe:

1. The User (SVA) is stating the request to the national MET-Service.
2. The national MET-Service has to send this request to the OPMET Centre responsible for Saudi.
3. At the OPMET Centre the following fields of the APPLICATION FORM are filled out:
   - REQUESTING USER
   - APPLICATION REFERENCE NUMBER
   - The whole field named with OPMET Centre
4. After this the APPLICATION FORM will be sent to the Focal Point of the Bulletin Management Group. The Focal Point will tick the appropriate check box for the I/R Gateway Centre's AFTN address to which the information shall be sent in case that the requested data is granted. For the EUR Region the check box of the I/R Gateway Centre in Beirut has to be ticked.
5. Now the APPLICATION FORM is sent to the ICAO Office in Cairo, which will send it officially to the Regional ICAO Office in Paris. A copy of the APPLICATION FORM is also sent to the I/R Gateway Centres in MID.
6. Regional ICAO Office Paris has to transmit the request to the responsible centre for OPMET data distribution to the MID region, namely Austria. They have to provide the information asked for in the APPLICATION FORM. The gathered information has to be filled out either by the Regional ICAO Office or the addressed Centre.
7. After the APPLICATION FORM has been filled out completely, it will be returned to the ICAO Office Cairo.
8. If the request has been accepted the information will go to

   → ICAO Montreal
   → Focal Point to introduce the new data in MID through the OPMET Update Cycle
   → Via the Focal Point to the OPMET Centre that has relayed the request and to the I/R gateway centres in MID Region.
   → Further via the national MET-Service in Saudi Arabia to the user (SVA).

   If the request has not been accepted the information will go to
   → Focal Point
   → Via the Focal Point to the OPMET Centre that has relayed the request and to the I/R Gateway Centres in MID

   urther via the national MET-Service in Saudi Arabia to the User (SVA)


USER
request via the National Aviation MET -Authority
OPMET Center
fill in adequate field in the application form
FOCAL Point
tick check box for AFTN destination address
FOCAL Point
send a copy of the request to the I/R Gateway Center in MID
ICAO Office Cairo
send an official letter
Regional ICAO Office
transmit the request
Responsible State
decide if they will accept to provide the requested OPMET data
Accepted by State
Not accepted by State
Regional ICAO Office
transmit the request
Regional ICAO Office
transmit the request
ICAO Montreal
ICAO Office Cairo
transmit the request
ICAO Office Cairo
transmit the request
FOCAL
send a copy of the reply to the I/R Gateway Center in MID
FOCAL Point
introduce the new data and transmit the request
FOCAL Point
transmit the request
FOCAL Point
send a copy of the reply to the I/R Gateway Center in MID
Entry MID OPMET Update Procedure at +21
OPMET Center
transmit the request
OPMET Center
transmit the request
National Aviation MET Authority
inform the USER
National Aviation MET Authority
inform the USER

TERMS OF REFERENCE OF MID OPMET BULLETIN MANAGEMENT GROUP (OPMET/BMG)

1. Terms of Reference

- Review the OPMET exchange schemes in the MID Region and develop proposals for their optimization taking into account the current trends in the global OPMET exchange;
- Develop monitoring and management procedures related to the ROBEX exchange and other exchanges of OPMET information;
- Keep up-to-date the regional guidance material related to OPMET exchange;
- Liaise with similar groups in other ICAO Regions.

2. Work Programme

The work to be addressed by the MID OPMET/BMG includes:

a) to examine the existing requirements and any new requirements for the OPMET exchange in MID region and to assess the feasibility of satisfying these requirements, taking into account the availability of the data;

b) to review the ROBEX scheme and other OPMET exchange schemes and based on this review to prepare proposal for updating and optimizing of the schemes;

c) to review and update the procedures for interregional exchange and for transmission of the regional OPMET data to the satellite broadcasts providers (ISCS and SADIS);

d) to review and amend the regional guidance materials on the OPMET exchange and to include procedures for the exchange of all required OPMET message types: SA, SP, FC, FT, WS, WC, WV, FK, FV, UA;

e) to develop procedures for monitoring and management of the OPMET information, based on the procedures used at the OPMET data banks; EUR OPMET update procedure to be used as the bases for development of similar procedure for the MID Region.

3. Composition

a) The OPMET/BMG is composed by experts from:
Oman, Lebanon, Saudi Arabia, IATA and ICAO

b) WMO is invited to participate in the work of the OPMET/BMG.

CNS/MET SG/6
Appendix 4D to the Report on Agenda Item 4

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Draft MID SIGMET GUIDE

FOURTH EDITION
2004

TABLE OF CONTENTS

PART 1. INTRODUCTION

1.1 General

1.1.1 The main purpose of this document is to provide guidance for standardization and harmonization of the procedures and formats related to the aeronautical meteorological warnings, known as SIGMET information. The guidance is complementary to the Annex 3 standards and recommended practices regarding SIGMET and to the SIGMET related provisions of the MID Region Basic ANP and FASID, Doc 9708.

1.1.2 ICAO regulatory material concerning the provision of SIGMET information is contained in:

- Annex 3 - Meteorological Service for International Air Navigation, Chapter 3 and 7,
- MID Region Basic ANP, Part VI, and MID Region FASID Table MET 1B, MET 2B, MET 3A and MET 3B
- Annex 11 - Air Traffic Services, Chapter 4 and 7
- PANS – Air Traffic Management, Doc 4444, Chapter 9
- MID/ASIA Supplementary Procedures, Doc 7030, Part 1

Additional guidance on the SIGMET procedures is contained in Manual of Aeronautical Meteorological Practice, Doc 8896, and Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services, Doc 9377.

1.1.3 The SIGMET Guide is intended mainly to assist the MWOs in the MID Region in preparing and disseminating SIGMET messages. It provides detailed information on the format of SIGMET messages as specified by Annex 3. The explanations of the format are accompanied by a number of examples based on region-specific meteorological phenomena. The guide also provides information regarding the necessary coordination between the MWOs, the ATS units and the pilots, and their respective responsibilities.

1.1.4 This document is prepared by the ICAO MID Regional Office with assistance of the MIDANPIRG CNS/MET Subgroup. It shall be reviewed and updated regularly in order to be kept in line with the relevant ICAO documents and regional procedures.

PART 2. RESPONSIBILITIES AND COORDINATION

2.1 General

2.1.1 SIGMET is a warning and hence it is of highest priority. SIGMET is used mainly for in-flight service, which requires timely transmission of the SIGMET information to pilots by the ATS units and/or through VOLMET and D-VOLMET. One of the most valuable sources of information in preparation of SIGMETs is provided through the special air-reports transmitted by pilots to the ATS units and forwarded to MWOs. The SIGMET service involves MET, ATS and pilots, that is why, close coordination between them, as well as mutual understanding of the needs and responsibilities, is essential for successful implementation of the SIGMET service.

2.1.2 In the next paragraphs, the main responsibilities and coordination links between MET, ATS and pilots are described.

2.2 Meteorological Watch Office - responsibilities and procedures related to SIGMET

2.2.1 SIGMET information is issued by the meteorological watch offices (MWO) in order to provide timely warning for occurrence or expected occurrence of specified en-route weather phenomena, which may affect the safety of the flight operations in the MWO's area of responsibility (AOR). SIGMET shall provide information concerning the location, extent, intensity and expected evolution of the specified phenomena.

2.2.2 All designated MWOs in MID Region are listed in the MID FASID Table MET 1B.

2.2.3 If for some reason a MWO is not able to meet its obligations including the provision of SIGMET, arrangements shall be made between the meteorological authorities concerned, that another MWO takes over these responsibilities for certain period of time. Such delegation of responsibilities shall be notified by a NOTAM and a letter to the ICAO Regional Office Cairo.

2.2.4 Since the MWO is normally not a separate administrative unit, but part of the functions of an aerodrome meteorological office or another meteorological office, the meteorological authority concerned shall ensure that the MWO obligations and responsibilities are clearly defined and assigned to the unit designated to serve as MWO. Corresponding operational procedures have to be established and the meteorological staff have to be trained accordingly.

2.2.5 In preparing SIGMET information the MWOs have to strictly follow the format determined by Annex 3. SIGMET is to be issued only for those weather phenomena listed in Annex 3 and only when specified criteria for intensity and spatial extent are met.

Note: MWOs should not issue SIGMET for weather phenomena of lower intensity or such of transient nature or smaller scale, which do not affect significantly the flight safety, and their transmission to users may lead to unnecessary precautionary measures.

2.2.6 The MWOs have to be adequately equipped in order to be able to identify, analyse and forecast (to the extent required) those phenomena for which SIGMETs are required. The meteorological authority concerned shall determine to what extent the MWO makes use of the WAFS products, as well as other sources of information, such as special air-reports, information from meteorological satellites, weather radars, etc.

2.2.7 On receipt of a special air-report from the associated ACC or FIC, the MWO has to:

a) issue corresponding SIGMET information; or

b) decide that the issuance of SIGMET information is not warranted and inform the ACC/FIC (e.g., the phenomenon concerned is of transient nature) and disseminate the special air report in the same way as for SIGMET information (Annex 3, chapter 5).

2.2.8 Appropriate telecommunication means have to be available at the MWO in order to ensure timely dissemination of SIGMETs according to a dissemination scheme, which should include transmission to

- local ATS units ;
- aeronautical MET offices within the WMO AOR, where SIGMET is required for briefing and/or flight documentation;
- other MWOs concerned (it should be ensured that SIGMETs are sent to all MWOs whose AORs are, at least partly, within the 1800 km (1000 NM) range from the observed phenomenon);
- centres designated for transmission of VOLMET or D-VOLMET where SIGMET is required for those transmissions;
- the responsible ROBEX centre and Regional OPMET Data Bank (it should be arranged through the ROBEX scheme that SIGMETs are sent to the designated OPMET data banks in the other ICAO regions, to the WAFCs and to the uplink stations of SADIS and ISCS, and
- responsible TCAC or VAAC (if applicable).

2.2.9 In issuing SIGMETs for tropical cyclones or volcanic ash, the MWOs have to include as appropriate the advisory information received from the responsible TCAC or VAAC. In addition to the information received from the TCAC and VAAC the MWOs may use available complementary information from other reliable sources. In such a case the responsibility for this additional information would lie completely on the MWO concerned.

2.3 Responsibilities of ATS units

2.3.1 Close coordination has to be established between the MWO and the corresponding ATS units. Arrangements have to be made in order to ensure

- receipt without delay and display at the relevant ATS units of SIGMETs issued by the associated MWO;
- receipt and display at the ATS unit of SIGMETs issued by MWOs responsible for the adjacent FIRs/ACCs if these SIGMETs are required according to p. 2.4.3 below, (within 1850 km (1000 NM) range from the observed phenomenon); and

- transmission without delay of special air-reports received through voice communication to the associated MWO..

2.3.2 SIGMET information has to be transmitted to aircraft with the least possible delay on the initiative of the responsible ATS unit, by the preferred method of direct transmission followed by acknowledgement or by a general call when the number of the aircraft concerned would render the preferred method impracticable.

2.3.3 SIGMET information passed to aircraft-in-flight has to cover a portion of the route up to two hours flying time ahead of the aircraft. SIGMETs should be transmitted only during the time corresponding to their period of validity (p. 3.4.2.3 refers).

2.3.4 Air traffic controllers should ascertain whether any of the currently valid SIGMETs may affect any of the aircraft they are controlling, either within or outside the FIR/CTA boundary, up to a distance of 1000 NM (1800 KM), which corresponds to two hours flying time ahead of the current position of the aircraft. If this is the case, the controllers shall at their own initiative transmit the SIGMET promptly to the aircraft-in-flight likely to be affected. If necessary, the controller should pass to the aircraft available SIGMETs issued for the adjacent FIR/CTA, which the aircraft will be entering, if relevant to the expected flight route.

