

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-737-01

Date: 27 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquáriu - Torre B - 14 o ao 18 o andares
Parque Residencial Aquáriu
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 25 Feb. 2024.

APPLICABILITY:

(a) This Airworthiness Directive (AD) applies to BOEING airplanes model 737-8, all serial numbers.

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). During takeoffs and landings, as a result of this interference, certain airplane systems may not properly function, resulting in longer than normal landing or rejected takeoff distances due to the effect on thrust reverser deployment, spoilers, speedbrake deployment, and increased idle thrust, regardless of the approach type or weather. The degraded deceleration performance could lead to a runway excursion.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

(1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA Nº 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Takeoff and Landing Performance

Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required to dispatch or release to airports, and takeoff and landing on runways, in the Brazilian airspace.

Minimum Equipment List (MEL)

Dispatch or release with any of the following MEL items is prohibited:

- 32-42-01 – Antiskid Systems
- 32-42-02 – Alternate Antiskid Valves
- 32-42-03 – Automatic Brake Systems
- 32-44-01 – Parking Brake Valve

Landing Operations on Runways with ice, wet ice, water on top of compacted snow, dry snow, or wet snow over ice

Dispatch or release to, or takeoff or landing on, runways with ice, wet ice, water on top of compacted snow, dry snow, or wet snow over ice is prohibited.

Takeoff and Landing Performance

Operators must use the **5G C-Band Interference Takeoff Performance and Landing Distance Calculation** procedure contained in the Operating Procedures Section of this AFM.

- (2) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Operating Procedures Section of the existing AFM to include the following information:

5G C-Band Interference Takeoff Performance and Landing Distance Calculation

Dispatch Guidance – Takeoff Performance

Stopping distance during a rejected takeoff (RTO) can be significantly increased due to the following potential effects on airplane systems:

- Limited spoiler extension
- Higher engine idle
- Thrust reverses may not deploy

For the increased stopping distance during an RTO, refer to the Departure Airport, Takeoff Performance section below.

Dispatch Guidance – Destination or Alternate Airport – Landing Performance

Calculate the required landing distance (select Method A or Method B)

Method A: Use of normal landing performance increased by a predetermined percentage

Use Prior to Descent, Required Landing Distance section below

End of Method A

Method B: Use of the Non-normal configuration landing distance table for SPOILERS

Use the SPOILERS Non-Normal Configuration Landing Distance table in the Performance chapter of the AFM, or the applicable table below, for flaps 30 or flaps 40

- Use the distance for MAX MANUAL braking configuration with the appropriate runway condition at the estimated time of arrival.

- Apply all of the appropriate distance adjustments to include the reverse thrust adjustment for NO REVERSE (NO REV)

For non-contaminated runway condition, increase the resulting unfactored distance by 15% to obtain the required landing distance.

For contaminated runway condition, increase the resulting unfactored distance by 30% to obtain the required landing distance.

*A runway is contaminated when more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by: — water more than 3 mm (0.125 in) deep; or — compacted snow or ice, including wet ice.

End of Method B

Departure Airport, Takeoff Performance

Select Method 1 or 2 to adjust the accelerate stop distance available (ASDA)

Note: Both methods provide an acceptable margin of safety.

Method 1: Adjust the ASDA by a predetermined value.

Adjust the ASDA by using the following adjustment:

Runway condition	Subtract from ASDA
Dry	950 feet
Wet (non-contaminated)	3,700 feet
Contaminated	4,900 feet

*A runway is contaminated when more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by: — water more than 3 mm (0.125 in) deep; or — compacted snow or ice, including wet ice.

Use the adjusted ASDA and complete the takeoff performance calculations using actual departure runway conditions and actual departure environmental conditions. Do not take credit for use of reverse thrust when calculating takeoff performance.:

End of Method 1

Method 2: Adjust the ASDA by a predetermined factor.

Multiply the ASDA by the following factor:

Runway condition	ASDA Factor
Dry	0,86
Wet (non-contaminated)	0,71
Contaminated	0,65

*A runway is contaminated when more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by: — water more than 3 mm (0.125 in) deep; or — compacted snow or ice, including wet ice.

