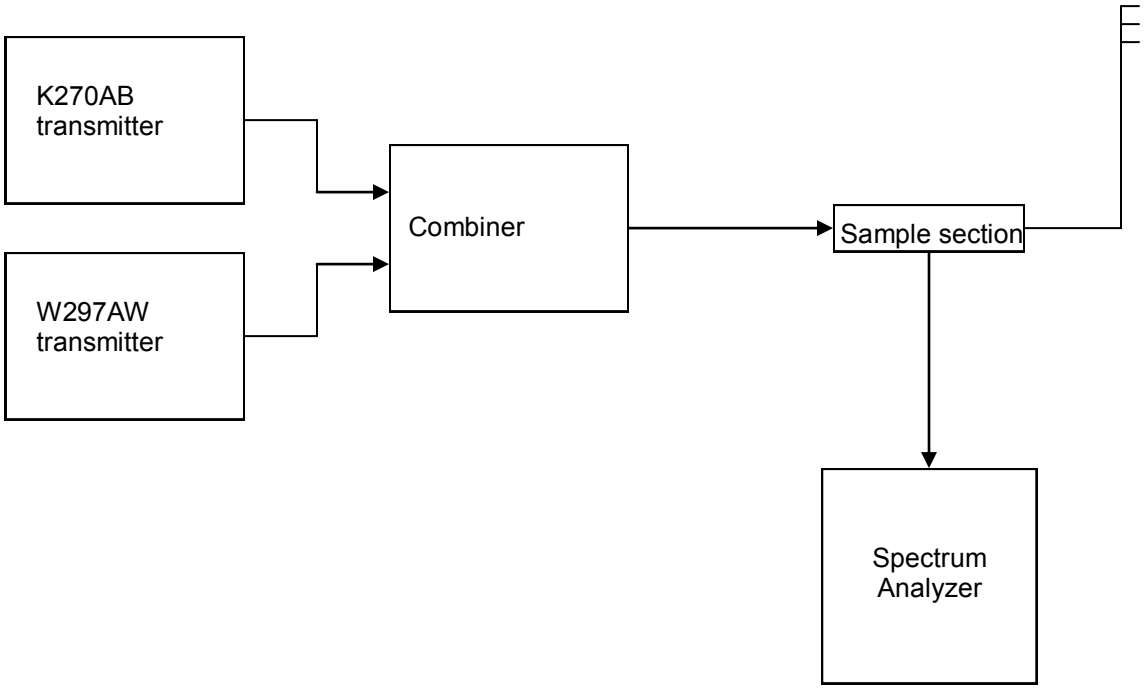
K270AB

Occupied Bandwidth and Spurious Emissions Measurements

February 13, 2013

On February 11 and 12 K270AB and W297AW were measured for compliance with section 73.317(b), (c), and (d) of the FCC rules. This report shows compliance with the requirements of the rules.

The measurements were conducted by placing a wattmeter sample section in the output of the transmitter combiner. The sample port on the sample section was connected to the spectrum analyzer.



The transmitter power of each translator was set to the level to give the effective radiated power of .235 kilowatts as specified in the construction permit for K270AB and the license for W297AW. The analyzer amplitude was then calibrated for the occupied bandwidth measurements. This was done by setting the bandwidth of the analyzer to 300 kHz and setting the resulting curve to the top of the display. The analyzer reference level was set to the relative amplitude of 0 dBm. This was done to permit easy interpretation of the resulting measurements.

The analyzer was then used to measure the occupied bandwidth. The measurements show that both translators meet the FCC rules in regards to occupied bandwidth.

After the bandwidth measurements were completed measurements were made of the spectrum from 50 MHz to 500 MHz. There were no emissions resulting from either or both of the translators above the –66.7 dB level required by the rules.

These measurements were conducted by Bill Dahlstrom and Randy Greenly, both of Minnesota Public Radio, under the supervision of Michael Hendrickson.

