

**Exhibit 11 Page 1**  
**Multicultural Professional Counseling Services**  
**Second-Adjacent Waiver Request**  
**Kansas City, MO**

The proposed LPFM station will broadcast on channel 213, which is within the 73 kilometers second-adjacent minimum distance separation of station KKFI on channel 211 and the 73 kilometers second-adjacent minimum distance separation of station KTBG on channel 215. The KKFI interfering contour at the LPFM tower site is 87.1 dBμ F(50,50) and the KTBG interfering contour at the LPFM tower site is 72.3 dBμ F(50,50). Using the ratio of 100:1 (LPFM to KKFI and KTBG) on the second-adjacent channel, the population within the proposed LPFM 127.1 dBμ and 112.3 dBμ contour is zero. Applying the antenna manufacturer's vertical radiation pattern the area of interference can be more accurately calculated geometrically, rather than just by using the free space equation alone. This particular antenna is a two bay 3/4 wave spaced Nicom BKG77 antenna. It was determined from the manufacturer's vertical plan that at 10-15 degrees below horizontal the interference area would extend 15.8 meters toward the ground and 89.6 meters horizontally. We have proposed the antenna radiation center will be 24 meters above ground with an Effective Radiated Power of 50 watts, thus the interference area will not reach the ground. Further, there are no occupied structures or elevated roadways within the interference area. Therefore, the application is in compliance with §73.807(e)(1) *Waiver of the second-adjacent channel separations.*

## Exhibit 11 Figure 1

### Minimum Ground Clearance

Depression Angle Below Horizontal	Antenna Relative Field	ERP (Watts)	Distance to interfering Contour from Antenna (m)	Horizontal Distance of Interfering contour from tower (m)	Vertical Clearance of Interfering contour above TGL (m)
5	0.935	43.7	113	112.6	14.2
10	0.759	28.8	91	89.6	8.2
15	0.506	12.8	61	58.9	8.2
20	0.268	3.6	32	30.1	13.1
25	0.096	0.5	12	10.9	18.9
30	0.013	0.0	0	0.0	24.0
35	0.004	0.0	0	0.0	24.0
40	0.039	0.1	5	3.8	20.8
45	0.083	0.3	9	6.4	17.6
50	0.113	0.6	13	8.4	14.0
55	0.122	0.7	14	8.0	12.5
60	0.110	0.6	13	6.5	12.7
65	0.087	0.4	11	4.6	14.0
70	0.061	0.2	8	2.7	16.5
75	0.039	0.1	5	1.3	19.2
80	0.023	0.0	0	0.0	24.0
85	0.015	0.0	0	0.0	24.0
90	0.014	0.0	0	0.0	24.0
Minimum Clearance above TGL:					8.2 m

# Exhibit 11 Figure 1

## Antenna Height Above Average Terrain Calculations -- Results

### Input Data

Latitude **38° 58' 42"** North  
Longitude **94° 36' 7"** West (NAD 27)

These coordinates convert to NAD 83 coordinates of  
38° 58' 42.02", North, 94° 36' 07.84" West (NAD 83).

Height of antenna radiation center above mean sea level: **298** meters AMSL

Number of Evenly Spaced Radials = **8**      0° is referenced to True North

### Results

Calculated HAAT = **17 meters**

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

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

0°	42.4 m
45°	42.7 m
90°	18.7 m
135°	14.5 m
180°	17.5 m
225°	-1.2 m
270°	-10.5 m
315°	13.7 m

Print Results?

New Calculation?

