

## **Technical Report K261EA Minor Modification**

This technical report is submitted for a minor modification to K261EA at Marianna, AR, FCC file number BLFT-20160415ABO. Changes in tower site, COR and antenna are submitted for the translator to serve as a fill-in facility to rebroadcast KWYN-FM 223C2 at Wynne, AR, FCC facility I.D. 18182.

### **K261EA Modification Analysis:**

An overlap study in exhibit E-1 shows the K261EA modification is within the WMC-FM 259C second adjacent protected contour. Using the vertical elevation pattern of a Bext TFC2K four bay, 0.85 wavelength-spaced antenna (exhibit E-2), the +40 101.54 F(50-10) dBu interfering contour (exhibit E-3) will not produce any interference to any population, buildings or roads beyond a distance of 210 meters from the base of the tower to the interfering contour (exhibit E-4). The 60 dBu F(50-50) contour overlaps the licensed 60 dBu contour and is contained within the KWYN-FM 223C2 60 dBu contour (exhibit E-5).

### **Antenna System:**

The K261EA modification will be located on the existing 152 meter tower, ASR 1060582, at coordinates:

**35 03 16N 90 44 36W NAD 27**

A Bext TFC2K four bay, 0.85 wavelength-spaced, nondirectional antenna will be mounted at a COR AGL of 95 meters, 202 meters AMSL, 126 meter HAAT (exhibit E-6) and operate at 0.250 kW ERP.

**RF Exposure Calculation:**

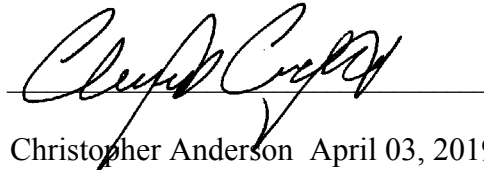
The RF contribution was calculated using the formula from the OET Bulletin 65:

$$S \text{ (RF in microwatts/cm}^2\text{)} = \frac{33.4 \times F^2 \times (H \text{ ERP} + V \text{ ERP in watts})}{R^2 \text{ (height of radiation center in meters}^2\text{)}}$$

Using a worst-case vertical (F) factor of 1.000, the RF is calculated to be 1.93  $\mu\text{W}/\text{cm}^2$  to the ground, which is well below 5% of the 200  $\mu\text{W}/\text{cm}^2$  maximum permissible for controlled exposure, allowing exclusion from consideration.

**Conclusion:**

It is concluded that the K261EA modification complies with all Commission rules and policies.



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# E-1 K261EA Mod. Overlap Study

