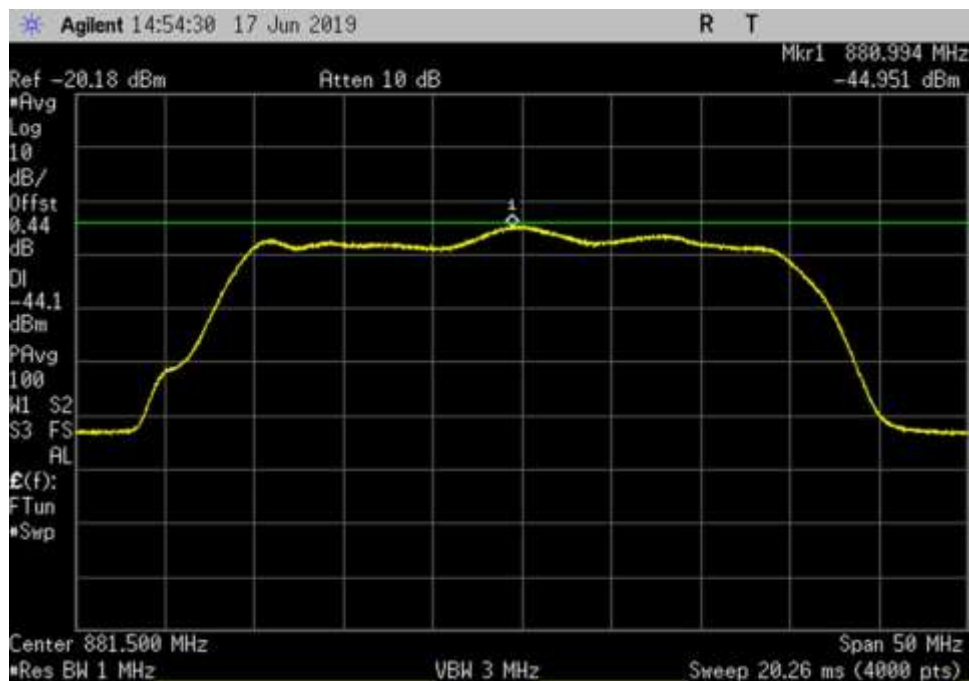
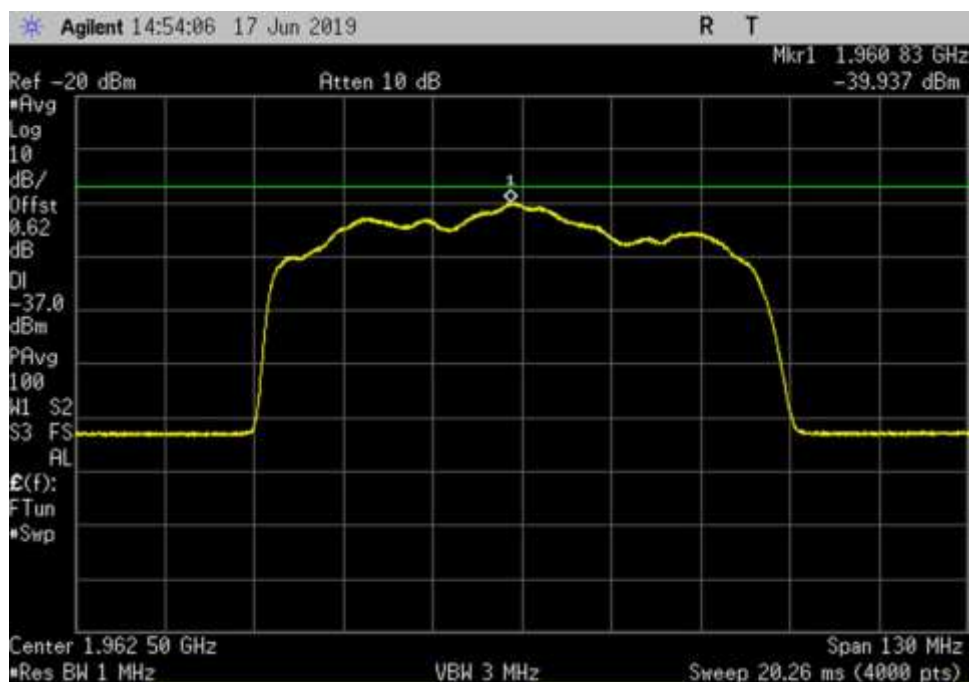
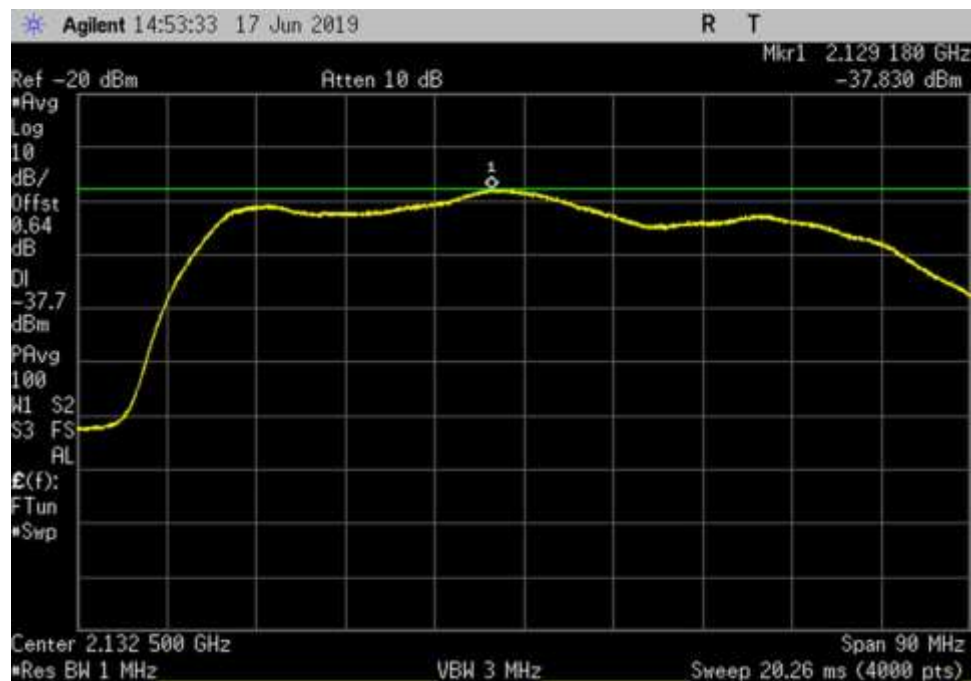




DL\_869-894\_ 881.5MHz

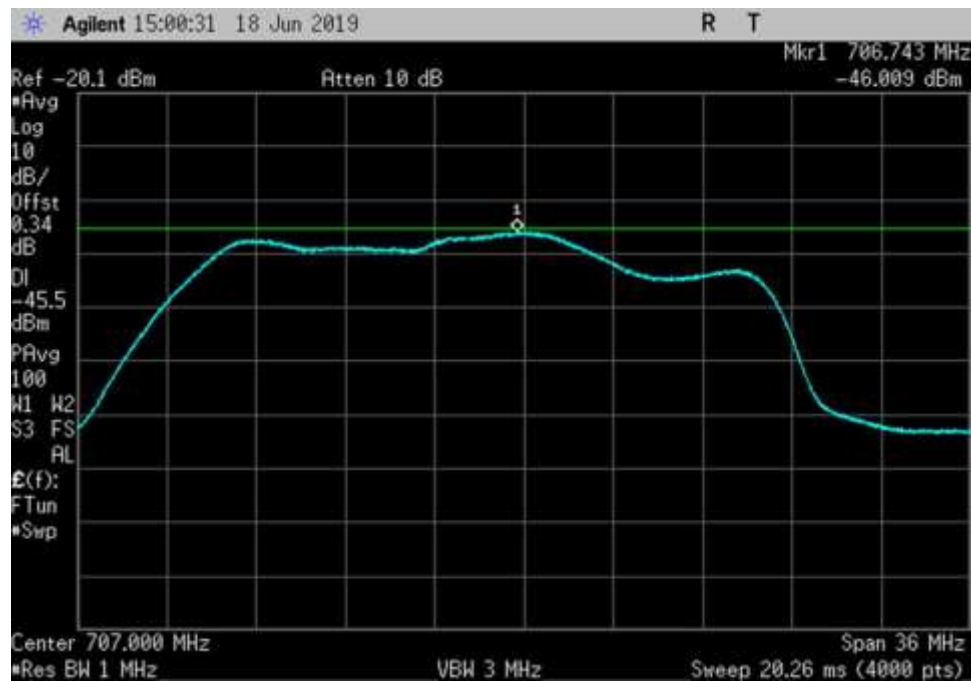


DL\_1930-1995\_ 1962.5MHz

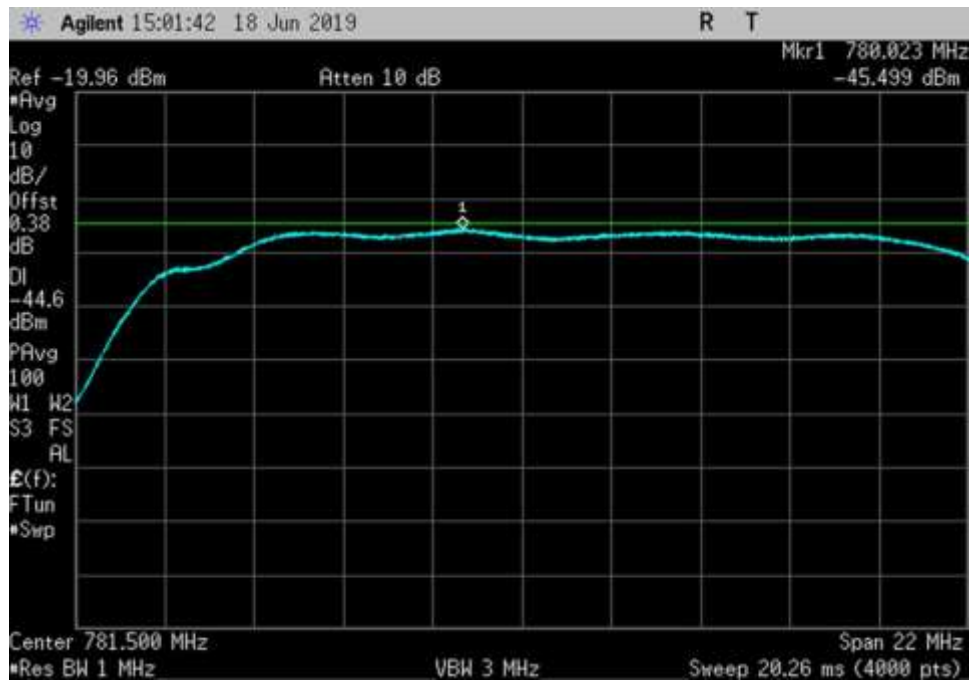


DL\_2110-2155\_2132.5MHz

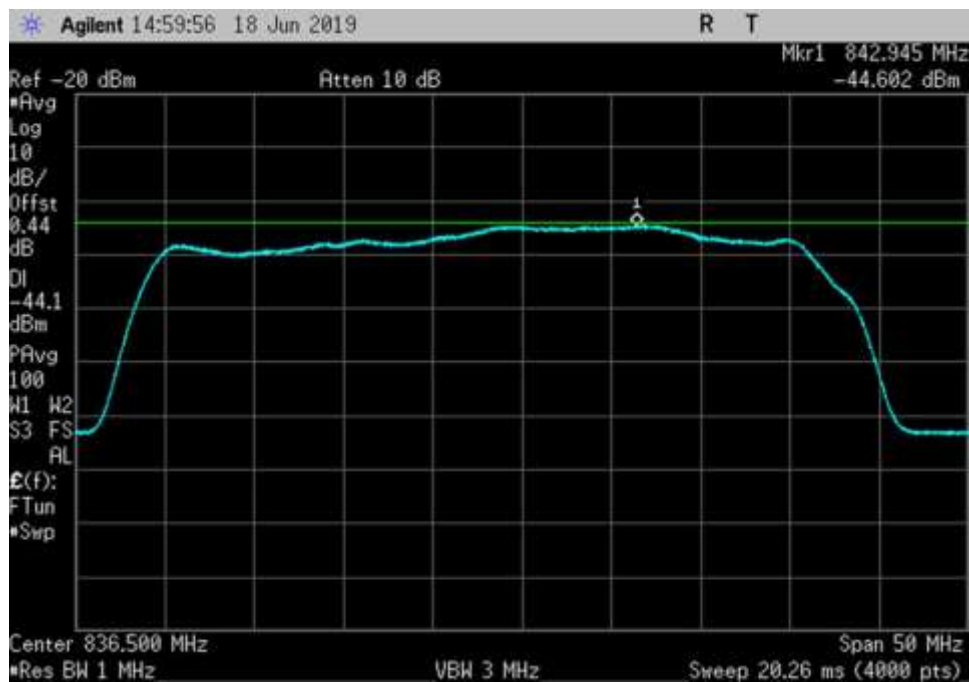
### Configuration 3



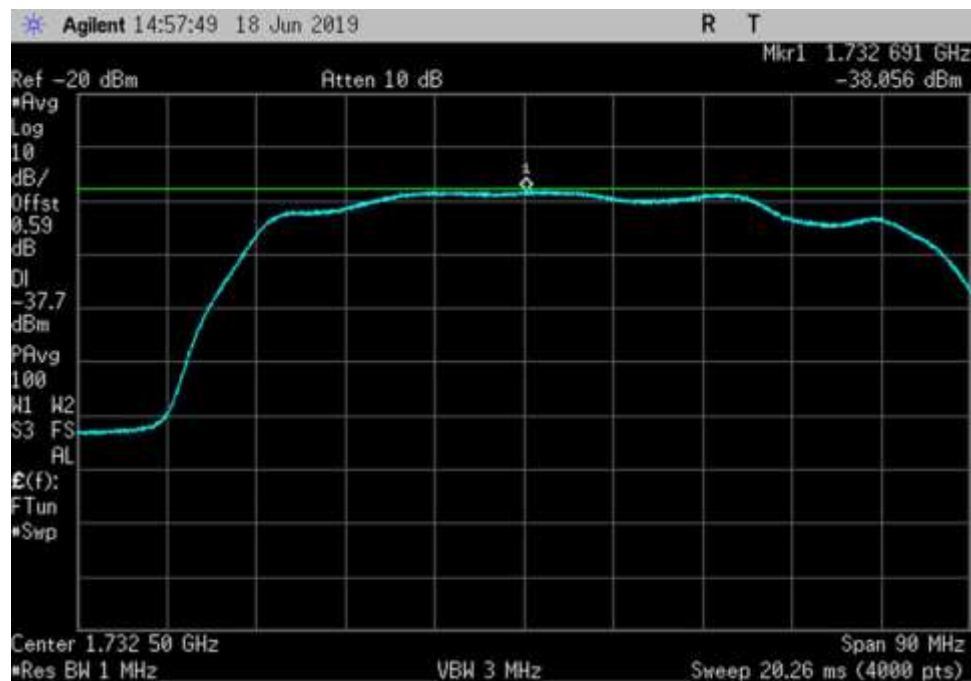
UL\_698-716\_707MHz



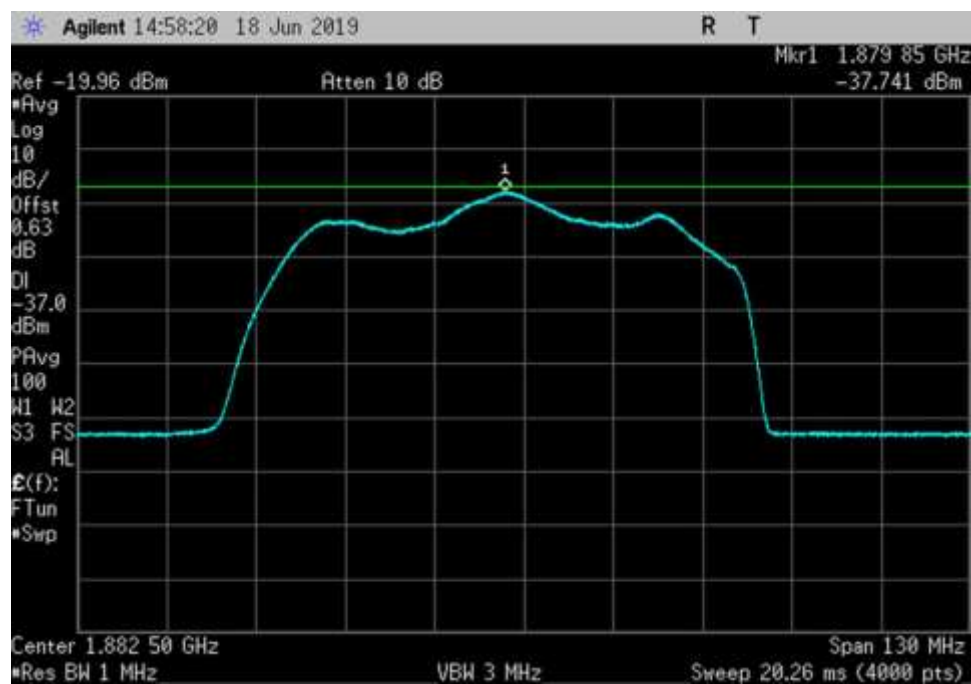
UL\_776-787\_ 781.5MHz



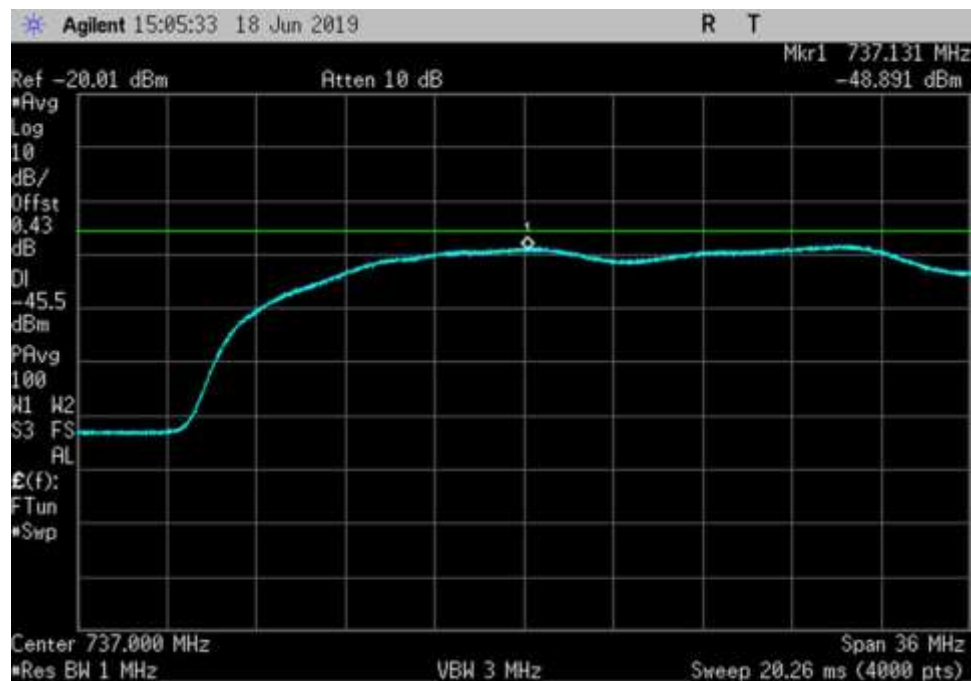
UL\_824-849\_ 836.5MHz



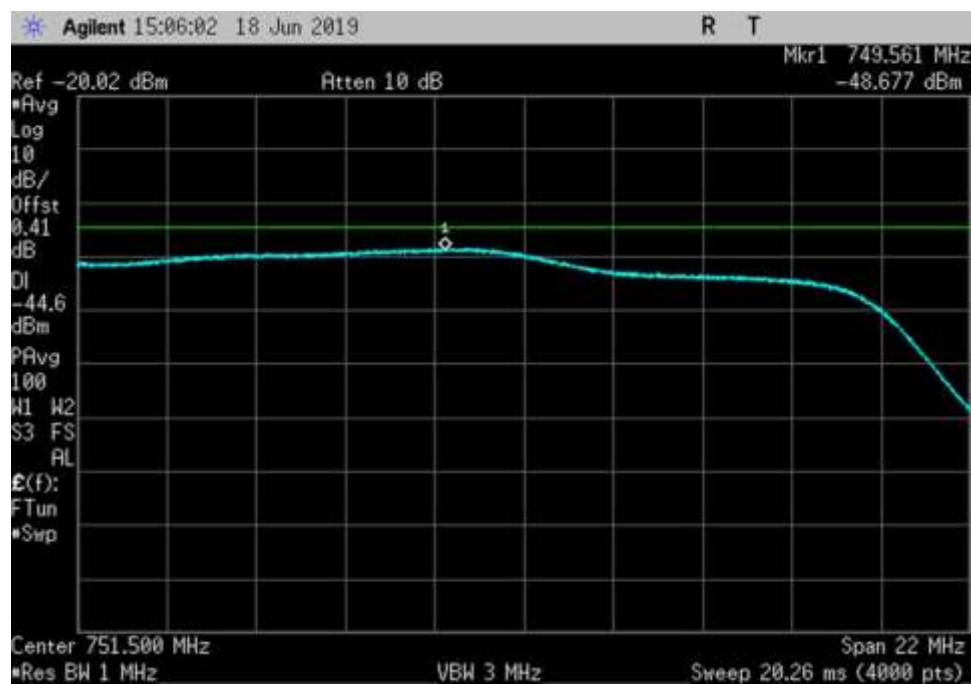
UL\_1710-1755\_ 1732.5MHz



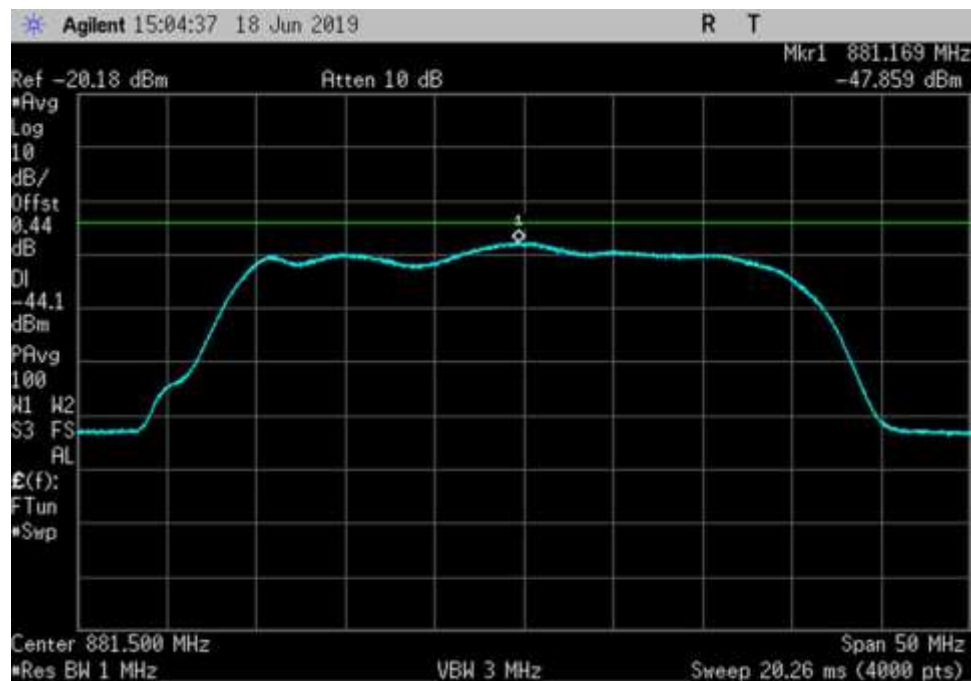
UL\_1850-1915\_ 1882.5MHz



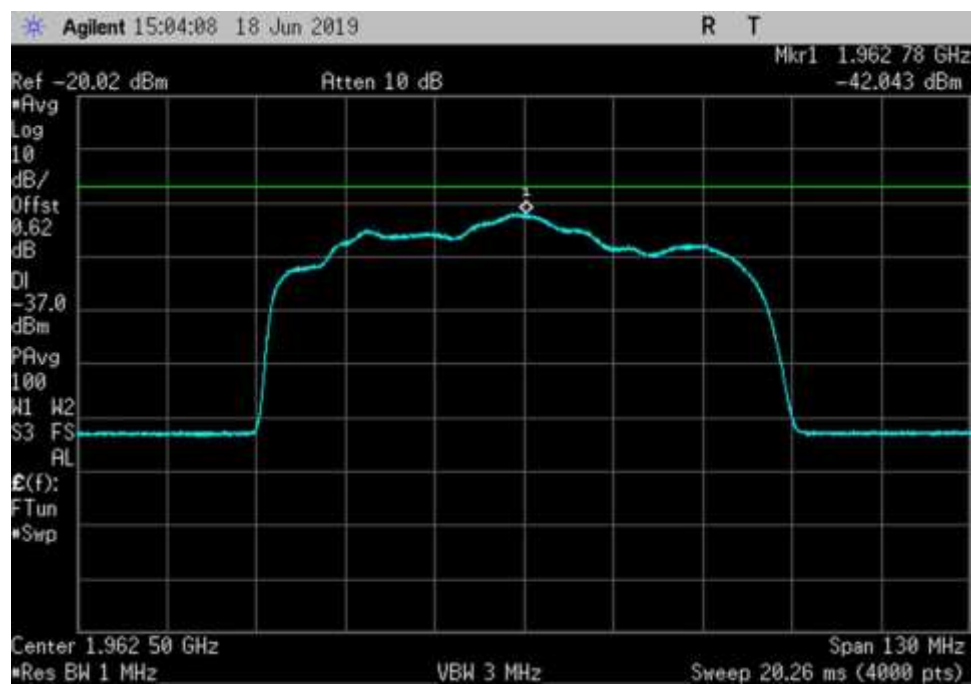
DL\_728-746\_ 737MHz



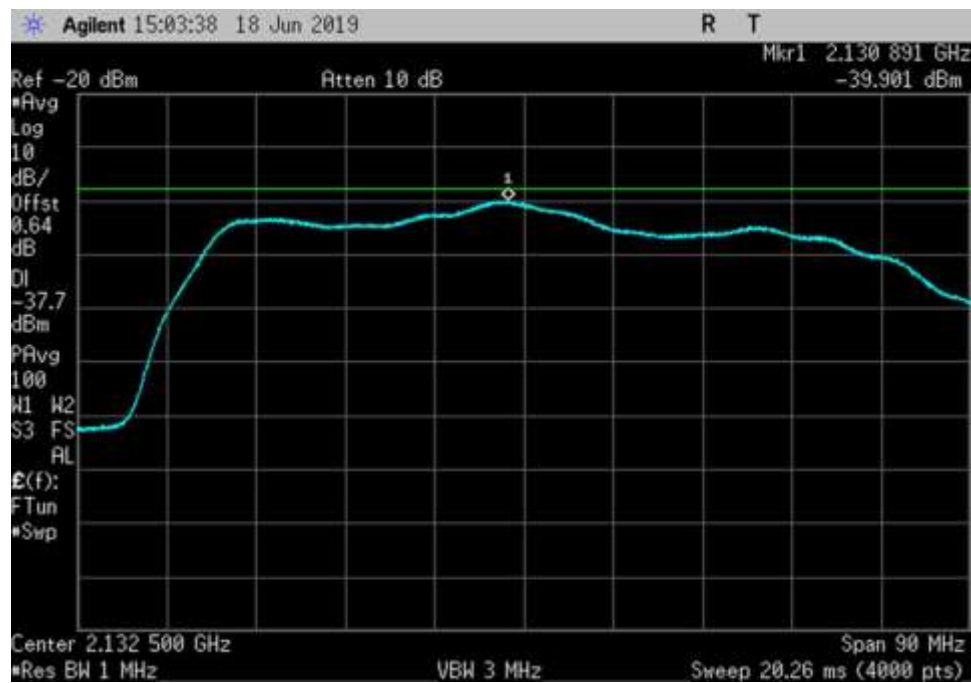
DL\_746-757\_ 751.5MHz



DL\_869-894\_ 881.5MHz



DL\_1930-1995\_ 1962.5MHz

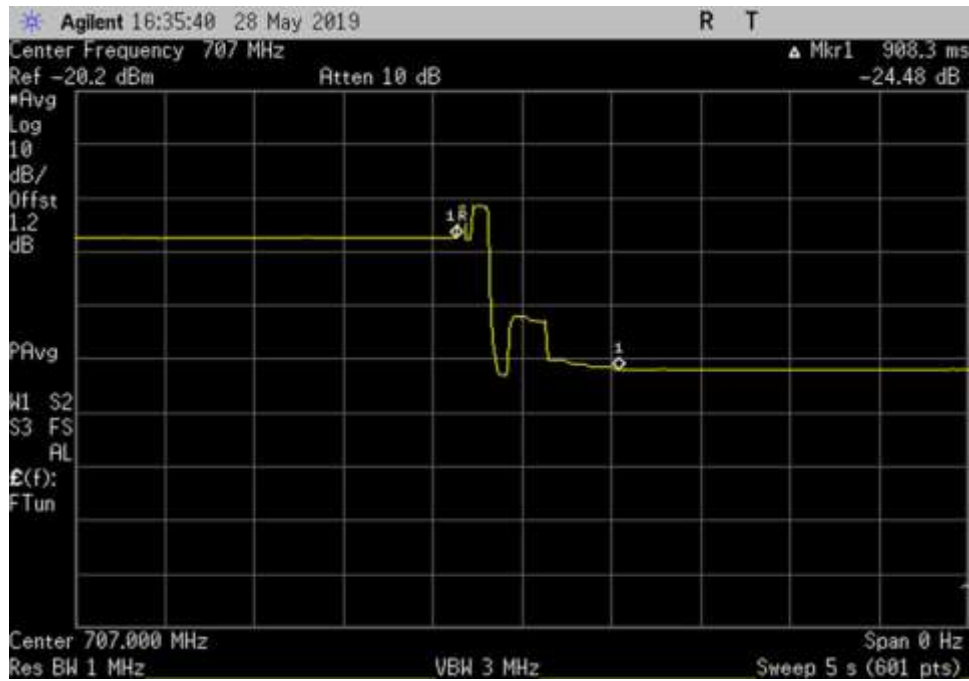


DL\_2110-2155\_ 2132.5MHz

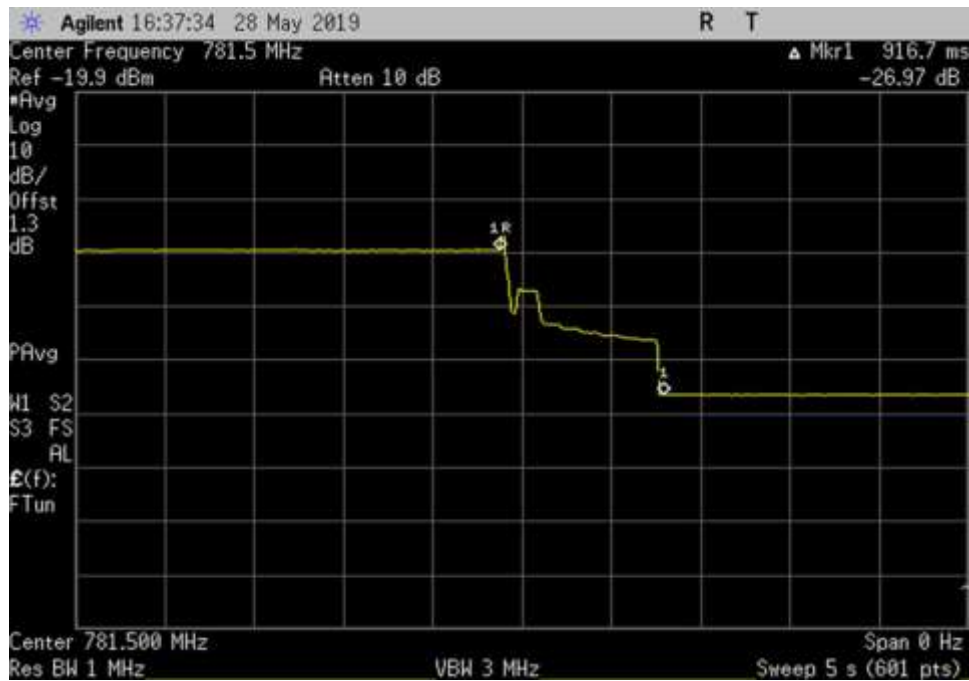
## 7.7.2 Variable UL Noise Timing

### Plots

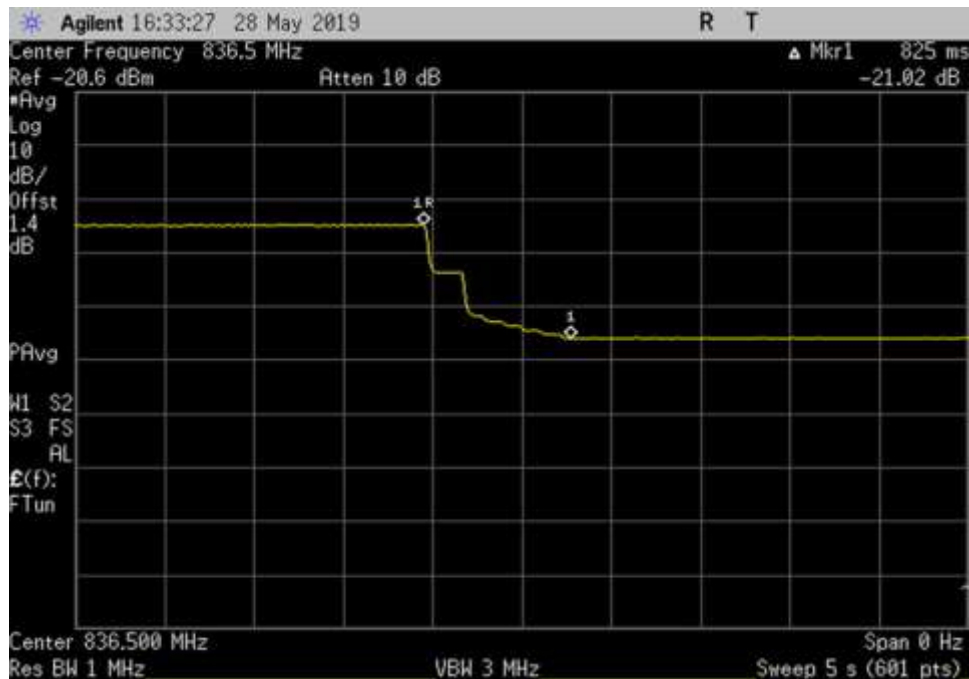
#### Configuration 1



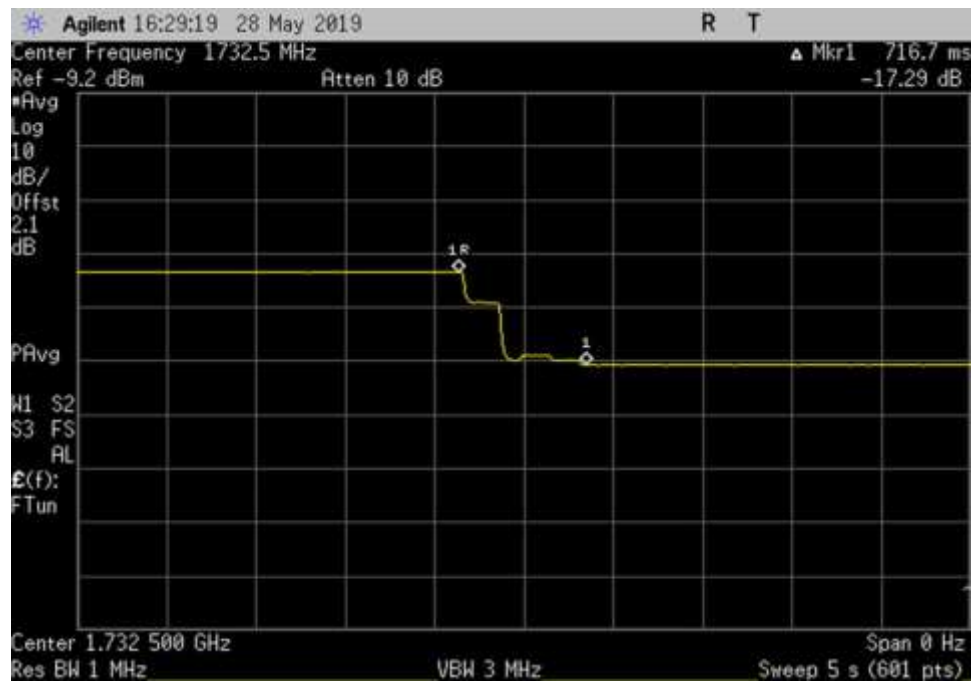
UL\_698-716\_ 707MHz\_50ft Cable-Var



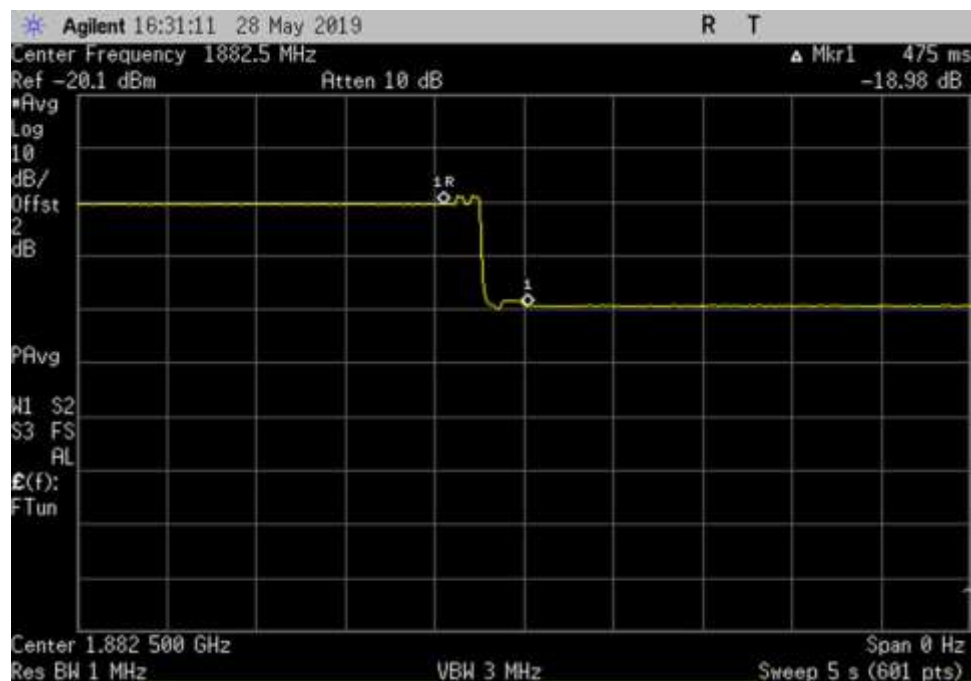
UL\_776-787\_781.5MHz\_50ft Cable-Var



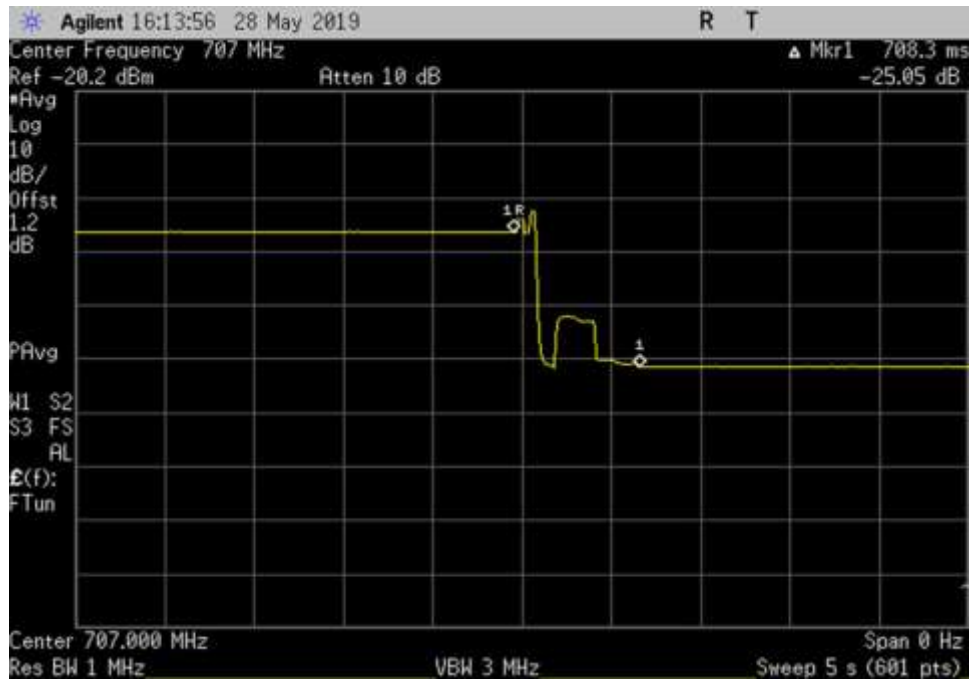
UL\_824-849\_836.5MHz\_50ft Cable-Var



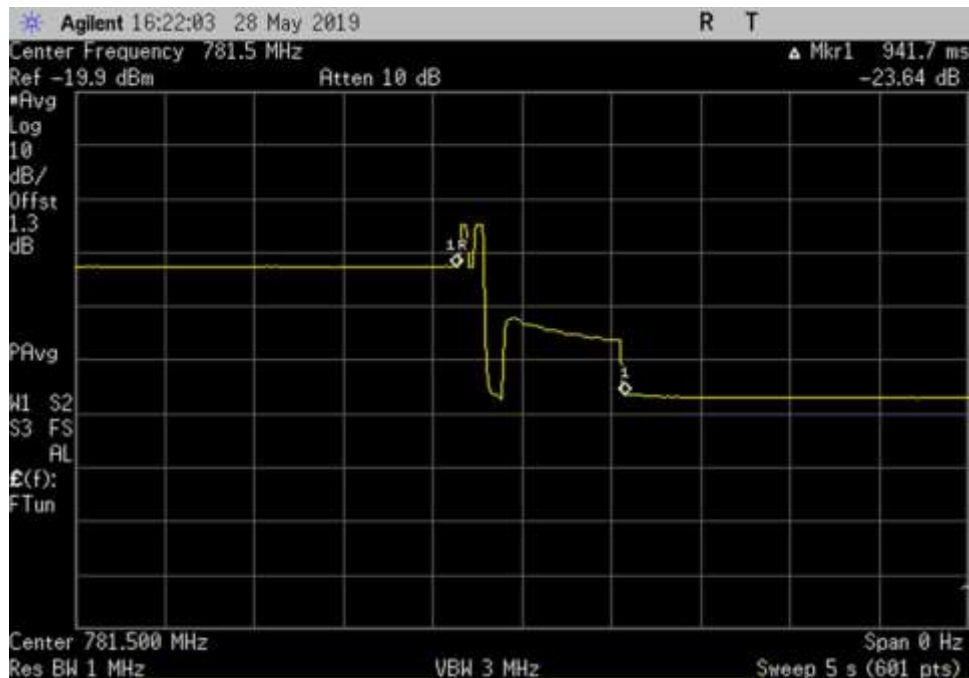
UL\_1710-1755\_ 1732.5MHz\_50ft Cable-Var



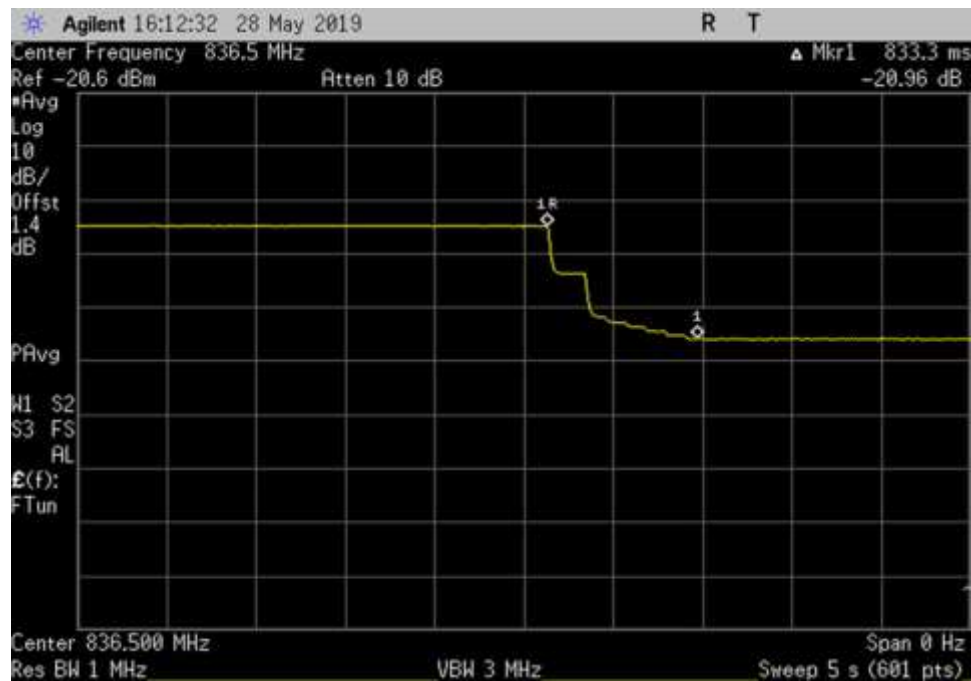
UL\_1850-1915\_ 1882.5MHz\_50ft Cable-Var



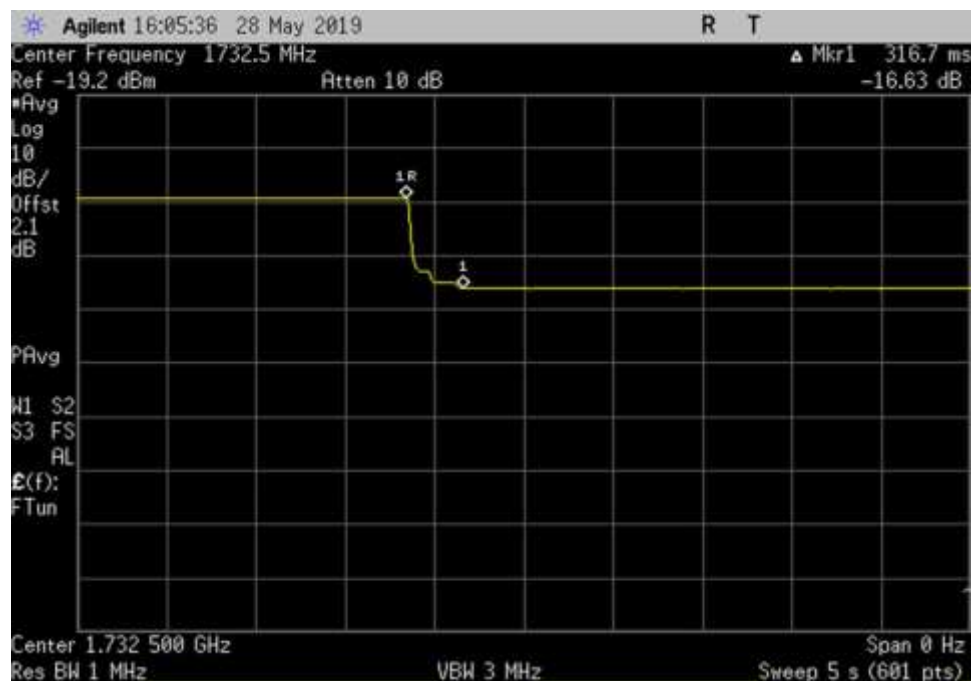
UL\_698-716\_707MHz\_100ft Cable-Var



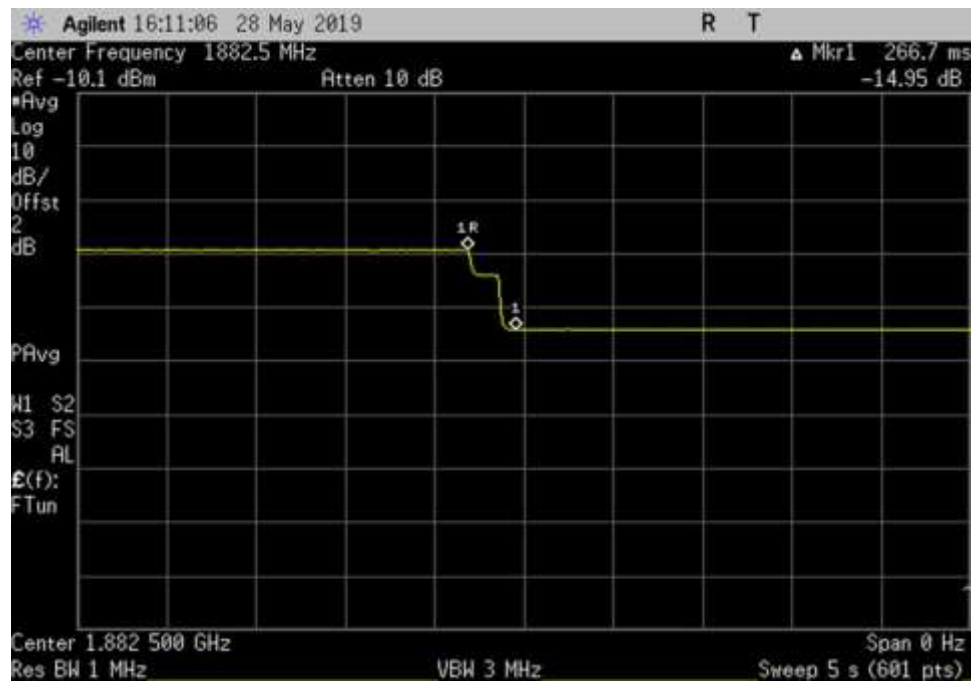
UL\_776-787\_781.5MHz\_100ft Cable-Var



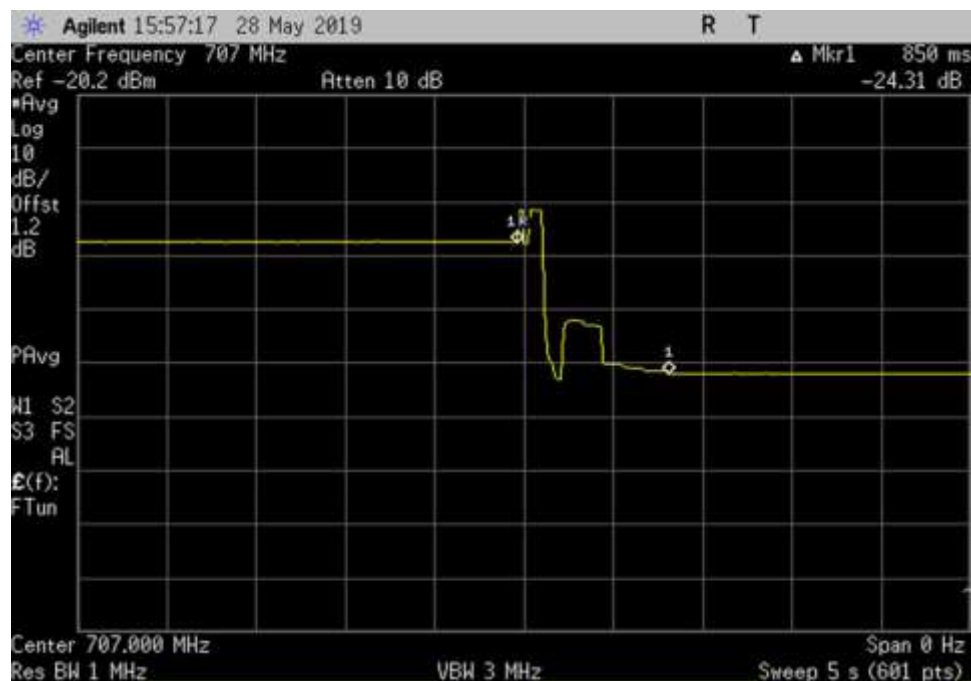
UL\_824-849\_ 836.5MHz\_100ft Cable-Var



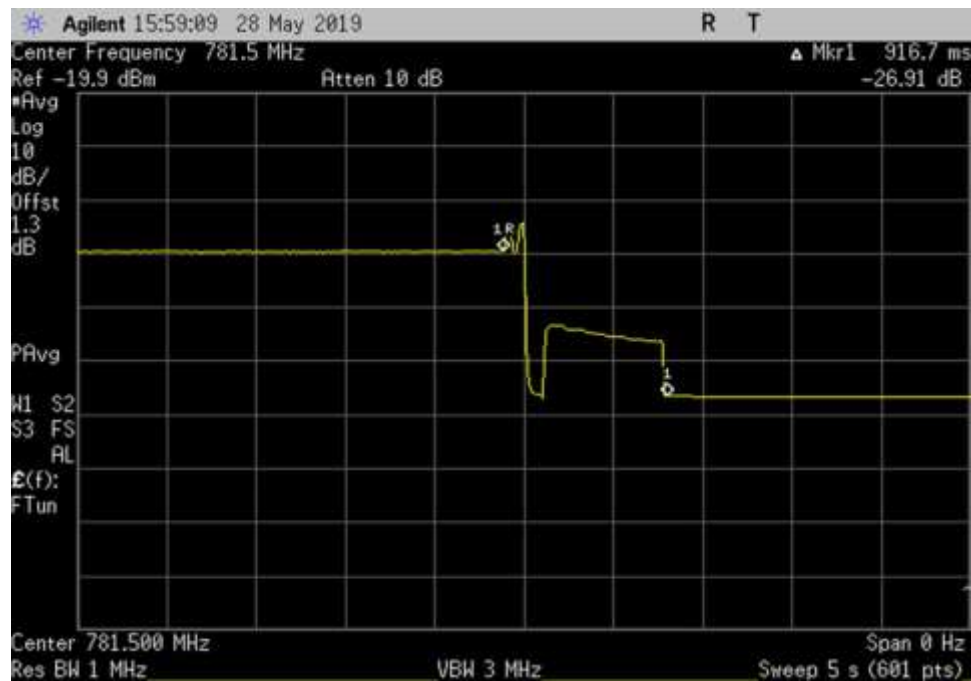
UL\_1710-1755\_ 1732.5MHz\_100ft Cable-Var



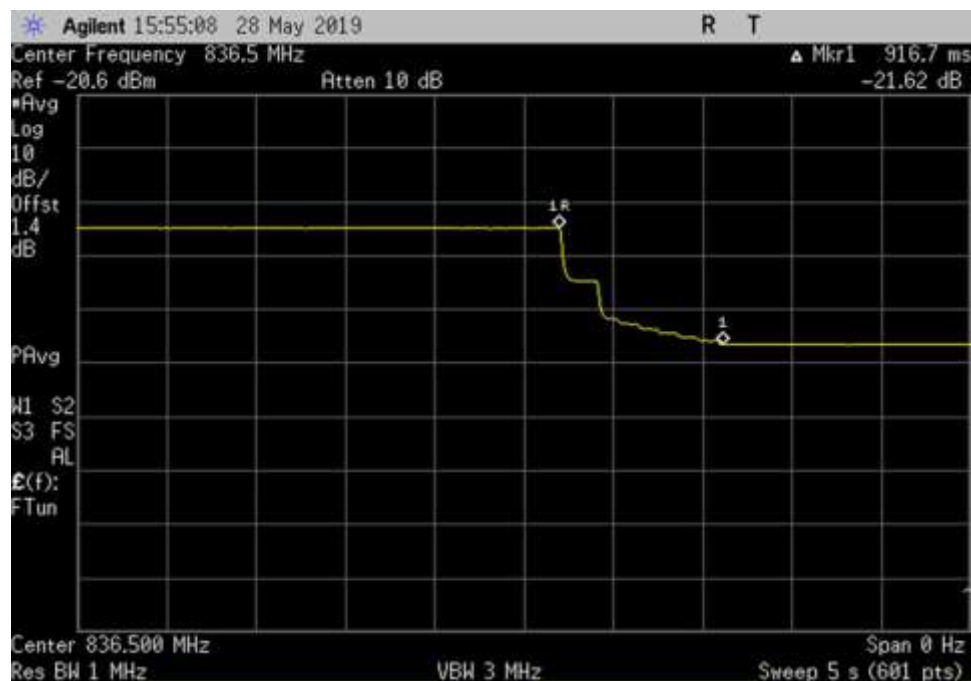
UL\_1850-1915\_1882.5MHz\_100ft Cable-Var



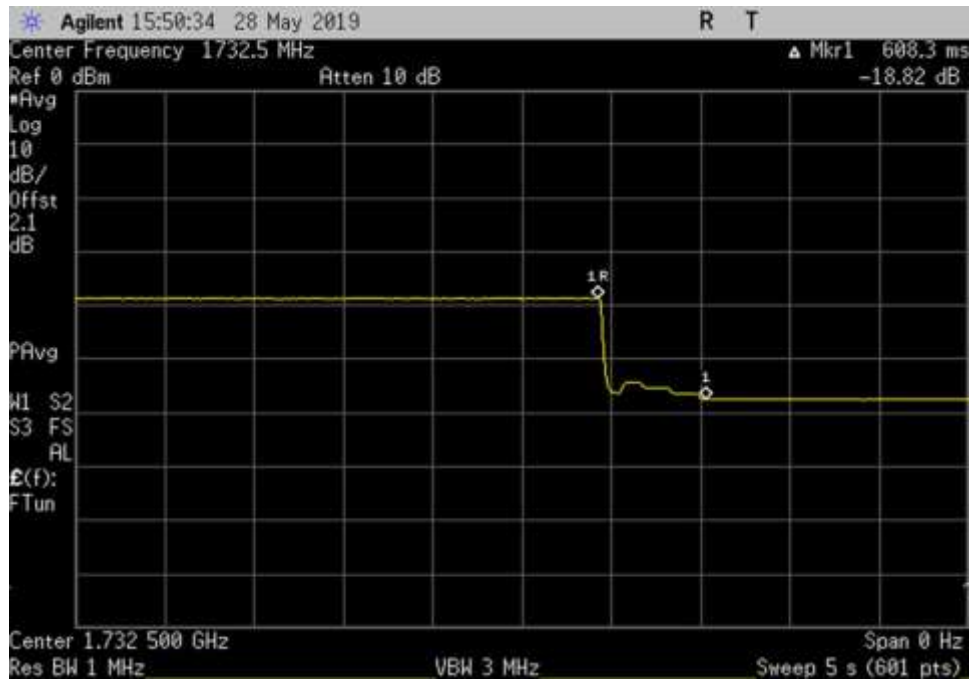
UL\_698-716\_707MHz\_150ft Cable-Var



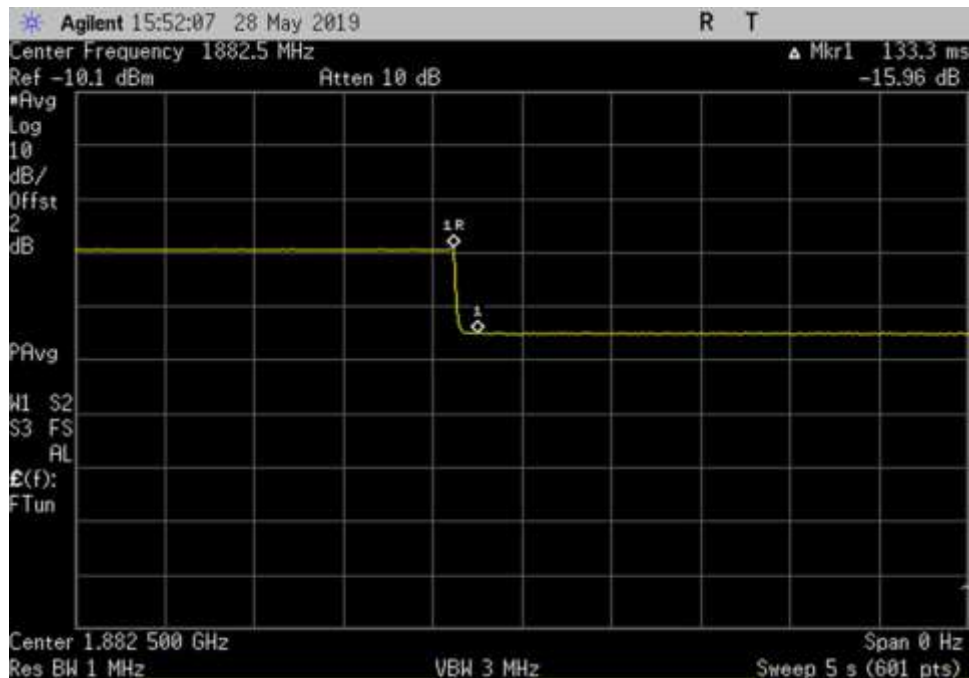
UL\_776-787\_ 781.5MHz\_150ft Cable-Var



UL\_824-849\_ 836.5MHz\_150ft Cable-Var



UL\_1710-1755\_ 1732.5MHz\_150ft Cable-Var



UL\_1850-1915\_ 1882.5MHz\_150ft Cable-Var

## 7.8 Uplink Inactivity

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.8 Uplink Inactivity**  
 Work Order #: **102129** Date: 05/29/2019  
 Test Type: **Conducted Emissions**  
 Tested By: **Hieu Song 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:<br>Temperature: 21.8°C<br>Relative Humidity: 48%<br>Atmospheric Pressure: 101.9kPa<br>Modification 1 was in place during testing. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Test Equipment:

| Asset # | Description       | Manufacturer | Model                    | Calibration Date | Cal Due Date |
|---------|-------------------|--------------|--------------------------|------------------|--------------|
| P07191  | Cable             | Astro        | 32022-29094K-29094K-48TC | 10/30/2017       | 10/30/2019   |
| 03471   | Spectrum Analyzer | Agilent      | E4440A                   | 1/18/2018        | 1/18/2020    |

## Summary of Results

### 7.8 Summary of Results on a 50ft Cable

Pass: As demonstrated, when the booster is not serving an active device connection after 5 minutes the uplink noise power does not exceed -70dBm/MHz

| Uplink Inactivity |          |       |
|-------------------|----------|-------|
| Frequency         | Measured | Limit |
| MHz               | Min      | Min   |
| UL1710-1755       | 4.1      | 5.0   |
| UL1850-1915       | 4.1      | 5.0   |
| UL824-849         | 4.1      | 5.0   |
| UL 698-716        | 4.1      | 5.0   |
| UL776-787         | 4.1      | 5.0   |

### 7.8 Summary of Results on a 100ft Cable

Pass: As demonstrated, when the booster is not serving an active device connection after 5 minutes the uplink noise power does not exceed -70dBm/MHz

| Uplink Inactivity |          |       |
|-------------------|----------|-------|
| Frequency         | Measured | Limit |
| MHz               | Min      | Min   |
| UL1710-1755       | 4.1      | 5.0   |
| UL1850-1915       | 4.1      | 5.0   |
| UL824-849         | 4.1      | 5.0   |
| UL 698-716        | 4.1      | 5.0   |
| UL776-787         | 4.1      | 5.0   |

### 7.8 Summary of Results on a 150ft Cable

Pass: As demonstrated, when the booster is not serving an active device connection after 5 minutes the uplink noise power does not exceed -70dBm/MHz

