

TECHNICAL NARRATIVE

This Technical Statement and attached exhibits were prepared on behalf of Zimmer Midwest Communications, Inc. ("ZMCI"), licensee of station KBFL-FM, Channel 260A, Facility ID No. 33654, Fair Grove, MO. ZMCI herein proposes to modify the license of KBFL-FM to operate on non-adjacent Channel 229A, Fair Grove, Missouri.

The attached KBFL-FM Channel 229A Reference Site Channel Study shows that in order to facilitate the modification a change must be made to the FCC FM database. Herein, ZMCI is proposing new reference site coordinates for KRMS-FM, Channel 228C2, Facility ID No. 47951, Osage Beach, Missouri. The proposed reference site coordinates for KRMS-FM are 37° 11' 53" N. Latitude and 92° 34' 30" W. Longitude (NAD 83). These coordinates are fully spaced to all full power FM stations and allotments. The KBFL-FM Channel 229A reference site coordinates are 37° 25' 13.8" N. Latitude and 93° 18' 19.8" W. Longitude (NAD 83) and are fully spaced to all full power FM stations and allotments including the KRMS-FM reference site. Channel studies are provided for the KRMS-FM reference site as well as the KBFL-FM reference and application sites. Hypothetical site city grade exhibits are provided for both KRMS-FM and KBFL-FM. Both maps demonstrate that the proposed reference site hypothetical 70 dBu contours for KRMS-FM and KBFL-FM reach 100 percent of their respective communities of license.

ZMCI is proposing to implement this change at an existing tower site. There are no proposed changes to the tower. As such, the Federal Aviation Administration will not be apprised of this proposal. The coordinates of the proposed application site are 37° 17'42.3" North Latitude, 93°

09° 10.5" West Longitude (NAD 83). The existing tower is 153.6 meters in overall height and is registered with the Commission and assigned Antenna Structure Registration Number (ASR) 1003441. The proposed KBFL-FM facility would operate with 3.7 kW directional at 103 meters above ground level and 128.36 meters HAAT. The proposed KBFL-FM application site is short spaced to full power FM stations KSPQ, Channel 230C1, West Plains, Missouri and KISR(CP), Channel 229C1, Fort Smith, Arkansas. ZMCI respectfully requests Section 73.215 contour protection with respect to KSPQ and KISR. Section 73.215 contour protection exhibits demonstrate there is no prohibited contour overlap. The FCC F(50,50) 70 dBu contour covers 100 percent of the Fair Grove corporate boundaries.

Exhibits provided show the proposed KBFL-FM facility complies with the Commission's radio frequency emission limits and are attached as exhibits.

KBFL-FM CH229A Reference Site Channel Study

REFERENCE						DISPLAY DATES		
37 25 13.8 N.		CLASS = A Int = A				DATA 01-04-23		
93 18 19.8 W.		Current Spacings to 3rd Adj.				SEARCH 01-07-23		
----- Channel 229 - 93.7 MHz -----								
Call	Channel	Location		Azi	Dist	FCC	Margin	
Lat.	Lng.	Ant	Power		HAAT			

K229AE	LIC	229D	Springfield	MO	175.0	23.5	84.5	-61.0
37 12 33.1	93 16 56.6	CN	0.140 kW			104 M		
			David Ingles Ministries, I	BLFT19980624TH				
K229DL	LIC	229D	Reeds Spring	MO	189.0	79.7	84.5	-4.8
36 42 39.1	93 26 47.2	CN	0.215 kW	0 M				
			Bott Communications, Inc.	0000149463				
KRMS-FM	LIC	228C2	Osage Beach	MO	36.5	103.2	105.5	-2.3
38 09 52.1	92 36 12.7	CN	39.000 kW			168 M		
			Viper Communications, Inc.	BLH20000327ABP				
Note: See KRMS-FM ALO - Reference Site shown below								
KSPQ	ALO	230C1	West Plains	MO	110.1	132.5	132.5	0.01
37 00 12.2	91 54 24.5		0.000 kW			299 M		
			Missouri Ozarks Radio Netw					
KSPQ	LIC	230C1	West Plains	MO	110.1	132.5	132.5	0.01
37 00 12.1	91 54 24.5	CN	100.000 kW			198 M		
			Missouri Ozarks Radio Netw	BLH19890201KC				
KRMS-FM	ALO	228C2	Osage Beach	MO	36.4	107.6	105.5	2.1
38 11 53.0	92 34 30.0		50.000 kW			150 M		
			Viper Communications, Inc.					
KJMK	ALO	230C2	Webb City	MO	259.8	108.2	105.5	2.7
37 14 34.2	94 30 21.8		0.000 kW			150 M		
			Zimmer Radio, Inc.					
KJMK	LIC	230C2	Webb City	MO	259.8	108.2	105.5	2.7
37 14 34.2	94 30 21.8	CN	48.000 kW			154 M		
			Zimmer Radio, Inc.	BLH19890208KB				
K227AO	LIC	227D	Springfield	MO	182.5	28.5	25.5	3.0
37 09 48.8	93 19 11.4	CN	0.250 kW	0 M				
			Zimmer Radio Of Mid-Missou	BLFT20170126ADL				
KISR	CP	229C1	Fort Smith	AR	201.6	203.9	199.5	4.4
35 42 36.0	94 08 16.0	CN	88.000 kW			316 M		
			Stereo 93 Inc.	0000137208				
KISR	LIC	229C	Fort Smith	AR	205.1	232.0	225.5	6.5
35 31 22.3	94 23 32.7	CN	100.000 kW			381 M		
			Stereo 93 Inc.	BLH19800714AG				
KISR	ALO	229C	Fort Smith	AR	205.1	232.0	225.5	6.5
35 31 22.3	94 23 32.8		0.000 kW			600 M		
			Stereo 93 Inc.					
KOMT	LIC-N	228C2	Lakeview	AR	145.0	126.3	105.5	20.8
36 29 13.2	92 29 39.6	NCN	16.000 kW			188 M		
			John M. Dowdy	BLH20130923ACT				

