

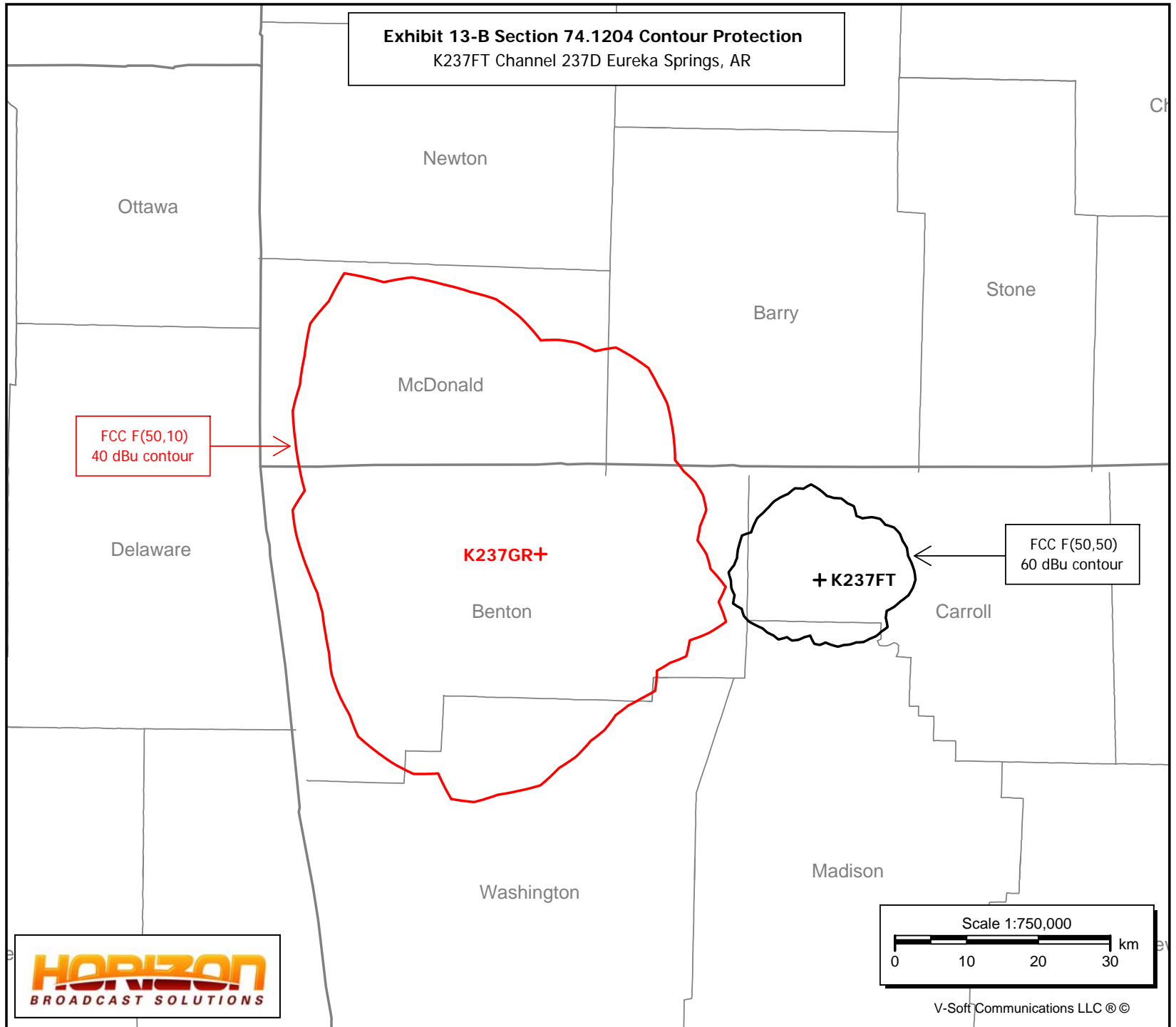
K237GR

Bentonville, AR
Latitude: 36-23-37 N
Longitude: 094-10-53 W
ERP: 0.25 kW
HAAT: 61.15 m
Channel: 237
Frequency: 95.3 MHz
AMSL Height: 446.9 m
Elevation: 385.9 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K237FT

Eureka Springs, AR
BLFT20150226AAY
Latitude: 36-21-38 N
Longitude: 093-44-54 W
ERP: 0.092 kW
HAAT: 0.0 m
Channel: 237
Frequency: 95.3 MHz
AMSL Height: 525.0 m
Elevation: 500.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Exhibit 13-B Section 74.1204 Contour Protection
K237FT Channel 237D Eureka Springs, AR



