



International Civil Aviation Organization

**Aeronautical Telecommunication Network/Internet
Protocol Suite Working Group**

Fourth Meeting (ATN/IPS WG/4)
(Cairo, Egypt, 21 - 23 May 2012)

Agenda Item 3: Review and update of MID ATN plans and Implementation issues

AFTN/CIDIN ROUTING DIRECTORY AND UPDATE OF MID FASID CNS PART

(Presented by the Secretariat)

SUMMARY

This paper presents the use of AMC for collecting and publication of some CNS FASID tables also provides information on Asymmetric routing issues.

Action by the meeting is at paragraph 3.

REFERENCES

- MIDANPIRG/13 Reports
- SL AN 7/49.1-09/34 and AN 7/5.1 – 11/016

1. INTRODUCTION

1.1 MIDANPIRG/13 meeting was held in Abu-Dhabi, UAE 22-26 April 2012. The meeting adopted 71 Conclusions and Decisions of which six (6) Conclusions and two (2) Decisions are considered relevant to the work of the ATN-IPS Working Group.

2. DISCUSSION

2.1 The meeting may wish to recall that a periodical data collection and publication in the MID ANP FASID for the AFTN/CIDIN/AMHS circuits and other related information is a human resource extensive task and would need to be supported by electronic tools, e.g. centralized database. In this context the meeting was apprised that AFTN/CIDIN/AMHS international connectivity information was maintained in ICAO EUR Region by EUROCONTROL in the AMC. Consequently, the meeting agreed that ICAO MID Regional Office request EUROCONTROL for the possibility to extend these tools to ICAO MID Region.

2.2 Based on the above, MIDANPIRG/13 meeting suggested that MID States could utilize EUR-AMC to obtain some of the information electronically. Consequently, the meeting urged MID State to access the AMC website <http://www.eurocontrol.int/amc> and keep all information related to their States updated. Accordingly, MIDANPIRG/13 meeting agreed to the following Conclusion:

CONCLUSION 13/25: UPDATE THE AMC SYSTEM

That, States be urged to keep the data related to their COM CENTER updated in the EUR-AMC system.

2.3 MIDANPIRG/13 meeting was updated on the MID AFTN/CIDIN routing directory and agreed that the ICAO MID Regional Office coordinate with Jordan for the population of the MID AFTN/CIDIN routing directory in the MID-AMC when operational, also post the directory in the ICAO MID website. Accordingly, the meeting agreed to the following Conclusion:

CONCLUSION 13/26: MID AFTN/CIDIN DIRECTORY

That, ICAO MD Regional Office:

- a) take necessary steps with Jordan to populate the MID AFTN/CIDIN Directory in the MID-AMC; and*
- b) post the MID AFTN/CIDIN Directory in the ICAO MID Website.*

2.4 The meeting may wish to note that Asymmetric routing may cause loss of messages due to the fact that a gateway cannot map a Non-Delivery Report to a subject message and noted that Singular AMHS diversion for an area representing several Private Management Domains (PRMDs) is substantial and cannot be performed by one letter as used in AFTN, to facilitate a diversion from AFTN to AMHS and vice versa.

2.5 Based on the above, MIDANPIRG/13 meeting urged MID AMHS COM Centres to review the current routing tables and make sure of deploying symmetric routes where possible, also encouraged MID States to make use of the corresponding PRMDs table to facilitate diversion from AFTN to AMHS and vice versa. Furthermore, the meeting agreed that States start the PRMD with the first two letters for their location indicator. Accordingly, the requirement for an easy access to an updated PRMD files is necessary, in this regard the meeting noted that Jordan volunteered to keep the PRMD file updated on their website: http://www.carc.gov.jo/inner_en.php?menu=3&id=17.

2.6 The meeting may wish to recall that Trilateral AMHS Tests have been performed between Amman, Cairo, and Jeddah. The meeting noted with appreciation that the AMHS triangle was put into operation, and was the first AMHS triangle world-wide that uses static routing with pre-defined routing tables.

2.7 The meeting may wish to note that Bahrain, Egypt, Jordan, Oman, Qatar, Saudi Arabia, and United Arab Emirates installed and operated AMHS systems while other MID States are in the process of installing new AMHS systems.

2.8 Based on the above, developments the meeting may wish to review the information contained in the MID Regional Air Navigation Plan (Doc 9708), Volume II Facilities and Services Implementation Document (FASID) Tables related to CNS as at **Appendix A** to this working paper.

2.9 The meeting may wish to note that MIDANPIRG/13 agreed to the establishment of an Ad-hoc Working Group tasked with the development of a revised version of the MID ANP (both Basic ANP and FASID), in accordance with MIDANPIRG Decision 12/49 and agreed accordingly to the following Decision:

*DECISION 13/32: ESTABLISHMENT OF THE MID AIR NAVIGATION PLAN
AD-HOC WORKING GROUP (ANP WG)*

That, the MID Air Navigation Plan Ad-hoc Working Group (ANP WG) be established to fulfil the requirements set up by MIDANPIRG through Decision 12/49.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) provide feedback as in conclusion 13/25 related to their State;
- b) provide views on para 2.5; and
- c) provide update to **Appendix A** to this working paper.

Part IV

COMMUNICATIONS - NAVIGATION - SURVEILLANCE (CNS)

1. Introduction

1.1 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.

1.2 This Part contains a detailed description/list of the facilities and/or services to be provided to fulfill 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.

1.3 States concerned should take urgent action to implement the main COM centres and trunk circuits of AFTN plan described in FASID Table CNS 1A, and implement/promulgate, as soon as practicable, the tributary centres and circuits of the AFTN plan in co-ordination with the States responsible for the corresponding main COM centres.

1.4 States, as a matter of urgency should take action to implement the ATS direct speech plan. Adequate backup facility shall be provided to insure the continuity of the circuit. (FASID Table CNS 1D)

1.5 Where other than dedicated bilateral links are used by the MID-ATN Network, the priority of implementation, should ensure high availability, in restoration of service and appropriate levels of security.

1.6 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

1.7 States should implement ATN routers and communication links in accordance with ATN Plan Table CNS 1C – ATN Plan.

1.8 taking into account that the use of global communications, navigation and surveillance systems is based on assigning exclusive aircraft addresses composed of 24-bit for ACAS, ELT, SSR Mode S, and ATN with VDL, AMSS and other functionality, MID States to apply the procedure established by ICAO to identify aircraft assigned 24-bit aircraft addresses in accordance with Annex 10, Volume III, Part I, Chapter 9, Global plan for the allocation, assignment and application of aircraft addresses which has the list of assigned addresses to MID States.

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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

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Chart CNS 2- HF en route radiotelephony network

Appendix to Chart CNS 2 indicates the ITU allotment area

2.2 *Navigation*

2.2.1 Table CNS 3 - Table of radionavigation Aids

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

Chart CNS 3A - En-route radionavigation aids

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2.3 *Surveillance*

2.3.1 Table CNS 4 - Surveillance Systems

Appendix A to table CNS 4 shows the allocated IC code for the Mode S Radar.

Chart CNS 4 - Radar facilities

TABLE CNS 1A - RATIONALIZED AFTN PLAN FOR MID REGION

(All circuits should be implemented using LTT)

*EXPLANATION OF THE TABLE***Column :**

1 The AFTN Centers/Stations of individual State are listed alphabetically. Each circuit appears twice in the table.

2 Category of circuit

M – Main trunk circuit connecting Main AFTN communication centers.

T – Tributary circuit connecting Main AFTN center and tributary center.

S – AFTN circuit connecting an AFTN Station to an AFTN center.

3 and 7 Type of circuit provided

LTT/a – Landline teletypewriter, analogue (eg. cable, microwave)

LTT/d – Landline teletypewriter, digital (eg. cable, microwave)

LDD/a – Landline data circuit, analogue (eg. cable, microwave)

LDD/d – Landline data circuit, digital (eg. cable, microwave)

SAT/ad – Satellite link, with/ a for analogue or d for digital

4 and 8 Circuit signaling speed, current or planned in bits/s

5 and 9 Circuit protocols, current or planned

6 and 10 Data transfer code (syntax), current or planned.

ITA-2 – International Telegraph alphabet No.2 (5-unit Baudot code).

IA-5 – International Alphabet No.5 (ICAO 7-unit code)

CBI – Code and Byte Independency (ATN compliant)

11 Target date of implementation

TBD – To be determined

12 Remarks, VPN (Virtual Private Network)

Table CNS 1A – 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 BEIRUT DOHA JEDDAH KABUL KUWAIT MUSCAT SINGAPORE TEHRAN	M M T M T M M M M M		64 – 96 bps 9600 bps 64 – 96 bps 64 – 96 bps -- 64 – 96 bps 300 baud 9600 bps 64 – 96 bps	CIDIN CIDIN None None None None	IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5	SAT/d	64k bps 64k bps	AMHS AMHS AMHS	CBI CBI CBI	† 3 rd QTR 2010 † 3 rd QTR 2010 † 3 rd QTR 2010 † 3 rd QTR 2010	Bahrain ready
EGYPT CAIRO AMMAN ATHENS BEN GURION BEIRUT JEDDAH KHARTOUM NAIROBI TUNIS TRIPOLI TRIPOLI DAMASCUS	M M T M M T M M M M M M M		64/9.6 64/9.6 64/9.6 9600 128/9.6 9600 9600 64/9.6 64/19.2 9600 64/9.6	None CIDIN None CIDIN CIDIN None None None None None None	IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5 IA-5	128 K				2010 2010 2010 2010 2010 2010 2010 2010 2010	Backup
IRAN TEHRAN BAHRAIN KABUL KUWAIT ABU-DHABI	M T M		64 Kbps - 64 Kbps	None None	IA-5 IA-5	SAT/d					Bahrain ready

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
IRAQ BAGHDAD AMMAN BEIRUT	T T		- -	None None	IA-5 IA-5						
JORDAN AMMAN BAGHDAD BEIRUT BEN GURION CAIRO DAMASCUS JEDDAH	T M T M T S T		- - 1200 64/9.6 64/9.2 64/19.2	- - None None None None	- - IA-5 IA-5 IA-5		- -		2010 2010	Circuit not operational	
KUWAIT KUWAIT BAHRAIN DAMASCUS BEIRUT DOHA (EUR) KARACHI TEHRAN BAGHDAD	M T M M - M M T	LDD/d LDD/a LDD/a LDD/a	64/9.6 bps 50 BD 100 baud 64/9.6 bps	None None None None	I A-5 ITA-2 ITA-2 IA- 5	LDD/d LDD/d	64/9.6 kbps 64/9.6 kbps		IA-5 IA-5	July 2010 July 2010	In progress In progress
LEBANON BEIRUT AMMAN BAGHDAD BAHRAIN CAIRO DAMASCUS JEDDAH KUWAIT NICOSIA	M T M M T M M M		- - 9600 9600 2 x 50 bd 9600 100 BD 9600	- None CIDIN CIDIN None CIDIN None CIDIN	- - IA-5 IA-5 ITA-2 IA-5					2010	

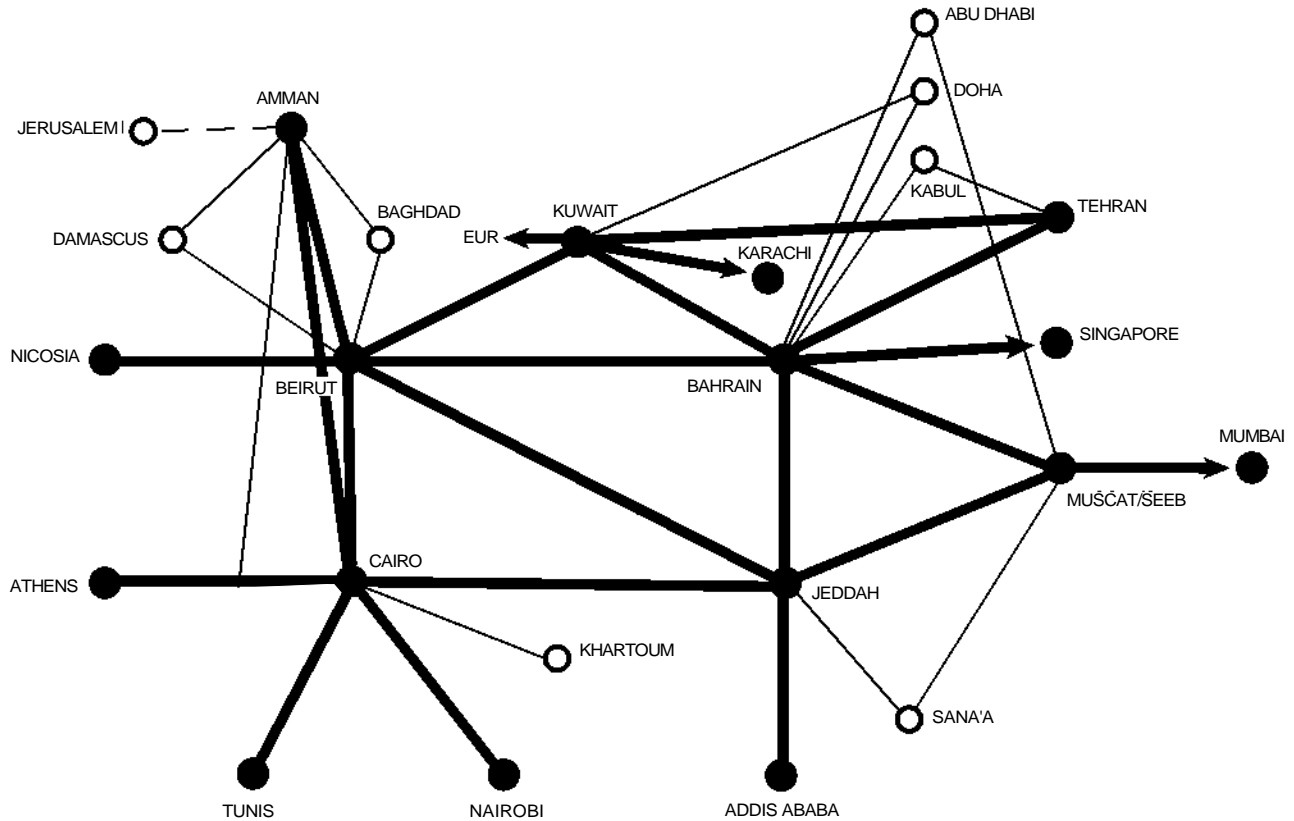
State/Station	Cat	Current				Planned				Target date of implementation	Remarks
		Type	Signaling Speed	Protocol	Code	Type	Signaling Speed	Protocol	Code		
1	2	3	4	5	6	7	8	9	10	11	12
OMAN MUSCAT ABU DHABI BAHRAIN MUMBAI JEDDAH SANA'A	T M M M T		9600 300 BD 9600 300 BD 100 BD	AMHS None None None None	IA-5 ITA-2 ITA-2 ITA-2						
QATAR DOHA BAHRAIN KUWAIT ABU DHABI	M M T		9600 100 BD 9600	None None AMHS	IA-5 ITA-2						
SAUDI ARABIA JEDDAH ADDIS-ABABA BAHRAIN BEIRUT CAIRO MUSCAT SANA'A AMMAN	M M M M M T		9600 64 /9.6 9600 128/9.6 300 9600	None CIDIN CIDIN CIDIN None None	IA-5 IA-5 IA-5 IA-5 ITA-2 IA-5		9600			2010	
SYRIA DAMASCUS ATHENS AMMAN BEIRUT CAIRO KUWAIT TEHRAN	M T M M M T		2 X 50 64/9.6 2 X 50 50 BD 50BD 50BD	None None None None None None	ITA-2 ITA-2 ITA-2 ITA-2 ITA-2		9600 bps 9600 bps 9600 bps 9600 bps 9600 bps			2010 2009 2010 2009 2009 2010	

