

Exhibit 13-D
Section
74.1204
Contour Protection to
WXTG-FM

This comprehensive exhibit has been prepared to demonstrate that proposed FM translator application BNPFT-20180131ACG for Channel 273D at Norfolk, VA does not cause prohibited interference to second adjacent full power FM station WXTG-FM, Channel 271A, Virginia Beach, VA. This statement demonstrates that a lack of population and/or other factors allow this proposal to be compliant with Section 74.1204. The process commonly called "Living Way," allows for the use of U/D Analysis, also known as "signal strength ratio methodology." In this instant case the facilities to be protected are second adjacent and are to be afforded protection from signals 40 dB stronger than they present in the location of the proposed antenna location.

The WXTG-FM F(50,50) protected contour at the proposed BNPFT-20180131ACG Channel 273D application site is 70.1 dBu. Therefore the proposed new FM translator F(50,10) interfering contour with respect to WXTG-FM is the 110.1 dBu contour. Using the FCC's FM propagation curves program (see attached), the 110.1 dBu contour was calculated to extend 347 meters from the antenna.

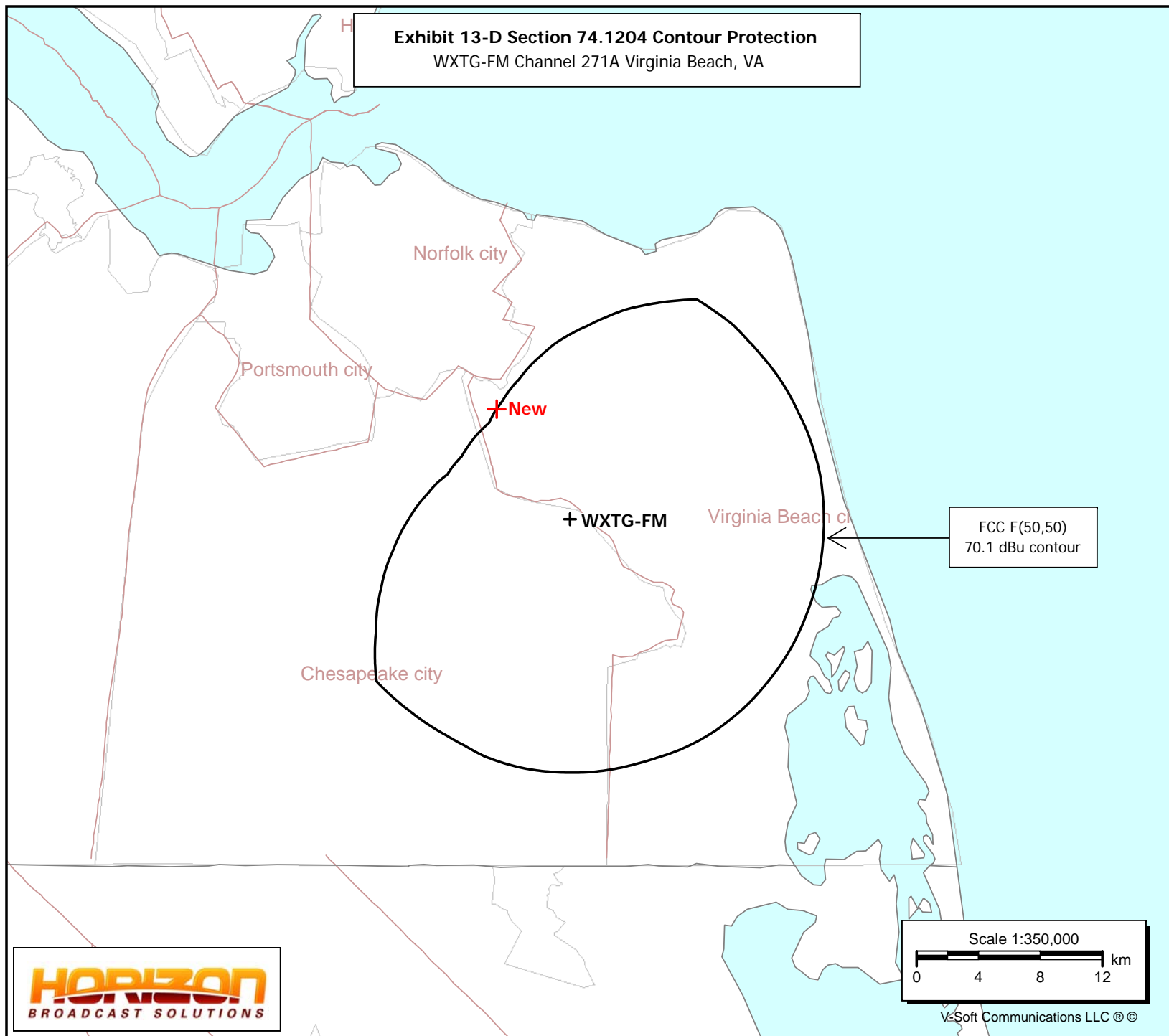
A copy of the Nicom BKG77 2 bay 0.85 wave spacing broadband antenna vertical elevation pattern is attached. Using the data provided in the vertical elevation pattern, the ERP was calculated for every ten degrees of elevation. The respective contour distance for the 110.1 dBu interfering contour was then calculated using the FCC's FM propagation curves program. The contour distance ranges from 347 meters at 0 degrees to 39 meters at 30 degrees. The attached spreadsheet plots the interfering curve from the antenna into free space at every ten degrees of elevation. The interfering contour does reach the ground in a small area extending from 45 meters to 75 meters from the tower base. There is no population or occupied buildings in this areas. The attached Google Earth Screenshot shows the area around the tower. A 75 meter radius from the tower base is shown in red. The nearest occupied buildings are clearly shown and are located approximately 90 meters from the tower base. The proposed Channel 273D facility will not cause prohibited interference to WXTG-FM as no interference reaches the ground where there are any occupied buildings or population. Therefore it is believed that this application is in compliance with 47 C.F.R. § 74.1204 with respect to WXTG-FM.

