

**Non-Interference Compliance**

Regarding Facility id 143354

Channel 275

**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.

Page 9 of this exhibit is a high resolution aerial photo of the vicinity surrounding the proposed translator's tower site provided by the U.S. Geological Survey's National Aerial Photography Program. It has been included to provide clarification of the nature of the buildings in the vicinity.

### 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.

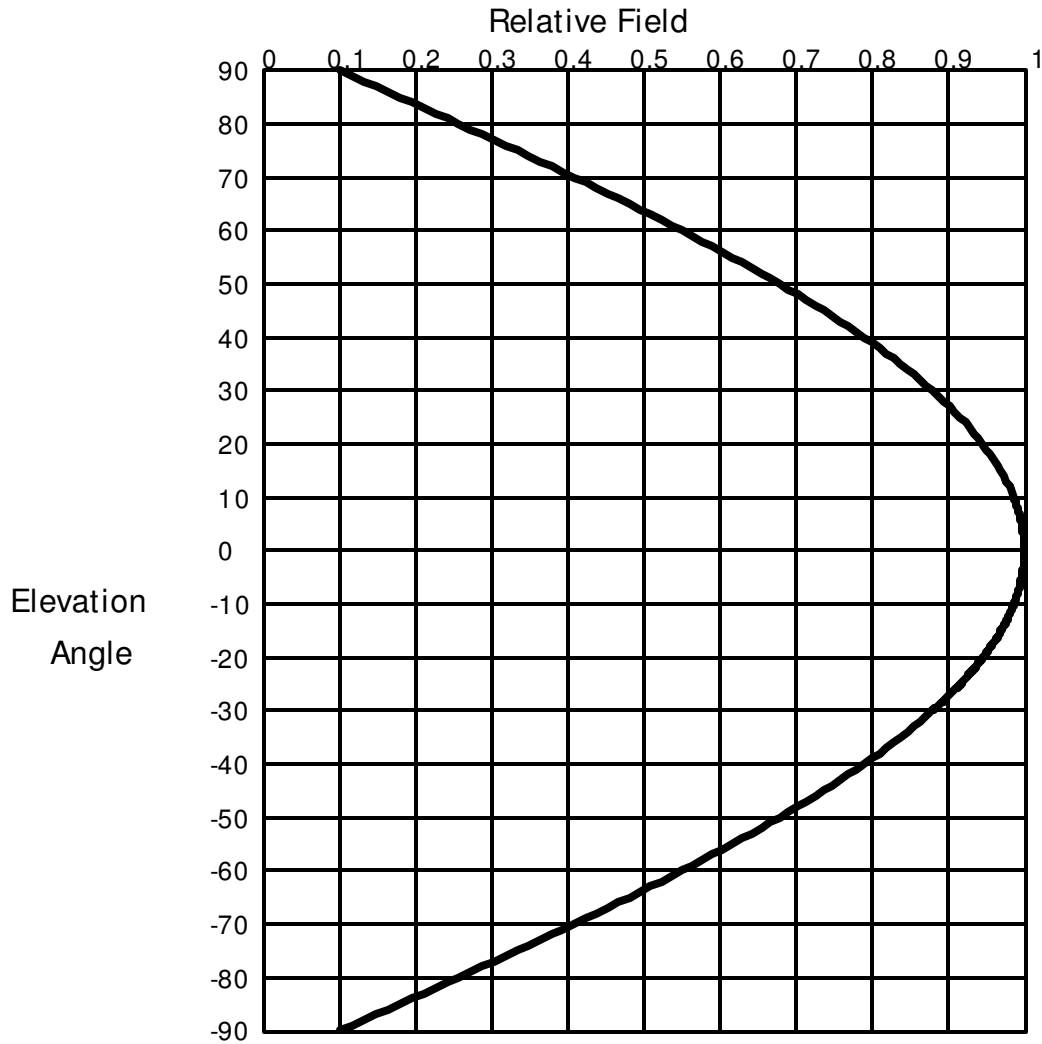
<b>Application_id</b>	<b>File Number</b>	<b>Callsign</b>	<b>Contour at Tower</b>	<b>Min. Contour</b>
101473	BLH19870522KA	KPRS	83.5	82.8
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				<b>82.8</b>

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 **82.8 dBμ**, this makes the proposed translator's worst-case interfering contour **122.8 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **66.3 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 **41.5 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.

