

Proposed Site Change for W272CG from Biddeford to Sanford, Maine

Technical Statement (amended August 3, 2012)

Nature of Amendment

The instant amendment proposes minor changes to minor change application File No. BPFT-20120717AAN in order to eliminate any possibility of interference to WPOR at any point on the surface of the earth, or any point within 11 meters above the ground.

Primary AM Station Fill-In Status

The instant application proposes relocation of W272CG to facilitate fill-in translator service for WWSF, a daytime AM station licensed to the applicant at Sanford. The proposed service contour lies entirely within the 2 mV/m service contour of WWSF 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-20070917ABM) as illustrated in Figure 2. 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

All 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:

<u>Call Sign</u>	<u>Location</u>	<u>Channel No.</u>
WPOR	Portland, ME	270B
WSAK	Hampton, NH	271A
WWHK	Concord, NH	272A
W282BV	Yarmouth, ME	272D
WBLM	Portland, ME	275C

Figure 3 illustrates the absence of prohibited overlap between the proposed translator interfering contours and the 60 dBu service contours of WSAK, WWHK, and W282BV. (Key: same colors may not overlap.)

The proposed new site lies within the service contours of both WPOR and WBLM, as does the present licensed site. Therefore, the applicant hereby respectfully requests a waiver pursuant to 74.1204(d) as described below.

As shown in Figure 1, WPOR places a 58.6 dBu service contour over the proposed site, and WBLM places a 68.9 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 98.6 dBu.

Interference Protection to All Nearby Residences, Businesses, and Roadways

The proposed translator facility will operate with an ERP of 0.035 kW (H&V.) For an ERP of 0.035 kW, the distance to the 98.6 dBu F(50,10) contour in free space is 488 meters. For purposes of assuring no interference to WPOR, all land within a minimum 488 meter radius of the antenna site was considered to be at the same elevation as the highest land in the vicinity, that land being at 692 feet = 211 meters AMSL as shown on the USGS Topo Map in Figure 4.

The proposed directional antenna is an OMB MP-4. This is an array of four MP-series antenna bays spaced 0.75 wavelengths apart with the center of radiation at 337 meters AMSL and oriented at 30 degrees True. The array produces a vertical radiation pattern that prevents the 98.6 dBu F(50,10) interfering contour from reaching a theoretical plane 11 meters above the highest ground at any point within 488 meters of the antenna site location. The theoretical plane is at 222 meters AMSL and 115 meters below the antenna center of radiation. 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 a theoretical plane 11 meters above the highest ground, the table in Attachment B provides calculations of the interference protection at distances between 25 meters and 488 meters from the proposed site to establish that the interfering contour does not extend to the theoretical plane at any point. 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 5.5 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 WPOR or WBLM.

Environmental Considerations

The proposed antenna will be mounted on an existing tower with no new construction. 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
August 3, 2012

Figure 1

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

Third adjacent WPOR places 58.6 dBu over the proposed site.