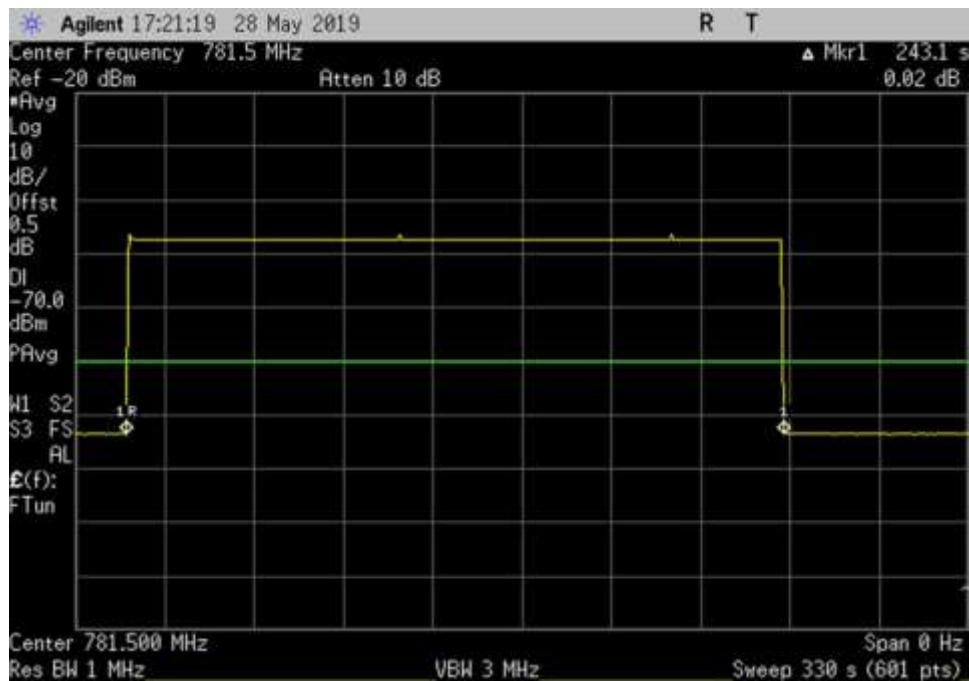
| Uplink Inactivity |          |       |
|-------------------|----------|-------|
| Frequency         | Measured | Limit |
| MHz               | Min      | Min   |
| UL1710-1755       | 4.1      | 5.0   |
| UL1850-1915       | 4.1      | 5.0   |
| UL824-849         | 4.1      | 5.0   |
| UL 698-716        | 4.1      | 5.0   |
| UL776-787         | 4.1      | 5.0   |

## Plots

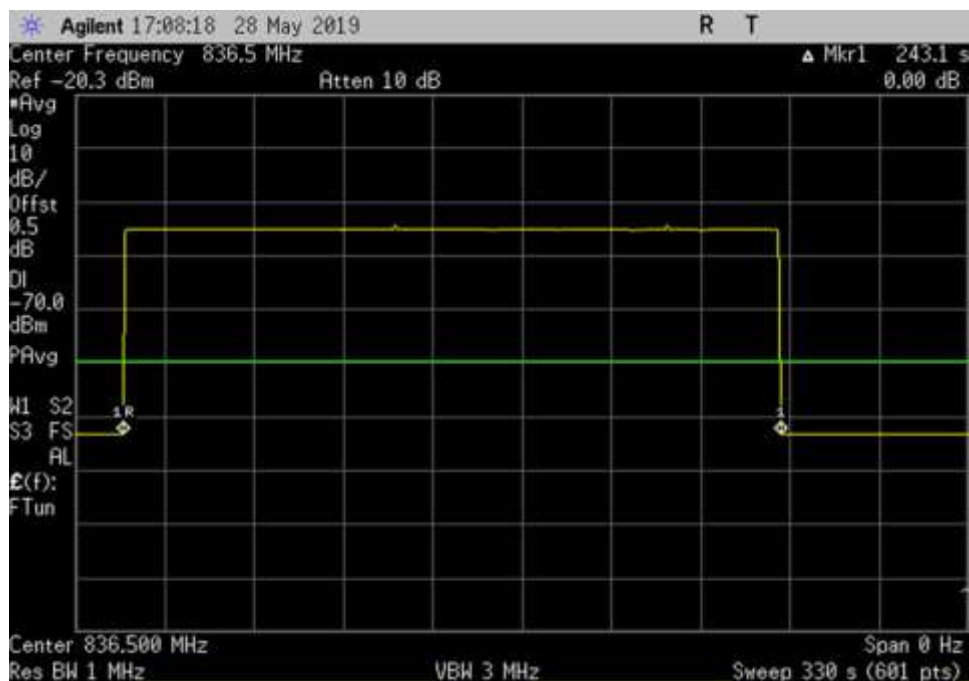
### Configuration 1



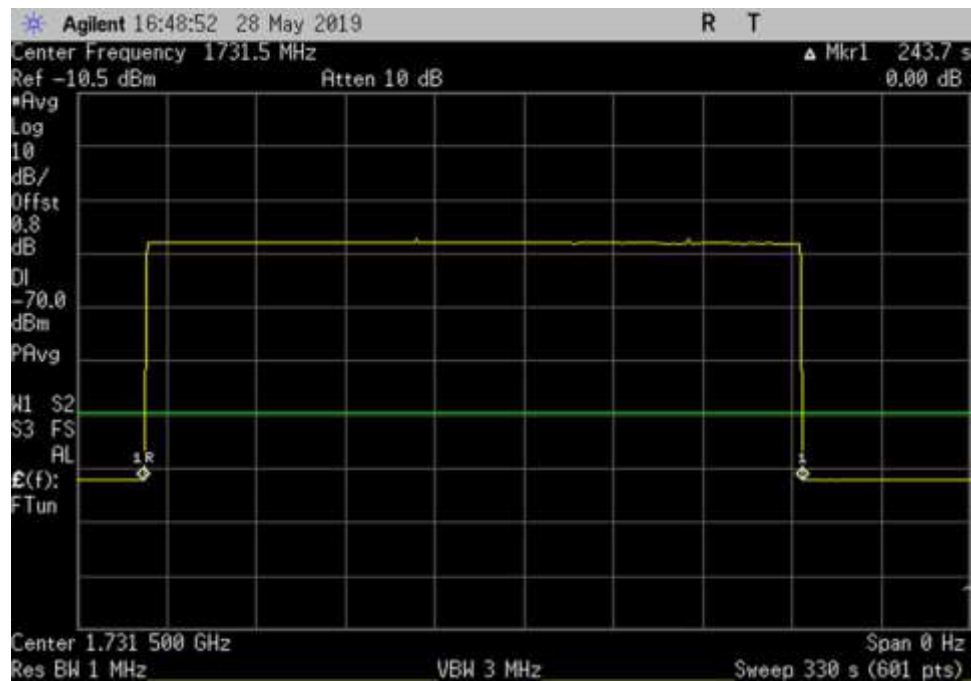
UL\_698-716\_ 707MHz\_50ft Cable



UL\_776-787\_ 781.5MHz\_50ft Cable



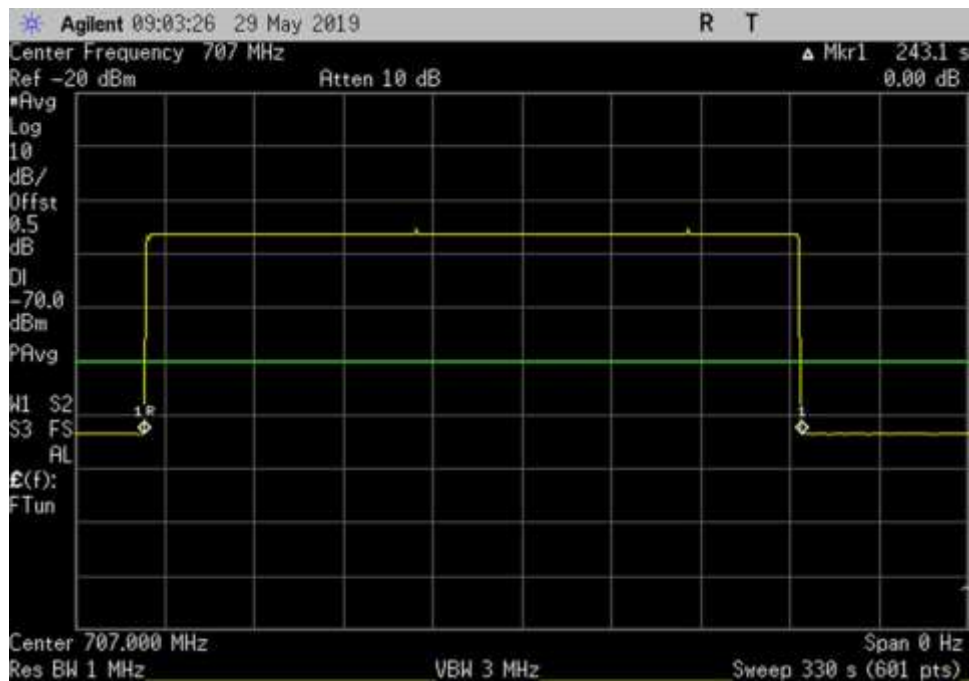
UL\_824-849\_ 836.5MHz\_50ft Cable



UL\_1710-1755\_1731.5MHz\_50ft Cable



UL\_1850-1915\_1882.5MHz\_50ft Cable



UL\_698-716\_707MHz\_100ft Cable



UL\_776-787\_781.5MHz\_100ft Cable



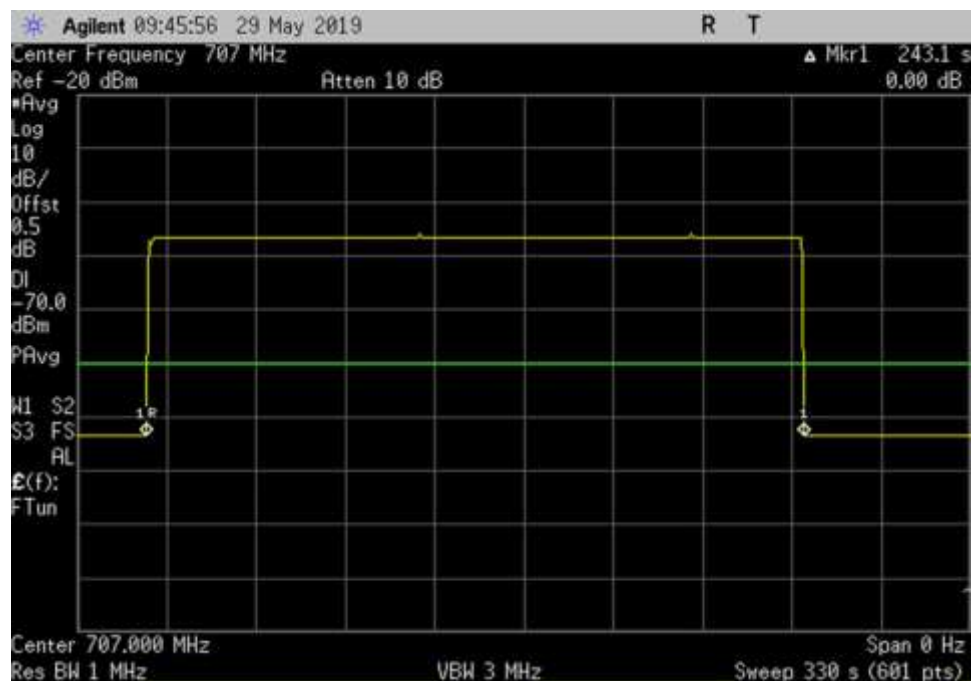
UL\_824-849\_836.5MHz\_100ft Cable



UL\_1710-1755\_1732.5MHz\_100ft Cable



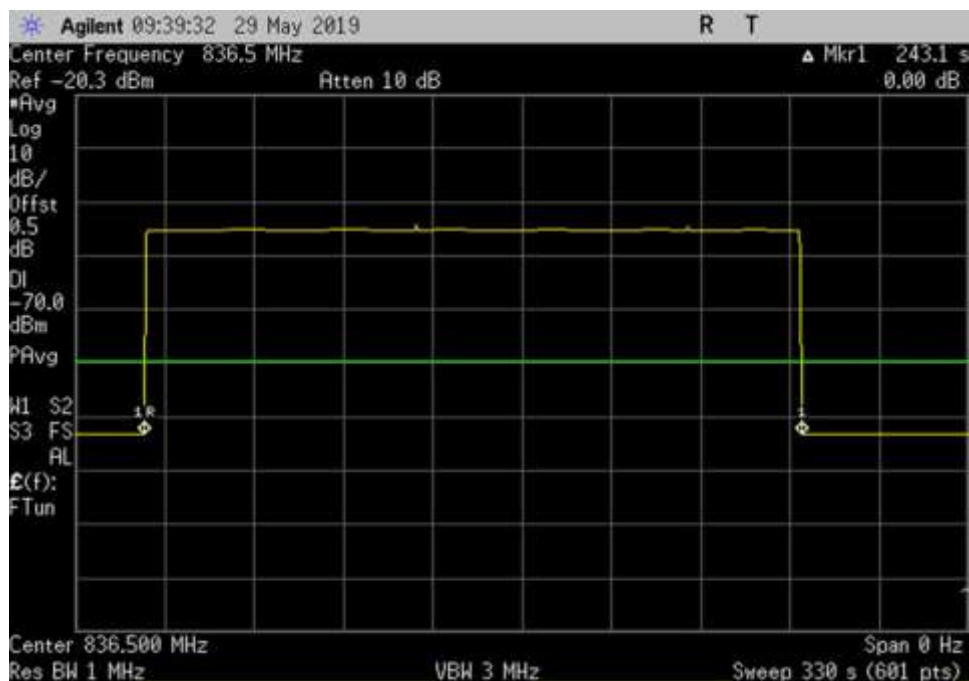
UL\_1850-1915\_1882.5MHz\_100ft Cable



UL\_698-716\_707MHz\_150ft Cable



UL\_776-787\_ 781.5MHz\_150ft Cable



UL\_824-849\_ 836.5MHz\_150ft Cable



UL\_1710-1755\_1732.5MHz\_150ft Cable



UL\_1850-1915\_1882.5MHz\_150ft Cable

## 7.9 Booster Gain Limit

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.9 Variable Booster gain( Max Gain / Variable Uplink Gain Timing)**  
 Work Order #: **102129**  
 Test Type: **Conducted Emissions** Date 06/05/2019 and 06/07/2019  
 Tested By: **Hieu Song 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:

06/05/2019  
 Test environment conditions: Temperature: 24.5°C, Relative Humidity: 41%, Atmospheric Pressure: 102.5kPa

06/07/2019  
 Test environment conditions: Temperature: 23.8°C, Relative Humidity: 42%, Atmospheric Pressure: 101.4kPa

Worst Case MSCL: Fixed Booster Panel RT V1.0

| Frequency (MHz)   | MSCL (dB) |
|-------------------|-----------|
| PCS(1850-1915)    | 37        |
| Cellular(824-849) | 33        |
| LTE(698-716)      | 31.5      |
| LTE(776-787)      | 32.5      |
| AWS(1710-1755)    | 36.3      |

**Test Equipment:**

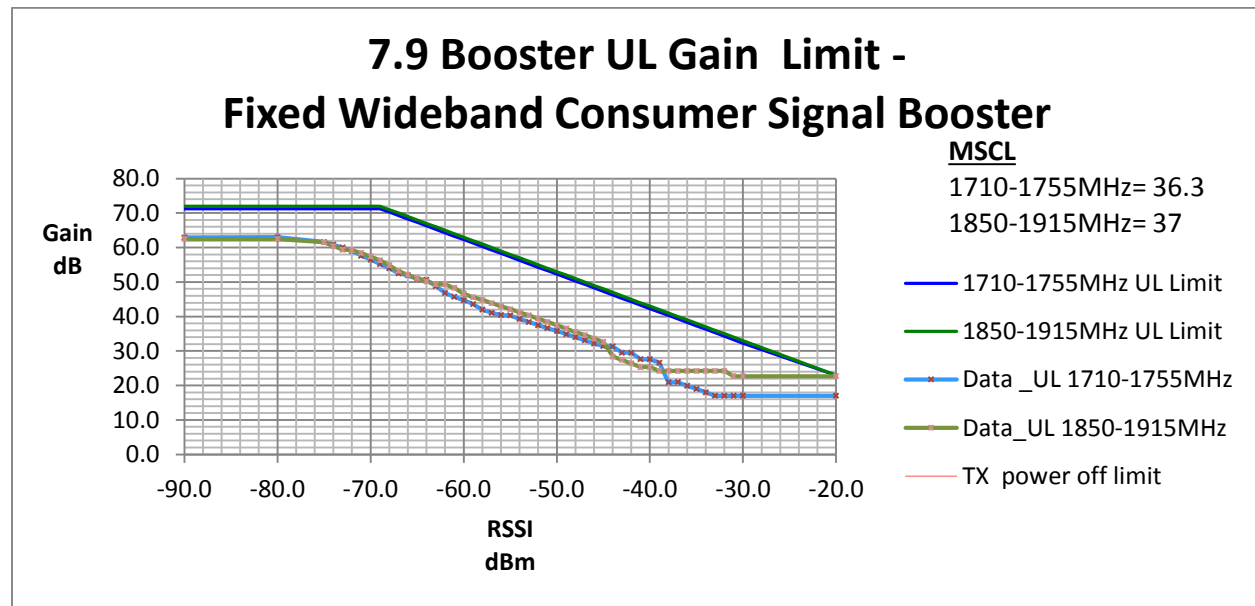
| Asset # | Description                  | Manufacturer           | Model                    | Calibration Date | Cal Due Date |
|---------|------------------------------|------------------------|--------------------------|------------------|--------------|
| P07192  | Cable                        | 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                   | 05/13/2019       | 05/13/2021   |
| 03471   | Spectrum Analyzer            | Agilent                | E4440A                   | 1/18/2018        | 1/18/2020    |
| 03360   | Cable                        | Astrolab               | 32022-2-29094-36TC       | 6/25/2018        | 6/25/2020    |
| C00082  | Directional Coupler          | MECA Electronics, Inc. | 722-10-1.500V            | 9/18/2017        | 9/18/2019    |
| C00032  | Arbitrary Waveform Generator | Agilent                | E4433B                   | 3/19/2018        | 3/19/2020    |

## Summary of Results

### 7.9 Summary of Results on a 50ft Cable

Pass: As demonstrated, computed gains are within the gain limit. All maximum variable uplink gain timings are within 3 second limit.

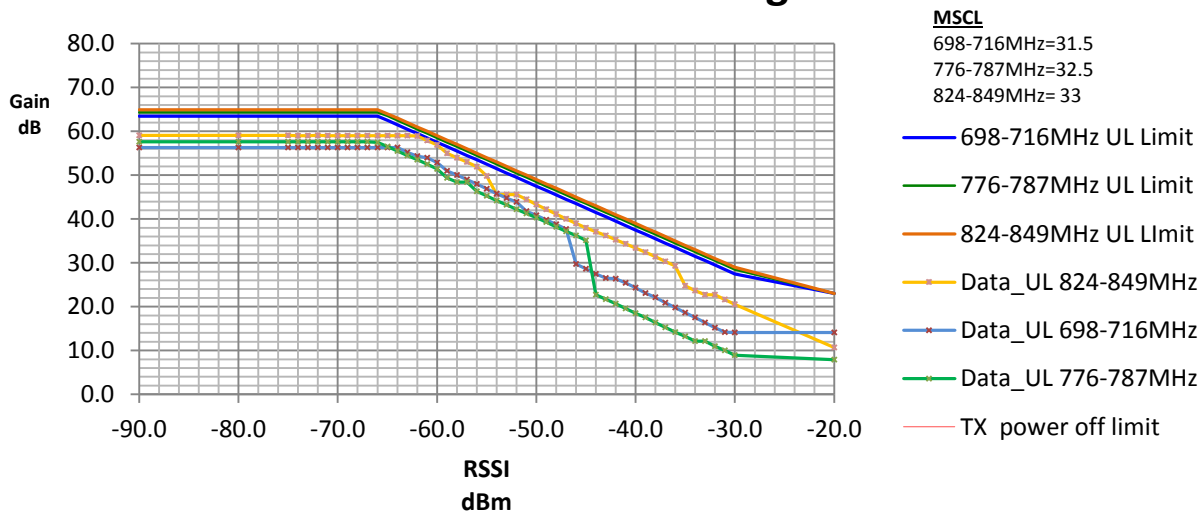
#### 7.9.1 Maximum gain



| 1710.0        |                |                             |                        | 1755.0            | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -47.4          | 15.5                        | 62.9                   | -                 | 71.3                      | -      | -8.4   |
| -80.0         | -47.4          | 15.6                        | 63.0                   | -                 | 71.3                      | -      | -8.3   |
| -75.0         | -47.4          | 14.2                        | 61.6                   | -                 | 71.3                      | -      | -9.7   |
| -65.0         | -47.4          | 3.5                         | 50.9                   | 67.3              | -                         | -      | -16.4  |
| -64.0         | -47.4          | 3.2                         | 50.6                   | 66.3              | -                         | -      | -15.7  |
| -20.0         | -47.4          | -30.4                       | 17.0                   | -                 | -                         | 23     | -6.0   |

| 1850.0        |                |                             |                        | 1915.0            | MHz                       | Limit  |   | Margin |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|---|--------|
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |   |        |
| -90.0         | -47.1          | 15.4                        | 62.5                   | -                 | 72.0                      | -      | - | -9.5   |
| -80.0         | -47.1          | 15.4                        | 62.5                   | -                 | 72.0                      | -      | - | -9.5   |
| -75.0         | -47.1          | 14.4                        | 61.5                   | -                 | 72.0                      | -      | - | -10.5  |
| -31.0         | -47.1          | -24.4                       | 22.7                   | 34.0              | -                         | -      | - | -11.3  |
| -30.0         | -47.1          | -24.4                       | 22.7                   | 33.0              | -                         | -      | - | -10.3  |
| -20.0         | -47.1          | -24.4                       | 22.7                   | -                 | -                         | 23     | - | -0.3   |

## 7.9 Booster UL Gain Limit - Fixed Wideband Consumer Signal Booster



| 824.0         |                |                             |                        | 849.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -43.5          | 15.6                        | 59.1                   | -                 | 64.9                      | -      | -5.8   |
| -80.0         | -43.5          | 15.6                        | 59.1                   | -                 | 64.9                      | -      | -5.8   |
| -75.0         | -43.5          | 15.6                        | 59.1                   | -                 | 64.9                      | -      | -5.8   |
| -62.0         | -43.5          | 15.4                        | 58.9                   | 61.0              | -                         | -      | -2.1   |
| -61.0         | -43.5          | 14.4                        | 57.9                   | 60.0              | -                         | -      | -2.1   |
| -60.0         | -43.5          | 13.4                        | 56.9                   | 59.0              | -                         | -      | -2.1   |

| 698.0         |                |                             |                        | 716.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -38.3          | 18.0                        | 56.3                   | -                 | 63.5                      | -      | -7.2   |
| -80.0         | -38.3          | 18.0                        | 56.3                   | -                 | 63.5                      | -      | -7.2   |
| -75.0         | -38.3          | 18.0                        | 56.3                   | -                 | 63.5                      | -      | -7.2   |
| -62.0         | -38.3          | 16.0                        | 54.3                   | 59.5              | -                         | -      | -5.2   |
| -61.0         | -38.3          | 15.7                        | 54.0                   | 58.5              | -                         | -      | -4.5   |
| -60.0         | -38.3          | 14.6                        | 52.9                   | 57.5              | -                         | -      | -4.6   |

| 776.0         |                |                             |                        | 787.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -38.9          | 18.7                        | 57.6                   | -                 | 64.4                      | -      | -6.8   |
| -80.0         | -38.9          | 18.7                        | 57.6                   | -                 | 64.4                      | -      | -6.8   |
| -75.0         | -38.9          | 18.7                        | 57.6                   | -                 | 64.4                      | -      | -6.8   |
| -64.0         | -38.9          | 16.6                        | 55.5                   | 62.5              | -                         | -      | -7.0   |
| -63.0         | -38.9          | 15.6                        | 54.5                   | 61.5              | -                         | -      | -7.0   |
| -62.0         | -38.9          | 14.6                        | 53.5                   | 60.5              | -                         | -      | -7.0   |

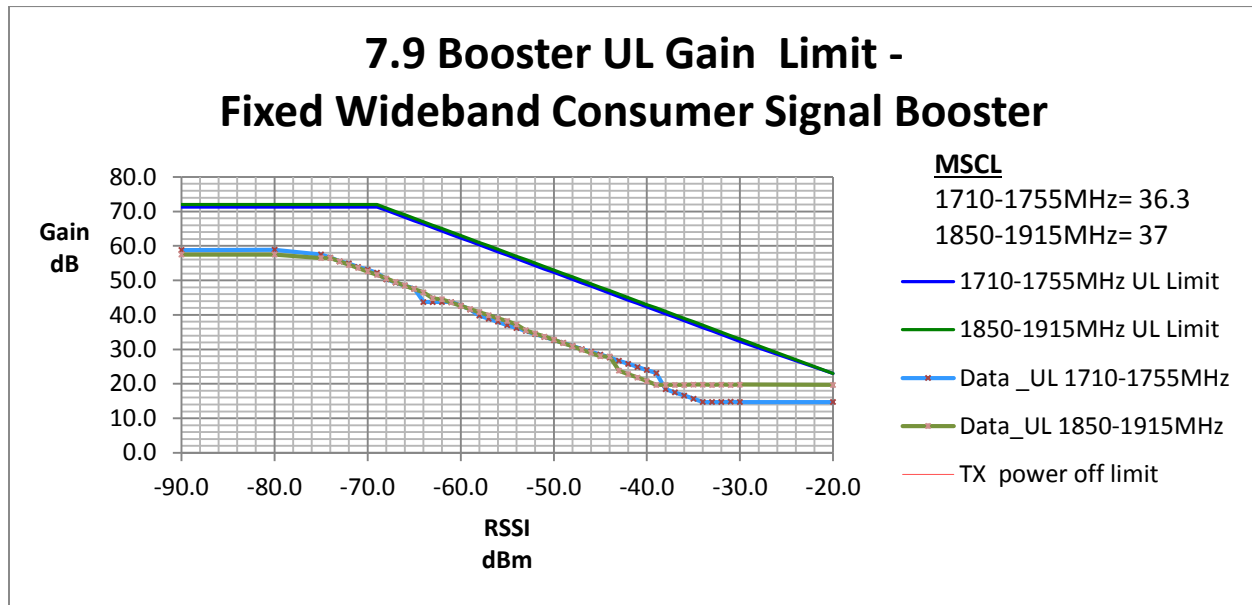
### 7.9.2 Variable uplink gain timing

| Uplink Gain Timing |                   |                |
|--------------------|-------------------|----------------|
| Frequency<br>(MHz) | Measured<br>(Sec) | Limit<br>(Sec) |
| UL 1710-1755       | 0.52              | 3.00           |
| UL 1850-1915       | 0.66              | 3.00           |
| UL 824-849         | 0.69              | 3.00           |
| UL 698-716         | 0.80              | 3.00           |
| UL 776-787         | 0.83              | 3.00           |

## 7.9 Summary of Results on a 100ft Cable

Pass: As demonstrated, computed gains are within the gain limit. All maximum variable uplink gain timings are within 3 second limit.

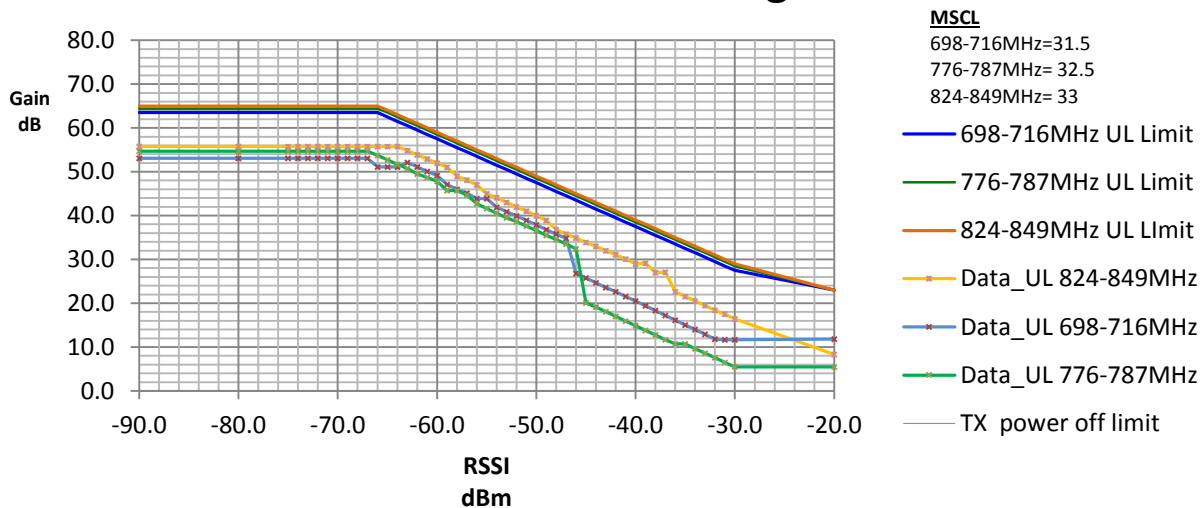
### 7.9.1 Maximum gain



| 1710.0        |                |                             |                        | 1755.0            | MHz                       |        |       |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|-------|
|               |                |                             |                        | Limit             |                           | Margin |       |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |       |
| -90.0         | -47.4          | 11.4                        | 58.8                   | -                 | 71.3                      | -      | -12.5 |
| -80.0         | -47.4          | 11.5                        | 58.9                   | -                 | 71.3                      | -      | -12.4 |
| -75.0         | -47.4          | 10.1                        | 57.5                   | -                 | 71.3                      | -      | -13.8 |
| -31.0         | -47.4          | -32.6                       | 14.8                   | 33.3              | -                         | -      | -18.5 |
| -30.0         | -47.4          | -32.7                       | 14.7                   | 32.3              | -                         | -      | -17.6 |
| -20.0         | -47.4          | -32.7                       | 14.7                   |                   | -                         | 23     | -8.3  |

| 1850.0            |                    |                                 |                            | 1915.0                | MHz                           |        |        |  |
|-------------------|--------------------|---------------------------------|----------------------------|-----------------------|-------------------------------|--------|--------|--|
|                   |                    |                                 |                            | Limit                 |                               |        | Margin |  |
| RSSI<br><br>(dBm) | Input<br><br>(dBm) | Measured<br><br>Output<br>(dBm) | Measured<br><br>Gain (dBm) | RSSI<br><br>Dependent | Fixed<br>Booster<br><br>Limit | TX off |        |  |
| -90.0             | -46.3              | 11.2                            | 57.5                       | -                     | 72.0                          | -      | -14.5  |  |
| -80.0             | -46.3              | 11.2                            | 57.5                       | -                     | 72.0                          | -      | -14.5  |  |
| -75.0             | -46.3              | 10.2                            | 56.5                       | -                     | 72.0                          | -      | -15.5  |  |
| -31.0             | -46.3              | -26.6                           | 19.7                       | 34.0                  | -                             | -      | -14.3  |  |
| -30.0             | -46.3              | -26.5                           | 19.8                       | 33.0                  | -                             | -      | -13.2  |  |
| -20.0             | -46.3              | -26.6                           | 19.7                       | -                     | -                             | 23     | -3.3   |  |

## 7.9 Booster UL Gain Limit - Fixed Wideband Consumer Signal Booster



| 824.0         |                |                             |                        | 849.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -43.5          | 12.3                        | 55.8                   | -                 | 64.9                      | -      | -9.1   |
| -80.0         | -43.5          | 12.3                        | 55.8                   | -                 | 64.9                      | -      | -9.1   |
| -75.0         | -43.5          | 12.3                        | 55.8                   | -                 | 64.9                      | -      | -9.1   |
| -61.0         | -43.5          | 9.4                         | 52.9                   | 60.0              | -                         | -      | -7.1   |
| -60.0         | -43.5          | 8.5                         | 52.0                   | 59.0              | -                         | -      | -7.0   |
| -59.0         | -43.5          | 7.5                         | 51.0                   | 58.0              | -                         | -      | -7.0   |

| 698.0         |                |                             |                        | 716.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -38.3          | 14.8                        | 53.1                   | -                 | 63.5                      | -      | -10.4  |
| -80.0         | -38.3          | 14.8                        | 53.1                   | -                 | 63.5                      | -      | -10.4  |
| -75.0         | -38.3          | 14.8                        | 53.1                   | -                 | 63.5                      | -      | -10.4  |
| -63.0         | -38.3          | 13.8                        | 52.1                   | 60.5              | -                         | -      | -8.4   |
| -62.0         | -38.3          | 12.8                        | 51.1                   | 59.5              | -                         | -      | -8.4   |
| -61.0         | -38.3          | 11.8                        | 50.1                   | 58.5              | -                         | -      | -8.4   |

| 776.0         |                |                             |                        | 787.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -38.4          | 16.3                        | 54.7                   | -                 | 64.4                      | -      | -9.7   |
| -80.0         | -38.4          | 16.3                        | 54.7                   | -                 | 64.4                      | -      | -9.7   |
| -75.0         | -38.4          | 16.3                        | 54.7                   | -                 | 64.4                      | -      | -9.7   |
| -64.0         | -38.4          | 13.3                        | 51.7                   | 62.5              | -                         | -      | -10.8  |
| -63.0         | -38.4          | 12.3                        | 50.7                   | 61.5              | -                         | -      | -10.8  |
| -62.0         | -38.4          | 11.1                        | 49.5                   | 60.5              | -                         | -      | -11.0  |

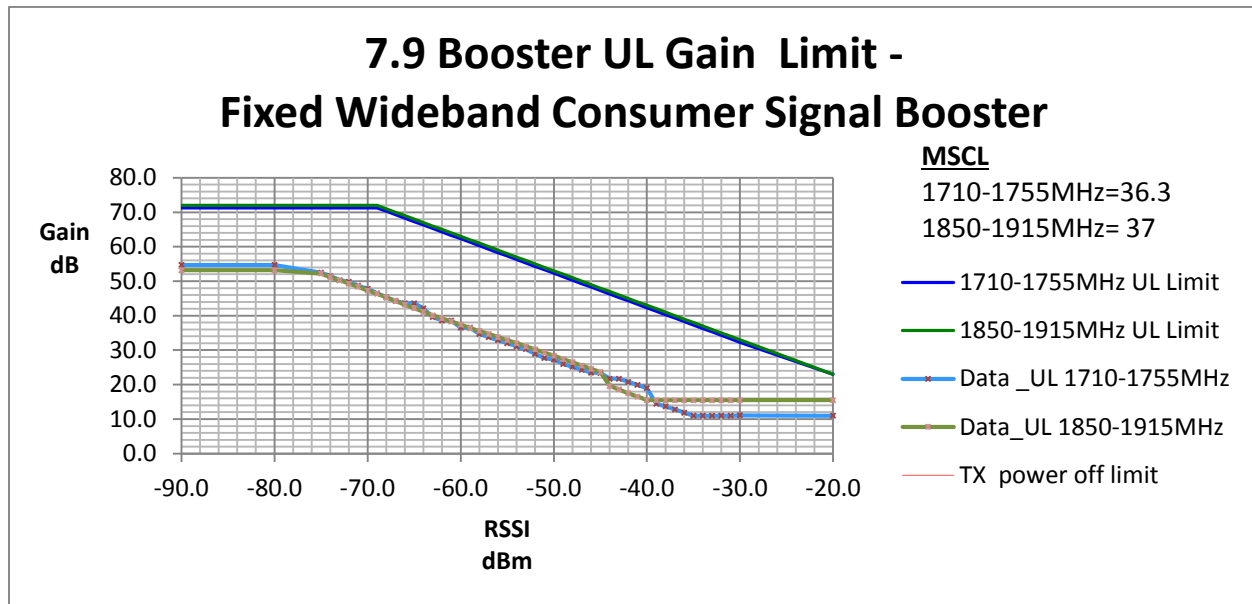
### 7.9.2 Variable uplink gain timing

| Uplink Gain Timing |                   |                |
|--------------------|-------------------|----------------|
| Frequency<br>(MHz) | Measured<br>(Sec) | Limit<br>(Sec) |
| UL 1710-1755       | 0.88              | 3.00           |
| UL 1850-1915       | 0.39              | 3.00           |
| UL 824-849         | 0.98              | 3.00           |
| UL 698-716         | 0.90              | 3.00           |
| UL 776-787         | 1.10              | 3.00           |

## 7.9 Summary of Results on a 150ft Cable

Pass: As demonstrated, computed gains are within the gain limit. All maximum variable uplink gain timings are within 3 second limit.

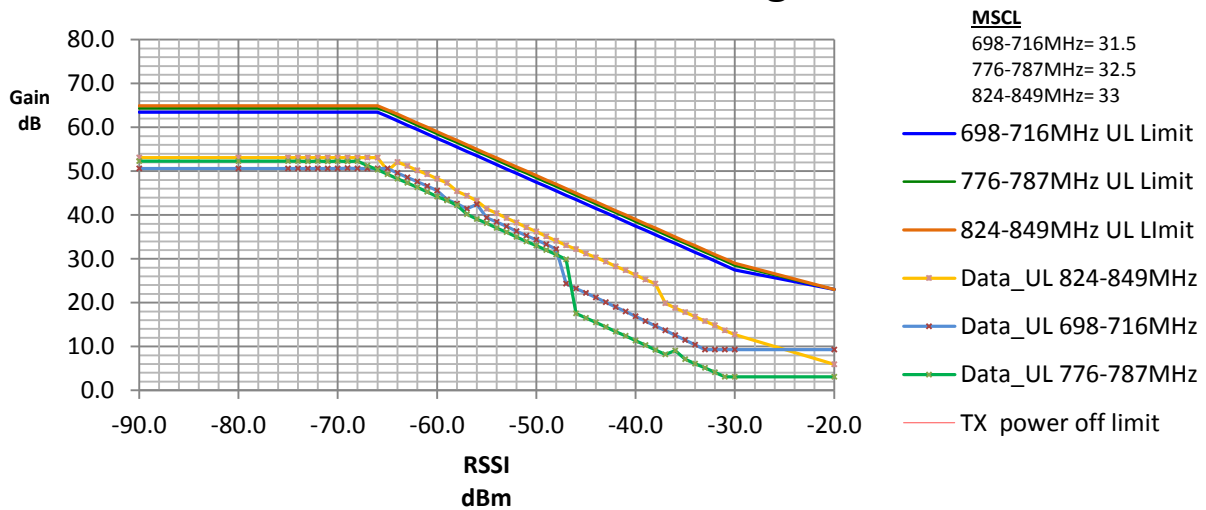
### 7.9.1 Maximum gain



| 1710.0        |                |                             |                        | 1755.0            | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -47.4          | 7.3                         | 54.7                   | -                 | 71.3                      | -      | -16.6  |
| -80.0         | -47.4          | 7.3                         | 54.7                   | -                 | 71.3                      | -      | -16.6  |
| -75.0         | -47.4          | 5.1                         | 52.5                   | -                 | 71.3                      | -      | -18.8  |
| -31.0         | -47.4          | -36.4                       | 11.0                   | 33.3              | -                         | -      | -22.3  |
| -30.0         | -47.4          | -36.3                       | 11.1                   | 32.3              | -                         | -      | -21.2  |
| -20.0         | -47.4          | -36.4                       | 11.0                   | -                 | -                         | 23     | -12.0  |

| 1850.0            |                    |                                 |                            | 1915.0                | MHz                           |        |        |  |
|-------------------|--------------------|---------------------------------|----------------------------|-----------------------|-------------------------------|--------|--------|--|
|                   |                    |                                 |                            | Limit                 |                               |        | Margin |  |
| RSSI<br><br>(dBm) | Input<br><br>(dBm) | Measured<br><br>Output<br>(dBm) | Measured<br><br>Gain (dBm) | RSSI<br><br>Dependent | Fixed<br>Booster<br><br>Limit | TX off |        |  |
| -90.0             | -46.3              | 6.9                             | 53.2                       | -                     | 72.0                          | -      | -18.8  |  |
| -80.0             | -46.3              | 6.9                             | 53.2                       | -                     | 72.0                          | -      | -18.8  |  |
| -75.0             | -46.3              | 5.9                             | 52.2                       | -                     | 72.0                          | -      | -19.8  |  |
| -31.0             | -46.3              | -30.8                           | 15.5                       | 34.0                  | -                             | -      | -18.5  |  |
| -30.0             | -46.3              | -30.8                           | 15.5                       | 33.0                  | -                             | -      | -17.5  |  |
| -20.0             | -46.3              | -30.8                           | 15.5                       | -                     | -                             | 23     | -7.5   |  |

## 7.9 Booster UL Gain Limit - Fixed Wideband Consumer Signal Booster



| 824.0         |                |                             |                        | 849.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -43.5          | 9.6                         | 53.1                   | -                 | 64.9                      | -      | -11.8  |
| -80.0         | -43.5          | 9.6                         | 53.1                   | -                 | 64.9                      | -      | -11.8  |
| -75.0         | -43.5          | 9.6                         | 53.1                   | -                 | 64.9                      | -      | -11.8  |
| -63.0         | -43.5          | 7.7                         | 51.2                   | 62.0              | -                         | -      | -10.8  |
| -62.0         | -43.5          | 6.7                         | 50.2                   | 61.0              | -                         | -      | -10.8  |
| -61.0         | -43.5          | 5.8                         | 49.3                   | 60.0              | -                         | -      | -10.7  |

| 698.0         |                |                             |                        | 716.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -38.3          | 12.3                        | 50.6                   | -                 | 63.5                      | -      | -12.9  |
| -80.0         | -38.3          | 12.3                        | 50.6                   | -                 | 63.5                      | -      | -12.9  |
| -75.0         | -38.3          | 12.3                        | 50.6                   | -                 | 63.5                      | -      | -12.9  |
| -64.0         | -38.3          | 11.3                        | 49.6                   | 61.5              | -                         | -      | -11.9  |
| -63.0         | -38.3          | 10.3                        | 48.6                   | 60.5              | -                         | -      | -11.9  |
| -62.0         | -38.3          | 9.3                         | 47.6                   | 59.5              | -                         | -      | -11.9  |

| 776.0         |                |                             |                        | 787.0             | MHz                       |        |        |
|---------------|----------------|-----------------------------|------------------------|-------------------|---------------------------|--------|--------|
|               |                |                             |                        | Limit             |                           |        | Margin |
| RSSI<br>(dBm) | Input<br>(dBm) | Measured<br>Output<br>(dBm) | Measured<br>Gain (dBm) | RSSI<br>Dependent | Fixed<br>Booster<br>Limit | TX off |        |
| -90.0         | -38.4          | 13.9                        | 52.3                   | -                 | 64.4                      | -      | -12.1  |
| -80.0         | -38.4          | 13.9                        | 52.3                   | -                 | 64.4                      | -      | -12.1  |
| -75.0         | -38.4          | 13.9                        | 52.3                   | -                 | 64.4                      | -      | -12.1  |
| -64.0         | -38.4          | 9.9                         | 48.3                   | 62.5              | -                         | -      | -14.2  |
| -63.0         | -38.4          | 8.9                         | 47.3                   | 61.5              | -                         | -      | -14.2  |
| -62.0         | -38.4          | 7.9                         | 46.3                   | 60.5              | -                         | -      | -14.2  |

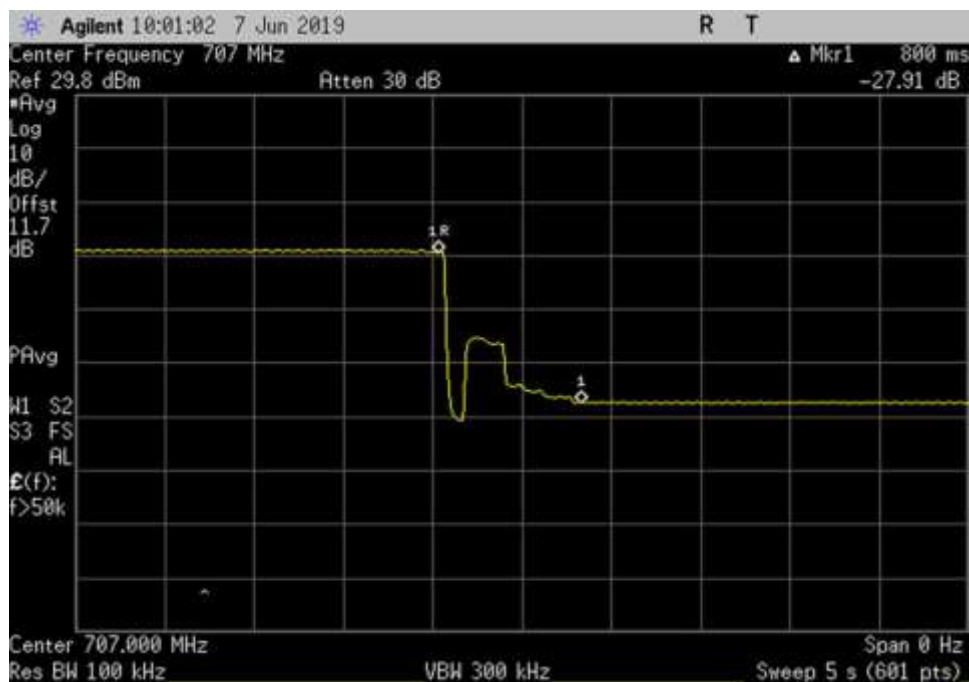
## 7.9.2 Variable uplink gain timing

| Uplink Gain Timing |                |             |
|--------------------|----------------|-------------|
| Frequency (MHz)    | Measured (Sec) | Limit (Sec) |
| UL 1710-1755       | 0.80           | 3.00        |
| UL 1850-1915       | 0.68           | 3.00        |
| UL 824-849         | 1.06           | 3.00        |
| UL 698-716         | 0.86           | 3.00        |
| UL 776-787         | 1.23           | 3.00        |

