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The ASO contains relevant operational safety information and may contain recommendations for actions to be taken by operators. However, even if a recommendation is published in an ASO, an alternative action can be as efficient or more efficient for the specific case of each operator and its particularities. The contents of this document are not subject to regulatory enforcement and are not intended to bind the public.

**5G signal operation in Brazil.**

This ASO provides alert information to the civil aviation community (mainly owners, aircraft operators and crews) about the 5G signal operation in Brazil.

**Background**

ANAC has been evaluating the possible consequences of the 5G signal deployment since the beginning of 2021. In May 2021, ANAC initiated interactions with ANATEL to seek a common understanding of the required mitigations for the Brazilian scenario, to ensure the safe coexistence of Aeronautical Radionavigation services and the 5G Personal Mobile Service in the C Band.

The assessment, in order to release the beginning of 5G signal operation in Brazil, resulted in limitations on the 5G stations installation, on a preventive basis, to be applied in regions close to some aerodromes, as specified in ANATEL Act No. 9064 of June 28, 2022. The limitations imposed by ANATEL Act 9064 of June 28, 2022, are sufficient to mitigate the risks associated with the 5G interference identified for the Brazilian scenario.

However, According to ANATEL Act No. 14704, of October 11, 2023, the limitations established in ANATEL Act No. 9064, of June 28, 2022, will remain in effect until July 31, 2024. Some aircraft functions may be affected by the 5G interference with radio altimeters. Anomalies in the radio altimeter caused by interference, such as loss or erroneous functioning, that are undetected by the automation or pilot, particularly close to the ground (e.g., landing flare), could lead to loss of continued safe flight and landing. Due to the expected expiry of the limitations, ANAC issued the following Airworthiness Directives:

- **AD 2024-04-01**, effective date: 21 July 2024, applies to all transport (Part 25), commuter (Part 23, pre-amendment 64), and normal level 4 categories (Part 23, amendment 64 or later amendments) aircraft, certified for automatic landing or authorized for the following special operations: Instrument Landing System (ILS) Instrument Approach Procedure (IAP) CAT II and CAT III; Head-Up Display (HUD) operation until touchdown; and Enhanced Vision System (EVS) operation until
- **AD 2024-05-01**, effective date: 21 July 2024, applies to BOEING aircraft model 737-8.
- **AD 2024-05-02**, effective date: 21 July 2024, applies to BOEING aircraft models 737-300, 737-400, 737-500, 737-600, 737-700, and 737-800.





# ASO

## Alerta de Segurança Operacional



- **AD 2024-05-03**, effective date: 21 July 2024, applies to BOEING aircraft models 757-200, 767-200, 767-300, and 767-300F.
- **AD 2024-05-04**, effective date: 21 July 2024, applies to BOEING aircraft models 777-200 and 777-300ER.
- **AD 2024-05-05**, effective date: 21 July 2024, applies to BOEING aircraft models 787-8, 787-9, and 787-10.
- **AD 2024-05-06**, effective date: 21 July 2024, applies to BOMBARDIER aircraft models BD-700-1A10 and BD-700-1A11.
- **AD 2024-05-07**, effective date: 21 July 2024, applies to BOMBARDIER aircraft model BD-700-2A12.

ANAC Portaria No. 14318, of April 10, 2024, used as a reference on the Airworthiness Directive, provides tolerance limits to a radio altimeter tolerant to interference, as installed in aircraft in operation in Brazil.

Aircraft manufacturers and operators have submitted evidence of compliance with Portaria No. 14.318, de 10 de abril de 2024. Airplane-radio altimeter combinations evaluated by Anac and accepted as radio altimeter tolerant aircraft for compliance with Anac ADs, are listed in Portaria No. 15038, de 15 de julho de 2024.

The full content of the Airworthiness Directive is available on ANAC's website, as well as Portaria No. 14318 of April 10, 2024, and Portaria No. 15038, de 15 de julho de 2024.

### Recommendations by Anac

Anac recommends owners and operators of aircraft within the Anac ADs applicability, to be aware of the airplane-radio altimeter combinations considered as radio altimeter tolerant aircraft by Anac.

Even though the Anac Airworthiness Directive applies only to Brazilian-registered airplanes, Anac understands that safety concerns are valid regardless of the State of Registry of the aircraft. While additional actions are being evaluated by Anac to international operators, Anac strongly recommends using radio altimeter tolerant aircraft as listed in Portaria No. 15038, de 15 de julho de 2024.

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### References

- 1) Ato nº 9064, de 28 de junho de 2022, Anatel – only Portuguese version - ([link](#))
- 2) Ato nº 14.704, de 11 de outubro de 2023, Anatel – only Portuguese version ([link](#))
- 3) AD 2024-04-01 ([link](#))
- 4) AD 2024-05-01 ([link](#))
- 5) AD 2024-05-02 ([link](#))
- 6) AD 2024-05-03 ([link](#))
- 7) AD 2024-05-04 ([link](#))
- 8) AD 2024-05-05 ([link](#))
- 9) AD 2024-05-06 ([link](#))
- 10) AD 2024-05-07 ([link](#))
- 11) Portaria Nº 14318, de 10 de abril de 2024, Anac ([link](#))  
Portaria Nº 15038, de 15 de julho de 2024, Anac ([link](#))

