

# **Proposed Minor Change to W276AV at Stamford, Connecticut**

## **Technical Statement**

### **Summary**

This translator is presently licensed in noncommercial educational service with NCE station WSTC(AM) as its primary. The proposed 60 dBu service contour does not extend beyond the WSTC 2 mV/m contour, and overlaps that of the translator licensed facility.

This application requests a channel change from 276 to 288 with processing as a minor change. A displacement waiver is respectfully requested due to an recent upgrade of co-channel WBZO at Bayshore, NY (BLH-20141218AFF) that has substantially increased incoming interference. Further justification for this waiver is discussed in a separate attachment to Exhibit 13.

### **74.1204 Study**

Facilities in the region not meeting the spacing requirements of Section 73.207 with respect to the proposed Channel 288 facility considered as a Class A were studied. These include:

<u>Call Sign</u>	<u>Location</u>	<u>Channel No.</u>
WWPR-FM	New York, NY	286B
WDHA-FM	Dover, NJ	288A
WDBY	Patterson, NY	288A
WDBA-LP CP	Farmingdale, NY	288LP100
WDBA-LP APP	Farmingdale, NY	288LP100
WDMB-LP	Queens, NY	288LP100
WQEQ-LP	Flushing, NY	288LP100
W289AD	Selden, NY	289D
WQXR-FM	Newark, NJ	290B1
WBLI	Patchogue, NY	291B

Figures 1 and 2 illustrate the absence of prohibited overlap between the proposed translator interfering contours and the pertinent service contours of the three LPFMs, and WDBY, WDHA-FM, W289AD, and WQXR-FM. (Key: same colors may not overlap.)

A Longley-Rice study of the relative field strength of the proposed translator and WDBY is provided and discussed in Figures 3 and 4.

The antenna site lies within the service contours of both WWPR-FM and WBLI. Therefore, the applicant hereby respectfully requests a waiver pursuant to 74.1204(d) as described below.

As shown in Figure 2, WWPR-FM places a 60.5 dBu service contour over the proposed site and WBLI places a 56.4 dBu service contour over the proposed site. The Commission has generally considered overlap from a proposed translator interfering contour to be acceptable where the ratio of undesired to desired signal (U/D) does not exceed 40 dB i.e. where in the instant case the proposed translator F(50,10) interfering signal does not exceed 96.4 dBu at ground level.

### **Interference Protection to All Nearby Residences, Businesses, and Roadways**

The proposed translator facility will operate with a maximum ERP of 0.010 kW (H&V) using An OMB MP-2 0.75 wavelength-spaced 2-bay antenna array. For an ERP of 0.010 kW, the distance to the 96.4 dBu F(50,10) interfering contour in free space is 336 meters. The proposed antenna will be mounted with its center of radiation at 125 meters above ground level.

The array produces a vertical radiation pattern that prevents the 96.4 dBu F(50,10) interfering contour from reaching the ground at any point within 336 meters antenna site. The antenna vertical pattern is illustrated and field values tabulated in Attachments A-1 and A-2 hereto.

Based on the actual distance in space from the antenna center of radiation to points on the ground, the table in Attachment B provides calculations of the interference protection at distances between 10 meters and 336 meters from the proposed antenna. For each point, the downward angle and actual distance in space from the proposed antenna CR is shown together with the maximum allowable ERP, the maximum allowable field, a comparison with the actual field produced by the antenna, and the margin of safety. As shown in Attachment B, the margin of safety is not less than 3.3 dB at any point.

The applicant therefore believes its application meets the requirements of Section 74.1204(d) with respect to "other factors" insuring no actual interference to either WWPR-FM or WBLI. Should any actual interference occur, the applicant will take the required steps to eliminate it, or cease operation.

### **Environmental Considerations**

The proposed facility will be mounted on an existing tower and will operate with less than 0.100 kW. RFR compliance was determined by use of the RF worksheets in Appendix A. The applicant will cease operation or reduce power as necessary in cooperation with other users of the tower in order to prevent uncontrolled or controlled exposure in excess of the guidelines of OET-65.

