



ICAO

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**Twenty-Fifth Meeting of the Regional Airspace Safety
Monitoring Advisory Group (RASMAG/25)**

Video Teleconference, 27 – 30 October 2020

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 (LTHM) requirement. The data were based on the Reduced Vertical Separation Minimum (RVSM) approval database by the end of June, 2020.

1. INTRODUCTION

The Long Term Height Monitoring (LTHM) Impact Statement developed by RASMAG was endorsed by APANPIRG/20 in September 2009. In RASMAG/24 meeting China RMA provided the burden list to the meeting, and this paper provides updated burden information.

2. DISCUSSION

2.1 In the last version, there were 96 operators with 3782 aircraft and the biennial monitoring number is about 441. By the end of June, 2020, there were 93 Chinese operators with 3987 aircraft. The biennial monitoring burden is 562 and there are 82 aircraft remaining to be monitored in this year.

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

2.3 Since 2008, China RMA has been using four sets of EGMU/E2GMU to conduct on-board monitoring for Chinese Airlines. China RMA started to adopt ADS-B Height Monitoring System (AHMS) for HKP monitoring in 2014. With the use of ADS-B ground-based monitoring system, a majority of aircraft of Chinese operators have received successful monitoring records, which significantly reduced the on-board monitoring burden. At the same time, an increasing number of foreign aircraft could also receive valid monitoring records from the ADS-B monitoring system, which helped to support these fleets to meet long-term height monitoring requirements.

2.4 The sudden outbreak of the COVID-19 has affected the on-board monitoring work for China RMA. Early this year, restricted by the outbreaks, the China RMA did its best to achieve its duty. The engineers confirmed the operational status of the aircraft with the operators, so that the monitoring plan can be updated and delivered in a timely manner. ADS-B monitoring was adopted to carry out aircraft HKP monitoring for vast majority of the aircraft operating in our responsible RVSM airspace, ensuring the safe and orderly operation of the aircraft. The China RMA informed the Civil Aviation Administration of China (CAAC) the obstacles that disabled it from the on-board monitoring and requested necessary assistance accordingly.

2.5 Stressing the necessity to secure the RVSM airspace HKP monitoring and meet the relevant ICAO requirements during the hard time, a public notice was jointly published by the Flight Standards Department of CAAC and the Air Traffic Management Bureau (ATMB) to support the operational monitoring. The notice requires the operators that were not able to finish their assigned monitoring works to coordinate with the China RMA to complete the tasks by the end of this year.

2.6 Since the COVID-19 has been effectively controlled in China, China RMA has begun the on-board monitoring work since July 2020. As a result, 28 aircraft has been monitored by the end of September. The on-board monitoring work is gradually returning to normal.

2.7 The valid monitoring records shared from other RMAs on the Knowledge Service Network are also considered when producing the burden list in this paper.

2.8 For the Democratic People's Republic of Korea (DPRK), there are 4 aircraft registered in China RMA and we have conducted on-board HKP monitoring for 3 aircraft in 2018. Affected by COVID-19, China RMA could not conduct on-board monitoring for DPRK Korea's aircraft this year. China RMA is trying to keep in touch and coordinate with DPR Korea for the monitoring schedule.

2.9 Attachment A provides details of the monitoring burden based on the RVSM 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;
- b) use the information to update the current monitoring burden anticipated for the Asia/Pacific RMAs; and
- c) discuss any relevant matters as appropriate.

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Appendix A: Estimated RVSM Monitoring Burden for China RMA as a result of Long Term Height Monitoring Requirements of Annex 6

(compiled JUN 2020)

