International Civil Aviation Organization

Ninth Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/9)

Video Tele-Conference, 19 - 21 April 2022

Agenda Item 5: Review and update AMHS/AFTN Communication Chart and coordination with ATS Messaging Management Center (AMC)

AFTN/ATSMHS ROUTING DIRECTORY AND THE COMMUNICATION CHART

(Presented by the Secretariat)

SUMMARY

This paper presents the current status of the AFTN/ATSMHS routing directory and the latest Communication Chart for Asia and Pacific Regions.

1. INTRODUCTION

1.1 As an established practice in the past decades, the ICAO Asia and Pacific Regional Office has prepared and published AFTN Routing Directory for 28 times. The recent publications since 1996 are highlighted as following:

20th edition - November 1996
21st edition - November 1999
22nd edition - January 2001
23rd edition - December 2001
24th edition - May 2003
25th edition - January 2004
26th edition - April 2007
27th edition - August 2007
28th edition - July 2018

1.2 The Routing Directory usually comprised the explanatory notes, the routine directory (the table), AFTN circuits and a chart (AFTN Plan). Implementation Status of Automatic Message Switching Facilities was also monitored in early 2000s.

1.3 The current Routing Directory is based on the existing AFTN circuits in the Asia and Pacific regions, which employs store/forward methodology, and the responsibilities for relaying/ forwarding messages are assigned to each individual AFTN centre/station of States

2. DISCUSSIONS

2.1 Under its Agenda Item 7: *Review and update routing table of Aeronautical Fixed Telecommunication Network and discuss routing issues of AMHS*, the ACSICG/5 meeting, meeting reviewed the guidelines, technical provisions and operational requirements for the AFTN

Routing Directory updates and highlighted some changes need to be made to the current Edition of the AFTN Routing Directory.

2.2 The ACSICG/5 meeting agreed to rename the directory to AFTN/ATSMHS Routing Directory for Asia and Pacific Regions, replace the information of AFTN circuit Signal Speed at the back of the Routing Directory from page 25 to 28 by the category of service i.e. "ATSMHS or AFTN". Whether the connection to be over CRV is also required in an additional column.

2.3 The CNS SG/22 meeting adopted Conclusion CNS SG/22/7 on the updated AFTN/ATSMHS Routing Directory (28th Edition) formulated by ACSICG/5, which is posted on the ICAO APAC website under e-Document at:
https://www.icao.int/APAC/Documents/edocs/AFTN-ATSMHS%20Routing%20Directory%2028%20ver.pdfT

2.4 Under its Agenda Item 7*: Review the role of AFTN/ATSMHS Routing Directory for the APAC Region 28th Edition and information in AMC; also discuss the routing arrangement after the CRV is implemented*, the CRV OG/5 meeting reviewed the function and role of AFTN/ATSMHS routing directory (28th Edition) during the transition period from point to point connection supporting AFTN/ATSMHS to CRV environment. Once CRV is fully implemented in the Region, further routing directory changes would be required as more and more direct connections via VPN would be possible and the relation between the routing directory and the directory service registered in AMC should be addressed.

2.5 The CRV OG/5 meeting recognized that if direct routing was allowed in the mixed environment by end of 2020, i.e. direct routings are only implemented for those States/Administrations who have joined CRV while for those States/Administrations not joining CRV yet are still required to follow the current routing directory. As result of discussion, the meeting agreed to fully follow the AFTN/ATSMHS routing directory during the transition period by end of 2020. In such case, the efficiency and benefits of joining CRV would be delayed. For inter-regional traffic, it is needed to follow entry/exit points and the agreed traffic exchanged between regions according to existing procedure and routing directory until such time, inter-regional IPS based network like CRV are established.

2.6 The ACSICG/6 meeting and the CNS SG/23 meeting further reviewed the role of AFTN/ATSMHS Routing Directory during transition period, and as result of discussions, the CNS SG/23 meeting **agreed to fully follow the AFTN/ATSMHS routing directory during the transition period by end of 2020**. For inter-regional traffic, it is required to follow the existing entry/exit points and procedure.

2.7 Since the last publication of the AFTN/ATSMHS Routing Directory (28th Edition AFTN Routing Directory), only Philippines and USA proposed changes to the Directory to reflect the new AMHS connection between the two States. This AMHS service is based on IPS using the CRV network, the operational service was initiated on April 21, 2021.

2.8 Because there is no previous AFTN connection existed between Philippines and USA, the new AMHS service required routing changes between USA and the Philippines, and may need other changes within the Region. The details of routing changes for Philippines (RPLL) and USA (KSLC) have been discussed through ACSICG/7 WP/6 and ACSICG/8 WP/10.

2.9 Prior to the implementation of this new AMHS service between RPLL and KSLC, Hong Kong (VHHH) sends C K M P S T traffic to Fukuoka (RJJJ) as normal route and Bangkok (VTBB) as alternate route. To allow a more direct alternate path during circuit interruption between VHHH and RJJJ, VHHH has taken RPLL as predetermined alternate route with effect from 21 April 2021, 2300UTC. Those proposed changes in paragraph 2.8 and 2.9 have been incorporated into ICAO

APAC AFTN/ATSMHS Routing Directory.

2.10 After the ACSICG/8 meeting, Australia informed ICAO APAC Office on the revision of AFTN CIRCUITS - ASIA/PAC ROUTING DIRECTORY published with AFTN/ATSMHS Routing Directory (28th Edition).

2.10 A draft 29th edition of AFTN/ATSMHS Routing Directory for Asia and Pacific Regions is provided in **Appendix A** to this paper, which incorporated the updates presented in paragraph 2.7, 2.8, 2.9 and 2.10, as well as the latest Communication Chart (AFTN Plan). The AFTN CIRCUITS - ASIA/PAC ROUTING DIRECTORY is proposed to be renamed as AFTN/ATSMHS CONNECTIONS - ASIA/PAC ROUTING DIRECTORY

2.11 EUROCONTROL's air traffic services (ATS) messaging management centre (AMC) provides off-line network management services to support European air navigation service providers' (ANSPs) ground ATS messaging network. The AMC is also a globally recognised information hub on network implementation, particularly with regard to AMHS deployment. Registered user can access AMC website https://ext.eurocontrol.int/amc to visit the COM chart. Two COM charts screenshots are provided in **Appendix B** and **Appendix C** for information.

2.12 The COM Charts are also provided as part of an ICAO EUR Document, with the cooperation of EUROCONTROL. Its latest version was endorsed by the Third Meeting of the European Aviation System Planning Group (EASPG/03) in December 2021 and published as the APPENDIX Y of EASPG/03 Final Report, which is provided in **Appendix D** to this paper.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) provide comments to the proposed changes to the AFTN/ATSMHS Routing Directory provided in **Appendix A,** consider formatting a draft Conclusion on the new Edition of the AFTN/ATSMHS ROUTING DIRECTORY;

b) continue the discussion in section 2.6 regarding the role and function of the routing directory during the transition period with a revised timeframe;

c) note the information provided in **Appendix B, C** and **D**; and

d) discuss any relevant matter as appropriate.

<table>
<tr><td colspan="2">Draft Conclusion ACSICG/9/XX - Revised AFTN/ATSMHS Routing Directory</td></tr>
<tr><td>What: That, the AFTN/ATSMHS Routing Directory for the APAC Region provided in Appendix XX be further updated and distributed to States/Administrations.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: A number of new ATSMHS connections have been established and became operational. Consequential amendments to the AFTN/ATSMHS Routing Directory are required.</td><td>Follow-up: ☐Required from States</td></tr>
<tr><td>When: 15-Aug-22</td><td>Status: Draft to be adopted by Subgroup</td></tr>
<tr><td colspan="2">Who: ☒CNS SG ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: XXXX</td></tr>
</table>

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA AND PACIFIC OFFICE

AFTN/ATSMHS ROUTING DIRECTORY

ASIA AND PACIFIC REGIONS

APPENDIX A TO WP12 OF ACSICG/9

APRIL 2022

PREPARED BY THE ICAO ASIA AND PACIFIC REGIONAL OFFICE

EXPLANATORY NOTES

The Routing Directory is based on the existing AFTN circuits in the Asia and Pacific Regions.

I. Explanation of columns:

a) Column A contains destination AFTN routing indicators. These indicators employ the minimum number of characters to preclude ambiguity.

b) Columns 1, 2, 3 etc. contain the location indicators of the originating/relaying AFTN COM centres/stations in the heading and the AFTN routing indicators in conjunction with the destination indicators.

c) Primary Routing is indicated in the left-hand subdivision under each origin, in upper case letters.

d) Alternate routing is indicated in the right-hand subdivision under each origin, in lower case letters.

e) National and/or non-AFTN routing is indicated by the letter (N). Local arrangement for alternate routing is indicated by the letter n.

II. Explanation of Symbols:

A stations - stations in the "A" Aeronautical Fixed Service Routing Area (AFSRA) - Solomon Is., Nauru, and Papua New Guinea.
AG stations - stations in Solomon Is.
AN stations - stations in Nauru
AY stations - stations in Papua New Guinea

B stations - stations in the "B" AFSRA - (Greenland, Iceland)
C stations - stations in the "C" AFSRA - (Canada)
D stations - stations in the "D" AFSRA - (West Africa)
E stations - stations in the "E" AFSRA - (Europe)
F stations - stations in the "F" AFSRA - (Central and South Africa)
G stations - stations in the "G" AFSRA - (Coastal West Africa)

H stations - stations in the "H" AFSRA - (Coastal East Africa)
HE stations - stations in the Arab Republic of Egypt

K stations - stations in the "K" AFSRA - (U.S.A.)
L stations - stations in the "L" AFSRA - (Europe, Mediterranean)
M stations - stations in the "M" AFSRA - (Caribbean, Central America)

N	stations - stations in the "N" AFSRA (South Pacific)
NC	stations - stations in Cook Is.
NF	stations - stations in Fiji
NFT	stations - stations in Tonga
NG	stations - stations in Kiribati
NGF	stations - stations in Tuvalu
NI	stations - stations in Niue Island
NL	stations - stations in Futuna and Wallis Islands
NS	stations - stations in Samoa
NST	stations - stations in American Samoa
NT	stations - stations in French Polynesia
NV	stations - stations in Vanuatu
NW	stations - stations in New Caledonia
NZ	stations - stations in New Zealand
O	stations - stations in the "O" AFSRA - (Middle East)
OA	stations - stations in Afghanistan
OB	stations - stations in Bahrain
OE	stations - stations in Saudi Arabia
OI	stations - stations in Iran, Islamic Rep. of
OJ	stations - stations in Jordan
OK	stations - stations in Kuwait
OL	stations - stations in Lebanon
OM	stations - stations in United Arab Emirates
OO	stations - stations in Oman
OP	stations - stations in Pakistan
OR	stations - stations in Iraq
OS	stations - stations in Syria
OT	stations - stations in Qatar
OY	stations - stations in Yemen
P	stations - stations in the "P" AFSRA - (North Pacific)
PA	stations - stations in Alaska
PB	stations - stations in Baker Is.
PC	stations - stations in Phoenix Is.
PG	stations - stations in Mariana Is. Guam
PH	stations - stations in Hawaii
PJ	stations - stations in Johnston Is.
PK	stations - stations in Marshall Is.
PL	stations - stations in Line Is.
PM	stations - stations in Midway Is.
PT	stations - stations in Federated State of Micronesia
PW	stations - stations in Wake Is.
R	stations - stations in the "R" AFSRA - (West Pacific)
RC	stations - stations in China
RJ	stations - stations in Japan
RK	stations - stations in Republic of Korea
RO	stations - stations in Japan (Ryukyu Is.)
RP	stations - stations in the Philippines

S	stations - stations in the "S" AFSRA - (South America)
SA	stations - stations in Argentina
SC	stations - stations in Chile
T	stations - stations in the "T" AFSRA - (North East Caribbean)
U	stations - stations in the "U" AFSRA - (Russian Federation)
UT	stations - stations in Uzebekistan
V	stations - stations in the "V" AFSRA - (East and West Asia)
VA	stations - stations in India (West)
VC	stations - stations in Sri Lanka
VD	stations - stations in Cambodia
VE	stations - stations in India (East)
VG	stations - stations in Bangladesh
VH	stations - stations in Hong Kong
VI	stations - stations in India (North)
VL	stations - stations in Lao People's Democratic Republic
VM	stations - stations in Macau
VN	stations - stations in Nepal
VO	stations - stations in India (South)
VQ	stations - stations in Bhutan
VR	stations - stations in Maldives
VT	stations - stations in Thailand
VV	stations - stations in Viet Nam
VY	stations - stations in Myanmar
W	stations - stations in the "W" AFSRA (Brunei, Indonesia, Malaysia, Singapore, Southern South East Asia)
WA	stations - stations in Indonesia (Eastern part of Indonesia)
WB	stations - stations in Malaysia (East)
WBA	stations - stations in Brunei
WBS	stations - stations in Brunei
WI	stations - stations in Indonesia (Western part of Indonesia)
WM	stations - stations in Malaysia (West)
WP	stations - stations in Timor Leste
WR	stations - stations in Indonesia (Middle part of Indonesia)
WS	stations - stations in Singapore
Y	stations - stations in "Y" AFSRA (Australia)
Z	stations - stations in the "Z" AFSRA (China, Dem. People's Rep. of Korea, Mongolia)
Z	stations (except ZK and ZM) - stations in China
ZK	stations - stations in Democratic People's Republic of Korea
ZM	stations - stations in Mongolia

Note 1: The names of the continents, areas and countries appearing in parentheses indicate broadly the geographical location of the AFSRAs. The chart contained in Doc 7910, shows the delineation of these AFSRAs.

AMENDMENTS

RECORD OF AMENDMENTS AND CORRIGENDA
RELATING TO AFTN ROUTING DIRECTORY, ASIA AND PACIFIC REGIONS,
TWENTY-SEVENTH EDITION

AMENDMENTS			
No.	Date Applicable	Date entered	Entered by

CORRIGENDA			
No.	Date of issue	Date entered	Entered by

A	1		2		3		4		5		6	
ORIGIN DESTINATION	AGGG		ANAU		AYPM		KSLC		NCRG		NFFN	
AG	(N)	n	YB		YB		YB	nf	NZ		YB	ks
AN	YB		(N)	n	YB		YB	nf	NZ		YB	ks
AY	YB		YB		(N)	n	YB	nf	NZ		YB	ks
B	YB		YB		YB		(N)	n	NZ		KS	yb
C	YB		YB		YB		(N)	n	NZ		KS	yb
D	YB		YB		YB		(N)	n	NZ		YB	ks
E	YB		YB		YB		(N)	n	NZ		YB	ks
F	YB		YB		YB		(N)	n	NZ		YB	ks
G	YB		YB		YB		(N)	n	NZ		YB	ks
H	YB		YB		YB		(N)	n	NZ		YB	ks
K	YB		YB		YB		(N)	n	NZ		KS	yb
L	YB		YB		YB		(N)	n	NZ		YB	ks
M	YB		YB		YB		(N)	n	NZ		KS	yb
NC	YB		YB		YB		NZ	yb	(N)	n	YB	ks
NF (EX. NFT)	YB		YB		YB		NF	yb	NZ		(N)	n
NFT	YB		YB		YB		NZ	yb	NZ		YB	ks
NG (EX. NGF)	YB		YB		YB		NF	yb	NZ		NGT	n
NGF	YB		YB		YB		NF	yb	NZ		NGF	n
NI	YB		YB		YB		NZ	yb	NZ		YB	ks
NL	YB		YB		YB		NF	yb	NZ		NW	n
NS (EX. NST)	YB		YB		YB		NZ	yb	NZ		YB	ks
NST	YB		YB		YB		NST	n	NZ		KS	yb
NT	YB		YB		YB		NZ	yb	NZ		YB	ks
NV	YB		YB		YB		YB	nf	NZ		YB	ks
NW	YB		YB		YB		NF	yb	NZ		NW	yb
NZ	YB		YB		YB		NZ	yb	NZ		YB	ks
OA	YB		YB		YB		(N)	n	NZ		YB	ks
OB	YB		YB		YB		(N)	n	NZ		YB	ks
OE	YB		YB		YB		(N)	n	NZ		YB	ks
OI	YB		YB		YB		(N)	n	NZ		YB	ks
OJ	YB		YB		YB		(N)	n	NZ		YB	ks
OK	YB		YB		YB		(N)	n	NZ		YB	ks
OL	YB		YB		YB		(N)	n	NZ		YB	ks
OM	YB		YB		YB		(N)	n	NZ		YB	ks
OO	YB		YB		YB		(N)	n	NZ		YB	ks
OP	YB		YB		YB		RJ	yb	NZ		YB	ks
OR	YB		YB		YB		(N)	n	NZ		YB	ks
OS	YB		YB		YB		(N)	n	NZ		YB	ks
OT	YB		YB		YB		(N)	n	NZ		YB	ks
OY	YB		YB		YB		(N)	n	NZ		YB	ks
P	YB		YB		YB		(N)	n	NZ		KS	yb
RC	YB		YB		YB		RJ	yb	NZ		YB	ks
RJ,RO	YB		YB		YB		RJ	yb	NZ		YB	ks
RK	YB		YB		YB		RJ	yb	NZ		YB	ks
RP	YB		YB		YB		RP	rj	NZ		YB	ks
S	YB		YB		YB		(N)	n	NZ		KS	yb
T	YB		YB		YB		(N)	n	NZ		KS	yb

A	1		2		3		4		5		6	
ORIGIN DESTINATION	AGGG		ANAU		AYPM		KSLC		NCRG		NFFN	
U (EX. UH UI UT UE UN)	YB		YB		YB		RJ	yb	NZ		YB	ks
UH,UE,UN	YB		YB		YB		RJ	yb	NZ		YB	ks
UI	YB		YB		YB		RJ	yb	NZ		YB	ks
UT	YB		YB		YB		RJ	yb	NZ		YB	ks
VA	YB		YB		YB		RJ	yb	NZ		YB	ks
VC	YB		YB		YB		RJ	yb	NZ		YB	ks
VD	YB		YB		YB		RJ	yb	NZ		YB	ks
VE	YB		YB		YB		RJ	yb	NZ		YB	ks
VG	YB		YB		YB		RJ	yb	NZ		YB	ks
VH	YB		YB		YB		RJ	yb	NZ		YB	ks
VI	YB		YB		YB		RJ	yb	NZ		YB	ks
VL	YB		YB		YB		RJ	yb	NZ		YB	ks
VM	YB		YB		YB		RJ	yb	NZ		YB	ks
VN	YB		YB		YB		RJ	yb	NZ		YB	ks
VO	YB		YB		YB		RJ	yb	NZ		YB	ks
VQ	YB		YB		YB		RJ	yb	NZ		YB	ks
VR	YB		YB		YB		RJ	yb	NZ		YB	ks
VT	YB		YB		YB		RJ	yb	NZ		YB	ks
VV (EX. VVT)	YB		YB		YB		RJ	yb	NZ		YB	ks
VVT	YB		YB		YB		RJ	yb	NZ		YB	ks
VY	YB		YB		YB		RJ	yb	NZ		YB	ks
WA	YB		YB		YB		RJ	yb	NZ		YB	ks
WB (EX. WBA WBS)	YB		YB		YB		RJ	yb	NZ		YB	ks
WBA WBS	YB		YB		YB		RJ	yb	NZ		YB	ks
WI	YB		YB		YB		YB	rj	NZ		YB	ks
WM	YB		YB		YB		RJ	yb	NZ		YB	ks
WP	YB		YB		YB		RJ	yb	NZ		YB	ks
WR	YB		YB		YB		RJ	yb	NZ		YB	ks
WS	YB		YB		YB		RJ	yb	NZ		YB	ks
Y	YB		YB		YB		YB	nf	NZ		YB	ks
Z (EX. ZG ZJ ZK ZM)	YB		YB		YB		RJ	yb	NZ		YB	ks
ZG	YB		YB		YB		RJ	yb	NZ		YB	ks
ZJ	YB		YB		YB		RJ	yb	NZ		YB	ks
ZK	YB		YB		YB		RJ	yb	NZ		YB	ks
ZM	YB		YB		YB		RJ	yb	NZ		YB	ks