Call	Channel	Location		Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power		HAAT		
KPIO-FM 38 14 23.1	LIC 94 56 36.9	229C3 Pleasanton CN	25.000 kW BLED20090424AAI	KS 302.8	170.5 100 M	141.5	29.0
Catholic Radio Network, In							
K231BF 37 56 52.1	LIC 93 12 29.7	231D Hermitage CN	0.250 kW BLFT20050408AAQ	MO 8.3	59.1 81 M	25.5	33.7
Community Broadcasting, In							
K231CI 36 43 52.9	LIC 93 10 04.1	231D Branson CN	0.250 kW 0000149779	MO 170.9 0 M	77.5	25.5	52.0
Radio Training Network, In							
KIGL 36 28 03.2	LIC 94 10 25.7	227C1 Seligman CN	100.000 kW BLH19940601KB	MO 216.3	131.0 150 M	74.5	56.5
Ihm Licenses, LLC							
KIGL 36 28 03.3	ALO 94 10 25.7	227C1 Seligman CN	0.000 kW	MO 216.3	131.0 299 M	74.5	56.5
Ihm Licenses, LLC							
K230BI 38 14 17.1	LIC 93 19 06.7	230D Warsaw CN	0.250 kW BLFT20161215ABK	MO 359.3 0 M	90.8	33.5	57.3
Community Broadcasting, In							

KBFL-FM Ref. Site

Buffalo, MO
Latitude: 37-25-13.80 N
Longitude: 093-18-19.80 W
Channel: 229
Frequency: 93.7 MHz
AMSL Height: 487.7 m
Elevation: 367.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KBFL-FM Channel 229A Fair Grove, Missouri
Hypothetical 70 dBu contour City Grade Exhibit
(16.16 km. radius shown)

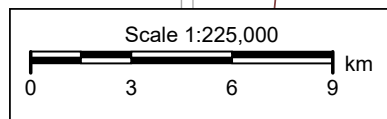
16.2 km. hypothetical FCC 70 dBu contour

+ KBFL-FM Ref. Site

Fair Grove

Willard

HORIZON
BROADCAST SOLUTIONS



V-Soft Communications LLC ©

KBFL-FM Ref. Site

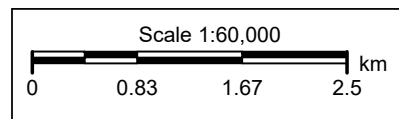
Buffalo, MO
Latitude: 37-25-13.80 N
Longitude: 093-18-19.80 W
Channel: 229
Frequency: 93.7 MHz
AMSL Height: 487.7 m
Elevation: 367.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KBFL-FM Channel 229A Fair Grove, Missouri
Hypothetical 70 dBu contour City Grade Exhibit
(16.16 km. radius shown)

Fair Grove

16.16 km. radius

HORIZON
BROADCAST SOLUTIONS



V-Soft Communications LLC ©

KRMS-FM CH228C2 Reference Site Channel Study

REFERENCE					DISPLAY DATES		
38 11 53.0 N.					CLASS = C2 Int = B	DATA 01-06-23	
92 34 30.0 W.					Current Spacings to 3rd Adj.	SEARCH 01-07-23	
----- Channel 228 - 93.5 MHz -----							
Call	Channel	Location		Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power		HAAT		

