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# IRELAND

AERONAUTICAL INFORMATION SERVICE  
IRISH AVIATION AUTHORITY  
BALLYCASEY CROSS  
SHANNON  
CO. CLARE  
Tel +353 61 703750 Fax +353 61 366245

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# AIC

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## USE OF PORTABLE ELECTRONIC DEVICES (PEDS) ONBOARD AIRCRAFT

### 1. Background

The purpose of this AIC is to update the guidance to aircraft owners and operators provided in previous Irish Aviation Authority Circular AIC Nr 06/15 concerning the use of Portable Electronic Devices (PEDs) on board aircraft. This AIC cancels and replaces the above mentioned AIC. This AIC takes into account Regulation (EU) No. 965/2012 Air Operations CAT.GEN.MPA.140, EASA Decision 2014/029/R, AMC and GM to CAT.GEN.MPA.140

PEDs in the context of this AIC are any commercially available portable electronic devices (PEDs) which may be carried on board an aircraft by crews or passengers and which when switched on emit electromagnetic radiation, either intentionally (i.e. transmitting devices) or unintentionally as a by-product of its operation (i.e. non-transmitting devices). The safety concern is that these PEDs present a risk of adverse interference to aircraft systems, and there is evidence available in the industry (references 5-9) to show that this interference can occur.

In the past operators adopted a policy of not allowing any PEDs to be operated during flight by passengers, however the availability of PEDs to the public has grown significantly in the past decade and continues to grow, as is the demand by aircraft passengers to be allowed to use these devices on board aircraft. Commercial operators are required under Air Operations CAT.GEN.MPA.140 (reference 1) to ensure that no person on board an aircraft uses a PED which can adversely affect the performance of aircraft systems and equipment and to take reasonable measures to prevent such use. This AIC provides guidance to aircraft owners and operators to assist them in developing their policy and procedures for controlling the use of PEDs on aircraft.

### 2. Overview of PEDs

PEDs are considered to fall into two main categories; intentional transmitters and non-intentional transmitters. Due to the rapid evolutionary nature of these devices it is not possible to provide a definitive list of examples of PEDs which will stand the test of time; however the following lists may be used as an example of the types of devices applicable to these two categories:

1. Intentional transmitting PEDs (also called T-PEDs) include but are not limited to:
  - a. Cell Phones (cellular, portable, mobile),
  - b. PC/PDA/Games with cellular network devices (e.g. with resident or plug in GSM, Smartphone, Blueberry, Blackberry, or similar)
  - c. PC/PDA/Games with wireless local or personal area network (including WiFi - WLAN/WPAN or similar)
  - d. Satellite phones
  - e. Radio transmitters (including two way radios/pagers)
  - f. Remote controlled devices, including toys
  - g. Computers with mobile phone data connection, wireless local area network (WLAN) or Bluetooth capability.

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2. Non-intentional transmitting PEDs include but are not limited to:

- a. PC/PDA equipment without transmitting devices
- b. Electronic games and toys without transmitting devices
- c. Electronic cameras, except those embedded in cell phones
- d. Audio (MP3 players) and video players
- e. Radio receivers
- f. Electrical shavers
- g. PC/PDA/Games with Bluetooth disabled may be treated as a non-intentional transmitter

Note: Controlled PED (C-PED) is subject to administrative control by the operator. C-PEDs can be assigned to the category of intentional transmitters (T-PEDs) or non-intentional transmitters (PEDs).

Certain medical devices (e.g. hearing aids, heart pacemakers, approved medical devices; insulin pumps-ventilators-cochlear implants, electronic watches excluding GPS watches/smartphone watches, electronic nerve simulators, pocket calculators and other devices powered by micro-cell batteries, solar cells and other low power etc.) although technically categorised as unintentional transmitting devices are considered sufficiently low risk devices due to generation of negligible emissions are excluded from this AIC. Note: if any of these PEDs have the ability to intentionally transmit data, or are provided with a RF remote control, such a function must be disabled before PED use is permitted, unless the aircraft operator has also determined that this generates negligible emissions. As a general principle medical equipment necessary to support physiological functions do not need to be switched-off.

### 3. Expanded use of PEDs and Recommended Procedures

An Operator can develop PED procedures based on AMC/GM CAT.GEN.MPA.140 (reference 1). Procedures need to address operation of PEDs in the different aircraft zones – passenger compartment, flight crew compartment, and areas not accessible during the flight such as cargo compartments. Procedures need to define restrictions on the use of PEDs in the passenger compartment. If an operator permits passengers to use PEDs on board its aircraft, procedures need to be in place to control their use (references 1-4). The operator is responsible to train crew members and ground personnel in relation to the operators PED policy and equipment use. This training needs to include enforcement of PED usage restrictions as determined by the operators PED policy.

Before an operator may permit the use of any kind of PED on-board, it needs to ensure that PEDs have no impact on the safe operation of the aircraft. The operator needs to demonstrate that PEDs do not interfere with on-board electronic systems and equipment, especially with the aircraft's navigation and communication systems.

