Spectral Measurements

For the Application for License to cover Construction Permit

Translator station Facility ID #148566
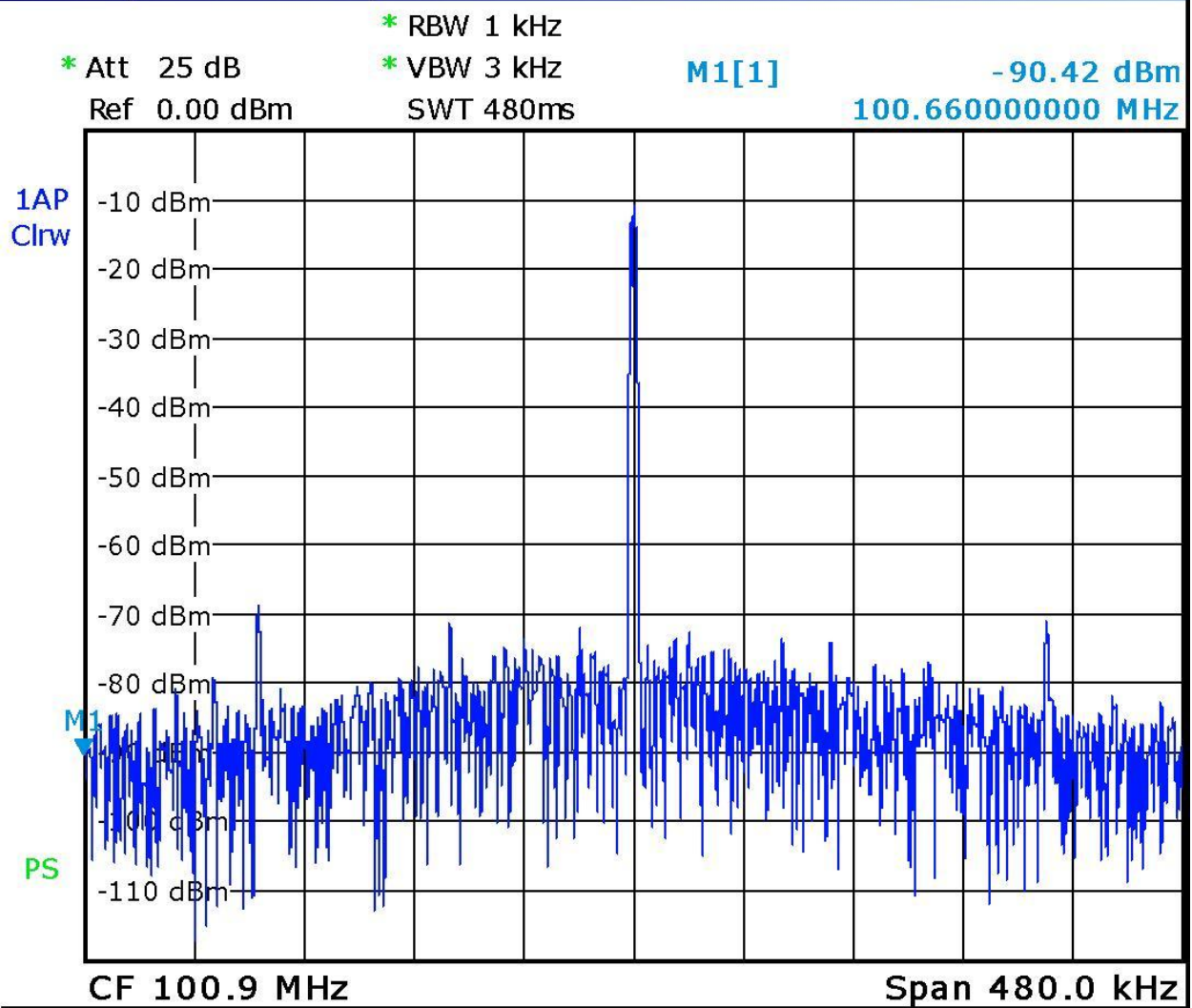
February 12, 2012

This report was prepared by Dave Baughn to serve as an exhibit in response to condition 1. of Translator Construction Permit BPFT-20110705AAH. The measurements were made on February 12, 2012 with a Rohde and Schwartz Model ETL spectrum analyzer last calibrated 3/17/2010. The measurements were made with all of the stations operating into the shared antenna. A sampling coupler was inserted at the output of the combiner to facilitate the measurements. The stations are W265CG on 100.9 mHz, facility #148566 and W292DU on 106.3 mHz, facility #157477 and W245BR on 96.9 mHz, facility #72709. The measurements show complete compliance with 73.317 (b), (c), and (d).

