

Technical Report W292FS 292D Minor Modification

This technical report is submitted for a minor modification to W292FS, FCC file no. BLFT-20190703ADP. A change in antenna is submitted. The translator will continue to serve as a fill-in facility to rebroadcast WAKY(AM) 620 kHz at Louisville, KY, FCC facility I.D. no. 30798.

W292FS Modification Analysis:

An overlap study at channel 292D (exhibit E-1) shows the W292FS is within the WVEZ(FM) 295B27C3 third adjacent protected contour. The +40 F(50-10) dBu contour is calculated to be 113.21 dBu (exhibit E-2). Using the vertical elevation pattern of the Scala CL-FM vertically-polarized antenna (exhibit E-3), the lowest point of the interfering contour = 28.9 meters above the site elevation, which does not reach any population, roads or buildings (exhibit E-4). The modified 60 dBu contour overlaps the licensed W292FS 60 dBu contour, has less than 50% overlap to W261CO, which also serves as a fill-in facility for WAKY(AM), and is contained within a 25 mile/40 kilometer radius the primary WAKY(AM) daytime tower site (exhibit E-5).

Antenna System:

W292FS is located on the existing tower, ASR 1061956, at coordinates:

38 12 46.0N 85 33 13.0W NAD 83.

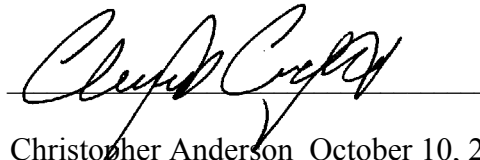
A Scala CL-FM/VRM single bay, directional antenna, rotated at a 10 degree azimuth and 45 degree slant (exhibit E-6), is mounted at a COR AGL of 107 meters, 314 meters AMSL, 123 meters HAAT (exhibit E-7) and operate at 0.250 kW ERP.

RF Exposure Calculation:

The RF contribution was calculated using FM Model (exhibit E-8). A worst-case RF is calculated to be $0.912 \mu\text{W}/\text{cm}^2$ at a distance of 28.5 meters from the base of the tower, which is below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure allowing exclusion from consideration.

Conclusion:

It is concluded that the W292FS modification 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 October 10, 2019
andersce@bham.rr.com
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E-1 W292FS Mod. Overlap Study

REFERENCE		CH#	292D - 106.3 MHz, Pwr= 0.25 kW DA, HAAT= 123.0 M, COR= 314 M				DISPLAY DATES			
38 12 46.00 N.			Average Protected F(50-50)= 14.24 km				DATA 10-11-19			
85 33 13.00 W.			Standard Directional				SEARCH 10-11-19			
CH CITY	CALL	TYPE STATE	ANT AZI ---	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap	*OUT* in km)
292D Louisville	W292FS	LIC D KY	0.0 0.0	0.00 BLFT20190703ADP	38 12 46.30 85 33 12.90	0.250	314	---Reference---	W & B Broadcasting Co., In	
295B St. Matthews	AL9833	RSV-A KY	306.8 126.6	29.62 RM11334	38 22 19.24 85 49 32.89	50.000 150	6.9 343	70.7	11.6	-41.8*
295B St. Matthews	WVEZ	LIC KY	306.8 126.6	29.61 BLH20070706AAP	38 22 19.20 85 49 32.90	24.500 204	6.2 391	68.0 Sm-Wvez, LLC	12.2	-39.1*(1)
292A Versailles	WCDA	LIC KY	100.9 281.6	94.03 BLH19990115KB	38 02 51.20 84 29 56.70	3.700 128	85.8 416	29.4 L.M. Communications, Inc	1.2	57.1
291B North Vernon	WWVY	LIC IN	352.3 172.2	95.87 BLH19850905KC	39 04 02.10 85 42 09.90	50.000 148	79.0 355	65.9 Whi te River Broadcasting C	3.4	1.2
293L1 Louisville	WFMP-LP	LIC KY	281.7 101.6	18.22 BLL20170404AAS	38 14 45.20 85 45 28.80	0.020 66	216	3.6 Fellowship Of Reconciliati		
292L1 Shepherdsville	WIOP-LP	LIC KY	194.4 14.3	22.39 BLL20160428AAH	38 01 03.90 85 37 01.60	0.067 37	215	3.7 Li ghthouse Baptist Church		
290A Valley Station	WAYK	LIC Z KY	262.2 82.0	31.78 BLH20110420ABC	38 10 25.00 85 54 50.00	1.250 155	2.1 341	27.4 Way Medi a, Inc.	23.9	4.4
292C2 Horse Cave	WOVO	LIC KY	203.3 22.9	141.26 BLH20121019ACC	37 02 39.20 86 10 59.90	50.000 123	131.8 314	45.9 Soky Radio, LLC	7.4	87.1
289A Emi nence	WHBE-FM	LIC KY	64.1 244.3	35.65 BLH19880803LB	38 21 09.20 85 11 08.80	3.000 100	2.4 352	25.2 Ub Loui sville, LLC	22.7	9.7
239B Jeffersonville	WQMF	LIC IN	256.1 75.8	34.44 BLH19990211KA	38 08 16.30 85 56 05.90	28.500 196	81.5 387	27.5 Cc Li censes, LLC	14.5R	19.9M
291D El i zabethtown	W291CU	LIC D KY	203.7 23.5	56.86 BLFT20160503ACE	37 44 39.20 85 48 48.90	0.250	16.2 300	11.2 Washington County Cbc, Inc	38.5	42.5
293D Spr i ngfi el d	W293DG	CP KY	160.2 340.4	61.12 BNPFT20171214AAM	37 41 43.20 85 19 05.90	0.250	19.5 319	13.0 Choice Radio Central Corpo	39.4	44.5