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
ZB	BDJ	DEER JET (BEIJING) CO.,LTD	A320	1	2	2	0	2	2	0
			CL605	1	1	1	0	1	1	0
			FA7X	1	3	2	0	2	2	0
			GLF4	1	5	2	0	4	4	0
			GLF5	1	9	2	0	9	8	0
			GLF6	2	5	3	0	5	5	0
	BGC	Good Jet Co., Ltd	CL605	1	1	1	0	1	1	0
	BJN	Beijing Airlines	A320	1	1	1	0	0	1	0
			B737NX	1	4	2	0	3	1	0
			FA7X	1	1	1	0	0	1	0
			GLF4	1	1	1	0	0	0	1
			GLF5	1	1	1	0	0	1	0
	BNH	Guangzhou Baoneng Business Aviation Co.,Ltd	GLF5	1	1	1	0	1	1	0
	CAO	Air China Cargo	B744-10	1	3	2	0	3	3	0
			B752	1	4	2	0	4	2	2
			B772	1	8	2	0	8	8	0
	CBG	Guangxi Beibu Gulf Airlines Co., Ltd.	A320	1	6	2	0	6	6	0
			A320N	2	4	3	0	4	4	0
			E170-190	1	14	2	0	5	0	2
	CBJ		A320	1	68	2	0	66	66	0

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
		Beijing Capital Airlines Co., Ltd	A320N	2	5	3	0	5	5	0
			A330	1	11	2	0	11	11	0
	CCA	Air China	A320	1	142	2	0	142	141	0
			A320N	2	31	19	0	31	20	0
			A330	1	59	2	0	59	59	0
			A350	2	10	6	0	10	10	0
			B38M	2	13	8	0	13	7	0
			B737NX	1	125	2	0	119	117	0
			B744-10	1	2	2	0	2	2	0
			B744-LCF	2	1	1	0	1	1	0
			B748	1	7	2	0	7	6	0
			B773	1	28	2	0	28	28	0
			B787	1	14	2	0	14	13	0
	CCD	Dalian Airlines	B737NX	1	13	2	0	13	12	0
	CCO	CHINA AIR CARGO CO.,LTD	B752	1	1	1	0	0	0	1
	CDC	Zhejiang Loong Airlines Co.,Ltd	A320	1	32	2	0	32	32	0
			A320N	2	12	8	0	11	11	0
			B737CL	1	3	2	2	0	0	0
	CDG	Shandong Airlines	B38M	2	7	5	0	7	5	0
			B737NX	1	121	2	0	121	117	0
	CES	China Eastern Airlines	A320	1	297	2	0	297	297	2
			A320N	2	32	20	0	32	28	0
			A330	1	53	2	0	53	53	0
A350			2	7	5	0	7	7	0	
B737NX			1	74	2	0	74	73	0	

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
			B773	1	20	2	0	20	20	0
	CES-YN	China Eastern YunNan Airlines	B38M	2	3	2	0	3	0	0
			B737C	1	2	2	0	2	2	0
			B737NX	1	75	2	0	75	75	0
			B787	1	3	2	0	3	3	0
	CFI	Flight Inspection Center of CAAC	C56X	1	11	2	2	5	0	1
			C680	1	3	2	2	0	0	2
			C750	1	1	1	0	0	0	0
			GLF4	1	1	1	0	0	0	1
	CFZ	China Flight General Aviation Co.,Ltd	C560	1	1	1	0	0	0	1
	CGH	AIR GUILIN CO.,LTD	A320	1	11	2	0	11	11	2
	CGN	CHANGAN AIRLINES CO.,LTD	B737NX	1	11	2	0	11	11	2
	CGZ	Colorful Guizhou Airlines Company Limited	A320N	2	1	1	0	0	1	1
			E170-190	1	9	2	2	9	2	0
	CHB	West Air	A320	1	30	2	0	30	30	0
			A320N	2	5	3	0	5	5	0
	CHH	Hainan Airlines	A330	1	33	2	0	33	33	0
			A350	2	2	2	0	2	0	0
			B38M	2	11	7	0	11	11	0
			B737NX	1	141	2	0	137	137	0
			B787	1	38	2	0	38	38	0
	CHJ	Star Jet Co., Ltd	C56X	1	1	1	0	0	0	1

