

# **ENGINEERING EXHIBIT**

## **Long-Form Application for FM Translator Construction Permit**

prepared for

**Sarkes Tarzian, Inc.**  
New (FX) Bloomington, IN  
Facility ID 202440  
Ch. 254 98.7 MHz 0.25 kW

*Sarkes Tarzian, Inc.* (“*STI*”) is an Auction 100 Filing Window applicant for a new FM translator to operate on Channel 254 (98.7 MHz), Facility ID 202440, Bloomington IN (“tech box” application BNPFT-20180130ACH). The proposed translator is associated with *STI*’s station WGCL(AM) (1370 kHz, Fac ID 59131, Bloomington IN). Pursuant to the FCC’s Public Notice<sup>1</sup> of March 15, 2018, *STI* is herein filing its “long-form” application on Form 349. *STI* herein seeks authorization to construct the translator facility utilizing the same technical parameters as the pending “tech box” proposal, except that the antenna height will be increased.

The proposed translator facility will employ a new antenna system to be side-mounted on an existing tower which corresponds to FCC Antenna Structure Registration number 1026129. No change to the overall structure height will result.

The 60 dB $\mu$  (1 mV/m) contour of the proposed translator is encompassed by the greater of the WGCL daytime 2 mV/m contour and a 25 mile radius from WGCL’s transmitter site, as depicted in Figure 1. As a fill-in translator, the proposed 0.25 kW ERP complies with §74.1235(a).

The proposed translator will encompass the coverage area as that of *STI*’s translator station W241CD (Facility ID 59135, Bloomington IN), which presently rebroadcasts WGCL. Upon

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<sup>1</sup>*Media Bureau Announces Auction 100 FM Translator Filing Window for Long-Form Applications*, DA 18-256, March 15, 2018.

commencement of operation of the Channel 254 translator proposed herein, W241CD will begin rebroadcasting *STI's* station WTTS(FM) (Ch. 222B, Facility ID 59141, Bloomington IN).

Table 1 supplies a summary of the proposal's compliance with the interference protection requirements of §74.1204(a) and (g). The proposed facility complies with the prohibited contour overlap requirements of §74.1204(a) regarding all FM full power, low power, and translator stations except with respect to W251AG, (Ch. 251, Bloomington IN, BLFT-19960205TA). The proposal complies with §74.1204(d) with respect to W251AG.

As described in FCC 02-244<sup>2</sup> the "ratio" undesired-to-desired signal method of interference determination may be used by an FM translator applicant to demonstrate compliance with §74.1204(d). W251AG is on a third adjacent channel and is located 2.0 km from the proposed translator site. The W251AG signal level at the proposed site is 80 dB $\mu$  based on standard FCC F(50,50) propagation curves. The corresponding undesired interfering signal level is 120 dB $\mu$ .

Calculated signal levels of 120 dB $\mu$  or more (the "120 dB $\mu$  contour") do not reach any potentially populated location. The maximum distance to the proposed translator 120 dB $\mu$  interfering signal at elevations horizontal to the antenna is 0.11 km (110 meters), based on free-space computation. An aerial view of the proposed site and vicinity is provided in Figure 2 along with the 120 dB $\mu$  interfering contour.

Applying the proposed antenna's elevation pattern, the 120 dB $\mu$  contour is well elevated above the ground such that the 120 dB $\mu$  contour does not reach any location at ground level. The proposed antenna is an ERI model LPX-2E-HW-SP having two elements spaced at one-half wavelength. Figure 3 provides a plot of the antenna's elevation pattern, a profile plot of the 120 dB $\mu$  contour, and a graph of the maximum free-space signal level at an elevation of 10 meters above ground along a radial from the base of the tower. The surrounding terrain is generally flat and there

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<sup>2</sup>*Living Way Ministries, Inc.* Memorandum Opinion and Order, Released September 9, 2002, FCC 02-244, 17 FCC Rcd 17054-60.

are no tall buildings nearby. The elevation pattern data and free-space calculations are supplied in Table 2.

Figure 3 and Table 2 show that the 120 dB $\mu$  contour never falls below an elevation of 60 meters above ground. The highest free-space signal level at any point elevated 10 meters above ground is 111.7 dB $\mu$ . These exhibits demonstrate that the high signal levels that would exceed the 40 dB $\mu$  undesired-to-desired ratio with respect to W251AG are at locations which are well-elevated, inaccessible, and unpopulated. Thus, the proposal complies with §74.1204(d) with respect to W251AG.

The nearest FCC monitoring station is 386 km distant at Allegan, MI. This exceeds by a great margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with “quiet” zones specified in §73.1030(a) and (b). No authorized AM stations are located within 3 km of the proposed site. The site is beyond the border areas regarding international coordination.