<b>Antenna Manufacturer:</b>	<b>SWR</b>
<b>Antenna Model:</b>	<b>FM1</b>
<b>CORAGL:</b>	<b>76 m</b>
<b>Maximum ERP:</b>	<b>0.17 kW</b>
<b>Interfering Contour:</b>	<b>122.8 dBμ</b>
<b>Max Int. Contour Distance:</b>	<b>66.3 m</b>
<b>Min Ground Clearance:</b>	<b>41.5 m</b>

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	169.0	66.1	65.8	70.2
10	.986	165.3	65.3	64.3	64.7
15	.969	159.6	64.2	62.0	59.4
20	.946	152.1	62.7	58.9	54.6
25	.916	142.6	60.7	55.0	50.4
30	.879	131.3	58.2	50.4	46.9
35	.837	119.1	55.5	45.4	44.2
40	.789	105.8	52.3	40.0	42.4
45	.736	92.1	48.8	34.5	41.5
50	.679	78.4	45.0	28.9	41.5
55	.616	64.5	40.8	23.4	42.6
60	.550	51.4	36.4	18.2	44.4
65	.480	39.2	31.8	13.4	47.2
70	.408	28.3	27.0	9.2	50.6
75	.333	18.9	22.1	5.7	54.7
80	.256	11.1	17.0	2.9	59.3
85	.178	5.4	11.8	1.0	64.3
90	.100	1.7	6.6	0.0	69.4
Minimum Clearance above TGL:					<b>41.5 m</b>



## Elevation Pattern

Scale: Linear

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Units: Field, Relative

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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Beam Tilt (Deg.) : 0

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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.

Page 2 of 2

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Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 0.883/ -0.539 dBd

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

# Adjacent Channel Study

## For Station NEW, Facility\_id: 143354

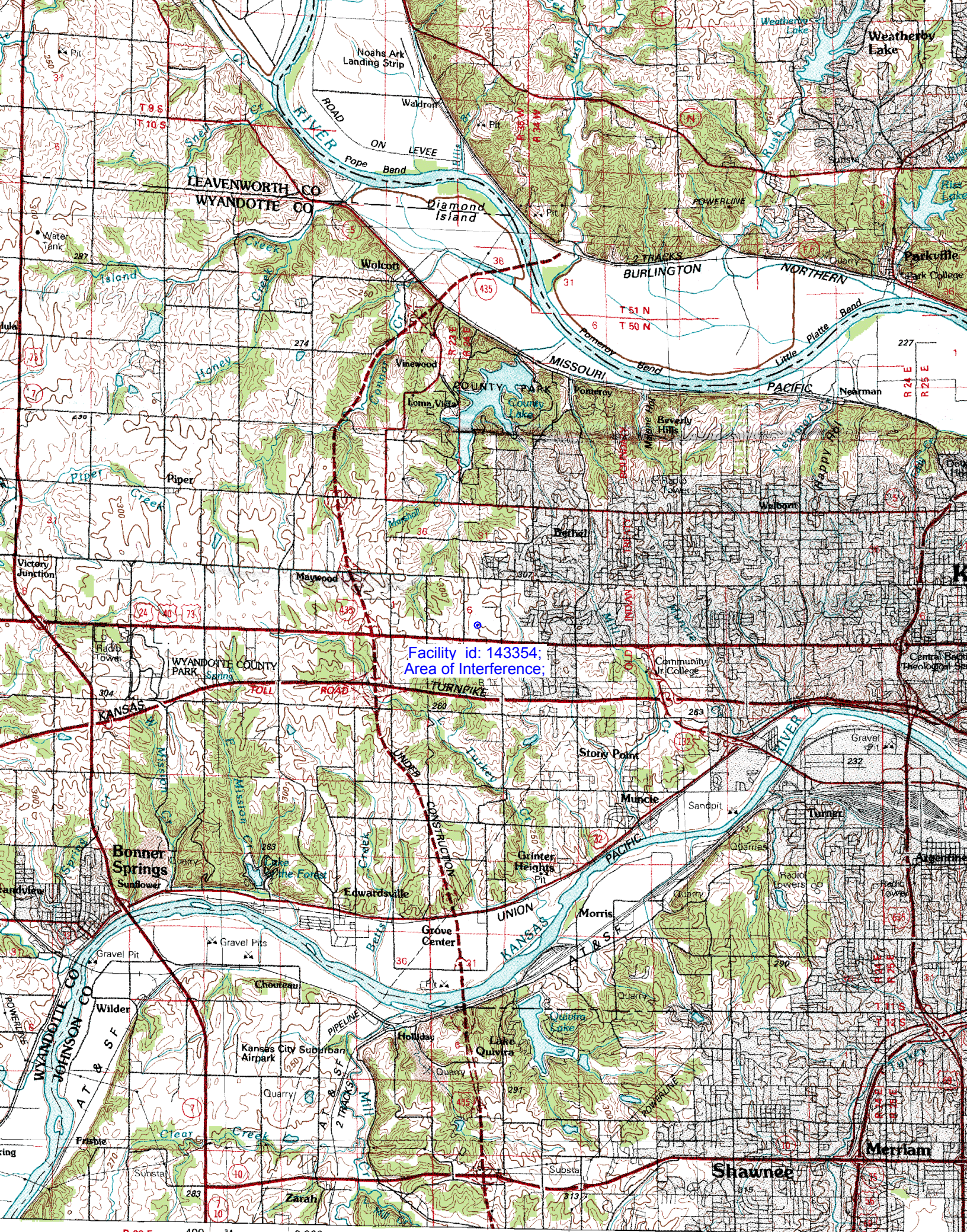
### Co-channel through third adjacent:

Application_id	Facility_id	Prefix	ARN	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Channel	Adj	Dist	Overlap
101473	35495	BLH	19870522KA	KPRS	CARTER BROADCAST GROUP, INC.	C	KANSAS CITY	MO	LIC	100	577	277	2	26	1.0144
641957	149119	BNPFT	20030317FXX	NEW	EDGEWATER BROADCASTING, INC.	D	KANSAS CITY	MO	APP	0.075	396.6	273	2	26	0
641655	148824	BNPFT	20030317EZ	NEW	EDGEWATER BROADCASTING, INC.	D	DE SOTO	KS	APP	0.205	358.3	273	2	27.8	0
641938	149100	BNPFT	20030317FWI	NEW	EDGEWATER BROADCASTING, INC.	D	BELTON	MO	APP	0.034	560	273	2	49.4	0
981995	149132	BNPFT	20030828BDJ	K273BE	EDGEWATER BROADCASTING, INC.	D	RICHMOND	MO	CP	0.036	327	273	2	75.2	0
641944	149106	BNPFT	20030317FWW	NEW	EDGEWATER BROADCASTING, INC.	D	CAMERON	MO	APP	0.14	401	273	2	81.8	0
683447	149137	BNPFT	20030828BDH	K273BF	EDGEWATER BROADCASTING, INC.	D	ST. JOSEPH	MO	CP	0.075	449	273	2	83.4	0
667199	60034	BLH	20030326AHX	KQTP	CUMULUS LICENSING CORP.	C2	ST. MARYS	KS	LIC	30	480.5	275	0	84.7	0
613264	43226	BMPH	20020925ABQ	KMMO-FM	MISSOURI VALLEY BROADCASTING, INC.	C1	MARSHALL	MO	CP MOD	76	522	275	0	127.8	0
192931	43226	BLH	19931213KB	KMMO-FM	MISSOURI VALLEY BROADCASTING, INC.	C1	MARSHALL	MO	LIC	100	337	275	0	134.7	0

### Intermediate Frequencies (53 and 54 channels difference):

Application_id	Facility_id	Prefix	ARN	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Channel	Adj	Dist	Clr
216316	6492	BLH	19951113KA	KCCV-FM	BOTT BROADCASTING COMPANY	C3	OLATHE	KS	LIC	8.3	465	222	53	19.9	7.9
650132	156839	BNPFT	20030317IRS	NEW	COVENANT NETWORK	D	CAMERON	MO	APP	0.25	376	221	54	84.1	74.1
636124	143893	BNPFT	20030314CCT	NEW	COVENANT NETWORK INC.	D	CAMERON	MO	APP	0.25	376	221	54	84.1	74.1





Facility id: 143354;  
Area of Interference:



