

Technical Report W246BS Minor Modification

This technical report is submitted for a minor modification to W246BS at Florence, AL, FCC facility I.D. 146208. A move to the I.F. channel 300 with corresponding changes in tower site, COR AGL and antenna are submitted for the translator to serve as a fill-in facility for WZZA(AM) 1410 kHz at Tuscumbia, AL, FCC facility I.D. 47087.

W246BS Modification Analysis:

An overlap study in exhibit E-1 shows the W246BS modification is within the WQLT-FM 297C1 third-adjacent protected contour. Using the vertical pattern of the Nicom BKG77, three bay, 0.85 wavelength-spaced antenna (exhibit E-2), the +40 151.6 F(50-10) dBu contour (exhibit E-3) does not encompass any population, occupied buildings or roads (exhibit E-4), per *Living Way Ministries, Inc.* (FCC-08-242). The 60 dBu contour overlaps the licensed 60 dBu contour and is contained within the WZZA(AM) 2.0 mV/m daytime contour (exhibit E-5).

Antenna System:

The W246BS modification will be located on the 62.5 meter tower at coordinates:

34 42 29.6N 087 41 35.7W NAD 83.

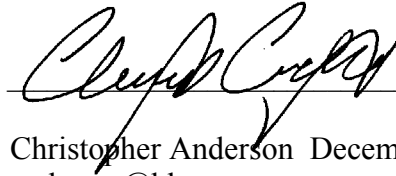
A Nicom BKG77 three bay, 0.85 wavelength-spaced, nondirectional antenna will be mounted at a COR AGL of 57.0 meters, 188.1 meters AMSL, 16.7 meters HAAT (exhibit E-6) and operate at 0.250 kW.

RF Exposure Calculation:

The RF contribution was calculated using FM Model (exhibit E-7). The RF = $0.269 \mu\text{W}/\text{cm}^2$ at a distance of 15.4 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 W246BS modification complies with all Commission rules and policies.



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E-1 W246BS Mod. 300D Overlap Study

