

Technical Report W230AA Minor Modification

This technical report is submitted in support of an application for a modification to W230AA, FCC file no. BLFT-19980908TB. A move to a new tower site with corresponding changes in antenna and ERP are submitted for the translator to serve as a fill-in facility to rebroadcast WMID(AM) 1340 kHz at Atlantic City, NJ, FCC facility I.D. 1307.

W230AA Modification Analysis:

An overlap study (exhibit E-1) shows the W230AA modification is within the WIBG-FM 232A second-adjacent protected contour. A tabulation of the 102.855 +40 dBu F(50-10) contour (exhibit E-2) using the vertical elevation pattern of the Bext TFC2K four bay, 0.85 wavelength-spaced antenna (exhibit E-3) shows where the interfering contour does reach the ground within 120 meters of the base of the tower, there are no buildings or roads (exhibit E-4). A review of the entire area within the 102.855 +40 dBu F(50-10) contour using Google Earth street view shows the tallest buildings within the interfering contour are two stories and are below the interfering contour (exhibits E-5 and E-6). The modified 60 dBu overlaps the licensed 60 dBu contour and is contained within the primary WMID(AM) 2.0 mV/m daytime contour (exhibit E-7).

Antenna System:

The W230AA modification will be located on the existing tower, ASR 1053552, at coordinates:

39 22 35N 74 33 44W NAD 27.

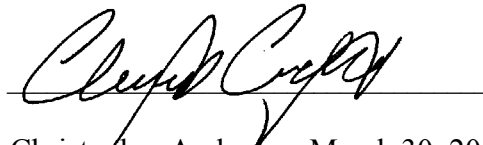
A Bext TFC2K four bay, 0.85 wavelength-spaced, directional antenna (exhibit E-8) will be mounted at a COR AGL of 95 meters, 101 meters AMSL and operate at 0.250 kW ERP.

RF Exposure Calculation:

The RF contribution was calculated using FMModel (exhibit E-9). The RF is calculated to be $0.27 \mu\text{W}/\text{cm}^2$ at a distance of 3.2 meters, which is below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for general public, uncontrolled exposure.

Conclusion:

It is concluded that the W230AA modification complies with all Commission rules and policies.



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E-1 W230AA Mod. Overlap Study

REFERENCE		CH#	230D - 93.9 MHz, Pwr= 0.25 kW DA, HAAT= 94.8 M, COR= 101 M					DISPLAY DATES		
39 22 35.0 N.			Average Protected F(50-50)= 12.53 km					DATA 03-30-17		
74 33 44.0 W.			Standard Directional					SEARCH 03-30-17		
CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
230D Atlantic City	W230AA	LIC _C_ NJ	88.3 268.3	11.43 BLFT19980908TB	39 22 46.0 74 25 45.0	0.027 91	23.0 92	6.9 Mercer County Community Co	-24.0*	-38.5*
232A Avalon	WIBG-FM	LIC ZCX NJ	212.2 32.1	19.32 BLH20091110AAO	39 13 45.0 74 40 54.0	6.000 91	2.1 92	22.3 Wibg Limited Liability Com	4.6	-4.0*(1)
229B Wilmington	WSTW	LIC NCX DE	300.8 120.2	96.21 BMLH20100629AZK	39 48 57.0 75 31 47.0	47.100 153	84.1 211	70.0 Delmarva Broadcasting Comp	2.7	6.5
231B Philadelphia	WIP-FM	LIC _CX PA	322.3 141.8	93.78 BLH20070529ADN	40 02 29.6 75 14 11.5	9.600 338	81.3 403	68.6 Cbs Radio East Inc.	3.2	6.1
227B Philadelphia	WMMR	LIC _CX PA	321.2 140.8	82.40 BMLH20061205ADU	39 57 09.0 75 10 05.0	16.500 264	5.8 292	66.8 Beasley Media Group, Lic	67.4	14.3
230B New York	WNYC-FM	LIC _CX NY	17.6 198.0	160.21 BLH20110815ADD	40 44 54.0 73 59 10.0	5.200 415	126.0 429	65.1 New York Public Radio	22.6	41.2
233B Trenton	WPST	LIC DEX NJ	345.1 164.9	93.59 BMLH20131206AGE	40 11 22.0 74 50 47.0	50.000 150	6.3 180	67.2 Connoisseur Media Licenses	77.6	25.0

Terrain database is USGS 03 SEC, R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM. In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent. All separation margins (if shown) include rounding.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

- (1) The W230AA modification 102.855 +40 dBu F(50-10) contour within the WIBG-FM 232A second adjacent protected contour does not reach any population, buildings, roads, as shown in exhibits E-5 and E-6.

