

**STATEMENT OF INTENT BETWEEN THE FEDERAL COMMUNICATIONS
COMMISSION OF THE UNITED STATES OF AMERICA AND THE DEPARTMENT
OF INDUSTRY OF CANADA RELATED TO THE RECONFIGURATION OF
SPECTRUM USE IN THE UHF BAND FOR OVER-THE-AIR TELEVISION
BROADCASTING AND MOBILE BROADBAND SERVICES**

The Federal Communications Commission (FCC) of the United States of America and the Department of Industry of Canada (Industry Canada), hereinafter collectively referred to as the “Agencies”, hereby set out their respective intents for the reconfiguration of the spectrum use for over-the-air television broadcasting and mobile broadband services in the UHF band.

Considering the need for additional spectrum allocations for mobile broadband service within each country, as well as the substantial benefits of harmonizing spectrum allocations in order to provide as much usable spectrum as possible to both countries;

Considering the importance of over-the-air television broadcasting¹ in both countries;

Considering that over-the-air television broadcasting has historically been jointly planned and coordinated by the Agencies, in order to make efficient use of spectrum in both countries;

Considering that a joint and simultaneous channel reassignment process for over-the-air television broadcasting would be the most effective means to generate a spectrally efficient joint digital television (DTV) allotment plan for both countries, and maximize the amount of spectrum that can be repurposed for mobile broadband;

Considering that there is currently in force an *Agreement between the Government of the United States of America and the Government of Canada relating to the TV broadcasting service, effected by exchange of notes at Washington, DC, November 3, 1993 and January 5, 1994* (the existing Agreement), and that the Agencies have reached understandings reflected in a *2000 Letter of Understanding between the FCC and IC Relating to Digital Television Broadcasting*, as modified in 2004, and a *2008 Exchange of Letters between the FCC and IC Relating to Digital Television Broadcasting*;

Considering that the FCC intends to hold an “incentive auction”, a process in which broadcasters in the United States will offer to voluntarily relinquish some or all of their spectrum usage rights through a “reverse auction”, and a “forward auction” for mobile broadband licenses;

Considering that the Agencies each intend to reconfigure spectrum use in the bands used for over-the-air television broadcasting by allocating a portion of contiguous spectrum, excluding channel 37, for use by mobile broadband service, beginning with channel 51 and extending downward;

¹ The term “over-the-air television broadcasting” describes a terrestrial broadcast system designed to transmit video, audio and ancillary data over a single 6 MHz channel.

Considering that representatives of the Agencies intend to continue discussions with a view to developing a sharing arrangement for digital television broadcasting in the low VHF, high VHF and UHF bands² and an implementation plan³ for the transition of TV station facilities to a new DTV allotment plan, within 30 days after the completion and validation of the FCC incentive auction;

Considering that representatives of the Agencies intend to continue discussions with a view to developing a frequency sharing arrangement for the use of mobile broadband service within the repurposed spectrum of the UHF band, within 90 days after the completion and validation of the FCC incentive auction;

Taking the above into account, the Agencies intend to administratively apply the provisions set out in this statement, in order to facilitate the reconfiguration of the spectrum use in the UHF band for over-the-air television broadcasting and mobile broadband services:

1. The Agencies each intend to implement this reconfiguration as specified by the following principles:
 - 1.1 The Agencies intend to repurpose a minimum of 42 MHz of spectrum for mobile broadband service.⁴
 - 1.2 The Agencies expect that the television broadcast assignments listed in Appendix 2 and Appendix 3 will be subject to reassignment, consistent with the following criteria.
 - 1.2.1 Canadian assignments listed in Appendix 2 that are selected for reassignment will be given a replacement digital channel within the same designated frequency band as the original channel of low VHF (54-72 MHz, 76-88 MHz), high VHF (174-216 MHz) or UHF (470-698 MHz).⁵

² A future DTV sharing arrangement could include a joint DTV allotment plan as well as specify the coordination and notification procedures for modifications and additions to this joint allotment plan. Additionally, the Agencies each intend to give the opportunity to the currently authorized low-power television (LPTV) and translator operations to obtain Associate Primary status through the bilateral coordination process.

³ A future implementation plan may include temporary special provisions and exceptions to the terms of the DTV sharing arrangement, to provide additional flexibility for the implementation of station assignments during the transition period.