Please see the following pages for details on the specific measurements.
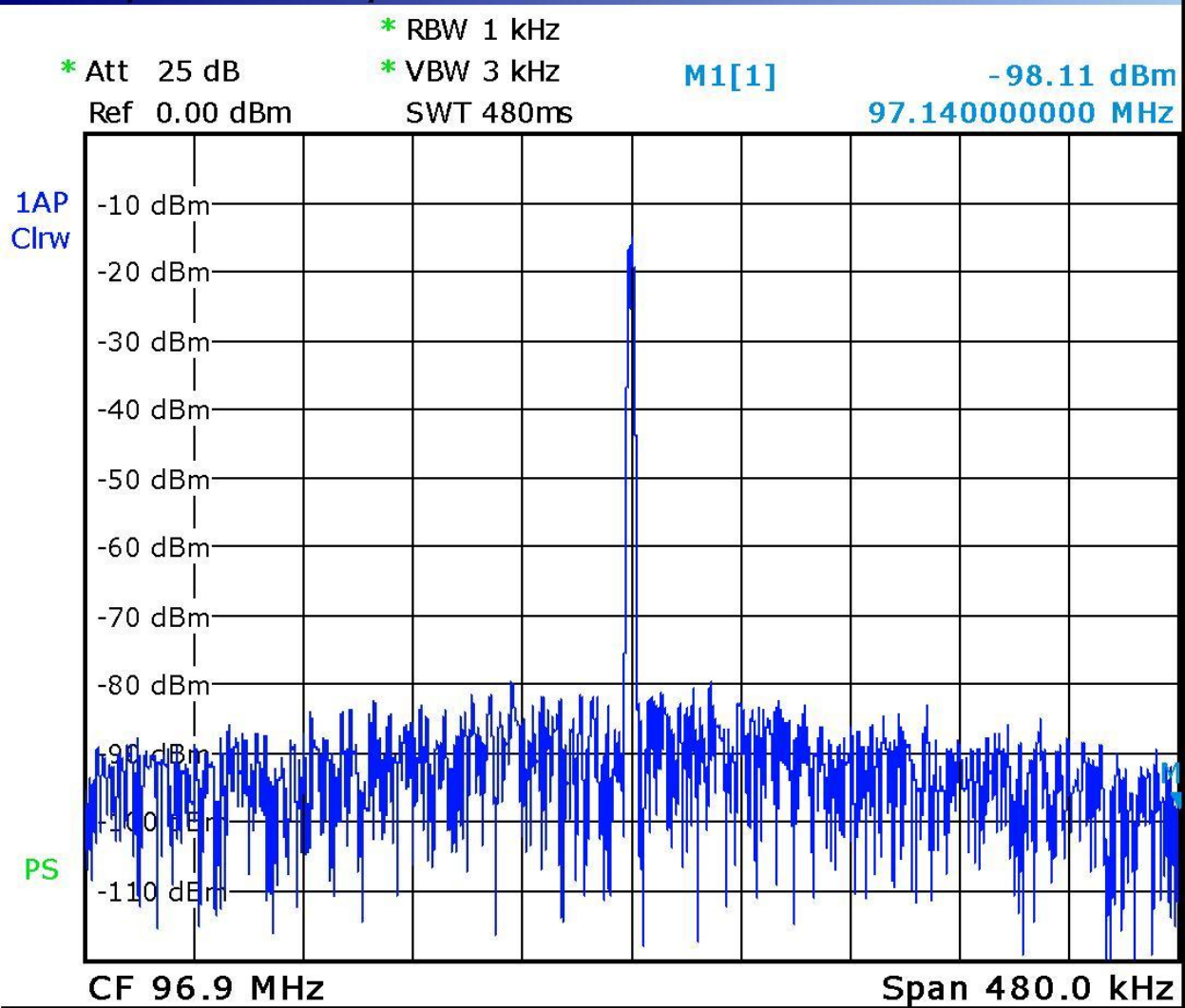
73.317 (b) Measurements.

