

Exhibit for Modification of License FCC form 302  
Stations WSHE(FM) Orlando, WJRR(FM) and WTKS(FM) Cocoa Beach all Florida  
October 9, 2003

The above named stations along with WOMX(FM) utilize a shared antenna located on ASR#: 1040401, this non-directional antenna has been changed and has slightly different characteristics and vertical location than the licensed facilities. By individually filed FCC form 302 each station is seeking modification of license to specify :

Center of radiation height above mean sea level of 497 meters  
Center of radiation height above ground of 477 meters  
Height above average terrain of 484 meters.

Additionally, WSHE(FM) seeks a power increase to class maximum power of 100 kilowatts. All requested actions are allowable under 73.1690 as all stations are 73.207 compliant and not licensed as a result of 73.215, 73.213, or a 73.207 waver.

Made part of this exhibit are technical findings that detail the antenna vertical plane relative field for each frequency, and results of RF exposure measurements. Because station WSHE(FM) is increasing power, a radio multiple ownership study is part of that FCC 302 form.

Measurements of occupied bandwidth have been made for the facility finding compliance with FCC rules including 73.317(b)(c), with all stations operating into the common antenna. Those measurements are also made part of this exhibit.

Station WTKS(FM) technical parameters:

ASR: 1040401  
Frequency: 104.1 MHz  
Antenna COR - AGL: 477 meters (477 on present license)  
Antenna AMSL: 497 meters (500 on present license)  
Antenna HAAT: 484 meters (487 on present license)  
ERP: 94 kW at Hor. - 100 kW max (-1 degree BT)  
Antenna Type: ERI Axiom 8-108-6D  
Element Spacing: 108 inches  
Antenna Power Gain: 4.381 Max (-1 degree) - 4.134 at Hor.  
Pattern: Not Directional  
Antenna Input Power: 22.83 kW  
Transmission Line: 1686 ft. - Dielectric 4 1/16" rigid (two parallel runs)  
Rated Loss at 101.1 MHz: 0.0774 dB/100 ft.  
Transmission Line Loss: 1.305 dB  
Transmission Line Efficiency: 74.05%  
Combiner Loss: 0.319 dB (measured by Dielectric)  
Total Loss (Transmission Line and Combiner) 1.624 dB  
Total Efficiency: 68.80%  
TPO: 33.2 kW

Station WJRR(FM) technical parameters:

ASR: 1040401  
Frequency: 101.1 MHz  
Antenna COR - AGL: 477 meters (480 on present license)  
Antenna AMSL: 497 meters (500 on present license)  
Antenna HAAT: 484 meters (487 on present license)  
ERP: 95 kW at Hor. - 100 kW max (-1 degree BT)  
Antenna Type: ERI Axiom 8-108-6D  
Element Spacing: 108 inches  
Antenna Power Gain: 4.319 Max (-1 degree) - 4.089 at Hor.  
Pattern: Not Directional  
Antenna Input Power: 23.15 kW  
Transmission Line: 1686 ft. - Dielectric 4 1/16" rigid (two parallel runs)  
Rated Loss at 101.1 MHz: 0.0762 dB/100 ft.  
Transmission Line Loss: 1.285 dB  
Transmission Line Efficiency: 74.39%  
Combiner Loss: 0.344 dB (measured by Dielectric)  
Total Loss (Transmission Line and Combiner) 1.629 dB  
Total Efficiency: 68.72%  
TPO: 33.7 kW

WSHE Technical parameters

ASR: 1040401  
Frequency: 100.3 MHz  
Antenna COR - AGL: 477 meters (480 on present license)  
Antenna AMSL: 497 meters (500 on present license)  
Antenna HAAT: 484 meters (487 on present license)  
ERP: 95 kW at Hor. - 100 kW max (-1 degree BT) (81kW on present license)  
Antenna Type: ERI Axiom 8-108-6D  
Element Spacing: 108 inches  
Antenna Power Gain: 4.296 Max (-1 degree) - 4.071 at Hor.  
Pattern: Not Directional  
Antenna Input Power: 23.3 kW  
Transmission Line: 1686 ft. - Dielectric 4 1/16" rigid (two parallel runs)  
Rated Loss at 100.3 MHz: 0.0759 dB/100 ft.  
Transmission Line Loss: 1.280 dB  
Transmission Line Efficiency: 74.47%  
Combiner Loss: 0.242 dB (measured by Dielectric)  
Total Loss (Transmission Line and Combiner) 1.522 dB  
Total Efficiency: 70.44%  
TPO: 33.0 kW

**Engineering Exhibit**  
**WJRR(FM), Cocoa Beach, FL (FID#51983)**  
**WTKS-FM, Cocoa Beach, FL (FID#53457)**  
**WSHE(FM), Orlando, FL (FID#59976)**  
**RF Radiation Compliance**

Although WJRR(FM), WTKS-FM and WSHE(FM) are not eligible to use the “RF Exposure Worksheet”, the facilities do comply with the FCC established guidelines regarding exposure to RF electromagnetic fields as described in OET Bulletin 65 Edition 97-01. The alternate method for showing compliance is described below.

**Facilities:**

WJRR(FM), WTKS-FM and WSHE(FM) utilize a common 8-bay, ERI Axiom antenna, mounted on a 489 meter, guyed tower with a Center of Radiation of 477 meters above ground level. WJRR(FM) and WTKS-FM are both licensed for a maximum ERP of 100 kW (H & V). WSHE(FM) is licensed for a maximum ERP of 81 kW (H & V). WOMX-FM (100 kW) also utilizes the common antenna. This is also a common site with Class-A Television station WZXZ-CA. There are a large number of other television stations located within 1.0 kilometer of the site.