⁴ The Agencies recognize that reaching targets of repurposing 138 MHz or 144 MHz would require additional measures beyond those reflected in this Statement of Intent. The Agencies plan to continue discussing such additional measures as the joint repurposing process proceeds.

⁵ For clearing targets of 108 MHz and greater, television stations designated for conversion to Associate Primary status as defined in paragraph 2, which are more than 160 km from the border, may be assigned a channel in a lower frequency band if there is no available replacement digital channel within the station's current band. If no replacement digital channel is available in any band (i.e. low VHF, high VHF, or UHF), then the station(s) will be identified for domestic consideration. It is intended that the identified station(s) would have no impact on the amount of spectrum to be repurposed.

- 1.2.2 U.S. assignments listed in Appendix 3 that are selected for reassignment will be given a replacement digital channel within the same designated frequency band as the original channel of low VHF (54-72 MHz, 76-88 MHz), high VHF (174-216 MHz) or UHF (470-698 MHz), unless the FCC specifically permits a change to a different frequency band.
 - 1.2.3 TV stations that change frequency bands would be reassigned only to a lower frequency band.
 - 1.3 The Agencies intend to ensure a broadcasting assignment for each Canadian TV station listed in Appendix 2.
 - 1.4 The Agencies intend to ensure a broadcasting assignment for each U.S. station listed in Appendix 3, with the exception of the U.S. stations which the FCC determines will cease operation as determined by the FCC incentive auction.
 - 1.5 The Agencies intend to ensure that each broadcasting assignment referred to in paragraphs 1.3 and 1.4 has an interference-free service population based on the mutually acceptable techniques and factors contained in Appendix 1.
 - 1.6 Through the reconfiguration process, the Agencies intend to generate:
 - 1.6.1 A joint DTV allotment plan containing contiguous TV channel assignments, to be subsequently used by the Agencies for future implementation.
 - 1.6.2 A joint contiguous band plan for mobile broadband service, to be subsequently implemented and used by the Agencies for their domestic licensing. For the purposes of this Statement of Intent, the term “band plan for mobile broadband service” covers the largest contiguous frequency range⁶ assigned for mobile broadband service in the band 470-698 MHz, in any area of the United States, as a result of the incentive auction.
 - 1.7 In the United States, a limited amount of overlapping between U.S. assignments for television and the band plan for mobile broadband service in the band 470-698 MHz band may be allowed.
 - 1.7.1 Canadian television stations would not be allotted channels in mobile broadband spectrum.
 - 1.7.2 To limit the potential for inter-service interference into areas of Canada arising from U.S. television assignments overlapping or adjacent to the mobile service, these assignments would comply with the mutually acceptable techniques and factors contained in Appendix 4.

⁶ Specifically, this contiguous frequency range consists of spectrum identified for mobile broadband service and guardbands, including the duplex gap. Channel 37 may be within the contiguous frequency range, but would be excluded from licensed wireless broadband use.

- 1.8 The Agencies expect that the joint repurposing process will determine the amount of spectrum to be repurposed, the resulting joint DTV allotment plan, and the resulting band plan for mobile broadband use, relying on principles and parameters as specified in this Statement of Intent and on the results of the incentive auction.
- 1.9 The Agencies intend to use joint coordination considerations, as well as the mutually acceptable techniques and coordination factors contained in Appendix 1, to reconfigure DTV allotments.
2. In the new joint DTV allotment plan, the Agencies intend to grant Associate Primary status, as defined in this paragraph, to the assignments for the facilities in the border zone designated by an “*” in Appendix 2 and 3. Specifically, stations with Associate Primary status would be protected from primary operations and secondary operations, and would not be required to protect secondary operations. Protection criteria and parameters for Associate Primary assignments are outlined in Appendix 1.
3. The Agencies intend to work jointly prior to, during, and following the FCC’s incentive auction process, until the transition of the final broadcasting reassignment has been completed. During this time, the Agencies intend to continue to coordinate and share data necessary to facilitate the joint, collaborative process of reconfiguring the TV broadcast bands. This data is likely to include, but may not be limited to, the results of computer simulations, simulation software, channel lists and interference analysis data.
4. The Agencies intend to finalize the contents of Appendix 2 and 3 within 30 days of the signature of this Statement of Intent. The Agencies intend that any mutually-decided changes to the methodology used in the reconfiguration process and in Appendix 2 or 3, if required, should be made before the end of the period during which the FCC will accept applications from U.S. broadcasters to participate in the reverse auction.
5. The Agencies intend, prior to the commencement of the incentive auction, to conduct joint validation of the procedures and data related to such factors as TV coverage and interference, constraint file generation, inter-service interference (ISIX) between TV and wireless services, and criteria for the selection of the band plan clearing target. The results of this validation process are to be subject to independent pre-auction verification and testing reviewable by both Agencies in order to assure that the results are consistent with the provisions herein. Prior to the start of the incentive auction, the Agencies plan to verify and confirm the technical parameters and procedures that would be used during the auction to determine television reassignments and repurposing of spectrum, but such technical parameters and procedures would not be subject to revision once the incentive auction commences.
6. The Agencies intend to bring the joint DTV allotment plan and joint contiguous band plan for mobile broadband service (described respectively in paragraphs 1.6.1 and 1.6.2) into effect only when both Agencies have validated the plans and provided written confirmation that they are acceptable. The Agencies intend to complete this validation and written confirmation within 5 days after the final TV channel reassignment lists become available, and prior to the public release by the Agencies of the respective lists of channel

