

# Cellphone-Mate, Inc.

REVISED TEST REPORT TO 97222-11

**Mobile Wideband Consumer Booster  
Model: Fusion2go**

**Tested To The Following Standards:**

**FCC Part 20.21(e)8**

**Report No.: 97222-11A**

**Date of issue: March 27, 2019**



This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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## ADMINISTRATIVE INFORMATION

### Test Report Information

**REPORT PREPARED FOR:**

Cellphone-Mate, Inc.  
48346 Milmont Drive  
Fremont, CA 94538

Representative: Dennis Findley  
Customer Reference Number: SC20150623

**DATE OF EQUIPMENT RECEIPT:****DATE(S) OF TESTING:****REPORT PREPARED BY:**

Darcy Thompson  
CKC Laboratories, Inc.  
5046 Sierra Pines Drive  
Mariposa, CA 95338

Project Number: 97222

June 23, 2015

June 23-30, 2015

March 5, 2019

### Revision History

**Original:** Testing of the Mobile Wideband Consumer Booster Model: Fusion2go to FCC Parts: 20.21(e)8, 22, 24 and 27.

**Revision A:** To replace section 7.4 with corrected test data.

### Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



**Steve Behm**  
*Director of Quality Assurance & Engineering Services*  
CKC Laboratories, Inc.

## Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):  
CKC Laboratories, Inc.  
1120 Fulton Place  
Fremont, CA 94539

## Software Versions

| CKC Laboratories Proprietary Software | Version |
|---------------------------------------|---------|
| EMITest Emissions                     | 5.02.00 |
| EMITest Emissions                     | 5.03.11 |
| EMITest Immunity                      | 5.02.00 |

## Site Registration & Accreditation Information

| Location | CB #   | TAIWAN         | CANADA  | FCC    | JAPAN  |
|----------|--------|----------------|---------|--------|--------|
| Fremont  | US0082 | SL2-IN-E-1148R | 3082B-1 | 958979 | A-0149 |

## SUMMARY OF RESULTS

### Standard / Specification: FCC Part 20.21

| KDB 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v03, June 5, 2015 |                                             | FCC Part 20.21 Section Correlation        |                            | Modifications | Results         |
|----------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------|----------------------------|---------------|-----------------|
| Guidance Sec #                                                                         | Guidance Description                        | FCC Sec #                                 | FCC Rule Description       |               |                 |
| 7.1 a) – k)                                                                            | Authorized Frequency band Verification test | 20.21(e)(3)                               | Frequency Bands            | NA            | Pass            |
| 7.2.2 a) - k)                                                                          | Maximum Power Measurement procedure         | 20.21(e)(8)(i)(D)                         | Power Limit                | NA            | Pass            |
| 7.3 a) – d)                                                                            | Maximum Booster Gain Computation            | 20.21(e)(8)(i)(B)                         | Bidirectional Capabilities | NA            | Pass            |
| 7.4 a) – n)                                                                            | Intermodulation Product                     | 20.21(e)(8)(i)(F)                         | Intermodulation Limit      | NA            | Pass            |
| 7.5 a) – n)                                                                            | Out of Band Emissions                       | 20.21(e)(8)(i)(E)                         | Out of Band Emission       | NA            | Pass            |
| 7.6 a) – e)                                                                            | Conducted Spurious emission                 | Part 22/24/27                             | Spurious Emission          | NA            | NA <sup>1</sup> |
| 7.7.1 a) – g)                                                                          | Noise Limit procedure                       | 20.21(e)(8)(i)(A)(2)                      | Noise Limits               | NA            | Pass            |
| 7.7.1 h) – n)                                                                          | Variable Noise                              | (ii)                                      |                            |               | Pass            |
| 7.7.2 a) – g)                                                                          | Variable Noise Timing                       | 20.21(e)(8)(i)(A)(1)<br>20.21(e)(8)(i)(H) | Transmit Power Off Mode    |               | Pass            |
| 7.8 a) – l)                                                                            | Uplink inactivity                           | 20.21(e)(8)(i)(I)                         | Uplink inactivity          | NA            | Pass            |
| 7.9.1 a) – l)                                                                          | Variable Booster gain                       | 20.21(e)(8)(i)(C)                         | Booster Gain               | NA            | Pass            |
| 7.9.2 a) – f)                                                                          | Variable Uplink Gain Timing                 | (1), (2)(iii)<br>20.21(e)(8)(i)(H)        | Transmit Power Off Mode    |               | Pass            |
| 7.10.a) – j)                                                                           | Occupied Band width.                        | 2.1049 Part 22/24/27                      | Occupied Bandwidth         | NA            | NA <sup>1</sup> |
| 7.11.2 a) – r)                                                                         | Anti-Oscillation                            | 20.21(e)(8)(ii)(A)                        | Anti Oscillation           | NA            | Pass            |
| 7.11.3 a) – h)                                                                         |                                             |                                           |                            |               | Pass            |
| 7.11.4 a) – h)                                                                         |                                             |                                           |                            |               |                 |
| (Alternate to 7.11.3)                                                                  |                                             |                                           |                            |               |                 |
| 7.12a) – f)                                                                            | Radiated Spurious emission                  | Part 22/24/27                             | Spurious Emission          | NA            | NA <sup>1</sup> |
| 7.13 a) – c)                                                                           | Spectrum block filter                       | NA                                        | NA                         | NA            | NA <sup>2</sup> |

NA<sup>1</sup> = A different standard applies; see applicable test report.

NA<sup>2</sup> = Not applicable. See the section in the report for the reason.

## Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

| Summary of Conditions                      |
|--------------------------------------------|
| No modifications were made during testing. |
|                                            |

Modifications listed above must be incorporated into all production units.

## Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

| Summary of Conditions |
|-----------------------|
| None                  |
|                       |

## EQUIPMENT UNDER TEST (EUT)

During testing numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

### Configuration 1

#### Equipment Tested:

| Device                              | Manufacturer         | Model #   | S/N |
|-------------------------------------|----------------------|-----------|-----|
| Mobile Wideband<br>Consumer Booster | Cellphone-Mate, Inc. | Fusion2go | 1   |

#### Support Equipment:

| Device                  | Manufacturer | Model #         | S/N          |
|-------------------------|--------------|-----------------|--------------|
| Switching Power Adapter | SureCall     | GFP451DA-1238-1 | 1406-0000611 |
| Signal Generator        | Agilent      | E4438C          | MY42082260   |
| Signal Generator        | Agilent      | E4433B          | US40052164   |

### Configuration 1-for tests performed on March 5, 2019 only

#### Equipment Tested:

| Device                              | Manufacturer         | Model #   | S/N |
|-------------------------------------|----------------------|-----------|-----|
| Mobile Wideband<br>Consumer Booster | Cellphone-Mate, Inc. | Fusion2go | 1   |

#### Support Equipment:

| Device                  | Manufacturer | Model #         | S/N          |
|-------------------------|--------------|-----------------|--------------|
| Switching Power Adapter | SureCall     | GFP451DA-1238-1 | 1406-0000611 |

## FCC PART 20.21

### Clause 7.1 Authorized Frequency Band Verification

| Test Equipment |                   |                          |              |            |            |
|----------------|-------------------|--------------------------|--------------|------------|------------|
| Asset #        | Description       | Model                    | Manufacturer | Cal Date   | Cal Due    |
| ANP05389       | Attenuator        | 766-10                   | Narda        | 02/27/2014 | 02/27/2016 |
| ANP05713       | Attenuator        | PE7015-20                | Pasternack   | 03/24/2015 | 03/24/2017 |
| ANP06709       | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| ANP06710       | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| AN02869        | Spectrum Analyzer | E4440A                   | Agilent      | 07/10/2014 | 07/10/2015 |

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.1 Authorized Frequency Band Verification**  
 Work Order #: **97222** Date: 6/23/2015  
 Test Type: **Conducted Emissions** Time: 11:54:28  
 Tested By: Daniel Bertran Sequence#: 1  
 Software: EMITest 5.02.00

#### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

#### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

**Test Conditions / Notes:**

## Configuration 1

The equipment under test (EUT) is a Mobile Wideband Consumer Booster.

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

## Part 22

UL: 824-849MHz

DL: 869-894MHz

## Part 24

UL: 1850-1915MHz

DL: 1930-1995MHz

## Part 27

UL: 1710-1755MHz, 698-716MHz, 776-787MHz

DL: 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max gain.

Test environment conditions: Temperature: 20.8°C, Relative Humidity: 42%, Atmospheric Pressure: 101.5kPa

Test procedure: The test was performed in accordance with section 7.1 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v03 Dated June 5, 2015.

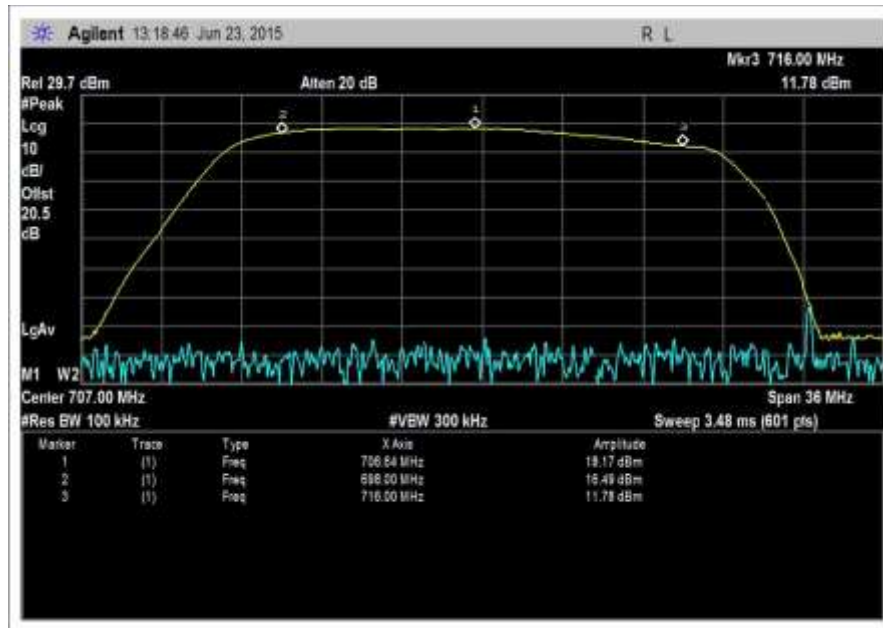
Firmware: V1.0

## Summary of Results

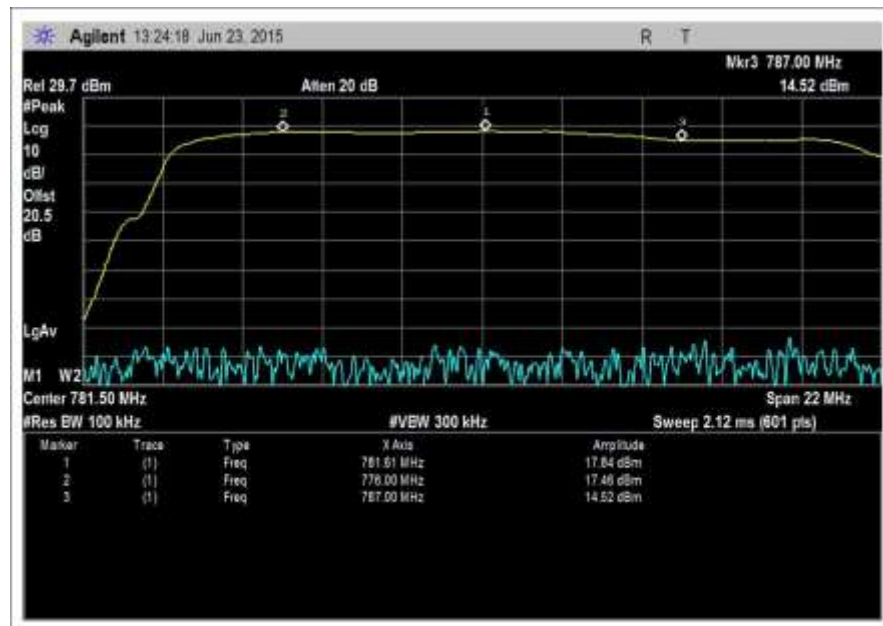
Pass: The plots above show the device only operates on the CMRS frequency bands authorized for use by the NPS.

## Test Data

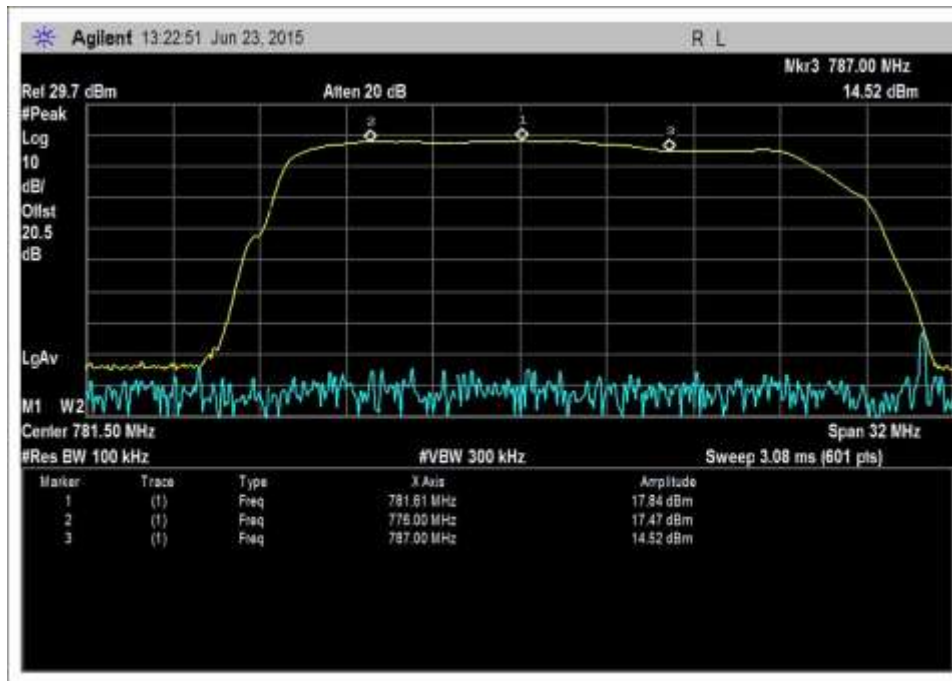
UL



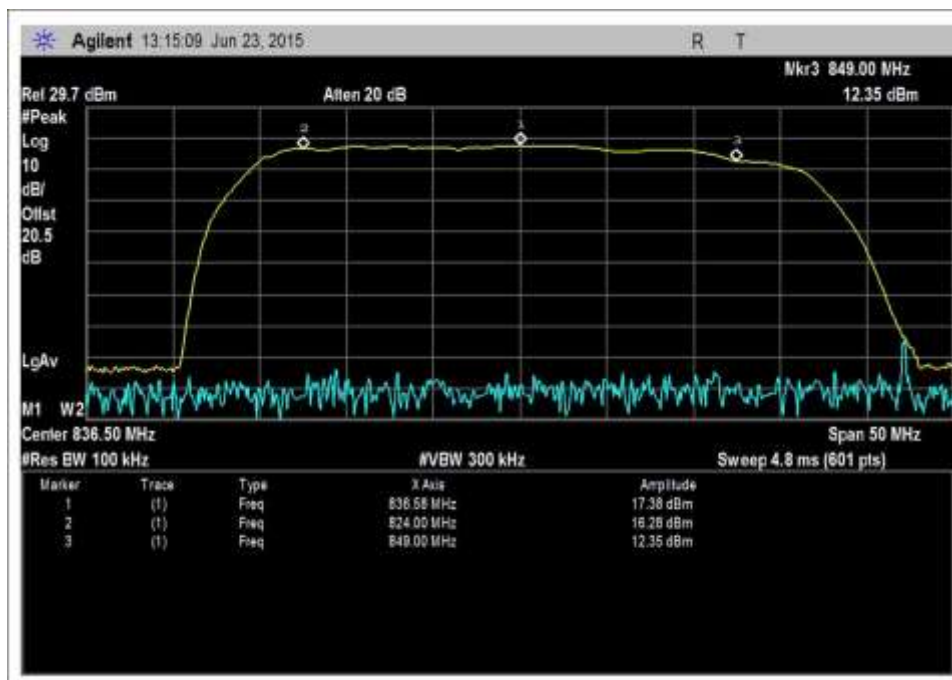
UL\_698-716MHz



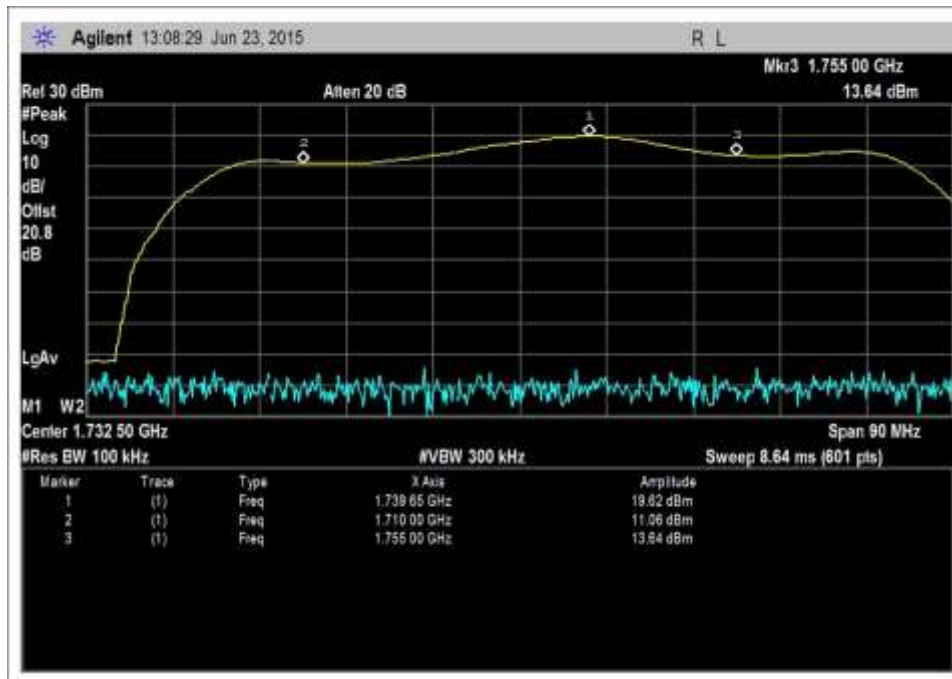
UL\_776-787MHz



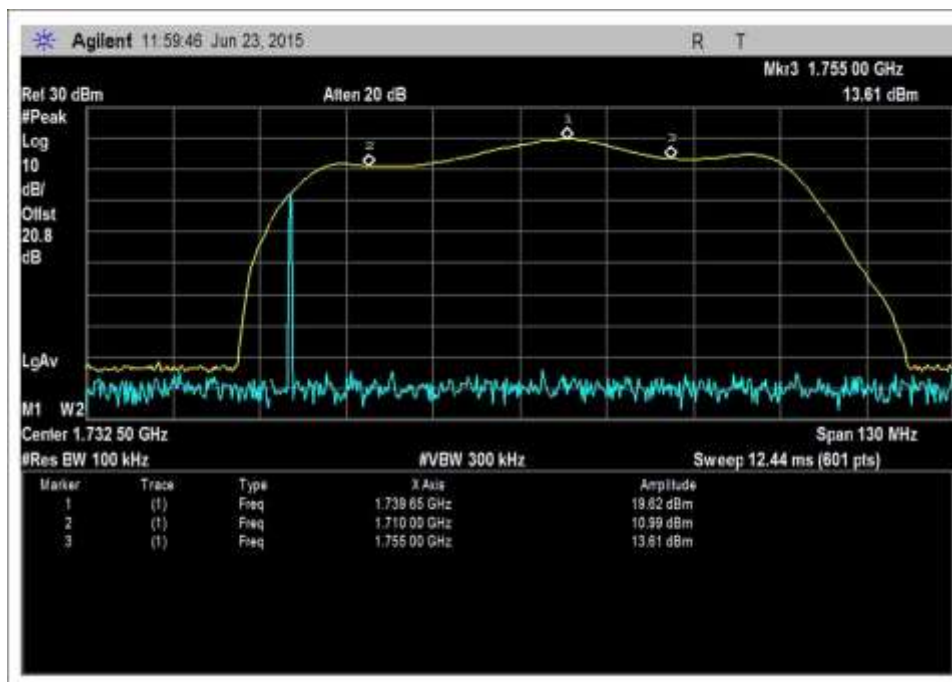
UL\_776-787MHz\_Zoom



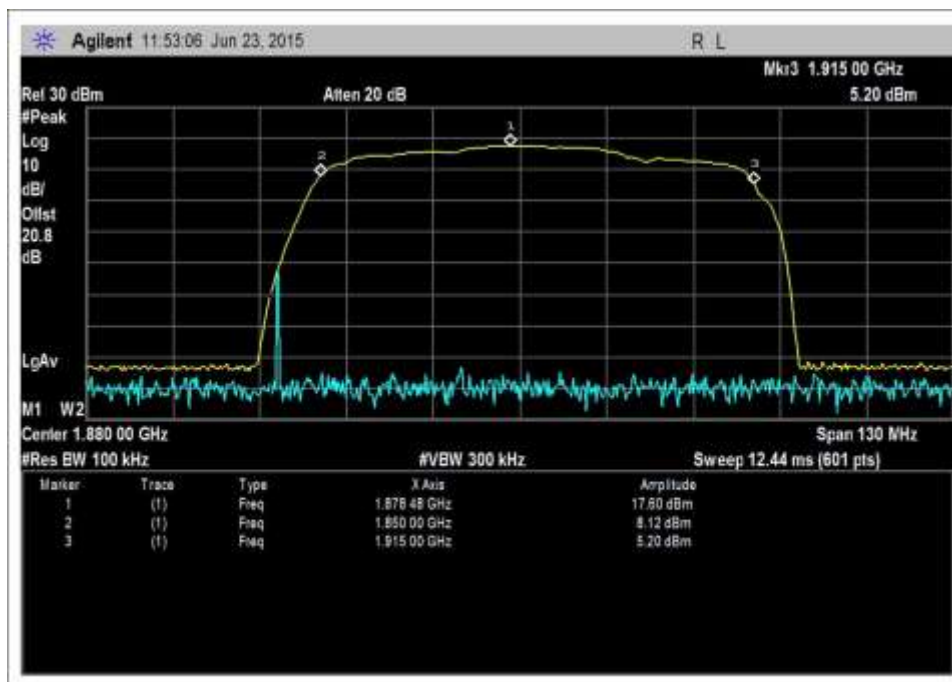
UL\_824-849MHz



UL\_1710-1755MHz

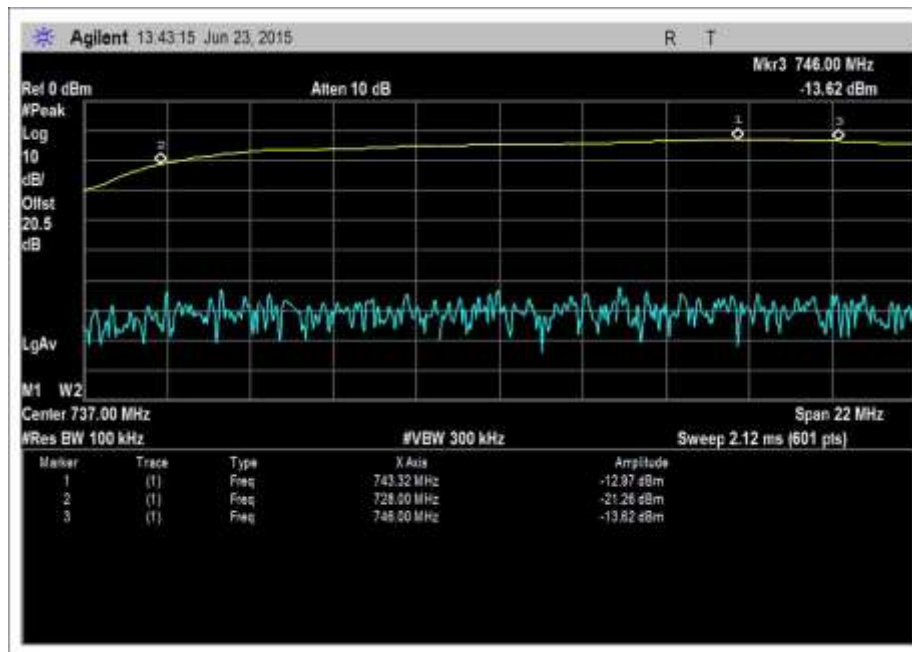


UL\_1710-1755MHz\_Zoom

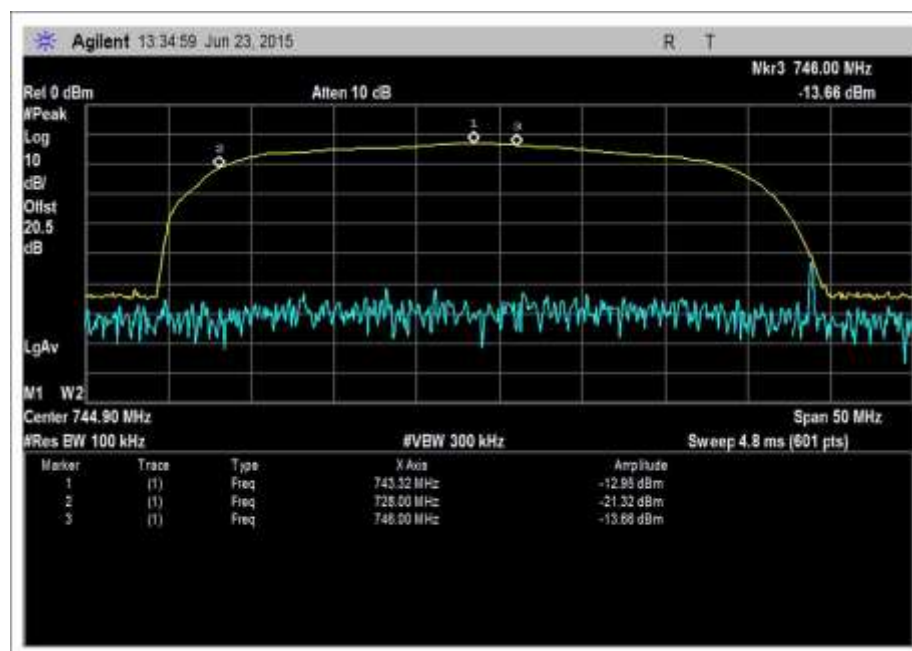


UL\_1850-1915MHz

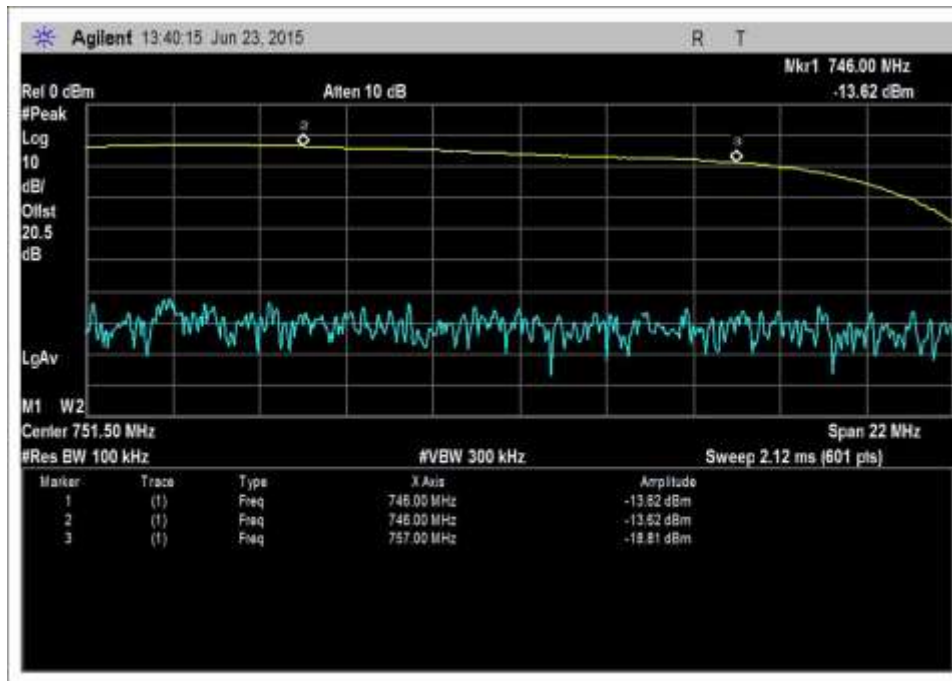
DL



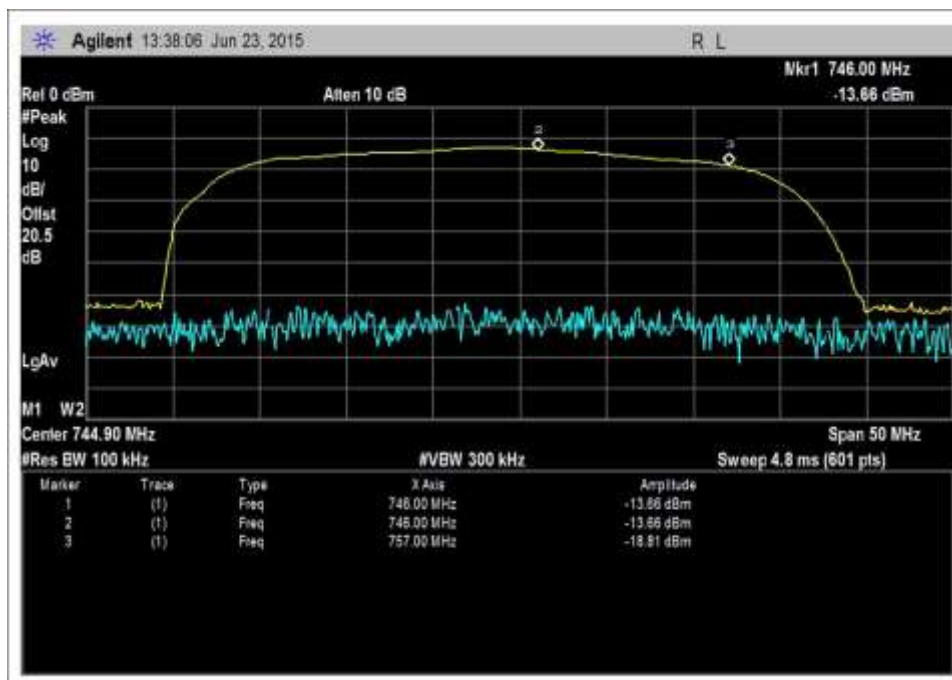
DL\_728-746MHz



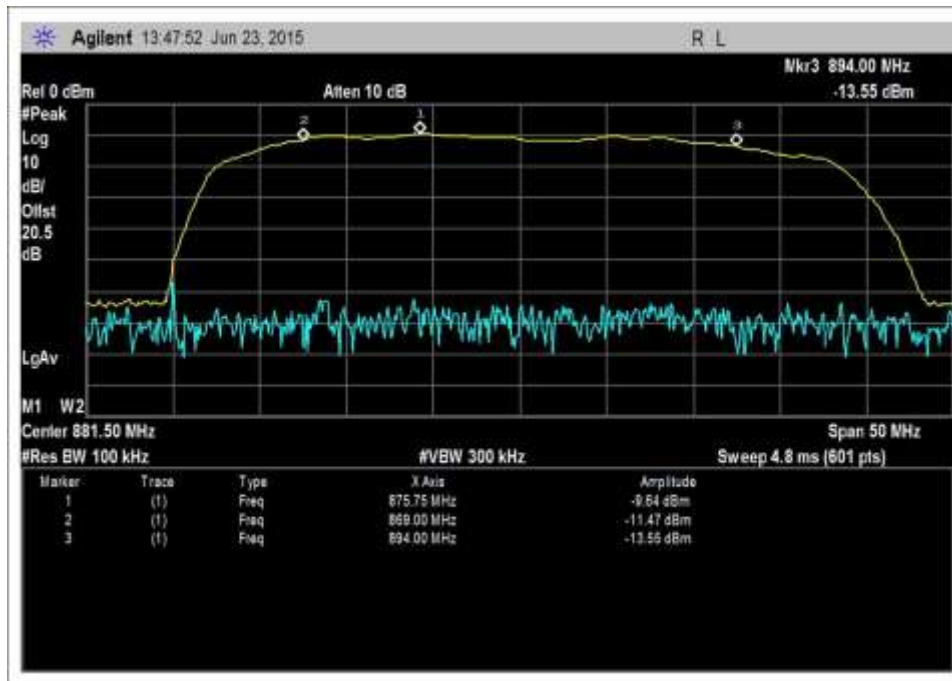
DL\_728-746MHz\_Zoom



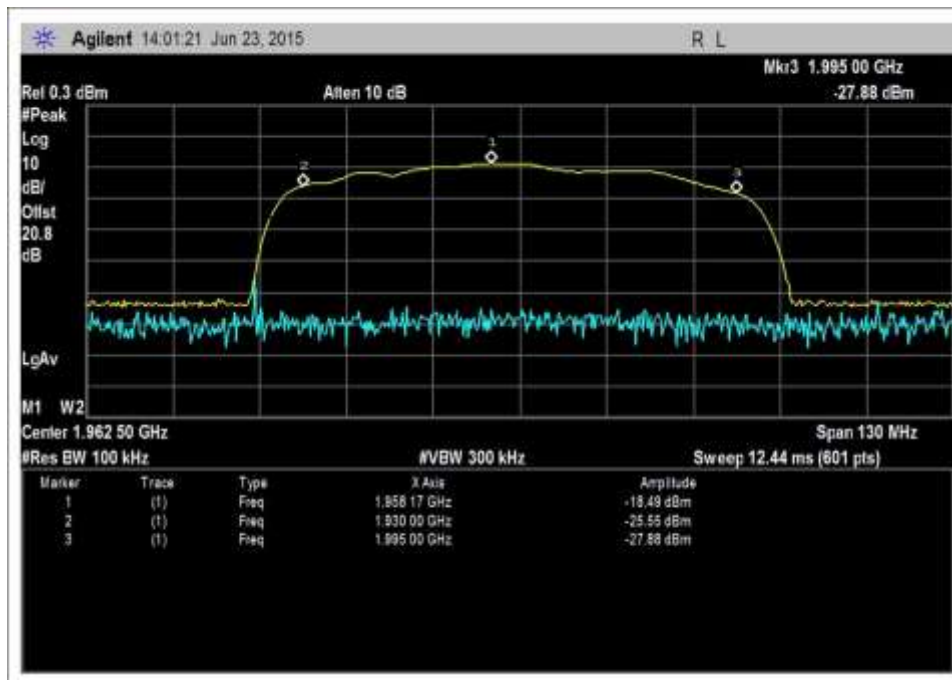
DL\_746-757MHz



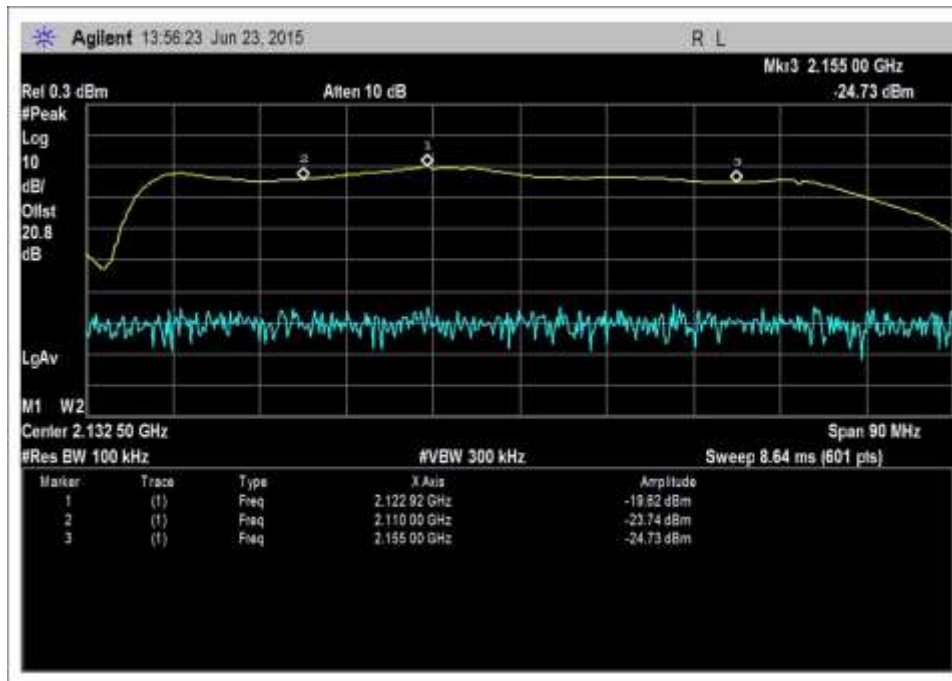
DL\_746-757MHz\_Zoom



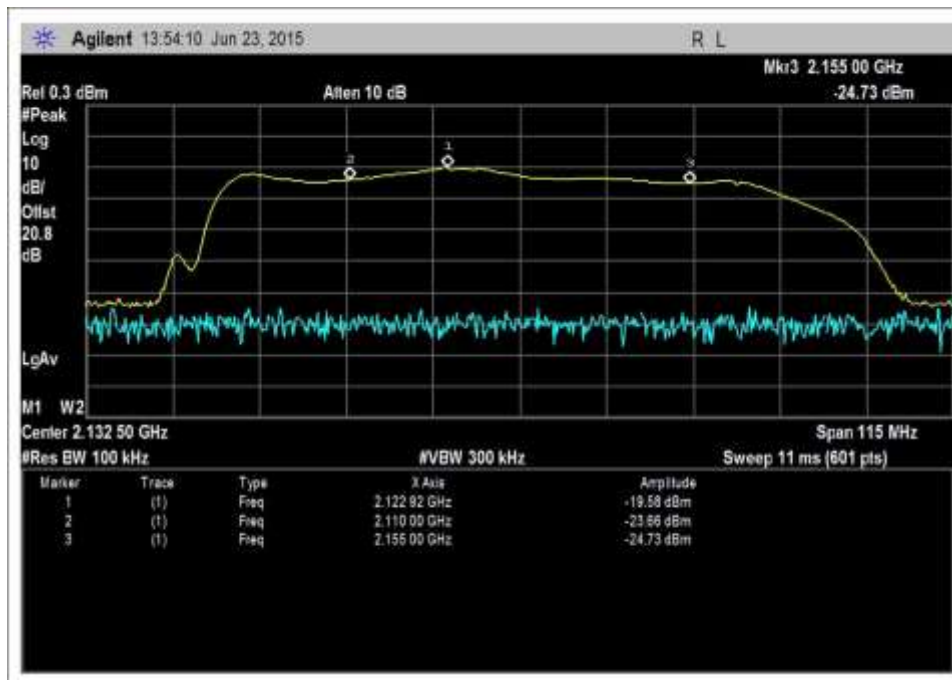
DL\_869-894MHz



DL\_1930-1995MHz



DL\_2110-2155MHz



DL\_2110-2155MHz\_Zoom

## Clause 7.2 Maximum Power

### Test Equipment

| Asset #  | Description       | Model                    | Manufacturer | Cal Date   | Cal Due    |
|----------|-------------------|--------------------------|--------------|------------|------------|
| ANP05389 | Attenuator        | 766-10                   | Narda        | 02/27/2014 | 02/27/2016 |
| ANP05713 | Attenuator        | PE7015-20                | Pasternack   | 03/24/2015 | 03/24/2017 |
| ANP06709 | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| ANP06710 | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| AN02869  | Spectrum Analyzer | E4440A                   | Agilent      | 07/10/2014 | 07/10/2015 |

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.2 Maximum Power Measurement**  
 Work Order #: **97222** Date: 6/23/2015  
 Test Type: **Conducted Emissions** Time: 11:54:28  
 Tested By: Daniel Bertran Sequence#: 1  
 Software: EMITest 5.02.00

#### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

#### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

**Test Conditions / Notes:**

|                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Configuration 1                                                                                                                                                                     |
| The equipment under test (EUT) is a Mobile Wideband Consumer Booster.                                                                                                               |
| The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.                                                                  |
| Part 22                                                                                                                                                                             |
| UL: 824-849MHz                                                                                                                                                                      |
| DL: 869-894MHz                                                                                                                                                                      |
| Part 24                                                                                                                                                                             |
| UL: 1850-1915MHz                                                                                                                                                                    |
| DL: 1930-1995MHz                                                                                                                                                                    |
| Part 27                                                                                                                                                                             |
| UL: 1710-1755MHz, 698-716MHz, 776-787MHz                                                                                                                                            |
| DL: 2110-2155MHz, 728-746MHz, 746-757MHz                                                                                                                                            |
| All adjustable settings on the test sample are set at max gain.                                                                                                                     |
| Test environment conditions: Temperature: 20.8°C, Relative Humidity: 42%, Atmospheric Pressure: 101.5kPa                                                                            |
| Test procedure: The test was performed in accordance with section 7.2 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v03 Dated June 5, 2015. |
| Firmware: V1.0                                                                                                                                                                      |

The booster is to be deployed with antenna kit with the following characteristic:

**Antenna Kitting Information**

| Vehicle Kit     |                         |           |        |        |         |                 |                   |
|-----------------|-------------------------|-----------|--------|--------|---------|-----------------|-------------------|
| Component       | Prod No.<br>Description | Gain/Loss |        |        |         |                 | Notes             |
|                 |                         | LTE-A     | LTE-V  | 800MHz | 1900MHz | 1700MHz\2100MHz |                   |
| Outdoor Antenna | SC-200W                 | 3dBi      | 3dBi   | 3dBi   | 5dBi    | 5dBi\5dBi       |                   |
| Outdoor Cable   | RG-174-10FT 10Feet      | 3.8dB     | 3.8dB  | 4.3dB  | 8.8dB   | 6.98dB\8.96dB   |                   |
| Indoor Antenna  | SC-110W                 | 1.1dBi    | 1.1dBi | 1.1dBi | 3dBi    | 3dBi\3dBi       | Table Top Antenna |
| Indoor Cable    | RG-174-10FT 10Feet      | 3.8dB     | 3.8dB  | 4.3dB  | 8.8dB   | 6.98dB\8.96dB   |                   |

| Marine Kit      |                          |           |        |        |         |                 |                      |
|-----------------|--------------------------|-----------|--------|--------|---------|-----------------|----------------------|
| Component       | Prod No.<br>Description  | Gain/Loss |        |        |         |                 | Notes                |
|                 |                          | LTE-A     | LTE-V  | 800MHz | 1900MHz | 1700MHz\2100MHz |                      |
| Outdoor Antenna | SC-288W or Galaxy 5412-P | 3dBi      | 3dBi   | 3dBi   | 4dBi    | 4dBi\4dBi       |                      |
| Outdoor Cable   | RG-240-40FN 40Feet       | 3.52dB    | 3.52dB | 3.98dB | 6.52dB  | 6.12dB\6.92dB   |                      |
| Indoor Antenna  | SC-248W                  | 7dBi      | 7dBi   | 7dBi   | 10dBi   | 10dBi\10dBi     | Wall Mounted Antenna |
| Indoor Cable    | RG-240-20FN 20Feet       | 2.06dB    | 2.06dB | 2.29dB | 3.56dB  | 3.36dB\ 3.76dB  |                      |

| Desk top/RV Kit |                         |           |        |        |         |                 |                   |
|-----------------|-------------------------|-----------|--------|--------|---------|-----------------|-------------------|
| Component       | Prod No.<br>Description | Gain/Loss |        |        |         |                 | Notes             |
|                 |                         | LTE-A     | LTE-V  | 800MHz | 1900MHz | 1700MHz\2100MHz |                   |
| Outdoor Antenna | SC-288W                 | 3dBi      | 3dBi   | 3dBi   | 4dBi    | 4dBi\4dBi       |                   |
| Outdoor Cable   | RG-240-40FN 40Feet      | 3.52dB    | 3.52dB | 3.98dB | 6.52dB  | 6.12dB\6.92dB   |                   |
| Indoor Antenna  | SC-120W                 | 1.2dBi    | 1.2dBi | 1.2dBi | 3dBi    | 3dBi\3dBi       | Table Top Antenna |

## Summary of Results

Pass: as summarized in table below, measured EIRP, Gain and UL/DL gain ratio are within limits.

| Pre AGC         |             |              |           |              |              |           |
|-----------------|-------------|--------------|-----------|--------------|--------------|-----------|
| Pulse GSM       |             |              |           | 4.1 MHz AWGN |              |           |
| Frequency (MHz) | Input (dBm) | Output (dBm) | Gain (dB) | Input (dBm)  | Output (dBm) | Gain (dB) |
| UL1710-1755     | -25.6       | 18.6         | 44.2      | -25.7        | 18.3         | 44.0      |
| UL1850-1915     | -24.3       | 17.5         | 41.8      | -24.1        | 18.1         | 42.2      |
| UL824-894       | -23.4       | 19.3         | 42.7      | -23.1        | 18.2         | 41.3      |
| UL 698-716      | -21.5       | 19.6         | 41.1      | -21.8        | 18.8         | 40.6      |
| UL776-787       | -25.9       | 18.8         | 44.7      | -26.4        | 18.2         | 44.6      |
|                 |             |              |           |              |              |           |
| DL2110-2155     | -59.9       | -18.8        | 41.2      | -59.4        | -17.8        | 41.7      |
| DL1930-1995     | -58.7       | -17.6        | 41.1      | -60.1        | -18.7        | 41.4      |
| DL869-894       | -54.1       | -9.5         | 44.6      | -52.0        | -8.8         | 43.2      |
| DL:728-746      | -57.0       | -11.6        | 45.4      | -57.4        | -12.4        | 45.0      |
| DL 746-757      | -57.5       | -13.5        | 44.0      | -58.0        | -14.0        | 44.0      |

| Pulse GSM       |                    |                |                 |              |                 |                    |
|-----------------|--------------------|----------------|-----------------|--------------|-----------------|--------------------|
|                 |                    |                |                 |              | Conducted       | Conducted and EIRP |
| Frequency (MHz) | Output Power (dBm) | Ant Gain (dBi) | Cable Loss (dB) | EIRP (dBm)   | Limit Min (dBm) | Limit Max (dBm)    |
| UL1710-1755     | 18.6               | 5              | 6.5             | <b>17.1</b>  | 17              | 30                 |
| UL1850-1915     | 17.5               | 5              | 6.1             | <b>16.4</b>  | 17              | 30                 |
| UL824-894       | 19.3               | 3              | 4               | <b>18.3</b>  | 17              | 30                 |
| UL 698-716      | 19.6               | 3              | 3.5             | <b>19.1</b>  | 17              | 30                 |
| UL776-787       | 18.8               | 3              | 3.5             | <b>18.3</b>  | 17              | 30                 |
|                 |                    |                |                 |              |                 |                    |
| DL2110-2155     | -18.8              | 10             | 3.5             | <b>-12.3</b> | NA              | 17                 |
| DL1930-1995     | -17.6              | 10             | 3.4             | <b>-11.0</b> | NA              | 17                 |
| DL869-894       | -9.5               | 7              | 2.3             | <b>-4.8</b>  | NA              | 17                 |
| DL:728-746      | -11.6              | 7              | 2               | <b>-6.6</b>  | NA              | 17                 |
| DL 746-757      | -13.5              | 7              | 2               | <b>-8.5</b>  | NA              | 17                 |

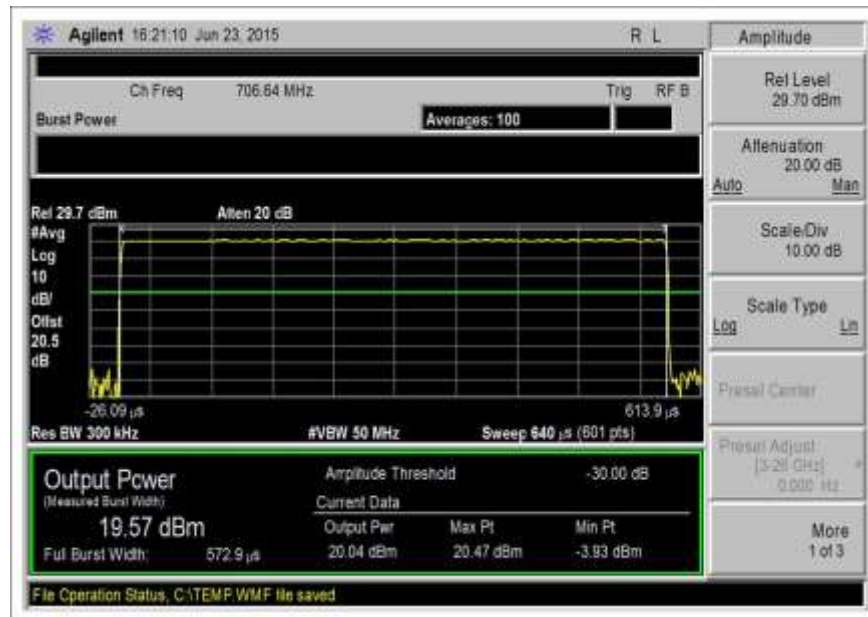
| 4.1MHz AWGN     |                    |                |                 |              |                 |                    |
|-----------------|--------------------|----------------|-----------------|--------------|-----------------|--------------------|
|                 |                    |                |                 |              | Conducted       | Conducted and EIRP |
| Frequency (MHz) | Output Power (dBm) | Ant Gain (dBi) | Cable Loss (dB) | EIRP (dBm)   | Limit Min (dBm) | Limit Max (dBm)    |
| UL1710-1755     | 18.3               | 5              | 6.12            | <b>17.2</b>  | 17              | 30                 |
| UL1850-1915     | 18.1               | 5              | 6.52            | <b>16.6</b>  | 17              | 30                 |
| UL824-894       | 18.2               | 3              | 3.98            | <b>17.2</b>  | 17              | 30                 |
| UL 698-716      | 18.8               | 3              | 3.52            | <b>18.3</b>  | 17              | 30                 |
| UL776-787       | 18.2               | 3              | 3.52            | <b>17.7</b>  | 17              | 30                 |
|                 |                    |                |                 |              |                 |                    |
| DL2110-2155     | -17.8              | 10             | 3.76            | <b>-11.5</b> | NA              | 17                 |
| DL1930-1995     | -18.7              | 10             | 3.56            | <b>-12.2</b> | NA              | 17                 |
| DL869-894       | -8.8               | 7              | 2.29            | <b>-4.1</b>  | NA              | 17                 |
| DL:728-746      | -12.4              | 7              | 2.06            | <b>-7.5</b>  | NA              | 17                 |
| DL 746-757      | -14.0              | 7              | 2.06            | <b>-9.1</b>  | NA              | 17                 |

| Section 5.5 power |             |              |           |              |              |           |
|-------------------|-------------|--------------|-----------|--------------|--------------|-----------|
| Pulse GSM         |             |              |           | 4.1 MHz AWGN |              |           |
| Frequency (MHz)   | Input (dBm) | Output (dBm) | Gain (dB) | Input (dBm)  | Output (dBm) | Gain (dB) |
| UL1710-1755       | -13.5       | 18.3         | 31.8      | -14.0        | 17.9         | 31.9      |
| UL1850-1915       | -12.3       | 18.3         | 30.6      | -12.5        | 19.3         | 31.8      |
| UL824-894         | -11.5       | 18.9         | 30.4      | -12.2        | 17.8         | 30.0      |
| UL 698-716        | -11.3       | 19.7         | 31.0      | -11.0        | 19.0         | 30.0      |
| UL776-787         | -14.0       | 18.2         | 32.2      | -14.6        | 18.0         | 32.6      |
|                   |             |              |           |              |              |           |
| DL2110-2155       | -54.2       | -18.2        | 36.1      | -54.1        | -20.5        | 33.7      |
| DL1930-1995       | -53.9       | -18.2        | 35.7      | -53.9        | -17.5        | 36.5      |
| DL869-894         | -47.7       | -8.7         | 39.0      | -50.0        | -9.0         | 41.0      |
| DL:728-746        | -51.9       | -11.9        | 40.0      | -52.8        | -15.1        | 37.8      |
| DL 746-757        | -51.7       | -12.4        | 39.3      | -53.4        | -13.5        | 39.9      |

Note: The booster went into Transmitter off mode at Max input power of +10dBm (UL) and -20dBm (DL). Results presented on the above table are at 1 dB below the Transmit off RF input level. This table it is for reference only.

