ATS Messaging Routing Directory

Part I - Documentation

Overview, Explanations, Procedures	
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Edition	Date	Comments	section/pages affected
1.0	25/11/1993	First issue of ENRD	all
1.01-1.07	1993-1999	Regular updates of the ENRD	all
2.0	27/03/1999	First issue of ENRD Part 1 - Documentation	all
2.1-3.2	1999-2000	Regular updates of the ENRD/working drafts	all
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5.0	19/04/2001	Regular updates of the ENRD	all
6.0	21/03/2002	Revision in accordance with the introduction of the CIDN Management Centre (CMC)	all
6.1-6.6	2001-2007	Regular updates of the ENRD Part 1	all
6.7	29/05/2007	Revision in accordance with the introduction of the ATS Messaging Management Centre (AMC) (proposed Version 7.0)	all
6.8	14/09/2007	Incorporation of OG comments, transformation into ICAO EUR Doc format (layout, fonts) (proposed Version 7.0)	all
6.9	03/10/2007	Rename Part IV to Part V layout changed to table structure in 2.1 and 2.3 asterisks removed for ED, EBBDZM 'Spanish COM Centre' replaced by 'Madrid COM Centre' added 'or AMHS'	4,5 6-10 14 20-22 33
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8.0	02/09/2008	Inclusion of the guidelines for handling of RN and SS acknowledgement messages in Operational procedures (creation of § 6.9)	39

Edition	Date	Comments	section/pages affected
8.1	28/11/2008	Adoption of the document cover in line with the ICAO EUR Doc format (layout, fonts), Merging of Part IV and Part V to one Part IV, Transfer of the COM Chart publication into the ATS Messaging Management Manual, Editorial improvements, updated AIRAC date list	Cover page Chapter 1 section deleted 6.4.5
8.2	20/02/2009	Update of the AMHS Routing Table format, Replacement of LOWW by LOOO	2.3 5.1
9.0	02/04/2009	Version after presentation at AFSG/12	
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10.0	24/04/2013	Adopted version (AFSG/17)	
10.1	14/03/2014	(1) Introduction of COM Centre Evacuation Procedure (2) Revision of operational procedures, (3) Introduction of unified PDAI **ZZINFO	 6.7 6.6 6.6, 6.7
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11.0	10/04/2014	Adopted version (AFSG/18)	
11.1	13/03/2015	Introduction of AFTN message segmentation as adopted by AFSG/1 (CP-ENRD-14-003),	 6.7.2.1, 6.10
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12.1	25/04/2018	Introduction of Regional Focal Point Introduction of Planning Principles for Interregional Connections	6.5.1.3, 6.5.2.1, 6.5.2.3 and 6.5.3.2 4 and 4.1
13.0	26/04/2018	Adopted version (AFSG/22)	
13.1	21/05/2018	Renaming of ENRD into AMRD, Editorial refinements – Overview; Comment field in AMHS Routing Table completed (CP-ENRD-18-003)	All, Chapter 1 Chapter 2
13.2	08/01/2019	Incorporation of CP-ENRD-18-002 (Introduction of Global Routing) and CP-ENRD-18-004 (Introduction of entries for local routing responsibility)	6.5, 2.1, 2.3
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14.2	12/02/2020	Incorporation of CP-AMRD-19-002 – Updates after CIDIN relay removal in EUR, Incorporation of CP-AMRD-19-003 – Re-word interregional gateway responsibility and Third Party/SITA Gateway Information	7.1, 7.3, 7.4, 7.6 4.1.3, new Chapter 5
15.0	12/11/2020	Adopted version (AST TF/01)	
15.1	18/06/2024	Incorporation of CP-AMRD-23-001- Updates on Interregional Gateways.	4, 4.1.1.1, 4.1.2.1, 4.1.2.2, 4.2, 4.2.1, 4.2.2

Contents of the Document

1. Overview of the ATS Messaging Routing Directory (AMRD)

1.1 The whole ATS Messaging Routing Directory (AMRD) consists of four parts:

1. Part I – Documentation (this document)
2. Part II – Regional Routing Tables (created by ATS Messaging Management Centre)
3. Part III – Regional Network Inventory (created by ATS Messaging Management Centre)
4. Part IV – COM Charts per ICAO Region ("Booklet 'COM Charts per ICAO Region' ")

1.2 The **Part I – Documentation** contains the explanation of the tables used within the Part II and Part III of the ATS Messaging Routing Directory as well as Definitions and operational procedures (approved for and used in the EUR/NAT Region, recommended for use in all ICAO Regions).

1.3 The **Part II – Regional Routing Tables** contains all routing tables of AFTN, AMHS and CIDIN COM Centres in an ICAO Region (AFI, APAC, EUR/NAT, MID, NAM/CAR or SAM) valid from the indicated implementation date. The tables related to a COM Centre are:

- AFTN Routing Table (COM Centre with AFTN capability)
- CIDIN Routing Table (COM Centre with CIDIN capability)
- AMHS Routing Table (COM Centre with AMHS capability)

1.4 The **Part III – Regional Network Inventory** contains information in addition to Part II for all COM Centres of the ICAO Regions (AFI, APAC, EUR/NAT, MID, NAM/CAR and SAM). The tables related to a COM Centre are:

- General Information (Persons and Contacts, COM Applications, Addresses, Capabilities)
- CIDIN Virtual Circuit Group (if the COM Centre is a CIDIN Centre only)
- Connections and its characteristics

1.5 The **Part IV – COM Charts per ICAO Region** summarise the connectivity within a given ICAO Region and to other ICAO Regions.

1.6 All these documents are available at the ATS Messaging Management Centre (AMC) and can be downloaded by the CCC Operator and other AMC users, subject to access rights granted to the considered user category.

(http://www.eurocontrol.int/amc)

1.7 Additionally a document **Static Report (updated data)** is provided and downloadable (as pdf or zip file) containing all changes either proposed by the AMC Operator or made by the CCC Operator by himself. All COM Centre tables being affected by changes are included in the document and the relevant changes are highlighted in red.

Note.– In 2019 the ICAO EUR Aeronautical Fixed Service Group (AFSG) was replaced by ICAO EUR AFS to SWIM Transition Task Force (AST TF) according to COG/74&RCOG/11 Decision /4.

2. Explanation of the Routing Tables in Part II

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

2.1 AFTN Routing Table

AFTN Routing Table								
Destination	**Existing Main**	**M**	**Existing Altn**	**M**	**Planned Main**	**M**	**Planned Altn**	**M**
A	EGGGA	[ ]	LIII	[ ]		[ ]	LIIIA	[ ]
BG	BGSF	[ ]		[ ]	BGSFA	[ ]		[ ]
BI	BICC	[ ]		[ ]		[X]		[ ]
C	EGGGA	[ ]	LIII	[ ]		[ ]	LIIIA	[ ]
D*	LGGGA	[ ]	(LIII)	[ ]		[ ]	LIIIA	[ ]
DT	LIII	[ ]	(LPPTA)	[ ]	LIIIA	[ ]	(LPPTA)	[ ]
EB		[X]		[ ]		[ ]		[ ]

Legend:

Destination	First letters of an AFTN address (8 letter address) relevant for the routing
A	All destination addresses starting with A
D*	All destination addresses starting with D except those indicated directly below (DT)
DT	Destination addresses starting with DT
Existing Main	Existing Main outgoing AFTN circuit, CIDIN Ax or internal route to an AFTN/AMHS gateway MTCU for this Destination address currently used in the COM Centre
EGGGA	Defined Exit address (Ax) for the Destination address (Ad) starting with these letters
BGSF	Represents the outgoing AFTN circuit If the outgoing AFTN circuit is identical with the own COM Centre ID (Location Indicator) then the entry represents local routing responsibility for the associated destination address(es)
M	The M (MTCU) column located next to the Existing Main column is part of the Existing Main route or next hop. It includes a checkbox which can be ticked or unticked
[ ]	No routing to AMHS for this destination
[X]	Messages for this Destination address must be internally routed to AMHS via the MTCU local to the AFTN/AMHS Gateway. Further routing from the COM Centre is then performed using AMHS routing tables. When the checkbox is ticked the value in the associated Existing Main column must be empty

Existing Altn	Existing Alternate outgoing AFTN circuit or CIDIN Ax for this Destination address used if the Main is not available
LIII	Represents the outgoing AFTN circuit as Alternate
(LPPTA)	Defined the Exit address (Ax) as alternate for the Destination address (Ad) **Terms in brackets:** For use of the Exit Address or the AFTN circuit as alternate, co-ordination is required
M	The M (MTCU) column located next to the Existing Altn column is part of the Existing Altn route or next hop. It includes a checkbox which can be ticked or unticked, with the same meaning and behaviour as for the Existing Main column
[ ] / [X]	An unticked / ticked checkbox
Planned Main	Planned Main to replace the Existing Main in the future on a defined date
BGSFA	Planned Exit address (Ax) for the Destination address (Ad), will replace the Existing Main entry
M	The M (MTCU) column located next to the Planned Main column is part of the Planned Main route or next hop. It includes a checkbox with the same meaning and behaviour as for the Existing Main column
[ ] / [X]	An unticked / ticked checkbox
Planned Altn	Planned Alternate to replace the Existing Alternate in the future on a defined date. **Terms in brackets:** For use of the Exit Address or the AFTN circuit as alternate, co-ordination is required
LIIIA	Planned Alternate Exit address (Ax) for the Destination address (Ad), will replace the Existing Altn entry
M	The M (MTCU) column located next to the Planned Altn column is part of the Planned Altn route or next hop. It includes a checkbox with the same meaning and behaviour as for the Existing Main column.
[ ] / [X]	An unticked / ticked checkbox

2.2 CIDIN Routing Table

CIDIN Routing Table						
Exit Address	**Existing Main**	**Existing Altn**	**E RC**	**Planned Main**	**Planned Altn**	**P RC**
BICC	BICC	EHAM	10		CYAA	
EKCH			10	EKCH	(EDDD)	

Legend:

Exit Address	First four letters of the Exit addresses (Ax) relevant for the selection of connection to be used.
Existing Main	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 3.2.
Existing Altn	Shows the alternate outgoing direction (main connection path to another 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 3.2. **Terms in brackets:** For use of alternate VCG, co-ordination is required
E RC	Existing Routing Costs (may be used for "optimum routing" definition, default value (10) set)
Planned Main	Planned to replace the Existing Main VCG in the future on a defined date.
Planned Altn	Planned to replace the Existing Alternate VCG in the future on a defined date. **Terms in brackets:** For use of alternate VCG, co-ordination is required
P RC	Planned Routing Costs (may be used for "optimum routing" definition)

