Proposed Site Change for W246BP from Sanford, Maine to Exeter, NH

Technical Statement

Primary AM Station Fill-In Status

This application proposes relocation of W246BP to facilitate fill-in translator service for WXEX, a daytime AM station at Exeter, NH and licensed to the proposed assignee (File No. BALFT-20151015ADY.) The proposed service contour falls entirely within the 2 mV/m service contour of WXEX as illustrated in Figure 1.

Allowed Move Subject to Waiver of Section 74.1233(a)(1) ("Mattoon Waiver")

Both the licensed and proposed antenna sites are outside of any market named in the *Report and Order In the Matter of Creation of A Low Power Radio Service, and Amendment of Service and Eligibility Rules for FM Broadcast Translator Stations, Third Further Notice of Proposed Rule Making, FCC 11-105, July 12, 2011*. Therefore, the proposed move will not foreclose any further licensing opportunities for LPFM stations.

The 40 dBu F(50,10) interfering contour of the proposed amended facility overlaps the 60 dBu F(50,50) service contour of the licensed facility (File No. BLFT-20070621ABV) as illustrated in Figure 1. Hence, the facilities are mutually exclusive for purposes of the requested waiver.

A waiver of Section 74.1233(a)(1) is hereby respectfully requested. Support for this request is provided in Exhibit A to Attachment 12 of this application.

74.1204 Study

Nearby facilities not meeting the spacing requirements of Section 73.207 with respect to the proposed Channel 272 facility considered as a Class A were studied. These include:

Call Sign	Location	Channel No.
WMLL	Bedford, NH	243A
WQSO	Rochester, NH	244A
WBQT	Boston, MA	245B
WOKQ	Dover, NH	248B

Figures 2A, 2B, and 2C illustrate the absence of prohibited overlap between the proposed translator interfering contours and the 60 dBu service contours of WMLL. WQSO, and WBQT. (Key: same colors may not overlap.)

The proposed new site lies within the service contour of WOKQ, as does the current licensed site. Therefore, the applicant hereby respectfully requests a waiver pursuant to 74.1204(d) as described below.

As shown in Figure 2B, WOKQ places a 78.5 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 interfering signal does not exceed 118.5 dBu.

Interference Protection to All Nearby Residences, Businesses, and Roadways

The proposed translator facility will operate with an ERP of 0.200 kW (H&V.) For an ERP of 0.200 kW, the distance to the 118.5 dBu F(50,10) contour in free space is 118 meters.

For purposes of assuring no interference to WOKQ, all land within a minimum 118 meter radius of the antenna site was considered to be at the same elevation as the highest land in the vicinity, at 65 meters AMSL. However, as shown on the USGS Topo Map in Figures 3A and 3B, the three or four nearby residences are all at lower elevations, and only driveways and a cul-de-sac lie within 118 meters of the proposed site, so clearly they are lightly traveled

The proposed directional composite antenna is a Shively 6812-2HW halfwave-spaced array with the center of radiation at 45 meters above ground level. The array produces a vertical radiation pattern that prevents the 118.5 dBu F(50,10) interfering contour from reaching ground level at any point within 118 meters of the antenna site.

The antenna vertical pattern is illustrated and field values tabulated in Attachments A-1 and A-2.

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 120 meters from the proposed site to establish that the interfering contour does not reach the ground. 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 antenna 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 no less than 0.82 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 WOKQ.

Environmental Considerations

The proposed antenna will be mounted on an existing tower with no new construction, and will be co-located with WERZ(FM). RFR compliance was determined through the use of the RF worksheets in Appendix A, The applicant will cease operation or reduce power as necessary, in order to prevent uncontrolled or controlled exposure in excess of the guidelines of OET-65.

Respectfully submitted,

Dennis Jackson
Technical Consultant
November 7, 2015

Figure 1

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Proposed 60 dBu service contour lies entirely within
the 2 mV/m contour of proposed primary station WXEX(AM).

Proposed 40 dBu interfering contour overlaps licensed 60 dBu service contour
for purposes of requested waiver of Section 74.1233(a)(1).