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
			GALX	1	1	1	0	0	0	1
			GLF5	1	1	1	0	0	0	1
	CJX	Jiangxi Air Co.,Ltd	AJ27	2	1	1	0	0	0	1
			B737NX	1	10	2	0	10	10	0
	CKK	China Cargo Airlines Ltd.	B744-10	1	3	2	0	3	3	0
			B772	1	6	2	0	6	6	0
	CNM	Air China Inner Mongolia Co.,Ltd	B737NX	1	8	2	0	8	7	0
	CQH	Spring Airlines	A320	1	80	2	0	80	80	0
			A320N	2	16	10	0	13	15	0
	CQN	Chongqing Airlines	A320	1	18	2	0	17	15	0
			A320N	2	10	6	0	10	9	0
	CSC	Sichuan Airlines	A320	1	130	2	1	130	129	0
			A320N	2	11	7	2	11	9	0
			A330	1	16	2	0	15	16	0
			A350	2	4	3	1	4	4	0
	CSH	Shanghai Airlines	A330	1	3	2	0	3	3	0
			B38M	2	11	7	0	11	11	0
			B737NX	1	82	2	0	82	82	0
			B787	1	7	2	0	7	7	0
	CSN	China Southern Airlines	A320	1	286	2	0	275	275	2
			A330	1	46	2	0	46	46	0
			A350	2	6	4	0	6	6	0
			A380	2	5	3	0	5	5	0
			B38M	2	17	11	0	17	12	0
			B737NX	1	196	2	0	196	188	0
			B744-10	1	2	2	0	2	2	0

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
			B772	1	14	2	0	12	12	0
			B773	1	15	2	0	15	15	0
			B787	1	25	2	0	25	25	0
			E170-190	1	12	2	0	12	11	0
	CSS	Shunfeng Airlines	B737CL	1	17	2	2	0	0	2
			B744-10	1	2	2	0	2	2	0
			B752	1	32	2	0	5	5	0
			B767	1	8	2	0	7	7	0
	CSZ	Shenzhen Airlines	A320	1	85	2	0	85	85	2
			A320N	2	11	7	0	11	11	0
			A330	1	6	2	0	6	6	0
			B38M	2	5	3	0	5	5	0
			B737NX	1	83	2	0	81	81	0
	CTJ	Tianjin Air Cargo Company Limited	B737CL	1	2	2	2	0	0	0
			B737NX	1	1	1	0	0	0	1
	CUA	China United Airlines	B737NX	1	53	2	0	53	49	0
	CUH	Urumqi airlines co.,Ltd.	B737NX	1	15	2	2	15	5	0
	CWR	Beijing City International Business Jet Co.,Ltd	FA7X	1	2	2	0	2	1	0
	CXA	Xiamen Airlines	B38M	2	10	6	0	10	10	0
			B737NX	1	146	2	0	146	146	0
			B787	1	12	2	0	12	12	0
	CYE	ORDOS General Aviation co,LTD	E55P	1	1	1	1	0	0	1

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
	CYN	Colorful Yunnan General Aviation Co.,Ltd	E55P	1	2	2	0	2	0	0
	CYZ	China Postal Airlines	B737CL	1	18	2	0	0	12	0
			B737NX	1	2	2	0	0	2	1
			B752	1	7	2	0	0	0	2
	DER	Shanghai Deer Jet Co.,Ltd	FA7X	1	3	2	0	3	3	0
			G280	2	1	1	0	0	1	0
			GALX	1	1	1	0	1	1	0
			GLF4	1	3	2	0	3	3	0
			GLF5	1	4	2	0	4	4	0
			GLF6	2	3	2	0	3	3	0
			DKH	Juneyao Airlines	A320	1	67	2	0	67
	A320N	2			2	2	0	1	2	2
	B787	1			6	2	0	6	6	0
	DLC	Dehong South Asian General Aviation Co.,Ltd	B737NX	1	1	1	0	0	1	0
	EPA	Donghai Airlines	B737NX	1	23	2	0	23	23	0
	EPB	Donghai Jet Co. Ltd	BD100	1	2	2	0	2	1	0
			CL600	1	2	2	0	2	2	0
	FJT	Future Air Co.,Ltd	E135-145	1	1	1	0	1	1	0
	FZA	FUZHOU AIRLINES CO.,LTD	B38M	2	2	2	0	2	2	0
			B737NX	1	14	2	0	14	14	0
	GCR	Tianjin Airlines	A320	1	31	2	0	31	31	2
			A320N	2	2	2	0	2	2	0