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC’s OET Bulletin Number 65. Based on OET-65 equation (10), and assuming the worst-case of 100 percent relative field at downward elevations, the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 2.1  $\mu\text{W}/\text{cm}^2$ , which is 1.1 percent of the general population/uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal’s contribution is less than five percent. When the antenna’s elevation pattern is considered, the calculated RF exposure level will be even lower.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC’s guidelines. RF exposure warning signs will continue to be posted. With respect to

worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field.

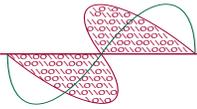
List of Attachments

Figure 1	Coverage Contours – Primary and Translator Stations
Figure 2	Interference Protection to W251AG - Aerial View of 120 dB $\mu$ Contour
Figure 3	Interference Protection to W251AG - U/D Graphs
Table 1	Channel Allocation Summary
Table 2	U/D Interference Calculation to W251AG
Form 349	Saved Version of Engineering Sections from FCC Form at Time of Upload

**Chesapeake RF Consultants, LLC**

Joseph M. Davis, P.E.	May 2, 2018	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



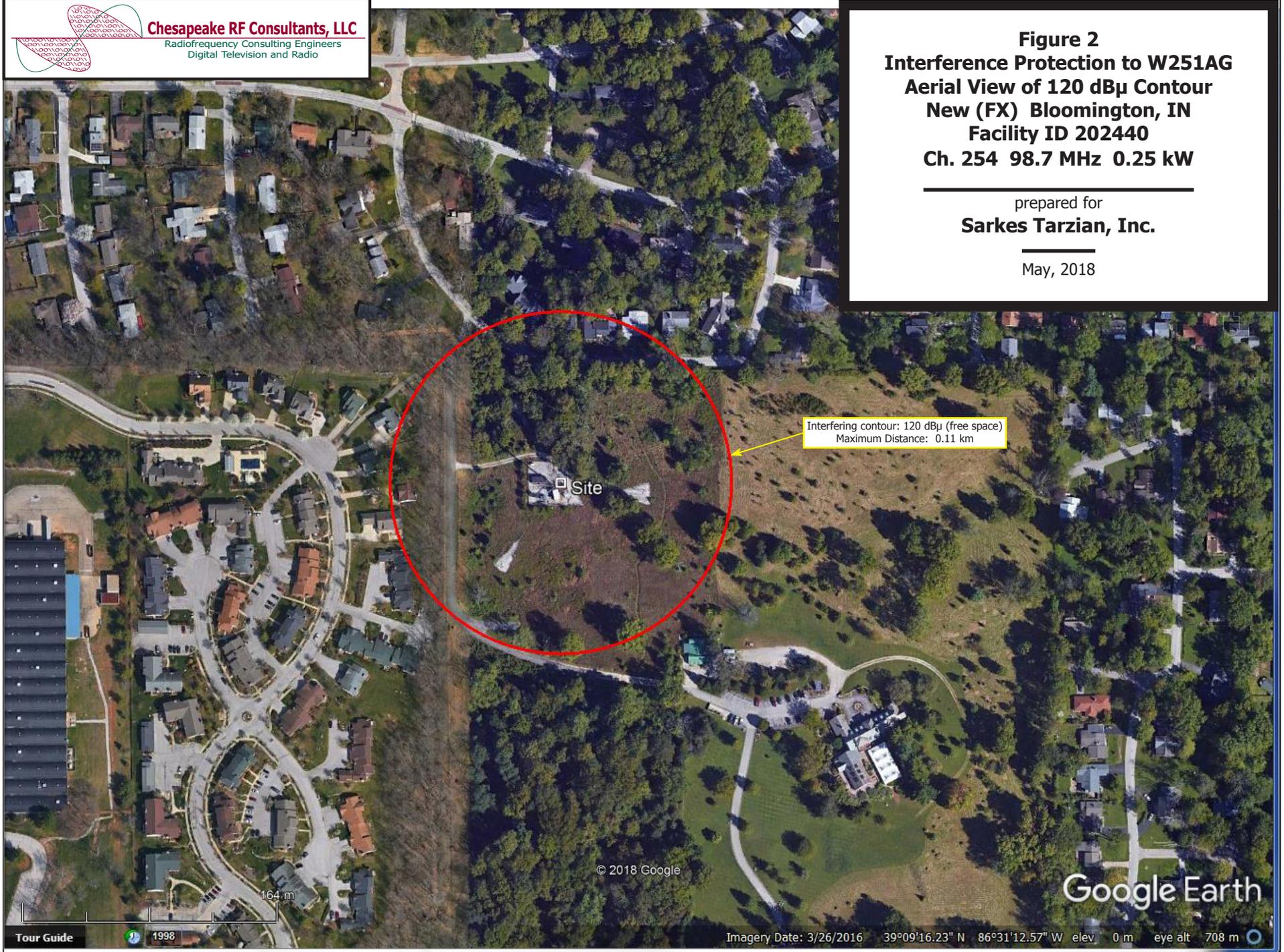


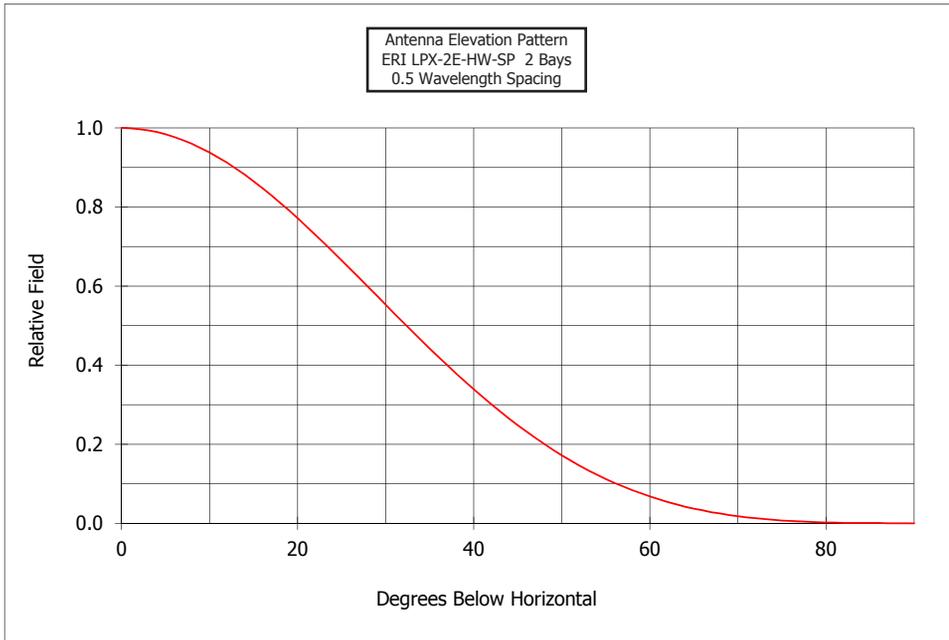
**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

**Figure 2**  
**Interference Protection to W251AG**  
**Aerial View of 120 dB $\mu$  Contour**  
**New (FX) Bloomington, IN**  
**Facility ID 202440**  
**Ch. 254 98.7 MHz 0.25 kW**

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May, 2018





**Figure 3**  
**Interference Protection to W251AG**  
**New (FX) Bloomington, IN**  
**Facility ID 202440**  
**Ch. 254 98.7 MHz 0.25 kW**

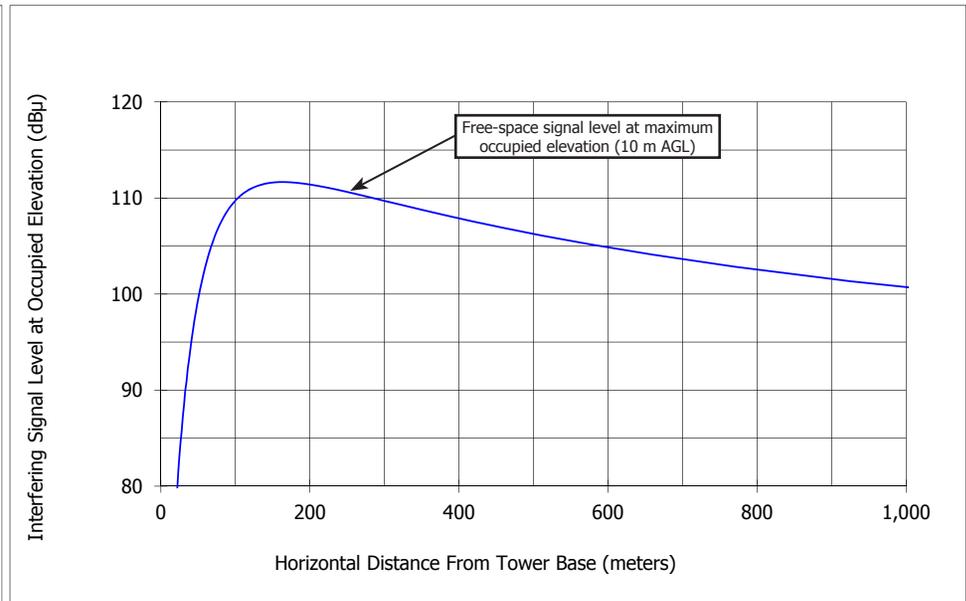
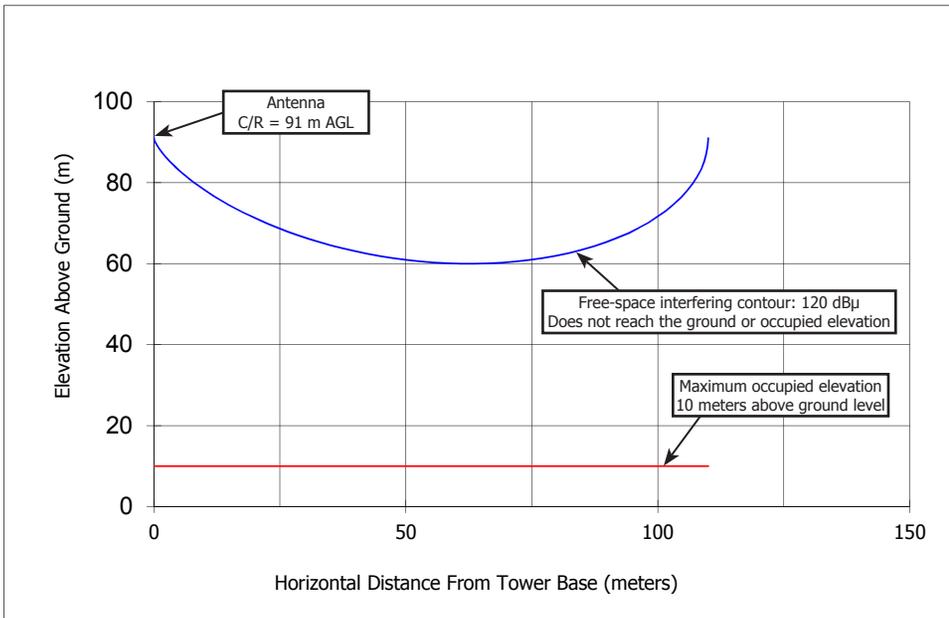
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May, 2018

