

Technical Report W241DD.CP Minor Modification

This technical report is submitted for a minor modification to W241DD.CP, FCC file no. BNPFT-20180629ABS. Changes in the tower site, COR, antenna and ERP are submitted. The translator will continue to serve as a fill-in to rebroadcast the primary WZGM(AM) 1350 kHz facility at Black Mountain, NC, FCC facility ID 40654.

W241DD.CP Modification Analysis:

An overlap study in exhibit E-1 shows the W241DD.CP modification is within the WOXL-FM 243C2 second-adjacent and W238BO third-adjacent protected contours. Using the vertical elevation pattern of the Nicom BKG77-3, 0.85 wavelength-spaced antenna (exhibit E-2), the +40 118.69 and 114.39 F(50-10) dBu contours (exhibits E-3 and E-4) do not reach any population, buildings or roads (exhibit E-5). The 60 F(50-50) dBu contour overlaps the current CP 60 dBu contour and is contained within the WZGM(AM) 2.0 mV/m daytime contour (exhibit E-6).

Antenna System:

The W241DD translator will be located on the existing 56.4 meter tower at coordinates:

35 35 28.8N 082 24 53.3W NAD 83

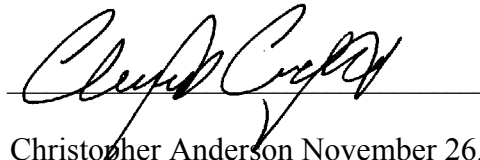
A TOWAIR determination (exhibit E-7) shows the tower does not require registration. A Nicom BKG77-3, 0.85 wavelength-spaced, directional antenna (exhibit E-8) will be mounted at a COR AGL of 53 meters, 861 meters AMSL, 30 meter default HAAT (exhibit E-9) and operate at 0.099 kW ERP.

RF Exposure Calculation:

The RF contribution was calculated using FMModel (exhibit E-10). The worst-case (H+V) RF is calculated to be $0.124 \mu\text{W}/\text{cm}^2$ at a distance of 14.2 meters from the base of the tower, which is below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for uncontrolled, general public exposure, allowing exclusion from consideration.

Conclusion:

It is concluded that the minor modification application for W241DD.CP complies with all Commission rules and policies.

