

TECHNICAL REPORT

This technical report has been developed in support of a minor modification application to KMZE(FM) 221C3 at Woodward, OK, FCC file no. BLH-19910711KD. A one-step upgrade to channel 222C1 is submitted. The following exhibits are provided for the form 301:

- E-1 KMZE(FM) Spacing Study
- E-2 Fully-Spaced Reference Site
- E-3 Reference Site Aerial Photo
- E-4 Reference Site 70 dBu Circle Plot
- E-5 Interference Contour Plot to KOMA(FM) 223C Max. Class
- E-6 FMOver Tabulation to KOMA(FM) Max. Class
- E-7 HAAT Calculation
- E-8 70 dBu Contour Coverage of Clarendon, AR

KMZE(FM) Modification Analysis:

The KMZE(FM) modification will be fully-spaced at channel 222C1, with the exception to KOMA(FM) 223C at Oklahoma City, OK (Exhibit E-1). As a result, KMZE(FM) is to be designated as a 73.215(e) facility. A fully-spaced reference site, aerial photo, and 70 dBu (50 km) circle plot which encompasses the Woodward, OK community of license are shown in exhibits E-2 to E-4. An interference plot (exhibit E-5) and FMOver tabulation (Exhibit E-6) to KOMA(FM) at its maximum class parameters shows the KMZE(FM) modification will not produce any interference overlap.

KMZE(FM) Antenna System:

The facility is located on an existing tower at corrected coordinates:

36-16-23N 99-26-45W NAD27.

Anderson Associates

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1519 Euclid Avenue
Bowling Green, KY 42103

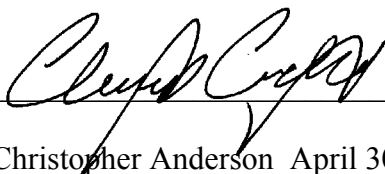
An ERI G5CPS-10AC3 ten bay, full-wavelength, nondirectional antenna will be mounted at a COR AGL of 352 meters, 1041 meters AMSL, 368 meter HAAT (exhibit E-7) and operate at an ERP of 11.0 kW with beam tilt, 10.5 kW without. The resulting 70 dBu contour provides coverage entirely over the Woodward, OK community of license city boundary, shown in exhibit E-8.

RF Exposure Calculation:

The RF production of the 11.0 kW eight bay facility was calculated using the Commission's FMMODEL program. The maximum RF at a height of 2 meters above ground was calculated to be $0.31 \mu\text{Watts/cm}^2$ at a distance of 85 meters from the tower, which is below 5% of the $200 \mu\text{Watts/cm}^2$ permissible for general public/uncontrolled exposure, allowing exclusion from consideration.

Conclusion:

It is concluded that the minor modification of KMZE(FM) is in full compliance with the Commission rules and policies.



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E-1 KMZE(FM) Mod. to C1 Spacing Study