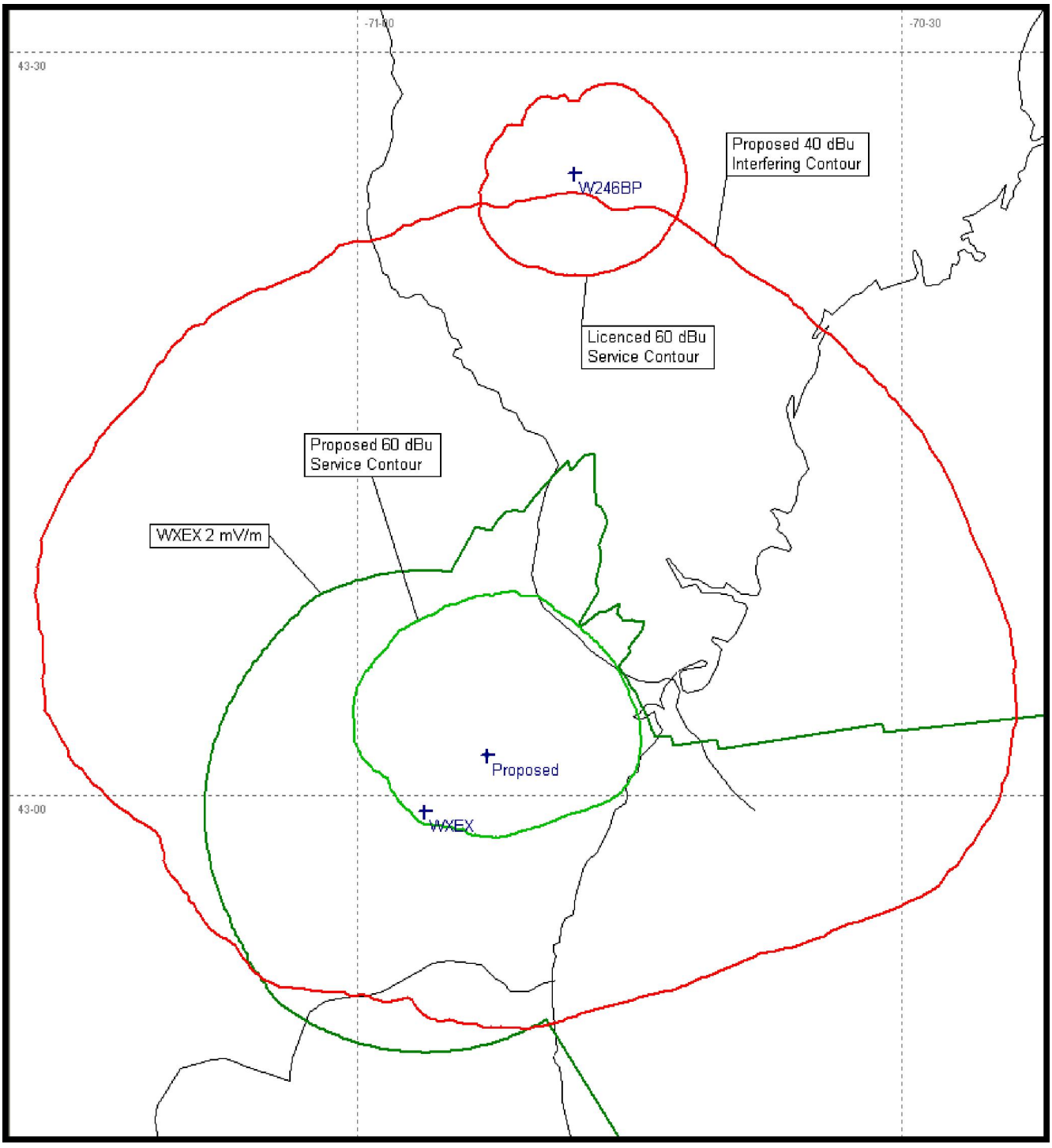


Figure 2A – 74.1204 Study

Proposed interfering contours do not overlap pertinent service contours of WMLL, WQSO, or WBQT.

