



**Agenda Item 4: Report of activities and deliverables of the INTEROP TF and Subgroups
b) CNS implementation. Advances of the Subgroups**

LRM 6 ERROR MITIGATION

(Presented by the Rapporteur of the ATM/AIDC Subgroup)

SUMMARY	
<p>In compliance with conclusion SAM/IG/21-03, which requests States to monitor the functioning of the AIDC by recording the errors obtained in the notification, coordination and transfer stages. This working paper presents the work carried out jointly by Peru and Chile in order to eliminate the lack, duplication or multiplicity of flight plans for automated coordination.</p>	
References	
<ul style="list-style-type: none">- Pan Regional (NAT and APAC) Interface Control Document for ATS Interfacility Data Communications (PAN AIDC ICD);- Conclusion SAM/IG/21-03; and- SAM/IG/30-NE/3.3 Update and improvements AIDC PERU.	
ICAO Strategic Objectives	<p><i>A – Safety</i> <i>B – Air Navigation Capacity and Efficiency</i></p> <p><i>ASBU: FICE-B0/1 (AIDC)</i></p>

1. INTRODUCTION

1.1 The AIDC is an application whose objective is to automate the coordination between adjacent control centers by data communications, in order to reduce or minimize the use of oral coordination and, consequently, the operational errors associated with them.

1.2 The LIMA FIR has three operational AIDC connections with the adjacent FIRs: FIR BOGOTÁ (INDRA system with operation since 2019), FIR GUAYAQUIL (INDRA system with operation since 2018) and FIR ANTOFAGASTA (INDRA system with operation since 2018).

1.3 At the Twenty-ninth Workshop/Meeting of the SAM implementation group (SAM/IG/29), the representation of Peru presented the "NI/3.8 CURRENT STATUS OF THE AIDC INTERCONNECTION OF THE AIDC SYSTEM" with the aim of following up on the errors presented in the AIDC interactions with the states with which there are current AIDC connections.

1.4 Currently, FIR Lima, through its work teams led by the AIDC and UTFPL teams, seeks to ensure that these errors are eliminated and/or mitigated by carrying out the necessary actions in the different areas of interest.

1.5 At the thirtieth workshop/meeting of the SAM implementation group (SAM/IG/30), the Delegation of Peru presented the "NE 3.3 UPDATES AND IMPROVEMENTS AIDC PERU". The findings reported in this study note have been the starting point for the planning of LRM 6 and 7 error mitigation activities that are presented in the automated coordinations and that refer to the lack or duplication of flight plans, respectively.

2. DISCUSSION

2.1 As a result of the analysis and thanks to the traceability carried out by the work teams, with the errors found in the automated coordination, it was possible to identify repetitive patterns in the records that belong to the months of September, October, November and December 2023 as well as for the months of January and February 2024.

2.2 This traceability made it possible to identify LRM 6 continuums associated with the following flight plans: LAN576, LAN572, LAN578 and LAN580.

2.3 These flights regularly cover the route from SCEL to SKBO through the SPIM FIR and the SEGU FIR, regularly presenting, as part of the route, the entrance to the LIMA FIR via the FIX SORTA and the departure point of the LIMA FIR via the FIX VAKUD through the UL780 airway. It is important to note that when using this routing, the aforementioned flights had to pass through the FIR SEGU.

2.4 **Appendix A** to this study note presents the tables recording the flight plans specified in the months mentioned.

2.5 The analysis carried out by the work teams revealed that the addresses incorporated into the flight plans had SCELZPZX as their originator and were directed to the following directions: SPIMZQZX, SKEDZQZX, SKBOZTZX, SKBOZPZX and SKCLZPZX; As can be seen, the address of SEGUZQZX is not located within these addresses.

2.6 When some of the aforementioned flights were within the SPIM FIR and automated coordination via AIDC was initiated through the ABI, the error message of the FIR SEGU was received as LRM 6. This error message code indicated that the following FIR did not have the FPL within its FDP. This already repetitive event generated the interruption of automated coordination, forcing the intervention of the ATCO and therefore increased the risks associated with the possibility of generating LHDs as a result of a misinterpretation or ignorance of the processes of the AIDC.

2.7 As part of the activities aimed at mitigating these errors, the team in Peru began coordinating with SCEL colleagues in order to be able to schedule meetings that would allow them to present the findings and find a prompt solution to the problems.

2.8 The first bipartite meeting with FIR SCEL colleagues was held in December 2023. For this meeting, the delegation of Peru prepared and shared a comprehensive report that specified historically the incidents recorded in the flight plans in the aforementioned months. Also, as part of the report, flight plans were shared as they arrived or passed through the AMHS networks in Peru and the records of AIDC errors associated with automated coordination.

