



AIDC IMPLEMENTATION IN MALAYSIA

ASEAN ATM MASTER PLAN WORKSHOP

10-12 th SEPTEMBER 2018

MALAYSIA TEAM

NASURUDDIN BIN ZAINOL ABIDIN

DAYANG ZARINA BT ABANG ALLI



ATS Interfacility Data Communications (AIDC)

- Recognised by ICAO under its Global Air Navigation Plan (GANP) and ASBU as effective tool to reduce manual intervention and ground coordination error between adjacent Acc.
- It is capable of exchanging data between ATC units during notification, coordination and transfer of aircraft between FIR. It is an automated system that facilitate routine coordination by providing accurate, reliable and timely data exchange between ATSU units.



BENEFITS

- Reduction of controllers' workload.
- Enhancing safety in air traffic management.
- Elimination of human errors arising from normal voice communication.
- Elimination errors such as LHD by introducing the automated coordination process.



INTRODUCTION

SYSTEM

AIDC VERSION 3- LEORDANO ITALY

MEDIA

DEDICATED AIDC AFTN LINE – 64 KBPS

WMKK AIDC –TEST ENVIRONMENT -WMKKAIDS

WMKK AIDC MESSAGE ADDRESSE -WMKKAIDC

IMPLEMENTATION STAGE

TRIAL PHASE – TRIALS CONDUCTED AT INTERIM ACC

TRAINING

SERIES OF TRAINING WERE CONDUCTED FOR ATC PERSONEL

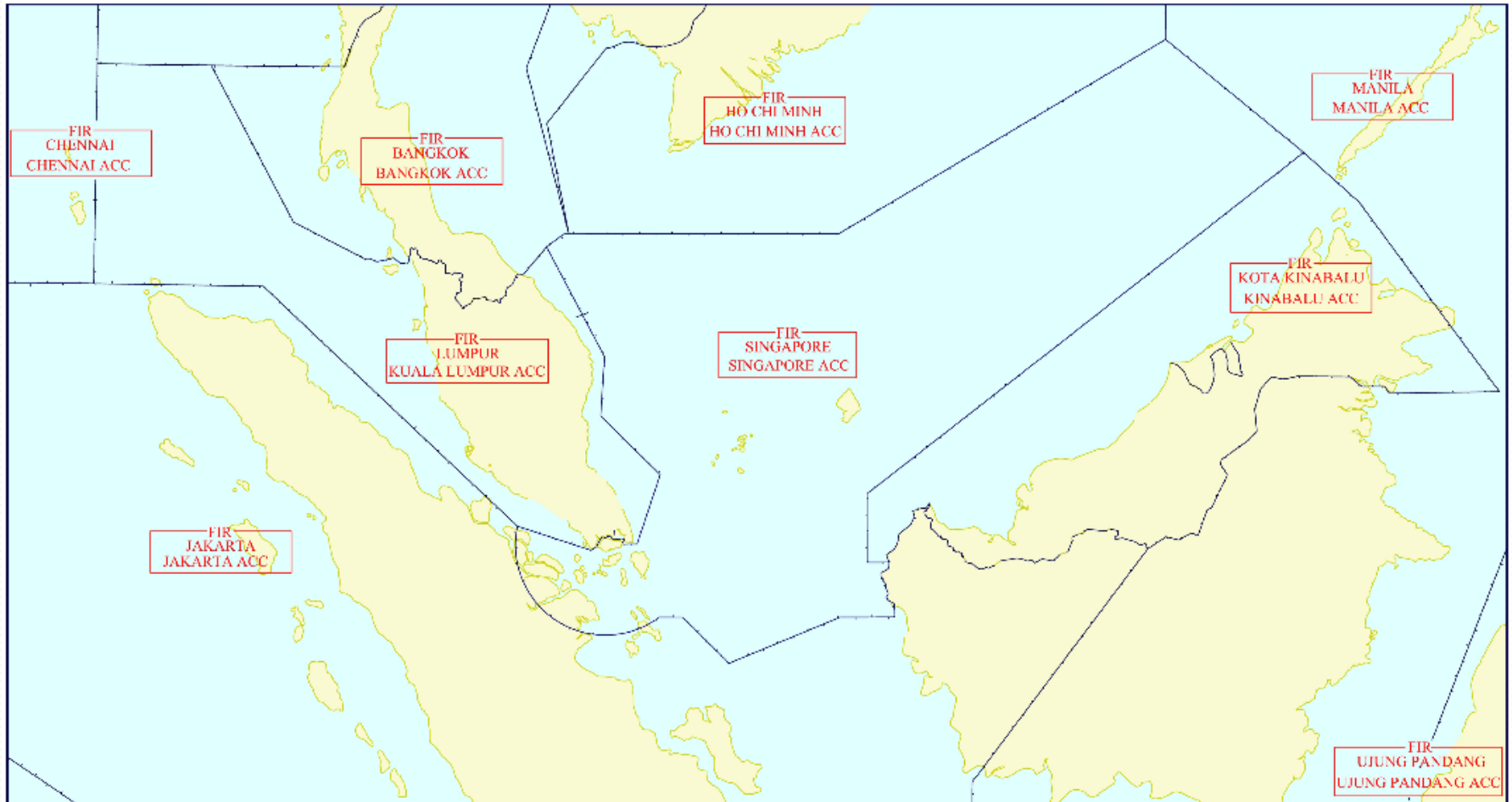
INCLUSIVE REFERESHER COURSES



KL FIR & KK FIR



ADJACENT ACC



AIRCRAFT MOVEMENTS SPREAD KL FIR

	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug		a/day	%
SINGAPORE										
ARAMA	216	230	266	233	225	253	220	1643	235	16
SUKRI	116	101	110	106	108	109	100	750	107	7
AROSO	202	213	233	241	224	200	213	1526	218	15
BIKTA	192	180	183	167	184	180	174	1260	180	12
VPK	658	672	686	626	673	679	693	4687	670	46
ENREP	39	61	49	54	38	42	56	339	48	3
