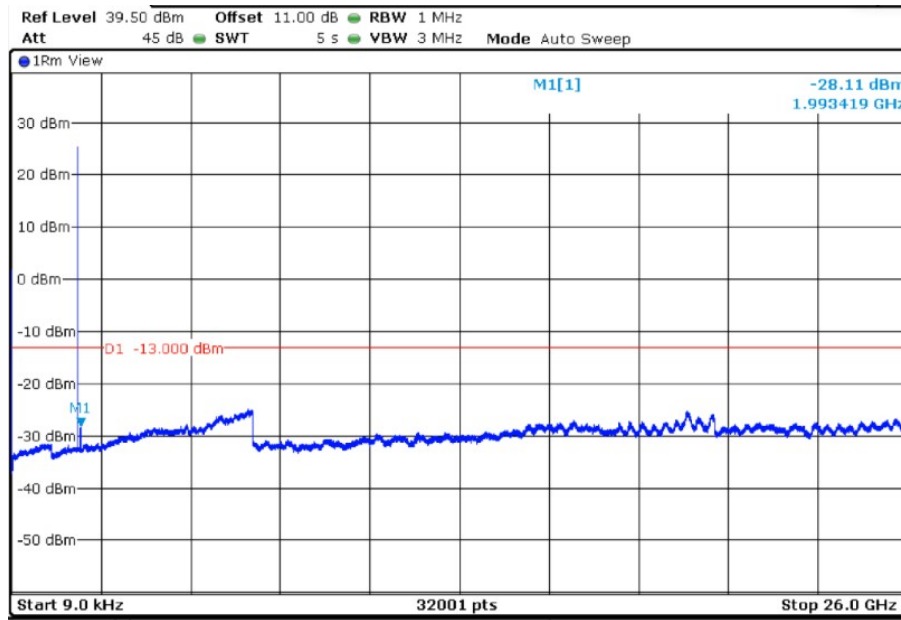


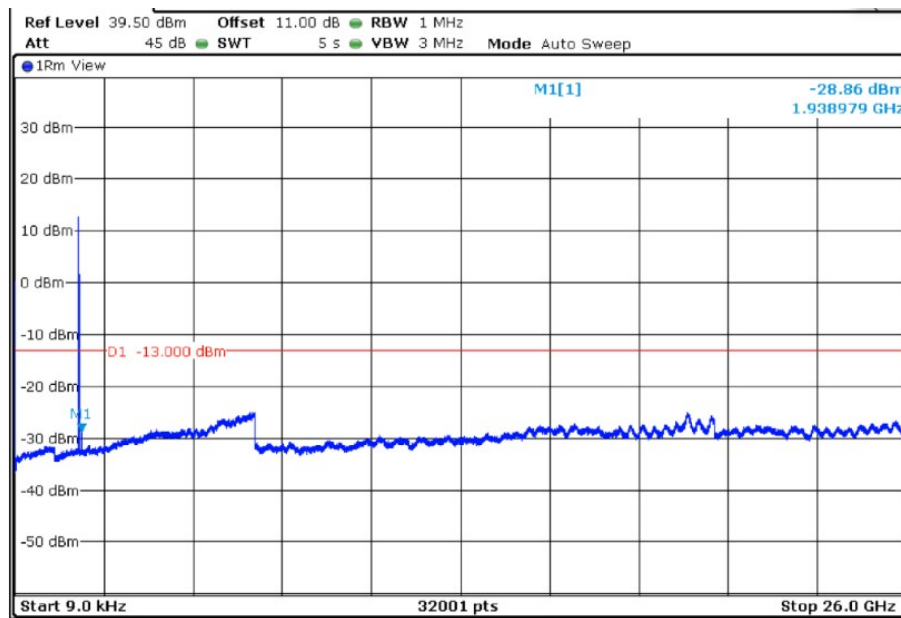
## TEST RESULTS (Cont):

