International Civil Aviation Organization

The Third Meeting of the Regional ATM Contingency Plan Task Force (RACP/TF/3)

Bangkok, Thailand, 12 – 15 November 2013

Agenda Item 4: Asia/Pacific Regional ATM Contingency Plan

CONTINGENCY ROUTES AND FLIGHT LEVEL ALLOCATION SCHEMES

(Presented by the Secretariat)

SUMMARY

This paper presents Contingency Routes and Flight Level Allocation Schemes (FLAS) notified to the ICAO Secretariat, to be used as the basis for further development by the Task Force.

This paper relates to –

Strategic Objectives:

A: ***Safety*** *– Enhance global civil aviation safety*

C: ***Environmental Protection and Sustainable Development of Air Transport*** *– Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:

GPI-6 Air traffic flow management
GPI-7 Dynamic and flexible ATS route management
GPI-8 Collaborative airspace design and management
GPI-10 Terminal area design and management
GPI-12 Functional integration of ground systems with airborne systems
GPI-13 Aerodrome design and management
GPI-16 Decision support systems and alerting systems
GPI-18 Aeronautical information
GPI-19 Meteorological Systems
GPI-22 Communication infrastructure

1. INTRODUCTION

1.1 RACP/TF had determined a need for a harmonized contingency route structure, supported by a flight level allocation scheme (FLAS), to ensure the safe, predictable continuation of international air traffic in cases where ATS in contiguous FIRs was disrupted or unavailable.

1.2 RACP/TF/3 formed 4 small working groups (SWG) to establish sub-Regional contingency route and FLAS structures, with a view to further harmonization to form the Regional contingency route network.

2. DISCUSSION

2.1 The matter of harmonized contingency route structures was raised at RACP/TF/1 (Bangkok, Thailand, 17 – 19 April 2012) and RACP/TF/2. (Bangkok, Thailand, 12 – 15 March 2013).

2.2 **Figure 1** illustrates the concepts of single FIR, fragmented multiple FIR and harmonized multiple FIR (Level 2 Plan) contingency route structures.

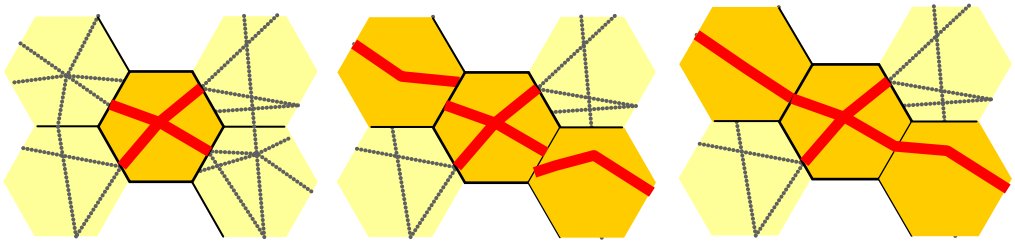

Figure 1: Contingency Plan Harmonization Concept.

2.3 The following attachments provide the State and/or sub-Regional ATS contingency routes provided thus far to meetings of the RACP/TF and/or to the ICAO Secretariat:

- **Attachment A** – Bangladesh, India and Nepal;
- **Attachment B** – Hong Kong China and Philippines (proposed);
- **Attachment C** - India
- **Attachment D** – Indonesia;
- **Attachment E** – Lao PDR, Myanmar and Thailand;
- **Attachment F** – Malaysia;
- **Attachment G** – Philippines;
- **Attachment H** – Singapore; and
- **Attachment I** – Viet Nam.

2.4 Clearly there is a need for each State's ATS contingency routes to be understood and agreed by neighbouring States, in order to ensure the safe and efficient management of aircraft onto the contingency route at the point of entry to the affected airspace, and where necessary to rejoin other ATS routes after leaving the contingency airspace. A pre-determined and agreed contingency route structure also provides certainty to airspace users in the event that it becomes necessary to plan for contingency operations in an FIR.

2.5 The benefits and need for *harmonized* contingency routes as illustrated in **Figure 1** should be clearly defined. The circumstances and likelihood of contiguous FIRs of neighbouring States simultaneously experiencing disrupted or withdrawn ATS should be discussed and understood.

2.6 The meeting should also recognize that some States may have well developed contingency plans in which all published ATS routes remain available, and other procedures are used to manage traffic flows through contingency airspace. In these cases State contingency plans should clearly state that that all ATS routes remain available during contingency operations unless the affected airspace is completely unavailable, and any assessment of State contingency readiness conducted by the Task Force should ensure this is taken into account.

2.7 Further harmonization work on the sub-Regional contingency route structures is required. The SWG should review the current route structures and identify any requirement for their amendment to achieve harmonization.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) discuss and clarify the need for harmonization of contingency route structures in the contiguous FIRs of neighbouring States;

c) make any necessary changes to current contingency route structures to achieve harmonization;

d) identify those States that do not require contingency route structures as all ATS routes remain available;

e) continue to develop and harmonize contingency routes and associated FLAS where they are required; and

f) discuss any relevant matters as appropriate.