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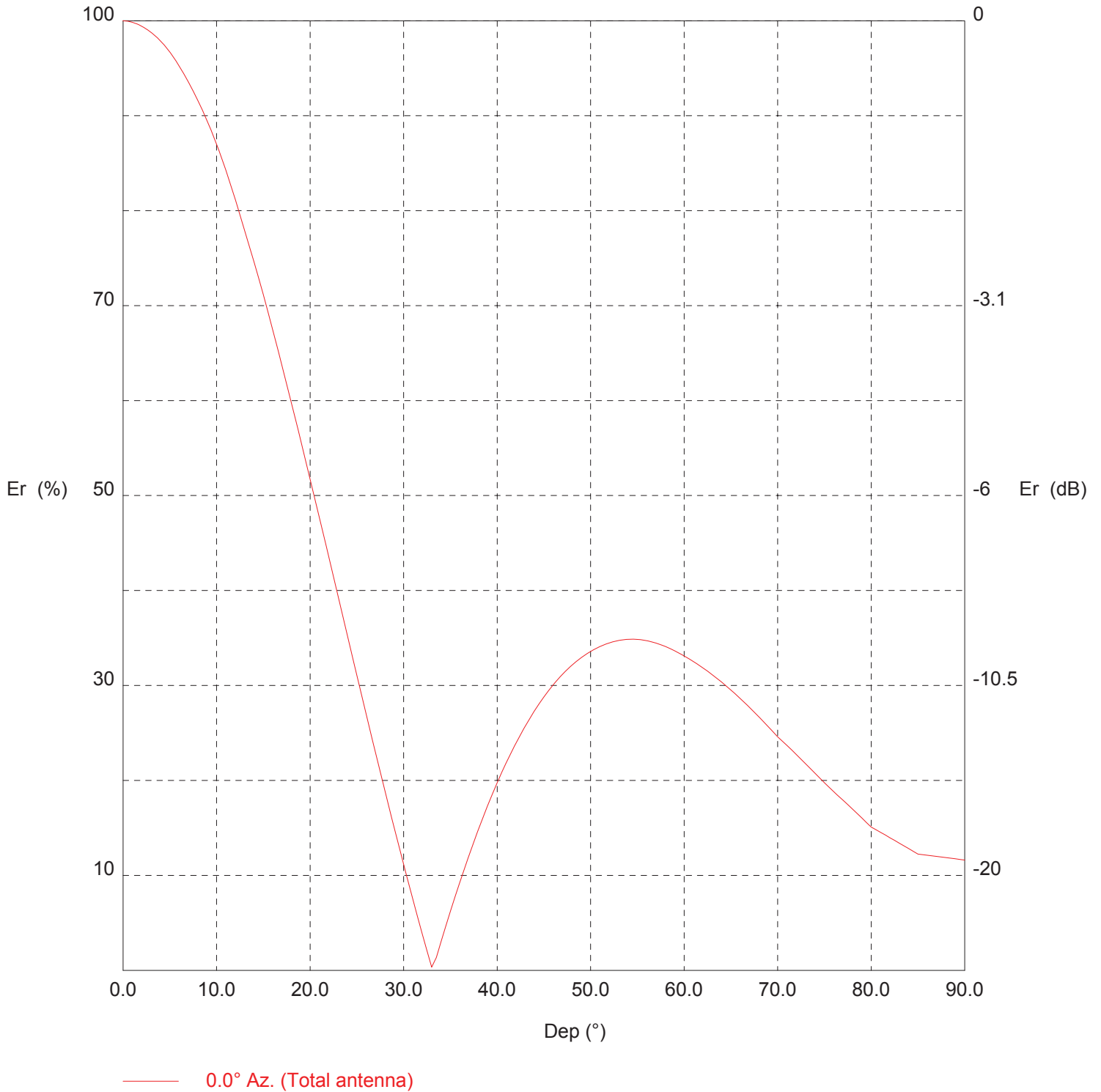
## Exhibit 11 Figure 3 Page 1

TX station: BKG77/2 GENERIC

Site name: 3/4 WAVE SEPARATION

Frequency: 98.10 MHz

Vertical diagram



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## Exhibit 11 Figure 3 Page 2

