

Technical Report Minor Modification to W231BT

This technical report has been developed in support of a minor modification to the translator W231BT at Martinsville, IN, FCC file no. BLFT-20070108AAD. A change in tower site, antenna, and increase in ERP is requested for it to serve as a fill-in for WCBK-FM 272A at Martinsville, IN, facility I.D. 57351. An STA application, FCC file no. BLSTA-20080305AER, has been filed for the facility to serve as a fill-in for WMYJ(AM), facility I.D. 57356, , at Martinsville, IN.

The following exhibits are provided in support of the form 349 application:

- E-1 Channel Overlap Study
- E-2 60 dBu Coverage within WCBK-FM and Overlap to the Current Facility
- E-3 Interference Plot to WFBQ 234B
- E-4 Aerial Photo of W231BT Tower Site

W231BT Antenna System:

The translator will be located at the existing tower, ASR no. 1028571, at a COR AGL of 46 meters, using a four bay Shively 6812B full wave-spaced nondirectional antenna, and operate at 0.038 kW ERP at coordinates:

39-26-18N 86-27-58W (NAD 27).

Exhibit E-2 shows the 60 dBu contour plot will be completely contained within the 60 Bu contour of WCBK-FM and overlap the current W231BT 60 dBu contour.

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Broadcast Consultants
1519 Euclid Avenue
Bowling Green, KY 42103

W231BT Interference Calculation:

Exhibit E-1 shows the W231BT move will place it within the protected 54 dBu third adjacent contour of WFBQ 234B at Indianapolis, IN. Therefore, the interference ratio is utilized to determine the actual W231BT interference contour, in accordance with FCC-02-244, paragraph 12. The protected contour from WBFQ to the W231BT tower site is calculated to be 64.125 dBu. Adding the 40 dBu 3rd adjacent channel interference ratio yields an interfering contour of 104.125 dBu.

Since this results in a contour very close to the tower, the vertical elevation pattern of the antenna was used to determine the actual interfering contour. The vertical depression angle at the 104.125 dBu interfering contour is calculated to be 10 degrees below horizontal. Using the maximum vertical (F) factor from the Shively antenna at that distance, the table below shows the reduced vertical ERP produces an interfering contour which does not encompass any buildings, roads, or population, shown in exhibits E-3 and E-4. Therefore, it will not cause any interference to potential listeners. As a result, a

waiver of section 74.1204 is requested in accordance with well-established

Commission precedent.

	Interfering Contour	Distance to Interfering Contour	Vertical Depression Angle	Maximum Vertical Factor (F)	F² x ERP -KW	Distance to Int. contour
WFBQ	104.125 dBu	0.269 km	10 Deg.	0.529	0.0106 kW	0.142 km

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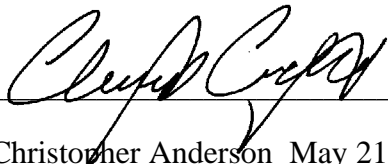
Broadcast Consultants
1519 Euclid Avenue
Bowling Green, KY 42103

RF Exposure Calculation:

The RF contribution from the 0.038 kW facility was evaluated using the Commission's FMMODEL program. The RF contribution from a height of 2 meters above ground was calculated to be $0.096 \mu\text{Watts/cm}^2$ at a distance of 20 meters from the tower, which is well below 5% of the $200 \mu\text{Watts/cm}^2$ permissible for general public exposure, allowing exclusion from consideration.

Conclusion:

It is concluded that the minor modification of W231BT complies with all Commission policies and rules.