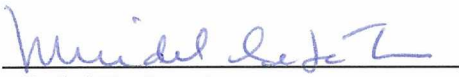
reassignments for U.S. and Canadian stations. Should any deviations from the provisions herein be identified, the Agencies would work cooperatively toward a mutually acceptable resolution, such as making appropriate corrections to the TV channel reassignment lists to resolve any identified discrepancies.

7. The Agencies intend to implement the reconfiguration of spectrum use in the UHF band (470-698 MHz) only if the results of the FCC incentive auction are validated and confirmed in accordance with the provisions herein.

Either Agency should give to the other Agency at least 90 days written notice of its intention to cease cooperation pursuant to this Statement of Intent.

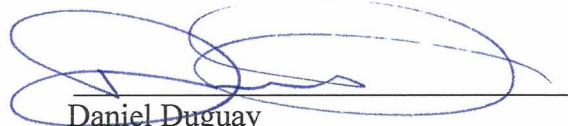
FOR THE FEDERAL COMMUNICATIONS
COMMISSION

FOR INDUSTRY CANADA



Mindel De La Torre
Chief, International Bureau
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Date: August 7, 2015



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Attachments:

- Appendix 1 - Planning Factors for Television Station Reconfiguration
- Appendix 2 - Canada Baseline Analog and Digital/Digital Equivalent Television Assignments
- Appendix 3 - United States Baseline Analog and Digital Television Assignments
- Appendix 4 - Planning Factors for Limiting Inter-service Interference (ISIX)

Appendix 1

Table 1-1: Planning Factors for Television Station Reconfiguration

Parameter	Value
Propagation Model	Longley-Rice Version 1.2.2
Spherical Earth Distance	111.15 km/° latitude
Earth Ground and Atmospheric Constants	$\epsilon_r=15$, $\sigma=5$ mS/m, $N_s = 301$ N units
Climatic Zone	Continental temperate (5)
Terrain Database for Average Terrain Calculations	NED 1" (U.S.), CDED 1" (Canada)
Terrain Database for Path Loss Calculations	NED 1" (U.S.), CDED 1" (Canada)
Calculation of Depression Angles From TX	Spherical Earth Geometry Using Elevations AMSL
Population Database	Statistics Canada 2011, U.S. Census 2010
Rounding of Population Centroids	None
Terrain Extraction Interval	0.1 km for average terrain 1.0 km for path loss
DTV Service Threshold (Low VHF, High VHF, UHF)	$28, 36, 41 - 20 \log \left(\frac{615}{f_{MHz}} \right)$ dB μ V/m
Associate Primary DTV Service Threshold (Low VHF, High VHF, UHF)	$43, 48, 51 - 20 \log \left(\frac{615}{f_{MHz}} \right)$ dB μ V/m
Associate Primary Analog Service Threshold (Low VHF, High VHF, UHF)	$62, 68, 74 - 20 \log \left(\frac{615}{f_{MHz}} \right)$ dB μ V/m
DTV Coverage Statistic (Location, Time)	F(50, 90)
Analog Coverage Statistic (Location, Time)	F(50,50)
D/U Interference Threshold DTV-into-DTV, Co-channel DTV & Associate Primary DTV	$15 + 10 \log \frac{1}{1 - 10^{-\frac{S/N}{10}}}$ where S/N is the amount by which the desired DTV signal S/N exceeds 15.19 dB in the absence of interference
DTV and Analog Interference Statistic (Location, Time)	F(50, 10)
D/U Interference Threshold DTV-into-DTV, Adjacent Channel DTV	-28 dB (Lower Adjacent), -26 dB (Upper Adjacent)

