International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Eighteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/18)
(Punta Cana, Dominican Republic, 9 to 14 April 2018)

Agenda Item 7: Other business

FOLLOW-UP TO THE WORK OF THE GREPECAS SCRUTINY WORKING GROUP

(Presented by the Rapporteur of the GTE)

RESUMEN

The Scrutiny Working Group (GTE) has worked hard since the last GREPECAS meeting, evolving from a group of experts charged with validating large height deviation (LHD) reports sent by CARSAMMA to a group generating safety intelligence to enhance the decision-making process of States/international organisations of both Regions.

1. Introduction

1.1 Since the implementation of reduced vertical separation between flight levels 290 and 410 inclusive (RVSM), the Scrutiny Working Group (GTE), together with the CAR/SAM Monitoring Agency (CARSAMMA), has worked hard on continuous monitoring of system performance and on safety assessments, pursuant to ICAO Documents 9937 and 9574.

2. Scope

2.1 This report covers the activities carried out by the GTE during the period 2014-2017, as well as the safety analyses performed by CARSAMMA within the framework of Doc 9574, the safety analysis based on a safety management system (SMS), and the participation of the rapporteur of the GTE in other ICAO events related to LHDs.

3 Discussion

3.1 Over the period 2014-2017, the GTE has held face-to-face meetings and a series of virtual meetings to ensure the operability of the Group. Virtual meetings have enabled the Group to have virtual discussions on issues previously addressed at face-to-face meetings, thus allowing for a more efficient use of the short time available at face-to-face meetings. Likewise, CAR and SAM teleconferences were segregated in order to focus on the issues under discussion and make them more efficient.

3.2 A new LHD validation methodology has been implemented since 2014, whereby CARSAMMA, based on the data sent, validates each LHD and sends the results prior to each teleconference to the points of contact so that, in case of discrepancy with the validation made by CARSAMMA, it may be discussed during the virtual meeting.

3.3 The assessments made by CARSAMMA using the CRM methodology, show that RVSM airspace operations remain within the acceptable level of safety. Appendix A contains a table showing the results of CRM assessments during the period 2012-2016.

3.4 The GTE/14 meeting developed a project on Improved Safety Assessment in RVSM Airspace the purpose of which is to: Improve the collection and processing of data related to the duties and responsibilities of the CAR/SAM Monitoring Agency. Details of the project can be found in Appendix B to the report.

3.5 LHD analysis reveals that the trend of 94% of events attributable to coordination errors between adjacent ATC units persists, showing that the mitigation actions proposed have not been implemented or have not met their objective.

3.6 Although there is a 13% downward trend in the total number of occurrences in the last two years, States/international organisations need to take concrete action to mitigate these occurrences definitively, including AIDC implementation and RADAR data sharing.

3.7 Statistical data clearly show that those FIRs that have implemented AIDC and RADAR data sharing have reduced the number of LHDs practically to zero. Such is the case of the Havana and CENAMER FIRs, as well as Havana and Merida. These data were presented by the rapporteur at the NACC/WG/5 meeting held in Port-of-Spain, Trinidad and Tobago on 22-26 May 2017, together with the progress report of the work carried out by the GTE.

3.8 In the CAR region, the Santo Domingo, Curacao and Port-au-Prince FIRs account for 59% of LHDs in said Region. Despite an initiative of the NACC Office to start a dialogue between the first two FIRs, no satisfactory implementation of the proposed mitigation measures has been achieved. In the SAM Region, the Bogota, Barranquilla, Guayaquil and Lima FIRs account for more than 50% of occurrences in said Region. Note should be taken of the absence of Colombia at GTE meetings, and their lack of response to coordination efforts by POCs of neighbouring States for LHD validation.

3.9 Another factor is the lack of implementation, in both Regions, of the agreements undertaken by States, for instance, with respect to AIDC. Implementation groups must continue monitoring these agreements and include, if not already included, in the USOAP audit protocol, a mechanism to verify compliance of said regional agreements by States.

3.10 Another cause of LHD occurrences has been flight plan duplication in ATS systems, resulting in coordination of aircraft on one route and the aircraft entering the airspace on a route other than that coordinated.

3.11 The GTE/17 meeting formulated draft conclusion GTE/17-3 on training for focal points, which stated that: **Taking into account the need to schedule training activities through CARSAMMA for LHD focal points of the CAR/SAM Regions, the Secretariat request the support of GREPECAS for the conduction of these activities in 2018.**

3.12 The GTE has expressed concern over the delay by States/international organisations in sending LHD reports as well as data on RVSM airspace operations, which are expected in December each year for CRM assessment. Likewise, due to changes in the POCs, the quality of the data sent to CARSAMMA has dropped, requiring data confirmation and causing delays in Agency tasks.