(Key: Same colors may not overlap.)

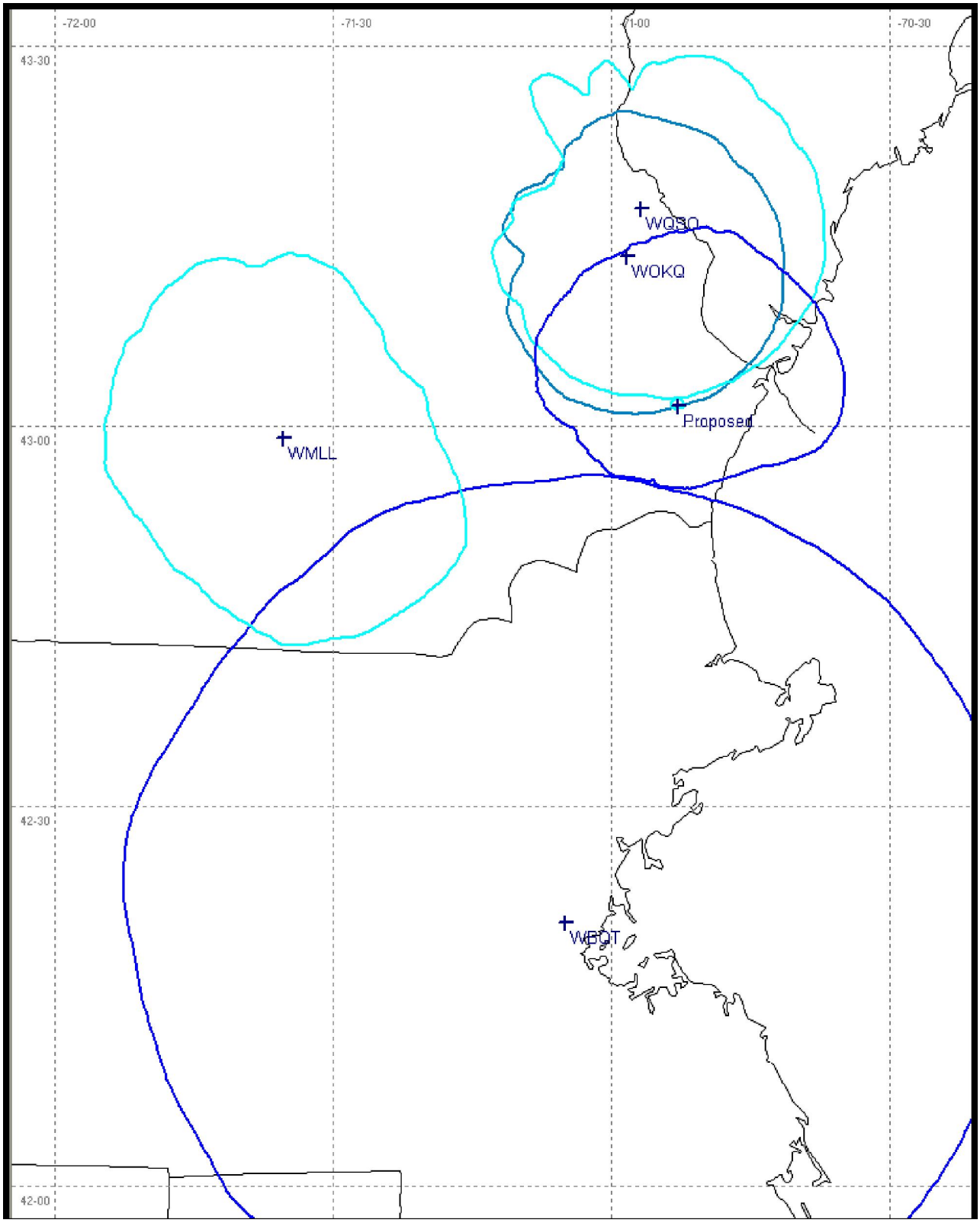


Figure 2B – 74.1204 Study – Closeup to WQSO and WOKQ

WOKQ places 78.5 dBu service contour over proposed antenna site.

