



Advisory Circular

Subject: Safety Considerations of Personal Headsets, Protective Hearing Devices and Corded Devices in the Passenger Cabin

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1.0 Introduction

- (1) This Advisory Circular (AC) is provided for information and guidance purposes. It describes an example of an acceptable means, but not the only means, of demonstrating compliance with regulations and standards. This AC on its own does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

1.1 Purpose

- (1) The purpose of this AC is to advise operators of the potential hazards associated with:
 - (a) passenger use of personal headsets during taxi, take-off, descent and landing and while walking on the apron to and from the aircraft; and
 - (b) The installation and use of corded electrical devices in the passenger cabin.
- (2) The intent of this AC is to consolidate and clarify policy, and provide guidance to operators regarding the use of personal headsets and corded devices accessed from, or used at, a passenger seat location.

1.2 Applicability

- (1) This document applies to all TCCA employees and to individuals and organizations. This information is also available to aviation industry for information purposes.

1.3 Description of changes

- (1) Due to the number of changes incorporated into this Issue, readers should review the content of the entire document.

2.0 References and requirements

2.1 Reference documents

- (1) It is intended that the following reference materials be used in conjunction with this document:
 - (a) [Aeronautics Act](#) (R.S.C., 1985, c. A-2)
 - (b) Part VI, Subpart 2 of the *Canadian Aviation Regulations (CARs)* — Operating and Flight Rules
 - (c) Part VI, Subpart 4 of the CARs – Private Operators
 - (d) Part VII, Subpart 3 of the CARs – Air Taxi Operations
 - (e) Part VII, Subpart 4 of the CARs – Commuter Operations
 - (f) Part VII, Subpart 5 of the CARs – Airline Operations
 - (g) Chapter 523 of the Airworthiness Manual (AWM) — Normal, Utility, Aerobatic and Commuter Category Aeroplanes
 - (h) Chapter 525 of the Airworthiness Manual (AWM) – Transport Category Aeroplanes
 - (i) Transport Canada Publication (TP) 12295 — Flight Attendant Manual Standard
 - (j) TP 12296 – Flight Attendant Training Standard
 - (k) Federal Aviation Administration Policy Statement ANM-02-115-20, 2002-08-30 — Corded Electrical Devices

2.2 Cancelled documents

- (1) As of the effective date of this document, the following document is cancelled:
 - (a) Air Carrier Advisory Circular (ACAC) 0124R, 2000-08-17 — Passenger Use of Personal Headsets and Protective Hearing Devices
 - (b) Commercial and Business Aviation Advisory Circular (CBAAC) 0252, 2006-01-26 — Safety Considerations of Corded Electrical Devices in the Passenger Cabin
- (2) By default, it is understood that the publication of a new issue of a document automatically renders any earlier issues of the same document null and void.

2.3 Definitions and abbreviations

- (1) The following **definitions** are used in this document:
 - (a) **Air operator:** means the holder of an air operator certificate
 - (b) **Air operator certificate:** means a certificate issued under Part VII that authorizes the holder of the certificate to operate a commercial air service
 - (c) **Commercial air service:** means any use of aircraft for hire or reward
 - (d) **Critical phase of flight:** includes all ground operations involving taxi, take-off and landing, and all other flight operations conducted below 10,000 feet, except cruise flight
 - (e) **Flight attendant:** means a crew member, other than a flight crew member, who has been assigned duties to be performed in the interest of the passengers in a passenger-carrying aircraft
 - (f) **Operator:** means the person that has possession of the aircraft as owner, lessee or otherwise; and
 - (g) **Private operator:** means the holder of a private operator registration document.
- (2) The following **abbreviations** are used in this document:
 - (a) **AC:** Advisory Circular
 - (b) **CARs:** *Canadian Aviation Regulations*
 - (c) **CASI:** Civil Aviation Safety Inspector
 - (d) **CASS:** Commercial Air Service Standard;
 - (e) **CBAAC:** Commercial and Business Aviation Advisory Circular
 - (f) **IFE:** In-flight Entertainment System
 - (g) **PED:** Portable Electronic Device
 - (h) **PIC:** Pilot-in-command
 - (i) **TCCA:** Transport Canada Civil Aviation; and
 - (j) **TSB:** Transportation Safety Board