All three stations easily exceed the requirements of 73.317 (b) (25 dB down between 120 and 240 kHz, inclusive). Please see following spectrum analyzer screen shots for each station:

R&S Spectrum Analyzer

* RBW 1 kHz
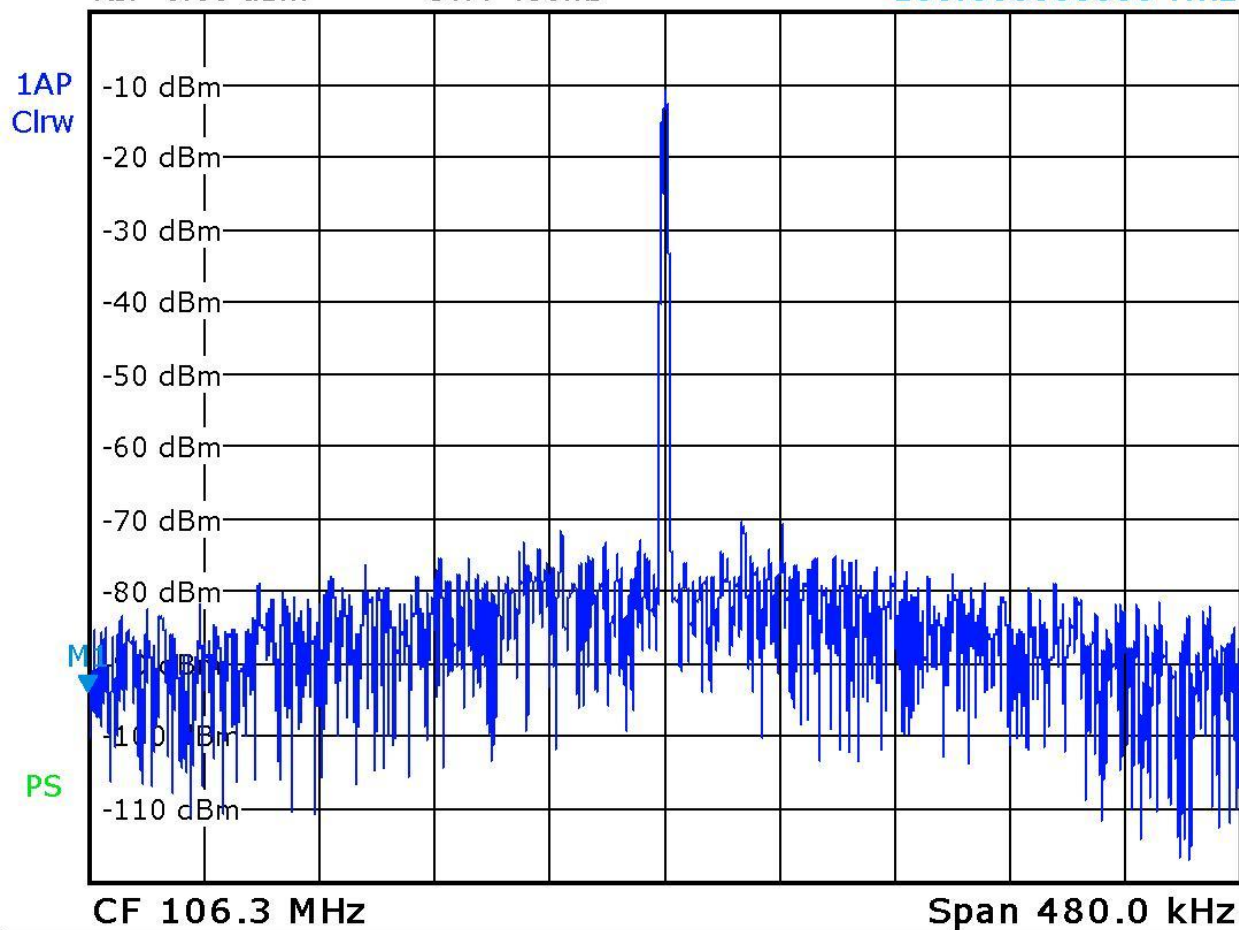* Att 25 dB   * VBW 3 kHz   M1[1]   -90.42 dBm
Ref 0.00 dBm   SWT 480ms   100.660000000 MHz

1AP
Clrw

-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm

M1

-100 dBm

PS

-110 dBm

CF 100.9 MHz   Span 480.0 kHz

Date: 13.FEB.2012 00:57:31

R&S Spectrum Analyzer

* RBW 1 kHz
* Att 25 dB
* VBW 3 kHz
Ref 0.00 dBm
SWT 480ms

M1[1]

