

**Test Results:**
**Tabular data of Input / Output Power and Gain**

| Test Band     | Link     | Signal     | f <sub>0</sub> Frequency (MHz) | Input Power (dBm) | Output Power (dBm) | Gain (dB) |
|---------------|----------|------------|--------------------------------|-------------------|--------------------|-----------|
| Lower 700 MHz | Uplink   | LTE 10 MHz | 709.00                         | -44.92            | 19.39              | 64.31     |
|               | Downlink | LTE 10 MHz | 739.00                         | -50.18            | 14.91              | 65.09     |
| Upper 700 MHz | Uplink   | LTE 10 MHz | 781.00                         | -44.85            | 19.43              | 64.28     |
|               | Downlink | LTE 10 MHz | 751.00                         | -50.11            | 15.24              | 65.35     |
| Cellular      | Uplink   | CDMA       | 841.75                         | -45.14            | 19.57              | 64.71     |
|               |          | LTE 5 MHz  | 841.75                         | -45.12            | 19.68              | 64.80     |
|               | Downlink | CDMA       | 873.56                         | -50.10            | 14.94              | 65.04     |
|               |          | LTE 5 MHz  | 873.56                         | -50.22            | 14.67              | 64.89     |
| AWS-1         | Uplink   | LTE 10 MHz | 1723.84                        | -50.19            | 20.06              | 70.25     |
|               | Downlink | LTE 10 MHz | 2125.53                        | -54.98            | 15.09              | 70.07     |
| Broadband PCS | Uplink   | CDMA       | 1863.49                        | -49.63            | 19.52              | 69.15     |
|               |          | LTE 20 MHz | 1863.49                        | -49.91            | 19.77              | 69.68     |
|               | Downlink | CDMA       | 1944.30                        | -55.52            | 14.97              | 70.49     |
|               |          | LTE 20 MHz | 1944.30                        | -55.16            | 15.34              | 70.50     |

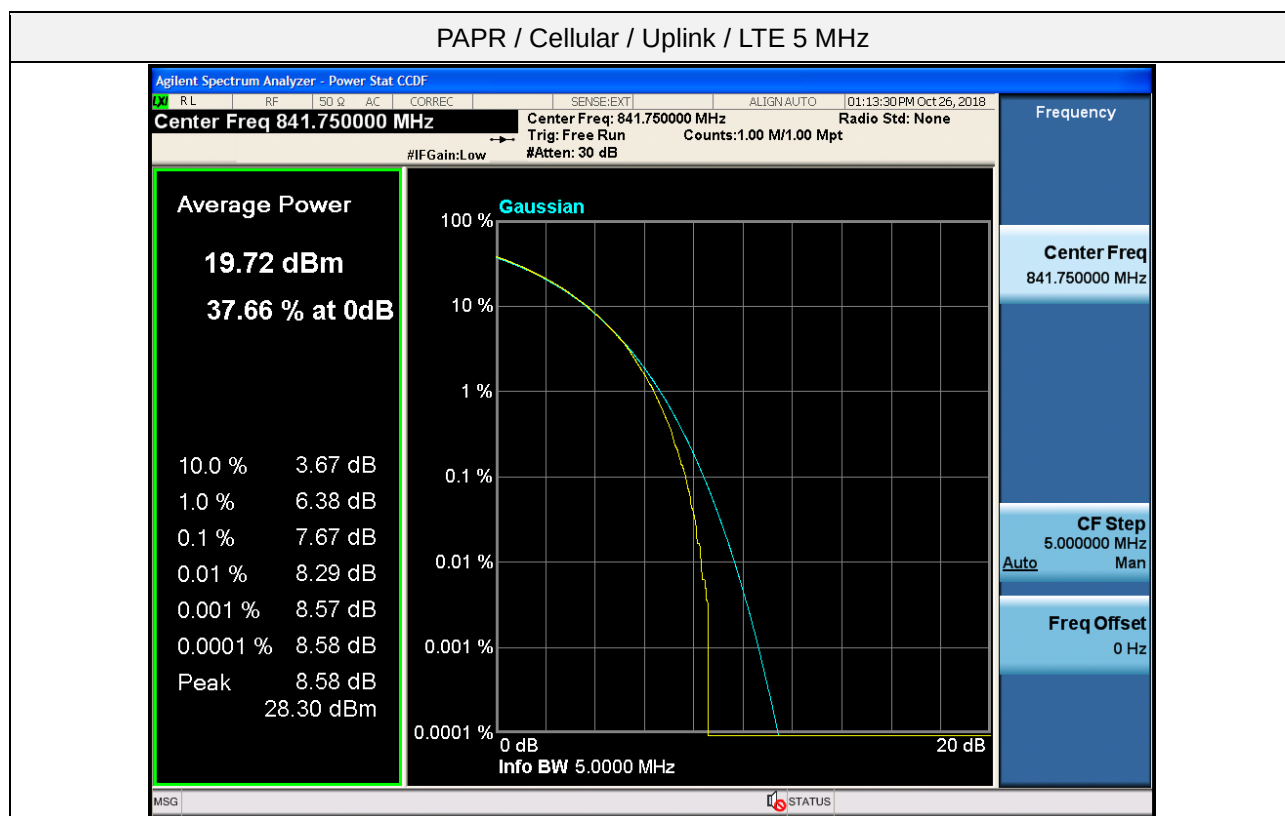
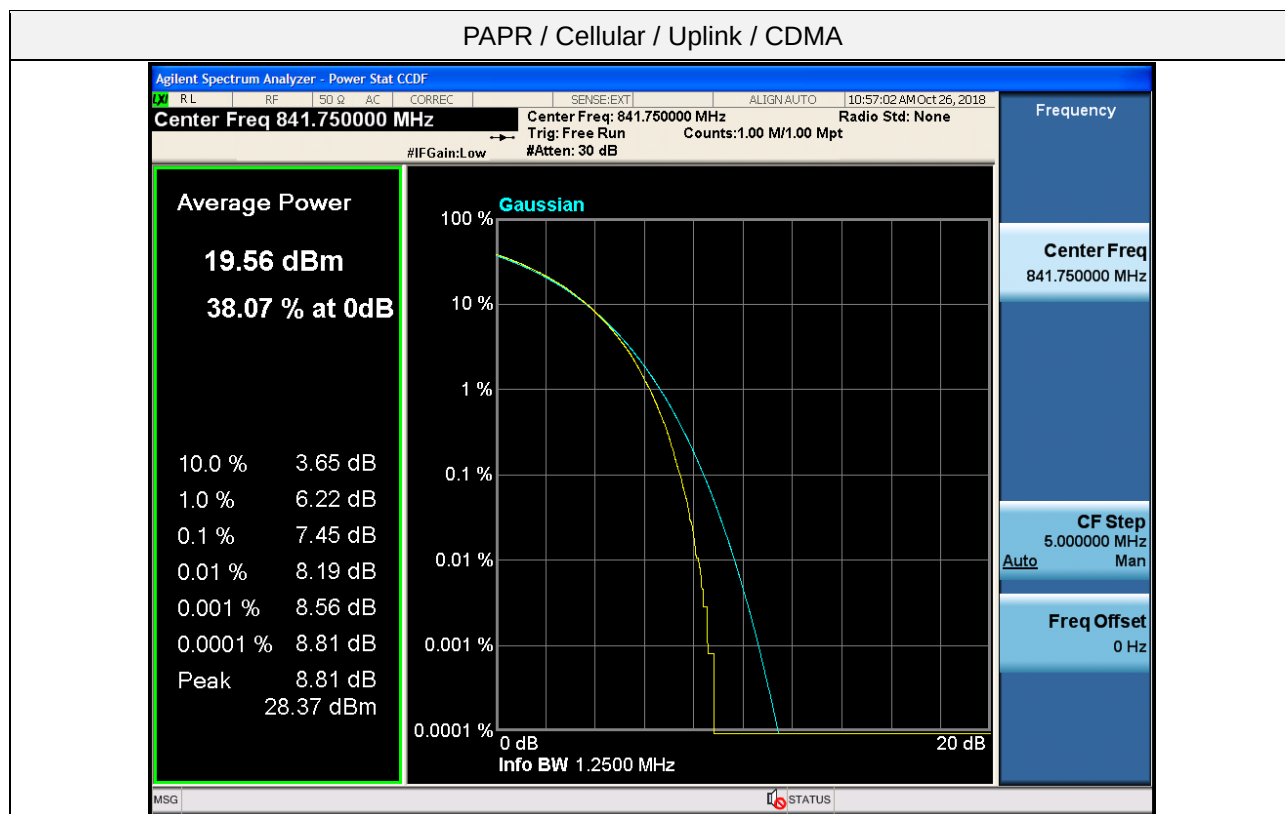
**Tabular data of Input / 3 dB above AGC threshold Output Power and Gain**

| Test Band     | Link     | Signal     | f <sub>0</sub> Frequency (MHz) | Input Power (dBm) | +3 dB Output Power (dBm) | Gain (dB) |
|---------------|----------|------------|--------------------------------|-------------------|--------------------------|-----------|
| Lower 700 MHz | Uplink   | LTE 10 MHz | 709.00                         | -44.92            | 19.32                    | 64.24     |
|               | Downlink | LTE 10 MHz | 739.00                         | -50.18            | 15.38                    | 65.56     |
| Upper 700 MHz | Uplink   | LTE 10 MHz | 781.00                         | -44.85            | 18.93                    | 63.78     |
|               | Downlink | LTE 10 MHz | 751.00                         | -50.11            | 15.10                    | 65.21     |
| Cellular      | Uplink   | CDMA       | 841.75                         | -45.14            | 19.63                    | 64.77     |
|               |          | LTE 5 MHz  | 841.75                         | -45.12            | 20.03                    | 65.15     |
|               | Downlink | CDMA       | 873.56                         | -50.10            | 14.71                    | 64.81     |
|               |          | LTE 5 MHz  | 873.56                         | -50.22            | 15.11                    | 65.33     |
| AWS-1         | Uplink   | LTE 10 MHz | 1723.84                        | -50.19            | 20.24                    | 70.43     |
|               | Downlink | LTE 10 MHz | 2125.53                        | -54.98            | 14.97                    | 69.95     |
| Broadband PCS | Uplink   | CDMA       | 1863.49                        | -49.63            | 19.54                    | 69.17     |
|               |          | LTE 20 MHz | 1863.49                        | -49.91            | 19.77                    | 69.68     |
|               | Downlink | CDMA       | 1944.30                        | -55.52            | 15.05                    | 70.57     |
|               |          | LTE 20 MHz | 1944.30                        | -55.16            | 15.35                    | 70.51     |

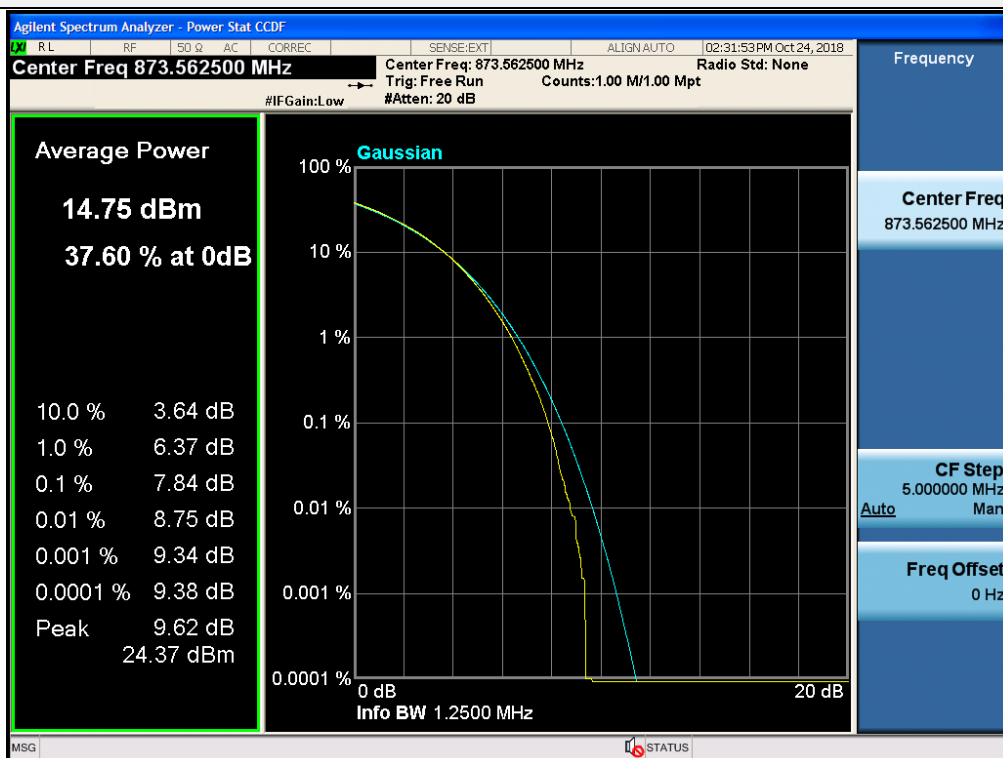
**Tabular data of PAPR**

| Test Band     | Link     | Signal     | f <sub>0</sub> Frequency (MHz) | 0.1 % PAPR (dB) |
|---------------|----------|------------|--------------------------------|-----------------|
| Cellular      | Uplink   | CDMA       | 841.75                         | 7.45            |
|               |          | LTE 5 MHz  | 841.75                         | 7.67            |
|               | Downlink | CDMA       | 873.56                         | 7.84            |
|               |          | LTE 5 MHz  | 873.56                         | 8.23            |
| AWS-1         | Uplink   | LTE 10 MHz | 1723.84                        | 8.11            |
|               | Downlink | LTE 10 MHz | 2125.53                        | 8.33            |
| Broadband PCS | Uplink   | CDMA       | 1863.49                        | 7.91            |
|               |          | LTE 20 MHz | 1863.49                        | 8.19            |
|               | Downlink | CDMA       | 1944.30                        | 7.77            |
|               |          | LTE 20 MHz | 1944.30                        | 7.83            |

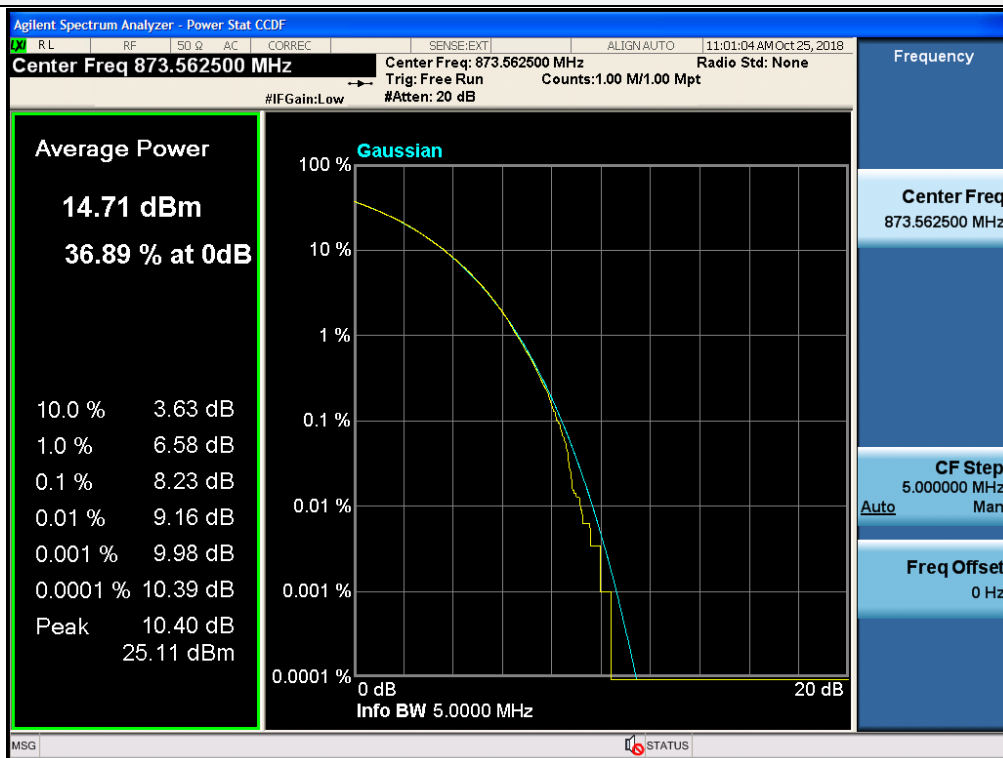
Plot data of PAPR



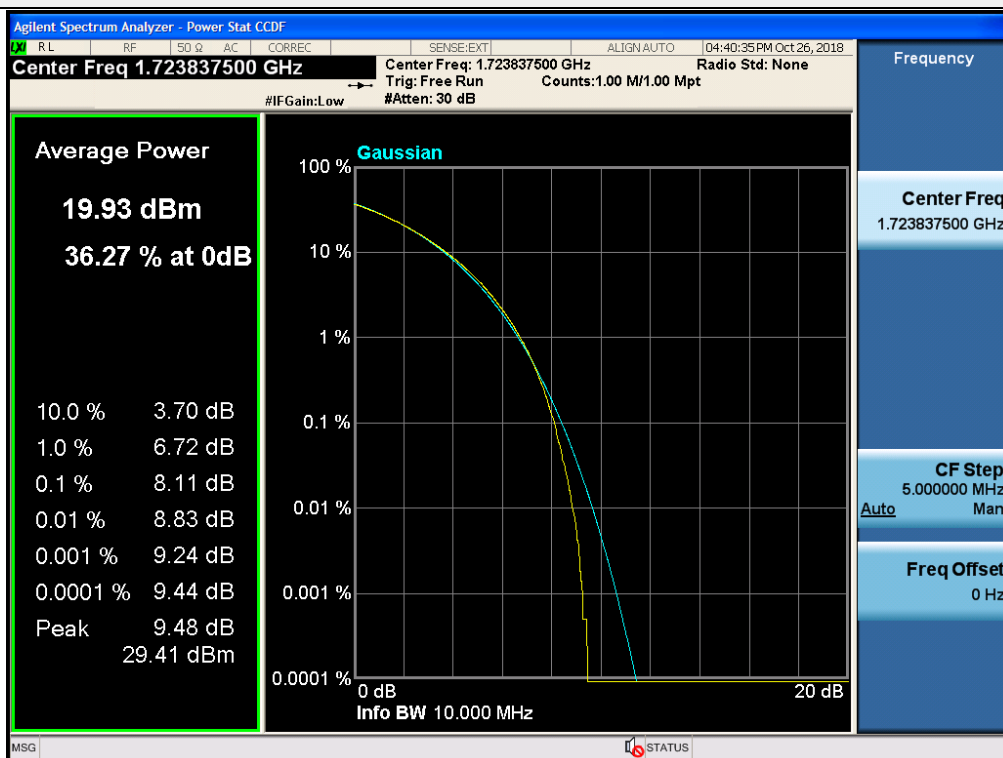
PAPR / Cellular / Downlink / CDMA



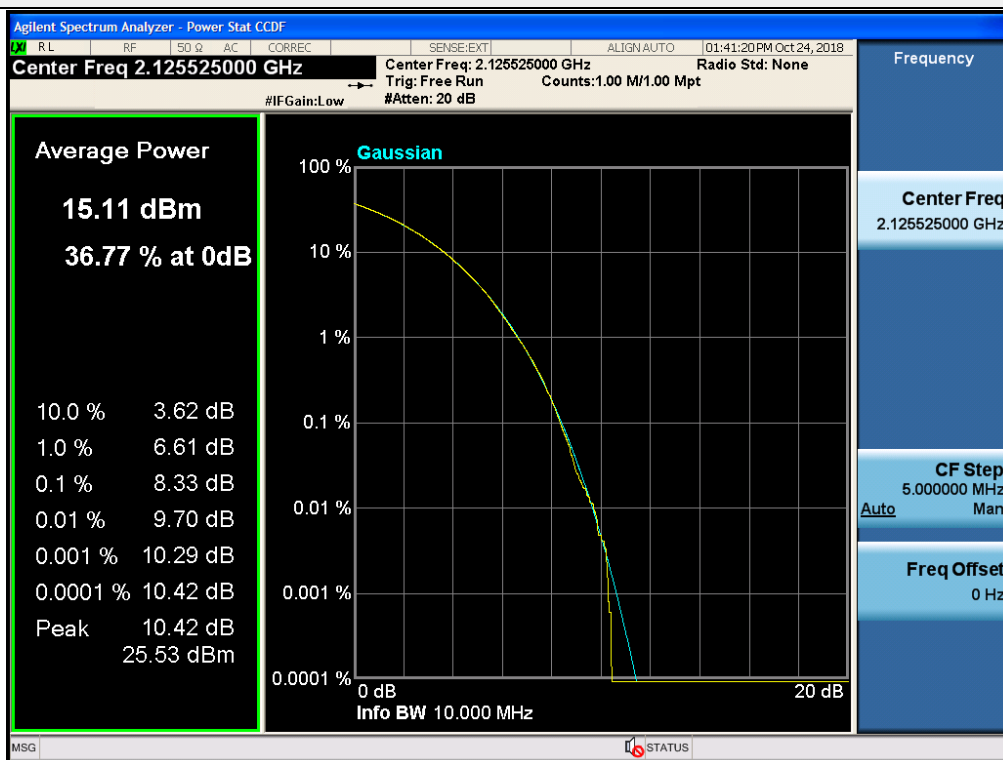
PAPR / Cellular / Downlink / LTE 5 MHz



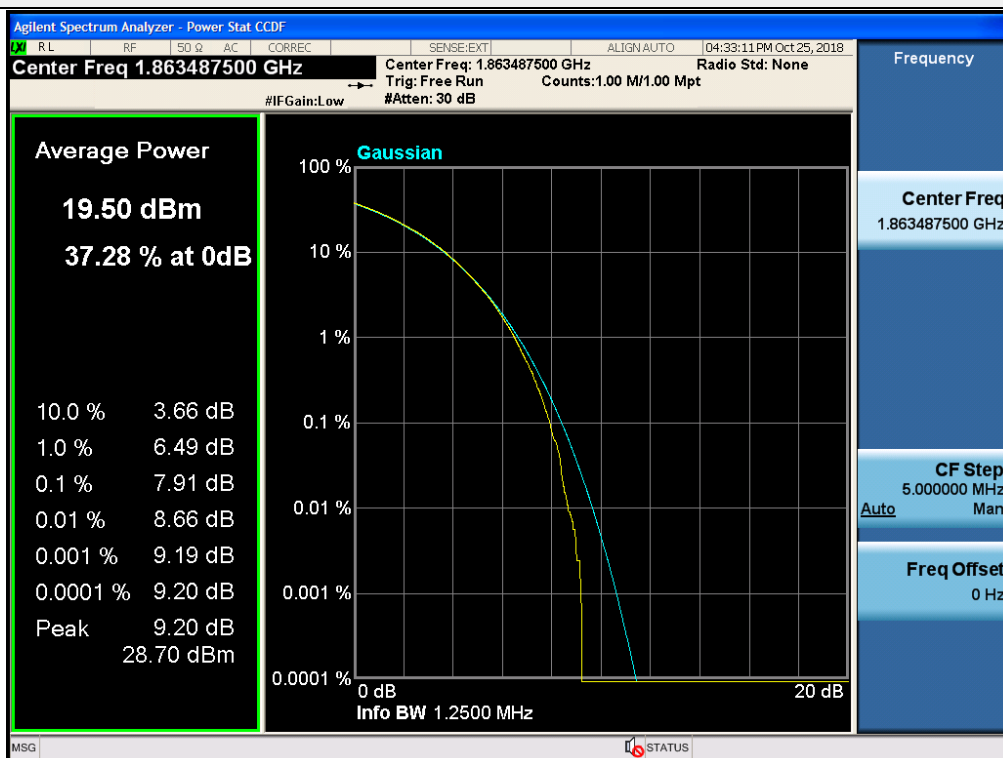
PAPR / AWS-1 / Uplink / LTE 10 MHz



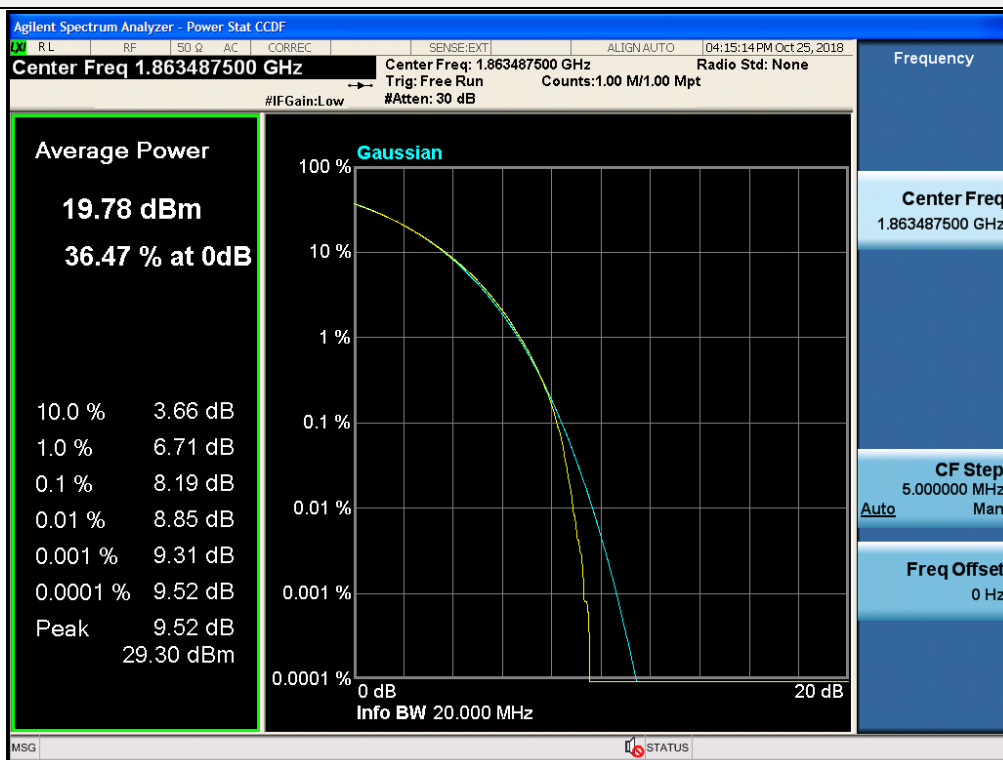
PAPR / AWS-1 / Downlink / LTE 10 MHz



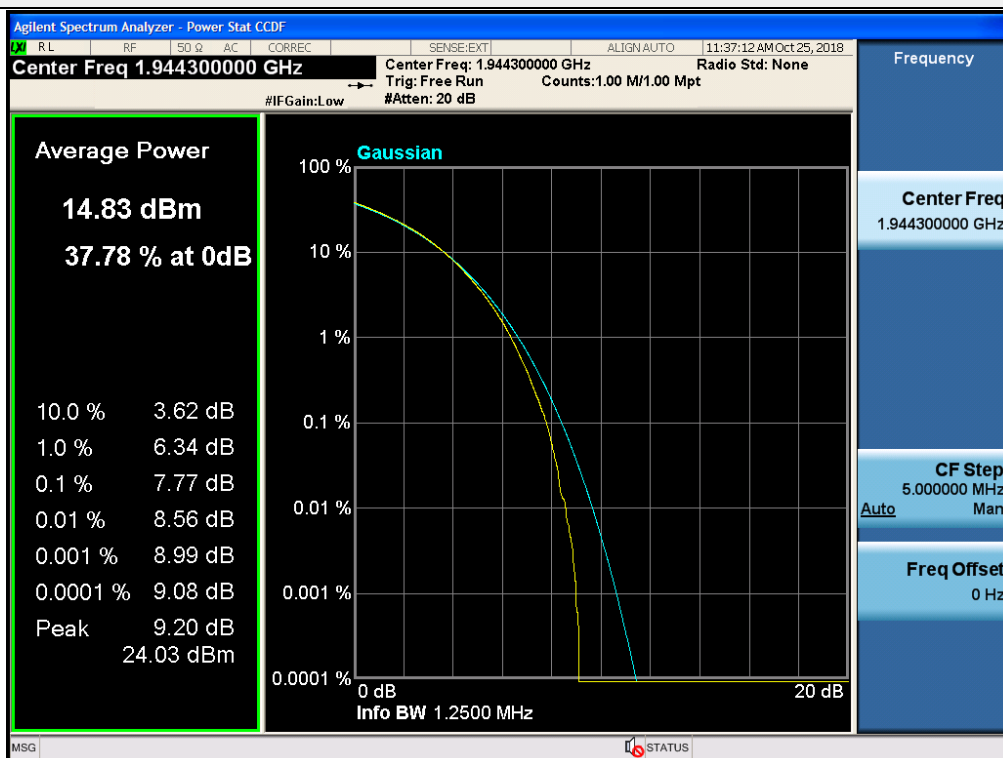
PAPR / Broadband PCS / Uplink / CDMA



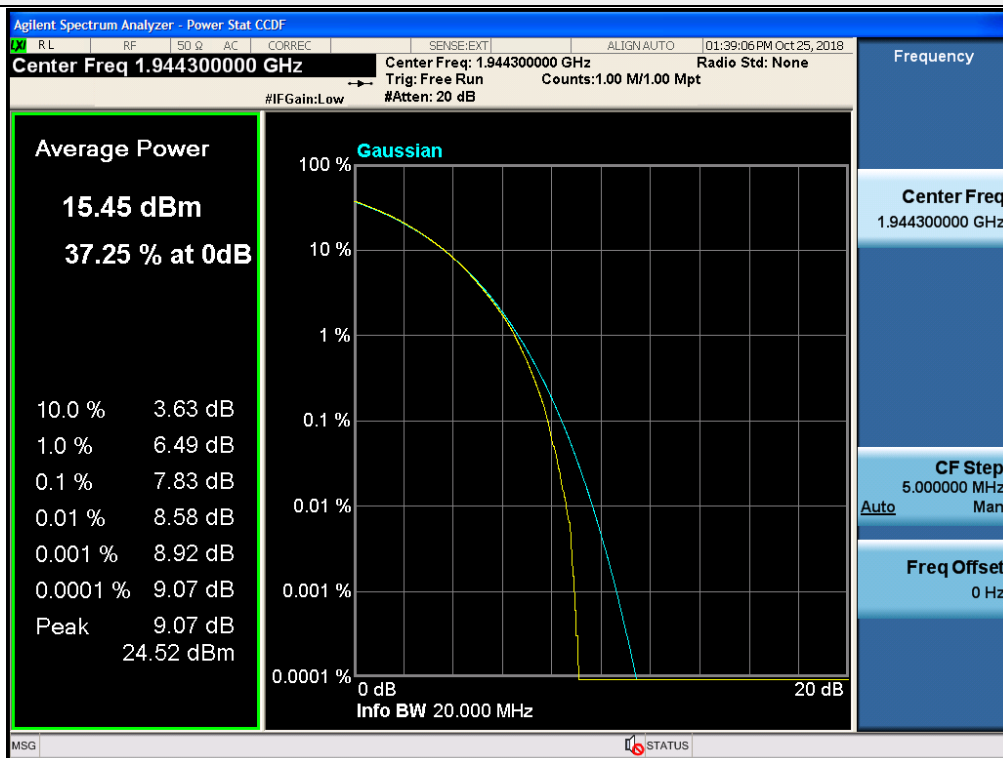
PAPR / Broadband PCS / Uplink / LTE 20 MHz



