

Non-Interference Compliance

Regarding Facility id 151736

Channel 232

Description of Exhibit 13 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 5 include a tabulation of the vertical radiation pattern for the proposed antenna provided by the antenna manufacturer.

Page 6 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 7 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 8 of this exhibit is an aerial photo of the vicinity surrounding the proposed translator's tower site.

Note: The tallest buildings within the zone of predicted interference are less than 25ft (7.6m) in height. The proposal provides 14.1m (46.3ft) ground clearance so , 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.

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
153863	BLH19901029KC	WMTM-FM	60.4	60.4
222665	BLH19960401KA	WDEC-FM	65.4	64.9
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				60.4

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 **60.4 dBμ**, this makes the proposed translator's worst-case interfering contour **100.4 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **1037.8 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 7 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.

Note: The tallest buildings within the zone of predicted interference are less than 25ft (7.6m) in height. The proposal provides 14.1m (46.3ft) ground clearance so , 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:	PSI
Antenna Model:	FMLE-4(.75) @ 180°
CORAGL:	143 m
Maximum ERP:	0.24 kW
Interfering Contour:	100.4 dBμ
Max Int. Contour Distance:	1037.8 m
Min Ground Clearance:	14.1 m

The following table shows how the interfering contour ground clearance was calculated.

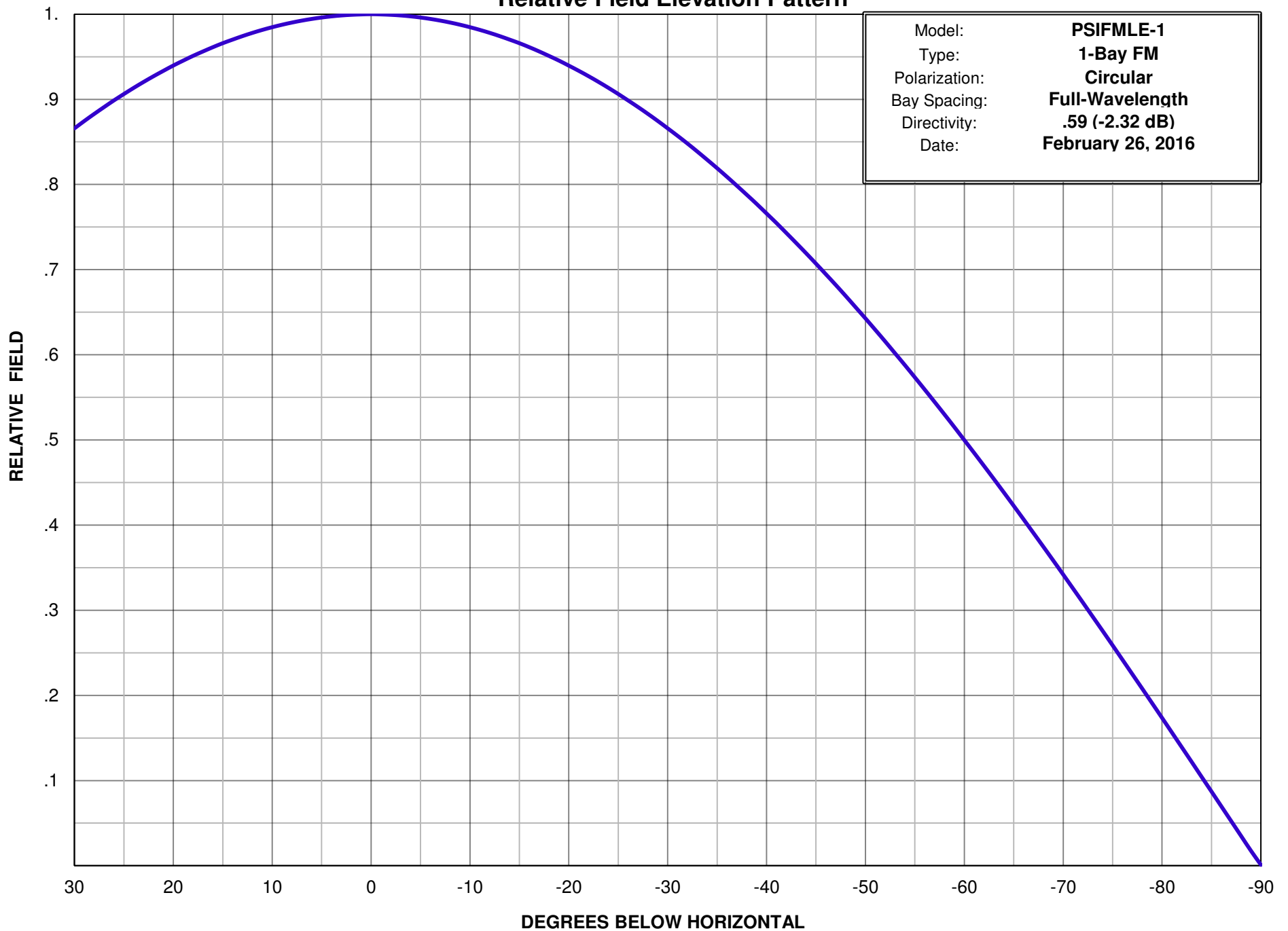
The formula used to calculate the vertical radiation pattern for the multi-bay antenna array is the exact formula used by the FCC's Office of Engineering and Technology in the FM Model program used to calculate ground-level power density for multi-bay antenna arrays for purposes of compliance with OET65. According to the source code of FM Model, this formula was "derived from Kraus (eqn 4-51 & 5-52), Gailey and Tell, and material from Ben Dawson, Hatfield and Dawson."

