International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

WORKING PAPER

GTE/26 — WP/05
21/09/26

Twenty-Sixth Scrutiny Working Group Meeting (GTE/26)
of the CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Asynchronous (virtual): 9 to 25 September 2026
In person: Mexico City, Mexico, 12 to 16 October 2026

Agenda Item 3: **Review of the Results of the Analysis of Large Height Deviations (LHDs) and of the Collision Risk Model (CRM)**
3.6 Flight plan audit report

CAR/SAM RVSM AUDIT PROCESS

(Presented by CARSAMMA)

EXECUTIVE SUMMARY

This Working Paper provides an overview of the non-approved operators that have used RVSM (Reduced Vertical Separation Minimum) airspace monitored by CARSAMMA in the Caribbean and South America, based on traffic samples from March to December 2025. RVSM approval records up to August 2026 were used for the evaluation.

Action:	The suggested actions are listed in Section 3.
Strategic Objectives:	• Every Flight is Safe and Secure • Aviation is Environmentally Sustainable • Aviation Delivers Seamless, Accessible, and Reliable Mobility for All • No Country Left Behind • The International Civil Aviation Convention and Other Treaties, Laws and Regulations Address All Challenges • The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All
References:	• ICAO Doc 9937 - Operating Procedures and Practices for Regional Monitoring Agencies in Relation to the Use of a 300 m (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 inclusive, second edition, 2019. • Aircraft ASE and RVSM Collision Risk Analyses: FAA, ASE Workshop, Oct. 19, 2017.

1. Introduction

1.1 As part of the functions of an RMA, as described in ICAO Doc 9937, CARSAMMA performs periodic verifications on operators' compliance with State approval requirements in the airspace of the CAR/SAM Regions. The objective of these controls is to identify unapproved operators and aircraft that use RVSM airspace to ensure the operational safety of the airspace.

2. Discussion

2.1. CARSAMMA cross-checks the data contained in the traffic samples against the combined database of approvals for all RMAs. This document describes the process used by CARSAMMA to identify aircraft operating in RVSM airspace without mandatory approval in the database of this RMA. Because the aircraft registration number is unavailable for some traffic samples, the RVSM airspace audit cannot guarantee complete verification of the approval status of those samples.

2.2. Considering CARSAMMA's scenario, operations without a registration number generally come from operators outside the CAR/SAM regions. There are RMAs that, when contacted, can identify the registration. For operators in the CAR/SAM regions, the traffic samples generally contain the registration number.

2.3. The audit process preliminarily verified a total sample of 584,757 operations in RVSM airspace during the year 2025. Subsequently, following the necessary communications with aviation authorities and other RMA, several aircraft records were assigned an RVSM non-approval status in the CARSAMMA database, as described in Table 1.

	Month 2025	MAR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Number of Flights	22,389	133,149	95,785	79,985	49,901	34,673	81,975	36,623	50,277
First phase	**Audited registrations (CAR/SAM)**	99	159	131	116	131	87	73	84	82
	Approved registrations (CAR/SAM)	20	20	22	14	17	9	5	20	10
	Audited registrations (from another regions)	4	121	51	11	15	6	4	9	16
	Approved registrations (from another regions)	4	83	46	9	14	6	2	5	7
Final phase	***Total audited***	103	280	182	127	146	93	77	93	98
	Total approved	**24**	**103**	**68**	**23**	**31**	**15**	**7**	**25**	**17**
	Total non-approved	**79**	**177**	**114**	**104**	**115**	**78**	**70**	**68**	**81**

Table 1 – Key figures from the 2025 audit

2.4 From Table 1, the actual number of flight movements received by CARSAMMA could only be analysed in full in May 2025. In the other months, the process considered partial samples of the flight movements. The difference in the number of movements analysed from month to month is solely due to the workload associated with other activities.

2.5. Some non-approved aircraft operate very frequently. The risk is not distributed; it is concentrated among a few recurrent operators who have a significant impact.

2.6. Therefore, the main problem in the verification process is the lack of communication from Civil Aviation Authorities (CAA) following the first phase of the analysis.

2.7. Appendix 1 lists the 249 entries that appear as non-approved in 2025 in the CARSAMMA database. Most of these entries originate from Brazil and Argentina. Some of these entries carry out regular operations at various FIRs across several states, as illustrated in Appendix 2.

2.8. It is important to note that the second column of Appendix 1, which shows the number of flights for each registration, represents a much higher number of flight hours in RVSM airspace, which significantly increases the risk for each FIR overflown by these aircraft, especially since their Altimetry System Error (ASE) value is unknown.

