

Technical Report K223BM Minor Modification

This technical report is submitted for a minor modification to K223BM at Warren, AR, FCC file no. BLFT-20070622AAH. Changes to tower site, antenna and ERP are requested for the translator to serve as a fill-in to rebroadcast the primary signal of KWRF(AM) 860 kHz at Warren, AR, FCC facility I.D. 52650.

The following exhibits are provided for the FCC form 349 application:

- E-1 K223BM Mod. Overlap Study
- E-2 Interference Overlap to KIPR(FM) 222 C1
- E-3 FMOVER Analysis to KIPR(FM)
- E-4 60 dBu Plots within KWRF(AM) and Overlap to K223BM Lic.
- E-5 PSI FML Directional Antenna Pattern

K223BM Modification Analysis:

An overlap study in exhibit E-1 shows the K223BM modification will not produce any interference overlap to any other facilities. A directional antenna will be employed to avoid interference overlap to the first adjacent KIPR(FM) 222 C1 facility at Pine Bluff, AR (exhibits E-2 and E-3).

Antenna System:

K223BM will be relocated to an existing tower at corrected coordinates:

33 38 08 N 92 03 56 W NAD 27.

A PSI FML 3 bay full wavelength directional antenna (exhibit E-5) will be mounted at a

Anderson Associates

Broadcast Consultants
1519 Euclid Avenue
Bowling Green, KY 42103

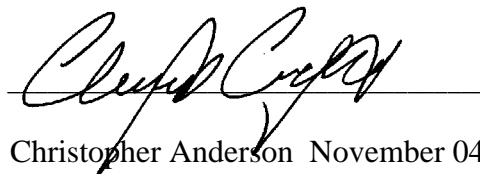
COR AGL of 62 meters and operate at 0.250 kW ERP. Additionally, the facility overlaps the current licensed K223BM, and is contained within the primary KWRF(AM) 2.0 mV/m daytime contour (exhibit E-4).

RF Exposure Calculation:

The RF contribution from the 0.250 kW facility was evaluated using the Commission's FMMODEL program. The resulting RF is calculated to be $0.492 \mu\text{W}/\text{cm}^2$ at a distance of 30 meters from the base of the tower, which is well below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure. allowing its exclusion from consideration.

Conclusion:

It is concluded that the modification of K223BM complies with all Commission rules and policies.



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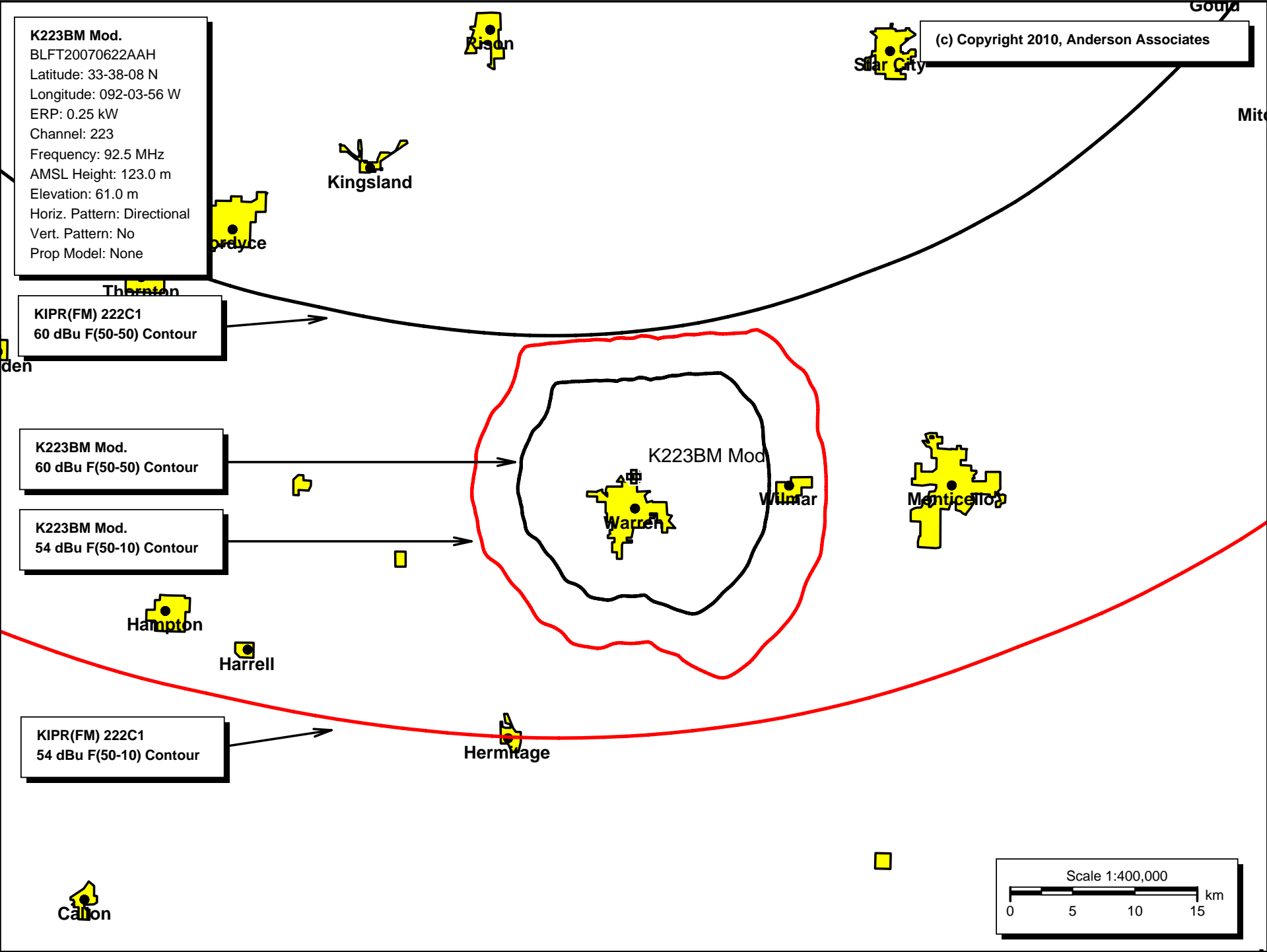
E-1 K223BM Overlap Study

REFERENCE		CH#	223D - 92.5 MHz, Pwr= 0.25 kW DA, HAAT= 63.0 M, COR= 123 M				DISPLAY DATES			
33 38 08.0 N. 92 03 56.0 W.		Average Protected F(50-50)= 10.4 km Standard Directional				DATA 11-04-10 SEARCH 11-04-10				
CH CITY	CALL	TYPE STATE	ANT AZI <--	DI ST FI LE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LI CENSEE	*IN* (Over lap in km)	*OUT*
223D Warren	K223BM	LIC _V_ AR	239.9 59.9	3.3 BLFT20070622AAH	33 37 14.0 92 05 48.0	0.075	32.9 153	9.8 Pines Broadcasting, Inc	-39.1*	-38.0*
222C1 Pine Bluff	KIPR	LIC _CN AR	353.4 173.3	82.0 BLH19860501KF	34 22 12.0 92 10 07.0	100.000 286	102.8 371	70.4 Radi o Li cense Hol ding Cbc,	-28.4*<	0.6
224A Bearden	AU7057817	VAC ____ AR	281.0 100.7	51.9 RM10268	33 43 24.0 92 36 54.0	6.000 100	41.3 162	26.8 Char les Crawford	1.4	12.3
220C3 Yorktown	NEW	CP ZVX AR	59.1 239.4	47.8 BNPED20071022BHJ	33 51 19.0 91 37 16.0	24.000 80	2.1 130	21.0 Mondy Educational Foundati	34.5	25.7
223D Greenvi lle	634771	APP _C_ MS	117.7 298.2	83.7 BNPFT20030317ADJ	33 16 58.0 91 16 07.0	0.250	33.6 90	10.0 Bi ble Broadcasting Networ	38.8	35.2
276A Dermott	KXSA-FM	LIC _CN AR	104.0 284.3	47.0 BMLH19930517KB	33 31 56.0 91 34 28.0	5.500 100	27.8 146	26.2 Pines Broadcasting, Inc.	9.5R	37.5M
223D Greenvi lle	636468	APP _C_ MS	104.8 285.4	101.4 BNPFT20030317JGY	33 23 50.0 91 00 32.9	0.115	43.5 183	13.1 Radio Assist Mini stry, Inc	46.8	50.7
224D Pine Bluff	K224CT	LIC _C_ AR	4.7 184.8	65.6 BLFT20070330AUY	34 13 26.0 92 00 24.0	0.080	9.0 115	6.3 Radio Assist Mini stry, Inc	48.7	48.1
220C3 Bastrop	KAXV	LIC _C_ LA	183.5 3.5	90.5 BLED20001120AAG	32 49 22.0 92 07 28.0	12.000 139	3.9 168	39.3 Ameri can Family Associatio	77.0	50.1
224D Pine Bluff	K224CT	CP _V_ AR	4.7 184.8	65.6 BPFT20100802AXR	34 13 26.0 92 00 24.0	0.001	2.5 72	1.8 Radio Assist Mini stry, Inc	55.1	52.5
226D Pine Bluff	K226AG	LIC _CN AR	2.2 182.2	62.9 BLFT19970505TE	34 12 03.0 92 02 21.0	0.250 63	1.1 127	8.7 Educational Medi a Foundati	53.9	53.7
223C3 Wake Vi llage	KHTA	LIC NC_ TX	262.6 81.6	178.6 BLED20001003ACY	33 24 53.0 93 58 12.0	25.000 100	114.9 187	40.3 Houston Christi an Broadcas	53.9	106.9
224A Farmervi lle	KBYO-FM	LIC DCN LA	192.6 12.4	109.1 BLH19930714KZ	32 40 31.0 92 19 10.0	6.000 100	44.5 144	28.8 Union Broadcasting Co., In	54.7	66.4
223C2 Wynne	KWYN-FM	CP _CX AR	41.7 222.5	208.7 BPH20100202ABN	35 01 43.0 90 32 31.0	50.000 148	137.8 205	52.3 East Arkansas Broadcasters	60.0	119.4
222C3 Rayvill e	KMYV	LIC _C_ LA	173.2 353.3	128.7 BLH19990603KG	32 29 01.0 91 54 10.0	11.500 148	58.5 166	39.2 Opus Broadcasting Monroe L	60.7	76.2
223A Arcadi a	KHCL	LIC _C_ LA	213.7 33.2	156.8 BMLED20070223AEF	32 27 27.0 92 59 38.0	6.000 100	80.5 183	23.5 Houston Christi an Broadcas	66.6	100.4
277C1 El Dorado	KIXB	LIC NCN AR	240.3 59.8	92.1 BLH19930915KC	33 13 20.0 92 55 28.0	100.000 174	73.0 243	61.9 Noal mark Broadcasting Corp	21.5R	70.6M
224A Lake Provi dence	AU7912447	VAC ____ LA	135.4 315.9	128.5	32 48 32.0 91 05 58.0	6.000 100	43.4 125	28.1	73.4	83.5
225C2 Cl evel and	WDTL-FM	LIC _CN MS	84.6 265.4	131.0 BLH19961015KD	33 44 17.0 90 39 29.0	50.000 150	6.0 187	52.2 M.r.s. Ventures, Inc.	113.9	77.4
277D Dewi tt	K277BE	LIC DC_ AR	42.8 223.2	96.7 BLFT20070905AAY	34 16 17.0 91 21 00.0	0.250	4.1 93	4.1 Arkansas County Broadcaste	9.5R	87.2M
223C2 Wynne	KWYN-FM	LIC NCN AR	34.9 215.7	212.9 BLH19960709KD	35 11 59.0 90 43 23.0	35.000 102	120.0 181	39.9 East Arkansas Broadcasters	83.0	139.4
224C3 Vi lonia	KASR	LIC _C_ AR	359.8 179.8	157.7 BLH20050721ABN	35 03 26.0 92 04 16.0	25.000 100	61.3 207	40.1 Creati ve Medi a Incorporate	89.0	106.9
220A Greenvi lle	WDSV	CP ZCX MS	105.9 286.6	107.2 BNPED20071019BBA	33 21 57.0 90 57 20.0	4.200 42	1.7 75	17.1 Delta Foundation, Inc.	94.4	89.0
225C2 Spri nghi ll	KTKC-FM	LIC _EN LA	242.4 61.6	148.7 BLH19991217ACJ	33 00 30.0 93 28 38.0	40.000 167	6.0 234	52.5 Leon Hunt	133.0	94.9
226D Stuttga rt	K226BH	LIC _C_ AR	26.9 207.2	110.5 BLFT20070907AGG	34 31 15.0 91 31 10.0	0.250	1.1 149	12.4 Hori zon Christi an Fellowsh	100.2	97.3

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*
220D Arkadelphia	K220EF	LIC_CN AR		299.7 119.1	110.9 BLFT19940725TD	34 07 31.0 93 06 43.0	0.250 62	1.1 152	12.3 American Family Associatio	101.2	97.5
221A Merigold	WKXY	LIC_NCX MS		77.4 258.2	128.8 BLH20080915AAK	33 52 49.0 90 42 24.0	6.000 100	2.7 140	28.0 Delta Radio LIc	115.0	99.4
223C0 Forest	WQST-FM	LIC_CY MS		119.1 300.6	284.3 BMLED19941021KZ	32 21 48.0 89 25 29.0	100.000 302	172.0 433	72.4 American Family Associatio	100.7	173.2
225C3 Hot Springs Village	KVRE	LIC_CX AR		320.8 140.2	145.1 BLH20051207AAA	34 38 34.0 93 04 08.0	25.000 100	4.3 339	41.1 Caddo Broadcasting Company	131.1	102.9

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
 Contour distances are on direct line to and from reference station. Reference zone = 2, Co to 3rd adjacent.
 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 protected contour.
 Reference station has protected zone issue: AM tower

E-2 K223BM Mod. Interference Plot to KIPR(FM) 222C1



E-3 K223BM Mod. FMOVER Analysis to KIPR(FM) 222C1

KIPR BLH19860501KF

K223BM

Channel = 222C1
Max ERP = 100 kW
RCAMSL = 371 M
N. Lat. 34 22 12.0
W. Lng. 92 10 07.0
Protected
60 dBu