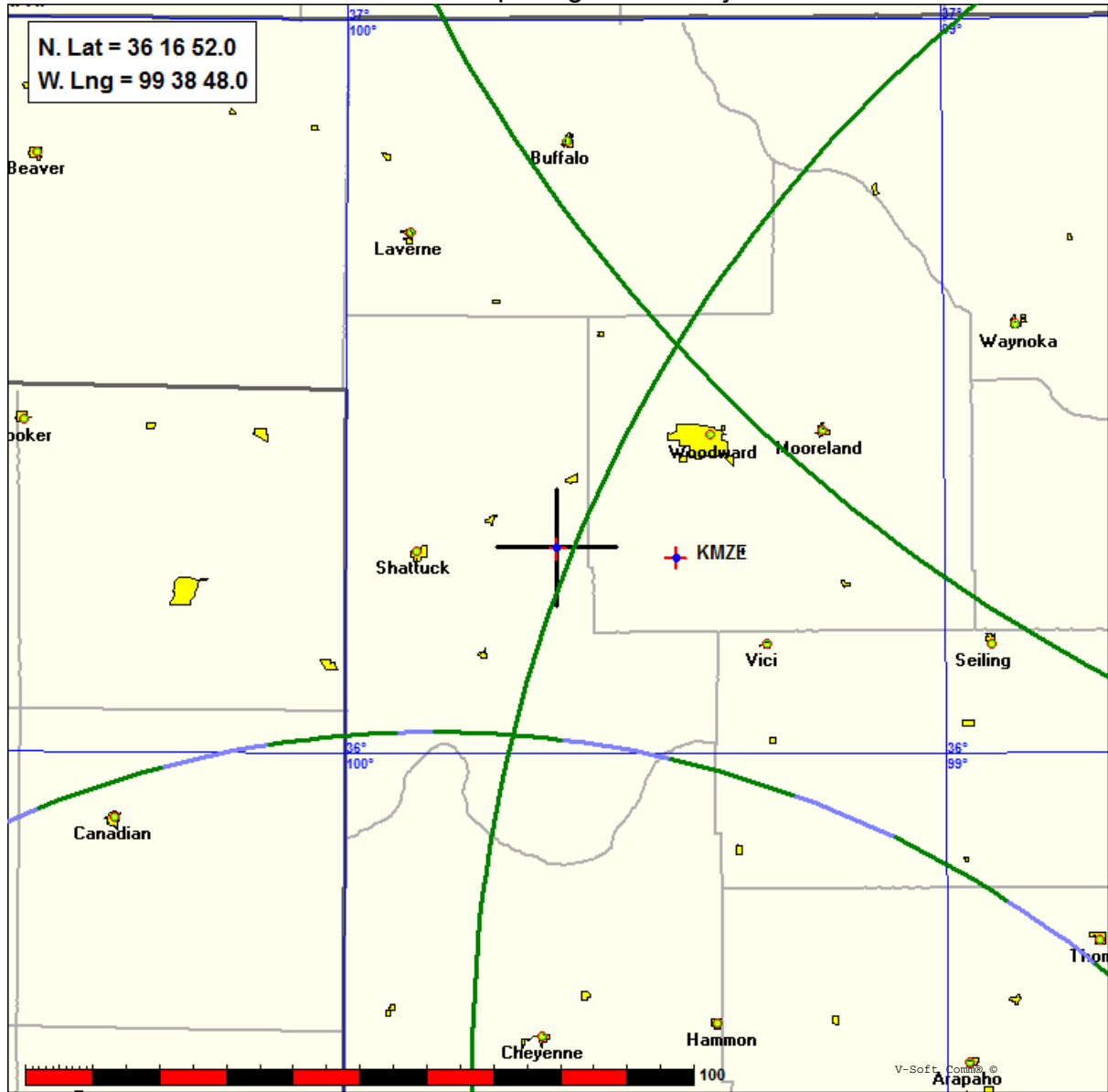
REFERENCE		CLASS = C1	DISPLAY DATES
36 16 23.0 N.			DATA 04-30-15
99 26 45.0 W.	Current Spacings to 3rd Adj.		SEARCH 04-30-15
----- Channel 222 - 92.3 MHz -----			

Call	Channel	Location		Azi	Dist	FCC	Margin
KMZE	LIC 221C3	Woodward	OK	207.6	0.59	143.5	-142.9
KOMA	LIC 223C	Oklahoma City	OK	113.6	193.84	208.5	-14.7 (1)
KKGQ	LIC 222C1	Newton	KS	42.6	266.69	244.5	22.2
KKRE	CP -N 223C2	Hollis	OK	191.3	188.16	157.5	30.7
KFXI	LIC 221C1	Marlow	OK	143.4	219.15	176.5	42.7

All separation margins include rounding

(1) KMZE(FM) 222C1 will be designated as a 73.215(e) facility.

CH 222 C1 92.3 MHz
Current Spacings to 3rd Adj.



Data Date:04-30-15 Job Date:04-30-15

Call	CH#	Type	Location		Azi	D-KM	FCC	Margin
KMZE	221C3	LIC	Woodward	OK	94.5	17.82	143.5	-125.7
KOMA	223C	LIC	Oklahoma City	OK	111.8	210.84	208.5	2.3
KKRE.C	223C2	CP -N	Hollis	OK	185.7	186.37	157.5	28.9
KKGQ	222C1	LIC	Newton	KS	45.4	278.62	244.5	34.1