	1423	1457	1527	1427	1452	1463	1456	10205	1458	54
BANGKOK										
VKB	292	258	295	262	260	267	245	1879	268	50
TAMOS	14	15	15	13	15	12	10	94	13	2
RIGTO	53	50	54	54	54	54	55	374	53	10
KARMI	77	91	87	75	99	85	99	613	88	16
DALAN	22	25	32	19	23	20	7	148	21	4
DUBAX	64	67	73	61	64	56	32	417	60	11
SAPAM	7	7	14	9	8	8	10	63	9	2
RUSET	7	8	8	6	6	9	12	56	8	1
TIDAR	12	22	20	21	15	17	15	122	17	3
	548	542	598	520	544	528	485	3766	539	30
CHENNAI(INDIA)										
IGREX	13	17	25	15	18	15	19	122	17	8
EMRAN	9	10	14	9	10	5	27	84	12	6
SAMAK	1	1	5	3	5	5	5	25	4	2
IGOGU	136	127	149	164	152	146	137	1011	144	67
NOPEK	37	45	40	38	34	35	37	266	38	18
	196	200	233	229	219	206	225	1508	215	8
INDONESIA										
ANSAX	36	41	42	38	35	26	37	255	36	8
PUGER	108	124	114	120	118	109	122	815	116	25
RUMID	156	161	175	159	161	165	163	1140	163	34
SALAX	153	153	165	159	155	174	152	1111	159	33
	453	479	496	476	469	474	474	3321	474	18
								SUM	2686	



AIDC IMPLEMENTATION PLAN

KUALA LUMPUR ACC

STATE/ATC UNIT	TECHNICAL TEST COMMENCEMENT	IMPLEMENTATION DATE (OPERATIONAL TRIAL)	REMARK
INDIA/ CHENNAI ACC	31 st July 2013	26 th September 2016	SOP was signed.
SINGAPORE/ SPORE ACC	13 th April 2015	4 TH September 2018	Phase 1. Phase 2 TBC.
THAILAND/ BANGKOK ACC	3 rd November 2016	March 2019 onwards	Testing with live traffic in interim environment.
VIETNAM/ HO CHI MINH ACC	TBC	TBC	
INDONESIA/ JAKARTA ACC	TBC	4Q 2019	



AIDC IMPLEMENTATION PLAN

KOTA KINABALU ACC AND KUCHING ACC

STATE/ATC UNIT	TECHNICAL TEST COMMENCEMENT	IMPLEMENTATION DATE	REMARK
INDONESIA/ MAKASSAR ACC	APRIL 2015	1Q2019	DELAY DUE TO SYSTEM UPGRADING
SINGAPORE/ SINGAPORE ACC	DECEMBER 2014	4Q2020	DELAY DUE TO SYSTEM UPGRADING
PHILIPPINE/ MANILA ACC	TBC	4Q2020	DELAY DUE TO SYSTEM UPGRADING