2.3 AMHS Routing Table

AMHS Routing Table												
Destination				**Existing Main**		**Existing Alternate**		**Planned Main**		**Planned Alternate**		**Comments**
C	**ADMD**	**PRMD**	**O**	**COM**	**M**	**COM**	**M**	**COM**	**M**	**COM**	**M**	
XX	ICAO	EG			[X]		[ ]	EGGG	[ ]		[ ]	
XX	ICAO	EUROPE	EUROCONTROL-NMH	EBBD	[ ]	LFPY	[ ]		[ ]		[ ]	
XX	ICAO	EUROPE	EUROCONTROL-NMB	LFPY	[ ]	EBBD	[ ]		[ ]		[ ]	
XX	ICAO	EUROPE	EAD	EDDD	[ ]	(LFLF)	[ ]		[ ]		[ ]	
XX	ICAO	GERMANY		EDDD	[ ]		[ ]		[ ]		[ ]	
XX	ICAO	LH			[X]		[ ]	LOOO	[ ]		[ ]	
XX	ICAO	SPAIN		LFLF	[ ]	(EDDD)	[ ]		[ ]		[ ]	

Legend:

Destination		**First attributes of an AMHS address relevant for the routing, including at least the Global Domain Identifier (GDI) of the destination Management Domain**
C		Country-name used in AMHS addresses of the destination AMHS MD
ADMD		ADMD-name used in AMHS addresses of the destination AMHS MD
PRMD		PRMD-name used in AMHS addresses of the destination AMHS MD
O		Organisation-name used in AMHS addresses of the destination AMHS MD, requiring a specific routing because of the existence of multiple COM Centres in the AMHS MD. Any organisation-name value used in the CAAS table for an AMHS MD may be present in a routing to that AMHS MD.
	XX/ICAO/ EUROPE/ EUROCONTROL-NMH	All AMHS destination addresses starting with C=XX/A=ICAO/P=EUROPE/O=EUROCONTROL-NMH
	XX/ICAO/SPAIN	All AMHS destination addresses starting with C=XX/A=ICAO/P=SPAIN

Existing Main		**Existing main outgoing AMHS connection or internal route to an AFTN/AMHS gateway MTCU for this Destination address**
COM		Outgoing AMHS connection to the next COM Centre in the AMHS route
	EBBD	The next hop in the AMHS route is EBBD If the next hop in the AMHS route is identical to the own COM Centre ID (Location Indicator) then the entry represents local routing responsibility (e.g. in a pure AMHS communication environment)
M		The M (MTCU) column located next to the Existing Main column is part of the Existing Main route or next hop. It includes a checkbox which can be ticked or unticked.
	[ ]	No routing to AFTN for this destination
	[X]	Messages are routed to AFTN via the MTCU local to the AFTN/AMHS Gateway. Further routing is then performed using AFTN routing tables. When the checkbox is ticked, the value in the associated Existing Main column must be empty.

Existing Alternate	**Alternate outgoing AMHS connection for this Destination address used if the Main is not available**
COM	Outgoing AMHS connection to the next COM Centre in the AMHS route
LFPY	Outgoing AMHS connection, if the Main is not available
(LFLF)	Outgoing AMHS connection, if the Main is not available **Terms in brackets:** For use of the AMHS connection as alternate, co-ordination is required
M	The M (MTCU) column located next to the Existing Alternate column is part of the Existing Alternate route or next hop. It includes a checkbox which can be ticked or unticked.
[ ]	No routing to AFTN for this destination
[X] ([X])	Messages are routed to AFTN via the MTCU local to the AFTN/AMHS Gateway. Further routing is then performed using AFTN routing tables. When the checkbox is ticked, the value in the associated Existing Alternate column must be empty. **Terms in brackets:** For use of MTCU as alternate, co-ordination is required.

Planned Main	**Planned to replace the Existing Main in the future on a defined date**
COM	As in Existing Main
M	The M (MTCU) column as in Existing Main
[ ] / [X]	An unticked / ticked checkbox

Planned Alternate	**Planned to replace the Existing Alternate in the future on a defined date**
COM	As in Existing Alternate
M	The M (MTCU) column as in Existing Alternate
[ ] / [X] ([X])	An unticked / ticked checkbox **Terms in brackets:** For use of MTCU as alternate, co-ordination is required.

Comments	**Optional element under responsibility of CCC Operator/External COM Operator**
	Free text field *Note.– The content of this field can be proposed by the AMC Operator initially or provided/maintained by the concerned CCC/External COM Operator to the AMC Operator using an AMC import file.*

3. Table explanation of the Network Inventory in Part III

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

3.1 General Information

3.1.1 The General Information Tables give an overview about operational, technical and administrative information of the COM Centre itself and some characteristics of its capabilities.

3.1.2 Following sub tables provide information about:

- Persons and Contacts
- COM Centres (Applications and Address)
- AFTN/CIDIN Capabilities (CIDIN Entry/Exit Addresses)
- AMHS Capabilities

3.2 Virtual Circuit Groups

3.2.1 The Virtual Circuit Group Tables give an overview about the existing and planned CIDIN virtual circuit groups:

Virtual Circuit Groups						
CIDIN Existing Circuit Group						
Remote COM	**Primary VC**	**R C**	**Secondary VC 1**	**Secondary VC 2**	**Secondary VC 3**	**Secondary VC 4**
EBBB	EDDD1	5	EDDD2			
EDDD	EDDD1	5	EDDD2			
CIDIN Planned Circuit Group						
Remote COM	**Primary VC**	**R C**	**Secondary VC 1**	**Secondary VC 2**	**Secondary VC 3**	**Secondary VC 4**

Legend:

Remote COM	A Virtual Circuit Group consists of a number of Virtual Circuits (VC) that connects 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.
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.
R C	Routing Costs (may be used for "optimum routing" definition, default value 5 set)
Secondary VC 1	First Secondary Virtual Circuits, established actual either as a PVC (Permanent Virtual Circuit) or a SVC (Switched Virtual Circuit).
Secondary VC 2	Second Secondary Virtual Circuits, established actual either as a PVC (Permanent Virtual Circuit) or a SVC (Switched Virtual Circuit).
Secondary VC 3	Third Secondary Virtual Circuits, established actual either as a PVC (Permanent Virtual Circuit) or a SVC (Switched Virtual Circuit).
Secondary VC 4	Fourth Secondary Virtual Circuits, established actual either as a PVC (Permanent Virtual Circuit) or a SVC (Switched Virtual Circuit).

3.3 Connections

Connections							
Existing Connections							
Remote COM	**Protocol**	**Network Address**	**Link Type**	**Capacity**	**Supplier**	**Active**	**Remark**
LTAC	AFTN			2x2.4k		[X]	
LGGG	CIDIN PVC		virtual	9.6k		[X]	
VTBB	AFTN		leased line	2.4k		[X]	
LYYY	AMHS/ TCP-IP	192.168.0.5	IP VPN	64k		[X]	
LFPY	AFTN X.25			2x4.8k		[X]	
Planned Connections							
Remote COM	**Protocol**	**Network Address**	**Link Type**	**Capacity**	**Supplier**	**Active**	**Remark**

Legend:

Remote COM	Connection to the COM Centre represented by the location indicator
Protocol	Protocol used on this connection (conventional AFTN, AFTN over X.25, CIDIN via PVC or CIDIN via SVC, AMHS/TCP-IP, AMHS/TP0-X.25,AMHS). Field from a closed list of protocols
Network Address	Network address of remote COM Centre in case of use of an IP or ATN/CLNP infrastructure.
Link Type	Characteristic of the type of the link, e.g. virtual, network connection. Free text field
Capacity	Actual capacity available for the connection (bits per second), may show the capacity of the overall network access of the COM Centre, in case of a common access for several connections. Free text field
Supplier	Provider of the circuit of network infrastructure supporting the connection
Active	A check box depicting the status of the connection, ticked when existing, unticked when planned.
Remark	A free text field

Note.– In case of using a Network connection between two COM Centres the capacity of the access lines from these COM Centres to the Network can be different. In such a case the minor value should be used in the COM Chart to indicate the link capacity between those COM Centres.

4 Gateway Centres of the EUR/NAT Region to other Regions

4.1 Planning interregional connections

4.1.1 General

4.1.1.1 Several institutional, operational and technical aspects must be considered in the planning process of interregional connections between EUR/NAT and adjacent ICAO Regions. The first step in such a planning process is the identification of COM Centres, based on agreed general principles that could potentially undertake the gateway role. In order to obtain or maintain its designation as an interregional Gateway Centre, a COM Centre should fulfil the requirements of 4.1.2 and 4.1.3 below, have the validation of the Operational Group and go into operation following the endorsement of the AST TF.

4.1.1.2 For the definition of the general planning principles ICAO Doc 8259 has been used as reference. In addition to these principles, a number of operational and technical factors should be taken into account before designating a COM Centre as an interregional gateway.

4.1.2 Planning Principles

4.1.2.1 Entry/exit points should be ~~close to the periphery of the Region~~ technical advanced and capable enough to support the exchange of Messages containing FTPB between regions. In contrast to ICAO Doc 8259, there is no need for these points to be located on the periphery of the region.
4.1.2.2 ~~Entry/exit points should be the minimum possible; i~~In principle, at least two gateways to each adjoining Region should be defined to provide appropriate redundancy to those Regions.

.

4.1.2.3 Bilateral procedures should be in place between the COM Centres which are Gateways to handle the outages of interregional connectivity. Primary and secondary gateways should be interconnected to avoid unnecessary rerouting by other COM Centres within each region.

4.1.2.4 Existing links should be used to the possible extent; otherwise suitable new circuits should be established between the relevant adjacent Regions.

4.1.2.5 Entry/exit points should be agreed at regional air navigation meetings or appropriate high-level. They should be as stable as possible and well known regionally and globally.

4.1.3 Operational and technical considerations

4.1.3.1 The type (e.g. AFTN and/or AMHS) and level of service (e.g. basic and/or extended AMHS service) supported by a COM Centre should be considered, taking into account the operational traffic to be exchanged between the adjacent regions in normal as well as extraordinary situations (e.g. rerouting of interregional traffic).

4.1.3.2 As new messaging requirements may entail additional capacity, the capacity of existing links should be reviewed. In case of establishment of new interregional connections, bandwidth requirements and connection availability and reliability should be considered.

