

WCIB Facility ID No.: 2683

Minor Modification for Change of Antenna Type and Power

July 2014

This application is one of three applications of a coordinated contingent group of minor change applications involving stations WCIB, Falmouth, MA, Facility ID 2683, WBWL, Lynn, MA, Facility ID 40824, and WWBB, Providence, RI, Facility ID 54568.

By this application, WCIB seeks to modify its current facility to specify utilization of Section 73.215, use of a directional antenna system, and reduced power to accommodate a contingent facilities modification by WBWL. No change in facility location for WCIB is requested other than to correct location and elevation to the associated antenna structure registration number 1004088.

The WCIB antenna structure registration data indicates that the tower base elevation is 2.4 meters above ground level and the present and proposed antenna mounting location is 150 meters above ground level, which equates to an antenna mounting elevation of 152 meters above mean sea level. This antenna elevation, along with the geographic coordinates, were input into the FCC provided web tool to determine the height above average terrain (“HAAT”) of each of the 8 radials, see **Figure 1**. As can be seen in the radial segment map of **Figure 2**, the 135° and 225° radial segments are entirely over water. Figure 2 also shows the calculation of the HAAT with those radials excluded, for a facility HAAT of 145 meters.

Attached as **Figure 3** is a spacing study, conducted at the WCIB antenna location,¹ which includes all known facilities, applications, and allocations, as well as the planned modified facilities of WBWL and WWBB. This Figure confirms that the WCIB antenna location will be fully spaced in accordance with Section 73.207 with all known facilities, applications and allocations with the exception of the contingent modification applications of WBWL and WWBB, as well as the existing facilities of WGTX; to which compliance with Section 73.215 will be demonstrated.

To prevent prohibited contour overlap with WBWL and WGTX, WCIB will operate at 13.0 kilowatts effective radiated power utilizing the directional antenna pattern shown in **Figure 4**. The principal community contour of the proposed WCIB facility is shown by **Figure 5** to completely encompass the community of license. With respect to WBWL, no prohibited contour overlap is predicted as demonstrated in **Figure 6**. With respect to WGTX, no prohibited contour overlap is predicted as demonstrated in **Figure 7**. With respect to WWBB, no prohibited contour overlap is predicted as demonstrated in **Figure 8**.

The proposed WCIB facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, “Evaluating Compliance With FCC-Specified

¹ 41-33-30.6 N 70-35-45.9 W (NAD 27), Antenna Structure Registration 1004088.

Guidelines for Human Exposure to Radio frequency Radiation.” The proposed antenna system is a Shively 6810, 2-element, half-wave spaced antenna mounted 146 meters above ground. As this element type is modeled in the “FM Model” program, it has been set to calculate values for this type of antenna element array, operated with an effective radiated power of 13.0 kilowatts in both the horizontal and vertical planes. At 2 meters above the surface, at 564 meters from the base of the tower, this proposal will contribute worst case, 1.00 microwatts per square centimeter, or 0.1 percent of the allowable ANSI limit for controlled exposure, and 0.5 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

Figure 1. Determination of Individual Radial Height Above Average Terrain

Antenna Height Above Average Terrain (HAAT) Calculations (HAAT) Results Aud... Page 1 of 1

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Audio Division **Antenna Height Above Average Terrain (HAAT) / Contour Calculations**

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Antenna Height Above Average Terrain Calculations -- Input

Latitude **41 33 30.6 North**
Longitude **70 35 45.9 West** (NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **152.0** meters

Number of Evenly Spaced Radials = 8 0° is referenced to True North

Results:

Calculated HAAT= 147. meters

(Antenna Height Above Average Terrain)
using the 30 second FCC/NGDC terrain data)

Antenna Radiation Center Heights Above Individual Radials:

0.0°	129.2 meters
45.0°	141.1 meters
90.0°	152.0 meters
135.0°	152.0 meters
180.0°	148.2 meters
225.0°	152.0 meters
270.0°	149.6 meters
315.0°	150.4 meters