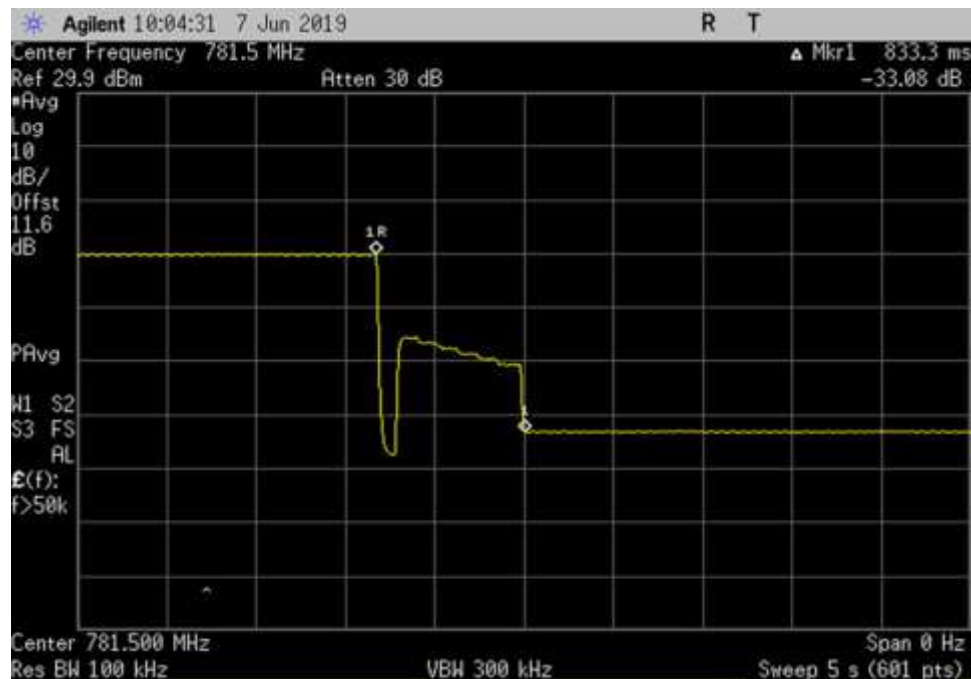
## 7.9.2 Variable uplink Gain Timing

### Plots

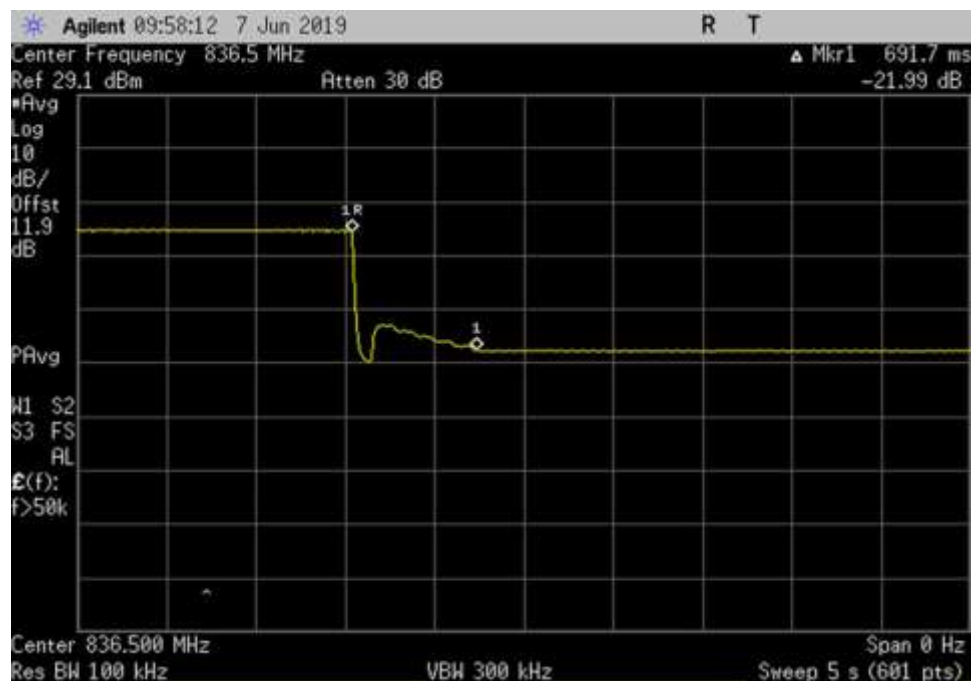
#### Configuration 1



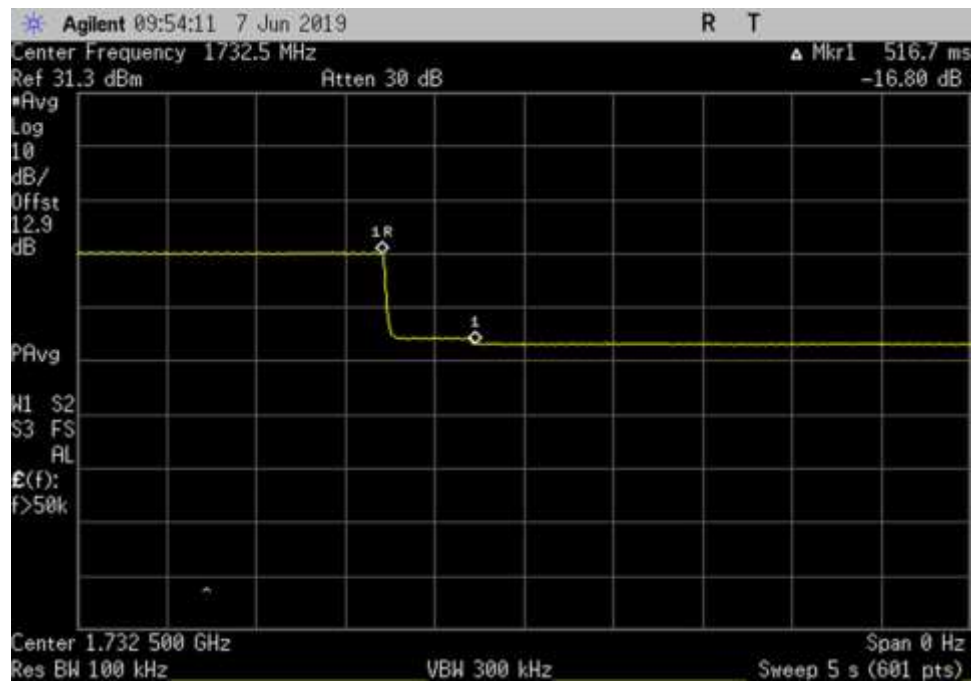
UL\_698-716\_707MHz\_50ft Cable



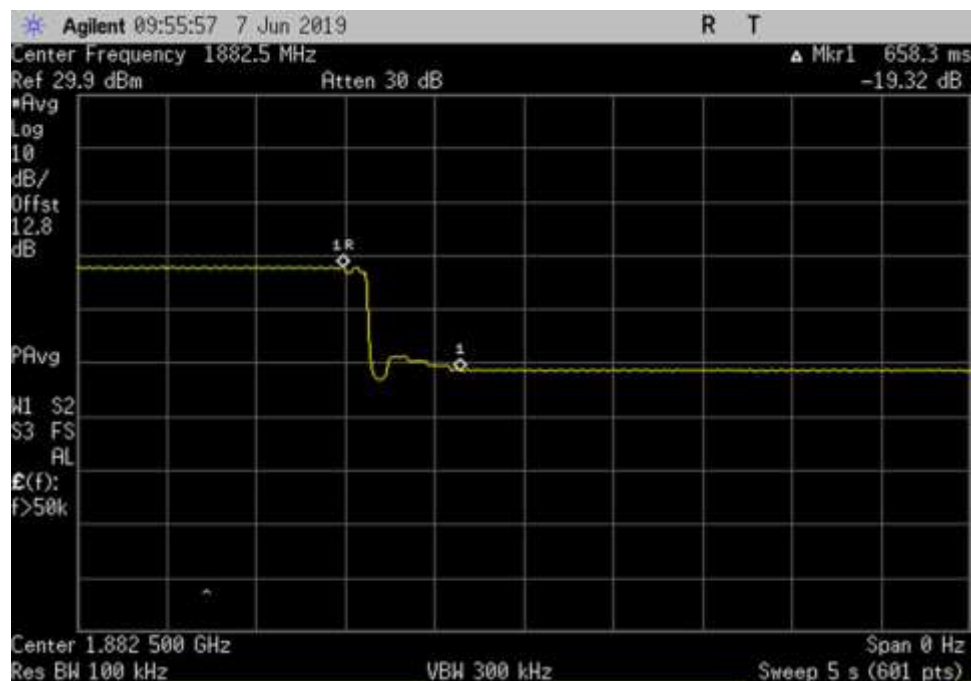
UL\_776-787\_ 781.5MHz\_50ft Cable



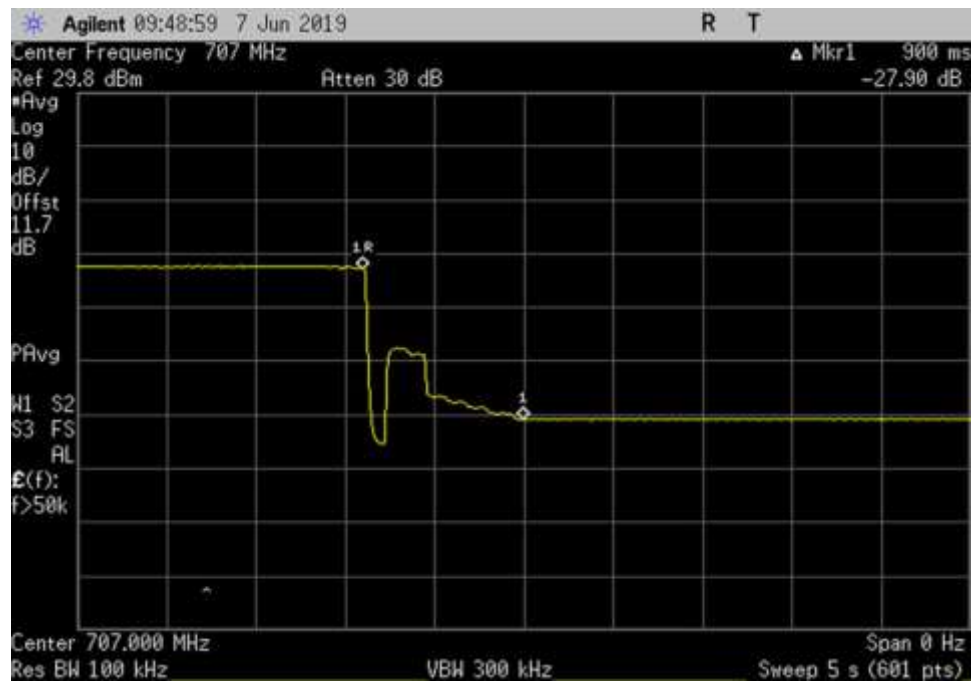
UL\_824-849\_ 836.5MHz\_50ft Cable



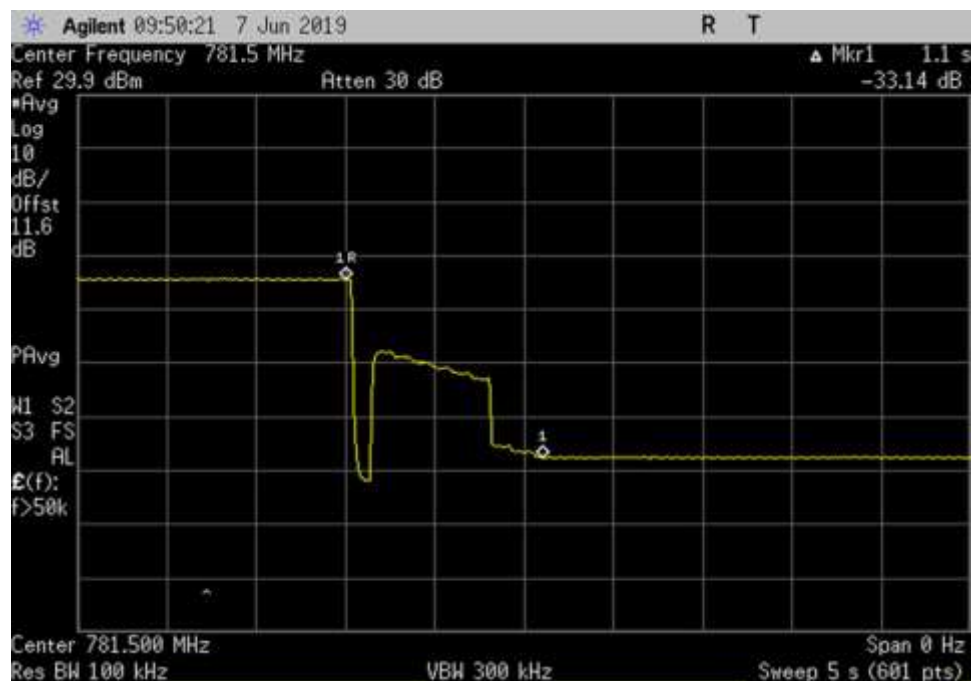
UL\_1710-1755\_1732.5MHz\_50ft Cable



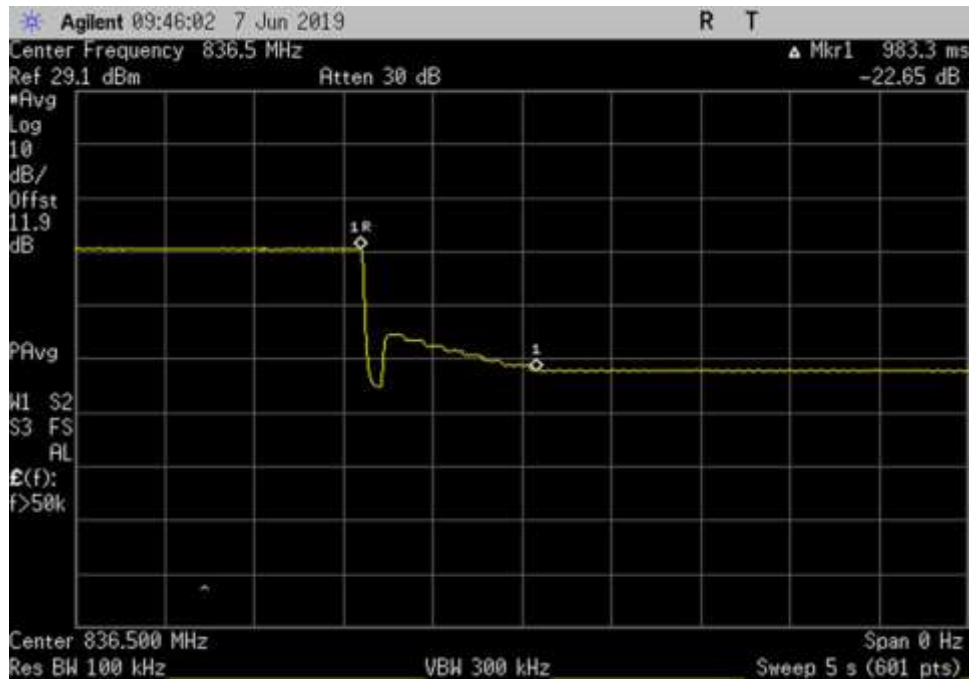
UL\_1850-1915\_1882.5MHz\_50ft Cable



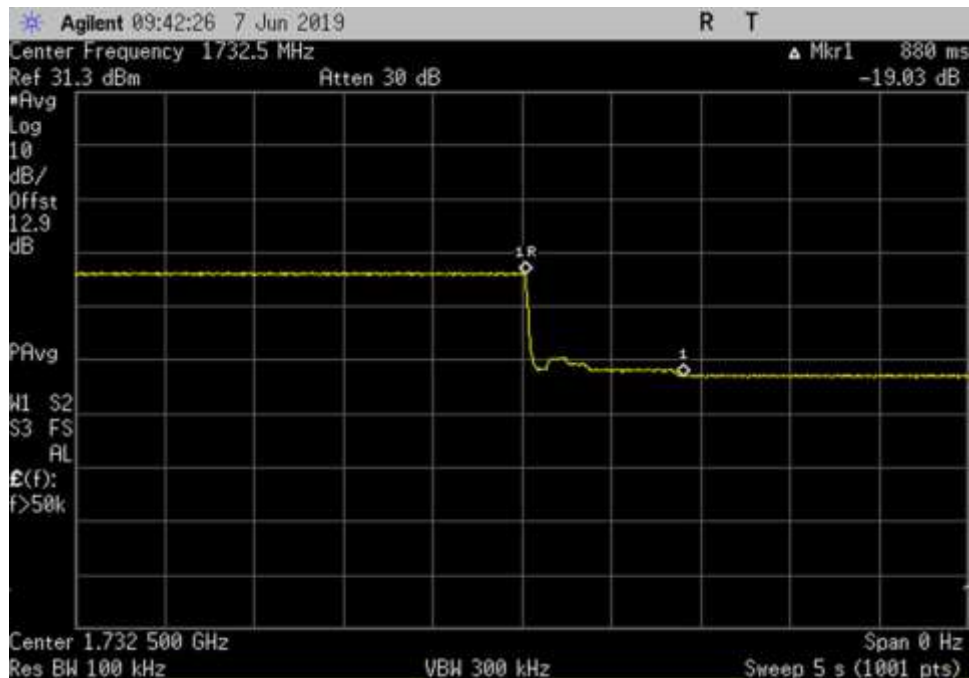
UL\_698-716\_707MHz\_100ft Cable



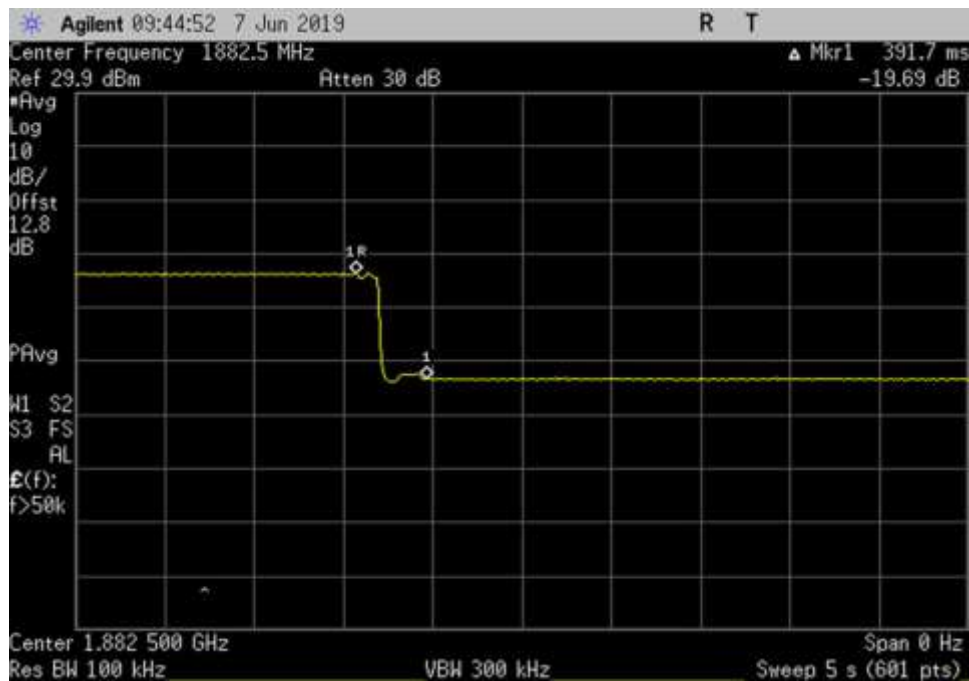
UL\_776-787\_781.5MHz\_100ft Cable



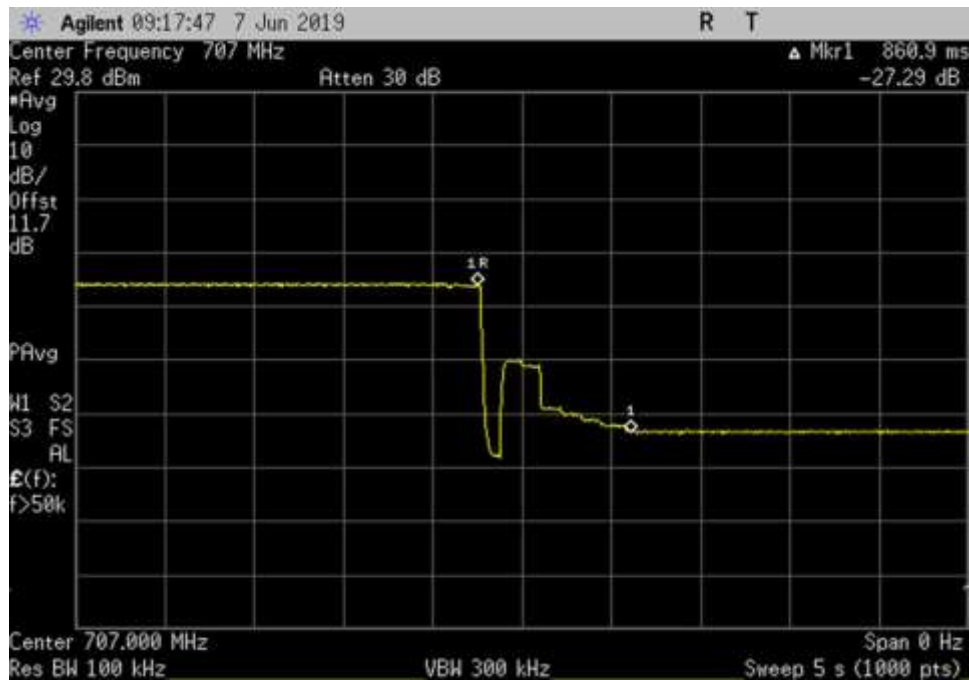
UL\_824-849\_836.5MHz\_100ft Cable



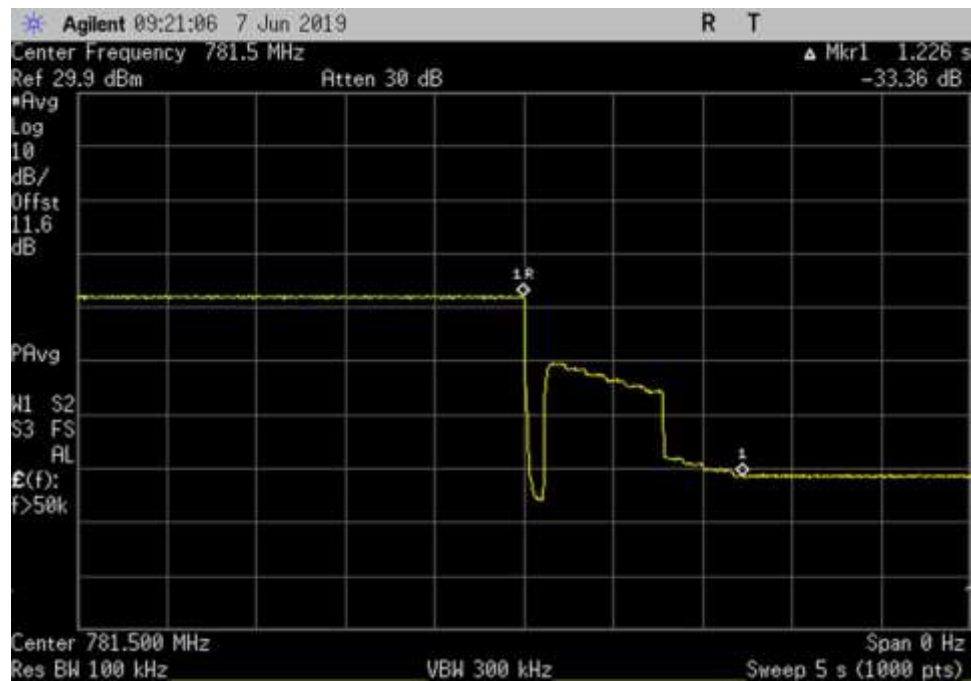
UL\_1710-1755\_1732.5MHz\_100ft Cable



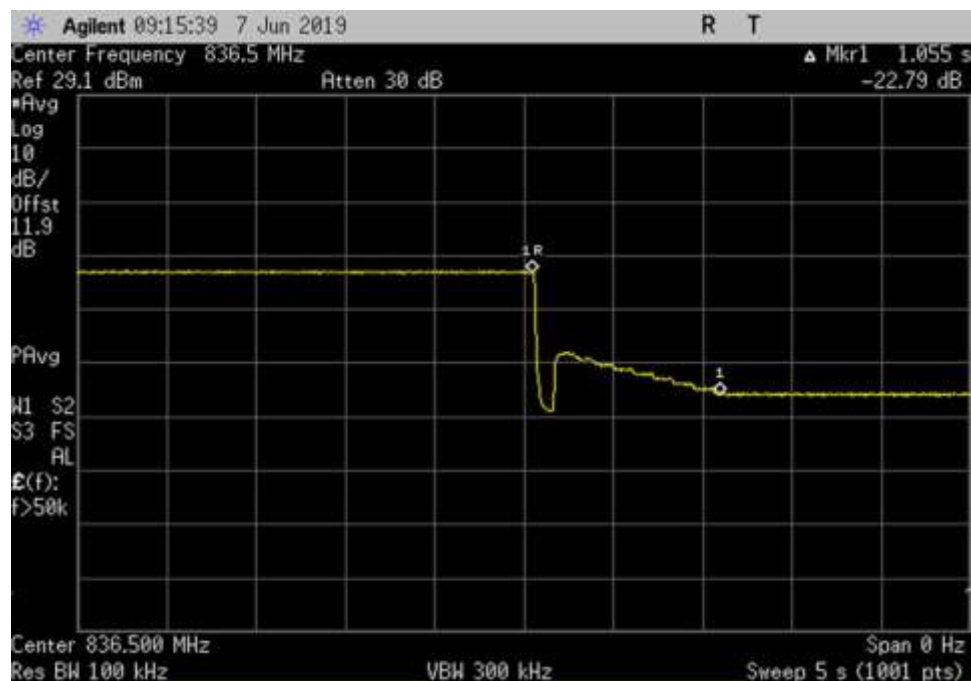
UL\_1850-1915\_1882.5MHz\_100ft Cable



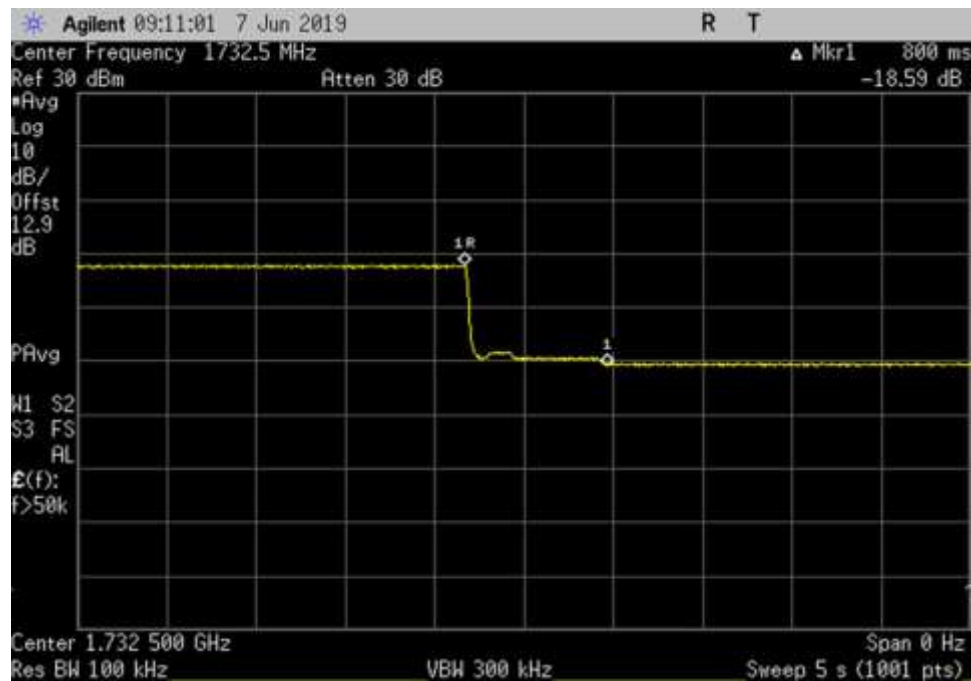
UL\_698-716-Var\_707MHz\_150ft Cable



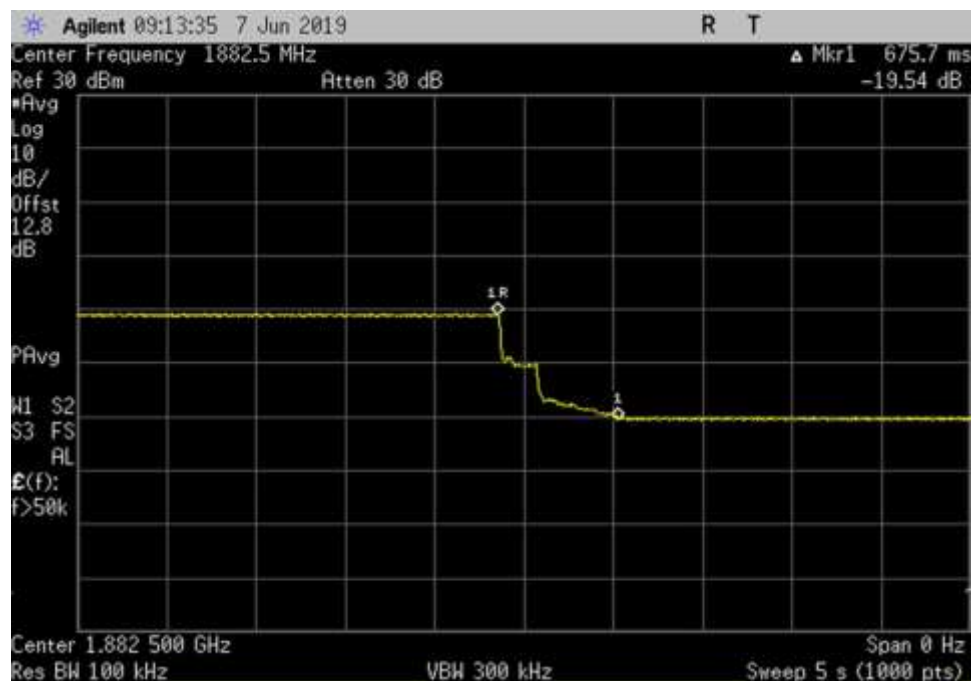
UL\_776-787\_Var\_781.5MHz\_150ft Cable



UL\_824-849\_Var\_836.5MHz\_150ft Cable



UL\_1710-1755\_Var\_ 1732.5MHz\_150ft Cable



UL\_1850-1915\_Var\_ 1882.5MHz\_150ft Cable

## 7.10 Occupied Band Width

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.10 Occupied Band Width / 47 CFR §2.1049 Occupied Band Width**  
 Work Order #: **102129**  
 Test Type: **Conducted Emissions** Date 06/04/2019 and 06/05/2019  
 Tested By: **Hieu Song 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:

06/04/2019:  
 Test environment conditions: Temperature: 23.1°C, Relative Humidity: 42%, Atmospheric Pressure: 101.8kPa  
 06/05/2019:  
 Test environment conditions: Temperature: 24.5°C, Relative Humidity: 41%, Atmospheric Pressure: 102.5kPa  
 Modification 1 was in place during testing.

#### 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                   | 05/13/2019       | 05/13/2021   |
| 03471   | Spectrum Analyzer | Agilent      | E4440A                   | 1/18/2018        | 1/18/2020    |

## Summary of Results

### 2.1049 OBW - Summary of Results

Pass: As summarized in plots and tables below, the uniformity of the output signal relative to the input signal are practically identical. Therefore, the comparison is within limits. Only performed on a 50ft Cable

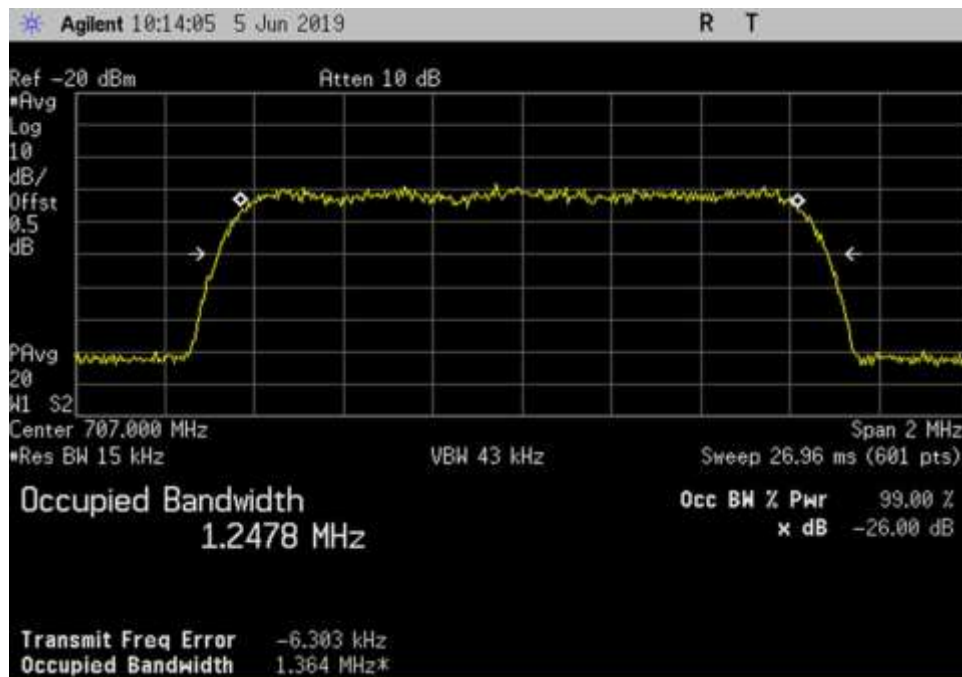
| OBW-Input (Hz) |        |         |         |         | OBW-Output (Hz) |        |         |         |         |
|----------------|--------|---------|---------|---------|-----------------|--------|---------|---------|---------|
| EDGE           | GSM    | CDMA    | AWGN    | LTE     | EDGE            | GSM    | CDMA    | AWGN    | LTE     |
| 242305         | 247519 | 1252348 | 4138059 | 4461471 | 243350          | 245906 | 1263069 | 4147679 | 4435866 |
| 247685         | 246729 | 1247406 | 4139054 | 4447092 | 245323          | 247838 | 1262453 | 4132155 | 4431496 |
| 241498         | 244439 | 1254702 | 4119191 | 4453436 | 246451          | 245994 | 1259545 | 4148668 | 4455351 |
| 240327         | 244833 | 1247821 | 4124179 | 4463817 | 241911          | 245749 | 1256345 | 4116459 | 4456972 |
| 243242         | 240146 | 1253271 | 4133142 | 4448520 | 246946          | 244263 | 1255505 | 4141303 | 4462409 |
| 241935         | 246540 | 1253821 | 4165063 | 4450013 | 243002          | 245570 | 1269165 | 4110463 | 4476666 |
| 242280         | 242291 | 1266536 | 4140095 | 4451336 | 243431          | 244243 | 1255189 | 4136847 | 4476394 |
| 243661         | 241240 | 1245426 | 4152296 | 4432090 | 241277          | 245267 | 1248217 | 4117910 | 4456123 |
| 240244         | 246465 | 1261933 | 4143841 | 4446394 | 242334          | 244151 | 1255083 | 4102108 | 4433510 |
| 244469         | 244427 | 1257440 | 4156708 | 4444928 | 244366          | 240544 | 1261104 | 4123557 | 4420696 |

| Max Difference In&Out<br>Occ BW 99% Pwr |       |       |       |       |       |
|-----------------------------------------|-------|-------|-------|-------|-------|
| Frequency Range                         | EDGE  | GSM   | CDMA  | AWGN  | LTE   |
| UL_1710-1755MHz                         | 0.43% | 0.65% | 0.86% | 0.23% | 0.57% |
| UL_1850-1915MHz                         | 0.95% | 0.45% | 1.21% | 0.17% | 0.35% |
| UL_824-849MHz                           | 2.05% | 0.64% | 0.39% | 0.72% | 0.04% |
| UL_698-716MHz                           | 0.66% | 0.37% | 0.68% | 0.19% | 0.15% |
| UL_777-787MHz                           | 1.52% | 1.71% | 0.18% | 0.20% | 0.31% |
| DL_2110-2155MHz                         | 0.44% | 0.39% | 1.22% | 1.31% | 0.60% |
| DL_1930-1995MHz                         | 0.48% | 0.81% | 0.90% | 0.08% | 0.56% |
| DL_869-894MHz                           | 0.98% | 1.67% | 0.22% | 0.83% | 0.54% |
| DL_728-746MHz                           | 0.87% | 0.94% | 0.54% | 1.01% | 0.29% |
| DL_746-756MHz                           | 0.04% | 1.59% | 0.29% | 0.80% | 0.55% |