Christopher Anderson May 21, 2008
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E-1 W231BT Overlap Study

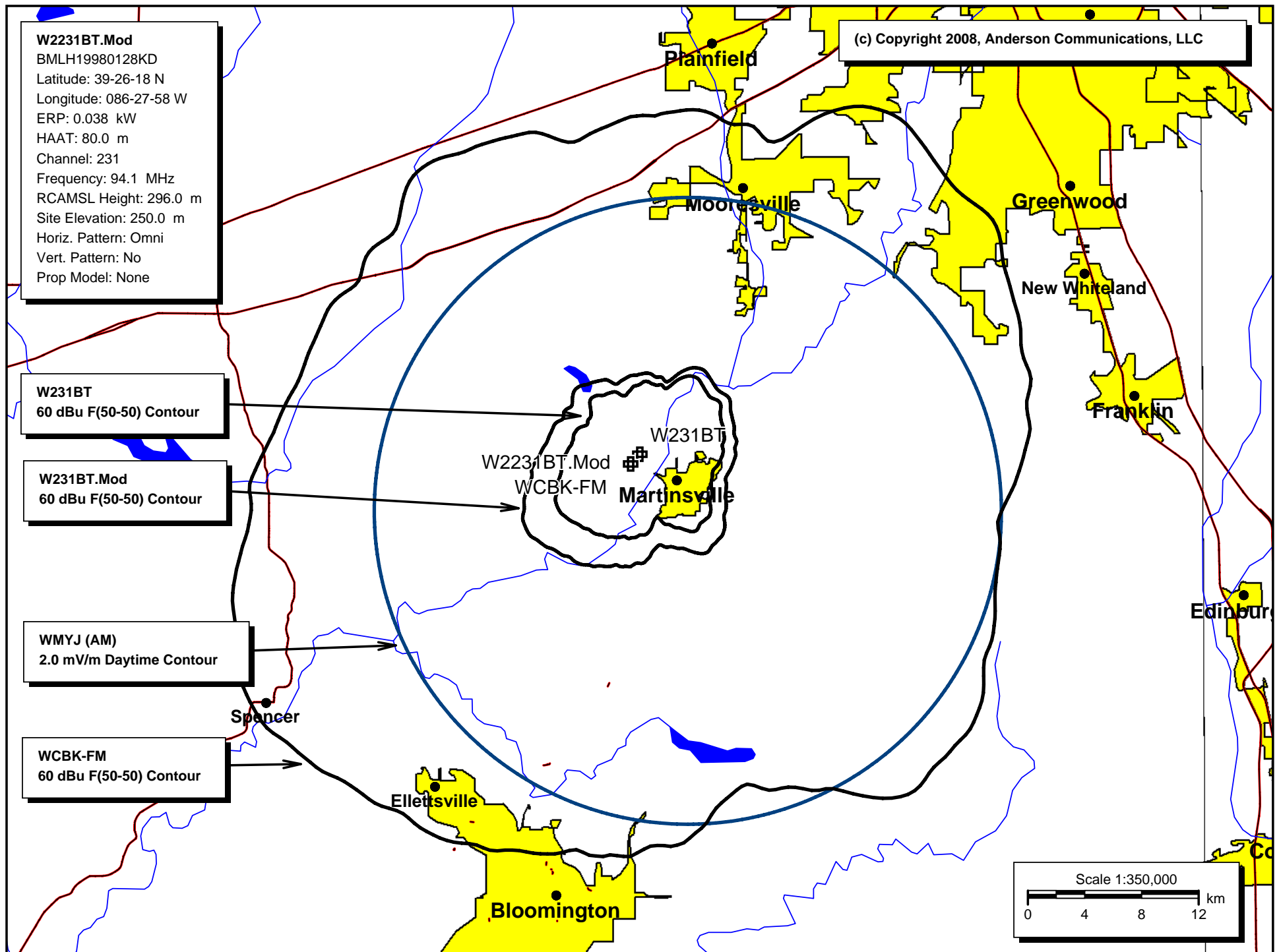
REFERENCE		CH# 231D - 94.1 MHz, Pwr= 0.038 kW, HAAT= 80.0 M, COR= 296 M								DISPLAY DATES	
39 26 18.0 N.		Average Protected F(50-50)= 7.19 km								DATA 04-05-08	
86 27 58.0 W.										SEARCH 04-07-08	
CH CITY	CALL	TYPE STATE	ANT --	AZI ---	DI ST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
231A	RADD	ADD	---	195.8	51.98	38 59 16.0	6.000	83.0	25.4	-38.44*	1.69
Oolitic		IN		15.7		86 37 47.0	100	317	Bruce Quinn		
231D	W231BT	LIC	---	43.5	0.94	39 26 40.0	0.019	22.1	6.6	-29.30*	-33.06*
Martinsville		IN		223.5	BLFT20070108AAD	86 27 31.0		287	Horizon Christian Fellowsh		
231A	RADD	ADD	---	219.3	61.64	39 00 31.0	6.000	82.7	25.2	-29.08*	9.63
Worthington		IN		39.0		86 55 05.0	100	275	Bruce Quinn		
231A	RADD	ADD	---	219.3	61.64	39 00 31.0	6.000	82.7	25.2	-29.08*	9.63
Worthington		IN		39.0		86 55 05.0	100	275	L. dean Spencer		
231A	1200966	RSV	---	219.3	61.64	39 00 31.0	6.000	82.7	25.2	-29.08*	9.63
Worthington		IN		39.0		86 55 05.0	100	275	L. Dean Spencer		
231A	1200237	APP	---	219.3	61.64	39 00 31.0	6.000	82.7	25.2	-29.08*	9.63
Worthington		IN		39.0	BNPH20070820AGA	86 55 05.0	100	275	L. Dean Spencer		
234B	WFBO	LIC	---	24.0	55.60	39 53 43.0	58.000	8.3	78.5	40.97	-23.72*
Indianapolis		IN		204.1	BLH19980707KB	86 12 04.0	245	502	Capstar Tx Limited Partner		
230B1	RADD	ADD	---	47.9	48.01	39 43 37.0	25.000	61.6	46.1	-21.61*	-11.45
Lawrence		IN		228.1		86 03 00.0	100	343	Indy Lico, Inc. And Wfms L		
231D	635293	APP	---	184.4	33.01	39 08 30.8	0.010	28.1	8.4	-2.33	0.35
Blomington		IN		4.3	BNPFT20030317FMC	86 29 42.9		426	Radio Assist Ministry, Inc		
230B1	WRWM	CP	---	43.7	60.02	39 49 39.0	6.900	51.4	39.6	0.46	6.86
Lawrence		IN		224.0	BPH20070820ABO	85 58 51.0	146	393	Indy Lico, Inc.		
230A	WRWM	LIC	---	43.7	60.02	39 49 39.0	2.950	42.3	27.8	9.57	20.70
Fishers		IN		224.0	BLH20040507AAE	85 58 51.0	145	393	Indy Lico, Inc.		