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
UAE ABU DHABI BAHRAIN AMMAN MUSCAT QATAR TEHRAN	M T M M		64 – 96 bps 2 MG bps 9600 bps 64 – 96 bps	CIDIN AMHS None None	IA-5 IA-5 IA-5			AMHS AMHS	CBI CBI		Secured VPN
YEMEN SANA'A JEDDAH MUSCAT	M M		9600 9600	None None	IA-5 IA-5						

RATIONALIZED AFTN PLAN FOR MID REGION SHOWING MAIN AFTN CENTRES AND TRIBUTARY CONNECTIONS
 PLAN DU RSFTA RATIONALISÉ POUR LA RÉGION MID (CENTRES RSFTA PRINCIPAUX ET LES LIAISONS TRIBUTAIRES)
 PLAN RACIONALIZADO DE LA AFTN PARA LA REGIÓN MID (CENTROS PRINCIPALES AFTN Y ENLACES TRIBUTARIOS)
 خطة مرشدة لشبكة اتصالات الطيران الثابتة لاقليم الشرق الأوسط تبين المراكز الرئيسية لشبكة اتصالات الطيران الثابتة ووصلاتها الرافدة

MID FASID

CHART CNS 1A



LEGEND LÉGENDE CLAVE شرح		
MAIN AFTN COM CENTRE CENTRE DE COMMUNICATION RSFTA PRINCIPAL CENTRO PRINCIPAL COM AFTN مركز اتصالات رئيسي لشبكة اتصالات الطيران الثابتة		●
TRIBUTARY AFTN COM CENTRE CENTRE DE COMMUNICATION RSFTA TRIBUTAIRE CENTRO TRIBUTARIO COM AFTN مركز اتصالات رافدة لشبكة اتصالات الطيران الثابتة		○
MAIN CIRCUIT CIRCUIT PRINCIPAL CIRCUITO PRINCIPAL دائرة رئيسية	(M)	—
TRIBUTARY CIRCUIT CIRCUIT TRIBUTAIRE CIRCUITO TRIBUTARIO دائرة رافدة	(T)	—
AFTN CIRCUIT CONNECTING AN AFTN STATION TO AN AFTN CENTER CIRCUIT DU RSFTA RELIANT UNE STATION DU RSFTA À UN CENTRE DU RSFTA CIRCUITO AFTN QUE CONECTA UNA ESTACIÓN AFTN CON UN CENTRO DE COMUNICACIONES AFTN دائرة شبكة الاتصالات الثابتة للطيران التي تربط محطة للشبكة المذكورة بمركز لتلك الشبكة	(S)	- -

TABLE CNS 1B**MID Aeronautical Message Handling System (AHMS) Implementation Plan**

EXPLANATION OF THE TABLE

Column

- 1 *Name of State*
- 2 *Date of installation of AMHS – Aeronautical Message Handling System*
- 3 *Date of operation of AMHS – Aeronautical Message Handling System*
- 4 *MTA- Message Transfer Agent application*
- 5 *AFTN/AMHS Gateway*
- 6 *ATS Message UA-User Agent*
- 7 *ATS service level*
Basic
Extended
- 8 *Protocol (IPS, ATN)*
Dual Stack
IPS
OSI
- 9 *Remarks*

Notes:

- *The MID Region shall use the Europe EUR AMHS Manual EUR Doc 020 and all its Appendices for the implementation of AMHS*
- *Gateways and Interregional connection will be as agreed.*

Appendix A to Table CNS 1B MID Region AMHS Addresses

State	AMHS Address Specification							
State Name	Nationality Letters or Designator	Country-name attribute	ADMD-name attribute	PRMD-name attribute	Addressing scheme	ATN Directory naming-context	Organization -name (for CAAS only) single value or reference to the CAAS Table	Comments
Bahrain	OB	XX	ICAO	OB	CAAS		see Table OB	confirmed by SL
Egypt	HE	XX	ICAO	HE	CAAS		HECA	confirmed by SL
Iran (Islamic Republic of)	OI	XX	ICAO	OI	XF			confirmed by SL
Iraq	OR	XX	ICAO	OR	XF			
Israel	LL	XX	ICAO	LL	XF			
Jordan	OJ	XX	ICAO	OJ	CAAS		OJAC	confirmed by SL
Kuwait	OK	XX	ICAO	OK	XF			
Lebanon	OL	XX	ICAO	OL	XF			
Oman	OO	XX	ICAO	OO	XF			
Qatar	OT	XX	ICAO	OT	XF			
Saudi Arabia	OE	XX	ICAO	OE	XF			confirmed by SL
Syrian Arab Republic	OS	XX	ICAO	OS	XF			
UAE	OM	XX	ICAO	OM	XF			confirmed by SL
Yemen	OY	XX	ICAO	OY	XF			

**TABLE CNS 1C - AERONAUTICAL TELECOMMUNICATION
NETWORK***EXPLANATION OF THE TABLE***Column :**

- 1** Name of the States/stations or locations of an ATN Routing Domain
- 2** ATN applications in end systems (ES) of the State shown in column **1**
AIDC – ATS Inter-facility Data Communication
AMHS – Aeronautical Message Handling System
Note : AMHS/S denotes an AMHS server
- 3** ATN router type to be implemented at the location shown in Column **1**
BBIS—Backbone Boundary Intermediate System
BIS -- Boundary Intermediate System (router) performing Inter Domain Routing Protocol (IDRP)
IS -- Intermediate System (router) without IDRP
- 4** ATN Routing Domain Address Prefix
- 5** AFTN/AMHS gateway to be implemented at the location shown in column **1**
- 6** List of States routers to be connected with router of column **3**
- 7** The means of connecting the routers of columns **6** and **3**
DIR- Leased direct circuit
- 8** Date of implementation of the ATN facilities and applications, listed in columns **2, 3** and **5**
- 9** Remarks

TABLE CNS 1C - ATN PLAN

STATE/CENTERS	ATN APPLICATIONS	ATN ROUTER TYPE	ATN RD ADDRESS PREFIX	AFTN/AM HS GATEWAY	CONNECTED WITH ROUTER OF	VIA	IMPLEMENTATION DATE	REMARKS
1	2	3	4	5	6	7	8	9
Bahrain Bahrain	AMHS/S AIDC	BIS		X	ASIA/PAC Oman,Saudi Arabia Kuwait,Lebanon Iran, Afganistan Qatar, UAE			
EGYPT Cairo	AMHS/S AIDC	BIS		X	AFI, EUR Israel, Jordan, Lebanon, Athena Saudi Arabia			
IRAN Tehran	AMHS/S AIDC	BIS		X	Kuwait, Bahrain Afganistan			
IRAQ Baghdad	AMHS	IS			Jordan, Lebanon			
JORDAN Amman	AMHS/S AIDC	BIS		X	Egypt,Israel Lebanon,Iraq,Syria			
KUWAIT Kuwait	AMHS/S AIDC	BIS		X	EUR, Pakistan, Iran,Qatar,Bahrain, Lebanon			
LEBANON Beirut	AMHS/S AIDC	BIS		X	EUR Jordan,Syria Iraq,Kuwait,Bahrain Saudi Arabia,Egypt			
OMAN Muscat	AMHS/S AIDC	BIS		X	ASIA/PAC Yemen, Bahrain, UAE, Saudi Arabia			
QATAR Doha	AMHS AIDC	IS			Kuwait, Bahrain			
SAUDI ARABIA Jeddah	AMHS/S AIDC	BIS		X	AFI Egypt, Lebanon Bahrain,Oman Yemen			
SYRIA Damascus	AMHS	IS			Jordan, Lebanon			
U.A.E Abu Dhabi	AMHS/S AIDC	BIS		X	Bahrain, Oman Qatar			
YEMEN Sana'a	AMHS	IS			Oman, Saudi Arabia			

**TABLE CNS 1D - ATS DIRECT SPEECH CAPABILITY TO LINK ADJACENT FIC/ACC
AND ATS UNITS LOCATED OUTSIDE THE CONTROL AREAS OF THESE FIC OR ACC
OR BETWEEN TWR FOR MID REGION**

EXPLANATION OF THE TABLE

Column

- | | |
|-----|---|
| 1&2 | Terminal stations of the circuits are listed alphabetically by the Terminal I station in country order. |
| 3 | A indicates ATS requirement for voice communication which should be established within 15 seconds.
D indicates requirement for instantaneous communications. |
| 4 | Type of service specified:

LTF : landline telephone (landline, cable UHF, VHF, satellite).
RTF : radiotelephone |
| 5 | DIR : indicates that the circuit shown in Terminal I and II is a direct circuit.
SW : indicates that a direct circuit does not exist and that the requirement is to be provided by switching via the switching centre(s) indicated in column 6.
IDD : International direct dialing by public switch telephone network |
| 6 | Location of switching centre(s) |
| 7 | Status of Implementation. Following codes are used in this column:
a) I - if the circuit is implemented
b) No indication or mark if the circuit is not implemented and its implementation data is unknown
c) If the circuit is not implemented but its implementation date is available, this date is indicated in brackets. |
| 8 | Remarks |

Note.. All circuits should be implemented using LTF in MID Region.