A handwritten signature in black ink, appearing to read 'Christopher Anderson', is written over a horizontal line.

Christopher Anderson November 26, 2019
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E-1 W241DD.CP Mod. Overlap Study

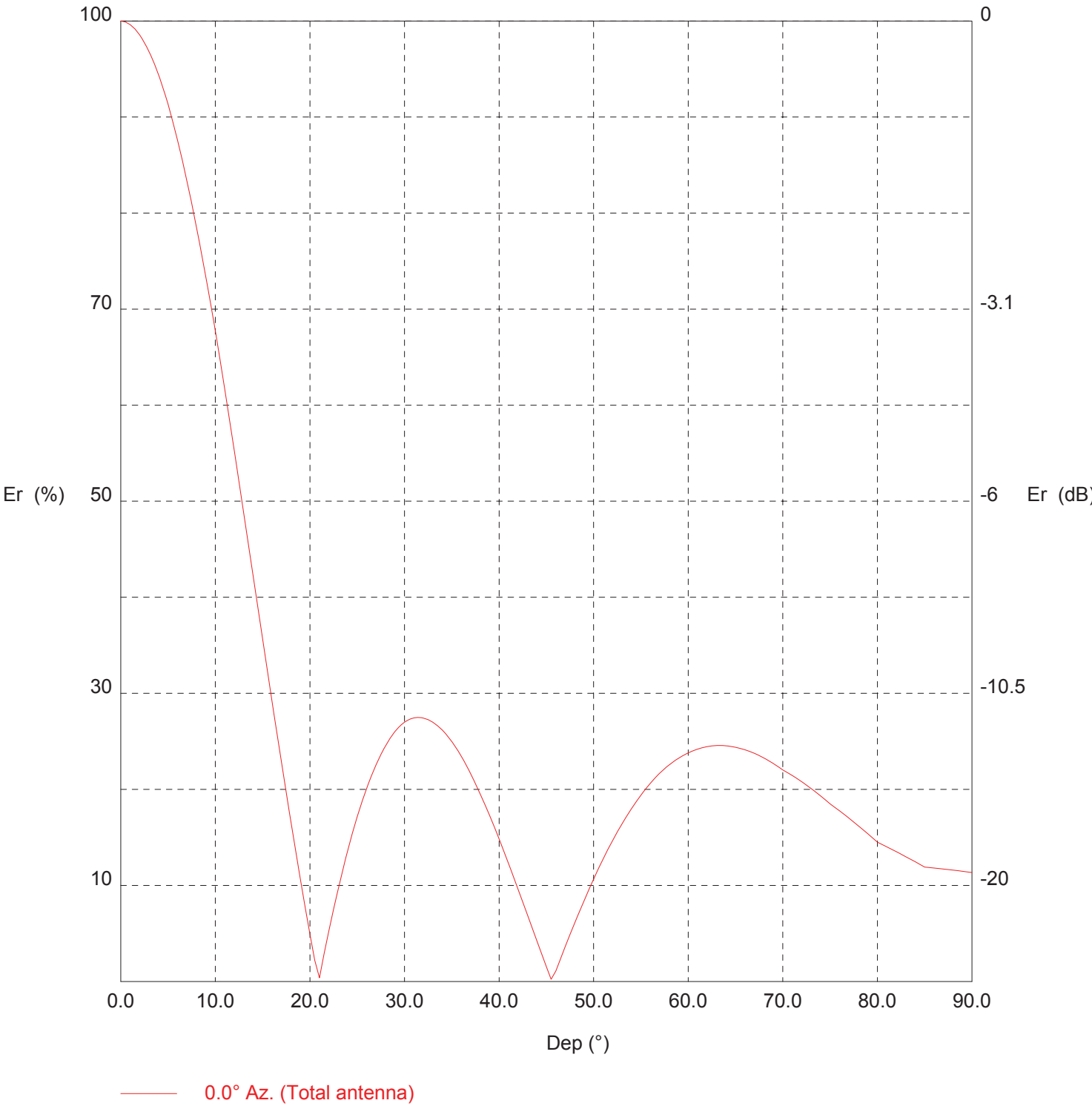
REFERENCE 35 35 28.80 N. 82 24 53.30 W.		CH# 241D - 96.1 MHz, Pwr= 0.099 kW DA, HAAT= -5.0 M, COR= 861 M Average Protected F(50-50)= 5.62 km Standard Directional								DISPLAY DATES DATA 11-26-19 SEARCH 11-26-19	
CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
241C Shelby	WHQC	LIC D NC		102.2 282.9	116.86 BLH20111221ADF	35 21 44.50 81 09 18.30	100.000 533	191.5 768	87.3 Clear Channel	-82.1*	6.0 Broadcasting
241D Asheville	W241DD	CP NC		264.8 84.7	13.69 BNPFT20180629ABS	35 34 48.40 82 33 56.50	0.250	690	---Reference---		Hrn Broadcasting, Inc.
243C2 Biltmore Forest	WOXL-FM	LIC Z NC		273.0 92.9	21.45 BLH20160926ADQ	35 36 04.40 82 39 06.50	9.500 339	5.2 1064	54.6 Saga Communications Of Nor	2.1	-33.8*(1)
238D Black Mountain	W238BO	LIC NC		132.8 312.9	3.83 BLFT20061012ABZ	35 34 04.40 82 23 01.40	0.010 525	0.2 1363	13.5 Radio Training Network, In	-0.9*	-10.1*(2)
240L1 Hendersonville	WULC-LP	LIC NC		197.8 17.7	22.70 BLL20170126ABT	35 23 48.40 82 29 28.40	0.049 43	731	Luz Para Hoy Radio	4.2	2.3
240D Marshall	W240DS	LIC D NC		314.4 134.2	33.42 BLFT20180815AAF	35 48 04.30 82 40 47.40	0.250	10.9 669	6.6 Seay Broadcasting, Inc.	13.4	12.5
240C2 Colonial Heights	WRZK	LIC Z TN		351.6 171.5	105.14 BLH20031125ALT	36 31 36.40 82 35 12.50	7.400 382	75.7 841	50.7 Holston Valley Broadcastin	22.0	46.5
240L1 Waynesville	WOPT-LP	LIC NC		262.0 81.7	52.57 BLL20170127ACY	35 31 27.90 82 59 24.90	0.100 -100	801	Waynesville Christian Radi	29.6	25.0
242D Greenville	W242BX	LIC D SC		179.7 359.7	72.31 BLFT20151013AEE	34 56 27.40 82 24 40.40	0.250 332	20.0 645	13.5 Ted A McCall	41.8	43.8

