

[Exhibit 12]

## **Non-Interference Compliance**

Regarding Facility id 146634

Channel 236

### **Description of Exhibit 12 Contents**

This exhibit demonstrates that the proposed facility complies with contour overlap and interference protection provisions in all of the applicable rule sections and that this application for a construction permit is in full compliance with 47 C.F.R. § 74.1204.

**Let it be noted that should any actual real world interference occur, the applicant acknowledges that it will promptly suspend operation of this translator in accordance with 47 C.F.R. § 74.1203.**

Page 2 of this exhibit is an explanation of the method used to demonstrate compliance with contour overlap and interference provisions based on 47 C.F.R. § 74.1204(d), which states:

*[A]n application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable.*

Page 3 contains a tabulation of the vertical radiation pattern of the proposed antenna and the minimum ground clearance of the interfering contour based on this pattern.

Pages 4 through 6 include a plot and a tabulation of the vertical radiation pattern for the proposed antenna provided by the antenna manufacturer.

Page 7 of this exhibit contains the tabulated data from the interference analysis, which shows all stations whose protected contours come within 50 km of the 34 dBμ F(50,10) contour of the proposed translator. These tabulated values were calculated using data from the FCC's CDBS files and 30 arc second terrain data. The column labeled "Adj" shows the number of channels difference between the entry and the proposed translator. The column labeled "Dist" shows the distance in km. The column labeled "Overlap" shows the area of contour overlap in square kilometers.

Page 8 of this exhibit is a portion of a USGS 1:24,000 scale 7.5 minute quadrangle at full scale with the calculated area of interference overlaid. The sheet includes the quadrangle name and measurement scale at the bottom-left corner (note: "Mt" refers to meters). The area of interference was calculated using the free space equation and 120 radials.

## Compliance with 47 C.F.R. § 74.1204(d)

All authorized second and third adjacent stations with which the proposed translator has contour overlap are tabulated below. Column four show the station's signal level at the proposed translator's tower site, and column five gives the minimum value within the entire standard interfering contour of the proposed translator (100 dBμ for most classes, 94 for class B, 97 for class B1). The minimum second or third adjacent F(50,50) contour within the proposed translator's standard interfering contour was used to calculate the proposed translator's actual "worst-case" interfering contour.

<b>Application_id</b>	<b>File Number</b>	<b>Callsign</b>	<b>Contour at Tower</b>	<b>Min. Contour</b>
602678	BLH20020513AAH	WLDI	77.4	77.2
693987	BLH20031015ACY	WSYR-FM	82.4	82.1