Proposed 100 dBu interfering contour does not overlap WQSO 60 dBu service contour.

(Key: Same colors may not overlap.)

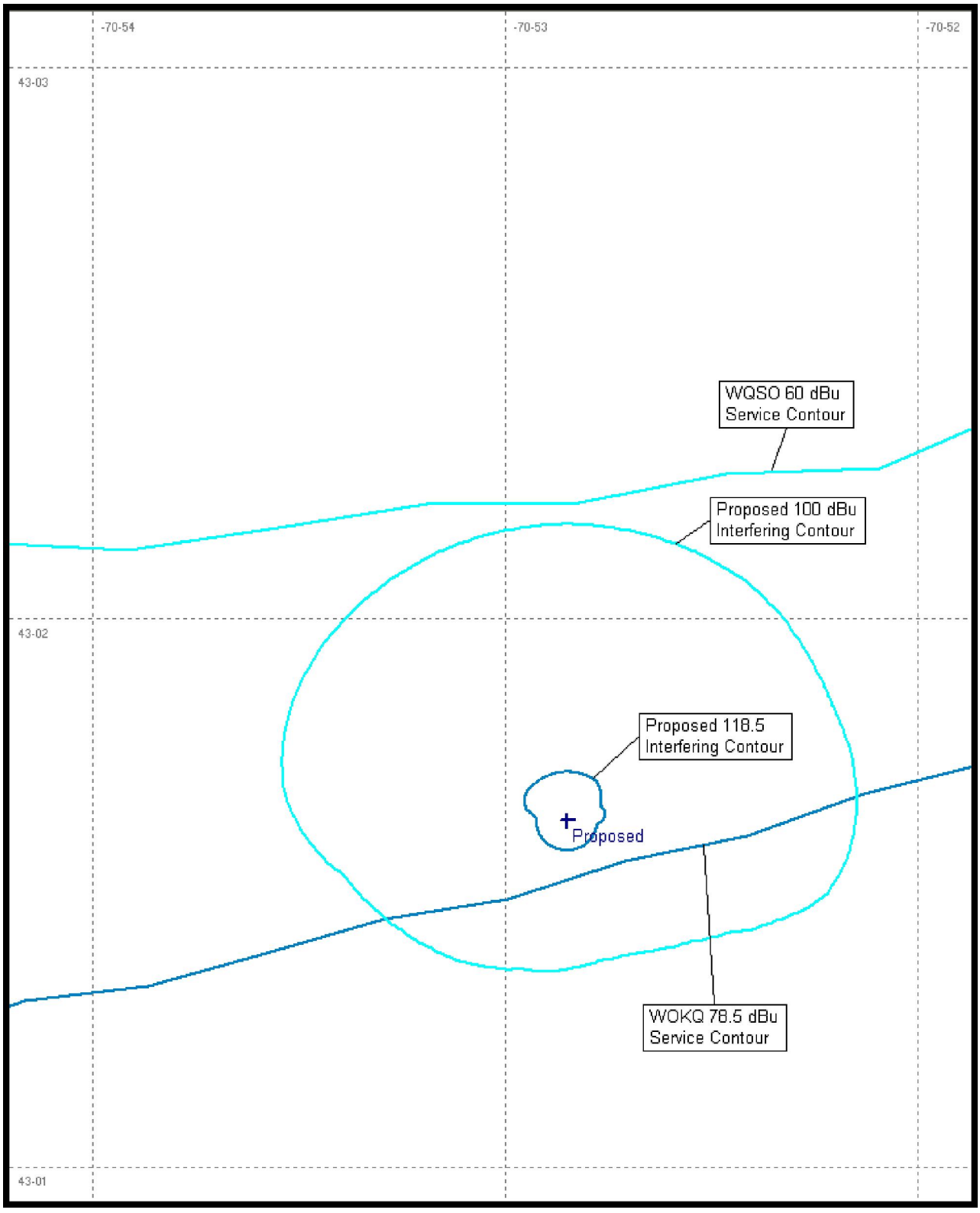


Figure 2C – 74.1204 Study – Closeup to WBQT

WOKQ places 78.5 dBu service contour over proposed antenna site.

