International Civil Aviation Organization

MIDANPIRG/19 and RASG-MID/9 Meetings

(Riyadh, Saudi Arabia, 14 – 17 February 2022)

Agenda item 3.3: Coordination between MIDANPIRG and RASG-MID
3.4: Safety Subjects of interest to MIDANPIRG

MITIGATION OF POSSIBLE HARMS TO RADIO ALTIMETER FROM 5G NETWORKS

(Presented by Saudi Arabia)

SUMMARY

This paper presents the activities taken by GACA to advise aircraft operators to mitigate the interference caused by 5G base station and collect the data related to the observed malfunctions of Radio Altimeters.

Action by the meeting is in paragraph 3.

1. INTRODUCTION

1.1 Telecom companies in the MID region and worldwide are introducing a new, faster wireless internet service..

1.2 As concerns have been raised on potential Radio Frequency Interference (RFI) between 5G spectrum and Radio altimeters (RADALT), many States are considering safeguarding measures and restrictions on the designation of 5G spectrum to ensure there is no impact on RADALT during the deployment of 5G network.

1.3 Factors to be considered in the risk assessment of 5G interference with aircraft equipment, such as

a) Location of 5G base stations in the airport vicinity and its characteristics such as (Antenna height, transmitting power, Antenna Array and tilt..etc.)

b) Frequencies of the 5G network in use

c) Airport approval for Low visibility operations (LVO)

1.4 Based on the risk assessment, Civil Aviation Authority may publish a risk assessment of the aerodromes within its territory. However, most Service providers perform international operations, and their crews may face RADALT malfunctions abroad.

1.5 Aircraft and equipment manufacturers are cooperating and n joint statement of Airbus and Boeing was published to highlight the potential enormous negative impact on the aviation industry costs and duration of full implementation.

1.6 Saudi General Authority of Civil Aviation (GACA) and the national telecommunication authority - Communication and Information Technology Commission (CITC) are monitoring the concerned raised and agree on an action plan to protect RADALT from any interference that may be caused by Ground Stations located near the airports.. Additionally, GACA conducted a consultation with French DGAC to seek additional information on safeguarding measures introduced at major airports in France.

2. DISCUSSION

2.1 In 2020, a Problem statement - 5G interference with radar altimeter frequency band has been issued for WG11-IP08 (ICAO Flight Operations Panel and IATA IFALPA). It highlighted factors such as autoland functions, EICAS/ECAM, False or missing GPWS alert, Unreliable instrument indications or Abnormal behaviors in Automatic Flight Systems. ICAO State letter Ref: SP 74/1-21/22 dated on 25 March 2021was circulated on the safety concerns that were raised on potential interference between 5G ground stations and RADALT.

2.2 Considering that the vast majority of flights within the MID region are domestic or regional, it is recommended that the MID States agreed on development of MID 5G database. The MIDRMA may be invited to maintain the database and keep MID States informed on reported 5G interference within MID Region.

2.3 The 5G hazards database data items should at least include key fields as shown in the following table:

Country	Aerodrome	LVO Category	5G base station locations in the approach area (Y/N)	Frequencies of concerned 5G base station locations in the approach area	Number of 5G interference reports/type of events

2.4 A database of 5G related hazards may be develeped and maintained based on the data collected. However, it needs continuous cooperation between the local Civil Aviation Authority and the 5G services providers and coordination between MID States. Such a database should be maintained until there is a systematic decision taken – either concerning deployment of operations of 5G in the vicinity or introduction of the aerodrome, or taking appropriate measures by manufacturers.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information provided in this paper;

b) discuss the need for the development of regional database covering all cases of 5G interferences occurring within the MID region.

c) agree on ways and means to keep MID States updated on 5G interferences reported within MID Region.

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