Terrain database is GLOBE 30 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.
Reference station has protected zone issue: AM tower

- (1) The +40 118.69 F(50-10) dBu contour within the WOXL-FM 243C2 second-adjacent protected contour (exhibit E-2) lowest point = 35.1 meters above the site elevation, which does not reach any population, roads or buildings, as shown in the aerial photo (exhibit E-4).
- (2) The +40 114.39 F(50-10) dBu contour within the W238BO 238D third-adjacent protected contour (exhibit E-3) lowest point = 35.1 meters above the site elevation, which does not reach any population, roads or buildings, as shown in the aerial photo (exhibit E-4).

E-2 BKG77/3-0.85 Antenna Vertical Elevation Pattern and Tabulation

Vertical diagram



TX station: BKG77/3 GENERIC

Frequency: 100.00 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)
0.0	100.0	1.37	30.0	27.0	0.10	60.0	23.8	0.08
0.5	99.9	1.37	30.5	27.3	0.10	60.5	24.0	0.08
1.0	99.6	1.36	31.0	27.4	0.10	61.0	24.2	0.08
1.5	99.2	1.35	31.5	27.5	0.10	61.5	24.3	0.08
2.0	98.5	1.33	32.0	27.4	0.10	62.0	24.5	0.08
2.5	97.8	1.31	32.5	27.3	0.10	62.5	24.5	0.08
3.0	96.8	1.28	33.0	27.0	0.10	63.0	24.6	0.08
3.5	95.7	1.26	33.5	26.6	0.10	63.5	24.6	0.08
4.0	94.4	1.22	34.0	26.2	0.09	64.0	24.5	0.08
4.5	92.9	1.18	34.5	25.6	0.09	64.5	24.5	0.08
5.0	91.3	1.14	35.0	25.0	0.09	65.0	24.4	0.08
5.5	89.5	1.10	35.5	24.2	0.08	65.5	24.3	0.08
6.0	87.6	1.05	36.0	23.4	0.08	66.0	24.1	0.08
6.5	85.5	1.00	36.5	22.5	0.07	66.5	23.9	0.08
7.0	83.3	0.95	37.0	21.6	0.06	67.0	23.7	0.08
7.5	81.0	0.90	37.5	20.6	0.06	67.5	23.5	0.08
8.0	78.6	0.85	38.0	19.5	0.05	68.0	23.3	0.07
8.5	76.0	0.79	38.5	18.4	0.05	68.5	23.0	0.07
9.0	73.4	0.74	39.0	17.3	0.04	69.0	22.7	0.07
9.5	70.6	0.68	39.5	16.1	0.04	69.5	22.4	0.07
10.0	67.8	0.63	40.0	14.8	0.03	70.0	22.0	0.07
10.5	64.7	0.57	40.5	13.6	0.03	70.5	21.7	0.06
11.0	61.6	0.52	41.0	12.3	0.02	71.0	21.4	0.06
11.5	58.5	0.47	41.5	11.0	0.02	71.5	21.1	0.06
12.0	55.3	0.42	42.0	9.6	0.01	72.0	20.8	0.06
12.5	52.1	0.37	42.5	8.3	0.01	72.5	20.4	0.06
13.0	48.8	0.33	43.0	6.9	0.01	73.0	20.1	0.06
13.5	45.5	0.28	43.5	5.6	0.00	73.5	19.7	0.05
14.0	42.2	0.24	44.0	4.2	0.00	74.0	19.3	0.05
14.5	38.9	0.21	44.5	2.9	0.00	74.5	18.9	0.05
15.0	35.7	0.17	45.0	1.5	0.00	75.0	18.5	0.05
15.5	32.4	0.14	45.5	0.2	0.00	75.5	18.1	0.05
16.0	29.1	0.12	46.0	1.1	0.00	76.0	17.8	0.04
16.5	25.9	0.09	46.5	2.4	0.00	76.5	17.4	0.04
17.0	22.7	0.07	47.0	3.6	0.00	77.0	17.0	0.04
17.5	19.6	0.05	47.5	4.9	0.00	77.5	16.6	0.04
18.0	16.5	0.04	48.0	6.1	0.01	78.0	16.2	0.04
18.5	13.5	0.02	48.5	7.3	0.01	78.5	15.8	0.03
19.0	10.5	0.02	49.0	8.5	0.01	79.0	15.4	0.03
19.5	7.7	0.01	49.5	9.6	0.01	79.5	14.9	0.03
20.0	4.9	0.00	50.0	10.7	0.02	80.0	14.5	0.03
20.5	2.2	0.00	50.5	11.7	0.02	80.5	14.3	0.03
21.0	0.4	0.00	51.0	12.7	0.02	81.0	14.0	0.03
21.5	2.9	0.00	51.5	13.7	0.03	81.5	13.8	0.03
22.0	5.3	0.00	52.0	14.7	0.03	82.0	13.5	0.03
22.5	7.5	0.01	52.5	15.6	0.03	82.5	13.3	0.02
23.0	9.7	0.01	53.0	16.4	0.04	83.0	13.0	0.02
23.5	11.7	0.02	53.5	17.2	0.04	83.5	12.7	0.02
24.0	13.7	0.03	54.0	18.0	0.04	84.0	12.5	0.02
24.5	15.5	0.03	54.5	18.7	0.05	84.5	12.2	0.02
25.0	17.1	0.04	55.0	19.4	0.05	85.0	11.9	0.02
25.5	18.7	0.05	55.5	20.1	0.06	85.5	11.9	0.02
26.0	20.1	0.06	56.0	20.7	0.06	86.0	11.8	0.02
26.5	21.4	0.06	56.5	21.2	0.06	86.5	11.8	0.02
27.0	22.6	0.07	57.0	21.7	0.06	87.0	11.7	0.02
27.5	23.6	0.08	57.5	22.2	0.07	87.5	11.6	0.02
28.0	24.5	0.08	58.0	22.6	0.07	88.0	11.6	0.02
28.5	25.3	0.09	58.5	22.9	0.07	88.5	11.5	0.02
29.0	26.0	0.09	59.0	23.3	0.07	89.0	11.5	0.02
29.5	26.6	0.10	59.5	23.5	0.08	89.5	11.4	0.02

E-3 W241DD.CP Mod. +40 118.69 F(50-10) dBu Tabulation Within WOXL-FM 243C2

W241DD.C Asheville, NC, Showing Protection to WOXL-FM , Channel: 243
Geographic Coordinates: N. 35 3 5 28.800 W. 82 2 4 53.300
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.099 kW, Channel: 241
Translator or LPFM Antenna Height AG = 53 meters
W241DD.C Antenna Model = NICOM BKG77-3-085

Protected Station's Contour = 78.69478 dBu
Translator's or LPFM's full Interference contour 118.69478

Review Azimuth = 330 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.099 kW
Distance between stations = 21.4 km
Protected Station= WOXL-FM, 9.5 kW, 1064 M meters COR AMSL

