



*International Civil Aviation Organization*

**MIDANPIRG Air Traffic Management Sub-Group**

**Seventh Meeting (ATM SG/7)**  
*(Virtual, 15 – 18 November 2021)*

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**Agenda Item 3: Planning and Implementation issues related to ATM/SAR**

**GNSS /GPS INTERFERENCE REPORTED IN MID REGION**

*(Presented by UAE GCAA & IATA)*

**SUMMARY**

The aim of this paper is to provide an update on GNSS interference reported for the period Jan. 2019 to Dec.2020. A considerable amount of the GNSS/GPS interferences were reported mainly in two clusters: Eastern Turkish airspace to Iraq, Iran and Armenia, and Eastern Mediterranean airspace to Cyprus, Egypt, Lebanon and Israel. The paper highlighted also for the need of a standardized NOTAM format.

Action by the meeting is at paragraph 3.

**REFERENCES**

- ICAO DOC 9849, Global Navigation Satellite System (GNSS) Manual
- RASG-MID SAFETY ADVISORY – 14 (RSA-14)

**1. INTRODUCTION**

1.1 Global Navigation Satellite System (GNSS), including GPS, is a vital component for Automatic Dependent Surveillance - Broadcast (ADS-B), Terrain Avoidance and Warning System (TAWS) including Enhanced Ground Proximity Warning System (EGPWS). It is also a critical enabler of Performance Based Navigation (PBN) and modern air traffic management applications.

1.2 GNSS/GPS vulnerability, including intentional and unintentional signal interference, has been identified as a major safety issue as GNSS is embedded in numerous critical infrastructures. The intentional interference presents a substantial safety threat to aircraft and passengers. In addition to safety risk, when GNSS/GPS interference occurs in airspace with a major traffic footprint, this may also considerably degrade airspace utilization and can cause a hazard to aviation safety and even lead to incidents through the malfunctioning of GPS receivers and the ground proximity warning system (GPWS). Such interference needs to be monitored and its operational risk needs assessed. By analyzing the number of GNSS/GPS interference reports from IATA's Global Aviation Data management (GADM) database, it is possible to identify hot spots and trends of reported GNSS/GPS interference by airspace users.

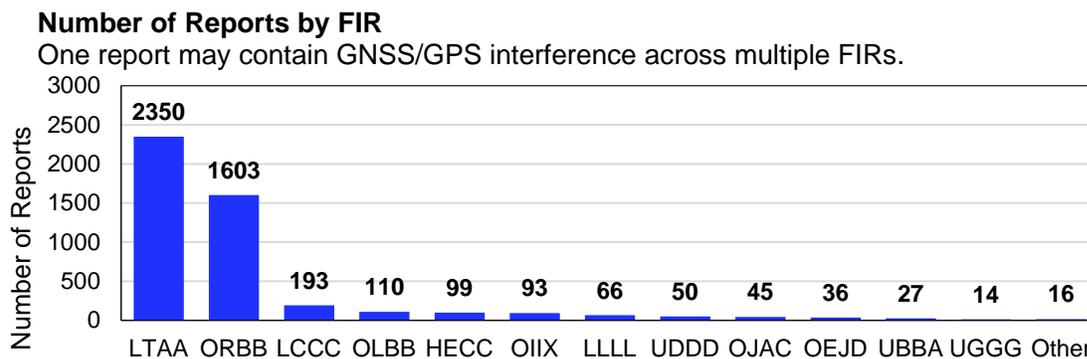
## 2. DISCUSSION

2.1 To support joint efforts between IATA MENA and ICAO MID in developing mitigation strategies for GNSS vulnerability, GNSS/GPS interference data analysis from GADM was produced.

2.2 The GNSS/GPS Interference analysis was made up by aggregating datasets from **January 2019 to December 2020**: the GADM Incident Data Exchange data, (IDX and other Aviation Safety Reports (ASR) collected to MENA office and NOTAM data.

2.3 A substantial number of GNSS/GPS interferences were reported across international borders, reaching boundaries out of the MID region, therefore the analysis includes an expanded geographical area covering both MID of and neighboring States.

2.4 The majority of GNSS/GPS interference was reported in the Ankara FIR (LTAA), Baghdad FIR (ORBB) () and their respective borders, which equates to 83.8% of total reports received, followed by Nicosia (LCCC) and Beirut (OLBB) FIRs



*\*Aggregated Data from IATA GADM*

2.5 By analyzing reported waypoints and coordinates, **two major clusters** were identified:

- Eastern Turkish airspace to Iraq, Iran and Armenia (extended to the border between Armenia and Azerbaijan). Most of the GNSS/GPS interference reports (84%) were distributed near Ankara and Baghdad FIR borders and were reported during cruise.
- Eastern Mediterranean airspace to Cyprus, Egypt, Lebanon and Israel (extended to a corridor between Israel and Jordan). 64% of GNSS/GPS interference were reported during approach, descent or climb.

2.6 Some States have issued NOTAMs on areas of identified GNSS/GPS interference to alert operators to possible interference, as recommended by RASG-MID Safety Advisory -14. The format of GNSS NOTAMs issued by MID States however are without standardization, Variant Q Codes and terminologies are utilized (e.g., GPS UNRELIABLE, GPS SIGNAL INTERFERENCE, GPS JAMMING, LOSS OF GNSS SIGNAL), making it difficult for operators to filter and search through NOTAMs.

**3. ACTION BY THE MEETING**

3.1 To address the on-going risk of GNSS/GPS Interference in the Middle East region, the meeting is invited:

- a) to note the information contained in this working paper;
- b) States and ANSPs to monitor and assess the operational risk of harmful interference to GNSS and establish contingency procedures and infrastructure as appropriate;
- c) Airspace users to continue to monitor NOTAMs and advisories and brief crews to be aware of potential GNSS/GPS interference, its impact and contingency procedures during GNSS capability loss
- d) Airlines/IATA to encourage active reporting of GNSS/GPS interference; and
- e) States to develop and enforce a strong regulatory framework to address harmful interference to GNSS/GPS.

- END -

