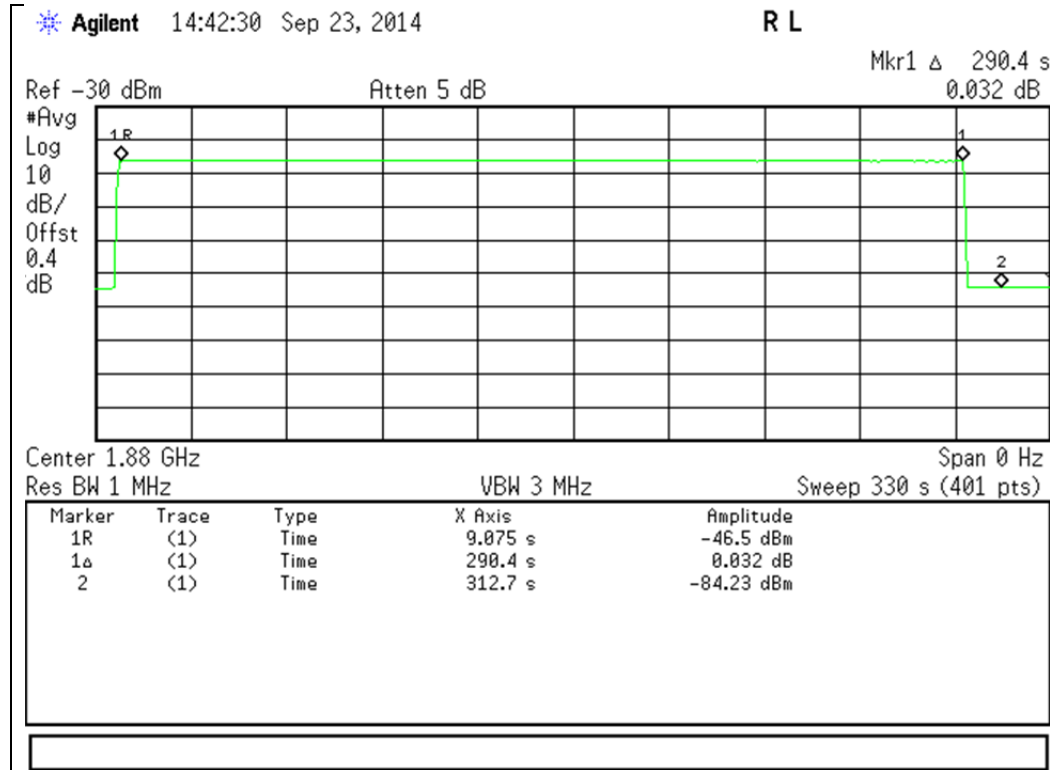




1850 – 1910 MHz





Variable Gain

Name of Test: Variable Gain
Test Equipment Utilized: i00379, i00405, i00412

Engineer: Mike Graffeo
Test Date: 9/16/14

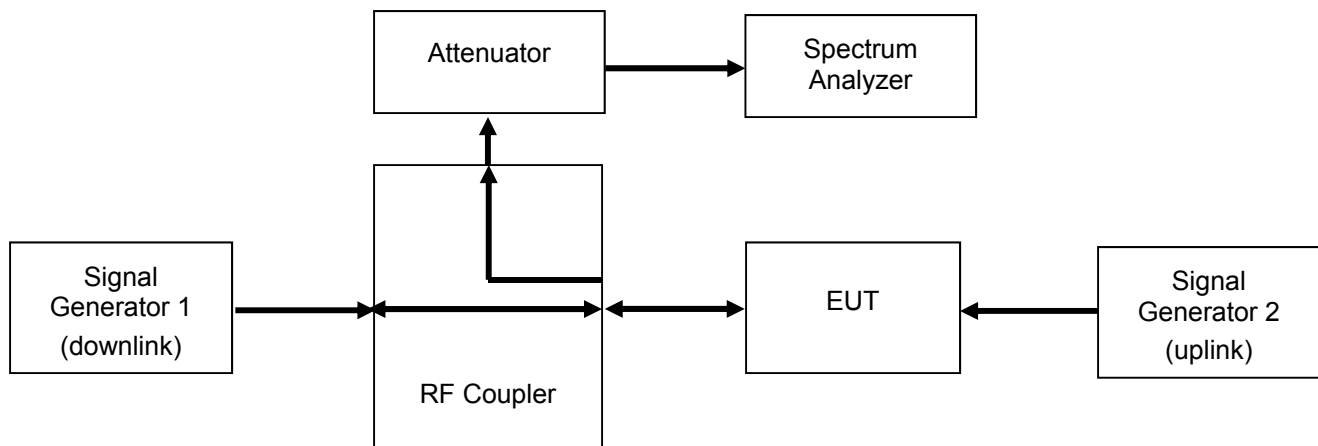
Test Procedure

The EUT was connected to a spectrum analyzer through an attenuator with the losses being input into the spectrum analyzer as a combination of reference level offset and correction factor in order to ensure accurate readings were obtained. The uplink gain in the presence of a downlink signal was measured for each operational uplink band using the detailed procedures from KDB 935210 D03 Wideband Consumer Signal Booster Measurement Guidance DR04-41516.

The following formula is used for calculating the limits:

$$\text{Variable Gain} = -34 \text{ dB} - \text{RSSI} + \text{MSCL}$$

Test Setup





Uplink Test Results

704 - 716 MHz

RSSI (dBm)	MSCL (dB)	Gain Limit (dB)	P(in) (dBm)	P(out) (dBm)	Gain (dB)	Margin (dB)
-57	36.2	59.2	-41.1	6.2	47.3	-11.9
-56	36.2	58.2	-41.1	5.2	46.3	-11.9
-66	36.2	63.5	-41.1	15.2	56.3	-7.2
-69	36.2	63.5	-41.1	16.2	57.3	-6.2
-68	36.2	63.5	-41.1	16.2	57.3	-6.2
-67	36.2	63.5	-41.1	16.2	57.3	-6.2

776 - 787 MHz

RSSI (dBm)	MSCL (dB)	Gain Limit (dB)	P(in) (dBm)	P(out) (dBm)	Gain (dB)	Margin (dB)
-62	37.1	65.1	-41.0	17.2	58.2	-6.9
-61	37.1	64.1	-41.0	17.2	58.2	-5.9
-64	37.1	64.0	-41.0	17.2	58.2	-5.8
-63	37.1	64.0	-41.0	17.2	58.2	-5.8
-52	37.1	55.1	-41.0	9.2	50.2	-4.9
-52	37.1	54.1	-41.0	8.2	49.2	-4.9

824 - 849 MHz

RSSI (dBm)	MSCL (dB)	Gain Limit (dB)	P(in) (dBm)	P(out) (dBm)	Gain (dB)	Margin (dB)
-69.0	37.6	65.0	-39.7	14.6	54.3	-10.7
-68.0	37.6	65.0	-39.7	14.6	54.3	-10.7
-67.0	37.6	65.0	-39.7	14.6	54.3	-10.7
-66.0	37.6	65.0	-39.7	14.6	54.3	-10.7
-58	37.6	61.6	-39.7	13.8	53.5	-8.1
-57	37.6	60.6	-39.7	12.8	52.5	-8.1

1710 - 1755 MHz

RSSI (dBm)	MSCL (dB)	Gain Limit (dB)	P(in) (dBm)	P(out) (dBm)	Gain (dB)	Margin (dB)
-59	43.0	68.0	-41.9	11.5	53.4	-14.6
-58	43.0	67.0	-41.9	10.5	52.4	-14.6
-71	43.0	71.0	-41.9	16.5	58.4	-12.6
-70	43.0	71.0	-41.9	16.5	58.4	-12.6
-69	43.0	71.0	-41.9	16.5	58.4	-12.6
-68	43.0	71.0	-41.9	16.5	58.4	-12.6

1850 - 1910 MHz

RSSI (dBm)	MSCL (dB)	Gain Limit (dB)	P(in) (dBm)	P(out) (dBm)	Gain (dB)	Margin (dB)
-58	43.7	67.7	-44.7	4.2	48.9	-18.8
-57	43.7	66.7	-44.7	3.2	47.9	-18.8
-75	43.7	72.0	-44.7	14.6	59.3	-12.7
-74	43.7	72.0	-44.7	14.6	59.3	-12.7
-73	43.7	72.0	-44.7	14.6	59.3	-12.7
-72	43.7	72.0	-44.7	14.6	59.3	-12.7



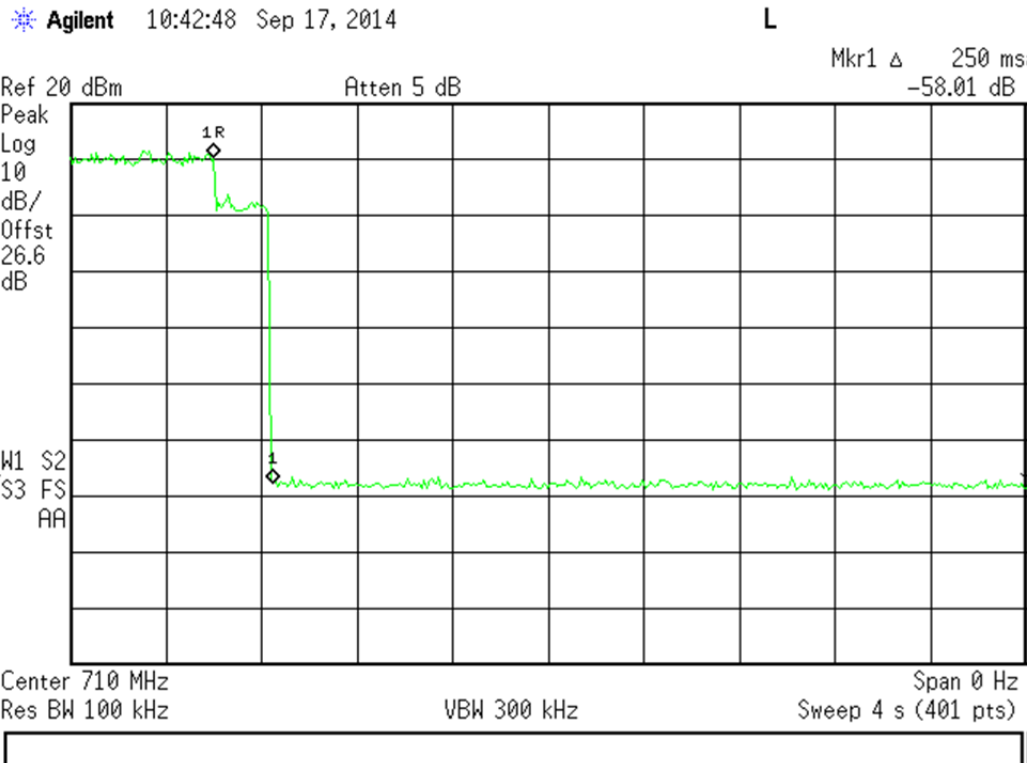
Uplink Gain Timing Test Results

Frequency Band (MHz)	Measured Timing (mS)	Limit (mS)	Result
704 - 716	250.00	3000	Pass
776 - 787	250.00	3000	Pass
824 - 849	270.00	3000	Pass
1710 - 1755	250.00	3000	Pass
1850 – 1910	230.00	3000	Pass

