



**Civil Aviation Authority**  
**SAFETY NOTICE**  
**Number: SN-2025/006**



**Issued: 30 April 2025**

## **Global Navigation Satellite System Radio Frequency Interference Leading to Navigation/Surveillance Degradation**

**This Safety Notice contains recommendations regarding operational safety.**

Recipients must ensure that this Notice is copied to all members of their staff who need to take appropriate action or who may have an interest in the information (including any 'in-house' or contracted maintenance organisations and relevant outside contractors).

<b>Applicability:</b>	
<b>Aerodromes:</b>	Not primarily affected
<b>Air Traffic:</b>	All ATS
<b>Airspace:</b>	Not primarily affected
<b>Airworthiness:</b>	All UK Part CAO and Part CAMO
<b>Flight Operations:</b>	All including AOC holders, Part NCC, Part SPO and operators of General Aviation aircraft and Remotely Piloted Aircraft Systems (RPAS)
<b>Licensed/Unlicensed Personnel:</b>	All Pilots, Maintenance Engineers, RPAS Operators and ATCO

### **1 Introduction**

- 1.1 Instances of Global Navigation Satellite Systems Radio Frequency Interference (GNSS RFI) have increased since 2022, and the issue continues to evolve. GNSS RFI is most often encountered in geographical areas surrounding conflict zones but has also been encountered in the U.K. and may be experienced anywhere in the world. The effects of GNSS RFI can persist well beyond the area in which it was encountered.
- 1.2 This Safety Notice is issued to raise awareness, to advise operators and personnel who may be impacted by GNSS RFI, to update the affected areas and to include the latest information.
- 1.3 This Safety Notice replaces SN-2023/001 which is revoked.

### **2 Compliance/Action to be Taken**

- 2.1 Air operators should:
  - a) Ensure that they prepare flight crews to deal with GNSS RFI via suitable briefing and training, have appropriate processes and procedures in place for flight crews to mitigate the effects of GNSS RFI, and ensure these are regularly reviewed and updated. Operators should regularly engage with the relevant OEMs to aid in the development of training, processes and procedures and ensure that they remain up to date.

- b) Ensure that flight crews promptly report via air report to air traffic services any observed impacts of GNSS RFI including but not limited to: interruption, degradation or anomalous performance of GNSS equipment or related avionics;
  - c) Assess operational risks and limitations linked to the degradation or loss of on-board GNSS capability, including other on-board systems requiring inputs from reliable GNSS signal;
  - d) Ensure that operational limitations, introduced by the dispatch of aircraft with radio navigation system inoperative in accordance with Minimum Equipment List, are considered before operating an aircraft in areas where GNSS RFI may be encountered;
  - e) Ensure flight crews and relevant flight operations personnel:
    - i. are aware of possible GNSS RFI;
    - ii. verify the aircraft's position by means of conventional navigation aids when flights are operated in proximity of the affected areas;
    - iii. check that the navigation aids critical to the operation for the intended route and approach are available; and
    - iv. remain prepared to revert to a conventional arrival procedure where appropriate and inform air traffic controllers in such a case;
  - f) Ensure, in the flight planning and execution phase, the availability of alternative conventional arrival and approach procedures (i.e. an aerodrome in the affected area with only GNSS-based instrument approach procedures should not be considered as destination or alternate); and
  - g) Ensure that any flight crew observations of GNSS RFI are reported using normal company safety reporting procedures.
- 2.2 ATS and maintenance organisations should ensure that they prepare personnel to deal with GNSS RFI via suitable briefing and training and have appropriate processes and procedures in place for personnel to mitigate the effects of GNSS RFI on operations and equipment, and that these are regularly reviewed and updated.
- 2.3 All parties concerned are reminded of their obligations to report any event impacting safety according to Assimilated Regulation (EU) No. 376/2014.

### 3 Further Information

- 3.1 Some of the main affected flight information regions (FIR) where GNSS RFI is regularly encountered are listed below. GNSS RFI has been encountered in the U.K. - with the potential to also impact General Aviation and RPAS activity - and may be experienced anywhere in the world. This list is not exhaustive and affected areas may change after publication of this Safety Notice:
- The Black Sea area:
    - FIR Istanbul LTBB, FIR Ankara LTAA
    - Eastern part of FIR Bucharest LRBB, FIR Sofia LBSR
    - FIR Tbilisi UGGG, FIR Yerevan UDDD, FIR Baku UBBA
  - The south and eastern Mediterranean area, Middle East:

- FIR Nicosia LCCC, FIR Beirut OLBB, FIR Damascus OSTT, FIR Tel Aviv LLLL, FIR Amman OJAC,
- North-eastern part of FIR Cairo HECC
- Northern part of FIR Baghdad ORBB, north-western part of FIR Tehran OIIX
- Northern part of FIR Tripoli HLLL
- The Baltic Sea area (FIRs surrounding FIR Kaliningrad UMKK):
  - Western part of FIR Vilnius EYVL, north-eastern part of FIR Warszawa EPWW, south-western part of FIR Riga EVRR• Arctic area:
  - Northern part of FIR Helsinki EFIN, northern part of FIR Polaris ENOR
- South Asia area:
  - FIR Lahore OPLR, FIR Delhi VIDF
- Southeast Asia area:
  - FIR Yangon VYYF

3.2 The effects of GNSS RFI have been observed by flight crew in various phases of flight, in certain cases leading to re-routing or diversion due to the inability to perform a safe landing procedure. Under the present conditions, it is not always possible to predict GNSS RFI and its effects. The magnitude of the issues generated by RFI depends upon the extent of the area concerned, on the duration and on the phase of flight of the affected aircraft.

3.3 The following non-exhaustive list includes some potential issues that could result from GNSS RFI:

- Loss of ability to use GNSS for waypoint navigation;
- Loss of area navigation (RNAV) approach capability;
- Inability to conduct or maintain Required Navigation Performance (RNP) operations, including RNP and RNP Authorization Required (RNP(AR)) approaches;
- Triggering of terrain warnings, possibly with pull up commands;
- Inconsistent aircraft position on the navigation display;
- Loss of automatic dependent surveillance-broadcast (ADS-B), wind shear, terrain and surface functionalities;
- Failure or degradation of ATM/ANS/CNS and aircraft systems which use GNSS as a time reference;
- Inaccurate TCAS traffic information on navigational displays;
- Potential airspace infringements and/or route deviations due to GNSS degradation.

## **4 Queries**

- 4.1 Any queries or requests for further guidance as a result of this Safety Notice should be addressed to the organisation's Inspector or Standards Officer, for GA stakeholders to the CAA General Aviation Unit at [ga@caa.co.uk](mailto:ga@caa.co.uk), and for RPAS stakeholders to the CAA RPAS Unit at [uavenquiries@caa.co.uk](mailto:uavenquiries@caa.co.uk).

## **5 Cancellation**

- 5.1 This Safety Notice will remain in force until further notice.

### **Appendix 1** [EASA SIB 2022-02R3 : Global Navigation Satellite System Outage and Alterations Leading to Communication / Navigation / Surveillance Degradation](#)