REFERENCE		CH#	261D - 100.1 MHz, Pwr= 0.25 kW, HAAT= 126.0 M, COR= 202 M					DISPLAY DATES			
35 03 16.0 N.			Average Protected F(50-50)= 14.41 km					DATA 04-02-19			
90 44 36.0 W.			Omni -di rectional					SEARCH 04-02-19			
CH	CALL	TYPE	ANT	AZI	DIST	LAT	PWR(kW)	INT(km)	PRO(km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG	HAAT(M)	COR(M)	LICENSEE	(Overlap in km)	
261D	K261EA	LIC _C_		215.6	27.26	34 51 17.0	0.250		---	Reference---	
Marianna		AR		35.5	BLFT20160415ABO	90 55 02.0	102	158	East Arkansas Broadcasters		
259C	WMC-FM	LIC _EY		80.5	78.99	35 10 09.0	300.000	12.9	82.3	50.7	-4.4*(1)
Memphis		TN		261.0	BMLH20050308AAR	89 53 10.0	277	362	Entercom License, Lic		
261D	W261CE	LIC _C_		108.3	70.94	34 51 05.0	0.250	55.9	17.7	-0.4	2.4
Southaven		MS		288.8	BLFT20150929AOR	90 00 19.0		264	Edgewater Broadcasting, Inc		
261C2	WQXB	LIC ZCX		150.2	153.03	33 51 24.0	48.000	135.1	50.1	2.5	51.6
Grenada		MS		330.7	BLH20030725ADA	89 55 15.0	153	237	The Rayanna Corp.		
261C2	WASL	LIC _C_		44.0	162.55	36 06 00.0	26.000	130.7	52.3	16.8	60.5
Dyersburg		TN		224.7	BLH19910412KB	89 29 12.0	206	291	Dr Pepper Pepsi -cola Bottl		
261C2	WASL	CP _CX		44.0	162.61	36 06 02.0	26.000	130.7	52.3	16.9	60.6
Dyersburg		TN		224.7	BPH20181126AAS	89 29 11.0	206	291	Dr Pepper Pepsi -cola Bottl		
260C2	KWCK-FM	LIC _CN		292.1	117.75	35 26 50.0	50.000	82.7	55.9	20.4	39.5
Searcy		AR		111.4	BLH19900914KC	91 56 52.0	150	315	Crain Media Group, Lic		
262L1	WVZM-LP	LIC ____		81.9	62.83	35 07 56.4	0.053			38.0	33.1
Memphis		TN		262.3	BLL20171129ABJ	90 03 33.0	41	115	Visible Music College		
262C1	KDJE	LIC _C_		260.4	161.97	34 47 53.0	85.000	110.0	74.9	37.2	64.6
Jacksonville		AR		79.4	BMLH20030612ADW	92 29 33.0	321	448	Cc Licenses, Lic, As Debto		
264C2	KEAZ	LIC ZCX		285.9	96.99	35 17 20.0	50.000	6.1	52.9	76.3	42.9
Kensett		AR		105.3	BLH20130222AAC	91 46 17.0	129	228	Crain Media Group, Lic		
207C0	WYPL	LIC DC_		47.4	68.02	35 28 03.0	100.000	81.5	27.5	24.5R	43.5M
Memphis		TN		227.7	BLED20040519ADN	90 11 27.0	382	447	Memphis Public Library & I		
263C2	KEGI	LIC _CX		4.0	99.78	35 56 59.0	38.000	5.8	51.7	81.3	46.9
Trumann		AR		184.0	BLH20110201AEI	90 39 58.0	170	268	Saga Communications Of Ark		

