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# Report On

FCC Testing of the ip.access Ltd  
E-Class Access Point, Model: 495X  
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 96

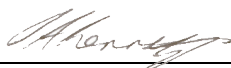
**COMMERCIAL-IN-CONFIDENCE**

**FCC ID: QGGIPA495X**

PREPARED BY

  
**Neil Rousell**  
Senior Engineer

APPROVED BY

  
**Simon Bennett**  
Authorised Signatory

DATED

04 September 2019

**Document 75945166 Report 02 Issue 3**

**September 2019**



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## **SECTION 1**

### **REPORT INFORMATION**



## 1.1 REPORT DETAILS

|                               |                                                                                                                    |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Manufacturer                  | ip.access Ltd                                                                                                      |
| Address                       | Building 2020<br>Cambourne Business Park<br>Cambourne<br>Cambridge<br>Cambridgeshire<br>CB23 6DW<br>United Kingdom |
| Product Name                  | E-Class Access Point                                                                                               |
| Model                         | 495X                                                                                                               |
| Serial Number(s)              | 000295-0100008307                                                                                                  |
| Software Version              | 5978                                                                                                               |
| Hardware Version              | Rev A                                                                                                              |
| Test Specification/Issue/Date | FCC CFR 47 Part 2: 2018<br>FCC CFR 47 Part 96: 2018                                                                |
| Start of Test                 | 15 April 2019                                                                                                      |
| Finish of Test                | 06 May 2019                                                                                                        |
| Name of Engineer(s)           | Neil Rousell<br>Graeme Lawler                                                                                      |
| Related Document(s)           | KDB 971168 D01 v03r01<br>KDB 662911 D01 v02r01<br>KDB 940660 D01 Part 96 CBRS Eqpt v02<br>ANSI C63.26:2015         |

### ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate compliance with FCC CFR 47 Part 2 and FCC CFR 47 Part 96. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

A handwritten signature in blue ink, appearing to read 'Neil Rousell'.

Neil Rousell

A handwritten signature in blue ink, appearing to read 'Graeme Lawler'.

Graeme Lawler

**This report has been up-issued to Issue 3 to provide clarification over the EIRP on page 5.**



## 1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 96, and is shown below.

| Section | Specification Clause |                    | Test Description                                   | Result |
|---------|----------------------|--------------------|----------------------------------------------------|--------|
|         | FCC CFR 47 Part 2    | FCC CFR 47 Part 96 |                                                    |        |
| 2.1     | 2.1046               | 96.41 (b)(c)(g)    | Output Power and Peak to Average Ratio - Conducted | Pass   |
| 2.2     | 2.1047               | -                  | Modulation Characteristics                         | Pass   |
| 2.3     | 2.1049               | 96.41 (e)(3)       | Occupied Bandwidth                                 | Pass   |
| 2.4     | 2.1051               | 96.41 (e)(3)       | Band Edge                                          | Pass   |
| 2.5     | 2.1051               | 96.41 (e)(1)       | Spurious Emissions at Antenna Terminals            | Pass   |
| 2.6     | 2.1055               | -                  | Frequency Stability                                | Pass   |
| 2.7     | 2.1053               | 96.41(e)(1)(2)     | Radiated Emissions                                 | Pass   |
| 2.8     | 2.1047               | -                  | Modulation Characteristics                         | Pass   |

### Measurement Uncertainty Decision Statement

Determination of conformity with the specification limits is based on the results of the compliance measurement and does not take into account measurement instrumentation uncertainty as defined in ANSI C63.26:2015 Clause 1.3.



### 1.3 CONFIGURATION DESCRIPTION

| A1 - Single carrier |              |              |           |
|---------------------|--------------|--------------|-----------|
| Bandwidth (MHz)     | Bottom (MHz) | Middle (MHz) | Top (MHz) |
| 10                  | 3555         | 3625         | 3695      |
| 20                  | 3560         | 3625         | 3690      |



## 1.4 APPLICATION FORM

### Equipment Description

|                                                                                                            |                    |
|------------------------------------------------------------------------------------------------------------|--------------------|
| Technical Description:<br><i>(Please provide a brief description of the intended use of the equipment)</i> | LTE TDD Small Cell |
| Manufacturer:                                                                                              | ip.access Ltd      |
| Model:                                                                                                     | E61 Band 48        |
| Part Number:                                                                                               | 495X               |
| Hardware Version:                                                                                          | Rev A              |
| Software Version:                                                                                          | 5978               |
| FCC ID (if applicable)                                                                                     | QGGIPA495X         |
| IC ID (if applicable)                                                                                      | Not Applicable     |

### Intentional Radiators

| Technology                            | LTE                   | LTE                   |
|---------------------------------------|-----------------------|-----------------------|
| Frequency Band (MHz)                  | 3550 to 3700 MHz      | 3550 to 3700 MHz      |
| Conducted Declared Output Power (dBm) | 24 per port, 27 total | 23 per port, 26 total |
| Antenna Gain (dBi)                    | 2                     | 2                     |
| Total EIRP (W)                        | 0.79                  | 0.63                  |
| Supported Bandwidth(s) (MHz)          | 10                    | 20                    |
| Modulation Scheme(s)                  | QPSK, 16QAM and 64QAM | QPSK, 16QAM and 64QAM |
| ITU Emission Designator               | 10M0G1W               | 20M0G1W               |
| Bottom Frequency (MHz)                | 3550 MHz              | 3550 MHz              |
| Middle Frequency (MHz)                | 3625 MHz              | 3625 MHz              |
| Top Frequency (MHz)                   | 3700 MHz              | 3700 MHz              |

### Un-intentional Radiators

|                                                                                                         |          |
|---------------------------------------------------------------------------------------------------------|----------|
| Highest frequency generated or used in the device or on which the device operates or tunes              | 3700 MHz |
| Lowest frequency generated or used in the device or on which the device operates or tunes               | 1.4 MHz  |
| Class A Digital Device (Use in commercial, industrial or business environment) <input type="checkbox"/> |          |
| Class B Digital Device (Use in residential environment only) <input checked="" type="checkbox"/>        |          |

### AC Power Source

|                                                                            |                              |
|----------------------------------------------------------------------------|------------------------------|
| AC supply frequency: Click to edit (Hz)                                    |                              |
| Click to edit V                                                            | Max current: Click to edit A |
| Single Phase <input type="checkbox"/> Three Phase <input type="checkbox"/> |                              |



### DC Power Source

|                               |
|-------------------------------|
| Nominal voltage: 12.0 V       |
| Extreme upper voltage: 12.6 V |
| Extreme lower voltage: 11.4 V |
| Max current: 1.75. A          |

### Battery Power Source

|                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage: Click to edit V                                                                                                                                                                                      |
| End-point voltage: Click or tap here to enter text V ( <i>Point at which the battery will terminate</i> )                                                                                                     |
| Alkaline <input type="checkbox"/> Leclanche <input type="checkbox"/> Lithium <input type="checkbox"/> Nickel Cadmium <input type="checkbox"/> Lead Acid* <input type="checkbox"/> <i>*(Vehicle regulated)</i> |
| Other <input type="checkbox"/> Please detail: Click to edit                                                                                                                                                   |

### Charging

|                                           |                                                                     |
|-------------------------------------------|---------------------------------------------------------------------|
| Can the EUT transmit whilst being charged | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
|-------------------------------------------|---------------------------------------------------------------------|

### Temperature

|                           |                            |
|---------------------------|----------------------------|
| Minimum temperature: 0 °C | Maximum temperature: 45 °C |
|---------------------------|----------------------------|

### Antenna Characteristics

|                                                                                                |
|------------------------------------------------------------------------------------------------|
| Antenna connector <input type="checkbox"/> State impedance Click to edit Ohm                   |
| Temporary antenna connector <input type="checkbox"/> State impedance Click to edit Ohm         |
| Integral antenna <input checked="" type="checkbox"/> Type Click to edit State impedance 2 dBi  |
| External antenna <input type="checkbox"/> Type Click to edit State impedance Click to edit dBi |

### Ancillaries (if applicable)

|                             |                                  |
|-----------------------------|----------------------------------|
| Manufacturer: Click to edit | Part Number: Click to edit       |
| Model: Click to edit        | Country of Origin: Click to edit |

I hereby declare that the information supplied is correct and complete.

Name: Adrian Pearce  
 Position held: Engineering Director  
 Date: 01 August 2019



## 1.5 PRODUCT INFORMATION

### 1.5.1 Technical Description

The Equipment Under Test (EUT), E-Class Access Point, Model: 495X was an ip.access radio unit working in the public mobile service 3550-3700 MHz band which provides communication connections to the 3550-3700 MHz network. The 495X operates from 12 V DC or a 120 V AC PoE power supply.

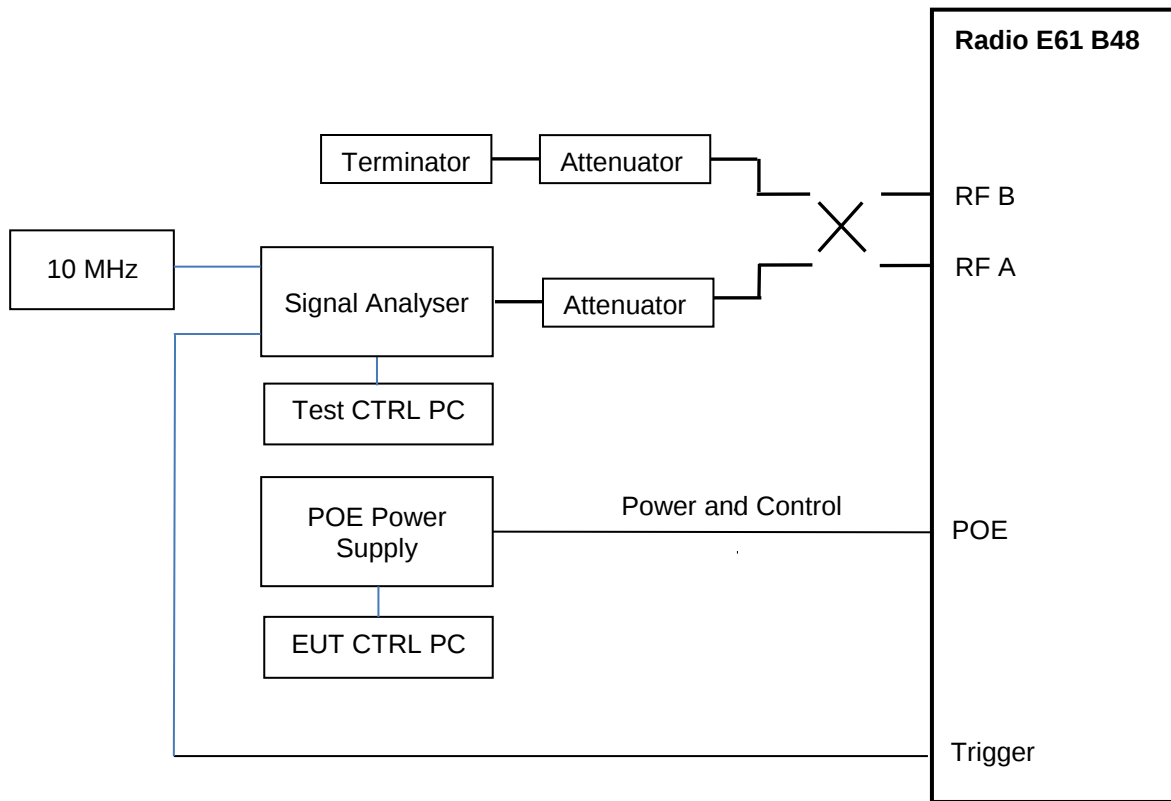
The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.



Equipment Under Test



## 1.6 TEST SETUP





## 1.7 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure, test laboratories or a chamber as appropriate.

The EUT was powered from a PoE 120 V / 60 Hz AC supply.

FCC Measurement Facility Registration Number  
90987 Octagon House, Fareham Test Laboratory

## 1.8 DEVIATION FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

## 1.9 MODIFICATION RECORD

| Modification State | Description of Modification still fitted to EUT                                                                                        | Modification Fitted By | Date Modification Fitted |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------|
| 0                  | As supplied by the customer                                                                                                            | N/A                    | N/A                      |
| 1                  | The output power of the 20 MHz carrier was reduced to meet the requirements of the spurious emissions FCC CFR 47 Part 96.41 (e)(1)(2). | Neil Rousell           | 15-06-2019               |

N/A Not Applicable

## 1.10 TEST SITE

TÜV SÜD conducted the following tests at our Fareham Test Laboratory.

| Test Name                                                                 | Name of Engineer(s) |
|---------------------------------------------------------------------------|---------------------|
| Power Limits EIRP, Power Management, Peak-average Power Ratio (PAPR), PSD | Neil Rousell        |
| Occupied Bandwidth                                                        | Neil Rousell        |
| Band Edge                                                                 | Neil Rousell        |
| Spurious Emissions at Antenna Terminals                                   | Neil Rousell        |
| Frequency Stability                                                       | Neil Rousell        |
| Radiated Emissions                                                        | Graeme Lawler       |

Office Address:  
Octagon House  
Concorde Way  
Segensworth North  
Fareham  
Hampshire  
PO15 5RL  
United Kingdom



### **1.11 ADDITIONAL INFORMATION**

This testing was performed in accordance with FCC Part 96 PAG, as submitted to the FCC Tracking Number 635880.

Initial pre-testing was carried out to determine the worst case modulation scheme by measuring the output power from QPSK, 16QAM and 64QAM on the middle channel of one antenna port. It was determined that QPSK was the worst case and was used for all testing.



## **SECTION 2**

### **TEST DETAILS**



## 2.1 OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

### 2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1046  
FCC CFR 47 Part 96, Clause 96.41 (b)(c)(g)

### 2.1.2 Date of Test and Modification State

15 April 2019 - Modification State 1

### 2.1.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.1.4 Environmental Conditions

Ambient Temperature 22.1°C  
Relative Humidity 29.8%

### 2.1.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, clause 5.2.1 and summed in accordance with FCC KDB 662911 D01.

### 2.1.6 Test Results

Configuration A1

Product classification – Class B

Maximum Output Power 24 dBm per port, 10.0 MHz bandwidth

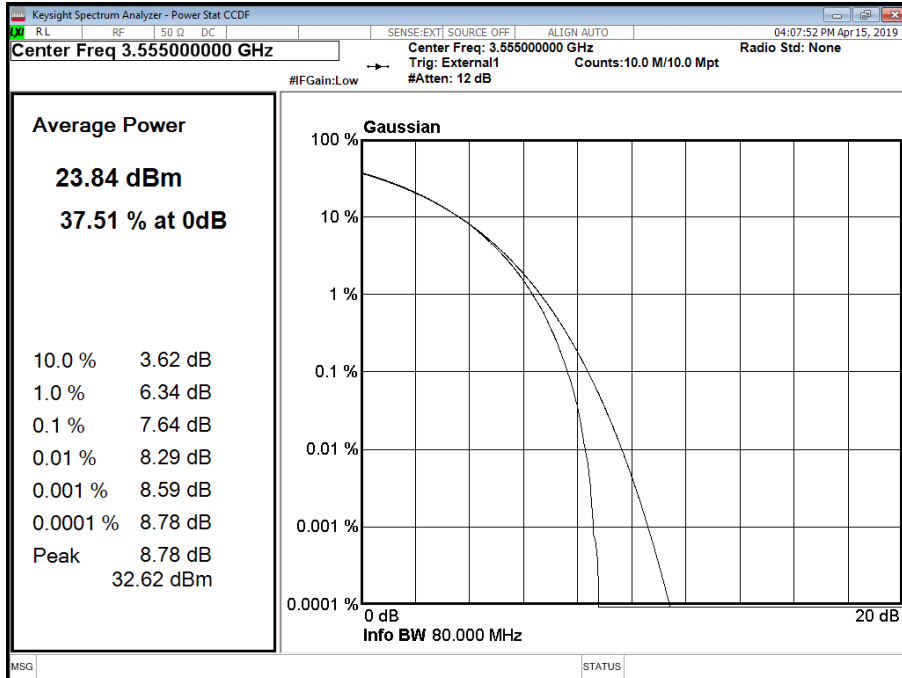
Maximum Output Power 23 dBm per port, 20.0 MHz bandwidth

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Peak to Average Ratio (PAR) / Output Power |                      |            |       |         |
|---------|----------------|-----------------------|--------------------------------------------|----------------------|------------|-------|---------|
|         |                |                       | Channel Position B                         |                      |            |       |         |
|         |                |                       | PAR (dB)                                   | Average Power (EIRP) |            |       |         |
|         |                |                       |                                            | dBm                  | dBm/10 MHz | EIRP  | dBm/MHz |
| A       | QPSK           | 10.0 MHz              | 7.64                                       | 23.97                | 23.96      | 25.96 | 14.42   |
| B       | QPSK           | 10.0 MHz              | 7.73                                       | 23.78                | 23.78      | 25.78 | 14.29   |
| Total   |                |                       | -                                          | 26.89                | 26.88      | 28.88 | 17.36   |
| A       | QPSK           | 20.0 MHz              | 7.82                                       | 23.96                | 21.42      | 23.42 | 11.36   |
| B       | QPSK           | 20.0 MHz              | 8.28                                       | 22.19                | 19.67      | 21.67 | 9.72    |
| Total   |                |                       | -                                          | 26.18                | 23.64      | 25.64 | 13.62   |

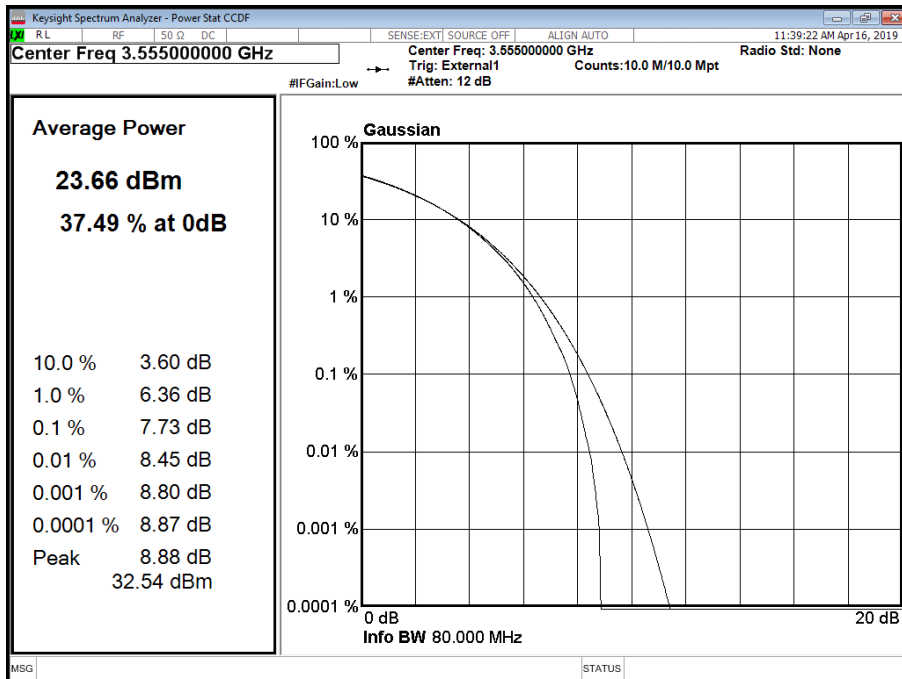
Antenna gain = 2dBi

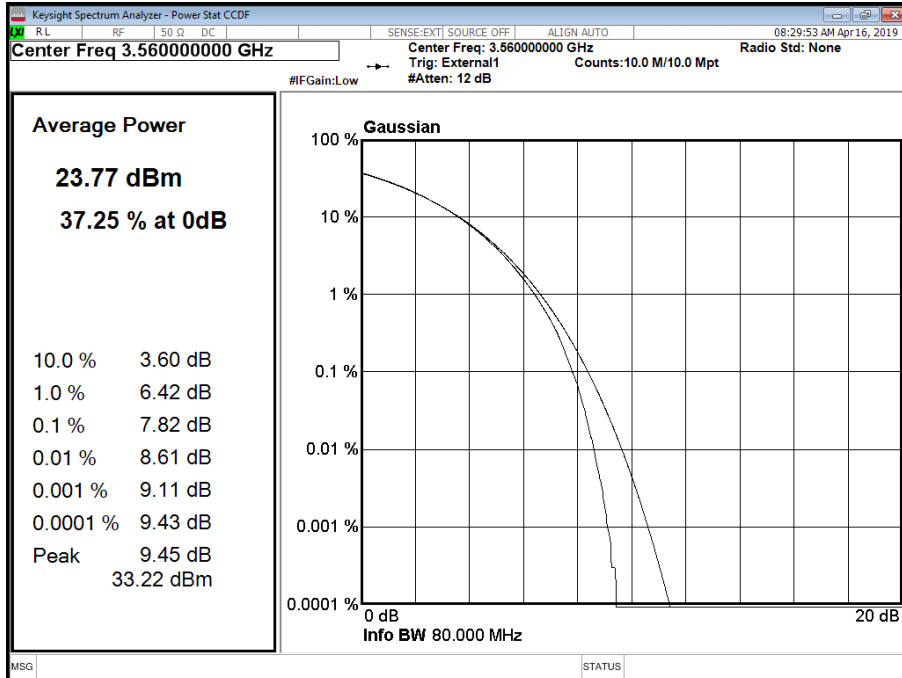
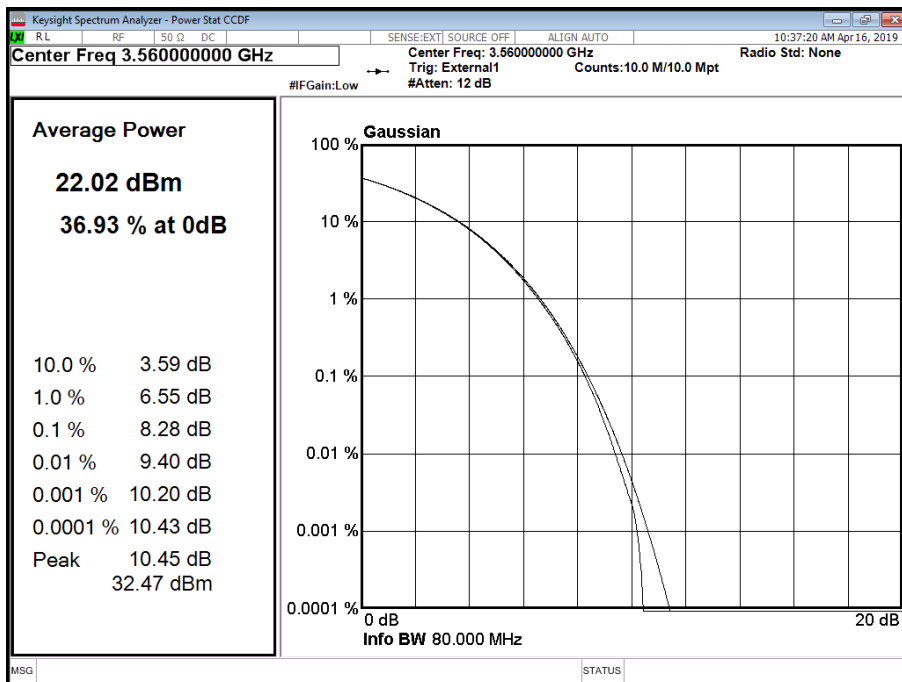


### Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B



### Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B



Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position BAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



## Configuration A1

Product classification – Class B

Maximum Output Power 24 dBm per port, 10.0 MHz bandwidth

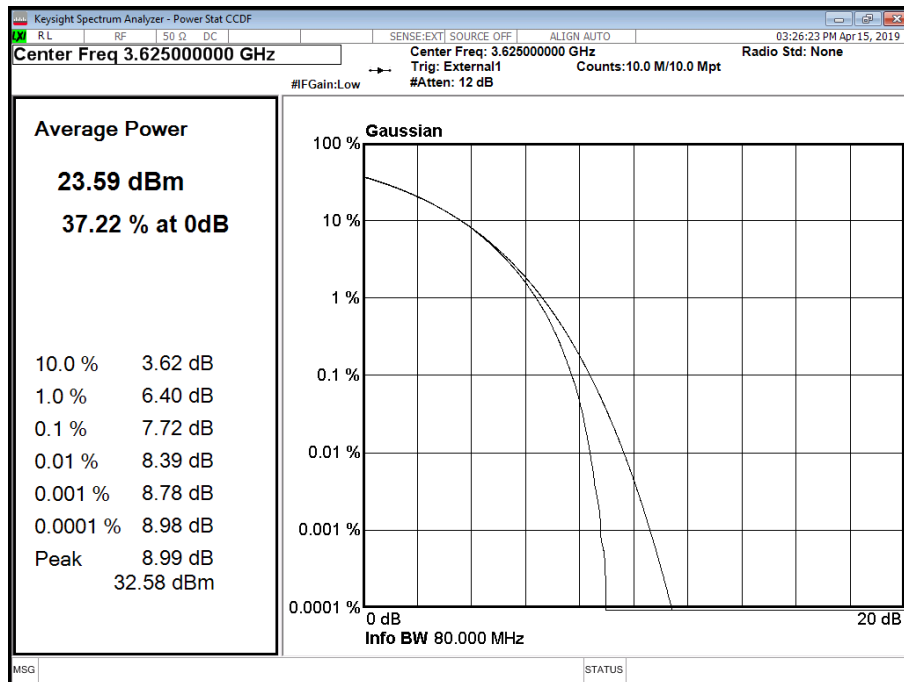
Maximum Output Power 23 dBm per port, 20.0 MHz bandwidth

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Peak to Average Ratio (PAR) / Output Power |                      |            |       |         |
|---------|----------------|-----------------------|--------------------------------------------|----------------------|------------|-------|---------|
|         |                |                       | Channel Position M                         |                      |            |       |         |
|         |                |                       | PAR (dB)                                   | Average Power (EIRP) |            |       |         |
|         |                |                       |                                            | dBm                  | dBm/10 MHz | EIRP  | dBm/MHz |
| A       | QPSK           | 10.0 MHz              | 7.72                                       | 23.61                | 23.62      | 25.62 | 14.12   |
| B       | QPSK           | 10.0 MHz              | 7.94                                       | 24.00                | 24.01      | 26.01 | 14.49   |
| Total   |                |                       | -                                          | 26.82                | 26.83      | 28.83 | 17.32   |
| A       | QPSK           | 20.0 MHz              | 8.18                                       | 22.25                | 19.82      | 21.82 | 9.89    |
| B       | QPSK           | 20.0 MHz              | 8.48                                       | 21.62                | 19.13      | 21.13 | 9.14    |
| Total   |                |                       | -                                          | 24.96                | 22.50      | 24.50 | 12.54   |

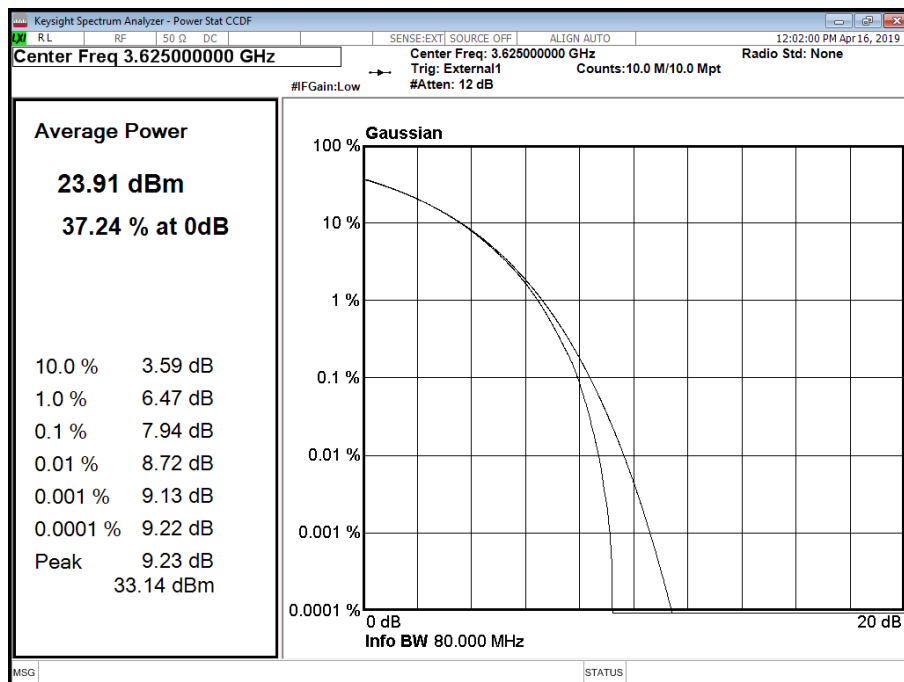
Antenna gain = 2dBi



Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M

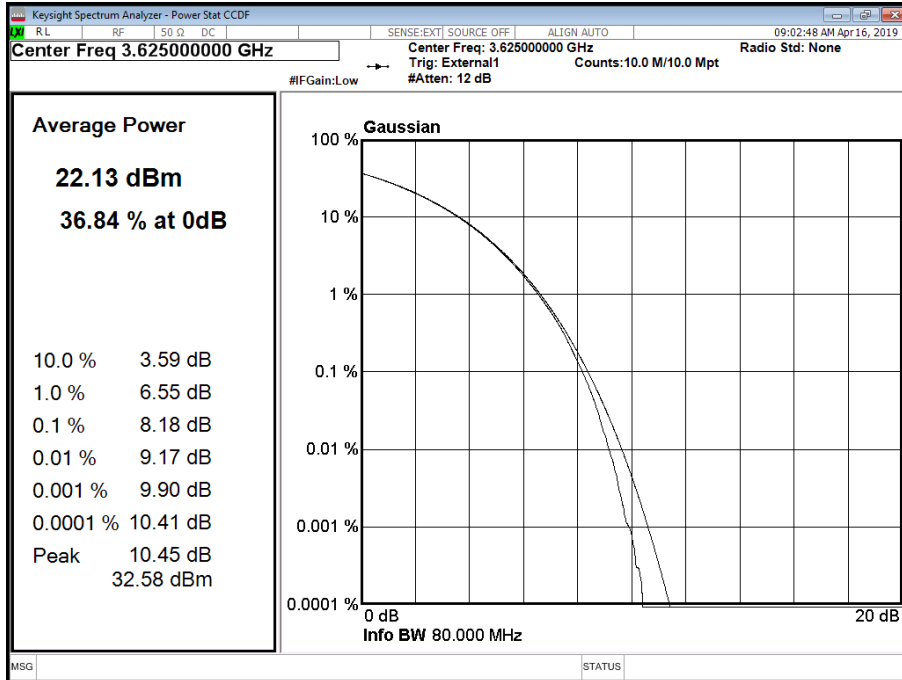


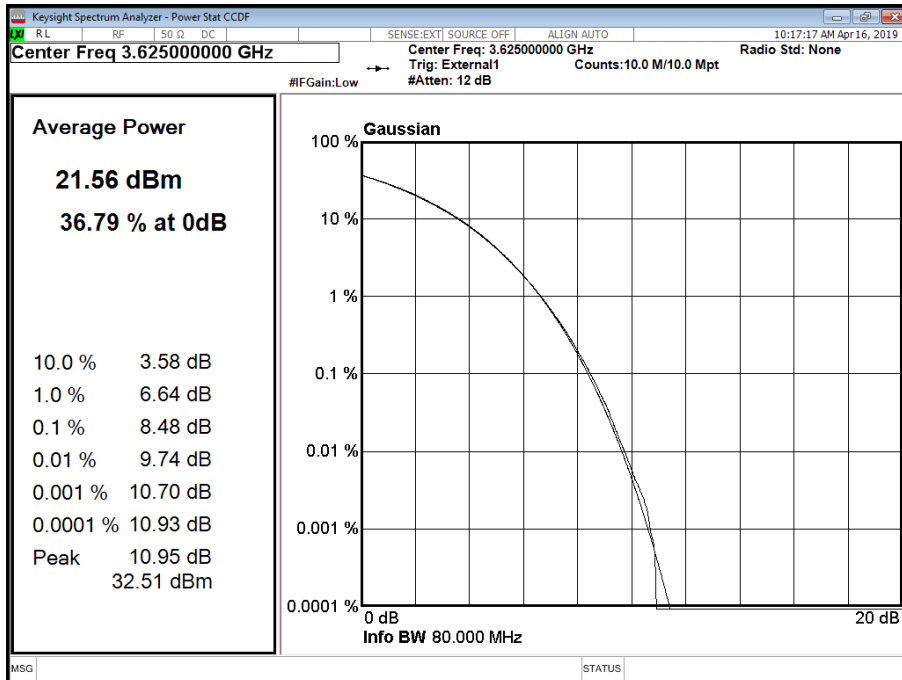
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M





Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M



Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M



## Configuration A1

Product classification – Class B

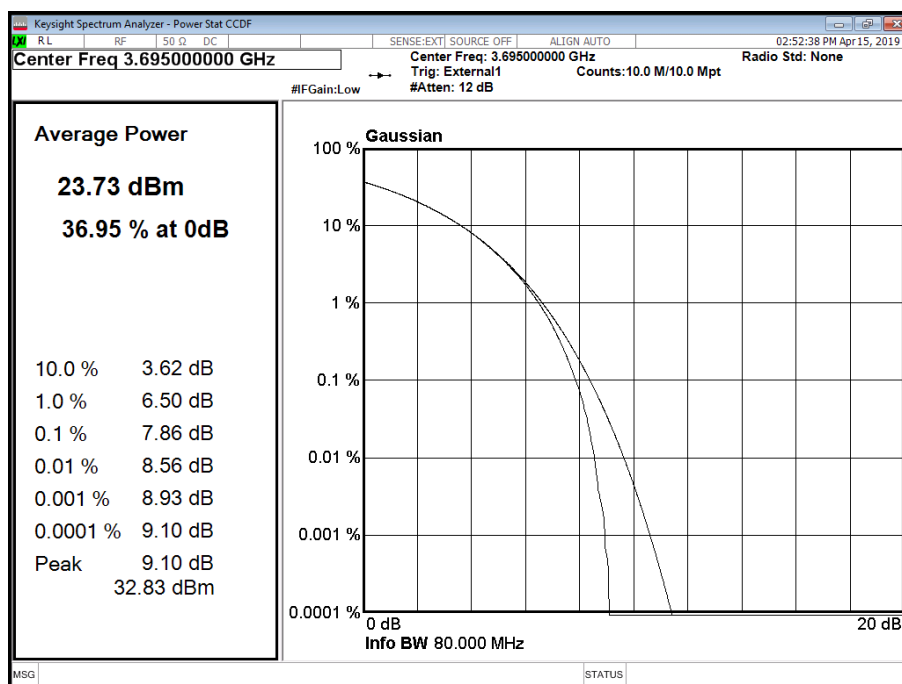
Maximum Output Power 24 dBm per port, 10.0 MHz bandwidth

Maximum Output Power 23 dBm per port, 20.0 MHz bandwidth

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Peak to Average Ratio (PAR) / Output Power |                      |            |       |         |
|---------|----------------|-----------------------|--------------------------------------------|----------------------|------------|-------|---------|
|         |                |                       | Channel Position T                         |                      |            |       |         |
|         |                |                       | PAR (dB)                                   | Average Power (EIRP) |            |       |         |
|         |                |                       |                                            | dBm                  | dBm/10 MHz | EIRP  | dBm/MHz |
| A       | QPSK           | 10.0 MHz              | 7.86                                       | 23.80                | 23.70      | 25.70 | 14.39   |
| B       | QPSK           | 10.0 MHz              | 7.60                                       | 24.10                | 24.03      | 26.03 | 14.74   |
| Total   |                |                       | -                                          | 26.96                | 26.88      | 28.88 | 17.58   |
| A       | QPSK           | 20.0 MHz              | 8.43                                       | 21.35                | 19.03      | 21.03 | 9.17    |
| B       | QPSK           | 20.0 MHz              | 8.41                                       | 22.04                | 19.67      | 21.67 | 9.77    |
| Total   |                |                       | -                                          | 24.72                | 22.37      | 24.37 | 12.49   |

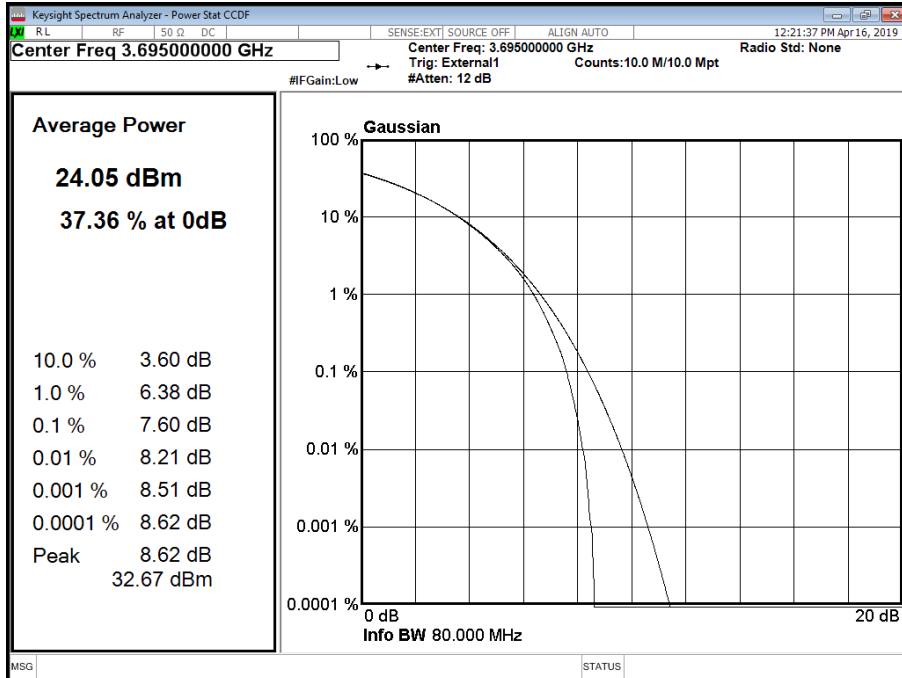
Antenna gain = 2dBi

## Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T

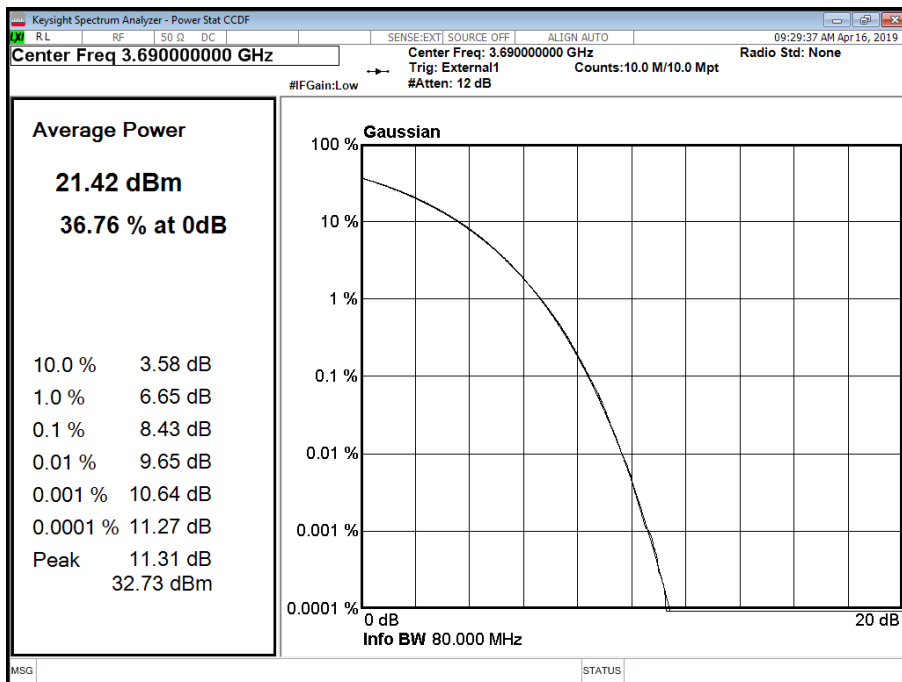




### Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T

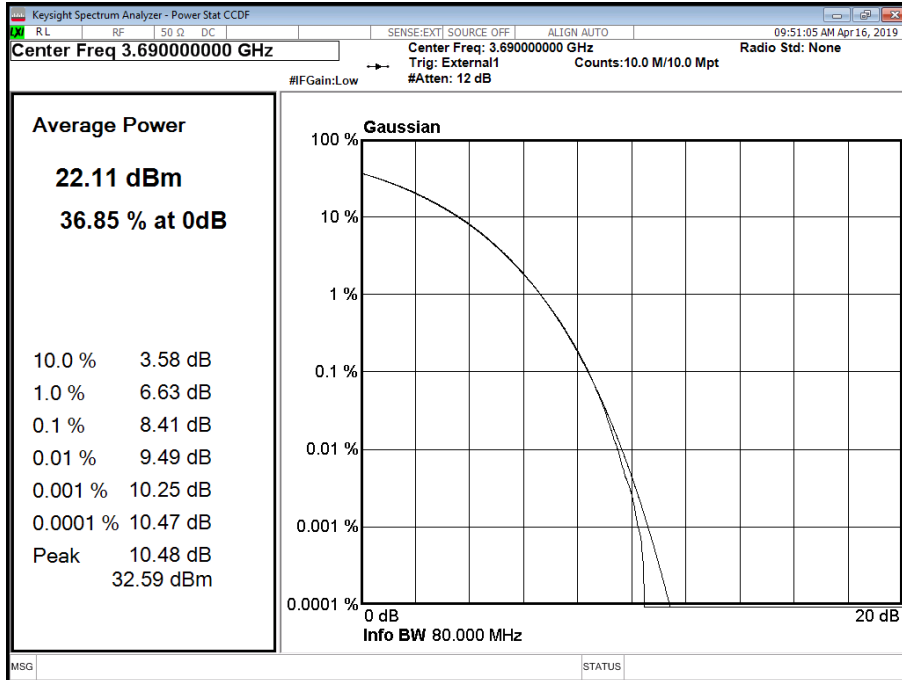


### Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T





Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T





## Configuration A1

Minimum Output Power -32 dBm

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Peak to Average Ratio (PAR) / Output Power |               |         |
|---------|----------------|-----------------------|--------------------------------------------|---------------|---------|
|         |                |                       | Channel Position B                         |               |         |
|         |                |                       | PAR (dB)                                   | Average Power |         |
|         |                |                       |                                            | dBm           | dBm/MHz |
| A       | QPSK           | 10.0 MHz              | -                                          | -31.78        | -41.17  |
| B       | QPSK           | 10.0 MHz              | -                                          | -30.76        | -39.32  |
| Total   |                |                       | -                                          | -28.23        | -37.14  |
| A       | QPSK           | 20.0 MHz              | -                                          | -31.81        | -44.57  |
| B       | QPSK           | 20.0 MHz              | -                                          | -30.56        | -40.78  |
| Total   |                |                       | -                                          | -28.13        | -39.26  |