Proposed 100 dBu interfering contour does not overlap WQSO 60 dBu service contour.

(Key: Same colors may not overlap.)

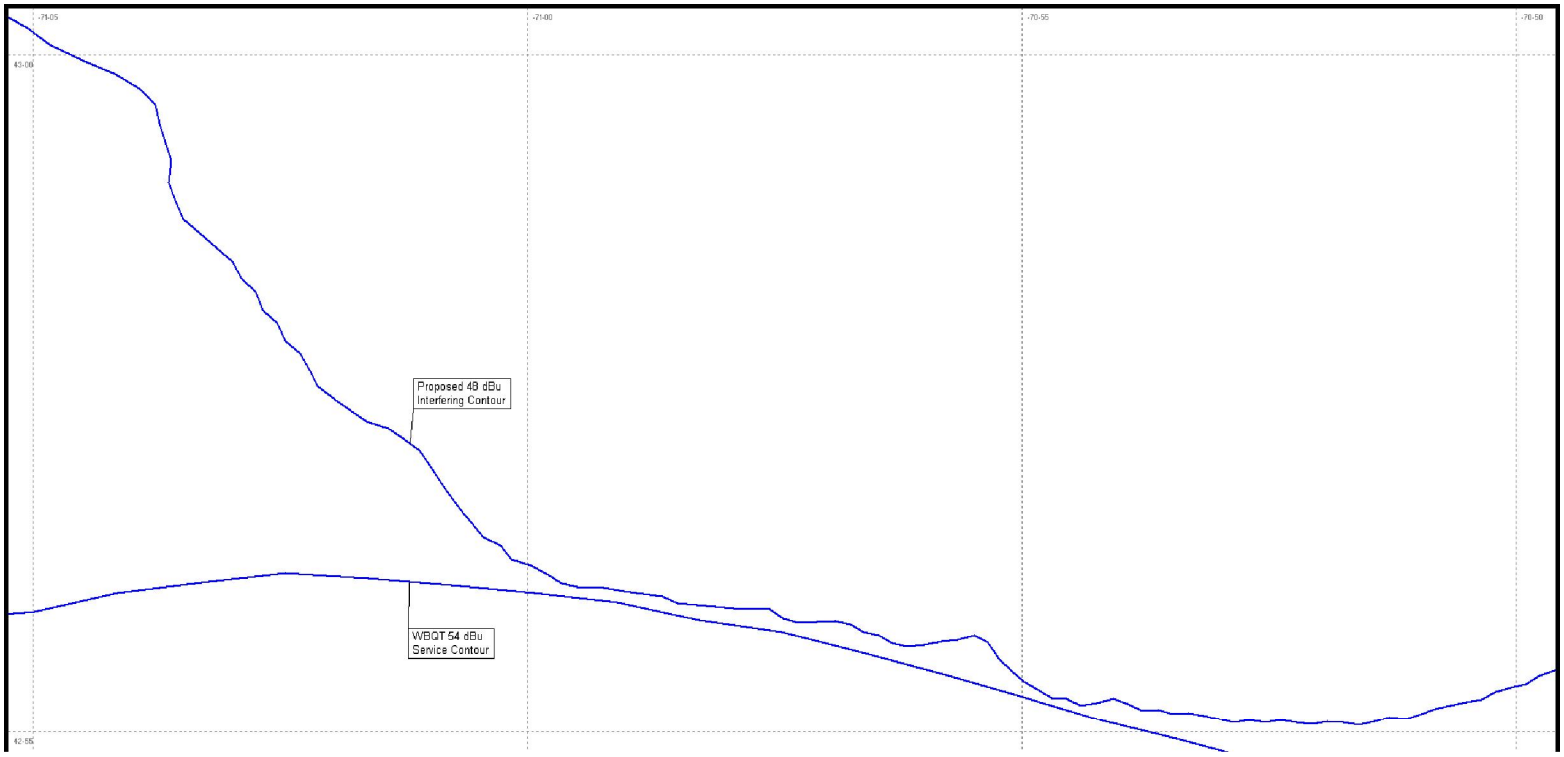