**General Population/Uncontrolled Exposure:**

To determine the level of RF exposure, measurements were made on September 23, 2003 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 500 meters from the tower base. The maximum RF exposure level measured was 2.25% of the Occupational/Controlled Exposure limit, which occurs at a distance of 330 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, WJRR(FM), WTKS-FM and WSHE(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 inside the fence surrounding the tower. The maximum RF Exposure level measured inside the fence at the base of the tower was 1.42 % of the Occupational/Controlled Exposure limit. The maximum RF Exposure level measured inside the transmitter building was in the combiner room and was 1.27 % of the Occupational/Controlled Exposure limit. Therefore, WJRR(FM), WTKS-FM and WSHE(FM) also comply with OET Bulletin 65 Edition 97-01 with regard to Occupational/Controlled Exposure.



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ELECTRONICS RESEARCH, INC.  
7777 GARDNER ROAD  
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FIGURE 2

----THEORETICAL----  
VERTICAL PLANE RELATIVE FIELD

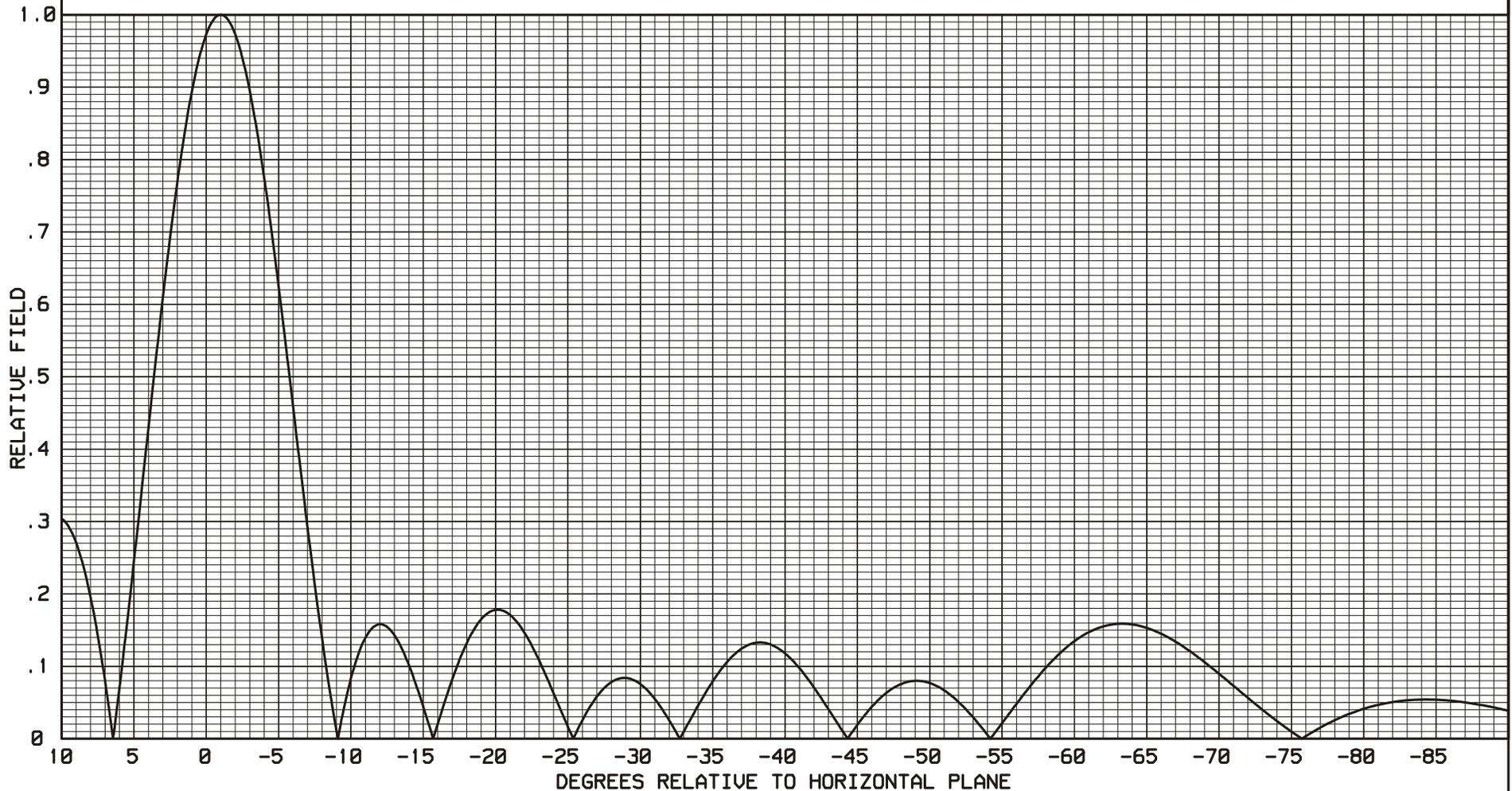
8 ERI AXIOM TYPE ELEMENTS  
-1.00 DEGREE(S) ELECTRICAL BEAM TILT  
0 PERCENT FIRST NULL FILL  
0 PERCENT SECOND NULL FILL

POWER GAIN IS 4.089 IN THE HORIZONTAL PLANE(4.319 IN THE MAX.)

SEPTEMBER 23, 2003

101.1 MHz.

ELEMENT SPACING:  
108 INCHES



ELECTRONICS RESEARCH, INC.  
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FIGURE 1

