



International Civil Aviation Organization

**The Fourth Meeting of the Air Traffic Flow Management Task Force
(ATFM/TF/4) and BOBCAT Workshop**

Bangkok, Thailand, 7 to 11 November 2005

Agenda Item 3: Review Outcomes of BOBCAT Paper Trials

THAILAND REPORT ON PAPER TRIALS

(Presented by Thailand)

SUMMARY

The purpose of this working paper is to advise the meeting of outcomes arising from the BOBCAT Paper Trials which were conducted at the AEROTHAI premises in Bangkok on 5 – 7 October 2005. A summary of discussions is attached to the working paper.

1. INTRODUCTION

1.1. At a Special Coordination Meeting of the ATFM/TF Project Management Team (SCM ATFM/TF PMT), held at the Singapore Aviation Academy on 10 – 11 August 2005, the Task Force agreed that the capabilities of BOBCAT should be demonstrated via a series of desktop or paper trial simulations, prior to implementing an operational trial.

1.2. A meeting to demonstrate the BOBCAT system by way of Paper Trials was arranged at the AEROTHAI premises in Bangkok on 5 – 7 October 2005. A Summary of Discussions from this meeting is at **Attachment 1** to this working paper.

2. DISCUSSION

2.1 During the course of the Paper Trials there were several related BOBCAT matters identified, which are included in the summary of discussions under the heading of Observations. As it is apparent that decisions on these matters, while relevant to the Paper Trial, affect the overall structure of BOBCAT, it is appropriate that they be further discussed as specific items. Therefore separate working papers have been submitted to the meeting that consider these matters in detail.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) review and comment on the outcomes of the BOBCAT Paper Trial described in the **Attachment** to this working paper; and
- b) finalize decisions on outstanding matters which are mentioned in the Observations of the Summary of Discussions and detailed in ATFM/TF/4 Working Papers 3, 4 and 5.

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BoB ATFM T/F

Demonstration of BOBCAT capabilities by Paper Trials

(AEROTHAI premises, Bangkok, Thailand, 5 – 7 October 2005)

SUMMARY OF DISCUSSIONS

1. Background to Meeting:

1.1. At a Special Coordination Meeting of the ATFM/TF Project Management Team (SCM ATFM/TF PMT), held at the Singapore Aviation Academy on 10 – 11 August 2005, it was agreed that the capabilities of BOBCAT should be demonstrated via a series of desktop or paper trial simulations prior to the commencement of Operational Trials scheduled to take place on 22 December 2005.

1.2. A meeting to demonstrate the BOBCAT system by way of Paper Trials was arranged and took place at the AEROTHAI premises in Bangkok on 5 – 7 October 2005.

2. Participants:

2.1 The Paper Trial was attended by 24 participants from Malaysia, Singapore, Thailand and IATA. A complete list of participants is at **Appendix 1** to this Report.

3. Opening Remarks

3.1 Mr. Nopadol Sang-ngurn, Executive Expert with AEROTHAI welcomed all participants to Bangkok and in particular to AEROTHAI. He advised the meeting that AEROTHAI welcomed the challenge given to them in taking a major role to solve the growing issues faced by States of the Bay of Bengal area and westwards as well as the international airline community.

3.2 He assured the meeting that Thailand would play their part in the development of a robust and efficient BOBCAT system to cater for the ever increasing air traffic which is expected to fly across this portion of Asian airspace. He noted that this particular phase of the project looked at westbound aircraft transiting through the Kabul FIR during the busy night-time period and required the attention of all States concerned as well as the airlines to work in a cooperative manner. He wished the meeting every success in the paper trial demonstrations which would be a key factor in moving towards an Operational Trial of the system.

4. Discussion:

4.1 At the beginning of the Paper Trial meeting, Thailand advised that unfortunately, some of the important data requested to input to the computer had arrived very late which had in turn made it difficult to give a full assessment of the system. In addition, due to the time taken to input this data in the correct format and the necessity to add additional information to give it some semblance of uniformity with data which had been received by other concerned States, human errors were made during this process.

Day 1 proceedings

4.2 The initial paper trial on Day 1 was less than satisfactory due to the following:

- a) Some essential data was not received in sufficient time for processing; the first paper trial used only a single slot allocation for each aircraft coupled with a Maximum Acceptable Delay (MAD) of 90 minutes;
- b) To make up data across the whole route segment from departure point to the exit from Kabul FIR, manual calculations were made which, in some cases were incorrectly entered;
- c) The computer system had some “bugs” which were later eliminated;

4.3 At the conclusion of Day 1, further data was added to the programme which took into consideration one slot selection for each aircraft plus two alternative choices using a combination of different flight levels of routes.

Day 2 proceedings

4.4 Several paper trials were conducted on Day 2 using a variety of MAD factors ranging from 10 minutes to ninety minutes throughout each trial. It became obvious during the morning session that incorrect data earlier inputted was still causing unrealistic results.

4.5 Assistance was given by some of the airlines present. They provided realistic data to the system by going into their companies flight planning system and retrieving proven data. This took some time however, by the afternoon session, the programme performed more efficiently notwithstanding that another “bug” was found. At the conclusion of day two, the whole BOBCAT system was thoroughly checked, all “bugs” were eliminated and further paper trials in the evening conducted by AEROTHAI staff showed that BOBCAT was an effective tool to be trialled for Day 3 exercises.

Day 3 proceedings

4.6 Several paper trials were successfully conducted using various scenarios of routes/flight levels and MAD factor. These included Paper Trials using intermediate gateways (where several routes converge) as well as other trials where intermediate gateways were not included. Appendix B contains a sample of records conducted at these paper trials on Day 3.

4.7 The meeting noted that, although the overall delay to aircraft was lower with no intermediate gateways, there was a bunching of aircraft at the same levels with less than the required separation at the two intermediate gateways of Lucknow (LLK) and Khajuraho (KKJ). As India would need to take action to ensure that the correct separation standard was applied this would likely have a delay effect on the entry time into the Kabul FIR for the aircraft concerned which, as a result, could consequently flow onto following aircraft.

5. Observations from the Paper Trial

5.1 During discussions following the Paper Trials, the following observations were noted:

Wheels Up Time (WUT) Calculations

- a) There appears to be two different thoughts regarding who will make the decision on WUT. It could be assumed that WUT may differ from one airport to the next, depending on the position of aircraft gates in relation to the runway in use

Should the operators be allowed to calculate their own WUT or, due to the variables mentioned above, perhaps ATC is in a better position to do these calculations more accurately?

Whereas an airline whose home base is the airport of departure would prefer to estimate WUT based on their local knowledge, there may be other airlines that are not as environmentally familiar with the departure airport and would prefer to rely on the air traffic service provider estimate from terminal gate to entering the runway to departure. This matter should be discussed and finalized at ATFM/TF/4

WUT Buffer

- b) There was considerable discussion on this subject. Should the buffer be 2, 5 or 10 minutes? What will happen if the slot time is missed? How much delay would ATC allow?

In addition to these questions, an alternative was proposed regarding the method of calculating the WUT buffer. At present the concept of applying a 5 minute buffer to cater for short delays, be added onto the required spacing on departure has been discussed at several ATFM/TF meetings. In order to allow closer spacing between aircraft entering Kabul FIR (10 minutes no closing speed), it was suggested that this buffer could be included in the push back/taxi time calculations.

The meeting was reminded that the buffer is there to allow some flexibility for the aircraft, as well as ATC so that the WUT can be achieved without having to request another Slot time. Due to many variables during this early stage of the flight such as technical problems late passenger loadings etc, it would be reasonable to predict that many aircraft would miss their WUT if this buffer was not there. It was suggested that further discussions on these questions should be held and finalized at ATFM/TF/4.

MAD Factor

- d) Airlines appeared uncertain in how to manage their MAD factor calculations. Thailand has given an undertaking at ATFM/TF/4 to explain in more detail the management of MAD factor to assist airlines when making their slot allocation requests.

Further Paper Trials

- e) It was the view of the meeting that further paper trials should be demonstrated prior to Task Force 4. In this regard, airlines present suggested that all airlines concerned should be asked to input to this data collection by the use of a excel template which would be developed by Thailand and relayed to IATA, to send to airlines concerned. Airlines would then submit there slot allocation request as well as at least two alternative options on the template based on real flight plan data on their flights of 19 October 2005. The results of these additional trials would be sent to IATA for distribution as well as produced for discussion at ATFM/TF/4.