4.1.3.3 Gateway Centres should:

- Maintain to the best of their ability a good working relationship with their interregional partners.
- Be familiar with practices, procedures and other particularities of both the EUR/NAT and adjacent environments (including security)
- Where possible participate in the following forums: AFS to SWIM Transition Task Force (AST TF) of the EASPG and its working groups (Operations and Planning Groups); equivalent Partner Region meetings as requested.
- Ensure symmetric routing is implemented and maintained with their adjacent regions.

- Ensure routing arrangements are stable, as simple as possible and facilitate tracing of traffic at the interregional level.

4.2 Designated Gateway Centres in the EUR/NAT Region

~~(defined by the AFSG/4 Meeting)~~

4.2.1 On basis of the decision of the EUR AFS Meeting in March 1995 and the new interregional Routing to the ASIA/PAC region agreed on the EUR AFS Meeting in April 1997 as well as the decision of the AFSG/4 Meeting in April 2001 and AST-TF 05 Meeting in June 2024, the gateway centres for interregional AFTN/AMHS traffic exchange are:

For the MID Region	Athens and Nicosia
For the NAM Region	London and Lisbon
~~For the NAT Region~~	~~London and Bergen~~
For the CAR Region	London* and Madrid*
For the SAM Region	Madrid and London*
For the ASIA/PAC Region	London, Rome and Moscow ~~*)~~
For the AFI Region	~~Bordeaux~~, Athens*, ~~Rome~~ and Madrid ~~*)~~

~~*) indirect connections~~

~~*) There should be two gateways to each adjoining region, except for AFI and ASIA/PAC regions where more connectivity is required due to the particular communication problems in those regions. (See 2.2 of the EUR AFS 95 Report and 3.1 of the AFSG/4 Report)~~

4.2.2 ~~Until~~ As of the ~~AFSG/10~~ AST TF/05 Meeting in ~~April 2007~~ June 2024, the Gateway Centres for interregional AMHS traffic exchange remain as specified above. This may be subject to future discussions and/or amendments depending on respective AMHS development and implementation plans in the EUR/NAT Region and in other ICAO Regions.

5. AFTN/AMHS Gateway Centres to other Networks

5.1. General

5.1.1 The AMHS network is consistently evolving in most of the ICAO Regions. Third parties and other networks (e.g. SITA, SWIM, etc) are also developing the means to be compatible and connected to the AFS in an AMHS environment. For Operational matters, COM Centres that are gateways for those networks have been identified in the following paragraphs.

5.2. AMHS Gateways to SITA

5.2.1 The SITA Regional Gateways connected the AFS Network via an AMHS Gateway are identified in the following table (The latest status of gateways connected to the AFS is shown in the AMC):

ICAO REGION	COM CENTRES	STATES
AFI	FAOR	South Africa
ASIA/PAC	VTBB	Thailand
	WSSS	Singapore
EUR/NAT	EDDD	Germany
	LSSS	Switzerland
MID	OJAM	Jordan
	OLBA	Lebanon
NAM/CAR	KATL	United States
SAM	SBBR	Brazil
	SAEZ	Argentina

6. General overview about CIDIN Ad-Ax Relationship listed by Regions

Remark 1: The following tables give an overview about the relationship of the Destination addresses (Ad) to Exit addresses (Ax). A table contains the Destination addresses of a region or a group of them. The tables of the COM Centres are adapted to their specifics (e.g. for Gateway Centres).

Exceptions regarding main and/or alternate exit addresses concerning only one COM centre are not mentioned in the following tables.

Remark 2: CIDIN COM centres inside the U area (e.g. UHHH, UIII, UNNT, URRR) have specific tables not reflected in this general overview.

6.1 Ad - Ax Relation for the EUR Region

Destination	Existing Main	Existing Alternate	Remark
EB*	EBBBA		
EBBDZK	EBBDA		
EBBDZM	EBBDA		
ED	EDDDA		
EE	EFHKA	ULLLA	
EF	EFHKA		
EG	EGGGA		
EH	EHAMA		
EI	EGGGA	LFLFA	
EK	EKCHA		
EL	EBBBA		
EN	ENHBA		
EP	EPWWA		
ES	ESSSA		
ET	EDDDA		
EUCB	LFPYA		EUROCONTROL/NM Bretigny
EUCH	EBBDA		EUROCONTROL/NM Haren
EUEC	EDDDA	EKCHA	European AIS Database (EAD)
EV	UUUUA	EPWWA	
EY	EPWWA	UUUUA	
LA	LIIIA		
LB	LBSFA		
LC	LCNCA		
LD	LDDDA		
LE	LEEEA		
LF*	LFLFA		
LFPYZK	LFPYA		
LFPYZM	LFPYA		
LG	LGGGA		
LH	LOOOA	LKPRA	Except BICC, EBBD, EPWW, LFPY, LZIB main LKPRA
LI	LIIIA		
LJ	LOOOA	LIIIA	
LK	LKPRA		
LL	LLBGA		

Destination	Existing Main	Existing Alternate	Remark
LM	LIIIA	LGGGA	
LN	LFLFA		
LO	LOOOA		
LP	LPPTA		
LQ	LDDDA		Except EDDD, LKPR, LZIB main LOOOA
LR	LRBBA		
LS	LSSSA		
LT	LTACA		
LU	UUUUA	LOOOA/LKPRA	Except BICC, EFHK, ESSS, LGGG, LTAC, LZIB main LKPRA
LV	LLBGA		
LW	LGGGA	LBSFA	Except LKPR, LRBB, LTAC main LBSFA
LX	EGGGA		
LY	LGGGA	LIIIA	
LZ	LZIBA		
U	UUUUA	ULLLA	
UL	ULLLA	UUUUA	
UK	LKPRA	UUUUA	
UM	UUUUA	LKPRA	

6.2 Ad - Ax Relation for the NAT/NAM/CAR Region

Destination	Existing Main	Existing Alternate	Remark
BG	BICCA	EGGGA	
BI	BICCA	EGGGA	
BKPR	BICCA	EGGGA	
C	EGGGA	BICCA/LPPTA	Except EFHK, EKCH, ENHB, ESSS main BICCA
K	EGGGA	BICCA/LPPTA	
M	EGGGA	LEEEA	
P	EGGGA	BICCA/LPPTA	
T	EGGGA	LEEEA	

6.3 Ad - Ax Relation for the MID Region

Destination	Existing Main	Existing Alternate	Remark
O*	LCNCA	LGGGA	
OJ	LGGGA	LCNCA	
OS	LGGGA	LCNCA	

6.4 Ad - Ax Relation for the SAM Region

Destination	Existing Main	Existing Alternate	Remark
S	LEEEA	(EGGGA)	

6.5 Ad - Ax Relation for the ASIA/PAC Region

All E Centres and LEEE, LFLF, LFPY, LPPT

Destination	Existing Main	Existing Alternate	Remark
A	EGGGA	LIIIA	
N	EGGGA	LIIIA	
R	EGGGA	LIIIA	
V	EGGGA	LIIIA	EBBD, LFPY : only for VT area main LIIIA
W	EGGGA	LIIIA	
Y	EGGGA	LIIIA	
Z	EGGGA	LIIIA	

All L Centres except LEEE, LFLF, LFPY, LPPT

Destination	Existing Main	Existing Alternate	Remark
A	LIIIA	EGGGA	
N	LIIIA	EGGGA	
R	LIIIA	EGGGA	
V	LIIIA	EGGGA	
W	LIIIA	EGGGA	
Y	LIIIA	EGGGA	
Z	LIIIA	EGGGA	

6.6 Ad - Ax Relation for the AFI Region

Destination	Existing Main	Existing Alternate	Remark
D*	LFLFA	LEEEA	
DT	LIIIA	LFLFA	
F*	LEEEA	LFLFA	
FH	EGGGA		
FJ	EGGGA		
FN	LPPTA		
FP	LPPTA		
FQ	LPPTA		
G*	LEEEA	LFLFA	
GV	LPPTA	LEEEA	
H*	LGGGA	LCNCA	
HD	LFLFA		

7. Operational Procedures

7.1 Introduction of new CIDIN COM Centres in the International Network

This section has been removed as obsolete.

No new CIDIN COM Centres expected to be introduced.

7.2 Introduction of new AMHS COM Centres in the International Network

7.2.1 The procedure for the introduction of a new AMHS COM Centre in the international AMHS network is described in Appendix A to the ATS Messaging Management Manual.

7.3 QSP procedure in CIDIN operations

This section has been removed as obsolete.

7.4 QSP procedure in AMHS and AFTN/CIDIN/AMHS mixed operations

7.4.1 Introduction

7.4.1.1 In case of unilateral changes to the AMHS Routing there is the risk to introduce a Loop Routing. This would result in non-delivery of messages. Consequently, all changes to AMHS Routings shall be coordinated between the involved COM Centres.

7.4.2 Mixing AFTN, CIDIN and AMHS Connections

7.4.2.1 Following scenarios could be subject to coordination:

- AFTN address to AFTN Circuit rerouting,
  Existing procedures in Annex 10 apply

- AFTN address to MTCU rerouting (alternate route through AMHS),
  Local procedure required

- AMHS address rerouting to MTCU (alternate route through AFTN),
  Local procedure required

- AMHS address rerouting to MTA,
  QSP message defined in AMRD Part I (see 7.4.7.1)

- And any combination thereof.

Note.– Since the CIDIN Relay removal in the EUR Region, the remaining CIDIN traffic is handled as AFTN traffic,

7.4.3 AFTN to AMHS Rerouting

7.4.3.1 Commonly, AFTN Routing Tables contain shortened ICAO Country Codes. For example the LOOO AFTN Table contains the entry “M”. This is a simplification for the Country Codes “MB, MD, MG, MH, MK, MM, MN, MP, MR, MS, MT, MU, MW, MY, MZ”. Prior to rerouting the AFTN destination “M” to the MTCU, the corresponding AMHS PRMDs **must not** be routed to the MTCU:

/C=XX/A=ICAO/P=MB/,	/C=XX/A=ICAO/P=MD/,	/C=XX/A=ICAO/P=MG/,
/C=XX/A=ICAO/P=MH/,	/C=XX/A=ICAO/P=MK/,	/C=XX/A=ICAO/P=MM/,
/C=XX/A=ICAO/P=MN/,	/C=XX/A=ICAO/P=PANAMA/,	/C=XX/A=ICAO/P=MR/,
/C=XX/A=ICAO/P=MS/,	/C=XX/A=ICAO/P=MT/,	/C=XX/A=ICAO/P=MU/,
/C=XX/A=ICAO/P=MW/,	/C=XX/A=ICAO/P=MY/,	/C=XX/A=ICAO/P=MZ/.