3.0 Background

3.1 Personal Headsets

- (1) In 1988, the Canadian Aviation Safety Board (CASB), a predecessor of the TSB, issued an Aviation Safety Advisory with respect to the use of personal headsets by passengers.
- (2) The TSB advised that a safety deficiency exists if passengers are unable to hear safety announcements over the public address system.
- (3) Headsets available from the operator on board the aircraft are often plugged into the aircraft IFE. These systems are equipped with an override feature which gives priority to the public address announcements, allowing safety announcements to be heard by persons using the headsets. In contrast, it is probable that passengers using personal audio headsets connected to a personal device will not hear announcements made over the public address.
- (4) The TSB also advised that some advanced technology headsets are capable of excluding up to 85% of ambient noise. Not only are passengers using these types of headsets on board aircraft oblivious to announcements or instructions, but passengers walking to or from an aircraft could be unaware of dangers on an apron.
- (5) Most modern headsets and aircraft IFE systems are compatible so that a passenger may bring their own headsets on board an aircraft for personal use.

3.2 Protective Hearing Devices Worn for Medical Reasons or Protective Purposes

- (1) Passengers with sensitivity to noise or who have hearing disorders such as hyperacusis may be required to wear protective hearing devices to mitigate discomfort or pain.
- (2) This condition causes hypersensitivity to ordinary levels of sound, accompanied by extreme discomfort and pain, but generally does not impair the ability to hear, even while wearing protective hearing devices. These devices may be ear plugs, headsets (without any cables or electronic circuitry), ear caps and/or ear molds.

3.3 Corded Electrical Devices

- (1) The increase in the installation and the ability to use corded electrical devices in the passenger compartment has led to requests from CASIs and operators for guidance related to the implementation of operational procedures associated with the use of this type of equipment. These devices are generally intended to provide access to a PED or the aircraft IFE system.
- (2) Corded electrical devices are those that are generally attached to the aircraft passenger seat or attached to a bulkhead with a power or signal cord and may include control units for IFE systems and other plug-in devices.
- (3) The intent of providing the guidance located in Appendix A is to enable operators to implement operational procedures that will allow passengers to receive and comply with crew member instructions and to minimize the distractions associated with IFE systems during critical phases of flight, thereby increasing a passenger's situational awareness.
- (4) The guidance located in Appendix A will also enable operators to establish procedures that will minimize the risk during critical phases of flight associated with corded devices that may pose a tripping or entrapment hazard.

4.0 Information management

- (1) Not applicable

5.0 Document history

- (1) ACAC 0124R, 2000-08-17 — Passenger Use of Personal Headsets and Protective Hearing Devices
- (2) ACAC 0124, 1997-06-24 – Passenger Use of Personal Headsets and Protective Hearing Devices
- (3) Passenger Safety Technical Directive 203, 1988-08-09 – Walkman Headsets
- (4) CBAAC 0252, 2006-01-26 — Safety Considerations of Corded Electrical Devices in the Passenger Cabin

6.0 Contact us

For more information, please contact:
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Appendix A — Guidance Respecting Headsets and Corded Devices

Overview

(1) Each row of this appendix has been itemized for ease of reference.

Item Number	Guidance Information
1	<p>Noise Filtering Headsets</p> <ol style="list-style-type: none"> 1. Noise filtering headsets are devices capable of creating an anti-noise wave that has the ability to cancel out the unwanted sound of certain frequencies. 2. These types of headsets are often capable of connecting to an aircraft IFE system or a passengers own personal PED. 3. While these devices do permit the user to hear different sounds around them, if the device is equipped with charging or audio cables, a passenger using these devices during taxi, take-off, or landing could create an obstruction during an emergency evacuation. <p>Protective Hearing Devices</p> <ol style="list-style-type: none"> 1. Passengers with sensitivity to noise or who have hearing disorders such as hyperacusis may be required to wear protective hearing devices to mitigate discomfort or pain. 2. These devices may consist of ear plugs, headsets (with or without cords) ear caps or ear molds. These devices do not generally impede the user from hearing sound as they are intended to filter out low frequency noise such as is found on board an aircraft. 3. The Transport Canada Civil Aviation Medicine Branch has advised that while each person may be different, a passenger wearing these devices will likely be able to hear safety announcements and emergency evacuation commands while using them. 4. The use of protective hearing devices worn for medical reasons by passengers or protective purposes by crew is not considered unsafe while walking to and from the aircraft, during taxi, take-off, descent or landing. <p>Recommended Air Operator Procedures</p> <ol style="list-style-type: none"> 1. The CARs require that each air operator establish procedures to ensure that passengers do not wear personal headsets connected to personal entertainment systems that decrease awareness of other traffic or limit reception of audible direction or warning signals while moving to and from an aircraft. 2. Air operators should, in their crew member training programs and their operating manuals, outline their air operator procedures for the use of personal entertainment and medical headsets with or without cords for use during boarding, taxi, take-off, descent, or landing and during passenger safety briefings.
2	<p>Corded Devices</p> <ol style="list-style-type: none"> 1. Air operators should establish procedures that identify and manage risks to cabin safety that may be posed by corded devices during critical phases of flight. These

