

**ENGINEERING REPORT  
MINOR CHANGE  
CONSTRUCTION PERMIT  
APPLICATION  
Site Change**

for

**WCBW-FM – East St. Louis, IL**  
CH209A (89.7 MHz)  
BLED-20010827AAM  
(Facility ID No. 83448)

October 2020

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Broadcast Engineering Consultants  
Coldwater, MI 49036

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## **Discussion of Report**

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This firm was retained to prepare the required engineering report in support of this Minor Change Construction Permit Application for WCBW-FM – East St. Louis, IL (Facility ID No. 83448). Presently WMCB-FM is licensed under BLED-20010827AAM with 0.25 kW ERP (H&V) at 195 meters AMSL. WCBW-FM operating parameters of 0.15 kW ERP (H&V) at 165.8 meters AMSL from a new site are requested. WCBW-FM will continue to serve the community of East St. Louis, IL.

The antenna will be mounted on a mast on a building rooftop. The rooftop is 76' AGL. The mast will be mounted on top of a penthouse which is 11' tall. The COR of the antenna will be 4' above the penthouse. The FCC TOWAIR program shows that tower registration is not required.

The proposed service contours have been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The plotted contours are found in ***Exhibit 1.0*** of this report. This exhibit shows the 60 dBu contour which serves the community of license. The applicant would like to note the use of the NED 03 SEC terrain database for all allocation, contour and HAAT calculations contained here-in.

The proposed site for the Class A operation meets all the contour protection requirements towards other stations in the allocation. A tabulation of the proposed protections to each of station is found in ***Exhibit 2.0***.

## Discussion of Report (continued)

**RADIATION PROTECTION:** The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency radiation. This report section is in response to that provision of the Rules. The current Federal Communications Commission guidelines for RF radiation protection are set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01).

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1310 of the Commission's rules. The antenna COR will be approximately 20' above any potential human exposure. The FCC FM Model program shows the potential exposure from RF electromagnetic fields produced by the Type 2 FM broadcast antenna will be less than 200  $\mu\text{W}/\text{cm}^2$ . The roof top facility is properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed.

***In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.***

**DISTANCES TO CONTOURS:** The table below shows the distances to the 3.16 mV/m and 1.0 mV/m contours from the proposed facility using an ERP of 0.15 kW at an HAAT of 23.14 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 383749.3    W. Lng. = 901105.4						
HAAT and Distance to Contour,						
FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	60-F5	70-F5
000	125.7	40.1	0.1500	-8.24	7.15	4.02
045	124.0	41.8	0.1500	-8.24	7.30	4.12
090	134.2	31.6	0.1500	-8.24	6.38	3.56
135	140.3	25.5	0.1500	-8.24	6.24	3.48
180	149.2	16.6	0.1500	-8.24	6.24	3.48
225	147.1	18.7	0.1500	-8.24	6.24	3.48
270	157.4	8.4	0.1500	-8.24	6.24	3.48
315	163.2	2.6	0.1500	-8.24	6.24	3.48
Ave El= 142.66 M    HAAT= 23.14 M    AMSL= 165.8						

# WBCW-FM Present and Proposed at Witte Bldg. East St. Louis 60 dBu Community Coverage

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## WBCW-FM

BLED20010827AAM  
Latitude: 38-37-52.92 N  
Longitude: 090-12-09 W  
ERP: 0.25 kW  
Channel: 209  
Frequency: 89.7 MHz  
AMSL Height: 195.0 m  
Elevation: 149.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None

## WBCW-FM.Witte

Proposed Operation  
Latitude: 38-37-49.12 N  
Longitude: 090-11-05 W  
ERP: 0.15 kW  
Channel: 209  
Frequency: 89.7 MHz  
AMSL Height: 165.8 m  
Elevation: 137.8 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

- WBCW-FM (209)
- WBCW-FM.Witte (209)

FCC F(50-50) 60.00 dBu (FCC HAAT)

FCC F(50-50) 60.00 dBu (FCC HAAT)