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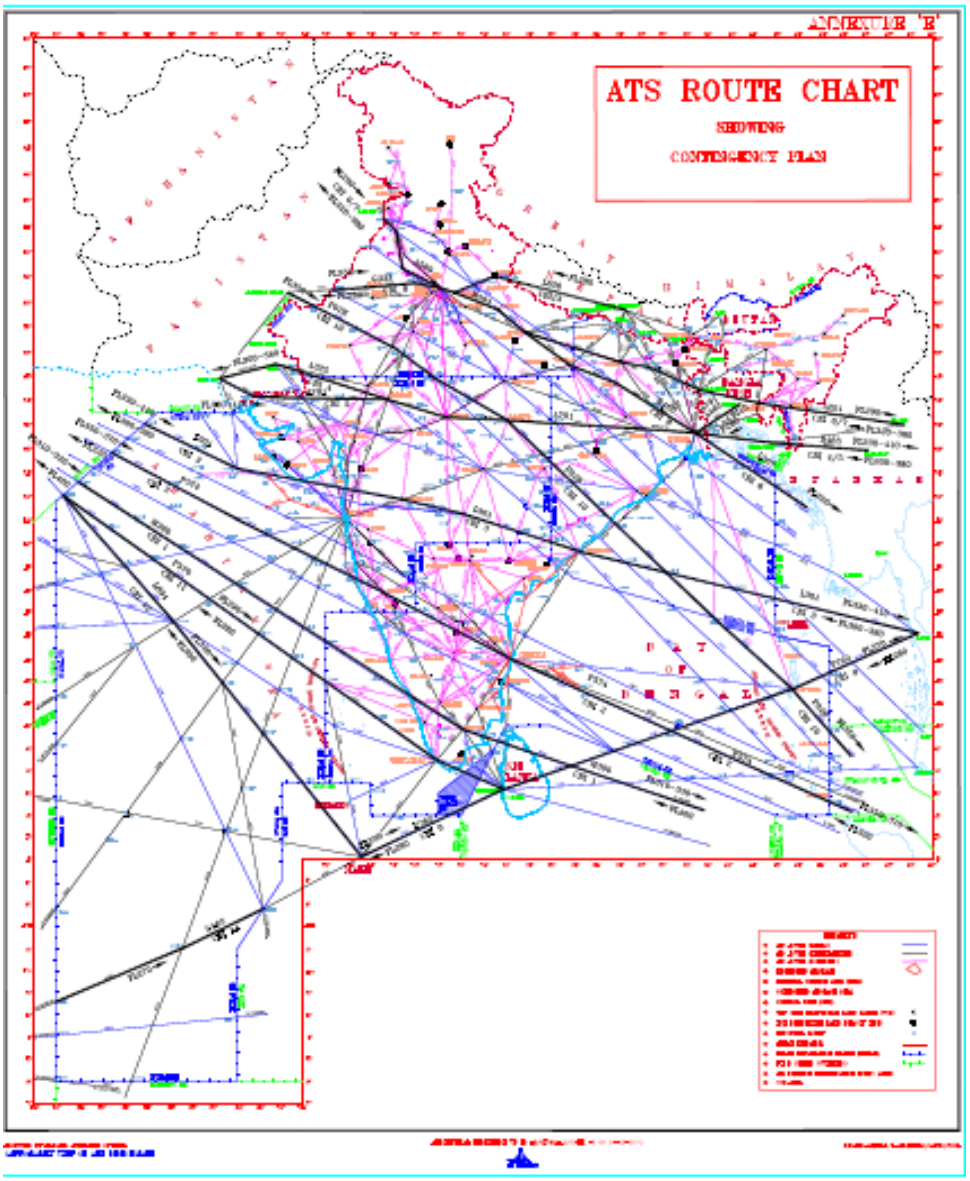
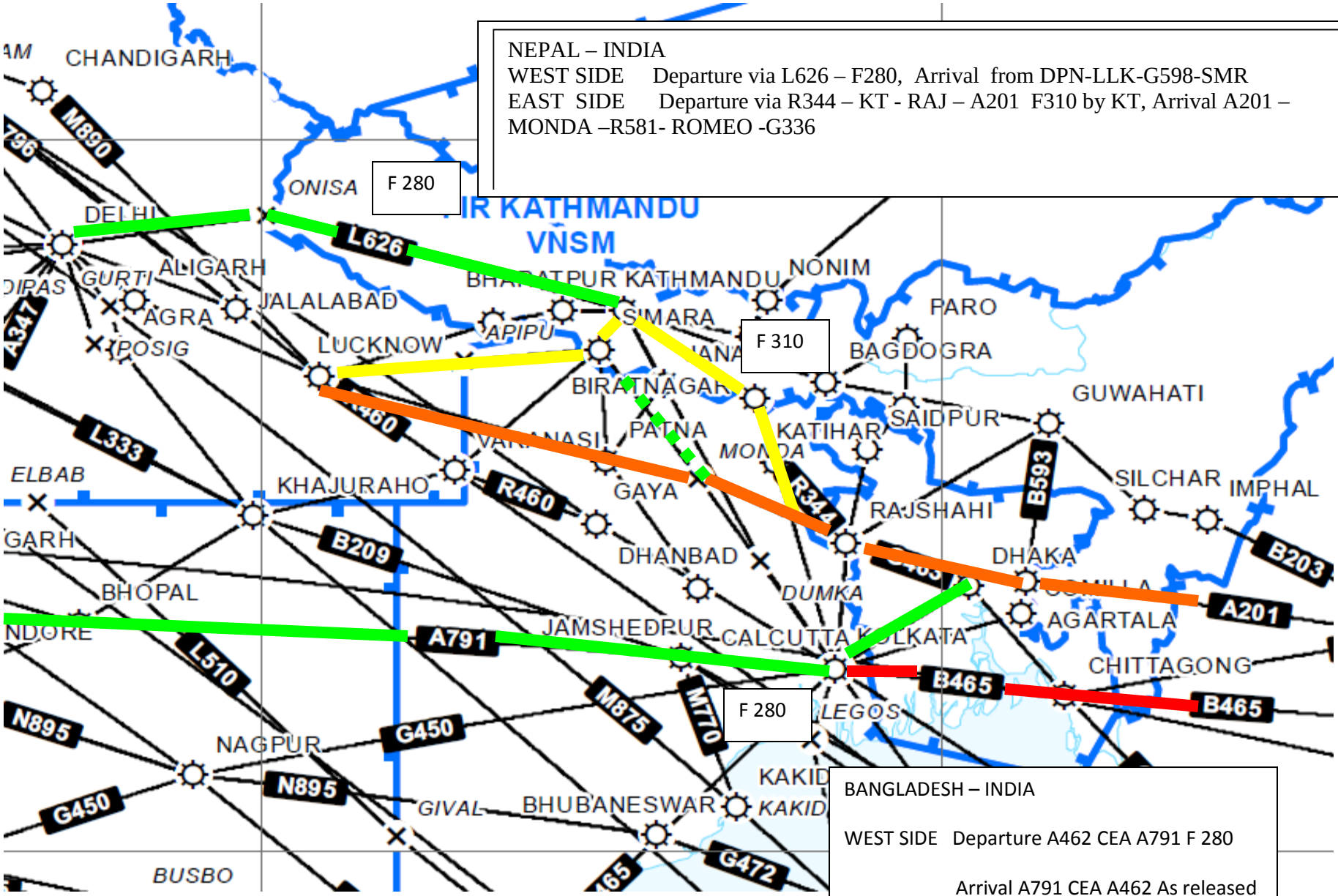

ANNEXURE 'E'
ATS ROUTE CHART
SHOWING
CONTINGENCY PLAN


NEPAL – INDIA
WEST SIDE Departure via L626 – F280, Arrival from DPN-LLK-G598-SMR
EAST SIDE Departure via R344 – KT - RAJ – A201 F310 by KT, Arrival A201 – MONDA –R581- ROMEO -G336
F 280
F 310
F 280
CHANDIGARH
DELHI
ONISA
KATHMANDU
VNSM
NONIM
PARO
BAGDOGRA
GUWAHATI
SAIDPUR
KATIHAR
PATNA
BIRATNAGAR
LUCKNOW
ALIGARH
AGRA
JALALABAD
SIMARA
KHAJURAHO
GAYA
RAJSHAHI
DHANBAD
DUMKA
DHAKA
SILCHAR
IMPHAL
AGARTALA
CHITTAGONG
BHOPAL
JAMSHEDPUR
CALCUTTA
KOLKATA
LEGOS
NAGPUR
BHUBANESWAR
GIVAL
BUSBO
L626
L333
L510
A791
B209
R460
R344
B593
B203
A201
B465
M890
M875
M770
N895
G450
G472
A347
BANGLADESH – INDIA
WEST SIDE Departure A462 CEA A791 F 280
Arrival A791 CEA A462 As released
EAST SIDE Departure G 463 CTG B 465 F270
Coord MY

Proposed Contingency Plan between Hong Kong China and Philippines on RACP/TF/2 (12-15 March 2013)

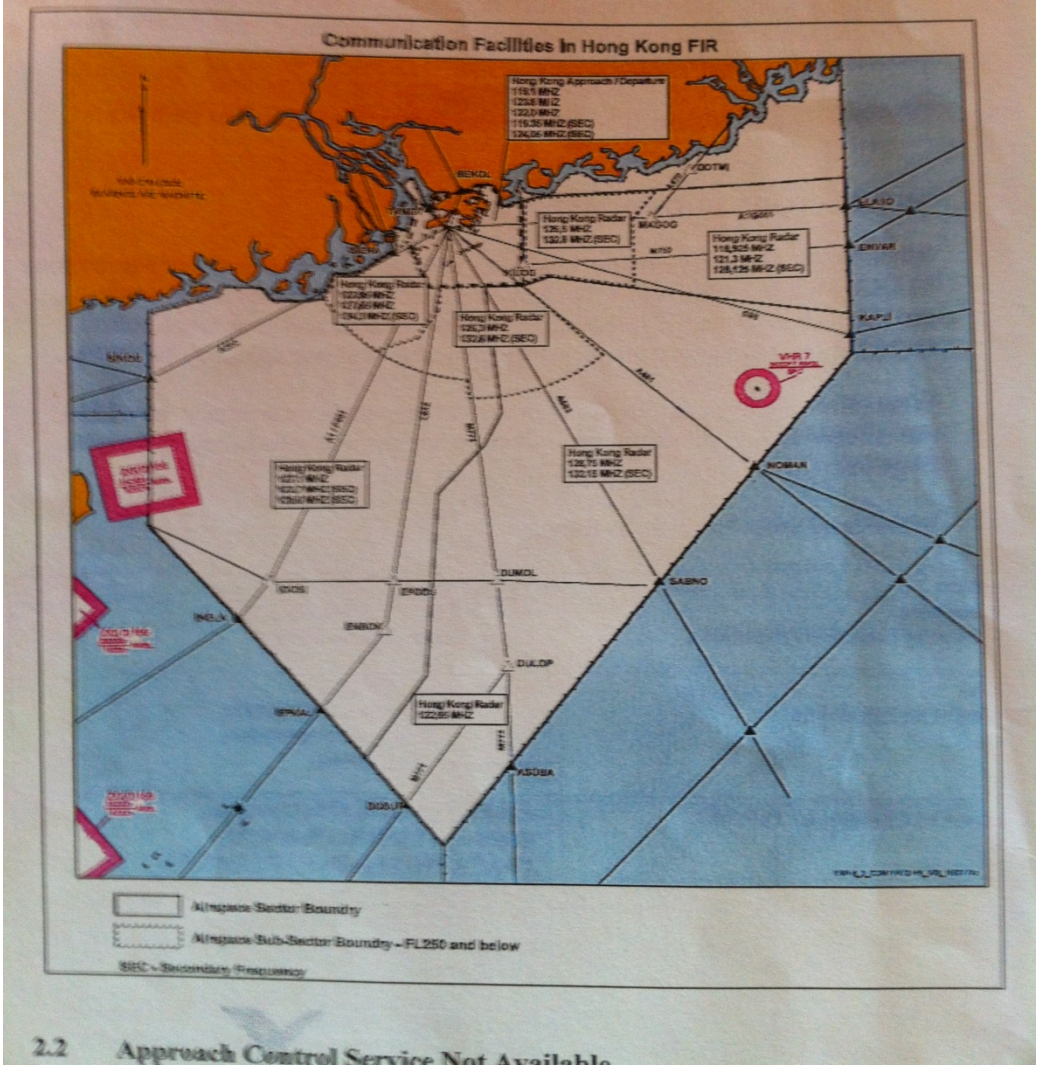
	Hong Kong China	Philippines
1. Contingency Routes	Airway A461 - Southeast bound only	
	Airway A583 - Northwest bound only	
2. Proposed Flight Levels subject to Manila final proposal.	A461 - 290, 330, 370 A583 - 310, 350, 390 See Map 1	A461 - 290, 310, 330 A583 - 300, 320, 340
3. Separation standards	As stated in Letter of Agreement	
4. Back-up facilities	Back-up Air Traffic Control Centre and Back-up Control Tower (activation in accordance with CAD Emergency Procedure Manual which require a period of approximately 60 mins transition time)	Nil
5. Details of specific procedures	NOTAM	NOTAM
6. Authorization	Assistant Director-General of Civil Aviation (Air Traffic Management) ADG(ATM) or his authorized representative	Director General of Civil Aviation Authority of Philippines
7. Long Term Unavailability of ATS	Pilots to follow Traffic Information Broadcast by Aircraft (TIBA) procedures See Map 2	Not established yet