----THEORETICAL----  
VERTICAL PLANE RELATIVE FIELD

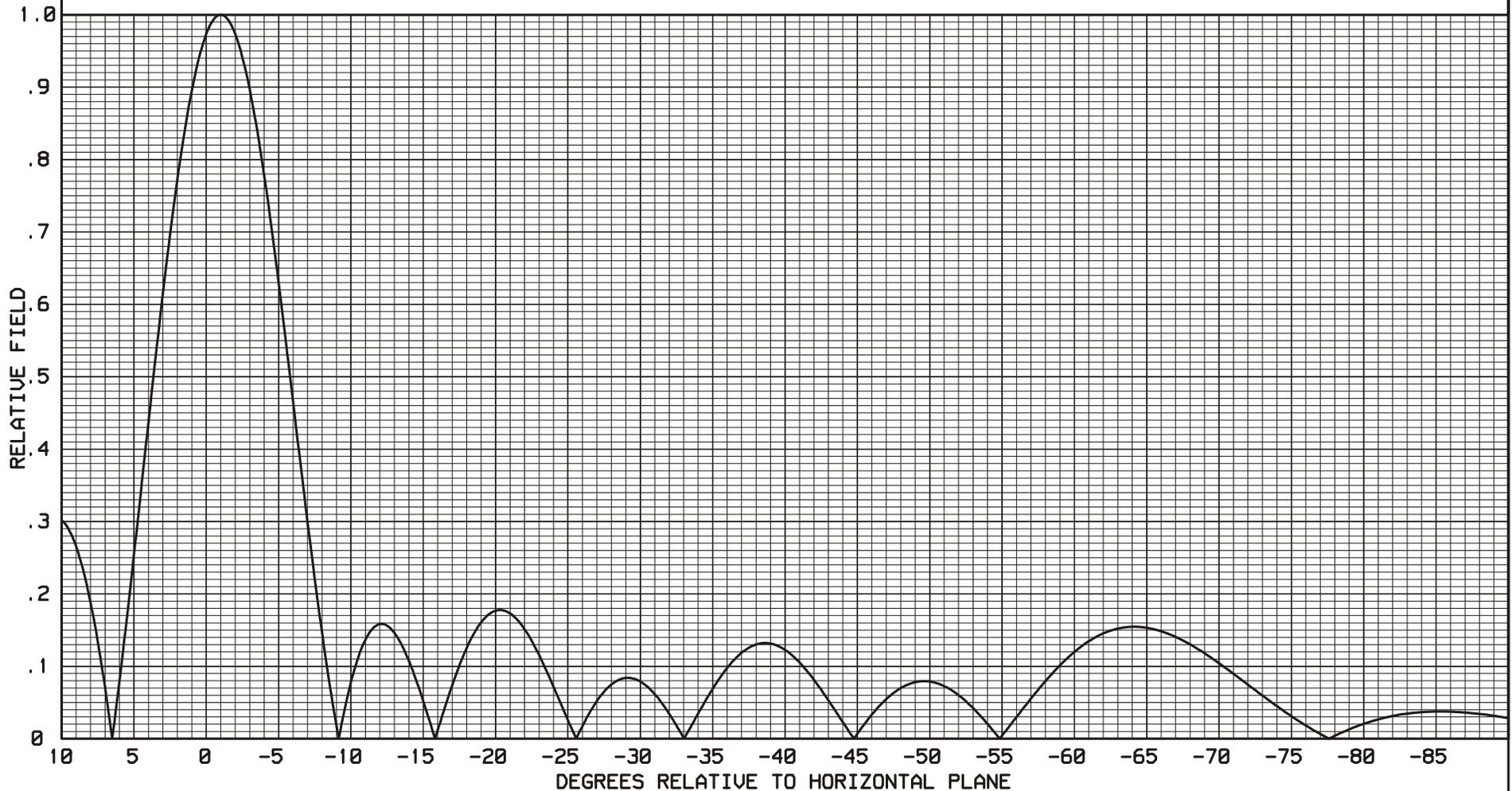
8 ERI AXIOM TYPE ELEMENTS  
-1.00 DEGREE(S) ELECTRICAL BEAM TILT  
0 PERCENT FIRST NULL FILL  
0 PERCENT SECOND NULL FILL

POWER GAIN IS 4.071 IN THE HORIZONTAL PLANE(4.296 IN THE MAX.)

SEPTEMBER 23, 2003

100.3 MHz.

ELEMENT SPACING:  
108 INCHES



ELECTRONICS RESEARCH, INC.  
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FIGURE 3

----THEORETICAL----  
VERTICAL PLANE RELATIVE FIELD

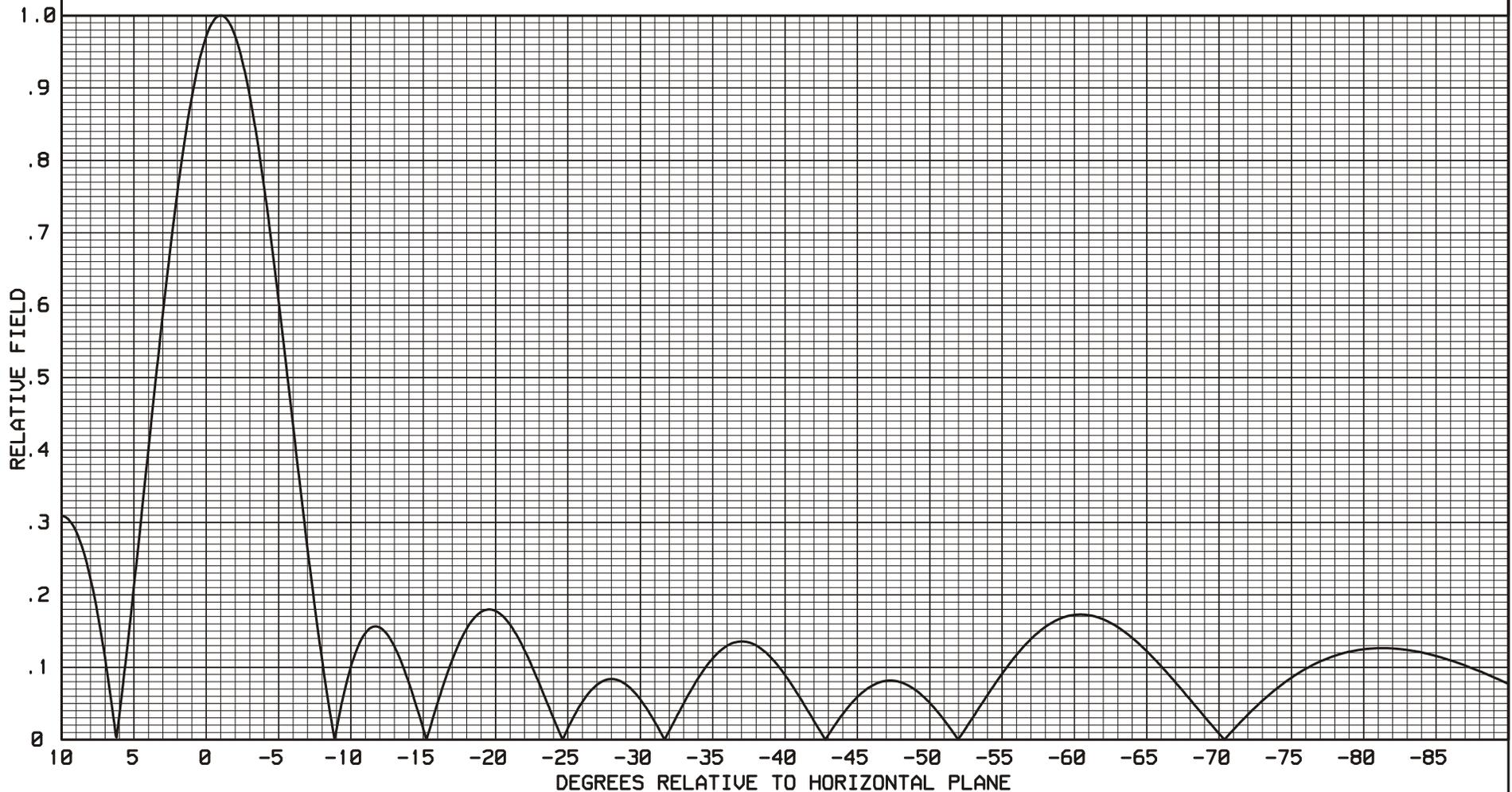
8 ERI AXIOM TYPE ELEMENTS  
-1.00 DEGREE(S) ELECTRICAL BEAM TILT  
0 PERCENT FIRST NULL FILL  
0 PERCENT SECOND NULL FILL