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
			A330	1	6	2	0	6	6	0
			E170-190	1	48	2	0	41	19	0
	GDC	Grand China Airlines	B737NX	1	3	2	0	0	0	2
	HAH	Hanhwa Business Jet Airlines Co.,Ltd	BD100	1	2	2	0	2	2	0
	HBH	Hebei Airlines	B737NX	1	22	2	0	22	22	0
			E170-190	1	6	2	2	0	5	0
	HFJ	YIFENG BUSINESS JET CO.,LTD	CL605	1	1	1	0	1	1	0
	HHG	Hanergy Jet CO.,LTD	GLF5	1	2	2	0	2	2	0
	HNJ	China Southern Jet Co.,LTD	GLEX	1	1	1	0	1	1	0
	HXA	China Express Air	A320	1	11	2	0	11	9	0
			CRJ9	1	38	2	0	38	15	0
	HYN	Shenzhen Funian Business Aviation Co.,Ltd	GLF4	1	2	2	0	2	2	0
	HYT	YTO CARGO AIRLINES CO., LTD.	B737CL	1	7	2	2	0	0	0
			B752	1	5	2	1	5	5	0
	ICU	Asia Air Medical(Beijing) Ltd	G280	2	1	1	0	0	1	0
			LJ60	1	2	2	0	0	0	2

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
	IGA-CG	Shanxi Victory General Aviation Co.,Ltd.	C56X	1	1	1	1	0	0	0
	JBE	Bear Jet Co.,Ltd	CL605	1	1	1	0	1	1	0
			E135-145	1	4	2	0	4	4	0
			E170-190	1	1	1	0	1	0	1
			FA7X	1	2	2	0	2	2	0
			G280	2	2	2	0	2	2	0
			GALX	1	2	2	0	1	0	1
			GLF4	1	1	1	0	1	1	0
			GLF5	1	2	2	0	2	2	0
			GLF6	2	2	2	0	1	1	1
	JOY	JOY AIR	B737NX	1	1	1	0	0	0	1
	JSU	JIANGSU JET CO.,LTD	CARJ	1	3	2	0	1	2	0
	JYH	9 Air Company Limited.	B38M	2	1	1	0	1	0	0
			B737NX	1	19	2	0	19	19	0
	KNA	Kunming Airlines	B38M	2	2	2	0	2	1	0
			B737NX	1	29	2	0	28	22	0
	LHA	Guangdong Longhao Airlines Co., Ltd.	B737CL	1	6	2	2	0	0	0
	LKE	Lucky Air	A320	1	9	2	0	8	9	2
			A320N	2	6	4	0	6	0	0
			A330	1	5	2	1	5	0	0
			B38M	2	3	2	0	3	0	0
			B737NX	1	32	2	0	32	30	0

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
	LLJ	Beijing Mayboune General Aviation Co.,LTD	GALX	1	2	2	0	0	0	2
	LNM	LIAONING MERIDIAN JET CO.,LTD	CL600	1	2	2	0	1	2	1
			GLF4	1	1	1	0	1	1	0
	MJC	Mandarin Air Co.,Ltd	G280	2	1	1	0	1	1	0
			GLF4	1	1	1	0	1	1	0
			GLF5	1	2	2	0	2	1	0
			GLF6	2	1	1	0	1	0	0
	MZT	ZYB Lily Jet	CARJ	1	5	2	0	4	2	0
			CL604	1	2	2	1	0	1	1
			G280	2	1	1	0	1	0	0
			GL5T	1	1	1	0	1	1	0
			GL7T	2	1	1	0	1	0	0
			GLEX	1	3	2	0	3	2	0
			GLF6	2	1	1	0	1	0	1
	NMG	Genghis Khan Airlines Co.,Ltd	AJ27	2	4	3	0	0	0	3
	NSJ	Nanshan Jet Co.,Ltd	F2TH	2	1	1	0	1	1	0
			GLF4	1	2	2	0	2	2	0
			GLF5	1	4	2	0	4	3	0
	OKA	Okay Airway Ltd.	B38M	2	2	2	0	0	1	1
			B737CL	1	1	1	0	0	0	1
			B737NX	1	27	2	2	27	27	0
	OTC	YUNNAN HONGTU	A320	1	9	2	0	9	3	2
			A320N	2	3	2	0	0	3	3

