

Aircraft Operations and Radar Altimeter Interference from 5G

INTRODUCTION

Radar altimeter interference from 5G signals can take the form of loss of radar altitude information, or worse, incorrect radar altitude information unknowingly being generated. There have been fatal accidents associated with incorrect radar altitude, most recently Turkish Airlines flight 1951 in Amsterdam in 2009.

The FAA have issued an Airworthiness Directive (AD) intended to cover all transport category aircraft which will require an Airplane Flight Manual (AFM) revision effective 5 January 2022.

ATTACHMENTS

Two (2) page ALPA Safety Alert

Aircraft Operations and Radar Altimeter Interference from 5G

Effective January 5, 2022

2021-03, [ALPA, International](#)



ALPA SAFETY ALERT

2021-03

Aircraft Operations and Radar Altimeter Interference From 5G – Effective January 5, 2022

Earlier this year, the United States Federal Communications Commission (FCC) awarded the mobile wireless industry radio spectrum to operate 5G transmissions in the “C-Band”, or 3.7-3.98 GHz, adjacent to the spectrum used by radar altimeters. This approval was made despite the aviation industry informing the FCC since 2018 of the need to ensure that radar altimeters are protected from 5G interference. Canada has also approved 5G in the C-Band, but with restrictions against using C-Band in the vicinity of 26 airports and other measures to ensure aviation safety.

Radar altimeter interference from 5G signals can take the form of loss of radar altitude information or, worse, incorrect radar altitude information unknowingly being generated. There have been fatal accidents associated with incorrect radar altitude, most recently Turkish Airlines flight 1951 in Amsterdam in 2009.

Altitude information derived from radar altimeters has been deeply integrated into aircraft systems and automation, with the latest aircraft using it to change aircraft handling qualities and prepare systems such as ground spoilers and thrust reversers for deployment prior to touchdown. This is in addition to radio altimeter use for autoland and in Category (CAT) II/III and Required Navigation Performance (RNP) AR approaches.

On November 2, 2021, the Federal Aviation Administration (FAA) issued a Special Airworthiness Information Bulletin (SAIB), alerting operators to the potential for severe restrictions in flight operations to ensure safety at the following weblink:

[https://rgl.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/27ffcbb45e6157e9862587810044ad19/\\$FILE/AIR-21-18.pdf](https://rgl.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/27ffcbb45e6157e9862587810044ad19/$FILE/AIR-21-18.pdf)

On December 7, the FAA also issued an Airworthiness Directive (AD) intended to cover all transport category aircraft at the following weblink: <https://www.faa.gov/newsroom/faa-statement-5g>. The AD requires the following Airplane Flight Manual (AFM) revision that prohibits the following operations in the presence of possible 5G interference:

Figure 1 to paragraph (g) – *AFM Revision*

(Required by AD 2021-23-12)

Radio Altimeter Flight Restrictions

When operating in U.S. airspace, the following operations requiring radio altimeter are prohibited in the presence of 5G C-Band wireless broadband interference as identified by NOTAM (NOTAMs will be issued to state the specific airports where the radio altimeter is unreliable due to the presence of 5G C-Band wireless broadband interference):

- Instrument Landing System (ILS) Instrument Approach Procedures (IAP) SA CAT I, SA CAT II, CAT II, and CAT III
- Required Navigation Performance (RNP) Procedures with Authorization Required (AR), RNP AR IAP
- Automatic Landing operations
- Manual Flight Control Guidance System operations to landing/head-up display (HUD) to touchdown operation
- Use of Enhanced Flight Vision System (EFVS) to touchdown under 14 CFR 91.176(a)

It is further anticipated that, depending on the aircraft, FAA may restrict the use of other aircraft systems as well with additional ADs. The limitations imposed by the ADs protect operations by preventing the most critical hazards from occurring in the case of radar altimeter interference.

Since radar altimeter interference is location-specific, the AD restrictions will be “activated” by NOTAMs issued for specific geographic locations and times.

ALPA supports these FAA actions to ensure the safety of our crews, passengers, and cargo. Canada recently restricted C-Band 5G transmissions in the vicinity of 26 airports, and ALPA supports those actions as well.

It is critical for pilots to be aware of and comply with any restrictions imposed via AD and/or NOTAM by safety regulators, including the FAA and Transport Canada. Pilots should also be aware that flight planning and advanced preparation will be critical to ensure that, should an alternate airport be required, the weather minimums and available instrument approach procedures can be utilized. Alternate airports may need to be selected that are further away from the intended destination and may impact fuel loading plans significantly.

Pilots are also strongly encouraged to report any anomalous radar altimeter behavior immediately to ATC and should also be submitted via Aviation Safety Action Program / Safety Management System reporting methods. Pilots should also follow any guidance provided by your airline, and in the case of conflicting guidance, follow the airline procedures.