

Equipment Performance Measurements

Station: K226BU and K261EG, both Aspen, CO

Date: 10/28/16

Equipment performance measurements were conducted to confirm compliance with section 73.317 of the FCC Rules, copy attached. K226BU and K261EG were required to submit spurious emissions measurements as a special operating condition of their construction permits, as the two stations share an antenna. Measurements were taken at the stations' transmitter site, with both stations operating at licensed power, using:

- Coaxial Dynamics model 87036 directional coupler (60 dB)
- Coaxial Dynamics model 6019 attenuator (30 dB)
- Bird model 10A-MFN-10 attenuator (10 dB)
- Bird model 2A-MFN-10 attenuator (10 dB)
- Microwave Filter Company model 6367-2 Tunable Notch Filter (two section)
- RG-142 double shielded cables
- A non-directional coupler in the station's transmission line
- A broadband receive antenna directed at the transmit antenna of the station
- Tektronix 2712 spectrum analyzer, S/N B044222
- _____

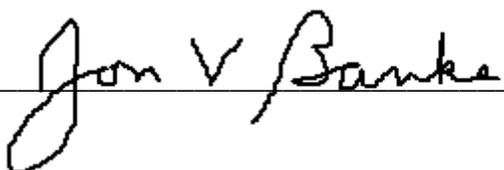
and,

- The stations were in compliance with section 73.317
- The station was not in compliance with section 73.317.

Comments:

Occupied bandwidth requirements ± 600 kHz met easily.
Licensed power is 25 w, so required suppression of spurious products is 57 dB.
Tests made at transmitter site, because multiple nearby translators and stations would mask many spurs if the measurements were made far-field.

Signed



With both stations operating at full licensed power of 25 watts ERP each, a through-line wattmeter was inserted in the stations transmission line, with a directional sampling slug connected to a spectrum analyzer. A notch filter was put in the sample line to reduce the carrier level to allow inspection of the spectrum down to -70 dBc. No harmonics were visible at -70 dBc (to the 10th).

Calculations had been done to predict intermods between these two facilities and from other nearby FM translators. None were seen at -68 dBc*. A general inspection of the spectrum to 1 GHz showed no spurious products, and the occupied bandwidth requirements were easily met during normal operation.

*Except for the predicted spurious product on 107.1 MHz; this was difficult to measure due to the presence of full power KPVW-FM on that frequency. It was suppressed at least 62 dBc, however, which was still sufficient.

§73.317 FM transmission system requirements.

(a) FM broadcast stations employing transmitters authorized after January 1, 1960, must maintain the bandwidth occupied by their emissions in accordance with the specification 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 $43 + 10 \text{ Log}_{10}(\text{Power, in watts})$ dB below the level of the unmodulated carrier, or 80 dB, whichever is the lesser attenuation.

(e) Preemphasis shall not be greater than the impedance-frequency characteristics of a series inductance resistance network having a time constant of 75 microseconds. (See upper curve of Figure 2 of §73.333.)