## Test Data

### UL-GSM



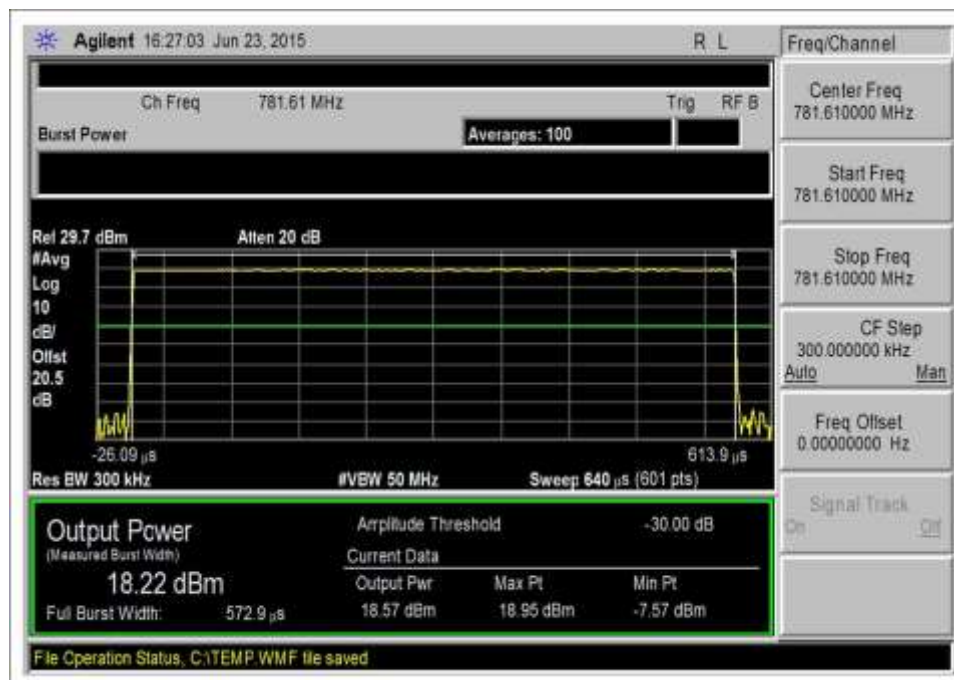
### UL\_698-716\_GSM



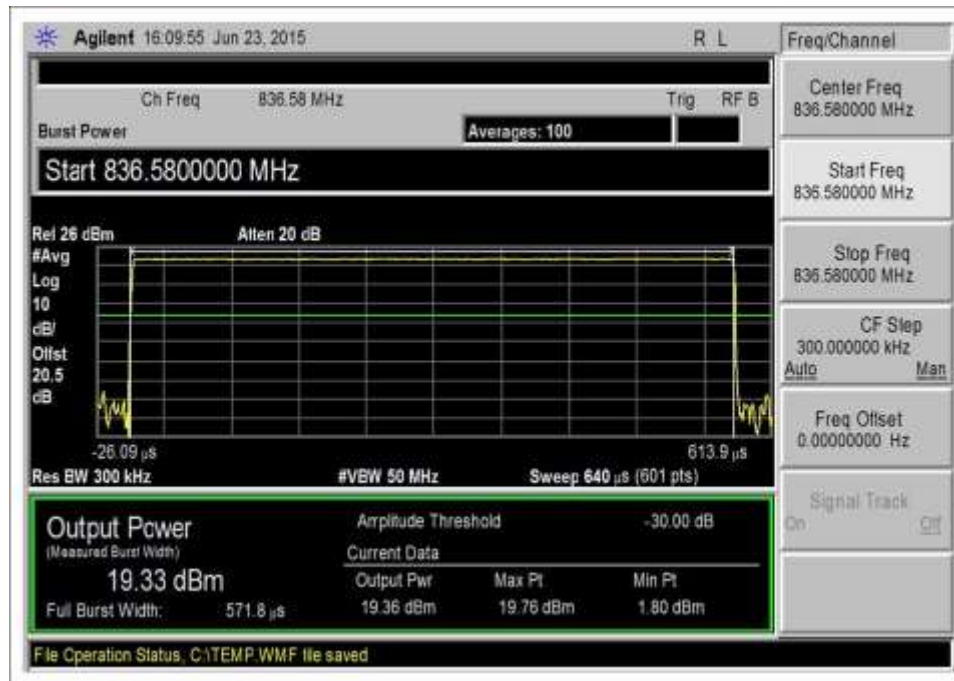
### UL\_698-716\_GSM-Max



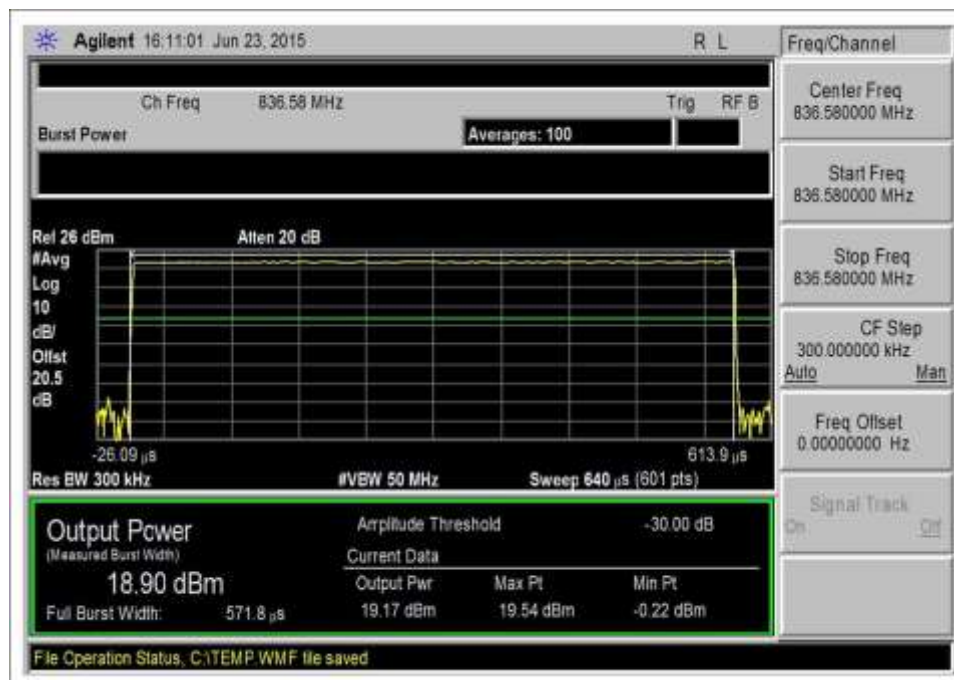
UL\_776-787\_GSM



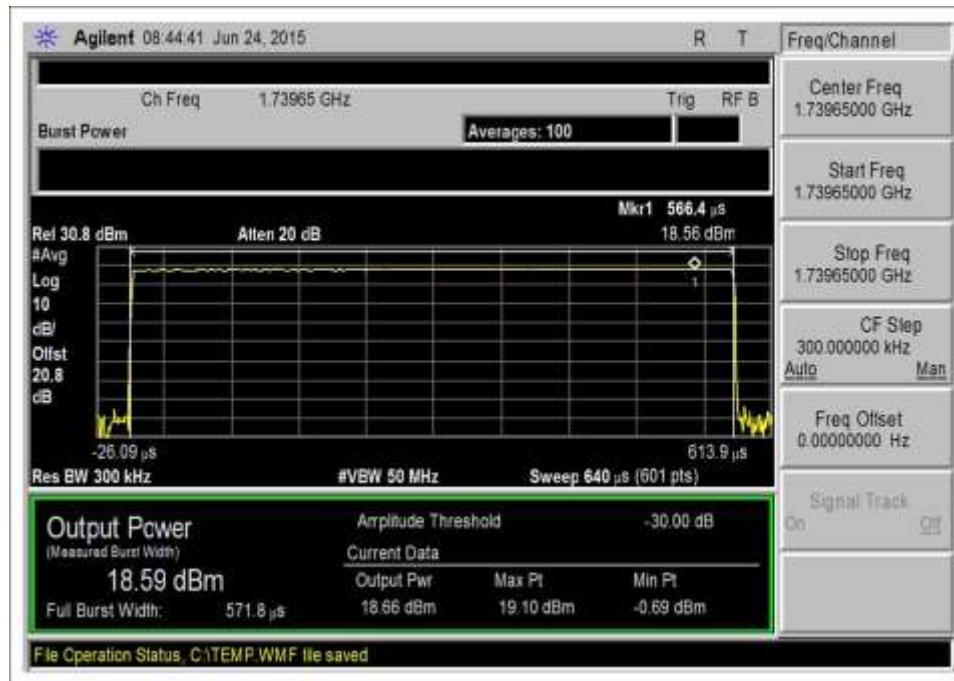
UL\_776-787\_GSM-Max



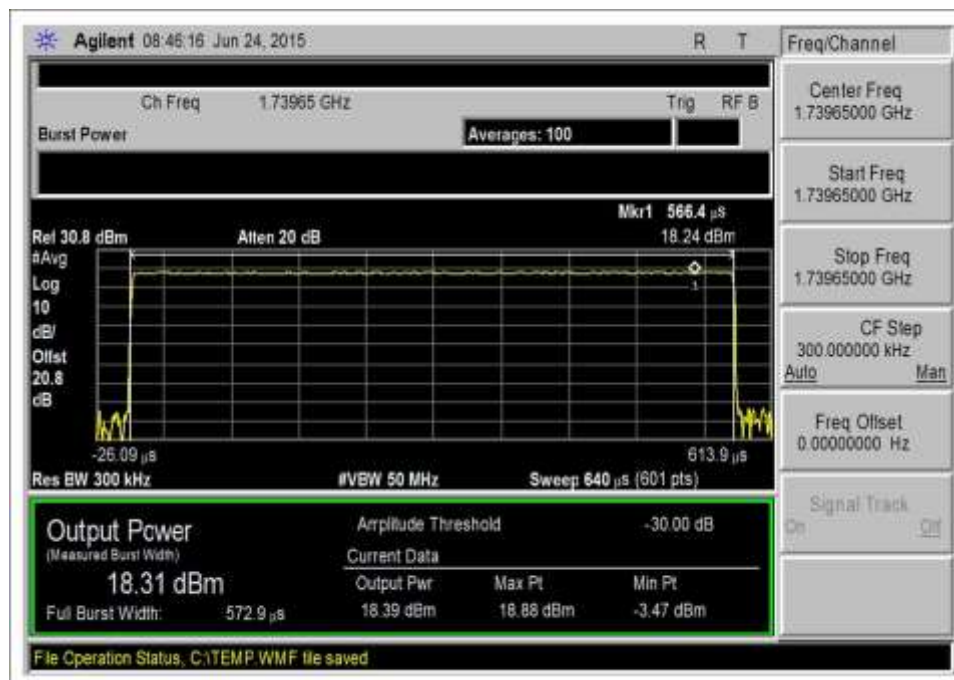
UL\_824-849\_GSM



UL\_824-849\_GSM-Max



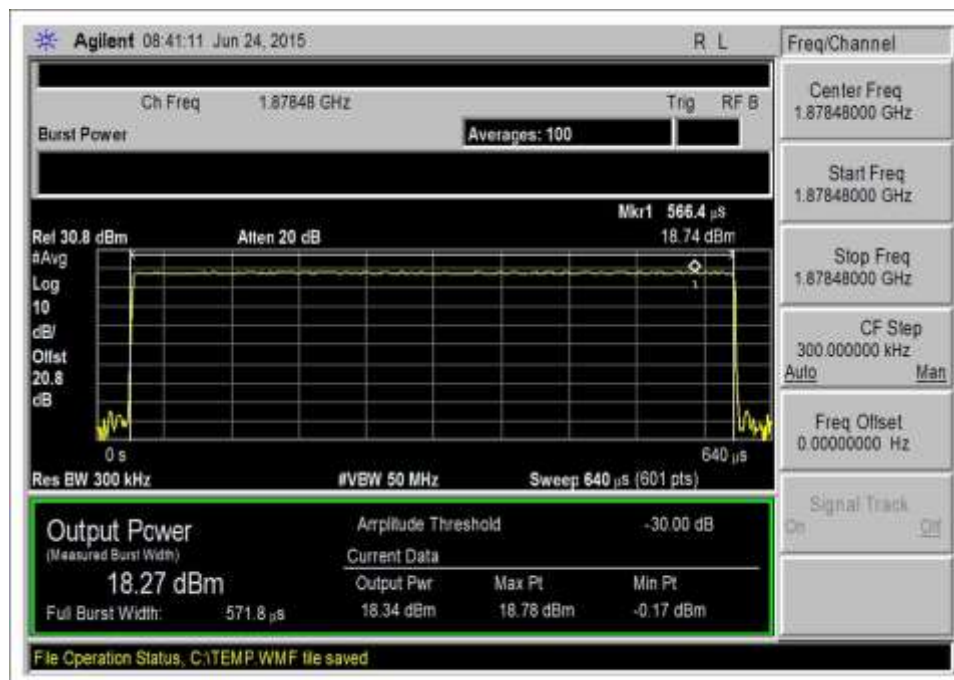
UL\_1710-1755\_GSM



UL\_1710-1755\_GSM-Max

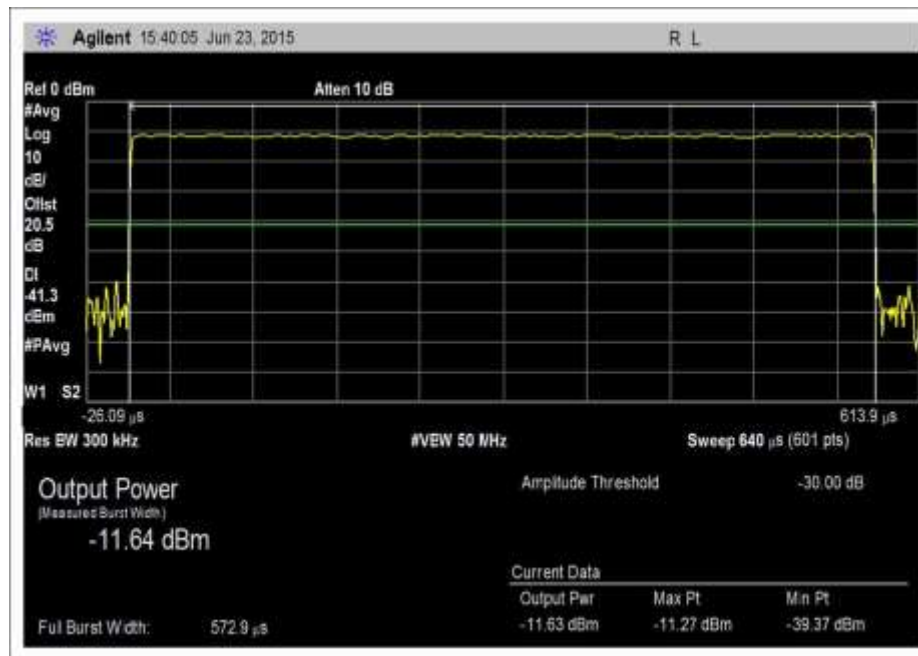


UL\_1850-1915\_GSM

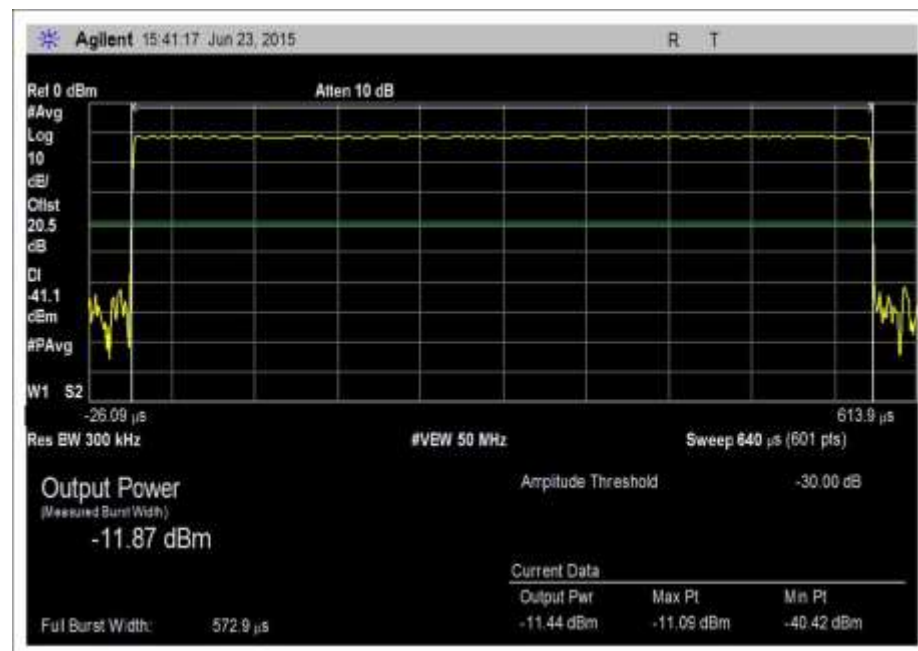


UL\_1850-1915\_GSM-Max

## DL-GSM



## DL\_728-746\_GSM



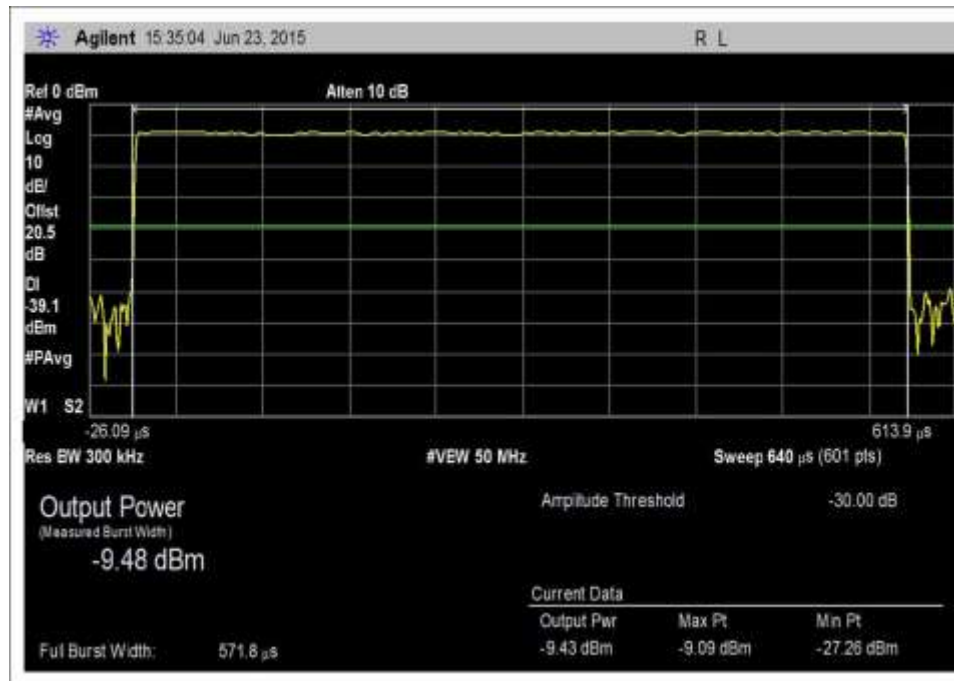
## DL\_728-746\_GSM-Max



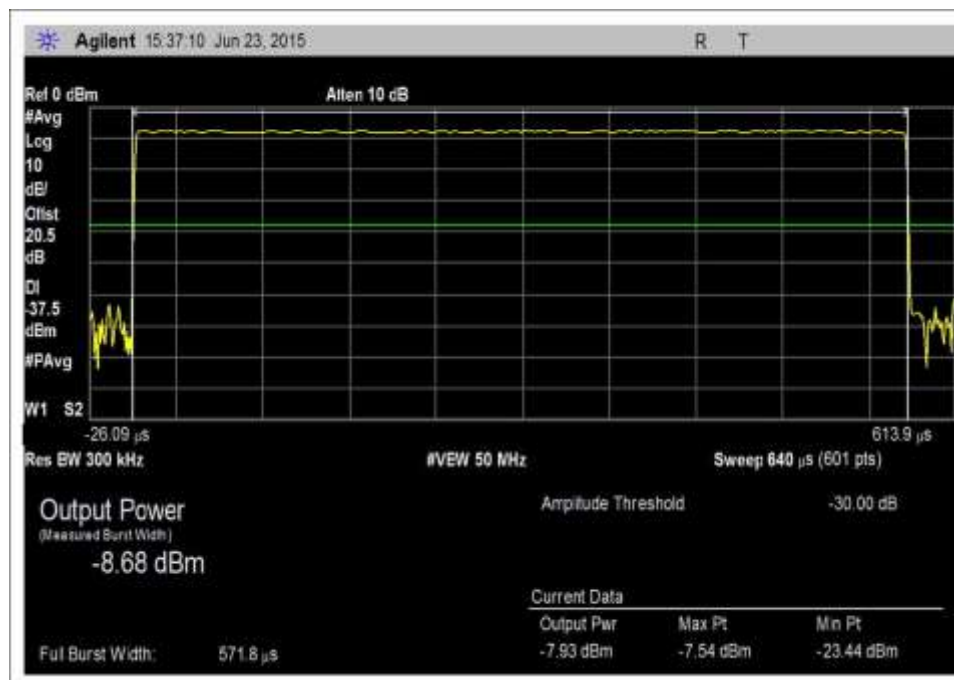
DL\_746-757\_GSM



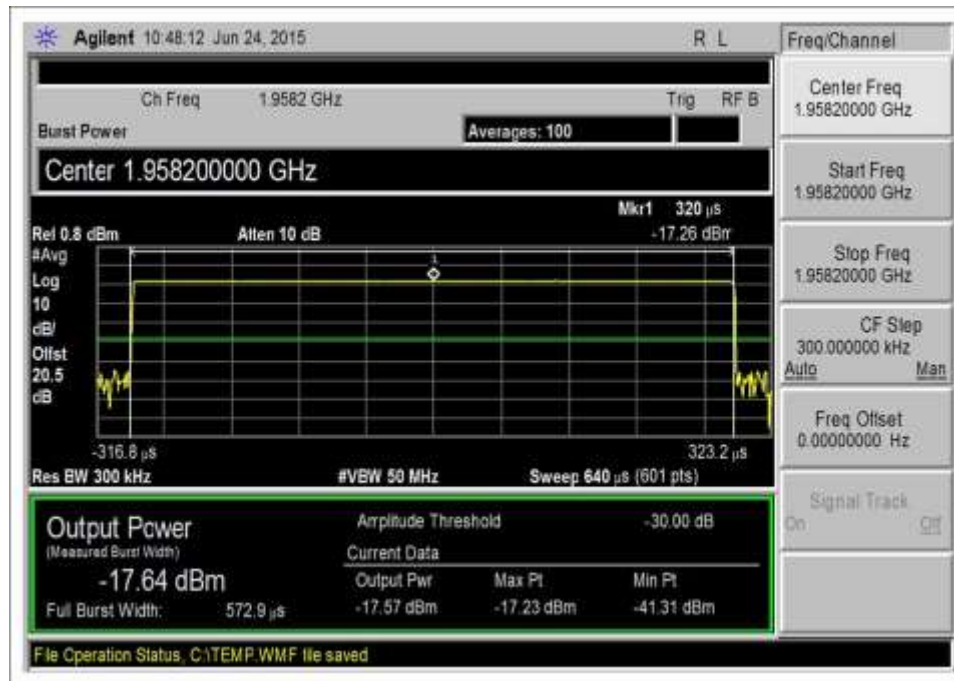
DL\_746-757\_GSM-Max



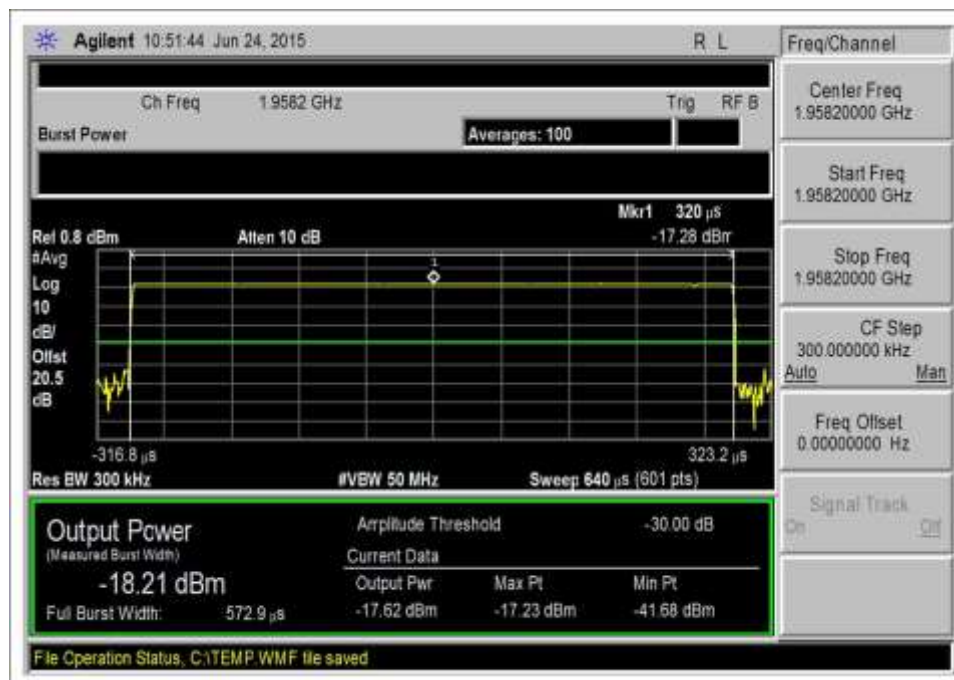
DL\_869-894\_GSM



DL\_869-894\_GSM-Max



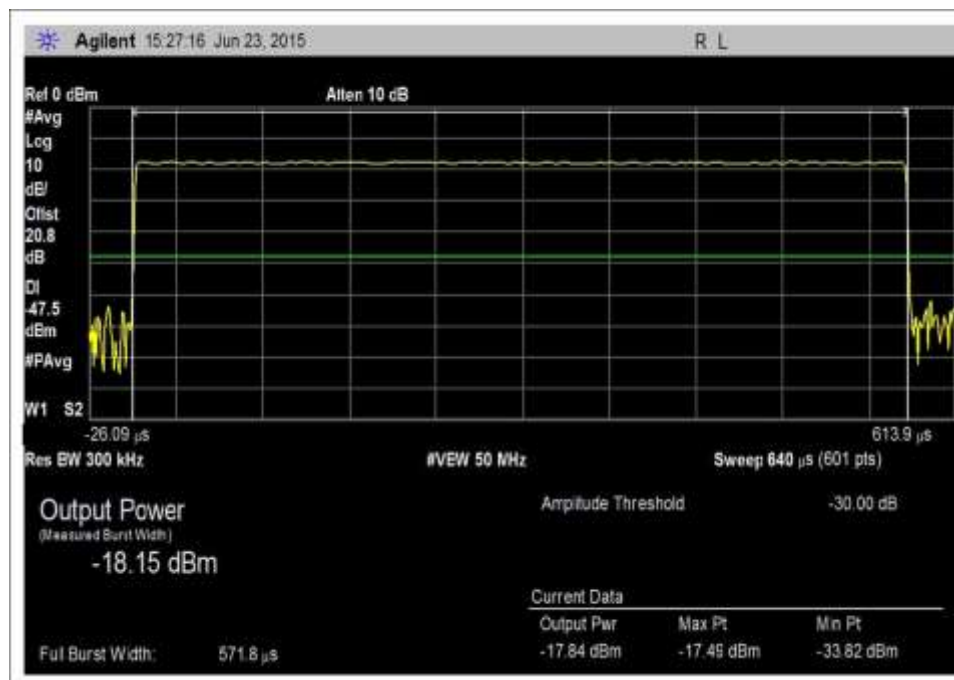
DL\_1930-1995\_GSM



DL\_1930-1995\_GSM-Max

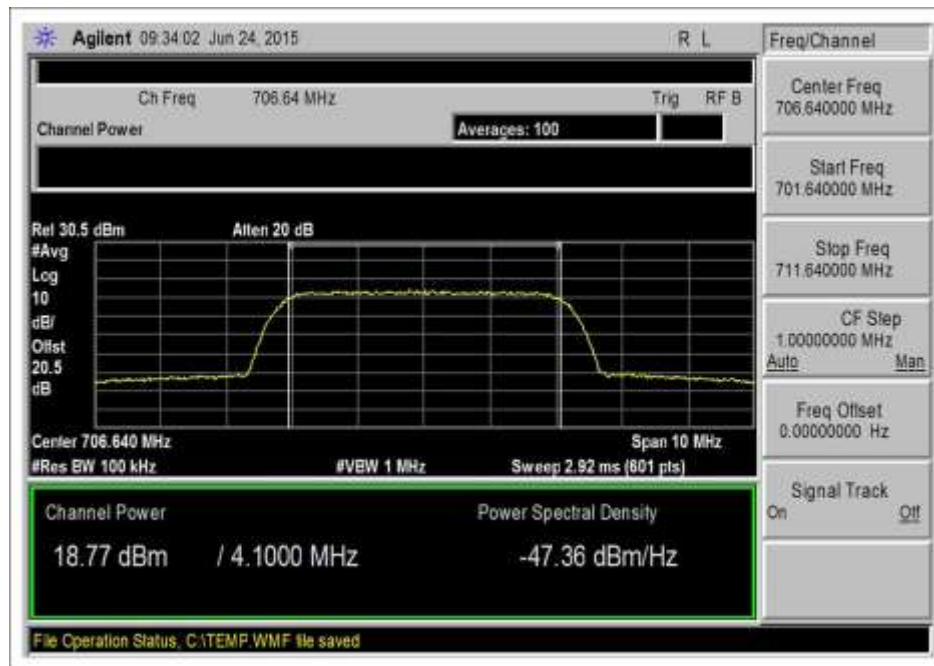


DL\_2110-2155\_GSM

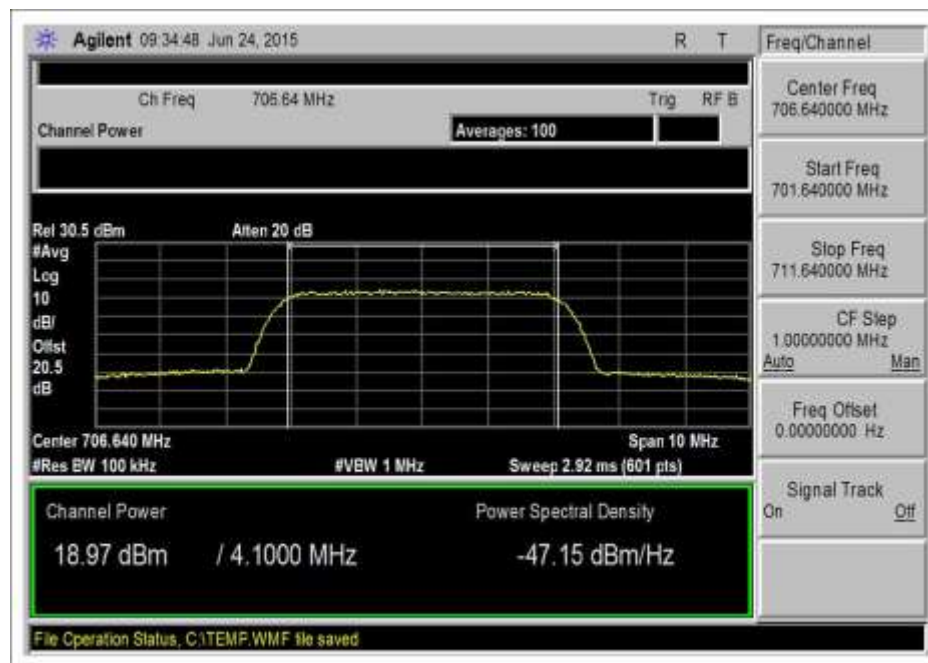


DL\_2110-2155\_GSM-Max

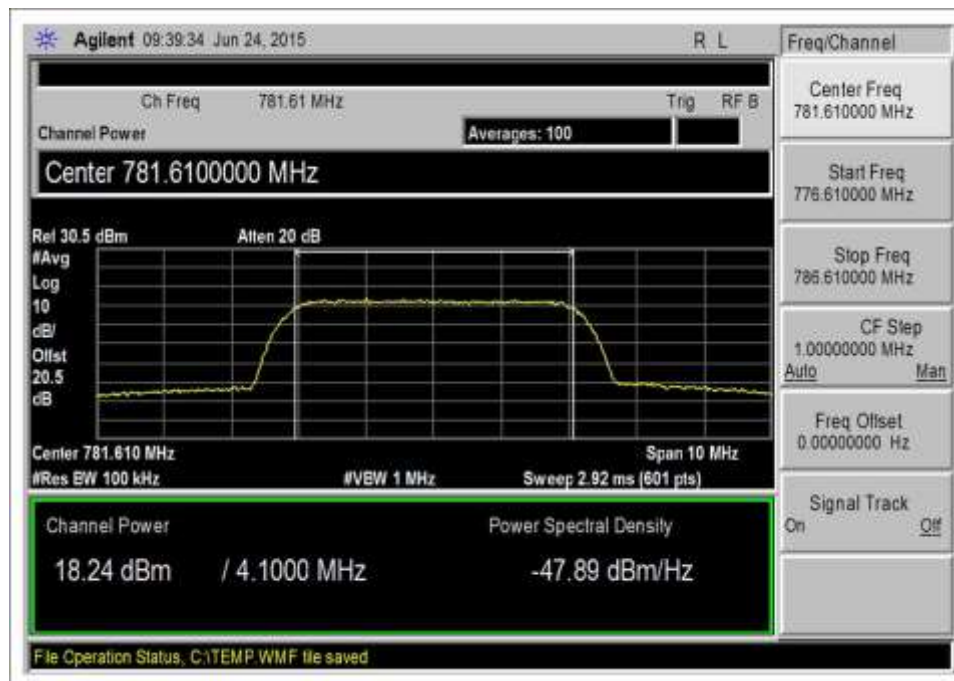
## UL-AWGN



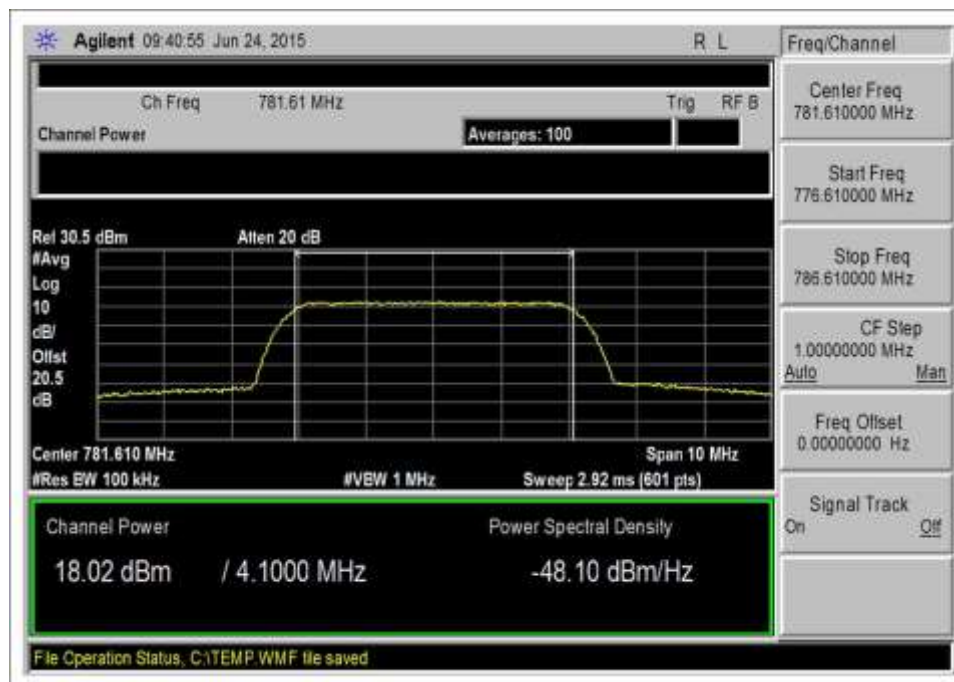
## UL\_698-716\_AWGN



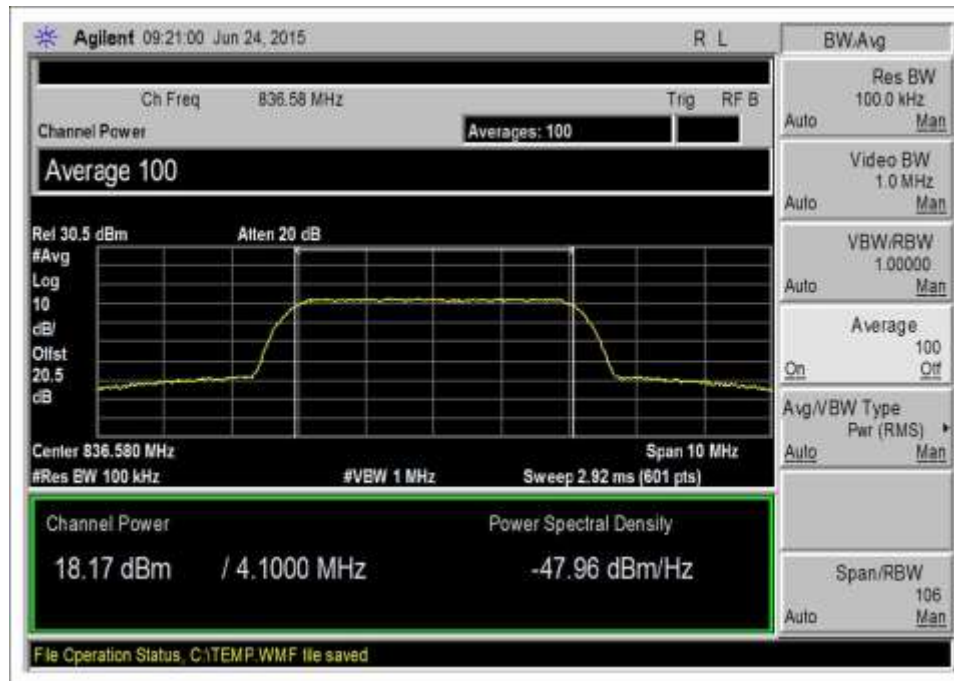
## UL\_698-716\_AWGN-Max



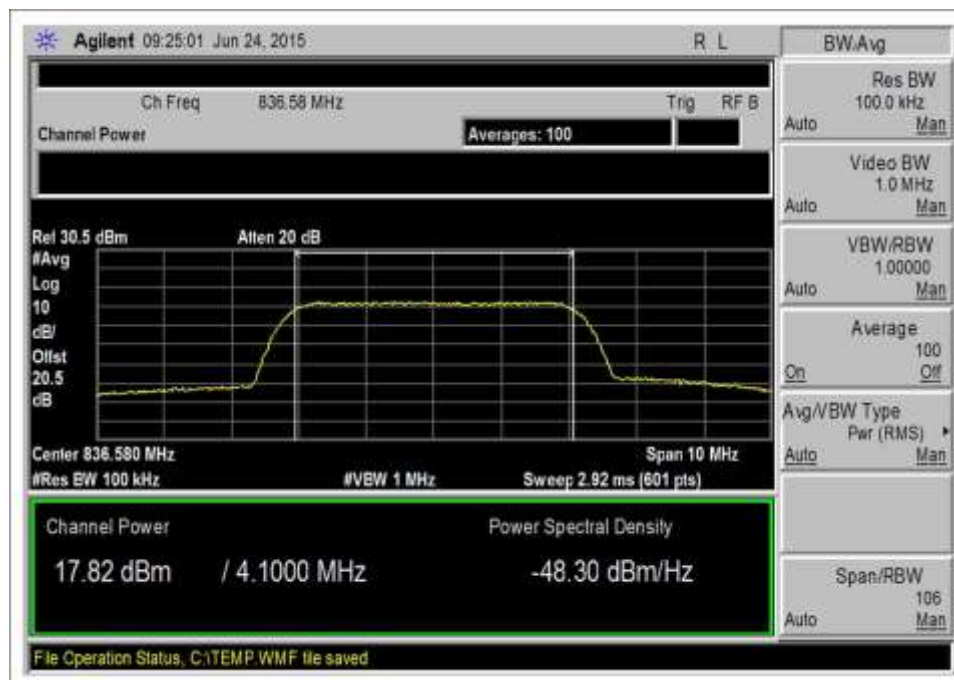
UL\_776-787\_AWGN



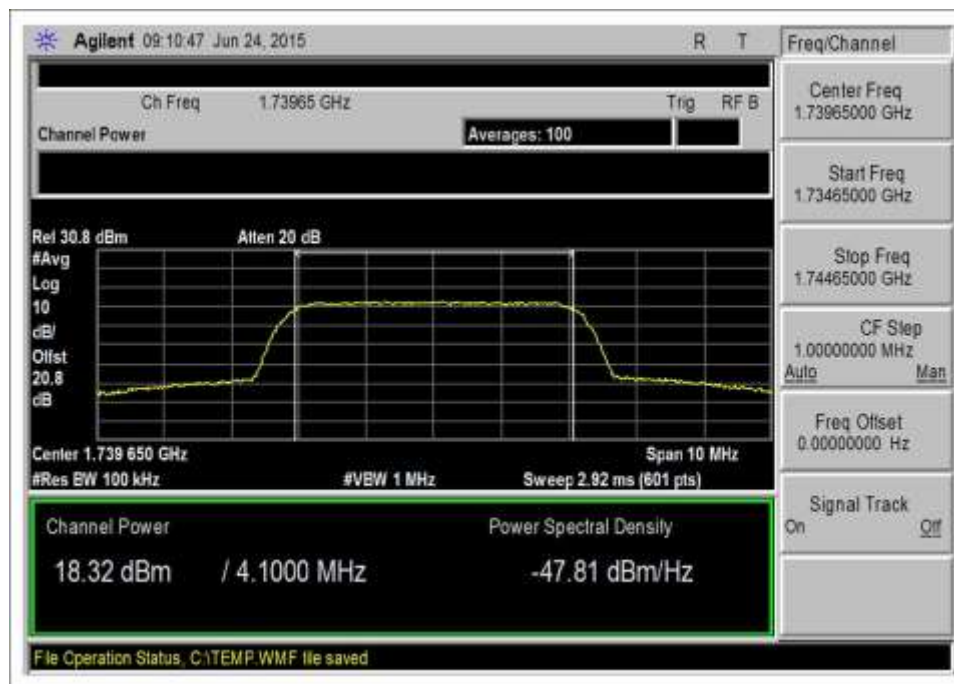
UL\_776-787\_AWGN-Max



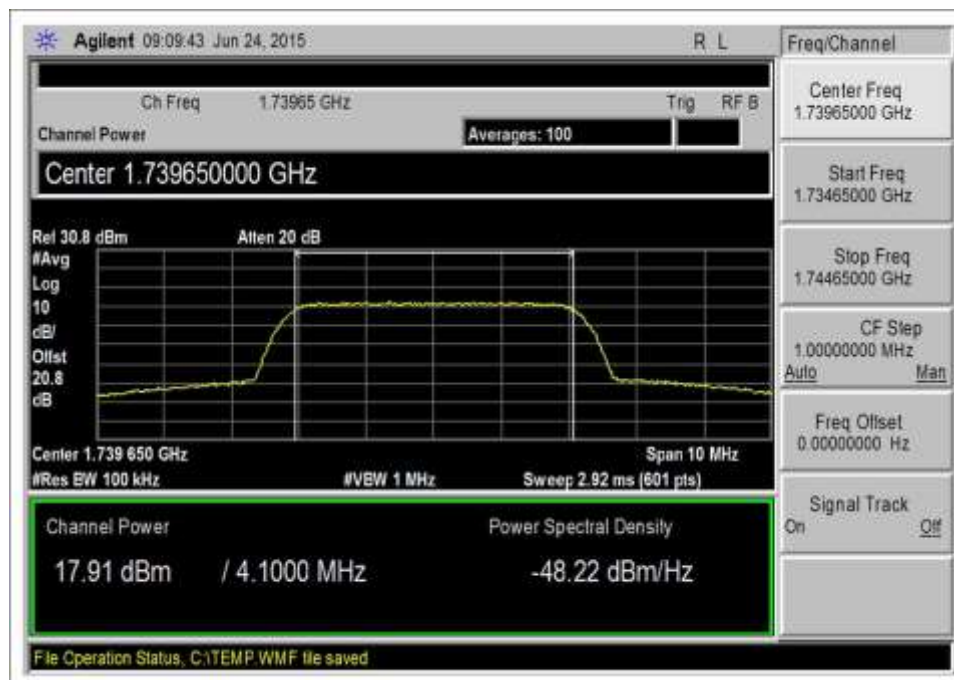
UL\_824-829\_AWGN



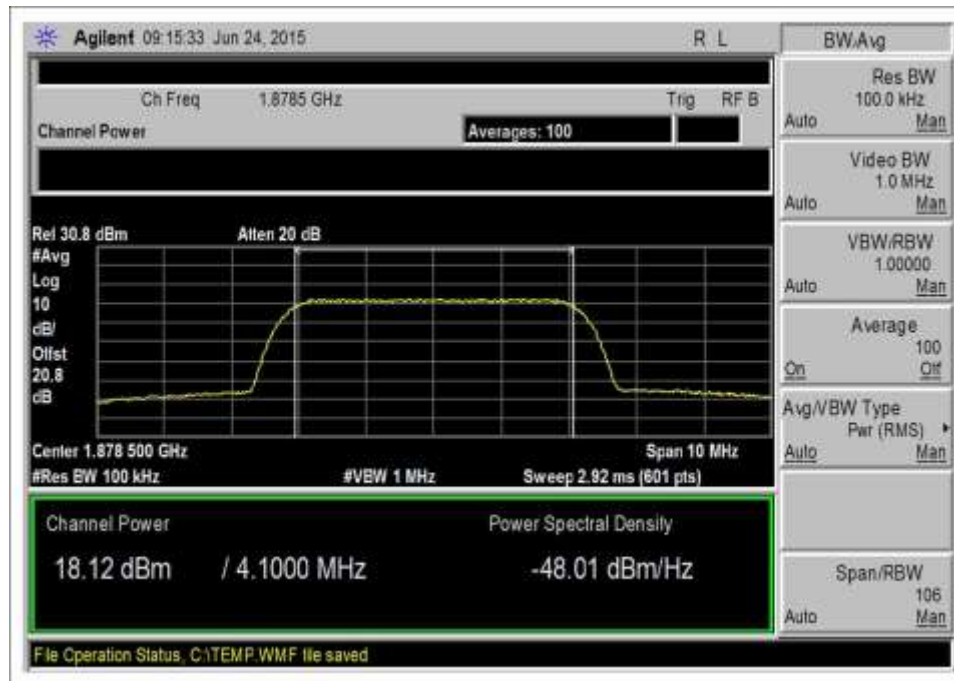
UL\_824-849\_AWGN-Max



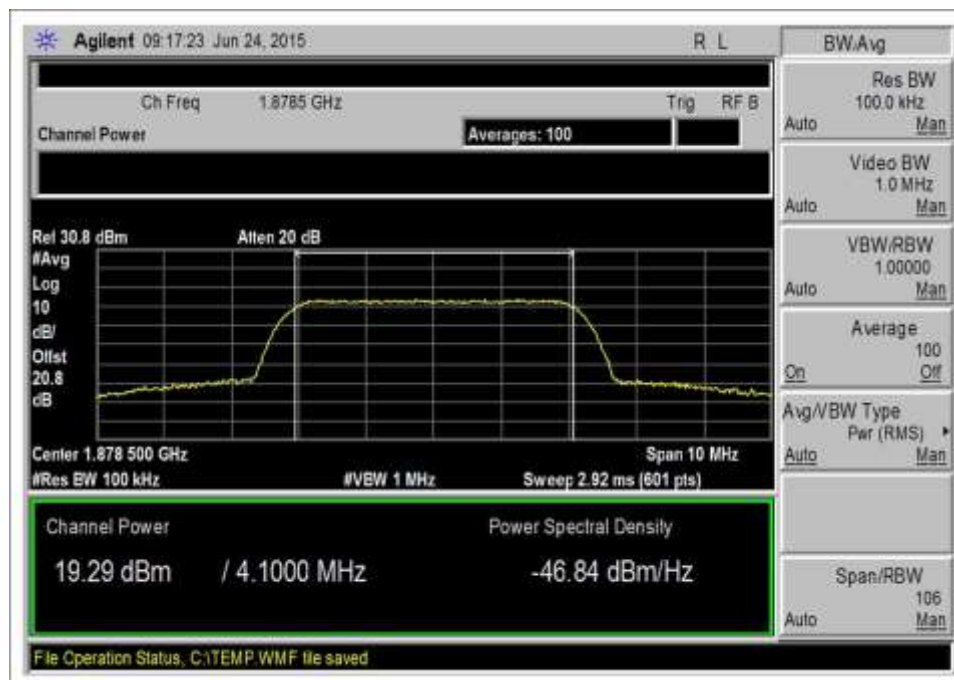
UL\_1710-1755\_AWGN



UL\_1710-1755\_AWGN-Max

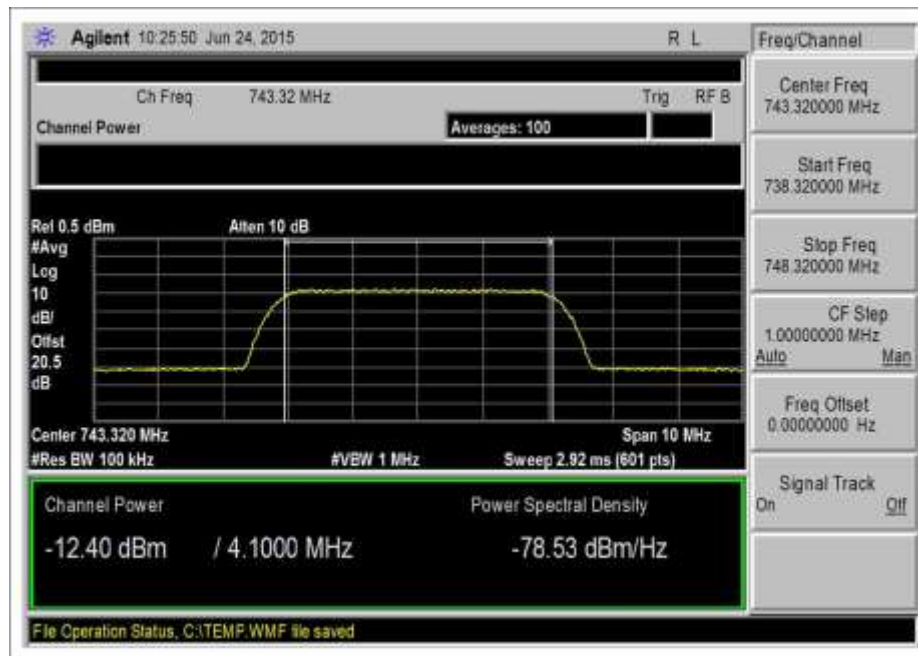


UL\_1850-1915\_AWGN

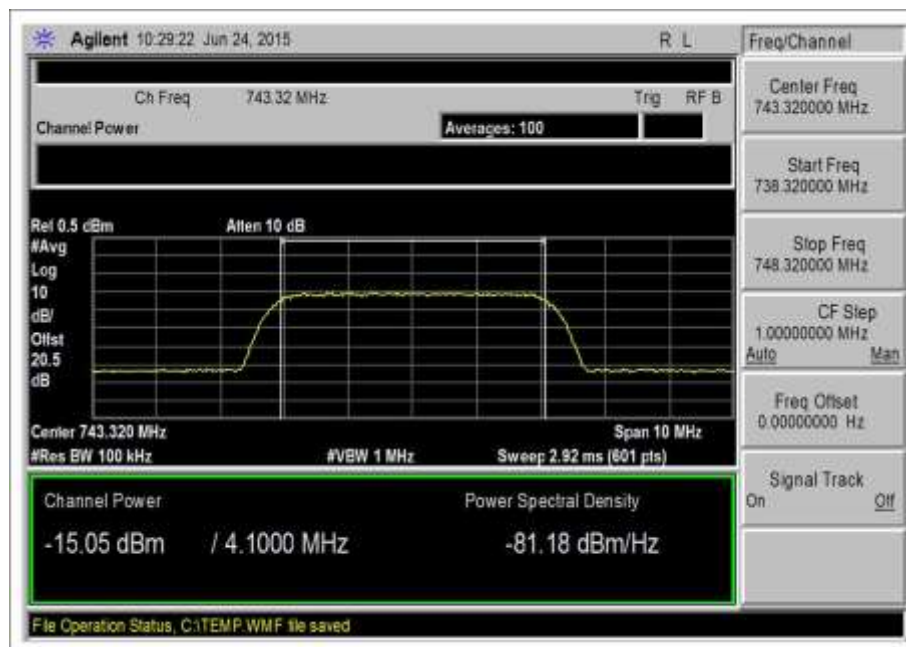


UL\_1850-1915\_AWGN-Max

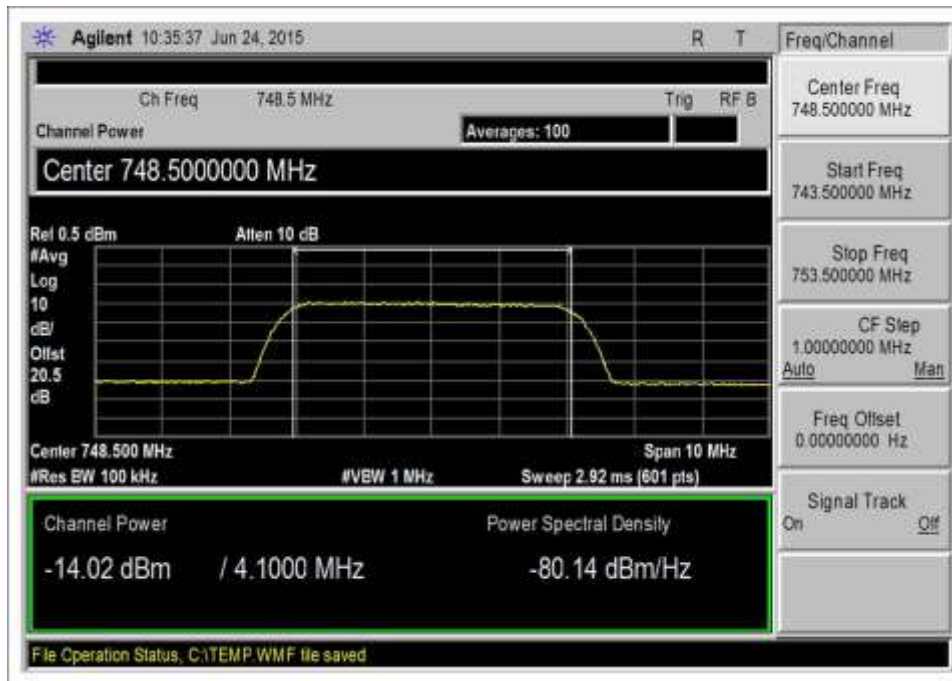
## DL-AWGN



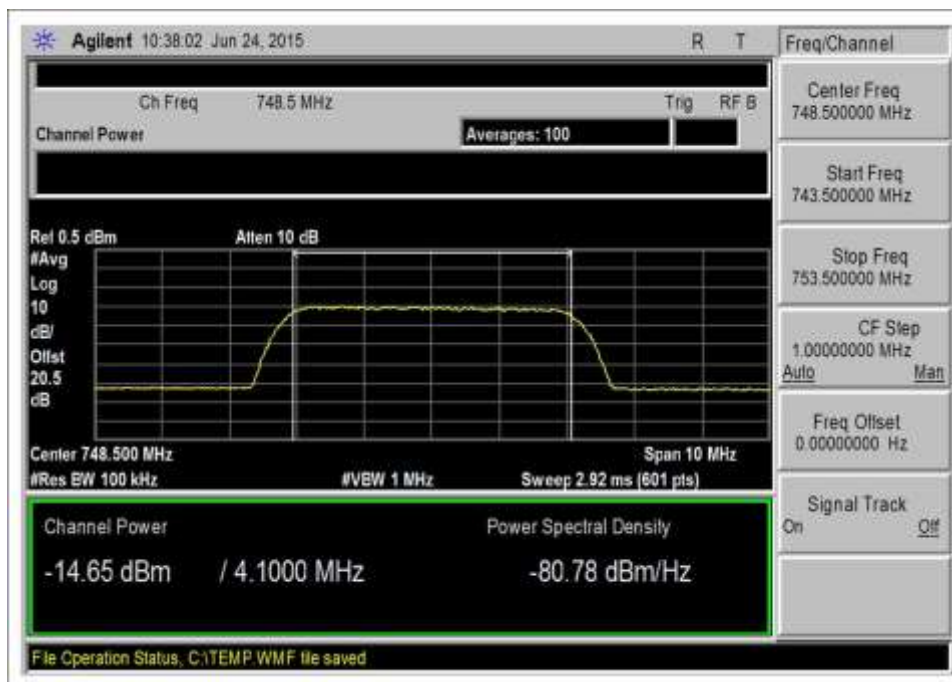
## DL\_728-746\_AWGN



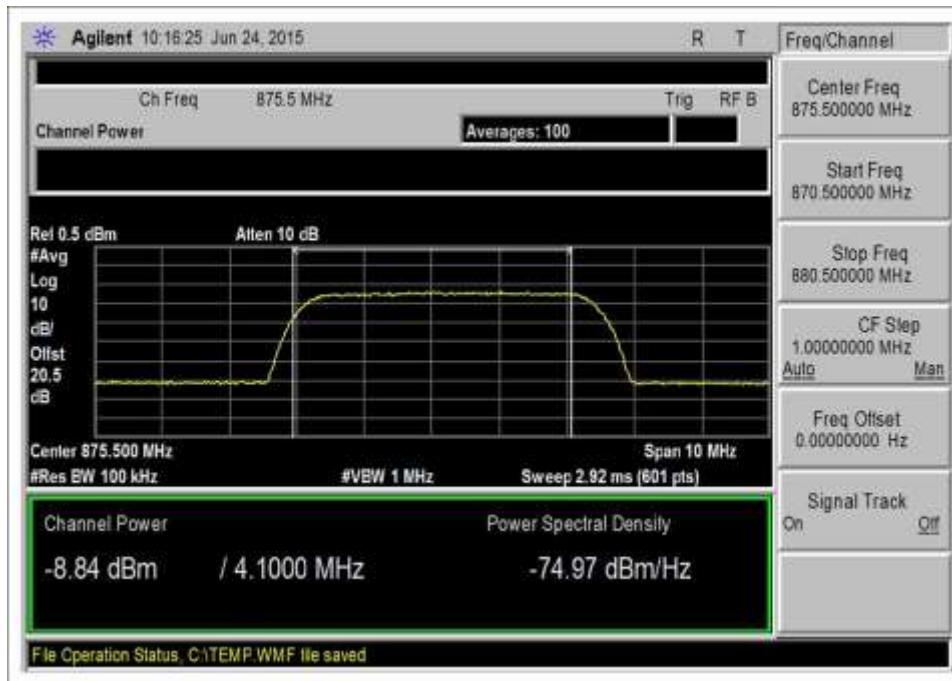
## DL\_728-746\_AWGN-Max



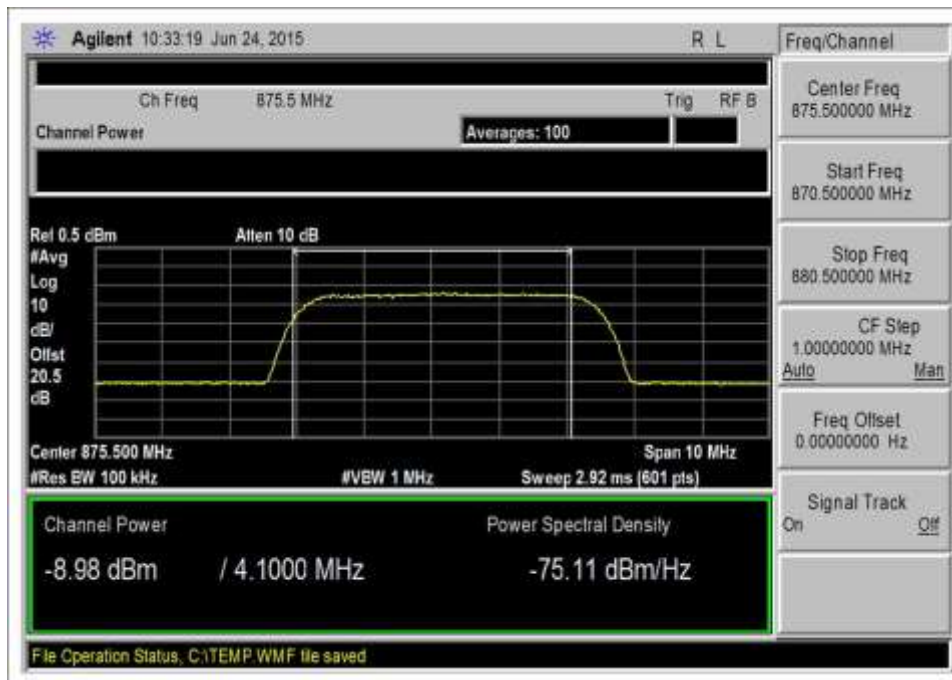
DL\_746-757\_AWGN



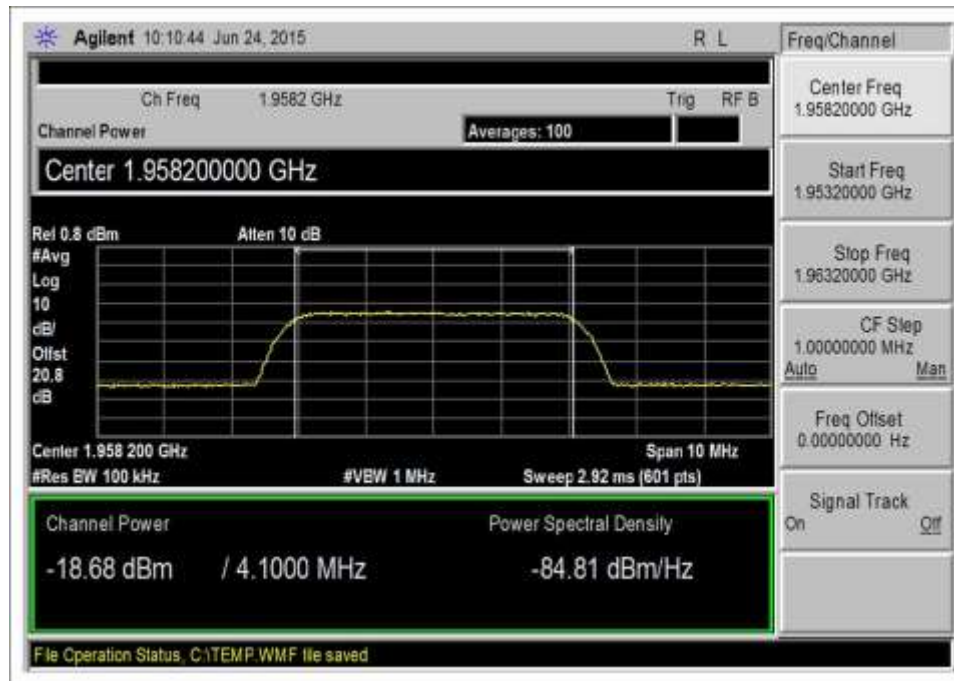
DL\_746-757\_AWGN-Max



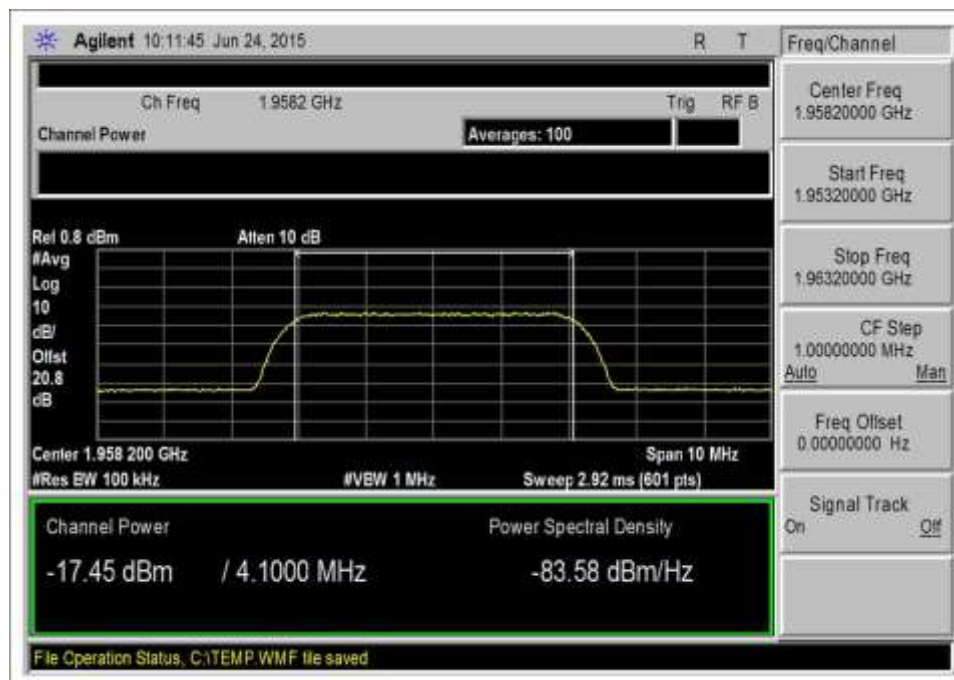
DL\_869-894\_AWGN



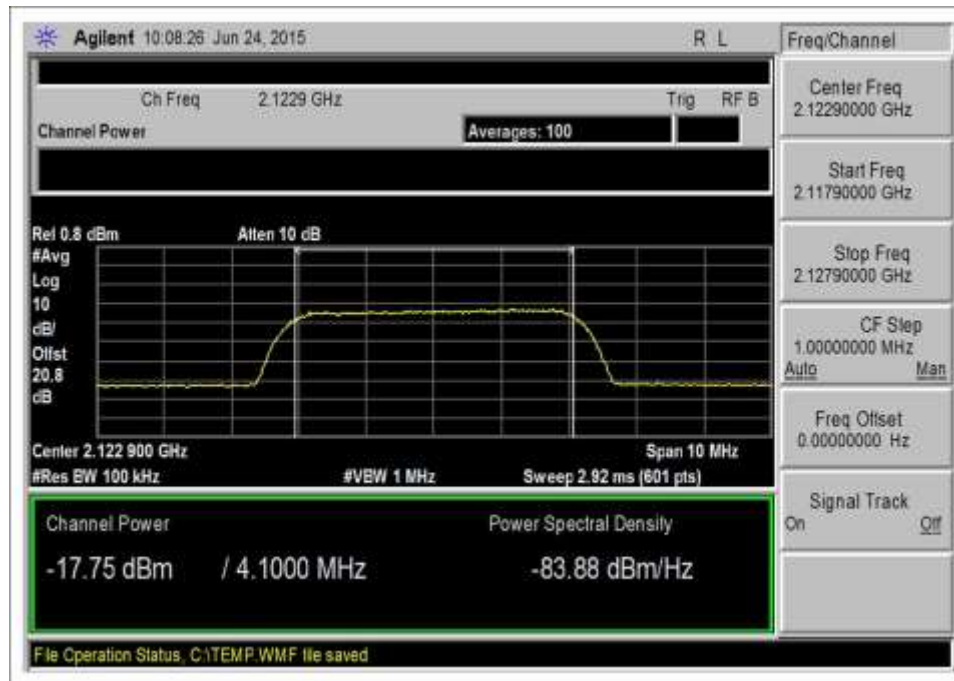
DL\_869-894\_AWGN-Max



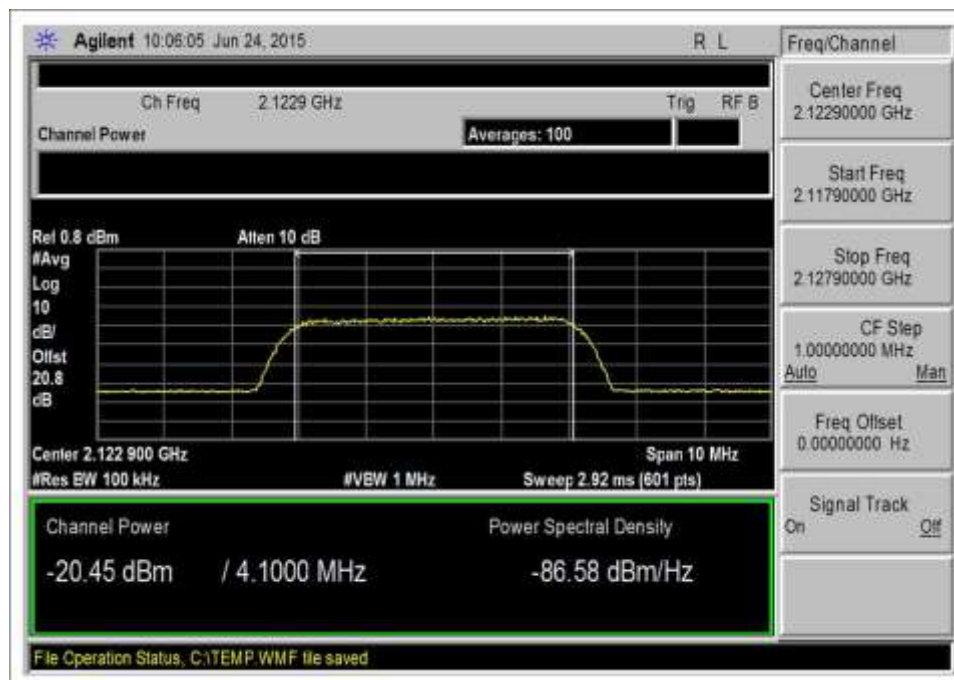
DL\_1930-1995\_AWGN



DL\_1930-1995\_AWGN-Max



DL\_2110-2155\_AWGN



DL\_2110-2155\_AWGN-Max

## Clause 7.3 Maximum Gain

### Test Equipment

| Asset #  | Description       | Model                    | Manufacturer | Cal Date   | Cal Due    |
|----------|-------------------|--------------------------|--------------|------------|------------|
| ANP05389 | Attenuator        | 766-10                   | Narda        | 02/27/2014 | 02/27/2016 |
| ANP05713 | Attenuator        | PE7015-20                | Pasternack   | 03/24/2015 | 03/24/2017 |
| ANP06709 | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| ANP06710 | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| AN02869  | Spectrum Analyzer | E4440A                   | Agilent      | 07/10/2014 | 07/10/2015 |

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.3 Maximum Booster Gain Computation**  
 Work Order #: **97222** Date: 6/23/2015  
 Test Type: **Conducted Emissions** Time: 11:54:28  
 Tested By: Daniel Bertran Sequence#: 1  
 Software: EMITest 5.02.00

#### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

#### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

#### Test Conditions / Notes:

Configuration 1  
 The equipment under test (EUT) is a Mobile Wideband Consumer Booster.  
 The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

Part 22  
 UL: 824-849MHz  
 DL: 869-894MHz

Part 24  
 UL: 1850-1915MHz  
 DL: 1930-1995MHz

Part 27  
 UL: 1710-1755MHz, 698-716MHz, 776-787MHz  
 DL: 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max gain.  
 Test environment conditions: Temperature: 20.8°C, Relative Humidity: 42%, Atmospheric Pressure: 101.5kPa  
 Test procedure: The test was performed in accordance with section 7.3 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v03 Dated June 5, 2015.

Firmware: V1.0

## Summary of Results

Pass: as summarized in table below.

## Test Data

| Pre AGC         |             |              |            | Pre AGC      |              |            |
|-----------------|-------------|--------------|------------|--------------|--------------|------------|
| Pulse GSM       |             |              |            | 4.1 MHz AWGN |              |            |
| Frequency (MHz) | Input (dBm) | Output (dBm) | *Gain (dB) | Input (dBm)  | Output (dBm) | *Gain (dB) |
| UL1710-1755     | -25.6       | 18.6         | 44.2       | -25.7        | 18.3         | 44.0       |
| UL1850-1915     | -24.3       | 17.5         | 41.8       | -24.1        | 18.1         | 42.2       |
| UL824-894       | -23.4       | 19.3         | 42.7       | -23.1        | 18.2         | 41.3       |
| UL 698-716      | -21.5       | 19.6         | 41.1       | -21.8        | 18.8         | 40.6       |
| UL776-787       | -25.9       | 18.8         | 44.7       | -26.4        | 18.2         | 44.6       |
|                 |             |              |            |              |              |            |
| DL2110-2155     | -59.9       | -18.8        | 41.2       | -59.4        | -17.8        | 41.7       |
| DL1930-1995     | -58.7       | -17.6        | 41.1       | -60.1        | -18.7        | 41.4       |
| DL869-894       | -54.1       | -9.5         | 44.6       | -52.0        | -8.8         | 43.2       |
| DL:728-746      | -57.0       | -11.6        | 45.4       | -57.4        | -12.4        | 45.0       |
| DL 746-757      | -57.5       | -13.5        | 44.0       | -58.0        | -14.0        | 44.0       |

\*50 dB limit for Mobile Booster maximum gain using an inside antenna

|                              |  | Pulse GSM | 4.1MHz AWGN | Limit (dB) |
|------------------------------|--|-----------|-------------|------------|