All separation margins include rounding

E-3 KMZE(FM) 222C1 Full-Spaced Reference Site Aerial Photo

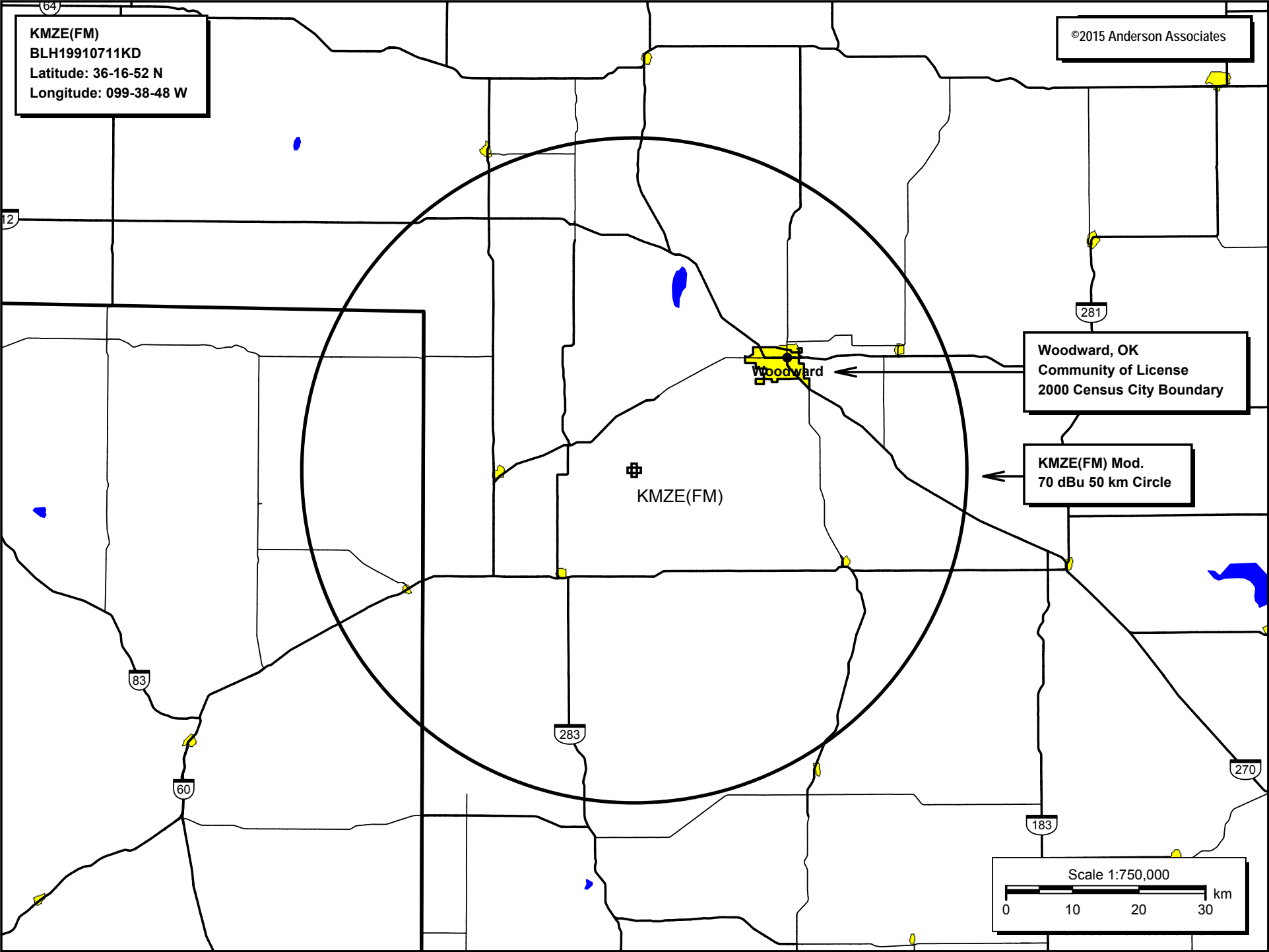


Google earth

feet 1000
meters 500



E-4 KMZE(FM) Mod. Fully-Spaced Reference Plot



E-5 KMZE(FM) 222C1 Mod. Interference Plot to KOMA(FM) 223C Max. Class

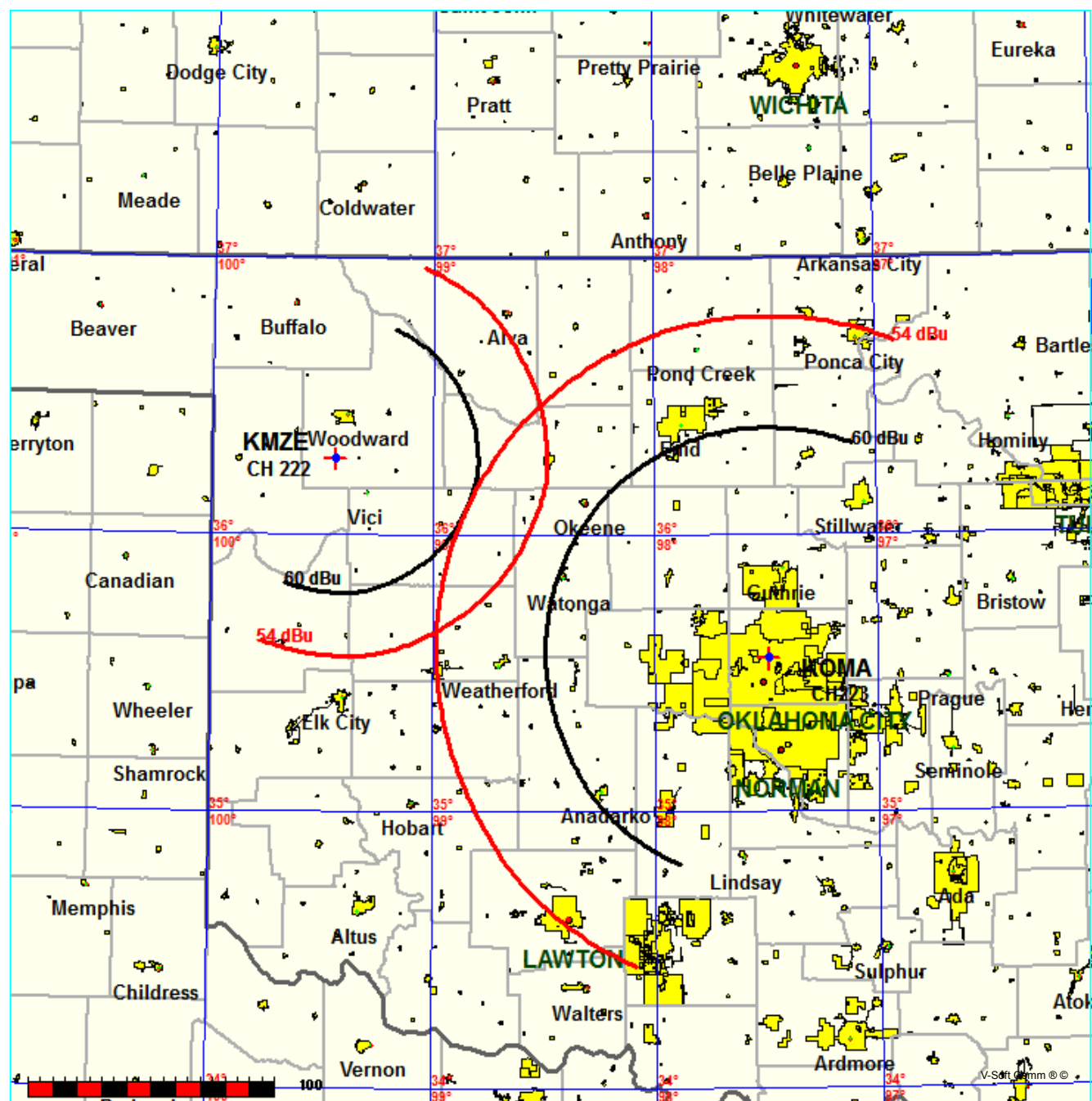
FMCommander Single Allocation Study - 04-30-2015 - FCC NGDC 30 Sec
KMZE's Overlaps (In= 0.0 km, Out= 0.0 km)

KMZE CH 222 C1

Lat= 36 16 23.0, Lng= 99 26 45.0
11.0 kW 368 M HAAT, 1041 M COR
Prot.= 60 dBu, Intef.= 54 dBu

KOMA^ CH 223 C BLH20070907ABP

Lat= 35 33 36.0, Lng= 97 29 07.0
Max Cls: 100.0 kW 600 M HAAT, 950 M COR
Prot.= 60 dBu, Intef.= 54 dBu



E-6 KMZE(FM) Mod. FMOver Calculation to KOMA(FM) Max. Class

KMZE(FM) Mod.

