



International Civil Aviation Organization

**The Twenty-First Meeting of the Regional Airspace Safety Monitoring
Advisory Group (RASMAG/21)**

Bangkok, Thailand, 14-17 June 2016

Agenda Item 5: Airspace Safety Monitoring Activities/Requirements in the Asia/Pacific Region

CHINA RMA LTHM BURDEN ESTIMATE UPDATE

(Presented by China RMA)

SUMMARY

This paper presents the current expected monitoring burden for the aircraft registered and operated by China and DPR Korea to meet the long term height monitoring requirement. The data were based on the RVSM approval database by the end of March, 2016.

1. INTRODUCTION

1.1 The Long Term Height Monitoring Impact Statement developed by RASMAG was endorsed by APANPIRG/20 in September 2009. In RASMAG/11 meeting China RMA provided the burden list to the meeting, and this paper is the update for the data.

2. DISCUSSION

2.1 In the last version for the monitoring burden list of China RMA, there were 61 operators with 2608 aircrafts and the biennial monitoring number is about 329. Because of the rapid development for the Chinese Civil Aviation, by the end of March, 2016, there were 77 operators with 2860 aircrafts.

2.2 Every year the monitoring plan of China RMA will be published and sent to the operators every month. The first time of publishing the plan is confirmed at the beginning of each year and it is adjusted in the middle of the year based on the progress.

2.3 Since 2008 China RMA has been using two sets of EGMU to conduct on-board monitoring for Chinese Airlines. From 2014, China RMA started to use ADS-B Height Monitoring System (AHMS) for HKP monitoring. With the use of ADS-B ground-based monitoring system, a majority of aircraft of Chinese operators have received successful monitoring records, which obviously reduced the on-board monitoring burden. At the same time, an increasing number of foreign aircraft could also have valid monitoring records from the ADS-B monitoring system, which helped to support these fleets to meet long-term height monitoring requirement.

2.4 The valid monitoring records shared from other RMAs on the KSN are also considered when producing the burden list in this paper.

2.5 For the Democratic People's Republic of Korea (DPRK), there are 11 aircraft and the biennial monitoring number is about 10. It is suggested by GACA of DPRK that some of the RVSM approved aircraft only conduct domestic flights and never enter RVSM airspace, so these aircraft have not been monitored. The groups that need to be monitored are: A148 (2 aircraft), T204 (2 aircraft).

2.6 **Attachment A** provides details of the monitoring burden based on the minimum monitoring requirements of China RMA.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) review the information provided in the paper and **Attachment A**; and
- b) use the information to update the current monitoring burden anticipated for the Asia/Pacific RMAs.

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Attachment A: Estimated RVSM Monitoring Burden for Asia/Pacific Region as a result of Long Term Height Monitoring Requirements of Annex 6

China RMA Monitoring Burden (compiled March 2016)

Responsible State	Operator	Operator Name	Aircraft Monitoring Group (e.g[A342,A342])	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitoring
China	ALP	Allpoints Jet Co.,Ltd	GLF5	1	2	2	0
	BDJ	DEER JET(BEIJING)CO.,LTD	A330	1	2	2	0
	BDJ	DEER JET(BEIJING)CO.,LTD	A320	1	63	2	0
	BGC	Good Jet Co., Ltd	CL605	1	1	1	0
	BJN	Beijing Airlines	GLF5	1	1	1	1
	BJN	Beijing Airlines	GLF4	1	1	1	1
	BJN	Beijing Airlines	FA7X	1	3	2	0
	BJN	Beijing Airlines	F2TH	2	1	1	0
	BJN	Beijing Airlines	B737NX	1	1	1	0
	BJN	Beijing Airlines	A320	1	1	1	0
	BJN	Beijing Airlines	A318	1	1	1	1
	CAO	Air China Cargo	B772	1	8	2	0
	CAO	Air China Cargo	B752	1	4	2	0
	CAO	Air China Cargo	B744-10	1	3	2	0
	CBG	Guangxi Beibu Gulf Airlines Co., Ltd.	E170-190	1	10	2	2
	CCA	Air China	B773	1	20	2	0
	CCA	Air China	B772	1	10	2	0
	CCA	Air China	B748	2	7	5	0
	CCA	Air China	B744-LCF	2	2	2	0
	CCA	Air China	B744-10	1	2	2	0
	CCA	Air China	B737NX	1	136	2	0
	CCA	Air China	A330	1	53	2	0
CCA	Air China	A320	1	128	2	0	
CCD	Dalian Airlines	B737NX	1	8	2	0	
CDC	Zhejiang Loong Airlines Co.,Ltd	B737CL	1	3	2	0	

