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Spectrum Management

Broadcasting Circular

# **On-Air Testing Procedures for AM, FM and TV Broadcasting Undertakings**

## NOTICE

Broadcasting circulars are issued for the guidance of department staff and are complementary to the **Broadcasting Procedures and Rules.**

## **Purpose**

The purpose of this document is to explain the procedure for on-air testing of AM, FM and TV broadcasting undertakings.

## **Procedure**

The details of the procedure follow.

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## 1. Introduction

On-air testing ensures that the broadcasting undertaking will operate in accordance with its authorized technical brief, the issued letter of authority (LOA), and that the required protection is being given to broadcasting and radio undertakings, especially those of safety-of-life aeronautical navigational and communications (NAV/COM) services. As may be seen, on-air testing is critical.

## 2. Objective

To ensure that a new or amended undertaking is brought to scheduled on-air broadcasting in an orderly fashion, without impacting adversely the public or other radio services.

## 3. AM, FM, TV Broadcasting Undertakings On-Air Testing Procedures

Reference is made to on-air testing requirements in the following publications: *Broadcasting Procedures and Rules, Part II, Part III* and *Part IV*. Normally, the on-air testing period is three (3) weeks.

### 3.1 Request for On-Air Testing

- 3.1.1 Following approval of an application by CRTC and the Department, a letter of authority (LOA) authorizing the installation and construction of facilities will be issued by the Department. The broadcaster or the retained broadcast engineering consultant is to keep the Department's district office informed of the progress on the installation and construction of the broadcast facilities as approved in the letter of authority.
- 3.1.2 Any changes to the approved proposal (e.g., site, parameters, equipment) are to be submitted to the Department for authorization. HQ will evaluate the impact of the changes and issue authorization. Note that significant changes may require CRTC's approval as well.
- 3.1.3 In the case of special LPs (covered by the regionalization agreement), the pertinent regional office will handle any changes, keeping in mind any CRTC involvement. In the latter case, HQ should be advised and will co-ordinate with the CRTC.
- 3.1.4 When construction of the facilities nears completion, the broadcaster or the retained broadcast engineering consultant will request permission from the district office to commence on-air testing. This request will be submitted to the district office in writing prior to the proposed date of testing. A time frame of "three weeks prior to the beginning of on-air testing" is usually specified in the LOA.

- 3.1.5 Following receipt of the request, the district office should confirm that the facilities are as authorized and determine the potential for interference to existing broadcasting and other radio services vis-à-vis the technical brief and site evaluation.
- 3.1.6 The scope and duration of the on-air tests and the course of action to be taken, should interference be experienced, will then be discussed with the applicant's representatives.
- 3.1.7 The district office may now issue on-air authority for testing. The on-air testing period is three (3) weeks. After authority has been issued, the regional broadcasting engineer and HQ should be advised.
- 3.1.8 Where there is potential for significant interference and a negative public response, the district office should avoid allowing testing to commence on a Friday, during the week-end, on national holidays, or on civic holidays.

### 3.2 On-Air Testing

- 3.2.1 During on-air testing, identification of the broadcast undertaking will be made every fifteen minutes by call sign, frequency and location. In the case of rebroadcasting undertakings without capability to originate the aforementioned information, the broadcaster will be responsible for making the public aware that the new undertaking is being tested. As an example, a notice could be placed in the local press which would explain that the undertaking is testing, and a means of contact, such as a telephone number, be given in the event of interference. The notice should be published for the duration of the on-air testing period, starting on the day the test is scheduled to begin.
- 3.2.2 During on-air testing, the district office should also undertake:
  - 1. An on site visit to ensure that the broadcast undertaking is indeed operating as authorized.
  - 2. A subjective evaluation of the received signal quality.
  - 3. Field strength measurements to verify the authorized coverage contours and protection. See special requirements of Section 3.4.
  - 4. An investigation to ensure that the studio-to-transmitter link (STL) has been appropriately licensed by the Department, if applicable.
  - 5. Forwarding of all received interference complaints deemed valid to the broadcaster for corrective action.
  - 6. The broadcaster shall implement any instruction given by Departmental representatives at the district, regional or headquarters level during this testing period. Such instructions should normally be coordinated through the district office.
  - 7. When the district office is satisfied that the on-air testing is successful, the regional office should be notified of the recommendation for regular on-air authority. The district office's recommendation will be based on compliance with radio spectrum considerations and conditions specified in the letter of authority.
- 3.2.3 The regional office will notify HQ of the recommendation to enable them to grant regular on-air authority.
- 3.2.4 Following successful on-air tests, and as specified in the LOA, the retained broadcast engineering consultant will certify to HQ that the facilities are operating as authorized for purposes of requesting permanent on-air authority for regular programming. This request must be received in the Department at least three working days before the desired on-air date. See special requirements of Section 3.4.
- 3.2.5 Should the retained broadcast engineering consultant or the broadcaster request regular on-air authority from the district office or regional office, the request is to be immediately passed on to HQ along with the region's recommendations.