IV-CNS 1D-2

MID FASID - CNS 1D

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			STATUS OF IMPLEMENTATION	REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA		
1	2	3	4	5	6	7	8
BAHRAIN							
Bahrain	Emirates ACC	A	LTF	DIR		I	2 LINES
	Dammam	A	LTF	DIR		I	
	Doha	A	LTF	DIR		I	2 LINES
	Jeddah	A	LTF	DIR		I	
	Kuwait	A	LTF	DIR		I	
	Muscat	A	LTF	DIR		I	
	Riyadh	A	LTF	DIR		I	
	Shiraz	A	LTF				
	Tehran	A	LTF	DIR		I	
EGYPT							
Cairo	Amman	A	LTF	DIR		I	
	Athens	A	LTF	DIR		I	
	Jeddah	A	LTF	DIR		I	
	Khartoum	A	LTF				
	Nicosia	A	LTF	DIR		I	
	Tel Aviv	A	LTF	DIR		I	
	Tripoli	A	LTF	DIR		I	
IRAN (ISLAMIC REPUBLIC OF)							
Abadan	Basrah	A	LTF				
	Shiraz	A	LTF	DIR			
Shiraz	Abadan	A	LTF	DIR			
	Bahrain	A	LTF	DIR			
	Basrah	A	LTF				
	Doha	A	LTF	DIR			
	Karachi	A	LTF	DIR			
	Kuwait	A	LTF	DIR			
	Tehran	A	LTF	DIR			

4-CNS 1D-3

MID FASID - CNS 1D

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS				CIRCUIT		STATUS OF IMPLEMENTATION	REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA		
1	2	3	4	5	6	7	8
Tehran	Emirates ACC	A	LTF	DIR		I	II
	Ankara	A	LTF	DIR		I	
	Ashgabat	A	LTF	DIR		I	
	Baghdad	A	LTF				
	Bahrain	A	LTF	DIR		I	
	Baku	A	LTF	DIR		I	
	Basrah	A	LTF				
	Doha	A	LTF	DIR		I	
	Kabul	A	LTF				
	Karachi	A	LTF	DIR		I	
	Kuwait	A	LTF	DIR		I	
	Muscat	A	LTF	DIR		I	
	Shiraz	A	LTF	DIR		I	
	Yerevan/Zvartnots	A	LTF	DIR		I	
IRAQ							
Baghdad	Amman	A	LTF				
	Ankara	A	SAT				
	Basrah	A	LTF				
	Damascus	A	LTF				
	Jeddah	A	LTF				
	Kuwait	A	LTF				
	Mosul	A	LTF				
	Tehran	A					
Basrah	Abadan	A	LTF				
	Baghdad	A	LTF				
	Kuwait	A	LTF				
	Shiraz	A	LTF				
	Tehran	A	LTF				
Mosul	Baghdad	A	LTF				

MID FASID – CNS 1D

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ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			STATUS OF IMPLEMENTATION	REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA		
1	2	3	4	5	6	7	8
JORDAN							
Amman	Baghdad	A	LTF				
	Cairo	A	LTF			I	
	Damascus	A	LTF			I	
	Jeddah	A	LTF			I	
	Tel Aviv	A	LTF				
KUWAIT							
Kuwait	Baghdad	A	LTF				
	Bahrain	A	LTF	DIR		I	
	Basrah	A	LTF				
	Jeddah	A	LTF	DIR		I	
	Shiraz	A	LTF	DIR		I	
	Tehran	A	LTF	DIR		I	
LEBANON							
Beirut	Ankara	A	LTF	DIR		I	
	Damascus	A	LTF	DIR		I	
	Nicosia	A	LTF	DIR		I	
OMAN							
Muscat	Emirates ACC	A	LTF	DIR		I	
	Bahrain	A	LTF	DIR		I	
	Mumbai	A	LTF	DIR		I	
	Jeddah	A	LTF	DIR		I	
	Karachi	A	LTF	DIR		I	
	Salalah	A	LTF	DIR		I	
	Sana'a	A	LTF	DIR		I	
	Tehran	A	LTF	DIR		I	
	Salalah	Muscat	A	LTF			
QATAR							
Doha	Emirates ACC	A	LTF	DIR		I	11+ 1
	Bahrain	A	LTF	DIR		I	
	Shiraz	A	LTF	DIR		I	
	Tehran	A	LTF	DIR		I	

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MID FASID - CNS 1D

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			STATUS OF IMPLEMENTATION	REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA		
1	2	3	4	5	6	7	8
SAUDI ARABIA							
Dammam	Bahrain	A	LTF	DIR		I	
	Jeddah	A	LTF	DIR		I	
	Riyadh	A	LTF	DIR		I	
Jeddah	Addis Ababa	A	LTF				
	Amman	A	LTF	DIR		I	
	Asmara	A	LTF				
	Baghdad	A	LTF				
	Bahrain	A	LTF	DIR		I	
	Cairo	A	LTF	DIR		I	
	Dammam	A	LTF	DIR		I	
	Khartoum	A	LTF				
	Kuwait	A	LTF	DIR		I	
	Muscat	A	LTF	DIR		I	
	Riyadh	A	LTF	DIR		I	
	Sana'a	A	LTF	SW		Via Bahrain	I
Riyadh	Bahrain	A	LTF	DIR		I	
	Jeddah	A	LTF	DIR		I	
	Dammam	A	LTF	DIR		I	
SUDAN							
Khartoum	Cairo	A	LTF				
	Jeddah	A	LTF				
SYRIAN ARAB REPUBLIC							
Damascus	Amman	A	LTF				
	Ankara	A	LTF				
	Baghdad	A	LTF				
	Beirut	A	LTF	DIR		I	
	Nicosia	A	LTF				

MID FASID – CNS 1D

4-CNS 1 D-6

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS			CIRCUIT			STATUS OF IMPLEMENTATION	REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA		
1	2	3	4	5	6	7	8
UNITED ARAB EMIRATES							
Emirates ACC	Abu Dhabi	A	LTF	DIR		I	21
	Al Ain	A	LTF	SW		I	
	Bahrain	A	LTF	DIR		I	
	Doha	A	LTF	DIR		I	
	Dubai	A	LTF	DIR		I	
	Muscat	A	LTF	DIR		I	
	Tehran	A	LTF	DIR		I	
Abu Dhabi	Emirates ACC	A	LTF	SW		I	21
	Al Ain	A	LTF	DIR		I	21
	Dubai	A	LTF	SW		I	21
Al Ain	Emirates ACC	A	LTF	SW		I	21
	Abu Dhabi	A	LTF	DIR		I	21
	Dubai	A	LTF	SW		I	21
Dubai	Emirates ACC	A	LTF	DIR		I	2I + 1
	Abu Dhabi	A	LTF	DIR		I	2I
	Al Ain	A	LTF	SW		I	1I
	Fujairah	A	LTF	DIR		I	1I
	Ras Al	A	LTF	DIR		I	1I
	KhaimahSharjah Sharjah	A	LTF	DIR		I	3I
Fujairah	Ras Al Khaimah	A	LTF	DIR		I	1I
	Emirates ACC	A	LTF	DIR		I	1I
Ras Al Khaimah	Dubai	A	LTF	DIR		I	1I
Sharjah	Dubai	A	LTF	DIR		I	3I

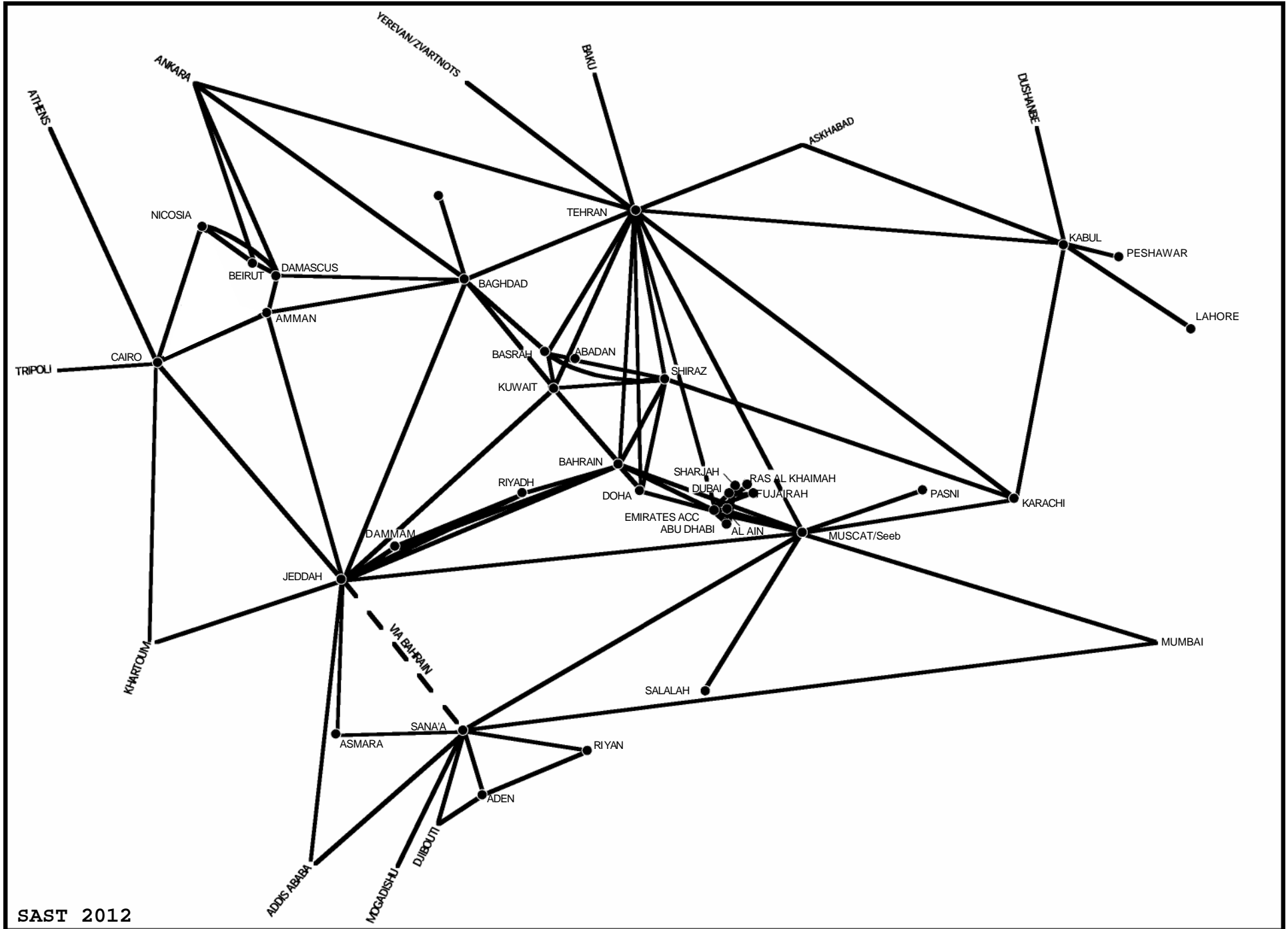
4-CNS 1D-7

MID FASID - CNS 1D

ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS				CIRCUIT		STATUS OF IMPLEMENTATION	REMARKS
TERMINAL I	TERMINAL II	TYPE	SERVICE	DIR/SW	TO BE SWITCHED VIA		
1	2	3	4	5	6	7	8
YEMEN							
Aden	Djibouti Sana'a	A A	LTF LTF				
Mukalla	Aden Sana'a	A A	LTF LTF			I	
Sana'a	Aden Addis Ababa Asmara Mumbai Djibouti Jeddah Mogadishu Muscat Riyan	A A A A A A A A A	LTF LTF LTF LTF LTF LTF LTF LTF LTF		DIR	Via Bahrain I I	

ATS DIRECT SPEECH CIRCUITS FOR MID REGION
CIRCUITS ATS EN PHONIE DIRECTE POUR LA RÉGION MID
CIRCUITOS ORALES DIRECTOS ATS PARA LA REGIÓN MID

CHART CNS 1D

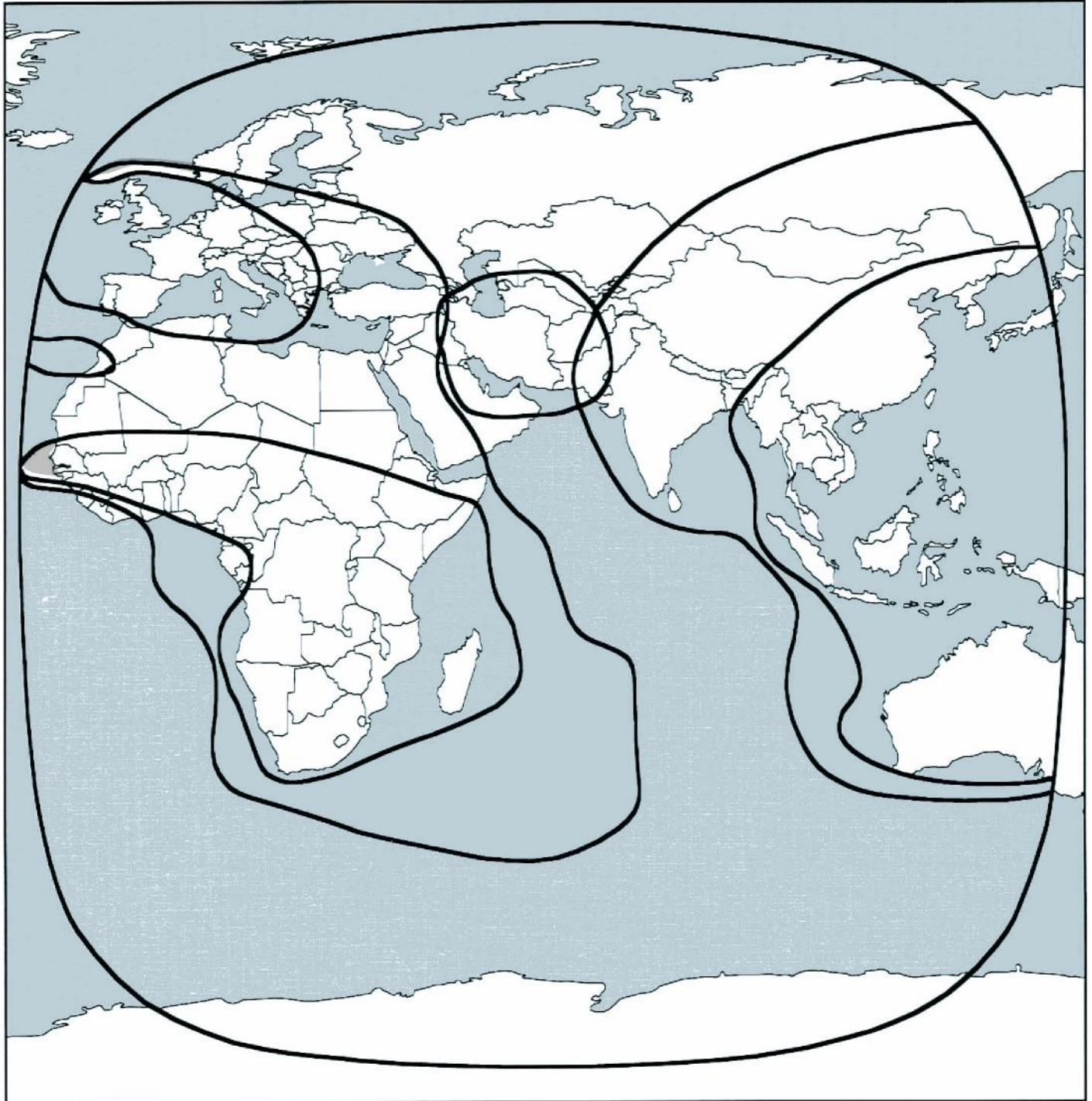


COVERAGE OF THE SATELLITE DISTRIBUTION SYSTEM FOR WAFS PRODUCTS (SADIS) USING INTELSAT 904 AT 60° E
COUVERTURE DU SYSTÈME DE DIFFUSION PAR SATELLITE D'INFORMATIONS RELATIVES À LA NAVIGATION AÉRIENNE (SADIS)
POUR LES PRODUITS DU SMPZ AU MOYEN D'INTELSAT 904 À 60° E
COBERTURA DEL SISTEMA DE DISTRIBUCIÓN POR SATELITE (SADIS) PARA LA INFORMACIÓN
ELABORADA POR EL WAFS MEDIANTE INTELSAT 904 A 60°E