E-2 W230AA Mod. +40 dBu Tabulation Within WIBG-FM 232A

W230AA Atlantic City, NJ
74.1204(d) Showing
Translator or LPFM Maximum Licensed ERP = 0.25
Translator or LPFM Antenna Height AG = 95 Meters
W230AA Antenna Model = BEXT TFC-2K-4 -85% WAVE

Protected Station's Contour = 62.855 dBu
Translator's or LPFM's full Interference contour 102.855

Review Azimuth = 190 Degrees True
Relative Field on the horizon at Review Azimuth = 1.000
Translator/LPFM ERP on the horizon at Review Azimuth = 0.25 kW
Distance between stations = 19.3 km
Protected Station= WIBG-FM, 6 kW, 92 M Meters COR AMSL

Depression Angle From Horizon(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m) (1)
00.00	1.0	1.0	0.2500	798.3990	798.3990	095.000
01.00	0.987	1.0	0.2435	788.0198	787.8998	081.247
02.00	0.974	1.0	0.2372	777.6406	777.1669	067.861
03.00	0.94	1.0	0.2207	750.0959	749.0679	055.743
04.00	0.905	1.0	0.2048	722.5511	720.7910	044.597
05.00	0.853	1.0	0.1817	680.6351	678.0451	035.679
06.00	0.8	1.0	0.1600	638.7192	635.2203	028.236
07.00	0.735	1.0	0.1349	586.4241	582.0530	023.533
08.00	0.669	1.0	0.1119	534.1290	528.9309	020.664
09.00	0.596	1.0	0.0887	475.4466	469.5931	020.624
10.00	0.522	1.0	0.0681	416.7643	410.4327	022.630
11.00	0.446	1.0	0.0497	356.0860	349.5437	027.056
12.00	0.37	1.0	0.0342	295.4076	288.9523	033.581
13.00	0.296	1.0	0.0219	236.3261	230.2691	041.838
14.00	0.222	1.0	0.0123	177.2446	171.9797	052.121
15.00	0.155	1.0	0.0060	123.7519	119.5351	062.971
16.00	0.088	1.0	0.0019	070.2591	067.5374	075.634
17.00	0.097	1.0	0.0023	077.2451	073.8699	072.416
18.00	0.106	1.0	0.0028	084.2311	080.1085	068.971
19.00	0.114	1.0	0.0033	091.2171	086.2475	065.303
20.00	0.123	1.0	0.0038	098.2031	092.2807	061.413
21.00	0.157	1.0	0.0062	125.3487	117.0230	050.079
22.00	0.191	1.0	0.0091	152.4942	141.3902	037.875
23.00	0.212	1.0	0.0112	169.2606	155.8052	028.865
24.00	0.233	1.0	0.0136	186.0270	169.9441	019.336
25.00	0.24	1.0	0.0144	191.6158	173.6629	014.020
26.00	0.247	1.0	0.0153	197.2046	177.2463	008.551
27.00	0.242	1.0	0.0146	193.2126	172.1537	007.283
28.00	0.237	1.0	0.0140	189.2206	167.0719	006.166
29.00	0.221	1.0	0.0122	176.0470	153.9742	009.651
30.00	0.204	1.0	0.0104	162.8734	141.0525	013.563
31.00	0.18	1.0	0.0081	143.3126	122.8429	021.189
32.00	0.155	1.0	0.0060	123.7519	104.9475	029.422
33.00	0.125	1.0	0.0039	099.4007	083.3644	040.863
34.00	0.094	1.0	0.0022	075.0495	062.2189	053.033
35.00	0.062	1.0	0.0009	049.1015	040.2216	066.837
36.00	0.029	1.0	0.0002	023.1536	018.7316	081.391
37.00	0.032	1.0	0.0002	025.1496	020.0853	079.865
38.00	0.034	1.0	0.0003	027.1456	021.3910	078.288
39.00	0.062	1.0	0.0010	049.5007	038.4693	063.848
40.00	0.09	1.0	0.0020	071.8559	055.0448	048.812
41.00	0.113	1.0	0.0032	089.8199	067.7879	036.073
42.00	0.135	1.0	0.0046	107.7839	080.0990	022.879
43.00	0.151	1.0	0.0057	120.1591	087.8788	013.052 (1)
44.00	0.166	1.0	0.0069	132.5342	095.3372	002.934
45.00	0.174	1.0	0.0076	138.9214	098.2323	-003.232
46.00	0.182	1.0	0.0083	145.3086	100.9399	-009.526
47.00	0.184	1.0	0.0084	146.5062	099.9170	-012.148
48.00	0.185	1.0	0.0086	147.7038	098.8331	-014.765
49.00	0.181	1.0	0.0081	144.1110	094.5453	-013.762
50.00	0.176	1.0	0.0077	140.5182	090.3234	-012.643
51.00	0.167	1.0	0.0070	133.3326	083.9089	-008.619
52.00	0.158	1.0	0.0062	126.1471	077.6639	-004.405
53.00	0.146	1.0	0.0053	116.5663	070.1513	001.906
54.00	0.134	1.0	0.0045	106.9855	062.8845	008.447
55.00	0.121	1.0	0.0036	096.2071	055.1821	016.192
56.00	0.107	1.0	0.0029	085.4287	047.7711	024.176
57.00	0.093	1.0	0.0021	073.8519	040.2226	033.063
58.00	0.078	1.0	0.0015	062.2751	033.0008	042.188
59.00	0.064	1.0	0.0010	051.0975	026.3172	051.201
60.00	0.05	1.0	0.0006	039.9200	019.9600	060.428
61.00	0.038	1.0	0.0004	029.9400	014.5152	068.814
62.00	0.025	1.0	0.0002	019.9600	009.3706	077.376
63.00	0.014	1.0	0.0000	010.7784	004.8933	085.396
64.00	0.002	1.0	0.0000	001.5968	000.7000	093.565
65.00	0.01	1.0	0.0000	007.5848	003.2055	088.126
66.00	0.017	1.0	0.0001	013.5728	005.5205	082.601
67.00	0.024	1.0	0.0001	019.1616	007.4870	077.362
68.00	0.031	1.0	0.0002	024.7504	009.2717	072.052
69.00	0.037	1.0	0.0003	029.5408	010.5865	067.421
70.00	0.043	1.0	0.0005	034.3312	011.7419	062.739
71.00	0.047	1.0	0.0005	037.1256	012.0869	059.897
72.00	0.05	1.0	0.0006	039.9200	012.3359	057.034