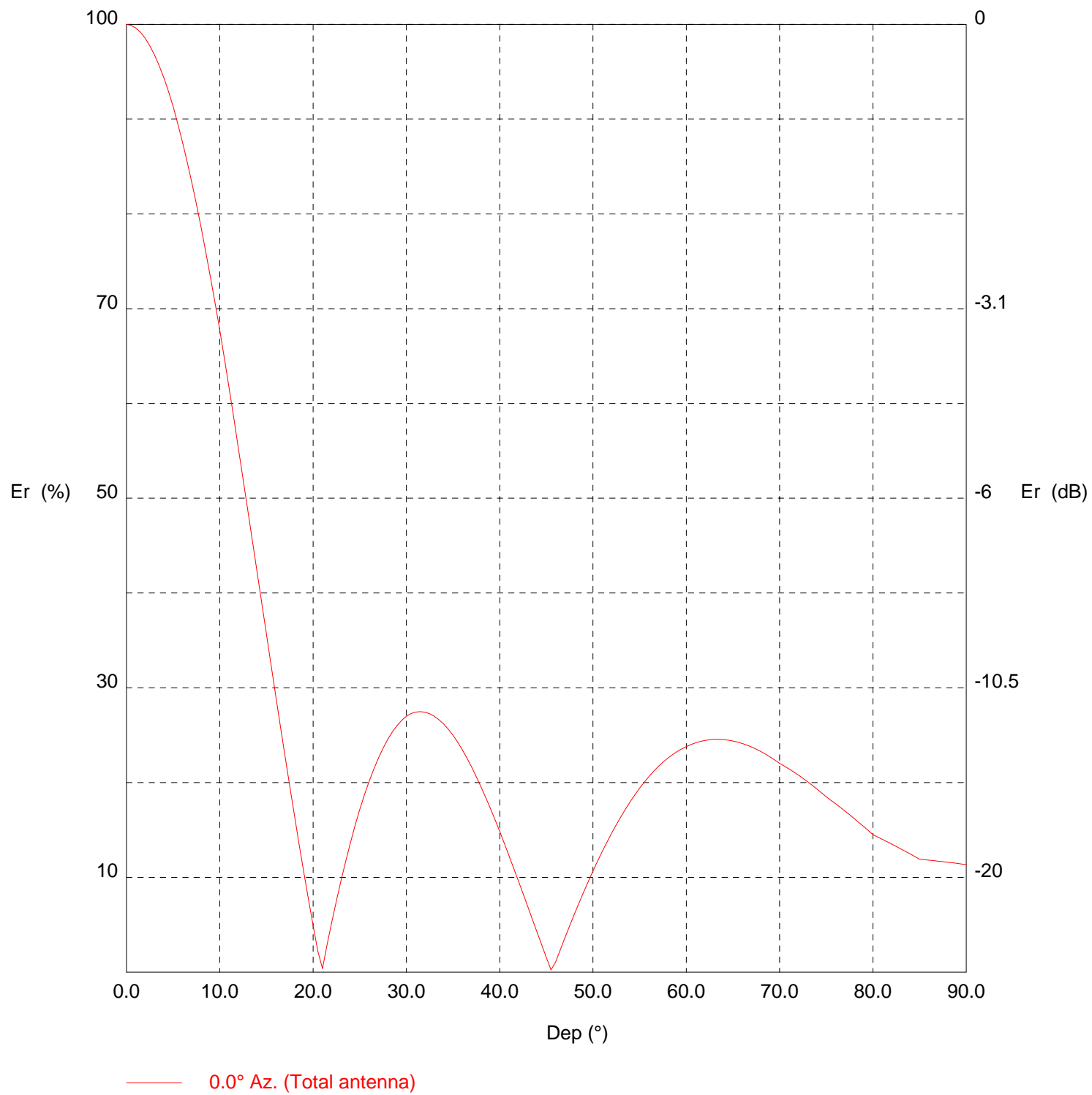
REFERENCE 34 42 29.60 N. 87 41 35.70 W.		CH# 300D - 107.9 MHz, Pwr= 0.25 kW, HAAT= 16.7 M, COR= 188.1 M Average Protected F(50-50)= 7.09 km Omni-directional								DISPLAY DATES DATA 12-07-23 SEARCH 12-15-23	
CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
297C1 Florence	WQLT-FM	LIC _CN AL		207.8 27.8	4.37 BLH20000120AAP	34 40 24.30 87 42 56.10	93.000 310	10.5 490	74.5 Big River Broadcasting Cor	-13.2*	-71.2*(1)
300C1 Fort Campbell	WCVO	LIC _CN KY		0.8 180.8	203.74 0000155437	36 32 26.10 87 39 41.10	100.000 269	170.6 432	71.2 Saga Communications Of Tuc	25.3	106.8
300C Ackerman	WFCA	LIC _CN MS		228.3 47.3	212.62 BMLH20130416AAP	33 25 25.40 89 24 13.30	100.000 307	174.1 425	73.8 French Camp Radio, Inc.	31.4	115.1
299C2 Henderson	WHHM-FM	LIC ZEN TN		314.7 134.1	118.88 BLH20031022AAE	35 27 23.30 88 37 36.20	50.000 140	76.9 283	51.1 Southern Stone Communicati	34.1	57.1
300L1 Madison	WVMB-LP	LIC _CN AL		79.5 260.0	73.00 BLL20040517ACO	34 49 30.30 86 54 24.00	0.041 46	270	46.2 Madison Baptist Church, In		43.1
299C1 Birmingham	WUHT	LIC NCN AL		148.8 329.3	158.64 BLH20070104ADS	33 29 04.40 86 48 25.00	43.000 410	107.1 597	72.7 Radio License Holding Cbc,	44.5	75.8

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

- (1) The +40 151.6 F(50-10) contour within the WQLT-FM 297C1 third-adjacent protected contour (exhibit E-3) does not encompass any population, buildings or roads (exhibit E-4).

E-2 Nicom BKG77-3-0.85 Wavelenth 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 W246BS Mod. 300D +40 F(50-10) dBu Calculation Within WQLT-FM 297C1