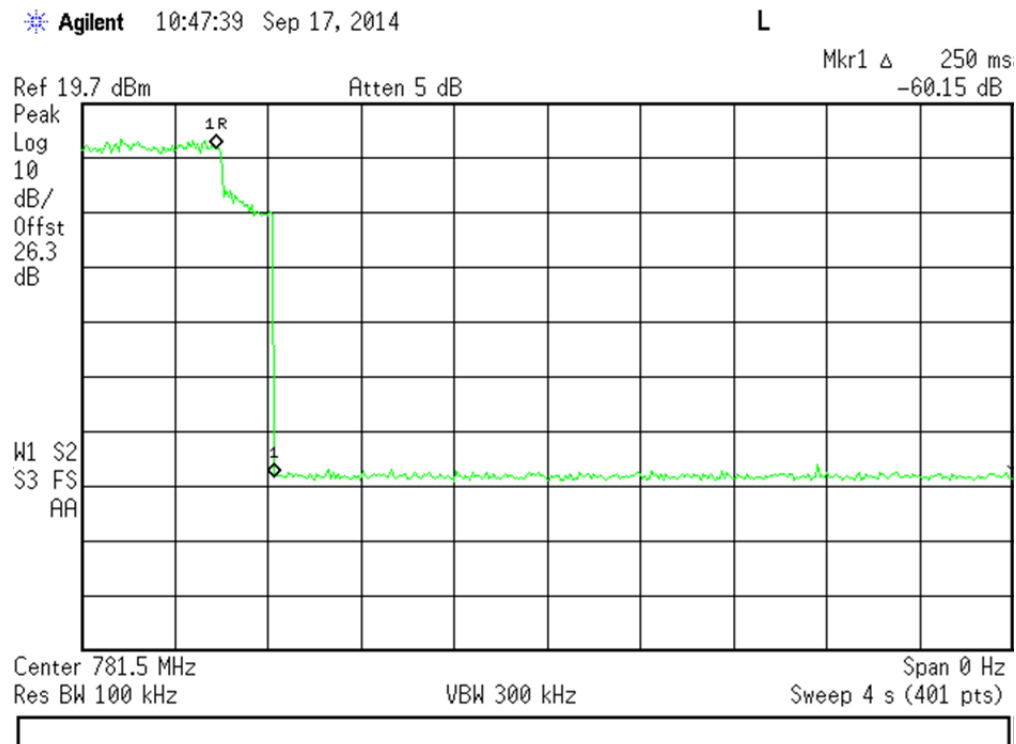


Uplink Variable Gain Test Plots

704 - 716 MHz Uplink Variable Gain Test Plot



776 - 787 MHz Uplink Variable Gain Test Plot

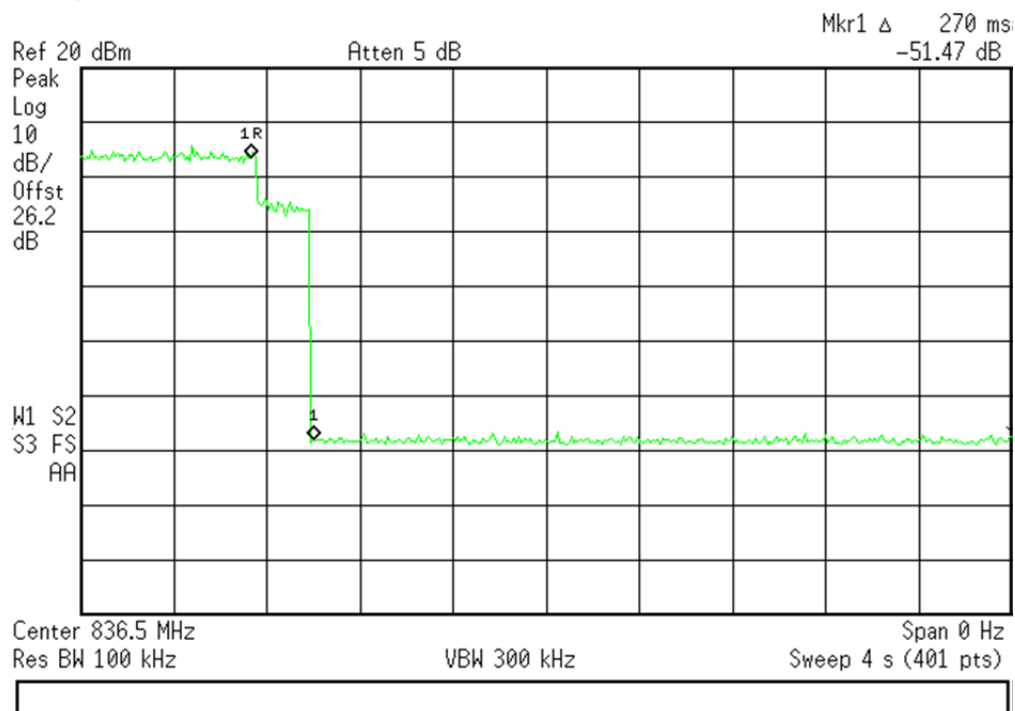




824 - 849 MHz Uplink Variable Gain Test Plot

Agilent 10:50:33 Sep 17, 2014

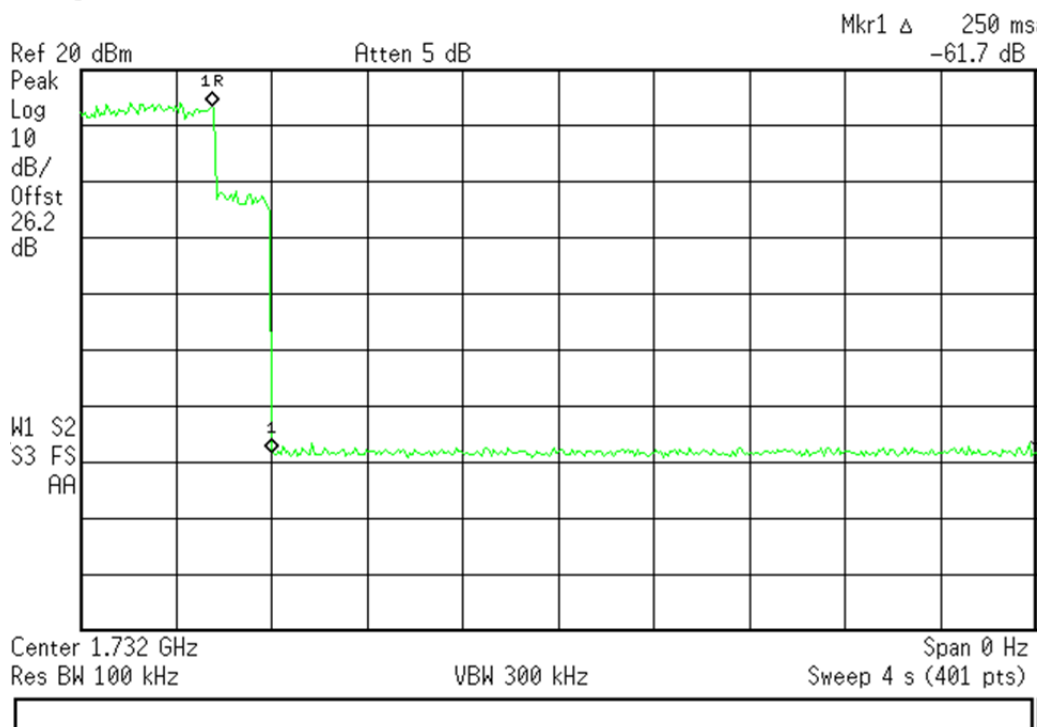
L



1710 - 1755 MHz Uplink Variable Gain Test Plot

Agilent 10:52:51 Sep 17, 2014

L



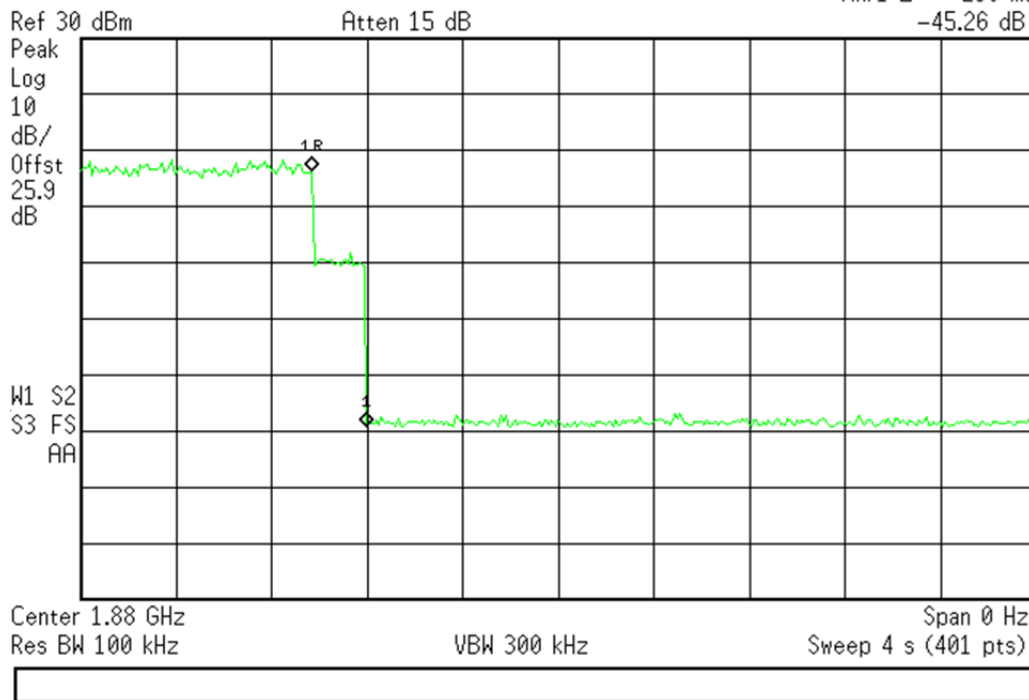


1850 – 1910 MHz Uplink Variable Gain Test Plot

Agilent 10:56:22 Sep 17, 2014

L

Mkr1 Δ 230 ms
-45.26 dB





Occupied Bandwidth

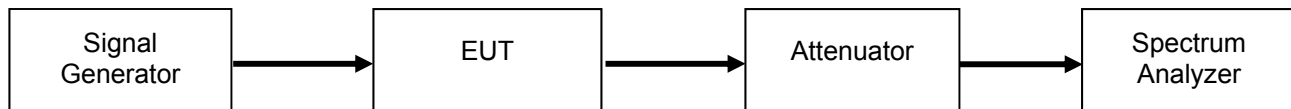
Name of Test: Occupied Bandwidth
Test Equipment Utilized: i00379, i00405

Engineer: Mike Graffeo
Test Date: 9/18/14

Test Procedure

The EUT was connected to a spectrum analyzer through an attenuator with the losses being input into the spectrum analyzer as a combination of reference level offset and correction factor as required to ensure that accurate readings were obtained. A signal generator was utilized to produce the following signals: GSM, CDMA, and WCDMA. The signal generator was tuned to the center channel of each of the EUT operational uplink and downlink bands with the RF level set at a point just prior to the AGC being in control of the power. For each modulation type, the input and output signal was measured and plotted to ensure that the signals were similar.

