

[Exhibit 13]

## **Non-Interference Compliance**

Regarding Facility id 153190

Channel 288

### **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.

**Note: Minimum ground clearance (1m to1.6m) occurs at a horizontal distance from the tower at 65.4m to 78.6m. At all other locations within the zone the minimum ground clearance is 9.8m.**

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 dB $\mu$  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 nearest building to the tower is labeled on the aerial photo and is 121m from the base of the tower.**

**The: The tallest buildings within the zone of predicted interference are 20ft (6.1m) in height. The minimum ground clearance beyond a horizontal distance of 78.6m from the base of the tower is 9.8m so 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.

<b>Application_id</b>	<b>File Number</b>	<b>Callsign</b>	<b>Contour at Tower</b>	<b>Min. Contour</b>
1421741	BMLE20110330ACO	WNKN	68.7	68.7
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				<b>68.7</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 **68.7 dBμ**, this makes the proposed translator's worst-case interfering contour **108.7 dBμ**. By the free-space equation, this contour is calculated to extend a maximum of **407.4 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 **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.

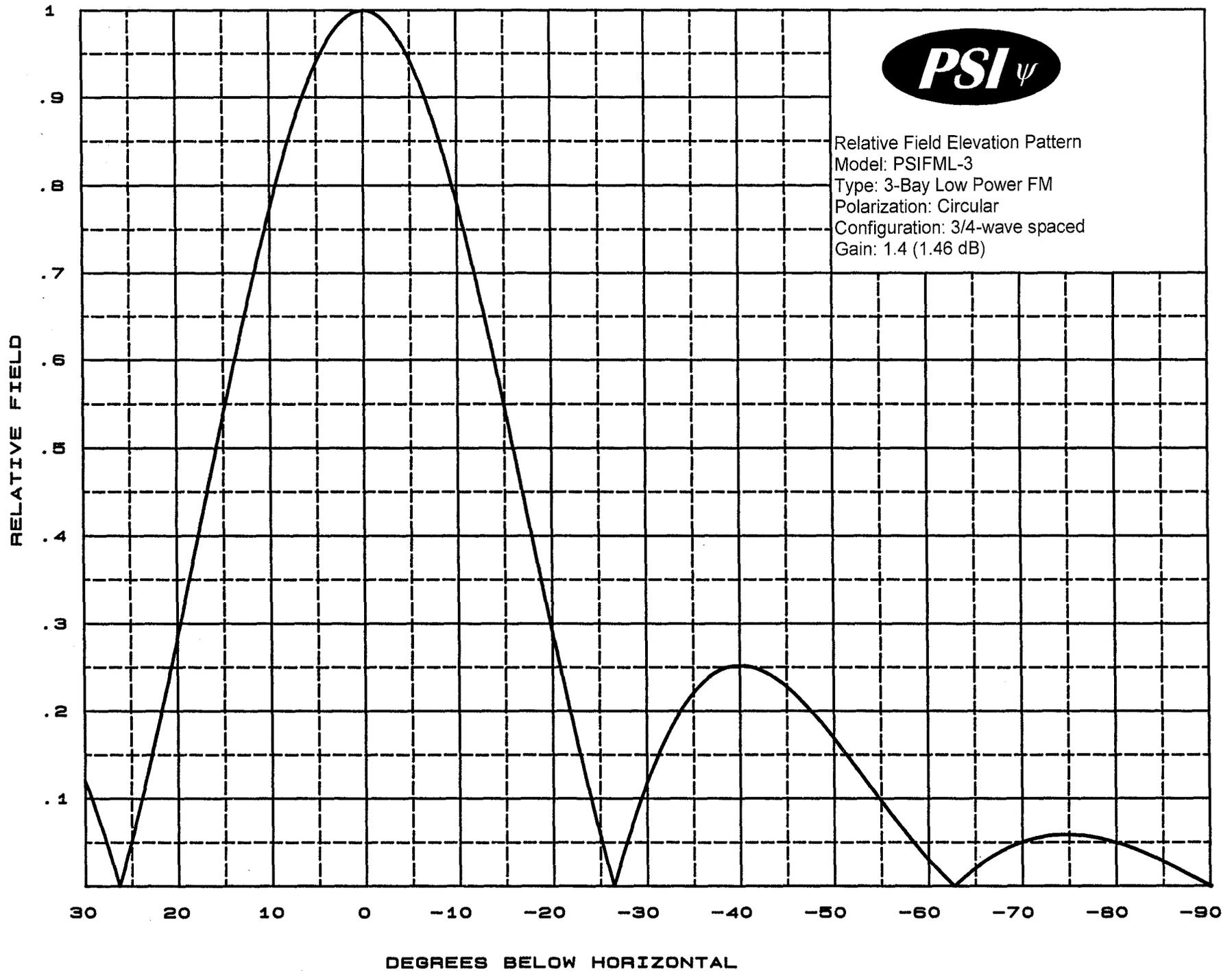
**The: The tallest buildings within the zone of predicted interference are 20ft (6.1m) in height. The minimum ground clearance beyond a horizontal distance of 78.6m from the base of the tower is 9.8m so a lack of population has been demonstrated within the area of interference and this application is therefore in full compliance with 47 C.F.R. § 74.1204.**

