

## **Non-Interference Compliance**

Regarding Facility id 145422

Channel 229

### **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.

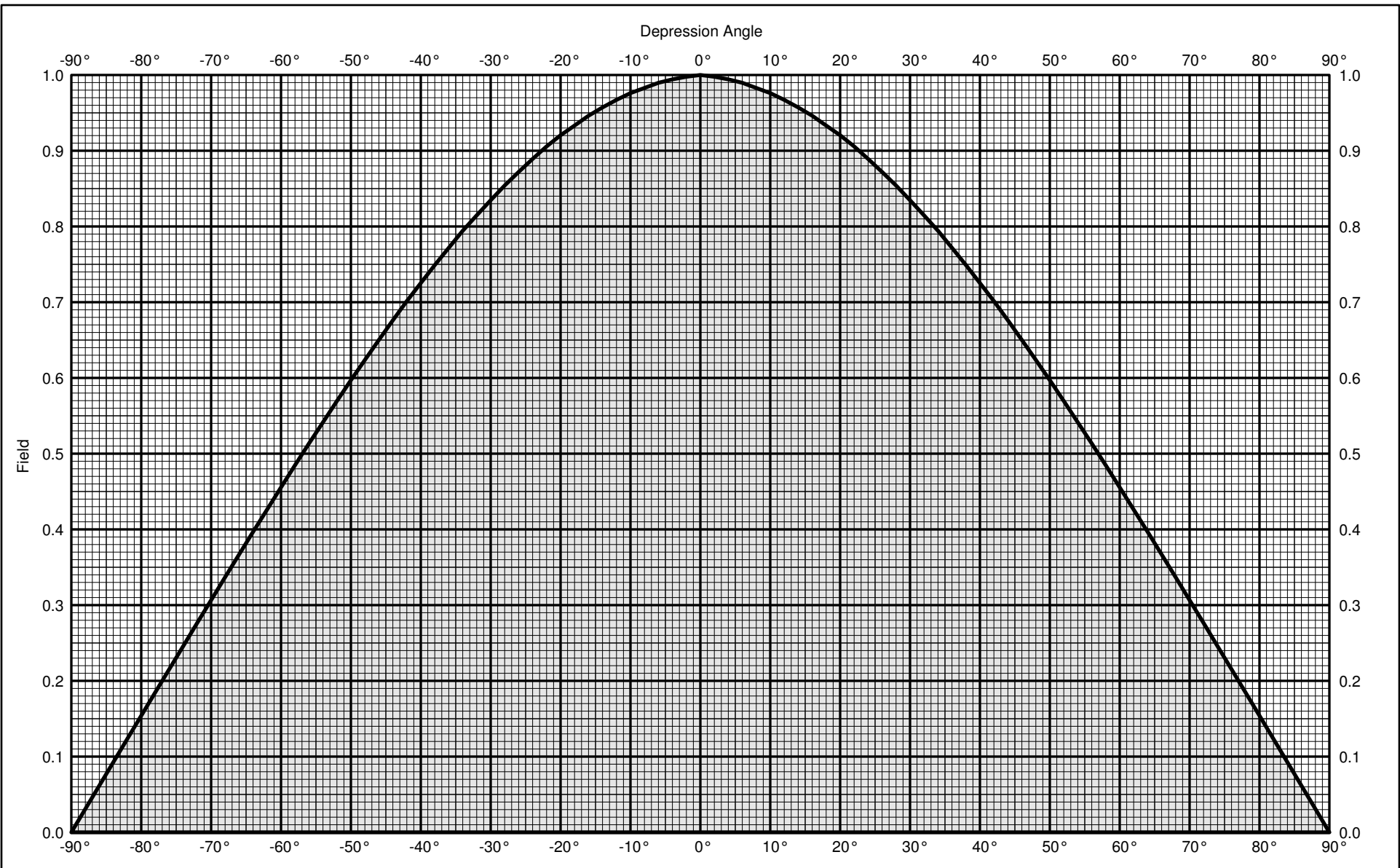
Application_id	File Number	Callsign	Contour at Tower	Min. Contour
100970	BLH19870507LI	KFKF-FM	96.9	96
99052	BLH19870318KG	KMXV	97.5	96.6
994083	BXPH20040518AAT	KMXV	69.9	69.6
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				<b>69.6</b>