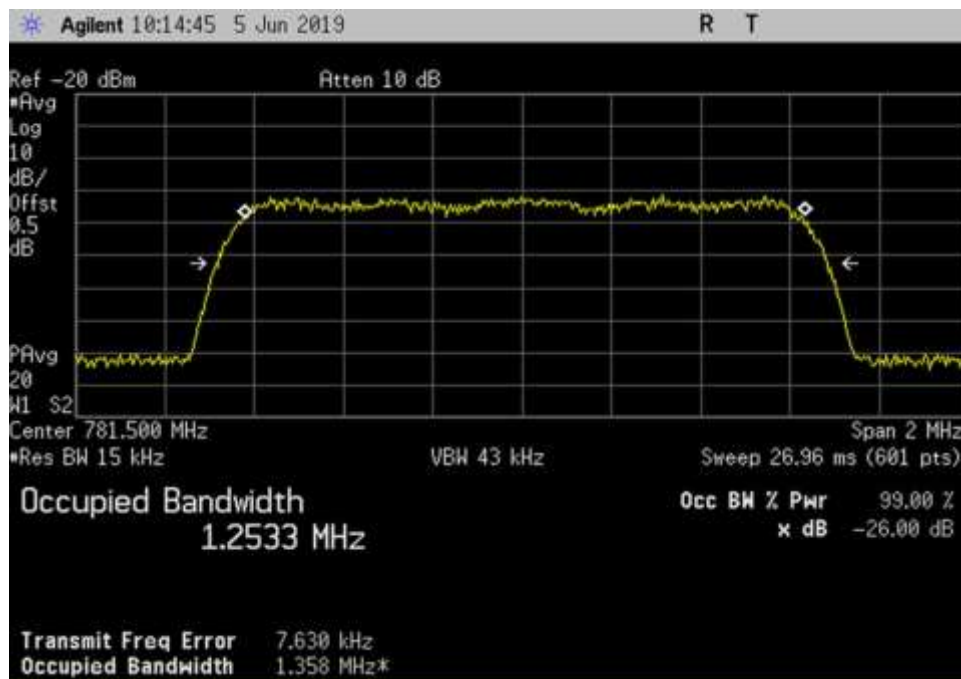
## Plots

### Configuration 1

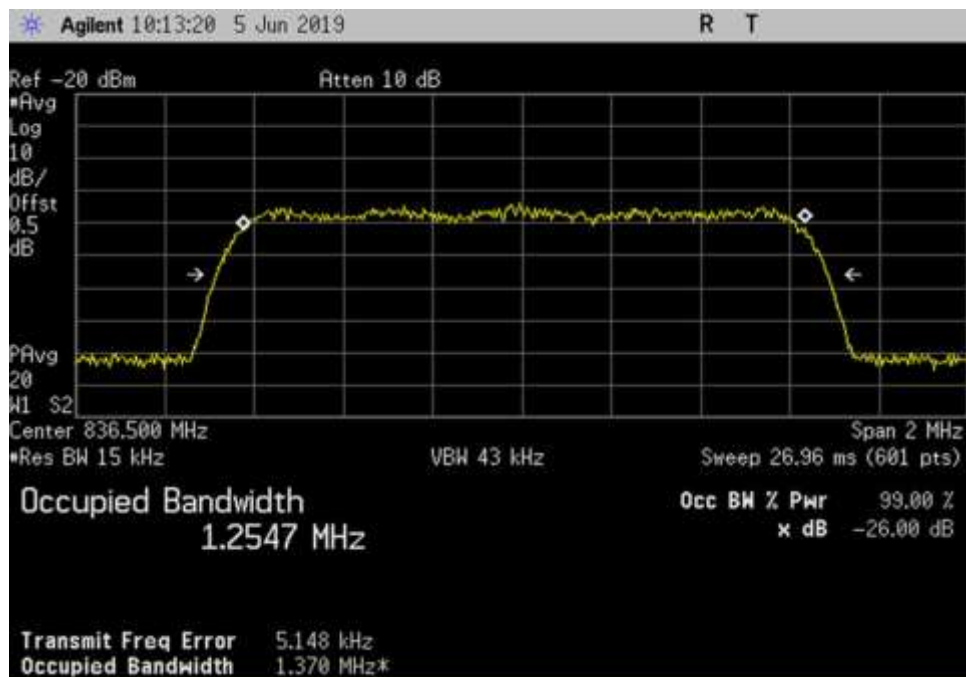
#### CDMA-Input



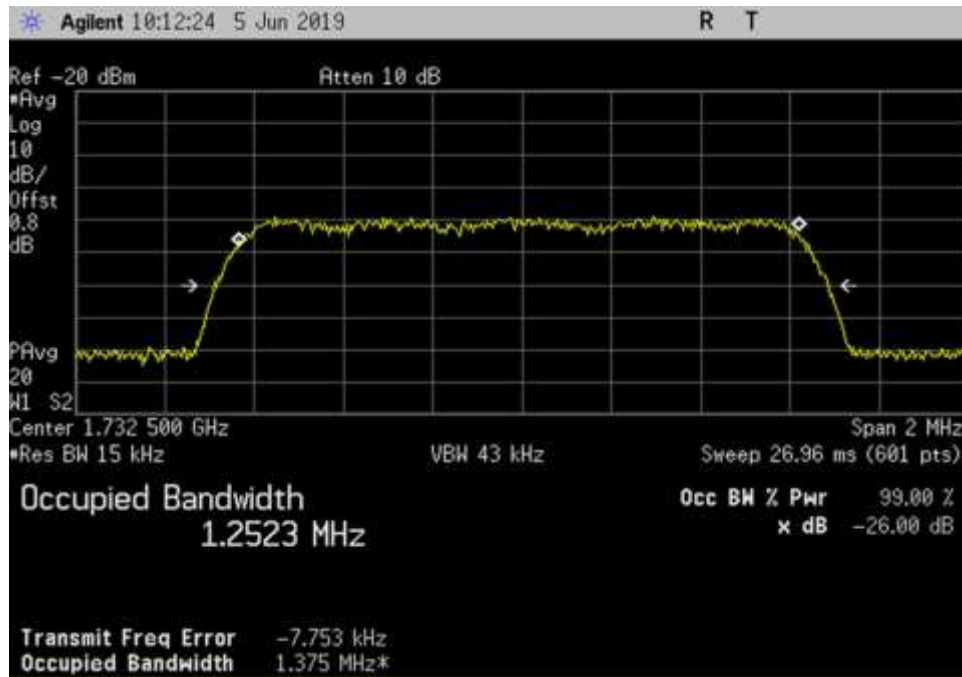
UL\_698-716\_CDMA\_707MHz



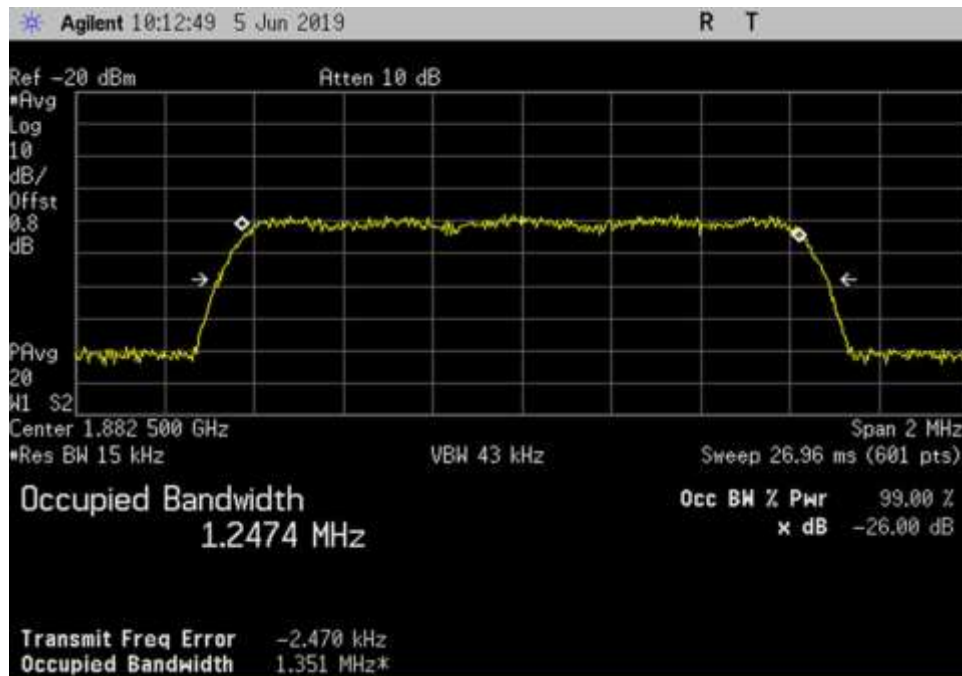
UL\_776-787\_CDMA\_781.5MHz



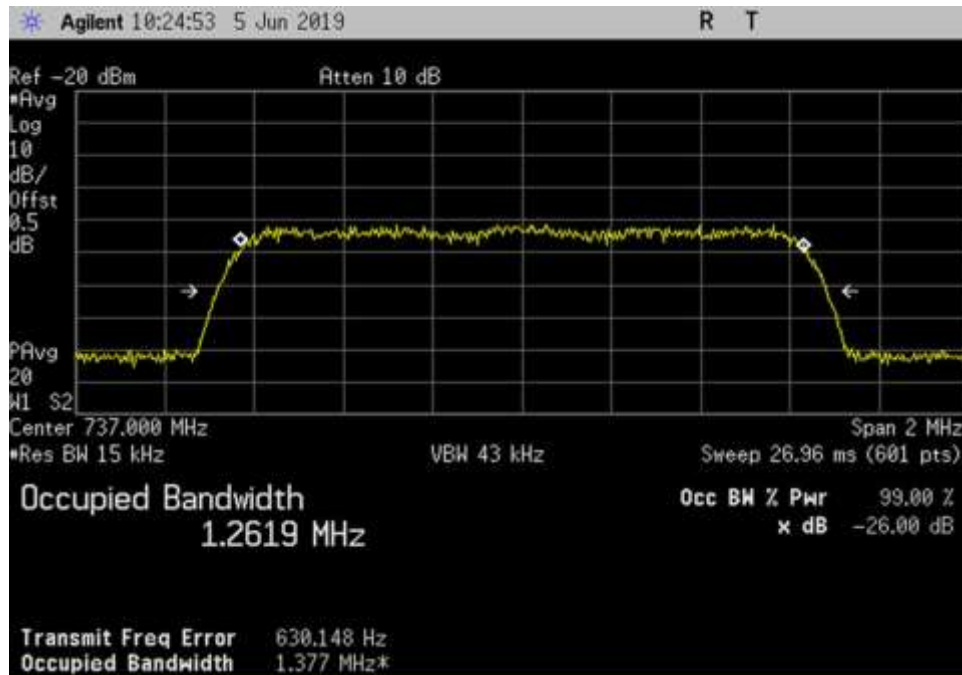
UL\_824-849\_CDMA\_836.5MHz



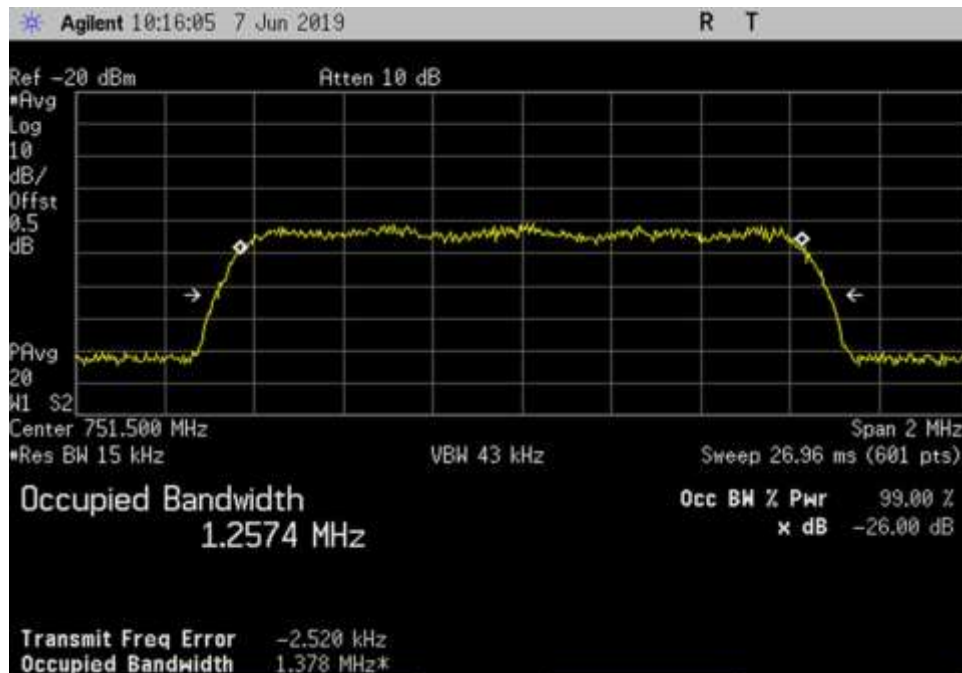
UL\_1710-1755\_CDMA\_ 1732.5MHz



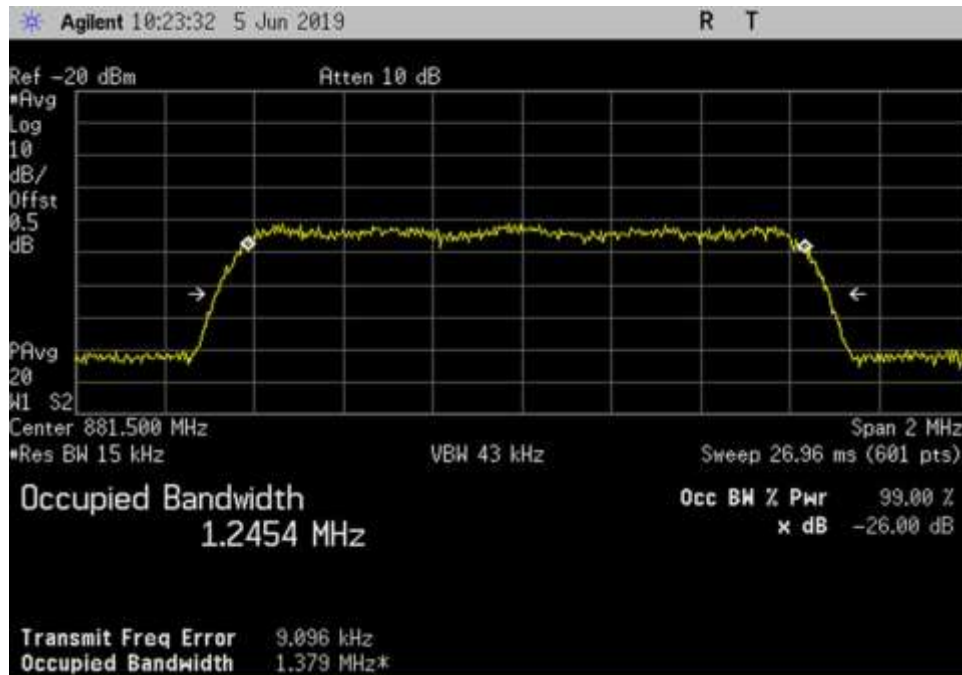
UL\_1850-1915\_CDMA\_ 1882.5MHz



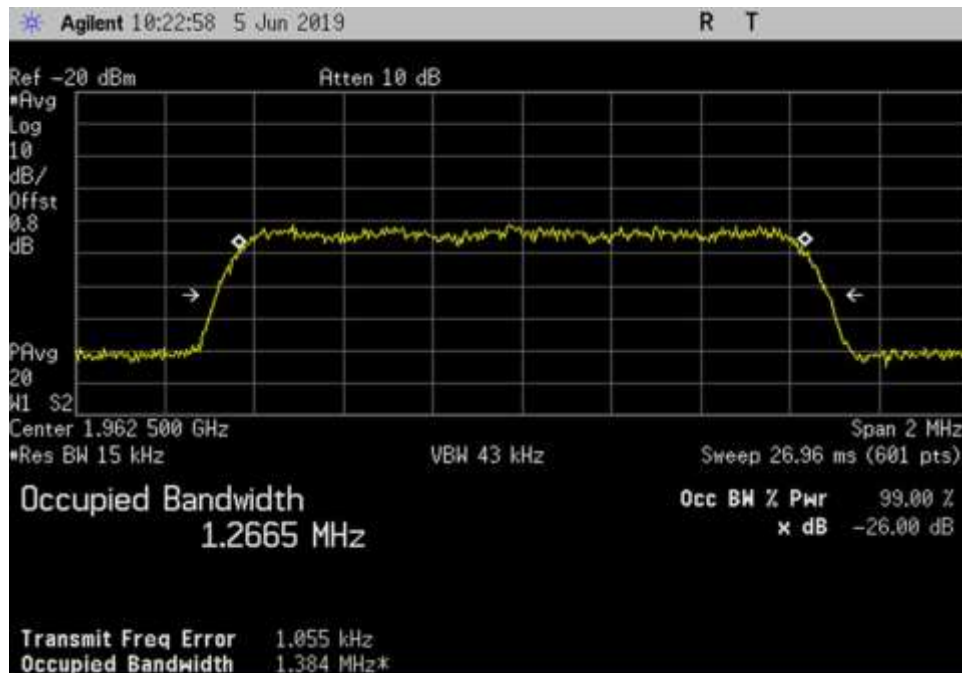
DL\_728-746\_CDMA\_ 737MHz



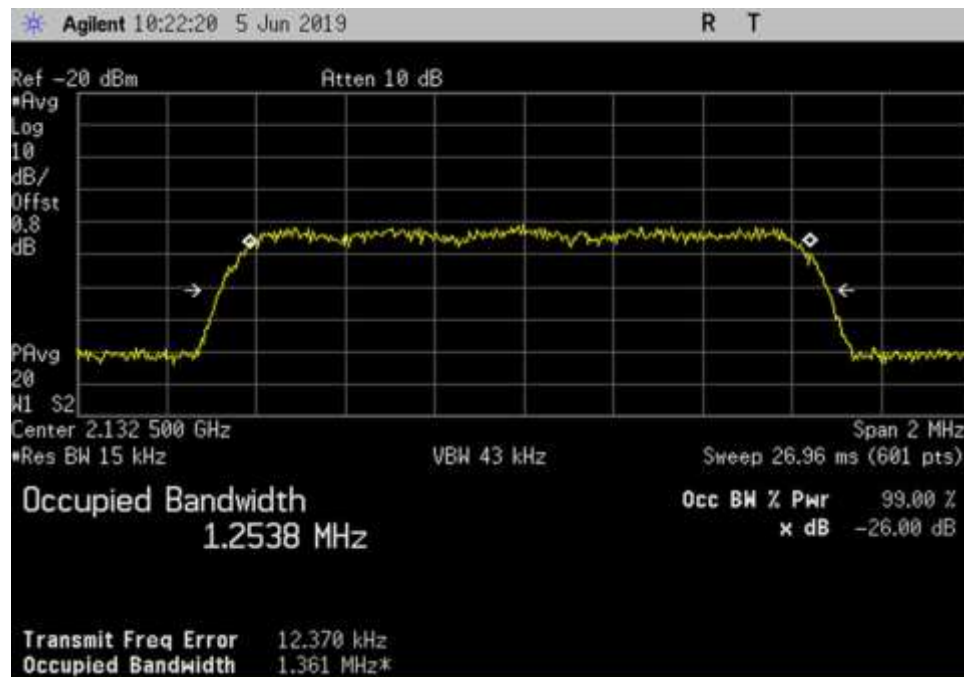
DL\_746-757\_CDMA\_ 751.5MHz



DL\_869-894\_CDMA\_ 881.5MHz

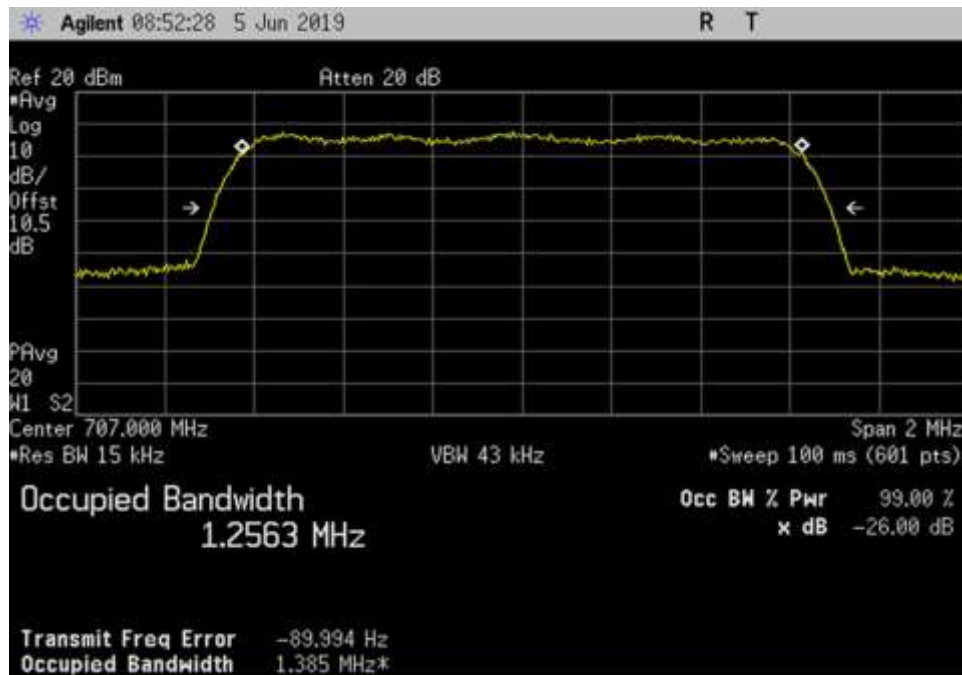


DL\_1930-1995\_CDMA\_ 1962.5MHz

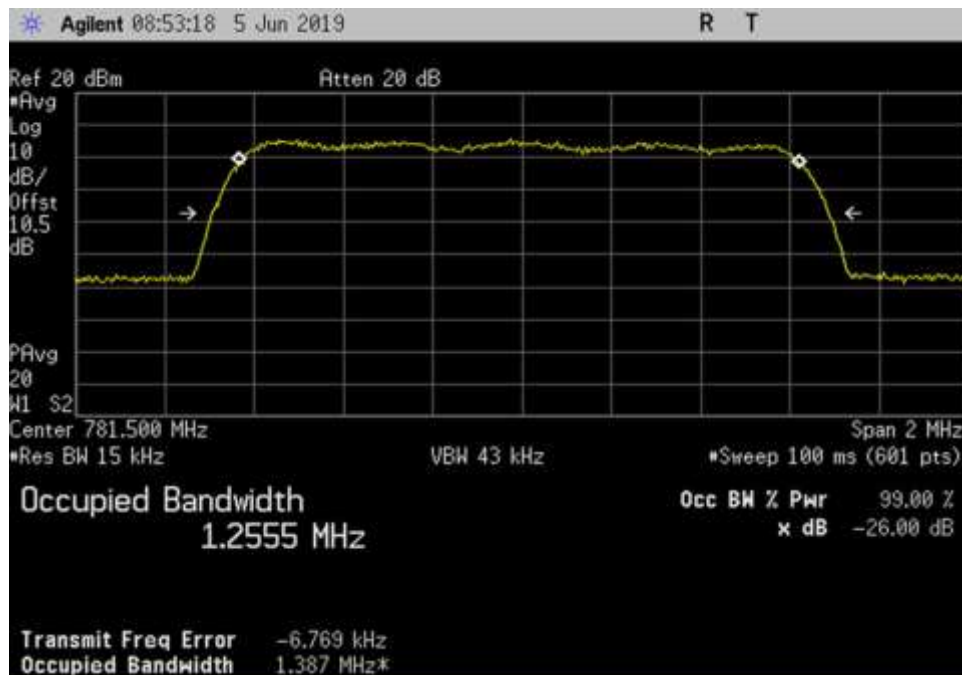


DL\_2110-2155\_CDMA\_ 2132.5MHz

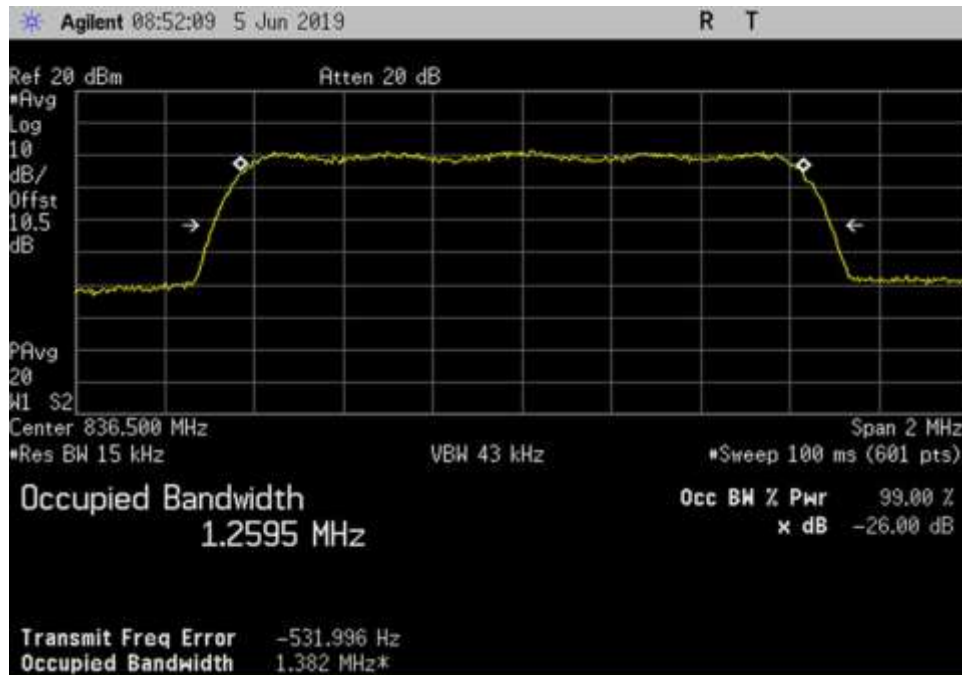
### CDMA-Output



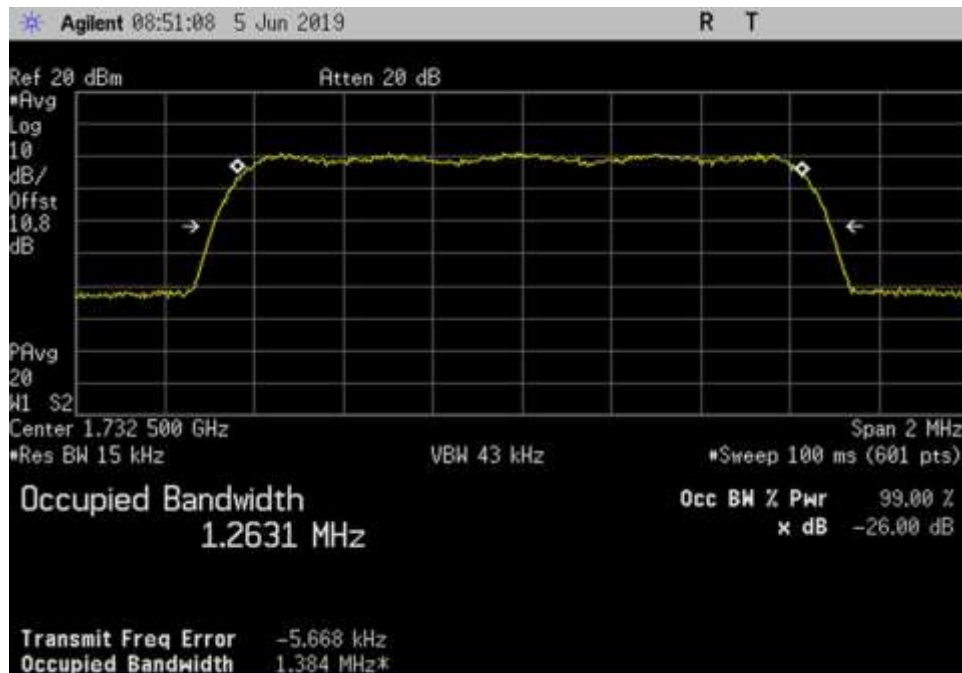
UL\_698-716\_CDMA\_707MHz



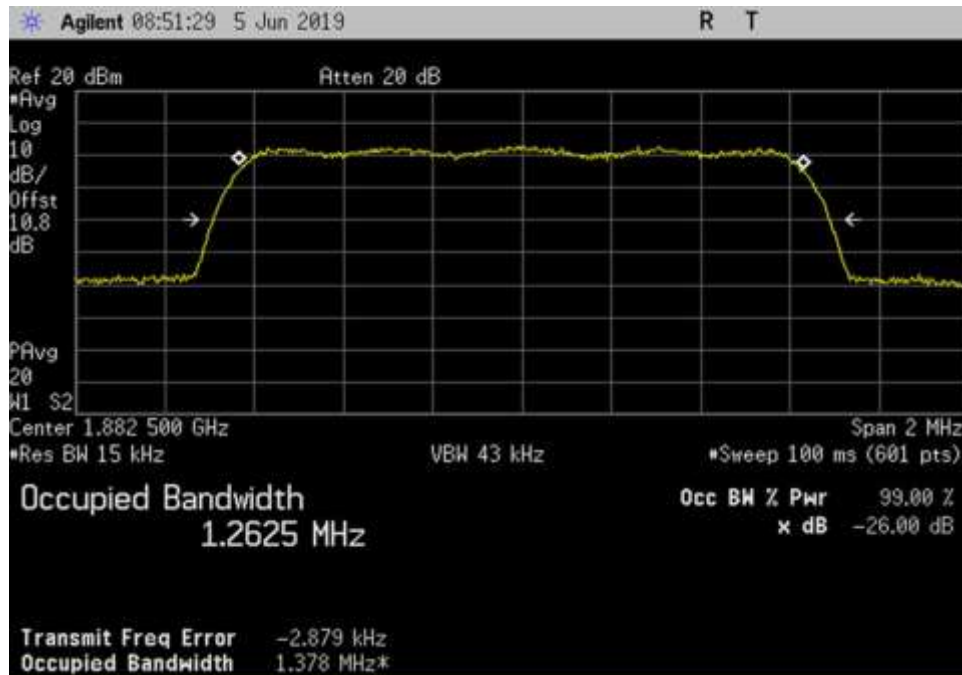
UL\_776-787\_CDMA\_781.5MHz



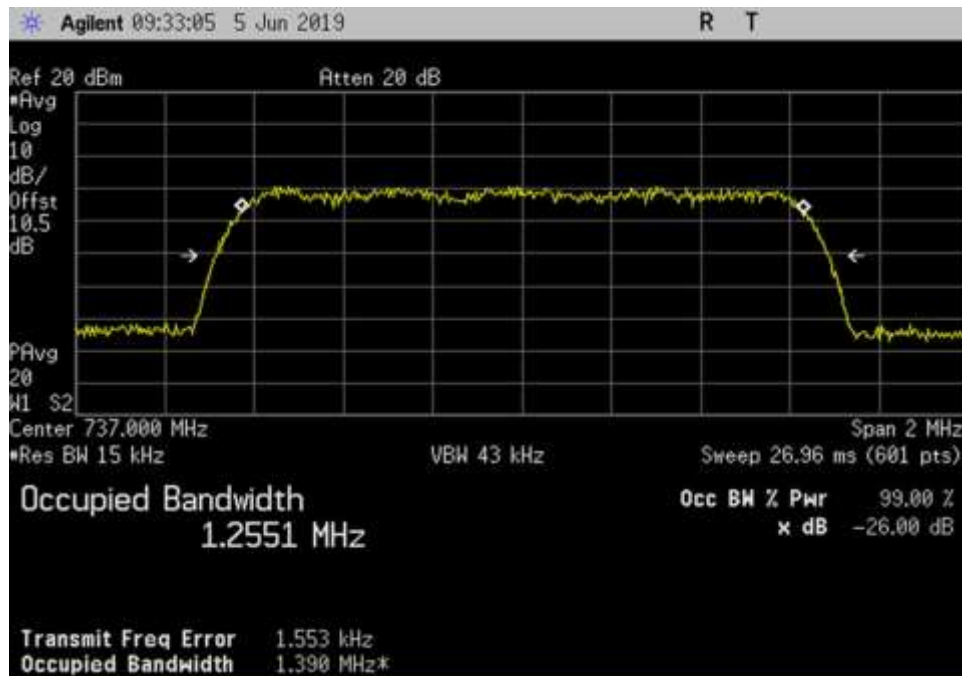
UL\_824-849\_CDMA\_836.5MHz



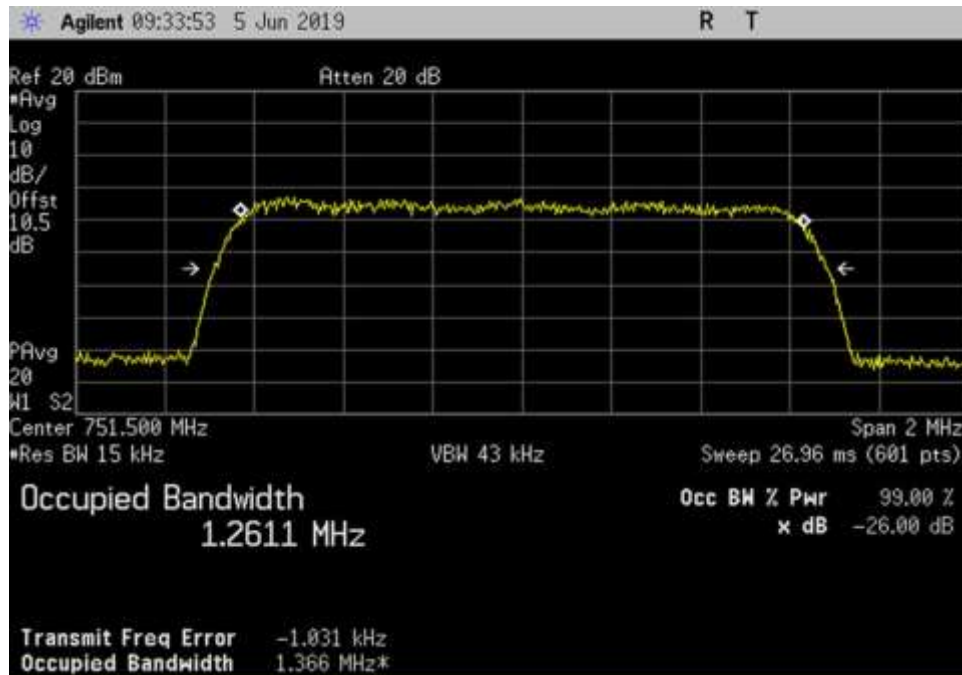
UL\_1710-1755\_CDMA\_1732.5MHz



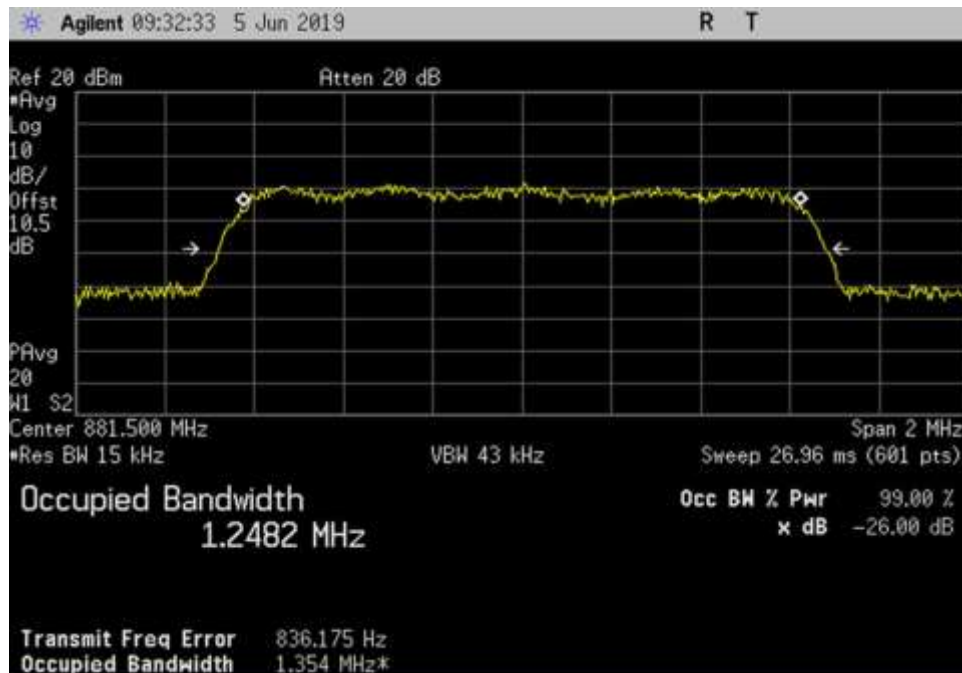
UL\_1850-1915\_CDMA\_1882.5MHz



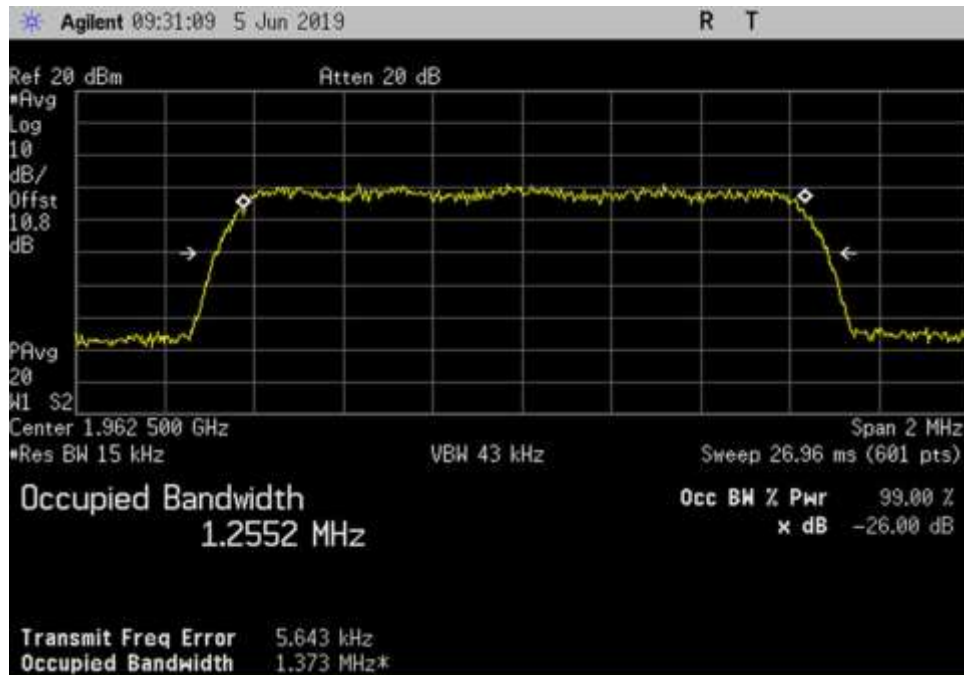
DL\_728-746\_CDMA\_737MHz



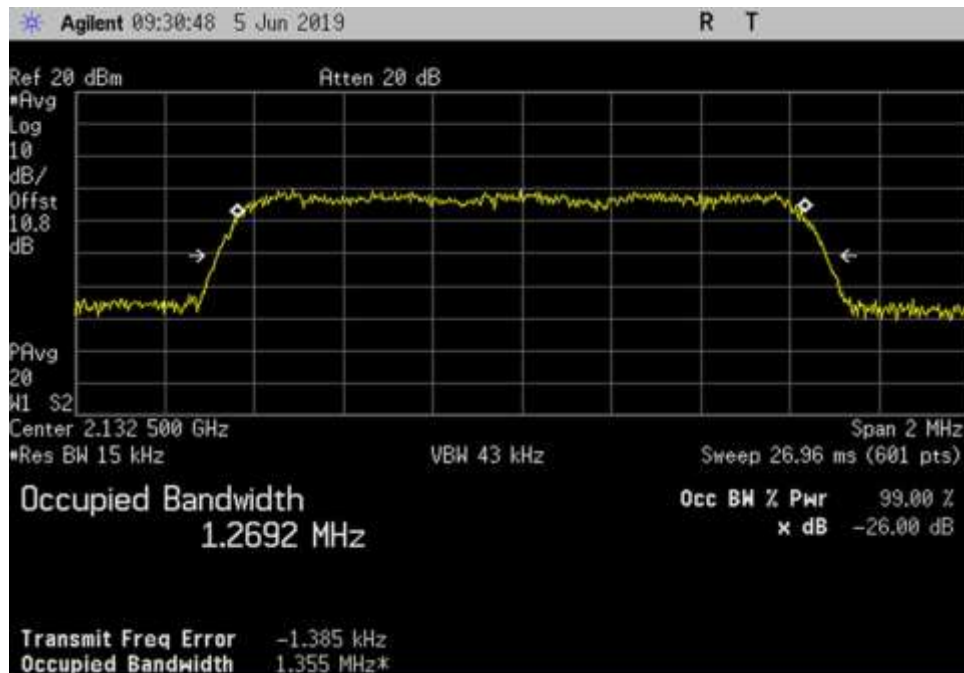
DL\_746-757\_CDMA\_751.5MHz



DL\_869-894\_CDMA\_881.5MHz

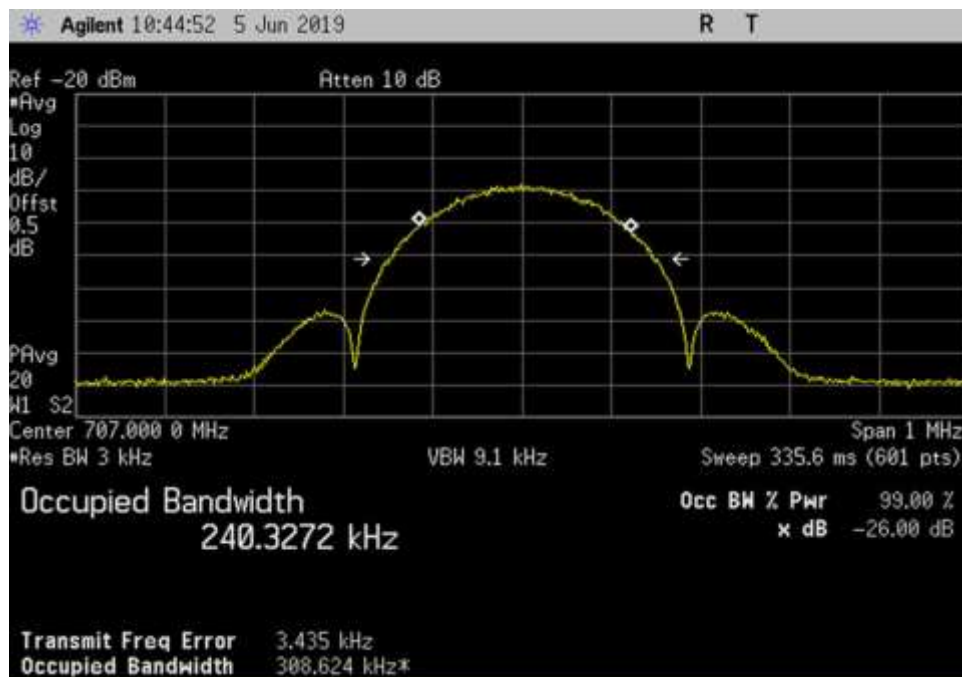


DL\_1930-1995\_CDMA\_ 1962.5MHz

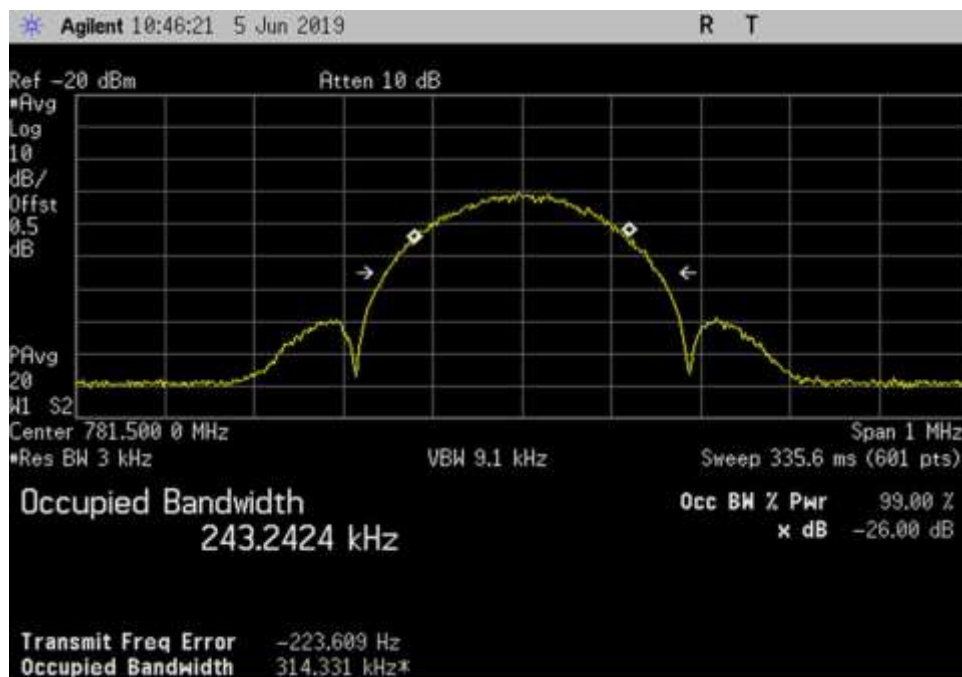


DL\_2110-2155\_CDMA\_ 2132.5MHz

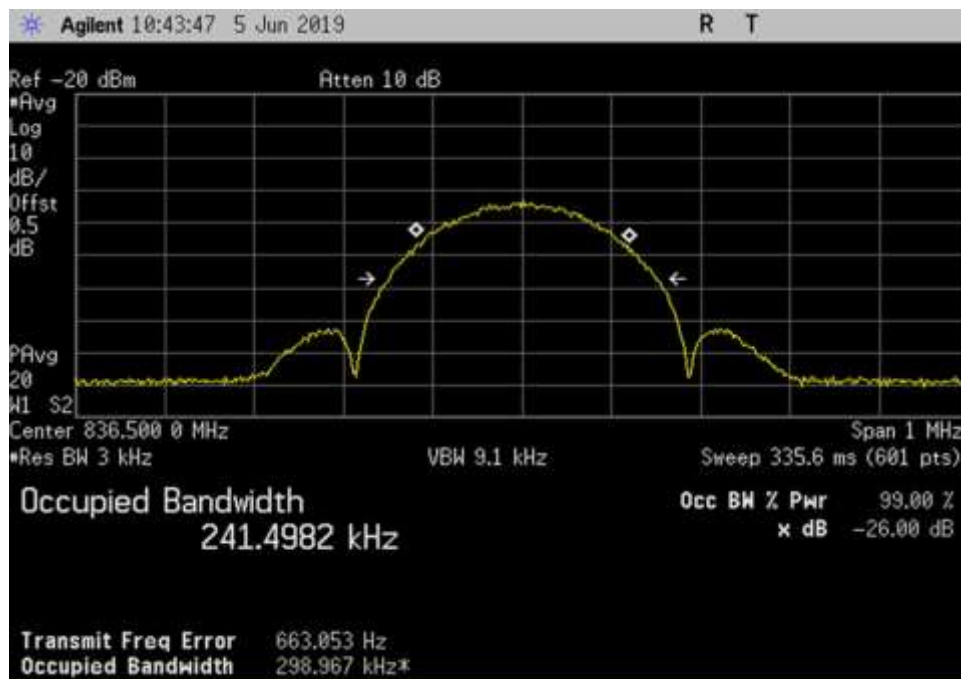
### EDGE-Input



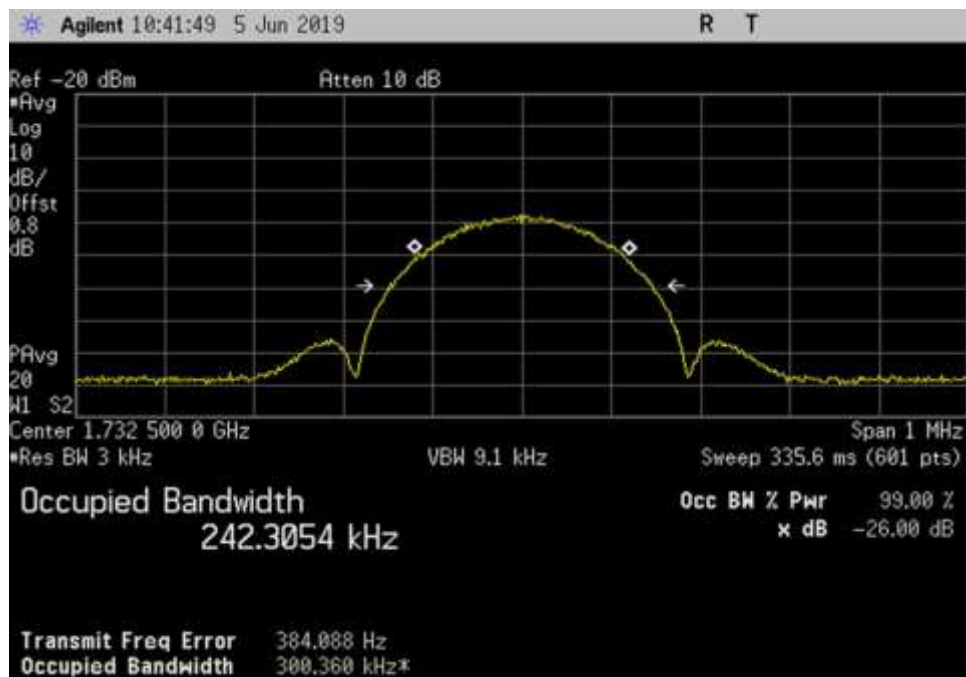
UL\_698-716\_EDGE\_707MHz



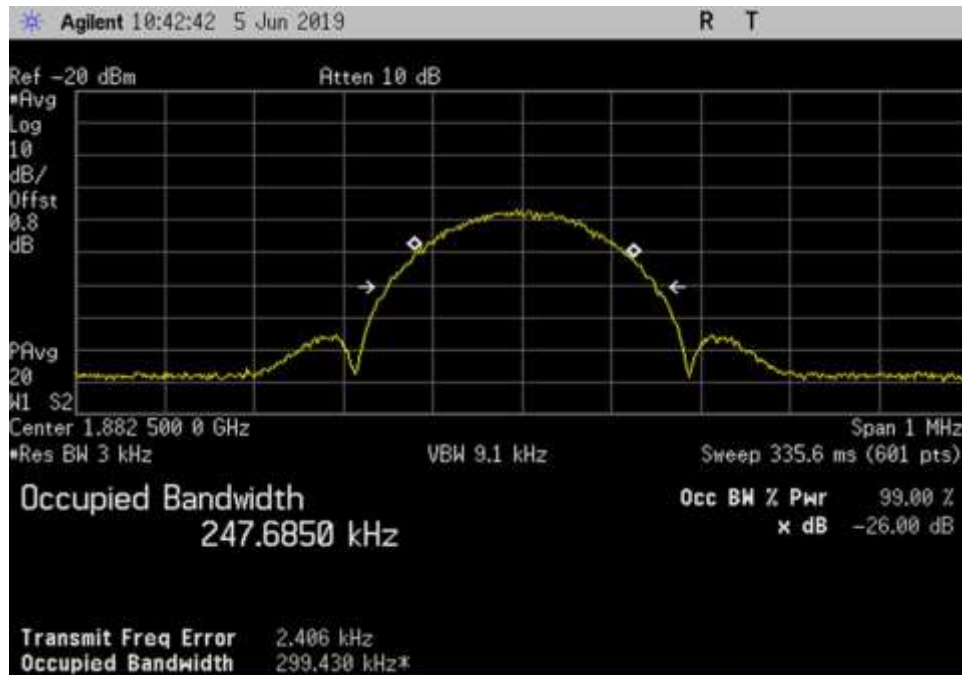
UL\_776-787\_EDGE\_781.5MHz



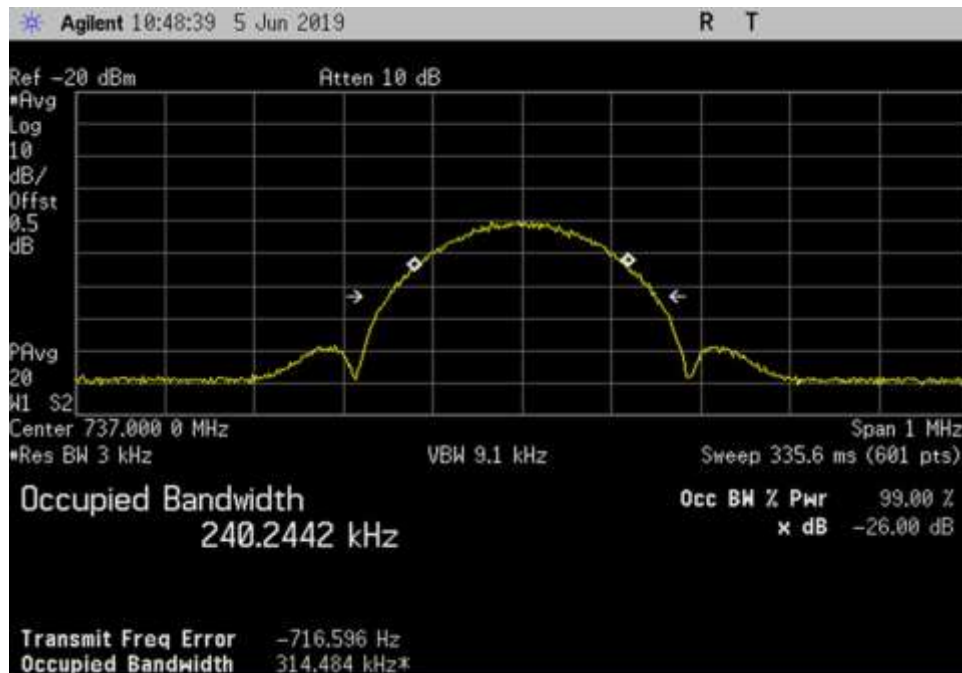
UL\_824-849\_EDGE\_836.5MHz



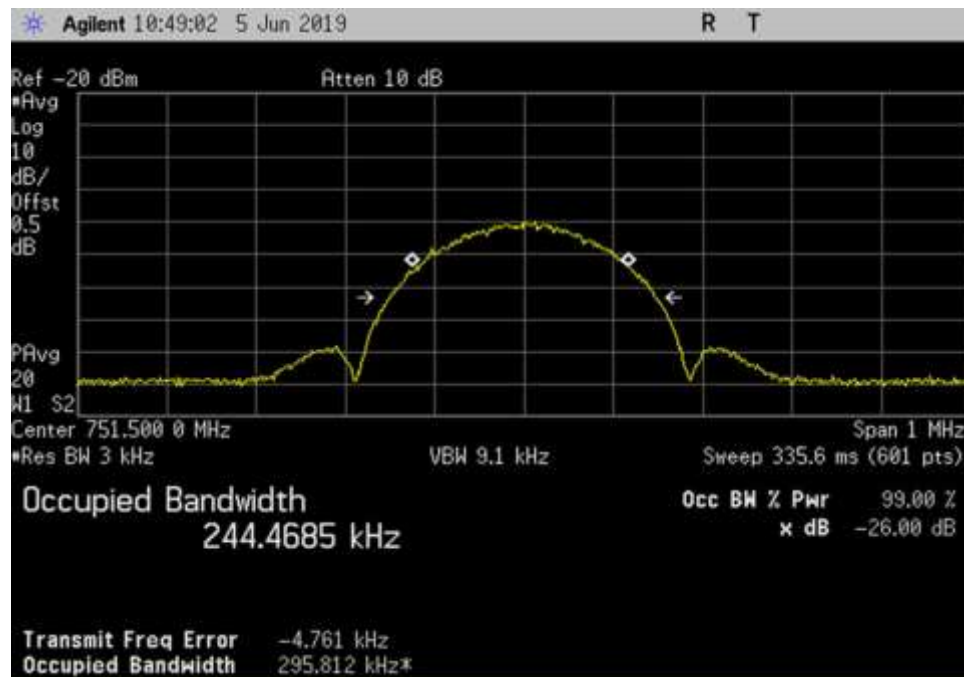
UL\_1710-1755\_EDGE\_1732.5MHz



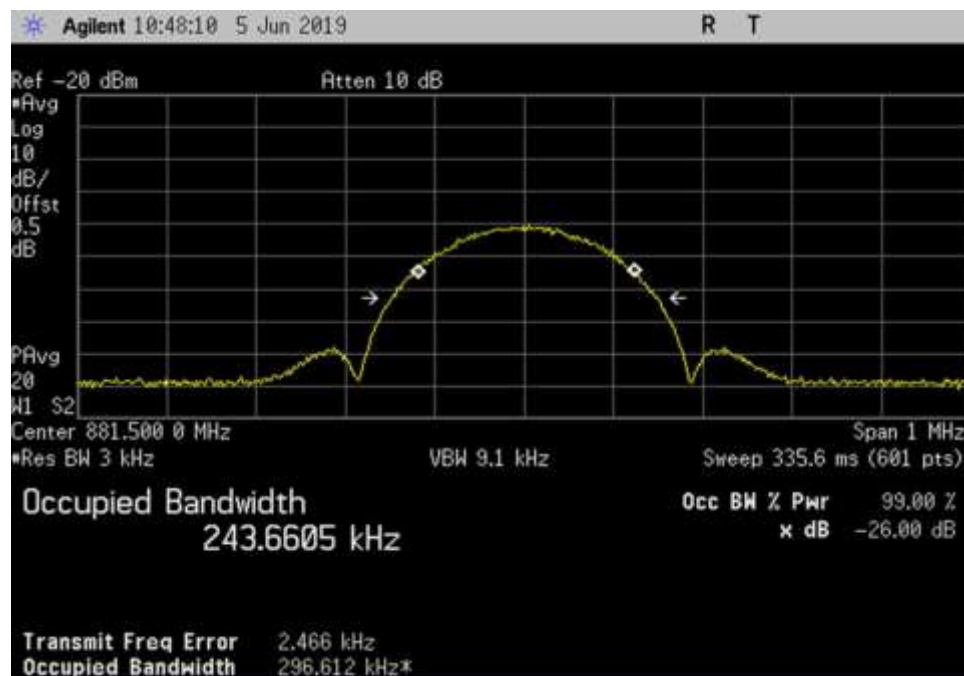
UL\_1850-1915\_EDGE\_1882.5MHz



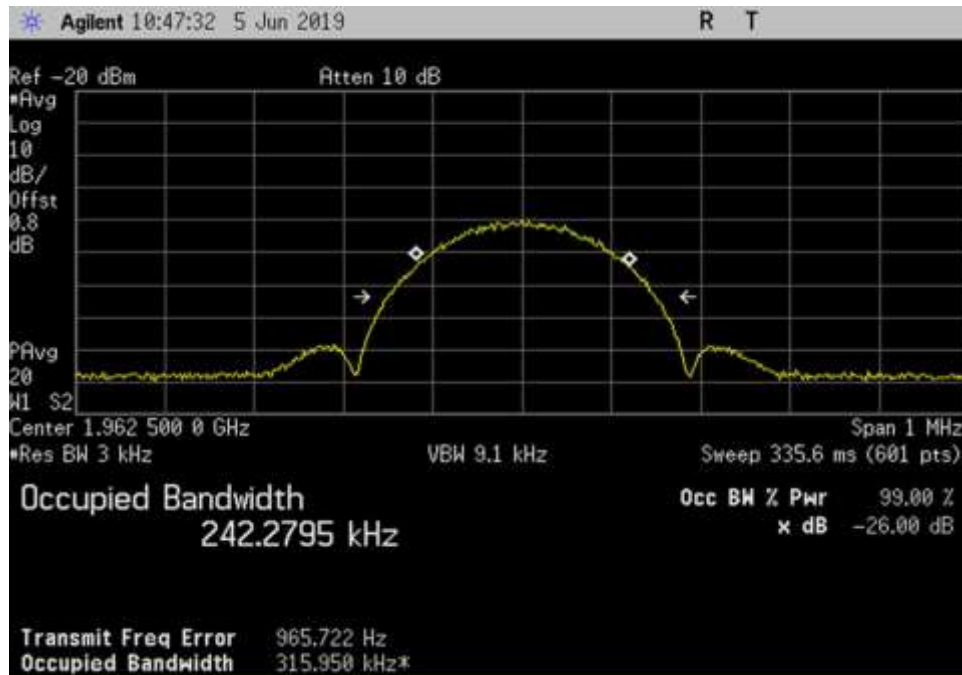
DL\_728-746\_EDGE\_737MHz



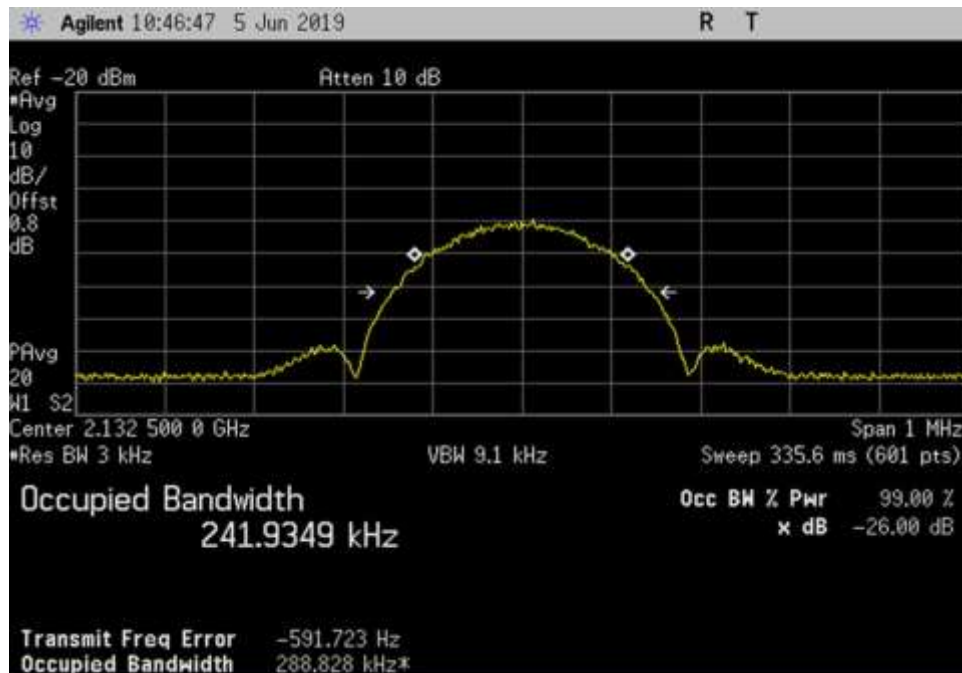
DL\_746-757\_EDGE\_751.5MHz



DL\_869-894\_EDGE\_881.5MHz

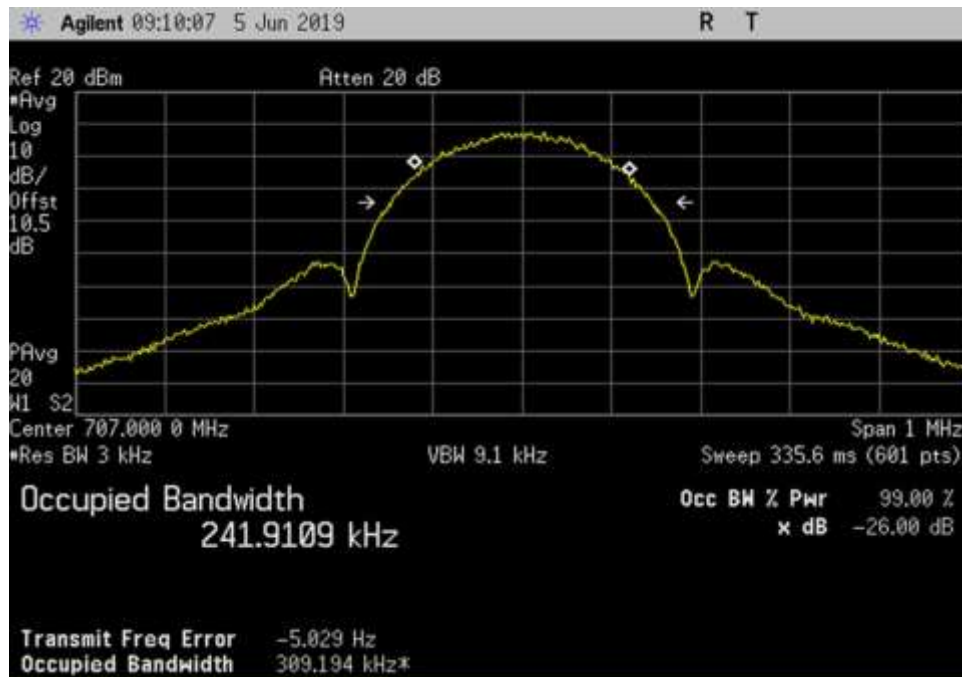


DL\_1930-1995\_EDGE\_1962.5MHz

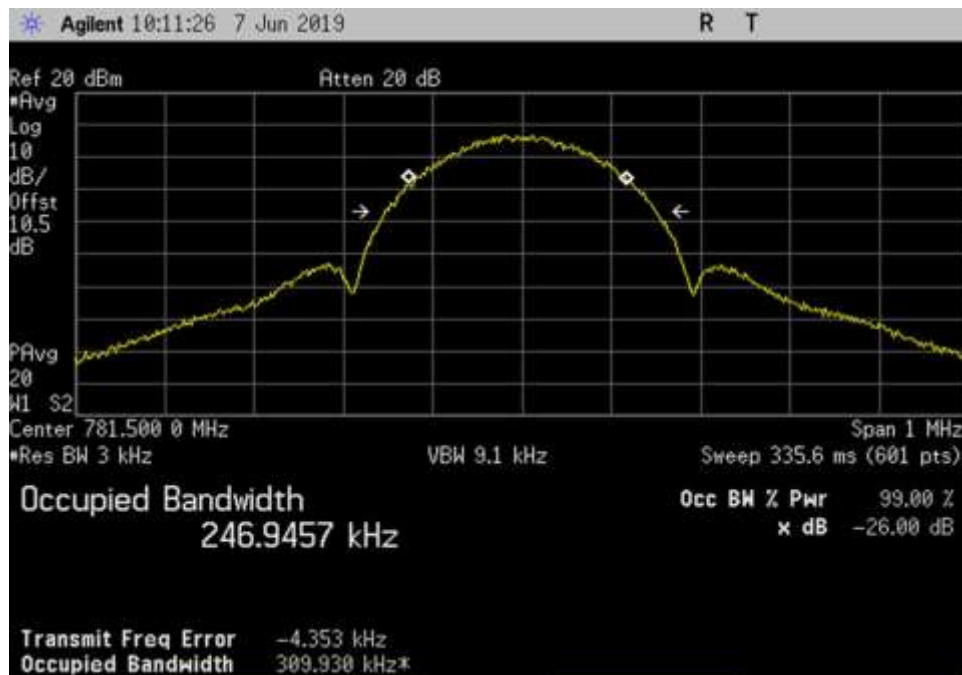


DL\_2110-2155\_EDGE\_2132.5MHz

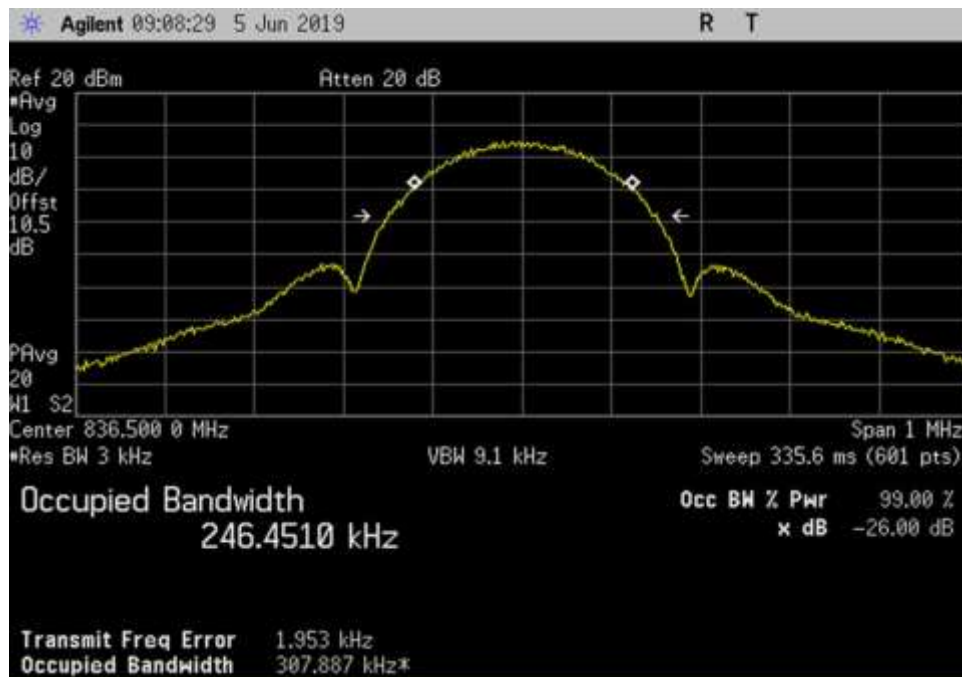
### EDGE-Output



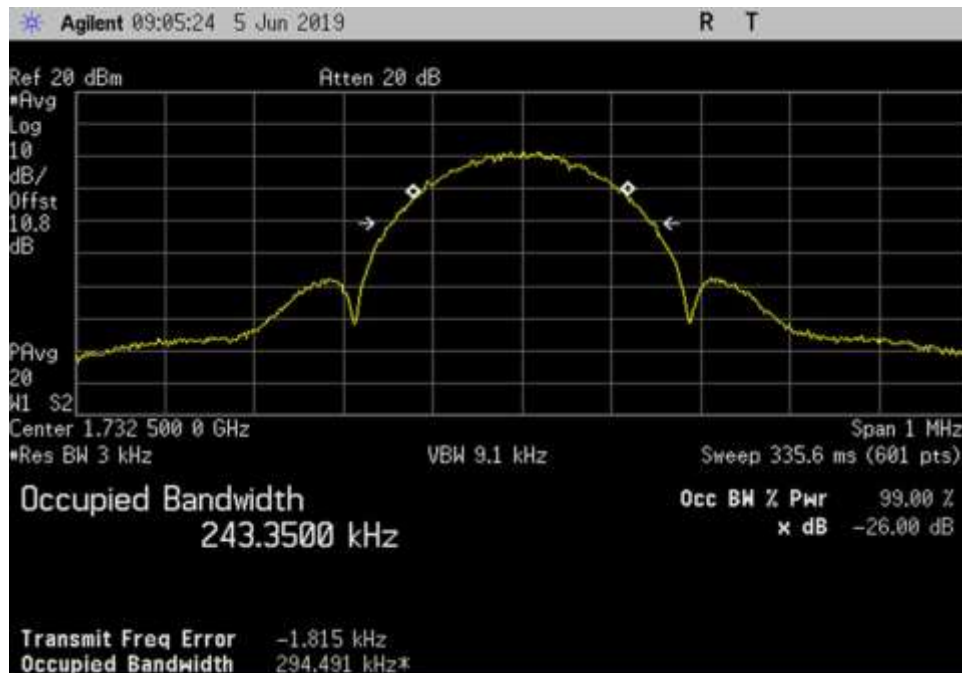
UL\_698-716\_EDGE\_707MHz



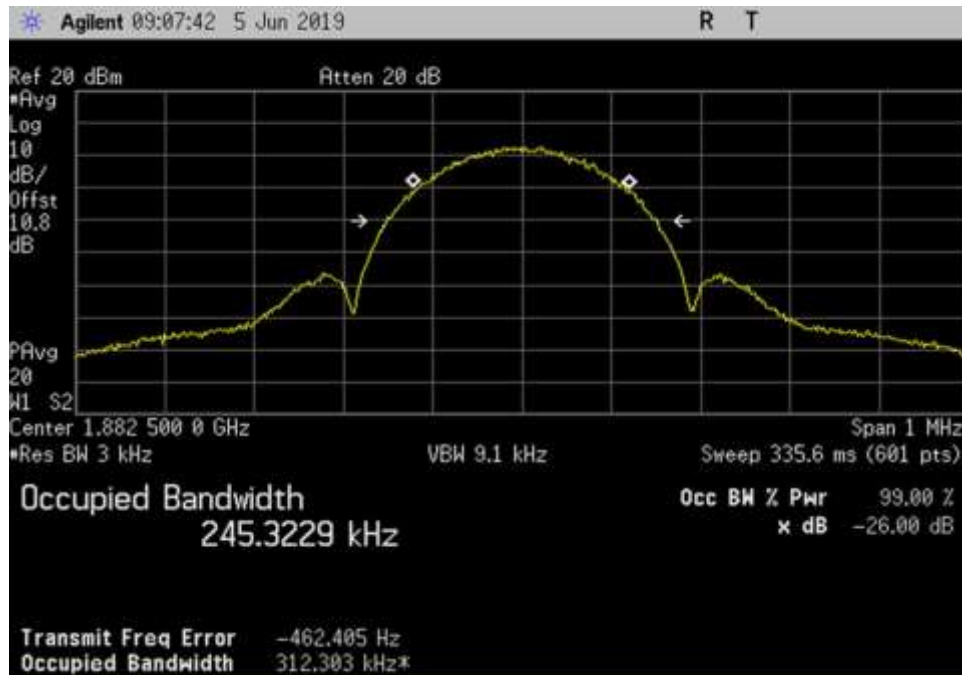
UL\_776-787\_EDGE\_781.5MHz



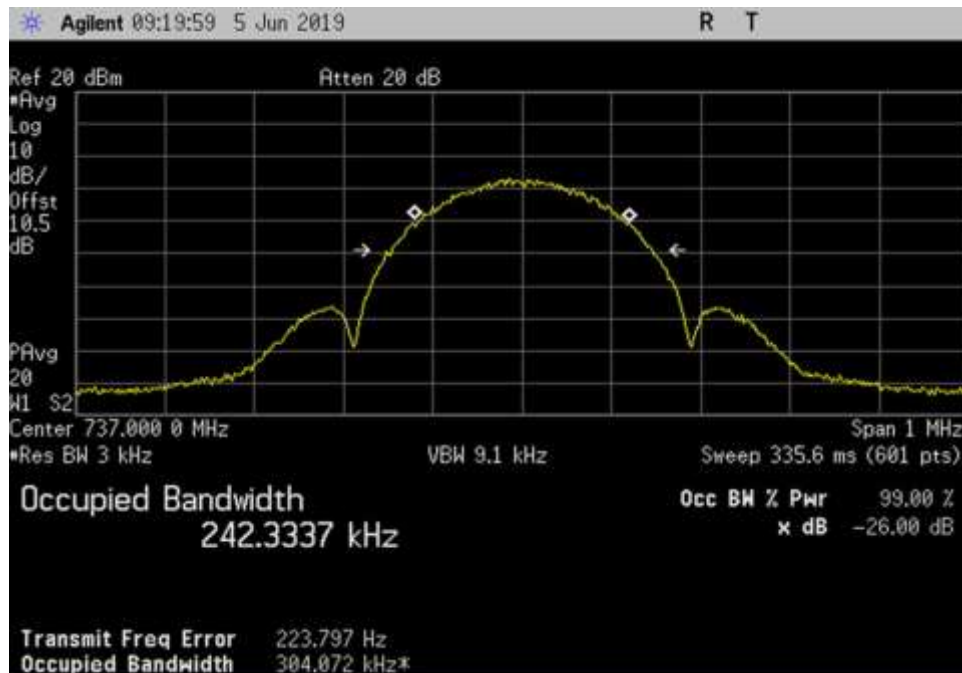
UL\_824-849\_EDGE\_ 836.5MHz



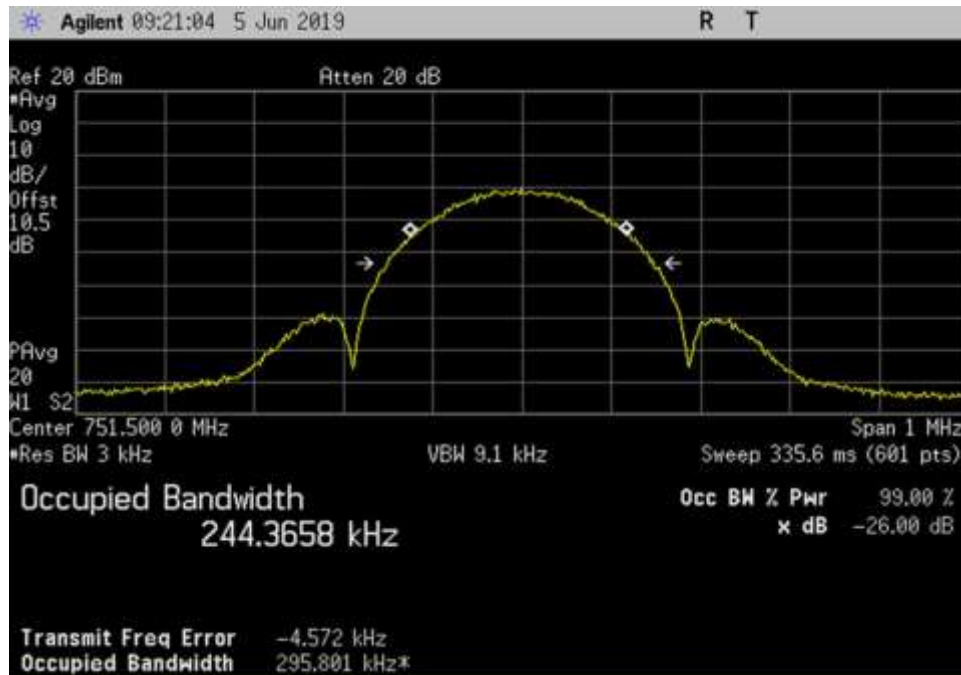
UL\_1710-1755\_EDGE\_ 1732.5MHz



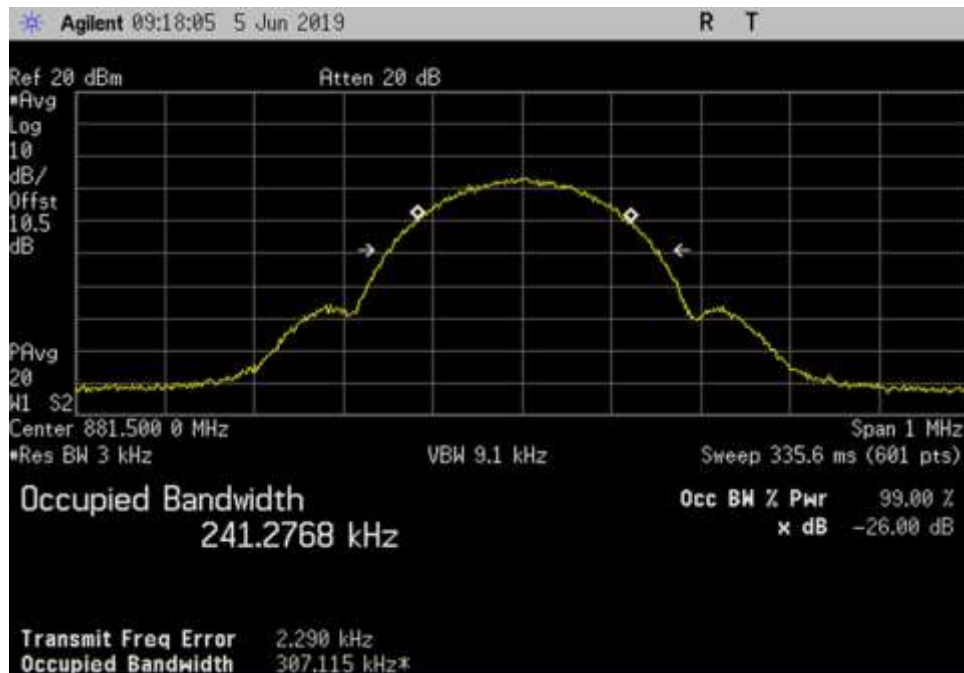
UL\_1850-1915\_EDGE\_1882.5MHz



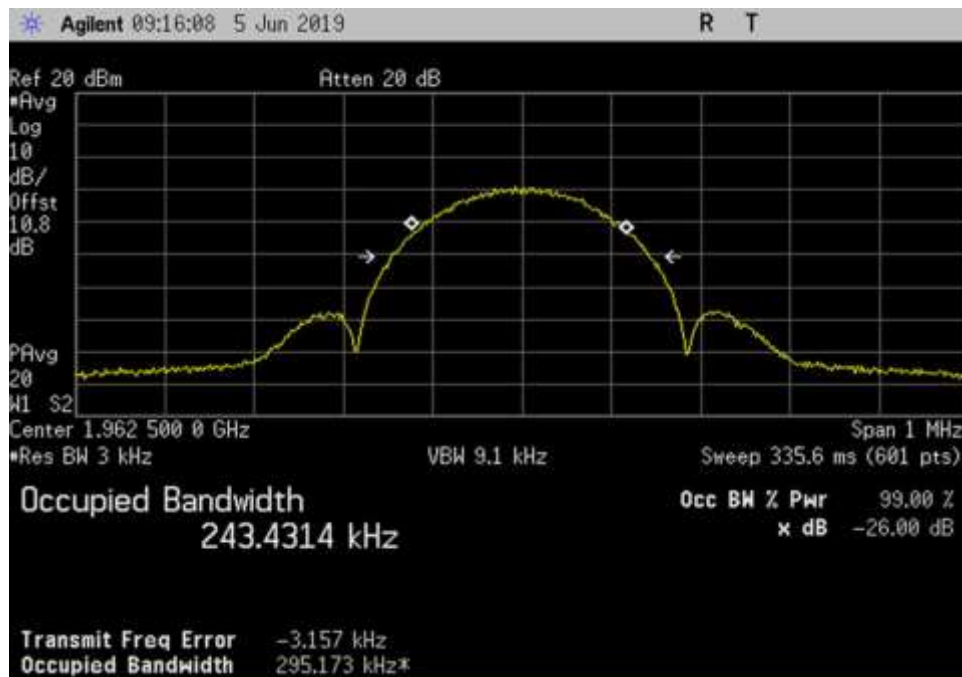
DL\_728-746\_EDGE\_737MHz



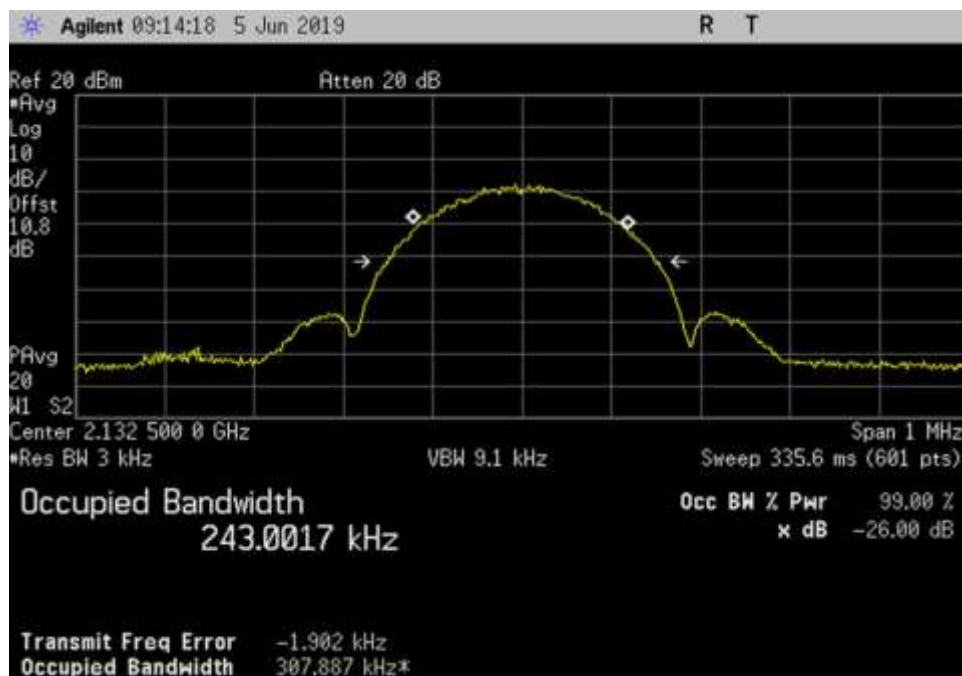
DL\_746-757\_EDGE\_ 751.5MHz



