Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD)
Preface


This document will be in force as of the publication date of notice SMSE-002-14, in the *Canada Gazette*, Part I. Upon publication, the public has 120 days to submit comments. Comments received will be taken into account in the preparation of the next version of the document.

Listed below are the changes:

1. The requirement that RSS-Gen, *General Requirements and Information for the Certification of Radio Apparatus* shall be used in conjunction with this RSS is stated.

2. Material common to most Radio Standards Specifications has been moved to RSS-Gen.

3. An addition of technical requirements for Maritime Survivor Locator Devices (MSLDs) operating at 161.975 MHz and 162.025 MHz has been made.

4. The manufacturing, importation, or sale for use of EPIRB and PLB that operates only on 121.5 MHz or 243 MHz is prohibited.

5. ELT equipment without 406 MHz frequency is not allowed to be certified.

6. PLB equipment is required to include a homing frequency on 121.5 MHz.

7. The previous requirement to submit a letter of ELT approval from Transport Canada has been replaced with the requirement for a certification applicant to submit a Declaration of Conformity (DOC) that ELT complies with the requirements outlined in the *Canadian Aviation Regulations Part VI*, Section 605.38, Airworthiness Manual (AWM) 551.104.

Issued under the authority
of the Minister of Industry

____________________________________
Marc Dupuis
Director General
Engineering, Planning and Standards Branch
1. **Scope**

1.1 This Radio Standard Specification (RSS) document sets out the requirements for certification of:

- emergency position indicating radio beacons (EPIRBs);
- emergency locator transmitters (ELTs);
- personal locator beacons (PLBs); and
- maritime survivor locator devices (MSLDs).

1.2 EPIRBs are for carriage on ships, ELTs are for carriage on aircraft, and PLBs are for use by persons who may need to send a distress signal and are intended and designed to provide the standardized capabilities necessary to alert satellites, aircraft and vessels.

MSLDs are devices worn on the person while aboard a vessel, that are intended and designed to provide limited proximity alerting and locating capability. The device will transmit low-power alerting and homing signals to an appropriate directional receiver on board the vessel to facilitate the distressed user’s rescue.

**Important Note:** As MSLDs DO NOT comply with Transport Canada (TC) and National Search and Rescue Secretariat (NSS) minimum performance standards governing EPIRBs and PLBs, respectively, and are NOT intended or designed to provide the standardized capabilities necessary to alert satellites, aircraft and vessels, they are NOT considered to be EPIRBs or PLBs by Industry Canada, in agreement with the Canadian Coast Guard and the National Search and Rescue Secretariat.

1.3 MSLD use is on a non-interference basis to the COSPAS-SARSAT satellite system.

1.4 In an emergency situation, the radio beacon is turned on either automatically, such as a water-activated switch in an EPIRB or an inertia switch in an ELT, or manually by the user.

1.5 The manufacturing, importation, or sale for use of EPIRB and PLB operating only on 121.5 MHz or/and 243 MHz is prohibited.

1.6 ELT shall be certified only if the equipment has both operating frequencies of 121.5 MHz and 406 MHz.

2. **General Information**

Equipment covered by this RSS is classified as Category I equipment. Either a Technical Acceptance Certificate (TAC) issued by the Certification and Engineering Bureau of Industry Canada or a certificate issued by a recognized Certification Body (CB) is required, pursuant to subsection 21(1) of the *Radiocommunication Regulations*. 
2.1 Licensing Requirements

Equipment covered by this RSS is exempt from licensing requirements pursuant to subsections 15.2, 34(1), 34(2) and 34.2 of the Radiocommunication Regulations. For further information, consult Industry Canada’s Licensing Exemptions website at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf01775.html.

2.2 Transmitter Frequency Configurations

The equipment shall comply with the following frequency:

**EPIRB:** 406 MHz primary transmitter with homing frequency on 121.5 MHz.

**ELT:** 406 MHz and 121.5 MHz.

**PLB:** 406 MHz with homing frequencies on 121.5 MHz and/or 243 MHz.

**MSLD:** 121.5 MHz, 161.975 MHz, and 162.025 MHz.

2.3 Applicable Standards and Related Documents

The equipment shall comply with the standards listed in this section, where applicable. These documents can be obtained at the addresses listed in Annex 1.