2.3.5 The ATS units concerned shall also transmit to aircraft-in-flight the special air reports received, for which SIGMET has not been issued. Once a SIGMET for the weather phenomenon reported in the special air report is made available, this obligation of the ATS unit expires.

2.4 Responsibilities of pilots

2.4.1 Timely issuance of SIGMET information is largely dependant on the prompt receipt by MWOs of special air-reports. That is why, it is essential that pilots prepare and transmit such reports to the ATS units whenever any of the specified en-route conditions are encountered or observed.

2.4.2 It should be emphasized that, even when automatic dependent surveillance (ADS) is being used for routine air-reports, pilots are obliged to continue to make special air-reports.

2.5 Coordination between MWOs and the TCACs and VAACs

2.5.1 Amongst the phenomena for which SIGMET information is required, the volcanic ash clouds and tropical cyclones are of particular importance for the planning of long-haul flights. That is why, SIGMETs for volcanic ash and tropical cyclones contain an outlook part, which goes 12 hours beyond the validity period of the "normal" SIGMET. For the same reason, the requirement for dissemination of SIGMETs for tropical cyclone and volcanic ash goes beyond the two hours flying time to cover the whole route to be flown.

2.5.2 Since the identification, analysis and forecasting of volcanic ash and tropical cyclones requires considerable technical and human resources, normally not available at each MWO, a number of Volcanic Ash Advisory Centres (VAAC) and Tropical Cyclone Advisory Centres (TCAC) have been designated in order to assist MWOs in the preparation of the outlook part of the SIGMETs for those phenomena. Close coordination shall be established between the MWO and the responsible TCAC and/or VAAC.

2.5.3 Information regarding the VAACs and TCACs serving the MID region with their corresponding areas of responsibility and lists of MWOs to which advisories are to be sent is provided in MID FASID Tables MET 3A and MET 3B.

2.5.4 TC and VA advisories are required for global exchange through the satellite distribution systems, SADIS and ISCS. Thus they can be used directly by the operators during the pre-flight planning. Notwithstanding, it should be emphasized that SIGMET information is still of higher operational status and required especially for in-flight re-planning. SIGMETs should be transmitted to aircraft-in-flight through voice communication or VOLMET or D-VOLMET thus providing vital information for making in-flight decisions regarding large-scale route deviations due to existence of volcanic ash cloud or tropical cyclone.

PART 3. RULES FOR PREPARATION OF SIGMET INFORMATION

3.1 General

3.1.1 SIGMET information is prepared in abbreviated plain language using approved ICAO abbreviations, a limited number of non-abbreviated words, geographical names and numerical values of self-explanatory nature. All abbreviations and words to be used in SIGMET are given in Appendix A.

3.1.2 In contrast to other MET messages, like aerodrome reports and forecasts (METAR and TAF), for which WMO codes have been developed, SIGMET looks less formalized and allowing more freedom to the forecaster. However, the increasing use of automated systems for handling MET information by the MET offices and the users makes it essential that all types of OPMET information, including SIGMET, are prepared and transmitted in the prescribed standardized formats. Therefore, Annex 3 provides a well defined structure and format of the SIGMET message that has to be followed strictly by the MWOs.

3.1.3 It should be remembered that SIGMET is intended for transmission to aircraft in flight either by ATC or by VOLMET or D-VOLMET. Therefore, SIGMET messages should be kept short and clear, without additional descriptive material other than that prescribed by Annex 3.

3.1.4 After issuing a SIGMET the MWO has to follow the evolution of the phenomenon for which the SIGMET has been issued and issue a new updated SIGMET when necessary. The TC and VA SIGMETs have to be updated at least every 6 hours.

3.1.5 SIGMETs have to be promptly cancelled when the phenomenon is no longer occurring or no longer expected to occur in the MWO's area of responsibility. The SIGMET is understood to cancel itself automatically at the end of its validity period. If the phenomenon persists, a new SIGMET message for a further period of validity should be issued.

3.2 Types of SIGMET

3.2.1 Although Annex 3 provides one general SIGMET format, which encompasses all weather phenomena, it is convenient when describing the structure and format of the messages to distinguish between three types of SIGMET, as follows:

- SIGMET for en-route weather phenomena other than VA and TC (this includes TS, CB, TURB, ICE, MTW, DS and SS);
- SIGMET for volcanic ash(VA SIGMET);
- SIGMET for tropical cyclones (TC SIGMET).

3.2.2 The three types of SIGMET can be identified by the data type designator included in the WMO abbreviated heading of the SIGMET message, as explained below.

3.3 Structure of the SIGMET message

3.3.1 A SIGMET message consists of:

- *WMO heading* – all SIGMETs are preceded by an appropriate WMO heading;
- *First line*, containing location indicators of the relevant ATS unit and MWO, sequential number and period of validity;

- *Meteorological part*, containing meteorological information concerning the phenomenon for which the SIGMET is issued;
- *Outlook part* – forecast part to be included only in SIGMETs for volcanic ash and tropical cyclones.

3.3.2 The first two parts of the SIGMET message are common for all types of SIGMETs. The other two parts are different in content and format; that is why, in the following paragraphs the meteorological part of the three types of SIGMET are described separately.

3.4 Format of SIGMET

Note: In the following text, square brackets - [ ] - are used to indicate an optional or conditional element, and angled brackets - < > - for symbolic representation of a variable element, which in the real SIGMETs accepts concrete numerical values.

3.4.1 WMO Header

$T_1T_2A_1A_2$ii CCCC YYGGgg [CCx]

3.4.1.1 The group **$T_1T_2A_1A_2$ii** is the bulletin identification for the SIGMET message. It is constructed in the following way:

T_1T_2	Data type designator	**WS** – for SIGMET **WC** – for SIGMET for tropical cyclone **WV** – for SIGMET for volcanic ash
A_1A_2	Country or territory designators	Assigned according to Table C1, Part II of Manual on the Global Telecommunication System, Vol I – Global Aspects (WMO - No. 386)
Ii	Bulletin number	Assigned on national level according to p 2.3.2.2, Part II of Manual on the Global Telecommunication System, Vol I – Global Aspects (WMO - No. 386)

3.4.1.2 **CCCC** is the ICAO location indicator of the communication centre disseminating the message (could be the same as the MWO).

3.4.1.3 **YYGGgg** is the date/time group, where YY is the date and GGgg is the time in hours and minutes UTC, of the transmission of the SIGMET (normally this is the time assigned by the AFTN center which disseminates the message).

3.4.1.4 The group **CCx** is used only when sending a correction of a SIGMET, which has already been transmitted; the third letter "x" takes the value A for the first correction, B for the second correction, etc. The MWOs should try to minimize the corrections of the SIGMETs, taking into account their importance to the flight planning including in-flight re-planning.

Examples:

WSBN31 OBBI 121200
WVSD01 OEJD 010230
WCOM21 OOMS 100600 CCA

3.4.2 First line of SIGMET

CCCC SIGMET [nn]n VALID YYGGgg/YYGGgg CCCC-

3.4.2.1 The meaning of the groups in the first line of the SIGMET is as follows:

CCCC	ICAO location indicator of the ATS unit serving the FIR or CTA to which the SIGMET refers
SIGMET (SIGMET SST)	Message identifier; SIGMET SST is used for SIGMETs containing information for supersonic aircraft during transonic or supersonic flight
[nn]n	Daily sequence number (see p.3.4.2.2)
VALID	Period of validity indicator
YYGGgg/YYGGgg	Validity period of the SIGMET given by date/time group of the beginning and date/time group of the end of the period (see p.3.4.2.3)
CCCC	ICAO location indicator of the MWO originating the message
-	**hyphen** to separate the preamble from the text

3.4.2.2 The numbering of SIGMETs starts every day at 0001 UTC. The sequence number consists of up to three symbols and may be a combination of letters and numbers like:

- 1, 2, …
- 01, 02, …
- A01, A02, …

Examples:

OJAI SIGMET 3 VALID 121100/121700 OJAM-
OSDI SIGMET A04 VALID 202230/210430 OSDI-

Note 1: No other combinations , like "CHARLIE 05" or "NR7", are allowed..

Note 2: Correct numbering of SIGMET is very important since the number is used for reference in communication between ATC and pilots and in VOLMET and D-VOLMET.

3.4.2.3 The following considerations should be taken into account when determining the validity period:

- The period of validity of a SIGMET should not exceed 4 hours, with the exception of TC and VA SIGMETs, which should be extended up to 6 hours.

- In case of a SIGMET for an observed phenomenon the time of issue (date/time group in the WMO header) should be same or close to the date/time group indicating the start of the SIGMET validity period;

- When the SIGMET is for an expected phenomenon, the beginning of validity period is the time of expected commencement (occurrence) of the phenomenon;

- In case of a SIGMET for an expected phenomenon, the lead time (the time of issuance of the SIGMET) should be not more than 6, and preferably not more than 4 hours before the start of validity period (i.e., expected time of occurrence of the phenomenon); for TC and VA SIGMETs the lead time may be up to 12 hours.

3.4.2.4 The period of validity is that period during which the SIGMET information is valid for transmission to aircraft in flight.

Examples:

1. SIGMET for an observed phenomenon:
WSQT31 OTBD 241120
OTBD SIGMET 3 VALID 241120/241500 OTBD-

2. SIGMET for a forecast phenomenon (expected time of occurrence 1530)

WSKW31 OKBK 311130
OKBK SIGMET 1 VALID 1530/1930 OKBK-

3.4.3 *Format of the meteorological part of SIGMET messages for weather phenomena other than TC and VA*

3.4.3.1 The meteorological part of a SIGMET for SIGWX consists of seven elements as shown in the table below.

Start of the second line of the message

1	2	3	4	5
Name of the FIR/UIR or CTA	Description of the phenomenon	Observed or forecast	Location	Level
<name> FIR CTA	<Phenomenon>	OBS [AT <GGggZ>] FCST OBS [AT <GGggZ>] AND FCST	Geographical location of the phenomenon given by coordinates, or geographical objects, or location indicators	FL<nnn> FL<nnn/nnn> [TOP, ABV, BLW]

6	7
Movement or expected movement	Changes in intensity
MOV <direction, speed>, or STNR	INTSF or WKN or NC

3.4.3.1.1 Name of the FIR/UIR or CTA

<name> FIR[/UIR]
or
<name> CTA

The name is given followed by the appropriate abbreviation: FIR, FIR/UIR or CTA.

Examples:

BAHRAIN FIR

3.4.3.1.2 Phenomenon

The phenomenon description consists of a qualifier and a phenomenon abbreviation. SIGMET shall be issued only for the following phenomena:

A) for subsonic cruising levels:

- thunderstorms – if they are OBSC, EMBD, FRQ or SQL with or without hail;
- turbulence – only SEV
- icing – only SEV with or without FZRA
- mountain waves – only SEV
- dust storm – only HVY
- sand storm – only HVY

B) for transonic and supersonic levels:

- cumulonimbus – if they are ISOL, OCNL or FRQ
- hail
- turbulence – MOD or SEV

The appropriate abbreviations and combinations, and their meaning are given in Appendix B.

3.4.3.1.3 Indication whether the phenomenon is observed or forecast

OBS [AT <GGggZ>]
or **FCST**
or **OBS [AT <GGggZ>] AND FCST**

The indication whether the information is observed or forecast is given by the abbreviations OBS and FCST. OBS is optionally followed by a time group in the form AT GGggZ, where GGgg is the time of the observation in hours and minutes UTC. If the exact time of the observation is not known the time is not included. When FCST is used, it is assumed that the time of occurrence or commencement of the phenomenon coincides with the beginning of the period of validity included in the first line of the SIGMET. Finally, the combination OBS AND FCST indicates that the phenomenon is observed and expected to continue.