Use the adjusted ASDA and complete the takeoff performance calculations using actual departure runway conditions and actual departure environmental conditions. Do not take credit for use of reverse thrust when calculating takeoff performance.

End of Method 2

Prior to takeoff:

Verify normal radio altimeter indications.

Climb out:

- TO/GA mode may not be available
- Monitor pitch mode engagement
- Monitor roll mode engagement
- Autopilot may not engage

Prior to Descent, Required Landing Distance

Do a time of arrival (en route) landing distance assessment using Method A or B. Use the SPOILERS non-normal configuration landing distance table in the Performance chapter of the AFM, or the applicable table below, for flaps 30 or flaps 40.

Method A: Use of normal landing performance and increase by a predetermined percentage.

Use the Normal configuration Landing Distance table for flaps 30 or flaps 40.

Note: The distances and adjustments shown in the Normal configuration Landing Distance tables are factored and have been increased 15%

Select the appropriate runway conditions.

Select the distance for the MAX MANUAL braking configuration.

Apply all of the appropriate distance adjustments.

Note: Do not apply adjustments for reverse thrust

To obtain the required landing distance, increase the resulting factored distance by the percentage below in Table 1 based on the runway condition code or runway braking action.

Table 1:

Runway condition Code	Percentage
Dry	23%
Wet (non-contaminated)	65%
Contaminated	113%

*A runway is contaminated when more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by: — water more than 3 mm (0.125 in) deep; or — compacted snow or ice, including wet ice.

Determine autobrake settings using the **Determine Autobrake Settings** section below

End of Method A

Method B: Use of the Non-Normal Configuration Landing Distance table for SPOILERS

Use the SPOILERS Non-Normal Configuration Landing Distance table in the Performance

chapter of the AFM, or the applicable table below, for flaps 30 and flaps 40.

Select the appropriate runway condition.

Select the distance for MAX MANUAL braking configuration.

Apply all of the appropriate distance adjustments including the reverse thrust adjustment for no reverse (NO REV)

For non-contaminated runway condition, increase the resulting unfactored distance by 15% to obtain the required landing distance.

For contaminated runway condition, increase the resulting unfactored distance by 30% to obtain the required landing distance

Determine autobrake settings using the Determine Autobrake Settings section below.

SPOILERS Non-NORMAL Configuration Landing Distance Tables

737-8 One Position Tailskid, FLAPS 30, VREF30									
Landing Distance and Adjustments (feet)									
	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
Runway condition	150,000 LB Landing Weight	Per 10,000 LB Above/Below 150,000 LB	Per 1,000 ft STD/HIGH	Head/Tail wind	Down/Up Hill	Above/Below ISA	Per 5 KTS above VREF	One Reverser	No reverser
Dry	4870	250/-270	130/170	-210/680	80/-70	130/-130	310	180	280
Wet (non-contaminated)	7330	450/-450	250/340	-360/1270	310/-250	220/-220	420	910	2090
Wet (contaminated)	8290	610/-570	330/460	-470/1660	440/-340	280/-280	450	1530	4410

737-8 Two Position Tailskid, FLAPS 30, VREF30									
Landing Distance and Adjustments (feet)									
	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
Runway condition	150,000 LB Landing Weight	Per 10,000 LB Above/Below 150,000 LB	Per 1,000 ft STD/HIGH	Head/Tail wind	Down/Up Hill	Above/Below ISA	Per 5 KTS above VREF	One Reverser	No reverser
Dry	4670	250/-250	130/170	-210/680	80/-70	120/-120	300	160	280
Wet (non-contaminated)	7050	430/-420	240/340	-360/1240	300/-240	210/-200	410	850	1960
Wet (contaminated)	7980	590/-540	330/460	-460/1640	420/-330	270/-270	450	1430	4110