-98.11 dBm
97.140000000 MHz

1AP
Clrw

-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
-110 dBm

PS

CF 96.9 MHz

Span 480.0 kHz

Date: 13.FEB.2012 00:58:22

R&S Spectrum Analyzer

* RBW 1 kHz
* Att 25 dB   * VBW 3 kHz   M1[1]   -93.89 dBm
  Ref 0.00 dBm   SWT 480ms   106.060000000 MHz

1AP
Clrw

-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-100 dBm
-110 dBm

PS

CF 106.3 MHz   Span 480.0 kHz
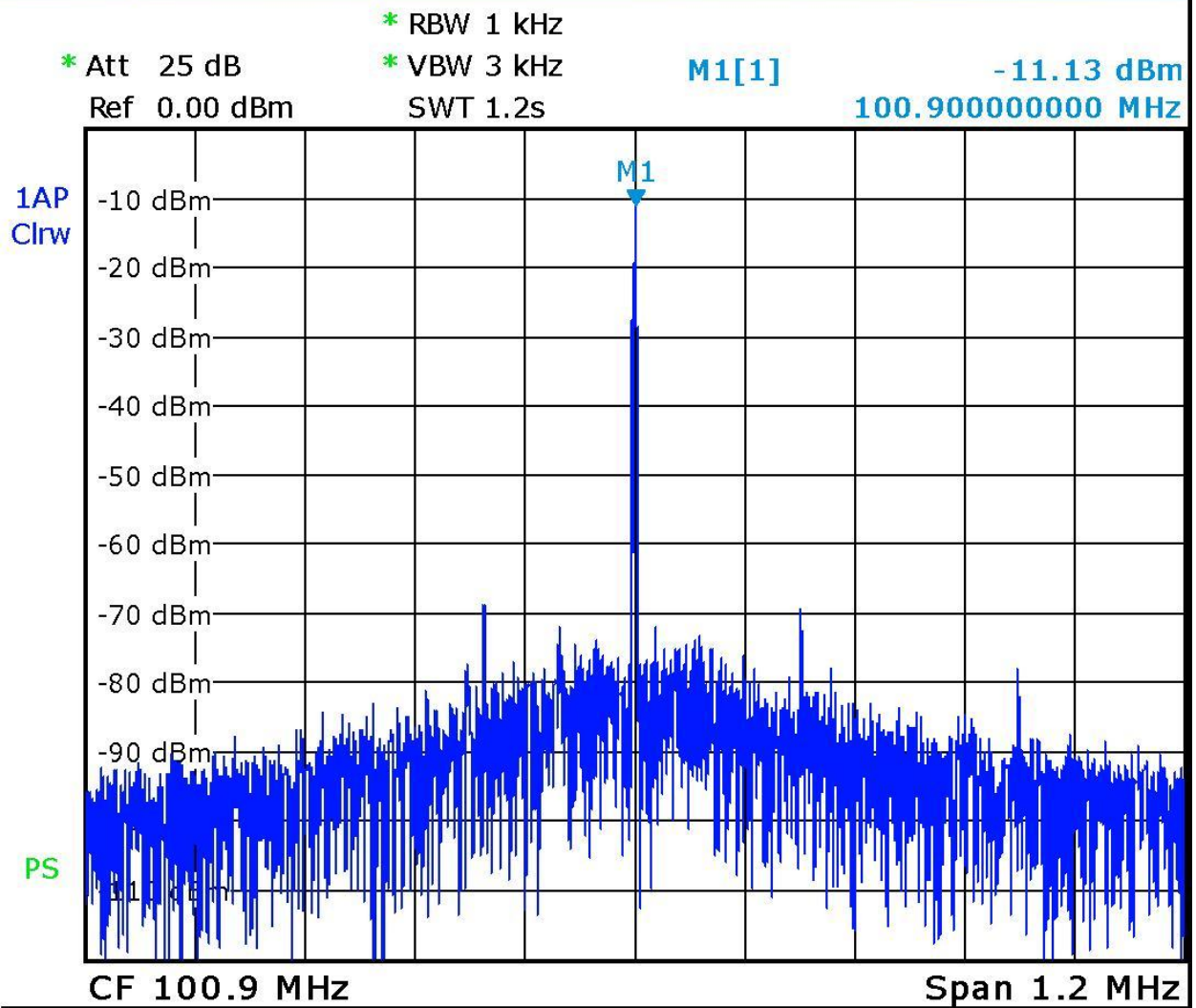
Date: 13.FEB.2012 00:57:57