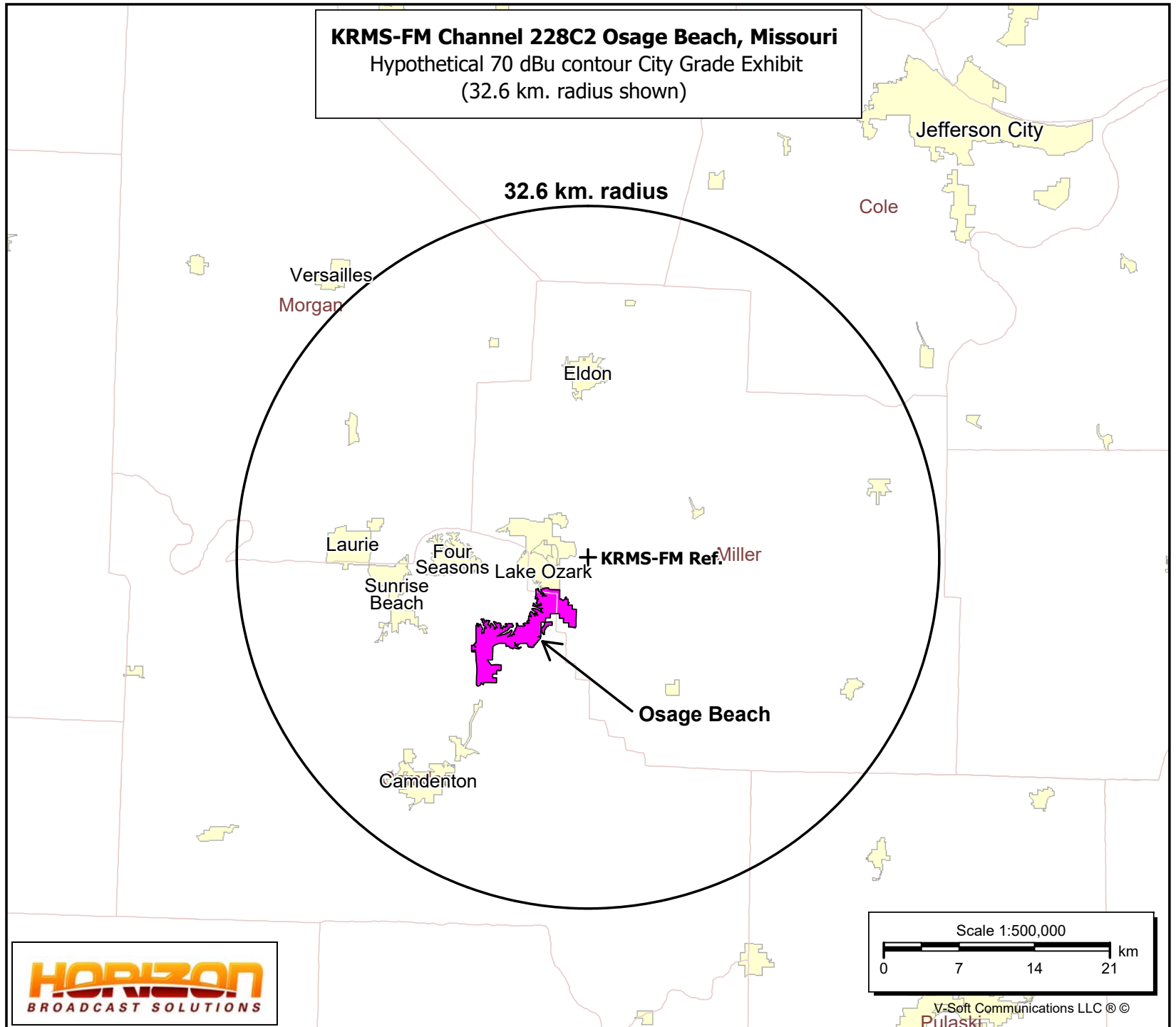
KRMS-FM	LIC	228C2	Osage Beach	MO	213.7	4.5	189.5
38 09 52.1	92 36 12.7	CN	39.000 kW		168 M		-185.0
Viper Communications, Inc.				BLH20000327ABP			
KOMT	LIC-N	228C2	Lakeview	AR	177.8	190.0	189.5
36 29 13.2	92 29 39.6	NCN	16.000 kW		188 M		0.53
John M. Dowdy				BLH20130923ACT			
KBFL-FM	ALO	229A	Fair Grove	MO	216.8	107.6	105.5
37 25 13.8	93 18 19.8		50.0 kW	150 M			2.1
Zimmer Midwest Communicati							
K231BF	LIC	231D	Hermitage	MO	243.5	62.1	53.5
37 56 52.1	93 12 29.7	CN	0.250 kW		81 M		8.6
Community Broadcasting, In				BLFT20050408AAQ			
KRTK	LIC-N	227C2	Hermann	MO	63.1	139.2	129.5
38 45 14.3	91 08 42.4	NCN	50.000 kW		96 M		9.7
East Central Broadcasting,				BLH20140908AFI			
K230BI	LIC	230D	Warsaw	MO	274.1	65.3	53.5
38 14 17.1	93 19 06.7	CN	0.250 kW	0 M			11.8
Community Broadcasting, In				BLFT20161215ABK			
KRTK	CP -N	227C2	Hermann	MO	60.8	143.6	129.5
38 49 03.0	91 07 48.0	NCN	50.000 kW		146 M		14.1
East Central Broadcasting,				0000178793			
KMXV	LIC	227C0	Kansas City	MO	299.0	191.2	175.5
39 00 57.0	94 30 24.8	CN	100.000 kW		325 M		15.7
Mgtf Media Company, LLC				BLH19870318KG			
KMXV	ALO	227C0	Kansas City	MO	299.0	191.2	175.5
39 00 57.0	94 30 24.8		0.000 kW		450 M		15.7
Mgtf Media Company, LLC							
KWJK	LIC-N	226C3	Boonville	MO	360.0	82.6	55.5
38 56 31.1	92 34 32.7	NCN	7.200 kW		126 M		27.1
Billings Broadcasting, LLC				BLH20070516ABI			
DKZJF	ALO	281A	Jefferson City	MO	39.7	53.3	14.5
38 34 00.1	92 11 00.7		0.000 kW		100 M		38.8
Cumulus Licensing LLC							
K281CT	CP	281D	California	MO	340.5	54.5	14.5
38 39 38.1	92 47 04.7	CN	0.250 kW	0 M			40.0
Mid-Missouri Radio, LLC				0000161245			
KSSZ	LIC	230C3	Fayette	MO	4.9	95.8	55.5
39 03 28.1	92 28 49.6	CN	25.000 kW		100 M		40.3
Zimmer Radio Of Mid-Missou				BLH19960923KD			