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.
« = Station meets FCC minimum distance spacing for its class.

- 1) The +40 113.21 F(50-10) dBu contour within the WVEZ(FM) 295B third-adjacent protected contour lowest point = 28.9 meters above the site elevation (exhibit E-2) does not reach any population, roads or buildings (exhibit E-4).

E-2 W292FS Mod. +40 113.21 F(50-10) dBu Tabulation Within WVEZ(FM) 295B

W292FS Louisville, KY, Showing Protection to WVEZ , Channel: 295
Geographic Coordinates: N. 38 12 46 W. 85 33 13
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 292
Translator or LPFM Antenna Height AG = 107 meters
W292FS Antenna Model = SCALA CLFMV-1

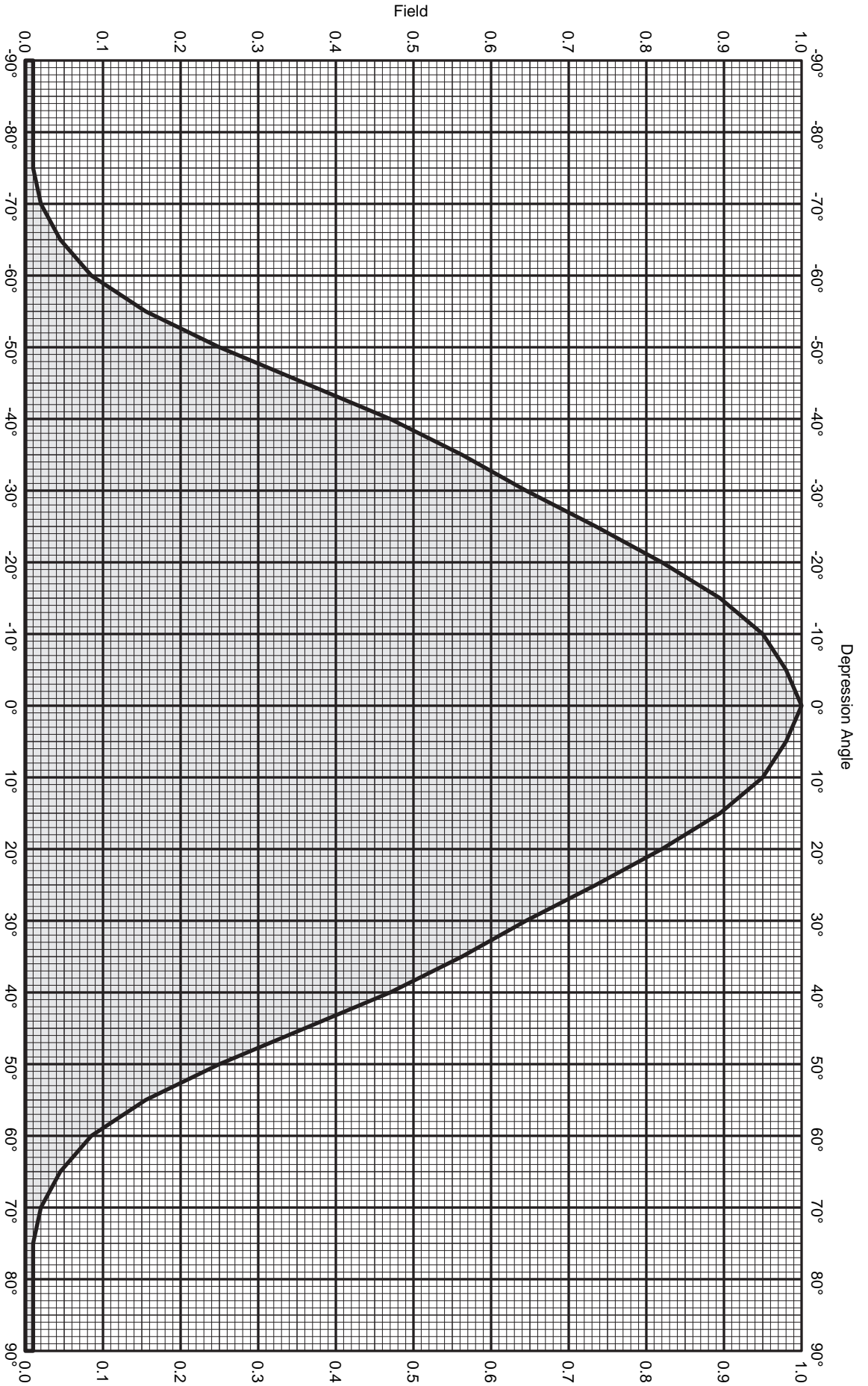
Protected Station's Contour = 73.21236 dBu
Translator's or LPFM's full Interference contour 113.21236