2.9 The SCEL representatives made the commitment to analyze the reports, coordinate with the different areas involved to identify what happened and share in the following meetings the conclusions they could have reached.

2.10 In the ensuing meetings, SCEL colleagues indicated that they had indeed been able to recognize the lack of FIR SEGU management within the flight plans with that routing and expressed their commitment to amend their lists and automated address templates to prevent the problem from recurring.

2.11 Finally, in March, SCEL received confirmation that the necessary measures had been adopted for FPLs involving the FIR SEGU. As can be seen in **Appendix A**, the evolution of the errors recorded for the month of March indicates that no new LRM 6 errors were recorded for the AIDC automated coordination on the observed route.

2.12 As part of the activities that will continue to be carried out by the task forces, **Appendix B** to this study note is shared, in which the number of transfers between the SPIM FIR and the SEGU FIR can be observed compared to the number of LRM 6 and LRM 7 errors for 2024 (as of the date of submission of this report). This log allows us to analyze the continuous evolution of LRM errors versus automated coordination (EST) month by month. Likewise, the recording of errors in automated coordination with other FIRs continues to generate historical data that allows us to know how mitigation activities are progressing.

2.13 As part of the next stages of activities, it is planned to start coordinating with the adjacent FIRs with the aim of progressively reducing the errors found related to LRMs 6 and 7. The development of these phases will allow us to mitigate other errors associated with coordination, strengthen coordination between States in order to make these advances more fluid and in the future be able to make agreements and commitments together with common objectives that allow us to move forward in a synchronized manner.

2.14 In **Appendix C**, you can assess the percentage growth or decrease in LRM errors over the previous month. This indicator allows us to quickly recognize any positive or negative impact as a result of the mitigating measures that are implemented through the working groups. Thanks to this value we can identify, for example, the entry of a new operator or a new route used that is generating errors in the AIDC coordination.

Use of New AIDC Tools

2.15 When ICAO, as part of the regional initiatives embodied in the Bogotá Declaration, began to require the implementation of the use of the AIDC as an automated means of coordination to support the reduction of LHD errors, and to reduce the workload of controllers in the States of the region, it was advisable that, at the beginning of its implementation and growth, any subsequent initiatives would not compromise or affect the AIDC automation coordination already in place.

2.16 Currently, there are regional initiatives, which are in their early stages of development, such as the FRTO, which promotes direct routing between FIRs in its most advanced evolutions. This year, the Peruvian State, together with the support of Ecuador, has begun some tests aimed at the objectives of these initiatives.

2.17 The development and robustness of these initiatives, at present, fall on automated coordination via AIDC (where there are established connections), which is why the Meeting is once again requested to use this automated means of coordination in an official manner, in order to improve and evolve in the use of the application, by means of new tools that it contains in order to take advantage of all its available benefits.

2.18 Likewise, in order to increase operational safety, avoid LHDs in the hot spots already identified at the level of the Lima FIR and at the regional level, among other operational benefits; It is recommended to implement and develop the use of other AIDC messages contemplated in the PAN ICD AIDC v1.0 document, such as the following:

- a) PCM
- b) PCA
- c) TRU
- d) FAN
- e) FCN

3. SUGGESTED ACTION

3.1 The Meeting is invited to:

- a) to take note of the information provided in this study note and to highlight the importance of the continuous monitoring of the different LRM 6 and 7 errors, as well as to be able to share the experiences and strategies of each of the States for the registration, traceability, analysis and other activities related to the mitigation of the errors;
- b) consider the continuous training of all operational personnel immersed in the operation of flight plans in order to minimize and/or avoid the negative impact derived from the incorrect manipulation and management of flight plans, and its effect on automated coordination throughout the different phases of operation; and
- c) evaluate the proposal to consider, at the regional level, the operational use of the additional AIDC messages listed in point 2.18.

APPENDIX A – LRM 6 ERROR LOG

September 2023

FECHA	LRM	ID	DEP	DEST	CIAS
3/9/23	7	LAN1106	SPJC	KLAX	LAN
4/9/23	6	LAN578	SCEL	SKBO	LAN
7/9/23	6	LAN9954	SCEL	SKBO	LAN
7/9/23	6	LAN578	SCEL	SKBO	LAN
8/9/23	6	LAN572	SCEL	SKBO	LAN
9/9/23	6	LAN578	SCEL	SKBO	LAN
10/9/23	6	LAN572	SCEL	SKBO	LAN
11/9/23	6	LAN533	KJFK	SCEL	LAN
11/9/23	6	LAN578	SCEL	SKBO	LAN
13/9/23	6	LAN572	SCEL	SKBO	LAN
14/9/23	6	LAN578	SCEL	SKBO	LAN
15/9/23	6	LAN572	SCEL	SKBO	LAN
19/9/23	6	LAN572	SCEL	SKBO	LAN
21/9/23	6	LAN532	SCEL	KJFK	LAN
22/9/23	6	LAN502	SCEL	KMIA	LAN
22/9/23	6	LAN576	SCEL	SKBO	LAN
23/9/23	6	LAN576	SCEL	SKBO	LAN
23/9/23	6	LAN532	SCEL	KJFK	LAN
23/9/23	6	LAN500	SCEL	KMIA	LAN
24/9/23	6	LAN572	SCEL	SKBO	LAN
24/9/23	6	LAN576	SCEL	SKBO	LAN
25/9/23	6	LAN578	SCEL	SKBO	LAN
28/9/23	6	LAN578	SCEL	SKBO	LAN
29/9/23	6	LAN602	SCEL	KLAX	LAN
29/9/23	6	LAN572	SCEL	SKBO	LAN
29/9/23	6	LAN576	SCEL	SKBO	LAN
30/9/23	6	LAN580	SCEL	SKBO	LAN
Total		27			27