## Configuration A1

Minimum Output Power -32 dBm

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Peak to Average Ratio (PAR) / Output Power |               |         |
|---------|----------------|-----------------------|--------------------------------------------|---------------|---------|
|         |                |                       | Channel Position M                         |               |         |
|         |                |                       | PAR (dB)                                   | Average Power |         |
|         |                |                       |                                            | dBm           | dBm/MHz |
| A       | QPSK           | 10.0 MHz              | -                                          | -32.51        | -41.94  |
| B       | QPSK           | 10.0 MHz              | -                                          | -30.86        | -39.51  |
| Total   |                |                       | -                                          | -28.60        | -37.55  |
| A       | QPSK           | 20.0 MHz              | -                                          | -32.77        | -45.40  |
| B       | QPSK           | 20.0 MHz              | -                                          | -31.21        | -42.23  |
| Total   |                |                       | -                                          | -28.91        | -40.52  |

## Configuration A1

Minimum Output Power -32 dBm

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Peak to Average Ratio (PAR) / Output Power |               |         |
|---------|----------------|-----------------------|--------------------------------------------|---------------|---------|
|         |                |                       | Channel Position T                         |               |         |
|         |                |                       | PAR (dB)                                   | Average Power |         |
|         |                |                       |                                            | dBm           | dBm/MHz |
| A       | QPSK           | 10.0 MHz              | -                                          | -33.62        | -42.97  |
| B       | QPSK           | 10.0 MHz              | -                                          | -32.37        | -40.99  |
| Total   |                |                       | -                                          | -29.94        | -38.85  |
| A       | QPSK           | 20.0 MHz              | -                                          | -33.43        | -46.08  |
| B       | QPSK           | 20.0 MHz              | -                                          | -32.30        | -43.67  |
| Total   |                |                       | -                                          | -29.82        | -41.70  |



| Limit                 |                                                                           |
|-----------------------|---------------------------------------------------------------------------|
| Maximum EIRP          | Category A CBSD<br>Maximum EIRP: 30 dBm/10 MHz<br>Maximum PSD: 20 dBm/MHz |
|                       | Category B CBSD<br>Maximum EIRP: 47 dBm/10 MHz<br>Maximum PSD: 37 dBm/MHz |
| Peak to Average Ratio | 13 dB                                                                     |



## 2.2 OCCUPIED BANDWIDTH

### 2.2.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049  
FCC CFR 47 Part 96, Clause 96.41 (e)(3)

### 2.2.2 Date of Test and Modification State

15 April 2019 - Modification State 1

### 2.2.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.2.4 Environmental Conditions

Ambient Temperature 22.1°C  
Relative Humidity 29.8%

### 2.2.5 Test Method

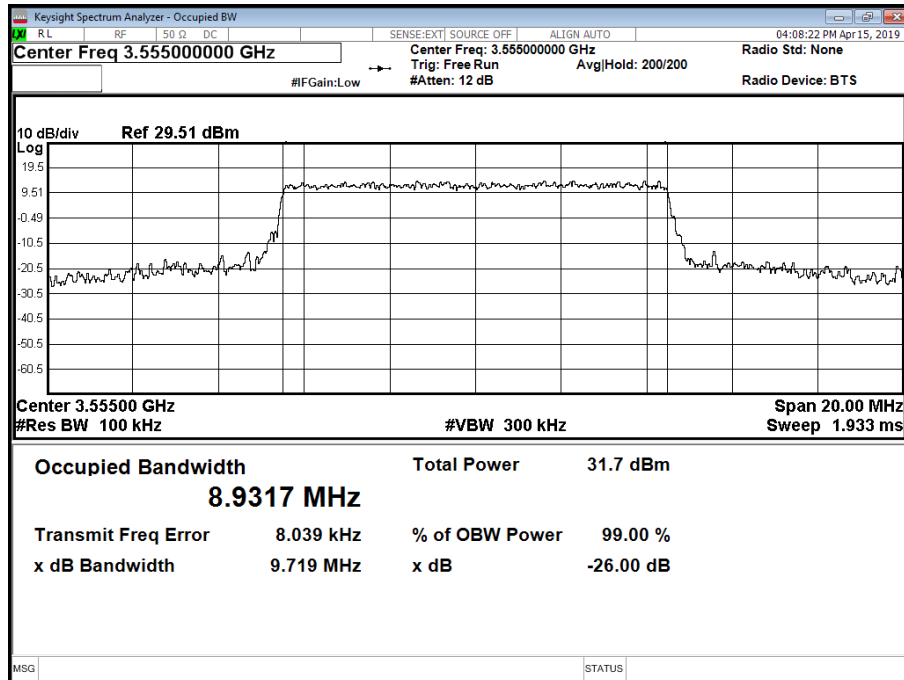
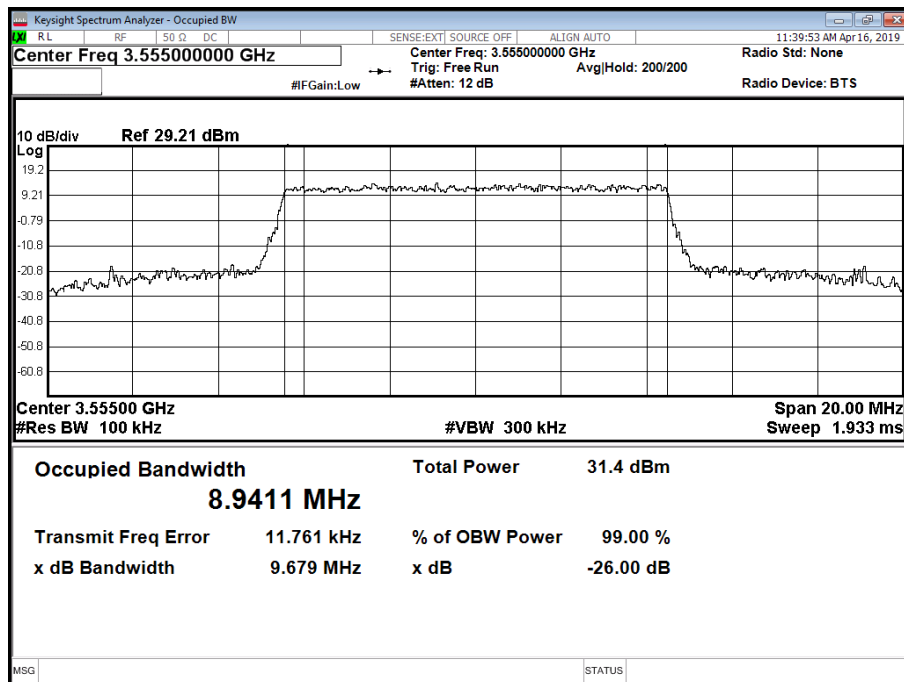
All measurements were made in accordance with FCC KDB 971168 D01.

### 2.2.6 Test Results

Configuration A1

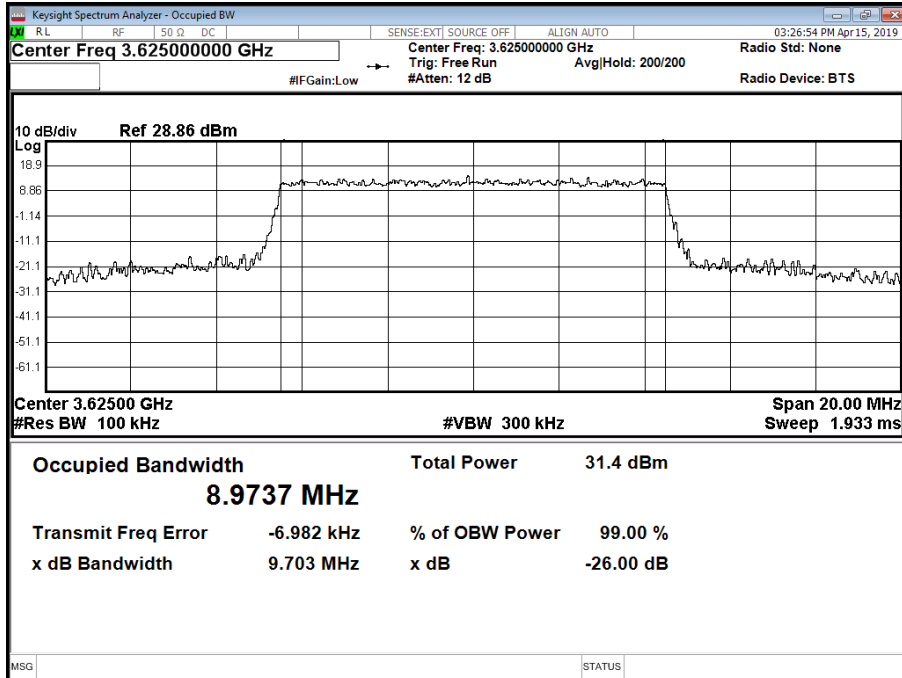
Product classification – Class B  
Maximum Output Power 24 dBm per port, 10.0 MHz bandwidth  
Maximum Output Power 23 dBm per port, 20.0 MHz bandwidth

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Result (kHz)           |                  |                        |                  |                        |                  |
|---------|----------------|-----------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|
|         |                |                       | Channel Position B     |                  | Channel Position M     |                  | Channel Position T     |                  |
|         |                |                       | 99% Occupied Bandwidth | -26 dB Bandwidth | 99% Occupied Bandwidth | -26 dB Bandwidth | 99% Occupied Bandwidth | -26 dB Bandwidth |
| A       | QPSK           | 10.0 MHz              | 8,931.73               | 9,718.95         | 8,973.69               | 9,703.16         | 8,963.52               | 9,722.05         |
| B       | QPSK           | 10.0 MHz              | 8,941.05               | 9,679.49         | 8,954.39               | 9,766.65         | 8,957.85               | 9,735.79         |
| A       | QPSK           | 20.0 MHz              | 17,877.30              | 19,285.49        | 17,865.80              | 19,125.25        | 17,913.31              | 19,122.40        |
| B       | QPSK           | 20.0 MHz              | 17,873.43              | 19,361.41        | 17,881.40              | 19,280.19        | 17,878.42              | 19,309.01        |

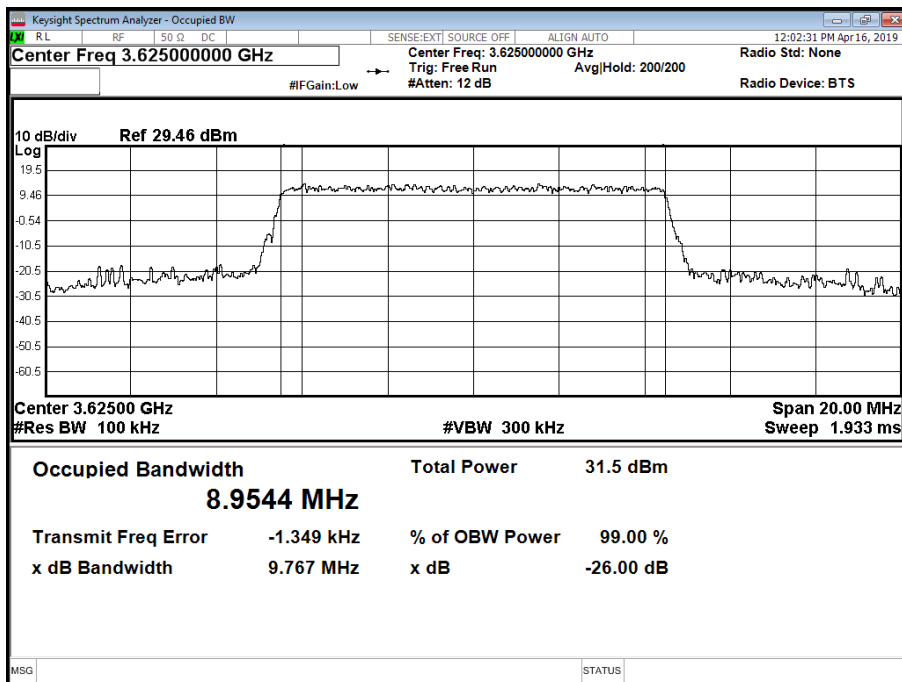
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position BAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B

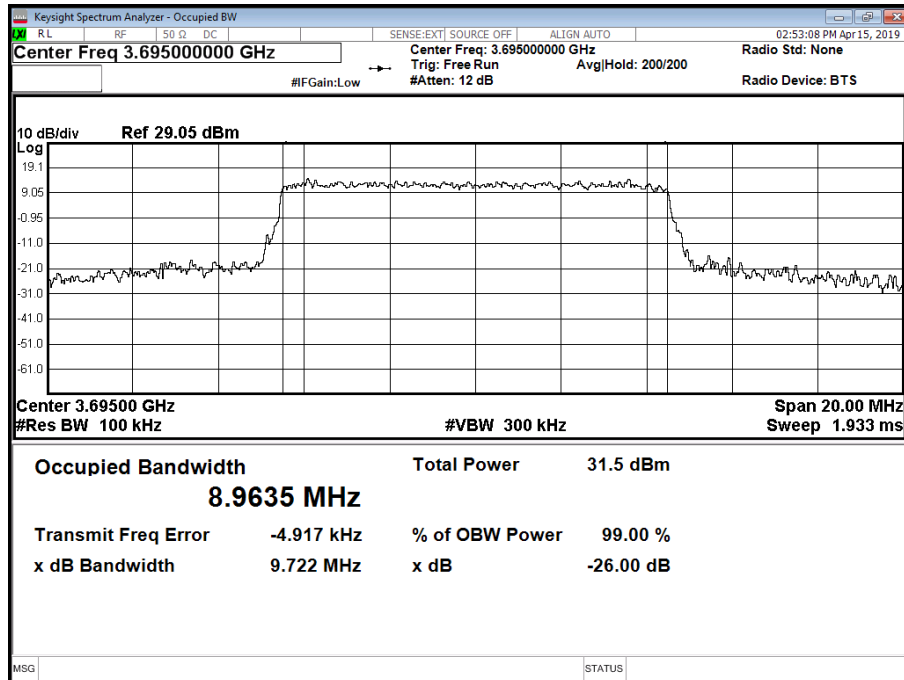
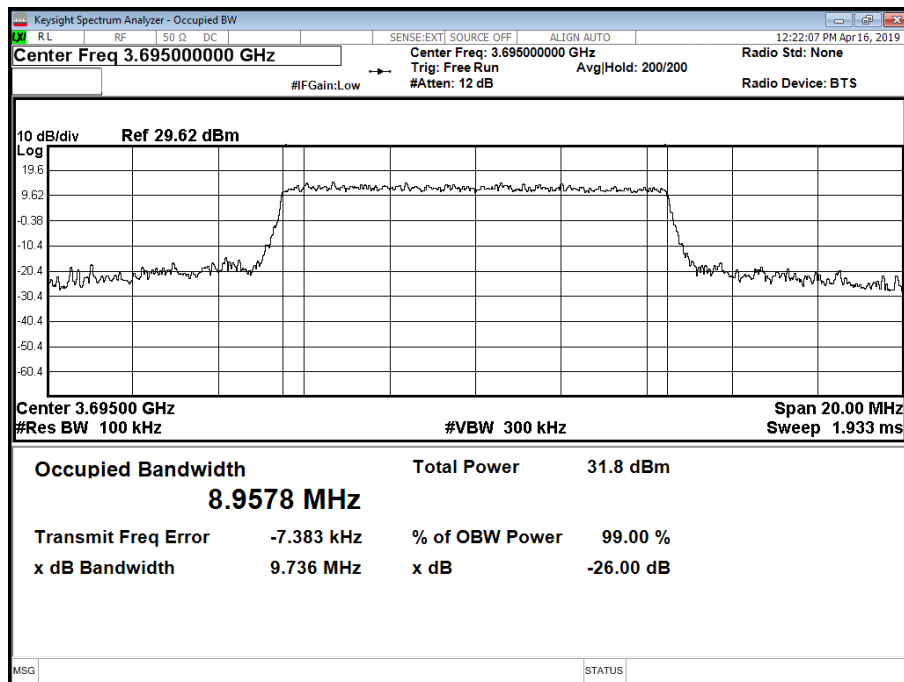


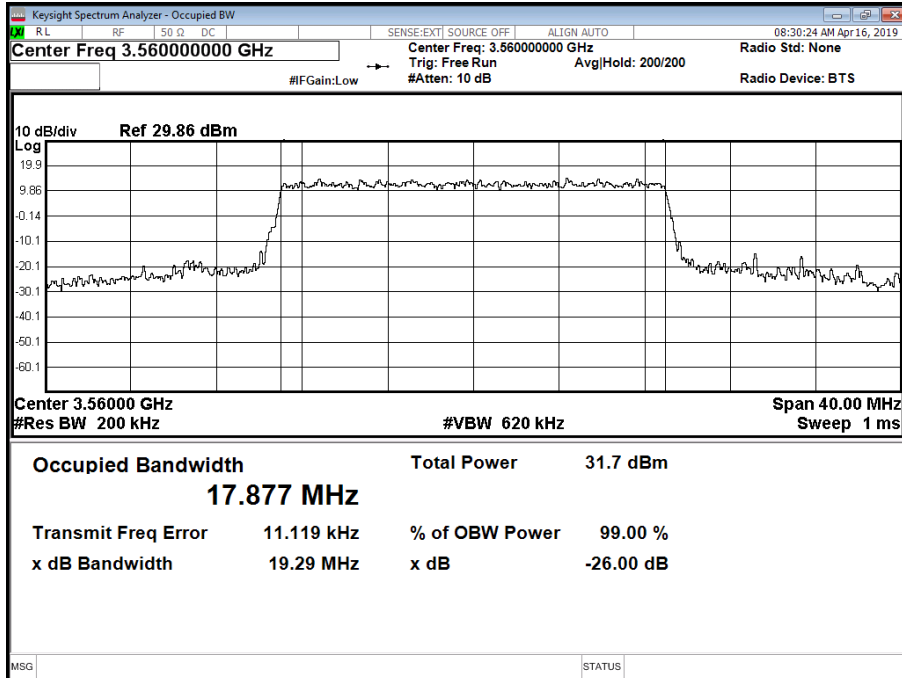
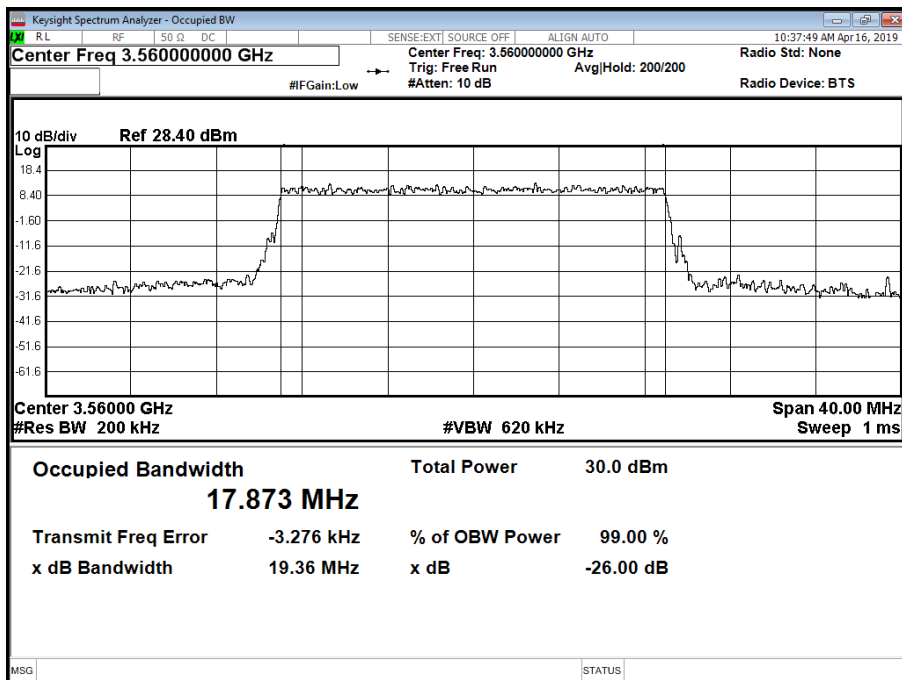
## Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M

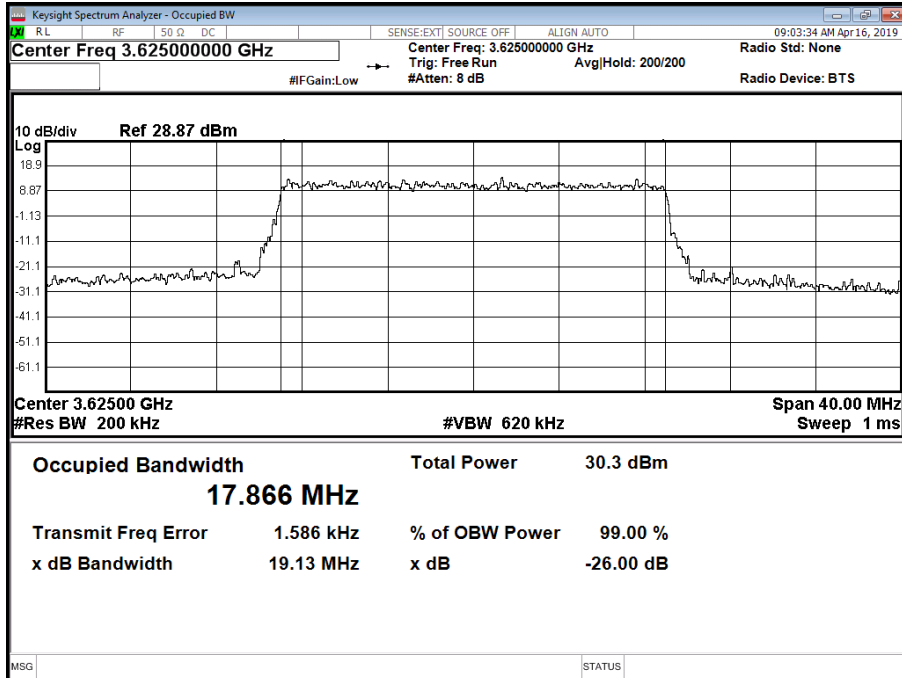
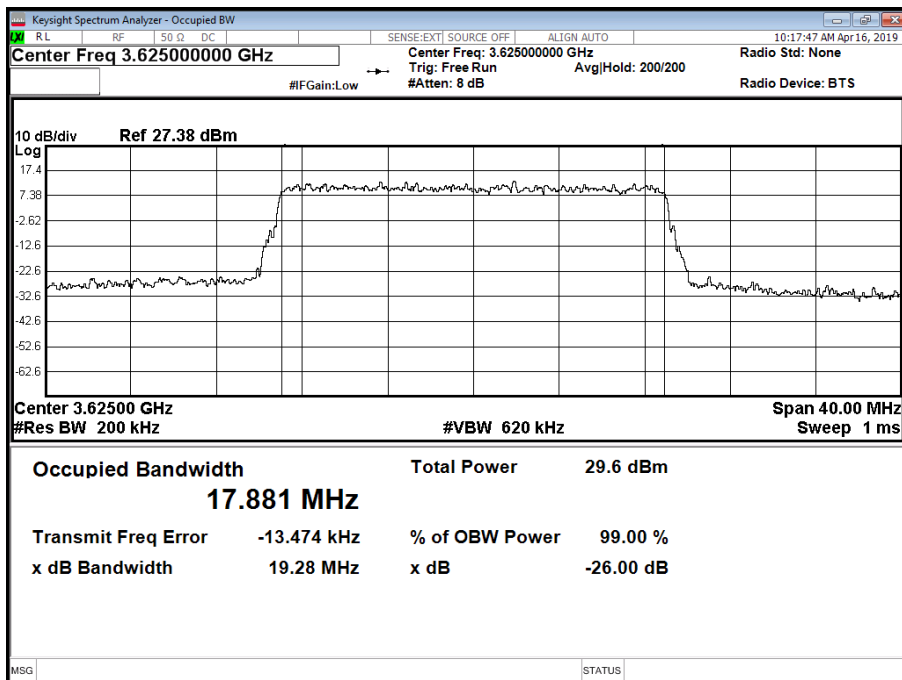


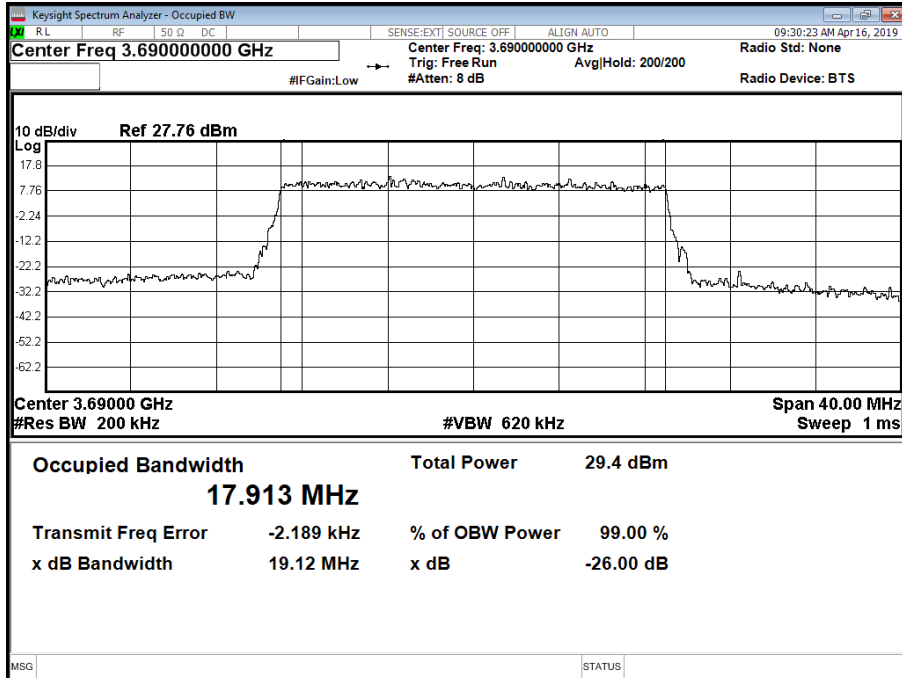
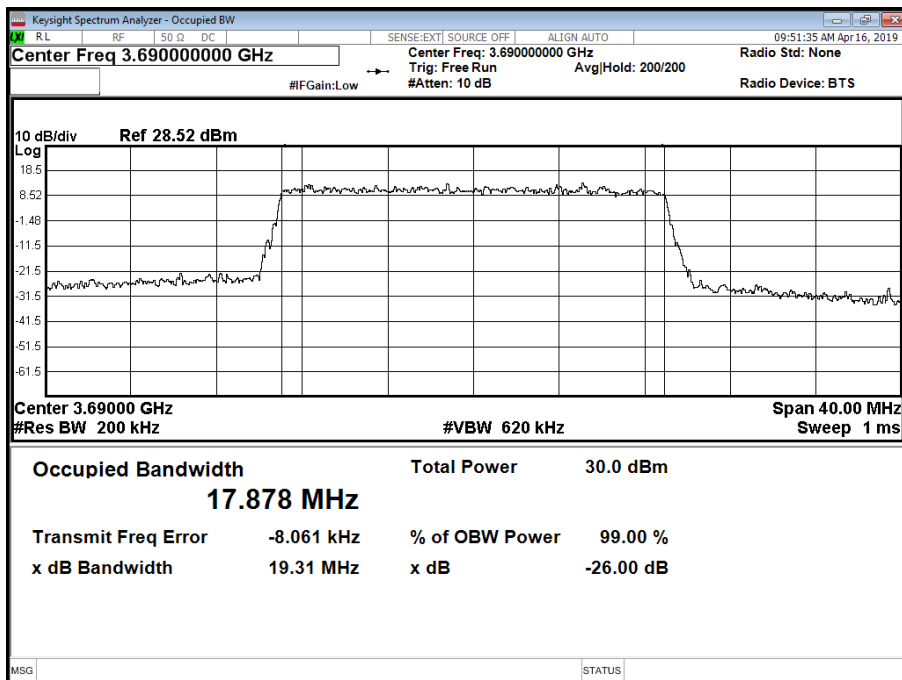
## Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M



Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position TAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position BAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position MAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position TAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



## 2.3 BAND EDGE

### 2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051  
FCC CFR 47 Part 96, Clause 96.41 (e)(3)

### 2.3.2 Date of Test and Modification State

15 April 2019 - Modification State 1

### 2.3.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.3.4 Environmental Conditions

Ambient Temperature 22.1°C  
Relative Humidity 29.8%

### 2.3.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01.

Each antenna port was measured. The limit was tightened by  $10 * \log(N)$ , where N is equal to the number of MIMO antenna ports.

For single carrier, the limit was calculated as being  $-13 \text{ dBm} - 10 * \log(2) = -16 \text{ dBm}$ .

### 2.3.6 Test Results

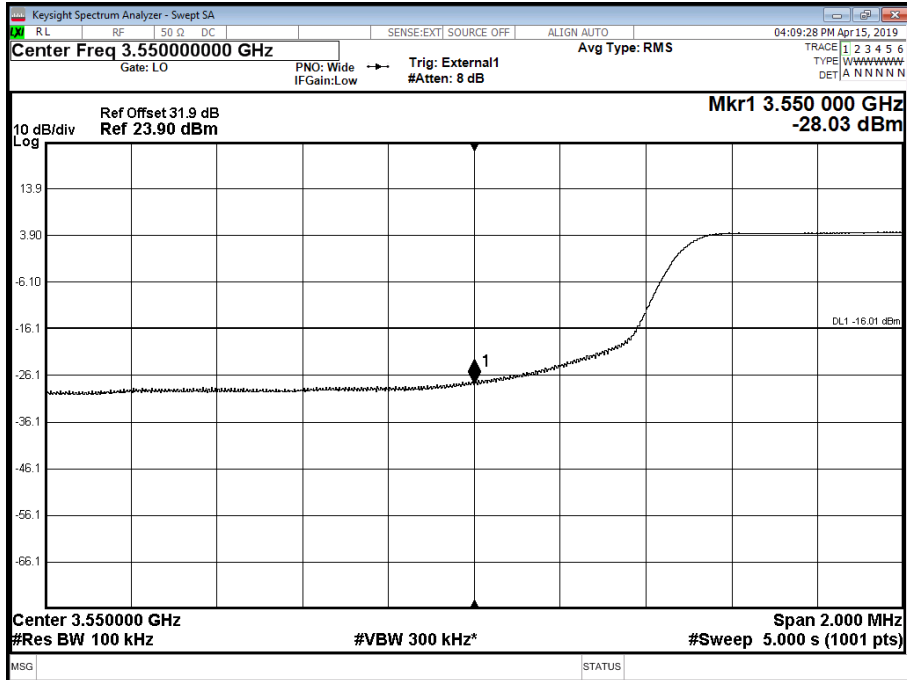
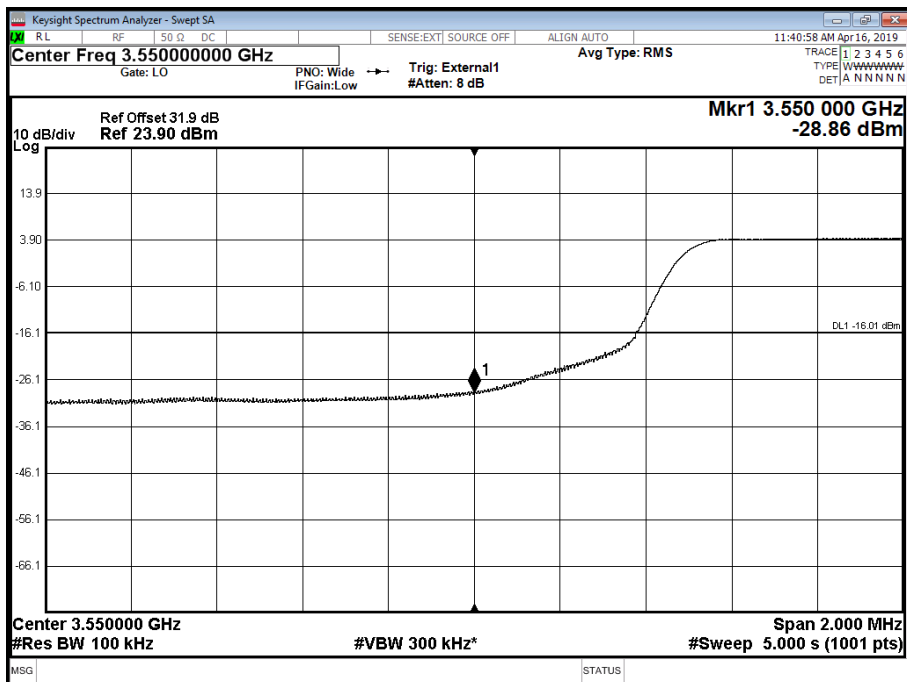
Configuration A1

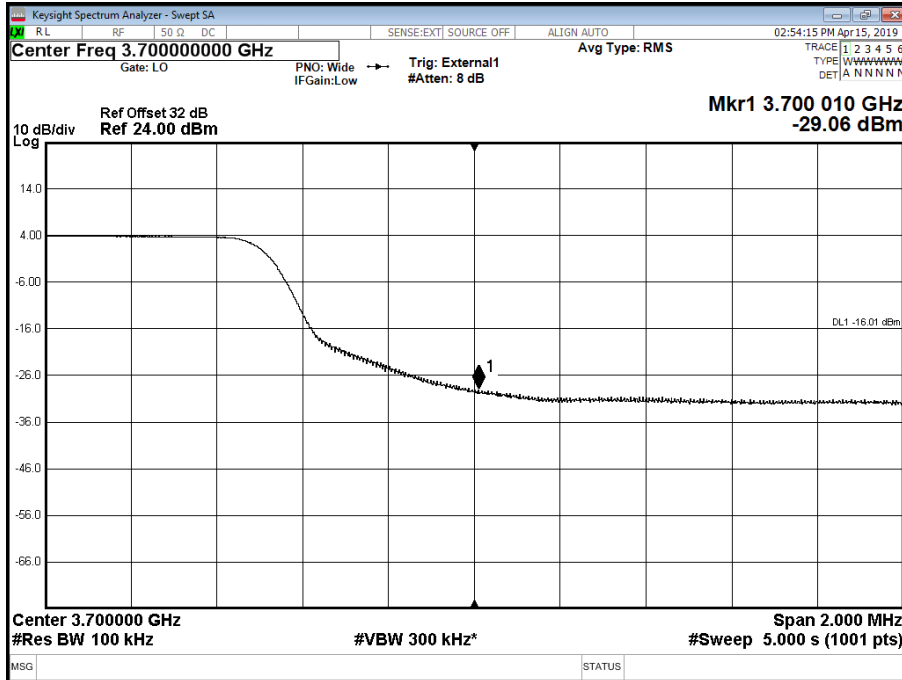
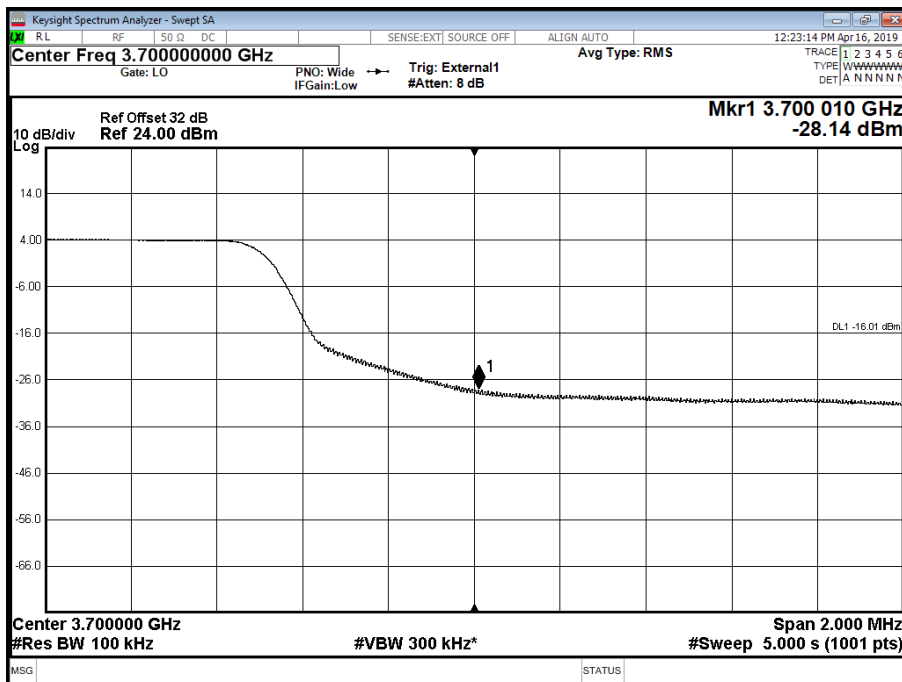
Product classification – Class B

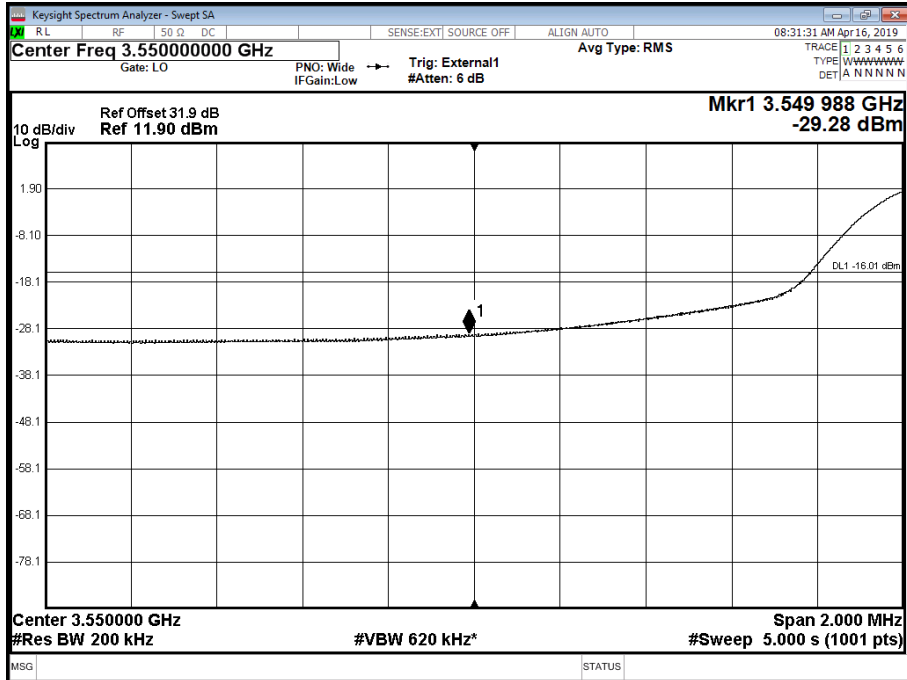
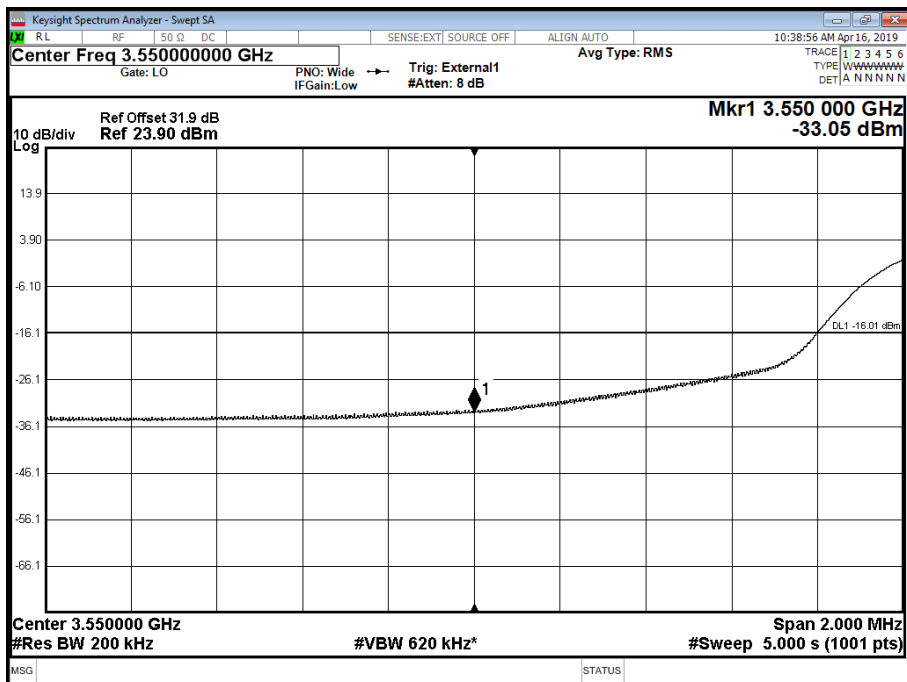
Maximum Output Power 24 dBm per port, 10.0 MHz bandwidth

Maximum Output Power 23 dBm per port, 20.0 MHz bandwidth

| Antenna | LTE Modulation | LTE Carrier Bandwidth | Band Edge (MHz)    |                    |
|---------|----------------|-----------------------|--------------------|--------------------|
|         |                |                       | Channel Position B | Channel Position T |
| A       | QPSK           | 10.0 MHz              | 3,550.0            | 3,695.0            |
| B       | QPSK           | 10.0 MHz              | 3,550.0            | 3,695.0            |
| A       | QPSK           | 20.0 MHz              | 3,560.0            | 3,690.0            |
| B       | QPSK           | 20.0 MHz              | 3,560.0            | 3,690.0            |

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position BAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position TAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position BAntenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B

Keysight Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:EXT SOURCE OFF ALIGN AUTO Avg Type: RMS

09:31:36 AM Apr 16, 2019

Center Freq 3.70000000 GHz Gate: LO PNO: Wide IFGain: Low Trig: External1 #Atten: 6 dB

TRACE 1 2 3 4 5 6 TYPE: W W W W W W W W DET: A N N N N N

Ref Offset 32 dB Ref 12.00 dB

Mkr1 3.700 010 GHz -34.92 dBm

10 dB/div Log

2.00

-8.00

-18.0

-26.0

-34.92

-38.0

-46.0

-58.0

-68.0

-78.0

DL1 -16.01 dBm

Center 3.700000 GHz

#Res BW 200 kHz

#VBW 620 kHz\*

Span 2.000 MHz

#Sweep 5.000 s (1001 pts)

MSG STATUS

Keysight Spectrum Analyzer - Swept SA

09:52:42 AM Apr 16, 2019

Center Freq 3.700000000 GHz

Gate: LO

PNO: Wide IFGain: Low

Trig: External1 #Atten: 6 dB

Avg Type: RMS

Ref Offset 32 dB

Ref 12.00 dBm

Mkr1 3.700 010 GHz -34.14 dBm

10 dB/div

Log

DL1 -16.01 dBm

Center 3.700000 GHz

#Res BW 200 kHz

#VBW 620 kHz\*

Span 2.000 MHz

#Sweep 5.000 s (1001 pts)

The image shows a Keysight Spectrum Analyzer display. The main plot area shows a signal at 3.700010 GHz with a level of -34.14 dBm. The y-axis is labeled '10 dB/div' and 'Log'. The x-axis is labeled 'Center 3.700000 GHz' and 'Span 2.000 MHz'. The plot shows a signal that is relatively flat across the span, with a slight dip in the center. A marker is placed on the signal at 3.700010 GHz, labeled 'Mkr1 3.700 010 GHz -34.14 dBm'. The plot also shows a reference level of 12.00 dBm and a reference offset of 32 dB. The plot is labeled 'Center Freq 3.700000000 GHz' and 'Gate: LO'. The plot also shows 'PNO: Wide IFGain: Low' and 'Trig: External1 #Atten: 6 dB'. The plot also shows 'Avg Type: RMS'. The plot also shows 'Ref Offset 32 dB' and 'Ref 12.00 dBm'. The plot also shows 'DL1 -16.01 dBm'. The plot also shows '#Res BW 200 kHz' and '#VBW 620 kHz\*'. The plot also shows 'Span 2.000 MHz' and '#Sweep 5.000 s (1001 pts)'. The plot also shows 'MSG' and 'STATUS'.