2.3.1 Industry Canada Documents

CPC-2-3-07: Obtaining Identities in the Maritime Mobile Service

2.3.2 COSPAS/SARSAT Documents

C/S T.001: Specification for COSPAS-SARSAT 406 MHz Distress Beacons
C/S T.007: COSPAS-SARSAT 406 MHz Distress Beacons Type Approval Standard

The above documents can be obtained from the COSPAS-SARSAT website at http://www.cospas-sarsat.org.

2.3.3 Transport Canada Civil Aviation Documents

Canadian Aviation Regulations Part VI, Section 605.38

Airworthiness Manual (AWM) Chapter 551: Aircraft Equipment and Installation, Section 551.104, prescribing the Canadian standards of airworthiness for the design and installation of Emergency Locator Transmitter (ELT) equipment.
2.3.4 Technical Standard Order (TSO)

TSO-C126: 406 MHz Emergency Locator Transmitter (ELT)

TSO-C126a: 406 MHz Emergency Locator Transmitter (ELT)

TSO-C126b: 406 MHz Emergency Locator Transmitter (ELT)

2.3.5 Transport Canada (Marine Safety) Documents

International Maritime Organization (IMO) Resolution A.810(19): Performance standards for float-free satellite emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz

International Maritime Organization (IMO) Resolution A.660(16): Carriage of satellite emergency position indicating radio beacons (EPIRBs)

International Maritime Organization (IMO) Resolution A.662(16): Performance standards for float-free release and activation arrangements for emergency radio equipment

IEC 61097-2 of the International Electrotechnical Commission: Global maritime distress and safety system (GMDSS) - Part 2: COSPAS-SARSAT EPIRB - Satellite emergency position indicating radio beacon operating on 406 MHz - Operational and performance requirements, methods of testing and required test results

ETS 300 066 of the European Telecommunications Standards Institute: Radio Equipment and Systems (RES); Float-free maritime satellite Emergency Position Indicating Radio Beacons (EPIRBs) operating on 406.025 MHz; Technical characteristics and methods of measurement

2.3.6 National Search and Rescue Secretariat (NSS) Document

NSS-PLB 06: National Search and Rescue Secretariat, Performance Standard for 406 MHz Personal Locator Beacon (PLB)

3. General Requirements

3.1 RSS-Gen Compliance

RSS-287 shall be used in conjunction with RSS-Gen, General Requirements and Information for the Certification of Radio Apparatus, for general specifications and information relevant to the equipment for which this standard applies. Should there be any discrepancies between the requirements in this standard and RSS-Gen, the requirements in this standard shall govern.
3.2 Approved Test Facilities

3.2.1 Tests to show compliance to COSPAS-SARSAT standards for the 406 MHz transmitter shall be carried out by a test facility that has been approved by COSPAS/SARSAT.

List of COSPAS-SARSAT approved test facilities can be obtained from the COSPAS-SARSAT website at http://www.cospas-sarsat.org.

3.2.2 Battery and reliability tests shall be carried out by a test facility approved by Transport Canada (Marine Safety) or a country to which the SOLAS Convention applies for EPIRBs, and by National Search and Rescue Secretariat for PLBs. Addresses of such test facilities are obtainable from these organizations.

3.3 EPIRB and PLB Certification Requirements

In addition to the requirements in the test report specified in RSS-Gen, the certification application of EPIRB and PLB that transmits on the 406.0-406.1 MHz shall include documentation to show that the equipment is certified by a test facility recognized by one of the COSPAS-SARSAT Partners and that the equipment complies with the requirements in COSPAS-SARSAT Standards C/S T.001 and C/S T.007.

3.4 Declaration of Compliance (DOC) for ELT

The certification application for ELT devices shall provide information required, where applicable, in the test report specified in RSS-Gen, and a DOC to state that the devices meet all the requirements in section 104 of the standard AWM 551 and the applicable TSO standards for its operating frequencies.

3.5 Transport Canada and NSS Requirements

The equipment certification applicant shall forward the test report (in duplicate) showing that the equipment complies with the requirements in this standard for review to:

- Transport Canada (Marine Safety) in the case of EPIRBs; and
- NSS in the case of PLBs.