Responsible State	Operator	Operator Name	Aircraft Monitoring Group (e.g[A342,A342])	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitoring
China	CDC	Zhejiang Loong Airlines Co.,Ltd	A320	1	14	2	0
	CDG	Shandong Airlines	CRJ7	1	2	2	0
	CDG	Shandong Airlines	B737NX	1	91	2	0
	CES	China Eastern Airlines	B773	1	13	2	0
	CES	China Eastern Airlines	B737NX	1	46	2	0
	CES	China Eastern Airlines	B737CL	1	5	2	0
	CES	China Eastern Airlines	A330	1	42	2	0
	CES	China Eastern Airlines	A320	1	255	2	0
	CES-IGA	China Eastern Airlines Excecutive Air	H25B-800	1	1	1	1
	CES-IGA	China Eastern Airlines Excecutive Air	GLF5	1	3	2	2
	CES-IGA	China Eastern Airlines Excecutive Air	GLF4	1	2	2	2
	CES-IGA	China Eastern Airlines Excecutive Air	GALX	1	1	1	1
	CES-IGA	China Eastern Airlines Excecutive Air	E135-145	1	5	2	2
	CES-IGA	China Eastern Airlines Excecutive Air	BD100	1	1	1	1
	CES-IGA	China Eastern Airlines Excecutive Air	A318	1	1	1	1
	CES-YN	China Eastern YunNan Airlines	B737NX	1	68	2	0
	CES-YN	China Eastern YunNan Airlines	A330	1	3	2	0
	CFI	Flight Inspection Center of CAAC	GLF4	1	1	1	1
	CFI	Flight Inspection Center of CAAC	GLF4	1	1	1	1
	CFI	Flight Inspection Center of CAAC	C750	1	1	1	1
	CFI	Flight Inspection Center of CAAC	C750	1	1	1	1
	CFI	Flight Inspection Center of CAAC	C680	1	3	2	2
	CFI	Flight Inspection Center of CAAC	C680	1	3	2	2
	CFI	Flight Inspection Center of CAAC	C56X	1	5	2	2
	CFI	Flight Inspection Center of CAAC	C56X	1	5	2	2
	CGZ	Colorful Guizhou Airlines Company Limited	E170-190	1	3	2	2
CHB	West Air Company Limited	A320	1	22	2	0	

Responsible State	Operator	Operator Name	Aircraft Monitoring Group (e.g[A342,A342])	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitoring
China	CHH	Hainan Airlines	B787	2	10	6	0
	CHH	Hainan Airlines	B767	1	3	2	1
	CHH	Hainan Airlines	B737NX	1	121	2	0
	CHH	Hainan Airlines	A330	1	22	2	0
	CHJ	Star Jet Co., Ltd	GLF5	1	1	1	0
	CHJ	Star Jet Co., Ltd	GALX	1	1	1	0
	CHJ	Star Jet Co., Ltd	C560	1	1	1	0
	CJX	Jiangxi Air Co.,Ltd	B737NX	1	3	2	0
	CKK	China Cargo Airlines Ltd.	B772	1	6	2	0
	CKK	China Cargo Airlines Ltd.	B744-10	1	3	2	0
	CNM	Air China Inner Mongolia Co.,Ltd	B737NX	1	3	2	0
	CQH	Spring Airlines	A320	1	52	2	0
	CQN	Chongqing Airlines	A320	1	14	2	0
	CSC	Sichuan Airlines	A330	1	8	2	0
	CSC	Sichuan Airlines	A320	1	100	2	0
	CSH	Shanghai Airlines	B767	1	6	2	0
	CSH	Shanghai Airlines	B737NX	1	74	2	0
	CSH	Shanghai Airlines	A330	1	6	2	0
	CSN	China Southern Airlines	E170-190	1	21	2	0
	CSN	China Southern Airlines	B787	2	10	6	0
	CSN	China Southern Airlines	B773	1	9	2	0
	CSN	China Southern Airlines	B772	1	16	2	0
	CSN	China Southern Airlines	B752	1	12	2	2
	CSN	China Southern Airlines	B744-10	1	2	2	2
	CSN	China Southern Airlines	B737NX	1	159	2	0
	CSN	China Southern Airlines	B737CL	1	3	2	2
CSN	China Southern Airlines	A380	2	5	3	0	
CSN	China Southern Airlines	A330	1	37	2	0	

