

Engineering Exhibit for Minor Change in Facility 150854

This exhibit is in support of a transmit antenna location change and power increase for facility 150854. It is proposed to relocate to 107 meters above ground on a support tower identified by structure registration number 1059666 using a directional antenna.

Figure 1 is a spacing study for the proposed facility that utilizes the directional pattern of the proposed antenna as given in Figure 2. It can be seen that the proposal is within the protected contours of second-adjacent stations WMXC and WKNN-FM.

Section 74.1204(d) states that *“The provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an 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.”*

We will demonstrate that a lack of population and/or other factors allow this proposal to be compliant with 74.1204. The process commonly called “Living Way”, as recently described in FCC 08-242 in connection with BPFT-19981001TA, allows for the use of U/D Analysis, also known as “signal strength ratio methodology” to be utilized.

Figure 3 is a map from which it can be determined that at the proposed translator location WMXC has a signal of 88.5 dBu and WKNN-FM a 60.4 dBu signal. Thus protection of WKNN-FM is the “controlling” limit as protection of its 60.4 dBu signal will afford the required protection to the 88.5 dBu signal of WMXC by a +40 dB ratio.

Also on Figure 3 are the current and proposed 60 dBu contours as well as the 2 mV/m day signal contour and 25 mile limit circle of primary station WNTM, thus demonstrating compliance with the minor modification application requirements, and “fill-in” classification.

This proposal is for use of a 7-Bay Half-Wave spaced antenna with a vertical radiation characteristic described in Figure 4, a table provided by the antenna manufacturer. Figure 5 has been tabulated using the antenna vertical radiation pattern from Figure 4, the proposed ERP and height as well as the signal value that is predicted to cause interference. Figure 5 depicts the predicted signal strength from the translator both at ground level, and at receiving antenna locations up to 12 meters above ground level of the translator, the 12 meter data is identified in the table as the “artificial plane”, and as can be determined by the columns colored green, at no location from ground level to 21 meters above ground does the predicted signal exceed that of 40 dB greater than WKNN-FM.

Figure 6 is an aerial view of the proposed location, close examination of the area has not revealed any habitable structure exceeding 12 meters above ground.

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 antenna system is a Shively "6813", 7- element; half-wave spaced antenna mounted 107 meters above ground. For purposes of this "worst case" analysis the "FM Model" program has been set to calculate values for a "Ring Stub" type of antenna element array, operated with an effective radiated power of 0.250 Kilowatts in both the horizontal and vertical planes. At 2 meters above the surface, at 19 meters from the base of the tower, this proposal will contribute worst case, 0.002 microwatts per square centimeter, or 0.0002 percent of the allowable ANSI limit for controlled exposure, and 0.001 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 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- Spacing Study

w258AY at our Tower 4-26-12
Edgewater Broadcasting, Inc.
Average Protected F(50-50)= 12.39 km
Standard Directional

REFERENCE 30 44 44.3 N. 88 05 40.0 W. CH# 258D - 99.5 MHz, Pwr= 0.25 kw DA, HAAT= 92.5 M, COR= 107 M DISPLAY DATES DATA 04-26-12 SEARCH 04-26-12

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)
260C Mobile	WMXC	LIC _C_ AL		104.0 284.1	26.07 BMLH20050615ACN	30 41 20.0 87 49 49.0	100.000 535	13.2 569	90.2 Cc Licenses, Llc	-0.4	-65.2*
258D Mobile	w258AY	LIC _V_ AL		324.1 144.1	2.57 BLFT20070820ABH	30 45 52.0 88 06 37.0	0.008	9.6 8	3.0 Edgewater Broadcasting, In	-18.9*	-41.1*
258C2 Fort walton Beach	WKSM	LIC _CX FL		104.3 285.1	145.41 BLH20030304AAE	30 24 50.0 86 37 40.0	50.000 134	135.6 140	50.0 Cumulus Licensing Llc	-3.5	49.8
256C1 Pascagoula	WKNN-FM	LIC DEX MS		244.2 63.9	66.08 BLH20020226ACB	30 29 09.0 88 42 53.0	99.000 300	8.8 308	67.1 Cc Licenses, Llc	47.2	-2.1*
258D Citronelle	w258AQ	LIC _C_ AL		340.3 160.2	41.89 BLFT20070621AAB	31 06 04.0 88 14 35.0	0.013 108	20.8 165	6.3 Goforth Media, Inc.	11.7	4.2
258C0 New Orleans	WRNO-FM	LIC _CX LA		245.0 64.1	197.64 BMLH20090406AGA	29 58 57.0 89 57 09.0	100.000 306	172.6 306	72.8 Clear Channel Broadcasting	15.0	91.2
257C2 Monroeville	WMFC	LIC _CN AL		41.3 221.8	114.11 BLH19940613KJ	31 30 51.0 87 17 55.0	30.000 94	56.3 195	35.0 Monroe Broadcasting Compan	44.6	59.2

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. Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtill(Y,N,X) "*"affixed to 'IN' or 'OUT' values = site inside protected contour.