Depression Angle From Degree(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	0.0990	081.1108	081.1108	053.000
01.00	0.996	1.0	0.0982	080.7863	080.7740	051.590
02.00	0.985	1.0	0.0961	079.8941	079.8455	050.212
03.00	0.968	1.0	0.0928	078.5152	078.4076	048.891
04.00	0.944	1.0	0.0882	076.5686	076.3821	047.659
05.00	0.913	1.0	0.0825	074.0541	073.7723	046.546
06.00	0.876	1.0	0.0760	071.0530	070.6638	045.573
07.00	0.833	1.0	0.0687	067.5653	067.0617	044.766
08.00	0.786	1.0	0.0612	063.7531	063.1326	044.127
09.00	0.734	1.0	0.0533	059.5353	058.8023	043.687
10.00	0.678	1.0	0.0455	054.9931	054.1576	043.451
11.00	0.616	1.0	0.0376	049.9642	049.0463	043.466
12.00	0.553	1.0	0.0303	044.8543	043.8741	043.674
13.00	0.488	1.0	0.0236	039.5821	038.5676	044.096
14.00	0.422	1.0	0.0176	034.2287	033.2120	044.719
15.00	0.357	1.0	0.0126	028.9565	027.9699	045.505
16.00	0.291	1.0	0.0084	023.6032	022.6889	046.494
17.00	0.227	1.0	0.0051	018.4121	017.6076	047.617
18.00	0.165	1.0	0.0027	013.3833	012.7283	048.864
19.00	0.105	1.0	0.0011	008.5166	008.0526	050.227
20.00	0.049	1.0	0.0002	003.9744	003.7347	051.641
21.00	0.004	1.0	0.0000	000.3244	000.3029	052.884
22.00	0.053	1.0	0.0003	004.2989	003.9858	051.390
23.00	0.097	1.0	0.0009	007.8677	007.2423	049.926
24.00	0.137	1.0	0.0019	011.1122	010.1515	048.480
25.00	0.171	1.0	0.0029	013.8699	012.5704	047.138
26.00	0.201	1.0	0.0040	016.3033	014.6533	045.853
27.00	0.226	1.0	0.0051	018.3310	016.3331	044.678
28.00	0.245	1.0	0.0059	019.8721	017.5461	043.671
29.00	0.26	1.0	0.0067	021.0888	018.4447	042.776
30.00	0.27	1.0	0.0072	021.8999	018.9659	042.050
31.00	0.274	1.0	0.0074	022.2244	019.0500	041.554
32.00	0.274	1.0	0.0074	022.2244	018.8473	041.223
33.00	0.27	1.0	0.0072	021.8999	018.3668	041.072
34.00	0.262	1.0	0.0068	021.2510	017.6179	041.117
35.00	0.25	1.0	0.0062	020.2777	016.6105	041.369
36.00	0.234	1.0	0.0054	018.9799	015.3551	041.844
37.00	0.216	1.0	0.0046	017.5199	013.9920	042.456
38.00	0.195	1.0	0.0038	015.8166	012.4637	043.262
39.00	0.173	1.0	0.0030	014.0322	010.9050	044.169
40.00	0.148	1.0	0.0022	012.0044	009.1959	045.284
41.00	0.123	1.0	0.0015	009.9766	007.5295	046.455
42.00	0.096	1.0	0.0009	007.7866	005.7866	047.790
43.00	0.069	1.0	0.0005	005.5966	004.0931	049.183
44.00	0.042	1.0	0.0002	003.4067	002.4505	050.634
45.00	0.015	1.0	0.0000	001.2167	000.8603	052.140
46.00	0.011	1.0	0.0000	000.8922	000.6198	052.358
47.00	0.036	1.0	0.0001	002.9200	001.9914	050.864
48.00	0.061	1.0	0.0004	004.9478	003.3107	049.323
49.00	0.085	1.0	0.0007	006.8944	004.5231	047.797
50.00	0.107	1.0	0.0011	008.6789	005.5787	046.352
51.00	0.127	1.0	0.0016	010.3011	006.4827	044.995
52.00	0.147	1.0	0.0021	011.9233	007.3407	043.604
53.00	0.164	1.0	0.0027	013.3022	008.0054	042.376
54.00	0.18	1.0	0.0032	014.5999	008.5816	041.188
55.00	0.194	1.0	0.0037	015.7355	009.0255	040.110
56.00	0.207	1.0	0.0042	016.7899	009.3888	039.081
57.00	0.217	1.0	0.0047	017.6010	009.5862	038.239
58.00	0.226	1.0	0.0051	018.3310	009.7140	037.454
59.00	0.233	1.0	0.0054	018.8988	009.7336	036.801
60.00	0.238	1.0	0.0056	019.3044	009.6522	036.282
61.00	0.242	1.0	0.0058	019.6288	009.5162	035.832
62.00	0.245	1.0	0.0059	019.8721	009.3294	035.454
63.00	0.246	1.0	0.0060	019.9533	009.0586	035.222
64.00	0.245	1.0	0.0059	019.8721	008.7114	035.139
65.00	0.244	1.0	0.0059	019.7910	008.3641	035.063 (1)
66.00	0.241	1.0	0.0058	019.5477	007.9508	035.142
67.00	0.237	1.0	0.0056	019.2233	007.5111	035.305
68.00	0.233	1.0	0.0054	018.8988	007.0796	035.477
69.00	0.227	1.0	0.0051	018.4121	006.5983	035.811
70.00	0.22	1.0	0.0048	017.8444	006.1031	036.232
71.00	0.214	1.0	0.0045	017.3577	005.6511	036.588
72.00	0.208	1.0	0.0043	016.8710	005.2134	036.955

E-3 W241DD.CP Mod. +40 118.69 F(50-10) dBu Tabulation Within WOXL-FM 243C2, cont.

Depression Angle From Degree (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	0.201	1.0	0.0040	016.3033	004.7666	037.409
74.00	0.193	1.0	0.0037	015.6544	004.3149	037.952
75.00	0.185	1.0	0.0034	015.0055	003.8837	038.506
76.00	0.178	1.0	0.0031	014.4377	003.4928	038.991
77.00	0.17	1.0	0.0029	013.7888	003.1018	039.565
78.00	0.162	1.0	0.0026	013.1399	002.7319	040.147
79.00	0.154	1.0	0.0023	012.4911	002.3834	040.738
80.00	0.145	1.0	0.0021	011.7611	002.0423	041.418
81.00	0.14	1.0	0.0019	011.3555	001.7764	041.784
82.00	0.135	1.0	0.0018	010.9500	001.5239	042.157
83.00	0.13	1.0	0.0017	010.5444	001.2850	042.534
84.00	0.125	1.0	0.0015	010.1388	001.0598	042.917
85.00	0.119	1.0	0.0014	009.6522	000.8412	043.385
86.00	0.118	1.0	0.0014	009.5711	000.6676	043.452
87.00	0.117	1.0	0.0014	009.4900	000.4967	043.523
88.00	0.116	1.0	0.0013	009.4089	000.3284	043.597
89.00	0.115	1.0	0.0013	009.3277	000.1628	043.674
90.00	0.114	1.0	0.0013	009.2466	000.0000	043.753

(1) The +40 118.69 F(50-10) dBu contour lowest point = 35.1 meters above the site elevation, which does not reach any population, roads or buildings, as shown in the aerial photo in exhibit E-5.

