

TECHNICAL EXHIBIT
APPLICATION FOR LICENSE
RADIO STATION WMXQ(FM)
JACKSONVILLE, FLORIDA
CH 275C 100 KW 309 M

Technical Statement

This Technical Exhibit was prepared on behalf of Radio Station WMXQ(FM) on Channel 275C assigned to Jacksonville, Florida. The station just replaced its combiner system pursuant to Section 73.1690(c) of the Commission's Rules. No change in its transmitting antenna, radiation center or effective radiated power occurred. Therefore, it is requested that the WMXQ(FM) license be updated to indicate the presently operating transmitter power output.

Figure 1 is a tabulation of the RF system specifications. There are a total of three stations operating on this combiner besides WMXQ(FM), WJGL(FM) on Channel 245C and WFYV-FM on Channel 275C. Since the combiner insertion loss only significantly changed for WMXQ(FM), this is the only station with a resultant change in transmitter power output (TPO) and hence this application for license.

Spurious Emissions Measurements

The Commission requires that a spurious emissions measurement test be completed, to ensure compliance with Sections 73.317(b) through 73.317(d) of the Commission's Rules, on the antenna system prior to program tests. Therefore, the undersigned performed these measurements at

WMXQ(FM) transmitter site. The test procedure, as described below, is similar to the spurious test completed with the Empire State Building Master FM antenna.¹

Figure 2 is a block diagram showing the configuration of the spurious emissions measurement test.² The frequencies measured where the theoretical intermodulation products (2A-B) computed from the combined three stations. Figure 3 is a tabulation of these product frequencies. At each frequency, the bandpass filter was appropriately adjusted and the filter insertion loss noted. The *HP 4395A Network/Spectrum/Impedance Analyzer* was employed for this process. The filter was then inserted in the sample circuit in series with the same *HP 4395A* spectrum analyzer. A sample was obtained from the *Dielectric* combiner output directional coupler.³ The three station's peak levels were individually measured with the spectrum analyzer and tuned bandpass filter and averaged to determine the reference level.

¹ See ERI Empire State Building Master FM Antenna, Intermodulation Product Measurements, January, 1994. Submitted with each station's application for license on the FM Master Antenna.

² All stations were operating simultaneously into the combiner. It is noted that station WFYV-FM was operating with its auxiliary transmitter during this test, which had a TPO of 1.3 dB lower than the main transmitter. However, this reduced TPO would not significantly affect any of the herein reported measurements and conclusion.

³ When an intermodulation product frequency coincided with another FM station transmitting in the Jacksonville market, the FM station was taken off-the-air in order to accurately measure the possible intermodulation product.

As can be seen from the tabulation in Figure 3, all the possible intermodulation product frequencies are below the Commission's requirement of spurious emission being 80 dB below the level of the unmodulated carrier when removed in frequency from the carrier. Therefore, the aforementioned stations are in compliance with the Commission's spurious emissions requirement.

Groundlevel Radiofrequency Field Exposure

The WMXQ(FM) facility has been evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level in accordance with OET Bulletin No. 65, *Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*.⁴ The power density at the base of the tower was calculated using the appropriate procedure contained in Section 2, Supplement A, *Additional Information for Radio and Television Broadcast Stations*, of the Bulletin.

For the calculation, a combined horizontal and vertical polarized effective radiated power of 200 kilowatts was employed with a radiation center of 306 meters above ground level. An Alan Dick & Company, 8 section panel antenna is continued to be employed. A maximum downward vertical plane field factor of 0.25 was employed for this calculation. Using this 0.25 downward relative field value and a radiation center above ground level of 306 meters, the maximum power density calculated at two meters above ground level resulting from this

⁴ OET Bulletin 65, Second Edition 97-01, August 1997.

facility is less than 0.005 mW/cm^2 . This is less than five percent of the maximum Commission guideline value in an uncontrolled environment for a FM radio station.⁵ Since the WMXQ(FM) contribution at two meters above ground level is less than five percent, consideration of the contribution from other emitters is not required.

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⁵ The FCC maximum guideline for a FM broadcast station in an uncontrolled environment is 0.2 mW/cm^2 .