**Protection of W251AG Ch. 251 98.1 MHz Bloomington, IN**  
W251AG F(50,50) signal level at proposed translator site: 80 dBμ  
Translator interfering signal level = 80 dBμ + 40 dB = 120 dBμ  
Proposed translator ERP = 0.25 kW Antenna C/R = 91 m AGL



**Table 1**  
**Channel Allocation Summary**  
**Sarkes Tarzian, Inc.**  
**New (FX) Bloomington, IN**



Sarkes Tarzian, Inc.											
CH# 254D - 98.7 MHz, Pwr= 0.25 kw, HAAT= 115.8 M, COR= 342 M										DISPLAY DATES	
Average Protected F(50-50)= 13.8 km										DATA 05-02-18	
Omni-directional										SEARCH 05-02-18	
CH	CALL	TYPE	ANT	AZI.	DIST	LAT.	Pwr(kw)	INT(km)	PRO(km)	*OUT*	
CITY		STATE		<--	FILE #	LNG.	HAAT(M)	COR(M)	LICENSEE	(overlap in km)	
251D	W251AG	LIC	DCN	313.6	2.01	39 09 56.0	0.250	0.5	6.2	-5.3* <	
Bloomington			IN	133.6	BLFT19960205TA	86 32 02.0	27	255	Bloomington Community Radi		
254D	W254CO	LIC	C	177.2	68.45	38 32 17.0	0.250	40.2	11.7	7.3	
Paoli			IN	357.3	BLFT20160718AAB	86 28 44.0		284	Diamond Shores Broadcastin		
253B	WWVR	LIC	C	296.2	115.40	39 36 20.0	50.000	79.3	66.2	22.7	
Paris			IL	115.5	BMLH20110215AEO	87 43 32.0	152	360	Midwest Communications, In		
255D	W255DD	CP	DC	15.6	55.95	39 38 16.0	0.250	15.4	10.8	23.2	
Mooresville			IN	195.7	BNPFT20171201AFI	86 20 30.0		272	Mid-america Radio Group, I		
253L1	WHUM-LP	LIC		82.7	51.95	39 12 38.0	0.100			24.4	
Columbus			IN	263.1	BLL20040528AVS	85 55 07.0	13	212	Columbus Community Radio C		
201A	WMBL	LIC	V	180.4	43.26	38 45 50.0	1.000	0.0	0.0	9.5R 33.8M	
Mitchell			IN	0.4	BMLED20030806ABZ	86 31 15.0	122	313	The Moody Bible Institute		
252A	WZRL	LIC	CX	10.2	68.48	39 45 33.0	3.000	2.4	26.0	41.4	
Plainfield			IN	190.3	BMLH20160802ABI	86 22 30.0	91	341	Capstar Tx, Llc, As Debtor		
253L1	WSHI-LP	LIC		61.4	70.09	39 27 11.0	0.100			43.4	
Shelbyville			IN	241.8	BLL20140131AHM	85 48 01.0	29	259	Shelbyville S.d.a. Broadca		
254A	WQME	LIC	CN	36.5	115.24	39 58 59.0	4.500	84.9	28.4	43.8	
Anderson			IN	217.1	BLH19970512KF	85 42 41.0	117	390	Anderson University, Inc.		
251D	W251CK	LIC	C	80.0	52.05	39 13 58.0	0.250	1.1	7.1	43.9	
Columbus			IN	260.4	BLFT20180312AAY	85 55 18.0		224	White River Broadcasting C		
257D	W257DO	LIC	C	109.8	57.66	38 58 33.0	0.250	1.1	10.2	46.3	
