REPUBLIC OF ALBANIA

ALBANIAN CIVIL AVIATION AUTHORITY

SAFETY INFORMATION

ACAA-DAN-SI-No.001

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Approved by:

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0.1 Record of Amendments

The table below describes the dates and reason for the different amendments of the current procedure.
A vertical black line on the left-hand side of the page identify the changes with the previous version.

Issue No.	Revision No.	Date	Amended by	Reason
01	00	07.11.2023		Initial Issue
01	01	16.05.2024		Revision as per ICAO State letter Ref.: E 3/5-24/54
01	02	11.07.2024		Revision of EASA Safety Bulletin

0.2 Revision table

Page #.	Issue No.	Revision No.	Date	Edited by

Safety Information Bulletin - Aviation safety concerns regarding interference to the Global Navigation Satellite System (GNSS)

Since February 2022, there has been an increase in jamming and/or spoofing of Global Navigation Satellite Systems (GNSS). EASA has analysed recent data from the Network of Analysts and open sources and has concluded that GNSS jamming and/or spoofing has shown further increase in the severity of its impact, as well as an overall growth of intensity and sophistication of these events. This issue particularly affects the geographical areas surrounding conflict zones, but it is also encountered in the south and eastern Mediterranean, Black Sea, Middle East, Baltic Sea, and Arctic area.

The list of affected flight information (FIR) regions is published on the EASA website at

https://www.easa.europa.eu/GNSS

Jamming is an intentional radio frequency interference (RFI) with GNSS signals. This interference prevents receivers from locking onto satellites signals and has the main effect of rendering the GNSS system ineffective or degraded for users in the jammed area.

Spoofing involves broadcasting counterfeit satellite signals to deceive GNSS receivers, causing them to compute incorrect position, navigation, and timing (PNT) data.

For the purposes of this safety information bulletin, jamming and spoofing are discussed as suspected causes, regardless of their actual cause.

The following non-exhaustive list provides observed symptoms of suspected GNSS spoofing:

- Incoherence in navigation position, such as GNSS/FMS position disagree alerts.
- Abnormal differences between Ground Speed and True Airspeed.
- Time and date shift.
- Spurious Terrain Awareness and Warning System (TAWS) alerts.
- Potential deviation of hybrid position (IRS/GNSS).

Key updates include:

Increased severity and sophistication of GNSS interference.

Higher risk associated with spoofing, which is harder to detect and can impact multiple systems.

Recommendations for all relevant aviation stakeholders to address these threats.

Information on affected airspace is now available on a dedicated EASA webpage for quick updates.

Federal Aviation Administration (FAA), Safety Alert for Operators overview:

To improve analysis and dissemination of these issues, the FAA stresses the need for "real time" pilot reporting to ATC.

Manufacturers, operators, and ATC should be aware of the general impacts of GPS/GNSS interference, jamming, and spoofing. such as:

- Inability to use GPS/GNSS for navigation;
- Loss of area navigation (RNAV) capability, to include required navigation performance (RNP);
- Inaccurate aircraft position on navigation display

Prior to departure, operators should be aware of potential risk locations, check for any relevant Notices to Air Missions (NOTAMs), plan fuel contingencies, and research alternative conventional arrival/approach procedures at the destination and all alternate airports. When available, operators should plan to use conventional Navigational Aids (NAVAIDs) in these locations.

In the Annex 1 of this Safety Information is provided the recommendations from ICAO EUR/MID Radio Navigation Symposium.

ACAA Recommendations:

ANSP and Air Operators should take into consideration the recommendation raised in the above mention information.

All parties must report safety-impacting events according to M.O Nr.89, date 05.05.2022 "For the approval of the regulation for reporting and follow-up of occurrences in civil aviation in the Republic of Albania" transposing Regulation (EU) No. 376/2014.

ACAA-DAN-SI-No.001, Issue 01, Revision 01 was published May 22, 2024.

For detailed recommendations and more information

- Visit the EASA website:

  https://ad.easa.europa.eu/ad/2022-02R3

- Visit Federal Aviation Administration (FAA):

  Safety Alert for Operators (SAFO 24002)

Annex 1

ICAO EUR/MID Radio Navigation Symposium
Antalya, Turkey (6 to 8 February 2024)

RECOMMENDATIONS

Recognizing with concern the impact of global navigation satellite system (GNSS) Radio Frequency Interference (RFI) on aviation safety, capacity, efficiency and security, the Symposium recalled and underlined Resolution A1-8, Appendix C: Ensuring the resilience of ICAO CNS/ATM systems and services*and agreed on the need to take necessary actions to ensure continued safe, reliable, and resilient air navigation.*

The Symposium recommended:

- ***All Stakeholders*** to be aware of the potential safety and capacity impacts of GNSS interference, jamming, and spoofing.