A	1		2		3		4		5		6	
ORIGIN DESTINATION	NFTF		NGFU		NGTT		NIUE		NSFA		NSTU	
AG	NZ		NF		NF		NZ		NZ		KS	
AN	NZ		NF		NF		NZ		NZ		KS	
AY	NZ		NF		NF		NZ		NZ		KS	
B	NZ		NF		NF		NZ		NZ		KS	
C	NZ		NF		NF		NZ		NZ		KS	
D	NZ		NF		NF		NZ		NZ		KS	
E	NZ		NF		NF		NZ		NZ		KS	
F	NZ		NF		NF		NZ		NZ		KS	
G	NZ		NF		NF		NZ		NZ		KS	
H	NZ		NF		NF		NZ		NZ		KS	
K	NZ		NF		NF		NZ		NZ		KS	
L	NZ		NF		NF		NZ		NZ		KS	
M	NZ		NF		NF		NZ		NZ		KS	
NC	NZ		NF		NF		NZ		NZ		KS	
NF (EX. NFT)	NZ		NF		NF		NZ		NZ		KS	
NFT	(N)	n	NF		NF		NZ		NZ		KS	
NG (EX. NGF)	NZ		NF		(N)	n	NZ		NZ		KS	
NGF	NZ		(N)	n	NF		NZ		NZ		KS	
NI	NZ		NF		NF		(N)	n	NZ		KS	
NL	NZ		NF		NF		NZ		NZ		KS	
NS (EX. NST)	NZ		NF		NF		NZ		(N)	n	KS	
NST	NZ		NF		NF		NZ		NZ		(N)	n
NT	NZ		NF		NF		NZ		NZ		KS	
NV	NZ		NF		NF		NZ		NZ		KS	
NW	NZ		NF		NF		NZ		NZ		KS	
NZ	NZ		NF		NF		NZ		NZ		KS	
OA	NZ		NF		NF		NZ		NZ		KS	
OB	NZ		NF		NF		NZ		NZ		KS	
OE	NZ		NF		NF		NZ		NZ		KS	
OI	NZ		NF		NF		NZ		NZ		KS	
OJ	NZ		NF		NF		NZ		NZ		KS	
OK	NZ		NF		NF		NZ		NZ		KS	
OL	NZ		NF		NF		NZ		NZ		KS	
OM	NZ		NF		NF		NZ		NZ		KS	
OO	NZ		NF		NF		NZ		NZ		KS	
OP	NZ		NF		NF		NZ		NZ		KS	
OR	NZ		NF		NF		NZ		NZ		KS	
OS	NZ		NF		NF		NZ		NZ		KS	
OT	NZ		NF		NF		NZ		NZ		KS	
OY	NZ		NF		NF		NZ		NZ		KS	
P	NZ		NF		NF		NZ		NZ		KS	
RC	NZ		NF		NF		NZ		NZ		KS	
RJ,RO	NZ		NF		NF		NZ		NZ		KS	
RK	NZ		NF		NF		NZ		NZ		KS	
RP	NZ		NF		NF		NZ		NZ		KS	
S	NZ		NF		NF		NZ		NZ		KS	
T	NZ		NF		NF		NZ		NZ		KS	

A	1		2		3		4		5		6	
ORIGIN DESTINATION	NFTF		NGFU		NGTT		NIUE		NSFA		NSTU	
U (EX. UH UI UT UE UN)	NZ		NF		NF		NZ		NZ		KS	
UH,UE,UN	NZ		NF		NF		NZ		NZ		KS	
UI	NZ		NF		NF		NZ		NZ		KS	
UT	NZ		NF		NF		NZ		NZ		KS	
VA	NZ		NF		NF		NZ		NZ		KS	
VC	NZ		NF		NF		NZ		NZ		KS	
VD	NZ		NF		NF		NZ		NZ		KS	
VE	NZ		NF		NF		NZ		NZ		KS	
VG	NZ		NF		NF		NZ		NZ		KS	
VH	NZ		NF		NF		NZ		NZ		KS	
VI	NZ		NF		NF		NZ		NZ		KS	
VL	NZ		NF		NF		NZ		NZ		KS	
VM	NZ		NF		NF		NZ		NZ		KS	
VN	NZ		NF		NF		NZ		NZ		KS	
VO	NZ		NF		NF		NZ		NZ		KS	
VQ	NZ		NF		NF		NZ		NZ		KS	
VR	NZ		NF		NF		NZ		NZ		KS	
VT	NZ		NF		NF		NZ		NZ		KS	
VV (EX. VVT)	NZ		NF		NF		NZ		NZ		KS	
VVT	NZ		NF		NF		NZ		NZ		KS	
VY	NZ		NF		NF		NZ		NZ		KS	
WA	NZ		NF		NF		NZ		NZ		KS	
WB (EX. WBA WBS)	NZ		NF		NF		NZ		NZ		KS	
WBA WBS	NZ		NF		NF		NZ		NZ		KS	
WI	NZ		NF		NF		NZ		NZ		KS	
WM	NZ		NF		NF		NZ		NZ		KS	
WP	NZ		NF		NF		NZ		NZ		KS	
WR	NZ		NF		NF		NZ		NZ		KS	
WS	NZ		NF		NF		NZ		NZ		KS	
Y	NZ		NF		NF		NZ		NZ		KS	
Z (EX. ZG ZJ ZK ZM)	NZ		NF		NF		NZ		NZ		KS	
ZG	NZ		NF		NF		NZ		NZ		KS	
ZJ	NZ		NF		NF		NZ		NZ		KS	
ZK	NZ		NF		NF		NZ		NZ		KS	
ZM	NZ		NF		NF		NZ		NZ		KS	

A	1		2		3		4		5		6	
ORIGIN DESTINATION	NTAA		NVVV		NWWW		NZCH		OPKC		PKMJ	
AG	NZ		YB		NF		YB	ks	VA	zb	KS	
AN	NZ		YB		NF		YB	ks	VA	zb	KS	
AY	NZ		YB		NF		YB	ks	VA	zb	KS	
B	NZ		YB		NF		KS	yb	OK	oi	KS	
C	NZ		YB		NF		KS	yb	OK	oi	KS	
D	NZ		YB		NF		YB	ks	OK	oi	KS	
E	NZ		YB		NF		YB	ks	OK	oi	KS	
F	NZ		YB		NF		YB	ks	OK	oi	KS	
G	NZ		YB		NF		YB	ks	OK	oi	KS	
H	NZ		YB		NF		YB	ks	OK	oi	KS	
K	NZ		YB		NF		KS	yb	OK	oi	KS	
L	NZ		YB		NF		YB	ks	OK	oi	KS	
M	NZ		YB		NF		KS	yb	OK	zb	KS	
NC	NZ		YB		NF		NC	n	VA	zb	KS	
NF (EX. NFT)	NZ		YB		NF		YB	ks	VA	zb	KS	
NFT	NZ		YB		NF		NFT	n	VA	zb	KS	
NG (EX. NGF)	NZ		YB		NF		YB	ks	VA	zb	KS	
NGF	NZ		YB		NF		YB	ks	VA	zb	KS	
NI	NZ		YB		NF		NI	n	VA	zb	KS	
NL	NZ		YB		NL		YB	ks	VA	zb	KS	
NS (EX. NST)	NZ		YB		NF		NS	n	VA	zb	KS	
NST	NZ		YB		NF		KS	yb	VA	zb	KS	
NT	(N)	n	YB		NF	nt	NT	n	VA	zb	KS	
NV	NZ		(N)	n	NF		YB	ks	VA	zb	KS	
NW	NZ	nw	YB		(N)	n	YB	ks	VA	zb	KS	
NZ	NZ		YB		NF		(N)	n	VA	zb	KS	
OA	NZ		YB		NF		YB	ks	OA	oi	KS	
OB	NZ		YB		NF		YB	ks	OK	oi	KS	
OE	NZ		YB		NF		YB	ks	OK	oi	KS	
OI	NZ		YB		NF		YB	ks	OI	ok	KS	
OJ	NZ		YB		NF		YB	ks	OK	oi	KS	
OK	NZ		YB		NF		YB	ks	OK	oi	KS	
OL	NZ		YB		NF		YB	ks	OK	oi	KS	
OM	NZ		YB		NF		YB	ks	OK	oi	KS	
OO	NZ		YB		NF		YB	ks	OK	oi	KS	
OP	NZ		YB		NF		YB	ks	(N)	n	KS	
OR	NZ		YB		NF		YB	ks	OI	ok	KS	
OS	NZ		YB		NF		YB	ks	OI	ok	KS	
OT	NZ		YB		NF		YB	ks	OK	oi	KS	
OY	NZ		YB		NF		YB	ks	OK	oi	KS	
P	NZ		YB		NF		KS	yb	VA	zb	(N)	n
RC	NZ		YB		NF		YB	ks	VA	zb	KS	
RJ,RO	NZ		YB		NF		YB	ks	VA	zb	KS	
RK	NZ		YB		NF		YB	ks	VA	zb	KS	
RP	NZ		YB		NF		YB	ks	VA	zb	KS	
S	NZ		YB		NF		KS	yb	OK	oi	KS	
T	NZ		YB		NF		KS	yb	OK	oi	KS	

A	1		2		3		4		5		6	
ORIGIN DESTINATION	NTAA		NVVV		NWWW		NZCH		OPKC		PKMJ	
U (EX. UH UI UT UE UN)	NZ		YB		NF		YB	ks	OI	ok	KS	
UH,UE,UN	NZ		YB		NF		YB	ks	OI	ok	KS	
UI	NZ		YB		NF		YB	ks	OI	ok	KS	
UT	NZ		YB		NF		YB	ks	VA	oi	KS	
VA	NZ		YB		NF		YB	ks	VA	zb	KS	
VC	NZ		YB		NF		YB	ks	VA	zb	KS	
VD	NZ		YB		NF		YB	ks	VA	zb	KS	
VE	NZ		YB		NF		YB	ks	VA	zb	KS	
VG	NZ		YB		NF		YB	ks	VA	zb	KS	
VH	NZ		YB		NF		YB	ks	VA	zb	KS	
VI	NZ		YB		NF		YB	ks	VA	zb	KS	
VL	NZ		YB		NF		YB	ks	VA	zb	KS	
VM	NZ		YB		NF		YB	ks	VA	zb	KS	
VN	NZ		YB		NF		YB	ks	ZB	va	KS	
VO	NZ		YB		NF		YB	ks	VA	zb	KS	
VQ	NZ		YB		NF		YB	ks	VA	zb	KS	
VR	NZ		YB		NF		YB	ks	VA	zb	KS	
VT	NZ		YB		NF		YB	ks	VA	zb	KS	
VV (EX. VVT)	NZ		YB		NF		YB	ks	VA	zb	KS	
VVT	NZ		YB		NF		YB	ks	VA	zb	KS	
VY	NZ		YB		NF		YB	ks	VA	zb	KS	
WA	NZ		YB		NF		YB	ks	VA	zb	KS	
WB (EX. WBA WBS)	NZ		YB		NF		YB	ks	VA	zb	KS	
WBA WBS	NZ		YB		NF		YB	ks	VA	zb	KS	
WI	NZ		YB		NF		YB	ks	VA	zb	KS	
WM	NZ		YB		NF		YB	ks	VA	zb	KS	
WP	NZ		YB		NF		YB	ks	VA	zb	KS	
WR	NZ		YB		NF		YB	ks	VA	zb	KS	
WS	NZ		YB		NF		YB	ks	VA	zb	KS	
Y	NZ		YB		NF		YB	ks	VA	zb	KS	
Z (EX. ZG ZJ ZK ZM)	NZ		YB		NF		YB	ks	ZB	va	KS	
ZG	NZ		YB		NF		YB	ks	ZB	va	KS	
ZJ	NZ		YB		NF		YB	ks	ZB	va	KS	
ZK	NZ		YB		NF		YB	ks	ZB	va	KS	
ZM	NZ		YB		NF		YB	ks	ZB	va	KS	

A	1		2		3		4		5		6	
ORIGIN DESTINATION	PTKK		PTPN		PTRO		PTSA		PTYA		RCTP	
AG	KS		KS		KS		KS		KS		RP	vh
AN	KS		KS		KS		KS		KS		RP	vh
AY	KS		KS		KS		KS		KS		RP	vh
B	KS		KS		KS		KS		KS		VH	rp
C	KS		KS		KS		KS		KS		VH	rp
D	KS		KS		KS		KS		KS		RP	vh
E	KS		KS		KS		KS		KS		VH	rp
F	KS		KS		KS		KS		KS		RP	vh
G	KS		KS		KS		KS		KS		RP	vh
H	KS		KS		KS		KS		KS		RP	vh
K	KS		KS		KS		KS		KS		VH	rp
L	KS		KS		KS		KS		KS		VH	rp
M	KS		KS		KS		KS		KS		VH	rp
NC	KS		KS		KS		KS		KS		RP	vh
NF (EX. NFT)	KS		KS		KS		KS		KS		RP	vh
NFT	KS		KS		KS		KS		KS		RP	vh
NG (EX. NGF)	KS		KS		KS		KS		KS		RP	vh
NGF	KS		KS		KS		KS		KS		RP	vh
NI	KS		KS		KS		KS		KS		RP	vh
NL	KS		KS		KS		KS		KS		RP	vh
NS (EX. NST)	KS		KS		KS		KS		KS		RP	vh
NST	KS		KS		KS		KS		KS		RP	vh
NT	KS		KS		KS		KS		KS		RP	vh
NV	KS		KS		KS		KS		KS		RP	vh
NW	KS		KS		KS		KS		KS		RP	vh
NZ	KS		KS		KS		KS		KS		RP	vh
OA	KS		KS		KS		KS		KS		RP	vh
OB	KS		KS		KS		KS		KS		RP	vh
OE	KS		KS		KS		KS		KS		RP	vh
OI	KS		KS		KS		KS		KS		RP	vh
OJ	KS		KS		KS		KS		KS		RP	vh
OK	KS		KS		KS		KS		KS		RP	vh
OL	KS		KS		KS		KS		KS		RP	vh
OM	KS		KS		KS		KS		KS		RP	vh
OO	KS		KS		KS		KS		KS		RP	vh
OP	KS		KS		KS		KS		KS		RP	vh
OR	KS		KS		KS		KS		KS		RP	vh
OS	KS		KS		KS		KS		KS		RP	vh
OT	KS		KS		KS		KS		KS		RP	vh
OY	KS		KS		KS		KS		KS		RP	vh
P	(N)		(N)		(N)		(N)		(N)		VH	rp
RC	KS		KS		KS		KS		KS		(N)	n
RJ,RO	KS		KS		KS		KS		KS		RJ	vh
RK	KS		KS		KS		KS		KS		RJ	vh
RP	KS		KS		KS		KS		KS		RP	vh
S	KS		KS		KS		KS		KS		VH	rp
T	KS		KS		KS		KS		KS		VH	rp

A	1		2		3		4		5		6	
ORIGIN DESTINATION	PTKK		PTPN		PTRO		PTSA		PTYA		RCTP	
U (EX. UH UI UT UE UN)	KS		KS		KS		KS		KS		RJ	vh
UH,UE,UN	KS		KS		KS		KS		KS		RJ	vh
UI	KS		KS		KS		KS		KS		RJ	vh
UT	KS		KS		KS		KS		KS		RJ	vh
VA	KS		KS		KS		KS		KS		VH	rp
VC	KS		KS		KS		KS		KS		RP	vh
VD	KS		KS		KS		KS		KS		VH	rp
VE	KS		KS		KS		KS		KS		VH	rp
VG	KS		KS		KS		KS		KS		VH	rp
VH	KS		KS		KS		KS		KS		VH	rp
VI	KS		KS		KS		KS		KS		VH	rp
VL	KS		KS		KS		KS		KS		VH	rp
VM	KS		KS		KS		KS		KS		VH	rp
VN	KS		KS		KS		KS		KS		VH	rp
VO	KS		KS		KS		KS		KS		VH	rp
VQ	KS		KS		KS		KS		KS		VH	rp
VR	KS		KS		KS		KS		KS		RP	vh
VT	KS		KS		KS		KS		KS		VH	rp
VV (EX. VVT)	KS		KS		KS		KS		KS		VH	rp
VVT	KS		KS		KS		KS		KS		VH	rp
VY	KS		KS		KS		KS		KS		VH	rp
WA	KS		KS		KS		KS		KS		RP	vh
WB (EX. WBA WBS)	KS		KS		KS		KS		KS		RP	vh
WBA WBS	KS		KS		KS		KS		KS		RP	vh
WI	KS		KS		KS		KS		KS		RP	vh
WM	KS		KS		KS		KS		KS		RP	vh
WP	KS		KS		KS		KS		KS		RP	vh
WR	KS		KS		KS		KS		KS		RP	vh
WS	KS		KS		KS		KS		KS		RP	vh
Y	KS		KS		KS		KS		KS		RP	vh
Z (EX. ZG ZJ ZK ZM)	KS		KS		KS		KS		KS		VH	rp
ZG	KS		KS		KS		KS		KS		VH	rp
ZJ	KS		KS		KS		KS		KS		VH	rp
ZK	KS		KS		KS		KS		KS		VH	rp
ZM	KS		KS		KS		KS		KS		VH	rp

A	1		2		3		4		5		6	
ORIGIN / DESTINATION	RJJJ		RKSS		RPLL		UHHH		UUUU		VABB	
AG	WS	vh	RJ		WS	vh	UU	zb	RJ	n	VT	vc
AN	WS	vh	RJ		WS	vh	UU	zb	RJ	n	VT	vc
AY	WS	vh	RJ		WS	vh	UU	zb	RJ	n	VT	vc
B	KS	ws	RJ		VH	ws	UU	zb	BI	n	VT	vc
C	KS	ws	RJ		KS	vh	UU	zb	EG	n	VT	vc
D	WS	vh	RJ		WS	vh	UU	zb	LF	n	HK	vt
E	WS	vh	RJ		VH	ws	UU	zb	(N)	n	VT	vc
F	WS	vh	RJ		WS	vh	UU	zb	LF	n	HK	vt
G	WS	vh	RJ		WS	vh	UU	zb	LE	n	HK	vt
H	WS	vh	RJ		WS	vh	UU	zb	LG	n	HK	vt
K	KS	ws	RJ	zb	KS	vh	UU	zb	RJ	n	VT	vc
L	WS	vh	RJ		VH	ws	UU	zb	(N)	n	VT	vc
M	KS	ws	RJ		KS	vh	UU	zb	EG	n	VT	vc
NC	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NF (EX. NFT)	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NFT	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NG (EX. NGF)	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NGF	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NI	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NL	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NS (EX. NST)	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NST	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NT	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NV	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NW	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
NZ	KS	ws	RJ		WS	vh	UU	zb	RJ	n	VT	vc
OA	WS	vh	RJ		WS	vh	UU	n	LC	n	OP	vn
OB	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OE	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OI	WS	vh	RJ		WS	vh	UU	n	LC	n	OP	oo
OJ	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OK	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OL	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OM	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OO	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OP	WS	vh	RJ		WS	vh	UU	n	LC	n	OP	oo
OR	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OS	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OT	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
OY	WS	vh	RJ		WS	vh	UU	n	LC	n	OO	op
P	KS	ws	RJ		KS	vh	UU	zb	EG	n	VT	vc
RC	RC	vh	RJ		RC	vh	UU	zb	RJ	n	VT	vc
RJ,RO	(N)	n	RJ	zb	VH	rc	UU	zb	RJ	n	VT	vc
RK	RK	zb	(N)	n	VH	rc	UU	zb	RJ	n	VT	vc
RP	WS	vh	RJ		(N)	n	UU	zb	RJ	n	VT	vc
S	KS	ws	RJ		KS	vh	UU	zb	LE	n	VT	vc
T	KS	ws	RJ		KS	vh	UU	zb	EG	n	VT	vc

A	1		2		3		4		5		6	
ORIGIN DESTINATION	RJJJ		RKSS		RPLL		UHHH		UUUU		VABB	
U (EX. UH UI UT UE UN)	UU	zb	RJ		VH	rc	(N)	n	(N)	n	ZB	op
UH,UE,UN	UU	zb	RJ		VH	rc	(N)	n	(N)	n	ZB	op
UI	UU	zb	RJ		VH	rc	(N)	n	(N)	n	ZB	op
UT	UU	zb	RJ		VH	rc	(N)	n	UA	un	ZB	op
VA	WS	vh	RJ		WS	vh	ZB	n	RJ	uh	(N)	n
VC	WS	vh	RJ		WS	vh	ZB	n	RJ	uh	VC	vt
VD	VH	ws	RJ		VH	rc	ZB	n	RJ	uh	VT	vc
VE	WS	vh	RJ		VH	rc	ZB	n	RJ	uh	VE	n
VG	VH	ws	RJ		VH	rc	ZB	n	RJ	uh	VG	vt
VH	VH	ws	RJ		VH	rc	ZB	n	RJ	uh	VT	vc
VI	WS	vh	RJ		WS	vh	ZB	n	RJ	uh	VI	n
VL	VH	ws	RJ		VH	rc	ZB	n	RJ	uh	VT	vc
VM	VH	ws	RJ		VH	rc	ZB	n	RJ	uh	VT	vc
VN	ZB	ws	RJ		VH	ws	ZB	n	RJ	uh	VN	zb
VO	WS	vh	RJ		WS	vh	ZB	n	RJ	uh	VO	n
VQ	WS	vh	RJ		WS	vh	ZB	n	RJ	uh	VQ	vt
VR	WS	vh	RJ		WS	vh	ZB	n	RJ	uh	VC	vt
VT	VH	ws	RJ		VH	rc	ZB	n	RJ	uh	VT	vc
VV (EX. VVT)	VH	ws	RJ		VV	vh	ZB	n	RJ	uh	WS	vt
VVT	VH	ws	RJ		VV	vh	ZB	n	RJ	uh	WS	vt
VY	VH	ws	RJ		VH	rc	ZB	n	RJ	uh	WS	vt
WA	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
WB (EX. WBA WBS)	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
WBA WBS	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
WI	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
WM	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
WP	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
WR	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
WS	WS	vh	RJ		WS	vh	UU	zb	RJ	n	WS	vt
Y	WS	vh	RJ		WS	vh	UU	zb	RJ	n	VT	vc
Z (EX. ZG ZJ ZK ZM)	ZB	vh	ZB	rj	VH	ws	ZB	n	RJ	uh	ZB	op
ZG	ZB	vh	ZB	rj	VH	ws	ZB	n	RJ	uh	ZB	op
ZJ	ZB	vh	ZB	rj	VH	ws	ZB	n	RJ	uh	ZB	op
ZK	RK	zb	ZK	zb	VH	ws	ZB	n	RJ	uh	ZB	op
ZM	ZB	vh	ZB	rj	VH	ws	UI	zb	UI	uh	ZB	op