Westbound aircraft landing in India/Pakistan or tracking via northern India to Iran

- f) Considerable discussions centred on aircraft proceeding westwards and landing at airports in Northern India or Pakistan. Presently they are included within the BOBCAT system as they use the same BOBCAT routes for part of their flight either over the Bay of Bengal or over the Indian sub-continent. This is also the case regarding aircraft proceeding through Northern India and Pakistan to points westwards through Tehran FIR.

The question was asked as to why should these aircraft be included in BOBCAT rather than being tactically managed by India. There was no consensus on this issue therefore the meeting agreed to revisit this question at ATFM/TF/4.

Dispatcher HMI interface with BOBCAT

- g) Dispatchers present at the Paper Trials were keen to see their interface display with the ATFMU as soon as possible. They were advised that a prototype display with the ability for dispatchers to input data is expected to be available at the proposed Workshop which will be held during the course of ATFM/TF/4.

Intermediate Gateways in Indian Airspace

- h) There was some discussion on whether there was a need for intermediate gateways at Lucknow (LLK) and Khajuraho (KKJ). The meeting was advised that the reason to include these gateways was at the request of Airports Authority (AAI) of India due to the bunching of aircraft from different departure locations and using converging routes which either joined at these points or came together just prior to these positions at the same flight level. Any tactical measures taken by AAI to overcome this issue, coupled with less flight levels available through Kabul FIR (CVSM levels only), could jeopardize a slot time into the Kabul FIR to one of the affected aircraft. The meeting agreed to revisit this question at ATFM/TF/4.

6. **Summary**

6.1 It was regrettable that there were some difficulties encountered during the first day and a half of the Paper Trials due to issues described in previous paras. Nevertheless, the Trials finished on a very positive note with all concerned willing to contribute to further testing of BOBCAT during the lead-up to the ATFM/TF/4 meeting. There was general consensus that there would be considerable merit in attending the Dispatchers and Air Traffic Service providers Workshop which will be held with the ATFM/TF/4 meeting. Thailand took an undertaking to give a thorough briefing on the role of BOBCAT to the workshop, including a descriptive and manageable interface to the system for dispatchers to personally interact with during the workshop.

BOBCAT ATFM Paper Trial LIST OF PARTICIPANTS

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
MALAYSIA		
Mr. Lim Kim Seang	Director of KL ATCC DCA Malaysia ATC Centre Complex 47200 Subang Malaysia	Tel : +603 7846 5233 Fax : + 603 7845 6590 E-mail : limks@atsdca@gov.my
Mr. Tay Swee Boon	Deputy Director of KL ATCC DCA Malaysia ATC Centre Complex 47200 Subang Malaysia	Tel : +603 7847 3573 Fax : + 603 7847 3572 E-mail : taysboon@tm.net.my
SINGAPORE		
Mr. Kuah Kong Beng	Chief Air Traffic Control Officer Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel : +65-6541 2405 Fax : +65-6545 6516 E-mail: kuah_kong_beng@caas.gov.sg
Mr. Heng Cher Sian Edmund	Project Officer (Airspace) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel : +65-6541 2457 Fax : +65-6545 6516 E-mail: edmund_heng@caas.gov.sg
THAILAND		
Mr. Kamol Pulperm	Senior Air Transport Technical Officer Department of Civil Aviation Thailand 71 Ngarmduplee Rama 4 Rd., Bangkok 10120 Thailand	Tel : +66 2 286 8159 Fax : +66 2 286 8159 E-mail : kamol_pulperm@yahoo.com
Flying Officer Nakorn Yoonpand	Air Traffic Control Expert Department of Civil Aviation Thailand 71 Ngarmduplee Rama 4 Rd., Bangkok 10120 Thailand	Tel : +66 09 824 6955
Mr. Nopadol Sang-Ngurn	Executive Expert AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9054 Fax : +66 2 285 9488 E-mail : nopadol@aerorhai.co.th
Mr. Tinnagorn Choowang	Air Traffic Control Manager En-route Air Traffic Management Department AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9975 Mobile :+66 09 816 6486 Fax : +66 2 285 9077 E-mail : tinnagorn.ch@aerorhai.co.th

APPENDIX 1

Mr. Polawat Chootai	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 06 526 6865 Fax : +66 2 287 8155 E-mail : polawat.ch@aerothai.co.th polawatch@gmail.com
Ms. Pongchawee Jinruang	En-route Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9063 Mobile : +66 01 846 9054 Fax : +66 2 285 9490 E-mail : pongchawee.ji@aerothai.co.th
Mr. Jirasak Netiprawat	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9469 Fax : +66 2 285 9490 E-mail : jirasak.ne@aerothai.co.th
Mrs. Porntip Choowong	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9339 + 66 2 285 9111 Fax : +66 2 285 9077 E-mail : porntip.kr@aerothai.co.th
Mr. Amornthep Sriwong	Air Traffic Control Manager AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel : +66 2 285 9111 Fax : +66 2 285 9077 E-mail : amornthep.sr@aerothai.co.th
Mr. Piyawut Tantimekabut	Engineer Air Traffic Services Engineering Research & Development Department Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel : +66-2-287 8616 Fax : +66-2-287 8620 E-mail : piyawut@aerothai.co.th
Mr. John Richardson	ATM Consultant Aeronautical Radio of Thailand Ltd. 102 Ngarmduplee, Tungmahamek Sathorn, Bangkok 10120 Thailand	Tel : +662 287 8488 Fax : +662 285 9488 Mobile: +66-01-8242467 E-mail : jrcho282@gmail.com
IATA		
Mr. Soon Boon Hai	Assistant Director, Safety Operations & Infrastructure Asia/Pacific International Air Transport Association 77 Robinson Road #05-00, SIA Building Singapore 068896	Tel : +65-6239 7267 Fax : +65-6536 6267 E-mail : soonbh@iata.org
Mr. Matt Bouttell	Principal Navigation Analyst Qantas Airways Ltd. Qcc/2 203 Coward St., Mascot NSW, Australia 2020	Tel : +612 9691 1034 Fax : +612 9691 1118 E-mail: mbouttel@qantas.com.au

APPENDIX 1

Mr. Michael Dietz	General Manager ATS & International Organisations Lufthansa German Airlines Dept. FRA OY-A Lufthansa Base D-60546 Frankfurt / Main Germany	Tel : +49 69 696 2217 Fax : +49 69 696 7070 E-mail : Michael.dietz@dlh.de
Mr. Danny Cheung Po Keung	Assistant Manager Flight Despatch Cathay Pacific Airways Ltd. Flight Operations Department G/F., South Tower, Cathay Pacific City 8 Scenic Road, Hong Kong International Airport Lantau Island, Hong Kong	Tel : +852 2747 2520 Fax : +852 2141 2521 E-mail : danny_cheung@cathaypacific.com
Mr. Julian K. Y. Fung	Assistant Manager Route Development Cathay Pacific Airways Ltd. International Affairs Department 9/F., Central Tower, Cathay Pacific City 8 Scenic Road, Hong Kong International Airport Lantau Island, Hong Kong	Tel : +852-2747 3818 Fax : +852-2141 3818 E-mail: julian_fung@cathaypacific.com
Mr. Giram Singh	Manager Flight Operations Control Centre Singapore SIA Airmail Transit Centre P.O. BOX 501 Singapore 91801	Tel : +65-9619 2916 Fax : +65-6543 0760 E-mail: s_giram@singaporeair.com.sg
Mr. Sim Cher Seng	Supervisor (FLT OPS Control Centre) Singapore SIA Airmail Transit Centre P.O. BOX 501 Singapore 91801 Singapore Changi Airport Singapore 819643	Tel : +65-6540 3134 Fax : +65-6543 0760 E-mail: cherseng@singaporeair.com.sg
Capt. Peerasak Nopananchai	Deputy Department Manager International Aviation Affairs & Development Thai Airways International Public Co., Ltd., 89 Vibhavadi Rangsit Road, Bangkok 10900 Thailand	Tel : +66 2 545 2665 Fax : +66 2 545 3849 E-mail : peerasak.n@thaiairways.com
Mr. Manoch Suesat	Head, Europe Operations Control Center Thai Airways International Public Co., Ltd., Room 225-226 East Wing, Terminal 3, London Heathrow Airport TW61LX, United Kingdom	Tel : +44 (0) 208 745 6590 Fax : +44 (0) 208 564 9854 E-mail : LHROPG@aol.com