تغطية نظام توزيع معلومات الملاحة الجوية بالأقمار الصناعية للنظام العالمي لتنبؤات المنطقة باستخدام انتلسات ٦٠٤ على ٦٠ درجة شرقاً

MID FASID

CHART CNS 1 E



AMS/MAP 07/11

C-band

TABLE CNS 2 — AERONAUTICAL MOBILE SERVICE

EXPLANATION OF THE TABLE

Column

- 1 The name of the State and the locations within the same where the service is provided.
- 2 The required services or functions are provided. Suitable abbreviations for these services or functions are listed below.
- ACC-L Area control service for flights up to FL 250
- ACC-SR-I Area radar control service up to FL 250
- ACC-SR-U Area radar control service up to FL 450
- ACC-U Area control service up to FL 450
- AFIS Aerodrome flight information services
- APP-L Approach control service for flights below FL 120
- APP-I Approach control service for flights below FL 250
- APP-PAR Precision approach radar service up to FL 40
- APP-SR-I Surveillance radar approach control service up to FL 250
- APP-SR-L Surveillance radar approach control service up to FL 120
- APP-SR-U Surveillance radar approach control service up to FL 450
- APP-U Approach control service for flights up to FL 450
- ATIS Automatic terminal information service
- D-ATIS Data link-automatic terminal information service.
- CLRD Clearance delivery
- FIS Flight information service
- VHF-ER VHF-Extended range
- GP Facility providing VHF or HF en-route general purpose system (GPS) communication. These facilities provide air-ground radiotelephony for all categories of messages listed in Annex 10, Volume II, 5.1.8. This system of communication is normally indirect, i.e. exchanged through the intermediary of a third person who is usually a communicator at an aeronautical station.
- SMC Surface movement control up to limits of aerodrome
-

Country and location	Service or function	VHF voice	VHF data	HF voice	HF data	Satellite voice	Satellite data	Mode S	Remarks
1	2	3	4	5	6	7	8	9	10
BAHRAIN									
OBBB BAHRAIN FIR	ACC-SR-U ACC-SR-I VOLMET	2 1 1		6					150
OBBI BAHRAIN/Bahrain Intl	APP-SR-I TWR SMC D-ATIS	1 1 2 1							80 25 AD (GP) 150
EGYPT									
HEAX ALEXANDRIA/Alexandria Intl	TWR	1							25
HEBA ALEXANDRIA/Borg El Arab Intl	TWR APP-SR-I ACC-SR-U	1 1 1							25 60 150
HESN ASWAN/Aswan Intl	TWR APP-SR-I ACC-SR-U	1 1 1							25 60 150
HECC CAIRO FIR	ACC-U- ER ACC-SR-U- ER ACC-SR-I- ER VOLMET	4 6 2 1							ER ER ER (100)
HECA CAIRO/Cairo Intl	APP-SR-I TWR SMC ATIS	3 3 1 1							80 25 AD 150
HEAR EL ARISH/El Arish Intl.	TWR APP-SR-I ACC-SR-U	1 1 1							25 60 150
HEGN HURGHADA/Hurghada Intl	TWR APP-SR-I ACC-SR-U SMC	1 1 1 1							25 60 150 AD
HELX LUXOR/Luxor Intl	TWR APP-SR-I ACC-SR-U SMC	1 1 1 1							25 60 150 AD
HESH SHARM EL SHEIKH/Sharm El Sheikh Intl	TWR APP-SR-I ACC-SR-U	1 1 1							25 60 150
HESC ST. CATHERINE/St. Catherine Intl	TWR	1							25

Country and location	Service or function	VHF voice	VHF data	HF voice	HF data	Satellite voice	Satellite data	Mode S	Remarks
1	2	3	4	5	6	7	8	9	10
HETB TABA/Taba Intl	TWR APP-SR-I ACC-SR-U	1 1 1							25 60 150
IRAN, ISLAMIC REPUBLIC OF									
OIAA ABADAN	TWR SMC ATIS	1 1 1							25 AD 150
OIAW AHWAZ	APP-I TWR SMC ATIS	1 1 1 1							75 25 AD 150
OIKB BANDAR ABBASS/Bandar Abbass	APP-I TWR SMC ATIS	1 1 1 1							75 25 AD 150
OIBB BUSHEHR	APP-I TWR SMC ATIS	1 1 1 1							75 25 AD 150
OIFM ESFAHAN/Shahid Beheshti	APP-SR-I TWR SMC ATIS	1 1 1 1							75 25 AD 150
OIBK KISH ISLAND	TWR SMC ATIS	1 1 1							25 AD 150
OISL LAR	TWR SMC	1 1							25 AD
OIMM MASHHAD/Shahid Hashemi Nejad Intl.	APP-SR-I TWR SMC ATIS	1 1 1 1							75 25 AD 150
OIKR RAFSANJAN	TWR SMC ATIS	1 1 1							25 AD 150
OIGG RASHT	TWR SMC ATIS	1 1 1							25 AD 150
OINZ SARI	TWR SMC ATIS	1 1 1							25 AD 150
OISX SHIRAZ	ACC-SR-U	18		MID1 MID2					ER

Country and location	Service or function	VHF voice	VHF data	HF voice	HF data	Satellite voice	Satellite data	Mode S	Remarks
1	2	3	4	5	6	7	8	9	10
OOMS MUSCAT/Muscat Intl	APP-SR-I TWR SMC ATIS	2 1 1 1							75 25 AD 150
OOSA SALALAH/Salalah	APP-SR-I TWR SMC ATIS	2 1 1 1							75 25 AD 150
QATAR OTBD DOHA/Doha Intl	APP-SR-I TWR SMC ATIS	2 1 1 1							75 25 AD 150
OTHH DOHA/New Doha Intl (Future – 2010)									
SAUDI ARABIA OEDF DAMMAM/King Fahd Intl	APP-SR-U APP-SR-I TWR SMC ATIS	1 2 1 2 1							150 75 25 AD(CD) 150
OEJD JEDDAH	ACC-U ACC-SR-U	1 16							FIR FIR (ER)
OEJN JEDDAH/King AbdulAziz Intl	APP-SR-U APP-SR-I TWR SMC ATIS	1 2 2 3 1							150 75 25 AD(CD) 150
OEMA MADINAH/Prince Mohamed Bin Abdulaziz Intl	APP-I APP-L TWR SMC ATIS	1 2 1 1 11							50 75 25 AD 150
OERK RIYADH/King Khalid Intl	APP-SR-U APP-SR-I TWR SMC ATIS	2 2 2 3 1							150 75 25 AD(CD) 150
SYRIAN ARAB REPUBLIC OSAP ALEPPO/Aleppo Intl.	APP-L TWR	1 1							50 25
OSIT DAMASCUS	FIS-U ACC-U	1 2							FIR FIR
OSDI DAMASCUS/Damascus Intl	APP-SR-U APP-U TWR SMC	1 2 1 1							80 150 25 AD

Appendix A to Table CNS 2 VHF SERVICE AREAS

1. Air traffic control service

Air-ground communications for:	Symbol	Service**		Remarks
		Range	Height	
1	2	3	4	5
Aerodrome control service generally surface movement control	TWR	46 km (25 NM)	1 200 m/4 000 ft (above aerodrome)	Assigned when operationally required
	* SMC	Limits of aerodrome	N/A	
Approach control service for all current operational level traffic below FL 250 traffic below FL 120 traffic under radar surveillance*	APP-U	280 km (150 NM)	FL 450	Assigned when operationally required
	APP-I	140 km (75 NM)	FL 250	
	APP-L	93 km (50 NM)	FL 120	
	APP/SR or APP/PAR	As per above, or area of whichever is smaller	radar coverage,	
Area control service all current operational level traffic below FL 250 traffic under radar surveillance*	ACC-U	The whole control area or flight information region or sector within which a channel is used for area control service plus 93 km (50 NM)*	FL 450	May be achieved by communications from more than one facility
	ACC-L	"	FL 250	
	ACC/SR	Same as above, or area of whichever is smaller	of radar coverage,	Assigned when operationally required

** Service range and height is used to mean the airspace within which the air-ground communications with an aeronautical station should normally be free from interference by air-ground communications conducted with another aeronautical station using the same frequency.

1.1 *Flight information service*

1.2.1 In line with Annex 11, air traffic control units provide flight information service to aircraft under their jurisdiction. This is generally done on the channels required for aerodrome, approach or area control service, with coverage criteria being obviously similar.

1.2.2 However, where:

- a) an area control centre (ACC) provides flight information service to non-controlled aircraft within the whole of a flight information region (FIR), and the channels required for the provision of area control service are not sufficient to accommodate the communications of the flight information service; or
- b) where an FIC is established for an FIR where no ACC exists,

the air-ground communications requirements for the provision of flight information service should be specified in a manner similar to that relevant to the communications for area control service, using the symbol FIS instead of ACC.

1.2.3 Where flight information broadcasts are to be provided, the channel requirements should be specified in a manner similar to that for area, approach or aerodrome control service, using the symbol VOLMET, OFIS/HS, OFIS/VHF or ATIS as appropriate.

Appendix B to Table CNS 2

VHF FREQUENCY UTILIZATION PLAN

Function	Frequencies / Bands (MHz)			
TWR	118.000	118.025	118.050	118.075
	118.100	118.125	118.150	118.175
	118.200	118.225	118.250	118.275
	118.300	118.325	118.350	118.375
	118.400	118.425	118.450	118.475
	118.500	118.525	118.550	118.575
	118.600	118.625	118.650	118.675
	118.700	118.725	118.750	118.775
	118.800	118.825	118.850	118.875
	124.300	124.325	124.350	124.375
SMC	121.600	121.625	121.650	121.675
	121.700	121.725	121.750	121.775
	121.800	121.825	121.850	121.875
	121.900	121.925	121.950	121.975
APP-PAR	119.500	119.525	119.550	119.575
	119.600	119.625	119.650	119.675
	119.800	119.825	119.850	119.875
	119.900	119.925	119.950	119.975
APP-I, APP/DF-I,	119.000	119.025	119.050	119.075
	119.100	119.125	119.150	119.175
	119.200	119.225	119.250	119.275
	119.400	119.425	119.450	119.475
	119.700	119.725	119.750	119.775
	120.000	120.025	120.050	120.075
	120.200	120.225	120.250	120.275
	120.400	120.425	120.450	120.475
	120.600	120.625	120.650	120.675
	120.800	120.825	120.850	120.875
	121.000	121.025	121.050	121.075
	121.100	121.125	121.150	121.175
	121.200	121.225	121.250	121.275
	121.400			
APP/SR-I, FIS-I	123.800	123.825	123.850	123.875

IV-CNS 2-B2**MID FASID - CNS 2 App B**

	124.000	124.025	124.050	124.075
	124.700	124.725	124.750	124.775
	125.100	125.125	125.150	125.175
	125.500	125.525	125.550	125.575
	126.500	126.525	126.550	126.575
	127.700	127.725	127.750	127.775
	127.800	127.825	127.850	127.875
	127.900	127.925	127.950	127.975
APP-U	120.300	120.325	120.350	120.375
	121.300	121.325	121.350	121.375
	124.400	124.425	124.450	124.475
	124.600	124.625	124.650	124.675
	124.800	124.825	124.850	124.875
	124.900	124.925	124.950	124.975
	125.000	125.025	125.050	125.075
	125.100	125.125	125.150	125.175
	125.200	125.225	125.250	125.275
	125.300	125.325	125.350	125.375
	125.400	125.425	125.450	125.475
	125.500	125.525	125.550	125.575
	125.600	125.625	125.650	125.675
	125.700	125.725	125.750	125.775
	125.800	125.825	125.850	125.875
	125.900	125.925	125.950	125.975
	126.000	126.025	126.050	126.075
	126.100	126.125	126.150	126.175
	126.200	126.225	126.250	126.275
	126.300	126.325	126.350	126.375
ACC-I	126.100	126.125	126.150	126.175
	127.500	127.525	127.550	127.575
	128.300	128.325	128.350	128.375
	128.700	128.725	128.750	128.775
ACC-U	118.900	118.925	118.950	118.975
ACC-LU	119.300	119.325	119.350	119.375
	120.500	120.525	120.550	120.575
	120.700	120.725	120.750	120.775
	120.900	120.925	120.950	120.975
	123.700	123.725	123.750	123.775
	124.500	124.525	124.550	124.575
	125.300	125.325	125.350	125.375
	125.700	125.725	125.750	125.775
	125.900	125.925	125.950	125.975
	128.100	128.125	128.150	128.175
	132.100	132.125	132.150	132.175

