

## **Non-Interference Compliance**

Regarding Facility id 146845

Channel 243

### **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.

Page 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.

### 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>
299529	BLH6155	WLBH-FM	95.8	94.9
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				<b>94.9</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 **94.9 dBμ**, this makes the proposed translator's worst-case interfering contour **134.9 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **7.8 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 **49.5 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>NIC</b>
<b>Antenna Model:</b>	<b>BKG77</b>
<b>CORAGL:</b>	<b>53 m</b>
<b>Maximum ERP:</b>	<b>0.038 kW</b>
<b>Interfering Contour:</b>	<b>134.9 dBμ</b>
<b>Max Int. Contour Distance:</b>	<b>7.8 m</b>
<b>Min Ground Clearance:</b>	<b>49.5 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	.999	37.9	7.8	7.7	52.3
10	.982	36.6	7.6	7.5	51.7
15	.954	34.6	7.4	7.2	51.1
20	.918	32.0	7.1	6.7	50.6
25	.871	28.8	6.8	6.1	50.1
30	.818	25.4	6.4	5.5	49.8
35	.758	21.8	5.9	4.8	49.6
40	.691	18.1	5.4	4.1	49.5
45	.616	14.4	4.8	3.4	49.6
50	.538	11.0	4.2	2.7	49.8
55	.465	8.2	3.6	2.1	50.0
60	.391	5.8	3.0	1.5	50.4
65	.313	3.7	2.4	1.0	50.8
70	.239	2.2	1.9	0.6	51.3
75	.176	1.2	1.4	0.4	51.7
80	.128	0.6	1.0	0.2	52.0
85	.103	0.4	0.8	0.1	52.2
90	.105	0.4	0.8	0.0	52.2
Minimum Clearance above TGL:					<b>49.5 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 W243AM, Facility\_id: 146845**

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

Application_id	Facility_id	Prefix	ARN	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Channel	Adj	Dist	Overlap
299529	40703	BLH	6155	WLBH-FM		B	MATTOON	IL	LIC	50	361	245	2	7.5	0.9027
1146054	146836	BMPFT	20060824AEJ	W243BV	RADIO ASSIST MINISTRY INC.	D	CASEY	IL	CP MOD	0.019	274	243	0	41.2	0
683053	146848	BNPFT	20030828AFG	W243BL	RADIO ASSIST MINISTRY, INC.	D	NEWTON	IL	CP	0.01	347	243	0	56.5	0
636362	144112	BNPFT	20030317AEB	NEW	COVENANT NETWORK	D	MOWEAQUA	IL	APP	0.17	214	241	2	57.7	0
640621	147881	BNPFT	20030317LMO	NEW	COUNTRYSIDE BROADCASTING, INC.	D	PANA	IL	APP	0.25	220	243	0	60	0
1018370	144391	BNPFT	20030828BGN	W243CC	COVENANT NETWORK	D	SAINT ELMO	IL	CP	0.055	225	243	0	61.5	0
628616	138378	BNPFT	20030312BBE	NEW	THE CROMWELL GROUP, INC. OF ILLINOIS	D	DECATUR	IL	APP	0.25	232	241	2	65.2	0
636350	144105	BNPFT	20030317ADS	NEW	COVENANT NETWORK	D	DECATUR	IL	APP	0.07	235	243	0	69.4	0
233833	66296	BLH	19961002KE	WWSY	HESTER BROADCASTING CORP.	A	SEELYVILLE	IN	LIC	4.1	288	240	3	85.9	0
182795	73229	BLH	19930316KA	WQQB	LIBERTY RADIO II, INC	A	RANTOUL	IL	LIC	3.8	346	241	2	86.2	0
1026315	13901	BPH	20040504AAH	WHOW-FM	WHOW RADIO, LLC	A	CLINTON	IL	CP	6	307.6	240	3	86.8	0
299835	13901	BLH	6898	WHOW-FM		A	CLINTON	IL	LIC	3	308	240	3	86.8	0
1150528	146841	BMPFT	20060922AEF	W243AV	RADIO ASSIST MINISTRY INC.	D	FLORA	IL	CP MOD	0.019	237	243	0	87.7	0
288543	68970	BLH	7632	WAZY-FM		B	LAFAYETTE	IN	LIC	50	352	243	0	149.2	0