737-8 One Position Tailskid, FLAPS 40, VREF40									
Landing Distance and Adjustments (feet)									
	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
Runway condition	150,000 LB Landing Weight	Per 10,000 LB Above/Below 150,000 LB	Per 1,000 ft STD/HIGH	Head/Tail wind	Down/Up Hill	Above/Below ISA	Per 5 KTS above VREF	One Reverser	No reverser
Dry	4630	300/-250	140/170	-210/670	90/-80	120/-120	330	160	250
Wet (non-contaminated)	6900	510/-420	240/340	-350/1230	310/-240	200/-200	410	800	1830
Wet (contaminated)	7670	670/-520	320/450	-450/1610	410/-320	260/-260	450	1260	3430

737-8 Two Position Tailskid, FLAPS 40, VREF40									
Landing Distance and Adjustments (feet)									
	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
Runway condition	150,000 LB Landing Weight	Per 10,000 LB Above/Below 150,000 LB	Per 1,000 ft STD/HIGH	Head/Tail wind	Down/Up Hill	Above/Below ISA	Per 5 KTS above VREF	One Reverser	No reverser
Dry	4600	310/-250	140/170	-210/670	90/-70	120/-120	330	160	250
Wet (non-contaminated)	6870	520/-410	250/340	-350/1220	310/-240	200/-200	410	800	1820
Wet (contaminated)	7630	680/-520	330/450	-450/1610	410/-320	260/-260	450	1250	3400

*A runway is contaminated when more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by: — water more than 3 mm (0.125 in) deep; or — compacted snow or ice, including wet ice.

**For landing distance at or below 8,000 ft, apply the STD adjustment. For altitudes higher than 8,000 ft, first apply the STD adjustment to derive a new reference landing distance for 8,000 ft then apply the HIGH adjustment to this new reference distance.

Reference distance is based on MAX MANUAL braking, sea level, standard day, no wind or slope and maximum reverse thrust.

Reference distance includes a distance from the threshold to touchdown associated with a flare time of 7 seconds.

Distances are based on SPOILERS failure distances which conservatively approximate the effects of 5G interference after the Reverse Thrust Adjustment for no Reversers is applied.

Actual (unfactored) distances are shown.

Note: per procedure, MAX MANUAL braking is not required for normal operations

End of Method B

Determine Autobrake Settings

- Determine desired AUTOBRAKE settings by using the normal configuration landing distance.

Note: Normal manual or normal autobrakes can be used, The use of maximum brakes is not needed except as stated in the During Landing section below

During Approach

- Monitor radio altimeters for anomalies.
- Monitor performance of autopilot and autothrottle. If the autopilot or autothrottle is not performing as expected, disconnect both the autopilot and autothrottle and apply normal inputs to ensure proper control of the flight path.

At DA(H), MDA(H), or the Missed Approach Point

- If suitable visual reference is established, disengage the autopilot and autothrottle and continue for a normal manual landing.
- If a go-around is needed, do the go-around and the missed approach procedure

either in manual or automatic flight.

During Landing

- Radio altitude-based altitude aural callouts during approach may not be available or may be erroneous.
- Manual deployment of the speedbrakes may be needed.
- If the thrust reversers do not deploy, immediately ensure the speedbrakes are extended, apply manual braking, and modulate as needed for the existing runway conditions.

Note: In some conditions, maximum manual braking may be needed throughout the entire landing roll.

During Go-around and Missed Approach

- TO/GA mode may not be available.
- Monitor thrust and verify that thrust increases.
- Monitor pitch mode engagement.
- Monitor roll mode engagement.
- Autopilot may not engage

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

- (3) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraphs (b)(1) and (b)(2) of this AD. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraphs (b)(1) and (b)(2) of this AD.

(d) Compliance with PORTARIA NO 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) Alternative methods of compliance (AMOCs).

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) Addition information

For questions or further information, please contact pac@anac.gov.br

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-737-02

Date: 27 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquáriu - Torre B - 14 o ao 18 o andares
Parque Residencial Aquáriu
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 25 Feb. 2024.

APPLICABILITY:

(a) This Airworthiness Directive (AD) applies to BOEING airplanes models 737-300, 737-400, 737-500, 737-600, 737-700 and 737-800, all serial numbers.