W246BS Florence, AL, Showing Protection to WQLT-FM, Channel: 297

Geographic Coordinates: N. 344229.6 W. 0874135.7

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

Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 300

Translator or LPFM Antenna Height AG = 57.0 meters

W246BS Antenna Model = NICOM BKG77-3-085

Protected Station's Contour = 111.6421 dBu

Translator's or LPFM's full Interference contour 151.6421

Review Azimuth = 0 Degrees True

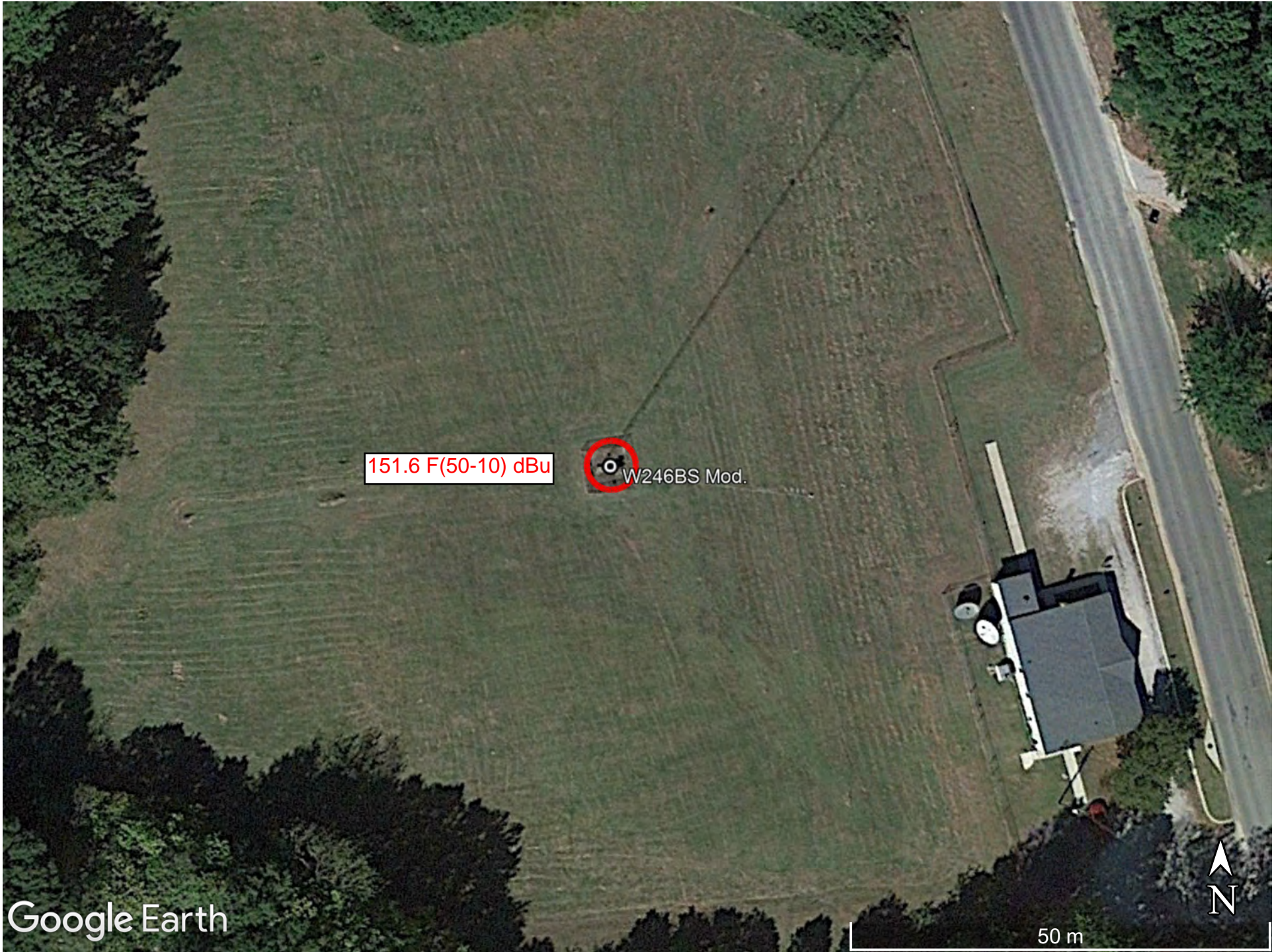
Horizontal Relative Field at Review Azimuth = 1.000

