

**Occupied Bandwidth and  
Spurious Emissions Measurements  
To Demonstrate Compliance with  
Section 73.317(b) through 73.317(d) of the  
FCC Rules and Regulations**

**Clear Channel Broadcasting Licenses, Inc.**

**K242CE – 96.3 MHz**

**Meraux, LA (Facility ID No: 146875)**

**And**

**Clear Channel Broadcasting Licenses, Inc.**

**K244FX – 96.7 MHz**

**New Orleans, LA (Facility ID No: 202121)**

**August 20, 2020**

**Prepared by:**

**Christopher W. Boone, PG-09-5322**

### **Affidavit**

I, Christopher W. Boone, have been in broadcast engineering for over 40 years and was hired as Engineering Manager for the New Orleans iHeartmedia group in November, 2019. My experience started as Assistant Chief Operator at KLVI (Facility 25580). I have also served as Chief Operator of KDMX (Facility 47739), KEGL (Facility 18114), KFXR (Facility 25375) and licensee/ Chief Operator of KSET/KLLS, now KHTW (Facility 31108) as well as assistant Chief Operator for Liberman, Houston and KRBE (Facility 35524) and Market Engineering Manager for TownSquare, Lake Charles, La. I have had extensive interaction with the FCC, working with Houston EIC Steven Lee and Dallas EIC Johnny Le as well as former Commission staffers John Johnson and Riley Hollinsworth in the Enforcement Bureau. I hold GROL PG-09-5322 since 1983 along with Advanced Class Amateur license, WB5ITT since 1974. All this is a matter of record with the FCC.

## Occupied Bandwidth and Spurious Emissions Measurements

Measurements were conducted to demonstrate that FM translators K242CE and K244FX operating into a combined antenna system, comply with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations [section 74.1236(a)(2) requires translators with a power output greater than 10 watts to also meet the requirements of 73.317(b) through (d)]. Christopher W. Boone conducted the measurements on August 20, 2020, with both transmitters simultaneously utilizing the shared antenna. The spectrum analyzer used for the measurements was an Agilent Technologies model E4402B, S/N US39380633. A sample of both signals was derived from the main 7/8inch Heliac transmission line at the output of the combiner and was coupled to the analyzer using a short length of RG-223 50 ohm double-shielded coaxial cable and a switchable 0-40db pad to prevent overload and to provide isolation.

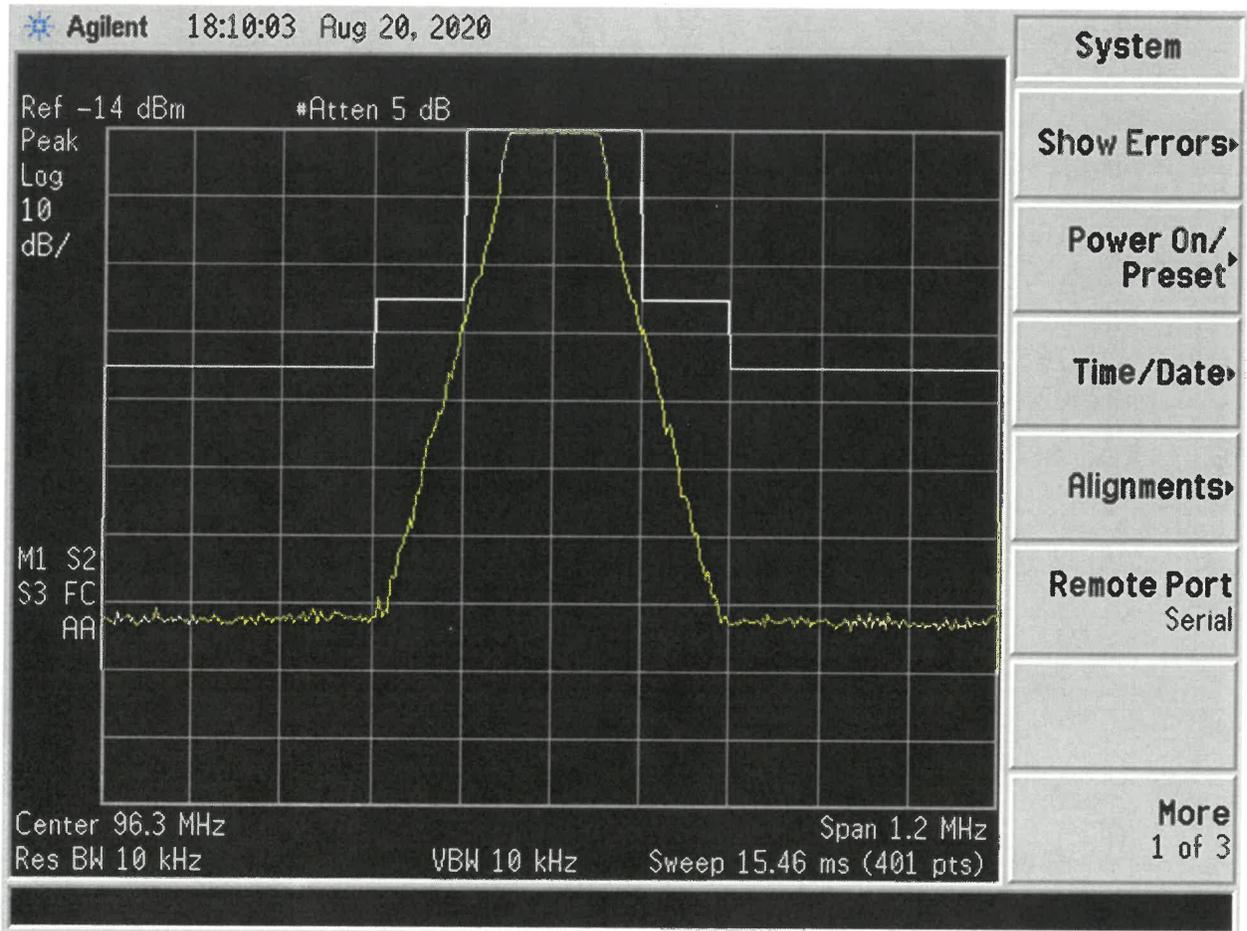
With a transmitter power output of 690watts on K242CE, all harmonic, spurious and intermodulation products from the transmitter must be attenuated by  $43 + 10(\log 690) = 71.38$  db. K244FX is 125watts TPO, which is -7.42dbm below K242CE. All products from K244FX must be attenuated by  $43+10 (\log 125)= 63.9$ db. Thus, any product attenuated by 80db or greater below the K242CE unmodulated carrier level also meets the attenuation requirement for K244FX. With this in mind, the K242CE reference level 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 and 2, both 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.

