



**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.
KDJE(FM) – 100.3 MHz
Jacksonville, AR (Facility ID No: 23025)
KMJX(FM) – 105.1 MHz
Conway, AR (Facility ID No: 39689)
Aug 25, 2005

Occupied Bandwidth and Spurious Emissions Measurements

Measurements were conducted to demonstrate that KDJE(FM), Jacksonville, AR and KMJX(FM), Conway, AR operating into a combined antenna system, comply with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations. Mike Gideon conducted the measurements on July 26, 2005 and August 24, 2005 with both stations simultaneously utilizing the shared antenna as specified in “Special operating conditions or restrictions 2” of the KDJE(FM) Construction Permit BXPB-20050525AJV and the KMJX(FM) Construction Permit BXPB-20050525AJX. The spectrum analyzer used for the measurements was an Agilent Technologies model E4402B, S/N MY44210994. A sample of the KDJE(FM) and KMJX(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. A 20 dB pad (Bird model 25-A-MFN-20) was inserted ahead of the analyzer to avoid overload and to provide isolation.

The measured unmodulated carrier level of KDJE(FM) was -3.8 dBm and the unmodulated carrier level of KMJX(FM) was -3.4 dBm. Since the KDJE(FM) 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.

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 attenuated by at least 35 dB.

Figure 1
KDJE(FM)

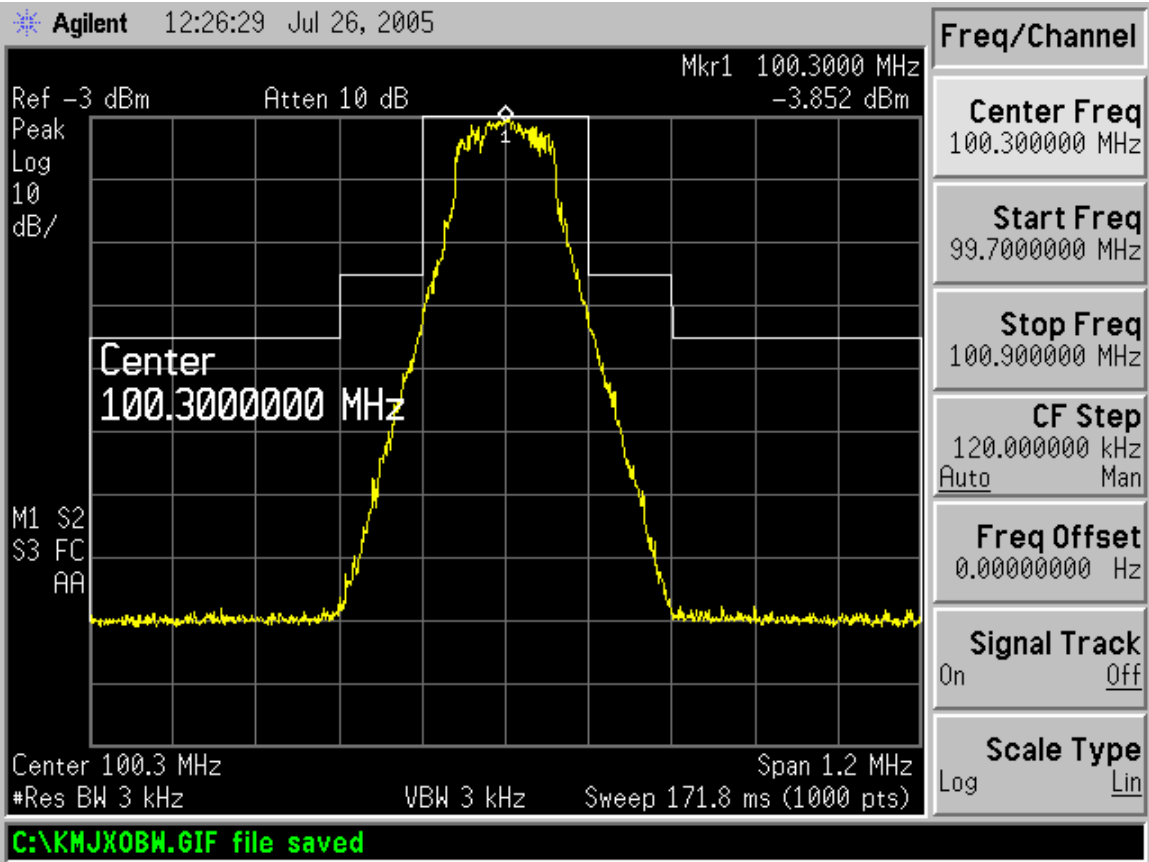
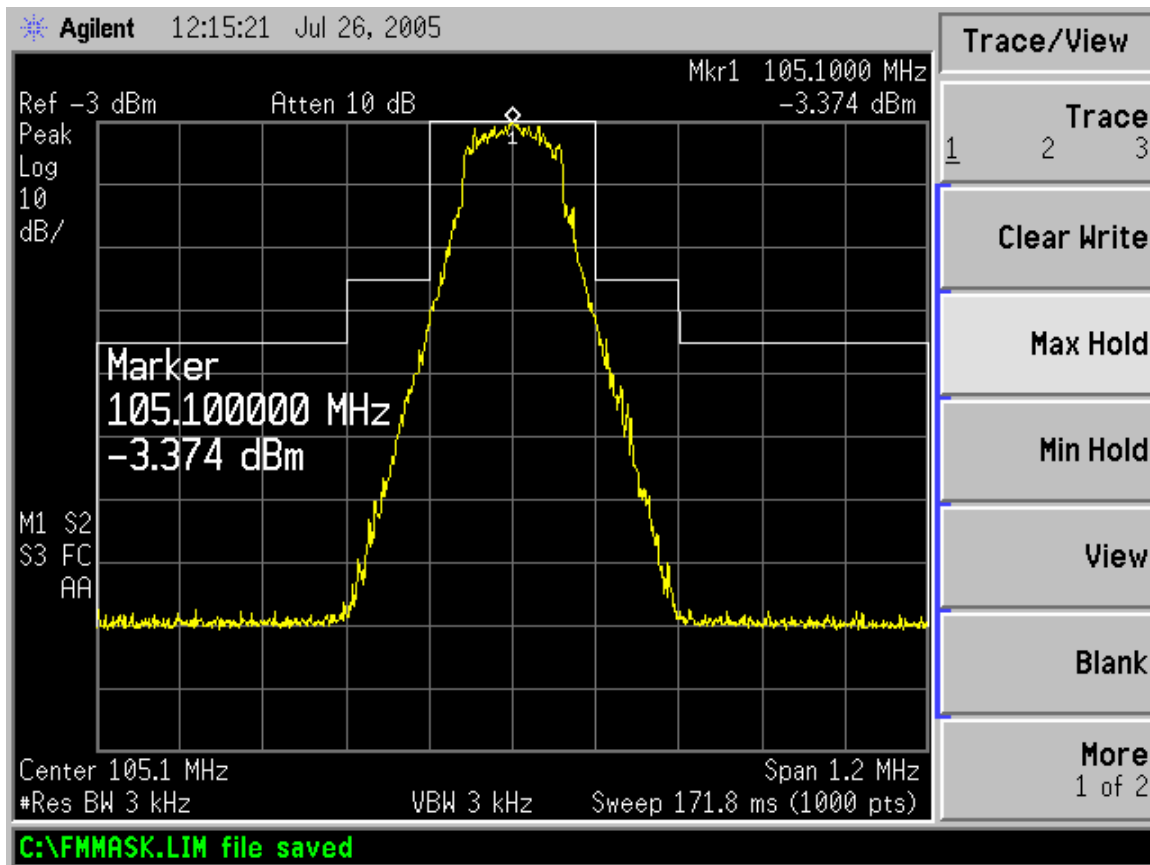


