

# Expedited Processing Requested

## Minor Change Application

### BLFT-20160824ABM: W249DJ

### Facility ID No: 158396

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This exhibit is for minor change application to W249DJ Facility ID No. 158396, which specifies a change in antenna system to a single vertical CL-FMV at 282°T to eliminate interference toward co-channel station WKCA. There is to be no change in antenna location, elevation, or maximum power.

#### **Antenna Location**

The antenna is to be mounted on an existing tower identified by registration number 1036781 at 150 meters above ground. Below as **Figure 1** is an overlap and spacing study which considers the antenna pattern of **Figure 0**, with major lobe at 282°T, from which it can be determined that this proposal is co-located with **second** adjacent channel station WBUL-FM. Further, no prohibited contour overlap with the application facilities of W266AN is demonstrated in this study.

#### **73.1204 Compliance**

**Concerning W266AN;** In Figure 2 a map showing the predicted 83.0 dBu signal contour of the protected falls 500 meters beyond the proposed translator antenna location is given. This proposal can only cause predicted interference to the protected facility by having a signal exceeding 123.3 dBu (83.3 + 40) in a habitable/populated area. Utilizing the line of sight equation considering the proposed antenna vertical pattern as shown in Figure 3, it has been determined that a 123.3 dBu signal developed by 250 watts, as proposed will reach a maximum distance of 75 meters. With examination of the image in Figure 4 it can be determined that no habitable space extends into the confines interference signal level area.

**Concerning WBUL-FM;** Near the tower base WBUL-FM presents a 144 dBu signal, this proposal can only cause predicted interference to the protected facility by having a signal exceeding 184 dBu (144 + 40) in a habitable/populated area. Utilizing the common field strength equation<sup>1</sup> it has been determined that a 184 dBu signal developed by 250 watts, as proposed will not exceed 0.05 m, a distance not extending beyond the emitting antenna itself, which is to be mounted above the WBUL-FM antenna. Thus the provisions of the rules section concerning prohibited overlap will not apply as it has been demonstrated that no actual interference will occur due to a lack of population and other factors as applied in this instant proposal.

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<sup>1</sup>  $E(\text{dbuV/m}) = 106.92 + \text{ERP}(\text{dBk}) - 20\text{LogD}(\text{km})$

### **Fill-in and Minor Change Status**

This facility will continue to be a fill-in translator for station WWTF Facility ID 34246 Georgetown, Kentucky. As there is no change in location there is continued service contour overlap.

### **RF Fields Statement**

The proposed facilities were evaluated in terms of potential radio frequency fields 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 Scala CL-FMV, vertical antenna, mounted 150 meters above ground. As this element type is not modeled in any current RF Fields calculation computer program, for purposes of this analysis the FM Model RF Fields program has been set to calculate values for an array of "worst case" type of antenna element(s) "Ring Stub", operated with an effective radiated power of 0.250 Kilowatts in the Vertical plane. At 2 meters above the surface, at 34 meters from the base of the tower, this proposal will contribute worst case, 0.36 microwatts per square centimeter, or 0.04 percent of the allowable ANSI limit for controlled exposure, and 0.2 percent of the allowable limit for uncontrolled exposure. This figure is less than 5.0% 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 5.0% 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 0. Antenna Pattern**

Antenna Make		Model		Service		Antenna Id					
SCA		CL-FMV		FM		16155					
Antenna relative field values:											
0°	1	10°	0.98	20°	0.916	30°	0.817	40°	0.69	50°	0.544
60°	0.39	70°	0.19	80°	0.05	90°	0.03	100°	0.03	110°	0.03
120°	0.03	130°	0.03	140°	0.034	150°	0.038	160°	0.04	170°	0.04
180°	0.04	190°	0.04	200°	0.04	210°	0.038	220°	0.034	230°	0.03
240°	0.03	250°	0.03	260°	0.03	270°	0.03	280°	0.05	290°	0.19
300°	0.39	310°	0.544	320°	0.69	330°	0.817	340°	0.916	350°	0.98
Additional Azimuths:											
<a href="#">Relative Field Polar Plot</a>											