Review Azimuth = 10 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 = 29.6 km
Protected Station= WVEZ, 24.5 kW, 390.7 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	0.2500	242.2992	242.2992	107.000
05.00	0.98	1.0	0.2401	237.4532	236.5497	086.305
10.00	0.95	1.0	0.2256	230.1842	226.6872	067.029
15.00	0.895	1.0	0.2003	216.8578	209.4685	050.873
20.00	0.82	1.0	0.1681	198.6854	186.7032	039.046
25.00	0.735	1.0	0.1351	178.0899	161.4043	031.736
30.00	0.645	1.0	0.1040	156.2830	135.3450	028.859
35.00	0.562	1.0	0.0790	136.1722	111.5457	028.895
40.00	0.47	1.0	0.0552	113.8806	087.2376	033.799
45.00	0.36	1.0	0.0324	087.2277	061.6793	045.321
50.00	0.25	1.0	0.0156	060.5748	038.9367	060.597
55.00	0.155	1.0	0.0060	037.5564	021.5415	076.236
60.00	0.085	1.0	0.0018	020.5954	010.2977	089.164
65.00	0.045	1.0	0.0005	010.9035	004.6080	097.118
70.00	0.02	1.0	0.0001	004.8460	001.6574	102.446
75.00	0.01	1.0	0.0000	002.4230	000.6271	104.660
80.00	0.01	1.0	0.0000	002.4230	000.4207	104.614
85.00	0.01	1.0	0.0000	002.4230	000.2112	104.586
90.00	0.01	1.0	0.0000	002.4230	000.0000	104.577

(1) The + 40 113.21 F(50-10) dBu contour within the WVEZ(FM) 295B second-adjacent protected contour lowest point = 28.9 meters above the site elevation does not reach any population, roads or buildings, as shown in the aerial photo in exhibit E-4.

E-3 Antenna Vertical Elevation Pattern and Tabulation



CL-FM Log-periodic

FM

7.0 dBd (9.15 dBi)

Vertical polarization



KATHREIN
SCALA DIVISION

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Medford, OR 97501 (USA)
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CL-FM Log-periodic
FM

7.0 dBd (9.15 dBi)