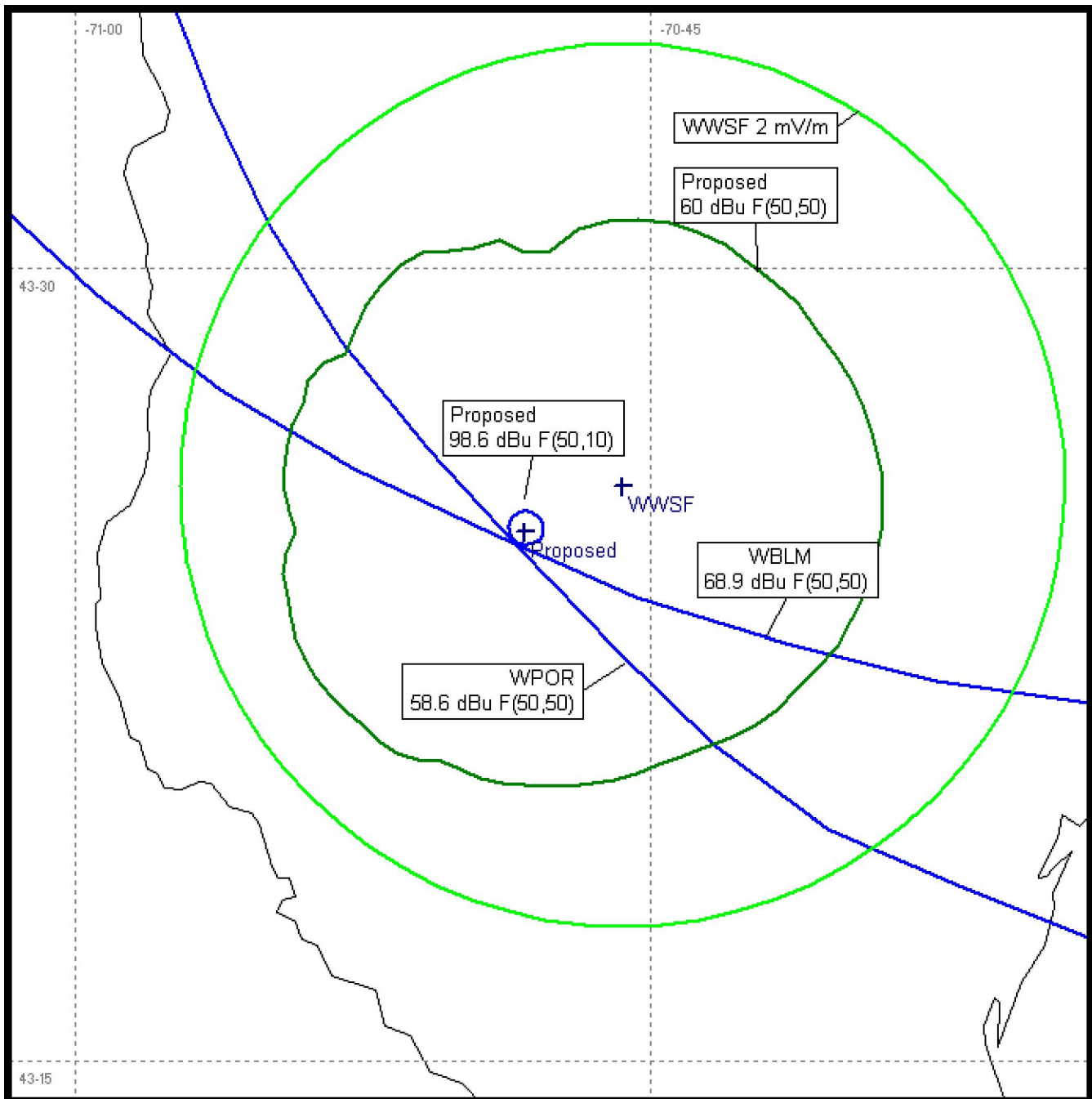


Figure 2

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

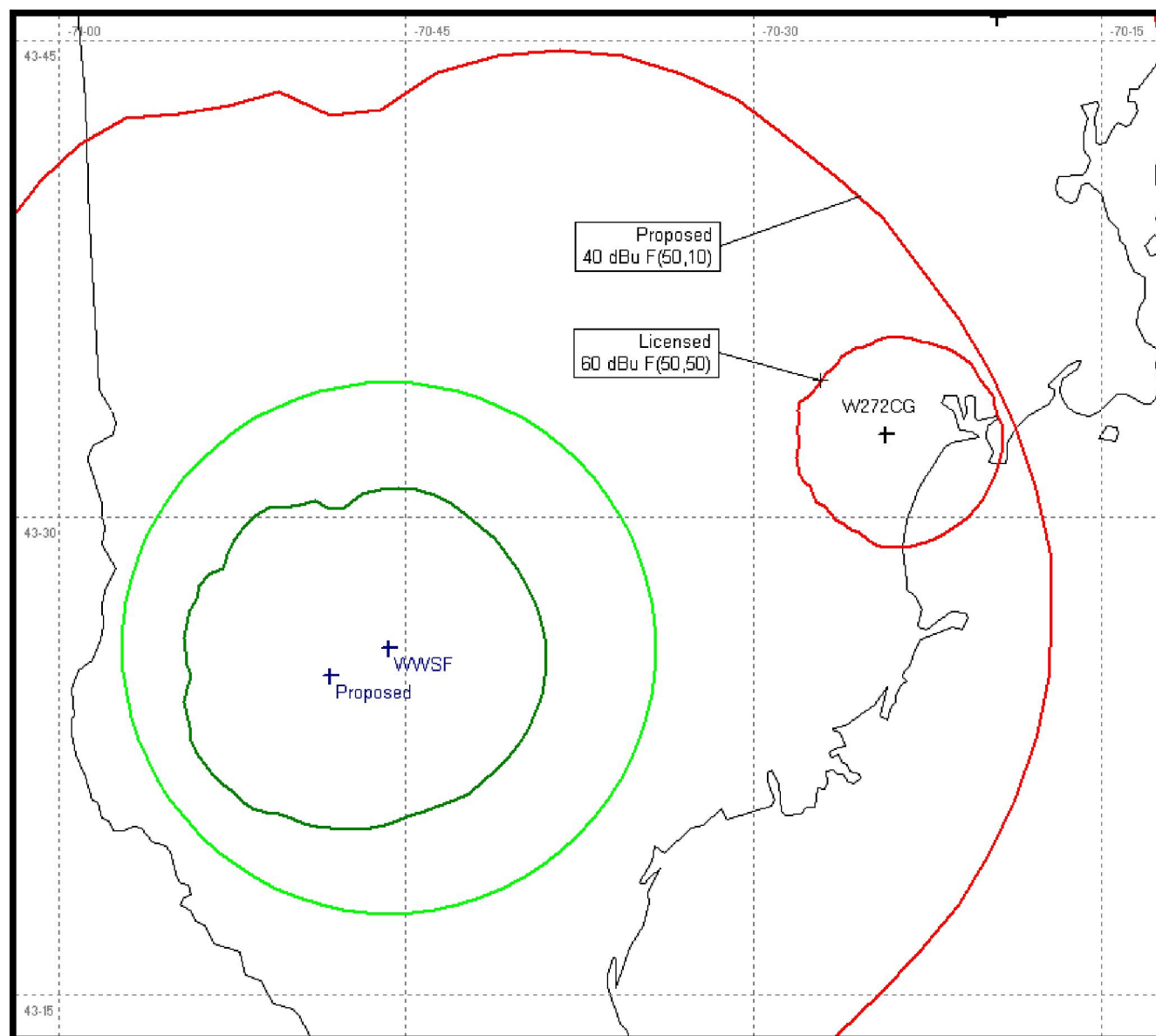


Figure 3 – 74.1204 Study

**Proposed interfering contours do not overlap 60 dBu service contours
of WWHK, WSAK, or W272BV.**

(Key: Same colors may not overlap.)

