

ARRANGEMENT U

SHARING ARRANGEMENT BETWEEN THE DEPARTMENT OF INDUSTRY OF CANADA AND THE FEDERAL COMMUNICATIONS COMMISSION OF THE UNITED STATES OF AMERICA CONCERNING THE USE OF THE FREQUENCY BANDS 896 TO 901 MHz AND 935 TO 940 MHz ALONG THE CANADA-UNITED STATES BORDER

The Department of Industry of Canada (Industry Canada), and the Federal Communications Commission of the United States of America (FCC), hereinafter referred to as the “Agencies”,

Have agreed to the following:

1. Scope

- 1.1 This arrangement is made pursuant to the *Exchange of Notes (October 24, 1962) between the Government of Canada and the Government of the United States of America concerning the coordination and use of radio frequencies above thirty megacycles per second*, with annex, completed at Ottawa October 24, 1962, as amended, and covers the sharing and coordination of frequency spectrum for the establishment and operation of land mobile radio services operating in the bands 896-901 MHz and 935-940 MHz along the Canada-United States border.
- 1.2 Aeronautical and maritime mobile services in this band are not covered by this arrangement but may be subject to special coordination procedures on a case-by-case basis at the request of either Agency prior to their introduction.
- 1.3 The Agencies may initiate and implement special coordination allowing proposed stations to operate in a manner exceeding the technical conditions stated in this Arrangement within the sharing zones where the affected licensees agree to such conditions. Special coordination may be initiated by either Agency through an exchange of correspondence and must be approved by both Agencies.
- 1.4 This Arrangement is subject to review at any time at the request of either Agency, the U.S. Department of State or the Department of Foreign Affairs, Trade and Development of Canada.

2. Sharing and Protection Zones

The Agencies shall use the following definitions of Sharing Zones, Protection Zones and Sectors when interpreting this Arrangement.

2.1 *Sharing Zone I*

This Sharing Zone is the area adjacent to the United States-Canada border East of longitude 121° 30' W and extending a distance of 100 km within either country. However, within Sharing Zone I, the following special geographic areas are recognized:

- (a) In the Great Lakes area there are significant land areas that are within 100 km of the international borders between the United States and Canada, but further than 100 km from any land mass of the other country. These areas contain several significant population centers that would benefit from additional spectrum if the lake shores were considered for purposes of sharing. With this in mind, the following cities shall be considered as falling outside of Sharing Zone I, but inside the Protection Zone: in the United States, the cities of Akron, Ohio; Youngstown, Ohio; Syracuse, New York; and in Canada, the cities of Kitchener-Waterloo, Ontario; London, Ontario; Peterborough, Ontario. These cities are defined in Annex A, Table A4 as an area with the given center coordinates and encompassing a circle of 30 km radius.
- (b) Sector 1 and Sector 2 as defined in section 4 below are recognized as special geographic areas within Sharing Zone I.

2.2 *Sharing Zone II:*

This Sharing Zone is the area adjacent to the United States-Canada border between 121° 30' and 127° W longitude and extending a distance of 140 km within either country.

2.3 *Sharing Zone III:*

This Sharing Zone is the area adjacent to the Alaska-British Columbia/Yukon Territory border and extending a distance of 100 km within either country.

2.4 *Protection Zone:*

The Protection Zones are the areas adjacent to Sharing Zones I and III and extending from 100 to 140 km away from the United States-Canada border within both countries as well as the areas defined in Annex A, Table A4.

3. General Sharing Arrangements

3.1 *Paired Channelling Arrangements*

Within the Sharing and Protection Zones, the Agencies shall use the spectrum on the basis of a paired frequency channelling plan with mobile station transmitters in the band 896-901 MHz and base station transmitters in the band 935-940 MHz. A mobile station may also transmit on any frequency assigned to its associated base station. Base station to base station transmissions may occur in either of these frequency bands.

3.2 *Distribution/Allotment of Frequencies*

The frequency bands covered by this Arrangement shall be shared along the border, as indicated below. Each Agency may use their allotted portions of spectrum subject to not causing harmful interference to assignments beyond the allotted frequency band edges and subject to the technical limits specified in section 5.