2.9. Since the ASE value is unknown, it is not possible to calculate the Technical Risk these aircraft pose; only the Operational Risk can be calculated. This means that these registrations can and should generate LIMA-category LHDs, so that the risk these aircraft pose does not remain unseen and the Vertical Collision Risk in CAR/SAM regions be more accurate, as shown in Appendix 3.

3. Action by the meeting

3.1. The Meeting is invited to:

a) Note the content of this work paper;

b) Urge the States listed in Appendix 1 to verify the approval status of the aircraft registrations mentioned in this document, particularly Argentina and Brazil, which have the largest number of unapproved registrations currently in the CARSAMMA database.

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APPENDIX 1 - Registrations without valid RVSM approval in the CARSAMMA databases

Registration	N. of Flights	ICAO Type	OPR	STATE
LVKJA	588	A320	JES	ARGENTINA
LVIVN	571	A320	JES	ARGENTINA
LVGVE	501	B38M	ARG	ARGENTINA
LVGVD	473	B38M	ARG	ARGENTINA
LVKKD	454	B38M	ARG	ARGENTINA
LVHKU	448	B38M	ARG	ARGENTINA
LVCPI	447	E190	ARG	ARGENTINA
LVKJD	430	B738	FBZ	ARGENTINA
LVGVB	429	B738	ARG	ARGENTINA
LVHEK	422	A320	JES	ARGENTINA
LVHKW	419	B38M	ARG	ARGENTINA
LVKEF	416	B738	FBZ	ARGENTINA
LVGKT	409	B738	ARG	ARGENTINA
LVKIU	406	B38M	ARG	ARGENTINA
LVHKN	404	B738	FBZ	ARGENTINA
LVCIG	402	E190	ARG	ARGENTINA
LVGUC	399	B738	ARG	ARGENTINA
LVGIQ	396	E190	ARG	ARGENTINA
LVFQZ	394	B738	ARG	ARGENTINA
LVHKV	389	B38M	ARG	ARGENTINA
LVGKU	386	B738	ARG	ARGENTINA
LVFUB	385	B738	ARG	ARGENTINA
LVGVC	371	B738	ARG	ARGENTINA
LVFPT	370	E190	ARG	ARGENTINA
LVFUA	369	B738	ARG	ARGENTINA
LVFQY	368	B738	ARG	ARGENTINA
LVFQC	362	B738	ARG	ARGENTINA
LVGUB	350	B738	ARG	ARGENTINA
LVCMA	348	E190	ARG	ARGENTINA
LVFWS	345	B738	ARG	ARGENTINA
LVKJE	345	B738	FBZ	ARGENTINA
LVHVT	339	A320	JES	ARGENTINA
LVGOO	330	B738	ARG	ARGENTINA
LVFVI	329	A332	ARG	ARGENTINA
LVCIH	328	E190	ARG	ARGENTINA
LVCMB	328	E190	ARG	ARGENTINA
LVFVH	327	A332	ARG	ARGENTINA
LVFUC	326	B738	ARG	ARGENTINA
LVFPS	325	E190	ARG	ARGENTINA

LVGIF	318	A332	ARG	ARGENTINA
LVGKO	313	A332	ARG	ARGENTINA
LVCIF	312	E190	ARG	ARGENTINA
LVCID	308	E190	ARG	ARGENTINA
LVCPJ	289	E190	ARG	ARGENTINA
LVFRQ	285	B738	ARG	ARGENTINA
LVGVA	260	B738	ARG	ARGENTINA
LVGHQ	254	A332	ARG	ARGENTINA
LVCHO	244	E190	ARG	ARGENTINA
LVFVM	244	B738	ARG	ARGENTINA
LVGKS	244	B738	ARG	ARGENTINA
LVFVN	238	B738	ARG	ARGENTINA
LVFSK	229	B738	ARG	ARGENTINA
LVCHS	222	E190	ARG	ARGENTINA
LVGFQ	219	B738	ARG	ARGENTINA
LVCBF	217	B737	ARG	ARGENTINA
LVGGQ	216	B738	ARG	ARGENTINA
LVKHO	188	B738	FBZ	ARGENTINA
LVCEV	184	E190	ARG	ARGENTINA
LVCKZ	182	E190	ARG	ARGENTINA
LVIVO	175	A320	JES	ARGENTINA
LVGKP	173	A332	ARG	ARGENTINA
LVCHQ	166	E190	ARG	ARGENTINA
LVCPK	162	E190	ARG	ARGENTINA
LVCDZ	152	E190	ARG	ARGENTINA
LVBYY	142	B737	ARG	ARGENTINA
LVCEU	142	E190	ARG	ARGENTINA
LVCXS	126	B738	ARG	ARGENTINA
LVCXT	99	B738	ARG	ARGENTINA
LVCET	85	E190	ARG	ARGENTINA
LVHVE	59	E145	AJB	ARGENTINA
LVKHQ	55	B738	ARG	ARGENTINA
T99	44	B737	*Fuerza Aérea Argentina*	ARGENTINA
LVBZO	35	B737	ARG	ARGENTINA
LVHKS	29	B738	ANS	ARGENTINA
LVGVT	28	LJ60	YYY	ARGENTINA
LVARR	16	B737	ANS	ARGENTINA
T96	16	E135	*Fuerza Aérea Argentina*	ARGENTINA
LVPPM	15	B737	ANS	ARGENTINA
T10	12	LJ60	*Fuerza Aérea Argentina*	ARGENTINA
LVJQQ	9	LJ60	YYY	ARGENTINA