# Figure 1. Overlap and Spacing Study

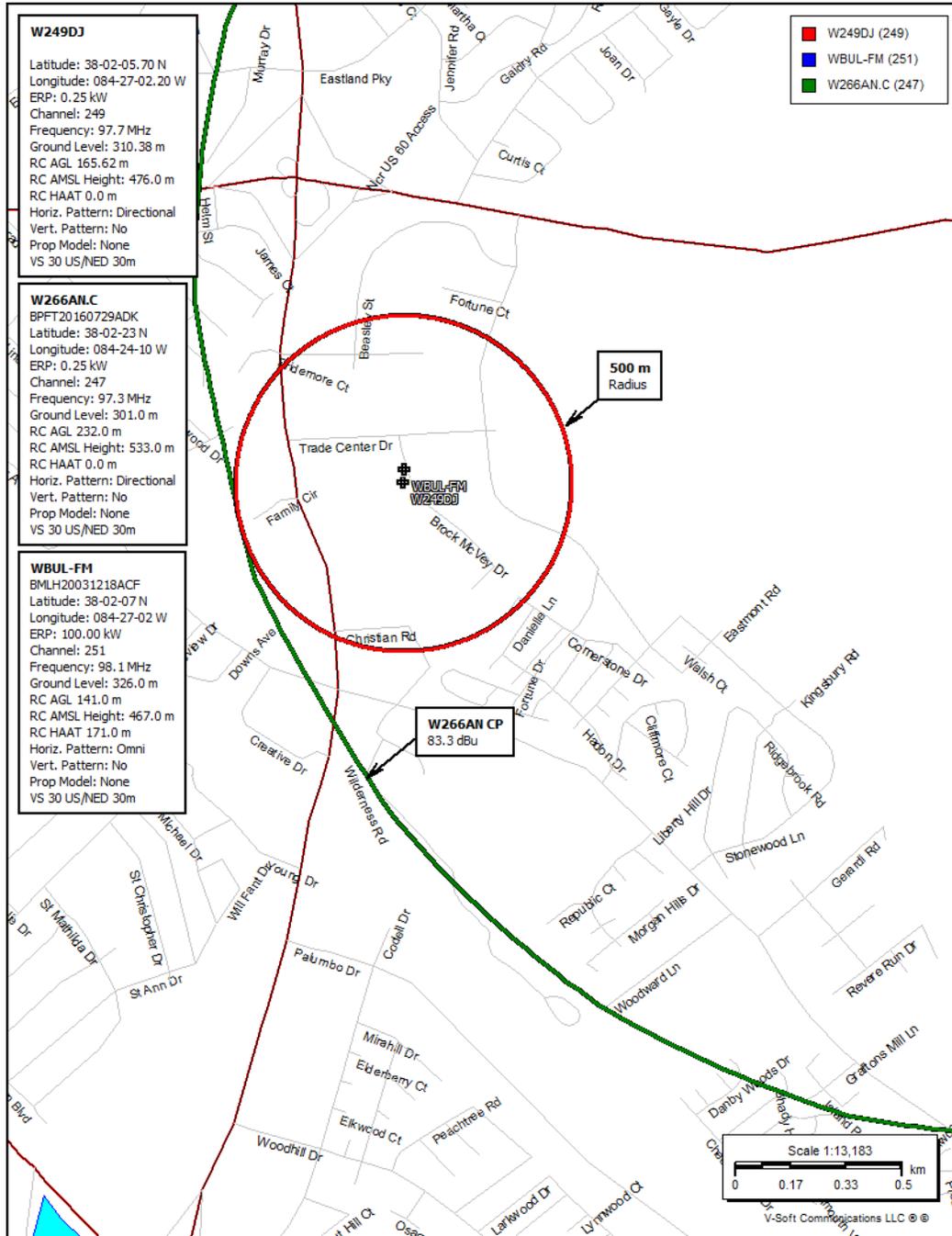
W249DJ DA Test 21-OCT-2016  
Clear Channel Broadcasting Licenses, Inc.

REFERENCE CH# 249D - 97.7 MHz, Pwr= 0.25 kW DA, HAAT= 0.0 M, COR= 476 M      DISPLAY DATES  
38 02 05.7 N.      Average Protected F(50-50)= 7.09 km      DATA 10-21-16  
84 27 02.2 W.      Standard Directional      SEARCH 10-21-16