Channel = 222C1

Max ERP = 11 kW

RCAMSL = 1041 M

N. Lat. 36 16 23.0

W. Lng. 99 26 45.0

Protected

60 dBu Terrain Data: FCC NGDC 30 Sec 54 dBu

KOMA BLH20070907ABP

(^ Max Class Parameters)

Channel = 223C

Max ERP = 100 kW

RCAMSL = 950 M

N. Lat. 35 33 36.0

W. Lng. 97 29 07.0

Interfering

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
054.0	011.0000	0413.3	057.9	311.7	100.0000	0608.0	171.6	45.32	
055.0	011.0000	0413.1	057.9	311.6	100.0000	0607.9	170.7	45.56	
056.0	011.0000	0412.8	057.9	311.5	100.0000	0607.8	169.7	45.79	
057.0	011.0000	0412.3	057.9	311.4	100.0000	0607.7	168.7	46.03	
058.0	011.0000	0411.6	057.8	311.3	100.0000	0607.6	167.8	46.27	
059.0	011.0000	0410.8	057.8	311.2	100.0000	0607.5	166.8	46.50	
060.0	011.0000	0410.4	057.7	311.0	100.0000	0607.4	165.9	46.73	
061.0	011.0000	0410.1	057.7	310.9	100.0000	0607.3	165.0	46.97	
062.0	011.0000	0410.0	057.7	310.8	100.0000	0607.2	164.0	47.20	
063.0	011.0000	0409.8	057.7	310.6	100.0000	0607.1	163.1	47.43	
064.0	011.0000	0409.8	057.7	310.5	100.0000	0607.0	162.2	47.66	
065.0	011.0000	0410.0	057.7	310.3	100.0000	0606.9	161.3	47.89	
066.0	011.0000	0410.4	057.8	310.2	100.0000	0606.8	160.3	48.11	
067.0	011.0000	0411.0	057.8	310.0	100.0000	0606.7	159.4	48.33	
068.0	011.0000	0411.7	057.8	309.9	100.0000	0606.6	158.5	48.56	
069.0	011.0000	0412.5	057.9	309.7	100.0000	0606.6	157.6	48.78	
070.0	011.0000	0413.2	057.9	309.5	100.0000	0606.5	156.8	49.00	
071.0	011.0000	0413.9	057.9	309.3	100.0000	0606.4	155.9	49.21	
072.0	011.0000	0414.5	058.0	309.1	100.0000	0606.4	155.0	49.42	
073.0	011.0000	0414.7	058.0	308.9	100.0000	0606.3	154.2	49.63	
074.0	011.0000	0414.8	058.0	308.7	100.0000	0606.3	153.3	49.84	
075.0	011.0000	0414.8	058.0	308.5	100.0000	0606.3	152.5	50.04	
076.0	011.0000	0414.9	058.0	308.2	100.0000	0606.2	151.7	50.23	
077.0	011.0000	0415.0	058.0	308.0	100.0000	0606.1	151.0	50.43	
078.0	011.0000	0415.0	058.0	307.8	100.0000	0606.1	150.2	50.62	
079.0	011.0000	0414.7	058.0	307.5	100.0000	0606.0	149.5	50.80	
080.0	011.0000	0414.2	058.0	307.2	100.0000	0605.9	148.7	50.98	
081.0	011.0000	0413.7	057.9	306.9	100.0000	0605.8	148.0	51.15	
082.0	011.0000	0413.2	057.9	306.6	100.0000	0605.7	147.4	51.32	
083.0	011.0000	0412.9	057.9	306.4	100.0000	0605.5	146.7	51.49	
084.0	011.0000	0412.7	057.9	306.1	100.0000	0605.4	146.0	51.65	
085.0	011.0000	0412.5	057.9	305.7	100.0000	0605.3	145.4	51.81	
086.0	011.0000	0413.1	057.9	305.4	100.0000	0605.2	144.7	51.98	
087.0	011.0000	0414.0	058.0	305.1	100.0000	0605.2	144.1	52.14	
088.0	011.0000	0414.8	058.0	304.8	100.0000	0605.1	143.4	52.30	
089.0	011.0000	0415.6	058.0	304.5	100.0000	0605.0	142.8	52.46	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
090.0	011.0000	0415.9	058.1	304.2	100.0000	0605.0	142.2	52.61
091.0	011.0000	0416.2	058.1	303.8	100.0000	0605.0	141.7	52.75
092.0	011.0000	0416.5	058.1	303.5	100.0000	0604.9	141.1	52.88
093.0	011.0000	0416.7	058.1	303.1	100.0000	0604.8	140.6	53.01