Respectfully submitted,

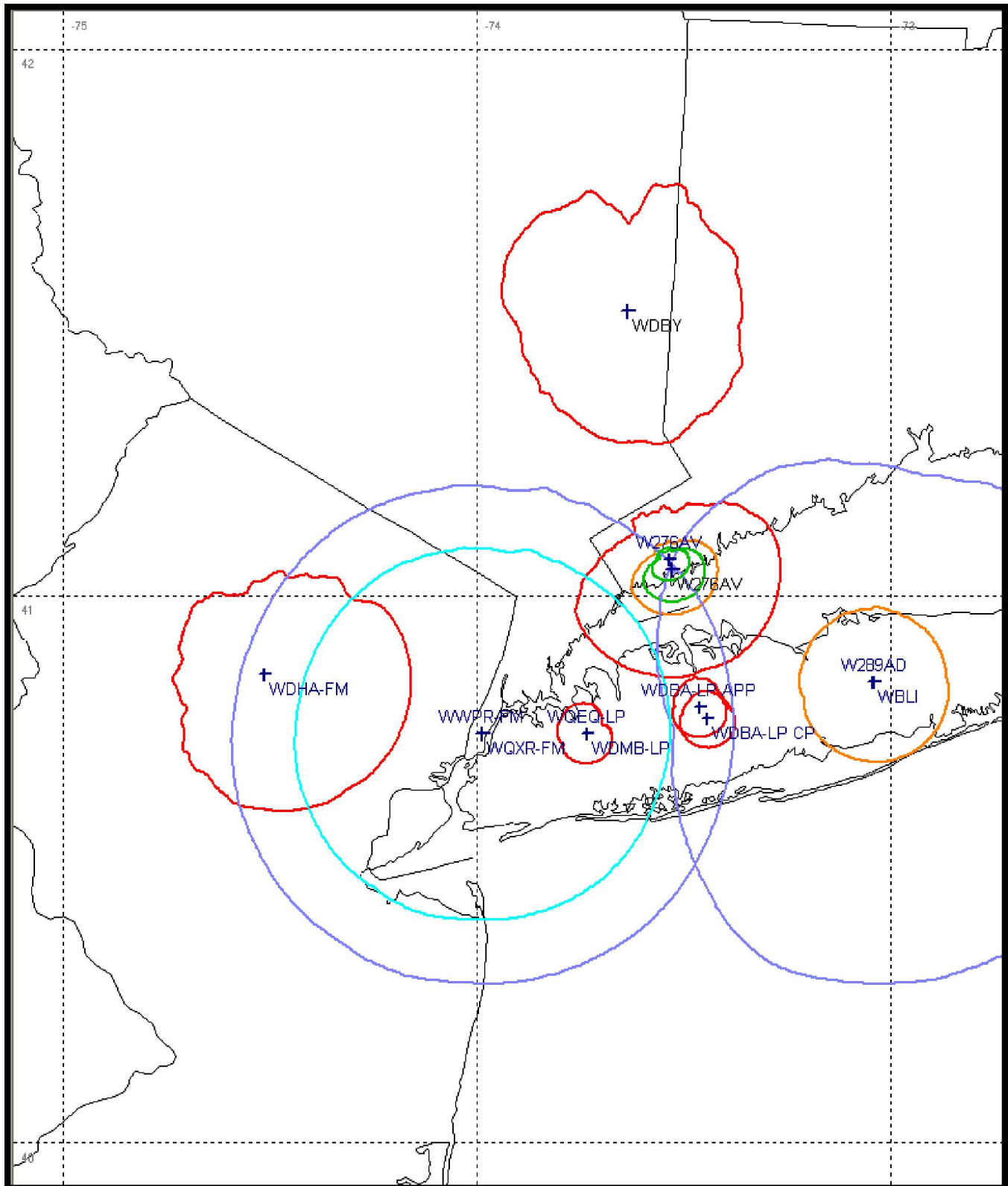
A handwritten signature in black ink, appearing to read 'D. Jackson', with a stylized flourish at the end.