7.4.3.2 Therefore, COM Centre Operators need to be aware of the relation between shortened AFTN addresses and AMHS PRMDs. Operators have to strictly avoid the creation of a “barred routing” in their local MTCU. A local procedure shall ensure this.

7.4.4 AMHS to AFTN Rerouting

7.4.4.1 COM Centre Operators need to be aware of the relation between AMHS PRMDs and AFTN addresses. An AMHS PRMD may be associated to one or more AFTN Country Codes. For example /C=XX/A=ICAO/P=SPAIN/ corresponds to the AFTN Country Codes GC, GE and LE.

7.4.4.2 Consequently, prior to rerouting the PRMD /C=XX/A=ICAO/P=SPAIN/ to the MTCU, the COM Centre Operator has to ensure that the AFTN indicators GC, GE and LE are **not** routed to the MTCU.

7.4.4.3 Therefore, Operators have to strictly avoid the creation of a "barred routing" in their local MTCU. A local procedure shall ensure this.

7.4.5 AMHS to AMHS Rerouting

7.4.5.1 Operators shall strictly avoid loop routings in the AMHS network, as this would cause non-delivery of messages. Consequently, coordination between AMHS COM Centres is **mandatory**.

7.4.5.2 To avoid misunderstandings the COM Centres shall unambiguously coordinate all rerouted AMHS addresses. Also the notation of AMHS addresses shall be consistent in the coordination procedures. The X.400 protocol suite does not standardise the notation of O/R addresses. A common practice is to use slash "/" as a delimiter between the attributes and use abbreviated names of the attributes.

For example: /C=XX / A=ICAO / P=AUSTRIA / O=LOVV / OU1=LOOO / CN=LOOOYFYX/. To simplify the notation it is proposed to omit the attributes names and delimit the attributes values by slash "/": /XX/ICAO/AUSTRIA/LOVV/LOOO/LOOOYFYX/.

7.4.6 Message types

7.4.6.1 Following coordination message types are defined.

Type	Direction of co-ordination	Subject
Request	From the initiating body	The re-routing request
Reception	Response to the initiating body	Confirm processing of the request
Agreement	Response to the initiating body	Confirm the request
Partial Agreement	Response to the initiating body	Confirm the request in part
Disagreement	Response to the initiating body	Disagree to the request
Cancellation	From the initiating body	Stop the re-routing measure
Confirmation	Response to the initiating body	Confirm stopping

7.4.6.2 The ATS Message Priority should be FF. The content of the messages is defined as follows.

7.4.7 Message Content

7.4.7.1 Request an AMHS routing change

```
SVC AMHS ROUTING AGREEMENT REQUEST
<CCCC> TO REROUTE AMHS ADDRESSES TO <MTA-YYYY-n> <requested time>
<AMHS Address 1>
<AMHS Address n>
<DUE TO reason>
PLEASE CONFIRM AGREEMENT OR DISAGREEMENT
```

<CCCC>	The requesting COM Centre
<MTA-YYYY-n>	The remote MTA name
<requested time>	either a UTC time in format AT TIME hh:mm UTC, or AS SOON AS POSSIBLE
<AMHS Address>	The AMHS address(es) to be rerouted. Each address shall be listed in a separate line. The address shall consist of at least the attributes: *country*, *admd*, and *prmd* forming the Global Domain Identifier (GDI). To ensure unambiguousness also further attributes shall be added if necessary.
<DUE TO reason>	This part is optional. A reason for the request may be given.

Example 1: Due to a planned maintenance in the London COM Centre, Vienna requests a re-routing of some interregional traffic to Lisbon.

Recipient	LPPTYFYX
Originator	LOOOYFYX
ATS Message Priority	FF
Filing Time	011230

```
SVC AMHS ROUTING AGREEMENT REQUEST
LOOO TO REROUTE AMHS ADDRESSES TO MTA-LPPT-1 AS SOON AS POSSIBLE
/XX/ICAO/C/
/XX/ICAO/K/
/XX/ICAO/MB/
/XX/ICAO/MD/
/XX/ICAO/MG/
/XX/ICAO/MH/
/XX/ICAO/MK/
/XX/ICAO/MM/
/XX/ICAO/MN/
/XX/ICAO/PANAMA/
/XX/ICAO/MR/
/XX/ICAO/MS/
/XX/ICAO/MT/
/XX/ICAO/MU/
/XX/ICAO/MW/
/XX/ICAO/MY/
```

```
/XX/ICAO/MZ/
/XX/ICAO/TA/
/XX/ICAO/TB/
/XX/ICAO/TD/
/XX/ICAO/TF/
/XX/ICAO/TG/
/XX/ICAO/TI/
/XX/ICAO/TJ/
/XX/ICAO/TK/
/XX/ICAO/TL/
/XX/ICAO/TN/
/XX/ICAO/TNCA/
/XX/ICAO/TQ/
/XX/ICAO/TR/
/XX/ICAO/TT/
/XX/ICAO/TU/
/XX/ICAO/TV/
/XX/ICAO/TX/
/XX/ICAO/INDONESIA/
/XX/ICAO/MALAYSIA/
/XX/ICAO/WBSB/
/XX/ICAO/WP/
/XX/ICAO/SINGAPORE/
DUE TO MAINTENANCE IN EGGG
PLEASE CONFIRM AGREEMENT OR DISAGREEMENT
```

Example 2: Due to a planned maintenance of the local network infrastructure towards PENS in the Vienna COM Centre, Vienna requests a re-routing of traffic to Frankfurt. Also the Organisation attribute of some O/R addresses is included.

Recipient	EDDDYFYX
Originator	LOOOYFYX
ATS Message Priority	FF
Filing Time	021300

```
SVC AMHS ROUTING AGREEMENT REQUEST
LOOO TO REROUTE AMHS ADDRESSES TO MTA-EDDD-1 AT TIME 20:00 UTC
/XX/ICAO/EB/
/XX/ICAO/EG/
/XX/ICAO/EUROPE/EAD/
/XX/ICAO/EUROPE/EUROCONTROL-NMB/
/XX/ICAO/EUROPE/EUROCONTROL-NMH/
/XX/ICAO/EUROPE/EURONOTAM/
DUE TO NETWORK MAINTENANCE IN LOOO
PLEASE CONFIRM AGREEMENT OR DISAGREEMENT
```

7.4.7.2 Confirmation of reception of the AMHS routing request

7.4.7.2.1 Before agreeing to a rerouting request a COM Centre might have to coordinate with subsequent COM Centres. In order to give a quick feedback to the requestor, the following message may be sent optionally.

```
SVC AMHS ROUTING REQUEST - STANDBY
REFERRING TO ORIGIN: <Filing Time> <Originator>
DUE TO <Text>
```

<Filing Time>	The Filing Time of the subject AGREEMENT REQUEST
<Originator>	The Originator of the subject AGREEMENT REQUEST
<Text>	Give an explanation why the processing of the AMHS rerouting request takes some time. Give also an estimated time, if possible.

Example: The Frankfurt COM Centre accepts the additional traffic and modifies the own routing tables if necessary.

Recipient	LOOOYFYX
Originator	LPPTYFYX
ATS Message Priority	FF
Filing Time	011231
SVC AMHS ROUTING REQUEST - STANDBY REFERRING TO ORIGIN: 011230 LOOOYFYX DUE TO COORDINATION WITH KATL REQUIRED	

7.4.7.3 Agreement to requested AMHS routing change

```
SVC AMHS ROUTING AGREEMENT: VALID FROM <confirmed time>
REFERRING TO ORIGIN: <Filing Time> <Originator>
```

<confirmed time>	either a UTC time in format hh:mm, or NOW
<Filing Time>	The Filing Time of the subject AGREEMENT REQUEST
<Originator>	The Originator of the subject AGREEMENT REQUEST

Example: The Frankfurt COM Centre accepts the additional traffic and modifies the own routing tables if necessary.

Recipient	LOOOYFYX
Originator	EDDDYFYX
ATS Message Priority	FF
Filing Time	021301
SVC AMHS ROUTING AGREEMENT: VALID FROM 20:00 UTC REFERRING TO ORIGIN: 021300 LOOOYFYX	

7.4.7.4 Partial agreement to requested AMHS routing change

```
SVC PARTIAL AMHS ROUTING AGREEMENT: VALID FROM <confirmed time>
REFERRING TO ORIGIN: <Filing Time> <Originator>
AGREEMENT FOR:
<AMHS Addresses>
DISAGREEMENT FOR:
<AMHS Addresses>
(DUE TO ...)
```

<confirmed time>	either a UTC time in format hh:mm, or NOW
<Filing Time>	The Filing Time of the subject AGREEMENT REQUEST
<Originator>	The Originator of the subject AGREEMENT REQUEST
<AMHS Address>	The AMHS address(es) to be rerouted. Each address shall be listed in a separate line. The address shall consist of at least the attributes: *country*, *admd*, and *prmd* forming the Global Domain Identifier (GDI). To ensure unambiguousness also further attributes shall be added if necessary.
<DUE TO reason>	This part is optional. A reason for the request may be given.

Example: The Lisbon COM Centre cannot accept traffic beyond NAM/CAR Region.