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## **2.4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS**

### **2.4.1 Specification Reference**

FCC CFR 47 Part 2, Clause 2.1051  
FCC CFR 47 Part 96, Clause 96.41 (e)(1)(2)

### **2.4.2 Date of Test and Modification State**

15 April 2019 - Modification State 1

### **2.4.3 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

### **2.4.4 Environmental Conditions**

|                     |        |
|---------------------|--------|
| Ambient Temperature | 22.1°C |
| Relative Humidity   | 29.8%  |

### **2.4.5 Test Method**

All measurements were made in accordance with FCC KDB 971168 D01.

The EUT could transmit with 1 or 2 ports simultaneously. Testing was performed on all ports with the test limits being reduced from the specification limit by a factor of  $10\log(2)$  in accordance with KDB 662911 D01 v02r01 to cover all MIMO configurations.

Note that spurious emissions measurements  $\pm 1$  MHz from the carrier edge were performed as part of the Band Edge measurements.



## 2.4.6 Test Results

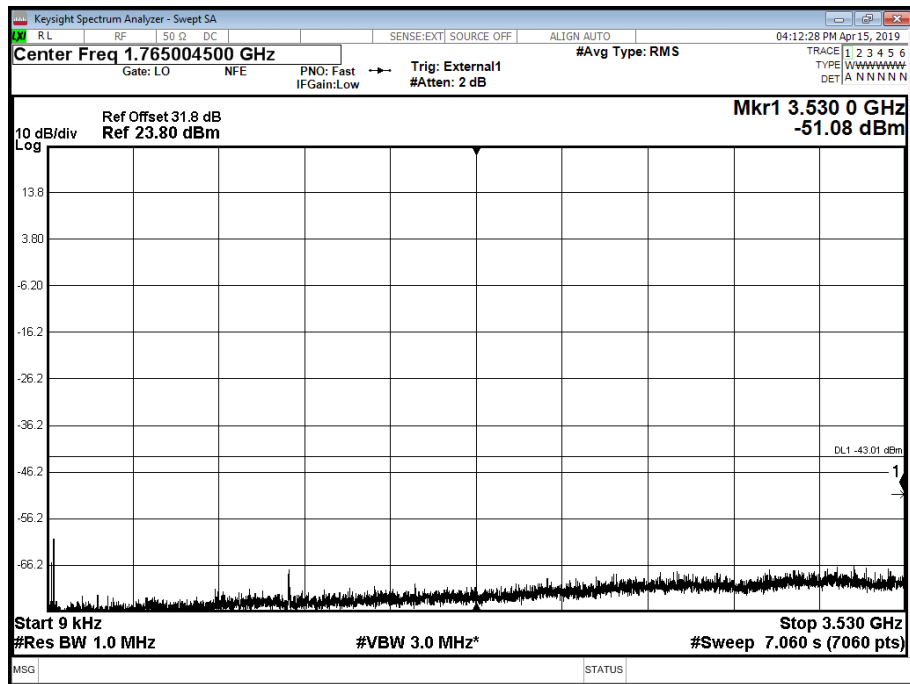
### Configuration A1

Product classification – Class B

Maximum Output Power 24 dBm per port, 10.0 MHz bandwidth

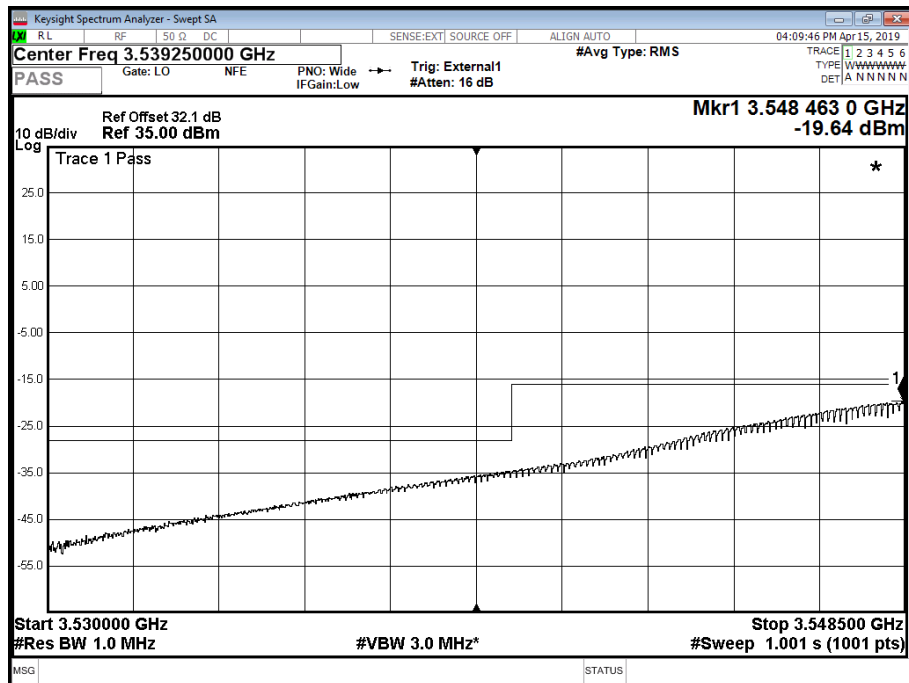
Maximum Output Power 23 dBm per port, 20.0 MHz bandwidth

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 3530 MHz

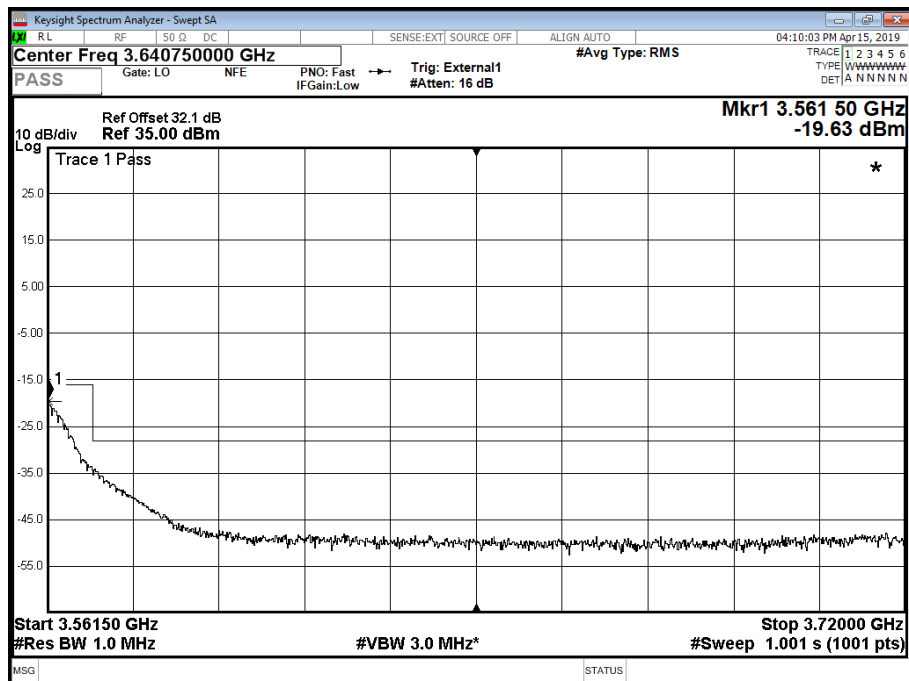




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -  
Band Mask Low 1 - Range Mask Low 1

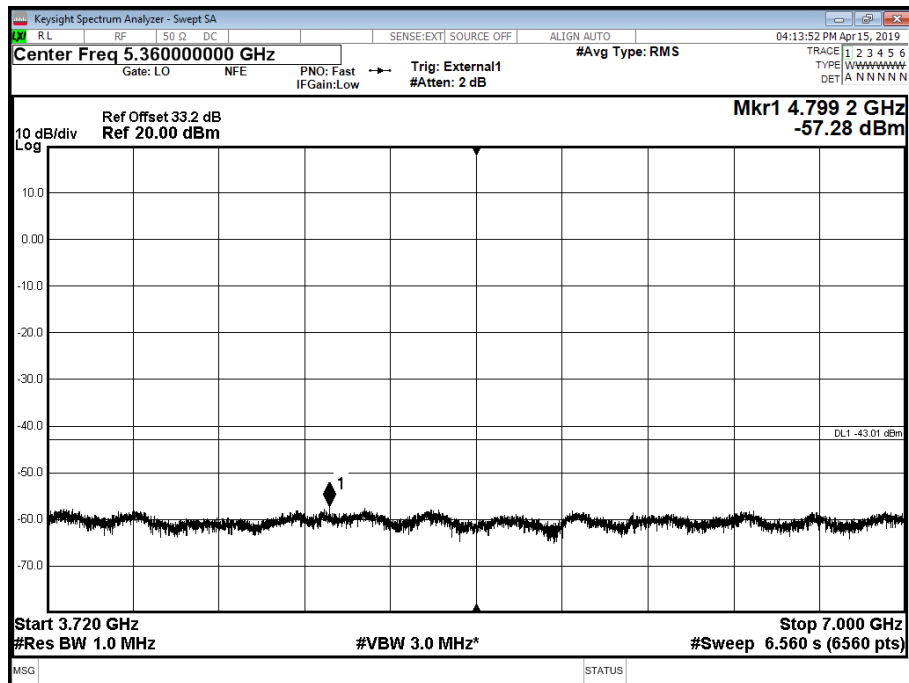


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -  
Band Mask High 1 - Range Mask High 1

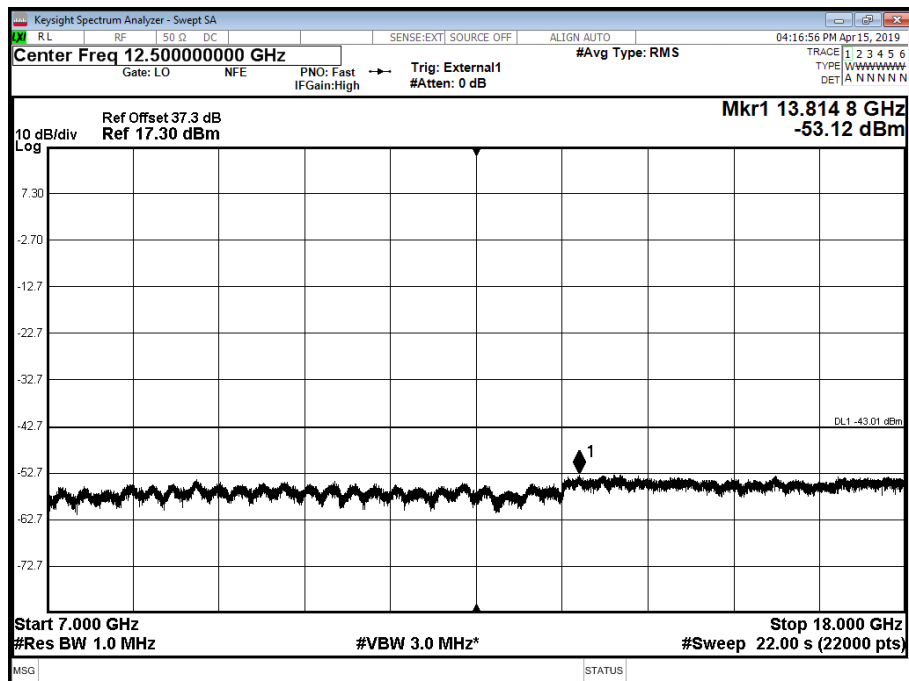




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 3720 to 7000 MHz

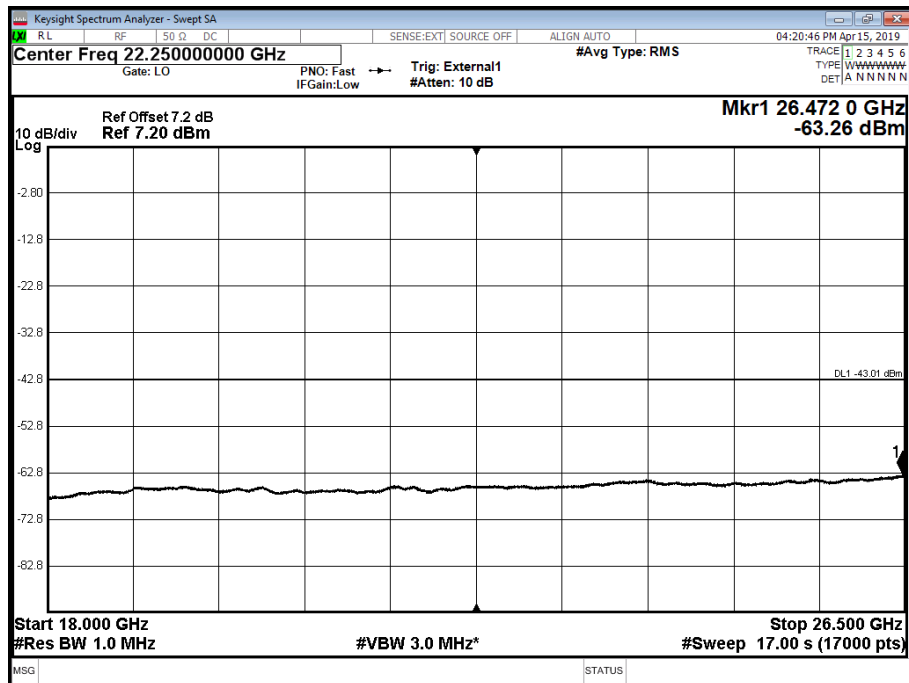


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 7000 to 18000 MHz

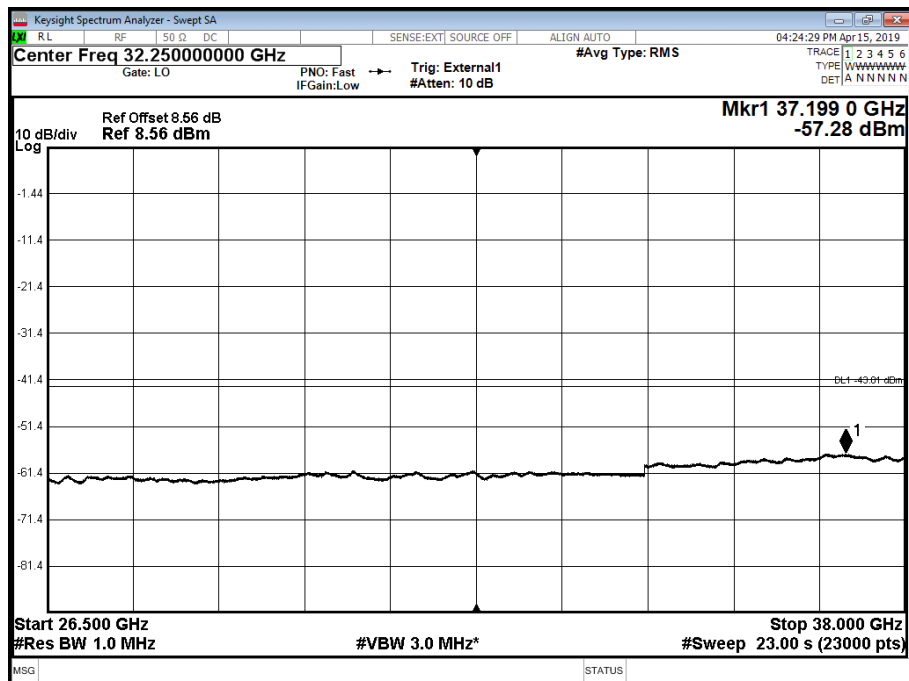




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 4 - Range 18000 to 26500 MHz

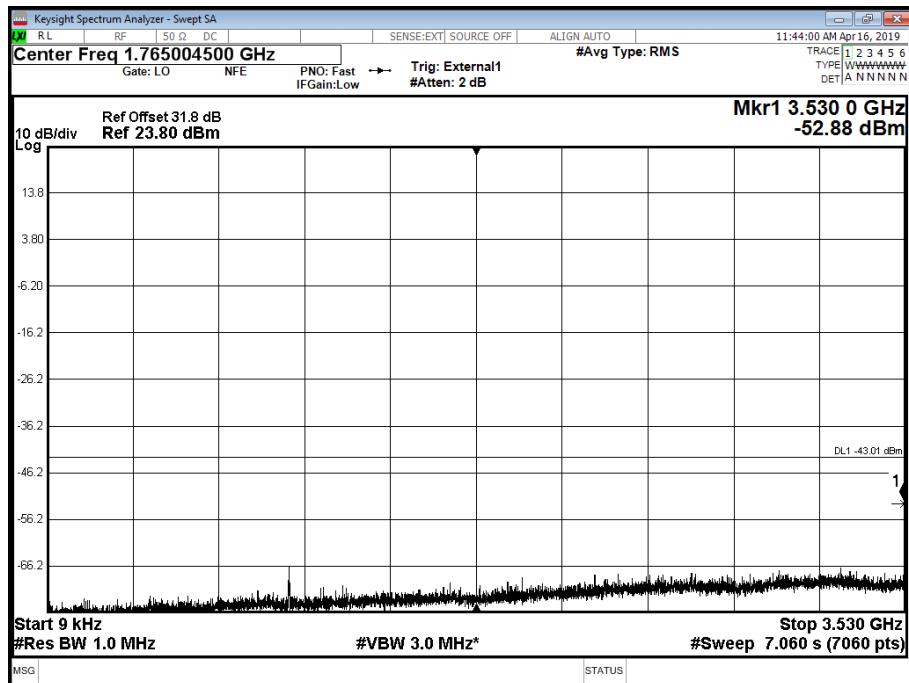


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 5 - Range 26500 to 38000 MHz

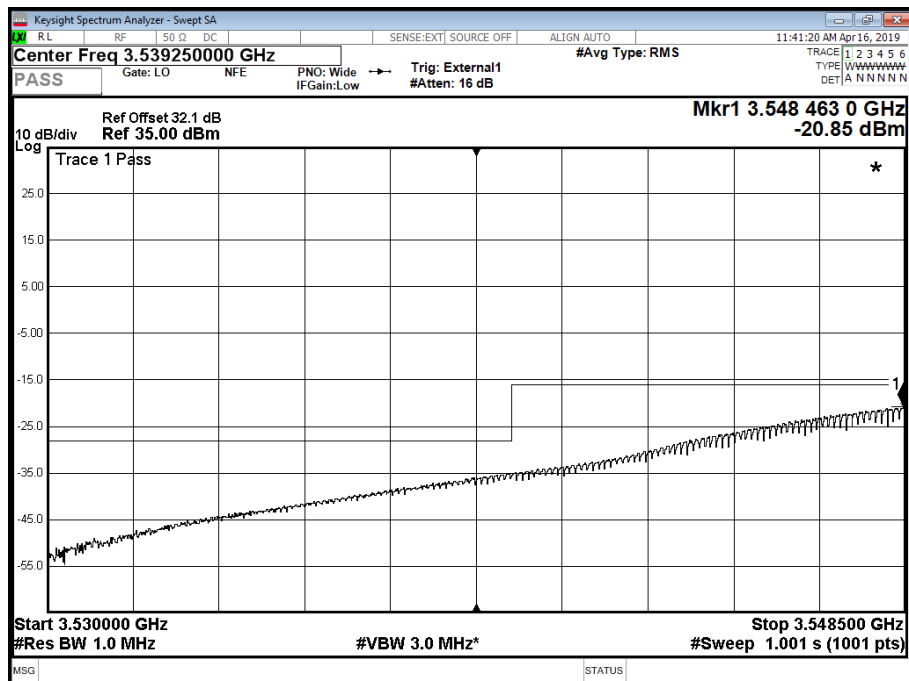




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 3530 MHz

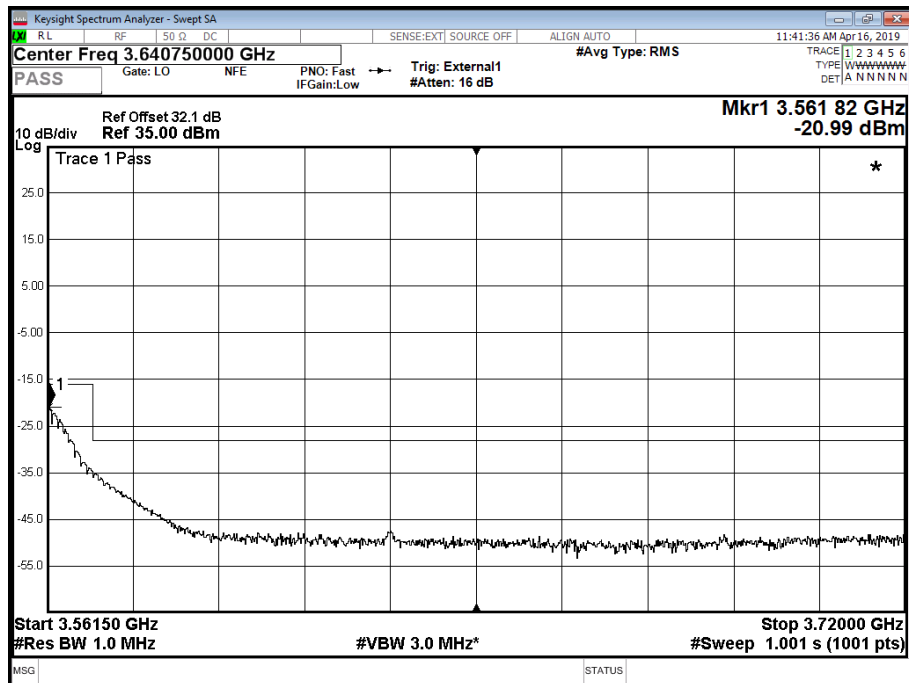


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band Mask Low 1 - Range Mask Low 1

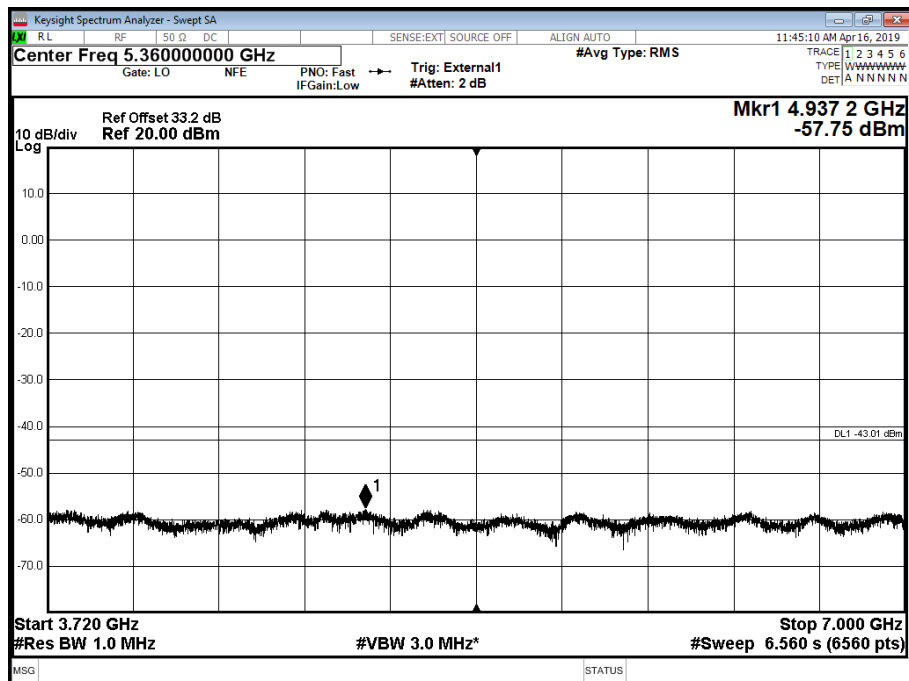




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -  
Band Mask High 1 - Range Mask High 1

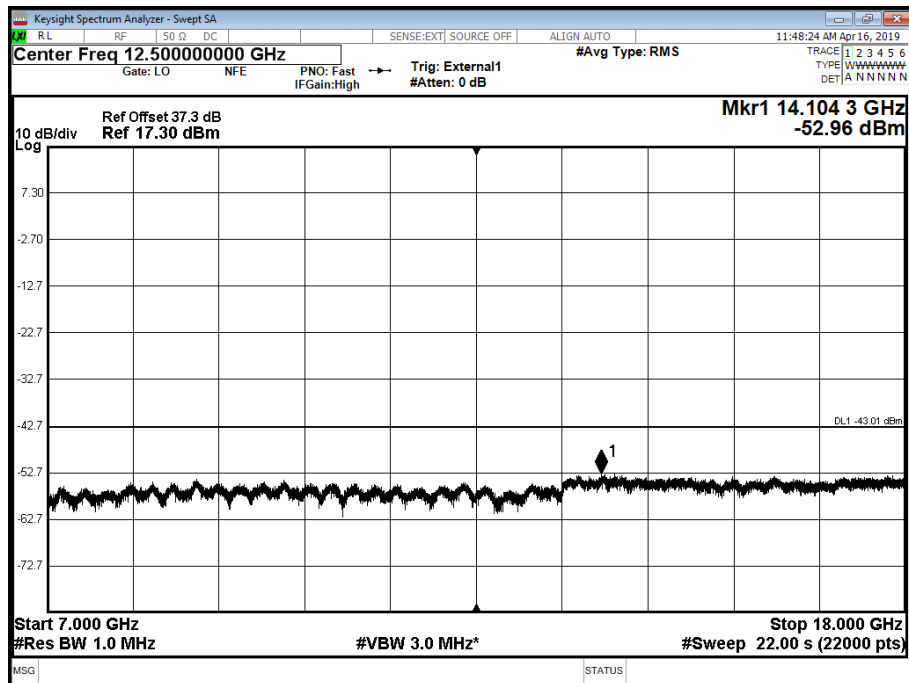


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B -  
Band 2 - Range 3720 to 7000 MHz

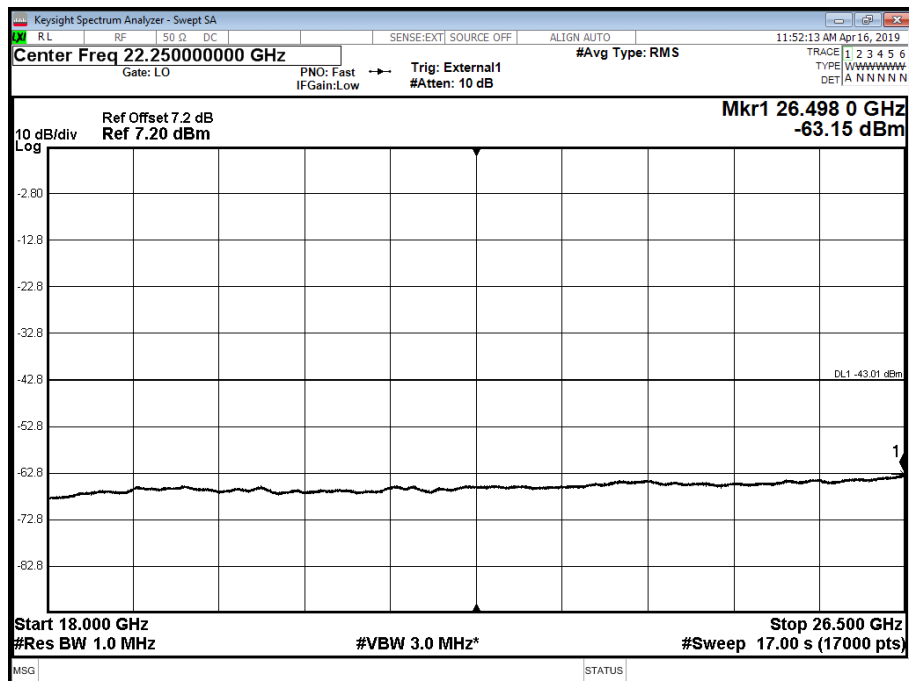




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 7000 to 18000 MHz

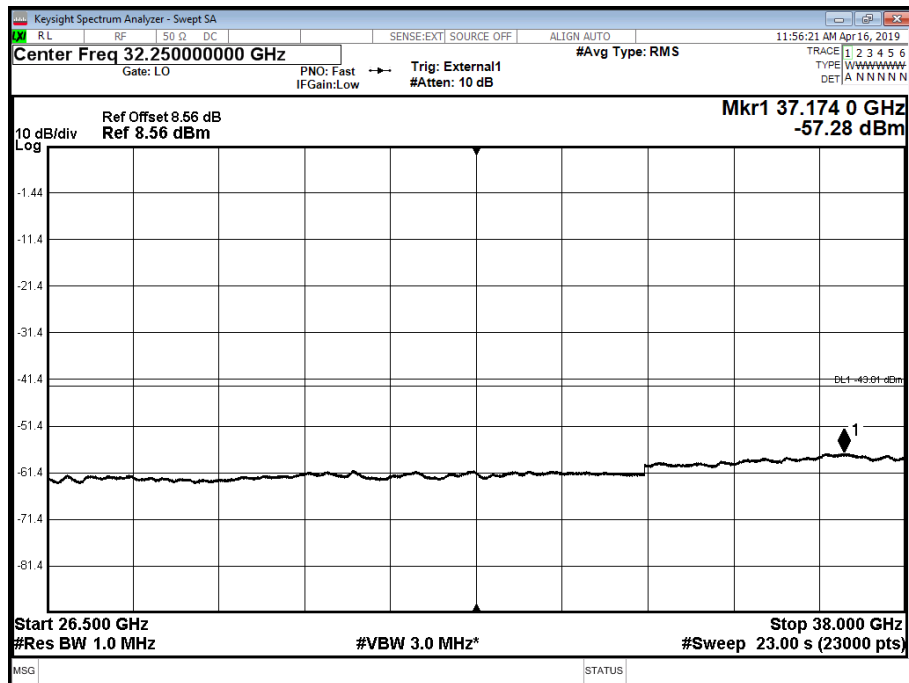


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 4 - Range 18000 to 26500 MHz

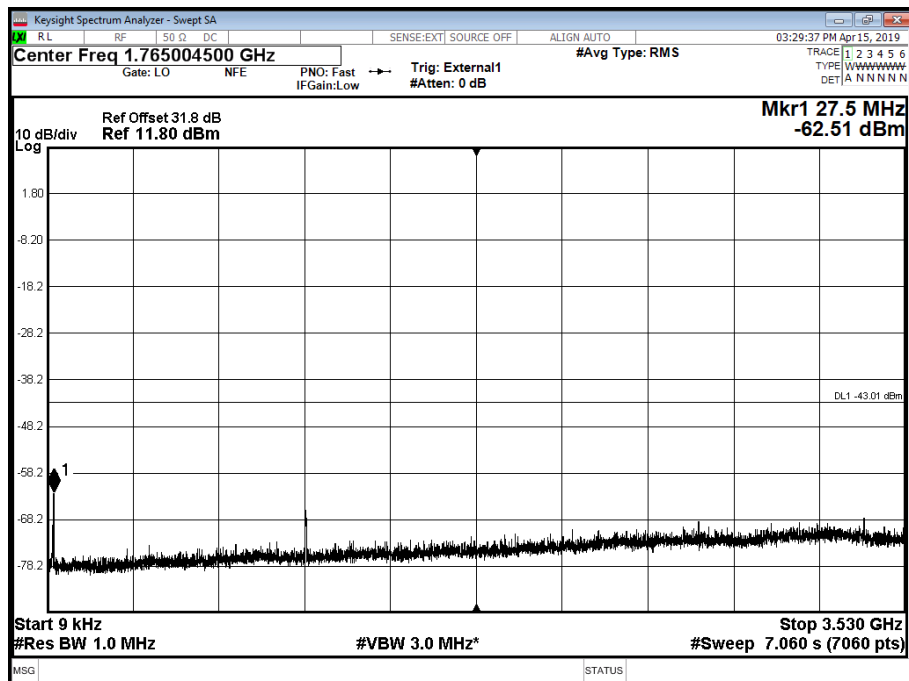




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 5 - Range 26500 to 38000 MHz

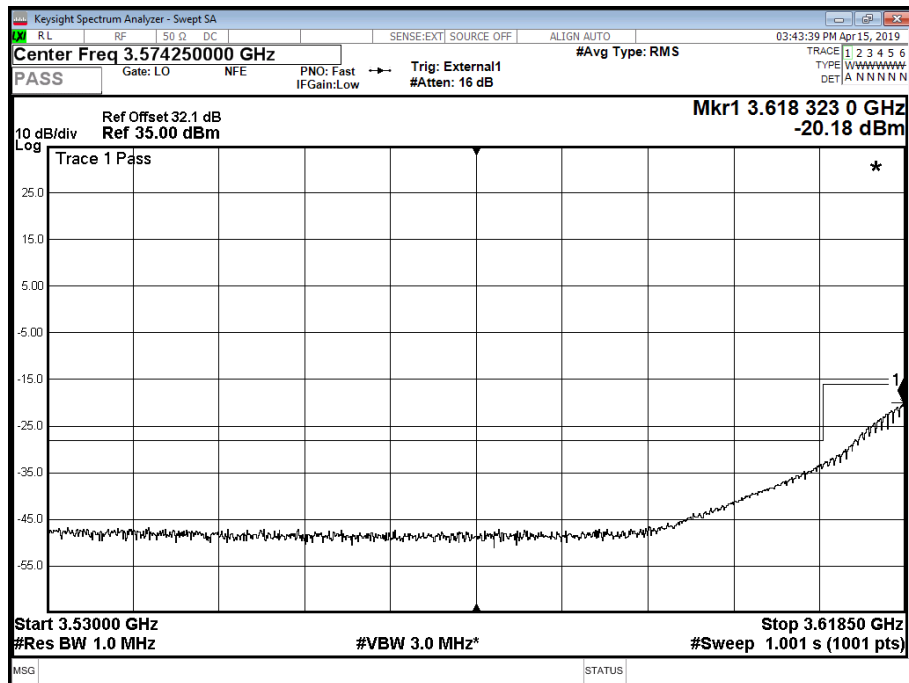


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 3530 MHz

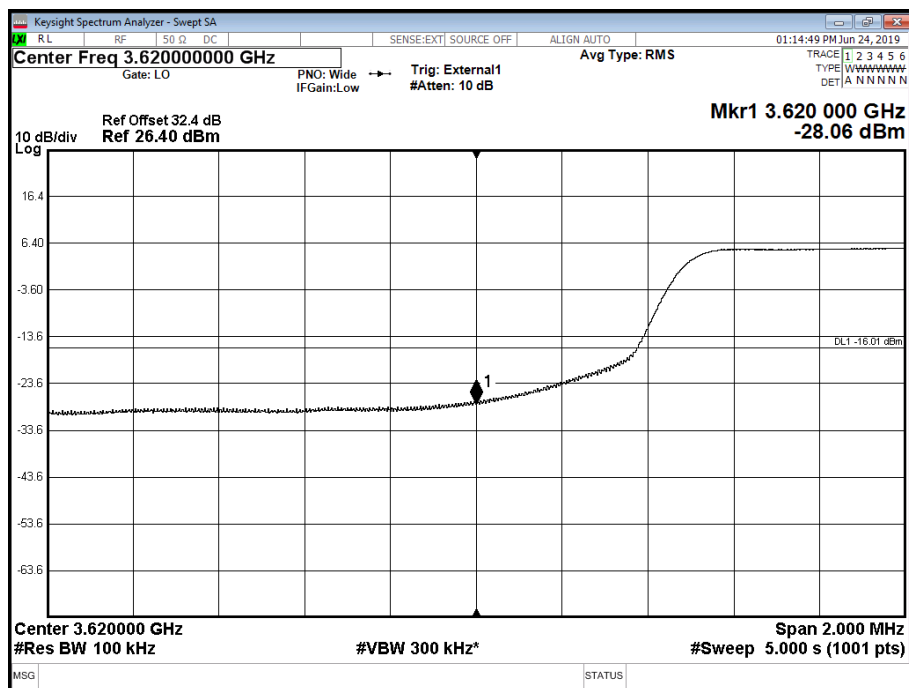




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -  
Band Mask Low 1 - Range Mask Low 1

