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# **Radio Frequency (RF) Fields — Signs and Access Control**

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**Canada**

## **Preface**

Comments and suggestions may be directed to the following address:

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## 1. Introduction

As outlined in Client Procedures Circular CPC-2-0-03, entitled *Radiocommunication and Broadcasting Antenna Systems*, it is the responsibility of proponents and/or operators of installations to ensure that all radiocommunication and broadcasting antenna systems comply with Health Canada's Safety Code 6 (SC6)<sup>1</sup> at all times. Compliance with SC6 is an ongoing obligation. Antenna system operators may be required, as directed by Industry Canada, to demonstrate compliance with SC6 by providing detailed calculations, and/or conducting site surveys and, where necessary, implementing corrective measures.

### 1.1 Mandate

Section 5 of the *Radiocommunication Act* states that the Minister of Industry may, taking into account all matters that the Minister considers relevant for ensuring the orderly development and efficient operation of radiocommunication in Canada, issue radio authorizations and approve each site on which radio apparatus, including antenna systems, may be located. Furthermore, the Minister may approve the erection of all masts, towers and other antenna-supporting structures.

Under this mandate, Industry Canada has adopted SC6 for the purpose of protecting the general public from radio frequency (RF) overexposure.

### 1.2 Application

This document outlines corrective measures to ensure compliance with SC6 requirements for uncontrolled environments.<sup>2</sup> These corrective measures include area demarcation (signs), access control (locked fences and/or locked doors) and/or changes to the station's parameters.

It should be noted that this document does not apply to RF exposure in areas designated as "*denied occupancy*"<sup>3</sup> as defined in the *Technical Guide for Interpretation and Compliance Assessment of Health Canada's Radiofrequency Exposure Guidelines* (Technical Guide). For further information, proponents and operators are encouraged to contact the appropriate occupational health and safety authorities. Employers may have additional obligations to protect their employees under labour laws.

<sup>1</sup> Health Canada's *Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz - Safety Code 6 (2009)* and the *Technical Guide for Interpretation and Compliance Assessment of Health Canada's Radiofrequency Exposure Guidelines* (Technical Guide).

<sup>2</sup> As defined in SC6, uncontrolled environments are areas where there has been insufficient assessment of RF exposure or areas that allow access by persons who have not received proper RF awareness training and have no means to assess or, if required, mitigate their exposure to RF energy. In this document, a person who has access to these areas, but is not there as a worker, is referred to as the "general public."

<sup>3</sup> "Denied occupancy" is defined as a zone within which RF levels exceed those for controlled environments specified in Section 2 of SC6.

## **2. Corrective Measure Requirements**

### **2.1 RF Levels Below Safety Code 6 Limits for Uncontrolled Environments**

Where the RF emission from an antenna system complies with SC6 limits for uncontrolled environments, Industry Canada does not require the implementation of corrective measures. However, antenna supporting structures that are accessible by the general public must include anti-climbing devices or other measures to prevent access to areas within which the uncontrolled environments limits may be exceeded. Where the RF emission is greater than, or equal to, 50% of the SC6 limit for uncontrolled environments at locations accessible to the general public, the operator of this antenna system is required to notify Industry Canada and demonstrate compliance.

### **2.2 Radio Frequency Field Levels at or Exceeding Safety Code 6 Limits for Uncontrolled Environments**

Where the RF emission equals or exceeds SC6 limits for uncontrolled environments at locations accessible to the general public, Industry Canada requires proponents and/or operators of these antenna systems to immediately implement corrective measures and inform Industry Canada of their actions. Failure to do so will be considered a breach of conditions of their radio authorization, which may lead to suspension or revocation of the authorization.

Where technical or operational solutions are not feasible, appropriate means of area demarcation **and** access control must be installed by proponents and/or operators to ensure SC6 compliance. Proponents and/or operators must consult with Industry Canada officials, who will be guided by SC6, to determine if alternative proposed corrective measures would be acceptable.

## **3. Minimum Requirements for Posting Demarcation Signs**

The minimum requirements for posting demarcation signs are as follows:

- signs must be at least 20 cm by 30 cm (approximately 8 inches by 12 inches) in size;
- signs must be written in both French and English;
- a sufficient number of signs must be installed on and/or around the affected areas;
- the height, size and locations of the signs must allow the signs to be visible and noticeable from any normal angle of approach to the affected areas irrespective of seasonal snow cover or vegetation obstructions; and
- metallic signs and posts are not recommended near AM broadcasting sites.

The recommended warning sign as described in Section 4 of Health Canada's Technical Guide is shown in Figure 1:

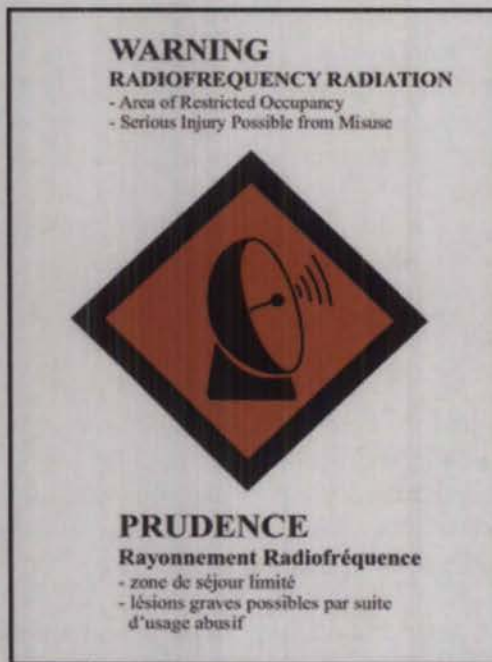


Figure 1: Recommended Warning Sign

#### 4. References

The latest versions of the following publications should be used in conjunction with this guideline document.

- (1) Industry Canada Broadcasting Procedures and Rules 1 BPR-1, *General Rules*
- (2) Industry Canada Client Procedures Circular CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems*
- (3) Industry Canada Guideline GL-01, *Guidelines for the Measurement of Radio Frequency Fields at Frequencies from 3 kHz to 300 GHz*
- (4) Industry Canada Guideline GL-08, *Guidelines for the Preparation of Radio Frequency (RF) Exposure Compliance Reports for Radiocommunication and Broadcasting Antenna Systems*
- (5) Industry Canada Technical Note TN-261, *Safety Code 6 (SC6) Radio Frequency Exposure Compliance Evaluation Template (Uncontrolled Environment Exposure Limits)*

- (6) Industry Canada Technical Note TN-329, *Safety Code 6 (SC6) Measurement Procedures (Uncontrolled Environment)*
- (7) Health Canada – *Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz – Safety Code 6*
- (8) Health Canada – *Technical Guide for Interpretation and Compliance Assessment of Health Canada’s Radiofrequency Exposure Guidelines*
- (9) Industry Canada Radiocommunication Information Circular RIC-66, *Addresses and Telephone Numbers of Regional and District Offices*

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