Vertical polarization

Vertical radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.010	-40.00	-33.00	0.00	-45	0.360	-8.87	-1.87	0.65
-89	0.010	-40.00	-33.00	0.00	-44	0.382	-8.36	-1.36	0.73
-88	0.010	-40.00	-33.00	0.00	-43	0.404	-7.87	-0.87	0.82
-87	0.010	-40.00	-33.00	0.00	-42	0.426	-7.41	-0.41	0.91
-86	0.010	-40.00	-33.00	0.00	-41	0.448	-6.97	0.03	1.01
-85	0.010	-40.00	-33.00	0.00	-40	0.470	-6.56	0.44	1.11
-84	0.010	-40.00	-33.00	0.00	-39	0.488	-6.22	0.78	1.20
-83	0.010	-40.00	-33.00	0.00	-38	0.507	-5.90	1.10	1.29
-82	0.010	-40.00	-33.00	0.00	-37	0.525	-5.59	1.41	1.38
-81	0.010	-40.00	-33.00	0.00	-36	0.544	-5.29	1.71	1.48
-80	0.010	-40.00	-33.00	0.00	-35	0.562	-5.00	2.00	1.59
-79	0.010	-40.00	-33.00	0.00	-34	0.579	-4.75	2.25	1.68
-78	0.010	-40.00	-33.00	0.00	-33	0.595	-4.50	2.50	1.78
-77	0.010	-40.00	-33.00	0.00	-32	0.612	-4.26	2.74	1.88
-76	0.010	-40.00	-33.00	0.00	-31	0.628	-4.03	2.97	1.98
-75	0.010	-40.00	-33.00	0.00	-30	0.645	-3.81	3.19	2.09
-74	0.012	-38.42	-31.42	0.00	-29	0.663	-3.57	3.43	2.20
-73	0.014	-37.08	-30.08	0.00	-28	0.681	-3.34	3.66	2.32
-72	0.016	-35.92	-28.92	0.00	-27	0.699	-3.11	3.89	2.45
-71	0.018	-34.89	-27.89	0.00	-26	0.717	-2.89	4.11	2.58
-70	0.020	-33.98	-26.98	0.00	-25	0.735	-2.67	4.33	2.71
-69	0.025	-32.04	-25.04	0.00	-24	0.752	-2.48	4.52	2.83
-68	0.030	-30.46	-23.46	0.00	-23	0.769	-2.28	4.72	2.96
-67	0.035	-29.12	-22.12	0.01	-22	0.786	-2.09	4.91	3.10
-66	0.040	-27.96	-20.96	0.01	-21	0.803	-1.91	5.09	3.23
-65	0.045	-26.94	-19.94	0.01	-20	0.820	-1.72	5.28	3.37
-64	0.053	-25.51	-18.51	0.01	-19	0.835	-1.57	5.43	3.49
-63	0.061	-24.29	-17.29	0.02	-18	0.850	-1.41	5.59	3.62
-62	0.069	-23.22	-16.22	0.02	-17	0.865	-1.26	5.74	3.75
-61	0.077	-22.27	-15.27	0.03	-16	0.880	-1.11	5.89	3.88
-60	0.085	-21.41	-14.41	0.04	-15	0.895	-0.96	6.04	4.01
-59	0.099	-20.09	-13.09	0.05	-14	0.906	-0.86	6.14	4.11
-58	0.113	-18.94	-11.94	0.06	-13	0.917	-0.75	6.25	4.21
-57	0.127	-17.92	-10.92	0.08	-12	0.928	-0.65	6.35	4.32
-56	0.141	-17.02	-10.02	0.10	-11	0.939	-0.55	6.45	4.42
-55	0.155	-16.19	-9.19	0.12	-10	0.950	-0.45	6.55	4.52
-54	0.174	-15.19	-8.19	0.15	-9	0.956	-0.39	6.61	4.58
-53	0.193	-14.29	-7.29	0.19	-8	0.962	-0.34	6.66	4.64
-52	0.212	-13.47	-6.47	0.23	-7	0.968	-0.28	6.72	4.70
-51	0.231	-12.73	-5.73	0.27	-6	0.974	-0.23	6.77	4.75
-50	0.250	-12.04	-5.04	0.31	-5	0.980	-0.18	6.82	4.81
-49	0.272	-11.31	-4.31	0.37	-4	0.984	-0.14	6.86	4.85
-48	0.294	-10.63	-3.63	0.43	-3	0.988	-0.10	6.90	4.89
-47	0.316	-10.01	-3.01	0.50	-2	0.992	-0.07	6.93	4.93
-46	0.338	-9.42	-2.42	0.57	-1	0.996	-0.03	6.97	4.97
					0	1.000	0.00	7.00	5.01