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). During takeoffs and landings, as a result of this interference, certain airplane systems may not properly function, resulting in increased flightcrew workload while on approach with the flight director, autothrottle, or autopilot engaged. The increased flightcrew workload could lead to reduced ability of the flightcrew to maintain safe flight and landing of the airplane.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

(1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA Nº 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required to dispatch or release to airports, and approach, landing and go-around on runways, in the Brazilian airspace.

Approach, Landing, and Go-Around

Operators must use the **Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around** procedure.

- (2) For airplanes models 737-300, 737-400 and 737-500 identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Operating Procedures Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches other than CAT II and CAT III, during any ILS approach with autopilot engaged or flight director ON, execute a go-around for any of the following conditions, unless the runway environment is in sight and a manual, visual landing can be accomplished:

- If the flight director automatically retract from view, or
- If the pitch guidance indicates FLARE mode prematurely, or
- If the autothrottle retards to IDLE prematurely.

During Go-Around and Missed Approach

If go-around is required, ensure thrust is increased to go-around power. Do not use flight director, autopilot, or autothrottles until reaching a safe altitude, TOGA mode may not be available. Autopilot may not be available. Monitor pitch and roll modes for engagement.

- (3) For airplanes models 737-600, 737-700 and 737-800 identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Operating Procedures Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

ILS Approaches

For ILS approaches other than CAT II, and CAT III, during any ILS (and GLS if installed) approach with autopilot engaged or flight director ON, execute a go-around for any of the following conditions, unless the runway environment is in sight and a manual, visual landing can be accomplished:

- If the flight director automatically retract from view, or
- If the pitch guidance indicates FLARE mode prematurely, or
- If the autothrottle retards to IDLE prematurely.

Landing

Adjust operational (time of arrival) landing distance for manual speedbrakes.

Automatic speedbrake deployment may not occur after touchdowns.

During Go-Around and Missed Approach

If go-around is required, ensure thrust is increased to go-around power. Do not use flight director, autopilot, or autothrottles until reaching a safe altitude, TOGA mode may not be available. Autopilot may not be available. Monitor pitch and roll modes for engagement.

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

- (4) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required.

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraphs (b)(1) and (b)(2) or (b)(3) of this AD, as applicable. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraphs (b)(1) and (b)(2) or (b)(3) of this AD, as applicable.

(d) Compliance with PORTARIA NO 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) Alternative methods of compliance (AMOCs).

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) Addition information

For questions or further information, please contact pac@anac.gov.br

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-757-01

Date: 28 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquárius - Torre B - 14 o ao 18 o andares
Parque Residencial Aquárius
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 26 Feb. 2024.

APPLICABILITY:

- (a) This Airworthiness Directive (AD) applies to BOEING airplane models 757-200, 767-200, 767-300 e 767-300F, all serial numbers.

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). During approach, landings, and go-arounds, as a result of this interference, certain airplane systems may not properly function, resulting in increased flightcrew workload while on approach with the flight director, autothrottle, or autopilot engaged. The increased flightcrew workload could lead to reduced ability of the flightcrew to maintain safe flight and landing of the airplane.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

- (1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA Nº 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around

Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required to dispatch or release to airports, and approach, landing and go-around on runways, in the Brazilian airspace.

Approach, Landing, and Go-Around

Operators must use the **Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around** procedure.

- (2) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Operating Procedures Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Approach, Landing, and Go-Around**Landing Distance Calculations**

For airplanes with Yaw Damper Stabilizer Trim Module (YSM), adjust the operational (time of arrival) landing distance for manual speedbrake deployment if MAX MANUAL braking is required. When using autobrakes, no correction is needed since the calculations already take into account that manual speedbrake deployment may be needed.

ILS Approaches

For ILS approaches other than CAT I AR, CAT II, and CAT III, disconnect the autopilot and autothrottle, and place both flight director switches to OFF prior to glideslope intercept.

Non-Precision Approaches

Non-precision instrument approaches can be conducted using VNAV or V/S with flight directors, autopilot, and autothrottle to published minimums.

During Landing

For airplanes with Yaw Damper Stabilizer Trim module (YSM), if MAX MANUAL braking is required, manually deploy the speedbrake if it does not deploy automatically.