Examples:

OBS AT 0140Z
OBS AT 1030Z AND FCST
FCST

3.4.3.1.4 Location of the phenomenon

The location of the phenomenon is given with reference to geographical coordinates **(Appendix C)** or with reference to geographical features well known internationally. The MWOs has to try to be as specific as possible in reporting the location of the phenomenon and, at the same time, to avoid overwhelming geographical information, which may be difficult to process or perceive.

The following are the most common ways to describe the location of the phenomenon:

- Indication of a part of the FIR with reference to latitude:
  N OF or **S OF <Nnn[nn]>** or **<Snn[nn]>**

- Indication of a part of the FIR with reference to longitude:
  E OF or **W OF <Ennn[nn]>** or **<Wnnn[nn]>**

- Indication of a part of the FIR with reference to latitude and longitude:
  any combination of the above two cases;

- with reference to a location with ICAO location abbreviation CCCC (normally, this should be the case of SIGMET based on special air-report in which the reported phenomenon is given with reference to an airport or another object with ICAO location indicator CCCC);

- with reference to geographical features well known internationally.

More details on reporting the location of the phenomenon are given in Annex 3 and in Appendix C to this Guide.

3.4.3.1.5 Vertical extent or level

FL<nnn>
or **FL<nnn/nnn>**
or **TOP FL<nnn>**
or **[TOP] ABV FL<nnn>**
or **[TOP] BLW FL<nnn>**

The location or extent of the phenomenon in the vertical is given by one or more of the above abbreviations, as follows:

- reporting of single level – **FL<nnn>**
- reporting a layer – **FL<nnn/nnn>**, where the lower level is reported first; this is used particularly in reporting turbulence and icing;
- reporting a level or layer with reference to one FL using ABV or BLW
- reporting the level of the tops of the TS clouds using the abbreviation TOP.

Examples:

EMBD TS … TOP ABV FL340
SEV TURB … FL180/210
SEV ICE … BLW FL150
SEV MTW … FL090

3.4.3.1.6 Movement

MOV <direction> <speed>

or
STNR

Direction of movement is given with reference to one of the eight points of compass. Speed is given in KMH or KT. The abbreviation STNR is used if no significant movement is expected.

Examples:

MOV NW 60KMH
MOV E 25KT

3.4.3.1.7 Expected changes in intensity

The expected evolution of the phenomenon's intensity is indicated by one of the following abbreviations:

INTSF – intensifying
WKN – weakening
NC – no change

3.4.4 Structure of the meteorological part of VA SIGMET

3.4.4.1 The general structure of the meteorological part of the SIGMET message is given in the table below:

Start of the second line of the message

1	2			3
FIR/UIR or CTA	Phenomenon	Volcano		Volcanic ash cloud observed
		Name	Location	
	VA	[ERUPTION] [MT <name>]	[LOC <location>]	VA CLD OBS AT <GGggZ>

4			5
Extent of the cloud			Expected movement
Vertical	Horizontal	Position	
FL <nnn/nnn>	APRX <nnn> BY <nnn> KM	<lat,lon> - <lat,lon> - …	MOV <direction> <speed>

6	
Volcanic ash cloud forecast at the end of the period of validity	
FCST time	Position
FCST <GGggZ>	VA CLD APRX [FL<nnn/nnn>] <lat,lon> - <lat,lon> - …

Start of the outlook line of the message

7	8	
Outlook	Volcanic ash cloud trajectory	
	Date/time	Position
OTLK	<YYGGggZ>	VA CLD APRX <lat,lon> **-** <lat,lon> **-** …

9	
Volcanic ash cloud trajectory	
Date/time	Position
<YYGGggZ>	VA CLD APRX <lat,lon> **-** <lat,lon> **-** …

3.4.4.2 Name and location of the volcano and/or indicator for VA cloud

VA [ERUPTION] [MT <name>] [LOC <lat,lon>] VA CLD
or
VA CLD

3.4.4.2.1 The description of the volcano injecting volcanic ash consists of the following elements:

- starts with the abbreviation **VA** – volcanic ash;
- the word **ERUPTION** is used when the SIGMET is issued for a known volcanic eruption;
- geographical/location information:
    i. if the name of the volcano is known, it is given by the abbreviation **MT** – mountain, followed by the name;
    e.g., **MT RABAUL**
    ii. location of the volcano is given by the abbreviation **LOC** – location, followed by the latitude and longitude in degrees and minutes **(Appendix C)**;
    e.g., **LOC N3520 E09040**
- this section of the message ends with the abbreviation **VA CLD** – volcanic ash cloud.

3.4.4.2.2 If the FIR is affected by a VA cloud with no information about the volcanic eruption which generated the cloud, only the abbreviation **VA CLD** is to be included in the SIGMET.

3.4.4.3 Time of observation or expected commencement of the VA CLD

VA CLD OBS AT <GGgg>Z
or
VA CLD FCST

The time of observation is taken from the source of the observation – satellite image, special air- report, report from a ground volcanological station, etc. If the VA cloud is not yet observed over the FIR but the volcanic ash advisory received from the responsible VAAC indicates that the cloud will affect the FIR after certain time, SIGMET is to be issued, according to paragraph 2.4 above, and the abbreviation VA CLD FCST shall be used.

Examples:

VA CLD OBS AT 0100Z
VA CLD FCST

3.4.4.4 Level and extent of the volcanic ash cloud

FL<nnn/nnn> [APRX <nnn>KM BY <nnn>KM] <P1(lat,lon) - P2(lat,lon) - … >
or
FL<nnn/nnn> [APRX <nnn>NM BY <nnn>NM] <P1(lat,lon) - P2(lat,lon) - … >

FL<nnn/nnn>	The layer of the atmosphere where the VA cloud is situated, given by two flight levels from the lower to the upper boundary of the cloud
[APRX <nnn>KM BY <nnn>KM] or [APRX <nnn>NM BY <nnn>NM]	Approximate horizontal extent of the VA cloud in KM or NM
<P1(lat,lon) – P2(lat,lon) - … >	Approximate description of the VA cloud by a number of points given with their geographical coordinates[1]; the points shall be separated by hyphen

If the VA cloud spreads over more than one FIR, separate SIGMETs have to be issued by all MWOs whose FIRs are affected. In such a case, the description of the volcanic ash cloud by each MWO should encompass the part of the cloud, which lies over the MWO's area of responsibility. The MWOs should try and keep the description of the volcanic ash clouds consistent by checking the SIGMET messages received from the neighbouring MWOs.

Examples:

FL100/180 APRX 10KM BY 50KM N0100 E09530 – N1215 E11045
FL 150/210 S0530 E09300 – N0100 E09530 – N1215 E11045

3.4.4.5 Movement or expected movement of the VA cloud

MOV <direction> <speed>
or
STNR

The direction of movement is given by the abbreviation **MOV** – moving, followed by one of the eight points of compass: N, NE, E, SE, S, SW, W, NW. The speed of movement is given in KMH or KT.

[1] The format of geographical coordinates reporting in SIGMET is given in Appendix E.

Examples:

MOV E 35 KMH
MOV SW 20 KT
STNR

3.4.4.6 Forecast position of the VA cloud at the end of the validity period of the SIGMET message

FCST <GGggZ> VA CLD <P1(lat,lon) - P2(lat,lon) - … >

The **GGggZ** group indicates the end of validity period given in the first line of the SIGMET message. The description of the expected position of the volcanic ash cloud is given by a number of points forming a simplified geometrical approximation of the cloud.

3.4.4.7 Outlook providing information of the trajectory of the volcanic ash cloud beyond the period of validity of the SIGMET.

OTLK <YYGGgg>$_{+6}$ VA CLD APRX [FLnnn/nnn] <P1(lat,lon) - P2(lat,lon) - … >
[[FLnnn/nnn] <P1(lat,lon) - P2(lat,lon) - … >] …
<YYGGgg>$_{+12}$ VA CLD APRX [FLnnn/nnn] <P1(lat,lon) - P2(lat,lon) - … >
[[FLnnn/nnn] <P1(lat,lon) - P2(lat,lon) - … >] …

3.4.4.7.1 The abbreviation **OTLK** indicates the start of the outlook part of the SIGMET. It consists of two sub-parts, each providing description of the approximate position of the volcanic ash cloud at 6 and 12 hours after the end of the period of validity of the SIGMET. Each sub-part begins with a date/time group **<YYGGgg>$_{+6}$** and **<YYGGgg>$_{+12}$** indicating the date and time of the +6 and +12 forecast respectively. The expected approximate position of the VA cloud is given by the geographical coordinates of a number of points P1, P2, etc.

Note: Together with the OUTLOOK the VA SIGMET includes up to 3 forecasts of the position of the volcanic ash cloud: +6 hour position is given in the FCST part of the SIGMET itself, and the +12 and +18 hour position forecasts, based on the VA advisory received from the responsible VAAC.

3.4.4.7.2 In describing the VA cloud up to four different layers can be used, indicated by flight levels in the form FL<nnn/nnn>. The use of more than one level is necessary when the wind direction distribution with height determines that the cloud is spread horizontally into different directions at different height layers.

3.4.5 Structure of the meteorological part of TC SIGMET

3.4.5.1 The general structure of the meteorological part of the TC SIGMET is given in the table below:

Start of the second line of the message

1	2	3		4
FIR/UIR or CTA	TC name	Observed		Extent
		Location	Time	

	TC <name>	OBS <…>	AT <GGggZ>	CB TOP FL<nnn> WI <nnn>KM OF CENTRE

5	6	7
Expected movement	Intensity change	Forecast of the centre position at the end of the validity period
MOV <dir> <speed>	INTSF or WKN or NC	FCST <GGggZ> TC CENTRE < … >

Start of the outlook line of the message

8	9		10	
Outlook	Position of the centre		Position of the centre	
	Date/time	Location	Date/time	Location
OTLK	<YYGGggZ>	TC CENTRE < … >	<YYGGggZ>	TC CENTRE < … >

3.4.5.2 Name of the tropical cyclone

TC <name>

The description of the tropical cyclone consists of the abbreviation TC followed by the international name of the tropical cyclone given by the corresponding WMO RSMC.

Examples:

TC GLORIA
TC 04B

3.4.5.3 Time of observation

OBS AT <GGggZ>

The time in UTC is given in hours and minutes, followed by the indicator Z. Normally, time is taken from own observations or from a TC advisory received from the responsible TCAC.

Examples:

OBS AT 2330

3.4.5.4 Location of the TC centre

TC CENTRE <location>

The location of the TC centre is given by its lat, lon coordinates in degrees and minutes.

Examples:

TC CENTRE N1535 E14230

3.4.5.5 Vertical and horizontal extent of the CB cloud formation around TC centre

CB TOP [ABV or BLW] <FLnnn> WI <nnnKM or nnnNM> OF CENTRE

Examples:

CB TOP ABV FL450 WI 200NM OF CENTRE
CB TOP FL500 WI 250KM OF CENTRE

3.4.5.6 Movement or expected movement

MOV <direction> <speed>
or
STNR

Direction of movement is given with reference to one of the eight points of compass. Speed is given in KMH or KT. The abbreviation STNR is used if no significant movement is expected.

Examples:

MOV NW 30KMH
MOV E 25KT

3.4.5.7 Intensity change

The expected change of the intensity of the tropical cyclone is indicated by one of the following abbreviations:

INTSF – intensifying
WKN – weakening
NC – no change

3.4.5.8 Forecast location of the TC centre at the end of the validity period of the SIGMET message

FCST <GGggZ> TC CENTRE <location>

Normally, the time given by GGggZ should be the same as the end of validity period indicated in the first line of the SIGMET message. Since the period of validity is up to 6 hours (normally, 6 hours), this is a 6-hour forecast of the position of the TC centre.