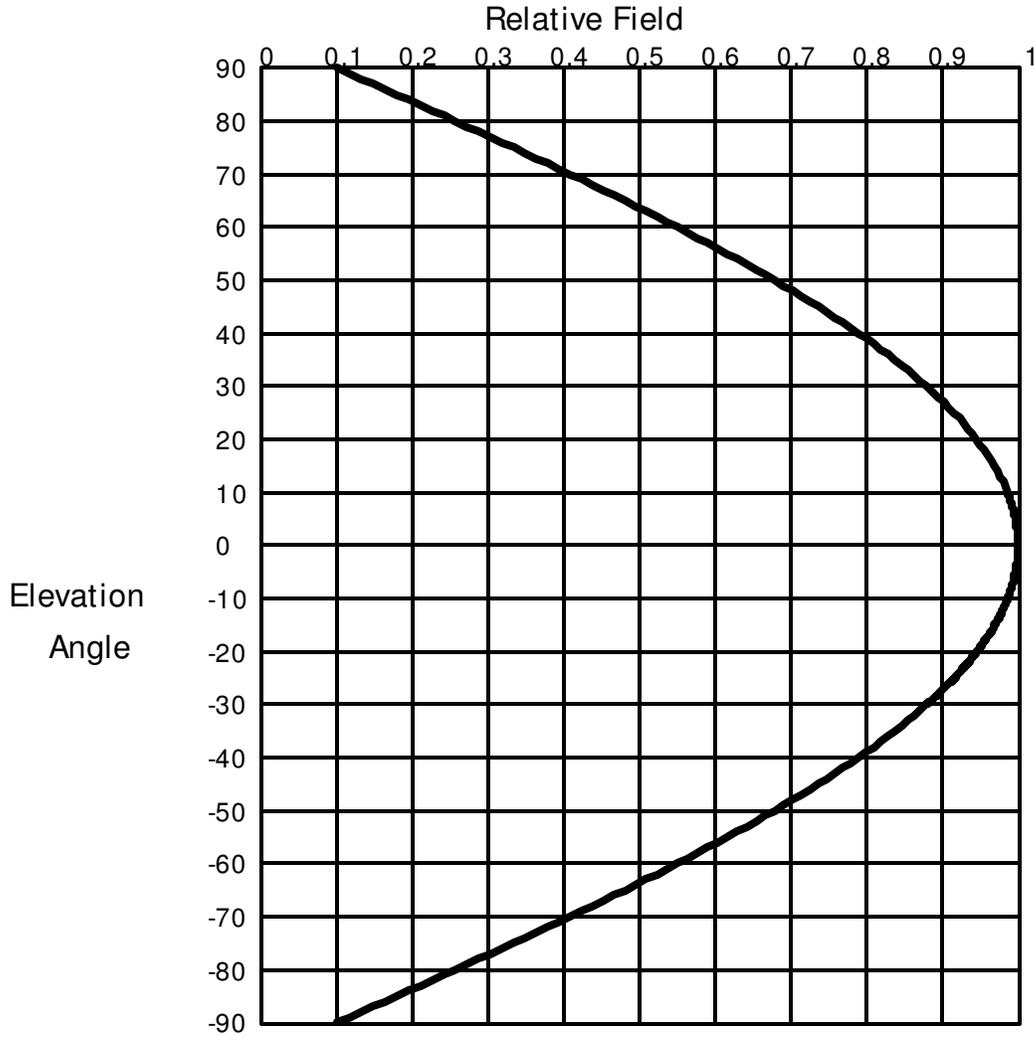
Minimum F(50,50) Contour of Adjacent Station within  
Proposed Translator's Standard Interfering Contour **77.2**

FCC 02-244 at Section II.A.5 states that "when demonstrating that 'no actual interference will occur due to . . . other factors,' pursuant to Section 74.1204(d), an applicant may use the undesired-to-desired signal ratio method." The undesired-to-desired ratio for second and third adjacent stations required by § 74.1204(a) is 40 dB. Since the minimum protected contour strength within the proposed translator's standard interference contour is **77.2 dBμ**, this makes the proposed translator's worst-case interfering contour **117.2 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **34.9 m** from the transmit antenna.

The maximum horizontal plane of the interfering contour was calculated for 120 radials and plotted on the pertinent portion of a USGS quadrangle (page 8 of this exhibit). However, the field strength of the proposed translator's antenna varies with angle of depression from horizontal. The antenna relative fields are tabulated on the following page at 5 degree increments, starting at 5 degrees below horizontal. Antenna relative field strength data was provided and certified by the manufacturer of the proposed antenna. Using a free-space calculation that neglects any loss due to reflection, the vertical ground clearance of the proposed translator's interference contour has been tabulated. As shown on the following page, the area of interference clears the tower ground level (TGL) by **111.8 m** at the lowest point. The applicant has taken into account USGS quadrangles and relevant aerial photography in stating that no structures, except possibly tower support structures, puncture the area of interference. Hence, in accordance with 47 C.F.R. § 74.1204(d) and the clarification provided by the FCC in the decision *Re: Living Way Ministries* (FCC 02-244), a lack of population has been demonstrated within the area of interference and this application is therefore in full compliance with 47 C.F.R. § 74.1204.