Bentonville, AR
Latitude: 36-23-37 N
Longitude: 094-10-53 W
ERP: 0.25 kW
HAAT: 61.15 m
Channel: 237
Frequency: 95.3 MHz
AMSL Height: 446.9 m
Elevation: 385.9 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

Paris, AR
BLH20020418AAQ
Latitude: 35-17-13 N
Longitude: 094-02-51 W
ERP: 50.0 kW
HAAT: 140.0 m
Channel: 237
Frequency: 95.3 MHz
AMSL Height: 308.0 m
Elevation: 162.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Exhibit 13-C Section 74.1204 Contour Protection
KERX Channel 237C2 Paris, AR

K237GR+

FCC F(50,10)
40 dBu contour

+ KERX

FCC F(50,50)
60 dBu contour

Scale 1:1,500,000
0 20 40 60 km

HORIZON
BROADCAST SOLUTIONS

V-Soft Communications LLC ©

Exhibit 13-D
Section 74.1204
Contour Protection to KSEC

This comprehensive exhibit has been prepared to demonstrate that the K237GR modification will not cause prohibited interference to KSEC, Channel 239A, Bentonville, AR. The KSEC F(50,50) protected contour at the K237GR application site is 78.2 dBu. Therefore the K237GR F(50,10) interfering contour with respect to KSEC is the 118.2 dBu contour. Using the FCC's FM propagation curves program (see attached), the 118.2 dBu contour was calculated to extend 136 meters from the antenna.

The proposed K237GR transmit antenna will be located 61 meters above ground level. As shown on the accompanying spreadsheet and chart, using the vertical elevation pattern data for the Nicom BKG77 one bay antenna the ERP and contour distances have been calculated every 10 degrees from 0 degrees to 90 degrees. The contour distance decreases from a maximum distance of 136 meters at 0 degrees to 15 meters at 90 degrees. That data was calculated in the attached charts to plot the distance the interfering contour extends into free space. The contour does not reach the ground. The contour comes to within approximately 1 meter (3.28 feet) of ground level at approximately 75 meters (246 ft.) from the tower base. The interfering contour falls within three meters of the ground in a small area around the tower base from approximately 55 meters to 91 meters from the tower base. The nearest occupied building is a residence located 123 meters (403.4ft.) from the tower base at the closest point. The

interfering contour comes to within 23 meters (75.4 ft.) of ground level at a distance of 123 meters from the tower base. The attached Google Earth Screenshot shows the area around the tower. A 91 meter radius from the tower base is shown in red. The nearest occupied building is clearly shown. Therefore is believed that the proposed modification to K237GR will not cause prohibited interference to KSEC as the interfering contour does not reach within three meters of ground level where there are occupied buildings.