Highest Channel



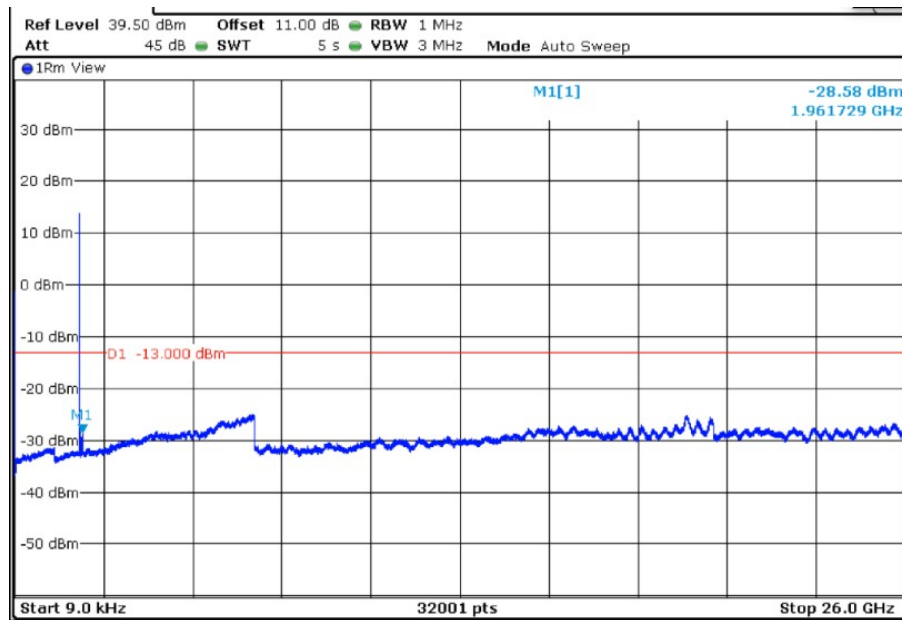
LTE QPSK MODULATION. BW = 10 MHz

Lowest Channel

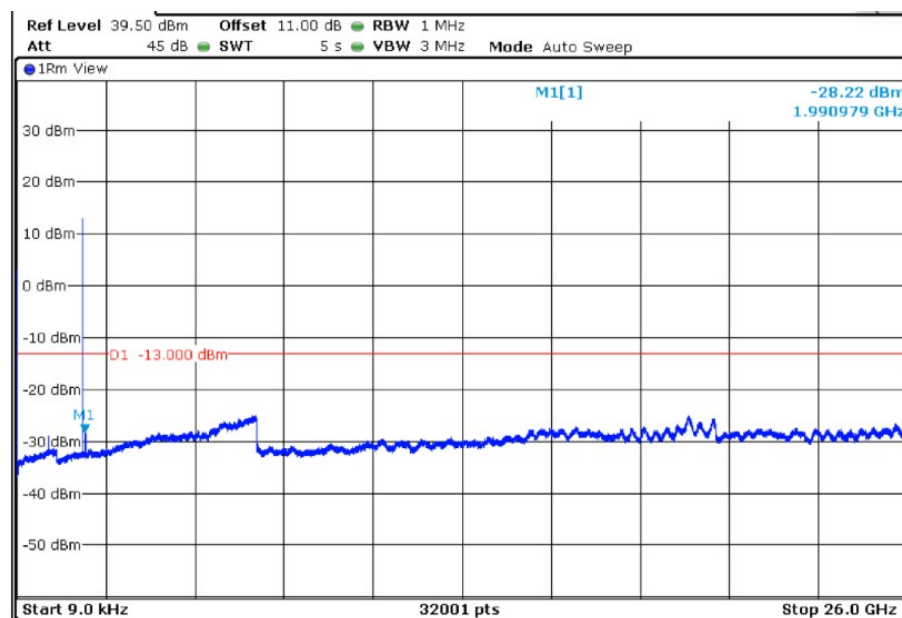


## TEST RESULTS (Cont):

### Middle Channel



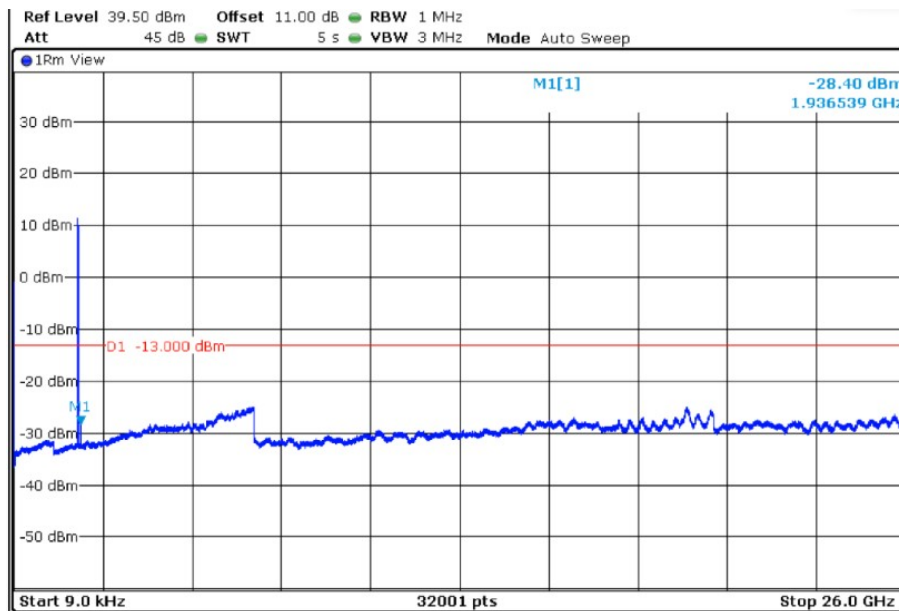