Test Setup

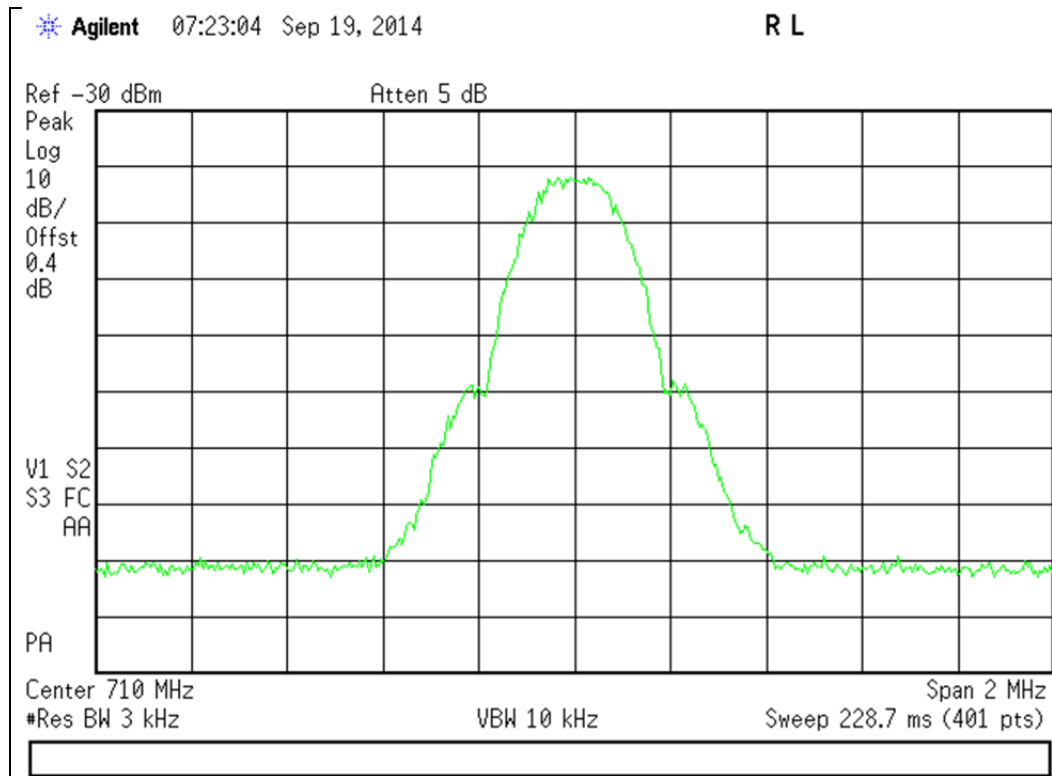




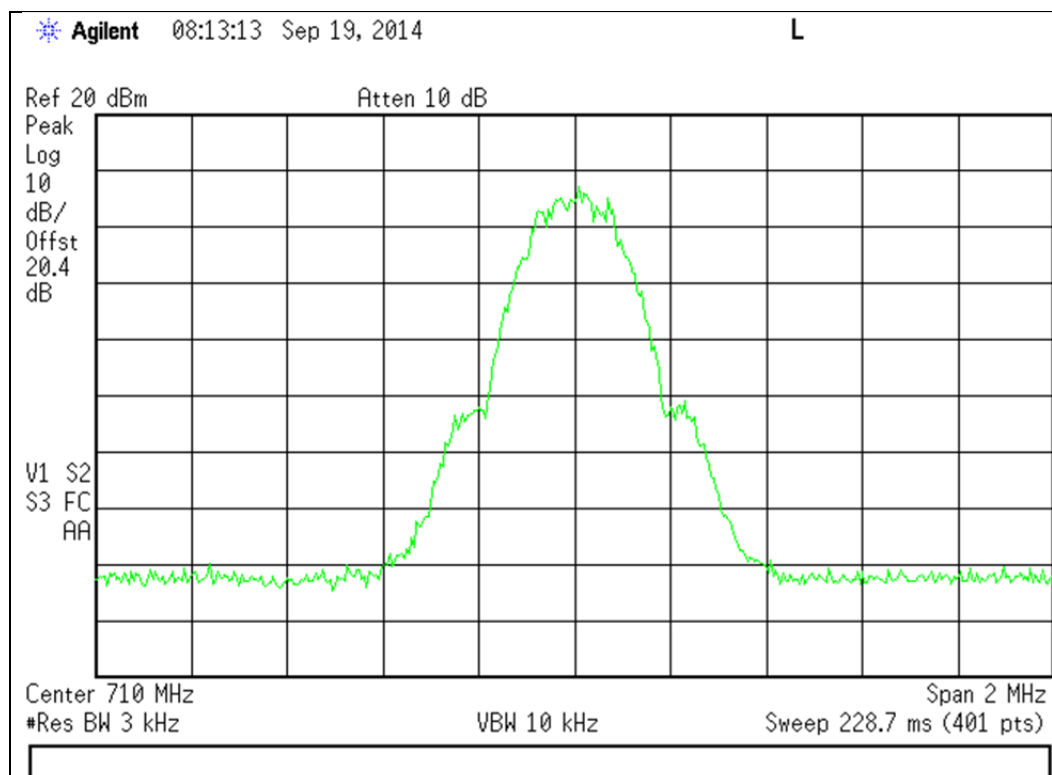
GSM Uplink Test Plots

704 - 716 MHz Band

Input



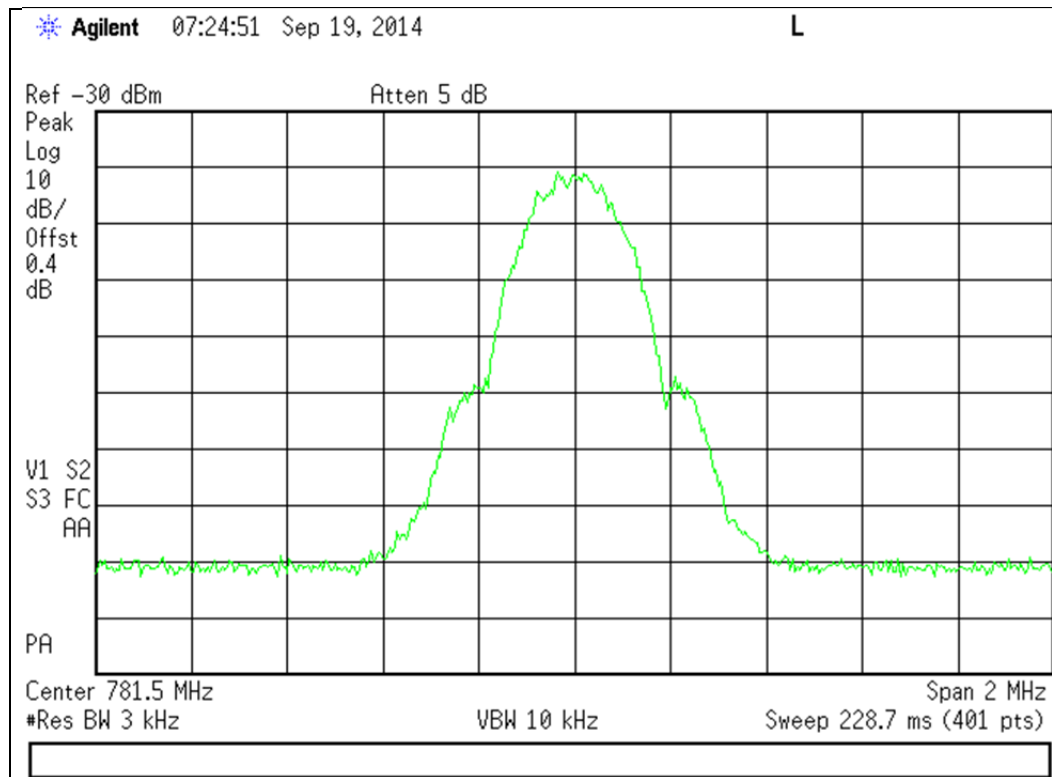
Output



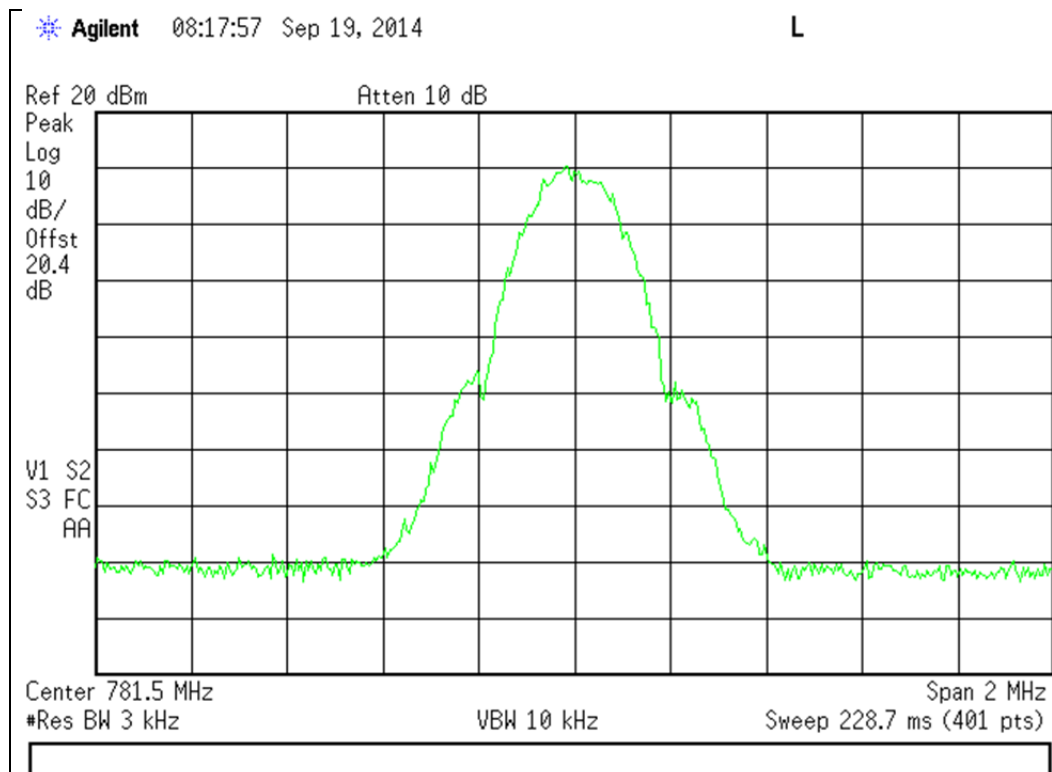


776 - 787 MHz Band

Input



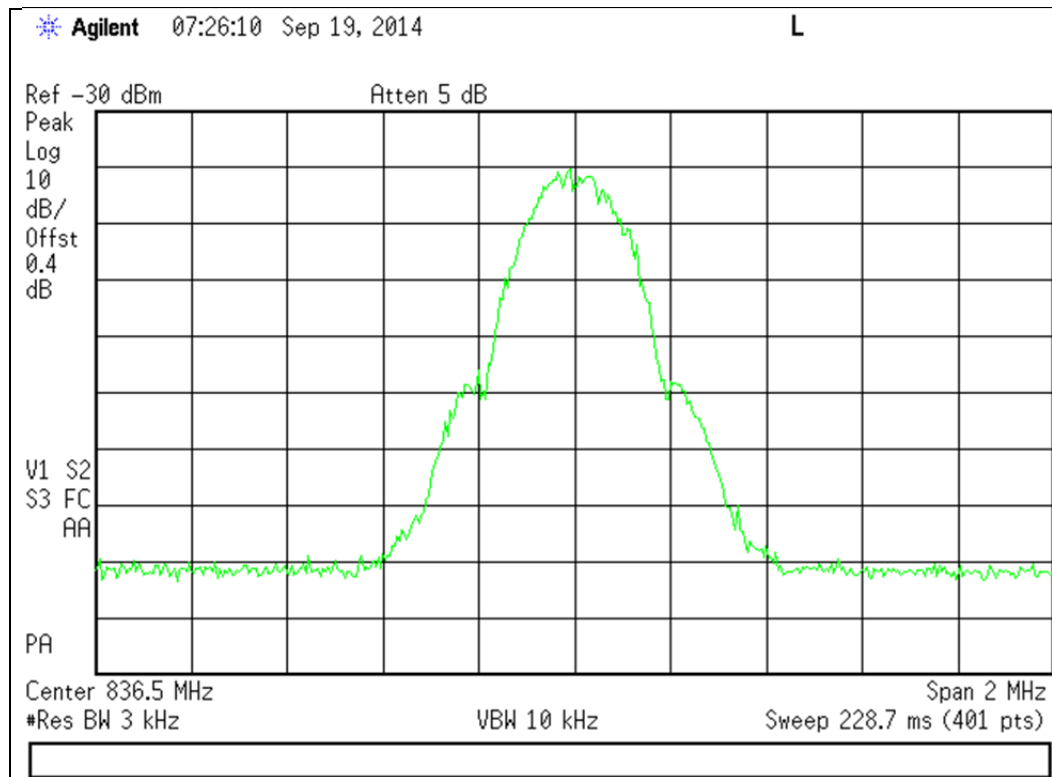
Output



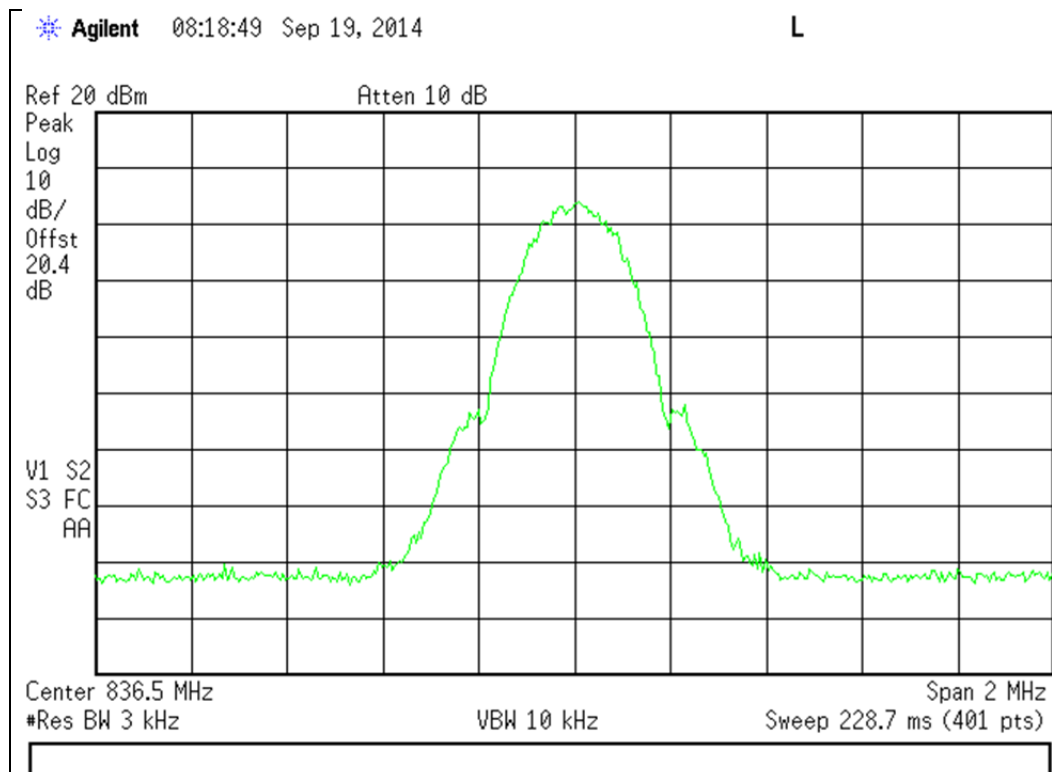


824 - 849 MHz Band

Input



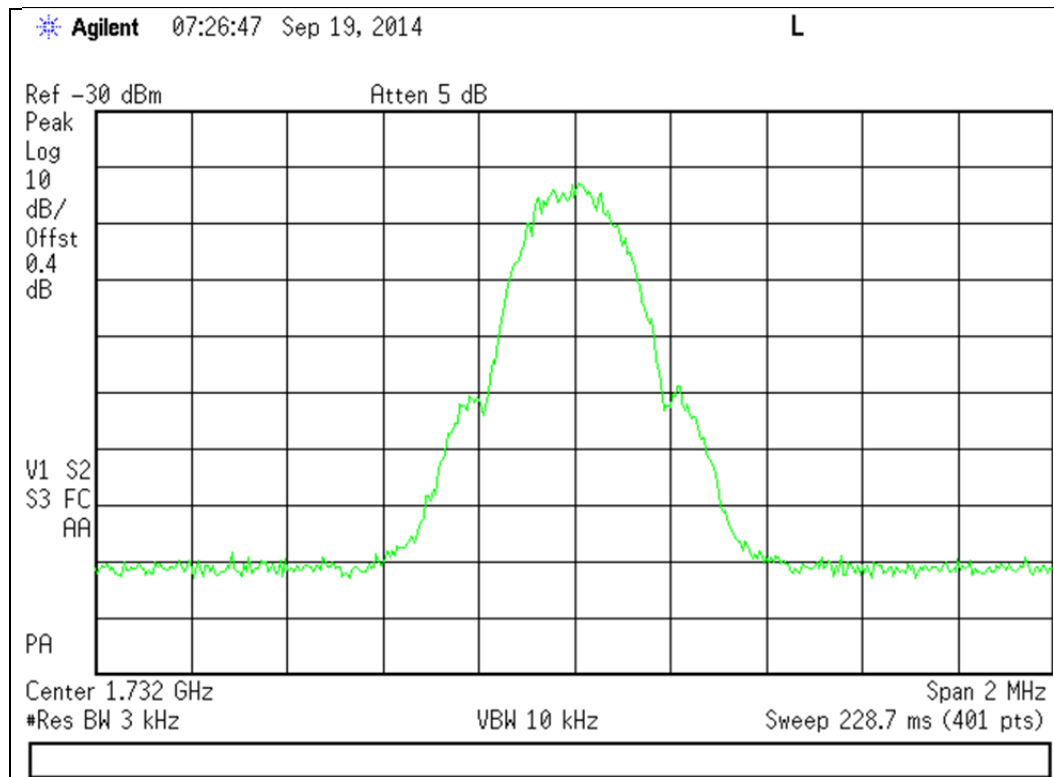
Output



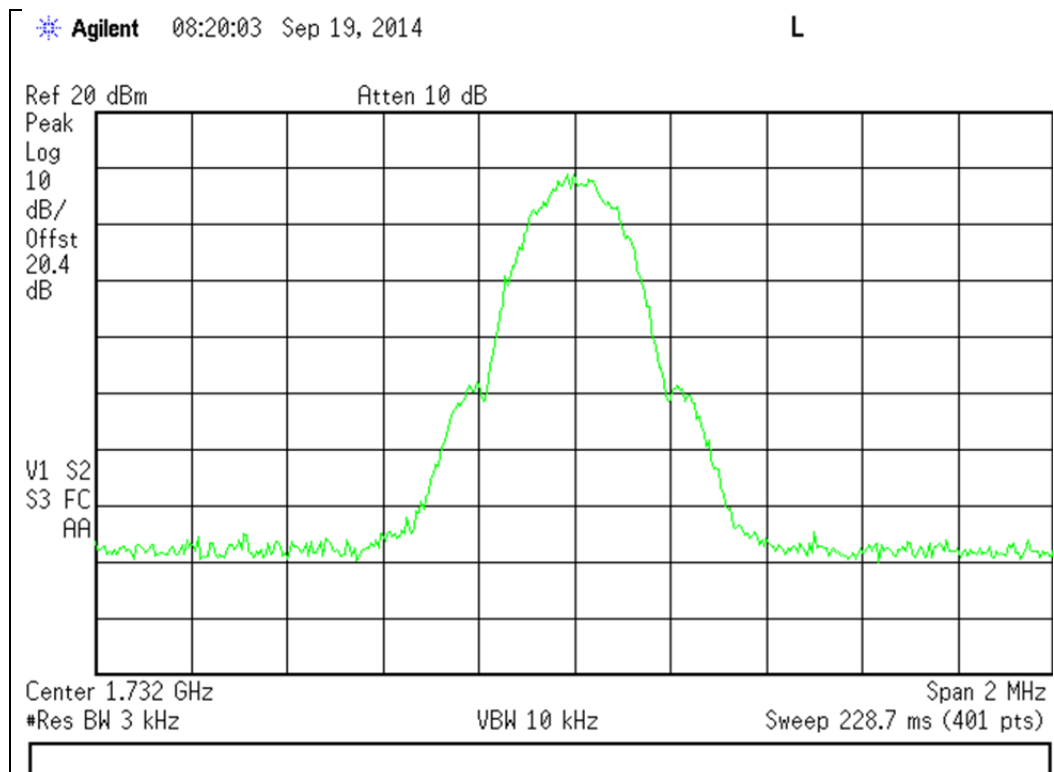


