# Marble River Project
# Microwave Path Report

October 28, 2005
Revised March 17, 2006

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## Scope of this Report

The purpose of this report is to review any existing FCC licensed, fixed microwave radio systems and plot their existence on a map along with the invisible radio paths between any transmitter sites. This is done as a precursor to the design of the wind generator locations. It is important that the turbine towers and/or their blades do not intersect or interfere with the existing systems. In addition to microwave radio systems, all US licensed AM, FM and Television broadcast transmitters were mapped within a 35-mile radius. The data sets used were extracted from the Federal Communications Commission Universal Licensing System database.

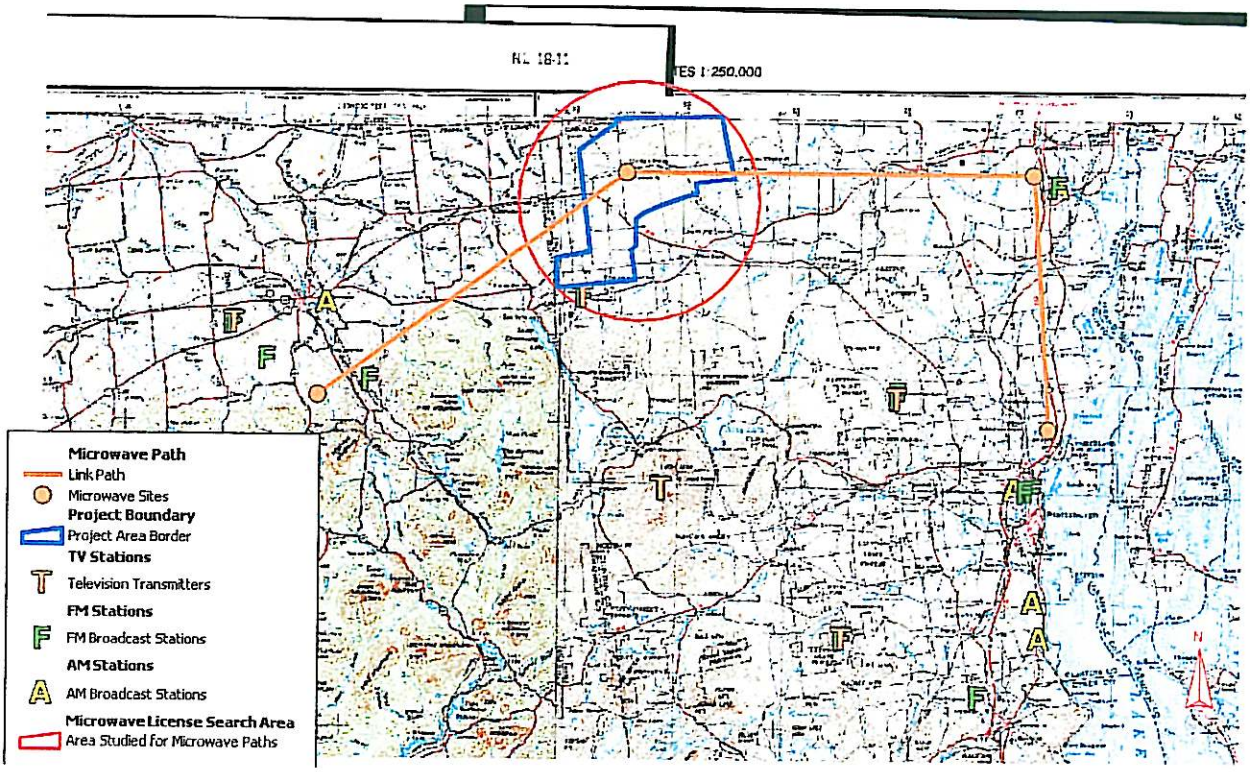
## Research Conducted

Once provided with the project boundary, a centroid point was created as close to the center of the area as possible. Using this point, a search was conducted though the FCC database in a 7-mile radius. The mention of records in the database is in reference to the licenses that show up in a search of the area but do not pertain as they are of portable and temporary nature and not site specific registered with the FCC and therefore do not have protections from these projects such as the fixed permanent systems. As you can see from the map the search revealed the paths that pass through the search area but had transmitters well outside the ring. There were 19 records listed in the search results. All but three were listed as statewide portable temporary systems with no specific transmitter locations specified. The three records found to have actual fixed locations were all part of the microwave system you see on the maps in orange.

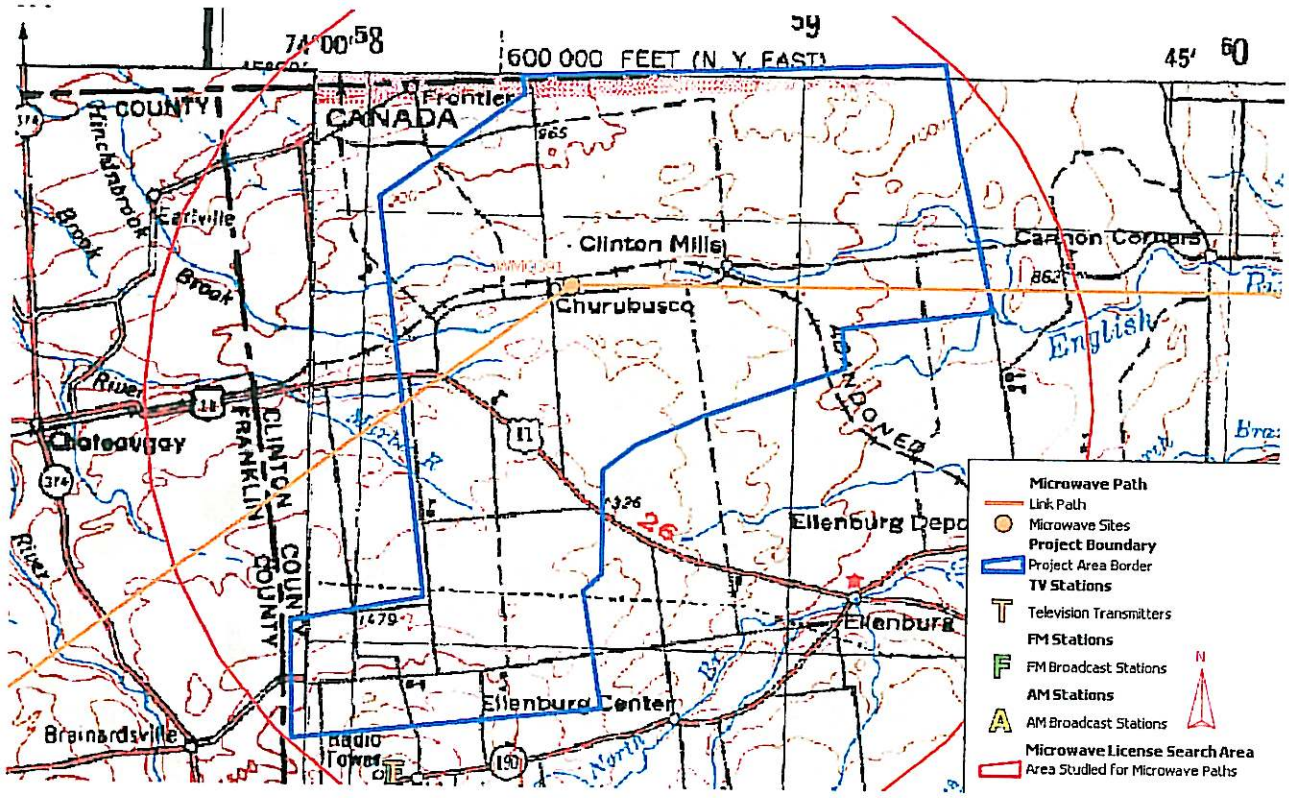
The sites mapped are all licensed to:

**RCC Atlantic Licenses, LLC**
**PO Box 2000**
**Alexandria, MN 56308**
**P:(320)762-2000**
**F:(320)808-2510**
**FCC License Calls - WMQ391, WMQ392, WMQ393**
Frequency specified was "between 1850 and 2200 MHz".

# Maps




This is an overview map of the project study area. The blue outline represents the project boundary area as provided by Environmental Design & Research P.C. The red circle shows the search area studied from the FCC ULS Database. The orange dots and lines show the licensed microwave radio system listed in the database. Also on the map are the AM, FM and Television Broadcast Transmitter locations to a radius of 35 miles from the project centroid.




This map shows a zoomed in view of the microwave path areas as they relate to the project boundary. The orange line is represented in scale as to the width of the microwave Fresnel zone. The frequency used and the distance between the two tower sites dictates the size of the Fresnel zone. I used a worst-case scenario using the lowest of the frequencies listed on the license and the distance of the longest path in this system. Using these calculations the distance from the centerline to the outer ring of the first Fresnel zone is 128 feet at the widest point or 256 feet total width. The zone is actually an ellipse shape and gets narrower as you near the tower sites. For the purposes of the study we assumed the maximum width along the complete path. It is further noted that common radio engineering practices state that a 60% Fresnel zone clearance (153.6 feet total width in this case) is adequate for proper operations of the microwave radio link. It is therefore concluded that there will be more than sufficient microwave path clearance if all portions of the proposed wind turbines (tower, rotor blades, etc.) are sited at least 128 feet from the centerline of the microwave path that transects the project area.

**To restate: the total width of the worst case Fresnel Zone is 256 feet to maintain one full Fresnel Zone clearance at the maximum point of dispersion in the path profile. The necessary minimum width required for maintaining a non-interfering zone is 153.6 feet (.6 Fresnel Zone) at the maximum point of dispersion. The Maximum point of dispersion is the point midway between the two towers with the longest path. This was calculated based on the lowest frequency listed on the license of 1850 MHz.**

**The turbine locations wil be such that the radius and swing area for the blade does not encroach this worst case Fresnel Zone clearance area calculated. This will leave a 102.6-foot buffer zone between .6 and 1 Fresnel zone for this licensee. No other setbacks would be required.**

As an additional service, I added the AM broadcast facilities for reference. When building large metal structures such as wind turbines, the FCC requires that studies are conducted to see if the structures will have an effect on any existing AM radio broadcast station patterns. The requirement for these studies is when they are within 1 kilometer of a non-directional pattern station, or 3 kilometers of a directional pattern station. None of the project area will fall within these guidelines. Therefore, it is concluded that there will be no adverse affect on any existing AM broadcast stations as a result of the proposed project and there will be no requirement for any special detune procedures for the generator structures.

The study mentions there are no issues with AM towers as a requirement to detune them. The reason for this is based on laws of physics (and Federal Law) and the length of antennas required at different radio operating frequencies. AM stations operate at frequencies between 54 and 170 **KHz** (**thousand** hertz or cycles). The physical size of a quarter wave antenna to operate a transmitter using these frequencies range between **135 and 435 FEET** depending on the frequency. Wind turbine towers can be near these same lengths or mathematic multiples of these lengths, if they are placed in close proximity to the strong field energy of an AM transmitter they can act as part of the antenna system altering their broadcast signal pattern on file with the FCC.

FM broadcast stations operate at frequencies between 88 and 108 **MHz** (**million** hertz or cycles). The physical length of a quarter wave antenna at these frequencies is between **20 and 25 INCHES**. Unless a turbine were to be located extremely close to one of these transmitters (impossible due to blade radius and swing clearances), they will not have an affect on the broadcast pattern of the signal or become an active part of the antenna system for the FM broadcast station, for this same reason the blades would be such that the higher frequencies of an FM radio station would pass right through them basically unaffected.

Using this same explanation, wind turbines will not create problems for licensed private land mobile radio services any more than any other large object such as a moving tractor trailer, a farm silo, large commercial building or any other structure would(none of which are required by law to conduct any feasibility studies in this regard). Add this with the fact that the project is located right on the Canadian border, where no commercial or land mobile FCC licensed radio system can legally operate across the border, and the extremely rural nature of the area immediately surrounding the project, there should be no impact on any of the licensed narrow band radio systems in the area commercial or private.

# TV BROADCAST OFF-AIR RECEPTION MEASUREMENT REPORT – MARBLE RIVER WIND PROJECT

Revised March 17, 2006

Brian Webster Consulting, 214 Eggleston Hill Rd., Cooperstown, NY 13326

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## SECTION 1

# INTRODUCTION AND BACKGROUND

### 1.1 Introduction

On-site TV Broadcast Off-Air measurements were performed on behalf of the Environmental Design & Research, P.C. (EDR) for the proposed Marble River Wind Project (study area) in Clinton County, New York in January 2006 at six site locations.

The purpose of these measurements was to identify and document Off-Air Television (TV) reception (TV channels). These measurements establish baseline conditions for the reception of each Off-Air TV channel by determining each TV channel signal strength reception level and evaluating the video and audio quality at each selected site. The purpose of this report is to document the results of these measurements. The analysis in this report is based upon the following:

Quality Rating
Code of Federal Regulations Title 47, Part 73, Section 73.685 (Attachment 1) Television channels
Type of Reception: Analog and Digital
Measured Centerline: The test antenna was mounted 12 feet above ground level

### 1.2 Background

EDR contracted Brian Webster Consulting to establish the baseline conditions of Off-Air TV reception in the study area. Six locations were selected to provide a broad coverage of the study area. Test site locations are shown in Figures 4.1.1 through 4.1.10.

To determine which areas to be measured, an analysis using the FCC database was performed to determine the TV broadcasters in the area surrounding the project which identified areas which could potentially be affected by the construction of the wind turbines (propagation obstruction, ghosting and multipath). Figures 4.1.1 through 4.1.10 show the test locations in relation to the wind energy facility area.

After the wind energy facility is built measurements can be made at all sites where signal blockage, multi-path, ghosting and/or electromagnetic noise is reported and/or suspected. These measurements will be compared to the baseline measurements reported here to determine whether the degraded affects are the result of the presence of the wind turbines. If the measurements and analysis verify signal blockage, multipath, ghosting and/or electromagnetic noise due to the wind turbines, additional consulting services can be provided to mitigate the conditions.

### 1.3 Constraints

The analysis in this report is based upon the following assumptions and constraints.

The test antenna pattern and gain are based on the information supplied by Channel Master for their Model 2101VHF/UHF/FM antenna.

It is assumed that during the measurement period all of the TV broadcast transmitters were active and operating at full transmit power for the licensed frequencies unless otherwise noted.

The signal identification and channels analyzed are based upon information obtained from FCC database.

All azimuths are in degrees true north.

The Video Quality was rated using the following criteria:

Analog Video Quality Criteria

1 Cable Quality- Perfect. > 1000 uv
2 Some noise but excellent picture. > 700 uv - < 1000 uv
3 Good quality, but noticeable sparkles. Good but not excellent. > 400 uv - < 700 uv
4 Fair quality, noticeable noise, sparkles, and distortion. >100 uv - < 400 uv
5 Intermittent video. Not viewable, unacceptable. < 100 uv
6 No detected video.

Digital Video Quality Criteria

No digital stations were on air and therefore not tested in this report.

## SECTION 2

## TEST PROCEDURE

### 2.1 Calibration

The equipment calibration was conducted according to the manufacturer procedures published in the equipment manual. A copy of which is included as Attachment 2. All fieldwork was conducted by Wells Farr who holds FCC license number PG-20-3845 and a Society of Broadcast Engineers certificate number CBT 23445.

## 2.2 Methodology

Upon arriving at the measurement site, coordinates were obtained using a GPS Receiver. The temperatures were about 30 degrees Fahrenheit. There was a covering of three inches of snow on the ground and no foliage on the deciduous trees. Whenever possible, readings were taken in a public location near a residential area. Figures 4.1.1 through 4.1.10 depict the test site locations. The on air measurements were taken over a 30 minute period on each site.

All readings were taken following the same procedure. Field Intensity measurements were taken using a Sencore Field Strength Meter Model FS 134, S/N 402459. The antenna used was a Channel Master Model 2101 VHF/UHF/FM bi-directional unity gain antenna, which has a slight figure eight pattern. This antenna was chosen as the best option to show a base line reading of off air signal without regard to specific antenna gain and/or amplifier usage. The antenna was aimed in the direction of the tested transmitter based on distance and bearing calculations from the GPS receiver. Feed line was 25 feet of RG 59 with factory crimped "F" connectors. The antenna was mounted on top of two five-foot sections of Radio Shack TV mast, which was U-bolted to the spare tire rack on the automobile (see photo 2.2.1). This arrangement put the antenna 12 feet above the ground. All of the Television Spectrum was scanned for signals but the television stations tested are as follows:

| Call Sign | Channel | City of License |
|---|---|---|
| WCAX TV | 3 | BURLINGTON, VT |
| WPTZ TV | 5 | NORTH POLE, NY |
| WVNY TV | 22 | BURLINGTON, VT |
| WETK TV | 33 | BURLINGTON, VT |
| WCFE TV | 57 | PLATTSBURGH, NY |

Readings were taken at the following locations:

| | |
|---|---|
| Ellenburg Depot | US Route 11 |
| Forrest | NY Route 190 & Alder Bend Rd. |
| Ellenburg | US Route 11 Town Hall Parking Lot |
| Clinton Mills | Clinton Mills Road Town Highway Dept |
| Churubusco | Clinton Mills Road Fire Station |
| Chateaugay | NY Route 374 Fire Station |

These locations were chosen based on the coverage areas of the stations, the project location and the location of the population centers. This is a very rural area, the number of populated areas are few. Some of the population areas are merely a small group of homes. It was determined we would take readings over a dispersed area to get a good representation of the current signal levels in the larger area. **The unique location of this project required fewer test locations since all areas to the North are in Canada and not under study.**

Photo 2.2.1
Field Test Vehicle and Antenna System.

## SECTION 3

## DATA PRESENTATION

The first section of the data presentation will focus on the raw data gathered from the field. There will be further presentation for each Television Station including maps.

### Site 1

**Hamlet of Ellenburg Depot – N. Branch Chazy River Public Access US Route 11**

Location 44 54' 22" N 073 46' 27" W 770' AMSL

Edge of small Village/Hamlet. Possible CATV system available. Some houses with rooftop antennas unkown if they were actively being used. Wx overcast temp around 30F. No foliage.

CH 3 No Useable Signal
CH 5 No Useable Signal
CH 22 100uv
CH 33 35uv w/noise
CH 57 800uv

### Site 2

**Forrest Int. Route 190/Alder Bend Road**

Location 44 52' 54"N 073 42' 55"W 818' AMSL

Intersection of two highways. Open level area, no homes nearby. Wx same as above. No foliage.

CH 3 40uv w/noise
CH 5 92uv
CH 22 90uv
CH 33 85uv w/noise
CH 57 400uv

## Site 3

### Ellenburg Town Hall US Route 11

Location 44 53' 38"N 073 50' 16"W 961' AMSL

Center of medium sized village. Possible CATV system available. Few if any home antennas noticed. Wx partial clearing temp about 28F. No foliage.

CH 3 No Useable Signal
CH 5 Weak audio – no meter reading
CH 22 55uv
CH 33 No Useable Signal
CH 57 500uv

## Site 4

### Clinton Mills Highway Dept Clinton Mills Road

Location 44 57' 23"N 073 54' 04"W 1129' AMSL

Town sand pile/transfer station. Very rural, few homes. Most with off air TV antennas, unknown if they were actively being used. Overcast and cold. Temp about 28F. Some softwoods, hardwoods no foliage.

CH 3 95uv
CH 5 88uv
CH 22 Weak audio – no meter reading
CH 33 58uv
CH 57 350uv

CH 2 130uv Canadian Station
CH 12 80uv Canadian Station

## Site 5

### Churubusco Fire Dept Clinton Mills Road

Location 44 57' 15"N 073 55' 39"W 1173' AMSL

Center of Hamlet of Churubusco next to large building. Several homes in the area. Some off air antennas, unkown if active. Wx Cold about 28F. Few trees hardwoods no foliage.