3.13 A cause of concern is the number of State aircraft operations in RVSM airspace that use letter W in box 10, without being RVSM-approved, instead of inserting STS in box 18, which identifies

them as State aircraft. Furthermore, non-RVSM aircraft continue to operate in said airspace, which is a latent hazard that must be mitigated.

3.14 Likewise, at the GTE/17 meeting, the Secretariat explained the importance of information exchange between the GTE and the CAR and SAM implementation groups. Accordingly, starting in 2018, a formal information exchange process will be established between the GTE and the implementation groups. This process will be carried out through coordination among the ICAO Regional Offices, CARSAMMA and the Rapporteur of the GTE.

4. Conclusion

4.1 It is recommended that CAR/SAM States/international organisations complete AIDC implementation and RADAR data sharing, which are mitigation measures that will have a greater impact on reducing LHDs.

4.2 It is also recommended that, taking advantage of the presence of the representatives of the States mentioned in this working paper, GREPECAS *ad-hoc* groups be created to address the issue under consideration, with participation of the ATM regional officers and the Rapporteur of the GTE.

5. Action by GREPECAS

5.1 GREPECAS, in coordination with the aeronautical authority of Brazil, is required to analyse the possibility of expanding the scope of CARSAMMA activities so as to include the analysis of horizontal deviations.

5.2 GREPECAS, through the implementation groups and other stakeholders, is required to take the necessary measures to mitigate flight plan duplication in ATS systems in a definitive and comprehensive manner, and to continuous monitor the tasks carried out by the implementation groups of both Regions.

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APPENDIX A

Table of results of CRM assessment - 2012-2016

Year	Technical risk	TLS	Operational risk	TLS	Total risk	TLS	Result
2012	7,48 $x10^{-12}$	2.5 $x10^{-9}$	3.38 $x10^{-9}$	----	3,39 $x10^{-9}$	5.0 $x10^{-9}$	Below
2013	9.10 $x10^{-12}$	2.5 $x10^{-9}$	1.17 $x10^{-8}$	----	1.18 $x10^{-8}$	5.0 $x10^{-9}$	Above
2014	0,0508 $x10^{-9}$	2.5 $x10^{-9}$	1.80 x10	----	1.85$x10^{-9}$	5.0 $x10^{-9}$	Below
2015	2.46$x10^{-11}$	2.5 $x10^{-9}$	1.27$x10^{-9}$	----	1.29$x10^{-9}$	5.0 $x10^{-9}$	Below
2016	0.0261 $x10^{-9}$	2.5 $x10^{-9}$	1.1956$x10^{-9}$	----	1.2203$x10^{-9}$	5.0 $x10^{-9}$	Below
2017		2.5 $x10^{-9}$		----		5.0 $x10^{-9}$	

APPENDIX B

CARSAM Regions	Improved Safety Management in RVSM Airspace Project	Start	End
Programme coordinator: Eddian Méndez and Roberto Sosa	Project coordinator: Julio Alexis Lewis	2014	2018
Objective	Improve the collection and processing of data related to the duties and responsibilities of the CAR/SAM Monitoring Agency, in order to optimise the results of the: a) Quantitative safety assessment, based on the Reich collision risk model. b) Qualitative safety assessment, based on the safety management system (SMS). c) Investigation of non-RVSM aircraft in RVSM airspace. d) Proposal of measures to mitigate the identified hazards. e) Coordination with civil aviation authorities in relation to RVSM approval of aircraft and operators. f) Investigation of collection methodology/tool.		
Scope	The scope of the project contemplates the profile, training, and certification of experts of States and international organisations for the collection and processing of data, in order to allow CARSAMMA and the GTE to fulfil their duties and responsibilities. It also includes the identification and use of appropriate tools for the conduction of the work of the experts and CARSAMMA.		
Metrics	* Percentage of air traffic movement data actually used for quantitative safety assessment. * Percentage of LHD forms received with error. * Percentage reduction of LHDs. * Percentage reduction of non-RVSM aircraft flying in RVSM airspace.		

CARSAM Regions	Improved Safety Assessment in RVSM Airspace Project	Start	End
Programme coordinator: Eddian Méndez and Roberto Sosa	Project coordinator: Julio Alexis Lewis	2014	2018
Strategies	Project activities will be coordinated through communications among the members of the Scrutiny Working Group (GTE), the project coordinator and the programme coordinator *via* teleconferences and GTE meetings. The project coordinator will coordinate with the programme coordinator the inclusion of additional experts if so required by the tasks and work to be carried out. Moreover, States must verify that the profile, training and certification of experts are consistent with the collection and processing of data related to CARSAMMA activities.		
Goals	* 90% of air traffic movement data actually used in quantitative safety assessment. * 95% of LHD forms received without error * 20% annual reduction of LHDs. * 50% annual reduction of non-RVSM aircraft operations in RVSM airspace carried out by aircraft of registry or operators of the CAR/SAM Regions.		
Rationale	A significant amount of data collected by CAR and SAM States was lost in the last few years due to lack of information, errors and/or non-conformance of dates, hampering the fulfilment of CARSAMMA duties and responsibilities. Over the years, due to lack of data, CARSAMMA analyses have focused on "E" errors. In order to conduct a more comprehensive safety assessment, other sources of information must be sought in order to obtain data on other types of errors. Constant change of CARSAMMA focal points creates problems for the collection of the data required for the activities of the Agency.		