WBCW-FM.Witte  
WBCW-FM

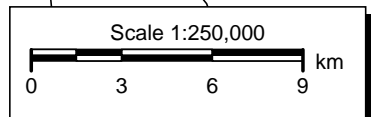


Exhibit 2.0											
University Of Northwestern - St. Paul											
REFERENCE		CH#	209A	-	89.7 MHz,	Pwr=	0.15 kw,	HAAT=	23.4 M,	COR=	165.8 M
38 37 49.30 N.		Average Protected F(50-50)= 6.24 km								DISPLAY DATES	
90 11 05.40 W.		Omni-directional								DATA 10-13-20	
										SEARCH 10-21-20	
CH	CALL	TYPE	ANT	AZI	DIST	LAT	PWR(kw)	INT(km)	PRO(km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG	HAAT(M)	COR(M)	LICENSEE	(Overlap	in km)
209A	WCBW-FM	LIC D__		274.3	1.55	38 37 53.10	0.250		---Reference---		
East St. Louis		IL		94.3	BLED20010827AAM	90 12 09.41	57	195	University Of Northwestern		
209A	KGNX	LIC ____		268.6	30.38	38 37 23.11	0.120	24.2	6.7	0.1	2.3
Ballwin		MO		88.4	BLED19940429KT	90 32 01.40	52	220	Missouri River Christian B		
211D	W211AD	LIC D__		24.8	9.06	38 42 16.10	0.060	0.1	2.8	1.9	5.3
Granite City		IL		204.8	BLFT19920817TB	90 08 27.29	32	165	University Of Northwestern		
210A	WLCA	LIC D__		358.4	35.40	38 56 57.20	1.500	25.7	16.7	2.8	7.3
Godfrey		IL		178.4	BLED20050622AAA	90 11 47.41	120	276	Lewis & Clark Community Co		
209B1	WBMV	LIC ____		104.3	113.81	38 22 15.20	10.500	103.0	38.2	4.4	54.7
Mount Vernon		IL		285.1	BLED20050719AHR	88 55 20.21	150	303	University Of Northwestern		
206C2	KCLC	LIC D__		302.0	33.04	38 47 13.70	50.000	2.8	27.8	24.0	4.4
St. Charles		MO		121.8	BLED20100908AAC	90 30 28.29	73	218	Lindenwood University		
212D	KWUR	LIC ____		280.8	10.90	38 38 55.10	0.009	0.2	3.7	4.4	6.1
Clayton		MO		100.7	BLED20051108AHS	90 18 28.41	29	185	The Washington University		
208A	KCFV	LIC D__		329.8	17.77	38 46 07.10	0.100	3.9	2.5	7.6	4.7
Ferguson		MO		149.8	BLED19830314AR	90 17 16.40	49	201	St. Louis Community Colleg		
262C3	KATZ-FM«	LIC Z__		289.7	18.19	38 41 07.20	17.000	169.8	84.6	11.5R	6.7M
Bridgeton		MO		109.6	BLH20101006AAB	90 22 54.39	120	283	Citicasters Licenses, Inc.		
211D	KRHS	LIC ____		300.7	17.43	38 42 37.10	0.010	0.2	3.6	11.0	12.6
Overland		MO		120.6	BLED20160906ADP	90 21 26.39	45	205	Ritenour School District		
210A	KGNA-FM	LIC D__		219.8	27.92	38 26 14.09	0.150	4.9	3.5	15.7	12.7
Arnold		MO		39.7	BLED20020805AAA	90 23 24.41	40	200	Missouri River Christian B		
209A	KNLP	LIC ____		213.3	93.09	37 55 42.21	2.300	72.1	22.9	13.6	43.7
Potosi		MO		32.9	BLED19980622KB	90 46 02.51	80	367	New Life Evangelistic Cent		
207B	KTBJ	LIC D__		166.1	54.39	38 09 16.20	25.000	3.9	37.9	43.9	14.3
Festus		MO		346.2	BLED20020723AAA	90 02 07.39	113	258	CSN International		
208A	KNLH	LIC D__		226.7	43.57	38 21 40.20	0.068	19.1	12.8	17.5	21.6
Cedar Hill		MO		46.5	BLED19981020KA	90 32 54.41	213	401	New Life Evangelistic Cent		
209B1	WLUJ	LIC D__		20.0	139.39	39 48 30.20	20.000	106.6	35.3	25.8	80.6
Springfield		IL		200.4	BLED20010828AAQ	89 37 30.41	100	270	Good News Radio, Inc.		
212B	WMSH	CP D__		160.3	79.84	37 57 11.00	33.000	5.8	51.5	67.5	27.6
Sparta		IL		340.5	0000112343	89 52 37.00	185	326	Covenant Network		
211D	K211GB	LIC D__		254.8	56.43	38 29 44.10	0.050	0.4	8.2	49.8	46.1
Gray Summit		MO		74.4	BLFT20170613AAO	90 48 33.41		313	Covenant Network		
212B1	WMSH	LIC D__		160.3	79.83	37 57 11.20	5.200	2.9	30.4	70.3	48.4
Sparta		IL		340.5	BLED20120322AFH	89 52 37.39	136	277	Covenant Network		
208A	WGRN	LIC ____		66.1	73.60	38 53 43.10	0.300	16.2	11.2	50.2	51.8
Greenville		IL		246.6	BLED19821122AJ	89 24 30.19	62	225	Greenville College Educati		
210A	KGNV	LIC ____		267.6	80.20	38 35 49.10	1.000	22.2	14.7	51.8	54.1
Washington		MO		87.1	BLED19901217KD	91 06 17.49	65	245	Missouri River Christian B		
211A	WLLM-FM	LIC ____		22.2	86.34	39 20 58.20	5.000	2.6	27.4	76.7	58.1
Carlinville		IL		202.5	BLED20010302AAX	89 48 16.30	90	286	Good News Radio, Inc.		
210A	WSWS	LIC D__		69.3	100.12	38 56 35.20	2.000	29.5	19.6	63.9	67.8
Smithboro		IL		250.0	BLED20110906AAF	89 06 13.21	110	266	The Power Foundation		
206D	W206AN	LIC ____		15.3	74.17	39 16 28.10	0.080	0.6	6.4	66.4	66.6
Carlinville		IL		195.5	BLFT20100218AAH	89 57 23.31	45	227	Family worship Center Chur		
210C3	KHIS	LIC ____		171.0	140.71	37 22 40.20	12.500	55.7	36.6	78.2	94.9
Jackson		MO		351.1	BLED20100628AWX	89 56 05.39	142	317	Pure Word Communications		
207B	WIPA	LIC D__		340.6	128.83	39 43 25.11	50.000	5.2	47.4	116.8	80.0
Pittsfield		IL		160.3	BLED19921221KB	90 41 09.40	150	316	The Board Of Trustees Of T		