CH 3 85uv
CH 5 92uv
CH 22 160uv
CH 33 No Useable Signal
CH 57 90uv

CH 2 120uv Canadian Station- speaking French
CH 12 40uv Canadian Station

## Site 6

### Chateaugay Fire Dept NY Route 374

Location 44 55' 27N 074 04' 47W 1310' AMSL

Center of medium sized village. Several buildings in area. Possible CATV system. Wx cold about 30F.

CH 3 No Useable Signal
CH 5 No Useable Signal
CH 22 No Useable Signal
CH 33 No Useable Signal
CH 57 100uv

CH 12 350uv Canadian Station

## SECTION 4

## SUMMARY OF RESULTS

The following is the summary of results for each television station.

### Channel 3 WCAX

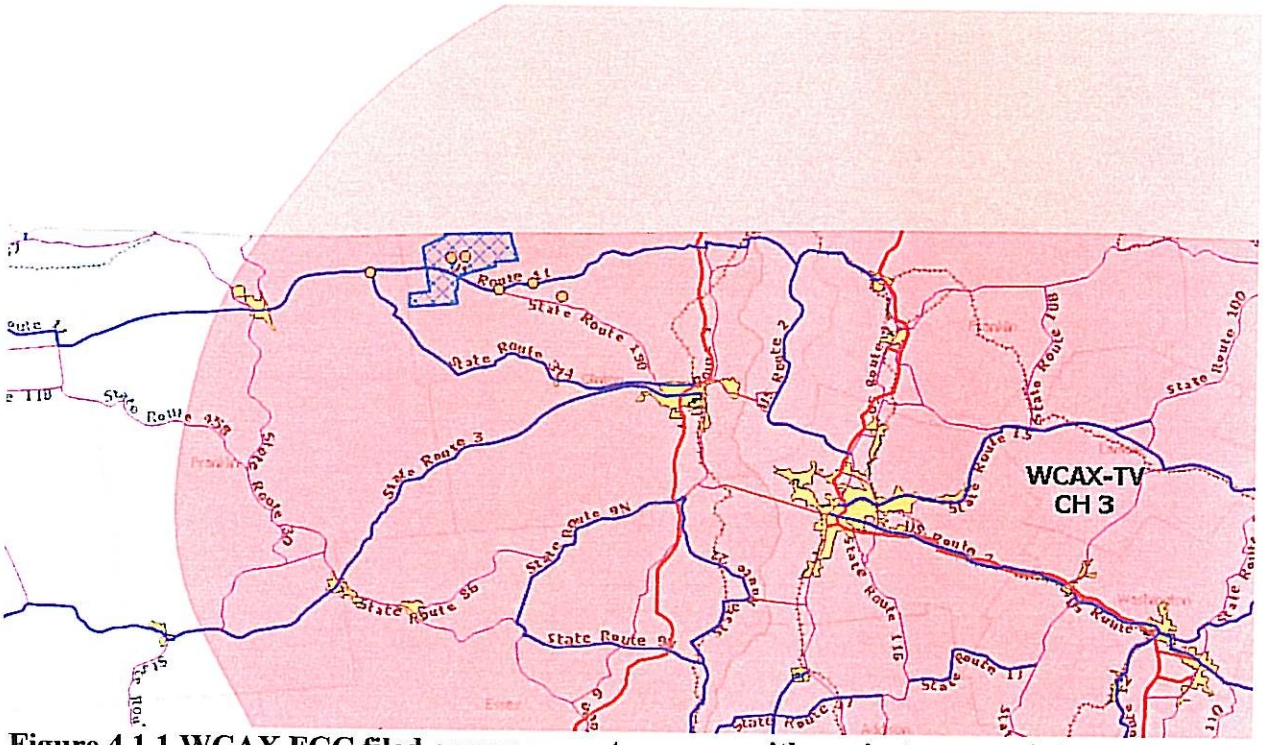



**Figure 4.1.1 WCAX FCC filed coverage contour map with project area and data collection points shown. The project area is outlined and hatched in royal blue.**

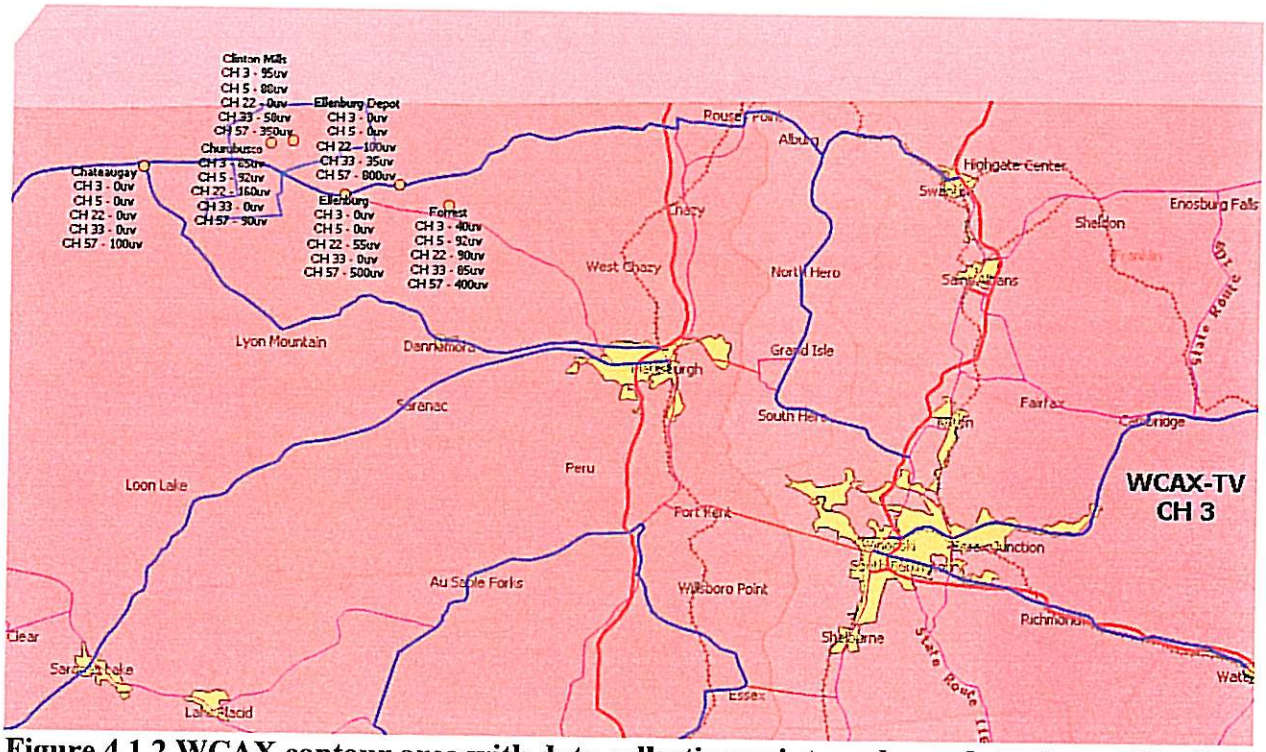



**Figure 4.1.2 WCAX contour area with data collection points and raw data shown. The light blue outline represents the project area.**

## Channel 5 WPTZ

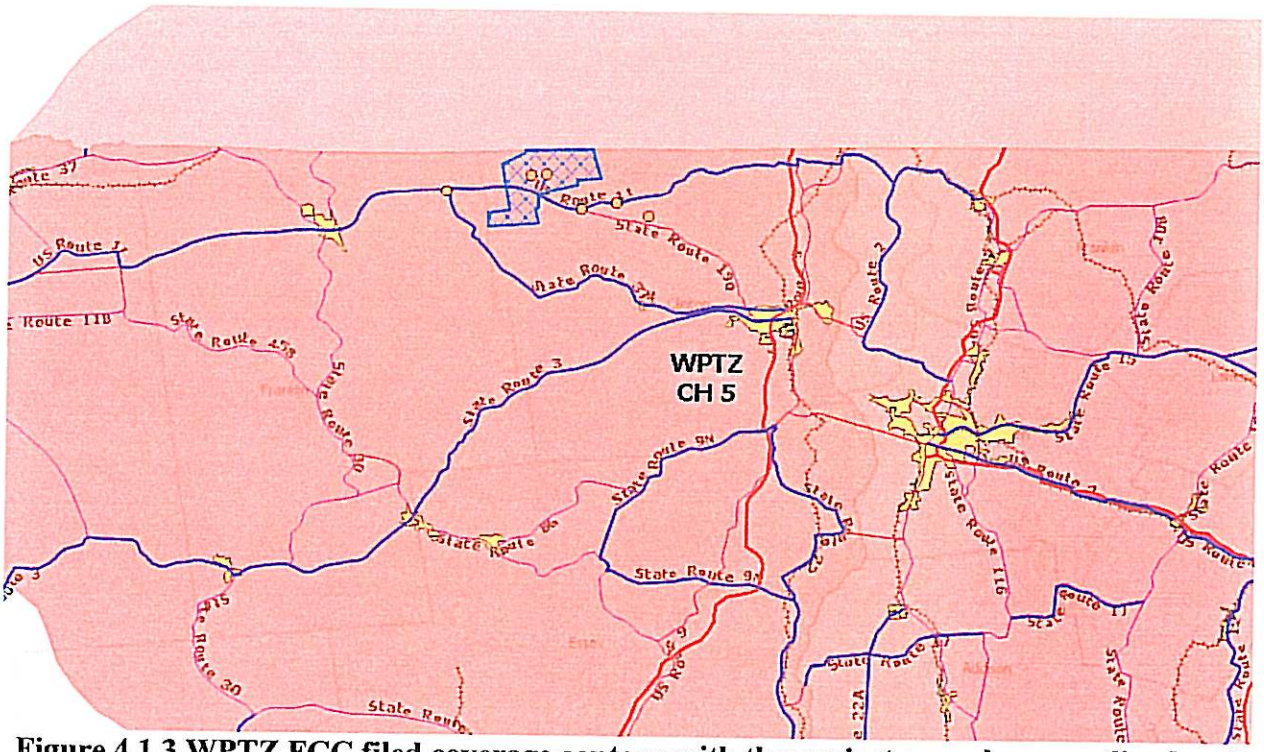



**Figure 4.1.3 WPTZ FCC filed coverage contour with the project area shown outlined and hatched in royal blue. The orange dots represent the data collection sites.**

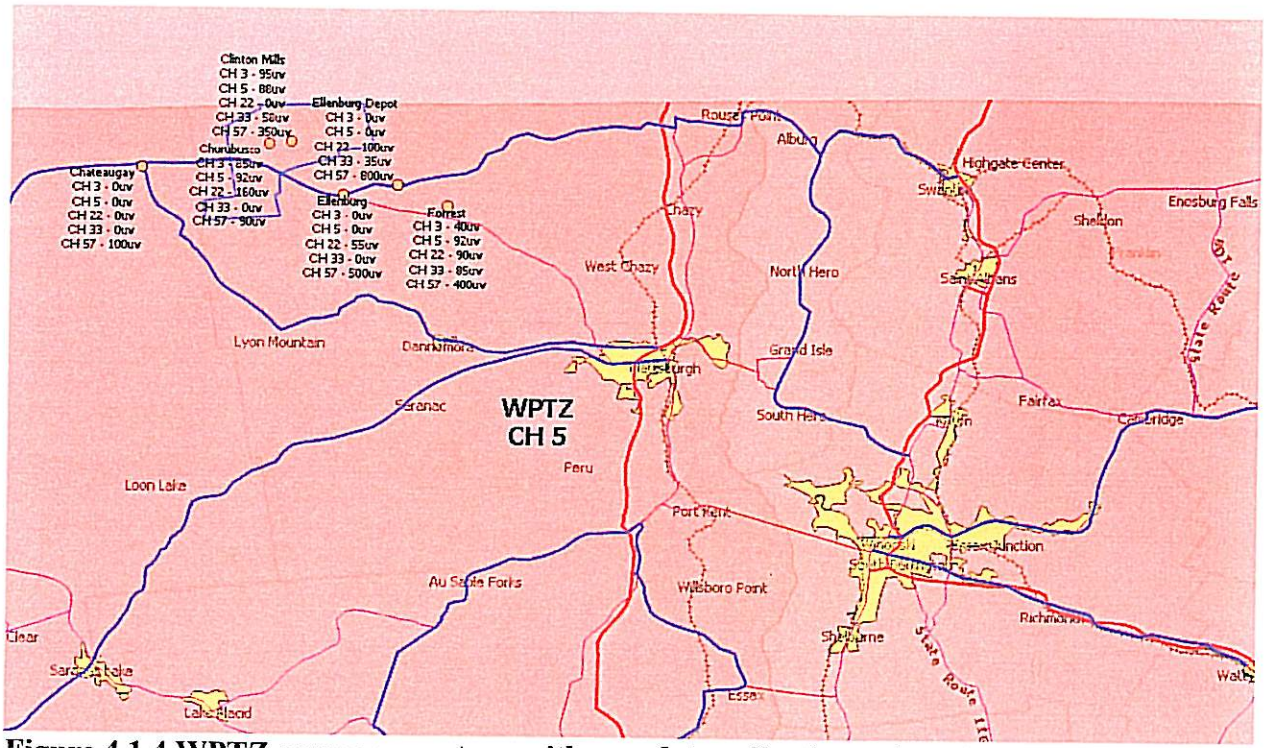



**Figure 4.1.4 WPTZ coverage contour with raw data collection points shown as orange dots, the light blue outline is the project area.**

## Channel 22 WVNY

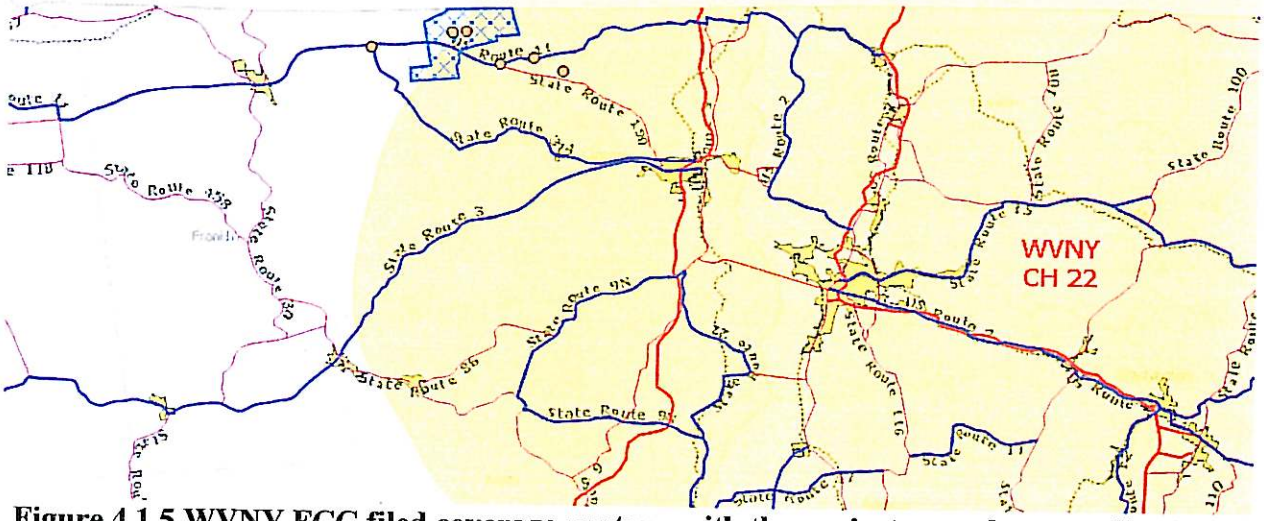



**Figure 4.1.5 WVNY FCC filed coverage contour with the project area shown outlined and hatched in royal blue. The orange dots represent the data collection sites.**

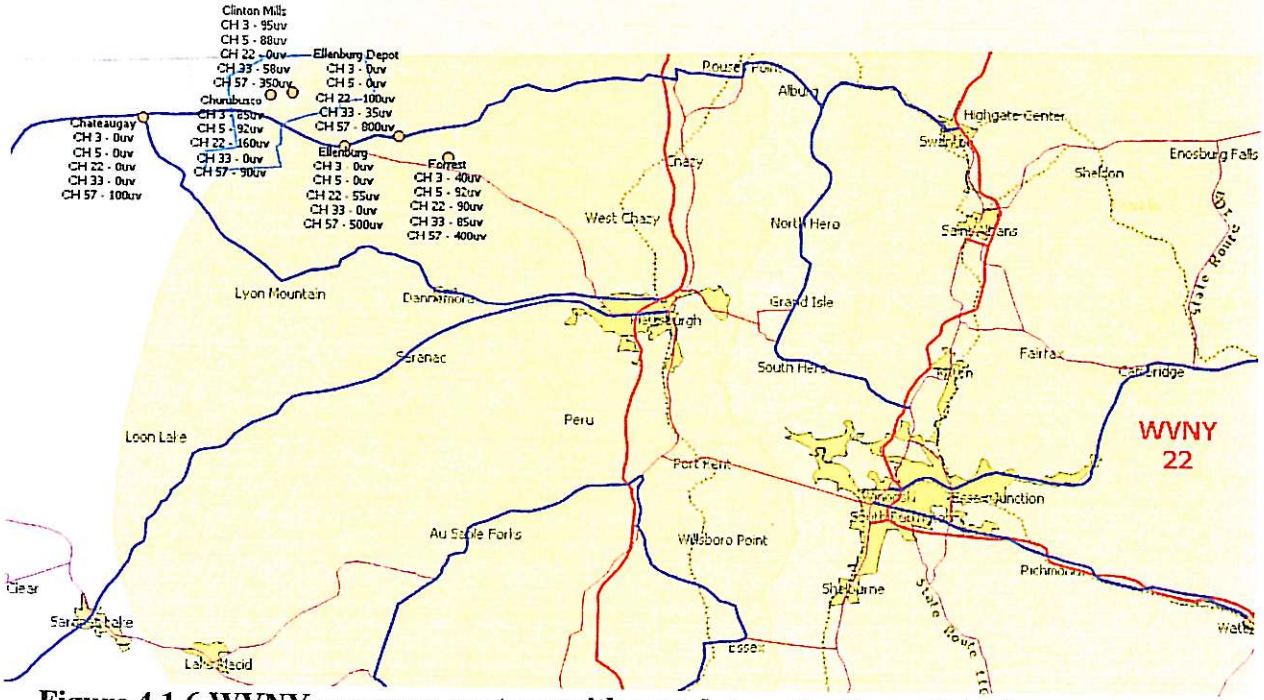



**Figure 4.1.6 WVNY coverage contour with raw data collection points shown as orange dots, the light blue outline is the project area.**