BOBCAT Paper Trial MAD20-5

Apdx 2-A

Total number of requesting flights: 37

Total number of allocated flight: 31

Minimum delay incurred: 0

Average delay incurred: 6

Maximum delay incurred: 17

Standard Deviation of Delay: 6

Flight Allocation Summary

Callsign	Dept	Dest	WUT	Route	Profile	Delay
AFR169	VTBD	LFPG	1630	2	1	5
AFR257	WSSS	LFPG	1557	1	1	17
AUA2	WMKK	LOWW	1655	1	1	0
BAW10	VTBD	EGLL	1640	1	1	10
BAW18	WSSS	EGLL	1623	1	1	8
BAW3450	VHHH	VIDP	1500	1	1	0
CPA037	VHHH	VIDP	1350	1	1	0
DLH773	VTBD	EDDM	1645	1	1	15
DLH777	WSSS	EDDF	1525	1	1	0
DLH779	VTBD	EDDF	1730	1	2	15
EVA61	VTBD	LOWW	1644	1	1	9
FIN098	VTBD	EFHK	1747	1	3	7
HVN535	VVNB	LFPG	1751	1	2	11
IRM5044	VTBD	OIII	1450	1	1	0
KLM810	WMKK	EHAM	1530	2	1	0
KLM878	VTBD	EHAM	1625	1	1	0
MAS2	WMKK	EGLL	1613	1	3	13
MAS20	WMKK	LFPG	1558	1	1	8
MAS6	WMKK	EDDF	1629	1	1	9

Gateway Allocation Summary

Gateway	Callsign	ETO	FL	Mach	Delay
AMDAR	BAW18	2239	310	0	8
AMDAR	AFR169	2123	350	0.819999992847443	5
AMDAR	EVA61	2138	350	0.819999992847443	9
AMDAR	SWR183	2154	350	0.819999992847443	7
AMDAR	THA920	2209	350	0.860000014305115	12
AMDAR	FIN098	2239	350	0.829999983310699	7
AMDAR	THA970	2254	350	0	12
ASLUM	KLM810	2044	310	0	0
ASLUM	QFA5	2059	310	0	4
ASLUM	IRM5044	1913	350	0.819999992847443	0
ASLUM	DLH777	2100	350	0	0
ASLUM	SIA322	2115	350	0	0
ASLUM	SIA026	2145	350	0	0
ASLUM	AUA2	2220	350	0	0
BETNO	DLH773	1709	300	0.819999992847443	15
BETNO	DLH779	1754	300	0.860000014305115	15
BETNO	AFR169	1654	320	0.819999992847443	5
BETNO	SWR183	1726	320	0.819999992847443	7
BETNO	QFA1	1844	320	0.860000014305115	0

QFA1	VTBD	EGLL	1820	1	1	0
QFA5	WSSS	EDDF	1524	1	1	4
QFA9	WSSS	EGLL	1531	1	1	16
SIA026	WSSS	EDDF	1610	1	1	0
SIA322	WSSS	EGLL	1540	1	1	0
SWR183	VTBD	LSZH	1702	1	1	7
THA910	VTBD	EGLL	1842	1	1	12
THA920	VTBD	EDDF	1717	1	1	12
THA930	VTBD	LFPG	1732	1	1	7
THA950	VTBD	EKCH	1840	1	1	0
THA970	VTBD	LSZH	1802	1	1	12
THY71	VTBD	LTBD	1819	1	1	14

BETNO	EVA61	1708	340	0.819999992847443	9
CHARN	KLM810	2129	310	0	0
CHARN	QFA5	2147	310	0	4
CHARN	IRM5044	2003	350	0.819999992847443	0
CHARN	DLH777	2148	350	0	0
CHARN	SIA322	2203	350	0	0
CHARN	SIA026	2233	350	0	0
CHARN	AUA2	2306	350	0	0
DI	BAW10	2047	310	0.850000023841858	10
DI	BAW18	2154	310	0	8
DI	THA910	2249	310	0.860000014305115	12
DI	AFR169	2038	350	0.819999992847443	5
DI	EVA61	2054	350	0.819999992847443	9
DI	SWR183	2109	350	0.819999992847443	7
DI	THA920	2124	350	0.860000014305115	12
DI	THA930	2139	350	0.860000014305115	7
DI	FIN098	2154	350	0.829999983310699	7
DI	THA970	2209	350	0	12
DI	THA950	2247	350	0	0
IKULA	QFA9	1700	320	0.860000014305115	16
IKULA	BAW18	1752	320	0.860000014305115	8
KKJ	DLH779	2016	300	0.860000014305115	15
KKJ	IRM5044	1736	320	0.819999992847443	0
KKJ	KLM878	1911	320	0.860000014305115	0
KKJ	MAS2	1952	320	0	13
KKJ	AFR257	2007	320	0	17
KKJ	HVN535	2022	320	0	11
KKJ	QFA1	2106	320	0.860000014305115	0
KKJ	MAS20	1937	340	0	8
KKJ	MAS20	2017	340	0	0

KKJ	MAS6	2017	340	0	9
LEMOD	BAW10	2140	310	0.850000023841858	10
LEMOD	THA910	2342	310	0.860000014305115	12
LEMOD	THA930	2224	350	0.860000014305115	7
LEMOD	THA950	2340	350	0	0
LIMLA	KLM878	1649	300	0.860000014305115	0
LIMLA	BAW10	1704	300	0.850000023841858	10
LIMLA	FIN098	1811	300	0.829999983310699	7
LIMLA	THA910	1906	300	0.860000014305115	12
LIMLA	IRM5044	1514	320	0.819999992847443	0
LIMLA	THA920	1741	320	0.860000014305115	12
LIMLA	THA930	1756	320	0.860000014305115	7
LIMLA	THA970	1826	320	0.860000014305115	12
LIMLA	THY71	1844	320	0.819999992847443	14
LIMLA	THA950	1904	340	0.860000014305115	0
LLK	BAW10	1924	320	0.850000023841858	10
LLK	QFA9	1939	320	0	16
LLK	THA920	2001	320	0.860000014305115	12
LLK	THA930	2016	320	0.860000014305115	7
LLK	BAW18	2031	320	0	8
LLK	THA970	2046	320	0	12
LLK	THY71	2111	320	0	14
LLK	THA910	2126	320	0.860000014305115	12
LLK	BAW3450	1900	340	0	0
LLK	AFR169	1915	340	0.819999992847443	5
LLK	DLH773	1930	340	0.819999992847443	15
LLK	SWR183	1946	340	0.819999992847443	7
LLK	FIN098	2031	340	0.829999983310699	7
LLK	THA950	2124	340	0	0
LLK	CPA027	1752	360	0	0

LLK	QFA057	1752	300	0	0
LLK	EVA61	1929	360	0.819999992847443	9
RANAH	QFA9	2210	310	0	16
RANAH	AFR257	2230	310	0	17
RANAH	HVN535	2253	310	0	11
RANAH	KLM878	2127	350	0.860000014305115	0
RANAH	DLH773	2147	350	0.819999992847443	15
RANAH	MAS20	2202	350	0	8
RANAH	MAS2	2217	350	0	13
RANAH	DLH779	2232	350	0.860000014305115	15
RANAH	MAS6	2247	350	0	9
RANAH	QFA1	2322	350	0.860000014305115	0
ROSIE	QFA9	2123	310	0	16
ROSIE	AFR257	2139	310	0	17
ROSIE	HVN535	2203	310	0	11
ROSIE	KLM878	2040	350	0.860000014305115	0
ROSIE	DLH773	2100	350	0.819999992847443	15
ROSIE	MAS20	2115	350	0	8
ROSIE	MAS2	2130	350	0	13
ROSIE	DLH779	2145	350	0.860000014305115	15
ROSIE	MAS6	2200	350	0	9
ROSIE	QFA1	2235	350	0.860000014305115	0
TAVUN	MAS2	1722	280	0.850000023841858	13
TAVUN	MAS6	1741	280	0.839999973773956	9
TAVUN	MAS20	1707	320	0.860000014305115	8
TAVUN	AFR257	1731	320	0.839999973773956	17
VPL	DLH777	1621	280	0.860000014305115	0
VPL	SIA322	1636	280	0.860000014305115	0
VPL	SIA026	1706	280	0.860000014305115	0
VPI	KLM810	1605	320	0.860000014305115	0