The location of the TC centre is given by its lat, lon coordinates following the general rules of reporting lat, lon information provided in Appendix C to this Guide.

Examples:

FCST 1200Z TC CENTRE N1430 E12800

3.4.5.9 Outlook providing information of positions of the TC centre beyond the period of validity of the SIGMET

OTLK <YYGGgg>$_{+6}$ TC CENTRE <location> <YYGGgg>$_{+12}$ TC CENTRE <location>

The outlook provides information of the expected positions of the TC centre beyond the validity period of the SIGMET indicated in the first line of the SIGMET message. Normally, the outlook shall include "end of validity +6 hours" and "end of validity +12 hours" information based on the TC advisory issued by the responsible TCAC.

Note: Together with the OUTLOOK the TC SIGMET includes up to 3 forecasts of the position of the TC centre: +6 hour position is given in the FCST part of the SIGMET itself, and the +12 and +18 hour position forecasts, based on the TC advisory received from the responsible TCAC.

Examples:

OTLK 081900 TC CENTRE S1230 E15500 090100 TC CENTRE S1200 E15630

3.4.6 Cancellation of SIGMET

3.4.6.1 If during the validity period of a SIGMET the phenomenon for which the SIGMET had been issued is no longer occurring or no longer expected, this SIGMET should be cancelled by the issuing MWO. The cancellation is done by issuing the same type of SIGMET with the following structure:

- WMO heading with the same data type designator
- First line
- Second line, which contains the name of the FIR or CTA, the combination CNL SIGMET, followed by the sequential number of the original SIGMET and its validity period.

Examples:

SIGMET message and the corresponding cancellation

WSXY31 YUSO 101200
YUDD SIGMET 5 VALID 101200/101600 YUSO-
SHANLON FIR …

Cancellation SIGMET:

WSXY31 YUSO 101430
YUDD SIGMET 6 VALID 101430/101600 YUSO-
SHANLON FIR CNL SIGMET 5 101200/101600=

.

3.5 Communications

3.5.1 SIGMETs are part of the operational meteorological (OPMET) information. According to Annex 3 the telecommunication facilities used for the exchange of the operational meteorological information should be the aeronautical fixed service (AFS).

3.5.2 The AFS consists of two segments – a ground-to-ground links segment, AFTN, and a satellite distribution segment which is composed by the SADIS and ISCS services provided by the UK and USA respectively.

3.5.3 AFTN links are to be used by the MWOs to send their SIGMETs, in the following way:

- SIGMETs are to be sent to the adjacent MWOs using direct AFTN addressing;
- When required for VOLMET or D-VOLMET, SIGMETs are to be sent to the relevant communication centre;
- SIGMETs are to be sent to the responsible ROBEX centre and forwarded without delay to the responsible regional OPMET Data Bank (RODB);
- It is to be arranged through the ROBEX scheme that SIGMETs are relayed to the SADIS and ISCS providers for satellite dissemination.

3.5.4 Through SADIS and ISCS, SIGMETs are disseminated to all users authorised and equipped to receive OPMET information via the satellite distribution. In this way, SIGMETs are available on global basis, meeting the aeronautical requirement.

3.5.5 The requirements for SIGMET exchange, as specified by the States, are given in MID FASID Table MET 2B – Exchange of SIGMET Messages.

APPENDIX A

LIST OF THE ABBREVIATIONS AND CODE WORDS USED IN SIGMET

ABV	Above
AND*	And
APRX	Approximate or approximately
AT	At *(followed by time)*
BLW	Below
BY*	By
CB	Cumulonimbus
CENTRE*	Centre *(used to indicate tropical cyclone centre)*
CLD	Cloud
CNL	Cancel *or* cancelled
CTA	Control area
DS	Duststorm
E	East *or* eastern longitude
ERUPTION*	Eruption *(used to indicate volcanic eruption)*
EMBD	Embedded in layer *(to indicate CB embedded in layer of other clouds)*
FCST	Forecast
FIR	Flight information region
FL	Flight level
FRQ	Frequent
FZRA	Freezing rain
GR	Hail
HVY	Heavy *(used to indicate intensity of weather phenomena)*
ICE	Icing
INTSF	Intensify *or* intensifying
ISOL	Isolated
KM	Kilometers
KMH	Kilometers per hour
KT	Knots
MOD	Moderate *(used to indicate intensity of weather phenomena)*
MOV	Move *or* moving *or* movement
MT	Mountain
MTW	Mountain waves
N	North *or* northern latitude
NC	No change
NE	North-east
NM	Nautical miles
NW	North-west
OBS	Observed
OBSC	Obscured
OCNL	Occasional
OF*	Of … *(place)*
OTLK	Outlook *(used in SIGMET messages for volcanic ash and tropical cyclones)*
RA	Rain

S	South *or* southern latitude
SE	South-east
SEV	Severe *(used e.g. to qualify icing and turbulence reports)*
SIGMET	SIGMET *(used to indicate SIGMET information)*
SQL	Squall line
SS	Sandstorm
SST	Supersonic transport *(used to indicate a SIGMET for supersonic levels)*
STNR	Stationary
SW	South-west
TC	Tropical cyclone
TO	To … *(place)*
TOP	Cloud top
TS	Thunderstorm
TURB	Turbulence
UIR	Upper flight information region
VA	Volcanic ash
VALID*	Valid
W	West *or* western longitude
WI	Within
Z	Coordinated Universal Time *(used in meteorological messages)*

** not in the ICAO Doc 8400, ICAO Abbreviations and Codes*

APPENDIX B

METEOROLOGICAL PHENOMENA TO BE REPORTED BY SIGMET

	Phenomenon	Description	Meaning
Subsonic cruising level	TS	OBSC[2] TS EMBD[3] TS FRQ[4] TS SQL[5] TS OBSC TSGR EMBD TSGR FRQ TSGR SQL TSGR	Obscured thunderstorm(s) Embedded thunderstorm(s) Frequent thunderstorm(s) Squall line thunderstorm(s) Obscured thunderstorm(s) with hail Embedded thunderstorm(s) with hail Frequent thunderstorm(s) with hail Squall line thunderstorm(s) with hail
	TC	TC (+ TC name)	Tropical cyclone (+ TC name)
	TURB	SEV TURB[8]	Severe turbulence
	ICE	SEV ICE SEV ICE FZRA	Severe icing Severe icing due to freezing rain
	MTW	SEV MTW[9]	Severe mountain wave
	DS	HVY DS	Heavy duststorm
	SS	HVY SS	Heavy sandstorm
	VA	VA (+ volcano name, if known)	Volcanic ash (+ volcano name)
Transonic levels and supersonic cruising levels	TURB	MOD TURB[8] SEV TURB[8]	Moderate turbulence Severe turbulence
	CB	ISOL[6] CB OCNL[7] CB FRQ CB	Isolated cumulonimbus Occasional cumulonimbus Frequent cumulonimbus
	GR	GR	Hail
	VA	VA (+ volcano name, if known)	Volcanic ash (+ volcano name)

Notes:

1 *Only one of the weather phenomena listed should be selected and included in each SIGMET*

2. *Obscured (**OBSC**) indicates that the thunderstorm (including, if necessary, CB-cloud which is not accompanied by a thunderstorm) is obscured by haze or smoke or cannot be readily seen due to darkness*

3. *Embedded (**EMBD**) – indicates that the thunderstorm (including, if necessary, CB-cloud which is not accompanied by a thunderstorm) is embedded within cloud layers and cannot be readily recognized*

4. *Frequent (**FRQ**) indicates an area of thunderstorms within which there is little or no separation between adjacent thunderstorms with a maximum spatial coverage greater than 75% of the area affected, or forecasts to be affected, by the phenomenon (at a fixed time or during the period of validity)*

5. *Squall line (**SQL**) indicates thunderstorms along a line with little or no space between individual clouds*

6. *Isolated (**ISOL**) indicates an area of individual CB and/or thunderstorms with a maximum spatial coverage less than 50% of the area affected, or forecasts to be affected, by the phenomenon (at a fixed time or during the period of validity)*

7 *Occasional (**OCNL**) indicates an area of well-separated CB and/or thunderstorms with a maximum spatial coverage between 50 and 75% of the area affected, or forecasts to be affected, by the phenomenon (at a fixed time or during the period of validity)*

8 *Severe (**SEV**) and moderate (**MOD**) turbulence (**TURB**) refers only to:*

- *low-level turbulence associated with strong surface winds;*
- *rotor streaming;*
- *turbulence whether in cloud or not in cloud (CAT) near to jet streams. Turbulence is considered:*
    - *severe – whenever the turbulence index is between 15 and 27 (i.e., the peak value of the eddy dissipation rate (EDR) exceeds 0.5); and*
    - *moderate - whenever the turbulence index is between 6 and 14 (i.e., the peak value of the eddy dissipation rate (EDR) exceeds 0.3 while not exceeding 0.5).*

9 *A mountain wave (**MTW**) is considered:*

- *severe – whenever an accompanying downdraft of 3.0 m/s (600 ft/min) or more and/or severe turbulence is observed or forecast.*

APPENDIX C

STANDARD FOR REPORTING GEOGRAPHICAL COORDINATES IN SIGMETS

When reporting geographical coordinates of points in SIGMET the following shall apply:

1. Each point is represented by a latitude/longitude coordinates in whole degrees or degrees and minutes in the form:

N(S)nn[nn] W(E)nnn[nn]

Note: There is a space between the latitude and longitude value.

Examples: **N3623 W04515**
S1530 E12500
N42 E023

2. In describing lines or polygons, the lat,lon values of the respective points are separated by the combination space-hyphen-space, as in the following examples:

S0530 E09300 – N0100 E09530 – N1215 E11045 – S0820 E10330

S05 E093 – N01 E095 – N12 E110 – S08 E103

Note: It is not necessary to repeat the first point when describing a polygon.

3. When describing a volcanic ash cloud approximate form and position, a limited number of points, which form a simplified geometric figure (a line, or a triangle, or quadrangle, etc.) shall be used in order to allow for a straightforward interpretation by the user.

APPENDIX D

EXAMPLES

Note: Most of the examples are based on real SIGMETs mainly from Asia/Pacific region with some exceptions. The real SIGMETs have been corrected in order to make them compliant to the Annex 3 format.