### 3.3 Specific Considerations for FM Broadcasting Undertakings

- 3.3.1 Where NAV/COM compatibility tests have been identified in the LOA, coordination with the Transport Canada (TC) office will be required. HQ will initiate coordination with TC Headquarters and advise of specified steps, if any, to be taken. See Appendix A for further information.

- 3.3.2 Three weeks are required for departmental HQ to effectively coordinate with TC HQ; therefore the district office should ensure that the client is aware of this required lead time.
- 3.3.3 Testing should not commence on a Friday, during the week-end, on national holidays, or on civic holidays as Transport Canada does not have available personnel for coordination of NAV/COM testing for these periods.
- 3.3.4 Due to NAV/COM compatibility aspects, on-air testing requires the following conditions:
1. An unmodulated carrier is not permitted.
  2. The carrier must be modulated. No tone modulation is permitted.
  3. Test programming should be as close as possible to regular programming.
  4. If interference to NAV/COM facilities is identified, the broadcaster will be instructed to cease transmitting immediately and to correct this interference. On-air testing will resume after successful remedial measures have been applied. HQ should be apprised of developments.
- 3.3.5 In some cases, remedial measures and/or conditions for continued testing may be specified by the Department or Transport Canada Headquarters, which will be channelled to the district office for implementation.

### **3.4 Specific Considerations for AM Broadcasting Undertakings**

Following successful on-air tests, and as specified in the LOA, the retained broadcast engineering consultant will certify that the facilities are operating as authorized. This certification shall also be supported by a Preliminary and/or a Final Proof of Performance, except for low-power undertakings.

### **3.5 Simulcasting**

- 3.5.1 Simulcasting means to broadcast the same program from two or more broadcast undertakings at the same time to provide service to the same general area.
- 3.5.2 The licensee may request to simulcast when they commence on-air testing of a channel or frequency change to ensure that the listening public is aware of their impending move.
- 3.5.3 In the case of a frequency or channel change within the same service band, simulcasting is not normally permitted. However, the region may authorize simulcasting after consulting with HQ. Consultation is critical, especially for FM, due to NAV/COM compatibility considerations.
- 3.5.4 Simulcasting will end with the conclusion of the three-week on-air testing period.
- 3.5.5 In the case of a frequency or channel change to another service band, such as an AM to FM change, simulcasting will be permitted.
- 3.5.6 The duration of simulcasting is normally found in the CRTC decision and therefore may extend beyond the normal three-week on-air testing period.
- 3.5.7 Should a problem, such as interference, be unresolved and necessitate an extension to the three-week on-air testing period, the region will consult with HQ prior to authorizing an extension to simulcast.

## Appendix A

### Departmental Tests for Type A1 Interference on NAV/COM Frequencies

#### 1. For all Classes of FM Stations

- 1.1 Off-air spurious emission measurements are to be made in the 108-117 MHz band with special attention to nearby airport NAV/COM frequencies as published in the current edition of the *Canada Flight Supplement*. Special attention also to VOR identified in the FM/NAV/COM form (with nearby airways as published in *En Route Radio Navigation Charts*).
- 1.2 No tests are required for FM stations with ERP < 1 watt.
- 1.3 Only receiver listening checks required if the FM transmitter is to be located within 5 NM of an airport having only COM facilities.

#### 2. Notes

- 2.1 The Department is responsible for assigning and protecting UNICOM frequencies (e.g., 122.8 MHz) at uncontrolled aerodromes and airports with ATS or FSS air/ground COM.
- 2.2 Listening checks on ground-based aeronautical COM receivers are to be co-ordinated by departmental regional/district offices. The user of the COM facility (could be TC personnel, or a private individual/company) monitors his receivers at the time that the FM station begins on-air testing. In some COM receivers, squelch circuits are carrier operated; FM interference may not break squelch, but could still disrupt communications after the squelch has been broken by a COM signal. Therefore, for COM receivers, the squelch feature must be disabled and the audio monitored for any unacceptable increase in background noise when the FM station goes on-air.