

Spectrum Management

Broadcasting Equipment Technical Standard

Technical Standards and Requirements for Low Power Announce Transmitters in the Frequency Bands 525-1,705 kHz and 88-107.5 MHz

Purpose

This document contains the technical standards and requirements for the issuance of a Technical Acceptance Certificate (TAC) for low power announce transmitters that operate in the frequency bands 525-1,705 kHz and 88-107.5 MHz and provide maximum reception range of approximately 30 metres.

A Broadcasting Certificate is not required in respect of a low power announce transmitter that forms part of a broadcasting undertaking providing a TAC has been issued for that transmitter.

A certificate issued for equipment classified as type approved or as technically acceptable before the coming into force of these technical standards and requirements is considered to be a valid and subsisting TAC.

A Technical Acceptance Certificate is not required for equipment manufactured or imported solely for re-export, prototyping, demonstration, exhibition or testing purposes.

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1. General

- 1.1 The standards and requirements in this document are the pre-requisite conditions for the issuance of a Technical Acceptance Certificate (TAC) to low power announce transmitters that operate in the frequency bands 525-1,705 kHz and 88-107.5 MHz.
- 1.2 Those seeking to obtain a Technical Acceptance Certificate for low power announce transmitters shall, at their own expense, carry out the required tests and send to the Department a certification submission prepared in accordance with *Broadcasting Equipment Standards Procedure 100 (BESP-100)*.
- 1.3 The certification submission shall include an affidavit, signed by a professional engineer licensed by a provincial association, stating that the equipment meets the technical standards in this document.
- 1.4 Tests results do not have to be submitted to the Department. However, the results shall be kept on file by the applicant and shall be made available to the Department upon request.
- 1.5 Notwithstanding the fact that a radio apparatus meets all applicable requirements, the Department reserves the right to require that adjustments be made to the equipment should it cause interference.
- 1.6 Any major design or component changes, other than the replacement of defective components by equivalent parts, will void the approval unless notified to and approved by the Department.
- 1.7 This document replaces *TRC-74, Issue 1*.

2. Testing and Labelling

- 2.1 AM transmitters in the 525 to 1,705 kHz frequency band should be tested according to the methods outlined in *Broadcasting Equipment Technical Standard 5 (BETS-5)*.
- 2.2 FM transmitters in the 88 to 107.5 MHz frequency band should be tested according to the methods outlined in *Broadcasting Equipment Technical Standard 6 (BETS-6)*.
- 2.3 Each certified broadcasting equipment must display in a conspicuous location:
 - (a) the manufacturer's name, trade or brand name (if different from the manufacturer's name);
 - (b) the model identification;
 - (c) the serial number;
 - (d) the Technical Acceptance Certificate number;
 - (e) the name of the certification assignee.

- 2.4 The identification label must be indelible, tamper-resistant and affixed permanently or stamped in such a manner as not to be removable except by destruction or defacing.

3. Technical Standards and Requirements for AM Transmitters in the 525 to 1,705 kHz Frequency Band

3.1 Transmitting Antenna

The antenna is to be permanently connected to the transmitter.

3.2 Power Output Rating

The maximum power output of the transmitter into its antenna, with no modulation, shall not produce a field strength level of more than 250 $\mu\text{V}/\text{m}$ measured at a distance of 30 metres.

3.3 Channel Frequency

Using an internal control or adjustments, the transmitter shall be capable of being tuned to any discrete frequency used for standard AM broadcasting.

3.4 Carrier Frequency Tolerance

The carrier frequency shall not vary by more than 0.02% when the equipment is operated at rated supply voltage and over the following temperature range: (i) $+5^{\circ}\text{C}$ to $+45^{\circ}\text{C}$ for equipment designed for operation indoors, or (ii) -25°C to $+45^{\circ}\text{C}$ for equipment designed for operation outdoors.

3.5 Spurious Emissions

Any emission that falls outside the 30 kHz band centred on the carrier frequency shall not exceed 20 $\mu\text{V}/\text{m}$ as measured at a distance of 30 metres.

3.6 Power Line Conducted Radiation (For power line connected transmitters)

The radio frequency voltage appearing on each power line shall not exceed 250 microvolts on any frequency from 450 kHz to 30 MHz. Measurements shall be made from each power line to ground both with the equipment grounded and with the equipment ungrounded. Conducted measurements shall be made using a 50 ohm/50 μH line impedance stabilization network (LISN). Refer to *Canadian Standards Association (CSA) CAN3-C108.1.5-M85* for the description of a suitable LISN.

4. Technical Standards and Requirements for FM Transmitters in the 88 to 107.5 MHz Frequency Band

4.1 Transmitting Antenna

The antenna is to be permanently connected to the transmitter.

4.2 Power Output Rating

The maximum power output of the transmitter into its antenna, with no modulation, shall not produce a field strength level of more than 100 $\mu\text{V}/\text{m}$ as measured at a distance of 30 metres.

4.3 Channel Frequency

Using an internal control or adjustment, the transmitter is to be tunable to any discrete frequency used for standard FM broadcasting up to and including 107.5 MHz.

4.4 Carrier Frequency Tolerance

The carrier frequency shall not vary by more than 0.01% when the equipment is operated at rated supply voltage and over the following temperature range: (i) $+5^{\circ}\text{C}$ to $+45^{\circ}\text{C}$ for equipment designed for operation indoors, or (ii) -25°C to $+45^{\circ}\text{C}$ for equipment designed for operation outdoors.

4.5 Spurious Emissions

Any emission that falls outside the 240 kHz band centred on the carrier frequency shall not exceed 10 $\mu\text{V}/\text{m}$ as measured at a distance of 30 metres.

4.6 Power Line Conducted Radiation (For power line connected transmitters)

The radio frequency voltage appearing on each power line shall not exceed 250 microvolts on any frequency from 450 kHz to 30 MHz. Measurements shall be made from each power line to ground both with the equipment grounded and with the equipment ungrounded. Conducted measurements shall be made using a 50 ohm/50 μH line impedance stabilization network (LISN). Refer to *Canadian Standards Association (CSA) CAN3-C108.1.5-M85* for the description of a suitable LISN.