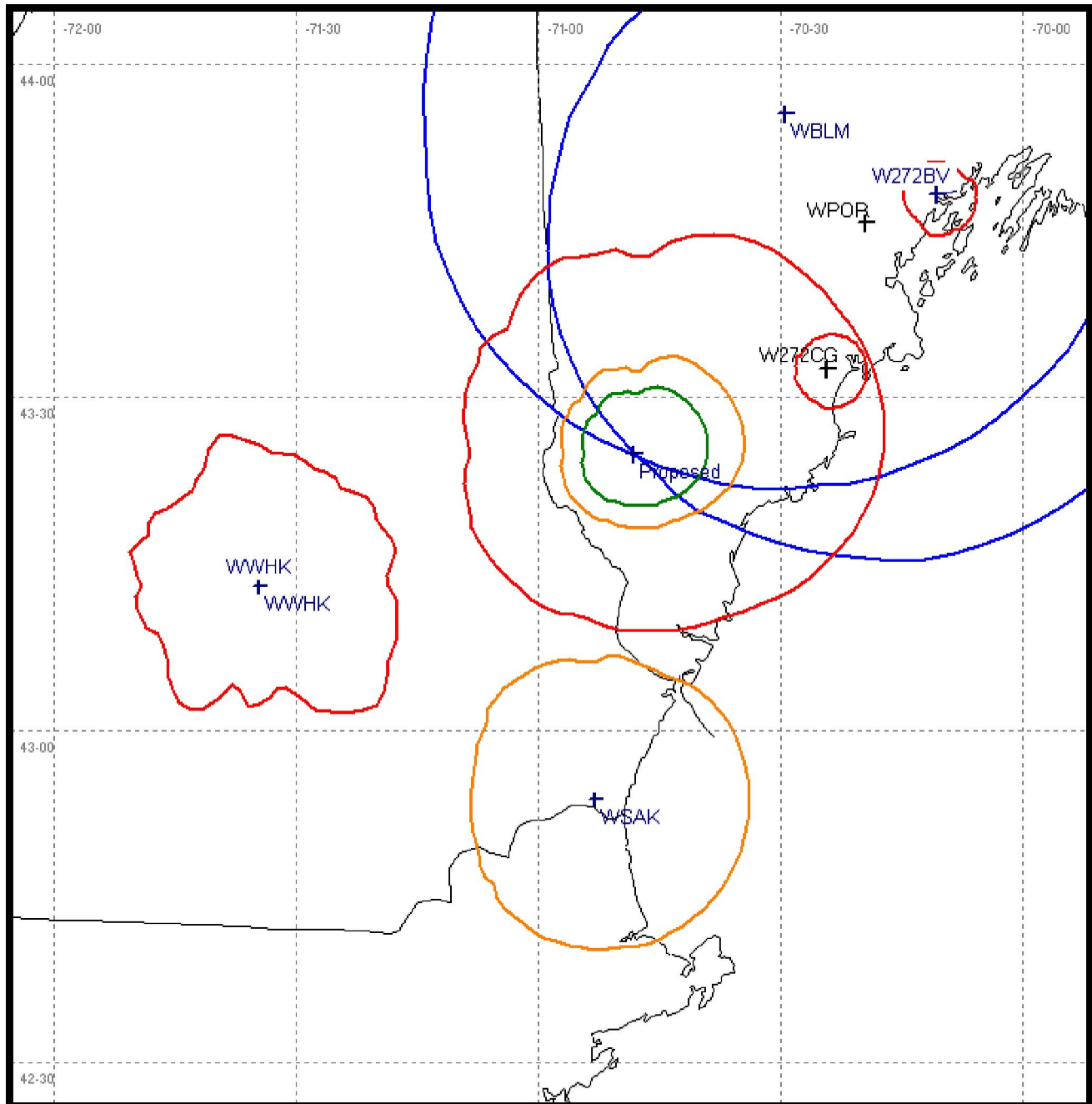
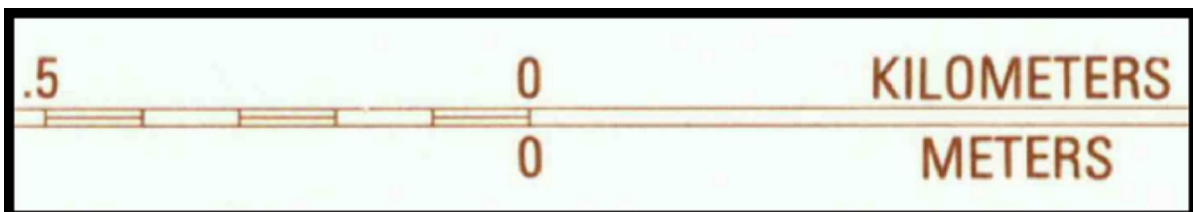