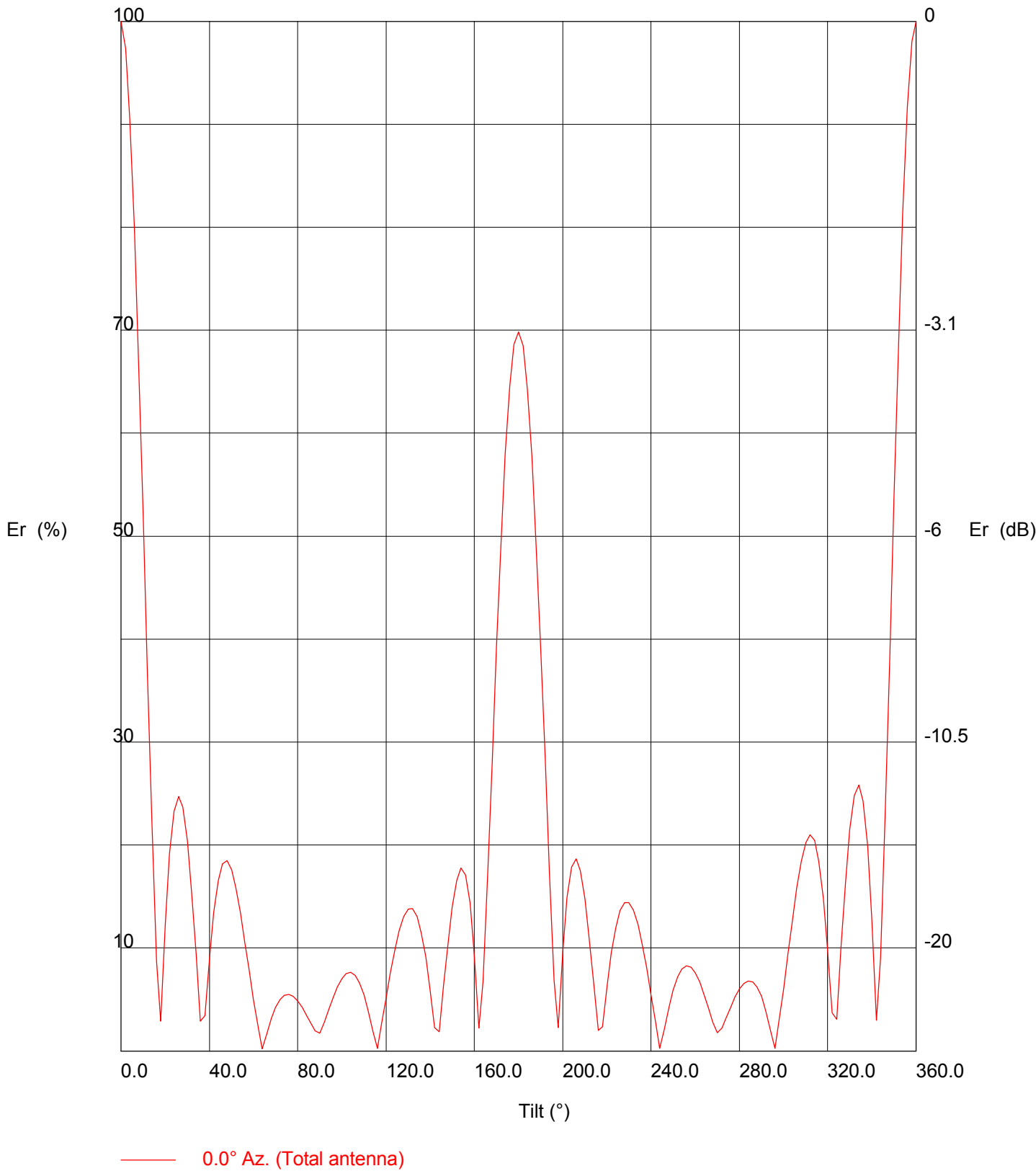
E-2 W230AA Mod. +40 dBu Tabulation Within WIBG-FM 232A, cont.

Depression Angle From Horizon (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m) (1)
73.00	0.052	1.0	0.0007	041.5168	012.1383	055.297
74.00	0.054	1.0	0.0007	043.1135	011.8837	053.557
75.00	0.054	1.0	0.0007	042.9139	011.1069	053.548
76.00	0.054	1.0	0.0007	042.7143	010.3335	053.554
77.00	0.053	1.0	0.0007	042.5147	009.5637	053.575
78.00	0.053	1.0	0.0007	042.3151	008.7978	053.610
79.00	0.051	1.0	0.0007	040.7184	007.7694	055.030
80.00	0.049	1.0	0.0006	039.1216	006.7934	056.473
81.00	0.046	1.0	0.0005	036.3272	005.6828	059.120
82.00	0.042	1.0	0.0004	033.5328	004.6669	061.794
83.00	0.039	1.0	0.0004	030.7384	003.7461	064.491
84.00	0.035	1.0	0.0003	027.9440	002.9209	067.209
85.00	0.031	1.0	0.0002	024.7504	002.1571	070.344
86.00	0.027	1.0	0.0002	021.5568	001.5037	073.496
87.00	0.024	1.0	0.0001	018.7624	000.9819	076.263
88.00	0.02	1.0	0.0001	015.9680	000.5573	079.042
89.00	0.019	1.0	0.0001	014.7704	000.2578	080.232
90.00	0.017	1.0	0.0001	013.5728	000.0000	081.427

(1) The +40 102.855 F(50-10) contour within the WIBG-FM 232A second adjacent protected contour does not reach any buildings, roads or population from 120 meters to the base of the tower (exhibit E-4).