POWER GAIN IS 4.134 IN THE HORIZONTAL PLANE(4.381 IN THE MAX.)

SEPTEMBER 23, 2003

104.1 MHz.

ELEMENT SPACING:  
108 INCHES





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

**For**

**Clear Channel Broadcasting Licenses, Inc.**

**WSHE(FM) – 100.3 MHz**

**Orlando, FL (Facility ID No: 59976)**

**WJRR(FM) – 101.1 MHz**

**Cocoa Beach, FL (Facility ID No: 51983)**

**WTKS-FM – 104.1 MHz**

**Cocoa Beach, FL (Facility ID No: 53457)**

**and**

**Infinity Radio Operations, Inc.**

**WOMX-FM – 105.1 MHz**

**Orlando, FL (Facility ID No: 47746)**

**September 23, 2003**

Measurements were conducted to demonstrate that WSHE(FM), Orlando, FL, WJRR(FM), Cocoa Beach, FL, WTKS-FM, Cocoa Beach, FL and WOMX-FM, Orlando, FL, operating into a combined antenna system, comply with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations. The measurements were conducted on September 23, 2003 by Randall L. Mullinax, with all four stations simultaneously utilizing the shared antenna. The measurements were conducted following replacement of the common antenna with an ERI 8-bay Axiom antenna. The spectrum analyzer used for the measurements was a Tektronix model 2712, S/N B011260. A sample of the signals of all four stations 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-142 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 for WJRR(FM), WTKS-FM and WOMX-FM was +4 dBm. Due to a minor power difference (81 kW ERP as opposed to 100 kW ERP), the measured unmodulated carrier level for WSHE(FM) was +3 dBm. The lower level of +3 dBm 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. All four 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 four 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.

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 two 6 dB pads so that the spectrum analyzer gain could be increased by up to 30 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 17.9 dB at 100.3 MHz, 20.2 dB at 101.1 MHz, 19.5 dB at 104.1 MHz and 24.7 dB at 105.1 MHz.

All possible harmonic and intermodulation frequencies in the range of frequencies between 5 MHz and 500 MHz through the 3<sup>rd</sup> order that could be produced by the combined operation of WSHE(FM), WJRR(FM), WTKS-FM and WOMX-FM were calculated and the results of measurements at those frequencies are listed in Table 1.