VPL	QFA5	1620	320	0.860000014305115	4
VPL	AUA2	1732	320	0.839999973773956	0

BOBCAT Paper Trial MAD20-5 No LLK / KKJ**Apdx 2-B**

Total number of requesting flights: 35

Minimum delay incurred: 0

Total number of allocated flight: 33

Average delay incurred: 3

Maximum delay incurred: 16

Standard Deviation of Delay: 5

*Flight Allocation Summary**Gateway Allocation Summary*

Callsign	Dept	Dest	WUT	Route	Profile	Delay
AFR169	VTBD	LFPG	1625	2	1	0
AFR257	WSSS	LFPG	1540	1	1	0
AUA2	WMKK	LOWW	1655	1	1	0
BAW10	VTBD	EGLL	1640	1	1	10
BAW18	WSSS	EGLL	1630	1	1	15
CPA293	VHHH	LIRF	1615	1	3	0
DLH773	VTBD	EDDM	1640	1	1	10
DLH777	WSSS	EDDF	1525	1	1	0
DLH779	VTBD	EDDF	1715	1	1	0
EVA61	VTBD	LOWW	1639	1	1	4
FIN098	VTBD	EFHK	1742	1	1	2
HVN535	VVNB	LFPG	1756	1	2	16
IRM5044	VTBD	OIII	1450	1	1	0
KLM810	WMKK	EHAM	1530	3	1	0
KLM878	VTBD	EHAM	1625	1	1	0
MAS16	WMKK	EHAM	1620	1	1	5
MAS2	WMKK	EGLL	1605	1	1	5
MAS20	WMKK	LFPG	1553	1	1	3
MAS22	WMKK	LOWW	1614	1	2	9

Gateway	Callsign	ETO	FL	Mach	Delay
AMDAR	SAS972	2232	310	0.819999992847443	0
AMDAR	AFR169	2118	350	0.819999992847443	0
AMDAR	EVA61	2133	350	0.819999992847443	4
AMDAR	SWR183	2149	350	0.819999992847443	2
AMDAR	THA920	2204	350	0.860000014305115	7
AMDAR	FIN098	2234	350	0.829999983310699	2
AMDAR	THA970	2249	350	0	7
ASLUM	QFA5	2055	310	0	0
ASLUM	AFR257	2125	310	0	0
ASLUM	IRM5044	1913	350	0.819999992847443	0
ASLUM	KLM810	2044	350	0	0
ASLUM	DLH777	2100	350	0	0
ASLUM	SIA322	2115	350	0	0
ASLUM	SIA026	2145	350	0	0
ASLUM	AUA2	2220	350	0	0
BETNO	DLH773	1704	300	0.819999992847443	10
BETNO	AFR169	1649	320	0.819999992847443	0
BETNO	SWR183	1721	320	0.819999992847443	2
BETNO	DLH779	1739	320	0.860000014305115	0

MAS6	WMKK	EDDF	1632	1	1	12
QFA1	VTBD	EGLL	1820	1	1	0
QFA5	WSSS	EDDF	1520	1	1	0
QFA9	WSSS	EGLL	1515	1	1	0
SAS972	VTBD	EKCH	1740	1	1	0
SIA026	WSSS	EDDF	1610	1	1	0
SIA322	WSSS	EGLL	1540	1	1	0
SWR183	VTBD	LSZH	1657	1	1	2
THA910	VTBD	EGLL	1830	1	1	0
THA920	VTBD	EDDF	1712	1	1	7
THA930	VTBD	LFPG	1727	1	1	2
THA950	VTBD	EKCH	1840	1	1	0
THA970	VTBD	LSZH	1757	1	1	7
THY71	VTBD	LTBD	1811	1	1	6

BETNO	QFA1	1844	320	0.860000014305115	0
BETNO	EVA61	1703	340	0.819999992847443	4
CHARN	QFA5	2143	310	0	0
CHARN	AFR257	2213	310	0	0
CHARN	IRM5044	2003	350	0.819999992847443	0
CHARN	KLM810	2129	350	0	0
CHARN	DLH777	2148	350	0	0
CHARN	SIA322	2203	350	0	0
CHARN	SIA026	2233	350	0	0
CHARN	AUA2	2306	350	0	0
DI	BAW10	2047	310	0.850000023841858	10
DI	SAS972	2147	310	0.819999992847443	0
DI	BAW18	2209	310	0	15
DI	THA910	2237	310	0.860000014305115	0
DI	AFR169	2033	350	0.819999992847443	0
DI	EVA61	2049	350	0.819999992847443	4
DI	SWR183	2104	350	0.819999992847443	2
DI	THA920	2119	350	0.860000014305115	7
DI	THA930	2134	350	0.860000014305115	2
DI	FIN098	2149	350	0.829999983310699	2
DI	THA970	2204	350	0	7
DI	THA950	2247	350	0	0
IKULA	QFA9	1644	320	0.860000014305115	0
LEMOD	BAW10	2140	310	0.850000023841858	10
LEMOD	BAW18	2301	310	0	15
LEMOD	THA910	2330	310	0.860000014305115	0
LEMOD	THA930	2219	350	0.860000014305115	2
LEMOD	THA950	2340	350	0	0
LIMLA	KLM878	1649	300	0.860000014305115	0
LIMLA	BAW10	1704	300	0.850000023841858	10

LIMLA	BAW10	1704	300	0.8500000023841858	10
LIMLA	SAS972	1804	300	0.8199999992847443	0
LIMLA	THA910	1854	300	0.8600000014305115	0
LIMLA	IRM5044	1514	320	0.8199999992847443	0
LIMLA	THA920	1736	320	0.8600000014305115	7
LIMLA	THA930	1751	320	0.8600000014305115	2
LIMLA	FIN098	1806	320	0.8299999983310699	2
LIMLA	THA970	1821	320	0.8600000014305115	7
LIMLA	THY71	1836	320	0.8199999992847443	6
LIMLA	THA950	1904	340	0.8600000014305115	0
RANAH	QFA9	2154	310	0	0
RANAH	MAS2	2209	310	0	5
RANAH	MAS16	2224	310	0	5
RANAH	CPA293	2240	310	0	0
RANAH	HVN535	2258	310	0	16
RANAH	KLM878	2127	350	0.8600000014305115	0
RANAH	DLH773	2142	350	0.8199999992847443	10
RANAH	MAS20	2157	350	0	3
RANAH	DLH779	2217	350	0.8600000014305115	0
RANAH	MAS22	2232	350	0	9
RANAH	MAS6	2250	350	0	12
RANAH	QFA1	2322	350	0.8600000014305115	0
ROSIE	QFA9	2107	310	0	0
ROSIE	MAS2	2122	310	0	5
ROSIE	MAS16	2137	310	0	5
ROSIE	CPA293	2153	310	0	0
ROSIE	HVN535	2208	310	0	16
ROSIE	KLM878	2040	350	0.8600000014305115	0
ROSIE	DLH773	2055	350	0.8199999992847443	10
ROSIE	MAS20	2110	350	0	3

ROSIE	MAS20	2110	350	0.860000014305115	0
ROSIE	DLH779	2130	350	0.860000014305115	0
ROSIE	MAS22	2145	350	0	9
ROSIE	MAS6	2203	350	0	12
ROSIE	QFA1	2235	350	0.860000014305115	0
TAVUN	MAS2	1714	280	0.850000023841858	5
TAVUN	MAS16	1729	280	0.839999973773956	5
TAVUN	MAS6	1744	280	0.839999973773956	12
TAVUN	BAW18	1759	280	0.860000014305115	15
TAVUN	MAS20	1702	320	0.860000014305115	3
TAVUN	MAS22	1726	320	0.829999983310699	9
VPL	KLM810	1605	280	0.829999983310699	0
VPL	DLH777	1621	280	0.860000014305115	0
VPL	SIA322	1636	280	0.860000014305115	0
VPL	SIA026	1706	280	0.860000014305115	0
VPL	QFA5	1616	320	0.860000014305115	0
VPL	AFR257	1639	320	0.839999973773956	0
VPL	AUA2	1732	320	0.839999973773956	0