3.2.1 *Canada*

In the Sharing Zones, except as specified in section 4, Canada has primary use of the frequency bands:

- 898.50625 to 901.000 MHz, and
- 937.50625 to 940.000 MHz.

3.2.2 *United States*

In the Sharing Zones, except as specified in section 4, the United States has primary use of the frequency bands:

- 896.000 to 898.50625 MHz, and
- 935.000 to 937.50625 MHz.

3.2.3 *Shared Channels*

(a) The following 12.5 kHz bandwidth paired channels with the center frequencies as indicated shall be available for implementation of an Advanced Train Control System (ATCS). These channels are available for each Agency's use in all areas:

- 896.8875 MHz paired with 935.8875 MHz
- 896.9375 MHz paired with 935.9375 MHz
- 896.9875 MHz paired with 935.9875 MHz
- 897.8875 MHz paired with 936.8875 MHz
- 897.9375 MHz paired with 936.9375 MHz
- 897.9875 MHz paired with 936.9875 MHz

The Agencies agree to allow the Association of American Railways (AAR) in the United States and the Railway Association of Canada (RAC) in Canada to coordinate their use of

frequencies designated for ATCS in border areas. Within the sharing zones, any non-ATCS usage would require coordination between the Agencies.

(b) Because of the unequal distribution of the ATCS reserved frequencies, the following 12.5 kHz bandwidth paired channels with the center frequencies as indicated shall be available to the United States within the sharing zones except where otherwise mentioned:

- 900.9750 MHz paired with 939.9750 MHz
- 900.9875 MHz paired with 939.9875 MHz

3.2.4 *Protection Zones*

In the protection Zones, each Agency has primary use of the frequency bands 896-901 MHz and 935-940 MHz within its respective country.

3.3 *Use of the 896-901 MHz and 935-940 MHz Bands Outside of the Sharing and Protection Zones*

Beyond 140 km from the border, each Agency has primary use of these bands within its respective country.

3.4 In the event that a station in one country causes harmful interference to a station in the other country, both Agencies shall take appropriate action to eliminate such interference.

4. Special Sharing Arrangements

In recognition of particular demographic circumstances, the Agencies agree on the unequal division of spectrum between Canada and the United States in the following two sectors of Sharing Zone I:

4.1 *Sector 1:*

Sector 1 is defined to be the portion of Sharing Zone I in the United States and Canada, bounded on the West by 85° W longitude and on the East in Canada by 81° W longitude and in the United States by 80° 30' W longitude.

In this Sector, except as specified in section 3.2.3, the United States has primary use of the frequency bands 896.000 to 900.25625 MHz and 935.000 to 939.25625 MHz.

In this Sector, except as specified in section 3.2.3 (b), Canada has primary use of the frequency bands 900.25625 to 901.000 MHz and 939.25625 to 940.000 MHz.

4.2 *Sector 2:*

Sector 2 is defined to be the portion of Sharing Zone I in the United States and Canada bounded on the East by 71° W longitude and on the West in Canada by 81° W and in the United States by 80° 30' W longitude.

In this Sector except as specified in section 3.2.3, the United States has primary use of the frequency bands 896.000 to 897.50625 MHz and 935.000 to 936.50625 MHz

In this sector, except as specified in section 3.2.3 (b), Canada has primary use of the frequency bands 897.50625 to 901.000 MHz and 936.50625 to 940.000 MHz.

5 Technical limits

- 5.1 Within Sharing Zones I (including Sectors 1 and 2) and III, the Agencies may use their allotted portions of spectrum subject to the Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limits of Annex A, Table A1.
- 5.2 Within Sharing Zones II, the Agencies may use their allotted portions of spectrum subject to the Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limits of Annex A, Table A2.
- 5.3 Each Agency shall have primary use of the frequency bands 896-901 MHz and 935-940 MHz within the Protection Zone in its respective country subject to the condition that base stations not exceed the maximum ERP and EAH limits of Annex A, Table A1.
- 5.4 Within the Sharing and Protection Zones, calculation of the limits on ERP should be based on the power radiated toward the horizon in the direction of the common border.