Seymour			IN	290.2	BLFT20160718AAF	85 53 21.0		248	Midnight Hour Broadcasting		
255L1	WYRZ-LP	LIC		7.7	78.47	39 51 09.0	0.100			50.1	
Brownsburg			IN	187.8	BMLL20170623AAI	86 23 38.0	22	291	Hendricks County Education		
252D	W252BY	LIC	C	111.6	58.32	38 57 29.0	0.100	0.7	5.6	51.6	
Seymour			IN	292.0	BLFT20080219AAT	85 53 23.0	11	190	Community Radio For Hoosie		
254L1	WVJE-LP	LIC		238.2	100.66	38 40 18.5	0.059			54.3	
Vincennes			IN	57.6	BLL20150729AAT	87 30 09.4	39	179	Central Church Of Christ		
255D	W255BG	LIC	C	78.2	90.46	39 18 54.0	0.080	10.4	7.2	61.6	
Greensburg			IN	258.8	BLFT20070816ABD	85 29 15.0	36	311	The Trustees Of Indiana Un		
255C2	WNRW	LIC	ZCX	140.7	137.51	38 11 31.0	43.000	77.4	52.1	62.5	
Prospect			KY	321.3	BLH20100507ACN	85 31 11.0	157	353	Cc Licenses, Llc, As Debto		
254A	WASK-FM	LIC	CN	347.9	140.75	40 23 26.0	4.400	82.5	26.9	63.1	
Battle Ground			IN	167.7	BLH19930323KF	86 51 53.0	117	317	Neuhoff Media Lafayette, L		
253A	WQKZ	LIC	CN	194.0	112.93	38 10 02.0	3.600	41.2	27.0	64.0	
Ferdinand			IN	13.8	BLH19971105KB	86 49 49.0	129	285	Jasper On The Air, Inc.		
251B	WRAY-FM	LIC	C	226.8	128.42	38 21 25.0	50.000	5.5	62.0	64.8	
Princeton			IN	46.1	BLH19990528KC	87 35 25.0	133	268	Princeton Broadcasting Co.		
253B	WRRM	LIC	C	90.5	169.84	39 07 19.0	18.000	75.4	64.0	72.7	
Cincinnati			OH	271.8	BMLH20150721ABF	84 32 52.0	246	462	Radio License Holding Src		

Terrain database is USGS 03 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
 Contour distances are on direct line to and from reference station. Reference Zone= East Zone, Co to 3rd adjacent.  
 All separation margins (if shown) include rounding.  
 Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
 Incoming contour overlap is ignored.  
 "\*"affixed to 'IN' or 'OUT' values = site inside restricted contour.  
 < = Station meets FCC minimum distance spacing for its class.  
 < = Contour Overlap

Table 2

**U/D Interference Calculation to W251AG**

**Sarkes Tarzian, Inc.**

New (FX) Bloomington, IN

Page 1 of 2



Antenna: **ERI LPX-2E-HW-SP**  
 C/R Elevation: **91.0** m AGL  
 Vertical Clearance: **10.0** m AGL to occupied elevation  
 ERP : **0.25** kW  
 Ix Signal Level: **120.0** dBμ