<u>73.317 (c) Measurements.</u>

All stations also easily exceed the requirements of this section (35 dB down
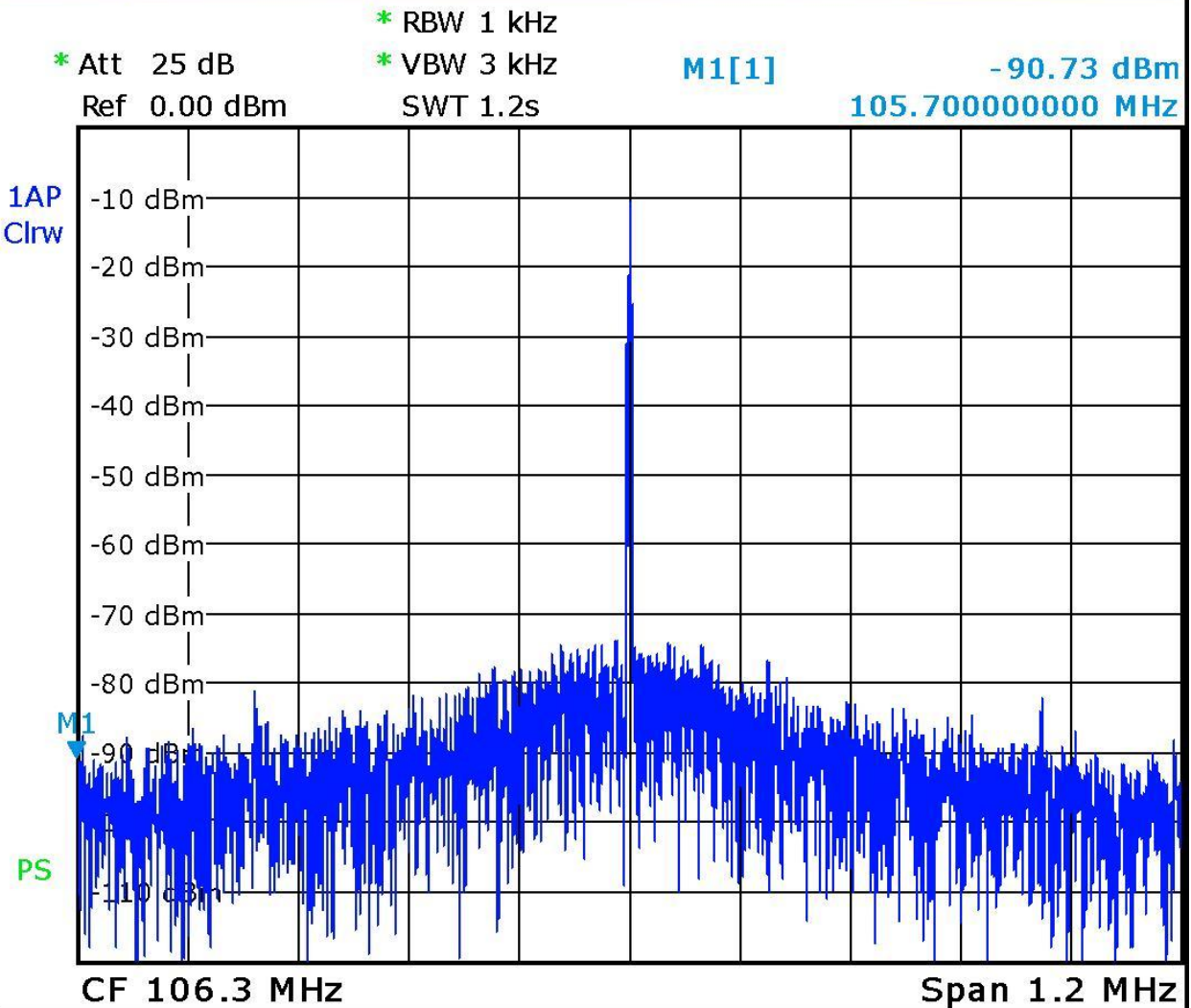between 240 and 600 kHz, inclusive). Please see following analyzer screen
shots:

Date: 13.FEB.2012 00:58:37

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R&S Spectrum Analyzer
                                * RBW 1 kHz
        * Att  25 dB            * VBW 3 kHz       M1[1]              -90.73 dBm
          Ref  0.00 dBm           SWT 1.2s                     105.700000000 MHz
```

1AP
Clrw

-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm

M1
-90 dBm

PS
-110 dBm

CF 106.3 MHz   Span 1.2 MHz
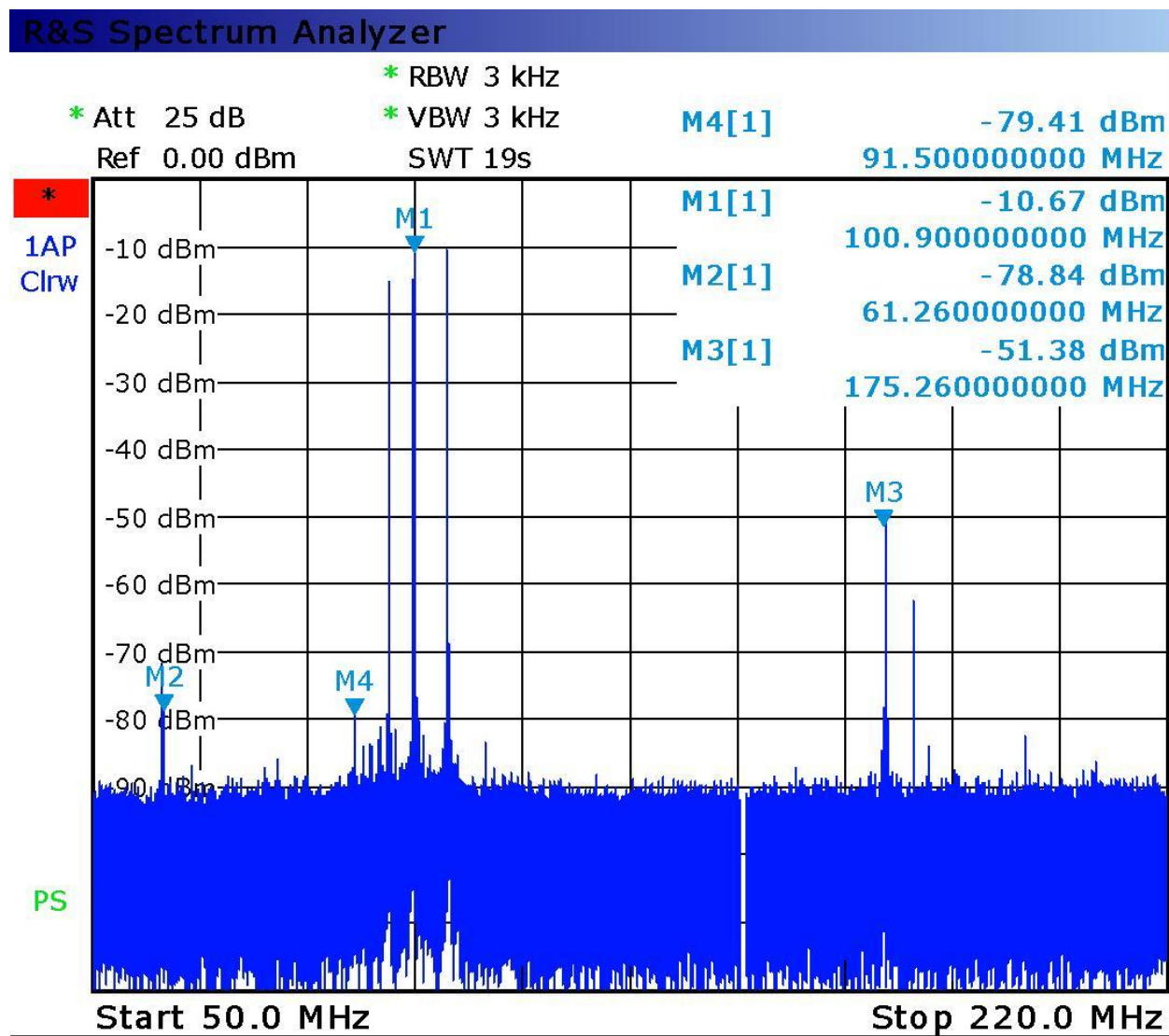
Date: 13.FEB.2012 01:00:12

73.317 (c) Measurements.

Considering the losses in the combiner system and the losses and gains in the antenna and transmission lines, the transmitter power output is 396 watts to achieve an ERP of 250 watts. This section of the Rules requires that spurious emissions be attenuated by 80 dB or at least 43+10log(TPO in watts) dB below carrier, whichever