230A	RDEL	DEL	---	43.7	60.02	39 49 39.0	6.000	42.2	27.3	9.63	21.20
Fishers		IN		224.0		85 58 51.0	100	347	Indy Lico, Inc. And Wfms L		
230A	RDEL	DEL	---	43.7	60.02	39 49 39.0	6.000	42.2	27.3	9.63	21.20
Fishers		IN		224.0		85 58 51.0	100	347	Word Power, Inc.		
230A	RADD	ADD	---	48.4	68.25	39 50 38.0	6.000	45.0	29.2	15.19	27.76
Lawrence		IN		228.8		85 52 07.0	100	355	Word Power, Inc.		
232A	WREB	LIC	---	304.2	44.20	39 39 38.0	3.000	22.8	15.2	15.74	20.89
Greencastle		IN		123.9	BLH3278	86 53 34.0	49	285	The Original Company, Inc		
230B1	RADD	ADD	---	275.2	89.31	39 30 23.0	25.000	63.0	47.3	19.91	31.05
Clinton		IN		94.5		87 30 01.0	100	267	Word Power, Inc.		
228A	AL5199	VAC	---	121.6	60.54	39 09 06.0	6.000	2.7	27.3	50.12	32.76
Columbus		IN		302.0	RM11260	85 52 09.0	100	292	Columbus Commuity Radio Co		
228D	632127	APP	---	23.9	40.38	39 46 14.0	0.027	0.4	6.3	33.72	33.69
Indianapolis		IN		204.0	BNPFT20030317AXT	86 16 29.0		296	Educational Media Foundati		
230A	RDEL	DEL	---	278.5	87.72	39 33 01.0	6.000	46.9	30.5	34.52	48.20
Clinton		IN		97.9		87 28 32.0	100	271	Word Power, Inc.		
230A	RDEL	DEL	---	278.5	87.72	39 33 01.0	6.000	46.9	30.5	34.52	48.20
Clinton		IN		97.9		87 28 32.0	100	271	Indy Lico, Inc. And Wfms L		
230A	WPFR-FM	LIC	---	278.5	87.72	39 33 01.0	2.350	44.9	29.8	36.51	48.88
Clinton		IN		97.9	BLED20000605ABI	87 28 32.0	161	334	Word Power, Inc.		
231B	WNNF	LIC	---	101.3	173.21	39 06 59.0	16.000	123.8	63.3	42.59	77.29
Cincinnati		OH		282.6	BLH20070313AAT	84 30 07.0	264	483	Citicasters Licenses, L.p.		
232A	WIFE-FM	LIC	---	70.0	88.60	39 42 22.0	1.050	37.8	25.2	43.10	52.50
Rushville		IN		250.6	BMLH20000913AAR	85 29 41.0	171	462	Rodgers Broadcasting Corp.		
233D	631834	APP	---	152.1	53.69	39 00 40.0	0.010	0.2	6.4	46.82	46.85
Houston		IN		332.2	BNPFT20030317AWL	86 10 29.0		347	Educational Media Foundati		
231B	WGFA-FM	LIC	---	324.4	186.32	40 47 37.0	50.000	132.0	58.7	47.83	96.74
Watseka		IL		143.6	BLH19970711KC	87 45 17.0	111	305	Iroquois County Broadcasti		