<b>Antenna Manufacturer:</b>	<b>PSI</b>
<b>Antenna Model:</b>	<b>FML-3(.75)</b>
<b>CORAGL:</b>	<b>67 m</b>
<b>Maximum ERP:</b>	<b>0.25 kW</b>
<b>Interfering Contour:</b>	<b>108.7 dBμ</b>
<b>Max Int. Contour Distance:</b>	<b>407.4 m</b>
<b>Min Ground Clearance:</b>	<b>1 m</b>
<b>Min Ground Clearance beyond 78.6m from tower:</b>	<b>9.8m</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	.941	221.4	383.3	381.9	33.6
10	.777	150.9	316.5	311.7	12.0
15	.543	73.7	221.2	213.7	9.8
20	.287	20.6	116.9	109.9	27.0
25	.055	0.8	22.4	20.3	57.5
30	.120	3.6	48.9	42.3	42.6
35	.222	12.3	90.4	74.1	15.1
40	.252	15.9	102.7	78.6	1.0
45	.227	12.9	92.5	65.4	1.6
50	.168	7.1	68.4	44.0	14.6
55	.096	2.3	39.1	22.4	35.0
60	.030	0.2	12.2	6.1	56.4
65	.021	0.1	8.6	3.6	



Relative Field Elevation Pattern  
Model: PSIFML-3  
Type: 3-Bay Low Power FM  
Polarization: Circular  
Configuration: 3/4-wave spaced  
Gain: 1.4 (1.46 dB)