E-4 W241DD.CP Mod. +40 F(50-10) dBu Contour Tabulation Within W238BO

W241DD.C Asheville, NC, Showing Protection to W238BO , Channel: 238
Geographic Coordinates: N. 35 3 5 28.800 W. 82 2 4 53.300
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.099 kW, Channel: 241
Translator or LPFM Antenna Height AG = 53 meters
W241DD.C Antenna Model = NICOM BKG77-3-085

Protected Station's Contour = 74.39447 dBu
Translator's or LPFM's full Interference contour 114.39447

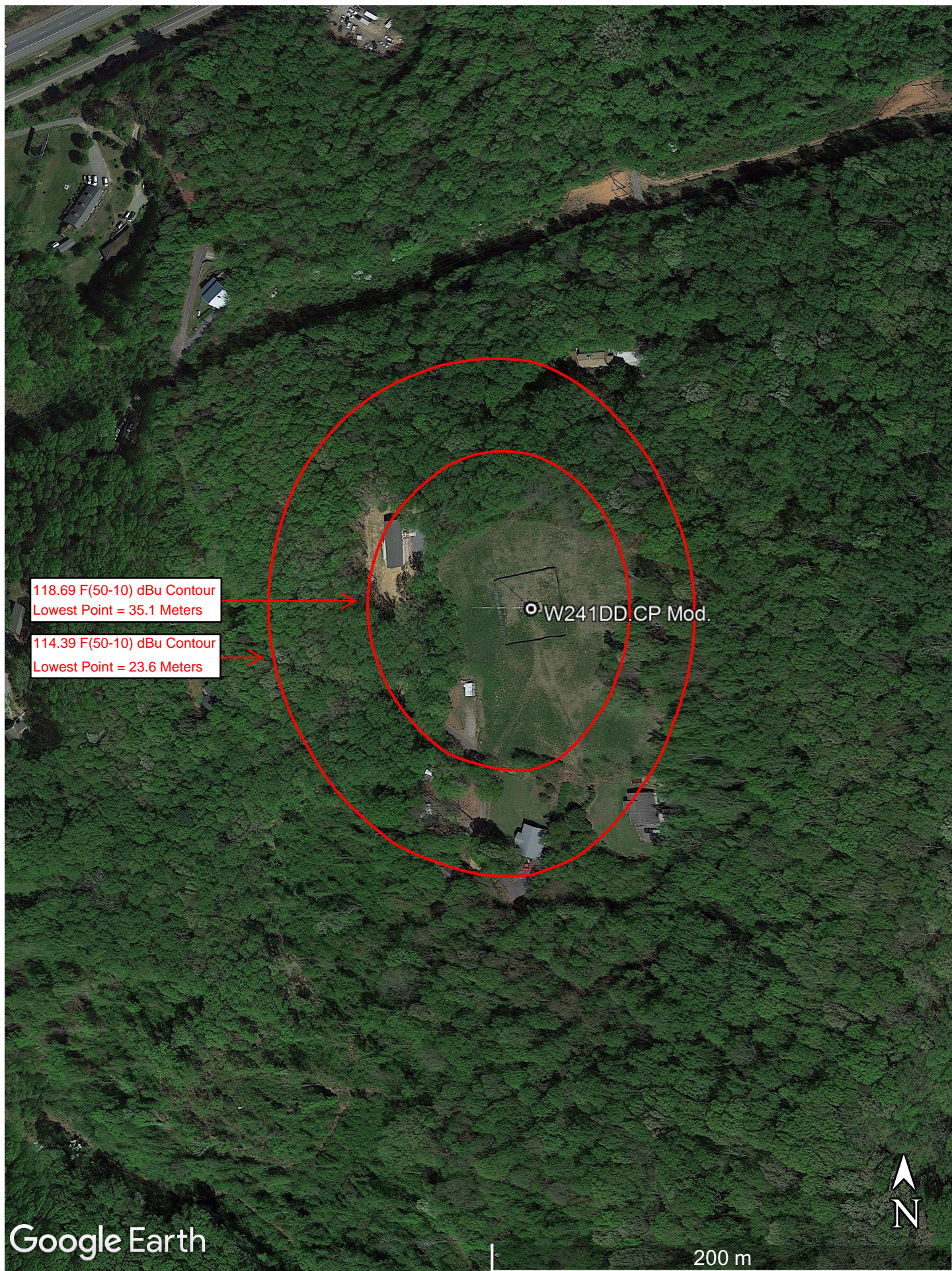
Review Azimuth = 330 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.099 kW
Distance between stations = 3.8 km
Protected Station= W238BO, .01 kW, 1363 M meters COR AMSL