Call	Channel	Location	Power	Azi	Dist	FCC	Margin
Lat.	Lng.	Ant			HAAT		
KSD	ALO 229C1	St. Louis	MO	77.4	200.2	157.5	42.7
38 34 05.2	90 19 55.4		0.000 kW		299 M		
Ihm Licenses, LLC							
KSSZ	ALO 230C3	Fayette	MO	5.0	98.7	55.5	43.2
39 05 00.1	92 28 30.7		0.000 kW		100 M		
Zimmer Radio Of Mid-Missou							
KSD	LIC-N 229C1	St. Louis	MO	77.3	200.9	157.5	43.4
38 34 27.9	90 19 31.9	NCN	74.000 kW		309 M		
Ihm Licenses, LLC BLH20150311AAE							
KKID	LIC 225C3	Salem	MO	118.0	109.9	55.5	54.4
37 43 45.2	91 28 23.5	CN	21.000 kW		110 M		
Steven K. Wheeler And Jill BMLH20080821ABU							
KKID	ALO 225C3	Salem	MO	124.2	110.9	55.5	55.4
37 38 01.2	91 32 05.5		0.000 kW		100 M		
Steven K. Wheeler And Jill							

KRMS-FM Ref. Site

Osage Beach, MO
Latitude: 38-11-53 N
Longitude: 092-34-30 W
Channel: 228
Frequency: 93.5 MHz
AMSL Height: 379.23 m
Elevation: 256.33 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KRMS-FM Channel 228C2 Osage Beach, Missouri
Hypothetical 70 dBu contour City Grade Exhibit
(32.6 km. radius shown)



KBFL-FM CH229A Application Site Channel Study

REFERENCE	DISPLAY DATES
37 17 42.3 N.	DATA 01-04-23
93 09 10.5 W.	SEARCH 01-07-23

----- Channel 229 - 93.7 MHz -----							
Call	Channel	Location		Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power		HAAT		

K229AE LIC 229D Springfield MO 230.2 14.9 84.5 -69.6
37 12 33.1 93 16 56.6 CN 0.140 kW 104 M
David Ingles Ministries, I BLFT19980624TH

KSPQ	LIC	230C1	West Plains	MO	106.0	115.3	132.5	-17.2
37 00	12.1	91 54	24.5	CN	100.000 kW	198 M		
Missouri Ozarks Radio Netw				BLH19890201KC				

Note: Adopt Section 73.215 Contour Protection with respect to KSPQ

K229DL LIC 229D Reeds Spring MO 202.0 69.9 84.5 -14.6
36 42 39.1 93 26 47.2 CN 0.215 kW 0 M
Bott Communications, Inc. 0000149463

K227AO LIC 227D Springfield MO 225.3 20.8 25.5 -4.7
37 09 48.8 93 19 11.4 CN 0.250 kW 0 M
Zimmer Radio Of Mid-Missou BLFT20170126ADL

KISR CP 229C1 Fort Smith AR 206.8 196.8 199.5 -2.7
35 42 36.0 94 08 16.0 CN 88.000 kW 316 M
Stereo 93 Inc. 0000137208

Note: Adopt Section 73.215 Contour Protection with respect to KISR

KISR LIC 229C Fort Smith AR 209.7 225.9 225.5 0.41
35 31 22.3 94 23 32.7 CN 100.000 kW 381 M
Stereo 93 Inc. BLH19800714AG

KOMT LIC-N 228C2 Lakeview AR 146.7 107.2 105.5 1.7
36 29 13.2 92 29 39.6 NCN 16.000 kW 188 M
John M. Dowdy BLH20130923ACT