**TABLE 1**

<b>DESCRIPTION</b>	<b>FREQ. MHz</b>	<b>ATTENUATION dB</b>	<b>DESCRIPTION</b>	<b>FREQ. MHz</b>	<b>ATTENUATION Db</b>
100.3 + 101.1	201.4	97	(3 X 101.1) - 104.1	199.2	>100
100.3 + 104.1	204.4	98	(3 X 101.1) + 105.1	408.4	>100
100.3 + 105.1	205.4	96	(3 X 101.1) - 105.1	198.2	>100
2 X 100.3	200.6	>100	(3 X 101.1) - (2 X 100.3)	102.7	>100
(2 X 100.3) + 101.1	301.7	>100	(3 X 101.1) - (2 X 104.1)	95.1	>100
(2 X 100.3) - 101.1	99.5	82	(3 X 101.1) - (2 X 105.1)	93.1	>100
(2 X 100.3) + 104.1	304.7	>100	104.1 + 105.1	209.2	95
(2 X 100.3) - 104.1	96.5	96	2 X 104.1	208.2	>100
(2 X 100.3) + 105.1	305.7	>100	(2 X 104.1) + 100.3	308.5	>100
(2 X 100.3) - 105.1	95.5	>100	(2 X 104.1) - 100.3	107.9	100
(2 X 100.3) + (2 X 101.1)	402.8	>100	(2 X 104.1) - 101.1	107.1	>100
(2 X 100.3) + (2 X 104.1)	408.8	>100	(2 X 104.1) + 105.1	313.3	>100
(2 X 100.3) + (2 X 105.1)	410.8	>100	(2 X 104.1) - 105.1	103.1	93
3 X 100.3	300.9	>100	(2 X 104.1) - (2 X 100.3)	7.6	>100
(3 X 100.3) + 101.1	402	>100	(2 X 104.1) - (2 X 101.1)	6	>100
(3 X 100.3) - 101.1	199.8	>100	(2 X 104.1) + (2 X 105.1)	418.4	>100
(3 X 100.3) + 104.1	405	>100	3 X 104.1	312.3	>100
(3 X 100.3) - 104.1	196.8	>100	(3 X 104.1) + 100.3	412.6	>100
(3 X 100.3) + 105.1	406	>100	(3 X 104.1) - 100.3	212	>100
(3 X 100.3) - 105.1	195.8	>100	(3 X 104.1) + 101.1	413.4	>100
(3 X 100.3) - (2 X 101.1)	98.7	>100	(3 X 104.1) + 105.1	417.4	>100
(3 X 100.3) - (2 X 104.1)	92.7	>100	(3 X 104.1) - 105.1	207.2	>100
(3 X 100.3) - (2 X 105.1)	90.7	>100	(3 X 104.1) - (2 X 100.3)	111.7	>100
101.1 + 104.1	205.2	91	(3 X 104.1) - (2 X 101.1)	110.1	>100
101.1 + 105.1	206.2	95	(3 X 104.1) - (2 X 105.1)	102.1	93
2 X 101.1	202.2	>100	(3 X 104.1) - (3 X 100.3)	11.4	>100
(2 X 101.1) + 100.3	302.5	>100	(3 X 104.1) - (3 X 101.1)	9	>100
(2 X 101.1) - 100.3	101.9	93	2 X 105.1	210.2	93
(2 X 101.1) + 104.1	306.3	>100	(2 X 105.1) + 100.3	310.5	>100
(2 X 101.1) - 104.1	98.1	>100	(2 X 105.1) - 100.3	109.9	>100
(2 X 101.1) + 105.1	307.3	>100	(2 X 105.1) + 101.1	311.3	>100
(2 X 101.1) - 105.1	97.1	>100	(2 X 105.1) - 101.1	109.1	>100
(2 X 101.1) + (2 X 104.1)	410.4	>100	(2 X 105.1) + 104.1	314.3	>100
(2 X 101.1) + (2 X 105.1)	412.4	>100	(2 X 105.1) - 104.1	106.1	95
3 X 101.1	303.3	>100	(2 X 105.1) - (2 X 100.3)	9.6	>100
(3 X 101.1) + 100.3	403.6	>100	(2 X 105.1) - (2 X 101.1)	8	>100
(3 X 101.1) - 100.3	203	>100	3 X 105.1	315.3	>100
(3 X 101.1) + 104.1	407.4	>100	(3 X 105.1) + 100.3	415.6	>100

DESCRIPTION	FREQ. ATTENUATION		DESCRIPTION	FREQ. ATTENUATION	
	MHz	dB		MHz	dB
(3 X 105.1) - 100.3	215	>100	100.3 + (2 X 105.1) - 104.1	206.4	>100
(3 X 105.1) - 101.1	214.2	>100	101.1 + (2 X 100.3) - 104.1	197.6	>100
(3 X 105.1) + 104.1	419.4	>100	101.1 + (2 X 100.3) - 105.1	196.6	>100
(3 X 105.1) - (2 X 100.3)	114.7	>100	101.1 + (2 X 104.1) - 100.3	209	>100
(3 X 105.1) - (2 X 101.1)	113.1	>100	101.1 + (2 X 104.1) - 105.1	204.2	>100
(3 X 105.1) - (3 X 100.3)	14.4	>100	101.1 + (2 X 105.1) - 100.3	211	>100
(3 X 105.1) - (3 X 101.1)	12	>100	104.1 + (2 X 100.3) - 101.1	203.6	>100
100.3 + 101.1 + 104.1	305.5	>100	104.1 + (2 X 100.3) - 105.1	199.6	>100
100.3 + 101.1 + 105.1	306.5	>100	104.1 + (2 X 101.1) - 100.3	206	>100
100.3 + 104.1 + 105.1	309.5	>100	104.1 + (2 X 101.1) - 105.1	201.2	>100
101.1 + 104.1 + 105.1	310.3	>100	104.1 + (2 X 105.1) - 101.1	213.2	>100
100.3 + 101.1 - 104.1	97.3	>100	105.1 + (2 X 100.3) - 101.1	204.6	>100
100.3 + 101.1 - 105.1	96.3	>100	105.1 + (2 X 100.3) - 104.1	201.6	>100
100.3 + 104.1 - 101.1	103.3	93	105.1 + (2 X 101.1) - 100.3	207	>100
100.3 + 104.1 - 105.1	99.3	99	105.1 + (2 X 101.1) - 104.1	203.2	>100
100.3 + 105.1 - 101.1	104.3	>100 (Note 1)	105.1 + (2 X 104.1) - 100.3	213	>100
100.3 + 105.1 - 104.1	101.3	92 (Note 2)	105.1 + (2 X 104.1) - 101.1	212.2	>100
101.1 + 104.1 - 100.3	104.9	96 (Note 3)	100.3 + (2 X 101.1) - (2 X 104.1)	94.3	>100
101.1 + 104.1 - 105.1	100.1	>100 (Note 4)	100.3 + (2 X 101.1) - (2 X 105.1)	92.3	>100
101.1 + 105.1 - 100.3	105.9	98	100.3 + (2 X 104.1) - (2 X 101.1)	106.3	>100
104.1 + 105.1 - 101.1	108.1	>100	100.3 + (2 X 105.1) - (2 X 101.1)	108.3	>100
100.3 + 101.1 + (2 X 104.1)	409.6	>100	100.3 + (2 X 105.1) - (2 X 104.1)	102.3	>100
100.3 + 101.1 + (2 X 105.1)	411.6	>100	101.1 + (2 X 100.3) - (2 X 104.1)	93.5	>100
100.3 + 104.1 + (2 X 101.1)	406.6	>100	101.1 + (2 X 100.3) - (2 X 105.1)	91.5	>100
100.3 + 104.1 + (2 X 105.1)	414.6	>100	101.1 + (2 X 104.1) - (2 X 100.3)	108.7	>100
100.3 + 105.1 + (2 X 101.1)	407.6	>100	101.1 + (2 X 104.1) - (2 X 105.1)	99.1	>100
100.3 + 105.1 + (2 X 104.1)	413.6	>100	101.1 + (2 X 105.1) - (2 X 100.3)	110.7	>100
101.1 + 104.1 + (2 X 100.3)	405.8	>100	104.1 + (2 X 100.3) - (2 X 101.1)	102.5	>100
101.1 + 104.1 + (2 X 105.1)	415.4	>100	104.1 + (2 X 100.3) - (2 X 105.1)	94.5	>100
101.1 + 105.1 + (2 X 100.3)	406.8	>100	104.1 + (2 X 101.1) - (2 X 100.3)	105.7	98
101.1 + 105.1 + (2 X 104.1)	414.4	>100	104.1 + (2 X 101.1) - (2 X 105.1)	96.1	>100
104.1 + 105.1 + (2 X 100.3)	409.8	>100	104.1 + (2 X 105.1) - (2 X 100.3)	113.7	>100
104.1 + 105.1 + (2 X 101.1)	411.4	>100	104.1 + (2 X 105.1) - (2 X 101.1)	112.1	>100
101.1 + 105.1 - (2 X 100.3)	5.6	>100	105.1 + (2 X 100.3) - (2 X 101.1)	103.5	>100
104.1 + 105.1 - (2 X 100.3)	8.6	>100	105.1 + (2 X 100.3) - (2 X 104.1)	97.5	>100
104.1 + 105.1 - (2 X 101.1)	7	>100	105.1 + (2 X 101.1) - (2 X 100.3)	106.7	>100
100.3 + (2 X 101.1) - 104.1	198.4	>100	105.1 + (2 X 104.1) - (2 X 100.3)	112.7	>100
100.3 + (2 X 101.1) - 105.1	197.4	>100	105.1 + (2 X 104.1) - (2 X 101.1)	111.1	>100
100.3 + (2 X 104.1) - 105.1	203.4	>100	100.3 + (2 X 104.1) - (3 X 101.1)	5.2	>100
100.3 + (2 X 105.1) - 101.1	209.4	>100	100.3 + (2 X 105.1) - (3 X 101.1)	7.2	>100