1710 - 1755 MHz Band

Input



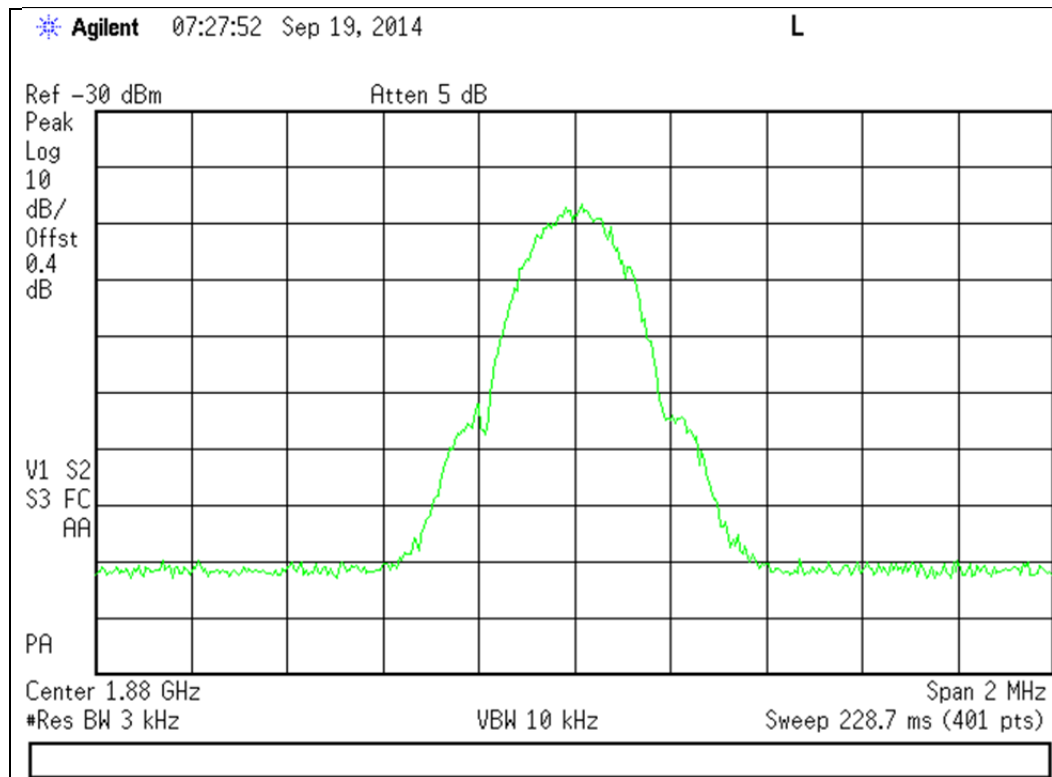
Output



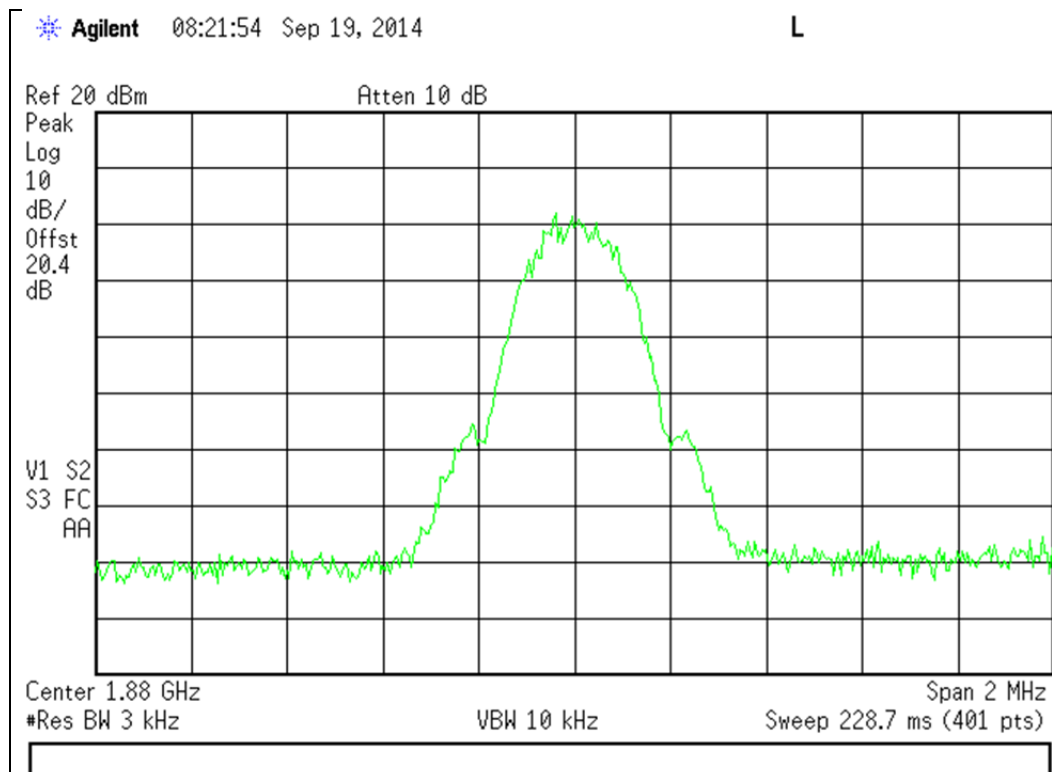


1850 - 1910 MHz Band

Input



Output

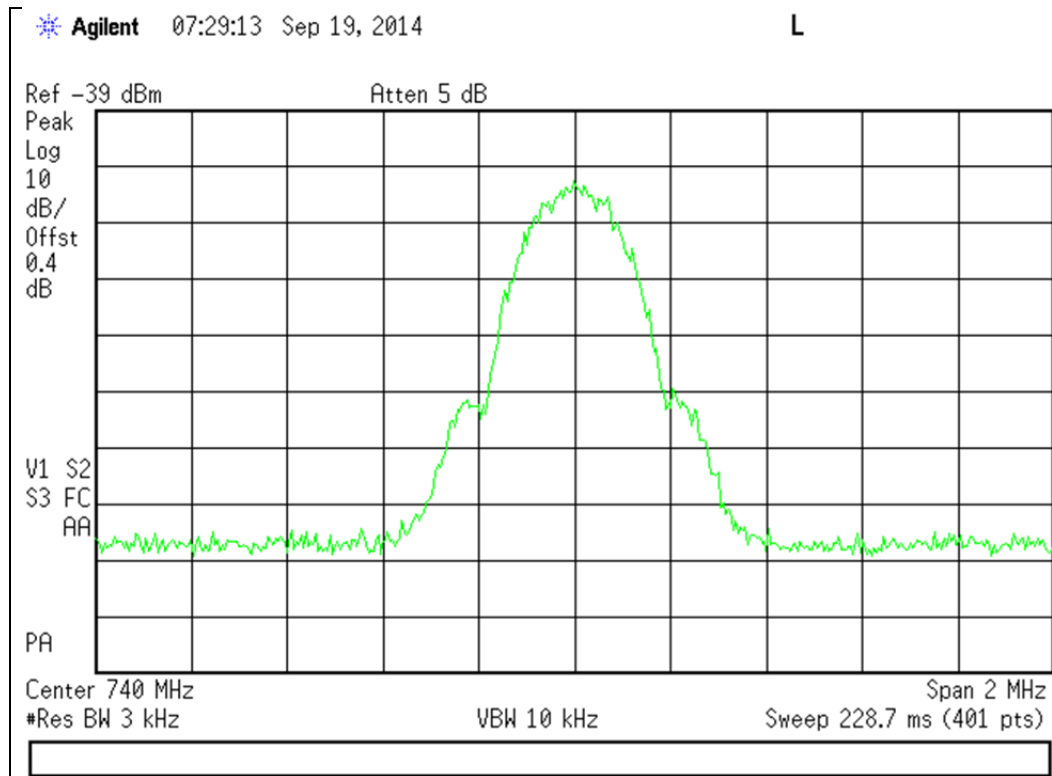




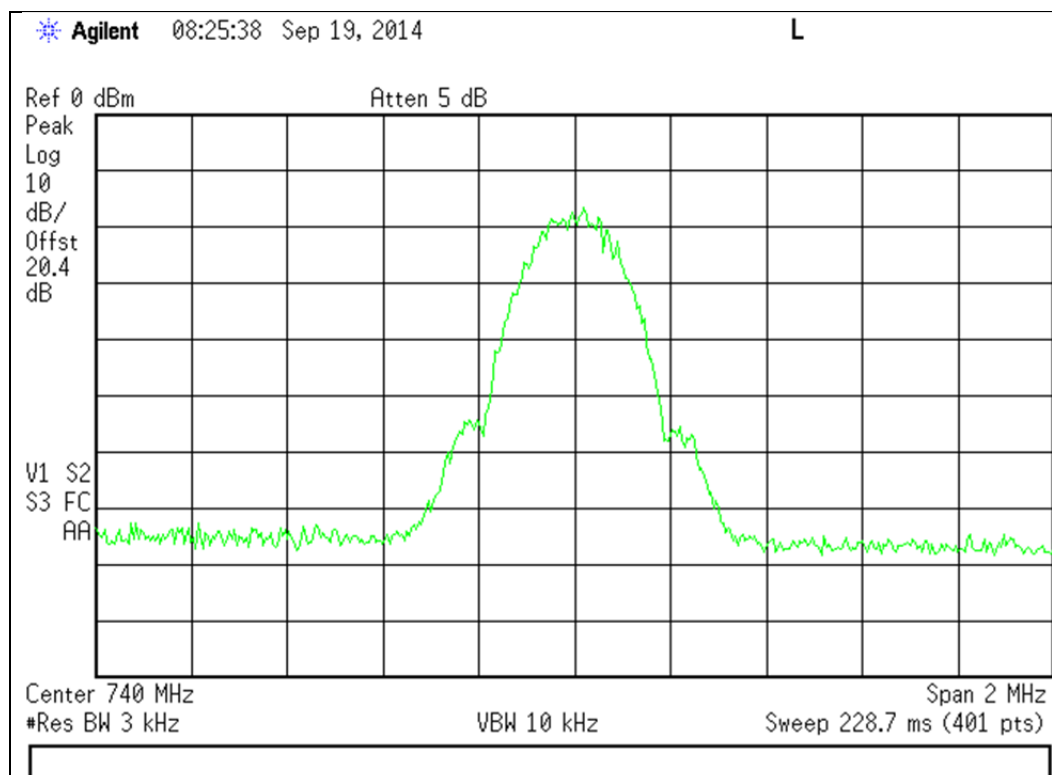
GSM Downlink Test Plots

734 - 746 MHz Band

Input



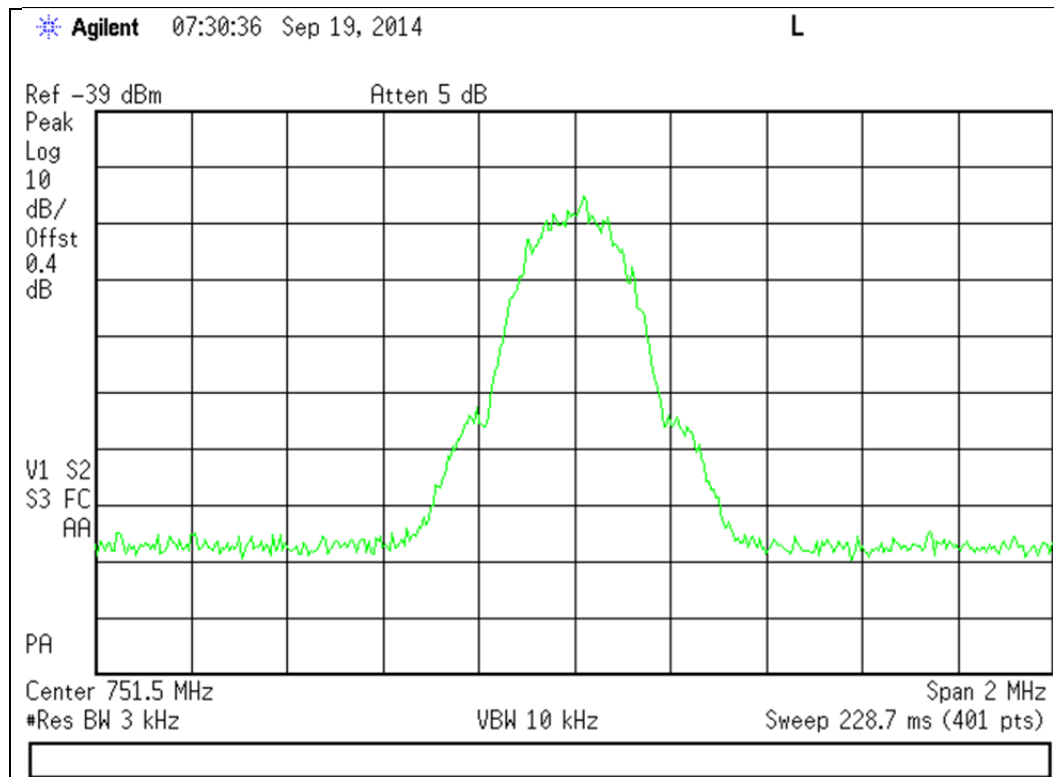
Output



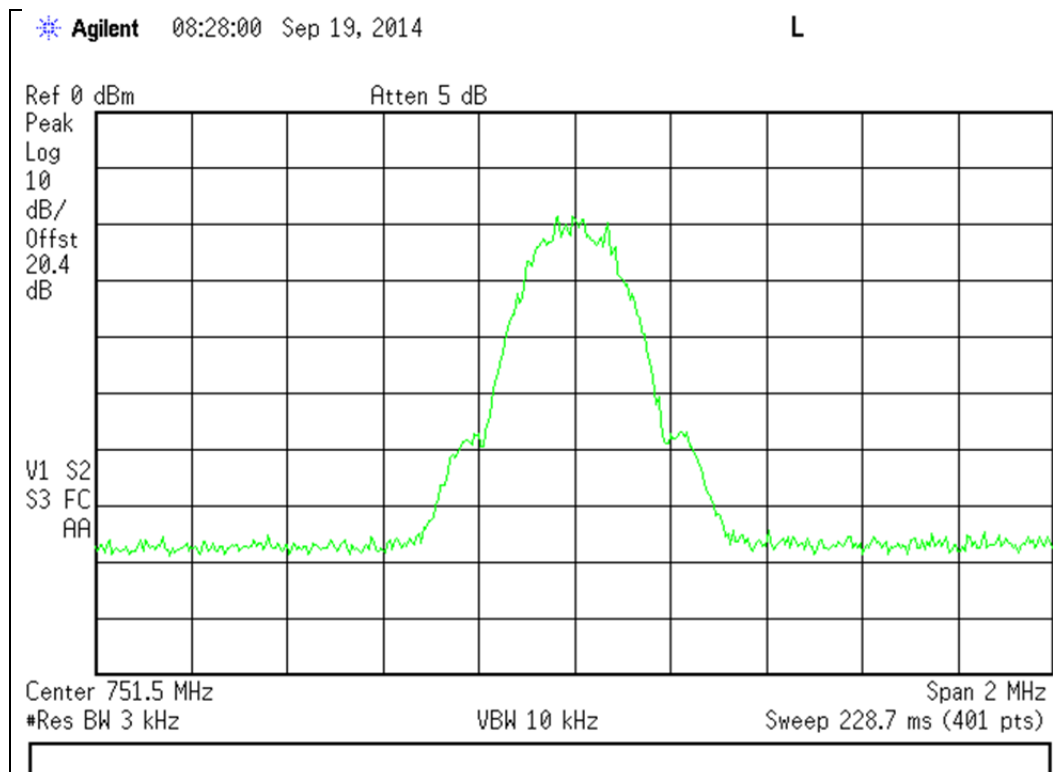


746 - 757 MHz Band

Input



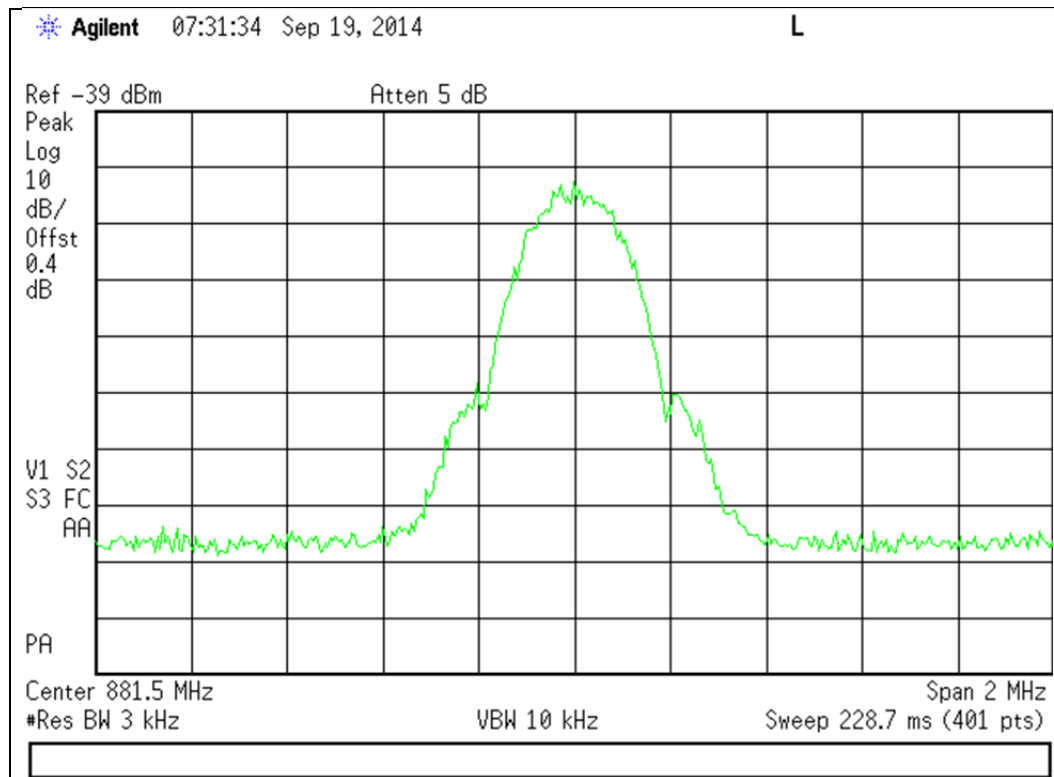
Output