132.200	132.225	132.250	132.275
132.300	132.325	132.350	132.375
132.400	132.425	132.450	132.475
132.500	132.525	132.550	132.575
132.600	132.625	132.650	132.675
132.700	132.725	132.750	132.775
132.800	132.825	132.850	132.875
132.900	132.925	132.950	132.975
133.000	133.025	133.050	133.075
133.100	133.125	133.150	133.175
133.200	133.225	133.250	133.275
133.300	133.325	133.350	133.375
133.400	133.425	133.450	133.475
133.500	133.525	133.550	133.575
133.600	133.625	133.650	133.675
133.700	133.725	133.750	133.775
133.800	133.825	133.850	133.875
133.900	133.925	133.950	133.975
134.000	134.025	134.050	134.075
134.100	134.125	134.150	134.175
134.200	134.225	134.250	134.275
134.300	134.325	134.350	134.375
134.400	134.425	134.450	134.475
134.500			

FIS-U (GP)

120.100	120.125	120.150	120.175
123.900	123.925	123.950	123.975
124.100	124.125	124.150	124.175
124.900	124.925	124.950	124.975
126.700	126.725	126.750	126.775
126.900	126.925	126.950	126.975
127.100	127.125	127.150	127.175
127.300	127.325	127.350	127.375
128.500	128.525	128.550	128.575
134.600	134.625	134.650	134.675
134.700	134.725	134.750	134.775
134.800	134.825	134.850	134.875
134.900	134.925	134.950	134.975
135.000	135.025	135.050	135.075
135.100	135.125	135.150	135.175
135.200	135.225	135.250	135.275
135.300	135.325	135.350	135.375
135.400	135.425	135.450	135.475
135.500	135.525	135.550	135.575
135.600	135.625	135.650	135.675
135.700	135.725	135.750	135.775

	135.800		
VOLMET / ATIS	126.000	126.025	126.050 126.075
	126.200	126.225	126.250 126.275
	126.400	126.425	126.450 126.475
	126.600	126.625	126.650 126.675
	126.800	126.825	126.850 126.875
	127.000	127.025	127.050 127.075
	127.200	127.225	127.250 127.275
	127.400	127.425	127.450 127.475
	127.600	127.625	127.650 127.675
	127.800	127.825	127.850 127.875
	128.000	128.025	128.050 128.075
	128.200	128.225	128.250 128.275
	128.400	128.425	128.450 128.475
	128.600	128.625	128.650 128.675
	128.700	128.725	128.750 128.775
	128.800		
OPERATIONAL CONTROL	128.825	128.850	128.875 128.900
	128.925		
	128.975	129.000	129.025 129.050
	129.075	129.100	129.125 129.150
	129.175	129.200	129.225 129.250
	129.275	129.300	129.325 129.350
	129.375	129.400	129.425 129.450
	129.475	129.500	129.525 129.550
	129.575	129.600	129.625 129.650
	129.675	129.700	129.725 129.750
	129.775	129.800	129.825 129.850
	129.875	129.900	129.925 129.950
	129.975	130.000	130.025 130.050
	130.075	130.100	130.125 130.150
	130.175	130.200	130.225 130.250
	130.275	130.300	130.325 130.350
	130.375	130.400	130.425 130.450
	130.475	130.500	130.525 130.550
	130.575	130.600	130.625 130.650
	130.675	130.700	130.725 130.750
	130.775	130.800	130.825 130.850
	130.875	130.900	130.925 130.950
	130.975	131.000	131.025 131.050
	131.075	131.100	131.125 131.150
	131.175	131.200	131.225 131.250
	131.275	131.300	131.325 131.350
	131.375	131.400	131.425 131.450
	131.475	131.500	131.525 131.550

	131.575	131.600	131.625	131.650
	131.675	131.700	131.725	131.750
	131.775	131.800	131.825	131.850
	131.875	131.900	131.925	131.950
	131.975	132.000	132.025	
AIR-TO-AIR	123.450 and 128.950			
DATA LINK	136.900	136.925	136.950	136.975
	137.000			
SPARE	136.000	136.025	136.050	136.075
	136.100	136.125	136.150	136.175
	136.200	136.225	136.250	136.275
	136.300	136.325	136.350	136.375
	136.400	136.425	136.450	136.475
	136.500	136.525	136.550	136.575
	136.600	136.625	136.650	136.675
	136.700	136.725	136.750	136.775
	136.800	136.825	136.850	136.875
	136.900			

Appendix C to Table CNS 2

HARMFUL INTERFERENCE REPORT FORM

The form should be only submitted after at least the section marked with an asterisk (*) have been completed.

* State or Organization submitting report

* 1. Frequency of channel interfered with.....

* 2. Station or route interfered with

* 3. Is the interference persistent ?

* 3.1 altitude , position, time at which interference was observed :

N.B. report form should not be sent unless the interference has been observed a sufficient number of times to justify setting international administrative machinery into motion, or unless it is considered as really endangering a radio navigation or safety service.

Date	Time (GMT)	Altitude	Position

4. Has your Administration already applied, regarding this case of interference, any part of the ITU procedures laid down in Article S15 of the ITU Radio Regulations?

5. Call sign of IS (IS= Interfering Station)

6. Name of IS corresponding to the call sign

7. Notified frequency on which IS should operate (if known)

8. a) Approximate frequency of IS KHz/MHz

b) Strength of IS (QSA or SIN PFEMO- see ICAO Doc. 8400/3).....

9. Class of emission of IS

10. Language used by IS

11. Call sign of station in communication with

N.B. If the call sign referred to in 5 could not be received, or if the call sign received is not in the international series and cannot be interpreted, the Report Form should not be sent unless at least one of the questions under 12, 13 and 14 can be answered.

12. Location of the IS (accurate or approximate coordinates)

13. Country where interfering station is believed to be located

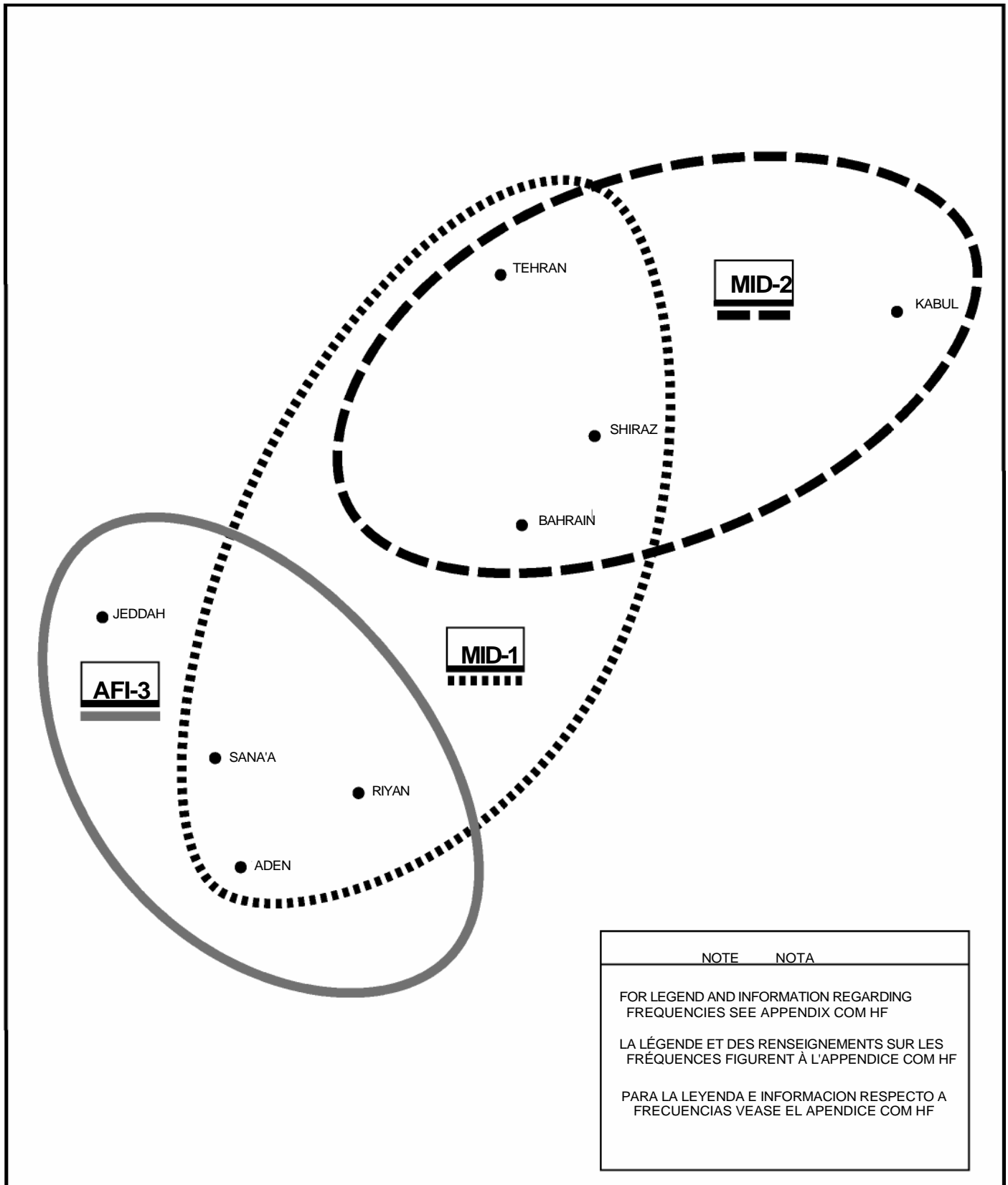
14. Bearing (in degrees true) of the IS (with indication of location of D/F station)

.....

HF EN-ROUTE RADIOTELEPHONY NETWORK
RÉSEAUX RADIOTÉLÉPHONIQUES HF EN ROUTE
REDES RADIOTELEFONICAS HF EN RUTA

MID FASID

CHART CNS 2



NOTE	NOTA
FOR LEGEND AND INFORMATION REGARDING FREQUENCIES SEE APPENDIX COM HF	
LA LÉGENDE ET DES RENSEIGNEMENTS SUR LES FRÉQUENCES FIGURENT À L'APPENDICE COM HF	
PARA LA LEYENDA E INFORMACION RESPECTO A FRECUENCIAS VEASE EL APENDICE COM HF	

APPENDIX TO CHART CNS 2

Frequency	ITU allotment area	AFI-3	MID-1	MID-2	MID-3	V MID
1	2	3	4	5	6	7
2944	MID				X	
2956	V MID					X
2992	MID		X			
3467	MID, AFI	X		X		
3473	MID (1)					
4669	MID				X	
5589	V MID					X
5658	MID, AFI	X		X		
5667	MID		X			
6625	MID (1)					
6631	MID				X	
8918	MID		X			
8945	V MID					X
8951	MID				X	
10018	MID			X		
11375	MID				X	
11393	V MID (2)					X
13288	MID, AFI	X		X		
13312	MID		X			
17961	AFI, MID	X			X	

Note. C Headings of columns 3 through 7 indicate the ICAO designator for HF MWARA and VOLMET networks operating in or adjacent to the MID Region and are derived from the ITU allotment area abbreviations as contained in Appendix 27 Aer2 to the ITU Radio Regulations.

ITU allotment areas from ITU RR Appendix 27 Aer2:

Two and three letter entries indicate major world air route areas (MWARAs):

AFI = Africa

MID = Middle East

Four letter entries indicate VOLMET areas:

V MID = VOLMET area C Middle East

(1) Available for future use in the allotment area indicated, subject to co-ordination with ICAO.

(2) Available for future use in the network indicated, subject to co-ordination with ICAO.

TABLE CNS 3 - RADIO NAVIGATION AIDS (MID REGION)

EXPLANATION OF THE TABLE

Column

- 1 Name of the country, city and aerodrome and, for en-route aids, the location of the installation.
- 2 The designator number and runway type:

 NINST C non-instrument runway
 NPA C non-precision approach
 PA-1 C precision approach runway, Category I
 PA-2 C precision approach runway, Category II
 PA-3 C precision approach runway, Category III
- 3 The functions carried out by the aids appear in columns 4 to 8 and 10 to 12:

 A/L C Approach and landing
 T C Terminal
 E C En-route
- 4 ILS C Instrument landing system. Roman numeral I and II indicate the acting category of the ILS, I, II or III. (I) indicates that the facility is implemented

 The letter “D” indicates a DME requirement to serve as a substitute for a marker beacon component of an ILS

Note.- Indication of category refers to the standard of facility performance to be achieved and maintained in accordance with pertinent specifications in ICAO Annex 10 and not to the specifications of the ILS equipment itself, which are not necessarily the same.

An asterisk () indicates that the ILS requires a Category II signal quality, but without reliability and availability provided by redundant equipment and automatic changeover.*
- 5 Radio beacon localizer, be it associated with an ILS or to be used as an approach aid to an aerodrome.
- 6 Radiotelemetrical equipment. When an “X” appears in column 6 in line with the VOR in column 7, this indicates the need that the DME be installed at a common site with the VOR.
- 7 VOR VHF omnidirectional radio range.
- 8 NDB – Non Directional Beacon
- 9 The distance and altitude to which signal protection of the VOR or VOR/DME are required, indicated in nautical miles (NM) and in thousands of feet.
- 10, 11, 12 GNSS-global navigation satellite system (includes GBAS and SBAS).