- The *Depression Angle* is the angle below horizontal for the radial.
- The *Single-Bay Relative Field* value is the relative field value for the depression angle either provided by the antenna manufacturer or interpolated from the values provided by the manufacturer.
- The *Relative Field Multiplier* is equal to $\text{Sin}(N * S\pi\text{Sin}\phi) / (N * \text{Sin}(S\pi\text{Sin}\phi))$, where N is the number of antenna elements in the array, S is the spacing between elements, π is the ratio of a circle's circumference to its diameter, and ϕ is the Depression Angle.
- The *Relative Field Value for the Array* is the absolute value of the product of the Relative Field Factor and the Single-Bay Relative Field value for that radial.
- The *ERP on the Radial* is the square of the *Relative Field Value for the Array* multiplied by the maximum ERP.
- The *Contour Direct Distance* is found by using the free space equation.
- The *Horizontal and Vertical Contour Distances* are calculated from the *Direct Distance* using trigonometry.
- The *Contour Ground Clearance* is the *Vertical Contour Distance* subtracted from the overall antenna height above the ground.

Depression Angle (degree)	Single-Bay Relative Field	Relative Field Multiplier	Relative Field for Array	ERP on Radial (W)	Contour Direct Distance (m)	Contour Horizontal Distance (m)	Contour Vertical Distance (m)	Contour Ground Clearance (m)
5	0.996	0.8976	0.894	191.8	927.8	924.2	80.9	62.1
10	0.985	0.6271	0.618	91.6	641.0	631.2	111.3	31.7
15	0.966	0.2820	0.272	17.8	282.7	273.0	73.2	69.8
20	0.940	-0.0283	0.027	0.2	27.6	26.0	9.5	133.5
25	0.906	-0.2221	0.201	9.7	208.9	189.3	88.3	54.7
30	0.866	-0.2706	0.234	13.2	243.2	210.6	121.6	21.4
35	0.819	-0.1970	0.161	6.2	167.4	137.1	96.0	47.0
40	0.766	-0.0559	0.043	0.4	44.4	34.0	28.6	114.4
45	0.707	0.0934	0.066	1.0	68.5	48.5	48.5	94.5
50	0.643	0.2070	0.133	4.3	138.2	88.8	105.8	37.2
55	0.573	0.2647	0.152	5.5	157.4	90.3	128.9	14.1
60	0.500	0.2672	0.134	4.3	138.6	69.3	120.1	22.9
65	0.423	0.2287	0.097	2.2	100.4	42.4	91.0	52.0
70	0.342	0.1682	0.058	0.8	59.7	20.4	56.1	86.9
75	0.259	0.1036	0.027	0.2	27.9	7.2	26.9	116.1
80	0.174	0.0487	0.008	0.0	8.8	1.5	8.7	134.3
85	0.087	0.0126	0.001	0.0	1.1	0.1	1.1	141.9
90	0.001	0.0000	0.000	0.0	0.0	0.0	0.0	143.0
Min Ground Clearance (m):								14.1