Dennis Jackson  
Applicant  
January 29, 2016

**Figure 1 – Section 74.1204 Study**

**No prohibited overlap is created. Key: same colors may not overlap.**

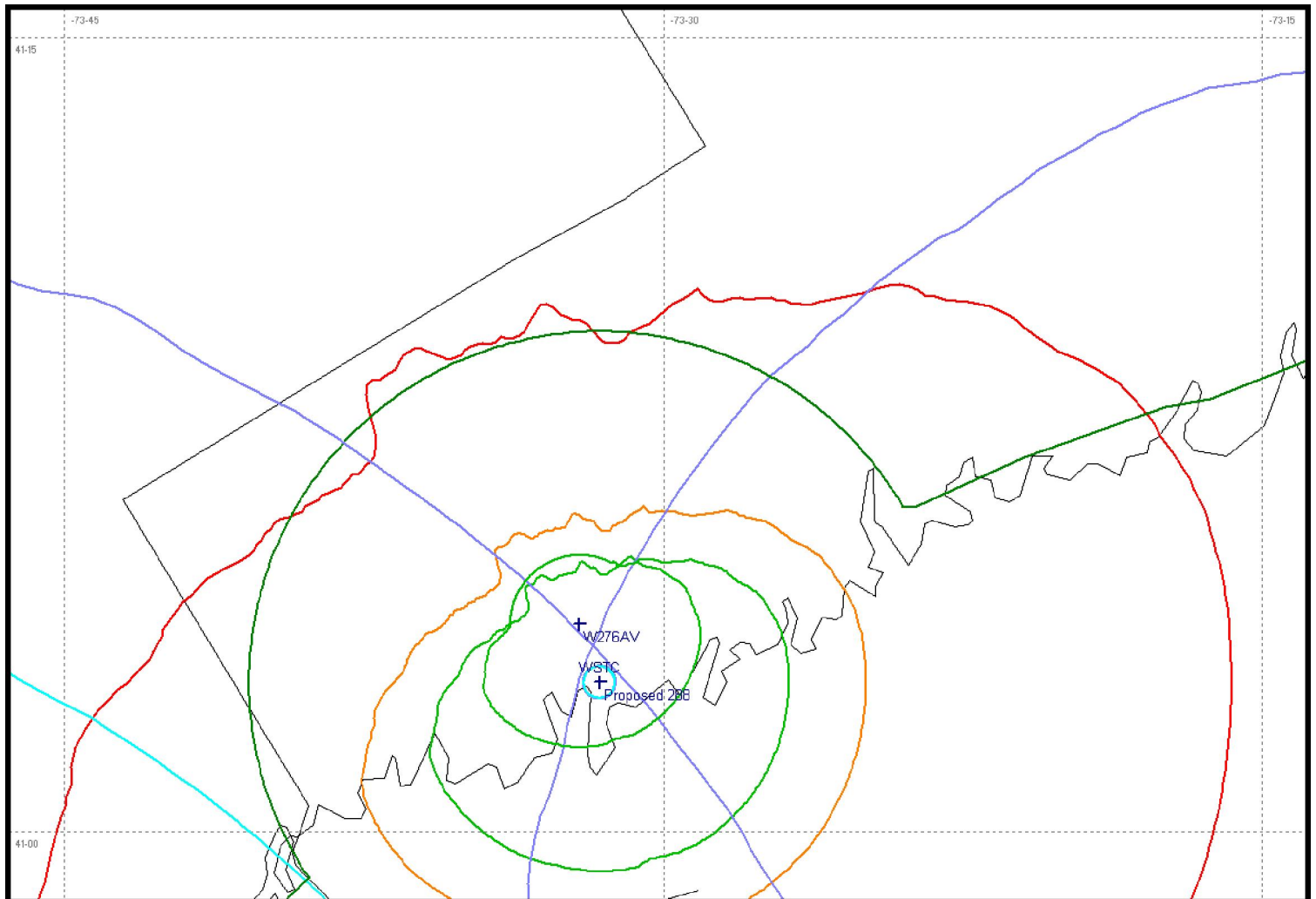
**WWPR-FM places a 60.5 dBu service contour over the proposed site and  
WBLI places a 56.4 dBu service contour over the proposed site.**



**Figure 2 – Section 74.1204 Study Closeup**

**Original and proposed service contours overlap (green). Proposed service contour is fully enclosed within the 2 mV/m contour of WSTC(AM) (dark green.)**

