Pericle Communications Company

December 19, 2007

Via Email
Mr. Scott Horner
Salem Communications, Inc.
4880 Santa Rosa Road
Camarillo, CA 93012

Subject: FM Proofs for Auxiliary Transmitters: KGFT-FM (100.7) and KBIQ-FM (102.7)

Dear Mr. Horner:

This letter documents FM transmitter measurements conducted by our firm on December 19, 2007 for the auxiliary transmitters for stations KGFT-FM (100.7 MHz) and KBIQ-FM (102.7 MHz). These two auxiliary transmitters are combined into a 4-bay, $\lambda/2$ spaced antenna using a branch-type combiner with 3-cavity filters. Both stations broadcast from Cheyenne Mountain, southwest of Colorado Springs, Colorado. The ERP of each auxiliary station is 12 kW. The purpose of these measurements was to verify compliance with FCC Rules, Part 73.317(a), (b), (c), and (d).

The relevant paragraphs of FCC Part 73.317 are reproduced below:

> a. FM broadcast stations employing transmitters authorized after January 1, 1960, must maintain the bandwidth occupied by their emissions in accordance with the specifications detailed below. FM broadcast stations employing transmitters installed or type accepted before January 1, 1960 must achieve the highest degree of compliance with these specifications practicable with their existing equipment. In either case, should harmful interference to other authorized stations occur, the licensee shall correct the problem promptly or cease operation.
>
> b. Any emission appearing on a frequency removed from the carrier by between 120 kHz and 240 kHz inclusive must be attenuated at least 25 dB below the level of the unmodulated carrier. Compliance with this requirement will be deemed to show the occupied bandwidth to be 240 kHz or less.
>
> c. Any emission appearing on a frequency removed from the carrier by more than 240 kHz and up to and including 600 kHz must be attenuated at least 35 dB below the level of the unmodulated carrier.
>
> d. Any emission appearing on a frequency removed from the carrier by more than 600 kHz must be attenuated at least $43 + 10\text{Log}_{10}$ (Power, in watts) dB below the level of the unmodulated carrier, or 80 dB, whichever is the less attenuation.

Measurements were collected by Jay Jacobsmeyer with assistance from Wayne Kimmel, chief engineer for KGFT and KBIQ. A simplified block diagram of the measurement system is shown in Figure 1 on the next page. Note that a high pass filter (f_c = 175 MHz) was used for harmonic measurements to preclude overdriving the front-end of the spectrum analyzer and generating harmonics in the analyzer. Harmonics generated in the analyzer can mask harmonics from the FM transmitter and result in false readings.