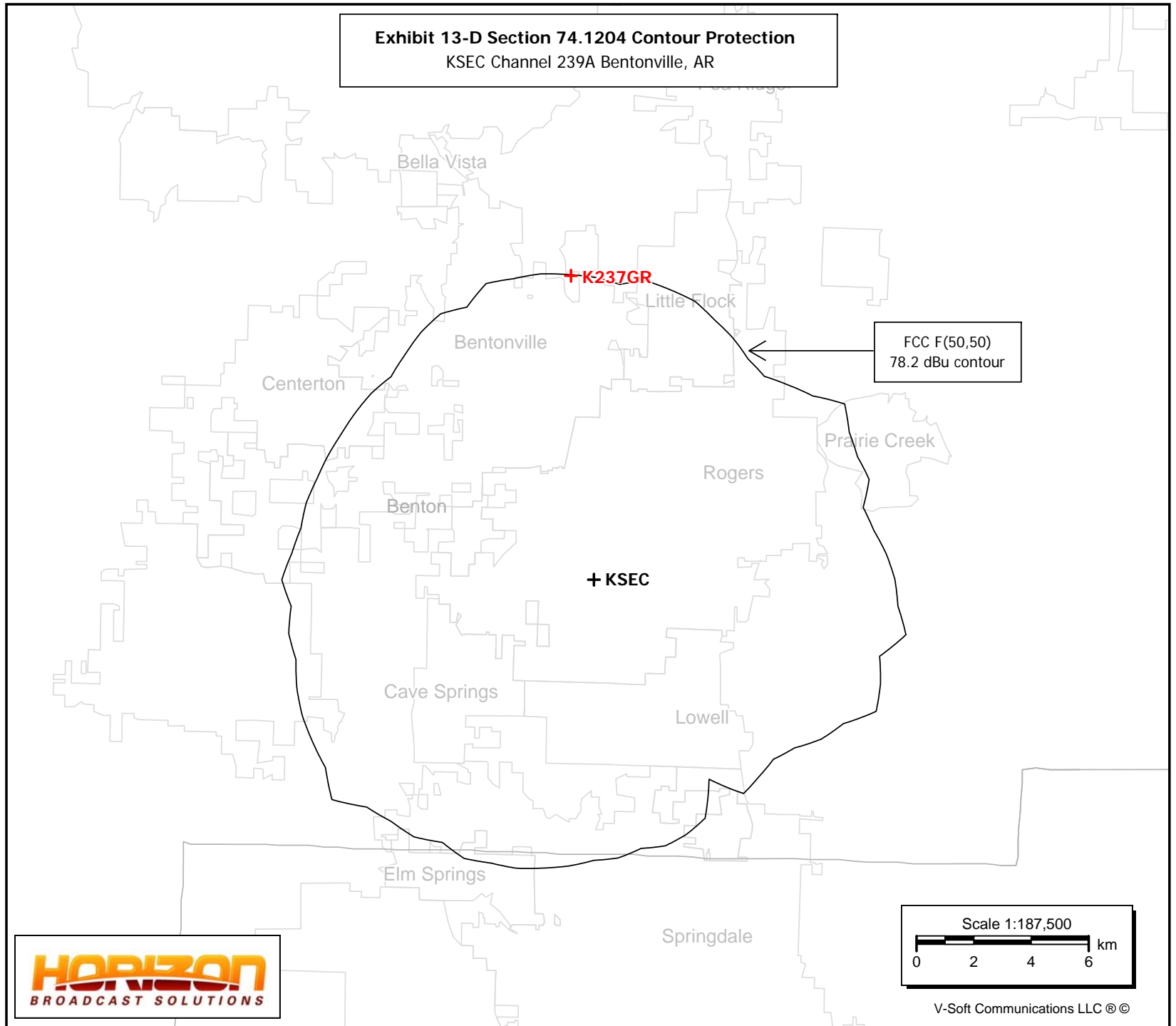
K237GR

Bentonville, AR
Latitude: 36-23-37 N
Longitude: 094-10-53 W
ERP: 0.25 kW
HAAT: 61.15 m
Channel: 237
Frequency: 95.3 MHz
AMSL Height: 446.9 m
Elevation: 385.9 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KSEC

Bentonville, AR
BLH20020131AAE
Latitude: 36-17-54 N
Longitude: 094-10-21 W
ERP: 6.00 kW
HAAT: 100.0 m
Channel: 239
Frequency: 95.7 MHz
AMSL Height: 488.0 m
Elevation: 405.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Exhibit 13-D Section 74.1204 Contour Protection
KSEC Channel 239A Bentonville, AR