The test report shall contain the following:

(i) the signature of the testing and supervising officers;
(ii) the name of the signing persons;
(iii) phone and facsimile numbers;
(iv) the full name and address of the testing facility; and
(v) proof that the facility is an approved test facility.
Once the information has been reviewed, Transport Canada-Marine Safety forwards the test report with its evaluation result to the applicant who will then submit it to the Certification and Engineering Bureau of Industry Canada or the appropriate Recognized Certification Body by e-filing with the complete application. Proof of compliance submitted for Transport Canada-Marine Safety review shall be in the form of documentation issued by a classification society or by a recognized independent testing establishment. See Annex 1 for Transport Canada-Marine Safety’s contact information.

Industry Canada or the appropriate Certification Body shall evaluate the test results for the homing transmitter, if applicable.

4. Labelling Requirements

In addition to the labelling requirements in RSS-Gen, the equipment shall be labelled with the following:

(a) Each radio beacon shall also be labelled with its type designator, as listed in Section 5.

(b) Labelling required by Transport Canada (Civil Aviation) for ELTs (see Airworthiness Manual, Section 551.104), by Transport Canada (Marine Safety) for EPIRBs (see document IMO A.810(19)), and by NSS for PLBs (see document NSS-PLB 06), may be combined with the labelling requirements in RSS-Gen and Section 4(a) and put into a single label.

(c) The sale packaging and user manual of MSLDs shall indicate clearly the following or equivalent bilingual statement:

This radio device is designed to only provide an effective alerting and locating capability in close proximity to a vessel. This radio beacon is NOT an EPIRB. Cette radiobalise est conçue uniquement dans le but de fournir une fonction d'alerte et de localisation efficace à proximité immédiate d'un navire. Cette radiobalise n’est PAS une RLS.

5. Type Designator

An appropriate type of designator (see list below) will be appended as a suffix to the technical acceptance certification number to indicate the class of the device.

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Abbreviated Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>EPIRB, float free</td>
</tr>
<tr>
<td>E2</td>
<td>EPIRB manual activation</td>
</tr>
<tr>
<td>PL</td>
<td>PLB</td>
</tr>
<tr>
<td>A</td>
<td>ELT, automatically ejected</td>
</tr>
<tr>
<td>AD</td>
<td>ELT, automatic deployable</td>
</tr>
<tr>
<td>F</td>
<td>ELT, Fixed</td>
</tr>
</tbody>
</table>
Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD) RSS-287

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Abbreviated Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF</td>
<td>ELT, automatic fixed</td>
</tr>
<tr>
<td>AP</td>
<td>ELT, automatic portable</td>
</tr>
<tr>
<td>W</td>
<td>ELT, water activated</td>
</tr>
<tr>
<td>S</td>
<td>ELT, survival</td>
</tr>
<tr>
<td>X</td>
<td>MSLD</td>
</tr>
</tbody>
</table>

6. Measurement Methods for Equipment Operating with 121.5/243 MHz Frequency Except ELT

6.1 Transmitter Frequency and Output Power Stabilities

The output power and frequency stability measurements described below shall be carried out at (i.e. just before) the end-of-life battery test that is required by TC or NSS. Other tests, such as the out-of-band emissions test, can be carried out at any time.

The output power and unmodulated carrier frequency shall be measured at the antenna connector and under the conditions specified below. A sufficient stabilization period at each temperature shall be used prior to each frequency measurement:

(a) at 10 degree intervals of temperatures between the temperatures listed below and at the manufacturer's rated supply voltage, and

(b) at +20°C temperature and ±15% supply voltage variations.

The equipment shall be tested at the following temperature ranges:

**EPIRBs and MSLDs:**
- float free: -20°C to +55°C
- manual activation: -20°C to +55°C

**PLBs:**
- Class 1: -40°C to +55°C
- Class 2: -20°C to +55°C

6.2 Transmitter Output Power (Radiated)

The transmitter shall be modulated by A3X signal as described in Section 7.4.1(a). The resolution bandwidth of the spectrum analyzer shall be wide enough to include all significant modulation products. The bandwidth used shall be reported.

The radiated power of a 121.5 or 243 MHz transmitter is required only in the main beam (i.e. antenna pattern is not required).
6.3 Transmitter Unwanted Emissions

The transmitter unwanted emissions shall be measured at room temperature and this temperature shall be recorded. The transmitter shall be modulated with an audio sweep signal as described in Section 7.4.1(a).