Hong Kong FIR Contingency Routes
ELATO
A1
M750
G581
ENVAR
KAPLI
G86
FIR TAIBEI
FIR MANILA
NOMAN
SABNO
A583
M501
A461
ASOBA
DOSUT
EPKAL
IKELA
SIKOU
R339
FIR SANYA
GOTMI
SOUSA
A1/G581
VHR 7
CONIC CONFORMAL PROJECTION WGS84 DATUM

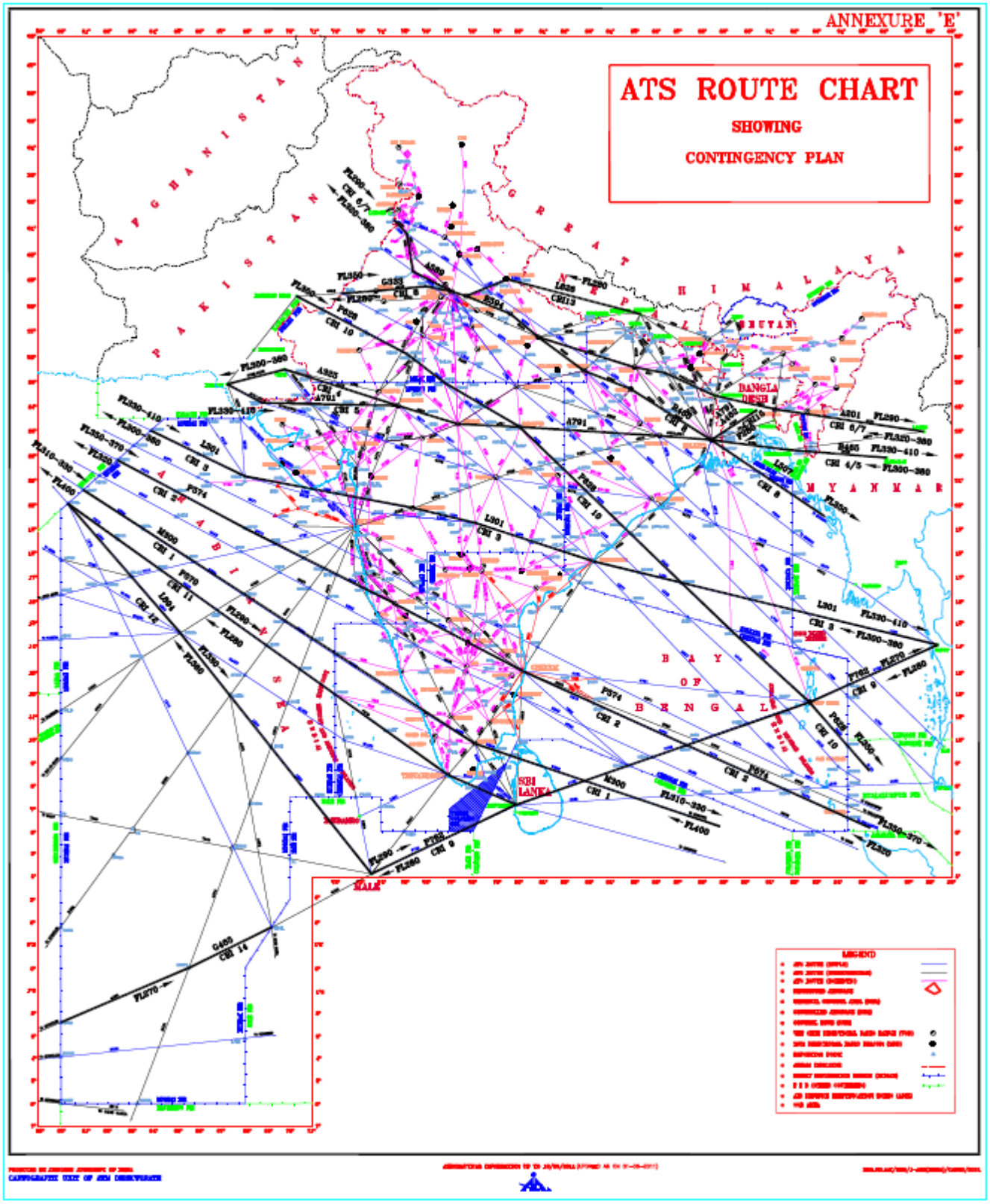
Fig. 1

Contingency Operating Procedures

2.1.2 FIS and SAR alerting will be provided as remaining capability permits.



2.2 Approach Control Service Not Available


ANNEXURE 'E'
ATS ROUTE CHART
SHOWING
CONTINGENCY PLAN
AFGHANISTAN
PAKISTAN
GREAT HIMALAYA
BHUTAN
BANGLA DESH
MYANMAR
BAY OF BENGAL
SRI LANKA
INDIA
LEGEND

भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

ANNEXURE D

International Route structure and communications for transit of the Chennai FIR During Contingency situation

Contingency Route	ATS Route	Segment	Flight Level (Eastbound)	Flight Level (West bound)	Remarks
CRI-1	M300	IGAMA- ATETA	FL310, FL330,	FL400	
CRI-2	P574	NOPEK- GULAM	FL350, FL370,	FL320	
CRI-9	P762	LULDA-DUGOS	FL270,	FL280	
CRI-10	P628	VATLA- IGREX	FL350	------	
CRI - 11	P570	BASUR - POMAN	FL290	FL 280	

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AIRPORTS AUTHORITY OF INDIA

APPENDIX 'D'

International Route structure and communications for transit of the Delhi FIR During Contingency situation

Contingency Route	Route	Segment	Flight Level (Eastbound)	Flight Level (West bound)	Remarks
CRI - 4 / 5	A 791	ASOPO - ARIVO	F 330, F 410	F 300 , F 380	
CRI-6	A 201 -R594-G333/A589	PPT -LLK-DPN-TIGER / LLK-DPN-SAMAR	--------	FL 320, FL 380	
CRI-7	A466-R460- A 201	SAMAR--DPN-LLK-PPT	FL 290	-------	
CRI-8	G452-R460	TIGER--DPN- GGC	FL 350	------	
CRI-10	P628	VIKIT - IBANI	FL 350	-------	
CRI - 13	L 626 – G 433	ONISA - TIGER	----	FL 280	

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AIRPORTS AUTHORITY OF INDIA

Appendix - D

International Route Structure and Communication
For Transit of the KOLKATA FIR
During Contingency Situation

Contingency Route	ATS Route	Segment	Flight Level (Eastbound)	Flight Level (Westbound)	Remarks
CRI 3	L301	RINDA – MEPOK	FL330 – FL410	FL300 – FL380	
CRI 4 / 5	B465 / A791	APAGO – ARIVO	FL330 – FL410	FL300 – FL380	
CRI 6 / 7	A201	ANSOS – PPT	FL290	FL320 – FL380	
CRI 8	R460 / L507	GGC - TEBOV	FL350	---------	
CRI 10	P628	IKINA - VATLA	FL350	---------	
CRI 15	A 462 / A 791	BEMAK - ARIVO	--------	F 280	

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AIRPORTS AUTHORITY OF INDIA

APPENDIX D

International Route Structure and Communications for Transit of the Mumbai FIR During Contingency Situation

