

Technical Report W251DC Minor Modification

This technical report is submitted for a minor modification to W251DC at Marion, IL, FCC facility I.D. 200584. Changes in tower site, COR AGL and antenna are submitted. The translator will continue to serve as a fill-in facility for WGGH(AM) 1150 kHz at Marion, IL, FCC facility I.D. 70253.

W251DC Modification Analysis:

An overlap study in exhibit E-1 shows the W251DC modification is within the WHET(FM) 249A second-adjacent protected contour. Using the vertical pattern of the Nicom BKG77-2-0.75 wavelength-spaced antenna (exhibit E-2), the +40 116.25 F(50-10) dBu contour lowest point = 4.5 meters above the site elevation (exhibit E-3), which does not reach any population, buildings or roads (exhibit E-4). The 60 dBu contour overlaps the licensed 60 dBu contour and is contained within a 25 mile/40 kilometer radius from the primary WGGH(AM) licensed and STA daytime sites (exhibit E-5).

Antenna System:

The W251DC modification will be located on the 45.7 meter tower at coordinates:

37 39 21.5N 088 55 23.2W NAD 83.

A TOWAIR determination (exhibit E-6) shows the tower does not require registration. A Nicom BKG77 two bay, 0.75 wavelength spaced, nondirectional antenna will be mounted at a COR AGL of 42.7 meters, 195.1 meters AMSL, 40.7 meters HAAT (exhibit E-7) and operate at 0.250 kW.

RF Exposure Calculation:

The RF contribution was calculated using FM Model (exhibit E-8). The RF at 42.7 meters COR AGL = $0.583 \mu\text{W}/\text{cm}^2$ at a distance of 16.4 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 W251DC modification complies with all Commission rules and policies.



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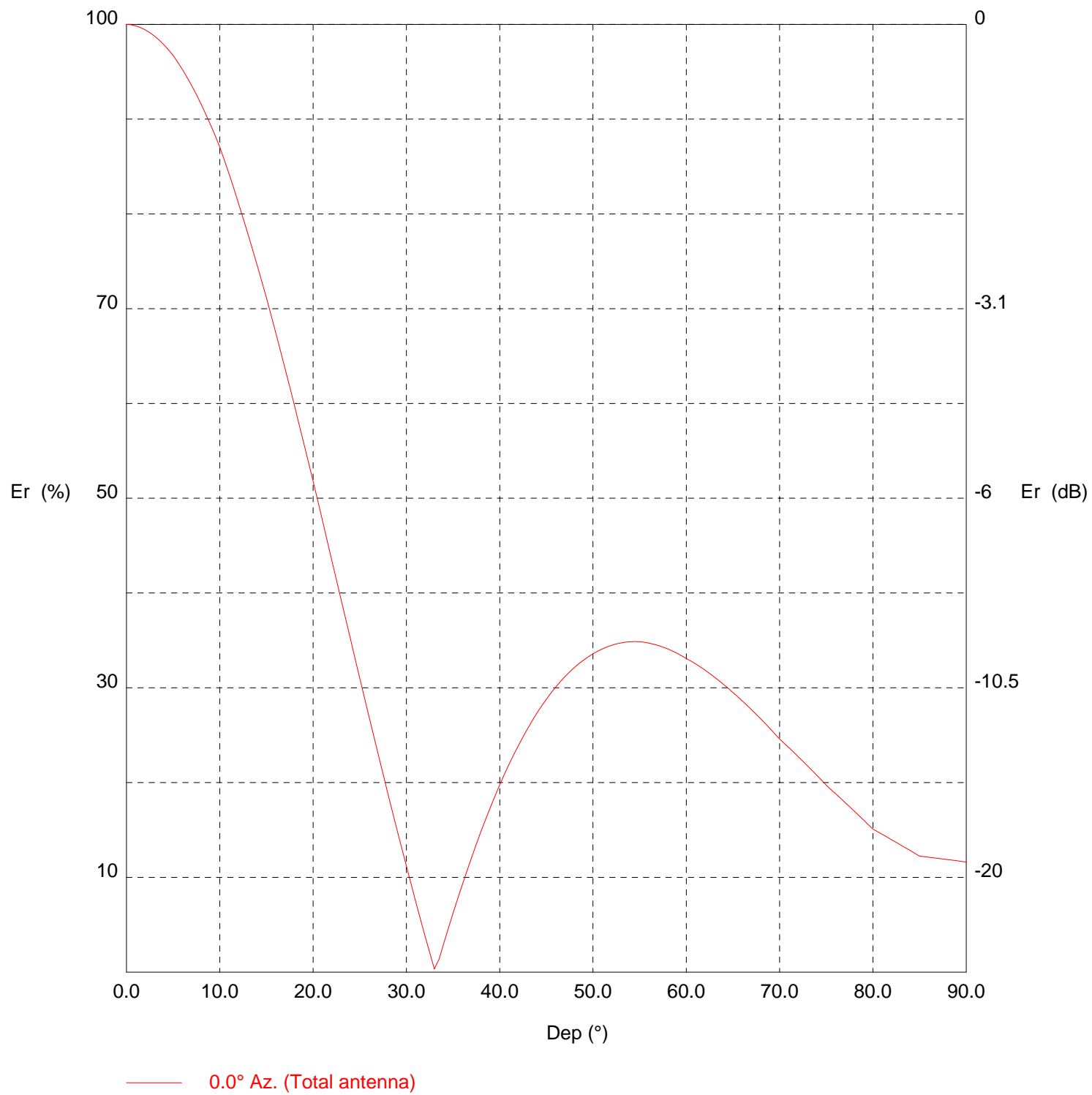
E-1 W251DC Mod. Overlap Study