	<p>procedures should ensure direct and unobstructed access to emergency exits and aisles leading to emergency exits and the ability to conduct an evacuation of the aircraft to all occupants to an acceptable level</p> <ol style="list-style-type: none">2. Some hazards to consider while developing operator procedures should include:<ol style="list-style-type: none">a. Aurally obstructing or interfering with a passenger's ability to hear the public address system or any crew member commands or instructions;b. Visually obstructing or interfering with video or crew member instructions;c. Physically obstructing or interfering with access to main aisles, exits, passage along main aisles, and cross aisles; ord. Corded devices that are capable of posing a tripping hazard or causing entrapment.3. Any one or a combination of these factors may negatively influence effective emergency egress.4. Air operators should establish procedures that restrict the use of corded electrical devices that may pose a hazard in the passenger compartment during critical phases of flight if those devices are allowed to be used during those phases of flight.5. To enable compliance, designated crew member(s) should ensure passenger compliance with any procedures established to maintain an acceptable level of cabin safety. This should include the proper stowage or restraint of all electronic equipment and corded electrical devices prior to critical phases of flight and be accomplished as part of required cabin preparation duties intended to enhance cabin occupant emergency egress.6. Air operator procedures should define crew member actions necessary to identify, document and advise of any failures to corded devices, IFE systems, and cabin electrical outlets for PEDs.7. The use of corded devices and passenger PEDs during an extended delay while on the ground may be acceptable, provided the operator has established procedures that take into consideration the following:<ol style="list-style-type: none">a. The aircraft is stopped;b. The PIC is aware and crew member actions are coordinated;c. Emergency exits are kept clear and accessible;d. The anticipated time of the delay is such that the use of corded devices and passenger PEDs can be reasonably terminated and the devices can be stowed or restrained prior to resumption of movement on the surface;e. Crew members are provided advance notice of resumption of movement on the surface in order to ensure that all corded devices and passenger PEDs are stowed or restrained before the movement on the surface; andf. The use of corded devices and passenger PEDs during ground delays will not interfere with a crew member's ability to accomplish any required cabin preparation duties or operator safety procedures.8. Air operators should conduct an evaluation of their corded electrical device(s) to determine if they pose a hazard or obstruction during critical phases of flight. To conduct this evaluation, the following guidelines apply:
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	<ul style="list-style-type: none">a. If the corded electrical device is not intended for use during critical phases of flight and restricted accordingly, then no cord loop and no cord length evaluations are required.b. If the corded electrical device is intended for use during critical phases of flight, then cord loop and length evaluations shall be conducted to ensure that the corded electrical device will not interfere with passenger emergency egress. These devices may include breakaway capabilities in the cord connections, or frangibility in the cord itself that can act as a mitigating factor. <p>9. The following cord loop and length evaluation may be used for devices intended for use during critical phases of flight:</p> <p>Cord Loop Evaluation:</p> <ul style="list-style-type: none">1. Loops created by improper stowage of a corded electrical device shall be evaluated to determine if they pose an egress hazard. It should be shown that an improperly stowed cord does not become a hazard that can entrap or snag limbs or clothing during an evacuation. Evaluations should be made with a 5th percentile female and a 95th percentile male as follows:<ul style="list-style-type: none">a. Any cord loop that can be formed by an improperly stowed device shall be evaluated to determine that the location of the loop does not pose an egress hazard.b. Any cord that can be formed by an improperly stowed device that extends into an aisle must be unable to encircle an appendage without significant manipulation.c. Any cord loop that can be formed by an improperly stowed device in a location where a limb may be encircled must be easily escapable by normal passenger movement or the device must be able to be pulled free with normal motion and strength. <p>Cord Length Evaluation:</p> <ul style="list-style-type: none">1. Air operators approving the use corded devices in the cabin, may be requested to demonstrate that the cord length of their devices will not permit the device to lie flat on the floor when the device is not properly stowed. Also, the cord length must be restricted so that the device cannot be used by anyone seated across the aisle or by anyone seated in a row forward or aft of the passenger.
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