

102W279AQ Comprehensive Engineering Exhibit
Minor Change Application
October 2013

W279AQ is seeking to operate with a power of 212 watts ERP at a location 275 meters above ground level upon an existing tower site identified by ASR No. 1020785, utilizing a non-directional antenna.

Attached as Figure 1 is an allocation overlap report wherein it can be determined that the proposed location is within the protected contour of 2nd adjacent facilities of co-located KLOU and WHHL, which located a few kilometers away. WHHL is the facility with the weakest signal as can be seen in Figure 2 it presents an 87 dBu contour at the proposed translator site which must be protected from predicted interference and thus is the controlling protected signal level. As it will require a 127 dBu signal to cause predicted interference with the 87 dBu signal of WHHL based upon the standard FCC protection ratio of +40 db. The line of site formula¹ was utilized to determine that only an area within 46 meters of the transmit antenna would have a signal strength value this high, by reference to the image of the transmit location in Figure 3 it can be seen that no habitable space exists within this area.

The facility will be utilized as a “fill-in” translator for primary station KJMJ-FM. The 60 dBu service contour of the proposed facility is within that of the primary station, as demonstrated in Figure 4, where it can also be seen that the 60 dBu contour of the facility as proposed overlaps the existing authorized facility, making this application compliant for filing as a minor modification application.

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, “Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation.”

The proposed antenna system is an ERI “100A-2”, 2- element; 1.0 wave spaced antenna mounted 275 meters above ground. As this element type is not modeled in any current computer program, for purposes of this analysis the FM Model program has been set to calculate values for a “worst case” type of antenna element array, “Ring Stub”, operated with an effective radiated power of 0.212 Kilowatts in both the horizontal and vertical planes 100 meters above ground. At 2 meters above the surface, at 68.4 meters from the base of the tower, this proposal will contribute worst case, 0.11 microwatts per square centimeter, or 0.01 percent of the allowable ANSI limit for controlled exposure, and 0.05 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of

¹ $1 \text{ }^1 \text{ ReachDistMeters} = 106.92 - (20 * (\text{LOG10}[\text{DistMeters}] / 1000)) + [\text{ERP in dBk}]$