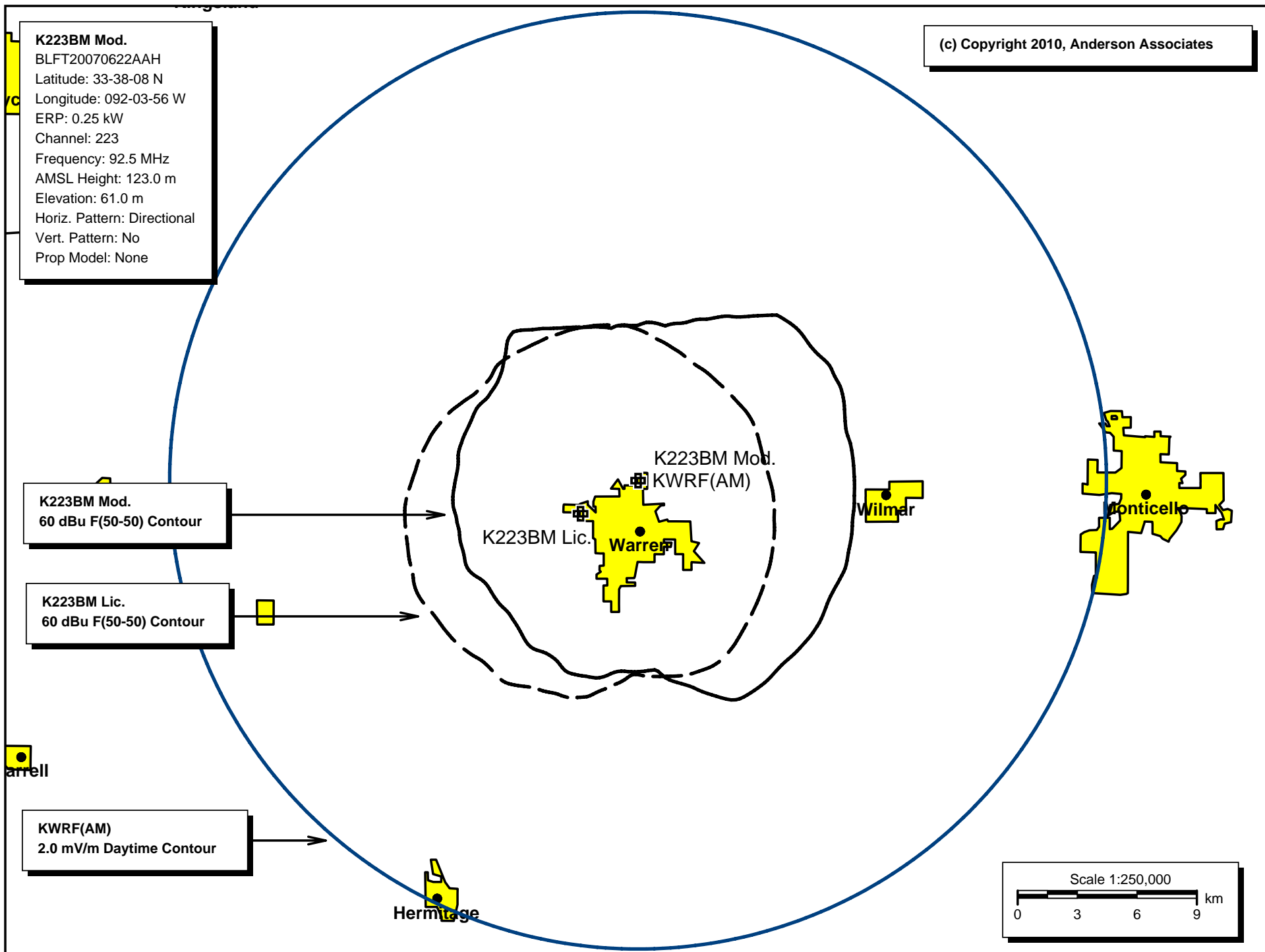
Channel = 223D
Max ERP = 0.25 kW
RCAMSL = 123 M
N. Lat. 33 38 08.0
W. Lng. 92 03 56.0
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
113.0	100.0000	0300.2	072.4	046.8	000.2500	0072.0	078.1	27.10	
114.0	100.0000	0300.3	072.4	047.1	000.2500	0072.0	076.9	27.42	
115.0	100.0000	0300.3	072.4	047.5	000.2500	0072.0	075.7	27.72	
116.0	100.0000	0300.3	072.4	047.9	000.2500	0072.0	074.5	28.03	
117.0	100.0000	0300.2	072.4	048.2	000.2500	0071.9	073.4	28.34	
118.0	100.0000	0300.0	072.4	048.6	000.2500	0071.8	072.2	28.65	
119.0	100.0000	0299.7	072.4	048.9	000.2500	0071.7	071.0	28.96	
120.0	100.0000	0299.5	072.3	049.3	000.2500	0071.7	069.8	29.28	
121.0	100.0000	0299.2	072.3	049.6	000.2500	0071.6	068.6	29.60	
122.0	100.0000	0299.0	072.3	049.9	000.2500	0071.5	067.4	29.92	
123.0	100.0000	0298.8	072.3	050.2	000.2500	0071.4	066.2	30.24	
124.0	100.0000	0298.6	072.3	050.5	000.2500	0071.3	065.0	30.56	
125.0	100.0000	0298.5	072.3	050.9	000.2500	0071.2	063.7	30.89	
126.0	100.0000	0298.3	072.3	051.2	000.2500	0071.2	062.5	31.24	
127.0	100.0000	0298.1	072.2	051.4	000.2500	0071.1	061.3	31.60	
128.0	100.0000	0297.8	072.2	051.7	000.2500	0071.1	060.1	31.98	
129.0	100.0000	0297.4	072.2	052.0	000.2500	0071.1	058.8	32.37	
130.0	100.0000	0297.0	072.1	052.2	000.2500	0071.1	057.6	32.77	
131.0	100.0000	0296.6	072.1	052.5	000.2500	0071.2	056.4	33.18	
132.0	100.0000	0296.1	072.1	052.7	000.2500	0071.2	055.1	33.60	
133.0	100.0000	0295.5	072.0	052.9	000.2500	0071.2	053.9	34.02	
134.0	100.0000	0294.9	072.0	053.1	000.2500	0071.3	052.6	34.45	