KRMS-FM	LIC	228C2	Osage Beach	MO	26.4	108.0	105.5	2.5
38 09 52.1	92 36 12.7	CN	39.000 kW			168 M		
Viper Communications, Inc.			BLH20000327ABP					

KJMK LIC 230C2 Webb City MO 267.6 120.2 105.5 14.7
37 14 34.2 94 30 21.8 CN 48.000 kW 154 M
Zimmer Radio, Inc. BLH19890208KB

K231CI	LIC	231D	Branson	MO	181.2	62.6	25.5	37.1
36 43 52.9	93 10 04.1	CN	0.250 kW	0 M				
Radio Training Network, Inc				0000149779				

K231BF	LIC	231D	Hermitage	MO	356.2	72.6	25.5	47.1
37 56	52.1	93 12	29.7 CN	0.250 kW		81 M		
Community Broadcasting, Inc				BLFT20050408AAO				

KPIO-FM	LIC	229C3	Pleasanton	KS	304.3	189.4	141.5	47.9
38 14 23.1	94 56 36.9	CN	25.000 kW			100 M		
Catholic Radio Network, Inc				BLED20090424AAI				

KIGL	LIC	227C1	Seligman	MO	224.9	129.3	74.5	54.8
36	28	03.2	94 10 25.7	CN	100.000 kW	150 M		
Ihm Licenses, LLC				BLH19940601KB				

KBFL-FM Appl.

Fair Grove, MO

Latitude: 37-17-42.30 N

Longitude: 093-09-10.70 W

ERP: 3.70 kW

HAAT: 128.36 m

Channel: 229

Frequency: 93.7 MHz

AMSL Height: 530.9 m

Elevation: 427.9 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model: FCC Model

