



ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 30: Aviation Safety and Air Navigation Policy

30.3 Relevant Outcomes of the High-level Conference on COVID-19, Safety Stream
(HLCC 2021)

PROBLEMS WITH 5G INTERFERENCE IN CENTRAL AMERICA

(Presented by the Member States of the Central American Corporation for Air
Navigation Services (COCESNA)²)

EXECUTIVE SUMMARY

This working paper reports on actions to be taken by Central American States and COCESNA to mitigate possible interference in aviation operations due to the use of 5G technology in the Central American Region.

Action: The Assembly is invited to take note of the actions by the States of Central America and COCESNA to minimize possible interference affecting the radio altimeters of at-risk aircraft operating in the Central American Region due to the use of 5G technology.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective – Safety.
<i>Financial implications:</i>	
<i>References:</i>	eCRPP/04/01 Working Paper 6 (NACC/DCA/10-NE/06)

¹ Spanish version provided by COCESNA.

² Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

1. INTRODUCTION

1.1 The radio altimeter is a critical instrument on board an aircraft that determines the height of the aircraft over the terrain directly below it. The radio altimeter signal is also essential to the functioning of several aircraft systems and subsystems such as ground proximity warning system (GPWS), wind shear detection, flight controls and the automatic landing functions of the Boeing EICAS (engine indicating and crew alerting system) and the Airbus ECAM (electronic centralized aircraft monitor).

1.2 There is a major risk that 5G telecoms systems in the 3.4-4.2 GHz and 4.4-4.9 GHz frequency band could cause harmful interference to the functioning of radio altimeters on board certain aircraft. This is because the 5G technology used for cell phone services operates on bands adjacent to the frequency supporting aircraft radio altimeters (4.2-4.4 GHz).

1.3 Without adequate mitigation, the harmful interference affecting the radio altimeter operation in any phase of flight may pose a safety risk to passengers, crew and persons on the ground.

2. DISCUSSION

2.1 Draft conclusion eCRPP/04/01 of the Fourth Virtual Meeting of the GREPECAS Project and Programme Review Committee and Working Paper 6 (NACC/DCA/10-NE/06) flag the potential negative impacts of 5G mobile phone technology on aircraft radio altimeter systems.

- a) limited or suspended capabilities for precision landing and approach;
- b) limited or suspended capabilities for night flights, especially at airports with challenging terrain;
- c) lack of State regulations requiring the modification and recertification of aircraft radio altimeters and related functionalities;
- d) impaired safety at airports due to interference with the radio altimeter frequency; and
- e) incidents.

2.2 Problems impacting air operations can vary depending on the technology and platform used, and especially on fleet avionics. In any event, States must take this risk very seriously because it incurs aviation safety implications, and will influence decisions about how to enable wideband 5G/cell services in radiofrequency bands near those used by radio altimeters.

3. ACTIONS

3.1 COCESNA has taken note of information published by ICAO on this serious problem, and has initiated mitigation actions. The civil aviation authorities of each member country have been duly informed in an official paper of the need to implement specific mitigations as soon as possible to minimize potential interference due to the use of 5G technology within the Central American sub-Region.

3.2 In response, the Central American States are coordinating the following actions to ensure the continuing safety of their air operations:

- a) conduct an analysis of national fleets, telecom companies and spectrum management entities to assess the impact of 5G technology on aviation;
- b) on the basis of the findings of said impact assessment, develop and implement the necessary mitigation mechanisms to prevent interference in the operation of radio altimeters;
- c) monitor and evaluate the mitigations implemented; and
- d) report to the ICAO NACC and SAM Regional Offices at the GREPECAS/20 meeting to take place on 15-18 November 2022.

4. **CONCLUSION**

4.1 There is a major risk that 5G telecoms systems using the frequency band 3.4-4.2 GHz and 4.4-4.9 GHz could cause harmful interference to the functioning of radio altimeters on board certain aircraft. Without appropriate mitigations, the interference may severely affect operations and safety in the Central American sub-Region.

— END —