Transmitting Portable Electronic Device (T-PED) Tolerance

White Paper

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AC	Advisory Circular
CFR	Code of Federal Regulations
Corp.	Corporation
Global	Global Aerospace Design Corp.
DO	Direct Order
ED	EUROCAE document
FAA	Federal Aviation Administration
ft	feet
IFE	In-flight Entertainment
PED	Portable Electronic Device
RTCA	Radio Technical Commission for Aeronautics
STC	Supplemental Type Certificate
T-PED	Transmitting Portable Electronic Device
Wi-Fi	Wireless Fidelity

REFERENCES

Document	Title
InFO13010SUP	FAA Aid to Operators for the Expanded use of Passenger PEDs
PS-ANM-25-13	Electromagnetic Compatibility Demonstration for Airplane Wireless Radio Frequency Networks
AC 20-164	Designing and Demonstrating Aircraft Tolerance to Portable Electronic Devices
RTCA DO-160	Environmental Conditions and Test Procedures for Airborne Equipment
RTCA DO-307a ED-239	Aircraft Design and Certification of Portable Electronic Device (PED) Tolerance
RTCA DO-363 ED-130A	Guidance for the Development of Portable Electronic Devices (PED) Tolerance for Civil Aircraft
14 CFR 23.1309(a)	Equipment, systems, and installations

1 ABOUT GLOBAL AEROSPACE DESIGN CORP.

Global Aerospace Design Corporation (Global) is a technical services organization comprised of a highly experienced engineering staff focused on meeting your aircraft certification needs both in front of and behind the cockpit door. Our depth of experience with projects, ranging from full interior modification projects to complete cockpit upgrades, permits Global to provide technical solutions from nose-to-tail on any aircraft.

Comprised entirely of aircraft engineers, Global has the dedicated focus of maintaining positive cash flow while keeping overhead costs extremely low. This permits direct cost savings to our customers and maximizes our ability to outperform other integration services competitors.

2 TRANSMITTING PORTABLE ELECTRONIC DEVICE (T-PED) TOLERANCE

2.1 Overview

Transmitting Portable Electronic Device (T-PED) testing demonstrates that an aircraft is tolerant to the use of portable electronic devices (PEDs) during flight. In addition, gate-to-gate T-PED testing allows the use of PEDs during all phases of flight. This testing is necessary for the integration of Wi-Fi and Wireless In-Flight Entertainment (IFE) onto a fleet of aircraft so that passengers can access these systems using the devices they brought onboard with them.

2.2 Guidance

Global provides T-PED testing in accordance with:

Document	Title
RTCA DO-307a ED-239	Aircraft Design and Certification of Portable Electronic Device (PED) Tolerance
RTCA DO-363 ED-130A	Guidance for the Development of Portable Electronic Devices (PED) Tolerance for Civil Aircraft

Non-intentional and intentional emissions from PEDs are tested to prove that the aircraft is tolerant.

- Non-intentional emissions are cabin configuration dependent and tested using an emulator for measurements at the aircraft communication, navigation, and surveillance receivers.
- Intentional emissions are avionics dependent, and an antenna is placed near each unit to prove that it continues to operate properly during signal transmission.

2.3 Approach

The testing and certification approach for T-PED tolerance varies depending on the type of approval desired.

2.3.1 T-PED Testing

For T-PED tolerance approval above 10,000 ft., a review of the avionics on-board the aircraft will be conducted. A test plan will be developed to test avionics that have not been previously tested and/or approved.

2.3.2 Gate-to-Gate T-PED Testing

For gate-to-gate T-PED tolerance, a review of the avionics on-board the aircraft; as well as the cabin configuration will be conducted. A test plan will be developed to test avionics and cabin configuration that have not been previously tested and/or approved.