1. SIGMET

1.1 SIGMETs for thunderstorms

```
WSSR20 WSSS 091131
WSJC SIGMET 3 VALID 091140/091540 WSSS-
SINGAPORE FIR EMBD TS OBS AT 1130Z N OF N01 E OF E106 W OF E114 STNR NC=

WSNT03 KKCI 032340
KZNY SIGMET C17 VALID 032345/040345 KKCI-
NEW YORK OCEANIC FIR FRQ TS OBS WI AREA N2400 W05500 - N2300 W04930 - N1845
W05645 - N2100 W05800 - N2400 W05500 TOP FL450 MOV E 15KT INTSF=

WSVS31 VVGL 122305
VVTS SIGMET 9 VALID 122330/130230 VVVV-
HOCHIMINH FIR EMBD TS OBS S OF LINE N1420 E10930 - N1000 E10400 TOP FL280 MOV
W 10KMH WKN=

WSUK31 EGGY 121120
EGTT SIGMET 01 VALID 121125/121525 EGRR-
LONDON FIR EMBD TS GR OBS AT 1115Z SE OF LINE N5130 E00200 - N5000 W00400
TOPS FL220 MOV NE 30KT NC=
```

1.2 SIGMET for severe turbulence

```
WSAU21 AMMC 280546
YBBB SIGMET BS02 VALID 280600/281200 YMMC-
BRISBANE FIR SEV TURB FCST WI S3900 E15100 - S4300 E15100 - S4300 E16000 -
S4100 E16300 - S3700 E16300 - S3900 E16000 FL260/370 MOV E 20 KT NC=

WSNZ21 NZKL 280003
NZZC SIGMET 01 VALID 280002/280402 NZKL-
NEW ZEALAND FIR SEV TURB OBS AND FCST NE OF THE SOUTH ISLAND BLW FL100
STNR NC=
```

1.3 SIGMET for severe icing

```
WSFR31 LFPW 280400
LFMM SIGMET 2 VALID 280500/280900 LFMM-
FIR MARSEILLE SEV ICE OBS AT 0400Z OVER LION GULF FL040/100 STNR NC=

WSIY31 LIIB 032152
LIMM SIGMET 07 VALID 032200/040200 LIMM-
```

```
MILANO FIR SEV ICE FCST OVER ALPS AND N PART APPENNINIAN AREA FL030/120 MOV E
NC=
```

1.4 SIGMET for heavy duststorm

```
WSAW31 LOWM 160530
OEJD SIGMET 4 VALID 160600/161000 OEJN-
JEDDAH FIR HVY DS OBS AND FCST N OF N2200 S OF N3100 E OF E04440 W OF E04800
MOV E 10KMH NC=
```

1.5 SIGMET for severe mountain wave

```
WSUK31 EGGY 150550
EGTT SIGMET 03 VALID 150600/151000 EGRR-
LONDON FIR SEV MTW FCST N OF N5100 FL090/140 STNR WKN=
```

2. VA SIGMET

2. 1 VA SIGMET - full

```
WVPH01 RPLL 211110
RPHI SIGMET 2 VALID 211100/211700 RPLL-
MANILA FIR VA ERUPTION MT PINATUBO LOC S1500 E07348
VA CLD OBS AT 1100Z FL310/450 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642
MOV SE 65KMH FCST 1700Z VA CLD APRX S1506 E07500 – S1518 E08112 – S1712
E08330 – S1824 E07836
OTLK 212300 VA CLD APRX S1600 E07806 – S1642 E08412 – S1824 E08900 – S1906
E08100 220500 VA CLD APRX S1700 E08100 – S1812 E08636 – S2000 E09224 – S2130
E08418
```

Notes:

1. *It is recommended that the OTLK part starts on a new line to make the message easier to read.*
2. *The coordinates used in describing the VA cloud are fictitious.*

2.2 "Short" first SIGMET (no OUTLOOK)

```
YUDD SIGMET 2 VALID 211100/211700 YUSO-
SHANLON FIR/UIR VA ERUPTION MT ASHVAL LOC S1500 E07348
VA CLD OBS AT 1100Z FL310/450 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642
MOV SE 65KMH FCST 1700Z VA CLD APRX S1506 E07500 – S1518 E08112 – S1712
E08330 – S1824 E07836=
```

or

```
YUDD SIGMET 2 VALID 211100/211700 YUSO-
SHANLON FIR/UIR VA ERUPTION MT ASHVAL LOC S1500 E07348
VA CLD OBS AT 1100Z FL100/180 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642=
```

```
WVFJ01 NFFN 090900
NFFF SIGMET 03 VALID 090915/091515 NFFN-
NADI FIR VA ERUPTION MT LOPEVI LOC S1630 E16820 VA CLD OBS AT 0330Z FL090
APRX 10NM BY 10NM MOV SE 25KT FCST 1515Z VA CLD APPRX S1630 E16820 - S1900
E17600 - S1930 E17030=
```

2.3 SIGMET for VA CLD in the FIR but the volcano information is unknown

```
YUDD SIGMET 2 VALID 211100/211700 YUSO-
SHANLON FIR/UIR VA CLD OBS AT 1100Z FL310/450 APRX 220KM BY 35KM S1500 E07348
– S1530 E07642 MOV SE 65KMH FCST 1700Z VA CLD APRX S1506 E07500 – S1518
E08112 – S1712 E08330 – S1824 E07836
OTLK 212300 VA CLD APRX S1600 E07806 – S1642 E08412 – S1824 E08900 – S1906 E08100 220500 VA
CLD APRX S1700 E08100 – S1812 E08636 – S2000 E09224 – S2130 E08418=
```

2.4 SIGMET for VA CLD forecast to affect the FIR

We assume that the responsible VAAC has issued an advisory at 0200Z with forecast positions of the VA CLD for 0800Z, 1400Z and 2000Z. From this forecast it is seen that the VA CLD will enter the YUDD FIR before 0800Z. The responsible MWO, YUSO receiving this advisory prepares a SIGMET for the expected penetration of the VA cloud in its FIR and this SIGMET is send at 0230Z.

```
WVXY01 YUSO 210230
YUDD SIGMET 2 VALID 210800/211400 YUSO-
SHANLON FIR/UIR VA CLD FCST FL310/450 APRX 220KM BY 35KM S1500 E07348 – S1530
E07642 MOV SE 65KMH FCST 1400Z VA CLD APRX S1506 E07500 – S1518 E08112 –
S1712 E08330 – S1824 E07836
OTLK 212000 VA CLD APRX S1600 E07806 – S1642 E08412 – S1824 E08900 – S1906
E08100
```

Notes:

1. *The forecast position at 0800Z and 1400Z is taken from the VA advisory*
2. *The outlook part is limited to the +6 hour forecast because at the moment of issuing the SIGMET there is no information available beyond this period from the VAAC.*

3. TC SIGMET

3.1. TC Graham – SIGMET issued by MWO Perth - Australia

```
WCOC31 APRF 280453
YBBB SIGMET PH01 VALID 280500/281100 YPRF-
BRISBANE FIR TC GRAHAM OBS AT 0400Z S1806 E12145 CB TOP FL450 WI 120NM OF
CENTRE MOV SE 7KT INTSF FCST 1100Z TC CENTRE S1808 E12150
OTLK 281700 TC CENTRE S1835 E12218 010400 TC CENTRE S1910 E12240=
```

3.2. SIGMET messages issued in July 2003 during the passage of TC Koni

```
WCSS20 VHHH 200240
VHHK SIGMET 2 VALID 200900/201500 VHHH-
HONG KONG CTA TC KONI OBS AT 0000Z N1618 E11506 CB TOP FL500 WI 90NM OF
CENTRE MOV NW 8KT NC FCST 1500Z TC CENTRE N1749 E11347
OTLK 202100 TC CENTRE N1829 E11304 210300 TC CENTRE N1902 E11208=
```

Note: This SIGMET is issued before the TC Koni started affecting the Hong Kong CTA, as seen from the issuing time and the start of validity time

```
WCSS20 VHHH 201150
VHHK SIGMET 7 VALID 201200/201800 VHHH-
HONG KONG CTA TC KONI OBS AT 0900Z N1712 E11400 CB TOP FL500 WI 90NM OF
CENTRE MOV NW 10KT NC FCST 1800Z TC CENTRE N1810 E11300
OTLK 210000 TC CENTRE N1850 E11210 210600 TC CENTRE N1920 E11130=

WCSS20 VHHH 201450
VHHK SIGMET 10 VALID 201500/202100 VHHH-
HONG KONG CTA TC KONI OBS AT 1200Z N1730 E11330 CB TOP FL500 WI 60NM OF
CENTRE MOV NW 10KT NC FCST 2100Z TC CENTRE N1818 E11240
OTLK 210300 TC CENTRE N1900 E11156 210900 TC CENTRE N1938 E11107=
```

Note: The two SIGMETs above are issued with an interval of 3 hours, which corresponds to the requirement for updating the TC SIGMETs at least every 6 hours. In the case of Hong Kong, China, the update interval has been selected to be 3 hours.

? END ?

CNS/MET SG/6
Report on Agenda Item 5

REPORT ON AGENDA ITEM 5: REVIEW OF DEFICIENCIES

CNS

5.1 The meeting noted that some of the AFTN deficiencies were due to a lack of coordination between centers in the Region. In this regard, the non-implementation of the main circuit between Amman-Beirut remains a major concern in the MID AFTN Rationalized Plan.

5.2 It was recalled that States should fill in the Harmful Interference Report Form when reporting harmful interference so that the ICAO office could easily follow the coordination process with the concerned parties. The meeting was informed that the intermittent anomalies on air-ground communications operation on some airports of the Region were due to either harmful interference or lack of spread range of VHF equipments depending on flight level

5.3 The meeting, then, reviewed and updated the list of deficiencies as shown in the **Appendix 5A** to the report on Agenda Item 5.

5.4 Regarding the MID Contingency Planning Document, the meeting agreed on the amendments brought in some chapters of the document to take into account information received from States. It was also agreed that the AFS/ATN TF continues the development of the remaining sections and the review of the whole Contingency Planning Document as attached in **Appendix 5B** to the report on Agenda Item 5.

MET

5.5 The Group completed its review of a questionnaire sent to all MID States concerning the current implementation of the Annex 3 and MID ANP MET provisions. Following a reminder, ten States had completed and returned the questionnaire and it was concluded that only minor differences to Annex 3 had been reported, none of them considered as a MET deficiency.

5.6 The Meeting recalled its conclusion from the last meeting to perform a second survey in the form of a questionnaire in a revised form, which had also been endorsed by MIDANPIRG in its Conclusion 8/53. In view of the outcome the earlier survey, the Meeting now reconsidered its position and agreed that a second survey to the MID States with a revised questionnaire would be of little value.

5.7 The Meeting was presented a “Guidance material concerning the reporting of deficiencies in the MET field”, which had recently been issued by ICAO aiming to assist in reporting and handling of such deficiencies and to promote a consistent treatment across the ICAO regions. The Document was considered to be of great value concerning sources of information, assessment, reporting, and resolution of deficiencies in the MET field.

5.8 The important role of the user organizations like IATA was emphasized and IATA also offered to contribute with regular focused surveys among the airlines operating in the MID Region. Regular contacts with them before each meeting of the CNS/MET SG and regular contacts with States by the ICAO MID Office through missions to States was considered as more efficient means in the follow-up of the situation than surveys to States in the form of questionnaires. Regular participation by IATA and other user representatives in the CNS/MET SG would therefore be of great value.

DRAFT CONCLUSION 6/13: SURVEY OF MET DEFICIENCIES IN THE MID REGION

That, surveys of deficiencies in the MET Field in the MID Region be performed on a regular basis through:

a) Mission to States.
b) Focused surveys and monitoring through IATA and other user organizations.

Note: This Draft Conclusion is proposed to replace MIDANPIRG Conclusion 8/53.