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 **69.6 dBμ**, this makes the proposed translator's worst-case interfering contour **109.6 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **201.2 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 **51.7 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>SCA</b>
<b>Antenna Model:</b>	<b>GP-FM</b>
<b>CORAGL:</b>	<b>146 m</b>
<b>Maximum ERP:</b>	<b>0.075 kW</b>
<b>Interfering Contour:</b>	<b>109.6 dBμ</b>
<b>Max Int. Contour Distance:</b>	<b>201.2 m</b>
<b>Min Ground Clearance:</b>	<b>51.7 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)
45	.663	33.0	133.4	94.3	51.7
10	.976	71.4	196.3	193.3	111.9
20	.920	63.5	185.1	173.9	82.7
25	.881	58.2	177.2	160.6	71.1
30	.835	52.3	168.0	145.5	62.0
35	.783	46.0	157.5	129.0	55.7
40	.725	39.4	145.8	111.7	52.3
15	.952	68.0	191.5	185.0	96.4
50	.597	26.7	120.1	77.2	54.0
55	.527	20.8	106.0	60.8	59.2
60	.456	15.6	91.7	45.9	66.6
65	.382	10.9	76.8	32.5	76.4
70	.307	7.1	61.8	21.1	88.0
75	.231	4.0	46.5	12.0	101.1
80	.154	1.8	31.0	5.4	115.5
90	.010	0.0	2.0	0.0	144.0
5	.992	73.8	199.5	198.8	128.6
85	.077	0.4	15.5	1.3	130.6
Minimum Clearance above TGL:					<b>51.7 m</b>



GP-FM Groundplane

Vertical radiation pattern

FM

0.0 dBd (2.15 dBi)

Vertical polarization



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GP-FM Groundplane

Vertical radiation pattern

FM

0.0 dBd (2.15 dBi )

Vertical polarization

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.010	-40.00	-40.00	0.00	-45	0.663	-3.57	-3.57	0.44
-89	0.015	-36.24	-36.24	0.00	-44	0.676	-3.40	-3.40	0.46
-88	0.031	-30.22	-30.22	0.00	-43	0.689	-3.24	-3.24	0.47
-87	0.046	-26.70	-26.70	0.00	-42	0.701	-3.08	-3.08	0.49
-86	0.062	-24.20	-24.20	0.00	-41	0.713	-2.93	-2.93	0.51
-85	0.077	-22.26	-22.26	0.01	-40	0.725	-2.79	-2.79	0.53
-84	0.092	-20.68	-20.68	0.01	-39	0.737	-2.65	-2.65	0.54
-83	0.108	-19.34	-19.34	0.01	-38	0.749	-2.51	-2.51	0.56
-82	0.123	-18.18	-18.18	0.02	-37	0.760	-2.38	-2.38	0.58
-81	0.139	-17.16	-17.16	0.02	-36	0.772	-2.25	-2.25	0.60
-80	0.154	-16.25	-16.25	0.02	-35	0.783	-2.12	-2.12	0.61
-79	0.169	-15.42	-15.42	0.03	-34	0.794	-2.00	-2.00	0.63
-78	0.185	-14.67	-14.67	0.03	-33	0.805	-1.89	-1.89	0.65
-77	0.200	-13.98	-13.98	0.04	-32	0.815	-1.78	-1.78	0.66
-76	0.215	-13.34	-13.34	0.05	-31	0.825	-1.67	-1.67	0.68
-75	0.231	-12.75	-12.75	0.05	-30	0.835	-1.57	-1.57	0.70
-74	0.246	-12.19	-12.19	0.06	-29	0.844	-1.47	-1.47	0.71
-73	0.261	-11.67	-11.67	0.07	-28	0.854	-1.37	-1.37	0.73
-72	0.276	-11.17	-11.17	0.08	-27	0.863	-1.28	-1.28	0.74
-71	0.291	-10.71	-10.71	0.08	-26	0.872	-1.19	-1.19	0.76
-70	0.307	-10.27	-10.27	0.09	-25	0.881	-1.10	-1.10	0.78
-69	0.322	-9.85	-9.85	0.10	-24	0.889	-1.02	-1.02	0.79
-68	0.337	-9.45	-9.45	0.11	-23	0.897	-0.94	-0.94	0.81
-67	0.352	-9.07	-9.07	0.12	-22	0.906	-0.86	-0.86	0.82
-66	0.367	-8.71	-8.71	0.13	-21	0.913	-0.79	-0.79	0.83
-65	0.382	-8.36	-8.36	0.15	-20	0.920	-0.72	-0.72	0.85
-64	0.397	-8.03	-8.03	0.16	-19	0.927	-0.66	-0.66	0.86
-63	0.411	-7.71	-7.71	0.17	-18	0.933	-0.60	-0.60	0.87
-62	0.426	-7.41	-7.41	0.18	-17	0.940	-0.54	-0.54	0.88
-61	0.441	-7.12	-7.12	0.19	-16	0.946	-0.48	-0.48	0.90
-60	0.456	-6.83	-6.83	0.21	-15	0.952	-0.43	-0.43	0.91
-59	0.470	-6.56	-6.56	0.22	-14	0.957	-0.38	-0.38	0.92
-58	0.485	-6.29	-6.29	0.23	-13	0.962	-0.33	-0.33	0.93
-57	0.499	-6.04	-6.04	0.25	-12	0.967	-0.29	-0.29	0.94
-56	0.513	-5.79	-5.79	0.26	-11	0.972	-0.25	-0.25	0.94
-55	0.527	-5.56	-5.56	0.28	-10	0.976	-0.21	-0.21	0.95
-54	0.541	-5.33	-5.33	0.29	-9	0.979	-0.18	-0.18	0.96
-53	0.555	-5.11	-5.11	0.31	-8	0.983	-0.15	-0.15	0.97
-52	0.570	-4.89	-4.89	0.32	-7	0.986	-0.12	-0.12	0.97
-51	0.583	-4.68	-4.68	0.34	-6	0.990	-0.09	-0.09	0.98
-50	0.597	-4.48	-4.48	0.36	-5	0.992	-0.07	-0.07	0.98
-49	0.610	-4.29	-4.29	0.37	-4	0.994	-0.05	-0.05	0.99
-48	0.624	-4.10	-4.10	0.39	-3	0.996	-0.03	-0.03	0.99
-47	0.637	-3.92	-3.92	0.41	-2	0.998	-0.02	-0.02	1.00
-46	0.650	-3.74	-3.74	0.42	-1	0.999	-0.01	-0.01	1.00
					0	1.000	0.00	0.00	1.00