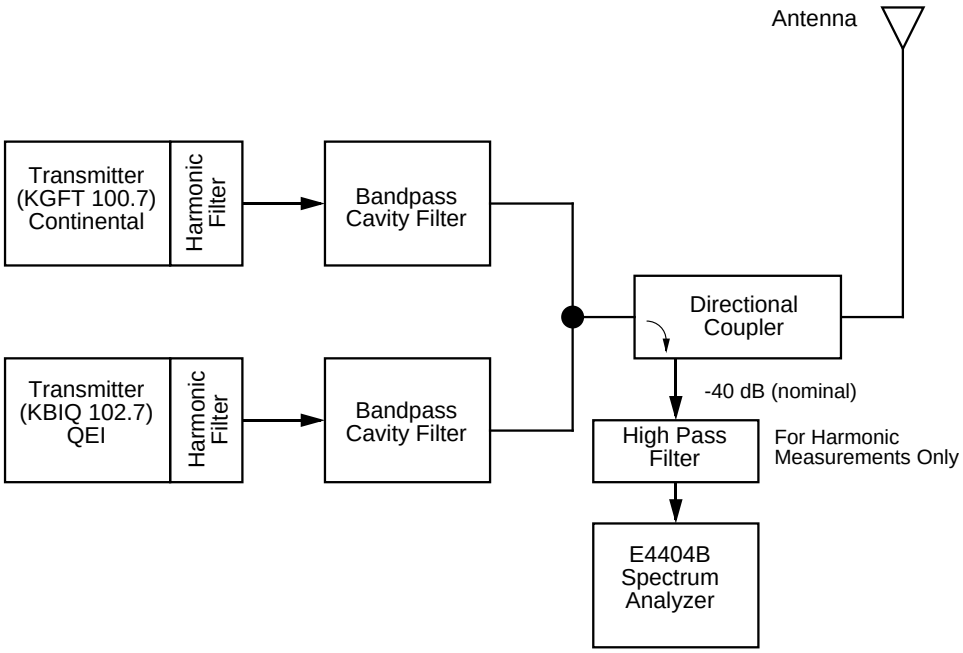


Figure 1 - Measurement Block Diagram

The directional coupler is a dual port type, Shively P/N 52939-G504, S/N 170. The coupling factor at the forward port is nominally -40 dB in the FM band, but the coupling at harmonic frequencies was unknown. Therefore, we temporarily removed the coupler, installed coaxial N-type adapters and swept the coupler with the E4404B's tracking generator to determine the coupler factor as a function of frequency between 88 MHz and 1.1 GHz. The coupling factor varied from 38.0 dB at 100.7 MHz to 22.7 dB at 1 GHz.

To establish the reference power of the radio frequency carrier, we first measured the power in a 240 kHz bandwidth centered on the carrier frequency using the channel power measurement routine of the E4404B spectrum analyzer. This measurement is equivalent to measuring the power of the unmodulated carrier. Then we measured out-of-band emissions from 120 kHz through 600 kHz using a 3 kHz resolution bandwidth to capture any narrowband spurious emissions that might exist.

To show compliance with 73.317(b), we measured the occupied bandwidth (99% power). To show compliance with 73.317(c), we measured channel power in a 240 kHz bandwidth between 240 and 600 kHz above and below the channel center and compared this power to the power in the unmodulated carrier. To show compliance with 73.317(d), we performed a similar measurement at various frequencies more than 600 kHz above and below the channel center and collected measurements at third through ninth order intermodulation products between the two frequencies and at harmonics up to tenth order. A 300 kHz resolution bandwidth was used to measure intermodulation products and harmonics.

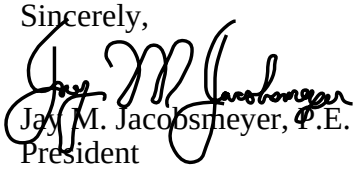
Measurement results are summarized in Table 1. Note that both stations comply with FCC Part 73.317 (a), (b), (c), and (d).

Table 1 - Measurement Summary
(December 19, 2007)

KGFT Aux. (100.7 MHz, at output of combiner)			
Frequency (rel. to f_C)	**Measured**	**Allowed**	**Pass/Fail**
120 kHz ≤ |f|≤ 240 kHz	Occupied BW = 102 kHz	240 kHz	Pass
240 kHz < |f|≤ 600 kHz	below -55 dBc	-35 dBc	Pass
|f| > 600 kHz	below -90 dBc	-80 dBc	Pass
Harmonics & IM Products	below -90 dBc	-80 dBc	Pass
KBIQ Aux. (102.7 MHz, at output of combiner)			
Frequency (rel. to f_C)	**Measured**	**Allowed**	**Pass/Fail**
120 kHz ≤ |f|≤ 240 kHz	Occupied BW = 95 kHz	240 kHz	Pass
240 kHz < |f|≤ 600 kHz	below -55 dBc	-35 dBc	Pass
|f| > 600 kHz	below -90 dBc	-80 dBc	Pass
Harmonics & IM Products	below -90 dBc	-80 dBc	Pass

If you have any questions regarding these measurements, you may contact me at (719) 548-1040 or vial email at *jacobsmeyer@pericle.com.*

Sincerely,



Jay M. Jacobsmeyer, P.E.
President

Copy to: Mel Rauh (*Cheyenne Propagation Company*)
Sam Wells (*Cheyenne Propagation Company*)
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