Responsible State	Operator	Operator Name	Aircraft Monitoring Group (e.g[A342,A342])	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitoring
China	CSN	China Southern Airlines	A320	1	238	2	0
	CSS	Shunfeng Airlines	B767	1	1	1	1
	CSS	Shunfeng Airlines	B752	1	16	2	0
	CSS	Shunfeng Airlines	B737CL	1	13	2	0
	CSZ	Shenzhen Airlines	B737NX	1	85	2	0
	CSZ	Shenzhen Airlines	B737CL	1	2	2	2
	CSZ	Shenzhen Airlines	A320	1	79	2	0
	CUA	China United Airlines	B737NX	1	30	2	0
	CUH	Urumqi Airlines co.,Ltd.	B737NX	1	6	2	0
	CXA	Xiamen Airlines	B787	2	6	4	0
	CXA	Xiamen Airlines	B752	1	4	2	0
	CXA	Xiamen Airlines	B737NX	1	124	2	0
	CYZ	China Postal Airlines	B737CL	1	22	2	0
	DER	Shanghai Deer Jet Co.,Ltd	H25B-800	1	2	2	0
	DER	Shanghai Deer Jet Co.,Ltd	GLF5	1	6	2	0
	DER	Shanghai Deer Jet Co.,Ltd	GLF4	1	8	2	0
	DER	Shanghai Deer Jet Co.,Ltd	GALX	1	4	2	0
	DER	Shanghai Deer Jet Co.,Ltd	FA7X	1	2	2	1
	DER	Shanghai Deer Jet Co.,Ltd	F2TH	2	1	1	0
	DKH	Juneyao Airlines	A320	1	50	2	0
	EPA	Donghai Airlines	B737NX	1	11	2	0
	EPA	Donghai Airlines	B737CL	1	2	2	2
	EPB	Donghai Jet Co. Ltd	CL600	1	2	2	0
	EPB	Donghai Jet Co. Ltd	BD100	1	2	2	0
	FSJ	Free Sky Aviation Co.,Ltd	P180	2	2	2	2
	FSJ	Free Sky Aviation Co.,Ltd	CARJ	1	2	2	2
FZA	FUZHOU AIRLINES CO.,LTD	B737NX	1	7	2	0	
GCR	Tianjin Airlines	E170-190	1	44	2	2	

Responsible State	Operator	Operator Name	Aircraft Monitoring Group (e.g[A342,A342])	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitoring
China	GCR	Tianjin Airlines	E135-145	1	21	2	2
	GCR	Tianjin Airlines	A330	1	1	1	1
	GCR	Tianjin Airlines	A320	1	23	2	0
	GDC	Grand China Airlines	B737NX	1	2	2	0
	HAH	Hanhwa Business Jet Airlines Co.,Ltd	BD100	1	2	2	0
	HBH	Hebei Airlines	E170-190	1	6	2	0
	HBH	Hebei Airlines	B737NX	1	9	2	0
	HFJ	YIFENG BUSINESS JET CO.,LTD	CL605	1	1	1	0
	HHG	Hanergy Jet CO.,LTD	GLF5	1	4	2	0
	HXA	China Express Air	CRJ9	1	23	2	0
	HYT	YTO CARGO AIRLINES CO., LTD.	B737CL	1	3	2	0
	ICU	Reignwood Asia Aviation Co., Ltd	LJ60	1	2	2	1
	ICU	Reignwood Asia Aviation Co., Ltd	BE40	1	1	1	1
	JBE	Sinojet(Beijing)Co.,Ltd	GLF5	1	1	1	0
	JBE	Sinojet(Beijing)Co.,Ltd	GLF4	1	1	1	0
	JBE	Sinojet(Beijing)Co.,Ltd	GALX	1	1	1	1
	JBE	Sinojet(Beijing)Co.,Ltd	E135-145	1	2	2	0
	JBE	Sinojet(Beijing)Co.,Ltd	CL605	1	1	1	0
	JYH	9 Air Company Limited.	B737NX	1	7	2	0
	KNA	Kunming Airlines	B737NX	1	14	2	0
	LKE	Lucky Air	B737NX	1	21	2	0
	LKE	Lucky Air	A320	1	7	2	0
	LLJ	Beijing Mayboune General Aviation Co.,LTD	GALX	1	2	2	2
	MJC	Mandarin Air Co.,Ltd	GLF5	1	1	1	0
MJC	Mandarin Air Co.,Ltd	GLF4	1	1	1	0	
MJC	Mandarin Air Co.,Ltd	G280	2	1	1	0	
MZT	ZYB Lily Jet	GLEX	1	3	2	0	