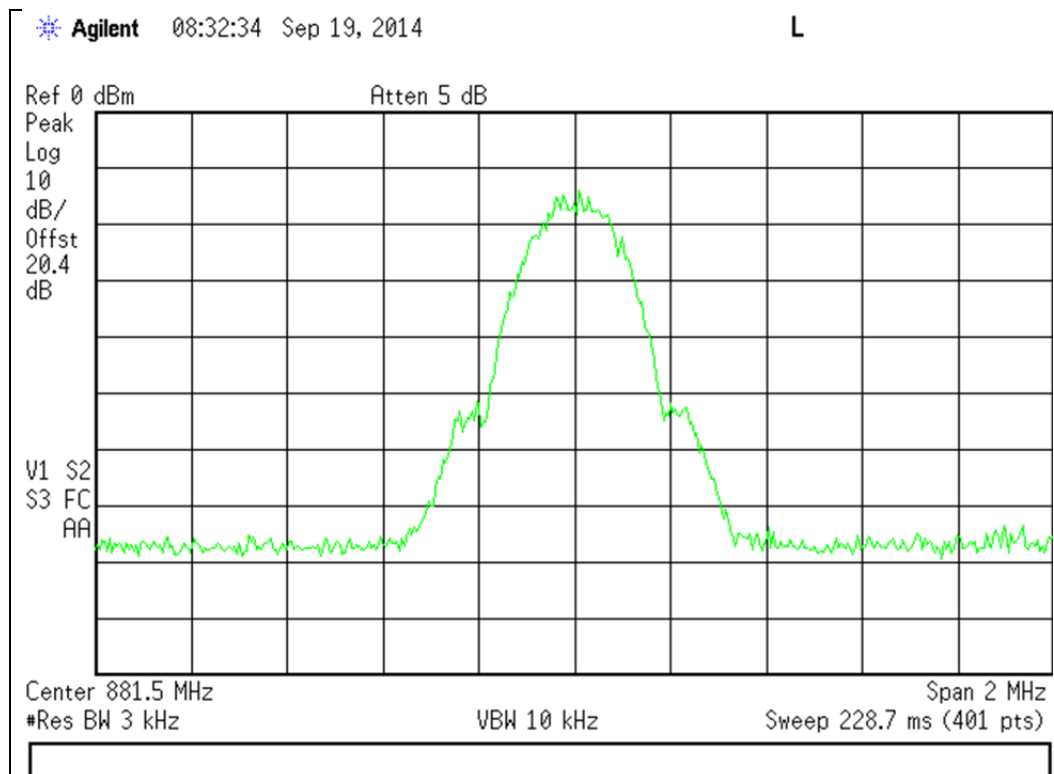


869 - 894 MHz Band

Input



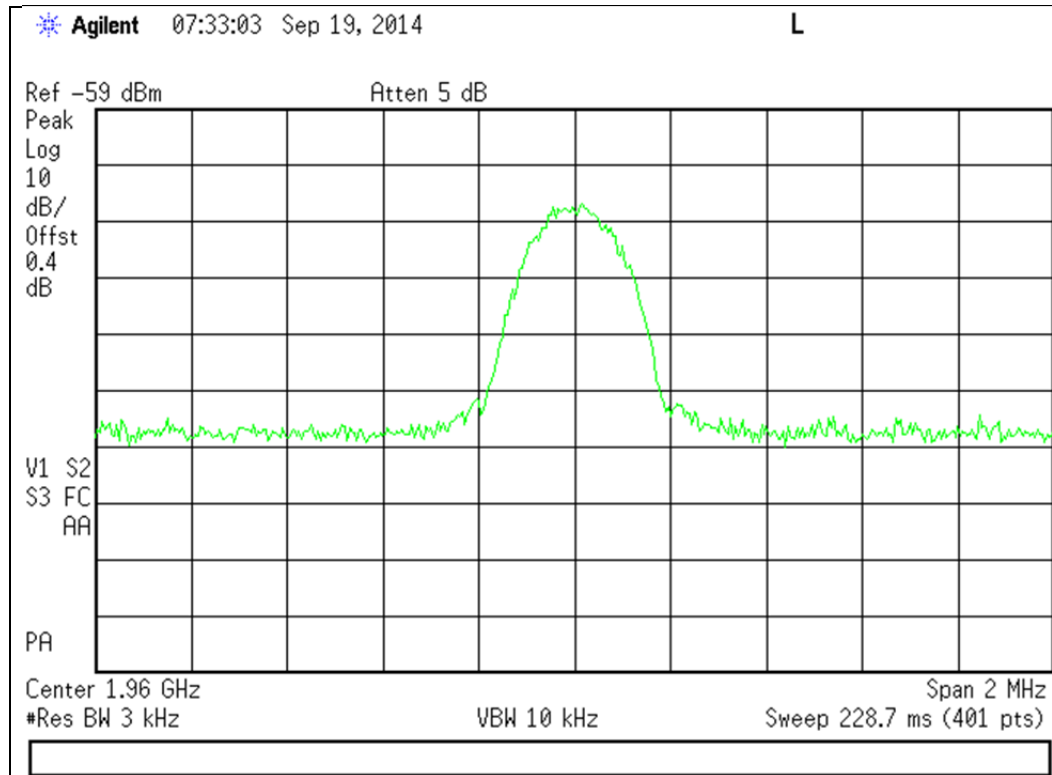
Output



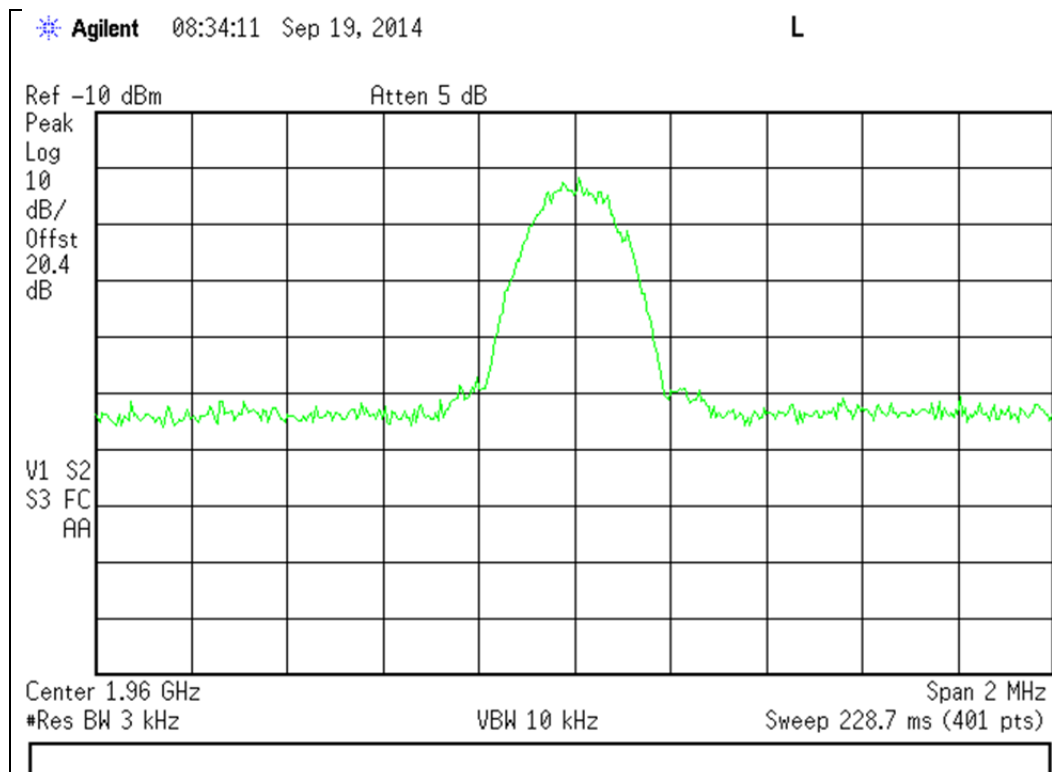


1930 - 1990 MHz Band

Input



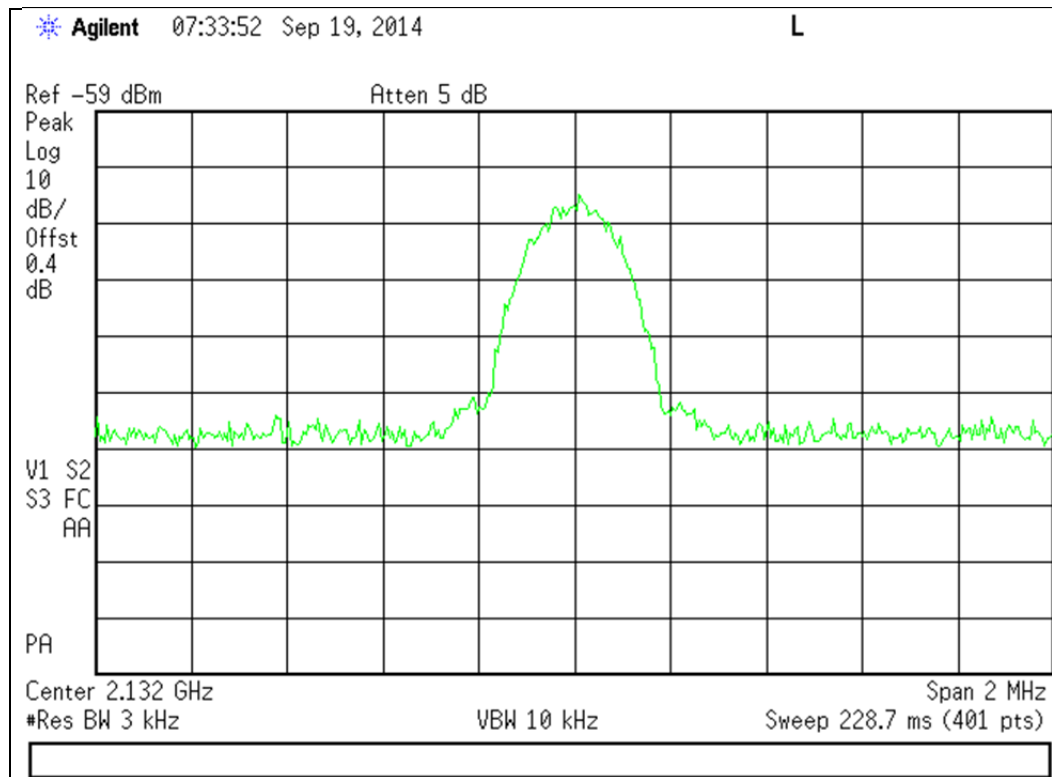
Output



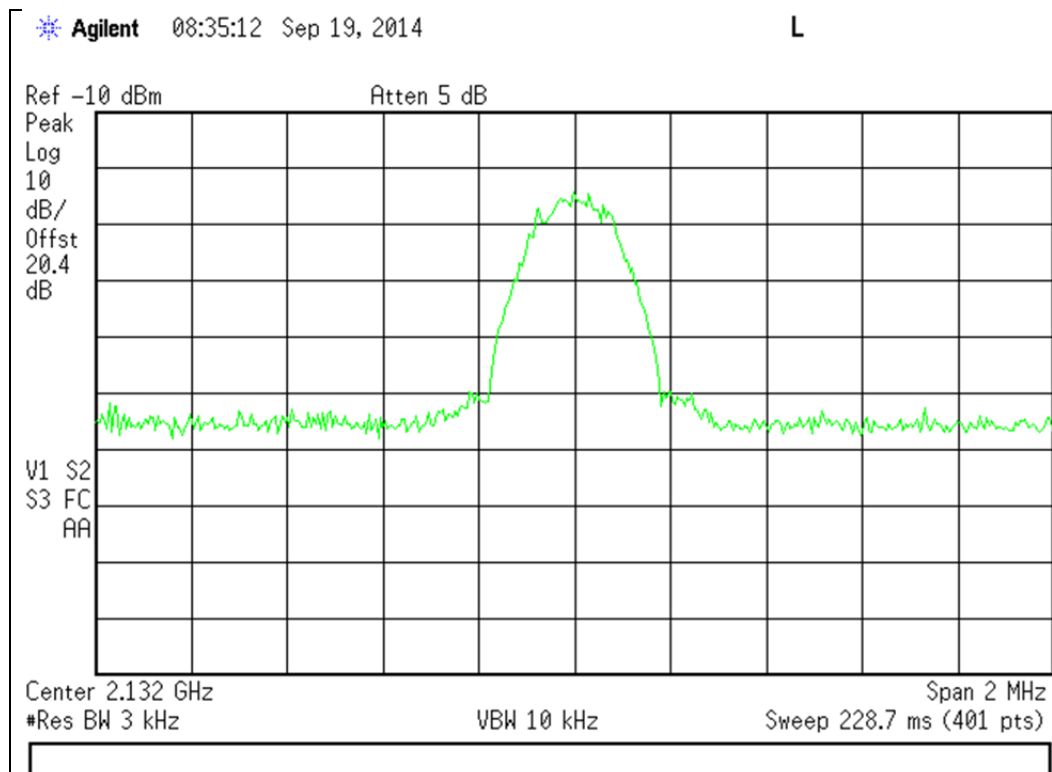


2110 - 2155 MHz Band

Input



Output

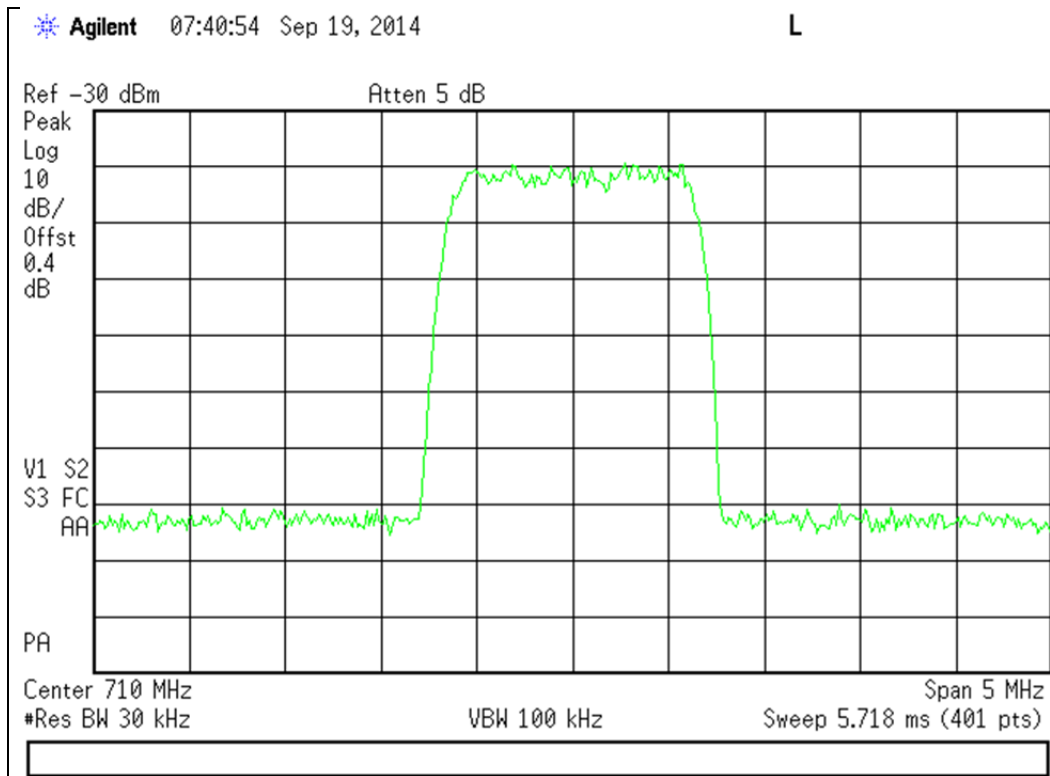




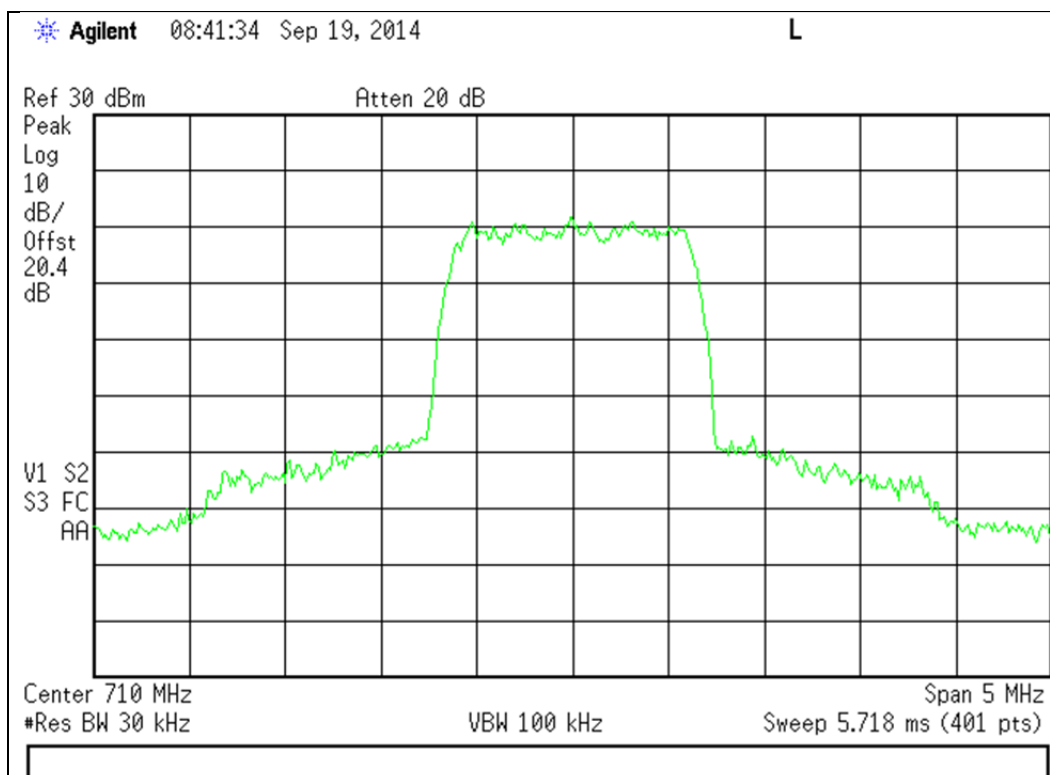
CDMA Uplink Test Plots

704 - 716 MHz Band

Input



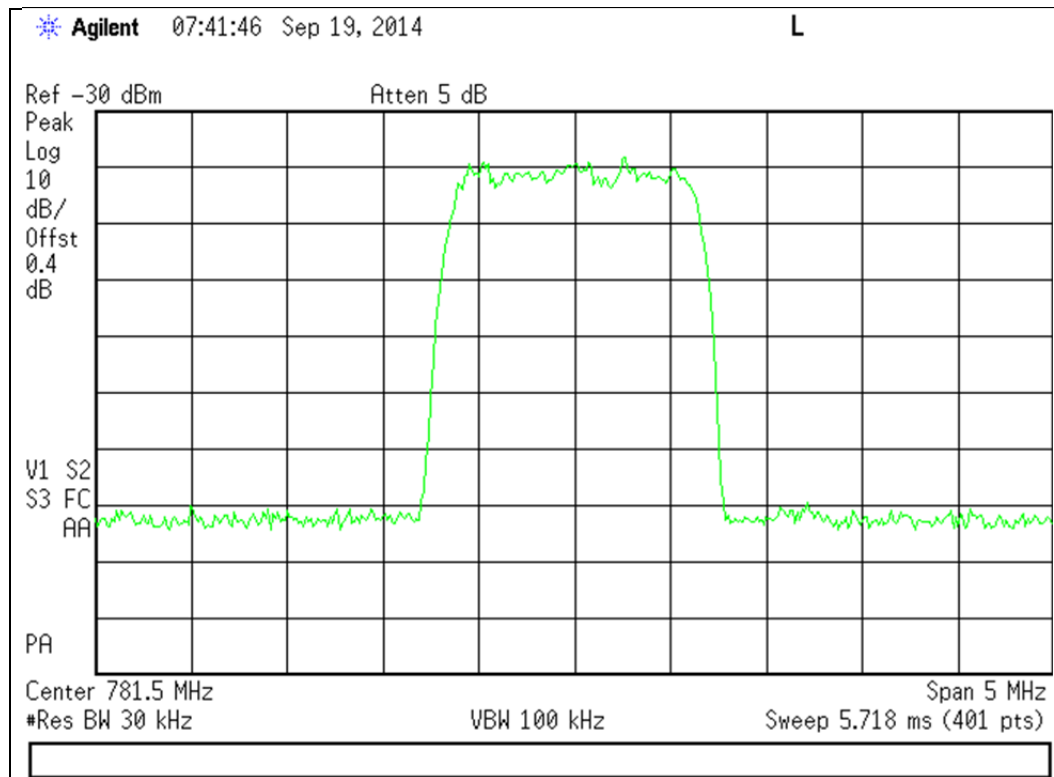