AIDC MESSAGES KUALA LUMPUR ACC

STATE/ ATC UNIT	AIDC MESSAGES
INDIA/ CHENNAI ACC	ABI, EST, ACP, LAM, LRM, MAC, CDN, TOC, AOC
SINGAPORE/ SPORE ACC	PHASE 1: EST, LAM, ACP, LRM PHASE 2: TOC, AOC
THAILAND/ BANGKOK ACC	ABI, EST, LAM, ACP, LRM, TOC, AOC
VIETNAM/ HO CHI MINH ACC	TBC
INDONESIA/ JAKARTA ACC	TBC



PRESENTATION OF AIDC MESSAGES AT CONTROLLER WORKING POSITION (CWP)

SECTOR LIST : 36									
SORT : CALLSIGN									
GG	CALLSIGN	E/FR/TY	ADEP/S	IN	FIX	OUT	FIX	OUT	IN
* SAA286	N IS	FAOR	POVUS	0222	RUSET	0249			
A2664	A343/H	VHHH		390		390			
* SIA308	Y IS	WSSS	XN571	0144	IGOGU	0216			
A0114	A388/J	EGLL		340		340			
* SLK424	Y IS	WSSS	XP574	2311	NOPEK	2341			
A2242	B738/M	VOBL		360		360			
* SQC7348	Y IS	WSSS	XN571	0356	IGOGU	0428	ABI		
A2262	B744/H	VOBL		340		340			
* SYA840	N IS	OEJN	NOPEK	0117	XP574	0150			
A5207	B789/H	WMKK		390		390			
* TEST400	N IS	VOMM	IGOGU	0454	XN571	0535		EST	
A2222	A320/M	WSSS		350		350			
* TEST777	Y IS	OMDB	IGOGU	0902	XN571	0934	EST		
	B77W/H	WSSS		350		350			
* TEST999	N IS	VOMM	IGOGU	0430				AST	
A1234	A320/M	WSSS		350		350			
* UAE345	Y IS	WMKK	XN571	0314	IGOGU	0347	ABI		
A2107	B77W/H	OMDB		340		340			



AIDC IMPLEMENTATION BETWEEN

CHENNAI ACC

&

LUMPUR ACC



EST & CDN ANALYSIS

- A total of 12,278 EST & CDN were exchanged between Chennai and Kuala Lumpur between the month of Jan to July 2018 (period of 1 week for each month)

DATE	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY
EST	1404	1413	1377	1382	1254	1386	1329
CDN	401	379	377	331	314	497	435
CDN+EST	1804	1792	1754	1713	1568	1883	1764
ACP	1654	1658	1636	1636	1427	1715	1562
ACP SUCCESS RATE	92%	93%	93%	96%	91%	91%	88%

- Note: ACP success rate reduced by 3% in JULY due to extended media failure.



FINDINGS

- a. **System:**
 - i. Routing errors of ABI. Issue is solved by adopting '*Truncation T*' in ABI routing.
 - ii. OEM to decode and publish the exact violation in LRM message.

5.1.2 It is recommended that when specific error code is available, receiving ATSU should use the specific error code instead of general error codes, such as Error Code 57.



FINDINGS

Operator:

- CDN (Coordination) ACP(Acceptance) Late Response by Chennai.
- Simultaneous CDN by Lumpur/Chennai.