CNS/MET SG/6
Appendix 5A to the Report on Agenda Item 5

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
1	2	3	4	5	6	7	8	9
CNS								
AFGHANISTAN								
AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/4 Conclusion 4/19**).**	Afghanistan-Bahrain Kabul-Bahrain AFTN Circuit	The circuit is not yet implemented	07/10/1998	Bahrain is ready to implement the circuit	Follow-up the matter with IATA concerning Afghanistan			B
	Afghanistan-Iran Kabul-Tehran AFTN Circuit	The circuit is not yet implemented	07/10/1998	VSAT network to be implemented				B
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading Statistics.	22/05/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office.				B

Identification		Deficiencies			Corrective Action			
Requirement 1	**Facilities/ Services** 2	**Description** 3	**Date first reported** 4	**Remarks** 5	**Description** 6	**Executing body** 7	**Date of complete** 8	**Priority for action*** 9
CNS								
BAHRAIN								
AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/4 Conclusion 4/19).	Afghanistan-Bahrain Kabul-Bahrain AFTN Circuit	The circuit is not yet implemented	07/10/1998	Bahrain is ready to implement the circuit	Follow-up the matter with IATA concerning Afghanistan			B
AFTN Main Circuits (LIM MID RAN Rec10/5)	Bahrain – Saudi Arabia Bahrain – Jeddah AFTN Circuit	The circuit is implemented on 200 bauds	19/10/1999	The circuit is working satisfactorily	Will be up-graded to CIDIN		*Second Quarter 2004*	A
	Bahrain – Singapore Bahrain – Singapore AFTN Circuit	The circuit is implemented on 200 bauds	19/10/1999	Operating satisfactorily on 200 bauds	Planned to be up-graded to medium speed circuit (2.4 K)	Bahrain – Singapore	*Fourth Quarter 2004*	B

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
1	2	3	4	5	6	7	8	9
CNS								
EGYPT								
AFTN Main Circuits (LIM MID RAN Rec10/5)	Egypt – Jordan Amman – Cairo AFTN Circuit	The circuit is implemented on 50 bauds	19/10/1999	Egypt is ready to up-grade the circuit to 100 bauds or higher if traffic justifies	Egypt will co-ordinate with Jordan for up-grading	Egypt – Jordan	*Fourth Quarter 2004*	A
	Egypt – Kenya Cairo – Nairobi AFTN Circuit	The circuit is implemented on 50 bauds	19/10/1999	Egypt is ready to up-grade the circuit to 100 bauds	Egypt and Kenya agreed to upgrade the circuit to 1200 bps	Egypt – Kenya	*Fourth Quarter 2004*	A
	Egypt – Tunisia Cairo – Tunis AFTN Circuit	The circuit is implemented on 100 bauds	19/10/1999		Planned to be up-graded to 1200 bauds. Upon Tunis readiness	Egypt - Tunisia	*Fourth Quarter 2004*	A
Radio Navigation Aids	ILS	Fluctuating and poor quality of LLZ and GS signal (RWY 05R)	Sep 2002	The LLZ and GS signals are very unstable and fluctuating		Egypt	*Fourth Quarter 2004*	A

Identification		Deficiencies			Corrective Action			
Requirement 1	**Facilities/ Services** 2	**Description** 3	**Date first reported** 4	**Remarks** 5	**Description** 6	**Executing body** 7	**Date of complete** 8	**Priority for action*** 9
CNS								
IRAN								
AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/4 Conclusion 4/19).	Afghanistan-Iran Kabul-Tehran AFTN Circuit	The circuit is not yet implemented	07/10/1998	VSAT network to be implemented				B
AFTN Main Circuits (LIM MID RAN Rec10/5)	Iran – Kuwait Kuwait – Tehran AFTN Circuit	The circuit is implemented on 100 bauds	19/10/1999		Planned to be upgraded to 9.6K.		*Fourth Quarter 2004*	A
Radio Frequencies	Tehran ACC	123.900 MHz	14/08/2002	Interference with India	Co-ordination is undergoing between ICAO Cairo and ICAO Bangkok	Bangkok Off. Cairo Office Iran India	*Fourth Quarter 2004*	A
	Kerman Shah	119.300 MHz	20/07/2002	Interference with Qatar	Co-ordination is undergoing with Iran. No complain from Qatar	Qatar Iran	*Fourth Quarter 2004*	A
	Bandar Length	122.550 MHz	20/07/2002	Interference with ETDAD Airlines (Abu Dhabi)	Co-ordination with concerned States	Iran UAE	*Fourth Quarter 2004*	A
	Abadan Airport Ahwaz	121.900 MHz	20/07/2002	Interf erence with Basra (Iraq)	Co-ordination with concerned States	Iran Iraq	*Fourth Quarter 2004*	A

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
1	2	3	4	5	6	7	8	9
CNS								
IRAQ								
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading Statistics	22/05/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office.				B

Identification		Deficiencies			Corrective Action			
Requirement 1	**Facilities/ Services** 2	**Description** 3	**Date first reported** 4	**Remarks** 5	**Description** 6	**Executing body** 7	**Date of complete** 8	**Priority for action*** 9
CNS								
JORDAN								
AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/4 Conclusion 4/19).	Jordan-Lebanon Amman-Beirut AFTN Circuit	The circuit is not yet implemented	07/10/1998	Lebanon is ready to implement the circuit				A
AFTN Main Circuits (LIM MID RAN Rec10/5)	Egypt – Jordan Amman – Cairo AFTN Circuit	The circuit is implemented on 50 bauds	19/10/1999	Egypt is ready to up-grade the circuit to 100 bauds or higher if traffic justifies	Egypt will co-ordinate with Jordan for up-grading	Egypt – Jordan	*Fourth Quarter 2004*	A
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading Statistics	22/05/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office.				B

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
1	2	3	4	5	6	7	8	9
CNS								
KUWAIT								
AFTN Main Circuits (LIM MID RAN Rec10/5)	Lebanon – Kuwait Beirut – Kuwait AFTN Circuit	The circuit is implemented on 100 bauds	19/10/1999	The circuit is operating satisfactorily on 200 bauds.	Kuwait is ready to upgrade to higher speed according to the readiness of Lebanon	Kuwait Beirut	*Fourth Quarter 2004*	A
	Iran – Kuwait Kuwait – Tehran AFTN Circuit	The circuit is implemented on 100 bauds	19/10/1999		Planned to be upgraded to 9.6K	Kuwait Iran	*Fourth Quarter 2004*	A
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading Statistics	22/05/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office				B

Identification		Deficiencies			Corrective Action			
Requirement 1	**Facilities/ Services** 2	**Description** 3	**Date first reported** 4	**Remarks** 5	**Description** 6	**Executing body** 7	**Date of complete** 8	**Priority for action*** 9
CNS								
LEBANON								
AFTN Rationalized Plan (LIM MID RAN Rec 6/6, 6/9 and MIDANPIRG/4 Conclusion 4/19).	Jordan-Lebanon Amman-Beirut AFTN Circuit	The circuit is not yet implemented	07/10/1998	Lebanon is ready to implement the circuit		Jordan-Lebanon		A
AFTN Main Circuits (LIM MID RAN Rec10/5)	Lebanon – Saudi Arabia Beirut – Jeddah AFTN Circuit	The circuit is implemented on 100 bauds	19/10/1999	*Lebanon is ready to implement the circuit to either 200 Bauds or 9.6 K*	Planned to be up-graded to 300 bauds	Lebanon – Saudi Arabia	*Third Quarter 2004*	A
	Lebanon – Kuwait Beirut – Kuwait AFTN Circuit	The circuit is implemented on 100 bauds	19/10/1999	The circuit is operating satisfactorily on 200 bauds.	Planned to be up-graded to 300 bauds			A

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
1	2	3	4	5	6	7	8	9
CNS								
OMAN								
ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11**)**	Yemen – Ethiopia-Eritrea – India – Djibouti – Saudi Arabia – Somalia – Oman	All ATS Speech Circuits connecting Sana'a with the following adjacent centres provided by Yemen use speed dial: Addis-Ababa Asmara Mumbai Djibouti Jeddah Mogadishu Muscat	07/10/1998	Sometimes, Communications facilities do not permit communications to be established within 15 seconds	Yemen will be urged to implement Direct Speech Circuits with adjacent centres using dedicated lines ICAO MID Regional Office is following up the matter with ICAO Nairobi Office concerning the African States. Saudi Arabia and Oman are ready to implement a dedicated circuit with Sana'a.			A
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading Statistics	22/05/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office.				B

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
1	2	3	4	5	6	7	8	9
CNS								
QATAR								
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading	22/05/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office.				B
Radio Frequencies	Doha	119.300 MHz			Coordination with concerned States	Qatar Iran	*Fourth Quarter 2004*	A

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
1	2	3	4	5	6	7	8	9
CNS								
SAUDI ARABIA								
AFTN Main Circuits (LIM MID RAN Rec10/5)	Bahrain – Saudi Arabia Bahrain – Jeddah AFTN Circuit	The circuit is implemented on 200 bauds	19/10/1999	The circuit is working satisfactorily	Will be up-graded to CIDIN		*Second Quarter 2004*	A
	Lebanon – Saudi Arabia Beirut – Jeddah AFTN Circuit	The circuit is implemented on 100 bauds	19/10/1999		Planned to be up-graded to 9.6K	Lebanon – Saudi Arabia	*Third Quarter 2004*	A
	Saudi Arabia – Ethiopia Jeddah – Addis Ababa	The circuit is implemented on 50 bauds	19/10/1999	The circuit is not working satisfactorily. Saudi Arabia is ready to up-grade the circuit to higher speed.	ICAO MID Regional Office is following-up the matter with ICAO Nairobi Office			A
ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)	Saudi Arabia – Yemen	*The ATS Speech Circuit connecting to Sanna'a centre uses speed dial*	07/10/1998	Sometimes, Communications facilities do not permit communications to be established within 15 seconds	*Yemen is urged to implement Direct Speech circuit with Jeddah centre*			A

Identification		Deficiencies			Corrective Action			
Requirement	**Facilities/ Services**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Date of complete**	**Priority for action***
	Saudi Arabia – Eritrea – Sudan	The ATS Speech Circuit connecting the following adjacent centres to Jeddah use speed dial: Asmara Khartoum	19/10/1999	Jeddah – Khartoum on speed dial Khartoum – Jeddah on ~~HF~~	ICAO MID Regional Office is following-up the matter with ICAO Nairobi Office. Saudi Arabia is ready to implement the dedicated circuits with Asmara and Khartoum			A
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading Statistics	22/05/1995	Refer to ICAO fax ref. F.ME 165 reminding States to send data to Regional Office.		*Circuit Loading Statistics information is part of a software modification required in the new switching system.*	*Fourth quarter of 2004*	B

Identification		**Deficiencies**			**Corrective Action**			
Requirement 1	**Facilities/ Services** 2	**Description** 3	**Date first reported** 4	**Remarks** 5	**Description** 6	**Executing body** 7	**Date of complete** 8	**Priority for action*** 9
CNS								
SYRIA								
AFTN usage (LIM MID RAN Rec 6/2)		Circuit Loading Statistics	22/05/1995	*DGCA – Syria is upgrading old and installing new AFTN systems. Full Automated AIS System will also be installed in 2004 and statistical data will be available.*				B
Radio Frequencies	Aleppo-VHF	118.100 MHz	03-7-2002	*Various sources of interference*	Co-ordination between State and ICAO Office	*Syria ICAO*	2004	A
	Aleppo-VHF	119.100 MHz	03-7-2002	*Various sources of interference*	Co-ordination between State and ICAO Office	*Syria ICAO*	2004	A

Identification		Deficiencies			Corrective Action			
Requirement 1	Facilities/ Services 2	Description 3	Date first reported 4	Remarks 5	Description 6	Executing body 7	Date of complete 8	Priority for action* 9
CNS								
UAE								
Radio Frequencies	UAE ACC	121.500 MHz	16/07/2002	Unknown Interference	Report was sent to Nat. Telecom. Admin	Follow -up by ICAO and State		A
	UAE ACC	128.250 MHz	26/01/2002	Atmospheric/ Speech	Report was sent to Nat. Telecom Admin	Follow -up by ICAO and State		A
	UAE ACC	129.500 MHz	29/03/2002	Unknown Interference	Report was sent to Nat. Telecom Admin	Follow -up by ICAO and State		A
	UAE ACC	124.850 MHz	24/01/2002	Atmospheric	Report was sent to Nat. Telecom Admin	Follow -up by ICAO and State		A
	UAE ACC UAE ACC	133.550 MHz 119.300 MHz	28-02-2002 29/03/2002	Unknown Interference Doha	Report was sent to Nat. Telecom. Admin Report was sent to Nat. Telecom Admin	Follow -up by ICAO and State Follow -up by ICAO and State		A A
Radio Navigation Aids	Dubai ILS	110.900 MHz	26-03-2002	Unknown Interference	Nat. Telecom. Admin.	Follow -up by ICAO and State		A
	Dubai ILS	110.100 MHz	26-03-2002	Unknown Interference	Nat. Telecom. Admin	Follow -up by ICAO and State		A
	Dubai ILS	111.300 MHz	24-03-2002	Unknown Interference	Nat. Telecom. Admin	Follow -up by ICAO and State		A