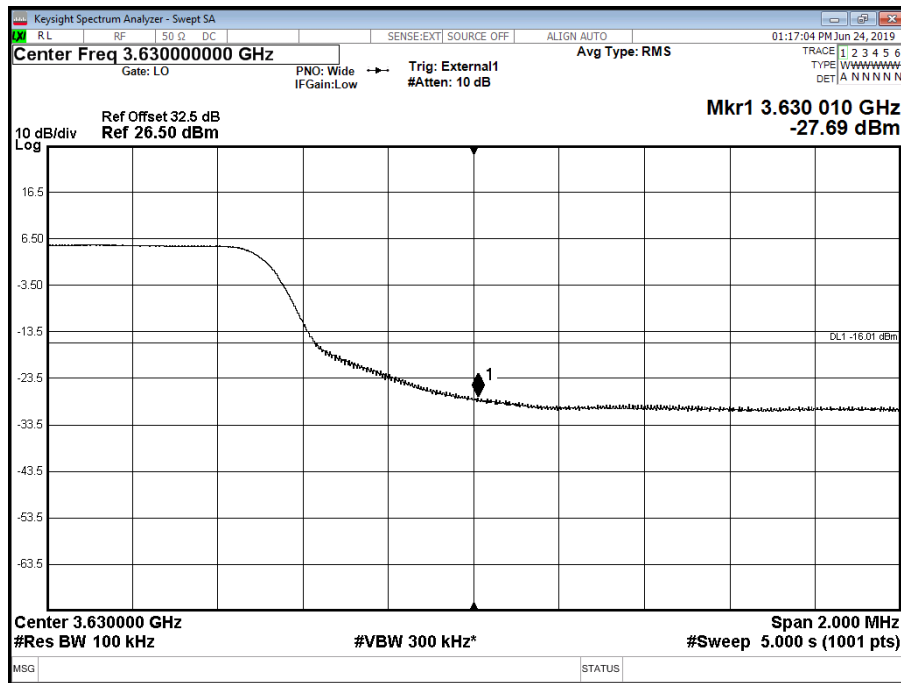


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -  
Band Mask Low 1 - Range Carrier Edge Low

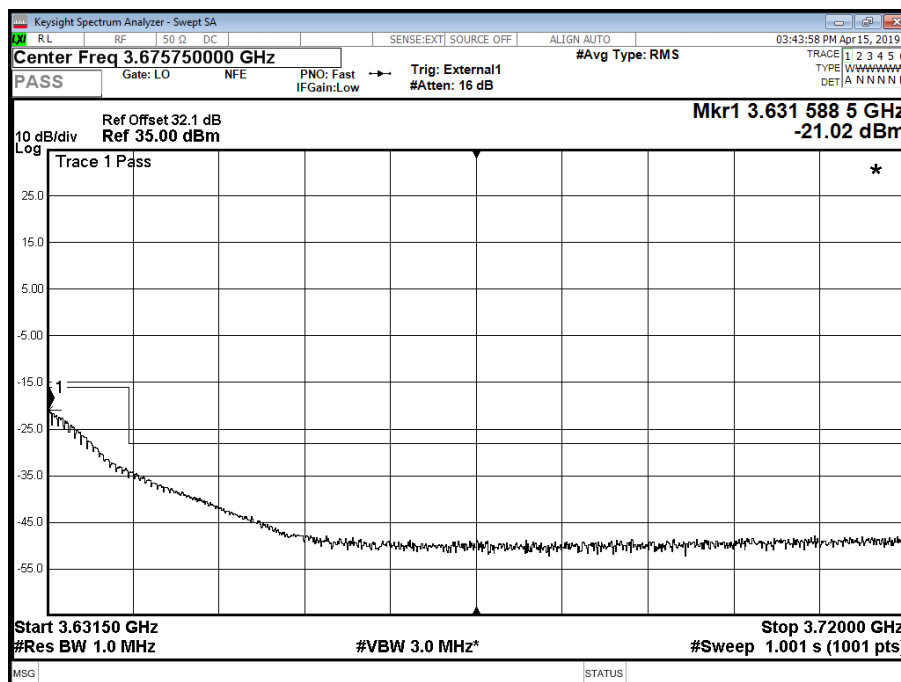




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask Low 1 - Range Carrier Edge High

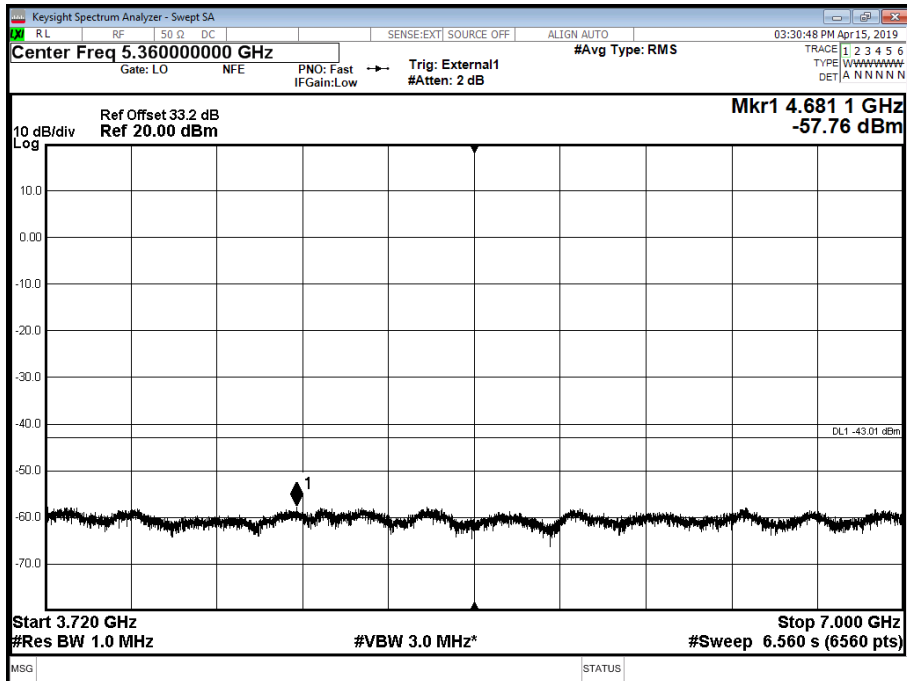


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask\_High\_1 - Range Mask\_High\_1

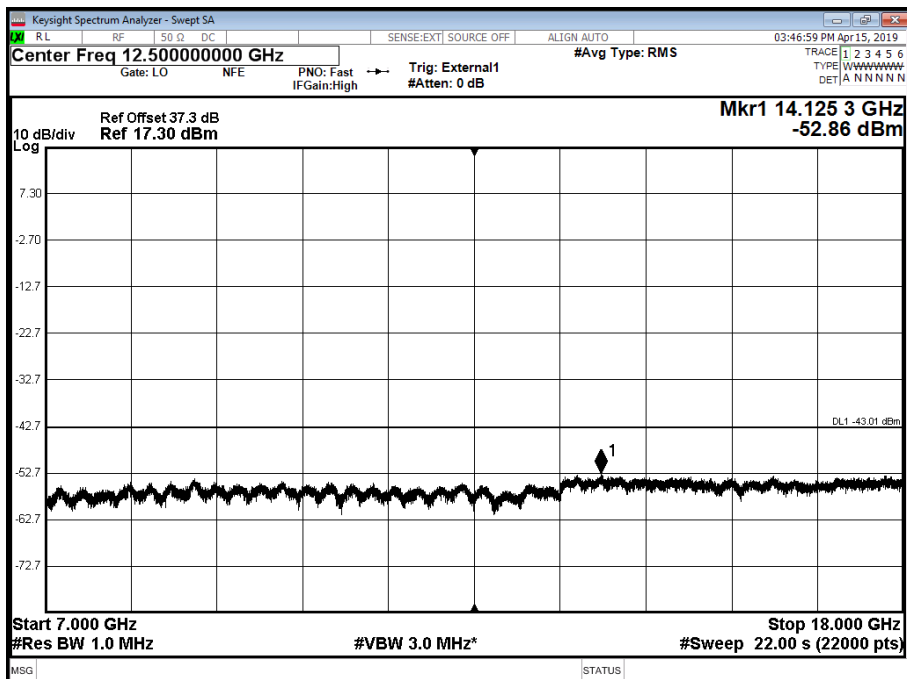




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 3720 to 7000 MHz

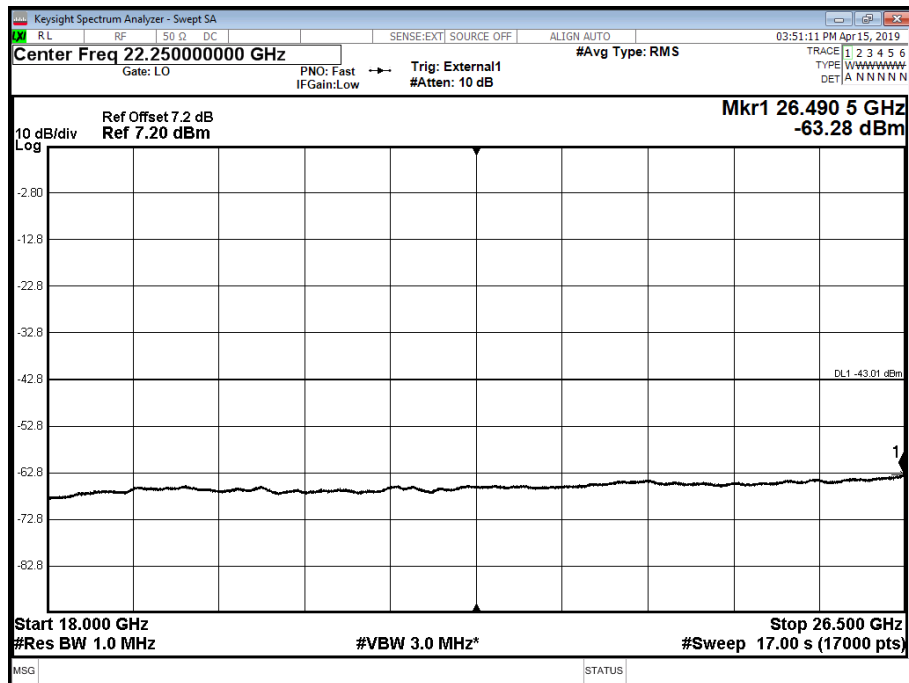


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 7000 to 18000 MHz

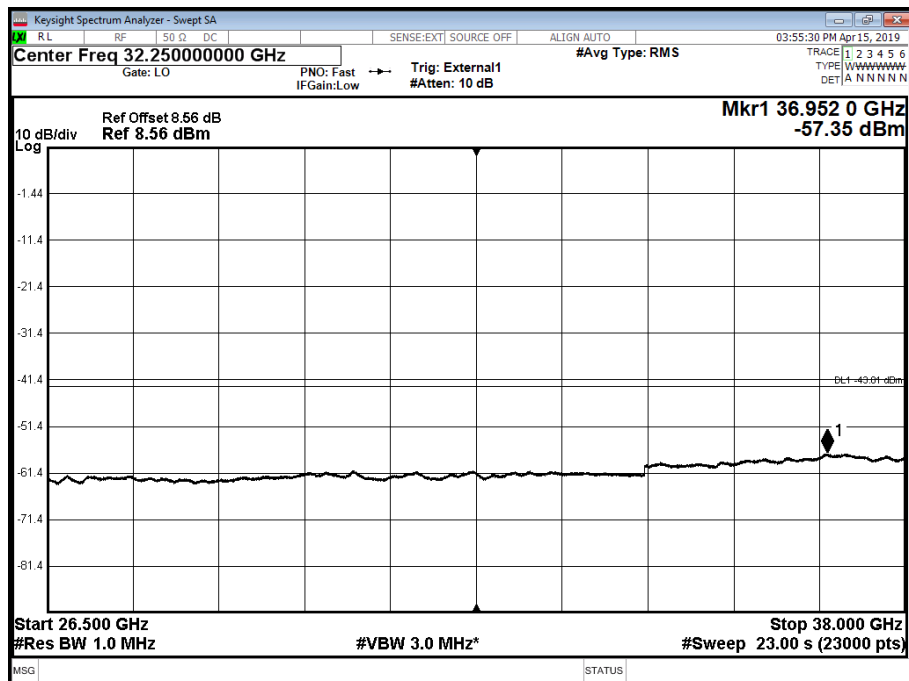




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 4 - Range 18000 to 26500 MHz

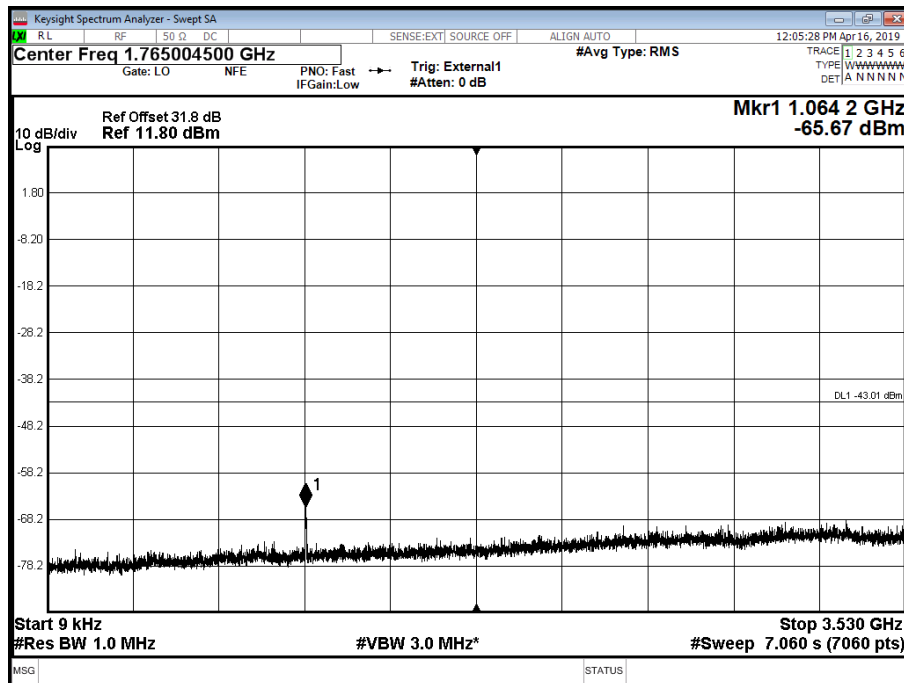


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 5 - Range 26500 to 38000 MHz

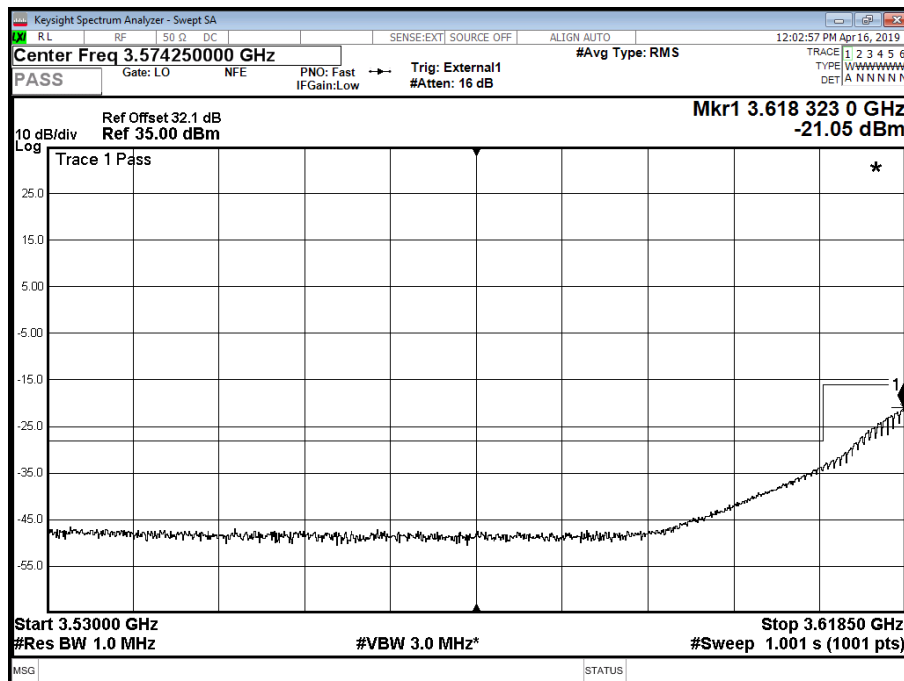




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 3530 MHz

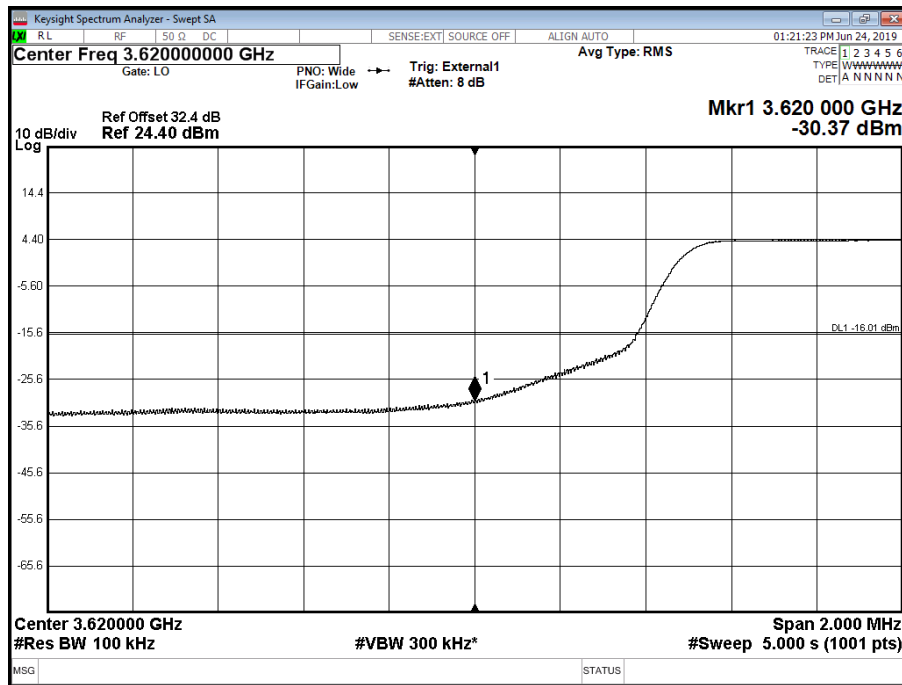


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask Low 1 - Range Mask Low 1

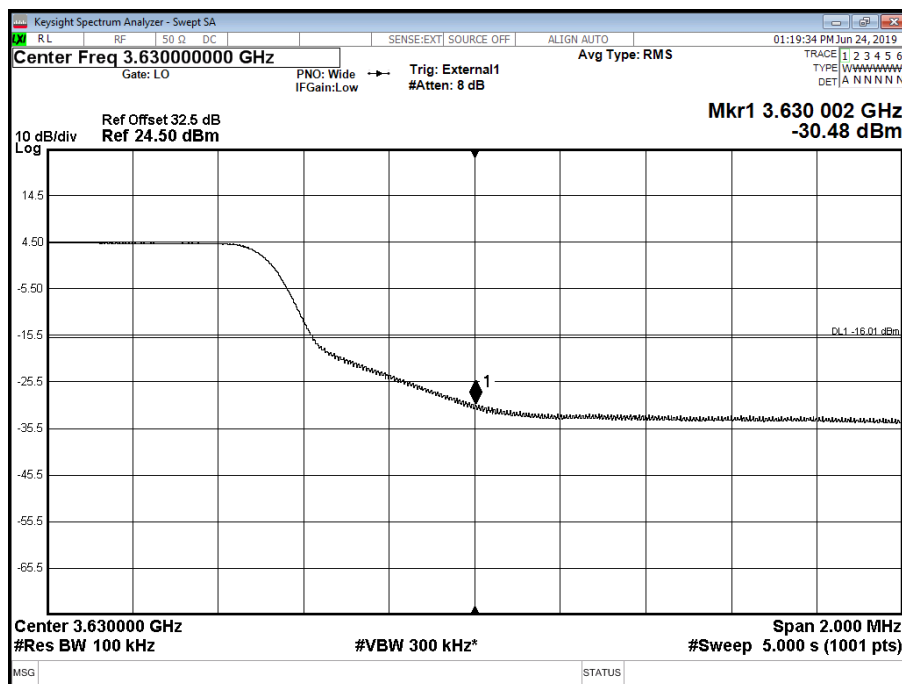




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -  
Band Mask Low 1 - Range Carrier Edge Low

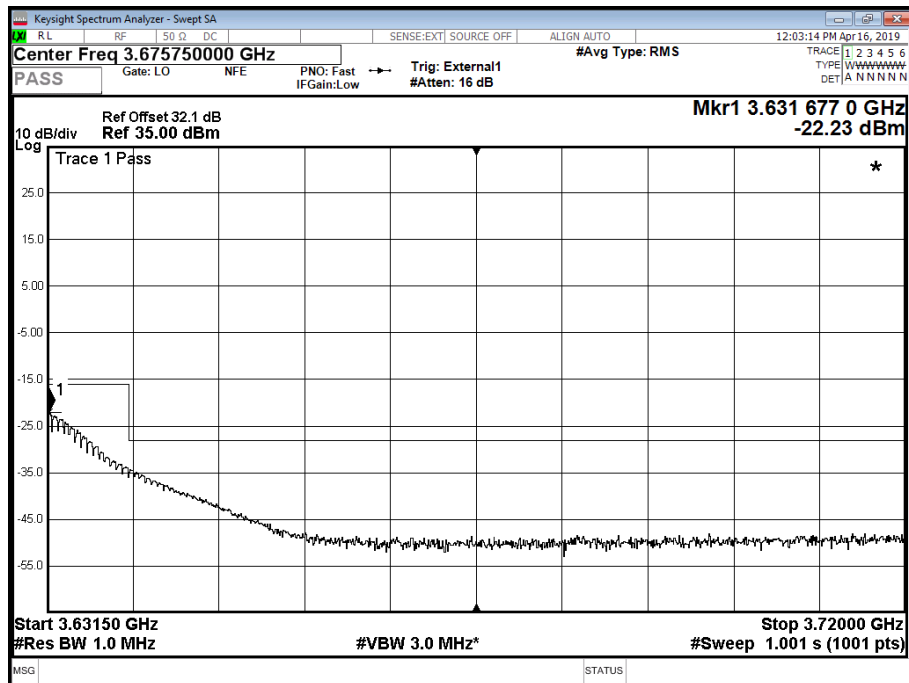


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -  
Band Mask Low 1 - Range Carrier Edge High

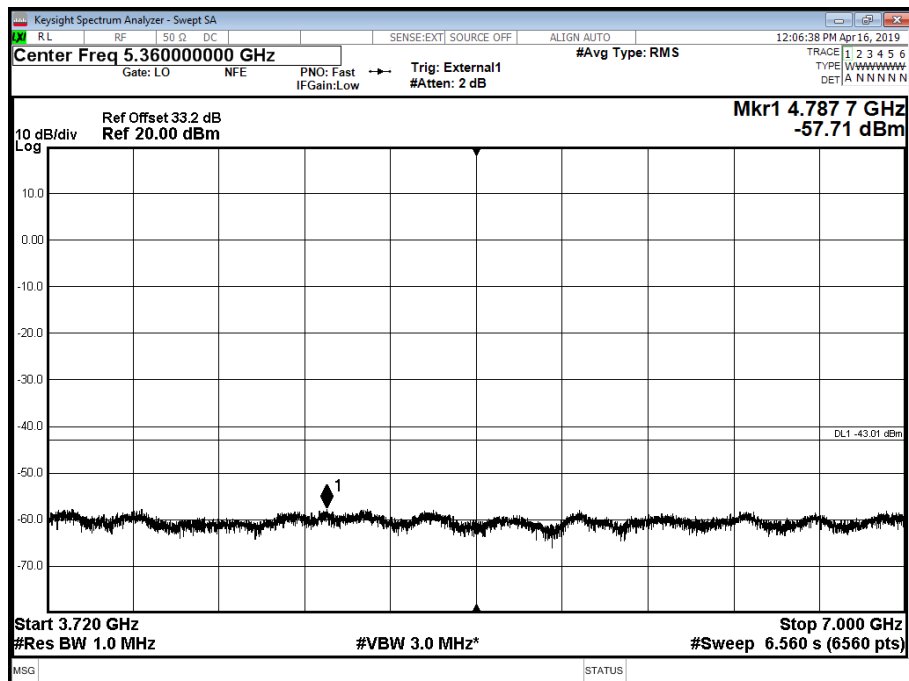




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -  
Band Mask High 1 - Range Mask High 1

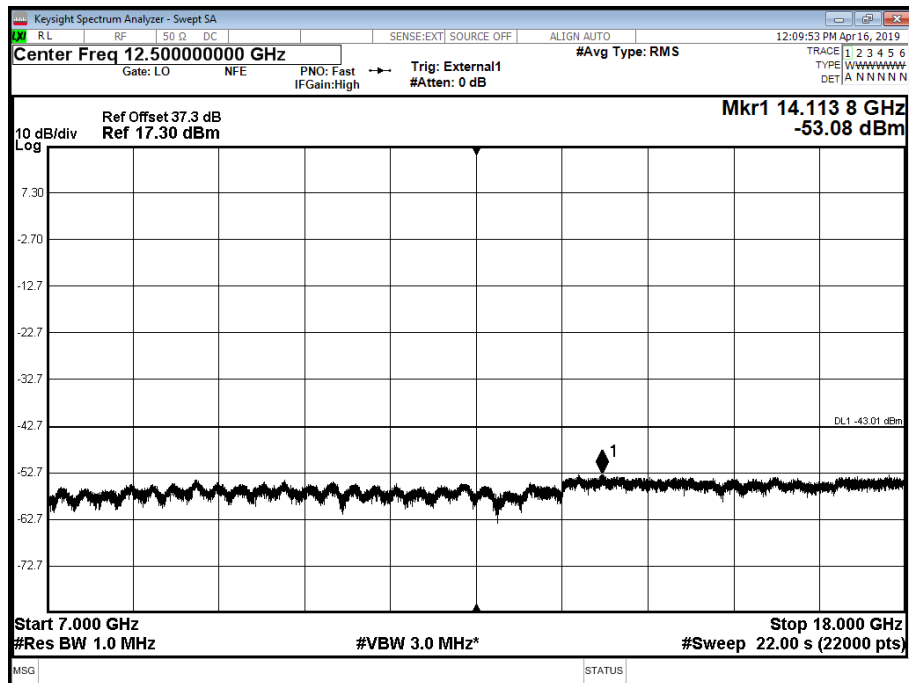


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M -  
Band 2 - Range 3720 to 7000 MHz

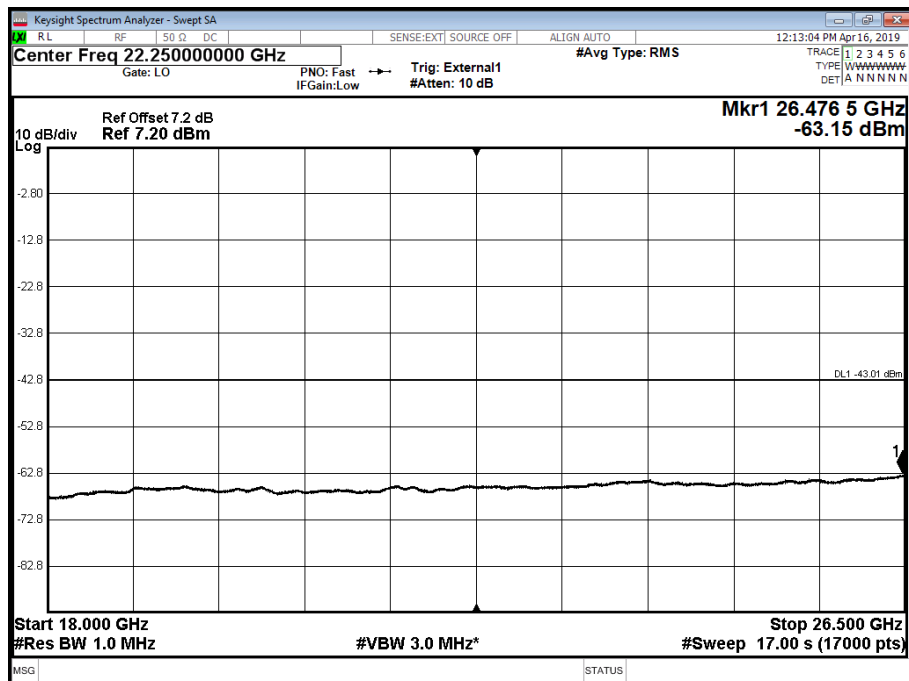




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 7000 to 18000 MHz

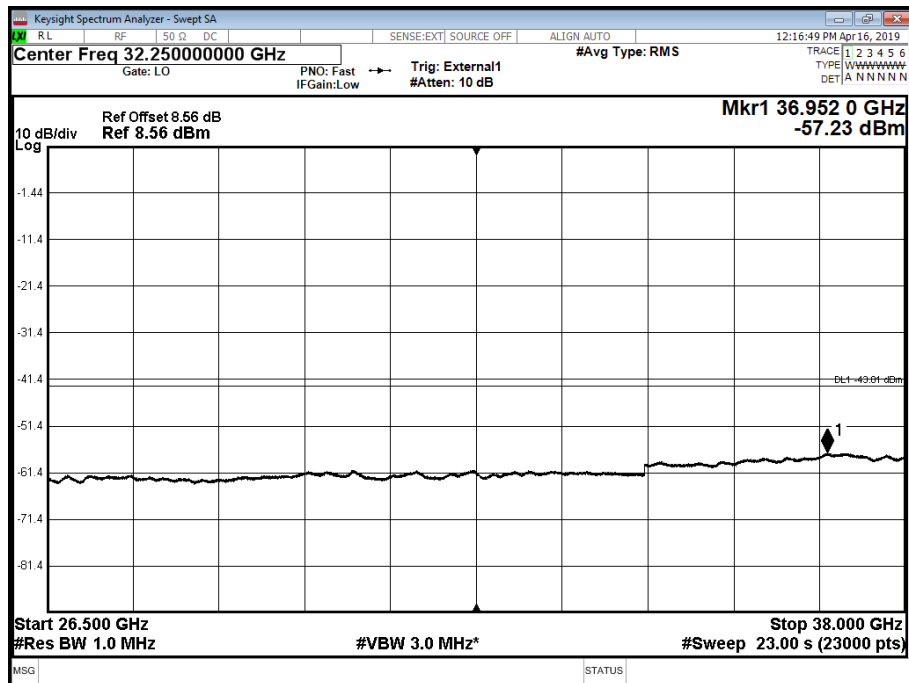


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 4 - Range 18000 to 26500 MHz

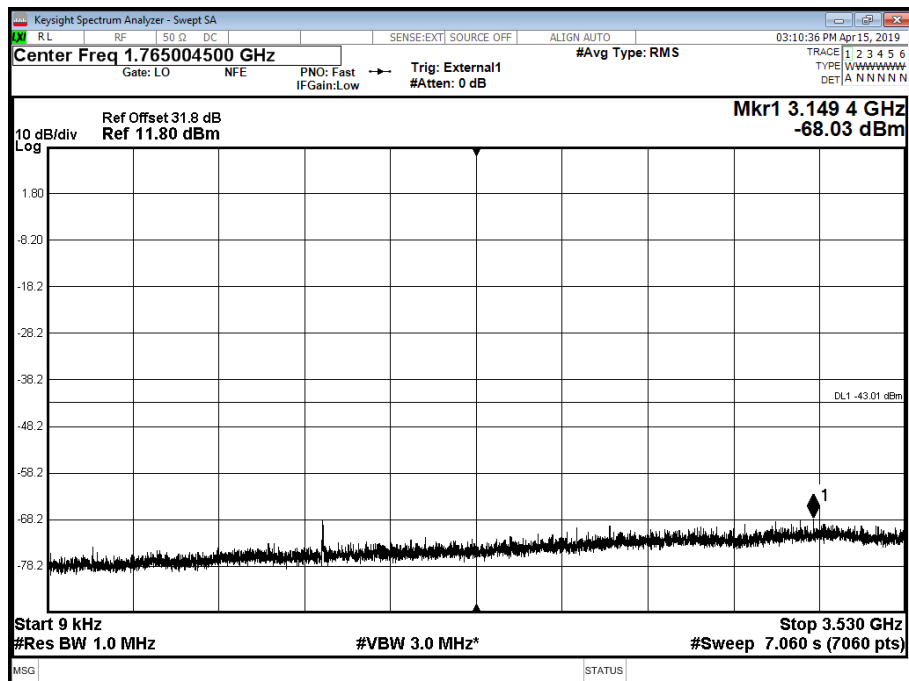




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 5 - Range 26500 to 38000 MHz

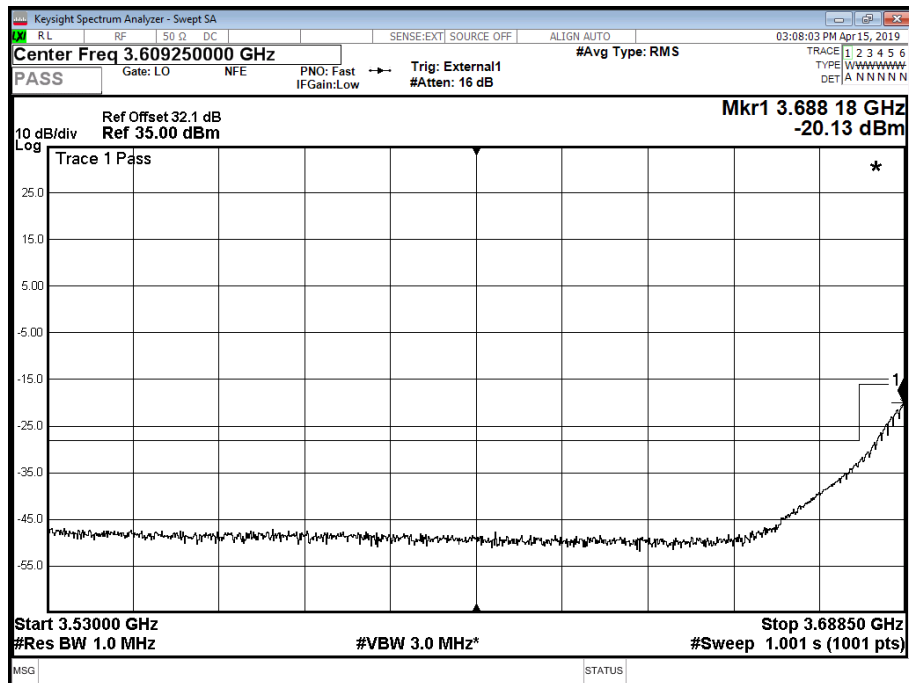


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 3530 MHz

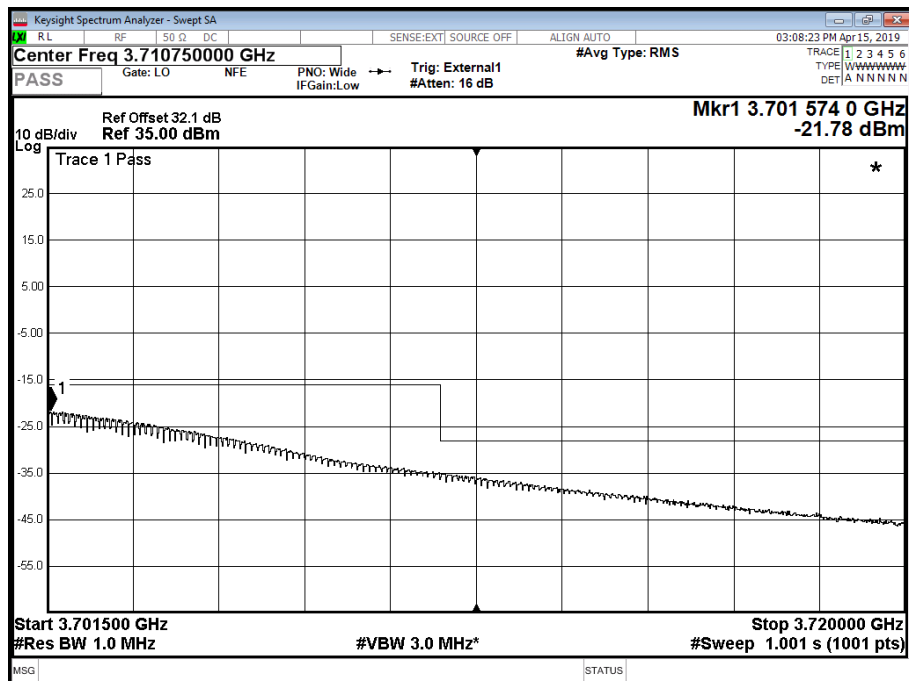




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -  
Band Mask Low 1 - Range Mask Low 1

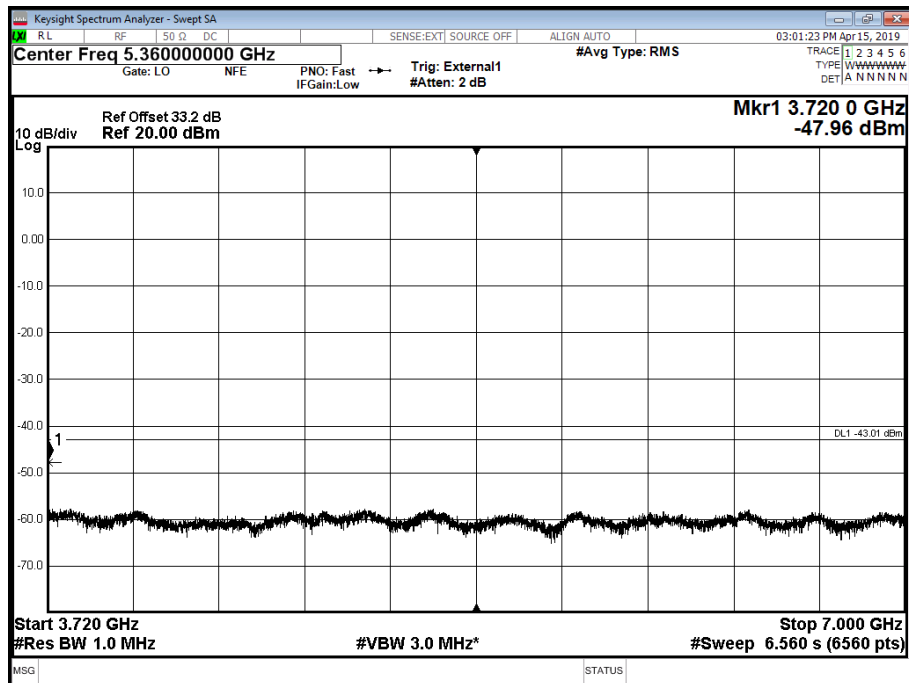


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T -  
Band Mask High 1 - Range Mask High 1