Depression Angle From Degree(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	0.0990	133.0743	133.0743	053.000
01.00	0.996	1.0	0.0982	132.5420	132.5218	050.687
02.00	0.985	1.0	0.0961	131.0782	130.9983	048.425
03.00	0.968	1.0	0.0928	128.8159	128.6394	046.258
04.00	0.944	1.0	0.0882	125.6221	125.3161	044.237
05.00	0.913	1.0	0.0825	121.4968	121.0345	042.411
06.00	0.876	1.0	0.0760	116.5731	115.9345	040.815
07.00	0.833	1.0	0.0687	110.8509	110.0246	039.491
08.00	0.786	1.0	0.0612	104.5964	103.5785	038.443
09.00	0.734	1.0	0.0533	097.6765	096.4740	037.720
10.00	0.678	1.0	0.0455	090.2244	088.8536	037.333
11.00	0.616	1.0	0.0376	081.9738	080.4677	037.359
12.00	0.553	1.0	0.0303	073.5901	071.9819	037.700
13.00	0.488	1.0	0.0236	064.9402	063.2758	038.392
14.00	0.422	1.0	0.0176	056.1573	054.4892	039.414
15.00	0.357	1.0	0.0126	047.5075	045.8887	040.704
16.00	0.291	1.0	0.0084	038.7246	037.2245	042.326
17.00	0.227	1.0	0.0051	030.2079	028.8879	044.168
18.00	0.165	1.0	0.0027	021.9573	020.8826	046.215
19.00	0.105	1.0	0.0011	013.9728	013.2115	048.451
20.00	0.049	1.0	0.0002	006.5206	006.1274	050.770
21.00	0.004	1.0	0.0000	000.5323	000.4969	052.809
22.00	0.053	1.0	0.0003	007.0529	006.5394	050.358
23.00	0.097	1.0	0.0009	012.9082	011.8821	047.956
24.00	0.137	1.0	0.0019	018.2312	016.6550	045.585
25.00	0.171	1.0	0.0029	022.7557	020.6237	043.383
26.00	0.201	1.0	0.0040	026.7479	024.0409	041.274
27.00	0.226	1.0	0.0051	030.0748	026.7968	039.346
28.00	0.245	1.0	0.0059	032.6032	028.7869	037.694
29.00	0.26	1.0	0.0067	034.5993	030.2612	036.226
30.00	0.27	1.0	0.0072	035.9301	031.1163	035.035
31.00	0.274	1.0	0.0074	036.4623	031.2543	034.221
32.00	0.274	1.0	0.0074	036.4623	030.9218	033.678
33.00	0.27	1.0	0.0072	035.9301	030.1335	033.431
34.00	0.262	1.0	0.0068	034.8655	028.9048	033.503
35.00	0.25	1.0	0.0062	033.2686	027.2520	033.918
36.00	0.234	1.0	0.0054	031.1394	025.1923	034.697
37.00	0.216	1.0	0.0046	028.7440	022.9560	035.701
38.00	0.195	1.0	0.0038	025.9495	020.4485	037.024
39.00	0.173	1.0	0.0030	023.0218	017.8913	038.512
40.00	0.148	1.0	0.0022	019.6950	015.0872	040.340
41.00	0.123	1.0	0.0015	016.3681	012.3532	042.262
42.00	0.096	1.0	0.0009	012.7751	009.4938	044.452
43.00	0.069	1.0	0.0005	009.1821	006.7154	046.738
44.00	0.042	1.0	0.0002	005.5891	004.0205	049.117
45.00	0.015	1.0	0.0000	001.9961	001.4115	051.589
46.00	0.011	1.0	0.0000	001.4638	001.0169	051.947
47.00	0.036	1.0	0.0001	004.7907	003.2672	049.496
48.00	0.061	1.0	0.0004	008.1175	005.4317	046.967
49.00	0.085	1.0	0.0007	011.3113	007.4209	044.463
50.00	0.107	1.0	0.0011	014.2389	009.1526	042.092
51.00	0.127	1.0	0.0016	016.9004	010.6358	039.866
52.00	0.147	1.0	0.0021	019.5619	012.0435	037.585
53.00	0.164	1.0	0.0027	021.8242	013.1341	035.570
54.00	0.18	1.0	0.0032	023.9534	014.0794	033.621
55.00	0.194	1.0	0.0037	025.8164	014.8077	031.852
56.00	0.207	1.0	0.0042	027.5464	015.4037	030.163
57.00	0.217	1.0	0.0047	028.8771	015.7276	028.782
58.00	0.226	1.0	0.0051	030.0748	015.9372	027.495
59.00	0.233	1.0	0.0054	031.0063	015.9694	026.422
60.00	0.238	1.0	0.0056	031.6717	015.8358	025.572
61.00	0.242	1.0	0.0058	032.2040	015.6128	024.834
62.00	0.245	1.0	0.0059	032.6032	015.3063	024.213
63.00	0.246	1.0	0.0060	032.7363	014.8620	023.832
64.00	0.245	1.0	0.0059	032.6032	014.2923	023.696
65.00	0.244	1.0	0.0059	032.4701	013.7225	023.572 (1)
66.00	0.241	1.0	0.0058	032.0709	013.0444	023.702
67.00	0.237	1.0	0.0056	031.5386	012.3231	023.969
68.00	0.233	1.0	0.0054	031.0063	011.6152	024.251
69.00	0.227	1.0	0.0051	030.2079	010.8255	024.799
70.00	0.22	1.0	0.0048	029.2763	010.0131	025.489
71.00	0.214	1.0	0.0045	028.4779	009.2715	026.074
72.00	0.208	1.0	0.0043	027.6794	008.5534	026.675