 LNAV lateral Navigation using GNSS

 LNAV/VNAV Lateral with Vertical Navigation

 GBAS (ground-based augmentation system) implementation planned to be used in precision approach and landing CATI, CATII, CAT III.

 SBAS (Satellite-based augmentation system) implementation planned to be used for route navigation, for terminal, for non precision approach and landing. An “X” indicates service availability,; exact location of installation will be determined.

Note.- GPS receiver is under standard rules and ABAS (aircraft-based augmentation system)

13 **Remarks**

Note.- Columns 5 to 12 use the following symbols:

X- Required but not implemented

XI- Required and implemented

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
CAIRO/Cairo Intl	05R PA 2	A/L	II	X	XI	XI		150/45		I		
	23R PA 2	A/L	II(I)	X						I		
	23L PA 2	A/L	II (I)	X	XI	XI		200/45		I		
	05L PA 2	A/L T E	II (I)	X							I	
	23C PA 05C PA									I		
	16 NPA 34 NPA											
HURGHADA/ Hurghada Intl	16 NPA 34 PA 2	A/L T E	I*(I)		XI XI	XI XI		100/45		I I		
LUXOR/ Luxor Intl	02 NPA 20 PA 1	A/L T E	I* (I)		XI XI	XI XI		150/45		I I		
MARSA ALAM/ Marsa Alam Int'l	15 NPA 33 NPA	A/L			XI	XI		150/45				
SHARK EL OWEINAT/ Shark El Oweinat Int'l	01 NPA 19 NPA	L					XI	100/45				
PORT –SAID/ Port –Said Int'l	10 NPA 28 NPA	L			XI	XI		200/45				
ST. CATHERINE/ St. Catherine Intl	17 NPA 35 NINST	L					XI	150/45				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
SHARM EL SHEIKH/ Sharm El Sheikh Intl	04L PA1 22R NPA 04R NPA 22L NPA	A/L T E	I (II)	X	XI XI	XI XI	XI	100/45 200/50		I I		
ASWAN/ Aswan Intl	17 PA1 35 PA1	A/L T E	II	X	XI XI	XI XI		150/45		I I		
TABA/ Taba Int'l	04 NPA 22 NPA	A/L T			X	XI	XI	150/45 100/45		I I		
IRAN, ISLAMIC REPUBLIC OF												
ABADAN	32L PA 1	A/L E	I* (I)		XI	XI		200/45				
AHWAZ	30 PA 1	A/L E	I* (I)		XI	XI		300/45				
ARDABIL	33 PA 1	A/L E	I* (I)		XI	XI		200/45				
ASALOYEH	30 PA 1	A/L E	I*		XI	XI		300/45				
BANDAR ABBAS/Intl	21L PA1	A/L E	I* (I)		XI	XI		200/45				
BANDAR LENGEH	NPA	A/L E			XI	XI		200/45				
BANDAR MAHSHAHR / MAHSHAHR	NPA	A/L E			XI	XI		300/45				
BIRJAND		E			XI	XI		300/50				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
BOJNORD	NINST	E			XI	XI		150/45				
BUSHEHR	30 PA2	A/L E	I*		XI	XI		300/45				
CHAH BAHAR / KONARAK	NPA	A/L E			XI	XI		200/45				
DARBAND		E			XI	XI		300/45				
DEH-NAMAK		E			XI	XI		300/45				
ESFAHAN / Shahid Beheshti Intl	26R PA 1	A/L E	I*(I)		XI	XI		300/45				
HAMADAN	NPA	A/L E			XI	XI		200/45				
ILAM	NPA	A/L E			XI	XI		300/45				
IRAN-SHAHR	NPA	A/L E			X	X		300/45				
JAM/TOHID	NPA	A/L			XI	XI		300/45				
KARAJ / PAYAM	NPA	A/L			XI	XI		200/45				
KERMAN	34 PA1	A/L E	I*(I)		XI	XI		200/45				
KERMANSHAH / Shahid Ashrafi Esfahani	29 PA1	A/L E	I* (I)		XI	XI		300/45				
KHARK ISLAND /Khark	NPA	A/L E			XI	XI		300/45				
KHORAM ABAD	29 PA 1	A/L E	I*		XI	XI		200/45				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
KISH ISLAND	NPA	A/L E			XI	XI		200/45				
MALAYER		E			XI	XI		300/45				
MASHHAD / Shahid Hashemi Nejad Intl	31R PA1	A/L E	I* (I)		XI	XI		300/45				
NOSHAHR	NPA	A/L E			X	X		200/45				
OMIDIYEH	NPA	A/L			XI	XI		200/45				
RASHT	27 PA 1	A/L E	I* (I)		XI	XI		300/45				
SABZEVAR	NPA	A/L E			XI	XI		300/45				
ANARAK		E			XI	XI		300/45				
SANANDAJ	NPA	A/L E			XI	XI		200/45				
SARI/Dashte-Naz	NPA	A/L E			XI	XI		300/45				
SAVEH		E			XI	X		300/45				
SHIRAZ / Shahid Dastghaib Intl	29L PA 1	A/L E	I* (I)		XI	XI		300/45		I		
SIRJAN	NPA	A/L E			XI	XI		200/45				
TABRIZ Intl	30R PA 1	A/L E	I* (I)		XI	XI		200/45				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
TEHRAN/Imam Khomeini Intl	29R PA 2	A/L	II* (I)		XI	XI		300/45				
TEHRAN/Mehrabad Intl	29L PA 1	A/L E	I* (I)	XI	XI	XI		300/45		I		
UROMIYEH	21 PA1	A/L E	I* (I)		XI	XI		200/45				
YAZD / Shahid Sadooghi	NPA	A/L E			XI	XI		300/45				
ZAHEDAN	35 PA1	A/L E	I* (I)		XI	XI		200/45				
ZANJAN	NPA	E			XI	XI	XI	200/45				
IRAQ												
AIN ZALAH		E			X	X		100/50				
BAGHDAD/ Baghdad Int'l	15R PA 1 INST 33L NPA	A/L A/L A/L A/L E	II (I) II (I) II (I) II (I)	XI XI XI XI	XI XI XI XI XI	XI XI XI XI XI		200/45	XI XI	I I		
BASRAH/Intl	14 NINST 32 NPA	A/L A/L E	II II (I)	XI XI	XI XI	XI XI		300/45				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
JORDAN												
AMMAN/MARKA	24 PA 1 06 NPA	A/L A/L	I (I)	XI X	XI	XI	XI	175/37.5				
AMMAN/Queen Alia	08R NPA 26L PA 2 08L PA 2 26R PA 2	A/L A/L A/L A/L	X II(I) II(I) II(I)	X XI XI XI	X XI XI XI	XI XI XI XI	XI XI XI XI			I I I I	I I I I	
AQABA/king Hussein	01 PA 1	A/L E	I(I)	XI	XI	XI	X	200/50 200/50		I	I	
METSA		E			X	X		150/50				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
QATRANEH		E			XI	XI		100/50				
KUWAIT KUWAIT/Intl	15R PA 2 33L PA 2 15L PA 2 33R PA 2	A/L A/L A/L A/L	II (I) II (I) II (I) II (I)	XI XI	XI XI XI XI					I I I I		
		T E			XI XI	XI XI		300/50 300/50				
LEBANON												
BEIRUT/Beirut Intl	16 PA 1 17 PA 1 03 PA 1 21 PA 1	A/L A/L A/L A/L	I* (I) D I* (I) D I* (I) D I* (I) D	X X X X	XI XI XI XI	XI XI XI XI	XI			I I I I		
CHEKKA		E			Xi	XI		150/50				
HALDE		E/T			Xi	XI		150/50				
BOD		E/T					XI	150				
BAB		E/T					XI	150				
OMAN												
HAIMA		E			XI	XI		200/45				
IZKI		E			XI	XI		200/45				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
MARMUL	14 NPA 32 NPA										I I	
MUSCAT/Intl	08 PA 1 26 PA 1	A/L A/L E	I* (I) D I* (I) D		X I X I X I	X I		200/45				
SALALAH/Salah Intl	07 NPA 25 PA 1	A/L A/L E	I* (I) D		X I X I X I	X I X I		200/45				
SUR		E			X I	X I		200/45				
QATAR												
DOHA/Doha Intl	16 NPA 34 PA 1	A/L A/L E	I* (I)	X	X X X	X X X		300/45		I I		
SAUDI ARABIA												
AL JOUF	10 NPA 28 NPA 28 PA 1	A/L A/L A/L T	I*		XI XI XI X	XI XI XI X		300/50				
AL SHIGAR		E			XI	XI		300/50				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
ARAR	10 NPA 28 NPA	A/L A/L T E			XI XI X XI	XI XI X XI		300/50		I I		
BAHA	07 NPA 25 NPA 25 NPA 25 PA 1	A/L A/L A/L A/L T	I*	X	XI XI XI X	XI XI XI X		300/50		I I		
BIR DURB		E			X	X		300/50				
BISHA	18 NPA 36 NPA 18 PA1	A/L A/L A/L T E	I*		XI XI X X X	XI XI X X		300/50		I		
BOPAN		E			XI	XI		300/50				
DAFINAH		E			XI	XI		300/50				
DAMMAM (King Fahad Intl)	16L PA 2 34R PA 2 16R PA 2 34L PA 2	A/L A/L A/L A/L T E	I (I) I (I) I (I) I (I)		XI XI XI XI XI XI	XI XI XI XI XI XI		300/50				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
GASSIM	15 NPA 33 NPA 15 PA 1	A/L A/L A/L T E	I*		XI XI X X XI	XI XI X X X		300/50				
GURIAT	10 NPA 28 NPA 28 NPA	A/L A/L A/L T E		X	XI XI X X	XI X X X		300/50				
HAFR AL-BATIN	16 NPA 34 NPA	A/L A/L T E			XI XI X XI	XI XI X XI		300/50				
HAIL	18 NPA 36 NPA 18 PA 1	A/L A/L A/L T E	I *		XI XI X X X	XI XI X X X		300/50				
HALAIFA		E			XI	XI		300/50				
JEDDAH/King Abdul Aziz Intl	16R PA 2 34L PA 2 16L PA 1 34R PA 1 16C PA 2 34C PA2	A/L A/L A/L A/L A/L A/L	II (I) II (I) I* (I) I* (I) II (I) II (I)		XI XI XI XI XI XI	XI XI XI XI XI XI				I I I I I I		
		T E			XI XI	XI XI		300/50				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
JUBAIL	17 NPA 35 NPA 35 PA 1	A/L A/L A/L T	I*		X X	X X		300/50				
MADINAH/Prince Mohammad Bin Abdulaziz	17 PA 1 35 PA 1 36 PA 1 18 NPA	A/L A/L A/L A/L T E	I* I* I*	X X	XI XI XI XI XI XI	XI XI XI XI XI XI		300/50				
MAGALA		E			XI	XI		300/50				
RABIGH		E			XI	XI		300/50				
RAFHA	11 NPA 29 NPA	A/L A/L T E			XI XI X XI	XI XI X XI		300/50				
RAGHBA		E			XI	XI		300/50				
RIYADH/King Khalid Intl	15L PA 1 33R PA 1 15R PA 1 33L PA 1	A/L A/L A/L A/L T E	I* (I) I* (I) I* (I) I* (I)		XI XI XI XI XI XI	XI XI XI XI XI XI		300/50				
TURAIIF	10 NPA 28 NPA	A/L A/L T E			XI XI X XI	XI XI X XI		300/50				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
WADI AL-DAWASIR	10 NPA 28 NPA 10 PA 1	A/L A/L A/L T E	I*		XI XI XI X XI	XI XI X XI		300/50		I I		
WEDJH	15 NPA 33 NPA 33 NPA 33 PA 1	A/L A/L A/L A/L T E	I*	X	XI XI X XI	XI XI X XI		300/50		I		
YENBO	10 NPA 28 NPA 28 PA 1	A/L A/L A/L T E	I*		XI XI XI X XI	XI XI X XI		300/50		I I		
SYRIAN ARAB REPUBLIC												
ALEPPO/Neirab	27 PA2	A/L E		X		X X		150/50				
DAMASCUS/Intl	05L PA2 23R PA 2 05R PA2	A/L A/L A/L E	I* (I)	X	XI XI XI XI	XI XI XI XI	I I I I	150/50				
KARIATAIN		E			X	X		150/50				

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
LATAKIA/Bassel -Al- Assad TANF	17 NPA	A/L E		X	XI	XI X		160/40				
UNITED ARAB EMIRATES												
ABU DHABI/Abu Dhabi Intl	13 PA 1 31 PA 3	A/L A/L E	I* (I) III (I)		XI XI XI	XI XI XI		300/45		I I		
AL AIN/Al Ain Intl	01 PA 1 19 NPA	A/L A/L E	I*		XI XI XI	XI XI XI		300/45				
DUBAI/Dubai Intl	12L PA 3 30R PA 3 12R PA 2 30L PA 2	A/L A/L A/L A/L E	III (I) III (I) II (I) II (I)		XI XI XI XI XI	XI XI XI XI XI		300/45		I I		
FUJAIRAH/Fujairah Intl	11 NPA 29 PA 1	A/L A/L T	I* (I)		XI XI XI	XI XI XI		40/25		I I		
RAS AL KHAIMAH/Ras al Khaimah Intl	16 NPA 34 PA 1	A/L A/L	I* (I)	X X	XI	XI						
SHARJAH/Sharjah Intl	12 NPA 30 PA 1	A/L A/L E	I* (I)	XI	XI XI	X X XI		300/45		I I		