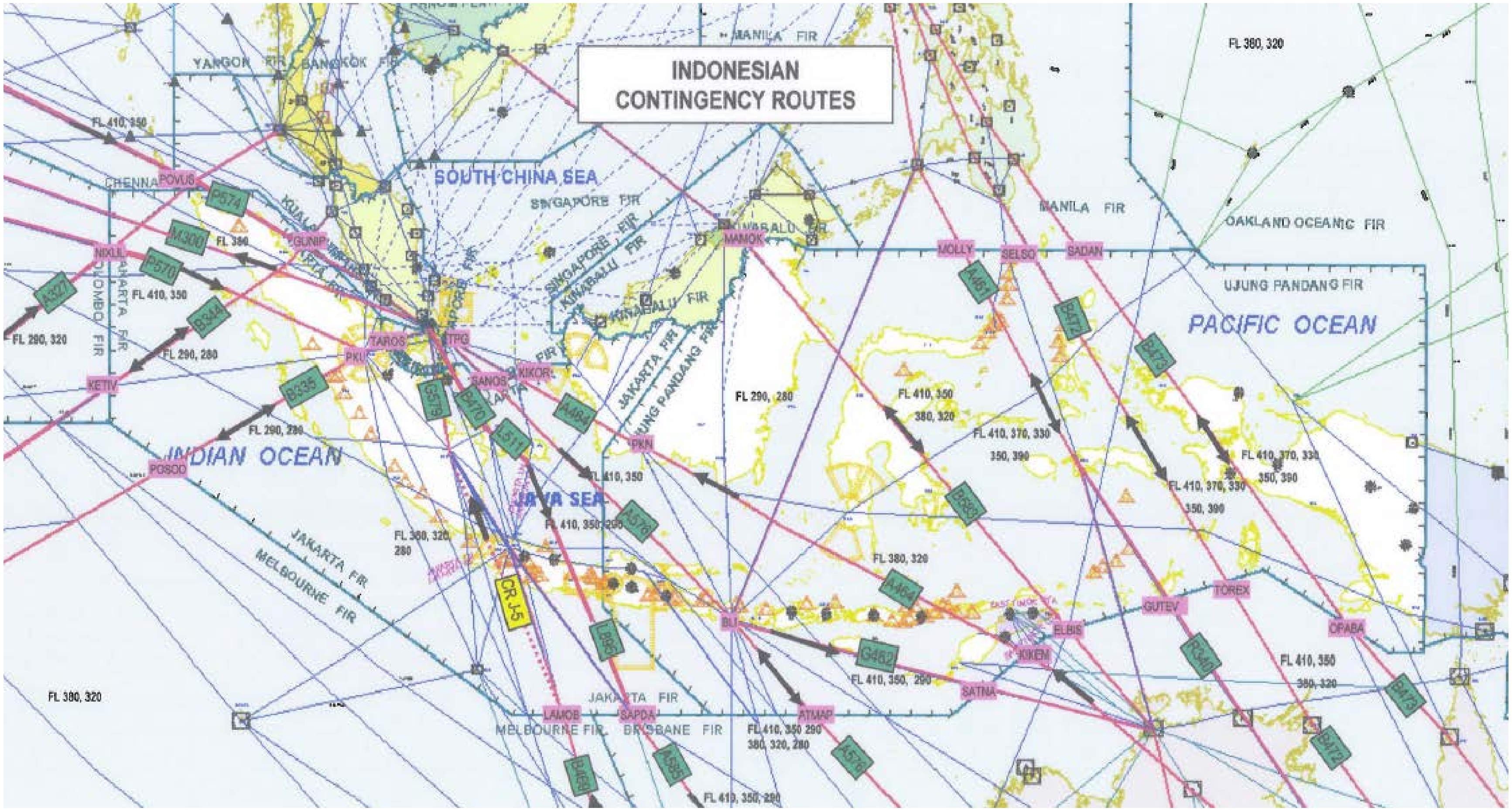
Contingency Route	ATS Route	Segment	Flight Level (East bound)	Flight Level (West bound)	REMARKS
CRI-1	M 300	LOTAV-IGAMA	FL310-FL 330	FL400	
CRI-2	P 574	TOTOX-GULAM	FL350-FL370	FL320	
CRI-3	L 301	RASKI-MEPOK	FL330- FL410	FL300-FL380	
CRI-4	A 791 – A 325	ASOPO - TASOP	--------	FL300-FL380	
CRI-5	A 791	TELEM-ASOPO	FL330-FL410	-------	
CRI - 10	P 628	IKINA - IBANI	Fl 350	-------	
CRI-11	P 570	KITAL-POMAN	FL290	FL280	
CRI-12	L 894	KITAL-BIBGO	FL330	FL360	
CRI-14	G 465	ELKEL - OTKIR	FL270	------	

INTERNATIONAL ROUTE STRUCTURE AND COMMUNICATIONS FOR TRANSIT OF THE JAKARTA FIR WHEN NO ATS AVAILABLE IN INDONESIAN AIRSPACE

Contingency Routes Jakarta (CRJ)	ATS Route	Direction	FL Assignment	ACCs	COM (Frequency Details in Appendix X)
CRJ-1	A464 Darwin-KIKEM-KIKOR-TPG-SINJON	Northbound (One-way)	380, 320	Brisbane Singapore	HF, ADS/CPDLC HF, VHF, ADS/CPDLC
CRJ-2	A576-G462 SINJON-TPG-SANOS-BLI-SATNA-Darwin	South East bound (One-way)	410, 350, 290	Singapore Brisbane	HF, VHF, ADS/CPDLC HF, ADS/CPDLC
CRJ-3	A576 SINJON-TPG-SANOS-BLI-ATMAP-Alice Springs	Southbound (One-way)	410, 350, 290	Singapore Brisbane	HF, VHF, ADS/CPDLC HF, ADS/CPDLC
CRJ-4	B470-L511/L895-A585 SINJON-S00 02.4 E104 042.1-ANITO-PKP(L511/L895)-MIMIX(L895)-SAPDA	Southbound (One-way)	410, 350, 290	Singapore Melbourne	HF, VHF, ADS/CPDLC HF, ADS/CPDLC
CRJ-5[2]	B469-G579 LAMOB-DCT-PLB(G579)-PARDI-S00 16.1 E104 09.3-SINJON	Northbound (One-way)	380, 320, 280	Brisbane Singapore	HF, ADS/CPDLC HF, VHF, ADS/CPDLC
CRJ-6	R469- B335 SINGAPORE-SAMKO-TAROS-PKU(B335)-POSOD	Two-way	290 280	Singapore Melbourne	HF, VHF, ADS/CPDLC HF, ADS/CPDLC

CONTINGENCY ROUTES JAKARTA (CRJ)	ATS ROUTES	DIRECTION	FL ASSIGNMENT	ACCS PROVIDING FIS	COM (DETAILS OF FREQUENCIES ARE IN APPENDIX X)
CRJ-7	B344-G468 VPG-GOTLA-MDN(B334)-KETIV-ELATI	Two-way	290 280	Kuala Lumpur Colombo+	HF, VHF HF, ADS/CPDLC
CRJ-8	A327 POVUS - NIXUL	Two-way	290, 320	Kuala Lumpur Colombo+	HF, VHF HF, ADS/CPDLC
CRJ-9	P570-R469 NIXUL – MABIX - PKU(R469) - TAROS-SINJON	Eastbound (One-way)	410, 350	Colombo+ Kuala Lumpur Singapore+	HF, ADS/CPDLC HF, VHF VHF
CRJ-10	A576-M300 SINJON-DUMOK(M300)-SALAX-TOPIN	Westbound (One-way)	380	Singapore+ Kuala Lumpur	VHF HF, VHF
CRJ-11	P574-R461 ANSAX-PUGER(R461)-VKL	Eastbound (One-way)	410, 350	Chennai+ Kuala Lumpur	HF, ADS/CPDLC HF, VHF