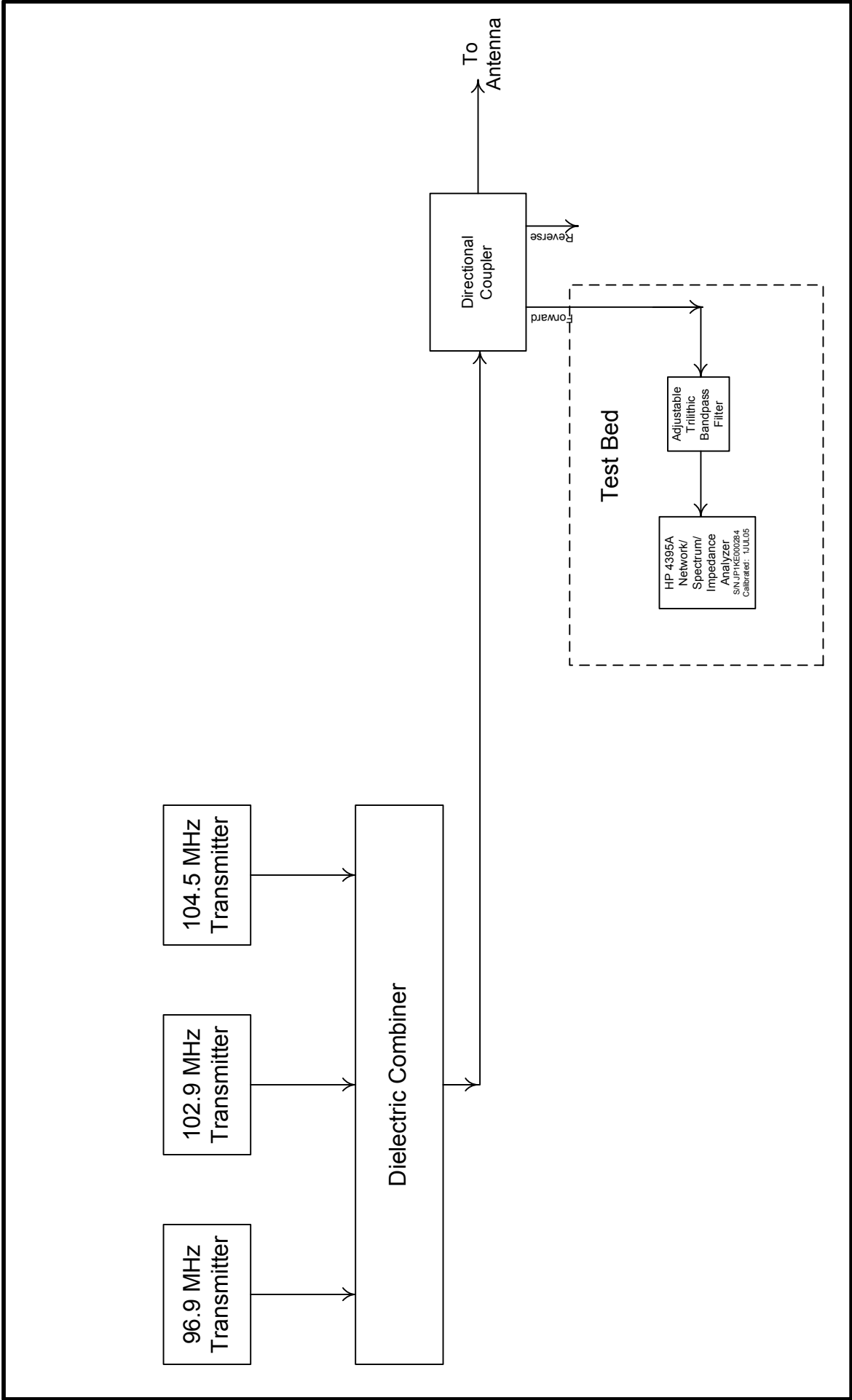
Figure 1

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WMXQ(FM) RF Transmission System Specifications

Description	System
Transmitter Power Output (32 kW):	15.1 dBk
Coaxial Patch Panel:	0.1 dB
Combiner Insertion Loss:	0.3 dB
Transmission Line & Connector Loss (SW/Dielectric 6 1/8" Rigid 1,105 feet):	0.6 dB
Alan Dick 8 Section Panel 0.5 Degree Electrical Beamilt (3.89 Power Gain):	5.9 dB
Effective Radiated Power (100 kW):	20.0 dBk

Figure 2



SPURIOUS EMISSIONS MEASUREMENT BLOCK DIAGRAM

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du Treil, Lundin & Rackley Inc., Sarasota, Florida

Figure 3

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WMXQ(FM) Intermodulation Measurement Results

Product (MHz)	Measurement Value (dBm)	Difference (dB)
96.9	3.8	----
102.9	4.6	---
104.5	3.4	---
Average:	3.9	---
89.3	-88.3	92.2
90.9	-83.7	87.6
92.5	-88.4	92.3
93.7	-89.2	93.1
95.3	-88.7	92.6
98.5	-88.7	92.6
100.1	-88.3	92.2
101.3	-88.6	92.5
106.1	-80.1	84.0
108.9	-88.4	92.3
110.5	-88.6	92.5
112.1	-88.6	92.5
116.5	-88.6	92.5
118.1	-89.0	92.9
190.6	-87.7	91.6
192.2	-88.0	91.9
193.8	-88.1	92.0
195.4	-87.6	91.5
197.0	-87.9	91.8
198.2	-87.9	91.8
198.8	-87.6	91.5
201.4	-87.4	91.3
203.0	-87.4	91.3
205.8	-88.1	92.0
207.4	-87.3	91.2
209.0	-87.3	91.2
213.4	-87.4	91.3
215.0	-87.7	91.6