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# Implementation Guide Regarding Tactile Row Markers Onboard Large Aircraft

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## Introduction

The Canadian Transportation Agency has developed this guide to help Canadian air carriers in implementing section 2.7 of the *Code of Practice: Aircraft Accessibility for Persons with Disabilities* (the Air Code). This section addresses tactile row markers onboard large aircraft.

Section 2.7 of the Air Code applies to fixed-wing aircraft with 30 or more passenger seats used by Canadian air carriers. It states that: “Tactile markers to indicate row numbers should be placed on overhead bins or on passenger aisle seats.”

While the implementation guide applies to section 2.7, it should be read in conjunction with other sections of the Air Code<sup>1</sup>.

The objective of section 2.7 of the Air Code is to enhance independent access to aircraft and assist persons who are blind or who have visual impairments in locating their seat on board. This objective can be met through the use of permanent or removable tactile row markers, either of which can be located on overhead bins or on aisle seats.

Notwithstanding the objective of section 2.7 of the Air Code, the Agency also recognizes that some persons may prefer the assistance of carrier personnel to locate their seats.

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<sup>1</sup> In particular, section 1.2 of the Air Code recognizes the Canadian Standards Association Standard CAN/CSA-B651-95 Barrier-Free Design (superseded by Standard B651-04, Accessible Design for the Built Environment) as an appropriate reference and invites carriers to adopt, where appropriate, the technical specifications it contains.

In addition, section 1.2 of the Air Code recognizes the requirement that air carriers comply with safety regulations. Safety on board aircraft is the responsibility of Transport Canada Civil Aviation and air carriers are required to conduct their operations in accordance with the *Canadian Aviation Regulations* made pursuant to the *Aeronautics Act*. No part of the *Air Transportation Regulations* or the Air Code relieves air carriers from complying with the provisions of any safety regulations made under the *Aeronautics Act*.

To develop this guide, the Agency undertook preliminary consultations with seven Canadian air carriers and three national organizations of the blind in order to obtain feedback on this guide. Further consultations were then held with the Agency's Accessibility Advisory Committee.

## **Dialogue Between the Carrier Cabin Crew and the Passenger**

Carriers are encouraged to be consistent in the location and the type of tactile markers within their own fleet. However, the Agency recognizes the need for flexibility in the type and placement of tactile row markers in light of factors such as different aircraft designs.

As there are various ways carriers can assist passengers in locating assigned seats, a dialogue on seat location should be held between the carrier cabin crew and the passenger upon boarding. Whenever possible, this dialogue should occur before boarding by other passengers.

To facilitate this discussion and to ensure that sufficient time is available for wayfinding, persons who are blind or who have visual impairments and who require assistance in locating their seat should identify themselves to the carrier at the boarding gate. When possible, these persons can then be allowed to preboard.

Upon boarding the aircraft, the passenger should be briefed by the cabin crew on the following:

- the type of tactile row markers being used in the aircraft to allow the passenger to find their seat on their own (i.e., whether the markers are permanent or removable);
- the characteristics and location of the row identifiers (e.g., whether the row number is in raised characters and/or Braille and whether they are located on the overhead bins or on the aisle seats); and,
- the row number, side of the aisle and location of the passenger's seat within the row.

## Permanent Tactile Row Markers

Where a carrier chooses to install permanent tactile row markers on the overhead bins or the aisle seats, the row number should be identified in both raised characters and Braille. Where it is not possible to do so, raised characters are preferable as the proportion of persons who are blind or who have a visual impairment who read Braille is relatively small.

Carriers who, at the time of issuance of this guideline, already provide permanent tactile row markers that identify the row number in only one format (raised characters or Braille) are not expected to replace them. However, it is desirable to add the other format, possibly during scheduled maintenance or retrofitting of an aircraft.

Tactile markers are readable when they satisfy the following criteria, as recognized by the Agency in section 2.1 of the Air Code:

- markers should be positioned to avoid shadow areas and glare;
- characters and symbols should be glare-free and presented in contrasting colours<sup>2</sup>;
- letters should be sans serif, numbers should be Arabic and both should have at least a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10;
- letters and numbers should be raised at least 0.8 mm and should be between 16 mm and 50 mm high; and,
- Braille should be located at the bottom of the sign and presented in Grade One Braille that meets the standards of the Canadian Braille Authority in English and in *braille intégral* that meets the standards of the *Comité interministériel sur la normalisation du braille* in French.

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<sup>2</sup> "Contrasting colours" means a light colour on a dark background or a dark colour on a light background, with light on dark being preferable for signage.

In terms of the colour contrast, CSA B651-04 contains useful information, including the following: "Examples of colours that contrast more than 70% are navy blue with matte white (95%), apple green with white (72%), and silver with saddle brown (70%). Colour combinations that should be avoided include yellow/grey, yellow/white, blue/green, red/green, black/violet, and red/black."

## **Removable Tactile Row Markers**

A carrier may choose to use removable tactile row markers on overhead bins or aisle seats as an alternative to permanent tactile row markers.

Where permanent or removable tactile markers that are located on overhead bins are too high for a passenger to reach, a removable tactile marker should be used on the aisle seat.

If removable tactile row markers are used, they should be employed so as to not draw unwarranted attention to the passenger.

## **Alternate Means of Providing Independent Access to and from Seats**

At the time of the writing of this implementation guide, the principal means of providing independent access to and from seats for persons who are blind or who have visual impairments consists of tactile row markers. However, the objective of section 2.7 of the Air Code could also be met using technological wayfinding methods.

One such potential technology is Radio Frequency Identification (RFID). The type of RFID system that could be used in this context consists of an antenna and transceiver, as well as a transponder (also called a tag). The tag contains information – in this case, the seat number – that is transmitted to a transceiver which reads and transfers the information to a processing device such as a hand-held reader.

Should carriers choose to provide such devices, or similar technological methods of wayfinding, they may also want to consider whether the device or method meets the needs of persons who are also deaf or hard of hearing. Such technology may require testing and certification before it is employed in flight.

If carriers are able to find alternate means to offer persons who are blind, or who have a visual impairment, a level of wayfinding that provides them with the ability to independently find their seats, they will be deemed to have met the objective of section 2.7 of the Air Code.

## **Timeframe for Implementation**

Where full implementation has not already taken place, the expectation is that carriers, through the use of this guide, will meet the objective of section 2.7 of the Air Code by March 31, 2010.

Although the installation of permanent tactile row markers may not be possible within this timeframe, removable tactile row markers should be employed, either as an ongoing method of providing independent access to a person's seat, or as a temporary solution until such time as permanent tactile row markers can be installed.

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