is less. 43+10log(396)= 69 dB. Therefore at a TPO of 396 watts, in this case spurious emissions must be attenuated at least 69 dB. With the sample coupler and analyzer attenuation utilized for the tests, the unmodulated carrier exhibits a level of about -11 dBm on the display. Therefore, any signal other than those of the three translator transmitters should not exceed -80 dBm on the display. Measurements show that the combiner and antenna system meets this requirement. However, when
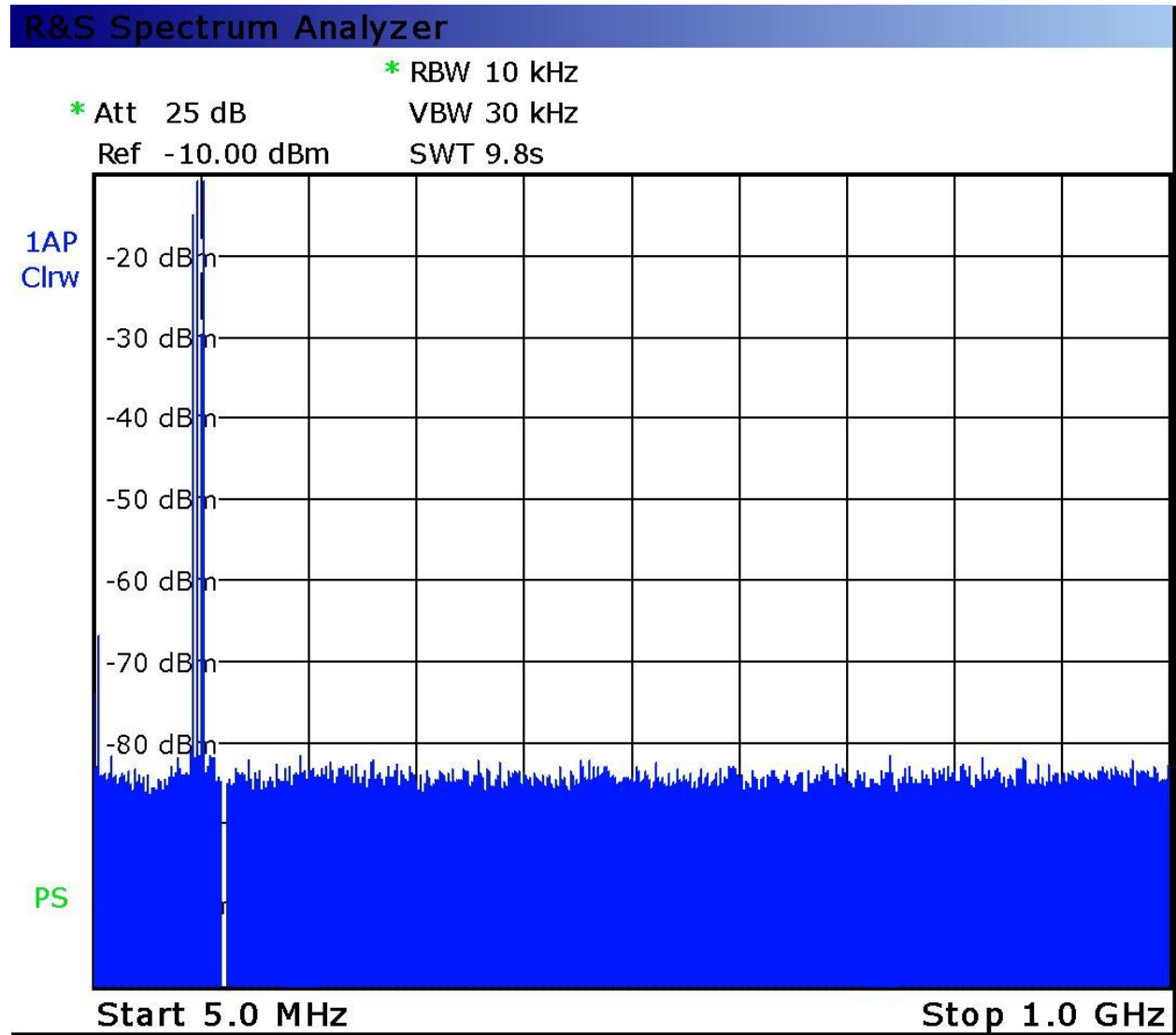
operating into the antenna some signals appear on the analyzer display above the required level. These signals are those of other broadcast stations operating from the same location or close by. The signals from these stations were entering the measurements through the subject station's antenna system. To confirm