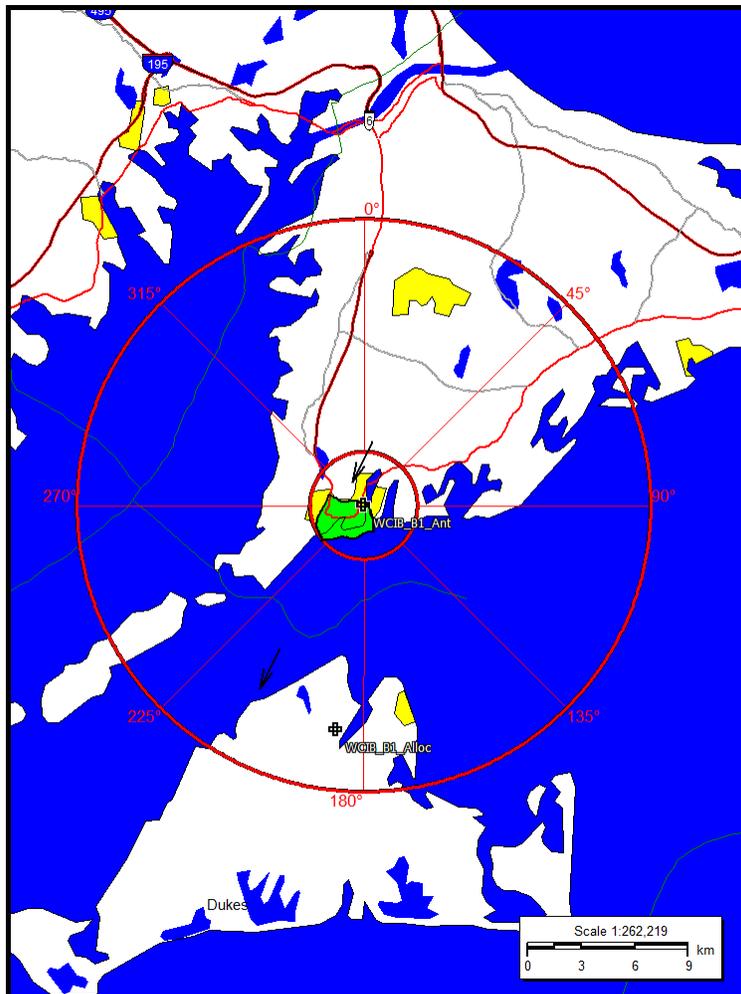
[New Antenna Height Above Average Terrain \(HAAT\) calculation?](#)

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http://transition.fcc.gov/fcc-bin/haat_calculator?dlat=41&mlat=33&slat=30.6&ns=1&dlon... 5/15/2014

Figure 2. WCIB Radial Segment Map and HAAT Calculation



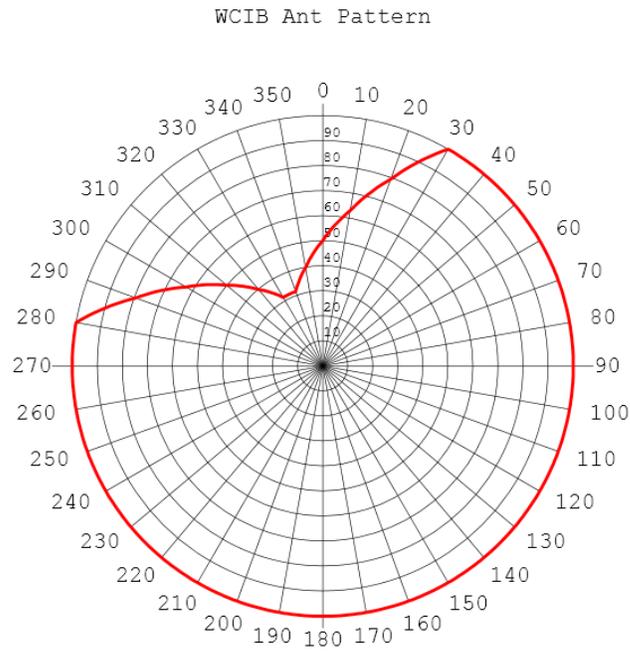
HAAT Calculation

0.0°	129.2	meters
45.0°	141.1	meters
90.0°	152.0	meters
180.0°	148.2	meters
270.0°	149.6	meters
315.0°	150.4	meters
6 Radial HAAT	145.1	meters