6 Coordination Necessitated by the Special Sharing Arrangements

- 6.1 As a result of the division of spectrum described in sections 4.1 and 4.2, portions of the bands allotted to both countries under this Arrangement overlap. Therefore, the Agencies shall coordinate proposed frequency assignments in the overlapping portions of those bands, as described in sections 6.2 and 6.3 below, in accordance with the procedures specified in Arrangement A annexed to the *Agreement Concerning the Coordination and Use of Radio Frequencies Above Thirty Megacycles per Second*, as amended 24 June 1965.
- 6.2 Coordination is required for assignments in the frequency bands 897.50625 to 898.50625 MHz and 936.50625 to 937.50625 MHz in the following area (See Annex B, Figure 1):

- a) the geographical area in Canada enclosed by the United States-Canada border, the meridian 71° W; and the line beginning at the intersection of 72° W and the United States-Canada border, thence running North along meridian 72° W to the intersection of 45° 45' N, thence running East along 45° 45' N to the meridian 71° W, and
- b) the geographical area in the United States enclosed by the United States-Canada border, the meridian 71° W; and the line beginning at the intersection of 44° 25' N, 71° W, thence running by great circle arc to the intersection of 45° N, 70° W, thence North along meridian 70° W to the intersection of 45° 45' N, thence running West along 45° 45' N to the intersection of the United States-Canada border.

In this area, the Agencies shall assign channels in the overlapping bands on center frequencies spaced 12.5 kHz apart. The FCC shall assign frequencies from 897.5125 to 898.0000 MHz and 936.5125 to 937.0000 MHz inclusive. Industry Canada shall assign frequencies from 898.0125 to 898.5000 MHz and 937.0125 to 937.5000 MHz inclusive. The Agencies may agree to mutually beneficial changes to the above noted channelling plan in an effort to promote spectral efficiency.

6.3 Coordination is required for assignments in the frequency bands 897.50625 to 900.25625 MHz and 936.50625 to 939.25625 MHz in the following overlap areas (See Annex B, Figure 2):

- a) the geographical area in Canada enclosed by the meridian of 81° W longitude, the arc of a circle of 100 km radius centered at 41° 58' N latitude and 80° 30' W longitude at the southern shore of Lake Erie and drawn clockwise from the northerly intersection with 81° W longitude to intersect the United States-Canada border East of 80° 30' W, and the United States-Canada border, and
- b) the geographical area in the United States enclosed by the meridian of 81° W longitude, the arc of a circle of 100 km radius centered at 42° 39' 30" N latitude and 81° W longitude at the northern shore of Lake Erie and drawn clockwise from the southerly intersection with 80° 30' W longitude to intersect the United States-Canada border West of 81° W, and the United States-Canada border.

In these areas, the Agencies shall assign channels in the overlapping bands on center frequencies spaced 12.5 kHz apart. The FCC shall assign frequencies from 897.5125 to 898.8750 MHz and 936.5125 to 937.8750 MHz inclusive. Industry Canada shall assign frequencies from 898.8875 to 900.2500 and 937.8875 to 939.2500 MHz inclusive. The Agencies may agree to mutually beneficial changes to the above noted channelling plan in an effort to promote spectral efficiency.

Within an area of 30 km radius from the centre city coordinates of London, Ontario, 42° 59' N 81° 14' W, Canada has primary access as defined in section 2.1 (protection zone).