**Antenna Manufacturer:** SWR  
**Antenna Model:** FM1  
**CORAGL:** 130 m  
**Maximum ERP:** 0.013 kW  
**Interfering Contour:** 117.2 dBμ  
**Max Int. Contour Distance:** 34.9 m  
**Min Ground Clearance:** 111.8 m

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	.997	12.9	34.8	34.7	127.0
10	.986	12.6	34.4	33.9	124.0
15	.969	12.2	33.8	32.7	121.2
20	.946	11.6	33.0	31.0	118.7
25	.916	10.9	32.0	29.0	116.5
30	.879	10.0	30.7	26.6	114.7
35	.837	9.1	29.2	23.9	113.2
40	.789	8.1	27.5	21.1	112.3
45	.736	7.0	25.7	18.2	111.8
50	.679	6.0	23.7	15.2	111.8
55	.616	4.9	21.5	12.3	112.4
60	.550	3.9	19.2	9.6	113.4
65	.480	3.0	16.8	7.1	114.8
70	.408	2.2	14.2	4.9	116.6
75	.333	1.4	11.6	3.0	118.8
80	.256	0.9	8.9	1.6	121.2
85	.178	0.4	6.2	0.5	123.8
90	.100	0.1	3.5	0.0	126.5
Minimum Clearance above TGL:					<b>111.8 m</b>



## Elevation Pattern

Scale: Linear

Units: Field, Relative

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CLIENT: *General*

Date: 11/10/03

ANTENNA TYPE: FM1/1

FREQUENCY: 98.1

PATTERN POL.: Circular

DIRECTIVITY(Peak): 0.883/ -0.539 dBd

Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 0.883/ -0.539 dBd

Null Fill(s)(%) : 0, 0, 0

# Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
3.2	.999 (-0.012)	-4.4	.997 (-0.023)	-12.0	.98 (-0.173 )
3.0	.999 (-0.011)	-4.6	.997 (-0.025)	-12.2	.98 (-0.178 )
2.8	.999 (-0.009)	-4.8	.997 (-0.027)	-12.4	.979 (-0.184 )
2.6	.999 (-0.008)	-5.0	.997 (-0.03)	-12.6	.978 (-0.19 )
2.4	.999 (-0.007)	-5.2	.996 (-0.032)	-12.8	.978 (-0.196 )
2.2	.999 (-0.006)	-5.4	.996 (-0.035)	-13.0	.977 (-0.203 )
2.0	.999 (-0.005)	-5.6	.996 (-0.037)	-13.2	.976 (-0.209 )
1.8	1.00 (-0.004)	-5.8	.995 (-0.04)	-13.4	.975 (-0.215 )