Both 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.

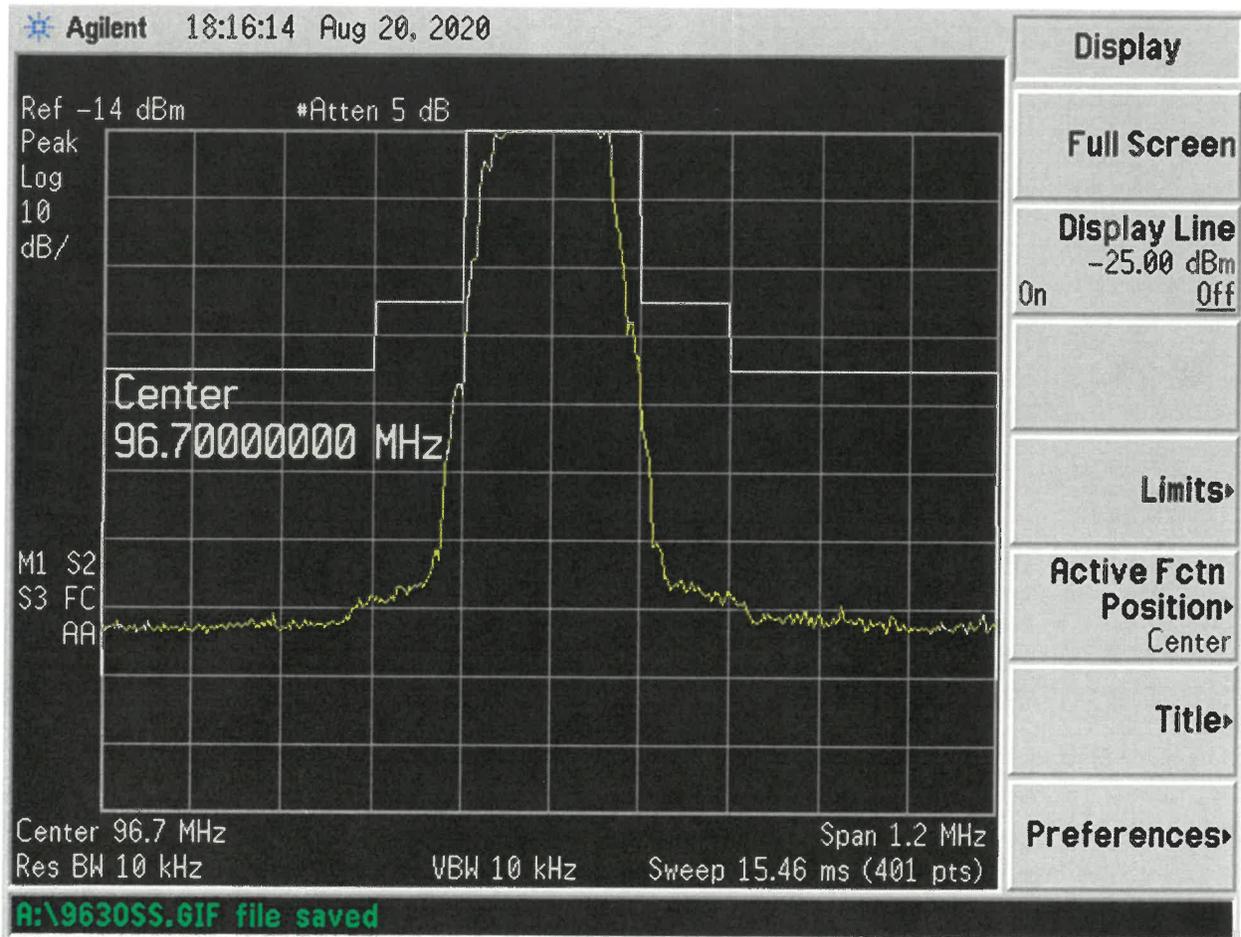
Figure 1



K242CE

With FCC FM Mask overlay

Figure 2



K244FX

With FCC FM mask overlay

## Spurious and IMD Emissions Measurements

Extensive measurements were also conducted to insure 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, a notch filter was placed inline so that the spectrum analyzer gain could be increased by up to 20 dB. The filter was necessary to avoid the possible generation of false spurious or intermodulation products in the analyzer. The attenuation of the notch filter was -23dB at 96.3 MHz.

All harmonic and intermodulation frequencies in the range of frequencies between 0.5 MHz and 520 MHz through the 3rd order that could be produced by the combined operation of K242CE and K244FX were calculated and the results of the measurements at these frequencies are listed in Table 1.

### Table 1

Frequency A                    96.7  
 Frequency B                    96.3

DESCRIPTION	FREQ. MHZ	ATTENUATION DB	DESCRIPTION	FREQ. MHZ	ATTENUATION DB
A + B	193	>90	(2 X B) + (3 X A)	482.7	>90
A + (2 X B)	289.3	>90	3 X A	290.1	>90
B + (2 X A)	289.7	>90	(3 X A) - B	193.8	>90
A + (3 X B)	385.6	>90	3 X B	288.9	>90
B + (3 X A)	386.4	>90	(3 X B) - A	192.2	>90
2 X A	193.4	>90	(3 X A) - (2 X B)	97.5	80*
(2 X A) - B	97.1	82.5*	(3 X B) - (2 X A)	95.5	>90
2 X B	192.6	>90	(3 X A) - (3 X B)	1.2	>90
(2 X B) - A	95.9	>90	4 X A	386.8	>90
(2 X A) + (2 X B)	386	>90	4 X B	385.2	>90