A	1		2		3		4		5		6	
ORIGIN DESTINATION	VCCC		VDPP		VECC		VGZR		VHHH		VIDD	
AG	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
AN	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
AY	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
B	WS	va	VT		VA	vg	VT	va	RJ	vt	VA	n
C	WS	va	VT		VA	vg	VT	va	RJ	rp	VA	n
D	WS	va	VT		VA	n	VT	va	VT	vvt	VA	n
E	WS	va	VT		VA	n	VT	va	VT	rj	VA	n
F	WS	va	VT		VA	vo	VT	va	VT	rp	VA	ve
G	WS	va	VT		VA	n	VT	va	VT	vvt	VA	n
H	WS	va	VT		VA	n	VT	va	VT	vvt	VA	n
K	WS	va	VT		VA	vg	VT	va	RJ	rp	VA	n
L	WS	va	VT		VA	n	VT	va	VT	rj	VA	n
M	WS	va	VT		VA	vg	VT	va	RJ	rp	VA	n
NC	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NF (EX. NFT)	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NFT	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NG (EX. NGF)	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NGF	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NI	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NL	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NS (EX. NST)	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NST	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NT	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NV	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NW	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
NZ	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
OA	VA	ws	VT		VA	n	VT	va	ZB	vt	VA	n
OB	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OE	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OI	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OJ	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OK	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OL	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OM	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OO	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OP	VA	ws	VT		VA	n	VT	va	ZB	vt	VA	n
OR	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OS	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OT	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
OY	WS	va	VT		VA	n	VT	va	VT	rp	VA	n
P	WS	va	VT		VA	vg	VT	va	RJ	rp	VA	n
RC	WS	va	VT		VA	vg	VT	va	RC	rp	VA	n
RJ,RO	WS	va	VT		VA	vg	VT	va	RJ	rc	VA	n
RK	WS	va	VT		VA	vg	VT	va	RJ	zb	VA	n
RP	WS	va	VT		VA	vg	VT	va	RP	rc	VA	n
S	WS	va	VT		VA	vg	VT	va	RJ	rp	VA	n
T	WS	va	VT		VA	vg	VT	va	RJ	rp	VA	n

A	1		2		3		4		5		6	
ORIGIN DESTINATION	VCCC		VDPP		VECC		VGZR		VHHH		VIDD	
U (EX. UH UI UT UE UN)	WS	va	VT		VI	n	VT	va	RJ	zb	UT	n
UH,UE,UN	WS	va	VT		VI	n	VT	va	RJ	zb	UT	n
UI	WS	va	VT		VI	n	VT	va	RJ	zb	UT	n
UT	WS	va	VT		(N)	n	VT	va	RJ	zb	UT	n
VA	VA	ws	VT		VA	n	VA	vt	VT	vvt	VA	n
VC	(N)	n	VT		VA	n	VA	vt	VT	rp	VA	n
VD	WS	va	(N)	n	VA	n	VA	va	VT	vvt	(N)	n
VE	VA	ws	VT		(N)	n	VA	vt	VT	vvt	VA	n
VG	VA	ws	VT		VA	n	(N)	n	VT	vvt	VA	n
VH	WS	va	VT		(N)	n	VT	va	(N)	n	VA	n
VI	VA	ws	VT		(N)	n	VE	vt	VT	vvt	(N)	n
VL	WS	va	VT		VA	vg	VT	vt	VT	vvt	VA	n
VM	WS	va	VT		VA	n	VT	vt	VM	zg	VA	ve
VN	VA	ws	VT		VA	n	VA	vt	ZB	vt	VA	n
VO	VA	ws	VT		(N)	n	VA	vt	VT	vvt	VA	n
VQ	VA	ws	VT		VA	n	VA	vt	VT	vvt	VA	n
VR	VR	n	VT		VA	vg	VA	vt	VT	rp	VA	n
VT	WS	va	VT		VA	vg	VT	va	VT	vvt	VA	n
VV (EX. VVT)	WS	va	VT		VA	vg	VT	va	VVT	vt	VA	n
VVT	WS	va	VT		VA	vg	VT	va	VVT	vt	VA	n
VY	WS	va	VT		VA	vg	VT	va	VT	vvt	VA	n
WA	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
WB (EX. WBA WBS)	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
WBA WBS	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
WI	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
WM	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
WP	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
WR	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
WS	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
Y	WS	va	VT		VA	vg	VT	va	VT	rp	VA	n
Z (EX. ZG ZJ ZK ZM)	VA	ws	VT		VA	n	VT	va	ZB	zg	VA	n
ZG	VA	ws	VT		VA	n	VT	va	ZG	zb	VA	n
ZJ	VA	ws	VT		VA	n	VT	va	ZJ	zg	VA	n
ZK	VA	ws	VT		VA	n	VT	va	ZB	zg	VA	n
ZM	VA	ws	VT		VA	n	VT	va	ZB	zg	VA	n

A	1		2		3		4		5		6	
ORIGIN DESTINATION	VLVT		VMMC		VNKT		VOMM		VQPR		VRMM	
AG	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
AN	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
AY	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
B	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
C	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
D	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
E	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
F	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
G	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
H	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
K	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
L	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
M	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
NC	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NF (EX. NFT)	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NFT	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NG (EX. NGF)	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NGF	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NI	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NL	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NS (EX. NST)	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NST	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NT	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NV	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NW	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
NZ	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
OA	VT	vv	VH	zg	VA	zb	VA	n	VA		VC	
OB	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OE	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OI	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OJ	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OK	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OL	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OM	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OO	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OP	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
OR	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OS	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OT	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
OY	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
P	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
RC	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
RJ,RO	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
RK	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
RP	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
S	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	
T	VT	vv	VH	zg	ZB	va	WM	va	VA		VC	

A	1		2		3		4		5		6	
ORIGIN DESTINATION	VLVT		VMMC		VNKT		VOMM		VQPR		VRMM	
U (EX. UH UI UT UE UN)	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
UH,UE,UN	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
UI	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
UT	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
VA	VT	vv	VH	zg	VA	zb	(N)	n	VA		VC	
VC	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
VD	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
VE	VT	vv	VH	zg	VA	zb	(N)	n	VA		VC	
VG	VT	vv	VH	zg	VA	zb	VA	n	VA		VC	
VH	VT	vv	VH	zg	ZB	va	VA	wm	VA		VC	
VI	VT	vv	VH	zg	VA	zb	(N)	n	VA		VC	
VL	(N)	n	VH	zg	VA	zb	VA	wm	VA		VC	
VM	VT	vv	(N)	n	ZB	va	VA	wm	VA		VC	
VN	VT	vv	ZG	vh	(N)	va	VA	wm	VA		VC	
VO	VT	vv	VH	zg	VA	zb	(N)	n	VA		VC	
VQ	VT	vv	VH	zg	VA	zb	VA	wm	(N)	n	VC	
VR	VT	vv	VH	zg	VA	zb	VA	wm	VA		(N)	n
VT	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
VV (EX. VVT)	VV	vt	VH	zg	VA	zb	VA	wm	VA		VC	
VVT	VV	vt	VH	zg	VA	zb	VA	wm	VA		VC	
VY	VT	vv	VH	zg	VA	zb	VA	wm	VA		VC	
WA	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
WB (EX. WBA WBS)	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
WBA WBS	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
WI	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
WM	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
WP	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
WR	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
WS	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
Y	VT	vv	VH	zg	VA	zb	WM	va	VA		VC	
Z (EX. ZG ZJ ZK ZM)	VT	vv	ZG	vh	ZB	va	VA	n	VA		VC	
ZG	VV	vt	ZG	vh	ZB	va	VA	n	VA		VC	
ZJ	VV	vt	ZG	vh	ZB	va	VA	n	VA		VC	
ZK	VT	vv	ZG	vh	ZB	va	VA	n	VA		VC	
ZM	VT	vv	ZG	vh	ZB	va	VA	n	VA		VC	

A	1		2		3		4		5		6	
ORIGIN DESTINATION	VTBB		VVTS		VVVV		VYYY		WBKK		WBSB	
AG	WS	wm	VT	vh	VVT		VT		WM		WS	wm
AN	WS	wm	VT	vh	VVT		VT		WM		WS	wm
AY	WS	wm	VT	vh	VVT		VT		WM		WS	wm
B	VH	ws	VH	vt	VVT		VT		WM		WS	wm
C	VH	ws	VH	vt	VVT		VT		WM		WS	wm
D	WS	va	VT	vh	VVT		VT		WM		WS	wm
E	LI	ws	VH	vt	VVT		VT		WM		WS	wm
F	WS	va	VT	vh	VVT		VT		WM		WS	wm
G	WS	va	VT	vh	VVT		VT		WM		WS	wm
H	WS	va	VT	vh	VVT		VT		WM		WS	wm
K	VH	ws	VH	vt	VVT		VT		WM		WS	wm
L	LI	ws	VH	vt	VVT		VT		WM		WS	wm
M	VH	ws	VH	vt	VVT		VT		WM		WS	wm
NC	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NF (EX. NFT)	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NFT	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NG (EX. NGF)	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NGF	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NI	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NL	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NS (EX. NST)	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NST	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NT	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NV	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NW	WS	wm	VT	vh	VVT		VT		WM		WS	wm
NZ	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OA	VA	ws	VT	vh	VVT		VT		WM		WS	wm
OB	WS	va	VT	vh	VVT		VT		WM		WS	wm
OE	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OI	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OJ	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OK	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OL	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OM	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OO	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OP	VA	ws	VT	vh	VVT		VT		WM		WS	wm
OR	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OS	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OT	WS	wm	VT	vh	VVT		VT		WM		WS	wm
OY	WS	wm	VT	vh	VVT		VT		WM		WS	wm
P	VH	ws	VH	vt	VVT		VT		WM		WS	wm
RC	VH	ws	VH	vt	VVT		VT		WM		WS	wm
RJ,RO	VH	ws	VH	vt	VVT		VT		WM		WS	wm
RK	VH	ws	VH	vt	VVT		VT		WM		WS	wm
RP	VH	ws	RP	vh	VVT		VT		WM		WS	wm
S	VH	ws	VH	vt	VVT		VT		WM		WS	wm
T	VH	ws	VH	vt	VVT		VT		WM		WS	wm

A	1		2		3		4		5		6	
ORIGIN DESTINATION	VTBB		VVTS		VVVV		VYYY		WBKK		WBSB	
U (EX. UH UI UT UE UN)	VH	va	VH	vt	VVT		VT		WM		WS	wm
UH,UE,UN	VH	va	VH	vt	VVT		VT		WM		WS	wm
UI	VH	va	VH	vt	VVT		VT		WM		WS	wm
UT	VH	va	VH	vt	VVT		VT		WM		WS	wm
VA	VA	ws	VT	vh	VVT		VT		WM		WS	wm
VC	WS	wm	VT	vh	VVT		VT		WM		WS	wm
VD	VD	n	VT	vh	VVT		VT		WM		WS	wm
VE	VA	ws	VT	vh	VVT		VT		WM		WS	wm
VG	VG	n	VT	vh	VVT		VT		WM		WS	wm
VH	VH	ws	VH	vt	VVT		VT		WM		WS	wm
VI	VA	ws	VT	vh	VVT		VT		WM		WS	wm
VL	VL	vvt	VV	vt	VL	vvt	VT		WM		WS	wm
VM	VH	ws	VV	vh	ZG	vvt	VT		WM		WS	wm
VN	VA	vh	VV	vh	ZG	vvt	VT		WM		WS	wm
VO	WM	ws	VT	vh	VVT		VT		WM		WS	wm
VQ	VA	ws	VT	vh	VVT		VT		WM		WS	wm
VR	WS	wm	VT	vh	VVT		VT		WM		WS	wm
VT	(N)	n	VT	vh	VVT		VT		WM		WS	wm
VV (EX. VVT)	VVT	vh	VV	n	(N)	n	VT		WM		WS	wm
VVT	VVT	vh	(N)	n	VVT		VT		WM		WS	wm
VY	VY	vh	VT	vh	VVT		(N)	n	WM		WS	wm
WA	WS	wm	VT	vh	VVT		VT		WM		WS	wm
WB (EX. WBA WBS)	WM	ws	VT	vh	VVT		VT		(N)	n	WM	ws
WBA WBS	WS	wm	VT	vh	VVT		VT		WM		(N)	n
WI	WS	wm	VT	vh	VVT		VT		WM		WS	wm
WM	WM	ws	VT	vh	VVT		VT		WM		WS	wm
WP	WS	wm	VT	vh	VVT		VT		WM		WS	wm
WR	WS	wm	VT	vh	VVT		VT		WM		WS	wm
WS	WS	wm	VT	vh	VVT		VT		WM		WS	wm
Y	WS	wm	VT	vh	VVT		VT		WM		WS	wm
Z (EX. ZG ZJ ZK ZM)	ZB	vh	VV	vh	ZG	vvt	ZB	vt	WM		WS	wm
ZG	ZB	vh	VV	vh	ZG	vvt	ZB	vt	WM		WS	wm
ZJ	ZB	vh	VV	vh	ZG	vvt	ZB	vt	WM		WS	wm
ZK	ZB	vh	VV	vh	ZG	vvt	ZB	vt	WM		WS	wm
ZM	ZB	vh	VV	vh	ZG	vvt	ZB	vt	WM		WS	wm

A	1		2		3		4		5		6	
ORIGIN DESTINATION	WIII		WMKK		WPDL		WSSS		YBBB		ZBBB	
AG	YB	ws	WS	vt	Y		YB	wi	AG	n	RJ	zg
AN	YB	ws	WS	vt	Y		YB	wi	AN	n	RJ	zg
AY	YB	ws	WS	vt	Y		YB	wi	AY	n	RJ	zg
B	YB	ws	WS	vt	Y		RJ	yb	KS	nf	RJ	zg
C	YB	ws	WS	vt	Y		RJ	yb	KS	nf	RJ	zg
D	YB	ws	WS	vt	Y		YB	vt	FA	ws	RJ	op
E	WS	yb	WS	vt	Y		EG	vt	WS	wi	RJ	zg
F	YB	ws	WS	vt	Y		YB	vt	FA	ws	RJ	op
G	YB	ws	WS	vt	Y		YB	vt	FA	ws	RJ	op
H	YB	ws	WS	vt	Y		YB	vt	FA	ws	RJ	op
K	YB	ws	WS	vt	Y		RJ	yb	KS	nf	RJ	zg
L	WS	yb	WS	vt	Y		EG	vt	WS	wi	RJ	zg
M	YB	ws	WS	vt	Y		RJ	yb	KS	nf	RJ	zg
NC	YB	ws	WS	vt	Y		YB	wi	NZ	ks	RJ	zg
NF (EX. NFT)	YB	ws	WS	vt	Y		YB	wi	NF	nz	RJ	zg
NFT	YB	ws	WS	vt	Y		YB	wi	NZ	ks	RJ	zg
NG (EX. NGF)	YB	ws	WS	vt	Y		YB	wi	NF	nz	RJ	zg
NGF	YB	ws	WS	vt	Y		YB	wi	NF	nz	RJ	zg
NI	YB	ws	WS	vt	Y		YB	wi	NZ	ks	RJ	zg
NL	YB	ws	WS	vt	Y		YB	wi	NF	nz	RJ	zg
NS (EX. NST)	YB	ws	WS	vt	Y		YB	wi	NZ	ks	RJ	zg
NST	YB	ws	WS	vt	Y		YB	wi	KS	nf	RJ	zg
NT	YB	ws	WS	vt	Y		YB	wi	NZ	ks	RJ	zg
NV	YB	ws	WS	vt	Y		YB	wi	NV	n	RJ	zg
NW	YB	ws	WS	vt	Y		YB	wi	NF	nz	RJ	zg
NZ	YB	ws	WS	vt	Y		YB	wi	NZ	ks	RJ	zg
OA	WS	yb	VO	vt	Y		VC	vt	WS	wi	OP	vn
OB	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OE	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OI	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OJ	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OK	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OL	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OM	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OO	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OP	WS	yb	VT	ws	Y		VT	oo	WS	wi	OP	zg
OR	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OS	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OT	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
OY	WS	yb	WS	vt	Y		OB	vt	WS	wi	OP	zg
P	YB	ws	WS	vt	Y		RJ	yb	KS	nf	RJ	zg
RC	WS	yb	WS	vt	Y		RJ	vt	WS	wi	RJ	zg
RJ,RO	WS	yb	WS	vt	Y		RJ	vt	WS	wi	RJ	zg
RK	WS	yb	WS	vt	Y		RJ	vt	WS	wi	RK	rj
RP	WS	yb	WS	vt	Y		RP	vt	WS	wi	VH	zg
S	YB	ws	WS	vt	Y		RJ	yb	KS	nf	RJ	zg
T	WS	yb	WS	vt	Y		RJ	yb	KS	nf	RJ	zg

A	1		2		3		4		5		6	
ORIGIN DESTINATION	WIII		WMKK		WPDL		WSSS		YBBB		ZBBB	
U (EX. UH UI UT UE UN)	WS	yb	WS	vt	Y		RJ	vt	WS	wi	UH	rj
UH,UE,UN	WS	yb	WS	vt	Y		RJ	vt	WS	wi	UH	rj
UI	WS	yb	WS	vt	Y		RJ	vt	WS	wi	UH	rj
UT	WS	yb	WS	vt	Y		RJ	vt	WS	wi	UH	rj
VA	WS	yb	VT	ws	Y		VC	vt	WS	wi	VA	zg
VC	WS	yb	WS	vt	Y		VC	vt	WS	wi	VA	rj
VD	WS	yb	VT	ws	Y		VT	wm	WS	wi	VT	zg
VE	WS	yb	VT	ws	Y		VC	vt	WS	wi	VA	zg
VG	WS	yb	VT	ws	Y		VT	wm	WS	wi	ZG	rj
VH	WS	yb	WS	vt	Y		RJ	vt	WS	wi	VH	zg
VI	WS	yb	VT	ws	Y		VC	vt	WS	wi	VA	zg
VL	WS	yb	VT	ws	Y		VT	wm	WS	wi	VT	zg
VM	WS	yb	WS	vt	Y		VT	rj	WS	wi	ZG	rj
VN	WS	yb	VT	ws	Y		VC	vt	WS	wi	VN	zg
VO	WS	yb	VO	ws	Y		WM	vt	WS	wi	VA	zg
VQ	WS	yb	VT	ws	Y		VC	vt	WS	wi	VA	zg
VR	WS	yb	WS	vt	Y		VC	vt	WS	wi	VA	zg
VT	WS	yb	VT	ws	Y		VT	wm	WS	wi	VT	zg
VV (EX. VVT)	WS	yb	VT	ws	Y		VVT	vt	WS	wi	VT	zg
VVT	WS	yb	VT	ws	Y		VVT	vt	WS	wi	VT	zg
VY	WS	yb	VT	ws	Y		VT	wm	WS	wi	VY	zg
WA	(N)	n	WS	vt	Y		WI	yb	WI	ws	RJ	zg
WB (EX. WBA WBS)	WS	yb	WB	n	Y		WM	vt	WS	wi	RJ	zg
WBA WBS	WS	yb	WBS	ws	Y		WBS	wm	WS	wi	RJ	zg
WI	(N)	n	WS	vt	Y		WI	yb	WI	ws	RJ	zg
WM	WS	yb	(N)	n	Y		WM	vt	WS	wi	RJ	zg
WP	YB	ws	WS	vt	(N)	(n)	YB	wi	WP	n	RJ	zg
WR	(N)	n	WS	vt	Y		WI	yb	WI	ws	RJ	zg
WS	WS	yb	WS	vt	Y		(N)	n	WS	wi	RJ	zg
Y	YB	ws	WS	vt	Y		YB	wi	(N)	n	RJ	zg
Z (EX. ZG ZJ ZK ZM)	WS	yb	VT	ws	Y		RJ	vt	WS	wi	(N)	n
ZG	WS	yb	VT	ws	Y		VT	rj	WS	wi	ZG	n
ZJ	WS	yb	VT	ws	Y		VT	rj	WS	wi	ZG	vh
ZK	WS	yb	VT	ws	Y		RJ	vt	WS	wi	ZK	rk
ZM	WS	yb	VT	ws	Y		RJ	vt	WS	wi	ZM	uh