Figure 3. WCIB Antenna Location Spacing Study

Fac_id	Callsign	ChanI	ERP_w	Licensee	ARN	Class	Status	Dist_km	Sep	Clr	Comments
2683	WCIB	270	50000	QANTUM OF CAPE COD LICENSE COMPANY, LLC	BLH-19911028KA	B	LIC	0.01	241	-241	
40824	WBWL	269	1700	AMFM RADIO LICENSES, LLC	BLH-20060307AAE	A	LIC	96.08	113	-17	*73.215*
40824	WBWL_NonD	269	1700	AMFM RADIO LICENSES, LLC	Proposed	A	LIC	96.08	113	-17	*73.215*
54568	WWBB	268	13500	CLEAR CHANNEL BROADCASTING LICENSES, INC.	BLH-19841227KZ	B	LIC	67.79	74	-6.2	Will become Class A
49982	WPOR	270	35000	SAGA COMMUNICATIONS OF NEW ENGLAND, LLC	BXLH-20080715AAY	B	LIC	235.33	241	-5.7	Auxiliary Antenna
68214	WGTX	272	2150	DUNES 102FM LLC	BLH-20081009AOJ	A	LIC	67.33	69	-1.7	*73.215*
49982	WPOR	270	32000	SAGA COMMUNICATIONS OF NEW ENGLAND, LLC	BLH-20090225AAD	B	LIC	245.5	241	4.5	Clear
54568	WWBB_A_Ant	268	4900	CLEAR CHANNEL BROADCASTING LICENSES, INC.	Proposed	A	LIC	66.08	69	-2.9	New WWBB-268A Providence
58551	WAQY	271	17000	SAGA COMMUNICATIONS OF NEW ENGLAND, LLC	BMLH-19930514KA	B	LIC	184.62	169	15.6	
69407	WTKL	216	1200	EDUCATIONAL MEDIA FOUNDATION	BMLED-20060623ABP	A	LIC	35.11	15	20.1	
10542	WKLB-FM	273	14000	CHARLES RIVER BROADCASTING COMPANY	BLH-20090515ABT	B	LIC	98.99	74	25	

Figure 4. WCIB Directional Antenna Pattern



Azi	Rel	dBk	kW	dB	Azi	Rel	dBk	kW	dB
0	0.501	5.14	3.3	-6.00	180	1.000	11.14	13.0	0.00
10	0.630	7.13	5.2	-4.01	190	1.000	11.14	13.0	0.00
20	0.794	9.14	8.2	-2.00	200	1.000	11.14	13.0	0.00
30	1.000	11.14	13.0	0.00	210	1.000	11.14	13.0	0.00
40	1.000	11.14	13.0	0.00	220	1.000	11.14	13.0	0.00
50	1.000	11.14	13.0	0.00	230	1.000	11.14	13.0	0.00
60	1.000	11.14	13.0	0.00	240	1.000	11.14	13.0	0.00
70	1.000	11.14	13.0	0.00	250	1.000	11.14	13.0	0.00
80	1.000	11.14	13.0	0.00	260	1.000	11.14	13.0	0.00
90	1.000	11.14	13.0	0.00	270	1.000	11.14	13.0	0.00
100	1.000	11.14	13.0	0.00	280	1.000	11.14	13.0	0.00
110	1.000	11.14	13.0	0.00	290	0.794	9.14	8.2	-2.00
120	1.000	11.14	13.0	0.00	300	0.630	7.13	5.2	-4.01
130	1.000	11.14	13.0	0.00	310	0.501	5.14	3.3	-6.00
140	1.000	11.14	13.0	0.00	320	0.398	3.14	2.1	-8.00
150	1.000	11.14	13.0	0.00	330	0.316	1.13	1.3	-10.01
160	1.000	11.14	13.0	0.00	340	0.316	1.13	1.3	-10.01
170	1.000	11.14	13.0	0.00	350	0.398	3.14	2.1	-8.00