Recipient	LOOOYFYX
Originator	LPPTYFYX
ATS Message Priority	FF
Filing Time	011240

```
SVC PARTIAL AMHS ROUTING AGREEMENT: VALID FROM NOW
REFERRING TO ORIGIN: 011230 LOOOYFYX
AGREEMENT FOR:
/XX/ICAO/C/
/XX/ICAO/K/
/XX/ICAO/MB/
/XX/ICAO/MD/
/XX/ICAO/MG/
/XX/ICAO/MH/
/XX/ICAO/MK/
/XX/ICAO/MM/
/XX/ICAO/MN/
/XX/ICAO/PANAMA/
/XX/ICAO/MR/
/XX/ICAO/MS/
/XX/ICAO/MT/
/XX/ICAO/MU/
/XX/ICAO/MW/
/XX/ICAO/MY/
/XX/ICAO/MZ/
/XX/ICAO/TA/
```

```
/XX/ICAO/TB/
/XX/ICAO/TD/
/XX/ICAO/TF/
/XX/ICAO/TG/
/XX/ICAO/TI/
/XX/ICAO/TJ/
/XX/ICAO/TK/
/XX/ICAO/TL/
/XX/ICAO/TN/
/XX/ICAO/TNCA/
/XX/ICAO/TQ/
/XX/ICAO/TR/
/XX/ICAO/TT/
/XX/ICAO/TU/
/XX/ICAO/TV/
/XX/ICAO/TX/
DISAGREEMENT FOR:
/XX/ICAO/INDONESIA/
/XX/ICAO/MALAYSIA/
/XX/ICAO/WBSB/
/XX/ICAO/WP/
/XX/ICAO/SINGAPORE/
```

7.4.7.5 Disagreement to requested AMHS routing change

```
SVC AMHS ROUTING DISAGREEMENT
REFERRING TO ORIGIN: <Filing Time> <Originator>
(DUE TO ...)
```

<Filing Time>	The Filing Time of the subject AGREEMENT REQUEST
<Originator>	The Originator of the subject AGREEMENT REQUEST
<DUE TO reason>	This part is optional. A reason may be given.

Example: The Lisbon COM Centre cannot accept traffic for /XX/ICAO/C/ and /XX/ICAO/K/.

Recipient	LOOOYFYX
Originator	LPPTYFYX
ATS Message Priority	FF
Filing Time	011231
SVC AMHS ROUTING DISAGREEMENT REFERRING TO ORIGIN: 01230 LOOOYFYX DUE TO LINK LISBON-ATLANTA U/S	

7.4.7.6 Cancellation of the AMHS routing change

```
SVC AMHS ROUTING CANCELLATION
REFERRING TO ORIGIN: <Filing Time> <Originator>
(DUE TO ...)
```

<Filing Time>	The Filing Time of the subject AGREEMENT REQUEST
<Originator>	The Originator of the subject AGREEMENT REQUEST
<DUE TO reason>	This part is optional. A reason may be given.

Example: The London COM Centre is operational. Vienna cancels the re-routing.

Recipient	LPPTYFYX
Originator	LOOOYFYX
ATS Message Priority	FF
Filing Time	011255
SVC AMHS ROUTING CANCELLATION REFERRING TO ORIGIN: 01230 LOOOYFYX	

7.4.7.7 Confirmation of the cancellation of the AMHS routing change

```
SVC AMHS ROUTING CANCELLATION CONFIRMED
REFERRING TO ORIGIN: <Filing Time> <Originator>
```

<Filing Time>	The Filing Time of the subject AGREEMENT REQUEST
<Originator>	The Originator of the subject AGREEMENT REQUEST

Example: The Lisbon COM Centre conforms the cancellation.

Recipient	LOOOYFYX
Originator	LPPTYFYX
ATS Message Priority	FF
Filing Time	011256
SVC AMHS ROUTING CANCELLATION CONFIRMED REFERRING TO ORIGIN: 011255 LOOOYFYX	

7.5 Routing Update Procedure in the AFTN/CIDIN/AMHS network

7.5.1 Purpose of the procedure

7.5.1.1 The aim of the Routing Update Procedure is to ensure that the routing tables implemented by all AFTN/CIDIN/AMHS COM Centres correspond to those contained in the ATS Messaging Management Centre (AMC) database and that no inconsistency or other operational problems arise as a result of a routing modification not previously analysed and agreed formally. Additional information on the AMC concept is provided in the "ATS Messaging Management Manual".

7.5.1.2 The ATS Messaging Management Manual describes the Routing Update Procedure to be used by COM centres, when changes planned affect routing arrangements throughout the network. Such modifications should be performed in a co-ordinated manner at fixed dates (AIRAC cycle).

7.5.1.3 In the frame of the Routing Update Procedure, the ATS Messaging Management Manual and the AMC User Manuals provide detailed procedures to be used:

- by the CCCs to report Routing Data and retrieve and implement Routing advice,
- by External COM Operators to maintain their Routing Data in the framework of "Global Routing" within their ICAO Regions and
- by the AMC Operator to process Routing Data and generate and administer Routing advice.

7.5.1.4 Following the implementation of the centralised off-line network management service, the Routing Tables can be downloaded from the AMC and also obtained from the EDS.

7.5.2 Principles

7.5.2.1 Modifications to the EUR/NAT AFTN/CIDIN or AMHS routing arrangements may be initiated by COM Centres, the AMC Operator or the Operations Group of AST TF, in the frame of the tasks assigned to it by the AST TF.

7.5.2.2 The EUR/NAT AFTN/CIDIN or AMHS routing updates are scheduled in accordance with AIRAC dates. Not later than 7 days after an AIRAC date, all change requests or modifications are introduced into the AMC system or sent to the AMC Operator (deadline for change requests).

7.5.2.3 The global operation of AMHS require that the Routing updates of all ICAO Regions (provided by the External COM Operators) follow the AIRAC dates. The "Global Routing" ensures that the interregional AMHS communication will not be interrupted if global changes occur or address modifications become effective.

7.5.2.4 The COM Centre (s) shall send the change requests to the AMC Operator, at least 21 days before the AIRAC date at which changes should become effective.

Note.– For planning purposes, any centre should notify of its intention to make major changes much further in advance, to allow full assessment by the AMC Operator and timely introduction of the changes to be made.

7.5.2.5 Change requests, which have been received and accepted within an AIRAC cycle, are implemented by all affected COM centres at the agreed and confirmed AIRAC date. The recommended implementation time is 11:00 UTC.

7.5.2.6 In order to avoid difficulties in processing AFTN/CIDIN/AMHS network modifications during major holiday periods, the AMC Operator, in co-ordination with the Operations Group of AST TF could cancel the use of particular AIRAC dates occurring within these periods.

7.5.2.7 The detailed routing update procedure and the corresponding tasks of the AMC and CCC as well as External COM Operators are described in the ATS Messaging Management Manual.

7.5.3 Types of changes

7.5.3.1 In accordance with AMC functionalities, changes to the AFTN/CIDIN/AMHS network may be classified in the following types:

1 - modifications to the AFTN Routing tables
2 - modifications to the CIDIN Routing tables
3 - modifications to the AMHS Routing Tables
4 - modifications to the CIDIN Virtual Circuit Groups
5 - modifications to the Connection Characteristics
6 - modifications to the General Information such as functions, etc.

7.5.3.2 The change procedures described in the "ATS Messaging Management Manual" and performed by the AMC Operator apply to changes of types 1, 2 and 3 for EUR/NAT, and by the External COM Operators.
Specific changes of type 6 are performed by the AMC Operator only.
Changes of type 4 and 5 are subject to bilateral agreement; nevertheless, they should be notified for information purposes. In case a modification to VCGs or connections affects routing tables, the modifications to these tables shall follow the formal change procedure. Changes of types 4 to 6 can in general be notified by direct modification of AMC data by the CCC and External COM Operator(s).

7.5.4 Change-type messages

7.5.4.1 Standard messages are used for Change Requests, Change Acceptance and Change Non-Acceptance Notifications; the format of such messages is provided below. In case of Notifications, it is considered advisable to repeat the text of the original request to ensure that no misunderstanding has occurred and to prevent possible loss of information in the reception of the original message (Request). In messages used to communicate accepted routing changes to all COM Centres involved, the format of the Change Acceptance Notification is used.

7.5.4.2 In order to take into account the possibility of a change affecting COM Centres outside the EUR/NAT Regions, in addition to the EUR/NAT COM Centres involved and the AMC, these messages may also be sent to COM centres of adjacent Regions that are connected to EUR/NAT COM centres.

7.5.4.3 Preferably, the exchange of change-type messages is performed by direct data entry in the AMC, during the data entry phase, for changes of types 4 to 6 above, and by e-mail; fax or AFTN messages for other changes.

7.5.4.4 Change request messages, if used, have the following format:

Identifier:	**ROUTING DATA**
Status:	**Change Request**
Date:	**YY.MM.DD**
Centre identifier:	**XXXX**
Table:	**AFTN ROUTING / CIDIN ROUTING / AMHS ROUTING / CIDIN VCG / CONNECTION CHARACTERISTICS / GENERAL INFORMATION**
Lines to be modified:	**----------**
Lines proposed:	**----------**
Proposed implementation date:	**YY.MM.DD 11:00 UTC**

Note.– The CCC Operator modifies the table INFORMATION of the respective COM Centre directly in the AMC database.

7.6 Procedure for urgent changes to AFTN/CIDIN routing

This section has been removed as obsolete.

7.7 Notification Procedure for EUR/NAT COM Centres

(adopted by AFSG/18, based on CP-ENRD-14-001)

7.7.1 Introduction

7.7.1.1 Sometimes in live operations COM centres experience different kind of events which require a notification to the adjacent COM Centres in order to ensure the messaging service in exceptional situations, such as:

- Non-planned COM Centre outages or system shut-downs;
- Link failures;
- Planned COM Centre outages;
- Planned Link outages;
- Unsupervised Operation or the possibility of an unsupervised Operation of a COM Centre, due to Emergency Evacuation;
- Others;

7.7.1.2 The aim of this procedure is to provide an easy and standard mechanism to inform the whole EUR/NAT Regional AFS network about these kinds of operational problems.

7.7.1.3 Such procedure is vital to be followed especially by COM Centres acting also as Inter-Regional Gateways.

7.7.1.4 The strategy adopted is to report the corresponding status of the COM Centre via a template and predefined distribution (PDAIs and/or DLs) so that prompt, useful, realistic and unambiguous reporting is achieved with minimal extra workload within the AFS operational environment.

7.7.2 Responsibility of COM Centres regarding predefined distribution lists (PDAI or DL)

7.7.2.1 Each COM Centre shall configure its distribution lists (PDAI or DL) used for the exchange of any kind of Notification Message (e.g. COM Centre operational status report, etc.).

7.7.2.2 Each COM Centre shall co-ordinate, preferably in advance, the distribution lists (PDAI or DL) with the COM Centre taking care for the dissemination on its behalf in case of a non-planned outage or immediate Emergency Evacuation. This distribution list (PDAI or DL) should be forwarded to the COM Centre acting on behalf of the COM Centre being unable to report.

7.7.2.3 The contents of the distribution lists (PDAI or DL) should cover the COM Centre addresses of all COM Centres with which the COM Centre is directly connected (physically or logically).