DL\_869-894\_EDGE\_ 881.5MHz

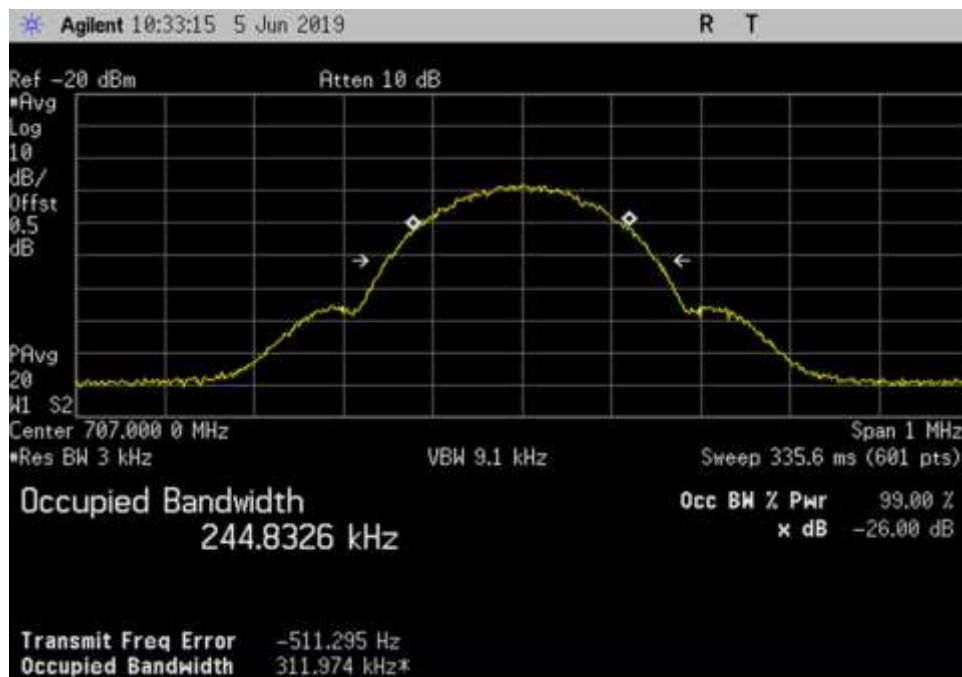


DL\_1930-1995\_EDGE\_ 1962.5MHz

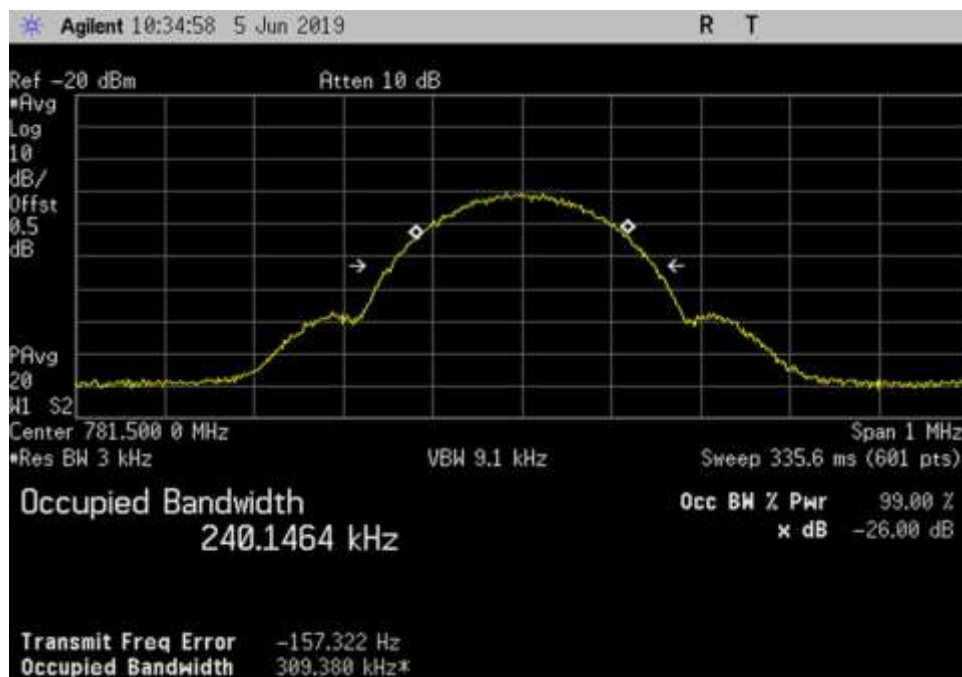


DL\_2110-2155\_EDGE\_ 2132.5MHz

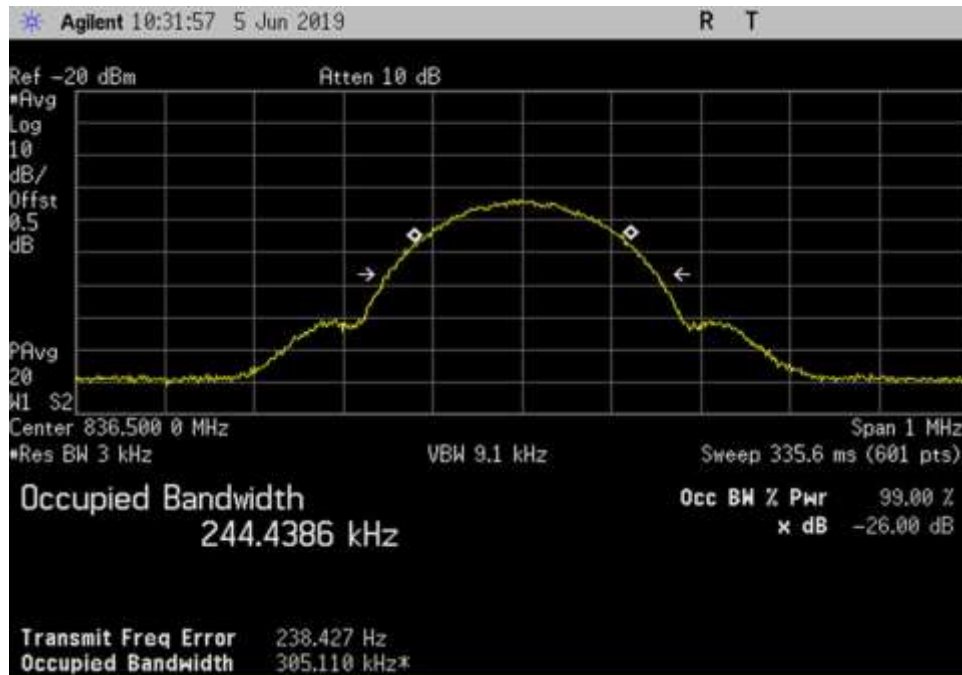
GSM-Input



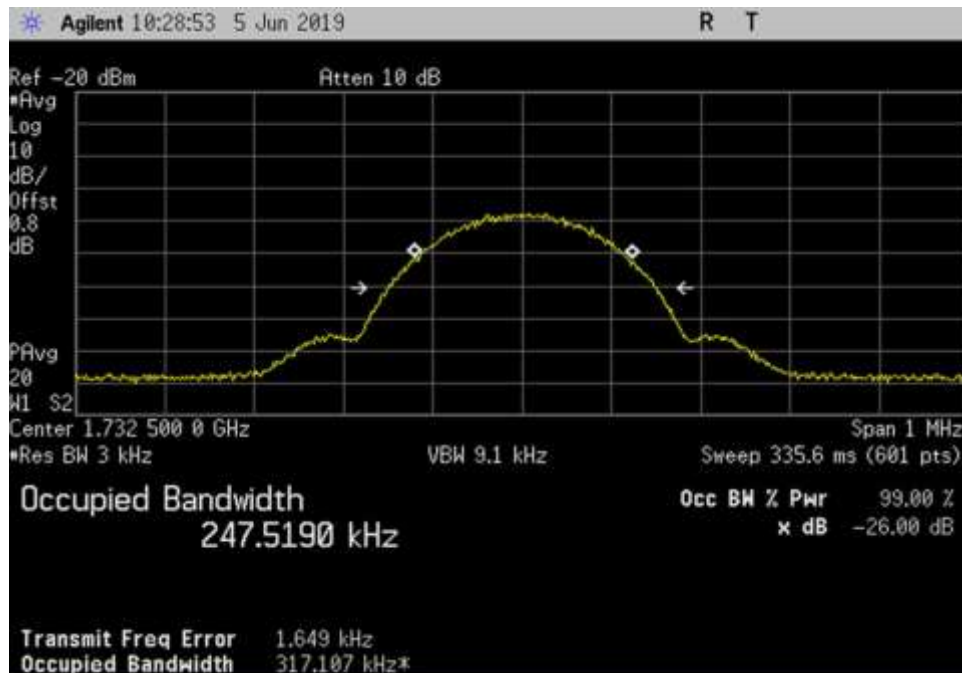
UL\_698-716\_GSM\_ 707MHz



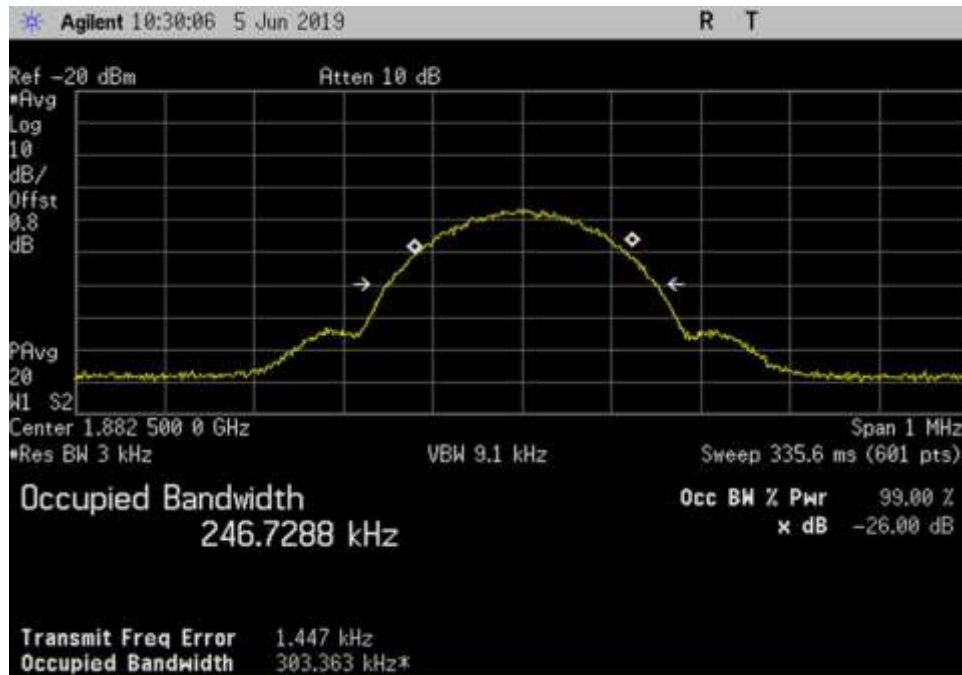
UL\_776-787\_GSM\_ 781.5MHz



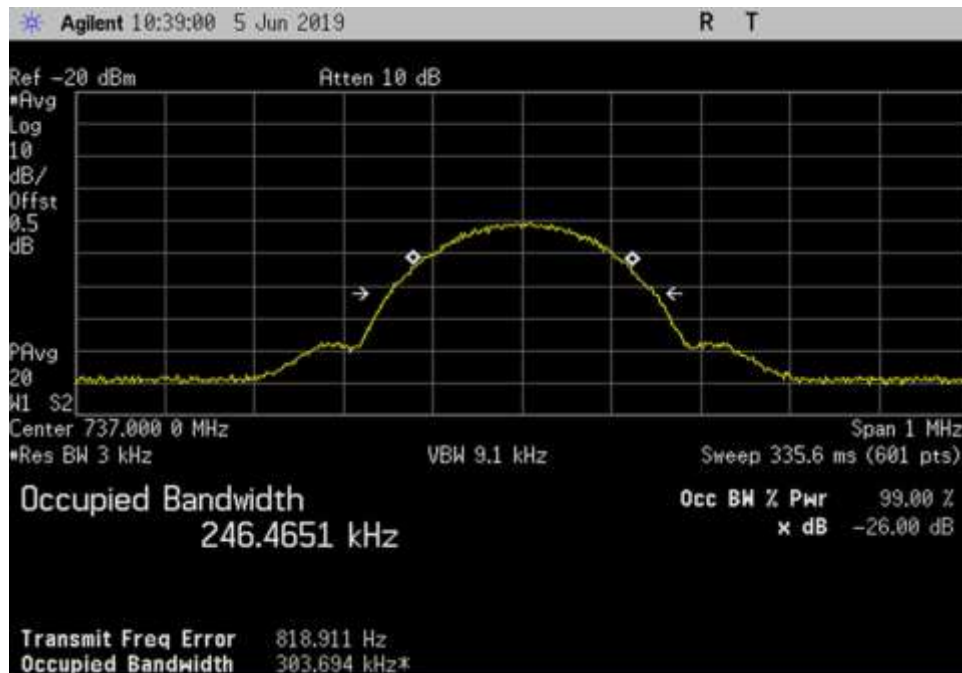
UL\_824-849\_GSM\_ 836.5MHz



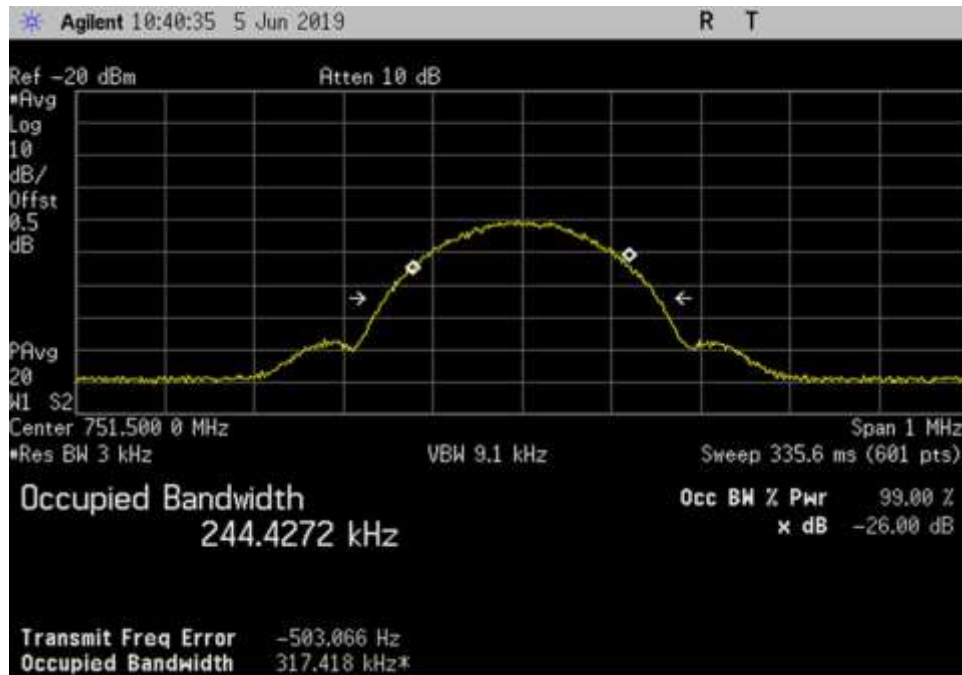
UL\_1710-1755\_GSM\_ 1732.5MHz



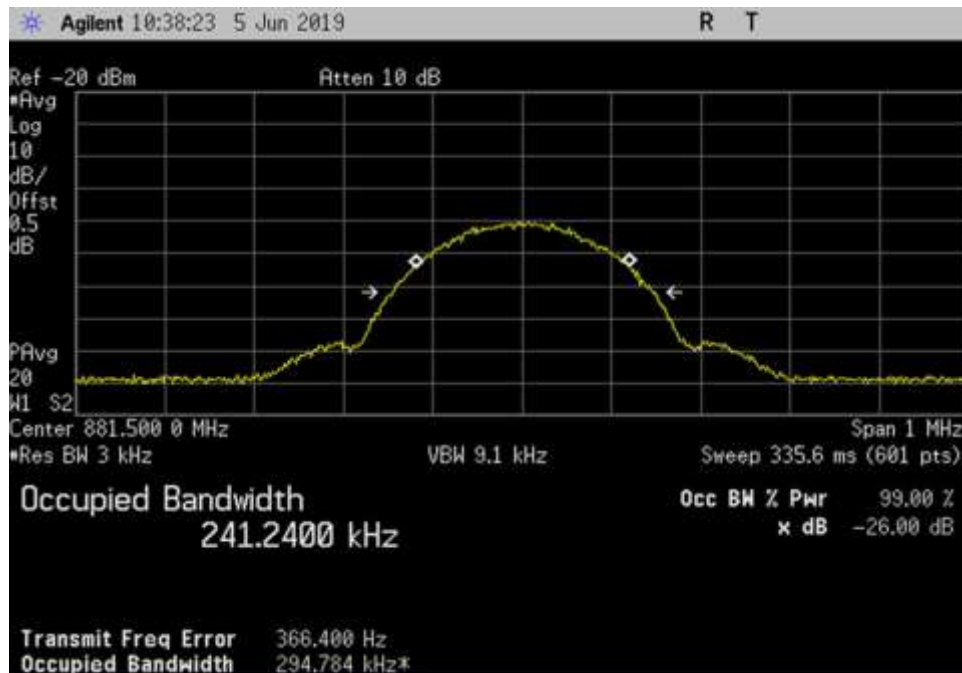
UL\_1850-1915\_GSM\_1882.5MHz



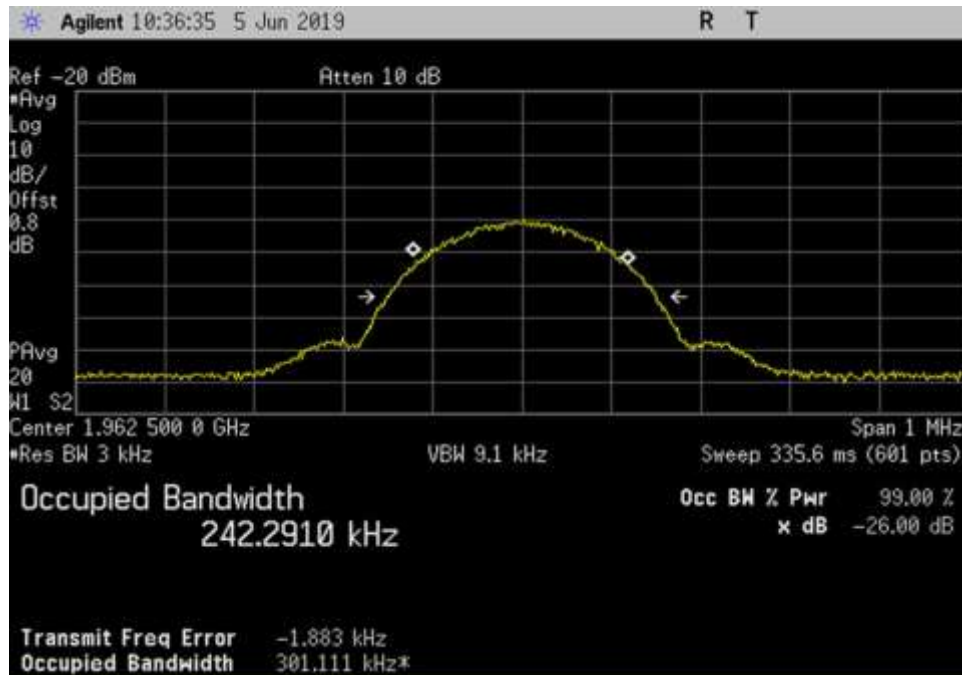
DL\_728-746\_GSM\_737MHz



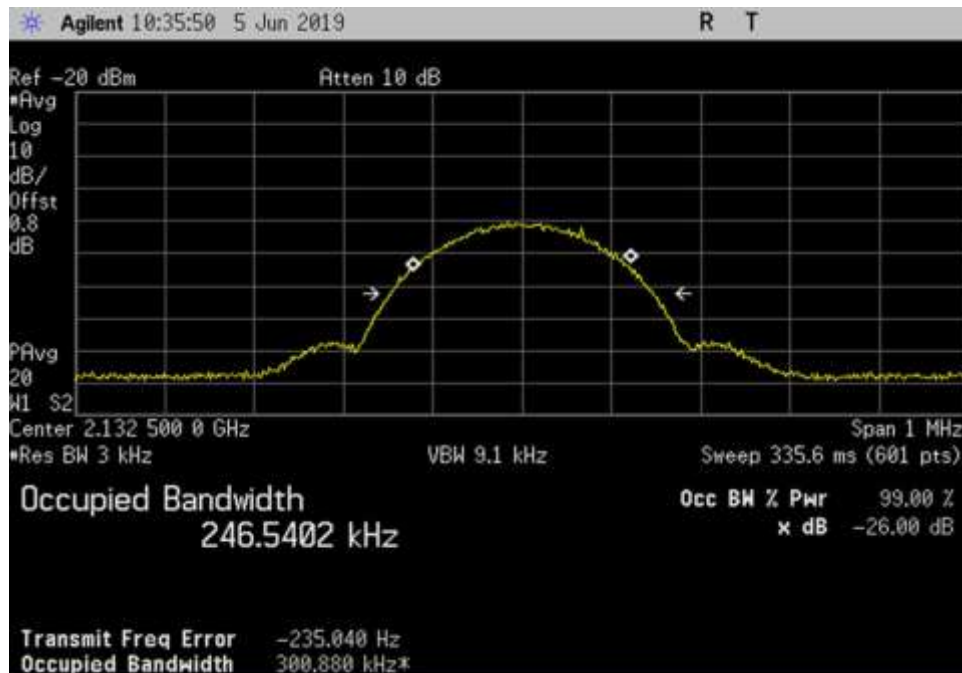
DL\_746-757\_GSM\_ 751.5MHz



DL\_869-894\_GSM\_ 881.5MHz

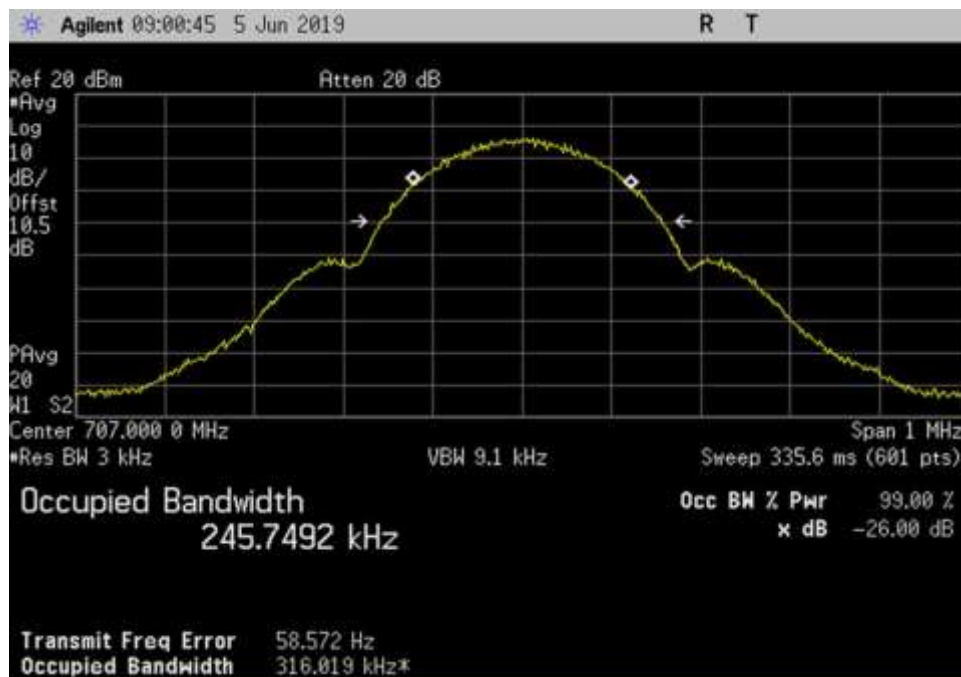


DL\_1930-1995\_GSM\_ 1962.5MHz

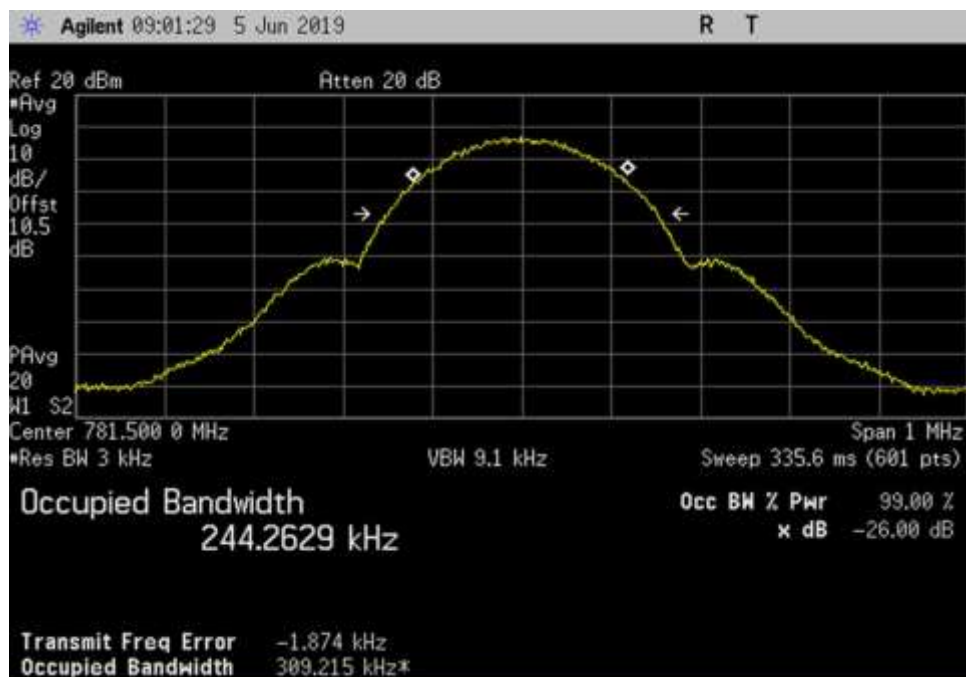


DL\_2110-2155\_GSM\_ 2132.5MHz

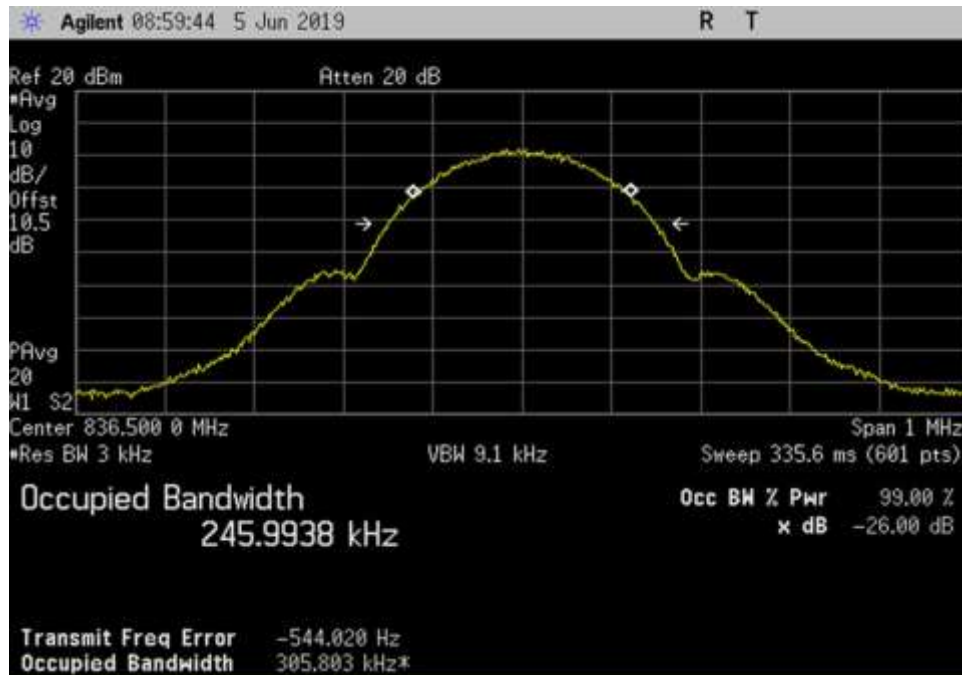
### GSM-Output



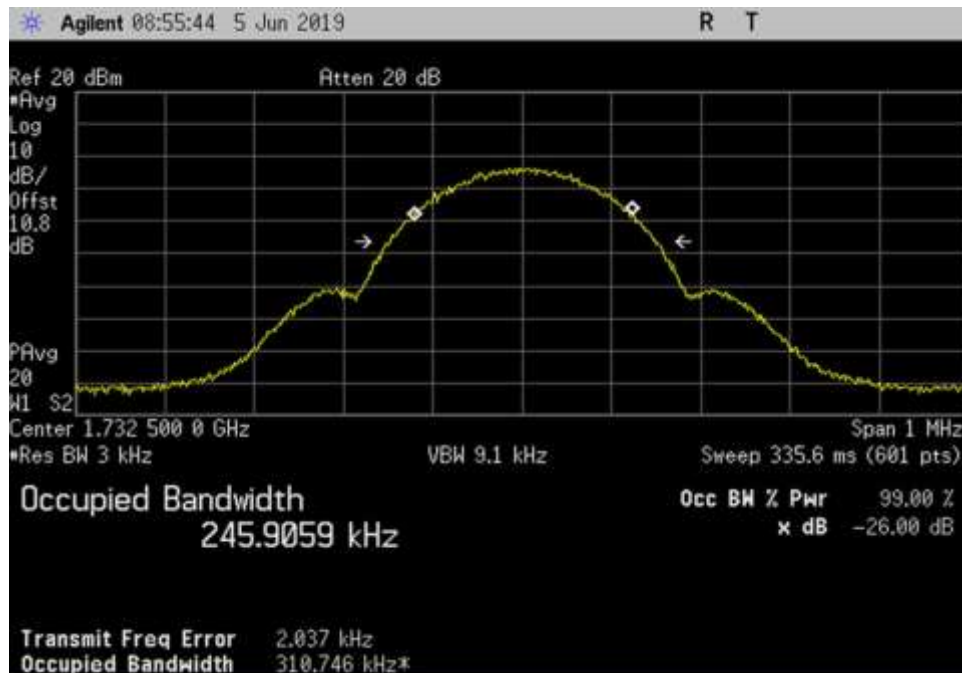
UL\_698-716\_GSM\_707MHz



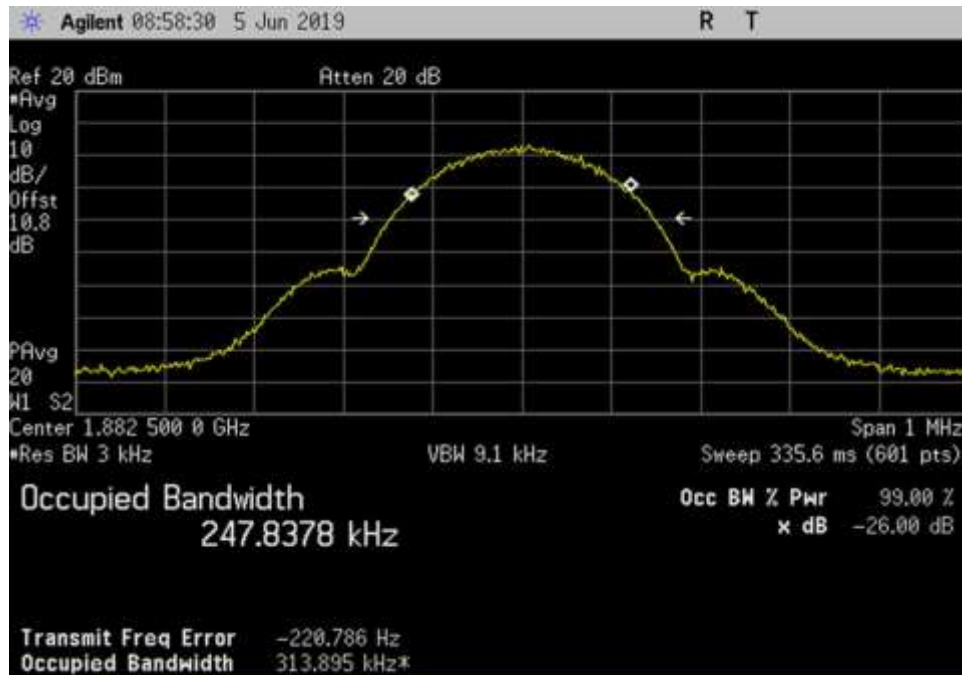
UL\_776-787\_GSM\_781.5MHz



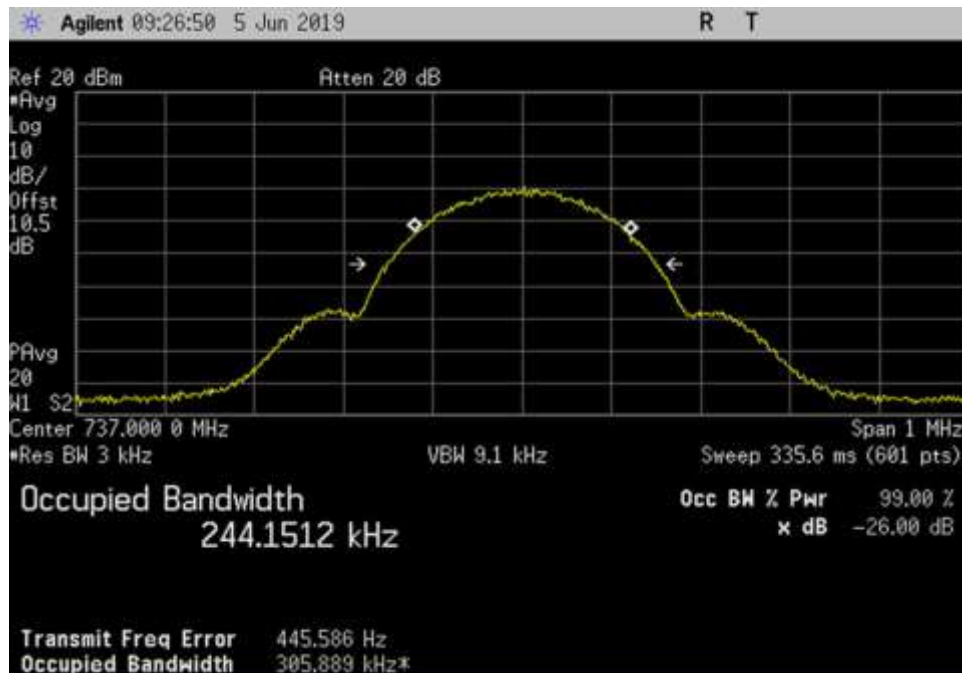
UL\_824-849\_GSM\_ 836.5MHz



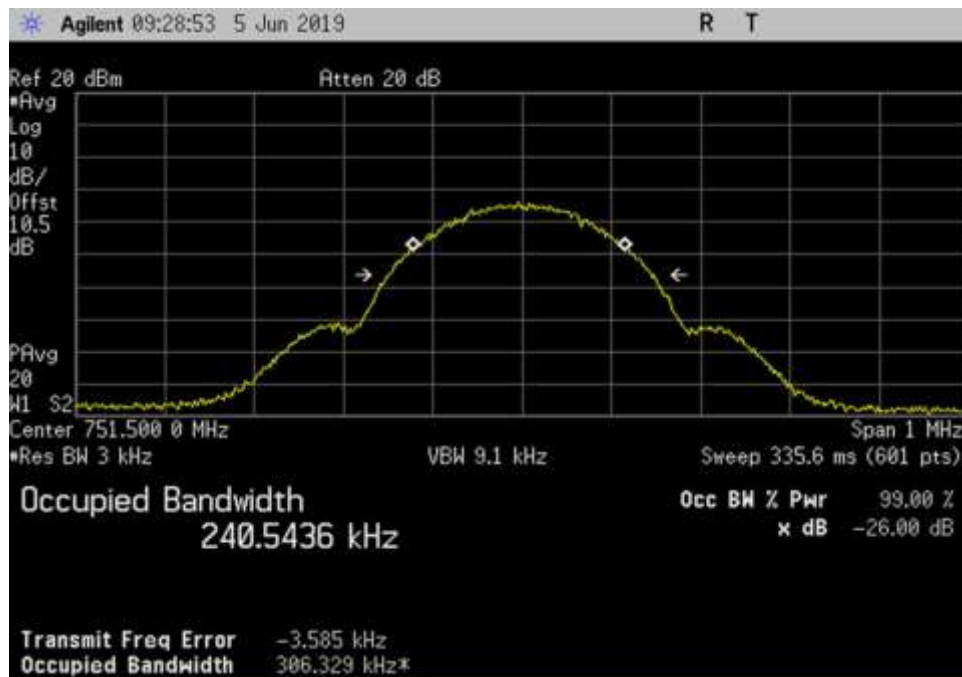
UL\_1710-1755\_GSM\_ 1732.5MHz



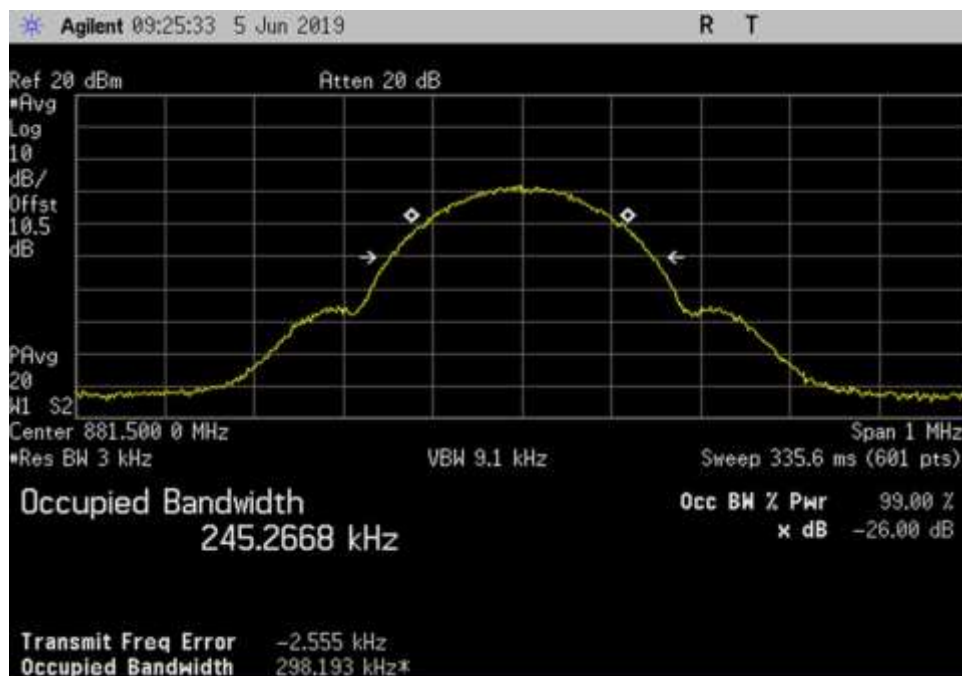
UL\_1850-1915\_GSM\_1882.5MHz



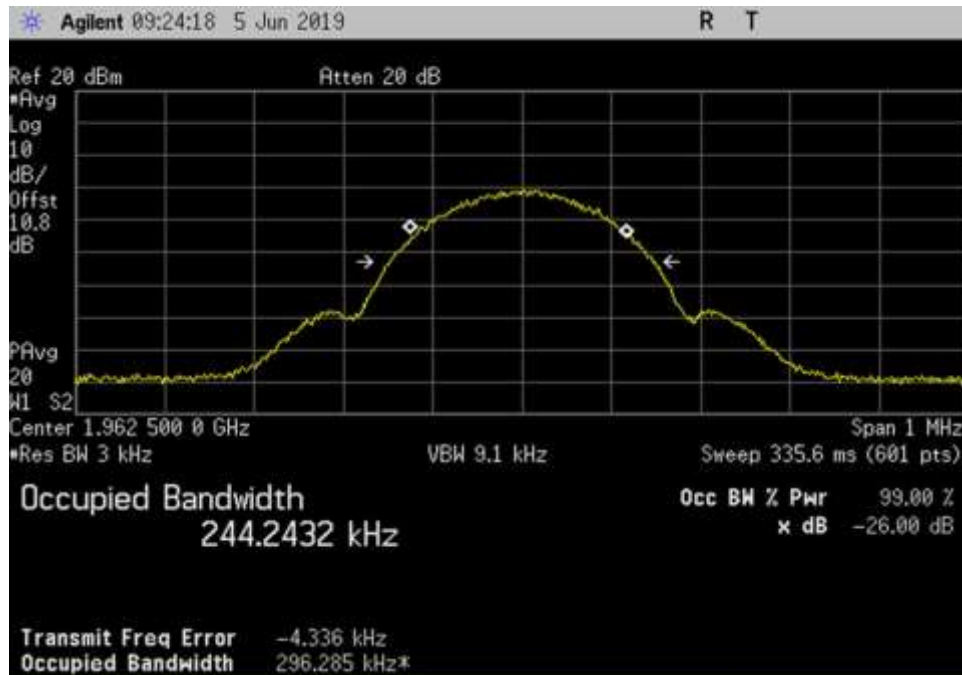
DL\_728-746\_GSM\_737MHz



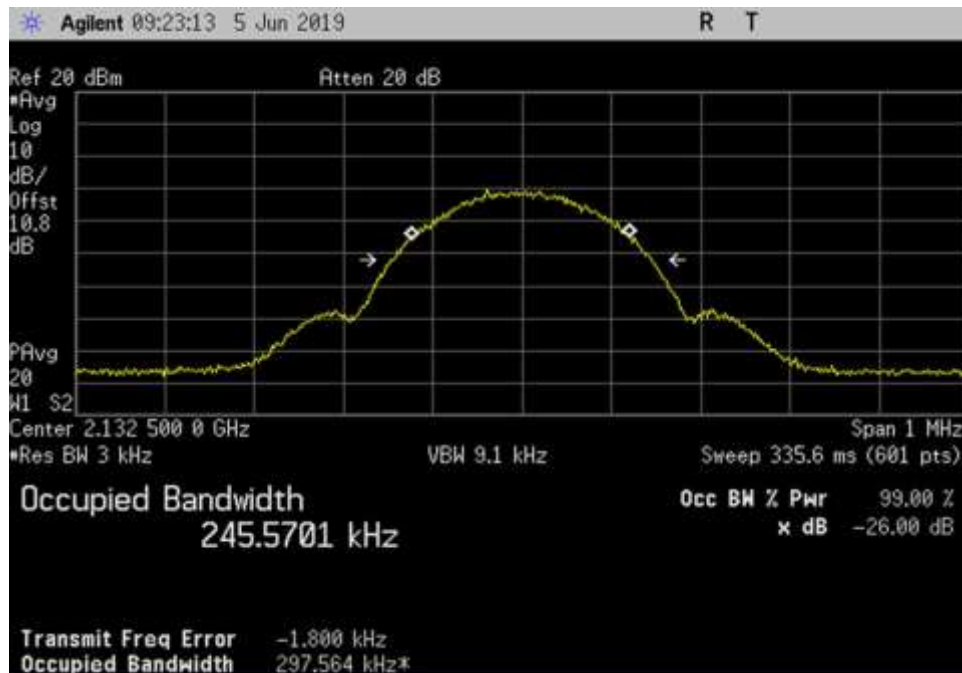
DL\_746-757\_GSM\_751.5MHz



DL\_869-894\_GSM\_881.5MHz

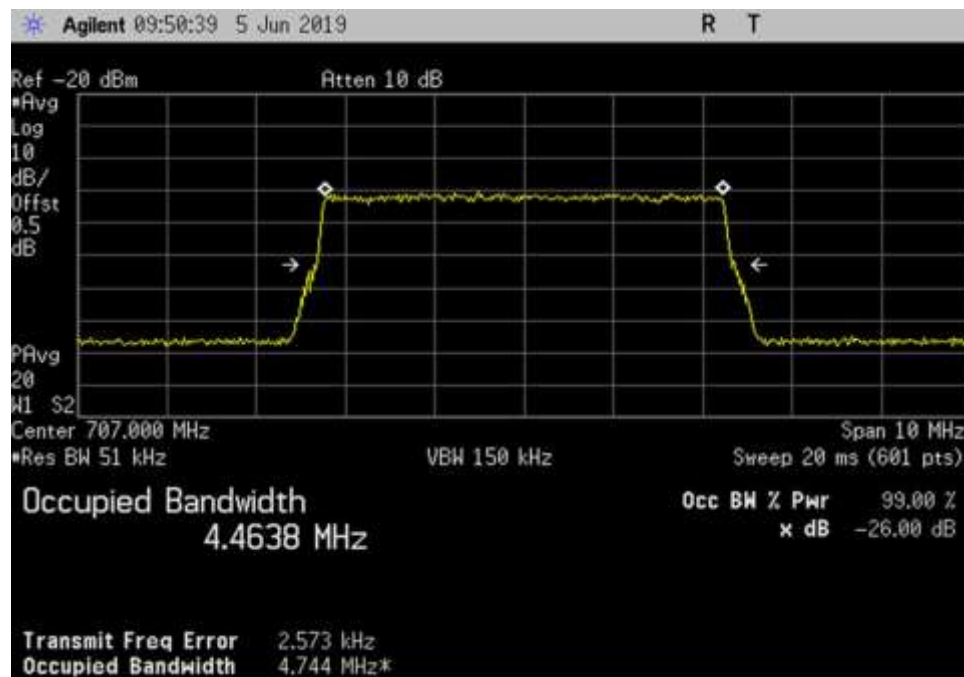


DL\_1930-1995\_GSM\_1962.5MHz

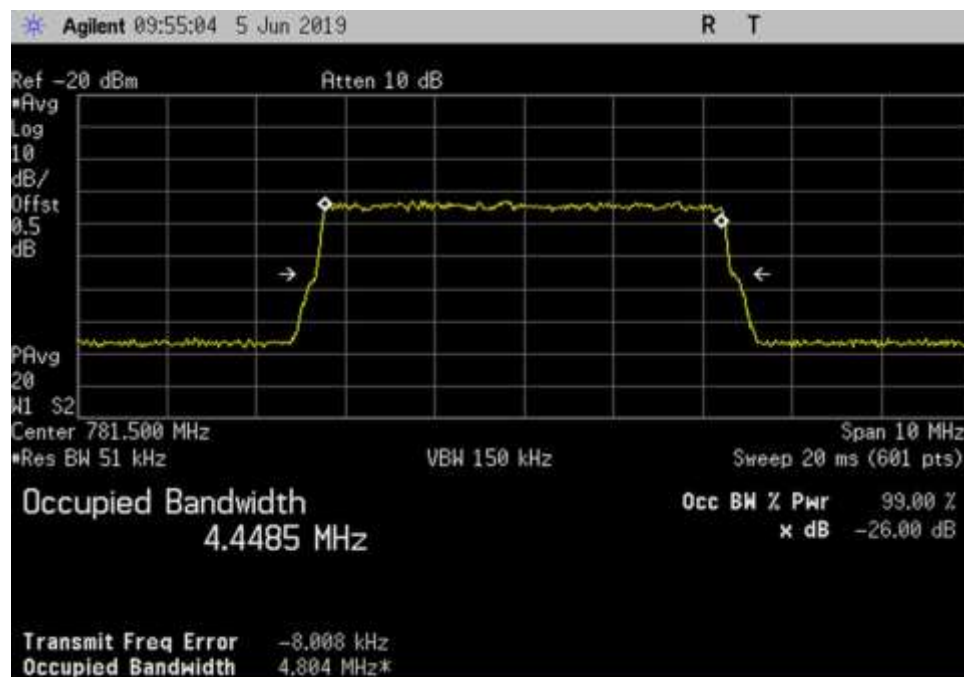


DL\_2110-2155\_GSM\_2132.5MHz

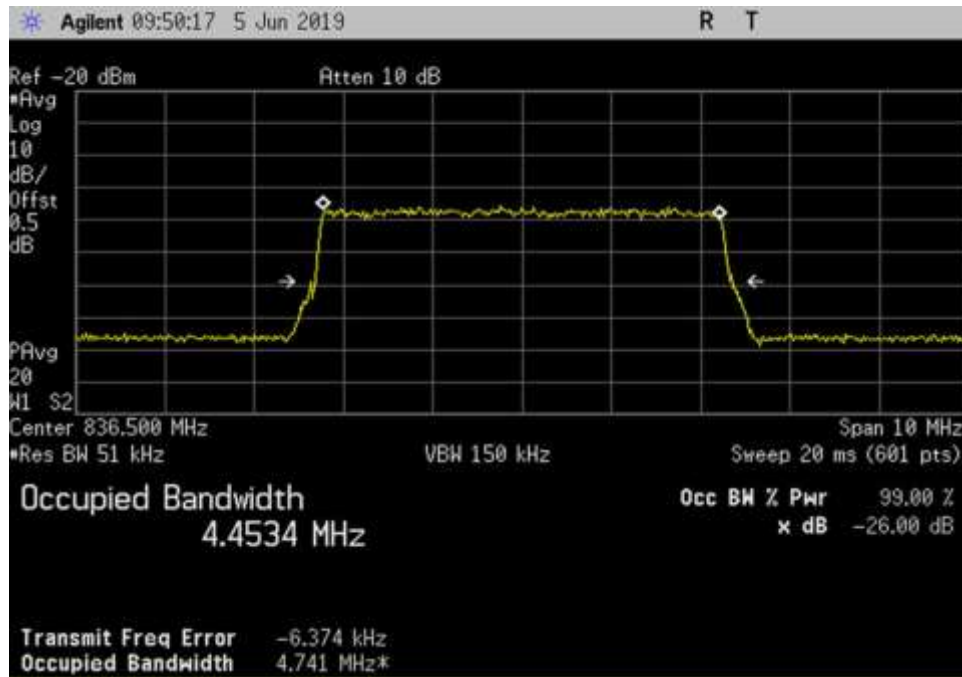
### LTE-Input



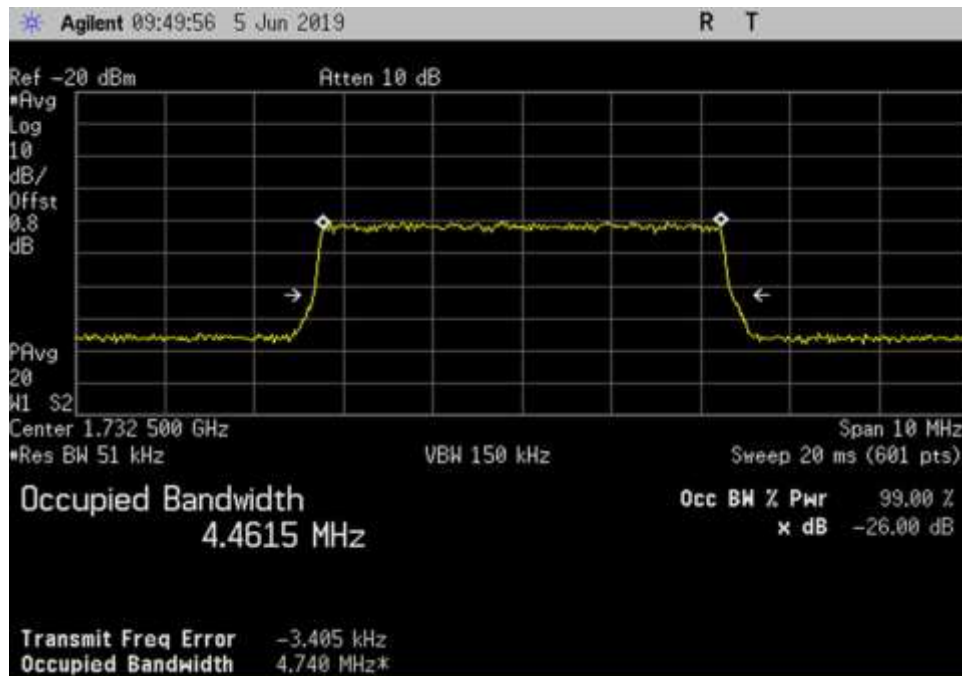
UL\_698-716\_LTE\_ 707MHz



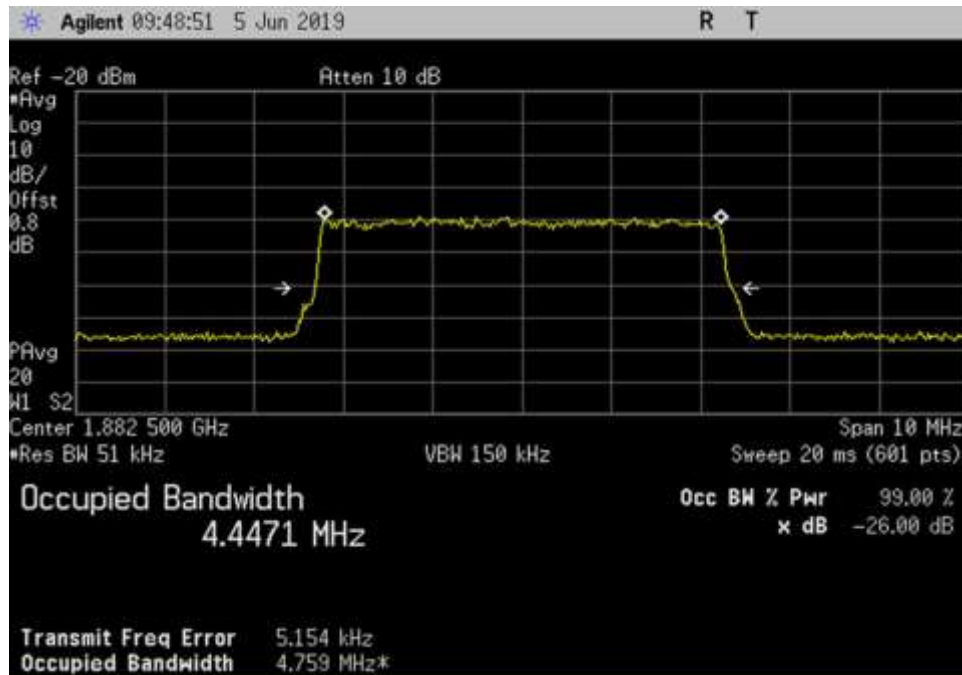
UL\_776-787\_LTE\_ 781.5MHz



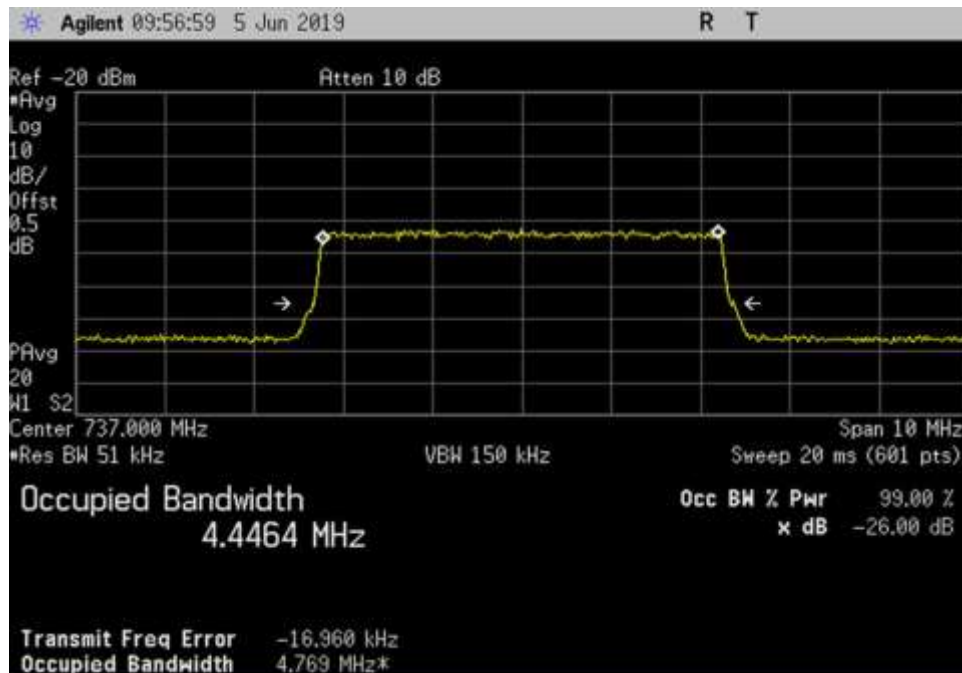
UL\_824-849\_LTE\_ 836.5MHz



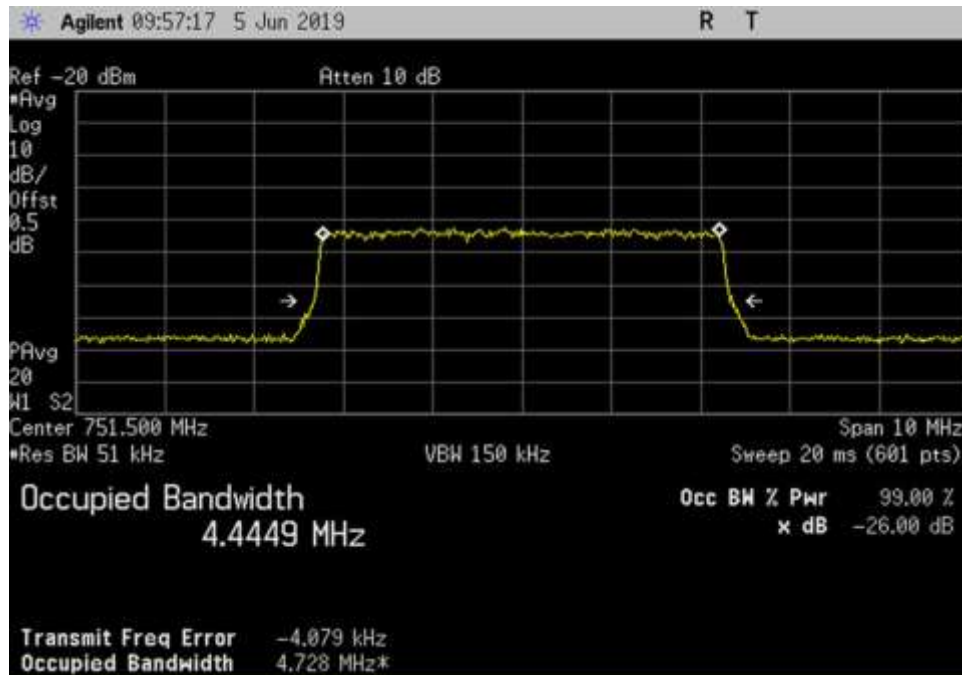
UL\_1710-1755\_LTE\_ 1732.5MHz



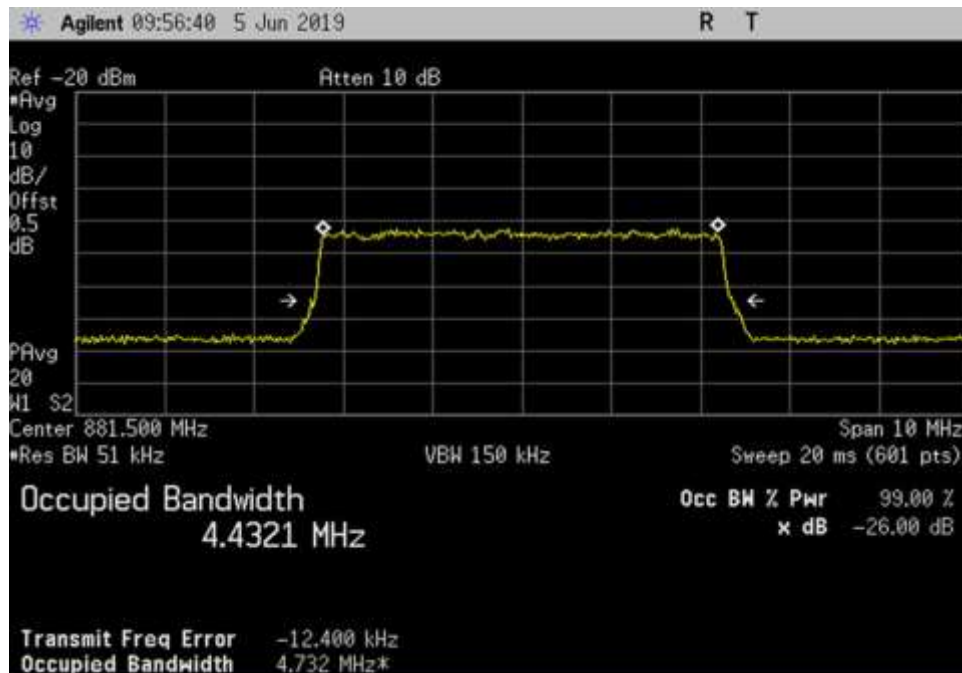
UL\_1850-1915\_LTE\_ 1882.5MHz



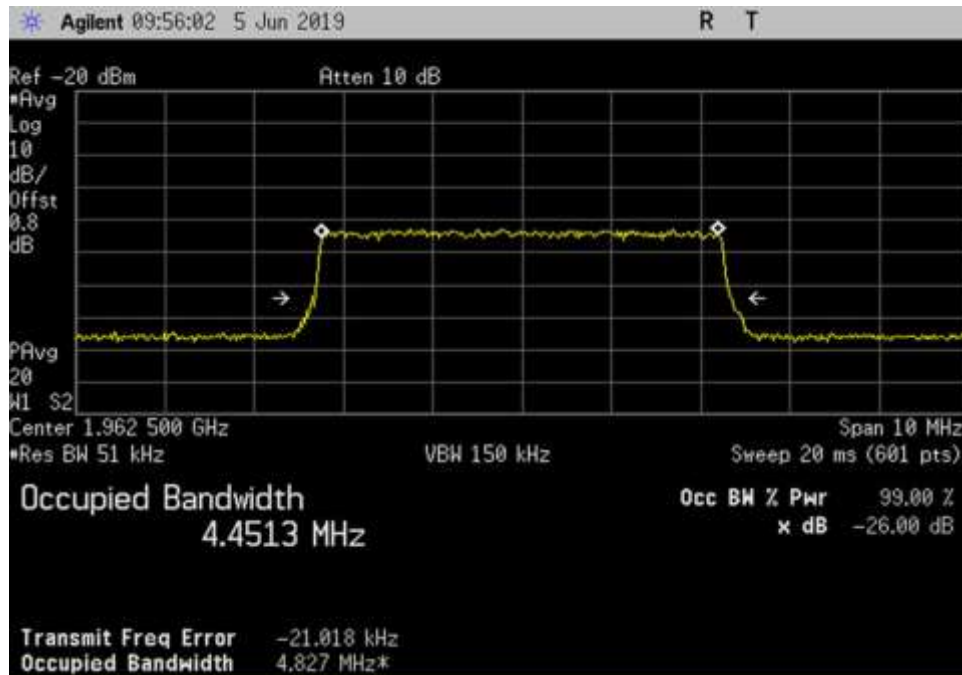
DL\_728-746\_LTE\_ 737MHz



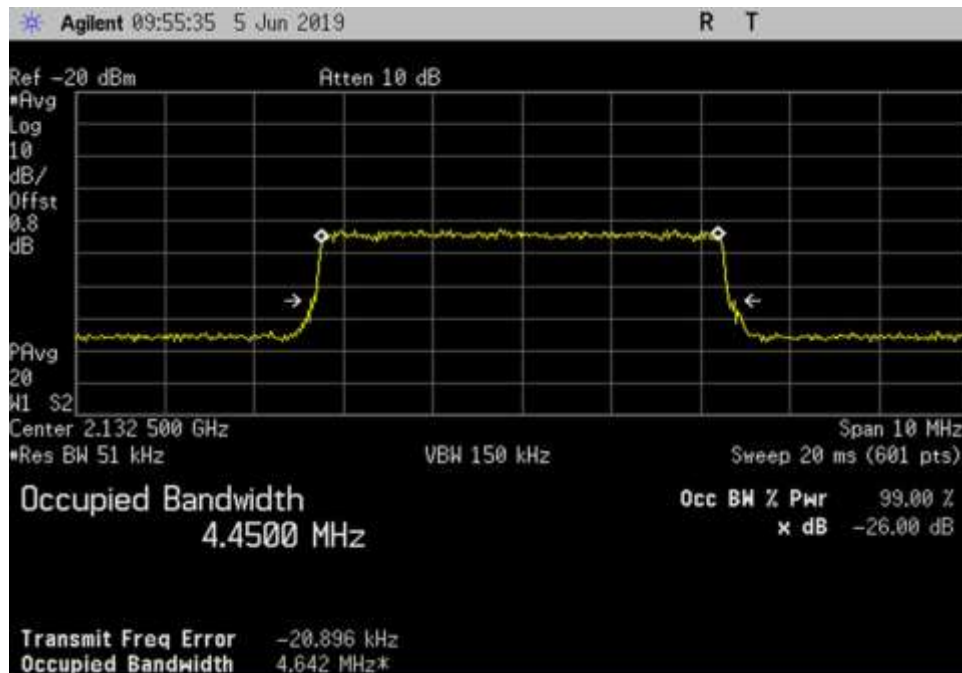
DL\_746-757\_LTE\_ 751.5MHz



DL\_869-894\_LTE\_ 881.5MHz

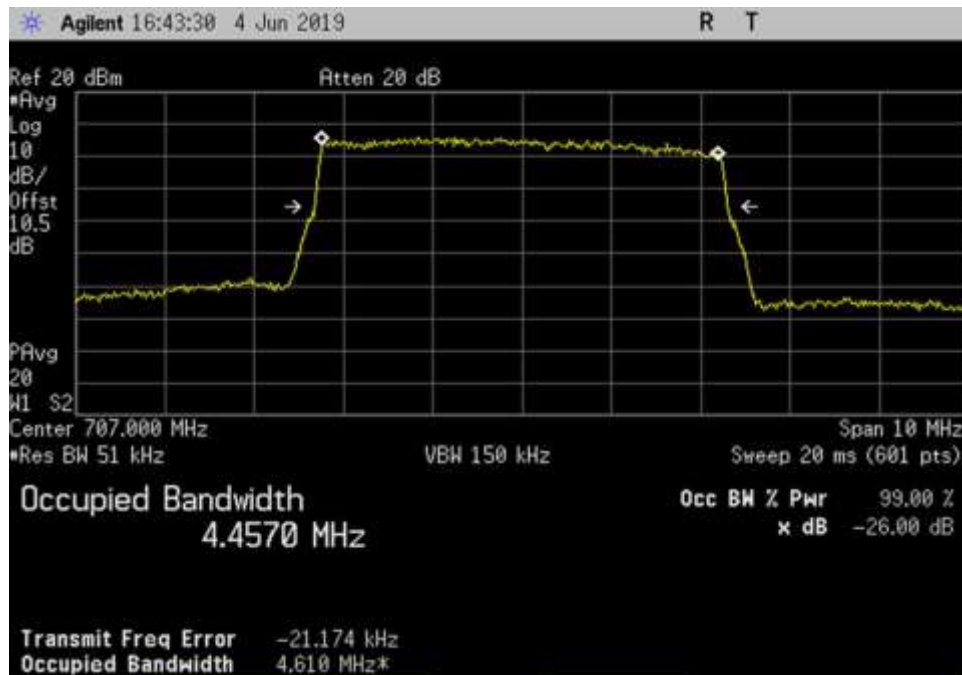


DL\_1930-1995\_LTE\_ 1962.5MHz

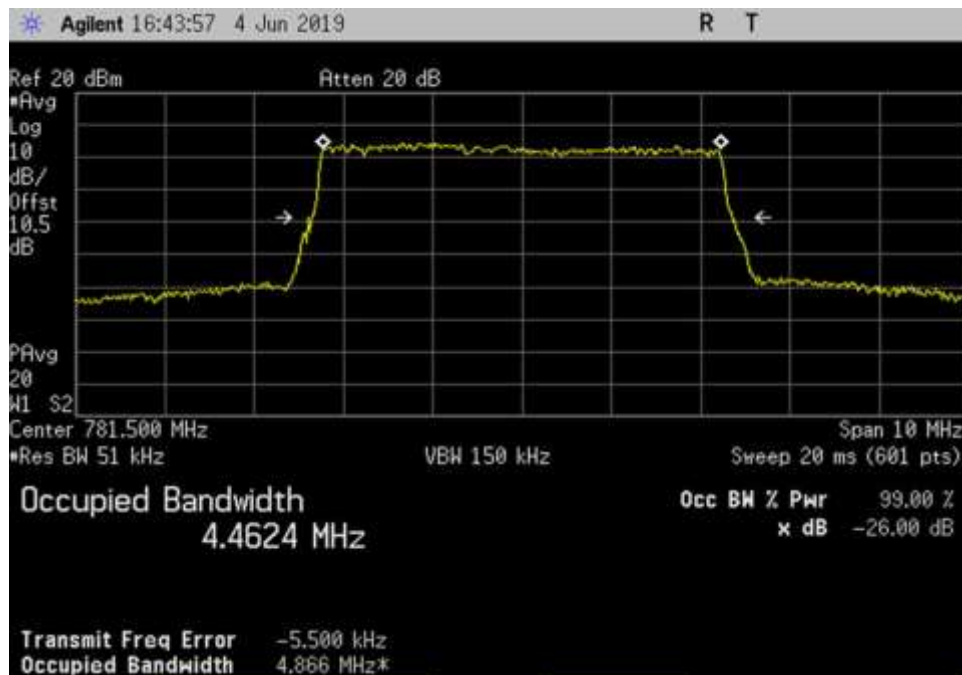


DL\_2110-2155\_LTE\_ 2132.5MHz

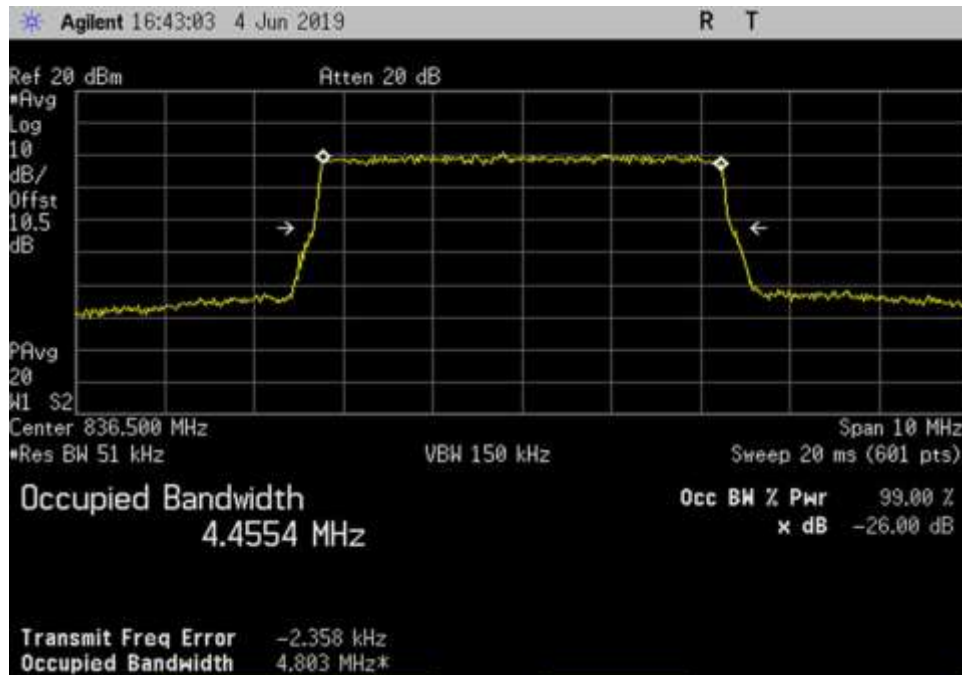
### LTE-Output



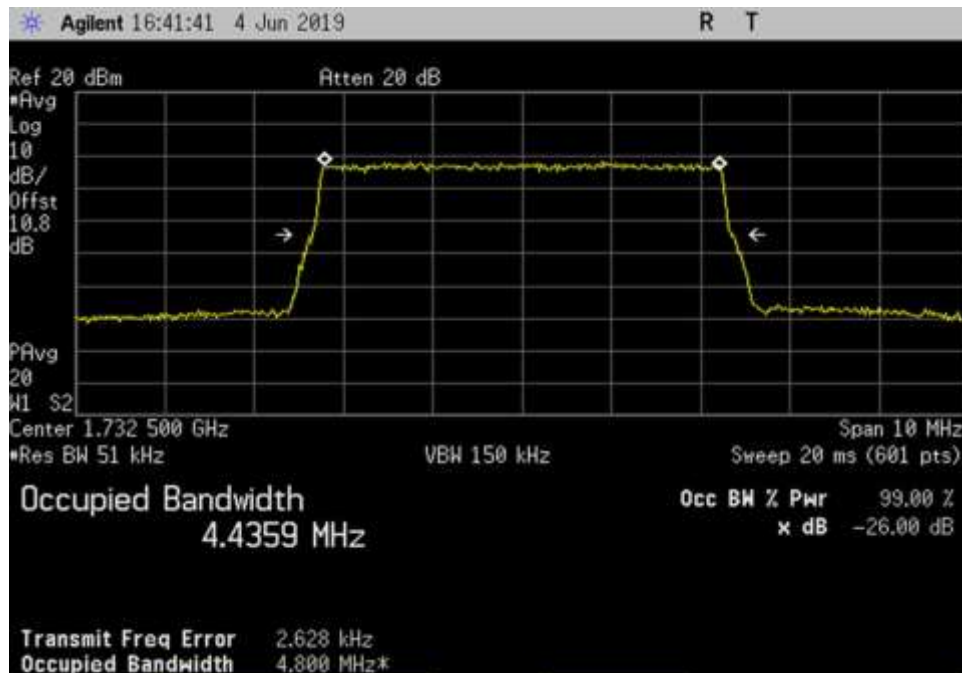
UL\_698-716\_LTE\_ 707MHz\_50ft Cable



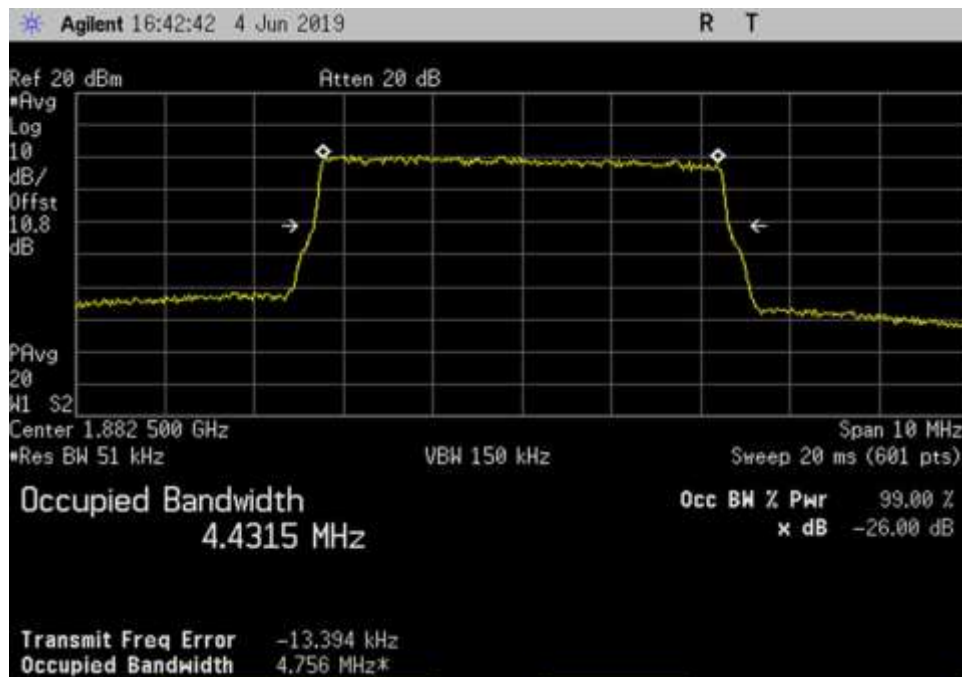
UL\_776-787\_LTE\_ 781.5MHz\_50ft Cable



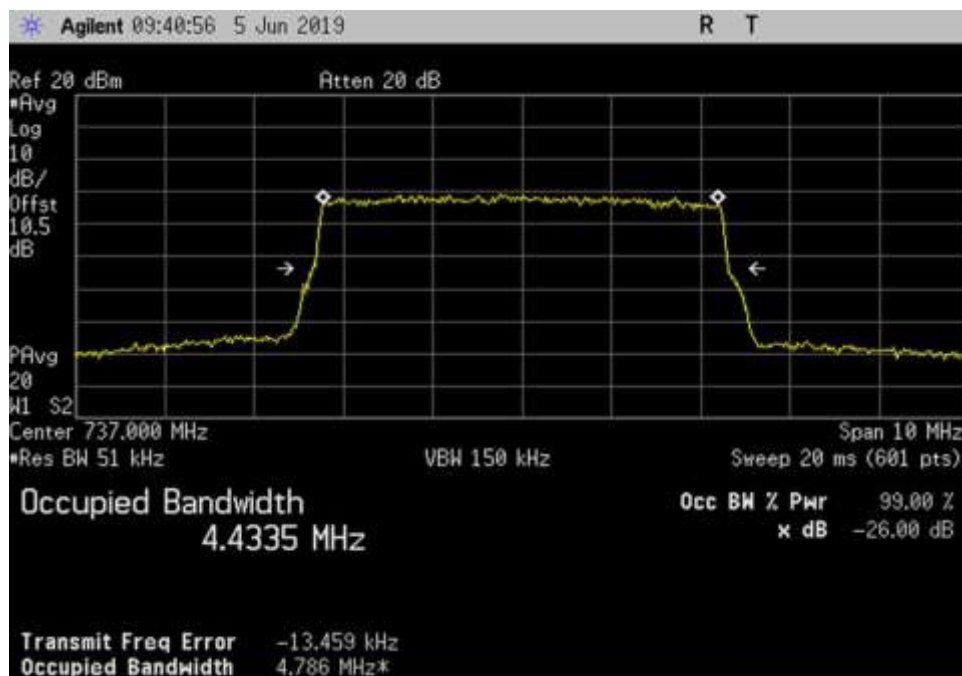
UL\_824-849\_LTE\_836.5MHz\_50ft Cable



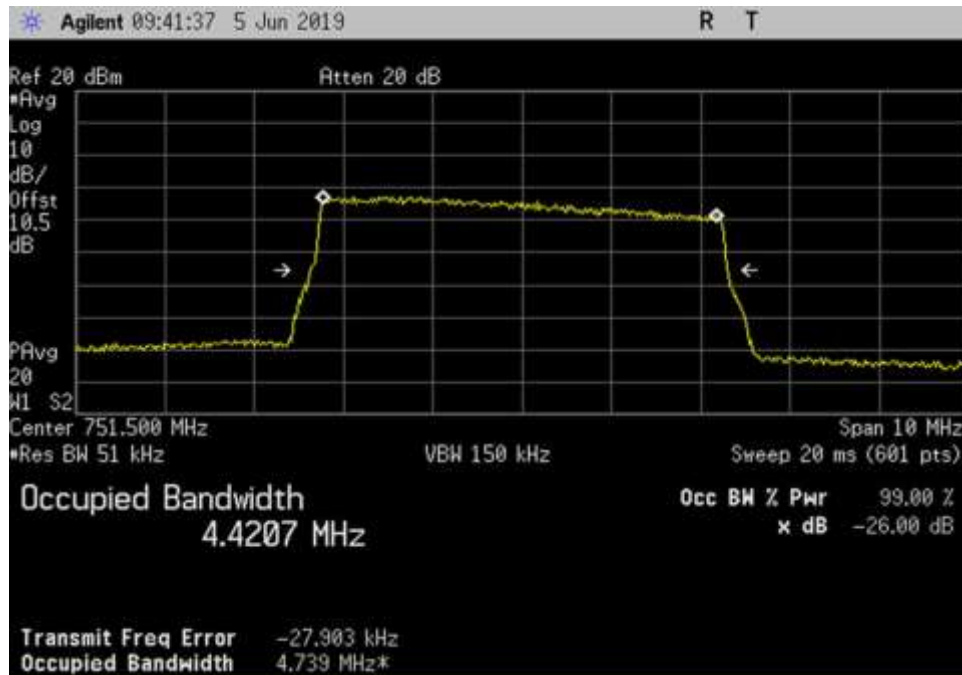
UL\_1710-1755\_LTE\_1732.5MHz\_50ft Cable



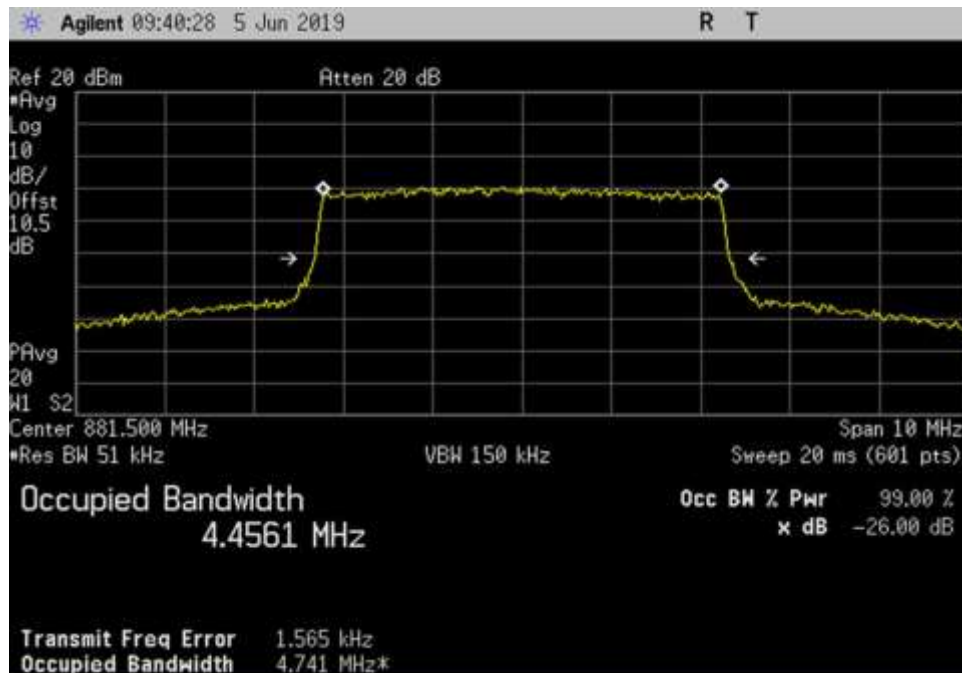
UL\_1850-1915\_LTE\_1882.5MHz\_50ft Cable