Output



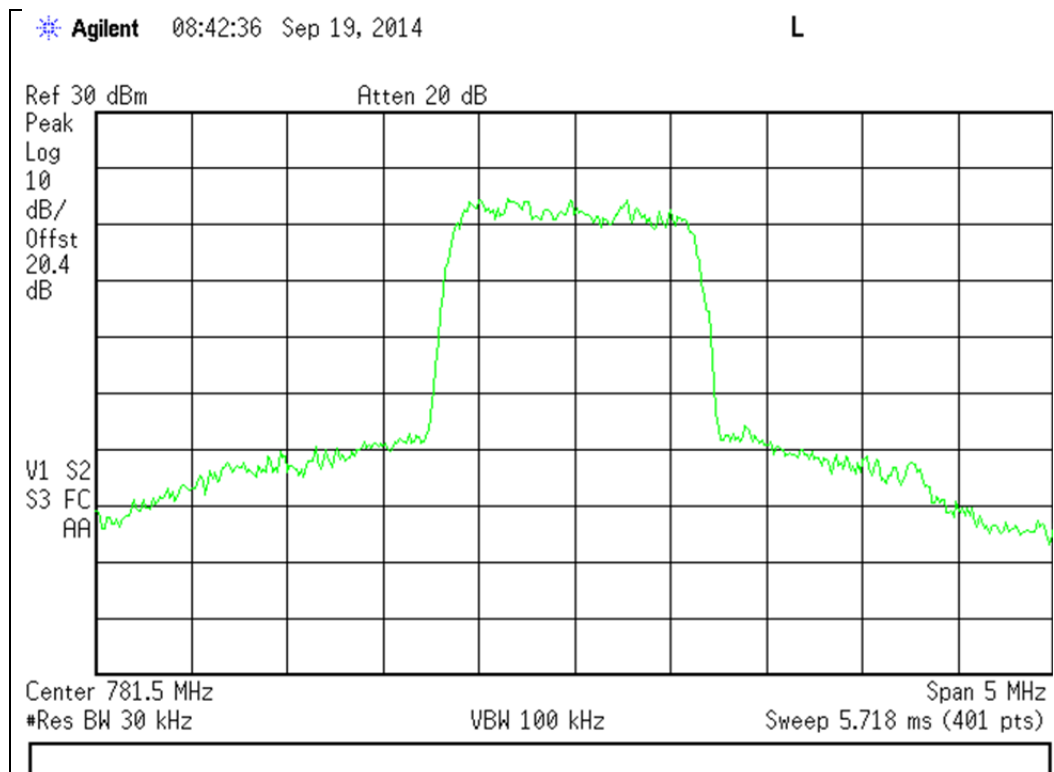


776 - 787 MHz Band

Input



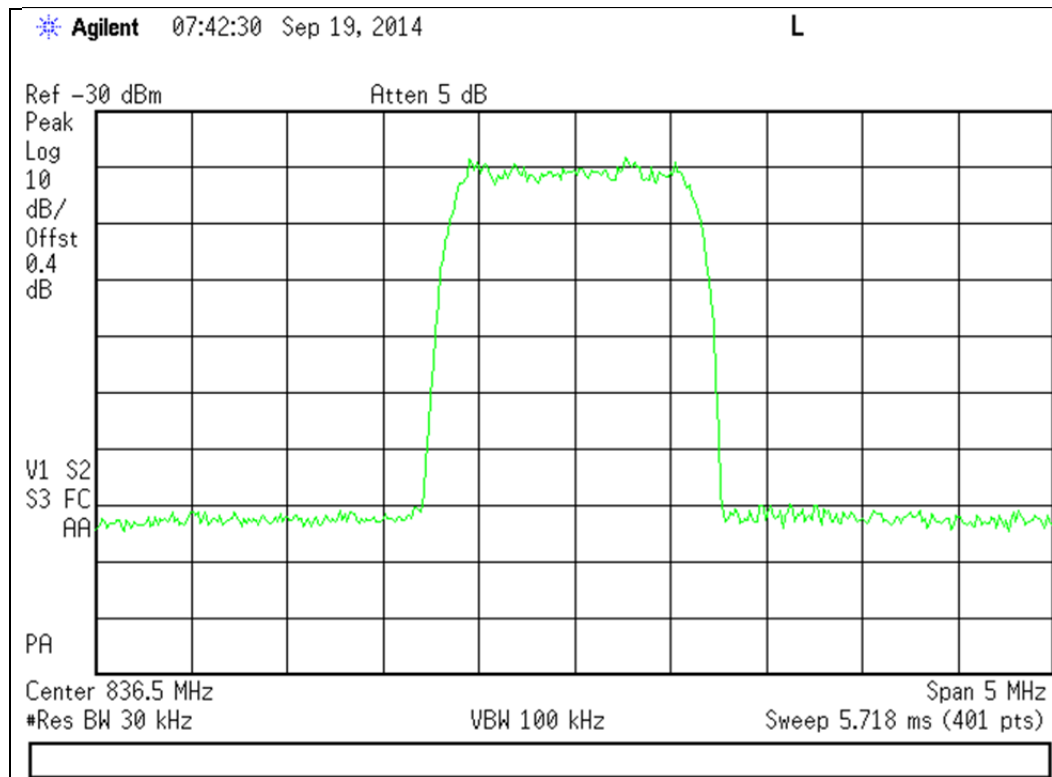
Output



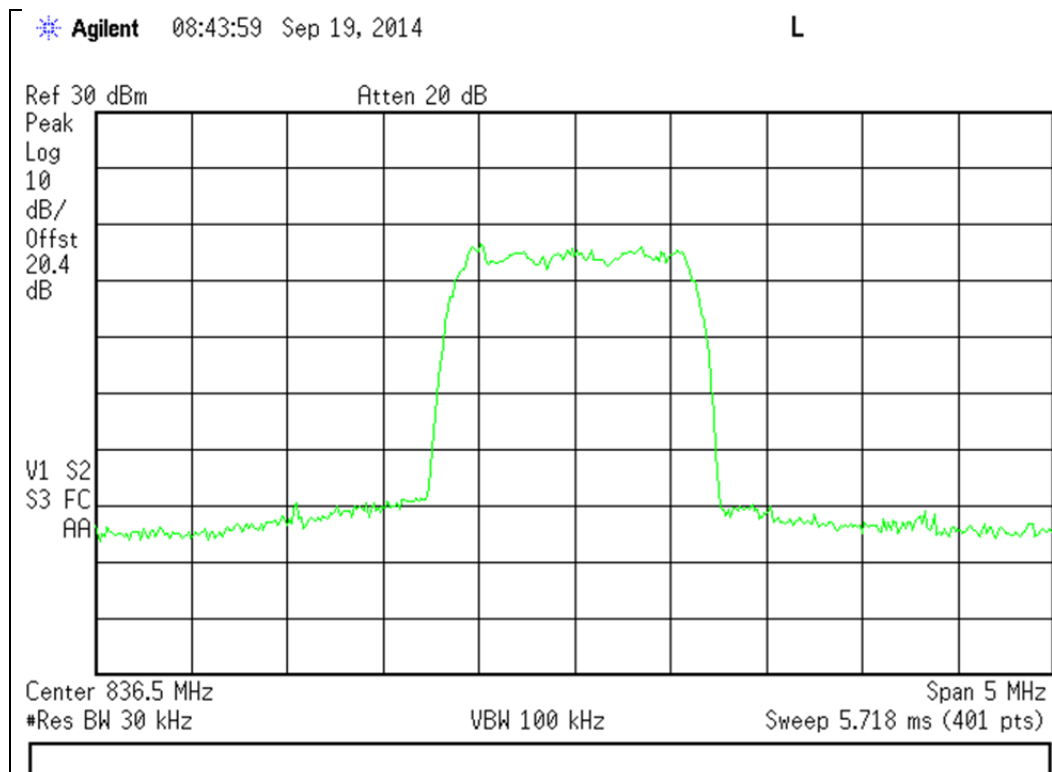


824 - 849 MHz Band

Input



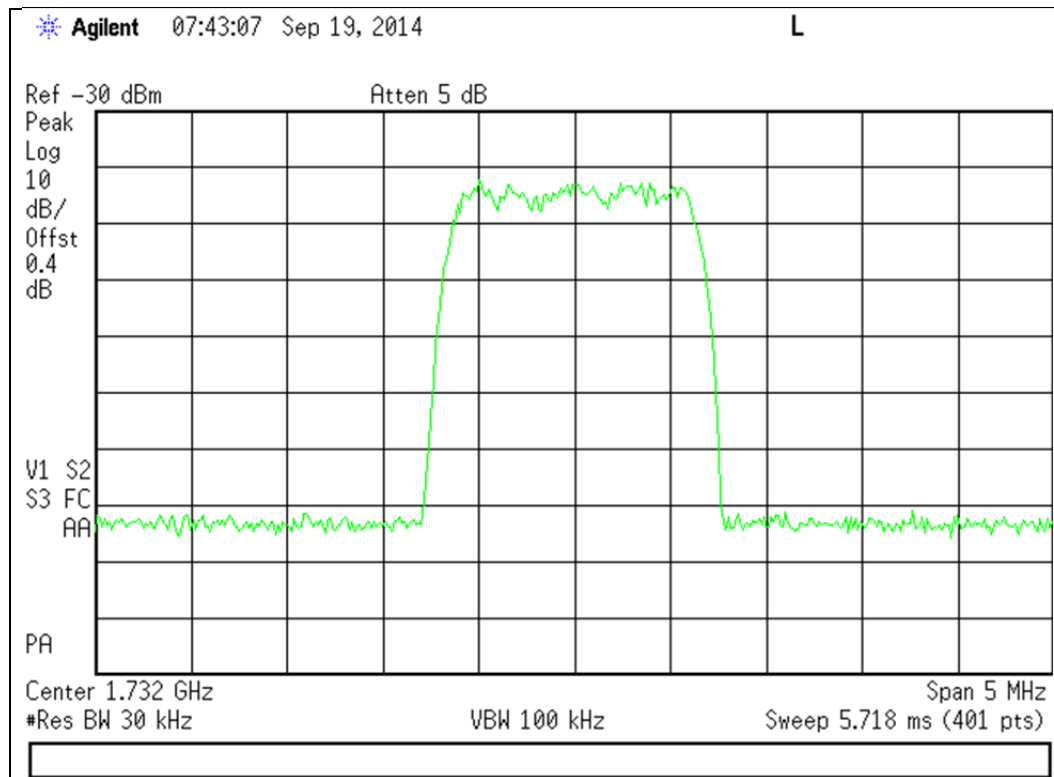
Output



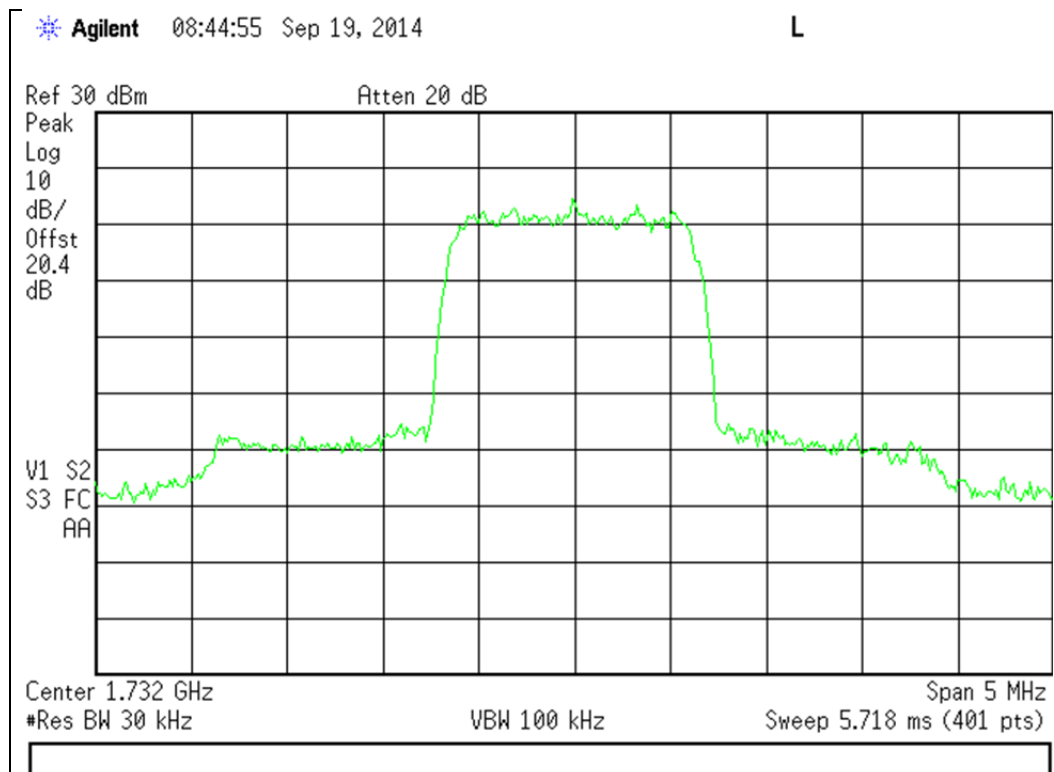


1710 - 1755 MHz Band

Input



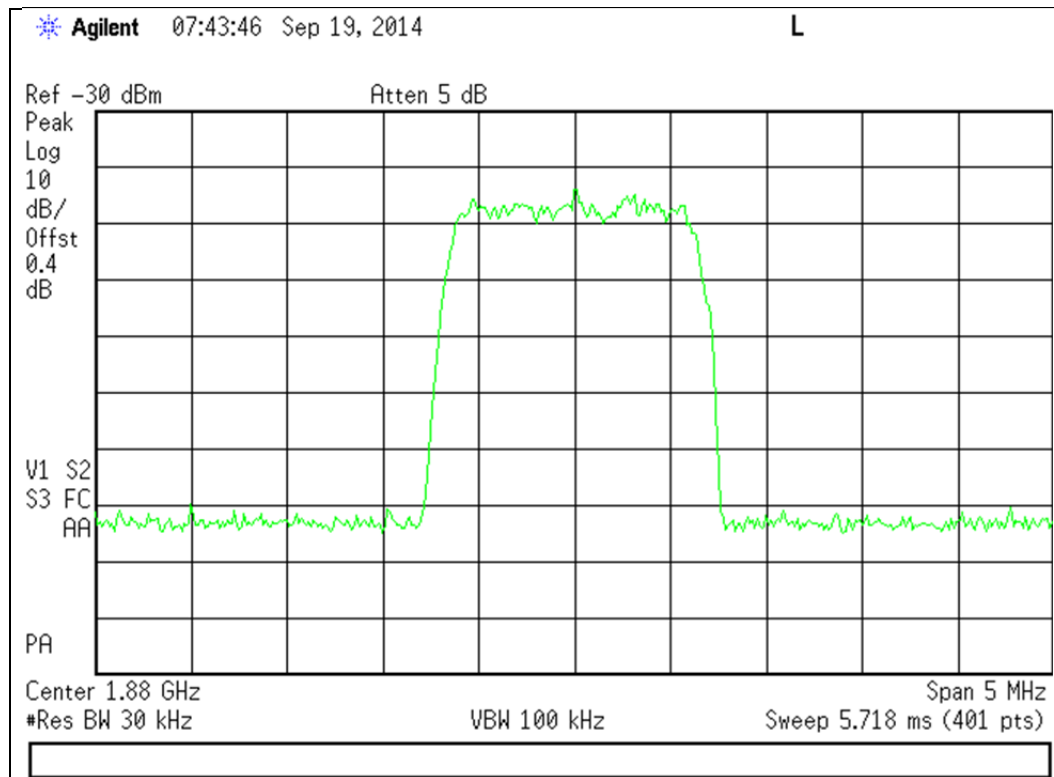
Output



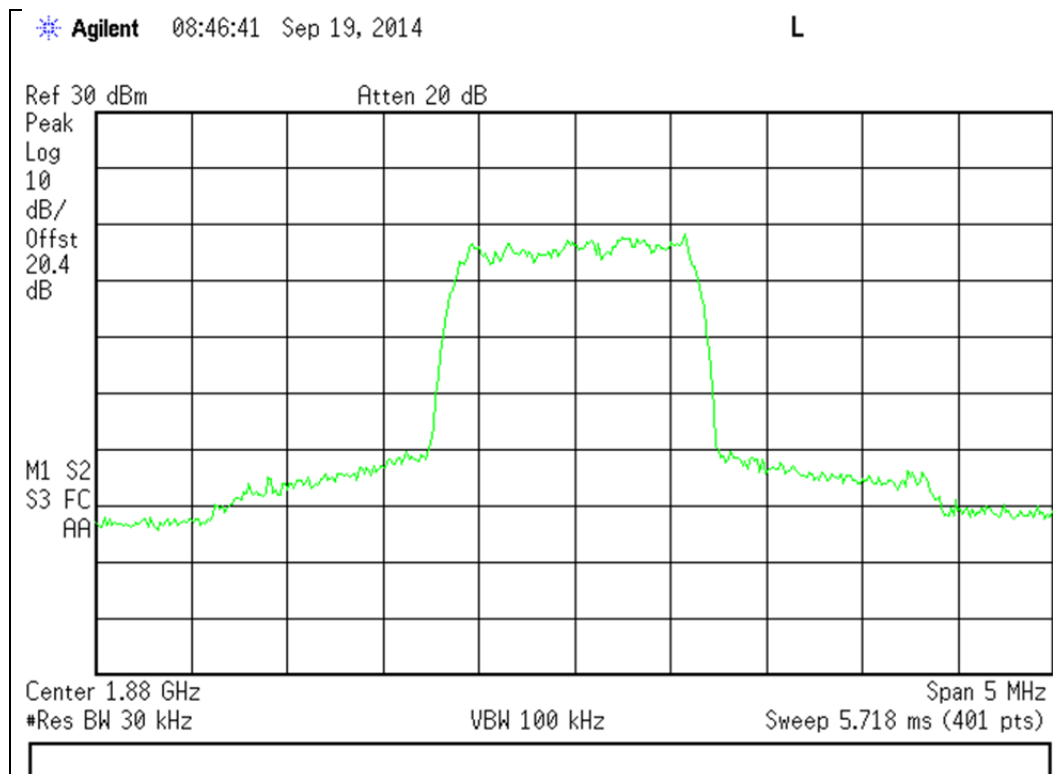


1850 - 1910 MHz Band

Input



Output