7. Use of Frequencies Allotted to One Agency by the Other Agency

7.1 Frequencies allotted for primary use of one Agency may be assigned by the other Agency for use within the sharing zones in its country under the following conditions:

- (a) The maximum power flux density (pfd) of the signal at and beyond the border of the primary user's country does not exceed $-124 \text{ dB(W/m}^2\text{)}/25 \text{ kHz}$.
 - (1) The Agencies shall require applicants or licensees under this provision to calculate the pfd specified in section 7.1 (a) using good engineering practice and generally accepted terrain-sensitive propagation models (with location and time variables of 10% and standard 3 arc-second digitized terrain data). Upon Request by either Agency, the other Agency shall provide all data and calculations for determining compliance with this Arrangement.
 - (2) In the event that the measured pfd at or beyond the border exceeds the value specified in section 7.1 (a), it is the responsibility of the licensee to bring the station's pfd into compliance with the pfd specified in section 7.1 (a).
- (b) Stations authorized under this provision shall be considered as secondary and shall neither be granted protection against harmful interference from stations that have primary use of their authorized frequency nor shall they cause harmful interference to stations having primary use of their authorized frequency, regardless of whether they meet the pfd value specified in section 7.1(a).
- (c) Mobile stations exceeding 5 Watt transmitter power output (TPO) shall not be operated in frequencies allotted for primary use of the other Agency within 30 km of the common border.
- (d) Beyond 30 km of the common border, mobile stations operating in frequencies allotted for primary use of the other Agency must not exceed the pfd specified in section 7.1(a).
- (e) The documentation issued by each Agency authorizing such stations to use these frequencies shall include a clause stating that such authorization is subject to the following conditions:
 - (1) In the event that the measured pfd of the signal at or beyond the border is found to exceed $-124 \text{ dB(W/m}^2\text{)}/25 \text{ kHz}$, the signal level shall be reduced accordingly;
 - (2) In the event that harmful interference occurs to any station that has primary use of the authorized frequency, regardless of the signal strength, the licensee shall take immediate action to eliminate such interference. The Agency granting the authorization for secondary use shall ensure that remedial action

is taken to resolve the harmful interference, up to and including revocation of the authorization.

- 7.2 The Agencies may permit stations that were operating prior to August 20, 2013 and that comply with the pfd limits as specified in Annex C to continue operations with their current parameters under the following conditions; Stations authorized under this provision shall neither be granted protection against harmful interference from stations that have primary use of their authorized frequency, nor shall they cause harmful interference to stations having primary use of their authorized frequency.

8. Information Exchange

- 8.1 To facilitate the coordination requirements of this Arrangement the Agencies shall exchange information including, but not limited to: (1) licensee name(s); (2) licensed service areas; and (3) licensee point(s) of contact; or means to obtain the above information.
- 8.2 When necessary, the Agencies shall provide information to their respective licensees to facilitate the coordination requirements of this Arrangement.
- 8.3 To facilitate cross-border coordination between licensees, the Agencies shall encourage licensees to exchange data as listed in Annex D to this Arrangement.

Annex A

Limits of Effective Radiated Power and Antenna Height for General Sharing Arrangements

Effective Radiated Power (ERP) is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

For base stations in the Sharing Zones I (including Sectors 1 and 2) and III, and the Protection Zones, Table A1 lists the limits of Effective Radiated Power (ERP) corresponding to the Effective Antenna Height (EAH) ranges shown. In this case, Effective Antenna Height is calculated by subtracting the Assumed Average Terrain Elevation (AATE) given in Table A3 from the antenna height above mean sea level.

Table A1
Limits of Effective Radiated Power (ERP) Corresponding to
Effective Antenna Heights of Base Stations in Sharing Zones I
(including Sectors 1 and 2) and III, and the Protection Zones

| Effective Antenna Height (EAH) in Meters | ERP Watts (Maximum) |
|---|---------------------------|
| Up to 153 | 500 |
| Above 153 to 306 | 125 |
| Above 306 to 458 | 40 |
| Above 458 to 610 | 20 |
| Above 610 to 915 | 10 |
| Above 915 to 1067 | 6 |
| Above 1067 | 5 |

For base stations in Sharing Zone II, Table A2 lists the limits of Effective Radiated Power (ERP) corresponding to the antenna height above mean sea level (AMSL) ranges.