D/U Protection Ratio for DTV-into-analog Associate Primary Facilities, Interfering Channel Relationship to Desired Channel N	N-1 (-14); N (34); N+1 (-17); N-8 (-32); N-7(-35); N-4 (-34); N-3 (-30); N-2 (-24); N+2 (-28); N+3 (-34); N+4 (-25); N+7 (-43); N+8 (-43); N+14 (-33); N+15 (-31)
D/U Protection Ratio for Analog Associate Primary-into-DTV Facilities, Interfering Channel Relationship to Desired Channel N	N-1 (-48); N (2); N+1 (-49)
Methodology to determine additional population interference to existing TV station	Note 1
Maximum additional population interference to existing TV station	0.5%
D/U Interference Threshold, 2 nd Adjacent Channel DTV (for Canada only)	See Table 1-2 for a list of stations having 2 nd Adjacent interference issues. This list is subject to refinement at clearing targets of 126 MHz or higher.
D/U Interference Threshold, Adjacent Channel Associate Primary DTV	-7 dB (Lower and Upper Adjacent) Simple Mask, -12 dB (Lower and Upper Adjacent) Stringent Mask, -28 dB (Lower Adjacent), -26 dB (Upper Adjacent) Full-Service Mask
Cell size for Longley-Rice Calculations	Square, 2 km/side
Treatment of TV stations with zero population	Require a separation distance of 80 km or a mutually accepted distance between the TV station and other TV stations with N-1, N or N+1 assignments
Treatment of kwx = 3 Warnings	Accept, Assume Service
TX Antenna Elevation Pattern Shape	Standard OET 69, non-symmetrical
Electrical Beam Tilt	As specified, or 0.75° if not specified
Mechanical Beam Tilt	0 (ignored)
Replication Method for Antenna Horizontal Patterns	Scaled ERP at new channel to match area enclosed using existing antenna pattern (equal area)
Number of Radials used for HAAT Calculation	8 (U.S. Stations) 36 (Canadian Stations)
Number of Radials used for Contour Projection	360
Minimum HAAT for any Radial	30.5 m
Receive Antenna Height AGL	10 m
Receive Antenna Gain (Low VHF, High VHF, UHF)	4, 6, 10 dBd
Downlead Loss (Low VHF, High VHF, UHF)	1, 2, 4 dB
Receive Antenna Front-to-Back Ratio (Low VHF, High VHF, UHF) and Azimuth Pattern Shape	10, 12, 14 dB, $\cos^4(\Theta)$ but not less than F/B ratio specified
Polarization	Horizontal
Longley-Rice Service Mode	Broadcast
Television Station Technical Parameters for Study	Appendix 2 and Appendix 3

Note 1: The analysis methodology divides the United States and Canada into a uniform grid of cells common to all television stations in Appendix 2 and Appendix 3 in order to evaluate and record signal strength, service and interference.

1. Step 1

The baseline interference-free service population for a TV station is calculated based on Appendix 2 and Appendix 3 channel assignments and represents the population within the noise-limited service (bounding) contour predicted to receive service and excludes the population of cells where the desired signal is blocked by terrain and excludes cells with existing interference from other stations.

2. Step 2

Additional interference cells are determined from the cells within a station's baseline interference-free service population that receive new interference from another station.

3. Step 3

The percentage of additional population interference is calculated as the sum of total population within the additional interference cells relative to the baseline interference-free service population.