Frequency: 96.10 MHz

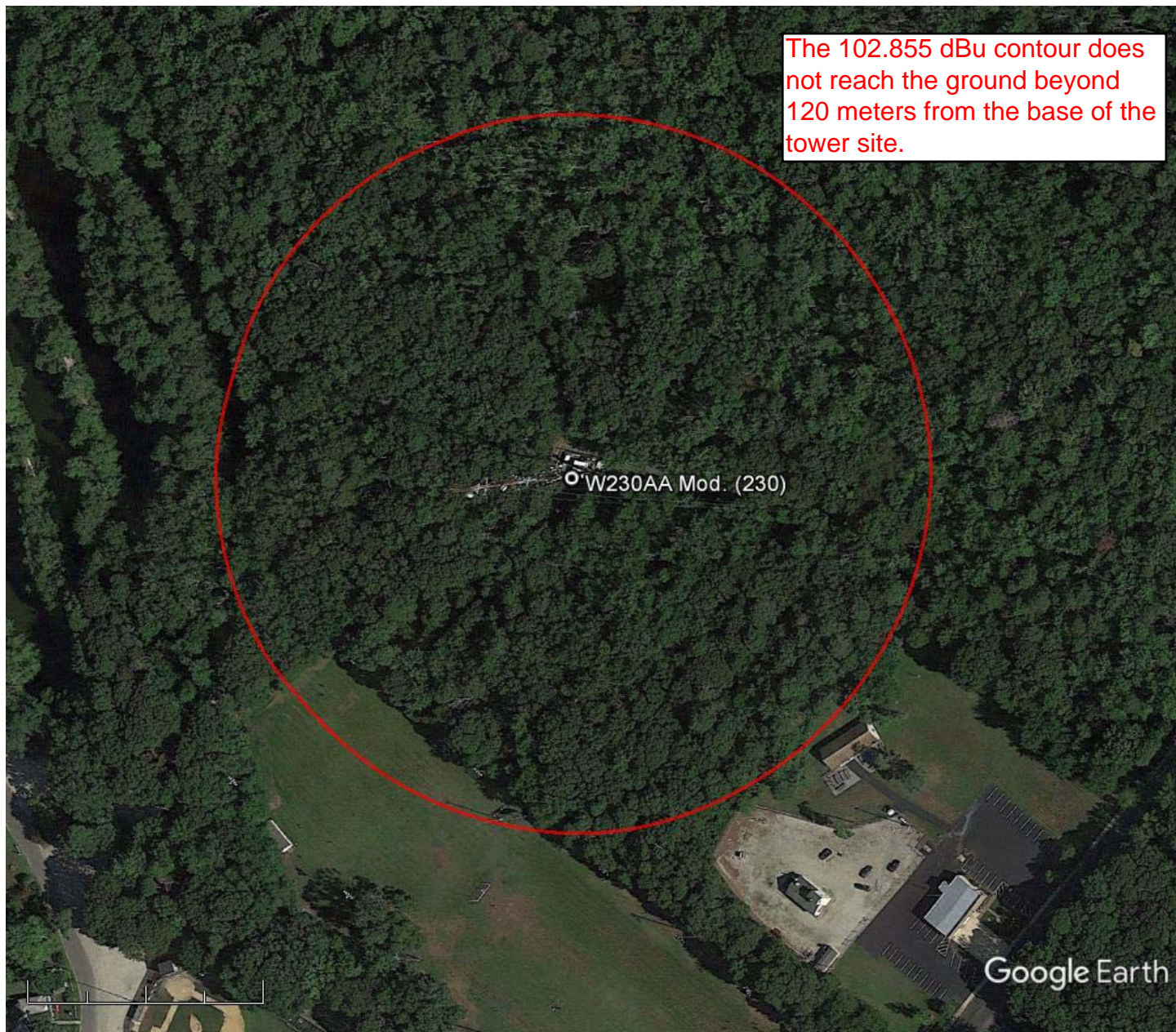
Vertical diagram



Frequency: 96.10 MHz

Vertical diagram at an azimuth of 0°

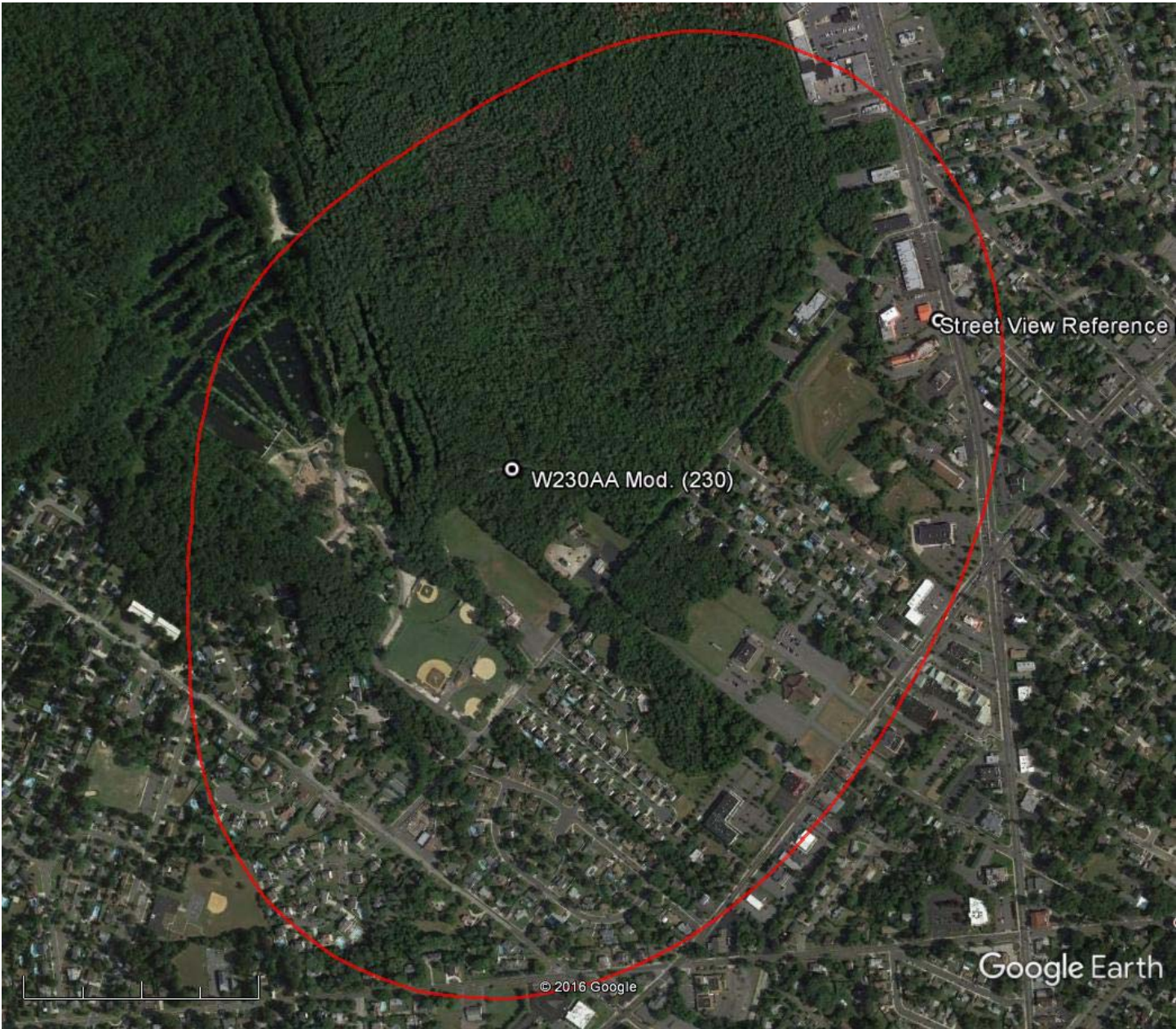
Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)
0.0	100.0	1.05	120.0	5.2	0.00	240.0	5.5	0.00
2.0	97.4	1.00	122.0	7.6	0.01	242.0	2.9	0.00
4.0	90.5	0.86	124.0	9.8	0.01	244.0	0.3	0.00
6.0	80.0	0.67	126.0	11.7	0.01	246.0	2.1	0.00
8.0	66.9	0.47	128.0	13.1	0.02	248.0	4.2	0.00
10.0	52.2	0.29	130.0	13.8	0.02	250.0	5.9	0.00
12.0	37.0	0.14	132.0	13.8	0.02	252.0	7.2	0.01
14.0	22.2	0.05	134.0	13.1	0.02	254.0	8.0	0.01
16.0	8.8	0.01	136.0	11.5	0.01	256.0	8.3	0.01
18.0	2.9	0.00	138.0	9.1	0.01	258.0	8.2	0.01
20.0	12.3	0.02	140.0	6.0	0.00	260.0	7.6	0.01
22.0	19.1	0.04	142.0	2.3	0.00	262.0	6.7	0.00
24.0	23.3	0.06	144.0	1.9	0.00	264.0	5.5	0.00
26.0	24.7	0.06	146.0	6.2	0.00	266.0	4.1	0.00
28.0	23.7	0.06	148.0	10.4	0.01	268.0	2.8	0.00
30.0	20.4	0.04	150.0	14.0	0.02	270.0	1.8	0.00
32.0	15.5	0.03	152.0	16.6	0.03	272.0	2.2	0.00