Relative Field Elevation Pattern





Propagation Systems Inc.
Elevation Pattern Tabulation
Antenna: PSIFMLE-1

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.0	0.001	-60.000	-50.0	0.643	-3.839	-10.0	0.985	-0.134
-89.0	0.017	-35.177	-49.0	0.656	-3.663	-9.0	0.988	-0.109
-88.0	0.035	-29.156	-48.0	0.669	-3.490	-8.0	0.990	-0.086
-87.0	0.052	-25.634	-47.0	0.682	-3.325	-7.0	0.992	-0.066
-86.0	0.070	-23.136	-46.0	0.695	-3.166	-6.0	0.994	-0.049
-85.0	0.087	-21.198	-45.0	0.707	-3.012	-5.0	0.996	-0.034
-84.0	0.104	-19.626	-44.0	0.719	-2.862	-4.0	0.997	-0.022
-83.0	0.122	-18.286	-43.0	0.731	-2.719	-3.0	0.998	-0.013
-82.0	0.139	-17.134	-42.0	0.743	-2.580	-2.0	0.999	-0.007
-81.0	0.156	-16.117	-41.0	0.755	-2.445	-1.0	1.000	-0.003
-80.0	0.174	-15.207	-40.0	0.766	-2.316	0.0	1.000	0.000
-79.0	0.191	-14.390	-39.0	0.777	-2.190	1.0	1.000	-0.003
-78.0	0.208	-13.644	-38.0	0.788	-2.071	2.0	0.999	-0.007
-77.0	0.225	-12.962	-37.0	0.798	-1.955	3.0	0.998	-0.013
-76.0	0.242	-12.330	-36.0	0.809	-1.842	4.0	0.997	-0.022
-75.0	0.259	-11.741	-35.0	0.819	-1.733	5.0	0.996	-0.034
-74.0	0.276	-11.194	-34.0	0.829	-1.630	6.0	0.994	-0.049
-73.0	0.292	-10.684	-33.0	0.839	-1.529	7.0	0.992	-0.066
-72.0	0.309	-10.203	-32.0	0.848	-1.432	8.0	0.990	-0.086
-71.0	0.325	-9.750	-31.0	0.857	-1.339	9.0	0.988	-0.109
-70.0	0.342	-9.320	-30.0	0.866	-1.251	10.0	0.985	-0.134
-69.0	0.358	-8.914	-29.0	0.875	-1.164	11.0	0.982	-0.162
-68.0	0.375	-8.530	-28.0	0.883	-1.082	12.0	0.978	-0.193
-67.0	0.391	-8.165	-27.0	0.891	-1.003	13.0	0.974	-0.227
-66.0	0.407	-7.815	-26.0	0.899	-0.928	14.0	0.970	-0.263
-65.0	0.423	-7.482	-25.0	0.906	-0.855	15.0	0.966	-0.301
-64.0	0.438	-7.164	-24.0	0.913	-0.786	16.0	0.961	-0.344
-63.0	0.454	-6.860	-23.0	0.920	-0.720	17.0	0.956	-0.389
-62.0	0.469	-6.569	-22.0	0.927	-0.657	18.0	0.951	-0.436
-61.0	0.485	-6.291	-21.0	0.933	-0.598	19.0	0.945	-0.487
-60.0	0.500	-6.023	-20.0	0.940	-0.542	20.0	0.940	-0.540
-59.0	0.515	-5.764	-19.0	0.945	-0.487	21.0	0.933	-0.598
-58.0	0.530	-5.517	-18.0	0.951	-0.437	22.0	0.927	-0.657
-57.0	0.545	-5.279	-17.0	0.956	-0.389	23.0	0.920	-0.720
-56.0	0.559	-5.050	-16.0	0.961	-0.344	24.0	0.913	-0.786
-55.0	0.573	-4.830	-15.0	0.966	-0.301	25.0	0.906	-0.855
-54.0	0.588	-4.616	-14.0	0.970	-0.263	26.0	0.899	-0.927
-53.0	0.602	-4.413	-13.0	0.974	-0.227	27.0	0.891	-1.003
-52.0	0.616	-4.214	-12.0	0.978	-0.193	28.0	0.883	-1.082
-51.0	0.629	-4.024	-11.0	0.982	-0.162	29.0	0.875	-1.164