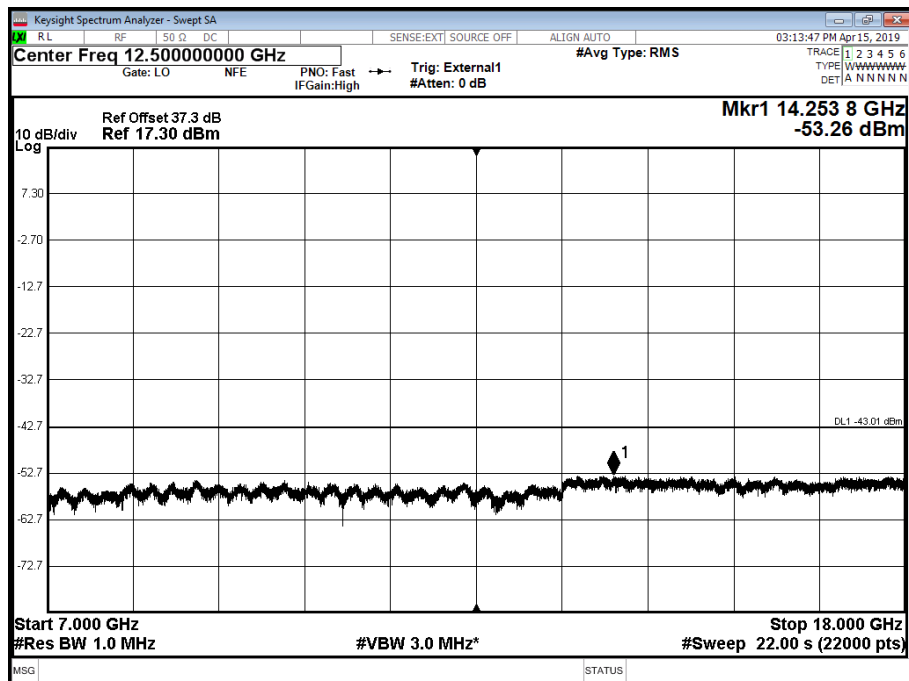




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 3720 to 7000 MHz

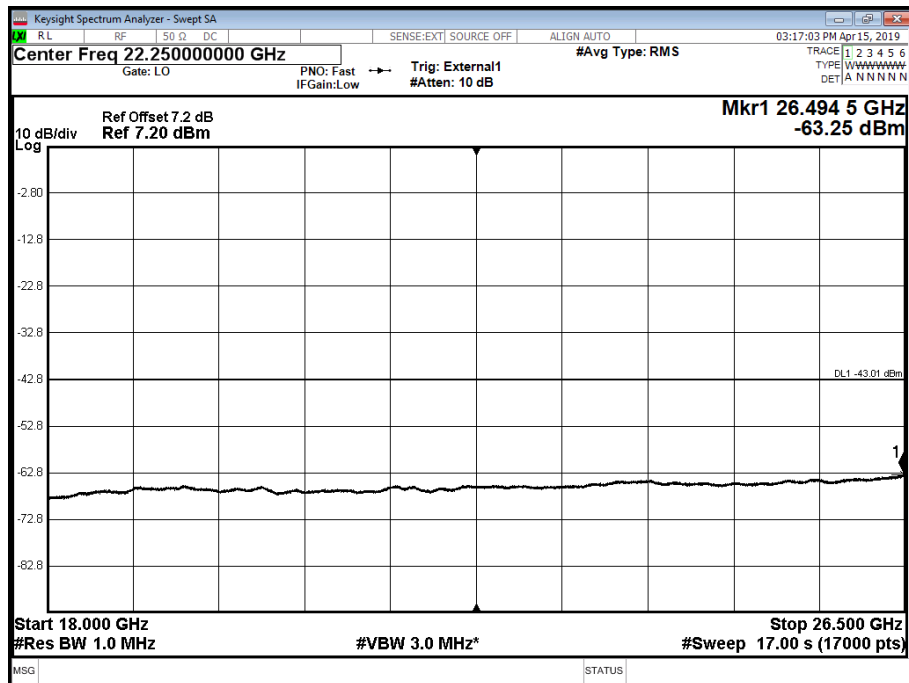


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 3 - Range 7000 to 18000 MHz

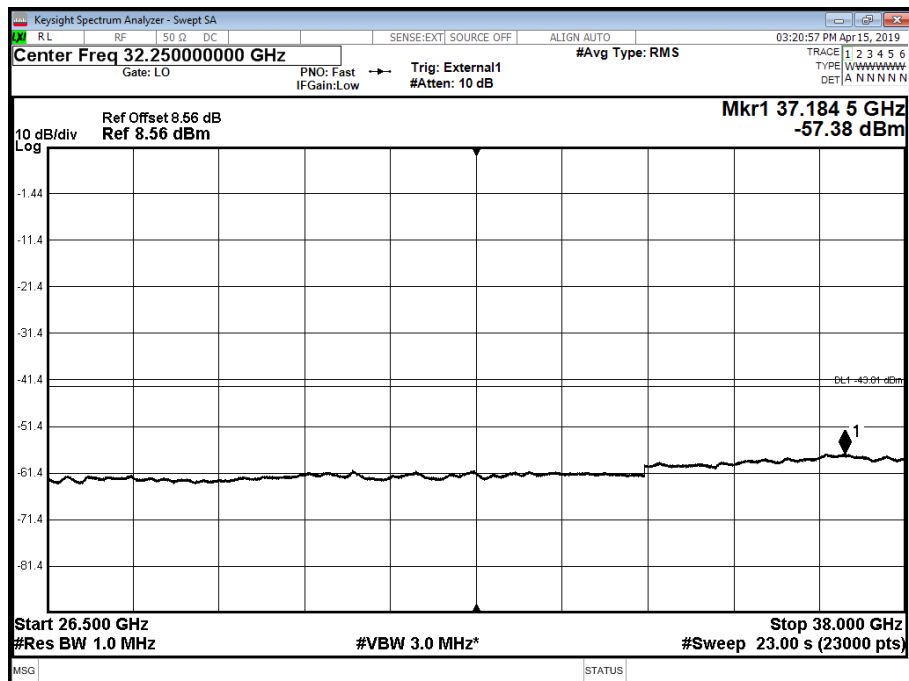




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 4 - Range 18000 to 26500 MHz

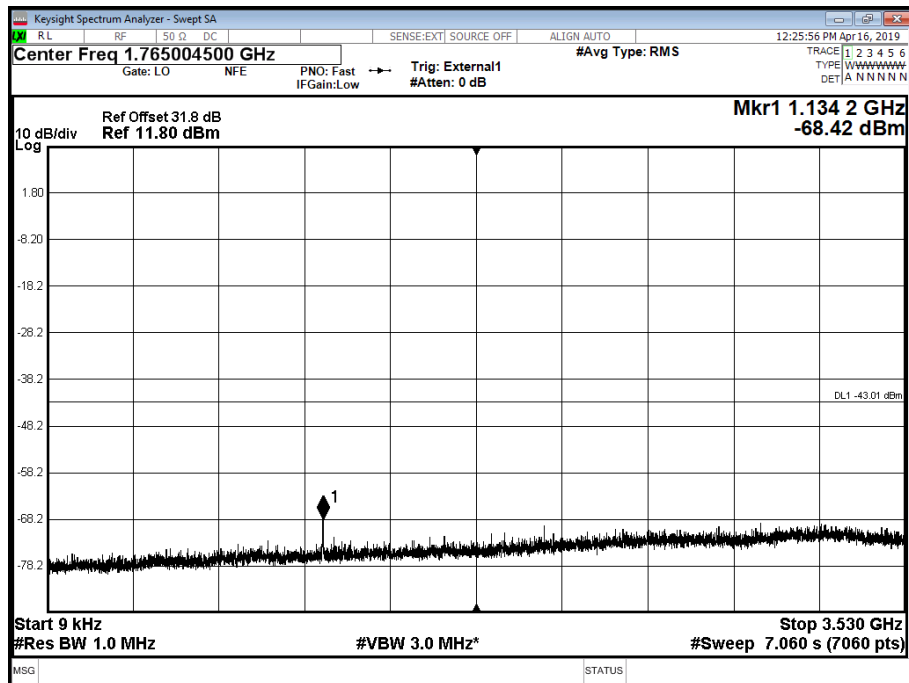


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 5 - Range 26500 to 38000 MHz

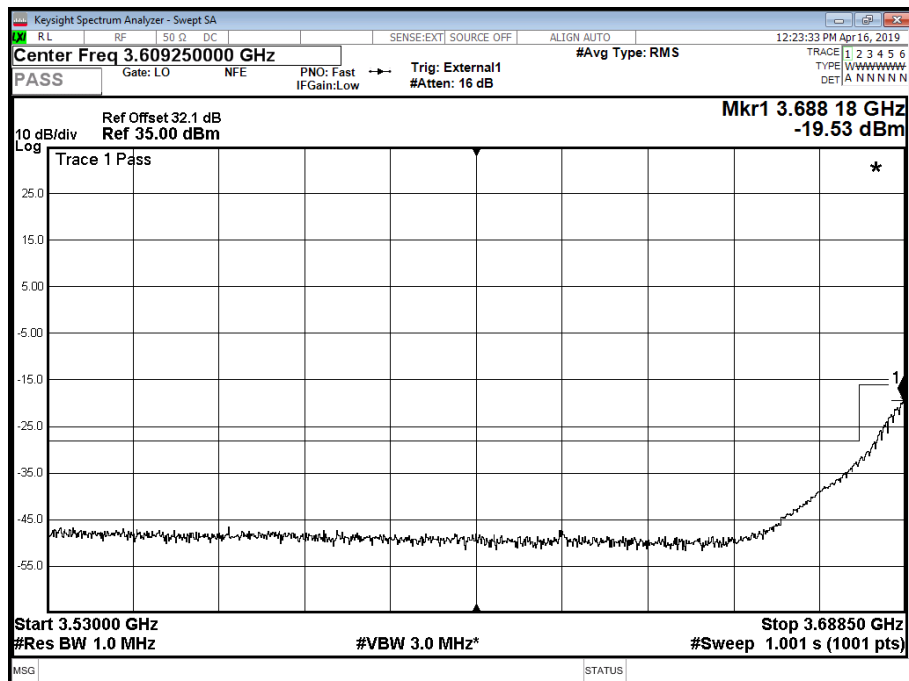




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 3530 MHz

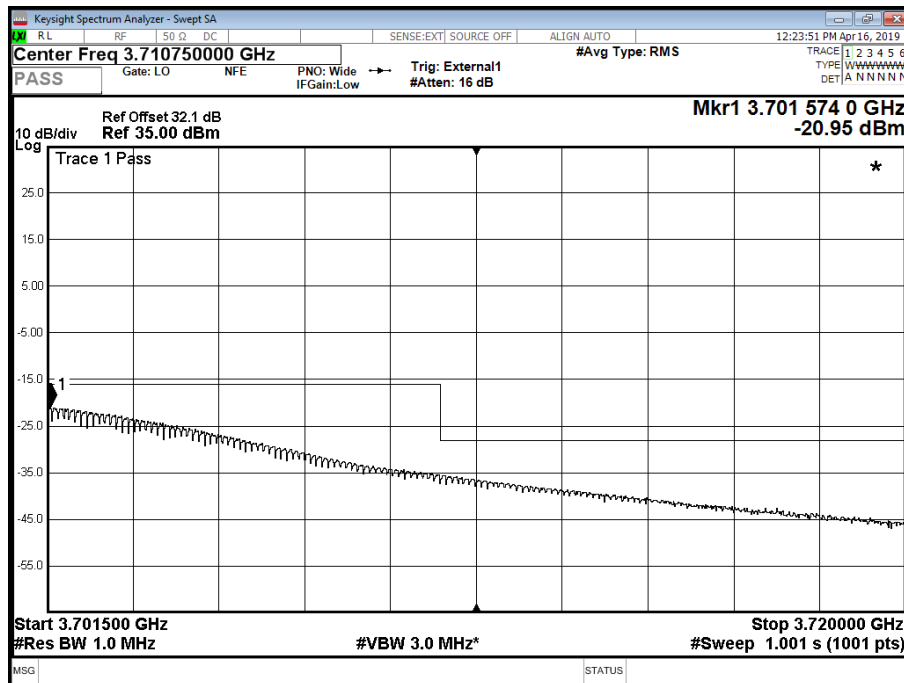


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band Mask Low 1 - Range Mask Low 1

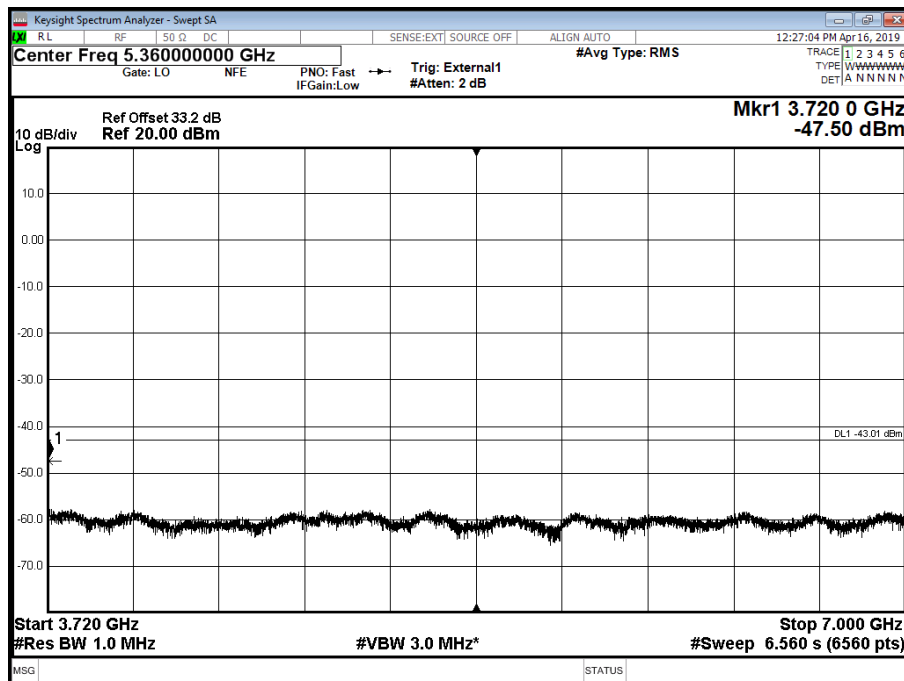




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1

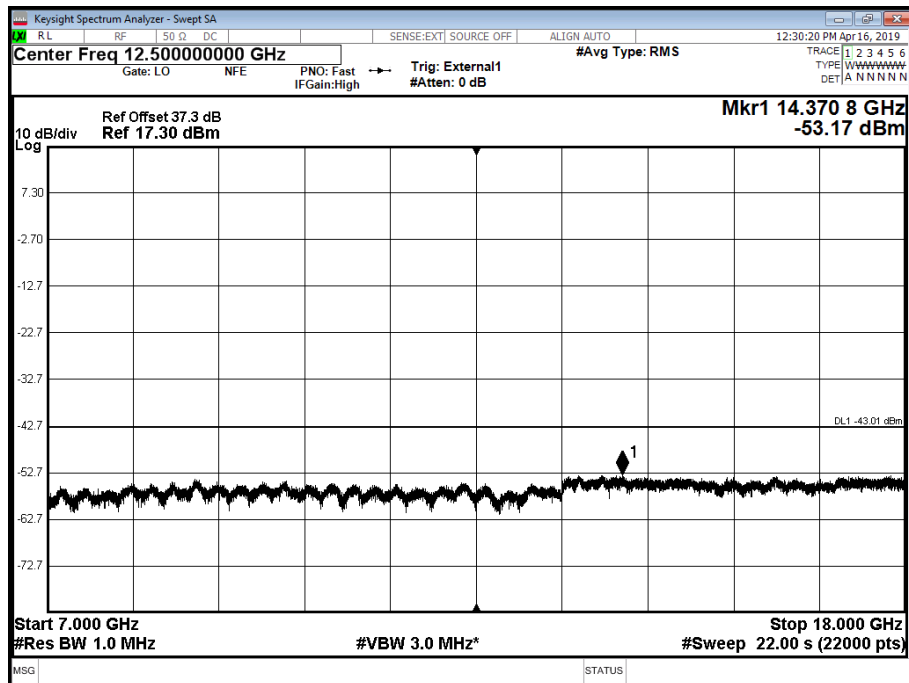


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 3720 to 7000 MHz

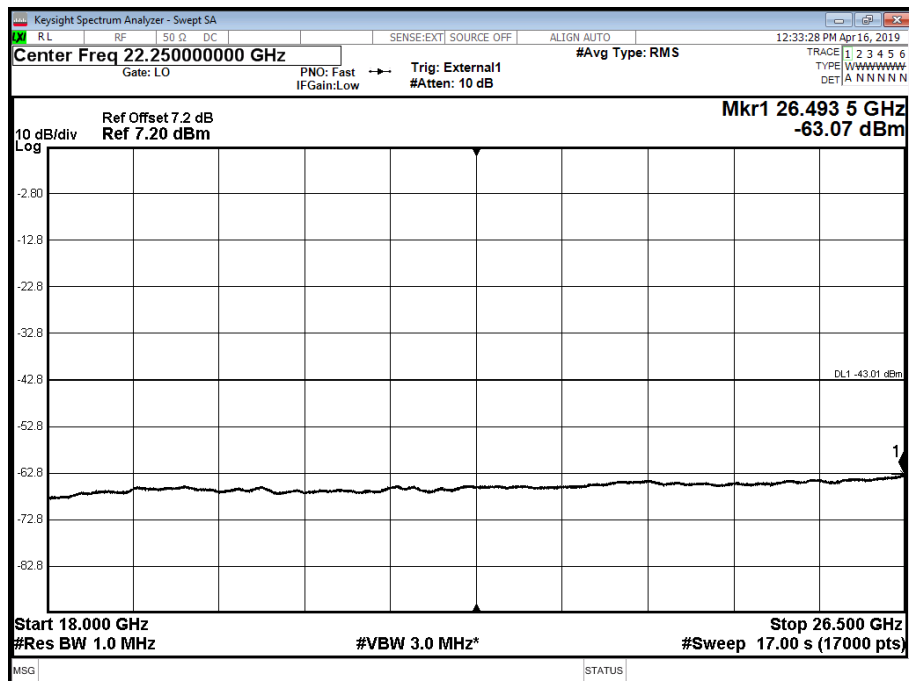




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 3 - Range 7000 to 18000 MHz

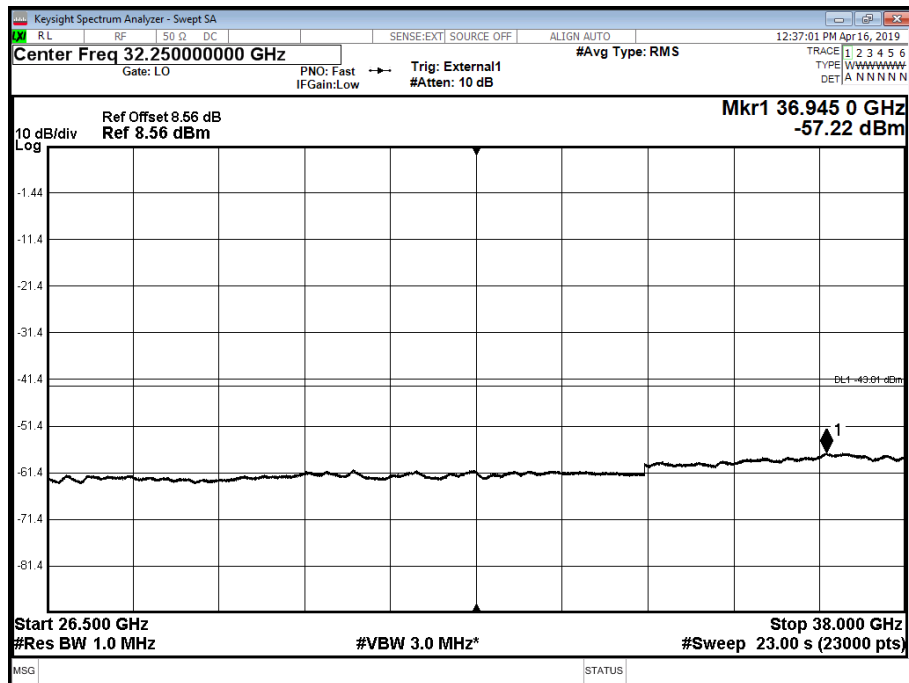


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 4 - Range 18000 to 26500 MHz

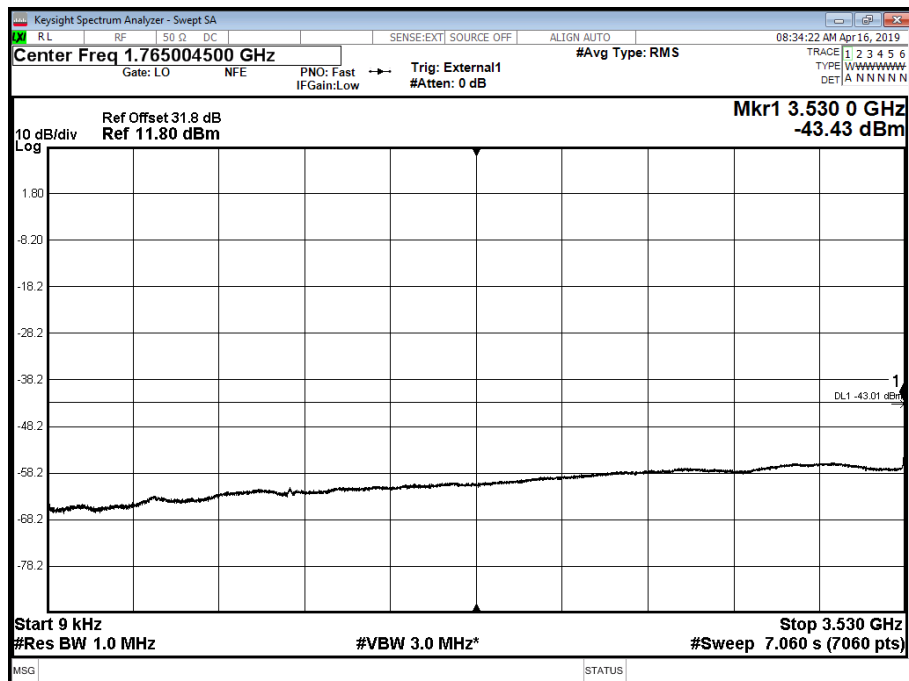




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 5 - Range 26500 to 38000 MHz

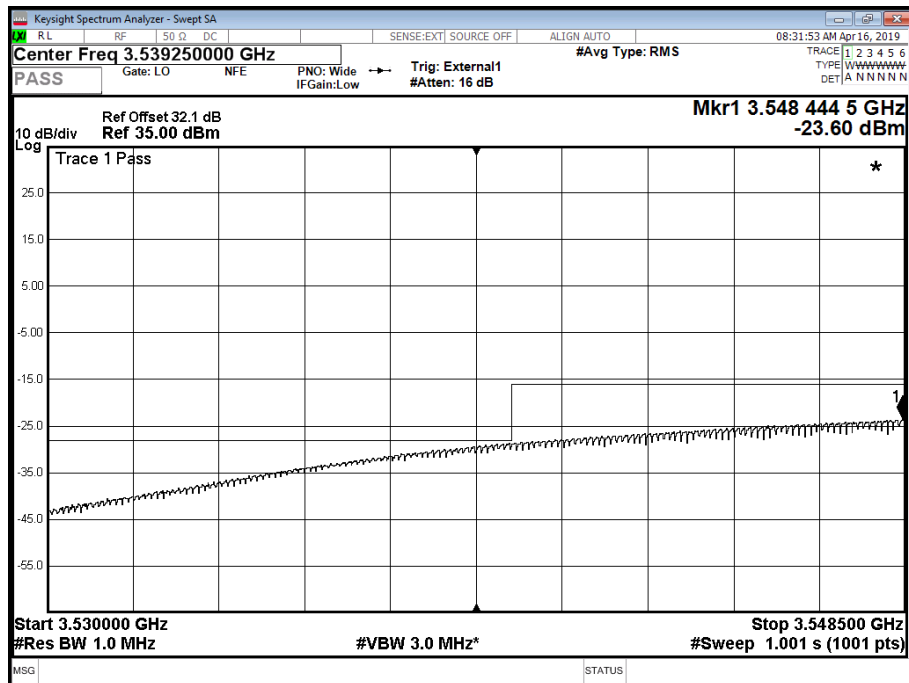


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 3530 MHz

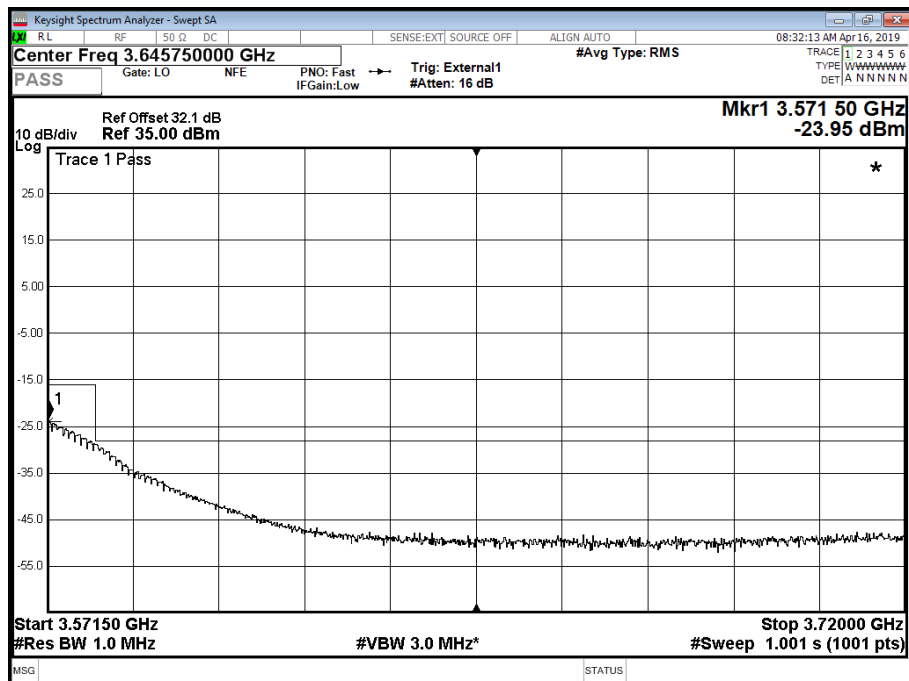




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -  
Band Mask Low 1 - Range Mask Low 1

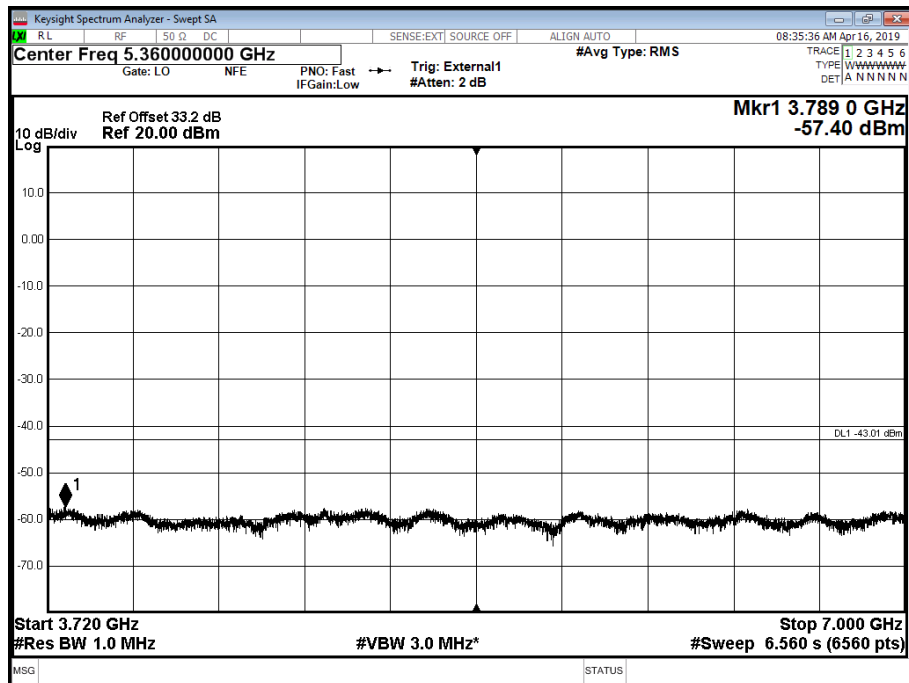


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -  
Band Mask High 1 - Range Mask High 1

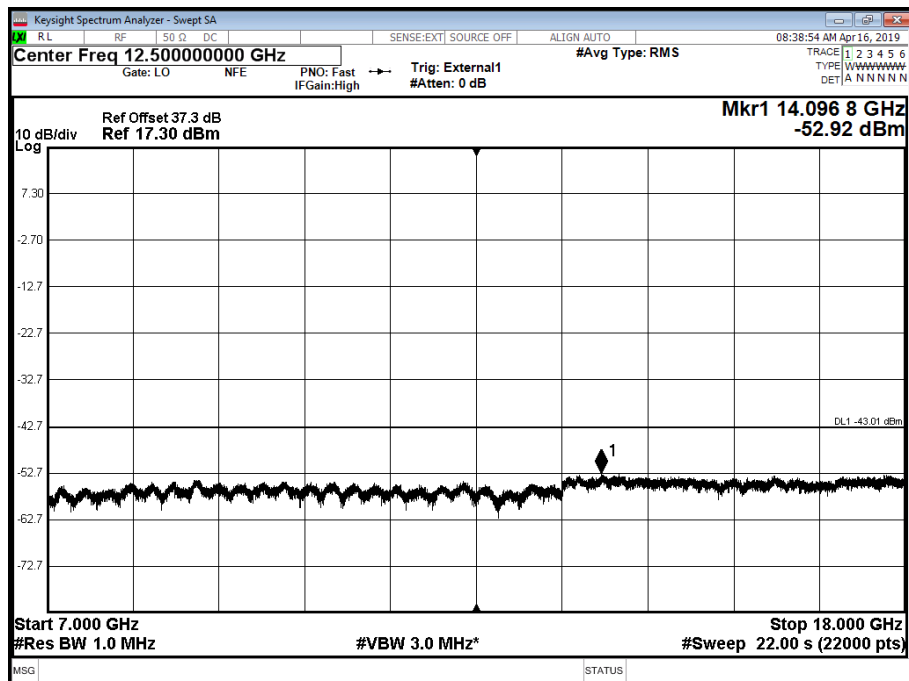




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B –  
Band 2 - Range 3720 to 7000 MHz

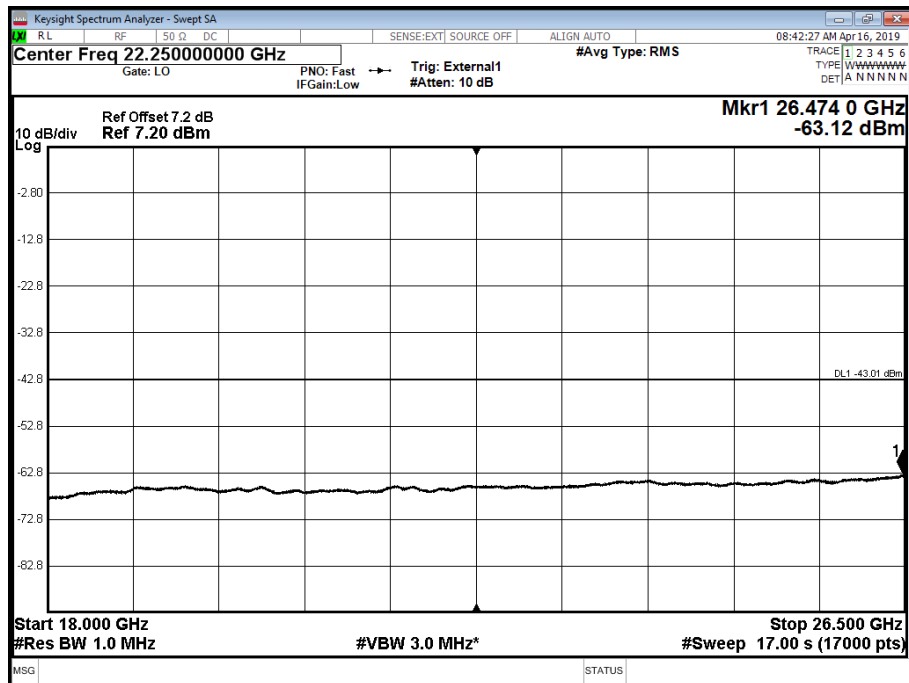


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -  
Band 3 - Range 7000 to 18000 MHz

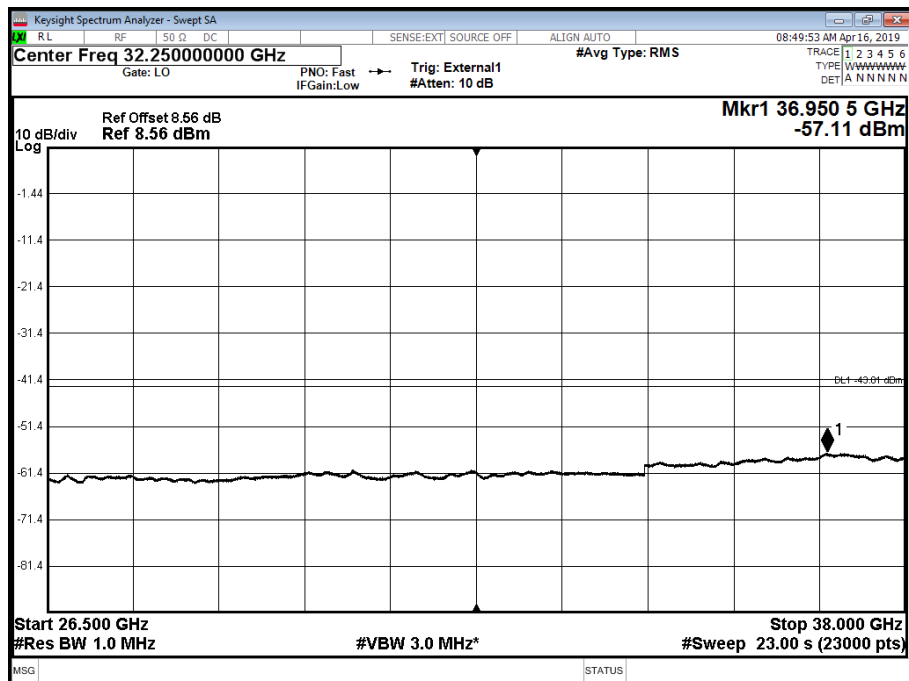




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 4 - Range 18000 to 26500 MHz

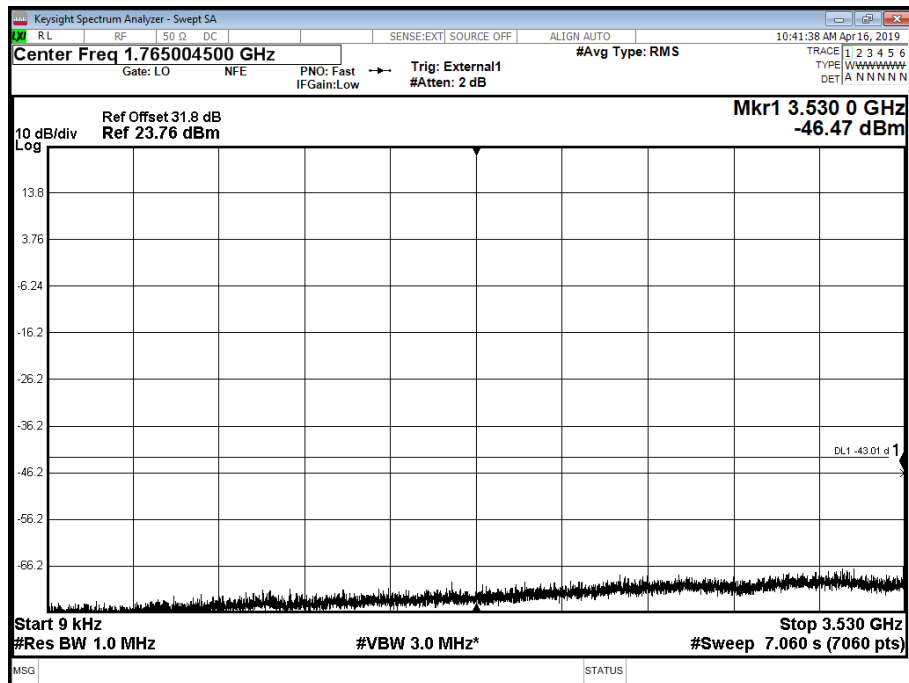


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 5 - Range 26500 to 38000 MHz

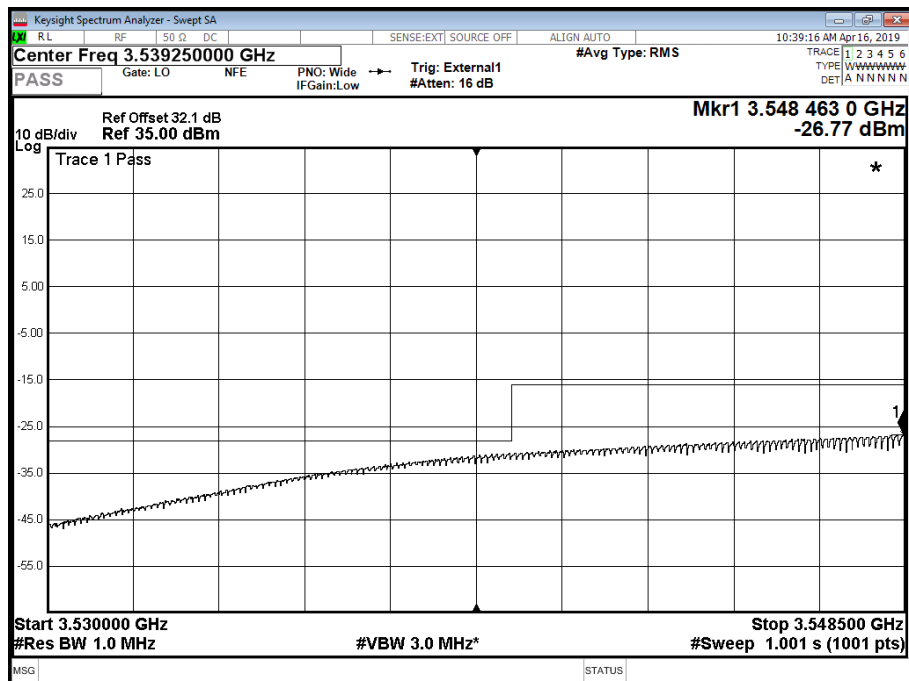




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 3530 MHz

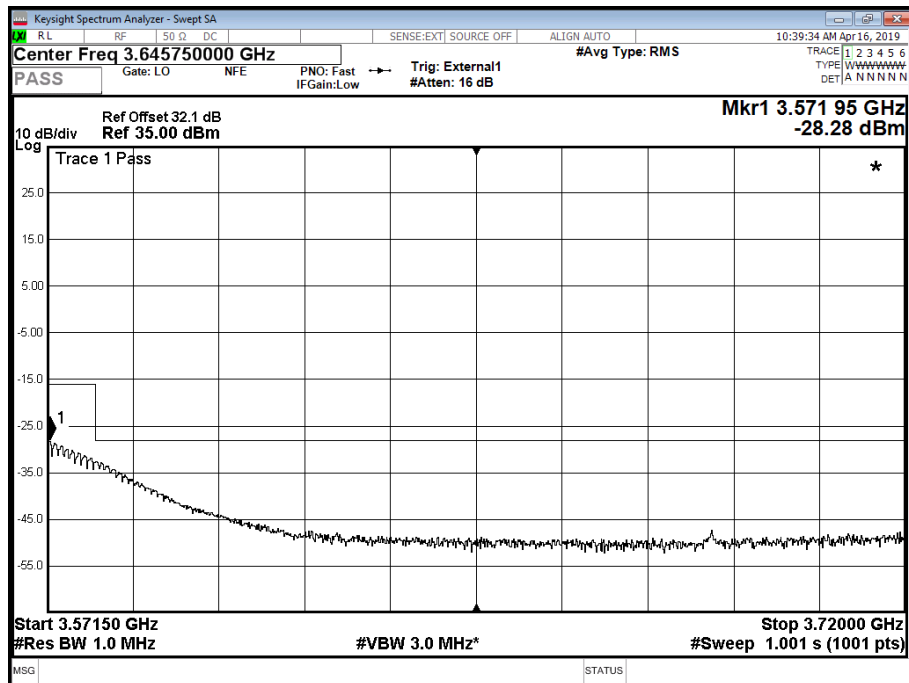


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band Mask Low 1 - Range Mask Low 1