REFERENCE		CH# 251D - 98.1 MHz, Pwr= 0.25 kW, HAAT= 40.7 M, COR= 195.1 M							DISPLAY DATES			
37 39 21.50 N. 88 55 23.20 W.		Average Protected F(50-50)= 8.24 km Omni-directional							DATA 07-28-23 SEARCH 07-28-23			
CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG			PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
251D Marion	W251DC	LIC_CN IL	357.2 177.2	8.34 0000212744	37 43 51.40 88 55 39.90	0.250				---Reference---		
								163		Fi shback Medi a, Inc.		
251C1 St. Louis	KYKY	LIC_CN MO	310.2 129.3	159.60 BLH20110919AD0	38 34 27.90 90 19 31.90	90.000 309			172.1 462	73.1 Audacy Li cense, LLC	-23.0*	51.3
249A West Frankfort	WHET	LIC_CN IL	354.6 174.6	10.96 BLH19961030KC	37 45 15.10 88 56 05.20	3.500 132			2.6 269	27.7 Wi thers Broadcasing Of So	-1.6	-17.9*(1)
251B Princeton	WRAY-FM	LIC_CN IN	55.9 236.7	140.38 BLH19990528KC	38 21 25.20 87 35 25.10	50.000 133			134.6 268	61.6 Princeton Broadcasing Co.	-4.1	33.1
252C1 Metropol is	WJLI	LIC_CN IL	159.4 339.6	107.21 BLH20030609ADV	36 45 09.20 88 29 58.20	100.000 213			99.4 358	67.6 Sun Medi a, Inc.	0.7	29.4
250C2 Si keston	KBXB	LIC_NCN MO	221.4 41.0	97.25 BLH19970922KD	36 59 52.20 89 38 52.30	50.000 143			76.2 239	50.4 Wi thers Broadcasing Compa	14.0	36.7
252D Centralia	W252EC	LIC_CN IL	0.1 180.1	79.48 0000145660	38 22 15.20 88 55 20.20	0.250			24.8 305	16.6 Wrxx, LLC	44.7	48.9
248D Paducah	W248CP	LIC_CN KY	157.1 337.2	61.94 BLFT20160321AAA	37 08 33.20 88 39 02.20	0.250			1.1 254	14.5 Samuel K. Stratemeyer	53.8	46.0
Terrain database is FCC 30 meter , 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 +40 116.25 F(50-10) dBu contour within the WHET(FM) 249A second-adjacent protected contour (exhibit E-3) lowest point = 4.5 meters above the site elvation, which does not reach any population, buildings or roads (exhibit E-4).