135.0	100.0000	0294.4	071.9	053.2	000.2500	0071.3	051.4	34.88	
136.0	100.0000	0294.0	071.9	053.4	000.2500	0071.3	050.1	35.30	
137.0	100.0000	0293.7	071.9	053.6	000.2500	0071.4	048.9	35.73	
138.0	100.0000	0293.2	071.8	053.7	000.2500	0071.4	047.6	36.15	
139.0	100.0000	0292.8	071.8	053.8	000.2500	0071.5	046.4	36.58	
140.0	100.0000	0292.4	071.8	053.9	000.2500	0071.5	045.1	37.02	
141.0	100.0000	0292.2	071.8	054.0	000.2500	0071.5	043.9	37.48	
142.0	100.0000	0292.1	071.8	054.0	000.2500	0071.6	042.6	37.94	
143.0	100.0000	0292.0	071.7	054.1	000.2500	0071.6	041.4	38.42	
144.0	100.0000	0291.9	071.7	054.1	000.2500	0071.6	040.1	38.91	
145.0	100.0000	0291.6	071.7	054.1	000.2500	0071.6	038.9	39.41	
146.0	100.0000	0291.1	071.7	054.0	000.2500	0071.5	037.6	39.92	
147.0	100.0000	0290.3	071.6	053.8	000.2500	0071.5	036.4	40.43	
148.0	100.0000	0289.4	071.5	053.5	000.2500	0071.4	035.1	40.95	
149.0	100.0000	0288.6	071.5	053.3	000.2500	0071.3	033.9	41.48	
150.0	100.0000	0287.9	071.4	052.9	000.2500	0071.2	032.7	42.02	
151.0	100.0000	0287.3	071.4	052.5	000.2500	0071.2	031.4	42.58	
152.0	100.0000	0286.5	071.3	052.1	000.2500	0071.1	030.2	43.19	
153.0	100.0000	0285.6	071.2	051.5	000.2500	0071.1	029.0	43.86	
154.0	100.0000	0284.5	071.1	050.8	000.2500	0071.3	027.8	44.59	
155.0	100.0000	0283.4	071.0	050.0	000.2500	0071.5	026.6	45.37	
156.0	100.0000	0282.5	071.0	049.1	000.2500	0071.7	025.5	46.19	
157.0	100.0000	0281.7	070.9	048.1	000.2500	0071.9	024.3	47.04	
158.0	100.0000	0281.4	070.9	047.0	000.2500	0072.0	023.2	47.90	
159.0	100.0000	0281.2	070.9	045.8	000.2500	0071.8	022.0	48.76	

