

**Exhibit 13-C**  
**Section 74.1204**  
**Contour Protection to WOWI**

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 WOWI, Channel 275B, Norfolk, 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.

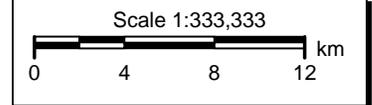
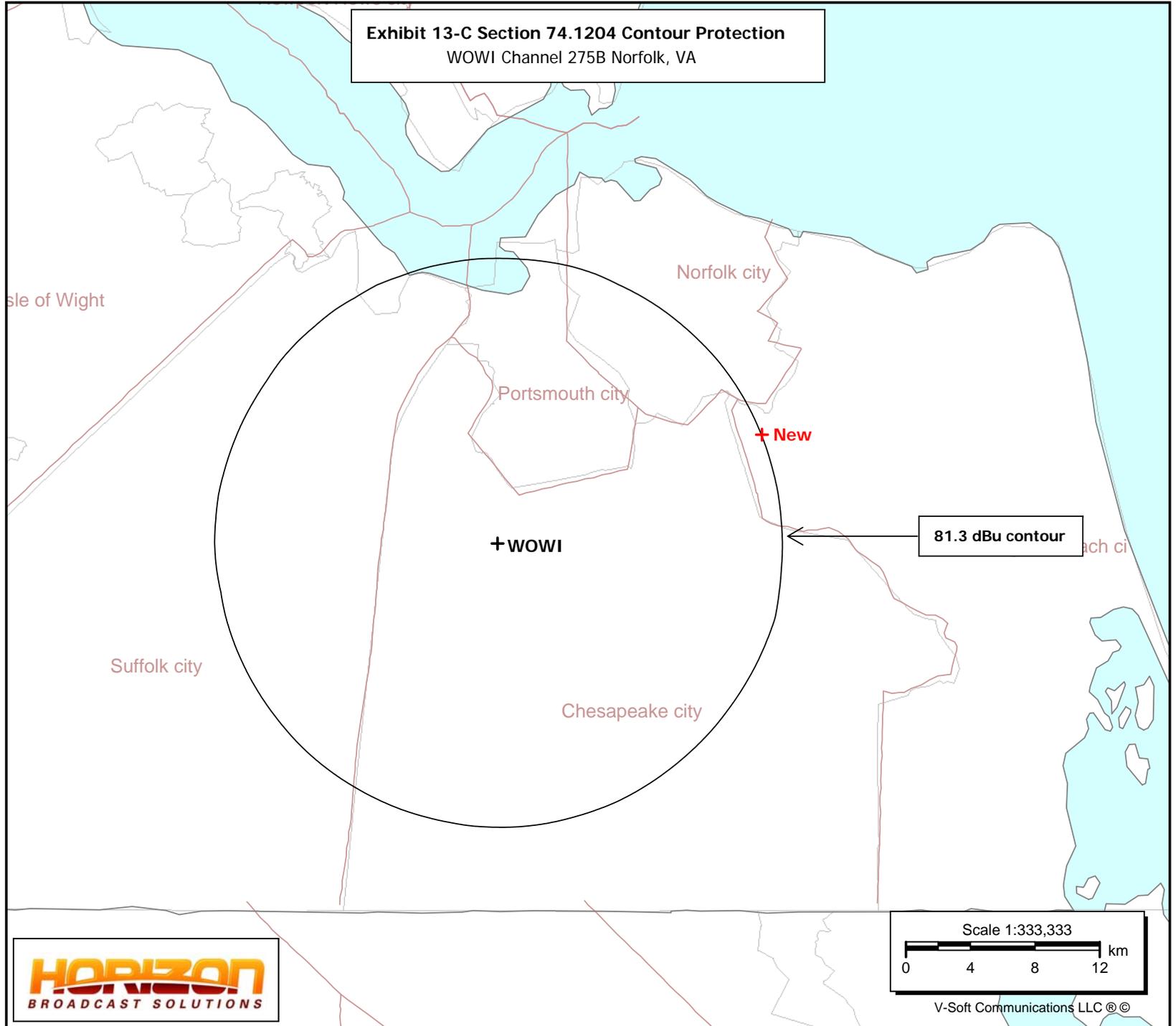
The WOWI F(50,50) protected contour at the proposed BNPFT-20180131ACG Channel 273D application site is 81.3 dBu. Therefore the proposed new FM translator F(50,10) interfering contour with respect to WOWI is the 121.3 dBu contour. Using the FCC's FM propagation curves program (see attached), the 121.3 dBu contour was calculated to extend 95 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 121.3 dBu interfering contour was then calculated using the FCC's FM propagation curves program. The contour distance ranges from 95 meters at 0 degrees to 11 meters at 30 degrees and 90 degrees. The attached spreadsheet then plotted the interfering curve from the antenna into free space. The interfering contour with respect to WOWI will not reach the ground. The 121.3 dBu interfering contour will come to within approximately 66 meters (216.5 ft.) above ground level at approximately 15 meters (49.2 ft.) from the base of the tower. Therefore it is believed that this application is in compliance with 47 C.F.R. § 74.1204 with respect to WOWI because no interference reaches the ground.