E-2 Nicom BKG77-2-0.75 Wave Antenna Vertical Elevation Pattern and Tabulation

Vertical diagram



TX station: BKG77/2 GENERIC

Site name: 3/4 WAVE SEPARATION

Frequency: 98.10 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	914.2	30.0	11.2	11.5	60.0	33.1	100.1
0.5	100.0	913.3	30.5	9.3	7.9	60.5	32.8	98.4
1.0	99.8	911.3	31.0	7.5	5.1	61.0	32.5	96.7
1.5	99.7	908.1	31.5	5.6	2.9	61.5	32.2	94.8
2.0	99.4	903.9	32.0	3.8	1.3	62.0	31.9	92.8
2.5	99.1	898.4	32.5	2.1	0.4	62.5	31.5	90.8
3.0	98.8	891.9	33.0	0.3	0.0	63.0	31.1	88.7
3.5	98.4	884.3	33.5	1.4	0.2	63.5	30.8	86.5
4.0	97.9	875.7	34.0	3.0	0.8	64.0	30.4	84.2
4.5	97.3	865.9	34.5	4.6	2.0	64.5	29.9	81.9
5.0	96.7	855.2	35.0	6.2	3.5	65.0	29.5	79.5
5.5	96.0	842.7	35.5	7.8	5.5	65.5	29.1	77.2
6.0	95.2	829.2	36.0	9.3	7.9	66.0	28.6	74.8
6.5	94.4	814.9	36.5	10.7	10.5	66.5	28.2	72.5
7.0	93.5	799.7	37.0	12.1	13.5	67.0	27.7	70.0
7.5	92.6	783.6	37.5	13.5	16.7	67.5	27.2	67.6
8.0	91.6	766.9	38.0	14.9	20.2	68.0	26.7	65.1
8.5	90.5	749.4	38.5	16.1	23.8	68.5	26.2	62.7
9.0	89.4	731.2	39.0	17.4	27.7	69.0	25.7	60.2
9.5	88.3	712.5	39.5	18.6	31.6	69.5	25.1	57.8
10.0	87.1	693.1	40.0	19.8	35.7	70.0	24.6	55.3
10.5	85.7	670.8	40.5	20.9	39.8	70.5	24.1	53.3
11.0	84.2	648.2	41.0	21.9	43.9	71.0	23.7	51.2
11.5	82.7	625.3	41.5	22.9	48.1	71.5	23.2	49.2
12.0	81.2	602.3	42.0	23.9	52.2	72.0	22.7	47.2
12.5	79.6	579.0	42.5	24.8	56.4	72.5	22.2	45.2
13.0	78.0	555.7	43.0	25.7	60.4	73.0	21.7	43.2
13.5	76.3	532.4	43.5	26.5	64.4	73.5	21.2	41.3
14.0	74.6	509.1	44.0	27.3	68.3	74.0	20.7	39.3
14.5	72.9	485.8	44.5	28.1	72.1	74.5	20.2	37.4
15.0	71.1	462.7	45.0	28.8	75.8	75.0	19.7	35.5
15.5	69.3	439.1	45.5	29.5	79.3	75.5	19.3	33.9
16.0	67.4	415.8	46.0	30.1	82.7	76.0	18.8	32.4
16.5	65.6	392.9	46.5	30.7	85.9	76.5	18.4	30.8
17.0	63.6	370.3	47.0	31.2	88.9	77.0	17.9	29.3
17.5	61.7	348.1	47.5	31.7	91.8	77.5	17.4	27.8
18.0	59.8	326.5	48.0	32.1	94.4	78.0	17.0	26.4
18.5	57.8	305.3	48.5	32.6	96.9	78.5	16.5	24.9
19.0	55.8	284.7	49.0	32.9	99.2	79.0	16.0	23.5
19.5	53.8	264.7	49.5	33.3	101.2	79.5	15.6	22.1
20.0	51.8	245.3	50.0	33.6	103.1	80.0	15.1	20.8
20.5	49.7	226.1	50.5	33.9	104.8	80.5	14.8	20.0
21.0	47.6	207.5	51.0	34.1	106.3	81.0	14.5	19.3
21.5	45.6	189.8	51.5	34.3	107.6	81.5	14.3	18.6
22.0	43.5	172.8	52.0	34.5	108.7	82.0	14.0	17.8
22.5	41.4	156.7	52.5	34.6	109.6	82.5	13.7	17.1
23.0	39.3	141.3	53.0	34.7	110.3	83.0	13.4	16.4
23.5	37.2	126.8	53.5	34.8	110.8	83.5	13.1	15.7
24.0	35.2	113.0	54.0	34.9	111.1	84.0	12.8	15.0
24.5	33.1	100.1	54.5	34.9	111.2	84.5	12.5	14.4
25.0	31.0	88.1	55.0	34.9	111.1	85.0	12.2	13.7
25.5	29.0	76.8	55.5	34.8	110.7	85.5	12.2	13.6
26.0	26.9	66.3	56.0	34.7	110.2	86.0	12.1	13.4
26.5	24.9	56.7	56.5	34.6	109.4	86.5	12.1	13.3
27.0	22.9	47.9	57.0	34.5	108.5	87.0	12.0	13.2
27.5	20.9	39.9	57.5	34.3	107.5	87.5	11.9	13.0
28.0	18.9	32.7	58.0	34.1	106.3	88.0	11.9	12.9
28.5	17.0	26.3	58.5	33.9	104.9	88.5	11.8	12.8
29.0	15.0	20.6	59.0	33.6	103.5	89.0	11.7	12.6
29.5	13.1	15.7	59.5	33.4	101.8	89.5	11.7	12.5