Figure 3 – Contours and Limits Map

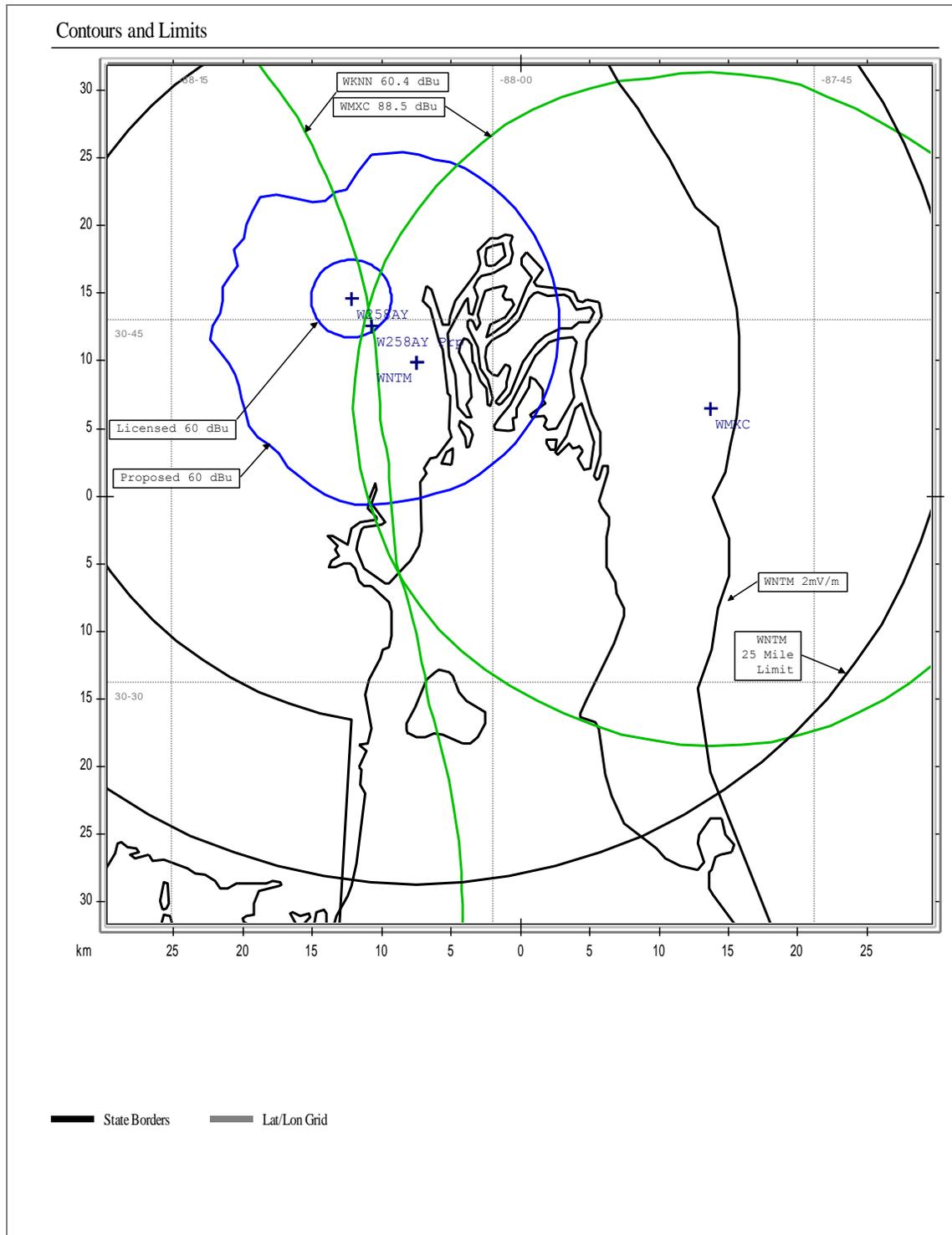


Figure 4 – Vertical Elevation Profile

Elevation Pattern Tabulation, Sidemount 7-Bay Antennas, Half-Wave-Spaced

Includes Models 6014, 6015, 66xx series except 6602B, 65xx series, 68xx series except 6812B & 6832.

