



CLEAR CHANNEL RADIO

Occupied Bandwidth and Spurious Emissions Measurements

**To Demonstrate Compliance with
Section 73.317(b) through 73.317(d) of the FCC Rules and Regulations and
hybrid FM specifications.**

**WTKX- 268 C FM 101.5 MHz
61243**

**PENSACOLA FL US
CLEAR CHANNEL BROADCASTING LICENSES, INC.**

**WMEZ-231 C0 FM 94.1 MHz
73256**

**PENSACOLA FL
JOHNSON ROAD LICENSES, INC.**

**WXBM
274 C FM 102.7 MHz32946
MILTON FL
JOHNSON ROAD LICENSES, INC.**

Measurements to cover the construction permits

**BMPH-20070302ABR
BPH-20070405AAG
BPH-20070405AAI**

November 1, 2007

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Measurements were conducted to demonstrate that WTKX, WMEZ and WXBM operating into a combined antenna system comply with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations. Measurements were conducted on November 1, 2007 by Benjamin H Brinitzer CPBE a Broadcast engineer with more than 24 years experience in the profession. Mr. Brinitzer holds a certification as a Professional Broadcast Engineer issued by the Society of Broadcast Engineers and is qualified to make the following certification.

Analog carriers of all stations simultaneously utilizing the shared antenna were measured to verify compliance with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations. The spectrum analyzer used for the measurements was an Agilent model 4402B, S/N my44211565 calibrated 8/04. A sample of WTKX, WMEZ and WXBM Analog signals were derived from the main transmission line at the output of the constant Impedance combiner, utilizing a directional coupler with at least 40 db of coupling and 30 db of directivity. RF was coupled to the analyzer using a short length of RG-142 50Ω double-shielded coaxial cable. Three Notch filters were placed in front of the analyzer input to allow measurement sensitivity to be increased. One variable 30 db pad (Bird model 5-A-MFN-06) was inserted ahead of the analyzer to avoid overload and to provide isolation.

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. 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 modulated 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 between 240 kHz and 600 kHz attenuated by at least 35 dB.

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 before the switchable 20 dB pad so that the spectrum analyzer gain could be increased by 27 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 -22.7 dB at 268 C FM 101.5 MHz and -22.15 dB at 231 C0 FM 94.1 MHz and -20.9 db at 274 C FM 102.7 MHz.

The modulated carrier level of WTKX was 18.32 db dBm and the modulated carrier level of WMEZ was 17.96 db dBm and the modulated carrier level of WXBM was 18.95 . Since the WMEZ reference level was lower, it 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.

All harmonic and intermodulation frequencies in the range of frequencies between 3 MHz and 900 MHz through the 3rd order that could be produced by the combined operation of WTKX and WMEZ were predicted with a computer program, the results of which are shown in Table 1.