E-3 W251DC Mod. +40 F(50-10) dBu Contour Tabulation Within WHET(FM) 249A

W251DC Marion, IL, Showing Protection to WHET(FM), Channel: 249

Geographic Coordinates: N. 373921.50 W. 88 55 23.20

74.1204(d) Study - Using FCC 30 meter Terrain Database

Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 251

Translator or LPFM Antenna Height AG = 42.7 meters

W251DC Antenna Model = NICOM BKG77-2-075

Protected Station's Contour = 76.25068 dBu

Translator's or LPFM's full Interference contour 116.25068

Review Azimuth = 0 Degrees True

Horizontal Relative Field at Review Azimuth = 1.000

Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW

Distance between stations = 11.0 km

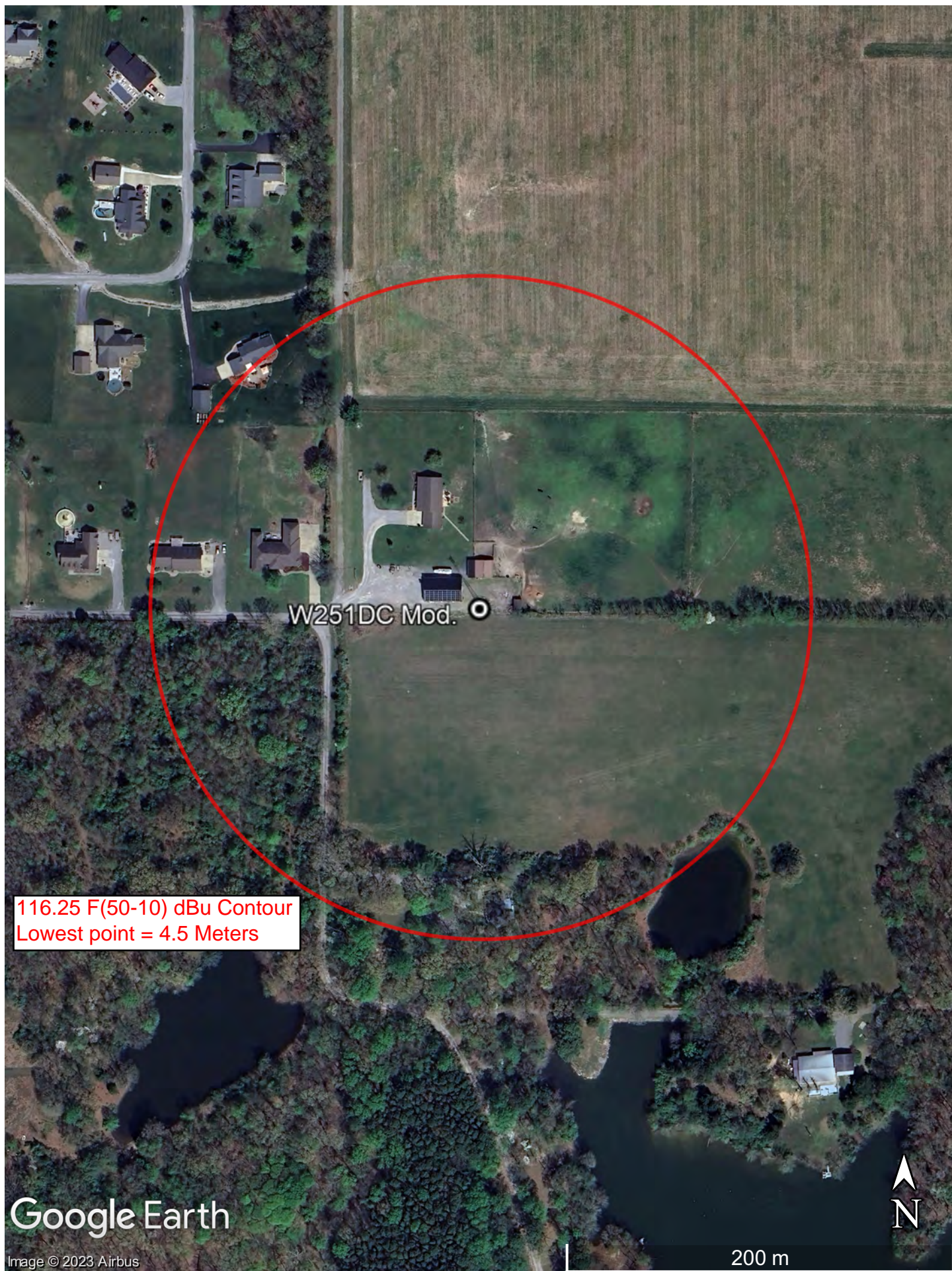
Protected Station= WHET, 3.5 kW, 269 M meters COR AMSL