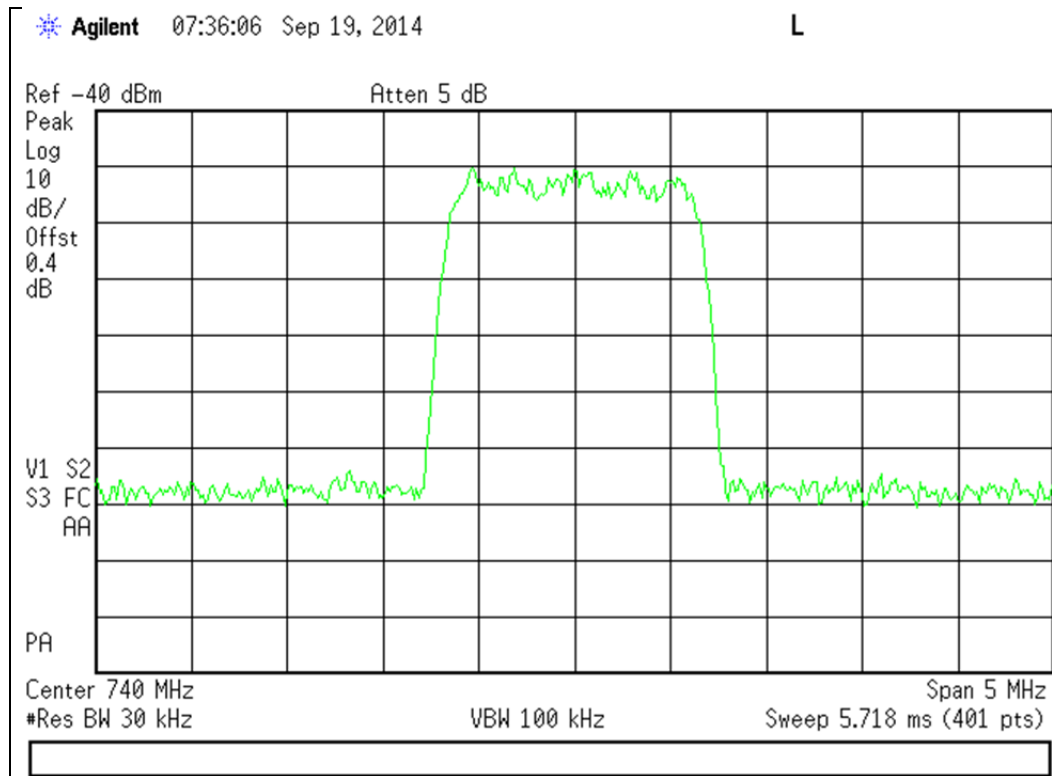




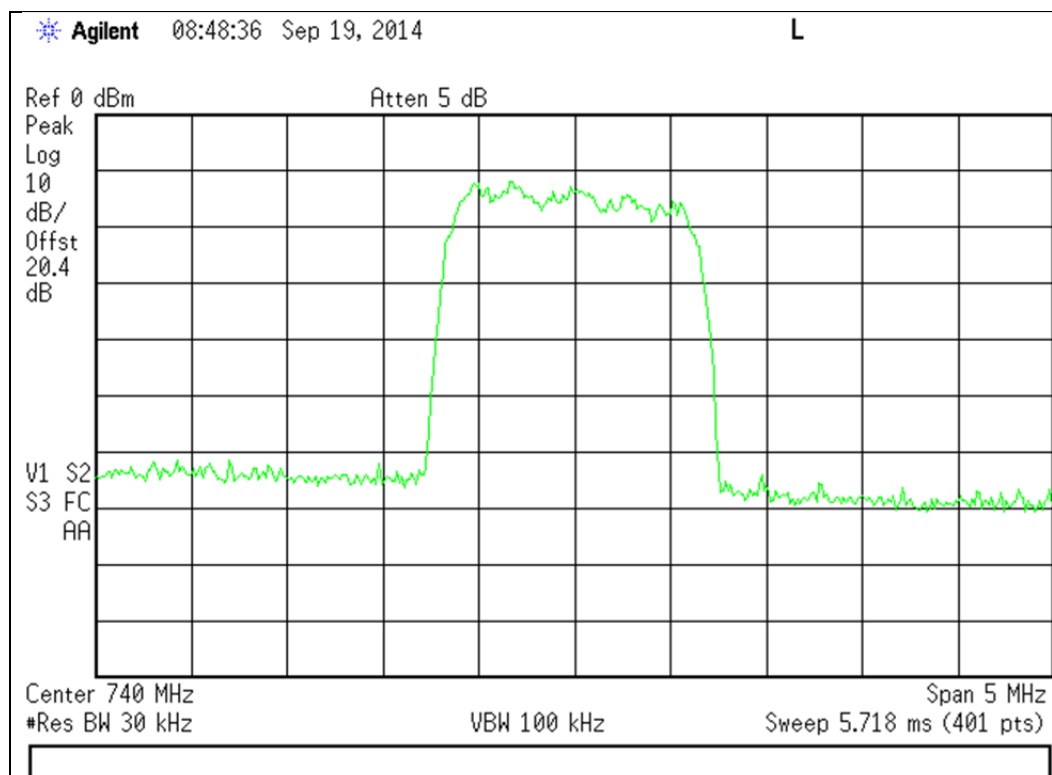
CDMA Downlink Test Plots

734 - 746 MHz Band

Input



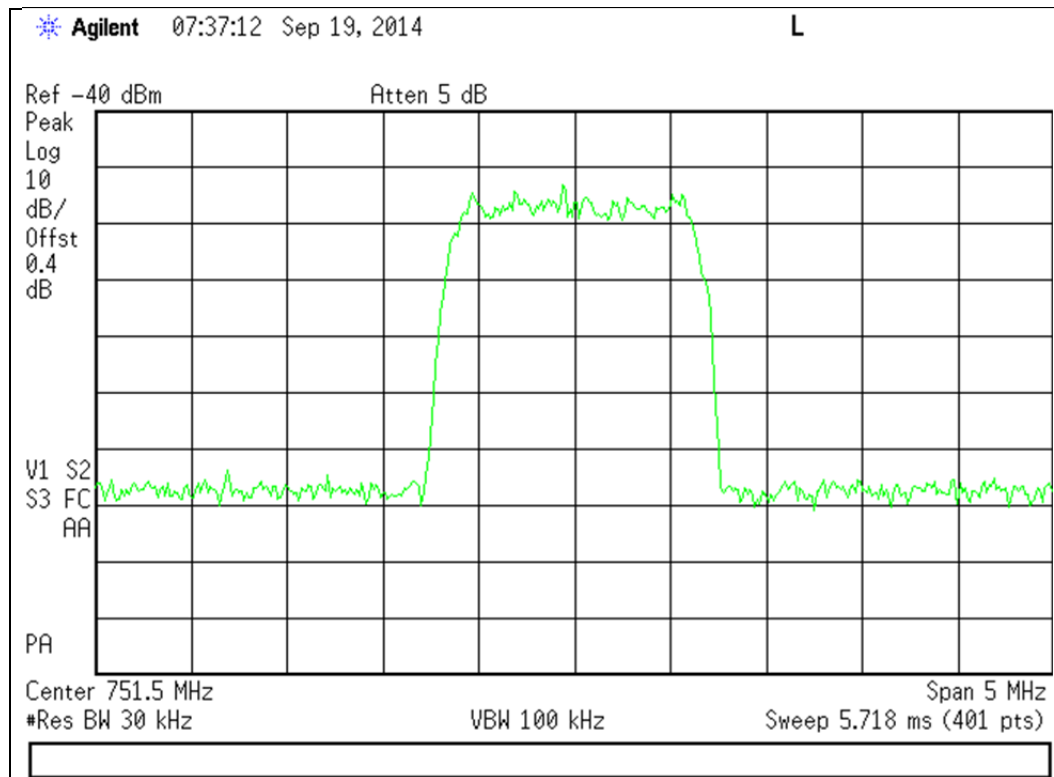
Output



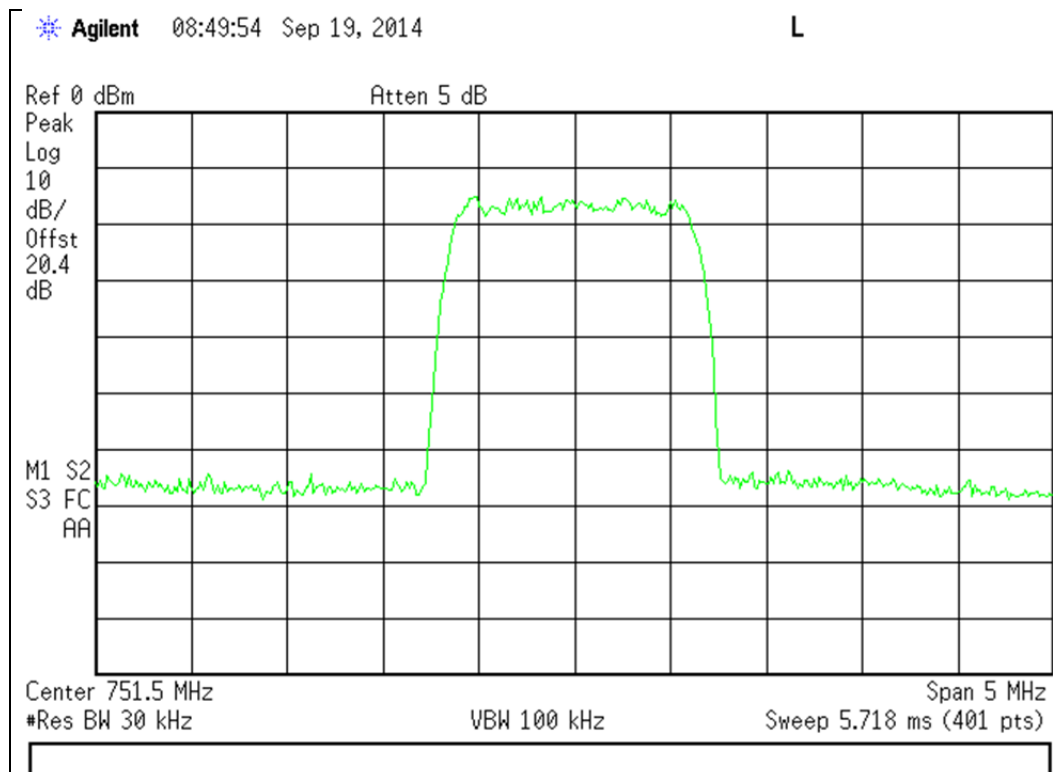


746 - 757 MHz Band

Input



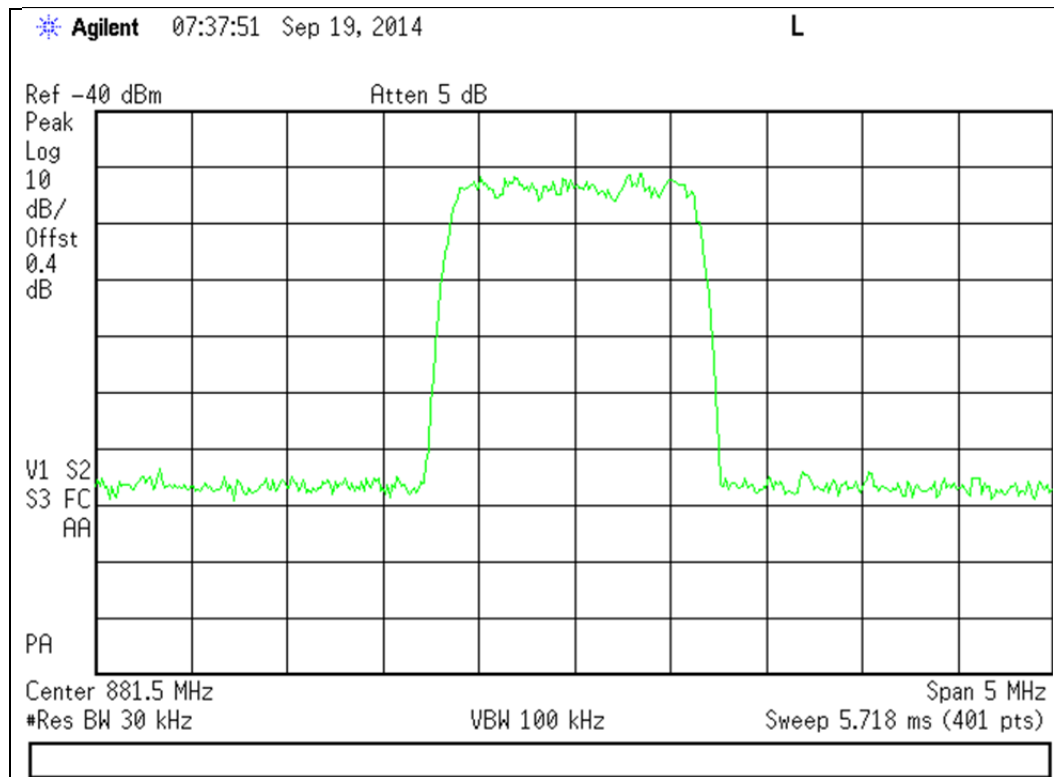
Output



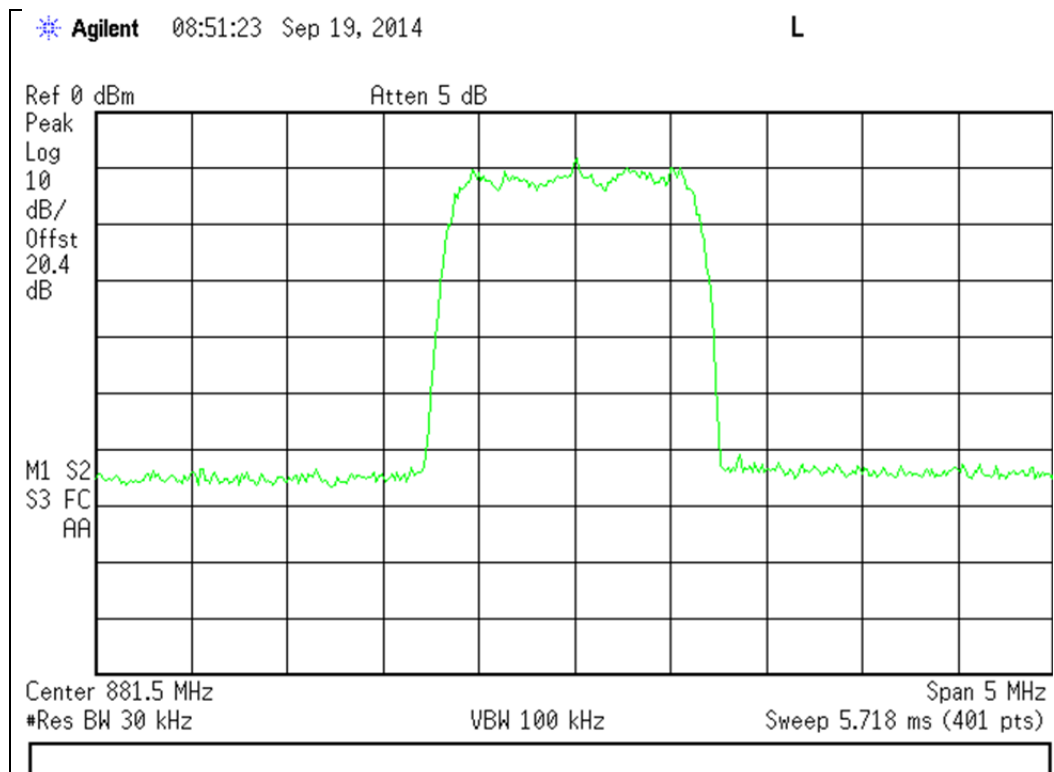


869 - 894 MHz Band

Input



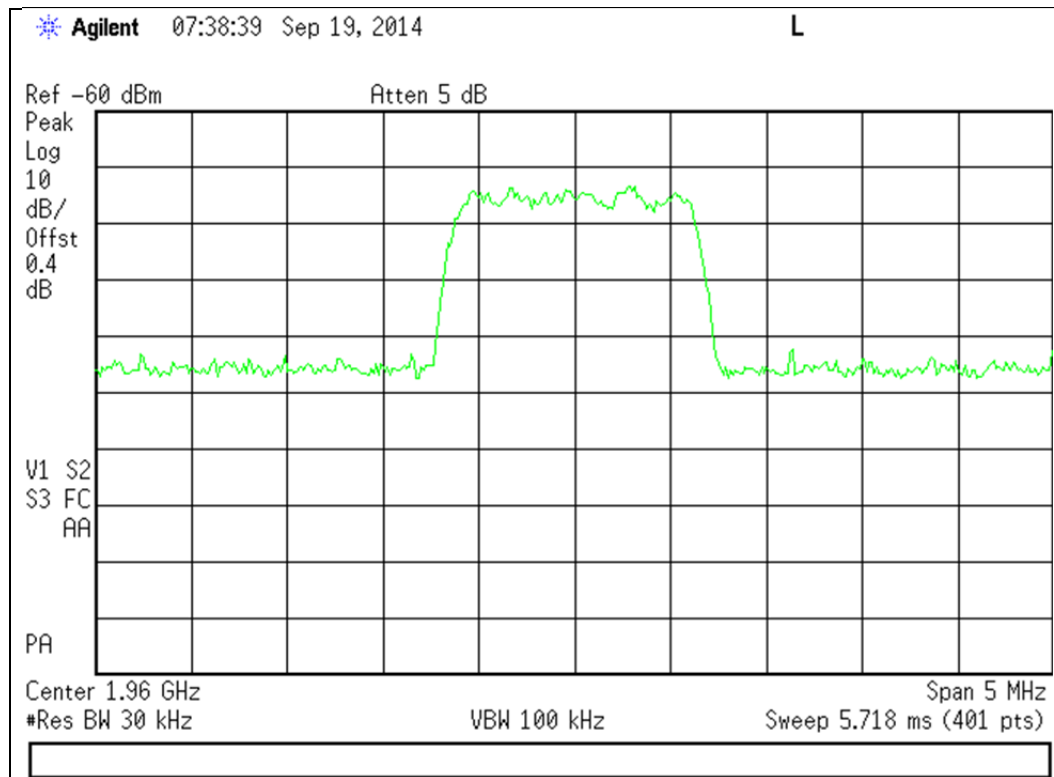
Output



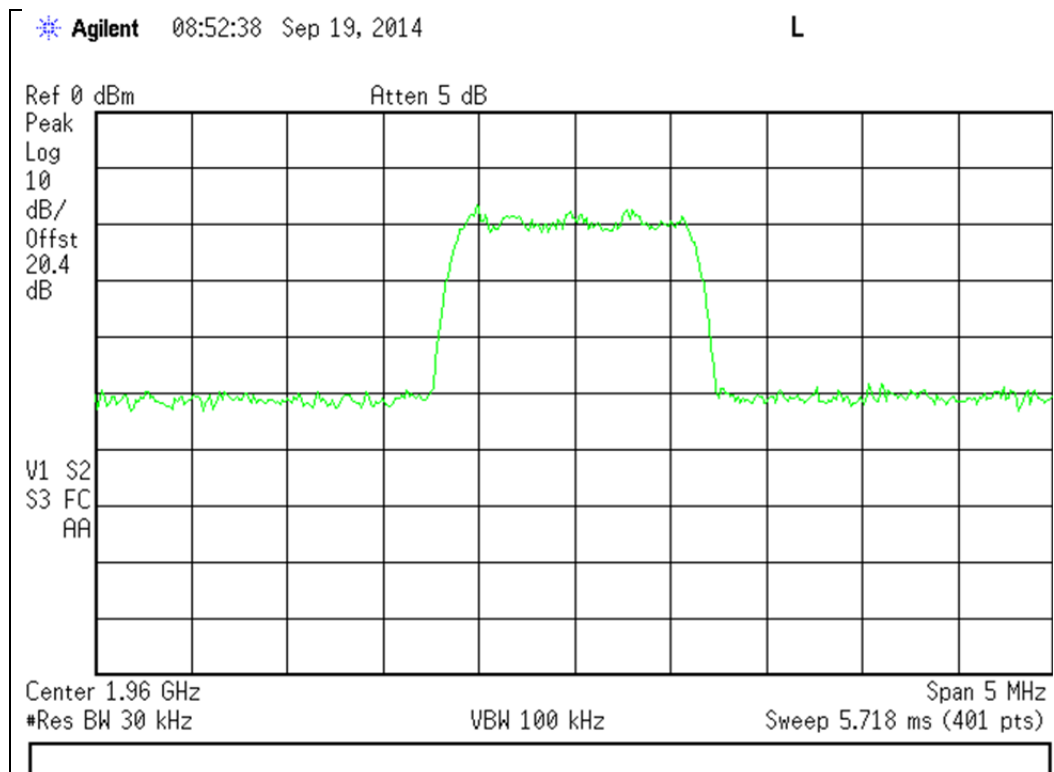


1930 - 1990 MHz Band

Input