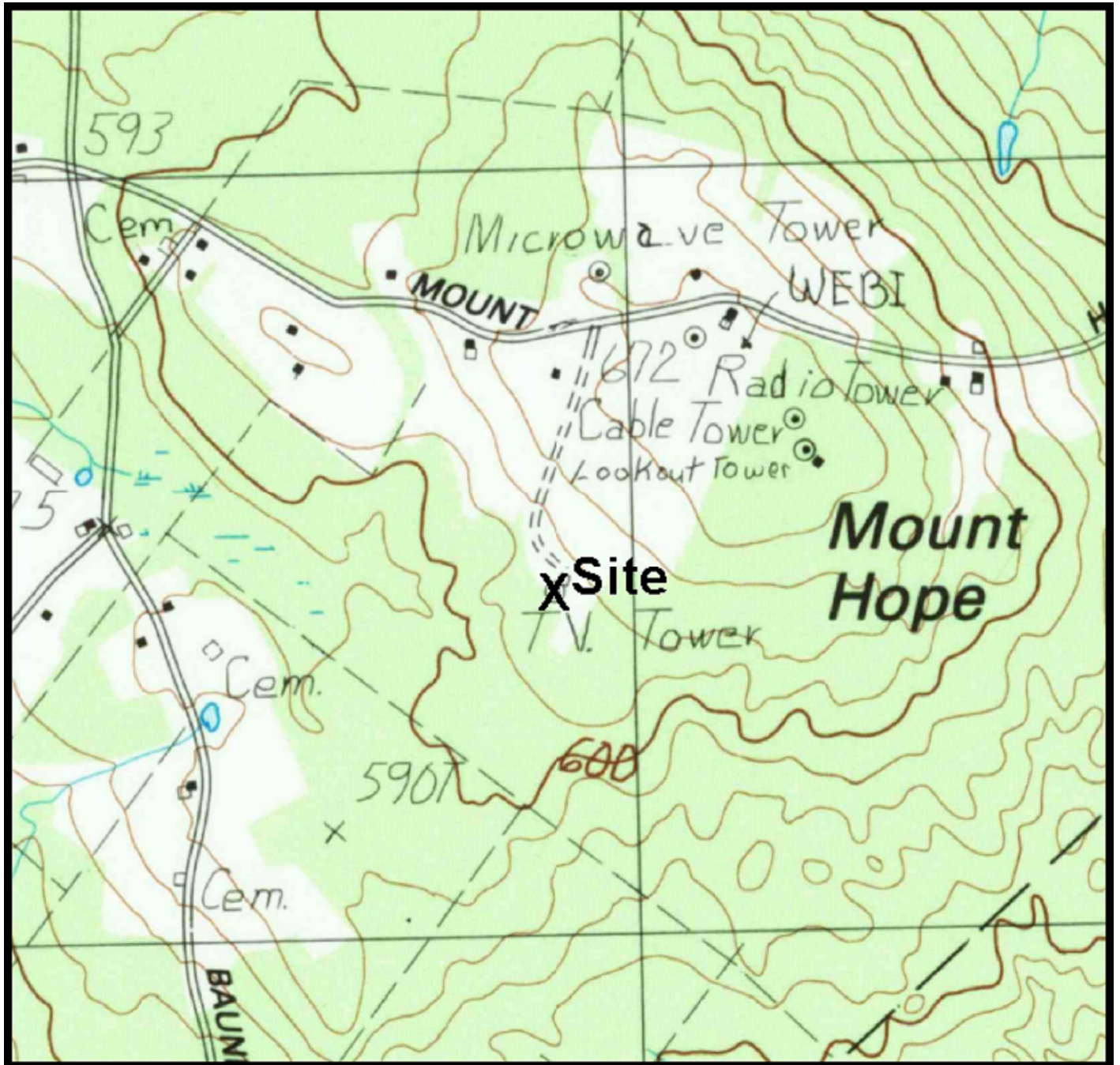