| UL gain vs DL gain 1710/2110 |  | 3.04      | 2.37        | 9          |
| UL gain vs DL gain 1850/1930 |  | 0.72      | 0.8         | 9          |
| UL gain vs DL gain 824/869   |  | -1.89     | -1.89       | 9          |
| UL gain vs DL gain 776/728   |  | -4.29     | -4.43       | 9          |
| UL gain vs DL gain 776/746   |  | 0.68      | 0.66        | 9          |

## Clause 7.4 Intermodulation Product

Test Location: CKC Laboratories, Inc • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc  
 Specification: **7.4 Intermodulation Product**  
 Work Order #: **97222** Date 03/05/2019  
 Test Type: **Conducted Emissions**  
 Tested By: **Hieu S. Nguyenpham**  
 Software: EMITest 5.03.11

### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

### Test Conditions / Notes:

Test environment conditions:  
 Temperature: 20.02° C  
 Relative Humidity: 45%  
 Pressure: 101.8 kPa

### Test Equipment:

| Asset # | Description       | Manufacturer | Model                    | Calibration Date | Cal Due Date |
|---------|-------------------|--------------|--------------------------|------------------|--------------|
| P05411  | Attenuator        | Weinschel    | 54A-10                   | 1/19/2018        | 1/19/2020    |
| P07192  | Cable             | Astro        | 32022-29094K-29094K-48TC | 10/9/2017        | 10/9/2019    |
| P07191  | Cable             | Astro        | 32022-29094K-29094K-48TC | 10/30/2017       | 10/30/2019   |
| 03418   | Signal Generator  | Agilent      | E4438C                   | 6/19/2017        | 6/19/2019    |
| 03471   | Spectrum Analyzer | Agilent      | E4440A                   | 1/18/2018        | 1/18/2020    |

## Summary of Results

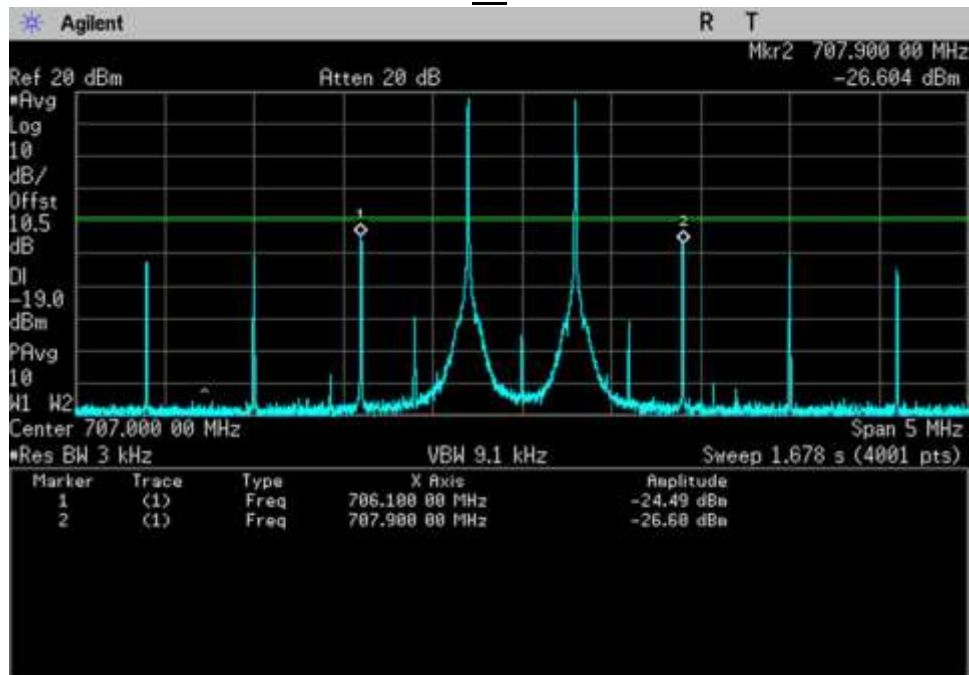
Pass: As shown on the plots, all intermodulation products are measured below -19dbm limit.

| Inter Modulation Product |               |             |         |
|--------------------------|---------------|-------------|---------|
| Frequency (MHz)          | Pre AGC (dBm) | Limit (dBm) | Results |
| UL 1710-1755             | -24.4         | -19         | Pass    |
| UL 1850-1915             | -23.7         | -19         | Pass    |
| UL 824-894               | -22.0         | -19         | Pass    |
| UL 698-716               | -24.5         | -19         | Pass    |
| UL 776-787               | -19.2         | -19         | Pass    |
|                          |               |             |         |
| DL 2110-2155             | -50.0         | -19         | Pass    |
| DL 1930-1995             | -56.2         | -19         | Pass    |
| DL 869-894               | -58.3         | -19         | Pass    |
| DL 728-746               | -59.6         | -19         | Pass    |
| DL 746-757               | -56.8         | -19         | Pass    |

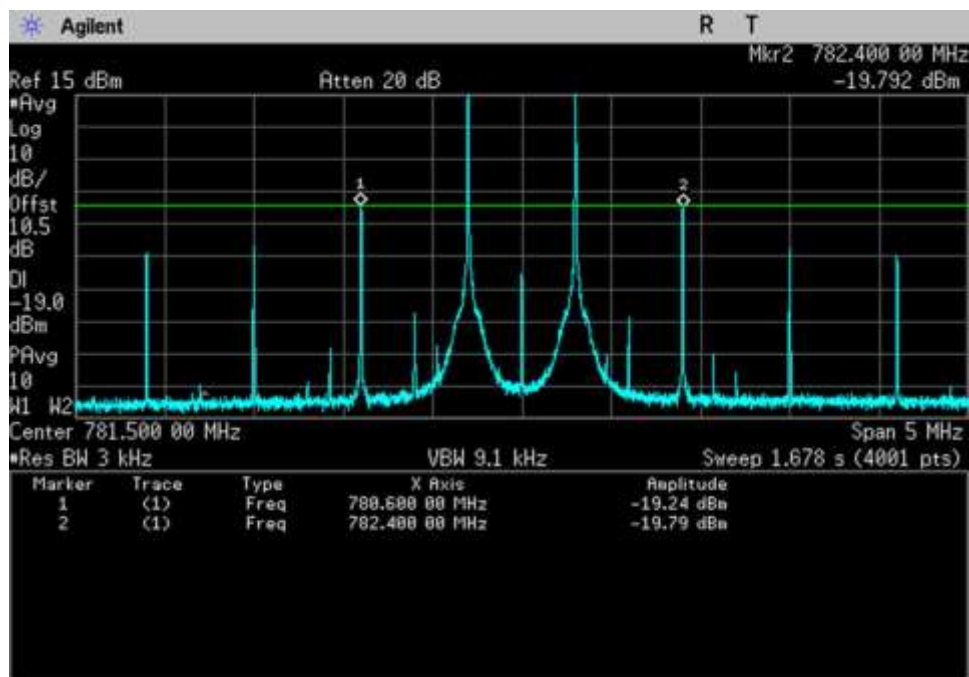
Note: The EUT maintains compliance with the intermodulation limit at input power of AGC+10dB

## Test Data

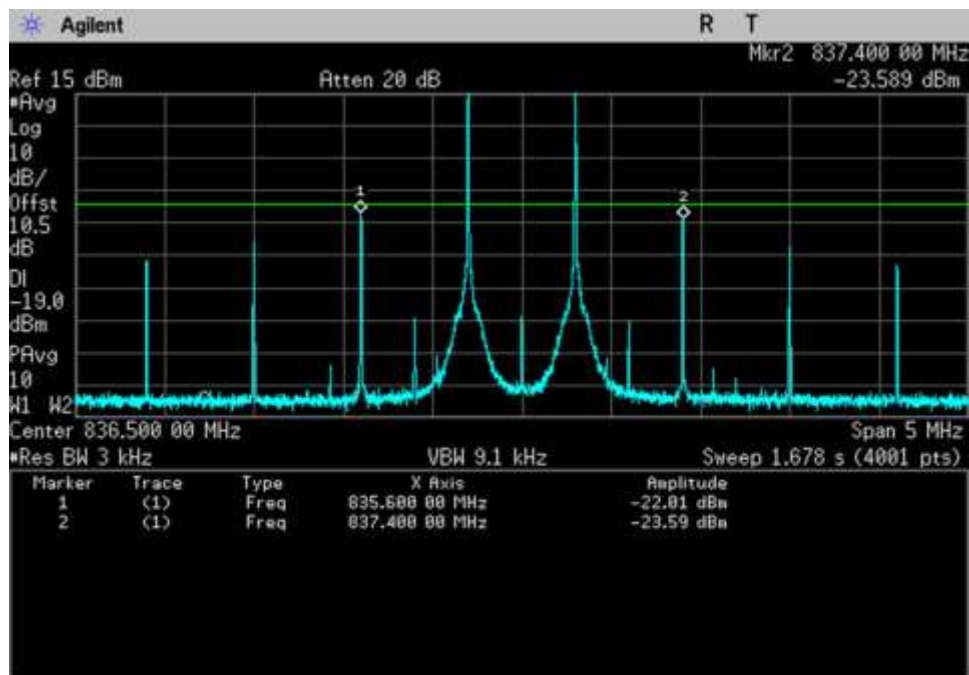
### UL



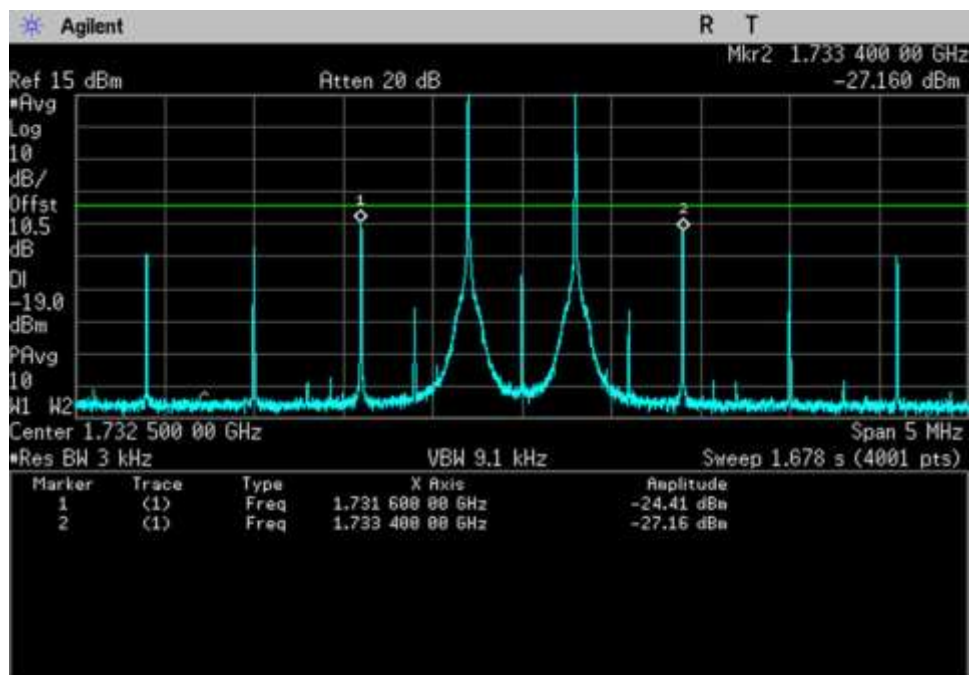
### UL\_698-716MHz



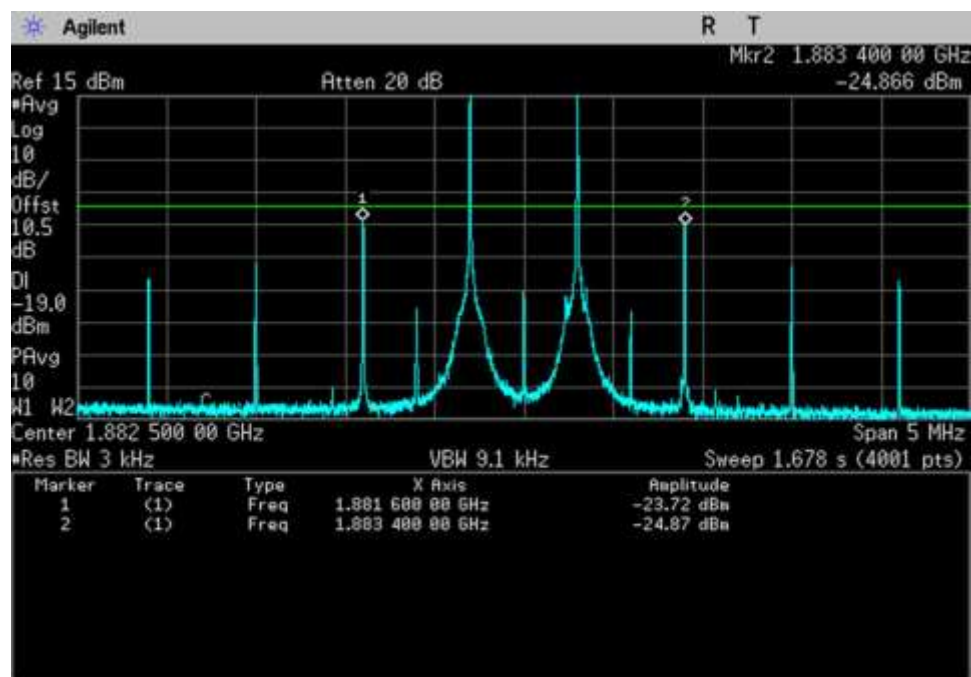
### UL\_776-787MHz



UL\_824-849MHz

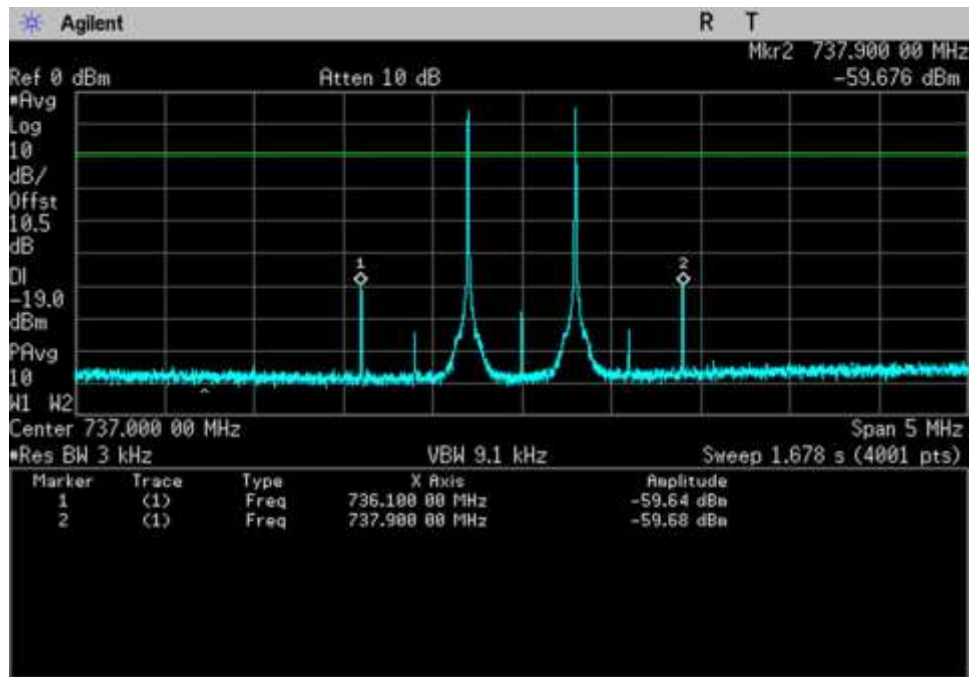


UL\_1710-1755MHz

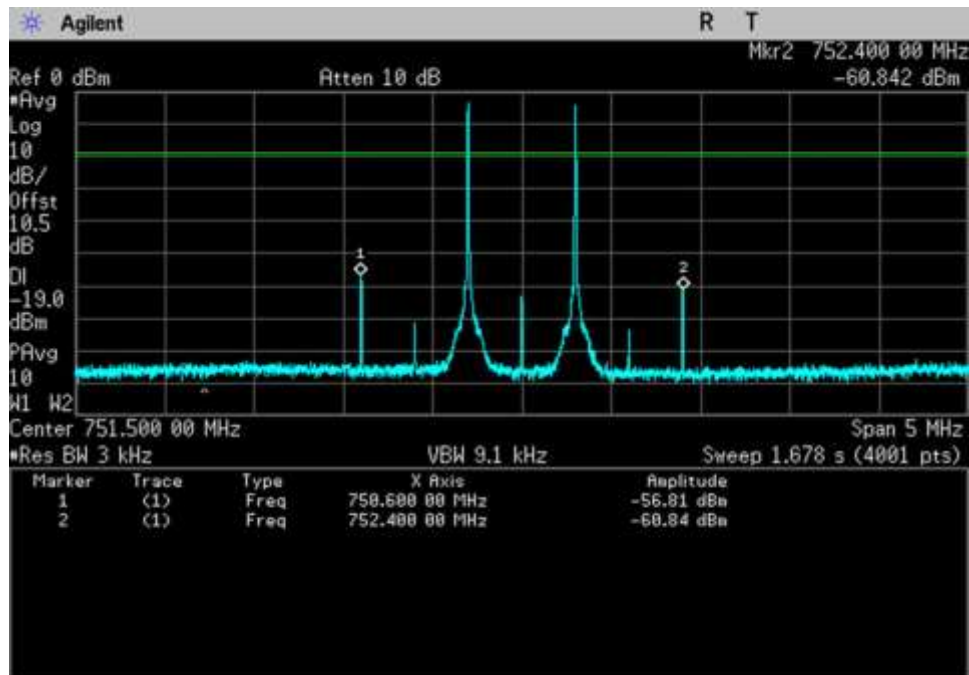


UL\_1850-1915MHz

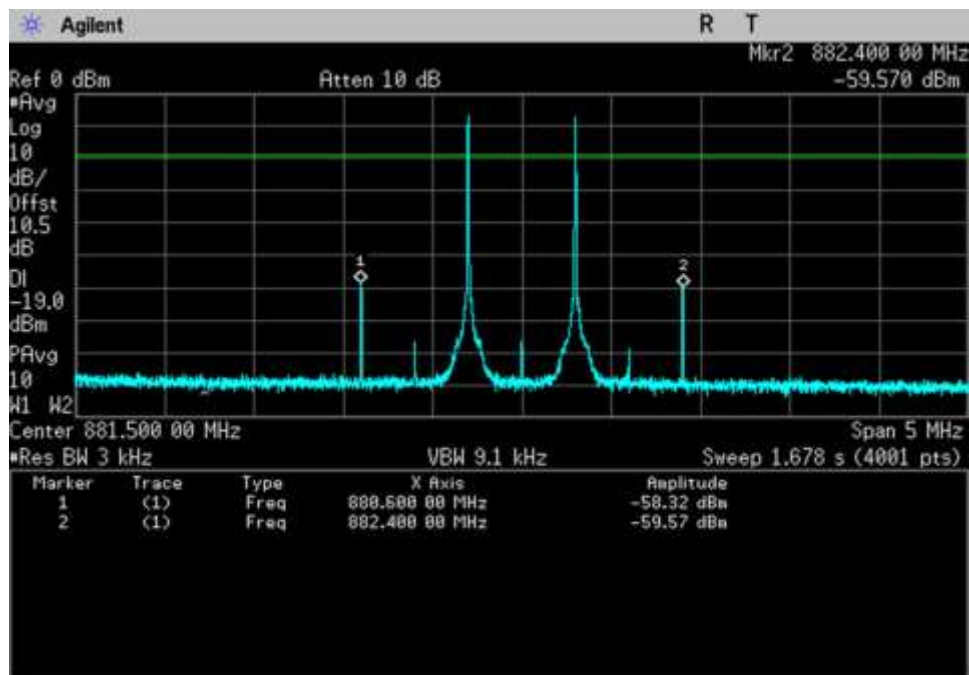
## DL



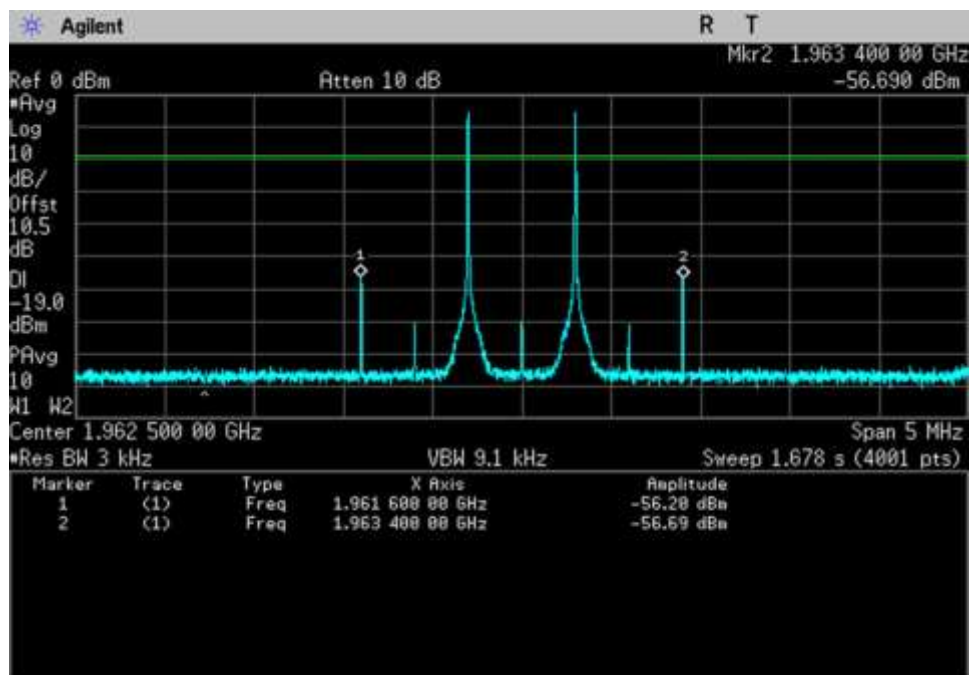
DL\_728-746MHz



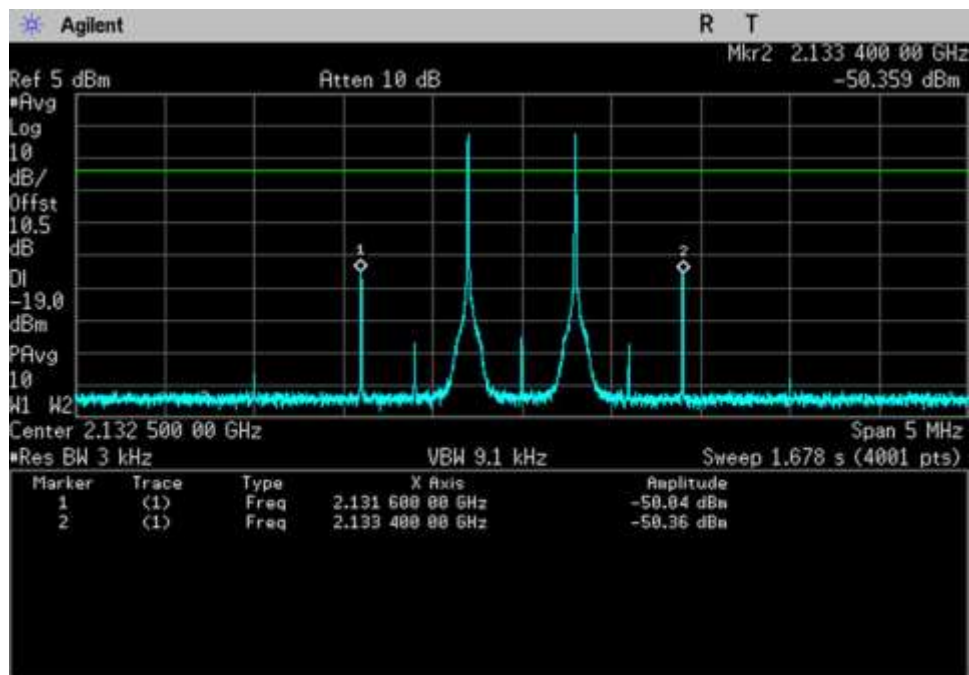
DL\_746-757MHz



DL\_869-894MHz



DL\_1930-1995MHz



DL\_2110-2155MHz

## Clause 7.5 Out of Band Emissions

### Test Equipment

| Asset #  | Description       | Model                    | Manufacturer | Cal Date   | Cal Due    |
|----------|-------------------|--------------------------|--------------|------------|------------|
| ANP05389 | Attenuator        | 766-10                   | Narda        | 02/27/2014 | 02/27/2016 |
| ANP05713 | Attenuator        | PE7015-20                | Pasternack   | 3/24/2015  | 03/24/2017 |
| ANP06709 | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| ANP06710 | Cable             | 32026-29094K-29094K-72TC | AstroLab     | 09/18/2014 | 09/18/2016 |
| AN02869  | Spectrum Analyzer | E4440A                   | Agilent      | 07/10/2014 | 07/10/2015 |

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.5 Out-of-band Emissions**  
 Work Order #: **97222** Date: 6/24/2015  
 Test Type: **Conducted Emissions** Time: 15:36:20  
 Tested By: Daniel Bertran Sequence#: 1  
 Software: EMITest 5.02.00

#### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

#### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

#### Test Conditions / Notes:

Configuration 1

The equipment under test (EUT) is a Mobile Wideband Consumer Booster.

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

Part 22  
 UL: 824-849MHz  
 DL: 869-894MHz

Part 24  
 UL: 1850-1915MHz  
 DL: 1930-1995MHz

Part 27  
 UL: 1710-1755MHz, 698-716MHz, 776-787MHz  
 DL: 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max gain.

Test environment conditions: Temperature: 20.8°C, Relative Humidity: 42%, Atmospheric Pressure: 101.5kPa

Test procedure: The test was performed in accordance with section 7.5 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v03 Dated June 5, 2015.

Firmware: V1.0

Additional plots taken at 1dB before EUT shuts down and before reaching the maximum input level indicated in section 5.5 of above document.

- Maximum uplink transmitter test levels for Mobile using inside antenna(s): +10 dBm
- The maximum downlink input level for all device types is -20 dBm

Lower RBW was used as applicable per rule part, in addition integration power function of the Spectrum Analyzers' Adjacent Channel Power tool was used to show compliance in instances where accuracy can be improved by integrating power measured in smaller RBW and linearly summed into standard bandwidth.

Used for testing the alternative test modulation types:

- CDMA (alternative 1.25 MHz AWGN\*)
- LTE 5 MHz (alternative 4.1 MHz AWGN\*)

\*AWGN test signal, the bandwidth was measured 99% occupied bandwidth.