Respectfully submitted,

Michael Hendrickson
Radio Network Engineering Manager
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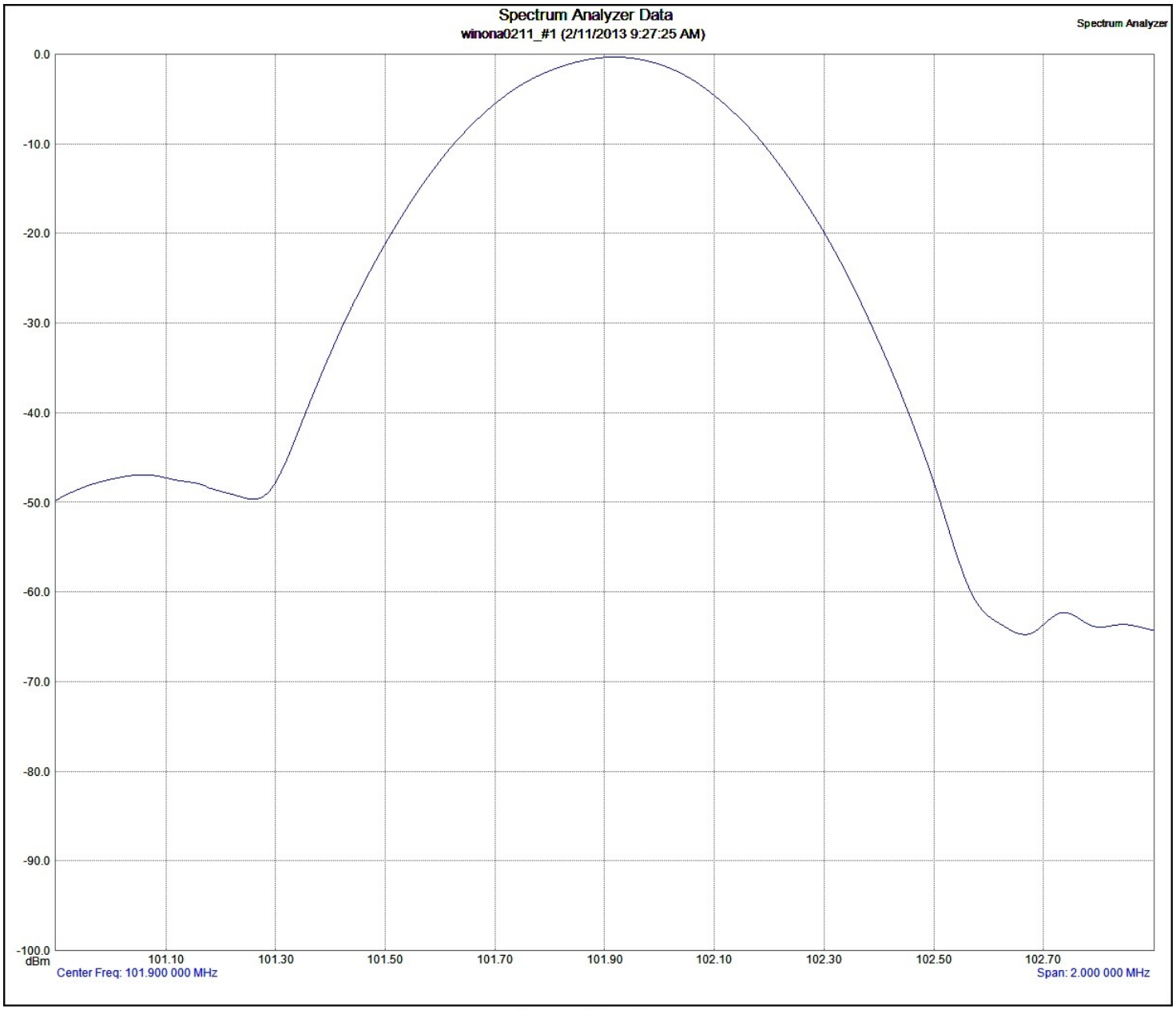
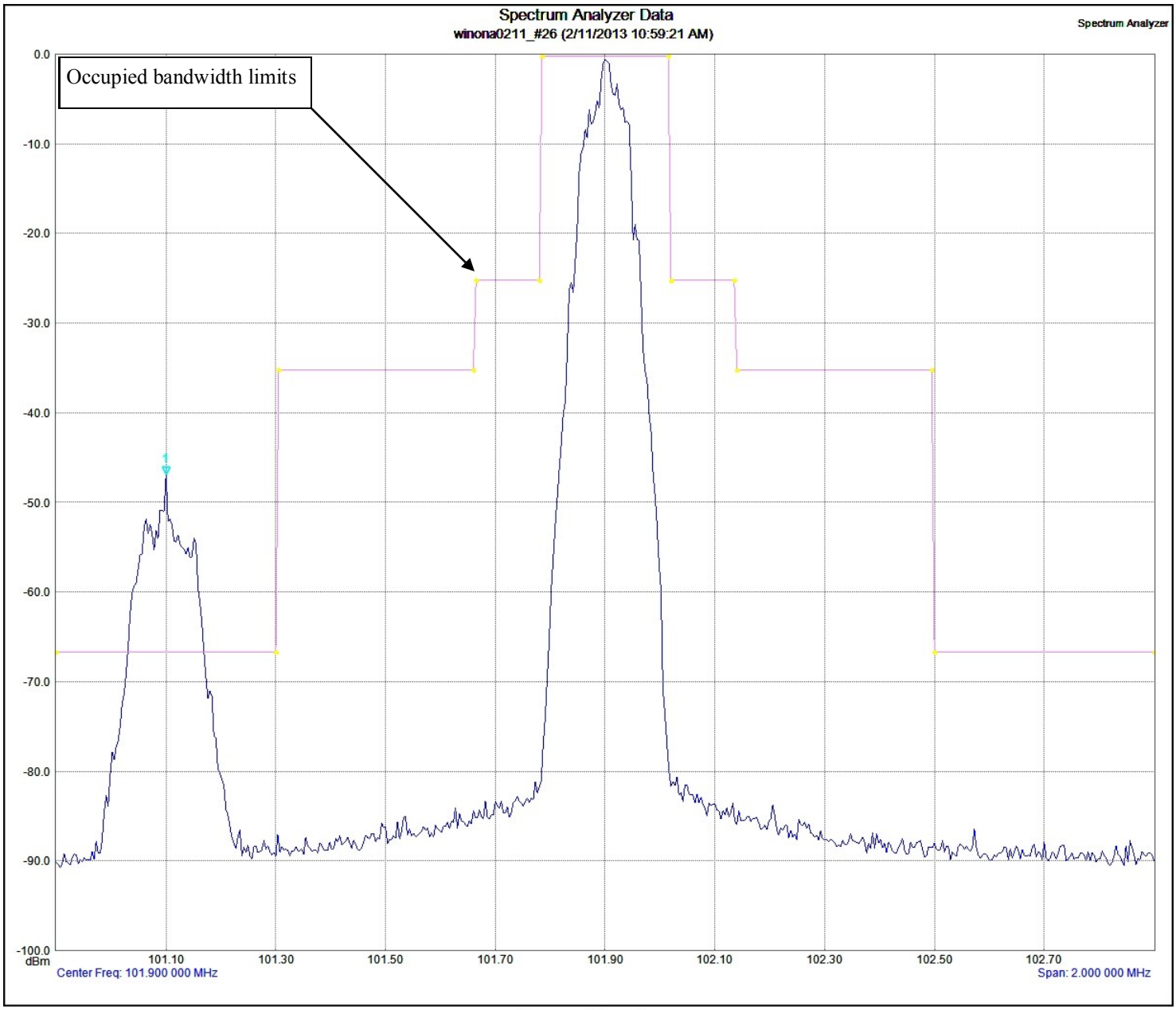