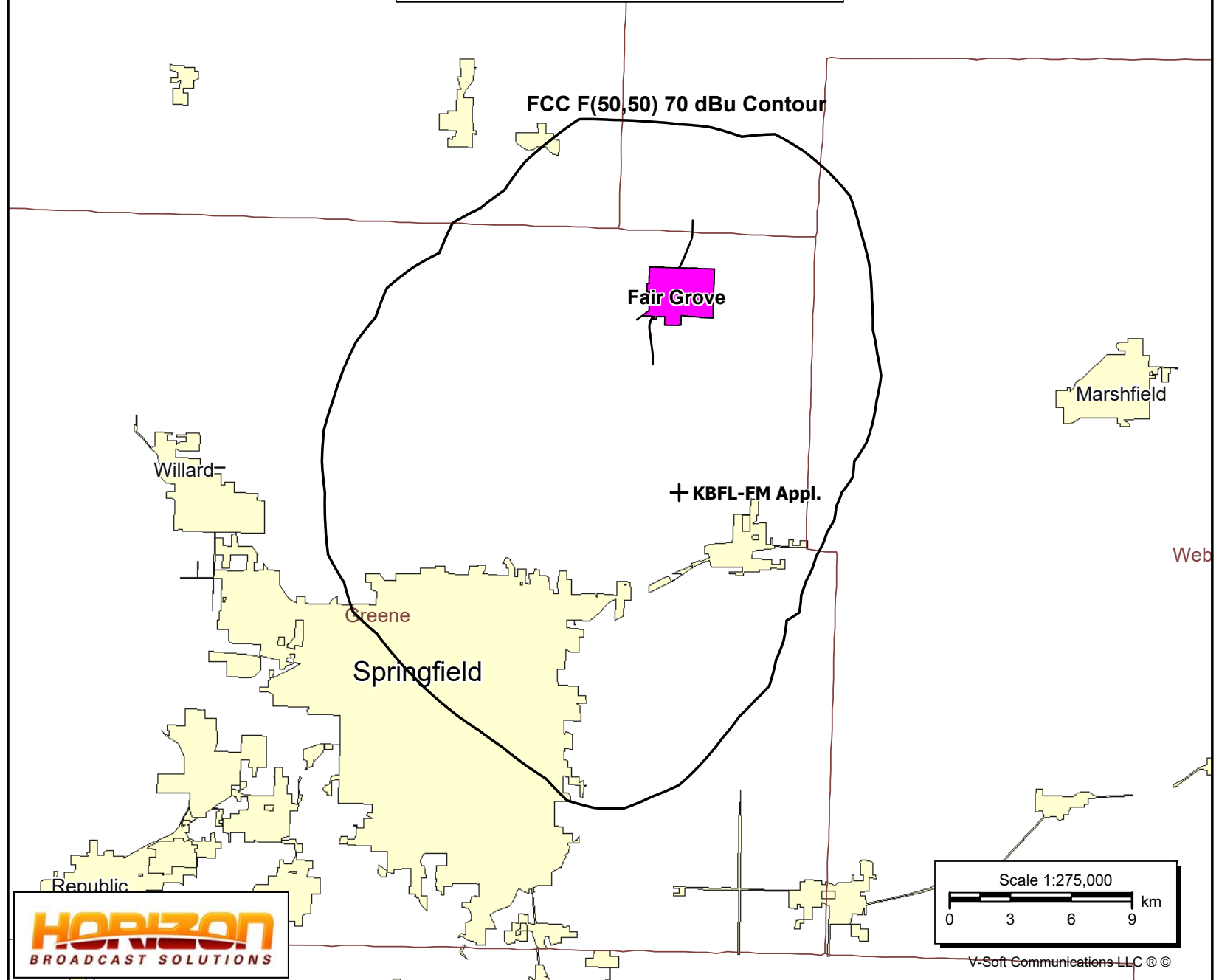
Loc. Variability: 50.0%

Time Variability: 50.0%

HAAT Mthd: FCC

Section 73.315 Community Coverage Exhibit

FCC F(50,50) 70 dBu Contour

**HORIZON**
BROADCAST SOLUTIONSScale 1:275,000
0 3 6 9 km

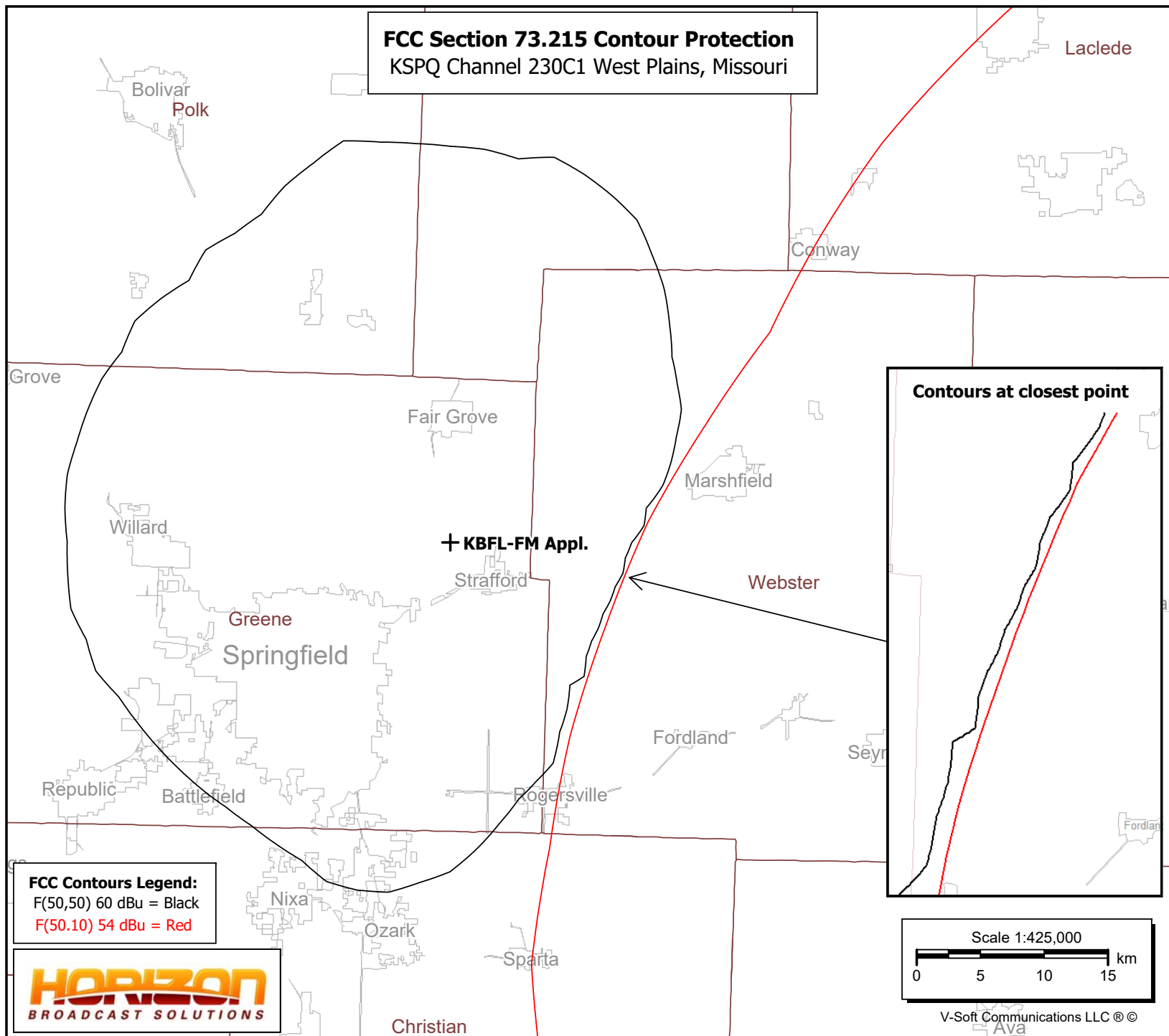
V-Soft Communications LLC ©

KBFL-FM Appl.