Station	RWY Type	Function	ILS	L	DME	VOR	NDB	Coverage	GNSS			REMARKS OBSERVACIONES
									GPS	LNAV	LNAV/VNAV	
1	2	3	4	5	6	7	8	9	10	11	12	13
YEMEN												
ADEN/Intl	08 NPA 26 PA 1	A/L A/L E	I* (I)	X	XI XI XI	XI XI XI		300/50				
AL-GHAIDAH		E			X	X		300/50				
HODEIDAH	03 NPA 21 NPA	A/L A/L E		X X	X X X	X X X		200/45		I		
MUKALALA/Intl	06 NPA 24 NPA	A/L A/L E			X X X	X X X		300/50				
SANA'A/Intl	18 PA 1 36 NPA	A/L A/L E	I* (I)	X	XI XI XI	X I X I X I		200/45				
SIYUN		E			X	X		150/45				
TAIZ/Intl	01 NPA 19 NPA	A/L A/L E		X X	X X X	X X X		200/45				

Appendix to Table CNS 3

GEOGRAPHIC SEPARATION CRITERIA FOR VOR, VOR/DME AND ILS INSTALLATIONS

1.1 VHF omnidirectional radio range (VOR)/distance measuring equipment (DME)

1.1.1 In the selection of frequencies for VOR and/or VOR/DME the following criteria are to be applied:

a) for VORs required to serve en-route flight operations, geographic separations of:

- 1) for co-channel, 1020 km (550 NM) between 200 NM/45K (facilities' service distance/ratio of facilities' ERPs) facilities and 1 330 km (720 NM) between 300 NM/45K facilities;
- 2) for adjacent channel, 410 km (220 NM);

b) for VORs required for use in terminal areas (40 NM/25K), geographic separations of:

- 1) for co-channel, 370 km (200 NM);
- 2) for adjacent channel*, 110 km (60 NM); and

c) for VORs required for use in approach and landing operations (25 NM/10K), geographic separation of:

- 1) for co-channel, 240 km (130 NM);
- 2) for adjacent channel*, 55 km (30 NM).

1.1.2 Detailed frequency assignment criteria for VOR are provided in Annex 10, Volume I, 3.3.2 and Attachment C to Part I, Sections 3.4. and 3.5, and Part II, Section 4.2 (see the note below).

1.1.3 Detailed frequency assignment criteria for DME are provided in Annex 10, Volume I, 3.5.3.3 and Attachment C to Part I, and Part II, Section 4.3 (see the note below).

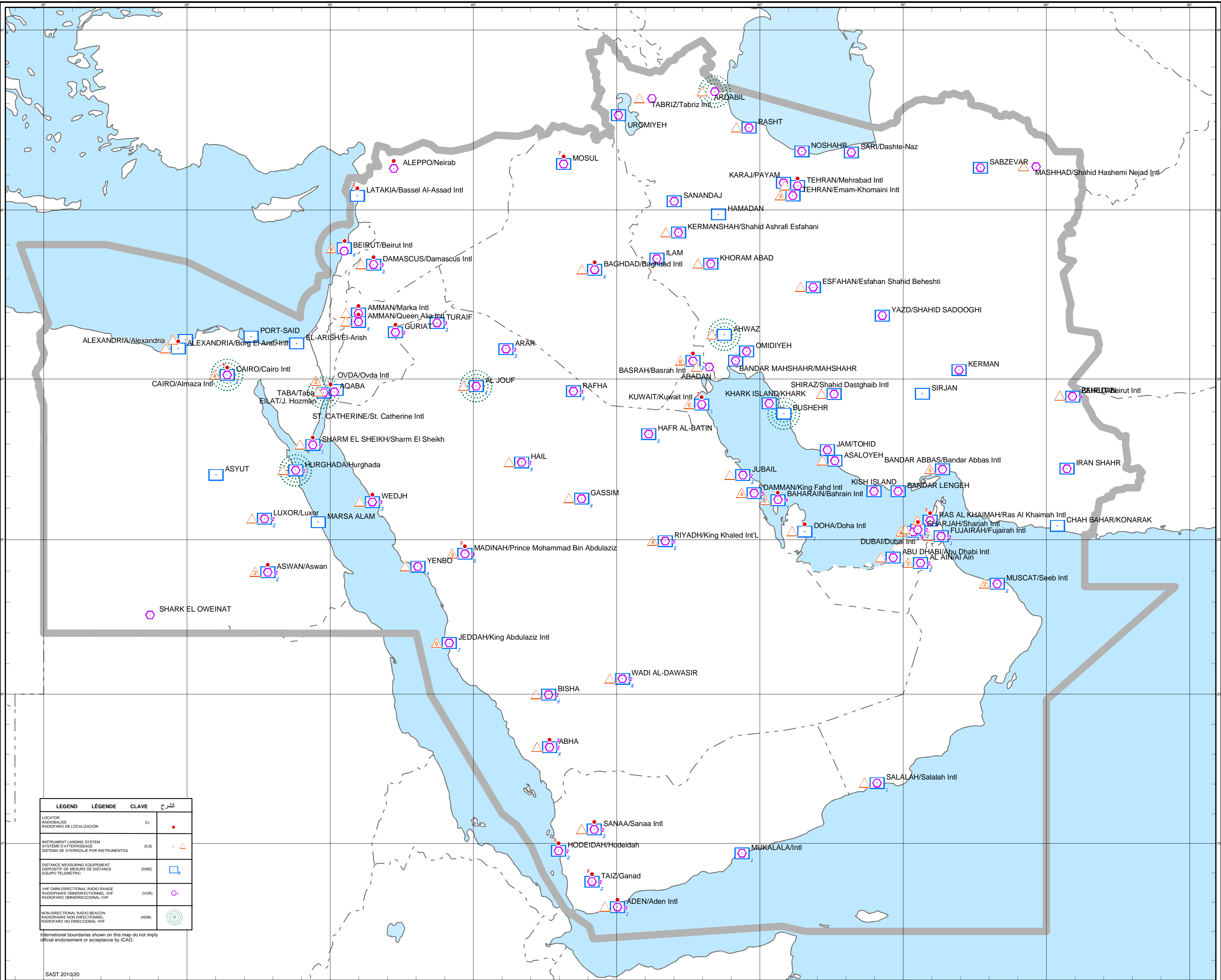
1.2 Instrument landing system (ILS)

1.2.1 Considering the density of ILS installations in the MID Region, the 325 km (175 NM) geographic separation for co-channel operation is to be applied.

1.2.2 Detailed frequency assignment criteria for ILS are provided in Annex 10, Volume I, 3.1.3.2, Attachment C to Part I, Section 3.5 and Part II, Section 4.2 (see the note below).

Note.— As a consequence of the restructuring of Annex 10 (see paragraph 6.50 of the report on Agenda Item 6) and following Amendment 71 to this Annex, Attachment C to Part I should be referred to as Attachment C to Volume I, and Part II of Volume I will constitute Volume V of Annex 10.

* Based on 100 kHz channel spacing



LEGEND	LÉGENDE	CLAVE	الشرح
LOCATOR RADIOBALISE RADIOFARO DE LOCALIZACIÓN	(L)	•	
INSTRUMENT LANDING SYSTEM SYSTEME D'ATERRISSAGE SISTEMA DE ATERRIZAJE POR INSTRUMENTOS	(ILS)	• △	
DISTANCE MEASURING EQUIPMENT DISPOSITIF DE MESURE DE DISTANCE EQUIPO TELEMETRICO	(DME)	□	
VHF OMNI-DIRECTIONAL RADIO RANGE RADIOFARRE OMNIDIRECTIONNEL VHF RADIOFARO OMNIDIRECCIONAL VHF	(VOR)	○	
NON-DIRECTIONAL RADIO BEACON RADIOFARRE NON DIRECTIONNEL RADIOFARO NO DIRECCIONAL VHF	(NDB)	⊙	

International boundaries shown on this map do not imply official endorsement or acceptance by ICAO.

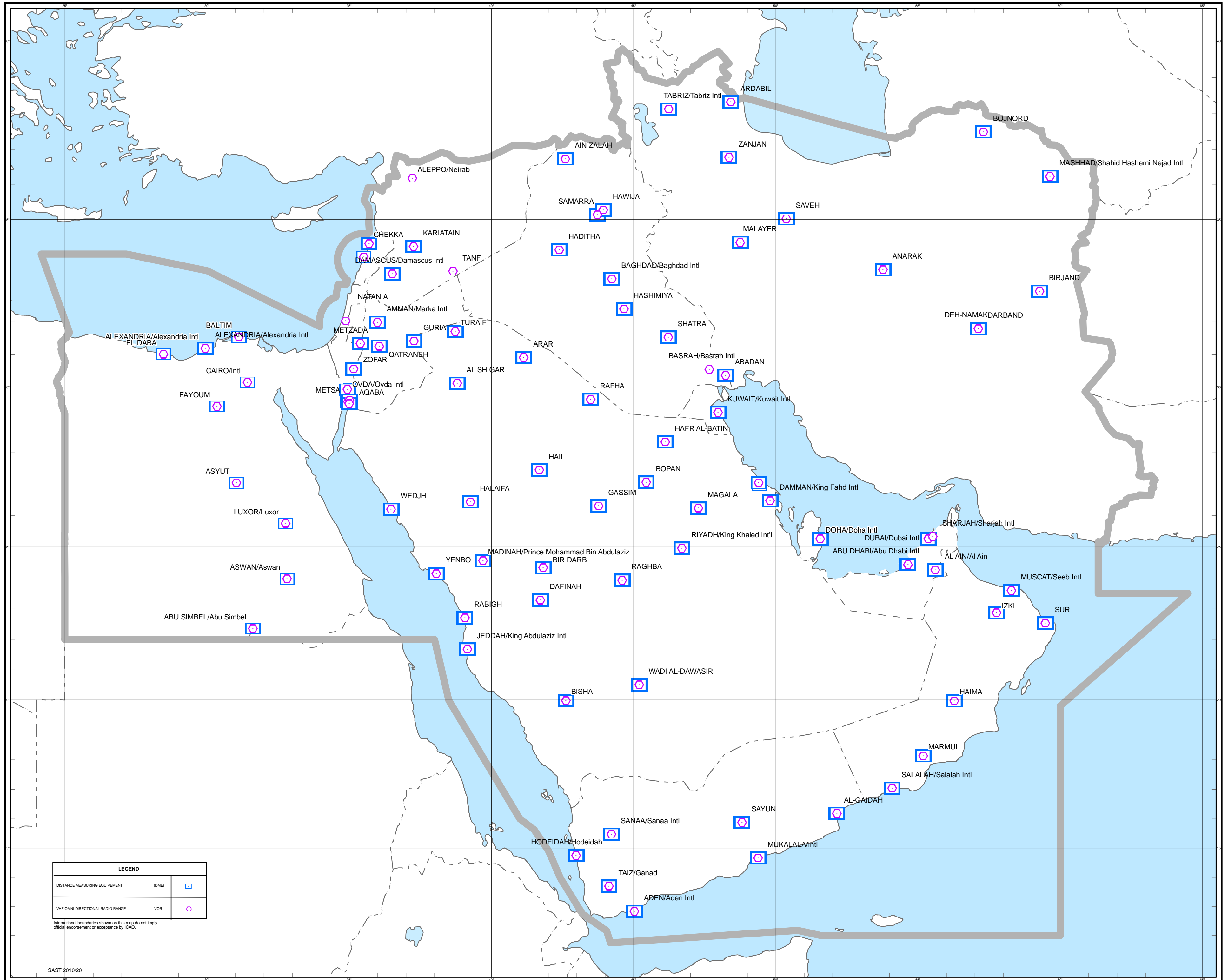


Table CNS 4 - SURVEILLANCE SYSTEMS

EXPLANATION OF THE TABLE

Column

1	Name of country and location of the facility or FIR
2	Geographical area
3	Air Traffic Services Units served by the facility or FIR
4	PSR - Primary Surveillance Radar
5	Coverage of Primary Surveillance Radar in nautical miles
6	Coverage of Primary Surveillance Radar and Modes implemented will be indicated within Brackets, namely Modes A, C & S
7	Coverage of Secondary Surveillance radar in nautical miles
8	ADS-B- Automatic Dependent Surveillance Broadcast
9	ADS-C - Automatic Dependent Surveillance Contract
10	SMR- Surface Movement Radar
11	PRM - Precision Runway Monitor
12	Multilateration
13	Remarks

Note:

The following codes are used in columns 4,6,8-12

I -	Required and implemented for column 6, I stands for implementation using conventional SSR while MI stands for implementation using Monopulse SSR
X-	Required but implementation status not determined
N -	Required but not implemented
A -	Existing facility provided to supplement or substitute the requirement
F -	Future Plan
< -	Year planned commissioning year to be used as appropriate in conjunction with AF@ & AN@
> -	Year planned decommissioning year to be used as appropriate in conjunction with AA@ & AI@.