## Summary of Results

Pass: as indicated in plots above, all OBE are under the limit of -19dBm.

| GSM                  |         |           |       |                      |         |           |       |
|----------------------|---------|-----------|-------|----------------------|---------|-----------|-------|
| Low                  |         |           |       | High                 |         |           |       |
| Out of Band Emission |         |           |       | Out of Band Emission |         |           |       |
| Freq                 | Pre AGC | Max input | Limit | Freq                 | Pre AGC | Max input | Limit |
| MHz                  | dBm     | +10dBm    | dBm   | MHz                  | dBm     | +10dBm    | dBm   |
| UL1710-1755          | -25.9   | -23.8     | -19.0 | UL1710-1755          | -24.9   | -22.9     | -19.0 |
| UL1850-1915          | -29.3   | -27.6     | -19.0 | UL1850-1915          | -30.6   | -29.9     | -19.0 |
| UL824-894            | -35.1   | -31.4     | -19.0 | UL824-894            | -38.9   | -39.0     | -19.0 |
| UL 698-716           | -23.2   | -26.3     | -19.0 | UL 698-716           | -24.6   | -24.8     | -19.0 |
| UL776-787            | -24.9   | -24.1     | -19.0 | UL776-787            | -25.6   | -24.7     | -19.0 |
|                      |         | -20dBm    |       |                      |         | -20dBm    |       |
| DL2110-2155          | -57.6   | -55.3     | -19.0 | DL2110-2155          | -57.9   | -54.0     | -19.0 |
| DL1930-1995          | -61.9   | -56.7     | -19.0 | DL1930-1995          | -58.6   | -61.2     | -19.0 |
| DL869-894            | -31.7   | -32.5     | -19.0 | DL869-894            | -36.1   | -34.1     | -19.0 |
| DL:728-746           | -38.2   | -37.8     | -19.0 | DL:728-746           | -35.0   | -35.0     | -19.0 |
| DL 746-757           | -35.1   | -35.3     | -19.0 | DL 746-757           | -37.1   | -37.3     | -19.0 |

| CDMA                 |         |           |       |                      |         |           |       |
|----------------------|---------|-----------|-------|----------------------|---------|-----------|-------|
| Low                  |         |           |       | High                 |         |           |       |
| Out of Band Emission |         |           |       | Out of Band Emission |         |           |       |
| Freq                 | Pre AGC | Max input | Limit | Freq                 | Pre AGC | Max input | Limit |
| MHz                  | dBm     | +10dBm    | dBm   | MHz                  | dBm     | +10dBm    | dBm   |
| UL1710-1755          | -25.7   | -21.9     | -19.0 | UL1710-1755          | -38.1   | -37.1     | -19.0 |
| UL1850-1915          | -38.8   | -39.4     | -19.0 | UL1850-1915          | -41.2   | -41.9     | -19.0 |
| UL824-894            | -31.0   | -31.6     | -19.0 | UL824-894            | -43.3   | -42.4     | -19.0 |
| UL 698-716           | -44.1   | -42.5     | -19.0 | UL 698-716           | -46.0   | -43.5     | -19.0 |
| UL776-787            | -44.4   | -44.6     | -19.0 | UL776-787            | -43.5   | -43.4     | -19.0 |
|                      |         | -20dBm    |       |                      |         | -20dBm    |       |
| DL2110-2155          | -62.7   | -62.8     | -19.0 | DL2110-2155          | -61.9   | -62.6     | -19.0 |
| DL1930-1995          | -62.6   | -62.5     | -19.0 | DL1930-1995          | -63.3   | -63.7     | -19.0 |
| DL869-894            | -69.6   | -69.9     | -19.0 | DL869-894            | -70.8   | -70.8     | -19.0 |
| DL:728-746           | -72.4   | -73.3     | -19.0 | DL:728-746           | -70.5   | -71.1     | -19.0 |
| DL 746-757           | -70.5   | -71.2     | -19.0 | DL 746-757           | -71.7   | -72.5     | -19.0 |

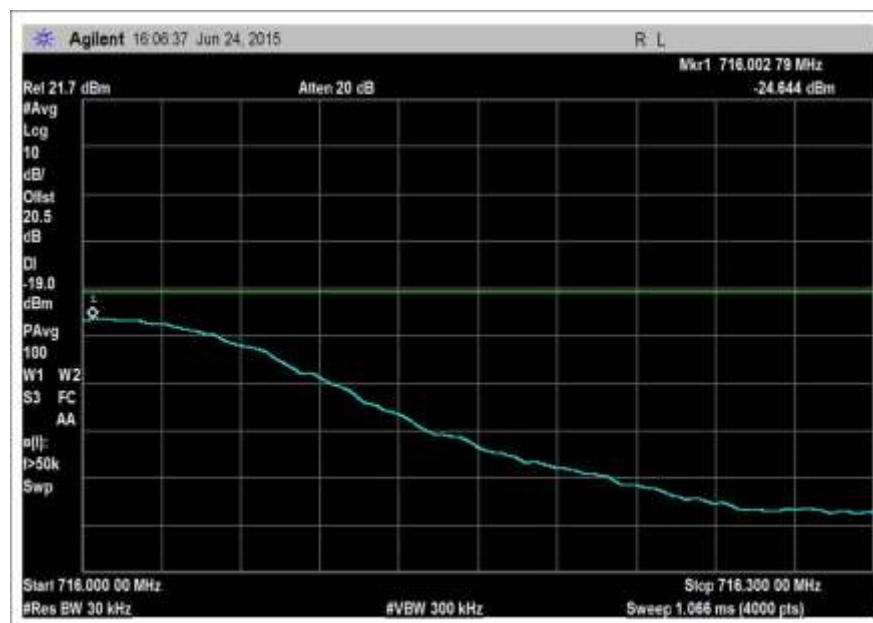
| LTE                  |         |           |       |                      |         |           |       |
|----------------------|---------|-----------|-------|----------------------|---------|-----------|-------|
| Low                  |         |           |       | High                 |         |           |       |
| Out of Band Emission |         |           |       | Out of Band Emission |         |           |       |
| Freq                 | Pre AGC | Max input | Limit | Freq                 | Pre AGC | Max input | Limit |
| MHz                  | dBm     | +10dBm    | dBm   | MHz                  | dBm     | +10dBm    | dBm   |
| UL1710-1755          | -19.7   | -19.5     | -19.0 | UL1710-1755          | -31.5   | -29.2     | -19.0 |
| UL1850-1915          | -30.9   | -29.9     | -19.0 | UL1850-1915          | -39.8   | -37.1     | -19.0 |
| UL824-894            | -26.0   | -24.0     | -19.0 | UL824-894            | -32.0   | -32.2     | -19.0 |
| UL 698-716           | -29.5   | -30.2     | -19.0 | UL 698-716           | -30.7   | -30.7     | -19.0 |
| UL776-787            | -29.6   | -29.3     | -19.0 | UL776-787            | -32.2   | -31.9     | -19.0 |
|                      |         | -20dBm    |       |                      |         | -20dBm    |       |
| DL2110-2155          | -60.9   | -60.5     | -19.0 | DL2110-2155          | -60.7   | -60.1     | -19.0 |
| DL1930-1995          | -62.8   | -62.0     | -19.0 | DL1930-1995          | -61.8   | -62.9     | -19.0 |
| DL869-894            | -50.9   | -51.1     | -19.0 | DL869-894            | -54.1   | -53.3     | -19.0 |
| DL:728-746           | -60.7   | -59.1     | -19.0 | DL:728-746           | -53.6   | -54.4     | -19.0 |
| DL 746-757           | -62.1   | -60.8     | -19.0 | DL 746-757           | -65.1   | -65.1     | -19.0 |

## Test Data

### UL-GSM



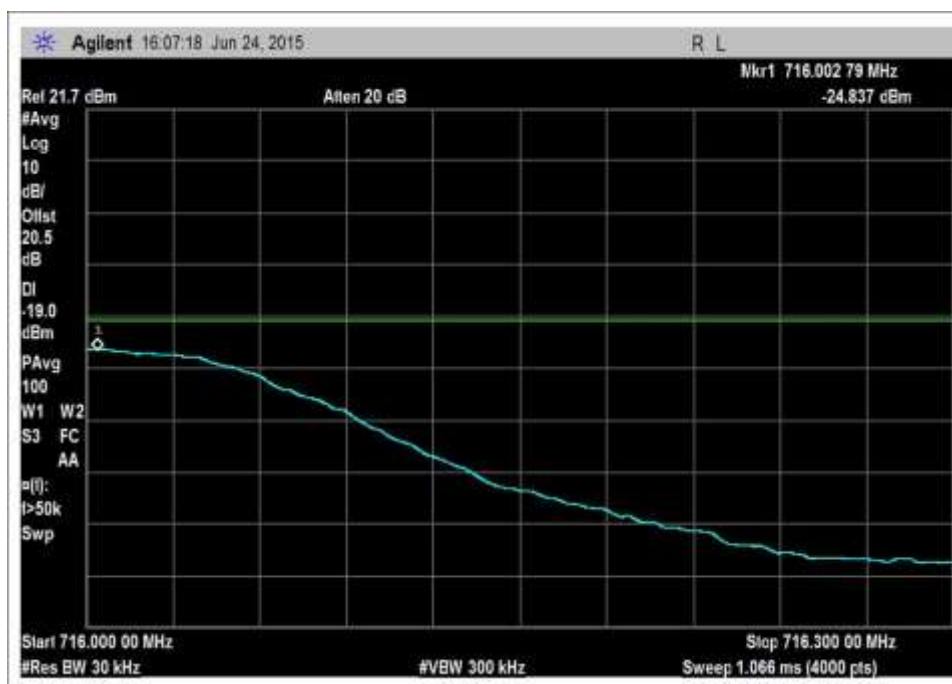
UL\_698-716MHz\_L\_PreAGC



UL\_698-716MHz\_H\_PreAGC



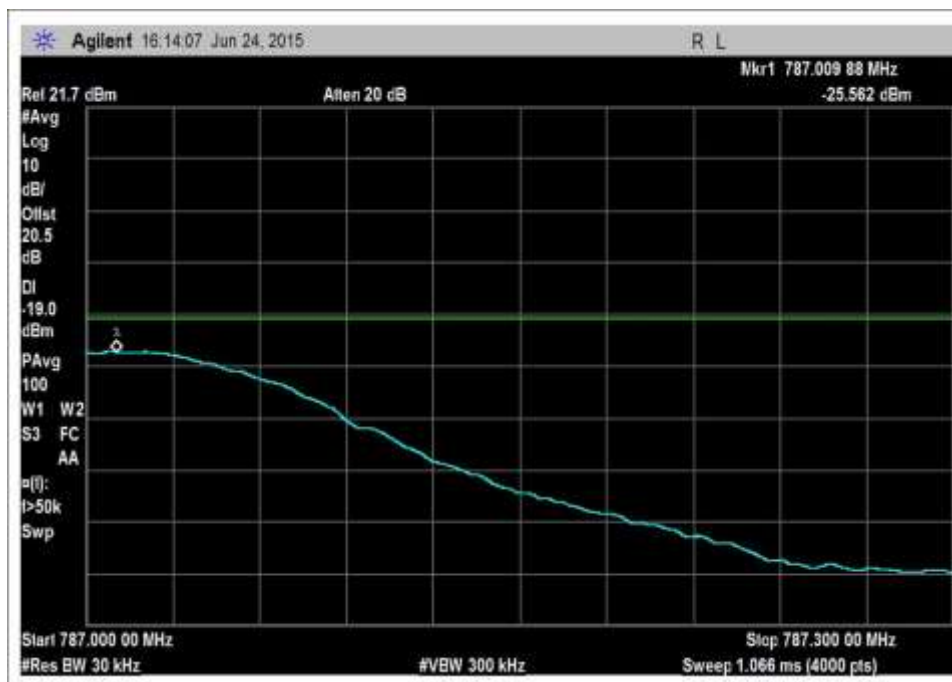
UL\_698-716MHz\_L\_Max



UL\_698-716MHz\_H\_Max



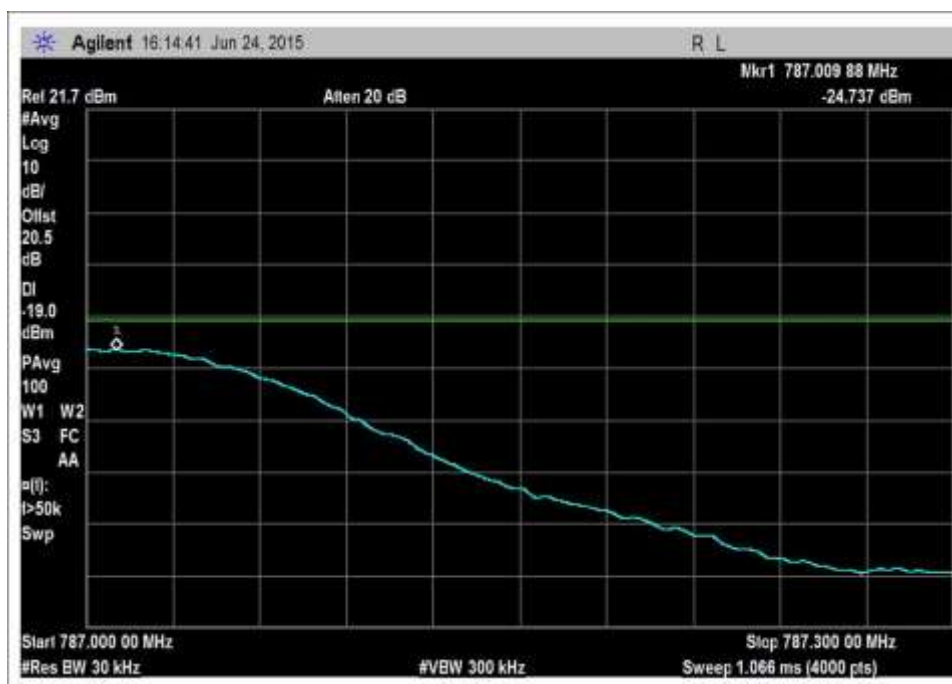
UL\_776-787MHz\_L\_PreAGC



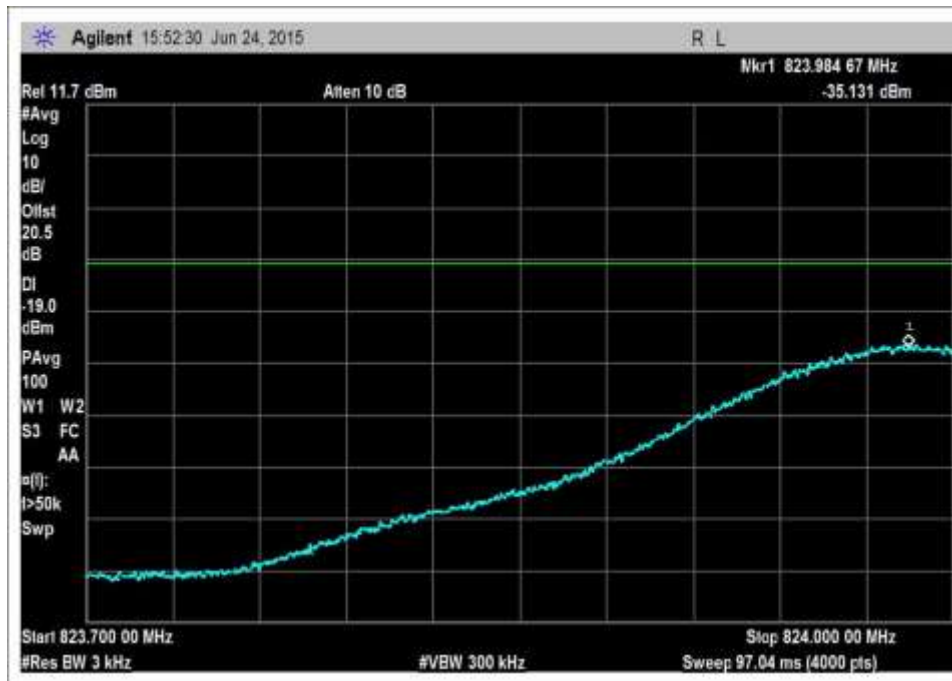
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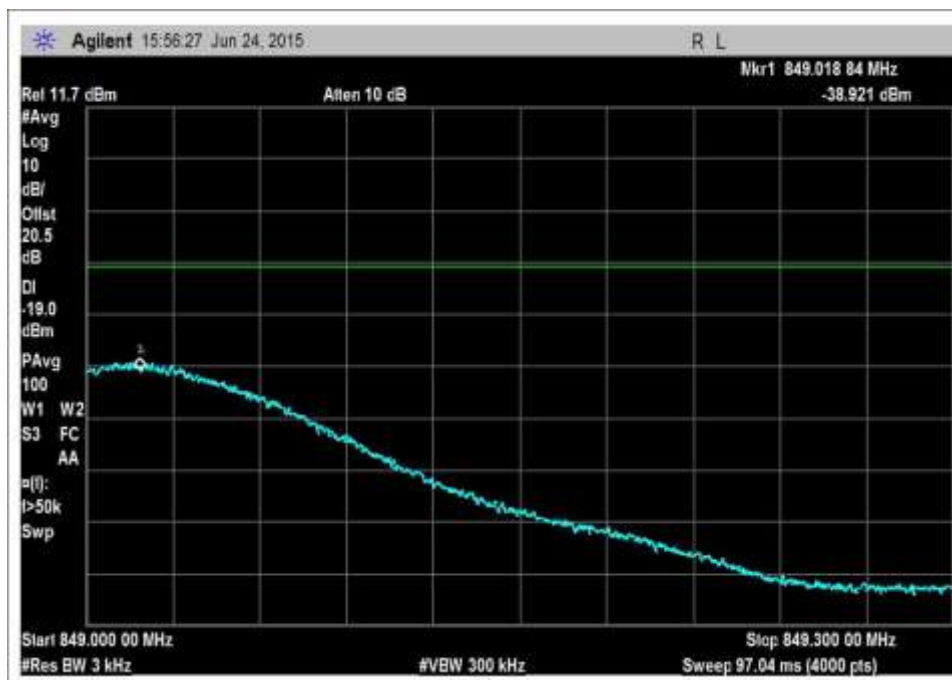
UL\_776-787MHz\_L\_Max



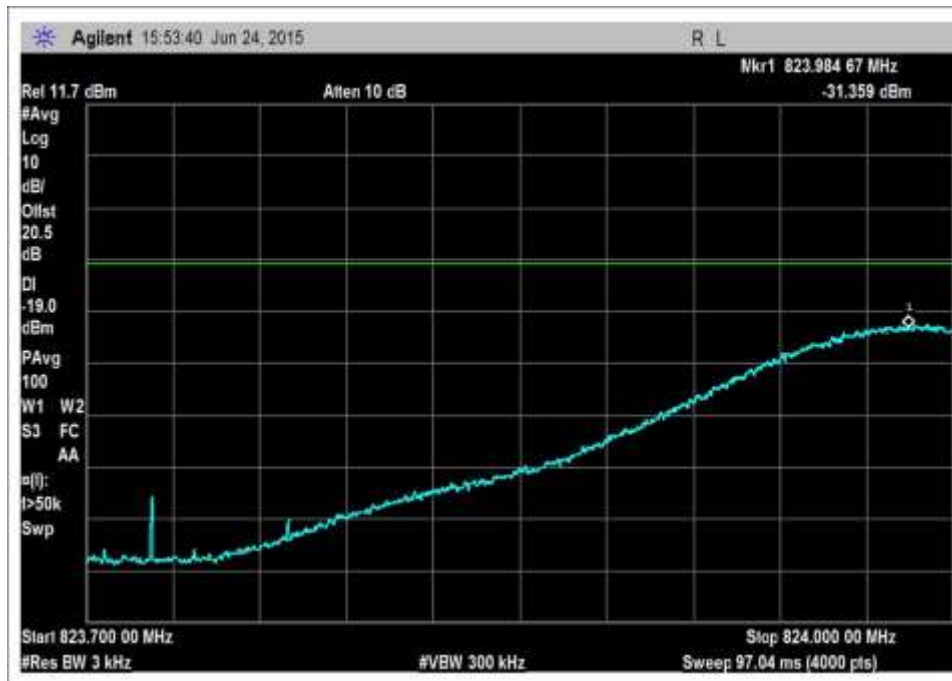
UL\_776-787MHz\_H\_Max



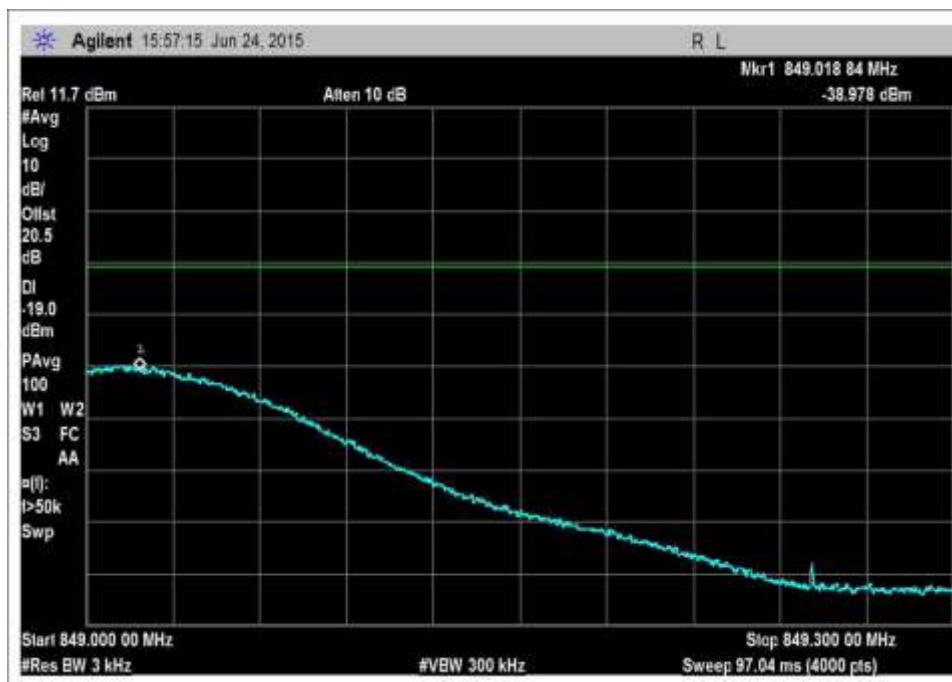
UL\_824-849\_L\_PreAGC



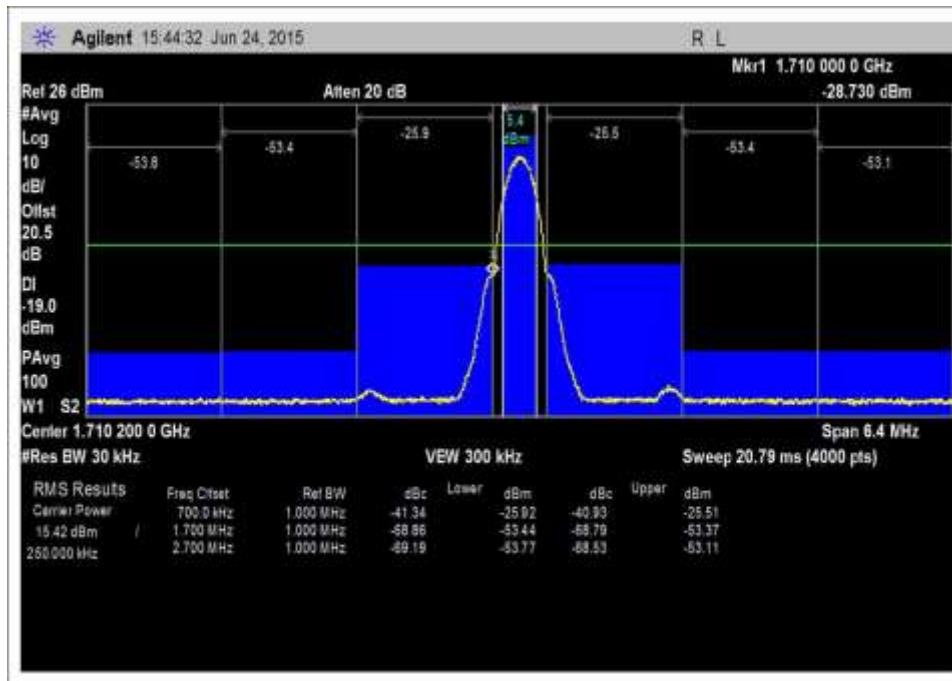
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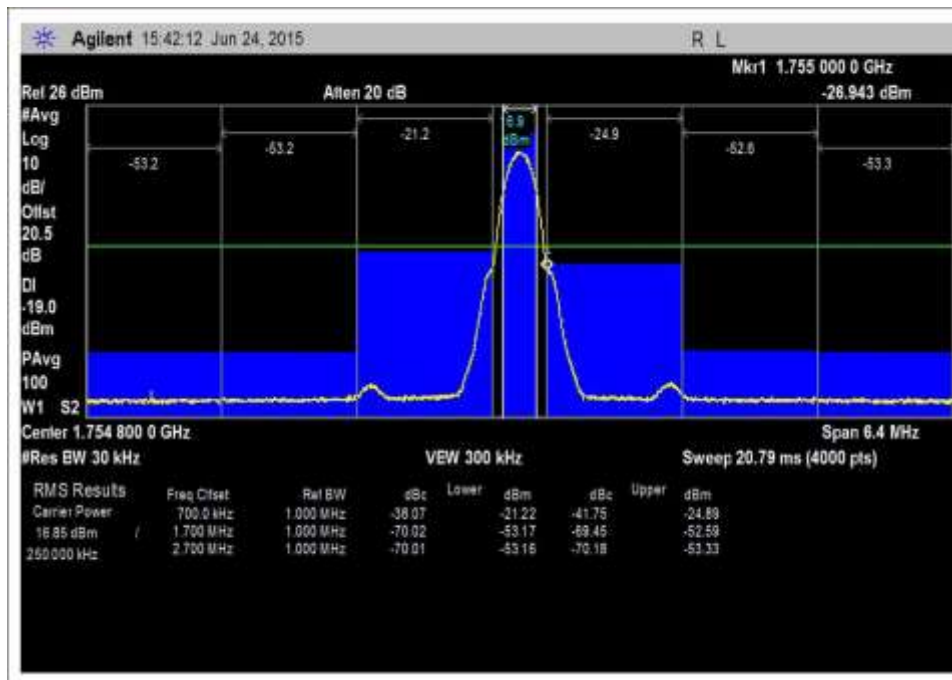
UL\_824-849MHz\_L\_Max



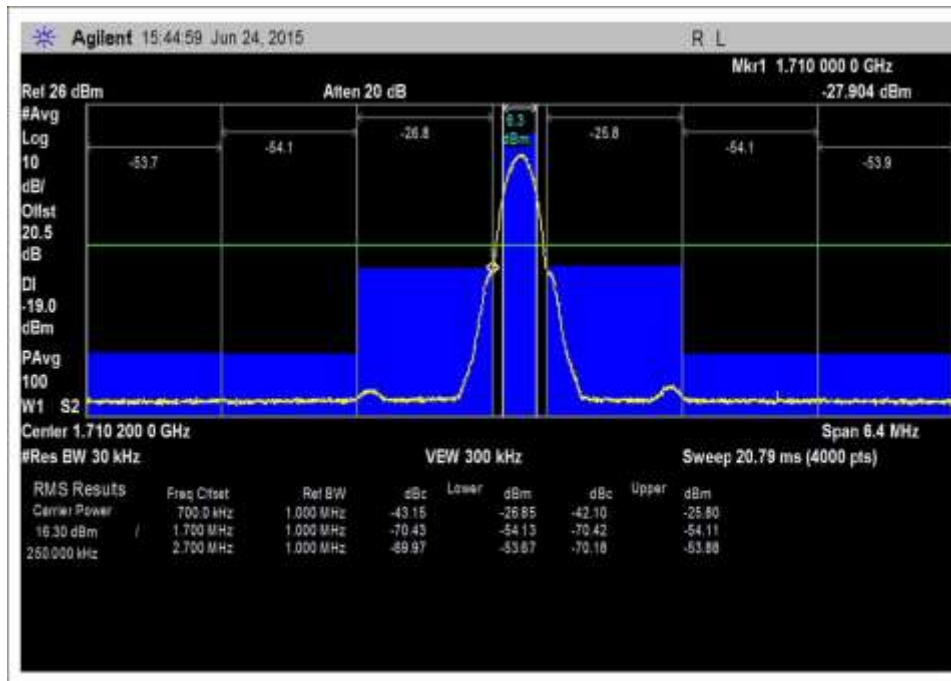
UL\_824-849MHz\_H\_Max



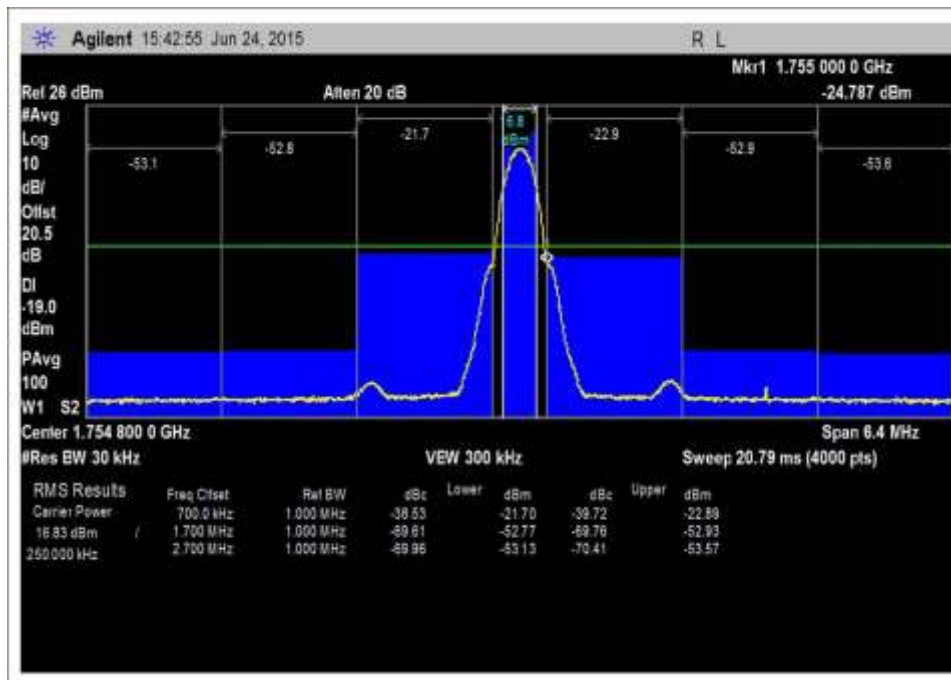
UL\_1710-1755MHz\_L\_PreAGC



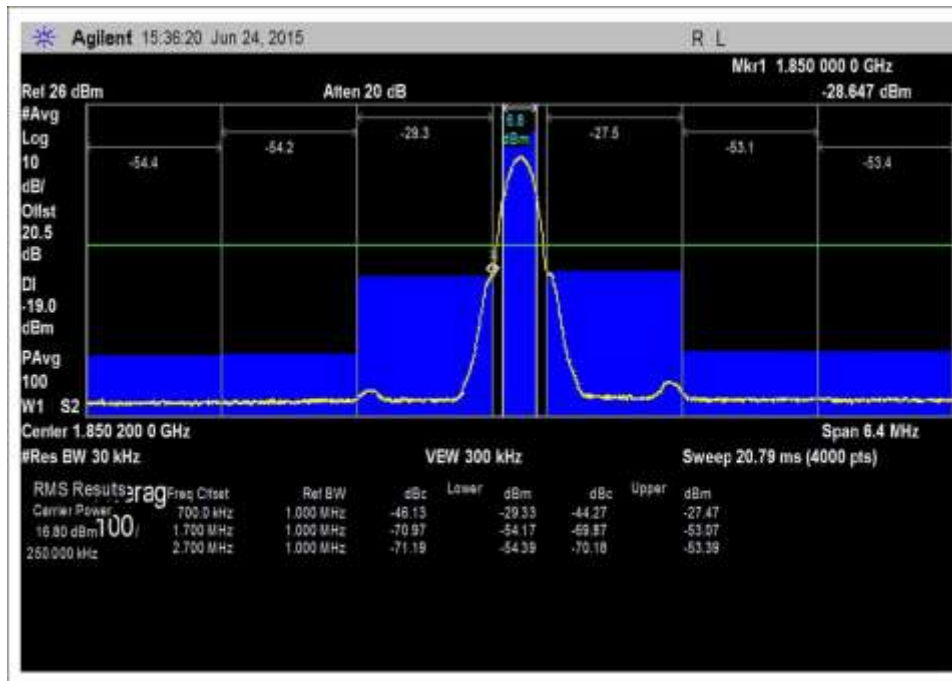
UL\_1710-1755MHz\_H\_PreAGC



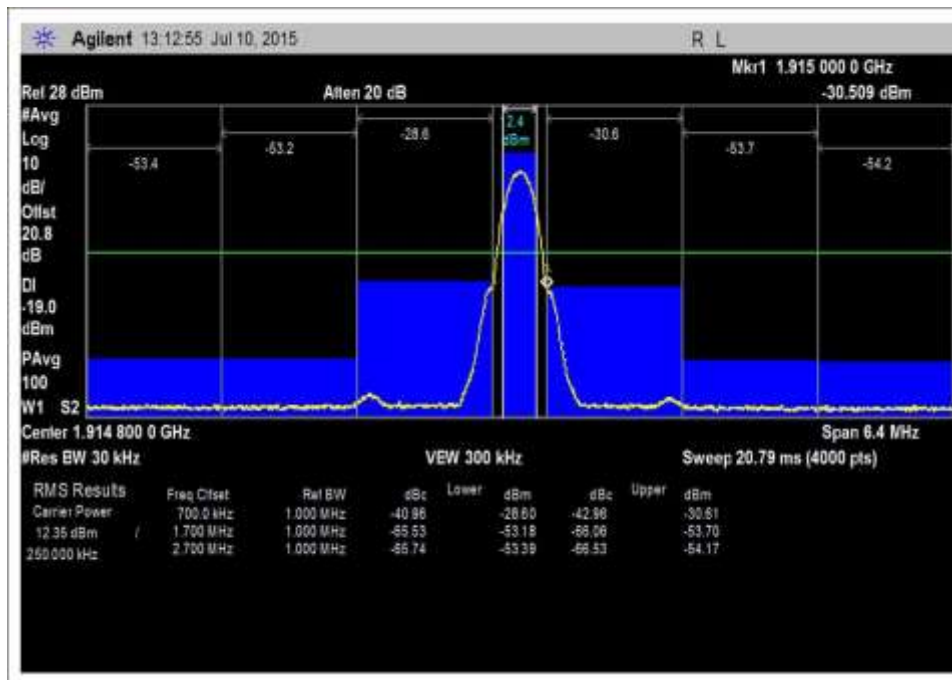
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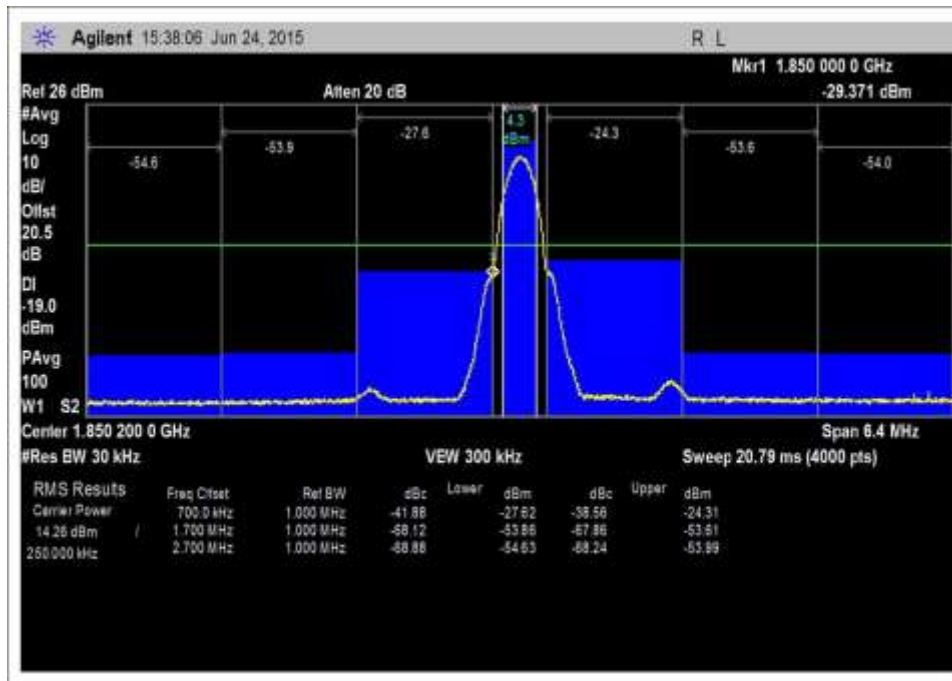
UL\_1710-1755MHz\_H\_Max



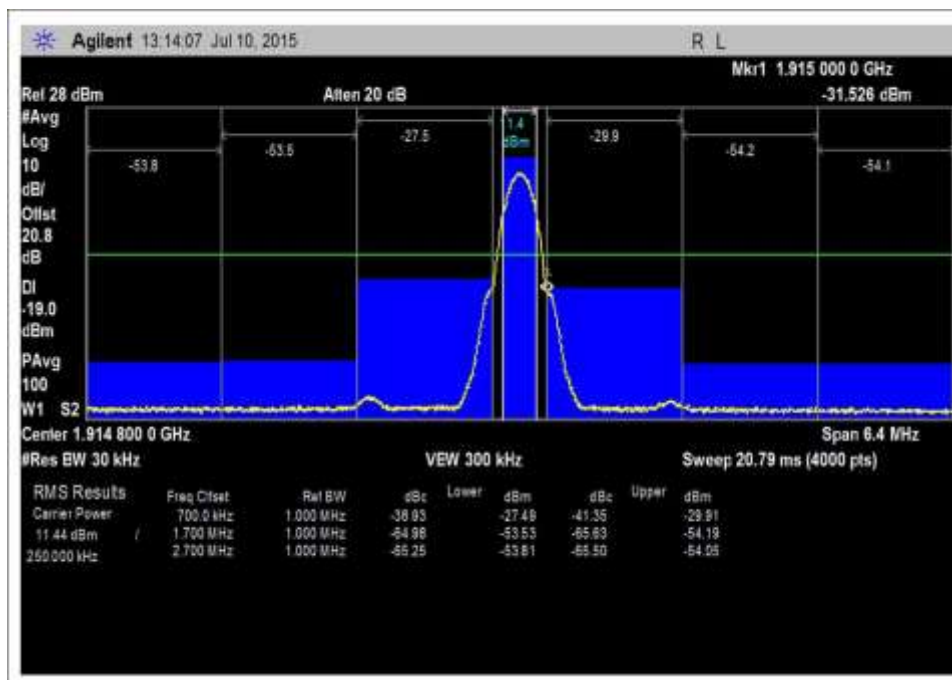
UL\_1850-1915MHz\_L\_PreAGC



UL\_1850-1915MHz\_H\_PreAGC



UL\_1850-1915MHz\_L\_Max



UL\_1850-1915MHz\_H\_Max

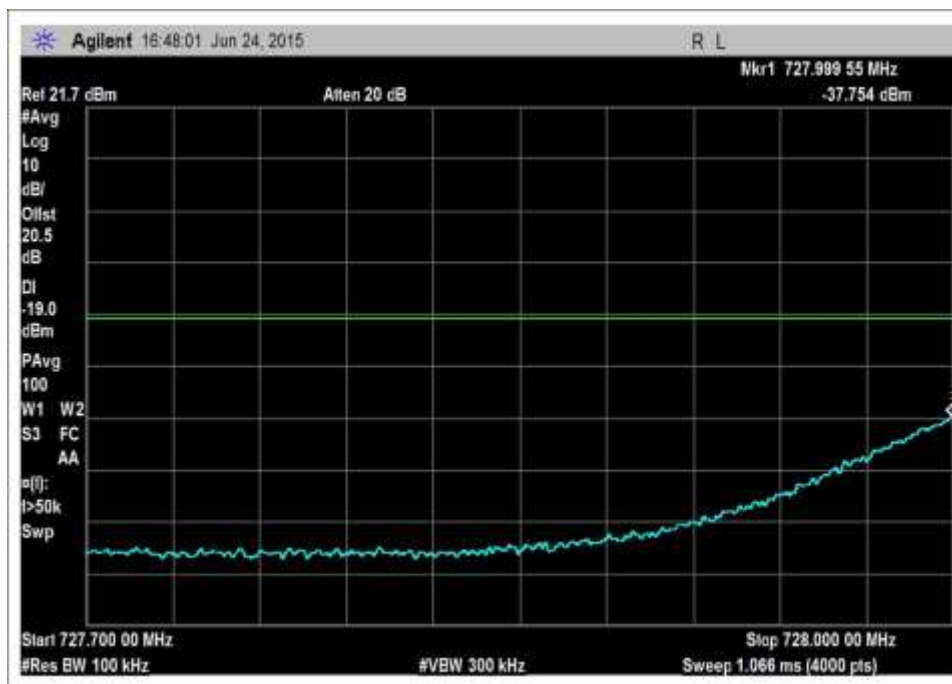
## DL-GSM



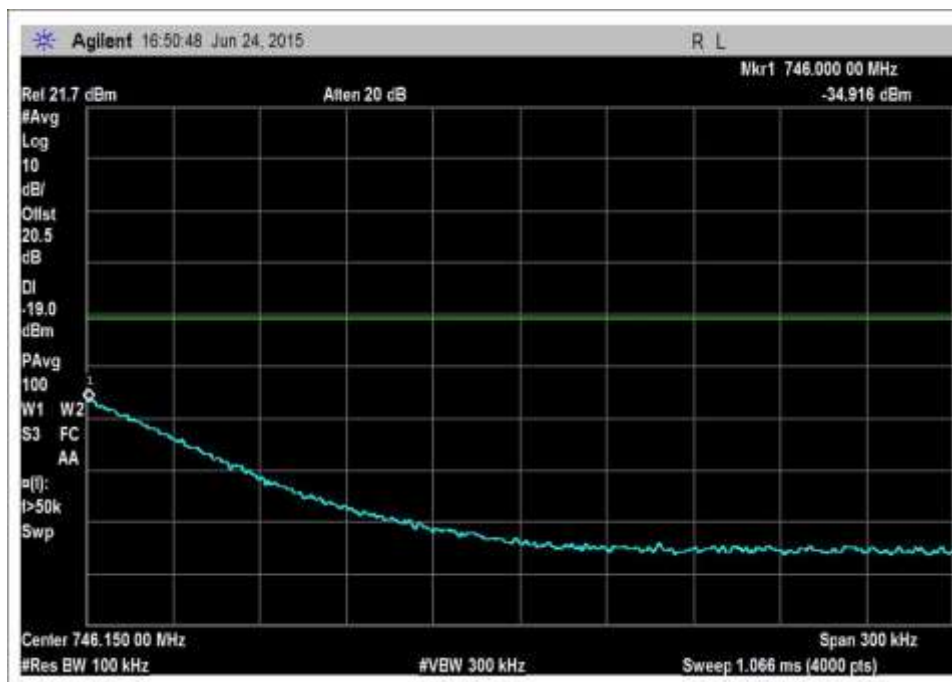
DL\_728-746MHz\_L\_PreAGC



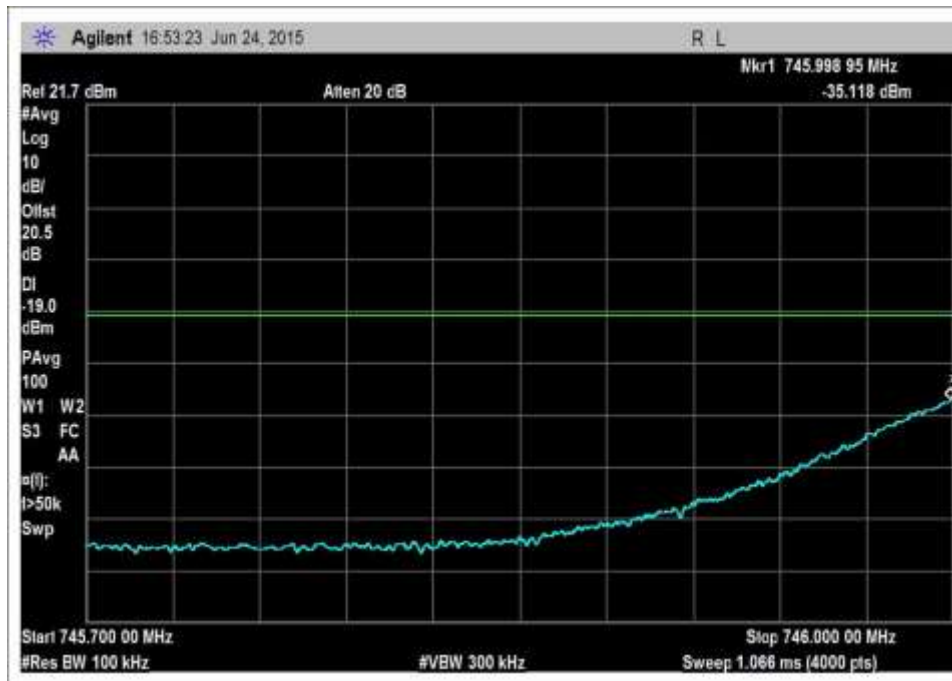
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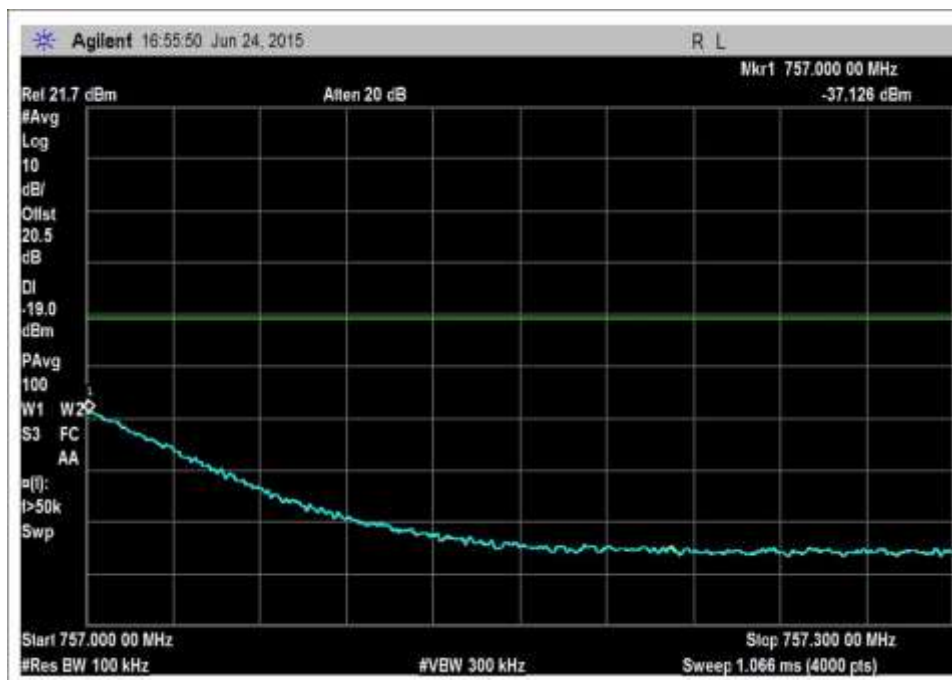
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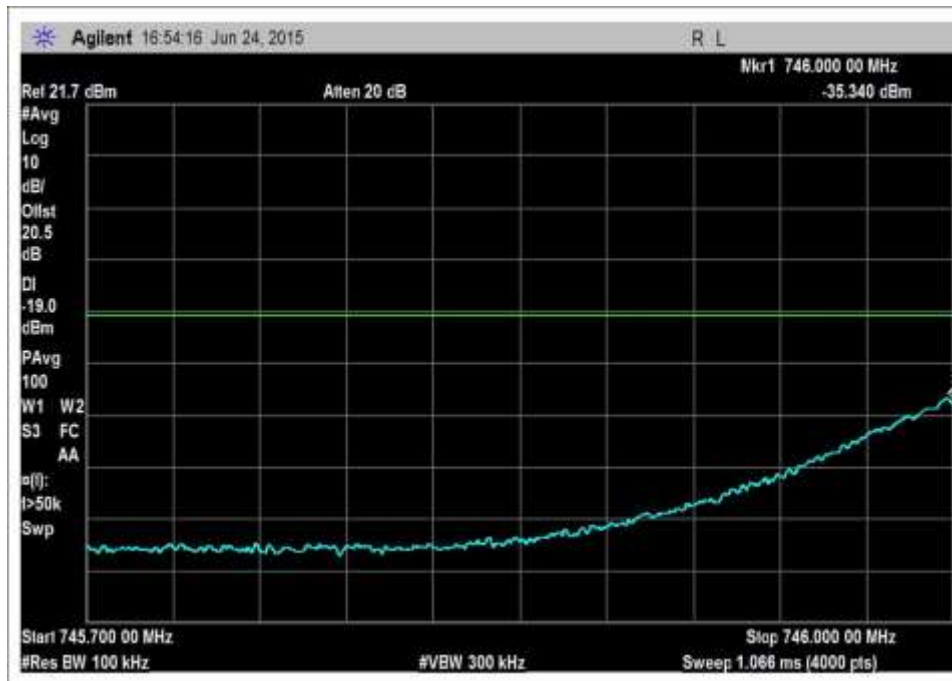
DL\_728-746MHz\_H\_Max