During Go-Around and Missed Approach

If the flight director is ON, cycle to OFF, then ON, as needed.

If the flight director is OFF, turn ON, as needed.

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

- (3) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required.

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraphs **(b)(1)** and **(b)(2)** of this AD. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraphs **(b)(1)** and **(b)(2)** of this AD.

(d) Compliance with PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) Alternative methods of compliance (AMOCs).

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) Additional information

For questions or further information, please contact pac@anac.gov.br

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-777-01

Date: 28 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquáriu - Torre B - 14 o ao 18 o andares
Parque Residencial Aquáriu
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 26 Feb. 2024.

APPLICABILITY:

- (a) This Airworthiness Directive (AD) applies to BOEING airplanes models 777-200, 777-300ER, all serial numbers.

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). As a result of this interference, certain airplane systems may not properly function, such as the pitch control laws, including those that provide tail strike protection. Anomalies in radio altimeters caused by interference, such as missing or erroneous radio altimeter data, in combination with multiple flight deck effects, could lead to loss of continued safe flight and landing.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

- (1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA Nº 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Approaches and Landings in the Presence of Radio Altimeter 5G C-Band Interference

Due to the presence of 5G C-Band wireless broadband interference, dispatching or releasing to airports, and approaches or landings on runways, in the Brazilian airspace is prohibited.

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

(2) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required.

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraphs (b)(1) of this AD. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraphs (b)(1) of this AD.

(d) Compliance with PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) Alternative methods of compliance (AMOCs).

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) Additional information

For questions or further information, please contact pac@anac.gov.br

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-787-01

Date: 28 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquáriu - Torre B - 14 o ao 18 o andares
Parque Residencial Aquáriu
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 26 Feb. 2024.

APPLICABILITY:

- (a) This Airworthiness Directive (AD) applies to BOEING airplane models 787-8, 787-9 e 787-10, all serial numbers.

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). During takeoffs and landings, as a result of this interference, certain airplane systems may not properly function, resulting in longer than normal landing or rejected takeoff distances due to the effect on thrust reverser deployment, spoilers, speedbrake deployment, and increased idle thrust, regardless of the approach type or weather. The degraded deceleration performance could lead to a runway excursion.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

- (1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA Nº 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Takeoff and Landing Performance

Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required to dispatch or release to airports, and takeoff and landing on runways, in the Brazilian airspace.

Minimum Equipment List (MEL)

Dispatch or release with any of the following MEL items is prohibited:

- 32-42-02 – Antiskid Control Systems
- 32-45-01 – Wheel Brake Systems
- 32-45-01-01 – Wheel Brake Systems, Electric Brake Actuator Systems

Landing Operations on Runways with ice, wet ice, water on top of compacted snow, dry snow, or wet snow over ice

Dispatch or release to, or takeoff or landing on, runways with ice, wet ice, water on top of compacted snow, dry snow, or wet snow over ice is prohibited.

Takeoff and Landing Performance

Operators must use the **5G C-Band Interference Landing Distance** Calculations procedure contained in the Operating Procedures Section of this AFM.

- (2) For airplanes models identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Operating Procedures Section of the existing AFM to include the following information:

5G C-Band Interference Landing Distance

Dispatch or release:

- No additional landing distance calculations are required for dry runway condition.
- For wet runway condition, use Table 1 through 6, as applicable, to determine the unfactored landing distance, applying all adjustments. Multiply the resulting unfactored landing distance by 1.15 to obtain the minimum required landing distance.