6.4 Modulation Factor and Audio Sweep

The transmitter shall be modulated with A3X signal as described in Section 7.4.1(a) and its output displayed on the oscilloscope.

(i) Measure and record the peak and trough voltages of the RF envelope of the modulated carrier to determine the modulation factor, which is the ratio of the difference to the sum of the carrier levels at the peaks and troughs of the modulated RF envelope, i.e.:

\[
\text{Modulation Factor} = \frac{V_{\text{peak}} - V_{\text{trough}}}{V_{\text{peak}} + V_{\text{trough}}}
\]

(ii) Measure and record the direction of the audio sweep.

(iii) Measure and record the highest and the lowest audio frequencies of the sweep.

(iv) Measure and record the audio sweep repetition rate.

(v) Measure and record the modulation duty cycle (see definition in Section 7.4.1(e)).

(vi) Modulate the transmitter with voice and CW (carrier wave) if the beacon is equipped with this feature. Provide a diagram of the modulated signal in the time domain, properly labelled to show the duration of each mode (A3X, A3E, N0N) of modulation.

6.5 Spectrum Characteristics

The spectrum characteristics described in Section 7.4.1(d) are to be measured.

The transmitter shall be modulated with A3X signal, as described in Sections 7.4.1(a) and (d).

Set the resolution bandwidth of the spectrum analyzer to 60 Hz for 121.5 MHz transmitters and to 120 Hz for 243 MHz transmitters. If a spectrum analyzer of the correct resolution bandwidth is not available, use a narrower bandwidth and sum the powers over the desired band. Record all measurements.

If the beacon design is such that the type of modulation is changed during transmission (e.g. from A3E to N0N), describe the test and verify that the carrier frequency shift complies with Section 7.4.1(d).
7. Transmitter and Receiver Standard Specifications

7.1 ELT

ELT shall comply with all the requirements in the standard AWM 551.104 and with the applicable TSO standards for its operating frequencies.

7.2 EPIRB and PLB Transmits on 406 MHz

EPIRB and PLB transmits on 406 MHz shall comply with the technical requirements in COSPAS-SARSAT Standards C/S T.001 and COSPAS-SARSAT Standards C/S T.007 (see Section 3.3).

7.3 MSLD Operating with 161.975 MHz and 162.025 MHz

MSLD with operating frequencies of 161.975 MHz or 162.025 MHz shall comply with the requirements in Section 7 of RSS-182, where applicable.

7.4 121.5 MHz and 243 MHz Transmitter Excluding ELT

7.4.1 Modulation Characteristics

The modulation technique for each carrier is described as follows:

(a) The type of emission shall be A3X (described below), with periods of voice modulation or no modulation (CW) permitted, as described below.

During A3X transmissions, the emissions shall have the distinctive characteristic achieved by amplitude modulating the carrier with an audio frequency sweeping upwards or downwards for EPIRBs and upwards for PLBs, over a range of not less than 700 Hz within the band 300 Hz to 1600 Hz, at a sweep repetition rate between 2 and 4 Hz.

(b) The modulation factor for A3X modulation shall be at least 85% and not more than 100%, i.e. over-modulation is not permitted.

(c) The transmission shall be continuous, except in the case of a homing transmitter when it may be interrupted for up to two seconds during the transmission of the 406 MHz burst.

(d) The A3X modulation must have a clearly defined carrier frequency distinct from the modulation sideband components. For this, at least 30% of the total power emitted during any transmission shall be contained within ±30 Hz of the carrier frequency in the case of the 121.5 MHz beacon, and ±60 Hz of the carrier frequency in the case of the 243.0 MHz beacon.
Additionally, if the type of modulation is changed during transmission, the carrier frequency shall not shift by more than $\pm 30$ Hz and $\pm 60$ Hz for the 121.5 MHz and 243.0 MHz transmitters, respectively.

(e) Modulation Duty Cycle: Modulation Duty Cycle is the ratio of the positive modulation duration, measured at the half-amplitude points on the modulation signal envelope to the period of the audio modulating frequency. This duty cycle shall be between 33% and 55%.