Depr Angle (degrees)	Antenna Elevation Relative Field	ERP at Angle (kW)	Distance to 120 dBμ Ix Contour					Observation Point at Occupied Elevation		
			Slant From C/R (m)	Horizontal From Base (m)	Vertical From Base (m)	Occupied Elevation (m)	Margin (m)	Horiz Distance (m)	Slant Distance (m)	Ix Signal at Endpoint (dBμ)
90	0.000	0.0000	0.0	0.0	91.0	10.0	81.0	0.0	81.0	22.7
89	0.000	0.0000	0.0	0.0	91.0	10.0	81.0	1.4	81.0	42.7
88	0.000	0.0000	0.0	0.0	91.0	10.0	81.0	2.8	81.0	42.7
87	0.000	0.0000	0.0	0.0	91.0	10.0	81.0	4.2	81.1	42.6
86	0.001	0.0000	0.1	0.0	90.9	10.0	80.9	5.7	81.2	62.6
85	0.001	0.0000	0.1	0.0	90.9	10.0	80.9	7.1	81.3	62.6
84	0.001	0.0000	0.1	0.0	90.9	10.0	80.9	8.5	81.4	62.6
83	0.001	0.0000	0.1	0.0	90.9	10.0	80.9	9.9	81.6	62.6
82	0.001	0.0000	0.1	0.0	90.9	10.0	80.9	11.4	81.8	62.6
81	0.002	0.0000	0.2	0.0	90.8	10.0	80.8	12.8	82.0	68.6
80	0.002	0.0000	0.2	0.0	90.8	10.0	80.8	14.3	82.2	68.5
79	0.003	0.0000	0.3	0.1	90.7	10.0	80.7	15.7	82.5	72.0
78	0.004	0.0000	0.4	0.1	90.6	10.0	80.6	17.2	82.8	74.5
77	0.005	0.0000	0.6	0.1	90.5	10.0	80.5	18.7	83.1	76.4
76	0.006	0.0000	0.7	0.2	90.4	10.0	80.4	20.2	83.5	78.0
75	0.007	0.0000	0.8	0.2	90.3	10.0	80.3	21.7	83.9	79.3
74	0.009	0.0000	1.0	0.3	90.0	10.0	80.0	23.2	84.3	81.4
73	0.011	0.0000	1.2	0.4	89.8	10.0	79.8	24.8	84.7	83.1
72	0.013	0.0000	1.4	0.4	89.6	10.0	79.6	26.3	85.2	84.5
71	0.015	0.0001	1.7	0.5	89.4	10.0	79.4	27.9	85.7	85.7
70	0.018	0.0001	2.0	0.7	89.1	10.0	79.1	29.5	86.2	87.2
69	0.021	0.0001	2.3	0.8	88.8	10.0	78.8	31.1	86.8	88.5
68	0.025	0.0002	2.8	1.0	88.4	10.0	78.4	32.7	87.4	90.0
67	0.028	0.0002	3.1	1.2	88.2	10.0	78.2	34.4	88.0	90.9
66	0.033	0.0003	3.6	1.5	87.7	10.0	77.7	36.1	88.7	92.2
65	0.037	0.0003	4.1	1.7	87.3	10.0	77.3	37.8	89.4	93.2
64	0.042	0.0004	4.6	2.0	86.8	10.0	76.8	39.5	90.1	94.2
63	0.048	0.0006	5.3	2.4	86.3	10.0	76.3	41.3	90.9	95.3
62	0.054	0.0007	5.9	2.8	85.8	10.0	75.8	43.1	91.7	96.2
61	0.061	0.0009	6.7	3.3	85.1	10.0	75.1	44.9	92.6	97.2
60	0.068	0.0012	7.5	3.7	84.5	10.0	74.5	46.8	93.5	98.1
59	0.076	0.0014	8.4	4.3	83.8	10.0	73.8	48.7	94.5	98.9
58	0.084	0.0018	9.2	4.9	83.2	10.0	73.2	50.6	95.5	99.7
57	0.093	0.0022	10.2	5.6	82.4	10.0	72.4	52.6	96.6	100.5
56	0.102	0.0026	11.2	6.3	81.7	10.0	71.7	54.6	97.7	101.2
55	0.112	0.0031	12.3	7.1	80.9	10.0	70.9	56.7	98.9	101.9
54	0.123	0.0038	13.5	8.0	80.1	10.0	70.1	58.8	100.1	102.6
53	0.134	0.0045	14.7	8.9	79.2	10.0	69.2	61.0	101.4	103.2
52	0.146	0.0053	16.1	9.9	78.3	10.0	68.3	63.3	102.8	103.9
51	0.159	0.0063	17.5	11.0	77.4	10.0	67.4	65.6	104.2	104.5
50	0.172	0.0074	18.9	12.2	76.5	10.0	66.5	68.0	105.7	105.1
49	0.186	0.0086	20.5	13.4	75.6	10.0	65.6	70.4	107.3	105.6
48	0.201	0.0101	22.1	14.8	74.6	10.0	64.6	72.9	109.0	106.1
47	0.216	0.0117	23.8	16.2	73.6	10.0	63.6	75.5	110.8	106.6
46	0.232	0.0135	25.5	17.7	72.6	10.0	62.6	78.2	112.6	107.1
45	0.248	0.0154	27.3	19.3	71.7	10.0	61.7	81.0	114.6	107.5
44	0.265	0.0176	29.2	21.0	70.7	10.0	60.7	83.9	116.6	108.0
43	0.283	0.0200	31.1	22.8	69.8	10.0	59.8	86.9	118.8	108.4
42	0.301	0.0227	33.1	24.6	68.8	10.0	58.8	90.0	121.1	108.7
41	0.320	0.0256	35.2	26.6	67.9	10.0	57.9	93.2	123.5	109.1
40	0.339	0.0287	37.3	28.6	67.0	10.0	57.0	96.5	126.0	109.4