A	1		2		3		4		5		6	
ORIGIN DESTINATION	ZGGG		ZJHK		ZKKK		ZMUB					
AG	VH	zb	VH	zg	ZB	n	ZB					
AN	VH	zb	VH	zg	ZB	n	ZB					
AY	VH	zb	VH	zg	ZB	n	ZB					
B	ZB	vh	ZG	vh	ZB	n	ZB					
C	ZB	vh	ZG	vh	ZB	n	ZB					
D	ZB	vh	ZG	vh	ZB	n	ZB					
E	VH	zb	VH	zg	ZB	n	ZB					
F	ZB	vh	VH	zg	ZB	n	ZB					
G	ZB	vh	ZG	vh	ZB	n	ZB					
H	ZB	vh	ZG	vh	ZB	n	ZB					
K	ZB	vh	ZG	vh	RK	zb	ZB					
L	VH	zb	VH	zg	ZB	n	ZB					
M	ZB	vh	ZG	vh	ZB	n	ZB					
NC	VH	zb	VH	zg	ZB	n	ZB					
NF (EX. NFT)	VH	zb	VH	zg	ZB	n	ZB					
NFT	VH	zb	VH	zg	ZB	n	ZB					
NG (EX. NGF)	VH	zb	VH	zg	ZB	n	ZB					
NGF	VH	zb	VH	zg	ZB	n	ZB					
NI	VH	zb	VH	zg	ZB	n	ZB					
NL	VH	zb	VH	zg	ZB	n	ZB					
NS (EX. NST)	VH	zb	VH	zg	ZB	n	ZB					
NST	VH	zb	VH	zg	ZB	n	ZB					
NT	VH	zb	VH	zg	ZB	n	ZB					
NV	VH	zb	VH	zg	ZB	n	ZB					
NW	VH	zb	VH	zg	ZB	n	ZB					
NZ	VH	zb	VH	zg	ZB	n	ZB					
OA	ZB	vh	ZG	vh	ZB	n	ZB					
OB	ZB	vh	ZG	vh	ZB	n	ZB					
OE	ZB	vh	ZG	vh	ZB	n	ZB					
OI	ZB	vh	ZG	vh	ZB	n	ZB					
OJ	ZB	vh	ZG	vh	ZB	n	ZB					
OK	ZB	vh	ZG	vh	ZB	n	ZB					
OL	ZB	vh	ZG	vh	ZB	n	ZB					
OM	ZB	vh	ZG	vh	ZB	n	ZB					
OO	ZB	vh	ZG	vh	ZB	n	ZB					
OP	ZB	vh	ZG	vh	ZB	n	ZB					
OR	ZB	vh	ZG	vh	ZB	n	ZB					
OS	ZB	vh	ZG	vh	ZB	n	ZB					
OT	ZB	vh	ZG	vh	ZB	n	ZB					
OY	ZB	vh	ZG	vh	ZB	n	ZB					
P	ZB	vh	ZG	vh	ZB	n	ZB					
RC	ZB	vh	VH	zg	ZB	n	ZB					
RJ,RO	ZB	vh	ZG	vh	RK	zb	ZB					
RK	ZB	vh	ZG	vh	RK	zb	ZB					
RP	VH	zb	VH	zg	ZB	n	ZB					
S	ZB	vh	ZG	vh	ZB	n	ZB					
T	ZB	n	ZG	vh	ZB	n	ZB					

A	1		2		3		4		5		6	
ORIGIN DESTINATION	ZGGG		ZJHK		ZKKK		ZMUB					
U (EX. UH UI UT UE UN)	ZB	n	ZG	vh	ZB	n	ZB					
UH,UE,UN	ZB	n	ZG	vh	ZB	uh	ZB					
UI	ZB	n	ZG	vh	ZB	uh	UI	zb				
UT	ZB	n	ZG	vh	ZB	uh	ZB					
VA	VH	zb	VH	zg	ZB	n	ZB					
VC	VH	zb	VH	zg	ZB	n	ZB					
VD	VH	zb	VH	zg	ZB	n	ZB					
VE	VH	zb	VH	zg	ZB	n	ZB					
VG	VH	zb	VH	zg	ZB	n	ZB					
VH	VH	zb	VH	zg	ZB	n	ZB					
VI	VH	zb	VH	zg	ZB	n	ZB					
VL	VH	zb	VH	zg	ZB	n	ZB					
VM	VM	vh	ZG	vh	ZB	n	ZB					
VN	ZB	vh	ZG	vh	ZB	n	ZB					
VO	VH	zb	VH	zg	ZB	n	ZB					
VQ	VH	zb	VH	zg	ZB	n	ZB					
VR	VH	zb	VH	zg	ZB	n	ZB					
VT	VH	zb	VH	zg	ZB	n	ZB					
VV (EX. VVT)	VV	vh	ZG	vh	ZB	n	ZB					
VVT	VV	vh	ZG	vh	ZB	n	ZB					
VY	VH	zb	VH	zg	ZB	n	ZB					
WA	VH	zb	VH	zg	ZB	n	ZB					
WB (EX. WBA WBS)	VH	zb	VH	zg	ZB	n	ZB					
WBA WBS	VH	zb	VH	zg	ZB	n	ZB					
WI	VH	zb	VH	zg	ZB	n	ZB					
WM	VH	zb	VH	zg	ZB	n	ZB					
WP	VH	zb	VH	zg	ZB	n	ZB					
WR	VH	zb	VH	zg	ZB	n	ZB					
WS	VH	zb	VH	zg	ZB	n	ZB					
Y	VH	zb	VH	zg	ZB	n	ZB					
Z (EX. ZG ZJ ZK ZM)	ZB	n	ZG	n	ZB	rk	ZB					
ZG	(N)	n	ZG	n	ZB	rk	ZB					
ZJ	ZJ	vh	(N)	n	ZB	rk	ZB					
ZK	ZB	n	ZG	n	(N)	n	ZB					
ZM	ZB	n	ZG	n	ZB	rk	(N)	n				

A	1		2		3		4		5		6	
ORIGIN DESTINATION	ZGGG		ZJHK		ZKKK		ZMUB					

AFTN/ATSMHS CONNECTIONS - ASIA/PAC ROUTING DIRECTORY

Terminal 1	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
Apia/Faleolo	Christchurch	AMHS/UA	
Bangkok	Beijing	AMHS	
	Mumbai	AMHS	
	Dhaka	AMHS	
	Ho-Chi-Minh	AFTN	
	Hong Kong	AMHS	
	Kuala Lumpur	AFTN	
	Phnom Penh	AMHS	
	Rome	AFTN	
	Yangon	AMHS	
	Singapore	AMHS	
	Vientiane	AMHS	
	Paro	AMHS	
Beijing	Bangkok	AMHS	
	Fukuoka	AFTN	
	Guangzhou	AFTN	
	Hong Kong	AMHS	
	Karachi	AFTN	
	Khavarosk	AFTN	
	Kathmandu	AFTN	
	Mumbai	AMHS	
	Pyongyang	AFTN	
	Seoul	AMHS	
	Ulaan Baatar	AFTN	
	Yangon	AFTN	
Brisbane	Christchurch	AMHS	Y
	Timor Leste	AFTN/UA	
	Jakarta	AFTN	
	Johannesburg	AMHS	
	Honiara	AFTN/UA	
	Nadi	AMHS	Y
	Nauru	AFTN/UA	
	Port Moresby	AFTN	Y
	Port Vila	AFTN/UA	
	Singapore	AMHS	Y
	USA	AMHS	Y
Brunei	Kuala Lumpur		
	Singapore	AFTN	
Chennai	Mumbai	AFTN	
	Kolkata	AFTN	
	Kuala Lumpur	AFTN	
Christchurch	Apia/Faleolo	AMHS/UA	
	Niue	AMHS/UA	

Terminal 1	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
	Rarotonga	AMHS/UA	
	Brisbane	AMHS	
	Papeete/Tahiti	AFTN	Y
	Tonga/Fua'Amotu	AMHS/UA	
	USA	AMHS	
Chuuk	USA	AMHS/UA	
Colombo	Mumbai	AMHS	
	Male	AFTN	
	Singapore	AFTN	
Delhi	Mumbai	AFTN	
	Kolkata	AFTN	
Dhaka	Bangkok	AMHS	
Fukuoka	Beijing	AFTN	
	Hong Kong	AFTN	
	Moscow	AFTN	
	Seoul	AFTN	
	Singapore	AFTN	
	Taibei	AFTN	
	USA	AMHS	
Guangzhou	Beijing	AFTN	
	Hong Kong	AFTN	
	Macau	AFTN	
	Haikou	AFTN	
	Hanoi	AFTN	
Hanoi	Ho-Chi-Minh	AFTN	
	Vientiane	AFTN	
	Guangzhou	AFTN	
Haikou	Guangzhou	AFTN	
	Hong Kong	AFTN	
Ho-Chi-Minh	Bangkok	AFTN	
	Hanoi	AFTN	
	Hong Kong	AFTN	
	Singapore	AFTN	
Hong Kong	Bangkok	AMHS	
	Beijing	AMHS	Y
	Guangzhou	AFTN	
	Ho-Chi-Minh	AFTN	
	Macau	AMHS	
	Manila	AMHS	Y
	Haikou	AFTN	
	Taibei	AMHS	Y

Terminal 1	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
	Fukuoka	AMHS	Y
Honiara	Brisbane	AMHS/UA	
Jakarta	Brisbane	AFTN	
	Singapore	AMHS	
Karachi	Beijing	AFTN	
	Mumbai	AMHS	
	Kabul	AFTN	
	Kuwait	AMHS	
	Tehran*		
* Not listed in the ANP AFTN Planning Table			
Kathmandu	Beijing	AFTN	
	Mumbai	AMHS	
Kolkata	Mumbai	AFTN	
	Delhi	AFTN	
	Chennai	AFTN	
Koro	USA	AMHS/UA	
Kosrae	USA	AMHS/UA	
Kuala Lumpur	Bangkok	AFTN	
	Brunei		
	Singapore	AFTN	
	Chennai	AFTN	
Macau	Guangzhou	AFTN	
	Hong Kong	AMHS	
Majuro	USA	AMHS/UA	
Male	Colombo	AFTN	
Manila	Hong Kong	AFTN	
	Ho Chi Minh	AFTN	
	Singapore	AFTN	
	Taibei	AFTN	
Mumbai	Bangkok	AMHS	Y**TBI
	Dhaka	AMHS	Y**
	Kolkata	AFTN	
	Colombo	AMHS	Y**
	Delhi	AFTN	Y**
	Karachi	AMHS	Y**
	Kathmandu	AMHS	Y**
	Beijing	AMHS	Y**

Terminal 1	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
	Chennai	AFTN	Y**
	Muscat/Seeb	AFTN (No connection)	
	Nairobi	AFTN	
	Paro	AMHS	Y**
	Singapore	AMHS	Y**
Nadi	Brisbane	AMHS	
	Funafuti		
	Noumea	AMHS	Y
	Tarawa	AMHS/UA	
	USA	AMHS	
	Wallis Is.		
Nauru	Brisbane	AMHS/UA	
Niue	Christchurch	AMHS/UA	
Noumea	Nadi	AMHS	Y
Pago Pago	USA	AMHS/UA	
Papeete/Tahiti	Christchurch	AFTN	Y
Paro	Mumbai	AMHS	
	Bangkok	AMHS	
Phnom Penh	Bangkok	AMHS	
	Ho Chi Minh	AMHS	
Pohnpei	USA	AMHS/UA	
Port Moresby	Brisbane	AFTN	
Port Vila	Brisbane	AMHS/UA	
Pyongyang	Beijing	AFTN	
Rarotonga	Christchurch	AFTN	
Seoul	Beijing	AMHS	
	Fukuoka	AFTN	
Singapore	Bangkok	AMHS	
	Bahrain	AFTN	
	Brisbane	AMHS	
	Brunei	AFTN	
	Colombo	AFTN	
	Ho-Chi-Minh	AFTN	
	Jakarta	AMHS	
	Kuala Lumpur	AFTN	

Terminal 1	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
	London	AMHS	
	Manila	AFTN	
	Mumbai	AMHS	
	Fukuoka	AFTN	
Taibei	Hong Kong	AFTN	
	Manila	AFTN	
	Fukuoka	AFTN	
Tarawa	Nadi	AMHS/UA	
Timor Leste	Brisbane	AMHS	
Tonga/Fua'Amotu	Christchurch	AMHS/UA	
Ulaan Baatar	Beijing	AFTN	
Vientiane	Bangkok	AMHS	
	Hanoi	AFTN	
Wallist Is.	Nadi	(planning)	
Yangon	Bangkok	AMHS	
	Beijing	AFTN	
Yap	USA	AMHS/UA	

– – – – – – – – – – – – –

CHART CNS 1

UUUU EUR
UIII
UHHH
ZKKK
ZMUB
RKSS
RJJJ
OKBK MID
KSLC NAM CAR/SAM
OPKC
OAKB
ZBBB
ZJHK
ZGGG
VNKT
RCTP
PTPN
PTSA
PKMJ
PTKK
PTYA
PTRO
UTTT
VQPR
VYYY
VHHH
VECC
VMMC
VGZR
RPLL
VLVT
VVNB
VIDD
VVTS
WBSB
VABB
VTBB
WBKK
OOMS MID
NSTU
VOMM
HKNC AFI
WMKK
VDPP
LIII EUR
OBBI MID
EGGG EUR
WSSS
ANAU
NWWW
NFFN
NLWW
NGTT
NGFU
WIII
AYPM
AGGG
NVVV
NSFA
VCCC
NFTF
VRMM
YBBB
NZCH
FAJS AFI
WPDL
NCRG
NTAA
NIUE
SCSC SAM

Legend

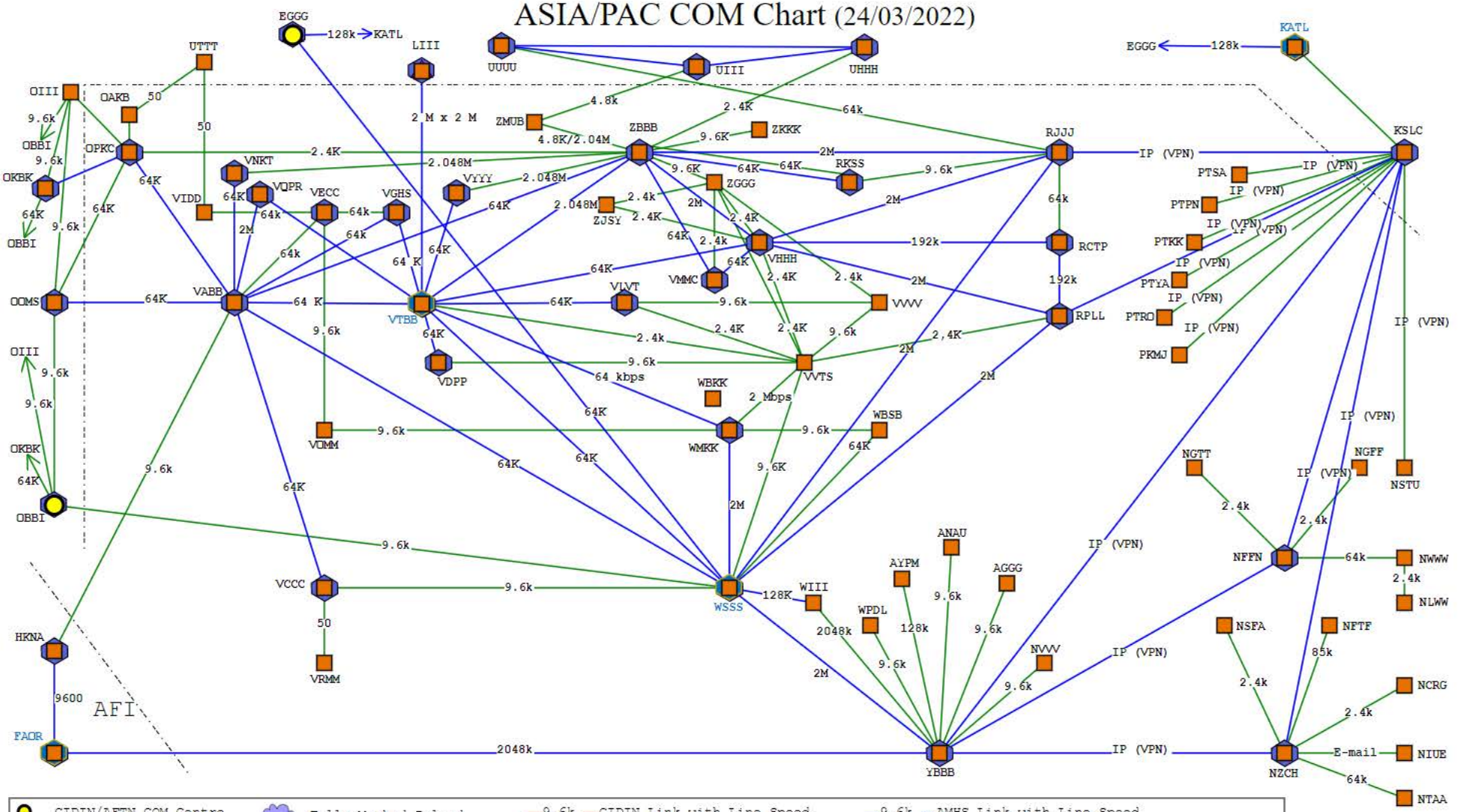
- MCC - Main Com. Center
- TCC - Tributary Com. Center
- AFTN Station
- AFTN Trunk Ciruit
- AFTN Ciruit
- Non_implemented Ciruit

AFTN PLAN - ASIA/PAC

7 April 2022

Complete Chart | AMHS / PENS Chart

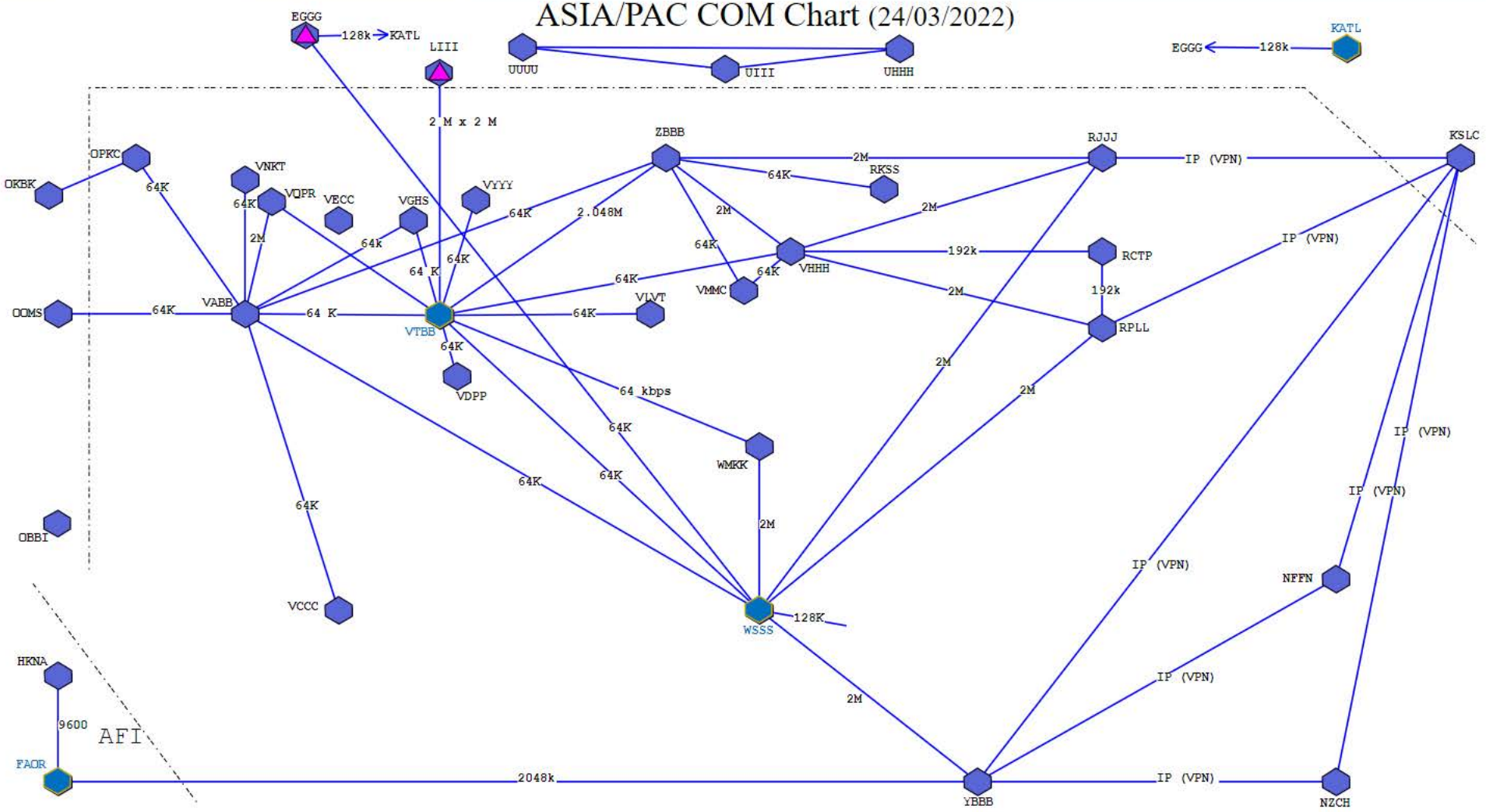
ASIA/PAC COM Chart (24/03/2022)