Table 1

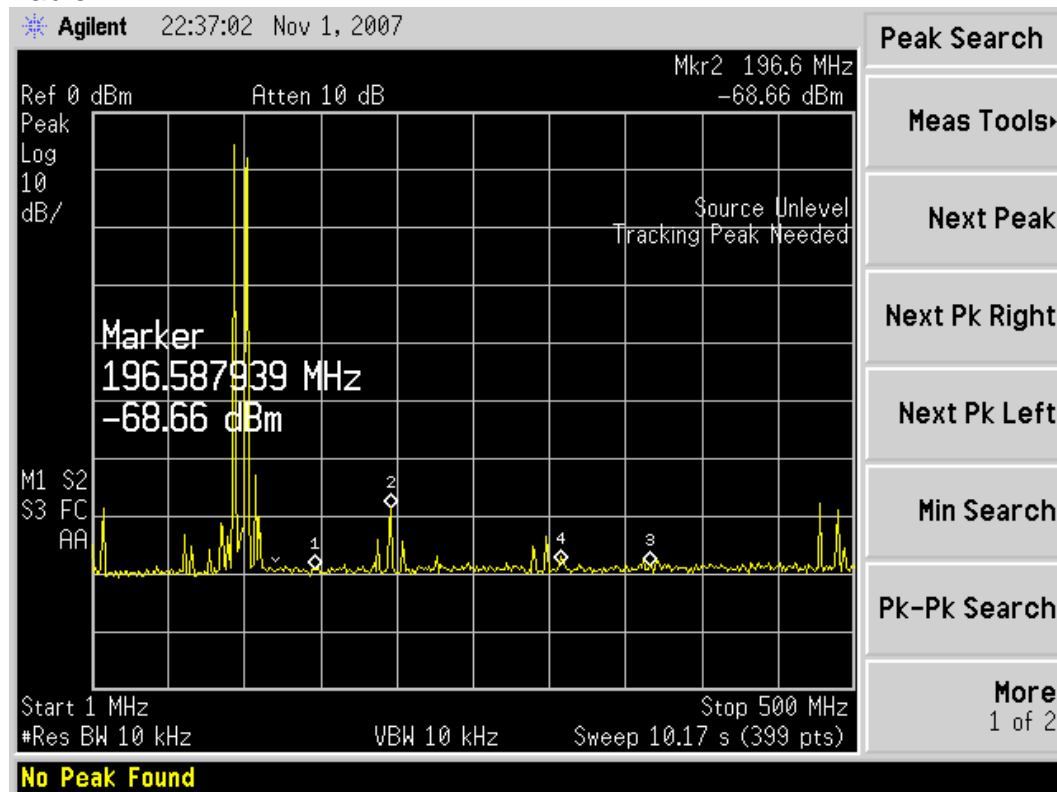
Frequency A	102.7				
Frequency B	101.5				
Frequency C	94.1				
DESCRIPTION	FREQ.	ATTENUATION	DESCRIPTION	FREQ.	ATTENUATION
	MHZ	DB		MHZ	DB
A + B	204.2	>100	(2 X A) - (2 X C)	17.2	>100
A - B	1.2	>100	(2 X A) + (3 X C)	487.7	>100
A + (2 X B)	305.7	>100	(2 X C) + (3 X A)	496.3	>100
B + (2 X A)	306.9	>100	(3 X A) - C	214	>100
A + (3 X B)	407.2	>100	3 X C	282.3	85
B + (3 X A)	409.6	>100	(3 X C) - A	179.6	>100
2 X A	205.4	>100	(3 X A) - (2 X C)	119.9	>100
(2 X A) - B	103.9	>100	(3 X C) - (2 X A)	76.9	>100
2 X B	203	>100	(3 X A) - (3 X C)	25.8	>100
(2 X B) - A	100.3	>100	B + C	195.6	97
(2 X A) + (2 X B)	408.4	>100	B - C	7.4	99
(2 X A) - (2 X B)	2.4	>100	B + (2 X C)	289.7	>100
(2 X A) + (3 X B)	509.9	>100	C + (2 X B)	297.1	>100
(2 X B) + (3 X A)	511.1	>100	B + (3 X C)	383.8	>100
3 X A	308.1	>100	C + (3 X B)	398.6	>100
(3 X A) - B	206.6	>100	(2 X B) - C	108.9	>100
3 X B	304.5	>100	(2 X C) - B	86.7	>100
(3 X B) - A	201.8	>100	(2 X B) + (2 X C)	391.2	>100
(3 X A) - (2 X B)	105.1	>100	(2 X B) - (2 X C)	14.8	>100
(3 X B) - (2 X A)	99.1	>100	(2 X B) + (3 X C)	485.3	>100
(3 X A) - (3 X B)	3.6	>100	(2 X C) + (3 X B)	492.7	>100
A + C	196.8	97	(3 X B) - C	210.4	>100
A - C	8.6	>100	(3 X C) - B	180.8	>100

Table 1 continued

DESCRIPTION	FREQ. MHZ	ATTENUATION DB	DESCRIPTION	FREQ. MHZ	ATTENUATION DB
A + (2 X C)	290.9	>100	(3 X B) - (2 X C)	116.3	>100
C + (2 X A)	299.5	>100	(3 X C) - (2 X B)	79.3	>100
A + (3 X C)	385	>100	(3 X B) - (3 X C)	22.2	>100
C + (3 X A)	402.2	>100	4 X A	410.8	>100
(2 X A) - C	111.3	>100	4 X B	406	>100
2 X C	188.2	98	4 X C	376.4	97
(2 X C) - A	85.5	>100	5 X A	513.5	97
(2 X A) + (2 X C)	393.6	>100	5 X B	507.5	>100
			5 X C	470.5	>100

While special attention was given to the “product” frequencies listed in Table 1, measurements were conducted covering the entire range of frequencies between 3 MHz and 500 MHz. The only signals detected at levels attenuated by less than 80 dB below the modulated carrier levels and appearing on frequencies removed from the WTKX, WMEZ and WXBM 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 -76 dBm (80 dB below the modulated carrier level of WMEZ) all 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 WTKX, WMEZ and WXBM.

Table 2



Results of the measurements at the specific frequencies where harmonic or intermodulation products were predicted to possibly occur resulted in levels less than 80 DB under the fundamental frequency of WMEZ. Note that table 2 indicates the fundamental reference levels after notch filters attenuation is applied. Therefore, a -68.66 dbm measurement indicated is actually -86.62 DB down from the lowest fundamental of +17.96 db. (-4.19db measured reference +22.15db notch filter attenuation = 17.96 db corrected reference carrier)

The results of these measurements confirm that the combined operations of WTKX, WMEZ and WXBM into a 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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