

**Engineering Exhibit  
WFLZ-FM, Tampa, FL  
Channel 227C - FID 29732  
Application for Modification of Station License  
BMLH-19890711KA**

**INTRODUCTION**

WFLZ-FM is licensed to operate from a shared antenna system with WMTX(FM) and WFUS(FM). The purpose of this application is to modify the Station License of WFLZ-FM to correct the “Transmitter Power Output” due to a minor reconfiguration and retuning of the combiner at the shared facility.

**GEOGRAPHICAL COORDINATES AND ANTENNA HEIGHT DATA**

The WFLZ-FM shared antenna is mounted on a leased tower structure, ASR number 1028292. The coordinates licensed to WFLZ-FM differ slightly from those specified on the ASR. In addition, the licensed “Height of radiation center above ground” for WFLZ-FM and WMTX(FM) differ from the value licensed for WFUS(FM) by one meter. Subsequent investigation has revealed that the height licensed for WFUS(FM) of 411 meters AGL is the correct value. A tabulation of the presently licensed and proposed coordinates and heights are as follows:

	Licensed	Proposed
Antenna Coordinates (NAD27)		
North Latitude:	27° 50' 32”	27° 50' 32”
West Longitude:	82° 15' 46”	82° 15' 45”
Height of radiation center above ground (Meters):	412	411
Height of radiation center above mean sea level (Meters):	434	434
Height of radiation center above average terrain (Meters):	414	413 *
Overall height of antenna structure above ground:	480	480

\* HAAT based on 3” terrain data

There are no changes to the structure, its location or the antenna system but these minor corrections will bring the WFLZ-FM license in full compliance with the ASR and will accurately describe the height of the shared antenna.

There is no change to the “Effective radiated power in the Horizontal Plane” or the “Maximum effective radiated power”. The minor changes proposed will not result in any short spacings and WFLZ-FM will remain “fully spaced” as a Class C Station in full compliance with section 73.207 of the FCC Rules.

## **CLASS C STATUS**

WFLZ-FM is designated as a Class C assignment. Neither the presently licensed facilities nor the minor changes proposed herein for WFLZ-FM meets the minimum Class C HAAT set forth in Section 73.211 of the rules; however the minor changes proposed in this application do no warrant a change in the Class C status of WFLZ-FM. No physical changes to the WFLZ-FM antenna system are proposed since the purpose of this application is to correct the transmitter power output, geographic coordinates and minor height discrepancies. Nor has there has been an expressed need for spectrum use by the filing of a triggering application or rule making proposal. Consistent with precedent, therefore, it is requested that WFLZ-FM maintain its Class C designation in connection with the processing of the subject application.

## **RF RADIATION COMPLIANCE**

Measurements were conducted by Randall L. Mullinax on November 16, 2006 to demonstrate that WMTX(FM), WFLZ-FM and WFUS(FM) comply with the FCC established guidelines regarding exposure to RF electromagnetic fields as described in OET Bulletin 65 Edition 97-01. The method for showing compliance is described below.

### **Facilities:**

WMTX(FM), WFLZ-FM and WFUS(FM) utilize a common 8-bay, 3-around ERI Panel antenna, mounted on a 480 meter, guyed tower with a Center of Radiation of 411 meters above ground level. All three stations are licensed for a maximum ERP of 100 kW (H & V). This is a common site with WFLA-TV, WFLA-DT, WFTS-TV, WFTS-DT, WTTA(TV) WTTA-DT, WFTT(TV) and WFTT-DT. There are also a large number of other FM and Television stations located within 1.0 kilometer of the site.

### **General Population/Uncontrolled Exposure:**

To determine the level of RF exposure, measurements were made in all areas at the transmitter site and surrounding areas, whether or not they are accessible to the general public. A Narda survey meter model 8718B with an A8742D probe was utilized. The probe is calibrated in percent of limit for Occupational/Controlled Exposure for frequencies ranging from 300KHz to 3.0 GHz. The "Max Hold" setting was used to record the highest levels measured. Measurements were made at 2 meters above the ground while walking the entire area at the site and in the adjacent areas out to a distance of 600 meters from the tower base. The maximum RF exposure level measured was 1.75% of the Occupational/Controlled Exposure limit, which occurs at a distance of 100 meters from the tower base, and drops off as the distance from the tower is increased. This is well below the 20% limit for General Population/Uncontrolled Exposure. Therefore, WMTX(FM), WFLZ-FM and WFUS(FM) do comply with OET Bulletin 65 Edition 97-01 with regard to General Population/Uncontrolled Exposure.