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	1.000	1.0	0.2500	170.7796	170.7796	042.700
01.00	0.999	1.0	0.2495	170.6088	170.5828	039.722
02.00	0.996	1.0	0.2480	170.0965	169.9929	036.764
03.00	0.991	1.0	0.2455	169.2426	169.0106	033.843
04.00	0.985	1.0	0.2426	168.2179	167.8081	030.966
05.00	0.977	1.0	0.2386	166.8517	166.2168	028.158
06.00	0.966	1.0	0.2333	164.9731	164.0694	025.456
07.00	0.955	1.0	0.2280	163.0945	161.8788	022.824
08.00	0.941	1.0	0.2214	160.7036	159.1396	020.334
09.00	0.926	1.0	0.2144	158.1419	156.1949	017.961
10.00	0.910	1.0	0.2070	155.4094	153.0484	015.713
11.00	0.890	1.0	0.1980	151.9938	149.2013	013.698
12.00	0.868	1.0	0.1884	148.2367	144.9974	011.880
13.00	0.845	1.0	0.1785	144.3088	140.6101	010.238
14.00	0.821	1.0	0.1685	140.2101	136.0452	008.780
15.00	0.796	1.0	0.1584	135.9406	131.3085	007.516
16.00	0.769	1.0	0.1478	131.3295	126.2420	006.501
17.00	0.741	1.0	0.1373	126.5477	121.0182	005.701
18.00	0.713	1.0	0.1271	121.7659	115.8062	005.072
19.00	0.684	1.0	0.1170	116.8133	110.4491	004.669
20.00	0.654	1.0	0.1069	111.6899	104.9541	004.500(1)
21.00	0.622	1.0	0.0967	106.2249	099.1695	004.632
22.00	0.591	1.0	0.0873	100.9307	093.5814	004.891
23.00	0.559	1.0	0.0781	095.4658	087.8767	005.399
24.00	0.526	1.0	0.0692	089.8301	082.0639	006.163
25.00	0.494	1.0	0.0610	084.3651	076.4608	007.046
26.00	0.462	1.0	0.0534	078.9002	070.9150	008.112
27.00	0.429	1.0	0.0460	073.2644	065.2791	009.439
28.00	0.397	1.0	0.0394	067.7995	059.8634	010.870
29.00	0.365	1.0	0.0333	062.3346	054.5190	012.480