Responsible State	Operator	Operator Name	Aircraft Monitoring Group (e.g[A342,A342])	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitoring
China	MZT	ZYB Lily Jet	GALX	1	1	1	1
	MZT	ZYB Lily Jet	CL605	1	1	1	0
	MZT	ZYB Lily Jet	CL604	1	2	2	0
	MZT	ZYB Lily Jet	CARJ	1	4	2	1
	MZT	ZYB Lily Jet	BD700	2	1	1	0
	NEJ	NetJets Business Aviation Limited	H25B-800	1	2	2	0
	NSJ	Nanshan Jet Co.,Ltd	GLF5	1	2	2	0
	NSJ	Nanshan Jet Co.,Ltd	GLF4	1	3	2	0
	NSJ	Nanshan Jet Co.,Ltd	CL605	1	1	1	0
	NSJ	Nanshan Jet Co.,Ltd	B737CL	1	1	1	0
	OKA	Okay Airway Ltd.	B737NX	1	19	2	0
	OKA	Okay Airway Ltd.	B737CL	1	1	1	0
	QDA	QINGDAO AIRLINES CO.,LTD	A320	1	9	2	0
	QSR	Sparkel Roll Jet Co.,Ltd.	P180	2	2	2	2
	QSR	Sparkel Roll Jet Co.,Ltd.	CARJ	1	1	1	1
	RLH	Ruili Airkinex Company Limited	B737NX	1	7	2	0
	TBA	Tibetan Airlines	A320	1	16	2	0
	UEA	Chengdu Airlines Co., Ltd.	A320	1	21	2	0
	UNA	Business Aviation Asia Ltd.	LJ60	1	1	1	1
	UNA	Business Aviation Asia Ltd.	GLF5	1	5	2	0
	UNA	Business Aviation Asia Ltd.	GLF4	1	8	2	0
	UNA	Business Aviation Asia Ltd.	GLEX	1	2	2	0
	UNA	Business Aviation Asia Ltd.	FA7X	1	4	2	0
	UNA	Business Aviation Asia Ltd.	F900	1	1	1	0
UNA	Business Aviation Asia Ltd.	CL605	1	2	2	0	
UNA	Business Aviation Asia Ltd.	CARJ	1	3	2	0	
UNA	Business Aviation Asia Ltd.	C525	1	1	1	1	
UNA	Business Aviation Asia Ltd.	A320	1	1	1	0	

Responsible State	Operator	Operator Name	Aircraft Monitoring Group (e.g[A342,A342])	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitoring
China	UNA	Business Aviation Asia Ltd.	A318	1	1	1	0
	UTP	Uni-top Airlines	B747CL	1	2	2	1
	UTP	Uni-top Airlines	A300	1	1	1	1
	XAI	Apex Air Co., Ltd	CARJ	1	1	1	1
	YZR	Yangze River Express Airlines	B744-5	1	1	1	0
	YZR	Yangze River Express Airlines	B744-10	1	2	2	0
	YZR	Yangze River Express Airlines	B737NX	1	2	2	0
	YZR	Yangze River Express Airlines	B737CL	1	19	2	0
Total China					2,860	311	66

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Aircraft Type Count	Resultant Monitoring Burden (# Airframes)	Remaining # of Monitors
DPRK	KOR	Air Koryo	A148	2	2	2	0
			IL62	2	4	3	3
			IL76	2	1	1	1
			T134	2	1	1	1
			T154	1	1	1	1
			T204	2	2	2	0
Total DPRK					11	10	6

China RMA Grand Total (China+DPRK)	Total Aircraft Type Count	Resultant Monitoring Burden	Remaining # of Monitoring
	2,871	321	72