New

Norfolk, VA
BNPFT20180131ACG
Latitude: 36-48-57.30 N
Longitude: 076-12-07.70 W
ERP: 0.25 kW
HAAT: 94.66 m
Channel: 273
Frequency: 102.5 MHz
AMSL Height: 98.0 m
Elevation: 5.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

WXTG-FM

Virginia Beach, VA
BMLH20120206AAK
Latitude: 36-45-07 N
Longitude: 076-08-57 W
ERP: 6.00 kW
HAAT: 100.0 m
Channel: 271
Frequency: 102.1 MHz
AMSL Height: 104.0 m
Elevation: 3.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

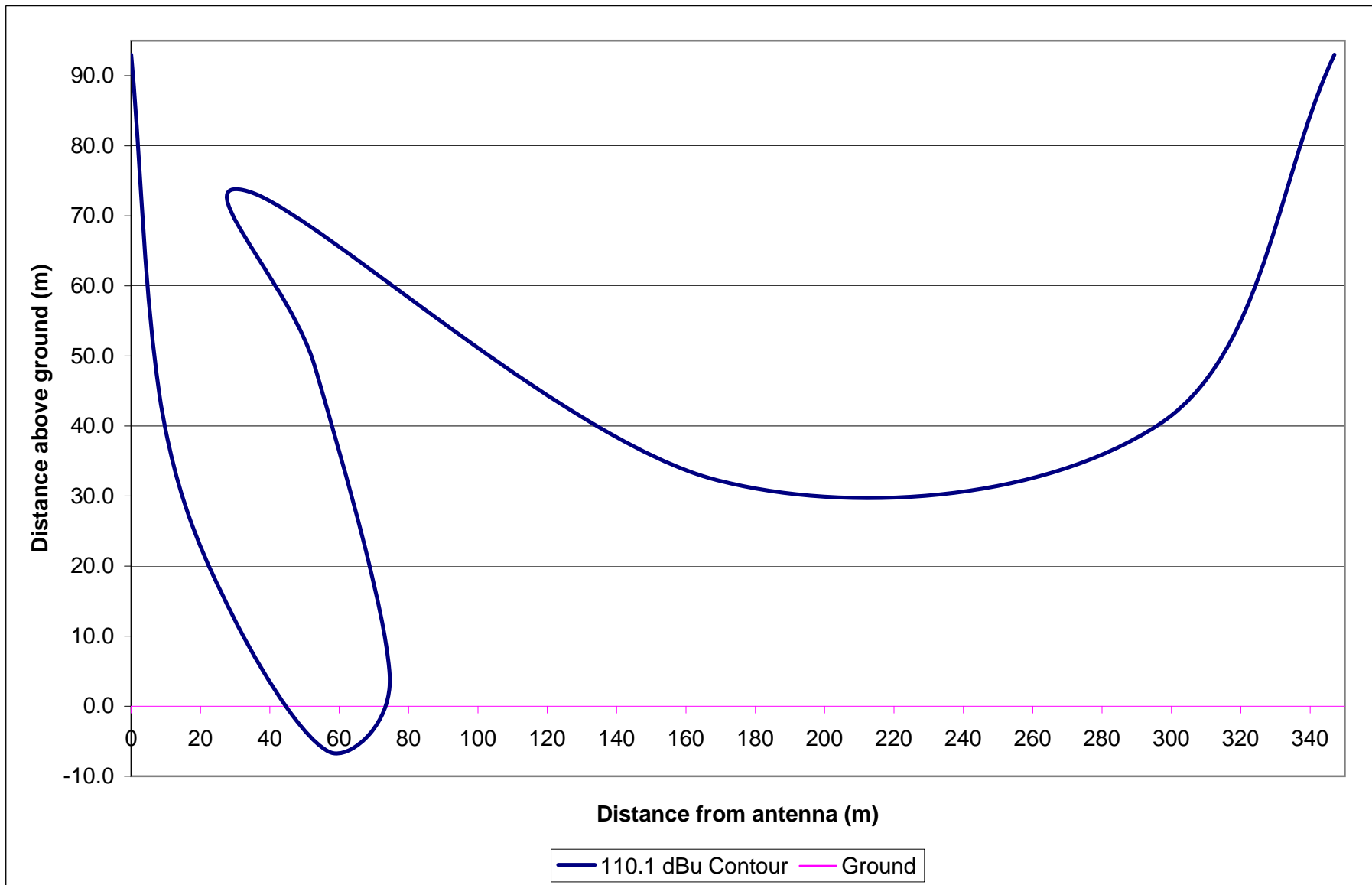
Exhibit 13-D Section 74.1204 Contour Protection
WXTG-FM Channel 271A Virginia Beach, VA

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>95 HAAT (meters)</div>	<div>110.1 Field (dBu)</div>
<div>Find Result</div> <div>Clear Form</div>	
Results:	
<div>Calculated Distance = 0.347 km</div> <div>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).

New FM Translator Channel 273D Norfolk, VA
Section 74.1204 Contour Protection to WXTG-FM, Channel 271A, Virginia Beach, VA

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



The proposed 110.1 dBu interfering contour with respect to WXTG-FM does not reach the ground where there are occupied buildings or population.

Angle of Elevation (degrees)	Relative Field Value	ERP (dBk)	ERP (watts)	110.1 dBu contour (meters)
-----	-----	-----	-----	-----
0	1.00	-6.021	250.0	347
-10	0.871	-7.220	189.7	302
-20	0.518	-11.734	67.1	180
-30	0.112	-25.036	3.1	39
-40	0.198	-20.087	9.8	69
-50	0.336	-15.494	28.2	116
-60	0.331	-15.598	27.4	115
-70	0.246	-18.202	15.1	85
-80	0.151	-22.441	5.7	52
-90	0.117	-24.657	3.4	40

Θ (°)	Θ (radians)	R (m)	x'	y'	$y = 93 - y'$	Gnd
0	0	347	347	0	93.0	0
10	0.175	302	297.4	52.4	40.6	0
20	0.349	180	169.1	61.6	32.2	0
30	0.524	39	33.8	19.5	73.5	0
40	0.698	69	52.9	44.4	48.6	0
50	0.873	116	74.6	88.9	4.1	0
60	1.047	115	57.5	99.6	-6.6	0
70	1.222	85	29.1	79.9	13.1	0
80	1.396	52	9.0	51.2	41.8	0
90	1.571	40	0.0	40	93	0