### **Occupational/Controlled Exposure:**

Using the measurement methods described above, measurements were also taken inside the transmitter building and around the base of the tower. The maximum RF Exposure level measured at the base of the tower was 0.54 % of the Occupational/Controlled Exposure limit. The maximum RF Exposure level measured inside the transmitter building was in the combiner room and was 0.81 % of the Occupational/Controlled Exposure limit. Therefore, WMTX(FM), WFLZ-FM and WFUS(FM) also comply with OET Bulletin 65 Edition 97-01 with regard to Occupational/Controlled Exposure.

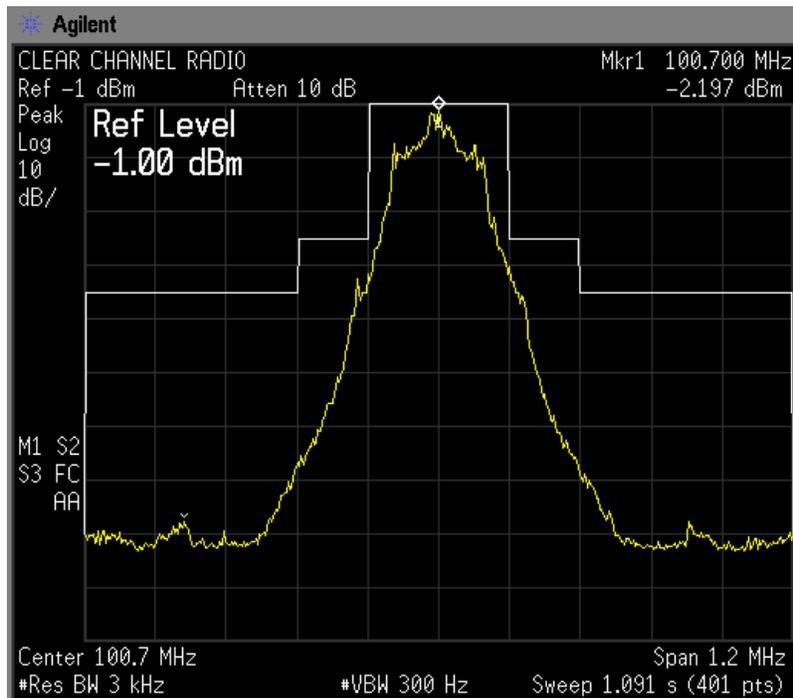
## **Occupied Bandwidth and Spurious Emissions Measurements**

Measurements were conducted to demonstrate that WMTX(FM), Tampa, FL, WFLZ-FM, Tampa, FL and WFUS(FM), Bradenton, FL operating into a combined antenna system, comply with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations. Randall L. Mullinax conducted the measurements on November 16, 2006, with all stations simultaneously utilizing the shared antenna. The spectrum analyzer used for the measurements was an Agilent Technologies model E4402B, S/N MY41441731. A sample of the WMTX(FM), WFLZ-FM and WFUS(FM) signals was derived from the main transmission line at the output of the combiner and was coupled to the analyzer using a short length of RG-223 50Ω double-shielded coaxial cable. Two 6 dB pads (Bird model 5-A-MFN-06) were inserted ahead of the analyzer to avoid overload and to provide isolation.

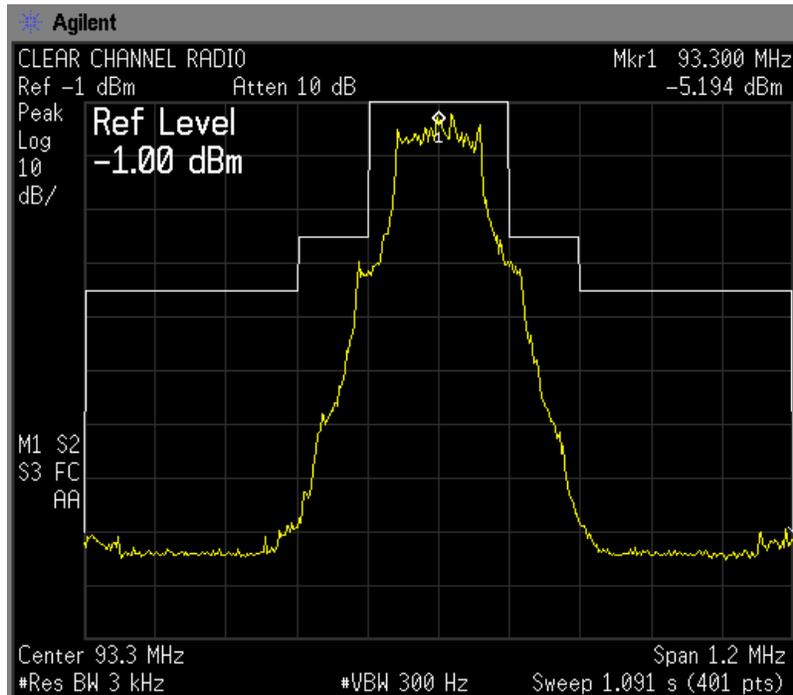
The measured unmodulated carrier level of all three stations was -1 dBm and was used as the reference for all harmonic, spurious and intermodulation measurements. All measurements were conducted with the transmitters and associated equipment adjusted as used in normal program operation.