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DI ST FI LE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LI CENSEE	Page # *IN* (Overl ap in km)	*OUT*
228D Zionsville	632454	APP IN	_C_	8.8 188.8	57.31 BNPFT20030314AKK	39 56 54.0 86 21 48.0	0.027	0.4 345	6.3 Horizon Christian Fellowsh	50.51	50.55
229A Clinton	RADD	ADD IN	___	278.5 97.9	87.72	39 33 01.0 87 28 32.0	6.000 100	2.9 271	30.5 Indy Li co, Inc.	78.48	56.79 And Wfms L
228D Castleton	637716	APP IN	_C_	34.7 215.0	65.65 BNPFT20030314ANW	39 55 23.0 86 01 40.0	0.055	0.5 283	6.0 Friends Of Christian Radio	56.94	59.27
229A Clinton	WPFR-FM	CP IN	_CX	278.5 97.9	87.72 BPED200711107ACL	39 33 01.0 87 28 32.0	2.350 161	2.6 334	29.8 Word Power, Inc.	78.85	57.47
232D Noblesville	649023	APP IN	_C_	30.2 210.5	76.85 BNPFT20030317GWB	40 02 07.0 86 00 44.0	0.250	10.1 259	7.1 Kaspar Broadcasting Co, In	59.09	58.95
230L1 Crawfordsville	WVRG-LP	LI C IN	___	331.8 151.6	77.47 BLL20020612AEV	40 03 08.0 86 53 45.0	0.087 32	7.7 272	5.4 Calvary Chapel Of Crawford	63.44	62.97
233D Seymour	649259	APP IN	_C_	136.8 317.2	72.85 BNPFT20030317FDV	38 57 33.0 85 53 24.0	0.250	1.1 205	7.1 The Trustees Of Indiana Un	63.56	65.32
232D Arcadia	637678	APP IN	_C_	19.8 200.0	84.38 BNPFT20030314AOQ	40 09 09.0 86 07 45.0	0.038	7.8 325	5.6 Friends Of Christian Radio	70.10	69.58
229A French Lick	RADD	ADD IN	___	187.8 7.7	94.52	38 35 41.0 86 36 48.0	6.000 100	2.3 291	23.4 L. dean Spencer	85.02	70.69
233A Loogootee	WRZR	LI C IN	NCN	205.9 25.6	101.02 BLH19980923KA	38 37 09.0 86 58 27.0	1.800 130	2.1 285	23.9 Hembree Communi cations, In	91.08	76.74
230D Frankfort	649119	APP IN	_C_	356.7 176.7	94.56 BNPFT20030317GYW	40 17 19.0 86 31 48.0	0.250	10.3 294	7.2 Kaspar Broadcasting Co, In	78.22	78.77
233D Salem	W233AO	LI C IN	_V_	163.7 343.9	96.01 BLFT20070222AON	38 36 29.0 86 09 21.0	0.013	0.3 337	6.5 Good Shepherd Radio, Inc	89.56	89.07
228A Lafayette	WKHY	LI C IN	_CN	338.0 157.7	113.78 BLH19950329KA	40 23 13.0 86 58 10.0	6.000 75	2.3 274	23.1 Wask, Inc.	105.20	90.24
232C2 Hardinsburg	WULF	LI C KY	NCN	174.3 354.4	174.77 BLH19950630KE	37 52 18.0 86 16 04.0	40.000 160	76.4 366	51.4 Skytower Communi cations -	91.32	113.30