GP-FM Groundplane  
FM

0.0 dBd (2.15 dBi )

Vertical polarization

Vertical radiation pattern

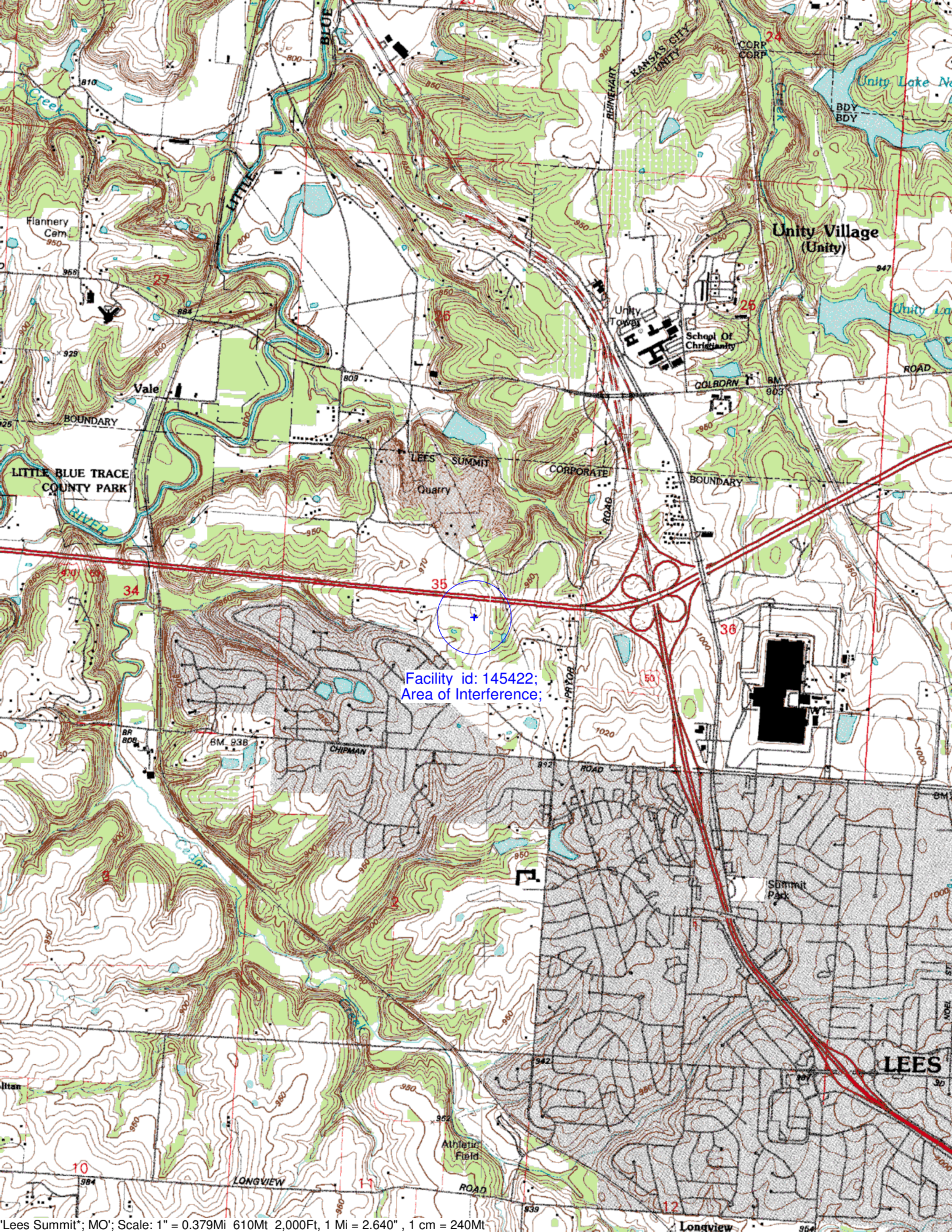
Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	0.00	1.00	45	0.663	-3.57	-3.57	0.44
1	0.999	-0.01	-0.01	1.00	46	0.650	-3.74	-3.74	0.42
2	0.998	-0.02	-0.02	1.00	47	0.637	-3.92	-3.92	0.41
3	0.996	-0.03	-0.03	0.99	48	0.624	-4.10	-4.10	0.39
4	0.994	-0.05	-0.05	0.99	49	0.610	-4.29	-4.29	0.37
5	0.992	-0.07	-0.07	0.98	50	0.597	-4.48	-4.48	0.36
6	0.990	-0.09	-0.09	0.98	51	0.583	-4.68	-4.68	0.34
7	0.986	-0.12	-0.12	0.97	52	0.570	-4.89	-4.89	0.32
8	0.983	-0.15	-0.15	0.97	53	0.555	-5.11	-5.11	0.31
9	0.979	-0.18	-0.18	0.96	54	0.541	-5.33	-5.33	0.29
10	0.976	-0.21	-0.21	0.95	55	0.527	-5.56	-5.56	0.28
11	0.972	-0.25	-0.25	0.94	56	0.513	-5.79	-5.79	0.26
12	0.967	-0.29	-0.29	0.94	57	0.499	-6.04	-6.04	0.25
13	0.962	-0.33	-0.33	0.93	58	0.485	-6.29	-6.29	0.23
14	0.957	-0.38	-0.38	0.92	59	0.470	-6.56	-6.56	0.22
15	0.952	-0.43	-0.43	0.91	60	0.456	-6.83	-6.83	0.21
16	0.946	-0.48	-0.48	0.90	61	0.441	-7.12	-7.12	0.19
17	0.940	-0.54	-0.54	0.88	62	0.426	-7.41	-7.41	0.18
18	0.933	-0.60	-0.60	0.87	63	0.411	-7.71	-7.71	0.17
19	0.927	-0.66	-0.66	0.86	64	0.397	-8.03	-8.03	0.16
20	0.920	-0.72	-0.72	0.85	65	0.382	-8.36	-8.36	0.15
21	0.913	-0.79	-0.79	0.83	66	0.367	-8.71	-8.71	0.13