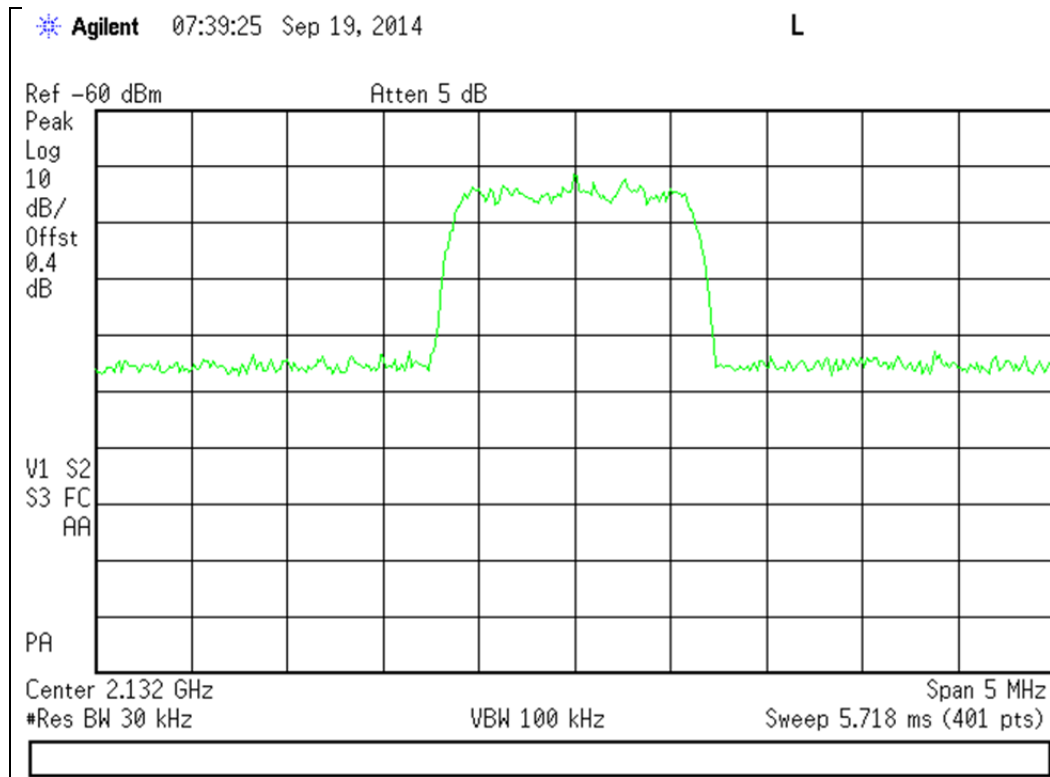
Output



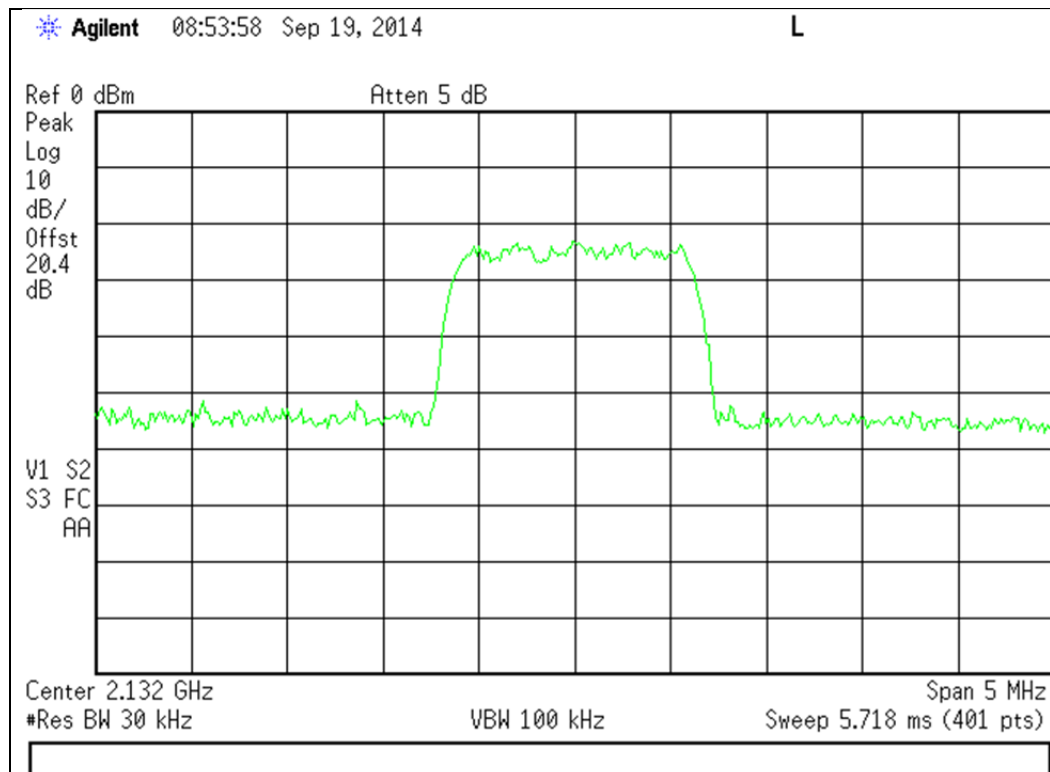


2110 - 2155 MHz Band

Input



Output

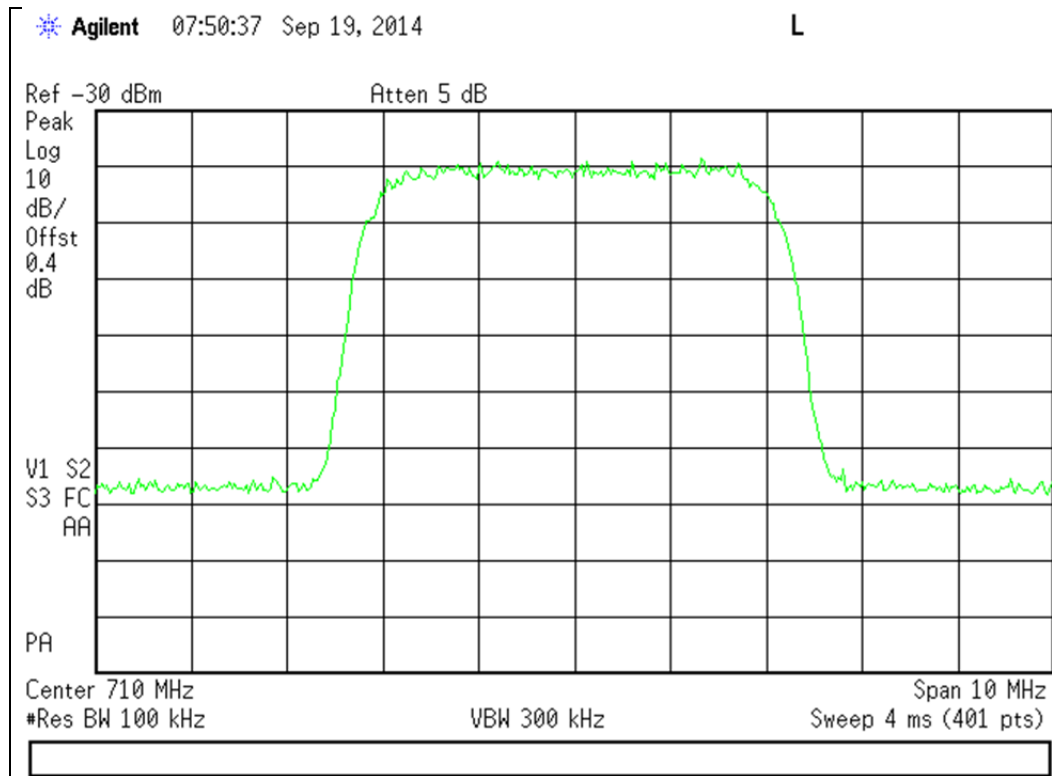




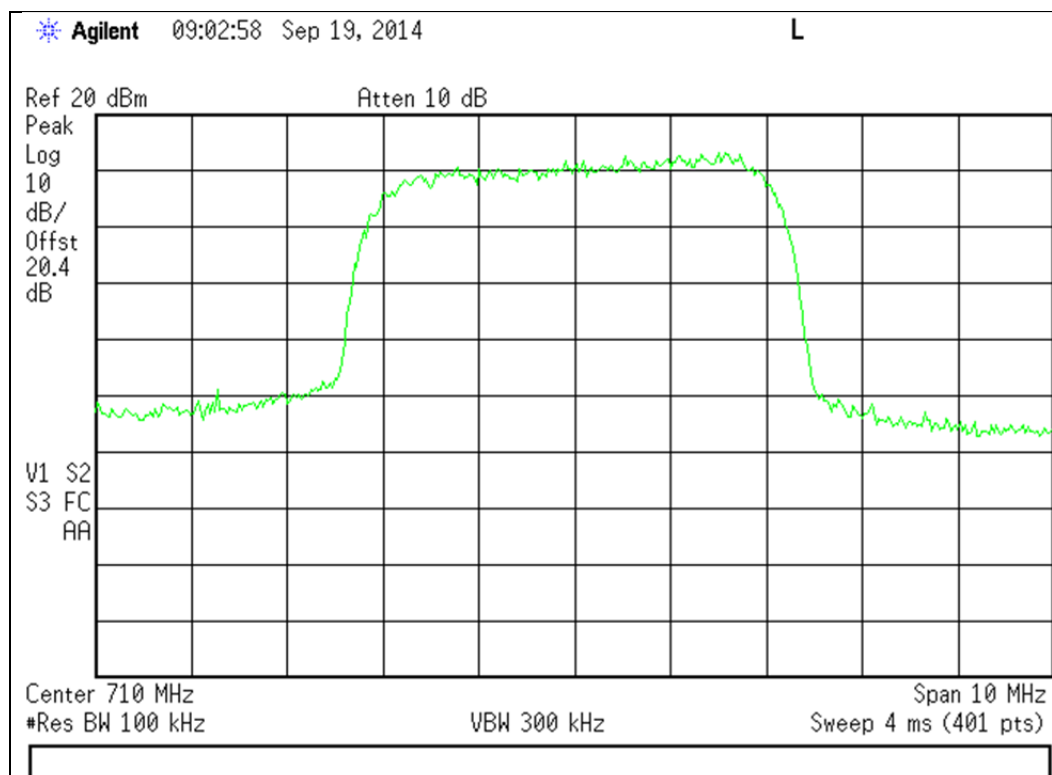
WCDMA Uplink Test Plots

704 - 716 MHz Band

Input



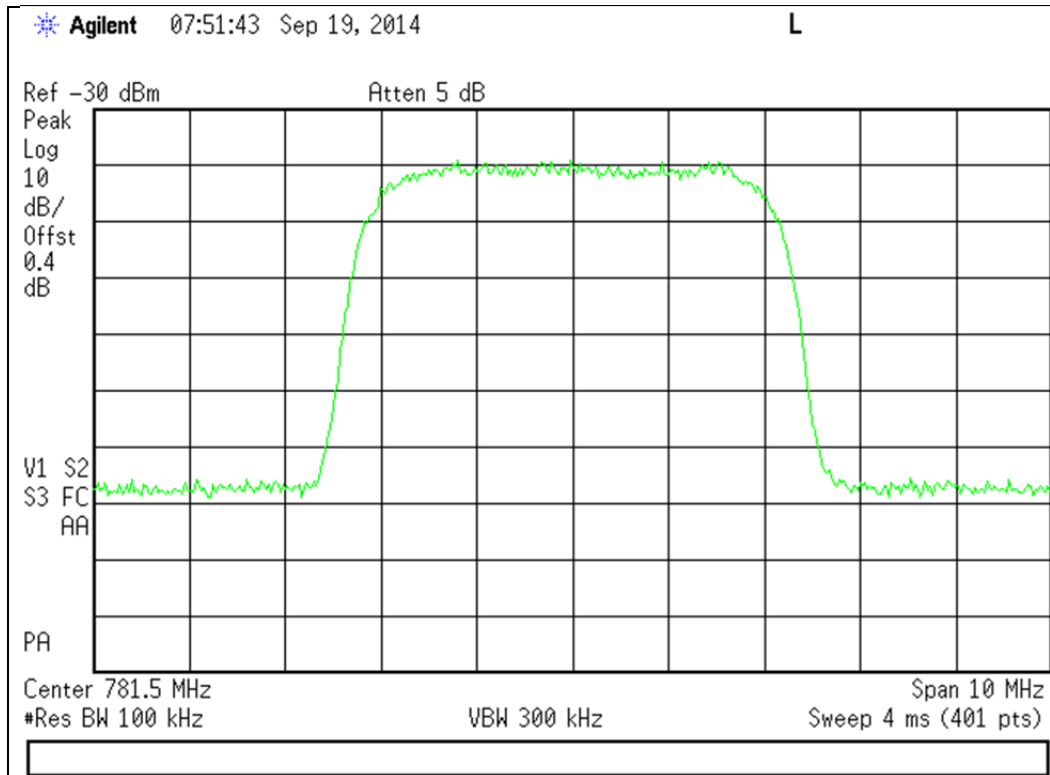
Output



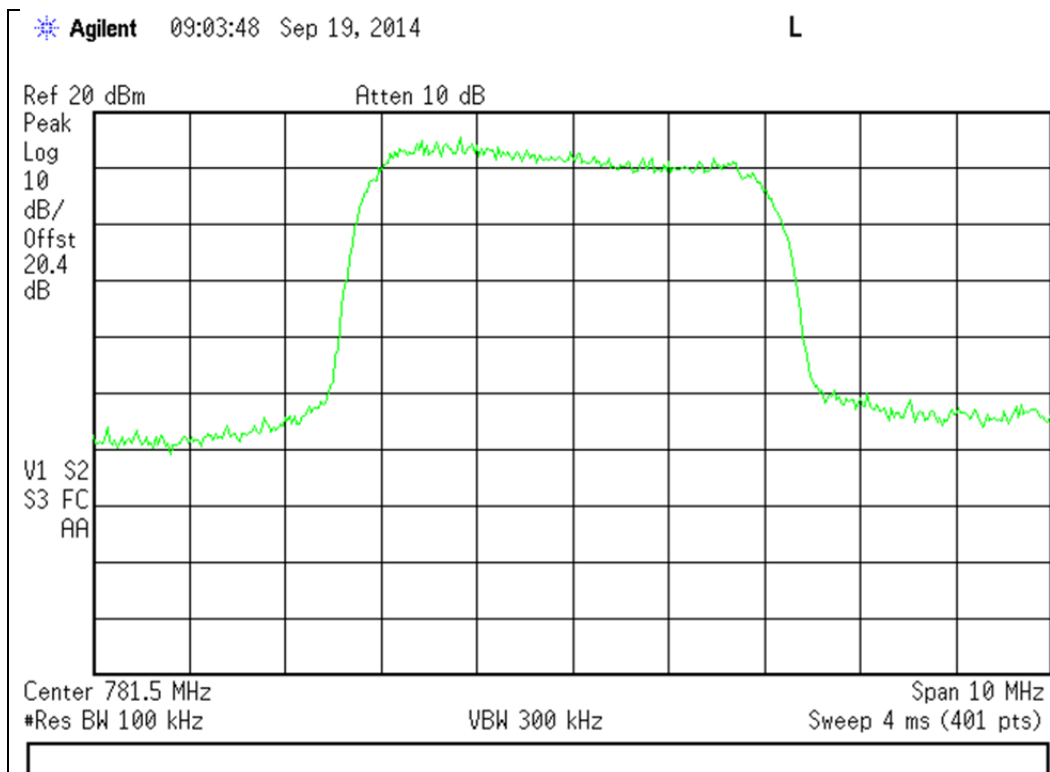


776 - 787 MHz Band

Input



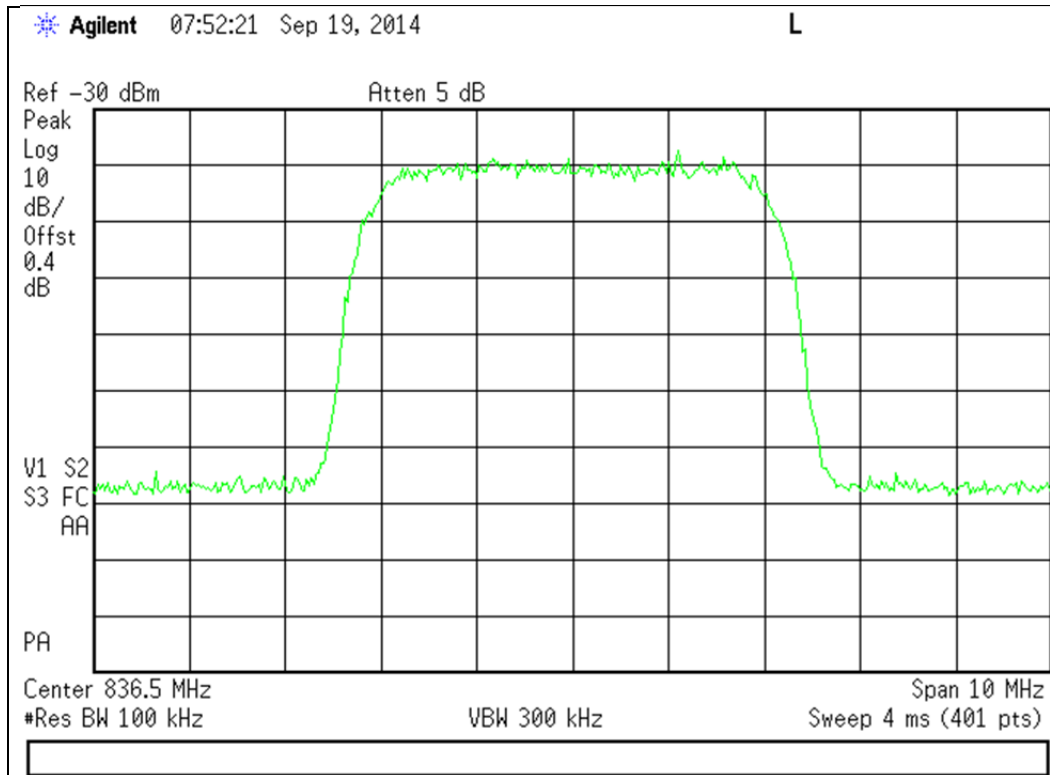
Output





824 - 849 MHz Band

Input



Output