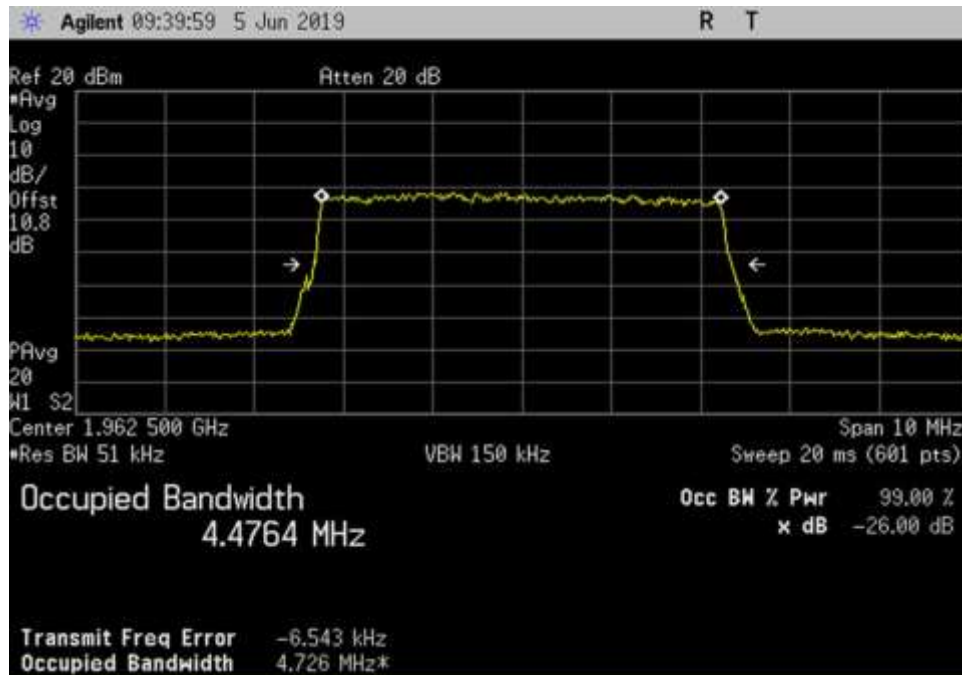
DL\_728-746\_LTE\_737MHz



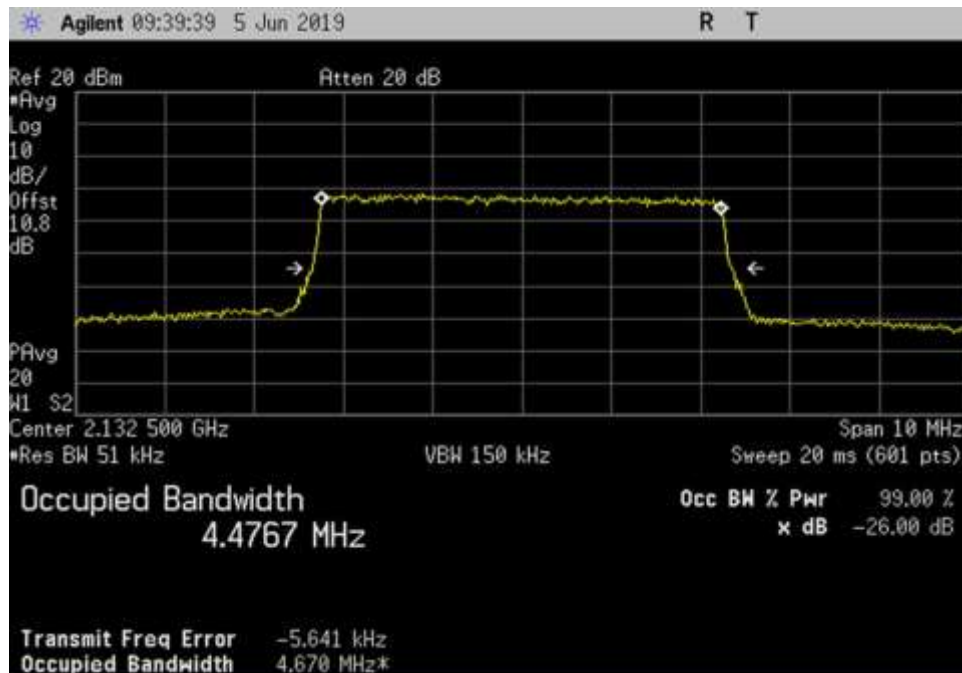
DL\_746-757\_LTE\_751.5MHz



DL\_869-894\_LTE\_881.5MHz

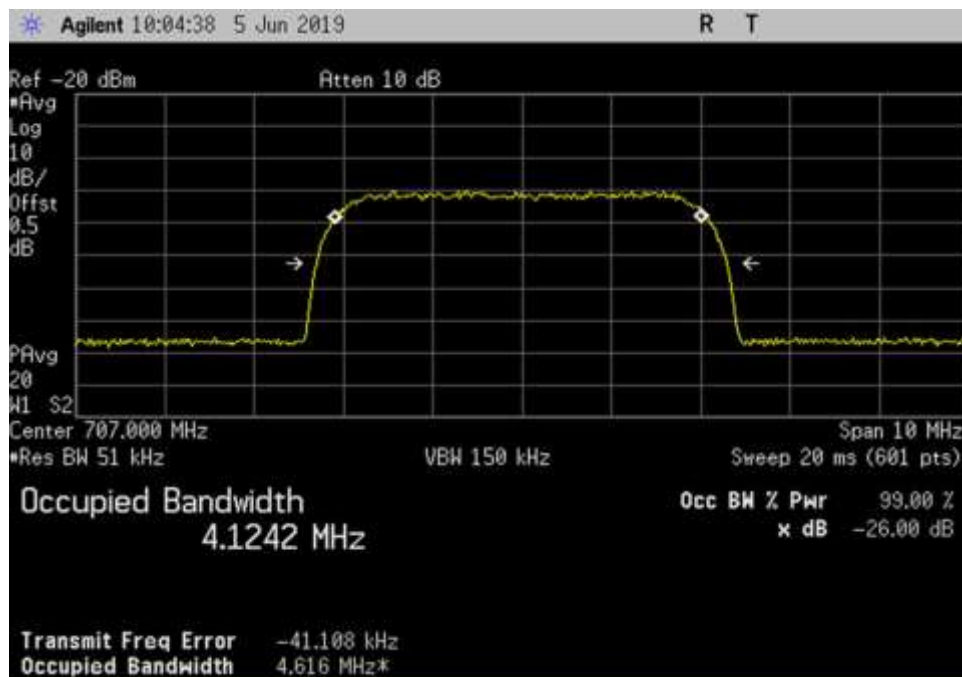


DL\_1930-1995\_LTE\_ 1962.5MHz

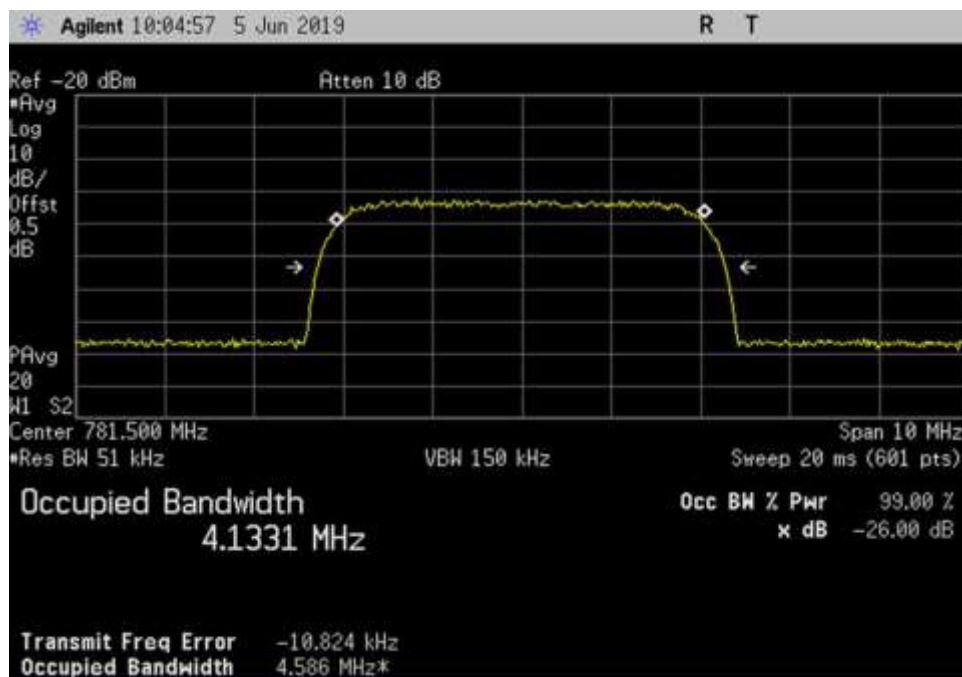


DL\_2110-2155\_LTE\_ 2132.5MHz

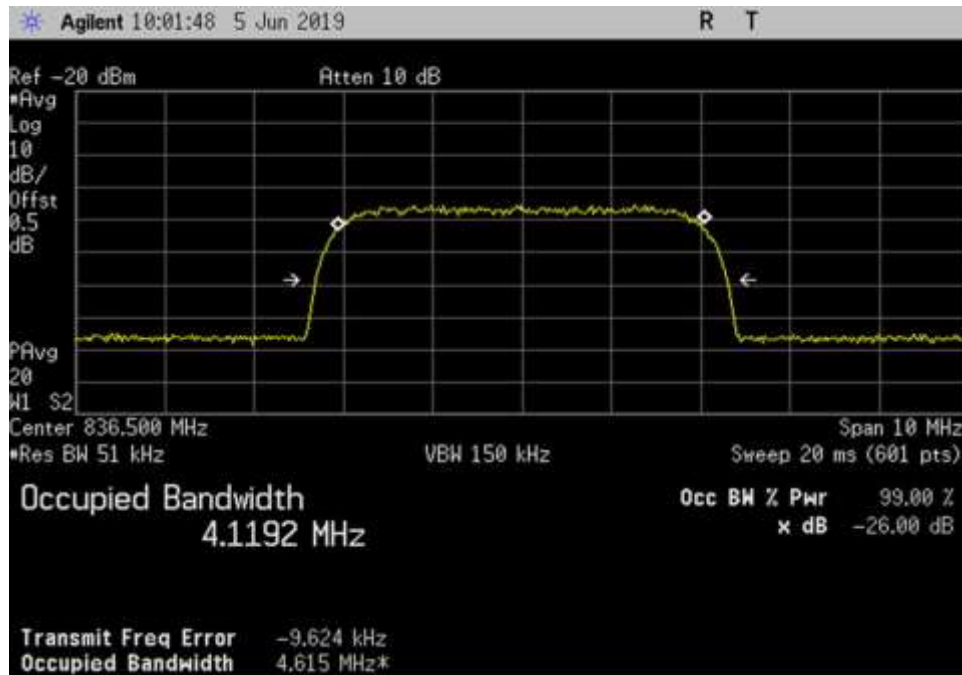
WCDMA-Input



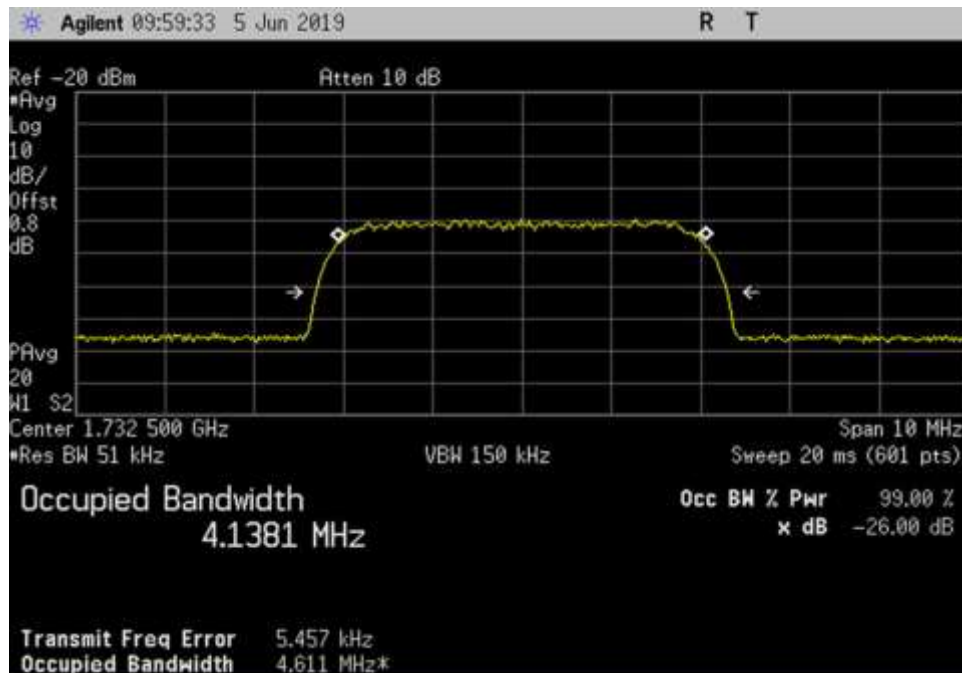
UL\_698-716\_WCDMA\_707MHz



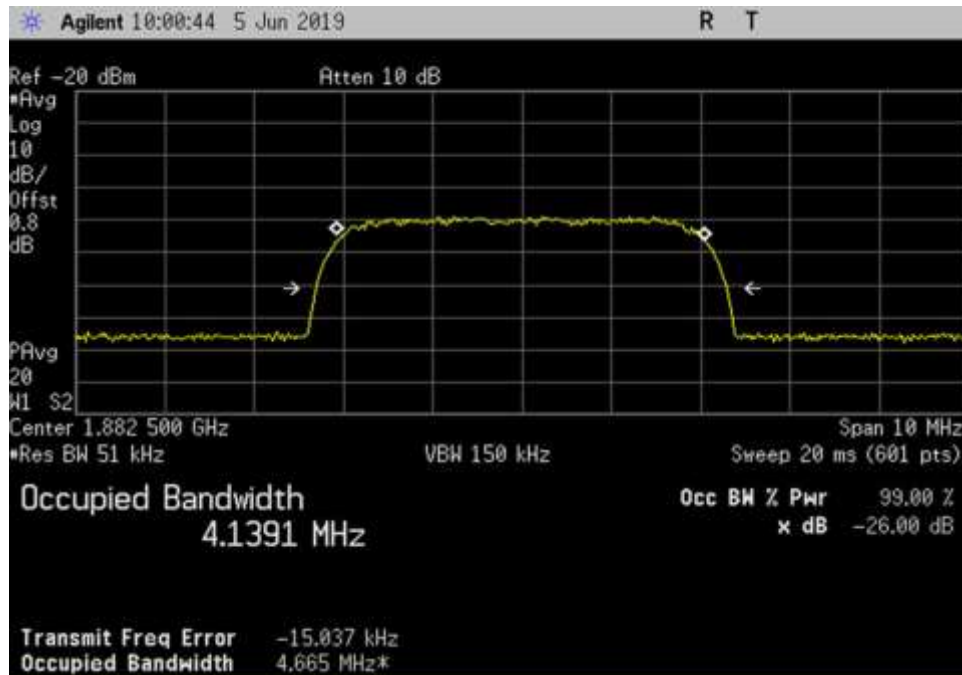
UL\_776-787\_WCDMA\_781.5MHz



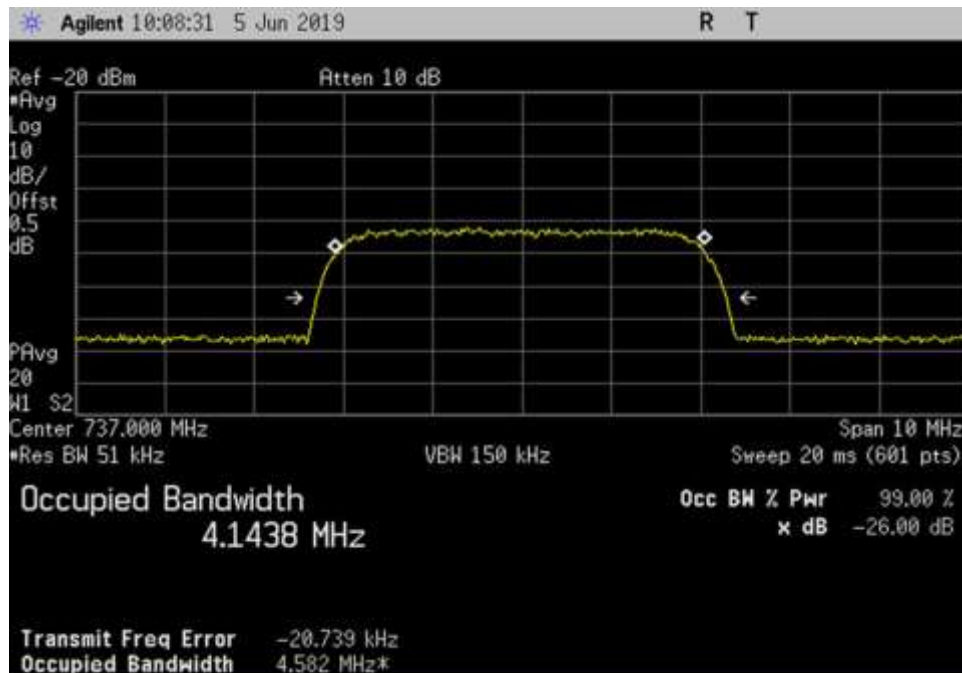
UL\_824-849\_WCDMA\_ 836.5MHz



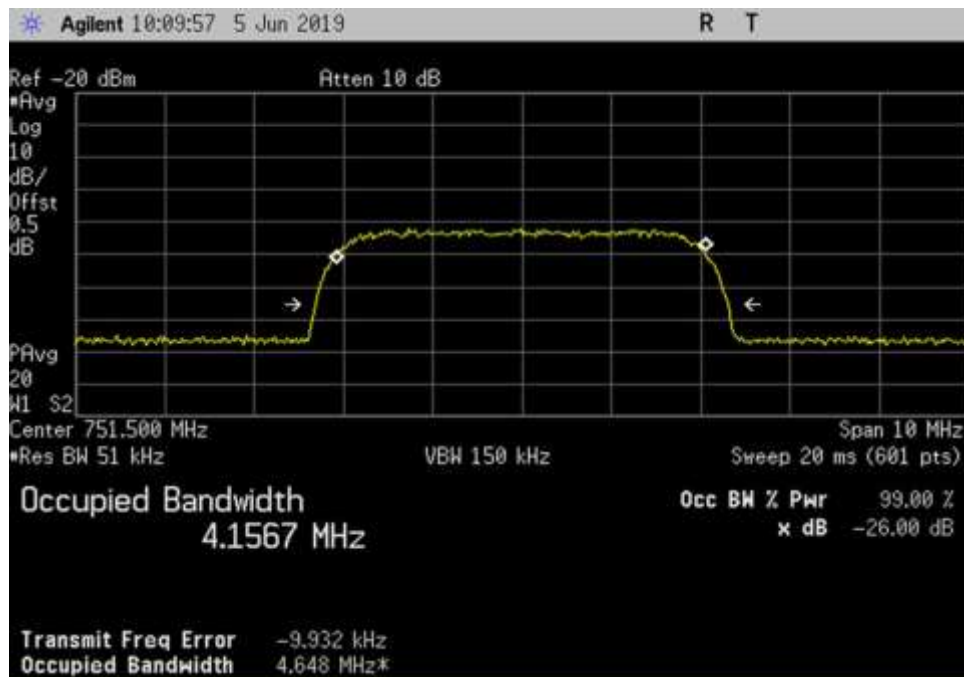
UL\_1710-1755\_WCDMA\_ 1732.5MHz



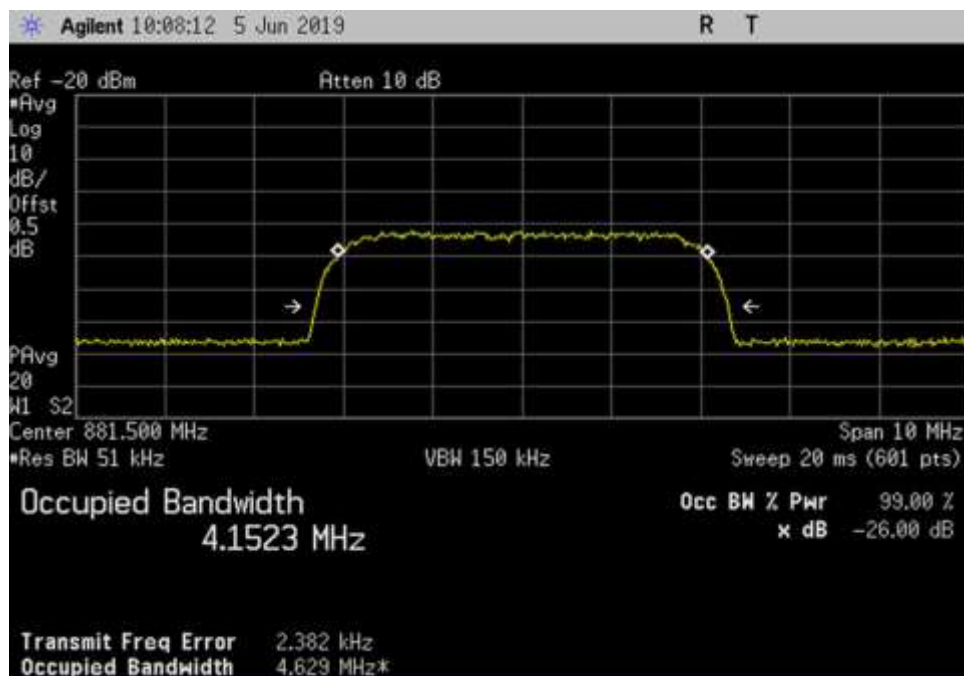
UL\_1850-1915\_WCDMA\_ 1882.5MHz



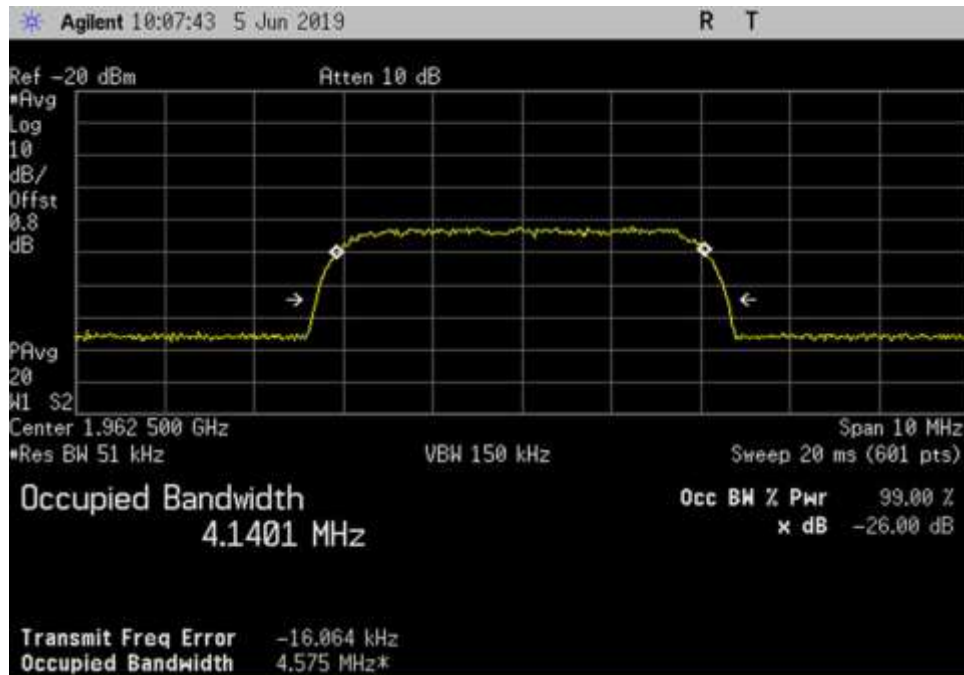
DL\_728-746\_WCDMA\_ 737MHz



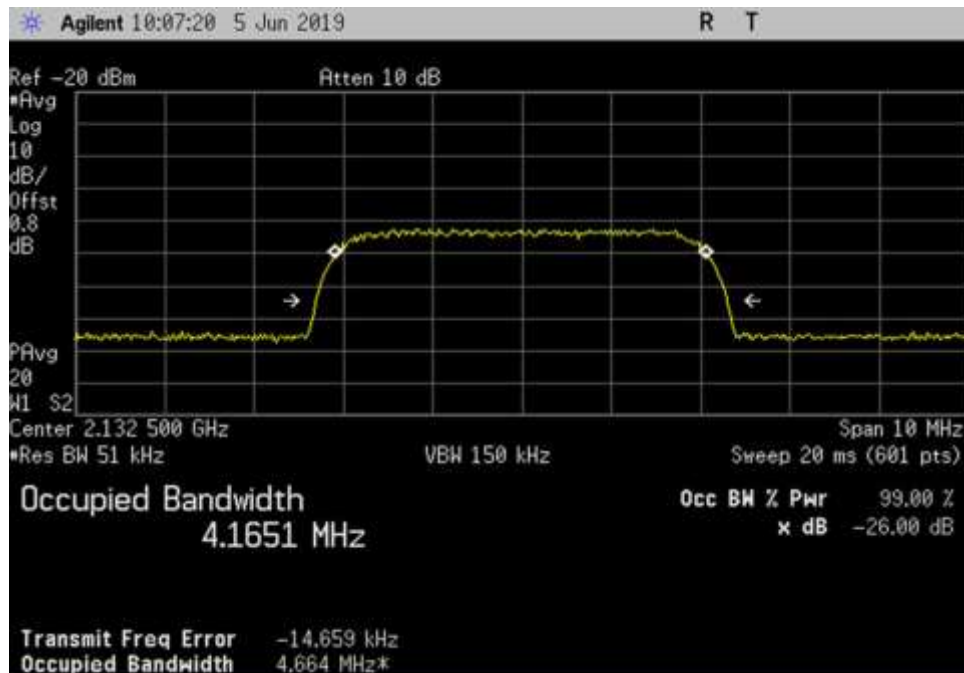
DL\_746-757\_WCDMA\_751.5MHz



DL\_869-894\_WCDMA\_881.5MHz

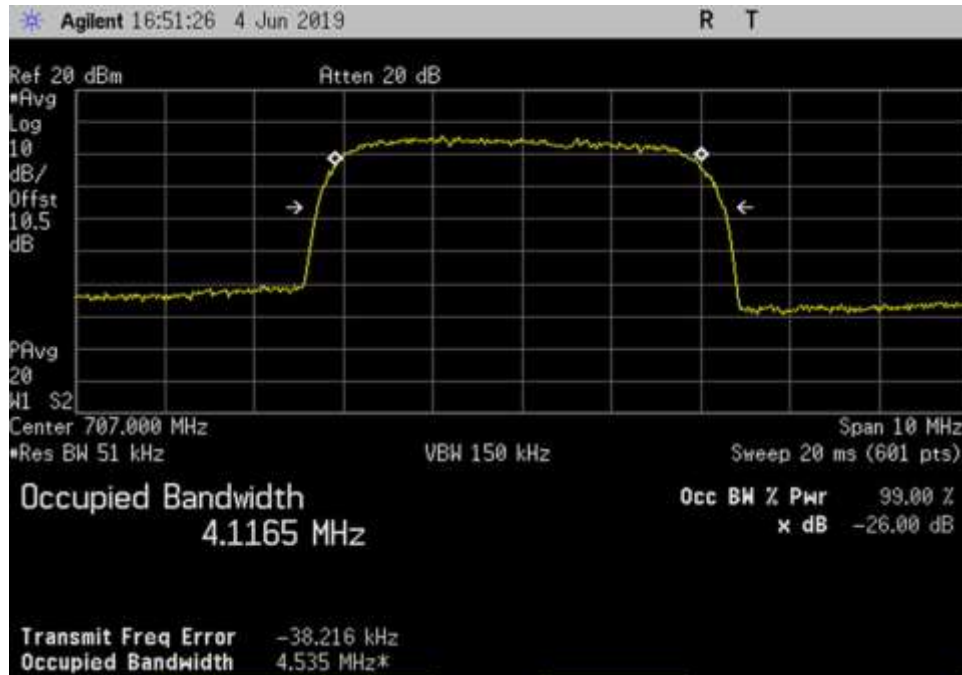


DL\_1930-1995\_WCDMA\_1962.5MHz

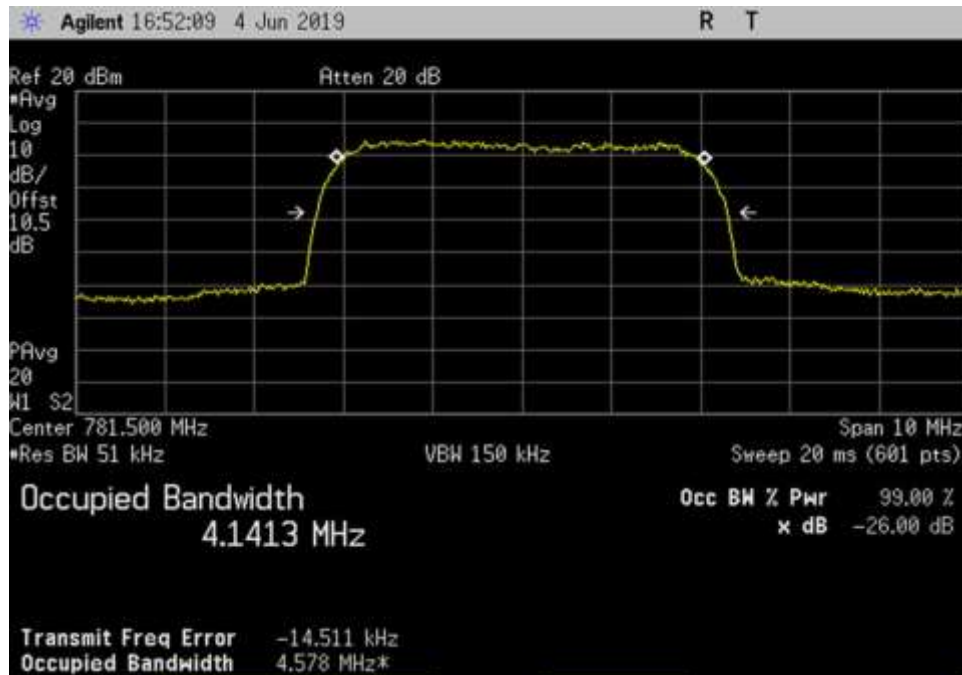


DL\_2110-2155\_WCDMA\_2132.5MHz

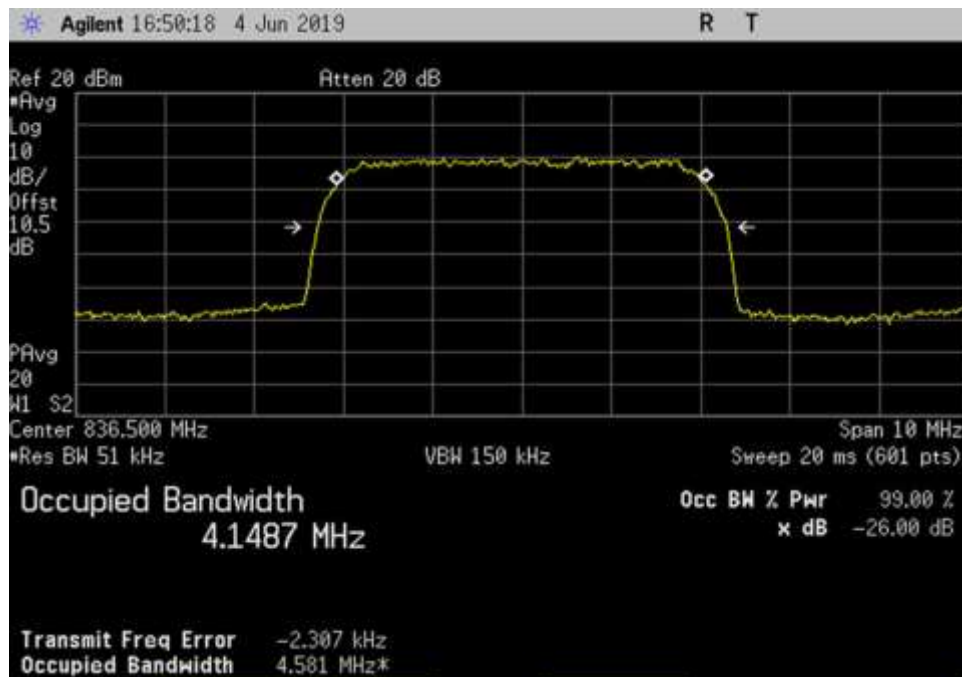
### WCDMA-Output



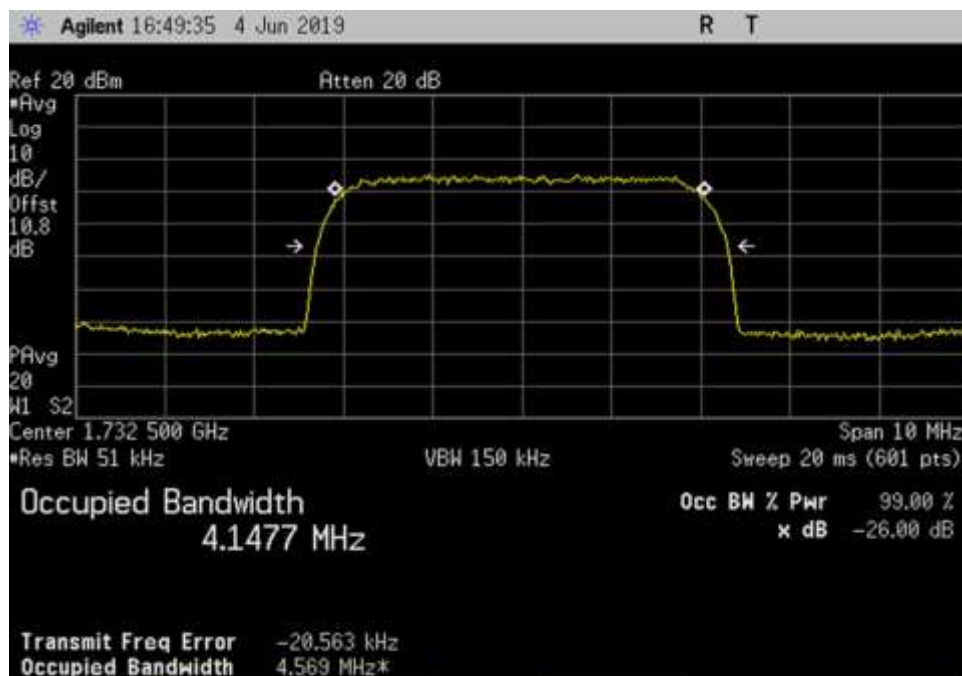
UL\_698-716\_WCDMA\_ 707MHz\_50ft Cable



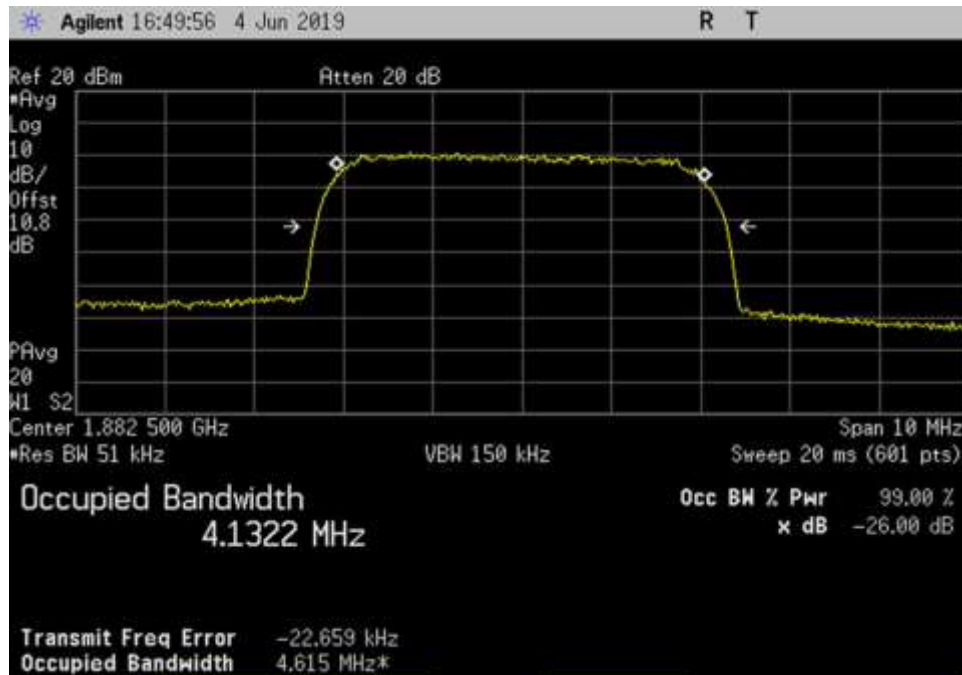
UL\_776-787\_WCDMA\_ 781.5MHz\_50ft Cable



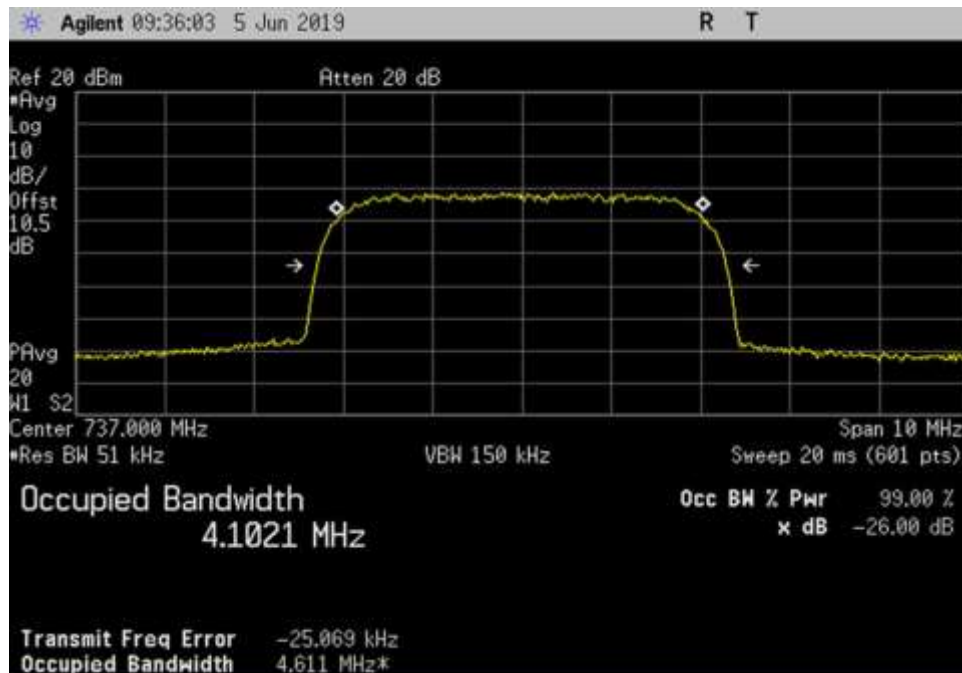
UL\_824-849\_WCDMA\_836.5MHz\_50ft Cable



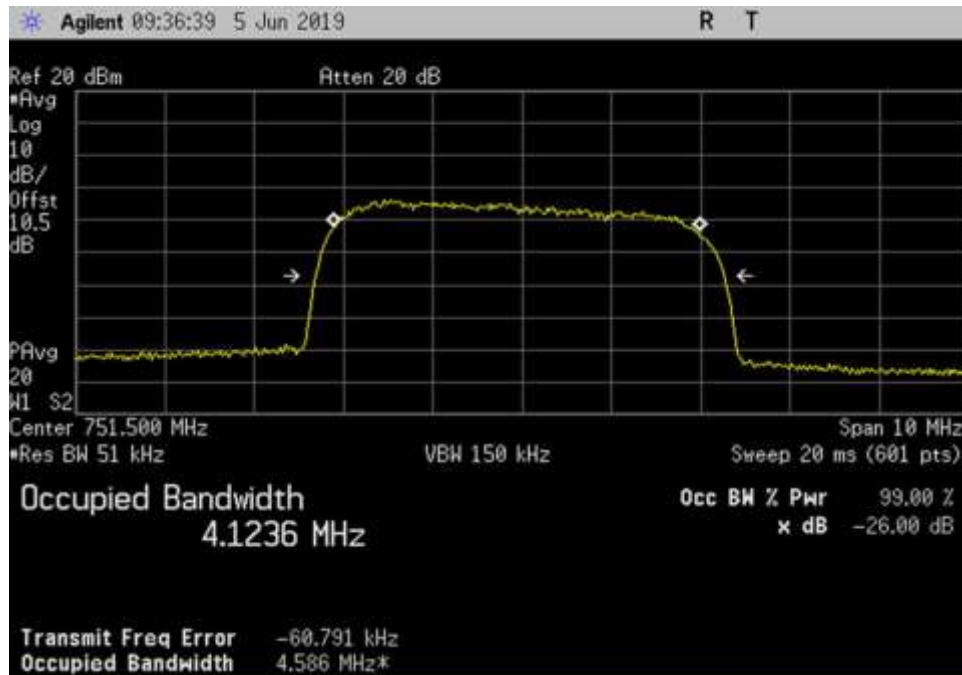
UL\_1710-1755\_WCDMA\_1732.5MHz\_50ft Cable



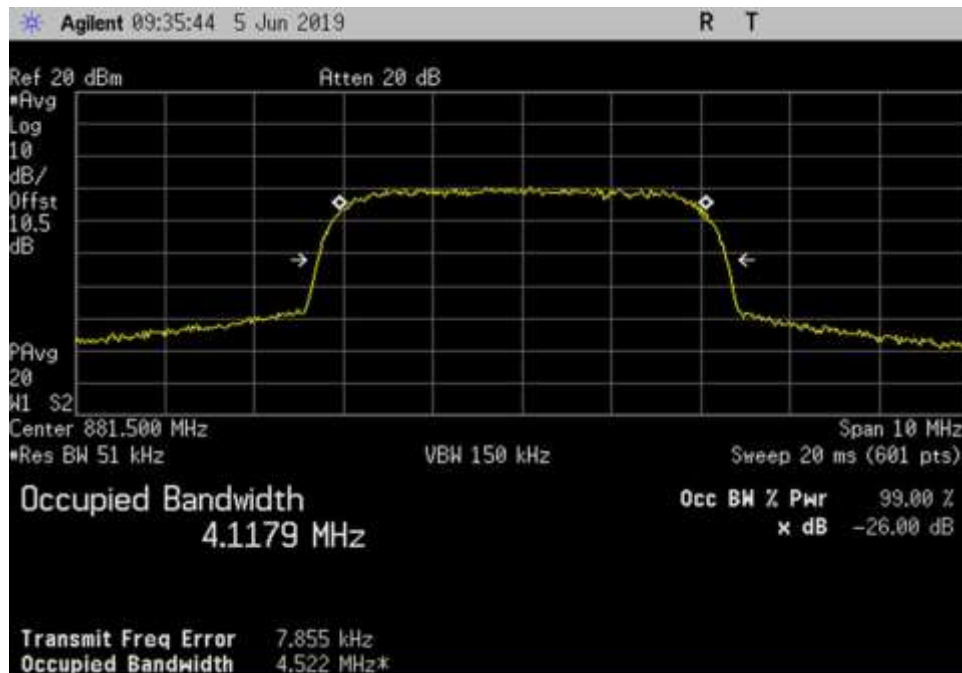
UL\_1850-1915\_WCDMA\_1882.5MHz\_50ft Cable



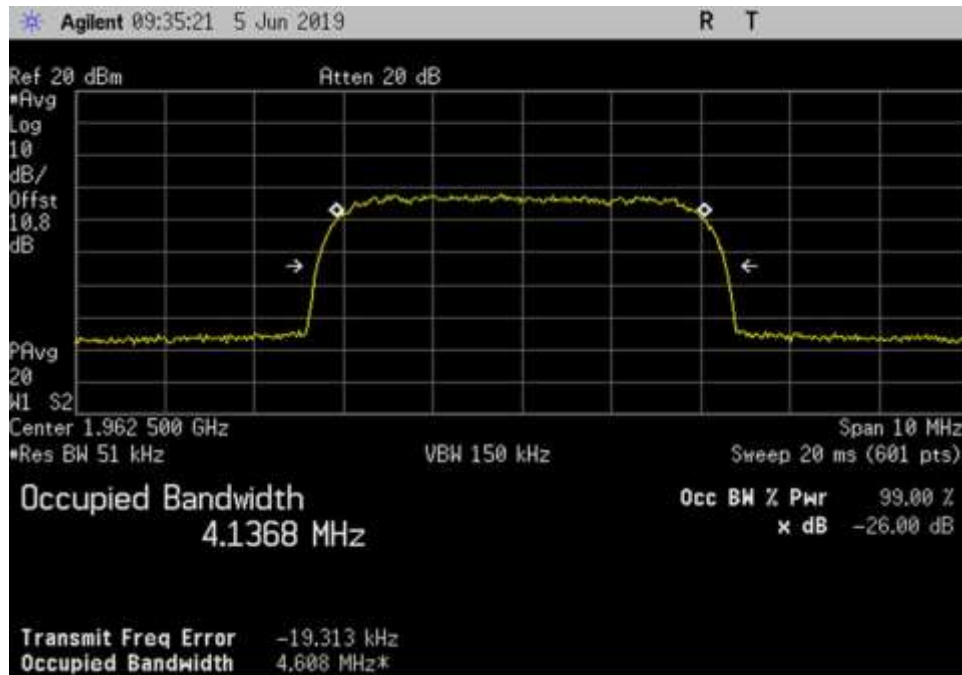
DL\_728-746\_WCDMA\_737MHz



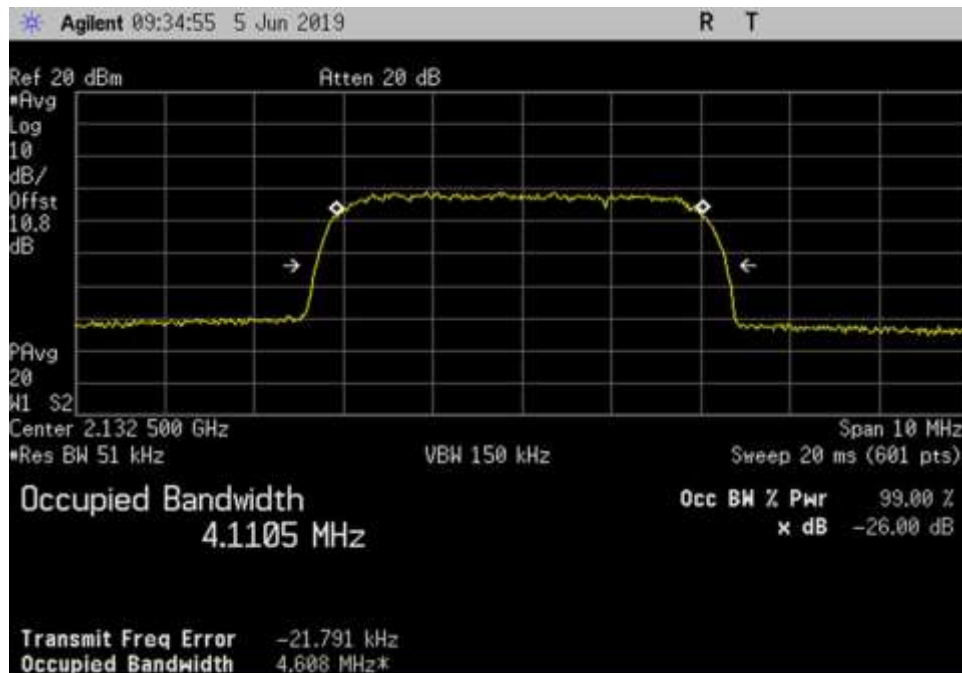
DL\_746-757\_WCDMA\_751.5MHz



DL\_869-894\_WCDMA\_881.5MHz



DL\_1930-1995\_WCDMA\_ 1962.5MHz



DL\_2110-2155\_WCDMA\_ 2132.5MHz

## 7.11 Oscillation Detection

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.11 Anti-Oscillation (Oscillation Restarts / Oscillation mitigation or shutdown)**  
 Work Order #: **102129**  
 Test Type: **Conducted Emissions** Date 06/07,10,11,12/2019  
 Tested By: **Hieu Song 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:

06/07/2019:  
 Test environment conditions: Temperature: 23.8°C, Relative Humidity: 42, Atmospheric Pressure: 101.4kPa  
 06/10/2019:  
 Test environment conditions: Temperature: 24.5°C, Relative Humidity: 52, Atmospheric Pressure: 102.1kPa  
 06/11/2019:  
 Test environment conditions: Temperature: 24.3°C, Relative Humidity: 47, Atmospheric Pressure: 102.5kPa  
 06/12/2019:  
 Test environment conditions: Temperature: 22.5°C, Relative Humidity: 44, Atmospheric Pressure: 102.1kPa  
 Note: UL1850-1915MHz -AWGNL+5:  
 - AWGNL denotes a 4.1MHz AWGN signal (99% occupied bandwidth) tuned to the frequency of 2.5 MHz above the lower edge of the operating band 1850-1915MHz.  
 - +5 denotes a variable attenuator adjusted such that the insertion loss for center of band under test (isolation) between the booster's donor and server ports is 5 dB greater than the maximum gain, as recorded in the maximum gain test procedure, for the band under test.  
 Modification 1 was in place during testing.

**Test Equipment:**

| Asset # | Description         | Manufacturer           | Model                    | Calibration Date | Cal Due Date |
|---------|---------------------|------------------------|--------------------------|------------------|--------------|
| 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                   | 05/13/2019       | 05/13/2021   |
| 03470   | Spectrum Analyzer   | Agilent                | E4440A                   | 1/3/2018         | 1/3/2020     |
| P06904  | Cable               | Astrolab               | 32022-29094K-29094K-36TC | 1/4/2018         | 1/4/2020     |
| C00082  | Directional Coupler | MECA Electronics, Inc. | 722-10-1.500V            | 9/18/2017        | 9/18/2019    |
| 03412   | Band Pass Filter    | Pasternack             | PE8705                   | 8/16/2017        | 8/16/2019    |
| 03413   | Band Pass Filter    | Pasternack             | PE8706                   | 8/16/2017        | 8/16/2019    |
| 03414   | Band Pass Filter    | Pasternack             | PE8707                   | 8/16/2017        | 8/16/2019    |
| 03415   | Band Pass Filter    | Pasternack             | PE8708                   | 8/16/2017        | 8/16/2019    |
| 03447   | Band Pass Filter    | Pasternack             | PE8710                   | 8/16/2017        | 8/16/2019    |
| 03448   | Band Pass Filter    | Pasternack             | PE8711                   | 8/16/2017        | 8/16/2019    |
| 03446   | Band Pass Filter    | K & L                  | 4FV50-707/H18-O/O        | 8/16/2017        | 8/16/2019    |
| 03467   | High Pass Filter    | K & L                  | 4FV50-731/H30-O/O        | 8/16/2017        | 8/16/2019    |
| 03468   | High Pass Filter    | K & L                  | 4CS10-781.5/E12.2-O/O    | 8/16/2017        | 8/16/2019    |
| 03469   | High Pass Filter    | K & L                  | 4CS10-751.5/E12-O/O      | 8/16/2017        | 8/16/2019    |
| 02475   | Attenuator          | HP                     | 8494B                    | 6/8/2017         | 6/8/2019*    |
| 03429   | Attenuator          | HP                     | 8496B                    | 11/8/2017        | 11/8/2019    |

\* Used for 6/7/2019 testing only.

## Summary of Results

### 7.11 Summary of Results on a 50ft Cable

Pass: All oscillations detections and mitigations occur within 0.3 seconds in uplink bands, within 1 second in the downlink bands and the noise level is below the -70dBm/MHz limit.

#### 7.11.2 Oscillation restart tests

| Oscillation detection |          |       |            | Time Between restart |              | Number of restart |       |
|-----------------------|----------|-------|------------|----------------------|--------------|-------------------|-------|
| Frequency             | Measured | Limit | Peak Level | Measured             | Limit        | Measured          | Limit |
| MHz                   | Sec      | Sec   | dBm        | Sec                  | At least sec |                   |       |
| UL1710-1755           | 0.250    | 0.3   | 28.9       | 68                   | 60           | 1                 | 5     |
| UL1850-1915           | 0.250    | 0.3   | 26.3       | 68                   | 60           | 1                 | 5     |
| UL824-894             | 0.250    | 0.3   | 28.6       | 70                   | 60           | 1                 | 5     |
| UL 698-716            | 0.275    | 0.3   | 30.7       | 68                   | 60           | 1                 | 5     |
| UL776-787             | 0.250    | 0.3   | 29.8       | 70                   | 60           | 1                 | 5     |
|                       |          |       |            |                      |              |                   |       |
| DL2110-2155           | 0.275    | 1.0   | 11.2       | 70                   | 60           | 1                 | 5     |
| DL1930-1995           | 0.275    | 1.0   | 16.9       | 69                   | 60           | 1                 | 5     |
| DL869-894             | 0.250    | 1.0   | 13.8       | 67                   | 60           | 1                 | 5     |
| DL:728-746            | 0.258    | 1.0   | 17.2       | 67                   | 60           | 1                 | 5     |
| DL 746-757            | 0.250    | 1.0   | 15.4       | 69                   | 60           | 1                 | 5     |

The booster continues to mitigate at least 1 minute before restarting. The plots demonstrate after 1 restart (the limit is 5 restart), the booster does not resume operation until manually reset.

### 7.11.3 Test procedure for measuring oscillation mitigation or shutdown

|                    | UL 1710-1755     | UL1850-1915      | UL 824-894       | UL 698-716       | UL 776-787       |       |
|--------------------|------------------|------------------|------------------|------------------|------------------|-------|
| Max Gain Isolation | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Limit |
| dB                 | dB               | dB               | dB               | dB               | dB               | dB    |
| +5dB               | (12.6) *         | 10.8             | 11.5             | 11.3             | 11.5             | 12.0  |
| +4dB               | (14.7) *         | (12.8) *         | (12.2) *         | (12.6) *         | (13.1) *         | 12.0  |
| +3dB               | (17.3) *         | (15.5) *         | (14.8) *         | (15.4) *         | (15.2) *         | 12.0  |
| +2dB               | (21.2) *         | (17.8) *         | (17.4) *         | (18.2) *         | (19.4) *         | 12.0  |
| +1dB               | (30.1) *         | (21.9) *         | (23.7) *         | (24.2) *         | (24.4) *         | 12.0  |
| 0dB                | **               | (66.4) *         | (61.5) *         | (39.4) *         | (47.4) *         | 12.0  |
| -1dB               | **               | **               | **               |                  | **               | 12.0  |
| -2dB               | **               | **               | **               | **               | **               | 12.0  |
| -3dB               | **               |                  | **               | **               | **               | 12.0  |
| -4dB               | **               | **               | **               | **               | **               | 12.0  |
| -5dB               | **               | **               | **               | **               | **               | 12.0  |

|                    | DL 2110-2155     | DL 1930-1995     | DL 869-894       | DL 728-746       | DL 746-775       |       |
|--------------------|------------------|------------------|------------------|------------------|------------------|-------|
| Max Gain Isolation | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Limit |
| dB                 | dB               | dB               | dB               | dB               | dB               | dB    |
| +5dB               | (14.1) *         | (12.1) *         | (12.1) *         | (12.1) *         | 10.9             | 12.0  |
| +4dB               | (16.6) *         | (14.1) *         | (14.3) *         | (14.1) *         | (12.4) *         | 12.0  |
| +3dB               | (19.2) *         | (16.5) *         | (17.6) *         | (16.5) *         | (15.4) *         | 12.0  |
| +2dB               | (23.9) *         | (19.4) *         | (20.7) *         | (19.4) *         | (17.7) *         | 12.0  |
| +1dB               | (36.5) *         | (28.7) *         | (28.9) *         | (28.7) *         | (22.3) *         | 12.0  |
| 0dB                | **               | **               | **               | **               | (32.1) *         | 12.0  |
| -1dB               | **               | **               | **               | **               | **               | 12.0  |
| -2dB               | **               | **               | **               | **               | **               | 12.0  |
| -3dB               | **               | **               | **               | **               | **               | 12.0  |
| -4dB               | **               | **               | **               | **               | **               | 12.0  |
| -5dB               | **               | **               | **               | **               | **               | 12.0  |

Note:

\* The measured difference exceeds the limit for a period of less than 300 second before device mitigates or shuts down. The maximum recorded time prior to shutdown was 97 seconds for the Uplink bands and 96 seconds for the Downlink bands.

\*\* The device shuts down immediately.

## 7.11 Summary of Results on a 100ft Cable

Pass: All oscillations detections and mitigations occur within 0.3 seconds in uplink bands, within 1 second in the downlink bands and the noise level is below the -70dBm/MHz limit.

### 7.11.2 Oscillation restart tests

| Oscillation detection |          |       |            | Time Between restart |              | Number of restart |       |
|-----------------------|----------|-------|------------|----------------------|--------------|-------------------|-------|
| Frequency             | Measured | Limit | Peak Level | Measured             | Limit        | Measured          | Limit |
| MHz                   | Sec      | Sec   | dBm        | Sec                  | At least sec |                   |       |
| UL1710-1755           | 0.242    | 0.3   | 27.4       | 69                   | 60           | 1                 | 5     |
| UL1850-1915           | 0.233    | 0.3   | 26.3       | 70                   | 60           | 1                 | 5     |
| UL824-894             | 0.250    | 0.3   | 28.0       | 68                   | 60           | 1                 | 5     |
| UL 698-716            | 0.242    | 0.3   | 30.7       | 67                   | 60           | 1                 | 5     |
| UL776-787             | 0.242    | 0.3   | 29.1       | 69                   | 60           | 1                 | 5     |
|                       |          |       |            |                      |              |                   |       |
| DL2110-2155           | 0.275    | 1.0   | 6.9        | 68                   | 60           | 1                 | 5     |
| DL1930-1995           | 0.233    | 1.0   | 12.9       | 67                   | 60           | 1                 | 5     |
| DL869-894             | 0.275    | 1.0   | 7.0        | 68                   | 60           | 1                 | 5     |
| DL:728-746            | 0.250    | 1.0   | 11.3       | 71                   | 60           | 1                 | 5     |
| DL 746-757            | 0.250    | 1.0   | 13.8       | 69                   | 60           | 1                 | 5     |

The booster continues to mitigate at least 1 minute before restarting. The plots demonstrate after 1 restart (the limit is 5 restart), the booster does not resume operation until manually reset.

### 7.11.3 Test procedure for measuring oscillation mitigation or shutdown

|                    | UL 1710-1755     | UL1850-1915      | UL 824-894       | UL 698-716       | UL 776-787       |       |
|--------------------|------------------|------------------|------------------|------------------|------------------|-------|
| Max Gain Isolation | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Limit |
| dB                 | dB               | dB               | dB               | dB               | dB               | dB    |
| +5dB               | 11.5             | 9.1              | 9.1              | 10.1             | 9.2              | 12.0  |
| +4dB               | (13.5) *         | 10.6             | 11.5             | (12.5) *         | 11.2             | 12.0  |
| +3dB               | (14.5) *         | 11.6             | (13.7) *         | (14.3) *         | (12.8) *         | 12.0  |
| +2dB               | (18.4) *         | (14.2) *         | (15.8) *         | (17.1) *         | (15.3) *         | 12.0  |
| +1dB               | (23.1) *         | (15.7) *         | (19.8) *         | (21.4) *         | (23.8) *         | 12.0  |
| 0dB                | (34.7) *         | (20.7) *         | (26.5) *         | (31.1) *         | (38.4) *         | 12.0  |
| -1dB               | **               | (24.6) *         | (70.4) *         |                  | **               | 12.0  |
| -2dB               | **               | (54.7) *         | **               | **               | **               | 12.0  |
| -3dB               | **               |                  | **               | **               | **               | 12.0  |
| -4dB               | **               | **               | **               | **               | **               | 12.0  |
| -5dB               | **               | **               | **               | **               | **               | 12.0  |

|                    | DL 2110-2155     | DL 1930-1995     | DL 869-894       | DL 728-746       | DL 746-775       |       |
|--------------------|------------------|------------------|------------------|------------------|------------------|-------|
| Max Gain Isolation | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Limit |
| dB                 | dB               | dB               | dB               | dB               | dB               | dB    |
| +5dB               | (14.9) *         | (13.1) *         | (12.2) *         | (12.4) *         | 11.6             | 12.0  |
| +4dB               | (16.4) *         | (15.2) *         | (14.6) *         | (14.7) *         | (13.5) *         | 12.0  |
| +3dB               | (20.3) *         | (18.3) *         | (18.8) *         | (17.4) *         | (16.5) *         | 12.0  |
| +2dB               | (24.7) *         | (20.1) *         | (24.2) *         | (24.5) *         | (17.6) *         | 12.0  |
| +1dB               | (34.7) *         | (23.9) *         | (39.5) *         | (34.1) *         | (19.5) *         | 12.0  |
| 0dB                | **               | **               | **               | **               | (21.5) *         | 12.0  |
| -1dB               | **               | **               | **               | **               | (28.2) *         | 12.0  |
| -2dB               | **               | **               | **               | **               | **               | 12.0  |
| -3dB               | **               | **               | **               | **               | **               | 12.0  |
| -4dB               | **               | **               | **               | **               | **               | 12.0  |
| -5dB               | **               | **               | **               | **               | **               | 12.0  |

Note:

\* The measured difference exceeds the limit for a period of less than 300 second before device mitigates or shuts down. The maximum recorded time prior to shutdown was 96 seconds for the Uplink bands and 95 seconds for the Downlink bands.

\*\* The device shuts down immediately.

## 7.11 Summary of Results on a 150ft Cable

Pass: All oscillations detections and mitigations occur within 0.3 seconds in uplink bands, within 1 second in the downlink bands and the noise level is below the -70dBm/MHz limit.

### 7.11.2 Oscillation restart tests

| Oscillation detection |          |       |            | Time Between restart |              | Number of restart |       |
|-----------------------|----------|-------|------------|----------------------|--------------|-------------------|-------|
| Frequency             | Measured | Limit | Peak Level | Measured             | Limit        | Measured          | Limit |
| MHz                   | Sec      | Sec   | dBm        | Sec                  | At least sec |                   |       |
| UL1710-1755           | 0.233    | 0.3   | 27.1       | 70                   | 60           | 1                 | 5     |
| UL1850-1915           | 0.242    | 0.3   | 24.1       | 67                   | 60           | 1                 | 5     |
| UL824-894             | 0.233    | 0.3   | 27.9       | 68                   | 60           | 1                 | 5     |
| UL 698-716            | 0.250    | 0.3   | 29.3       | 69                   | 60           | 1                 | 5     |
| UL776-787             | 0.258    | 0.3   | 28.5       | 68                   | 60           | 1                 | 5     |
|                       |          |       |            |                      |              |                   |       |
| DL2110-2155           | 0.250    | 1.0   | 1.8        | 67                   | 60           | 1                 | 5     |
| DL1930-1995           | 0.250    | 1.0   | 7.4        | 67                   | 60           | 1                 | 5     |
| DL869-894             | 0.242    | 1.0   | 8.2        | 69                   | 60           | 1                 | 5     |
| DL:728-746            | 0.242    | 1.0   | 10.2       | 67                   | 60           | 1                 | 5     |
| DL 746-757            | 0.242    | 1.0   | 11.7       | 68                   | 60           | 1                 | 5     |

The booster continues to mitigate at least 1 minute before restarting. The plots demonstrate after 1 restart (the limit is 5 restart), the booster does not resume operation until manually reset.

### 7.11.3 Test procedure for measuring oscillation mitigation or shutdown

|                    | UL 1710-1755     | UL1850-1915      | UL 824-894       | UL 698-716       | UL 776-787       |       |
|--------------------|------------------|------------------|------------------|------------------|------------------|-------|
| Max Gain Isolation | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Limit |
| dB                 | dB               | dB               | dB               | dB               | dB               | dB    |
| +5dB               | (13.7) *         | (12.2) *         | (12.1) *         | 10.0             | (12.6) *         | 12.0  |
| +4dB               | (17.2) *         | (13.3) *         | (14.5) *         | (13.1) *         | (13.6) *         | 12.0  |
| +3dB               | (22.6) *         | (16.2) *         | (16.5) *         | (14.5) *         | (16.5) *         | 12.0  |
| +2dB               | (31.9) *         | (18.2) *         | (20.1) *         | (18.4) *         | (18.4) *         | 12.0  |
| +1dB               | **               | (24.1) *         | (27.4) *         | (23.1) *         | (22.4) *         | 12.0  |
| 0dB                | **               | (39.1) *         | (76.4) *         | (40.4) *         | (30.8) *         | 12.0  |
| -1dB               | **               | (68.6) *         | **               |                  | **               | 12.0  |
| -2dB               | **               | **               | **               | **               | **               | 12.0  |
| -3dB               | **               |                  | **               | **               | **               | 12.0  |
| -4dB               | **               | **               | **               | **               | **               | 12.0  |
| -5dB               | **               | **               | **               | **               | **               | 12.0  |

|                    | DL 2110-2155     | DL 1930-1995     | DL 869-894       | DL 728-746       | DL 746-775       |       |
|--------------------|------------------|------------------|------------------|------------------|------------------|-------|
| Max Gain Isolation | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Pk-Pk Difference | Limit |
| dB                 | dB               | dB               | dB               | dB               | dB               | dB    |
| +5dB               | (15.1) *         | (15.3) *         | (12.6) *         | 11.8             | 10.3             | 12.0  |
| +4dB               | (16.7) *         | (16.7) *         | (13.8) *         | (13.5) *         | 11.4             | 12.0  |
| +3dB               | (21.3) *         | (21.3) *         | (15.2) *         | (16.6) *         | (14.5) *         | 12.0  |
| +2dB               | (30.4) *         | (30.4) *         | (18.6) *         | (20.9) *         | (19.1) *         | 12.0  |
| +1dB               | **               | **               | (39.5) *         | (30.7) *         | (23.6) *         | 12.0  |
| 0dB                | **               | **               | **               | **               | (30.6) *         | 12.0  |
| -1dB               | **               | **               | **               | **               | **               | 12.0  |
| -2dB               | **               | **               | **               | **               | **               | 12.0  |
| -3dB               | **               | **               | **               | **               | **               | 12.0  |
| -4dB               | **               | **               | **               | **               | **               | 12.0  |
| -5dB               | **               | **               | **               | **               | **               | 12.0  |

Note:

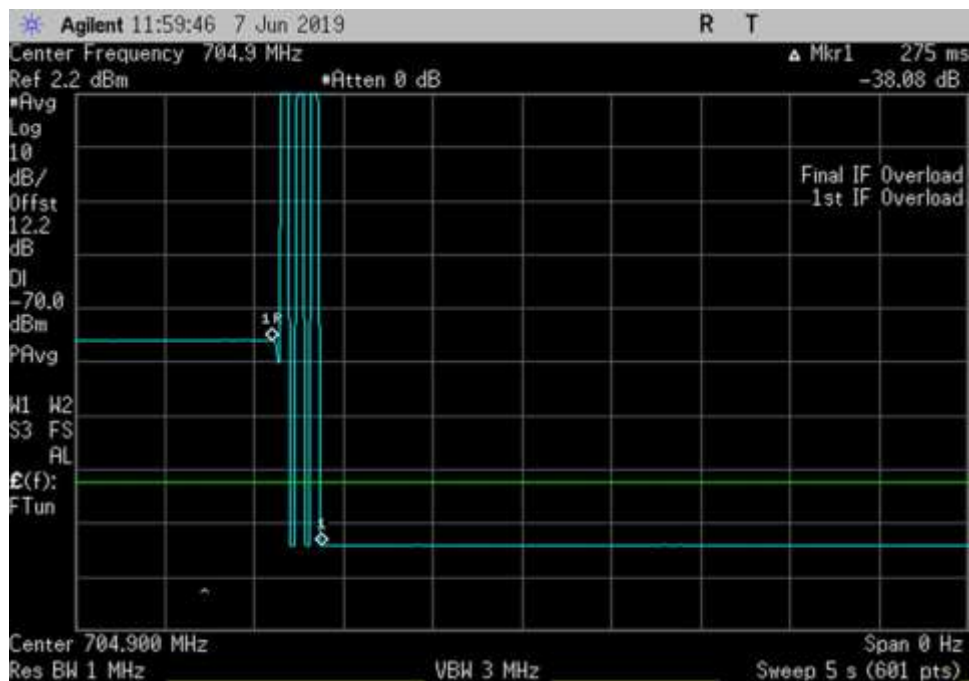
\* The measured difference exceeds the limit for a period of less than 300 second before device mitigates or shuts down. The maximum recorded time prior to shutdown was 95 seconds for the Uplink bands and 96 seconds for the Downlink bands.