Figure 2
KMJX(FM)



Extensive measurement 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, notch filters were placed between the 20 dB pad and the analyzer, so that the spectrum analyzer gain could be increased by 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 19.5 dB at 100.3 MHz and 21.3 dB at 105.1 MHz.

All harmonic and intermodulation frequencies in the range of frequencies between 5 MHz and 500 MHz through the 3rd order that could be produced by the combined operation of KDJE(FM) and KMJX(FM) were calculated and the results of the measurements at these frequencies are listed in Table 1.

DESCRIPTION	FREQ. MHz	ATTENUATION dB	DESCRIPTION	FREQ. MHz	ATTENUATION dB
105.1 + 100.3	205.4	97	(2 X 100.3) + (3 X 105.1)	515.9	>100
105.1 + (2 X 100.3)	305.7	>100	3 X 105.1	315.3	>100
100.3 + (2 X 105.1)	310.5	>100	(3 X 105.1) – 100.3	215	>100
105.1 + (3 X 100.3)	406	>100	3 X 100.3	300.9	>100
100.3 + (3 X 105.1)	415.6	>100	(3 X 100.3) – 105.1	195.8	>100
2 X 105.1	210.2	>100	(3 X 105.1) – (2 X 100.3)	114.7	>100
(2 X 105.1) – 100.3	109.9	>100	(3 X 100.3) – (2 X 105.1)	90.7	>100
2 X 100.3	200.6	>100	(3 X 105.1) – (3 X 100.3)	14.4	>100
(2 X 100.3) – 105.1	95.5	>100	4 X 105.1	420.4	>100
(2 X 105.1) + (2 X 100.3)	410.8	>100	4 X 100.3	401.2	>100
(2 X 105.1) – (2 X 100.3)	9.6	>100	5 X 105.1	525.5	>100
(2 X 105.1) + (3 X 100.3)	511.1	>100	5 X 100.3	501.5	>100

Table 1

While special attention was given to the “product” frequencies listed in Table 1, measurements were conducted covering the entire range of frequencies between 5 MHz and 500 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 KDJE(FM) and KMJX(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 –83.8 dBm (80 dB below the unmodulated carrier level of KDJE(FM) which was -3.8 dBm) both the KDJE(FM) and KMJX(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 KDJE(FM) and KMJX(FM).

The results of these measurements confirm that the combined operations of KDJE(FM) and KMJX(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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