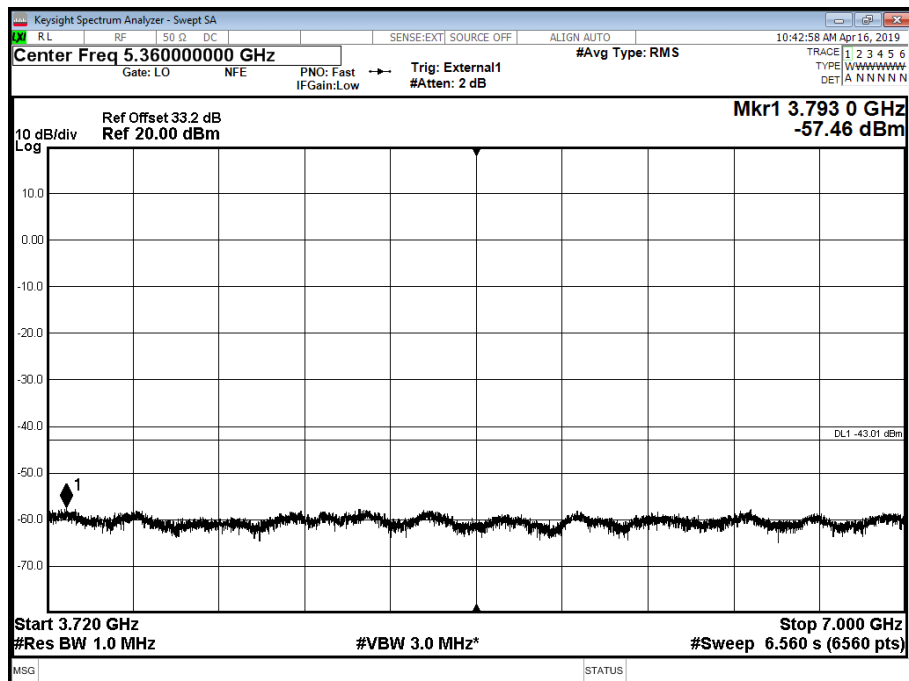




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -  
Band Mask High 1 - Range Mask High 1

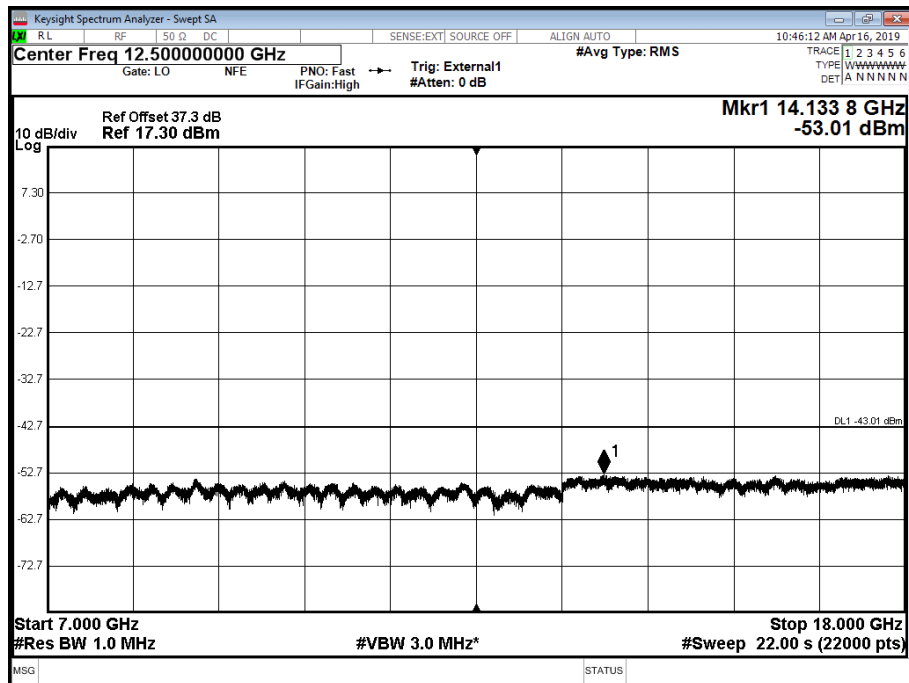


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -  
Band 2 - Range 3720 to 7000 MHz

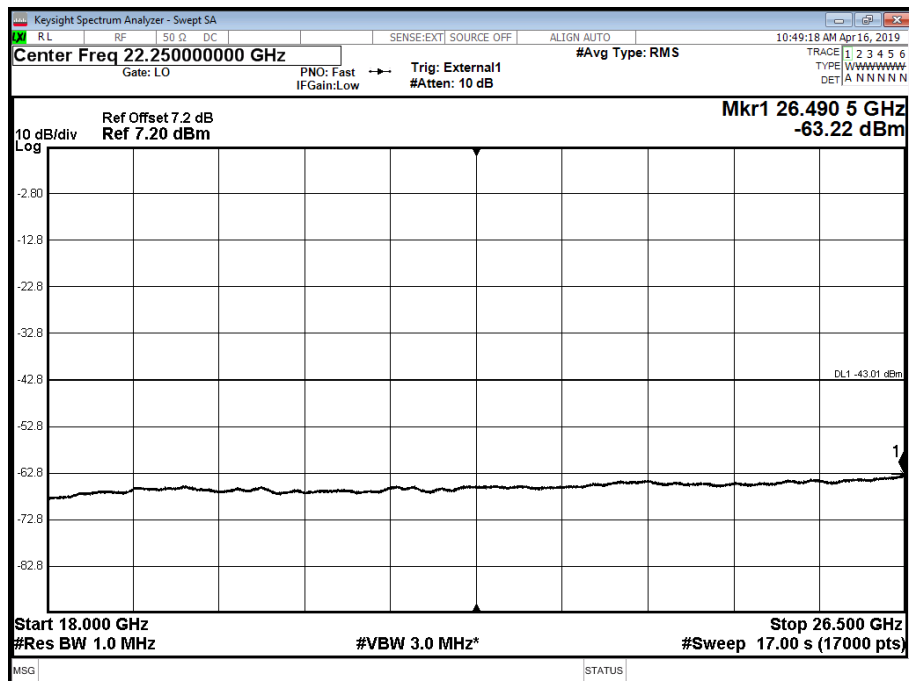




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 3 - Range 7000 to 18000 MHz

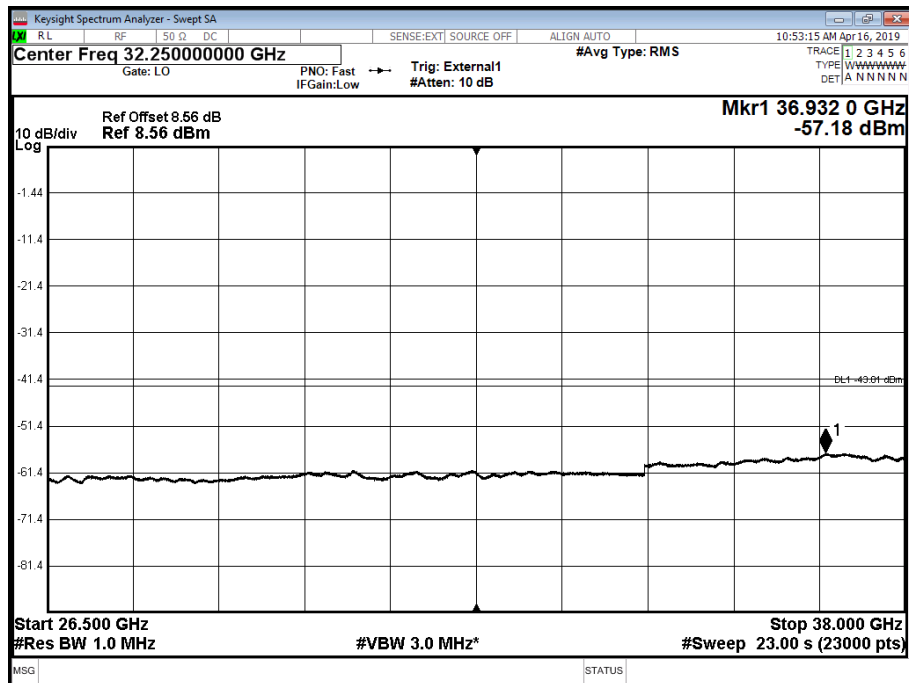


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 4 - Range 18000 to 26500 MHz

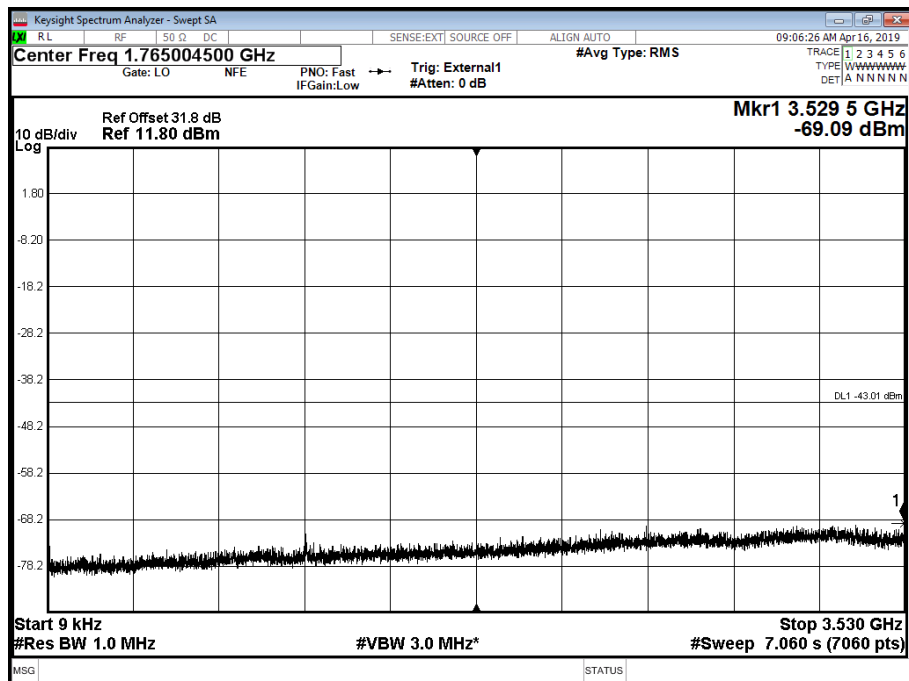




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 5 - Range 26500 to 38000 MHz

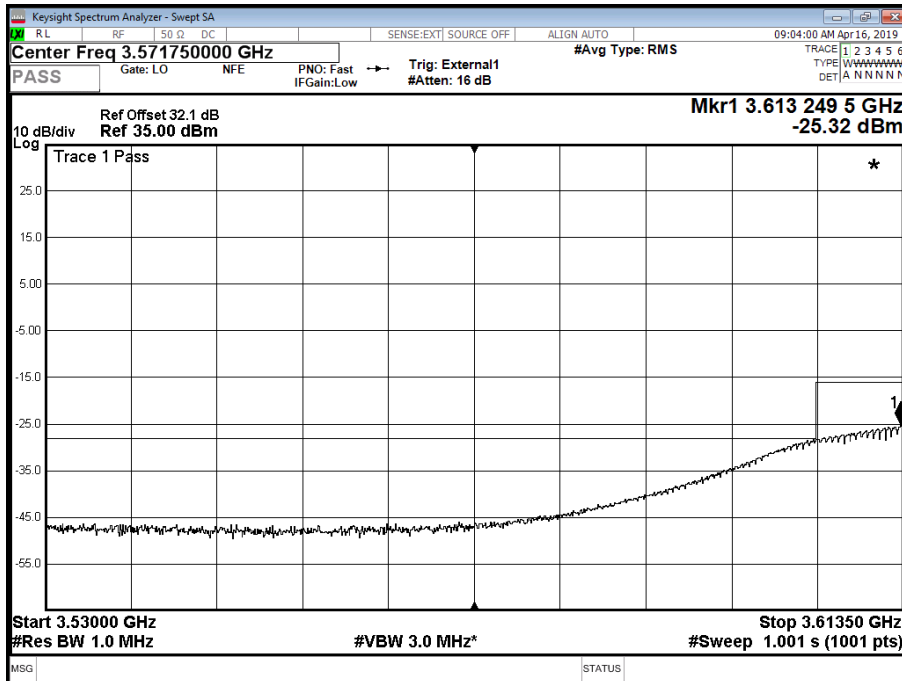


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 3530 MHz

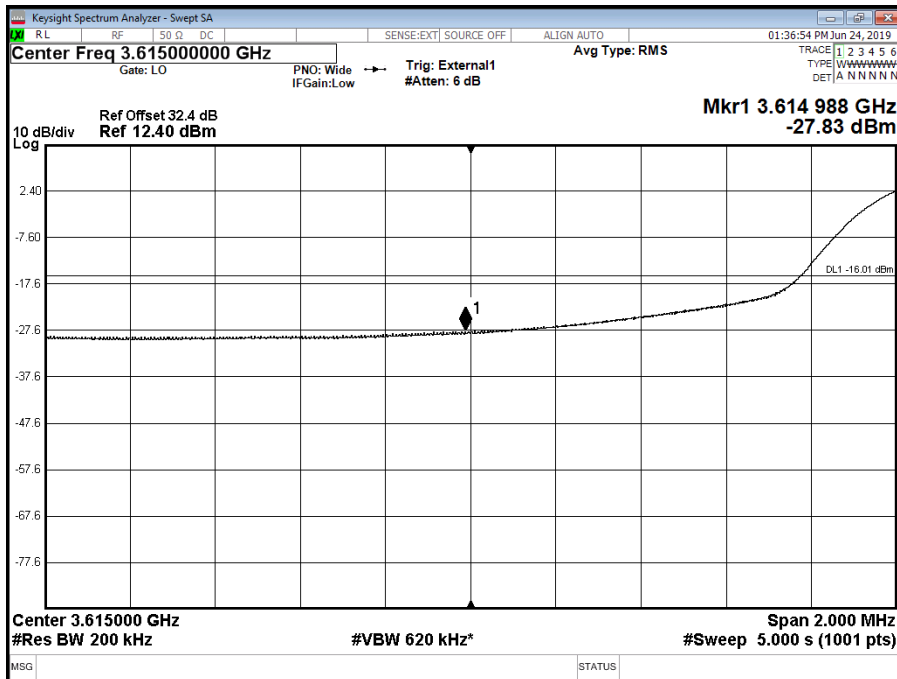




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -  
Band Mask Low 1 - Range Mask Low 1

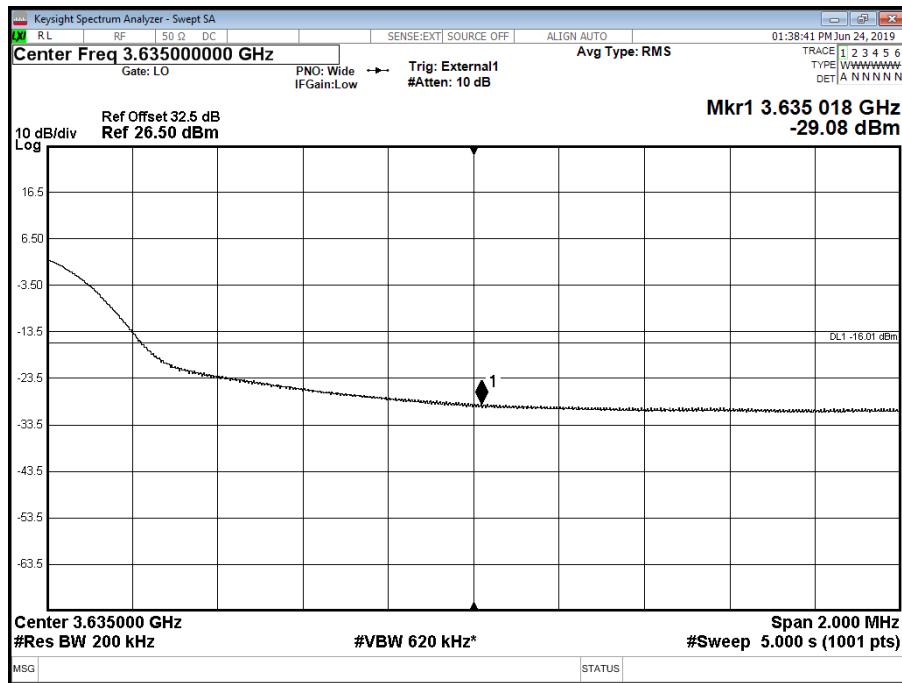


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -  
Band Mask Low 1 - Range Carrier Edge Low

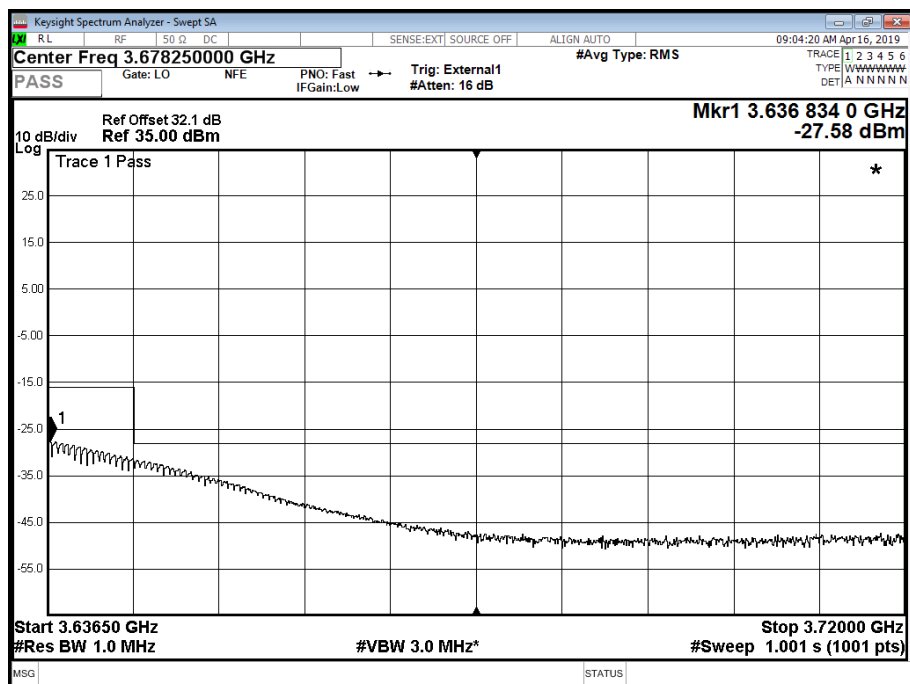




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask Low 1 - Range Carrier Edge High

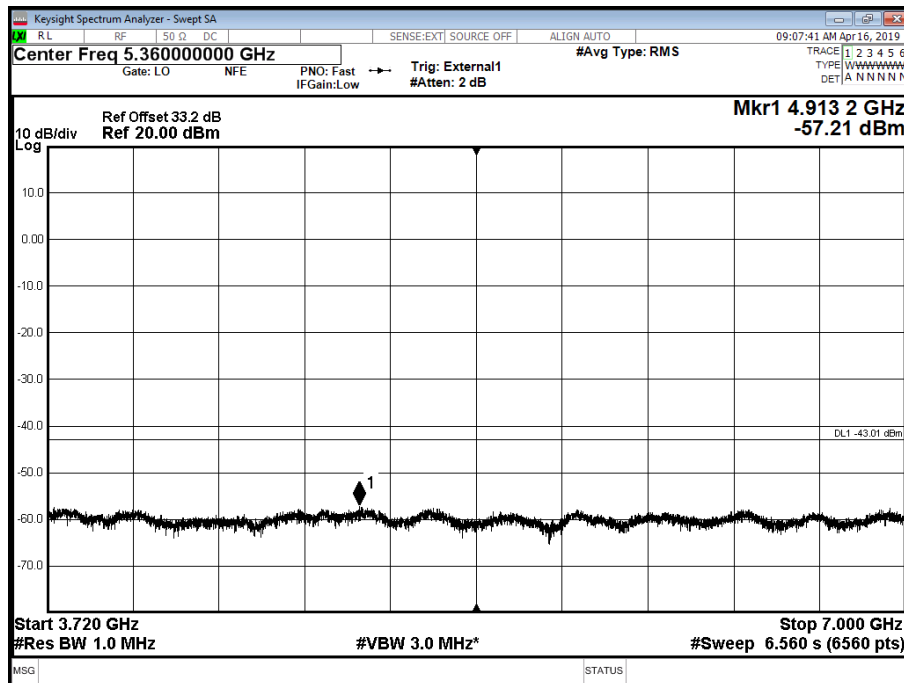


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask\_High\_1 - Range Mask\_High\_1

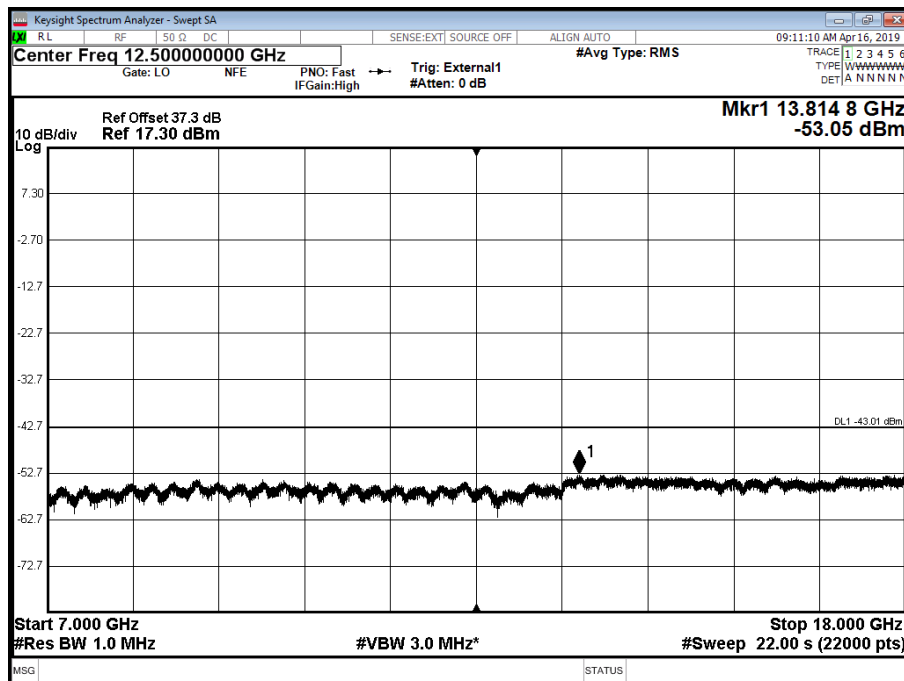




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 2 - Range 3720 to 7000 MHz

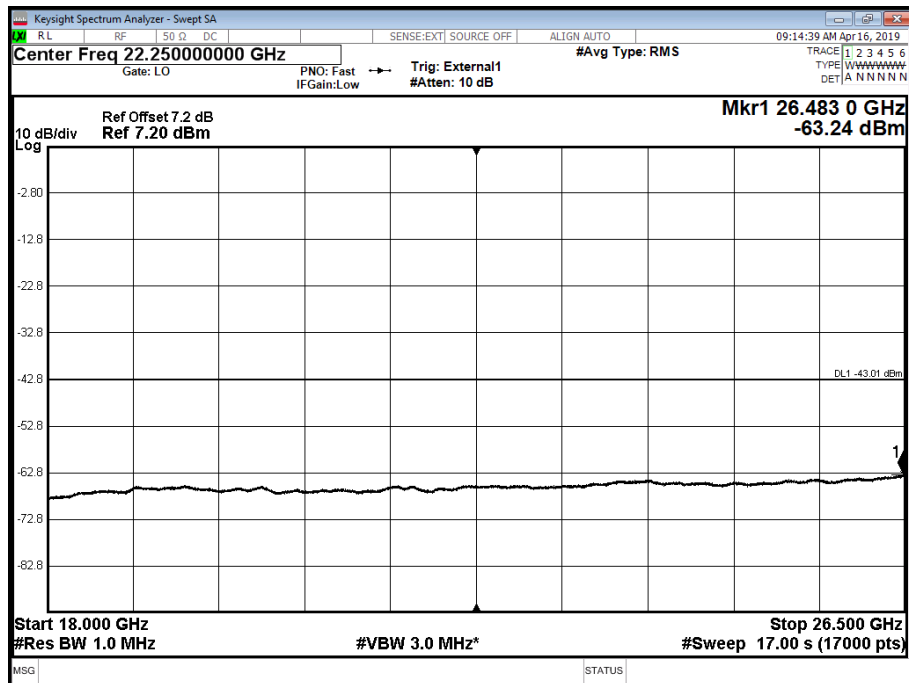


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 7000 to 18000 MHz

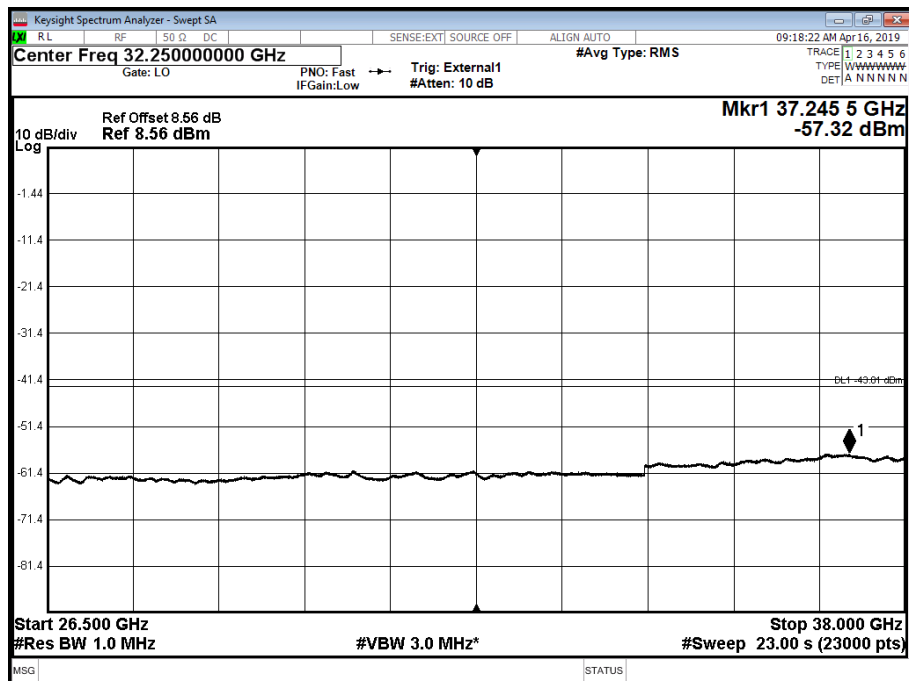




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 4 - Range 18000 to 26500 MHz

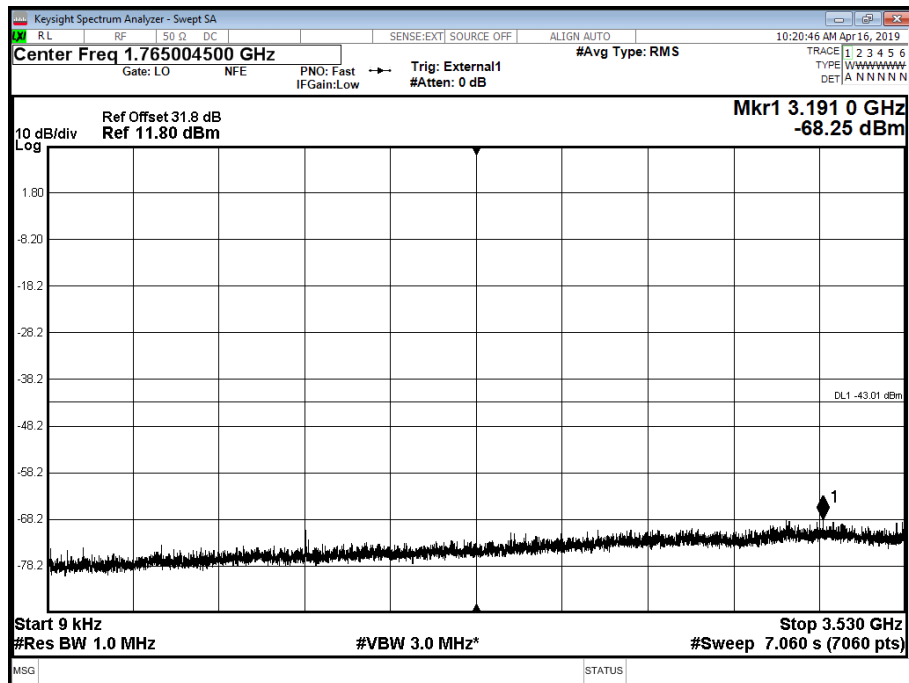


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 5 - Range 26500 to 38000 MHz

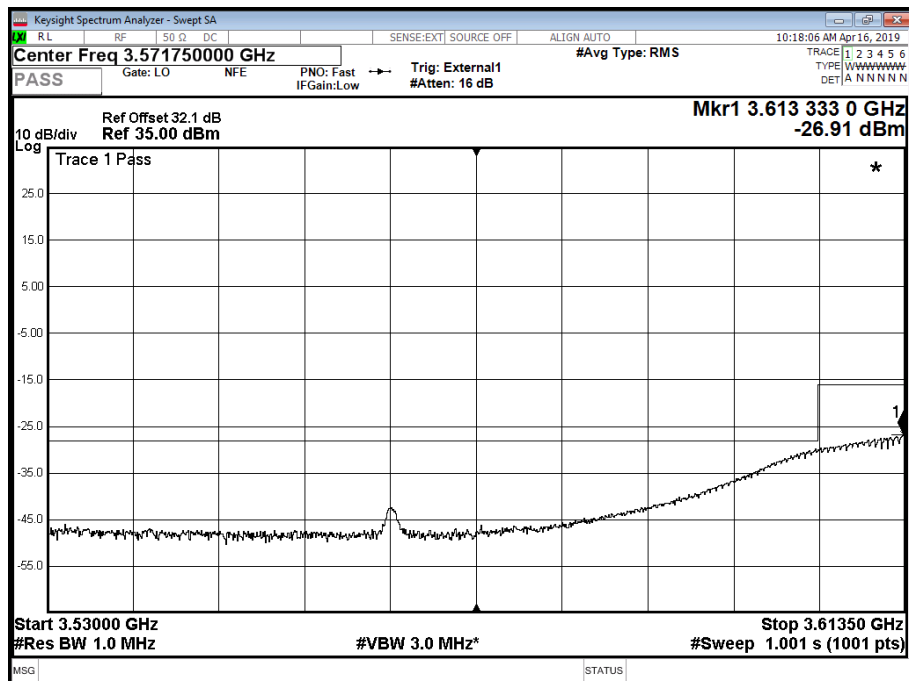




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 3530 MHz

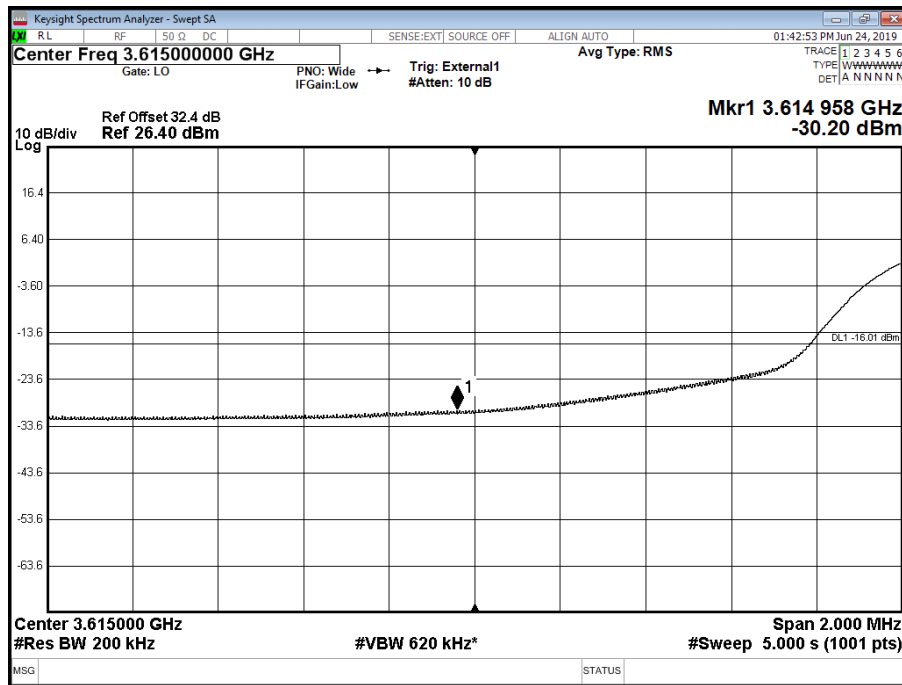


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask Low 1 - Range Mask Low 1

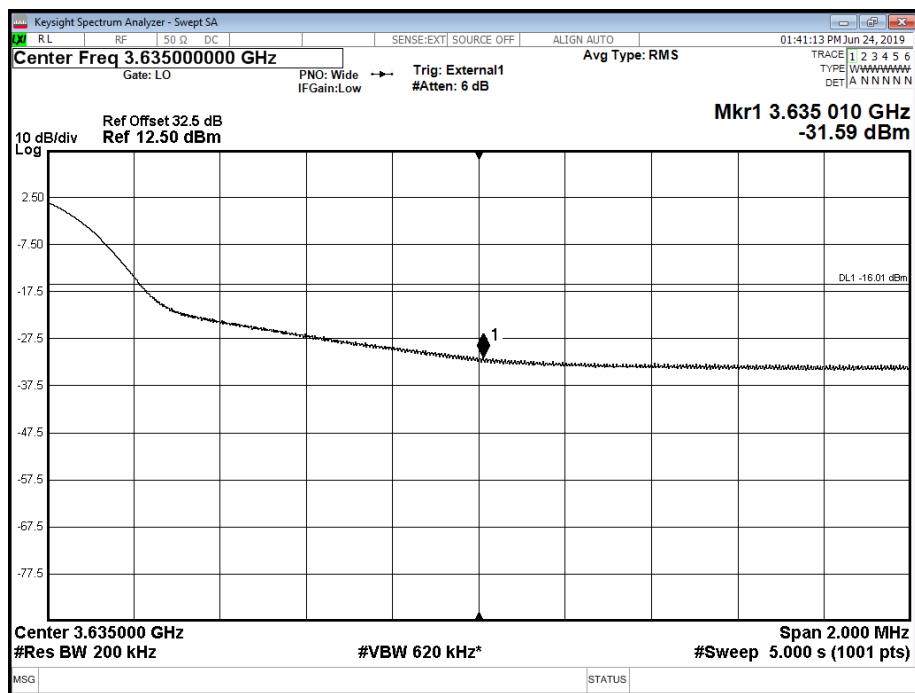




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask Low 1 - Range Carrier Edge Low

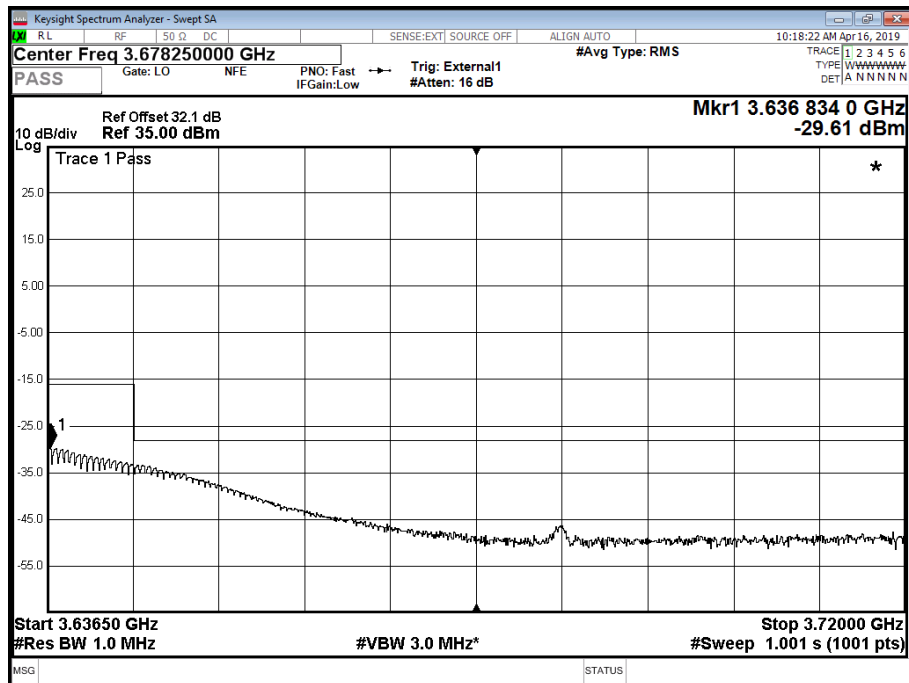


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask Low 1 - Range Carrier Edge High

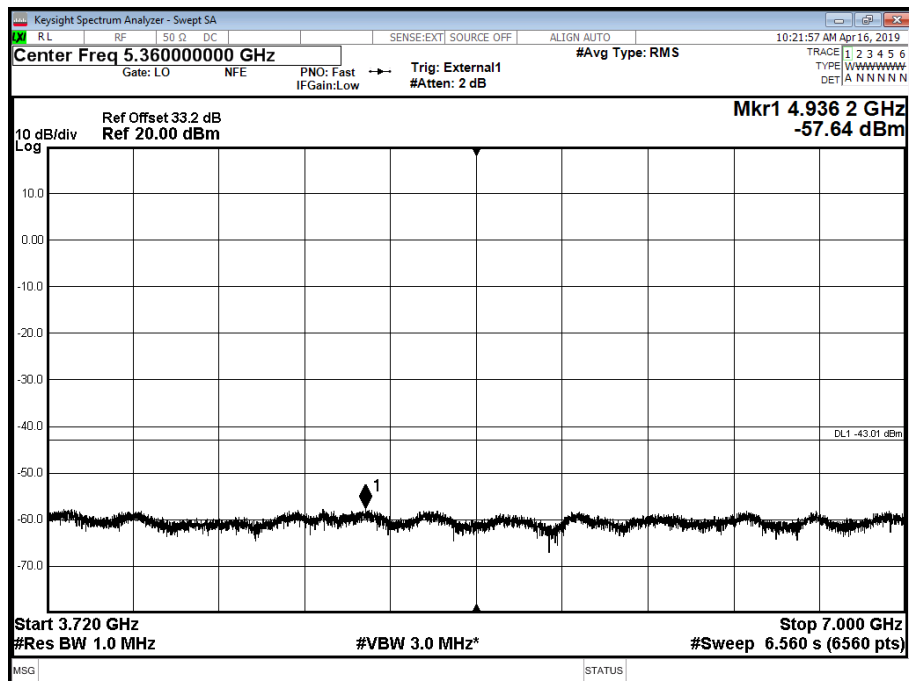




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -  
Band Mask High 1 - Range Mask High 1

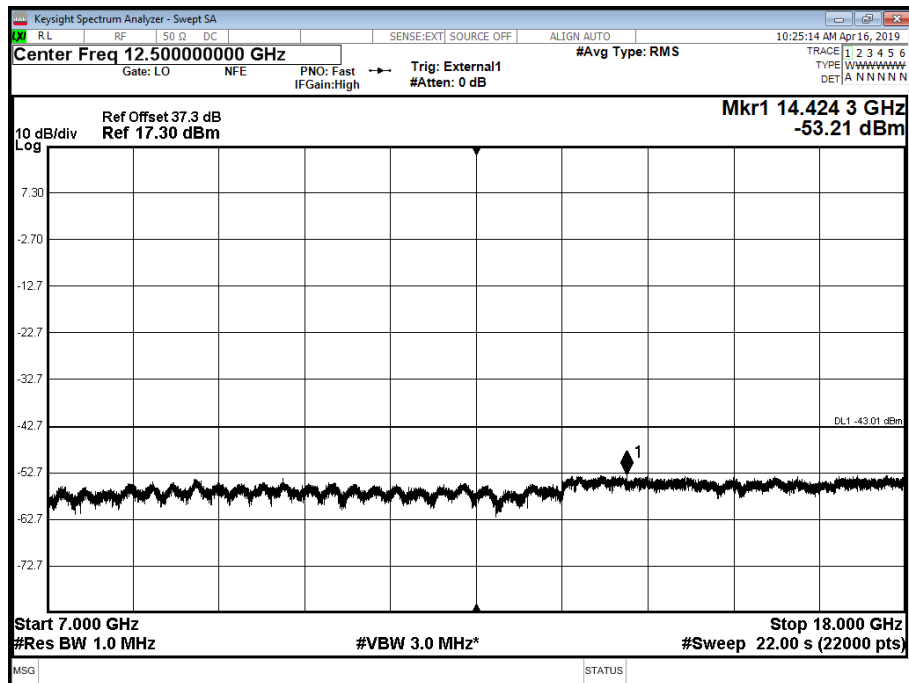


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -  
Band 2 - Range 3720 to 7000 MHz

