



GOVERNMENT OF INDIA  
CIVIL AVIATION DEPARTMENT  
**DIRECTOR GENERAL OF CIVIL AVIATION**

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# **AIRWORTHINESS ADVISORY CIRCULAR**

**Subject: Procedures for approval of RVSM operations and Minimum Height Monitoring requirements.**

## **1. INTRODUCTION**

Reduced Vertical Separation Minimum (RVSM) airspace is any designated airspace/route between FL 290 and FL 410 inclusive where aircraft are separated vertically by 1000 ft (300 m). Civil Aviation Requirements, Section – 2 series O part XI requires that both the individual aircraft and the specific aircraft type or types that the operator intends to use will need to be approved by DGCA before the operator conducts flights in RVSM airspace. This Airworthiness Advisory Circular gives the procedures to be followed and also minimum height monitoring requirements in respect of the aircraft which have been approved for RVSM operations.

## **2. PROCEDURES**

The RVSM Approval will encompass the following elements: -

- a) Airworthiness aspects (including continued airworthiness)
- b) Operational requirements
- c) Provision for height monitoring of operator's aircraft

Operators intending to undertake RVSM operations should apply for RVSM approval to the concerned Regional Airworthiness Office along with compliance of CAR, section –2 , O part XI. The Compliance / conformity report should include specific reference of Operations manual / Maintenance manuals, the means of complying with the requirements of the CAR. On satisfactory compliance with the requirements, the operator will be given RVSM operational approval for the specific aircraft by DGCA.

## **3. INITIAL MONITORING**

All Asia operators that operate or intend to operate in airspace where RVSM is applied are required to participate in the RVSM monitoring program. The attached

chart of monitoring requirements (Appendix –I) establishes requirements for initial monitoring associated with the RVSM approval process. In their application to the RAO for RVSM approval, operators must show a plan for meeting the applicable initial monitoring requirements.

#### **4. APPLICABILITY OF MONITORING FROM OTHER REGIONS**

Monitoring data obtained in conjunction with RVSM monitoring programs from other regions can be accepted by DGCA to meet Asia monitoring requirements provided the Monitoring Agency for Asia Region (MAAR) confirms the same.

#### **5. MONITORING OF AIRFRAMES THAT ARE RVSM COMPLIANT ON DELIVERY**

If an operator adds new RVSM compliant airframes of a type for which it already has RVSM operational approval and has completed monitoring requirements for the type in accordance with the attached chart, the new airframes are not required to be monitored. If an operator adds new RVSM compliant airframes of an aircraft type for which it has not previously received RVSM operational approval, then the operator should complete monitoring in accordance with the Appendix-I.

#### **6. RVSM VALIDITY AND REVALIDATION**

(i) Scheduled Operators: The operational approval for RVSM will be granted by endorsing Operations specification of the scheduled operator's permit. The approval for RVSM is initially granted for a period of 06 months. Within the period of 06 months, operator should subject his aircraft for height monitoring either through ground based Height Monitoring Unit (HMU) or a portable Global Positioning System Height Monitoring Unit (GMU). Regular approval will be granted based on satisfactory height monitoring report from Monitoring agencies. In case the operator has subjected a minimum number of his aircraft for height monitoring as per the chart given in the Appendix- I, regular approval will be granted for that type of aircraft.

(ii) Non-Scheduled Operators & General Aviation Operators: The operational approval for RVSM will be granted by issue of authorization letter. The approval for RVSM is initially granted for a period of 06 months. Within the period of 06 months, operator should subject his aircraft for height monitoring by either through ground based Height Monitoring Unit (HMU) or a portable Global Positioning System Height Monitoring Unit (GMU). Regular approval will be granted based on satisfactory height monitoring report from Monitoring agencies. The RVSM approval will be valid for 02 years.

## 7. FOLLOW-ON MONITORING

Monitoring is an on-going program that will continue after the RVSM approval process. Operators should carryout follow-on sampling program for additional operator aircraft, as follows.