Fair Grove, MO
Latitude: 37-17-42.30 N
Longitude: 093-09-10.50 W
ERP: 3.70 kW
HAAT: 129.12
Channel: 229
Frequency: 93.7 MHz
AMSL Height: 531.65 m
Elevation: 428.65 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KSPQ

West Plains, MO
BLH19890201KC
Latitude: 37-00-12.10 N
Longitude: 091-54-24.50 W
ERP: 100.00 kW
HAAT: 299 m
Channel: 230
Frequency: 93.9 MHz
AMSL Height: 673.0 m
Elevation: 463.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

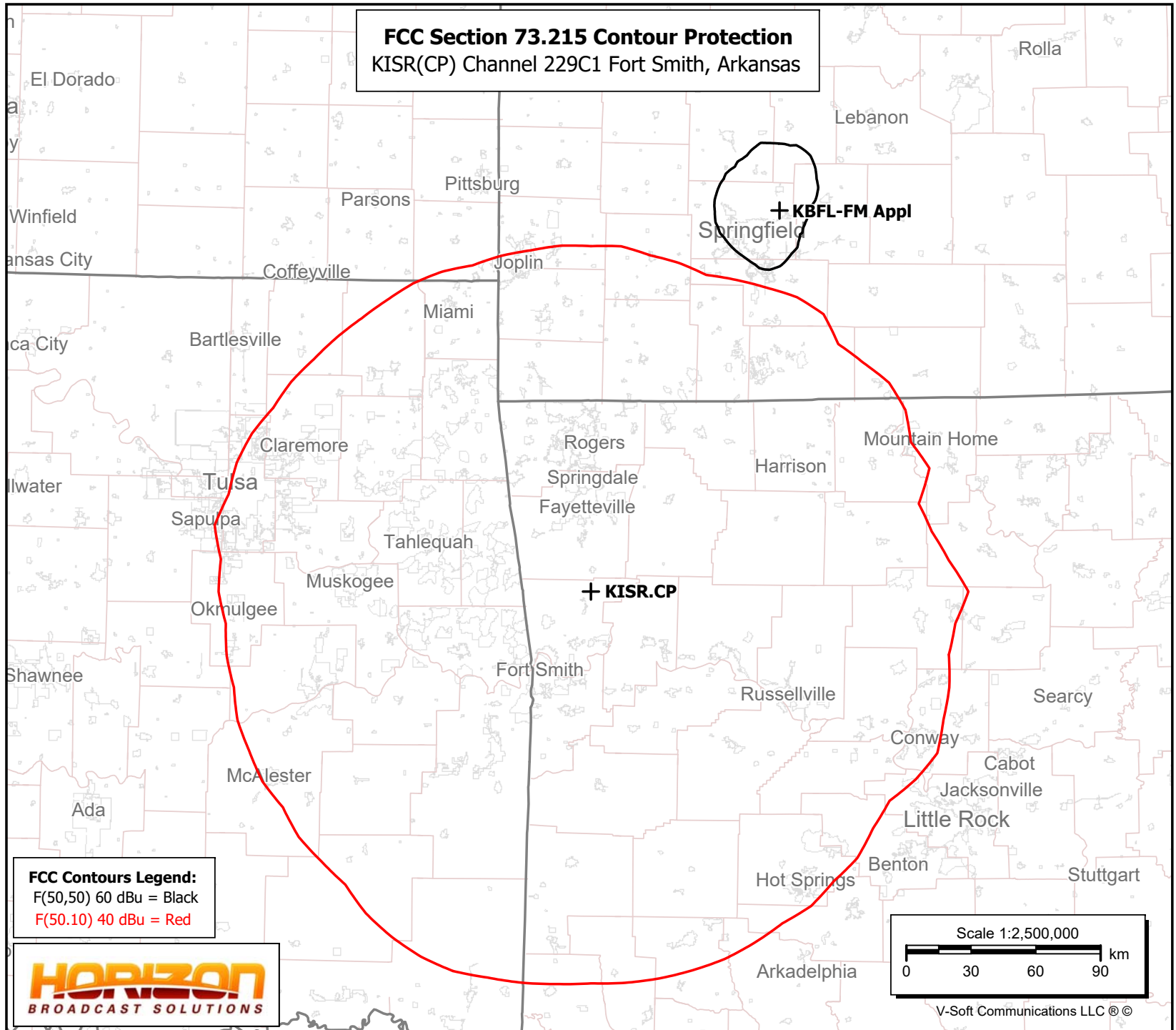
FCC Section 73.215 Contour Protection
KSPQ Channel 230C1 West Plains, Missouri

KBFL-FM Appl

Fair Grove, MO
Latitude: 37-17-42.30 N
Longitude: 093-09-10.50 W
ERP: 3.70 kW
HAAT: 128.37
Channel: 229
Frequency: 93.7 MHz
AMSL Height: 530.9 m
Elevation: 427.9 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KISR.CP