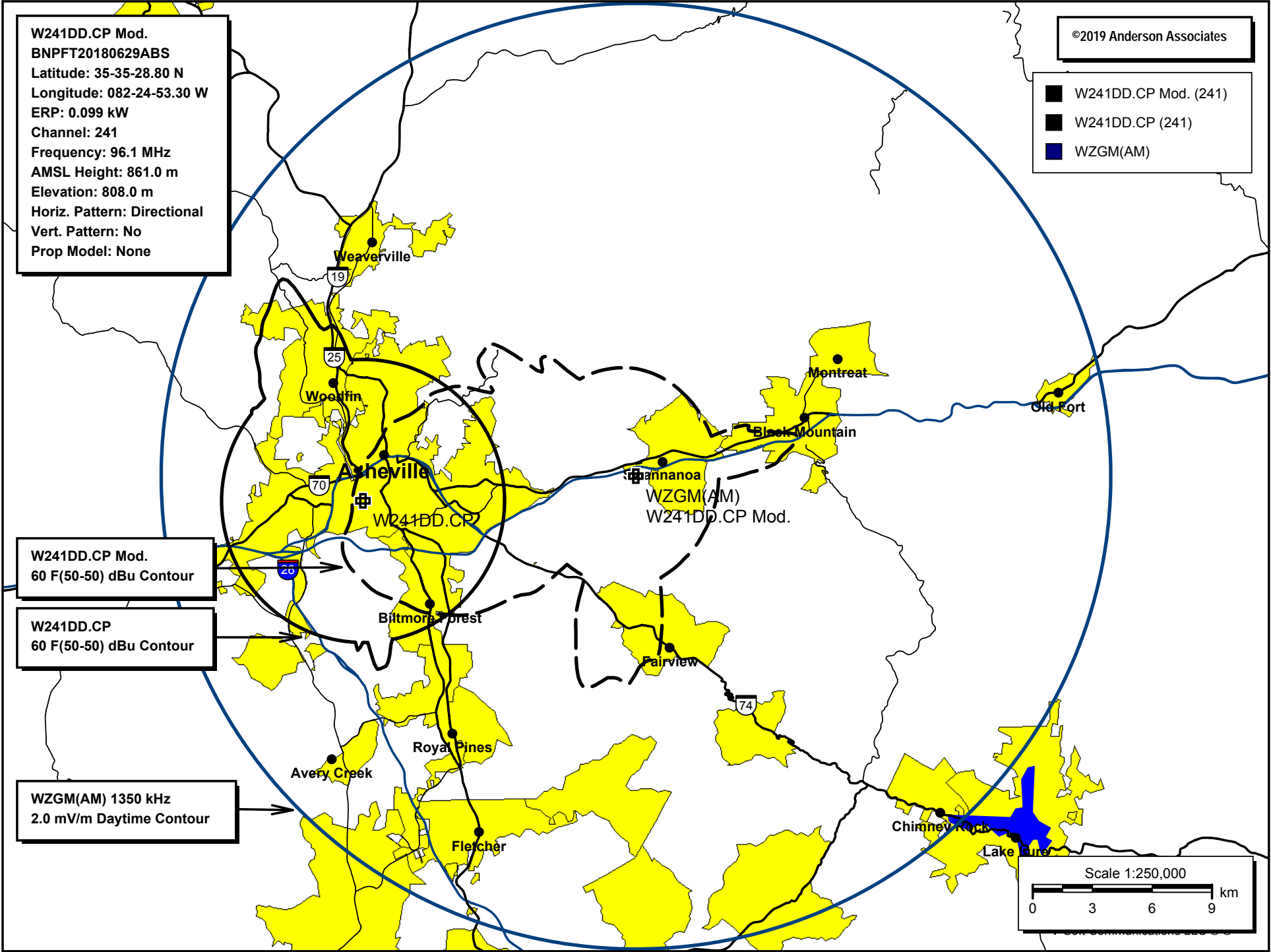
E-4 W241DD.CP Mod. +40 F(50-10) dBu Contour Tabulation Within W238BO, cont.

Depression Angle From Degree (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	0.201	1.0	0.0040	026.7479	007.8203	027.421
74.00	0.193	1.0	0.0037	025.6833	007.0793	028.312
75.00	0.185	1.0	0.0034	024.6187	006.3718	029.220
76.00	0.178	1.0	0.0031	023.6872	005.7305	030.016
77.00	0.17	1.0	0.0029	022.6226	005.0890	030.957
78.00	0.162	1.0	0.0026	021.5580	004.4822	031.913
79.00	0.154	1.0	0.0023	020.4934	003.9103	032.883
80.00	0.145	1.0	0.0021	019.2958	003.3507	033.997
81.00	0.14	1.0	0.0019	018.6304	002.9144	034.599
82.00	0.135	1.0	0.0018	017.9650	002.5002	035.210
83.00	0.13	1.0	0.0017	017.2997	002.1083	035.829
84.00	0.125	1.0	0.0015	016.6343	001.7388	036.457
85.00	0.119	1.0	0.0014	015.8358	001.3802	037.224
86.00	0.118	1.0	0.0014	015.7028	001.0954	037.335
87.00	0.117	1.0	0.0014	015.5697	000.8149	037.452
88.00	0.116	1.0	0.0013	015.4366	000.5387	037.573
89.00	0.115	1.0	0.0013	015.3035	000.2671	037.699
90.00	0.114	1.0	0.0013	015.1705	000.0000	037.830

(1) The +40 114.39 F(50-10) dBu contour lowest point = 23.6 meters above the site elevation, which does not reach any population, roads or buildings, as shown in the aerial photo in exhibit E-5.



E-6 W241DD.CP Mod. 60 F(50-50) dBu Contour Plot



TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	35-35-28.8 north
Longitude	082-24-53.3 west

Measurements (Meters)

Overall Structure Height (AGL)	56.4
Support Structure Height (AGL)	0
Site Elevation (AMSL)	808

Structure Type

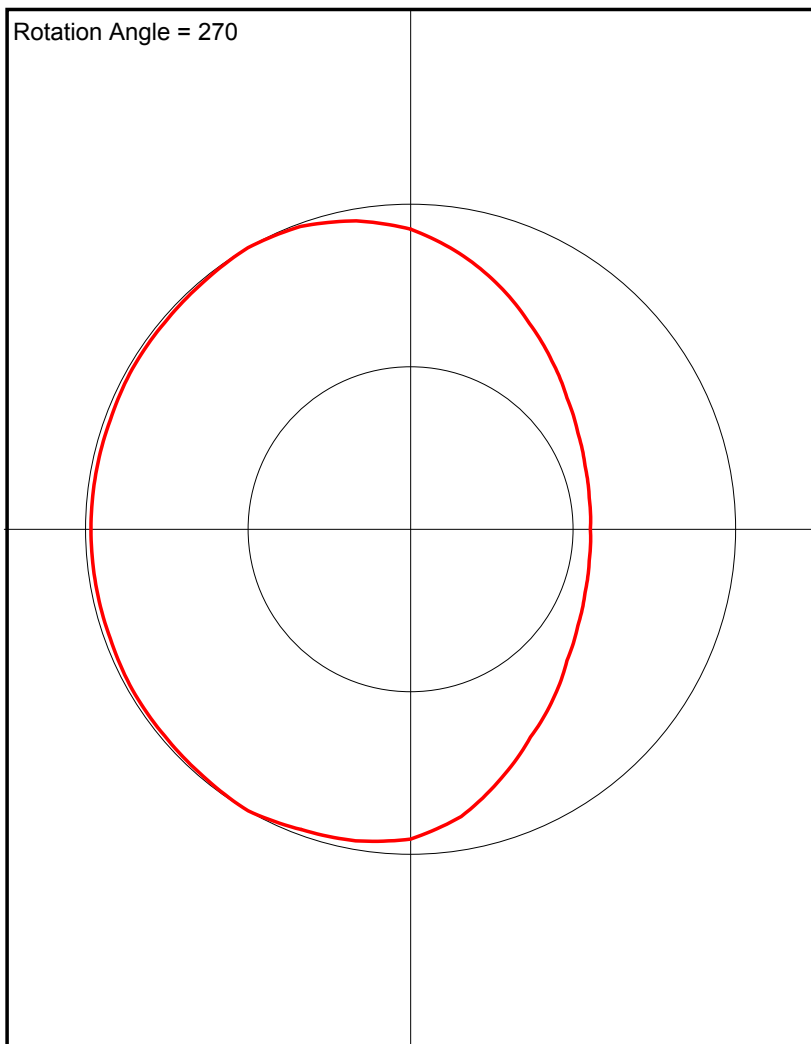
GTOWER - Guyed Structure Used for Communication Purposes