Relative Field at 0° Depression = 1.000

Degrees	Rel. Field								
1	0.994	19	0.115	37	0.044	55	0.037	73	0.038
2	0.976	20	0.151	38	0.062	56	0.028	74	0.037
3	0.946	21	0.178	39	0.078	57	0.019	75	0.036
4	0.905	22	0.197	40	0.091	58	0.010	76	0.034
5	0.854	23	0.209	41	0.101	59	0.002	77	0.033
6	0.794	24	0.213	42	0.108	60	0.005	78	0.031
7	0.727	25	0.211	43	0.112	61	0.012	79	0.028
8	0.654	26	0.202	44	0.114	62	0.018	80	0.026
9	0.576	27	0.189	45	0.114	63	0.023	81	0.024
10	0.495	28	0.171	46	0.111	64	0.027	82	0.021
11	0.413	29	0.150	47	0.107	65	0.031	83	0.019
12	0.332	30	0.126	48	0.101	66	0.034	84	0.016
13	0.252	31	0.101	49	0.094	67	0.036	85	0.014
14	0.176	32	0.075	50	0.086	68	0.038	86	0.011
15	0.105	33	0.049	51	0.077	69	0.039	87	0.008
16	0.039	34	0.023	52	0.067	70	0.040	88	0.006
17	0.020	35	0.001	53	0.057	71	0.040	89	0.003
18	0.072	36	0.024	54	0.047	72	0.039	90	0.000

Figure 5- Distance to Signal Value With Antenna Vertical Pattern

Proposed Antenna:		Shively 6813 7-bay 1/2 wave							
Proposed Power:		0.25	kW					Fill in "yellow" cells	
Antenna Height AGL:		107	meters						
Interference Contour:		100.4	dBu						
Artificial Rcv Antenna Height:		12	meters						
Distance (Free Space) Equation:		$=(10^{((106.92-[\text{desired dBu}]+[\text{ERP in dBk}])/20)}) * 1000$							
Field Strength (dBu) Equation		$"=106.92-(20*(\text{LOG}10[\text{DistMeters}/1000]))+[\text{ERP in dBk}]$							

Depression				Distance				
Angle	Antenna			from Ant.	Distance	Field Strength	Distance	Field Strength
Below	Relative	ERP	ERP	to Interf	from Ant. to	in dBu @	from Ant.	in dBu @
Horizon	Field	in kW	in dBk	Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
0°	1.000	0.250	-6.02	1059.18 m	infinite	---	infinite	---
-5°	0.854	0.182	-7.39	904.54 m	1090.00 m	98.78 dBu	1227.69 m	97.75 dBu
-10°	0.495	0.061	-12.13	524.29 m	547.08 m	100.03 dBu	616.19 m	99.00 dBu
-15°	0.105	0.003	-25.60	111.21 m	367.05 m	90.03 dBu	413.42 m	89.00 dBu
-20°	0.151	0.006	-22.44	159.94 m	277.76 m	95.61 dBu	312.85 m	94.57 dBu
-25°	0.211	0.011	-19.53	223.49 m	224.79 m	100.35 dBu	253.18 m	99.32 dBu
-30°	0.126	0.004	-24.01	133.46 m	190.00 m	97.33 dBu	214.00 m	96.30 dBu
-35°	0.001	0.000	-66.02	1.06 m	165.63 m	56.52 dBu	186.55 m	55.48 dBu
-40°	0.091	0.002	-26.84	96.39 m	147.79 m	96.69 dBu	166.46 m	95.65 dBu
-45°	0.114	0.003	-24.88	120.75 m	134.35 m	99.47 dBu	151.32 m	98.44 dBu
-50°	0.086	0.002	-27.33	91.09 m	124.01 m	97.72 dBu	139.68 m	96.69 dBu
-55°	0.037	0.000	-34.66	39.19 m	115.97 m	90.98 dBu	130.62 m	89.94 dBu
-60°	0.005	0.000	-52.04	5.30 m	109.70 m	74.07 dBu	123.55 m	73.04 dBu
-65°	0.031	0.000	-36.19	32.83 m	104.82 m	90.32 dBu	118.06 m	89.28 dBu
-70°	0.040	0.000	-33.98	42.37 m	101.10 m	92.85 dBu	113.87 m	91.81 dBu
-75°	0.036	0.000	-34.89	38.13 m	98.35 m	92.17 dBu	110.77 m	91.14 dBu
-80°	0.026	0.000	-37.72	27.54 m	96.47 m	89.51 dBu	108.65 m	88.48 dBu
-85°	0.014	0.000	-43.10	14.83 m	95.36 m	84.23 dBu	107.41 m	83.20 dBu
-90°	0.000	0.000	-86.02	0.11 m	95.00 m	41.34 dBu	107.00 m	40.31 dBu

Figure 6- Aerial View of Proposed Location