Identification		Deficiencies			Corrective Action			
Requirement	Facilities/ Services	Description	Date first reported	Remarks	Description	Executing body	Date of complete	Priority for action*
	Dubai ILS	109.500 MHz	22-03-2002	Unknown Interference	Nat. Telecom. Admin	Follow -up by ICAO and State		A
	AL Ain	129.150 MHz	25-06-2002	Kish Air Dispatch	Nat. Telecom. Admin	Follow -up by ICAO and State		A

Identification		Deficiencies			Corrective Action			
Requirement 1	Facilities/ Services 2	Description 3	Date first reported 4	Remarks 5	Description 6	Executing body 7	Date of complete 8	Priority for action* 9
CNS								
YEMEN								
ATS Speech Circuit Plan (LIM MID RAN Conclusion 6/11)	Yemen – Ethiopia- Eritrea – India – Djibouti – Saudi Arabia – Somalia – Oman	All ATS Speech Circuits connecting Sana'a with the following adjacent centres provided by Yemen use speed dial: Addis-Ababa Asmara Mumbai Djibouti Jeddah Mogadishu Muscat	07/10/1998	Sometimes, Communications facilities do not permit communications to be established within 15 seconds	Yemen will be urged to implement Direct Speech Circuits with adjacent centres using dedicated lines ICAO MID Regional Office is following up the matter with ICAO Nairobi Office concerning the African States. Saudi Arabia and Oman are ready to implement a dedicated circuit with Sana'a.			A

- DRAFT-

MID REGIONAL AFTN CONTINGENCY PLAN

Document Reference:	MIDANPIRG AFS/ATN - TF
Author:	AFS/ATN Task Force
Revision Number:	Version 0.2 / 2004
Date:	April 2004

CNS/MET SG/6
Appendix 5B to the Report on Agenda Item 5

1. INTRODUCTION

1.1 The MIDANPIRG has included in the AFS/ATN Task Force work programme a task to study and develop a Contingency Plan for the AFTN in case of major failure. The AFS/ATN Task Force at its eight meeting agreed to develop the document based on multiple-failure scenarios of which to be assessed in order to work-out the recovery measures. The contingency Plan Document concerns only the AFTN part of the Aeronautical Fixed Services.

1.2 The Document is divided into (*3*) Sections and each section describes specific scenarios of failures with associated Contingency Plan.

Annex (A) contains the middle East AFTN Rationalized Plan
Annex (B) contains the communication Chart showing the exi sting AFTN Circuit
Annex (C) contains the MID AFTN Routing Directory
Annex (D) contains list of equipments systems and back-up services at each center
Annex (E) contains definition/glossary of abbreviations and terms

2. GENERAL

2.1 AFTN Regional Contingency Plan

2.1.1 A contingency plan for resumption of AFTN service should describe how the Region plans to respond to failures that disrupt its normal operations. Disruptions could be minor or may include events where the function of the AFTN centres or communication services cannot be performed and may not be performed for an extended period of time. This, in turn, would not only disrupt the AFTN communications within the region and outside the region but would also have impact on the safety of air traffic *as well*. Therefore, with the proper plan in place, the region should become confident that the AFTN communication would continue when unforeseen failures cause serious interruption on the AFTN services.

2.2 AFTN Service Modes of Failure

2.2.1 The Aeronautical Fixed Telecommunications Network (AFTN) has two levels of responsibilities both national and international. There are three important elements that would accomplish the task of a message being transmitted from the originator to the addresses as follows:

a. Automated Message Switching System

b. Terrestrial link between the airports and the PTT's/other local links

c. International circuits

2.2.2 Failure of any element of the above would result in an outage and, therefore, the communications centre whether an entry/exit point, main or tributary AFTN centers would be isolated from the network and, hence, the AFTN message traffic flow is affected.

2.3 Identification of the impact of the failure modes

2.3.1 Failure of the Automated Message Switching System

2.3.1.1 Total failure of the Message Switching System. (Entry/Exit and Main Centres): if the message switching system becomes subject to a major failure at one of the Entry/Exit points or one of the Main Centres, the impact would be:

- absence of the centre from the network
- inability to transmit originated messages
- inability to receive addressed messages
- inability to route/relay intra-regional traffic
- inability to route/relay inter-regional traffic

2.3.1.2 Total failure of the Message Switching System (Tributary Stations). This failure would have less risk than the above since the tributary stations normally have less responsibilities than the centres specified above. Therefore the impact would be reduced to:

- absence of the station from the network
- inability to transmit originated messages
- inability to receive addressed messages

2.3.1.3 In both cases above, it is considered that the terrestrial links between the airports and local PTT's, and the international circuits are operating *normally*.

2.3.2 Failure of terrestrial links between the AFTN Communication centres at the airports and the local PTT.

2.3.2.1 The terrestrial links between the airports and the local PTT's may have different configurations in different countries, therefore, the impact may also differ as below:

- A configuration, which is based on the aggregate landline link with multiplexing technique, is normally common and cost effective. The loss of the aggregate link may result in the isolation of AFTN centre, whether Entry/Exit, Main or Tributary. *Since* the impact would be the same as described above, the centres should apply the contingency plan *accordingly*. However, the provision of back-up facilities would mitigate the risk of loss of communication. *In this regard*, States should arrange for the provision of the back-up communication links and activate *them* in case of the failure of the main links.

- Communication links between the PTT's and the airports that would have different form from that specified in (1) above.

2.3.2.2 In this case, it is considered that the automatic message switching system and the international circuits at the PTT's are operating *normally*.

2.3.3 Failure of international circuits between the centres

This type of failure would have different scenarios:

- Failure of international circuits between entry/exit points, intra-regional
- Failure of international circuits between entry/exit points, inter-regional
- Failure of international circuits between entry/exit points and main centres

- Failure of international circuits between entry/exit points and tributary stations
- Failure of international circuits between main centres and tributary stations

2.3.3.1 The impact of the above failures may consequently cause loss of a single connection and in this case, a diversion procedure would apply if available as specified in the MID regional routing directory. This is considered to be a normal outage, which occurs, and a normal practice is applied. However, failure of main cables, satellite links that serve a group of States for a long period of times, especially between entry/exit points and main centres would have a major impact on the flow of the AFTN traffic and in turn affects the safety of air traffic.

2.3.3.2 While assessing the impact of the above failures, it should be considered that the messages switching systems and the terrestrial links between the local PTT's and the airports are operating *normally*.

SECTION 1

MIDDLE EAST AFTN INTER-REGIONAL ENTRY/EXIT POINTS

There are three interfaces to the MID Region

- interface A (MID - EUR)
- interface B (MID - AFI)
- interface C (MID - ASIA/PAC)

1. INTERFACE (A) MID - EUR

1.1 The entry/exit points between the Middle East and Europe are: Cairo/Athens, Beirut/Nicosia (CIDIN links) and Kuwait/Rome (AFTN link).

- In the event of failure of any of entry/exit points, the traffic to EUR should be routed via the remaining entry/exit points.

- In the event of failures of all entry/exit points, the traffic to EUR should be routed via any available bilateral circuit between MID and EUR regions (Bahrain/Nicosia, ~~*Kuwait/Rome*~~ and Jeddah/Nicosia AFTN circuits).

2. INTERFACE (B) MID - AFI

2.1 The entry/exit points between the Middle East and AFI Regions are: Cairo/Nairobi, Cairo/Tunis and Jeddah/Addis-Ababa.

- In the event of failure of any of entry/exit points, the traffic to AFI should be routed via the remaining entry/exit points.

- In the event of failures of all entry/exit points, the traffic to AFI should be routed via the EUR gateways entry/exit points with the northern periphery of the AFI region (Rome, Paris and Madrid) to disseminate traffic to D, F, and G areas according to the proposal agreed by the AFSG/2 (Paris 19-23 April 1999)

3. INTERFACE (C) MID-ASIA/PAC

3.1 The entry/exit points between the Middle East and ASIA-PAC Regions are: Bahrain/Singapore, Kuwait/Karachi and Muscat/Mumbai.

- In the event of failure of any of entry/exit points, the traffic to ASIA/PAC should be routed via the remaining entry/exit points.

- In the event of failures of all entry/exit points, the traffic to ASIA-PAC should be routed via any available bilateral circuit between MID and ASIA-PAC regions (~~*Muscat/Karachi and*~~ Tehran/Karachi AFTN circuit)

SECTION 2

MIDDLE EAST AFTN INTER-REGIONAL AFTN SERVICE

Communication between main centres

The following should be designated main centres that *route* the AFTN messages within the Middle East Region:

- Bahrain
- Beirut
- Cairo
- Jeddah
- Kuwait
- Muscat

~~Scenario (1)~~

AFTN Main COM Centres

A Main AFTN COM Centre should have a different stand-alone PC-based terminal or standby message switching system with essential functionality, for immediate use when the main equipment fails.

The SITA message network should be used, where available, where a stand-alone PC-based standby system is not available.

In the event of failure of the PTT system, Satellite based communications systems located at the centre should be used where available.

In the event of failure of a main trunk circuit between centres, the normal alternate routing as specified in the MID routing directory will occur.

In the event of unavailability of alternate routing, AFTN messages should be routed through the following facilities in order of preference depending on the availability of services:

a) A stand alone PC-based terminal or a standby MSS with AFTN terminal
b) Fax or IDD voice (limited to handle essential operational messages)
c) Telex (limited to handle essential operational messages)
d) SITA (e.g. by sending messages via SITA facilities, such as in an airline office through bi-lateral arrangements, where such a system does not exist).
e) Sat phone link - voice and data
f) E-Mail

In the event of failure of an AFTN COM Centre's equipment, the adjacent centres should:

i) relay transit traffic via alternate routing

ii) store destination traffic to the failed centre until restoration of a system. Essential operational messages shall be transmitted through any other acceptable means of handling of the messages.

~~Scenario (2)~~

AFTN Tributary COM Centres

Alternative links for AFTN Tributary COM Centres shall be determined by a State and reflected in a national plan or in letters of agreement.

In addition to fax and/or IDD voice capabilities, each AFTN Tributary COM Centre should have a stand-alone AFTN terminal to allow basic AFTN communications to be re-established to the main AFTN COM Centre serving that station.

In the event of failure of an AFTN Tributary COM Centre connected to a main AFTN COM centre, normal outage procedures will initially apply. Fax and IDD phone may be used to relay messages from the main centre.

In the event of a prolonged outage, AFTN messages should be routed through the following service facilities in order of preference depending on the availability of services:

a) Stand-alone AFTN terminal
b) Fax or IDD voice
c) Telex
d) SITA (e.g. by sending messages to the nearest SITA terminal such as in an airline office at the airport)
e) Satphone link - voice and data
f) HF air-ground voice channel (for ground to ground communication)
g) E-Mail

Phone, Fax and Telex numbers for AFTN Tributary COM Centres and the main AFTN COM centre must be exchanged in advance. SITA and E-mail addresses must be advised where these facilities are available.

~~Scenario (3)~~

Traffic Handling

In critical situations, contingency measures and constraints need to be imposed and a traffic handling strategy must be developed. This is to avoid impact of traffic volumes taking into account the increased risk of multiple failures, and to aim at ensuring continuity of air traffic services operations under normal or close to normal circumstances.

