



AIRWORTHINESS DIRECTIVE

This Airworthiness Directive (AD) is issued pursuant to Canadian Aviation Regulation (CAR) 521.427. No person shall conduct a take-off or permit a take-off to be conducted in an aircraft that is in their legal custody and control, unless the requirements of CAR 605.84 pertaining to ADs are met. Standard 625 - Aircraft Equipment and Maintenance Standards Appendix H provides information concerning alternative means of compliance (AMOC) with ADs.

Number:

CF-2021-52

Effective Date:

4 January 2022

ATA:

34

Type Certificate:

See Applicability

Subject:

Navigation – Aeroplane – Prohibition of Operations Requiring Radio Altimeter in the Presence of 5G C-Band Wireless Broadband Interference

Applicability:

This AD applies to all transport and commuter category aeroplanes for which the design approval document holder is identified below:

- 1) Airbus SAS
- 2) Bombardier Inc.
- 3) Embraer S.A.
- 4) Gulfstream Aerospace LP
- 5) Pilatus Aircraft Limited
- 6) Fokker Services B.V.
- 7) Saab AB, Support and Services
- 8) De Havilland Aircraft of Canada Limited
- 9) Airbus Canada Limited Partnership
- 10) ATR-GIE Avions de Transport Régional
- 11) Yaborã Indústria Aeronáutica S.A.
- 12) MHI RJ Aviation ULC.
- 13) BAE Systems (Operations) Limited
- 14) Viking Air Limited
- 15) Dassault Aviation

and equipped with a radio (also known as radar) altimeter.

Compliance:

As of the effective date of this AD, unless already accomplished.

Background:

In April 2020, the Radio Technical Commission for Aeronautics (RTCA) formed a 5G Task Force, including members from RTCA, the Federal Aviation Administration (FAA), aeroplane and radio altimeter manufacturers, European Organisation for Civil Aviation Equipment (EUROCAE), industry organizations, and operators, to perform a quantitative evaluation of radar altimeter performance regarding Radio Frequency (RF) interference from expected 5G emissions in the 3.7-3.98 GHz band, as well as a detailed assessment of the risk of such interference occurring and impacting aviation safety. Based on the work of the task force, RTCA published a report which concludes that there is “a major risk that 5G telecommunications systems in the 3.7-3.98 GHz band will cause harmful interference to radar altimeters on all types of civil aircraft—including commercial transport airplanes; business, regional, and general aviation airplanes; and both transport and general aviation helicopters.”

The report further concludes that the likelihood and severity of radio frequency interference increases for operations at lower altitudes. That interference could cause the radio altimeter to either become

inoperable or present misleading information, and/or also affect associated systems on civil aircraft. The RTCA report refers to Federal Communications Commission (FCC) Report and Order (R&O) FCC 20-22, which identifies radio frequencies and power level conditions for the new C-Band services. The RTCA report identified the possibility of interference from both wireless emitters (on base stations, for example) as well as onboard user handsets.

On 9 December 2021, the FAA published and made effective AD 2021-23-12, which indicates that 5G C-Band will become active in certain regions of the United States of America (U.S.) on 5 January 2022. The FAA determined that, at this time, no information has been presented that shows radio altimeters are not susceptible to interference caused by C-Band emissions permitted in the U.S., and that as a result an unsafe condition is likely to exist once C-Band emissions become active.

Transport Canada agrees with the FAA's conclusions. As a result, this AD requires the same actions as FAA AD 2021-23-12 for Canadian-registered aeroplanes that are not of U.S. state of design when operating in U.S. airspace. FAA AD 2021-23-12 is applicable to Canadian-registered U.S. state of design products pursuant to CAR 605.84(1)(c)(i).

Corrective Actions:

- A. Revise the Limitations Section of the existing Aircraft/Airplane Flight Manual (AFM) to incorporate limitations prohibiting certain operations requiring radio altimeter data when in the presence of 5G C-Band wireless broadband signals as identified by Notice To Air Missions (NOTAM) and as specified in Figure 1 of this AD.

This may be accomplished by inserting a copy of this AD into the existing AFM of the aeroplane.

Carrying this AD on board the aircraft separately from the AFM in either electronic or physical form is also acceptable for compliance with this Corrective Action.

- B. Inform all flight crews of these new limitations and thereafter operate the aeroplane according to the limitations outlined in figure 1 of this AD.

Figure 1 – AFM Revision, 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)

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 24 December 2021

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