CH CITY	CALL	TYPE STATE	ANT AZI	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	"IN" Overlap in km	"OUT" Overlap in km
251C1 Lexington	WBUL-FM	LIC_CX KY	6.6 186.6	0.04 BMLH20031218ACF	38 02 07.0 84 27 02.0	100.000 171	7.7 467	61.5 Citicasters Licenses, Inc.	-10.3*	-61.5*
249D Lexington	W249DJ	LIC_DC_ KY	0.0 0.0	0.00 BLFT20160824ABM	38 02 05.7 84 27 02.2	0.250	56.7 476	18.0 Clear Channel Broadcasting	-61.3*	-33.6*
247D Lexington	W266GAN	CP_DC_ KY	82.7 262.7	4.22 BPFT20160729ADK	38 02 23.0 84 24 10.0	0.250	1.1 533	19.8 Cumulus Licensing Llc	0.1	-15.6*
248C1 Louisville	WAMZ	LIC_CX KY	272.0 91.3	112.15 BMLH20080402AAP	38 03 50.0 85 43 52.0	100.000 205	94.8 372	64.0 Cc Licenses, Llc	-0.5	21.6
249A Salt Lick	WKCA	LIC_CX KY	79.9 260.6	92.56 BLH20080829AAR	38 10 33.0 83 24 28.0	3.000 143	89.8 438	32.7 Gateway Radio Works, Inc.	-0.3	48.8
249D Lancaster	W249DI	CP_DC_ KY	216.4 36.2	34.02 BMPFT20160129AHH	37 47 18.0 84 40 49.0	0.250	5.3 559	0.8 Sonya Lynn Read	19.5	2.4
247C2 Jackson	WJSN-FM	LIC_CX KY	113.4 294.1	100.20 BLH20051014AEA	37 40 19.0 83 24 21.0	19.000 248	5.6 564	51.8 Intermountain Broadcasting	92.0	48.4
247C2 Jackson	AL0663	RSV-A KY	113.4 294.1	100.20 RM9802	37 40 19.0 83 24 21.0	50.000 150	5.8 464	50.8	91.9	49.3

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. Call signs with strikethru 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.

**Figure 2. Contour Map**



**Figure 3. Distance to Contour**

**Proposed Antenna:** Scala CL-FM V Pol  
**Proposed Power:** 0.25 kW  
**Antenna Height AGL:** 150 meters  
**Interference Contour:** 123.3 dBu f(50:10)  
**Artificial Rcv Antenna Height:** 2 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	rom 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	75.85 m	infinite	---	infinite	---
-5°	0.980	0.240	-6.20	74.34 m	1698.11 m	96.12 dBu	1721.06 m	96.01 dBu
-10°	0.950	0.226	-6.47	72.06 m	852.30 m	101.84 dBu	863.82 m	101.73 dBu
-15°	0.895	0.200	-6.98	67.89 m	571.83 m	104.79 dBu	579.56 m	104.67 dBu
-20°	0.820	0.168	-7.74	62.20 m	432.72 m	106.45 dBu	438.57 m	106.33 dBu
-25°	0.735	0.135	-8.69	55.75 m	350.20 m	107.34 dBu	354.93 m	107.22 dBu
-30°	0.645	0.104	-9.83	48.92 m	296.00 m	107.66 dBu	300.00 m	107.55 dBu
-35°	0.562	0.079	-11.03	42.63 m	258.03 m	107.66 dBu	261.52 m	107.54 dBu
-40°	0.470	0.055	-12.58	35.65 m	230.25 m	107.10 dBu	233.36 m	106.98 dBu
-45°	0.360	0.032	-14.89	27.31 m	209.30 m	105.61 dBu	212.13 m	105.49 dBu
-50°	0.250	0.016	-18.06	18.96 m	193.20 m	103.14 dBu	195.81 m	103.02 dBu
-55°	0.155	0.006	-22.21	11.76 m	180.67 m	99.57 dBu	183.12 m	99.45 dBu
-60°	0.085	0.002	-27.43	6.45 m	170.90 m	94.83 dBu	173.21 m	94.72 dBu
-65°	0.045	0.001	-32.96	3.41 m	163.30 m	89.70 dBu	165.51 m	89.59 dBu
-70°	0.020	0.000	-40.00	1.52 m	157.50 m	82.97 dBu	159.63 m	82.86 dBu
-75°	0.010	0.000	-46.02	0.76 m	153.22 m	77.19 dBu	155.29 m	77.08 dBu
-80°	0.010	0.000	-46.02	0.76 m	150.28 m	77.36 dBu	152.31 m	77.24 dBu
-85°	0.010	0.000	-46.02	0.76 m	148.57 m	77.46 dBu	150.57 m	77.34 dBu
-90°	0.010	0.000	-46.02	0.76 m	148.00 m	77.49 dBu	150.00 m	77.38 dBu

**Figure 4. Image of Support Tower**