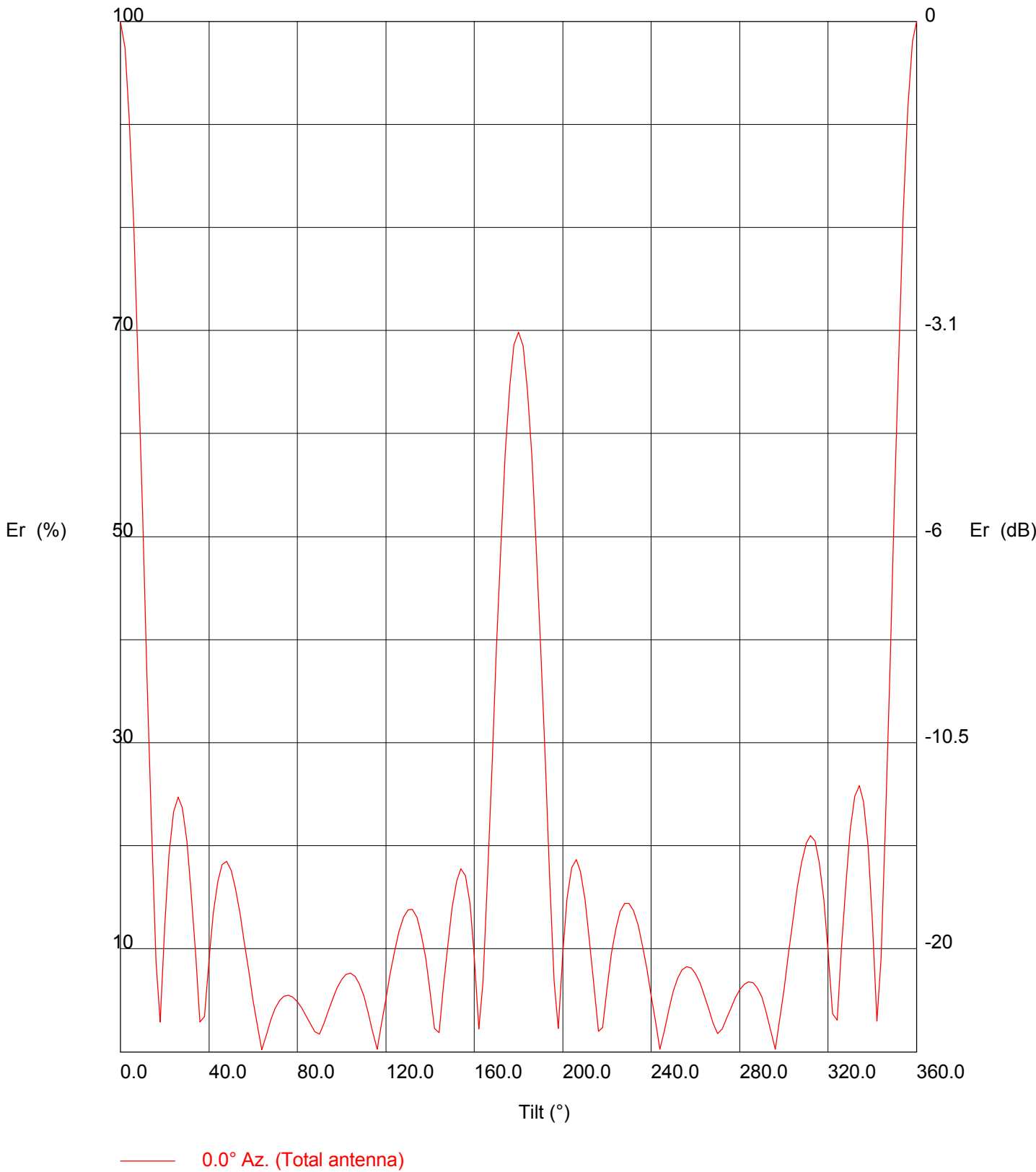
Terrain database is GLOBE 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM  
In & Out distances between contours are shown at closest points. Reference zone= West Zone, Co to 3rd adjacent.  
All separation margins (if shown) include rounding.  
Ant Column: (D= DA 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 +40 101.54 F(50-10) dBu interfering contour within the WMC-FM 259C second-adjacent protected contour (exhibit E-3) does not produce any interference to any population, major roads or buildings within the protected contour (exhibit E-4).

E-2 K261EA Mod. Antenna Vertical Elevation Pattern and Tabulation

Bext TFC2K-4-0.85 Wavelength

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

E-3 K261EA Mod. +40 dBu Tabulation Within WMC-FM 259C

K261EA Marianna, AR, Showing Protection to WMC-FM  
Geographic Coordinates: N. 35 03 16.00 W. 90 44 36.00  
74.1204(d) Study - Using NGDC 30 SEC Terrain Database  
Translator or LPFM Maximum Licensed ERP = 0.25  
Translator or LPFM Antenna Height AG = 95 Meters  
K261EA Antenna Model = BEXT TFC-2K-4 -85% WAVELENGTH

Protected Station's Contour = 61.53596 dBu  
Translator's or LPFM's full Interference contour 101.53596

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 = 79.0 km  
Protected Station= WMC-FM, 300 kW, 362 M Meters COR AMSL