34.0	9.4	0.01	154.0	17.8	0.03	274.0	3.2	0.00
36.0	2.9	0.00	156.0	17.1	0.03	276.0	4.3	0.00
38.0	3.4	0.00	158.0	14.4	0.02	278.0	5.2	0.00
40.0	9.0	0.01	160.0	9.4	0.01	280.0	6.0	0.00
42.0	13.5	0.02	162.0	2.2	0.00	282.0	6.6	0.00
44.0	16.6	0.03	164.0	6.8	0.00	284.0	6.8	0.00
46.0	18.2	0.03	166.0	17.1	0.03	286.0	6.7	0.00
48.0	18.5	0.04	168.0	28.1	0.08	288.0	6.2	0.00
50.0	17.6	0.03	170.0	39.1	0.16	290.0	5.3	0.00
52.0	15.8	0.03	172.0	49.3	0.26	292.0	3.9	0.00
54.0	13.4	0.02	174.0	58.0	0.35	294.0	2.0	0.00
56.0	10.7	0.01	176.0	64.6	0.44	296.0	0.3	0.00
58.0	7.8	0.01	178.0	68.6	0.50	298.0	3.0	0.00
60.0	5.0	0.00	180.0	69.8	0.51	300.0	6.1	0.00
62.0	2.5	0.00	182.0	68.5	0.49	302.0	9.4	0.01
64.0	0.2	0.00	184.0	64.3	0.44	304.0	12.7	0.02
66.0	1.7	0.00	186.0	57.7	0.35	306.0	15.8	0.03
68.0	3.1	0.00	188.0	49.2	0.25	308.0	18.4	0.04
70.0	4.3	0.00	190.0	39.1	0.16	310.0	20.2	0.04
72.0	5.0	0.00	192.0	28.2	0.08	312.0	21.0	0.05
74.0	5.4	0.00	194.0	17.3	0.03	314.0	20.5	0.04