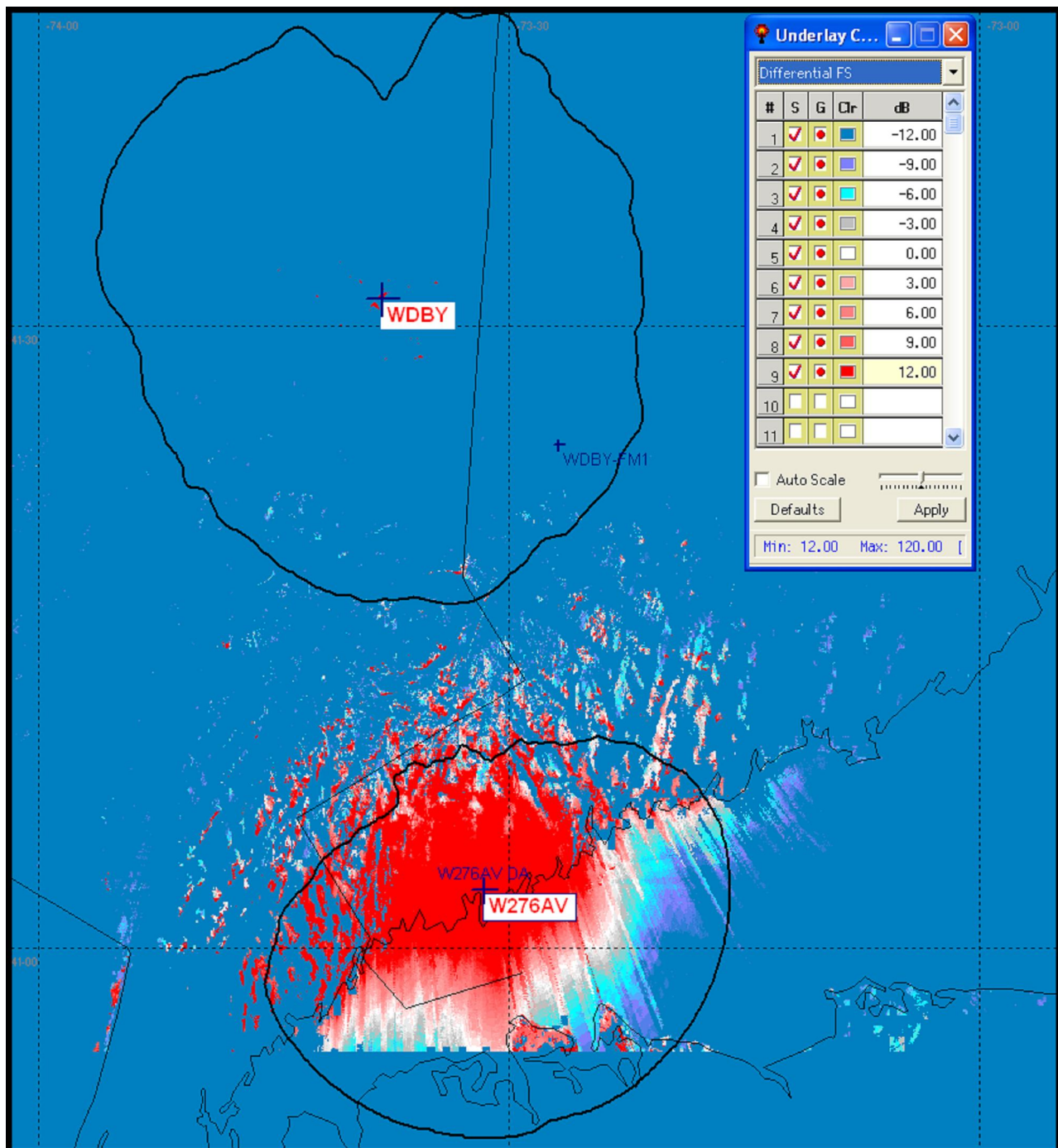
**WWPR-FM places a 60.5 dBu service contour over the proposed site and  
WBLI places a 56.4 dBu service contour over the proposed site.  
These two F(50,50) service contours are shown in dark blue.**