7.7.2.4 The COM Centres addresses are listed in the “General Information” part of the AMC-system.

7.7.3 Responsibility of COM Centres regarding the standard notification messages (templates)

7.7.3.1 General

7.7.3.1.1 Each COM Centre shall configure the different notification messages (template) either as AFTN message or AMHS message using the respective priority and distribution lists (PDAI or DL).

7.7.3.1.2 Structure of the notification messages

7.7.3.1.3 The structure of the notification messages is similar and consists of the following standard attributes:

Priority:	DD (default) GG if planned outages are announced or confirmed
Destination address:	<**ZZINFO> – Predefined Address (PDAI or DL) used for distribution of own Notification messages normally. *Note.– ** represents the country code of the originating COM Centre; in case of distribution of Notification messages on behalf ** represents the country code of the COM Centre suffering from or anticipating the Non-Planned Outage.).*
Filing time:	<FILTIM> – day/time of sending the notification message
Originator address:	<ORIG> – Address of the reporting COM Centre
Message text:	see 7.7.3.2.

7.7.3.2 Structure of the notification message text

7.7.3.2.1 The message text of a notification messages is structures normally as following:

Headline:	**SVC EUR/NAT COM CENTRE OPERATIONAL STATUS REPORT** or **SVC EUR/NAT COM CENTRE PLANNED OUTAGE NOTICE** or **SVC EUR/NAT COM CENTRE EMERGENCY EVACUATION NOTICE**
Information:	<CCCC> – Location Indicator of the concerned COM Centre and important information related to the event (e.g. **NOT AVAILABLE**)
Remarks:	{RMKS.....} – Optional information (e.g.: estimate of outage time)

7.7.3.3 Examples of notification messages

Note.– The following examples look "AFTN like". From a User Agent (UA) a respective AMHS messages can be generated with the same message attributes (Priority, Distribution List (DL), Filing time, O/R address of the Originator and message text).

7.7.3.3.1 Non-planned outage notification message

```
DD <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE OPERATIONAL STATUS REPORT
<CCCC> NOT AVAILABLE
{RMKS.....}
```

7.7.3.3.2 Non-planned Link outage notification message

```
DD <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE OPERATIONAL STATUS REPORT
<CCCC> - <PPPP> LINK NOT AVAILABLE
{RMKS.....}
```

- <PPPP> – Location Indicator of the partner COM Centre.

7.7.3.3.3 Planned outage Notification Message

```
GG <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE PLANNED OUTAGE NOTICE
<CCCC> COM CENTRE HAS PLANNED AN OUTAGE
DATE = <DDMMYY>
TIME = <HH:MM> UTC
EXPECTED DURATION = <** MINUTES>
{TIME FRAME = BETWEEN HH:MM AND HH:MM UTC}
TYPE OF OUTAGE = <REASON>
EXPECT CONFIRMATION 15 MINUTES PRIOR TO THE PLANNED
OUTAGE
{RMKS.....}
```

- <DDMMYY> – Day-Month-Year of the planned outage.
- <HH:MM> – planned starting time in UTC.
- <** MINUTES> – expected time period.
- {TIME FRAME = BETWEEN HH:MM AND HH:MM UTC} – expected time frame in which the outage will take place.
- <REASON> – reason of the outage (e.g. Hardware/Software maintenance etc.).

7.7.3.3.4 Planned outage Confirmation Message

```
GG <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE PLANNED OUTAGE NOTICE
<CCCC> COM CENTRE HEREBY CONFIRMS THE PLANNED OUTAGE
DATE = <DDMMYY>
TIME = <HH:MM> UTC
EXPECTED DURATION = <** MINUTES>
{TIME FRAME = BETWEEN HH:MM AND HH:MM UTC}
TYPE OF OUTAGE = <REASON>
{RMKS.....}
```

Legend see 7.7.3.3.3 above.

7.7.3.3.5 Planned Link outage Notification Message

```
GG <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE PLANNED OUTAGE NOTICE
<CCCC> - <PPPP> LINK HAS PLANNED AN OUTAGE
DATE = <DDMMYY>
TIME = <HH:MM> UTC
EXPECTED DURATION = <** MINUTES>
{TIME FRAME = BETWEEN HH:MM AND HH:MM UTC}
TYPE OF OUTAGE = <REASON>
EXPECT CONFIRMATION 15 MINUTES PRIOR TO THE PLANNED
OUTAGE
{RMKS.....}
```

- <PPPP> – Location Indicator of the partner COM Centre.

- <DDMMYY> – Day-Month-Year of the planned outage.
- <HH:MM> – planned starting time in UTC.
- <** MINUTES> – expected time period.
- {TIME FRAME = BETWEEN HH:MM AND HH:MM UTC}
  – expected time frame in which the outage will take place.
- <REASON> – reason of the outage (e.g. Hardware/Software maintenance etc.).

7.7.3.3.6 Planned Link outage Confirmation Message

```
GG <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE PLANNED OUTAGE NOTICE
<CCCC> COM CENTRE HEREBY CONFIRMS THE PLANNED LINK OUTAGE
<CCCC> - <PPPP>
DATE = <DDMMYY>
TIME = <HH:MM> UTC
EXPECTED DURATION = <** MINUTES>
{TIME FRAME = BETWEEN HH:MM AND HH:MM UTC}
TYPE OF OUTAGE = <REASON>
{RMKS.....}
```

Legend see 7.7.3.3.5 above.

7.7.3.3.7 COM Centre Non-Immediate evacuation Notification message:

```
DD <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE EMERGENCY EVACUATION NOTICE
<CCCC> TO BE EVACUATED
THE COM CENTRE WILL OPERATE UNSUPERVISED
{RMKS/OTHER USEFUL INFO....}
```

or

```
DD <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE EMERGENCY EVACUATION NOTICE
<CCCC> MAY BE EVACUATED
THE COM CENTRE MAY OPERATE UNSUPERVISED
{RMKS/OTHER USEFUL INFO....}
```

7.7.3.3.8 COM Centre evacuation Notification Message:

```
DD <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE EMERGENCY EVACUATION NOTICE
<CCCC> EVACUATED
THE COM CENTRE OPERATES UNSUPERVISED
{RMKS/OTHER USEFUL INFO....}
```

7.7.3.3.9 Restore Normal Operations Message

```
GG <**ZZINFO>
<FILTIM> <ORIG>
SVC EUR/NAT COM CENTRE OPERATIONAL STATUS REPORT
REF ORIGIN <DDMMYY YYYYYYYY>
<CCCC> COM CENTRE RESTORED TO NORMAL OPERATIONS
{RMKS.....}
```

- <DDHHMM YYYYYYYY> is the AFTN Origin Line from the latest Notification Message issued before by the reporting COM Centre, e.g. Planned Outage Confirmation Message (ref.: 7.7.3.3.4)

7.7.4 Notification Procedures

7.7.4.1 Non-planned Outages Notification procedure

7.7.4.1.1 Each COM Centre in the Region shall maintain an awareness of its adjacent COM Centres and, if loss is noted or reported, will advise status information about the situation via the "**SVC EUR/NAT COM CENTRE OPERATIONAL STATUS REPORT**".

7.7.4.1.2 The respective message to be used is listed in 7.7.3.3.1. It should be co-ordinated between COM Centres, preferably in advance, which COM Centre takes care for the dissemination of such a message in case of a non-planned outage.

7.7.4.1.3 Following or during diagnosis of a failure, COM Centres that experience or anticipate an **outage of more than 10 minutes** shall communicate this by any available means to an adjacent COM Centre. This adjacent COM Centre is responsible for dissemination of the information.

7.7.4.1.4 In case of loss of connectivity, if possible, a COM Centre shall reroute traffic immediately to avoid messages on queues for too long (see also ANNEX 10, Volume II, para. 4.4.1.3.2.1). The threshold for reporting the outage of a COM Centre is 10 minutes. COM Centre staffs should use their experience and knowledge of the situation.

7.7.4.2 Link Failures Notification procedure

7.7.4.2.1 If the COM Centre staffs deem it necessary to inform the EUR/NAT Region about an outage of the link between the two COM Centres the status report message mentioned above can also be used.

7.7.4.2.2 The staffs of the concerned COM Centres will mutually decide which one will send the status report message(s) using the message listed in 7.7.3.3.2.

7.7.4.3 Planned Outage Notification procedure

7.7.4.3.1 Each COM Centre has to plan outages caused by maintenance actions regarding software and/or hardware. Those actions require appropriate preparation depending on their complexity including the number and origin of the staff involved. Nevertheless, once the date and time of the maintenance action is decided it becomes harder to modify/postpone it. That is why co-ordination is needed as well, to ensure that other COM Centres are informed with an acceptable notice and that other planned outages are not planned during the same period.

7.7.4.3.2 Each COM Centre in the Region shall inform the other COM Centres as soon as an outage of more than 10 minutes of its system is planned at least (if possible) **5 days prior** to the date of the event. Information provided via a "Planned Outage Notification message" (see 7.7.3.3.3) shall contain the reason of the outage, date, time, expected duration or time frame of the outage.

7.7.4.3.3 The COM Centre shall inform the other COM Centres in case of changes of the planning.

7.7.4.3.4 A "Planned Outage Confirmation message" according 7.7.3.3.4 shall indicate **15 minutes** before the planned outage that the event takes place and to remind the other COM Centres.

7.7.4.4 Planned Link Outages Notification procedure

7.7.4.4.1 If the COM Centre staffs deem it necessary to inform the EUR/NAT Region about a planned outage of the link between two COM Centres the "Planned Outage Notification message" and "Planned Outage Confirmation message" mentioned above can also be used.

7.7.4.4.2 The staffs of the concerned COM Centres will mutually decide which one will send the notification messages (see 7.7.3.3.5 and 7.7.3.3.6).

7.7.4.5 Non-Immediate (i.e. Possible) COM Centre Emergency Evacuation Notification procedure

7.7.4.5.1 In the case that a COM Centre is to be evacuated but not immediately, or if the possibility of Evacuation exists but is not certain, the COM Centre shall inform the Region accordingly.

7.7.4.5.2 The respective message to be used is listed in 7.7.3.3.7.

7.7.4.6 Immediate COM Centre Evacuation Notification procedure

7.7.4.6.1 In case the COM Centre has been immediately evacuated and thus there was no time to inform the Region, this should be done by either a (predefined) remote user of the COM Centre (if possible) or by an adjacent COM Centre (e.g. the same as for a Non Planned Outage). For this reason, COM Centres experiencing immediate evacuation shall communicate this by any available means to an adjacent Centre.