160.0	100.0000	0281.1	070.8	044.4	000.2500	0071.4	020.9	49.59
161.0	100.0000	0280.9	070.8	042.8	000.2500	0070.7	019.8	50.39
162.0	100.0000	0280.8	070.8	041.0	000.2500	0069.8	018.7	51.17
163.0	100.0000	0280.6	070.8	038.9	000.2389	0068.3	017.7	51.69
164.0	100.0000	0280.4	070.8	036.4	000.2157	0066.7	016.7	51.90
165.0	100.0000	0280.1	070.8	033.6	000.1902	0065.5	015.8	52.02
166.0	100.0000	0279.8	070.7	030.4	000.1631	0065.7	014.9	51.95
167.0	100.0000	0279.5	070.7	026.7	000.1396	0066.5	014.1	52.34
168.0	100.0000	0279.1	070.7	022.5	000.1158	0066.5	013.4	52.49
169.0	100.0000	0278.6	070.6	017.9	000.0937	0068.4	012.8	52.64
170.0	100.0000	0278.0	070.6	012.7	000.0742	0071.7	012.3	52.73
171.0	100.0000	0277.4	070.5	007.1	000.0636	0075.3	011.9	53.02
172.0	100.0000	0277.0	070.5	001.3	000.0606	0075.6	011.7	53.22
173.0	100.0000	0276.5	070.5	355.2	000.0624	0074.0	011.6	53.29
174.0	100.0000	0275.9	070.4	349.2	000.0678	0070.5	011.7	53.14
175.0	100.0000	0275.3	070.4	343.3	000.0891	0064.8	011.9	53.29
176.0	100.0000	0274.7	070.3	337.8	000.1142	0060.4	012.3	53.27
177.0	100.0000	0274.2	070.3	332.6	000.1437	0057.2	012.7	53.09
178.0	100.0000	0273.5	070.2	328.0	000.1767	0055.9	013.4	52.94
179.0	100.0000	0272.9	070.2	323.8	000.2137	0054.9	014.1	52.69
180.0	100.0000	0272.2	070.1	320.1	000.2492	0054.8	014.8	52.38
181.0	100.0000	0271.5	070.0	316.8	000.2500	0053.1	015.7	51.54
182.0	100.0000	0270.8	070.0	314.0	000.2500	0049.6	016.6	50.10
183.0	100.0000	0270.2	069.9	311.5	000.2500	0047.4	017.6	48.83
184.0	100.0000	0269.6	069.9	309.3	000.2500	0045.7	018.6	47.63
185.0	100.0000	0269.1	069.8	307.4	000.2500	0044.7	019.6	46.56
186.0	100.0000	0268.6	069.8	305.7	000.2500	0044.1	020.7	45.57
187.0	100.0000	0268.2	069.8	304.3	000.2500	0043.8	021.8	44.65
188.0	100.0000	0267.9	069.7	303.0	000.2500	0043.7	022.9	43.79
189.0	100.0000	0267.6	069.7	301.8	000.2500	0043.8	024.0	42.98
190.0	100.0000	0267.4	069.7	300.8	000.2500	0043.9	025.1	42.19
191.0	100.0000	0267.2	069.7	299.9	000.2500	0043.9	026.3	41.42
192.0	100.0000	0267.1	069.7	299.2	000.2500	0044.0	027.4	40.70
193.0	100.0000	0267.2	069.7	298.5	000.2500	0044.2	028.6	40.05
194.0	100.0000	0267.5	069.7	297.8	000.2500	0044.5	029.8	39.46
195.0	100.0000	0268.2	069.8	297.2	000.2500	0044.8	030.9	38.94
196.0	100.0000	0269.1	069.8	296.6	000.2500	0045.1	032.1	38.48
197.0	100.0000	0269.9	069.9	296.2	000.2500	0045.4	033.3	38.03
198.0	100.0000	0270.6	070.0	295.8	000.2500	0045.6	034.5	37.58
199.0	100.0000	0271.2	070.0	295.5	000.2500	0045.7	035.7	37.13
200.0	100.0000	0271.8	070.1	295.2	000.2500	0045.9	036.9	36.69
201.0	100.0000	0272.4	070.1	295.0	000.2500	0045.9	038.1	36.25
202.0	100.0000	0273.0	070.2	294.8	000.2500	0046.0	039.4	35.82
203.0	100.0000	0273.7	070.2	294.7	000.2500	0046.1	040.6	35.39
204.0	100.0000	0274.5	070.3	294.5	000.2500	0046.1	041.8	34.98
205.0	100.0000	0275.2	070.4	294.5	000.2500	0046.1	043.0	34.57
206.0	100.0000	0275.8	070.4	294.4	000.2500	0046.1	044.2	34.18
207.0	100.0000	0276.2	070.4	294.5	000.2500	0046.1	045.5	33.80
208.0	100.0000	0276.3	070.4	294.5	000.2500	0046.1	046.7	33.43
209.0	100.0000	0276.3	070.4	294.7	000.2500	0046.1	047.9	33.07
210.0	100.0000	0276.2	070.4	294.8	000.2500	0046.0	049.1	32.73
211.0	100.0000	0276.1	070.4	294.9	000.2500	0046.0	050.4	32.38
212.0	100.0000	0276.0	070.4	295.1	000.2500	0045.9	051.6	32.03
213.0	100.0000	0275.9	070.4	295.3	000.2500	0045.8	052.8	31.68
214.0	100.0000	0275.7	070.4	295.5	000.2500	0045.7	054.0	31.33
215.0	100.0000	0275.3	070.4	295.8	000.2500	0045.6	055.2	30.99
216.0	100.0000	0275.0	070.3	296.0	000.2500	0045.5	056.4	30.64
217.0	100.0000	0274.8	070.3	296.3	000.2500	0045.4	057.6	30.30
218.0	100.0000	0274.8	070.3	296.5	000.2500	0045.2	058.8	29.97
219.0	100.0000	0274.9	070.3	296.7	000.2500	0045.1	060.0	29.64
220.0	100.0000	0275.0	070.3	297.0	000.2500	0044.9	061.2	29.32
221.0	100.0000	0275.1	070.3	297.3	000.2500	0044.8	062.4	29.01
222.0	100.0000	0275.1	070.3	297.5	000.2500	0044.6	063.6	28.71