the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

Figure 1. Overlap Study

w279AQ to ASR 1020785 Rev Height Educational Media Foundation											
REFERENCE		CH# 279D - 103.7		MHz, Pwr= 0.212 kw, HAAT= 0.0 M, COR= 412 M		Average Protected F(50-50)= 6.8 km omni-directional					
38 34 27.7 N. 90 19 31.5 W.						DISPLAY DATES DATA 10-21-13 SEARCH 10-25-13					
CH CITY	CALL	TYPE STATE	ANT AZI	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LISCENSEE	*IN* (Overlap in km)	*OUT*	
277C1	KLOU	CP _CX	0.0	0.00	38 34 27.7	93.000	9.9	71.4	-29.6*<	-72.4*<	
St. Louis		MO	0.0	BPH20120605AAH	90 19 31.5	309	462	Citicasters Licenses, Inc.			
277C1	KLOU	LIC _CX	162.3	0.12	38 34 24.0	90.000	9.9	71.3	-30.5*<	-72.2*<	
St. Louis		MO	342.3	BLH20071212ABJ	90 19 30.0	313	466	Citicasters Licenses, Inc.			
279D	w279AQ	CP _DC	42.3	16.10	38 40 53.0	0.250	21.0	6.3	-25.3*	-53.0	
Mascoutah		IL	222.4	BPFT20120413ACG	90 12 02.0		276	Educational Media Foundati			
281C2	WHHL	LIC ZCX	22.5	9.36	38 39 08.0	50.000	4.4	42.0	-15.2*<	-33.6*<	
Hazelwood		MO	202.5	BLH20080110ABC	90 17 03.0	140	293	Radio One Licenses, LLC			
279D	w279AQ	LIC _C	109.3	47.52	38 25 55.0	0.010	15.0	4.7	11.4	-21.6	
Mascoutah		IL	289.7	BLFT20070406ABN	89 48 42.0	84	213	Educational Media Foundati			
279B	WDBR	LIC _CX	24.4	148.98	39 47 37.0	50.000	129.7	56.0	-1.0<	13.1	
Springfield		IL	204.8	BMLH20120629AAB	89 36 18.0	91	268	Saga Communications of Ill			
279D	1549403	APP _C	314.6	79.04	39 04 18.2	0.250	41.2	12.0	18.2	6.3	
Troy		MO	134.2	BNPFT20030317BIL	90 58 36.2		264	Covenant Network			
279D	1567253	APP _C	314.6	79.04	39 04 18.2	0.250	41.2	12.0	18.2	6.3	
Troy		MO	134.2	BNPFT20130821AAH	90 58 36.2		264	Covenant Network			
226D	w226BC	APP _C	2.3	31.73	38 51 36.0	0.250	0.0	0.0	9.5R	22.2M	
Brighton		IL	182.3	BPFT20130326ADY	90 18 38.0		320	Educational Media Foundati			
279L1	WJAF-LP	LIC _	93.0	103.83	38 31 10.0	0.100			60.1	32.5	
Centralia		IL	273.7	BLL20030529AFH	89 08 11.0	27	180	Day Star Christian Broadca			
279C0	KJEL	LIC _CN	249.1	228.11	37 49 10.0	100.000	171.5	72.0	36.8	94.9	
Lebanon		MO	67.6	BLH19881115K5C	92 44 51.0	300	620	Waynesville/ Lebanon Licens			
280D	w280DR	LIC _C	66.2	86.36	38 53 00.0	0.250	11.2	7.8	54.6	48.1	
Greenville		IL	246.8	BLFT20060705AAN	89 24 50.0	34	192	Bond Broadcasting, Inc.			
280A	WXAN	LIC _CN	136.6	109.56	37 51 19.0	2.900	39.7	26.1	48.8	52.2	
Ava		IL	317.1	BLH19960916KA	89 28 06.0	143	287	Southern Gospelity, LLC			
279D	641122	APP _DC	102.3	121.48	38 20 04.0	0.250	8.4	2.6	91.9	54.0	
Mount Vernon		IL	283.1	BNPFT20030317APP	88 58 03.0	36	182	Clear Channel Broadcasting			
279D	1571989	APP _DC	102.3	121.48	38 20 04.0	0.250	8.4	2.6	91.9	54.0	
Mount Vernon		IL	283.1	BNPFT20130830AES	88 58 03.0		182	Clear Channel Broadcasting			
280A	KMCR	LIC ZCX	294.4	112.69	38 59 10.0	6.000	39.1	25.4	54.7	59.1	
Montgomery City		MO	113.6	BLH20111122CAJ	91 30 39.0	91	323	Chirillo Electronics, Inc			
282A	KDBB	LIC _C	193.6	88.40	37 48 01.0	1.650	2.4	32.1	65.7	55.3	
Bonne Terre		MO	13.5	BLH19980827KA	90 33 47.0	202	493	Mks Broadcasting, Inc.			
280A	KTNX	LIC _NC	196.2	115.72	37 34 23.0	0.450	36.7	24.4	58.9	61.5	
Arcadia		MO	16.0	BLH20060203AAX	90 41 35.0	284	627	Dockins Broadcast Group, L			
226C2	KBDZ	CP _NCX	170.1	77.92	37 52 58.0	36.000	0.0	0.0	14.5R	63.4M	
Perryville		MO	350.2	BMPH20110921ADP	90 10 20.0	175	378	Donze Communications, Inc.			
280D	K280FN	LIC _C	239.8	108.09	38 04 50.0	0.140	14.7	10.5	73.5	68.2	
Cuba		MO	59.1	BLFT20111221AEF	91 23 27.0		376	Community Broadcasting, In			
282A	DWCCZ	VAC _N	122.7	98.54	38 05 30.0	6.000	2.5	25.2	75.2	72.4	
Pinckneyville		IL	303.3		89 22 46.0	100	238				
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Terrain database is NGDC 30 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= , 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)
"IN"affixed to 'IN' or 'OUT' values = site inside protected contour.
< = Contour overlap