For all occupied bandwidth measurements, the spectrum analyzer was placed in the peak hold mode for at least 10 minutes per measurement before the waveforms were observed. As shown in Figures 1, 2 and 3, all transmitters were observed to be in full compliance with section 73.317(b) of the FCC Rules with emissions appearing on frequencies removed from the carrier frequencies by between 120 kHz and 240 kHz attenuated by at least 25 dB below the unmodulated carrier level indicating the occupied bandwidth of each transmitter to be 240 kHz or less. All transmitters were also observed to be in full compliance with section 73.317(c) of the FCC Rules with emissions appearing on frequencies removed from the carrier frequencies by between 240 kHz and 600 kHz attenuated by at least 35 dB.

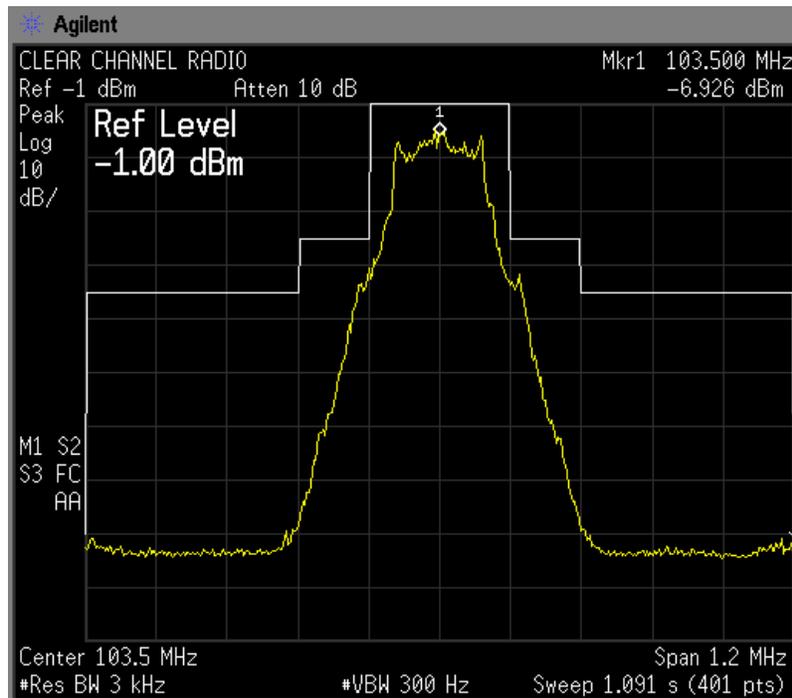
**Figure 1**  
**WMTX(FM)**



**Figure 2**  
**WFLZ-FM**



**Figure 3**  
**WFUS(FM)**



Extensive measurements were also conducted to ensure that emissions appearing on frequencies removed from the carrier frequencies by more than 600 kHz were attenuated by at least 80 dB as required by section 73.317(d) of the FCC Rules. To facilitate these measurements, notch filters were placed between the two 6 dB pads so that the spectrum analyzer gain could be increased by up to 20 dB. The filters were necessary to avoid the possible generation of false spurious or intermodulation products in the analyzer. The attenuation of the notch filters was 47.0 dB at 100.7 MHz, 39.1 dB at 93.3 MHz and 20.2 dB at 103.5 MHz.