Table 1:

787-10 / TRENT 1000									
Landing Distance and Adjustments (feet)									
	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
Runway condition	440,000 LB Landing Weight	Per 10,000 LB Above/Below 440,000 LB	Per 1,000 ft	Head/Tail wind	Down/Up Hill	Above/Below ISA	Per 5 KTS above VREF	One Reverser	No reverser
Dry	5640	110/-90	160	-240/790	90/-80	150/-150	230	0	0
Wet (non-contaminated)	9180	170/-150	340	-470/1680	440/-340	290/-280	390	0	0
Wet (contaminated)	12180	280/-250	560	-770/2850	970/-690	480/-460	540	0	0

Table 2:

787-10 / GENx									
Landing Distance and Adjustments (feet)									

Runway condition	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
								One Reverser	No reverser
Dry	5670	110/-90	170	-240/800	90/-80	150/-150	230	0	0
Wet (non-contaminated)	9300	170/-150	360	-480/1710	450/-350	290/-290	400	0	0
Wet (contaminated)	12400	280/-250	610	-790/2930	1010/-710	480/-470	540	0	0

Table 3:

787-9 / TRENT 1000									
Landing Distance and Adjustments (feet)									
Runway condition	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
								One Reverser	No reverser
Dry	5470	100/-90	160	-240/780	80/-80	150/-150	230	0	0
Wet (non-contaminated)	9010	170/-160	340	-470/1670	430/-340	290/-280	390	0	0
Wet (contaminated)	11740	270/-260	540	-750/2780	910/-650	460/-440	530	0	0

Table 4:

787-9 / GENx									
Landing Distance and Adjustments (feet)									
Runway condition	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
								One Reverser	No reverser
Dry	5500	100/-90	170	-240/790	90/-80	150/-150	230	0	0
Wet (non-contaminated)	9130	170/-150	360	-480/1700	450/-350	290/-280	390	0	0
Wet (contaminated)	11960	270/-260	590	-770/2860	940/-670	460/-460	530	0	0

Table 5:

787-8 / TRENT 1000									
Landing Distance and Adjustments (feet)									
Runway condition	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
								One Reverser	No reverser
Dry	5050	110/-80	150	-230/750	80/-70	130/-130	220	0	0
Wet (non-contaminated)	8370	170/-150	290	-440/1500	410/-320	250/-250	340	0	0
Wet (contaminated)	10800	290/-240	520	-720/2680	820/-590	430/-420	510	0	0

Table 6:

787-8 / GENx									
Landing Distance and Adjustments (feet)									

Runway condition	Reference Distance	Weight adjustment	Altitude adjustment **	Wind adjustment per 10 knots	Slope Adjustment per 1%	Temperature Adjustment per 10° C	Approach Speed Adjustment	Reverse Thrust Adjustment	
								One Reverser	No reverser
Dry	380,000 LB Landing Weight	Per 10,000 LB Above/Below 380,000 LB	Per 1,000 ft	Head/Tail wind	Down/Up Hill	Above/Below ISA	Per 5 KTS above VREF	0	0
Wet (non-contaminated)	5100	110/-80	160	-230/760	80/-70	130/-140	220	0	0
Wet (contaminated)	8530	160/-140	300	-450/1530	430/-330	250/-250	340	0	0
Wet (contaminated)	11090	290/-240	560	-740/2790	880/-620	430/-420	510	0	0

Reference distance is based on MAX MANUAL braking, sea level, standard day, no wind or slope and maximum reverse thrust.

Reference distance includes a distance from the threshold to touchdown associated with a flare time of 7 seconds.

Distances are based on HYD PRESS L+R failure distances which conservatively approximate the effects of 5G interference after the Reverse Thrust Adjustment for no Reversers is applied.

Actual (unfactored) distances are shown.

Note: per procedure, MAX MANUAL braking is not required for normal operations and is to be used only in the event that significant 5G interference occur,

En route:

- Plan to use Flaps 30 and V_{REF30} (with appropriate wind additives) for landing.
- For wet runway condition, compute time of arrival (en route) landing distance using Table 1 through 6, as applicable, applying all adjustments. Multiply the resulting unfactored landing distance by 1.1 to obtain the minimum required landing distance at the destination. This approximates a minimum required landing distance resulting from 5G C-Band interference.
- Determine desired AUTOBRAKE setting by using the normal configuration landing distance information from an approved source, Maximum manual braking may not be required.