PAPR / Broadband PCS / Downlink / CDMA



PAPR / Broadband PCS / Downlink / LTE 20 MHz





## 5.5. OUT-OF-BAND/OUT-OF-BLOCK EMISSIONS AND SPURIOUS EMISSIONS

### Test Requirements:

#### §2.1051 Measurements required: Spurious emissions at antenna terminals.

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

#### §22.917 Emission limitations for cellular equipment.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a reference bandwidth as follows:

(1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.

(c) Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

(d) Interference caused by out of band emissions. If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.

**§24.238 Emission limitations for Broadband PCS equipment.**

The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

- (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.
- (b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

**§27.53 Emission limits.**

- (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
  - (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;
  - (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;
  - (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log(P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
  - (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
  - (6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
- (f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.
- (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a

licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(h) AWS emission limits

(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

(3) Measurement procedure.

(i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

### Test Procedures:

Measurements were in accordance with the test methods section 3.6 of KDB 935210 D05 v01r02.

*Spurious emissions shall be measured using a single test signal sequentially tuned to the low, middle, and high channels or frequencies within each authorized frequency band of operation.*

*Out-of-band/out-of-block emissions (including intermodulation products) shall be measured under each of the following two stimulus conditions:*

- a) two adjacent test signals sequentially tuned to the lower and upper frequency band/block edges;*
- b) a single test signal, sequentially tuned to the lowest and highest frequencies or channels within the frequency band/block under examination.*

*NOTE—Single-channel boosters that cannot accommodate two simultaneous signals within the passband may be excluded from the test stipulated in step a).*

#### 3.6.2 Out-of-band/out-of-block emissions conducted measurements

- a) Connect a signal generator to the input of the EUT.

*If the signal generator is not capable of generating two modulated carriers simultaneously, then two*

*discrete signal generators can be connected with an appropriate combining network to support this two-signal test.*

- b) Set the signal generator to produce two AWGN signals as previously described.
- c) Set the center frequencies such that the AWGN signals occupy adjacent channels, as defined by industry standards such as 3GPP or 3GPP2, at the upper edge of the frequency band or block under test.
- d) Set the composite power levels such that the input signal is just below the AGC threshold, but not more than 0.5 dB below. The composite power can be measured using the procedures provided in KDB Publication 971168, but it will be necessary to expand the power integration bandwidth so as to include both of the transmit channels.
- e) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary.
- f) Set the RBW = reference bandwidth in the applicable rule section for the supported frequency band.
- g) Set the VBW =  $3 \times \text{RBW}$ .
- h) Set the detector to power averaging (rms) detector.
- i) Set the Sweep time = auto-couple.
- j) Set the spectrum analyzer start frequency to the upper block edge frequency, and the stop frequency to the upper block edge frequency plus 300 kHz or 3 MHz, for frequencies below and above 1 GHz, respectively.
- k) Trace average at least 100 traces in power averaging (rms) mode.
- l) Use the marker function to find the maximum power level.
- m) Capture the spectrum analyzer trace of the power level for inclusion in the test report.
- n) Repeat steps k) to m) with the composite input power level set to 3 dB above the AGC threshold.
- o) Reset the frequencies of the input signals to the lower edge of the frequency block or band under test.
- p) Reset the spectrum analyzer start frequency to the lower block edge frequency minus 300 kHz or 3 MHz, for frequencies below and above 1 GHz, respectively, and the stop frequency to the lower band or block edge frequency.
- q) Repeat steps k) to n).
- r) Repeat steps a) to q) with the signal generator configured for a single test signal tuned as close as possible to the block edges.
- s) Repeat steps a) to r) with the narrowband test signal.
- t) Repeat steps a) to s) for all authorized frequency bands or blocks used by the EUT.

### 3.6.3 Spurious emissions conducted measurements

- a) Connect a signal generator to the input of the EUT.
- b) Set the signal generator to produce the broadband test signal as previously described.
- c) Set the center frequency of the test signal to the lowest available channel within the frequency band or block.
- d) Set the EUT input power to a level that is just below the AGC threshold, but not more than 0.5 dB below.
- e) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary.

f) Set the RBW = reference bandwidth in the applicable rule section for the supported frequency band of operation.

g) Set the VBW  $\geq 3 \times$  RBW.

h) Set the Sweep time = auto-couple.

i) Set the spectrum analyzer start frequency to the lowest RF signal generated in the equipment, without going below 9 kHz, and the stop frequency to the lower band/block edge frequency minus 100 kHz or 1 MHz, as specified in the applicable rule part.

The number of measurement points in each sweep must be  $\geq (2 \times \text{span}/\text{RBW})$ , which may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the available number of measurement points provided by the spectrum analyzer.

j) Select the power averaging (rms) detector function.

k) Trace average at least 10 traces in power averaging (rms) mode.

l) Use the peak marker function to identify the highest amplitude level over each measured frequency range. Record the frequency and amplitude and capture a plot for inclusion in the test report.

m) Reset the spectrum analyzer start frequency to the upper band/block edge frequency plus 100 kHz or 1 MHz, as specified in the applicable rule part, and the spectrum analyzer stop frequency to 10 times the highest frequency of the fundamental emission. The number of measurement points in each sweep must be  $\geq (2 \times \text{span}/\text{RBW})$ , which may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the available number of measurement points provided by the spectrum analyzer.

n) Trace average at least 10 traces in power averaging (rms) mode.

o) Use the peak marker function to identify the highest amplitude level over each of the measured frequency ranges. Record the frequency and amplitude and capture a plot for inclusion in the test report; also provide tabular data, if required.

p) Repeat steps i) to o) with the input test signals firstly tuned to a middle band/block frequency/channel, and then tuned to a high band/block frequency/channel.

q) Repeat steps b) to p) with the narrowband test signal.

r) Repeat steps b) to q) for all authorized frequency bands/blocks used by the EUT.

**Note1.** In 9 kHz-150 kHz and 150 kHz-30 MHz bands, RBW was reduced to 1 kHz and 10 kHz and correction factor was applied according to section 5.7.2 of ANSI C63.26-2015

| Band                           | 9 ~ 150 kHz Correction | 150 kHz ~ 30 MHz Correction |
|--------------------------------|------------------------|-----------------------------|
| Below 1 GHz (Ref.RBW: 100 kHz) | 20 dB                  | 10 dB                       |
| Above 1 GHz (Ref.RBW: 1 MHz)   | 30 dB                  | 20 dB                       |

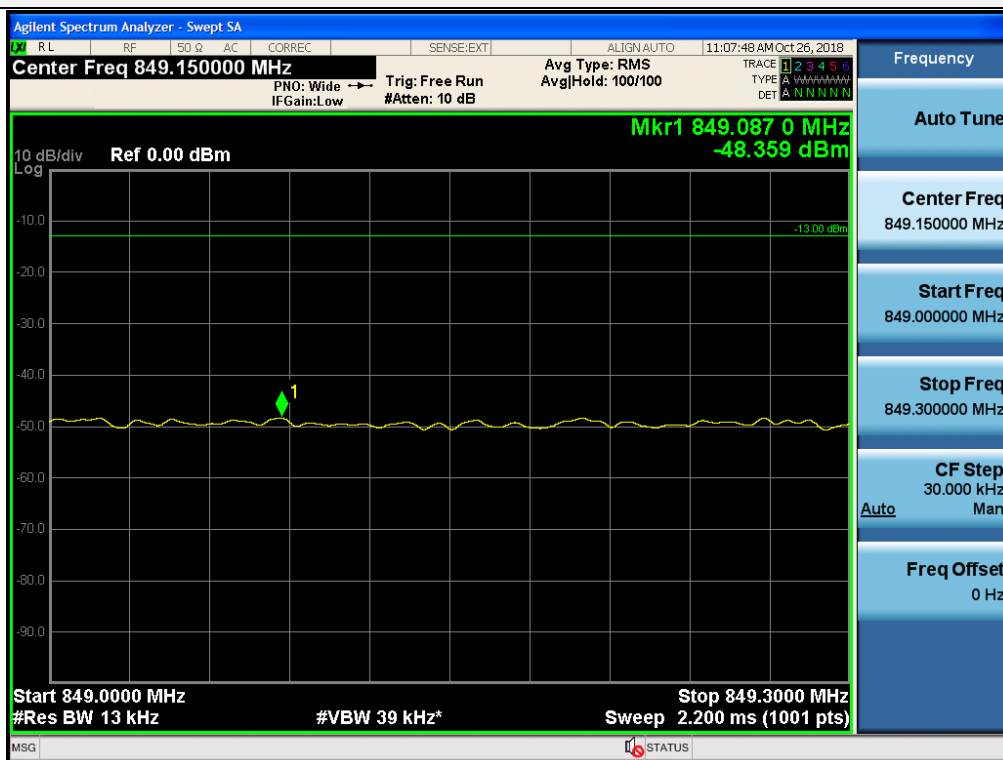
**Note2.** Intermodulation tests are not performed for 700 MHz signal, because the band cannot accommodate two LTE 10 MHz signals. (Refer to Section 3.6.1 of KDB 935210 D05)

**Note3.** Because Upper 700 MHz band can pass only one LTE 10 MHz signal, spurious test was performed on middle channel only.

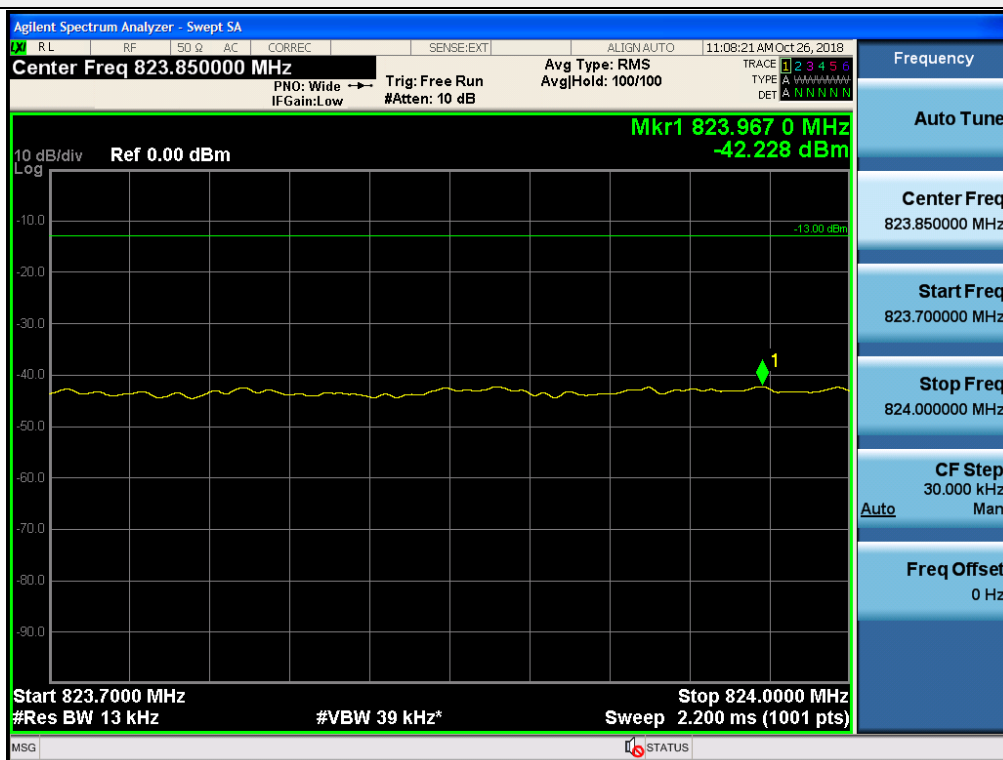
## Test Results:

### Plot data of Out-of-band/out-of-block emissions

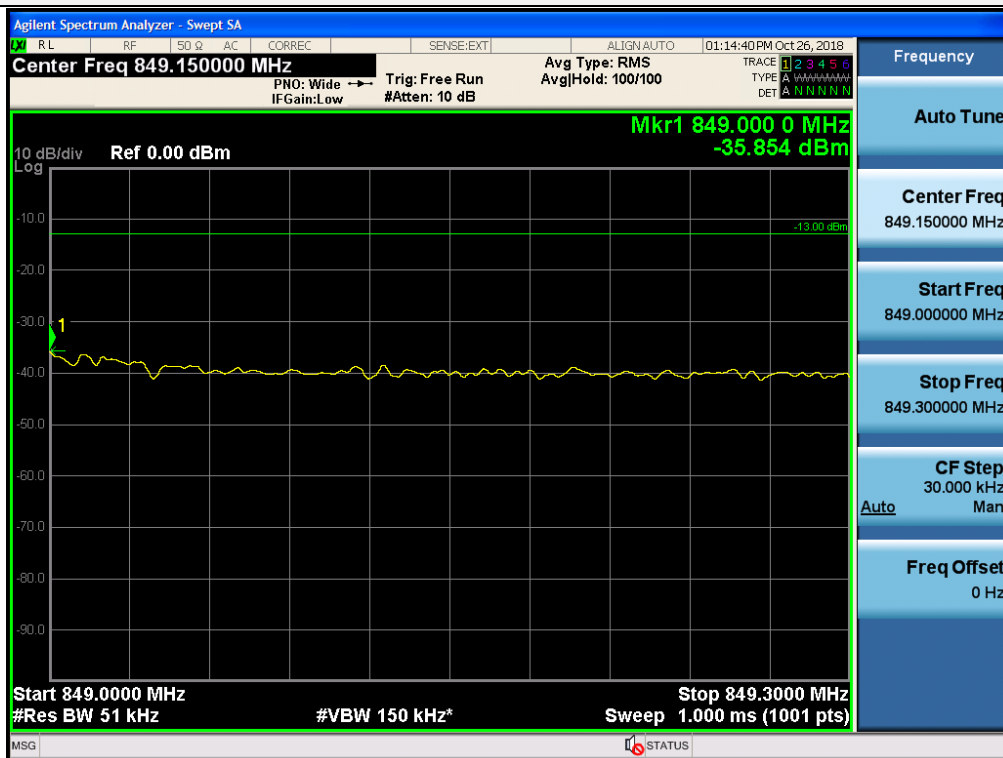
Out-of-band (two adjacent test signals) / Cellular / Uplink / CDMA / Upper



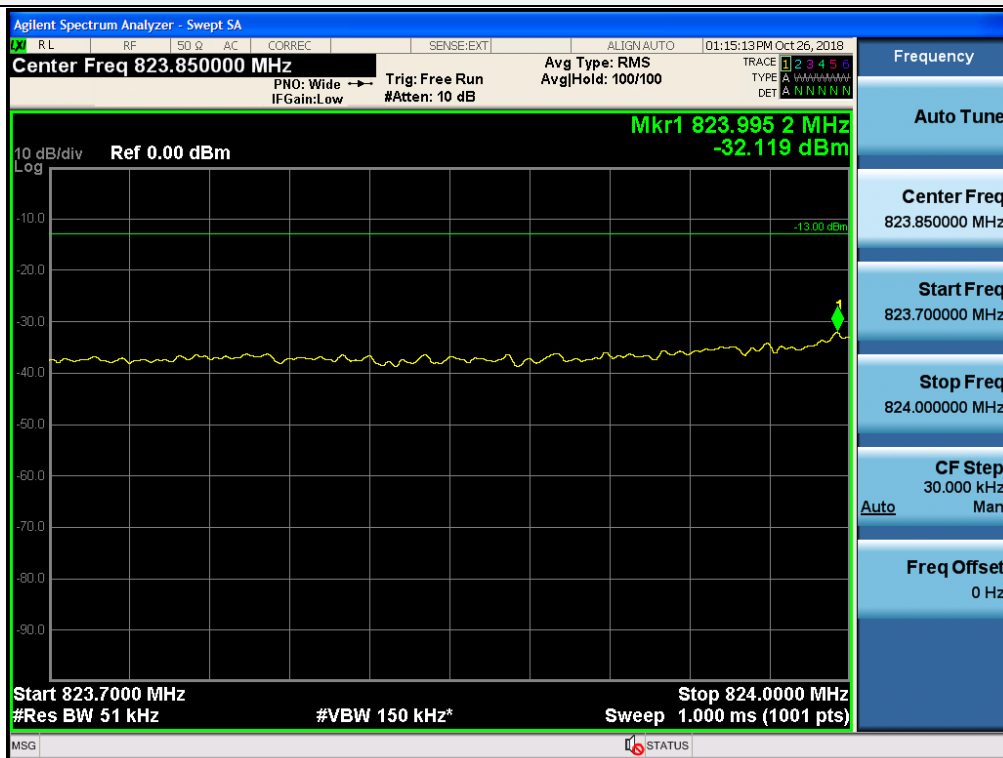
Out-of-band (two adjacent test signals) / Cellular / Uplink / CDMA / Lower