Figure 3A - USGS Topo Map of Antenna Site Vicinity

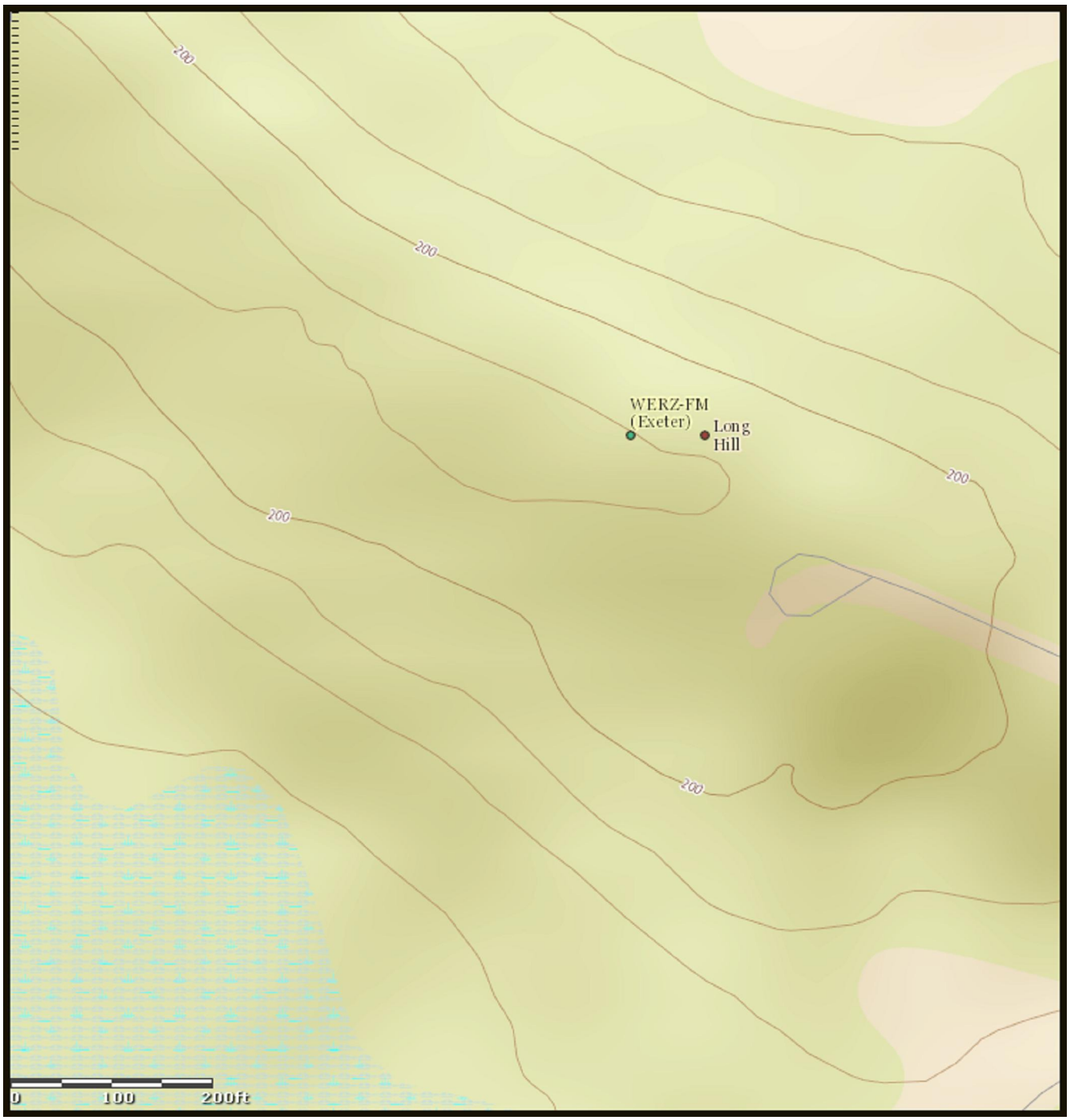
Antenna site at 203 ‘ AMSL is higher than surrounding land and residences.