HORIZON
BROADCAST SOLUTIONS

Scale 1:187,500
0 2 4 6 km

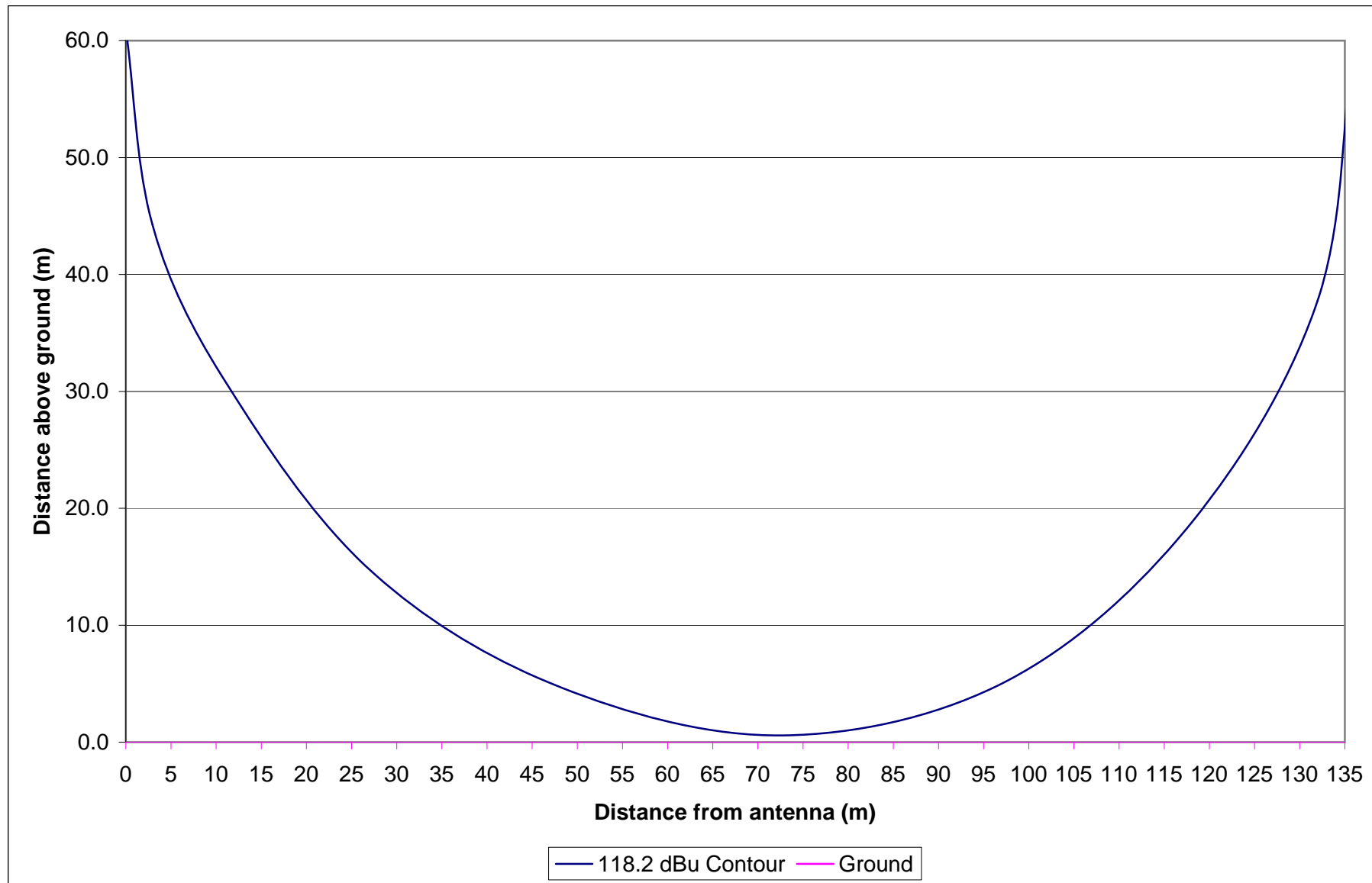
V-Soft Communications LLC ©

Select Contour Type:	<div>F(50,50) Service Contour -- FM and NTSC (analog) TV F(50,10) Interfering Contour F(50,90) Digital TV Service Contour</div>
Select Channel Range: (not TV Virtual Channel)	<div>FM Radio or TV Transmit Channels 2-6 TV Transmit Channels 7-13 TV Transmit Channels 14-69</div>
Find This:	<div>Field Strength, given a Distance (in km) Distance, Given a Field Strength (in dBu) FM ERP, given Distance and Field Strength [F(50,50) Service Contour]</div>
<div>.25 ERP (kW)</div>	<div>Distance (km)</div>
<div>61 HAAT (meters)</div>	<div>118.2 Field (dBu)</div>
<div>Find Result</div> <div>Clear Form</div>	
Results:	
<div>Calculated Distance = 0.136 km Free Space equation used to compute distance.</div>	

This function uses the FCC's CURVES program to make calculations of the F(50,50) FM and NTSC (analog) TV service curves, the F(50,10) interfering signal curves, and the F(50,90) digital TV service curves. Printable copies of these propagation curves are available at [FM and TV Propagation Curves Graphs \(/media/radio/fm-and-tv-propagation-curves-graphs\)](https://www.fcc.gov/media/radio/fm-and-tv-propagation-curves-graphs).

K237GR - Bentonville, AR
Section 74.1204 Contour Protection to KSEC, Channel 239A, Bentonville, AR

(118.2 dBu F(50,10) interfering contour shown)



The K237GR interfering contour with respect to K231CG does reach the ground.
There are no buildings in the area where the contour comes to within 3 meters of ground level.



Google Earth

feet 800
meters 200



Angle of				118.2 dBu
Elevation	Relative	ERP	ERP	Contour
(Degrees)	Field	(watts)	(dBk)	(Meters)
-----	-----		-----	-----
0	1.00	250	-6.021	136
-10	0.982	241	-6.178	134
-20	0.918	211	-6.764	125
-30	0.818	167	-7.766	112
-40	0.691	119	-9.231	94
-50	0.538	72	-11.405	73
-60	0.391	38	-14.177	53
-70	0.239	14	-18.453	32
-80	0.129	4	-23.809	17
-90	0.105	3	-25.597	15