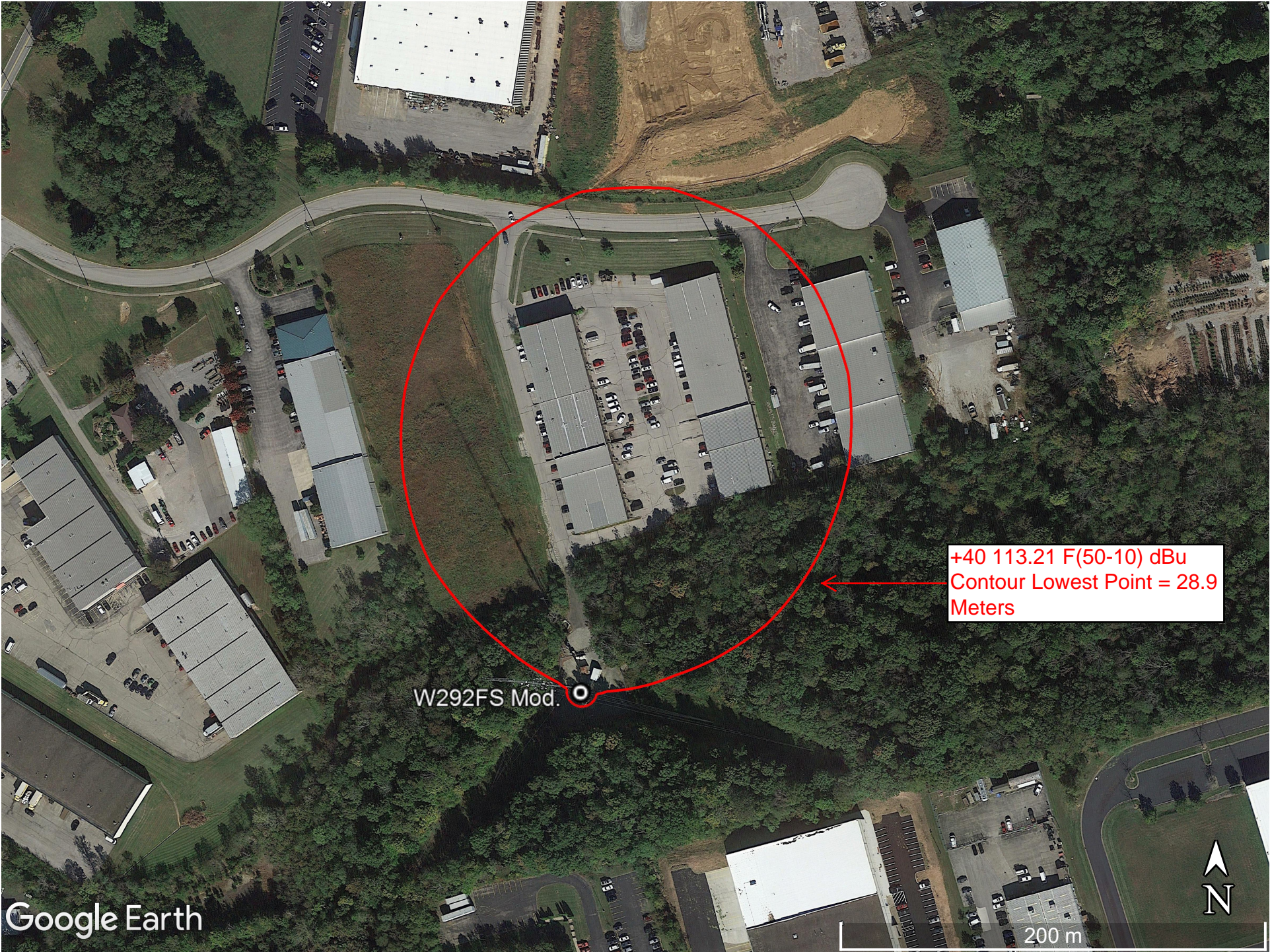
CL-FM Log-periodic
FM

7.0 dBd (9.15 dBi)
Vertical polarization

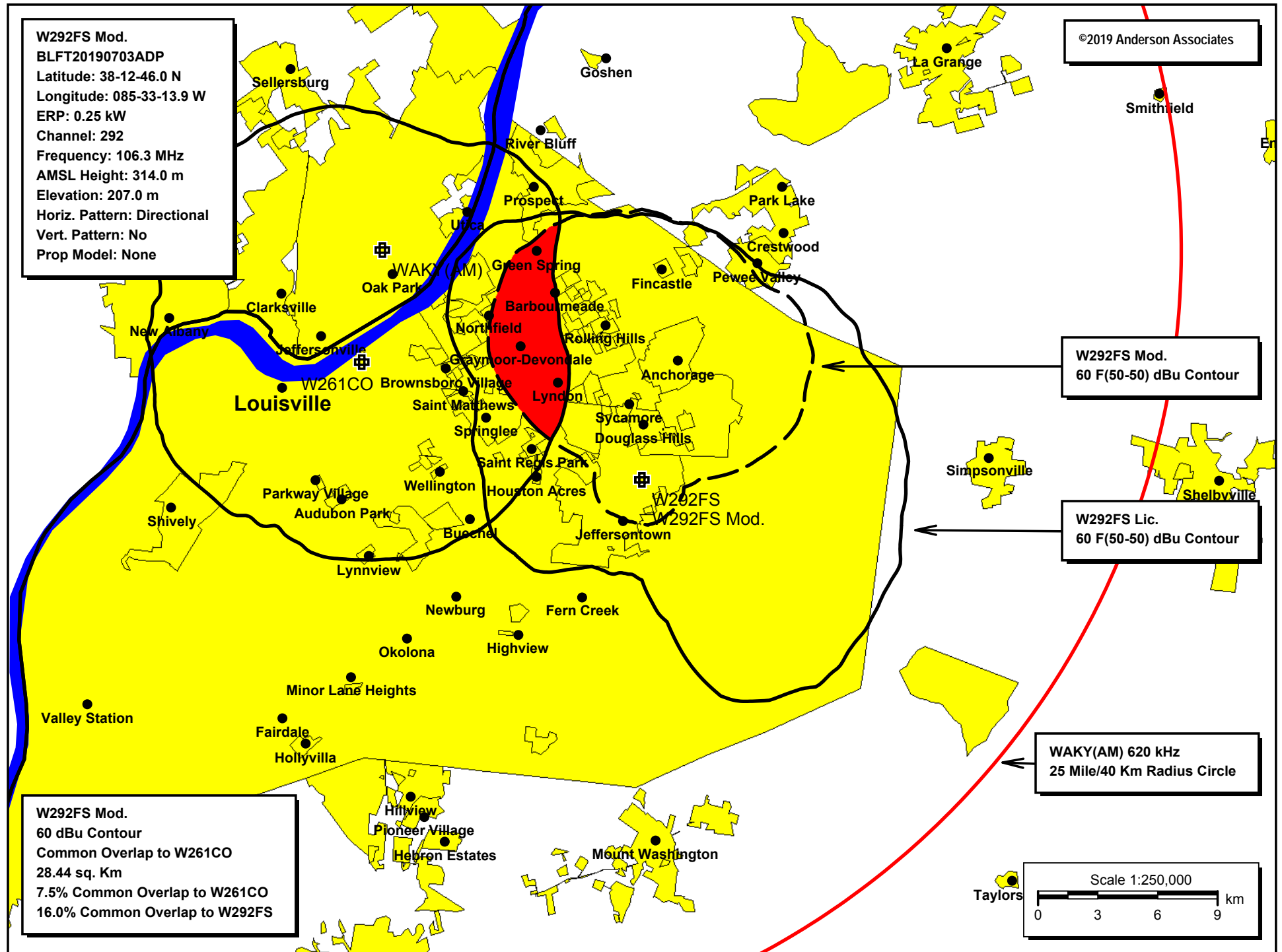
Vertical radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	7.00	5.01	45	0.360	-8.87	-1.87	0.65
1	0.996	-0.03	6.97	4.97	46	0.338	-9.42	-2.42	0.57
2	0.992	-0.07	6.93	4.93	47	0.316	-10.01	-3.01	0.50
3	0.988	-0.10	6.90	4.89	48	0.294	-10.63	-3.63	0.43
4	0.984	-0.14	6.86	4.85	49	0.272	-11.31	-4.31	0.37
5	0.980	-0.18	6.82	4.81	50	0.250	-12.04	-5.04	0.31
6	0.974	-0.23	6.77	4.75	51	0.231	-12.73	-5.73	0.27
7	0.968	-0.28	6.72	4.70	52	0.212	-13.47	-6.47	0.23
8	0.962	-0.34	6.66	4.64	53	0.193	-14.29	-7.29	0.19
9	0.956	-0.39	6.61	4.58	54	0.174	-15.19	-8.19	0.15
10	0.950	-0.45	6.55	4.52	55	0.155	-16.19	-9.19	0.12
11	0.939	-0.55	6.45	4.42	56	0.141	-17.02	-10.02	0.10
12	0.928	-0.65	6.35	4.32	57	0.127	-17.92	-10.92	0.08
13	0.917	-0.75	6.25	4.21	58	0.113	-18.94	-11.94	0.06
14	0.906	-0.86	6.14	4.11	59	0.099	-20.09	-13.09	0.05
15	0.895	-0.96	6.04	4.01	60	0.085	-21.41	-14.41	0.04
16	0.880	-1.11	5.89	3.88	61	0.077	-22.27	-15.27	0.03
17	0.865	-1.26	5.74	3.75	62	0.069	-23.22	-16.22	0.02
18	0.850	-1.41	5.59	3.62	63	0.061	-24.29	-17.29	0.02
19	0.835	-1.57	5.43	3.49	64	0.053	-25.51	-18.51	0.01
20	0.820	-1.72	5.28	3.37	65	0.045	-26.94	-19.94	0.01