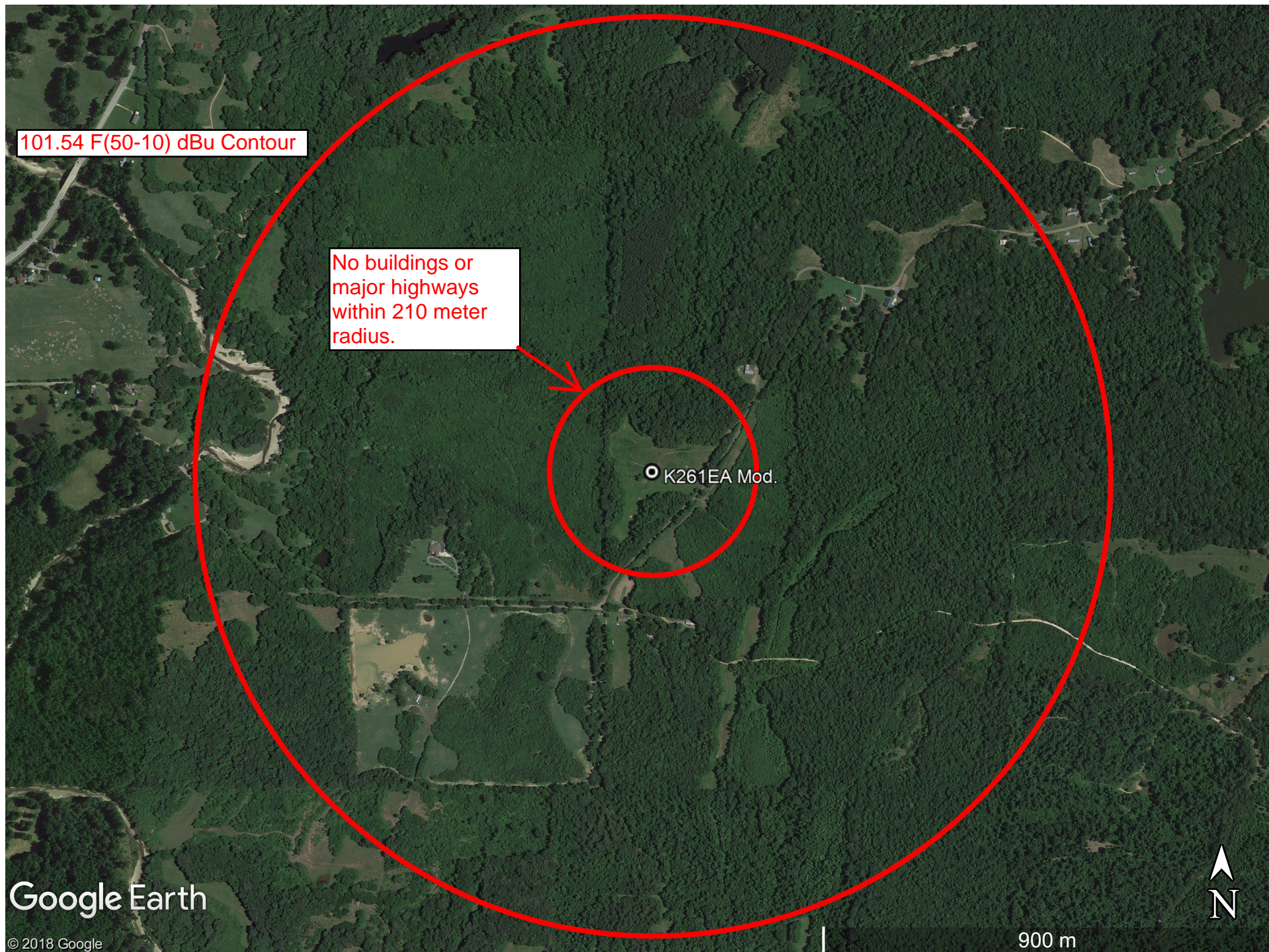
Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m) (1)
00.00	1.00	1.0	0.2500	929.3344	929.3344	095.000
01.00	0.987	1.0	0.2435	917.2530	917.1133	078.992
02.00	0.974	1.0	0.2372	905.1717	904.6203	063.410
03.00	0.94	1.0	0.2207	873.1096	871.9131	049.305
04.00	0.905	1.0	0.2048	841.0476	838.9988	036.331
05.00	0.853	1.0	0.1817	792.2575	789.2427	025.950
06.00	0.8	1.0	0.1600	743.4675	739.3947	017.286
07.00	0.735	1.0	0.1349	682.5961	677.5082	011.812
08.00	0.669	1.0	0.1119	621.7247	615.6741	008.473
09.00	0.596	1.0	0.0887	553.4186	546.6051	008.426
10.00	0.522	1.0	0.0681	485.1126	477.7426	010.761
11.00	0.446	1.0	0.0497	414.4831	406.8679	015.913
12.00	0.37	1.0	0.0342	343.8537	336.3397	023.509
13.00	0.296	1.0	0.0219	275.0830	268.0326	033.120
14.00	0.222	1.0	0.0123	206.3122	200.1839	045.089
15.00	0.155	1.0	0.0060	144.0468	139.1386	057.718
16.00	0.088	1.0	0.0019	081.7814	078.6134	072.458
17.00	0.097	1.0	0.0023	089.9131	085.9843	068.712
18.00	0.106	1.0	0.0028	098.0448	093.2461	064.702
19.00	0.114	1.0	0.0033	106.1765	100.3918	060.432
20.00	0.123	1.0	0.0038	114.3081	107.4145	055.904
21.00	0.157	1.0	0.0062	145.9055	136.2145	042.712
22.00	0.191	1.0	0.0091	177.5029	164.5778	028.506
23.00	0.212	1.0	0.0112	197.0189	181.3568	018.019
24.00	0.233	1.0	0.0136	216.5349	197.8145	006.927
25.00	0.24	1.0	0.0144	223.0402	202.1431	000.739
26.00	0.247	1.0	0.0153	229.5456	206.3142	-005.626 (1)
27.00	0.242	1.0	0.0146	224.8989	200.3864	-007.102
28.00	0.237	1.0	0.0140	220.2523	194.4712	-008.402
29.00	0.221	1.0	0.0122	204.9182	179.2255	-004.346
30.00	0.204	1.0	0.0104	189.5842	164.1847	000.208
31.00	0.18	1.0	0.0081	166.8155	142.9888	009.084
32.00	0.155	1.0	0.0060	144.0468	122.1586	018.667
33.00	0.125	1.0	0.0039	115.7021	097.0360	031.984
34.00	0.094	1.0	0.0022	087.3574	072.4226	046.150
35.00	0.062	1.0	0.0009	057.1541	046.8179	062.218
36.00	0.029	1.0	0.0002	026.9507	021.8036	079.159
37.00	0.032	1.0	0.0002	029.2740	023.3793	077.382
38.00	0.034	1.0	0.0003	031.5974	024.8991	075.547
39.00	0.062	1.0	0.0010	057.6187	044.7782	058.739
40.00	0.09	1.0	0.0020	083.6401	064.0720	041.237
41.00	0.113	1.0	0.0032	104.5501	078.9050	026.409
42.00	0.135	1.0	0.0046	125.4601	093.2351	011.051
43.00	0.151	1.0	0.0057	139.8648	102.2907	-000.388
44.00	0.166	1.0	0.0069	154.2695	110.9722	-012.165
45.00	0.174	1.0	0.0076	161.7042	114.3421	-019.342
46.00	0.182	1.0	0.0083	169.1389	117.4937	-026.668
47.00	0.184	1.0	0.0084	170.5329	116.3031	-029.720
48.00	0.185	1.0	0.0086	171.9269	115.0415	-032.767
49.00	0.181	1.0	0.0081	167.7449	110.0505	-031.599
50.00	0.176	1.0	0.0077	163.5629	105.1362	-030.296
51.00	0.167	1.0	0.0070	155.1988	097.6698	-025.612
52.00	0.158	1.0	0.0062	146.8348	090.4006	-020.707
53.00	0.146	1.0	0.0053	135.6828	081.6560	-013.361
54.00	0.134	1.0	0.0045	124.5308	073.1974	-005.748
55.00	0.121	1.0	0.0036	111.9848	064.2318	003.267
56.00	0.107	1.0	0.0029	099.4388	055.6055	012.562
57.00	0.093	1.0	0.0021	085.9634	046.8190	022.905
58.00	0.078	1.0	0.0015	072.4881	038.4128	033.527
59.00	0.064	1.0	0.0010	059.4774	030.6331	044.018
60.00	0.05	1.0	0.0006	046.4667	023.2334	054.759
61.00	0.038	1.0	0.0004	034.8500	016.8956	064.519
62.00	0.025	1.0	0.0002	023.2334	010.9074	074.486
63.00	0.014	1.0	0.0000	012.5460	005.6958	083.821
64.00	0.002	1.0	0.0000	001.8587	000.8148	093.329
65.00	0.01	1.0	0.0000	008.8287	003.7312	086.999