LVKNP	9	B38M	ARG	ARGENTINA
T95	8	E135	*Fuerza Aérea Argentina*	ARGENTINA
LVKFB	6	C560	YYY	ARGENTINA
LVCEN	5	C551	YYY	ARGENTINA
LVFUF	5	LJ60	YYY	ARGENTINA
LVKKF	5	CL60	YYY	ARGENTINA
LVCCO	4	LJ60	YYY	ARGENTINA
LVKFL	4	C550	YYY	ARGENTINA
LVCCW	3	CL60	YYY	ARGENTINA
LVFWW	3	CL60	YYY	ARGENTINA
LVKCT	3	CL60	YYY	ARGENTINA
AE186	2	C550	YYY	ARGENTINA
LVBBG	2	H25B	YYY	ARGENTINA
LVCLF	2	BE40	YYY	ARGENTINA
LVFQ	2	B738	ARG	ARGENTINA
LVFQS	2	B738	ARG	ARGENTINA
LVIVIN	2	A320	JES	ARGENTINA
LVKAG	2	CL60	YYY	ARGENTINA
LVKBZ	2	C550	YYY	ARGENTINA
LVKJJ	2	LJ60	YYY	ARGENTINA
LVKNR	2	B38M	ARG	ARGENTINA
LVVVO	2	LJ60	YYY	ARGENTINA
T53	2	F28	*Fuerza Aérea Argentina*	ARGENTINA
LVAAR	1	B737	ANS	ARGENTINA
LVCAZ	1	GLF4	YYY	ARGENTINA
LVCEI	1	E190	ARG	ARGENTINA
LVCFJ	1	E190	ARG	ARGENTINA
LVCGJ	1	H25B	YYY	ARGENTINA
LVCHD	1	E190	ARG	ARGENTINA
LVCIO	1	LJ60	YYY	ARGENTINA
LVCIT	1	E190	ARG	ARGENTINA
LVFDQ	1	LJ60	YYY	ARGENTINA
LVFKW	1	B738	YYY	ARGENTINA
LVGKV	1	BE20	YYY	ARGENTINA
LVGVX	1	LJ45	YYY	ARGENTINA
LVHAW	1	LJ35	LVI	ARGENTINA
LVIWP	1	E35L	YYY	ARGENTINA
LVKDJ	1	B738	FBZ	ARGENTINA
LVKDT	1	BE20	YYY	ARGENTINA
LVTVN	1	A320	JES	ARGENTINA
LVVHG	1	E190	ARG	ARGENTINA