\*\* The device shuts down immediately.

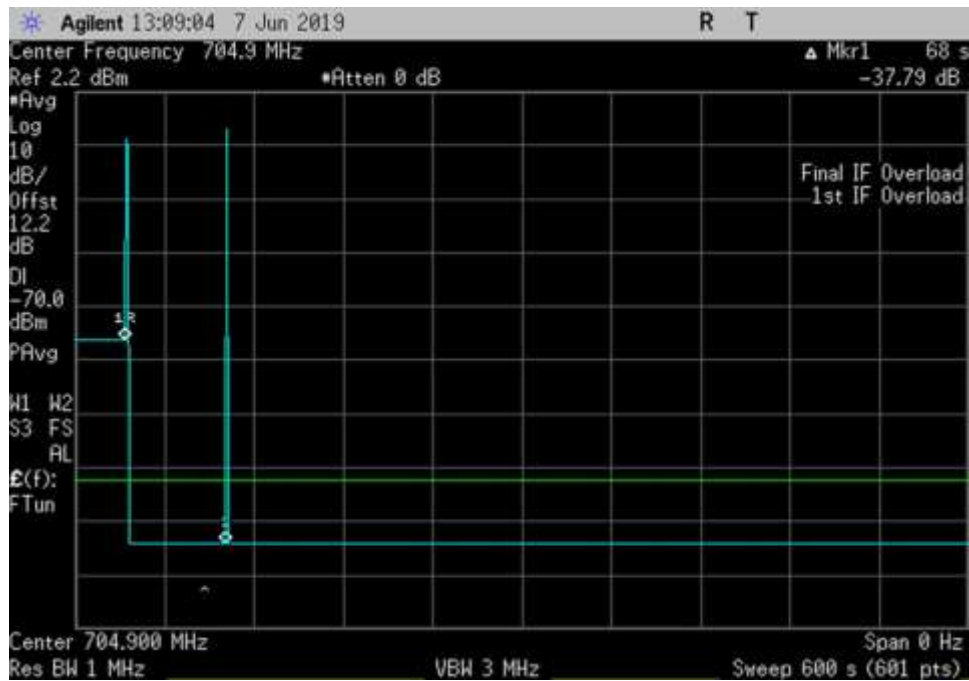
## 7.11.2 Oscillation Restart Tests

### Plots

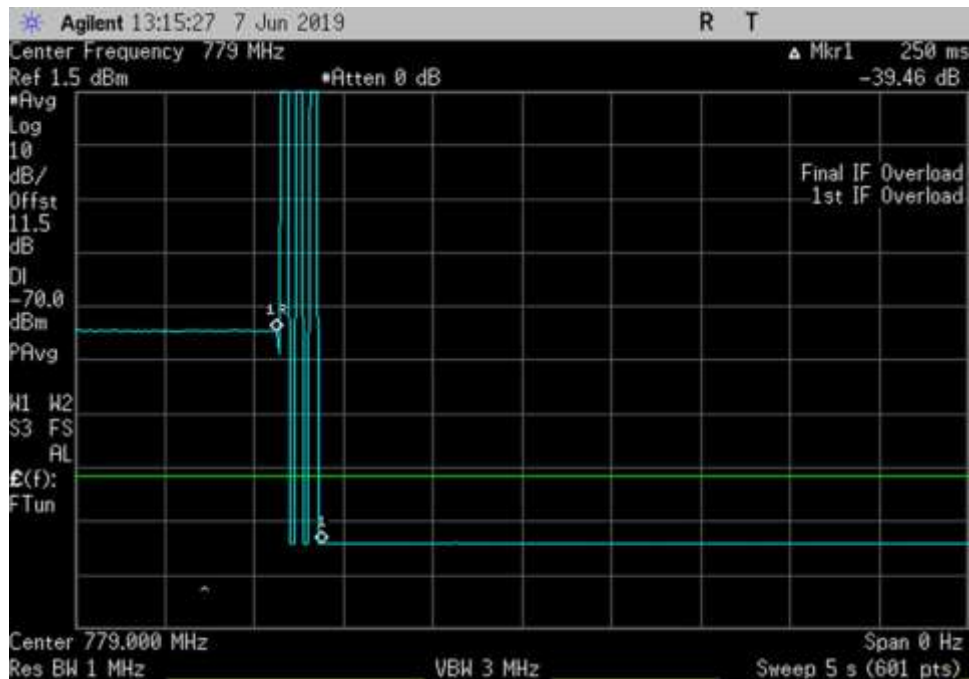
#### Configuration 1



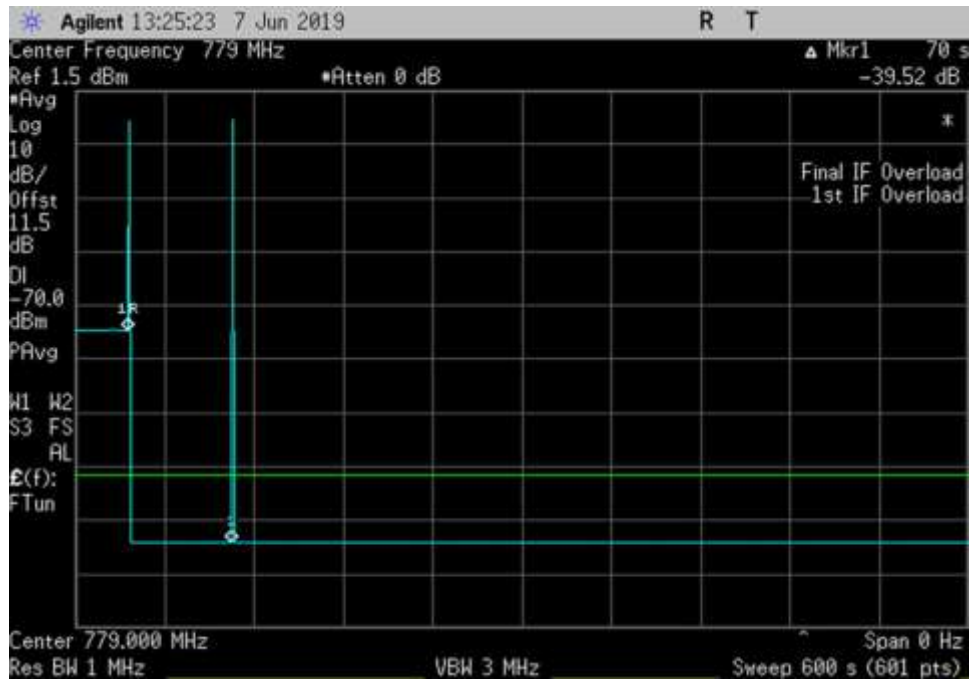
UL\_698-716\_ 704.9MHz\_50ft Cable



UL\_698-716\_ 704.9MHz\_600s\_50ft Cable



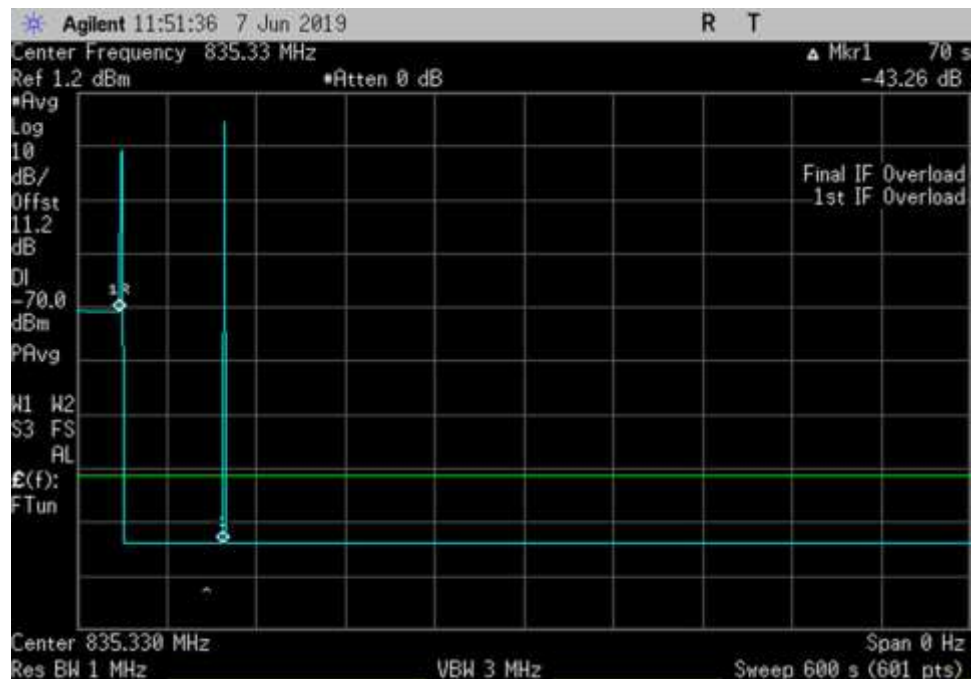
UL\_776-787\_ 779MHz\_50ft Cable



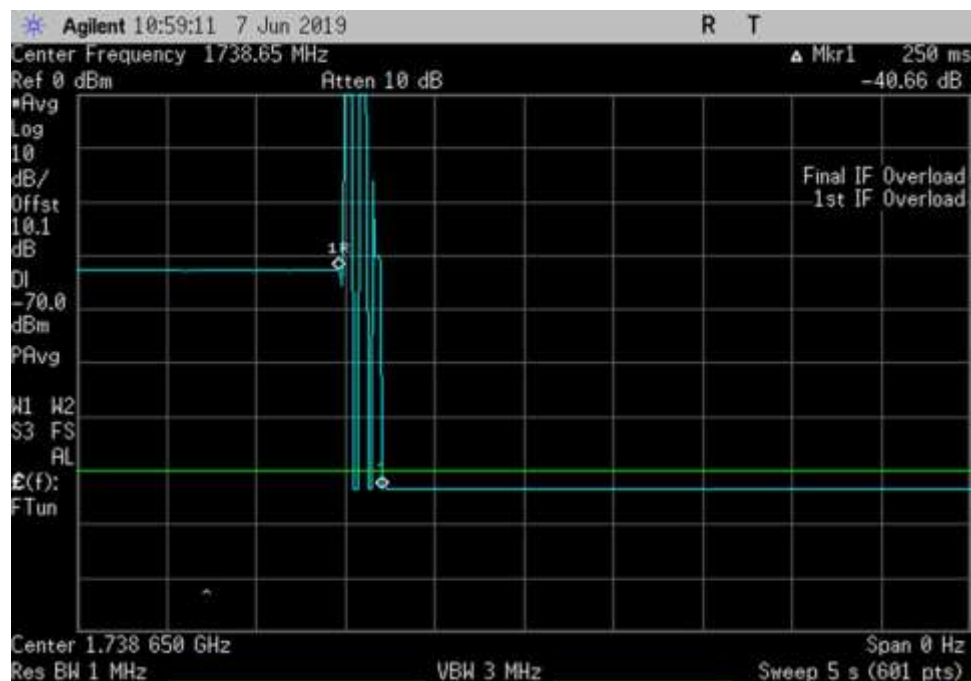
UL\_776-787\_779MHz\_600s\_50ft Cable



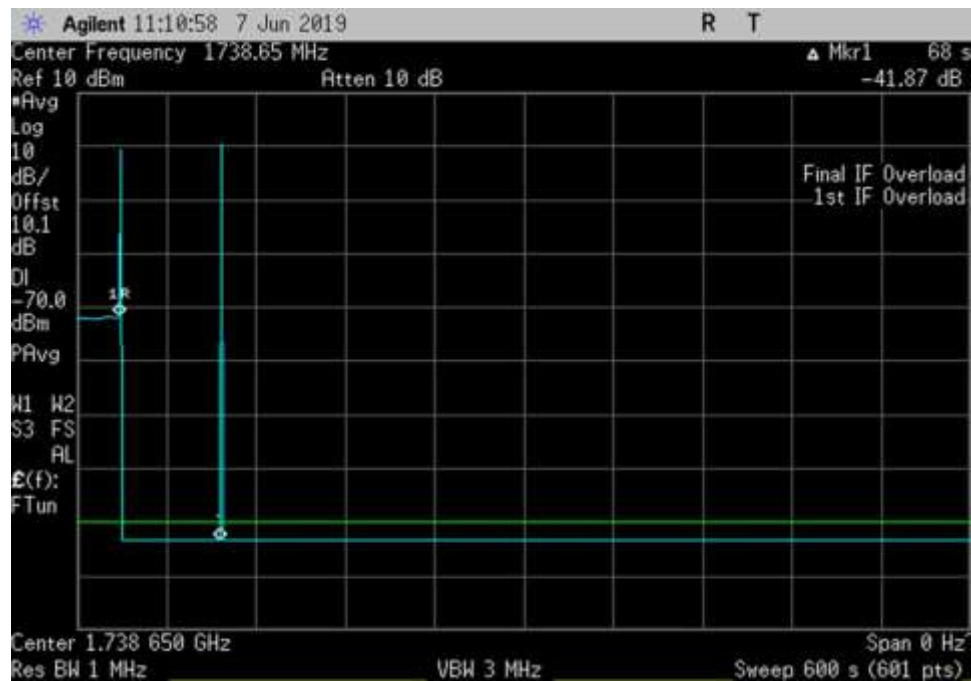
UL\_824-849\_835.33MHz\_50ft Cable



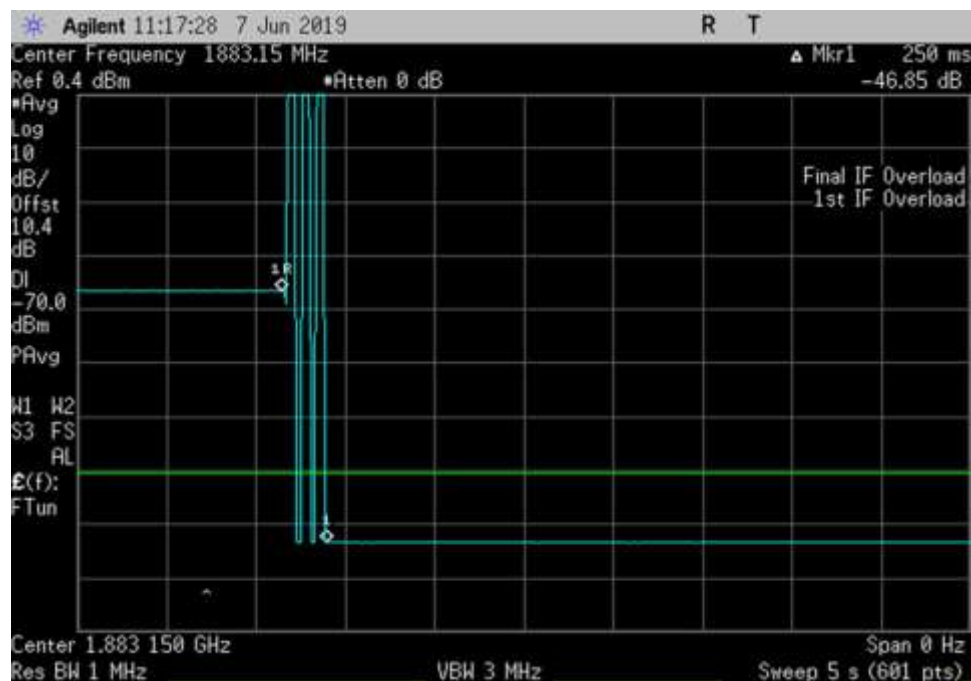
UL\_824-849\_ 835.33MHz\_600s-50ft



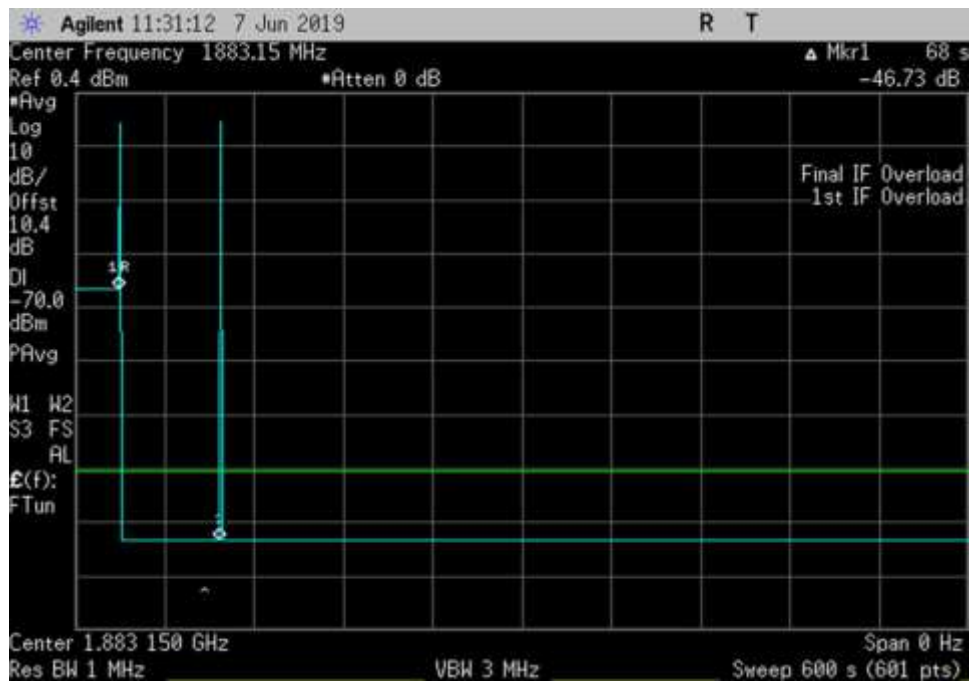
UL\_1710-1755\_ 1738.65MHz\_50ft Cable



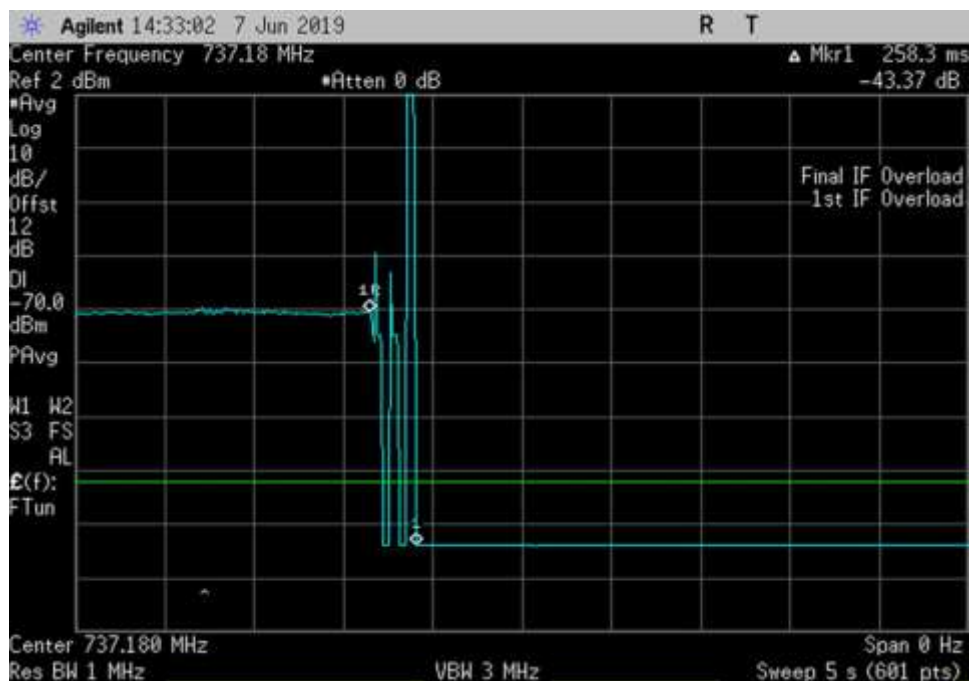
UL\_1710-1755\_ 1738.65MHz\_600s\_50ft Cable



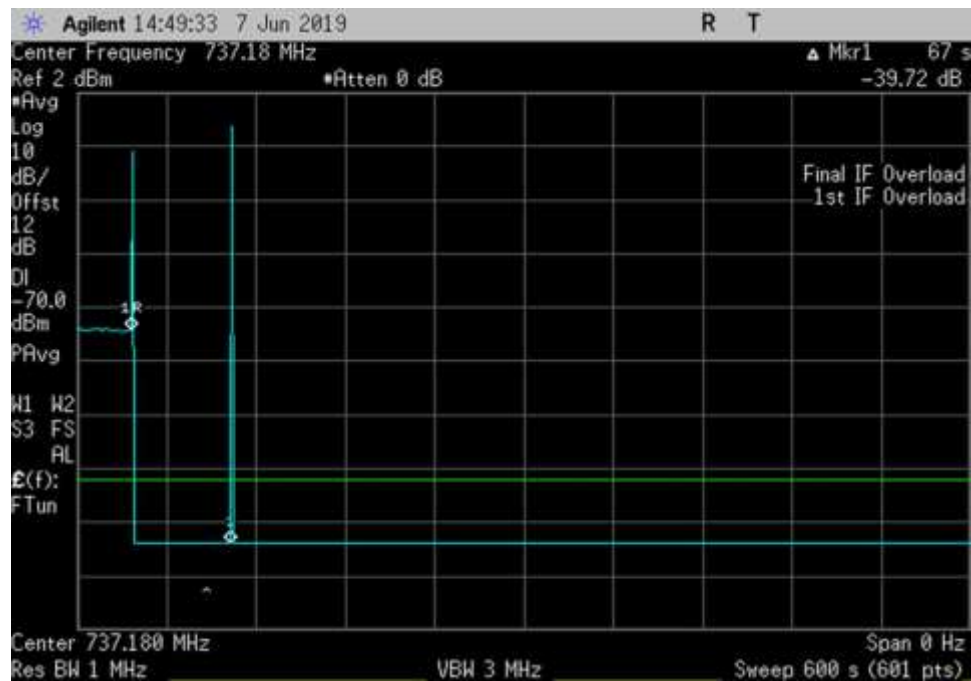
UL\_1850-1915\_ 1883.15MHz\_50ft Cable



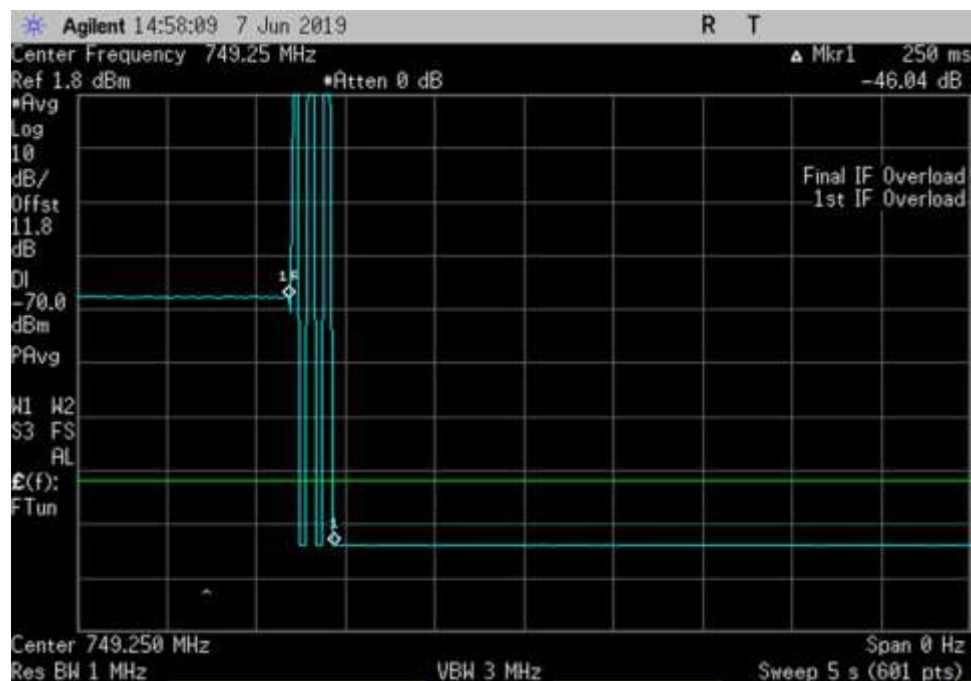
UL\_1850-1915\_1883.15MHz\_600s\_50ft Cable



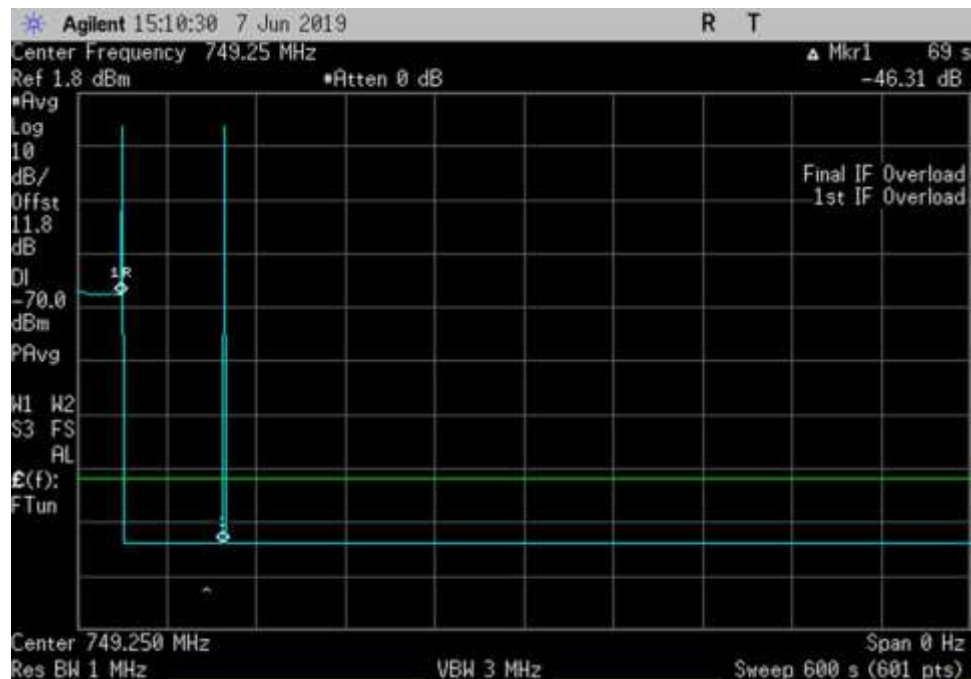
DL\_728-746\_737.18MHz\_50ft Cable



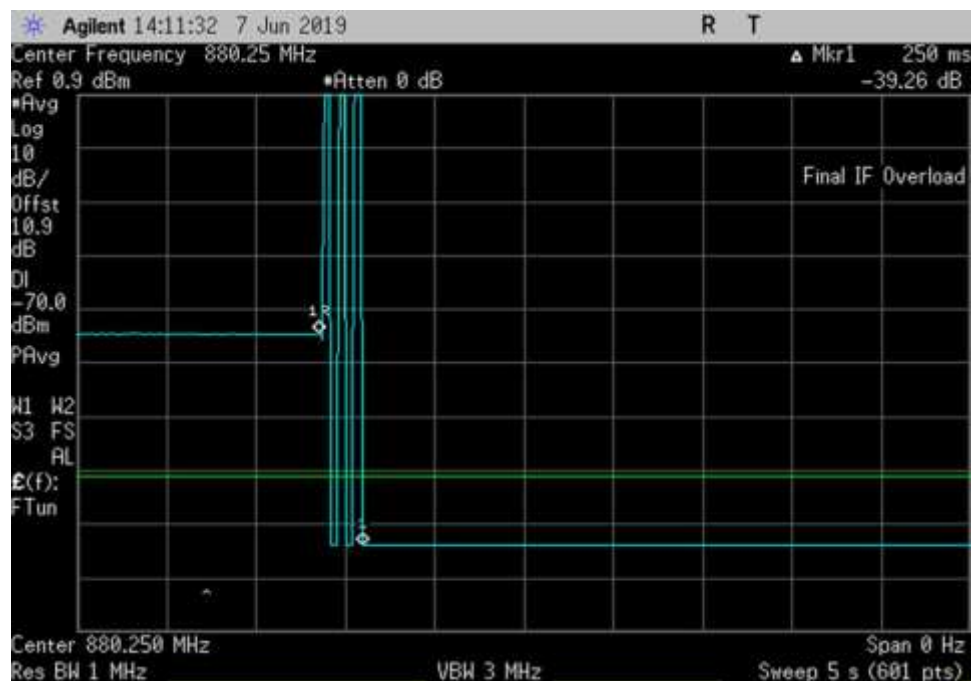
DL\_728-746\_737.18MHz\_600s\_50ft Cable



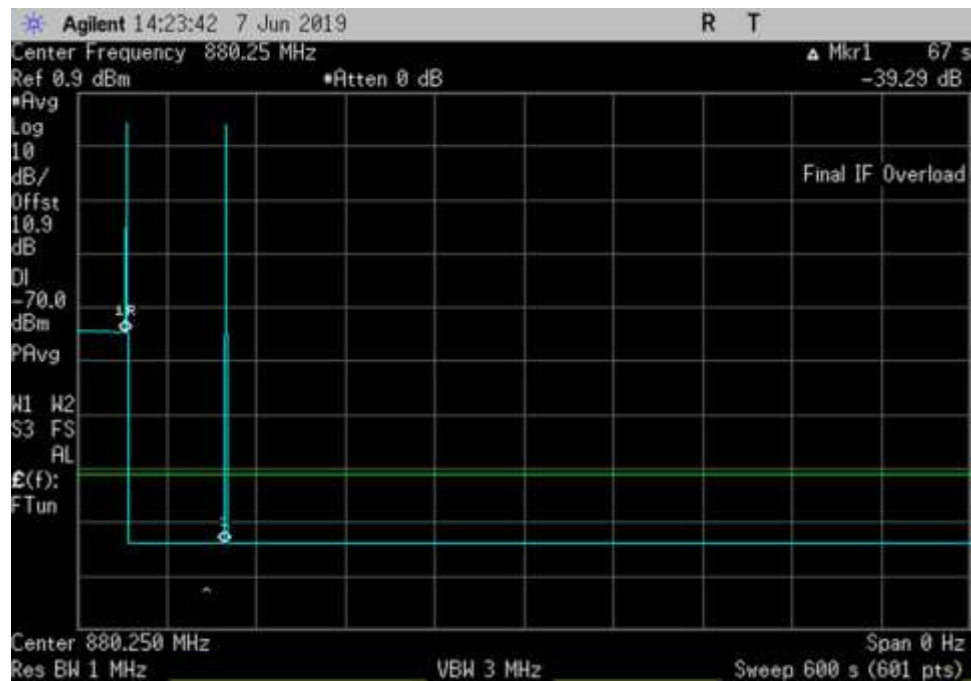
DL\_746-757\_749.25MHz\_50ft Cable



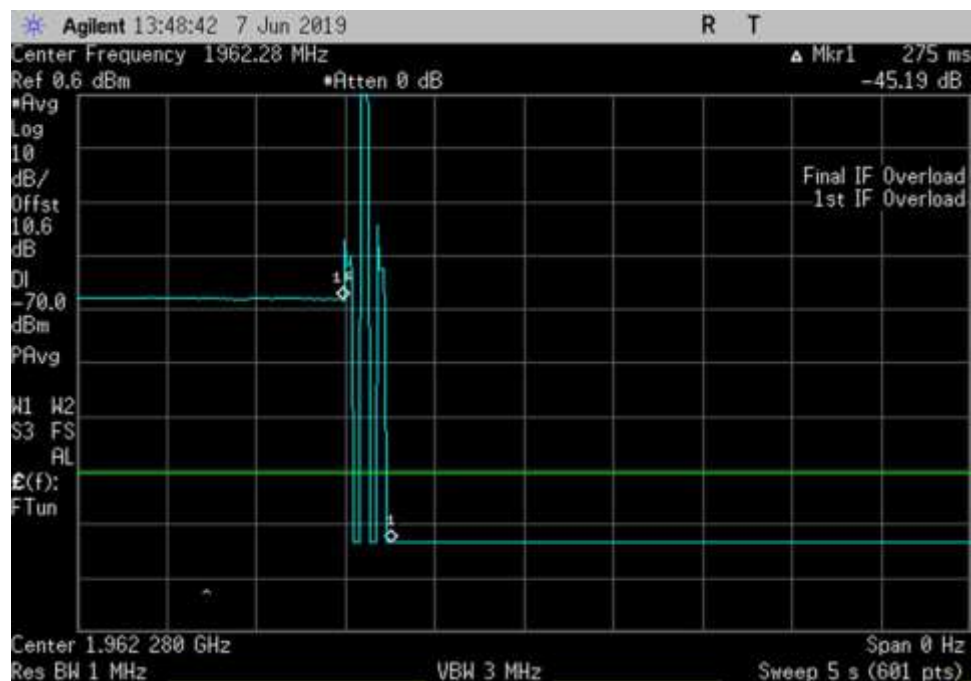
DL\_746-757\_749.25MHz\_600s\_50ft Cable



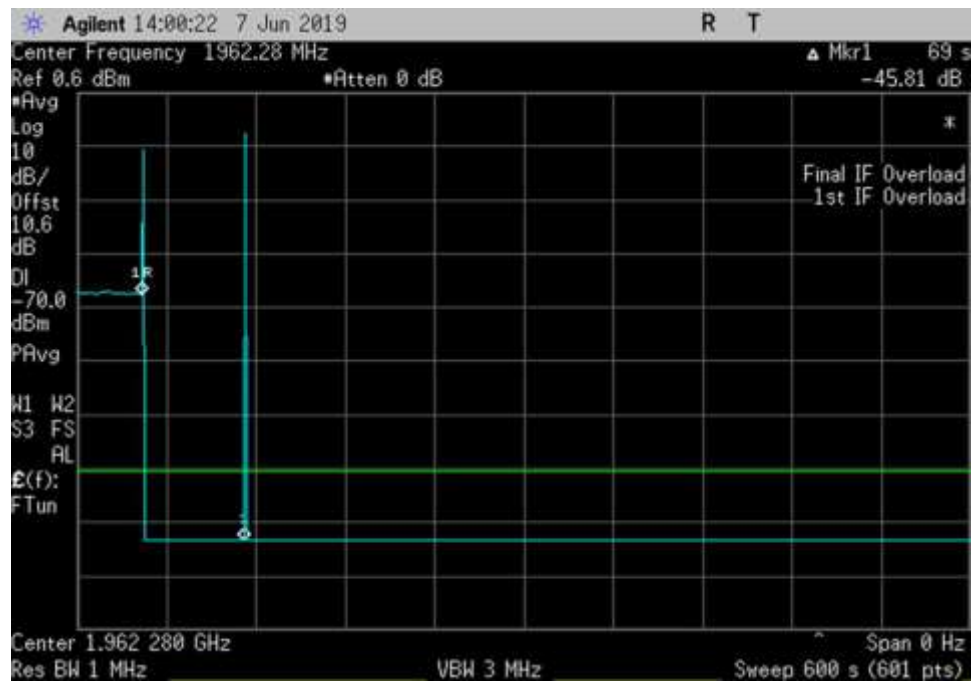
DL\_869-894\_880.25MHz\_50ft Cable



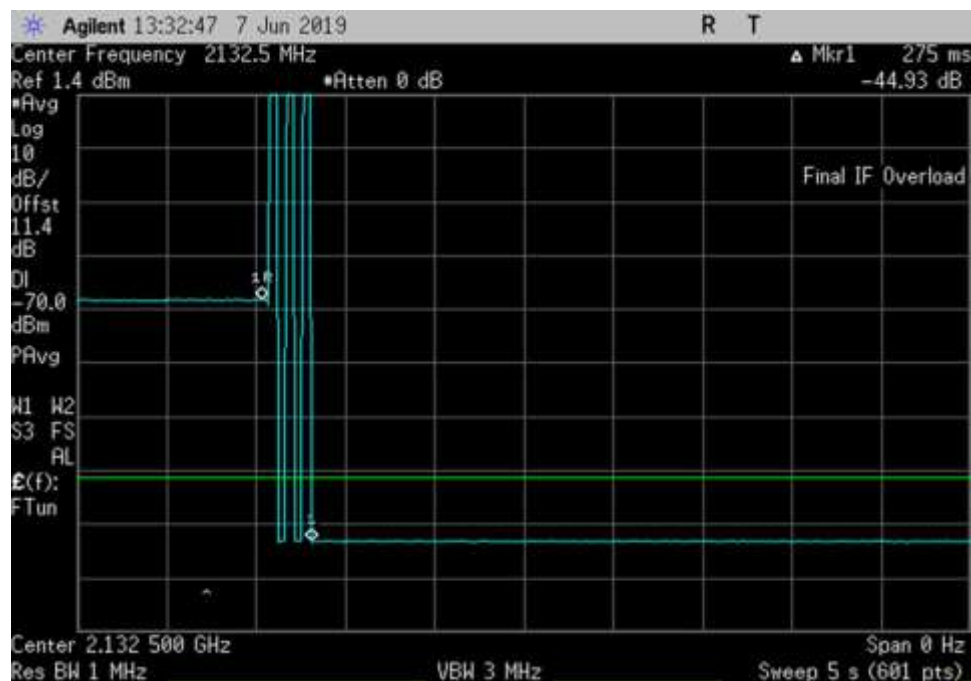
DL\_869-894\_880.25MHz\_600s\_50ft Cable



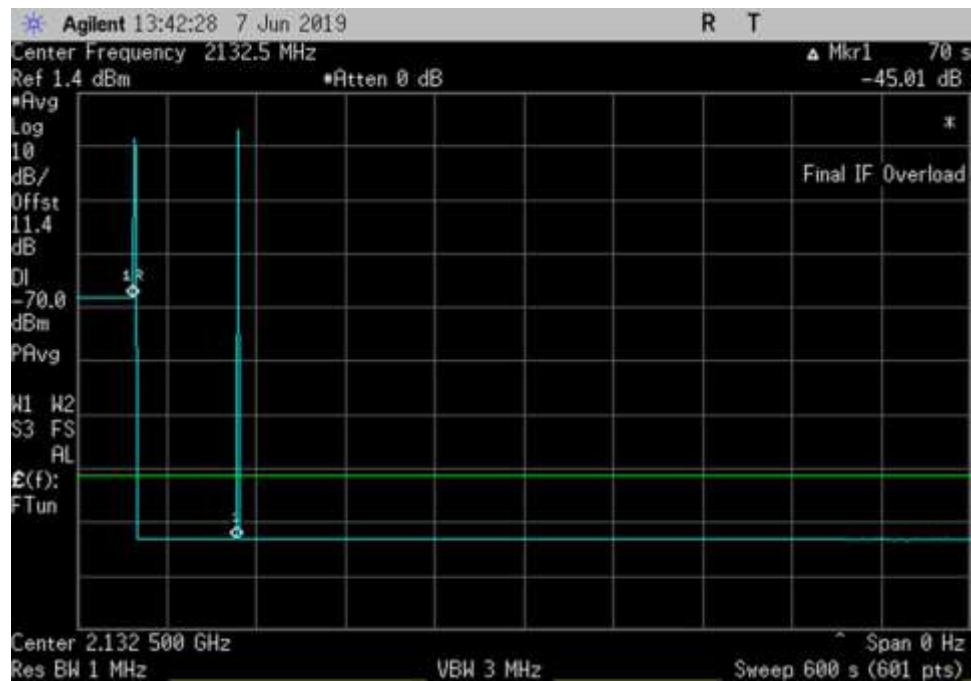
DL\_1930-1995\_1962.28MHz\_50ft Cable



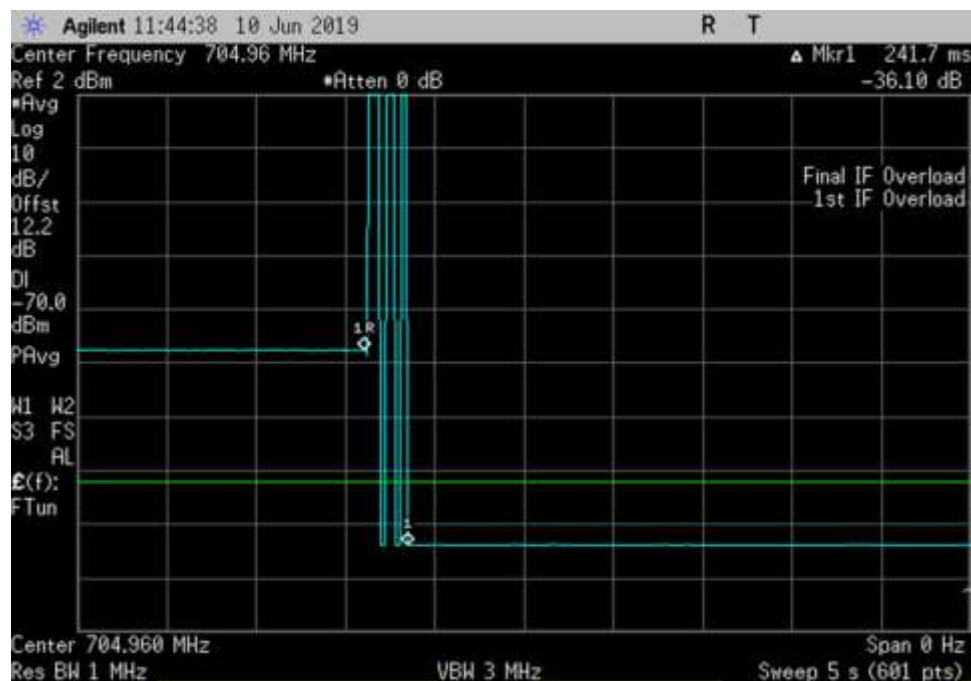
DL\_1930-1995\_ 1962.28MHz\_600s\_50ft Cable



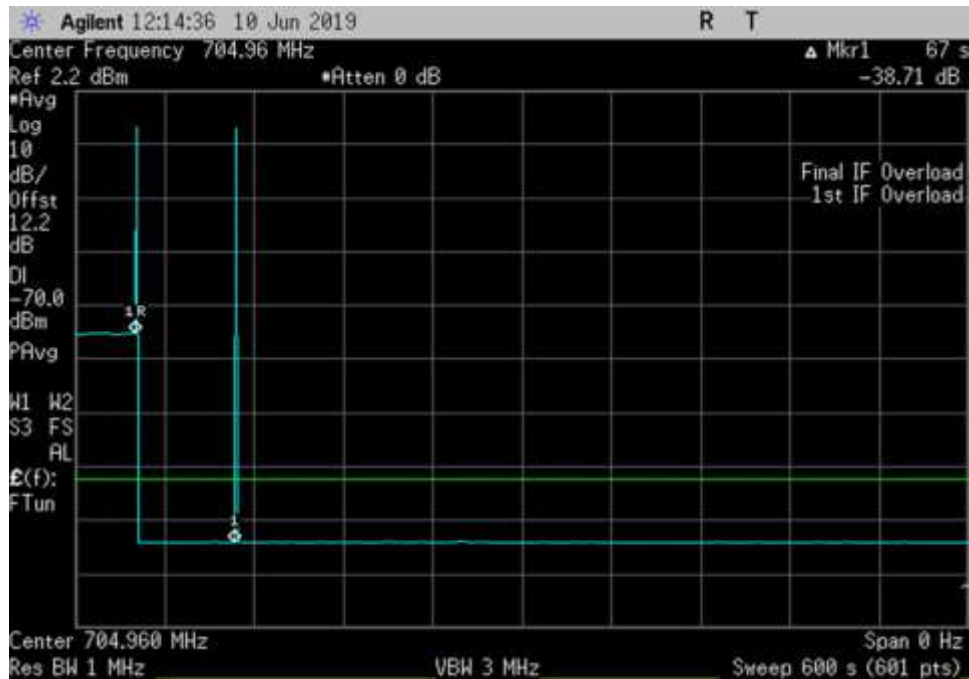
DL\_2110-2155\_ 2132.5MHz\_50ft Cable



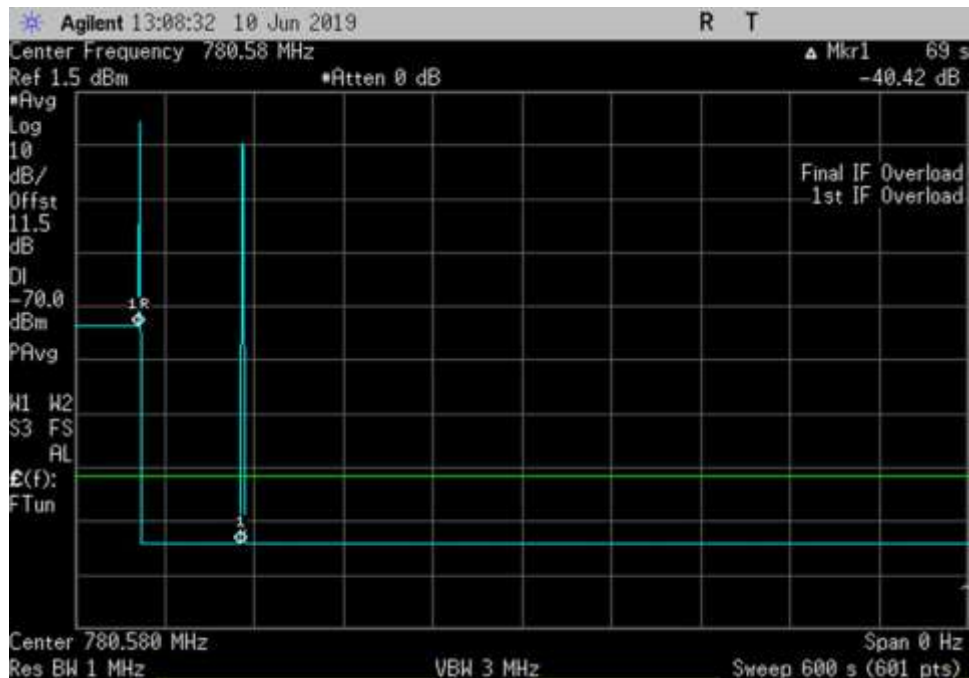
DL\_2110-2155\_ 2132.5MHz\_600s\_50ft Cable



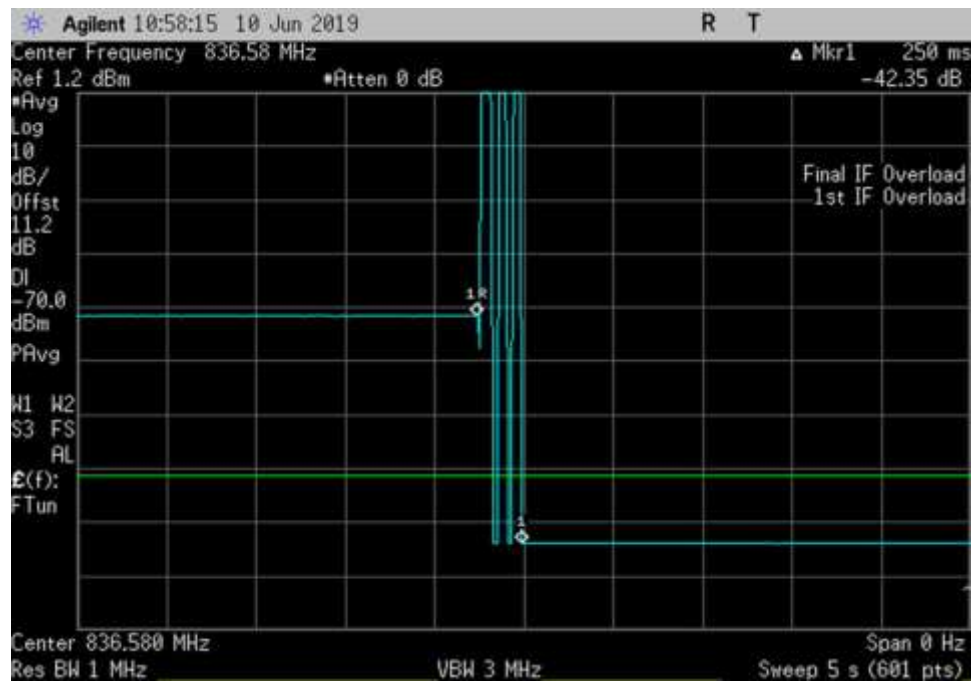
UL\_698-716\_ 704.96MHz\_100ft Cable



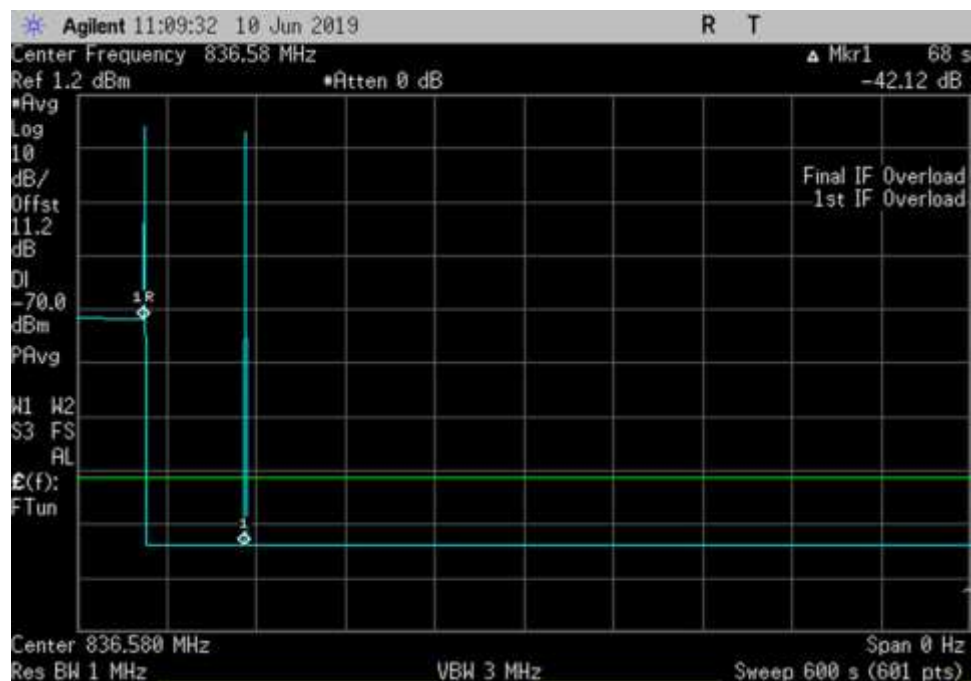
UL\_698-716\_ 704.96MHz\_600s\_100ft Cable



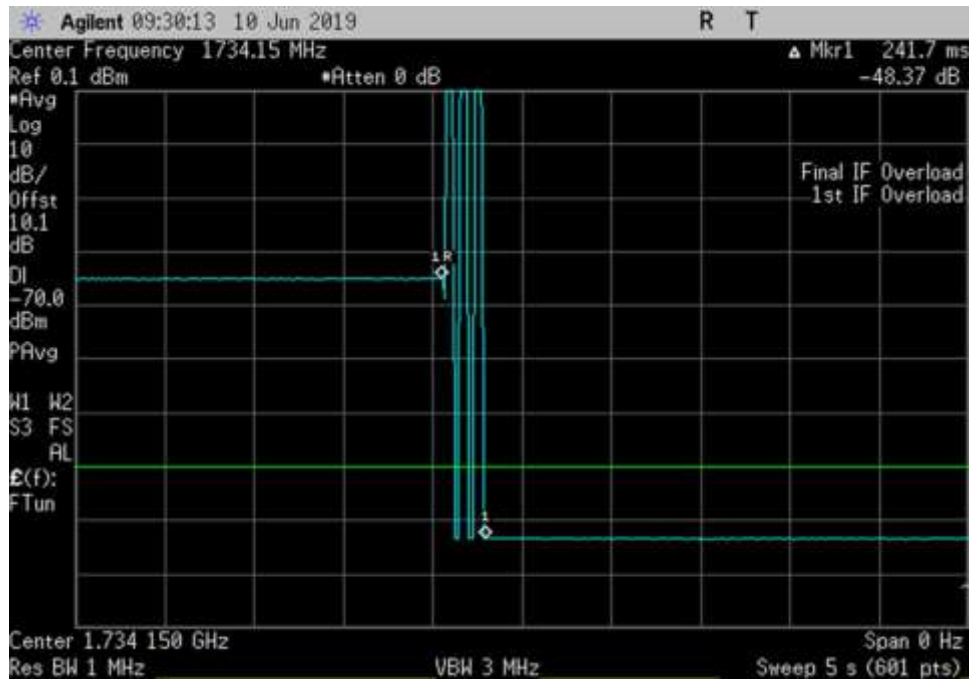
UL\_776-787\_ 780.58MHz\_600s\_100ft Cable



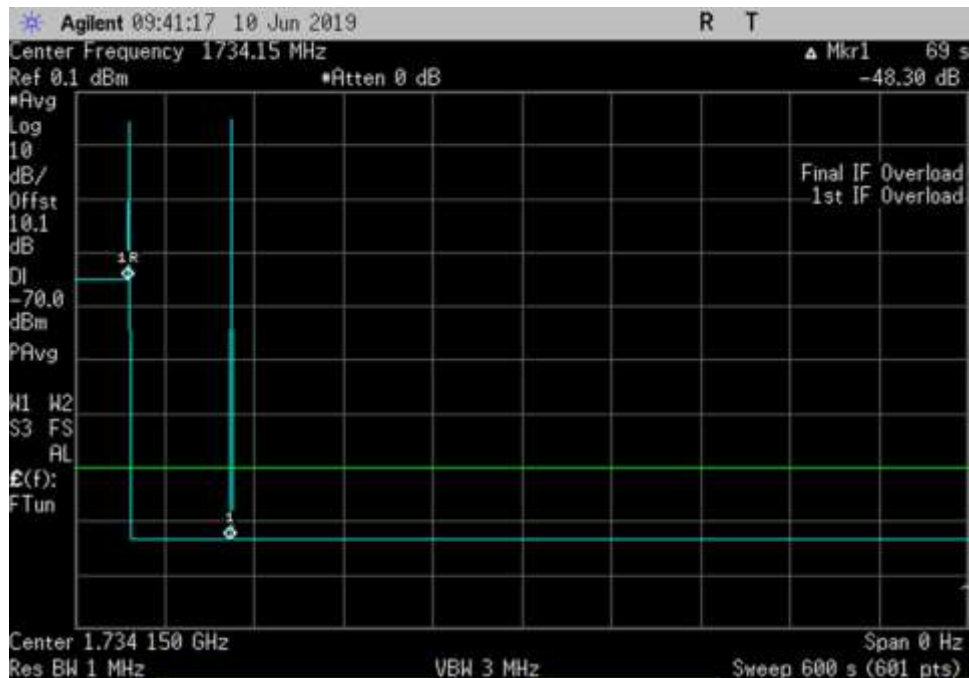
UL\_824-849\_ 836.58MHz\_100ft Cable



UL\_824-849\_ 836.58MHz\_600s\_100ft Cable



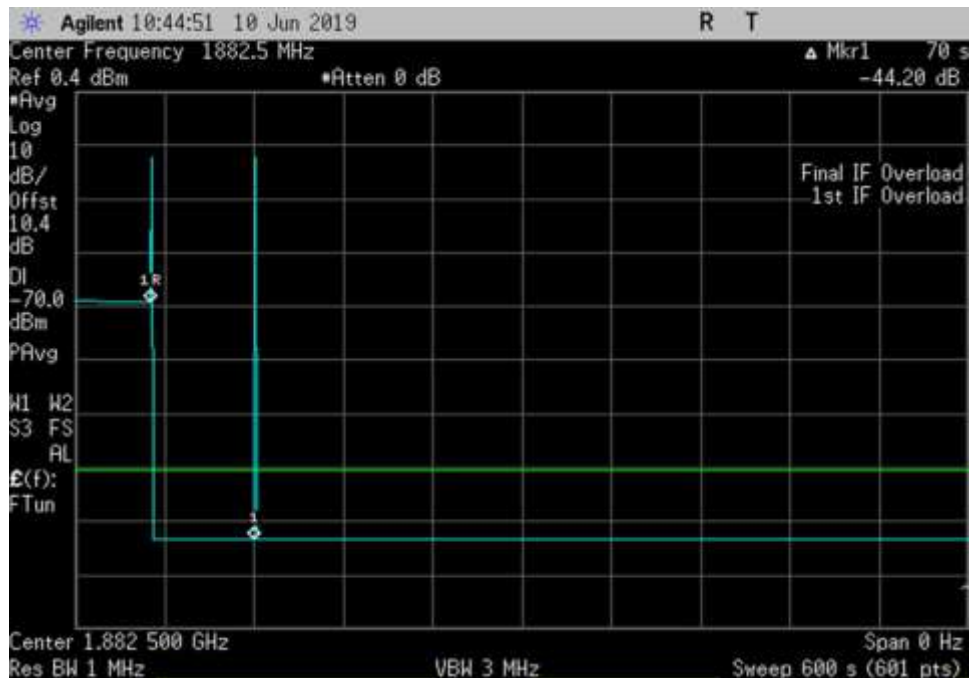
UL\_1710-1755\_ 1734.15MHz\_100ft Cable



UL\_1710-1755\_ 1734.15MHz\_600s\_100ft Cable



UL\_1850-1915\_ 1882.5MHz\_100ft Cable



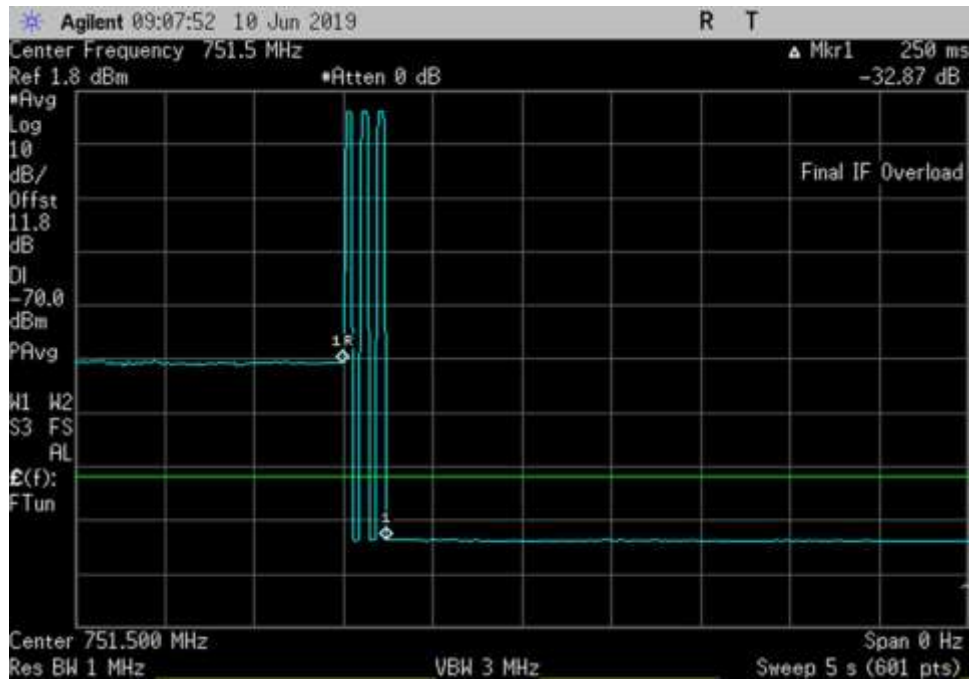
UL\_1850-1915\_ 1882.5MHz\_600s\_100ft Cable