October 2023

FECHA	LRN	ID	DEP	DEST	CIAS
1/10/23	6	LAN572	SCEL	SKBO	LAN
2/10/23	6	LAN578	SCEL	SKBO	LAN
4/10/23	6	LAN576	SCEL	SKBO	LAN
5/10/23	6	LAN578	SCEL	SKBO	LAN
6/10/23	6	LAN572	SCEL	SKBO	LAN
6/10/23	6	LAN576	SCEL	SKBO	LAN
7/10/23	6	LAN580	SCEL	SKBO	LAN
8/10/23	6	LAN572	SCEL	SKBO	LAN
9/10/23	6	LAN532	SCEL	KJFK	LAN
9/10/23	6	LAN578	SCEL	SKBO	LAN
9/10/23	6	LAN580	SCEL	SKBO	LAN
10/10/23	6	LAN572	SCEL	SKBO	LAN
11/10/23	6	LAN572	SCEL	SKBO	LAN
14/10/23	6	LAN578	SCEL	SKBO	LAN
14/10/23	6	LAN9952	SCEL	SKBO	LAN
15/10/23	6	LAN572	SCEL	SKBO	LAN
15/10/23	6	LAN576	SCEL	SKBO	LAN
16/10/23	6	LAN580	SCEL	SKBO	LAN
17/10/23	6	LAN572	SCEL	SKBO	LAN
18/10/23	6	LAN576	SCEL	SKBO	LAN
19/10/23	6	LAN576	SCEL	SKBO	LAN
21/10/23	6	LAN578	SCEL	SKBO	LAN
24/10/23	6	LAN572	SCEL	SKBO	LAN
25/10/23	6	LAN572	SCEL	SKBO	LAN
26/10/23	6	LAN578	SCEL	SKBO	LAN
26/10/23	6	LAN622	SCEL	MMMXX	LAN
28/10/23	6	LAN9955	SCEL	SKBO	LAN
28/10/23	6	LAN578	SCEL	SKBO	LAN
29/10/23	6	LAN9956	SCEL	SKBO	LAN
Total		29			29

December 2023

FECHA	LRM	ID	DEP	DEST	CIA
5/12/23	6	LAN572	SCEL	SKBO	LAN
7/12/23	6	LAN578	SCEL	SKBO	LAN
15/12/23	6	LAN9954	SCEL	SKBO	LAN
15/12/23	6	LAN576	SCEL	SKBO	LAN
16/12/23	6	LAN578	SCEL	SKBO	LAN
17/12/23	6	LAN572	SCEL	SKBO	LAN
18/12/23	6	LAN576	SCEL	SKBO	LAN
21/12/23	6	LAN578	SCEL	SKBO	LAN
21/12/23	6	LAN580	SCEL	SKBO	LAN
22/12/23	6	LAN576	SCEL	SKBO	LAN
23/12/23	6	LAN578	SCEL	SKBO	LAN
24/12/23	6	LAN572	SCEL	SKBO	LAN
28/12/23	6	LAN9954	SCEL	SKBO	LAN
28/12/23	6	LAN578	SCEL	SKBO	LAN
28/12/23	6	LAN580	SCEL	SKBO	LAN
29/12/23	6	LAN572	SCEL	SKBO	LAN
Total		16			16