7.7.4.6.2 The respective message to be used is listed in 7.7.3.3.8. The COM Centre or the informed adjacent COM Centre is responsible for dissemination of this information.

7.7.4.7 Restore normal Operations Notification procedure

7.7.4.7.1 In any case, the concerned COM Centre shall report its own restoration using the message listed in 7.7.3.3.9.

7.8 Handling procedures for long AFTN messages

(adopted by AFSG/9, based on WP/06 presented by AFSG Operations Group)

7.8.1 Introduction

7.8.1.1 With the introduction of long messages on the AFTN (e.g. ADEXP) the possibility of addressing these messages to a non-authorised user arose.

7.8.2 Handling of long AFTN Message

7.8.2.1 In the case of a long message being addressed to a destination not authorised to receive it as such, the message should be truncated or segmented in accordance with the AFTN procedure described in Annex 10, Volume II (paragraph 4.4.11.10, 4.4.16.3 and Attachment B) or the one described in section 7.11 of this document.

7.8.3 Reporting in case of unknown Long AFTN Message capability

7.8.3.1 A COM Centre receiving a long AFTN message for which the capability of the destination to accept long messages is not known, should report to the COM Centre entering the long message about the action taken, selected from the below stated possibilities (truncated, segmented or forwarded unchanged).

7.8.3.2 In case the receiving COM Centre is a CIDIN or AMHS Centre, an AFTN Service Message (SVC) should be sent to the operator of the Entry Centre (see AMC Network Inventory / COM Centre). The format of the Service Message shall be:

```
SVC ATTN OPERATOR/SUPERVISOR
RECEPTION OF MESSAGE WITH INVALID MESSAGE LENGTH FOR FOLLOWING
DESTINATION(S): XXXXXXXX (ZZZZZZZZ) (if more than one)
ORIGIN: DDHHMM YYYYYYYY
THE MESSAGE WAS TRUNCATED/ SEGMENTED /FORWARDED UNCHANGED
(select and report the performed action)
PSE TAKE ACTION TO AVOID FURTHER TRANSMISSIONS
```

Example:

The Spanish COM Centre in Madrid received a message from the German COM Centre destining the Madrid Tower. The message length exceeds 1800 characters in the message text, which cannot be handled by equipment of the destination. The message was truncated in the Madrid COM Centre and following information was sent to the Entry Centre in Frankfurt.

```
FF EDDDYFYX
101610 LEEEYFYX
SVC ATTN SUPERVISOR
RECEPTION OF MESSAGE WITH INVALID MESSAGE LENGTH FOR FOLLOWING
DESTINATION: LEMAZTZX
ORIGIN: 101555 EDDFCROX
THE MESSAGE WAS TRUNCATED
PSE TAKE ACTION TO AVOID FURTHER TRANSMISSIONS
```

7.8.3.3 In case the receiving COM Centre is an AFTN Centre, a Service Message should be sent to the Operator/Supervisor (see AMC Network Inventory / COM Centre) of the adjacent COM Centre. The format of the Service Message shall be:

SVC ATTN OPERATOR/SUPERVISOR

RECEPTION OF MESSAGE WITH INVALID MESSAGE LENGTH FOR FOLLOWING DESTINATION(S): XXXXXXXX (ZZZZZZZZ) *(if more than one)*

ORIGIN: DDHHMM YYYYYYYY

THE MESSAGE WAS TRUNCATED/ SEGMENTED/FORWARDED UNCHANGED *(select and report the performed action)*

PSE TAKE ACTION TO AVOID FURTHER TRANSMISSIONS

Example:
The UK COM Centre in London received a message from the Irish COM Centre destining the London City Airport Tower. The message length exceeds 1800 characters in the message text, which cannot be handled by equipment of the destination. The message was truncated in the London COM Centre and following information was sent to the Irish COM Centre.

```
FF EIAAYFYX
101605 EGGGYFAD
SVC ATTN SUPERVISOR
RECEPTION OF MESSAGE WITH INVALID MESSAGE LENGTH FOR
FOLLOWING DESTINATION: EGLCZTZX
ORIGIN: 101555 EIDBCROX
THE MESSAGE WAS TRUNCATED
PSE TAKE ACTION TO AVOID FURTHER TRANSMISSIONS
```

7.8.3.4 If the COM Centre receives a message informing it about an invalid long message transmission, the requested action should be performed immediately (avoid further transmission and clarify the correct addressing by contacting the originator of the long message). If the originator of the long message is not directly connected to the COM Centre the Service message shall be forwarded to the COM Centre concerned.

7.9 COM Chart Publication Procedure

(adopted by AFSG/9, based on WP/05 presented by AFSG Operations Group)

[This section was moved completely into the ATS Messaging Management Manual.]

7.10 Guidelines for handling of RN and SS acknowledgment messages

(adopted by AFSG/11, based on WP/23 presented by AFSG Operations Group)

7.10.1 Introduction

7.10.1.1 The aim of those guidelines is to clarify the meaning and use of Receipt Notification (RN) and SS Acknowledgement Messages (SS ACK).

7.10.1.2 In the AFTN/CIDIN/AMHS Network the SS Acknowledgement Messages (SS ACK) as well as the Receipt Notification (RN) should be seen as a measure to indicate that an important message with a specific priority (SS) has been seen or read by somebody (the recipient of the message).

7.10.1.3 During the migration from AFTN to AMHS there is a close relation of a RN and SS ACK. From an operational perspective there should be no difference in understanding of an SS ACK caused by a manual reaction of an AFTN user generated at an AFTN station and an SS ACK converted by a MTCU in reaction of a RN generated by an AMHS Direct User (UA).

7.10.1.4 Therefore, the principles for the generation of both types of acknowledgement for messages in the AFTN and AMHS environment should be the same.

7.10.2 Handling of Receipt Notification (RN)

7.10.2.1 The Receipt Notification (RN) **shall** be considered as a means to allow the originator of an ATS message (IPM with priority SS in the ATS-message-header) to check if the message has been received and taken into account by the intended recipient.

7.10.2.2 The Receipt Notification (RN) **shall** be generated only after manual user/operator interaction by the UA.

7.10.3 Handling of SS Acknowledgment Messages

7.10.3.1 The SS Acknowledgement Message **shall** be considered as an operational procedure so as to allow the originator of an AFTN distress message to check if the message has been received and taken into account by the intended recipient

7.10.3.2 In conformance with ICAO, Annex 10, Vol. II, Chapter 4, the receipt of distress messages (priority indicator SS) **shall** be individually acknowledged by the AFTN destination station by sending a service message to the AFTN origin station.

7.10.3.3 The SS Acknowledgment Message **shall** use :

- the AFTN address of the AFTN origin station which sent the distress message as addressee indicator.
- the AFTN address of the AFTN destination station which received the distress message as originator indicator.

7.10.3.4 The acknowledgment of a distress message (SS ACK) **shall** be generated manually or after manual user/operator interaction automatically by the AFTN destination station.

7.10.3.5 COM centres should avoid the use of PDAI for the distribution of distress messages because it:

- prevents from identifying correct AFTN destination stations from the originator side, and
- reduces the effectiveness of checking that the message is actually received by the intended recipient.

Note.– In the exceptional case of receiving several SS messages generated in the same minute (i.e. with the same filling time and the same originator), each SS message has to be acknowledged individually.

7.11 AFTN message segmentation[1]

7.11.1 The procedure for AFTN message segmenting promulgated in SARPs Guidance Material (Annex 10, Attachment B to Vol. II) has in many cases proven to be inadequate, as message segments cannot always be uniquely defined for the correct re-assembly of the original message. The problem is significant and frequently noted in cases of automated message generation and distribution (OPMET data promulgated via GTS/AFTN interfaces, FPLs produced by EUROCONTROL/NM etc.)

7.11.2 AFTN messages generated either on a request/reply basis or automatically by computer database-systems, might easily exceed the maximum allowed messages size, and therefore these messages may need to be segmented at the source application.

7.11.3 With the segmentation procedure of Annex 10, each part of the segmented message has the same address and origin, as well as a segmentation sequence number of each part indicated on the last line of text as follows:

(end of first part) //END PART 01//
(end of second part) //END PART 02//
... etc. ...
(end of last part) //END PART XX/XX//

7.11.4 The above procedure relies on the assumption that the date/time group in the message origin line can be used as a unique identifier. This assumption was true for the low-speed AFTN environment but is no longer valid, as the processing and transmission capabilities of systems have increased significantly. This means that the date/time group in the message origin line is not necessarily unique, because it is possible for a system to generate more than one messages within the same minute.

7.11.5 The procedure needs an amendment that makes it possible to recompile the segments of the original message, which is easily recognised by both automated systems as well as human operators. By modifying the existing procedure slightly, this objective can be achieved.

7.11.6 To be able to issue more than one segmented message with the same address and origin, another unique identifier is needed. It is therefore suggested that the format be expanded with a counter of one or two characters, making the message part unique by combining origin time, originator, and counter (// END PART nn 01 //).

Current format:
//END PART 01//
//END PART 02//
//END PART 03/03//

Suggested format:
//END PART 01 01//
//END PART 01 02//
//END PART 01 03/03//

The next message with the same origin:
//END PART 02 01//
//END PART 02 02//
//END PART 02 03/03//

[1] Procedure derived from AFSG/1 Report (1998) – text updated to reflect current circumstances.

Note.- On the above subject, AFSG/1 had concluded as follows:

CONCLUSION (AFSG/)1/4 – AFTN message segmentation procedures

As the current method of segmentation defined by Attachment B[2] of Annex 10, Vol. II was inadequate, the AFSG agreed to the above proposal as a suggestion for an amendment to the SARPS Guidance Material.

[2] The reference was updated according to the current valid document.

8. COM Centre Contingency Planning

(adopted by AFSG/18, based on WP/25 presented by AFSG Operations Group)

8.1 Introduction

8.1.1 At AFSG/17 (2013) all COM Centres were encouraged to develop COM Centre contingency plans.

8.1.2 AFSG/17 emphasized that in case such plans involve or seriously affect external partners they should be coordinated accordingly.

8.1.3 Contingency Planning is addressed in ICAO Annex 11, within the frame of ATS but also referencing supporting services.

> **Annex 11:**
>
> *"Air Traffic Services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services".*
>
> *"contingency plans are intended to provide alternative facilities and services to those provided for in the regional air navigation plan when those facilities and services are temporarily not available. Contingency arrangements are therefore temporary in nature […]".*

8.2 Terminology

8.2.1 General

8.2.1.1 In EUR AFS documentation, the terms "redundancy" and "backup" are used in a straight-forward, well understood context while the term "contingency plan" seems to need some additional clarification.