1- ATS Messages

a) States, airspace users and other organizations mandated to carry-out airlines tasks shall undertake to submit flight plans 12 hours in advance of their estimated times of departure of the UTC times.

b) RPLs should be ceased.

c) Collective address messages should not be used

2- MET Messages:

a) OPMET routine messages and forecasting messages with long-term effect shall be ceased at least 6 hours before the critical time.

b) Starting from time 1800 UTC, OPMET data exchange shall be limited to information supporting aircraft operations needed for flight safety and in the following order SIGMETS, TAF AMD, AIREPS, METARS and SPECI.

c) Requests from data banks should be ceased during the contingency plan.

d) Collective address messages should not be used.

3- AIS Messages:

a) Only messages with immediate effect declaring status of aeronautical facilities and airports shall be permitted.

b) Collective address messages should be ceased, but individual and multi-address messages are acceptable within the scope of a) above.

c) Updating procedures either nationally or internationally shall be ceased.

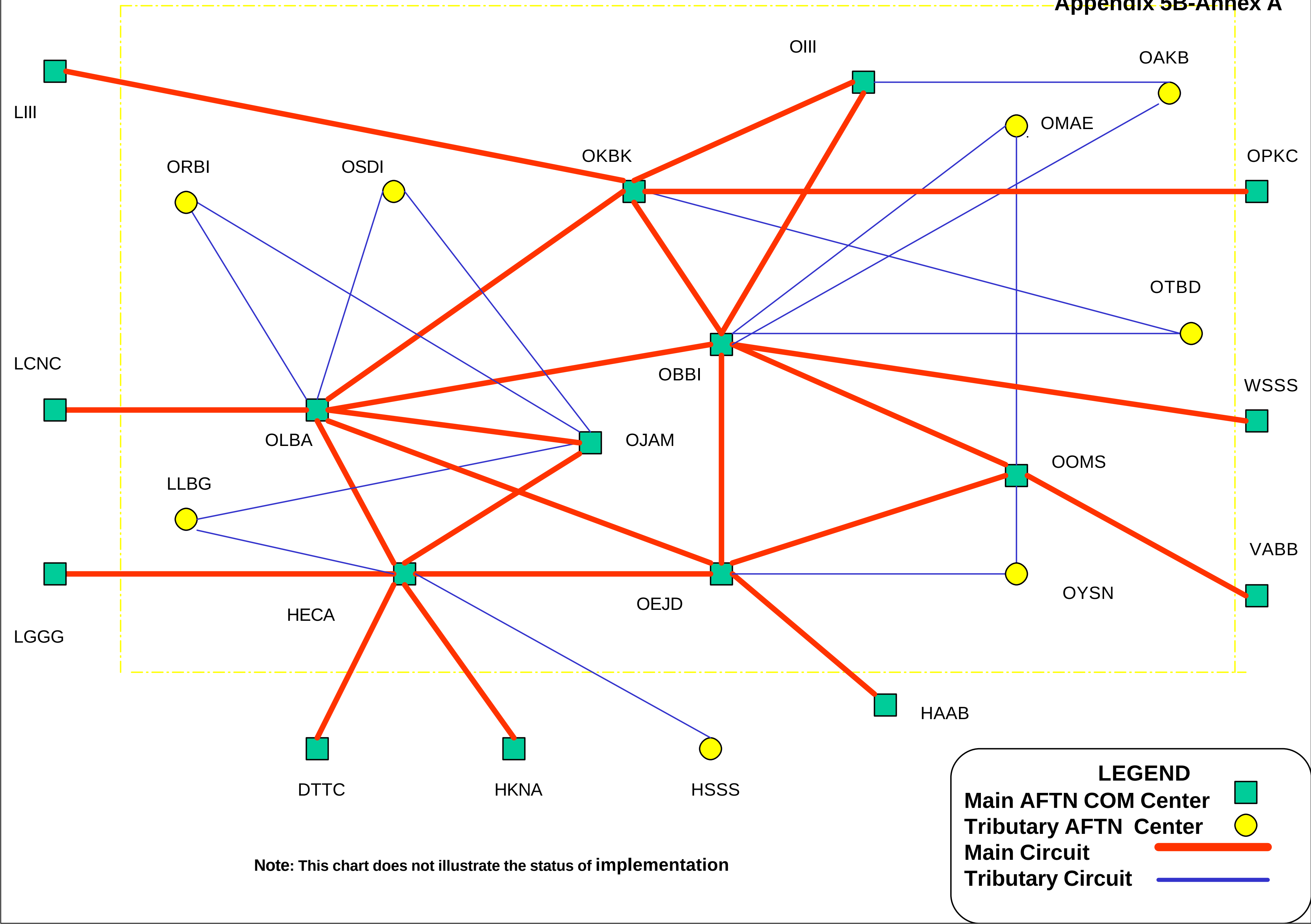
4- AOA Messages:

Aircraft operating agencies and organizations mandated for airlines tasks shall assist ICAO and States to activate their contingency plans and limit their use of the AFTN network to messages of immediate concern to aircraft in flight or about to depart.

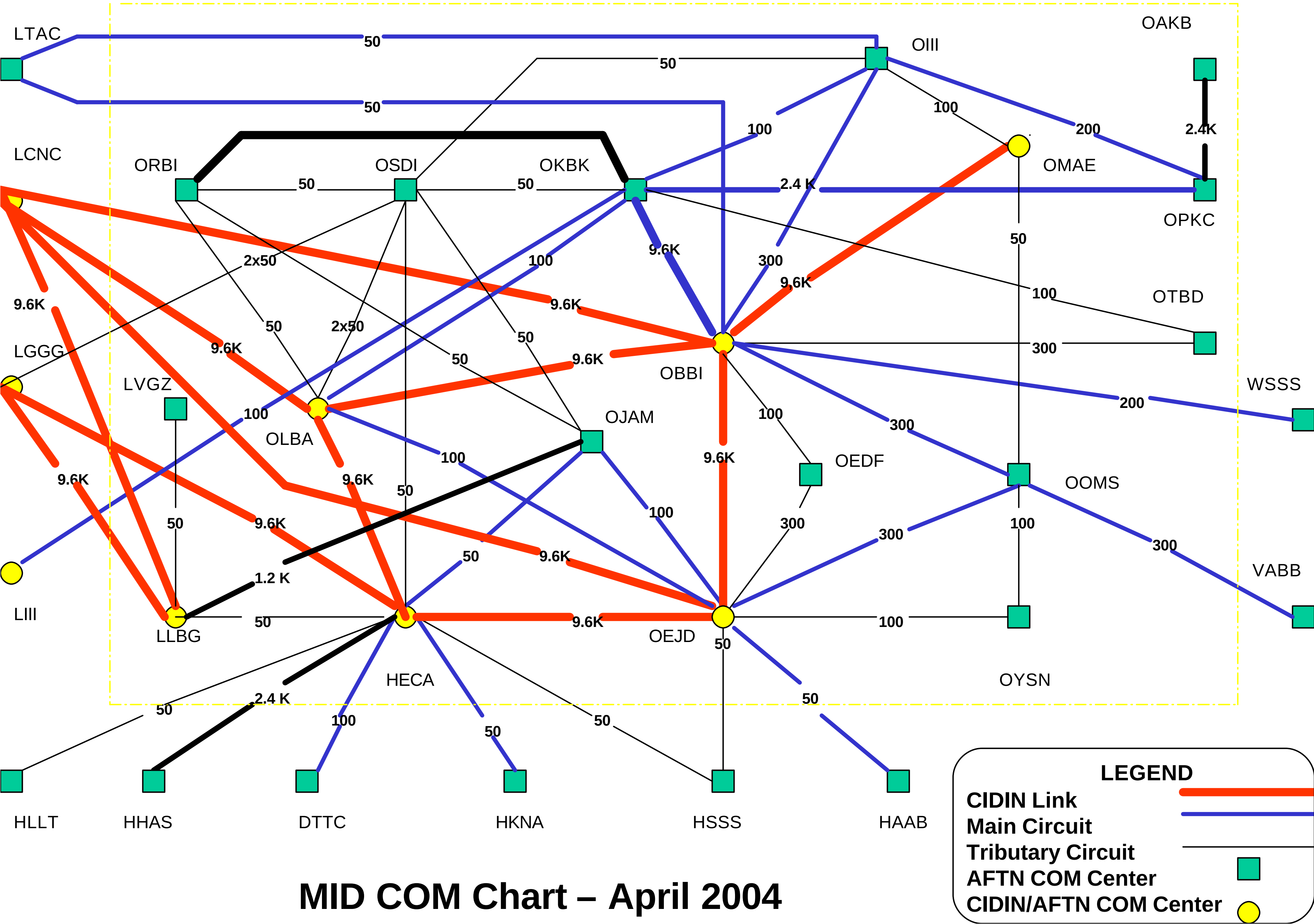
SECTION 3

To be developed

CNS1 - Rationalized AFTN Plan for the MID Region



Note: This chart does not illustrate the status of implementation



MID COM Chart – April 2004

AFTN SYSTEMS

State	Designation Entry/Exit Main Tributary	AFTN System Model Supplier	Year of Installation	Upgrade Plans	Back-up Services	Remarks
Bahrain	Entry/Exit Main	AERMAC THALES	1996	New AMSS AFTN/CIDIN with AMHS gateway	- Stand-alone AFTN terminal - SITA - Telex - Fax - E-Mail	
Iran	Main	SHARIF 2000 (Iran Sharif University)	2000	New AFTN/CIDIN AMSS with AMHS gateway Data Base toward ATN planned in 2004	- Stand-alone AFTN terminal - SITA - Telex - FTP Server - Telephone - Fax - E-mail	One Principal COM Centre One Back up COM Centre COM Sub Center No.1 COM Sub Center No. 2
Iraq	Tributory	Computer Network Design	2004	Planned to be replace with ATN	- Telephone - Fax - E-mail	
Jordan	Main	Messir + Global Weather for AIS and internal station	1996 2003	Global Weather system AFTN/ATN	- Stand-alone AFTN terminal - SITA - Fax - E-mail	
Kuwait	Entry/Exit Main	UBIMEX Fully Automatic ATN Compatible AFTN message switch UBITECH Systems Inc.	April 2004	Planned to add new ATN Software capabilities as they become available	- Stand-alone AFTN terminal - SITA - Telex - Fax - E-Mail	

State	Designation Entry/Exit Main Tributary	AFTN System Model Supplier	Year of Installation	Upgrade Plans	Back-up Services	Remarks
Oman	Entry/Exit Main	SAGEM AMS 1500	1993 upgraded in 2000	Planned to be replaced with ATN compliant system	- Stand-alone AFTN terminal - Telephone - Fax - E-mail	
Pakistan	Entry/Exit Main	ARGUS-700 Ferrantti International UK	1990	Planned to replace with upgraded version having AMHS and other ATN Systems	- Point to point voice HFRT - Telex - Fax - E-mail	
Saudi Arabia	Entry/Exit Main	AFTN/CIDIN Global Weather Dynamics (GWDI)	Dec 2002	To be confirmed	- Stand-alone AFTN terminal - SITA - Fax - E-mail	
Syria	Tributary	PHILIPS DS 790 Holland	1990	New system with Data base planned in half 2004	To be confirmed	
Yemen	Tributary	ECIL (Electronics Corporation of India Limited)	2002	To be confirmed	- Stand-alone AFTN terminal - Fax - E-mail	

REPORT ON AGENDA ITEM 6: ANY OTHER BUSINESS

6.1 The meeting noted with satisfaction that many States attended this meeting, compared to the previous ones. This trend should be encouraged so that to strengthen the efforts of the Region tending to tackle deficiencies and to progress towards new technologies. The future participation in the meeting of the neighboring States from ASIA/PAC Region could also be beneficial, for a better coordination process between centers.

6.2 The meeting was informed that Jordan was still arranging the hosting of the MID ATN Seminar, in coordination with ICAO Office. The approved date will be communicated in due time, probably before the end of year 2004.

CNS/MET SG/6
Attachment A to the Report

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