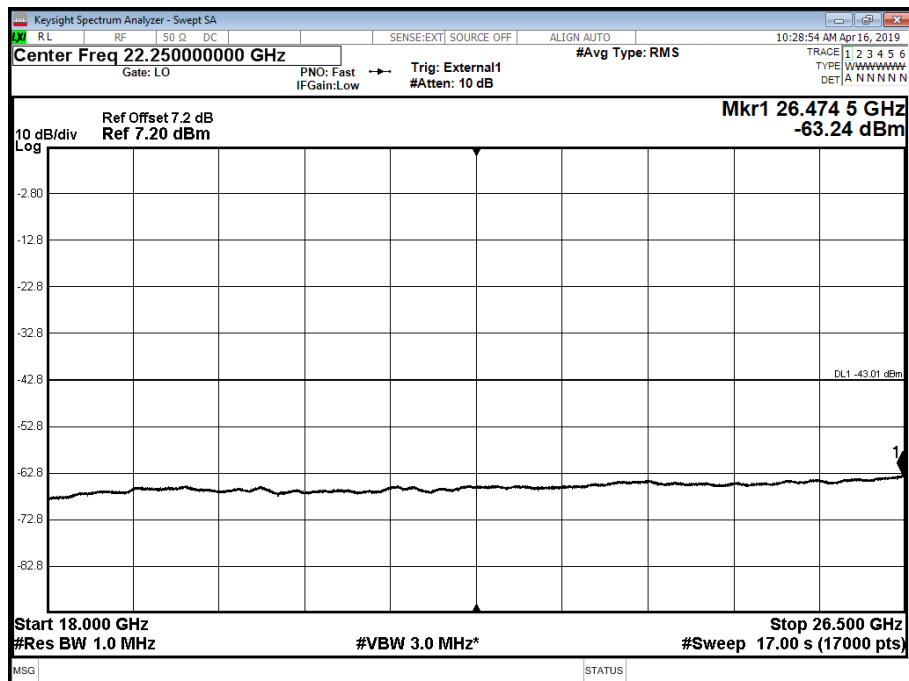




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 7000 to 18000 MHz

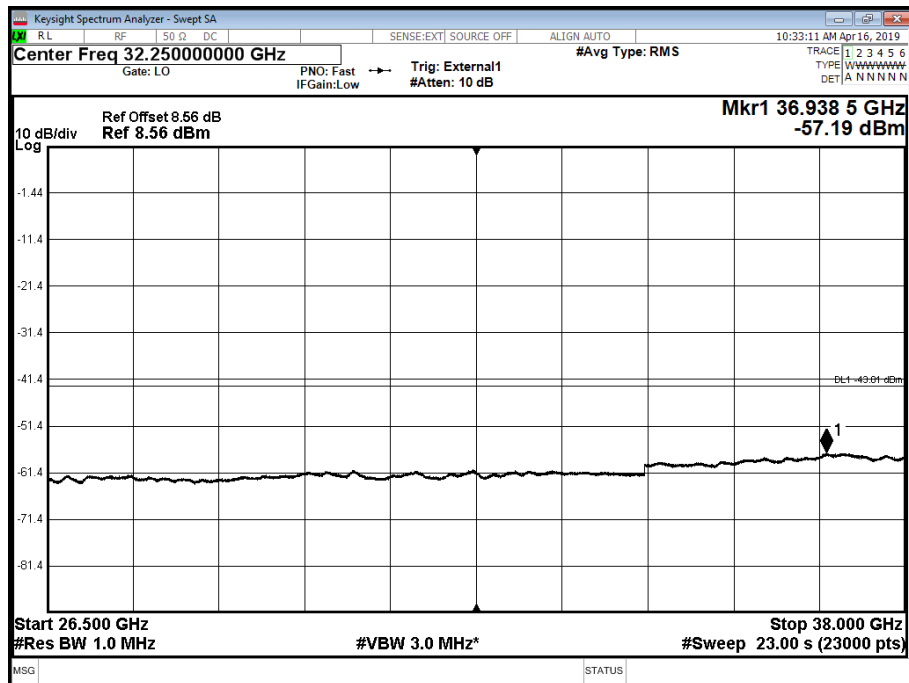


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 4 - Range 18000 to 26500 MHz

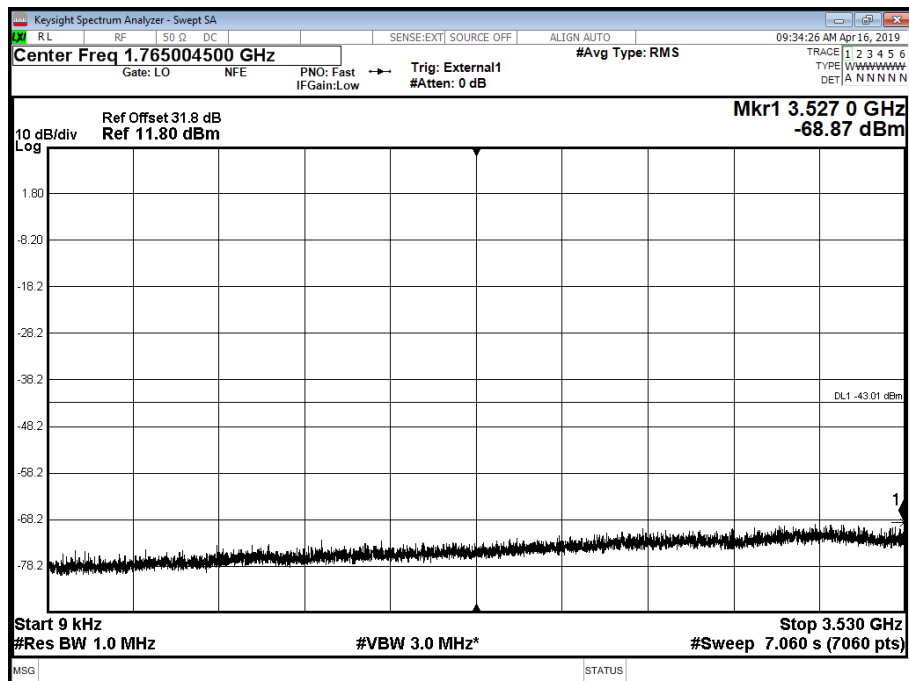




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 5 - Range 26500 to 38000 MHz

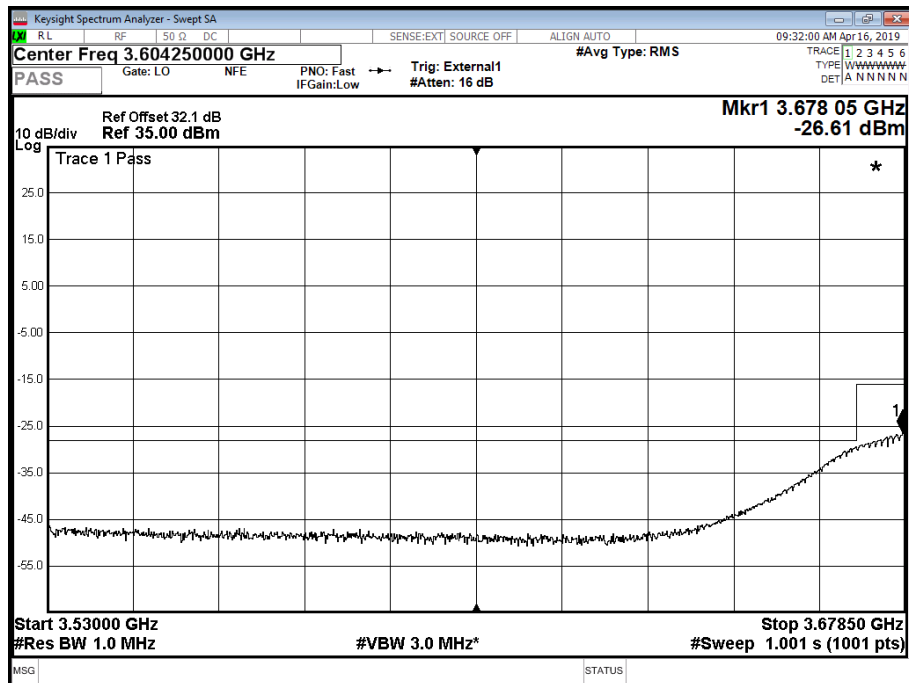


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 3530 MHz

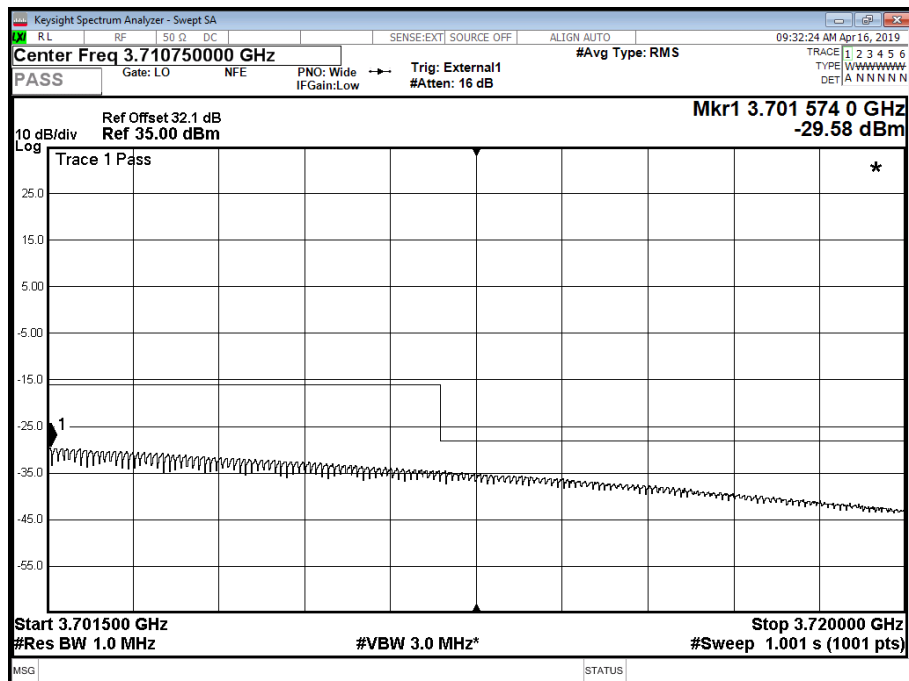




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -  
Band Mask Low 1 - Range Mask Low 1

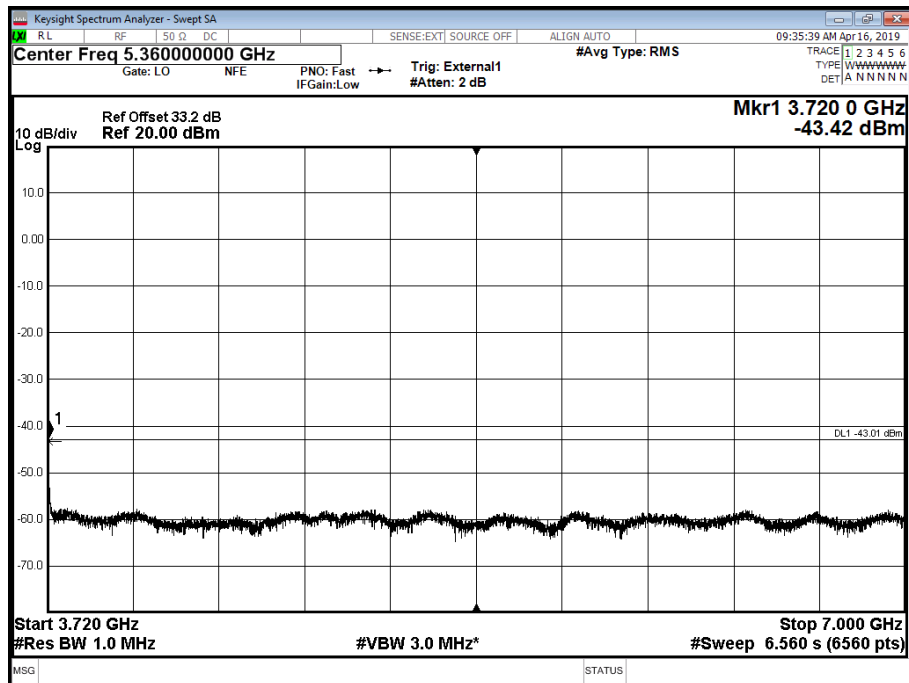


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -  
Band Mask High 1 - Range Mask High 1

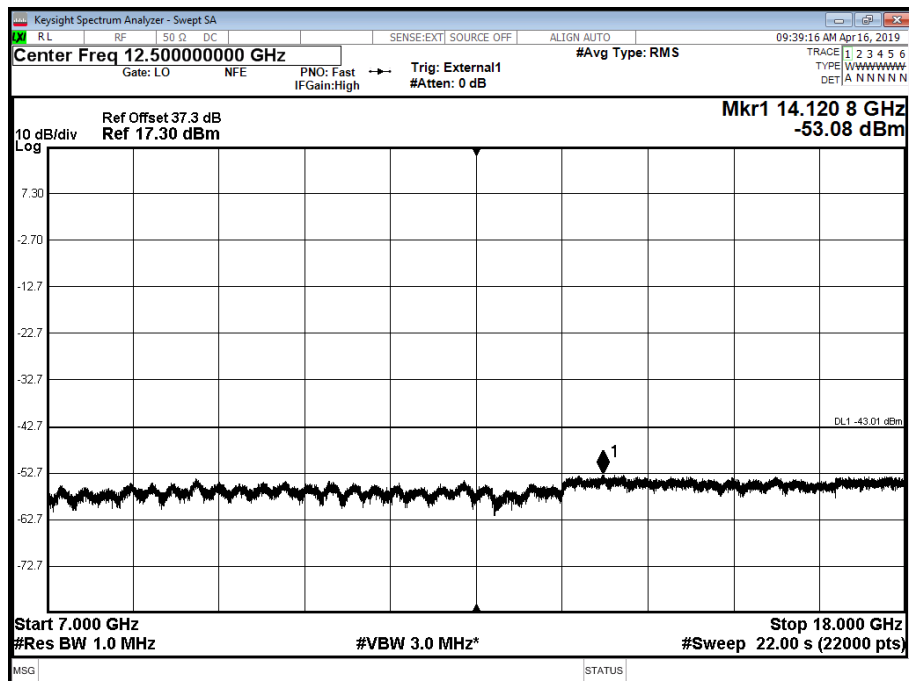




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 3720 to 7000 MHz

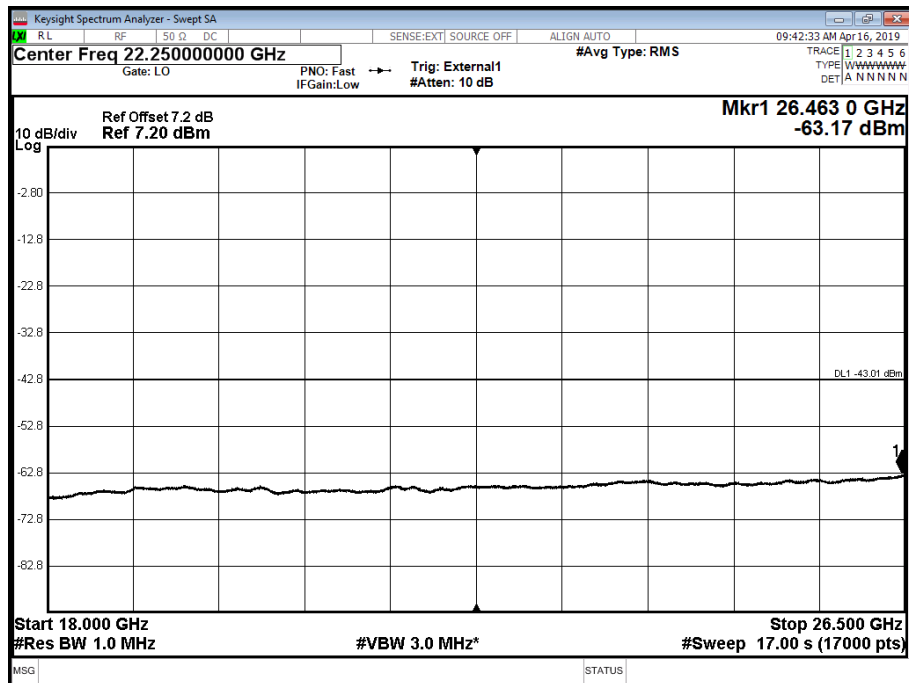


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 7000 to 18000 MHz

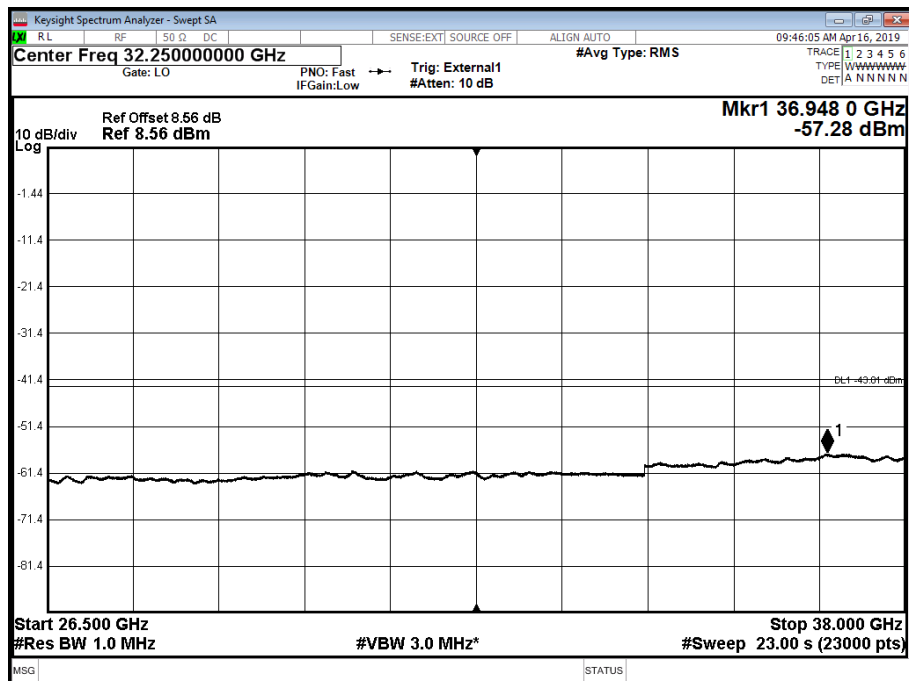




Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 4 - Range 18000 to 26500 MHz

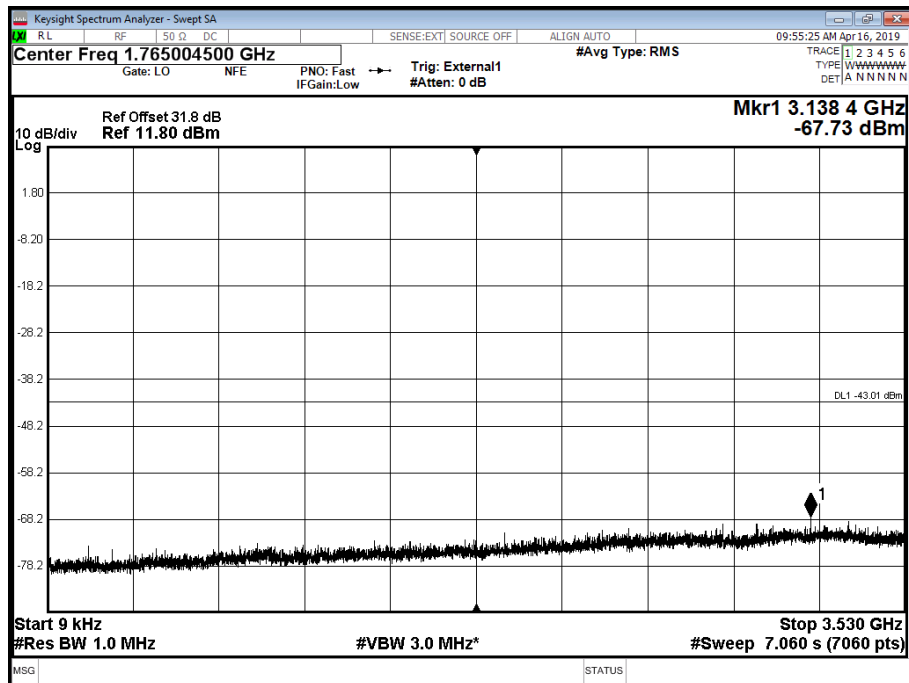


Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 5 - Range 26500 to 38000 MHz

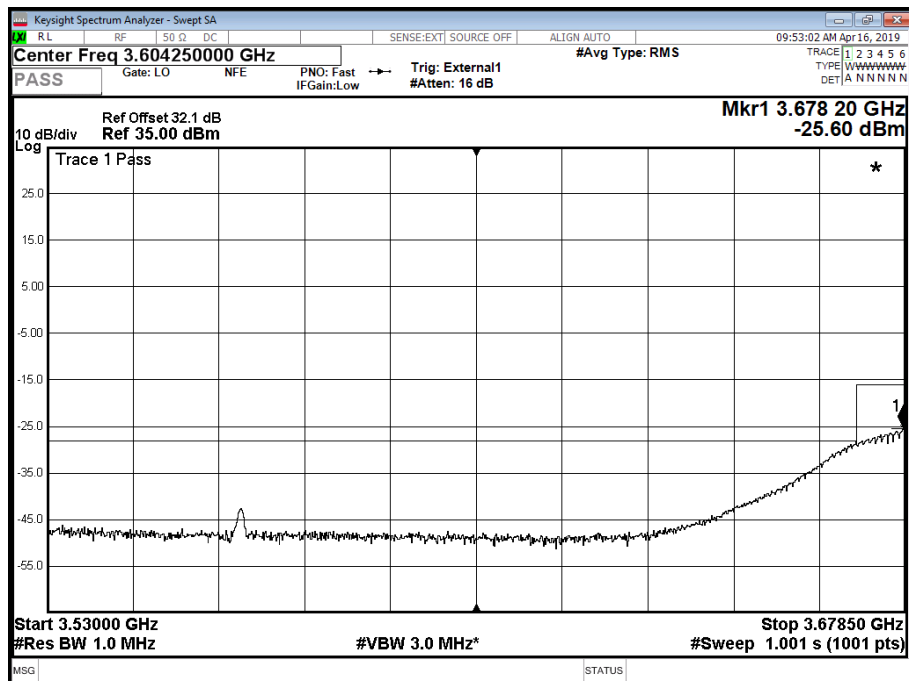




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 3530 MHz

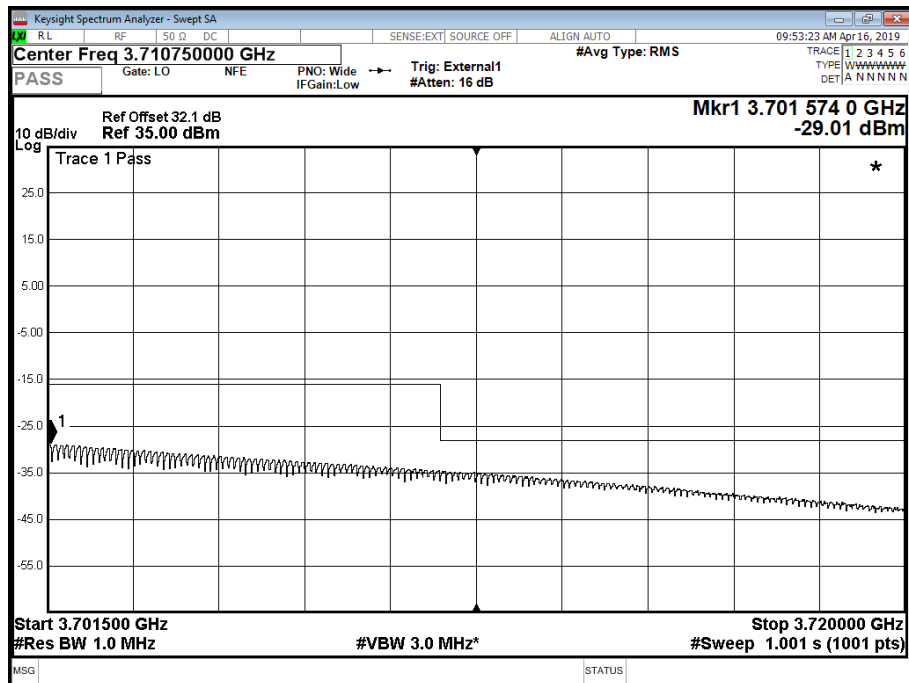


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask Low 1 - Range Mask Low 1

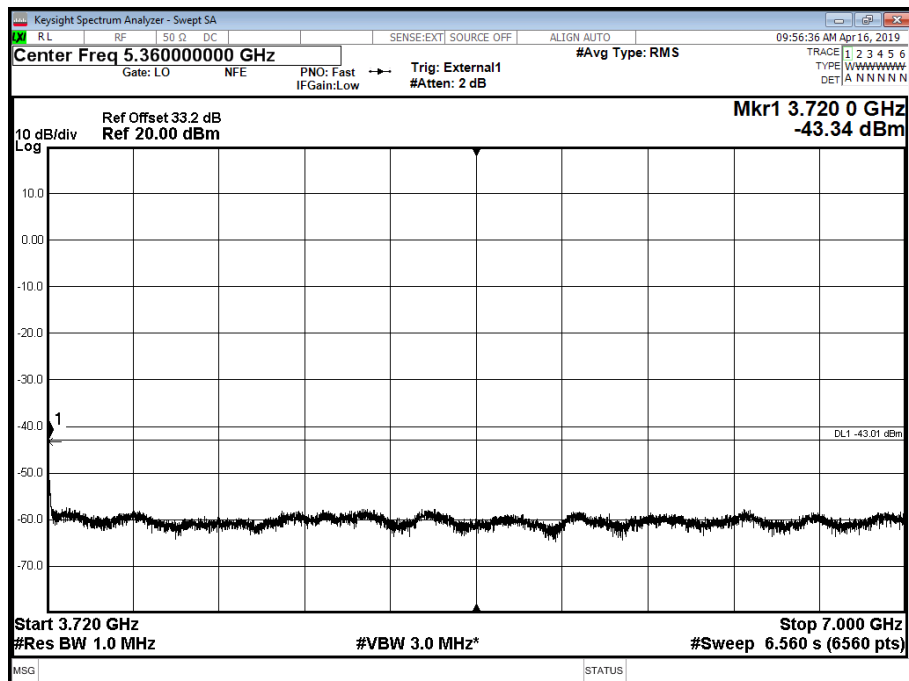




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1

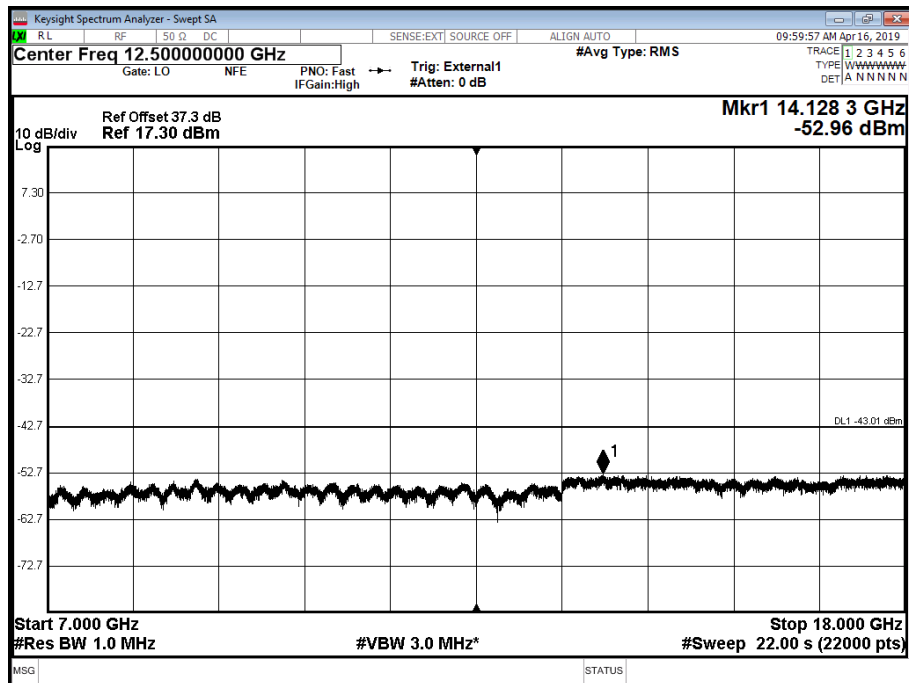


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 3720 to 7000 MHz

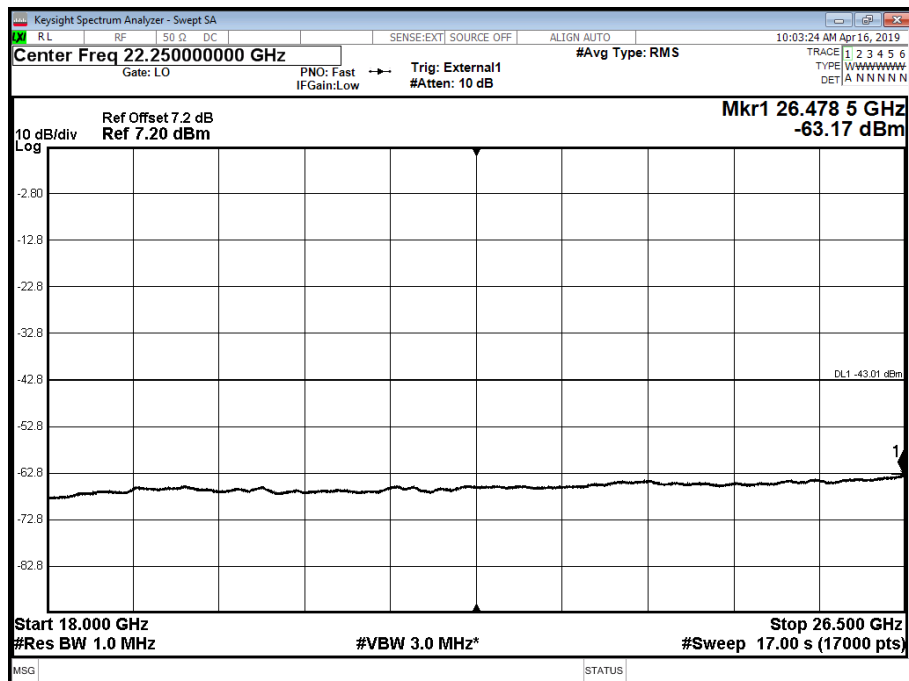




Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 7000 to 18000 MHz

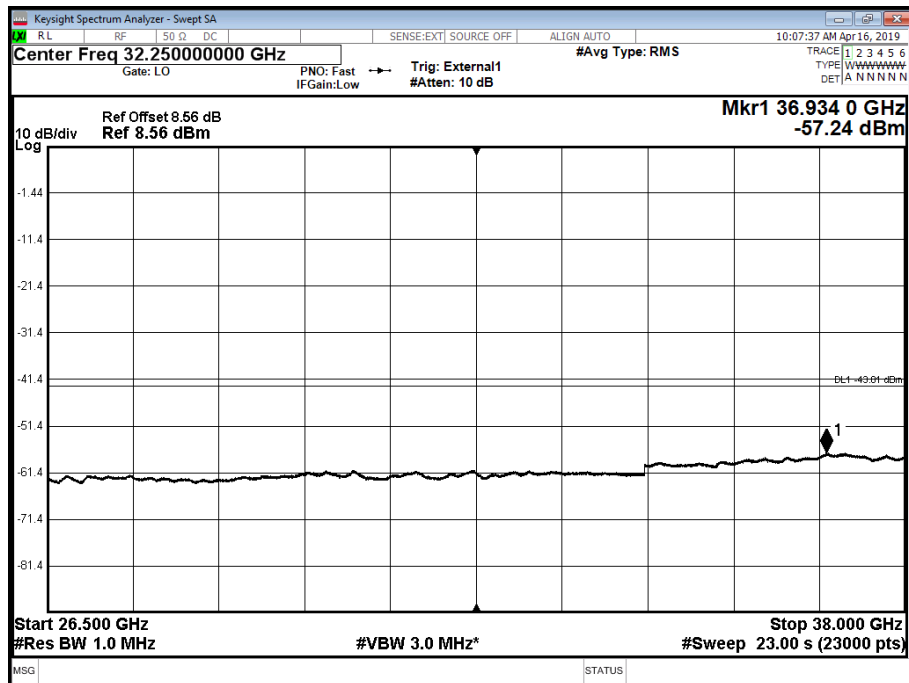


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 4 - Range 18000 to 26500 MHz





Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 5 - Range 26500 to 38000 MHz



|       |                                                                                                         |
|-------|---------------------------------------------------------------------------------------------------------|
| Limit | <3530 MHz and >3720 MHz: -40 dBm/MHz                                                                    |
|       | ± 0 – 10 MHz Assigned Channel Edge: -13 dBm/MHz                                                         |
|       | 3530 MHz to -10 MHz Assigned Channel Edge: -25 dBm/MHz                                                  |
|       | +10 MHz Assigned Channel Edge to 3720 MHz: -25 dBm/MHz                                                  |
|       | Note: Limits shown in the test plots have been reduced by 10log(2) to account for 2 Port MIMO operation |



## **2.5 FREQUENCY STABILITY**

### **2.5.1 Specification Reference**

FCC CFR 47 Part 2, Clause 2.1055

### **2.5.2 Date of Test and Modification State**

18 April 2019 - Modification State 1

### **2.5.3 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

### **2.5.4 Environmental Conditions**

|                     |        |
|---------------------|--------|
| Ambient Temperature | 23.2°C |
| Relative Humidity   | 35.8%  |

### **2.5.5 Test Method**

All measurements were made in accordance with FCC KDB 971168 D01.

The EUT was setup in a Climatic Chamber and connected to a Vector Signal Analyser via attenuators. The temperature was varied over the range -30°C to +50°C in 10°C steps. At each temperature interval, the EUT was left to stabilise.

The testing was performed using a 10 MHz channel bandwidth with QPSK modulation and all Resource Blocks active.

After this period of time, the maximum Frequency Error was measured and recorded on the Middle channel.

At 20°C, the voltage was varied between 85 % and 115 % of the nominal declared voltage for the POE AC power supply. At each extreme voltage, the maximum Frequency Error was measured and recorded.



## 2.5.6 Test Results

Configuration A1

Maximum Output Power 24 dBm per port

| Temperature | Voltage    | Frequency Error (Hz) |
|-------------|------------|----------------------|
|             |            | Channel Position M   |
| -30°C       | 120.0 V AC | 104.80 *             |
| -20°C       | 120.0 V AC | 94.80 *              |
| -10°C       | 120.0 V AC | 83.68 *              |
| 0°C         | 120.0 V AC | 84.88 *              |
| +10°C       | 120.0 V AC | 73.70                |
| +20°C       | 102.0 V AC | 67.62                |
| +20°C       | 120.0 V AC | 70.52                |
| +20°C       | 138.0 V AC | 70.42                |
| +30°C       | 120.0 V AC | 59.11                |
| +40°C       | 120.0 V AC | 48.13                |
| +50°C       | 120.0 V AC | 41.64                |

### Remarks

\* measured at reduced power as setting to max power reset EUT

|       |                                                                                                                                     |
|-------|-------------------------------------------------------------------------------------------------------------------------------------|
| Limit | The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorised bands of operation. |
|-------|-------------------------------------------------------------------------------------------------------------------------------------|



## **2.6 RADIATED EMISSIONS**

### **2.6.1 Specification Reference**

FCC CFR 47 Part 2, Clause 2.1053  
FCC CFR 47 Part 96, Clause 96.41(e)(1)(2)

### **2.6.2 Date of Test and Modification State**

06-May-2019 - Modification State 1

### **2.6.3 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

### **2.6.4 Environmental Conditions**

|                     |             |
|---------------------|-------------|
| Ambient Temperature | 16.6-20.0°C |
| Relative Humidity   | 37.6-41.3%  |

### **2.6.5 Test Method**

Testing was performed in accordance with ANSI C63.26, clause 5.5

Prescans and final measurements were performed using the direct field strength method. The limit line shown on the prescan plots was calculated from equation c) in ANSI C63.26 clause 5.2.7.

Equation c):

$$E \text{ (dBuV/m)} = \text{EIRP (dBm)} - 20 \log (D) + 104.8$$

Where D is the measurement distance and EIRP is the Relevant Rule Part Limit.