Table 1-2: List of Additional Canadian Channel Assignment Constraints

Station A		Station B		Station B Plus Second Adjacent to Station A	Station B Minus Second Adjacent to Station A
City, Province	Call Sign	City, Province	Call Sign		
CLEARWATER, BC	CHCW-TV-1	BLACKPOOL, BC	CH5665	Y	
CLEARWATER, BC	CHCW-TV-1	BLACKPOOL, BC	CH5666	Y	
STE MARGUERITE MARIE, QC	CHAU-DT-1	CARLETON, QC	CHAU-DT	Y	Y
MALAKWA, BC	CFFI-TV-1	CANOE, BC	CHBC-TV-8	Y	
BLACKPOOL, BC	CH5665	CLEARWATER, BC	CHCW-TV-1	Y	
DAWSON CREEK, BC	CJDC-TV	CHETWYND, BC	CH2383	Y	
DAWSON CREEK, BC	CJDC-TV	CHETWYND, BC	CH2385	Y	
SPARWOOD, BC	CFCN-TV-11	FERNIE, BC	CFCN-TV-10	Y	
FERMONT, QC	CFTC-TV	FERMONT, QC	CINE-TV	Y	
BLACKPOOL, BC	CH5666	CLEARWATER, BC	CHCW-TV-1	Y	
LONDON, ON	CFPL-DT	KITCHENER, ON	CKCO-DT	Y	Y
ASHMONT, AB	CFRN-TV-4	LAC LA BICHE, AB	CFRN-TV-5	Y	Y
HAMILTON, ON	CHCH-DT	TORONTO, ON	CBLT-DT	Y	
PARIS, ON	CIII-DT	HAMILTON, ON	CHCJ-DT	Y	Y
RIMOUSKI, QC	CJPC-DT	RIMOUSKI, QC	CIVB-DT	Y	Y
VERNON, BC	CHBC-DT-2	KELOWNA, BC	CHKL-DT	Y	Y
VERNON, BC	CHBC-DT-2	KELOWNA, BC	CHBC-DT	Y	Y
WOLFVILLE, NS	CIHF-DT-5	HALIFAX, NS	CBHT-DT	Y	Y
WOLFVILLE, NS	CIHF-DT-5	HALIFAX, NS	CJCH-DT	Y	Y

CAMPBELLTON, NB	CKCD-TV	CARLETON, QC	CIVK-DT	Y	Y
VERNON, BC	CHKL-DT-2	KELOWNA, BC	CHBC-DT	Y	Y
RIMOUSKI, QC	CIVB-DT	RIMOUSKI, QC	CJBR-DT	Y	Y
SHERBROOKE, QC	CIVS-DT	MONTREAL, QC	CBFT-DT	Y	Y
SHERBROOKE, QC	CIVS-DT	MONTREAL, QC	CBMT-DT	Y	Y
BELLEVILLE, ON	CICO-DT-53	DESERONTO, ON	CJOH-TV-6	Y	
OWEN SOUND, ON	CIII-DT-4	WINGHAM, ON	CKNX-TV	Y	Y
SARNIA, ON	CKCO-TV-3	LONDON, ON	CITS-DT-2	Y	Y
SARNIA, ON	CKCO-TV-3	LONDON, ON	CJMT-DT-1	Y	Y
SARNIA, ON	CKCO-TV-3	LONDON, ON	CFMT-DT-1	Y	Y
KITCHENER, ON	CICO-DT-28	HAMILTON, ON	CHCH-DT	Y	Y
KITCHENER, ON	CICO-DT-28	HAMILTON, ON	CHCJ-DT	Y	Y
KITCHENER, ON	CICO-DT-28	HAMILTON, ON	CITS-DT	Y	Y
RIVIERE DU LOUP, QC	CFTF-DT	TROIS PISTOLES, QC	CFTF-DT-2	Y	Y
RIVIERE DU LOUP, QC	CFTF-DT	TROIS PISTOLES, QC	CKRT-DT-6	Y	Y
WOODSTOCK, NB	CIHF-DT-11	FLORENCEVILLE, NB	CKLT-TV-1	Y	Y

Note: This list identifies the station pairings that cannot be assigned upper and/or lower second adjacent channels to each other.

Appendix 2

Table 2-1: Canada Baseline Analog and Digital/Digital Equivalent Television Assignments

Province	City	Call Sign	Latitude ^a	Longitude	Digital Channel	Equivalent Digital ERP ^b (kW)	RCAMSL ^c (m)	Beam Tilt (°)	Directional Antenna ID	Conversion to Associate Primary (“*”)	Emission Mask	Analog Channel	Analog ERP (kW)

Note: Within 30 days of the signing of this Statement of Intent, Canada intends to update, and validate this Appendix 2 data, as necessary.