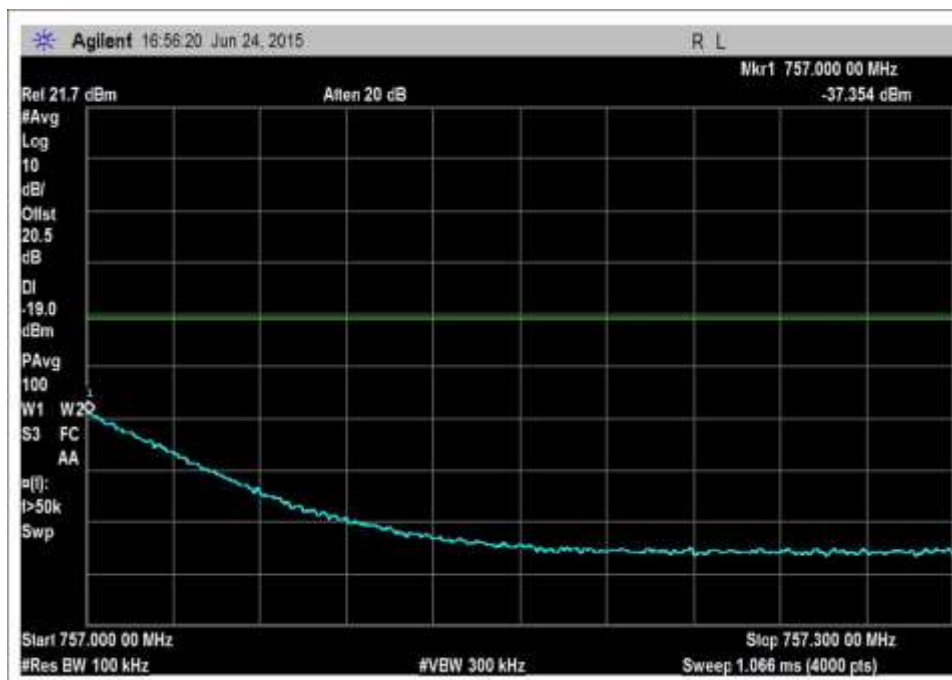
DL\_746-757MHz\_L\_PreAGC



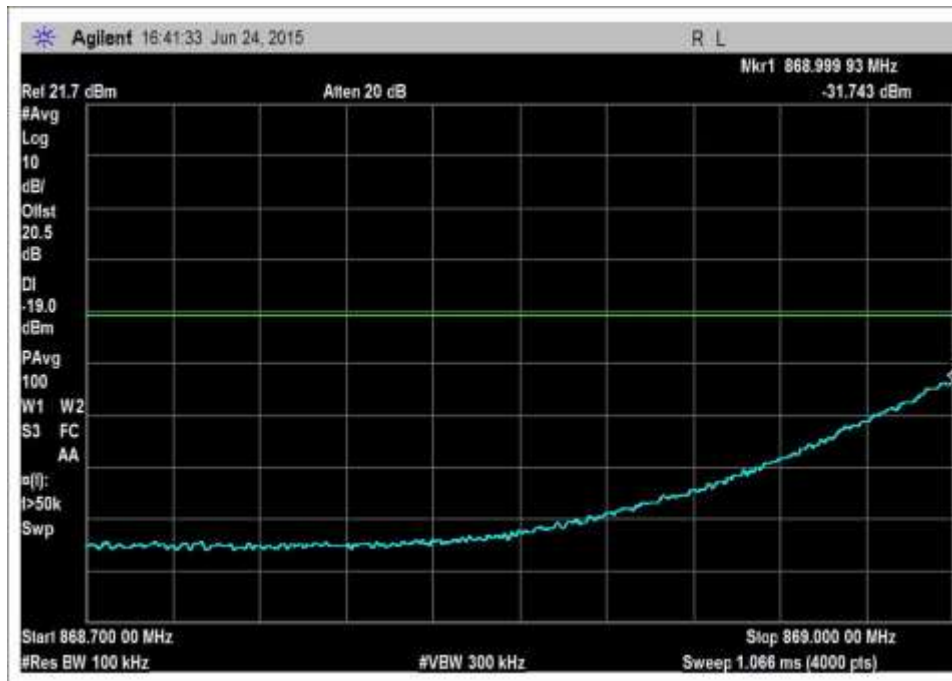
DL\_746-757MHz\_H\_PreAGC



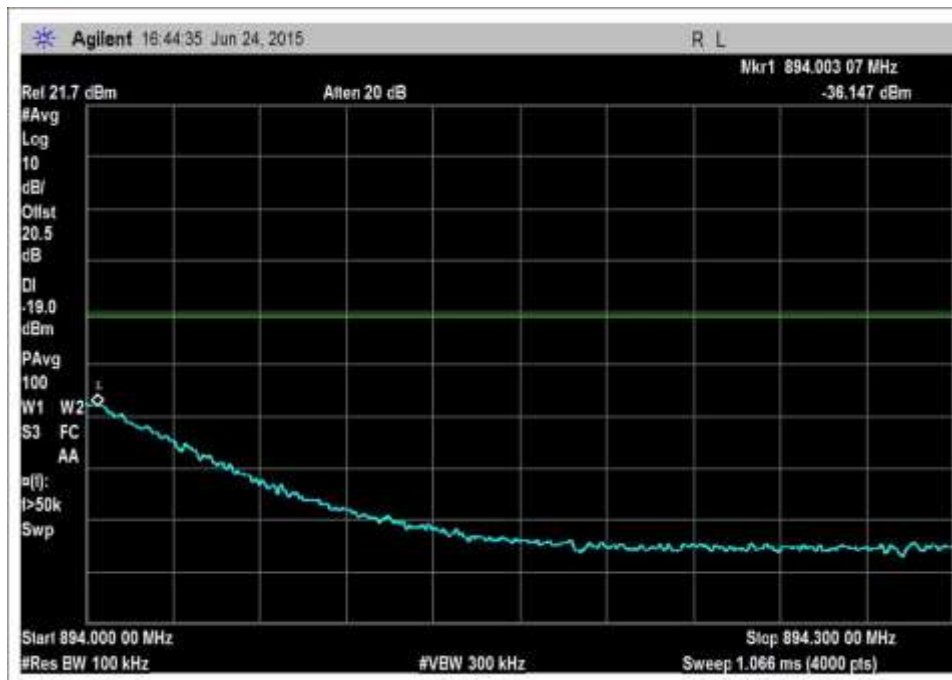
DL\_746-757MHz\_L\_Max



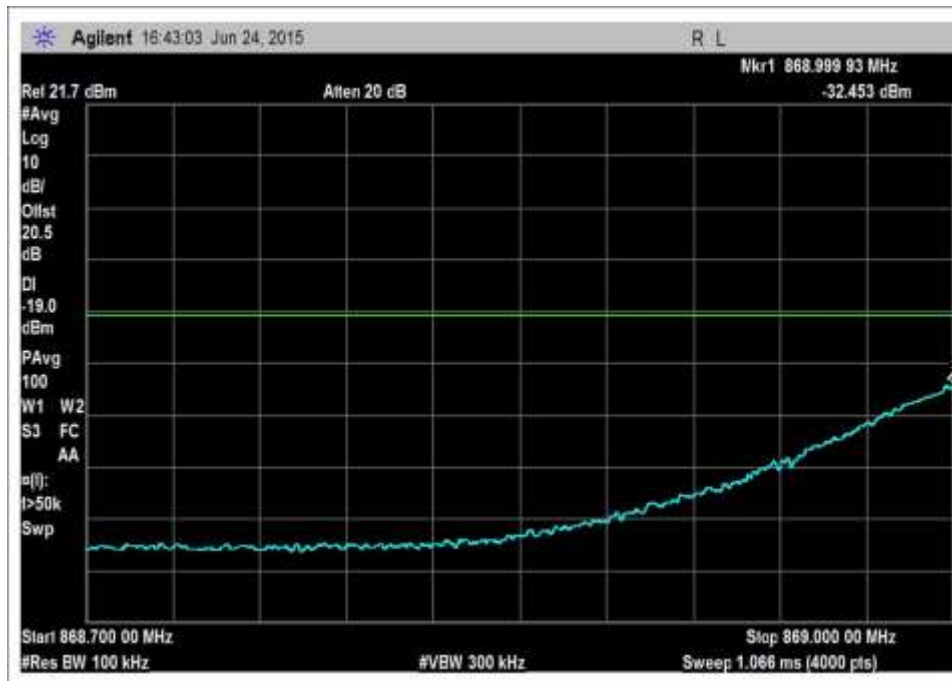
DL\_746-757MHz\_H\_Max



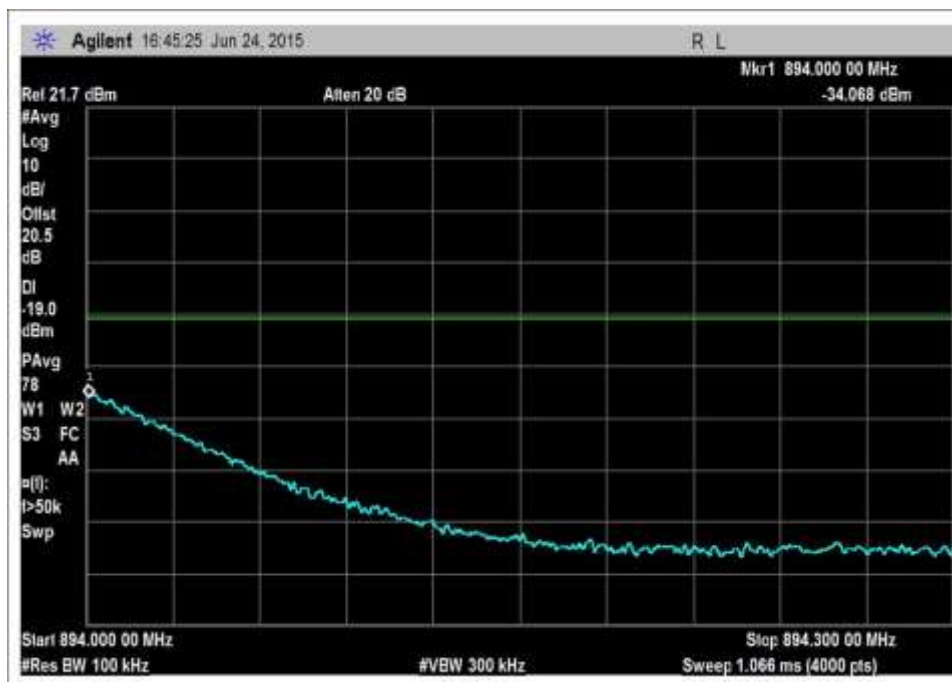
DL\_869-894MHz\_L\_PreAGC



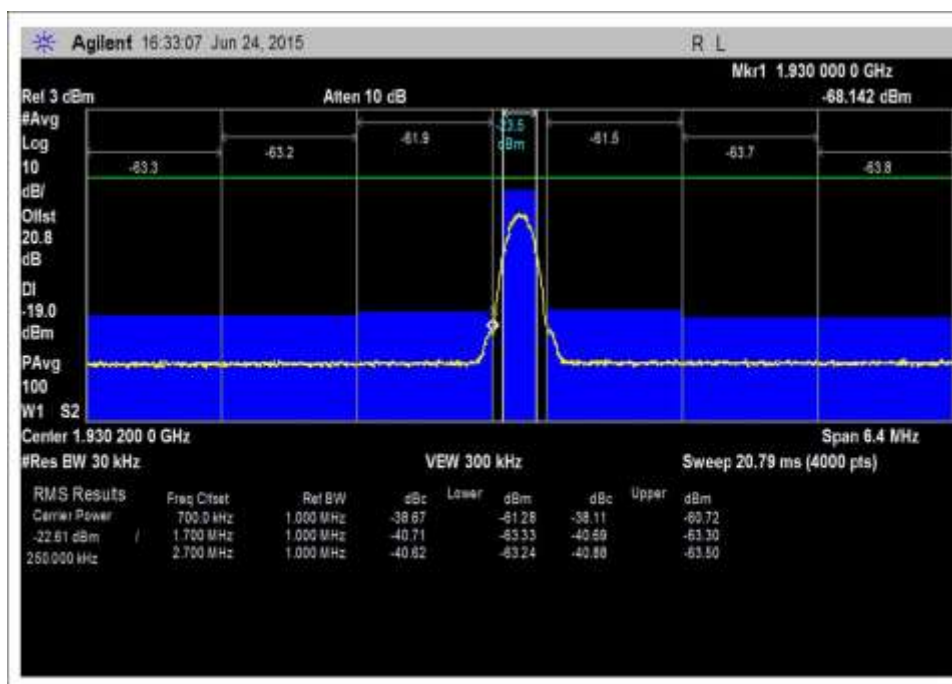
DL\_869-894MHz\_H\_PreAGC



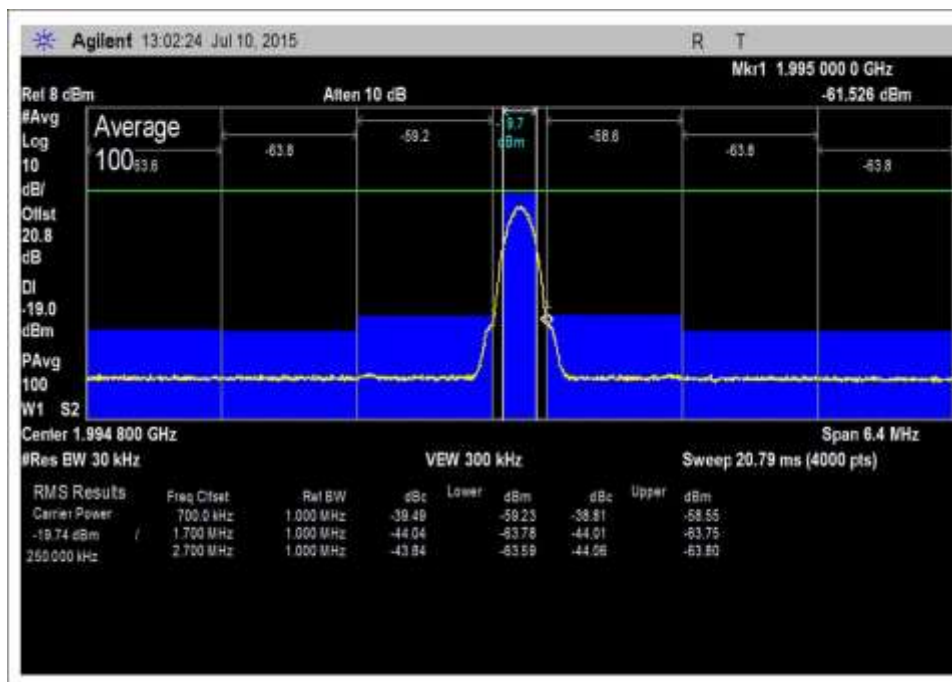
DL\_869-894MHz\_L\_Max



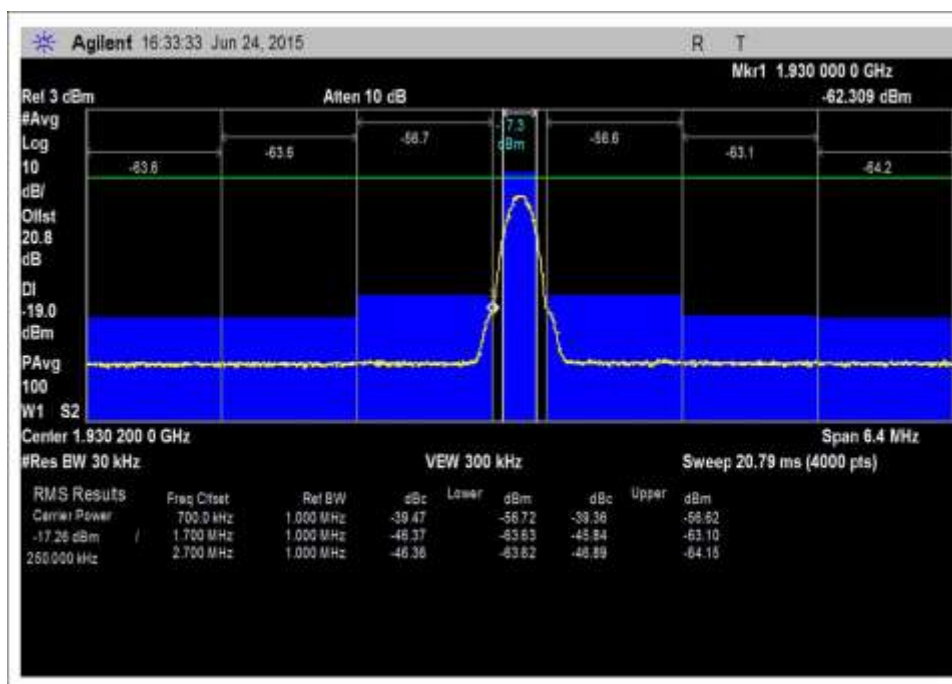
DL\_869-894MHz\_H\_Max



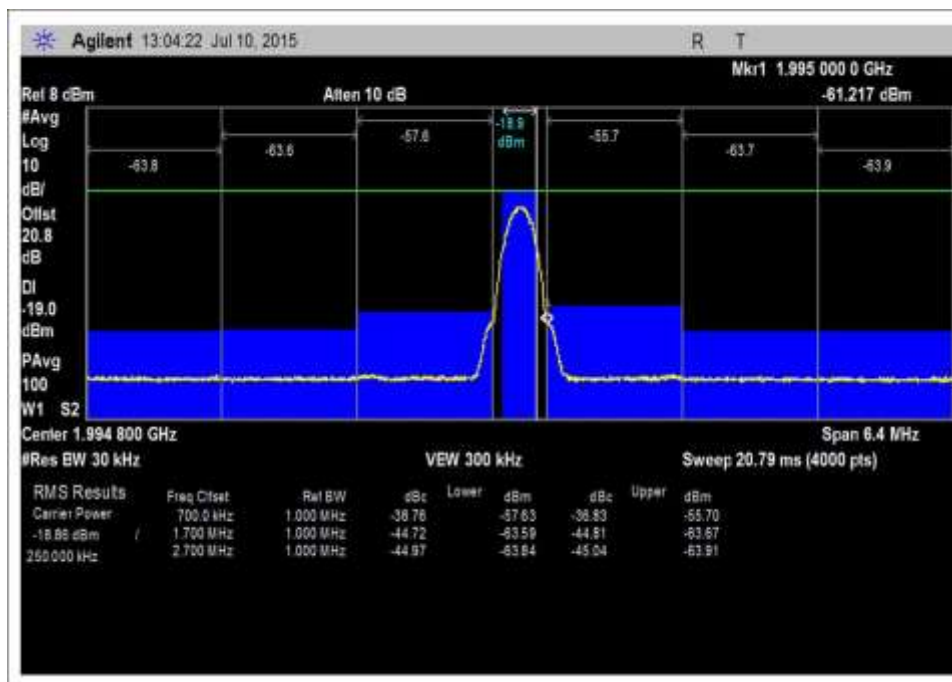
DL\_1930-1995MHz\_L\_PreAGC



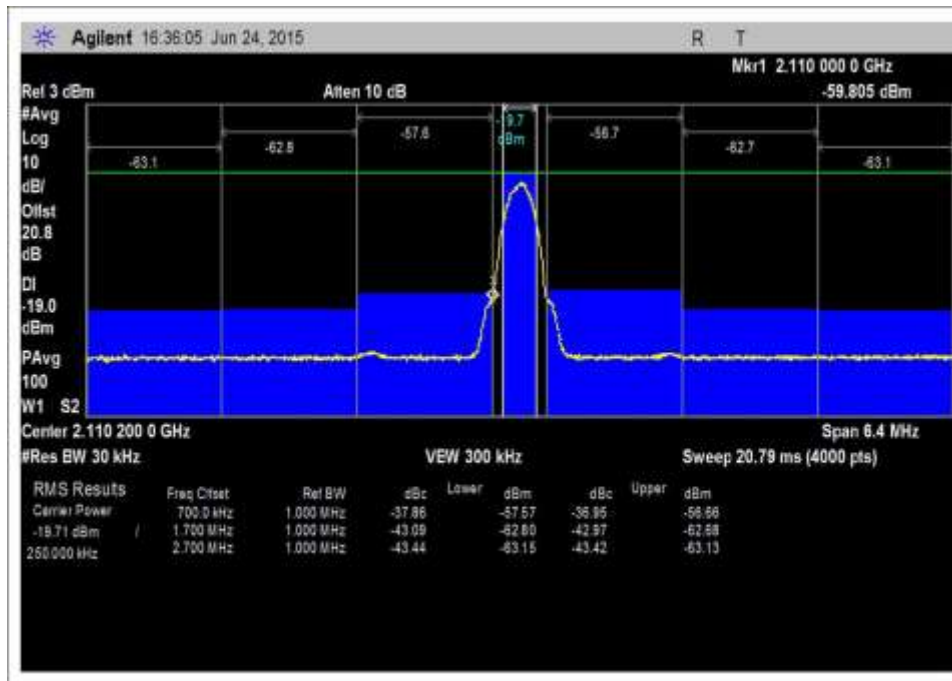
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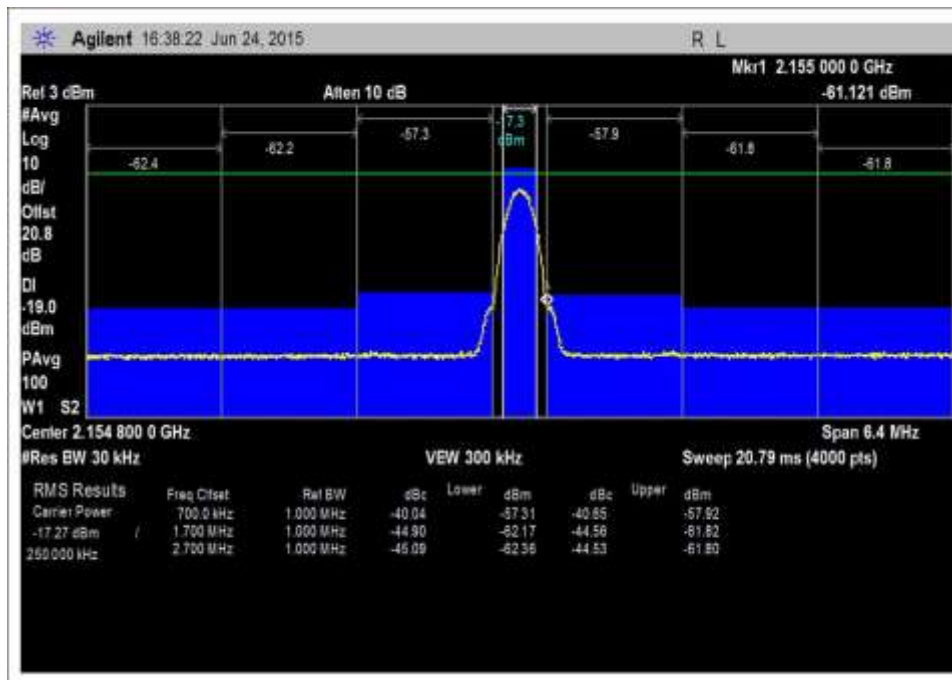
DL\_1930-1995MHz\_L\_Max