Measurement Parameters

		Stop Frequency	102.900 000 MHz
Trace Mode	Normal	Frequency Span	2.000 000 MHz
Preamp	OFF	Reference Level	-1.100 dBm
Min Sweep Time	0.5 S	Scale	10.0 dB/div
Reference Level Offset	-1.1 dB	Serial Number	817088
Input Attenuation	20.0 dB	Base Ver.	V4.32
RBW	300.0 kHz	App Ver.	V5.73
VBW	100.0 kHz	Model	MS2721B
Detection	Peak	Options	20, 31
Center Frequency	101.900 000 MHz	Date	2/11/2013 9:27:25 AM
Start Frequency	100.900 000 MHz	Device Name	

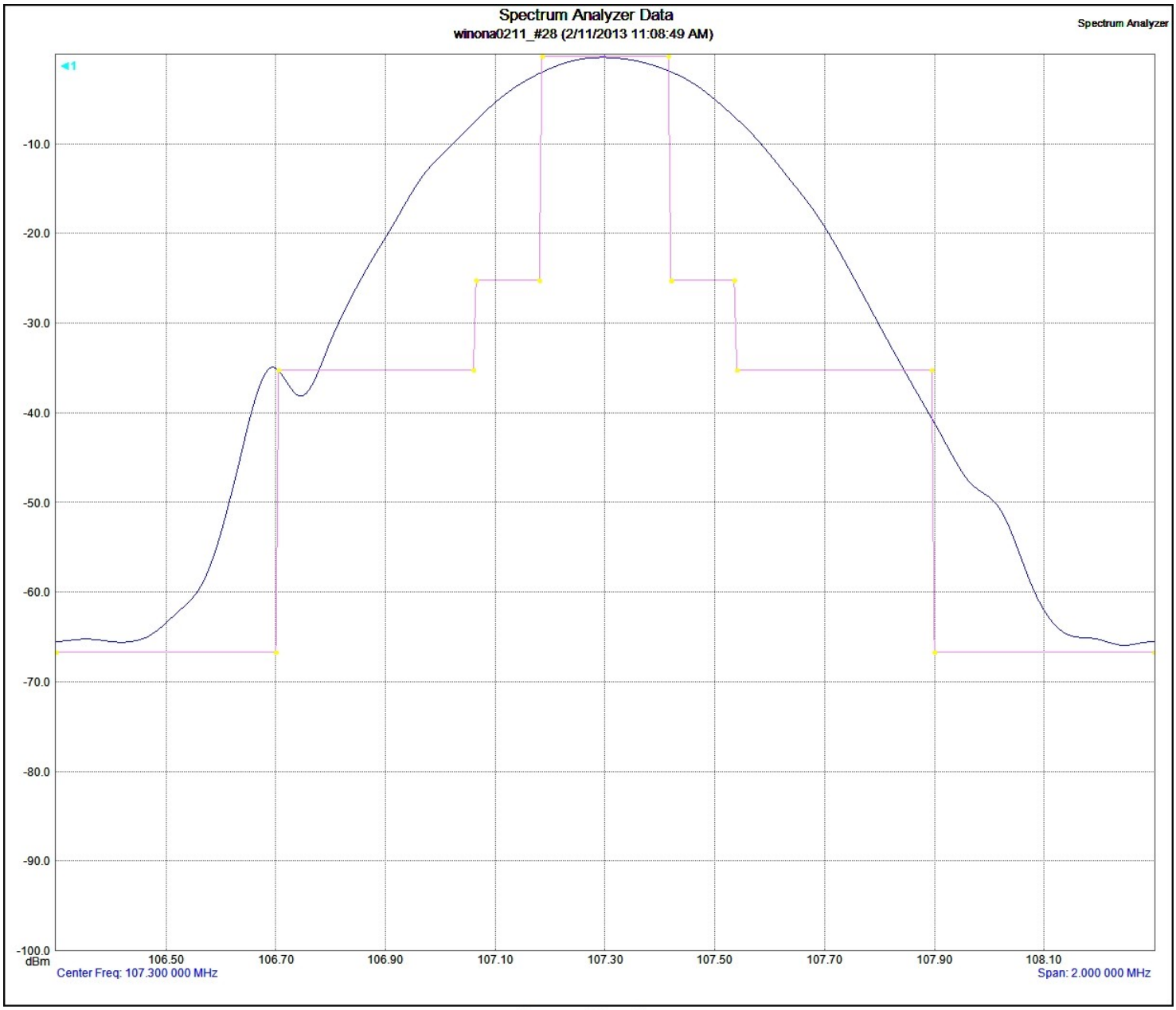
The above figure shows the calibration of the spectrum analyzer to permit the measurement of the occupied bandwidth of K270AB, 101.9 MHz. The analyzer was set to a wide resolution bandwidth of 300 kHz to capture all of the modulation energy.



