

**CUMULUS LICENSING CORP.  
WSLE(FM) – CAIRO, GEORGIA  
WBZE(FM) – TALLAHASSEE, FLORIDA**

**OCCUPIED BANDWIDTH AND  
SPURIOUS EMISSION MEASUREMENTS**

September 23, 2002

The following report is prepared on behalf of Cumulus Licensing Corp. to demonstrate that FM radio stations WSLE and WBZE are in compliance with all FCC rules related to the “special operating conditions and restrictions (3)”, as outlined in the WSLE construction permit BMPH-20020401AAJ. Measurements were conducted to demonstrate that WSLE and WBZE, operating into a combined antenna system as specified in restriction number 3 of the underlying CP, are in full compliance of CFR section 73.317(b) through 73.317(d) of the Commissions rules. A construction permit was not issued, or requested, for WBZE since no change in antenna HAAT or ERP resulted with this construction.

The measurements were conducted on September 23, 2002 commencing at approximately 9:00 PM EDST. The spectrum analyzer used was a H.P. 4411A (ESA1500L). The instrument was last calibrated on August 12, 2002 by Agilent. A sample of the WSLE and WBZE signals was derived from the main transmission line at the output of the combining system. The test and measurement equipment was coupled to the antenna transmission line using a Bird line section and a sample “slug” with 55 db pad to prevent overload and provide isolation.

The unmodulated carrier level of WSLE was + 18 dBm . Since it was lower then that of WBZE, it was used as the reference level for all harmonic, spurious emissions and intermodulation measurements. All measurements were conducted with both transmitters a full power output and all equipment adjusted as used under normal operating conditions.

For all occupied bandwidth measurements, the analyzer was placed in peak hold mode for a least 5 minutes for each measurement and then the waveform observed. Both transmitters were found to be in full compliance with CFR section 73.317(b) of the FCC’s rules with emissions appearing on frequencies removed from the unmodulated carrier frequencies between 120 kHz and 240 kHz attenuated by a minimum of 25 dB indicating an occupied bandwidth of each of the two transmitters to be 240 kHz or less. Both transmitters were observed to be in full compliance with CFR section 73.317(c) of the FCC rules with emissions on frequencies removed from the unmodulated carrier frequencies by between 249 kHz and 600 kHz to be attenuated to a minimum of 35 dB.

Measurements were also conducted to insure that any emission appearing on a frequency removed from the carrier by more than 600 kHz was attenuated at least 80 dB below the level of the unmodulated carrier as outlined in CFR section 73.317(d).

All harmonic and intermodulation products within a frequency range of 10 – 1000 MHz, through the 3<sup>rd</sup> order (that could be produced by the combined antenna system), were predicated. The list of produced frequencies and the resulting measurements are outlined below.

#	Mult	x	Freq.	Sum/Diff	Mult	x	Freq.	=	Prod /	result
1.	1	x	98.9	+	1	x	102.3	=	201.2	-100
2.	1	x	102.3	+	1	x	98.9	=	201.2	
3.	1	x	98.9	+	2	x	102.3	=	303.5	-82
4.	1	x	102.3	+	2	x	98.9	=	300.1	-82
5.	1	x	98.9	+	3	x	102.3	=	405.8	-90
6.	1	x	102.3	+	3	x	98.9	=	399.0	-90
7.	2	x	98.9	=				=	197.8	-85
8.	2	x	98.9	+	1	x	102.3	=	300.1	-81
9.	2	x	98.9	-	1	x	102.3	=	95.50	-80
10.	2	x	102.3	=				=	204.6	-90
11.	2	x	102.3	+	1	x	98.9	=	303.5	-90
12.	2	x	102.3	-	1	x	98.9	=	105.7	-81
13.	2	x	98.9	+	2	x	102.3	=	402.4	-90
14.	2	x	102.3	+	2	x	98.9	=	402.4	
15.	2	x	98.9	+	3	x	102.3	=	504.7	-90
16.	2	x	102.3	+	3	x	98.9	=	501.3	-90
17.	3	x	98.9	=				=	296.7	-90
18.	3	x	98.9	+	1	x	102.3	=	399.0	-90
19.	3	x	98.9	-	1	x	102.3	=	194.4	-90
20.	3	x	102.3	=				=	306.9	-90
21.	3	x	102.3	+	1	x	98.9	=	405.8	-90
22.	3	x	102.3	-	1	x	98.9	=	208.0	-90
23.	3	x	98.9	+	2	x	102.3	=	501.3	-90
24.	3	x	98.9	-	2	x	102.3	=	92.10	-90
25.	3	x	102.3	+	2	x	98.9	=	504.7	-90
26.	3	x	102.3	-	2	x	98.9	=	109.1	-90
27.	3	x	98.9	+	3	x	102.3	=	603.6	-90
28.	3	x	102.3	+	3	x	98.9	=	603.6	

The results of these measurements confirm the combined operations of WBZE(FM) and WSLE(FM), into the shared antenna system, is in full compliance with CFR sections 73.317(b) through 73.317(d) of the Commissions rules, and that the special operating condition or restriction number 3 of the underlying construction permit (BMPH-20020401AAJ) are met.

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