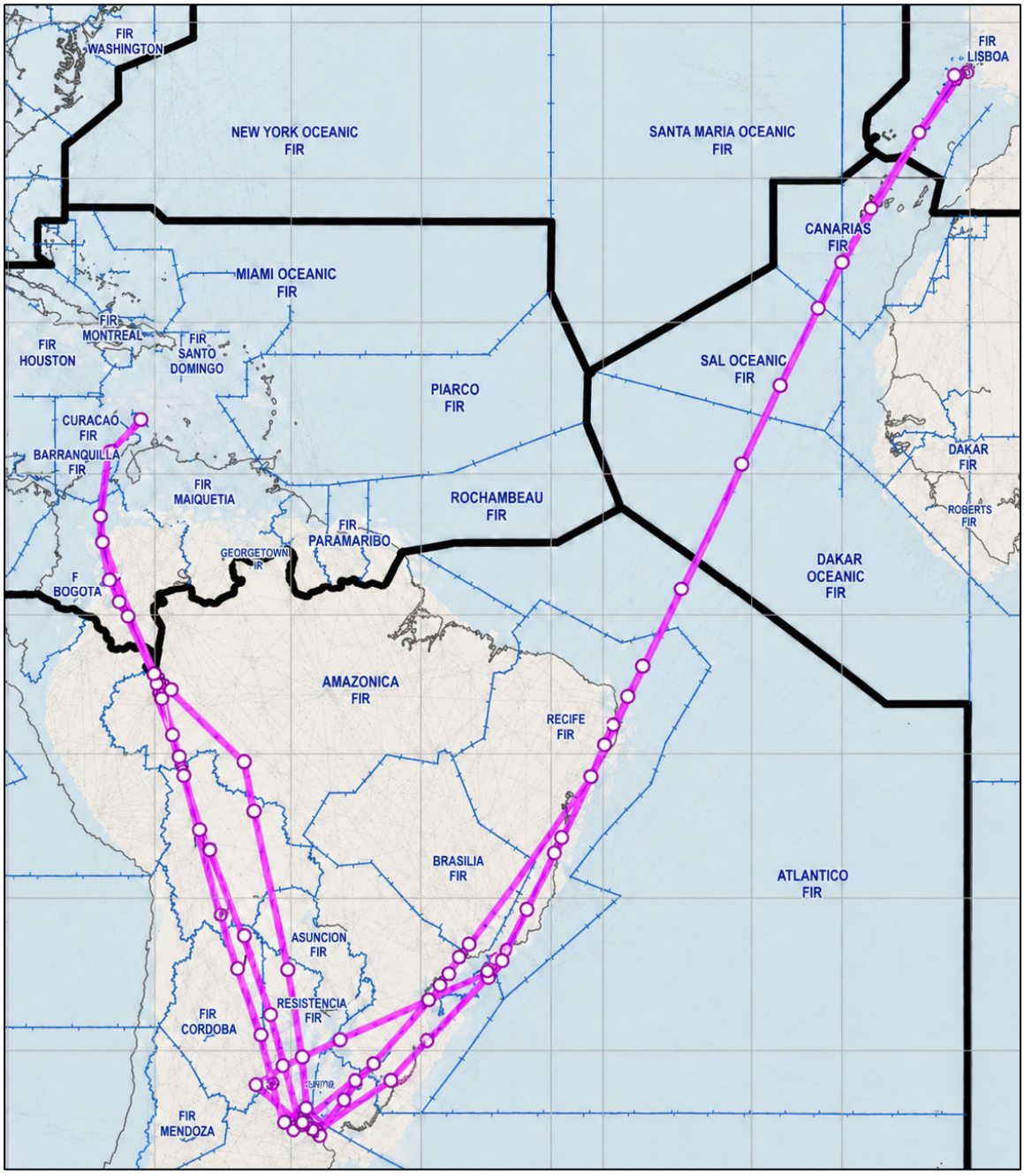
T94	1	E135	*Fuerza Aérea Argentina*	ARGENTINA
VR24	1	LJ35	*Fuerza Aérea Argentina*	ARGENTINA
C6BSG	14	C550	YYY	BAHAMAS
C6BCG	1	C550	YYY	BAHAMAS
PSTOT	105	B733	YYY	BRAZIL
PSTLG	91	B734	YYY	BRAZIL
BRS2858	70	E390	*Brazilian Air Force*	BRAZIL
PSTLF	55	B734	YYY	BRAZIL
BRS2859	47	E390	*Brazilian Air Force*	BRAZIL
PSTLH	40	B734	TTL	BRAZIL
BRS2860	32	E390	*Brazilian Air Force*	BRAZIL
BRS2855	28	E390	*Brazilian Air Force*	BRAZIL
BRS2857	27	E390	*Brazilian Air Force*	BRAZIL
BRS2854	26	E390	*Brazilian Air Force*	BRAZIL
PSGFI	18	B738	GLO	BRAZIL
PSLBP	15	A21N	TAM	BRAZIL
PRGPM	5	B38M	GLO	BRAZIL
PSSTE	5	LJ35	YYY	BRAZIL
PRGPB	4	B738	GLO	BRAZIL
PRGPN	4	ZZZZ	GLO	BRAZIL
PRGRD	4	B738	GLO	BRAZIL
PSEAB	4	A320	YYY	BRAZIL
PREGM	3	PA34	YYY	BRAZIL
PRGOL	3	B38M	GLO	BRAZIL
PRGPF	3	B738	GLO	BRAZIL
PRGPJ	3	B38M	GLO	BRAZIL
PRGRH	3	B38M	GLO	BRAZIL
PRMHB	3	A320	TAM	BRAZIL
PSGTC	3	B738	GLO	BRAZIL
PSGUJ	3	B738	GLO	BRAZIL
PSGXI	3	B738	GLO	BRAZIL
PSXMW	3	B738	GLO	BRAZIL
PRGPC	2	B738	GLO	BRAZIL
PRGPH	2	B38M	GLO	BRAZIL
PRGPI	2	B738	GLO	BRAZIL
PRGPK	2	B738	GLO	BRAZIL
PRGRA	2	B38M	GLO	BRAZIL
PRGRC	2	B38M	GLO	BRAZIL
PRGRF	2	B38M	GLO	BRAZIL
PRGRJ	2	B38M	GLO	BRAZIL
PRMXA	2	B38M	GLO	BRAZIL