Rotation Angle = 0

Figure 5. Map of Principal Community Coverage from WCIB Antenna Location

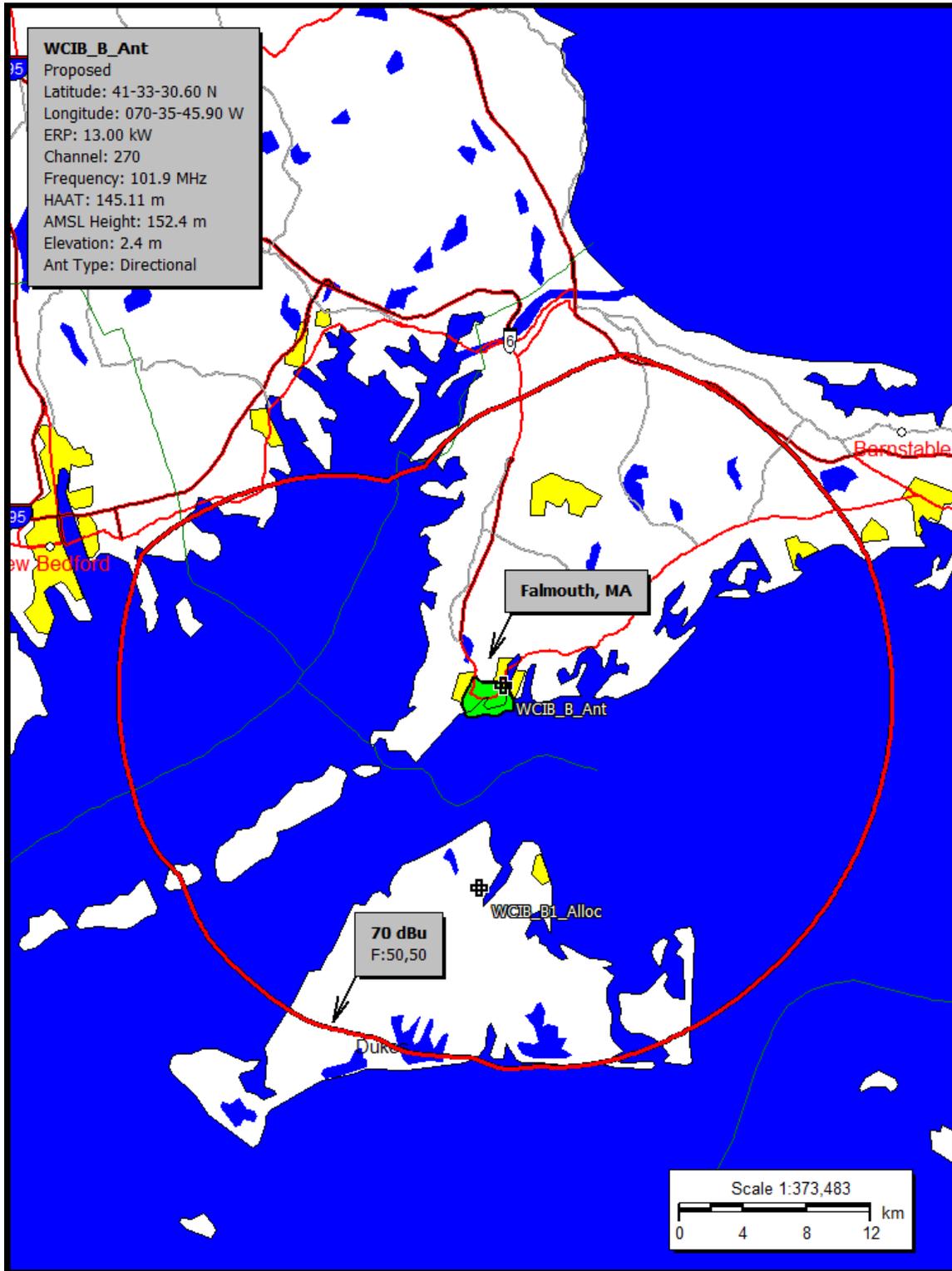