231B Mount Vernon	WMI X-FM	LI C IL	_HN	241.6 60.0	243.81 BLH2581	38 22 14.0 88 55 20.0	50.000 168	139.5 321	66.8 Withers Broadcasting Compa	95.72	136.03
230A Sellersburg	AL9876	RSV IN	___	153.8 334.3	141.28 RM10378	38 17 41.0 85 45 07.0	6.000 100	38.9 253	25.3	95.92	106.69
230A Sellersburg	WQKC	LI C IN	_CX	154.8 335.2	144.93 BLH20071218ABI	38 15 21.7 85 45 29.1	2.650 152	40.8 299	26.9 S.c.i. Broadcasting, Inc.	97.73	108.86
231A Roanoke	WBNI -FM	LI C IN	ZC_	30.0 210.8	198.83 BMLED20070130ACL	40 58 51.0 85 16 48.0	6.000 100	86.3 342	28.0 Northeast Indiana Public R	104.91	145.37
233B Champaign	WLRW	LI C IL	_CX	296.7 115.6	173.94 BLH20051107ABO	40 07 35.0 88 17 25.0	50.000 138	5.7 357	63.5 Saga Communi cations Of Ill	162.19	109.56
228A Hartford City	WHTY	LI C IN	ZCN	38.7 219.3	140.66 BLH19921019KA	40 25 16.0 85 25 40.0	3.000 139	2.5 408	28.1 Backyard Broadcastng Indi	129.77	112.08
231L1 Oakland City	WWPO-LP	LI C IN	___	212.4 31.8	144.23 BLL20041122AI J	38 20 20.0 87 21 07.0	0.093 31	16.4 174	5.1 Oakland Ci ty Uni versi ty	120.05	112.99
231A Roanoke	WBNI -FM	CP IN	NCX	30.0 210.8	198.83 BPED20070713ADO	40 58 51.0 85 16 48.0	3.400 100	77.5 342	24.7 Northeast Indiana Public R	113.77	148.72
234A New Albany	WFIA-FM	LI C IN	NC_	159.1 339.4	137.11 BLH20010430AAH	38 17 02.0 85 54 17.0	3.300 120	2.1 316	22.2 Salem Media Of Kentucky, I	128.84	114.52
229A Walton	WFRR	LI C IN	_CN	9.7 189.9	145.02 BLH19951120KB	40 43 31.0 86 10 33.0	6.000 100	2.6 324	26.6 Christi an Friends Broadcas	135.97	118.02
229B Miami sburg	WFCJ	LI C OH	_CX	81.7 263.1	186.55 BMLH20080102ABQ	39 39 35.0 84 18 53.0	50.000 150	6.1 418	66.3 Mi ami Valley Christi an Bro	173.02	119.44
232L1 Marion	WIWU-LP	LI C IN	___	29.3 209.8	138.25 BLL20071001AJP	40 31 15.0 85 39 59.0	0.100 25	8.0 281	5.6 Indiana Wesleyan Uni versi t	122.82	122.02
228A Tuscola	WEBX	LI C IL	_CN	289.2 108.0	163.80 BLH19931217KC	39 54 24.0 88 16 35.0	6.000 94	2.8 299	28.5 Radiostar, Inc.	155.01	134.90
228A Brandenburg	WMMG-FM	LI C KY	_CN	170.5 350.7	163.59 BMLH19900515KH	37 59 05.0 86 09 24.0	3.400 88	2.3 278	24.3 Meade County Communi cation	154.44	138.90