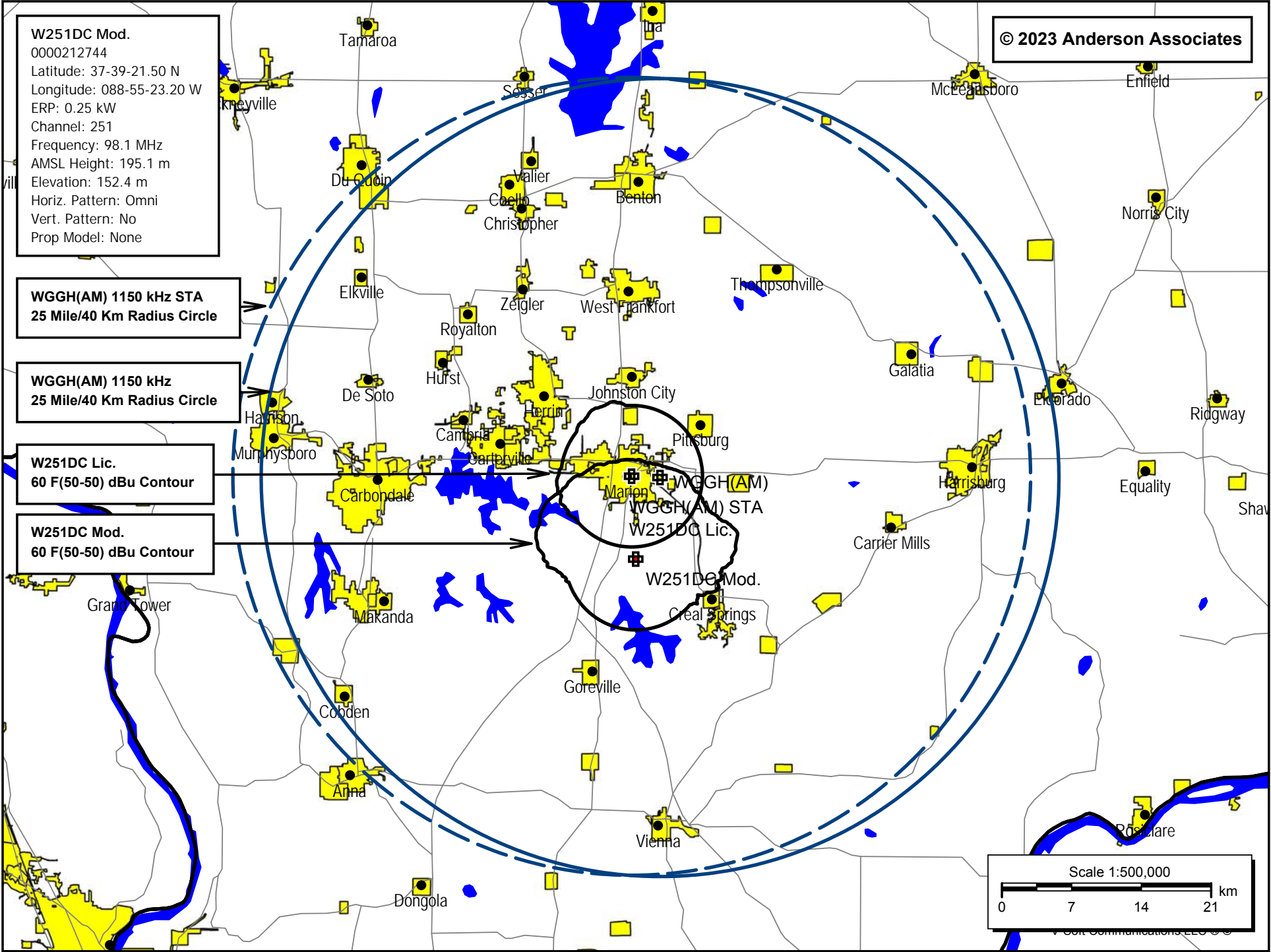
Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)(1)
30.00	0.333	1.0	0.0277	056.8696	049.2505	014.265
31.00	0.301	1.0	0.0227	051.4047	044.0624	016.225
32.00	0.270	1.0	0.0182	046.1105	039.1039	018.265
33.00	0.239	1.0	0.0143	040.8163	034.2314	020.470
34.00	0.209	1.0	0.0109	035.6929	029.5908	022.741
35.00	0.180	1.0	0.0081	030.7403	025.1810	025.068
36.00	0.151	1.0	0.0057	025.7877	020.8627	027.542
37.00	0.123	1.0	0.0038	021.0059	016.7761	030.058
38.00	0.096	1.0	0.0023	016.3948	012.9193	032.606
39.00	0.070	1.0	0.0012	011.9546	009.2904	035.177
40.00	0.045	1.0	0.0005	007.6851	005.8871	037.760
41.00	0.021	1.0	0.0001	003.5864	002.7067	040.347
42.00	0.001	1.0	0.0000	000.1708	000.1269	042.586
43.00	0.023	1.0	0.0001	003.9279	002.8727	040.021
44.00	0.043	1.0	0.0005	007.3435	005.2825	037.599
45.00	0.062	1.0	0.0010	010.5883	007.4871	035.213
46.00	0.080	1.0	0.0016	013.6624	009.4907	032.872
47.00	0.096	1.0	0.0023	016.3948	011.1813	030.710
48.00	0.112	1.0	0.0031	019.1273	012.7987	028.486
49.00	0.126	1.0	0.0040	021.5182	014.1172	026.460
50.00	0.139	1.0	0.0048	023.7384	015.2587	024.515
51.00	0.150	1.0	0.0056	025.6169	016.1213	022.792
52.00	0.161	1.0	0.0065	027.4955	016.9279	021.033