(2 X A) - (2 X B)	0.8	>90	5 X A	483.5	>90
(2 X A) + (3 X B)	482.3	>90	5 X B	481.5	>90

**NOTES:**

\*97.1 is a Class C0, WEZB, Facility 20346, located approximately 2 miles from the measurement site. Signal did not change regardless of FX transmitters being on or off air.

\*97.5 is an on site FX, K248BB, Facility 147937, which uses its own antenna on the rooftop. Signal level did not change regardless of measured FX transmitters being on or off air.

## Conclusion

While special attention was given to the “product” frequencies listed in Table 1, measurements were conducted covering the entire range of frequencies between 0.5 MHz and 520 MHz. The only signals detected at levels close to or equal to 80 dB below the unmodulated carrier levels and appearing on frequencies removed from the K242CE and K248FX carrier frequencies by more than 600 kHz were the carriers of other nearby FM stations as noted in Table 1. Both the K242CE and K248FX transmitters were turned off while the amplitude of the signals was observed to be unchanged, indicating that the signal was not the result of the combined operation of K242CE and K244FX transmitters.

The results of these measurements confirm that the combined operations of K242CE and K244FX into the shared antenna are in full compliance with section 73.317(b) through 73.317(d) and section 74.1236(a)(2) of the FCC Rules and Regulations.

A handwritten signature in black ink, appearing to read "Chris Boone", written over a horizontal line.

Christopher W. Boone