Measurement Parameters

		Stop Frequency	102.900 000 MHz
Trace Mode	Max Hold	Frequency Span	2.000 000 MHz
Preamp	OFF	Reference Level	-1.100 dBm
Min Sweep Time	0.5 S	Scale	10.0 dB/div
Reference Level Offset	-1.1 dB	Serial Number	817088
Input Attenuation	10.0 dB	Base Ver.	V4.32
RBW	1.0 kHz	App Ver.	V5.73
VBW	300.0 Hz	Model	MS2721B
Detection	Peak	Options	20, 31
Center Frequency	101.900 000 MHz	Date	2/11/2013 10:59:21 AM
Start Frequency	100.900 000 MHz	Device Name	

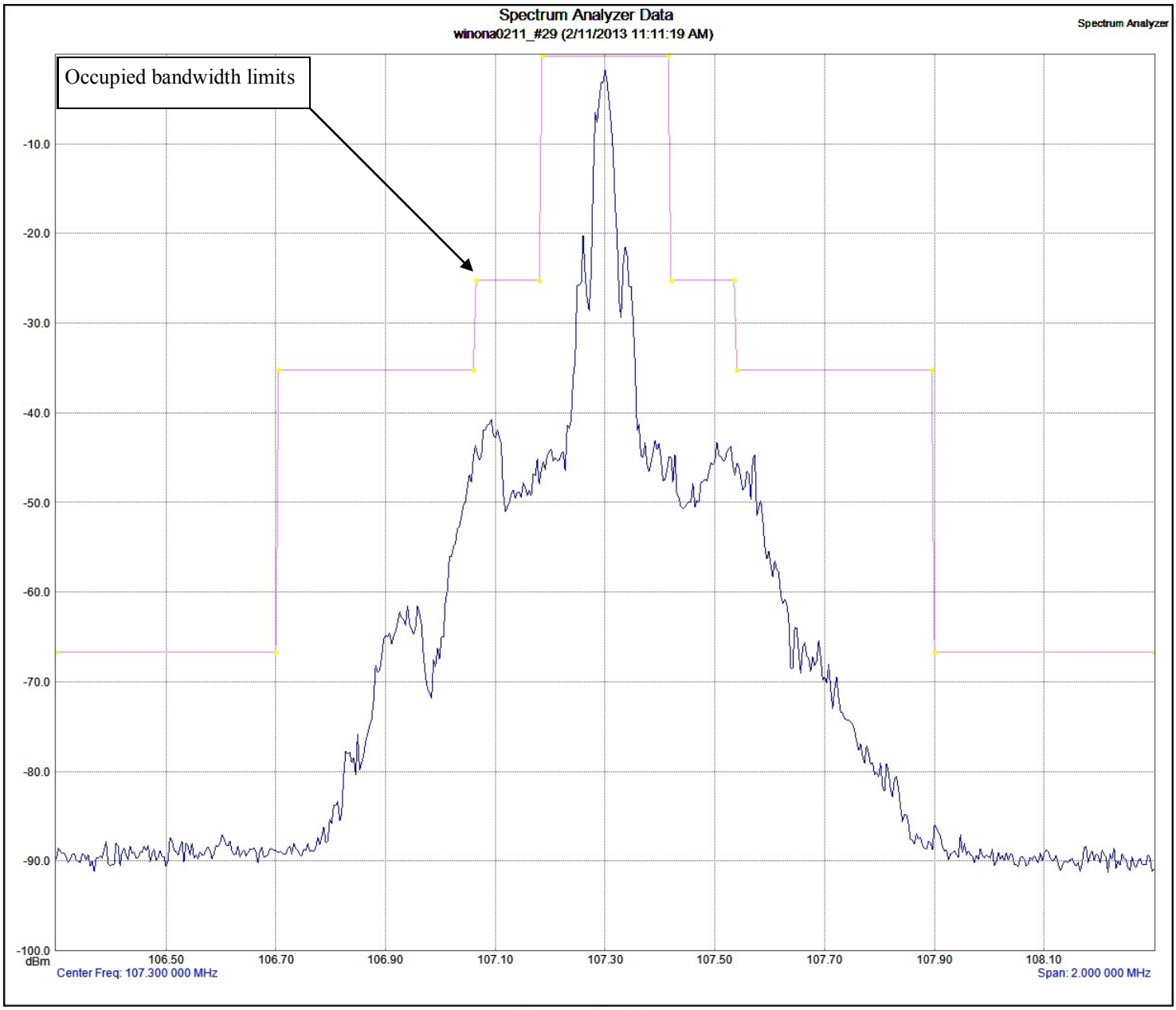
The above figure shows the occupied bandwidth of K270AB. The analyzer was set to a max hold. As can be seen from the above measurement K270AB meets the FCC rules in regards to occupied bandwidth.