7.4.2 Transmitter Frequency Stability

The carrier frequency shall not depart by more than 0.005% (±50 ppm) from that measured at 20$^\circ$C and the rated supply voltage. If the 121.5 MHz and 243 MHz frequencies are derived from the same oscillator circuitry, it is not necessary to repeat the frequency stability test for the other frequency.

7.4.3 Transmitter Output Power (Radiated)

The average output power of EPIRBs and PLBs shall not be less than 50 mW when the transmitter is used as a primary beacon and not less than 25 mW when used as a homing transmitter. The output power of MSLDs shall be less than 25 mW.

7.4.4 Transmitter Unwanted Emissions

The average power of unwanted emissions in a 300 Hz resolution bandwidth shall be attenuated below the level of the average transmitter power $P$ (dBW) by:

(a) at least 25 dB on any frequency removed from the centre of the authorized bandwidth by more than 50%, up to and including 100% of the authorized bandwidth; and

(b) at least 30 dB on any frequency removed from the centre of the authorized bandwidth by more than 100%

where the authorized bandwidth is set at 25 kHz with the transmit frequency at the centre of the bandwidth.

7.4.5 Spectrum Characteristics

The total power in the resolution bandwidth (see Section 6.5) shall not drop by more than 5 dB below the transmitter mean output power that is measured by a wideband meter (for the latter, see either Section 6.1 or 6.2), indicating that at least 30% of the power resides within the band $f_c \pm 30$ Hz (at 121.5 MHz) and within the band $f_c \pm 60$ Hz (at 243 MHz).
8. **Authorization to Perform Radiation Tests**

Before carrying out any tests at offset frequencies or at distress frequencies in Canada that involve radiation of signal into the air (including any tests not performed in a properly shielded room, whether the antenna is attached to the device or not), prior authorization from the offices/ agencies (see addresses in Annex 1) nearest to where radiation testing is to be conducted shall be obtained. The agencies are listed below:

- NAV CANADA Area Control Centre (ACC)
- NAV CANADA Air Traffic Control Agencies
- Canadian Mission Control Centre (CMCC) at CFB Trenton, Ontario
- Joint Rescue Coordination Centre (JRCC)

**Note:** The local NAV CANADA office should be contacted for up-to-date telephone numbers of the above-mentioned personnel/agencies. In informing each party, the testing officer shall provide the following information several days in advance: name, telephone number, date and duration of the test (test time shall be as short as possible), and location of the test site.

The agencies’ written consent to the test shall be submitted to the local Industry Canada office for the purpose of issuing the authorization to use the radio frequency.

Unless there are valid reasons to use distress frequencies (other than 406.025 MHz), only offset frequencies may be authorized as follows:

- 121.100 to 121.450 MHz; 121.550 to 121.900 MHz;
- 242.200 to 242.900 MHz; 243.100 to 243.800 MHz;
- 406.025 MHz (i.e. no offset provided that the beacon test bit pattern is set to “test protocol;” see C/S T.007).

Great care shall be taken not to accidentally radiate in the forbidden bands (121.5 MHz ±50 kHz and 243 MHz ±100 kHz).
Annex 1 – Addresses

The following addresses are relevant to this document. The addresses, especially telephone and fax numbers, are subject to change without notice:

(1) Canadian Mission Control Centre (CMCC)
    P.O. Box 1000, Canadian Forces Base Trenton, 8 Wing
    Astra, ON
    K0K 3W0
    Duty Officer Tel: (613) 965-2026/fax: (613) 965-7045
    Tel: (613) 965-3660
    Fax: (613) 965-7190

(2) COSPAS/SARSAT Secretariat
    700 de la Gauchetière West
    Suite 2450
    Montréal, QC
    H3B 5M2
    Tel: (514) 954-6761

(3) International Civil Aviation Organization
    Document Sales Unit
    999 University Street
    Montréal, QC
    H3C 5H7
    Tel: (514) 954-8022
    Fax: (514) 954-6769
    E-mail: sale@icao.int

(4) International Maritime Organization
    4 Albert Embankment
    London, England, SE1 7SR
    Tel: (44) 71-735-7611
    Fax: (44) 71-587-3210