22	0.906	-0.86	-0.86	0.82	67	0.352	-9.07	-9.07	0.12
23	0.897	-0.94	-0.94	0.81	68	0.337	-9.45	-9.45	0.11
24	0.889	-1.02	-1.02	0.79	69	0.322	-9.85	-9.85	0.10
25	0.881	-1.10	-1.10	0.78	70	0.307	-10.27	-10.27	0.09
26	0.872	-1.19	-1.19	0.76	71	0.291	-10.71	-10.71	0.08
27	0.863	-1.28	-1.28	0.74	72	0.276	-11.17	-11.17	0.08
28	0.854	-1.37	-1.37	0.73	73	0.261	-11.67	-11.67	0.07
29	0.844	-1.47	-1.47	0.71	74	0.246	-12.19	-12.19	0.06
30	0.835	-1.57	-1.57	0.70	75	0.231	-12.75	-12.75	0.05
31	0.825	-1.67	-1.67	0.68	76	0.215	-13.34	-13.34	0.05
32	0.815	-1.78	-1.78	0.66	77	0.200	-13.98	-13.98	0.04
33	0.805	-1.89	-1.89	0.65	78	0.185	-14.67	-14.67	0.03
34	0.794	-2.00	-2.00	0.63	79	0.169	-15.42	-15.42	0.03
35	0.783	-2.12	-2.12	0.61	80	0.154	-16.25	-16.25	0.02
36	0.772	-2.25	-2.25	0.60	81	0.139	-17.16	-17.16	0.02
37	0.760	-2.38	-2.38	0.58	82	0.123	-18.18	-18.18	0.02
38	0.749	-2.51	-2.51	0.56	83	0.108	-19.34	-19.34	0.01
39	0.737	-2.65	-2.65	0.54	84	0.092	-20.68	-20.68	0.01
40	0.725	-2.79	-2.79	0.53	85	0.077	-22.26	-22.26	0.01
41	0.713	-2.93	-2.93	0.51	86	0.062	-24.20	-24.20	0.00
42	0.701	-3.08	-3.08	0.49	87	0.046	-26.70	-26.70	0.00
43	0.689	-3.24	-3.24	0.47	88	0.031	-30.22	-30.22	0.00
44	0.676	-3.40	-3.40	0.46	89	0.015	-36.24	-36.24	0.00
					90	0.010	-40.00	-40.00	0.00