094.0	011.0000	0416.6	058.1	302.8	100.0000	0604.8	140.1	53.13
095.0	011.0000	0416.2	058.1	302.4	100.0000	0604.6	139.7	53.25
096.0	011.0000	0415.7	058.0	302.0	100.0000	0604.5	139.3	53.35
097.0	011.0000	0414.6	058.0	301.6	100.0000	0604.3	138.9	53.44
098.0	011.0000	0413.1	057.9	301.2	100.0000	0604.2	138.6	53.52
099.0	011.0000	0411.6	057.8	300.8	100.0000	0604.0	138.3	53.59
100.0	011.0000	0410.1	057.7	300.4	100.0000	0603.8	138.1	53.66
101.0	011.0000	0408.6	057.7	300.0	100.0000	0603.6	137.8	53.72
102.0	011.0000	0407.4	057.6	299.6	100.0000	0603.4	137.6	53.78
103.0	011.0000	0406.2	057.5	299.2	100.0000	0603.2	137.4	53.83
104.0	011.0000	0405.0	057.4	298.8	100.0000	0603.0	137.2	53.87
105.0	011.0000	0403.5	057.4	298.3	100.0000	0602.8	137.1	53.91
106.0	011.0000	0401.8	057.3	297.9	100.0000	0602.5	137.0	53.93
107.0	011.0000	0400.0	057.2	297.5	100.0000	0602.3	136.9	53.95
108.0	011.0000	0398.4	057.1	297.1	100.0000	0602.0	136.8	53.96
109.0	011.0000	0397.0	057.0	296.7	100.0000	0601.8	136.8	53.97
110.0	011.0000	0395.7	056.9	296.3	100.0000	0601.5	136.7	53.97
111.0	011.0000	0394.4	056.9	295.8	100.0000	0601.3	136.7	53.97
112.0	011.0000	0393.4	056.8	295.4	100.0000	0601.1	136.7	53.97
113.0	011.0000	0392.5	056.7	295.0	100.0000	0600.9	136.8	53.96
114.0	011.0000	0391.8	056.7	294.6	100.0000	0600.8	136.8	53.95
115.0	011.0000	0391.3	056.7	294.2	100.0000	0600.6	136.9	53.93
116.0	011.0000	0390.8	056.7	293.8	100.0000	0600.5	136.9	53.91
117.0	011.0000	0390.2	056.6	293.4	100.0000	0600.3	137.0	53.88
118.0	011.0000	0389.3	056.6	292.9	100.0000	0600.1	137.2	53.84
119.0	011.0000	0388.2	056.5	292.5	100.0000	0599.9	137.4	53.79
120.0	011.0000	0387.0	056.4	292.1	100.0000	0599.8	137.6	53.74
121.0	011.0000	0386.0	056.4	291.7	100.0000	0599.5	137.8	53.68
122.0	011.0000	0384.9	056.3	291.3	100.0000	0599.3	138.0	53.61
123.0	011.0000	0383.9	056.3	290.9	100.0000	0599.0	138.3	53.54
124.0	011.0000	0383.1	056.2	290.6	100.0000	0598.8	138.6	53.46
125.0	011.0000	0382.3	056.2	290.2	100.0000	0598.6	138.9	53.38
126.0	011.0000	0381.6	056.1	289.8	100.0000	0598.3	139.2	53.29
127.0	011.0000	0380.6	056.1	289.4	100.0000	0598.1	139.6	53.20
128.0	011.0000	0379.6	056.0	289.0	100.0000	0597.8	139.9	53.10
129.0	011.0000	0378.6	056.0	288.7	100.0000	0597.5	140.3	52.99
130.0	011.0000	0377.6	055.9	288.3	100.0000	0597.2	140.8	52.88
131.0	011.0000	0376.7	055.9	288.0	100.0000	0596.9	141.2	52.76
132.0	011.0000	0375.7	055.8	287.6	100.0000	0596.6	141.7	52.64
133.0	011.0000	0374.7	055.7	287.3	100.0000	0596.2	142.1	52.51
134.0	011.0000	0373.7	055.7	286.9	100.0000	0595.8	142.6	52.38
135.0	011.0000	0372.5	055.6	286.6	100.0000	0595.4	143.2	52.24
136.0	011.0000	0371.1	055.5	286.3	100.0000	0595.0	143.7	52.09
137.0	011.0000	0369.6	055.4	286.0	100.0000	0594.6	144.3	51.94
138.0	011.0000	0368.4	055.4	285.7	100.0000	0594.1	144.9	51.79
139.0	011.0000	0367.2	055.3	285.4	100.0000	0593.7	145.5	51.63
140.0	011.0000	0365.7	055.2	285.1	100.0000	0593.2	146.1	51.46