**Scheduled Operators:** Scheduled operators should subject a minimum number of each of the type of aircraft to height monitoring every two years as per the Appendix-I A rotation programme should be established so that all the aircraft of the same type of aircraft are subjected to height monitoring over a period of time.

**Non - Scheduled Operators & General Aviation Operators:** Non - Scheduled Operators & General Aviation Operators should subject each of their RVSM complaint aircraft for height monitoring every two years.



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# APPENDIX – I

## HEIGHT MONITORING REQUIREMENTS

### MONITORING AGENCY FOR ASIA REGION (MAAR)

MONITORING IS REQUIRED IN ACCORDANCE WITH THIS CHART, HOWEVER, IT IS NOT REQUIRED TO BE COMPLETED PRIOR TO OPERATIONAL APPROVAL		
MONITORING CATEGORY	AIRCRAFT TYPE	MINIMUM OPERATOR MONITORING FOR EACH AIRCRAFT GROUP
<p>1</p> <p>Group approved and monitoring data indicates performance in accordance with RVSM standards.</p> <p><b>Group Definition:</b> aircraft have been manufactured to a nominally identical design and build and for RVSM airworthiness approval fall into a group established in an RVSM certification document (e.g., Service Bulletin, Supplemental Type Certificate, Type Certificate Data Sheet).</p>	<p>[A30B, A306], [A312 (GE), A313 (GE)], [A312 (PW), A313 (PW)], A318, [A319, A320, A321], [A332, A333], [A342, A343], A344, A345, A346</p> <p>B712, [B721, B722], [B733, B734, B735], B737(Cargo), [B736, B737/BBJ, B738/BBJ, B739], [B741, B742, B743], B74S, B744 (5" Probe), B744 (10" Probe), B752, B753, [B762, B763], B764, B772, B773</p> <p>CL60(600/601), CL60(604), C560, [CRJ1, CRJ2], CRJ7, DC10, [E135, E145], F100, GLF4, GLF5, LJ60</p> <p>L101, MD10, MD11, MD80 (All series), MD90</p>	<p>Two airframes from each fleet* of an operator to be monitored as soon as possible but <b>not later than 6 months after the issue of RVSM operational approval</b></p> <p><i>* Note. For the purposes of monitoring, aircraft within brackets [ ] may be considered as belonging to the same monitoring group. For example, an operator with six A332 and four A333 aircraft may monitor one A332 and one A333 or two A332 aircraft or two A333 aircraft.</i></p>

2	Group approved but insufficient monitoring data collected to move aircraft to Monitoring Category 1. Group definition applies.	Other group aircraft other than those listed in Category 1 including:  A124, ASTR, B703, B731, B732, BE20, BE40, C500, C25A, C25B, C525, C550**, C56X, C650, C750, CRJ9, [DC86, DC87], DC93, DC95, F2TH, [FA50 FA50EX], F70, [F900, F900EX], FA20, FA10, GLF2(II), GLF(IIB), GLF3, GALX, GLEX, H25B(700), H25B(800), H25C, IL62, IL76, IL86, IL96, J328, L29(2), L29(731), LJ31, [LJ35, LJ36], LJ45, LJ55, SBR1, T134, T154, T204, P180, PRM1, YK42	60% of airframes from each fleet of an operator (round up if fractional), as soon as possible but <b>not later than 6 months after the issue of RVSM operational approval.</b>  (*Note: If 60 percent of the fleet yields a fractional number, round up to the next whole aircraft (e.g., for a fleet of 2 aircraft, $0.6 \times 2 = 1.2$ ; therefore, 2 aircraft must be monitored).  ** Refer to aircraft group table for detail on C550 monitoring
3	Non-Group  <b>Non-group Definition:</b> aircraft that do not fall under the group definition <u>and</u> for RVSM airworthiness approval are presented as an individual airframe.	Non-group approved aircraft	100% of aircraft shall be monitored as soon as possible but <b>not later than 6 months after the issue of RVSM operational approval.</b>