**Propagation Systems Inc.**  
 Elevation Pattern Tabulation  
 Antenna: PSIFML-3 Special  
 Bay spacing: 3/4 wave

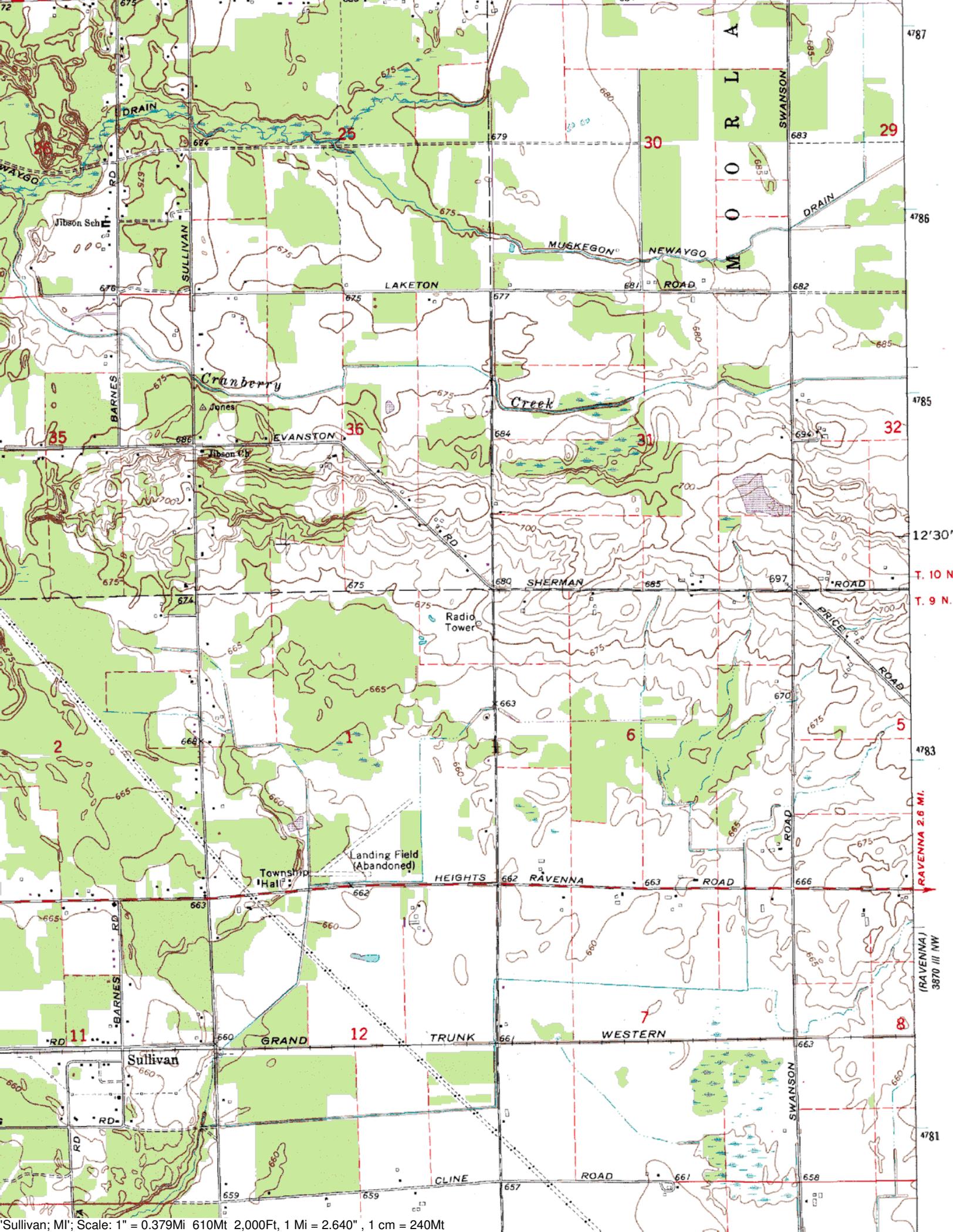
Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.0	0.001	-60.000	-50.0	0.168	-15.500	-10.0	0.777	-2.194
-89.0	0.006	-44.795	-49.0	0.181	-14.829	-9.0	0.817	-1.761
-88.0	0.012	-38.775	-48.0	0.194	-14.240	-8.0	0.853	-1.379
-87.0	0.017	-35.329	-47.0	0.206	-13.714	-7.0	0.886	-1.049
-86.0	0.023	-32.869	-46.0	0.217	-13.266	-6.0	0.916	-0.766
-85.0	0.028	-31.047	-45.0	0.227	-12.881	-5.0	0.941	-0.529
-84.0	0.033	-29.622	-44.0	0.235	-12.562	-4.0	0.962	-0.338
-83.0	0.038	-28.467	-43.0	0.242	-12.308	-3.0	0.978	-0.190
-82.0	0.042	-27.510	-42.0	0.248	-12.126	-2.0	0.990	-0.085
-81.0	0.046	-26.705	-41.0	0.251	-12.010	-1.0	0.998	-0.021
-80.0	0.050	-26.073	-40.0	0.252	-11.968	0.0	1.000	0.000
-79.0	0.053	-25.559	-39.0	0.251	-12.004	1.0	0.998	-0.021
-78.0	0.055	-25.169	-38.0	0.248	-12.126	2.0	0.990	-0.085
-77.0	0.057	-24.887	-37.0	0.242	-12.336	3.0	0.978	-0.190
-76.0	0.058	-24.682	-36.0	0.233	-12.657	4.0	0.962	-0.338
-75.0	0.059	-24.614	-35.0	0.222	-13.092	5.0	0.941	-0.529
-74.0	0.059	-24.637	-34.0	0.207	-13.676	6.0	0.916	-0.766
-73.0	0.058	-24.772	-33.0	0.190	-14.432	7.0	0.886	-1.049
-72.0	0.056	-25.027	-32.0	0.170	-15.414	8.0	0.853	-1.379