**Figure 3 – Longley-Rice Study of Proposed Translator vs WDBY**

As shown below, no interference is created within the 60 dBu Service Contour of WDBY, except potentially in a small area shown in detail on the USGS map section in Figure 4 below. This area is shown in detail and circled in red in Figure 4. It falls on the south faces of Long Pond Mountain and East Long Pond Mountain along a steep embankment where the terrain drops off sharply into Lakes Waccabuc and Rippowam. The area is severely shielded from signals to the north such as WDBY. The area lies within the former Mountain Lakes Camp now owned by Westchester County, NY. Interference occurs within an uninhabited area with no residences or roads. The only exception is lightly traveled Hawley/Oscaleta Road, which cuts through a notch that also facilitates propagation of signals from the north such as WDBY. The Longley-Rice study terrain resolution is insufficient to resolve propagation through the notch that carries the roadbed, but the absence of terrain blockage from the north can be seen on the map in Figure 4.

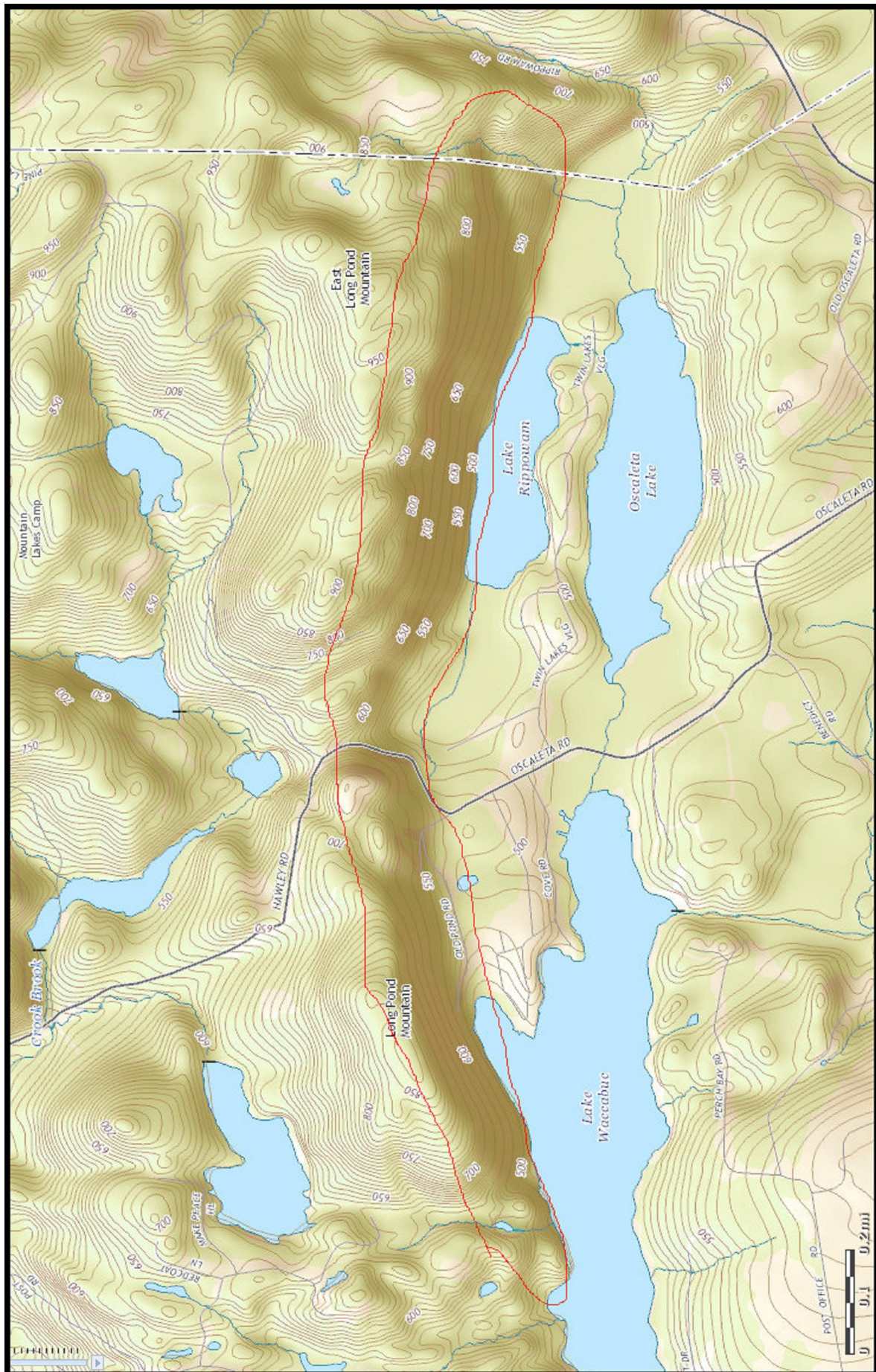
The red pixels in the immediate vicinity of the WDBY antenna site are an anomaly. Signals not shown where WDBY signal is below 40 dBu.