**MONITORING GROUPS FOR AIRCRAFT CERTIFIED UNDER GROUP APPROVAL REQUIREMENTS**

<b>Monitoring Group</b>	<b>ICAO Designator</b>	<b>Aircraft Type</b>	<b>Aircraft Series</b>
A124	A124	AN-124 RUSLAN	ALL SERIES
A300	A306 A30B	A300 A300	600, 600F, 600R, 620, 620R, 620RF B2-100, B2-200, B4-100, B4-100F, B4-120, B4-200, B4-200F, B4-220, C4-200
A310-GE	A310	A310	200, 200F, 300, 300F
A310-PW	A310	A310	220, 220F, 320
A318	A318	A318	ALL SERIES
A320	A319 A320 A321	A319 A320 A321	CJ , 110, 130 110, 210, 230 110, 130, 210, 230
A330	A332, A333	A330	200, 220, 240, 300, 320, 340
A340	A342, A343,	A340	210, 310
A345	A345	A340	540
A346	A346	A340	640
A3ST	A3ST	A300	600R ST BELUGA
AN72	AN72	AN-74, AN-72	ALL SERIES
ASTR	ASTR	1125 ASTRA	ALL SERIES
ASTR-SPX	ASTR	ASTR SPX	ALL SERIES
AVRO	RJ1H, RJ70, RJ85	AVRO	RJ70, RJ85, RJ100
B712	B712	B717	200
B727	B721 B722	B727	100, 100C, 100F, 100QF, 200, 200F
B732	B732	B737	200, 200C
B737 (Classic)	B733 B734 B735	B737	300, 400, 500
B737 New Generation (NG)	B736 B737 B738 B739	B737 B737 B737 B737	600 700, 700BBJ 800 900
B737 (Cargo)	B737	B737	700C
B747 Classic (CL)	B741 B742 B743	B747	100, 100B, 100F, 200B, 200C, 200F, 200SF, 300
B74S	B74S	B747	SR, SP
B744-5	B744	B747	400, 400D, 400F (With 5 inch Probes)
B744-10	B744	B747	400, 400D, 400F (With 10 inch Probes)
B752	B752	B757	200, 200PF
B753	B753	B757	300
B767	B762	B767	200, 200EM, 200ER, 200ERM,

Monitoring Group	ICAO Designator	Aircraft Type	Aircraft Series
	B763		300, 300ER, 300ERF
B764	B764	B767	400ER
B772	B772	B777	200, 200ER, 300, 300ER
B773	B773	B777	300, 300ER
BE40	BE40	BEECHJET 400A	ALL SERIES
BE20	BE20	BEECH 200 -KINGAIR	ALL SERIES
C500	C500	500 CITATION, 500 CITATION I, 501 CITATION I SINGLE PILOT	ALL SERIES
C525	C525	525 CITATIONJET, 525 CITATIONJET I	ALL SERIES
C525-II	C25A	525A CITATIONJET II	ALL SERIES
C525 CJ3	C25B	CITATIONJET III	ALL SERIES
C550-552	C550	552 CITATION II	ALL SERIES
C550-B	C550	550 CITATION BRAVO	ALL SERIES
C550-II	C550	550 CITATION II, 551 CITATION II SINGLE PILOT	ALL SERIES
C550-SII	C550	S550 CITATION SUPER II	ALL SERIES
C560	C560	560 CITATION V, 560 CITATION V ULTRA, 560 CITATION V ULTRA ENCORE	ALL SERIES
C56X	C56X	560 CITATION EXCEL	ALL SERIES
C650	C650	650 CITATION III , 650 CITATION VI , 650 CITATION VII	ALL SERIES
C750	C750	750 CITATION X	ALL SERIES
CARJ	CRJ1, CRJ2	REGIONALJET	100, 200, 200ER, 200LR
CRJ-700	CRJ7	REGIONALJET	700
CRJ-900	CRJ9	REGIONALJET	900
CL600	CL60	CL-600 CL-601	CL-600-1A11 CL-600-2A12, CL-600-2B16
CL604	CL60	CL-604	CL-600-2B16
BD100	CL30	CHALLENGER 300	ALL SERIES
BD700	GL5T	GLOBAL 5000	ALL SERIES
CONC	CONC	CONCORDE	ALL SERIES
DC10	DC10	DC-10	10, 10F, 15, 30, 30F, 40, 40F
DC86-7	DC86, DC87	DC-8	62, 62F, 72, 72F
DC93	DC93	DC-9	30, 30F
DC95	DC95	DC-9	SERIES 51
E135-145	E135, E145	EMB-135, EMB-145	ALL SERIES
F100	F100	FOKKER 100	ALL SERIES
F2TH	F2TH	FALCON 2000	ALL SERIES
F70	F70	FOKKER 70	ALL SERIES