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

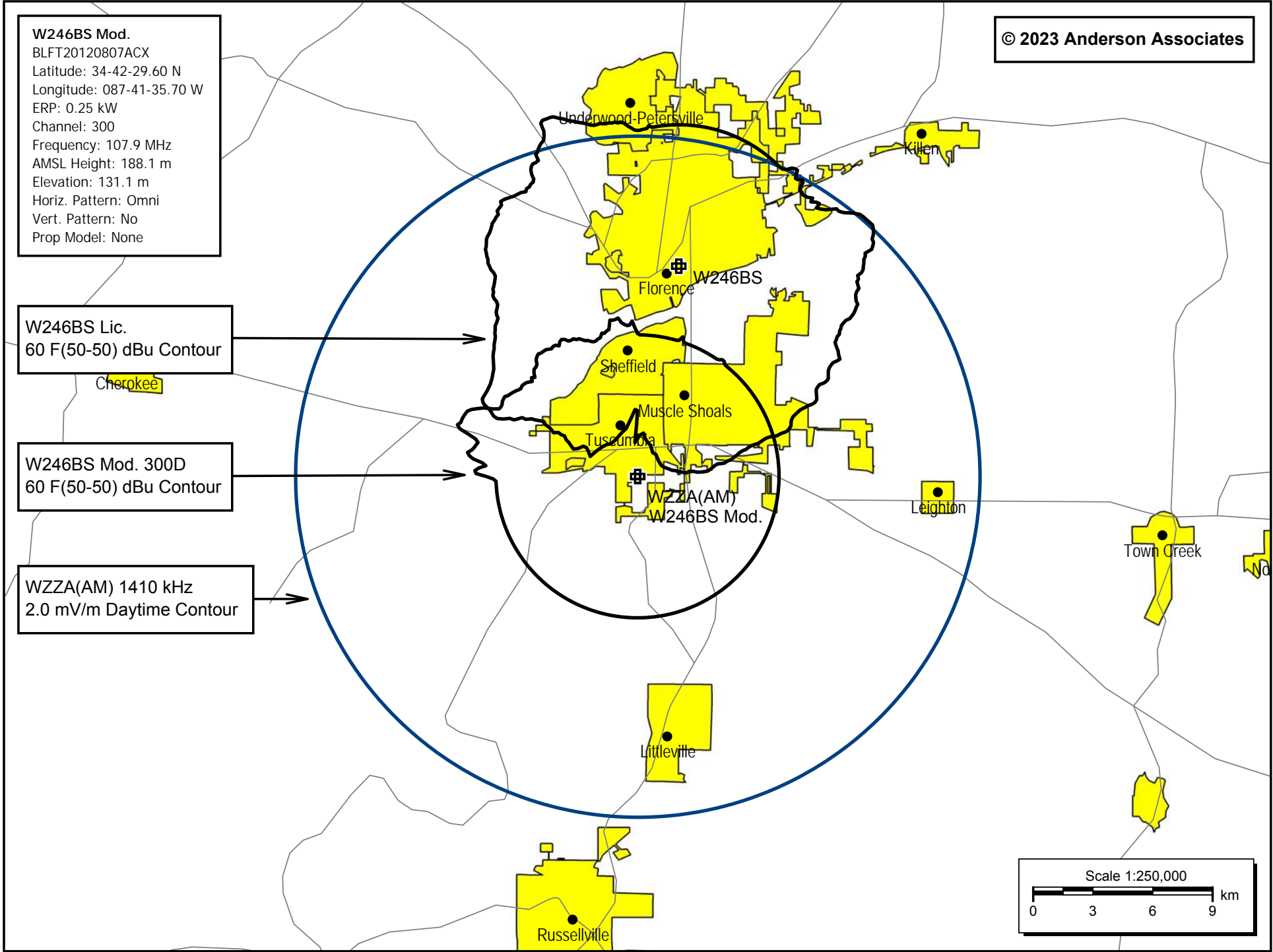
Distance between stations = 4.4 km

Protected Station= WQLT-FM, 93 kW, 490 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)
00.00	1.000	1.0	0.2500	002.9031	002.9031	057.000
05.00	0.913	1.0	0.2084	002.6505	002.6405	056.769
10.00	0.678	1.0	0.1149	001.9683	001.9384	056.658
15.00	0.357	1.0	0.0319	001.0364	001.0011	056.732
20.00	0.049	1.0	0.0006	000.1423	000.1337	056.951
25.00	0.171	1.0	0.0073	000.4964	000.4499	056.790
30.00	0.270	1.0	0.0182	000.7838	000.6788	056.608
35.00	0.250	1.0	0.0156	000.7258	000.5945	056.584
40.00	0.148	1.0	0.0055	000.4297	000.3291	056.724
45.00	0.015	1.0	0.0001	000.0435	000.0308	056.969
50.00	0.107	1.0	0.0029	000.3106	000.1997	056.762
55.00	0.194	1.0	0.0094	000.5632	000.3230	056.539
60.00	0.238	1.0	0.0142	000.6909	000.3455	056.402
65.00	0.244	1.0	0.0149	000.7084	000.2994	056.358
70.00	0.220	1.0	0.0121	000.6387	000.2184	056.400
75.00	0.185	1.0	0.0086	000.5371	000.1390	056.481
80.00	0.145	1.0	0.0053	000.4210	000.0731	056.585
85.00	0.119	1.0	0.0035	000.3455	000.0301	056.656
90.00	0.114	1.0	0.0032	000.3310	000.0000	056.669