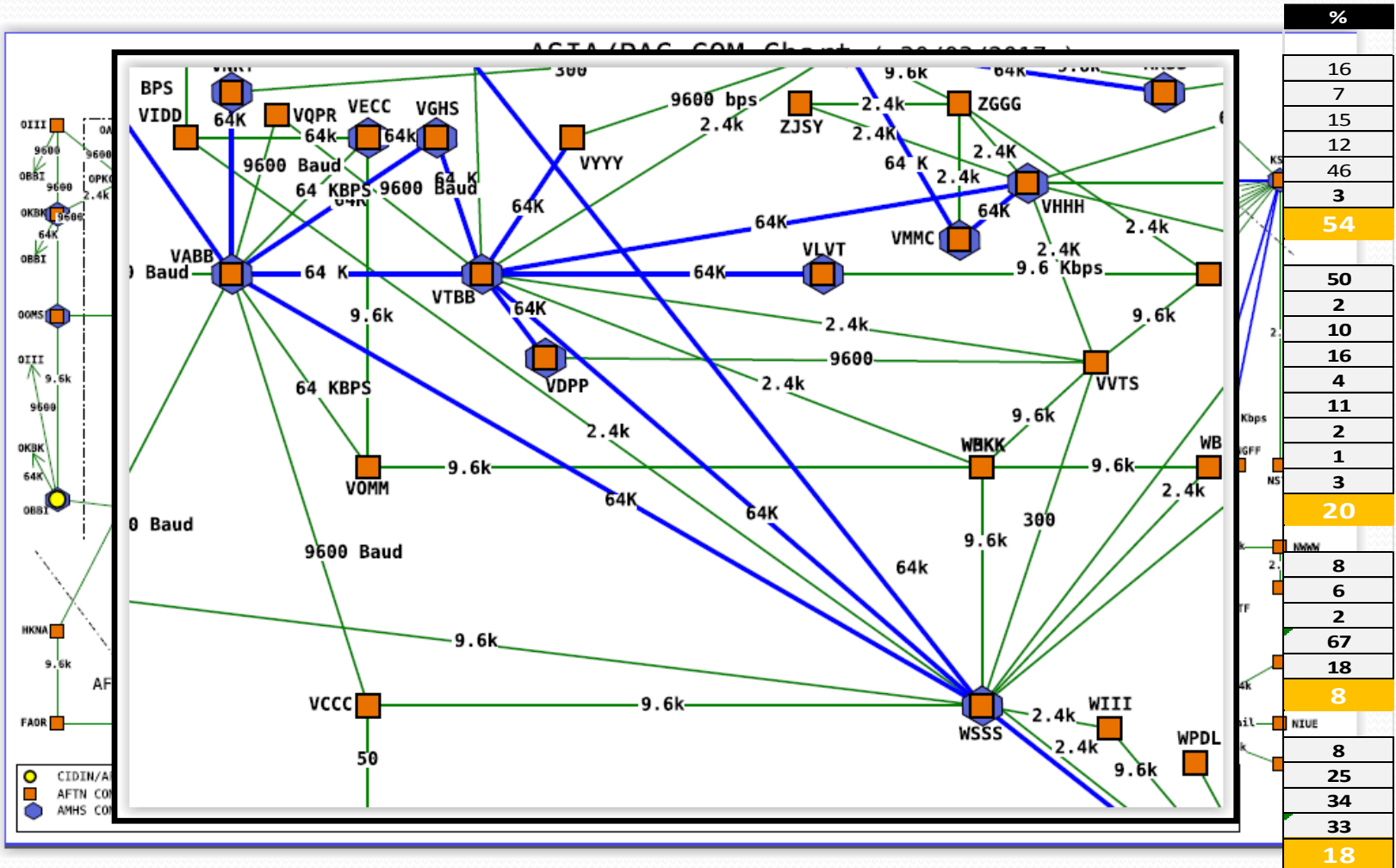


FINDINGS

AFTN and MEDIA

- AFTN (Redundant)
- MEDIA

MEDIA CONSTRAINTS





AIDC TRIALS BETWEEN

SINGAPORE ACC AND LUMPUR ACC

FINDINGS BEFORE THE OPS TRIAL

- An upstream expected AIDC EST was not achieved due to FDP Order used to trigger EST received over AIDC from Singapore. Some customization for the FDP is necessary in order to manage the automation process if AIDC involves upstream units.
- Operational trial will only covers flights from Singapore FIR ending in any airports within Kuala Lumpur FIR and vice versa until the issue is resolved.



EST ANALYSIS

- A total of 184 EST were exchanged between Singapore and Kuala Lumpur on the 4th Sept 2018. ACPs responded with a success rate 91.75%:

	EST	ACP		SHORTFALL	SUCCESS
		WSSS	WMKK		
WMKK	68	65	–	3	91.75%
WSSS	114	–	102	12	
	182	167		15	



FINDINGS

- System is unable to recognise the flight route due to no COP in FPL because operator includes specific SID in AFTN FPL .
- Operators proficiency in updating FPL.
- SFPL is not generated due to system is unable to compute EST due to EET overflow.