Analog channels are shown for historical purposes. For the joint DTV allotment plan and Statement of Intent, equivalent digital channel and ERP are used.

^a Latitude/Longitude: NAD 27

^b ERP: Effective Radiated Power

^c RCAMSL: Radiation Center Above Mean Sea Level

Table 2-2: Canada Directional Antenna Tabulations

ID	az0	az10	az20	az30	az40	az50	az60	az70	az80	az90	az100	az110	az120	az130	az140	az150
	az160	az170	az180	az190	az200	az210	az220	az230	az240	az250	az260	az270	az280	az290	az300	az310
	az320	az330	az340	az350												

Appendix 3

Table 3-1: United States Baseline Analog and Digital Television Assignments

State	City	Call Sign	Latitude ^a	Longitude	Channel	ERP ^b (kW)	RCAMSL ^c (m)	Beam Tilt (°)	Antenna Rotation (°)	Directional Antenna ID	Conversion to Associate Primary (“*”)	Emission Mask

Note: *(4): These analog operations will be subject to conversion as digital Associate Primary in accordance with the provisions of the SOI. Assignments without the *(4) designation are digital.

^a Latitude/Longitude: NAD 27

^b ERP: Effective Radiated Power

^c RCAMSL: Radiation Center Above Mean Sea Level

Table 3-2: United States Directional Antenna Tabulations

ID	az0	az10	az20	az30	az40	az50	az60	az70	az80	az90	az100	az110	az120	az130	az140	az150
	az160	az170	az180	az190	az200	az210	az220	az230	az240	az250	az260	az270	az280	az290	az300	az310
	az320	az330	az340	az350												

Appendix 4

Planning Factors for Limiting Inter-Service Interference (ISIX)

To maximize the amount of spectrum available for wireless mobile service nationwide, TV stations in the United States may be assigned channels within the repurposed mobile broadband spectrum, resulting in market variation. Such channel assignments of television stations could create wireless impairments, which would be measured in terms of the infringed percent of population in the wireless license area with predicted interference from television services, or the restricted percent of population in the wireless license area with predicted interference to television services. Technical parameters for calculating inter-service interference are shown in Tables 1 through 3 below.

The smallest geographic areas used for calculating interference between wireless and television services are counties for the United States and Tier 4 license areas for Canada. A county or Tier 4 license area with wireless impairment above the threshold of 10% would be considered wholly impaired, i.e., 100 % of the county or Tier 4 license area population is counted for the purposes of measuring the extent of wireless impairment and setting the clearing target.

The Agencies intend that the impact of U.S. market variation on Canada will be limited to the equivalent of one paired 5+5 MHz spectrum block nationwide, that is, a total MHz-pops quantity of the country's population times 10 MHz. Wireless impairments are to be calculated on a nationwide aggregated basis for each country, with population in certain areas assigned a weighting factor. For the United States, the weighting factors for populations in various license areas are based on an index of area-specific prices from prior Commission auctions. In calculating the impairments to population in Canada, a weighting factor of 2.4 will be used.

Additionally, no Canadian TV assignment is to be made in the first TV channel adjacent to the guard band between the TV spectrum and the repurposed mobile broadband spectrum, except as noted in Table 4-1.

Table 4-1: Planning Factors for Limiting Inter-Service Interference (ISIX)

Parameter	Value
Propagation Model	Longley-Rice Version 1.2.2
Spherical Earth Distance	111.15 km/° latitude
Earth Ground and Atmospheric Constants	$\epsilon_r=15$, $\sigma=5$ mS/m, $N_s = 301$ N units
Climatic Zone	Continental temperate (5)
Terrain Database for Average Terrain Calculations	NED 1" (U.S.), CDED 1" (Canada)
Terrain Database for Path Loss Calculations	NED 1" (U.S.), CDED 1" (Canada)
Calculation of Depression Angles from TX	Spherical Earth Geometry Using Elevations AMSL
Population Database	Statistics Canada 2011, U.S. Census 2010