January 2024

FECHA	LRM	ID	DEP	DEST	CIA
2/1/24	6	LAN578	SCEL	SKBO	LAN
2/1/24	6	LAN580	SCEL	SKBO	LAN
3/1/24	6	LAN580	SCEL	SKBO	LAN
4/1/24	6	LAN580	SCEL	SKBO	LAN
5/1/24	6	LAN578	SCEL	SKBO	LAN
6/1/24	6	LAN578	SCEL	SKBO	LAN
9/1/24	6	LAN9956	SCEL	SKBO	LAN
9/1/24	6	LAN580	SCEL	SKBO	LAN
13/1/24	6	LAN580	SCEL	SKBO	LAN
13/1/24	6	LAN592	SCEL	MDPC	LAN
15/1/24	6	LAN580	SCEL	SKBO	LAN
16/1/24	6	LAN1992	SCEL	SKBO	LAN
16/1/24	6	LAN580	SCEL	SKBO	LAN
19/1/24	6	LAN578	SCEL	SKBO	LAN
21/1/24	6	LAN580	SCEL	SKBO	LAN
21/1/24	6	LAN502	SCEL	KMIA	LAN
22/1/24	6	LAN1988	SCEL	SKBO	LAN
22/1/24	6	LAN578	SCEL	SKBO	LAN
23/1/24	6	LAN578	SCEL	SKBO	LAN
25/1/24	6	LAN578	SCEL	SKBO	LAN
25/1/24	6	LAN580	SCEL	SKBO	LAN
26/1/24	6	LAN580	SCEL	SKBO	LAN
28/1/24	6	LAN580	SCEL	SKBO	LAN
29/1/24	6	LAN578	SCEL	SKBO	LAN
30/1/24	6	LAN578	SCEL	SKBO	LAN
Total		25			25

February 2024

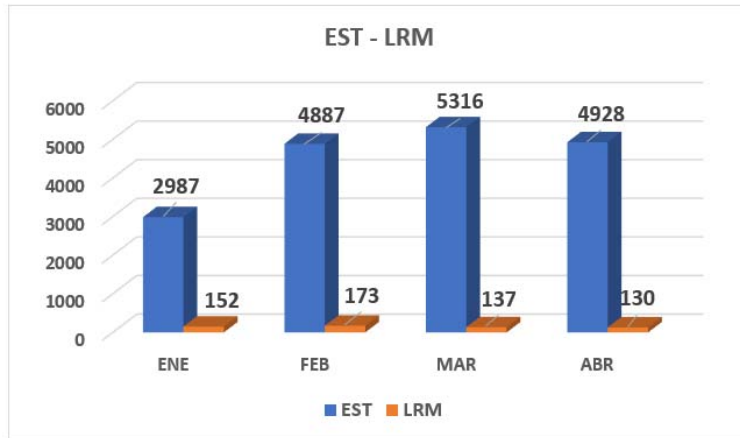
FECHA	LRM	ID	DEP	DEST	CIAS
1/2/24	6	LAN578	SCEL	SKBO	LAN
1/2/24	6	LAN580	SCEL	SKBO	LAN
2/2/24	6	LAN1998	SCEL	SKBO	LAN
2/2/24	6	LAN572	SCEL	SKBO	LAN
2/2/24	6	LAN9954	SCEL	SKBO	LAN
3/2/24	6	LAN592	SCEL	MDPC	LAN
4/2/24	6	LAN572	SCEL	SKBO	LAN
10/2/24	6	LAN578	SCEL	SKBO	LAN
17/2/24	6	LAN592	SCEL	MDPC	LAN
20/2/24	6	LAN502	SCEL	KMIA	LAN
23/2/24	6	LAN622	SCEL	MMMXX	LAN
23/2/24	6	LAN502	SCEL	KMIA	LAN
Total	12	12			

March 2024

FECHA	LRM	ID	DEP	DEST	CIAS
23/3/24	6	LAN592	SCEL	MDPC	LAN
Total		1			1

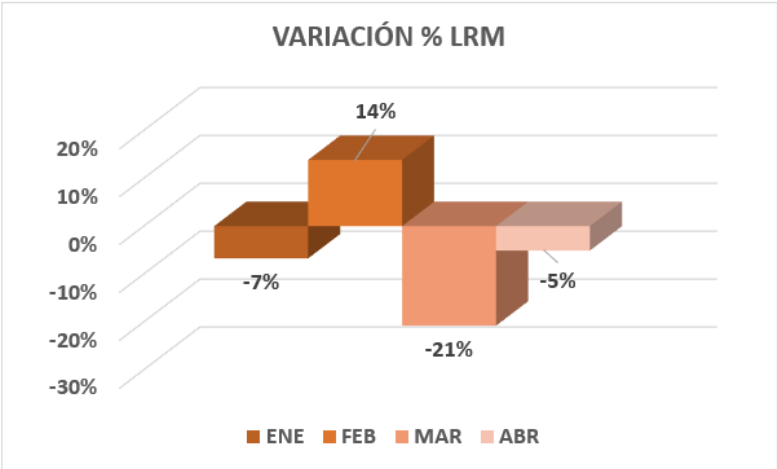
APPENDIX B

NUMBER OF ESTIMATES AND LRMS 6 – 7 IN 2024



APPENDIX C

PERCENTAGE VARIATION OF LRM 6 & 7 IN 2024



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