During Approach and Landing

- Monitor radio altimeters for anomalies.
- Normal use of autothrottles is allowed. Monitor performance of autopilot and autothrottle. If the autopilot or autothrottle is not performing as expected, disconnect both the autopilot and autothrottle and apply manual inputs to ensure proper control of the flight path.
- If the autothrottle does not reduce the thrust to IDLE at 25 feet, manually reduce the thrust to idle, hold the thrust levers in the idle position and disconnect the autothrottle to prevent autothrottle from advancing the thrust levers after touchdown.

Caution: if the autothrottle advances the thrust levers after landing, the speedbrakes will stow and the autobrake will disarm. It will not be possible to raise the reverse thrust levers to deploy the thrust reversers until de thrust levers are at idle.

- Manual deployment of the speedbrakes may be required.
- If the thrust reversers do not deploy, immediately ensure the speedbrakes are extended, apply manual braking, and modulate as needed for the existing runway conditions.

Note: In some conditions, maximum manual braking may be needed throughout the entire landing roll.

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

- (3) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required.

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraphs (b)(1) and (b)(2) of this AD. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraphs (b)(1) and (b)(2) of this AD.

(d) Compliance with PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) Alternative methods of compliance (AMOCs).

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) Additional information

For questions or further information, please contact pac@anac.gov.br

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-ALL-02

Date: 26 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquáriu - Torre B - 14 o ao 18 o andares
Parque Residencial Aquáriu
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 24 Feb. 2024.

APPLICABILITY:

(a) This Airworthiness Directive (AD) applies to all Transport, Commuter, and Normal Level 4 Category airplanes certified for Autoland or authorized for any of the following special operations:

(i) Instrument Landing System (ILS) Instrument Approach procedures (IAP) CAT II.

(ii) Instrument Landing System (ILS) Instrument Approach procedures (IAP) CAT III.

(iii) Operation with head-up display (HUD) to touchdown operation.

(iv) Operation with Enhanced Flight Vision System (EFVS) to touchdown

NOTE: Normal Level 4 Category airplane refers to the airplane certification level, according to Section 23.2005 of RBAC 23, amendment 64 or later amendments. Information regarding the RBAC 23 amendment adopted on the airplane certification, as well as the classification level, may be found in the airplane Type Certificate Datasheet (TCDS).

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). 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.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

- (1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Radio Altimeter Flight Restrictions

Due to the presence of 5G wireless broadband interference, when operating in the Brazilian airspace, the following operations requiring radio altimeters are prohibited:

- Instrument Landing System (ILS) Instrument Approach procedures (IAP) CAT I AR, CAT II and CAT III
- 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

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

- (2) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraph (b)(1) of this AD. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraph (b)(1) of this AD.

(d) Compliance with PORTARIA NO 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) **Alternative methods of compliance (AMOCs).**

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) **Addition information**

For questions or further information, please contact pac@anac.gov.br

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-BD700-01

Date: 29 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquáriu - Torre B - 14 o ao 18 o andares
Parque Residencial Aquáriu
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 27 Feb. 2024.

APPLICABILITY:

- (a) This Airworthiness Directive (AD) applies to BOMBARDIER airplane models BD-700-1A10 and BD-700-1A11, all serial numbers.

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). Dispatch under a certain MEL item, in combination with 5G interference and an additional failure, could affect the capacity of safe flight and landing of the airplane.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

- (1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA Nº 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Takeoff and Landing Performance

Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required to dispatch or release to airports, and takeoff and landing on runways, in the Brazilian airspace.

Minimum Equipment List (MEL)

Dispatch or release with the following MEL item is prohibited:

- Section Two – Crew Alerting System (CAS) Message Relief: CAS Indication

WOW Fault (Advisory)

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

(2) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required.

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraphs (b)(1) of this AD. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraphs (b)(1) of this AD.

(d) Compliance with PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) Alternative methods of compliance (AMOCs).

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) Additional information

For questions or further information, please contact pac@anac.gov.br

**NOTICE OF PROPOSED REGULATION
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC
Gerência Geral de Certificação de Produto Aeronáutico**

Reference: NPR/AD 2023-BD700-02

Date: 29 Dec. 2023

In accordance with the provisions of RBAC 11, The Continuing Airworthiness Technical Branch (GTAC) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.