Measurement Parameters

		Stop Frequency	108.300 000 MHz
Trace Mode	Normal	Frequency Span	2.000 000 MHz
Preamp	OFF	Reference Level	-1.400 dBm
Min Sweep Time	0.5 S	Scale	10.0 dB/div
Reference Level Offset	-1.4 dB	Serial Number	817088
Input Attenuation	10.0 dB	Base Ver.	V4.32
RBW	300.0 kHz	App Ver.	V5.73
VBW	100.0 kHz	Model	MS2721B
Detection	Peak	Options	20, 31
Center Frequency	107.300 000 MHz	Date	2/11/2013 11:08:49 AM
Start Frequency	106.300 000 MHz	Device Name	

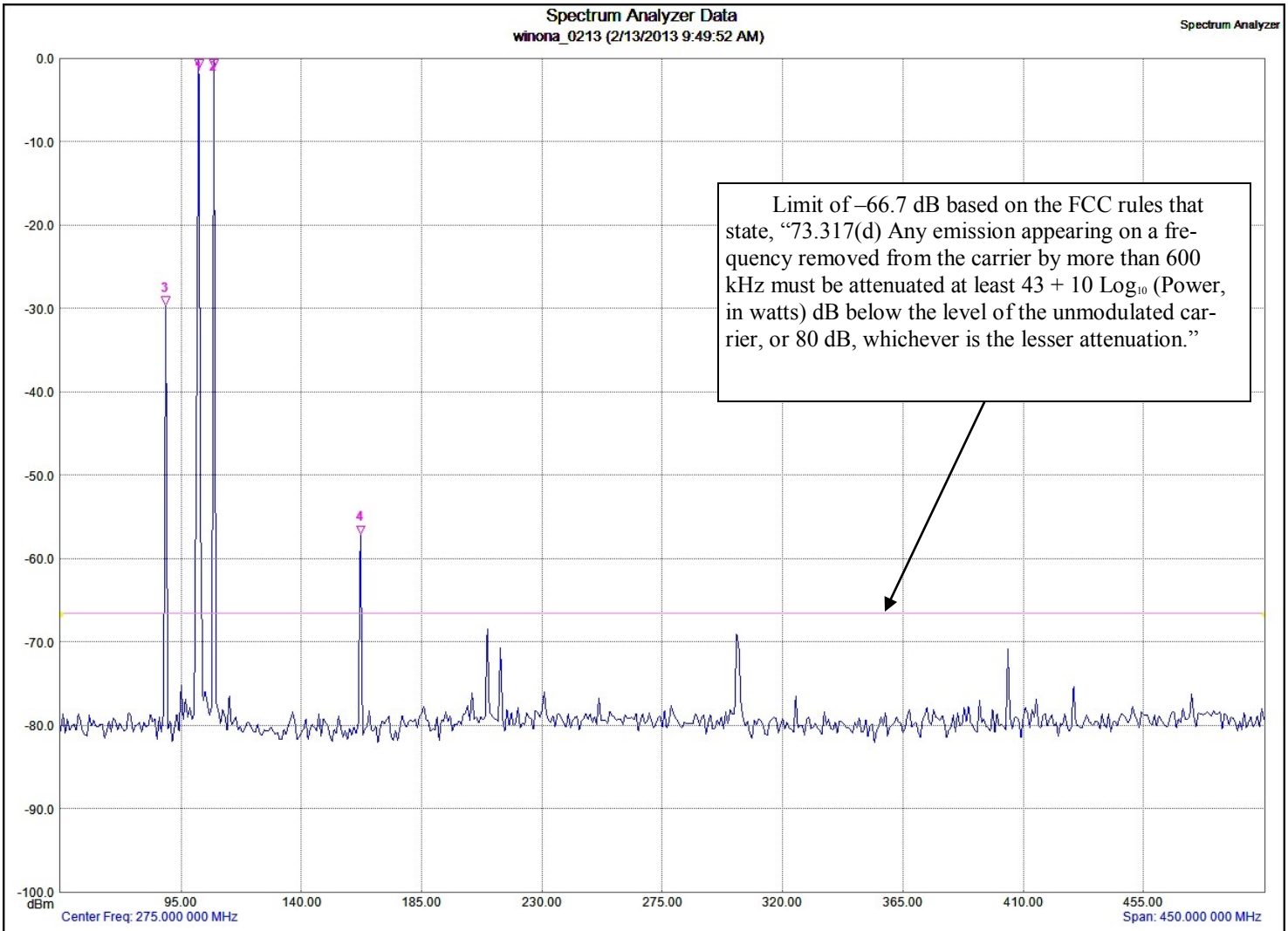
The above figure shows the calibration of the spectrum analyzer to permit the measurement of the occupied bandwidth of W297AW, 107.3 MHz. The analyzer was set to a wide resolution bandwidth of 300 kHz to capture all of the modulation energy.