**New**  
Norfolk, VA  
BNPFT20180131ACG  
Latitude: 36-48-57.30 N  
Longitude: 076-12-07.40 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

**WOWI**  
Norfolk, VA  
BLH20131212ATB  
Latitude: 36-45-19.30 N  
Longitude: 076-23-07.10 W  
ERP: 50.00 kW  
HAAT: 150.0 m  
Channel: 275  
Frequency: 102.9 MHz  
AMSL Height: 152.0 m  
Elevation: 4.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

**Exhibit 13-C Section 74.1204 Contour Protection**  
WOWI Channel 275B Norfolk, VA



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Select Contour Type:

F(50,50) Service Contour -- FM and NTSC (analog) TV  
**F(50,10) Interfering Contour**  
 F(50,90) Digital TV Service Contour

Select Channel Range:  
 (not TV Virtual Channel)

**FM Radio or TV Transmit Channels 2-6**  
 TV Transmit Channels 7-13  
 TV Transmit Channels 14-69

Find This:

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]

ERP (kW)

Distance (km)

HAAT (meters)

Field (dBu)

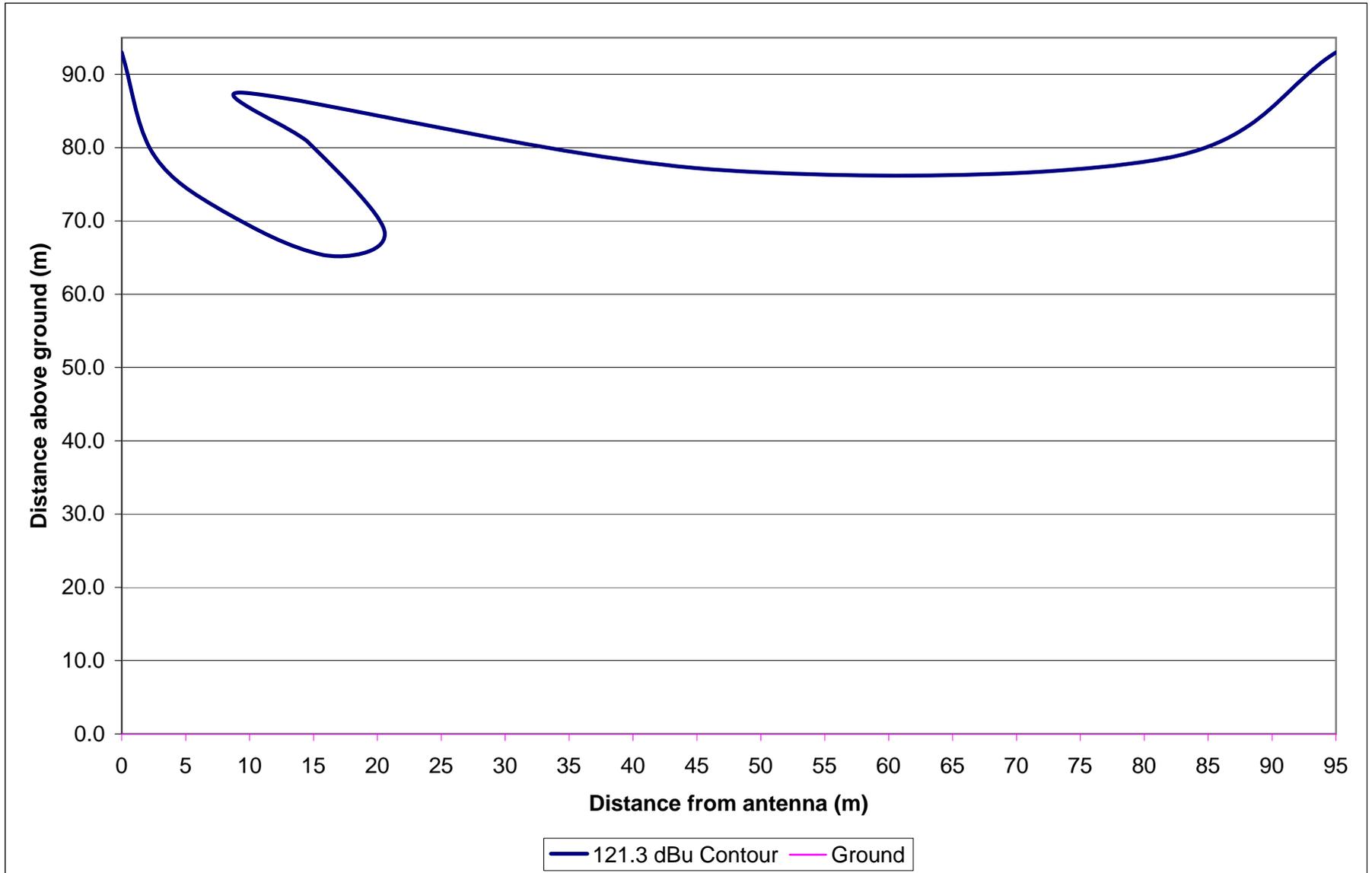
Results:

**Calculated Distance = 0.095 km**

Free Space equation used to compute distance.

**New FM Translator Channel 273D Norfolk, VA**  
**Section 74.1204 Contour Protection to WOWI, Channel 275B, Norfolk, VA**

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



The proposed 110.1 dBu interfering contour with respect to WOWI does not reach the ground.

Angle of Elevation (degrees)	Relative Field Value	ERP (dBk)	ERP (watts)	121.3 dBu contour (meters)
-----	-----	-----	-----	-----
0	1.00	-6.021	250.0	95
-10	0.871	-7.220	189.7	83
-20	0.518	-11.734	67.1	49
-30	0.112	-25.036	3.1	11
-40	0.198	-20.087	9.8	19
-50	0.336	-15.494	28.2	32
-60	0.331	-15.598	27.4	32
-70	0.246	-18.202	15.1	23
-80	0.151	-22.441	5.7	14
-90	0.117	-24.657	3.4	11