53.00	0.171	1.0	0.0073	029.2033	017.5750	019.377
54.00	0.179	1.0	0.0080	030.5696	017.9683	017.969
55.00	0.186	1.0	0.0086	031.7650	018.2197	016.680
56.00	0.193	1.0	0.0093	032.9605	018.4313	015.375
57.00	0.198	1.0	0.0098	033.8144	018.4166	014.341
58.00	0.202	1.0	0.0102	034.4975	018.2809	013.444
59.00	0.205	1.0	0.0105	035.0098	018.0314	012.691
60.00	0.208	1.0	0.0108	035.5222	017.7611	011.937
61.00	0.209	1.0	0.0109	035.6929	017.3043	011.482
62.00	0.210	1.0	0.0110	035.8637	016.8370	011.034
63.00	0.210	1.0	0.0110	035.8637	016.2818	010.745
64.00	0.209	1.0	0.0109	035.6929	015.6468	010.619
65.00	0.207	1.0	0.0107	035.3514	014.9401	010.661
66.00	0.205	1.0	0.0105	035.0098	014.2398	010.717
67.00	0.202	1.0	0.0102	034.4975	013.4792	010.945
68.00	0.199	1.0	0.0099	033.9851	012.7311	011.190
69.00	0.195	1.0	0.0095	033.3020	011.9344	011.610
70.00	0.190	1.0	0.0090	032.4481	011.0979	012.209
71.00	0.186	1.0	0.0086	031.7650	010.3417	012.666
72.00	0.181	1.0	0.0082	030.9111	009.5521	013.302
73.00	0.175	1.0	0.0077	029.8864	008.7379	014.119
74.00	0.170	1.0	0.0072	029.0325	008.0025	014.792
75.00	0.164	1.0	0.0067	028.0079	007.2490	015.646
76.00	0.158	1.0	0.0062	026.9832	006.5278	016.518
77.00	0.152	1.0	0.0058	025.9585	005.8394	017.407