Fort Smith, AR
0000137208
Latitude: 35-42-36 N
Longitude: 094-08-16 W
ERP: 88.00 kW
HAAT: 316.0
Channel: 229
Frequency: 93.7 MHz
AMSL Height: 745.0 m
Elevation: 600.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

FCC Section 73.215 Contour Protection
KISR(CP) Channel 229C1 Fort Smith, Arkansas

**Human Exposure to Radiofrequency Electromagnetic Field
&
Section 106 Compliance
(Environmental)**

A study has been made to determine whether this proposal is in compliance with 47 C.F.R. 1.1307 of the Commission's rules and with OET Bulletin #65, dated August 1997, regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. Zimmer Midwest Communications, Inc., licensee of KBFL-FM seeks to modify the license of KBFL-FM (Facility ID# 33654) licensed to Buffalo, Missouri to operate on Channel 229A (93.7 MHz), licensed to Fair Grove, Missouri. The transmitting site is an existing tower 156.3 meters in overall height. This tower is registered with the FCC's Antenna Structure Registration (ASR) number 1003441. The tower is located at 37° 17' 42.3" N ~ 93° 09' 10.5" W (NAD 83). The proposed antenna is a side mounted ERI Model LP-2E two bay full wave circularly polarized directional antenna. KBFL-FM will operate with 3.7 kilowatts ERP at 103 meters above ground level and 128.36 meters HAAT. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of § 1.1306 of the FCC Rules.

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. The ERI antenna is included in the Antenna Types in the OET's updated FM Model Program under Type 3 Opposed "U" dipole. Using the EPA Type 3 selection, the maximum calculated signal density near the tower at two meters above ground level attributable to the proposed KBFL-FM facility is $3.481 \mu\text{W}/\text{cm}^2$ at 67.8 meters, which is 1.741 percent of the general population/uncontrolled maximum permitted exposure limit.

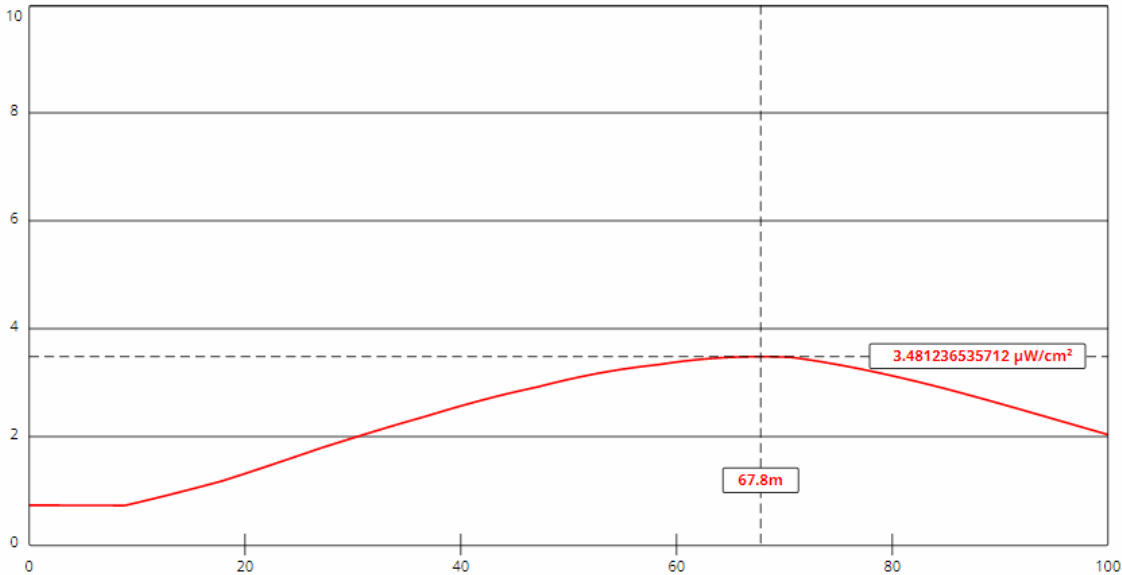
This is well below the five percent threshold limit described in 1.1307(b) regarding sites with multiple emitters, which excludes applicant from responsibility for taking any corrective action in areas where the proposal's contribution is less than five percent.

The applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

FM Model

- Radio Frequency Safety
- FM Model
- FCC Policy on Human Exposure
- RF Safety FAQ
- Body Tissue Dielectric Parameters
- RF Safety Highlighted Releases

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data published in 1985 by the EPA. [Show More....](#)



View Tabular Results +

Channel Selection	Channel 229 (93.7 MHz) ▼		
Antenna Type +	EPA Type 3: Opposed U Dipole ▼		
Height (m)	<input type="text" value="103"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="3700"/>	ERP-V (W)	<input type="text" value="3700"/>
Num of Elements	<input type="text" value="2"/>	λ	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	