Annex to Decision 2014/029/R 'AMC and GM to Part-CAT Issue 2, Amendment 1' (reference 1) provides further guidance and changes as briefly outlined;

#### **AMC1 CAT.GEN.MPA.140 Portable electronic devices – Technical Prerequisites for the use of PEDs.**

This AMC describes the technical prerequisites under which any kind of portable electronic device (PED) may be used on board the aircraft without adversely affecting the performance of the aircraft's systems and equipment. It includes scenarios for permitting the use of PEDs and the test methods for demonstration of electromagnetic compatibility (references 6 to 9). These scenarios provide clarifications in relation to expanded use of non-transmitting PEDs during any flight phase. There is also information provided for cargo tracking devices including lithium type battery standards.

#### **AMC2 CAT.GEN.MPA.140 Portable electronic devices – Procedures for the use of PEDs.**

This new AMC describes the procedures under which any kind of portable electronic device (PED) may be used on board the aircraft without adversely affecting the performance of the aircraft's systems and equipment. This AMC addresses the operation of PEDs in the different aircraft zones — passenger compartment, flight compartment, and areas inaccessible during the flight.

The operator should identify the safety hazards and manage the associated risks following the management system implemented in accordance with ORO.GEN.200. The AMC provides a list of hazards which should be included as part of the hazard identification and risk assessment developed by the operator.

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**GM1 CAT.GEN.MPA.140 Portable electronic devices.**

Clarifications have been provided to PED categories, cargo tracking devices and electromagnetic interference (EMI).

Note: High power Bluetooth standards have been developed and implemented having 10 times more transmitting power than initial standards. This AMC includes Bluetooth as an intentional transmitting technology that needs to be addressed. Currently a EUROCAE Working Group (WG-99) is reviewing and updating ED-130 (reference 6) and new Bluetooth technologies will be included as part of this exercise. ED-130 table 9 shows all pulse and amplitude modulated standards for mobile phone standards, data communication standards (includes Bluetooth) and professional mobile radio standards.

**GM2 CAT.GEN.MPA.140 Portable electronic devices.**

Clarifications have been provided for crew rest compartment, navigation, test entities and fire caused by PEDs.

**GM3 CAT.GEN.MPA.140 Portable electronic devices.**

This new GM provides guidance for cargo tracking device evaluations.

**AMC1 CAT.OP.MPA.170 Passenger Briefing**

Clarifications have been provided for the use and stowage of portable electronic devices.

**4. Miscellaneous**

When carrying out hazard identification it is recommended to include an assessment of the Aircraft Flight Manual (AFM) to ensure that PED use does not contradict any normal/abnormal procedures or limitations. If any aircraft within the operator's fleet are equipped with certificated on-board systems that permit the use of PEDs or T-PEDs, an assessment of the Aircraft Flight Manual (AFM) should be undertaken to ensure that changes to PED use does not contradict any normal/abnormal procedures or limitations. Any identified change to the AFM should follow the usual EASA approval process.

When establishing stowage requirements, a handheld PED is considered to be a device that is intended to be used whilst being held comfortably in one hand (less than 1kg). Larger PEDs such as laptops and notebooks are not considered to be handheld devices. Any PED accessories, e.g. earphones or cables connecting a device to the aircraft in-seat power supply, must not be allowed to obstruct access to aisles and exits during taxi, take-off and landing.

This AIC expires 6 months after the issue date or will be incorporated into the AIP

**5. References**

1. Regulation (EU) No. 965/2012 (Air Operations) CAT.GEN.MPA.140 *Portable Electronic Devices* and related AMC and GM as amended by ED Decision 2014/029/R
2. FAA Advisory Circular AC 91.21-1B; *Use of Portable Electronic Devices aboard Aircraft*; 25<sup>th</sup> August 2006
3. FAA: A Report from the Portable Electronic Devices Aviation Rulemaking Committee to the Federal Aviation Administration *Recommendations on Expanding the Use of Portable Electronic Devices During Flight*, September 30<sup>th</sup> 2013.
4. FAA Information for Operators InFO 13010 *Expanding Use of Passenger Portable Electronic Devices (PED)*, 31<sup>st</sup> October 2013.
5. EUROCAE: *Report on electromagnetic compatibility between passenger carried Portable Electronic Devices (PEDs) and aircraft systems*; document ED-118, November 2003.
6. EUROCAE: *Guidance for the Use of Portable Electronic Devices (PEDs) On Board Aircraft*; document ED-130, December 2006.
7. RTCA Inc: *Portable Electronic Devices carried on board Aircraft*; document DO-233, August 20<sup>th</sup>, 1996.
8. RTCA Inc: *Guidance on allowing Transmitting Portable Electronic Devices (T-PEDs) on aircraft*; document DO-294C, December 16<sup>th</sup> 2008.
9. RTCA Inc: *Guidance on Aircraft Design and Certification for Portable Electronic Devices (PED) tolerance*; document DO-307 Change 1, December 16<sup>th</sup> 2008.