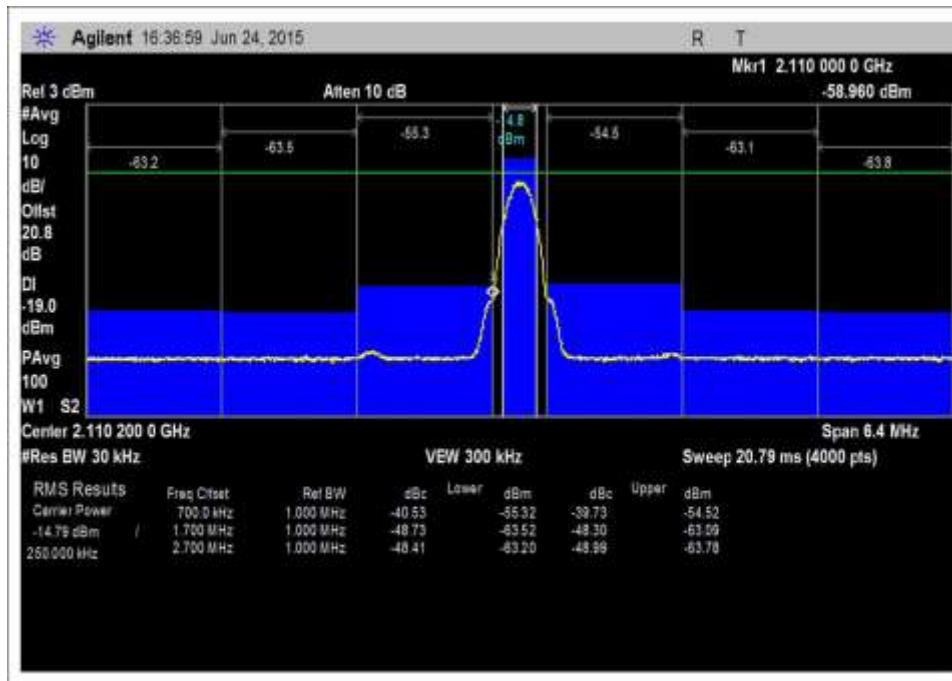
DL\_1930-1995MHz\_L\_Max



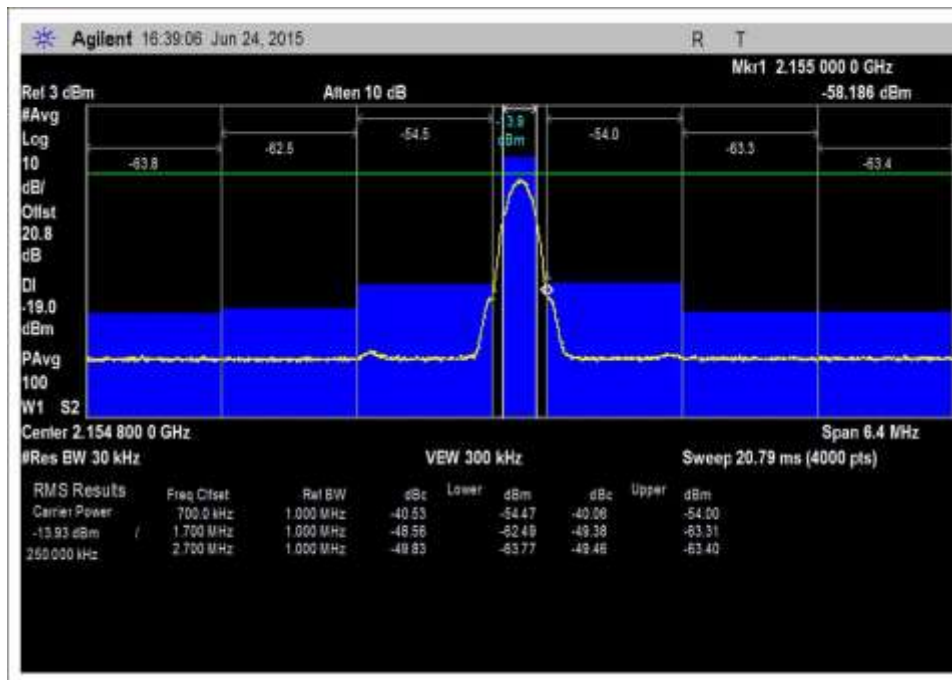
DL\_2110-2155MHz\_L\_PreAGC



DL\_2110-2155MHz\_H\_PreAGC

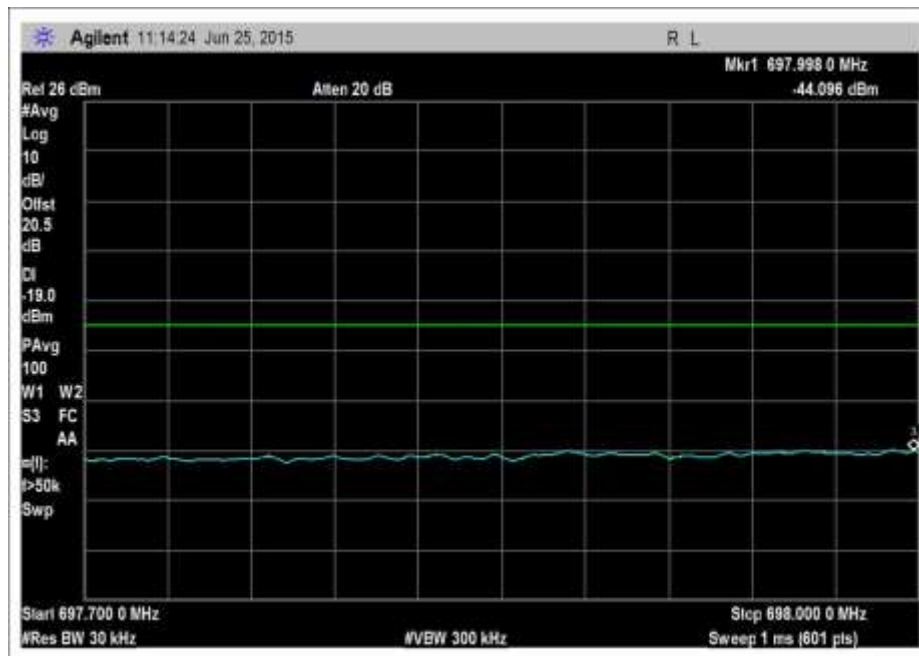


DL\_2110-2155MHz\_L\_Max

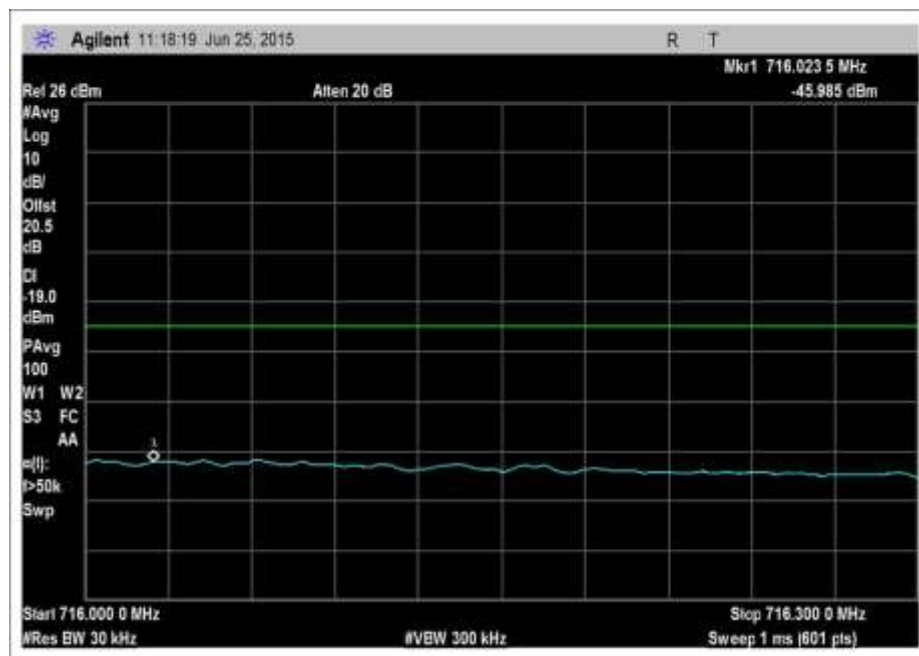


DL\_2110-2155MHz\_H\_Max

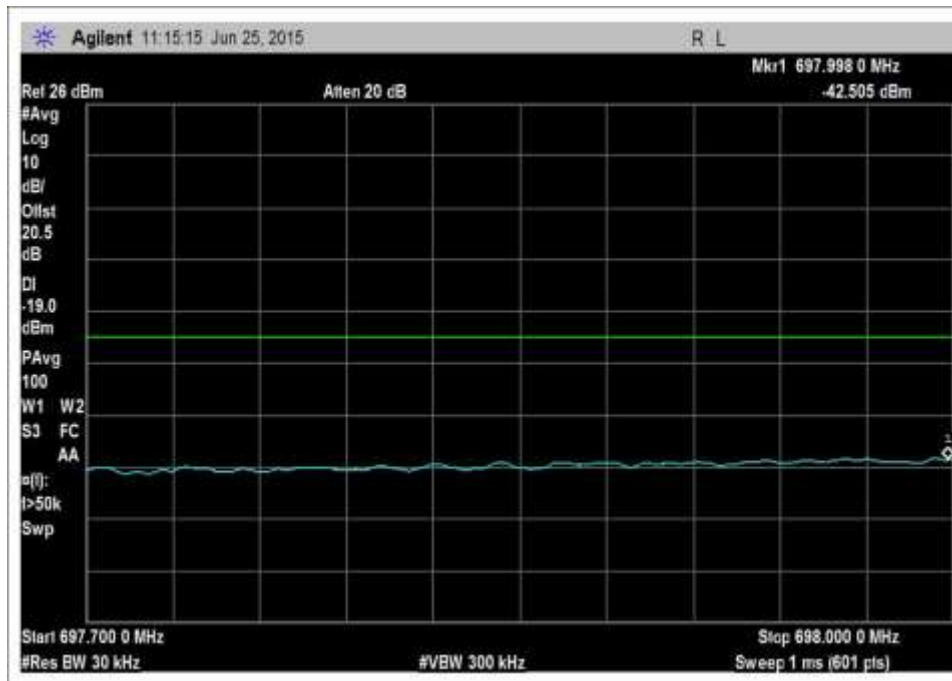
## UL-CDMA



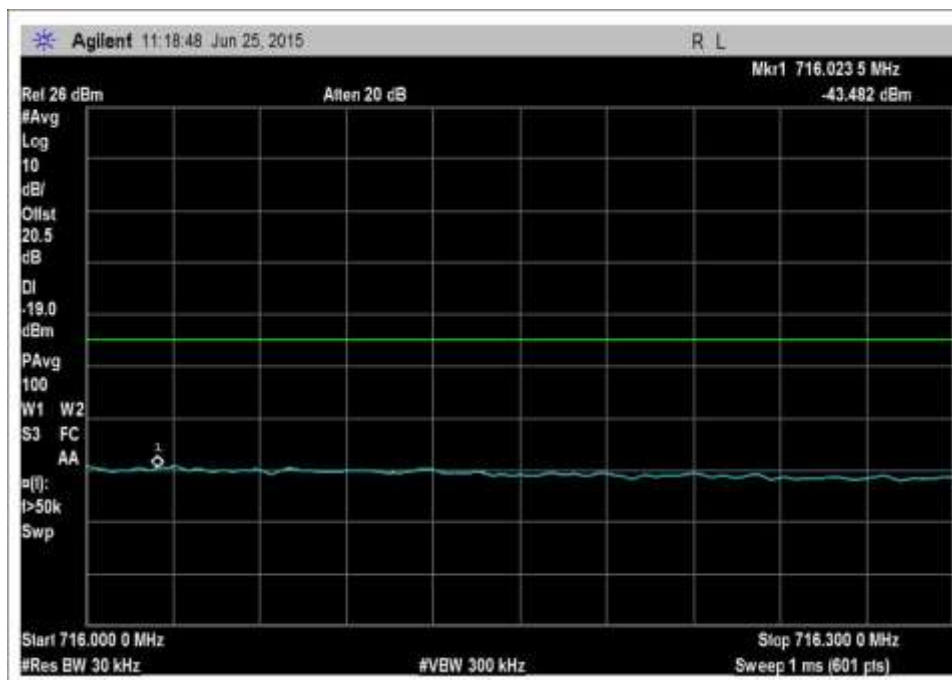
UL\_698-716MHz\_L\_PreAGC



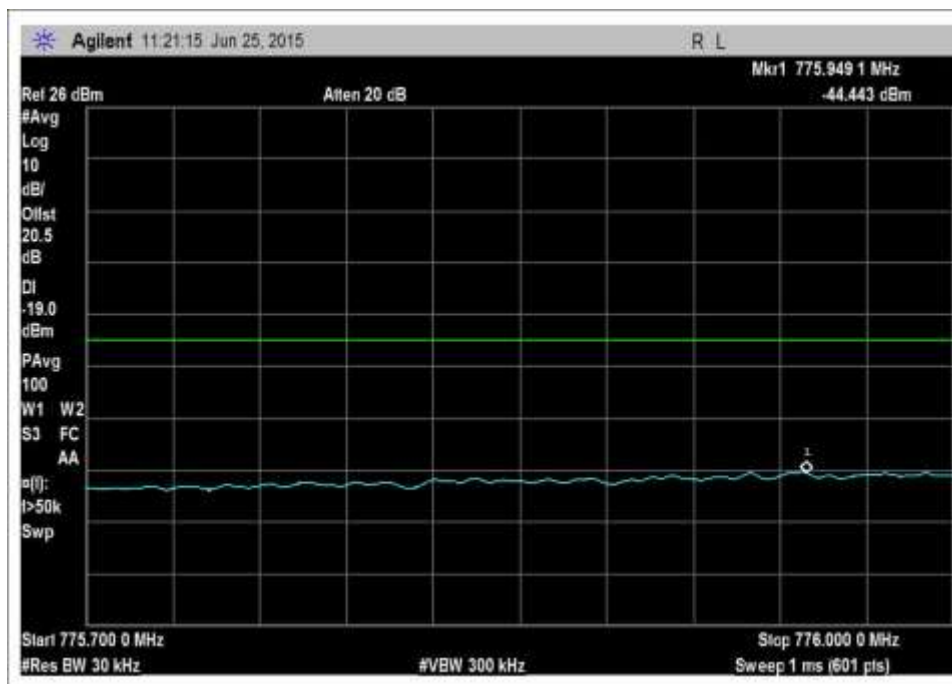
UL\_698-716MHz\_H\_PreAGC



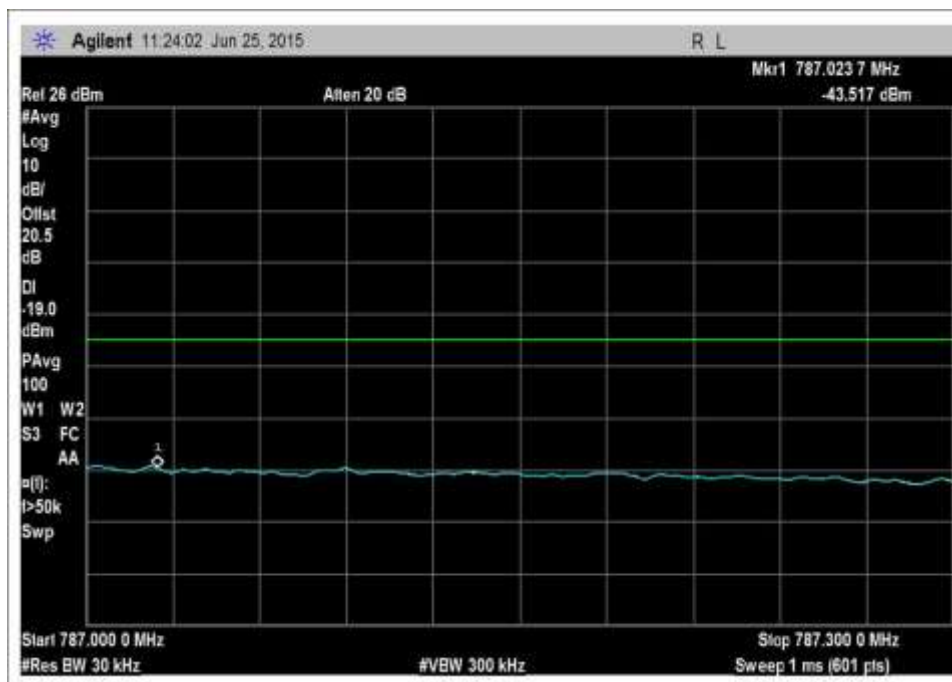
UL\_698-716MHz\_L\_Max



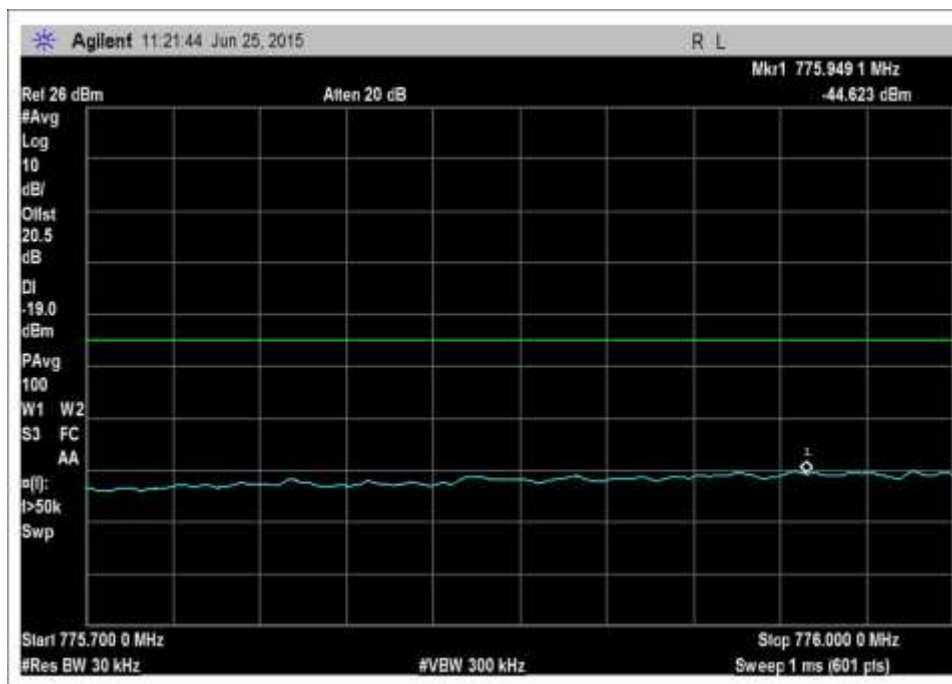
UL\_698-716MHz\_H\_Max



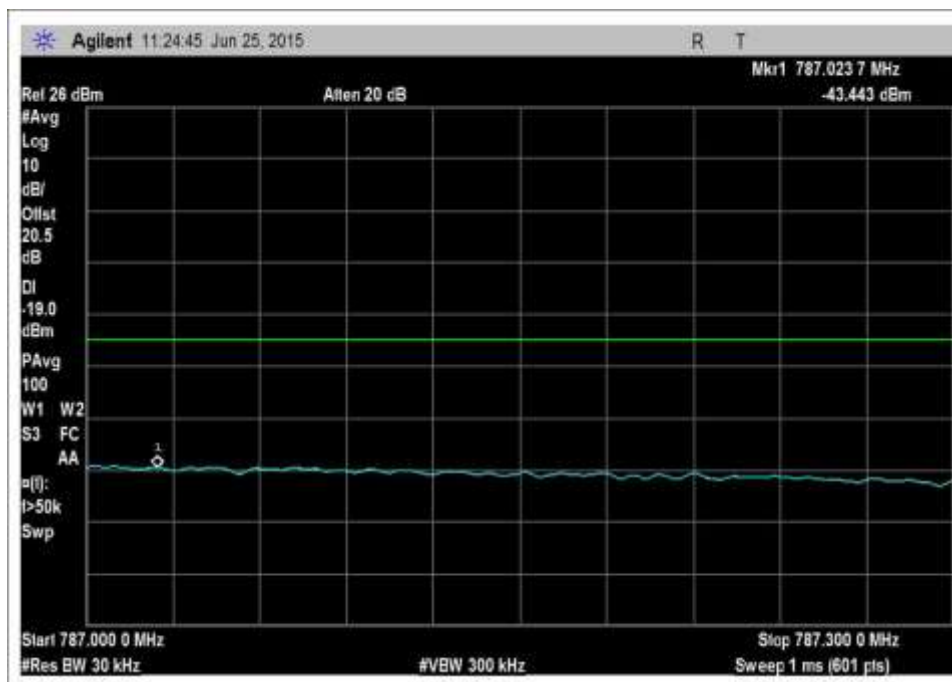
UL\_776-787MHz\_L\_PreAGC



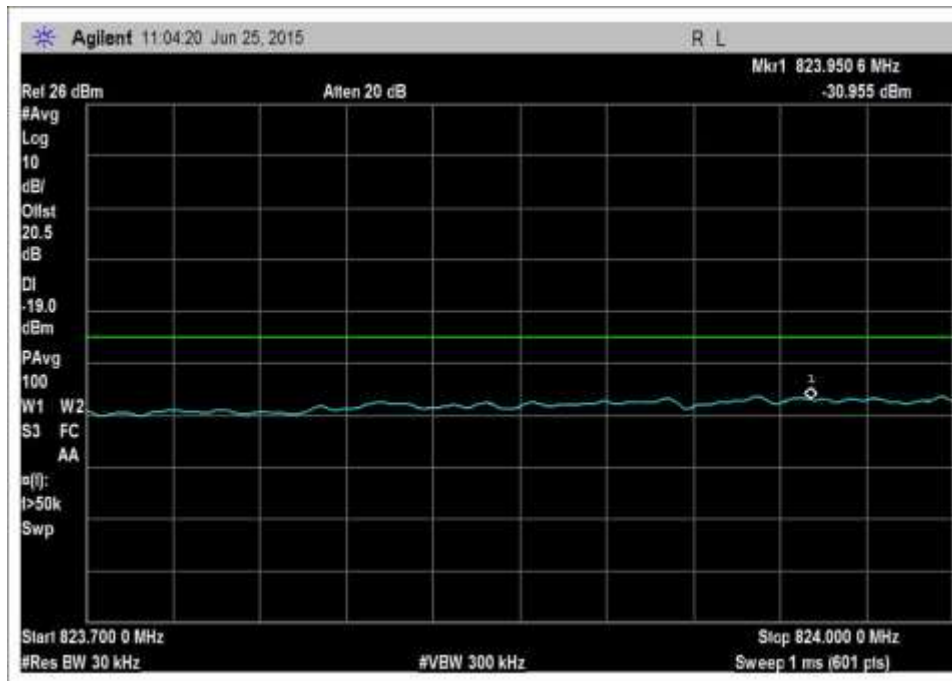
UL\_776-787MHz\_H\_PreAGC



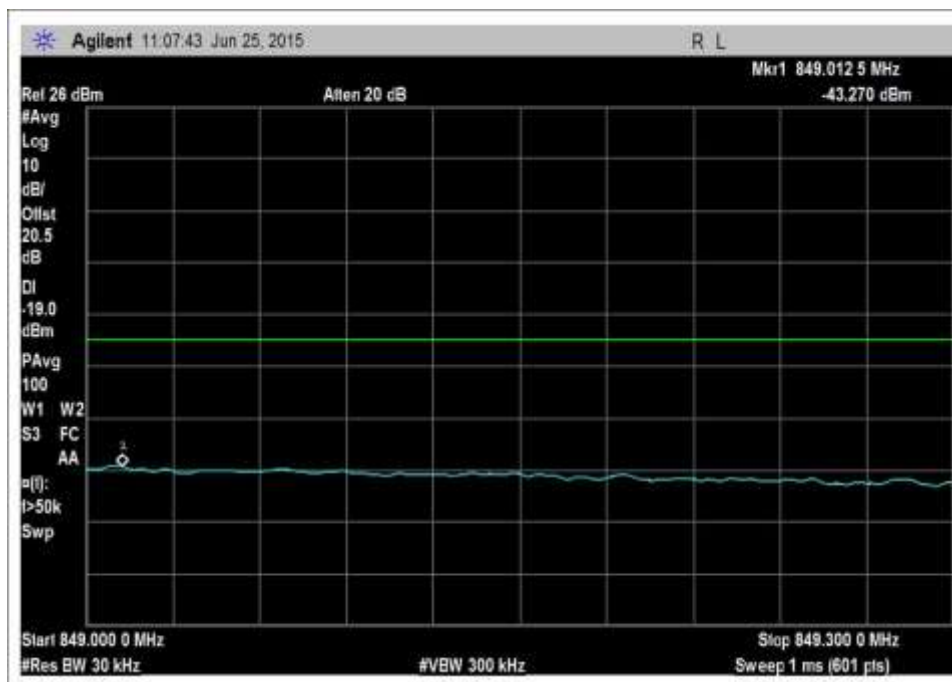
UL\_776-787MHz\_L\_Max



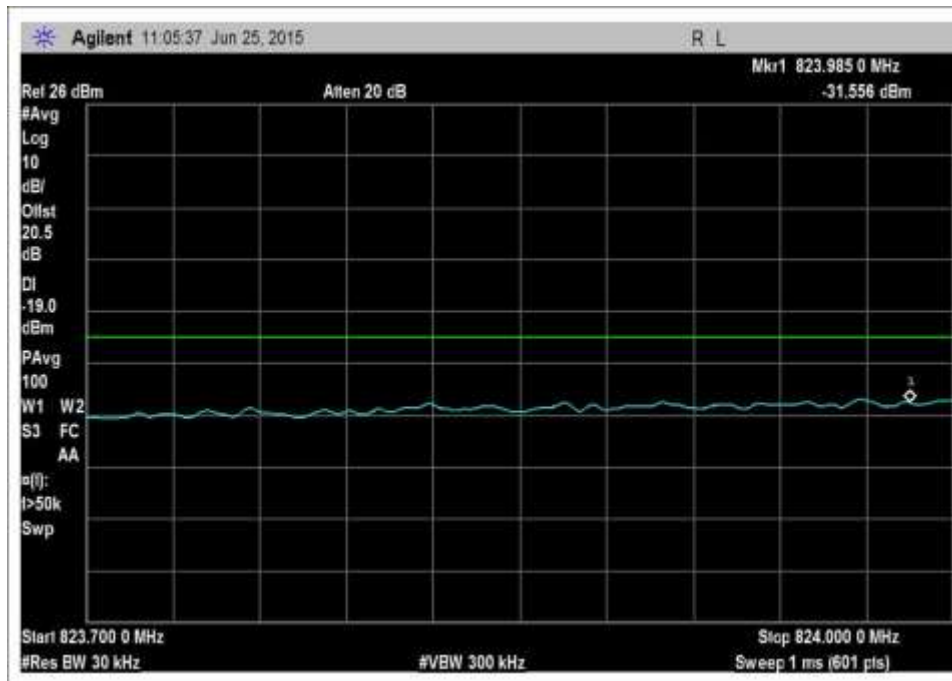
UL\_776-787MHz\_H\_Max



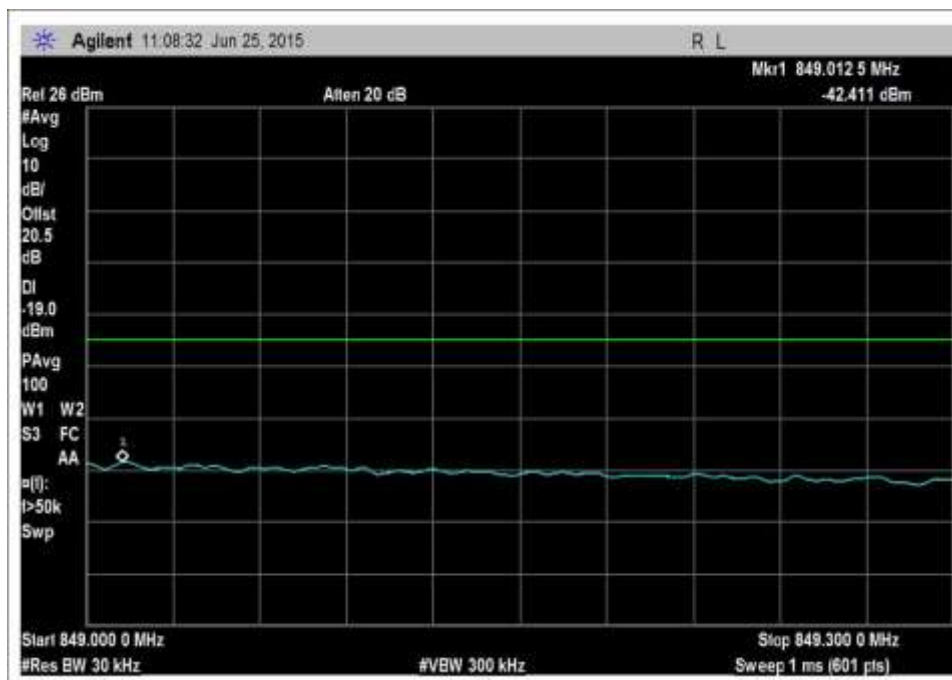
UL\_824-849MHz\_L\_PreAGC



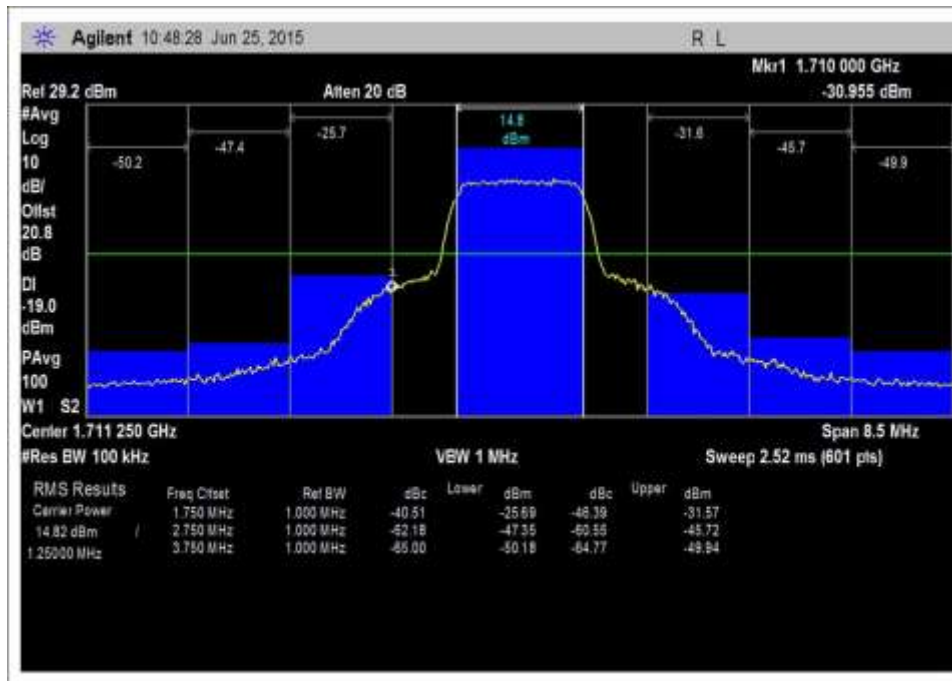
UL\_824-849MHz\_H\_PreAGC



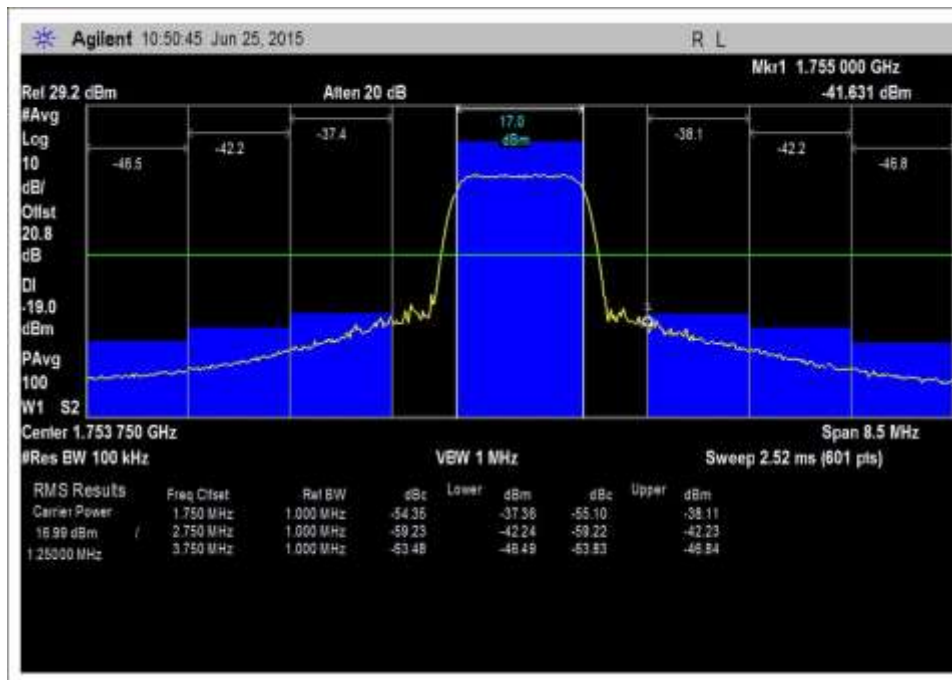
UL\_824-849MHz\_L\_Max



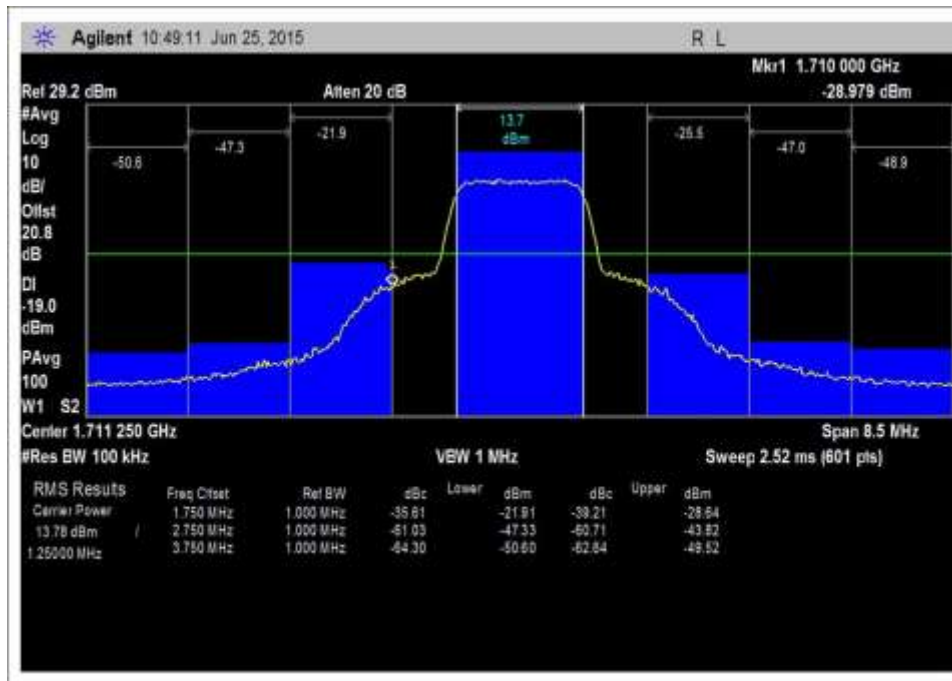
UL\_824-849MHz\_H\_Max



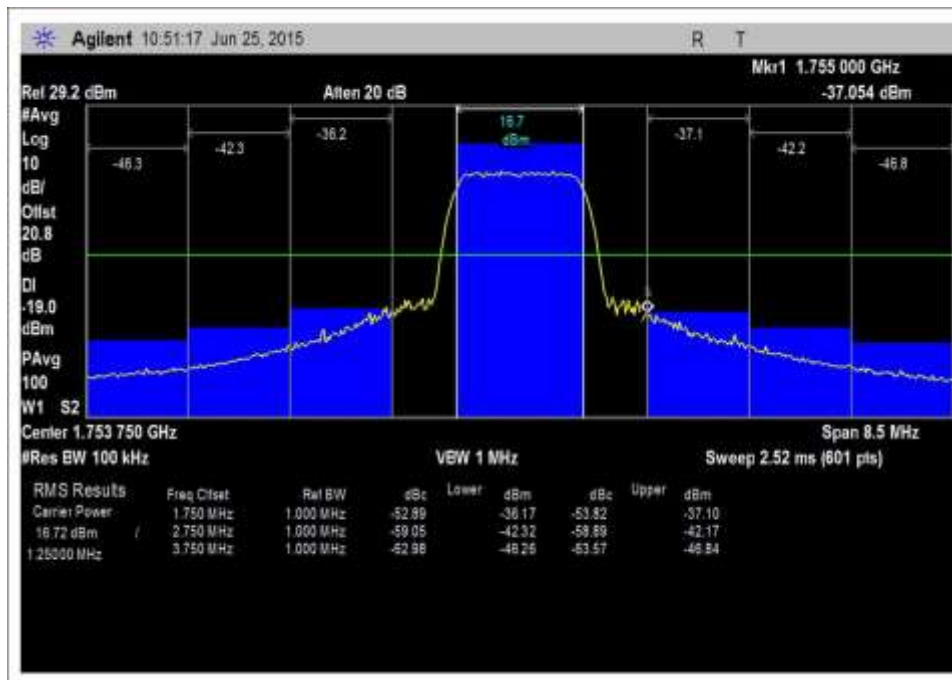
UL\_1710-1755MHz\_L\_PreAGC



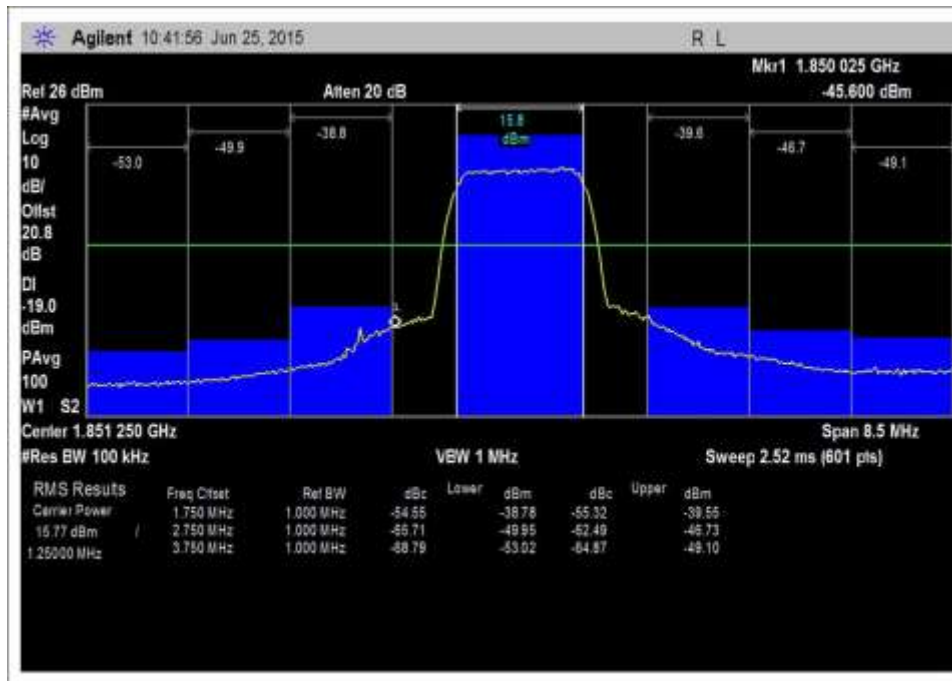
UL\_1710-1755MHz\_H\_PreAGC



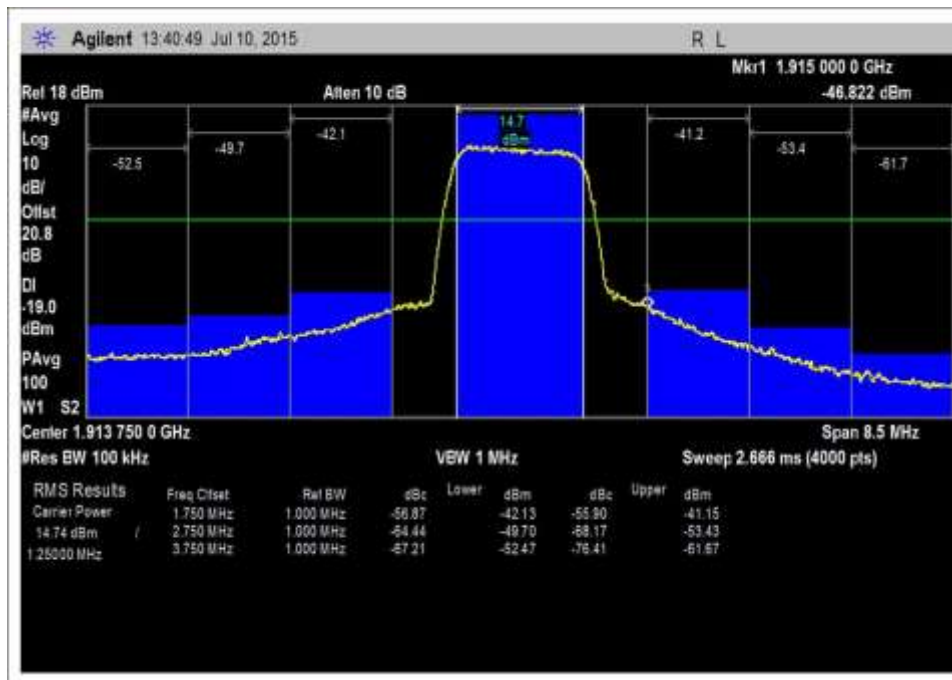
UL\_1710-1755MHz\_L\_Max



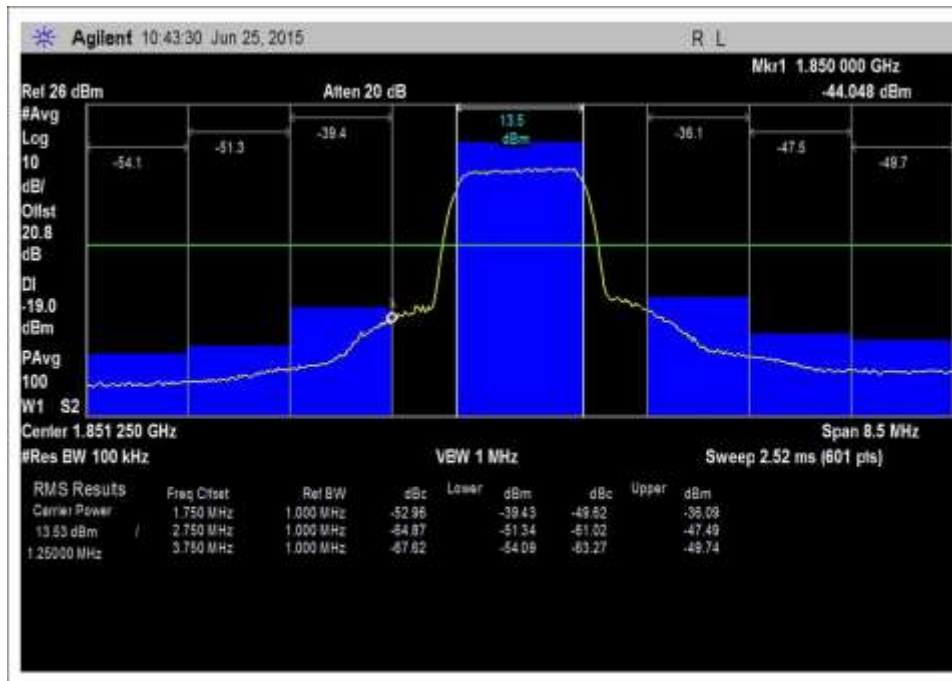
UL\_1710-1755MHz\_H\_Max



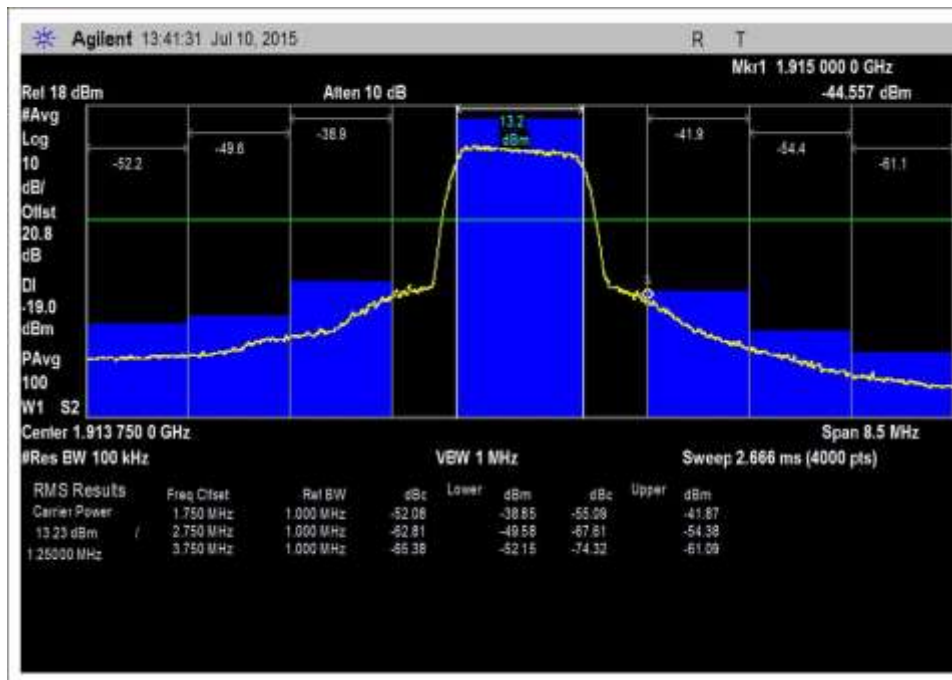
UL\_1850-1915MHz\_L\_PreAGC



UL\_1850-1915MHz\_H\_PreAGC

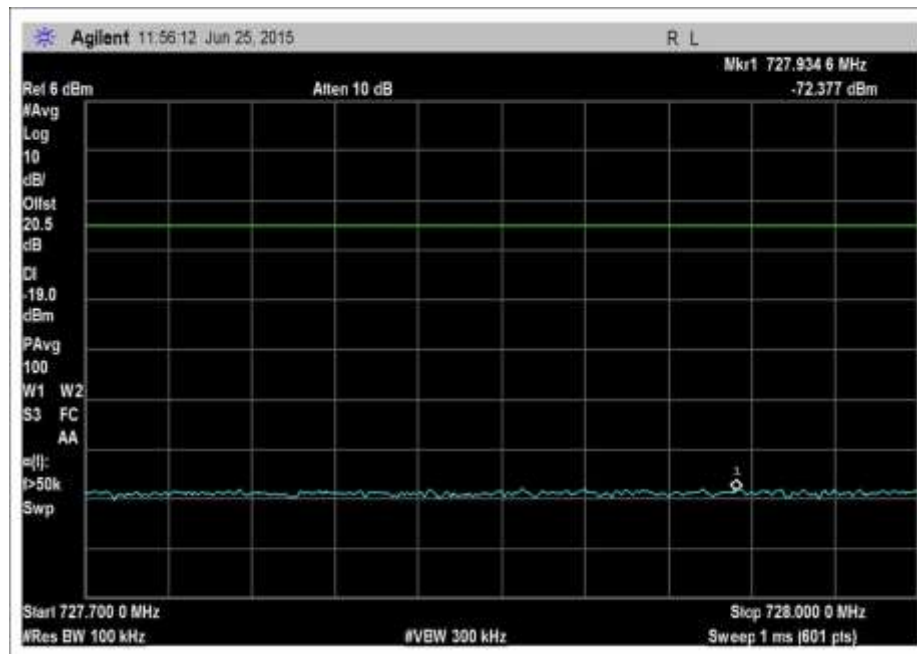


UL\_1850-1915MHz\_L\_Max

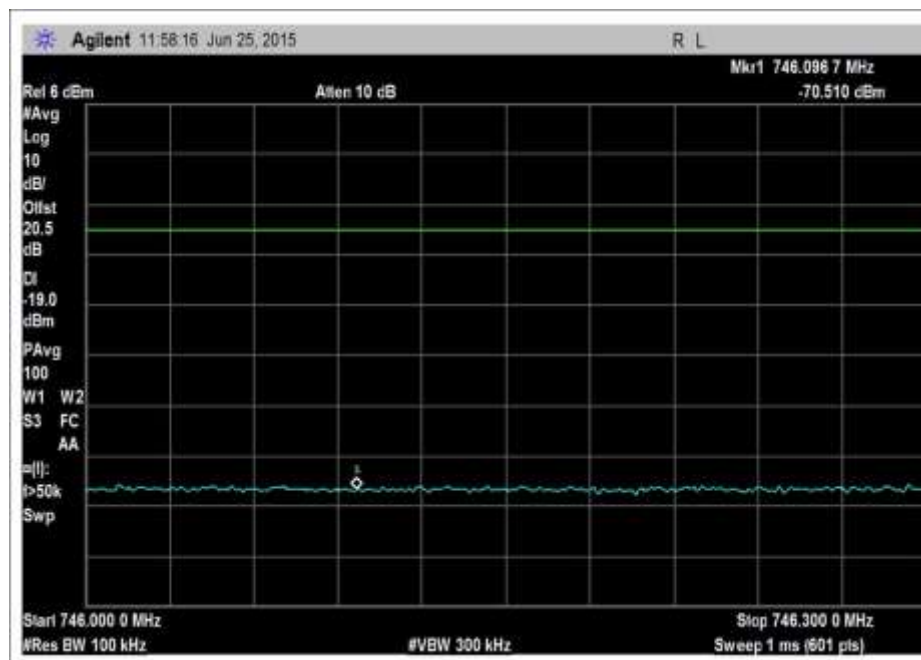


UL\_1850-1915MHz\_H\_Max

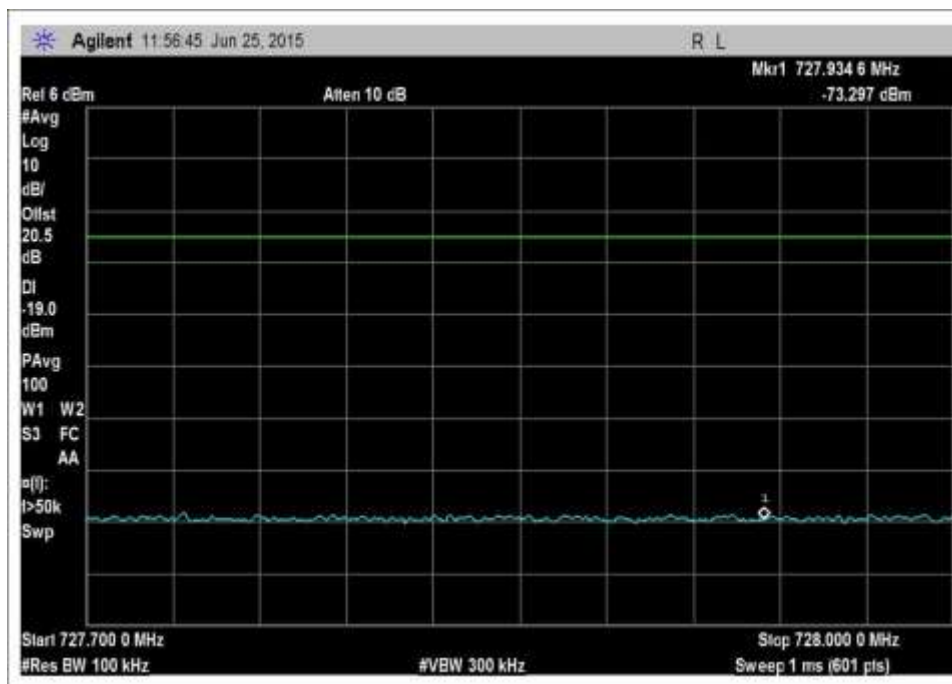
## DL-CDMA



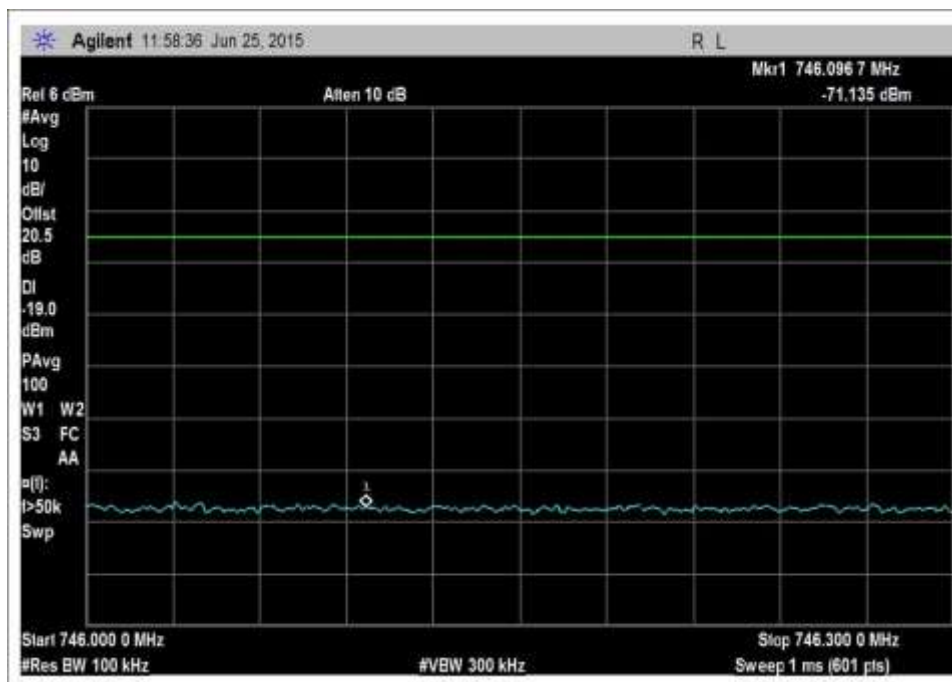
DL\_728-746MHz\_L\_PreAGC



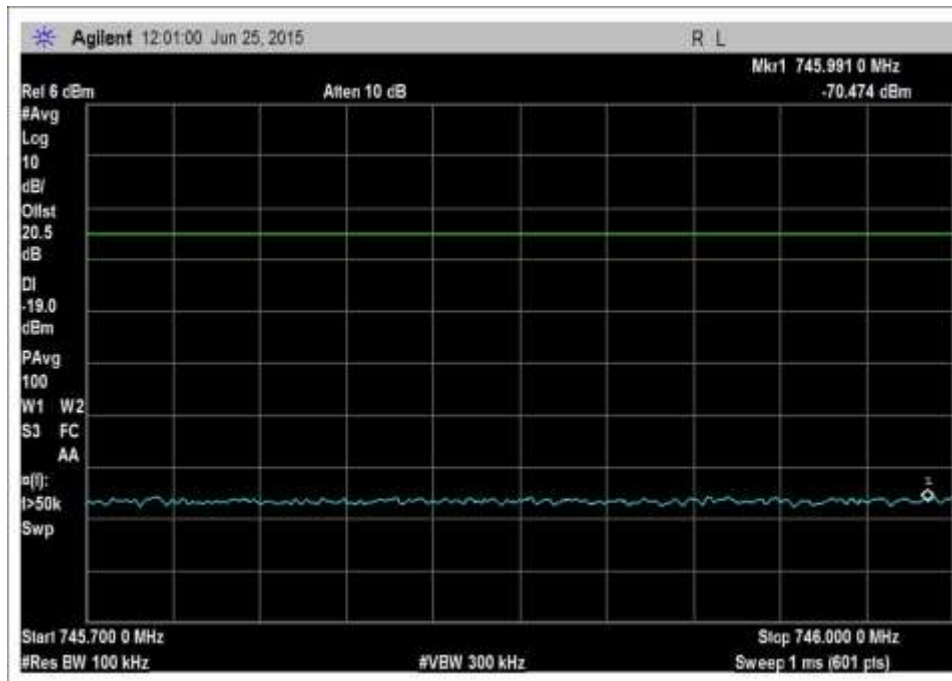
DL\_728-746MHz\_H\_PreAGC



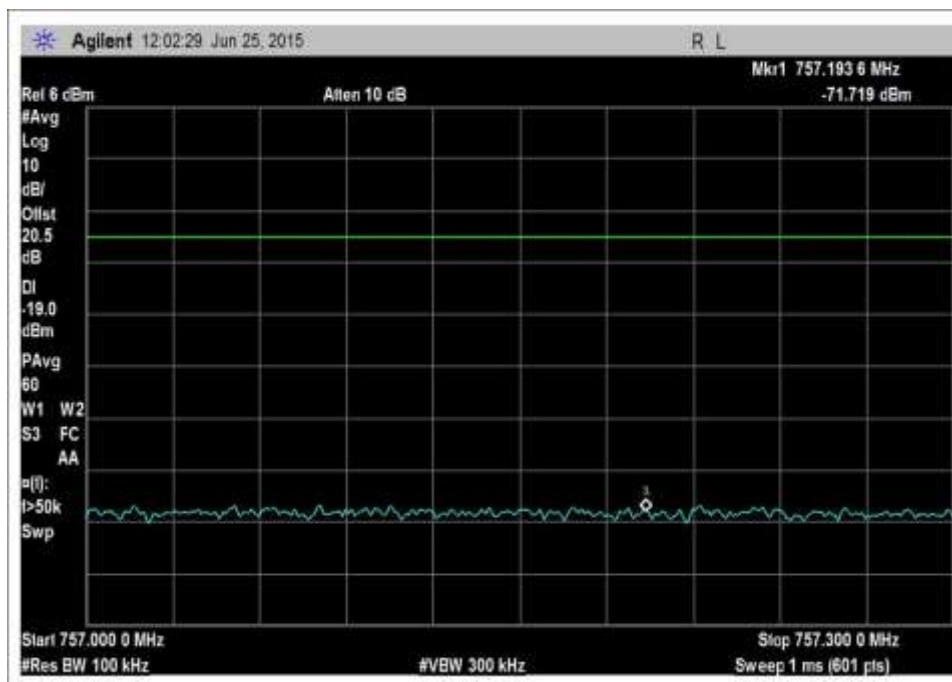
DL\_728-746MHz\_L\_Max



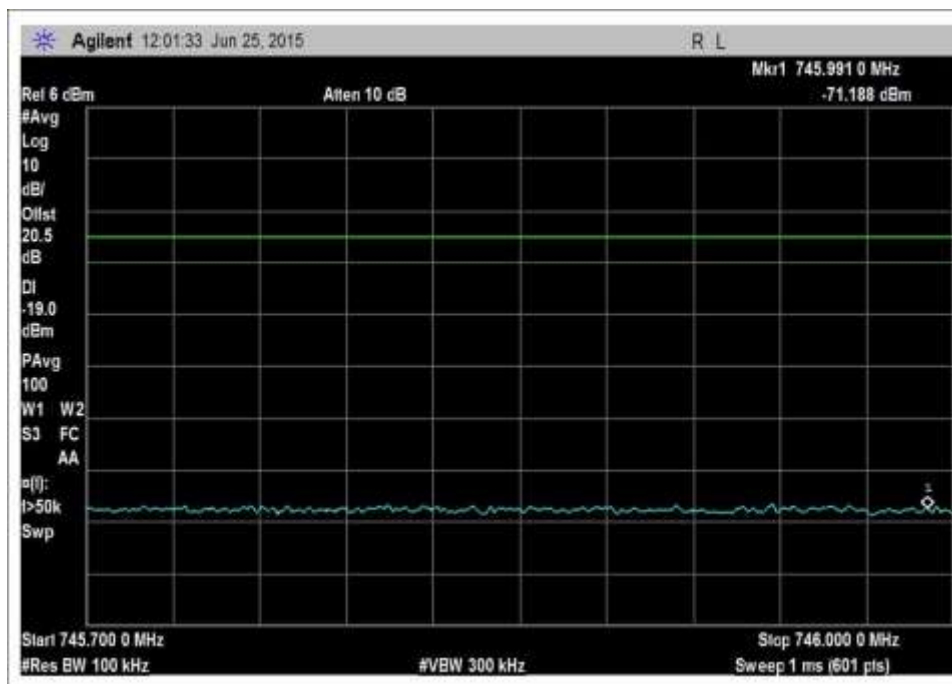
DL\_728-746MHz\_H\_Max



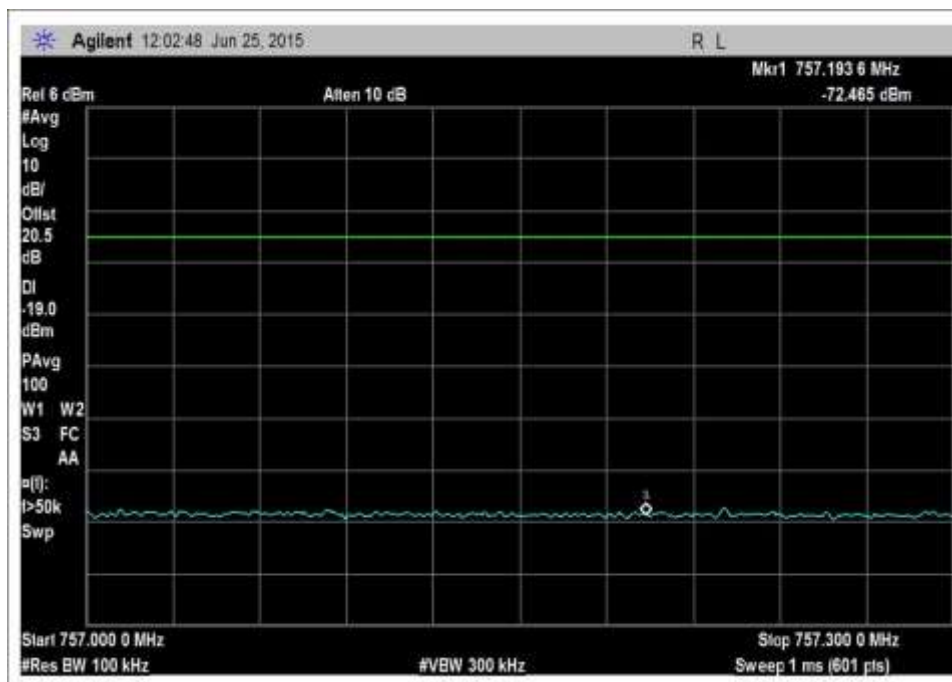
DL\_746-757MHz\_L\_PreAGC



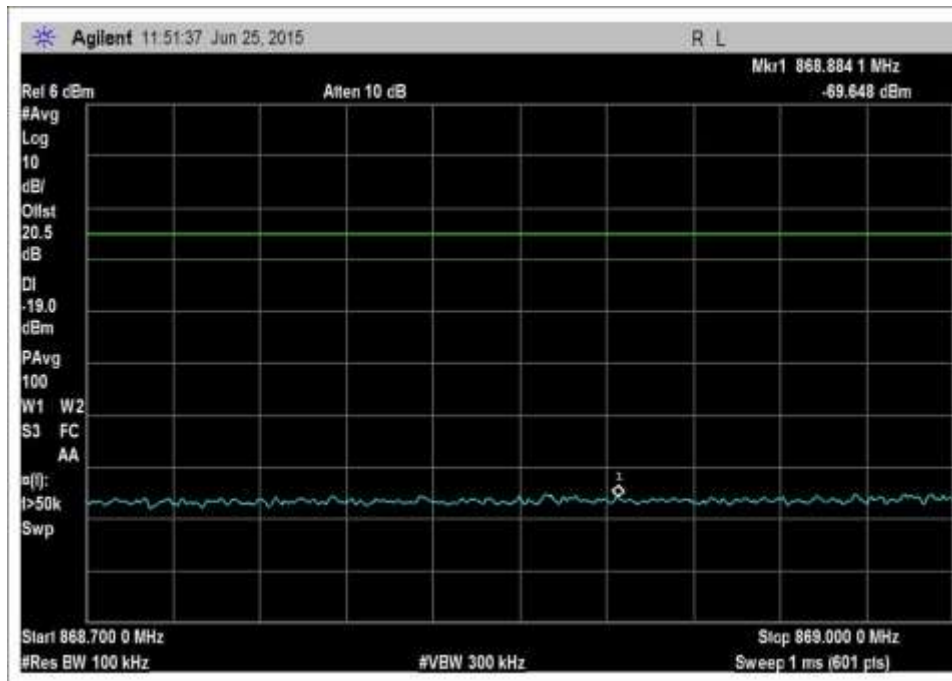
DL\_746-757MHz\_H\_PreAGC



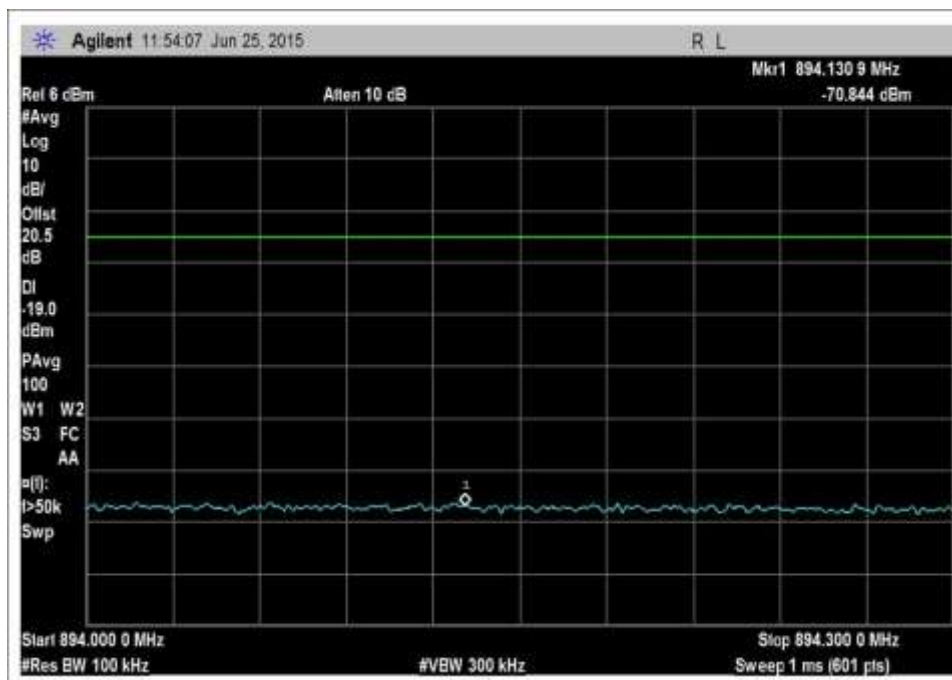
DL\_746-757MHz\_L\_Max



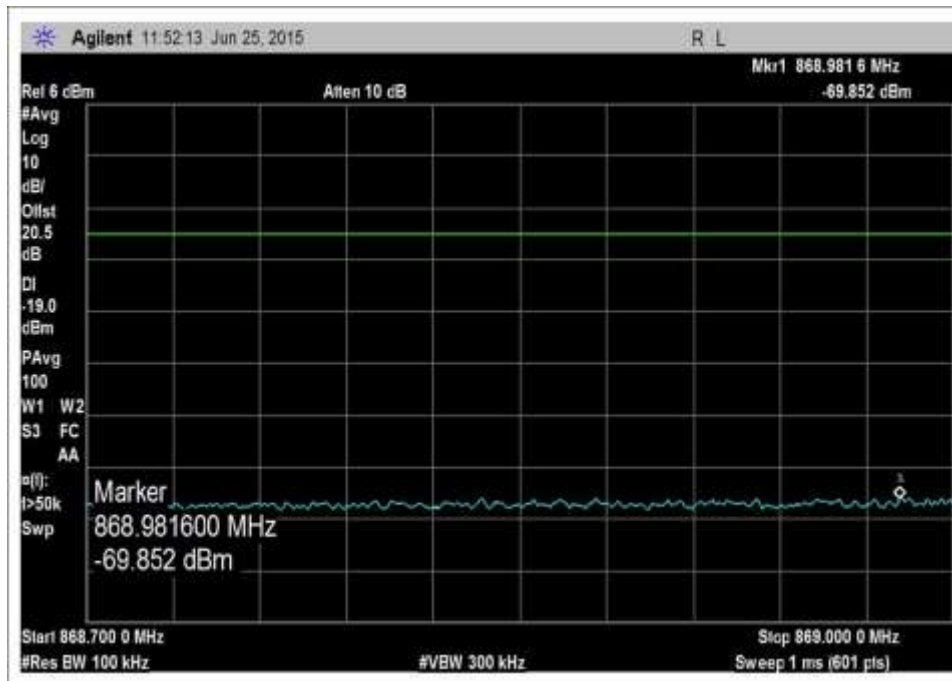
DL\_746-757MHz\_H\_Max



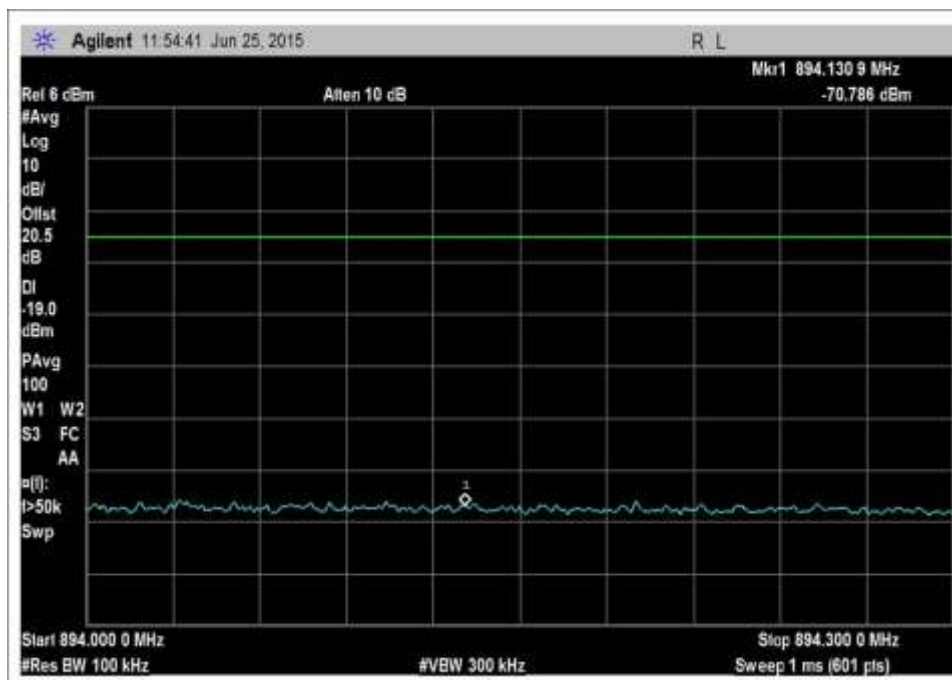
DL\_869-894MHz\_L\_PreAGC



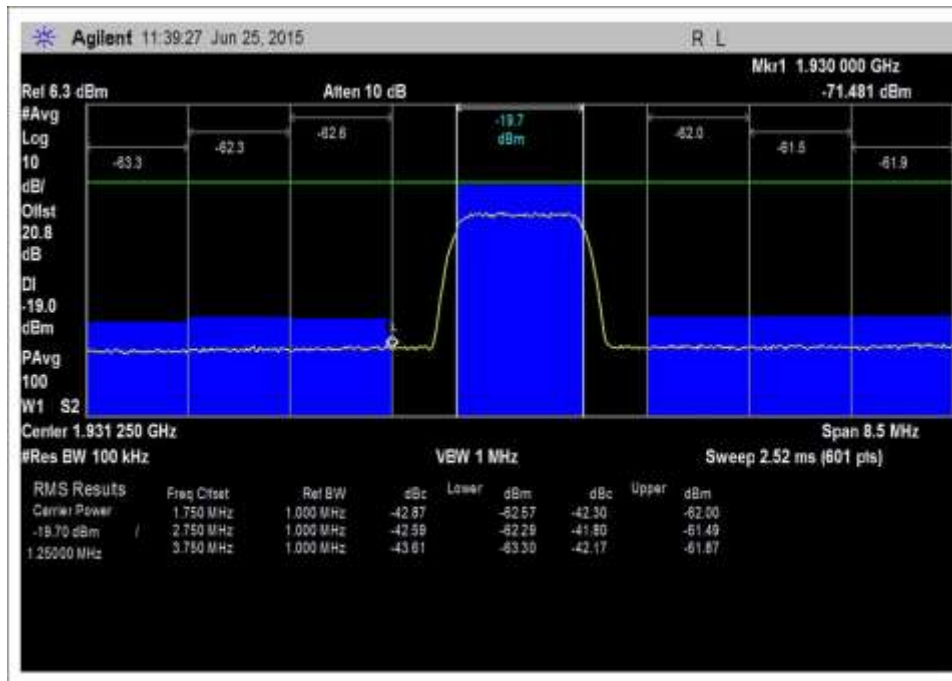
DL\_869-894MHz\_H\_PreAGC



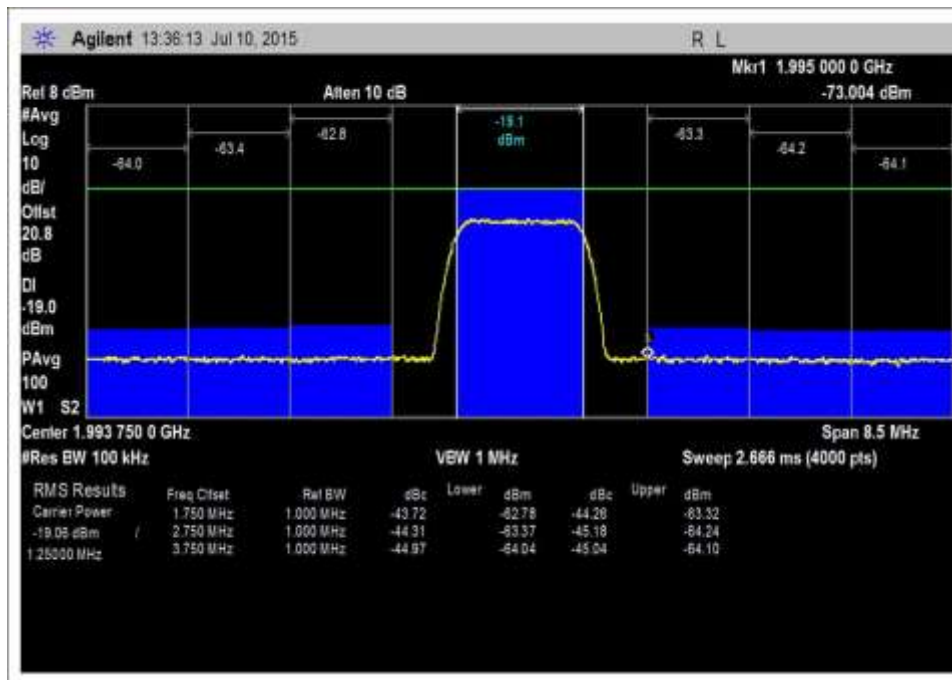
DL\_869-894MHz\_L\_Max



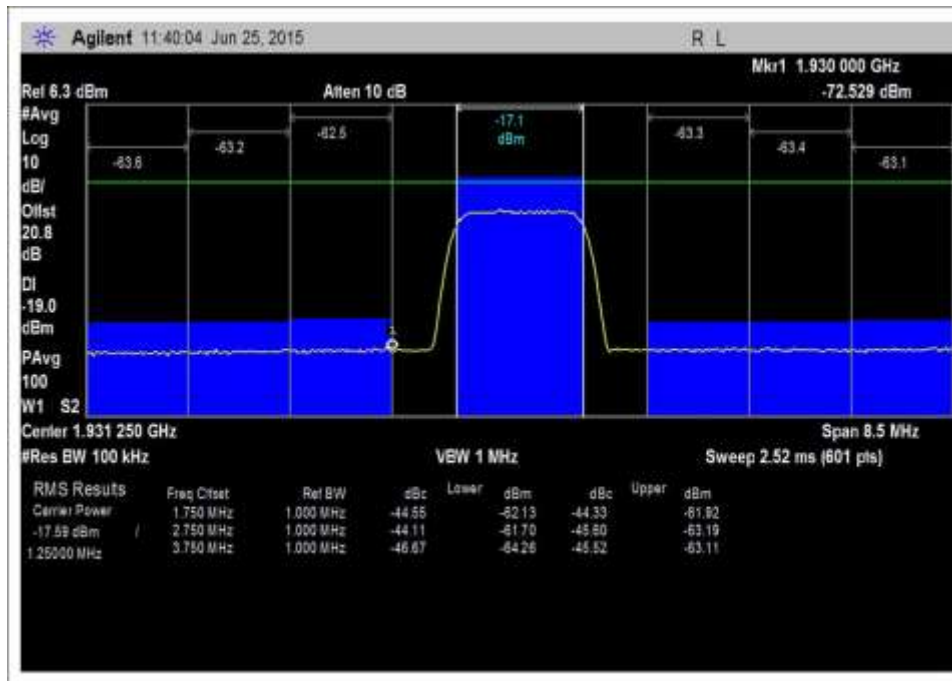
DL\_869-894MHz\_H\_Max



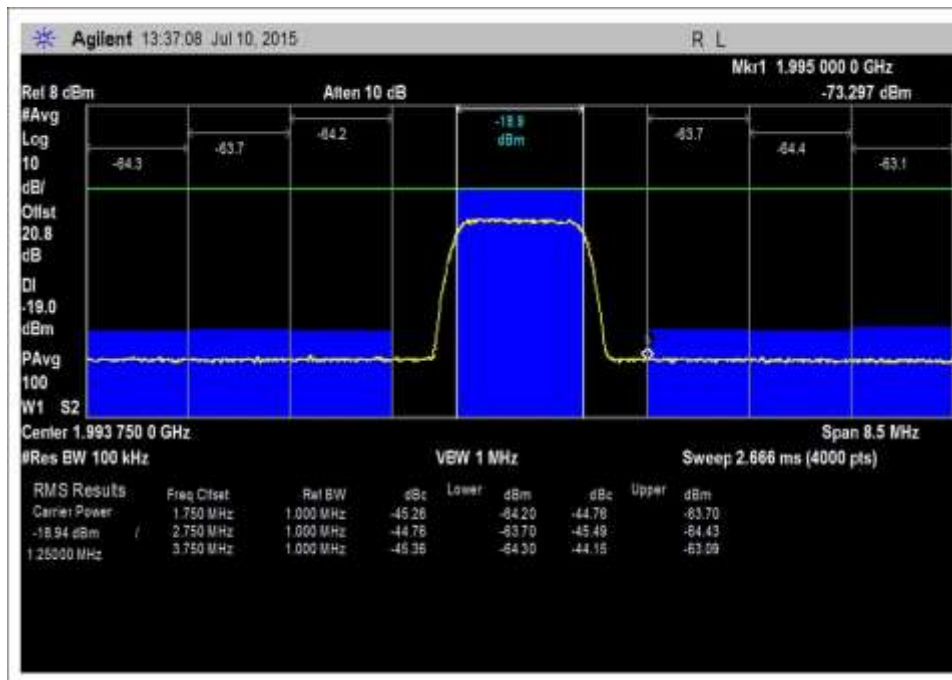
DL\_1930-1995MHz\_L\_PreAGC



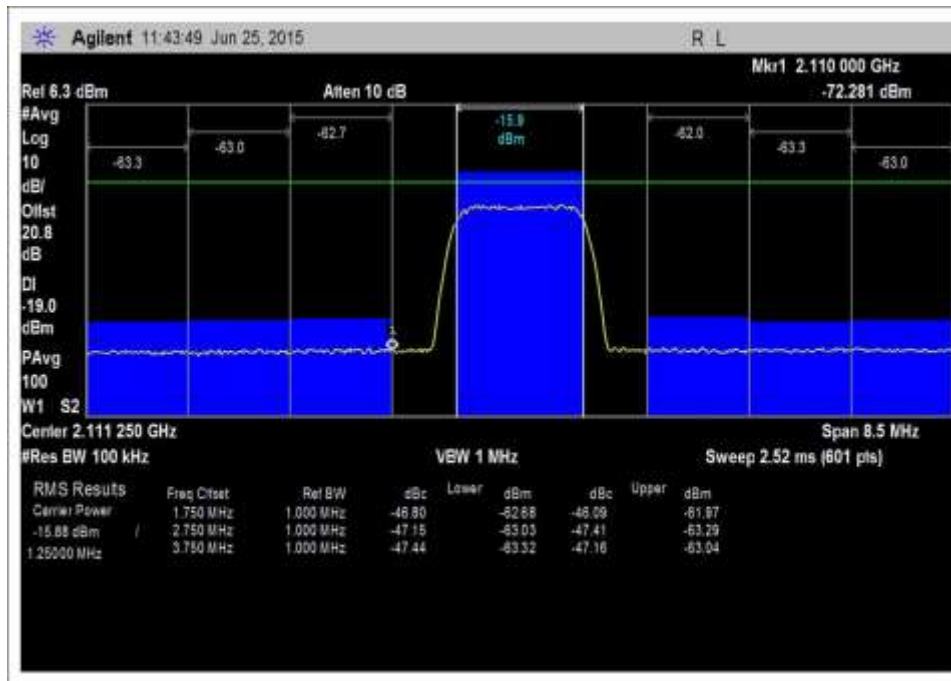
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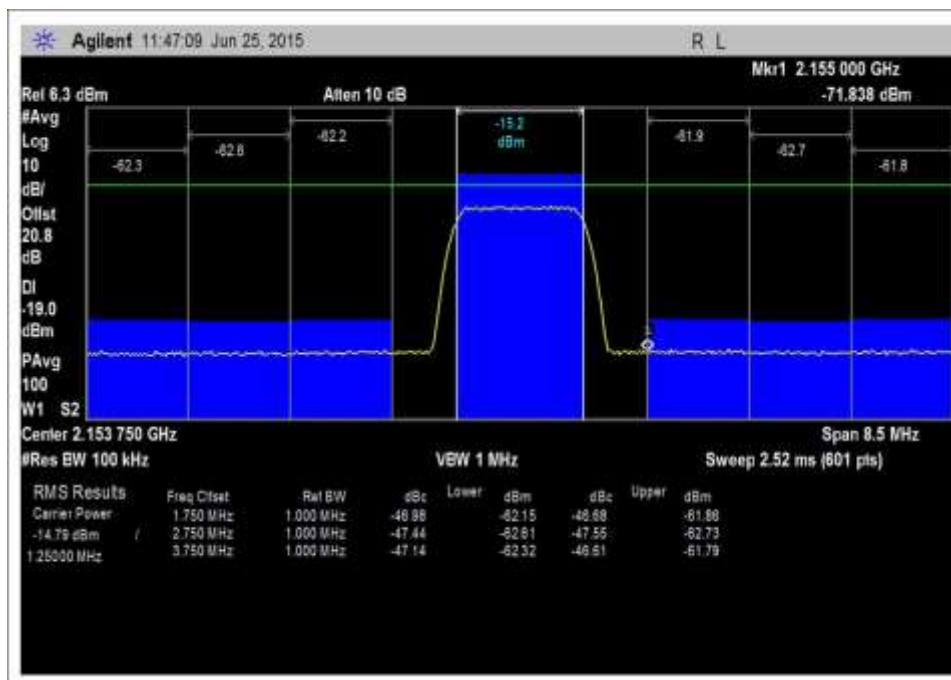
DL\_1930-1995MHz\_L\_Max