FUTURE ACTIVITY WITH SINGAPORE

- Phase 2 trial:
- Target date: 1Q2019
- To include: other COPs within KL FIR & KK FIR
- Messages TOC & AOC : to define the response time in the SOP so that it be rightly apply and performance can be measured.



AIDC TRIALS BANGKOK ACC AND LUMPUR ACC



ABI ANALYSIS

Based on live testing (Test Environment) on the 31/7/2018:

A total of 55 ABIs were exchange between Bangkok and Kuala Lumpur:

- 4 ABI's did not receive either LAM/LRM responses from VTBB due to **no corresponding SFPL** in VTBB FDP.
 - 20 LRMs for Bangkok ABIs were experienced **due to routings for flights to Singapore.**
- ❑ ABI success rate was only 44 %.**

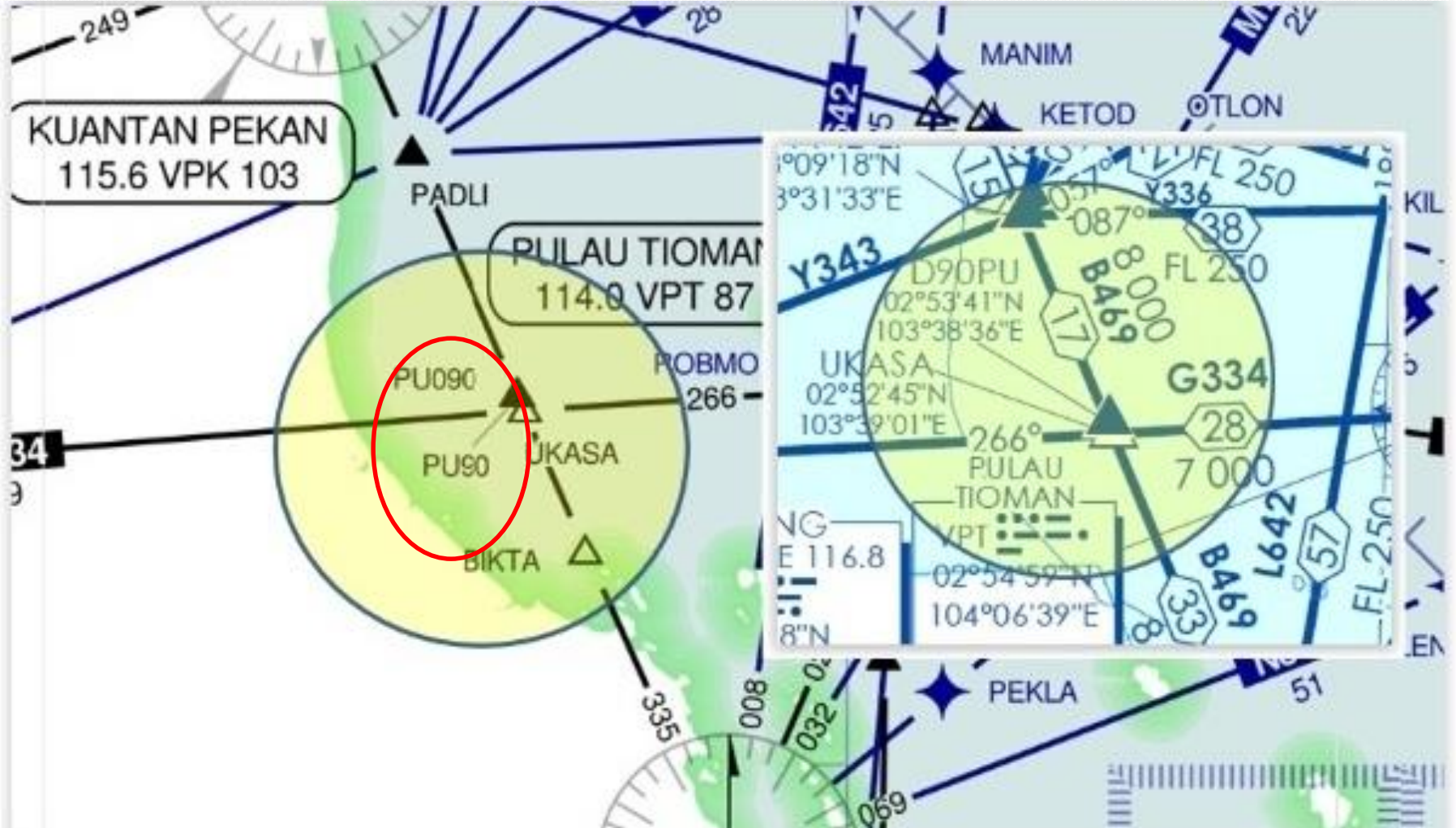


FINDINGS

- ABI only achieve 44 % success rate due:
 - i. FDP VTBB requires **corresponding FPL** in order to receive ABI successfully from KL.
 - ii. **Inconsistent routing** by different operators for overflights to Singapore and beyond (PU90 or D90PU and some STAR waypoints NYLON/PIBAP are not configured in KL FDP as a simple conventional junction to ARRIVALS Transitions were set up),



