

**W246CJ**

**Jacksonville, North Carolina**

**File Number BPFT-20130708AAD**

**Exhibit 11: Compliance with Special Operating Condition or Restriction No. 4, Occupied  
Bandwidth Measurements**

This exhibit provides details of compliance with 47 C.F.R. §73.317 (b) through (d).

The transmission equipment for W246CJ was adjusted for 0.23 kilowatts transmitter output power, corresponding to an effective radiated power of 0.25 kilowatts as authorized in the construction permit. The transmitter was connected to a Shively Laboratories branch combiner with translator stations W238CF and W266AV also operating at normal powers. A directional coupler was inserted after the combiner. The forward port of the directional coupler was fed to a Rhode & Schwartz model ETL spectrum analyzer, S/N 100682, operating with firmware version 2.66. The measurements were made by Chuck Britt of Chuck Britt and Associates, Inc.

For a facility operating at 0.25 kilowatts, §73.317(d) specifies that any emission on a frequency removed from the carrier by more than 600 kHz be attenuated by at least 66.98 dB.

Third order intermodulation products were calculated for types  $2A - B$  and  $A + B - C$  for the carriers present. All were within the range of 89.9 to 106.7 mHz.

Measurements for §73.317(b) and (c) were taken with all transmitters operating simultaneously. There were no spurious or intermodulation products seen in the spectrum between 87 MHz and 121 MHz. The noise floor was at least -70 dBc.

Tuned filters were then inserted between the directional coupler and the spectrum analyzer, adjusted to provide at least 25 dB of attenuation at each of the carrier frequencies. The filters

have a 3 dB bandwidth of 0.35 MHz and an insertion loss of 0.1 dB. The filters allow greater resolution at the harmonic frequencies.

The harmonic frequencies for channel 246, 97.1 MHz, were calculated and the levels were measured at each frequency. The coupler has increasing sensitivity of 6 dB/octave. The measurements are tabulated below. As shown, the second harmonic raw measurement was below the carrier, -77.97 dBc, which is in compliance. Adjusting for the coupler frequency response, the actual level is -83.97 dBc. For all other harmonics, the raw measurement was less than -80 dBc.

Occupied bandwidth and harmonic measurements were taken for the other translators as well. In each case the measurements confirmed compliance with the requirements.

All measurements were taken with all transmitters operating simultaneously.

**Harmonic Radiation Field Notes**

Station: W246CJ  
 Location: Jacksonville, NC  
 Measurement Location: Transmitter Site  
 Frequency: 97.1  
 Date: 8-Feb-14  
 Receiver: Rhode & Schwartz ETL, Firmware 2.66, S/N 100682  
 Antenna/Sampling Point: Directional coupler after combiner.

Harmonic Number	Frequency MHz	Level dBm	Wavelength cm	Adjustment dB	Rel. Level dB
1	97.1	0.99	309.0	0	0
2	194.2	-78.96	154.5	6.0	86.0
3	291.3	-84.03	103.0	9.5	94.6
4	388.4	-115.52	77.2	12.0	128.6
5	485.5	-113.9	61.8	14.0	128.9
6	582.6	-116.75	51.5	15.6	133.3
7	679.7	-110.36	44.1	16.9	128.3
8	776.8	-114.82	38.6	18.1	133.9
9	873.9	-113.65	34.3	19.1	133.7
10	971.0	-116.38	30.9	20.0	137.4

**Notes:**

ERP is 250 Watts. Required suppression is -67 dBc by §73.317.

Adjustment for sensor coupling factor, shown above,  
was not required to demonstrate compliance.

No intermod products observed 87 to 121 MHz, at -70 dBc,  
with all transmitters operating and adjusted for normal power.

### Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 11, Compliance with Special Operating Condition or Restriction No. 4, Occupied Bandwidth Measurements, for «App», and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.



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