Where D = 3m and the Rule Part Limit = -40dBm

$$E \text{ (dBuV/m)} = -40 - 20\log (3) + 104.8 = 55.26 \text{ dBuV/m}$$

Where D = 1m and the Rule Part Limit = -40dBm

$$E \text{ (dBuV/m)} = -40 - 20\log (1) + 104.8 = 64.80 \text{ dBuV/m}$$

### **2.6.6 Test Results**

Configuration A1

Product classification – Class B

Maximum Output Power 24 dBm per port, 10.0 MHz bandwidth

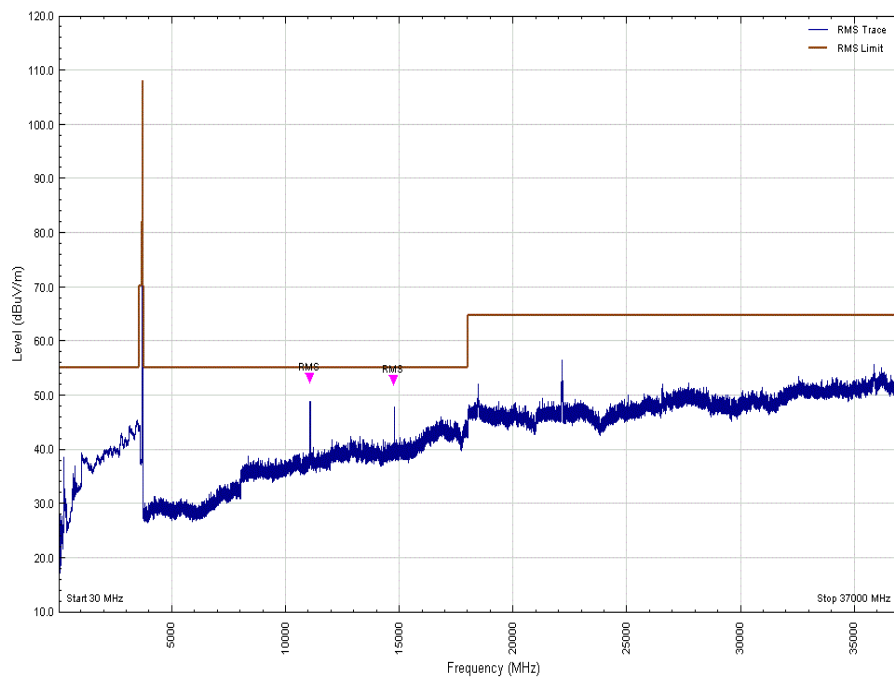
Maximum Output Power 23 dBm per port, 20.0 MHz bandwidth



### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B

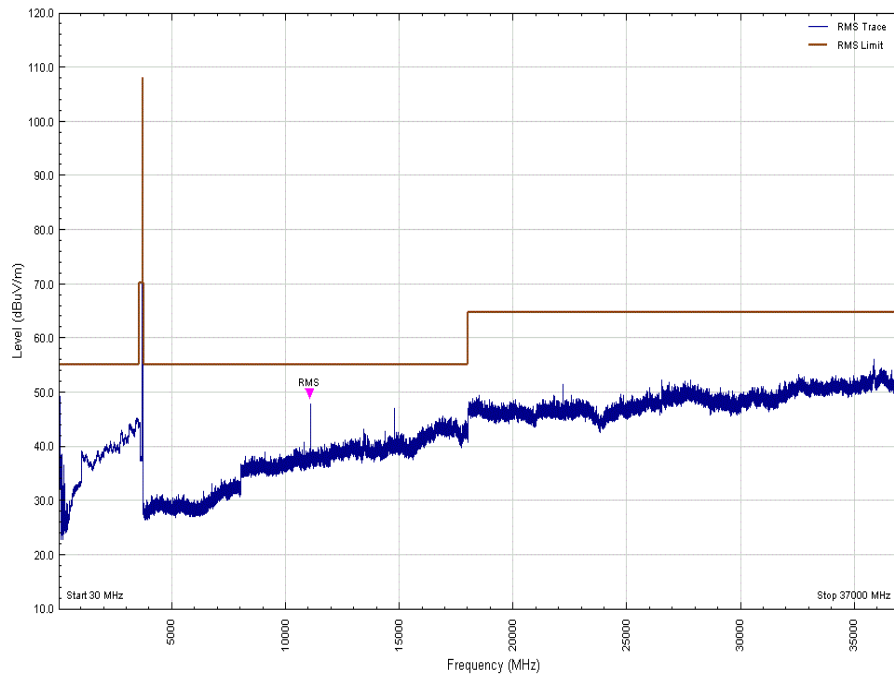
| Frequency (MHz) | Peak (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dBuV/m) | Angle(Deg) | Height(m) | Polarity   |
|-----------------|---------------|---------------------|----------------------|------------|-----------|------------|
| 10664.875       | 50.3          | 55.3                | -5.0                 | 214        | 100       | Vertical   |
| 10665.615       | 49.5          | 55.3                | -5.8                 | 184        | 100       | Horizontal |
| 14219.985       | 48.3          | 55.3                | -6.9                 | 228        | 100       | Vertical   |
| 14220.065       | 50.4          | 55.3                | -4.9                 | 198        | 100       | Horizontal |

### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B – Horizontal Polarisation





LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B – Vertical Polarisation

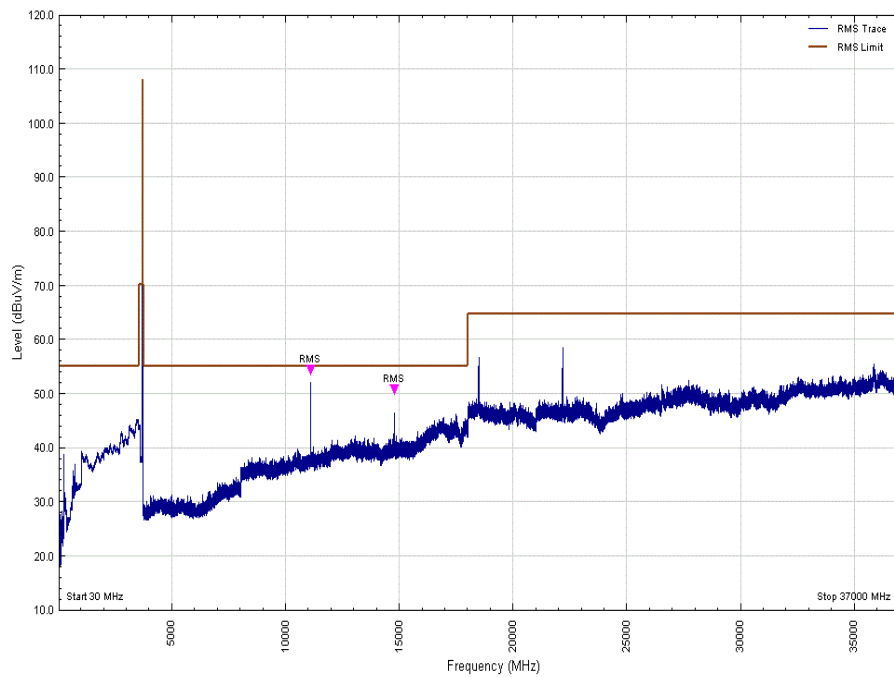




### LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B

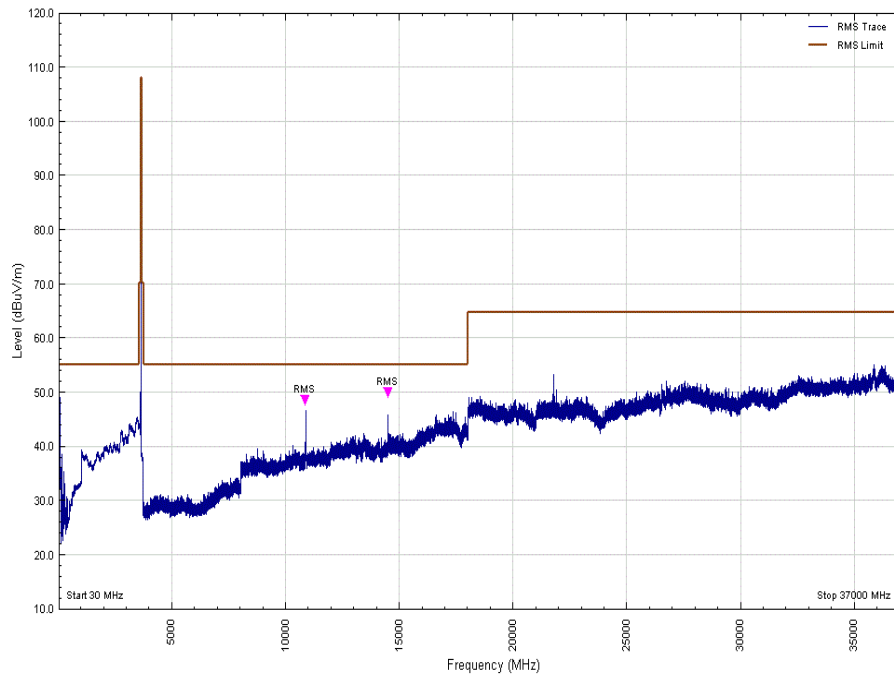
| Frequency (MHz) | Peak (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dBuV/m) | Angle(Deg) | HeigMCS(m) | Polarity   |
|-----------------|---------------|---------------------|----------------------|------------|------------|------------|
| 14240.000       | 51.6          | 55.3                | -3.7                 | 194        | 114        | Horizontal |

### LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B – Horizontal Polarisation





LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B – Vertical Polarisation

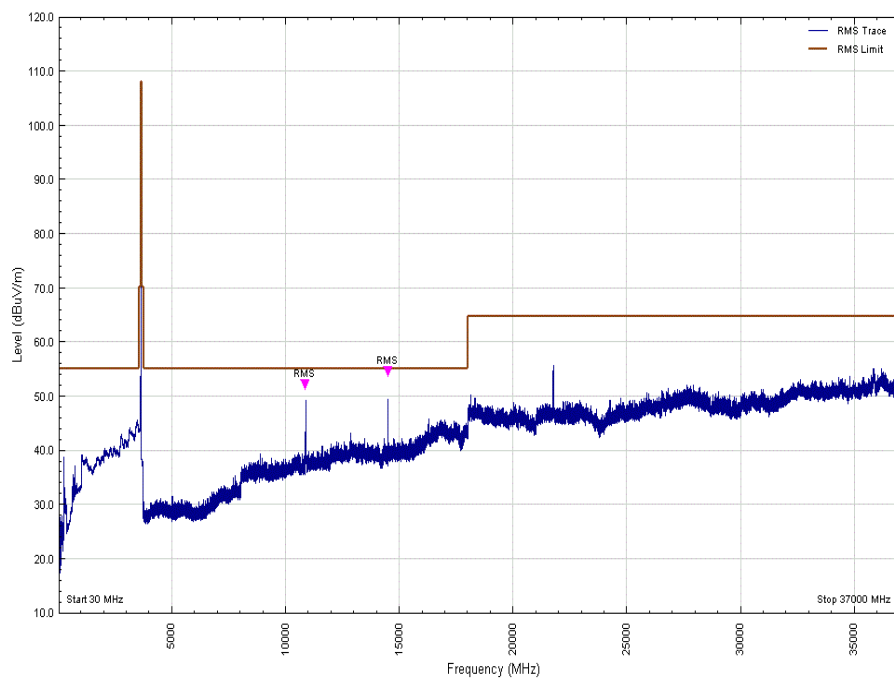




### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M

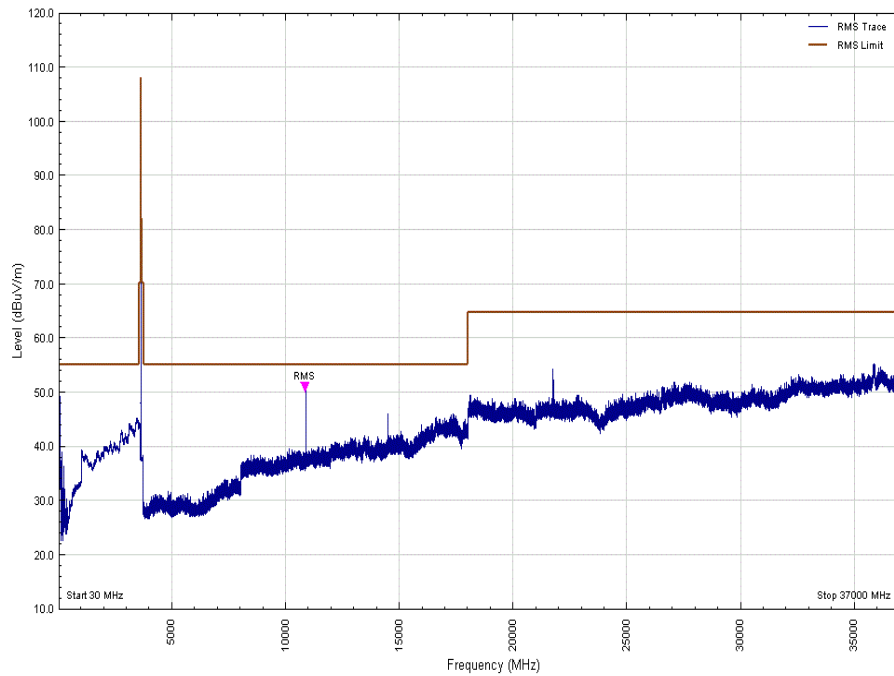
| Frequency (MHz) | Peak (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dBuV/m) | Angle(Deg) | HeigMCS(m) | Polarity   |
|-----------------|---------------|---------------------|----------------------|------------|------------|------------|
| 10875.875       | 49.5          | 55.3                | -5.8                 | 197        | 103        | Vertical   |
| 14500.040       | 52.5          | 55.3                | -2.8                 | 217        | 170        | Horizontal |

### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M – Horizontal Polarisation





LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M –Vertical Polarisation

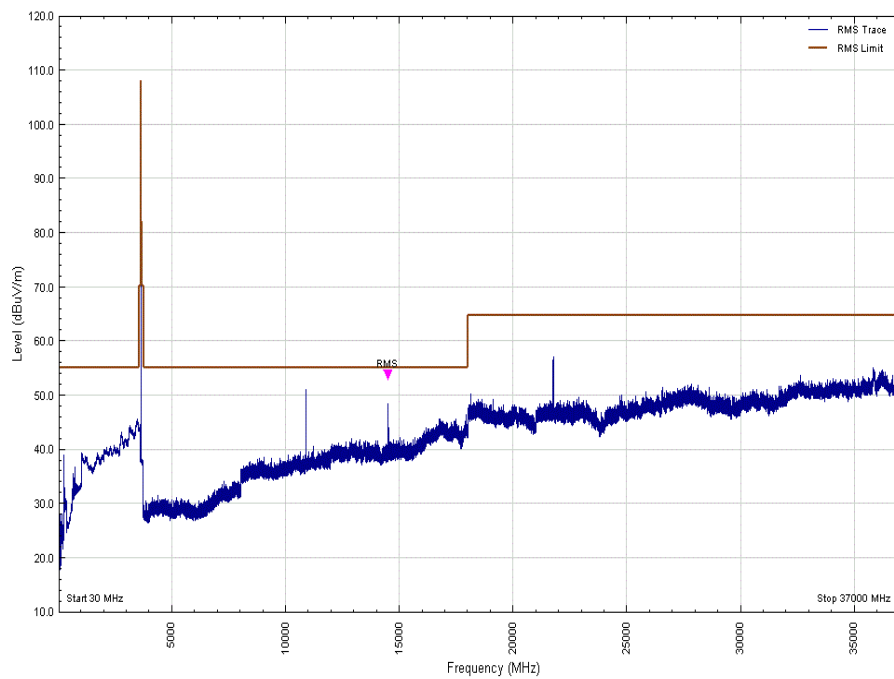




### LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M

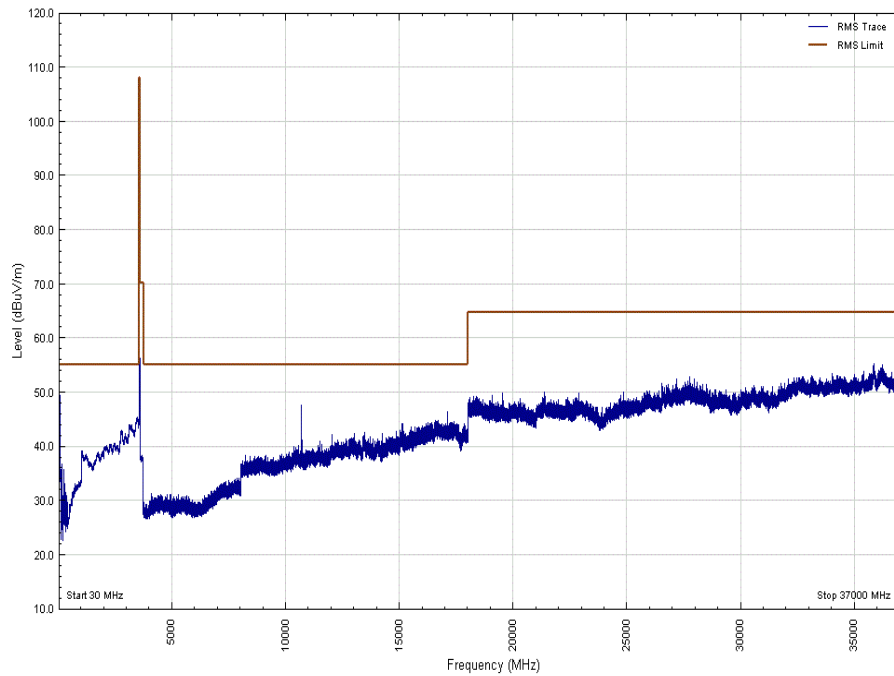
| Frequency (MHz) | Peak (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dBuV/m) | Angle(Deg) | HeigMCS(m) | Polarity   |
|-----------------|---------------|---------------------|----------------------|------------|------------|------------|
| 10875.860       | 50.8          | 55.3                | -4.4                 | 23         | 267        | Horizontal |
| 10876.445       | 47.1          | 55.3                | -8.2                 | 197        | 100        | Vertical   |
| 14500.005       | 53.2          | 55.3                | -2.1                 | 216        | 158        | Horizontal |
| 14500.040       | 48.6          | 55.3                | -6.6                 | 200        | 100        | Vertical   |

### LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M – Horizontal Polarisation





LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M –Vertical Polarisation

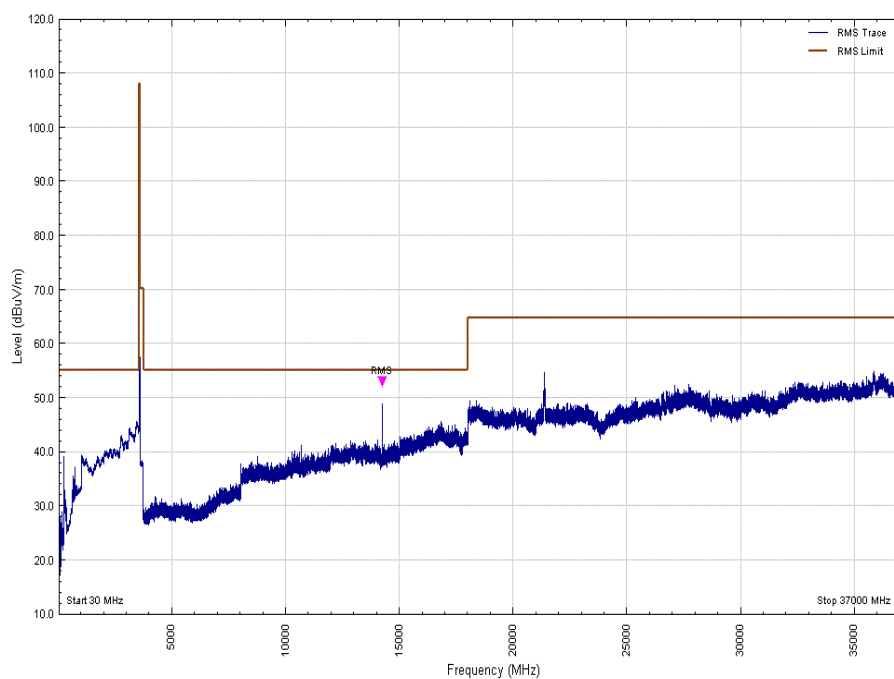




### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T

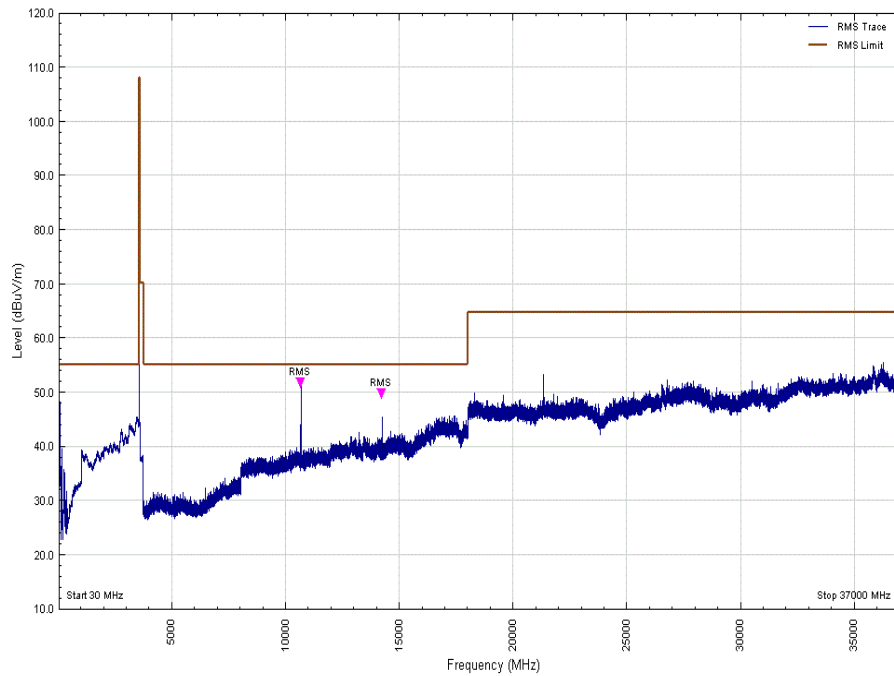
| Frequency (MHz) | Peak (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dBuV/m) | Angle(Deg) | HeigMCS(m) | Polarity   |
|-----------------|---------------|---------------------|----------------------|------------|------------|------------|
| 11083.560       | 48.5          | 55.3                | -6.8                 | 196        | 102        | Vertical   |
| 11085.330       | 53.1          | 55.3                | -2.2                 | 24         | 136        | Horizontal |
| 14779.955       | 49.3          | 55.3                | -5.9                 | 168        | 153        | Horizontal |

### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T – Horizontal Polarisation





LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T – Vertical Polarisation

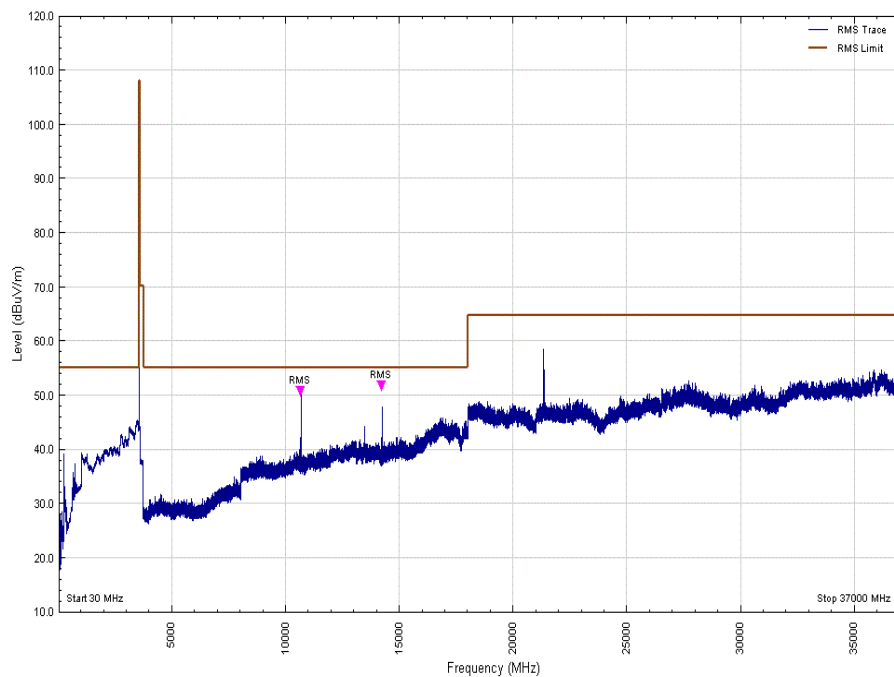




LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T

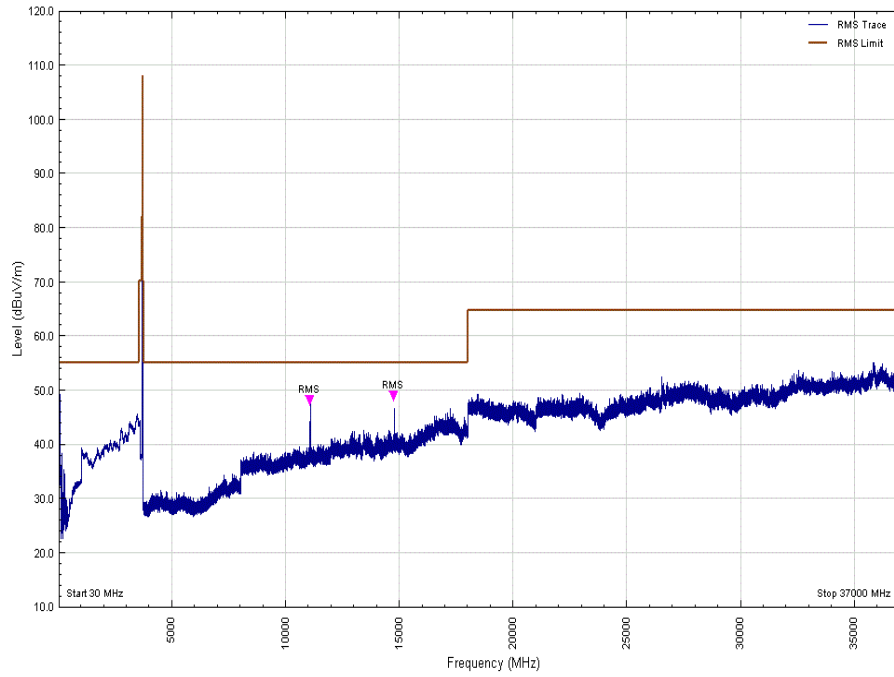
| Frequency (MHz) | Peak (dBuV/m) | Peak Limit (dBuV/m) | Peak Margin (dBuV/m) | Angle(Deg) | HeigMCS(m) | Polarity   |
|-----------------|---------------|---------------------|----------------------|------------|------------|------------|
| 11067.350       | 46.8          | 55.3                | -8.5                 | 192        | 102        | Vertical   |
| 11067.960       | 51.8          | 55.3                | -3.5                 | 27         | 155        | Horizontal |
| 14759.995       | 51.4          | 55.3                | -3.9                 | 66         | 100        | Horizontal |
| 14760.035       | 47.6          | 55.3                | -7.7                 | 200        | 224        | Vertical   |

LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T – Horizontal Polarisation





LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T –Vertical Polarisation



|       |                                                                                                                                                                                                                                      |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Limit | <p>&lt;3530 MHz and &gt;3720 MHz: -40 dBm/MHz</p> <p>± 0 – 10 MHz Assigned Channel Edge: -13 dBm/MHz</p> <p>3530 MHz to -10 MHz Assigned Channel Edge: -25 dBm/MHz</p> <p>+10 MHz Assigned Channel Edge to 3720 MHz: -25 dBm/MHz</p> |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



## 2.7 MODULATION CHARACTERISTICS

### 2.7.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1047

### 2.7.2 Date of Test and Modification State

18 April 2019 - Modification State 1

### 2.7.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.7.4 Environmental Conditions

Ambient Temperature 23.2°C  
Relative Humidity 35.8%

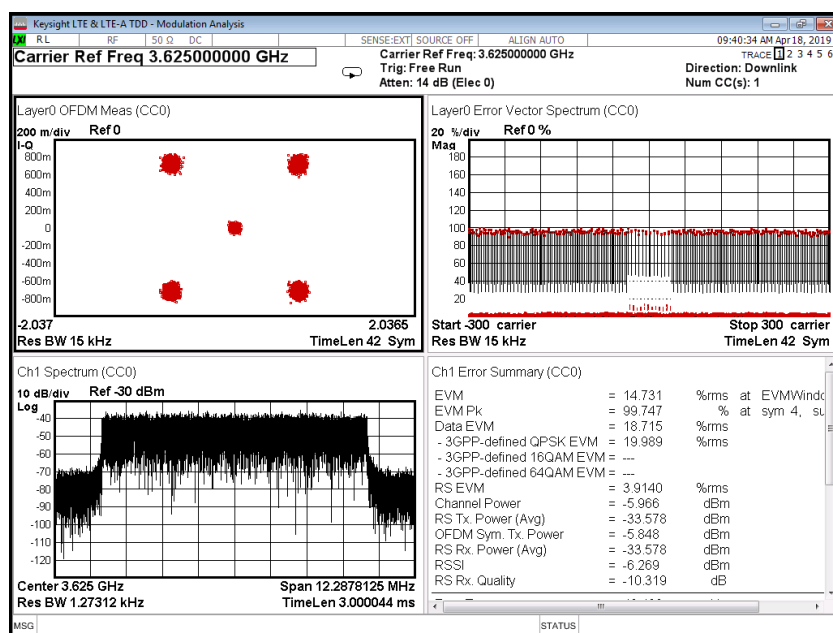
### 2.7.5 Test Method

The EUT was connected to a spectrum analyser with an LTE TDD analysis mode and the supported modulation schemes measured at maximum power, middle channel, 10.0 MHz carrier bandwidth.

### 2.7.6 Test Results

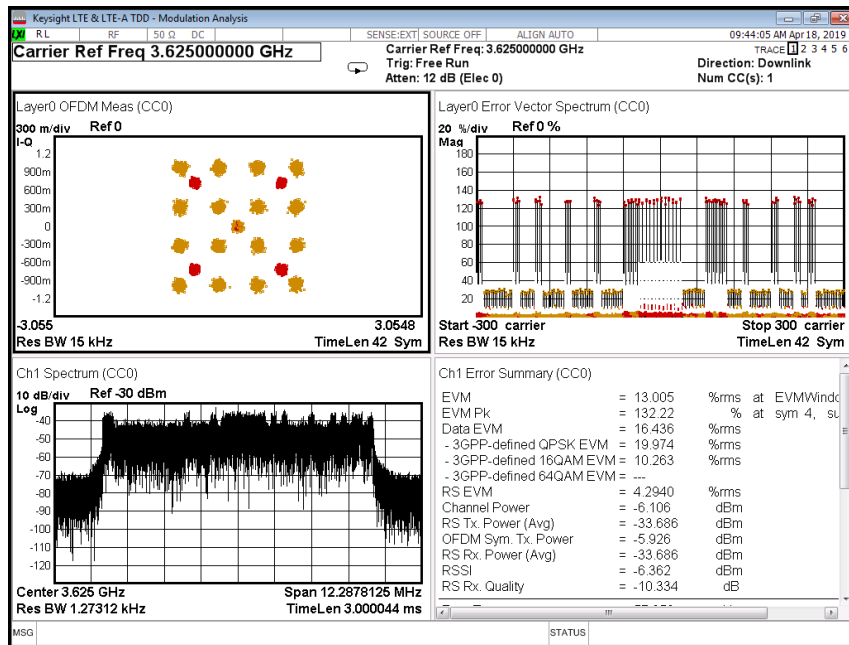
Maximum Output Power 24 dBm per port

#### QPSK modulation

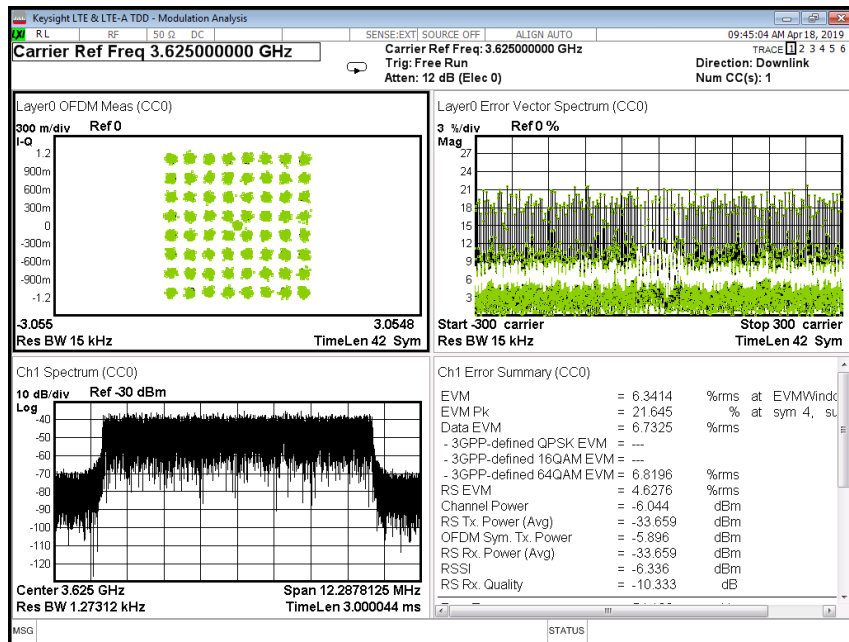




### 16QAM modulation



### 64QAM modulation





### **SECTION 3**

#### **TEST EQUIPMENT USED**



### 3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

| Instrument                                                | Manufacturer    | Type No.                  | TE No. | Calibration Period (months) | Calibration Due |
|-----------------------------------------------------------|-----------------|---------------------------|--------|-----------------------------|-----------------|
| <b>Output Power and Peak to Average Ratio - Conducted</b> |                 |                           |        |                             |                 |
| Hygrometer                                                | Rotronic        | HP21                      | 4740   | 12                          | 17-Jan-2020     |
| Frequency standard                                        | Spectracom      | SecureSync 1200-0408-0601 | 4393   | 12                          | 16-Apr-2019     |
| Rubidium Standard                                         | Rohde & Schwarz | XSRM                      | 1316   | 12                          | 16-Apr-2019     |
| Network analyser                                          | Rohde & Schwarz | ZVA 40                    | 3548   | 12                          | 17-Oct-2019     |
| Calibration unit                                          | Rohde & Schwarz | ZV Z54                    | 4368   | 12                          | 22-Oct-2019     |
| Spectrum Analyser                                         | Keysight        | N9030A                    | 4653   | 12                          | 06-Feb-2020     |
| Attenuator                                                | Weinschel       | 48-30-43LM                | 5135   | 12                          | 07-Nov-2019     |
| AC power source                                           | ITECH           | IT7324                    | 5227   | -                           | O/P Mon         |
| DMM                                                       | Fluke           | 79                        | 0611   | 12                          | 07-Sep-2019     |
| <b>Occupied Bandwidth</b>                                 |                 |                           |        |                             |                 |
| Hygrometer                                                | Rotronic        | HP21                      | 4740   | 12                          | 17-Jan-2020     |
| Frequency standard                                        | Spectracom      | SecureSync 1200-0408-0601 | 4393   | 12                          | 16-Apr-2019     |
| Rubidium Standard                                         | Rohde & Schwarz | XSRM                      | 1316   | 12                          | 16-Apr-2019     |
| Network analyser                                          | Rohde & Schwarz | ZVA 40                    | 3548   | 12                          | 17-Oct-2019     |
| Calibration unit                                          | Rohde & Schwarz | ZV Z54                    | 4368   | 12                          | 22-Oct-2019     |
| Spectrum Analyser                                         | Keysight        | N9030A                    | 4653   | 12                          | 06-Feb-2020     |
| Attenuator                                                | Weinschel       | 48-30-43LM                | 5135   | 12                          | 07-Nov-2019     |
| AC power source                                           | ITECH           | IT7324                    | 5227   | -                           | O/P Mon         |
| DMM                                                       | Fluke           | 79                        | 0611   | 12                          | 07-Sep-2019     |
| <b>Band Edge</b>                                          |                 |                           |        |                             |                 |
| Hygrometer                                                | Rotronic        | HP21                      | 4740   | 12                          | 17-Jan-2020     |
| Frequency standard                                        | Spectracom      | SecureSync 1200-0408-0601 | 4393   | 12                          | 16-Apr-2019     |
| Rubidium Standard                                         | Rohde & Schwarz | XSRM                      | 1316   | 12                          | 16-Apr-2019     |
| Network analyser                                          | Rohde & Schwarz | ZVA 40                    | 3548   | 12                          | 17-Oct-2019     |
| Calibration unit                                          | Rohde & Schwarz | ZV Z54                    | 4368   | 12                          | 22-Oct-2019     |
| Spectrum Analyser                                         | Keysight        | N9030A                    | 4653   | 12                          | 06-Feb-2020     |
| Attenuator                                                | Weinschel       | 48-30-43LM                | 5135   | 12                          | 07-Nov-2019     |
| AC power source                                           | ITECH           | IT7324                    | 5227   | -                           | O/P Mon         |
| DMM                                                       | Fluke           | 79                        | 0611   | 12                          | 07-Sep-2019     |
| <b>Spurious Emissions at Antenna Terminals</b>            |                 |                           |        |                             |                 |
| Hygrometer                                                | Rotronic        | HP21                      | 4740   | 12                          | 17-Jan-2020     |
| Frequency standard                                        | Spectracom      | SecureSync 1200-0408-0601 | 4393   | 12                          | 16-Apr-2019     |
| Rubidium Standard                                         | Rohde & Schwarz | XSRM                      | 1316   | 12                          | 16-Apr-2019     |
| Network analyser                                          | Rohde & Schwarz | ZVA 40                    | 3548   | 12                          | 17-Oct-2019     |
| Calibration unit                                          | Rohde & Schwarz | ZV Z54                    | 4368   | 12                          | 22-Oct-2019     |
| Spectrum Analyser                                         | Keysight        | N9030A                    | 4653   | 12                          | 06-Feb-2020     |
| Attenuator                                                | Weinschel       | 48-30-43LM                | 5135   | 12                          | 07-Nov-2019     |
| AC power source                                           | ITECH           | IT7324                    | 5227   | -                           | OP/MON          |
| DMM                                                       | Fluke           | 79                        | 0611   | 12                          | 07-Sep-2019     |
| HPF                                                       | K&L             | 11SH10-4000/X18000-0/0    | 4599   | 12                          | 04-Sep-2019     |
| WG                                                        | FMI             | 18-25G                    | -      | -                           | OP/Mon          |
| WG                                                        | FMI             | 25-40G                    | -      | -                           | OP/Mon          |



| Instrument                                | Manufacturer        | Type No.                  | TE No. | Calibration Period (months) | Calibration Due |
|-------------------------------------------|---------------------|---------------------------|--------|-----------------------------|-----------------|
| <b>Frequency Stability</b>                |                     |                           |        |                             |                 |
| Hygrometer                                | Rotronic            | HP21                      | 4740   | 12                          | 17-Jan-2020     |
| Frequency standard                        | Spectracom          | SecureSync 1200-0408-0601 | 4393   | 12                          | 16-Apr-2019     |
| Rubidium Standard                         | Rohde & Schwarz     | XSRM                      | 1316   | 12                          | 16-Apr-2019     |
| Spectrum Analyser                         | Keysight            | N9030A                    | 4654   | 12                          | 08-Oct-2019     |
| Attenuator                                | Weinschel           | 48-30-43LM                | 5135   | 12                          | 07-Nov-2019     |
| AC power source                           | ITECH               | IT7324                    | 5227   | -                           | OP/MON          |
| DMM                                       | Fluke               | 79                        | 0611   | 12                          | 07-Sep-2019     |
| Thermometer                               | Fluke               | 51                        | 3174   | 12                          | 07-Feb-2020     |
| Climatic chamber                          | Aralab              | FitoTerm 300E45           | 4823   | -                           | OP/Mon          |
| <b>Radiated Emissions</b>                 |                     |                           |        |                             |                 |
| Antenna 18-40GHz (Double Ridge Guide)     | Link Microtek Ltd   | AM180HA-K-TU2             | 230    | 24                          | 2-May-2020      |
| Filter (High Pass)                        | Lorch               | SHP7-7000-SR              | 566    | 12                          | 10-May-2019     |
| Pre-Amplifier                             | Phase One           | PS04-0086                 | 1533   | 12                          | 8-Feb-2020      |
| 18GHz - 40GHz Pre-Amplifier               | Phase One           | PSO4-0087                 | 1534   | 12                          | 5-Feb-2020      |
| Screened Room (5)                         | Rainford            | Rainford                  | 1545   | 36                          | 23-Jan-2021     |
| Turntable Controller                      | Inn-Co GmbH         | CO 1000                   | 1606   | -                           | TU              |
| Hygrometer                                | Rotronic            | A1                        | 2677   | 12                          | 20-Feb-2020     |
| Digital Multimeter                        | Iso-tech            | IDM-101                   | 2895   | 12                          | 4-Oct-2019      |
| Antenna with permanent attenuator (Bilog) | Chase               | CBL6143                   | 2904   | 24                          | 8-Aug-2019      |
| Comb Generator                            | Schaffner           | RSG1000                   | 3034   | -                           | TU              |
| Cable 1503 2M 2.92(P)m 2.92(P)m           | Rhophase            | KPS-1503A-2000-KPS        | 4293   | 12                          | 26-Oct-2019     |
| 1GHz to 8GHz Low Noise Amplifier          | Wright Technologies | APS04-0085                | 4365   | 12                          | 25-Oct-2019     |
| Cable (Rx, Km-Km 2m)                      | Scott Cables        | KPS-1501-2000-KPS         | 4526   | -                           | OP/Mon          |
| 1 - 18GHz DRG Antenna                     | ETS-Lindgren        | 3117                      | 4738   | 12                          | 5-Mar-2020      |
| Mast Controller                           | Maturo GmbH         | NCD                       | 4810   | -                           | TU              |
| Tilt Antenna Mast                         | Maturo GmbH         | TAM 4.0-P                 | 4811   | -                           | TU              |
| Double Ridge Broadband Horn Antenna       | Schwarzbeck         | BBHA 9120 B               | 4848   | 12                          | 11-Mar-2020     |
| 4dB Attenuator                            | Pasternack          | PE7047-4                  | 4935   | 24                          | 28-Nov-2019     |
| 8m N-Type RF Cable                        | Teledyne            | PR90-088-8MTR             | 5093   | 12                          | 4-Oct-2019      |
| EmX Software                              | TUV SUD             | EmX V.1.4.6               | 5125   | -                           | N/A - Software  |
| 1.5m 40GHz RF Cable                       | Scott Cables        | KPS-1501-2000-KPS         | 5127   | -                           | OP/Mon          |
| <b>Modulation Characteristics</b>         |                     |                           |        |                             |                 |
| Hygrometer                                | Rotronic            | HP21                      | 4740   | 12                          | 17-Jan-2020     |
| Frequency standard                        | Spectracom          | SecureSync 1200-0408-0601 | 4393   | 12                          | 16-Apr-2019     |
| Rubidium Standard                         | Rohde & Schwarz     | XSRM                      | 1316   | 12                          | 16-Apr-2019     |
| Network analyser                          | Rohde & Schwarz     | ZVA 40                    | 3548   | 12                          | 17-Oct-2019     |
| Calibration unit                          | Rohde & Schwarz     | ZV Z54                    | 4368   | 12                          | 22-Oct-2019     |
| Spectrum Analyser                         | Keysight            | N9030A                    | 4654   | 12                          | 08-Oct-2019     |
| Attenuator                                | Weinschel           | 48-30-43LM                | 5135   | 12                          | 07-Nov-2019     |
| AC power source                           | ITECH               | IT7324                    | 5227   | -                           | O/P Mon         |
| DMM                                       | Fluke               | 79                        | 0611   | 12                          | 07-Sep-2019     |

O/P Mon – Output Monitored with Calibrated Equipment

TU - Traceability Unscheduled



### 3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:

| Test Discipline                     | Frequency / Parameter      | MU         |
|-------------------------------------|----------------------------|------------|
| Conducted Maximum Peak Output Power | 30 MHz to 20 GHz Amplitude | ± 2.3 dB   |
| Occupied Bandwidth                  | Up to 20 MHz Bandwidth     | ± 46.2 kHz |
| Band Edge                           | 30 MHz to 20 GHz Amplitude | ± 2.3 dB   |
| Conducted Emissions                 | 9 kHz to 3.53 GHz          | ± 0.8 dB   |
|                                     | 3.5 GHz to 7 GHz           | ± 2.1 dB   |
|                                     | 7 GHz to 18 GHz            | ± 2.6 dB   |
|                                     | 18 GHz to 38 GHz           | ± 3.2 dB   |
| Frequency Stability                 | 30 MHz to 2 GHz            | ± 5.0 Hz   |
| Radiated Emissions                  | 30 MHz to 1 GHz Amplitude  | ±5.2 dB    |
|                                     | 1 GHz to 40 GHz Amplitude  | ±6.3 dB    |



## **SECTION 5**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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## **ANNEX A**

### **MODULE LIST**



|                        |            |                                      |
|------------------------|------------|--------------------------------------|
| Configuration A        |            |                                      |
| Product                | Product No | Serial No                            |
| E61 B48                | 495X       | 000295-0100008307 (75945166-TSR0014) |
| Software Version: 6014 |            |                                      |