223.0	100.0000	0275.2	070.4	297.8	000.2500	0044.5	064.8	28.41
224.0	100.0000	0275.2	070.4	298.1	000.2500	0044.3	066.0	28.13
225.0	100.0000	0275.2	070.4	298.4	000.2500	0044.2	067.2	27.85
226.0	100.0000	0275.1	070.3	298.7	000.2500	0044.1	068.3	27.58
227.0	100.0000	0275.0	070.3	299.1	000.2500	0044.0	069.5	27.31
228.0	100.0000	0275.1	070.3	299.4	000.2500	0044.0	070.7	27.05
229.0	100.0000	0275.3	070.4	299.7	000.2500	0043.9	071.8	26.79
230.0	100.0000	0275.6	070.4	300.0	000.2500	0043.9	073.0	26.53
231.0	100.0000	0275.8	070.4	300.3	000.2500	0043.9	074.1	26.27
232.0	100.0000	0276.0	070.4	300.7	000.2500	0043.9	075.3	26.02

E-4 K223BM Mod. 60 dBu Contour Plots



E-5 K223BM PSI FML-3 Directional Antenna Pattern

11-03-2010

RMS(V)= .94

Graph is Relative Field

Azi	Field	dBk	kW
000	0.490	-12.2	0.060
010	0.510	-11.9	0.065
020	0.640	-09.9	0.102
030	0.800	-08.0	0.160
040	1.000	-06.0	0.250
050	1.000	-06.0	0.250
060	1.000	-06.0	0.250
070	1.000	-06.0	0.250
080	1.000	-06.0	0.250
090	1.000	-06.0	0.250
100	1.000	-06.0	0.250
110	1.000	-06.0	0.250
120	1.000	-06.0	0.250
130	1.000	-06.0	0.250
140	1.000	-06.0	0.250
150	1.000	-06.0	0.250
160	1.000	-06.0	0.250
170	1.000	-06.0	0.250
180	1.000	-06.0	0.250
190	1.000	-06.0	0.250
200	1.000	-06.0	0.250
210	1.000	-06.0	0.250
220	1.000	-06.0	0.250
230	1.000	-06.0	0.250
240	1.000	-06.0	0.250
250	1.000	-06.0	0.250
260	1.000	-06.0	0.250
270	1.000	-06.0	0.250
280	1.000	-06.0	0.250
290	1.000	-06.0	0.250
300	1.000	-06.0	0.250
310	1.000	-06.0	0.250
320	1.000	-06.0	0.250
330	0.800	-08.0	0.160
340	0.640	-09.9	0.102
350	0.510	-11.9	0.065