CIDIN/AFTN COM Centre
AFTN COM Centre
AMHS COM Centre
Fully Meshed Island
AMHS Gateway to SITA
9.6k CIDIN Link with Line Speed
9.6k AFTN Link with Line Speed
PENS
9.6k AMHS Link with Line Speed
9.6k AMHS-EUROCONTROL/NM Link with Line Speed
Path

Complete Chart | AMHS / PENS Chart

ASIA/PAC COM Chart (24/03/2022)



ATS Messaging Routing Directory

Part IV - COM Charts per ICAO Region

COM Charts, Tables of COM Centres and its location indicators.	
Document Reference:	Part IV - COM Charts per ICAO Region
Author:	AFSG Operations Group
Revision Number:	Version14.0
Date:	01/10/2021
Filename:	AMRD-Part4-COM-Charts-v14_0.doc

Document Control Log

Edition	Date	Comments	section/pages affected
1.0	18/03/2003	Initial Edition	all
1.1	23/10/2003	Regular updates of the COM Chart information	cover, i, 1, 2, 3, 4, 5, 11, 12
1.2	26/03/2004	Regular updates of the COM Chart information	I, ii, iii, 1, 2, 3, 4, 5, 6, 13
1.3	25/04/2005	Regular updates of the COM Chart information	i, 1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 16
1.4	12/05/2006	Regular updates of the COM Chart information	i, 1, 3, 4, 5, 6, 16
1.5	29/06/2007	Regular updates of the COM Chart information	i, 1, 2, 3, 4, 5, 6, 9, 10
1.6 (working draft)	04/11/2008	Revision in accordance with the introduction of all COM Charts in the ATS Messaging Management Centre (AMC)	all
1.7 (working draft)	26/02/2009 (proposed Version 2.0)	Incorporation of comments made at the Operations Group meeting (merging of Part IV and V to one Part IV, editorials), Charts from AMC-OPER71	Chapter 1, Section 2.3
2.0	12/03/2008	Charts from AIRAC date 12 MAR 09 (OPER72), Location indicators (Doc 7910 – 130)	Chapter 3, Chapter 4
2.1	23/04/2009	COM Charts ASIA/PAC and NAM/CAR corrected	3.2 and 3.5
3.0	08/04/2010	Yearly publication (2010 at AFSG/13, AFSG/14)	all
4.0	24/03/2011	Yearly publication (2011 at AFSG/15)	all
5.0	05/04/2012	Yearly publication (2012 at AFSG/16)	all

6.0	09/04/2013	Yearly publication (2013 at AFSG/17)	all
6.0c	23/04/2013	Yearly publication (2013 at AFSG/17) corrected	3.7
7.0	03/04/2014	Yearly publication (2014 at AFSG/18)	all
8.0	02/04/2015	Yearly publication (2015 at AFSG/19)	all
9.0	01/04/2016	Yearly publication (2016 at AFSG/20)	all
10.0	01/04/17	Yearly publication (2017 at AFSG/21)	all
11.0	10/04/18	Yearly publication (2018 at AFSG/22)	all
12.0	13/03/19	Yearly publication (2019 at AFSG/23)	all
13.0	13/11/20	Yearly publication (2020 at AST TF/1)	all
14.0	01/10/21	Yearly publication (2021 at AST TF/2)	all

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Please be so kind in case of detection of any addition, amendment or correction to contact the author directly or via the EUR/NAT ICAO Office.

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1 Overview of the Routing Directory Documentation (AMRD)

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

1. Part I – Documentation
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' ") (this document)

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).

The Part II – Regional Routing Tables contains all routing tables of AFTN, AMHS and CIDIN COM Centres in 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)

The Part III – Regional Network Inventory contains information in addition to Part II for all COM Centres of 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

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

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.

(https://ext.eurocontrol.int/amc)

2 Introduction

2.1 Use of the Part IV

The Part IV "COM Charts per ICAO Region" is meant to be used by AFTN/CIDIN/AMHS COM Centre Operators to have an overview of the actual connections between the ICAO COM Centres in the world and the interconnections between adjacent Regions.

2.2 Guidance to the link capacity

The figure/value of the link in the COM Chart reflects the possible throughput ("Capacity") of the circuit.

Note.- In the most of the cases the value reflects the speed of the link. Only in case of using of network interconnections the throughput (capacity) of the circuit (connection) can be limited by network parameters even though a higher value for the network access link is defined. It is also possible that the speeds of the access links are different on both sites of the network. In all these cases the minimum capacity value is displayed.

The format of the "Capacity" is uniform for all links. A minimum of characters is used for defining the parameter.

- A single circuit is identified by the value only.
  E.g.: 100 (that means one connection with 100 bd)

  Note.- No unit of measurement shall be used for defining the "Capacity". The value itself implies the unit of measurement: From 50 till 300 the unit of measurement means bd (baud). For higher values the adequate unit of measurement is bps (bit per second).
- More circuits with the same value are assigned by the number of circuits, a cross (x) and the value. E.g.: 2x300 (that means two connections with 300 bd)
- More circuits with different values are identified by the values separated by a plus (+).
  E.g.: 200+300 (that means two connections, one with 200 bd and one with 300 bd)
- For values more than thousand the expression "k" is used.
  E.g.: 9.6k (that means 9600 bits per second or 9.6 kilo bit per second)
- For values more than million the expression "M" is (shall be) used.
  E.g.: 2M (that means 2 Mega bits per second)

2.3 Changes in the Part IV

Changes within COM charts or in tables are not indicated.

The Part IV will be updated yearly if necessary. The latest and actual versions of the COM Charts of the ICAO Regions can be downloaded from the AMC by authorised users.
(https://ext.eurocontrol.int/amc)

3 COM Charts

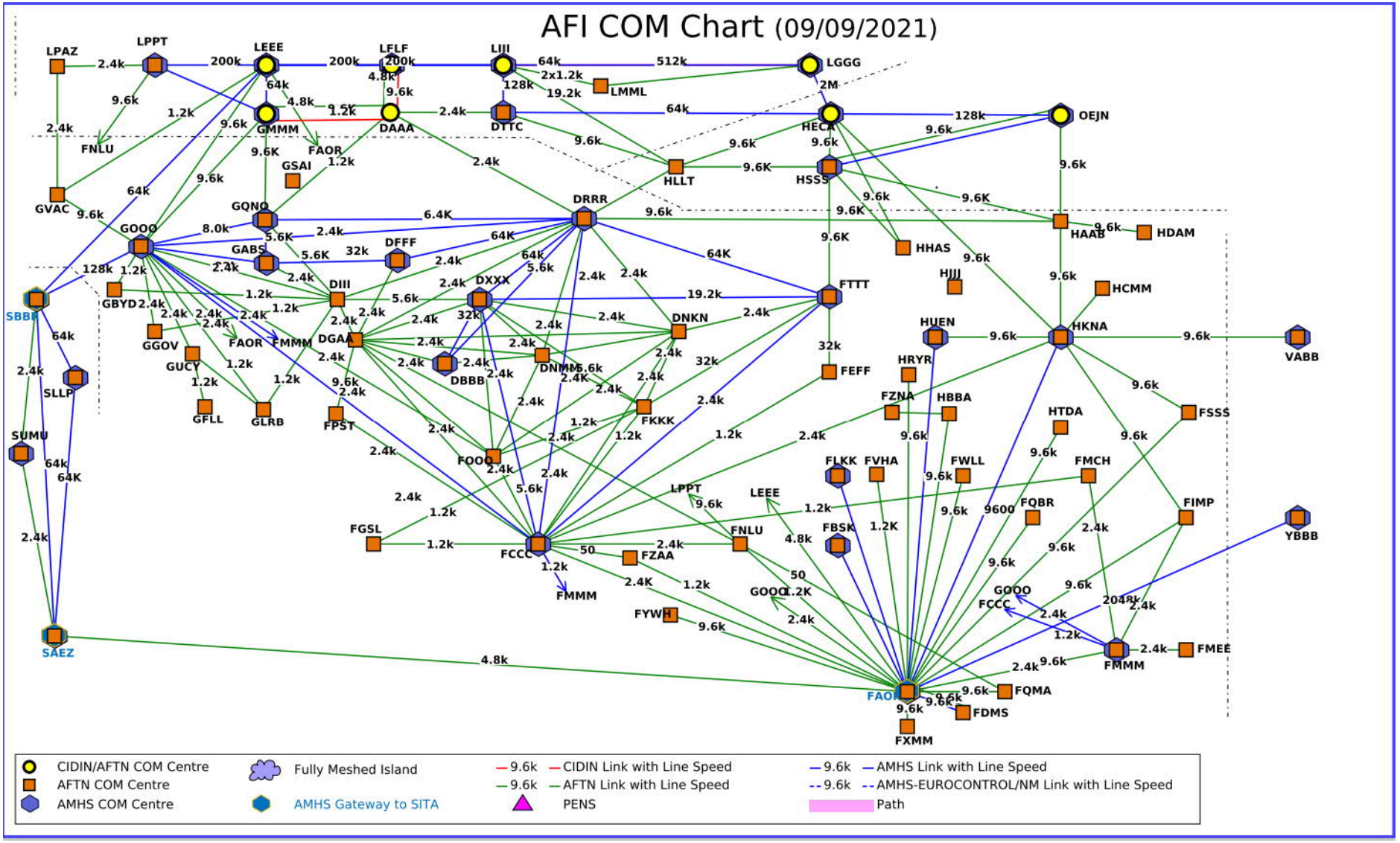
3.1 This Chapter contains following COM Charts of the ICAO Regions:

- COM Chart of AFI Region
- COM Chart of ASIA/PAC Region
- COM Chart of EUR/NAT Region
- COM Chart of MID Region
- COM Chart of NAM/CAR Region
- COM Chart of SAM Region
- COM Chart of connections between Regions (Interregional COM Chart)

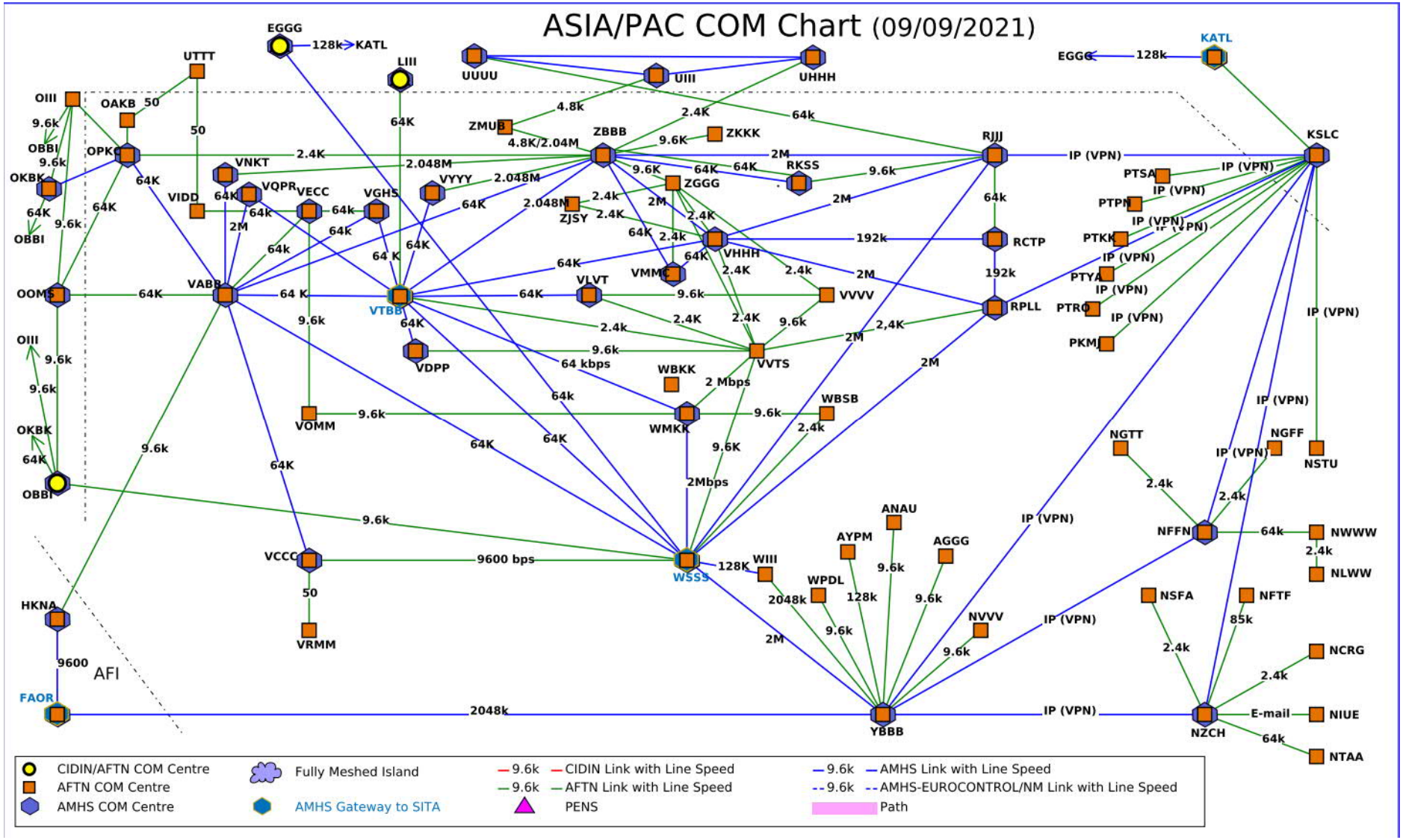
3.2 The latest and actual versions of the COM Charts are available at the ATS Messaging Management Centre (AMC) and can be downloaded by the CCC Operator and other AMC users, subject to access rights granted to the considered user category.

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

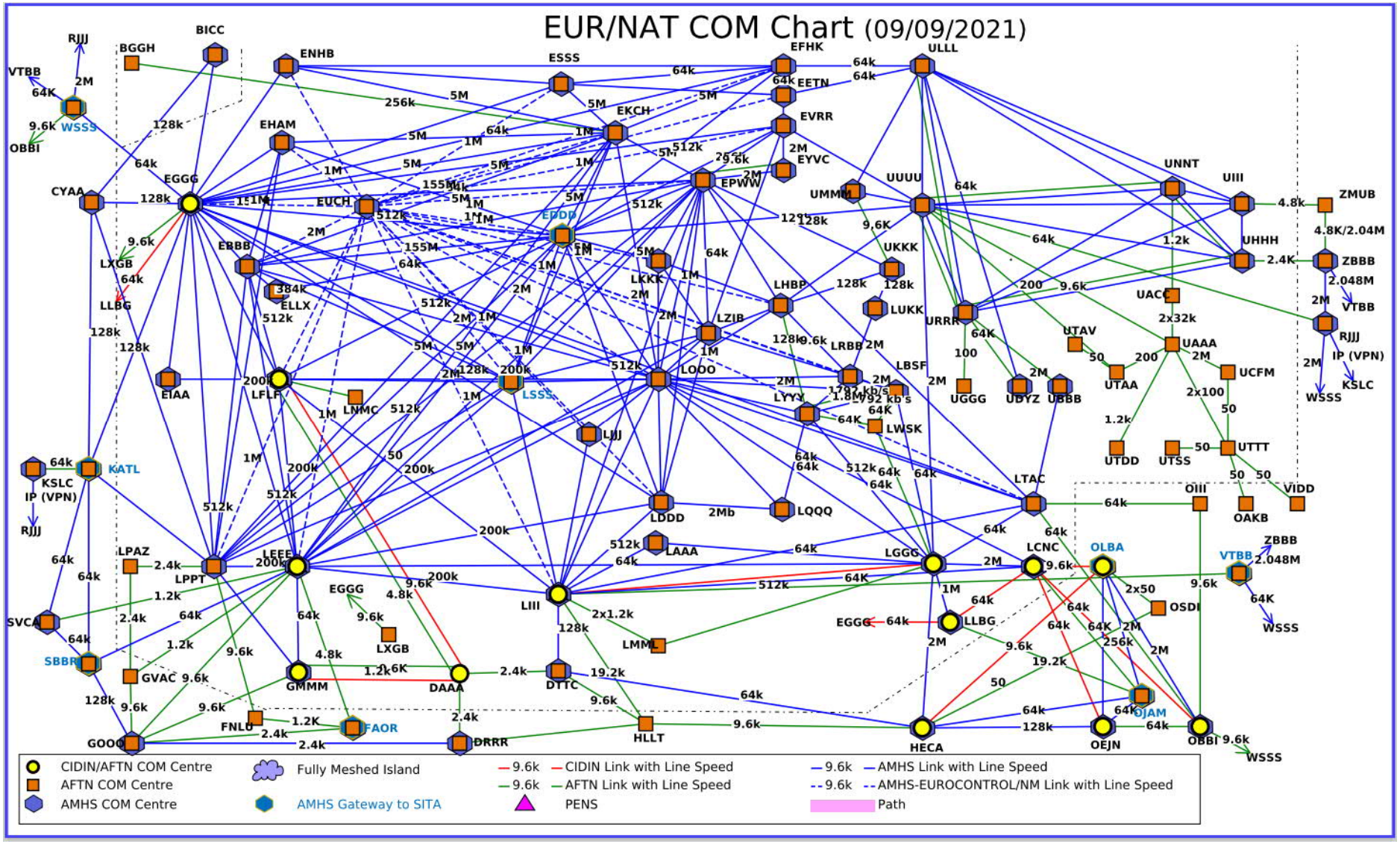
3.3 COM Chart of AFI Region



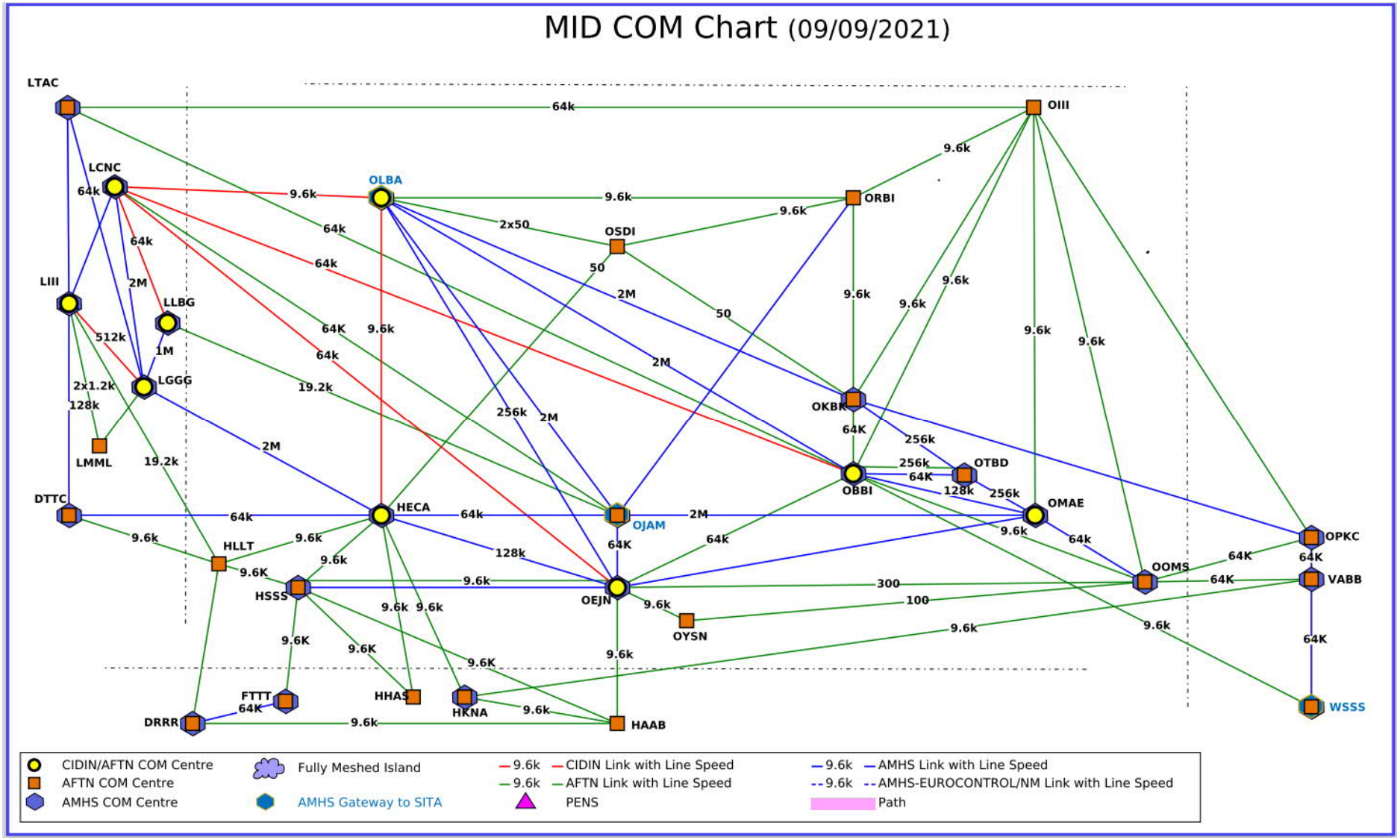
3.4 COM Chart of ASIA/PAC Region



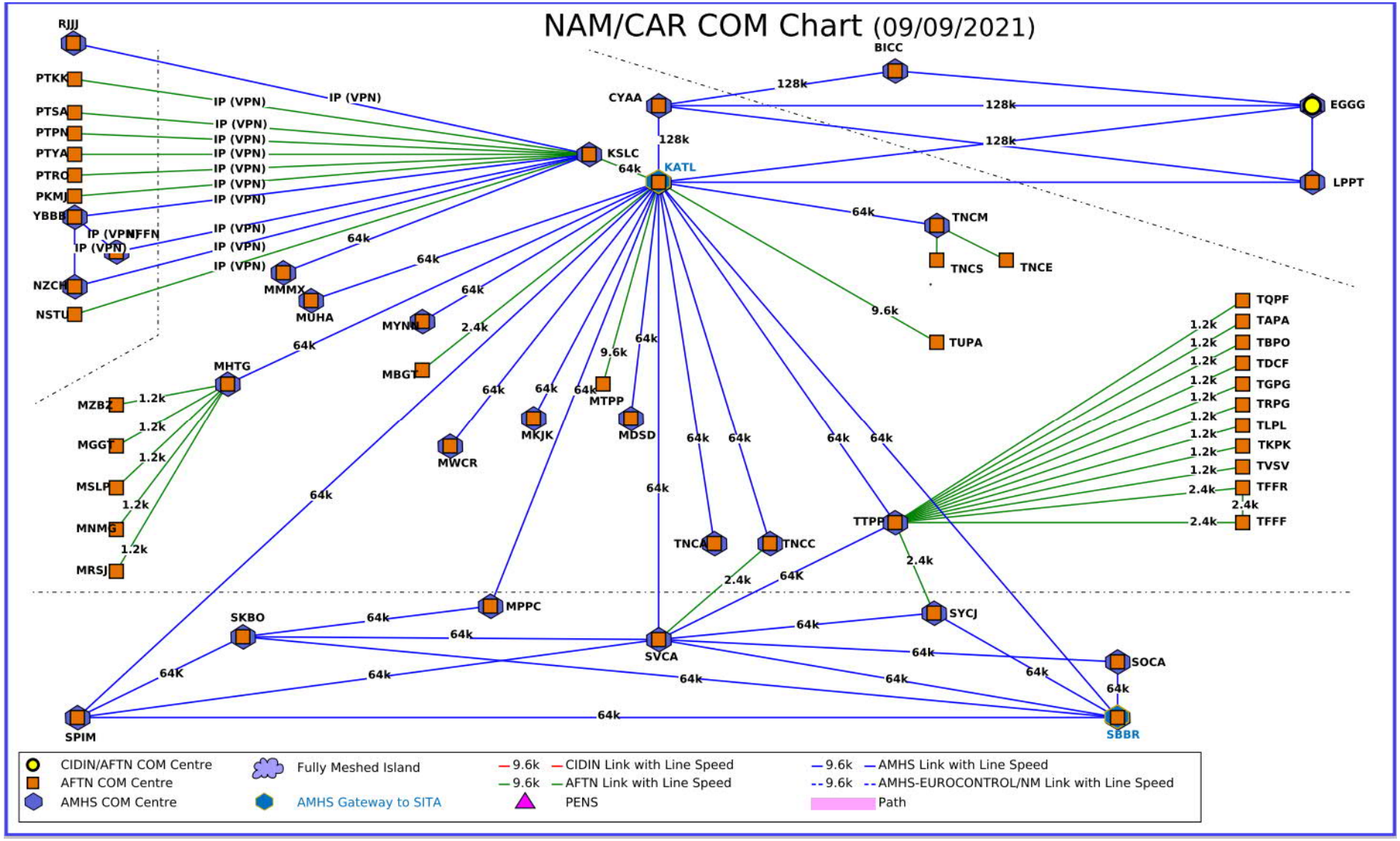
3.5 COM Chart of EUR/NAT Region



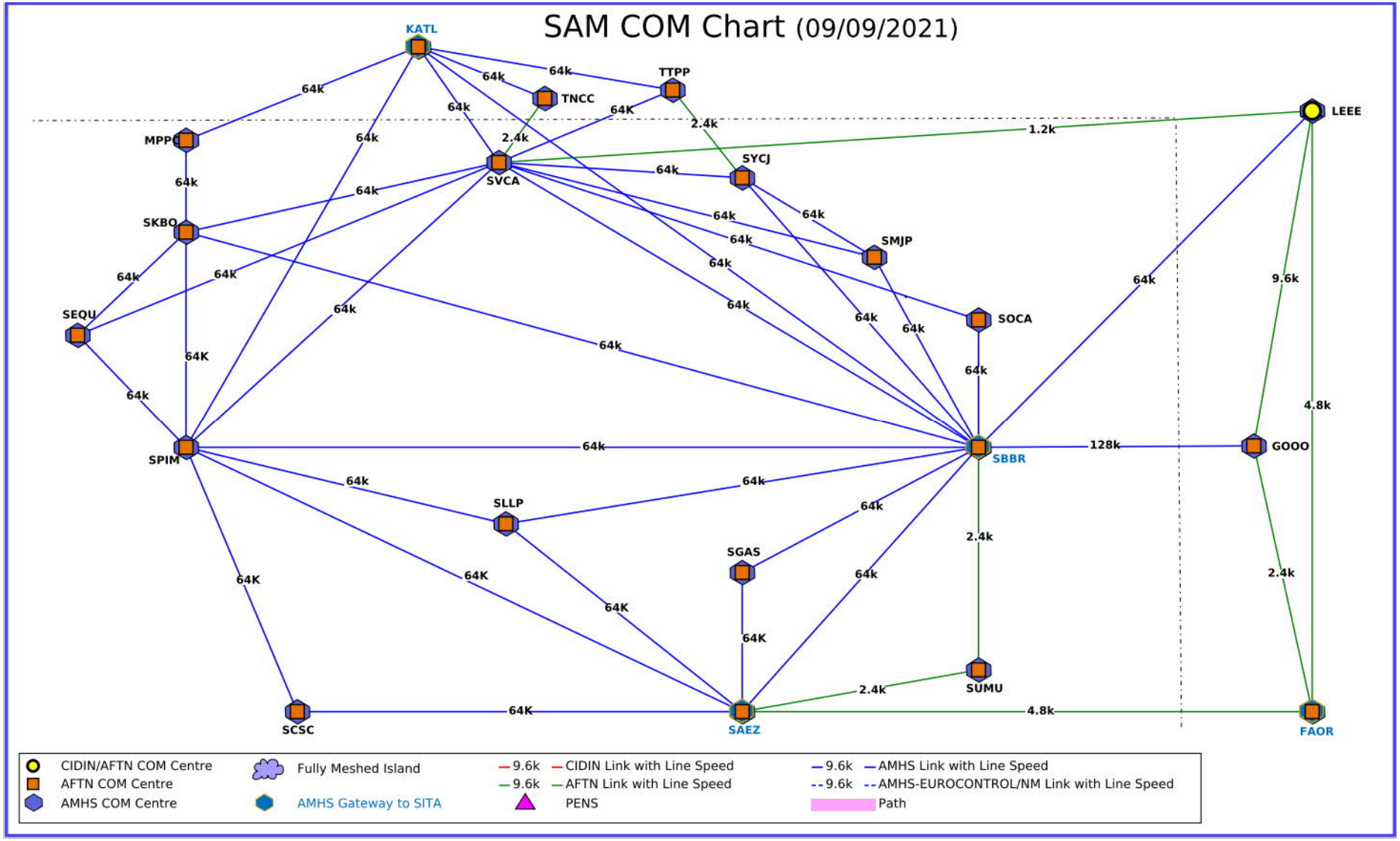
3.6 COM Chart of MID Region



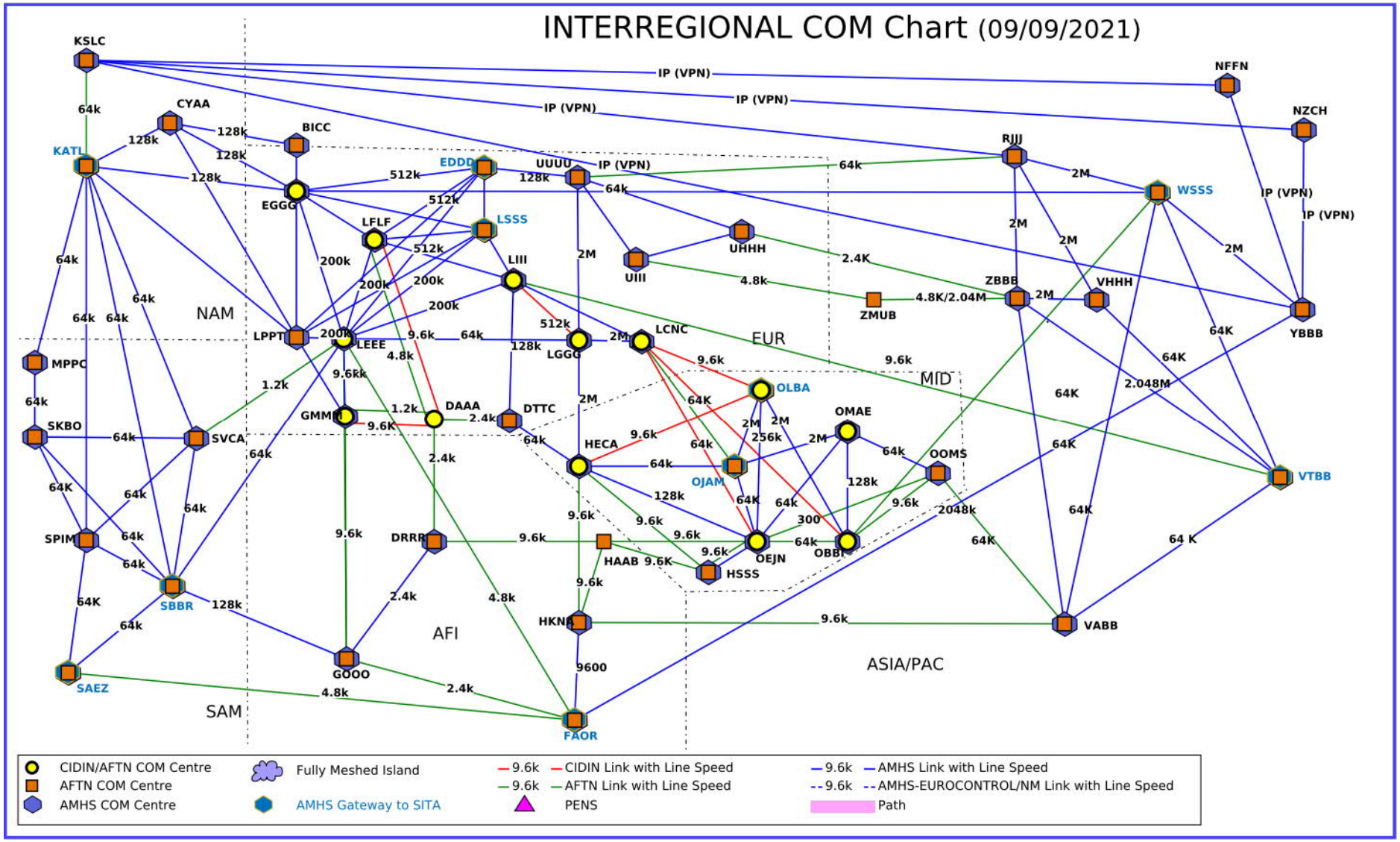
3.7 COM Chart of NAM/CAR Region



3.8 COM Chart of SAM Region



3.9 COM Chart of connections between Regions



4 Tables of COM Centres and its Location Indicators (checked versus Doc 7910-180, June 2021[1])

4.1 Table of the COM Centres in the AFI Region

4.1.1 Listed in alphabetical order by **State/Territory Name**

State/Territory	Location Indicator	Location Name
ANGOLA	FNLU	LUANDA/4 DE FEVEREIRO
BENIN	DBBB	CARDINAL BERNARDIN GANTIN AEROPORT
BOTSWANA	FBSK	GABORONE/SIR SERETSE KHAMA INT'L
BURKINA FASO	DFFF	OUAGADOUGOU (COM)
BURUNDI	HBBA	BUJUMBURA FIR
CAMEROON	FKKK	DOUALA (ACC/COM)
CAPE VERDE	GVAC	SAL ISLAND/AMILCAR CABRAL
CENTRAL AFRICAN REPUBLIC	FEFF	BANGUI/M'POKO
CHAD	FTTT	N'DJAMENA (FIC,COM)
COMOROS	FMCH	MORONI/PRINCE SAID IBRAHIM
CONGO	FCCC	BRAZZAVILLE (FIC,COM,NOF)
CÔTE D'IVOIRE	DIII	ABIDJAN (FIS,ACC,COM)
DEMOCRATIC REPUBLIC OF THE CONGO	FZAA	KINSHASA/N'DJILI
DEMOCRATIC REPUBLIC OF THE CONGO	FZNA	GOMA
DJIBOUTI	HDAM	AMBOULI
EQUATORIAL GUINEA	FGSL	MALABO
ERITREA	HHAS	ASMARA AIS/APP/COM/MET/TWR
ETHIOPIA	HAAB	ADDIS ABABA/BOLE COM/MET/NOF
GABON	FOOO	LIBREVILLE (ACC/COM)
GAMBIA	GBYD	BANJUL INTERNATIONAL
GHANA	DGAA	ACCRA/KOTOKA INTERNATIONAL
GUINEA	GUCY	CONAKRY/GBESSIA
GUINEA-BISSAU	GGOV	BISSAU/OSWALDO VIEIRA INTL
KENYA	HKNA	NAIROBI FIR
LESOTHO	FXMM	MASERU MOSHOESHOE I
LIBERIA	GLRB	MONROVIA/ROBERTS INTL
MADAGASCAR	FMMM	ANTANANARIVO (FIC,ACC,COM,NOF)
MALAWI	FWLL	LILONGWE (FIR/FIC/COM CENTRE)
MALI	GABS	PRESIDENT MODIBO KEITA-SENOU INTERNATIONAL
MAURITANIA	GQNO	NOUAKCHOTT-OUMTOUNSY
MAURITIUS	FIMP	SIR SEEWOOSAGUR RAMGOOLAM INTERNATIONAL AIRPORT
MOZAMBIQUE	FQBR	BEIRA
MOZAMBIQUE	FQMA	MAPUTO
NAMIBIA	FYWH	HOSEA KUTAKO INTL AIRPORT

[1] Location indicators not listed in Doc 7910 are marked in yellow.

State/Territory	Location Indicator	Location Name
NIGER	DRRR	NIAMEY (FIC,ACC,COM)
NIGERIA	DNKN	KANO/MALLAM AMINU KANO
NIGERIA	DNMM	LAGOS/MURTALA MUHAMMED
RÉUNION (FRANCE)	FMEE	LA REUNION-ROLAND GARROS
RWANDA	HRYR	KIGALI INTERNATIONAL AIRPORT
SAO TOME AND PRINCIPE	FPST	SAO TOME/INTERNATIONAL,SAO TOME ISLAND
SENEGAL	GOOO	DAKAR (FIC,ACC,COM,NOF)
SEYCHELLES	FSSS	SEYCHELLES ATCC/FIR
SIERRA LEONE	GFLL	FREETOWN/LUNGI
SOMALIA	HCMM	ADEN ADDE
SOUTH AFRICA	FAOR	O R TAMBO INTERNATIONAL
SOUTH SUDAN	HJJJ	JUBA
SWAZILAND	FDMS	MANZINI/MATSAPHA
TOGO	DXXX	LOME/GNASSINGBE EYADEMA
UGANDA	HUEN	ENTEBBE (INTL)
UNITED REPUBLIC OF TANZANIA	HTDA	DAR ES SALAAM/JULIUS NYERERE APP, TWR, NOF, MET, COM, CIVIL AIRLINES
WESTERN SAHARA	GSAI	EL AAIUN
ZAMBIA	FLKK	KENNETH KAUNDA
ZIMBABWE	FVHA	HARARE INTERNATIONAL

4.1.2 Listed in alphabetical order by **Location Indicator**

State/Territory	Location Indicator	Location Name
BENIN	DBBB	CARDINAL BERNARDIN GANTIN AEROPORT
BURKINA FASO	DFFF	OUAGADOUGOU (COM)
GHANA	DGAA	ACCRA/KOTOKA INTERNATIONAL
CÔTE D'IVOIRE	DIII	ABIDJAN (FIS,ACC,COM)
NIGERIA	DNKN	KANO/MALLAM AMINU KANO
NIGERIA	DNMM	LAGOS/MURTALA MUHAMMED
NIGER	DRRR	NIAMEY (FIC,ACC,COM)
TOGO	DXXX	LOME/GNASSINGBE EYADEMA
SOUTH AFRICA	FAOR	O R TAMBO INTERNATIONAL
BOTSWANA	FBSK	GABORONE/SIR SERETSE KHAMA INT'L
CONGO	FCCC	BRAZZAVILLE (FIC,COM,NOF)
SWAZILAND	FDMS	MANZINI/MATSAPHA
CENTRAL AFRICAN REPUBLIC	FEFF	BANGUI/M'POKO
EQUATORIAL GUINEA	FGSL	MALABO
MAURITIUS	FIMP	SIR SEEWOOSAGUR RAMGOOLAM INTERNATIONAL AIRPORT
CAMEROON	FKKK	DOUALA (ACC/COM)
ZAMBIA	FLKK	KENNETH KAUNDA
COMOROS	FMCH	MORONI/PRINCE SAID IBRAHIM
RÉUNION (FRANCE)	FMEE	LA REUNION-ROLAND GARROS
MADAGASCAR	FMMM	ANTANANARIVO (FIC,ACC,COM,NOF)
ANGOLA	FNLU	LUANDA/4 DE FEVEREIRO
GABON	FOOO	LIBREVILLE (ACC/COM)

State/Territory	Location Indicator	Location Name
SAO TOME AND PRINCIPE	**FPST**	SAO TOME/INTERNATIONAL,SAO TOME ISLAND
MOZAMBIQUE	**FQBR**	BEIRA
MOZAMBIQUE	**FQMA**	MAPUTO
SEYCHELLES	**FSSS**	SEYCHELLES ATCC/FIR
CHAD	**FTTT**	N'DJAMENA (FIC,COM)
ZIMBABWE	**FVHA**	HARARE INTERNATIONAL
MALAWI	**FWLL**	LILONGWE (FIR/FIC/COM CENTRE)
LESOTHO	**FXMM**	MASERU MOSHOESHOE I
NAMIBIA	**FYWH**	HOSEA KUTAKO INTL AIRPORT
DEMOCRATIC REPUBLIC OF THE CONGO	**FZAA**	KINSHASA/N'DJILI
DEMOCRATIC REPUBLIC OF THE CONGO	**FZNA**	GOMA
MALI	**GABS**	PRESIDENT MODIBO KEITA-SENOU INTERNATIONA
GAMBIA	**GBYD**	BANJUL INTERNATIONAL
SIERRA LEONE	**GFLL**	FREETOWN/LUNGI
GUINEA-BISSAU	**GGOV**	BISSAU/OSWALDO VIEIRA INTL
LIBERIA	**GLRB**	MONROVIA/ROBERTS INTL
SENEGAL	**GOOO**	DAKAR (FIC,ACC,COM,NOF)
MAURITANIA	**GQNO**	NOUAKCHOTT-OUMTOUNSY
WESTERN SAHARA	**GSAI**	EL AAIUN
GUINEA	**GUCY**	CONAKRY/GBESSIA
CAPE VERDE	**GVAC**	AMILCAR CABRAL/SAL ISLAND
ETHIOPIA	**HAAB**	ADDIS ABABA/BOLE COM/MET/NOF
BURUNDI	**HBBA**	BUJUMBURA FIR
SOMALIA	**HCMM**	ADEN ADDE INTERNATIONAL AIRPORT
DJIBOUTI	**HDAM**	AMBOULI
ERITREA	**HHAS**	ASMARA AIS/APP/COM/MET/TWR
SOUTH SUDAN	**HJJJ**	JUBA
KENYA	**HKNA**	NAIROBI FIR
RWANDA	**HRYR**	KIGALI INTERNATIONAL AIRPORT
UNITED REPUBLIC OF TANZANIA	**HTDA**	DAR ES SALAAM/JULIUS NYERERE APP, TWR, NOF, MET, COM, CIVIL AIRLINES
UGANDA	**HUEN**	ENTEBBE (INTL)