PSGLP	2	B38M	GLO	BRAZIL
PSGNP	2	B38M	GLO	BRAZIL
PSGTE	2	B738	GLO	BRAZIL
PSGUI	2	B738	GLO	BRAZIL
PSXMY	2	B38M	GLO	BRAZIL
PRAEU	1	E295	AZU	BRAZIL
PRAQZ	1	E295	AZU	BRAZIL
PRGFA	1	B738	GLO	BRAZIL
PRGMZ	1	E545	ENS	BRAZIL
PRGPA	1	B738	GLO	BRAZIL
PRGPO	1	B38M	GLO	BRAZIL
PRGRE	1	B38M	GLO	BRAZIL
PRHMI	1	A320	TAM	BRAZIL
PRJXMK	1	B38M	GLO	BRAZIL
PRMBR	1	A320	LAP	BRAZIL
PRMXI	1	B38M	GLO	BRAZIL
PRMXM	1	B38M	GLO	BRAZIL
PRMXO	1	B38M	GLO	BRAZIL
PRMXQ	1	B38M	GLO	BRAZIL
PRTKM	1	AT76	AZU	BRAZIL
PRVBD	1	B738	GLO	BRAZIL
PRXWY	1	B38M	GLO	BRAZIL
PRYEU	1	A20N	AZU	BRAZIL
PRYYR	1	A20N	AZU	BRAZIL
PRZBN	1	A20N	TAM	BRAZIL
PRZMJ	1	B38M	GLO	BRAZIL
PRZMN	1	B38M	GOL	BRAZIL
PSBAS	1	E55P	YYY	BRAZIL
PSEAO	1	E295	AZU	BRAZIL
PSEAU	1	E295	AZU	BRAZIL
PSEGP	1	B738	GLO	BRAZIL
PSGDP	1	B38M	GLO	BRAZIL
PSGEC	1	B38M	GLO	BRAZIL
PSGGE	1	B738	GLO	BRAZIL
PSGGL	1	B738	GLO	BRAZIL
PSGGM	1	B738	GLO	BRAZIL
PSGGP	1	B738	GLO	BRAZIL
PSGGR	1	B38M	GLO	BRAZIL
PSGOQ	1	B737	GLO	BRAZIL
PSGRR	1	B738	GLO	BRAZIL
PSGTG	1	B738	GLO	BRAZIL