DESCRIPTION	FREQ. ATTENUATION		DESCRIPTION	FREQ. ATTENUATION	
	MHz	dB		MHz	dB
101.1 + (2 X 104.1) - (3 X 100.3)	8.4	>100	104.1 + (3 X 100.3) - (2 X 101.1)	202.8	>100
101.1 + (2 X 105.1) - (3 X 100.3)	10.4	>100	104.1 + (3 X 100.3) - (2 X 105.1)	194.8	>100
104.1 + (2 X 101.1) - (3 X 100.3)	5.4	>100	104.1 + (3 X 101.1) - (2 X 100.3)	206.8	>100
104.1 + (2 X 105.1) - (3 X 100.3)	13.4	>100	104.1 + (3 X 101.1) - (2 X 105.1)	197.2	>100
104.1 + (2 X 105.1) - (3 X 101.1)	11	>100	104.1 + (3 X 105.1) - (2 X 100.3)	218.8	>100
105.1 + (2 X 101.1) - (3 X 100.3)	6.4	>100	104.1 + (3 X 105.1) - (2 X 101.1)	217.2	>100
105.1 + (2 X 104.1) - (3 X 100.3)	12.4	>100	105.1 + (3 X 100.3) - (2 X 101.1)	203.8	>100
105.1 + (2 X 104.1) - (3 X 101.1)	10	>100	105.1 + (3 X 100.3) - (2 X 104.1)	197.8	>100
100.3 + (3 X 101.1) - 104.1	299.5	>100	105.1 + (3 X 101.1) - (2 X 100.3)	207.8	>100
100.3 + (3 X 101.1) - 105.1	298.5	>100	105.1 + (3 X 101.1) - (2 X 104.1)	200.2	>100
100.3 + (3 X 104.1) - 105.1	307.5	>100	105.1 + (3 X 104.1) - (2 X 101.1)	215.2	>100
100.3 + (3 X 105.1) - 101.1	314.5	>100	100.3 + (3 X 101.1) - (3 X 104.1)	91.3	>100
101.1 + (3 X 100.3) - 104.1	297.9	>100	100.3 + (3 X 101.1) - (3 X 105.1)	88.3	>100
101.1 + (3 X 100.3) - 105.1	296.9	>100	100.3 + (3 X 104.1) - (3 X 101.1)	109.3	>100
101.1 + (3 X 104.1) - 100.3	313.1	>100	100.3 + (3 X 105.1) - (3 X 101.1)	112.3	>100
101.1 + (3 X 104.1) - 105.1	308.3	>100	101.1 + (3 X 100.3) - (3 X 104.1)	89.7	>100
101.1 + (3 X 105.1) - 100.3	316.1	>100	101.1 + (3 X 100.3) - (3 X 105.1)	86.7	>100
104.1 + (3 X 100.3) - 101.1	303.9	>100	101.1 + (3 X 104.1) - (3 X 100.3)	112.5	>100
104.1 + (3 X 100.3) - 105.1	299.9	>100	101.1 + (3 X 105.1) - (3 X 100.3)	115.5	>100
104.1 + (3 X 101.1) - 100.3	307.1	>100	104.1 + (3 X 100.3) - (3 X 101.1)	101.7	>100
104.1 + (3 X 105.1) - 100.3	319.1	>100	104.1 + (3 X 101.1) - (3 X 105.1)	92.1	>100
104.1 + (3 X 105.1) - 101.1	318.3	>100	104.1 + (3 X 105.1) - (3 X 100.3)	118.5	>100
105.1 + (3 X 100.3) - 101.1	304.9	>100	104.1 + (3 X 105.1) - (3 X 101.1)	116.1	>100
105.1 + (3 X 100.3) - 104.1	301.9	>100	105.1 + (3 X 100.3) - (3 X 104.1)	93.7	>100
105.1 + (3 X 101.1) - 100.3	308.1	>100	105.1 + (3 X 101.1) - (3 X 100.3)	107.5	>100
105.1 + (3 X 101.1) - 104.1	304.3	>100	105.1 + (3 X 104.1) - (3 X 100.3)	116.5	>100
105.1 + (3 X 104.1) - 100.3	317.1	>100	105.1 + (3 X 104.1) - (3 X 101.1)	114.1	>100
105.1 + (3 X 104.1) - 101.1	316.3	>100	(2 X 100.3) + (2 X 101.1) - 104.1	298.7	>100
100.3 + (3 X 101.1) - (2 X 104.1)	195.4	>100	(2 X 100.3) + (2 X 101.1) - 105.1	297.7	>100
100.3 + (3 X 101.1) - (2 X 105.1)	193.4	>100	(2 X 100.3) + (2 X 104.1) - 101.1	307.7	>100
100.3 + (3 X 104.1) - (2 X 101.1)	210.4	95	(2 X 100.3) + (2 X 104.1) - 105.1	303.7	>100
100.3 + (3 X 104.1) - (2 X 105.1)	202.4	99	(2 X 100.3) + (2 X 105.1) - 101.1	309.7	>100
100.3 + (3 X 105.1) - (2 X 101.1)	213.4	>100	(2 X 100.3) + (2 X 105.1) - 104.1	306.7	>100
100.3 + (3 X 105.1) - (2 X 104.1)	207.4	>100	(2 X 101.1) + (2 X 104.1) - 100.3	310.1	>100
101.1 + (3 X 100.3) - (2 X 104.1)	193.8	>100	(2 X 101.1) + (2 X 104.1) - 105.1	305.3	>100
101.1 + (3 X 100.3) - (2 X 105.1)	191.8	100	(2 X 101.1) + (2 X 105.1) - 100.3	312.1	>100
101.1 + (3 X 104.1) - (2 X 100.3)	212.8	>100	(2 X 104.1) + (2 X 105.1) - 100.3	318.1	>100
101.1 + (3 X 105.1) - (2 X 100.3)	215.8	>100	(2 X 104.1) + (2 X 105.1) - 101.1	317.3	>100