BOBCAT Paper Trial MAD30-5

Apdx 2-C

Total number of requesting flights: 37

Minimum delay incurred: 0

Total number of allocated flight: 34

Average delay incurred: 8

Maximum delay incurred: 27

Standard Deviation of Delay: 9

Flight Allocation Summary

Gateway Allocation Summary

Callsign	Dept	Dest	WUT	Route	Profile	Delay
AFR169	VTBD	LFPG	1631	1	1	6
AFR257	WSSS	LFPG	1540	1	1	0
AUA2	WMKK	LOWW	1655	1	1	0
BAW10	VTBD	EGLL	1640	1	1	10
BAW3450	VHHH	VIDP	1500	1	1	0
CPA037	VHHH	VIDP	1350	1	1	0
CPA293	VHHH	LIRF	1642	1	2	27
DLH773	VTBD	EDDM	1645	1	1	15
DLH777	WSSS	EDDF	1525	1	1	0
DLH779	VTBD	EDDF	1717	1	1	2
EVA61	VTBD	LOWW	1644	1	1	9
FIN098	VTBD	EFHK	1805	1	1	25
HVN535	VVNB	LFPG	1802	1	2	22
IRM5044	VTBD	OIII	1450	1	1	0
KLM810	WMKK	EHAM	1530	2	1	0
KLM878	VTBD	EHAM	1625	1	1	0
MAS16	WMKK	EHAM	1639	1	1	24
MAS2	WMKK	EGLL	1621	1	1	21
MAS20	WMKK	LFPG	1558	1	1	8

Gateway	Callsign	ETO	FL	Mach	Delay
AMDAR	THA970	2242	310	0	0
AMDAR	AFR169	2123	350	0.819999992847443	6
AMDAR	EVA61	2138	350	0.819999992847443	9
AMDAR	SWR183	2154	350	0.819999992847443	7
AMDAR	THA920	2209	350	0.860000014305115	12
AMDAR	FIN098	2257	350	0.829999983310699	25
ASLUM	KLM810	2044	310	0	0
ASLUM	QFA5	2059	310	0	4
ASLUM	AFR257	2125	310	0	0
ASLUM	IRM5044	1913	350	0.819999992847443	0
ASLUM	DLH777	2100	350	0	0
ASLUM	SIA322	2115	350	0	0
ASLUM	SIA026	2145	350	0	0
ASLUM	AUA2	2220	350	0	0
BETNO	DLH773	1709	300	0.819999992847443	15
BETNO	SWR183	1726	320	0.819999992847443	7
BETNO	DLH779	1741	320	0.860000014305115	2
BETNO	QFA1	1844	320	0.860000014305115	0
BETNO	EVA61	1708	340	0.819999992847443	9

MAS22	WMKK	LOWW	1616	1	2	11
MAS6	WMKK	EDDF	1634	1	3	14
QFA1	VTBD	EGLL	1820	1	1	0
QFA5	WSSS	EDDF	1524	1	1	4
QFA9	WSSS	EGLL	1531	1	1	16
SIA026	WSSS	EDDF	1610	1	1	0
SIA322	WSSS	EGLL	1540	1	1	0
SIA346	WSSS	LSZH	1626	1	1	21
SWR183	VTBD	LSZH	1702	1	1	7
THA910	VTBD	EGLL	1842	1	1	12
THA920	VTBD	EDDF	1717	1	1	12
THA930	VTBD	LFPG	1732	1	1	7
THA950	VTBD	EKCH	1840	1	1	0
THA970	VTBD	LSZH	1750	1	2	0
THY71	VTBD	LTBD	1819	1	1	14

CHARN	KLM810	2129	310	0	0
CHARN	QFA5	2147	310	0	4
CHARN	AFR257	2213	310	0	0
CHARN	IRM5044	2003	350	0.819999992847443	0
CHARN	DLH777	2148	350	0	0
CHARN	SIA322	2203	350	0	0
CHARN	SIA026	2233	350	0	0
CHARN	AUA2	2306	350	0	0
DI	BAW10	2047	310	0.850000023841858	10
DI	THA970	2157	310	0	0
DI	THA910	2249	310	0.860000014305115	12
DI	AFR169	2038	350	0.819999992847443	6
DI	EVA61	2054	350	0.819999992847443	9
DI	SWR183	2109	350	0.819999992847443	7
DI	THA920	2124	350	0.860000014305115	12
DI	THA930	2139	350	0.860000014305115	7
DI	SIA346	2157	350	0	21
DI	FIN098	2212	350	0.829999983310699	25
DI	THA950	2247	350	0	0
IKULA	SIA346	1751	280	0.860000014305115	21
IKULA	QFA9	1700	320	0.860000014305115	16
KKJ	MAS2	2000	300	0	21
KKJ	IRM5044	1736	320	0.819999992847443	0
KKJ	KLM878	1911	320	0.860000014305115	0
KKJ	DLH779	2003	320	0.860000014305115	2
KKJ	MAS16	2018	320	0	24
KKJ	HVN535	2033	320	0	22
KKJ	QFA1	2106	320	0.860000014305115	0
KKJ	MAS20	1937	340	0	8
KKJ	MAS2	2000	340	0	11

KKJ	MAS6	2022	340	0	14
KKJ	MAS22	2004	360	0	11
LEMOD	BAW10	2140	310	0.850000023841858	10
LEMOD	THA910	2342	310	0.860000014305115	12
LEMOD	THA930	2224	350	0.860000014305115	7
LEMOD	SIA346	2239	350	0	21
LEMOD	THA950	2340	350	0	0
LIMLA	THA970	1814	280	0.860000014305115	0
LIMLA	KLM878	1649	300	0.860000014305115	0
LIMLA	BAW10	1704	300	0.850000023841858	10
LIMLA	THA910	1906	300	0.860000014305115	12
LIMLA	IRM5044	1514	320	0.819999992847443	0
LIMLA	THA920	1741	320	0.860000014305115	12
LIMLA	THA930	1756	320	0.860000014305115	7
LIMLA	FIN098	1829	320	0.829999983310699	25
LIMLA	THY71	1844	320	0.819999992847443	14
LIMLA	AFR169	1655	340	0.819999992847443	6
LIMLA	THA950	1904	340	0.860000014305115	0
LLK	THA970	2034	300	0	0
LLK	BAW10	1924	320	0.850000023841858	10
LLK	QFA9	1939	320	0	16
LLK	THA920	2001	320	0.860000014305115	12
LLK	THA930	2016	320	0.860000014305115	7
LLK	SIA346	2034	320	0	21
LLK	FIN098	2049	320	0.829999983310699	25
LLK	THY71	2111	320	0	14
LLK	THA910	2126	320	0.860000014305115	12
LLK	BAW3450	1900	340	0	0
LLK	AFR169	1915	340	0.819999992847443	6
LLK	DUH772	1920	340	0.819999992847443	15

LLK	DLH773	1930	340	0.819999992847443	13
LLK	SWR183	1946	340	0.819999992847443	7
LLK	CPA293	2036	340	0	27
LLK	THA950	2124	340	0	0
LLK	CPA037	1752	360	0	0
LLK	EVA61	1929	360	0.819999992847443	9
RANAH	QFA9	2210	310	0	16
RANAH	MAS2	2225	310	0	21
RANAH	MAS16	2243	310	0	24
RANAH	HVN535	2304	310	0	22
RANAH	KLM878	2127	350	0.860000014305115	0
RANAH	DLH773	2147	350	0.819999992847443	15
RANAH	MAS20	2202	350	0	8
RANAH	DLH779	2219	350	0.860000014305115	2
RANAH	MAS22	2234	350	0	11
RANAH	MAS6	2252	350	0	14
RANAH	CPA293	2307	350	0	27
RANAH	QFA1	2322	350	0.860000014305115	0
ROSIE	QFA9	2123	310	0	16
ROSIE	MAS2	2138	310	0	21
ROSIE	MAS16	2156	310	0	24
ROSIE	HVN535	2214	310	0	22
ROSIE	KLM878	2040	350	0.860000014305115	0
ROSIE	DLH773	2100	350	0.819999992847443	15
ROSIE	MAS20	2115	350	0	8
ROSIE	DLH779	2132	350	0.860000014305115	2
ROSIE	MAS22	2147	350	0	11
ROSIE	MAS6	2205	350	0	14
ROSIE	CPA293	2220	350	0	27
ROSIE	QFA1	2235	350	0.860000014305115	0