Angle of Elevation (Degrees)	Relative Field	ERP (dBk)	118.2 dBu Contour (Meters)
0	1.000	-6.021	136
10	0.982	-6.178	134
20	0.918	-6.764	125
30	0.818	-7.766	112
40	0.691	-9.231	94
50	0.538	-11.405	73
60	0.391	-14.177	53
70	0.239	-18.453	32
80	0.129	-23.809	17
90	0.105	-25.597	15

Θ (°)	Θ (radians)	R (m)	x'	y'	y = 61 - y'	Gnd
0	0	136	136	0	61.0	0
10	0.175	134	132.0	23.3	37.7	0
20	0.349	125	117.5	42.8	18.2	0
30	0.524	112	97.0	56	5	0
40	0.698	94	72.0	60.4	0.6	0
50	0.873	73	46.9	55.9	5.1	0
60	1.047	53	26.5	45.9	15.1	0
70	1.222	32	10.9	30.1	30.9	0
80	1.396	17	3.0	16.7	44.3	0
90	1.571	15	0.0	15	61	0

TX station:

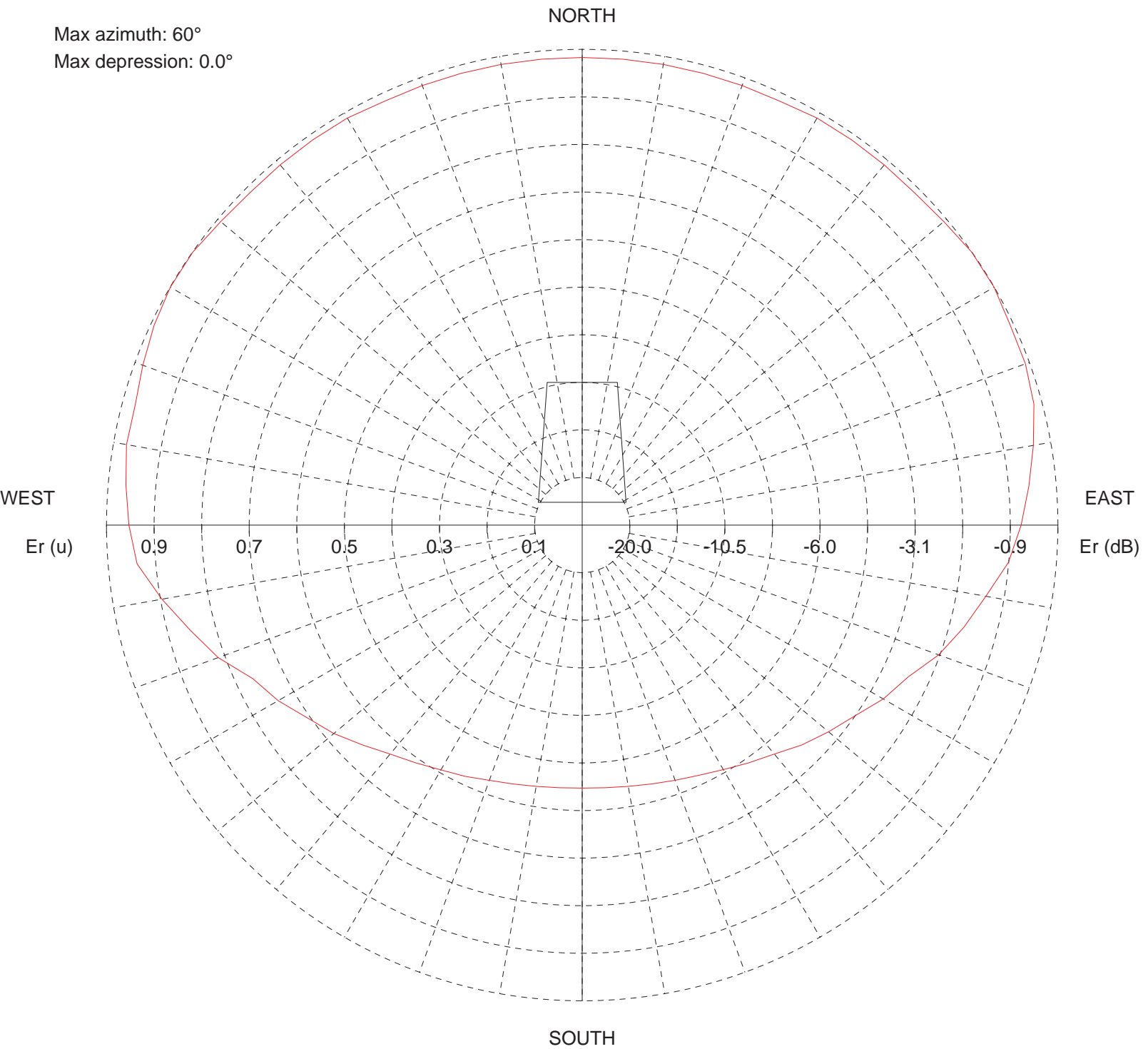
Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima

Max azimuth: 60°

Max depression: 0.0°



— 0.0° depres. (Total antenna), Gain (dBd): -3.03 ERP T.max (KW): 0.498

ERP E.max (KW): 0.387

TX station:

Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima

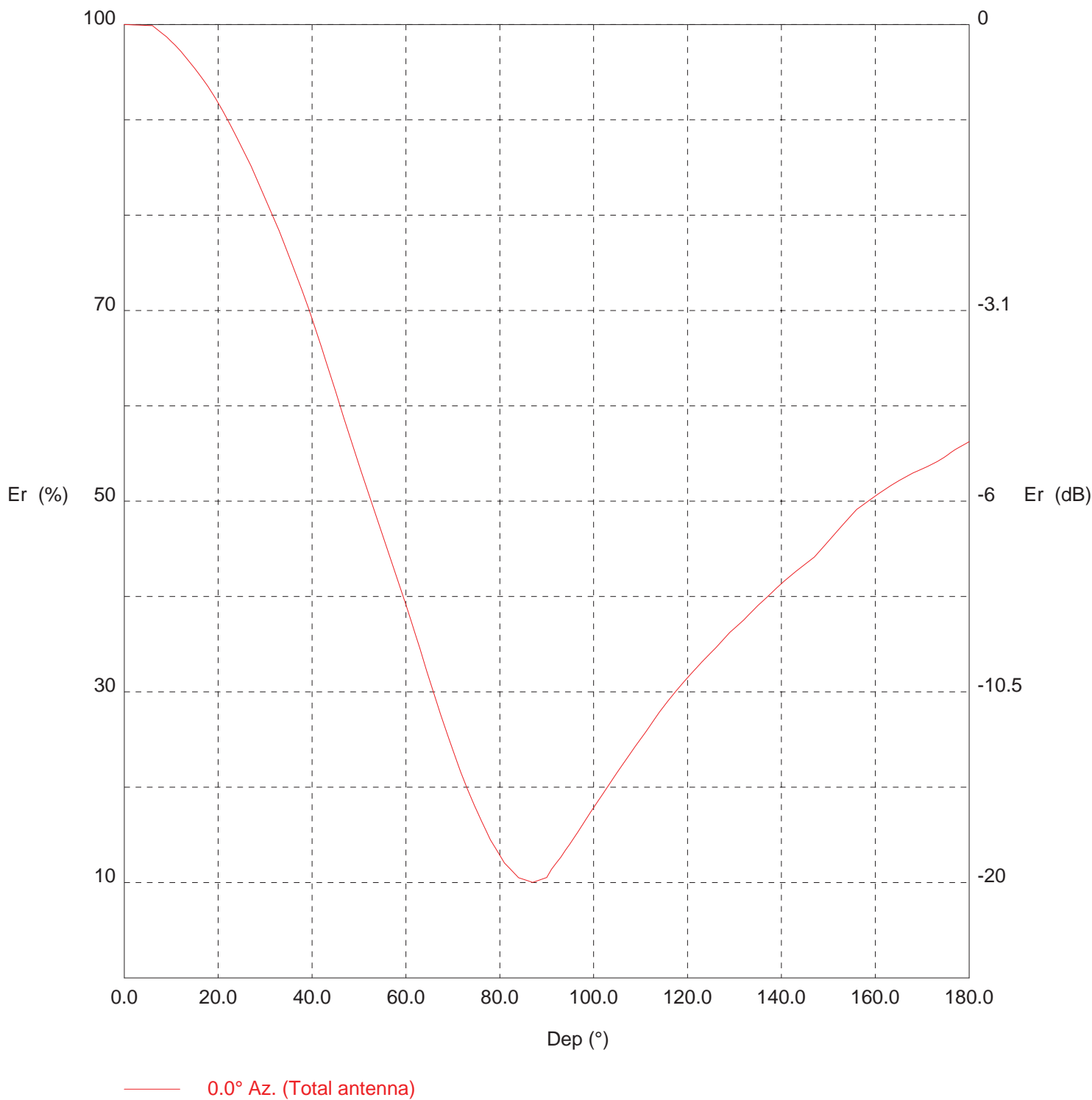
Az (°)	Dep (°)	Er (%)	ERP (W)	Az (°)	Dep (°)	Er (%)	ERP (W)	Az (°)	Dep (°)	Er (%)	ERP (W)
0.0	0.0	98.3	373.6	120.0	0.0	73.1	206.6	240.0	0.0	73.8	210.7
5.0	0.0	98.3	373.6	125.0	0.0	69.9	189.2	245.0	0.0	76.4	225.7
10.0	0.0	98.3	373.6	130.0	0.0	67.6	176.7	250.0	0.0	81.5	256.6
15.0	0.0	98.3	373.6	135.0	0.0	65.3	165.1	255.0	0.0	85.3	281.6
20.0	0.0	98.3	373.6	140.0	0.0	62.8	152.7	260.0	0.0	89.7	311.1
25.0	0.0	98.3	373.6	145.0	0.0	61.0	144.0	265.0	0.0	93.9	341.1
30.0	0.0	98.8	377.5	150.0	0.0	59.4	136.3	270.0	0.0	95.3	351.1
35.0	0.0	98.8	377.5	155.0	0.0	58.0	130.3	275.0	0.0	96.3	358.5
40.0	0.0	98.8	377.5	160.0	0.0	57.1	126.1	280.0	0.0	97.3	366.1