2.4 Certification

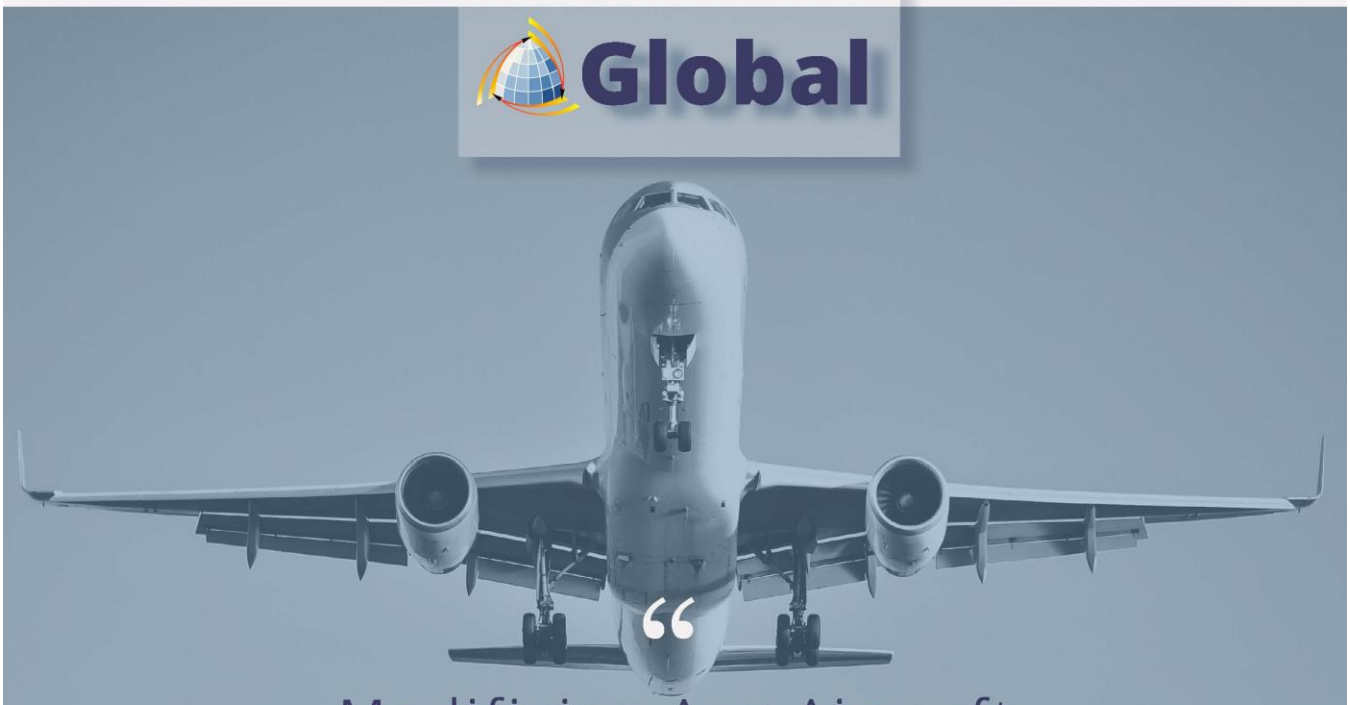
Unless T-PED tolerance is being conducted as part of a Global Supplement Type Certificate (STC), Global certification experts will provide T-PED recommended approval for the tested aircraft. It is then the responsibility of the aircraft operator to obtain final approval from the local airworthiness authority.

3 CONCLUSION

T-PED tolerance is a required step for integrating Wi-Fi or Wireless IFE onto a fleet of aircraft. Passengers are unable to access the wireless systems without proving that the aircraft is tolerant to the use of personal electronic devices. Global has performed T-PED testing on multiple Bombardier Q-400 and Boeing 737 aircraft; however, our capabilities go beyond these two aircraft types and the avionics tested are common across most aircraft fleets. In addition to T-PED tolerance, Global provides solutions for Wireless IFE and Wi-Fi. For more information regarding T-PED tolerance and cabin electronics, contact us at info@gadc.aero or visit gadc.aero.

4 GLOBAL EXPERIENCE

Global



Modifiying Any Aircraft Anywhere in the World.

ABOUT US

Located in Cincinnati, Ohio and established in 2012, by a group of talented ex-airline professionals with over 30 years of industry experience, *GLOBAL* is a highly talented engineering team dedicated to meeting all aircraft certification and modification needs.

WHY CHOOSE US

GLOBAL will always treat our customers as though our business depends on it! Our team is known for being highly reactive and responsive to any and all customer needs. We are dedicated to supporting our customers to the highest standard.

AVIONICS

GLOBAL has experience on the flight deck as well as in the cabin. Our team can integrate any system on every type of aircraft.

CABIN INTERIORS

GLOBAL has gone on to complete several interior programs for a wide variety of customers. These programs ranged from minor LOPA changes to complete interior retrofits.

CABIN ELECTRONICS

GLOBAL is able to provide cabin electronics solutions as well. The *GLOBAL* team can provide system integration solutions for all cabin equipment and ensure that everything is fully qualified to be on the airplane.

T-PED TESTING

Transmitting Portable Electric Device testing demonstrates that an aircraft is tolerant to the use of portable electric devices from gate to gate. This testing is a necessary step for the integration of Wi-Fi and wireless in-flight entertainment.

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