TAVUN	MAS2	1730	280	0.850000023841858	21
TAVUN	MAS16	1748	280	0.839999973773956	24
TAVUN	MAS20	1707	320	0.860000014305115	8
TAVUN	MAS22	1728	320	0.829999983310699	11
TAVUN	MAS6	1746	320	0.839999973773956	14
VPL	DLH777	1621	280	0.860000014305115	0
VPL	SIA322	1636	280	0.860000014305115	0
VPL	SIA026	1706	280	0.860000014305115	0
VPL	KLM810	1605	320	0.860000014305115	0
VPL	QFA5	1620	320	0.860000014305115	4
VPL	AFR257	1639	320	0.839999973773956	0
VPL	AUA2	1732	320	0.839999973773956	0

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Apdx 2-D

Total number of requesting flights: 35

Minimum delay incurred: 0

Total number of allocated flight: 32

Average delay incurred: 4

Maximum delay incurred: 27

Standard Deviation of Delay: 7

Flight Allocation Summary

Callsign	Dept	Dest	WUT	Route	Profile	Delay
AFR169	VTBD	LFPG	1625	2	1	0
AFR257	WSSS	LFPG	1540	1	1	0
AUA2	WMKK	LOWW	1655	1	1	0
BAW10	VTBD	EGLL	1640	1	1	10
CPA293	VHHH	LIRF	1615	1	3	0
DLH773	VTBD	EDDM	1640	1	1	10
DLH777	WSSS	EDDF	1525	1	1	0
DLH779	VTBD	EDDF	1715	1	1	0
EVA61	VTBD	LOWW	1639	1	1	4
FIN098	VTBD	EFHK	1742	1	1	2
HVN535	VVNB	LFPG	1756	1	2	16
IRM5044	VTBD	OIII	1450	1	1	0
KLM810	WMKK	EHAM	1530	3	1	0
KLM878	VTBD	EHAM	1625	1	1	0
MAS16	WMKK	EHAM	1620	1	1	5
MAS2	WMKK	EGLL	1605	1	1	5
MAS20	WMKK	LFPG	1553	1	1	3
MAS22	WMKK	LOWW	1632	1	1	27
MAS6	WMKK	EDDF	1647	1	1	27

Gateway Allocation Summary

Gateway	Callsign	ETO	FL	Mach	Delay
AMDAR	SAS972	2232	310	0.819999992847443	0
AMDAR	AFR169	2118	350	0.819999992847443	0
AMDAR	EVA61	2133	350	0.819999992847443	4
AMDAR	SWR183	2149	350	0.819999992847443	2
AMDAR	THA920	2204	350	0.860000014305115	7
AMDAR	FIN098	2234	350	0.829999983310699	2
AMDAR	THA970	2249	350	0	7
ASLUM	QFA5	2055	310	0	0
ASLUM	AFR257	2125	310	0	0
ASLUM	IRM5044	1913	350	0.819999992847443	0
ASLUM	KLM810	2044	350	0	0
ASLUM	DLH777	2100	350	0	0
ASLUM	SIA322	2115	350	0	0
ASLUM	SIA026	2145	350	0	0
ASLUM	AUA2	2220	350	0	0
BETNO	DLH773	1704	300	0.819999992847443	10
BETNO	AFR169	1649	320	0.819999992847443	0
BETNO	SWR183	1721	320	0.819999992847443	2
BETNO	DLH779	1739	320	0.860000014305115	0

QFA1	VTBD	EGLL	1820	1	1	0
QFA5	WSSS	EDDF	1520	1	1	0
QFA9	WSSS	EGLL	1515	1	1	0
SAS972	VTBD	EKCH	1740	1	1	0
SIA026	WSSS	EDDF	1610	1	1	0
SIA322	WSSS	EGLL	1540	1	1	0
SWR183	VTBD	LSZH	1657	1	1	2
THA910	VTBD	EGLL	1830	1	1	0
THA920	VTBD	EDDF	1712	1	1	7
THA930	VTBD	LFPG	1727	1	1	2
THA950	VTBD	EKCH	1840	1	1	0
THA970	VTBD	LSZH	1757	1	1	7
THY71	VTBD	LTBD	1811	1	1	6

BETNO	QFA1	1844	320	0.860000014305115	0
BETNO	EVA61	1703	340	0.819999992847443	4
CHARN	QFA5	2143	310	0	0
CHARN	AFR257	2213	310	0	0
CHARN	IRM5044	2003	350	0.819999992847443	0
CHARN	KLM810	2129	350	0	0
CHARN	DLH777	2148	350	0	0
CHARN	SIA322	2203	350	0	0
CHARN	SIA026	2233	350	0	0
CHARN	AUA2	2306	350	0	0
DI	BAW10	2047	310	0.850000023841858	10
DI	SAS972	2147	310	0.819999992847443	0
DI	THA910	2237	310	0.860000014305115	0
DI	AFR169	2033	350	0.819999992847443	0
DI	EVA61	2049	350	0.819999992847443	4
DI	SWR183	2104	350	0.819999992847443	2
DI	THA920	2119	350	0.860000014305115	7
DI	THA930	2134	350	0.860000014305115	2
DI	FIN098	2149	350	0.829999983310699	2
DI	THA970	2204	350	0	7
DI	THA950	2247	350	0	0
IKULA	QFA9	1644	320	0.860000014305115	0
LEMOD	BAW10	2140	310	0.850000023841858	10
LEMOD	THA910	2330	310	0.860000014305115	0
LEMOD	THA930	2219	350	0.860000014305115	2
LEMOD	THA950	2340	350	0	0
LIMLA	KLM878	1649	300	0.860000014305115	0
LIMLA	BAW10	1704	300	0.850000023841858	10
LIMLA	SAS972	1804	300	0.819999992847443	0
LIMLA	THA910	1854	300	0.860000014305115	0

LIMLA	THA910	1854	300	0.8600000014305115	0
LIMLA	IRM5044	1514	320	0.8199999992847443	0
LIMLA	THA920	1736	320	0.8600000014305115	7
LIMLA	THA930	1751	320	0.8600000014305115	2
LIMLA	FIN098	1806	320	0.8299999983310699	2
LIMLA	THA970	1821	320	0.8600000014305115	7
LIMLA	THY71	1836	320	0.8199999992847443	6
LIMLA	THA950	1904	340	0.8600000014305115	0
RANAH	QFA9	2154	310	0	0
RANAH	MAS2	2209	310	0	5
RANAH	MAS16	2224	310	0	5
RANAH	CPA293	2240	310	0	0
RANAH	HVN535	2258	310	0	16
RANAH	KLM878	2127	350	0.8600000014305115	0
RANAH	DLH773	2142	350	0.8199999992847443	10
RANAH	MAS20	2157	350	0	3
RANAH	DLH779	2217	350	0.8600000014305115	0
RANAH	MAS22	2250	350	0	27
RANAH	MAS6	2305	350	0	27
RANAH	QFA1	2322	350	0.8600000014305115	0
ROSIE	QFA9	2107	310	0	0
ROSIE	MAS2	2122	310	0	5
ROSIE	MAS16	2137	310	0	5
ROSIE	CPA293	2153	310	0	0
ROSIE	HVN535	2208	310	0	16
ROSIE	KLM878	2040	350	0.8600000014305115	0
ROSIE	DLH773	2055	350	0.8199999992847443	10
ROSIE	MAS20	2110	350	0	3
ROSIE	DLH779	2130	350	0.8600000014305115	0
ROSIE	MAS22	2202	350	0	27

ROSIE	MAS22	2205	350	0	27
ROSIE	MAS6	2218	350	0	27
ROSIE	QFA1	2235	350	0.860000014305115	0
TAVUN	MAS2	1714	280	0.850000023841858	5
TAVUN	MAS16	1729	280	0.839999973773956	5
TAVUN	MAS22	1744	280	0.829999983310699	27
TAVUN	MAS6	1759	280	0.839999973773956	27
TAVUN	MAS20	1702	320	0.860000014305115	3
VPL	KLM810	1605	280	0.829999983310699	0
VPL	DLH777	1621	280	0.860000014305115	0
VPL	SIA322	1636	280	0.860000014305115	0
VPL	SIA026	1706	280	0.860000014305115	0
VPL	QFA5	1616	320	0.860000014305115	0
VPL	AFR257	1639	320	0.839999973773956	0
VPL	AUA2	1732	320	0.839999973773956	0