-71.0	0.054	-25.411	-31.0	0.146	-16.700	9.0	0.817	-1.759
-70.0	0.050	-25.968	-30.0	0.120	-18.427	10.0	0.777	-2.194
-69.0	0.046	-26.733	-29.0	0.090	-20.871	11.0	0.734	-2.683
-68.0	0.041	-27.731	-28.0	0.058	-24.704	12.0	0.689	-3.233
-67.0	0.035	-29.081	-27.0	0.023	-32.754	13.0	0.642	-3.848
-66.0	0.028	-30.954	-26.0	0.015	-36.745	14.0	0.593	-4.534
-65.0	0.021	-33.656	-25.0	0.055	-25.217	15.0	0.543	-5.301
-64.0	0.012	-38.221	-24.0	0.098	-20.213	16.0	0.492	-6.156
-63.0	0.003	-50.816	-23.0	0.142	-16.928	17.0	0.441	-7.116
-62.0	0.007	-42.949	-22.0	0.189	-14.460	18.0	0.389	-8.196
-61.0	0.018	-34.880	-21.0	0.238	-12.484	19.0	0.338	-9.425
-60.0	0.030	-30.546	-20.0	0.287	-10.839	20.0	0.287	-10.834
-59.0	0.042	-27.541	-19.0	0.338	-9.425	21.0	0.238	-12.484
-58.0	0.055	-25.217	-18.0	0.389	-8.199	22.0	0.189	-14.460
-57.0	0.068	-23.307	-17.0	0.441	-7.116	23.0	0.143	-16.919
-56.0	0.082	-21.711	-16.0	0.492	-6.159	24.0	0.098	-20.200
-55.0	0.096	-20.335	-15.0	0.543	-5.301	25.0	0.055	-25.193
-54.0	0.111	-19.124	-14.0	0.593	-4.536	26.0	0.015	-36.745
-53.0	0.125	-18.051	-13.0	0.642	-3.850	27.0	0.023	-32.754
-52.0	0.140	-17.106	-12.0	0.689	-3.234	28.0	0.058	-24.704
-51.0	0.154	-16.253	-11.0	0.734	-2.683	29.0	0.090	-20.871
						30.0	0.120	-18.438