DESCRIPTION	FREQ. ATTENUATION		DESCRIPTION	FREQ. ATTENUATION	
	MHz	dB		MHz	dB
(2 X 100.3) + (2 X 101.1) - (2 X 104.1)	194.6	>100	(2 X 100.3) + (3 X 105.1) - (2 X 101.1)	313.7	>100
(2 X 100.3) + (2 X 101.1) - (2 X 105.1)	192.6	>100	(2 X 101.1) + (3 X 100.3) - (2 X 104.1)	294.9	>100
(2 X 100.3) + (2 X 104.1) - (2 X 101.1)	206.6	>100	(2 X 101.1) + (3 X 100.3) - (2 X 105.1)	292.9	>100
(2 X 100.3) + (2 X 104.1) - (2 X 105.1)	198.6	>100	(2 X 101.1) + (3 X 104.1) - (2 X 100.3)	313.9	>100
(2 X 100.3) + (2 X 105.1) - (2 X 101.1)	208.6	>100	(2 X 101.1) + (3 X 105.1) - (2 X 100.3)	316.9	>100
(2 X 100.3) + (2 X 105.1) - (2 X 104.1)	202.6	>100	(2 X 104.1) + (3 X 100.3) - (2 X 101.1)	306.9	>100
(2 X 101.1) + (2 X 104.1) - (2 X 100.3)	209.8	>100	(2 X 104.1) + (3 X 100.3) - (2 X 105.1)	298.9	>100
(2 X 101.1) + (2 X 105.1) - (2 X 100.3)	211.8	>100	(2 X 104.1) + (3 X 101.1) - (2 X 100.3)	310.9	>100
(2 X 104.1) + (2 X 105.1) - (2 X 100.3)	217.8	>100	(2 X 104.1) + (3 X 101.1) - (2 X 105.1)	301.3	>100
(2 X 104.1) + (2 X 105.1) - (2 X 101.1)	216.2	>100	(2 X 104.1) + (3 X 105.1) - (2 X 100.3)	322.9	>100
(2 X 100.3) + (2 X 101.1) - (3 X 105.1)	87.5	>100	(2 X 105.1) + (3 X 100.3) - (2 X 101.1)	308.9	>100
(2 X 100.3) + (2 X 104.1) - (3 X 101.1)	105.5	96	(2 X 105.1) + (3 X 100.3) - (2 X 104.1)	302.9	>100
(2 X 100.3) + (2 X 105.1) - (3 X 104.1)	98.5	>100	(2 X 105.1) + (3 X 101.1) - (2 X 100.3)	312.9	>100
(2 X 101.1) + (2 X 104.1) - (3 X 100.3)	109.5	>100	(2 X 105.1) + (3 X 104.1) - (2 X 100.3)	321.9	>100
(2 X 101.1) + (2 X 105.1) - (3 X 100.3)	111.5	>100	(2 X 105.1) + (3 X 104.1) - (2 X 101.1)	320.3	>100
(2 X 104.1) + (2 X 105.1) - (3 X 100.3)	117.5	>100	(2 X 100.3) + (3 X 101.1) - (3 X 104.1)	191.6	>100
(2 X 104.1) + (2 X 105.1) - (3 X 101.1)	115.1	>100	(2 X 100.3) + (3 X 101.1) - (3 X 105.1)	188.6	>100
(2 X 100.3) + (3 X 101.1) - 104.1	399.8	>100	(2 X 100.3) + (3 X 104.1) - (3 X 101.1)	209.6	>100
(2 X 100.3) + (3 X 101.1) - 105.1	398.8	>100	(2 X 100.3) + (3 X 105.1) - (3 X 101.1)	212.6	>100
(2 X 100.3) + (3 X 104.1) - 101.1	411.8	>100	(2 X 101.1) + (3 X 100.3) - (3 X 104.1)	190.8	>100
(2 X 100.3) + (3 X 105.1) - 101.1	414.8	>100	(2 X 101.1) + (3 X 104.1) - (3 X 100.3)	213.6	>100
(2 X 101.1) + (3 X 100.3) - 104.1	399	>100	(2 X 104.1) + (3 X 100.3) - (3 X 101.1)	205.8	>100
(2 X 101.1) + (3 X 100.3) - 105.1	398	>100	(2 X 104.1) + (3 X 101.1) - (3 X 100.3)	210.6	>100
(2 X 101.1) + (3 X 104.1) - 100.3	414.2	>100	(2 X 104.1) + (3 X 101.1) - (3 X 105.1)	196.2	>100
(2 X 101.1) + (3 X 104.1) - 105.1	409.4	>100	(2 X 104.1) + (3 X 105.1) - (3 X 100.3)	222.6	>100
(2 X 101.1) + (3 X 105.1) - 100.3	417.2	>100	(2 X 104.1) + (3 X 105.1) - (3 X 101.1)	220.2	>100
(2 X 104.1) + (3 X 100.3) - 101.1	408	>100	(2 X 105.1) + (3 X 100.3) - (3 X 104.1)	198.8	>100
(2 X 104.1) + (3 X 100.3) - 105.1	404	>100	(2 X 105.1) + (3 X 101.1) - (3 X 100.3)	212.6	>100
(2 X 104.1) + (3 X 101.1) - 100.3	411.2	>100	(2 X 105.1) + (3 X 104.1) - (3 X 100.3)	221.6	>100
(2 X 104.1) + (3 X 101.1) - 105.1	406.4	>100	(2 X 105.1) + (3 X 104.1) - (3 X 101.1)	219.2	>100
(2 X 104.1) + (3 X 105.1) - 100.3	423.2	>100	(3 X 100.3) + (3 X 101.1) - 105.1	499.1	>100
(2 X 104.1) + (3 X 105.1) - 101.1	422.4	>100	(3 X 100.3) + (3 X 101.1) - (2 X 104.1)	396	>100
(2 X 105.1) + (3 X 100.3) - 101.1	410	>100	(3 X 100.3) + (3 X 101.1) - (2 X 105.1)	394	>100
(2 X 105.1) + (3 X 100.3) - 104.1	407	>100	(3 X 100.3) + (3 X 104.1) - (2 X 101.1)	411	>100
(2 X 105.1) + (3 X 101.1) - 100.3	413.2	>100	(3 X 100.3) + (3 X 104.1) - (2 X 105.1)	403	>100
(2 X 105.1) + (3 X 104.1) - 100.3	422.2	>100	(3 X 100.3) + (3 X 105.1) - (2 X 101.1)	414	>100
(2 X 105.1) + (3 X 104.1) - 101.1	421.4	>100	(3 X 101.1) + (3 X 104.1) - (2 X 100.3)	415	>100
(2 X 100.3) + (3 X 101.1) - (2 X 104.1)	295.7	>100	(3 X 101.1) + (3 X 104.1) - (2 X 105.1)	405.4	>100
(2 X 100.3) + (3 X 101.1) - (2 X 105.1)	293.7	>100	(3 X 101.1) + (3 X 105.1) - (2 X 100.3)	418	>100
(2 X 100.3) + (3 X 104.1) - (2 X 101.1)	310.7	>100	(3 X 104.1) + (3 X 105.1) - (2 X 100.3)	427	>100
(2 X 100.3) + (3 X 104.1) - (2 X 105.1)	302.7	>100	(3 X 104.1) + (3 X 105.1) - (2 X 101.1)	425.4	>100

