

## **Non-Interference Compliance**

Regarding Facility id 141988

Channel 274

### **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 includes a plot and a tabulation of the vertical radiation pattern for the proposed antenna provided by the antenna manufacturer.

Page 5 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 6 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 7 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.

Since the proposed translator is within 320 km of the Canadian border, 47 C.F.R. § 74.1235(d) has been taken into account and this applicant certifies that in no direction does the 34 dBμ F(50,10) extend beyond 60 km, and this application is therefore in full compliance with 47 C.F.R. § 74.1235(d)(3), which states that "the distance to the 34 dBμ interfering contour may not exceed 60 km in any direction," and hence complies with 47 C.F.R. § 74.1204(h).

### 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>
1091999	BLH20051026ACF	KRVX	75.2	74.7
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				<b>74.7</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 **74.7 dBμ**, this makes the proposed translator's worst-case interfering contour **114.7 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **152.8 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 **14.1 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>NIC</b>
<b>Antenna Model:</b>	<b>BKG77</b>
<b>CORAGL:</b>	<b>82 m</b>
<b>Maximum ERP:</b>	<b>0.14 kW</b>
<b>Interfering Contour:</b>	<b>114.7 dBμ</b>
<b>Max Int. Contour Distance:</b>	<b>152.8 m</b>
<b>Min Ground Clearance:</b>	<b>14.1 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	.999	139.7	152.6	152.0	68.7
10	.982	135.0	150.0	147.7	55.9
15	.954	127.4	145.8	140.8	44.3
20	.918	118.0	140.3	131.8	34.0
25	.871	106.2	133.1	120.6	25.8
30	.818	93.7	125.0	108.2	19.5
35	.758	80.4	115.8	94.9	15.6
40	.691	66.8	105.6	80.9	14.1
45	.616	53.1	94.1	66.5	15.5
50	.538	40.5	82.2	52.8	19.0
55	.465	30.3	71.0	40.7	23.8
60	.391	21.4	59.7	29.9	30.3
65	.313	13.7	47.8	20.2	38.7
70	.239	8.0	36.5	12.5	47.7
75	.176	4.3	26.9	7.0	56.0
80	.128	2.3	19.6	3.4	62.7
85	.103	1.5	15.7	1.4	66.3
90	.105	1.5	16.0	0.0	66.0
Minimum Clearance above TGL:					<b>14.1 m</b>



BK077

<b>Vertical</b>	-66	0.297	54	0.479	174	0.468
<b>Values</b>	-63	0.345	57	0.436	177	0.479
-180 0.487	-60	0.391	60	0.391		
-177 0.478	-57	0.436	63	0.345		
-174 0.467	-54	0.479	66	0.297		
-171 0.460	-51	0.523	69	0.253		
-168 0.454	-48	0.568	72	0.211		
-165 0.447	-45	0.616	75	0.176		
-162 0.439	-42	0.661	78	0.145		
-159 0.429	-39	0.706	81	0.120		
-156 0.419	-36	0.745	84	0.105		
-153 0.402	-33	0.783	87	0.100		
-150 0.385	-30	0.818	90	0.105		
-147 0.369	-27	0.852	93	0.118		
-144 0.359	-24	0.881	96	0.134		
-141 0.350	-21	0.910	99	0.151		
-138 0.338	-18	0.934	102	0.168		
-135 0.326	-15	0.954	105	0.185		
-132 0.314	-12	0.972	108	0.202		
-129 0.303	-9	0.987	111	0.219		
-126 0.290	-6	0.999	114	0.236		
-123 0.278	-3	0.999	117	0.252		
-120 0.265	0	1.000	120	0.265		
-117 0.251	3	0.999	123	0.278		
-114 0.236	6	0.999	126	0.290		
-111 0.218	9	0.987	129	0.304		
-108 0.202	12	0.972	132	0.314		
-105 0.185	15	0.954	135	0.327		
-102 0.168	18	0.934	138	0.338		
-99 0.151	21	0.910	141	0.350		
-96 0.134	24	0.881	144	0.360		
-93 0.118	27	0.852	147	0.370		
-90 0.105	30	0.818	150	0.386		
-87 0.100	33	0.783	153	0.403		
-84 0.105	36	0.745	156	0.420		
-81 0.120	39	0.706	159	0.430		
-78 0.145	42	0.661	162	0.440		
-75 0.176	45	0.616	165	0.448		
-72 0.211	48	0.568	168	0.455		
-69 0.253	51	0.523	171	0.461		

Better than SWR

# **Adjacent Channel Study** **For Station K274BH, Facility\_id: 141988**

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

Application_id	Facility_id	Prefix	ARN	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Channel	Adj	Dist	Overlap
1091999	164198	BLH	20051026ACF	KRVX	JAMES RIVER BROADCASTING COMPANY, INC.	C1	WIMBLEDON	ND	LIC	99	587	276	2	29.1	0.8354
1135469	133106	BPL	20060630AAE	KNDS-LP	ALLIANCE FOR THE ARTS AND HUMANITIES	L1	FARGO	ND	APP	0	301	275	1	80.4	0
109247	61016	BLFT	19880204TD	K272CW	SOUTH CENTRAL COMM. OF KULM, INC.	D	KULM, ETC.	ND	LIC	0.078	679	272	2	110.2	0
60582	15271	BLH	19830829AB	KDVL	DAKOTA ROSE BROADCASTING, INC.	C1	DEVILS LAKE	ND	LIC	100	596	273	1	139.1	0
34866	21399	BLH	19811005AH	KZCR	RESULT RADIO, INC	C1	FERGUS FALLS	MN	LIC	100	579	277	3	141.7	0
167931	42922	BLH	19911216KA	KNTN	MINNESOTA PUBLIC RADIO	C1	THIEF RIVER FALLS	MN	LIC	100	439	274	0	152.1	0
66048	36355	BLH	19840201AE	KBWS-FM	PHEASANT COUNTRY BROADCASTING, INC	C1	SISSETON	SD	LIC	100	698	275	1	152.4	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
44334	49213	BLED	19820621AB	KDSU	NORTH DAKOTA STATE UNIVERSITY	C	FARGO	ND	LIC	100	593	220	54	56.1	27.1