4.2 Table of the COM Centres in the ASIA/PAC Region

4.2.1 Listed in alphabetical order by **State/Territory Name**

State/Territory	Location Indicator	Location Name
AFGHANISTAN	OAKB	KABUL INTERNATIONAL
AMERICAN SAMOA (UNITED STATES)	NSTU	PAGO PAGO INTL
AUSTRALIA	YBBB	BRISBANE (FIR/FIC/ACC/COM/MET/NOF)
BANGLADESH	VGHS	HAZRAT SHAHJALAL INTERNATIONAL AIRPORT, DHAKA
BHUTAN	VQPR	PARO, INTL
BRUNEI DARUSSALAM	WBSB	BRUNEI/INTL
CAMBODIA	VDPP	PHNOM PENH
CHINA	RCTP	TAIPEI/TAIWAN TAOYUAN INTERNATIONAL
CHINA	ZBBB	BEIJING CITY
CHINA	ZGGG	GUANGZHOU/BAIYUN
CHINA	ZJSY	SANYA/PHOENIX
COOK ISLANDS	NCRG	RAROTONGA INTL.
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	ZKKK	PYONGYANG (CITY)
FIJI	NFFN	NADI/INTL
FRENCH POLYNESIA (FRANCE)	NTAA	TAHITI FAAA
HONG KONG, CHINA (CHINA)	VHHH	HONG KONG/INTERNATIONAL
INDIA	VABB	CHHATRAPATI SHIVAJI MAHARAJ INTERNATIONAL AIRPORT, MUMBAI
INDIA	VECC	NETAJI SUBHASH CHANDRA BOSE INTERNATIONAL AIRPORT, KOLKATA
INDIA	VIDD	SAFDARJUNG
INDIA	VOMM	CHENNAI INTERNATIONAL
INDONESIA	WIII	JAKARTA INTL/SOEKARNO-HATTA
JAPAN	RJJJ	FUKUOKA/JCAB AIR TRAFFIC MANAGEMENT CENTRE, AFTN/AMHS COM CENTER
KIRIBATI	NGTT	TARAWA/BETIO (COM)
LAO PEOPLE'S DEMOCRATIC REPUBLIC	VLVT	VIENTIANE(WATTAY)
MACAO, CHINA (CHINA)	VMMC	MACAO/INTL AIRPORT
MALAYSIA	WBKK	KOTA KINABALU INTERNATIONAL
MALAYSIA (PENINSULAR) (MALAYSIA)	WMKK	KL INTERNATIONAL/SEPANG
MALDIVES	VRMM	VELANA INTERNATIONAL AIRPORT
MARSHALL ISLANDS	PKMJ	MARSHALL ISLANDS/INTL MAJURO ATOLL
MICRONESIA (FEDERATED STATES OF)	PTKK	WENO ISLAND ,FM CHUUK INTL.
MICRONESIA (FEDERATED STATES OF)	PTPN	POHNPEI INTL,POHNPEI ISLAND
MICRONESIA (FEDERATED STATES OF)	PTSA	KOSRAE,KOSRAE ISLAND
MICRONESIA (FEDERATED STATES OF)	PTYA	YAP INTL,YAP ISLAND
MONGOLIA	ZMUB	ULAANBAATAR/BUYANT-UKHAA
MYANMAR	VYYY	YANGON INTERNATIONAL
NAURU	ANAU	NAURU FIR
NEPAL	VNKT	KATHMANDU

State/Territory	Location Indicator	Location Name
NEW CALEDONIA (FRANCE)	NWWW	NOUMEA LA TONTOUTA
NEW ZEALAND	NZCH	CHRISTCHURCH INTL
NIUE (NEW ZEALAND)	NIUE	NIUE INTL
PAKISTAN	OPKC	KARACHI/JINNAH INTERNATIONAL
PALAU	PTRO	BABELTHUAP/KOROR, BABELTHUAP ISLAND
PAPUA NEW GUINEA	AYPM	PORT MORESBY FIR
PHILIPPINES	RPLL	NINOY AQUINO INTERNATIONAL AIRPORT, MANILA
REPUBLIC OF KOREA	RKSS	GIMPO
SAMOA	NSFA	FALEOLO/INTL
SINGAPORE	WSSS	SINGAPORE/SINGAPORE CHANGI INTL
SOLOMON ISLANDS	AGGG	HONIARA (FIC)
SRI LANKA	VCCC	RATMALANA/COLOMBO
THAILAND	VTBB	BANGKOK (ACC/FIC/COM CENTRE)
TIMOR-LESTE	WPDL	DILI/PRESIDENTE NICOLAU LOBATO INTERNATIONAL AIRPORT
TONGA	NFTF	FUA'AMOTU INTL.
TUVALU	NGFF	FUNAFUTI (COM)
VANUATU	NVVV	PORT VILA/BAUERFIELD
VIET NAM	VVTS	HO CHI MINH/TAN SON NHAT INTERNATIONAL
VIET NAM	VVVV	NA NOI, VIET NAM
WALLIS AND FUTUNA ISLANDS (FRANCE)	NLWW	WALLIS HIHIFO

4.2.2 Listed in alphabetical order by **Location Indicator**

State/Territory	Location Indicator	Location Name
SOLOMON ISLANDS	AGGG	HONIARA (FIC)
NAURU	ANAU	NAURU FIR
PAPUA NEW GUINEA	AYPM	PORT MORESBY FIR
COOK ISLANDS	NCRG	RAROTONGA INTL.
FIJI	NFFN	NADI/INTL
TONGA	NFTF	FUA'AMOTU INTL.
TUVALU	NGFF	FUNAFUTI (COM)
KIRIBATI	NGTT	TARAWA/BETIO (COM)
NIUE (NEW ZEALAND)	NIUE	NIUE INTL
WALLIS AND FUTUNA ISLANDS (FRANCE)	NLWW	WALLIS HIHIFO
SAMOA	NSFA	FALEOLO/INTL
AMERICAN SAMOA (UNITED STATES)	NSTU	PAGO PAGO INTL
FRENCH POLYNESIA (FRANCE)	NTAA	TAHITI FAAA
VANUATU	NVVV	PORT VILA/BAUERFIELD
NEW CALEDONIA (FRANCE)	NWWW	NOUMEA LA TONTOUTA
NEW ZEALAND	NZCH	CHRISTCHURCH INTL
AFGHANISTAN	OAKB	KABUL INTERNATIONAL
PAKISTAN	OPKC	KARACHI/JINNAH INTERNATIONAL

State/Territory	Location Indicator	Location Name
MARSHALL ISLANDS	**PKMJ**	MARSHALL ISLANDS/INTL MAJURO ATOLL
MICRONESIA (FEDERATED STATES OF)	**PTKK**	WENO ISLAND ,FM CHUUK INTL.
MICRONESIA (FEDERATED STATES OF)	**PTPN**	POHNPEI INTL,POHNPEI ISLAND
PALAU	**PTRO**	BABELTHUAP/KOROR, BABELTHUAP ISLAND
MICRONESIA (FEDERATED STATES OF)	**PTSA**	KOSRAE,KOSRAE ISLAND
MICRONESIA (FEDERATED STATES OF)	**PTYA**	YAP INTL,YAP ISLAND
CHINA	**RCTP**	TAIBEI/TAIWAN TAOYUAN INTERNATIONAL
JAPAN	**RJJJ**	FUKUOKA/JCAB AIR TRAFFIC MANAGEMENT CENTRE, AFTN/AMHS COM CENTER
REPUBLIC OF KOREA	**RKSS**	GIMPO
PHILIPPINES	**RPLL**	NINOY AQUINO INTERNATIONAL AIRPORT, MANILA
INDIA	**VABB**	CHHATRAPATI SHIVAJI MAHARAJ INTERNATIONAL AIRPORT, MUMBAI
SRI LANKA	**VCCC**	RATMALANA/COLOMBO
CAMBODIA	**VDPP**	PHNOM PENH
INDIA	**VECC**	NETAJI SUBHASH CHANDRA BOSE INTERNATIONAL AIRPORT, KOLKATA
BANGLADESH	**VGHS**	HAZRAT SHAHJALAL INTERNATIONAL AIRPORT, DHAKA
HONG KONG, CHINA (CHINA)	**VHHH**	HONG KONG/INTERNATIONAL
INDIA	**VIDD**	SAFDARJUNG
LAO PEOPLE'S DEMOCRATIC REPUBLIC	**VLVT**	VIENTIANE(WATTAY)
MACAO, CHINA (CHINA)	**VMMC**	MACAO/INTL AIRPORT
NEPAL	**VNKT**	KATHMANDU
INDIA	**VOMM**	CHENNAI INTERNATIONAL
BHUTAN	**VQPR**	PARO, INTL
MALDIVES	**VRMM**	VELANA INTERNATIONAL AIRPORT
THAILAND	**VTBB**	BANGKOK (ACC/FIC/COM CENTRE)
VIET NAM	**VVTS**	HO CHI MINH/TAN SON NHAT INTERNATIONAL
VIET NAM	**VVVV**	NA NOI, VIET NAM
MYANMAR	**VYYY**	YANGON INTERNATIONAL
MALAYSIA	**WBKK**	KOTA KINABALU INTERNATIONAL
BRUNEI DARUSSALAM	**WBSB**	BRUNEI/INTL
INDONESIA	**WIII**	JAKARTA INTL/SOEKARNO-HATTA
MALAYSIA (PENINSULAR) (MALAYSIA)	**WMKK**	KL INTERNATIONAL/SEPANG
TIMOR-LESTE	**WPDL**	DILI/PRESIDENTE NICOLAU LOBATO INTERNATIONAL AIRPORT
SINGAPORE	**WSSS**	SINGAPORE/SINGAPORE CHANGI INTL
AUSTRALIA	**YBBB**	BRISBANE (FIR/FIC/ACC/COM/MET/NOF)
CHINA	**ZBBB**	BEIJING CITY
CHINA	**ZGGG**	GUANGZHOU/BAIYUN
CHINA	**ZJSY**	SANYA/PHOENIX
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	**ZKKK**	PYONGYANG (CITY)
MONGOLIA	**ZMUB**	ULAANBAATAR/BUYANT-UKHAA

4.3 Table of the COM Centres in the EUR/NAT Region

4.3.1 Listed in alphabetical order by **State/Territory Name**

State/Territory	Location Indicator	Location Name
ALBANIA	LAAA	TIRANA FIR/FIC/ACC/SAR/NOF/AFTN COM CENTRE
ALGERIA	DAAA	ALGER (ACC)
ARMENIA	UDYZ	YEREVAN
AUSTRIA	LOOO	COM CENTRE WIEN
AZERBAIJAN	UBBB	HEYDAR ALIYEV INTERNATIONAL AIRPORT
BELARUS	UMMM	MINSK-1
BELGIUM	EBBB	BRUSSELS (COM CENTRE)
BOSNIA AND HERZEGOVINA	LQQQ	AFTN COM CENTER SARAJEVO
BULGARIA	LBSF	SOFIA
CROATIA	LDDD	ZAGREB (AFTN)
CYPRUS	LCNC	NICOSIA/INTL (DCA)
CZECH REPUBLIC	LKKK	CZECH REPUBLIC/INTL COM CENTRE
DENMARK	EKCH	KOBENHAVN/KASTRUP
ESTONIA	EETN	LENNART MERI TALLINN
EUROPE (ICAORD)	EUCH	EUROPEAN CENTRAL FLOW MANAGEMENT UNIT (CMFU) MAIN
FINLAND	EFHK	HELSINKI-VANTAA (ANS FINLAND)
FRANCE	LFLF	BORDEAUX (COM)
GEORGIA	UGGG	TBILISI FIR
GERMANY	EDDD	FRANKFURT/MAIN INTL COM AFTN CENTRE
GIBRALTAR (UNITED KINGDOM)	LXGB	GIBRALTAR (NORTH FRONT)
GREECE	LGGG	ATHINAI (ACC,FIC,COM,SAR,FIR/HELLAS ,UIR)
GREENLAND (DENMARK)	BGGH	NUUK
HUNGARY	LHBP	BUDAPEST LISZT FERENC INTERNATIONAL AIRPORT
ICELAND	BICC	REYKJAVIK GUFUNES COM CENTRE
IRELAND	EIAA	SHANNON COM CENTRE
ISRAEL	LLBG	TEL-AVIV/BEN GURION AIRPORT
ITALY	LIII	ROMA CENTRO COM INTL
KAZAKHSTAN	UAAA	ALMATY
KAZAKHSTAN	UACC	NUR-SULTAN NURSULTAN NAZARBAYEV INTERNATIONAL
KYRGYZSTAN	UCFM	BISHKEK/MANAS
LATVIA	EVRR	RIGA (FIC/ACC/AFS COM.CENTER)
LITHUANIA	EYVC	VILNIUS (ACC/FIC/COM/RCC)
LUXEMBOURG	ELLX	LUXEMBOURG/LUXEMBOURG
MALTA	LMML	LUQA AIRPORT
MONACO	LNMC	MONACO
MOROCCO	GMMM	CASABLANCA (ACC/FIC)
NETHERLANDS	EHAM	AMSTERDAM/SCHIPHOL
NORWAY	ENHB	HEGGEBAKKEN, NETTSENTERET
Poland	EPWW	WARSZAWA FIR/ACC
PORTUGAL (MADEIRA AND AZORES) (PORTUGAL)	LPAZ	SANTA MARIA
PORTUGAL (MADEIRA AND AZORES) (PORTUGAL)	LPPT	LISBOA
REPUBLIC OF MOLDOVA	LUKK	CHISINAU/INTERNATIONAL
ROMANIA	LRBB	BUCURESTI (FIC/ACC/AIS/CAA/COM CENTRE)
RUSSIAN FEDERATION	UHHH	KHABAROVSK/NOVY
RUSSIAN FEDERATION	UIII	IRKUTSK

RUSSIAN FEDERATION	ULLL	SANKT-PETERBURG, AFTN/CIDIN COM CENTRE, FIR (AFTMU)
RUSSIAN FEDERATION	UNNT	NOVOSIBIRSK/TOLMACHEVO
RUSSIAN FEDERATION	URRR	ROSTOV-NA-DONU
RUSSIAN FEDERATION	UUUU	MOSCOW, AFTN/CIDIN COM CENTRE, CITY
SERBIA	LYYY	BEOGRAD(INTL AFTN CENTRE)
SLOVAKIA	LZIB	BRATISLAVA/M.R.STEFANIK
SLOVENIA	LJJJ	COM CENTRE LJUBLJANA
SPAIN	LEEE	MADRID/CENTRO DE RETRANSMISION AUTOMATICA DE MADRID
SWEDEN	ESSS	AFTN CENTRAL/AFTN CENTRE
SWITZERLAND	LSSS	COM CENTRE SUISSE (GENEVE)
TAJIKISTAN	UTDD	DUSHANBE
THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA	LWSK	SKOPJE INTERNATIONAL AIRPORT
TUNISIA	DTTC	TUNIS (ACC/FIC,RPL,FMP,AFS,NOF...)
TURKEY	LTAC	ANKARA/ESENBOGA
TURKMENISTAN	UTAA	ASHGABAT
TURKMENISTAN	UTAV	TURKMENABAT
UKRAINE	UKKK	KYIV/ZHULIANY
UNITED KINGDOM	EGGG	UK AFTN/CIDIN CENTRE
UZBEKISTAN	UTSS	SAMARKAND
UZBEKISTAN	UTTT	TASHKENT ISLAM KARIMOV

4.3.2 Listed in alphabetical order by **Location Indicator**

State/Territory	Location Indicator	Location Name
GREENLAND (DENMARK)	**BGGH**	NUUK
ICELAND	**BICC**	REYKJAVIK GUFUNES COM CENTRE
ALGERIA	**DAAA**	ALGER (ACC)
TUNISIA	**DTTC**	TUNIS (ACC/FIC,RPL,FMP,AFS,NOF...)
BELGIUM	**EBBB**	BRUSSELS (COM CENTRE)
GERMANY	**EDDD**	FRANKFURT/MAIN INTL COM AFTN CENTRE
ESTONIA	**EETN**	LENNART MERI TALLINN
FINLAND	**EFHK**	HELSINKI-VANTAA (ANS FINLAND)
UNITED KINGDOM	**EGGG**	UK AFTN/CIDIN CENTRE
NETHERLANDS	**EHAM**	AMSTERDAM/SCHIPHOL
IRELAND	**EIAA**	SHANNON COM CENTRE
DENMARK	**EKCH**	KOBENHAVN/KASTRUP
LUXEMBOURG	**ELLX**	LUXEMBOURG/LUXEMBOURG
NORWAY	**ENHB**	HEGGEBAKKEN, NETTSENTERET
Poland	**EPWW**	WARSZAWA FIR /ACC
SWEDEN	**ESSS**	AFTN CENTRAL/AFTN CENTRE
EUROPE (ICAORD)	**EUCH**	EUROPEAN CENTRAL FLOW MANAGEMENT UNIT (CMFU) MAIN
LATVIA	**EVRR**	RIGA (FIC/ACC/AFS COM.CENTER)
LITHUANIA	**EYVC**	VILNIUS (ACC/FIC/COM/RCC)
MOROCCO	**GMMM**	CASABLANCA (ACC/FIC)
ALBANIA	**LAAA**	TIRANA FIR/FIC/ACC/SAR/NOF/AFTN COM CENTRE
BULGARIA	**LBSF**	SOFIA

State/Territory	Location Indicator	Location Name
CYPRUS	LCNC	NICOSIA/INTL (DCA)
CROATIA	LDDD	ZAGREB (AFTN)
SPAIN	LEEE	MADRID/CENTRO DE RETRANSMISION AUTOMATICA DE MADRID
FRANCE	LFLF	BORDEAUX (COM)
GREECE	LGGG	ATHINAI (ACC,FIC,COM,SAR,FIR/HELLAS ,UIR)
HUNGARY	LHBP	BUDAPEST LISZT FERENC INTERNATIONAL AIRPORT
ITALY	LIII	ROMA CENTRO COM INTL
SLOVENIA	LJJJ	COM CENTRE LJUBLJANA
CZECH REPUBLIC	LKKK	CZECH REPUBLIC/INTL COM CENTRE
ISRAEL	LLBG	TEL-AVIV/BEN GURION AIRPORT
MALTA	LMML	LUQA AIRPORT
MONACO	LNMC	MONACO
AUSTRIA	LOOO	COM CENTRE WIEN
PORTUGAL (MADEIRA AND AZORES) (PORTUGAL)	LPAZ	SANTA MARIA
PORTUGAL (MADEIRA AND AZORES) (PORTUGAL)	LPPT	LISBOA
BOSNIA AND HERZEGOVINA	LQQQ	AFTN COM CENTER SARAJEVO
ROMANIA	LRBB	BUCURESTI (FIC/ACC/AIS/CAA/COM CENTRE)
SWITZERLAND	LSSS	COM CENTRE SUISSE (GENEVE)
TURKEY	LTAC	ANKARA/ESENBOGA
REPUBLIC OF MOLDOVA	LUKK	CHISINAU/INTERNATIONAL
THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA	LWSK	SKOPJE INTERNATIONAL AIRPORT
GIBRALTAR (UNITED KINGDOM)	LXGB	GIBRALTAR (NORTH FRONT)
SERBIA	LYYY	BEOGRAD(INTL AFTN CENTRE)
SLOVAKIA	LZIB	BRATISLAVA/M.R.STEFANIK
KAZAKHSTAN	UAAA	ALMATY
KAZAKHSTAN	UACC	NUR-SULTAN
AZERBAIJAN	UBBB	HEYDAR ALIYEV INTERNATIONAL AIRPORT
KYRGYZSTAN	UCFM	BISHKEK/MANAS
ARMENIA	UDYZ	YEREVAN
GEORGIA	UGGG	TBILISI FIR
RUSSIAN FEDERATION	UHHH	KHABAROVSK/NOVY
RUSSIAN FEDERATION	UIII	IRKUTSK
UKRAINE	UKKK	KYIV/ZHULIANY
RUSSIAN FEDERATION	ULLL	SANKT-PETERBURG, AFTN/CIDIN COM CENTRE, FIR (AFTMU)
BELARUS	UMMM	MINSK-1
RUSSIAN FEDERATION	UNNT	NOVOSIBIRSK/TOLMACHEVO
RUSSIAN FEDERATION	URRR	ROSTOV-NA-DONU
TURKMENISTAN	UTAA	ASHGABAT
TURKMENISTAN	UTAV	TURKMENABAT
TAJIKISTAN	UTDD	DUSHANBE
UZBEKISTAN	UTSS	SAMARKAND
UZBEKISTAN	UTTT	TASHKENT ISLAM KARIMOV
RUSSIAN FEDERATION	UUUU	MOSCOW, AFTN/CIDIN COM CENTRE, CITY