45.0	0.0	98.8	377.5	165.0	0.0	56.3	122.8	285.0	0.0	97.3	366.1
50.0	0.0	99.2	380.8	170.0	0.0	55.8	120.3	290.0	0.0	98.3	373.6
55.0	0.0	100.0	386.5	175.0	0.0	55.4	118.7	295.0	0.0	99.3	381.4
60.0	0.0	100.0	386.7	180.0	0.0	55.3	118.2	300.0	0.0	100.0	386.7
65.0	0.0	99.3	381.4	185.0	0.0	55.4	118.7	305.0	0.0	100.0	386.5
70.0	0.0	99.1	380.0	190.0	0.0	55.8	120.3	310.0	0.0	99.2	380.8
75.0	0.0	98.3	373.6	195.0	0.0	56.3	122.8	315.0	0.0	98.8	377.5
80.0	0.0	96.3	358.5	200.0	0.0	57.1	126.1	320.0	0.0	98.8	377.5
85.0	0.0	94.3	343.8	205.0	0.0	58.3	131.4	325.0	0.0	98.8	377.5
90.0	0.0	92.3	329.3	210.0	0.0	59.4	136.5	330.0	0.0	98.8	377.5
95.0	0.0	90.0	312.9	215.0	0.0	61.0	144.0	335.0	0.0	98.3	373.6
100.0	0.0	86.2	287.1	220.0	0.0	62.8	152.7	340.0	0.0	98.3	373.6
105.0	0.0	83.0	266.7	225.0	0.0	65.3	165.1	345.0	0.0	98.3	373.6
110.0	0.0	79.7	245.9	230.0	0.0	68.2	179.6	350.0	0.0	98.3	373.6
115.0	0.0	75.6	221.0	235.0	0.0	70.6	192.7	355.0	0.0	98.3	373.6

TX station:

Site name:

Frequency: 100.00 MHz

Vertical diagram



TX station:

Site name:

Frequency: 100.00 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	373.6	60.0	39.1	57.2	120.0	31.5	37.0
1.0	100.0	373.5	61.0	37.6	52.8	121.0	32.0	38.3
2.0	100.0	373.4	62.0	36.1	48.6	122.0	32.6	39.6
3.0	99.9	373.3	63.0	34.5	44.6	123.0	33.1	41.0
4.0	99.9	373.1	64.0	32.9	40.5	124.0	33.6	42.2
5.0	99.9	372.9	65.0	31.3	36.6	125.0	34.1	43.5
6.0	99.9	372.8	66.0	29.7	33.0	126.0	34.6	44.7
7.0	99.5	369.9	67.0	28.2	29.8	127.0	35.2	46.2
8.0	99.1	367.0	68.0	26.8	26.8	128.0	35.7	47.6
9.0	98.7	364.1	69.0	25.3	23.9	129.0	36.2	49.1
10.0	98.2	360.5	70.0	23.9	21.3	130.0	36.7	50.3
11.0	97.7	356.9	71.0	22.5	18.9	131.0	37.1	51.5
12.0	97.2	353.3	72.0	21.1	16.6	132.0	37.6	52.7
13.0	96.6	348.9	73.0	19.9	14.8	133.0	38.1	54.1
14.0	96.0	344.5	74.0	18.8	13.2	134.0	38.6	55.6
15.0	95.4	340.1	75.0	17.6	11.6	135.0	39.1	57.0
16.0	94.7	335.4	76.0	16.6	10.2	136.0	39.5	58.4
17.0	94.1	330.8	77.0	15.5	9.0	137.0	40.0	59.7
18.0	93.4	326.1	78.0	14.5	7.8	138.0	40.4	61.1
19.0	92.6	320.4	79.0	13.7	7.0	139.0	40.9	62.5
20.0	91.8	314.7	80.0	12.9	6.2	140.0	41.4	63.9
21.0	91.0	309.1	81.0	12.0	5.4	141.0	41.8	65.3
22.0	90.0	302.7	82.0	11.5	5.0	142.0	42.2	66.5
23.0	89.1	296.5	83.0	11.0	4.5	143.0	42.6	67.8
24.0	88.1	290.3	84.0	10.5	4.1	144.0	43.0	69.0
25.0	87.2	283.8	85.0	10.3	4.0	145.0	43.4	70.3
26.0	86.2	277.4	86.0	10.2	3.9	146.0	43.8	71.6
27.0	85.2	271.1	87.0	10.0	3.7	147.0	44.1	72.8
28.0	84.0	263.9	88.0	10.2	3.9	148.0	44.7	74.7
29.0	82.9	256.8	89.0	10.4	4.0	149.0	45.3	76.5
30.0	81.8	249.8	90.0	10.5	4.1	150.0	45.8	78.4
31.0	80.6	242.9	91.0	11.4	4.8	151.0	46.4	80.3
32.0	79.5	236.1	92.0	12.0	5.4	152.0	46.9	82.3
33.0	78.3	229.3	93.0	12.7	6.0	153.0	47.5	84.3
34.0	77.1	222.0	94.0	13.4	6.7	154.0	48.0	86.2
35.0	75.8	214.7	95.0	14.1	7.4	155.0	48.6	88.2
36.0	74.5	207.6	96.0	14.8	8.2	156.0	49.1	90.2
37.0	73.2	200.4	97.0	15.6	9.1	157.0	49.5	91.5
38.0	71.9	193.3	98.0	16.4	10.0	158.0	49.8	92.8
39.0	70.6	186.3	99.0	17.1	11.0	159.0	50.2	94.1
40.0	69.1	178.6	100.0	17.9	11.9	160.0	50.5	95.4
41.0	67.6	170.9	101.0	18.6	12.9	161.0	50.9	96.8
42.0	66.1	163.5	102.0	19.3	13.9	162.0	51.2	98.1
43.0	64.6	156.0	103.0	20.1	15.0	163.0	51.5	99.2
44.0	63.1	148.7	104.0	20.8	16.2	164.0	51.8	100.4
45.0	61.6	141.6	105.0	21.5	17.3	165.0	52.1	101.6
46.0	60.0	134.4	106.0	22.3	18.5	166.0	52.4	102.7
47.0	58.4	127.5	107.0	23.0	19.7	167.0	52.7	103.7
48.0	56.8	120.7	108.0	23.7	21.0	168.0	53.0	104.8
49.0	55.3	114.4	109.0	24.4	22.2	169.0	53.2	105.7
50.0	53.8	108.2	110.0	25.1	23.5	170.0	53.4	106.5
51.0	52.3	102.2	111.0	25.7	24.8	171.0	53.6	107.4
52.0	50.8	96.6	112.0	26.5	26.2	172.0	53.9	108.4
53.0	49.4	91.1	113.0	27.2	27.6	173.0	54.1	109.4
54.0	47.9	85.8	114.0	27.9	29.0	174.0	54.4	110.5
55.0	46.5	80.7	115.0	28.5	30.4	175.0	54.7	111.9
56.0	45.0	75.7	116.0	29.2	31.8	176.0	55.1	113.3
57.0	43.6	71.0	117.0	29.8	33.1	177.0	55.4	114.7
58.0	42.1	66.2	118.0	30.4	34.4	178.0	55.7	115.9
59.0	40.6	61.6	119.0	30.9	35.7	179.0	56.0	117.0

K237GR

Bentonville, AR

Latitude: 36-23-37 N

Longitude: 094-10-53 W

ERP: 0.25 kW

HAAT: 61.15 m

Channel: 237

Frequency: 95.3 MHz

AMSL Height: 446.9 m

Elevation: 385.9 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model: None

KMXL

Carthage, MO

BLH19910401KD

Latitude: 37-10-58 N

Longitude: 094-21-35 W

ERP: 50.00 kW

HAAT: 144.0 m

Channel: 236

Frequency: 95.1 MHz

AMSL Height: 441.0 m

Elevation: 302.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: None

Exhibit 13-E Section 74.1204 Contour Protection

KMXL Channel 236C2 Carthage, MO