Table A2
Limits of Effective Radiated Power (ERP) Corresponding to
Antenna Heights Above Mean Sea Level of Base Stations in Sharing Zone II

| Antenna Height Above Mean Sea Level (AMSL) in Meters | ERP Watts (Maximum) |
|---|---------------------------|
| Up to 504 | 500 |
| Above 504 to 610 | 350 |
| Above 610 to 763 | 200 |
| Above 763 to 915 | 140 |
| Above 915 to 1067 | 100 |
| Above 1067 to 1220 | 75 |
| Above 1220 to 1372 | 70 |
| Above 1372 to 1523 | 65 |
| Above 1523 | 5 |

Table A3 lists the values of Assumed Average Terrain Elevations (AATE) within the Sharing and Protection Zones on both sides of the United States-Canada border.

EAH = Antenna Height Above Mean Sea Level – AATE

Table A3
Values of Assumed Average Terrain Elevation within the Sharing and Protection Zones on Both Sides of the United States-Canada Border

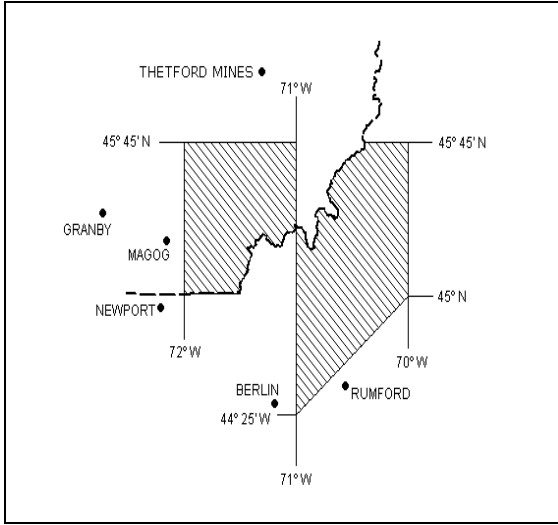
| Longitude (ϕ) (°West) | Latitude (Ω) (°North) | Assumed Average Terrain Elevation | | | |
|-------------------------------------|---------------------------------------|-----------------------------------|--------|--------|--------|
| | | United States | | Canada | |
| | | Feet | Metres | Feet | Metres |
| $65 \leq \Phi < 69$ | $\Omega < 45$ | 0 | 0 | 0 | 0 |
| " | $45 \leq \Omega < 46$ | 300 | 91 | 300 | 91 |
| " | $\Omega \geq 46$ | 1000 | 305 | 1000 | 305 |
| $69 \leq \Phi < 73$ | All | 2000 | 609 | 1000 | 305 |
| $73 \leq \Phi < 74$ | " | 500 | 152 | 500 | 152 |
| $74 \leq \Phi < 78$ | " | 250 | 76 | 250 | 76 |
| $78 \leq \Phi < 80$ | $\Omega < 43$ | 250 | 76 | 250 | 76 |
| " | $\Omega \geq 43$ | 500 | 152 | 500 | 152 |
| $80 \leq \Phi < 90$ | All | 600 | 183 | 600 | 183 |
| $90 \leq \Phi < 98$ | " | 1000 | 305 | 1000 | 305 |
| $98 \leq \Phi < 102$ | " | 1500 | 457 | 1500 | 457 |
| $102 \leq \Phi < 108$ | " | 2500 | 762 | 2500 | 762 |
| $108 \leq \Phi < 111$ | " | 3500 | 1066 | 3500 | 1066 |
| $111 \leq \Phi < 113$ | " | 4000 | 1219 | 3500 | 1066 |
| $113 \leq \Phi < 114$ | " | 5000 | 1524 | 4000 | 1219 |
| $114 \leq \Phi < 121.5$ | " | 3000 | 914 | 3000 | 914 |
| $121.5 \leq \Phi < 127$ | " | 0 | 0 | 0 | 0 |
| $\Phi \geq 127$ | $54 \leq \Omega < 56$ | 0 | 0 | 0 | 0 |
| " | $56 \leq \Omega < 58$ | 500 | 152 | 1500 | 457 |
| " | $58 \leq \Omega < 60$ | 0 | 0 | 2000 | 609 |
| " | $60 \leq \Omega < 62$ | 4000 | 1219 | 2500 | 762 |
| " | $62 \leq \Omega < 64$ | 1600 | 488 | 1600 | 488 |
| " | $64 \leq \Omega < 66$ | 1000 | 305 | 2000 | 609 |
| " | $66 \leq \Omega < 68$ | 750 | 228 | 750 | 228 |
| " | $68 \leq \Omega < 69.5$ | 1500 | 457 | 500 | 152 |
| " | $\Omega \geq 69.5$ | 0 | 0 | 0 | 0 |