(5) International Telecommunication Union
    Publication Sales
    Place des Nations, CH-1211
    Geneva 20, Switzerland
    Tel: +41 22 730 6141 (English)
    Fax: +41 22 730 5194
    E-mail: sales@itu.int
(6) National Search and Rescue Secretariat
275 Slater Street, 4th Floor
Ottawa, ON
K1A 0K2
Tel: (613) 992-6667
Fax: (613) 996-3746

(7) Joint Rescue Coordination Centres (JRCCs), East to West:

Joint Rescue Co-ordination Centre Halifax
Canadian Forces Base, Halifax
P.O. Box 99000 Stn Forces
Halifax, NS
B3K 2X0
Tel: (902) 427-2104
Fax: (902) 424-2114

Joint Rescue Co-ordination Centre Trenton
Canadian Forces Base, Trenton
P.O. Box 810
Trenton, ON
K8V 5W6
Tel: (613) 392-2811 ext 3875
Fax: (613) 965-7190

Joint Rescue Co-ordination Centre Victoria
Canadian Forces Base, Esquimalt
P.O. Box 17000 Stn Forces
Victoria, BC
V0F 1B0
Tel: (604) 363-2988
Fax: (604) 363-2944

(8) Transport Canada Civil Aviation
Attention: Manager, Avionics and Electrical Systems Engineering (AARDD/A)
Place de Ville, Tower “C”
330 Sparks Street
Ottawa, ON
K1A 0N8
Tel: (613) 952-4328
Fax: (613) 996-9178

(9) Transport Canada (Marine Safety)
Place de Ville, 10th Floor
330 Sparks Street
Ottawa, ON
K1A 0N5
Tel: (613) 991-3134
Fax: (613) 993-8196
E-mail: marinesafety@tc.gc.ca
(10) NAV CANADA Air Traffic Control Agencies, East to West:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Address</th>
<th>Telephone</th>
<th>Facsimile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Regional Director</td>
<td>1601 Tom Roberts Avenue, U53</td>
<td>(613) 248-4070</td>
<td>(613) 248-4061</td>
</tr>
<tr>
<td>Gloucester, ON</td>
<td>K1V 1E5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Regional Director</td>
<td>300-9925 109 Street, Suite 300</td>
<td>(780) 413-5303</td>
<td>(780) 413-5304</td>
</tr>
<tr>
<td>Edmonton, AB</td>
<td>T5K 2J8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(11) NAV CANADA Area Control Centre (ACC), East to West:

<table>
<thead>
<tr>
<th>Centre</th>
<th>Address</th>
<th>Telephone</th>
<th>Facsimile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gander Area Control Centre</td>
<td>2C Memorial Drive</td>
<td>(709) 651-5230</td>
<td>(709) 651-5235</td>
</tr>
<tr>
<td>ANS Building</td>
<td>P.O. Box 328</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gander, NL</td>
<td>A1V 1W7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moncton Area Control Centre</td>
<td>222 Old Coach Road</td>
<td>(506) 851-7150</td>
<td>(506) 851-7170</td>
</tr>
<tr>
<td>Riverview, NB</td>
<td>E1B 4G2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winnipeg Area Control Centre</td>
<td>777 Moray Street</td>
<td>(204) 983-8566</td>
<td>(204) 983-8347</td>
</tr>
<tr>
<td>Winnipeg, MB</td>
<td>R3J 3W8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montréal Area Control Centre</td>
<td>1750 Chemin St-François</td>
<td>(514) 633-2870</td>
<td>(514) 633-2881</td>
</tr>
<tr>
<td>Dorval, QC</td>
<td>H9P 2P6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montréal, QC</td>
<td>P.O. Box 9867</td>
<td>(403) 890-8322</td>
<td>(403) 890-8451</td>
</tr>
<tr>
<td>Edmonton Area Control Centre</td>
<td>P.O. Box 9867</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edmonton, AB</td>
<td>T5J 2T2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toronto Area Control Centre</td>
<td>6055 Midfield Rd.</td>
<td>(905) 676-4561</td>
<td>(905) 676-4654</td>
</tr>
<tr>
<td>Mississauga, ON</td>
<td>L4W 2P7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vancouver Area Control Centre</td>
<td>4611 Cowley Crescent</td>
<td>(604) 775-9613</td>
<td>(604) 775-9657</td>
</tr>
<tr>
<td>Richmond, BC</td>
<td>V7B 1B9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>