1.6	1.00 (-0.003)	-6.0	.995 (-0.043)	-13.6	.975 (-0.222 )
1.4	1.00 (-0.002)	-6.2	.995 (-0.046)	-13.8	.974 (-0.229 )
1.2	1.00 (-0.002)	-6.4	.994 (-0.049)	-14.0	.973 (-0.235 )
1.0	1.00 (-0.001)	-6.6	.994 (-0.052)	-14.2	.973 (-0.242 )
.8	1.00 (-0.001)	-6.8	.994 (-0.055)	-14.4	.972 (-0.249 )
.6	1.00 (0)	-7.0	.993 (-0.058)	-14.6	.971 (-0.256 )
.4	1.00 (0)	-7.2	.993 (-0.062)	-14.8	.97 (-0.263 )
.2	1.00 (0)	-7.4	.993 (-0.065)	-15.0	.969 (-0.271 )
.0	1.00 (0)	-7.6	.992 (-0.069)	-15.2	.969 (-0.278 )
-.2	1.00 (0)	-7.8	.992 (-0.073)	-15.4	.968 (-0.285 )
-.4	1.00 (0)	-8.0	.991 (-0.076)	-15.6	.967 (-0.293 )
-.6	1.00 (0)	-8.2	.991 (-0.08)	-15.8	.966 (-0.3 )
-.8	1.00 (-0.001)	-8.4	.99 (-0.084)	-16.0	.965 (-0.308 )
-1.0	1.00 (-0.001)	-8.6	.99 (-0.088)	-16.2	.964 (-0.316 )
-1.2	1.00 (-0.002)	-8.8	.989 (-0.093)	-16.4	.963 (-0.324 )
-1.4	1.00 (-0.002)	-9.0	.989 (-0.097)	-16.6	.962 (-0.332 )
-1.6	1.00 (-0.003)	-9.2	.988 (-0.101)	-16.8	.962 (-0.34 )
-1.8	1.00 (-0.004)	-9.4	.988 (-0.106)	-17.0	.961 (-0.348 )
-2.0	.999 (-0.005)	-9.6	.987 (-0.11)	-17.2	.96 (-0.357 )
-2.2	.999 (-0.006)	-9.8	.987 (-0.115)	-17.4	.959 (-0.365 )
-2.4	.999 (-0.007)	-10.0	.986 (-0.12)	-17.6	.958 (-0.374 )
-2.6	.999 (-0.008)	-10.2	.986 (-0.124)	-17.8	.957 (-0.383 )
-2.8	.999 (-0.009)	-10.4	.985 (-0.129)	-18.0	.956 (-0.391 )
-3.0	.999 (-0.011)	-10.6	.985 (-0.134)	-18.2	.955 (-0.4 )
-3.2	.999 (-0.012)	-10.8	.984 (-0.14)	-18.4	.954 (-0.409 )
-3.4	.998 (-0.014)	-11.0	.983 (-0.145)	-18.6	.953 (-0.418 )
-3.6	.998 (-0.015)	-11.2	.983 (-0.15)	-18.8	.952 (-0.427 )
-3.8	.998 (-0.017)	-11.4	.982 (-0.156)	-19.0	.951 (-0.437 )
-4.0	.998 (-0.019)	-11.6	.982 (-0.161)	-19.2	.95 (-0.446 )
-4.2	.998 (-0.021)	-11.8	.981 (-0.167)	-19.4	.949 (-0.456 )