(Contour interval = 20 feet.)

Figure 3B - USGS Topo Map of Antenna Site Vicinity

Antenna site is higher than surrounding land and residences.

(Contour interval = 20 feet. WERZ is co-located on proposed tower.)



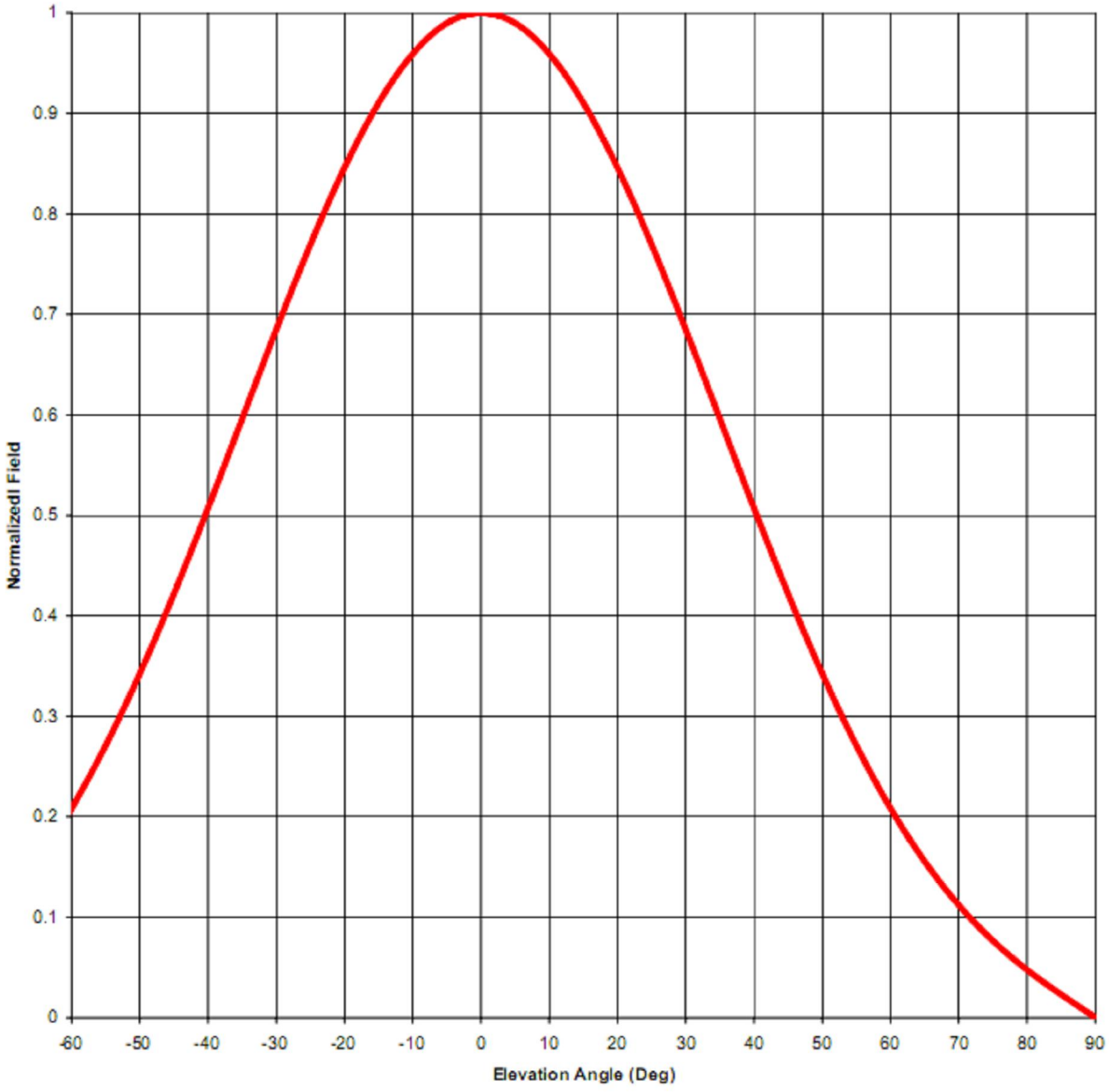
Attachment A-1

Antenna Vertical Radiation Profile

Shively Labs®

Antenna Mfr.: Shively Labs — Date: 12/30/2004
Antenna Type: 6812B or 6602B 2-Bay, 1/2-wave spaced
Frequency: 98.1

6812B Gain (Max)	0.63	-1.97 dB
6602B Gain (Max)	1.26	1.03 dB



Attachment A-2

Antenna Vertical Profile Field Values

Elevation Pattern Tabulation, 6602B and 6812B 2-Bay Half-Wave-Spaced

Relative Field at 0° Depression = 1.000

Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field
1	1.000	19	0.860	37	0.561	55	0.271	73	0.090
2	0.998	20	0.846	38	0.543	56	0.258	74	0.083
3	0.996	21	0.832	39	0.525	57	0.245	75	0.077
4	0.993	22	0.817	40	0.508	58	0.232	76	0.070
5	0.990	23	0.801	41	0.490	59	0.220	77	0.064
6	0.985	24	0.786	42	0.473	60	0.208	78	0.059
7	0.980	25	0.770	43	0.456	61	0.197	79	0.053
8	0.974	26	0.753	44	0.439	62	0.186	80	0.048
9	0.967	27	0.736	45	0.422	63	0.176	81	0.043
10	0.959	28	0.720	46	0.405	64	0.165	82	0.038
11	0.951	29	0.702	47	0.389	65	0.156	83	0.033
12	0.942	30	0.685	48	0.373	66	0.146	84	0.028
13	0.932	31	0.667	49	0.358	67	0.137	85	0.023