TX station: BKG77/2 GENERIC

Site name: 3/4 WAVE SEPARATION

Frequency: 98.10 MHz

### Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	914.2	30.0	11.2	11.5	60.0	33.1	100.1
0.5	100.0	913.3	30.5	9.3	7.9	60.5	32.8	98.4
1.0	99.8	911.3	31.0	7.5	5.1	61.0	32.5	96.7
1.5	99.7	908.1	31.5	5.6	2.9	61.5	32.2	94.8
2.0	99.4	903.9	32.0	3.8	1.3	62.0	31.9	92.8
2.5	99.1	898.4	32.5	2.1	0.4	62.5	31.5	90.8
3.0	98.8	891.9	33.0	0.3	0.0	63.0	31.1	88.7
3.5	98.4	884.3	33.5	1.4	0.2	63.5	30.8	86.5
4.0	97.9	875.7	34.0	3.0	0.8	64.0	30.4	84.2
4.5	97.3	865.9	34.5	4.6	2.0	64.5	29.9	81.9
5.0	96.7	855.2	35.0	6.2	3.5	65.0	29.5	79.5
5.5	96.0	842.7	35.5	7.8	5.5	65.5	29.1	77.2
6.0	95.2	829.2	36.0	9.3	7.9	66.0	28.6	74.8
6.5	94.4	814.9	36.5	10.7	10.5	66.5	28.2	72.5
7.0	93.5	799.7	37.0	12.1	13.5	67.0	27.7	70.0
7.5	92.6	783.6	37.5	13.5	16.7	67.5	27.2	67.6
8.0	91.6	766.9	38.0	14.9	20.2	68.0	26.7	65.1
8.5	90.5	749.4	38.5	16.1	23.8	68.5	26.2	62.7
9.0	89.4	731.2	39.0	17.4	27.7	69.0	25.7	60.2
9.5	88.3	712.5	39.5	18.6	31.6	69.5	25.1	57.8
10.0	87.1	693.1	40.0	19.8	35.7	70.0	24.6	55.3
10.5	85.7	670.8	40.5	20.9	39.8	70.5	24.1	53.3
11.0	84.2	648.2	41.0	21.9	43.9	71.0	23.7	51.2
11.5	82.7	625.3	41.5	22.9	48.1	71.5	23.2	49.2
12.0	81.2	602.3	42.0	23.9	52.2	72.0	22.7	47.2
12.5	79.6	579.0	42.5	24.8	56.4	72.5	22.2	45.2
13.0	78.0	555.7	43.0	25.7	60.4	73.0	21.7	43.2
13.5	76.3	532.4	43.5	26.5	64.4	73.5	21.2	41.3
14.0	74.6	509.1	44.0	27.3	68.3	74.0	20.7	39.3
14.5	72.9	485.8	44.5	28.1	72.1	74.5	20.2	37.4
15.0	71.1	462.7	45.0	28.8	75.8	75.0	19.7	35.5
15.5	69.3	439.1	45.5	29.5	79.3	75.5	19.3	33.9
16.0	67.4	415.8	46.0	30.1	82.7	76.0	18.8	32.4
16.5	65.6	392.9	46.5	30.7	85.9	76.5	18.4	30.8
17.0	63.6	370.3	47.0	31.2	88.9	77.0	17.9	29.3
17.5	61.7	348.1	47.5	31.7	91.8	77.5	17.4	27.8
18.0	59.8	326.5	48.0	32.1	94.4	78.0	17.0	26.4
18.5	57.8	305.3	48.5	32.6	96.9	78.5	16.5	24.9
19.0	55.8	284.7	49.0	32.9	99.2	79.0	16.0	23.5
19.5	53.8	264.7	49.5	33.3	101.2	79.5	15.6	22.1
20.0	51.8	245.3	50.0	33.6	103.1	80.0	15.1	20.8
20.5	49.7	226.1	50.5	33.9	104.8	80.5	14.8	20.0
21.0	47.6	207.5	51.0	34.1	106.3	81.0	14.5	19.3
21.5	45.6	189.8	51.5	34.3	107.6	81.5	14.3	18.6
22.0	43.5	172.8	52.0	34.5	108.7	82.0	14.0	17.8
22.5	41.4	156.7	52.5	34.6	109.6	82.5	13.7	17.1
23.0	39.3	141.3	53.0	34.7	110.3	83.0	13.4	16.4
23.5	37.2	126.8	53.5	34.8	110.8	83.5	13.1	15.7
24.0	35.2	113.0	54.0	34.9	111.1	84.0	12.8	15.0
24.5	33.1	100.1	54.5	34.9	111.2	84.5	12.5	14.4
25.0	31.0	88.1	55.0	34.9	111.1	85.0	12.2	13.7
25.5	29.0	76.8	55.5	34.8	110.7	85.5	12.2	13.6
26.0	26.9	66.3	56.0	34.7	110.2	86.0	12.1	13.4
26.5	24.9	56.7	56.5	34.6	109.4	86.5	12.1	13.3
27.0	22.9	47.9	57.0	34.5	108.5	87.0	12.0	13.2
27.5	20.9	39.9	57.5	34.3	107.5	87.5	11.9	13.0
28.0	18.9	32.7	58.0	34.1	106.3	88.0	11.9	12.9
28.5	17.0	26.3	58.5	33.9	104.9	88.5	11.8	12.8
29.0	15.0	20.6	59.0	33.6	103.5	89.0	11.7	12.6
29.5	13.1	15.7	59.5	33.4	101.8	89.5	11.7	12.5



**Exhibit 11 Figure 4**  
**Aerial Photo of the 89.6 meter Vicinity Surrounding the Proposed Tower Site**