76.0	5.5	0.00	196.0	6.9	0.00	316.0	18.4	0.04
78.0	5.3	0.00	198.0	2.3	0.00	318.0	14.8	0.02
80.0	4.9	0.00	200.0	9.7	0.01	320.0	9.8	0.01
82.0	4.2	0.00	202.0	14.9	0.02	322.0	3.7	0.00
84.0	3.5	0.00	204.0	17.9	0.03	324.0	3.1	0.00
86.0	2.7	0.00	206.0	18.7	0.04	326.0	10.0	0.01
88.0	2.0	0.00	208.0	17.5	0.03	328.0	16.3	0.03
90.0	1.7	0.00	210.0	14.8	0.02	330.0	21.5	0.05
92.0	2.8	0.00	212.0	11.0	0.01	332.0	24.8	0.06
94.0	4.0	0.00	214.0	6.6	0.00	334.0	25.8	0.07
96.0	5.2	0.00	216.0	2.0	0.00	336.0	24.3	0.06
98.0	6.2	0.00	218.0	2.4	0.00	338.0	19.9	0.04
100.0	7.0	0.01	220.0	6.3	0.00	340.0	12.8	0.02
102.0	7.5	0.01	222.0	9.5	0.01	342.0	3.0	0.00
104.0	7.6	0.01	224.0	12.0	0.02	344.0	9.1	0.01
106.0	7.3	0.01	226.0	13.6	0.02	346.0	23.1	0.06
108.0	6.6	0.00	228.0	14.4	0.02	348.0	38.2	0.15
110.0	5.5	0.00	230.0	14.4	0.02	350.0	53.7	0.30
112.0	3.9	0.00	232.0	13.7	0.02	352.0	68.5	0.49
114.0	2.0	0.00	234.0	12.3	0.02	354.0	81.5	0.70
116.0	0.3	0.00	236.0	10.4	0.01	356.0	91.6	0.88
118.0	2.7	0.00	238.0	8.1	0.01	358.0	98.0	1.01