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Apdx 2-E

Total number of requesting flights: 37

Minimum delay incurred: 0

Total number of allocated flight: 34

Average delay incurred: 14

Maximum delay incurred: 62

Standard Deviation of Delay: 17

Flight Allocation Summary

Gateway Allocation Summary

Callsign	Dept	Dest	WUT	Route	Profile	Delay
AFR169	VTBD	LFPG	1631	1	1	6
AFR257	WSSS	LFPG	1555	1	1	15
AUA2	WMKK	LOWW	1655	1	1	0
BAW10	VTBD	EGLL	1709	2	1	39
BAW18	WSSS	EGLL	1631	1	1	16
BAW3450	VHHH	VIDP	1500	1	1	0
CPA037	VHHH	VIDP	1350	1	1	0
CPA293	VHHH	LIRF	1715	1	3	60
DLH773	VTBD	EDDM	1645	1	2	15
DLH777	WSSS	EDDF	1533	1	1	8
DLH779	VTBD	EDDF	1715	1	2	0
EVA61	VTBD	LOWW	1644	1	1	9
FIN098	VTBD	EFHK	1828	1	3	48
HVN535	VVNB	LFPG	1759	1	2	19
IRM5044	VTBD	OIII	1450	1	1	0
KLM810	WMKK	EHAM	1530	3	1	0
KLM878	VTBD	EHAM	1625	1	1	0
MAS16	WMKK	EHAM	1639	1	2	24
MAS2	WMKK	EGLL	1605	1	1	5

Gateway	Callsign	ETO	FL	Mach	Delay
AMDAR	THA920	2157	310	0.860000014305115	0
AMDAR	SWR183	2217	310	0.819999992847443	30
AMDAR	BAW18	2247	310	0	16
AMDAR	SAS972	2302	310	0.819999992847443	30
AMDAR	AFR169	2123	350	0.819999992847443	6
AMDAR	EVA61	2138	350	0.819999992847443	9
AMDAR	FIN098	2320	350	0.829999983310699	48
AMDAR	THA970	2344	350	0	62
ASLUM	QFA5	2055	310	0	0
ASLUM	IRM5044	1913	350	0.819999992847443	0
ASLUM	KLM810	2044	350	0	0
ASLUM	DLH777	2108	350	0	8
ASLUM	SIA322	2123	350	0	8
ASLUM	SIA026	2145	350	0	0
ASLUM	AUA2	2220	350	0	0
BETNO	SWR183	1749	280	0.819999992847443	30
BETNO	DLH779	1739	300	0.860000014305115	0
BETNO	DLH773	1709	320	0.819999992847443	15
BETNO	BAW10	1733	320	0.850000023841858	39

MAS20	WMKK	LFPG	1558	1	1	8
MAS22	WMKK	LOWW	1632	1	2	27
MAS6	WMKK	EDDF	1650	1	3	30
QFA1	VTBD	EGLL	1821	1	1	1
QFA5	WSSS	EDDF	1520	1	1	0
QFA9	WSSS	EGLL	1515	1	1	0
SAS972	VTBD	EKCH	1810	1	3	30
SIA026	WSSS	EDDF	1610	1	1	0
SIA322	WSSS	EGLL	1548	1	1	8
SIA346	WSSS	LSZH	1616	1	1	11
SWR183	VTBD	LSZH	1725	1	3	30
THA920	VTBD	EDDF	1705	1	2	0
THA930	VTBD	LFPG	1740	1	2	15
THA970	VTBD	LSZH	1852	1	3	62
THY71	VTBD	LTBD	1805	1	3	0

BETNO	QFA1	1845	320	0.860000014305115	1
BETNO	EVA61	1708	340	0.819999992847443	9
CHARN	QFA5	2143	310	0	0
CHARN	IRM5044	2003	350	0.819999992847443	0
CHARN	KLM810	2129	350	0	0
CHARN	DLH777	2156	350	0	8
CHARN	SIA322	2211	350	0	8
CHARN	SIA026	2233	350	0	0
CHARN	AUA2	2306	350	0	0
DI	THA920	2112	310	0.860000014305115	0
DI	SWR183	2132	310	0.819999992847443	30
DI	THA930	2147	310	0.860000014305115	15
DI	BAW18	2202	310	0	16
DI	SAS972	2217	310	0.819999992847443	30
DI	AFR169	2038	350	0.819999992847443	6
DI	EVA61	2054	350	0.819999992847443	9
DI	BAW10	2117	350	0.850000023841858	39
DI	SIA346	2147	350	0	11
DI	FIN098	2235	350	0.829999983310699	48
DI	THA970	2259	350	0	62
IKULA	SIA346	1741	280	0.860000014305115	11
IKULA	QFA9	1644	320	0.860000014305115	0
IKULA	BAW18	1800	320	0.860000014305115	16
KKJ	MAS2	1944	300	0	5
KKJ	DLH779	2001	300	0.860000014305115	0
KKJ	MAS16	2018	300	0	24
KKJ	IRM5044	1736	320	0.819999992847443	0
KKJ	KLM878	1911	320	0.860000014305115	0
KKJ	AFR257	2005	320	0	15
KKJ	IRM5044	2003	320	0	0

KKJ	HVN535	2030	320	0	19
KKJ	QFA1	2107	320	0.860000014305115	1
KKJ	MAS20	1937	340	0	8
KKJ	MAS6	2038	340	0	30
KKJ	MAS22	2020	360	0	27
LEMOD	THA930	2232	310	0.860000014305115	15
LEMOD	BAW10	2209	350	0.850000023841858	39
LEMOD	SIA346	2229	350	0	11
LIMLA	THY71	1830	280	0.819999992847443	0
LIMLA	KLM878	1649	300	0.860000014305115	0
LIMLA	THA920	1729	300	0.860000014305115	0
LIMLA	THA930	1804	300	0.860000014305115	15
LIMLA	SAS972	1834	300	0.819999992847443	30
LIMLA	FIN098	1852	300	0.829999983310699	48
LIMLA	THA970	1916	300	0.860000014305115	62
LIMLA	IRM5044	1514	320	0.819999992847443	0
LIMLA	AFR169	1655	340	0.819999992847443	6
LLK	THA920	1949	300	0.860000014305115	0
LLK	THA930	2024	300	0.860000014305115	15
LLK	THY71	2057	300	0	0
LLK	QFA9	1923	320	0	0
LLK	BAW10	1954	320	0.850000023841858	39
LLK	SWR183	2009	320	0.819999992847443	30
LLK	SIA346	2024	320	0	11
LLK	BAW18	2039	320	0	16
LLK	SAS972	2054	320	0.819999992847443	30
LLK	CPA293	2109	320	0	60
LLK	THA970	2136	320	0	62
LLK	BAW3450	1900	340	0	0
LLK	AFR169	1615	340	0.819999992847443	6

LLK	AFR109	1913	340	0.819999992847443	0
LLK	DLH773	1930	340	0.819999992847443	15
LLK	FIN098	2112	340	0.829999983310699	48
LLK	CPA037	1752	360	0	0
LLK	EVA61	1929	360	0.819999992847443	9
RANAH	QFA9	2154	310	0	0
RANAH	MAS2	2209	310	0	5
RANAH	AFR257	2228	310	0	15
RANAH	MAS16	2243	310	0	24
RANAH	HVN535	2301	310	0	19
RANAH	CPA293	2340	310	0	60
RANAH	KLM878	2127	350	0.860000014305115	0
RANAH	DLH773	2147	350	0.819999992847443	15
RANAH	MAS20	2202	350	0	8
RANAH	DLH779	2217	350	0.860000014305115	0
RANAH	MAS22	2250	350	0	27
RANAH	MAS6	2308	350	0	30
RANAH	QFA1	2323	350	0.860000014305115	1
ROSIE	QFA9	2107	310	0	0
ROSIE	MAS2	2122	310	0	5
ROSIE	AFR257	2137	310	0	15
ROSIE	MAS16	2156	310	0	24
ROSIE	HVN535	2211	310	0	19
ROSIE	CPA293	2253	310	0	60
ROSIE	KLM878	2040	350	0.860000014305115	0
ROSIE	DLH773	2100	350	0.819999992847443	15
ROSIE	MAS20	2115	350	0	8
ROSIE	DLH779	2130	350	0.860000014305115	0
ROSIE	MAS22	2203	350	0	27
ROSIE	MAS6	2221	350	0	30