## Channel 33 WETK

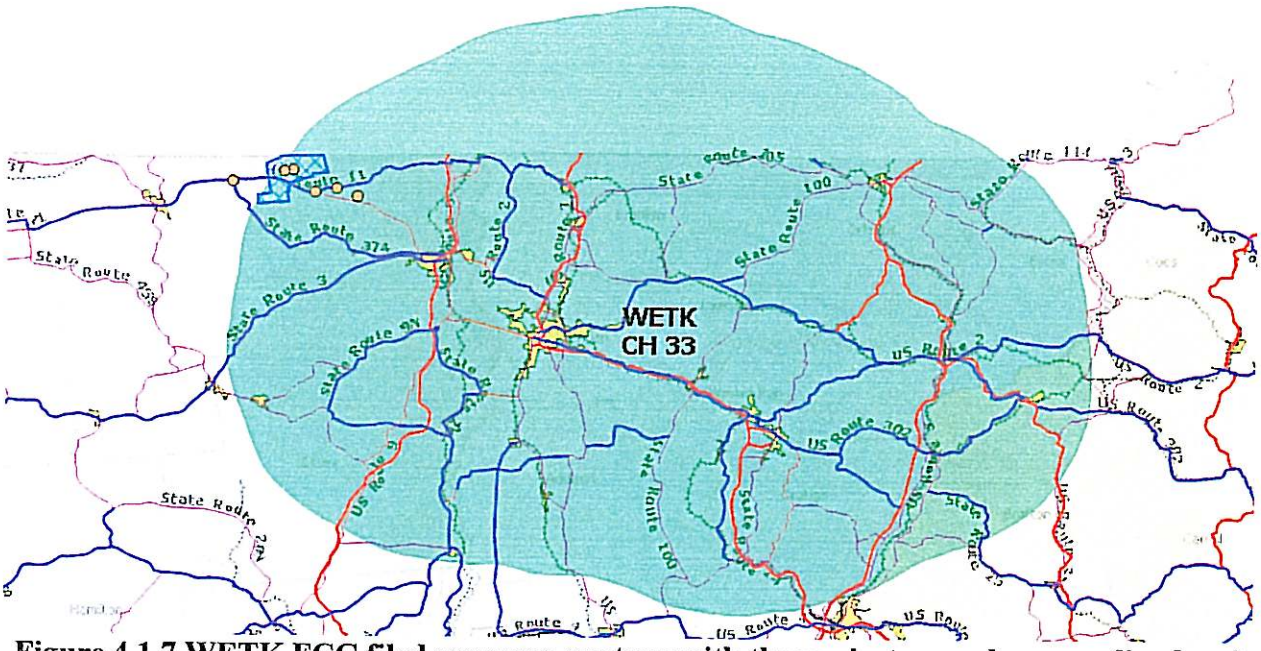



**Figure 4.1.7 WETK FCC filed coverage contour with the project area shown outlined and hatched in royal blue. The orange dots represent the data collection sites.**

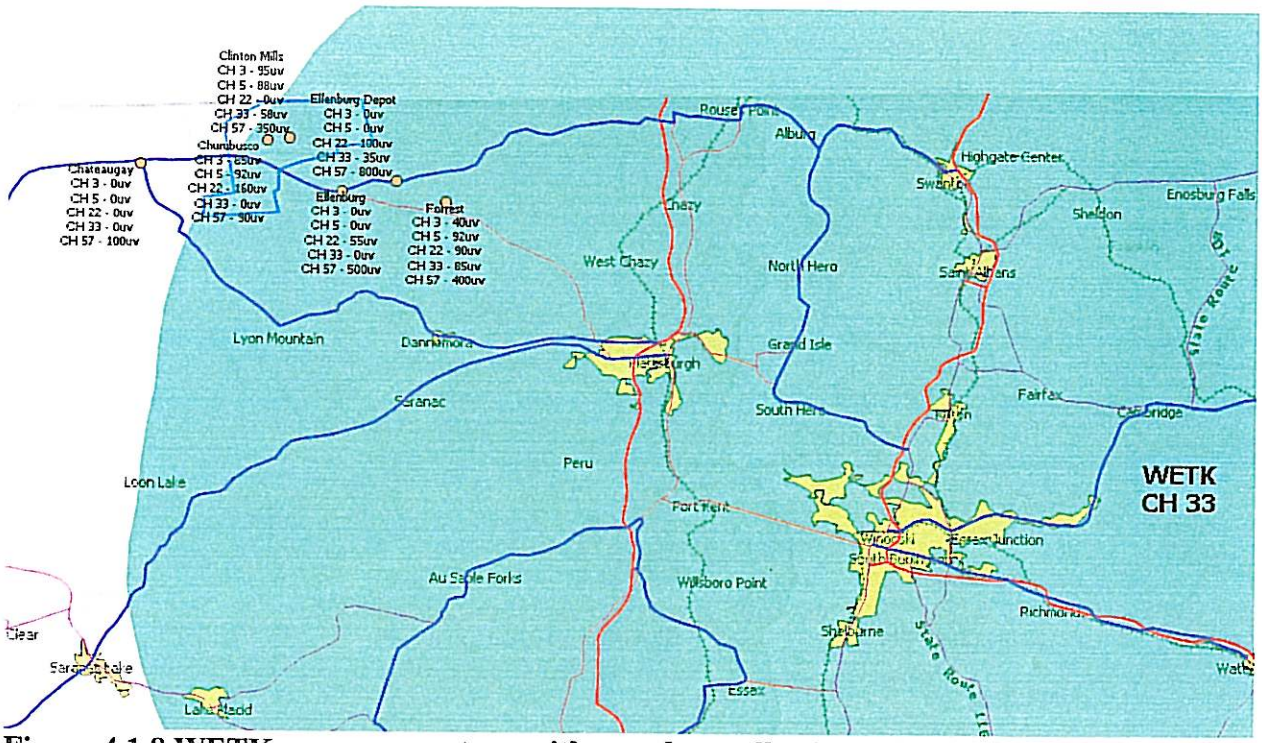



**Figure 4.1.8 WETK coverage contour with raw data collection points shown as orange dots, the light blue outline is the project area.**

## Channel 57 WCFE

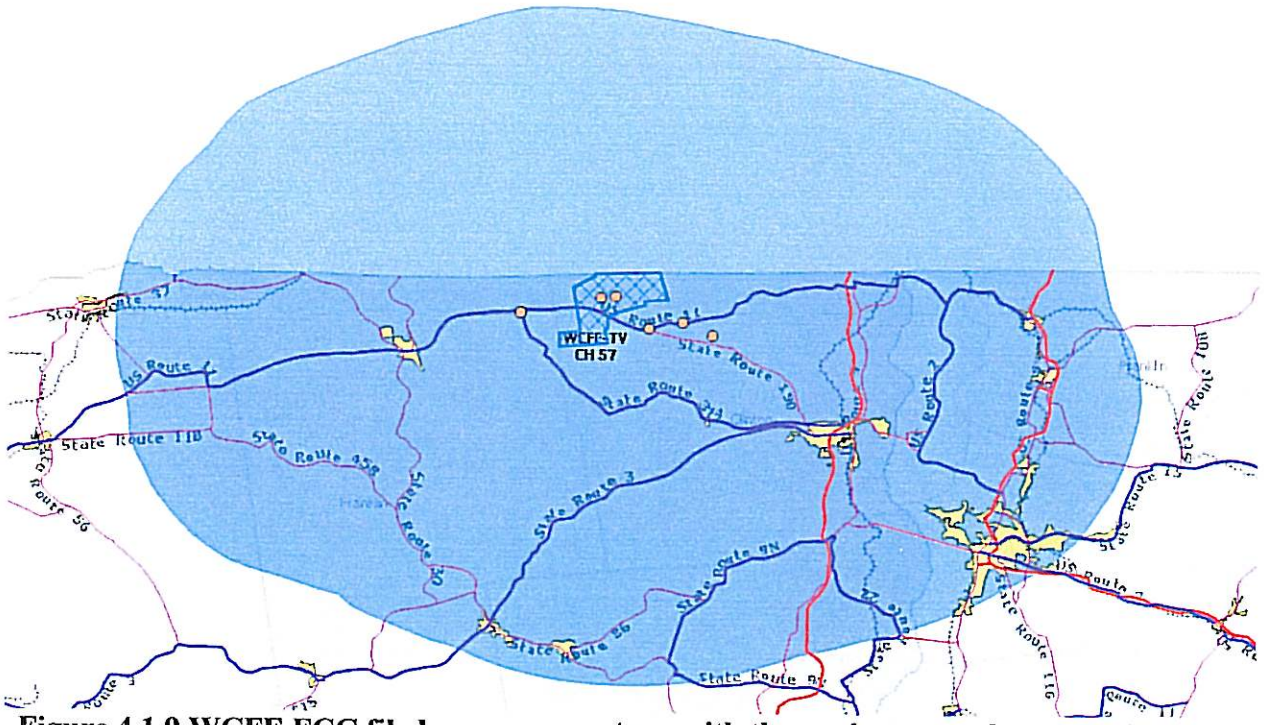



**Figure 4.1.9 WCFE FCC filed coverage contour with the project area shown outlined and hatched in royal blue. The orange dots represent the data collection sites.**

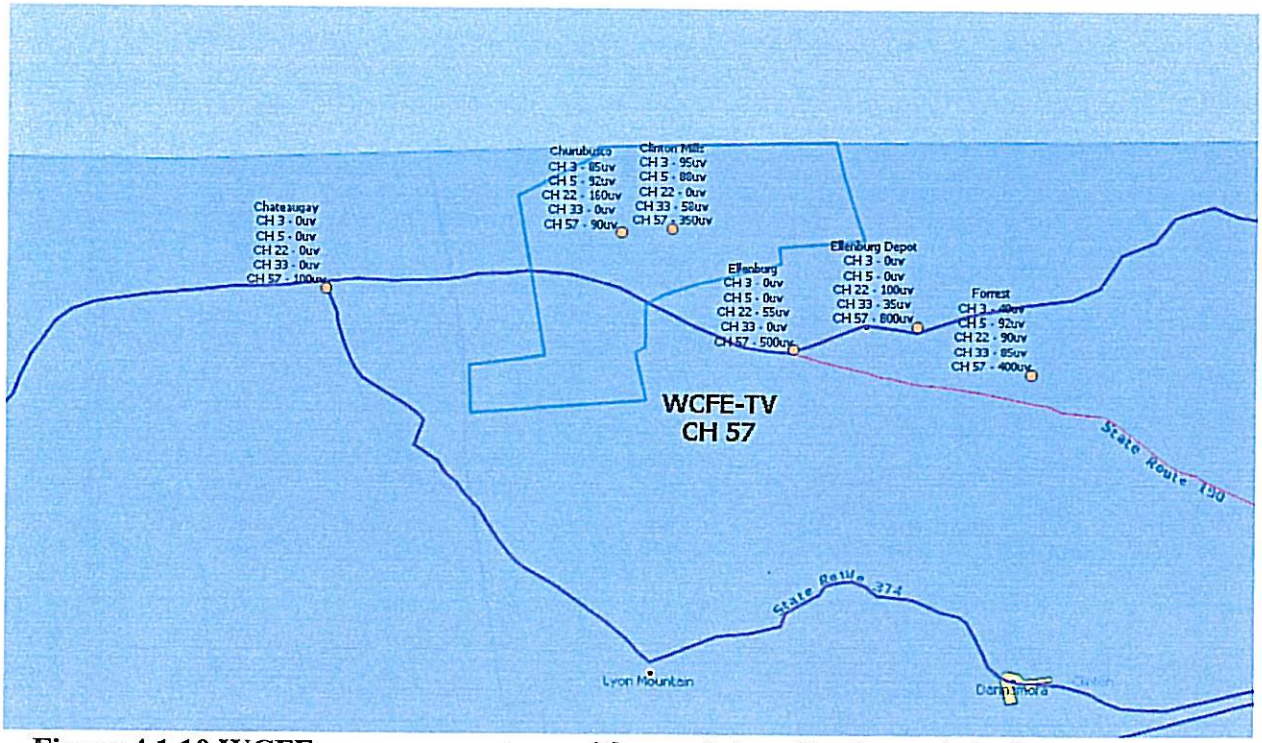



**Figure 4.1.10 WCFE coverage contour with raw data collection points shown as orange dots, the light blue outline is the project area.**

## SECTION 5

## CONCLUSIONS

The study area is a rural international border community. This particular wind project area is unique in the fact that it is located near the Canadian border. All of the Television stations studied are located to the South East of the project. This simplifies the area of concern for possible interference. With all of the signals originating from the same basic direction it creates a TV signal shadow area only to the North West of the proposed turbine locations. This is the area with the highest potential for interference (See figure 5.1.1).

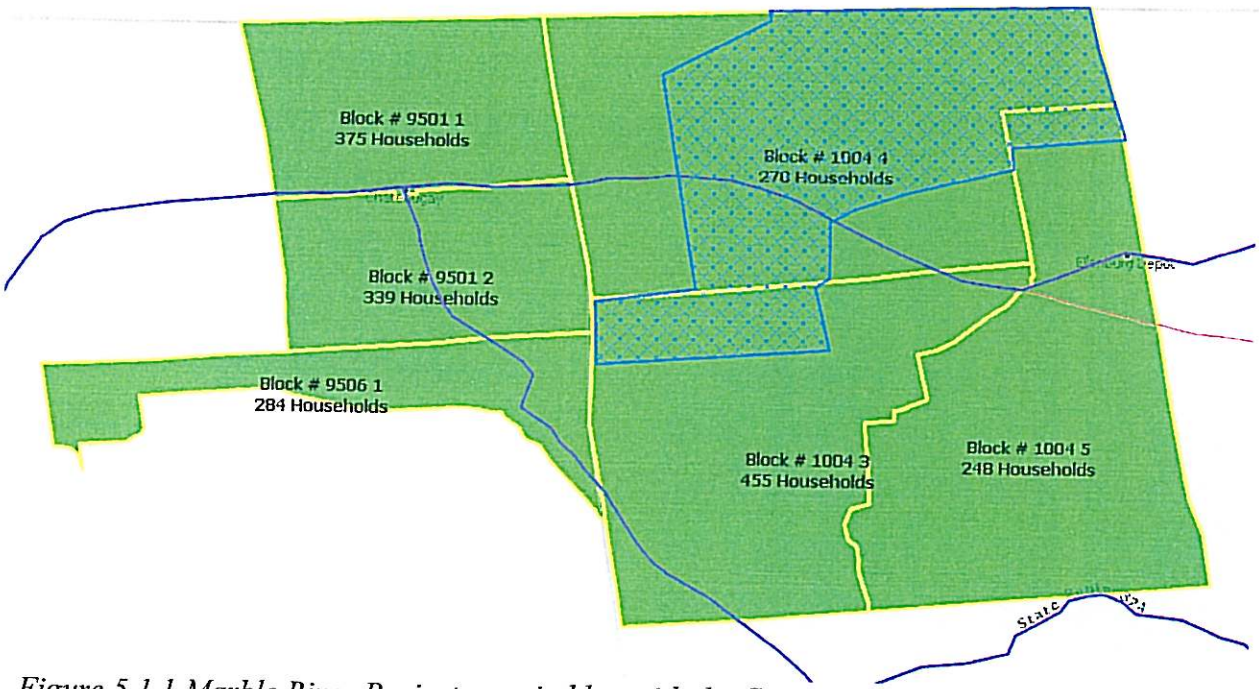



*Figure 5.1.1 Marble River Project area in blue with the Census Block Groups shown in green. Each Block Group is labeled by number and total households contained within that area.*

The immediate area surrounding the project was studied for number of households based on the 2000 Census by using the block group areas. These areas are shown in green in figure 5.1.1. Census block group #'s 1004 4, 9501 1 and 9501 2 fall within the major shadow area of the turbine project, the total households represented in those areas is 984. The exact location of the homes was not determined in this study, however, the likelihood that these homes would have interference would be based on their exact location, the station being viewed, their proximity to any wind turbines between the home and the TV transmitter and the final design of the turbine with regard to blade length and rotation speed. With the weak signals that were observed in the field, it would be very likely that these homeowners would be using cable TV if available and/or Satellite TV rather than off air antennas. To receive good quality signals in those areas, it would require an investment in proper antenna and/or amplifier systems.

# ATTACHMENTS

**ATTACHMENT 1 CITE: 47CFR73.685**
**[Page 222-224]**

**TITLE 47--TELECOMMUNICATION**
**PART 73--RADIO BROADCAST SERVICES--Table of Contents**
**Subpart E--Television Broadcast Stations**

Sec. 73.685 Transmitter location and antenna system.

(a) The transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, the following minimum field strength in dB above one uV/m will be provided over the entire principal community to be served:

| Channels 2-6 | Channels 7-13 | Channels 14-69 |
|---|---|---|
| 74 dBu | 77 dBu | 80 dBu |

(b) Location of the antenna at a point of high elevation is necessary to reduce to a minimum the shadow effect on propagation due to hills and buildings which may reduce materially the strength of the station's signals. In general, the transmitting antenna of a station should be located at the most central point at the highest elevation available. To provide the best degree of service to an area, it is usually preferable to use a high antenna rather than a low antenna with increased transmitter power. The location should be so chosen that line-ofsight can be obtained from the antenna over the principal community to be served; in no event should there be a major obstruction in this path. The antenna must be constructed so that it is as clear as possible of surrounding buildings or objects that would cause shadow problems. It is recognized that topography, shape of the desired service area, and population distribution may make the choice of a transmitter location difficult. In such cases, consideration may be given to the use of a directional antenna system, although it is generally preferable to choose a site where a nondirectional antenna may be employed.

(c) In cases of questionable antenna locations it is desirable to conduct propagation tests to indicate the field strength expected in the principal community to be served and in other areas, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations, the Commission may require site tests to be made. Such tests should be made in accordance with the measurement procedure in Sec.
73.686, and full data thereon must be supplied to the Commission. Test transmitters should employ an antenna having a height as close as possible to the proposed antenna height, using a balloon or other support if necessary and feasible. Information concerning the authorization of site tests may be obtained from the Commission upon request.

(d) Present information is not sufficiently complete to establish ``blanket areas" of television broadcast stations. A ``blanket area" is that area adjacent to a transmitter in which the reception of other stations is subject to interference due to the strong signal from this station. The authorization of station construction in areas where blanketing is found to be excessive will be on the basis that the applicant will assume full responsibility for the adjustment of reasonable complaints arising from excessively strong signals of the applicant's station or take other corrective action.

(Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303))

[28 FR 13660, Dec. 14, 1963, as amended at 35 FR 5693, Apr. 8, 1970; 40 FR 25461, June 16, 1975; 43 FR 53740, Nov. 17, 1978; 44 FR 22740, Apr. 17, 1979; 45 FR 26065, Apr. 17, 1980; 47 FR 35990, Aug. 18, 1982; 48 FR 21486, May 12, 1983; 50 FR 23701, June 5, 1985; 58 FR 44951, Aug. 25, 1993; 62 FR 51059, Sept. 30, 1997]

# ATTACHMENT 2: Field Strength Meter Calibration Manual

THE FS134 OFF-ON INDICATION. There are no pilot lights on the FS134, but there are two indicators, one is visual and the other an audible indication that the FS134 is on. The meter on the FS134, when the unit is on and no signal is fed to the input, will read negative or below the 30 microvolt line on the scale. Just glancing at the meter will tell if the unit is on. If a signal is present of course, the meter will read up scale and again you will be able to tell if the FS134 is on. The volume control on the FS134 cannot reduce the volume to zero, so there will always be either the signal sound or low background noise from the speaker. In this way Sencore has eliminated the power consuming pilot light and has provided more economical battery life.

## OPERATING INSTRUCTIONS

NOTE: THE METER WILL INDICATE BELOW THE 30 MICROVOLT MARK WHEN NO SIGNAL IS PRESENT.