that the combiner and transmitter system was not causing these signals, the system was operated into a dummy load. The suspect signals were not present with the system operating into a load.

Here is a screen shot of the system operating into the antenna system. The signals appearing above the -80 dBm limit are 61.26 mHz belonging to WDVZ-CA TV channel 3 analog operating form the same tower (marker 2), 175.26 mHz from WVUA-CA TV channel 7 (and aural carrier) operating from the same tower (marker 3), 91.5 mHz belonging to nearby WUAL-FM(marker 4):
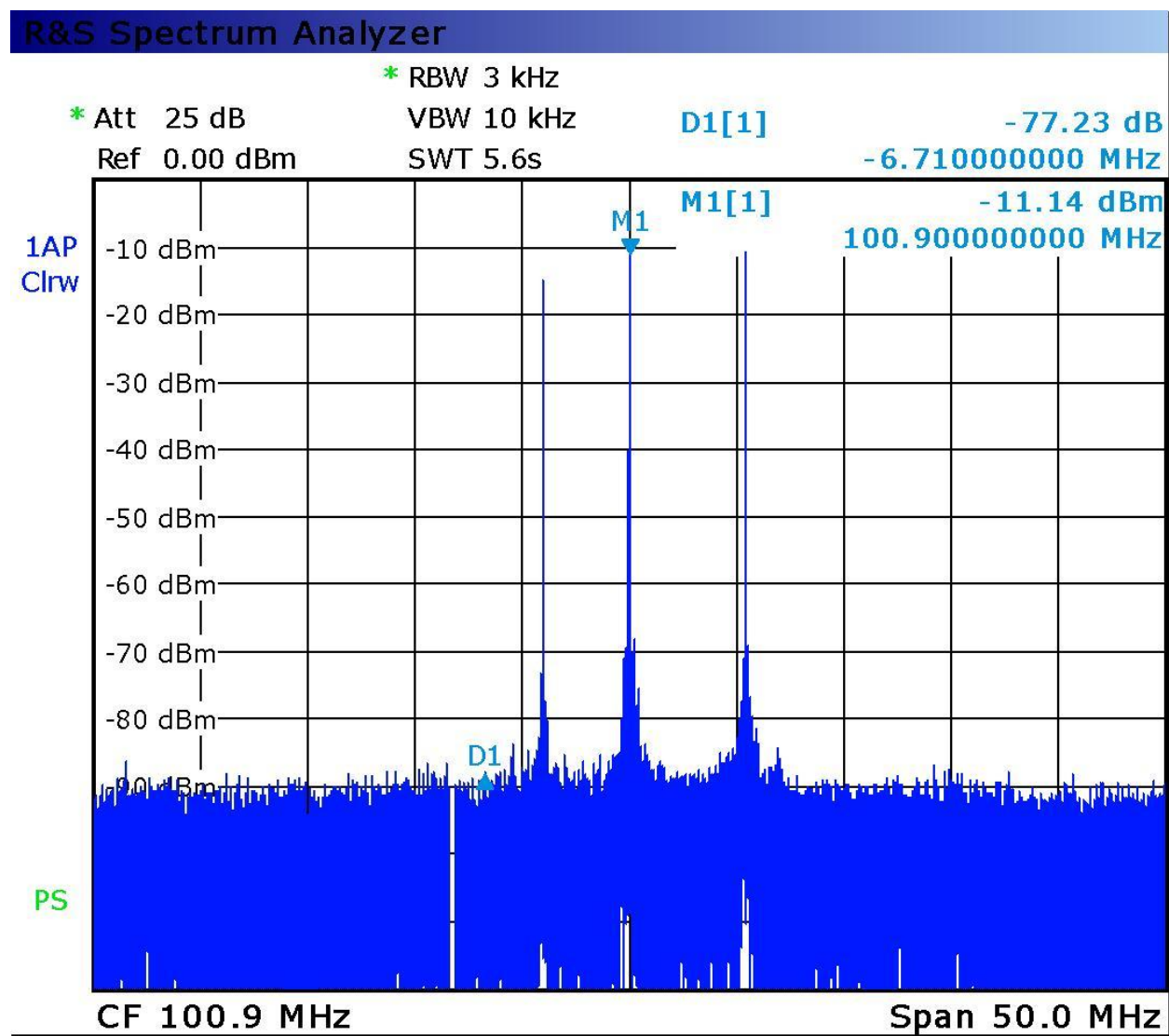

Date: 13.FEB.2012   01:12:55

Here is a screen shot with the system operating into a dummy load:

Date: 13.FEB.2012 00:03:35

Here is another screen shot operating into a load with a shorter span centered on the subject station:

Date: 13.FEB.2012 00:48:33