ROUTE	MAS	2221	333	0	00
ROSIE	QFA1	2236	350	0.860000014305115	1
TAVUN	MAS2	1714	280	0.850000023841858	5
TAVUN	MAS16	1748	280	0.839999973773956	24
TAVUN	MAS20	1707	320	0.860000014305115	8
TAVUN	AFR257	1729	320	0.839999973773956	15
TAVUN	MAS22	1744	320	0.829999983310699	27
TAVUN	MAS6	1802	320	0.839999973773956	30
VPL	KLM810	1605	280	0.829999983310699	0
VPL	DLH777	1629	280	0.860000014305115	8
VPL	SIA322	1644	280	0.860000014305115	8
VPL	SIA026	1706	280	0.860000014305115	0
VPL	QFA5	1616	320	0.860000014305115	0
VPL	AUA2	1732	320	0.839999973773956	0

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Total number of requesting flights: 37

Total number of allocated flight: 33

Minimum delay incurred: 0

Average delay incurred: 5

Maximum delay incurred: 29

Standard Deviation of Delay: 8

Flight Allocation Summary

Callsign	Dept	Dest	WUT	Route	Profile	Delay
AFR169	VTBD	LFPG	1625	1	1	0
AFR257	WSSS	LFPG	1555	1	1	15
AUA2	WMKK	LOWW	1655	1	1	0
BAW10	VTBD	EGLL	1640	1	1	10
CPA293	VHHH	LIRF	1640	1	2	25
DLH773	VTBD	EDDM	1640	1	1	10
DLH777	WSSS	EDDF	1525	1	1	0
DLH779	VTBD	EDDF	1715	1	1	0
EVA61	VTBD	LOWW	1638	1	1	3
FIN098	VTBD	EFHK	1741	1	1	1
HVN535	VVNB	LFPG	1759	1	2	19
IRM5044	VTBD	OIII	1450	1	1	0
KLM810	WMKK	EHAM	1530	1	1	0
KLM878	VTBD	EHAM	1625	1	1	0
MAS16	WMKK	EHAM	1639	1	2	24
MAS2	WMKK	EGLL	1605	1	1	5
MAS20	WMKK	LFPG	1553	1	1	3
MAS22	WMKK	LOWW	1617	1	1	12
MAS6	WMKK	EDDF	1632	1	3	12

Gateway Allocation Summary

Gateway	Callsign	ETO	FL	Mach	Delay
AMDAR	SAS972	2232	310	0.819999992847443	0
AMDAR	AFR169	2117	350	0.819999992847443	0
AMDAR	EVA61	2132	350	0.819999992847443	3
AMDAR	SWR183	2148	350	0.819999992847443	1
AMDAR	THA920	2203	350	0.860000014305115	6
AMDAR	FIN098	2233	350	0.829999983310699	1
AMDAR	THA970	2248	350	0	6
ASLUM	KLM810	2044	310	0	0
ASLUM	QFA5	2059	310	0	4
ASLUM	IRM5044	1913	350	0.819999992847443	0
ASLUM	DLH777	2100	350	0	0
ASLUM	SIA322	2115	350	0	0
ASLUM	SIA026	2145	350	0	0
ASLUM	AUA2	2220	350	0	0
BETNO	DLH773	1704	300	0.819999992847443	10
BETNO	SWR183	1720	320	0.819999992847443	1
BETNO	DLH779	1739	320	0.860000014305115	0
BETNO	QFA1	1844	320	0.860000014305115	0
BETNO	EVA61	1702	340	0.819999992847443	3

QFA1	VTBD	EGLL	1820	1	1	0
QFA5	WSSS	EDDF	1524	1	1	4
QFA9	WSSS	EGLL	1515	1	1	0
SAS972	VTBD	EKCH	1740	1	1	0
SIA026	WSSS	EDDF	1610	1	1	0
SIA322	WSSS	EGLL	1540	1	1	0
SIA346	WSSS	LSZH	1634	1	2	29
SWR183	VTBD	LSZH	1656	1	1	1
THA910	VTBD	EGLL	1830	1	1	0
THA920	VTBD	EDDF	1711	1	1	6
THA930	VTBD	LFPG	1726	1	1	1
THA950	VTBD	EKCH	1840	1	1	0
THA970	VTBD	LSZH	1756	1	1	6
THY71	VTBD	LTBD	1810	1	1	5

CHARN	KLM810	2129	310	0	0
CHARN	QFA5	2147	310	0	4
CHARN	IRM5044	2003	350	0.819999992847443	0
CHARN	DLH777	2148	350	0	0
CHARN	SIA322	2203	350	0	0
CHARN	SIA026	2233	350	0	0
CHARN	AUA2	2306	350	0	0
DI	BAW10	2047	310	0.850000023841858	10
DI	SAS972	2147	310	0.819999992847443	0
DI	THA910	2237	310	0.860000014305115	0
DI	AFR169	2032	350	0.819999992847443	0
DI	EVA61	2048	350	0.819999992847443	3
DI	SWR183	2103	350	0.819999992847443	1
DI	THA920	2118	350	0.860000014305115	6
DI	THA930	2133	350	0.860000014305115	1
DI	FIN098	2148	350	0.829999983310699	1
DI	THA970	2203	350	0	6
DI	THA950	2247	350	0	0
IKULA	QFA9	1644	320	0.860000014305115	0
LEMOD	BAW10	2140	310	0.850000023841858	10
LEMOD	THA910	2330	310	0.860000014305115	0
LEMOD	THA930	2218	350	0.860000014305115	1
LEMOD	THA950	2340	350	0	0
LIMLA	KLM878	1649	300	0.860000014305115	0
LIMLA	BAW10	1704	300	0.850000023841858	10
LIMLA	SAS972	1804	300	0.819999992847443	0
LIMLA	THA910	1854	300	0.860000014305115	0
LIMLA	IRM5044	1514	320	0.819999992847443	0
LIMLA	THA920	1735	320	0.860000014305115	6
LIMLA	THA930	1756	320	0.860000014305115	1

LIMLA	THA930	1750	320	0.860000014305115	1
LIMLA	FIN098	1805	320	0.829999983310699	1
LIMLA	THA970	1820	320	0.860000014305115	6
LIMLA	THY71	1835	320	0.819999992847443	5
LIMLA	AFR169	1649	340	0.819999992847443	0
LIMLA	THA950	1904	340	0.860000014305115	0
RANAH	QFA9	2154	310	0	0
RANAH	MAS2	2209	310	0	5
RANAH	AFR257	2228	310	0	15
RANAH	MAS16	2243	310	0	24
RANAH	HVN535	2301	310	0	19
RANAH	SIA346	2318	310	0	29
RANAH	KLM878	2127	350	0.860000014305115	0
RANAH	DLH773	2142	350	0.819999992847443	10
RANAH	MAS20	2157	350	0	3
RANAH	DLH779	2217	350	0.860000014305115	0
RANAH	MAS22	2235	350	0	12
RANAH	MAS6	2250	350	0	12
RANAH	CPA293	2305	350	0	25
RANAH	QFA1	2322	350	0.860000014305115	0
ROSIE	QFA9	2107	310	0	0
ROSIE	MAS2	2122	310	0	5
ROSIE	AFR257	2137	310	0	15
ROSIE	MAS16	2156	310	0	24
ROSIE	HVN535	2211	310	0	19
ROSIE	SIA346	2231	310	0	29
ROSIE	KLM878	2040	350	0.860000014305115	0
ROSIE	DLH773	2055	350	0.819999992847443	10
ROSIE	MAS20	2110	350	0	3
ROSIE	DLH779	2120	350	0.860000014305115	0

ROSIE	DLH779	2130	350	0.860000014305115	0
ROSIE	MAS22	2148	350	0	12
ROSIE	MAS6	2203	350	0	12
ROSIE	CPA293	2218	350	0	25
ROSIE	QFA1	2235	350	0.860000014305115	0
TAVUN	MAS2	1714	280	0.850000023841858	5
TAVUN	MAS22	1729	280	0.829999983310699	12
TAVUN	MAS16	1748	280	0.839999973773956	24
TAVUN	SIA346	1803	280	0.860000014305115	29
TAVUN	MAS20	1702	320	0.860000014305115	3
TAVUN	AFR257	1729	320	0.839999973773956	15
TAVUN	MAS6	1744	320	0.839999973773956	12
VPL	KLM810	1605	280	0.829999983310699	0
VPL	DLH777	1621	280	0.860000014305115	0
VPL	SIA322	1636	280	0.860000014305115	0
VPL	SIA026	1706	280	0.860000014305115	0
VPL	QFA5	1620	320	0.860000014305115	4
VPL	AUA2	1732	320	0.839999973773956	0