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap	*OUT* in km)
263D Centralia	W263CT«	LIC D__ IL		95.5 276.2	92.40 BLFT20170105AAC	38 32 45.10 89 07 47.19	0.075 33	169.8 183	84.6 Samuel	9.5R Stratemeyer	82.9M
212C3 Cuba	KGNN-FM	LIC ____ MO		238.7 58.0	115.26 BLED19981123KA	38 05 11.20 91 18 30.50	6.300 99	2.8 362	28.4 Missouri	106.0 River	84.5 Christian B
209A Rolla	KMNR	LIC ____ MO		242.2 61.2	157.48 BLED20141229AAA	37 57 35.60 91 46 18.31	1.850 114	66.3 407	20.3 The Curators	85.1 Of The Univer	116.1
06 -- Rolla	NEW«	CP __N MO		242.6 61.6	158.18 BNPDVL-20090825BJS	37 57 53.70 91 47 01.89	0.300	4.1 470	14.7	18.7R	139.4M
06 -- Columbia	K06PT-D«	CP __N MO		281.0 99.7	189.82 BNPDVL-20091020AAM	38 56 12.10 92 20 02.59	0.300	4.1 236	6.6	10.7R	179.2M

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Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM.  
In & Out distances between contours are shown at closest points. Reference zone= - Zone 2, Co to 3rd adjacent.  
All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.  
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 restricted contour.  
« = Station meets FCC minimum distance spacing for its class.