DIFFERENT NAME BUT SAME POINT



DIFFERENT NAME BUT SAME POINT

1ST JULY 2018

90PU = 54

D90PU = 15

90PU				54	D90PU				15
File name	Title	Page	Search Instance						
1 AT_SMSG_01072018.pdf		38	M751 VPK B469 PU90 DCT PIBAP DCT -WSS0157 WIDD -PBN/A1B1C1D1L1O1S2T1 DOF/	1	5	M751 VPK B469 D90PU DCT PIBAP DCT -WSS0150 WIDD -PBN/A1B1C1D1L1O1S2 DOF/			
2 AT_SMSG_01072018.pdf		54	B469 PADLI DCT PU90 DCT PIBAP DCT -WSS0234 WIDD -PBN/A1B1C1D1L1O1S1S2 NAV/	2	21	M751 VPK B469 D90PU -WSS0954 WMKJ -PBN/A1B1D1L1O1S2 COM/SAT PHONE 20442773			
3 AT_SMSG_01072018.pdf		64	M751 VPK B469 PU90 DCT PIBAP -WSS0202 WMKK -PBN/A1B1C1D1L1O1S2 DOF/180701	3	216	M751 VPK B469 D90PU DCT PIBAP DCT -WSS0151 WIDD -PBN/A1B1C1D1L1O1S2 DOF/			
4 AT_SMSG_01072018.pdf		71	M751 VPK B469 PU90/N0400F210 DCT PIBAP DCT -WSS0349 WMKK -PBN/B2D2O2	4	219	M751 VPK B469 D90PU DCT PIBAP DCT -WSS0149 WIDD -PBN/A1B1C1D1L1O1S2 DOF/			
5 AT_SMSG_01072018.pdf		75	M751 VPK B469 PU90 DCT PIBAP DCT PASPU -WSS0420 WMKK WMKP -PBN/	5	471	M751 VPK B469 D90PU -WSS1212 WMKK -PBN/A1B1C1D1L1O1S2 NAV/RNVD1E2A1 RNP2 SUR/			
6 AT_SMSG_01072018.pdf		82	B469 PADLI DCT PU90 DCT PIBAP -WSS0207 WMKK WMKJ -PBN/A1B1C1D1L1O1S1 DOF/	6	648	M751 VPK B469 D90PU -WSS1039 WMKJ -PBN/A1B1C1D1L1O1S2 NAV/SBAS DAT/1FANSP2PDC			
7 AT_SMSG_01072018.pdf		84	B469 PADLI DCT PU90 DCT PIBAP -WSS0207 WMKK WMKJ 2018/07/01 01:	7	688	M751 VPK B469 D90PU DCT PIBAP DCT -WSS0149 WIDD -PBN/A1B1C1D1L1O1S2 DOF/			
8 AT_SMSG_01072018.pdf		108	M751 VPK B469 PU90 PIBAP PASPU -WSS0113 WMKJ -PBN/A1B2C2D2L1O2S2 DOF/180701	8	690	M751 VPK B469 D90PU -16/WSS1213 WMKK -18/PBN/A1B1C1D1L1O1S2 NAV/RNVD1E2A1 RNP2			
9 AT_SMSG_01072018.pdf		112	M751 VPK B469 PU90 PIBAP PASPU -WSS0113 WMKJ -PBN/A1B2C2D2L1O2S2 DOF/180701	9	692	M751 VPK B469 D90PU DCT PIBAP DCT -WSS0149 WIDD -PBN/A1B1C1D1L1O1S2 DOF/			
10 AT_SMSG_01072018.pdf		143	PADLI/N0404F190 B469 PU90 DCT PIBAP DCT PASPU DCT NYLON DCT POSUB DCT -	10	694	M751 VPK B469 D90PU -WSS1127 WMKK -PBN/A1B1C1D1L1O1S1S2 NAV/RNVD1E2A1 DAT/1FANSP			
11 AT_SMSG_01072018.pdf		146	PADLI/N0404F190 B469 PU90 DCT PIBAP DCT PASPU DCT NYLON DCT POSUB DCT -	11	698	M751 VPK B469 D90PU -WSS1116 WSAP -PBN/A1B1C1D1L1O1S1S2 DAT/1FANSP SUR/RSP180			