Out-of-band (two adjacent test signals) / Cellular / Uplink / LTE 5 MHz / Upper

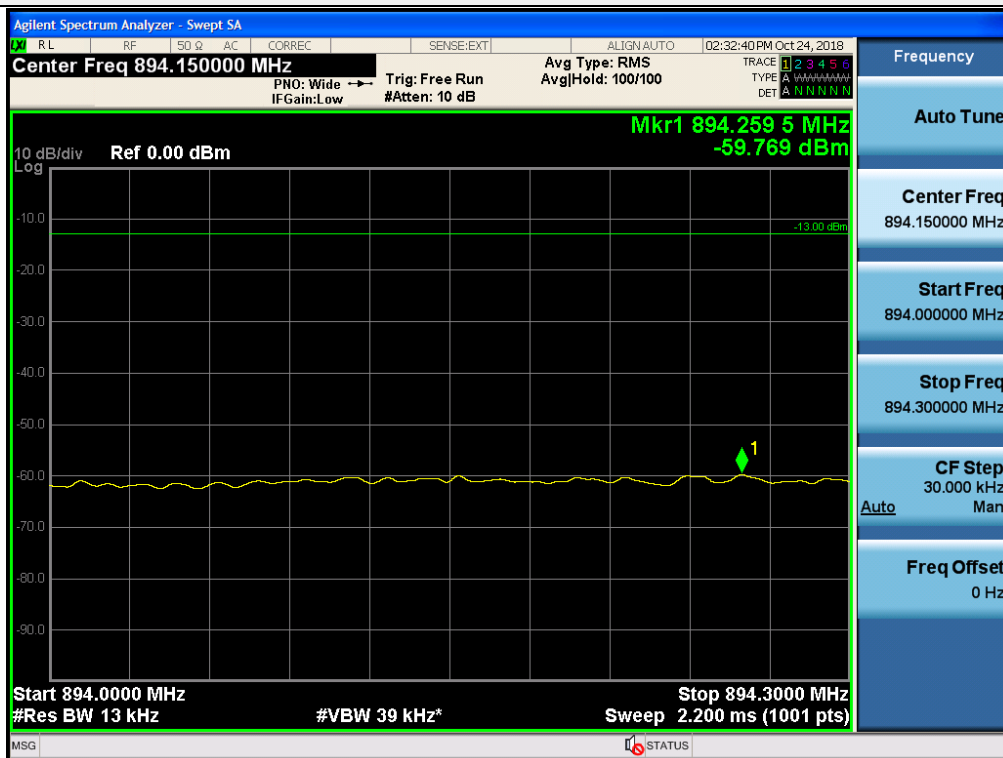


Out-of-band (two adjacent test signals) / Cellular / Uplink / LTE 5 MHz / Lower

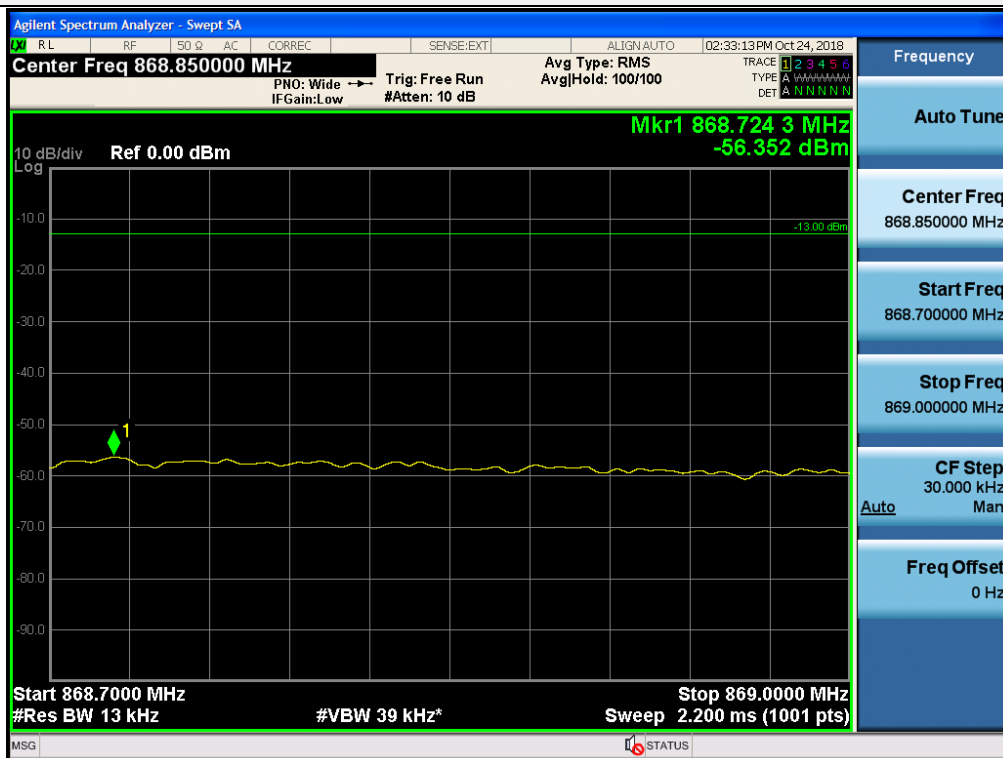




Out-of-band (two adjacent test signals) / Cellular / Downlink / CDMA / Upper

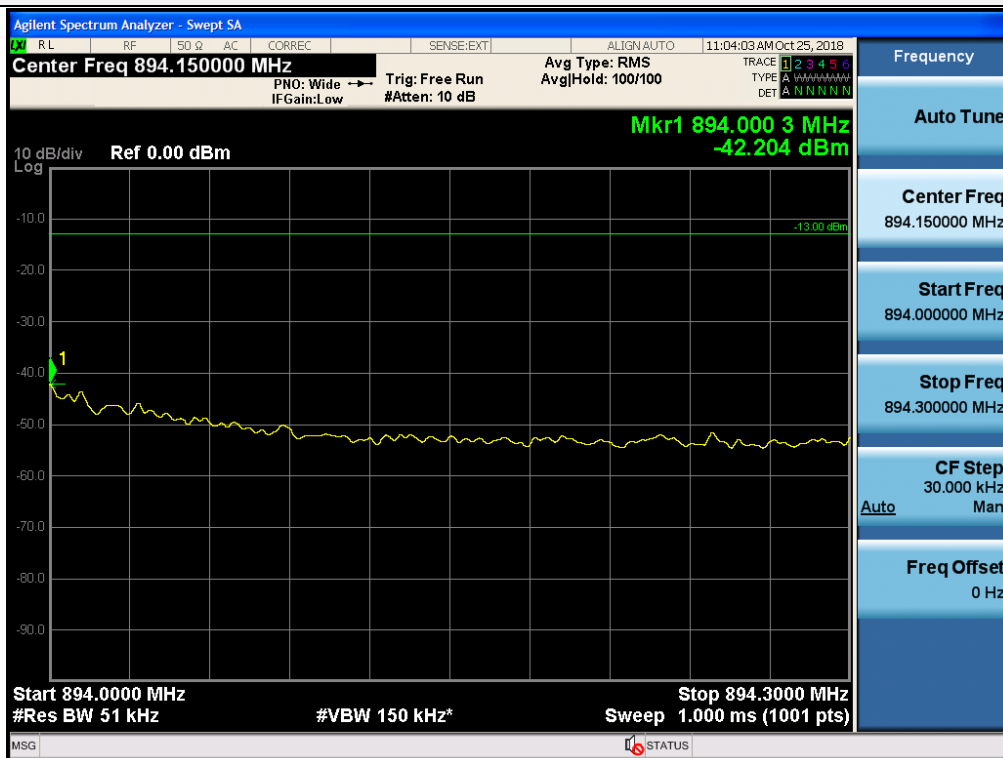


Out-of-band (two adjacent test signals) / Cellular / Downlink / CDMA / Lower

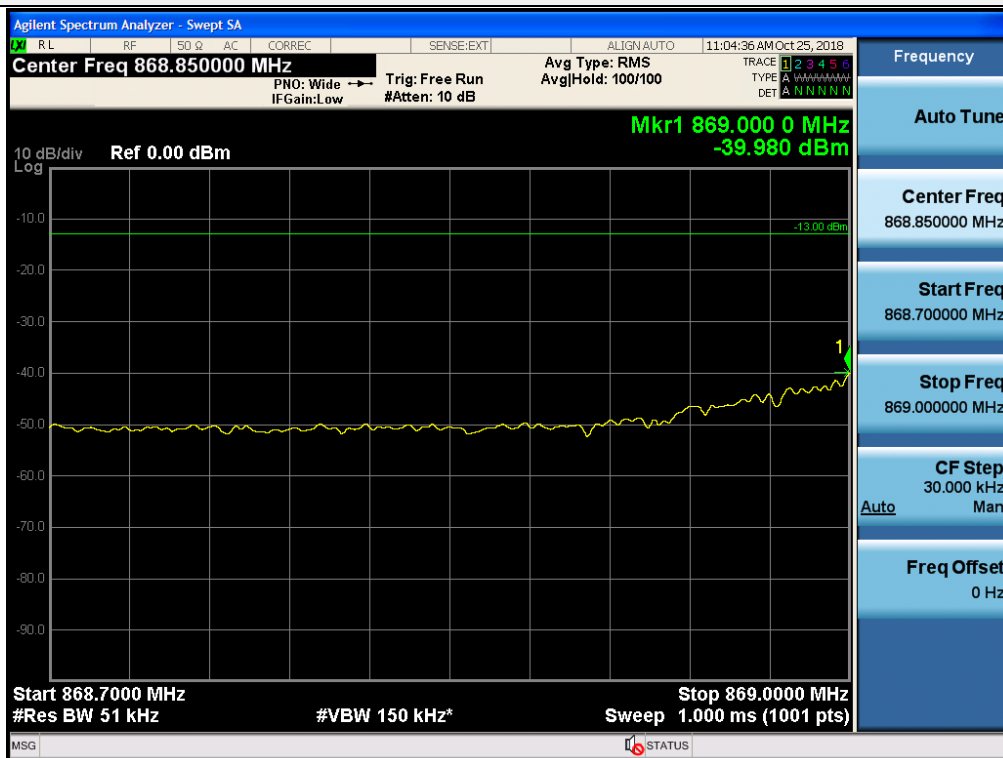




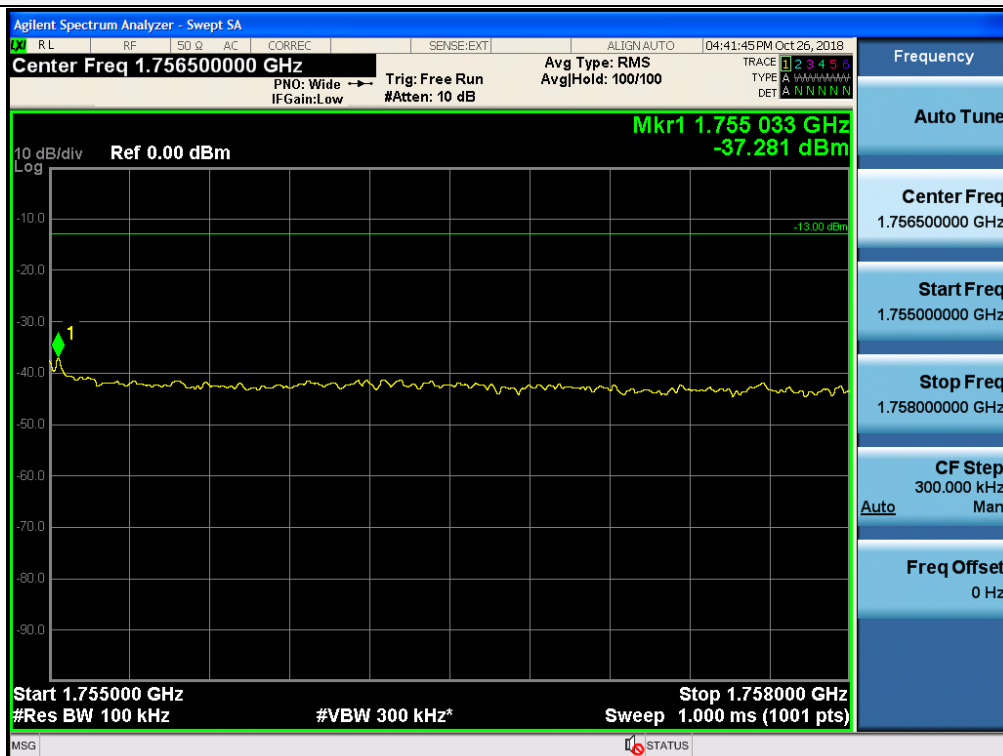
Out-of-band (two adjacent test signals) / Cellular / Downlink / LTE 5 MHz / Upper



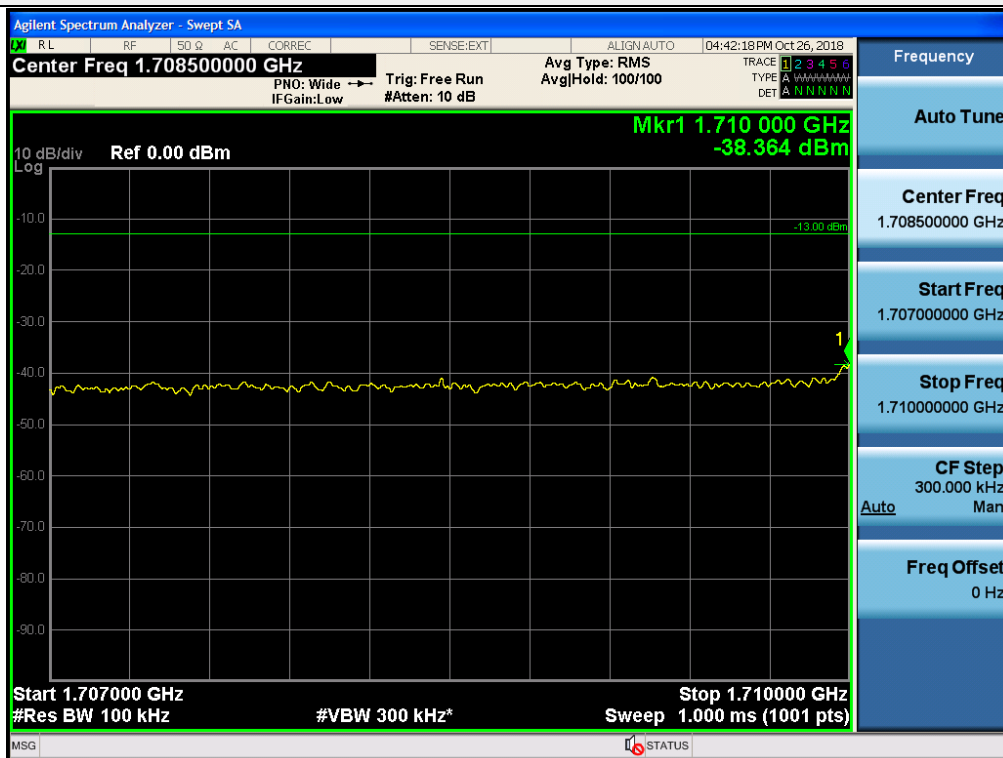
Out-of-band (two adjacent test signals) / Cellular / Downlink / LTE 5 MHz / Lower



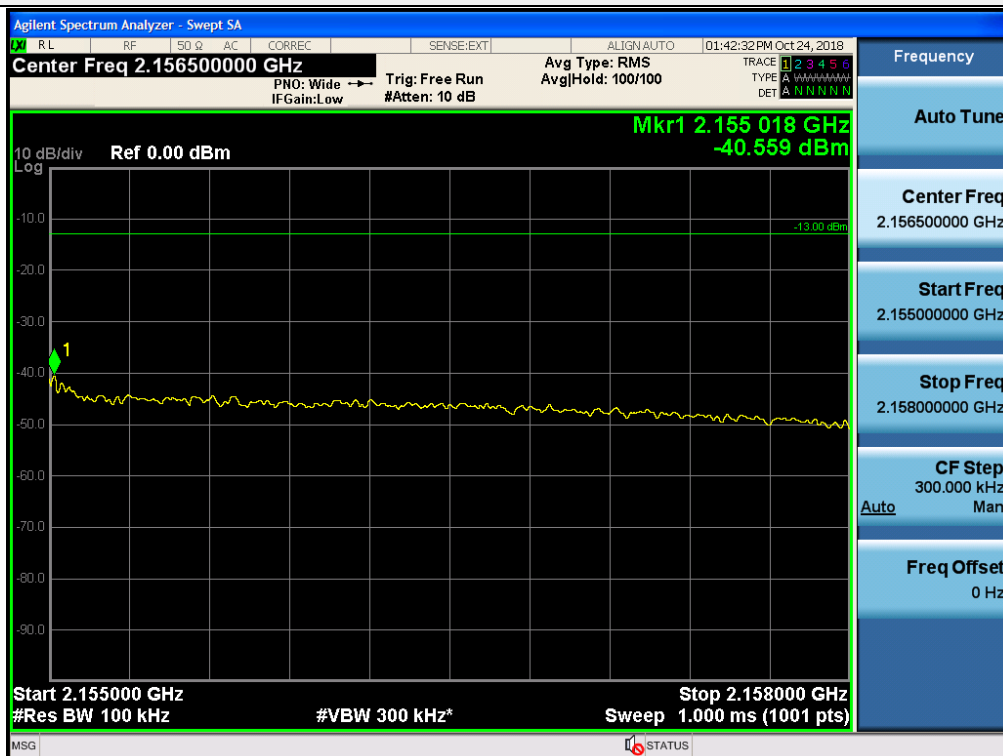
Out-of-band (two adjacent test signals) / AWS-1 / Uplink / LTE 10 MHz / Upper



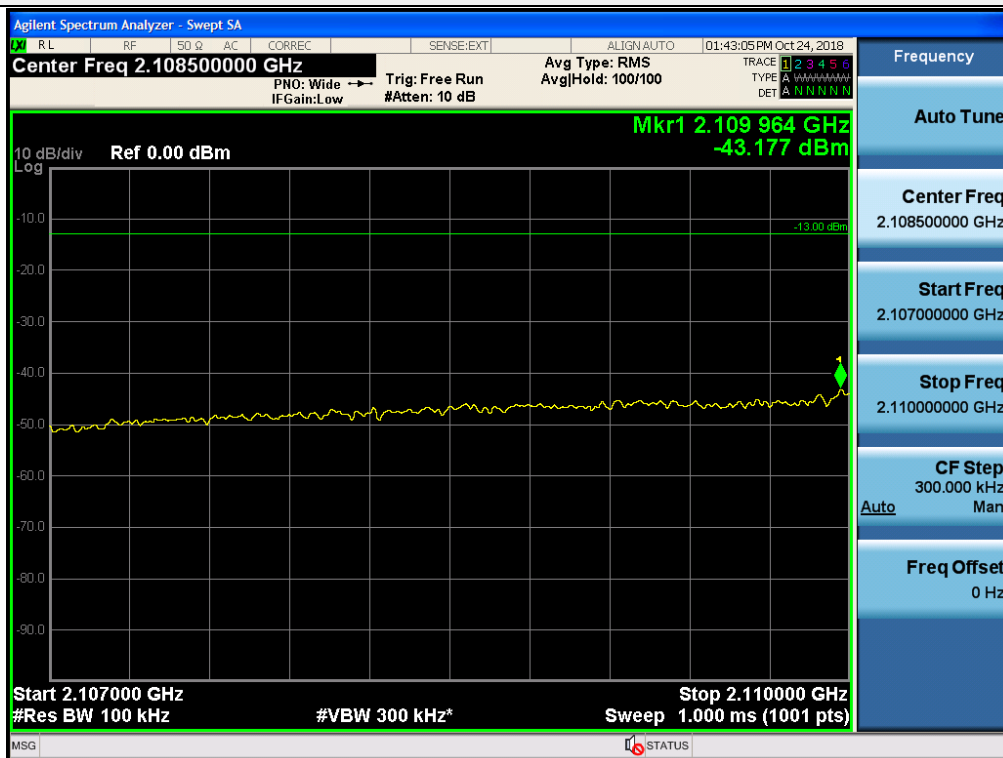
Out-of-band (two adjacent test signals) / AWS-1 / Uplink / LTE 10 MHz / Lower



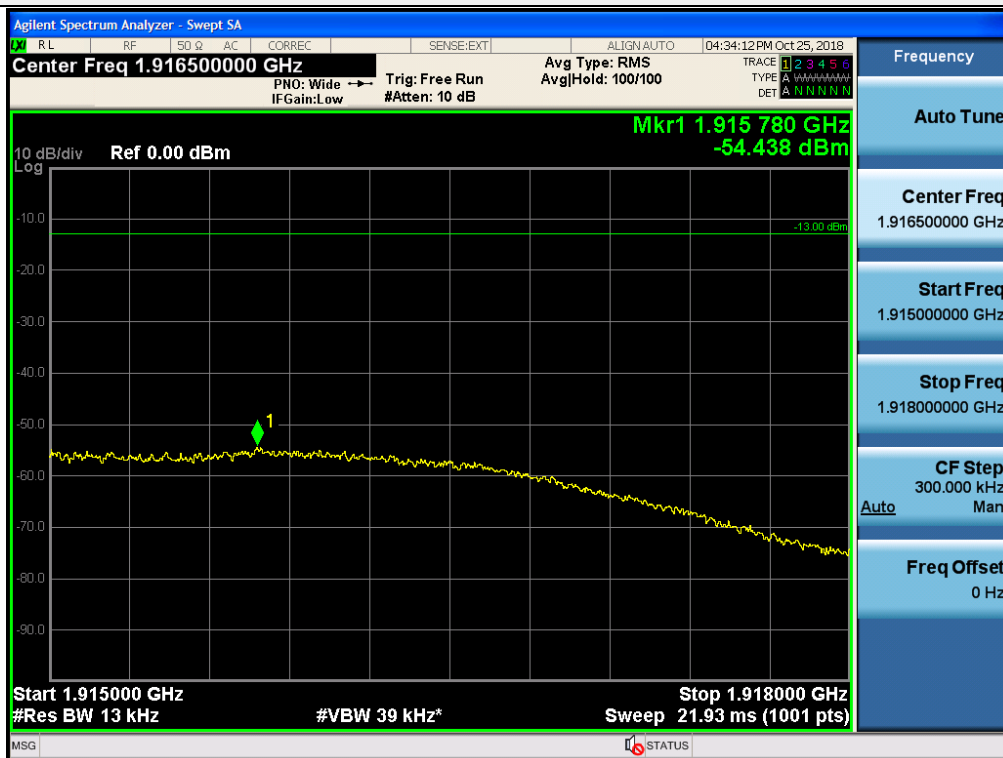
Out-of-band (two adjacent test signals) / AWS-1 / Downlink / LTE 10 MHz / Upper



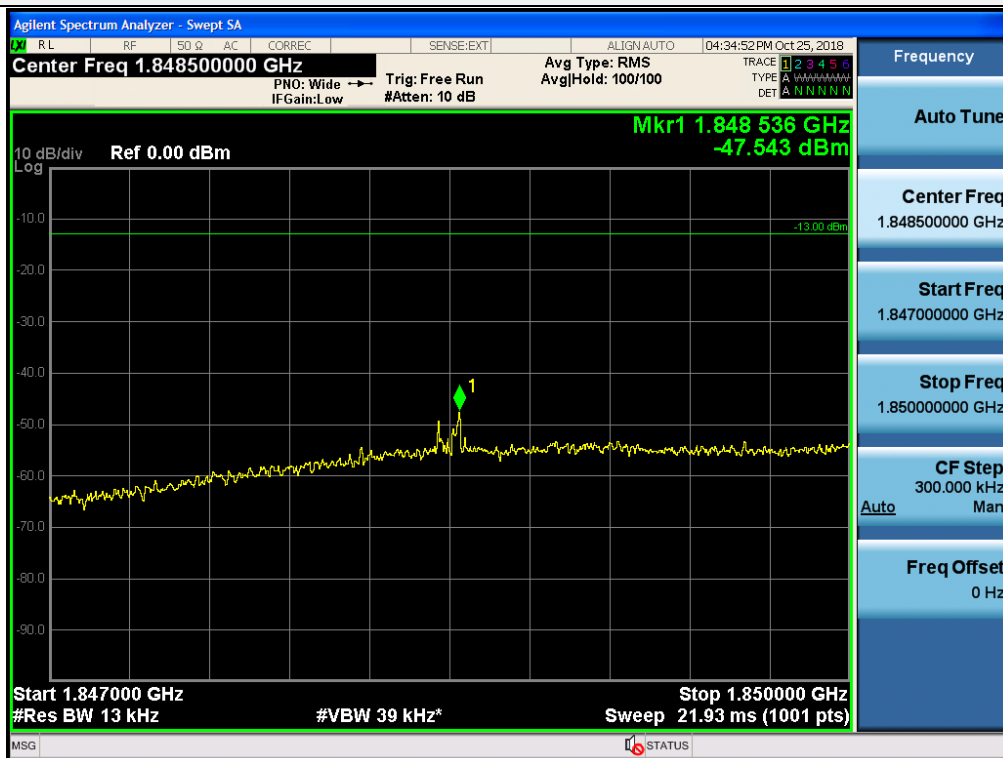
Out-of-band (two adjacent test signals) / AWS-1 / Downlink / LTE 10 MHz / Lower



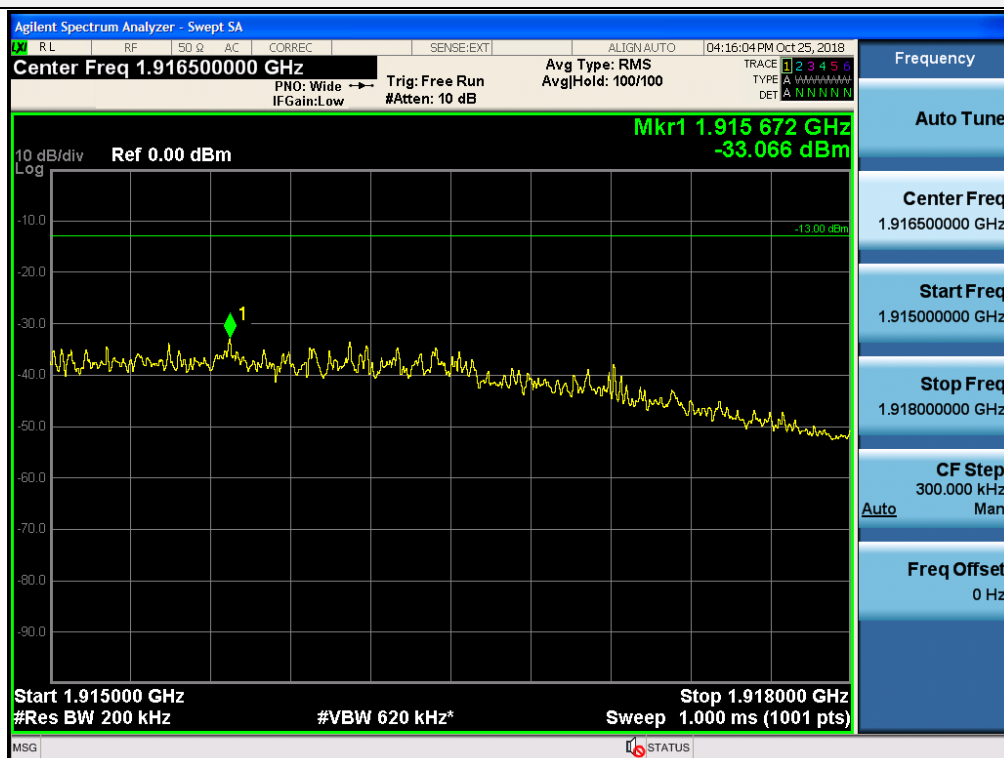
Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / CDMA / Upper



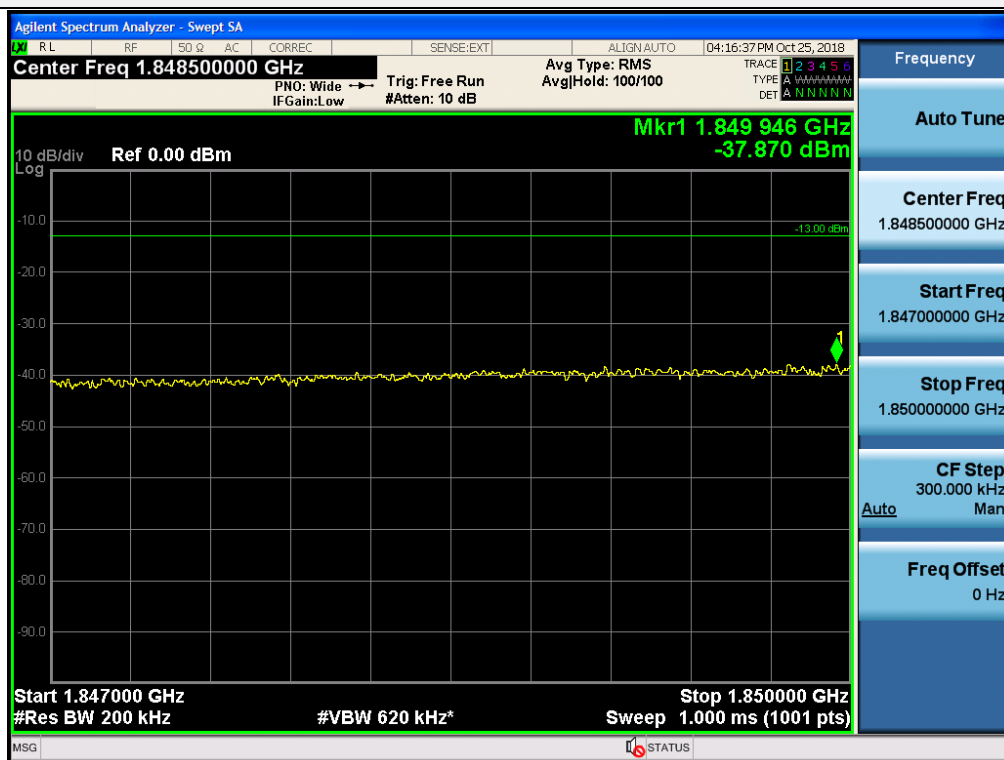
Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / CDMA / Lower



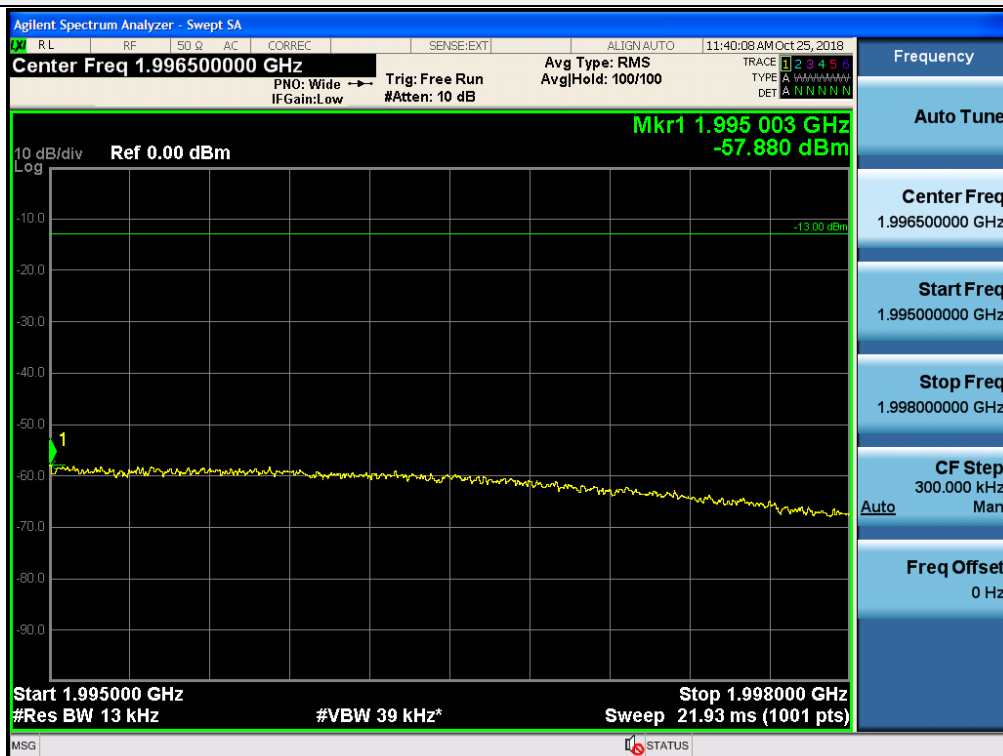
Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / LTE 20 MHz / Upper



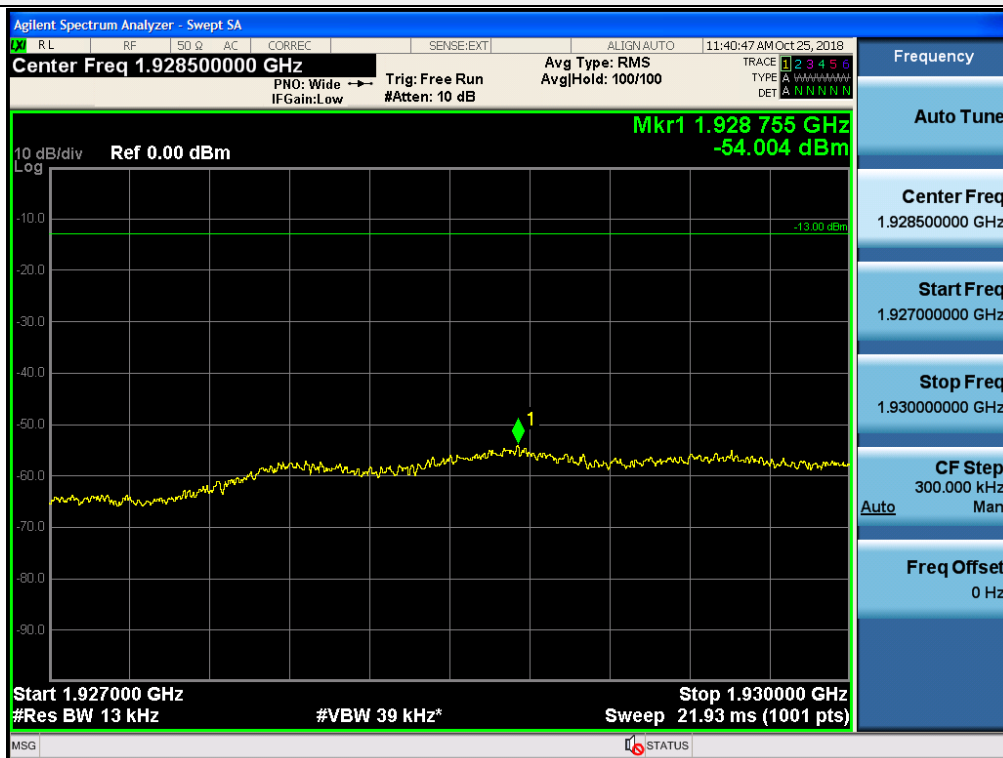
Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / LTE 20 MHz / Lower