**Figure 4 – Map of Area of Potential Interference to WDBY**

Map is rotated 90 degrees counterclockwise. North is to the left.



## Antenna Vertical Radiation Profile

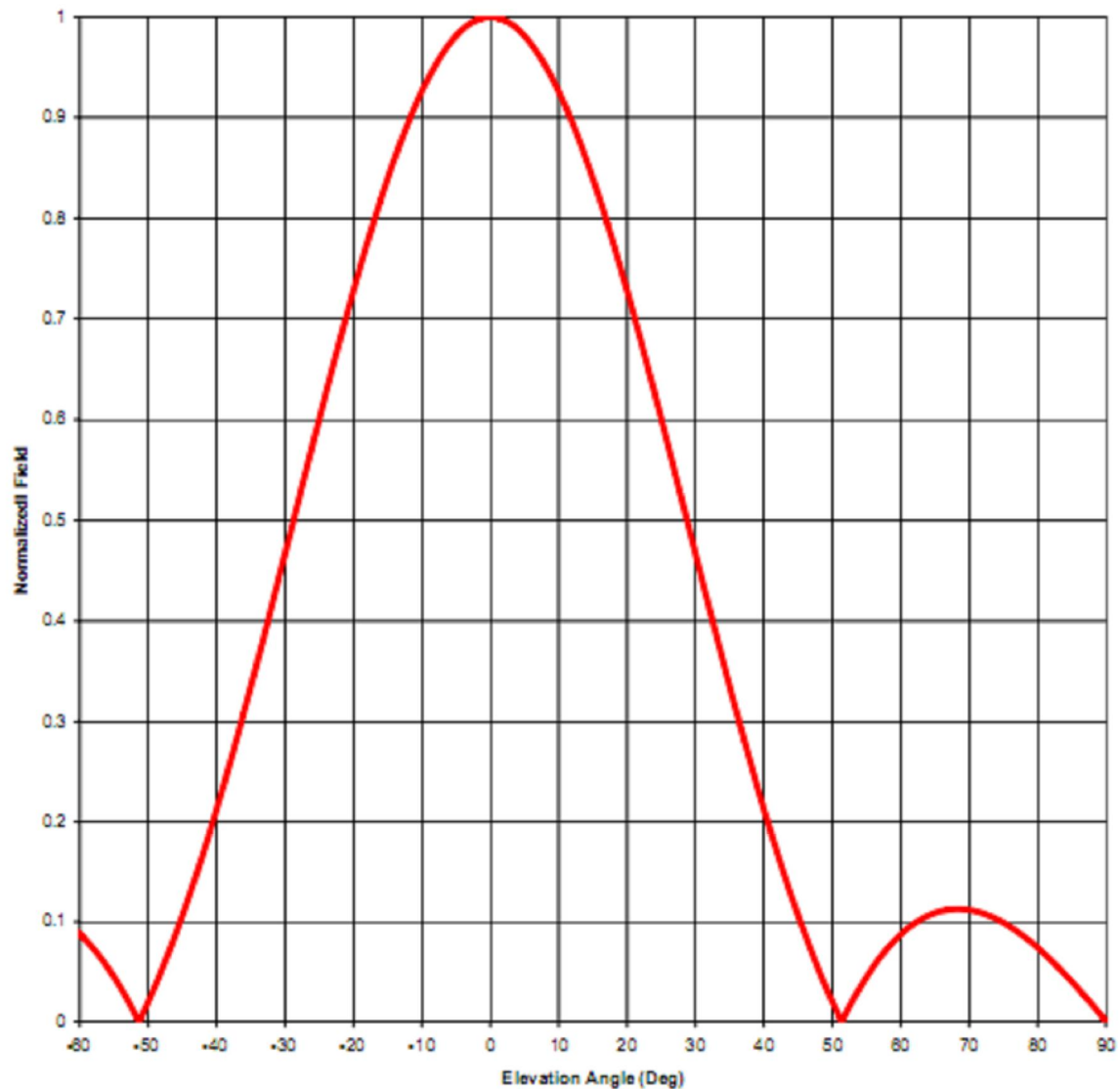


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## MP-2 ELEVATION PATTERN

Antena Type: MP-2  
Freq: 98.1MHz





## Attachment A-2

### Antenna Vertical Profile Field Values



Certif. nº Ex01-022

Certif. nº Ex01-021

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ELEVATION PATTERN TABULATION			
Degrees	Relative Field	Degrees	Relative Field
1	0.999	46	0.088
2	0.997	47	0.069
3	0.993	48	0.052
4	0.988	49	0.036
5	0.981	50	0.020
6	0.973	51	0.005
7	0.963	52	0.009
8	0.952	53	0.021
9	0.940	54	0.033
10	0.926	55	0.045
11	0.911	56	0.055
12	0.895	57	0.064
13	0.877	58	0.073
14	0.859	59	0.080
15	0.839	60	0.087
16	0.819	61	0.093
17	0.797	62	0.098
18	0.775	63	0.103
19	0.752	64	0.106
20	0.728	65	0.109
21	0.703	66	0.111
22	0.678	67	0.112
23	0.653	68	0.113
24	0.627	69	0.113
25	0.601	70	0.112
26	0.574	71	0.110
27	0.547	72	0.108
28	0.521	73	0.106
29	0.494	74	0.103
30	0.467	75	0.099
31	0.440	76	0.095
32	0.413	77	0.090
33	0.387	78	0.085
34	0.361	79	0.080
35	0.335	80	0.074
36	0.309	81	0.068
