International Civil Aviation Organization
South American Regional Office
Eleventh Workshop/Meeting of the SAM Implementation Group (SAM/IG/11) – Regional Project RLA/06/901
(Lima, Peru, 13 to 17 May 2013)

SAM/IG/11-IP/04
03/05/13

Agenda Item 3: Implementation of performance-based navigation (PBN) in the SAM Region

EMISSION REDUCTION AS A RESULT OF RNP AR IMPLEMENTATION

(Presented by LATAM Airlines)

SUMMARY

The publication of RNP AR procedures improves access in complex airports, improves safety through the implementation of vertical guidance in the final approach segment, and provides other quantifiable benefits in terms of emission reduction as a result of shorter and optimum paths.

REFERENCES:

- ICAO Doc 9613, PBN Manual
- ICAO Doc 9931 "Continuous Descent Operations (CDO) Manual"

ICAO Strategic Objectives:	*C - Environmental protection and sustainable development of air traffic*

1 Background

1.1 One of the strategic objectives of ICAO is "Environmental protection and sustainable development of air transport", by "promoting a harmonised and economically feasible development of international civil aviation without *unduly* harming the environment". It is well known that a combination of ATM improvements and operational procedures by the companies result in significant opportunities for reducing emissions.

1.2 Since 2009, LAN Airlines has been implementing in Chile, together with the DGAC, an RNP AR procedure design and implementation programme at various airports and aerodromes of the country. The publication of these procedures has been aimed at obtaining improvements in terms of access (lower approach minima), safety (through the inclusion of procedures with vertical guidance that reduce CFIT occurrences) and emission reduction throughout the country, since RNP AR procedures permit shorter paths and optimised descent profiles that reduce fuel consumption and, thus, emissions.

2 **Discussion**

2.1 There is no doubt that the implementation of the RNP AR project in Chile has been a joint effort by LAN Airlines and the DGAC that, in the near future, will benefit all operators who choose to equip and obtain the improvements that the new approaches can provide. Nothing of what has been achieved to date would have been possible without the commitment and thoroughness shown by both parties.

2.2 By March 2013, RNP AR procedures had been published for the airports of Iquique, Antofagasta, Calama, La Serena, Santiago, Temuco, Valdivia, Osorno, and Balmaceda; projects are being developed for Concepción, Puerto Montt, and Punta Arenas.

2.3 Data captured by LAN during 2012 show that the RNP project of Chile reduced fuel consumption by 250 thousand gallons during that period of time, equivalent to 757 thousand kg of fuel, which, translated to CO2 correspond to **2.413 tons of CO2** not released into the atmosphere.

2.4 The results reflect the professionalism of LAN and the DGAC work teams involved in this effort from the point of the regulations, design, validation, publication and implementation of procedures, in addition to the collaboration of the ATC, which is now open to changes and is addressing them in the best possible way.

3. **Suggested action:**

3.1 The Meeting is invited to consider the experience that Chile is currently having as an example of dedicated and joint work, with crosscutting benefits that contribute to the common objective of environmental protection and sustainable development of air transport. The Meeting is also invited to reflect upon the improvements that may be introduced in each country in order to continue meeting the objective that the Region has managed to attain so far through the conduction of ATS route workshops, but now needs to move forward decidedly in terminal and approach areas.

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