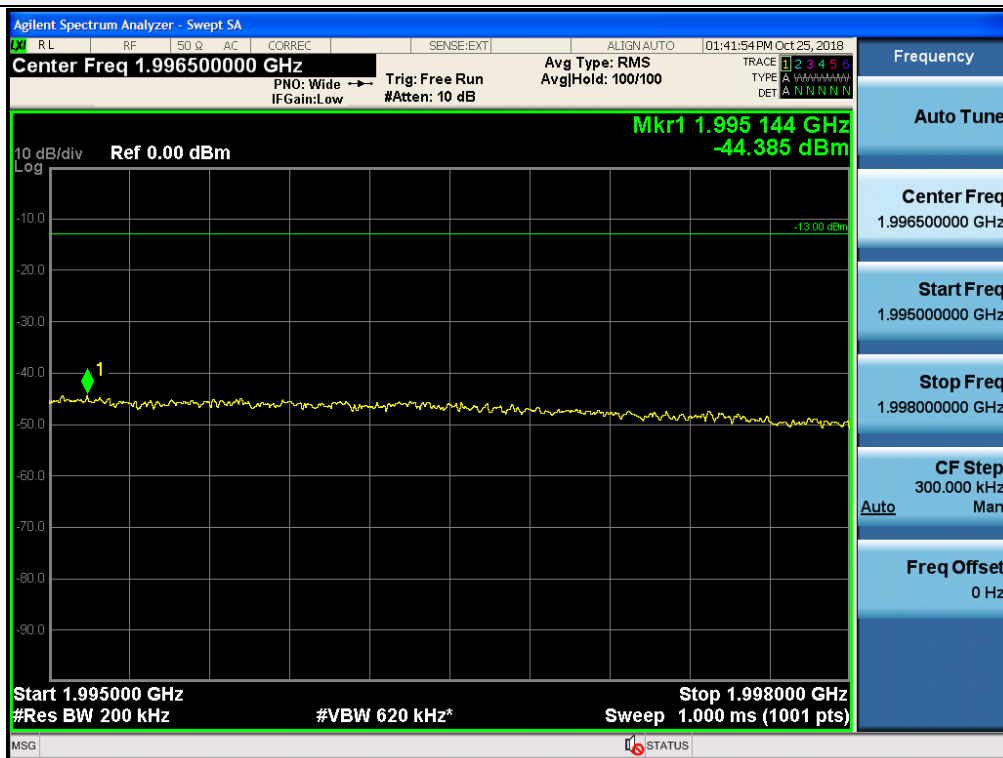
Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / CDMA / Upper



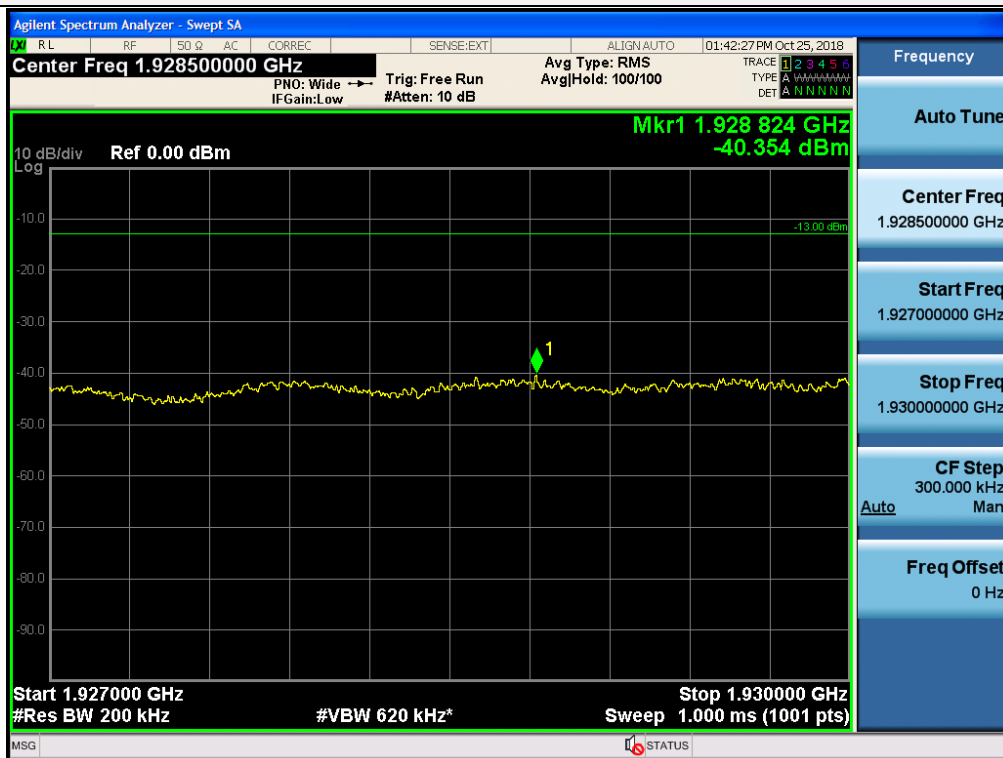
Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / CDMA / Lower



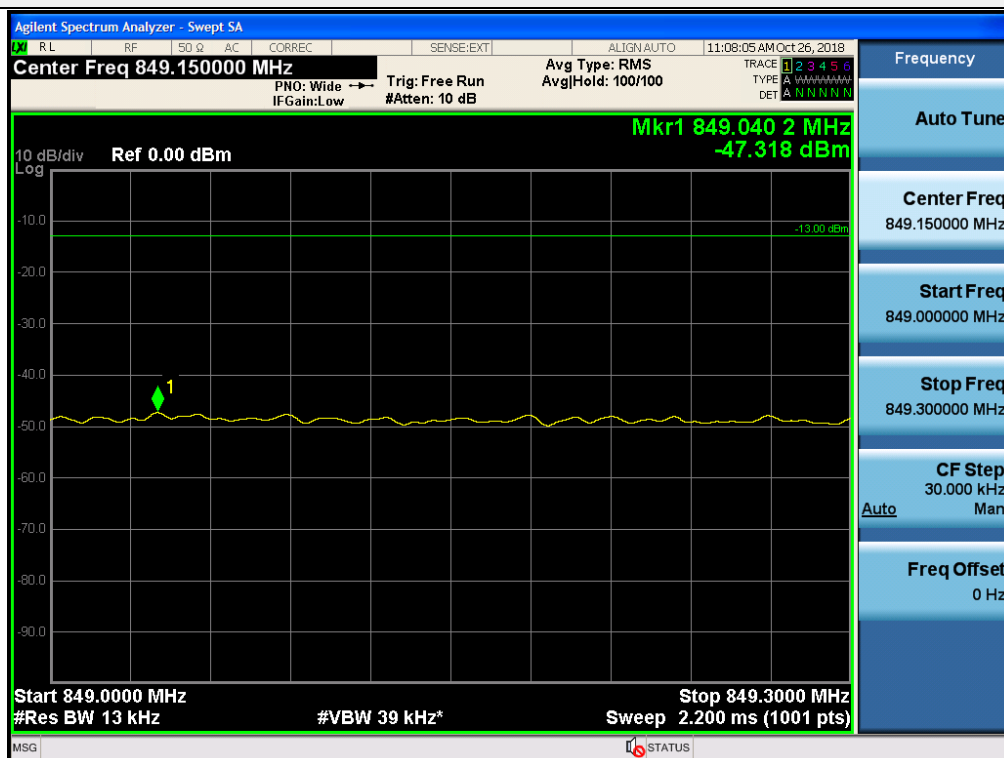
Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / LTE 20 MHz / Upper



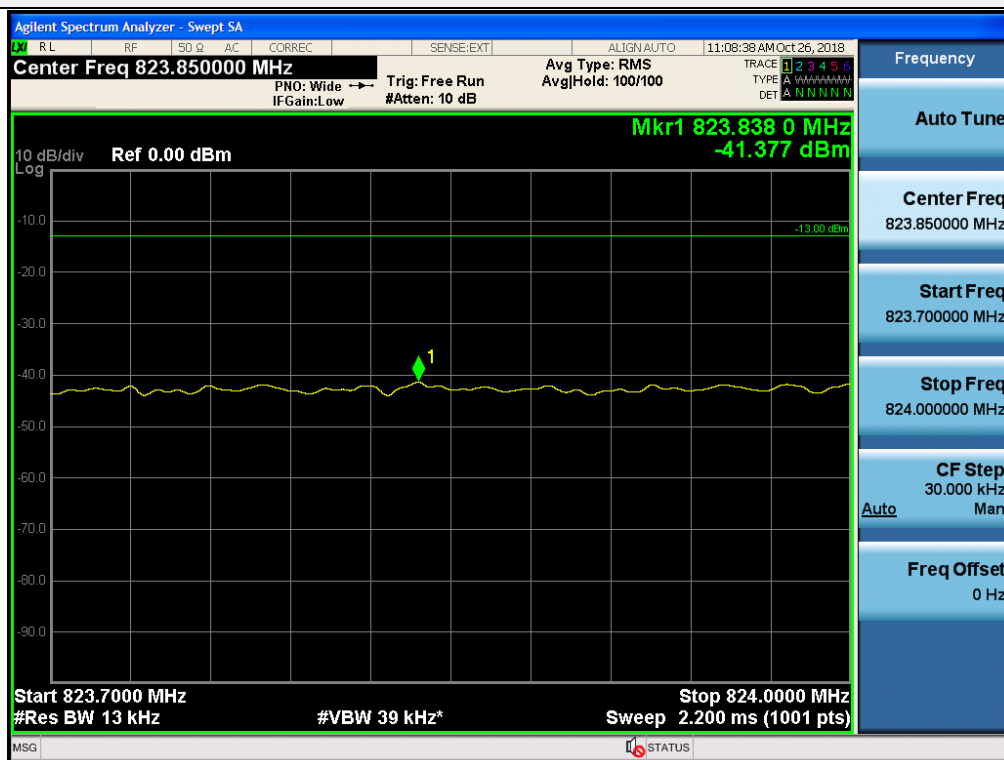
Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / LTE 20 MHz / Lower



+3 dB above Out-of-band (two adjacent test signals) / Cellular / Uplink / CDMA / Upper

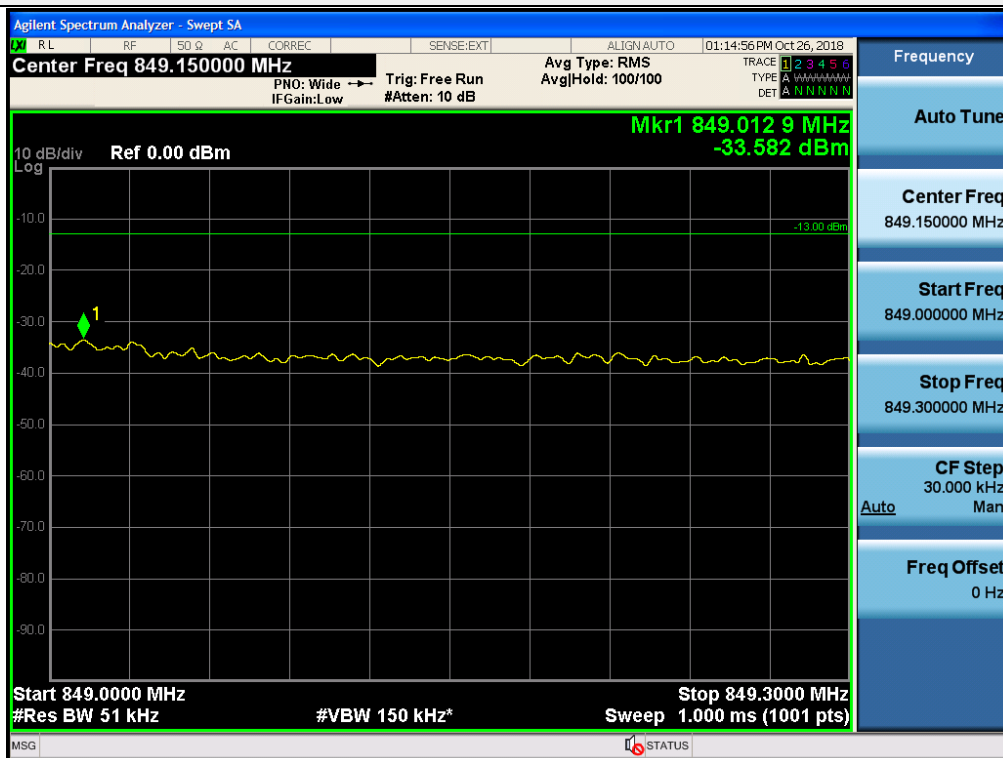


+3 dB above Out-of-band (two adjacent test signals) / Cellular / Uplink / CDMA / Lower

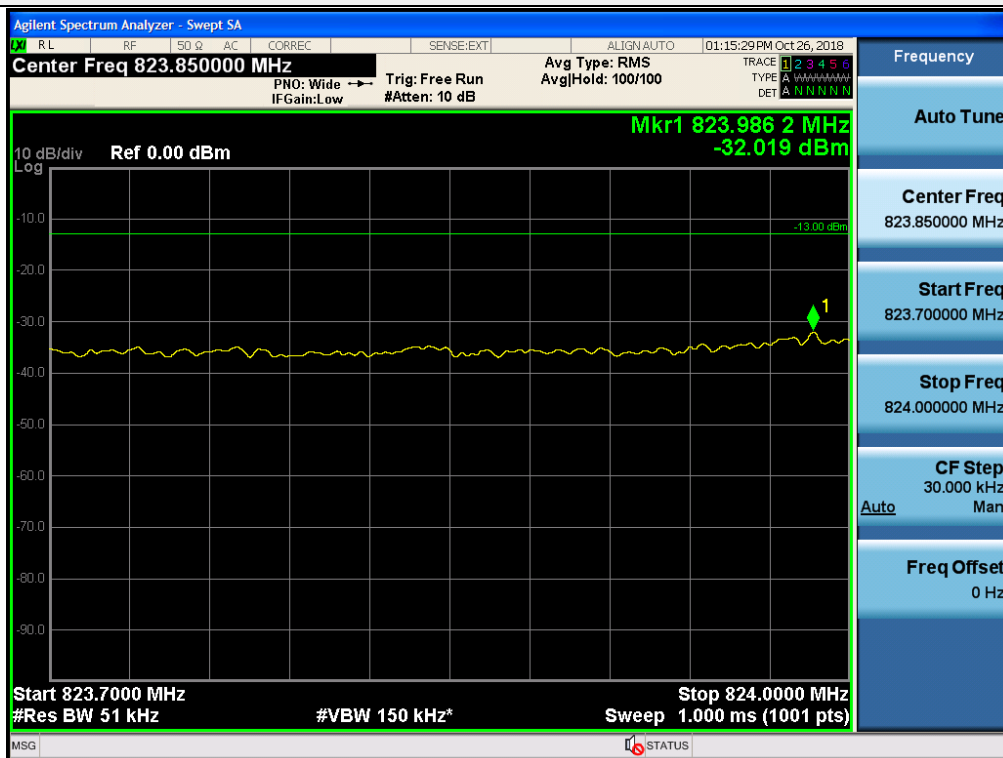




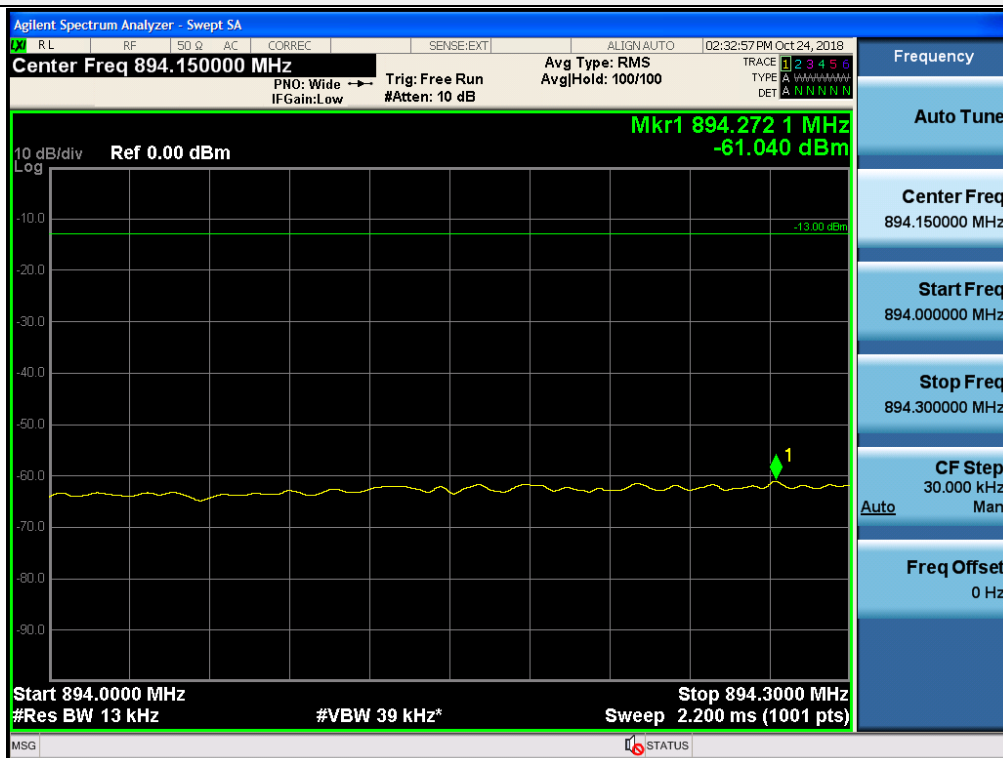
+3 dB above Out-of-band (two adjacent test signals) / Cellular / Uplink / LTE 5 MHz / Upper



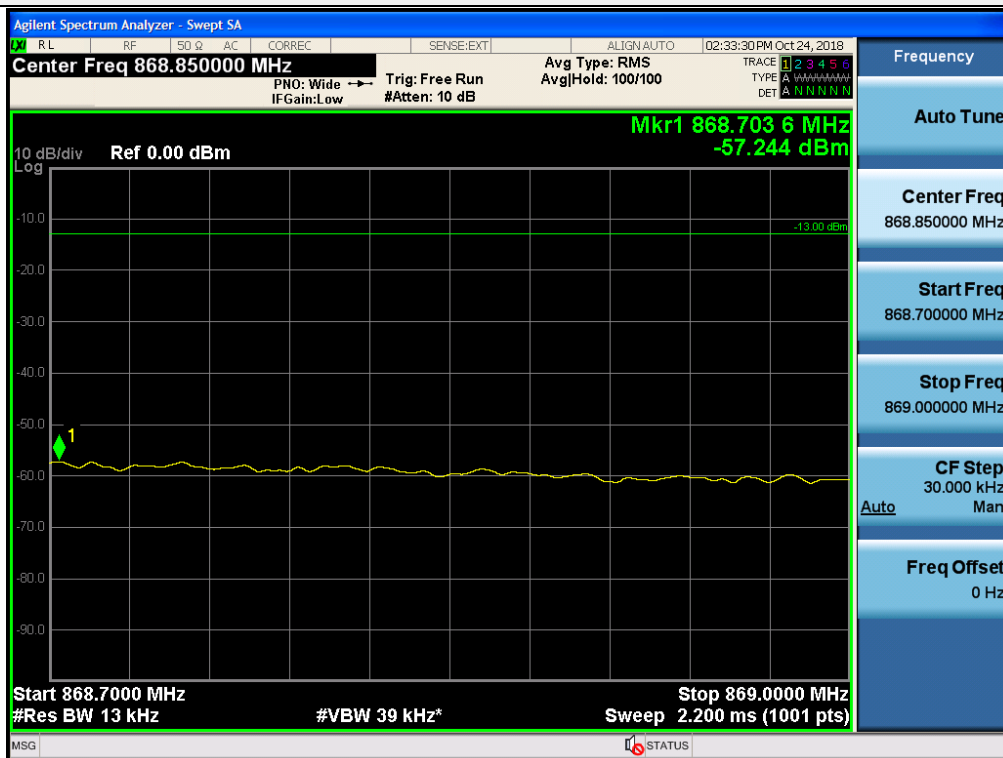
+3 dB above Out-of-band (two adjacent test signals) / Cellular / Uplink / LTE 5 MHz / Lower



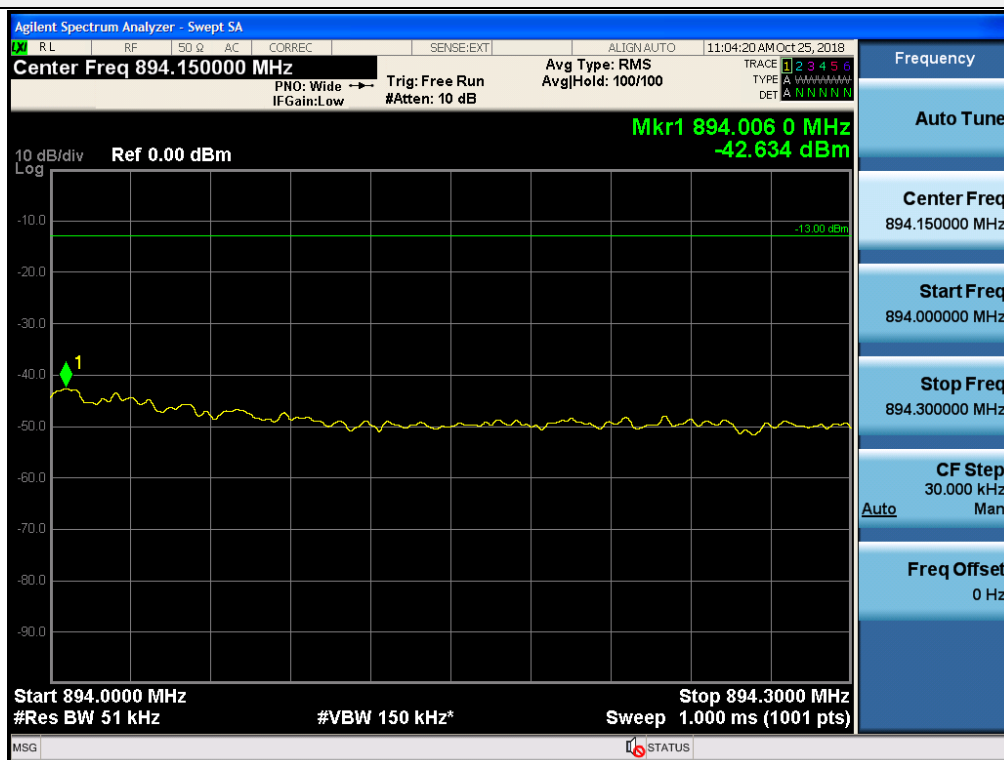
+3 dB above Out-of-band (two adjacent test signals) / Cellular / Downlink / CDMA / Upper



+3 dB above Out-of-band (two adjacent test signals) / Cellular / Downlink / CDMA / Lower



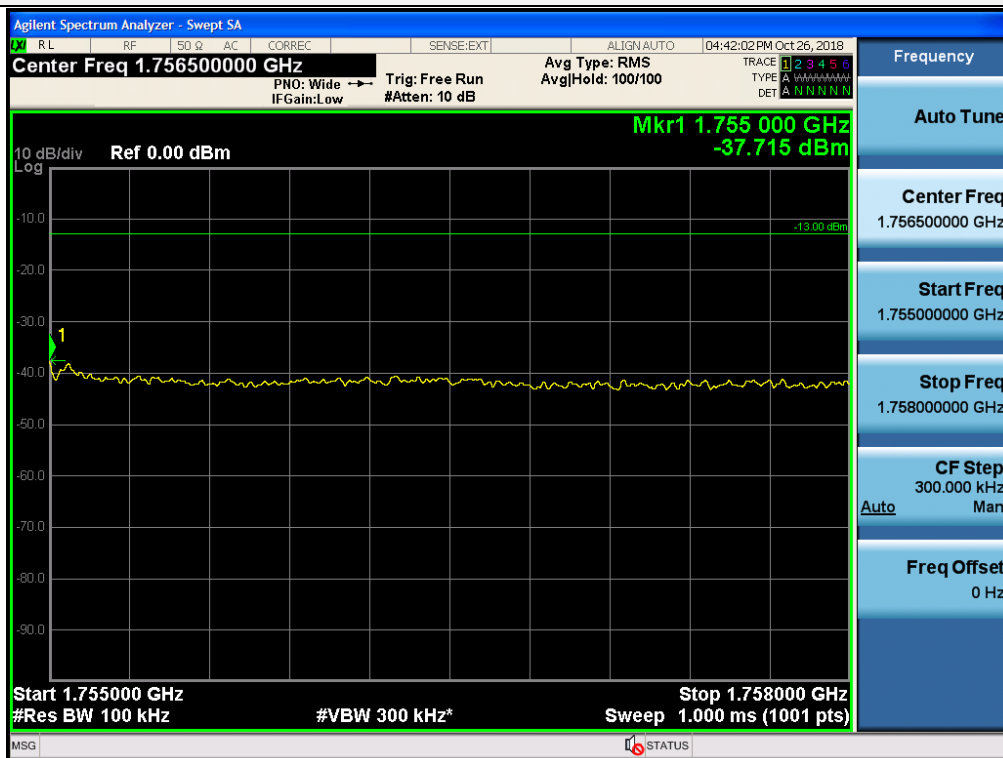
+3 dB above Out-of-band (two adjacent test signals) / Cellular / Downlink / LTE 5 MHz / Upper



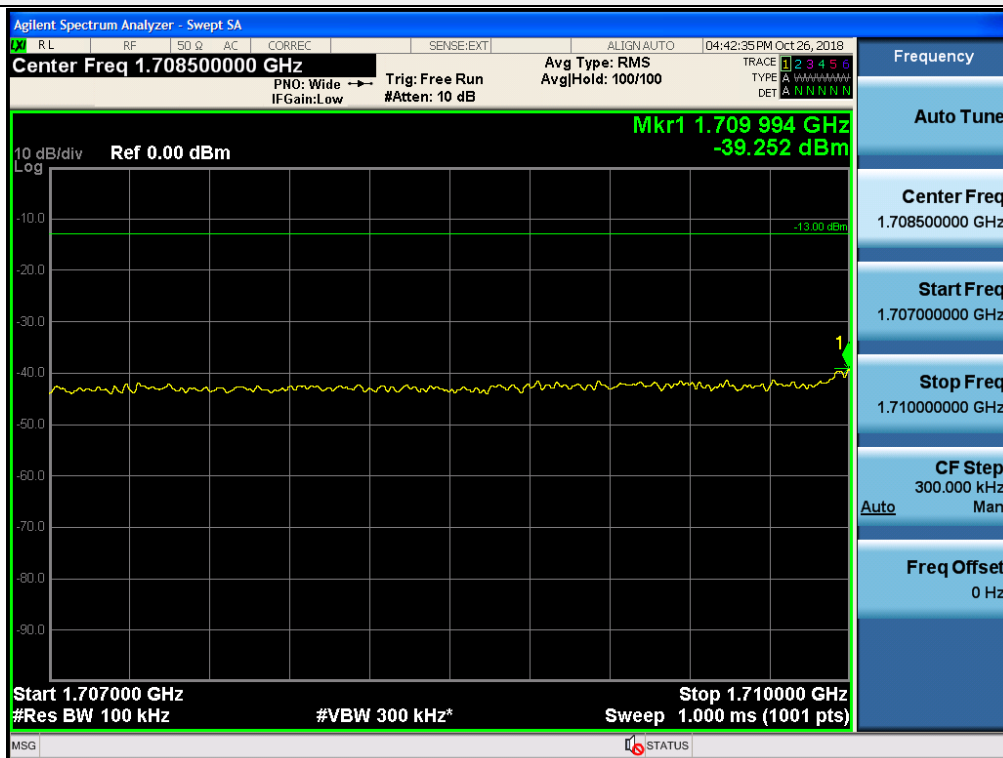
+3 dB above Out-of-band (two adjacent test signals) / Cellular / Downlink / LTE 5 MHz / Lower