DESCRIPTION	FREQ. ATTENUATION		DESCRIPTION	FREQ. ATTENUATION	
	MHz	dB		MHz	dB
(3 X 100.3) + (3 X 101.1) - (3 X 104.1)	291.9	>100	(3 X 104.1) + (3 X 105.1) - (3 X 100.3)	326.7	>100
(3 X 100.3) + (3 X 101.1) - (3 X 105.1)	288.9	>100	(3 X 104.1) + (3 X 105.1) - (3 X 101.1)	324.3	>100
(3 X 100.3) + (3 X 104.1) - (3 X 101.1)	309.9	>100	4 X 100.3	401.2	>100
(3 X 101.1) + (3 X 104.1) - (3 X 100.3)	314.7	>100	4 X 101.1	404.4	98
(3 X 101.1) + (3 X 104.1) - (3 X 105.1)	300.3	>100	4 X 104.1	416.4	97
(3 X 101.1) + (3 X 105.1) - (3 X 100.3)	317.7	>100	4 X 105.1	420.4	>100

Note 1 – The WTKS-FM transmitter was turned off and the notch filter for 104.1 MHz was removed from the circuit to facilitate this measurement.

Note 2 – The WJRR(FM) transmitter was turned off and the notch filter for 101.1 MHz was removed from the circuit to facilitate this measurement.

Note 3 – The WOMX-FM transmitter was turned off and the notch filter for 105.1 MHz was removed from the circuit to facilitate this measurement.

Note 4 – The WSHE(FM) transmitter was turned off and the notch filter for 100.3 MHz was removed from the circuit to facilitate this measurement.

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 WSHE(FM), WJRR(FM), WTKS-FM and WOMX-FM carrier frequencies by more than 600 kHz were the carriers of nearby Television stations. In each case where these signals were observed to be at a level greater than -77 dBm (80 dB below the unmodulated carrier level of WSHE(FM) which was +3 dBm) the WSHE(FM), WJRR(FM), WTKS-FM and WOMX-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 WSHE(FM), WJRR(FM), WTKS-FM and WOMX-FM.

The results of these measurements confirm that the combined operations of WSHE(FM), WJRR(FM), WTKS-FM and WOMX-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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