Measurement Parameters

		Stop Frequency	108.300 000 MHz
Trace Mode	Max Hold	Frequency Span	2.000 000 MHz
Preamp	OFF	Reference Level	-1.400 dBm
Min Sweep Time	0.5 S	Scale	10.0 dB/div
Reference Level Offset	-1.4 dB	Serial Number	817088
Input Attenuation	10.0 dB	Base Ver.	V4.32
RBW	1.0 kHz	App Ver.	V5.73
VBW	300.0 Hz	Model	MS2721B
Detection	Peak	Options	20, 31
Center Frequency	107.300 000 MHz	Date	2/11/2013 11:11:19 AM
Start Frequency	106.300 000 MHz	Device Name	

The above figure shows the occupied bandwidth of W297AW. The analyzer was set to a max hold. As can be seen from the above measurement W297AW meets the FCC rules in regards to occupied bandwidth.



Mkr	Ref	Delta	Ref Freq	Ref Amp	Delta Freq	Delta Amp
1	☐	☐	101.900 0 MHz	-0.08 dBm	--	--
2	☐	☐	107.300 0 MHz	0.25 dBm	--	--
3	☐	☐	89.300 0 MHz	-29.61 dBm	--	--
4	☐	☐	162.400 0 MHz	-57.05 dBm	--	--
5	☐	☐	--	--	--	--
6	☐	☐	--	--	--	--

Measurement Parameters

		Stop Frequency	500.000 000 MHz
Trace Mode	Normal	Frequency Span	450.000 000 MHz
Preamp	OFF	Reference Level	-23.600 dBm
Min Sweep Time	0.5 S	Scale	10.0 dB/div
Reference Level Offset	-23.6 dB	Serial Number	817088
Input Attenuation	0.0 dB	Base Ver.	V4.32
RBW	10.0 kHz	App Ver.	V5.73
VBW	3.0 kHz	Model	MS2721B
Detection	Peak	Options	20, 31
Center Frequency	275.000 000 MHz	Date	2/13/2013 9:49:52 AM
Start Frequency	50.000 000 MHz	Device Name	

The above figure is a measurement of the spectrum from 50 MHz to 500 MHz. Marker #1 is K270AB, marker #2 is W297AW, and marker #3 is another radio station on site at a frequency of 89.3. Marker #4 is the national weather service radio transmitter located at the same site. Masked by K270AB is another radio station on 101.1 MHz. As can be seen by the figure all other emissions on the display are below the limit of –66.7 dB compared to the reference carriers.