21	0.803	-1.91	5.09	3.23	66	0.040	-27.96	-20.96	0.01
22	0.786	-2.09	4.91	3.10	67	0.035	-29.12	-22.12	0.01
23	0.769	-2.28	4.72	2.96	68	0.030	-30.46	-23.46	0.00
24	0.752	-2.48	4.52	2.83	69	0.025	-32.04	-25.04	0.00
25	0.735	-2.67	4.33	2.71	70	0.020	-33.98	-26.98	0.00
26	0.717	-2.89	4.11	2.58	71	0.018	-34.89	-27.89	0.00
27	0.699	-3.11	3.89	2.45	72	0.016	-35.92	-28.92	0.00
28	0.681	-3.34	3.66	2.32	73	0.014	-37.08	-30.08	0.00
29	0.663	-3.57	3.43	2.20	74	0.012	-38.42	-31.42	0.00
30	0.645	-3.81	3.19	2.09	75	0.010	-40.00	-33.00	0.00
31	0.628	-4.03	2.97	1.98	76	0.010	-40.00	-33.00	0.00
32	0.612	-4.26	2.74	1.88	77	0.010	-40.00	-33.00	0.00
33	0.595	-4.50	2.50	1.78	78	0.010	-40.00	-33.00	0.00
34	0.579	-4.75	2.25	1.68	79	0.010	-40.00	-33.00	0.00
35	0.562	-5.00	2.00	1.59	80	0.010	-40.00	-33.00	0.00
36	0.544	-5.29	1.71	1.48	81	0.010	-40.00	-33.00	0.00
37	0.525	-5.59	1.41	1.38	82	0.010	-40.00	-33.00	0.00
38	0.507	-5.90	1.10	1.29	83	0.010	-40.00	-33.00	0.00
39	0.488	-6.22	0.78	1.20	84	0.010	-40.00	-33.00	0.00
40	0.470	-6.56	0.44	1.11	85	0.010	-40.00	-33.00	0.00
41	0.448	-6.97	0.03	1.01	86	0.010	-40.00	-33.00	0.00
42	0.426	-7.41	-0.41	0.91	87	0.010	-40.00	-33.00	0.00
43	0.404	-7.87	-0.87	0.82	88	0.010	-40.00	-33.00	0.00
44	0.382	-8.36	-1.36	0.73	89	0.010	-40.00	-33.00	0.00
					90	0.010	-40.00	-33.00	0.00