E-3 K261EA Mod. +40 dBu Tabulation Within WMC-FM 259C, 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)
66.00	0.017	1.0	0.0001	015.7987	006.4259	080.567
67.00	0.024	1.0	0.0001	022.3040	008.7149	074.469
68.00	0.031	1.0	0.0002	028.8094	010.7922	068.288
69.00	0.037	1.0	0.0003	034.3854	012.3226	062.898
70.00	0.043	1.0	0.0005	039.9614	013.6676	057.449
71.00	0.047	1.0	0.0005	043.2140	014.0691	054.140
72.00	0.05	1.0	0.0006	046.4667	014.3590	050.808
73.00	0.052	1.0	0.0007	048.3254	014.1290	048.786
74.00	0.054	1.0	0.0007	050.1841	013.8326	046.760
75.00	0.054	1.0	0.0007	049.9517	012.9285	046.750
76.00	0.054	1.0	0.0007	049.7194	012.0282	046.757
77.00	0.053	1.0	0.0007	049.4871	011.1322	046.781
78.00	0.053	1.0	0.0007	049.2547	010.2406	046.822
79.00	0.051	1.0	0.0007	047.3961	009.0436	048.475
80.00	0.049	1.0	0.0006	045.5374	007.9075	050.154
81.00	0.046	1.0	0.0005	042.2847	006.6148	053.236
82.00	0.042	1.0	0.0004	039.0320	005.4322	056.348
83.00	0.039	1.0	0.0004	035.7794	004.3604	059.487
84.00	0.035	1.0	0.0003	032.5267	003.4000	062.651
85.00	0.031	1.0	0.0002	028.8094	002.5109	066.300
86.00	0.027	1.0	0.0002	025.0920	001.7503	069.969
87.00	0.024	1.0	0.0001	021.8394	001.1430	073.191
88.00	0.02	1.0	0.0001	018.5867	000.6487	076.425
89.00	0.019	1.0	0.0001	017.1927	000.3001	077.810
90.00	0.017	1.0	0.0001	015.7987	000.0000	079.201