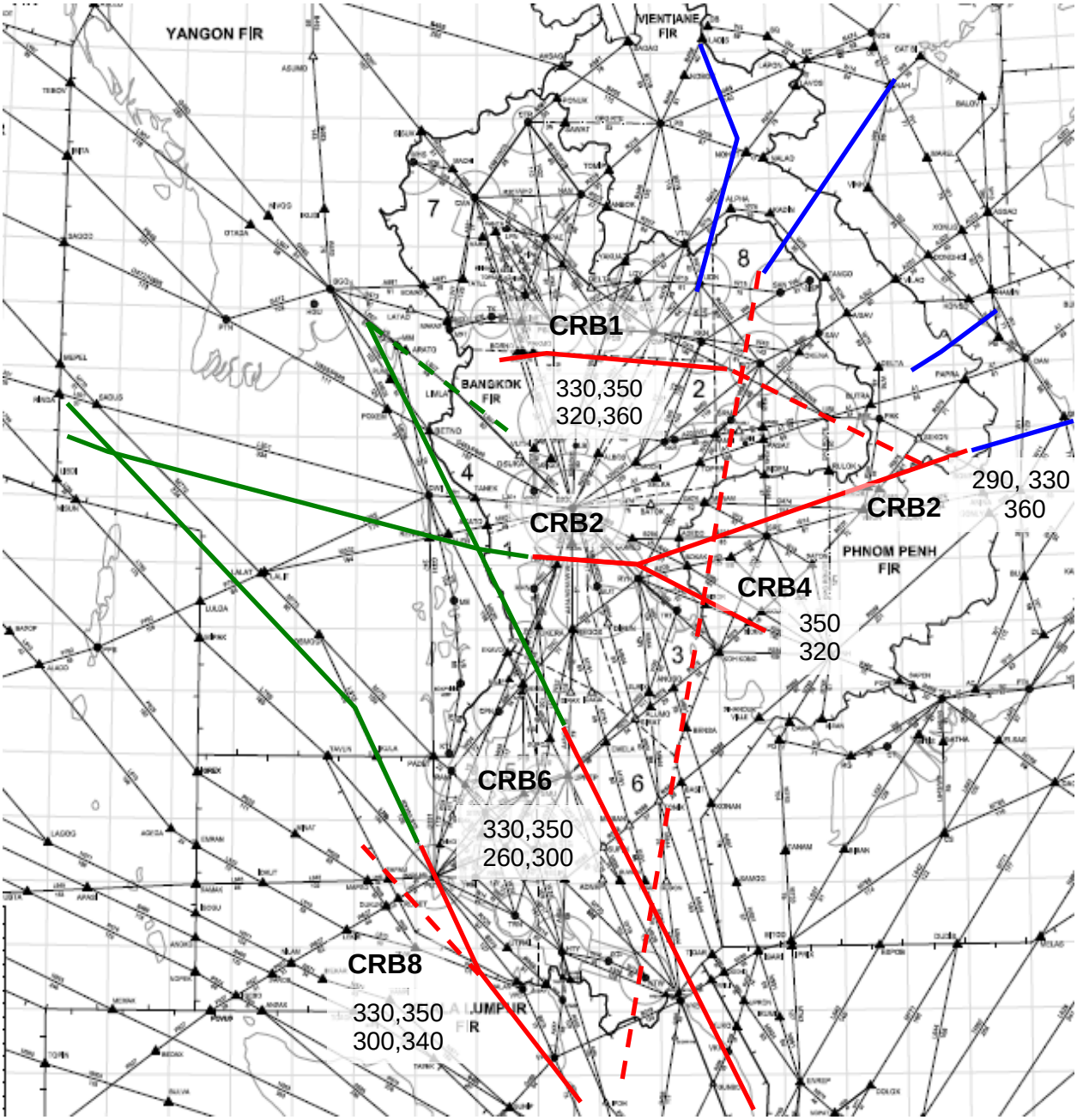
+ ACCs not providing FIS in the Jakarta FIR for these routes


INDONESIAN
CONTINGENCY ROUTES
SOUTH CHINA SEA
INDIAN OCEAN
PACIFIC OCEAN
JAVA SEA
MANILA FIR
OAKLAND OCEANIC FIR
UJUNG PANDANG FIR
SINGAPORE FIR
JAKARTA FIR
MELBOURNE FIR
BRISBANE FIR
YANGON FIR
BANGKOK FIR
FL 380, 320
FL 290, 280
FL 410, 350
FL 290, 320
P574
M300
P570
B344
B335
A327
A464
A461
A576
B472
B473
G462
CR-J5
POVUS
NIXUL
KETIV
POSOD
GUNIP
TAROS
PKU
TPG
KIKOR
PKN
MANOK
MOLLY
SELSO
SADAN
GUTEV
TOREX
OPABA
ELBIS
KIKEM
SATNA
ATMAP
LAMOB
SAPDA
BLI

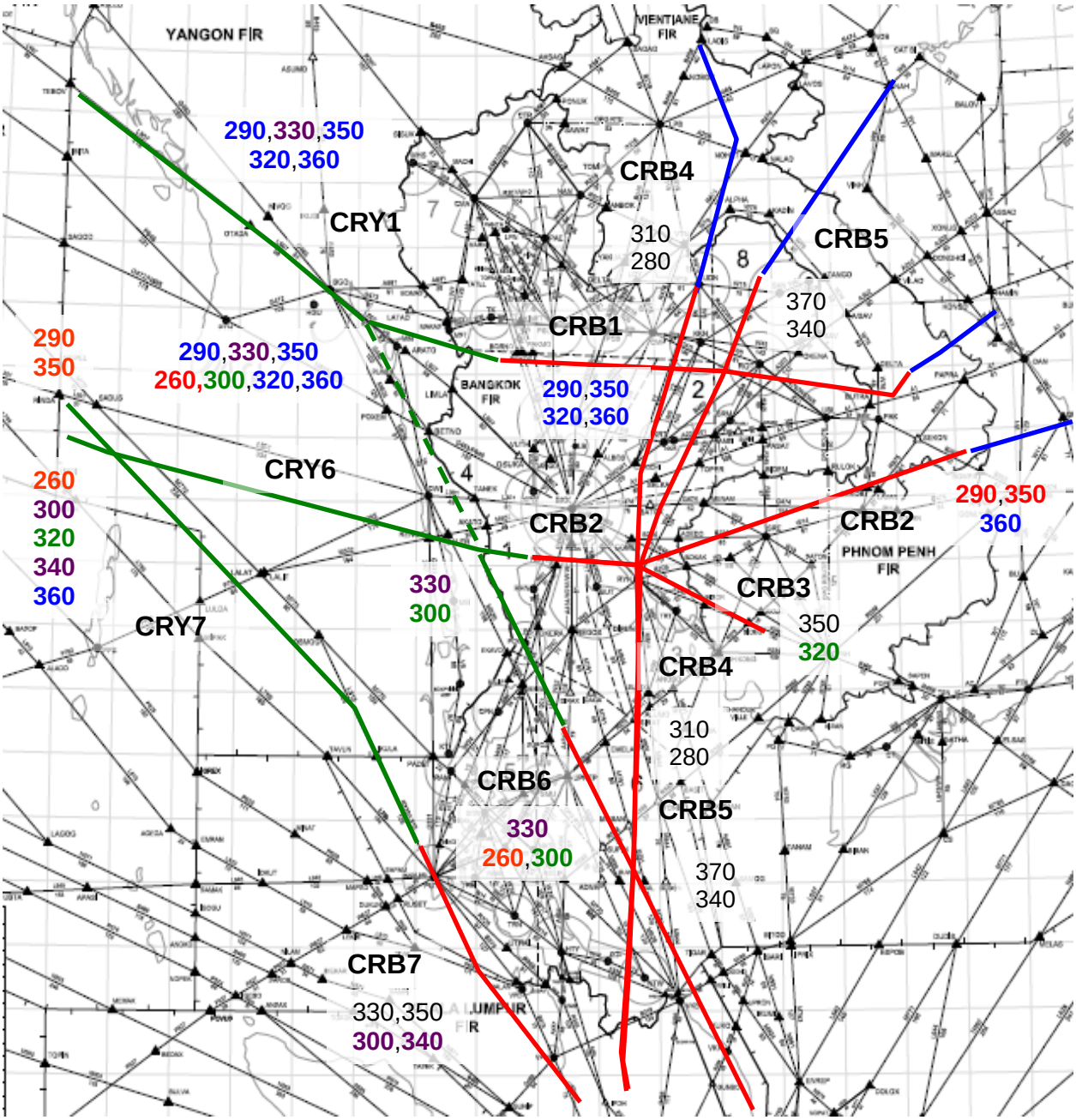
**INTERNATIONAL ROUTE STRUCTURE AND COMMUNICATIONS FOR TRANSIT OF THE BANGKOK FIR
WHEN NO ATS AVAILABLE IN THAI AIRSPACE**