37	0.284	82	0.061
38	0.260	83	0.055
39	0.236	84	0.048
40	0.213	85	0.040
41	0.190	86	0.033
42	0.168	87	0.025
43	0.147	88	0.017
44	0.126	89	0.009
45	0.107	90	0.000



## **Attachment B**

**Calculation of Maximum Allowable Field  
Compared to Actual Antenna Field Values  
At Pertinent Distances and Angles  
In Order To Prevent 96.4 dBu F(50,10) Interfering Contour  
to WBLI 56.4 dBu F(50,50) Service Contour  
From Reaching the Ground.**

**Antenna HAGL is 125 meters. ERP (H&V) is 0.01 kW**

**Margin of Safety is not less than 3.3 dB at any point.**

<b>Horizontal Distance to Point (meters)</b>	<b>Downward Vertical Angle (degrees)</b>	<b>Actual Distance in Space (meters)</b>	<b>Power Limit (Watts)</b>	<b>Antenna Field Limit</b>	<b>Actual Antenna Field</b>	<b>Margin of Safety (dB)</b>
10	85.4	125.4	1.38	0.371	0.037	20.03
20	80.9	126.6	1.41	0.375	0.069	14.72
30	76.5	128.5	1.46	0.382	0.093	12.27
50	68.2	134.6	1.60	0.400	0.113	10.98
70	60.8	143.3	1.82	0.427	0.091	13.42
100	51.3	160.1	2.28	0.477	0.006	38.02
150	39.8	195.3	3.40	0.583	0.218	8.55
200	32.0	235.8	4.93	0.702	0.413	4.61
250	26.6	279.5	6.90	0.831	0.564	3.36
300	22.6	325.0	9.40	0.970	0.663	3.30
312	21.8	<b>336.1</b>	10.0	1.000	0.683	3.31