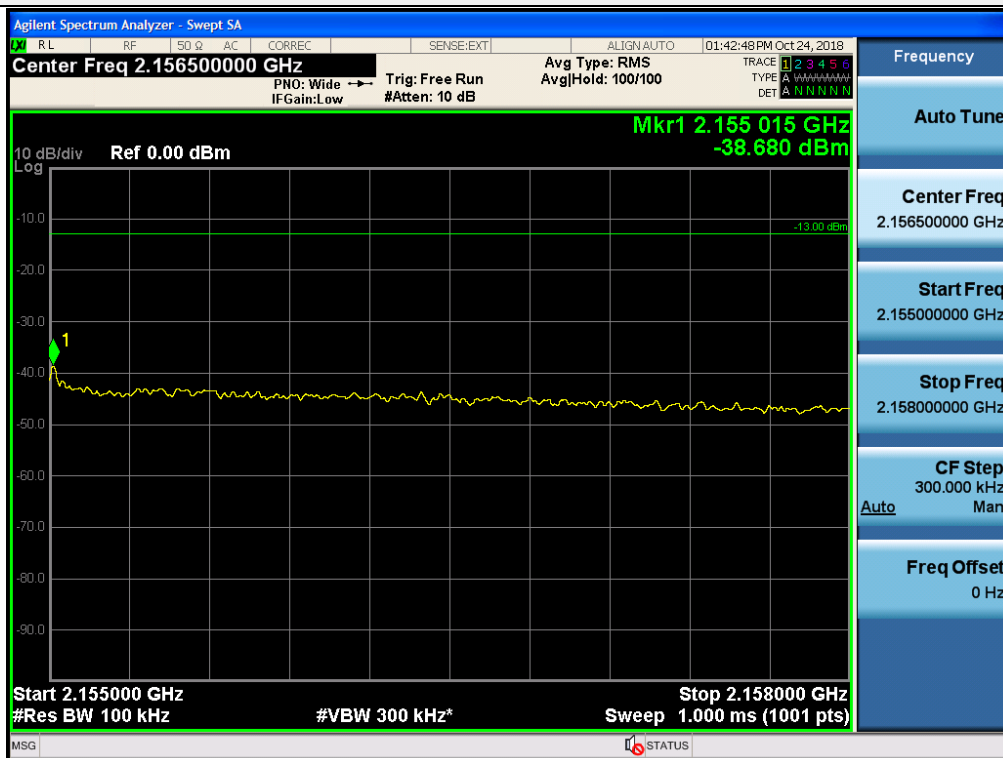
+3 dB above Out-of-band (two adjacent test signals) / AWS-1 / Uplink / LTE 10 MHz / Upper



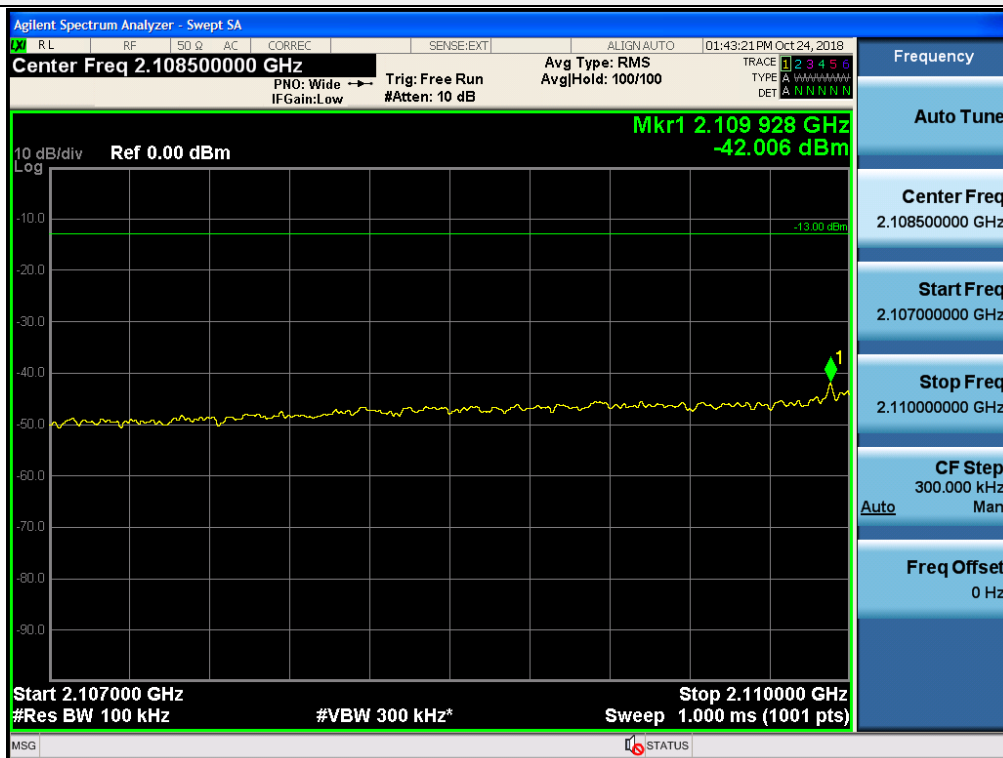
+3 dB above Out-of-band (two adjacent test signals) / AWS-1 / Uplink / LTE 10 MHz / Lower



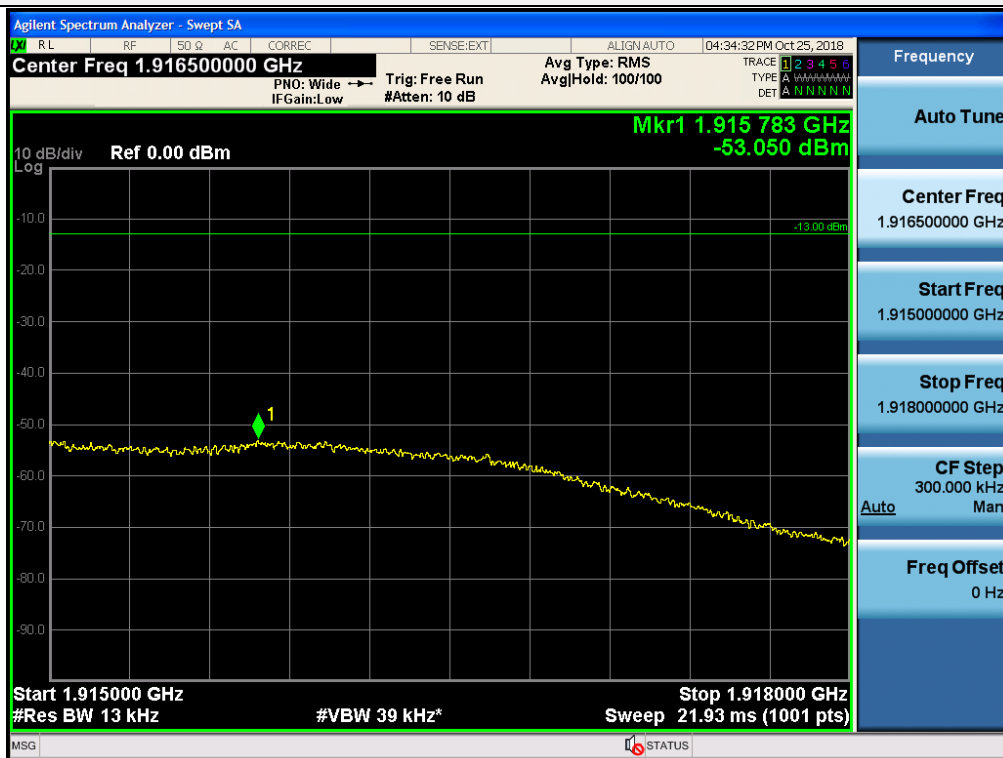
+3 dB above Out-of-band (two adjacent test signals) / AWS-1 / Downlink / LTE 10 MHz / Upper



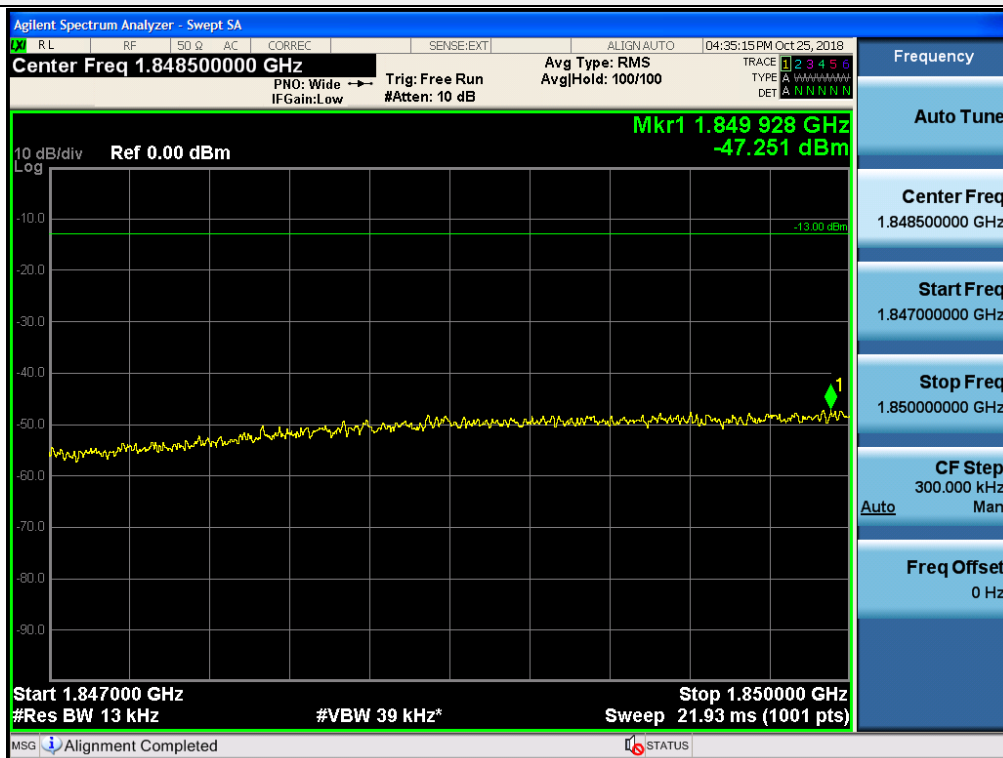
+3 dB above Out-of-band (two adjacent test signals) / AWS-1 / Downlink / LTE 10 MHz / Lower



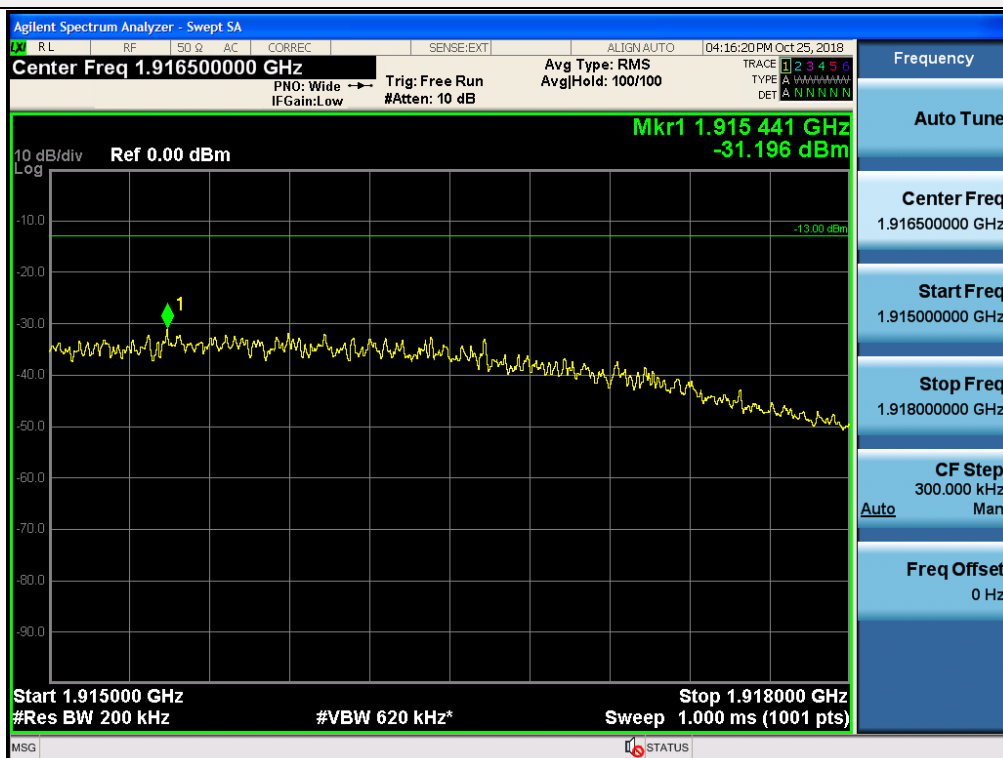
+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / CDMA / Upper



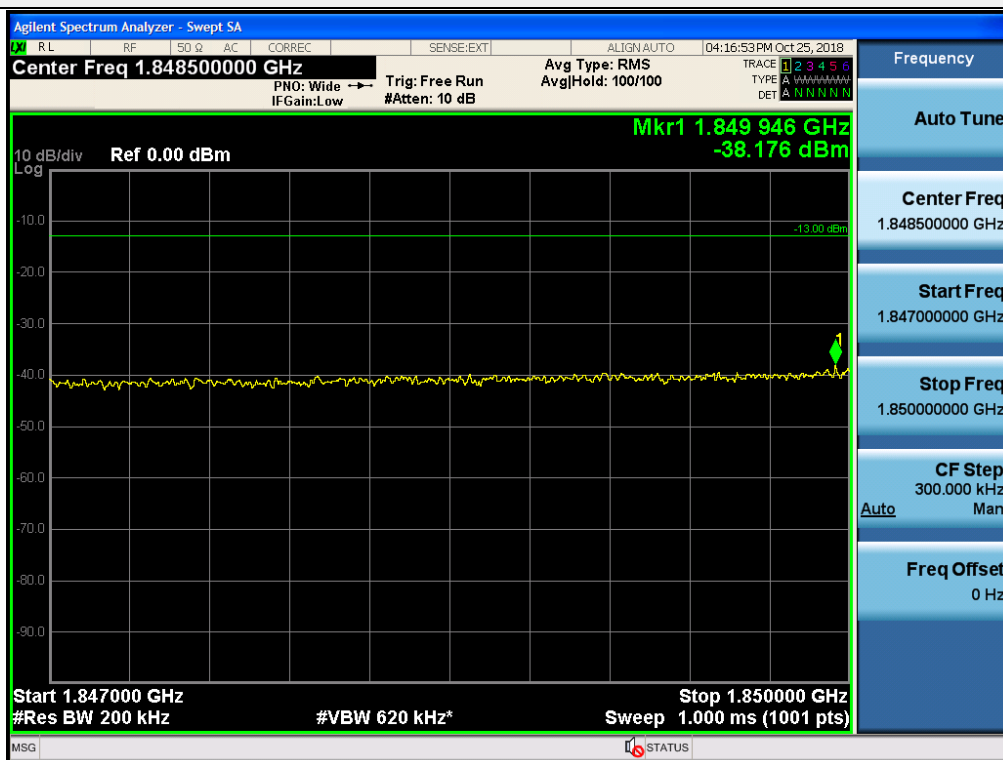
+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / CDMA / Lower



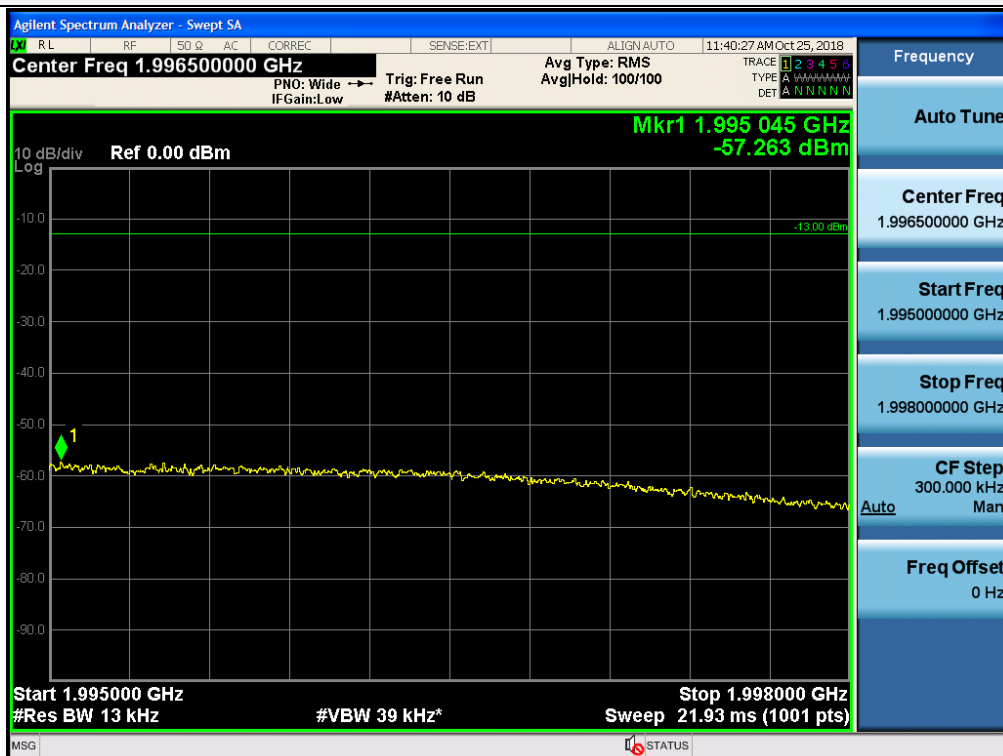
+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / LTE 20 MHz / Upper



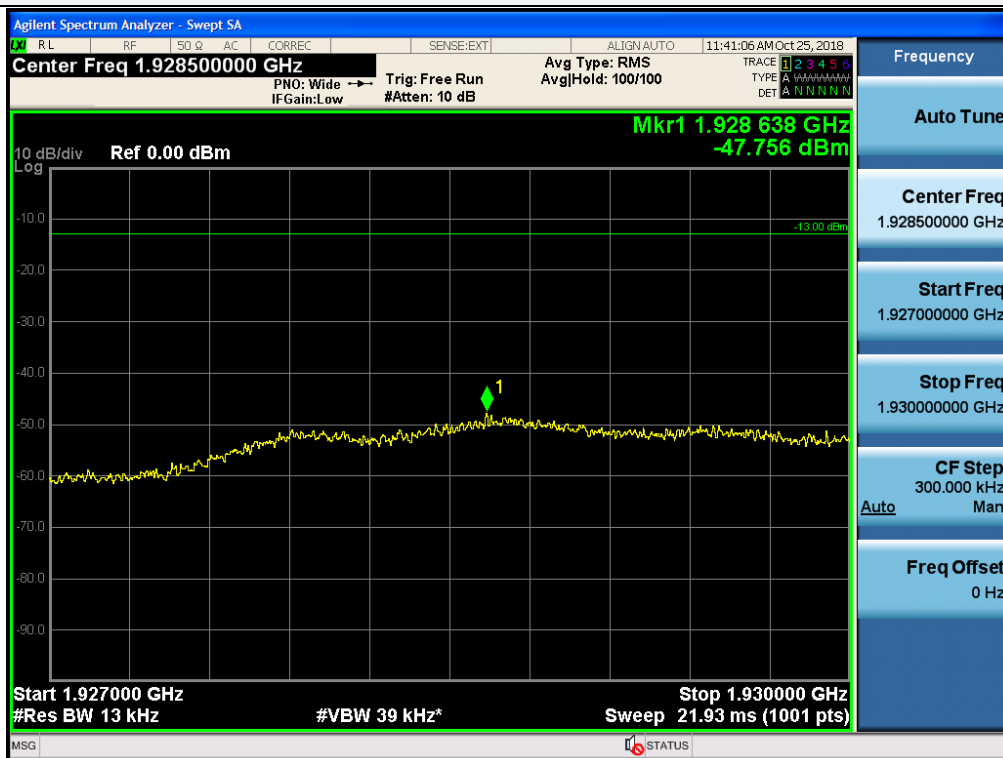
+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Uplink / LTE 20 MHz / Lower



+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / CDMA / Upper

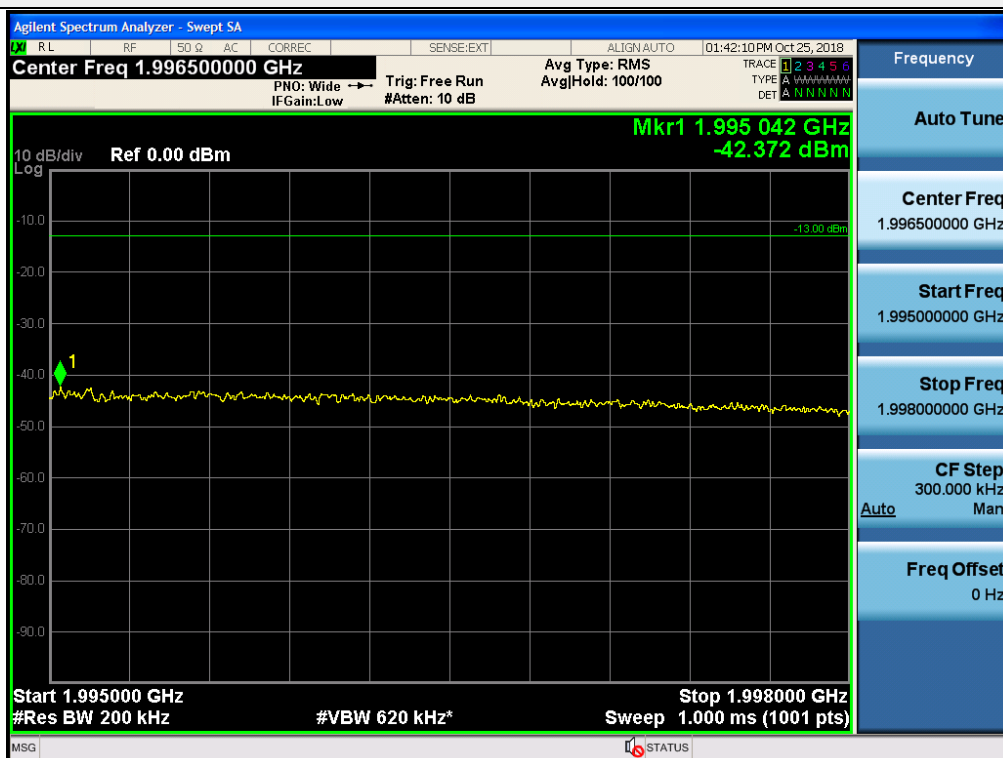


+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / CDMA / Lower

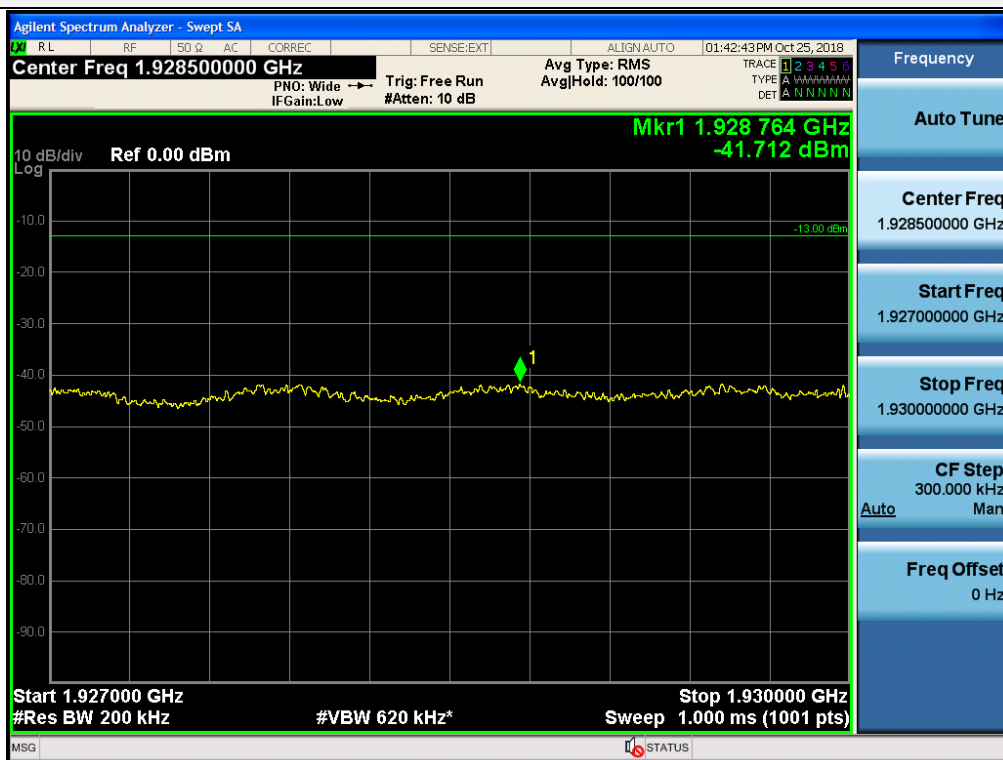




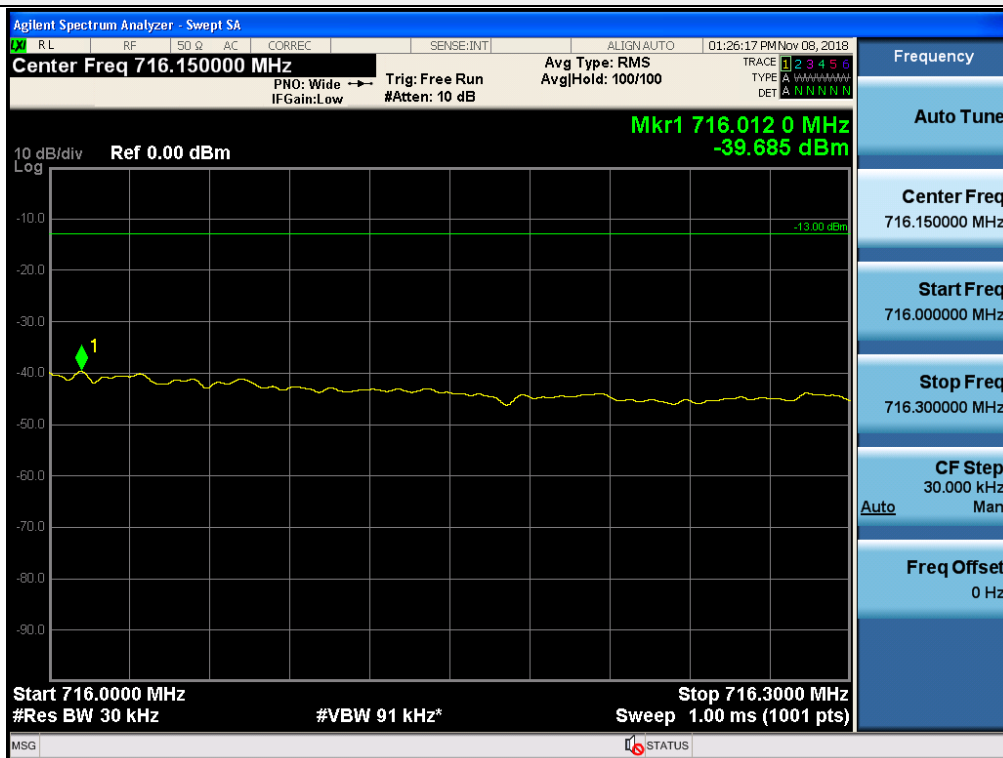
+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / LTE 20 MHz / Upper