Contingency Routes Bangkok	ATS Route	Direction (Two way)	FL Assignment	ACCs	FREQ + CPDLC	RTAF	FREQ
CRB-1 **CRY-1**	**MAKAS G473** **CMP W43** **OKENA A202** **SAV**	Eastbound Westbound	290, 350 320,360	YGN VTN	126.75 128.3 VYYF	FOCAL OSCAR 	127.0 121.5 EMR
CRB-2 **CRY-6**	**TANAK L301-** **BKK A1** **-BUTRA**	Eastbound Westbound	290, 350 360	YGN VTN	128.75 128.3 VYYF	OSCAR	127.0 121.5 EMR
CRB-3	**TANAK L301-** **BKK R468** **BOKAK**	Eastbound Westbound	350 320	YGN PNH	128.75 127.5 VYYF	OSCAR	127.0 121.5 EMR
CRB-4	**YAKUA B346** **BKK A464** **KARMI**	Northbound Southbound	310 280	VTN KUL	124.1 126.75 132.8	FOCAL OSCAR BIGSHEL	127.0 121.5 EMR
CRB-5	**VTN R474** **BKK A464** **KARMI**	Northbound Southbound	370 340	VTN KUL	124.1 126.75 132.8	FOCAL OSCAR BIGSHELL	127.0 121.5 EMR
CRB-6	**EKAVO M626-** **VKB**	Eastbound Westbound	330 260,300	YGN KUL	128.75 134.25 VYYF	BIGSHELL	127.0 121.5 EMR
CRB-7 **CRY-7**	**IKULA L515** **PUT B579 VPL**	Eastbound Westbound	330,350 300,340	YGN KUL	128.75 132.8 VYYF	BIGSHELL	127.0 121.5 EMR

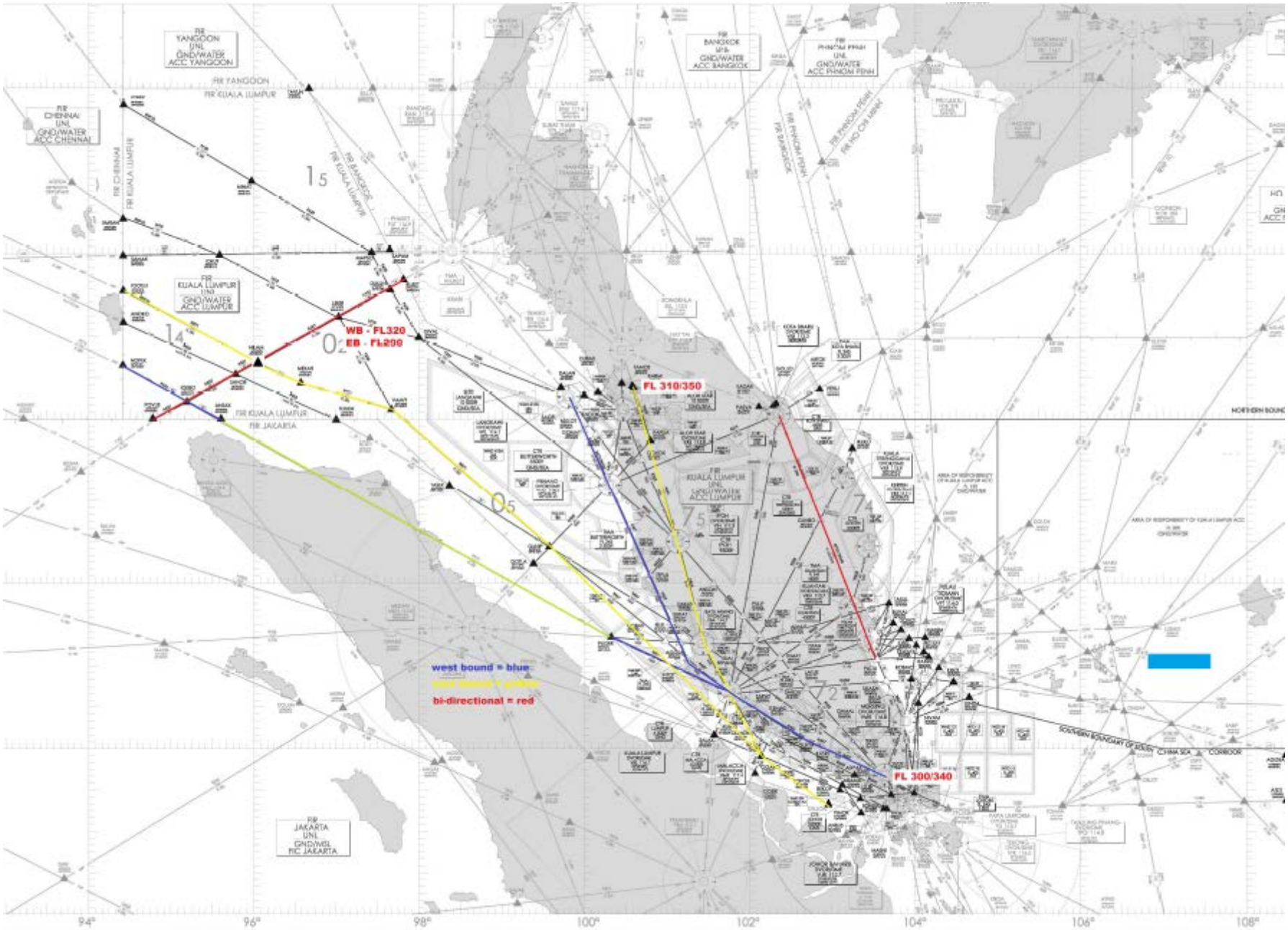
Contingency Route Structure Pre-Harmonization



Contingency Route Structure Post-Harmonization



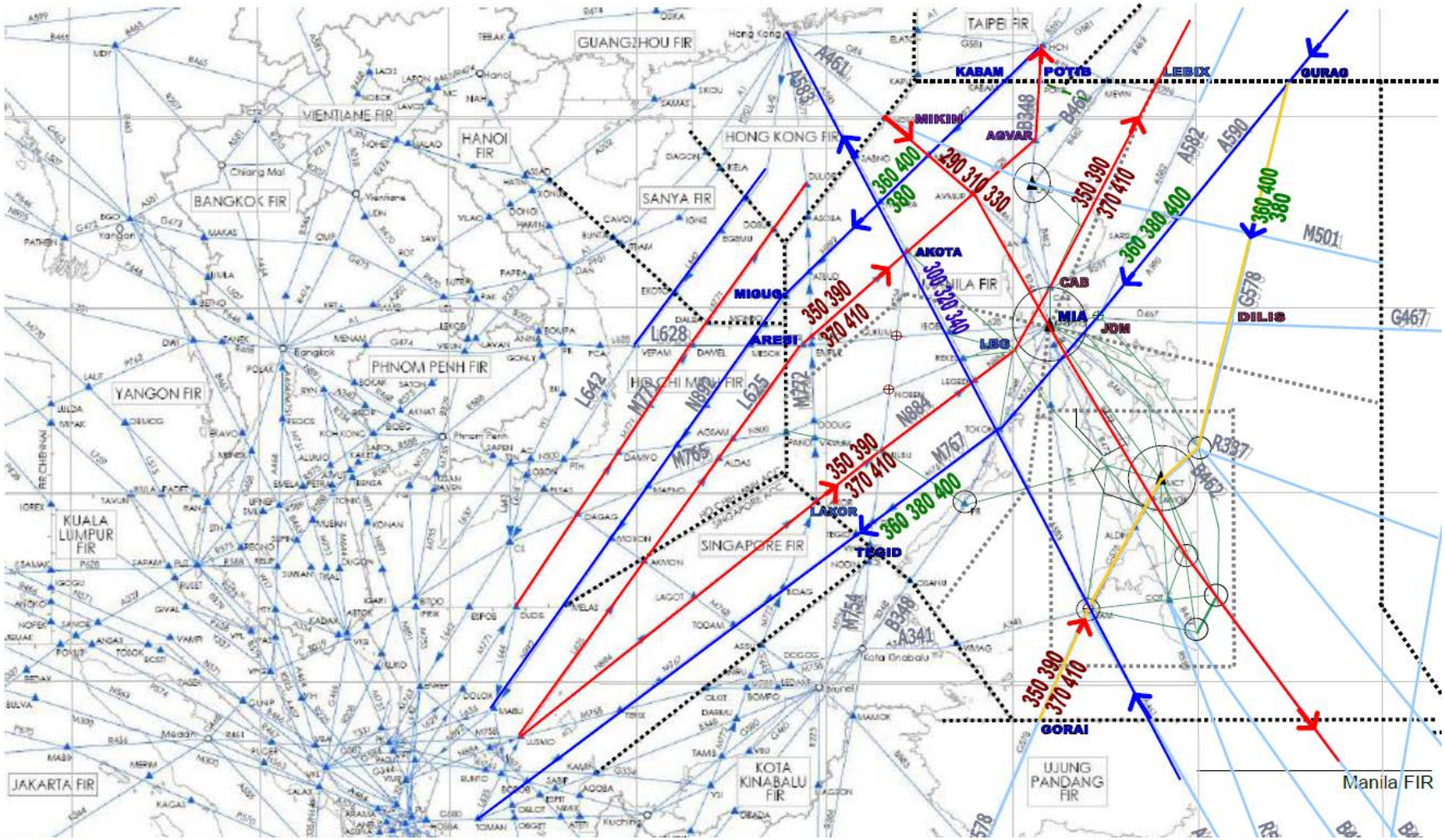
CONTINGENCY ROUTE	ROUTE	SEGMENT	FL (WESTBOUND)	FL (EASTBOUND)
1	A457	WSSS G579 SJ JB **A457** VKL VPL B579 VTBS	**300/340**	
2	A464/M630	VTBS KARMI **A464** VIH VKL MITOS M630 SUKRI M635 WSSS		**310/350**
3	M751	Subject to coordination.		
4	A327	POVUS RUSET	**320**	**290**
5	N571	Subject to coordination.		
6	P574	Subject to coordination.		