Figure 6. Map of WCIB and WBWL Predicted Protected and Interfering Contours

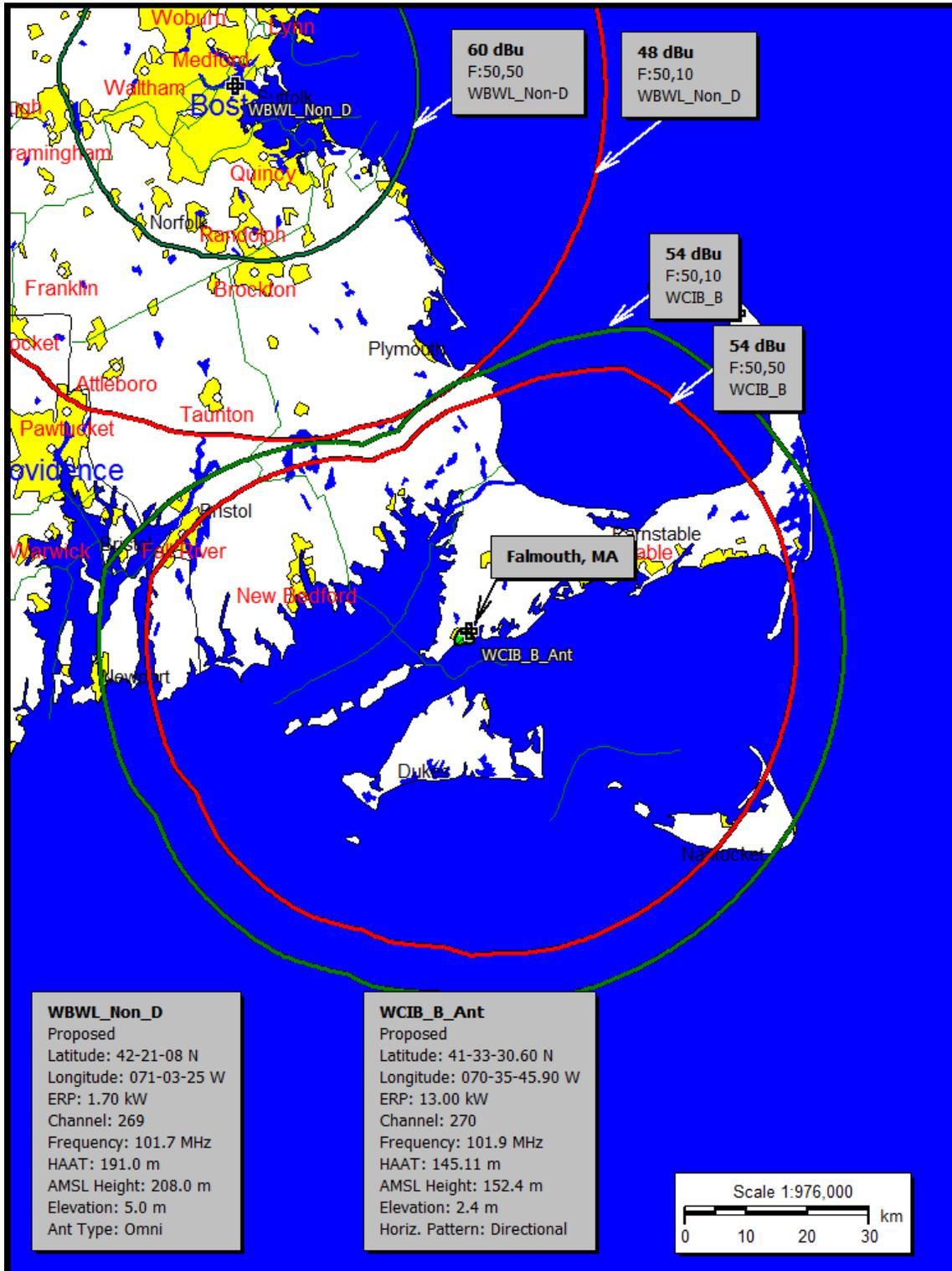


Figure 7. Map of WCIB and WGTX Predicted