

PORTABLE ELECTRONIC DEVICES

GUIDANCE MATERIAL FOR INSPECTORS
CA AOC-FO-025

SOUTH AFRICAN



*CIVIL AVIATION
AUTHORITY*

AIR OPERATOR CERTIFICATION

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PURPOSE

1. (1) This document provides Inspectors with information and guidance regarding the use of portable electronic devices (PED) on board aircraft. CAR 91.01.9 was established because of the potential for PED's to interfere with aircraft communications and navigation equipment. It prohibits the operation of certain PEDs aboard South African registered aircraft.

The source reference for this document is FAA Advisory Circular AC 91-21-1.

Other relevant documentation:

AIC 63.12

FAA: RTCA/DO-160D Section 21, Category M

FAA: Technical Standard Order C-97 (TSO-C97)

DISCUSSION

2. CAR 91.01.9 Portable electronic devices

(1) Subject to the provisions of sub regulation (2), no owner, operator or pilot-in-command of an aircraft or person shall permit the operation of, or operate on board the aircraft during flight time, any portable electronic device which may adversely affect the performance of the systems and equipment of the aircraft.

(2) The provisions of sub regulation (1) shall not apply to –

- (a) a heart pacemaker;
- (b) a hearing aid;
- (c) a portable voice recorder;
- (d) an electric shaver; or

(e) any other portable electronic device, the operation of which-

(i) in the case of an aircraft engaged in a commercial air transport operation, the operator; or

(ii) in the case of an aircraft engaged in an operation other than a commercial air transport operation, the pilot-in-command, has determined will not cause interference with the systems and equipment of the aircraft in which it is to be used.

(3) A portable electronic device referred to in sub regulation (2)(c), (d) or (e) shall not be used by any person during the critical phases of flight.

3. CAR 91.02.8(f) allows for the operation of PEDs which the PIC of the aircraft has determined will not interfere with the navigation or communication system of that aircraft.

4. The determination of the effect of a particular device on the navigation and communication system of the aircraft on which it is to be used or operated must, in case of an aircraft operated by the holder of an operating certificate, be made by that operator (i.e., certificate holder). In all other cases, a determination must be made and it may be made by the operator and/or the pilot-in-command (PIC). In some cases, the determination may be based on operational tests conducted by the operator without sophisticated testing equipment. When safely at cruise altitude, the pilot could

allow the devices to be operated. If interference is experienced, the types of devices causing interference could be isolated, along with the applicable conditions recorded. The device responsible for the interference should then be turned off. If all operators collect this type of data with specific information, a large enough database could be generated to identify specific devices causing interference. The operator may elect to obtain the services of a person or facility having the capability of making the determination for the particular electronic device and aircraft concerned. The rule as adopted was drafted to require the air carrier or commercial operator to determine whether a particular PED will cause interference when operated aboard its aircraft. Personnel specifically designated by the air carrier or commercial operator for this purpose may make this determination. For other aircraft, the language of the rule expressly permits the determination to be made by the PIC or operators of the aircraft. Thus, in the case of rental aircraft, the renter-pilot, lessee, or owner-operator could make the determination.

RECOMMENDED PROCEDURES FOR THE OPERATION OF PEDs ABOARD AIRCRAFT

5. (1) If an operator allows the use of PEDs aboard his aircraft, procedures should be established and spelled out clearly to control their use during passenger-carrying operations. These procedures must be contained in the operators operations manual. The procedures, when used in conjunction with an operator's programme, should provide the following:

- (a) Methods to inform passengers of permissible times, conditions, and limitations when various PEDs may be used. This may be accomplished through the departure briefing, passenger information cards, captain's announcement, and other methods deemed appropriate by the operator. The limitations, as a minimum, should state that use of all such devices (except certain inaccessible medical electronic devices, such as pacemakers) are prohibited during any phase of operation when their use could interfere with the communication or navigation equipment on board the aircraft or the ability of the flightcrew to give necessary instructions in the event of an emergency.
- (b) Procedures to terminate the operation of PEDs suspected of causing interference with aircraft systems.
- (c) Procedures for reporting instances of suspected and confirmed interferences by a PED to the SA CAA.
- (d) Cockpit to cabin coordination and cockpit flight crew monitoring procedures.
- (e) Procedures for determining acceptability of those portable electronic components to be operated aboard its aircraft. The operator of the aircraft must make the determination of the effects of a particular PED on the navigation and communication systems of the aircraft on which it is to be operated. The operation of a PED is prohibited, unless the device is specifically listed in the Operations Manual of the operator. But, even if the device is specifically accepted from the general prohibition on the use of PEDs, an operator may prohibit use of that PED. The use of all other PEDs is prohibited, unless the operator determines that the operation of that device will not interfere with the communication or navigation system of the aircraft on which it is to be operated.
- (f) Prohibiting the operation of any PEDs during the takeoff and landing phases of flight. It must be recognized that the potential for personal injury to passengers is a paramount consideration as well as the possibility of missing important safety announcements during these important phases of flight. This is in addition to lessening the possible interference that may arise during sterile cockpit operations (below 10,000 feet).