Table A4 lists cities in the United States and Canada that for the purposes of this agreement shall be considered as falling outside of Sharing Zone I but within the Protection Zone. These cities are defined as circles with a 30 km radius around the center coordinates listed.

Table A4
 Cities in the United States and Canada Considered as falling
 Outside of Sharing Zone I but within the Protection Zone

| Location | Coordinates (NAD83) | |
|-----------------------------|---------------------|-----------------|
| | Latitude | Longitude |
| Akron, Ohio | 41° 05' 00.2" N | 81° 30' 39.4" W |
| Youngstown, Ohio | 41° 05' 57.2" N | 80° 39' 01.3" W |
| Syracuse, New York | 43° 03' 04.2" N | 76° 09' 12.7" W |
| Kitchener-Waterloo, Ontario | 43° 27' 30.2" N | 80° 29' 59.4" W |
| Peterborough, Ontario | 44° 18' 00.2" N | 78° 18' 59.2" W |
| London, Ontario | 42° 59' 00.0" N | 81° 14' 00.0" W |

ANNEX B




Areas in which
coordination is
required

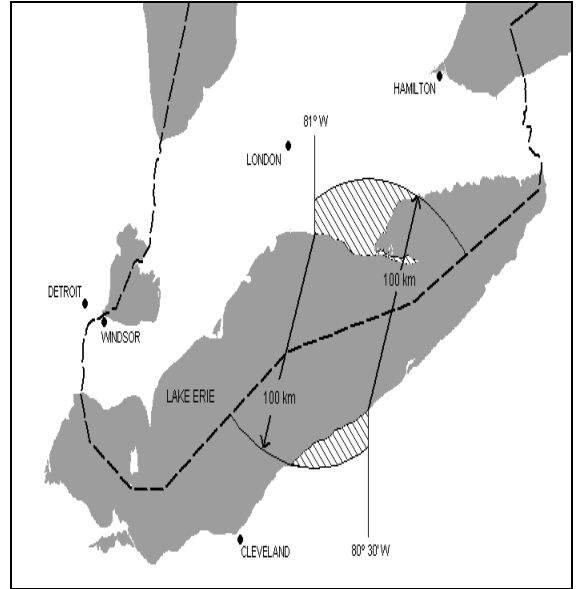


Figure 1
Band Overlap Area 1 where Coordination is
Required

Figure 2
Band Overlap Area 2 where Coordination is
Required

Frequency Assignments To Be
Coordinated (MHz)
(12.5 kHz Channel Spacing)

| Canada | United States |
|-------------------|-------------------|
| 898.0125-898.5000 | 897.5125-898.0000 |
| 937.0125-937.5000 | 936.5125-937.0000 |

Overlap Bands
897.50625-898.50625
936.50625-937.50625

Frequency Assignments To Be
Coordinated (MHz)
(12.5 kHz Channel Spacing)

| Canada | United States |
|-------------------|-------------------|
| 898.8875-900.2500 | 897.5125-898.8750 |
| 937.8875-939.2500 | 936.5125-937.8750 |

Overlap Bands
897.50625-900.25625
936.50625-939.25625

ANNEX C

PFD limits for stations operating prior to August 20, 2013

Notwithstanding Section 7.1, stations that were operating prior to August 20, 2013 and that comply with the pfd limits as specified below, shall be permitted to continue operations with their current parameters.