Protected and Interfering Contours

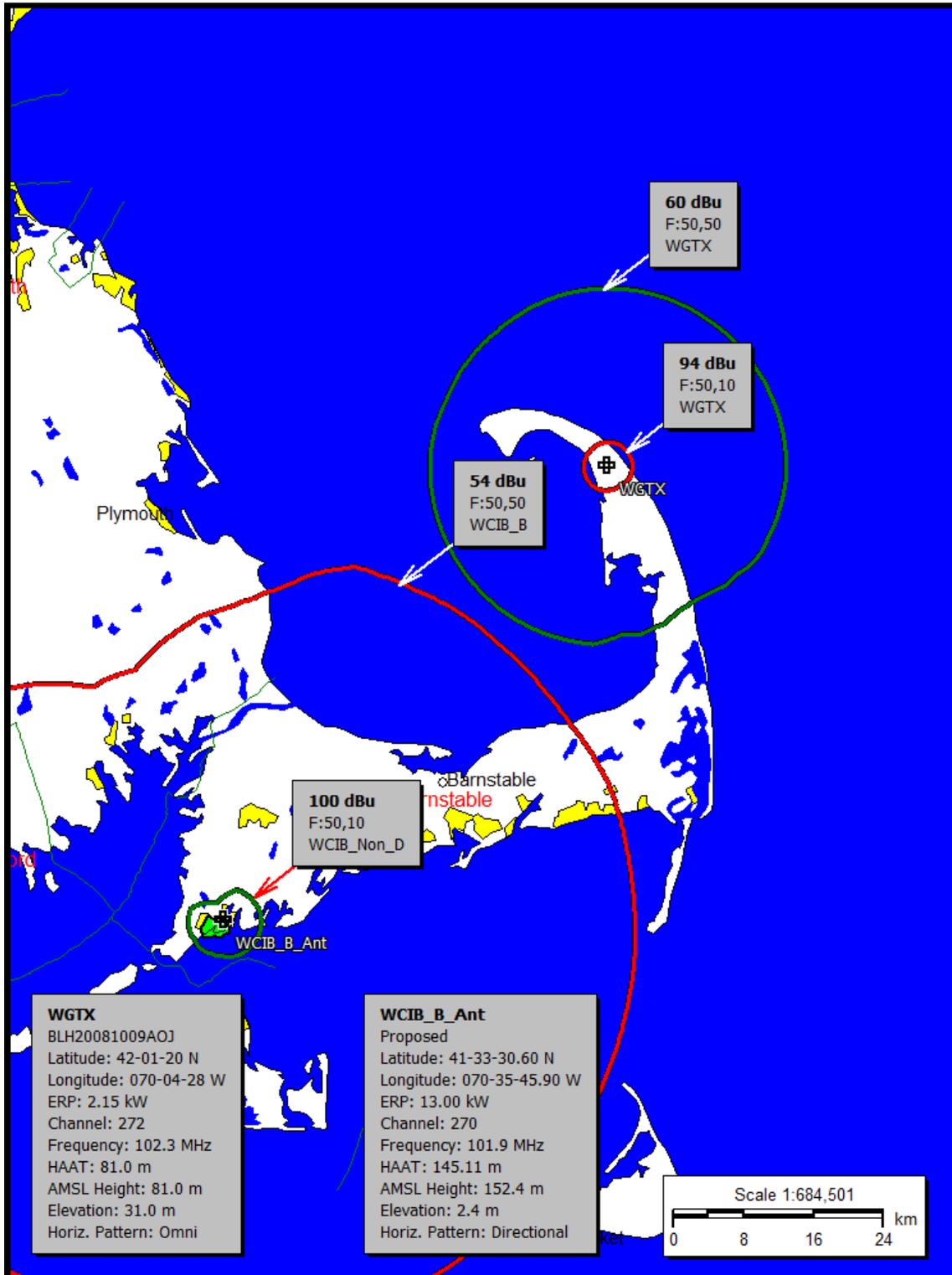


Figure 8. Map of WCIB and WWBB Predicted Protected and Interfering Contours