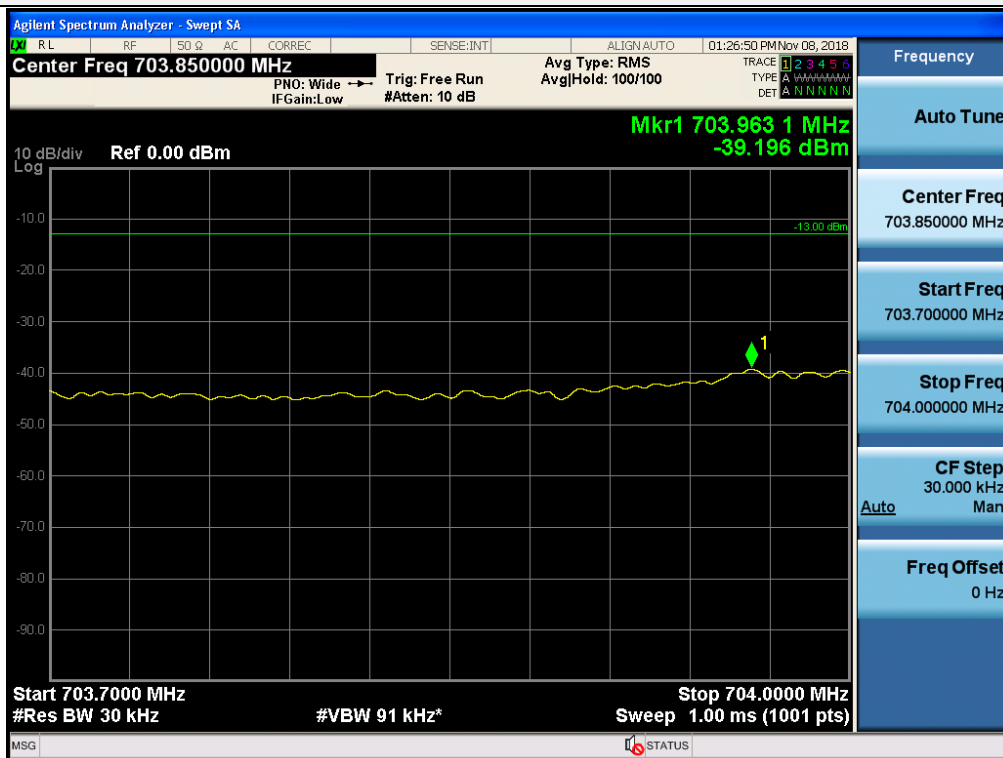
+3 dB above Out-of-band (two adjacent test signals) / Broadband PCS / Downlink / LTE 20 MHz / Lower



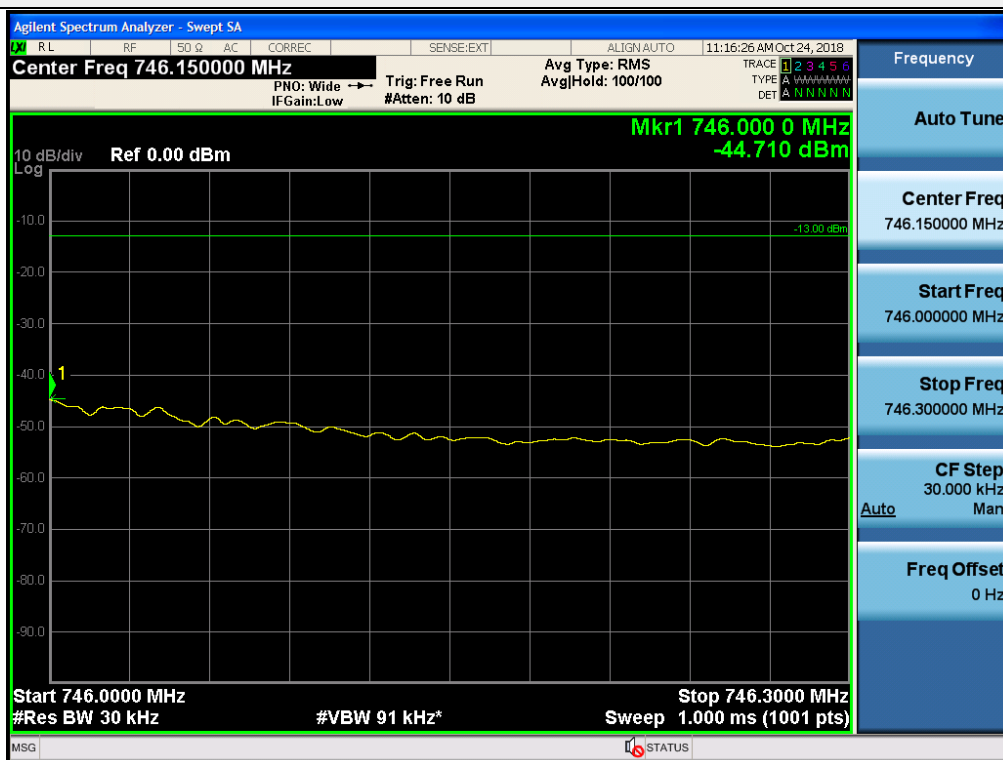
Out-of-band (single test signal) / Lower 700 MHz / Uplink / LTE 10 MHz / Upper



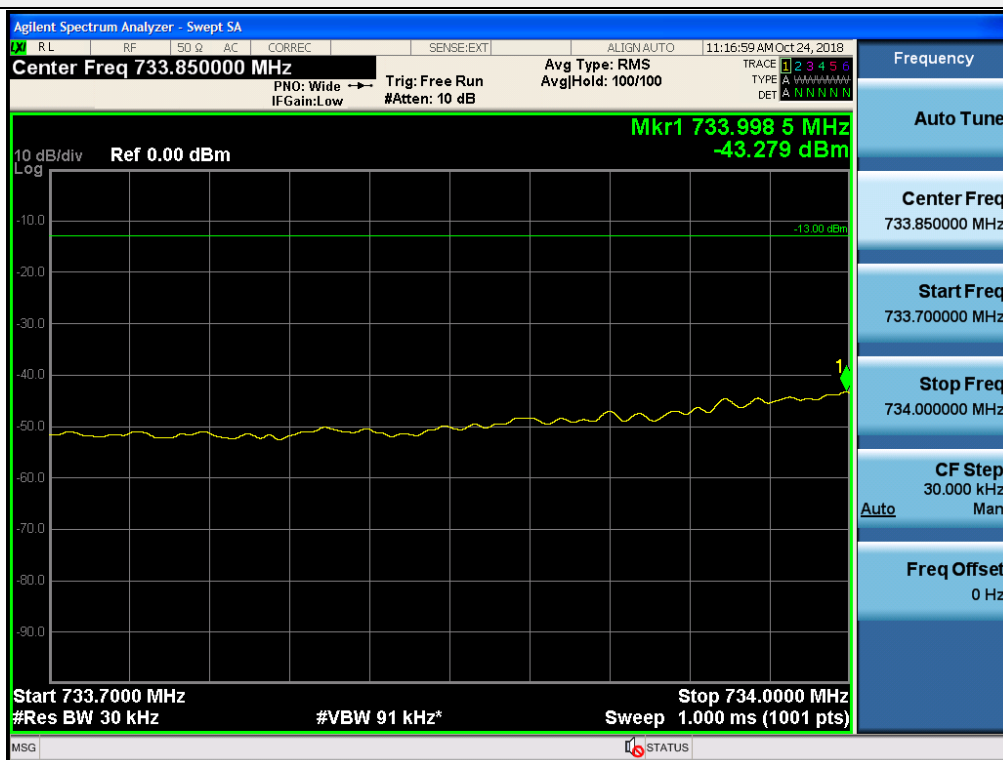
Out-of-band (single test signal) / Lower 700 MHz / Uplink / LTE 10 MHz / Lower



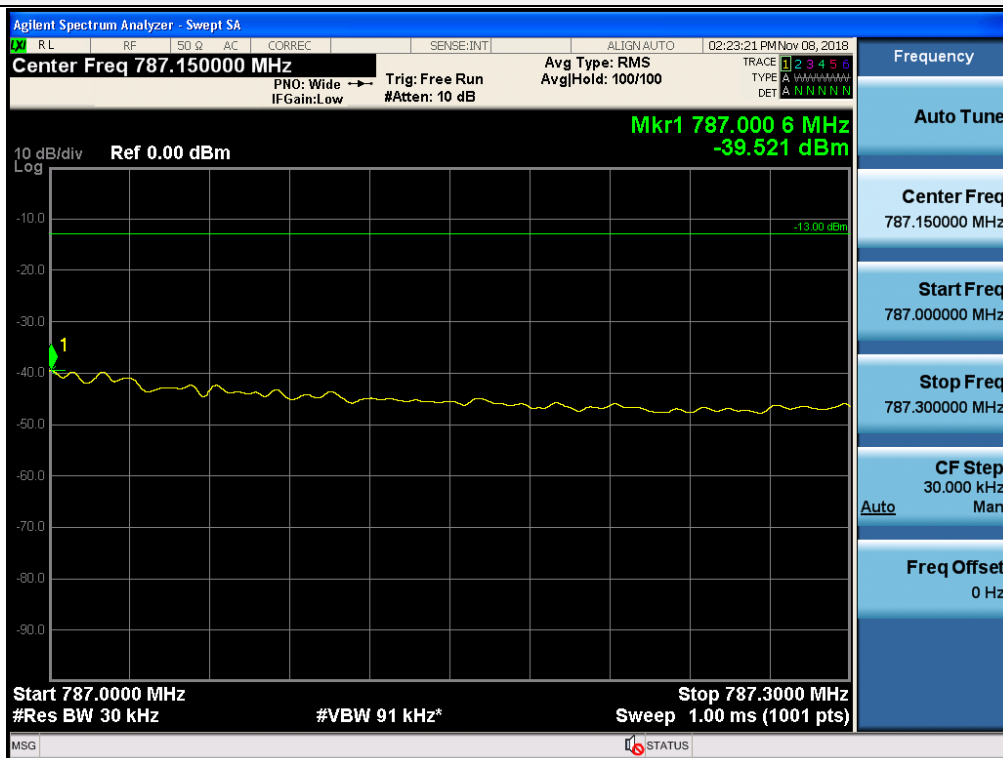
Out-of-band (single test signal) / Lower 700 MHz / Downlink / LTE 10 MHz / Upper



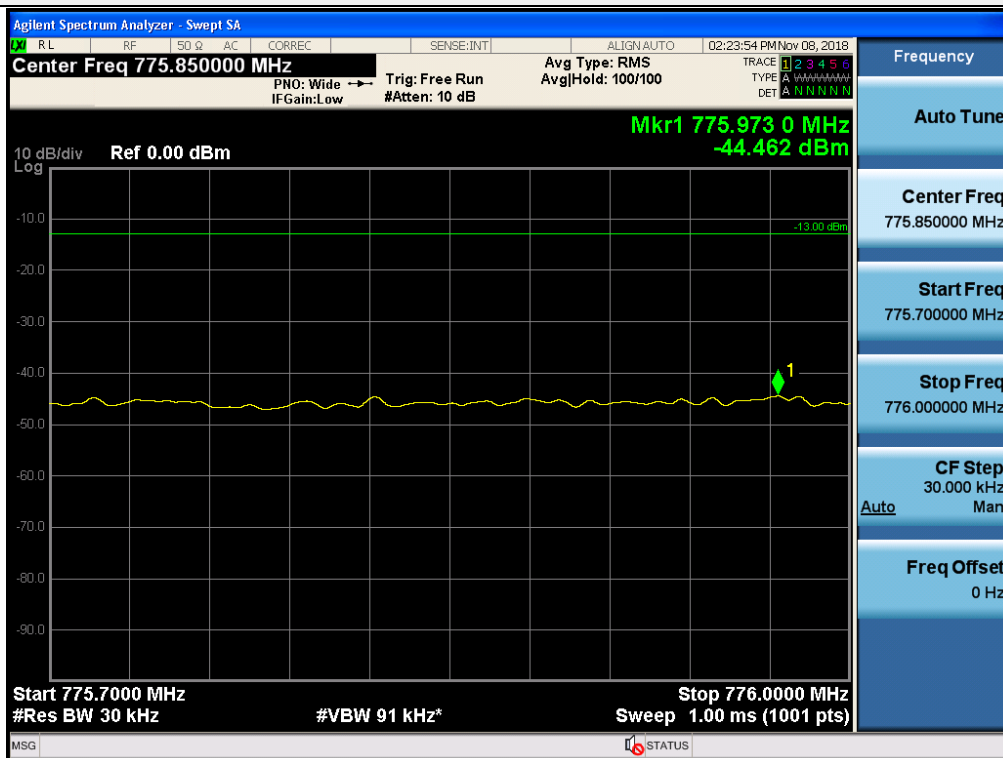
Out-of-band (single test signal) / Lower 700 MHz / Downlink / LTE 10 MHz / Lower



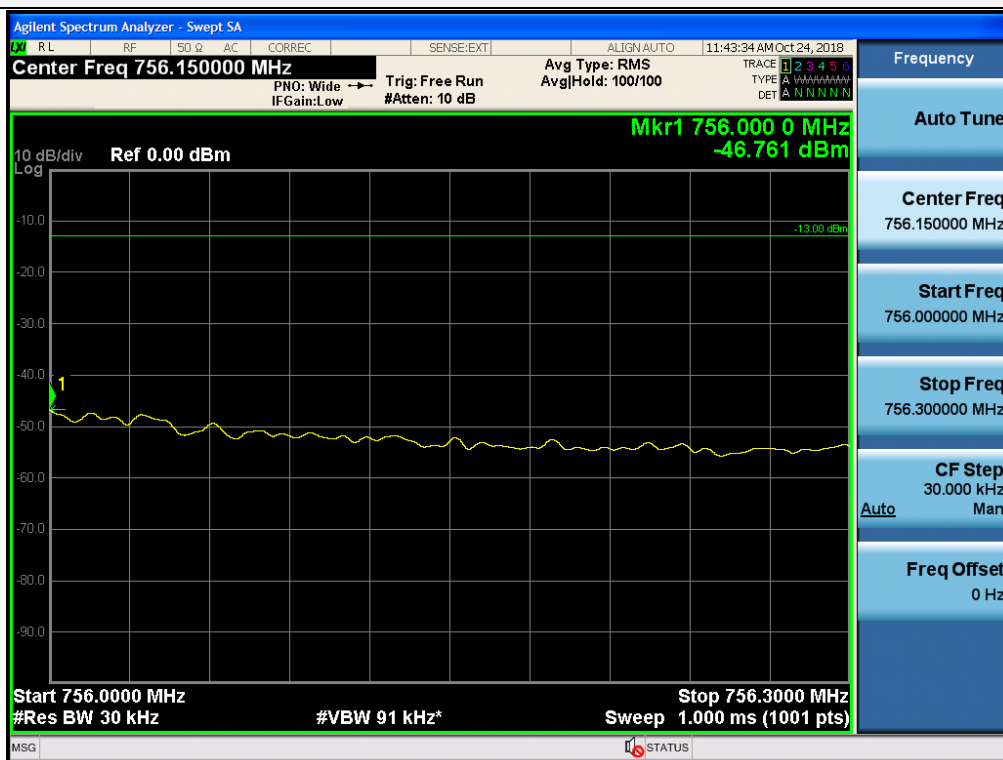
Out-of-band (single test signal) / Upper 700 MHz / Uplink / LTE 10 MHz / Upper



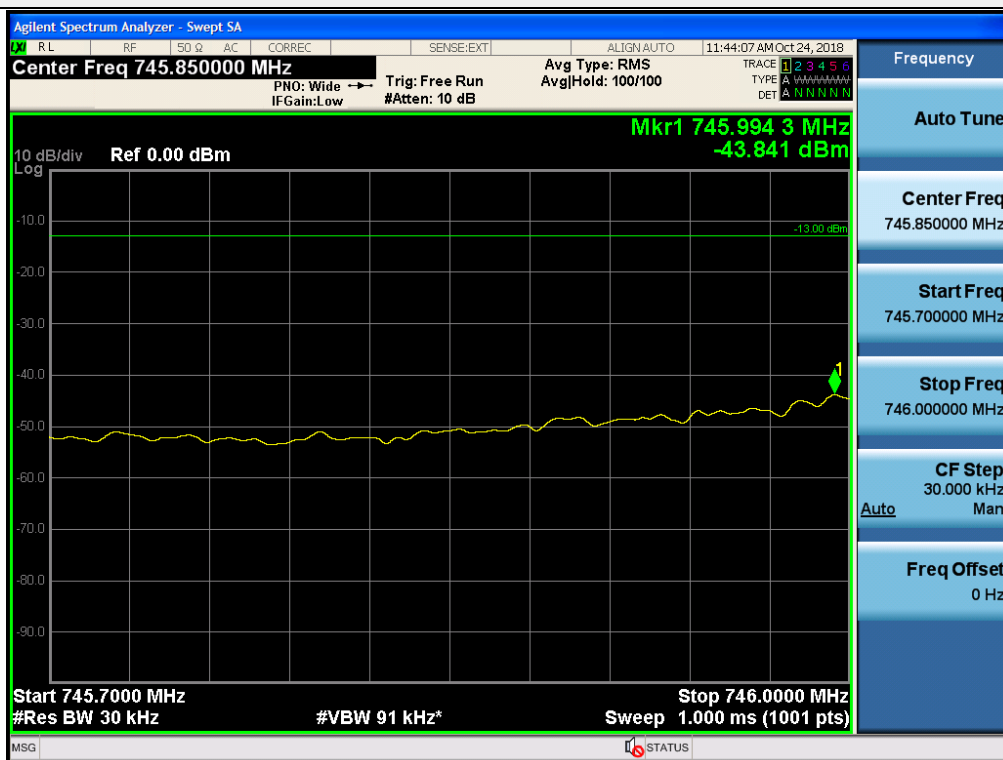
Out-of-band (single test signal) / Upper 700 MHz / Uplink / LTE 10 MHz / Lower



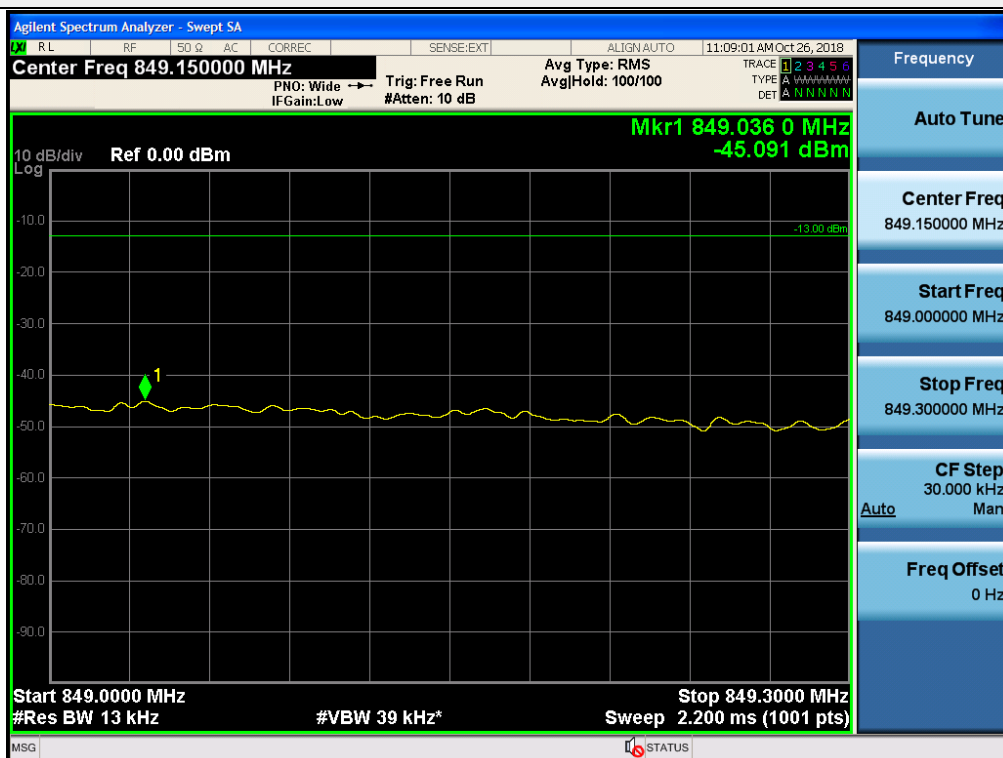
Out-of-band (single test signal) / Upper 700 MHz / Downlink / LTE 10 MHz / Upper



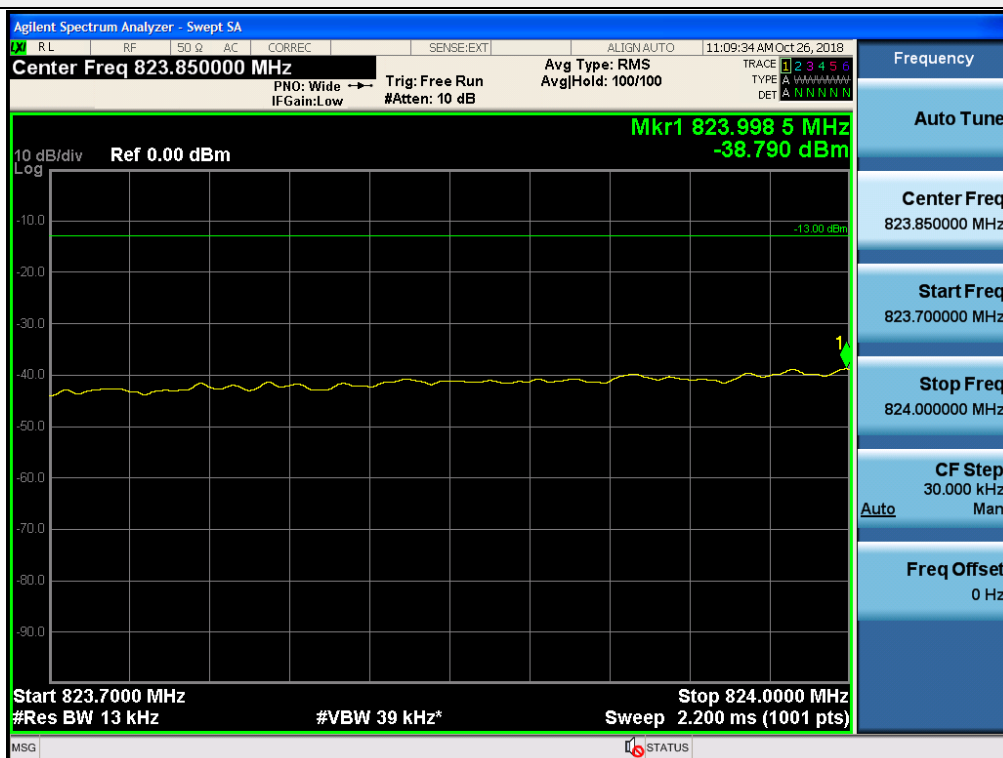
Out-of-band (single test signal) / Upper 700 MHz / Downlink / LTE 10 MHz / Lower



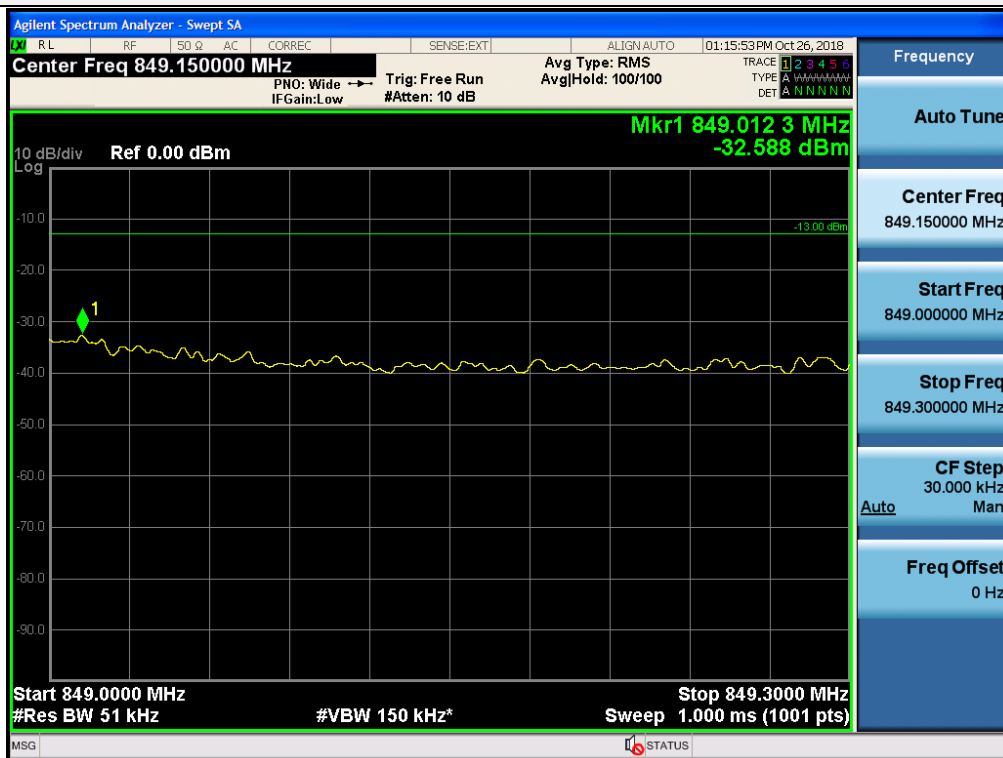
Out-of-band (single test signal) / Cellular / Uplink / CDMA / Upper



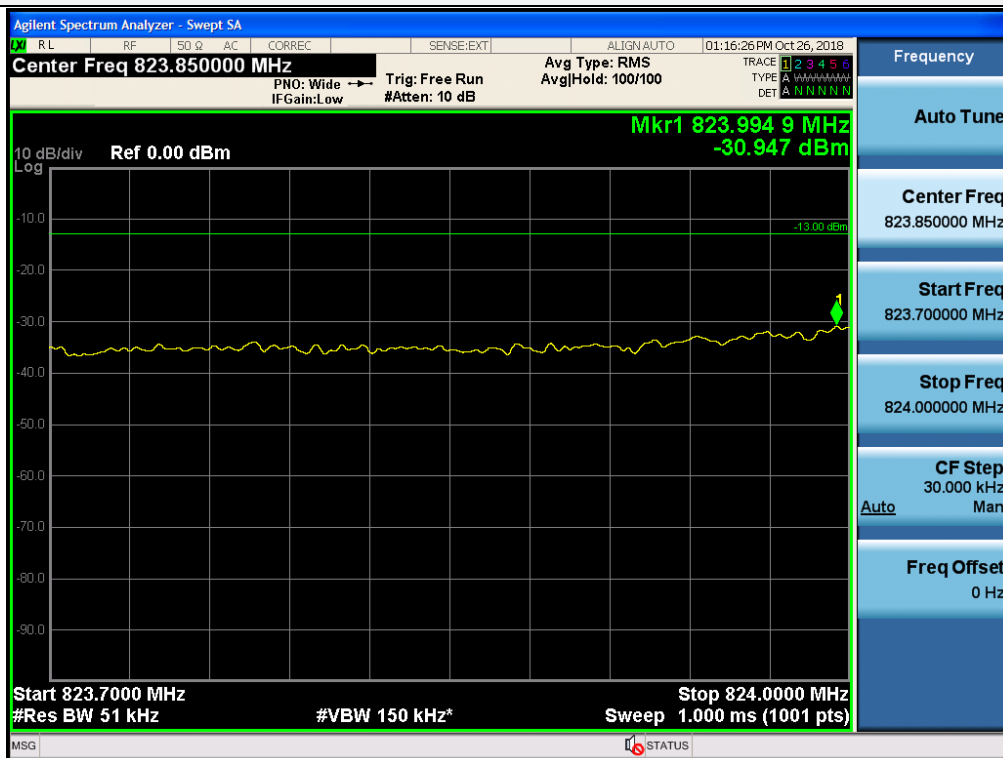
Out-of-band (single test signal) / Cellular / Uplink / CDMA / Lower