Table 2

**U/D Interference Calculation to W251AG**

**Sarkes Tarzian, Inc.**

New (FX) Bloomington, IN

Page 2 of 2



Depr Angle (degrees)	Antenna Elevation Relative Field	ERP at Angle (kW)	Distance to 120 dBμ Ix Contour					Observation Point at Occupied Elevation			
			Slant From C/R (m)	Horizontal From Base (m)	Vertical From Base (m)	Occupied Elevation (m)	Margin (m)	Horiz Distance (m)	Slant Distance (m)	Ix Signal at Endpoint (dBμ)	
39	0.359	0.0322	39.5	30.7	66.1	10.0	56.1	100.0	128.7	109.7	
38	0.379	0.0359	41.7	32.9	65.3	10.0	55.3	103.7	131.6	110.0	
37	0.400	0.0400	44.0	35.1	64.5	10.0	54.5	107.5	134.6	110.3	
36	0.421	0.0443	46.3	37.5	63.8	10.0	53.8	111.5	137.8	110.5	
35	0.442	0.0488	48.6	39.8	63.1	10.0	53.1	115.7	141.2	110.7	
34	0.464	0.0538	51.0	42.3	62.5	10.0	52.5	120.1	144.9	110.9	
33	0.486	0.0590	53.5	44.8	61.9	10.0	51.9	124.7	148.7	111.1	
32	0.508	0.0645	55.9	47.4	61.4	10.0	51.4	129.6	152.9	111.3	
31	0.530	0.0702	58.3	50.0	61.0	10.0	51.0	134.8	157.3	111.4	
30	0.553	0.0765	60.8	52.7	60.6	10.0	50.6	140.3	162.0	111.5	
29	0.576	0.0829	63.4	55.4	60.3	10.0	50.3	146.1	167.1	111.6	
28	0.598	0.0894	65.8	58.1	60.1	10.0	50.1	152.3	172.5	111.6	
27	0.621	0.0964	68.3	60.9	60.0	10.0	50.0	159.0	178.4	111.7	
26	0.643	0.1034	70.7	63.6	60.0	10.0	50.0	166.1	184.8	111.7	
25	0.665	0.1106	73.2	66.3	60.1	10.0	50.1	173.7	191.7	111.6	
24	0.687	0.1180	75.6	69.0	60.3	10.0	50.3	181.9	199.1	111.6	
23	0.709	0.1257	78.0	71.8	60.5	10.0	50.5	190.8	207.3	111.5	
22	0.730	0.1332	80.3	74.5	60.9	10.0	50.9	200.5	216.2	111.4	
21	0.751	0.1410	82.6	77.1	61.4	10.0	51.4	211.0	226.0	111.3	
20	0.772	0.1490	84.9	79.8	62.0	10.0	52.0	222.5	236.8	111.1	
19	0.792	0.1568	87.1	82.4	62.6	10.0	52.6	235.2	248.8	110.9	
18	0.811	0.1644	89.2	84.9	63.4	10.0	53.4	249.3	262.1	110.6	
17	0.830	0.1722	91.3	87.3	64.3	10.0	54.3	264.9	277.0	110.4	
16	0.848	0.1798	93.3	89.7	65.3	10.0	55.3	282.5	293.9	110.0	
15	0.865	0.1871	95.2	91.9	66.4	10.0	56.4	302.3	313.0	109.7	
14	0.882	0.1945	97.0	94.2	67.5	10.0	57.5	324.9	334.8	109.2	
13	0.897	0.2012	98.7	96.2	68.8	10.0	58.8	350.8	360.1	108.8	
12	0.912	0.2079	100.3	98.1	70.1	10.0	60.1	381.1	389.6	108.2	
11	0.925	0.2139	101.8	99.9	71.6	10.0	61.6	416.7	424.5	107.6	
10	0.938	0.2200	103.2	101.6	73.1	10.0	63.1	459.4	466.5	106.9	
9	0.949	0.2252	104.4	103.1	74.7	10.0	64.7	511.4	517.8	106.1	
8	0.960	0.2304	105.6	104.6	76.3	10.0	66.3	576.3	582.0	105.2	
7	0.969	0.2347	106.6	105.8	78.0	10.0	68.0	659.7	664.6	104.1	
6	0.977	0.2386	107.5	106.9	79.8	10.0	69.8	770.7	774.9	102.8	
5	0.984	0.2421	108.3	107.8	81.6	10.0	71.6	925.8	929.4	101.3	
4	0.990	0.2450	108.9	108.7	83.4	10.0	73.4	1158.4	1161.2	99.4	
3	0.994	0.2470	109.4	109.2	85.3	10.0	75.3	1545.6	1547.7	97.0	
2	0.997	0.2485	109.7	109.6	87.2	10.0	77.2	2319.5	2321.0	93.5	
1	0.999	0.2495	109.9	109.9	89.1	10.0	79.1	4640.5	4641.2	87.5	
0	1.000	0.2500	110.0	110.0	91.0	10.0	81.0	----	----	----	
			Min:		60.0	Min:		50.0	Max:		111.7

