

Subject: **Operations to aerodromes located in United States with potential risk of interference from 5G ground stations (as published through aerodrome NOTAMs)**

Ref. Publications:

Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin [AIR-21-18](#), dated 02 November 2021.

FAA AD [2021-23-12](#) for Transport and Commuter aeroplanes, dated 09 December 2021.

FAA AD [2021-23-13](#) for Various Helicopters, dated 09 December 2021.

Radio Technical Commission for Aeronautics [Paper No. 274-20/PMC-2073](#), dated 07 October 2020.

Commission Regulation (EU) No [965/2012](#), dated 05 October 2012 (hereafter referred to as the 'Air OPS' Regulation).

Applicability:

Aircraft Operators having their principal place of business in one of the EASA Member States (MS).

Description:

Telecommunication providers have been deploying 5G ground stations (or 5G base stations) in various States and regions around the world. These 5G ground stations are operating in the C-band, at frequencies that are close to the frequencies utilised by the radio altimeters (or radar-altimeter) installed on many aircraft. This has led to concerns of potential interference of radio altimeters from 5G ground stations causing anomalous radio altimeter behaviour.

EASA is working closely with aircraft manufacturers, EASA MS national airworthiness authorities and national spectrum regulators, to assess the risk of 5G/radio altimeter interference in EU airspace, aircraft susceptibility to such interference, the effect of such interference on aircraft systems, and the subsequent effect on the safety of flight operations. These assessments are done based on the knowledge available on actual radio-frequency conditions in the context of 5G deployment in Europe. At this stage, no risk of unsafe interference has been identified in Europe.

EASA acknowledges the FAA's assessment of the increased risk specific to the U.S.A. due to the implementation of potentially higher 5G ground stations power emissions in early 2022, and the issuance of the referenced FAA Airworthiness Directives (ADs) (see links above, applicable to N-registered airplanes operating in the U.S.A.). As a consequence, FAA Notices to Air Missions (NOTAMs) may be issued at the end of 2021, prohibiting certain operations unless alternative methods of compliance (AMOCs) are approved by the FAA.

This is information only. Recommendations are not mandatory.



The subject matter ADs and future NOTAMs address situations specific to operations in U.S.A. airspace. For this reason, in coordination with the FAA, EASA did not adopt the referenced FAA ADs. AMOCs to those ADs eventually approved by the FAA will not require an EASA adoption (or approval) for the EASA MS aircraft operators to be permitted to use them with respect to the NOTAMs. It is expected that applications for AMOCs will come from aircraft manufacturers to support operators.

EASA continues to monitor the situation and, based on further assessment, this SIB may be revised, as necessary.

Recommendation(s):

It is recommended that operators:

- Whilst being reminded of the obligation prescribed in Air OPS ORO.GEN.110 to comply with the laws, regulations and procedures of those States in which operations are conducted, pay particular attention to any information promulgated by the State of the Aerodrome (e.g. through NOTAMs) prohibiting instrument approach procedures. Such NOTAMs might significantly affect the approach and landing capability and can be issued without prior notice.
- Consider in their safety risk assessment potential interference from 5G ground stations that might impair the reliable functioning of radio altimeters installed on the aircraft. Among the possible mitigations, operators should:
 - o Consider exposing flight crews to unreliable radio altimeter scenarios in the approach and take-off phases of recurrent flight training sessions conducted in the Flight Simulation Training Devices. Such mitigation is particularly relevant in case flight crews undergo Low Visibility Operations training as per Air OPS SPA.LVO.120.
 - o Whatever the type of approach conducted, ensure awareness of the crews of the potential degradation in the performance of installed radio altimeters and of other systems dependent on data from radio altimeters.
- Ensure that events of anomalous radio altimeter behaviour, including results of the defect investigation and rectification, are reported to the aircraft manufacturer without delay. Reports of consistent anomalous radio altimeter behaviour in approximately the same location could be an indication of potential interference. Individual cases may however be due to other causes than interference from 5G ground stations. Should such event be qualified as an occurrence, as prescribed by Regulation (EU) No 376/2014, operators are reminded of their mandatory reporting obligation.
- Finally, operators are reminded that anomalous radio altimeter behaviour can be caused by faulty radio altimeter equipment, or (e.g.) due to poor antenna bonding, water ingress or poor antenna cable connections. It is therefore essential that the appropriate maintenance actions continue to be performed in response to a report of anomalous radio altimeter behaviour.

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Contact(s):

For further information, contact the EASA Safety Information Section, Certification Directorate,
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