Google Earth

feet
meters





Google Earth

feet
meters

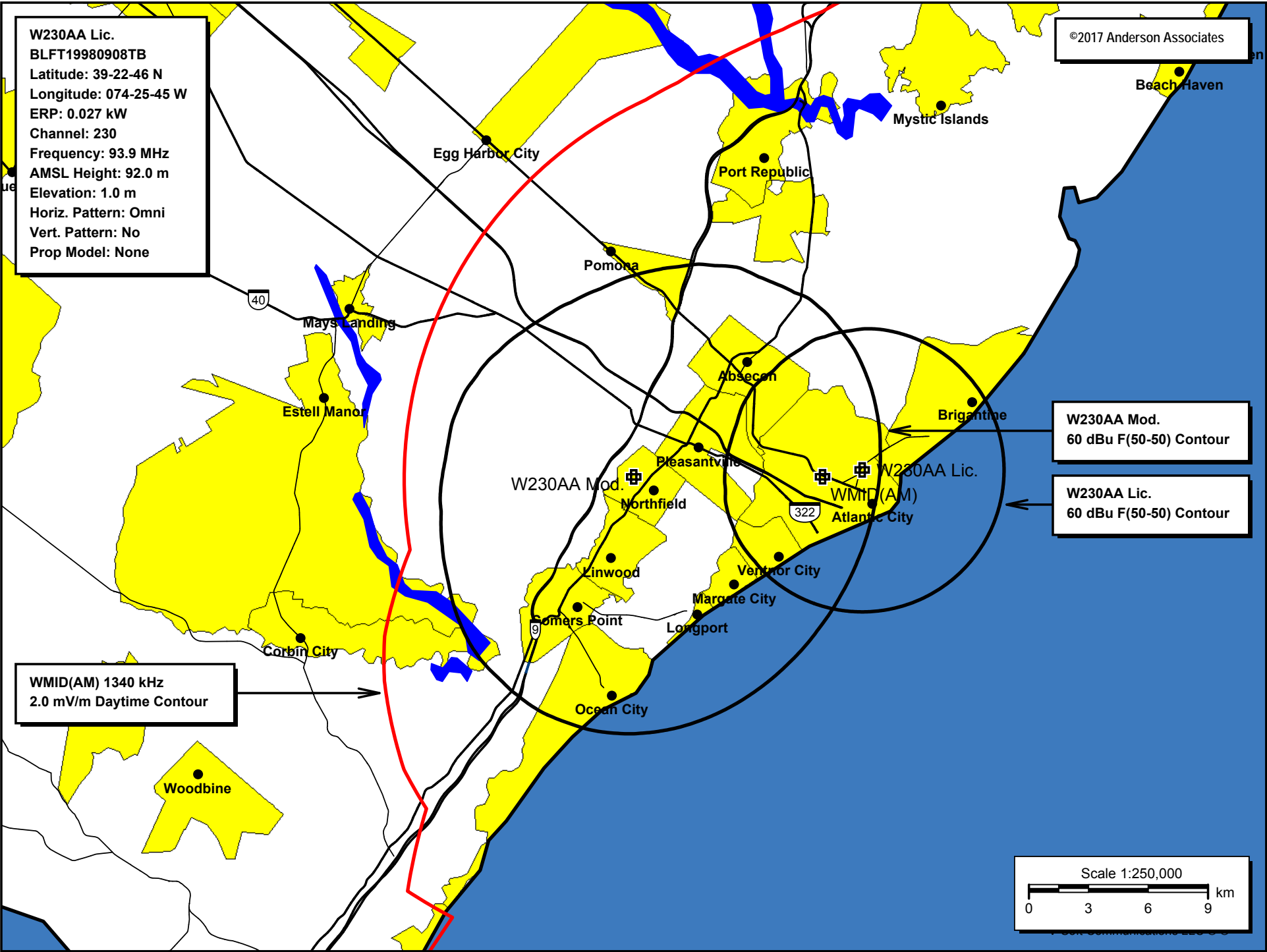




Google Earth



E-7 W230AA Mod. 60 dBu Contour Plot

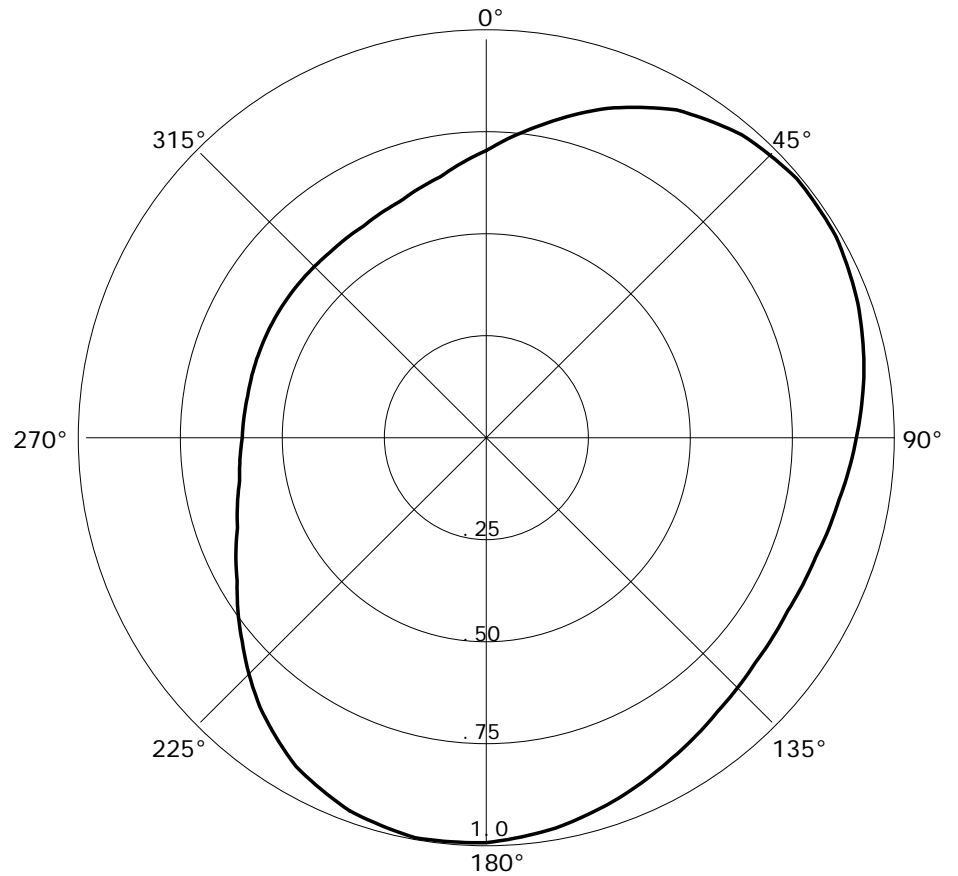


E-8 W230AA Mod. Directional Antenna Pattern

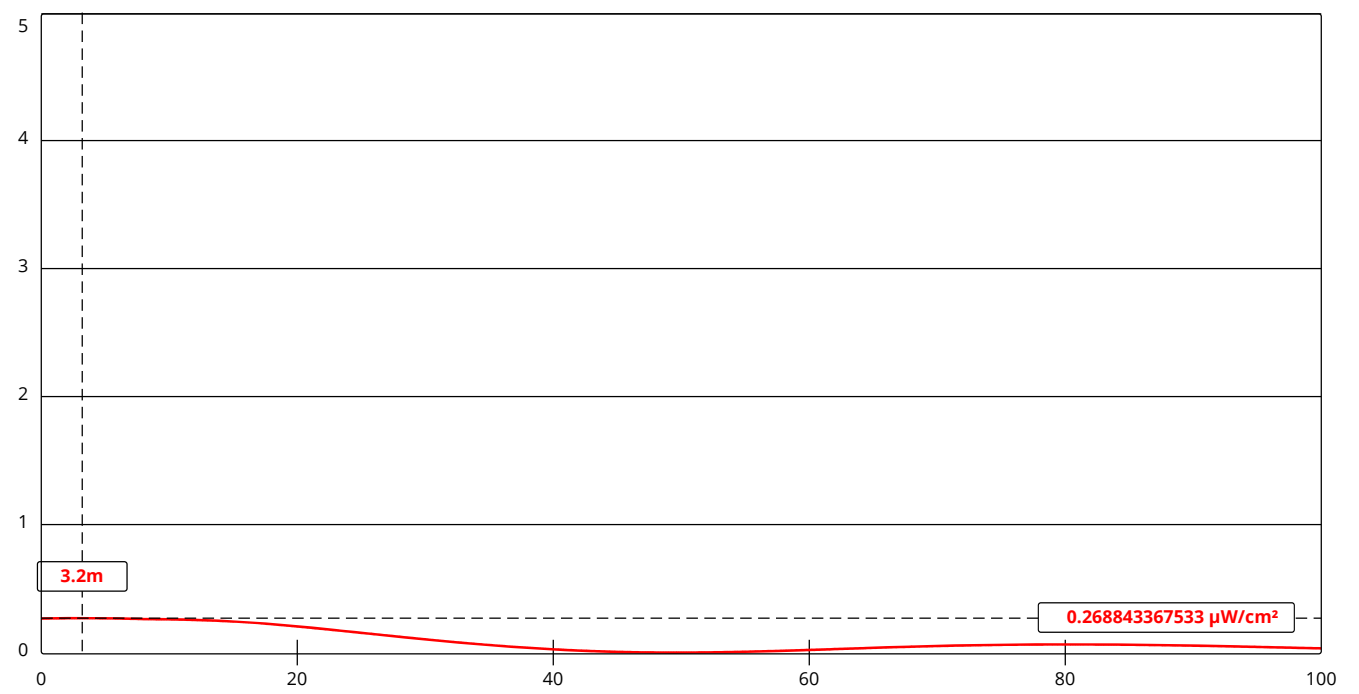
RMS(V) = .825

Graph is Relative Field

Azi	Field	dBk	kW
000	0.707	-09.032	0.125
010	0.782	-08.156	0.153
020	0.863	-07.300	0.186
030	0.932	-06.632	0.217
040	0.974	-06.249	0.237
050	0.993	-06.082	0.247
060	0.990	-06.108	0.245
070	0.969	-06.294	0.235
080	0.940	-06.558	0.221
090	0.907	-06.868	0.206
100	0.878	-07.151	0.193
110	0.859	-07.341	0.184
120	0.853	-07.402	0.182
130	0.861	-07.321	0.185
140	0.881	-07.121	0.194
150	0.911	-06.830	0.207
160	0.945	-06.512	0.223
170	0.976	-06.232	0.238
180	0.997	-06.047	0.249
190	1.000	-06.021	0.250
200	0.978	-06.214	0.239
210	0.934	-06.614	0.218
220	0.864	-07.290	0.187
230	0.781	-08.168	0.152
240	0.705	-09.057	0.124
250	0.649	-09.776	0.105
260	0.614	-10.257	0.094
270	0.598	-10.487	0.089
280	0.594	-10.545	0.088
290	0.595	-10.530	0.089
300	0.596	-10.516	0.089
310	0.596	-10.516	0.089
320	0.596	-10.516	0.089
330	0.602	-10.429	0.091
340	0.619	-10.187	0.096
350	0.652	-09.736	0.106



FM Model



Channel Selection	Channel 230 (93.9 MHz)		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other"		
Height (m)	95	Distance (m)	100