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		AIRLINES CO.,LTD.								
	OTT	OTT Airlines Co.,Ltd	BD100	1	1	1	0	1	1	0
			E135-145	1	3	2	0	3	3	0
			G280	2	1	1	0	1	1	0
			GLF4	1	1	1	0	0	1	1
			GLF5	1	3	2	0	3	3	0
			GLF6	2	1	1	0	1	1	0
	QDA	QINGDAO AIRLINES CO.,LTD	A320	1	14	2	0	14	14	0
			A320N	2	11	7	0	11	11	0
	QSR	Sparkel Roll Jet Co.,Ltd.	CL600	1	2	2	0	2	0	0
			E545-550	2	1	1	0	1	0	0
	RLH	Ruili Airkines Company Limited	B737NX	1	20	2	0	20	19	0
	SNG	Longjiang Airlines Co.,Ltd.	A320	1	2	2	0	2	2	2
	STJ	EMPER GENERAL AVIATION (SUZHOU) CO., LTD.	C680	1	2	2	0	2	0	0
	SZA	SHENZHEN ASTRO GENERAL AVIATION CO.,LTD	CARJ	1	3	2	0	2	2	0
			GALX	1	1	1	0	0	1	0
			GLF4	1	1	1	0	1	1	0
			H25B-800	1	1	1	1	0	0	0
	TBA	Tibetan Airlines	A320	1	27	2	0	27	25	0

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
			A330	1	5	2	0	5	0	0
	TCI	Brilliant Jet Co.Ltd	CL605	1	1	1	0	1	1	0
			F900	1	1	1	0	1	1	0
			GLEX	1	1	1	0	1	1	0
			GLF4	1	1	1	0	1	1	0
	TXJ	Amber aviation Limited	FA7X	1	1	1	0	1	1	0
			GLF4	1	1	1	1	0	1	1
			GLF5	1	4	2	0	4	3	0
			GLF6	2	1	1	0	1	1	0
	UEA	Chengdu Airlines Co., Ltd.	A320	1	36	2	0	36	34	2
			AJ27	2	19	12	2	12	0	5
	UNA	Business Aviation Asia Ltd	A318	1	1	1	0	1	1	0
			CARJ	1	1	1	0	1	1	0
			CL605	1	1	1	0	1	1	0
			E135-145	1	1	1	0	0	0	1
			FA7X	1	7	2	0	7	6	0
			GL5T	1	1	1	0	1	1	0
			GLEX	1	2	2	0	2	2	0
			GLF4	1	2	2	0	2	2	0
			GLF5	1	6	2	0	6	5	0
			GLF6	2	2	2	0	2	2	0
			LJ60	1	1	1	0	1	0	0
	UTP	Uni-top Airlines	A300	1	6	2	0	6	3	0
	WFH	WanFeng General Aviation Co.,Ltd	CL605	1	1	1	0	1	1	0
			E50P	1	1	1	0	1	0	1
			GLEX	1	1	1	0	0	1	1
	XAI	Apex Air Co., Ltd	CARJ	1	4	2	0	3	3	0

Responsible State	Operator	Operator Name	Aircraft Monitoring Group	MMR Category (1, 2 or 3)	Total Approved Airframes	Resultant Monitoring Burden	China EGMU	China ADS-B	OTHER RMA	Remaining # of Monitoring
	YZR	Yangze River Express Airlines	B737CL	1	11	2	0	0	4	0
			B737NX	1	9	2	0	9	9	0
			B744-10	1	3	2	0	2	3	0
			B744-5	1	1	1	0	0	1	0
			B787	1	2	2	0	2	2	0
	SAJ	Saint Jet Co., Ltd	C56X	1	2	2	0	0	0	2
	CBW	SH Bellawings Airlines Limited	CRJ2	1	1	1	0	0	0	1
	HLF	Central Airlines CO., LTD	B737CL	1	1	1	0	0	0	1
DPRK	KOR	Air Koryo	A148	2	2	2	0	0	0	0
			T204	2	2	2	0	0	0	0
Total					3991	566				82