Figure 2. Contour Map

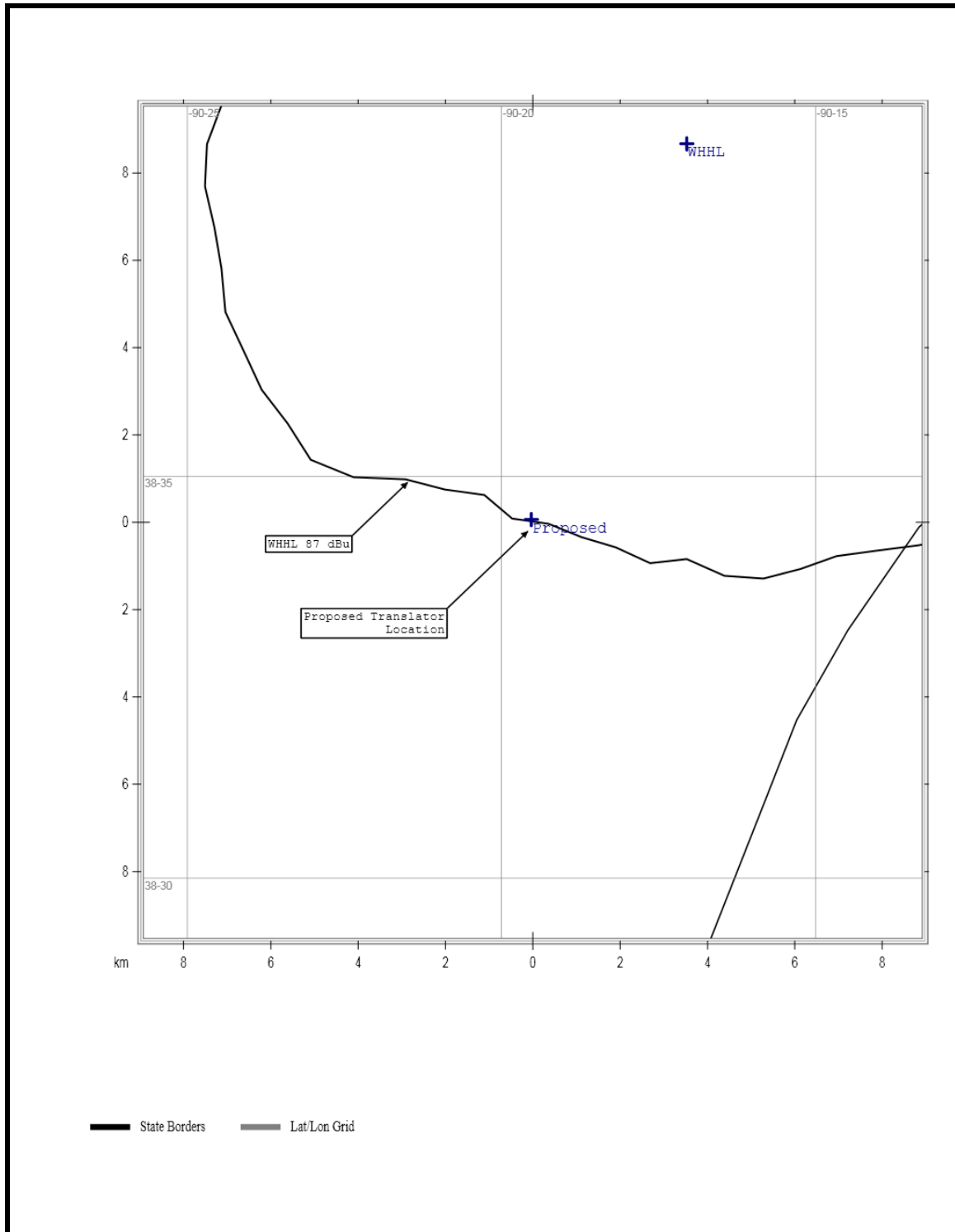


Figure 3. Transmitter Location



Figure 4. Contour Overlap Map