- ***Civil Aviation Authorities (Albanian Civil Aviation Authority)*** to ensure that air navigation service providers (ANSPs) deploy and maintain adequate distance measuring equipment (DME) infrastructure and DME based Performance-Based Navigation (PBN) procedures and enable aircraft operators use of multi-DME and multi-DME/inertial reference system (IRS) complementary solutions as appropriate to maintain PBN operations during GNSS local or regionalinterference, jamming or spoofing.

- ***ACAA*** to ensure that air navigation services providers (ANSPs) implement and maintain necessary minimum operational networks (MON), or greater, of navigation aids and radar infrastructures (including very high frequency omnidirectional radio range (VOR), instrument landing system (ILS) Cat I/II/III and DME) to ensure the necessary levels of resilience for navigation when core constellations, satellite-based augmentation system (SBAS) or ground-based augmentation system (GBAS) are unusable.

- ***ANSP (Albcontrol Sh.a.)*** to develop contingency procedures (technical and operational) for GNSS radio frequency interference (RFI) events, to minimize any operational impact and ensurecontinuous safe operation of air traffic. The contingency procedure may require the provision ofreliable surveillance coverage that is resilient to GNSS interference.

- ***ANSP*** to implement/maintain a GNSS-independent time source for synchronization of relevant Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) infrastructure.

- ***CAA/ANSP*** to facilitate or deploy as appropriate real-time monitoring and detection solutions for GNSS RFI situational awareness for all stakeholders, while recognizing that only the aircraftoperator is responsible for determining their ability to navigate.

- ***ANSP*** to issue notice to airmen (NOTAMs) on GNSS RFI events in a timely manner; to establish coordination arrangements with neighboring flight information regions (FIRs) on how to best to share their navigation infrastructures in the event of GNSS RFI and any resulting air traffic diversion.

- CAA/ANSP to improve civil-military coordination to address interference risks associated withGNSS testing and conflict zones, to ensure the uninterrupted and reliable operation of navigationsystems in diverse applications.

- ***National Military Authorities*** to coordinate with National Spectrum Regulators, CAAs and ANSPs, to the extent possible, ahead of any necessary GNSS RFI activity. This will enable ANSPsto mitigate any safety impact on civil aviation.

- ***CAAs*** to foster collaboration with their National Spectrum Regulators regarding GNSS RFI.

- ***National Spectrum Regulators*** to locate and determine the source of reported GNSS RFI and attempt to resolve it, as appropriate. The GNSS RFI resolution may require coordination with other authorities at national or regional levels.

- ***National Spectrum Regulators*** to report frequent unresolved GNSS RFI incidents to the Radiocommunication Bureau of the International Telecommunication Union (ITU), describing GNSS RFI impact as experienced within their national borders, or as reported by their registered aircraft.

- ***Aircraft Operators*** to develop a procedure requesting crew to notify air traffic control (ATC) whenever GNSS RFI events are experienced and notify respective aircraft and avionic original equipment manufacturers (OEMs) and State of Aircraft design's CAA through normal safety channels when safety effects are encountered.

- ***Aircraft Operators*** to develop procedures and training based upon information received from aircraft and avionics OEM and State of aircraft design's CAA.

- ***Aircraft Operators*** to place additional emphasis on flight crews closely monitoring aircraft equipment performance for any discrepancies or anomalies, promptly informingATC of any apparent GNSS degradation, and being prepared to operate without GNSS navigation systems.

- ***Original Equipment Manufacturers (OEMs)*** to improve their equipment and provide further guidance and information on the effects and mitigations of GNSS RFI (including interference, jamming and spoofing) from the perspective of aircraft equipment.

- ***OEMs*** to ensure that aircraft equipment quickly recovers and resumes GNSS navigation once not impacted anymore by a GNSS RFI event.

- ***ICAO Navigation Systems Panel (NSP)*** to develop recommendations on how to share informationon GNSS RFI (NOTAM or other measures).

- ***All stakeholders*** to collaborate towards developing simple and automated common reportingof GNSS RFI.

- ***All stakeholders*** to continue to evolve solutions, while leveraging the ICAO NSP as a common focal point.

- ***ICAO*** to continue raising awareness and supporting States, as required.

- **Civil Aviation Authorities (Albanian Civil Aviation Authority, ACAA),**
  ANSP (Albcontrol Sh.a.),
  National Military Authorities (Ministry of Defence),
  National Spectrum Regulators (Authority of Electronic and Postal Communications, AKEP),
  Aircraft Operators (Airlines).