14	0.921	32	0.650	50	0.342	68	0.128	86	0.019
15	0.910	33	0.632	51	0.327	69	0.120	87	0.014
16	0.899	34	0.614	52	0.313	70	0.112	88	0.009
17	0.886	35	0.596	53	0.298	71	0.104	89	0.005
18	0.873	36	0.578	54	0.284	72	0.097	90	0.000

Attachment B

Calculation of Maximum Allowable Field
At Pertinent Distances and Angles
Compared to Actual Antenna Field Values
Illustrating Margin of Safety

Notes:

1 **All land within 118 meters of antenna site is considered to be at the maximum height in the vicinity, which is 65 meters AMSL.**

2. **Antenna Center Of Radiation is at 45 meters above highest ground.**

3. **Margin of Safety is not less than 0.82 dB at any point.**

Horizontal Distance to Point (meters)	Downward Vertical Angle (degrees)	Actual Distance in Space (meters)	Power Limit (Watts)	Antenna Field Limit	Actual Antenna Field	Margin of Safety (dB)
10	77.5	46.1	31.0	0.394	0.062	16.06
20	66.0	49.2	35.0	0.418	0.146	9.14
30	56.3	54.1	42.0	0.458	0.254	5.13
40	48.4	60.2	51.0	0.505	0.367	2.77
50	42.0	67.3	65.0	0.570	0.473	1.62
60	36.9	75.0	80.0	0.632	0.563	1.01
70	32.7	83.2	98.0	0.700	0.637	0.82
80	29.4	91.8	120.0	0.775	0.695	0.94
90	26.6	100.6	143.0	0.846	0.743	1.12
100	24.2	109.7	174.0	0.933	0.783	1.52
110	22.2	118.8	200.0	1.000	0.814	1.79
120	20.6	128.2	200.0	1.000	0.838	