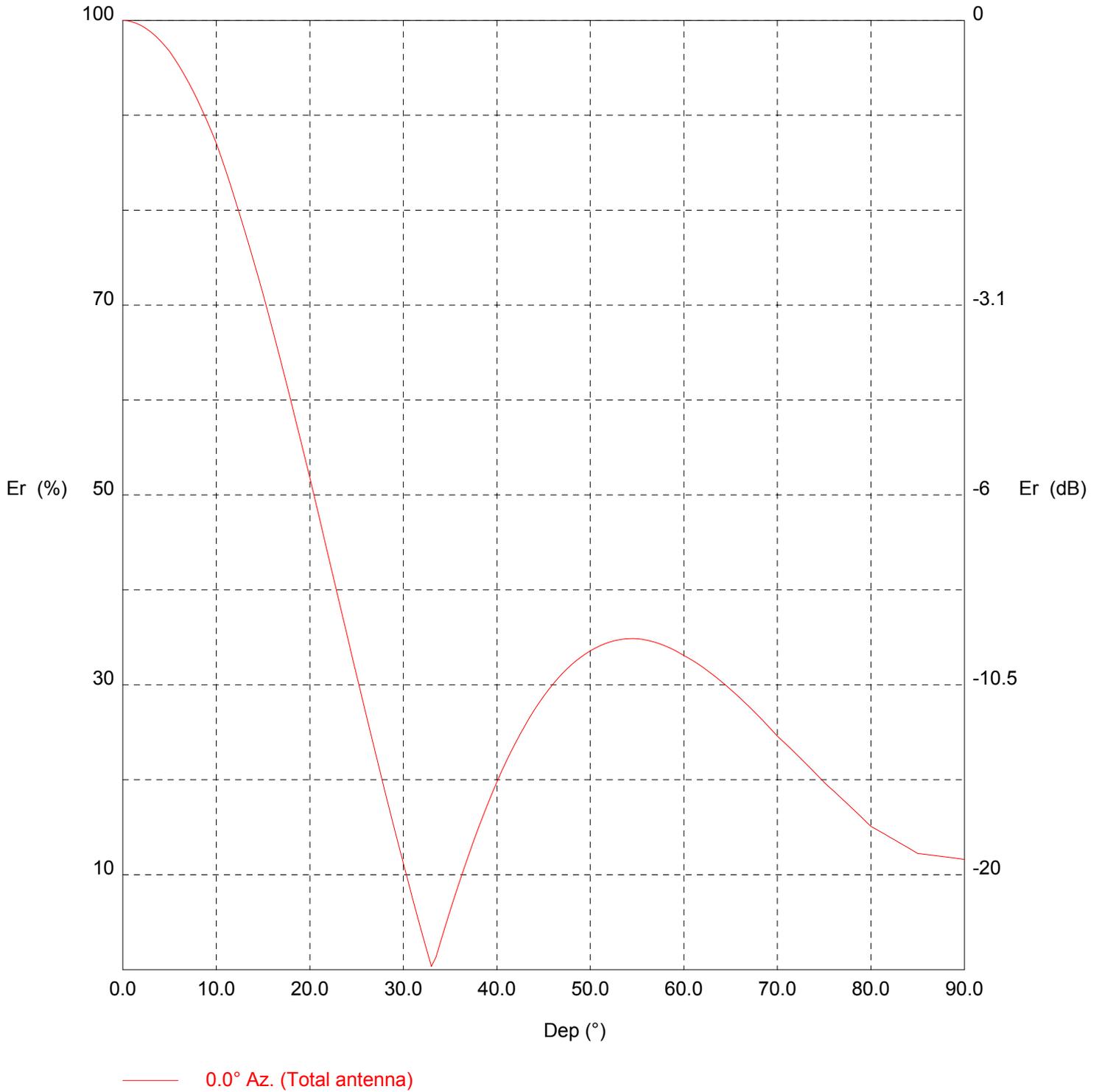
$\Theta$ (°)	$\Theta$ (radians)	R (m)	x'	y'	y = 93 - y'	Gnd
0	0	95	95	0	93.0	0
10	0.175	83	81.7	14.4	78.6	0
20	0.349	49	46.0	16.8	77.0	0
30	0.524	11	9.5	5.5	87.5	0
40	0.698	19	14.6	12.2	80.8	0
50	0.873	32	20.6	24.5	68.5	0
60	1.047	32	16.0	27.7	65.3	0
70	1.222	23	7.9	21.6	71.4	0
80	1.396	14	2.4	13.8	79.2	0
90	1.571	11	0.0	11	93	0

TX station: BKG77/2 GENERIC

Site name: 3/4 WAVE SEPARATION

Frequency: 102.50 MHz

### Vertical diagram



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