- (a) The maximum power flux density (PFD) of the signal at and beyond the border, calculated using free space propagation (taking into account any antenna discrimination in the direction of the border) does not exceed the limits specified in Tables C1 and C2.
- (b) In sharing Zone II, in recognition of special topographical conditions, the use of a modified Longley Rice point-to-point propagation model with time and location variables of 10%¹ and standard 3 arc-second digitized terrain data is permitted². The limit for the predicted PFD shall not exceed -107 dBW/m² at and beyond the border

¹ G.A. Hufford, A.G. Longley, and W.A. Kissick, *A Guide to the Use of the ITS Irregular Terrain Model in the Area Prediction Mode*, NTIA Report 82-100. [Available from U.S. Department of Commerce, National Technical and Information Service (NTIS), Springfield, VA 22161, Accession number PB 82-217977.]

A.G. Longley and P.L. Rice, *Prediction of Tropospheric Radio Transmission Loss Over Irregular Terrain - A Computer Method 1968*, ESSA Technical Report ERL 79-ITS 67. [Available from NTIS, Accession number AD-676-874.]

P.L. Rice, A.G. Longley, K.A. Norton, and A.P. Barsis, *Transmission Loss Predictions for Tropospheric Communication Circuits*, National Bureau of Standards Technical Note 101, Volumes I and II. [Available from NTIS, Accession numbers AD-687-820 and AD-687-821.]

² For data covering the United States: *Level I - Digital Terrain Elevation Data*, United States Defense Mapping Agency. These data are available from the: United States Geological Survey; 507 National Center; Reston, VA 22093; USA, as *Digital Elevation Model Data* in 1° x 1° units. Two of these units are required to cover each 1° x 2° map (1:250,000-scale quadrangle) from which the data were produced.

For data covering Canada: *Level I - Digital Terrain Elevation Data*. These data are available from: Department of Energy, Mines and Resources; Canada Centre for Mapping; Topographical Mapping Division; 615 Booth Street; Ottawa, Ontario K1A 0E9; Canada.

Table C1
Limits of Power Flux Density (PFD) Corresponding to Effective Antenna Heights of Base Stations in Sharing Zones I and III

| Effective Antenna Height (EAH) | | PFD dBW/m ² (Maximum) |
|--------------------------------|------------|--|
| Metres | Feet | |
| 0-152 | 0-500 | -84 |
| 153-305 | 501-1000 | -90 |
| 306-457 | 1001-1500 | -95 |
| 458-609 | 1501-2000 | -98 |
| 610-762 | 2001-2500 | -101 |
| 763-914 | 2501-3000 | -101 |
| 915-1066 | 3001-3500 | -103 |
| 1067-1219 | 3501-4000 | -104 |
| Above 1219 | Above 4000 | -104 |

Table C2
Limits of Power Flux Density (PFD) Corresponding to Antenna Heights Above Mean Sea Level of Base Stations in Sharing Zones II

| Antenna Height Above Mean Sea Level | | PFD dBW/m ² (Maximum) |
|--|------------|--|
| Metres | Feet | |
| 0-503 | 0-1650 | -87 |
| 504-609 | 1651-2000 | -88.5 |
| 610-762 | 2001-2500 | -91 |
| 763-914 | 2501-3000 | -92.5 |
| 915-1066 | 3001-3500 | -94 |
| 1067-1219 | 3501-4000 | -95 |
| 1220-1371 | 4001-4500 | -95.5 |
| 1372-1523 | 4501-5000 | -96 |
| Above 1523 | Above 5000 | -107 |

Annex D

Parameters for Coordination

Licensee information (Corporate name/Mailing address/Phone/Fax/Email address)

Location of transmitter (Community/State/Province)

Geographical coordinates of transmitting antenna (NAD83)

Equivalent Radiated Power (ERP) (dBW)

Ground elevation and antenna height above ground (m)

Center frequency (MHz)

Polarization

Antenna pattern/tabulation of the pattern

Azimuth of the maximum antenna gain

Bandwidth and emission designation