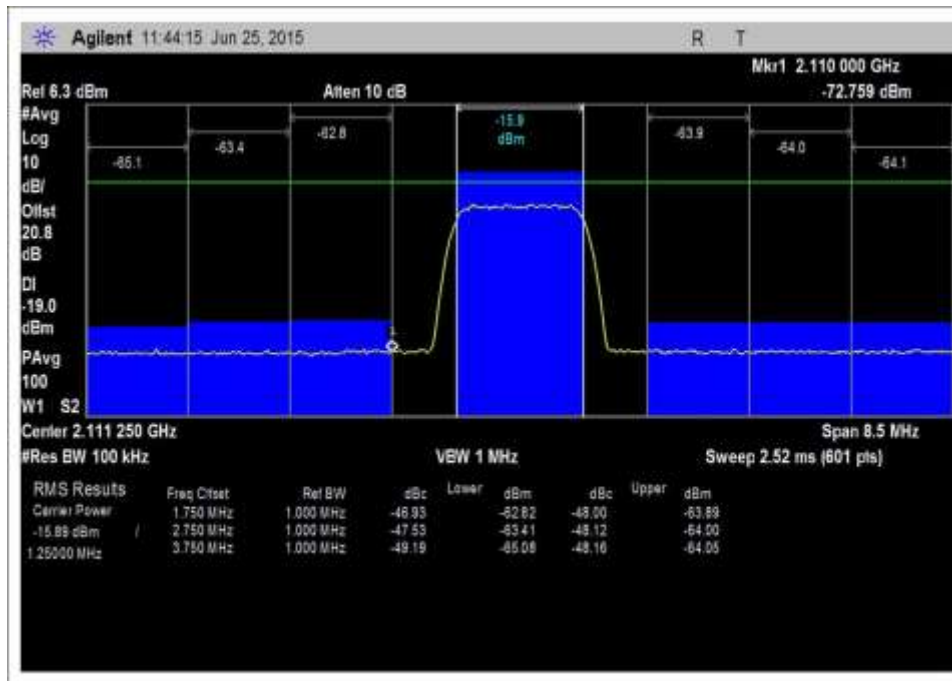
DL\_1930-1995MHz\_H\_Max



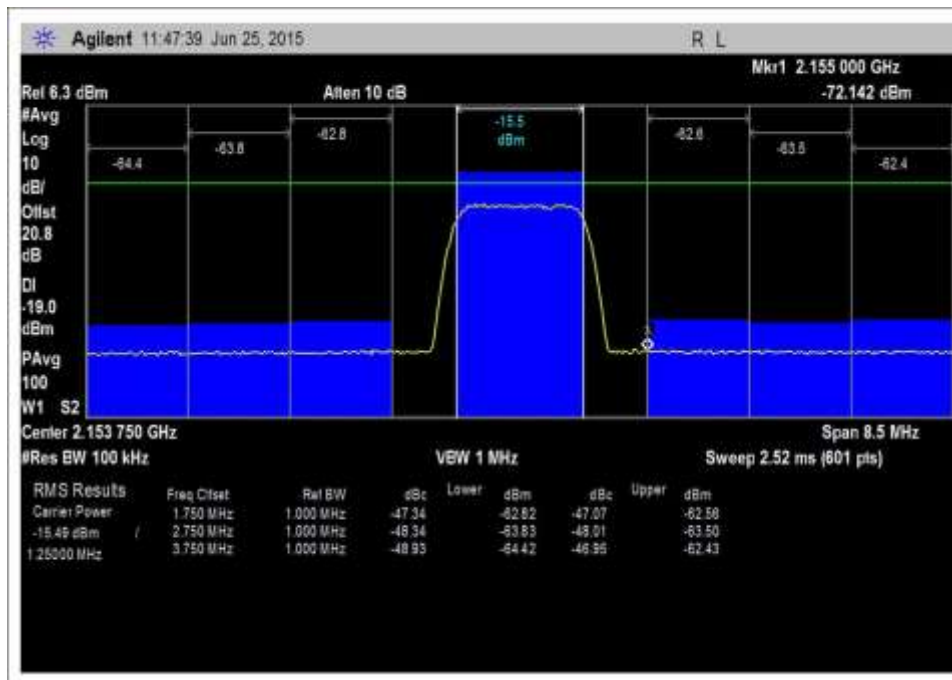
DL\_2110-2155MHz\_L\_PreAGC



DL\_2110-2155MHz\_H\_PreAGC

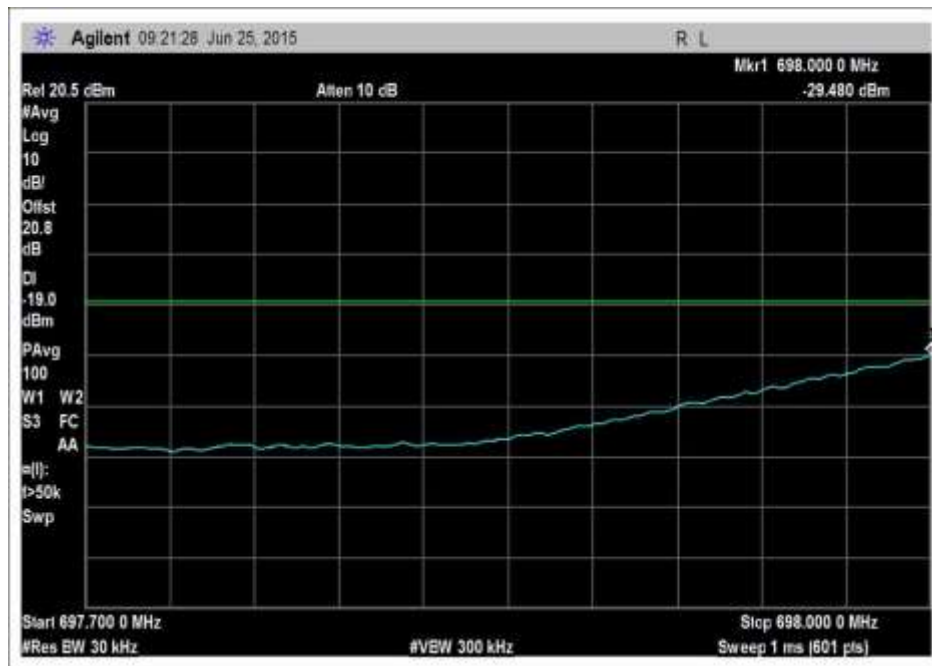


DL\_2110-2155MHz\_L\_Max

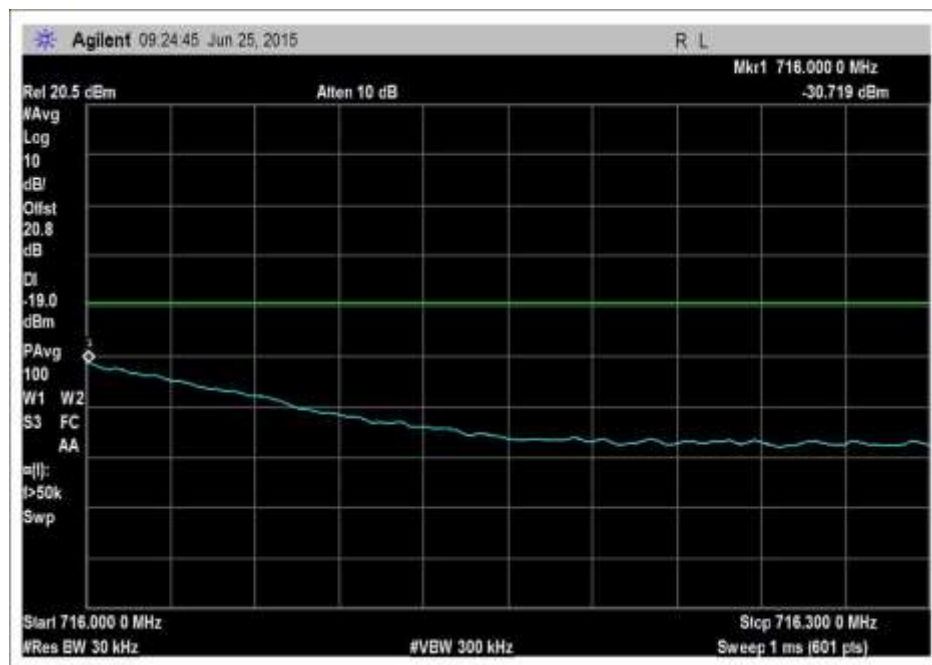


DL\_2110-2155MHz\_H\_Max

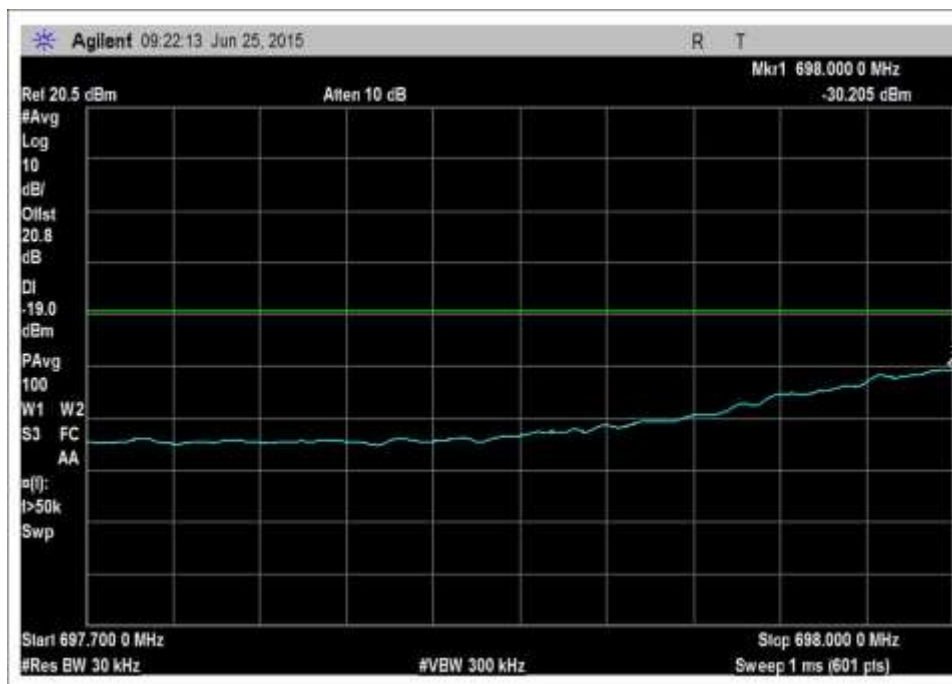
## UL-LTE



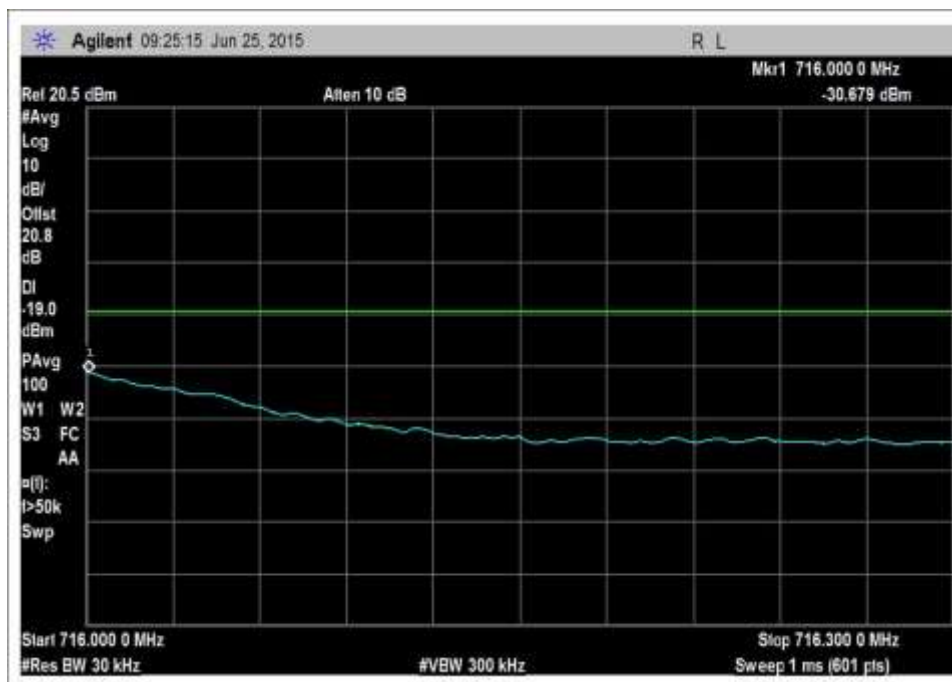
UL\_698-716MHz\_L\_PreAGC



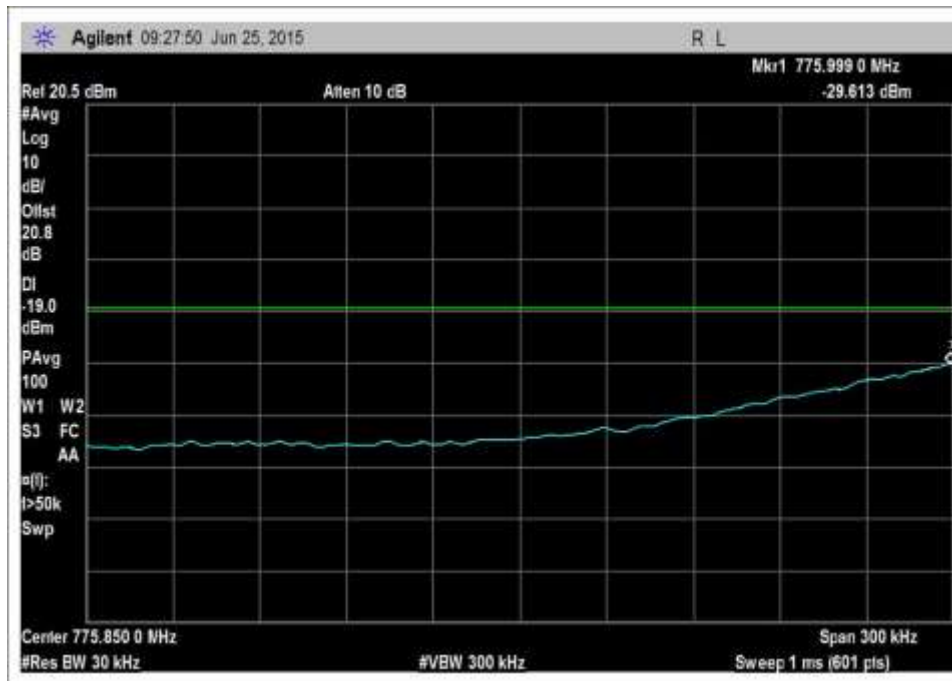
UL\_698\_H\_PreAGC



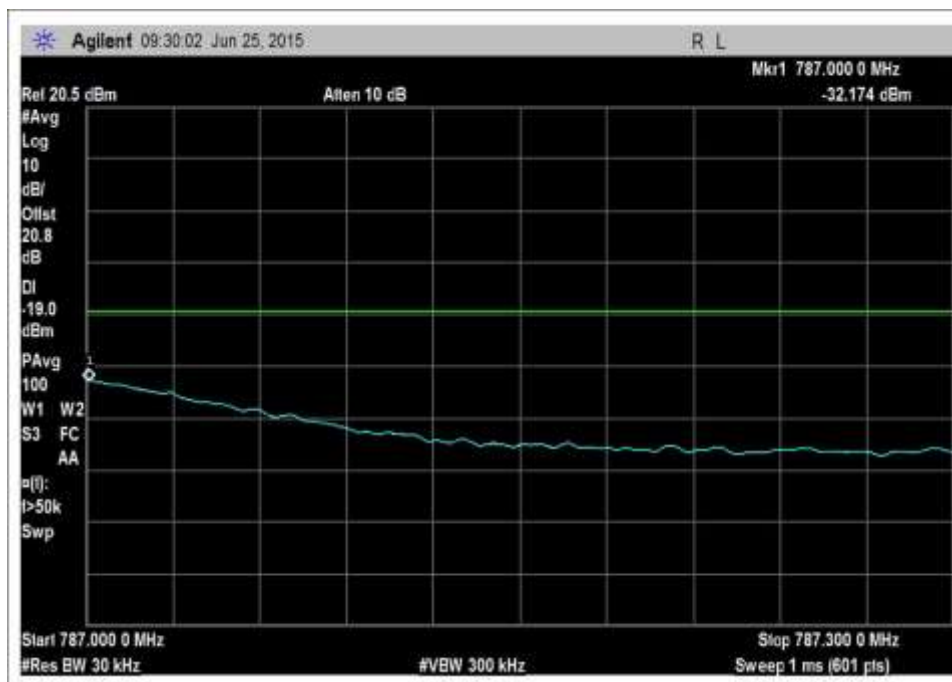
UL\_698-716MHz\_L\_Max



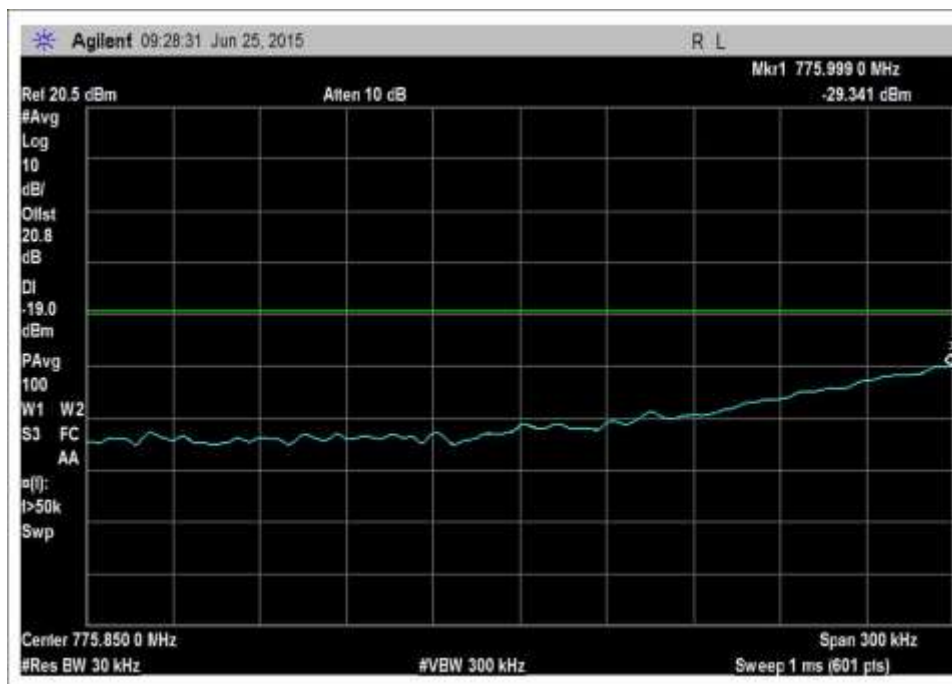
UL\_698-716MHz\_H\_Max



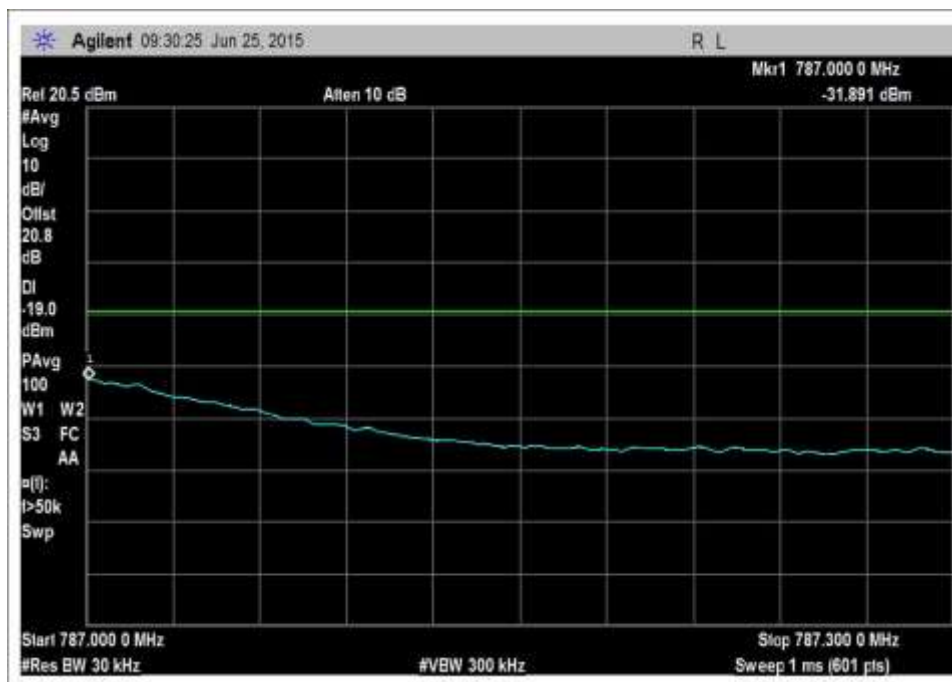
UL\_776-787MHz\_L\_PreAGC



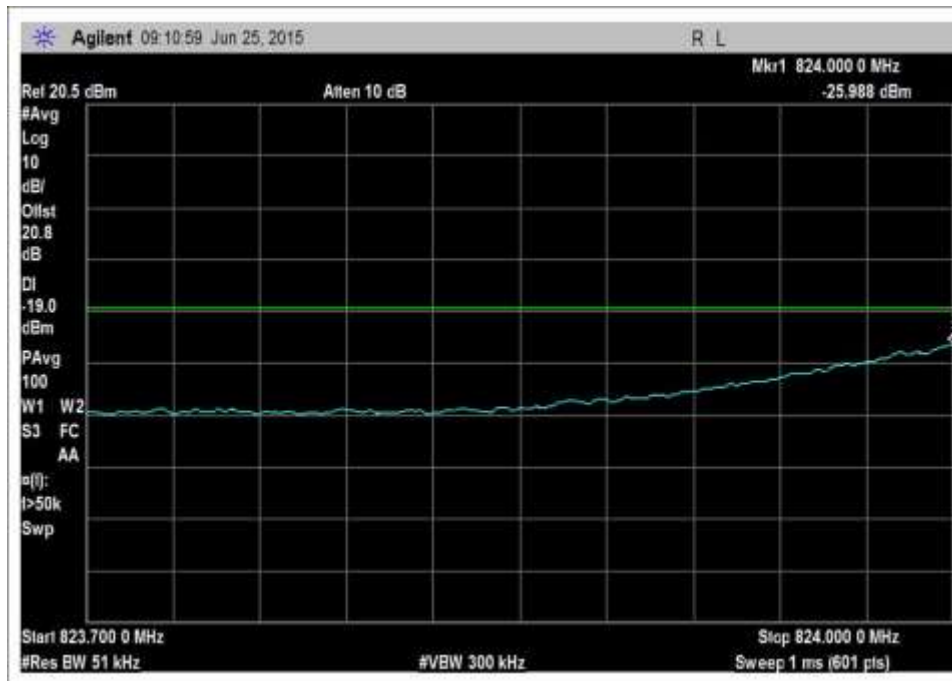
UL\_776-787MHz\_H\_PreAGC



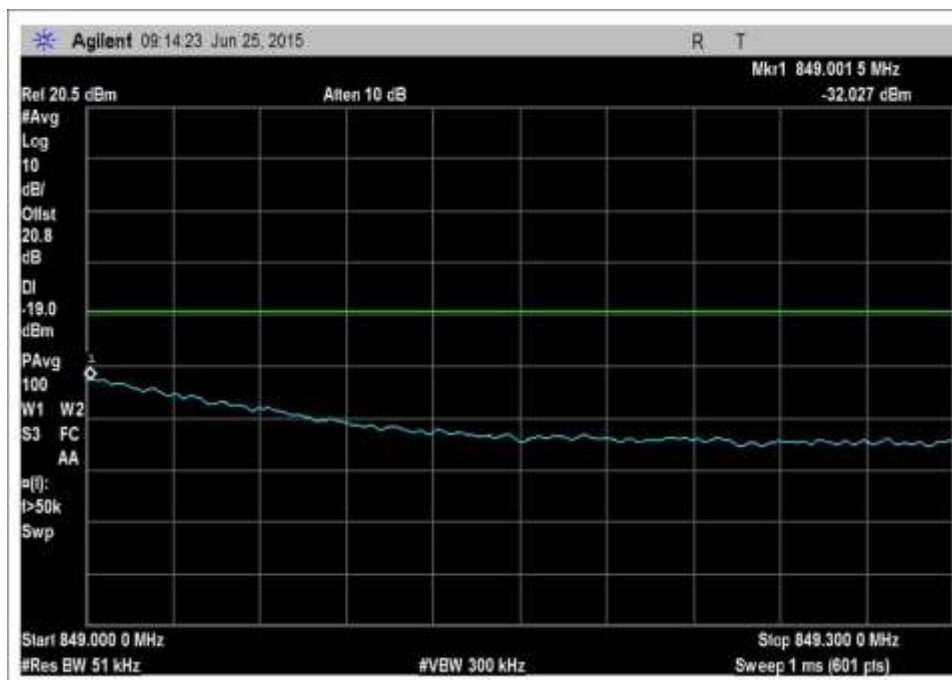
UL\_776-787MHz\_L\_Max



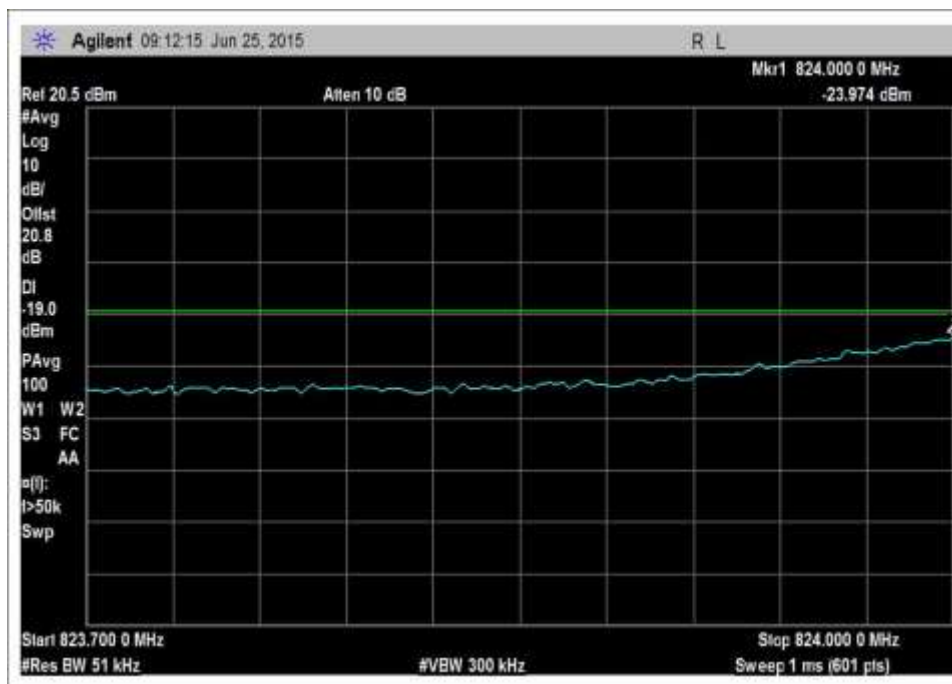
UL\_776-787MHz\_H\_Max



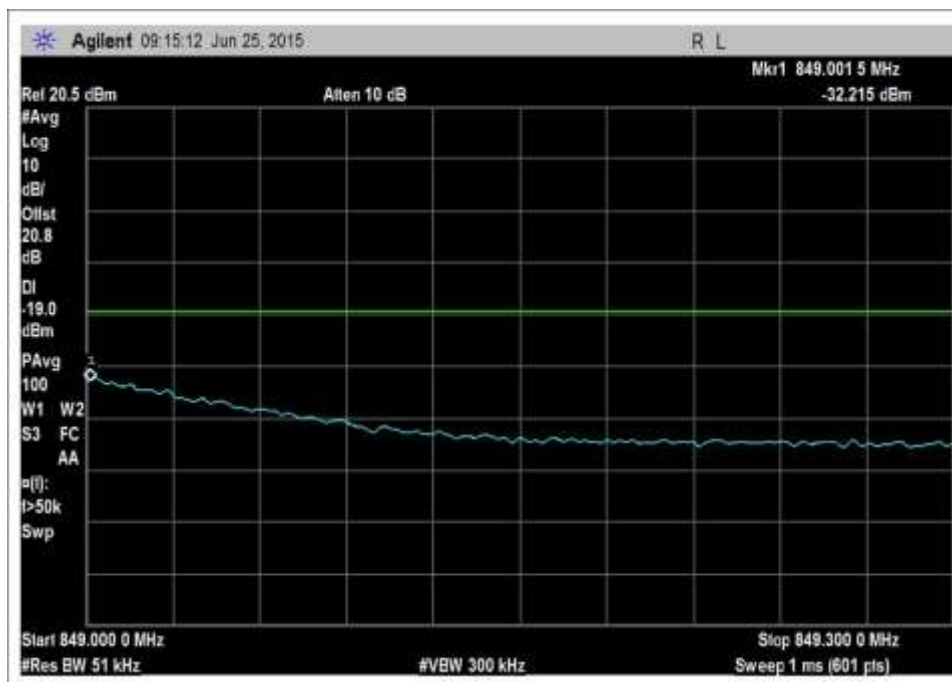
UL\_824-849MHz\_L\_PreAGC



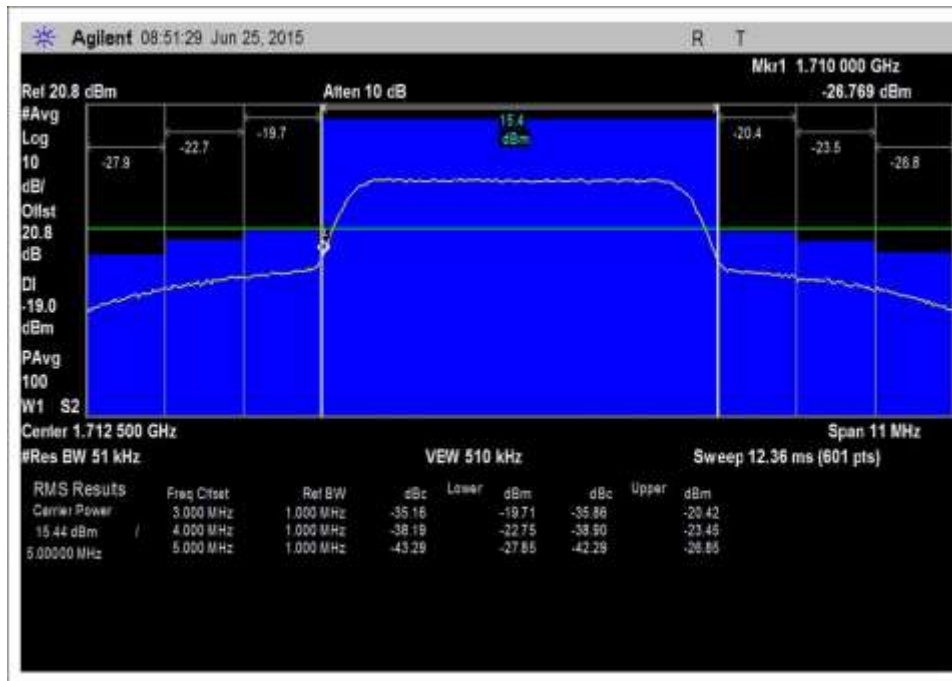
UL\_824-849MHz\_H\_PreAGC



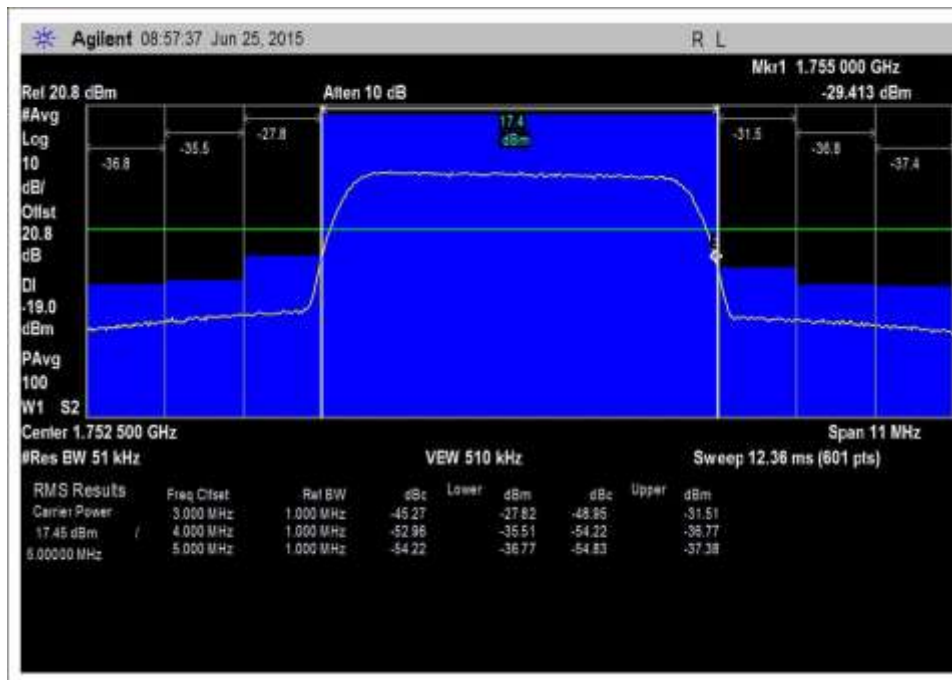
UL\_824-849MHz\_L\_Max



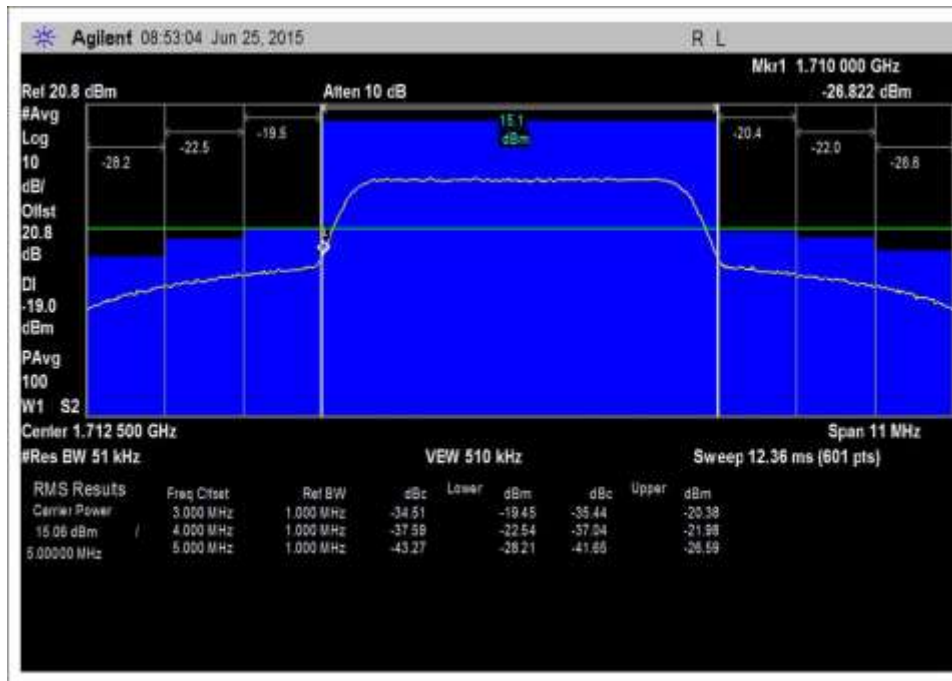
UL\_824-849MHz\_H\_Max



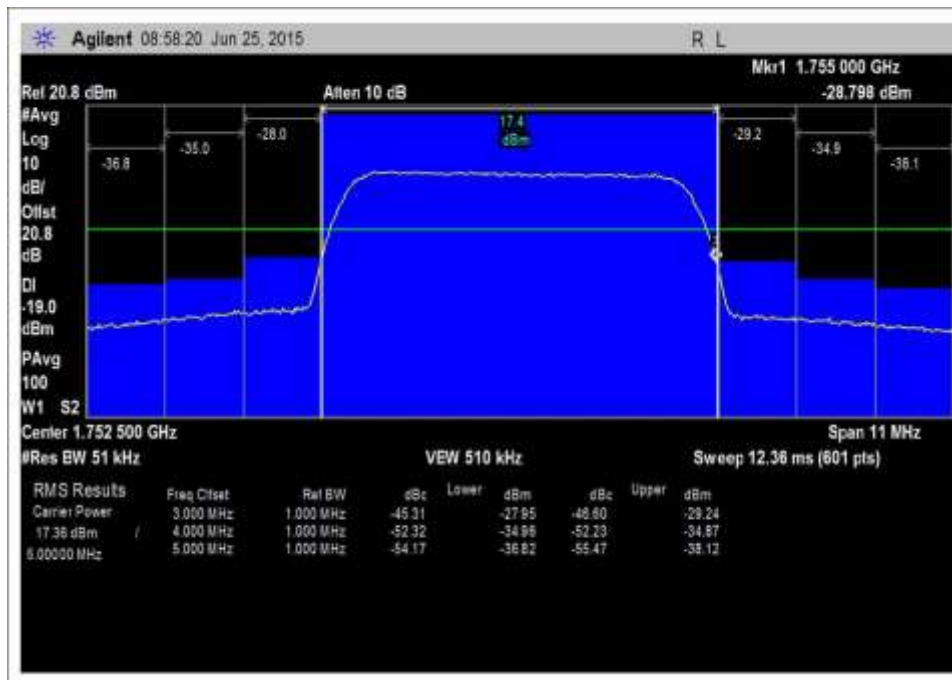
UL\_1710-1755MHz\_L\_PreAGC



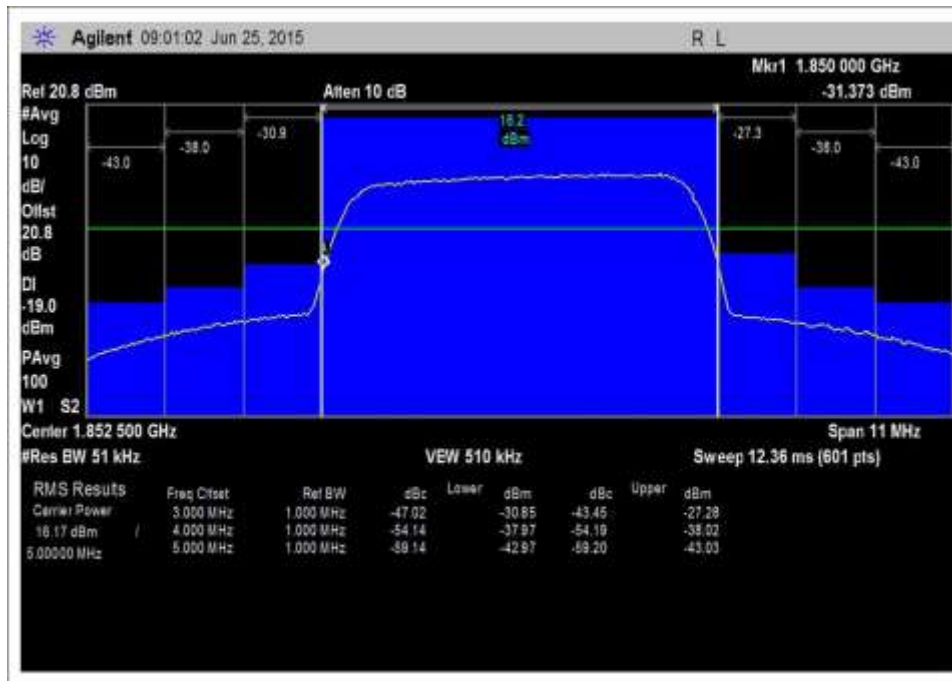
UL\_1710-1755MHz\_H\_PreAGC



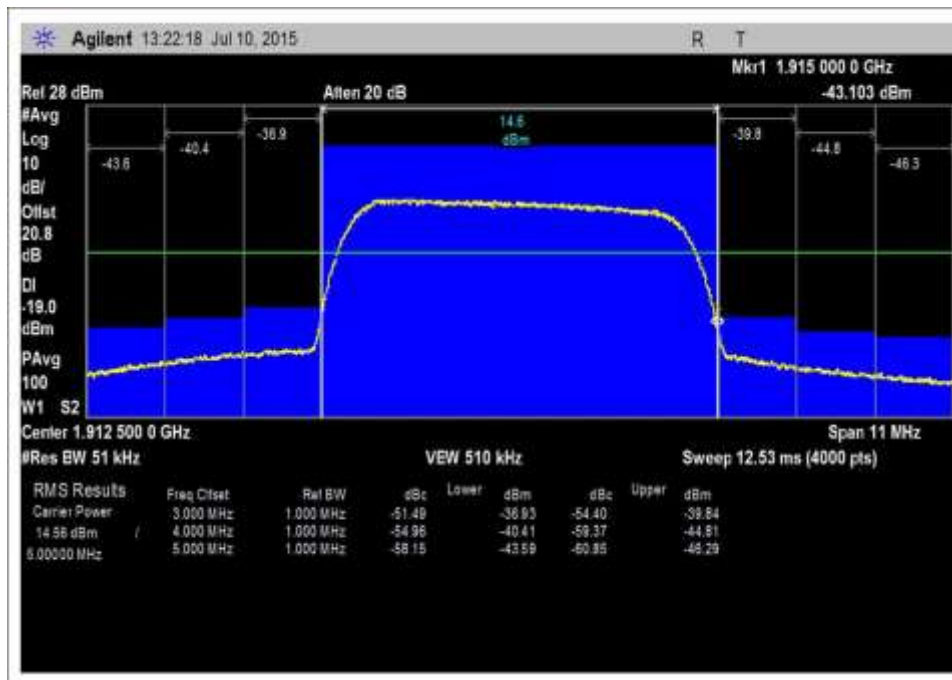
UL\_1710-1755MHz\_L\_Max



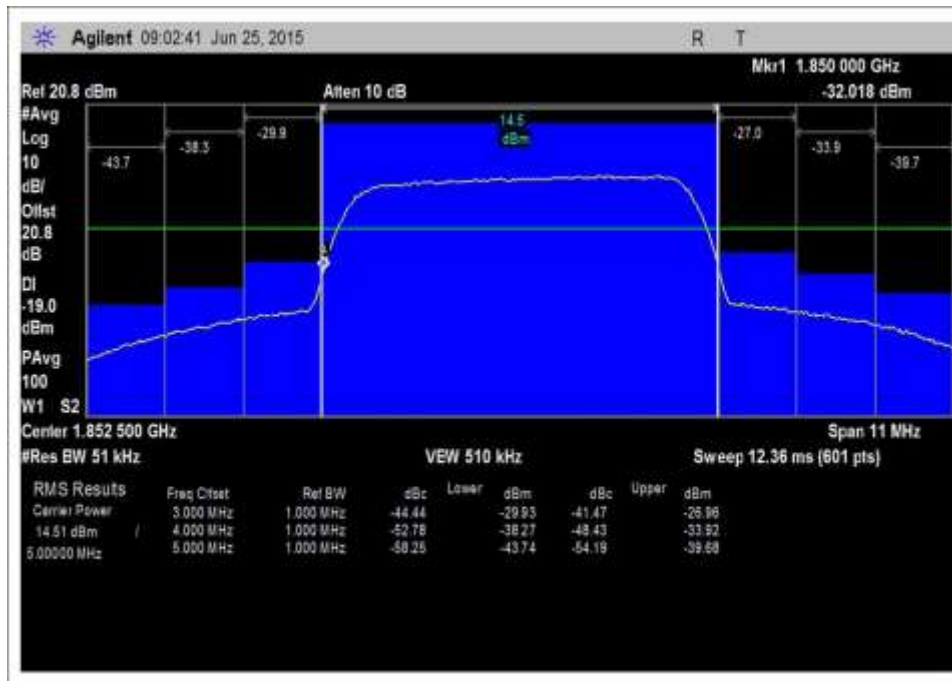
UL\_1710-1755MHz\_H\_Max



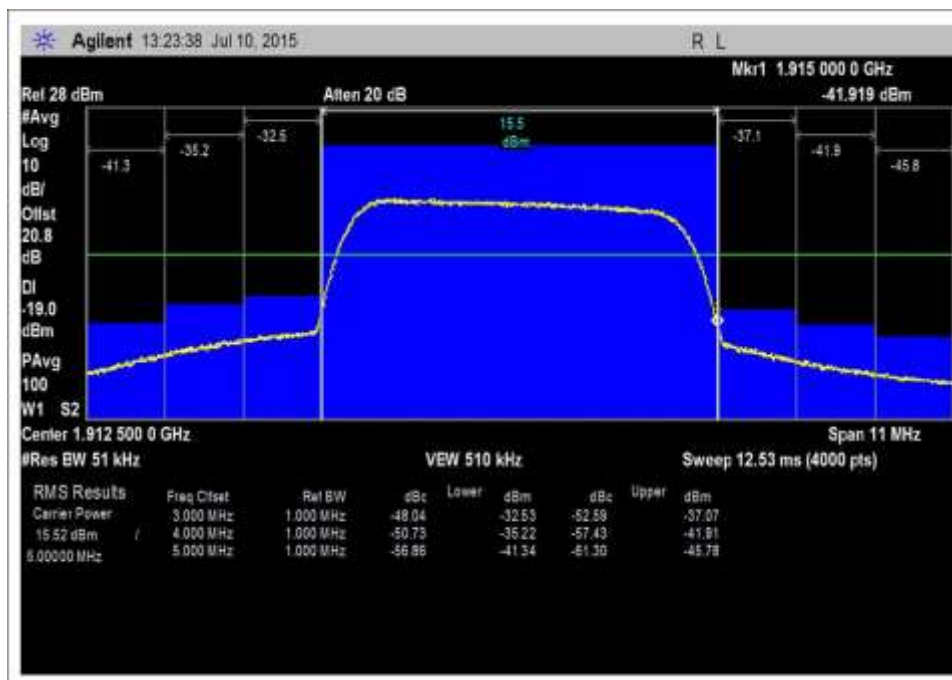
UL\_1850-1915MHz\_L\_PreAGC



UL\_1850-1915MHz\_H\_PreAGC

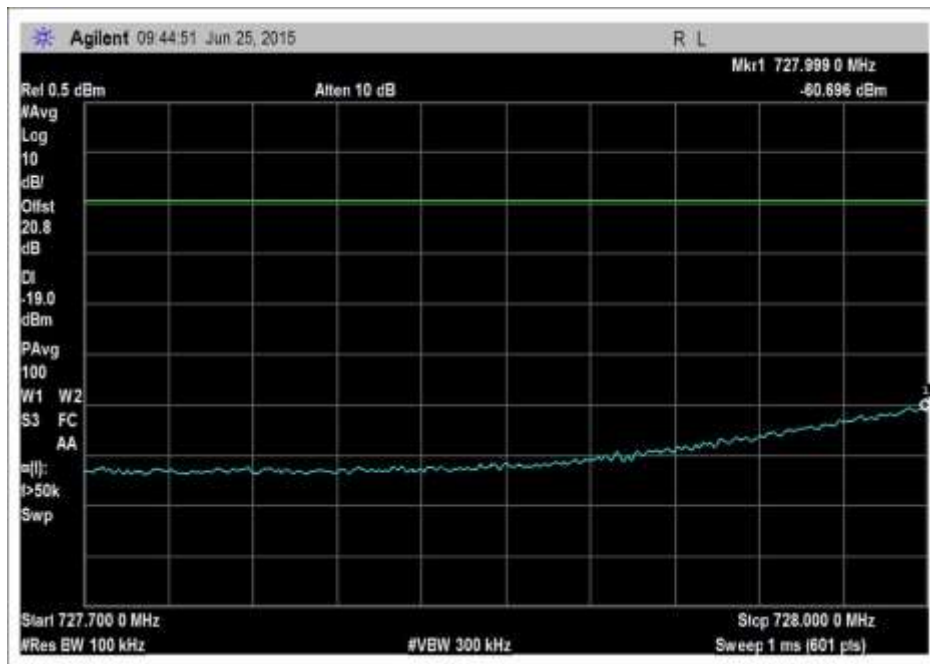


UL\_1850-1915MHz\_L\_Max

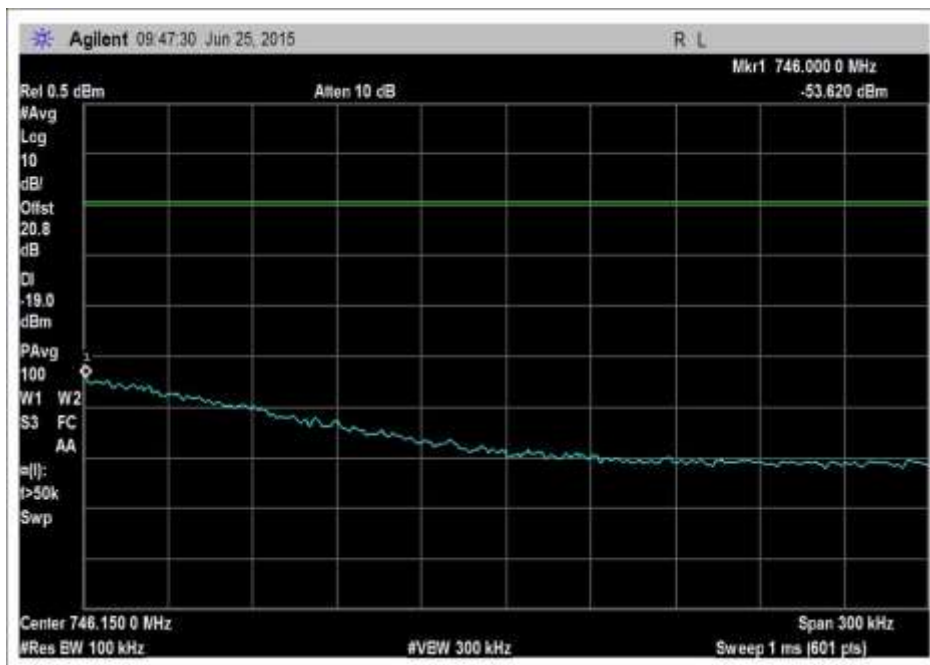


UL\_1850-1915MHz\_H\_Max

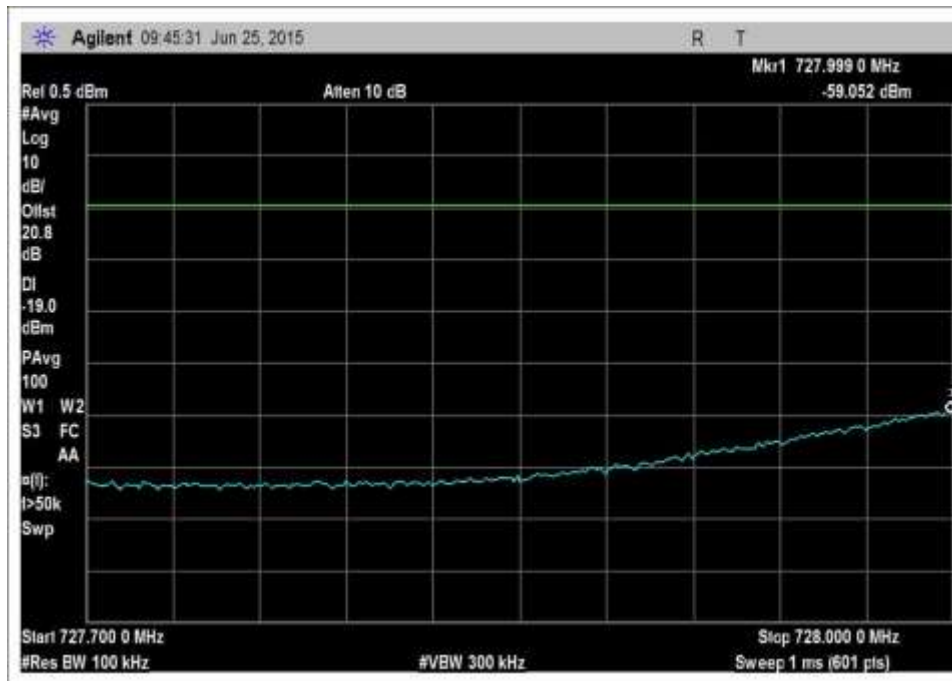
## DL-LTE



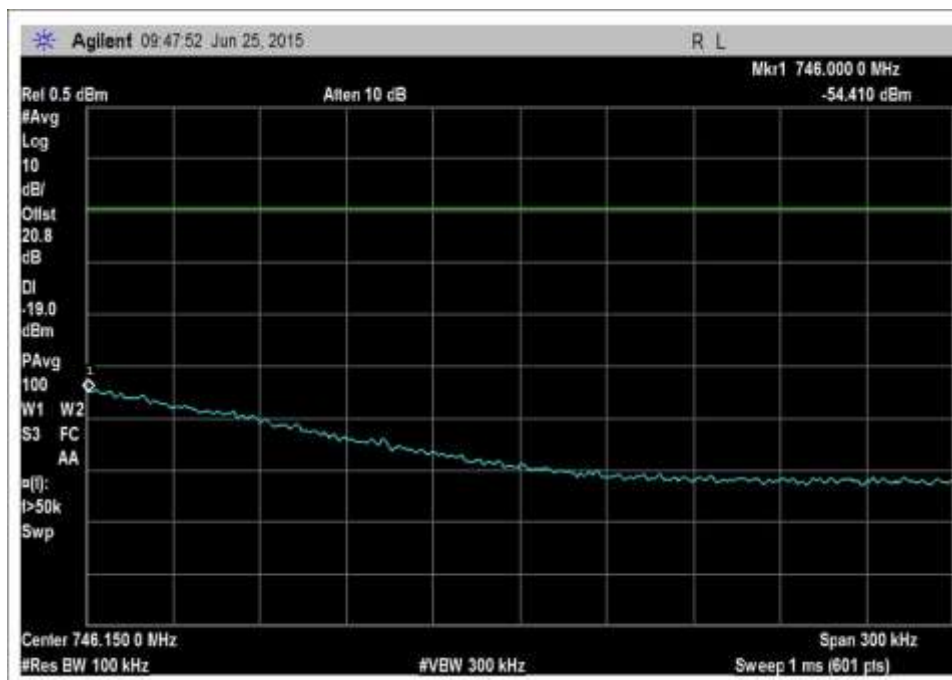
DL\_728-746MHz\_L\_PreAGC



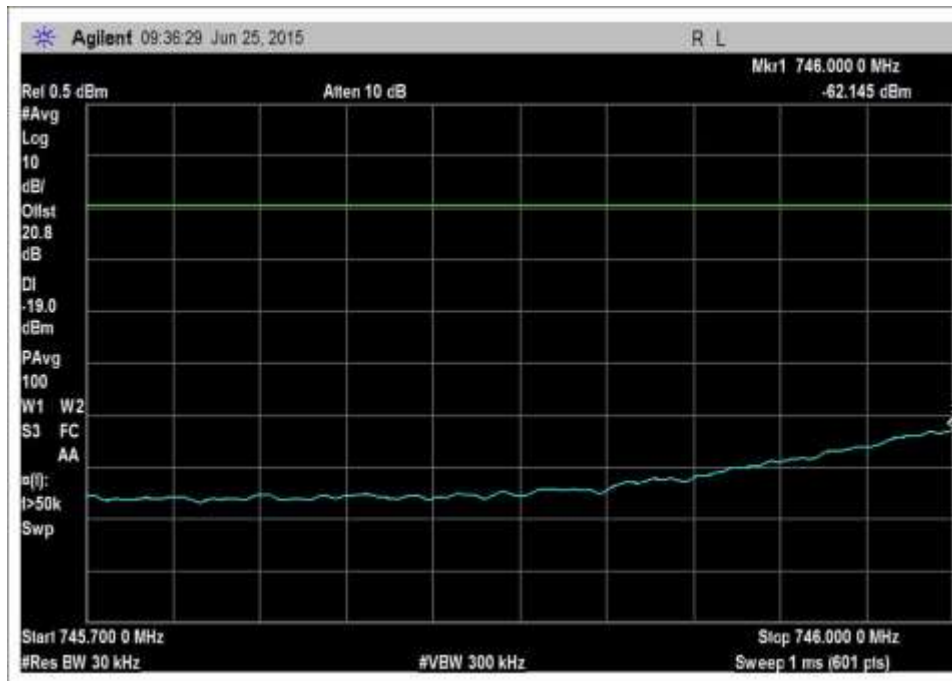
DL\_728-746MHz\_H\_PreAGC



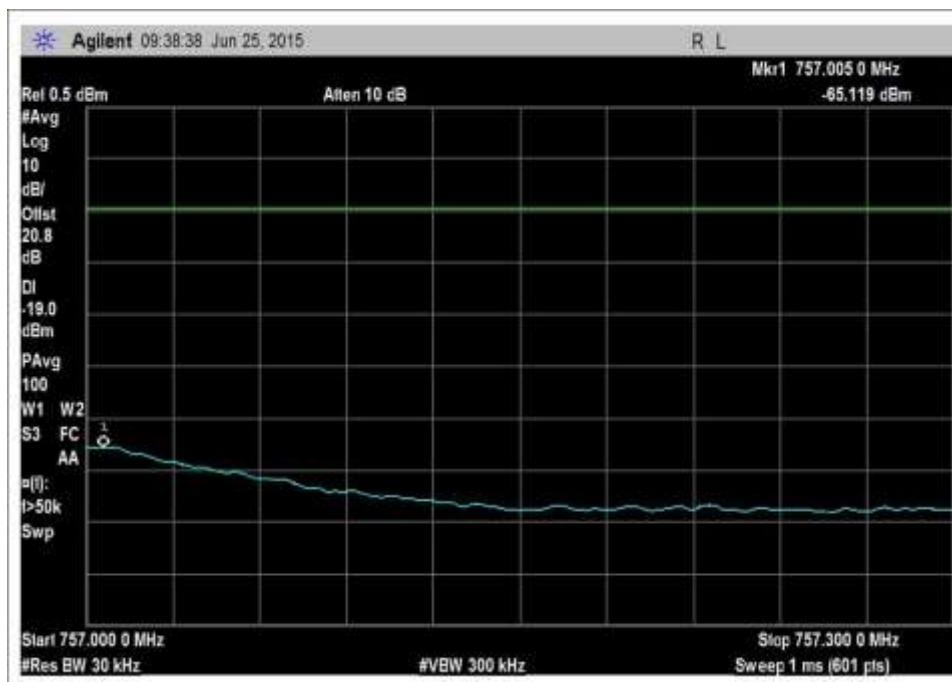
DL\_728-746MHz\_L\_Max



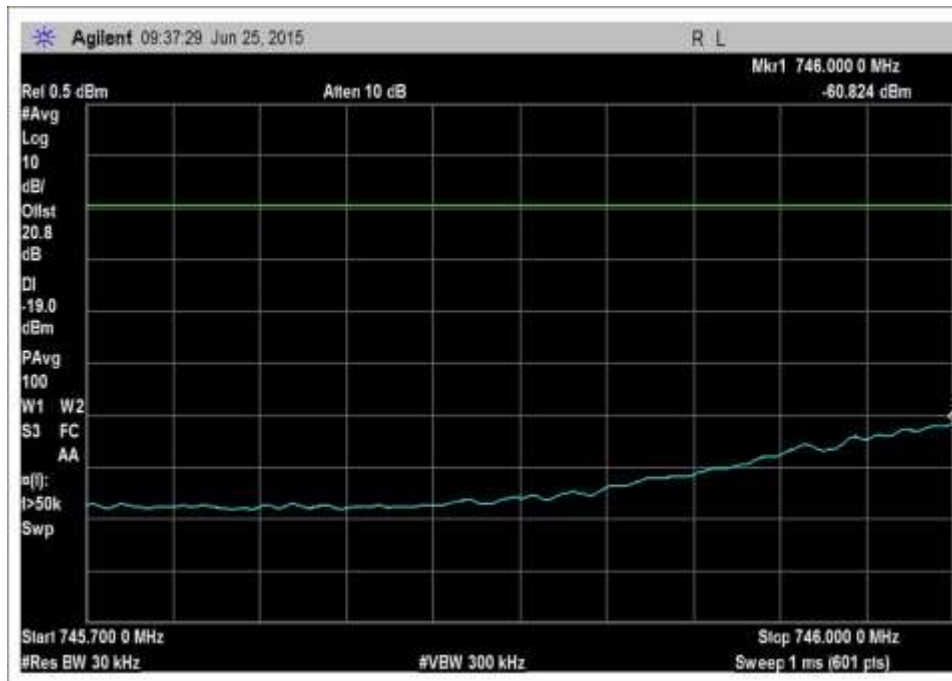
DL\_728-746MHz\_H\_Max



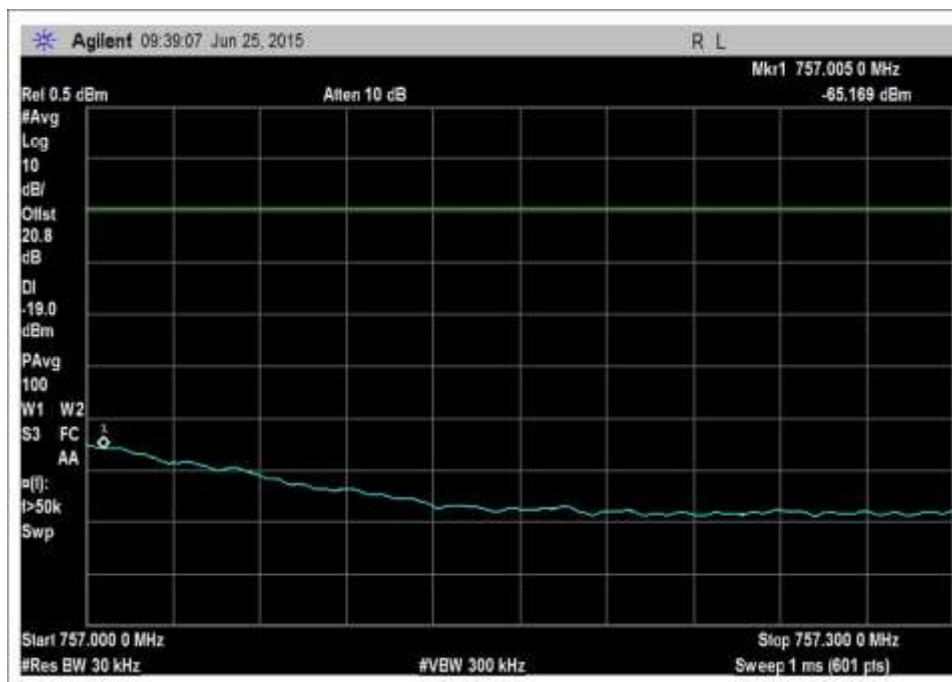
DL\_746-757MHz\_L\_PreAGC



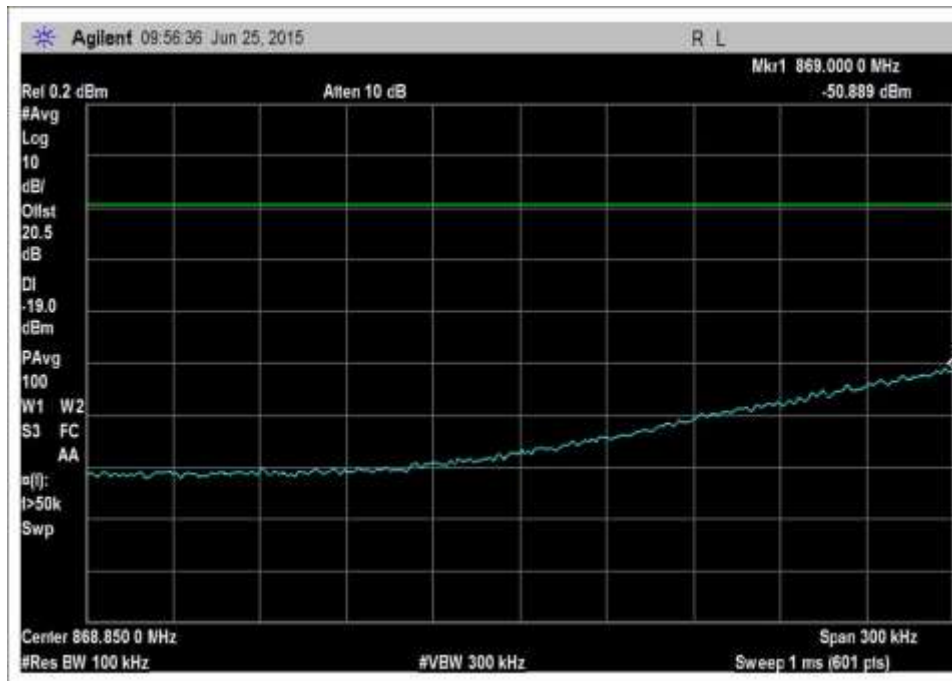
DL\_746-757MHz\_H\_PreAGC



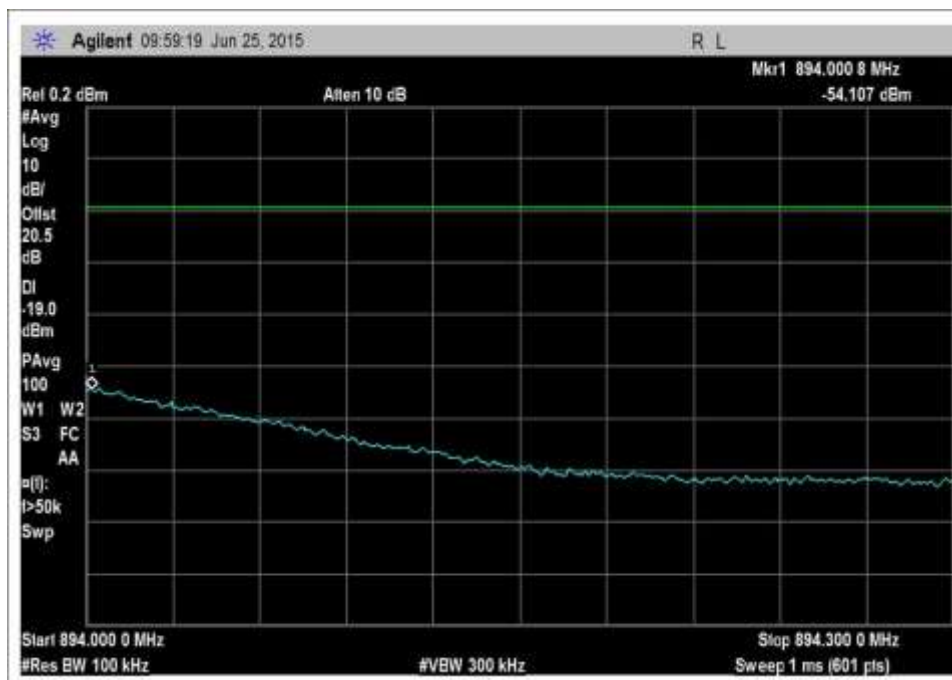
DL\_746-757MHz\_L\_Max



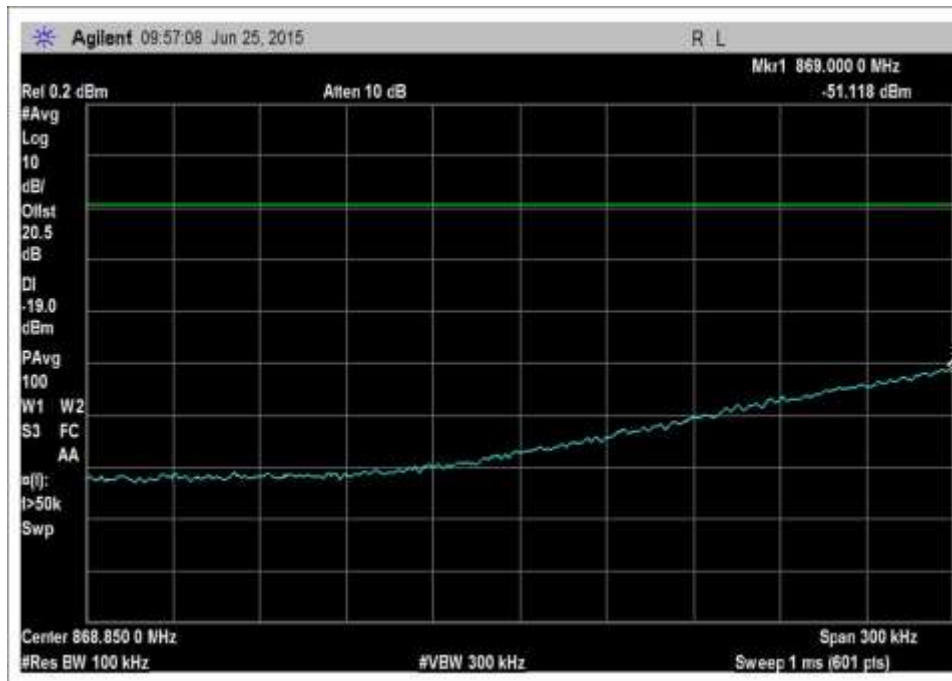
DL\_746-757MHz\_H\_Max



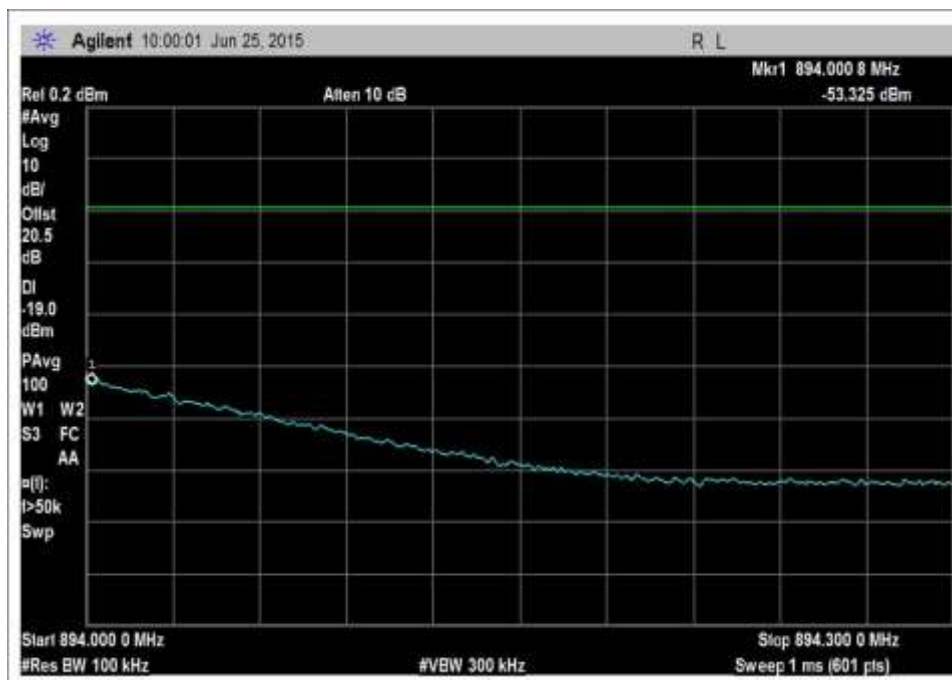
DL\_869-894MHz\_L\_PreAGC



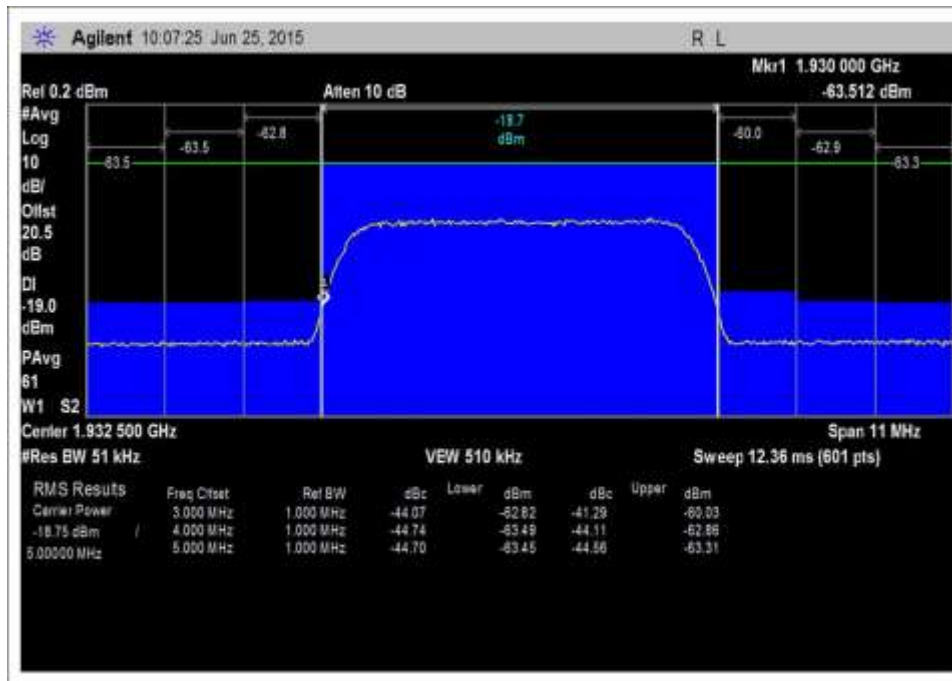
DL\_869-894MHz\_H\_PreAGC



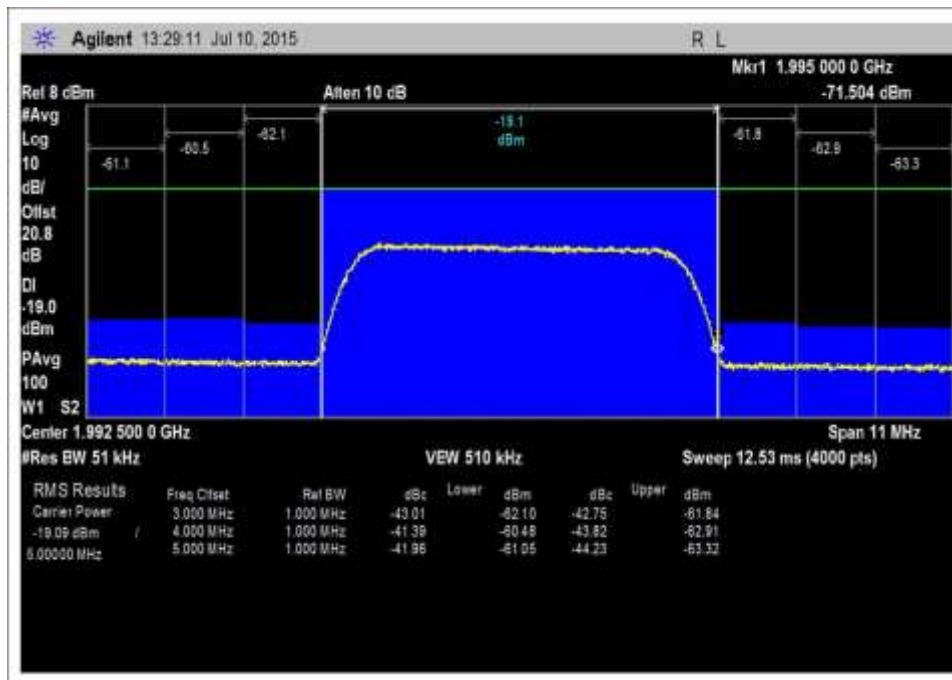
DL\_869-894MHz\_L\_Max



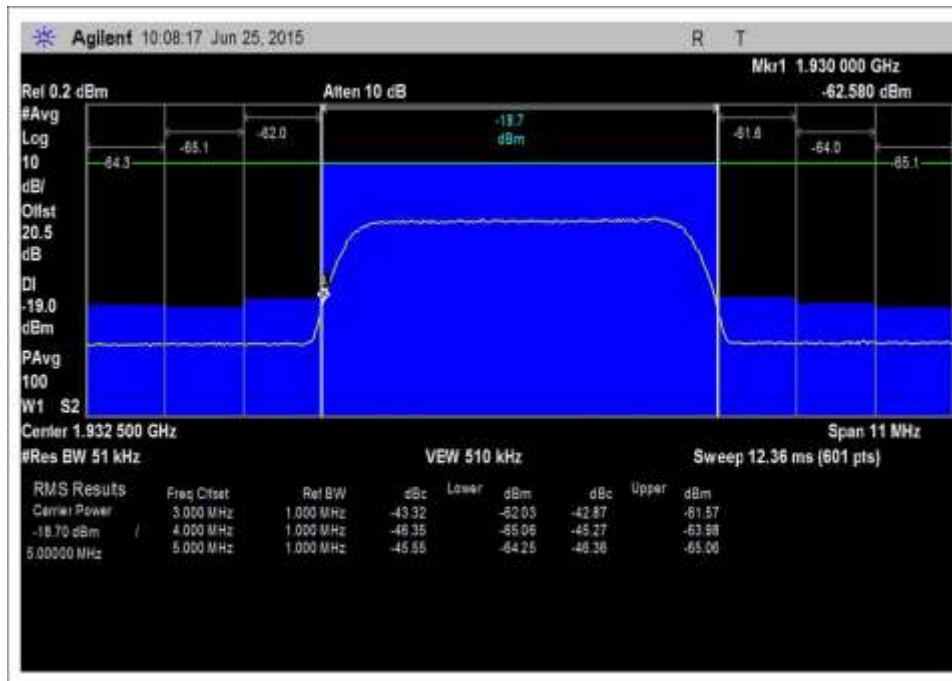
DL\_869-894MHz\_H\_Max



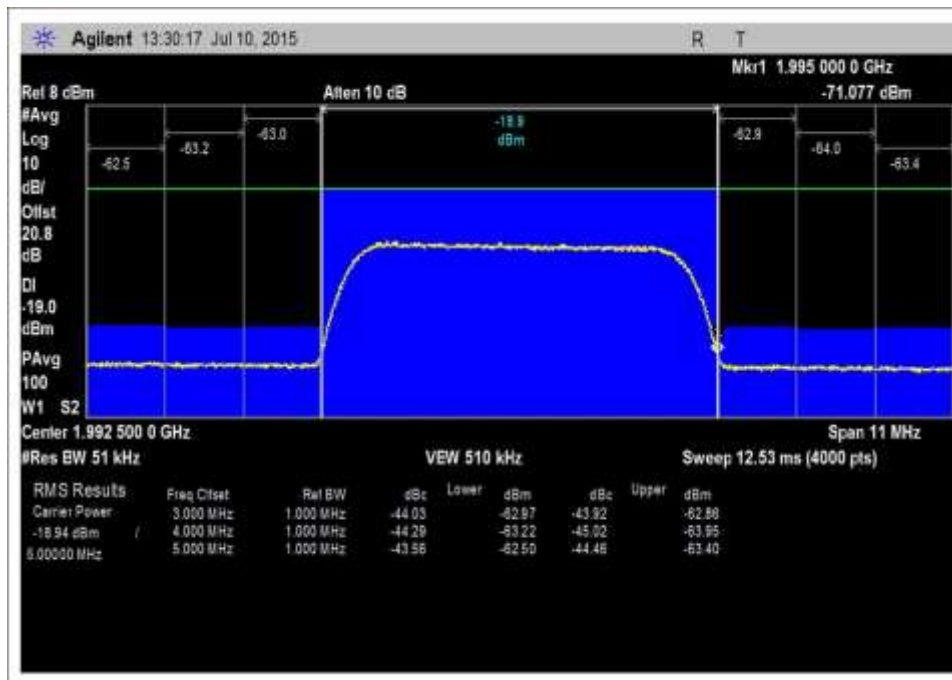
DL\_1930-1995MHz\_L\_PreAGC



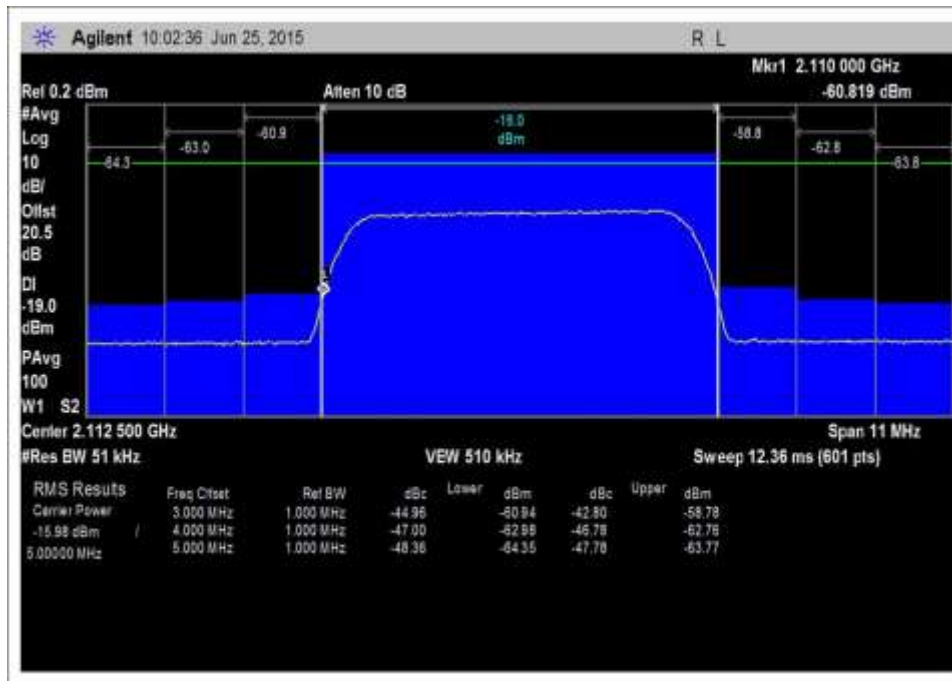
DL\_1930-1995MHz\_L\_PreAGC



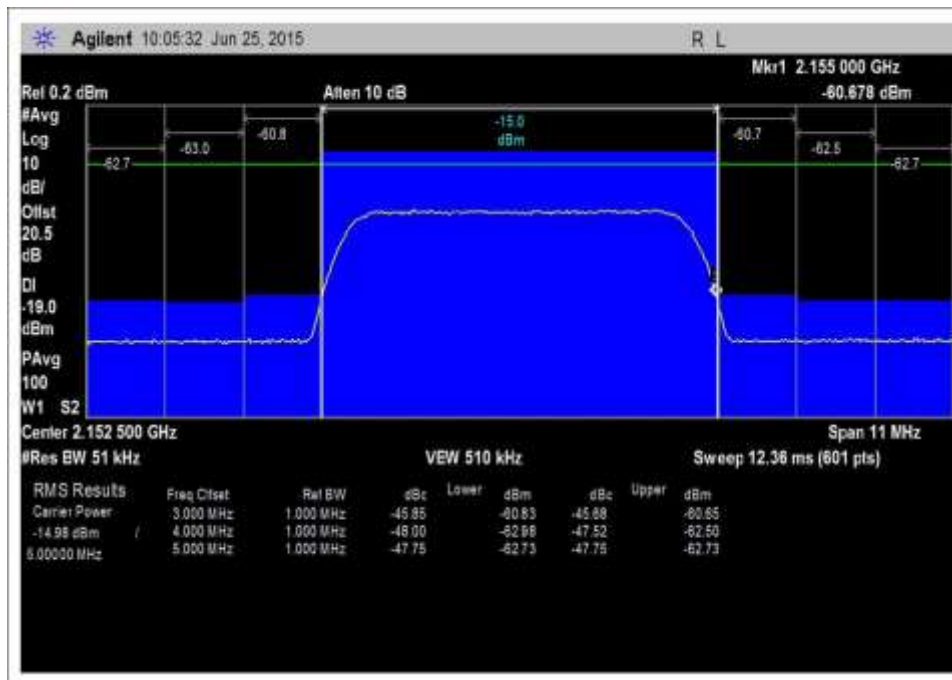
DL\_1930-1995MHz\_L\_Max



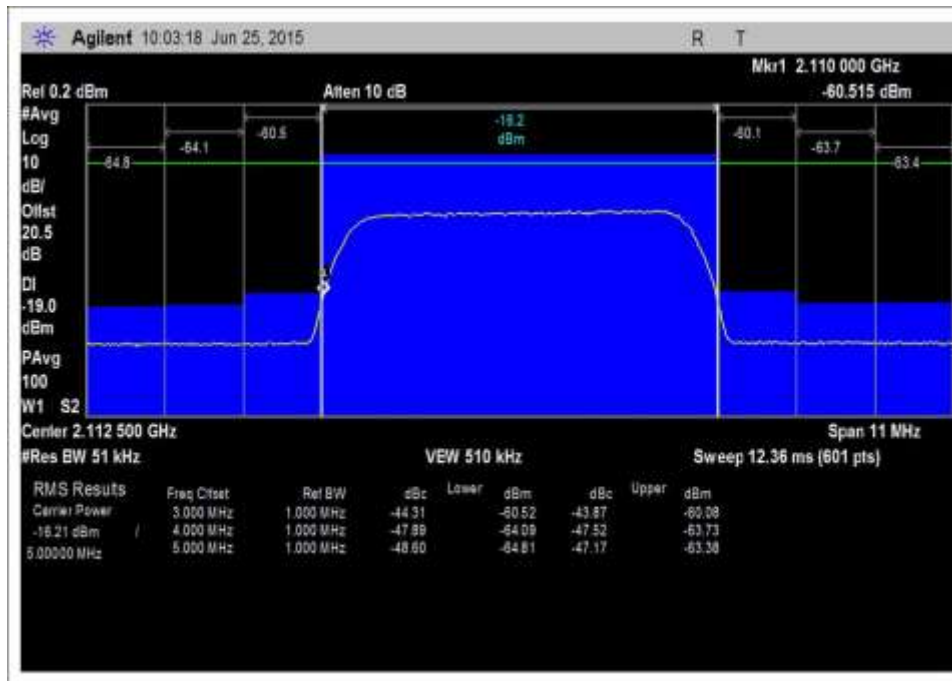
DL\_1930-1995MHz\_H\_Max



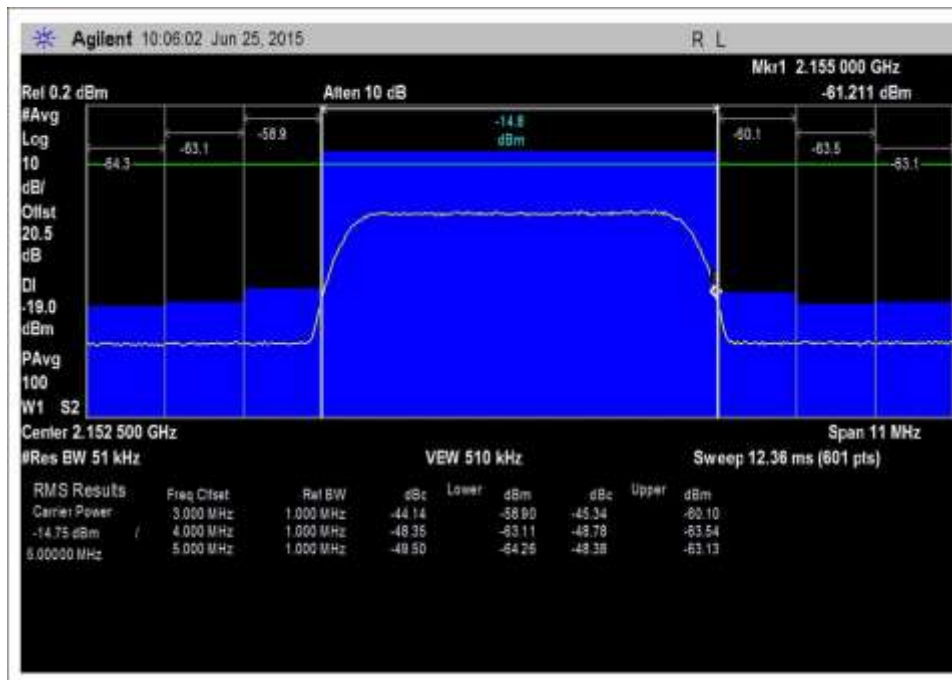
DL\_2110-2155MHz\_L\_PreAGC



DL\_2110-2155MHz\_H\_PreAGC



DL\_2110-2155MHz\_L\_Max



DL\_2110-2155MHz\_H\_Max

## Clause 7.7 Noise limit

### Test Equipment

| Asset #  | Description       | Model                    | Manufacturer           | Cal Date   | Cal Due    |
|----------|-------------------|--------------------------|------------------------|------------|------------|
| ANP06709 | Cable             | 32026-29094K-29094K-72TC | AstroLab               | 09/18/2014 | 09/18/2016 |
| ANP06710 | Cable             | 32026-29094K-29094K-72TC | AstroLab               | 09/18/2014 | 09/18/2016 |
| C00082   | RF Coupler        | 722-10-1.500V            | MECA Electronics, Inc. | 08/21/2013 | 08/21/2015 |
| AN02869  | Spectrum Analyzer | E4440A                   | Agilent                | 07/10/2014 | 07/10/2015 |

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.7 Noise Limit (Maximum Transmitter Noise Power Level / Variable UL Noise Timing)**  
 Work Order #: **97222** Date: 6/25/2015  
 Test Type: **Conducted Emissions** Time: 13:53:01  
 Tested By: Daniel Bertran Sequence#: 1  
 Software: EMITest 5.02.00

#### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

#### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 1 |              |         |     |

***Test Conditions / Notes:***

Configuration 1

The equipment under test (EUT) is a Mobile Wideband Consumer Booster.

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

**7.7.1 Maximum Transmitter Noise Power Level**

Per figure 3, input port was terminated with 50 Ohm Weinschel load (MN:1424-4 and SN:21874).

**7.7.2 Variable UL Noise Timing**

Per figure 4, server port was terminated with 50 Ohm Weinschel load (MN:1424-4 and SN:21874).

Part 22

UL: 824-849MHz

DL: 869-894MHz

Part 24

UL: 1850-1915MHz

DL: 1930-1995MHz

Part 27

UL: 1710-1755MHz, 698-716MHz, 776-787MHz

DL: 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max gain.

Test environment conditions: Temperature: 20.8°C, Relative Humidity: 42%, Atmospheric Pressure: 101.5kPa

Test procedure: The test was performed in accordance with section 7.7 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v03 Dated June 5, 2015.

Firmware: V1.0

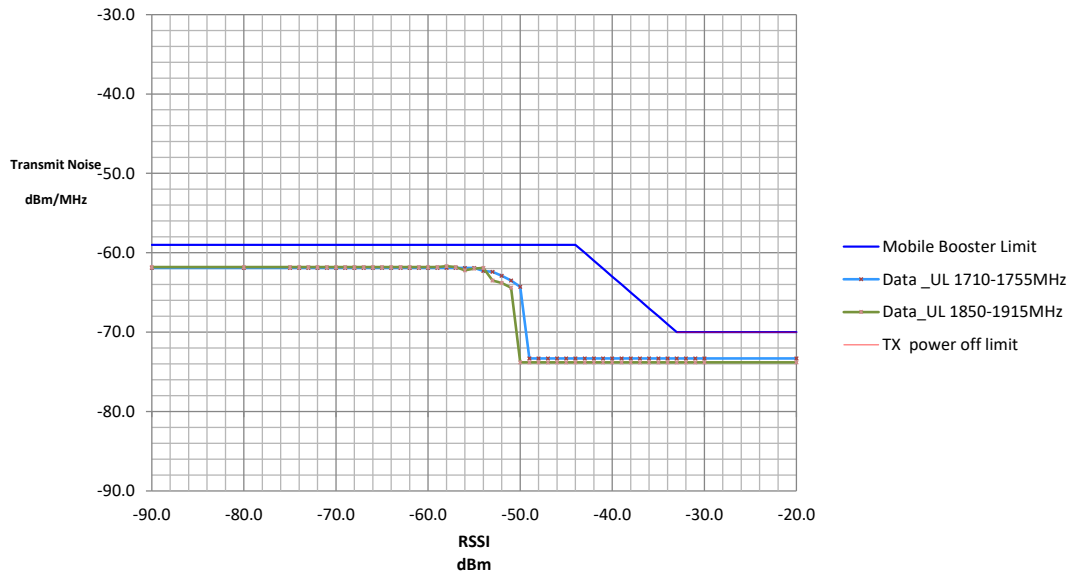
## Summary of Results

### 7.7.1 Maximum transmitter noise power level

- 7.7.1 a-g: Maximum transmitter noise with 50-ohm shielded load.
- 7.7.1 h-n: Maximum transmitter noise when varying the DL signal generator output level with a 4.1MHz AWGN signal.

| Maximum Noise Power |          |         |        |
|---------------------|----------|---------|--------|
| Freq                | Measured | Limit   | Margin |
| MHz                 | dBm./MHz | dBm/MHz |        |
| UL1710-1755         | -62.5    | -59     | -3.5   |
| UL1850-1915         | -61.9    | -59     | -2.9   |
| UL824-894           | -59.3    | -59     | -0.3   |
| UL 698-716          | -59.8    | -59     | -0.8   |
| UL776-787           | -60.9    | -59     | -1.9   |
|                     |          |         |        |
| DL2110-2155         | -64.6    | -59     | -5.6   |
| DL1930-1995         | -65.7    | -59     | -6.7   |
| DL869-894           | -62.4    | -59     | -3.4   |
| DL:728-746          | -61.8    | -59     | -2.8   |
| DL 746-757          | -62.0    | -59     | -3.0   |

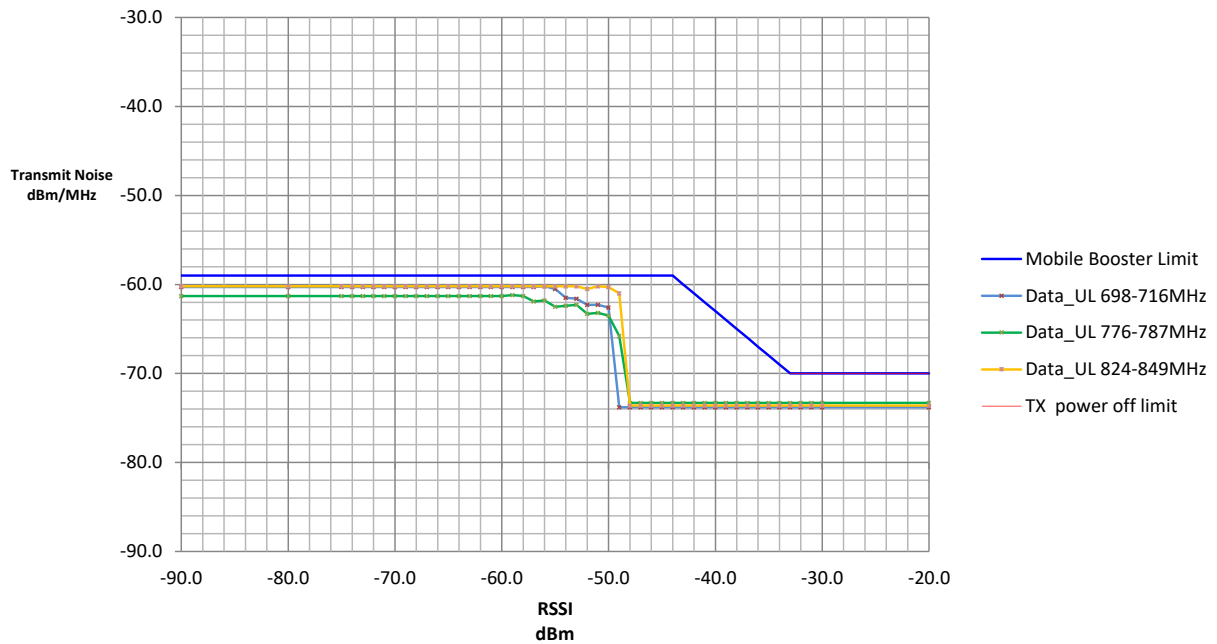
### 7.7 Booster UL Noise Limit



| 1710.0        | 1755.0                         | MHz               |                            |        |        |
|---------------|--------------------------------|-------------------|----------------------------|--------|--------|
|               |                                | Limit             |                            |        | Margin |
| RSSI<br>(dBm) | Measured<br>Noise<br>(dBm/MHz) | RSSI<br>Dependent | Mobile<br>Booster<br>Limit | TX off |        |
| -69.0         | -61.9                          |                   | -59.0                      |        | -2.9   |
| -59.0         | -61.9                          |                   | -59.0                      |        | -2.9   |
| -37.0         | -73.3                          | -66.0             |                            |        | -7.3   |