WB - FL320
EB - FL290
FL 310/350
FL 300/340
west bound = blue
bi-directional = red
94°
96°
98°
100°
102°
104°
106°
108°

Manila FIR Contingency Route Structure

Contingency Routes Manila	ATS Route	Direction	FL Assignment	ACCs	COM
CRM-1	KABAM N892 MIKIN N892 MIGUG	Southwestbound (unidirectional)	360, 380, 400	Taipei Ho Chi Minh	HF, VHF HF,ADS-CPDLC
CRM -2	ARESI L625 M646 AGVAR POTIB	Northeastbound (unidirectional)	350, 370, 390, 410	Ho Chi Minh Taipei	HF,ADS-CPDLC HF, VHF
CRM-3	LAXOR N884 CAB N884 LEBIX	Northeastbound (unidirectional)	350, 370, 390, 410	Singapore Naha	HF,ADS-CPDLC HF,VHF
CRM-4	GURAG A590 JOM M767 TEGID	Southwestbound (unidirectional)	360, 380, 400	Fukouka Singapore	HF,ADS-CPDLC HF,ADS-CPDLC
CRM-5	GORAI G578 DILIS G578 GURAG	Bidirectional	Northeastbound: 350, 370, 390, 410 Southwestbound: 360, 380. 400	Ujung Pandang Fukouka	HF,ADS-CPDLC HF,ADS-CPDLC
CRM-6	NOMAN MUMOT AVMUP W16 CIA MIA LAIYA MINOR ROXAS LAMOK CGO DAO SADAN	Southeastbound (unidirectional)	290, 310, 330	Hongkong	
CRM-7	MOLLY ZAM A583 MARAN TOKON LEGED REKEL IBOBI AKOTA MAVRA SABNO	Northwestbound (unidirectional)	300, 320, 340	Hongkong	

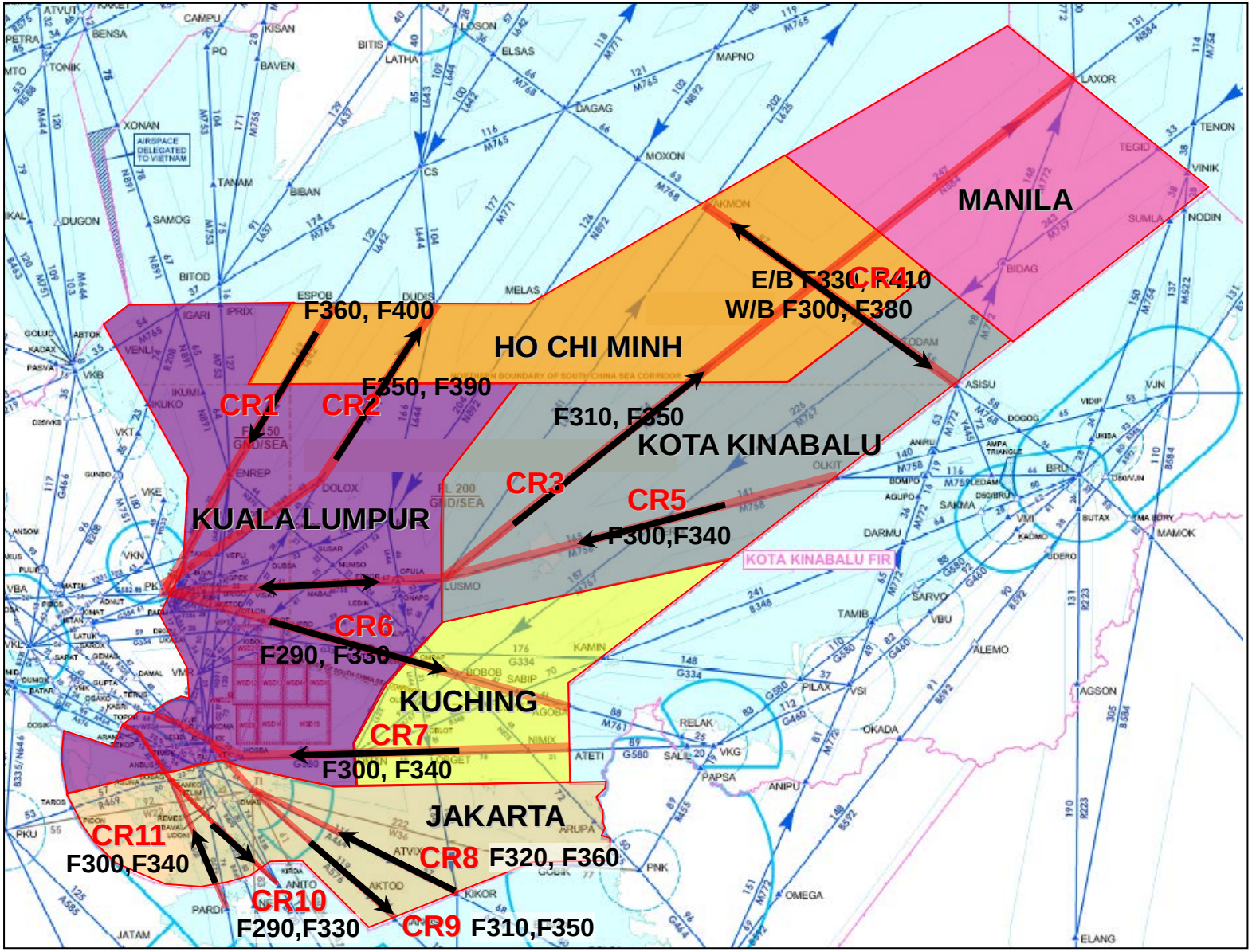
(PROPOSED) ATS CONTINGENCY ROUTES | **APPENDIX 5**