(g) Prohibiting the operation of any PEDs aboard aircraft, unless otherwise authorized, which are classified as intentional radiators or transmitters. These devices include, but are not limited to:

- (i) Citizens band radios.
- (ii) Cellular telephones.
- (iii) Remote control devices.

(2) There are certain devices, which by their nature and design, transmit intentionally. These include cellular telephones, citizens band radios, remote control devices, etc. CAR 91.01.9 and AIC 64.12 currently prohibit the use and operation of cellular telephones while airborne. The primary concern is that a cellular telephone, while used airborne, would have a much greater transmitting range than a land mobile unit. This could result in serious interference to transmissions at other cell locations since the system uses the same frequency several times within a market. Since a cellular mobile telephone unit is capable of operating on all assignable cellular frequencies, serious interference may also occur to cellular systems in adjacent markets. The SA CAA supports this airborne restriction for reasons of potential interference to critical aircraft systems. Currently, the SA CAA does not prohibit use of cellular telephones in aircraft while on the ground if the operator has determined that they will not interfere with the navigation or communication system of the aircraft on which they are to be used. An example might be their use at the gate or during an extended wait on the ground, while awaiting a gate, when specifically authorized by the captain. A cellular telephone will not be authorized for use while the aircraft is being taxied for departure after leaving the gate. The unit will be turned off and properly stowed; otherwise it is possible that a signal from a ground cell could activate it. Whatever procedures an operator elects to adopt should be clearly spelled out in oral departure briefings and by written material provided to each passenger to avoid passenger confusion.

(3) Telephones, which have been permanently installed in the aircraft, are licensed as air-ground radiotelephone service frequencies. In addition, they are installed and tested in accordance with the appropriate certification and airworthiness standards. These devices are not considered PEDs provided they have been installed and tested by an appropriately approved maintenance organization.

MANUFACTURERS' TEST CRITERIA FOR PEDs

6. (1) Operators should use manufacturers' information, when provided, with each device that informs the consumer of the conditions and limitations associated with its use aboard aircraft.

(2) All portable electronic devices should be designed and tested in accordance with appropriate emission control standards. Environmental Conditions and Test Procedures for Airborne Equipment.

(3) Medical Portable Electronic Devices (M-PED), such as automated external defibrillators (AED), airborne patient medical telemonitoring (APMT) equipment, etc. in all modes of operation (i.e., standby, monitor, and/or transient operating conditions, as appropriate), may be used onboard the aircraft without any testing by the operator. Equipment tested and found to exceed RTCA/DO-160D Section 21, Category M, emission levels are required to be evaluated in the operator's M-PED selected model aircraft for electromagnetic interference (EMI) and radio frequency interference (RFI). All navigation, communication, engine, and flight control systems will be operating in the selected aircraft. The ground EMI/RFI evaluation should be conducted with the M-PED equipment operating, and at the various locations in the cabin where M-PED usage is expected (galley, passenger aisles, etc.). If M-PED equipment can be operated at any location in the cabin, then the worst-case locations (proximity to cable bundles, flight controls, electronic and electrical bays,

antennas, etc.) should be considered. Operators planning to equip their aircraft with M-PEDs will provide evidence to the SA CAA that the M-PED equipment meets the RTCA/DO-160D Section 21, Category M, emission levels, or conducts the ground EMI/RFI evaluation described above. Operators will incorporate procedures into their maintenance programme to determine the M-PEDs serviceability based on the equipment manufacturers' recommendations, to include procedures for marking the date of the equipment's last inspection. Operators will establish operational procedures that require crewmembers to inform the PIC when the M-PED is removed from its storage for use.

NOTE *For those M-PEDs using Lithium Sulfur Dioxide batteries (LiSO₂) as a power source, the batteries must be Technical Standard Order C-97 (TSO-C97) approved and labeled accordingly.*