E-4 W292FS Mod. +40 113.21 F(50-10) dBu Contour Aerial Photo

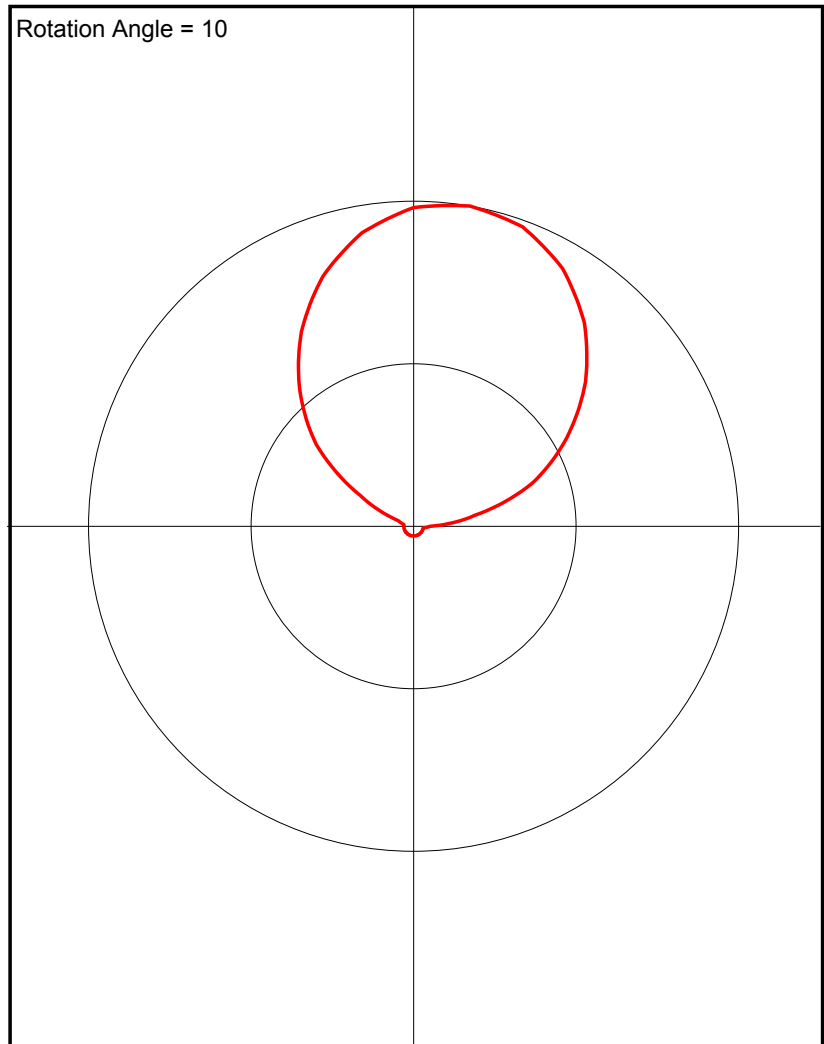


E-5 W292FS Mod. 60 F(50-50) dBu Contour Plot



E-6 W292FS Directional Antenna Pattern

Azimuth (deg)	Relative Field
0.0	0.98
10.0	1.0
20.0	0.98
30.0	0.916
40.0	0.817
50.0	0.69
60.0	0.544
70.0	0.39
80.0	0.19
90.0	0.05
100.0	0.03
110.0	0.03
120.0	0.03
130.0	0.03
140.0	0.03
150.0	0.03
160.0	0.03
170.0	0.03
180.0	0.03
190.0	0.03
200.0	0.03
210.0	0.03
220.0	0.03
230.0	0.03
240.0	0.03
250.0	0.03
260.0	0.03
270.0	0.03
280.0	0.03
290.0	0.05
300.0	0.19
310.0	0.39
320.0	0.544
330.0	0.69
340.0	0.817
350.0	0.916



E-7 W292FS Mod. HAAT Calculation

Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **38° 12' 46.0"** North

Longitude **85° 33' 13.0"** West (NAD 83)