Project deliverables	Responsible party	Status of implementation	Delivery date	Comments
Preliminary training programme for focal points	Julio Alexis Lewis	Finalised	GTE/14	Finalised at GTE/14, to be found in the final report
CARSAMMA manual (Version 1.0)	Julio Alexis Lewis	Finalised	GTE/14	Finalised at GTE/14, to be found in the final report
Preliminary training programme for focal points (final version)	Julio Alexis Lewis	Developed	GTE/15	Submitted to GTE/16 and approved as part of the CAR/SAM POC guidance manual
Accreditation rules for CARSAMMA focal points	Julio Alexis Lewis	Developed	GTE/15	The draft of this programme was submitted to the GTE/15 meeting and approved at the GTE/16 meeting
CARSAMMA Manual (Version 2.0)	Julio Alexis Lewis	Developed	GTE/15	Approved and implemented at the GTE/16 meeting
Guide for the development of automated collection of air traffic movement data, using ATC systems	CARSAMMA	Eliminated		Due to differing surveillance systems in the Regions, it is impossible to accomplish the task
Action plans to mitigate LHDs	States/international organisations	Finalised	GTE/15	To be submitted again at the GTE/17 meeting
Monitoring programme	GTE	Finalised	GTE/15	To be submitted at the GTE/17 meeting

CARSAMMA audit data on non-RVSM aircraft	Total	YEAR	Total number of validated LHDs	LHD forms received	% validated LHDs	Annual variation of LHDs	LHD forms received without error	Total	LHD forms received	% forms received without error
2011	586	2011	687	824	83.4%	Start of measurement	2011	742	824	89.80%
2012	274	2012	1065	1327	80.3%	**(***) Increase: 378 LHDs = 35.5%**	2012	1195	1327	90.05%
2013	564	2013	1306	1463	89.3%	**Increase: 241 LHDs = 18.5%**	2013	1317	1463	90.02%
2014	**2967**	2014	1451	1717	84.5%	**Increase: 145 LHDs = 10%**	2014	1546	1717	90.04%
2015	**195**	2015	1225	1408	87.0%	**Reduction: 226 LHDs = 15.6%**	2015	1268	1408	90.06%
2016	17	2016	1088	1225	88.8%	**Reduction: 131 LHDs = 11%**	2016	1083	1280	84.6
2017	0	2017	0	0	0.0%		2017	0	0	0
Total	**4603**	**Total**	**6822**	**7964**	**85.7%**		**Total**	**7151**	**8019**	90.03%

Number of FIRs that sent data on time 2016	30	Number of FIRs that sent data on time 2015	21	Number of FIRs that sent data on time 2014	25	Number of FIRs that sent data on time 2013	19	Number of FIRs that sent data on time 2012	20
Number of FIRs that sent data out of time 2016	2	Number of FIRs that sent data out of time 2015	10	Number of FIRs that sent data out of time 2014	9	Number of FIRs that sent data out of time 2013	7	Number of FIRs that sent data out of time 2012	6
Number of FIRs that did not send data for CRM assessment 2016	2	Number of FIRs that did not send data for CRM assessment 2015	3	Number of FIRs that did not send data for CRM assessment 2014	1	Number of FIRs that did not send data for CRM assessment 2013	8	Number of FIRs that did not send data for CRM assessment 2012	8
Percentage utilisation of data sent for CRM analysis 2016	83	Percentage utilisation of data sent for CRM analysis 2015	80%	Percentage utilisation of data sent for CRM analysis 2014	75%	Percentage utilisation of data sent for CRM analysis 2013	72%	Percentage utilisation of data sent for CRM analysis 2012	73%
Total movements considered for CRM assessment 2016	212,985	Total movements considered for CRM assessment 2015	220,923	Total movements considered for CRM assessment 2014	338,441	Total movements considered for CRM assessment 2013	263,142	Total movements considered for CRM assessment 2012	273,926
SUBMITTED AT GTE 17	2016	**SUBMITTED AT GTE 16**	2015	**SUBMITTED AT GTE 15**	2014	**SUBMITTED AT GTE 14**	2013	**SUBMITTED AT GTE 13**	2012

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