E-5 W246BS Mod. 300D 60 F(50-50) dBu Contour Plot



E-6 W246BS Mod. 300D HAAT Calculation

N. Lat. = 344229.6 W. Lng. = 874135.7

HAAT and Distance to Contour,

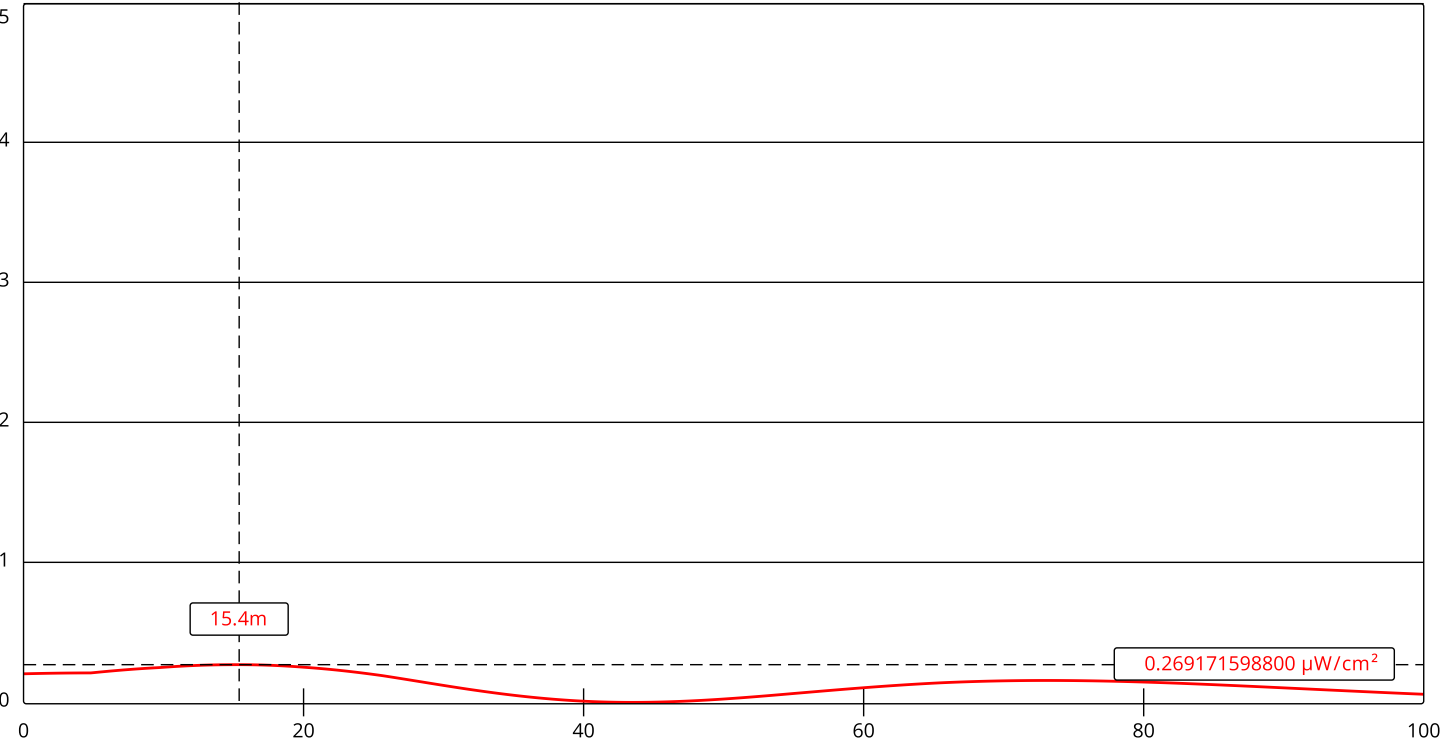
FCC, FM 2-10 Mi, 51 pts Method - FCC 30 Meter

Azi.	AV EL	HAAT	ERP kW	60-F(50-50)
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000	157.4	30.7	0.2500	7.16
030	160.4	27.7	0.2500	7.09
060	161.4	26.7	0.2500	7.09
090	162.7	25.4	0.2500	7.09
120	180.1	8.0	0.2500	7.09
150	165.5	22.6	0.2500	7.09
180	217.7	-29.6	0.2500	7.09
210	203.4	-15.3	0.2500	7.09
240	191.5	-3.4	0.2500	7.09
270	153.2	34.9	0.2500	7.60
300	151.8	36.3	0.2500	7.75
330	151.5	36.6	0.2500	7.78

Ave El= 171.37 M HAAT= 16.73 M AMSL= 188.1

E-7 W246BF Mod. 300D RF Calculation



Channel Selection	Channel 300 (107.9 MHz) ▾		
Antenna Type +	EPA Type 2: Opposed V Dipole ▾		
Height (m)	57.0	Distance (m)	100
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	3	λ	0.85
Num of Points	500		