Google Earth Screenshot of the area around ASR Tower # 1027465

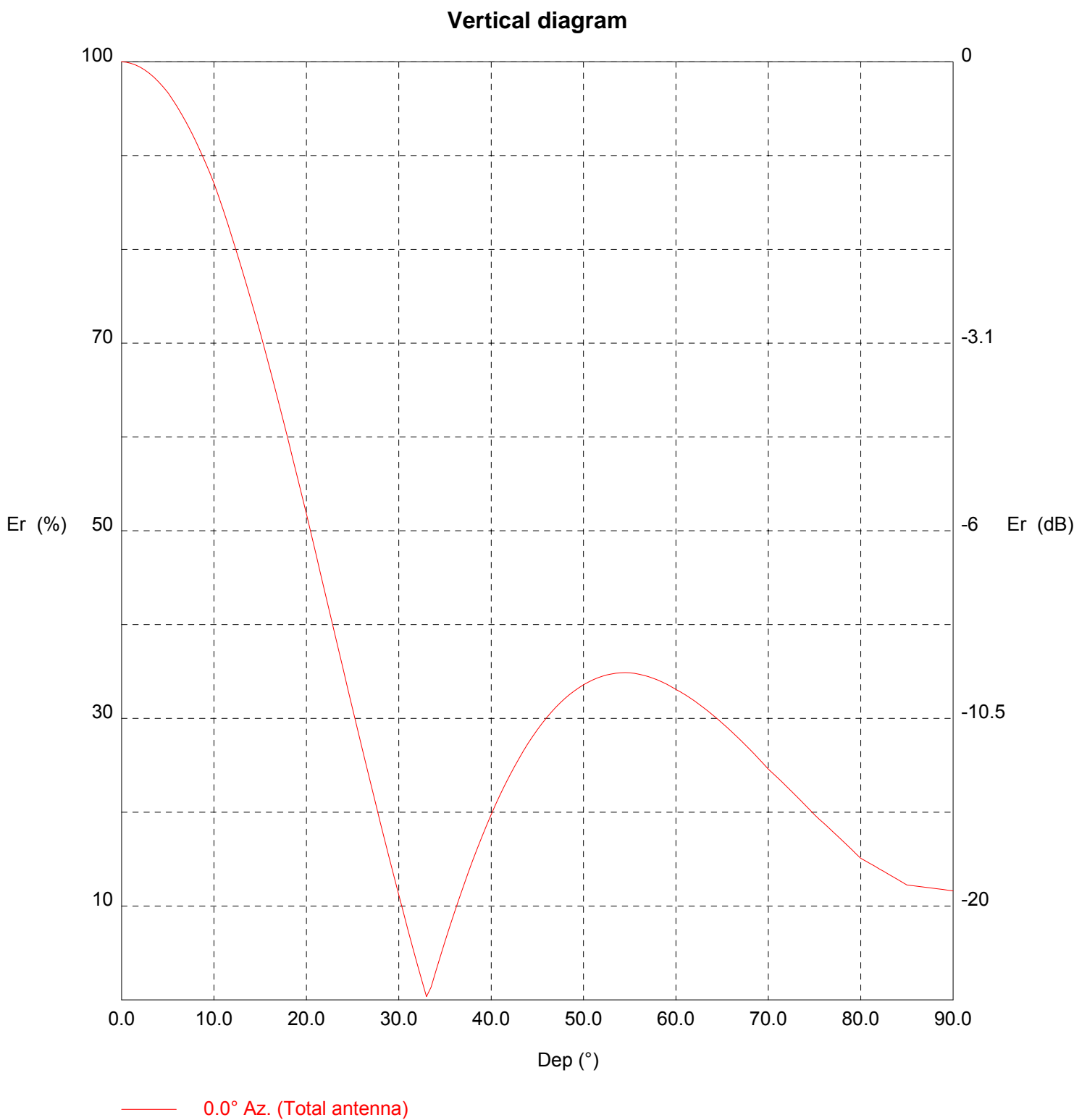


Google Earth

feet
meters

900
200





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