Figure 4

USGS Topo Map of Antenna Site Vicinity

Highest ground in the vicinity of the proposed site is 692 feet = 211 meters AMSL.



Attachment A-1

Antenna Vertical Radiation Profile



Certificat n° E01-022

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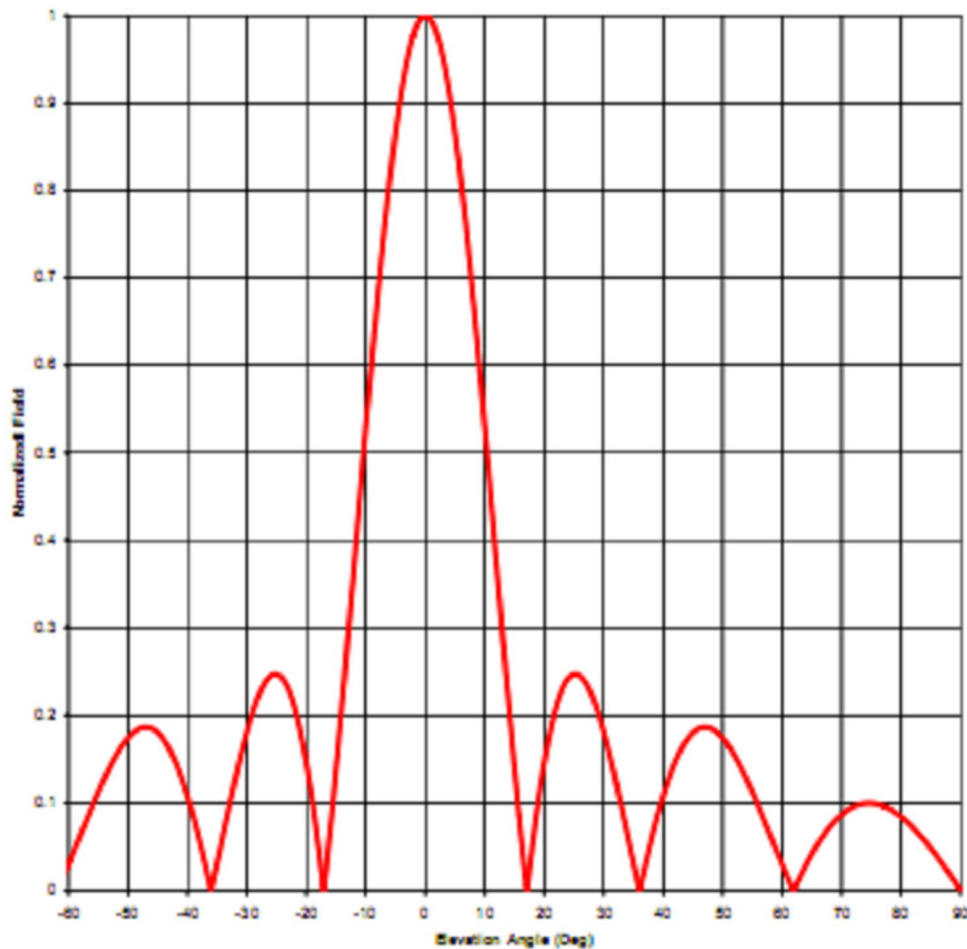
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MP-4 ELEVATION PATTERN

Antenna Type: MP-4

Frequency: 98.1MHz



Attachment A-2

Antenna Vertical Profile Field Values



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ELEVATION PATTERN TABULATION			
Degrees	Relative Field	Degrees	Relative Field
1	0.994	46	0.185
2	0.978	47	0.186
3	0.951	48	0.185
4	0.913	49	0.181
5	0.866	50	0.174
6	0.811	51	0.165
7	0.748	52	0.154
8	0.680	53	0.142
9	0.606	54	0.127
10	0.529	55	0.112
11	0.450	56	0.096
12	0.370	57	0.080
13	0.291	58	0.063
14	0.214	59	0.047
15	0.140	60	0.030
16	0.070	61	0.014
17	0.006	62	0.001
18	0.051	63	0.016
19	0.102	64	0.029
20	0.146	65	0.042
21	0.181	66	0.053
22	0.209	67	0.064
23	0.229	68	0.073
24	0.242	69	0.080
25	0.247	70	0.087
26	0.245	71	0.092
27	0.237	72	0.096
28	0.223	73	0.098
29	0.204	74	0.100
30	0.181	75	0.100
31	0.155	76	0.099
32	0.128	77	0.097
33	0.096	78	0.093
34	0.064	79	0.089
35	0.032	80	0.084
36	0.001	81	0.079
37	0.029	82	0.072
38	0.057	83	0.065
39	0.084	84	0.057
40	0.108	85	0.049
41	0.128	86	0.040
42	0.146	87	0.030
43	0.161	88	0.021
44	0.172	89	0.011
45	0.180	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 488 meters of antenna site is considered to be at the maximum height in the vicinity, which is 692 feet = 211 meters AMSL as shown in Figure 4.
2. Protected plane is 11 meters above highest ground level, i.e. 222 meters AMSL.
3. Antenna Center Of Radiation is at 337 meters AMSL, i.e. 115 meters above all points on protected plane.
4. Margin of Safety is not less than 5.5 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)
25	77.7	117.7	2.0	0.239	0.094	9.41
50	66.5	125.4	2.3	0.256	0.069	12.55
75	56.9	137.3	2.7	0.278	0.082	11.72
100	49.0	152.4	3.4	0.312	0.181	5.53
125	42.6	169.9	4.2	0.346	0.155	7.74
150	37.5	189.0	5.2	0.385	0.043	19.67
175	33.3	209.4	6.4	0.428	0.086	14.44
200	29.9	230.7	7.8	0.472	0.183	8.60
250	24.7	275.2	11.1	0.563	0.246	6.03
300	21.0	321.3	15.2	0.659	0.181	11.42
400	16.0	416.2	25.5	0.854	0.070	21.84
488	13.3	501.4	35.0	1.000	0.268	11.44