Singapore Contingency Route Structure

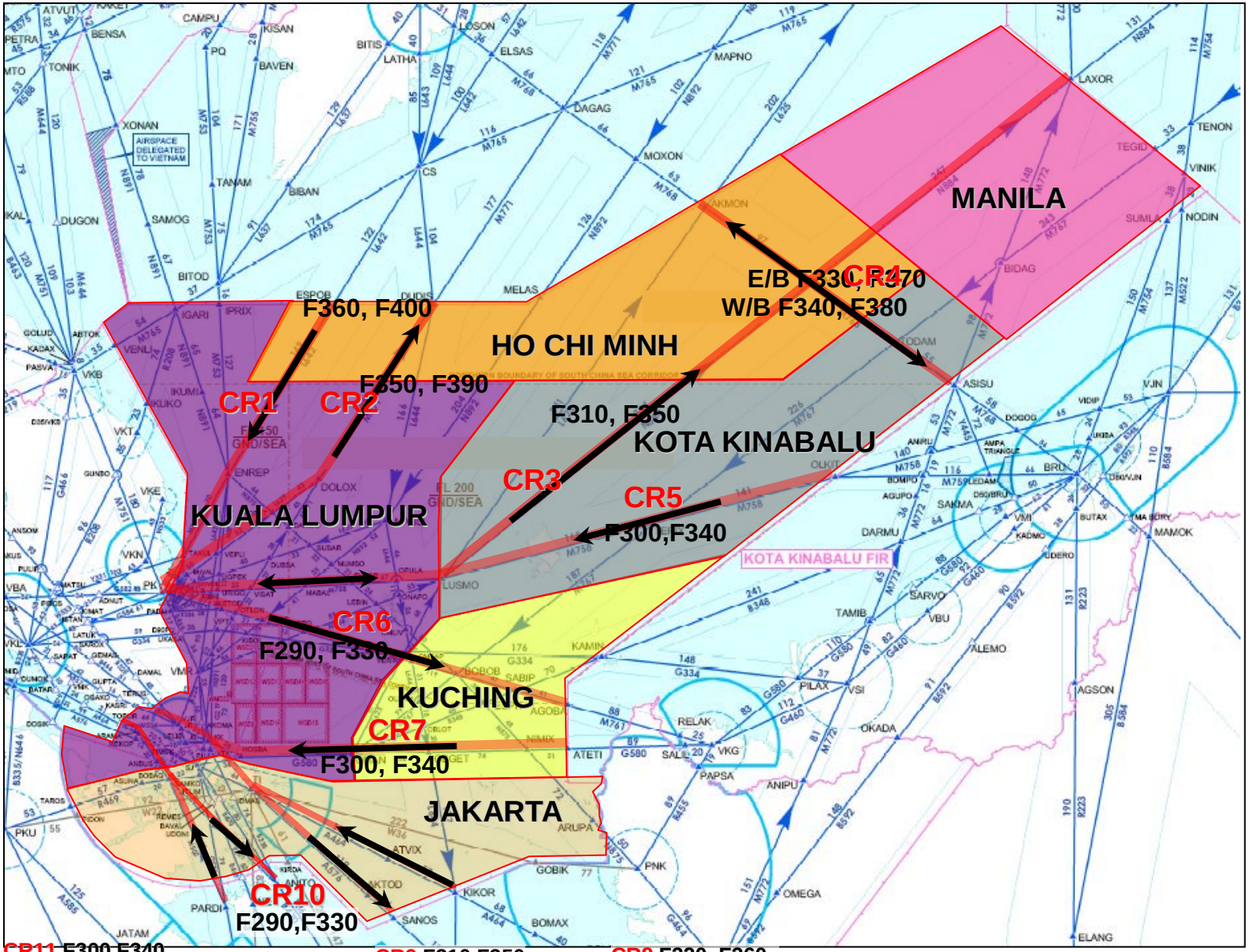
Contingency Route	ATS Route	Direction	Flight Level Assignment	ATC Unit	Communications
CR1	L642	W/B	F400/F360	WMKK/VVTS	123.7 , 5655
CR2	M771	E/B	F350/F390	WMKK/VVTS	123.7 , 5655
CR3	M758/N884	E/B	F310/F350		133.8 , 5655
CR4	M768	E/B , W/B	F330/F410 F300/F380		8942
CR5	M758	W/B	F300/F340		133.8 , 5655
CR6	M761	E/B	F290/F330		134.2
CR7	G580	W/B	F300/F340		134.2
CR8	M774	W/B	F320/F360*		134.4
CR9	M635	E/B	F310/F350*		134.4
CR10	B470	E/B	F290/F330*		134.4
CR11	G579	W/B	F300/F340*		134.4

CONTINGENCY ROUTES STRUCTURE IN SINGAPORE FIR



Singapore Contingency Route Structure

CONTINGENCY ROUTES STRUCTURE IN SINGAPORE FIR



Viet Nam Contingency Route Structure

Viet Nam ATM Contingency Routes

Affected States and FIRs:

No.	States	FIR	ATS units
1	Cambodia	Phnom Penh	Phnom Penh ACC
2	China	Kunming Guangzhou Sanya	Kunming ACC ACC Nanning ACC Sanya
3	Laos	Vientiane	Vientiane ACC
4	Malaysia	Kuala Lumpur	Kuala Lumpur ACC
5	Philippines	Manila	Manila ACC
6	Singapore	Singapore	Singapore ACC

Contingency route structure:

a) Ha Noi FIR:

ATS routes	Orientation	Flight levels
R474	Eastbound	270, 290, 330, 370
	Westbound	260, 300, 340, 380
A202	Eastbound	290, 330
	Westbound	300, 340
W1, W20	Southbound	320, 360
	Northbound	310, 350
W2	Southbound	140, 240
	Northbound	150, 250

b) Ho Chi Minh FIR:

ATS routes	Orientation	Flight levels
L642, N892, M771, L625		310, 320 390, 400
A1	Eastbound	290, 330
	Westbound	300, 340
B202, G474, R588, L628	Eastbound	290
	Westbound	280
M753	Northbound	270
	Southbound	260
N891	Northbound	300
	Southbound	330
M765	Eastbound	390
	Westbound	280
N500	Eastbound	330
	Westbound	300
L637	Northeast bound	250
	Southwest bound	240
R468, M768	Southeast bound	270

	Northwest bound	380
W1	Northbound	310, 350
	Southbound	320, 360
W2	Southbound	140, 240
	Northbound	150, 250

<u>Note</u>: Other ATS routes, FLs will be added subject to contingency process.

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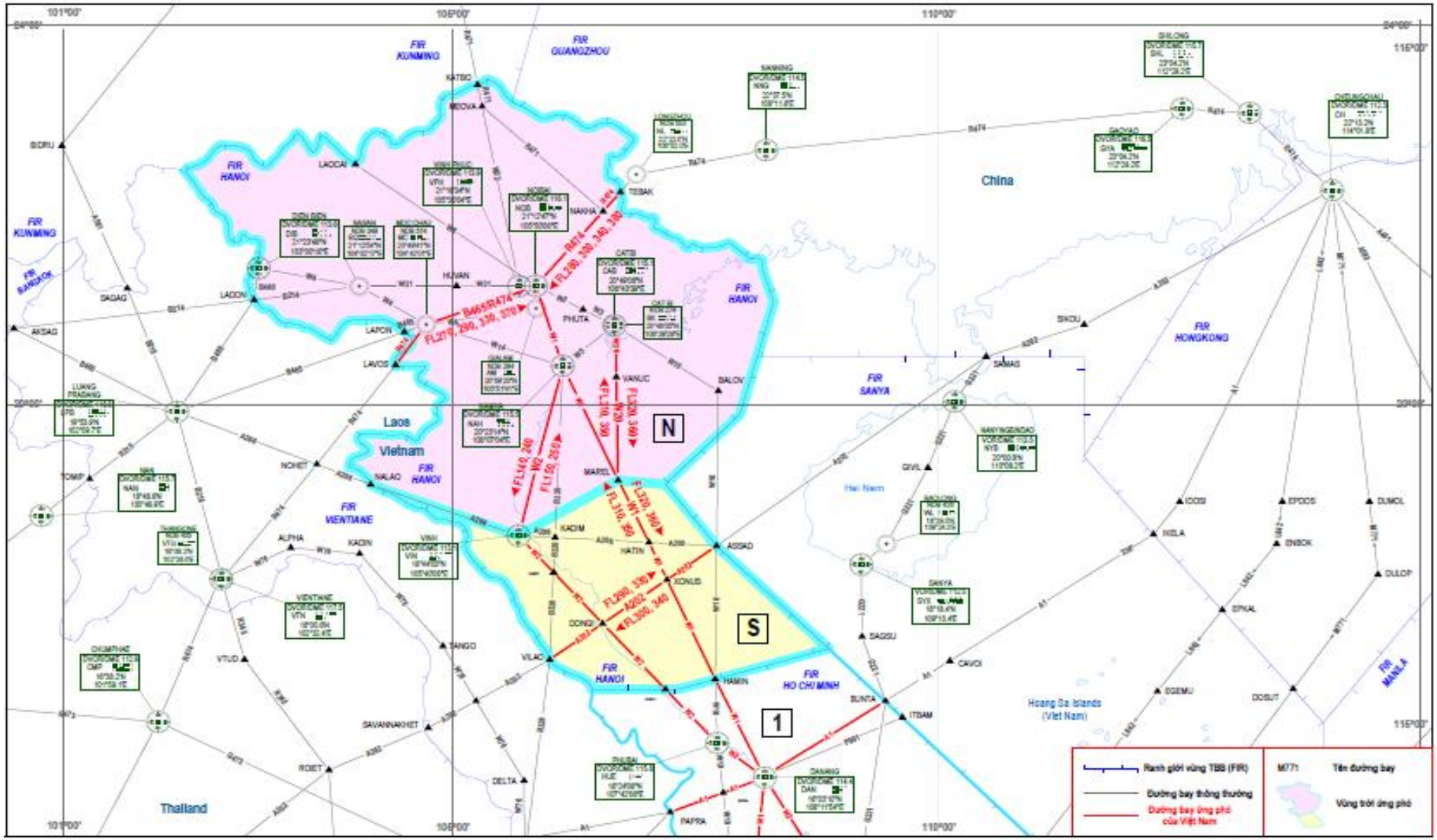
Appendix 1: ATM CONTINGENCY ROUTES AND SECTORS WITHIN HA NOI FIR



Appendix 2: ATM CONTINGENCY ROUTES AND SECTORS WITHIN HO CHI MINH FIR