The most likely intermodulation frequencies in the range 2.5 MHz to 550 MHz that could be produced by the combined operation of WMTX(FM), WFLZ-FM and WFUS(FM) and harmonic frequencies through the 5<sup>th</sup> harmonic were calculated and the results of the measurements at these frequencies are listed in Table 1.

**Table 1**

Frequency A	103.5	WFUS(FM)
Frequency B	100.7	WMTX(FM)
Frequency C	93.3	WFLZ-FM

DESCRIPTION	FREQ. MHZ	ATTENUATION DB	DESCRIPTION	FREQ. MHZ	ATTENUATION DB
A + B	204.2	>100	(2 X A) + (3 X C)	486.9	>100
A - B	2.8	>100	(2 X C) + (3 X A)	497.1	>100
A + (2 X B)	304.9	>100	(3 X A) - C	217.2	>100
B + (2 X A)	307.7	>100	3 X C	279.9	>100
A + (3 X B)	405.6	>100	(3 X C) - A	176.4	>100
B + (3 X A)	411.2	>100	(3 X A) - (2 X C)	123.9	>100
2 X A	207	96	(3 X C) - (2 X A)	72.9	>100
(2 X A) - B	106.3	>100	(3 X A) - (3 X C)	30.6	>100
2 X B	201.4	>100	B + C	194	>100
(2 X B) - A	97.9	>100	B - C	7.4	>100
(2 X A) + (2 X B)	408.4	>100	B + (2 X C)	287.3	>100
(2 X A) - (2 X B)	5.6	>100	C + (2 X B)	294.7	>100
(2 X A) + (3 X B)	509.1	>100	B + (3 X C)	380.6	>100
(2 X B) + (3 X A)	511.9	>100	C + (3 X B)	395.4	>100
3 X A	310.5	>100	(2 X B) - C	108.1	>100
(3 X A) - B	209.8	>100	(2 X C) - B	85.9	99
3 X B	302.1	>100	(2 X B) + (2 X C)	388	>100
(3 X B) - A	198.6	>100	(2 X B) - (2 X C)	14.8	>100
(3 X A) - (2 X B)	109.1	>100	(2 X B) + (3 X C)	481.3	>100
(3 X B) - (2 X A)	95.1	>100	(2 X C) + (3 X B)	488.7	>100
(3 X A) - (3 X B)	8.4	>100	(3 X B) - C	208.8	100
A + C	196.8	>100	(3 X C) - B	179.2	>100
A - C	10.2	>100	(3 X B) - (2 X C)	115.5	>100
A + (2 X C)	290.1	>100	(3 X C) - (2 X B)	78.5	>100
C + (2 X A)	300.3	>100	(3 X B) - (3 X C)	22.2	>100
A + (3 X C)	383.4	>100	4 X A	414	>100
C + (3 X A)	403.8	>100	4 X B	402.8	>100
(2 X A) - C	113.7	>100	4 X C	373.2	>100
2 X C	186.6	>100	5 X A	517.5	>100
(2 X C) - A	83.1	>100	5 X B	503.5	>100
(2 X A) + (2 X C)	393.6	>100	5 X C	466.5	>100
(2 X A) - (2 X C)	20.4	>100			

While special attention was given to the “product” frequencies listed in Table 1, measurements were conducted covering the entire range of frequencies between 2.5 MHz and 550 MHz. The only signals detected at levels attenuated by less than 80 dB below the unmodulated carrier levels and appearing on frequencies removed from the WMTX(FM), WFLZ-FM and WFUS(FM) carrier frequencies by more than 600 kHz were the carriers of nearby FM and Television stations. In each case where these signals were observed to be at a level greater than -81 dBm (80 dB below the unmodulated carrier level which was -1 dBm) the WMTX(FM), WFLZ-FM and WFUS(FM) transmitters were turned off while the amplitude of the signal was observed to be unchanged, indicating that the signal was not the result of the combined operation of WMTX(FM), WFLZ-FM and WFUS(FM).

The results of these measurements confirm that the combined operations of WMTX(FM), WFLZ-FM and WFUS(FM) into the shared antenna are in full compliance with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations.

  
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FIGURE 3P

-----THEORETICAL-----  
VERTICAL PLANE RELATIVE FIELD  
6 LEVELS OF TYPE 1000 ELEMENTS  
-.53 DEGREE(S) BEAM TILT  
9 PERCENT FIRST NULL FILL  
0 PERCENT SECOND NULL FILL

YES  
93.3 MHZ  
8BY SPACING  
116.00 INCHES  
(.9170 WAVELENGTH)