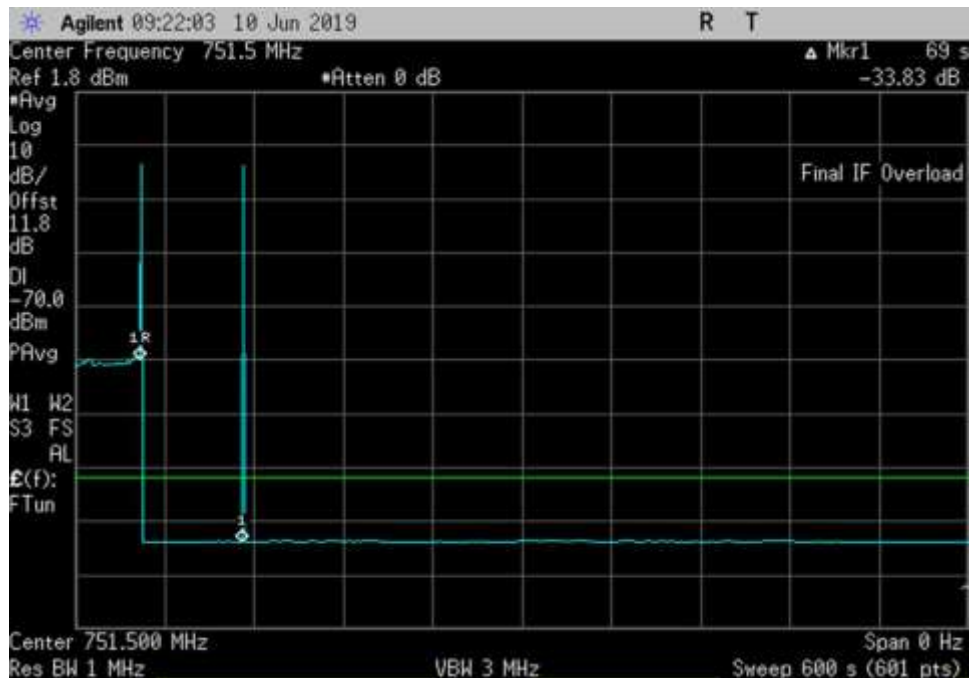
DL\_728-746\_ 735.32MHz\_100ft Cable



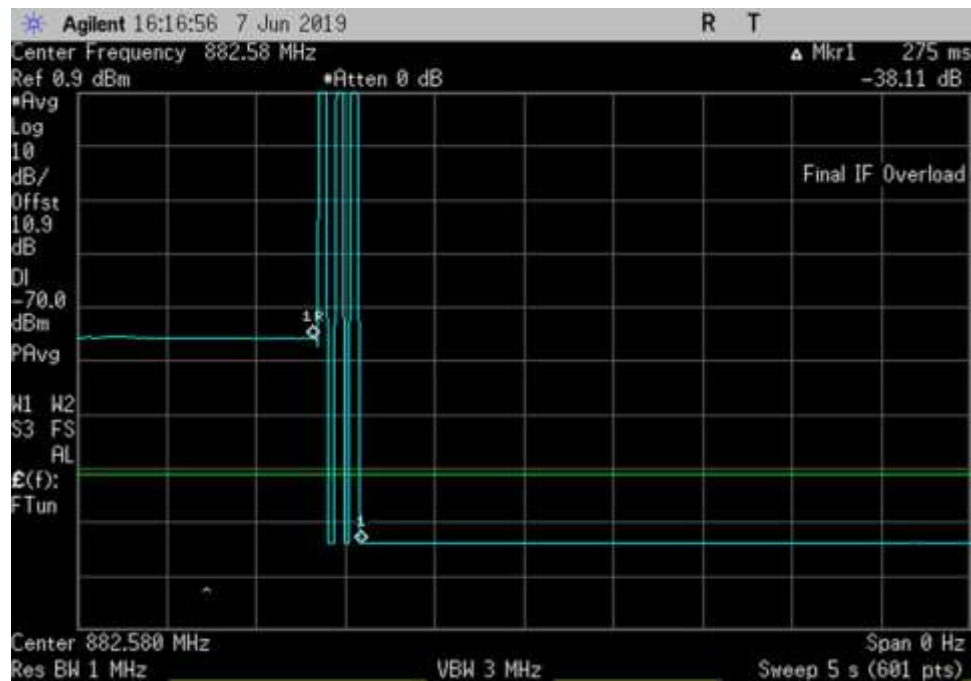
DL\_728-746\_ 735.32MHz\_600s\_100ft Cable



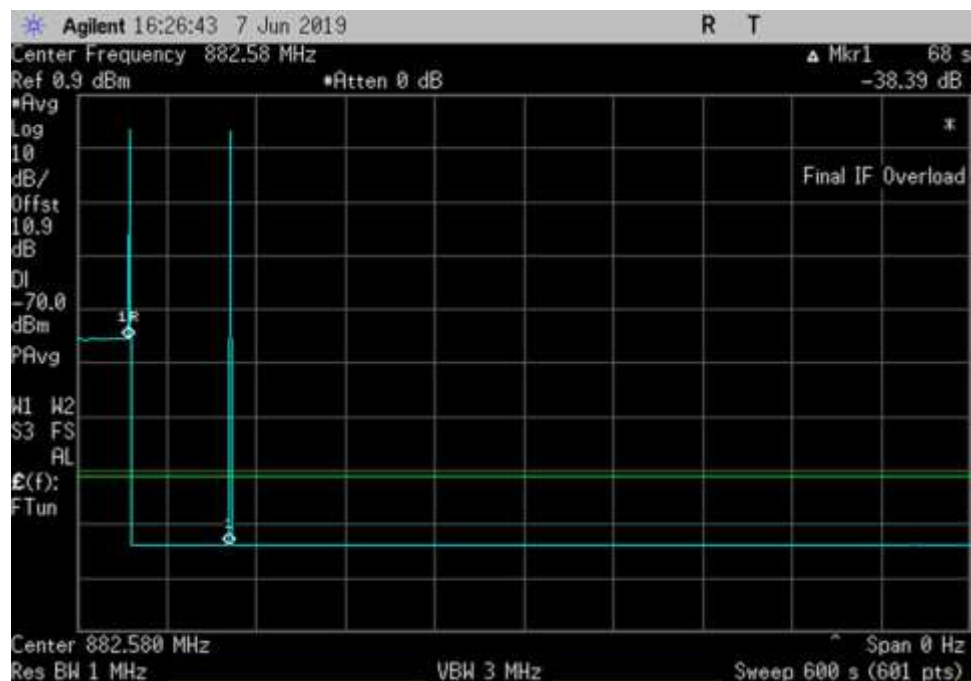
DL\_746-757\_ 751.5MHz\_100ft Cable



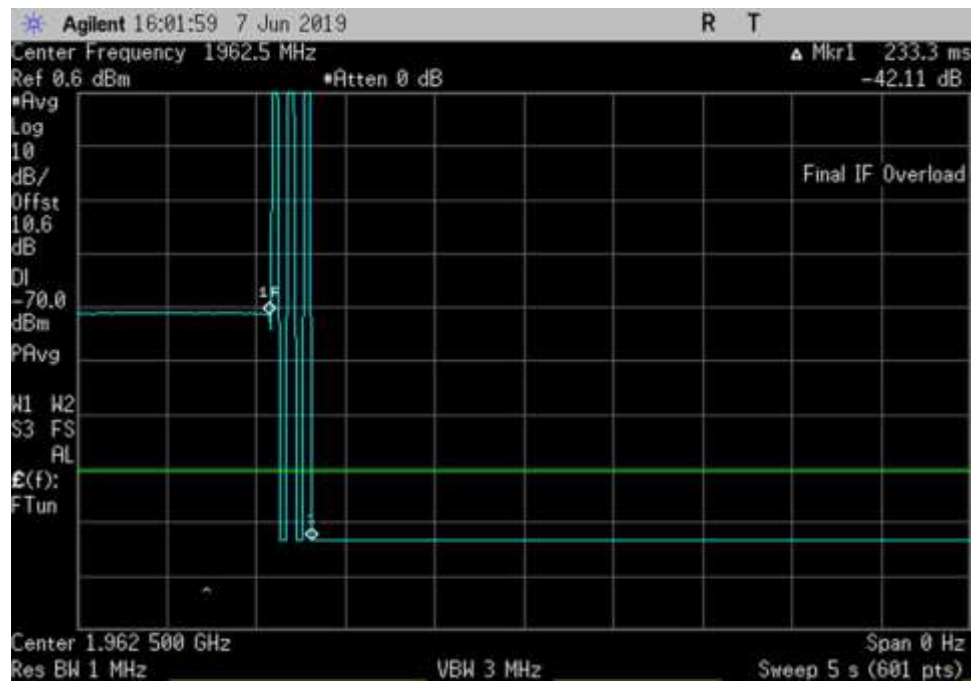
DL\_746-757\_ 751.5MHz\_600s\_100ft Cable



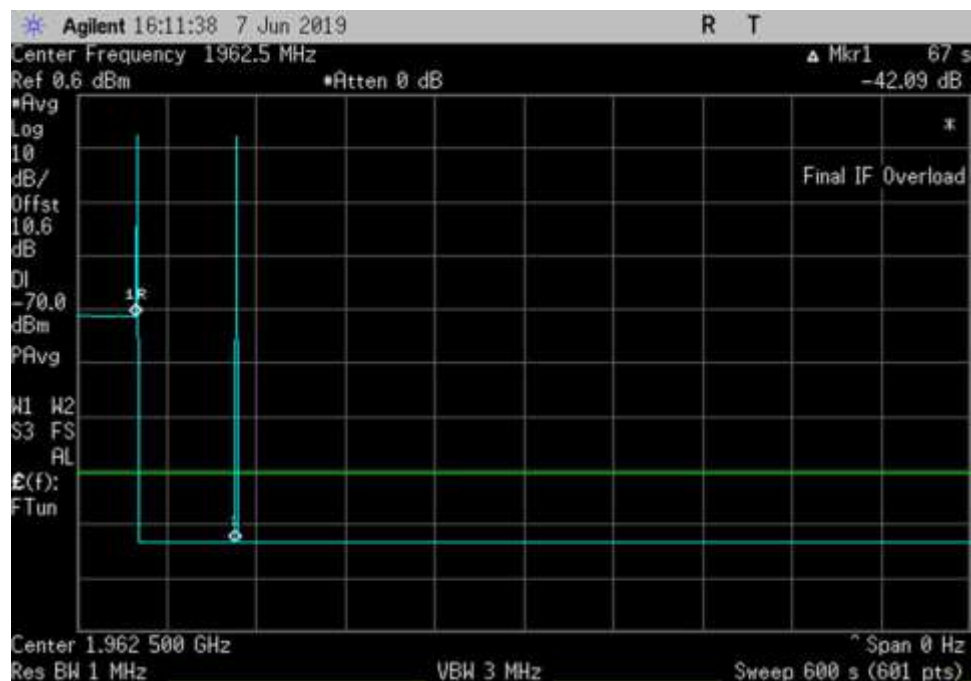
DL\_869-894\_ 882.58MHz\_100ft Cable



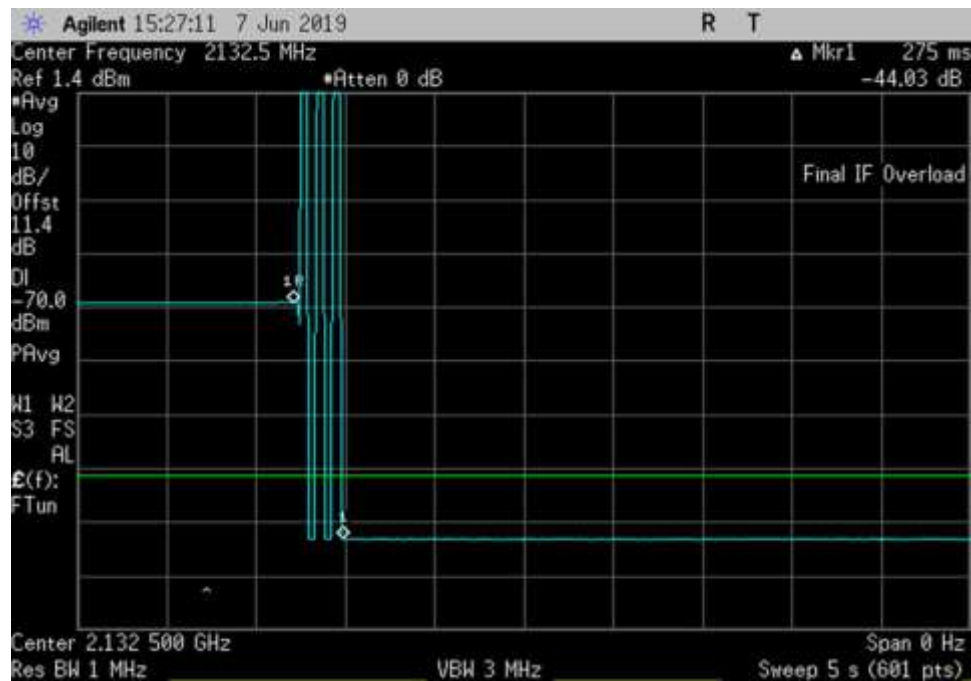
DL\_869-894\_ 882.58MHz\_600s\_100ft Cable



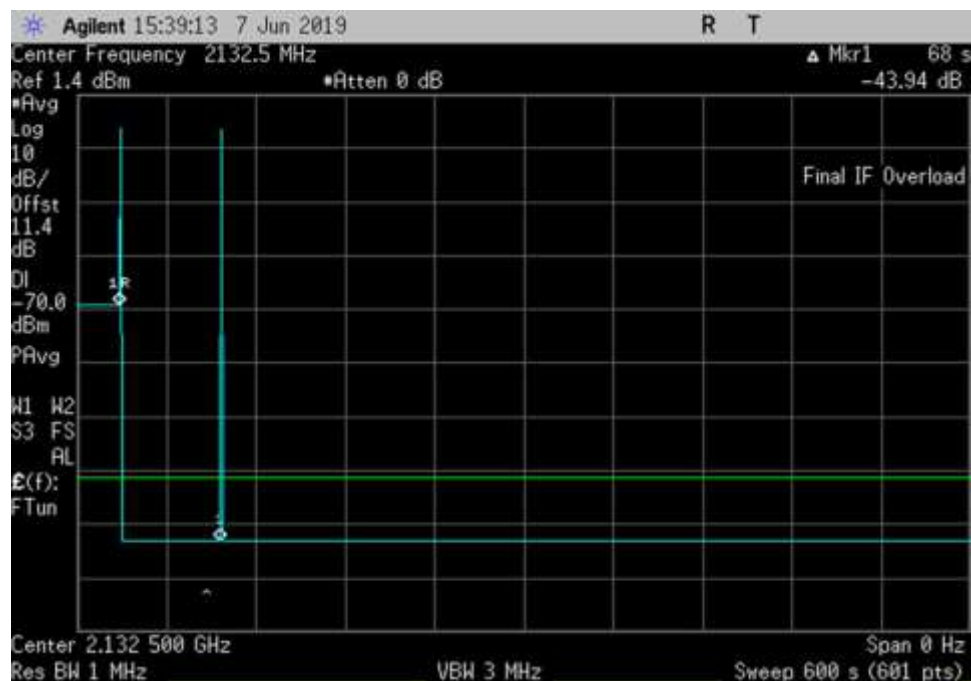
DL\_1930-1995\_ 1962.5MHz\_100ft Cable



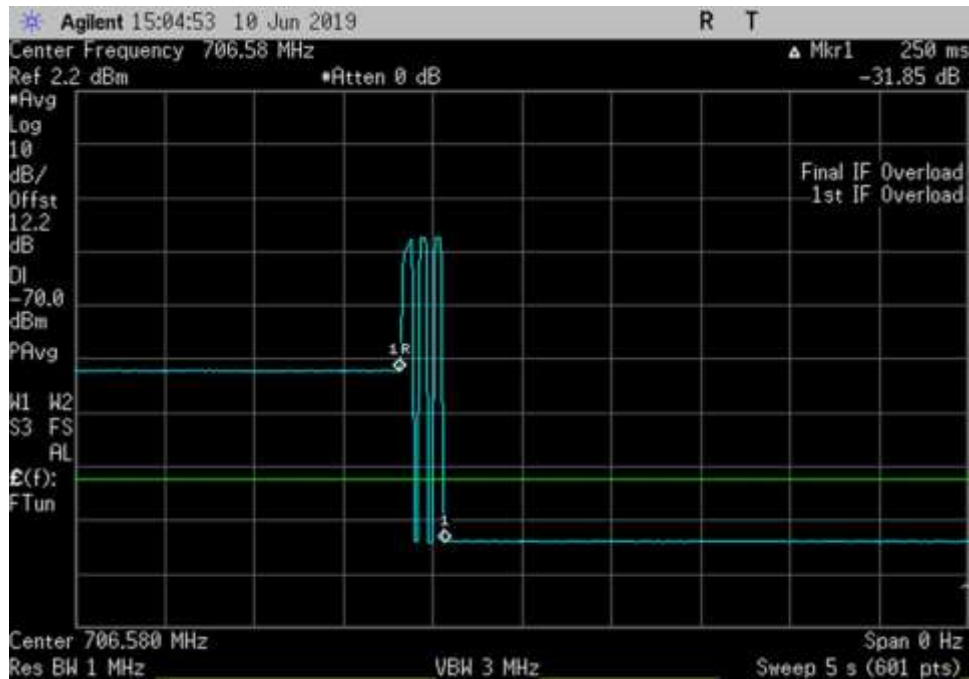
DL\_1930-1995\_ 1962.5MHz\_600s\_100ft Cable



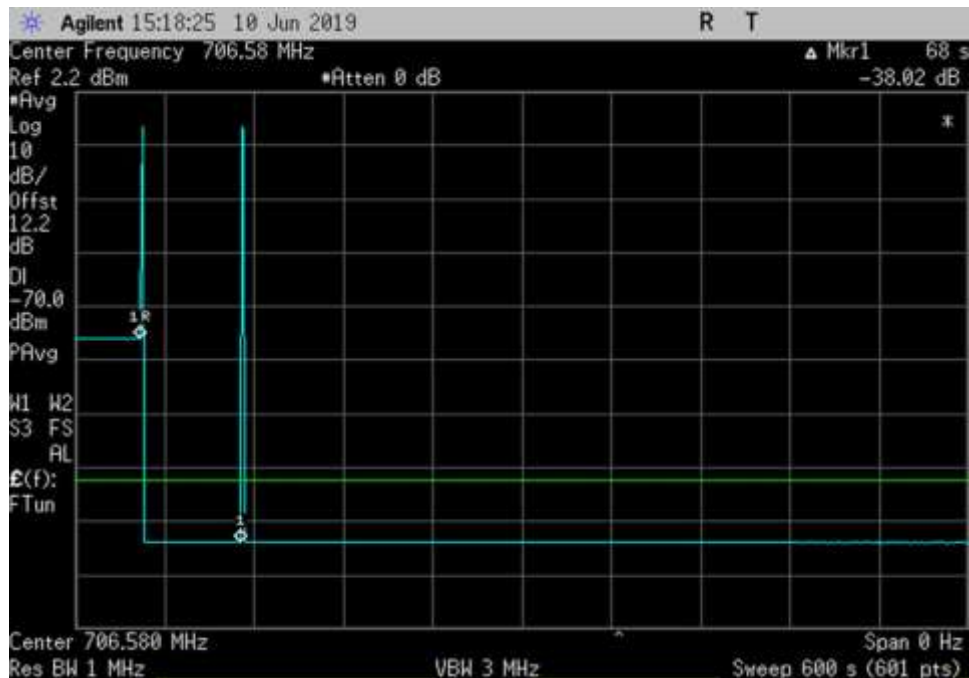
DL\_2110-2155\_ 2132.5MHz\_100ft Cable



DL\_2110-2155\_ 2132.5MHz\_600s\_100ft Cable



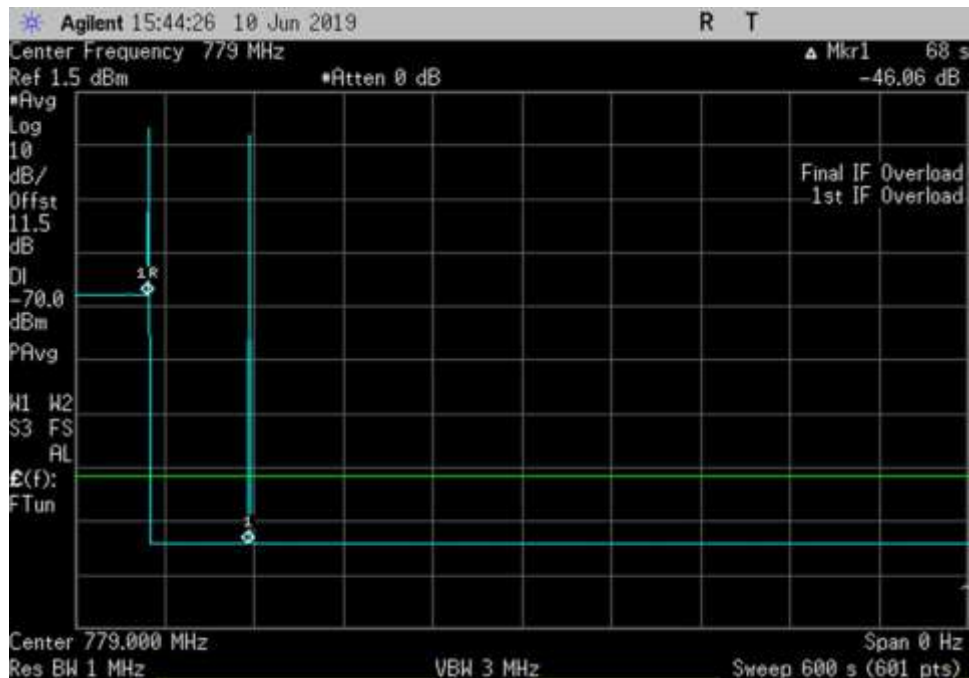
UL\_698-716\_ 706.58MHz\_150ft Cable



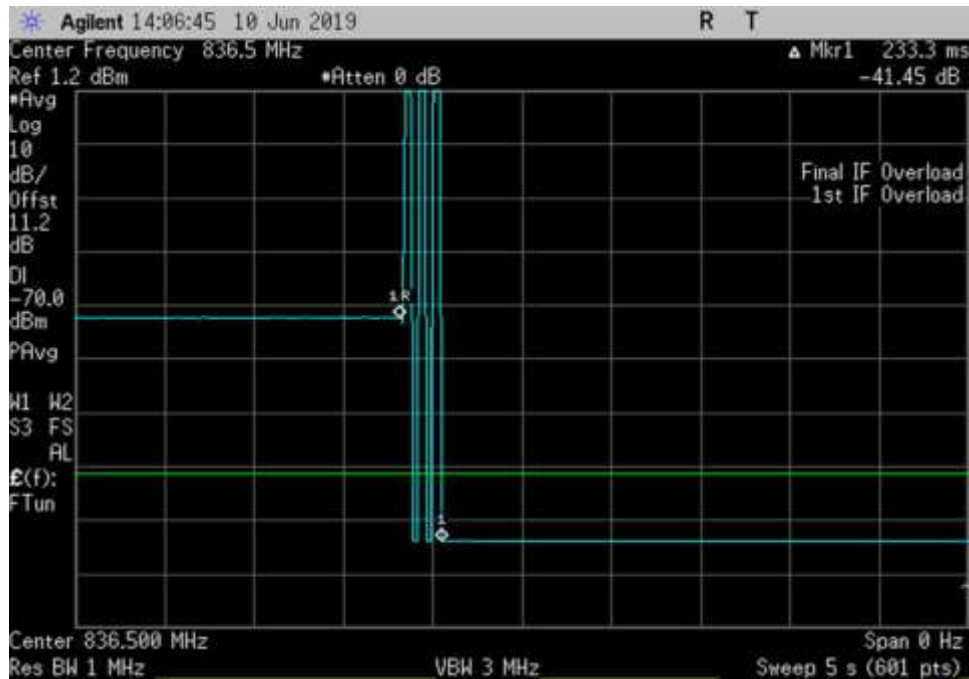
UL\_698-716\_ 706.58MHz\_600s\_150ft Cable



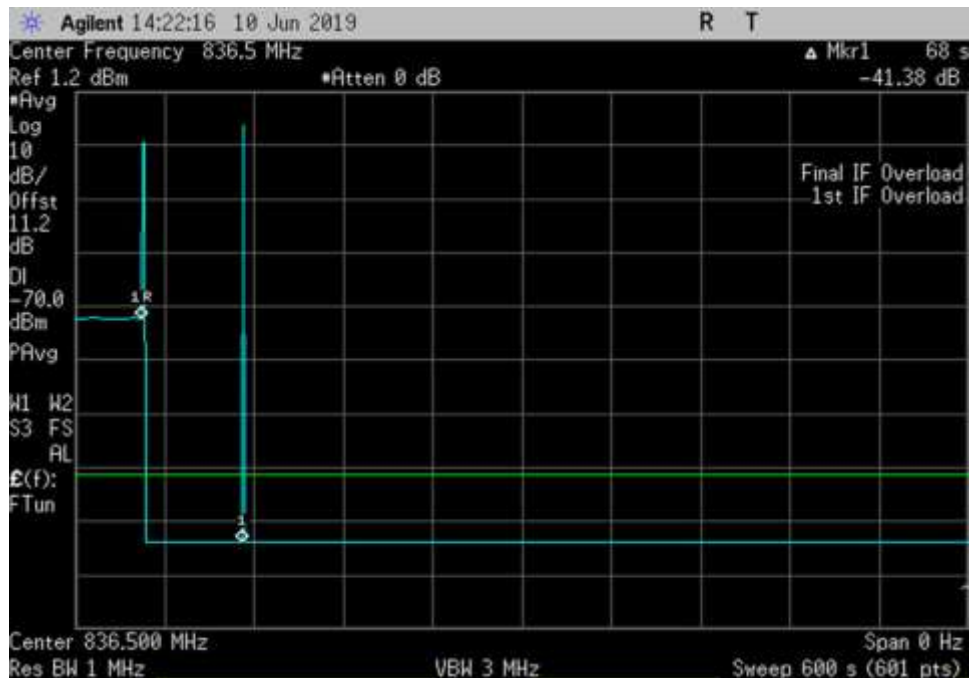
UL\_776-787\_ 779MHz\_150ft Cable



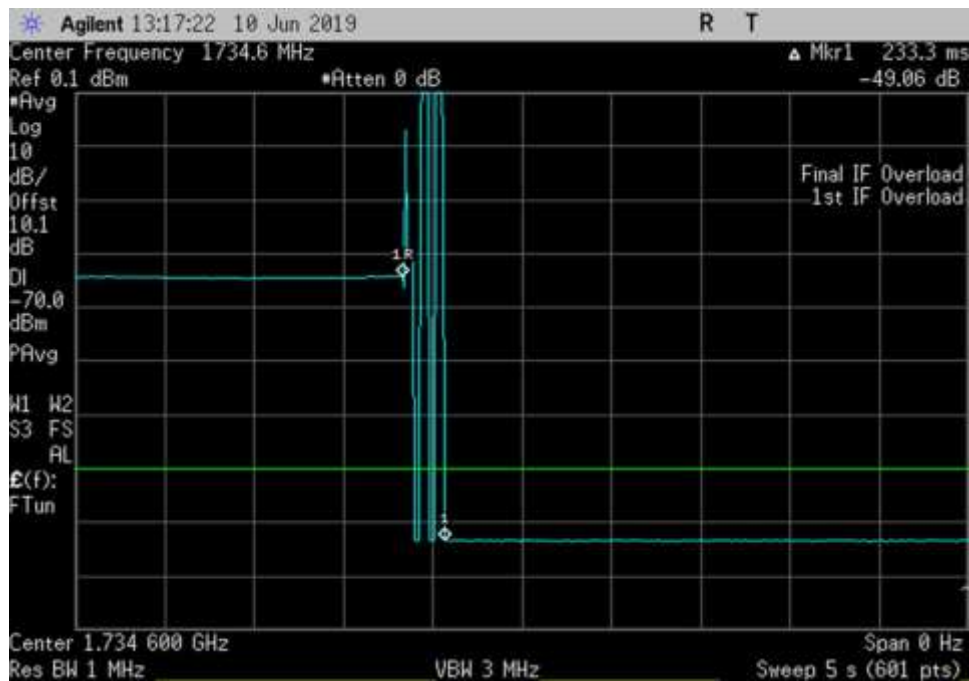
UL\_776-787\_ 779MHz\_600s\_150ft Cable



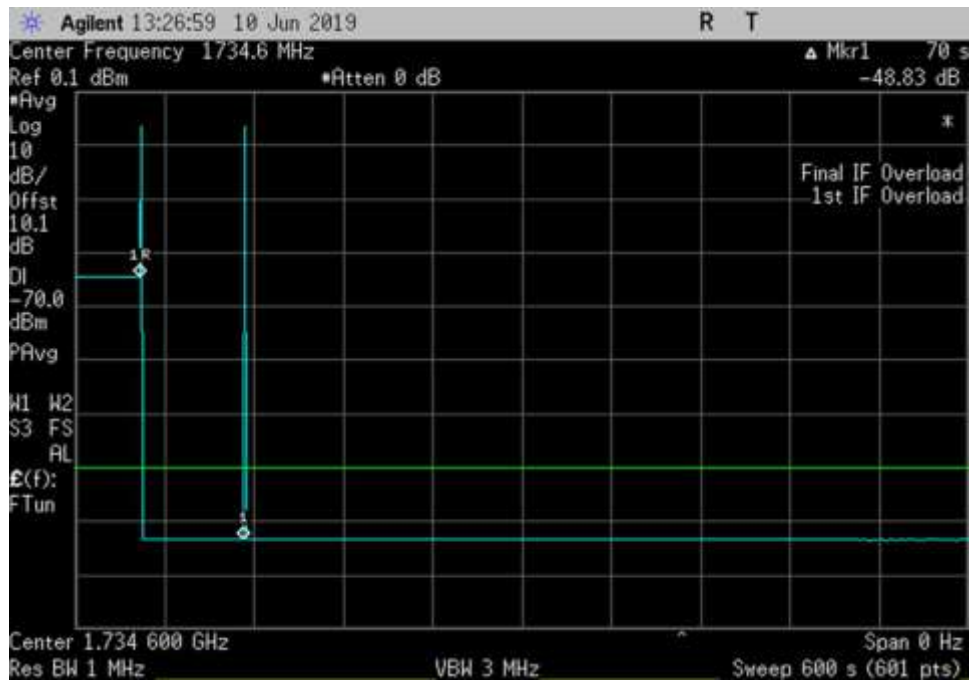
UL\_824-849\_ 836.5MHz\_150ft Cable



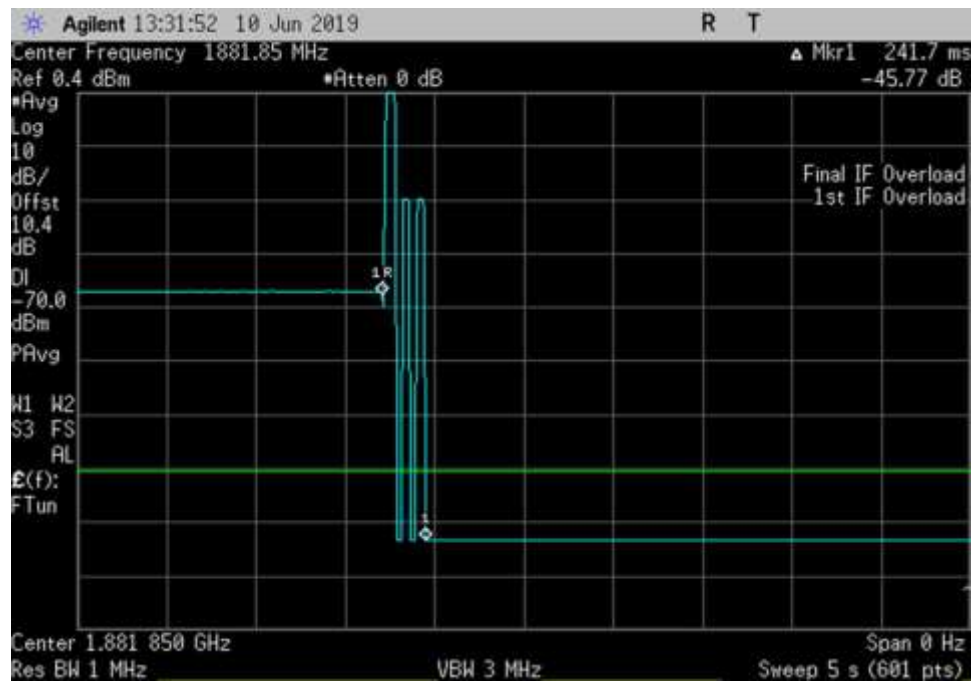
UL\_824-849\_ 836.5MHz\_600s\_150ft Cable



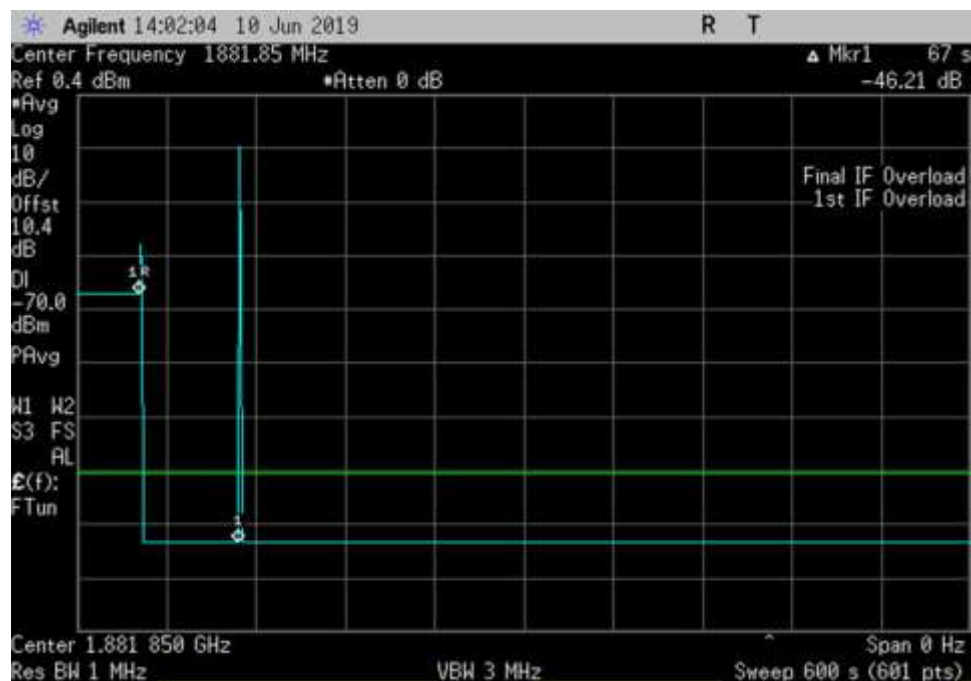
UL\_1710-1755\_ 1734.6MHz\_150ft Cable



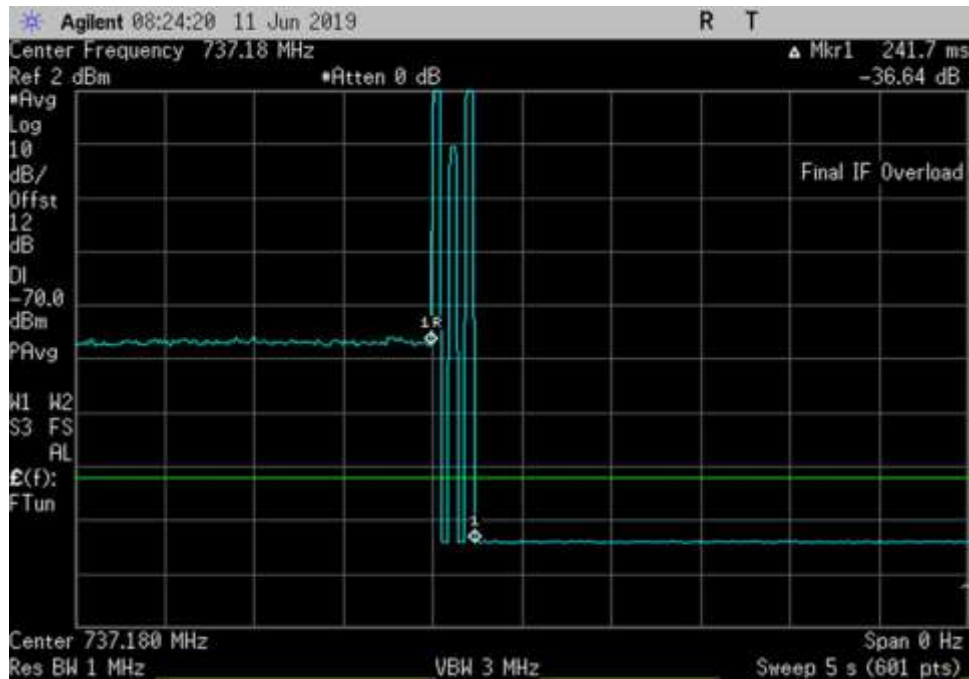
UL\_1710-1755\_ 1734.6MHz\_600s\_150ft Cable



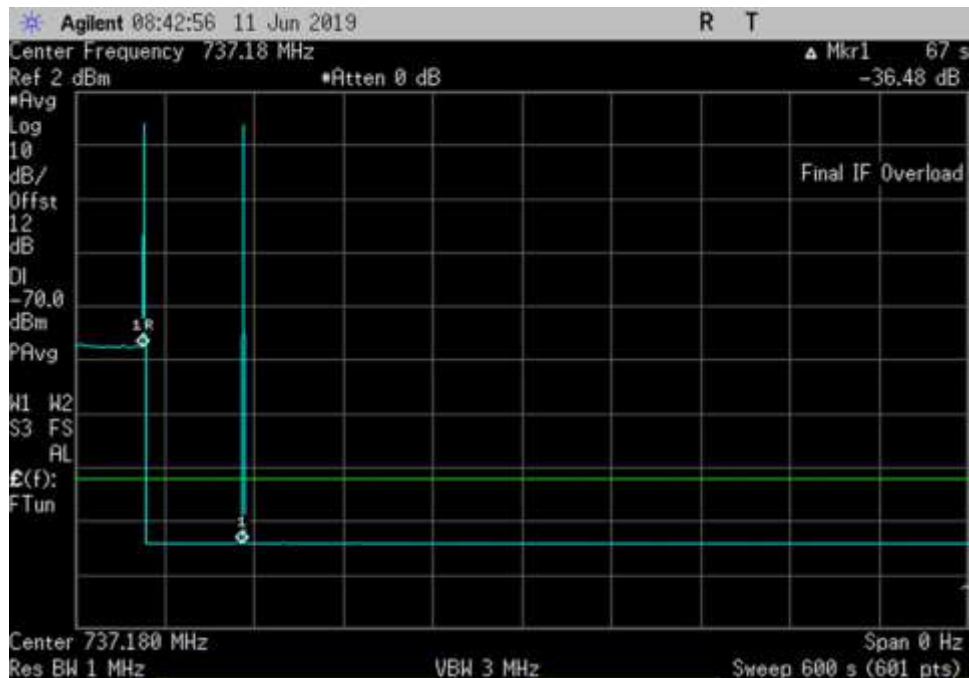
UL\_1850-1915\_ 1881.85MHz\_150ft Cable



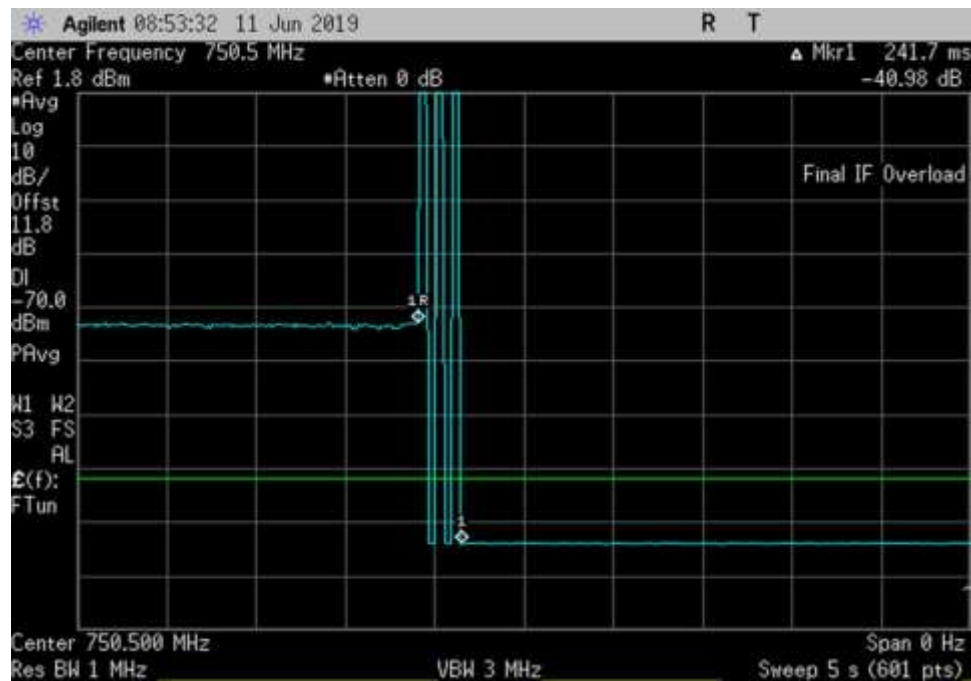
UL\_1850-1915\_ 1881.85MHz\_600s\_150ft Cable



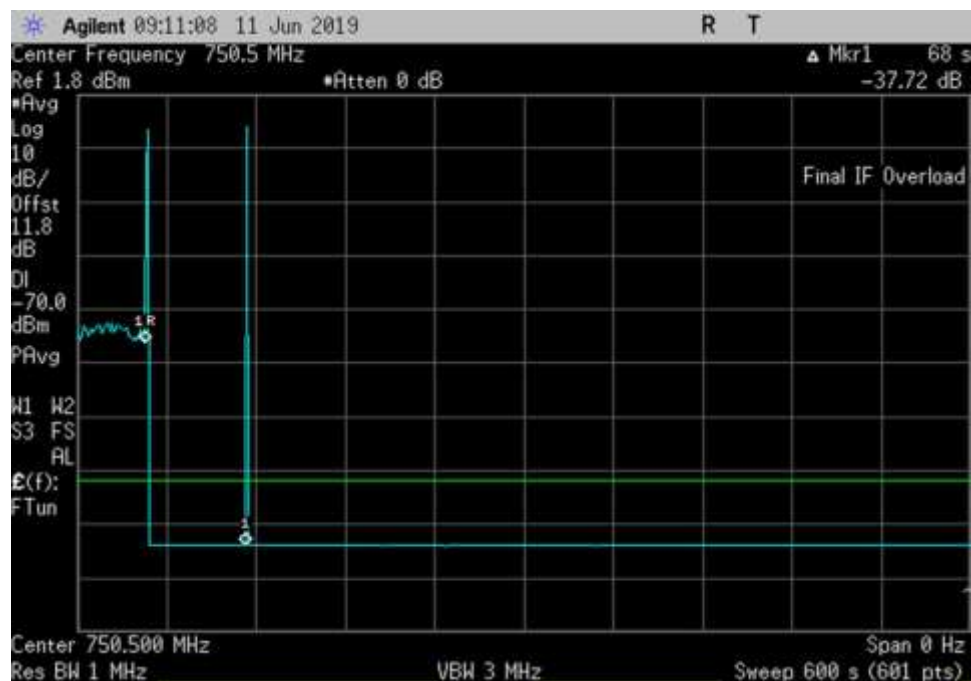
DL\_728-746\_ 737.18MHz\_150ft Cable



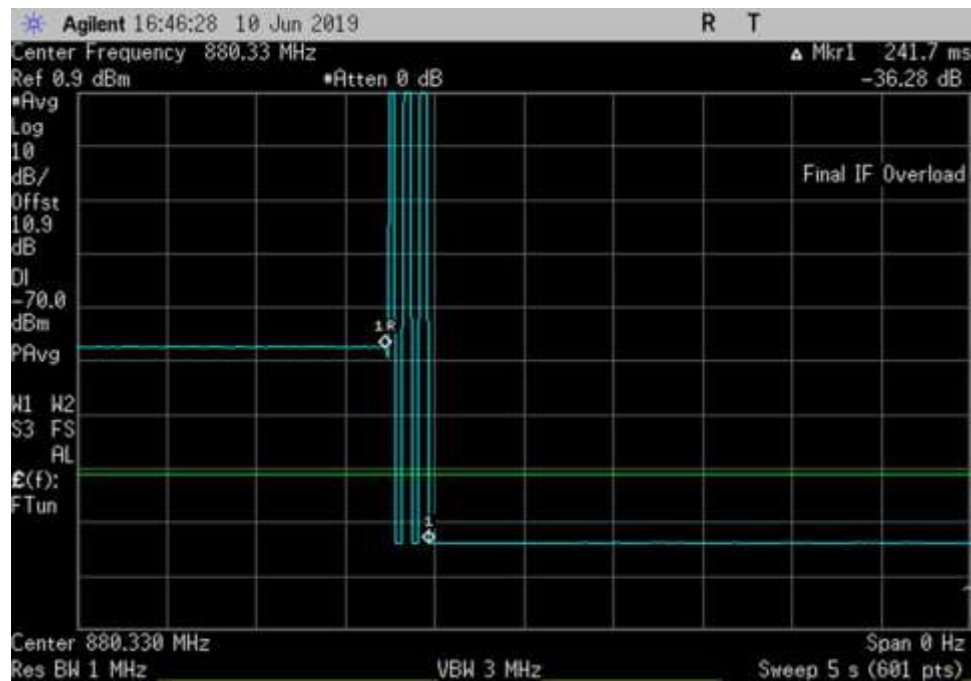
DL\_728-746\_ 737.18MHz\_600s\_150ft Cable



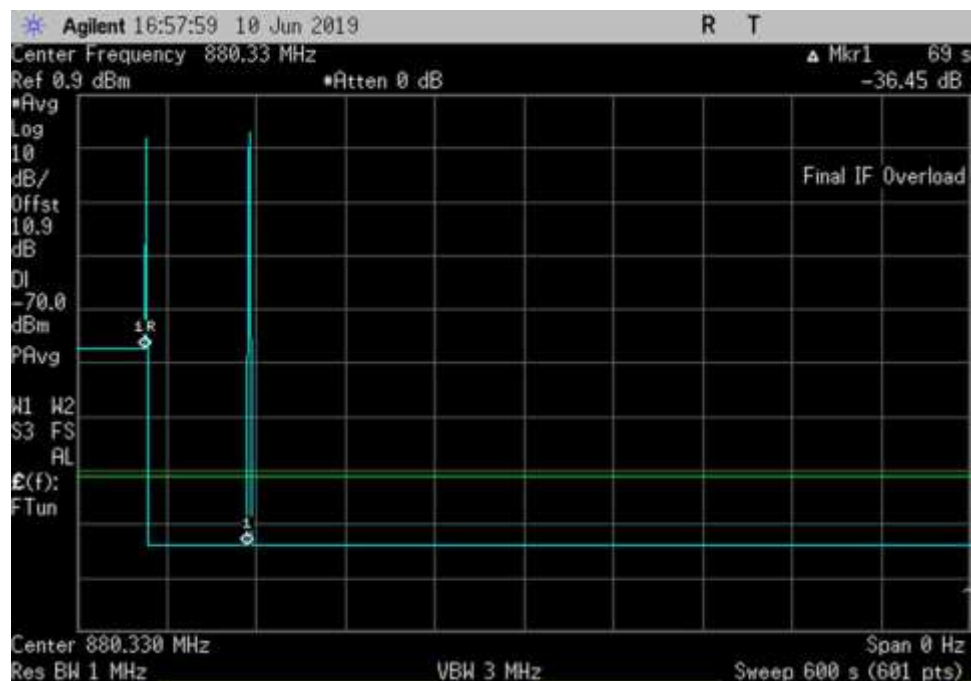
DL\_746-757\_ 750.5MHz\_150ft Cable



DL\_746-757\_ 750.5MHz\_600s\_150ft Cable



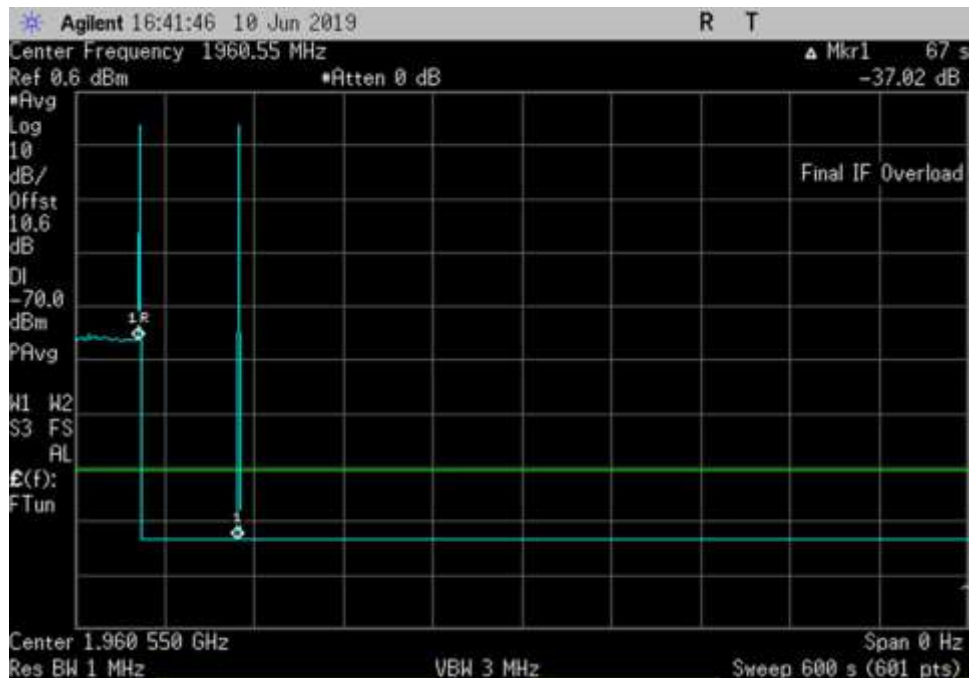
DL\_869-894\_ 880.33MHz\_150ft Cable



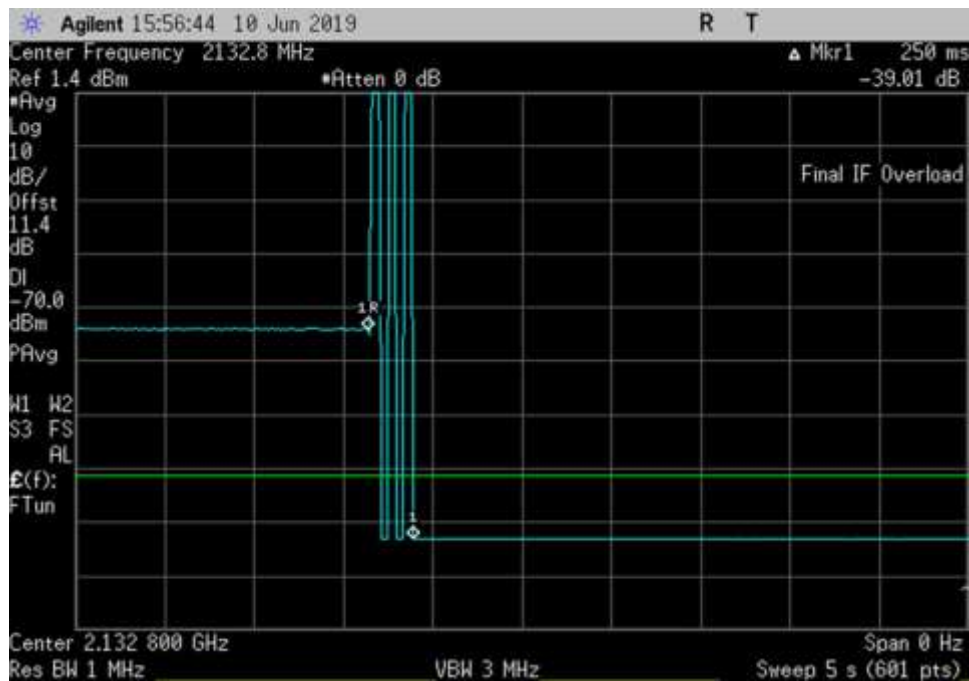
DL\_869-894\_ 880.33MHz\_600s\_150ft Cable



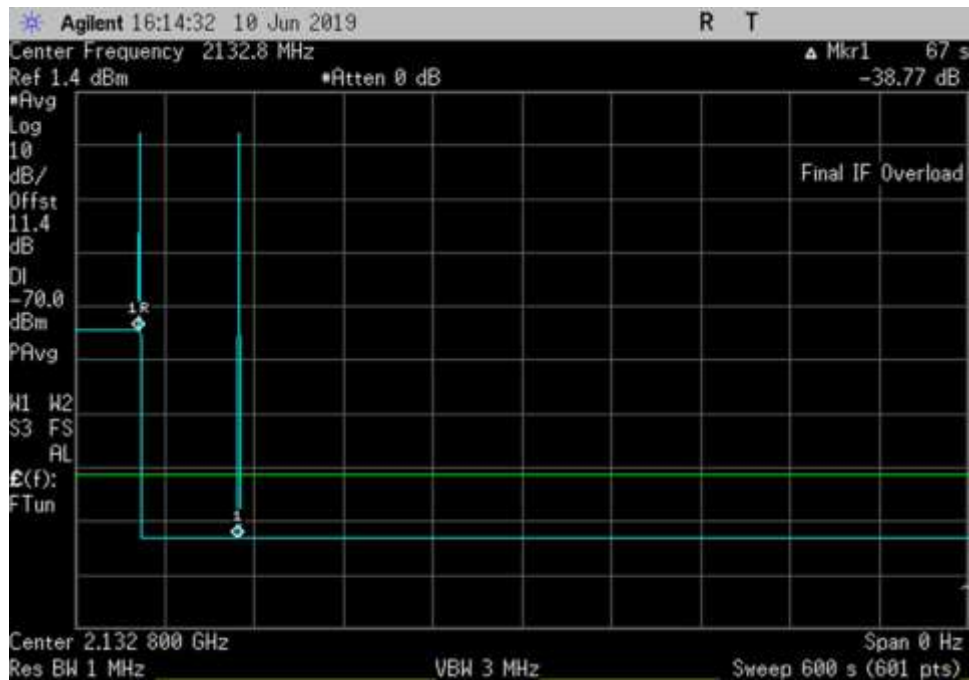
DL\_1930-1995\_ 1960.55MHz\_150ft Cable



DL\_1930-1995\_ 1960.55MHz\_600s\_150ft Cable



DL\_2110-2155\_ 2132.8MHz\_150ft Cable



DL\_2110-2155\_ 2132.8MHz\_600s\_150ft Cable

## 7.12 Radiated Spurious Emissions

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.12 Radiated Spurious Emissions**

Work Order #: **102129** Date: 06/21/2019  
 Test Type: **Radiated Emissions**  
 Tested By: **Hieu Song 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: 22.6°C,

Relative Humidity: 44%

Atmospheric Pressure: 101.3kPa

Frequency range of measurement = 9 kHz- 22 GHz.

9 kHz - 150 kHz -> RBW=200 Hz VBW=1 kHz

150 kHz - 30 MHz -> RBW=9 kHz VBW=30 kHz

30 MHz - 1000MHz -> RBW=120 kHz VBW=1MHz

1000 MHz-22000MHz -> RBW=1 MHz VBW=3MHz

Note:

**No spurious emissions were found within 20dB of the limit line.**

Emissions in the band 1559-1610 MHz were investigated and these were not found within 20dB of the limit line.

27.53(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.

Modification 1 was in place during testing.

**Test Equipment:**

| Asset #  | Description                             | Model                         | Calibration Date | Cal Due Date |
|----------|-----------------------------------------|-------------------------------|------------------|--------------|
| AN03471  | Spectrum Analyzer                       | E4440A                        | 1/18/2018        | 1/18/2020    |
| 00852    | Biconilog Antenna                       | Schaffner                     | 5/1/2018         | 5/1/2020     |
| ANP06049 | Attenuator                              | PE7002-6                      | 5/14/2018        | 5/14/2020    |
| ANP06691 | Cable                                   | PE3062-180                    | 5/14/2018        | 5/14/2020    |
| ANP00880 | Cable                                   | RG214U                        | 5/14/2018        | 5/14/2020    |
| P07508   | Preamp                                  | Sonoma                        | 10/15/2018       | 10/15/2020   |
| ANP01187 | Cable                                   | CNT-195                       | 8/20/2018        | 8/20/2020    |
| AN02157  | Horn Antenna-<br>ANSI C63.5             | 3115                          | 1/15/2019        | 1/15/2021    |
| AN03302  | Cable                                   | 32026-29094K-<br>29094K-72TC  | 1/15/2018        | 1/15/2020    |
| ANP01210 | Cable                                   | FSJ1P-50A-4A                  | 12/18/2018       | 12/18/2020   |
| ANP06900 | Cable                                   | 32022-29094K-<br>29094K-36TC  | 1/4/2018         | 1/4/2020     |
| AN03366  | Active Horn<br>Antenna-ANSI<br>C63.5 3m | GH-62-25                      | 6/20/2018        | 6/20/2020    |
| P02810   | Preamp                                  | 83051A                        | 03/06/2018       | 03/03/2020   |
| AN00266  | Loop Antenna                            | 6502                          | 6/1/2018         | 6/1/2020     |
| P06126   | Cable                                   | 32022-29094K-<br>29094K-168TC | 5/3/2019         | 5/3/2021     |
| P06899   | Cable                                   | 32022-29094K-<br>29094K-72TC  | 1/4/2018         | 1/4/2020     |
| P00928   | Cable                                   | various                       | 1/15/2018        | 1/15/2020    |
| P00929   | Cable                                   | various                       | 1/15/2018        | 1/15/2020    |
| 02112    | Horn Antenna                            | 84125-80008                   | 7/7/2017         | 07/07/2019   |
| 01414    | Horn Antenna                            | 84125-80008<br>RA28-K-F-4B-C  | 7/7/2017         | 07/07/2019   |

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.12 Radiated Spurious Emissions**  
 Work Order #: **102129** Date: 06/21/2019  
 Test Type: **Radiated Emissions**  
 Tested By: **Hieu Song Nguyenpham**  
 Software: EMITest 5.03.11

#### Equipment Tested:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 4 |              |         |     |

#### Support Equipment:

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 4 |              |         |     |

#### Test Conditions / Notes:

Test environment conditions:  
 Temperature: 22.6°C  
 Relative Humidity: 44%  
 Atmospheric Pressure: 101.3kPa

Frequency range of measurement = 9 kHz- 22 GHz.  
 9 kHz - 150 kHz -> RBW=200 Hz VBW=1 kHz  
 150 kHz - 30 MHz -> RBW=9 kHz VBW=30 kHz  
 30 MHz - 1000MHz -> RBW=120 kHz VBW=1MHz  
 1000 MHz-22000MHz -> RBW=1 MHz VBW=3MHz

Note:  
**No spurious emissions were found within 20dB of the limit line.**  
 Emissions in the band 1559-1610 MHz were investigated and these were not found within 20dB of the limit line.

27.53(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.

**Test Equipment:**

| Asset #  | Description                             | Model                         | Calibration Date | Cal Due Date |
|----------|-----------------------------------------|-------------------------------|------------------|--------------|
| AN03471  | Spectrum Analyzer                       | E4440A                        | 1/18/2018        | 1/18/2020    |
| 00852    | Biconilog Antenna                       | Schaffner                     | 5/1/2018         | 5/1/2020     |
| ANP06049 | Attenuator                              | PE7002-6                      | 5/14/2018        | 5/14/2020    |
| ANP06691 | Cable                                   | PE3062-180                    | 5/14/2018        | 5/14/2020    |
| ANP00880 | Cable                                   | RG214U                        | 5/14/2018        | 5/14/2020    |
| P07508   | Preamp                                  | Sonoma                        | 10/15/2018       | 10/15/2020   |
| ANP01187 | Cable                                   | CNT-195                       | 8/20/2018        | 8/20/2020    |
| AN02157  | Horn Antenna-<br>ANSI C63.5             | 3115                          | 1/15/2019        | 1/15/2021    |
| AN03302  | Cable                                   | 32026-29094K-<br>29094K-72TC  | 1/15/2018        | 1/15/2020    |
| ANP01210 | Cable                                   | FSJ1P-50A-4A                  | 12/18/2018       | 12/18/2020   |
| ANP06900 | Cable                                   | 32022-29094K-<br>29094K-36TC  | 1/4/2018         | 1/4/2020     |
| AN03366  | Active Horn<br>Antenna-ANSI<br>C63.5 3m | GH-62-25                      | 6/20/2018        | 6/20/2020    |
| P02810   | Preamp                                  | 83051A                        | 03/06/2018       | 03/03/2020   |
| AN00266  | Loop Antenna                            | 6502                          | 6/1/2018         | 6/1/2020     |
| P06126   | Cable                                   | 32022-29094K-<br>29094K-168TC | 5/3/2019         | 5/3/2021     |
| P06899   | Cable                                   | 32022-29094K-<br>29094K-72TC  | 1/4/2018         | 1/4/2020     |
| P00928   | Cable                                   | various                       | 1/15/2018        | 1/15/2020    |
| P00929   | Cable                                   | various                       | 1/15/2018        | 1/15/2020    |
| 02112    | Horn Antenna                            | 84125-80008                   | 7/7/2017         | 07/07/2019   |
| 01414    | Horn Antenna                            | 84125-80008<br>RA28-K-F-4B-C  | 7/7/2017         | 07/07/2019   |



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170  
 Customer: Cellphone-Mate, Inc.  
 Specification: **7.12 Radiated Spurious Emissions**

Work Order #: **102129**  
 Test Type: **Radiated Emissions**  
 Tested By: **Hieu Song Nguyenpham**  
 Software: EMITest 5.03.11

Date: 06/21/2019

**Equipment Tested:**

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 5 |              |         |     |

**Support Equipment:**

| Device          | Manufacturer | Model # | S/N |
|-----------------|--------------|---------|-----|
| Configuration 5 |              |         |     |

**Test Conditions / Notes:**

Test environment conditions:  
 Temperature: 22.6°C  
 Relative Humidity: 44%  
 Atmospheric Pressure: 101.3kPa

Frequency range of measurement = 9 kHz- 22 GHz.  
 9 kHz - 150 kHz -> RBW=200 Hz VBW=1 kHz  
 150 kHz - 30 MHz -> RBW=9 kHz VBW=30 kHz  
 30 MHz - 1000MHz -> RBW=120 kHz VBW=1MHz  
 1000 MHz-22000MHz -> RBW=1 MHz VBW=3MHz

Note:  
**No spurious emissions were found within 20dB of the limit line.**  
 Emissions in the band 1559-1610 MHz were investigated and these were not found within 20dB of the limit line.

27.53(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.

**Test Equipment:**

| Asset #  | Description                       | Model                        | Calibration Date | Cal Due Date |
|----------|-----------------------------------|------------------------------|------------------|--------------|
| AN03471  | Spectrum Analyzer                 | E4440A                       | 1/18/2018        | 1/18/2020    |
| 00852    | Biconilog Antenna                 | Schaffner                    | 5/1/2018         | 5/1/2020     |
| ANP06049 | Attenuator                        | PE7002-6                     | 5/14/2018        | 5/14/2020    |
| ANP06691 | Cable                             | PE3062-180                   | 5/14/2018        | 5/14/2020    |
| ANP00880 | Cable                             | RG214U                       | 5/14/2018        | 5/14/2020    |
| P07508   | Preamp                            | Sonoma                       | 10/15/2018       | 10/15/2020   |
| ANP01187 | Cable                             | CNT-195                      | 8/20/2018        | 8/20/2020    |
| AN02157  | Horn Antenna-ANSI C63.5           | 3115                         | 1/15/2019        | 1/15/2021    |
| AN03302  | Cable                             | 32026-29094K-29094K-72TC     | 1/15/2018        | 1/15/2020    |
| ANP01210 | Cable                             | FSJ1P-50A-4A                 | 12/18/2018       | 12/18/2020   |
| ANP06900 | Cable                             | 32022-29094K-29094K-36TC     | 1/4/2018         | 1/4/2020     |
| AN03366  | Active Horn Antenna-ANSI C63.5 3m | GH-62-25                     | 6/20/2018        | 6/20/2020    |
| P02810   | Preamp                            | 83051A                       | 03/06/2018       | 03/03/2020   |
| AN00266  | Loop Antenna                      | 6502                         | 6/1/2018         | 6/1/2020     |
| P06126   | Cable                             | 32022-29094K-29094K-168TC    | 5/3/2019         | 5/3/2021     |
| P06899   | Cable                             | 32022-29094K-29094K-72TC     | 1/4/2018         | 1/4/2020     |
| P00928   | Cable                             | various                      | 1/15/2018        | 1/15/2020    |
| P00929   | Cable                             | various                      | 1/15/2018        | 1/15/2020    |
| 02112    | Horn Antenna                      | 84125-80008                  | 7/7/2017         | 07/07/2019   |
| 01414    | Horn Antenna                      | 84125-80008<br>RA28-K-F-4B-C | 7/7/2017         | 07/07/2019   |