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)
78.00	0.145	1.0	0.0053	024.7630	005.1485	018.478
79.00	0.139	1.0	0.0048	023.7384	004.5295	019.398
80.00	0.132	1.0	0.0044	022.5429	003.9145	020.500
81.00	0.127	1.0	0.0040	021.6890	003.3929	021.278
82.00	0.123	1.0	0.0038	021.0059	002.9235	021.899
83.00	0.118	1.0	0.0035	020.1520	002.4559	022.698
84.00	0.113	1.0	0.0032	019.2981	002.0172	023.508
85.00	0.107	1.0	0.0029	018.2734	001.5926	024.496
86.00	0.105	1.0	0.0028	017.9319	001.2509	024.812
87.00	0.103	1.0	0.0027	017.5903	000.9206	025.134
88.00	0.101	1.0	0.0026	017.2487	000.6020	025.462
89.00	0.099	1.0	0.0025	016.9072	000.2951	025.795
90.00	0.097	1.0	0.0024	016.5656	000.0000	026.134

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E-5 W251DC 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	37-39-21.5 north
Longitude	088-55-23.2 west

Measurements (Meters)

Overall Structure Height (AGL)	45.7
Support Structure Height (AGL)	0
Site Elevation (AMSL)	152.4

Structure Type

GTOWER - Guyed Structure Used for Communication Purposes

E-7 W251DC Mod. HAAT Calculation

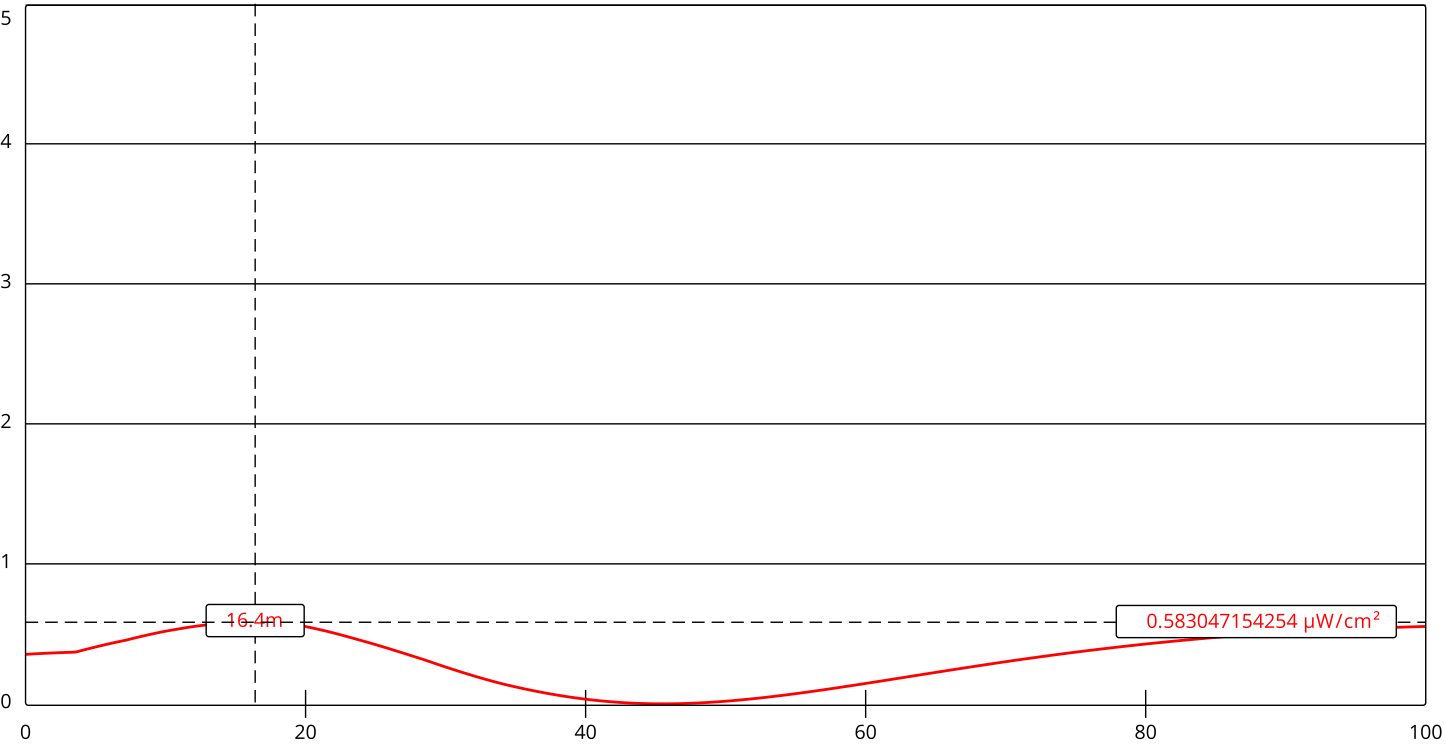
N. Lat. = 373921.5 W. Lng. = 885523.2
HAAT and Distance to Contour,
3-16 km, 51 pts Method - FCC 30 Meter

W251DC, Fishback Media, Inc., 0000212744
Azi. AV EL HAAT ERP kW 60-F(50-50)

000	138.3	56.8	0.2500	9.92
030	139.4	55.7	0.2500	9.82
060	146.9	48.2	0.2500	9.08
090	141.2	53.9	0.2500	9.65
120	164.6	30.5	0.2500	7.14
150	177.0	18.1	0.2500	7.09
180	179.0	16.1	0.2500	7.09
210	178.6	16.5	0.2500	7.09
240	176.9	18.2	0.2500	7.09
270	145.0	50.1	0.2500	9.28
300	129.9	65.2	0.2500	10.56
330	136.4	58.7	0.2500	10.08

Ave EI= 154.42 M HAAT= 40.68 M AMSL= 195.1

E-8 W252DC Mod. RF Calculation



Channel Selection	Channel 251 (98.1 MHz) ▾		
Antenna Type +	EPA Type 2: Opposed V Dipole ▾		
Height (m)	<input type="text" value="42.7"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="250"/>	ERP-V (W)	<input type="text" value="250"/>
Num of Elements	<input type="text" value="2"/>	λ	<input type="text" value="0.75"/>
Num of Points	<input type="text" value="500"/>	<input type="text"/>	