TABLE CNS 4- SURVEILLANCE SYSTEMS

Country/Location	GA	ATS Units Served	PSR	Coverage of SSR (NM)	SSR (A/C/S)	Coverage of SSR (NM)	ADS-B	ADS-C	SMR	PRM	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
BAHRAIN											
Bahrain		Bahrain ACC Bahrain APP Bahrain ACC Bahrain APP	I	80	MI(A/C)	250					Mode S will be implemented in 2012
					F(A/C/S) <2005	250					
EGYPT											
Cairo		Cairo ACC Cairo APP Cairo APP/TMA	I I F<2002	200 70 60	MI(A/C) I(A/C) MF (A/C)	250 100 250					Mode S Implemented In Four Airports
Hurghada		Hurghada ACC Hurghada ACC Hurghada APP	I I I	60	MI(A/C) MI(A/C)	250 250					
Mersa Matruh		Mersa Matruh ACC			MI(A/C)	250					
Aswan		Aswan ACC Aswan ACC Aswan APP	I F<2002 <2002	60	MI(A/C) MF(A/C)	250 250					
Asyut		Asyut ACC		250	MI(A/C)	250					
Luxor		Luxor ACC Luxor APP	I	60	MI(A/C)	250					
Sharm El Sheikh		Sharm El Sheikh ACC Sharm El Sheikh APP	I	60	MI(A/C)	250					
Borg El Arab		Borg El Arab ACC Borg El Arab APP			F (A/C) < 2002	250					
			F<2002	60							

Country/Location	GA	ATS Units Served	PSR	Coverage of SSR (NM)	SSR (A/C/S)	Coverage of SSR (NM)	ADS-B	ADS-C	SMR	PRM	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
El Arish		El Arish ACC			F (A/C)	250					
		El Arish APP	F<2002	60	< 2002						
Taba		Taba ACC			F (A/C)	250					
		Taba APP	F<2002	60	< 2002						

Country/Location	GA	ATS Units Served	PSR	Coverage of SSR (NM)	SSR (A/C/S)	Coverage of SSR (NM)	ADS-B	ADS-C	SMR	PRM	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
IRAN											
Shiraz		Shiraz APP	I	80	I (A/C/S)	250					
Tehran / Mehrabad		Mehrabad APP	I	80	I (A/C/S)	250					
Ahwaz		Tehran ACC			MI(A/C/S) < 2000	250					
Iran Shahr		Tehran ACC			F (A/C/S) < 2002	250					
Jiroft		Tehran ACC			MI(A/C/S) < 2001	250					
Lar		Tehran ACC			MI(A/C/S) < 2001	250					
Mashhad		Tehran ACC			MI(A/C/S) < 2001	250					
Draz-now (Gorgan)		Tehran ACC			MI(A/C/S) < 2002	250					
Tabas		Tehran ACC			MI(A/C/S) < 2002	250					
Tabriz		Tehran ACC			MI(A/C/S) < 2000	250					
Tehran/Kushke Bazm		Tehran ACC			MI(A/C/S) < 1999	250					ADS-A installed and available in Tehran ACC
Zanjan		Tehran ACC			MI(A/C/S) < 2001	250					
IRAQ											
Baghdad		Baghdad APP	I	60	MI(A/C)	250					Mode S is planed
Basrah		Basrah ACC Basrah APP	I I	80	MI(A/C/S) I	250					In Baghdad

Country/Location	GA	ATS Units Served	PSR	Coverage of SSR (NM)	SSR (A/C/S)	Coverage of SSR (NM)	ADS-B	ADS-C	SMR	PRM	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
JORDAN											
Amman		Amman ACC	I	80	MI(A/C/)	250					
KUWAIT											
Kuwait		Kuwait ACC	I	80	MI(A/C/)	250					
LEBANON											
Beirut		Beirut ACC Beirut APP Beirut TWR	I	60	MI(A/C/)	250					Implemented Mode S
OMAN											
Muscat		Muscat ACC Muscat APP	I	100	I	250					Mode S planned
Salalah		Salalah ACC Salalah APP	I	100	I	250					
Jaalan Bani Bu Ali		Muscat ACC			I	250					
Wudam Al-Sahil		Muscat ACC			I	250					
Ras Al-Hadd		Muscat ACC			I	250					
Duqm		Muscat ACC			I	250					
Qiroon Hayreeti		Muscat ACC			I	250					
QATAR											
Doha		Doha ACC Doha APP	I		I						
SAUDI ARABIA											
Abha		Jeddha ACC			I	200					
Afif		Jeddha ACC			I	200					KSA is providing
AL Kharj		Jeddha ACC			I	200					radar coverage

Country/Location	GA	ATS Units Served	PSR	Coverage of SSR (NM)	SSR (A/C/S)	Coverage of SSR (NM)	ADS-B	ADS-C	SMR	PRM	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Badanah		Jeddha ACC			I	200					to all KSA airspace (Jeddah FIR), with the exception of the "Empty Quarter"
Dammam		Dammam APP	I	100	MI	200					
Dhahran		Jeddha ACC			I	200					
Hail		Jeddha ACC			I	200					Mode S will be implemented ADS-B project planned
Jeddah		Jeddha APP	I	100	I	200					
Nariya		Jeddha ACC			I	200					
Qaisumah		Jeddha ACC			I	200					
Raffina		Jeddha ACC			I	200					
Raghdan		Jeddha ACC			I	200					
Riyadh		Riyadh APP	I	100	MI	200					
Salbuk		Jeddha ACC			I	200					
Sharurah		Jeddha ACC			I	200					
Sulayel		Jeddha ACC			I	200					
Tabuk		Jeddha ACC			I	200					
Taif		Jeddha ACC			I	200					
Turaif		Jeddha ACC			I	200					
Wejh		Jeddha ACC			I	200					

Country/Location	GA	ATS Units Served	PSR	Coverage of SSR (NM)	SSR (A/C/S)	Coverage of SSR (NM)	ADS-B	ADS-C	SMR	PRM	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
SYRIA											
Damascus		Damascus ACC			I						
UNITED ARAB EMIRATES											Mode S planned
Abu Dhabi		Emirates ACC Bahrain ACC			MI(A/C)	200	I				ADS-B operational
Abu Dhabi		Abu Dhabi APP Emirates ACC			AF<2001	200					Replacement MSSR
Abu Dhabi		Abu Dhabi APP Abu Dhabi TWR	AF2004 AF2003	125					X		Replacement PSR
Al Ain		Al Ain APP Abu Dhabi APP Emirates ACC	AF2004	80		200					
Dubai		Dubai APP Emirates ACC Dubai TWR	I	80	MI(A/C)	150			I		
Dubai		Emirates ACC Dubai APP			AF<2004	250					New project
Fujairah		Fujairah APP			MI(A/C)	250					
Ras Al Khaimah		Ras Al Khaimah APP	I	80	X						
Tarif		Emirates ACC Bahrain ACC Muscat ACC Abu Dhabi APP			F(A/C) <2001	240					New project
YEMEN											
Aden Mukalla Sana'a		Aden APP -Mukalla APP Sana'a APP	F		I(A/C) I(A/C) I(A/C)						New project Planned

Appendix 4A to Table CNS 4

Code Allocation Status for Bahrain

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
BAHRAIN					

Code Allocation Status for Egypt

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
EGYPT					
Aswan ERR	02		ad hoc 17/03/2009	NANSC	MICA/ALLOC461
Asyut ERR	03		ad hoc 17/03/2009	NANSC	MICA/ALLOC462
Cairo ERR	04		ad hoc 17/03/2009	NANSC	MICA/ALLOC463
Hurghada ERR	05		ad hoc 17/03/2009	NANSC	MICA/ALLOC464
Messa Matruh ERR	06		ad hoc 17/03/2009	NANSC	MICA/ALLOC465

Code Allocation Status for Iran

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
IRAN					

Code Allocation Status for Iraq

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		

IRAQ						

Code Allocation Status for Israel

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
ISRAEL					

Code Allocation Status for Jordan

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
JORDAN					

Code Allocation Status for Kuwait

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
KUWAIT					

Code Allocation Status for Lebanon

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
LEBANON					
Baysour	02		23/04/2009	DGCA	MICA/ALLOC467

Code Allocation Status for Libya

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
LIBYA					

Code Allocation Status for Oman

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
OMAN					
	11		Ad-hoc, 14/06/2010	DGMAN	

Code Allocation Status for Qatar

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
QATAR					

Code Allocation Status for Saudi Arabia

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
SAUDI-ARABIA					
Madinah	04		Ad-hoc, 06/05/2010	GACA	MICA/ALLOC529
Rafha	05		Ad-hoc, 06/05/2010	GACA	MICA/ALLOC530
Zamosc	10		Ad-hoc, 06/05/2010	GACA	MICA/ALLOC531

Code Allocation Status for Sudan

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
SUDAN					

Code Allocation Status for Syria

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
SYRIA					

Code Allocation Status for UAE

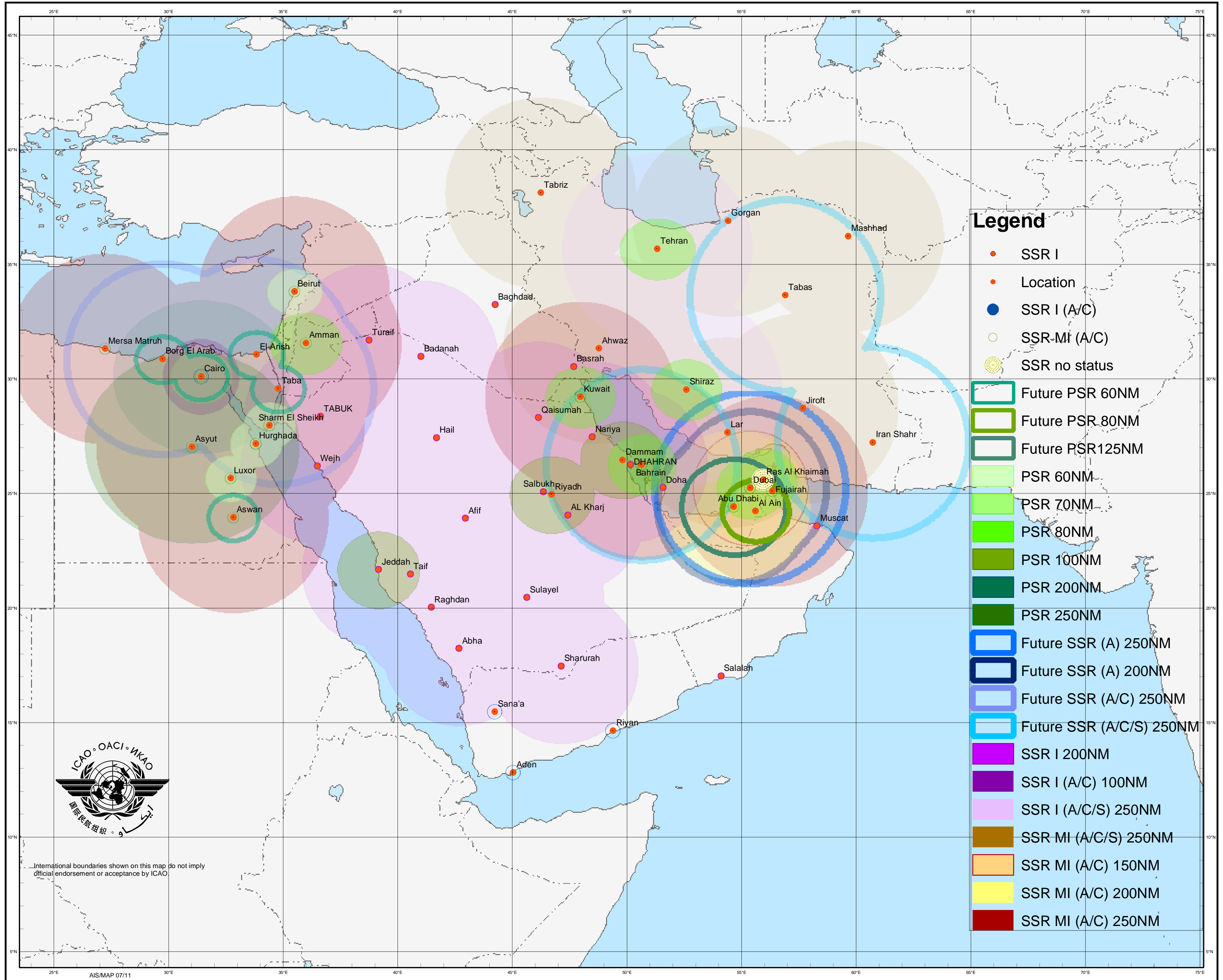
MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
EMIRATES					

Code Allocation Status for Yemen

MODE S Interrogator Code Allocations as of 06 May 2010 (Cycle 10)

Mode S Station	ALLOCATED CODE			OPERATOR	REFERENCE/ REMARKS
	II	SI	Effective Date		
YEMEN					



- ### Legend
- SSR I
 - Location
 - SSR I (A/C)
 - SSR-MI (A/C)
 - SSR no status
 - ▭ Future PSR 60NM
 - ▭ Future PSR 80NM
 - ▭ Future PSR 125NM
 - ▭ PSR 60NM
 - ▭ PSR 70NM
 - ▭ PSR 80NM
 - ▭ PSR 100NM
 - ▭ PSR 200NM
 - ▭ PSR 250NM
 - ▭ Future SSR (A) 250NM
 - ▭ Future SSR (A) 200NM
 - ▭ Future SSR (A/C) 250NM
 - ▭ Future SSR (A/C/S) 250NM
 - ▭ SSR I 200NM
 - ▭ SSR I (A/C) 100NM
 - ▭ SSR I (A/C/S) 250NM
 - ▭ SSR MI (A/C/S) 250NM
 - ▭ SSR MI (A/C) 150NM
 - ▭ SSR MI (A/C) 200NM
 - ▭ SSR MI (A/C) 250NM



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