| -36.0         | -73.3                          | -67.0             |                            |        | -6.3   |
| -35.0         | -73.3                          | -68.0             |                            |        | -5.3   |
| -34.0         | -73.3                          | -69.0             |                            |        | -4.3   |
| -20.0         | -73.3                          |                   |                            | -70    | -3.3   |

| 1850.0        | 1915.0                         | MHz               |                            |        |        |
|---------------|--------------------------------|-------------------|----------------------------|--------|--------|
|               |                                | Limit             |                            |        | Margin |
| RSSI<br>(dBm) | Measured<br>Noise<br>(dBm/MHz) | RSSI<br>Dependent | Mobile<br>Booster<br>Limit | TX off |        |
| -69.0         | -61.8                          |                   | -59.0                      |        | -2.8   |
| -58.0         | -61.7                          |                   | -59.0                      |        | -2.7   |
| -37.0         | -73.8                          | -66.0             |                            |        | -7.8   |
| -36.0         | -73.8                          | -67.0             |                            |        | -6.8   |
| -35.0         | -73.8                          | -68.0             |                            |        | -5.8   |
| -34.0         | -73.8                          | -69.0             |                            |        | -4.8   |
| -20.0         | -73.8                          |                   |                            | -70    | -3.8   |

### 7.7 Booster UL Noise Limit



| 698.0 716.0 |                    | MHz       |                            |        |        |
|-------------|--------------------|-----------|----------------------------|--------|--------|
|             |                    |           | Limit                      |        | Margin |
| RSSI        | Measured           | RSSI      | Mobile<br>Booster<br>Limit | TX off |        |
| (dBm)       | Noise<br>(dBm/MHz) | Dependent |                            |        |        |
| -73.0       | -60.3              |           | -59.0                      |        | -1.3   |
| -64.0       | -60.3              |           | -59.0                      |        | -1.3   |
| -37.0       | -73.8              | -66.0     |                            |        | -7.8   |
| -36.0       | -73.8              | -67.0     |                            |        | -6.8   |
| -35.0       | -73.8              | -68.0     |                            |        | -5.8   |
| -34.0       | -73.8              | -69.0     |                            |        | -4.8   |
| -20.0       | -73.8              |           |                            | -70    | -3.8   |

| 776.0         | 787.0                          | MHz               |                            |        |        |
|---------------|--------------------------------|-------------------|----------------------------|--------|--------|
|               |                                | Limit             |                            |        | Margin |
| RSSI<br>(dBm) | Measured<br>Noise<br>(dBm/MHz) | RSSI<br>Dependent | Mobile<br>Booster<br>Limit | TX off |        |
| -69.0         | -61.3                          |                   | -59.0                      |        | -2.3   |
| -62.0         | -61.3                          |                   | -59.0                      |        | -2.3   |
| -37.0         | -73.3                          | -66.0             |                            |        | -7.3   |
| -36.0         | -73.3                          | -67.0             |                            |        | -6.3   |
| -35.0         | -73.3                          | -68.0             |                            |        | -5.3   |
| -34.0         | -73.3                          | -69.0             |                            |        | -4.3   |
| -20.0         | -73.3                          |                   |                            | -70    | -3.3   |

| 824.0         | 849.0                          | MHz               |                            |        |        |
|---------------|--------------------------------|-------------------|----------------------------|--------|--------|
|               |                                | Limit             |                            |        | Margin |
| RSSI<br>(dBm) | Measured<br>Noise<br>(dBm/MHz) | RSSI<br>Dependent | Mobile<br>Booster<br>Limit | TX off |        |
| -72.0         | -60.2                          |                   | -59.0                      |        | -1.2   |
| -62.0         | -60.2                          |                   | -59.0                      |        | -1.2   |
| -37.0         | -73.6                          | -66.0             |                            |        | -7.6   |
| -36.0         | -73.6                          | -67.0             |                            |        | -6.6   |
| -35.0         | -73.6                          | -68.0             |                            |        | -5.6   |
| -34.0         | -73.6                          | -69.0             |                            |        | -4.6   |
| -20.0         | -73.6                          |                   |                            | -70    | -3.6   |

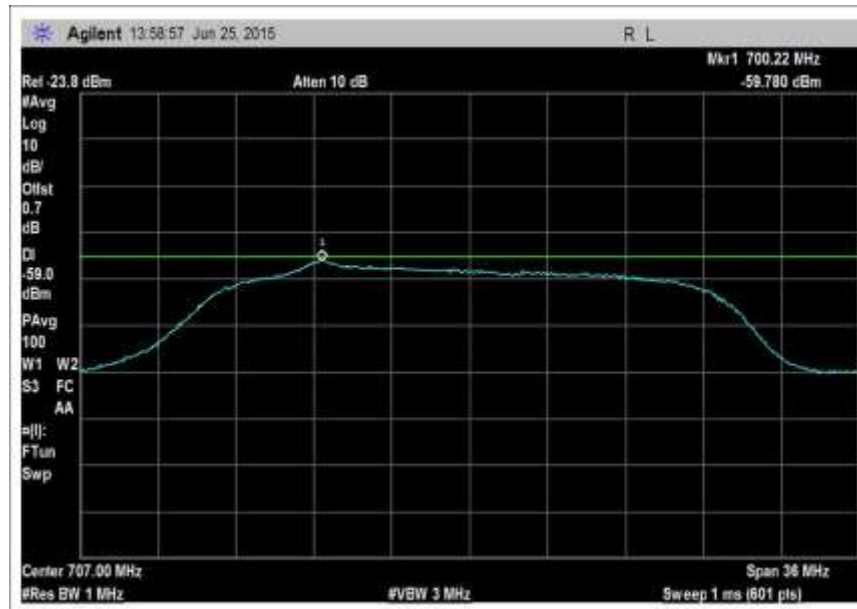
### 7.7.2 Variable uplink noise timing

| Uplink Noise timing |          |       |
|---------------------|----------|-------|
| Freq                | Measured | Limit |
| MHz                 | Sec      | sec   |
| UL1710-1755         | 0.28     | 1     |
| UL1850-1915         | 0.17     | 1     |
| UL824-894           | 0.30     | 1     |
| UL 698-716          | 0.27     | 1     |
| UL776-787           | 0.29     | 1     |

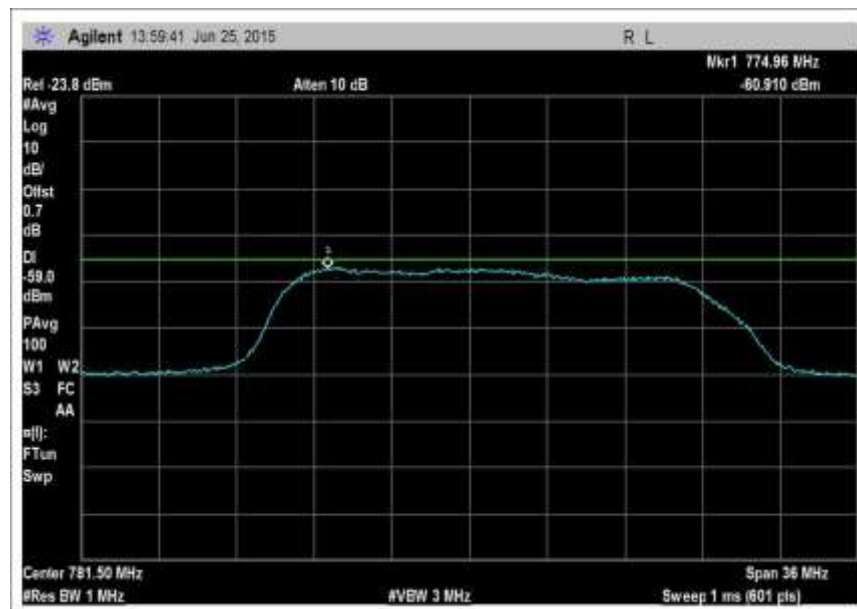
| Downlink Noise timing |          |       |
|-----------------------|----------|-------|
| Freq                  | Measured | Limit |
| MHz                   | Sec      | sec   |
| DL2110-2155           | 0.24     | 1     |
| DL1930-1995           | 0.17     | 1     |
| DL869-894             | 0.22     | 1     |
| DL:728-746            | 0.17     | 1     |
| DL 746-757            | 0.33     | 1     |

## Test Data

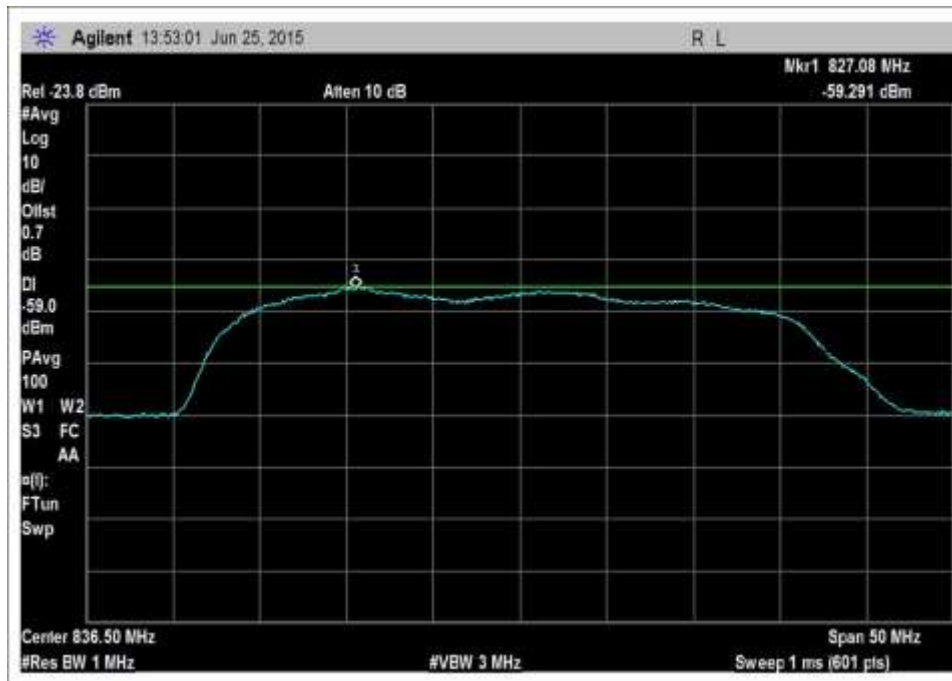
### Section 7.7.1 - UL



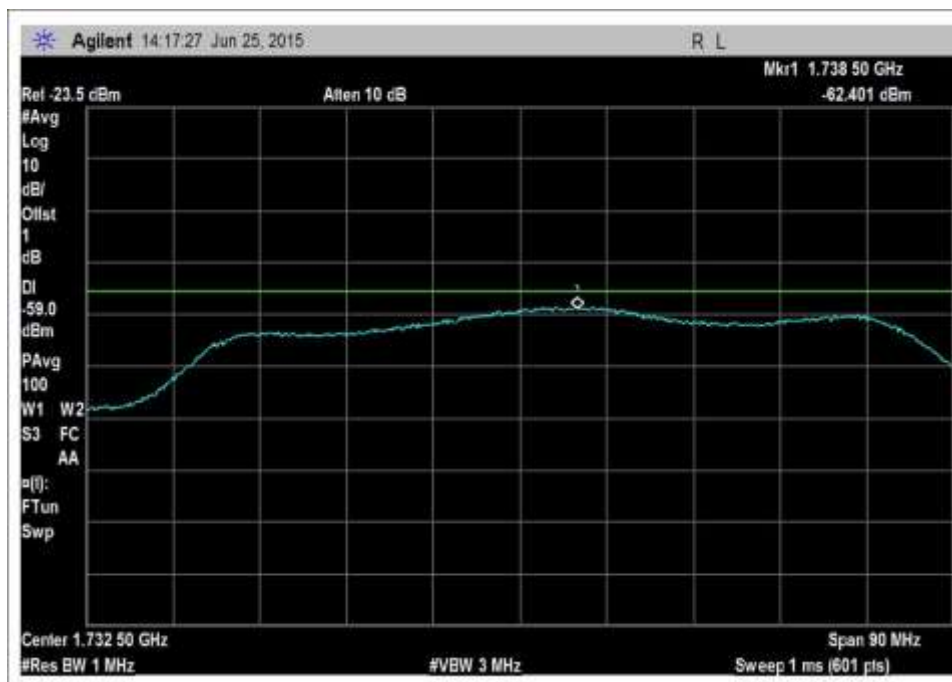
UL\_698-716MHz\_a-g\_Noise\_50



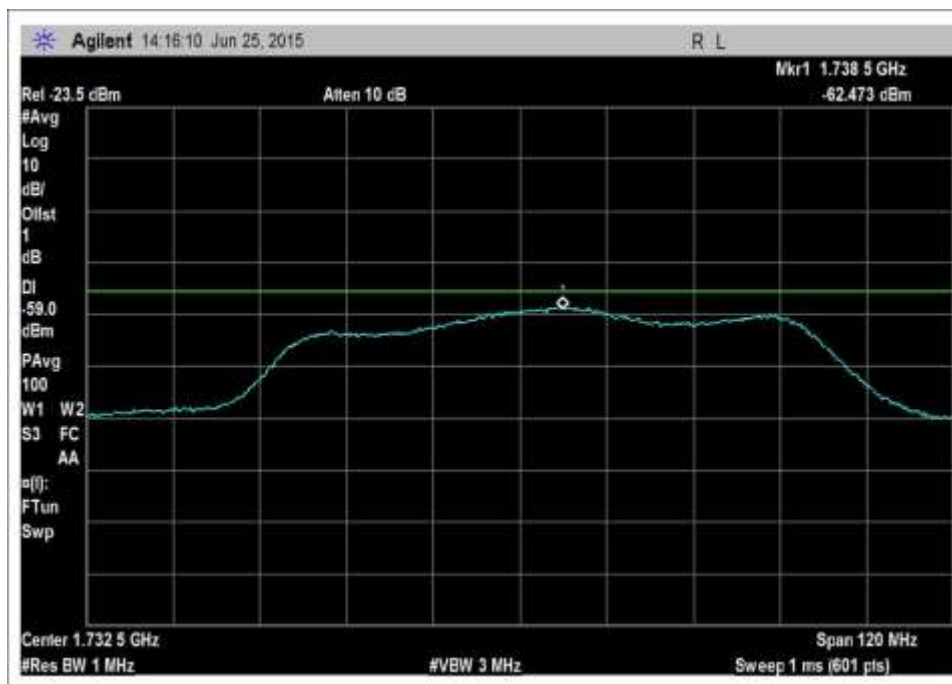
UL\_776-787MHz\_a-g\_Noise\_50



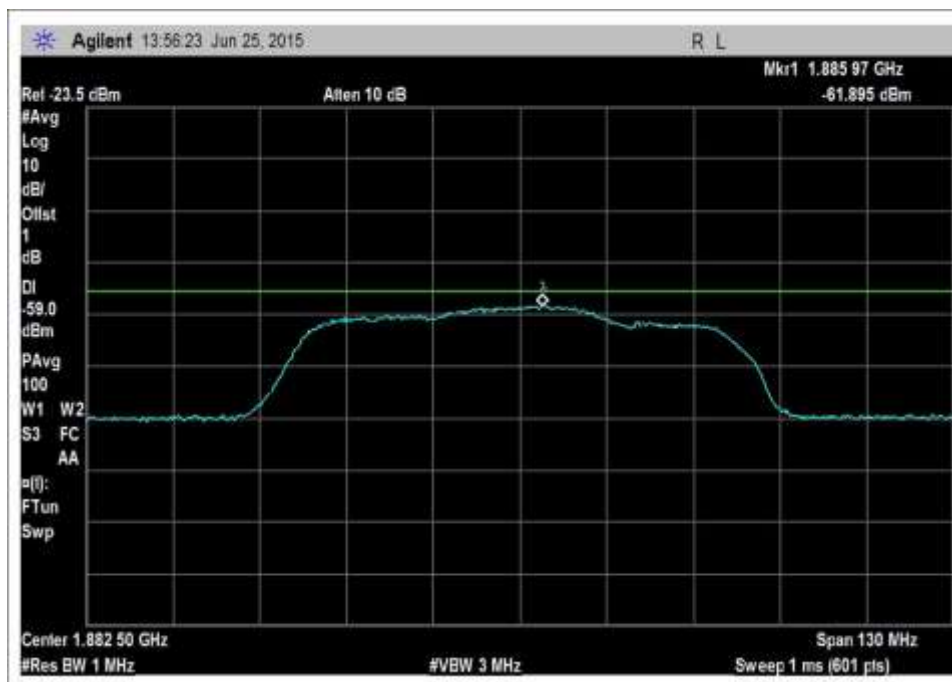
UL\_824-849MHz\_a-g\_Noise\_50



UL\_1710-1755MHz\_a-g\_Noise\_50

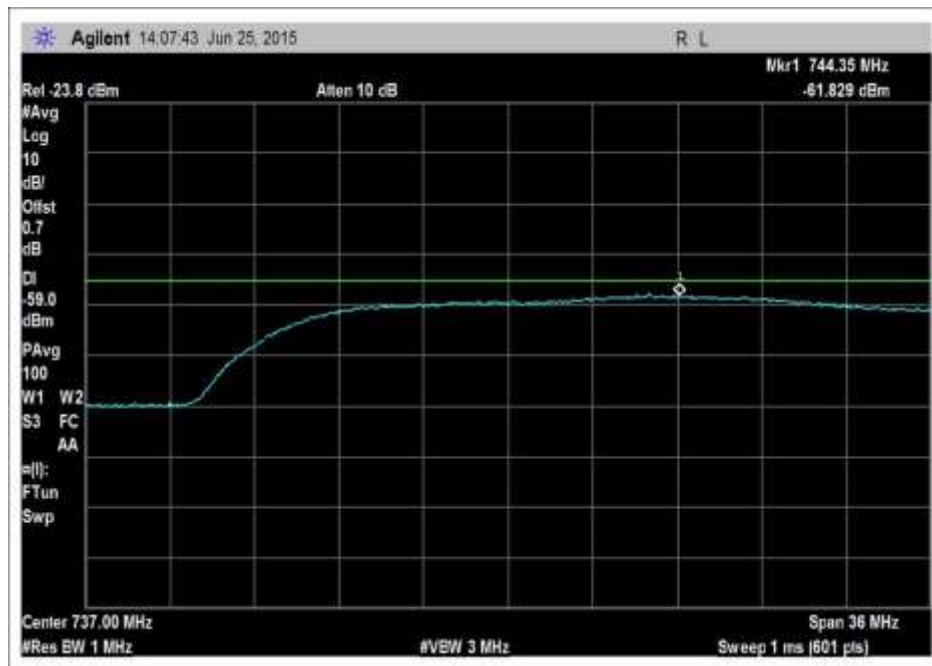


UL\_1710-1755MHz-Zoom\_a-g\_Noise\_50

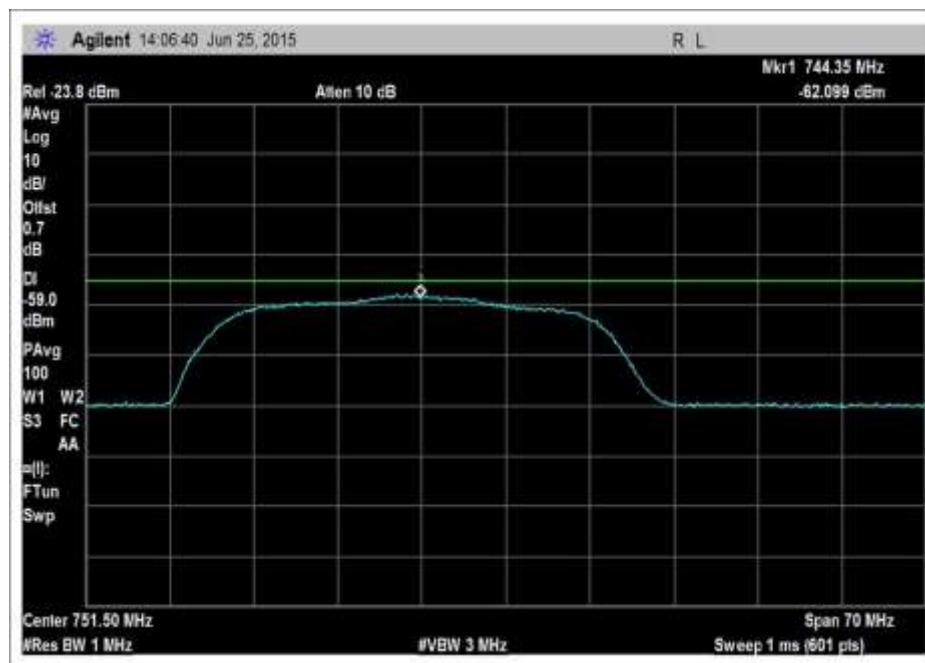


UL\_1850-1915MHz\_a-g\_Noise\_50

### Section 7.7.1 - DL



DL\_728-746MHz\_a-g\_Noise\_50



DL\_728-757MHz-Zoom\_a-g\_Noise\_50