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
141.0	011.0000	0364.2	055.1	284.8	100.0000	0592.8	146.8	51.29
142.0	011.0000	0363.0	055.0	284.5	100.0000	0592.3	147.4	51.12
143.0	011.0000	0362.2	055.0	284.3	100.0000	0591.9	148.1	50.96
144.0	011.0000	0361.4	054.9	284.0	100.0000	0591.4	148.7	50.79
145.0	011.0000	0360.6	054.9	283.7	100.0000	0591.0	149.4	50.61
146.0	011.0000	0359.8	054.8	283.5	100.0000	0590.6	150.1	50.43
147.0	011.0000	0359.1	054.8	283.2	100.0000	0590.2	150.8	50.25
148.0	011.0000	0358.2	054.7	283.0	100.0000	0589.9	151.5	50.07
149.0	011.0000	0357.3	054.7	282.7	100.0000	0589.6	152.3	49.88
150.0	011.0000	0356.5	054.6	282.5	100.0000	0589.2	153.0	49.69
151.0	011.0000	0356.0	054.6	282.3	100.0000	0588.9	153.7	49.51
152.0	011.0000	0355.6	054.6	282.1	100.0000	0588.7	154.5	49.32
153.0	011.0000	0355.2	054.6	281.9	100.0000	0588.4	155.3	49.13
154.0	011.0000	0354.9	054.5	281.7	100.0000	0588.1	156.0	48.93
155.0	011.0000	0354.8	054.5	281.5	100.0000	0587.9	156.8	48.74
156.0	011.0000	0354.8	054.5	281.3	100.0000	0587.7	157.6	48.54
157.0	011.0000	0354.9	054.5	281.1	100.0000	0587.5	158.4	48.35
158.0	011.0000	0354.9	054.5	280.9	100.0000	0587.3	159.2	48.15
159.0	011.0000	0354.8	054.5	280.7	100.0000	0587.2	160.0	47.94
160.0	011.0000	0354.7	054.5	280.5	100.0000	0587.1	160.8	47.74
161.0	011.0000	0354.6	054.5	280.4	100.0000	0586.9	161.7	47.53
162.0	011.0000	0354.3	054.5	280.2	100.0000	0586.8	162.5	47.32
163.0	011.0000	0354.0	054.5	280.1	100.0000	0586.8	163.4	47.10
164.0	011.0000	0353.8	054.5	279.9	100.0000	0586.7	164.2	46.89
165.0	011.0000	0353.7	054.5	279.8	100.0000	0586.6	165.1	46.67
166.0	011.0000	0353.5	054.5	279.7	100.0000	0586.6	166.0	46.46
167.0	011.0000	0352.9	054.4	279.6	100.0000	0586.6	166.9	46.24
168.0	011.0000	0352.3	054.4	279.5	100.0000	0586.5	167.8	46.01
169.0	011.0000	0352.0	054.4	279.4	100.0000	0586.5	168.7	45.79
170.0	011.0000	0352.0	054.4	279.3	100.0000	0586.5	169.6	45.58
171.0	011.0000	0352.2	054.4	279.2	100.0000	0586.5	170.5	45.36
172.0	011.0000	0352.3	054.4	279.1	100.0000	0586.5	171.4	45.14
173.0	011.0000	0351.9	054.4	279.0	100.0000	0586.4	172.3	44.92

E-7 KMZE(FM) Mod. HAAT Calculation

N. Lat. = 361623.0 W. Lng. = 992645.0
HAAT and Distance to Contour,
FCC, FM 2-10 Mi, 51 pts Method - FCC 30 SEC

Azi.	AV EL	HAAT	ERP kW	60-F(50-50)
000	663.1	377.9	13.0000	57.51
045	627.2	413.8	13.0000	59.56
090	625.1	415.9	13.0000	59.68
135	668.5	372.5	13.0000	57.19
180	698.9	342.1	13.0000	55.29
225	714.8	326.2	13.0000	54.25
270	699.9	341.1	13.0000	55.23
315	686.4	354.6	13.0000	56.09

Ave El= 672.97 M HAAT= 368.03 M AMSL= 1041 M

E-8 KMZE(FM) Mod. 70 dBu Contour Coverage Plot