# **Adjacent Channel Study** **For Station NEW, Facility\_id: 145422**

## **Co-channel through third adjacent:**

Application_id	Facility_id	Prefix	ARN	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Channel	Adj	Dist	Overlap
100970	34431	BLH	19870507LI	KFKF-FM	EZ KANSAS CITY, INC.	C	KANSAS CITY	KS	LIC	100	577	231	2	12	0.4476
99052	2446	BLH	19870318KG	KMXV	INIFINITY RADIO LICENSE INC.	C	KANSAS CITY	MO	LIC	100	599	227	2	12	0.4476
1010632	34431	BXMLH	20040907AAW	KFKF-FM	INFINITY RADIO HOLDINGS INC.	C	KANSAS CITY	KS	APP	35	408	231	2	30.2	0.4476
994083	2446	BXPH	20040518AAT	KMXV	INFINITY RADIO INC.	C	KANSAS CITY	MO	CP	36	410	227	2	30.2	0.4476
755678	145426	BNPFT	20030826AFD	K229AO	RADIO ASSIST MINISTRY, INC.	D	WARRENSBURG	MO	CP	0.17	328	229	0	70.7	0
101069	29364	BLFT	19870512TC	K228CF	J AND J BROADCASTING	D	EMPORIA	KS	LIC	0.076	373	228	1	91.5	0
82280	29310	BLFT	19850930TB	K228CC	J & J BROADCASTING	D	SEDALIA	MO	LIC	0.085	326	228	1	104.9	0
637835	145284	BNPFT	20030317FVU	NEW	RADIO ASSIST MINISTRY, INC.	D	GARNETT	KS	APP	0.075	475.9	229	0	105.6	0
206210	33397	BLH	19950206KE	KAIR-FM	KNZA INC.	C3	HORTON	KS	LIC	25	429	229	0	109.3	0
681979	144472	BNPFT	20030826AFM	K226AR	RADIO ASSIST MINISTRY, INC.	D	CHILLICOTHE	MO	CP	0.075	390	226	3	112.6	0





Facility id: 145422;  
Area of Interference;