The first and most basic requirement when attempting to measure the strength of signals received by an antenna or from an antenna distribution system is that the output impedance of the antenna or system is properly matched to the field strength meter. If there is any mismatch, standing waves are developed, which reduce the amount of signal actually received by the meter and, of course, the meter indication will not be accurate. ALWAYS BE SURE THAT YOU USE THE CORRECT IMPEDANCE LINE OR CABLE FOR THE ANTENNA OR SYSTEM YOU ARE WORKING WITH AND THAT YOU CONNECT TO THE CORRECT INPUT ON THE FS134. Cables with 75 ohms impedance (from a straight dipole antenna, for example) should always be connected to the 75ohm input jacks (X1, X10 or X100). Three hundred ohm twin lead from a folded dipole antenna should always be connected to the matching transformer input and the short 75 ohm jumper cable used to connect the output of the transformer to the appropriate 75 ohm input jack.

With the input properly connected turn the BAND switch to the desired band, push the OFF-ON switch to CAL and with the tuning dial set to a point where no signal is present, adjust the CAL control until the meter reads at the CAL line. Push the OFF-ON switch to ON, and you are now ready to measure signal strength.

Measuring Signal Strength With the FS134. Rotate the tuning control to the approximate frequency of the signal to be measured and observe the meter indication. Rotate the tuning control about this point slowly to obtain a maximum meter indication. If the indication is past full scale on the meter, feed the signal into the next higher attenuator, X10 or X100 to obtain a lower meter reading. Then repeat the tuning procedure until a maximum meter indication is obtained. You can read the meter directly if 75 ohm coaxial cable is used or multiply by 2 if 300 ohm twin lead is used. Then this reading must be multiplied by the attenuator used. For example, 75 ohm coaxial cable plugged into the X10 jack produces a reading of 245 microvolts. This will be 245 X 10 or 2450 microvolts. If 300 ohm twin lead is used giving a signal strength of 350 microvolts in the X1 jack, the signal would be 350 X 2 X 1 or 700 microvolts, total signal. When using 300 ohm twin lead connected to binding posts, the meter reading must be multiplied by 2 to get the correct value of signal strength. For greater accuracy the product must be multiplied by the conversion factor found in the chart below, which takes into account the losses of the matching transformer. For the average antenna installation, however, it is not necessary to multiply by the conversion factor. On 75 ohm coaxial cable input, read the meter direct.



Matching Transformer Conversion Factor

Low VHF Band (Channels 2-6-FM) Multiply by 1.1
High VHF Band (Channels 7-13) Multiply by 1.4
UHF Band (Channels 14-83) Multiply by 3.0

If by chance in the X1 jack some signals read beyond full scale there is no danger of damaging the meter, because the AGC system will hold the meter current at a safe level.

UHF Signal Strength Measurement. UHF signals are measured the same as above except that all lead-ins, terminations, etc. are much more critical that at VHF and the finest care must be taken to see that the cables are terminated properly, cable connectors are tight, cables and lead-ins held well away from metal surfaces etc. It is much more difficult to obtain accurate measurements in the UHF band, so every precaution you take will make the reading that much more accurate.

One big advantage at UHF is that although high signal levels are harder to come by, noise is also down, resulting in good quality pictures at UHF at lower signal levels than the same quality picture at VHF requires.

Tuning the FS134 to Monitor Sound Signals. Most RF signals can be heard through the speaker on the FS134 although the sound may not be that of voice or music. For example, the signals from the video portion of a TV signal contain a low frequency (60 cycle) buzzing sound. However, the speaker is mainly intended for identifying intelligible sounds such as voice or music. When tuning in an FM station or the sound of a TV signal, the best sound will occur as the meter indication drops off slightly and will occur at either side of the peak reading. This is a normal condition because slope detection is used in the FS134 sound system. On the video carrier of a TV signal the maximum 60 cycle buzzing sound will be loudest when the meter is at its peak indication, because the video carrier is amplitude modulated (AM).

Turning the volume control clockwise will increase the sound output. It is suggested that you keep the sound output as low as useable, or off, when not using the sound signal to keep the drain on the batteries as low as possible.

Spurious Responses. Although the image rejection ratio for the FS134 is over 100 to 1 on the VHF TV bands it is possible for a "local" signal at the image frequency to be of sufficient strength to be heard in the speaker and produce a meter reading when feeding the signal through the X1 input. Therefore, if possible, feed the signal through the X10 or X100 input jacks and spurious responses, such as this, will be virtually non-existant. This also applies for UHF signal measurements.

Noise Level in the FS134. The FS134 circuits were designed to keep inherent noise at a minimum, however external noise pickup by the antenna will be amplified and received the same as an RF signal. Therefore in extremely noisy areas the FS134 meter may produce random meter indications caused by noise. The only alternative is to move the antenna to a less noisy location. In doing so, this will also improve the FM, VHF, or UHF reception.

Determining the Frequency of a Received Signal. The frequency of any signal may be read directly from the tuning dial. Set the tuning control for maximum meter indications and read the frequency at the point on the tuning dial where the cross hair passes through the frequency indication marks on the tuning dial. The FM band and the VHF TV bands are on the top of the dial, and the UHF TV band is on the lower half of the dial.

Use of Detector Output Jack. The DET OUT jack on the front panel of the FS134 is provided so that the detected video signal may be monitored with an oscilloscope or external meter if desired. It is especially useful when checking boosters or antenna amplifiers to see if these units are overloading on one or more channels causing a loss of sync or sync compression or if they are causing cross modulation in the other weaker channels.

## FACTS YOU SHOULD KNOW FOR BEST USAGE OF THE FS134

Before putting the FS134 to work let's review briefly some facts concerning the transmission and receiving of VHF and UHF TV signals, and FM signals. The whole business seems quite confusing when you hear such terms as: microvolt signal strength, field intensity in microvolts per meter, antenna systems with so many DB gain, DB, DBM, DBJ, 75 ohm coax, 300 ohm twin lead, mismatch, standing wave ratio (SWR), pads, losses, matching transformers, and many others. Let's see if we can straighten some of this out.

We stated earlier the importance of matching the impedance of an antenna to the input of a receiver and talked about SWR losses if this were not done properly. As you know a straight dipole antenna has a characteristic impedance of 75 ohms and a folded dipole antenna has a characteristic impedance of 300 ohms. Most of the antenna arrays that have been manufactured over the years were designed for 300 ohm impedance, although recently some new arrays are being designed for 75 ohm impedance.

The importance of all this is that the lead-in from the antenna must have the same impedance as the antenna, and the impedance of the lead-in must match the input of the receiver, or points of mismatch will occur. Connections that are mismatched will not pass the entire signal, but rather will reflect a part of the signal back up the line. If there are two or more mismatched connections signals can actually bounce back and forth several times. When some of the signal is reflected due to mismatch, standing waves occur. This condition is referred to in terms of the standing wave ratio (SWR) which can be calculated by dividing the sum of the two signals (original signal and reflected signal) when they are in phase by the sum of the two signals when they are out of phase. The closer that the SWR ratio is to 1.0 the better the match.

It is possible to change from one impedance to another with very little mismatch, by using pads or matching transformers. A matching transformer generally called a Balun is actually an impedance transforming device that will convert a 300 ohm BALanced input to a 75 ohm UNbalanced output or vice versa. It consists of two short lengths of 150 ohm twin line that are connected in series on one end and in parallel on the other. The 150 ohm lines may be wound around a coil form,



or in some cases are wound on a ferrite core.

Pads are resistive networks that can be designed to match one impedance to another, although you may be more familiar with them as attenuation pads with the same input and output impedances designed for a specific DB attenuation. It is well to note that any pad, whether it is designed specifically for attenuation or for matching two impedances, will always introduce some loss. Impedance matching pads are generally designed for a 6DB loss for ease of calculations in use, since 1/2 of the input voltage will appear at the output.

## FIELD INTENSITY AND SIGNAL STRENGTH

Transmitted signals fill the air around us. Each station has a plot of their field intensity pattern in terms of microvolts per meter for the surrounding country side. This field intensity figure is the voltage induced in a conductor one meter long as the magnetic flux of the transmitted wave passes through the conductor at the speed of light. Field intensity measurements can be made with the FS134 (see procedure on page 12).

Do not confuse signal strength in microvolts with field intensity above. The strength of a received signal is dependent on the antenna array, and how much signal the antenna can pick up from the field intensity pattern. A well designed array will be able to pick up much more signal than a straight dipole, for example.

Since some antennas are more effective than others a means of rating them had to be devised. The straight dipole was chosen as the reference, and all other antennas are compared against it. Therefore an antenna array with 20DB gain would "collect" ten times the amount of signal voltage that a straight dipole would collect.

The strength of received signals is generally referred to in terms of microvolts or DB. Microvolts by itself has very little meaning unless you also consider the impedance that the voltage is developed across. In other words, it is the received power that is important, but since we are always dealing with either 75 ohm or 300 ohm impedance, we can and do get by with just the voltage term. For example, consider a 300 ohm antenna array that is receiving a 1000 microvolt signal. The signal power would be $E^2$ R and would equal .0033 micro-watts. Now let's assume that you would like to use a 75 ohm coax lead-in. You would place a matching transformer on the antenna mast to convert 300 ohms to 75 ohms. Assuming no losses in the matching transformer you would find that the output voltage of the transformer would equal the square root of .0033 micro-watts times 75 ohms or 500 microvolts. Notice that the microvolts at 75 ohms is just half of the microvolts at 300 ohms, yet in both cases the power is the same. The FS134 is calibrated for a 75 ohm input, therefore, when using the built-in matching transformer for 300 ohm input you must multiply the microvolt reading by two.

Once a signal is received and is amplified in a booster or experiences losses in cables, pads, etc., the voltage figures resulting become so large and cumbersome that the more convenient DB term is used. A big advantage is that gains and losses of a system expressed in terms of DB can be added or subtracted directly making calculations more simple.

To establish a DB scale, however, some reference must be used. The TV industry has agreed that 1000 microvolts across 75 ohms would be a good zero DB reference, since a signal of this strength will produce a good quality picture. Terms such as DBJ and DBM are expressions of this reference.

You may recall the formula for calculating DB when you know the input and output voltages, keeping in mind that the input and output impedances must be the same.

$$DB = 20 \log \frac{E \text{ out}}{E \text{ in}}$$

# Marble River Wind Project
# 100 Mile Television Station Search Report

Brian Webster Consulting
214 Eggleston Hill Rd.
Cooperstown, NY 13326
(518) 207-0036

# Introduction

Brian Webster was contracted by Environmental Design & Research, P.C. (EDR) to conduct a Television Station study for the proposed Marble River Wind Project (study area) in Clinton County, New York. The scope was to provide a report showing all of the licensed television stations within a 100-mile radius of the project. This report summarizes all applications and granted licenses within a 100-mile radius of the project centroid point, as reported from the Federal Communications Commission (FCC) database.

# Report Summary

This report summarizes all applications and granted licenses within a 100-mile radius of the project centroid point, as reported from the FCC database. There are both Canadian and US stations listed. The Canadian information is listed as a matter of record. In the report there are maps showing the coverage contour (depicted as a black line surrounds the respective station) of each US station and/or station pending application approval. These contours represent the radio energy in a perfect world scenario and do not account for all conditions that could block the signal within the contour line.

Of the 40 records revealed during the 100-mile radius search, 26 are Canadian, 7 are US licensed stations and the other 7 represent either applications or construction permits. Within the licensed stations 5 have contour lines that fall within the project area. They are:

| | |
|---|---|
| WCAX-TV | Ch. 3 Burlington VT |
| WPTZ | Ch. 5 North Pole NY |
| WVNY | Ch. 22 Burlington VT |
| WETK | Ch. 33 Burlington VT |
| WCFE-TV | Ch. 57 Plattsburg NY |

From the initial viewing of the contour maps it would appear the project area falls in the weak coverage areas for all of the stations. Persons wishing to view them off the air would need high gain outdoor directional antennas pointed directly at the particular transmitter site. Unless a wind turbine were in the direct path between the viewer and the TV transmitter, it is very unlikely that there will be an effect on the broadcast signal. This is just a general observation; to further qualify that statement more data and fieldwork would be required. As further clarification, all of the stations in question are located to the East or South East of the project area. The potential shadow area that would be created by the proposed project is very small and encompasses a rural area that located along the Canadian border. The number of households that could be affected given the right conditions would be very small.

# Marble River 100-Mile Radius Search - TV Stations

**Search Parameters**

Service: TV
Record type:
Search radius: 161.00 km
Center lat / lon: N 44 55 52.00 W 73 54 36.00
Lower Channel 2
Upper Channel 69

CBFT QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 2 54 - 60 MHz Licensed
File No.: --- Facility ID number: 98358
CDBS Application ID No.: 304166

45° 30' 20.00" N Latitude
73° 35' 32.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 100. | kW ERP |
| Antenna Height Above Average Terrain: | 276. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

68.55 km (42.59 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 21.18° using the method in Section 73.208 of calculating distance. (Reverse bearing 201.40°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

WCAX-TV VT BURLINGTON USA

Licensee: MT. MANSFIELD TELEVISION, INC.
Service Designation: TV NTSC (analog) television station

Channel: 3 60 - 66 MHz Licensed
File No.: BLCT-2229 Facility ID number: 46728
CDBS Application ID No.: 304262

44° 31' 36.00" N Latitude Site in Canadian Border Zone
72° 48' 57.00" W Longitude (NAD 27)

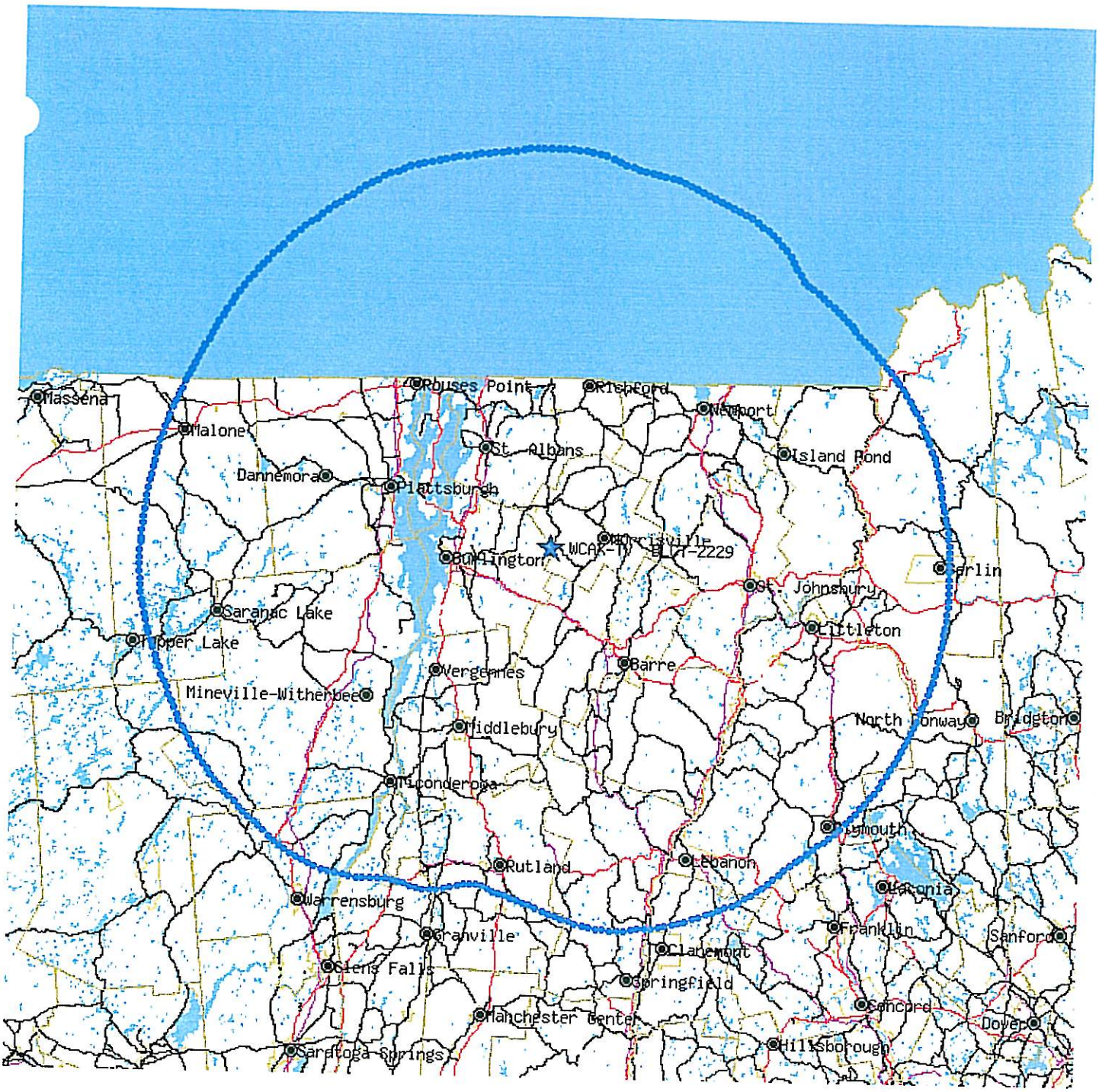
| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 38. | kW ERP |
| Antenna Height Above Average Terrain: | 835. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 1265. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 2
Frequency Offset: 0 (zero)

97.64 km (60.67 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 117.10° using the method in Section 73.208 of calculating distance. (Reverse bearing 297.87°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

CDBS: Station Info Application Info Mailing Address Assignments and Transfers Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (47 dBu) Alternate Map Link


Massena
Malone
Dannemora
Rouses Point
Richford
Newport
St. Albans
Island Pond
Plattsburgh
WCAX-TV
BLT-2229
Burlington
Barlin
St. Johnsbury
Saranac Lake
Littleton
Tupper Lake
Barre
Vergennes
Mineville-Witherbee
Middlebury
North Conway
Bridgton
Ticonderoga
Rutland
Lebanon
Warrensburg
Granville
Franklin
Sanford
Glens Falls
Springfield
Manchester Center
Concord
Dover
Saratoga Springs
Hillsborough

CHOYTV QC ST-JEROME Canada

Service Designation: TV NTSC (analog) television station

Channel: 4 66 - 72 MHz Licensed
File No.: --- Facility ID number: 98513
CDBS Application ID No.: 304525

45° 46' 41.00" N Latitude
74° 00' 11.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 0.047 | kW ERP |
| Antenna Height Above Average Terrain: | 20. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

94.41 km (58.66 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 355.62° using the method in Section 73.208 of calculating distance. (Reverse bearing 175.55°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

WPTZ NY NORTH POLE USA

Licensee: HEARST-ARGYLE STATIONS, INC.
Service Designation: TV NTSC (analog) television station

Channel: 5 76 - 82 MHz Licensed
File No.: BLCT-2059 Facility ID number: 57476
CDBS Application ID No.: 304605

44° 34' 26.00" N Latitude Site in Canadian Border Zone
73° 40' 29.00" W Longitude (NAD 27)

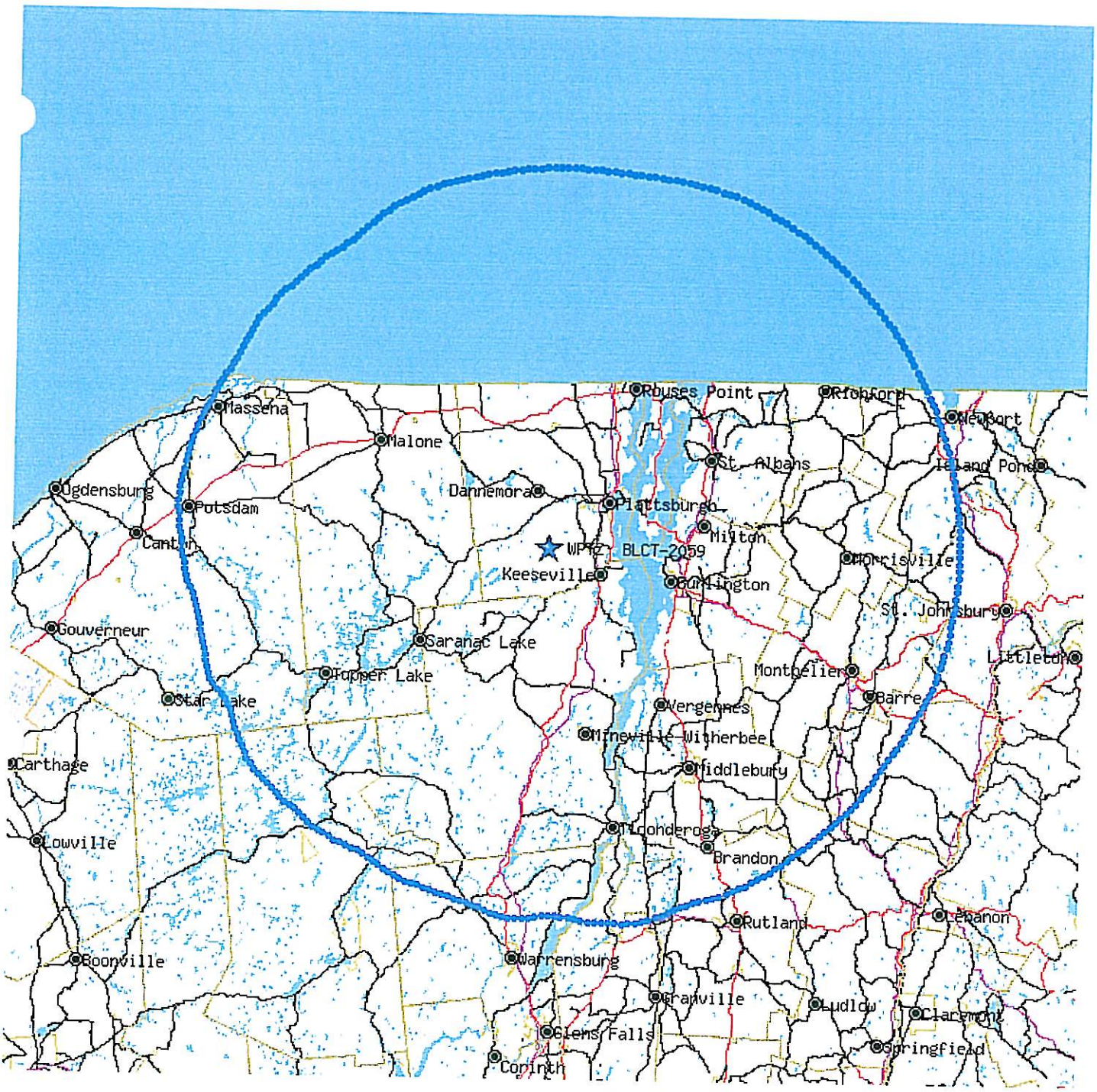
| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 25.1 | kW ERP |
| Antenna Height Above Average Terrain: | 607. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 916. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 2
Frequency Offset: 0 (zero)

43.85 km (27.25 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 154.85° using the method in Section 73.208 of calculating distance. (Reverse bearing 335.02°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

CDBS: Station Info Application Info Mailing Address Assignments and Transfers
Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (47 dBu) Alternate Map Link


Rouses Point
Massena
Malone
St. Albans
Ogdensburg
Potsdam
Dannemora
Plattsburgh
Milton
WPTZ BLCT-2059
Keeseville
Burlington
Morrisville
Gouverneur
Saranac Lake
Tupper Lake
Star Lake
Vergennes
Middlebury
Carthage
Lowville
Ticonderoga
Brandon
Rutland
Boonville
Warrensburg
Granville
Ludlow
Glens Falls
Corinth
Springfield

CBMT QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 6 82 - 88 MHz Licensed
File No.: --- Facility ID number: 98656
CDBS Application ID No.: 304890

45° 30' 20.00" N Latitude
73° 35' 32.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 100. | kW ERP |
| Antenna Height Above Average Terrain: | 250. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: + (plus)

68.55 km (42.59 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon,
at a bearing of 21.18° using the method in Section 73.208 of calculating distance.
(Reverse bearing 201.40°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

CHLTTV QC SHERBROOKE Canada

Service Designation: TV NTSC (analog) television station

Channel: 7 174 - 180 MHz Licensed
File No.: --- Facility ID number: 98743
CDBS Application ID No.: 305154

45° 18' 43.00" N Latitude
72° 14' 32.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 300. | kW ERP |
| Antenna Height Above Average Terrain: | 585. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

137.88 km (85.68 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 71.48° using the method in Section 73.208 of calculating distance. (Reverse bearing 252.66°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

CJOHTV8 ON CORNWALL Canada

Service Designation: TV NTSC (analog) television station

Channel: 8 180 - 186 MHz Licensed
File No.: --- Facility ID number: 96839
CDBS Application ID No.: 300997

45° 10' 35.00" N Latitude
74° 31' 38.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 260. | kW ERP |
| Antenna Height Above Average Terrain: | 188. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: + (plus)

55.74 km (34.64 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon,
at a bearing of 299.58° using the method in Section 73.208 of calculating distance.
(Reverse bearing 119.14°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

CKSHTV QC SHERBROOKE Canada

Service Designation: TV NTSC (analog) television station

Channel: 9 186 - 192 MHz Licensed
File No.: --- Facility ID number: 96815
CDBS Application ID No.: 300931

45° 18' 43.00" N Latitude
72° 14' 32.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 325. | kW ERP |
| Antenna Height Above Average Terrain: | 607. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

137.88 km (85.68 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 71.48° using the method in Section 73.208 of calculating distance. (Reverse bearing 252.66°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

CFTMTV QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 10 192 - 198 MHz Licensed

File No.: --- Facility ID number: 97056

CDBS Application ID No.: 301557

45° 30' 20.00" N Latitude

73° 35' 32.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 325. | kW ERP |
| Antenna Height Above Average Terrain: | 296. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1

Frequency Offset: 0 (zero)

68.55 km (42.59 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 21.18° using the method in Section 73.208 of calculating distance. (Reverse bearing 201.40°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00

Antenna Make: - Antenna Model: -

- ON OTTAWA Canada

Service Designation: TV NTSC (analog) television station

Channel: 11 198 - 204 MHz Application
File No.: --- Facility ID number: 97395
CDBS Application ID No.: 303608

45° 21' 2.00 " N Latitude
75° 16' 13.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 130. | kW ERP |
| Antenna Height Above Average Terrain: | 206. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: + (plus)

116.71 km (72.52 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 294.09° using the method in Section 73.208 of calculating distance. (Reverse bearing 113.13°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

CBFT1 QC MONT-TREMBLANT Canada

Service Designation: TV NTSC (analog) television station

Channel: 11 198 - 204 MHz Licensed
File No.: --- Facility ID number: 97119
CDBS Application ID No.: 301808

46° 13' 10.00" N Latitude
74° 33' 11.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 5.6 | kW ERP |
| Antenna Height Above Average Terrain: | 502. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 2
Frequency Offset: 0 (zero)

151.73 km (94.28 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 340.97° using the method in Section 73.208 of calculating distance. (Reverse bearing 160.51°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

CFCFTV QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 12 204 - 210 MHz Licensed
File No.: --- Facility ID number: 97206
CDBS Application ID No.: 302013

45° 30' 20.00" N Latitude
73° 35' 32.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 325. | kW ERP |
| Antenna Height Above Average Terrain: | 296. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

68.55 km (42.59 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 21.18° using the method in Section 73.208 of calculating distance. (Reverse bearing 201.40°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

NEW ON OTTAWA Canada

Service Designation: TV NTSC (analog) television station

Channel: 14 470 - 476 MHz Application
File No.: BPFS-- Facility ID number: 159121
CDBS Application ID No.: 673660

45° 13' 1.00 " N Latitude
75° 33' 51.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 435. | kW ERP |
| Antenna Height Above Average Terrain: | 202.3 | meters HAAT |
| Antenna Height Above Mean Sea Level: | 291. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: - (minus)

134.08 km (83.31 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 284.33° using the method in Section 73.208 of calculating distance. (Reverse bearing 103.16°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00

CBFT10 QC STE-ADELE Canada

Service Designation: TV NTSC (analog) television station

Channel: 15 476 - 482 MHz Licensed
File No.: --- Facility ID number: 97449
CDBS Application ID No.: 302510

45° 54' 42.00" N Latitude
74° 06' 44.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 1.74 | kW ERP |
| Antenna Height Above Average Terrain: | 222. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

110.12 km (68.43 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 351.84° using the method in Section 73.208 of calculating distance. (Reverse bearing 171.69°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

CIVMTV QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 17 488 - 494 MHz Licensed
File No.: --- Facility ID number: 97553
CDBS Application ID No.: 302683

45° 30' 20.00" N Latitude
73° 35' 32.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 1334. | kW ERP |
| Antenna Height Above Average Terrain: | 300. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

68.55 km (42.59 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 21.18° using the method in Section 73.208 of calculating distance. (Reverse bearing 201.40°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

WNPI-TV NY NORWOOD USA

Licensee: ST. LAWRENCE VALLEY EDUCATIONAL TV COUNCIL, INC
Service Designation: TV NTSC (analog) television station

Channel: 18 494 - 500 MHz Licensed
File No.: BMLET-19910906KG Facility ID number: 62137
CDBS Application ID No.: 164508

44° 29' 30.00" N Latitude Site in Canadian Border Zone
74° 51' 29.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 661. | kW ERP |
| Antenna Height Above Average Terrain: | 243. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 599. | meters AMSL |
| Antenna Height Above Ground Level: | 223. | meters AGL |

TV Zone: 2
Frequency Offset: 0 (zero)

89.60 km (55.68 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon,
at a bearing of 237.22° using the method in Section 73.208 of calculating distance.
(Reverse bearing 56.55°.)

Non-Directional Antenna ID No.: 70612 Pattern Rotation: 0.00
Antenna Make: ADC Antenna Model: SC-24
Additional Individual Tower Information from the Antenna Structure Registration database.
(Use the Registration Number link for detailed information.)

| ASRN | Site Elevation (meters) | Overall Height Above Ground (meters) | Overall Height Above Mean Sea Level (meters) | NAD 83 Tower Coordinates Latitude | Longitude | Convert to NAD 27 |
|---|---|---|---|---|---|---|
| 1004169 | 376.4 | 231.0 | 607.4 | N 44° 29' 29.0" | W 74° 51' 26.0" | To NAD27 |

CDBS: Station Info Application Info Mailing Address Assignments and Transfers
Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (64 dBu) Alternate Map Link


Massena
Chateaugay
Burke
Waddington
Malone
Norfolk
Brasher Falls-Winthrop
Norwood
Ogdensburg
Dannemora
Potsdam
Heuvelton
Morristown
Canton
WNPI-TV BMLET-19910906KG
Hammond
Hermon
Richville
Alexandria Bay
Gouverneur
Saranac Lake
Lake Placid
Theresa
Tupper Lake
Philadelphia
Harrisville
Star Lake
Fort Drum
Watertown
Carthage
Copenhagen
Croghan
Adams Center
Lowville

WNPI-TV NY NORWOOD USA

Licensee: ST. LAWRENCE VALLEY EDUCATIONAL TV COUNCIL, INC
Service Designation: TV NTSC (analog) television station

Channel: 18 494 - 500 MHz Construction Permit
File No.: BPET-20030109AAJ Facility ID number: 62137
CDBS Application ID No.: 621856

44° 29' 29.00" N Latitude Site in Canadian Border Zone
74° 51' 26.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 661. | kW ERP |
| Antenna Height Above Average Terrain: | 243. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 599. | meters AMSL |
| Antenna Height Above Ground Level: | 223. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

89.57 km (55.65 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon,
at a bearing of 237.18° using the method in Section 73.208 of calculating distance.
(Reverse bearing 56.51°.)
Non-Directional Antenna ID No.: 46057 Pattern Rotation: 0.00
Additional Individual Tower Information from the Antenna Structure Registration database.
(Use the Registration Number link for detailed information.)

| ASRN | Site Elevation (meters) | Overall Height Above Ground (meters) | Overall Height Above Mean Sea Level (meters) | NAD 83 Tower Coordinates Latitude | Longitude | Convert to NAD 27 |
|---|---|---|---|---|---|---|
| 1004169 | 376.4 | 231.0 | 607.4 | N 44° 29' 29.0" | W 74° 51' 26.0" | To NAD27 |

CDBS: Station Info Application Info Mailing Address Assignments and Transfers
Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (64 dBu) Alternate Map Link


Massena
Chateaugay
Burke
Waddington
Malone
Norfolk
Brasher Falls-Winthrop
Norwood
Ogdensburg
Dannemora
Potsdam
Heuvelton
Canton
Morristown
WNPI-TV BPET-20030109AAJ
Hermon
Hammond
Richville
Alexandria Bay
Gouverneur
Saranac Lake
Lake Placid
Theresa
Tupper Lake
Philadelphia
Harrisville
Star Lake
Fort Drum
Watertown
Carthage
Copenhagen
Croghan
Adams Center
Lowville

WVNY VT BURLINGTON USA

Licensee: LAMBERT BROADCASTING OF BURLINGTON, LLC
Service Designation: TV NTSC (analog) television station

Channel: 22 518 - 524 MHz Licensed
File No.: BLCT-19810108KE Facility ID number: 11259
CDBS Application ID No.: 26359

44° 31' 40.00" N Latitude Site in Canadian Border Zone
72° 48' 58.00" W Longitude (NAD 27)

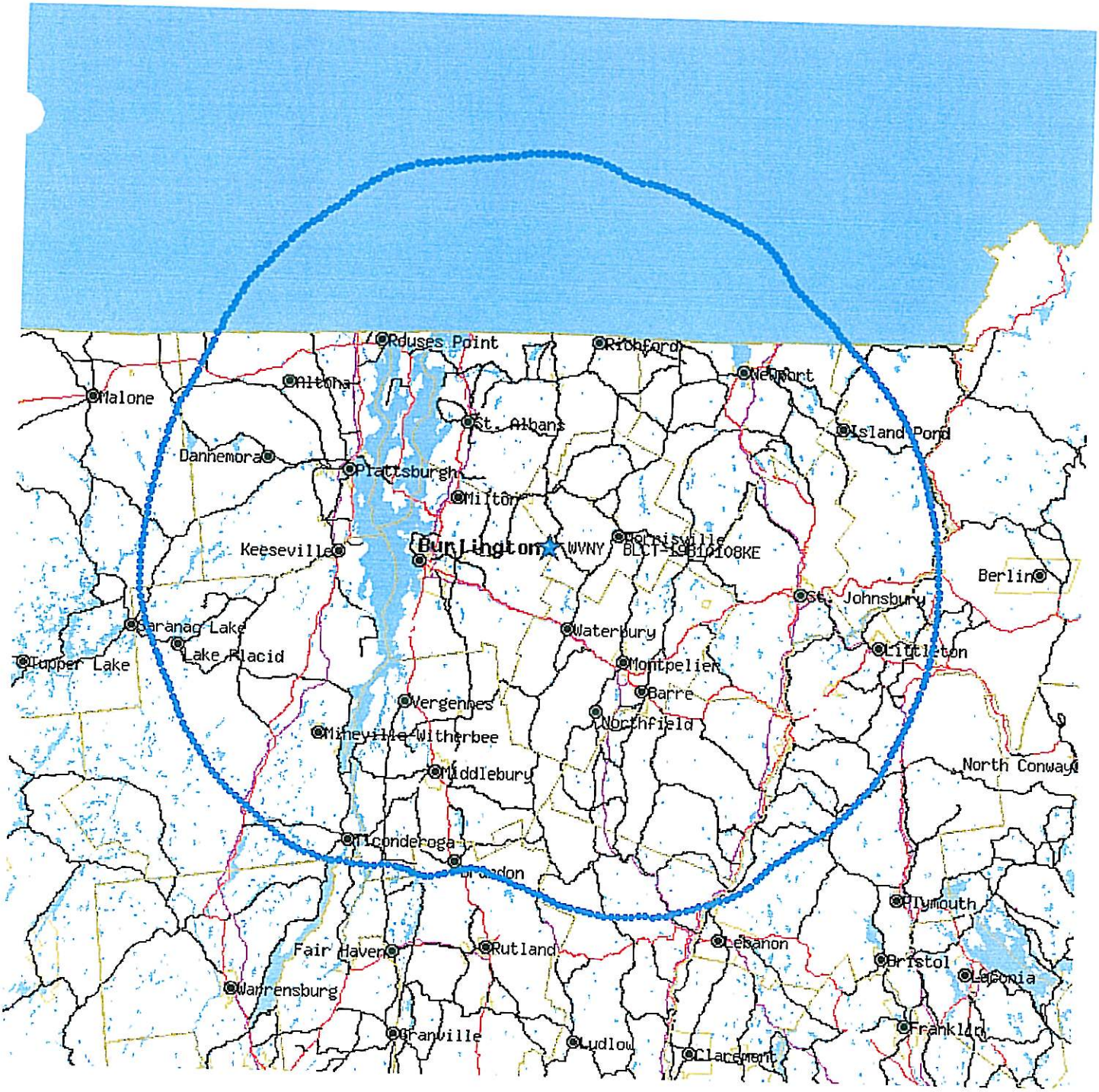
| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 1000. | kW ERP |
| Antenna Height Above Average Terrain: | 837. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 1264. | meters AMSL |
| Antenna Height Above Ground Level: | 86. | meters AGL |

TV Zone: 2
Frequency Offset: + (plus)

97.56 km (60.62 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 117.04° using the method in Section 73.208 of calculating distance. (Reverse bearing 297.81°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

CDBS: Station Info Application Info Mailing Address Assignments and Transfers
Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (64 dBu) Alternate Map Link


Rouses Point
Richford
Malone
Chateaugay
Newport
St. Albans
Island Pond
Dannemora
Plattsburgh
Milton
Morrisville
Keeseville
Burlington
WVNY
Berlin
St. Johnsbury
Saranac Lake
Waterbury
Lake Placid
Littleton
Upper Lake
Montpelier
Barre
Vergennes
Northfield
Mineville
Witherbee
North Conway
Middlebury
Ticonderoga
Plymouth
Fair Haven
Rutland
Lebanon
Bristol
Laconia
Wallingford
Granville
Ludlow
Claremont
Franklin

CIVSTV QC SHERBROOKE Canada

Service Designation: TV NTSC (analog) television station

Channel: 24 530 - 536 MHz Licensed
File No.: --- Facility ID number: 97886
CDBS Application ID No.: 303228

45° 18' 43.00" N Latitude
72° 14' 32.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 475. | kW ERP |
| Antenna Height Above Average Terrain: | 584. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: + (plus)

137.88 km (85.68 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 71.48° using the method in Section 73.208 of calculating distance. (Reverse bearing 252.66°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

WVER VT RUTLAND USA

Licensee: VERMONT ETV, INC.

Service Designation: TV NTSC (analog) television station

Channel: 28 554 - 560 MHz Licensed

File No.: BLET-19930715KJ Facility ID number: 69946

CDBS Application ID No.: 188146

43° 39' 32.00" N Latitude Site in Canadian Border Zone

73° 06' 25.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 275. | kW ERP |
| Antenna Height Above Average Terrain: | 429. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 688. | meters AMSL |
| Antenna Height Above Ground Level: | 86. | meters AGL |

TV Zone: 2

Frequency Offset: + (plus)

155.22 km (96.45 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 155.41° using the method in Section 73.208 of calculating distance. (Reverse bearing 335.97°.)

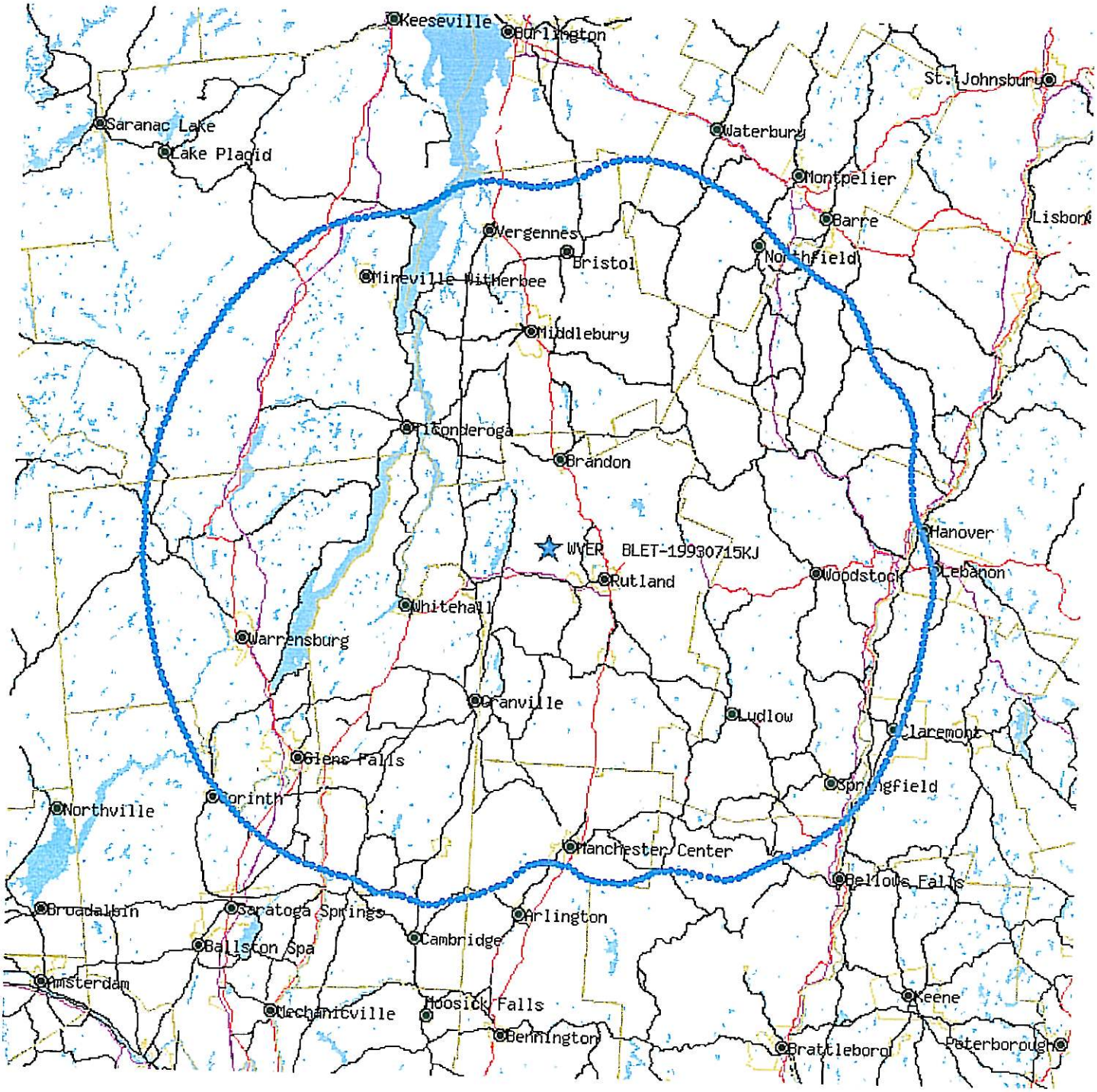
Non-Directional Antenna ID No.: - Pattern Rotation: 0.00

Antenna Make: - Antenna Model: -

CDBS: Station Info Application Info Mailing Address Assignments and Transfers Application List CDBS Search Page Ownership Info EEO Call Sign Changes

Site: Region Map Area Map Local Map

Area: Service Contour Map (64 dBu) Alternate Map Link


Keeseville
Burlington
St. Johnsbury
Saranac Lake
Lake Placid
Waterbury
Montpelier
Barre
Lisbon
Vergennes
Bristol
Northfield
Mineville
Whitehall
Middlebury
Ticonderoga
Brandon
Hanover
WVER BLET-19930715KJ
Rutland
Woodstock
Lebanon
Whitehall
Warrensburg
Granville
Ludlow
Claremont
Glens Falls
Springfield
Northville
Corinth
Manchester Center
Bellows Falls
Broadalbin
Saratoga Springs
Arlington
Cambridge
Ballston Spa
Amsterdam
Keene
Mechanicville
Hoosick Falls
Bennington
Brattleboro
Peterborough

CFTUTV QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 29 560 - 566 MHz Licensed
File No.: --- Facility ID number: 98469
CDBS Application ID No.: 304431

45° 30' 10.00" N Latitude
73° 36' 55.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 10. | kW ERP |
| Antenna Height Above Average Terrain: | 184. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

67.62 km (42.02 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 19.85° using the method in Section 73.208 of calculating distance. (Reverse bearing 200.06°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

CFKSTV QC MAGOG Canada

Service Designation: TV NTSC (analog) television station

Channel: 30 566 - 572 MHz Licensed
File No.: --- Facility ID number: 97523
CDBS Application ID No.: 302629

45° 18' 43.00" N Latitude
72° 14' 32.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 92.3 | kW ERP |
| Antenna Height Above Average Terrain: | 613. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

137.88 km (85.68 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 71.48° using the method in Section 73.208 of calculating distance. (Reverse bearing 252.66°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

CFKSTV QC SHERBROOKE/MAGOG Canada

Service Designation: TV NTSC (analog) television station

Channel: 30 566 - 572 MHz Licensed
File No.: --- Facility ID number: 98132
CDBS Application ID No.: 303667

45° 18' 43.00" N Latitude
72° 14' 32.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 92.3 | kW ERP |
| Antenna Height Above Average Terrain: | 613. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

137.88 km (85.68 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 71.48° using the method in Section 73.208 of calculating distance. (Reverse bearing 252.66°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

NEW ON OTTAWA Canada

Service Designation: TV NTSC (analog) television station

Channel: 32 578 - 584 MHz

File No.: BPFS-- Facility ID number: 136016

CDBS Application ID No.: 575365

45° 13' 1.00 " N Latitude

75° 33' 51.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 100. | kW ERP |
| Antenna Height Above Average Terrain: | 150. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 239. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1

Frequency Offset: 0 (zero)

134.08 km (83.31 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 284.33° using the method in Section 73.208 of calculating distance. (Reverse bearing 103.16°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot

Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

WETK VT BURLINGTON USA

Licensee: VERMONT ETV, INC.

Service Designation: TV NTSC (analog) television station

Channel: 33 584 - 590 MHz Licensed

File No.: BLET-19910613KE Facility ID number: 69944

CDBS Application ID No.: 162242

44° 31' 32.00" N Latitude Site in Canadian Border Zone

72° 48' 54.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 1350. | kW ERP |
| Antenna Height Above Average Terrain: | 815. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 1239. | meters AMSL |
| Antenna Height Above Ground Level: | 20. | meters AGL |

TV Zone: 2

Frequency Offset: - (minus)

97.76 km (60.74 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 117.15° using the method in Section 73.208 of calculating distance. (Reverse bearing 297.92°.)

Directional Antenna ID No.: 19254 Pattern Rotation: 0.00

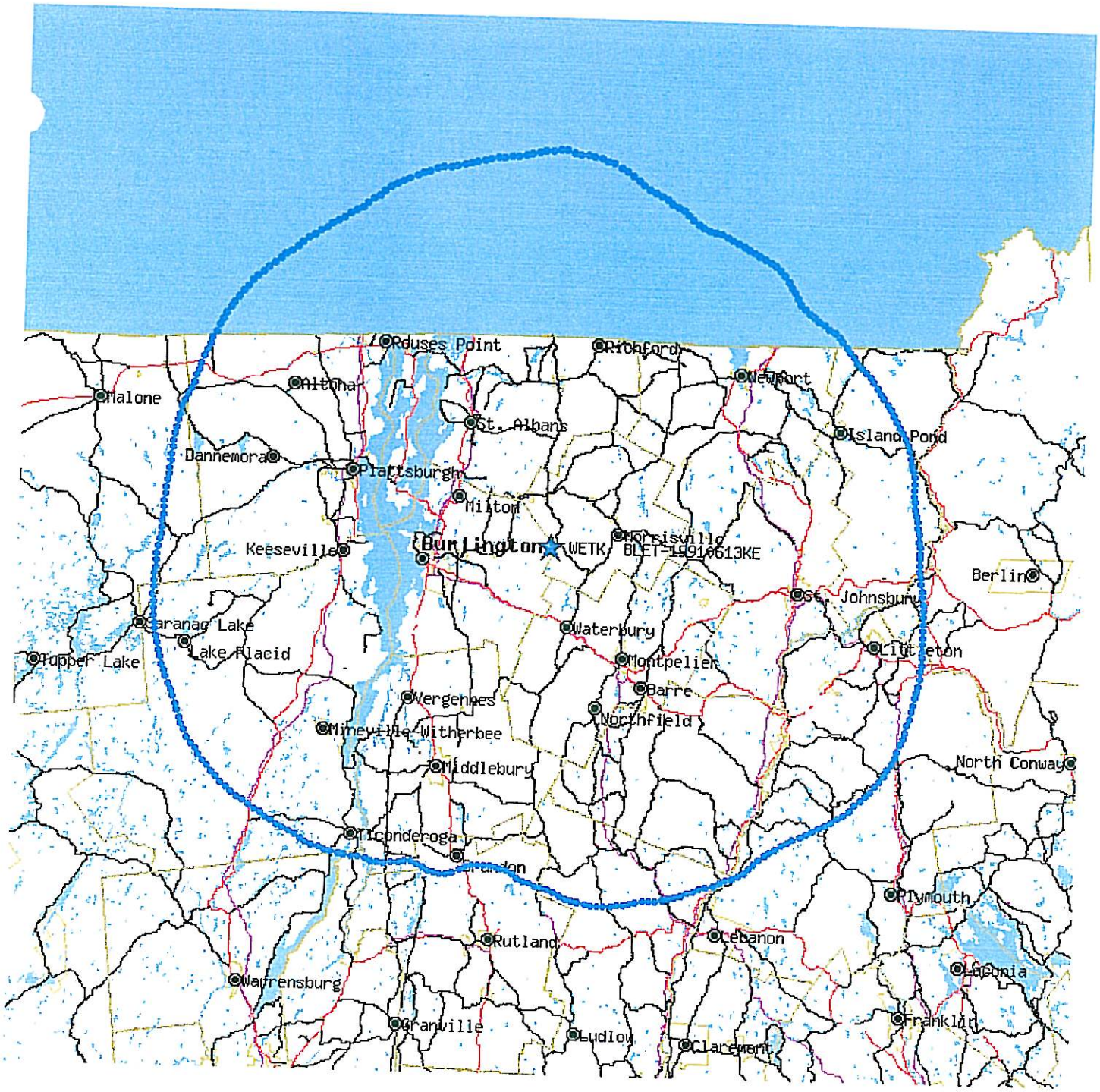
Antenna Make: HAR Antenna Model: ODD910613KE

Relative Field values for directional antenna Relative Field polar plot

Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 0.950 | 70° 0.950 | 130° 0.950 | 190° 0.950 | 250° 0.950 | 310° 0.950 |
| 20° 0.860 | 80° 0.860 | 140° 0.860 | 200° 0.860 | 260° 0.860 | 320° 0.860 |
| 30° 0.820 | 90° 0.820 | 150° 0.820 | 210° 0.820 | 270° 0.820 | 330° 0.820 |
| 40° 0.860 | 100° 0.860 | 160° 0.860 | 220° 0.860 | 280° 0.860 | 340° 0.860 |
| 50° 0.950 | 110° 0.950 | 170° 0.950 | 230° 0.950 | 290° 0.950 | 350° 0.950 |

CDBS: Station Info Application Info Mailing Address Assignments and Transfers
Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (64 dBu) Alternate Map Link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Altona
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Island Pond
Dannemora
Plattsburgh
Milton
Morrisville
Keeseville
Burlington
WETK
BLET-19916613KE
Berlin
St. Johnsbury
Saranac Lake
Lake Placid
Waterbury
Upper Lake
Montpelier
Littleton
Barre
Vergennes
Northfield
Mineville-Witherbee
Middlebury
North Conway
Ticonderoga
Plymouth
Rutland
Lebanon
Laconia
Warrensburg
Granville
Ludlow
Claremont
Franklin

960910KE NY LAKE PLACID USA

Licensee: NORTHEAST GOSPEL BROADCASTING INC
Service Designation: TV NTSC (analog) television station

Channel: 34 590 - 596 MHz Application
File No.: BPET-19960910KE Facility ID number: 83312
CDBS Application ID No.: 231924

44° 15' 36.00" N Latitude Site in Canadian Border Zone
74° 01' 22.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 617. | kW ERP |
| Antenna Height Above Average Terrain: | -64. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 624. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

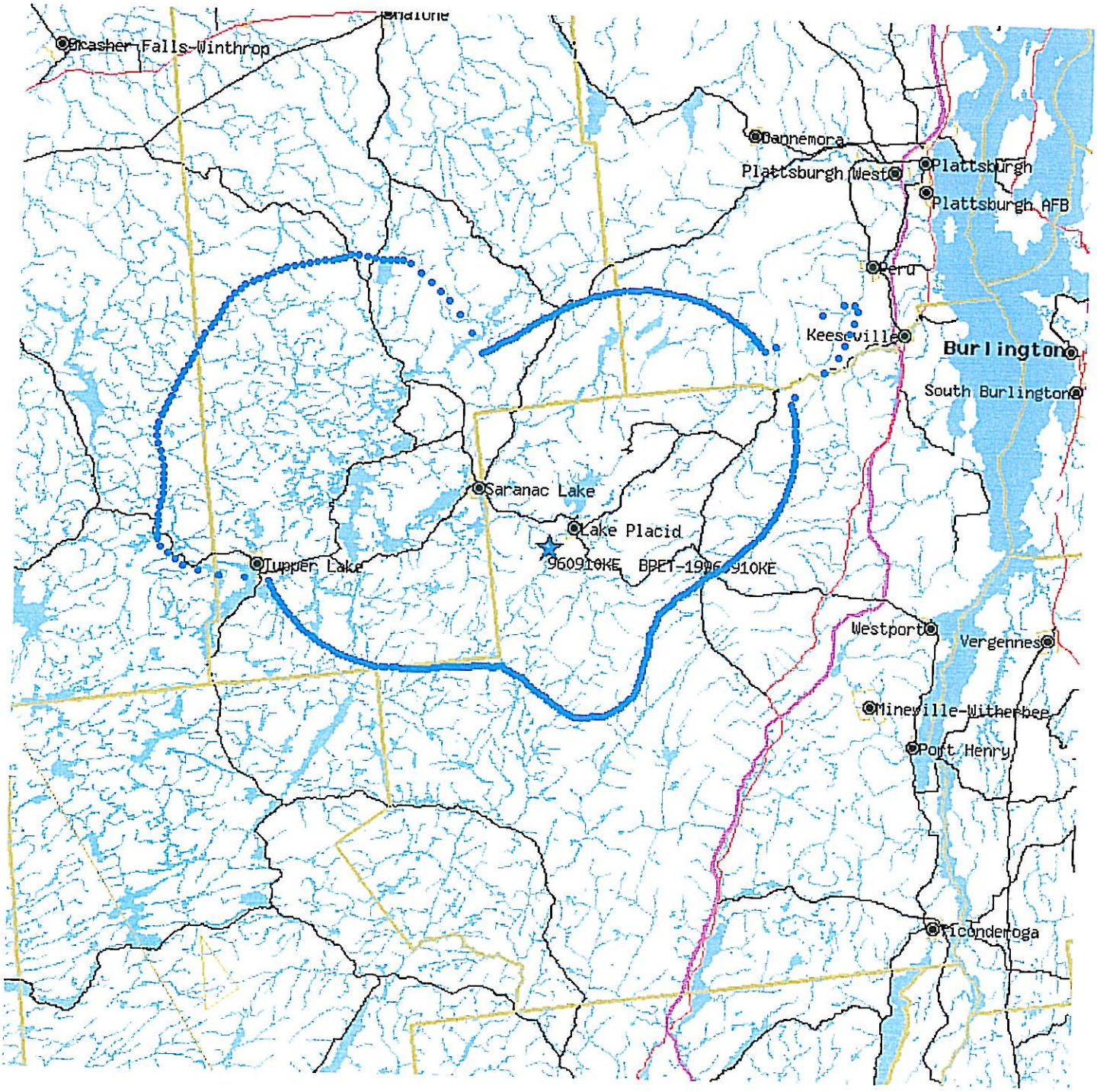
TV Zone: 2
Frequency Offset: + (plus)

75.11 km (46.67 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 186.86° using the method in Section 73.208 of calculating distance. (Reverse bearing 6.78°.)

Directional Antenna ID No.: 24117 Pattern Rotation: 0.00
Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 0.540 | 60° 0.850 | 120° 0.160 | 180° 0.210 | 240° 0.510 | 300° 0.840 |
| 10° 0.690 | 70° 0.690 | 130° 0.170 | 190° 0.170 | 250° 0.690 | 310° 0.690 |
| 20° 0.840 | 80° 0.510 | 140° 0.210 | 200° 0.160 | 260° 0.850 | 320° 0.540 |
| 30° 0.950 | 90° 0.340 | 150° 0.270 | 210° 0.180 | 270° 0.960 | 330° 0.430 |
| 40° 1.000 | 100° 0.230 | 160° 0.290 | 220° 0.230 | 280° 1.000 | 340° 0.390 |
| 50° 0.960 | 110° 0.180 | 170° 0.270 | 230° 0.340 | 290° 0.950 | 350° 0.430 |

CDBS: Station Info Application Info Mailing Address Assignments and Transfers
Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (64 dBu) Alternate Map Link


Brasher Falls-Winthrop
Dannemora
Plattsburgh West
Plattsburgh
Plattsburgh AFB
Peru
Keeseville
Burlington
South Burlington
Saranac Lake
Lake Placid
960910KE
Tupper Lake
Westport
Vergennes
Mineville-Witherbee
Port Henry
Ticonderoga

CFJPTV QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 35 596 - 602 MHz Licensed
File No.: --- Facility ID number: 98319
CDBS Application ID No.: 304077

45° 30' 20.00" N Latitude
73° 35' 32.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 697. | kW ERP |
| Antenna Height Above Average Terrain: | 302. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: + (plus)

68.55 km (42.59 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 21.18° using the method in Section 73.208 of calculating distance. (Reverse bearing 201.40°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

CHLFTV2 ON HAWKESBURY Canada

Service Designation: TV NTSC (analog) television station

Channel: 39 620 - 626 MHz Licensed
File No.: --- Facility ID number: 97895
CDBS Application ID No.: 303241

45° 30' 11.00" N Latitude
74° 41' 12.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 10. | kW ERP |
| Antenna Height Above Average Terrain: | 100. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: - (minus)

88.10 km (54.74 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 316.55° using the method in Section 73.208 of calculating distance. (Reverse bearing 136.00°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

950809KF NY SARANAC LAKE USA

Licensee: CHANNEL 61 ASSOCIATES, LLC.