CH CITY	CALL	TYPE	ANT STATE	AZI <--	DI ST FI LE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LI CENSEE	Page # 3 *IN* (Overl ap in km) *OUT*		
230C2	WKTG Madi sonvi lle	LI C	NCN KY	201.3 20.7	227.69 BLH19980629KC	37 31 26.0 87 24 11.0	35.000 178	77.3 303	52.4	142.72	164.47	Sound Broadcasters, Inc.
230L1	WPDQ-LP Mt. Carmel	LI C	___ IL	224.8 44.0	160.11 BLL20050505AAA	38 24 38.0 87 45 41.0	0.100 1	8.0 128	5.6	143.85	142.85	Mt. Carmel Public Broadcas
233B	WLRW Champaign	APP	_CX IL	296.7 115.6	173.94 BESTA20070629AEM	40 07 35.0 88 17 25.0	0.500 124	1.6 343	24.4	166.37	148.70	Saga Communi cations Of III
233B	WLRW Champaign	APP	_CX IL	296.7 115.6	173.94 BDSTA20051216AAP	40 07 35.0 88 17 25.0	0.500 124	1.6 343	24.4	166.37	148.70	Saga Communi cations Of III
233B	WLRW Champaign	APP	_CX IL	296.7 115.6	173.94 BESTA20060614AAV	40 07 35.0 88 17 25.0	0.500 124	1.6 343	24.4	166.37	148.70	Saga Communi cations Of III