### SECTION III - PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.		Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature		Date 5/2/2018	
Mailing Address 207 OLD DOMINION ROAD			
City YORKTOWN		State or Country (if foreign address) VA	Zip Code 23692 -
Telephone Number (include area code) 7036509600		E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

<b>Section III-A - Engineering</b>											
<b>TECHNICAL SPECIFICATIONS</b>											
Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.											
<b>TECH BOX</b>											
1. Channel: 254											
2. Primary Station:											
Facility ID Number			Call Sign			City			State		
59131			WGCL			BLOOMINGTON			IN		
3. Delivery Method (Select One): <input type="radio"/> Off-air <input checked="" type="radio"/> Microwave <input type="radio"/> Satellite <input type="radio"/> Via <input type="radio"/> Other											
4. Antenna Location Coordinates: (NAD 27)											
Latitude: Degrees 39 Minutes 9 Seconds 11 <input checked="" type="radio"/> North <input type="radio"/> South											
Longitude: Degrees 86 Minutes 31 Seconds 1 <input checked="" type="radio"/> West <input type="radio"/> East											
5. Antenna Structure Registration Number: 1026129 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA											
6. Antenna Location Site Elevation Above Mean Sea Level:									251 meters		
7. Overall Tower Height Above Ground Level:									97 meters		
8. Height of Radiation Center Above Ground Level:									91 meters(H) 91 meters(V)		
9. Effective Radiated Power:									0.25 kW(H) 0.25 kW(V)		
10. Transmitting Antenna:											
Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under <a href="http://licensing.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm">CDBS Public Access</a> (http://licensing.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search.											
<input checked="" type="radio"/> Nondirectional <input type="radio"/> Directional Off-the Shelf <input type="radio"/> Directional composite Manufacturer ERI Model LPX-2E-HW-SP Rotation:degrees <input type="checkbox"/> No Rotation											
Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0		10		20		30		40		50	
60		70		80		90		100		110	
120		130		140		150		160		170	
180		190		200		210		220		230	
240		250		260		270		280		290	

300		310		320		330		340		350	
Additional Azimuths											

[Relative Field Polar Plot](#)

11.	<p><b>For FM Boosters and Fill-in translators only.</b></p> <p>a. <b>FM Fill-in translators.</b> Applicant certifies that the FM translator's (a) 1mV/m coverage contour does not extend beyond the protected contour of the commercial FM primary station to be rebroadcast, or (b) entire 1mV/m coverage contour is contained within the greater of either: (i) the 2 mV/m daytime contour of the commercial AM primary station to be rebroadcast, or (ii) a 25-mile radius centered at the commercial AM primary station's transmitter site.</p> <p>b. <b>FM Boosters.</b> Applicant certifies that the FM Booster station's service contour is entirely within the primary station's protected coverage contour.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A</p> <p>See Explanation in [Exhibit 10]</p> <p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p> <p>See Explanation in [Exhibit 11]</p>
12.	<p><b>Interference.</b> The proposed facility complies with all of the following applicable rule sections. Check all that apply:</p> <p><b>Overlap Requirements.</b> <input checked="" type="checkbox"/> a) 47 C.F.R. Section 74.1204 <b>Exhibit Required.</b></p> <p><b>Television Channel 6 Protection.</b> <input type="checkbox"/> b) 47 C.F.R. Section 74.1205 with respect to station(s) <b>Exhibit Required.</b></p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 12]</p> <p>[Exhibit 13]</p> <p>[Exhibit 14]</p>
13.	<p><b>Unattended operation.</b> Applicant certifies that unattended operation is not proposed, or if this application proposes unattended operation, the applicant certifies that it will comply with the requirements of 47 C.F.R. Section 74.1234.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 15]</p>
14.	<p><b>Multiple Translators.</b> Applicant certifies that it does not have any interest in an application or an authorization for an FM translator station that serves substantially the same area and rebroadcasts the same signal as the proposed FM translator station.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>See Explanation in [Exhibit 16]</p>
15.	<p><b>Environmental Protection Act.</b> Applicant certifies that the proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Appendix A, an <b>Exhibit is required.</b></p> <p>By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 17]</p>