

PORTARIA Nº 14.318, DE 10 DE ABRIL DE 2024.

Provides tolerance limits to a radio altimeter tolerant to interference, as installed in aircraft in operation in Brazil, taking into account the 5G deployment in Brazil.

THE HEAD OF THE AIRWORTHINESS DEPARTMENT, in the exercise of the powers conferred upon it by Article 35, item b of Section XXII of RESOLUÇÃO No. 381, de 14 de Junho de 2016,

DECIDES TO:

Art. 1° Establish that a radio altimeter tolerant aircraft is the one for which ANAC considers that the radio altimeter, as installed in the aircraft, demonstrates tolerance to the specified in this PORTARIA Annex.

Art. 2º Portaria nº 13.365/SAR, de 14 de dezembro de 2023, published in Diario Oficial da União, dated December 19th, 2023, Section 1, pages 102-104, is hereby revoked.

Art. 3° This PORTARIA is effective on the date of its publication.

NOTE: Original in the Portuguese language available at https://www.anac.gov.br/assuntos/legislacao/legislacao-1/portarias/2024/portaria-14318

Signed by:

ROBERTO JOSÉ SILVEIRA HONORATO

Diário Oficial da União de 12 de abril de 2024, Seção 1, Page 114.

ANNEX TO PORTARIA Nº 14.318, DE 10 DE ABRIL DE 2024

1. Tolerance to radio altimeter interference, for the fundamental emission from the wireless broadband operations in the 3,300-3,700 MHz Frequency band (5G C-Band) at or above the power spectral density curve threshold specified in Figure 1



Figure 1- Minimum tolerance limit to the 5G fundamental emissions at the radio altimeter antenna external interface

2. Tolerance to radio altimeter interference, for the spurious emissions from the wireless broadband operations in the 4,200-4,400 MHz Frequency band (5G C-Band) at or above the power spectral density curve threshold specified in Figure 2



Figure 2 - Minimum tolerance limit for the 5G spurious emissions at radio altimeter antenna outside interface

An acceptable means for demonstrating the tolerances specified in this PORTARIA is the FAA guidance material, Policy PS-AIR-600-39-01 "Demonstration of Radio Altimeter Tolerant Aircraft", of June 19th, 2023 available on https://drs.faa.gov/browse/excelExternalWindow/DRSDOCID108541392520230719162111.00 01.

Other means of compliance may be accepted by ANAC, provided the data that demonstrate the tolerances specified in this PORTARIA is acknowledged by ANAC.

3. Additional Information

3.1 Radio Altimeter tolerance Groups

Figure 3 shows the minimum tolerance limit for the 5G fundamental emissions curves (US GROUP xx)*, for the US environment frequency range (3,700 to 3,980 MHz). These curves have been considered during discussions between the FAA and the industry, in addressing compliance with FAA AD 2021-23-12 and FAA AD 2023-10-02.

For the purpose of compliance with Airworthiness Directives published by ANAC related to the 5G environment, ANAC, although aware of the different frequency band compared to the U.S. environment, considers that compliance with US Group 3A, 3B and 4 may be accepted to establish a radio altimeter tolerant aircraft, provided the evidence of compliance with the susceptibility curve associated with a specific group is submitted to ANAC through a declaration from the aircraft manufacturer or other civil aviation authority, or data to demonstrate compliance with the specific US Group.



Figure 3 - Tolerance requirements curves for 5G fundamental emissions at U.S. environment

*additional information regarding the power spectral density curves and groups associated with compliance with FAA AD 2021-23-12 and AD 2023-10-02 may be found on *Cband Licensee Voluntary Commitments*", available at (230331 C-Band Licensee Ex Parte Letter.pdf (fcc.gov)), and the presentation "*Radio Altimeters and 5G C-Band Deployment in the United States*", available at <u>https://www.icao.int/NACC/Documents/Meetings/2022/5GMW/P05-</u> RadioAltimetersand5GDeployment-USA.pdf

3.2 5G C-Band Environment Evolution in Brazil

Figure 1 of this PORTARIA is defined taking into account the Brazilian environment after July 31st, 2024, data on which the power limitations in C-Band frequencies of 3,300 MHz to 3,7000 MHz will be lifted. A radio altimeter tolerant aircraft must comply with these limits. The tilt limitations for the main beam of antennas used in base, nodal, or repeater stations operating in the 3,300 MHz to 3,700 MHz frequency range, installed in areas close to the aerodromes specified in Anatel Act No. 9064, of June 28, 2022, amended by Act No. 14,704, of October 11, 2023, will remain in force after this date for an indefinite period.

However, ANAC alerts that the tilt limitations for the main beam of antennas used in base, nodal, or repeater stations may not remain in place permanently. Considering the possibility of a future scenario in which tilt limitations are removed, ANAC has defined the curve in Figure 4. ANAC highlights that compliance with this curve is not mandatory for the establishment of a radio altimeter tolerant aircraft at the current time.

The curve in Figure 4 is for information purposes only. For aircraft with non- tolerant radio altimeter aircraft that will have to be modified to meet the curve in Figure 1, ANAC recommends evaluating the possibility of implementing a modification that already meets the curve in Figure 4, taking into account a possible future scenario of removing all the limitations of Anatel ATO No. 9064, of June 28, amended by Ato No. 14.704, of October 11, 2023.



Figure 4 - Minimum tolerance limit to the 5G fundamental emissions at the radio altimeter antenna external interface antenna – future scenario without 5G antenna main lobe tilt limitations