



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: Designing and Demonstrating Aircraft
Tolerance to Portable Electronic Devices

Date: 03/15/10

AC No. 20-164

Initiated By: AIR-130

1. What is the purpose of this AC?

a. This advisory circular (AC) identifies RTCA, Inc., document DO-307, *Aircraft Design and Certification for Portable Electronic Device (PED) Tolerance*, dated October 11, 2007, and RTCA/DO-307, Change 1, dated December 16, 2008, as an acceptable means for designing and demonstrating aircraft tolerance to potential electromagnetic interference from portable electronic devices (PEDs).

b. This AC is not mandatory and does not constitute a regulation. In it, we describe an acceptable means, though not the only means, to demonstrate aircraft tolerance to PEDs.

2. Who does this AC Applies to? We wrote this AC for aircraft manufacturers and modifiers who want to design and demonstrate that their aircraft can tolerate passengers and flightcrew using PEDs without adverse electromagnetic interference to aircraft systems.

3. Why Use RTCA/DO-307?

a. RTCA/DO-307 establishes aircraft system immunity criteria and test methods for designing and demonstrating aircraft tolerance to potential electromagnetic interference from passenger and flightcrew PEDs. PEDs may be transmitting or non-transmitting devices, and include mobile phones, wireless radio-frequency (RF) network devices such as Personal Digital Assistants (PDAs) or video players and laptop computers.

b. Use of the aircraft design standards in RTCA/DO-307 allows the aircraft to be tolerant to adverse interference from PEDs, whether through intentional or inadvertent use. RTCA/DO-307 includes separate aircraft design standards for transmitting and non-transmitting PEDs. Use of these standards may facilitate the operator approval for both transmitting and non-transmitting PED operation on a particular aircraft model. The demonstrated aircraft tolerance to potential electromagnetic interference is not restricted to a particular type of PED.

4. Use of RTCA/DO-294C Guidance by Aircraft Operators. RTCA/DO-294C, *Guidance on Allowing Transmitting Portable Electronic Devices*, dated December 16, 2008, describes how aircraft operators can show whether using PEDs on board aircraft is acceptable. The aircraft operators may use RTCA/DO-294C for operational assessment of potential interference from a particular transmitting portable electronic device type, such as cell phones. RTCA/DO-294C methods would generally allow approval of a specific transmitting PED type for a particular operator on a particular aircraft type and model only. The FAA would generally require restrictions during taxi, takeoff and landing. Therefore, RTCA/DO-294C is not suitable for demonstrating aircraft tolerance to all types of PEDs.

5. How to Obtain FAA Approval of a PED-Tolerant Aircraft Design.

a. Title 14 of the Code of Federal Regulations (14 CFR) parts 91, 121, 125 and 135 govern the use of PEDs on aircraft. These regulations make the aircraft operators responsible for determining if PED use is acceptable.

b. Aircraft PED tolerance demonstrated by the type certification applicant can help the aircraft operators in their compliance with 14 CFR §§ 91.21, 121.306, 125.204, and 135.144. The type certification applicant may submit its data of aircraft PED tolerance in accordance with RTCA/DO-307 for approval by the responsible FAA aircraft certification office (ACO). The type certification applicant should reference compliance with 14 CFR § 23.1309(b), 25.1309(a), 27.1309(a) or 29.1309(a), which requires the applicant to demonstrate that the aircraft's equipment, systems, and installations must be designed to ensure that they perform their intended functions under any foreseeable operating conditions. For part 23, 25, 27, or 29 aircraft, the FAA considers the RF environment created by the operation of PEDs within the aircraft as a foreseeable operating condition.

c. The type certification applicant may demonstrate aircraft PED tolerance to intentional transmissions (section 3 of RTCA/DO-307), spurious emissions (section 4 of RTCA/DO-307), or both.

d. The Airplane/Rotorcraft Flight Manual (or Supplement) should provide appropriate instructions regarding the PED tolerance approval of the aircraft (see section 5 of RTCA/DO-307). Any continued airworthiness instructions required to maintain the level of tolerance should be specified in the instructions for continuing airworthiness (see section 5 of RTCA/DO-307).

6. How To Get Referenced Documents.

a. Order RTCA documents from RTCA Inc., 1828 L Street NW, Suite 805, Washington, D.C. 20036. Telephone (202) 833-9339, fax (202) 833-9434. You also may order copies online at www.rtca.org.

b. Order copies of 14 CFR parts from the Superintendent of Documents, Government Printing Office, P.O. Box 37154, Pittsburgh PA 15250-7954. Telephone (202) 512-1800, fax

(202) 512-2250. You also may order copies online at www.access.gpo.gov. Select “Access,” then “Online Bookstore.” Select “Aviation,” then “Code of Federal Regulations.”

c. You can find a current list of advisory circulars at www.faa.gov/regulations_policies/advisory_circulars/.



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