

Non-Interference Compliance

Regarding Facility id 154500

Channel 237

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 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.

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
1045213	BPFT20050204AAB	K232BC	70.2	69.7
1075341	BLH20050914AAE	KQYK	64	64
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				64

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 **64 dBμ**, this makes the proposed translator's worst-case interfering contour **104 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **99 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 6 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 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:	NIC
Antenna Model:	BKG77
CORAGL:	58 m
Maximum ERP:	0.005 kW
Interfering Contour:	104 dBμ
Max Int. Contour Distance:	99 m
Min Ground Clearance:	14 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	.999	5.0	98.9	98.5	49.4
10	.982	4.8	97.2	95.7	41.1
15	.954	4.6	94.4	91.2	33.6
20	.918	4.2	90.9	85.4	26.9
25	.871	3.8	86.2	78.1	21.6
30	.818	3.3	81.0	70.1	17.5
35	.758	2.9	75.0	61.4	15.0
40	.691	2.4	68.4	52.4	14.0
45	.616	1.9	61.0	43.1	14.9
50	.538	1.4	53.2	34.2	17.2
55	.465	1.1	46.0	26.4	20.3
60	.391	0.8	38.7	19.3	24.5
65	.313	0.5	31.0	13.1	29.9
70	.239	0.3	23.7	8.1	35.8
75	.176	0.2	17.4	4.5	41.2
80	.128	0.1	12.7	2.2	45.5
85	.103	0.1	10.2	0.9	47.8
90	.105	0.1	10.4	0.0	47.6
Minimum Clearance above TGL:					14 m



BK077

Vertical	-66	0.297	54	0.479	174	0.468
Values	-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 K290AU, Facility_id: 154500**

Co-channel through third adjacent:

Application_id	Facility_id	Prefix	ARN	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Channel	Adj	Dist	Overlap
1045213	74439	BPFT	20050204AAB	K232BC	NORTHWESTERN COLLEGE	D	MANKATO	MN	CP	0.25	345	235	2	5.9	0.0298
1075341	164294	BLH	20050914AAE	KQYK	THREE EAGLES OF LUVERNE, INC.	A	LAKE CRYSTAL	MN	LIC	6	407.2	239	2	24.2	0.0298
1069467	152814	BMPFT	20050701AAJ	K239AQ	RADIO ASSIST MINISTRY INC.	D	NEW ULM	MN	CP MOD	0.17	403	237	0	38.1	0
1092028	34906	BLH	20051103ABJ	KRDS-FM	INGSTAD BROTHERS BROADCASTING, LLC	A	NEW PRAGUE	MN	LIC	6	418	238	1	48.8	0
646071	152861	BNPFT	20030317JCF	NEW	RADIO ASSIST MINISTRY, INC.	D	WELLS	MN	APP	0.205	435.1	239	2	53.5	0
633495	141819	BNPFT	20030312AOX	NEW	1400 INC.	D	BLUE EARTH	MN	APP	0.25	398	237	0	56.6	0
97994	54628	BLH	19870220KC	KQCL	CUMULUS LICENSING CORP.	A	FARIBAULT	MN	LIC	3	432	240	3	71.2	0
646015	152805	BNPFT	20030317IGQ	NEW	RADIO ASSIST MINISTRY, INC.	D	FAIRMONT	MN	APP	0.092	511.8	238	1	77.1	0
1006963	12706	BLH	20040825ABI	KCPI	THREE EAGLES OF LUVERNE, INC.	A	ALBERT LEA	MN	LIC	5	474	235	2	80.9	0
711019	29725	BMLH	20031212AAP	KILR-FM	JACOBSON BROADCASTING COMPANY, INC.	C3	ESTHERVILLE	IA	LIC	20	512	240	3	103.5	0
211084	30124	BLH	19950711KD	KNSG	CUMULUS LICENSING CORP.	C2	SPRINGFIELD	MN	LIC	50	475	234	3	103.8	0
1168918	29725	BPH	20061103AAF	KILR-FM	JACOBSON BROADCASTING COMPANY, INC.	C2	ESTHERVILLE	IA	APP	50	578	240	3	121.6	0