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CLIENT: *General*

Date: 11/10/03

ANTENNA TYPE: FM1/1

FREQUENCY: 98.1

PATTERN POL.: Circular

DIRECTIVITY(Peak): 0.883/ -0.539 dBd

Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 0.883/ -0.539 dBd

Null Fill(s)(%) : 0, 0, 0

# Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
-19.6	.948 (-0.465)	-27.2	.90 (-0.911)	-54.0	.629 (-4.027)
-19.8	.947 (-0.475)	-27.4	.899 (-0.924)	-55.0	.616 (-4.205)
-20.0	.946 (-0.485)	-27.6	.898 (-0.939)	-56.0	.603 (-4.39)
-20.2	.945 (-0.495)	-27.8	.896 (-0.953)	-57.0	.59 (-4.58)
-20.4	.944 (-0.505)	-28.0	.895 (-0.967)	-58.0	.577 (-4.778)
-20.6	.942 (-0.515)	-28.2	.893 (-0.981)	-59.0	.564 (-4.982)
-20.8	.941 (-0.525)	-28.4	.892 (-0.996)	-60.0	.55 (-5.193)
-21.0	.94 (-0.535)	-28.6	.89 (-1.01)	-61.0	.536 (-5.411)
-21.2	.939 (-0.546)	-28.8	.889 (-1.025)	-62.0	.523 (-5.638)
-21.4	.938 (-0.556)	-29.0	.887 (-1.04)	-63.0	.509 (-5.873)
-21.6	.937 (-0.567)	-29.2	.886 (-1.055)	-64.0	.495 (-6.116)
-21.8	.936 (-0.578)	-29.4	.884 (-1.07)	-65.0	.48 (-6.369)
-22.0	.934 (-0.589)	-29.6	.883 (-1.085)	-66.0	.466 (-6.631)
-22.2	.933 (-0.6)	-29.8	.881 (-1.101)	-67.0	.452 (-6.904)
-22.4	.932 (-0.611)	-30.0	.879 (-1.116)	-68.0	.437 (-7.187)
-22.6	.931 (-0.622)	-31.0	.871 (-1.195)	-69.0	.423 (-7.483)
-22.8	.93 (-0.633)	-32.0	.863 (-1.277)	-70.0	.408 (-7.791)
-23.0	.928 (-0.645)	-33.0	.855 (-1.363)	-71.0	.393 (-8.112)
-23.2	.927 (-0.656)	-34.0	.846 (-1.451)	-72.0	.378 (-8.448)
-23.4	.926 (-0.668)	-35.0	.837 (-1.543)	-73.0	.363 (-8.799)
-23.6	.925 (-0.68)	-36.0	.828 (-1.638)	-74.0	.348 (-9.167)
-23.8	.923 (-0.692)	-37.0	.819 (-1.737)	-75.0	.333 (-9.553)
-24.0	.922 (-0.704)	-38.0	.809 (-1.839)	-76.0	.318 (-9.959)
-24.2	.921 (-0.716)	-39.0	.799 (-1.944)	-77.0	.302 (-10.387)
-24.4	.92 (-0.728)	-40.0	.789 (-2.054)	-78.0	.287 (-10.839)
-24.6	.918 (-0.74)	-41.0	.779 (-2.167)	-79.0	.272 (-11.317)
-24.8	.917 (-0.753)	-42.0	.769 (-2.283)	-80.0	.256 (-11.826)
-25.0	.916 (-0.765)	-43.0	.758 (-2.404)	-81.0	.241 (-12.367)
-25.2	.914 (-0.778)	-44.0	.747 (-2.529)	-82.0	.225 (-12.946)
-25.4	.913 (-0.791)	-45.0	.736 (-2.658)	-83.0	.21 (-13.569)
-25.6	.912 (-0.803)	-46.0	.725 (-2.791)	-84.0	.194 (-14.241)
-25.8	.91 (-0.816)	-47.0	.714 (-2.928)	-85.0	.178 (-14.97)
-26.0	.909 (-0.83)	-48.0	.702 (-3.071)	-86.0	.163 (-15.768)
-26.2	.908 (-0.843)	-49.0	.69 (-3.217)	-87.0	.147 (-16.648)
-26.4	.906 (-0.856)	-50.0	.679 (-3.369)	-88.0	.131 (-17.627)
-26.6	.905 (-0.87)	-51.0	.666 (-3.525)	-89.0	.116 (-18.733)
-26.8	.903 (-0.883)	-52.0	.654 (-3.687)	-90.0	.10 (-20)
-27.0	.902 (-0.897)	-53.0	.642 (-3.854)	90.0	.00 (-50)