8.2.1.2 To improve clarity and reach a common understanding concerning the terms and definitions frequently used in the frame of contingency planning, a comprehensive list of relevant terms and definitions from official sources is provided hereunder.

8.2.2 'Redundancy'

8.2.2.1 According to ITU-T E.800 (94) standard, Telephone Network and ISDN Quality of Service, Network Management and Traffic Engineering, the definition of the term redundancy is:

> ***Redundancy**: In an item, the existence of more than one means for performing a required function.*

8.2.2.2 According to the same ITU-T standard there is 'Standby redundancy' and 'Active redundancy':

> ***Standby redundancy**: That redundancy wherein one means for performing a required function is intended to operate, while the alternative means are inoperative until needed*
>
> ***Active redundancy**: That redundancy wherein all means for performing a required function are intended to operate simultaneously.*

8.2.2.3 In addition according to ATIS Telecom Glossary3 the definition of the term redundancy is:

> ***Redundancy:*** *In a communication system, surplus capability usually provided to improve the reliability and quality of service.*

8.2.3 'Backup'

8.2.3.1 With regard to the term 'Backup' the following definitions were identified in the ITU-T Terms and Definitions Database:

- According to Q.715 (02), Signalling connection control part user guide: *A node/subsystem is said to be a "**backup" node/subsystem** for a certain portion of traffic, if, in the presence of failures or administrative blockings that prevents the "primary" from handling the traffic, it assumes the handling of that portion of traffic.*

- According to H.323 (03), Packet-based multimedia communications systems: ***Backup entity or Backup peer*** *is a peer of an entity that can take over the entity's functions if the entity fails.*

8.2.3.2 Apart from the above meanings, the term 'Backup' is also used to define software management operations. For example according to ATIS Telecom Glossary, 'Backup' is (a) copy of files and programs made to facilitate recovery, if necessary.

8.2.4 'Contingency Plan'

8.2.4.1 According to the 'EUROCONTROL Guidelines for Contingency Planning of Air Navigation Services' the definition of the contingency plan is:

> *A **contingency plan** is the detailed exposition of the actions, including their associated time and responsibilities, to be performed in the case of events which result in significant degradation or interruption of a service. These actions should aim to provide alternative facilities and services to those temporarily not available, in order to ensure the safe continuation of essential operations.*

8.2.5 Further related terms

8.2.5.1 According to the 'EUROCONTROL Guidelines for Contingency Planning of Air Navigation Services' further contingency related terms are:

> ***Contingency Life-cycle:*** *All potential contingency modes ranging through, 'Emergency' Situations; 'Degraded' Modes of Operation; 'Service Continuity'; 'Recovery to Normal Operations'.*
>
> *'**Normal' Operations:** Routine service provision within a non-significant variation in Quality of Service.*
>
> *'**Emergency' mode:** 'Emergency' modes are those situations following unforeseen or sudden catastrophic events that may lead to potential unsafe situations and/or partial or*

[3] ATIS is a technical planning and standards development organization that is committed to rapidly developing and promoting technical and operations standards for the communications and related information technologies industry worldwide using a pragmatic, flexible and open approach. Over 600 participants from over 300 communications companies are active in ATIS' 22 industry committees, and its Incubator Solutions Program. ATIS is accredited by the American National Standards Institute (ANSI).

full Interruption of the ANS provision, therefore prompting an immediate response to contain the adverse impact and where feasible initiate recovery actions.

Fallback Modes of Operation: *Fallback mode is the use of systems or services that provide redundancy/back-up to those available in support of normal operations, to cope with foreseen or unforeseen unavailability or degradation of the main service provision.*

Degraded Modes of Operation: *A reduced level of service invoked by equipment outage or malfunction, staff shortage or procedures becoming inadequate as a knock-on effect of one or several deficient system elements.*

Service Continuity: *Service Continuity (SC) is the availability of suitable arrangements allowing alternate ANS services of an agreed quality of service to be readily activated when a long-term disruption of normal service provision li anticipated.*
SC is also characterized by containing the impact and duration of disruption of ANS critical services and the ability to restore a defined service level (capacity) with due priority.

Recovery: *Transition back to Normal operations from* ***any of the contingency modes*** *of operation.*

Outages: *An exceptional circumstance, foreseen (e.g. pandemics, industrial action) or unforeseen (e.g. security breach), affecting one or more elements of the System (people, procedures & equipment) that, in the absence of adequate fallback arrangements, may lead to service disruption.*

Partial outage: *Partial outages are situations where:*

- *a defined portion of the total traffic is serviced by a failing unit and the rest by one or more aiding unit (s);*
- *a defined number of sectors/groups are still able to continue with the service provision, whilst the remaining sectors/groups are supported by one or more aiding units;*
- *a defined set of ATS is still provided by the failing unit while the remaining set is provided by one or more aiding unit(s);*
- *any combination of the preceding cases.*

Total outages: *The providing unit is declared out of service due to a complete inability to provide air navigation services.*

Unforeseen outages: *"Unforeseen" outage is a failure that may lead to potential unsafe situations and/or disruption of the ANS provision and either is:*

- *Unforeseen;*
- *Or predicted but at too short notice to permit the deployment of a suitable contingency mode.*

Foreseen outages: *"Foreseen" outage is a failure that may lead to inability to continue with the ANS provision but is foreseen with sufficient notice to permit the deployment of a suitable contingency mode.*

Short-term outages: *Outages or disruption of services lasting not more than 48 hrs.*

Long-term outages: *Outages or disruption of services lasting more than 48 hrs.*

Maximum Tolerable Period of Disruption (MTPO): *It is the maximum period of time an ANSP can tolerate a loss or disruption of any Air Navigation service/function provided.*

Aiding unit: *An ATM unit able to provide support to a failing unit.*

Failing unit: *A unit, which due to technical or system failure, is forced to suspend the provision of ATS in its Area of Responsibility (AoR) or parts thereof.*

8.3 Requirements/Recommendations

8.3.1 Each COM Centre should have a contingency plan in place.

8.3.2 Contingency planning for a COM Centre is highly dependent on local circumstances and difficult to specify at a Regional level.

8.3.3 In the case of a COM Centre, a contingency plan may call for the use of alternate locations, co-located facilities, centralised facilities, shared facilities, delegation of the service etc. depending on local policies, risk assessment results and financial implications.

8.3.4 The contingency plan of a COM centre should be quick to activate and straightforward to implement. It should ensure clear assignment of responsibilities, detailed documentation of procedures and effective coordination of efforts.

8.3.5 As such, a contingency plan should be coordinated with all parties involved.

8.3.6 If possible, a contingency plan with the international coordination provisions should be made available in the ATS Messaging Management Centre (AMC).

Attachment A: Change Control Mechanism of the ATS Messaging Routing Directory (Part I)

A.0.1 The change control mechanism provides two categories:

- Defect Report (DR), and
- Change Proposal (CP)

A.0.2 Proposals to introduce changes to the ATS Messaging Routing Directory, Part I document itself may arise from users, implementers or manufacturers.

A.0.3 The procedure for submission and processing of a Defect Report (DR) or a Change Proposal (CP) involves the following steps:

A.1 Procedure for Defect Report (DR)

A.1.1 A problem is detected, which is reflected in the ATS Messaging Routing Directory (Part I) and may be attributed to implemented procedures and/or inconsistencies in this document.

A.1.2 The problem is reported to the Rapporteur of the Operations Group of AST TF (AST OG), by submission of a defect report (DR). A standard reporting format is used (see attached template in A.3).

A.1.3 The Rapporteur assigns a number and priority to the defect report and introduces it to the agenda of an upcoming meeting of the OG. If necessary, he refers to the Planning Group (PG) Rapporteur.

A.1.4 The OG evaluates the report and either adopts it as a working item or rejects it. The party, which submitted the defect report, is notified accordingly.

A.1.5 Experts of the OG are assigned to the problem if the status of the DR is set to accepted and milestone dates are set. Outside expertise may be invited to participate, as appropriate.

A.1.6 The OG develops proposals for resolving the problem and submits them to the AST TF for approval.

A.1.7 The AST TF approves or rejects the presented proposals. In case of the latter, the subject is referred back to the OG (step A.1.5) or discarded.

A.1.8 The OG drafts appropriate text for amendment of the ATS Messaging Routing Directory (Part I) and submits it to the AST TF for approval.

A.1.9 The AST TF approves or rejects the proposed material. In case of the latter, the subject is referred back to the OG (step A.1.8).

A.1.10 Solutions are implemented.

Note.– Steps A.1.6 and A.1.8 may run in parallel.

A.2 Procedure for Change Proposal (CP)

A.2.1 The same structured procedure, with the exception of steps (A.1.6) and (A.1.7) applies in case of proposed enhancements to the ATS Messaging Routing Directory (Part I) or inconsistencies with relevant existing documentation.

A.2.2 In this case, a change proposal (CP) should be submitted to the OG. The format of the CP is similar to that of the DR.

A.3 Template for Defect Reports / Change Proposals

TEMPLATE FOR DEFECT REPORTS / CHANGE PROPOSALS

DR-AMRD-yy-nnn / CP-AMRD-yy-nnn

Title:	Short, indicative textual name
Reference:	Year and Number (yy-nnn) assigned by the OG Rapporteur
Originator reference:	Provided by the originator
Submission date:	
Submitting State/Organisation:	
Author:	
Contact Information:	e-mail, fax, telephone and postal address
Experts involved:	
Status:	Assigned by the OG Rapporteur
Priority:	Assigned by the OG Rapporteur
Document reference:	Affected section(s) of the ATS Messaging Routing Directory (Part I)
Description of defect:	Nature of the problem in detail Reason(s) for requesting changes
Assigned expert(s):	
Task history:	Working Papers and Information Papers Produced on the subject
Proposed solution:	Including amendments to the text, if feasible

DR/CP STATUS control sheet				
Event	**Date**	**Status**		**Remark**
DR or CP received submission date		Set to submitted		
discussion at OG/ …		Set to accepted	Set to rejected	
Date for development of proposals/ solutions				Responsible:
discussion at OG/ …		Set to resolved		
presentation to AST TF / …		Set to adopted	Set to rejected	
Date for development of amendment to the AMRD				Responsible:
discussion at OG/		Set to approved		
presentation to AST TF / …		Set to approved for application		
Additional DATES and comments				

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