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	4	Element Spacing (λ)	0.85
Num of Points	500		

ASR Registration 1053552

Registration Detail

Reg Number	1053552	Status	Constructed
File Number	A1052374	Constructed	09/06/2003
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type GTOWER - Guyed Structure Used for Communication Purposes

Location (in NAD83 Coordinates)

Lat/Long	39-22-35.8 N 074-33-42.2 W	Address	BURTON AVE. (000062 / NORTHFIELD NJ)
City, State	NORTHFIELD , NJ		
Zip	08225	County	ATLANTIC
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
5.5	107.5
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
113.0	106.6

Painting and Lighting Specifications

FAA Chapters 4, 8, 12

Paint and Light in Accordance with FAA Circular Number 70/7460-1L

FAA Notification

FAA Study	2016-AEA-4573-OE	FAA Issue Date	05/11/2016
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Owner & Contact Information

FRN	0011498342	Owner Entity Type	Limited Liability Company
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Owner

American Towers, LLC	P: (678)564-3236
Attention To: Regulatory Compliance FAA FCC	F:
10 Presidential Way	E: faa-fcc@americantower.com
Woburn , MA 01801	

Contact

Attention To: FAA FCC	P: (678)564-3236
10 Presidential Way	F:
Woburn , MA 01801	E: faa-fcc@americantower.com

Last Action Status

Status	Constructed	Received	10/28/2016
Purpose	Notification	Entered	10/28/2016