Adjacent Channel Study **For Station W232BI, Facility_id: 151736**

Co-channel through third adjacent:

App_id	Fac_id	File_Number	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Char	Adj	Dist	Overlap
222665	63786	BLH-19960401KA	WDEC-FM	SUMTER BROADCASTING CO., IN	C3	AMERICUS	GA	LIC	25	205	234	2	32.1	1.1229
153863	12381	BLH-19901029KC	WMTM-FM	COLQUITT BROADCASTING COM	C1	MOULTRIE	GA	LIC	100	261	230	2	60.1	1.0984
1666307	196652	BLL-20150120AHR	WMCZ-LP	MITCHELL CO HIGH SCHOOL	L1	CAMILLA	GA	LIC	0	74.6	233	1	42.9	0
1303664	165968	BLH-20090326ADU	WLEL	SUMMER ROSE BROADCASTING	A	ELLAVILLE	GA	LIC	4.8	230	232	0	69.5	0
1363373	23615	BMLD-20100412AB	WIZB	RADIO TRAINING NETWORK, INC	C3	ABBEVILLE	AL	LIC	19.5	211	232	0	105.8	0
1423443	51590	BMLH-20110408ABN	WTNT-FM	CLEAR CHANNEL BROADCASTIN	C1	TALLAHASSEE	FL	LIC	98	303	235	3	116.9	0
1763276	201469	BNPFT-20170731AG	NEW	WILSON BROADCASTING CO., IN	D	DOTHAN	AL	APP	0.05	124	230	2	120.8	0
1772013	201469	BNPFT-20171220AB	NEW	WILSON BROADCASTING CO., IN	D	DOTHAN	AL	APP	0.1	244	230	2	120.8	0
1772543	200816	BNPFT-20170728AAI	NEW	CC LICENSES, LLC	D	COLUMBUS	GA	APP	0.25	277	229	3	124.8	0
1719355	141531	BPFT-20160129AQY	W222AW	GRADY MOATES	D	TALLAHASSEE	FL	CP	0.099	127	232	0	125.1	0
1720943	139408	BPFT-20160203AAB	W249BI	SMALLTOWN BROADCASTING, L	D	VALDOSTA	GA	CP	0.25	121	232	0	125.9	0
1046907	29697	BLH-20050304ACB	WTYS-FM	JAMES L. ADAMS, JR.	A	MARIANNA	FL	LIC	4.4	150.4	231	1	137.6	0
602557	52551	BLH-20020529ABR	WPEZ	CUMULUS LICENSING LLC	C1	JEFFERSONVILLE	GA	LIC	100	321	229	3	138.6	0
1179191	61095	BMLH-20070403ABX	WBYZ	SOUTH GEORGIA BROADCAST	C0	BAXLEY	GA	LIC	100	370.1	233	1	166.1	0

Intermediate Frequencies (53 and 54 channels difference):

App_id	Fac_id	File_Number	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Channel	Adj	Dist	Clr
1227552	142980	BLFT-20080107ADR	W286BO	COLQUITT BROADCASTING COM	D	NEW ELM	GA	LIC	0.25	191	286	54	60.1	50.1