Service Designation: TV NTSC (analog) television station

Channel: 40 626 - 632 MHz Construction Permit

File No.: BPCT-19950809KF Facility ID number: 77515

CDBS Application ID No.: 994687

44° 09' 35.00" N Latitude Site in Canadian Border Zone

74° 28' 34.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 155. | kW ERP |
| Antenna Height Above Average Terrain: | 440. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 970. | meters AMSL |
| Antenna Height Above Ground Level: | 14. | meters AGL |

TV Zone: 2

Frequency Offset: + (plus)

96.81 km (60.15 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 207.81° using the method in Section 73.208 of calculating distance. (Reverse bearing 27.41°.)

Directional Antenna ID No.: 66762 Pattern Rotation: 0.00

Relative Field values for directional antenna Relative Field polar plot

Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 0.202 | 60° 0.997 | 120° 0.382 | 180° 0.710 | 240° 0.828 | 300° 0.181 |
| 10° 0.312 | 70° 1.000 | 130° 0.282 | 190° 0.872 | 250° 0.663 | 310° 0.185 |
| 20° 0.479 | 80° 0.977 | 140° 0.247 | 200° 0.977 | 260° 0.479 | 320° 0.190 |
| 30° 0.663 | 90° 0.872 | 150° 0.282 | 210° 1.000 | 270° 0.312 | 330° 0.193 |
| 40° 0.828 | 100° 0.710 | 160° 0.382 | 220° 0.997 | 280° 0.202 | 340° 0.190 |
| 50° 0.946 | 110° 0.536 | 170° 0.536 | 230° 0.946 | 290° 0.184 | 350° 0.185 |

Additional azimuths:

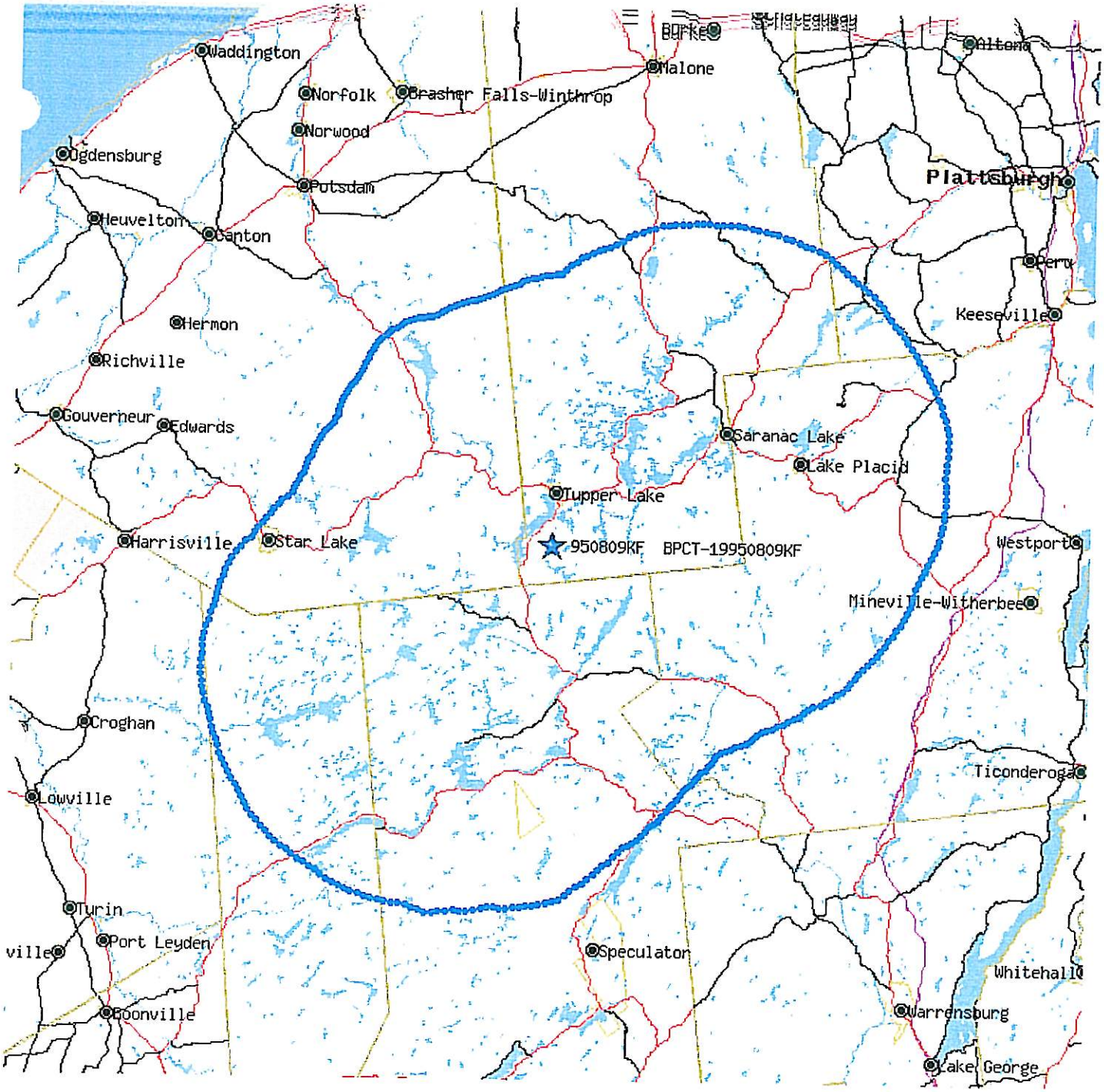
63° 1.000

197° 1.000

CDBS: Station Info Application Info Mailing Address Assignments and Transfers Application List CDBS Search Page Ownership Info EEO Call Sign Changes

Site: Region Map Area Map Local Map

Area: Service Contour Map (64 dBu) Alternate Map Link


Waddington
Norfolk
Brasher Falls-Winthrop
Norwood
Ogdensburg
Potsdam
Heuvelton
Canton
Hermon
Richville
Gouverneur
Edwards
Harrisville
Star Lake
Croghan
Lowville
Turin
Port Leyden
Boonville
Burke
Malone
Altona
Plattsburgh
Peru
Keeseville
Saranac Lake
Lake Placid
Tupper Lake
950809KF BPCT-19950809KF
Westport
Mineville-Witherbee
Ticonderoga
Speculator
Whitehall
Warrensburg
Lake George

CBMT7 QC AYER'S CLIFF Canada

Service Designation: TV NTSC (analog) television station

Channel: 42 638 - 644 MHz Licensed
File No.: --- Facility ID number: 97725
CDBS Application ID No.: 302956

45° 11' 57.00" N Latitude
72° 02' 24.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 2.3 | kW ERP |
| Antenna Height Above Average Terrain: | 69. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 2
Frequency Offset: + (plus)

150.26 km (93.37 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 77.87° using the method in Section 73.208 of calculating distance. (Reverse bearing 259.19°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

WFFF-TV VT BURLINGTON USA

Licensee: SMITH MEDIA LICENSE HOLDINGS, LLC

Service Designation: TV NTSC (analog) television station

Channel: 44 650 - 656 MHz Modification of Construction Permit

File No.: BMPCT-19960212KG Facility ID number: 10132

CDBS Application ID No.: 220423

44° 31' 32.00" N Latitude Site in Canadian Border Zone

72° 48' 54.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 1450. | kW ERP |
| Antenna Height Above Average Terrain: | 840. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 1264. | meters AMSL |
| Antenna Height Above Ground Level: | 207. | meters AGL |

TV Zone: 2

Frequency Offset: + (plus)

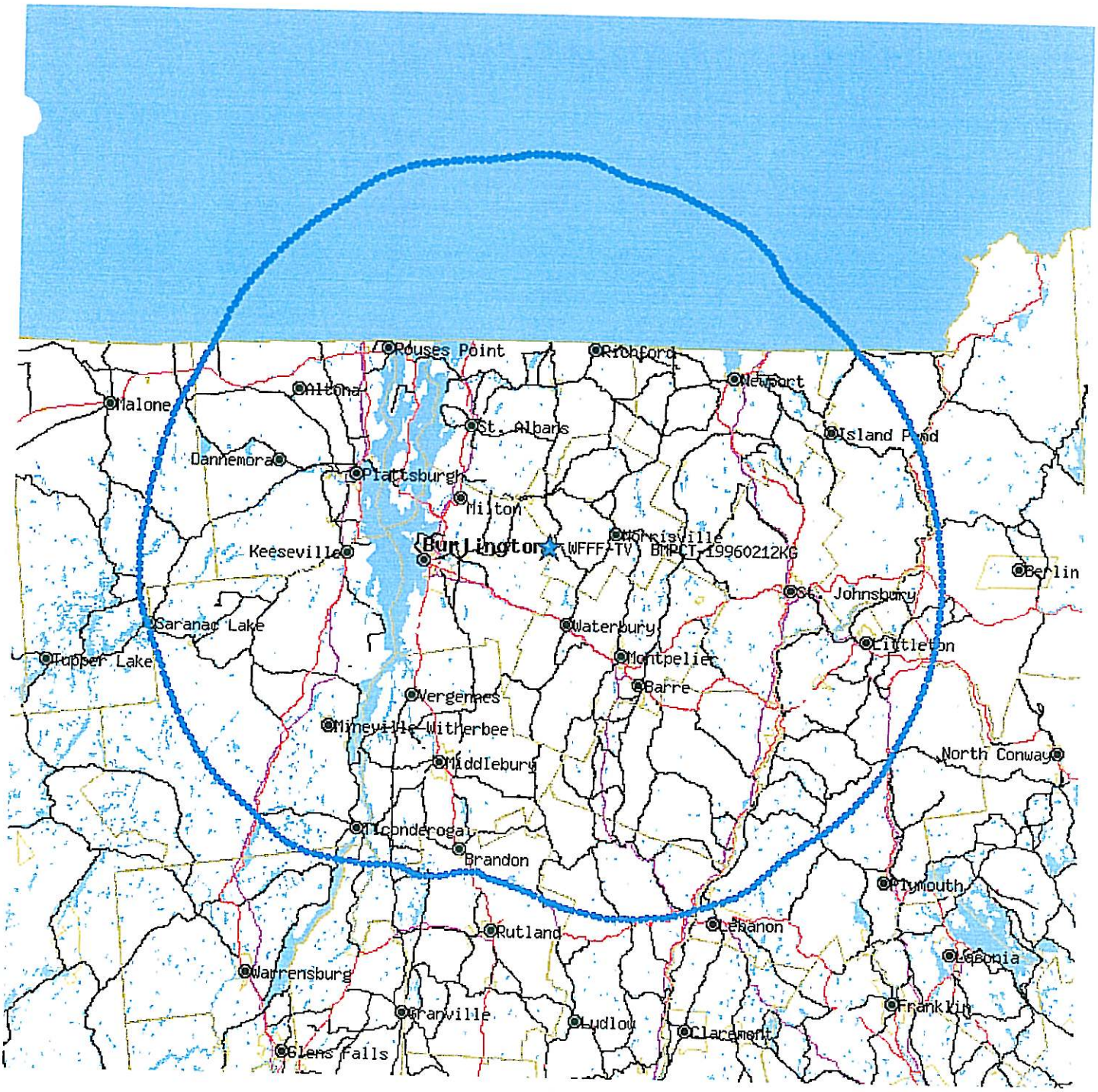
97.76 km (60.74 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 117.15° using the method in Section 73.208 of calculating distance. (Reverse bearing 297.92°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00

CDBS: Station Info Application Info Mailing Address Assignments and Transfers Application List CDBS Search Page Ownership Info EEO Call Sign Changes

Site: Region Map Area Map Local Map

Area: Service Contour Map (64 dBu) Alternate Map Link


Rouses Point
Richford
Newport
Malone
Altona
St. Albans
Island Pond
Dannemora
Plattsburgh
Milton
Morrisville
Keeseville
Burlington
WFFF-TV BMPCT-19960212KG
Berlin
St. Johnsbury
Saranac Lake
Waterbury
Littleton
Tupper Lake
Montpelier
Barre
Vergennes
Mineville-Witherbee
North Conway
Middlebury
Ticonderoga
Brandon
Plymouth
Rutland
Lebanon
Lebanon
Warrensburg
Granville
Ludlow
Claremont
Franklin
Glens Falls

- ON HAWKESBURY Canada

Service Designation: TV NTSC (analog) television station

Channel: 48 674 - 680 MHz Licensed
File No.: --- Facility ID number: 97425
CDBS Application ID No.: 302481

45° 30' 11.00" N Latitude
74° 41' 12.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 10. | kW ERP |
| Antenna Height Above Average Terrain: | 100. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: + (plus)

88.10 km (54.74 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 316.55° using the method in Section 73.208 of calculating distance. (Reverse bearing 136.00°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

VACANT QC BUCKINGHAM Canada

Service Designation: TV NTSC (analog) television station

Channel: 50 686 - 692 MHz Vacant allotment
File No.: BPFS-- Facility ID number: 136021
CDBS Application ID No.: 575373

45° 35' 0.00 " N Latitude
75° 25' 0.00 " W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 0. | kW ERP |
| Antenna Height Above Average Terrain: | - | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 2
Frequency Offset: 0 (zero)

138.71 km (86.19 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 302.12° using the method in Section 73.208 of calculating distance. (Reverse bearing 121.05°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00

CBMT5 QC STE-ADELE Canada

Service Designation: TV NTSC (analog) television station

Channel: 54 710 - 716 MHz Licensed
File No.: --- Facility ID number: 97089
CDBS Application ID No.: 301675

45° 54' 42.00" N Latitude
74° 06' 44.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 1.74 | kW ERP |
| Antenna Height Above Average Terrain: | 222. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: - (minus)

110.12 km (68.43 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 351.84° using the method in Section 73.208 of calculating distance. (Reverse bearing 171.69°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

CBMT6 QC BOLTON-EST Canada

Service Designation: TV NTSC (analog) television station

Channel: 55 716 - 722 MHz Licensed
File No.: --- Facility ID number: 97426
CDBS Application ID No.: 302482

45° 03' 44.00" N Latitude
72° 17' 54.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 5.4 | kW ERP |
| Antenna Height Above Average Terrain: | 601. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: - (minus)

127.92 km (79.48 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 82.87° using the method in Section 73.208 of calculating distance. (Reverse bearing 264.01°.)

Directional Antenna ID No.: - Pattern Rotation: 0.00
Antenna Make: - Antenna Model: -

*** Directional antenna pattern is not in the database --
Relative field values are assumed to be 1.000 (maximum) in all directions. ***

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 1.000 | 120° 1.000 | 180° 1.000 | 240° 1.000 | 300° 1.000 |
| 10° 1.000 | 70° 1.000 | 130° 1.000 | 190° 1.000 | 250° 1.000 | 310° 1.000 |
| 20° 1.000 | 80° 1.000 | 140° 1.000 | 200° 1.000 | 260° 1.000 | 320° 1.000 |
| 30° 1.000 | 90° 1.000 | 150° 1.000 | 210° 1.000 | 270° 1.000 | 330° 1.000 |
| 40° 1.000 | 100° 1.000 | 160° 1.000 | 220° 1.000 | 280° 1.000 | 340° 1.000 |
| 50° 1.000 | 110° 1.000 | 170° 1.000 | 230° 1.000 | 290° 1.000 | 350° 1.000 |

WCFE-TV NY PLATTSBURGH USA

Licensee: MOUNTAIN LAKE PUBLIC TELECOMMUNICATIONS COUNCIL

Service Designation: TV NTSC (analog) television station

Channel: 57 728 - 734 MHz Licensed

File No.: BLET-19881102KE Facility ID number: 46755

CDBS Application ID No.: 119932

44° 41' 43.00" N Latitude Site in Canadian Border Zone

73° 53' 0.00 " W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 794. | kW ERP |
| Antenna Height Above Average Terrain: | 741. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 1241. | meters AMSL |
| Antenna Height Above Ground Level: | 129. | meters AGL |

TV Zone: 2

Frequency Offset: 0 (zero)

26.29 km (16.34 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 175.40° using the method in Section 73.208 of calculating distance. (Reverse bearing 355.42°.)

Directional Antenna ID No.: 18298 Pattern Rotation: 0.00

Antenna Make: BOG Antenna Model: ODD881102KE

Relative Field values for directional antenna Relative Field polar plot

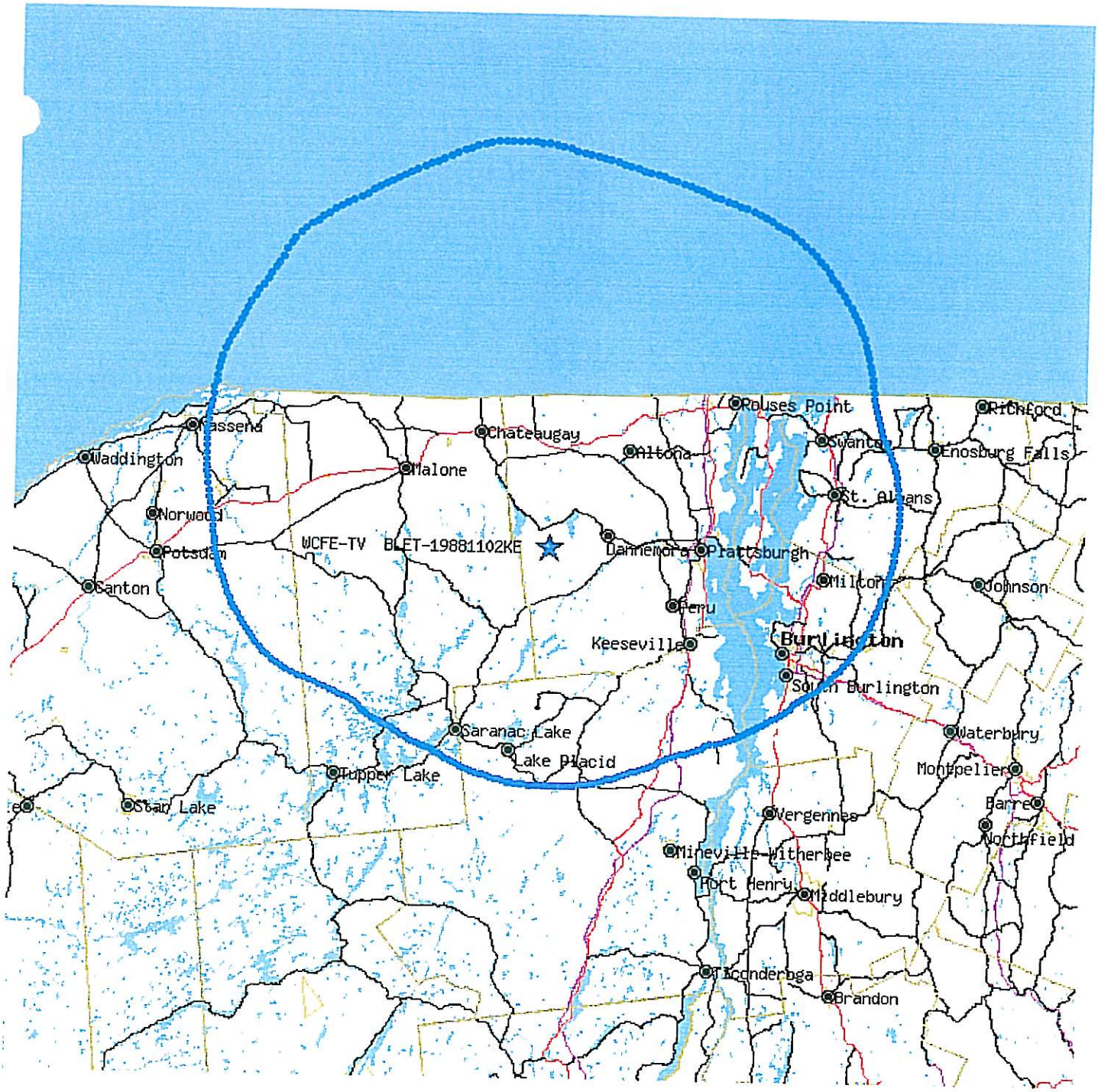
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 0.710 | 120° 0.220 | 180° 0.110 | 240° 0.220 | 300° 0.710 |
| 10° 0.990 | 70° 0.630 | 130° 0.170 | 190° 0.110 | 250° 0.300 | 310° 0.780 |
| 20° 0.960 | 80° 0.540 | 140° 0.130 | 200° 0.110 | 260° 0.370 | 320° 0.850 |
| 30° 0.910 | 90° 0.460 | 150° 0.110 | 210° 0.110 | 270° 0.460 | 330° 0.910 |
| 40° 0.850 | 100° 0.370 | 160° 0.110 | 220° 0.130 | 280° 0.540 | 340° 0.960 |
| 50° 0.780 | 110° 0.300 | 170° 0.110 | 230° 0.170 | 290° 0.630 | 350° 0.990 |

CDBS: Station Info Application Info Mailing Address Assignments and Transfers Application List CDBS Search Page Ownership Info EEO Call Sign Changes

Site: Region Map Area Map Local Map

Area: Service Contour Map (64 dBu) Alternate Map Link


Rouses Point
Richford
Massena
Chateaugay
Waddington
Malone
Altona
Swanton
Enosburg Falls
St. Albans
Norwood
WCFE-TV BLET-19881102KE
Dannemora
Plattsburgh
Potsdam
Canton
Milton
Johnson
Peru
Keeseville
Burlington
South Burlington
Saranac Lake
Lake Placid
Waterbury
Tupper Lake
Montpelier
Star Lake
Barre
Vergennes
Northfield
Mineville-Witherbee
Port Henry
Middlebury
Ticonderoga
Brandon

WCFE-TV NY PLATTSBURGH USA

Licensee: MOUNTAIN LAKE PUBLIC TELECOMMUNICATIONS COUNCIL
Service Designation: TV NTSC (analog) television station

Channel: 57 728 - 734 MHz Construction Permit
File No.: BPET-20040414ADB Facility ID number: 46755
CDBS Application ID No.: 1007060

44° 41' 43.00" N Latitude Site in Canadian Border Zone
73° 53' 0.00 " W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 462. | kW ERP |
| Antenna Height Above Average Terrain: | 737. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 1238. | meters AMSL |
| Antenna Height Above Ground Level: | 125. | meters AGL |

TV Zone: 2
Frequency Offset: 0 (zero)

26.29 km (16.34 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 175.40° using the method in Section 73.208 of calculating distance. (Reverse bearing 355.42°.)

Directional Antenna ID No.: 67378 Pattern Rotation: 0.00

Relative Field values for directional antenna Relative Field polar plot
Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 0.890 | 60° 1.000 | 120° 0.881 | 180° 0.756 | 240° 0.081 | 300° 0.758 |
| 10° 0.979 | 70° 0.938 | 130° 0.844 | 190° 0.660 | 250° 0.082 | 310° 0.849 |
| 20° 0.920 | 80° 0.805 | 140° 0.935 | 200° 0.472 | 260° 0.152 | 320° 0.941 |
| 30° 0.793 | 90° 0.803 | 150° 0.971 | 210° 0.282 | 270° 0.291 | 330° 0.971 |
| 40° 0.803 | 100° 0.941 | 160° 0.937 | 220° 0.160 | 280° 0.477 | 340° 0.930 |
| 50° 0.940 | 110° 0.984 | 170° 0.842 | 230° 0.096 | 290° 0.659 | 350° 0.846 |

Additional Individual Tower Information from the Antenna Structure Registration database.

(Use the Registration Number link for detailed information.)

| ASRN | Site Elevation (meters) | Overall Height Above Ground (meters) | Overall Height Above Mean Sea Level (meters) | NAD **83** Tower Coordinates | | Convert to NAD 27 |
|---|---|---|---|---|---|---|
| | | | | Latitude | Longitude | |
| 1003308 | 1112.5 | 135.9 | 1248.4 | N 44° 41' 43.0" | W 73° 52' 59.0" | To NAD27 |

CDBS: Station Info Application Info Mailing Address Assignments and Transfers
Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (64 dBu) Alternate Map Link


Rouses Point
Richford
Massena
Chateaugay
Waddington
Altona
Swanton
Enosburg Falls
Brushton
Malone
St. Albans
Norwood
WCFE-TV BPET-20040414ADB
Dannemora
Plattsburgh
Potsdam
Canton
Milton
Johnson
Peru
Keeseville
Burlington
South Burlington
Saranac Lake
Waterbury
Lake Placid
Tupper Lake
Montpelier
Star Lake
Westport
Barre
Vergennes
Northfield
Middlebury
Ticonderoga
Brandon

951106KE NY SARANAC LAKE USA

Licensee: WWBI-TV, INC.

Service Designation: TV NTSC (analog) television station

Channel: 61 752 - 758 MHz Application

File No.: BPCT-19951106KE Facility ID number: 78298

CDBS Application ID No.: 216063

44° 09' 35.00" N Latitude Site in Canadian Border Zone

74° 28' 34.00" W Longitude (NAD 27)

| | | |
|---|---|---|
| Polarization: | Horizontal (H) | |
| Effective Radiated Power (ERP): | 550. | kW ERP |
| Antenna Height Above Average Terrain: | 441. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 970. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 2

Frequency Offset: - (minus)

96.81 km (60.15 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 207.81° using the method in Section 73.208 of calculating distance. (Reverse bearing 27.41°.)

Directional Antenna ID No.: 18423 Pattern Rotation: 0.00

Relative Field values for directional antenna Relative Field polar plot

Relative field values do not include any pattern rotation that may be indicated above.

| | | | | | |
|---|---|---|---|---|---|
| 0° 1.000 | 60° 0.975 | 120° 0.640 | 180° 0.250 | 240° 0.600 | 300° 0.975 |
| 10° 0.990 | 70° 1.000 | 130° 0.500 | 190° 0.235 | 250° 0.750 | 310° 0.945 |
| 20° 0.970 | 80° 0.990 | 140° 0.350 | 200° 0.220 | 260° 0.875 | 320° 0.925 |
| 30° 0.940 | 90° 0.965 | 150° 0.250 | 210° 0.250 | 270° 0.950 | 330° 0.945 |
| 40° 0.925 | 100° 0.880 | 160° 0.220 | 220° 0.325 | 280° 0.990 | 340° 0.970 |
| 50° 0.930 | 110° 0.775 | 170° 0.235 | 230° 0.450 | 290° 1.000 | 350° 0.990 |

CDBS: Station Info Application Info Mailing Address Assignments and Transfers Application List CDBS Search Page Ownership Info EEO Call Sign Changes

Site: Region Map Area Map Local Map

Area: Service Contour Map (64 dBu) Alternate Map Link


Rouses Point
Massena
Chateaugay
Waddington
Malone
Altona
Brasher Falls-Winthrop
Norwood
Ogdensburg
Dannemora
Potsdam
Plattsburgh
Heuvelton
Canton
Peru
Burlington
Gouverneur
Saranac Lake
Lake Placid
Tupper Lake
Philadelphia
Star Lake
951106KE BPCT-19951106KE
Vergennes
Mineville-Witherbee
Port Henry
Carthage
Copenhagen
Ticonderoga
Lowville
Port Leyden
Whitehall
Boonville
Warrensburg
Lake George
Granville
Lake Luzerne-Hadley
Glens Falls

951106KH NY SARANAC LAKE USA

Licensee: DONALD J. MCHONE
Service Designation: TV NTSC (analog) television station

Channel: 61 752 - 758 MHz Application
File No.: BPCT-19951106KH Facility ID number: 78297
CDBS Application ID No.: 216066

44° 09' 35.00" N Latitude Site in Canadian Border Zone
74° 28' 34.00" W Longitude (NAD 27)

| Polarization: | Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 1000. | kW ERP |
| Antenna Height Above Average Terrain: | 441. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 970. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 2
Frequency Offset: - (minus)

96.81 km (60.15 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 207.81° using the method in Section 73.208 of calculating distance. (Reverse bearing 27.41°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00

CDBS: Station Info Application Info Mailing Address Assignments and Transfers Application List CDBS Search Page Ownership Info EEO Call Sign Changes
Site: Region Map Area Map Local Map
Area: Service Contour Map (64 dBu) Alternate Map Link


Rouses Point
Massena
Swanton
Malone
Brasher Falls-Winthrop
Norwood
Ogdensburg
Potsdam
Plattsburgh
Canton
Peru
Burlington
Gouverneur
Saranac Lake
Lake Placid
Tupper Lake
Philadelphia
Star Lake
951106KH BPCT-19951106KH
Vergennes
Fort Drum
Mineville-Witherbee
Carthage
Middlebury
Lowville
Ticonderoga
Whitehall
Ogdensburg
Warrensburg
Granville
Camden
Lake Luzerne-Hadley
Glens Falls
Corinth

- QC MONTREAL Canada

Service Designation: TV NTSC (analog) television station

Channel: 62 758 - 764 MHz Application
File No.: --- Facility ID number: 97821
CDBS Application ID No.: 303123

45° 30' 20.00" N Latitude
73° 35' 31.00" W Longitude (NAD 27)

| | Polarization: Horizontal (H) | |
|---|---|---|
| Effective Radiated Power (ERP): | 5.5 | kW ERP |
| Antenna Height Above Average Terrain: | 218. | meters HAAT |
| Antenna Height Above Mean Sea Level: | 0. | meters AMSL |
| Antenna Height Above Ground Level: | 0. | meters AGL |

TV Zone: 1
Frequency Offset: 0 (zero)

68.56 km (42.60 miles) distant from 44° 55' 52.00" N Lat 73° 54' 36.00" W Lon, at a bearing of 21.19° using the method in Section 73.208 of calculating distance. (Reverse bearing 201.42°.)

Non-Directional Antenna ID No.: - Pattern Rotation: 0.00

*** 40 TV Records within 161.00 km distance of
44° 55' 52.00" N, 73° 54' 36.00" W ***

COMSEARCH

19700 Janelia Farms Blvd
Ashburn, VA 20147
703-726-5500

## Cellular/PCS Telephone Operation in the Vicinity of the Proposed Marble River Wind Energy Facility in Clinton County, NY

Comsearch was contracted by Environmental Design & Research P.C. of Syracuse, NY to analyze the impact that the installation of a wind energy facility consisting of 109 turbines in Clinton County, NY would have on the operation of Cellular and PCS mobile telephone communication systems in and around the facility. The facility will be called the Marble River Wind Energy Facility. Table 1 contains the licensed Cellular operators in the Marble River area. Table 2 contains the PCS operators in the Marble River area. Cellular and PCS telephone operators for the Marble River area are based on the underlying county for the wind facility, which is Clinton County. Clinton County is in (Cellular Market Area) CMA560, New York 2 - Franklin, for the Cellular licensees. Clinton County is in (Basic Trading Area) BTA352, Plattsburgh, NY, and (Major Trading Area) MTA001, New York, for the PCS licensees. So the area considered for both Cellular and PCS mobile telephones encompasses the CMA, MTA and BTA areas that Clinton County is part of. The CMA and BTA areas are much larger than the Marble River Wind Energy Facility or Clinton County areas but the companies that have licenses in these larger areas certainly have some base stations (cell sites) in the vicinity of the Marble River Wind Energy Facility.

**Table 1 Cellular Telephone Operators in the Clinton County, NY Area**

| Operator | Band of Operation |
|---|---|
| RCC Atlantic (Rural Cellular Corp) | A |
| Verizon | B |

**Table 2 PCS Telephone Operators in the Clinton County, NY Area**

| Operator | Band of Operation |
|---|---|
| Cingular | A |
| T-Mobile | A |
| Sprint-PCS | B |
| Verizon | C |
| DEVTEL | C |
| New Dimensions Wireless | C |

| | |
|---|---|
| Cingular (Rural Cellular Corp) | D |
| RCC Minnesota | E |
| PCS Partners | F |

However, the telephone mobile communications in the Cellular and PCS frequency bands should be minimally affected by the presence of the wind turbines. This is so because the blockage caused by the wind turbines is not very destructive to the propagation of the signals in these frequency bands and the way the telephone systems are designed to operate is that if the signal from, or to, a mobile unit cannot reach one cell it will be able to reach one or more other cells in the network. Therefore, local obstacles are not normally a problem for these systems, whether they are installed in urban areas near large structures and buildings, or in a rural area such as the Clinton County, NY area near a wind energy facility. If a Cellular or PCS company could show or claim that their coverage has been compromised by the presence of the wind energy facility, an unlikely condition, the way to restore the coverage is to install an additional cell or an additional sector antenna to an existing cell for the affected area. Utility, meteorology, and/or the turbine towers within the wind facility can serve as the structure platforms for the additional Cellular or PCS base station or sector antennas to accomplish this. The installation of these antennas on the wind facility towers are subject to the notification and approval of the local oversight authority.

COMSEARCH

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## Land Mobile Radio (LMR) in the Vicinity of the Proposed Marble River Wind Energy Facility in Clinton County, NY

Comsearch was contracted by the Environmental Design & Research P.C. of Syracuse, NY to identify and locate the LMR operators in the vicinity of their proposed Marble Wind Energy Turbine Facility in Clinton County, NY. Comsearch determined that there were 60 LMR systems registered in the area. Table 1 identifies the LMR Systems and lists their pertinent parameters and owner/operator. Note that all but six of the LMR operators in the area are part of a governmental body, i.e. the State of New York, the County of Clinton, and the New York Power Authority. Figure 1 shows the location of the LMR repeaters with respect to the proposed wind energy facility boundaries.

Table 1 LMR Licensees in the Marble River, NY Area

| Location | | Latitude | Longitude | Frequency-MHz | Owner-Operator |
|---|---|---|---|---|---|
| ELLENBURG | NY | 44.8531111111 | -73.9740277778 | 45.88000000 | CLINTON, COUNTY OF |
| ELLENBURG | NY | 44.8531111111 | -73.9740277778 | 46.08000000 | CLINTON, COUNTY OF |
| ELLENBURG | NY | 44.8531111111 | -73.9740277778 | 46.14000000 | CLINTON, COUNTY OF |
| ELLENBURG | NY | 44.8531111111 | -73.9740277778 | 46.22000000 | CLINTON, COUNTY OF |
| BRAINARDSVILLE | NY | 44.8522777778 | -73.9734722222 | 47.74000000 | NY Power Authority |
| BRAINARDSVILLE | NY | 44.8522777778 | -73.9734722222 | 47.78000000 | NY Power Authority |
| ELLENBURG CENTER | NY | 44.8531111111 | -73.9740277778 | 462.85000000 | UPSTATE PAGING INC |
| CHURUBUSCO | NY | 44.9561666667 | -73.9321111111 | 153.78500000 | CLINTON, TOWN OF |
| ELLENBURG | NY | 44.8528333333 | -73.9743055556 | 72.08000000 | BONNER, BART S |
| CHURUBUSCO | NY | 44.9556111111 | -73.9246111111 | 852.01250000 | COUNTY OF CLINTON |
| CHURUBUSCO | NY | 44.9556111111 | -73.9246111111 | 852.36250000 | COUNTY OF CLINTON |
| CHURUBUSCO | NY | 44.9556111111 | -73.9246111111 | 852.56250000 | COUNTY OF CLINTON |
| CHURUBUSCO | NY | 44.9556111111 | -73.9246111111 | 852.81250000 | COUNTY OF CLINTON |
| CHURUBUSCO | NY | 44.9556111111 | -73.9246111111 | 853.01250000 | COUNTY OF CLINTON |
| ELLENBURG CENTER | NY | 44.8531111111 | -73.9662500000 | 462.85000000 | PREMIER PAGING INC |
| ELLENBURG CENTER | NY | 44.8531111111 | -73.9740277778 | 461.32500000 | SVENDSEN, ERL |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.03750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.06250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.11250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.13750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.16250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.18750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.21250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.23750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.46250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.48750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.51250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.53750000 | New York, State of |

| | | | | | |
|---|---|---|---|---|---|
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.56250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.58750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.61250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.63750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.66250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.68750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.91250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.93750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 851.96250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.03750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.06250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.08750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.13750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.38750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.41250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.43750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.48750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.51250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.53750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.58750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.83750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.86250000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.88750000 | New York, State of |
| Brainardsville | NY | 44.8522222222 | -73.9738888889 | 852.93750000 | New York, State of |
| ELLENBURG | NY | 44.8541944444 | -73.9787500000 | 456.25000000 | NY Power Authoity |
| CHURUBUSCO | NY | 44.9555555556 | -73.8916666667 | 153.87500000 | CLINTON, COUNTY OF |
| PERU | NY | 44.8522222222 | -73.9738888889 | 868.17500000 | New York, State of |
| PERU | NY | 44.8522222222 | -73.9738888889 | 868.42500000 | New York, State of |
| PERU | NY | 44.8522222222 | -73.9738888889 | 868.71250000 | New York, State of |
| Churubusco | NY | 44.9556111111 | -73.9246111111 | 851.03750000 | New York, State of |
| ELLENBURG CENTER | NY | 44.8530277778 | -73.9743333333 | 461.58750000 | SVENDSEN, ERLING |
| ELLENBURG CENTER | NY | 44.8530277778 | -73.9743333333 | 464.06250000 | SVENDSEN, ERLING |

The frequencies of operation of the LMR repeaters are generally unaffected by the presence of wind turbines. Very little, if any, change in the coverage of the repeaters will occur when the wind turbines are installed. However, if there is a reported change in coverage it can be easily corrected by repositioning or adding repeaters that operate with the LMR system mobile systems. This can be accomplished by adding or positioning the repeaters at locations within the wind facility. Repeater antennas can be installed on utility, meteorological or turbine towers in the wind facility if needed. The plans for the installation of these repeater antennas for this purpose should be given to the local government oversight authority for review and approval before actual installation is undertaken.


**Figure 1 Marble River, New York LMR Repeater Sites**

**UNITED STATES DEPARTMENT OF COMMERCE**
**National Telecommunications and Information Administration**
Washington, D.C. 20230

FEB 2 0 2006

Mr. Lester E. Polisky
Comsearch
Senior Principal Engineer
Field Services Department
19700 Janelia Farms Blvd
Ashburn, VA 21147

RE: Marble River Wind Farm Development in Clinton County, NY

Dear Mr. Polisky:

In response to your request, the National Telecommunications and Information Administration provided to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC) the plans for the Marble River Wind Farm Development in Clinton County, NY. After a 30 day period of review, the agencies have not identified any concerns regarding blockage of their radio frequency transmissions.

While the IRAC agencies did not identify any concerns regarding radio frequency blockage, this does not eliminate the need for the wind energy facilities to meet any other requirements specified by law related to these agencies. For example, this review by the IRAC does not eliminate any need that may exist to coordinate with the Federal Aviation Administration concerning flight obstruction.

Thank you for the opportunity to review these proposals.

Sincerely,

Karl B. Nebbia
Deputy Associate Administrator
Office of Spectrum Management