Rounding of Population Centroids	None
Terrain Extraction Interval	0.1 km for average terrain 0.1 km for path loss
ISIX Calculations Proxy Channel	UHF Channel 38 (617 MHz)
DTV Service Threshold	$41 - 20 \log \left(\frac{615}{617} \right) = 41.028201 \text{ dB}\mu\text{V/m}$
Associate Primary DTV Service Threshold	$51 - 20 \log \left(\frac{615}{617} \right) = 51.028201 \text{ dB}\mu\text{V/m}$
DTV Service Statistic (Location, Time)	F(50,90)
DTV & Wireless Interference Statistic (Location, Time)	F(50,10)
Minimum Field Strength for DTV and Associate Primary Interference into Wireless Uplink	Table 4-2
Minimum Field Strength for DTV and Associate Primary Interference into Wireless Downlink	Table 4-3
Guardband	An additional TV channel is to be used as a guardband in Canada. One regular power Canadian TV station may be placed on channel 29 in the limited case of a 126 MHz clearing target. This station should be chosen such that population impact is minimized.
Maximum Population Impairment to Nationwide Wireless Band Plan	Equivalent of one 5+5 MHz block nationwide
County/Tier 4 license area Population Impairment Threshold	10%
Weighted Population Factors	U.S. weighting factors range from approximately 0.08 to 2.42. A factor equal to the highest U.S. weighting is to be used for all Canadian populations.
Equation for calculation of opening bid prices for U.S. television stations	Base clock price x U.S. population ^{0.5} x (US constraints + 2.3 x Canadian constraints) ^{0.5}
Cell size for Longley-Rice Calculations	Square, 2 km/side
Treatment of kwx = 3 Warnings	Disregard, Accept path-loss result
TX Base Station Antenna Elevation Pattern Shape	Standard OET-69, symmetrical
TX Television Antenna Elevation Pattern Shape	Standard OET-69, non-symmetrical
Television Electrical Beam Tilt	As specified in Appendix 2 & 3, or 0.75° if not specified
Mechanical Beam Tilt	0 (ignored for protected contour calculations)

Number of Radials used for HAAT Calculation	8 (U.S. Stations protected contour calculations) 36 (Canadian stations protected contour calculations)
Number of Radials used for Contour Projection	360
Use of Elevation Pattern when Calculating Protected Contours	Used, full-power DTV not used, Associate Primary
Minimum HAAT for any Radial	30.5 m (protected contour calculations) 50.0 m (DTV to Wireless interference)
Assumed Base Station Effective Radiated Power	720 Watts (120 Watts / MHz x 6 MHz)
Transmitter Radiation Center	As specified in Appendix 2 and Appendix 3 (DTV) 50 m (Wireless Base Station) 1.5 m (Wireless User Equipment)
Receive Antenna Height AGL	10 m (Television) 50 m (Wireless Base Station) 1.5 m (Wireless User Equipment)
Television Receive Antenna Front-to-Back Ratio and Azimuth Pattern Shape	14 dB, $\cos^4(\Theta)$ but not less than F/B ratio specified
Wireless Base Station and User Equipment Front-to-Back Ratio and Azimuth Pattern Shape	0 dB, non-directional
Polarization	Horizontal
Longley-Rice Service Mode	Broadcast
Television Station Technical Parameters for Study	Appendix 2 and Appendix 3

The thresholds in Table 4-2 and Table 4-3 below are provided based on the degree of spectral overlap between the 6 MHz DTV channel and the 5 MHz wireless channel. A negative spectral overlap indicates the separation, in megahertz, between the channel edges. Overlaps of +5 to +1 MHz are considered co-channel and overlaps of 0 to -5 MHz are considered adjacent channel relationships.

Table 4-2: Threshold Field Strength for DTV and Associate Primary Interference into Wireless Uplink (Base Station Receiver)

Spectral Overlap (MHz)	5	4	3	2	1	0	-1	-2	-3	-4	-5
DTV into Wireless Uplink (dB μ V/m)	11.3	12.2	13.5	15.2	18.0	28.4	55.4	56.5	57.7	59.5	62.6

Table 4-3: Threshold Field Strength for DTV and Associate Primary Interference into Wireless Downlink (User Equipment Receiver)

Spectral Overlap (MHz)	5	4	3	2	1	0	-1	-2	-3	-4	-5
DTV into Wireless Downlink (dB μ V/m)	27.6	28.5	29.8	31.4	34.2	44.5	59.6	60.4	61.4	62.7	64.6