Height of antenna radiation center above mean sea level: **314** meters AMSL

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

Results

Calculated HAAT = **123 meters**

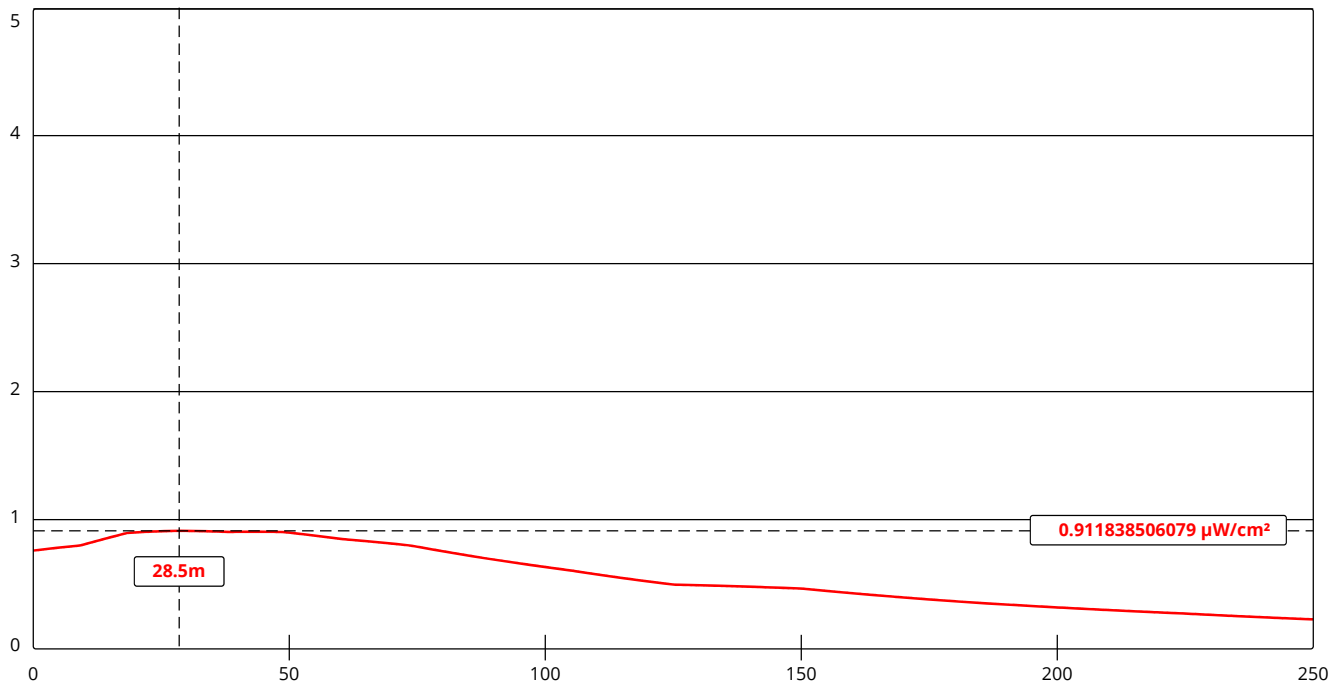
Antenna Height Above Average Terrain calculated
using 1 km [GLOBE terrain data](#)

Individual "Radial HAAT" Values, in meters

0°	113.2 m
30°	88.3 m
60°	98.3 m
90°	105.8 m
120°	108.7 m
150°	115.5 m
180°	125.3 m
210°	113.5 m
240°	153.5 m
270°	154.6 m
300°	154.1 m
330°	145.8 m

E-8 W292FS RF Calculation

FM Model



Channel Selection	Channel 292 (106.3 MHz)		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other"		
Height (m)	107	Distance (m)	250
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	1	Element Spacing (λ)	1
Num of Points	500		

E-9 W292FS Mod. Tower ASR

ASR Registration 1061956

Registration Detail

Reg Number	1061956	Status	Constructed
File Number	A0072466	Constructed	02/16/1999
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

Lat/Long	38-12-46.0 N 085-33-13.0 W	Address	2400 ARCEE WAY
City, State	JEFFERSONTOWN , KY		
Zip	40299	County	JEFFERSON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
207.3	130.8
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
338.1	130.8

Painting and Lighting Specifications

FAA Chapters 4, 8, 13

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

FAA Notification

FAA Study	99-ASO-0380-OE	FAA Issue Date	02/11/1999
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Owner & Contact Information

FRN	0006154785	Owner Entity Type	
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Owner

P & B TOWERS LLC
Attention To: PERRY BOND
1421 SYLVAN WAY
LOUISVILLE , KY 40205

P: (502)587-7384
F:
E:

Contact

P:
F:
E:

Last Action Status

Status	Constructed	Received	03/05/1999
Purpose	New	Entered	03/09/1999