Terrain database is NGDC 30 SEC Distance + R = 73.215 or FCC Spacings in KM, Distance + M = Margin in KM
Contour distances are on direct line to and from reference station. Reference zone = 1. With 3rd Adj Channels.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.

E-2 W231BT 60 dBu Plot



E-3 W231BT Interference Plot

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W2231BT.Mod
BMLH19980128KD
Latitude: 39-26-18 N
Longitude: 086-27-58 W
ERP: 0.038 kW
HAAT: 80.0 m
Channel: 231
Frequency: 94.1 MHz
RCAMSL Height: 296.0 m
Site Elevation: 250.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

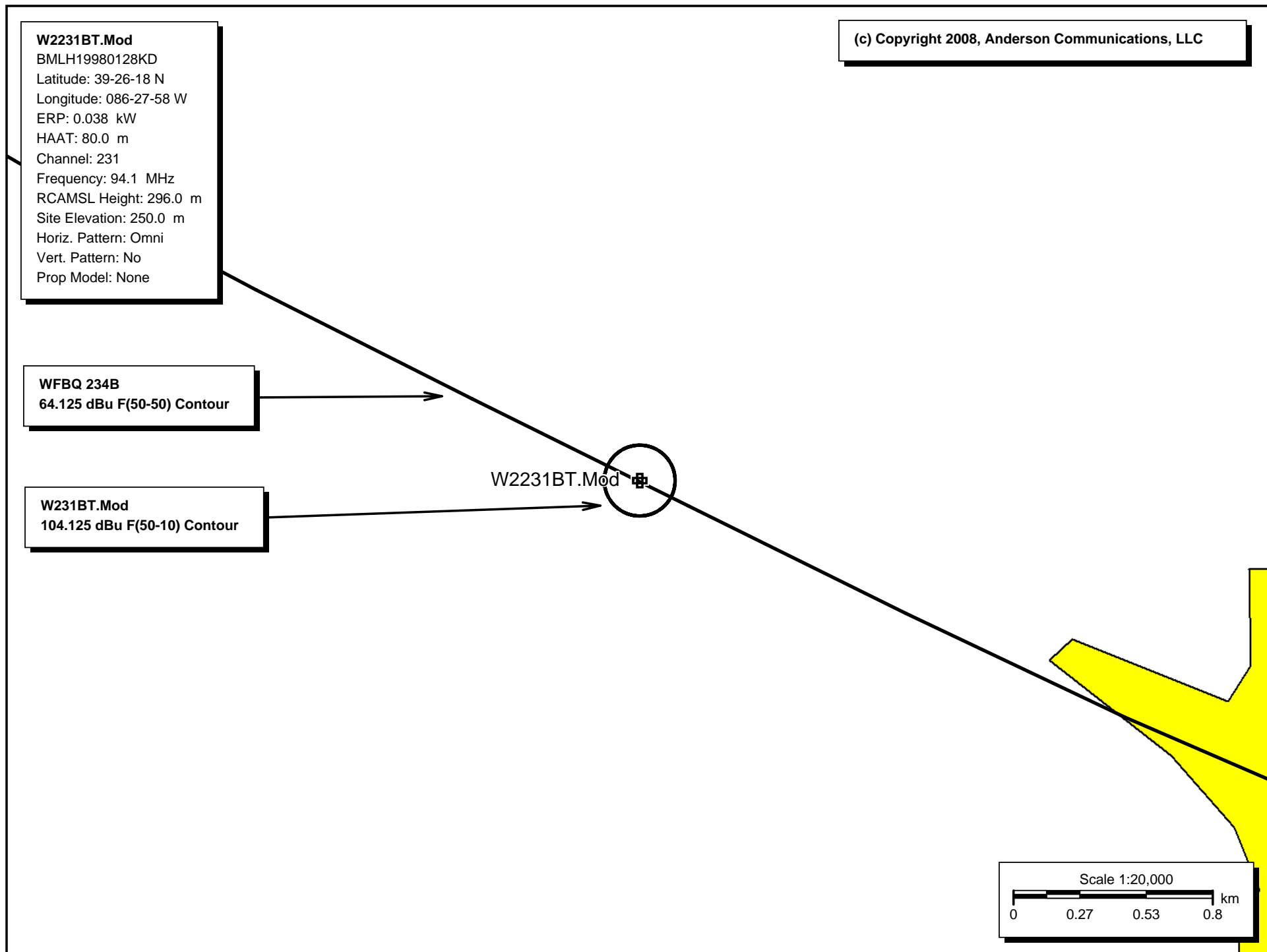
WFBQ 234B
64.125 dBu F(50-50) Contour

W231BT.Mod
104.125 dBu F(50-10) Contour

W2231BT.Mod

Scale 1:20,000

0 0.27 0.53 0.8 km

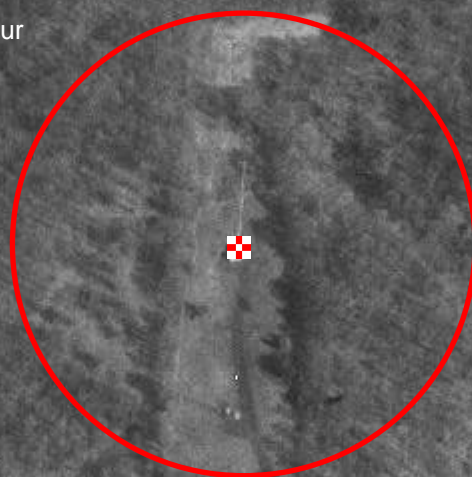


E-4 W231BT Aerial Photo Plot

topozone

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W231BT
Reduced Vertical Contour
104.125 dBu F(50-10)



0 0.07 0.14 0.21 0.28 0.35 km
0 0.04 0.08 0.12 0.16 0.2 mi

WCBK-FM (Martinsville), USGS Martinsville (IN) Quadrangle
Projection is UTM Zone 16 NAD83 Datum

M*
A G
M=-3.706
G=0.339



Registration Detail

Antenna Structure

Location (in NAD83 Coordinates)

Center of AM Array

Heights (meters)

68.0

Overall Height Above Ground w/o Appurtenances

67.1

Painting and Lighting Specifications

•

Owner & Contact Information

Licensee ID

Owner

P: (765)342-3394
E:

Contact

P:
E:

Last Action Status

Entered 09/04/1997

Mode Mail In (Manual)

Related Applications

•

Comments

Comments

•

Automated Letters

•

CLOSE WINDOW