12 AT_SMSG_01072018.pdf		151	M751 VPK B469 PU90 DCT PIBAP MABAL2A -WSS0351 WMKK WMKP -PBN/C3	12	710	M751 VPK B469 D90PU -WSS0536 WMKK -PBN/A1B1C1D1O2S2 NAV/RNP2 CONTINENTAL COM/			
13 AT_SMSG_01072018.pdf		198	B469 PADLI DCT PU90 DCT PIBAP -WSS0207 WMKJ WMKK -PBN/A1B1C1D1L1O1S2 DOF/	13	752	M751 VPK B469 D90PU -18/PBN/A1B1C1D1L1O1S2 NAV/SBAS DAT/1FANSP2PDC DOF/180701			
14 AT_SMSG_01072018.pdf		201	B469 PADLI DCT PU90 DCT PIBAP -WSS0207 WMKJ WMKK -PBN/A1B1C1D1L1O1S2 DOF/	14	935	M751 VPK B469 D90PU DCT PIBAP DCT -WSS0150 WIDD -PBN/A1B1C1D1L1O1S2 DOF/			
15 AT_SMSG_01072018.pdf		203	B469 PADLI DCT PU90 DCT PIBAP -WSS0207 WMKJ WMKK -PBN/A1B1C1D1L1O1S1 DOF/	15	936	M751 VPK B469 D90PU DCT PIBAP DCT -WSS0150 WIDD -PBN/A1B1C1D1L1O1S2 DOF/			
16 AT_SMSG_01072018.pdf		203	B469 PADLI DCT PU90 DCT PIBAP -WSS0207 WMKJ WMKK -PBN/A1B1C1D1L1O1S1 DOF/						
46 AT_SMSG_01072018.pdf		810	B469 PADLI DCT PU90 DCT PIBAP -WSS0207 WMKK WMKJ -PBN/A1B1C1D1L1O1S2 DOF/						
47 AT_SMSG_01072018.pdf		812	B469 PADLI DCT PU90 DCT PIBAP -WSS0137 WMKK WMKJ -PBN/A1B1C1D1L1O1S2 DOF/						
48 AT_SMSG_01072018.pdf		813	B469 PADLI DCT PU90 DCT PIBAP -WSS0137 WMKK WMKJ -PBN/A1B1C1D1L1O1S2 DOF/						
49 AT_SMSG_01072018.pdf		830	B469 PADLI DCT PU90 2018/07/01 20:15:52 KEA 78 Page 830						
50 AT_SMSG_01072018.pdf		834	B469 PADLI DCT PU90 DCT PIBAP DCT -WSS0156 WIDD -PBN/A1B1C1D1L1O1S1S2 NAV/						
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53 AT_SMSG_01072018.pdf		921	PADLI/N0407F190 B469 PU90 DCT PIBAP DCT PASPU DCT NYLON DCT POSUB DCT -						
54 AT_SMSG_01072018.pdf		921	PADLI/N0407F190 B469 PU90 DCT PIBAP DCT PASPU DCT NYLON DCT POSUB DCT -						



EST ANALYSIS

- A total of 27 EST were exchanged between Bangkok and Kuala Lumpur. 17 ACPs responded with a success rate 63%:

	EST	ACP		SHORTFALL	SUCCESS
		VTBB	WMKK		
WMKK	7	6	–	9	63%
VTBB	20	–	11	1	
	27	17		10	

AGREED PROGRAM WITH BANGKOK TEAM

- Every Tuesday testing commencing from 18th September 2018 between time 0230-0430utc
- Activities during test:
 - i. Established flight scenarios to be tested.
 - ii. Verify ALL contents of message
 - iii. Parameter fine tuning
 - iv. Complex scenarios

Live AIDC testing with AEROTHAI at KL ACC Interim (7th August 2018)





THANK YOU
FOR YOUR ATTENTION