**Systems With Reliability Inc.**

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CLIENT: *General*

Date: 11/10/03

ANTENNA TYPE: FM1/1

FREQUENCY: 98.1

PATTERN POL.: Circular

DIRECTIVITY(Peak): 0.883/ -0.539 dBd

Beam Tilt (Deg.) : 0

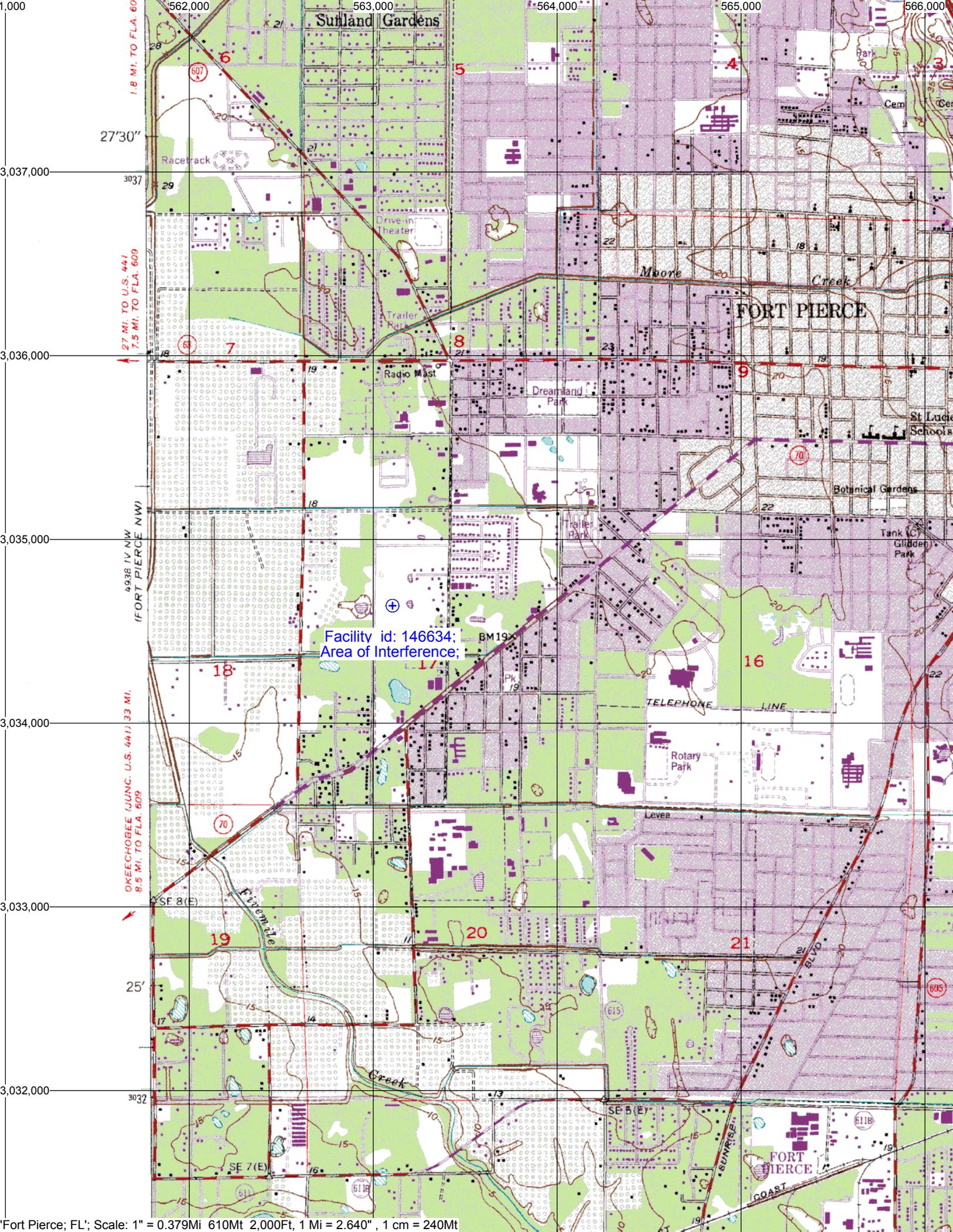
DIRECTIVITY(Horiz): 0.883/ -0.539 dBd

Null Fill(s)(%) : 0, 0, 0

**Adjacent Channel Study**  
**For Station W236AO, Facility\_id: 146634**

**Co-channel through third adjacent:**

Application_id	Facility_id	Prefix	ARN	Call	Licensee	Class	City	State	Status	ERP	RCMSL	Channel	Adj	Dist	Overlap
693987	40988	BLH	20031015ACY	WSYR-FM	CAPSTAR TX LIMITED PARTNERSHIP	C2	GIFFORD	FL	LIC	50	106	234	2	13.3	0.0776
602678	2680	BLH	20020513AAH	WLDI	CLEAR CHANNEL BROADCASTING LICENSES, INC	C1	FORT PIERCE	FL	LIC	100	290.8	238	2	34.9	0.0776
1091260	11409	BLH	20050920AEK	WBVD	CAPSTAR TX LIMITED PARTNERSHIP	A	MELBOURNE	FL	LIC	4.3	123	236	0	84.9	0



Facility id: 146634;  
Area of Interference;