Monitoring Group	ICAO Designator	Aircraft Type	Aircraft Series
F900	F900	FALCON 900, FALCON 900EX	ALL SERIES
FA10	FA10	FALCON 10	ALL SERIES
FA20	FA20	FALCON 20 FALCON 200	ALL SERIES
FA50	FA50	FALCON 50, FALCON 50EX	ALL SERIES
GALX	GALX	1126 GALAXY	ALL SERIES
GLEX	GLEX	BD-700 GLOBAL EXPRESS	ALL SERIES
GLF2	GLF2	GULFSTREAM II (G-1159),	ALL SERIES
GLF2B	GLF2	GULFSTREAM IIB (G-1159B)	ALL SERIES
GLF3	GLF3	GULFSTREAM III (G-1159A)	ALL SERIES
GLF4	GLF4	GULFSTREAM IV (G-1159C)	ALL SERIES
GLF5	GLF5	GULFSTREAM V (G-1159D)	ALL SERIES
H25B-700	H25B	BAE 125 / HS125	700B
H25B-800	H25B	BAE 125 / HAWKER 800XP, BAE 125 / HAWKER 800, BAE 125 / HS125	ALL SERIES/A, B/800
H25C	H25C	BAE 125 / HAWKER 1000	A , B
IL86	IL86	IL-86	NO SERIES
IL96	IL96	IL-96	M , T, 300
J328	J328	328JET	ALL SERIES
L101	L101	L-1011 TRISTAR	1 (385-1), 40 (385-1), 50 (385-1), 100, 150 (385-1-14), 200, 250 (385-1-15), 500 (385-3)
L29B-2	L29B	L-1329 JETSTAR 2	ALL SERIES
L29B-731	L29B	L-1329 JETSTAR 731	ALL SERIES
LJ31	LJ31	LEARJET 31	NO SERIES, A
LJ35/6	LJ35 LJ36	LEARJET 35 LEARJET 36	NO SERIES, A
LJ40	LJ40	LEARJET 40	ALL SERIES
LJ45	LJ45	LEARJET 45	ALL SERIES
LJ55	LJ55	LEARJET 55	NO SERIES B, C
LJ60	LJ60	LEARJET 60	ALL SERIES
MD10	MD10	MD-10	ALL SERIES
MD11	MD11	MD-11	COMBI, ER, FREIGHTER, PASSENGER
MD80	MD81, MD82, MD83, MD87,	MD-80	81, 82, 83, 87, 88

Monitoring Group	ICAO Designator	Aircraft Type	Aircraft Series
	MD88		
MD90	MD90	MD-90	30, 30ER
P180	P180	P-180 AVANTI	ALL SERIES
PRM1	PRM1	PREMIER 1	ALL SERIES
T134	T134	TU-134	A, B
T154	T154	TU-154	A , B, M, S
T204	T204, T224, T234	TU-204, TU-224, TU- 234	100, 100C, 120RR, 200, C
YK42	YK42	YAK-42	ALL SERIES