file: FML 3-bay elevation tabulation  
 revision: A  
 Date: 1/28/08

**Adjacent Channel Study  
For Station W269CM, Facility\_id: 153190**

**Co-channel through third adjacent:**

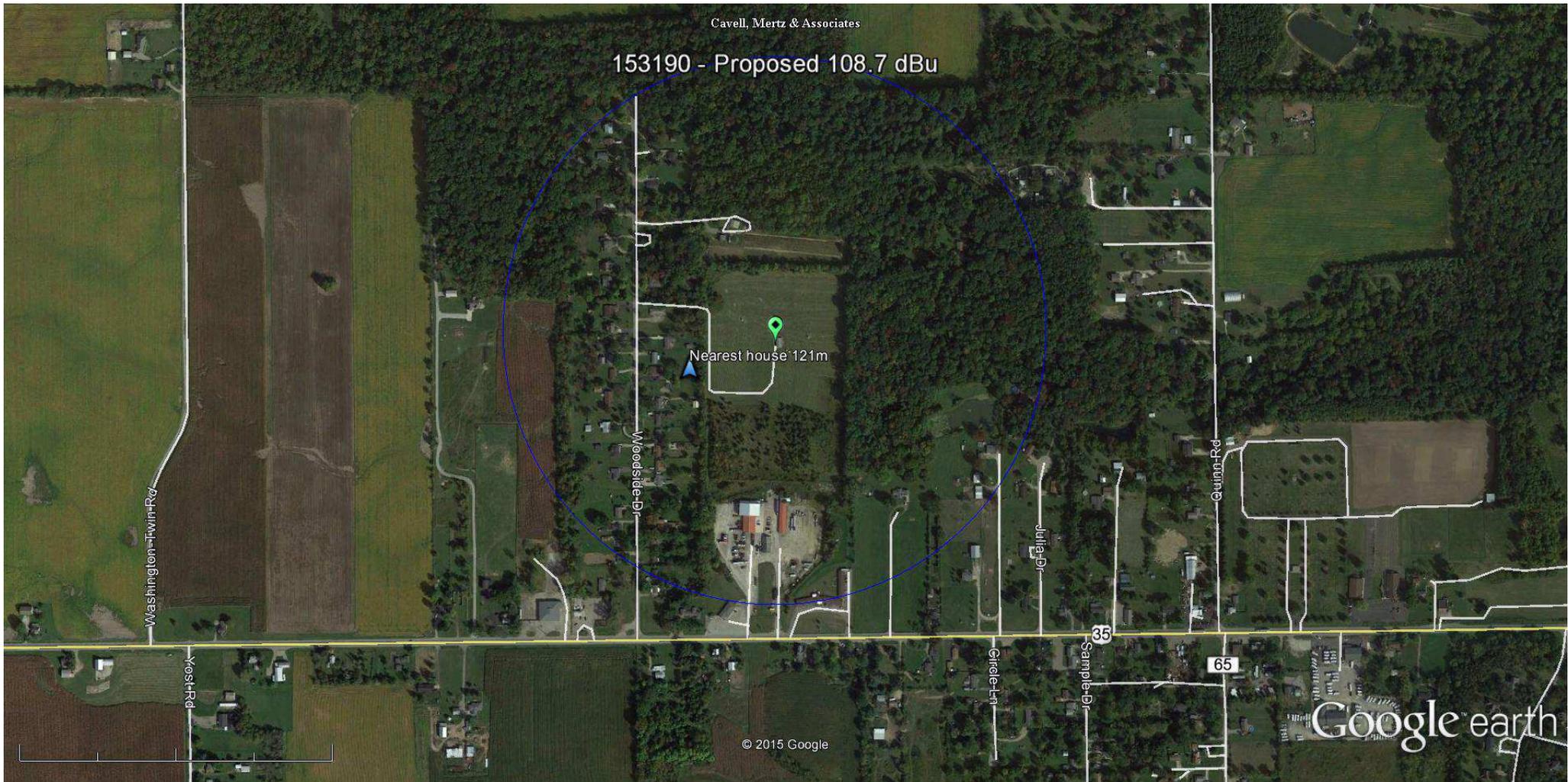
App_id	Fac_id	File_Number	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Char	Adj	Dist	Overlap
1421741	54833	BMLED-20110330AC	WNKN	NORTHERN KENTUCKY UNIVER	B	MIDDLETOWN	OH	LIC	34	419	290	2	32.6	0.4514
1655654	141935	BMPFT-20141023AA	W288CM	EDUCATIONAL MEDIA FOUNDAT	D	CONNERSVILLE	IN	CP MOD	0.027	360	288	0	49.6	0
1548520	142178	BNPFT-20130328AH	W287CB	RADIO 74 INTERNATIONALE	D	CAMBRIDGE CITY	IN	CP	0.055	370	287	1	58.8	0
1718634	192000	BLL-20160121AAD	WCXX-LP	24-7 BROADCASTING, INC.	L1	CINCINNATI	OH	LIC	0	326	288	0	65.2	0
273652	15998	BMLH-19980908KB	WMVR-FM	DEAN MILLER BROADCASTING C	A	SIDNEY	OH	LIC	6	356	288	0	69.4	0
1235198	10140	BMLH-20071226AAR	WUBE-FM	CINCINNATI FCC LICENSE SUB, I	B	CINCINNATI	OH	LIC	14.5	490	286	2	69.7	0
1052360	1723	BMLH-20050322ADL	WERK	WOOF BOOM RADIO MUNCIE LIC	A	MUNCIE	IN	LIC	6	392	285	3	85.1	0
273383	57354	BLH-19980831KB	WCHO-FM	CITICASTERS LICENSES, INC.	A	WASHINGTON CC	OH	LIC	6	397	288	0	104.9	0
654911	51432	BLH-20030403AAC	WYXB	EMMIS RADIO LICENSE, LLC	B	INDIANAPOLIS	IN	LIC	50	397.5	289	1	121.3	0
81564	61195	BLH-19850905KC	WWWY	WHITE RIVER BROADCASTING C	B	NORTH VERNON	IN	LIC	50	355	291	3	122.4	0



Cavell, Mertz & Associates

153190 - Proposed 108.7 dBu

Nearest house 121m



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Google earth

feet  
km