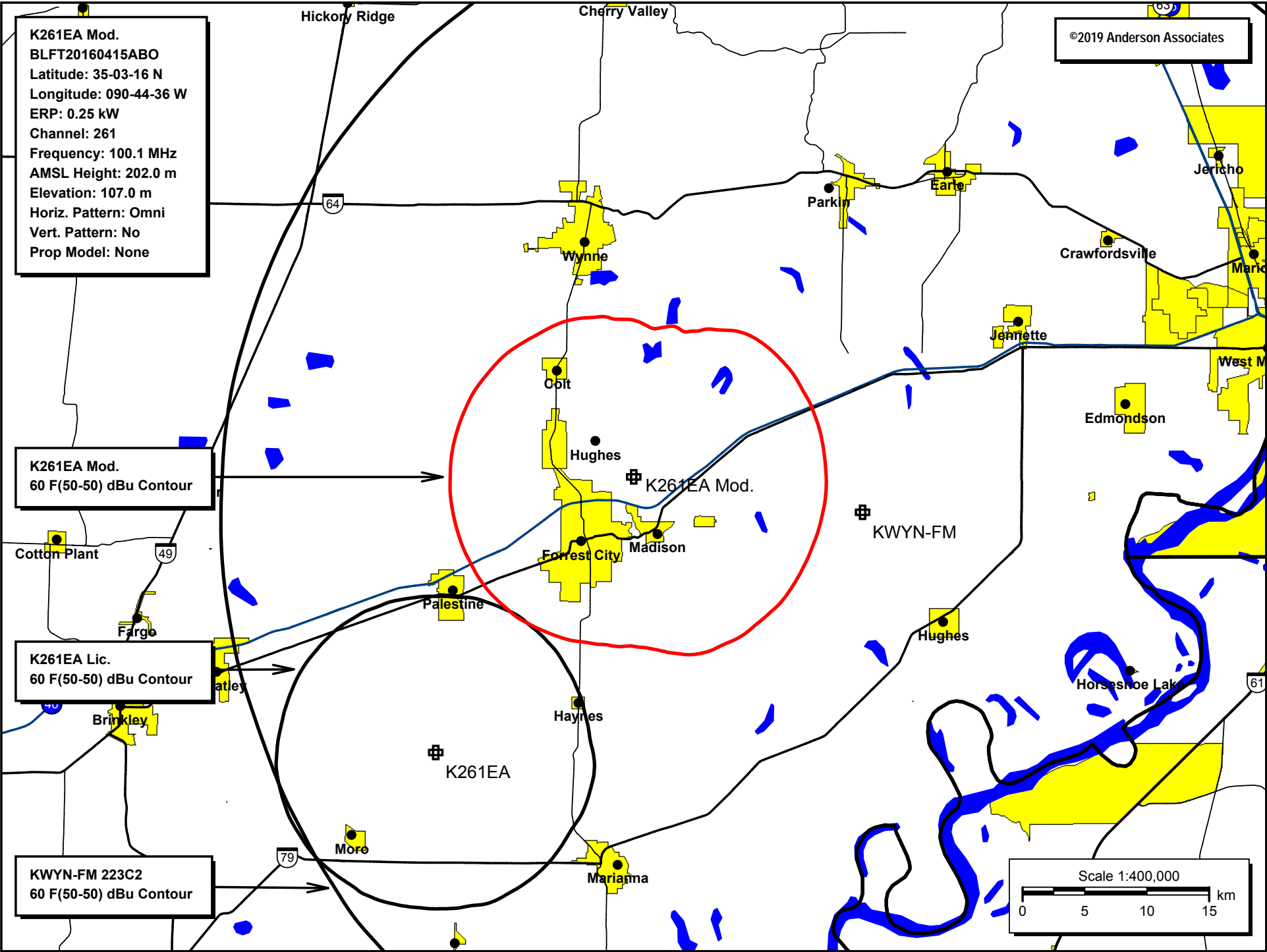
(1) The +40 101.54 (50-10) dBu contour within the WMC-FM 60 dBu does not reach any buildings or major highways. The highlighted area (yellow) within 210 meters of the tower where the contour reaches the ground does not contain any buildings or major highways (E-4). Based on this showing, a waiver of Section 74.1204 is requested in accordance with *Living Way Ministries, Inc.* (FCC 08-242).