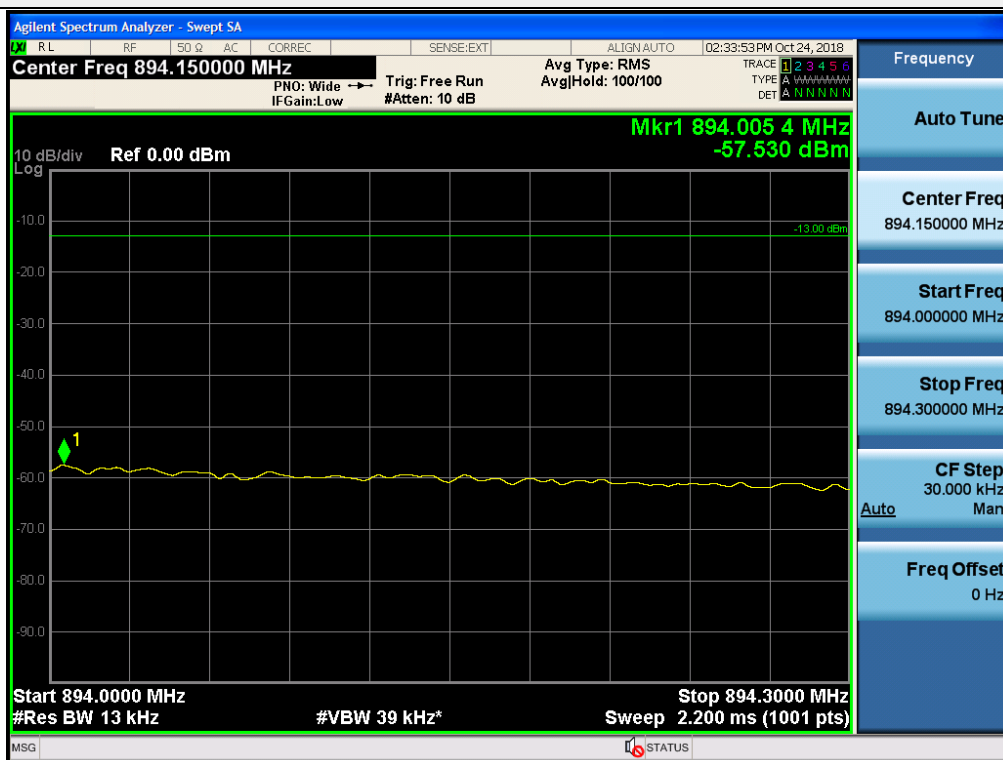
Out-of-band (single test signal) / Cellular / Uplink / LTE 5 MHz / Upper



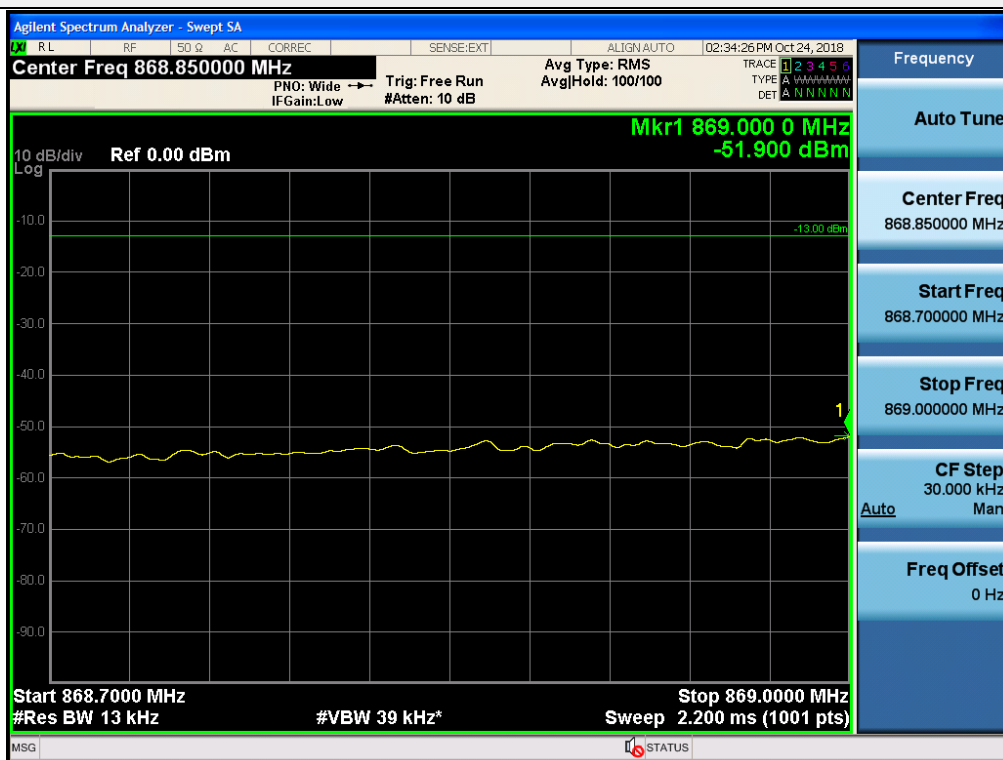
Out-of-band (single test signal) / Cellular / Uplink / LTE 5 MHz / Lower



Out-of-band (single test signal) / Cellular / Downlink / CDMA / Upper



Out-of-band (single test signal) / Cellular / Downlink / CDMA / Lower

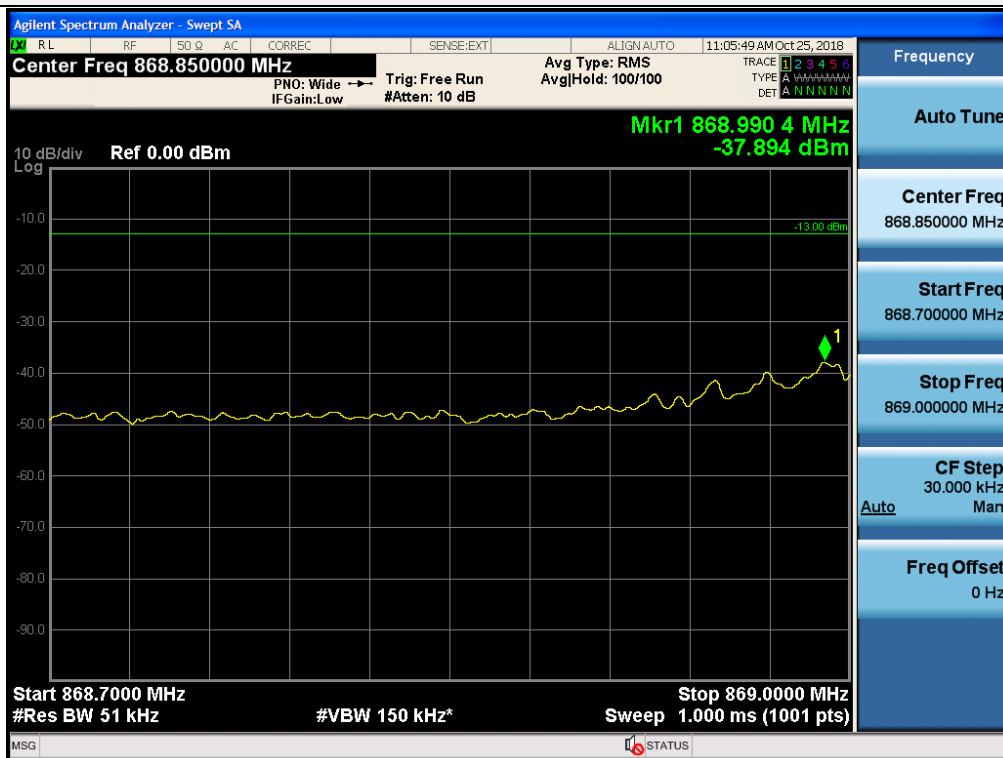




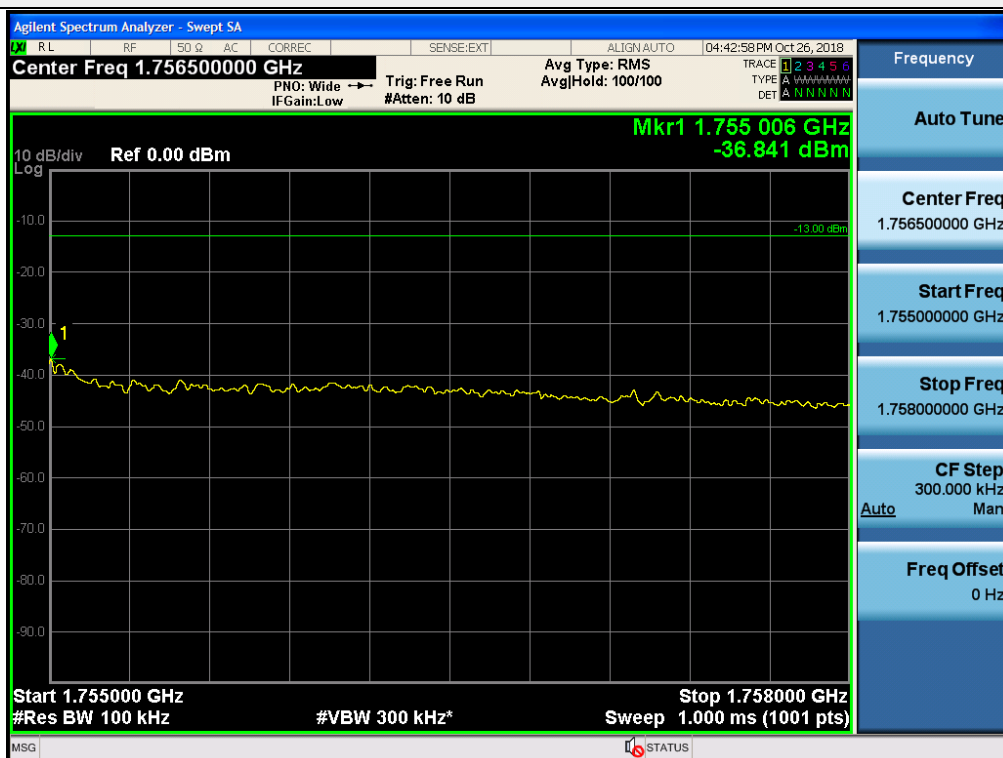
Out-of-band (single test signal) / Cellular / Downlink / LTE 5 MHz / Upper



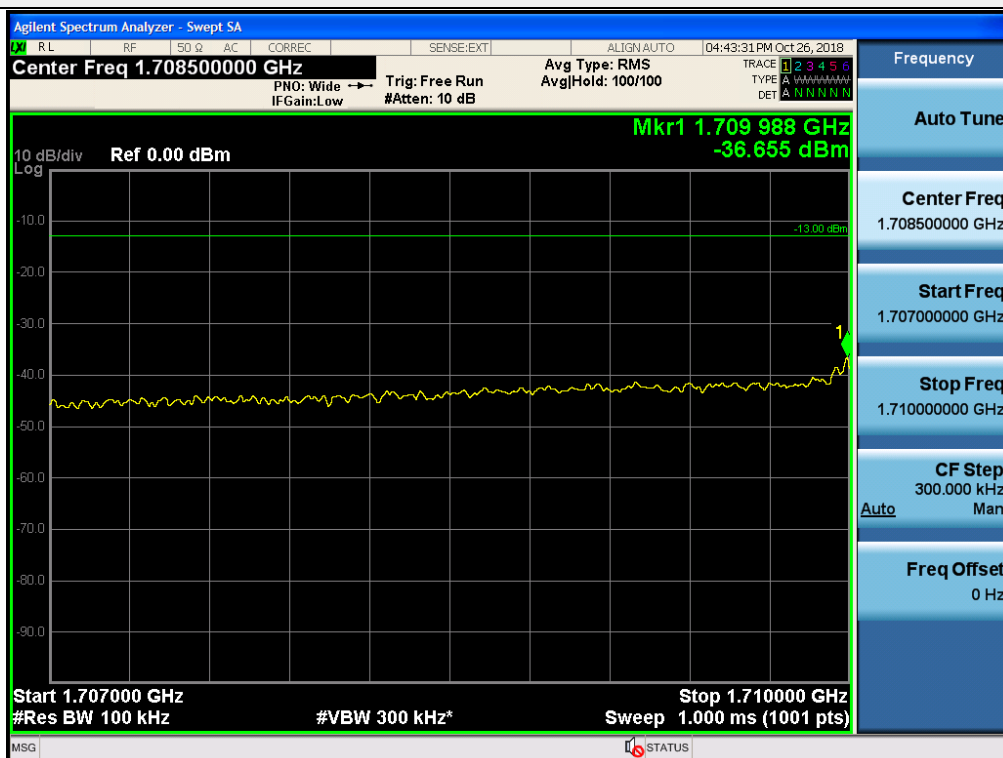
Out-of-band (single test signal) / Cellular / Downlink / LTE 5 MHz / Lower



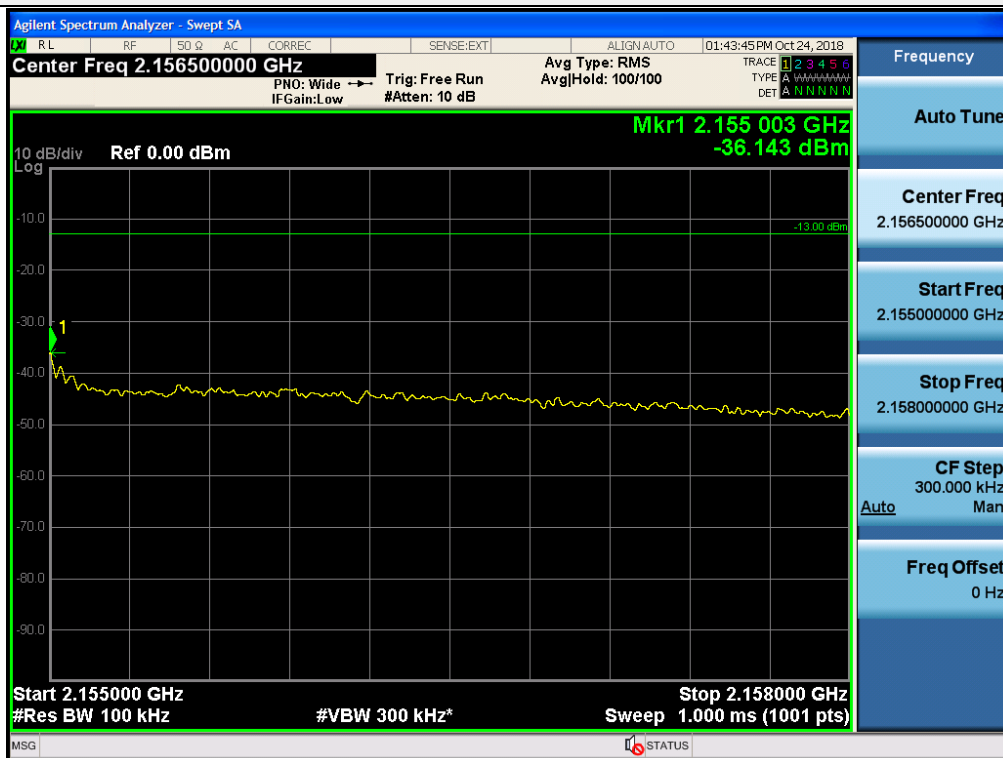
Out-of-band (single test signal) / AWS-1 / Uplink / LTE 10 MHz / Upper



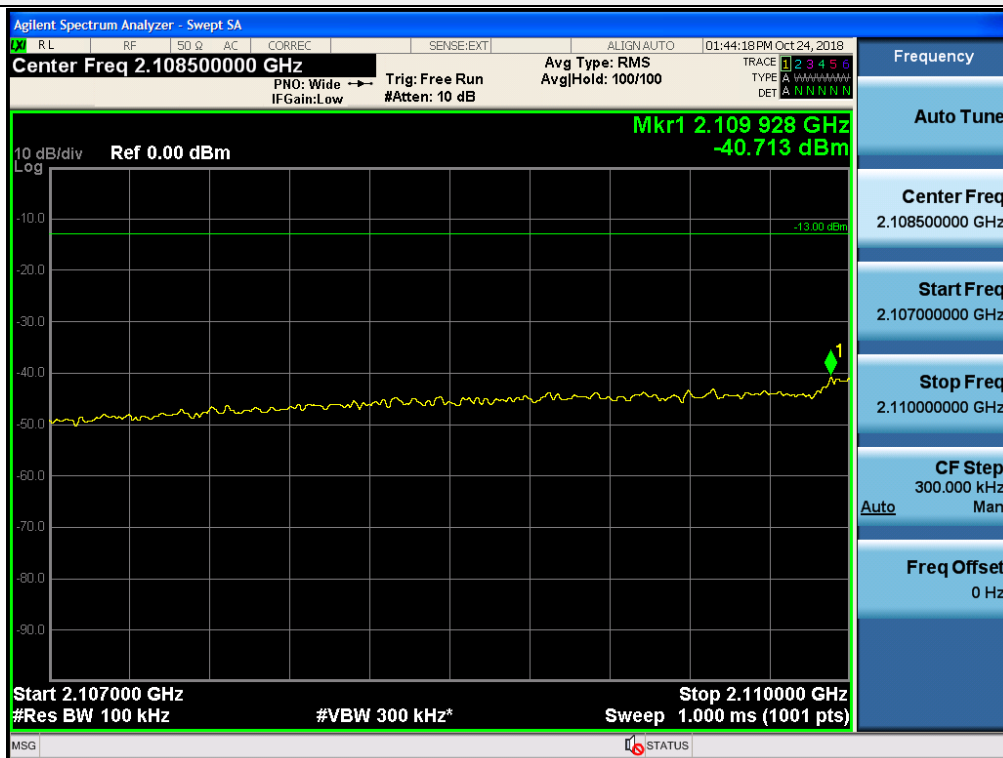
Out-of-band (single test signal) / AWS-1 / Uplink / LTE 10 MHz / Lower



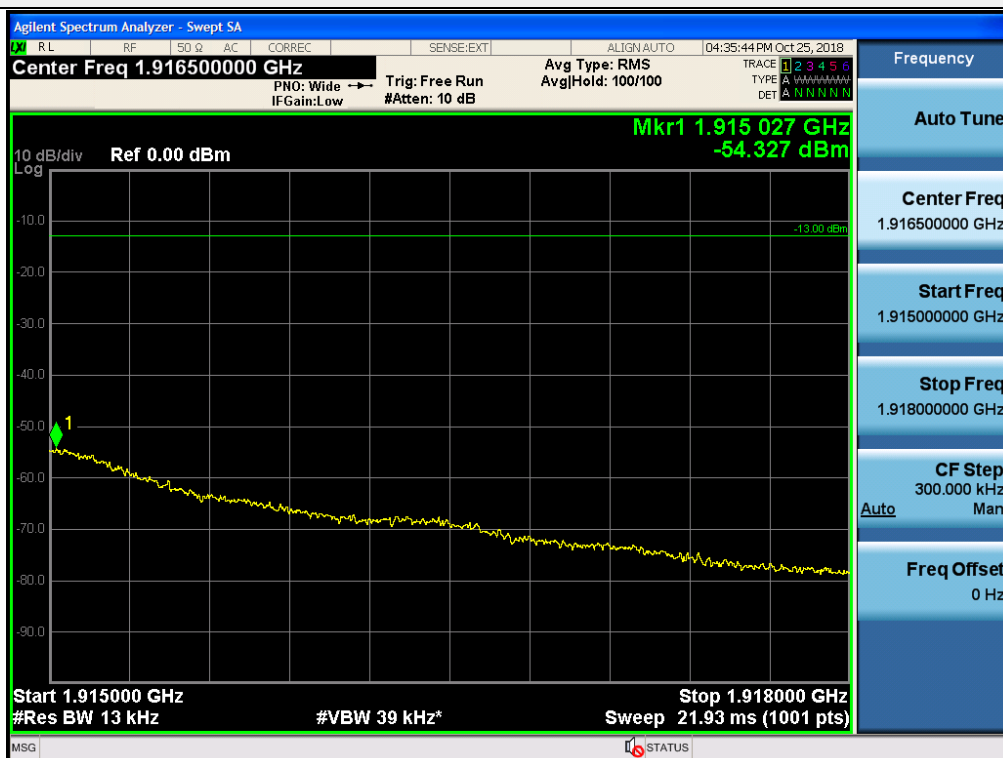
Out-of-band (single test signal) / AWS-1 / Downlink / LTE 10 MHz / Upper



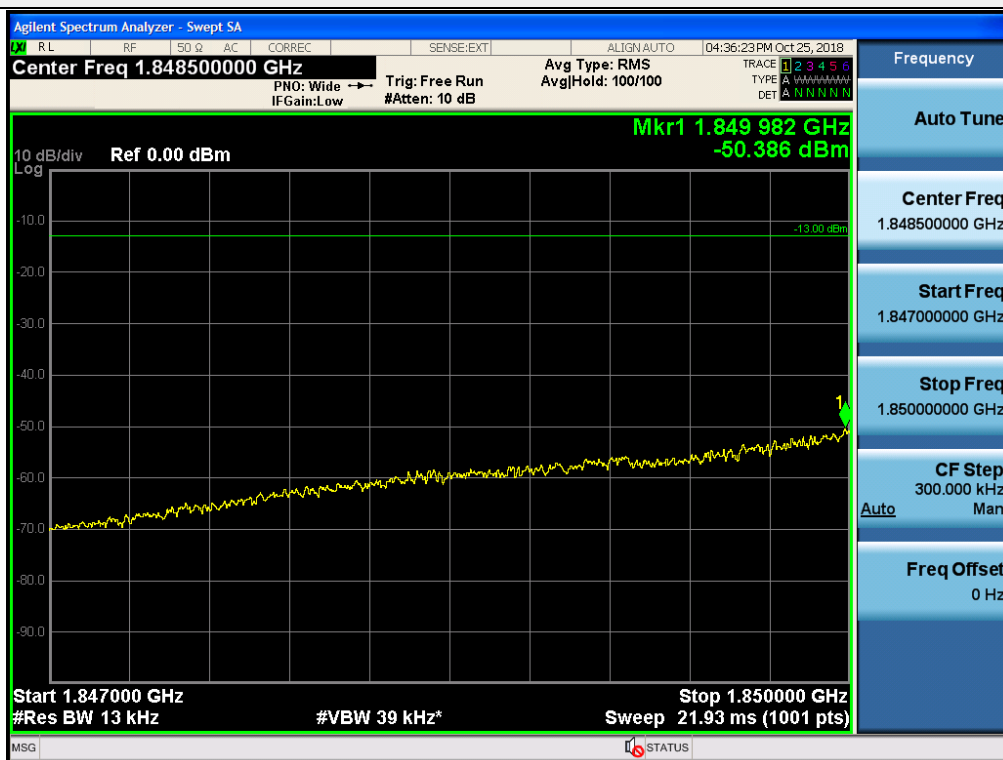
Out-of-band (single test signal) / AWS-1 / Downlink / LTE 10 MHz / Lower



Out-of-band (single test signal) / Broadband PCS / Uplink / CDMA / Upper



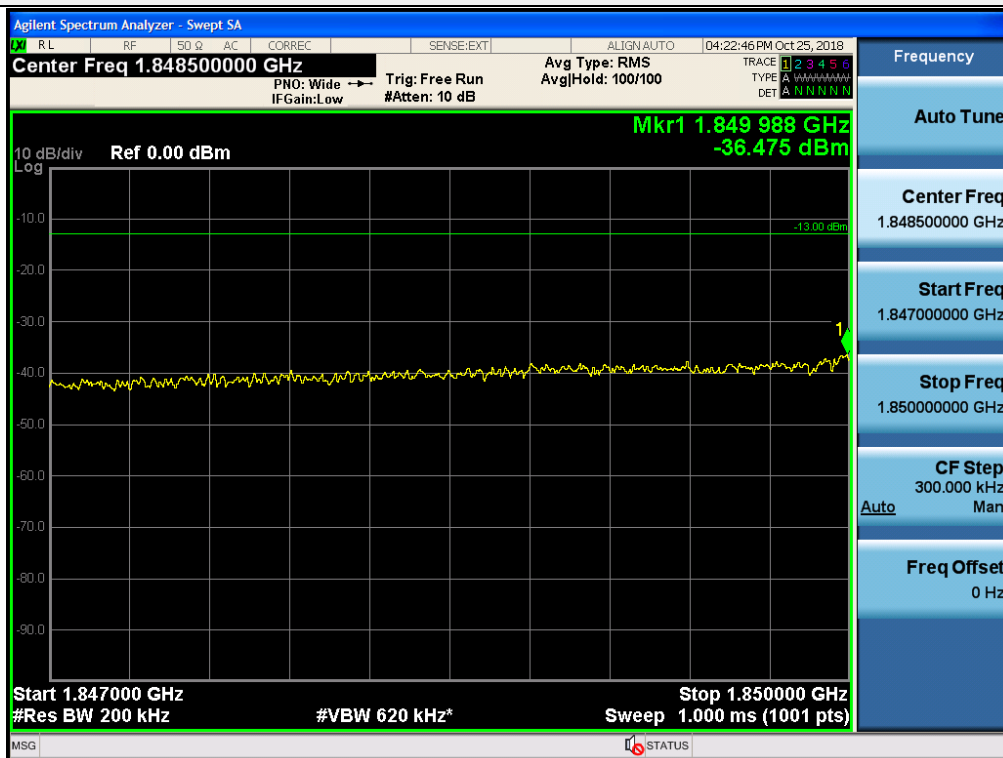
Out-of-band (single test signal) / Broadband PCS / Uplink / CDMA / Lower