E-8 W241DD.CP Mod. Directional Antenna Pattern

Azimuth (deg)
Relative Field

0.0	0.923
10.0	0.862
20.0	0.797
30.0	0.731
40.0	0.676
50.0	0.628
60.0	0.594
70.0	0.571
80.0	0.558
90.0	0.553
100.0	0.558
110.0	0.571
120.0	0.594
130.0	0.628
140.0	0.682
150.0	0.738
160.0	0.815
170.0	0.897
180.0	0.953
190.0	0.973
200.0	0.983
210.0	1.0
220.0	0.992
230.0	0.988
240.0	0.988
250.0	0.983
260.0	0.983
270.0	0.983
280.0	0.983
290.0	0.983
300.0	0.988
310.0	0.988
320.0	0.992
330.0	1.0
340.0	0.991
350.0	0.963

Rotation Angle = 270



Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **35° 35' 28.8"** North

Longitude **82° 24' 53.3"** West (NAD 83)

Height of antenna radiation center above mean sea level: **861** meters AMSL

Number of Evenly Spaced Radials = **12** 0° is referenced to True North

Results

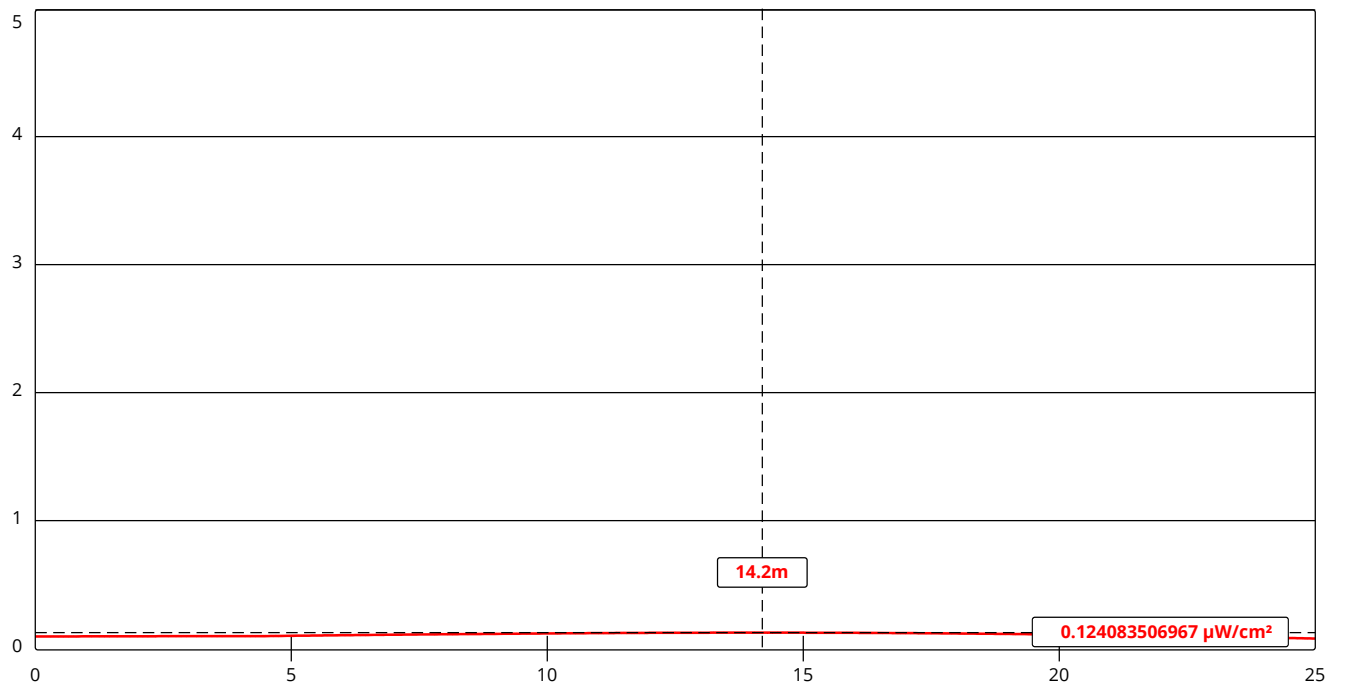
Calculated HAAT = **-5 meters**

Antenna Height Above Average Terrain calculated
using 1 km [GLOBE terrain data](#)

Individual "Radial HAAT" Values, in meters

0°	-249.2 m
30°	-242.5 m
60°	2.9 m
90°	44.6 m
120°	-137.8 m
150°	-17.0 m
180°	92.8 m
210°	-4.0 m
240°	162.1 m
270°	186.6 m
300°	69.8 m
330°	32.0 m

FM Model



Channel Selection	Channel 241 (96.1 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	53	Distance (m)	25
ERP-H (W)	99	ERP-V (W)	99
Num of Elements	3	Element Spacing (λ)	0.85
Num of Points	500		