*All the persons interested may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address:*

*National Civil Aviation Agency (ANAC) – Continuing Airworthiness Technical Branch (GTAC)
Rua Doutor Orlando Feirabend Filho, nº 230
Centro Empresarial Aquárius - Torre B - 14 o ao 18 o andares
Parque Residencial Aquárius
12246-190 – São José dos Campos – SP - Tel.: (12) 3203-6600 - E-mail: pac@anac.gov.br.*

1. Proposer: Continuing Airworthiness Technical Branch (GTAC).

2. Comments: Must be received until 27 Feb. 2024.

APPLICABILITY:

- (a) This Airworthiness Directive (AD) applies to BOMBARDIER airplane model BD-700-2A12, all serial numbers.

CANCELLATION / REVISION:

Not applicable.

REASON:

The reason for this AD is the finding of potential interference in radio altimeters from wireless broadband operations in the 3.300 MHz to 3.700 MHz frequency band (5G C-Band). Dispatch under a certain MEL item, in combination with 5G interference and an additional failure, could affect the capacity of safe flight and landing of the airplane.

Since this condition may occur in other airplanes and affects flight safety, corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Airplane Flight Manual (AFM) Revision

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Airplane Flight Manual Revision

- (1) For airplanes identified in paragraph (a) of this AD, that do not meet the criteria for a “radio altimeter tolerant airplanes”, as established by PORTARIA Nº 13.365/SAR, de 14 de dezembro de 2023, within 10 days after the effective date of this AD, revise the Limitations Section of the existing AFM to include the following information:

Radio Altimeter 5G C-Band Interference, Takeoff and Landing Performance

Due to the presence of 5G C-Band wireless broadband interference, the following limitations are required to dispatch or release to airports, and takeoff and landing on runways, in the Brazilian airspace.

Minimum Equipment List (MEL)

Dispatch or release with the following MEL itens is prohibited:

Section One – Line Replaceable Unit (LRU) Component Relief

- 32-43-33 - MAIN WHEEL AXLE-INTERFACE-MODULE/WHEEL SPEED TRANSDUCER 1) WHEEL SPEED TRANSDUCER
- 32-61-09 – MAIN LANDING GEAR WEIGHT ON WHEELS PROXIMITY SWITCHES
- 34-44-00 – RADIO ALTIMETER SYSTEM

Section Two – Crew Alerting System (CAS) Message Relief:

- 27-0645 – 27 FLT CTRL – PFCC BCU INPUT REDUND LOSS
- 27-0660 – 27 FLT CTRL – PFCC LGSCU INPUT REDUND LOSS
- 27-0665 – 27 FLT CTRL – PFCC RAD ALT INPUT REDUND LOSS
- 32-0048 – 32 GEAR – GEAR WOW / WOFFW REDUND LOSS
- 32-1005 – ANTISKID DEGRADED (CAUTION)
- 34-1200 – RAD ALT 1 FAIL (Advisory)

NOTE 1: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

NOTE 2: For the purpose of this AD, a “radio altimeter tolerant airplane” is the one for which ANAC accepts that the combination airplane-radio altimeter demonstrates tolerance to the limits specified in this PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

- (2) For airplanes identified in paragraph (a) of this AD, that are defined as “radio altimeter tolerant airplanes”, according to the established by PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, no action is required.

(c) Terminating Action to the AFM Revision

Modification of a “non-radio altimeter tolerant airplane” to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, terminates the limitations required by paragraphs (b)(1) of this AD. After modification to a “radio altimeter tolerant airplane”, according to PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023, remove the AFM revision required by paragraphs (b)(1) of this AD.

(d) Compliance with PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023.

For the purpose of this AD, the acceptance of the combination airplane-radio altimeter as a “radio altimeter tolerant airplane” depends on the data provided to demonstrate the tolerance limits established in PORTARIA N^o 13.365/SAR, de 14 de dezembro de 2023. These data should be submitted to ANAC through 5g@anac.gov.br.

(e) Alternative methods of compliance (AMOCs).

A different method or a different compliance time from the requirements of this AD may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

(f) Additional information

For questions or further information, please contact pac@anac.gov.br