PSGUC	1	B738	GLO	BRAZIL
PSGZH	1	B738	GLO	BRAZIL
PSKMH	1	E55P	YYY	BRAZIL
PSPGN	1	B38M	GLO	BRAZIL
PSVBF	1	B738	GLO	BRAZIL
PSXMF	1	B38M	GLO	BRAZIL
PSXMG	1	B738	GLO	BRAZIL
PSXMJ	1	B38M	GLO	BRAZIL
PSXMK	1	B738	GLO	BRAZIL
PSXMP	1	B38M	GLO	BRAZIL
PSXMX	1	B738	GLO	BRAZIL
PSXMZ	1	B38M	GLO	BRAZIL
PSYRS	1	A20N	AZU	BRAZIL
PTLSE	1	BE9L	IEQ	BRAZIL
PTMZQ	1	A321	TAM	BRAZIL
PTTYI	1	A320	TAM	BRAZIL
PTXBJ	1	A321	TAM	BRAZIL
PTYSG	1	A20N	AZU	BRAZIL
FACH922	4	B733	*Fuerza Aérea de Chile*	CHILE
CCBHQ	2	A20N	LAN	CHILE
FACH911	2	GLF4	*Fuerza Aérea de Chile*	CHILE
CCKJA	1	A320	JES	CHILE
HCDAG	9	B734	YYY	ECUADOR
FAE1033	1	GLF2	*Fuerza Aérea Ecuatoriana*	ECUADOR
TGPAG	1	LJ40	YYY	GUATEMALA
HP1511	1	B738	RPB	PANAMA
HP1748	1	01B7	CMP	PANAMA
HP1820	1	01B7	CMP	PANAMA
ZPCRT	34	CRJ2	AZP	PARAGUAY
ZPCRS	30	CRJ2	AZP	PARAGUAY
YV613T	91	B734	VTU	VENEZUELA
YV622T	51	B734	VTU	VENEZUELA
YV3052	39	E190	VCV	VENEZUELA
YV3071	30	E190	VCV	VENEZUELA
YV3445	10	MD83	LER	VENEZUELA
YV3465	8	MD83	LER	VENEZUELA
YV663T	8	MD82	YYY	VENEZUELA
YV621T	7	B734	VTU	VENEZUELA
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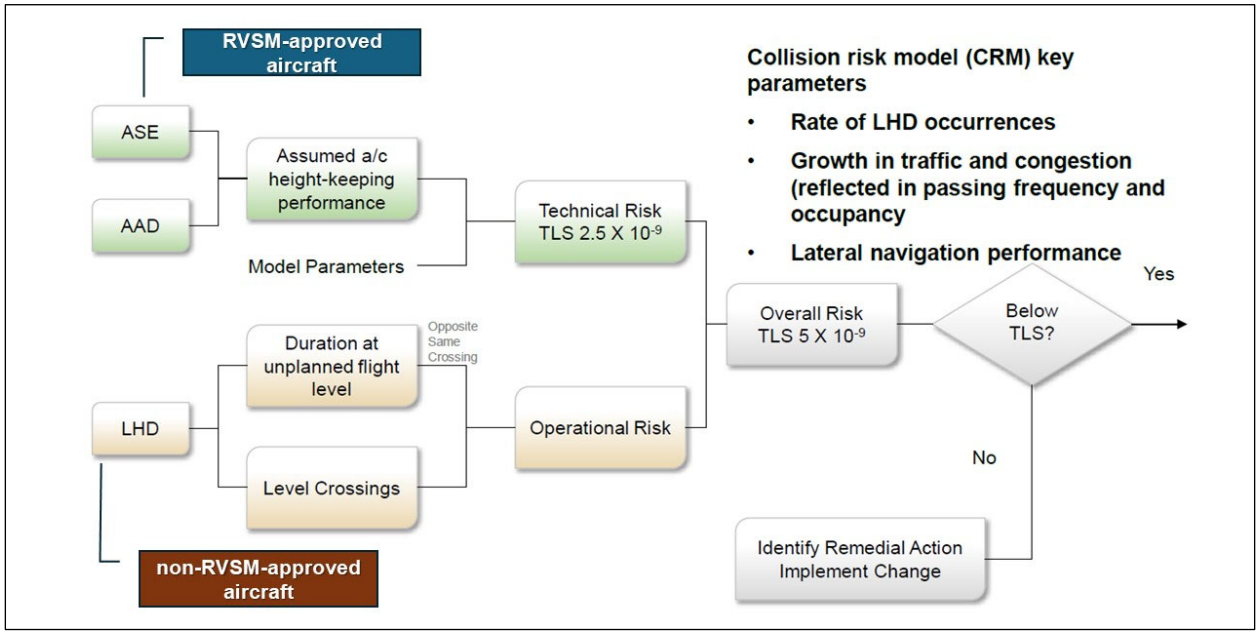
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YV2653	2	E190	VCV	VENEZUELA
YV2671	1	C550	PGG	VENEZUELA
YV2692	1	C550	YYY	VENEZUELA
YV3440	1	LJ55	YYY	VENEZUELA

APPENDIX 2 - Illustrative image showing a sample of routes frequently used by Argentine regular aviation aircraft that do not currently have RVSM approval in the CARSAMMA database



Plotted route positions on Skyvector

APPENDIX 3 – Ongoing Safety Monitoring (adapted)



Aircraft approved and not approved within the CRM parameters.

— END —