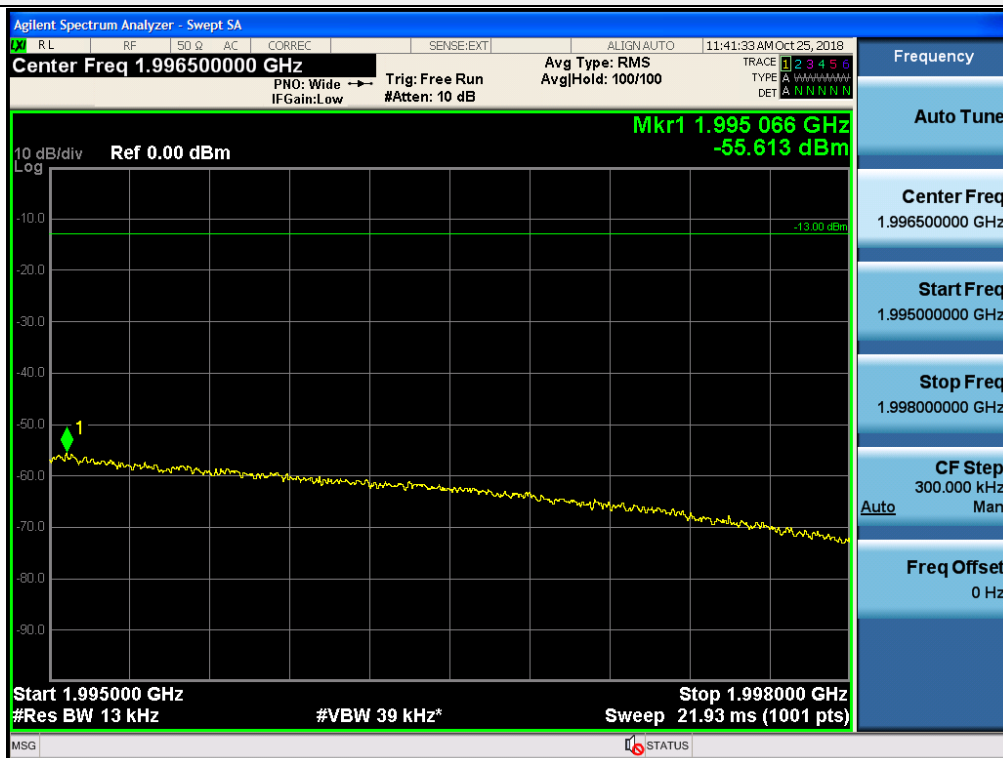
Out-of-band (single test signal) / Broadband PCS / Uplink / LTE 20 MHz / Upper



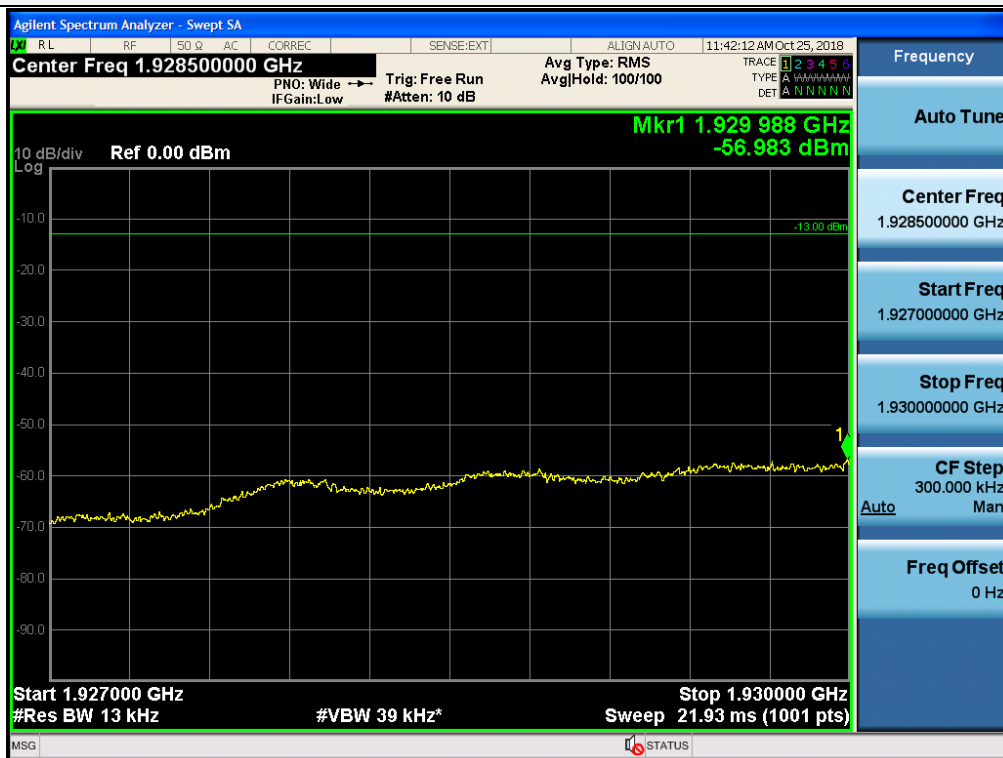
Out-of-band (single test signal) / Broadband PCS / Uplink / LTE 20 MHz / Lower



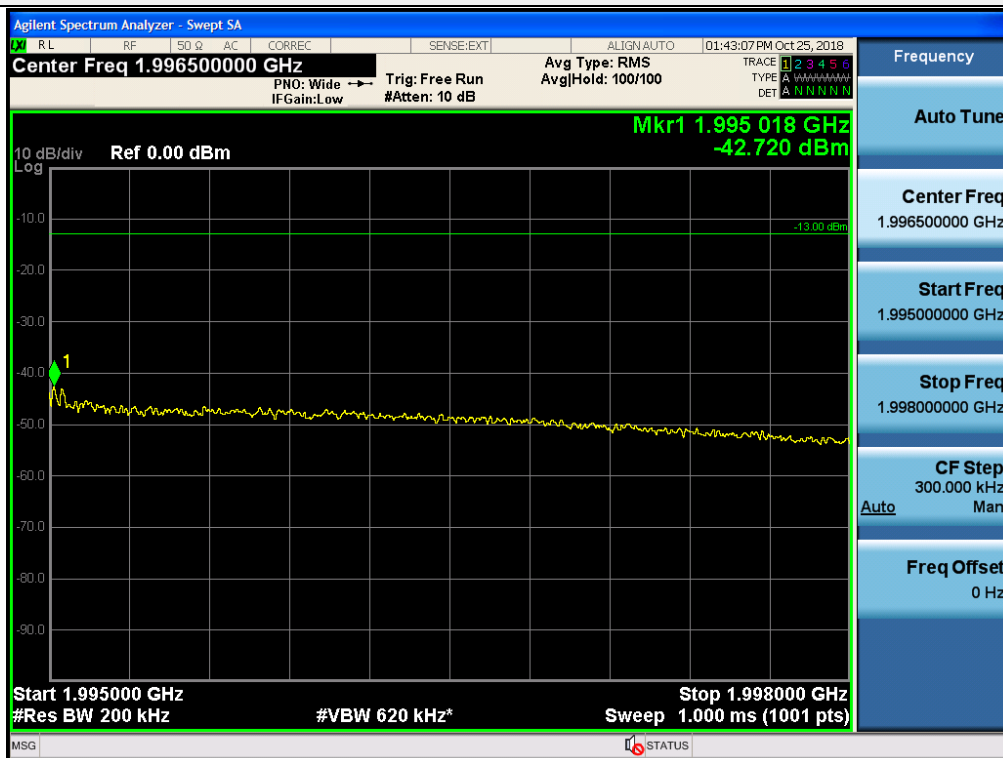
Out-of-band (single test signal) / Broadband PCS / Downlink / CDMA / Upper



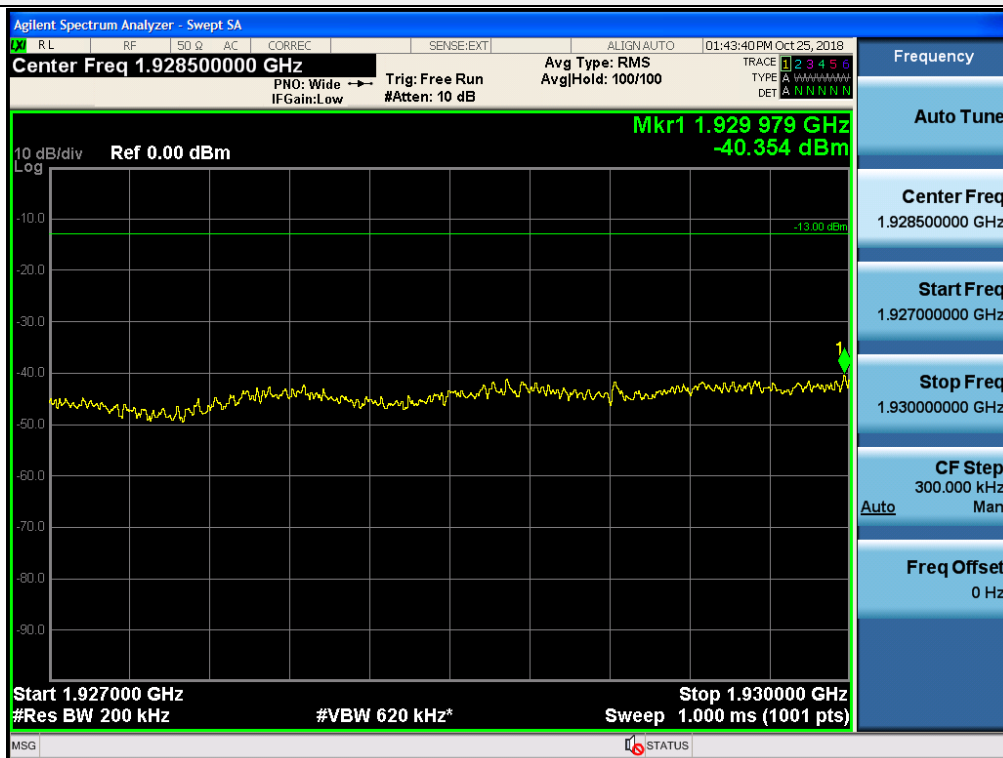
Out-of-band (single test signal) / Broadband PCS / Downlink / CDMA / Lower



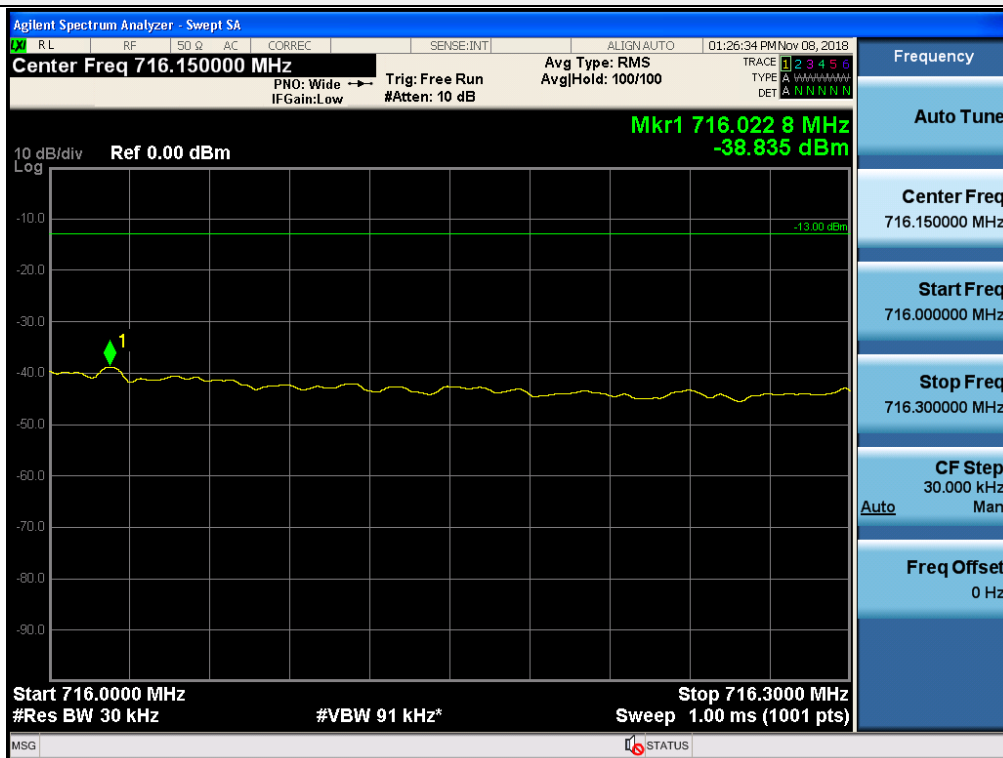
Out-of-band (single test signal) / Broadband PCS / Downlink / LTE 20 MHz / Upper



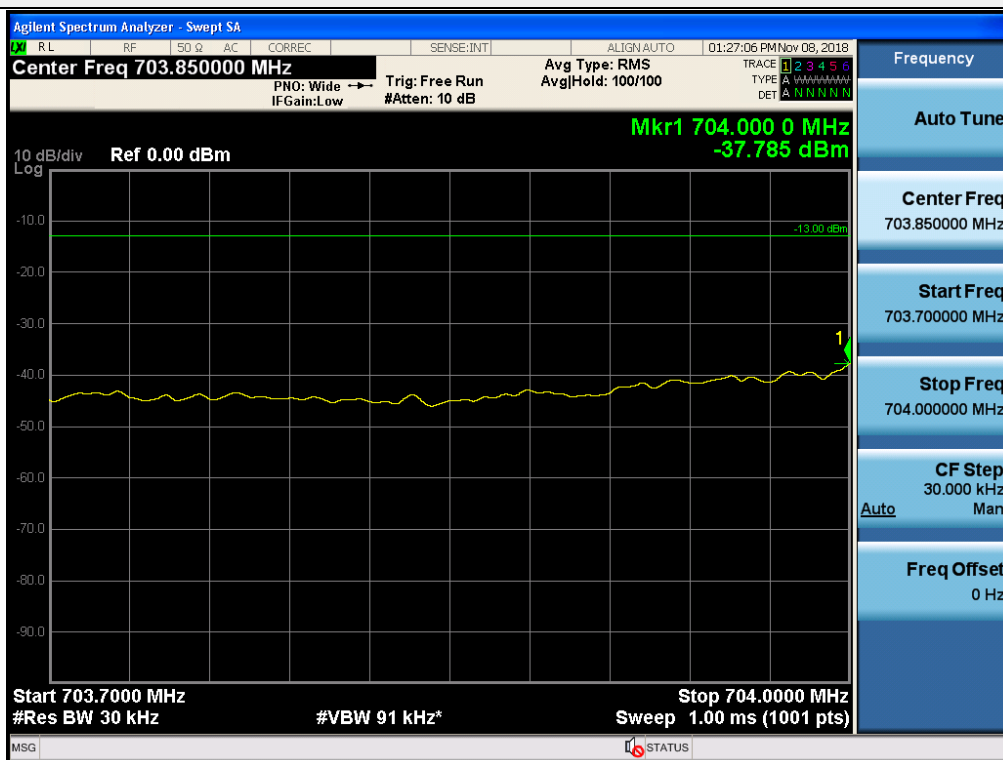
Out-of-band (single test signal) / Broadband PCS / Downlink / LTE 20 MHz / Lower



+3 dB above Out-of-band (single test signal) / Lower 700 MHz / Uplink / LTE 10 MHz / Upper

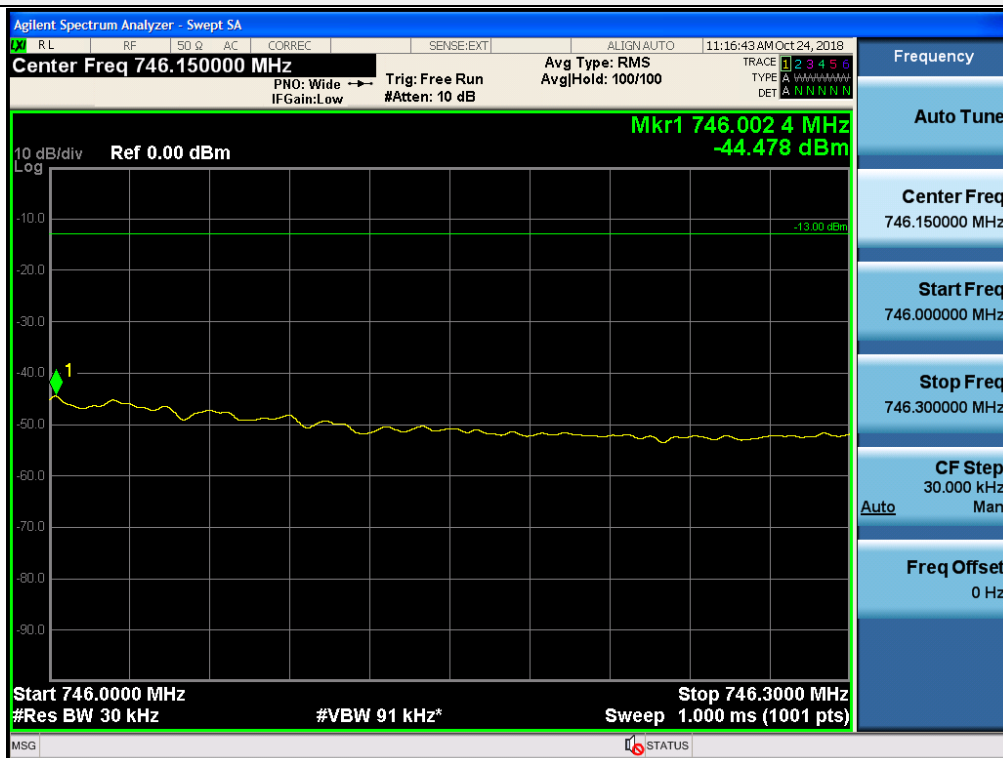


+3 dB above Out-of-band (single test signal) / Lower 700 MHz / Uplink / LTE 10 MHz / Lower

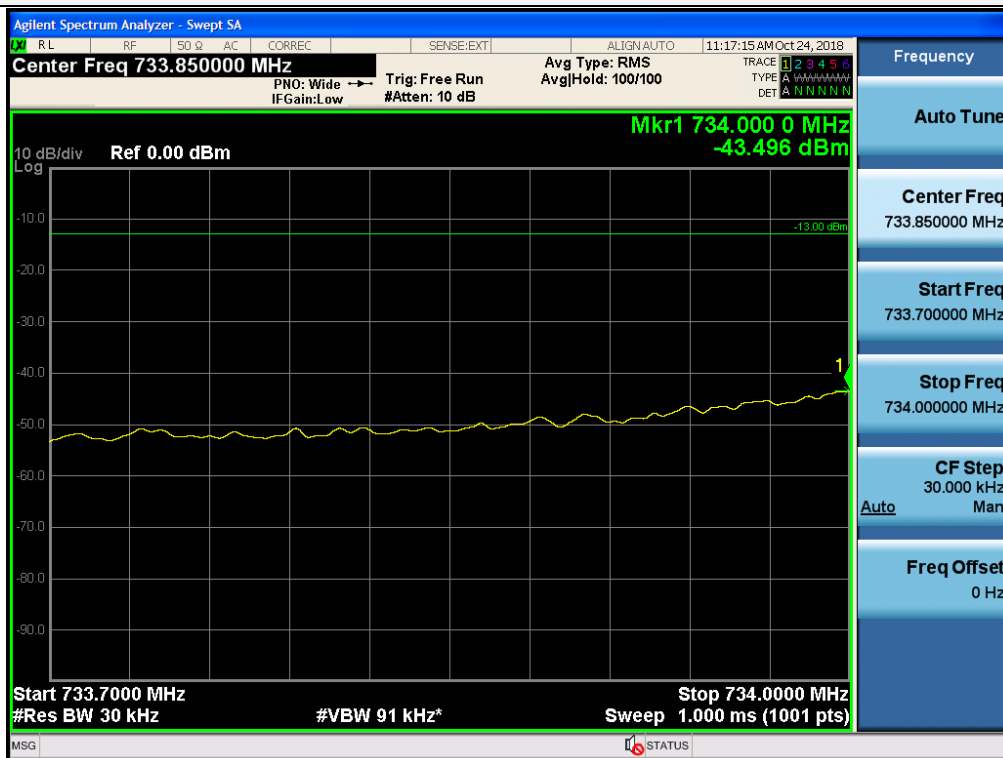




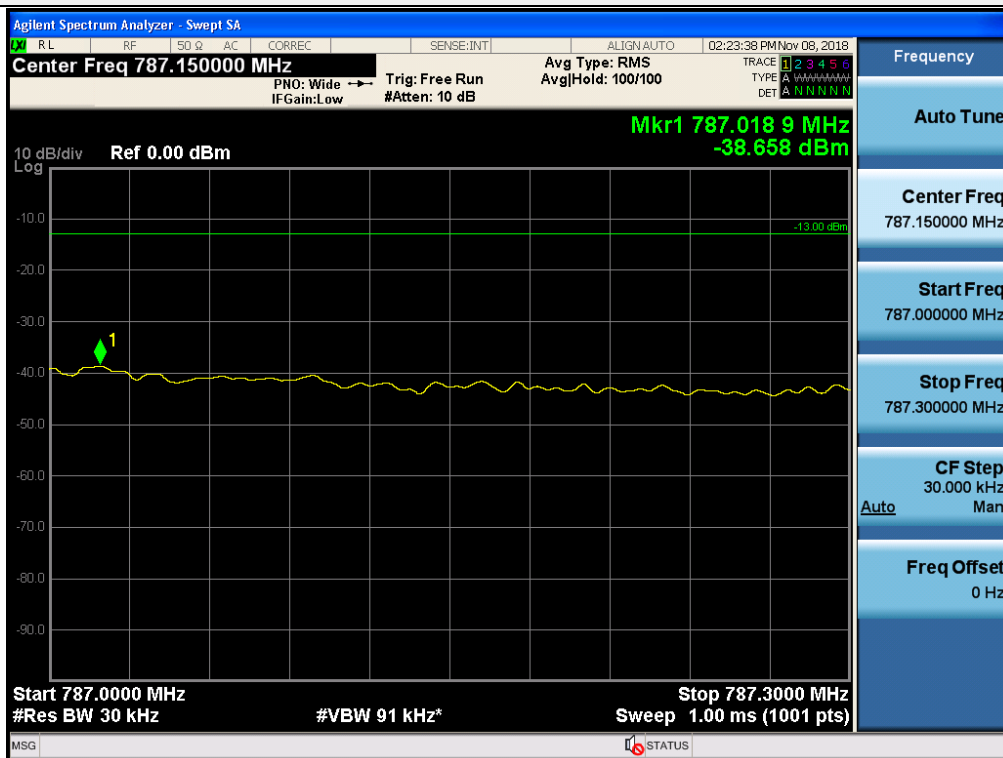
+3 dB above Out-of-band (single test signal) / Lower 700 MHz / Downlink / LTE 10 MHz / Upper



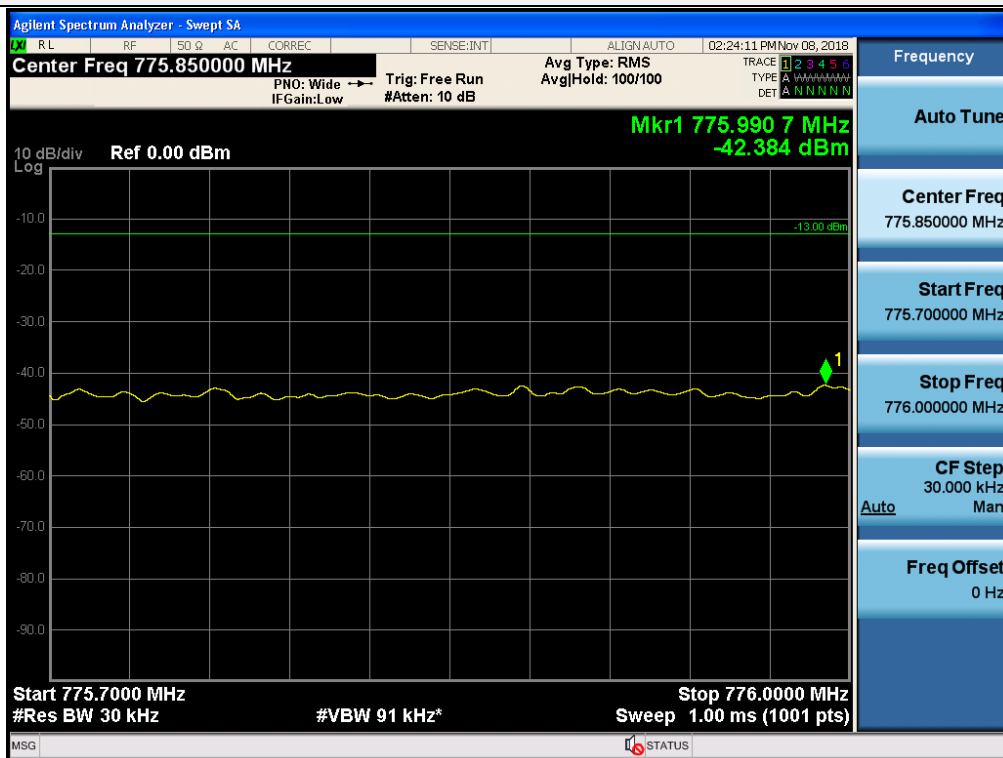
+3 dB above Out-of-band (single test signal) / Lower 700 MHz / Downlink / LTE 10 MHz / Lower



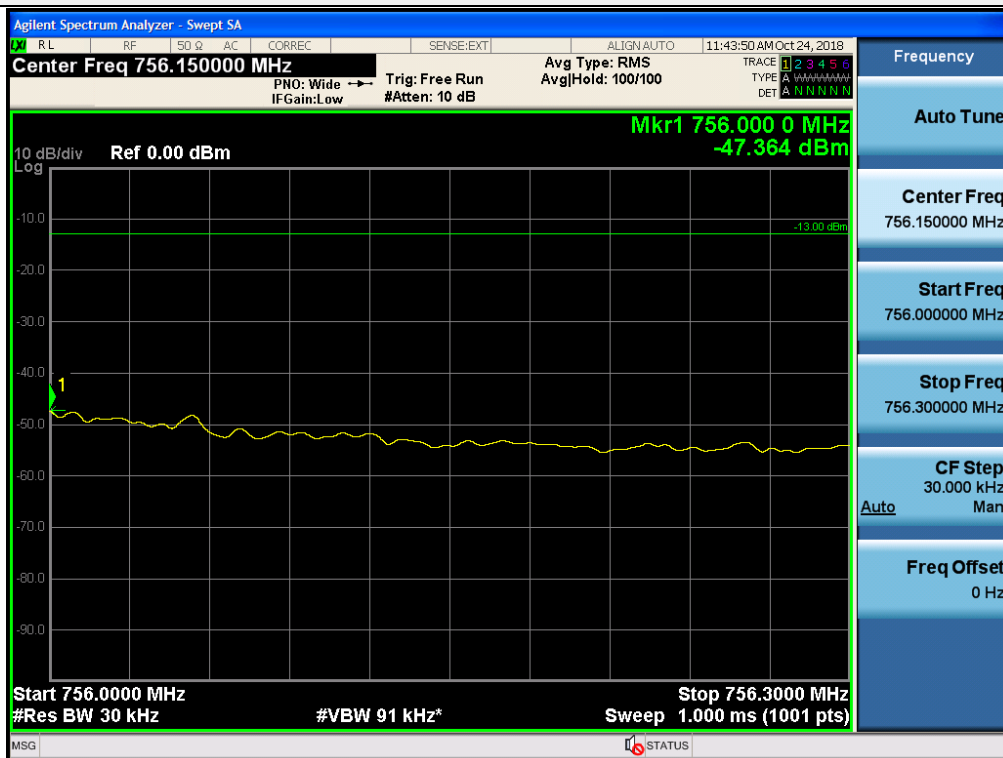
+3 dB above Out-of-band (single test signal) / Upper 700 MHz / Uplink / LTE 10 MHz / Upper



+3 dB above Out-of-band (single test signal) / Upper 700 MHz / Uplink / LTE 10 MHz / Lower



+3 dB above Out-of-band (single test signal) / Upper 700 MHz / Downlink / LTE 10 MHz / Upper



+3 dB above Out-of-band (single test signal) / Upper 700 MHz / Downlink / LTE 10 MHz / Lower