E-5 K261EA Mod. 60 dBu Contour Plot



## E-6 K261EA Mod. HAAT Calculation

### Antenna Height Above Average Terrain Calculations -- Results

#### Input Data

Latitude **35° 3' 16"** North

Longitude **90° 44' 36"** West (NAD 27)

These coordinates convert to NAD 83 coordinates of  
35° 03' 16.33", North, 90° 44' 36.40" West (NAD 83).

Height of antenna radiation center above mean sea level: **202** meters AMSL

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

Calculated HAAT = **126 meters**

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

#### Individual "Radial HAAT" Values, in meters

0°	95.6 m
30°	112.0 m
60°	139.3 m
90°	142.9 m
120°	142.7 m
150°	140.5 m
180°	112.1 m
210°	123.8 m
240°	132.5 m
270°	131.1 m
300°	127.2 m
330°	114.3 m

## E-7 K261EA Mod. Tower ASR

### ASR Registration 1060582

#### Registration Detail

Reg Number	1060582	Status	Granted
File Number	A0071029	Constructed	
EMI	No	Dismantled	
NEPA	No		

#### Antenna Structure

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

#### Location (in NAD83 Coordinates)

Lat/Long	35-03-16.0 N 090-44-36.0 W	Address	5 KM NORTHWEST
City, State	MADISON , AR		
Zip	72335	County	ST. FRANCIS
Center of AM Array		Position of Tower in Array	

#### Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
107.0	152.0
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
259.0	151.4

#### Painting and Lighting Specifications

FAA Chapters 3, 4, 5, 13

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

#### FAA Notification

FAA Study	98-ASW-4316-OE	FAA Issue Date	10/26/1998
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#### Owner & Contact Information

FRN	Owner Entity Type
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#### Owner

EAST ARKANSAS BROADCASTING COMPANY	P: (870)238-8141
Attention To: BOBBY CALDWELL	F:
P.O. Box 789	E:
WYNNE , AR 72396	

#### Contact

P:  
F:  
E:

#### Last Action Status

Status	Granted	Received	02/04/1999
Purpose	New	Entered	02/04/1999