4.4 Table of the COM Centres in the MID Region

4.4.1 Listed in alphabetical order by **State/Territory Name**

State/Territory	Location Indicator	Location Name
AREAS UNDER THE CONTROL OF THE PALESTINIAN AUTHORITY	LVGZ	YASSER ARAFAT INTERNATIONAL AIRPORT
BAHRAIN	OBBI	BAHRAIN INTERNATIONAL
EGYPT	HECA	CAIRO/INTL
IRAN (ISLAMIC REPUBLIC OF)	OIII	TEHRAN/MEHRABAD INTL
IRAQ	ORBI	BAGHDAD INTERNATIONAL AIRPORT
JORDAN	OJAM	AMMAN/MARKA
KUWAIT	OKBK	KUWAIT/INTL AIRPORT
LEBANON	OLBA	RAFFIC HARIRI INTL BEIRUT
LIBYA	HLLT	TRIPOLI (TRIPOLI INTL)
OMAN	OOMS	MUSCAT/MUSCAT INTL
QATAR	OTBD	DOHA INTERNATIONAL
~~**SAUDI ARABIA**~~	~~OEDF~~	~~DAMMAM/KING FAHD INTERNATIONAL~~
SAUDI ARABIA	OEJN	JEDDAH/KING ABDULAZIZ INTERNATIONAL
SUDAN	HSSS	KHARTOUM
SYRIAN ARAB REPUBLIC	OSDI	DAMASCUS/INTL
UNITED ARAB EMIRATES	OMAE	EMIRATES FIR
YEMEN	OYSN	SANAA/INTL

4.4.2 Listed in alphabetical order by **Location Indicator**

State/Territory	Location Indicator	Location Name
EGYPT	**HECA**	CAIRO/INTL
LIBYA	**HLLT**	TRIPOLI (TRIPOLI INTL)
SUDAN	**HSSS**	KHARTOUM
AREAS UNDER THE CONTROL OF THE PALESTINIAN AUTHORITY	**LVGZ**	YASSER ARAFAT INTERNATIONAL AIRPORT
BAHRAIN	**OBBI**	BAHRAIN INTERNATIONAL
SAUDI ARABIA	**OEJN**	JEDDAH/KING ABDULAZIZ INTERNATIONAL
IRAN (ISLAMIC REPUBLIC OF)	**OIII**	TEHRAN/MEHRABAD INTL
JORDAN	**OJAM**	AMMAN/MARKA
KUWAIT	**OKBK**	KUWAIT/INTL AIRPORT
LEBANON	**OLBA**	RAFFIC HARIRI INTL BEIRUT
UNITED ARAB EMIRATES	**OMAE**	EMIRATES FIR
OMAN	**OOMS**	MUSCAT/MUSCAT INTL
IRAQ	**ORBI**	BAGHDAD INTERNATIONAL AIRPORT
SYRIAN ARAB REPUBLIC	**OSDI**	DAMASCUS/INTL
QATAR	**OTBD**	DOHA INTERNATIONAL
YEMEN	**OYSN**	SANAA/INTL

4.5 Table of the COM Centres in the NAM/CAR Region

4.5.1 Listed in alphabetical order by **State/Territory Name**

State/Territory	Location Indicator	Location Name
ANGUILLA (UNITED KINGDOM)	TQPF	CLAYTON J. LLOYD ,ANGUILLA
ANTIGUA AND BARBUDA	TAPA	V.C.BIRD,ANTIGUA
ARUBA (NETHERLANDS)	TNCA	ARUBA/ QUEEN BEATRIX INTERNATIONAL AIRPORT
BAHAMAS	MYNN	LYNDEN PINDLING INTERNATIONAL
BARBADOS	TBPO	BRIDGETOWN
BELIZE	MZBZ	PHILIP S.W. GOLDSON INTERNATIONAL
BRITISH VIRGIN ISLANDS (UNITED KINGDOM)	TUPA	AUGUSTE GEORGE, ANEGADA
CANADA	CYAA	OTTAWA (AFTN SYSTEM CONTROL CENTRE), ON
CAYMAN ISLANDS (UNITED KINGDOM)	MWCR	OWEN ROBERTS INTERNATIONAL AIRPORT/GRAND CAYMAN
COSTA RICA	MRSJ	SAN JOSE (CIUDAD)
CUBA	MUHA	LA HABANA/JOSE MARTI INTL.
CURAÇAO (NETHERLANDS)	TNCC	CURACAO/HATO CURACAO INTERNATIONAL AIRPORT
DOMINICA	TDCF	CANEFIELD,DOMINICA
DOMINICAN REPUBLIC	MDSD	SANTO DOMINGO/INTL JOSE FRANCISCO PENA GOMEZ
EL SALVADOR	MSLP	AEROPUERTO INTL SAN OSCAR ARNULFO ROMERO Y GALDAMEZ
FRENCH ANTILLES (FRANCE)	TFFF	AIME CESAIRE, MARTINIQUE
FRENCH ANTILLES (FRANCE)	TFFR	POINTE-A-PITRE,LE RAIZET, GUADELOUPE
GRENADA	TGPG	ST. GEORGES, GRENADA
GUATEMALA	MGGT	LA AURORA
HAITI	MTPP	PORT-AU-PRINCE/INTL
HONDURAS	MHTG	TONCONTIN INTL
JAMAICA	MKJK	KINGSTON (CITY,ACC,FIR)
MEXICO	MMMX	MEXICO
MONTSERRAT (UNITED KINGDOM)	TRPG	JOHN A. OSBORNE, MONTSERRAT
NICARAGUA	MNMG	MANAGUA-MANAGUA
SABA (NETHERLANDS)	TNCS	SABA/JUANCHO E. YRAUSQUIN AIRPORT
SAINT KITTS AND NEVIS	TKPK	ROBERT L. BRADSHAW, ST. CHRISTOPHER (ST. KITTS) AND NEVIS
SAINT LUCIA	TLPL	HEWANORRA SAINT LUCIA
SAINT VINCENT AND THE GRENADINES	TVSV	E.T.JOSHUA,ST.VINCENT, AND THE GRENADINES
SINT EUSTATIUS (NETHERLANDS)	TNCE	ST. EUSTATIUS/F.D ROOSEVELT AIRPORT
SINT MAARTEN (NETHERLANDS)	TNCM	ST. MAARTEN/PRINCES JULIANA INTERNATIONAL AIRPORT
TRINIDAD AND TOBAGO	TTPP	PIARCO,TRINIDAD
TURKS AND CAICOS ISLANDS (UNITED KINGDOM)	MBGT	JAGS MCCARTNEY INTERNATIONAL AIRPORT GRAND TURK
UNITED STATES	KATL	HARTSFIELD - JACKSON ATLANTA INTL
UNITED STATES	KSLC	SALT LAKE CITY INTL

4.5.2 Listed in alphabetical order by **Location Indicator**

State/Territory	Location Indicator	Location Name
CANADA	**CYAA**	OTTAWA (AFTN SYSTEM CONTROL CENTRE), ON
UNITED STATES	**KATL**	HARTSFIELD - JACKSON ATLANTA INTL
UNITED STATES	**KSLC**	SALT LAKE CITY INTL
TURKS AND CAICOS ISLANDS (UNITED KINGDOM)	**MBGT**	JAGS MCCARTNEY INTERNATIONAL AIRPORT GRAND TURK
DOMINICAN REPUBLIC	**MDSD**	SANTO DOMINGO/INTL JOSE FRANCISCO PENA GOMEZ
GUATEMALA	**MGGT**	LA AURORA
HONDURAS	**MHTG**	TONCONTIN INTL
JAMAICA	**MKJK**	KINGSTON (CITY,ACC,FIR)
MEXICO	**MMMX**	MEXICO
NICARAGUA	**MNMG**	MANAGUA-MANAGUA
COSTA RICA	**MRSJ**	SAN JOSE (CIUDAD)
EL SALVADOR	**MSLP**	AEROPUERTO INTL OSCAR ARNULFO ROMERO Y GALDAMEZ
HAITI	**MTPP**	PORT-AU-PRINCE/INTL
CUBA	**MUHA**	LA HABANA/JOSE MARTI INTL.
CAYMAN ISLANDS (UNITED KINGDOM)	**MWCR**	OWEN ROBERTS INTERNATIONAL AIRPORT/GRAND CAYMAN
BAHAMAS	**MYNN**	LYNDEN PINDLING INTERNATIONAL
BELIZE	**MZBZ**	PHILIP S.W. GOLDSON INTERNATIONAL
ANTIGUA AND BARBUDA	**TAPA**	V.C.BIRD,ANTIGUA
BARBADOS	**TBPO**	BRIDGETOWN
DOMINICA	**TDCF**	CANEFIELD,DOMINICA
FRENCH ANTILLES (FRANCE)	**TFFF**	AIME CESAIRE, MARTINIQUE
FRENCH ANTILLES (FRANCE)	**TFFR**	POINTE-A-PITRE,LE RAIZET, GUADELOUPE
GRENADA	**TGPG**	ST. GEORGES, GRENADA
SAINT KITTS AND NEVIS	**TKPK**	ROBERT L. BRADSHAW, ST. CHRISTOPHER (ST. KITTS) AND NEVIS
SAINT LUCIA	**TLPL**	HEWANORRA SAINT LUCIA
ARUBA (NETHERLANDS)	**TNCA**	ARUBA/ QUEEN BEATRIX INTERNATIONAL AIRPORT
CURAÇAO (NETHERLANDS)	**TNCC**	CURACAO/HATO CURACAO INTERNATIONAL AIRPORT
SINT EUSTATIUS (NETHERLANDS)	**TNCE**	ST. EUSTATIUS/F.D ROOSEVELT AIRPORT
SINT MAARTEN (NETHERLANDS)	**TNCM**	ST. MAARTEN/PRINCES JULIANA INTERNATIONAL AIRPORT
SABA (NETHERLANDS)	**TNCS**	SABA/JUANCHO E. YRAUSQUIN AIRPORT
ANGUILLA (UNITED KINGDOM)	**TQPF**	CLAYTON J. LLOYD ,ANGUILLA
MONTSERRAT (UNITED KINGDOM)	**TRPG**	JOHN A. OSBORNE, MONTSERRAT
TRINIDAD AND TOBAGO	**TTPP**	PIARCO,TRINIDAD
BRITISH VIRGIN ISLANDS (UNITED KINGDOM)	**TUPA**	AUGUSTE GEORGE, ANEGADA
SAINT VINCENT AND THE GRENADINES	**TVSV**	E.T.JOSHUA,ST.VINCENT, AND THE GRENADINES

4.6 Table of the COM Centres in the SAM Region

4.6.1 Listed in alphabetical order by **State/Territory Name**

State/Territory	Location Indicator	Location Name
ARGENTINA	SAEZ	EZEIZA/MINISTRO PISTARINI, INTL (BA)
BOLIVIA	SLLP	LA PAZ
BRAZIL	SBBR	BRASILIA/PRES. JUSCELINO KUBITSCHEK, DF
CHILE	SCSC	SANTIAGO/D.G.A.C
COLOMBIA	SKBO	EL DORADO/DISTRITO CAPITAL
ECUADOR	SEQU	QUITO/AFTN
FRENCH GUIANA (FRANCE)	SOCA	CAYENNE-FELIX-EBOUE
GUYANA	SYCJ	CHEDDI JAGAN INTL AIRPORT
PANAMA	MPPC	CENTRO AFTN
PARAGUAY	SGAS	ASUNCION/S.PETTIROSSI
PERU	SPIM	AFTN/AMHS COM CENTRE LIMA
SURINAME	SMJP	JOHAN ADOLF PENGEL
URUGUAY	SUMU	MONTEVIDEO/INTL.CARRASCO "GRAL. CESAREO L. BERISSO"
VENEZUELA (BOLIVARIAN REPUBLIC OF)	SVCA	MAIQUETUA, VARGAS

4.6.2 Listed in alphabetical order by **Location Indicator**

State/Territory	Location Indicator	Location Name
PANAMA	MPPC	CENTRO AFTN
ARGENTINA	SAEZ	EZEIZA/MINISTRO PISTARINI (BA)
BRAZIL	SBBR	BRASILIA/PRES. JUSCELINO KUBITSCHEK, DF
CHILE	SCSC	SANTIAGO/D.G.A.C
ECUADOR	SEQU	QUITO/AFTN
PARAGUAY	SGAS	ASUNCION/S.PETTIROSSI
COLOMBIA	SKBO	BOGOTA EL DORADO/DISTRITO CAPITAL
BOLIVIA	SLLP	LA PAZ
SURINAME	SMJP	JOHAN ADOLF PENGEL
FRENCH GUIANA (FRANCE)	SOCA	CAYENNE-FELIX-EBOUE
PERU	SPIM	AFTN/AMHS COM CENTRE LIMA
URUGUAY	SUMU	MONTEVIDEO/INTL.CARRASCO "GRAL. CESAREO L. BERISSO"
VENEZUELA (BOLIVARIAN REPUBLIC OF)	SVCA	MAIQUETUA, VARGAS
GUYANA	SYCJ	CHEDDI JAGAN INTL AIRPORT

4.7 Table of the COM Centres in the Interregional COM Chart

4.7.1 Listed in alphabetical order by **State/Territory Name**

State/Territory	Location Indicator	Location Name
ALGERIA	DAAA	ALGER (ACC)
AUSTRALIA	YBBB	BRISBANE (FIR/FIC/ACC/COM/MET/NOF)
BAHRAIN	OBBI	BAHRAIN INTERNATIONAL
BOLIVIA	SLLP	LA PAZ
BRAZIL	SBBR	BRASILIA/PRES. JUSCELINO KUBITSCHEK, DF
CANADA	CYAA	OTTAWA (AFTN SYSTEM CONTROL CENTRE), ON
CHINA	ZBBB	BEIJING CITY
COLOMBIA	SKBO	EL DORADO/DISTRITO CAPITAL
CYPRUS	LCNC	NICOSIA/INTL (DCA)
EGYPT	HECA	CAIRO/INTL
ETHIOPIA	HAAB	ADDIS ABABA/BOLE COM/MET/NOF
FIJI	NFFN	NADI/INTL
FRANCE	LFLF	BORDEAUX (COM)
GREECE	LGGG	ATHINAI (ACC,FIC,COM,SAR,FIR/HELLAS ,UIR)
HONG KONG, CHINA (CHINA)	VHHH	HONG KONG/INTERNATIONAL
INDIA	VABB	CHHATRAPATI SHIVAJI MAHARAJ INTERNATIONAL AIRPORT, MUMBAI
ITALY	LIII	ROMA CENTRO COM INTL
JAPAN	RJJJ	FUKUOKA/JCAB AIR TRAFFIC MANAGEMENT CENTRE, AFTN/AMHS COM CENTER
JORDAN	OJAM	AMMAN/MARKA
KENYA	HKNA	NAIROBI FIR
LEBANON	OLBA	RAFFIC HARIRI INTL BEIRUT
MONGOLIA	ZMUB	ULAANBAATAR/CHINGGIS KHAAN
MOROCCO	GMMM	CASABLANCA (ACC/FIC)
NEW ZEALAND	NZCH	CHRISTCHURCH INTL
NIGER	DRRR	NIAMEY (FIC,ACC,COM)
OMAN	OOMS	MUSCAT/MUSCAT INTL
PANAMA	MPPC	CENTRO AFTN
PERU	SPIM	AFTN/AMHS COM CENTRE LIMA
PORTUGAL (MADEIRA AND AZORES) (PORTUGAL)	LPPT	LISBOA
RUSSIAN FEDERATION	UHHH	KHABAROVSK/NOVY
RUSSIAN FEDERATION	UIII	IRKUTSK
RUSSIAN FEDERATION	UUUU	MOSCOW, AFTN/CIDIN COM CENTRE, CITY
SAUDI ARABIA	OEJN	JEDDAH/KING ABDULAZIZ INTERNATIONAL
SENEGAL	GOOO	DAKAR (FIC,ACC,COM,NOF)
SINGAPORE	WSSS	SINGAPORE/SINGAPORE CHANGI INTL
SOUTH AFRICA	FAOR	O R TAMBO INTERNATIONAL
SPAIN	LEEE	MADRID/CENTRO DE RETRANSMISION AUTOMATICA DE MADRID
SUDAN	HSSS	KHARTOUM
THAILAND	VTBB	BANGKOK (ACC/FIC/COM CENTRE)
TUNISIA	DTTC	TUNIS (ACC/FIC,RPL,FMP,AFS,NOF...)
UNITED ARAB EMIRATES	OMAE	EMIRATES FIR

State/Territory	Location Indicator	Location Name
UNITED KINGDOM	EGGG	UK AFTN/CIDIN CENTRE
UNITED STATES	KATL	HARTSFIELD - JACKSON ATLANTA INTL
UNITED STATES	KSLC	SALT LAKE CITY INTL
VENEZUELA (BOLIVARIAN REPUBLIC OF)	SVCA	MAIQUETIA, VARGAS

4.7.2 Listed in alphabetical order by **Location Indicator**

State/Territory	Location Indicator	Location Name
CANADA	**CYAA**	OTTAWA (AFTN SYSTEM CONTROL CENTRE), ON
ALGERIA	**DAAA**	ALGER (ACC)
NIGER	**DRRR**	NIAMEY (FIC,ACC,COM)
TUNISIA	**DTTC**	TUNIS (ACC/FIC,RPL,FMP,AFS,NOF...)
UNITED KINGDOM	**EGGG**	UK AFTN/CIDIN CENTRE
SOUTH AFRICA	**FAOR**	O R TAMBO INTERNATIONAL
MOROCCO	**GMMM**	CASABLANCA (ACC/FIC)
SENEGAL	**GOOO**	DAKAR (FIC,ACC,COM,NOF)
ETHIOPIA	**HAAB**	ADDIS ABABA/BOLE COM/MET/NOF
EGYPT	**HECA**	CAIRO/INTL
KENYA	**HKNA**	NAIROBI FIR
SUDAN	**HSSS**	KHARTOUM
UNITED STATES	**KATL**	HARTSFIELD - JACKSON ATLANTA INTL
UNITED STATES	**KSLC**	SALT LAKE CITY INTL
CYPRUS	**LCNC**	NICOSIA/INTL (DCA)
SPAIN	**LEEE**	MADRID/CENTRO DE RETRANSMISION AUTOMATICA DE MADRID
FRANCE	**LFLF**	BORDEAUX (COM)
GREECE	**LGGG**	ATHINAI (ACC,FIC,COM,SAR,FIR/HELLAS ,UIR)
ITALY	**LIII**	ROMA CENTRO COM INTL
PORTUGAL (MADEIRA AND AZORES) (PORTUGAL)	**LPPT**	LISBOA
PANAMA	**MPPC**	CENTRO AFTN
FIJI	**NFFN**	NADI/INTL
NEW ZEALAND	**NZCH**	CHRISTCHURCH INTL
BAHRAIN	**OBBI**	BAHRAIN INTERNATIONAL
SAUDI ARABIA	**OEJN**	JEDDAH/KING ABDULAZIZ INTERNATIONAL
JORDAN	**OJAM**	AMMAN/MARKA
LEBANON	**OLBA**	RAFFIC HARIRI INTL BEIRUT
UNITED ARAB EMIRATES	**OMAE**	EMIRATES FIR
OMAN	**OOMS**	MUSCAT/MUSCAT INTL
JAPAN	**RJJJ**	FUKUOKA/JCAB AIR TRAFFIC MANAGEMENT CENTRE, AFTN/AMHS COM CENTER
BRAZIL	**SBBR**	BRASILIA/PRES. JUSCELINO KUBITSCHEK, DF
COLOMBIA	**SKBO**	EL DORADO/DISTRITO CAPITAL
BOLIVIA	**SLLP**	LA PAZ
PERU	**SPIM**	AFTN/AMHS COM CENTRE LIMA

State/Territory	Location Indicator	Location Name
VENEZUELA (BOLIVARIAN REPUBLIC OF)	**SVCA**	MAIQUETIA, VARGAS
RUSSIAN FEDERATION	**UHHH**	KHABAROVSK/NOVY
RUSSIAN FEDERATION	**UIII**	IRKUTSK
RUSSIAN FEDERATION	**UUUU**	MOSCOW, AFTN/CIDIN COM CENTRE, CITY
INDIA	**VABB**	CHHATRAPATI SHIVAJI MAHARAJ INTERNATIONAL AIRPORT, MUMBAI
HONG KONG, CHINA (CHINA)	**VHHH**	HONG KONG/INTERNATIONAL
THAILAND	**VTBB**	BANGKOK (ACC/FIC/COM CENTRE)
SINGAPORE	**WSSS**	SINGAPORE/SINGAPORE CHANGI INTL
AUSTRALIA	**YBBB**	BRISBANE (FIR/FIC/ACC/COM/MET/NOF)
CHINA	**ZBBB**	BEIJING CITY
MONGOLIA	**ZMUB**	ULAANBAATAR/CHINGGIS KHAAN

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