### Highest Channel



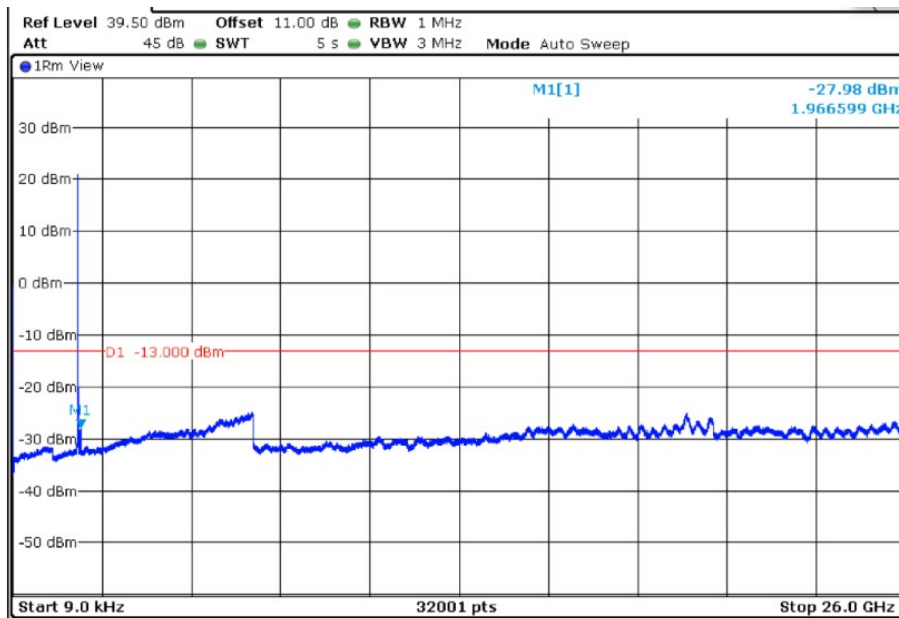
**TEST RESULTS (Cont):**

LTE QPSK MODULATION. BW = 15 MHz

Lowest Channel

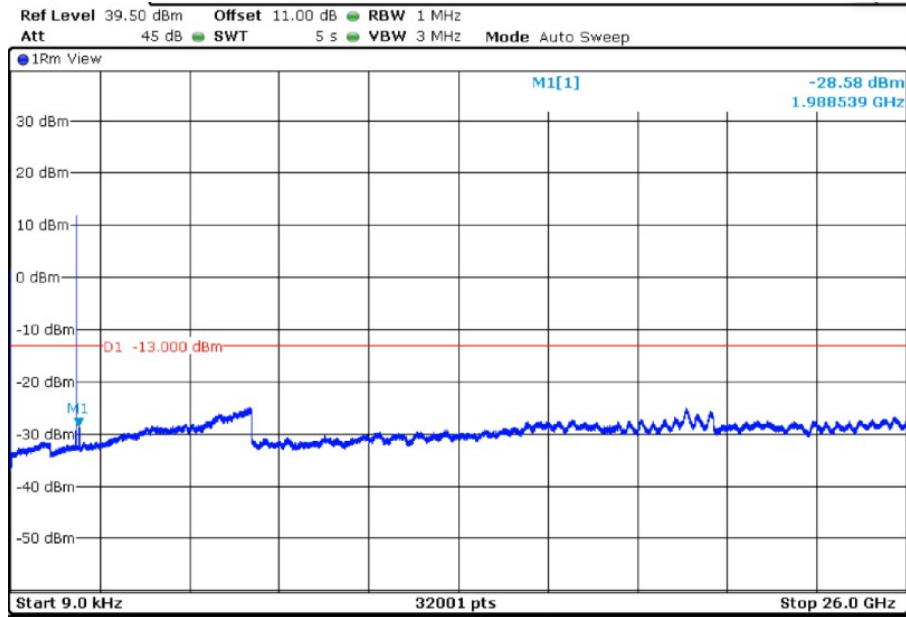


Middle Channel



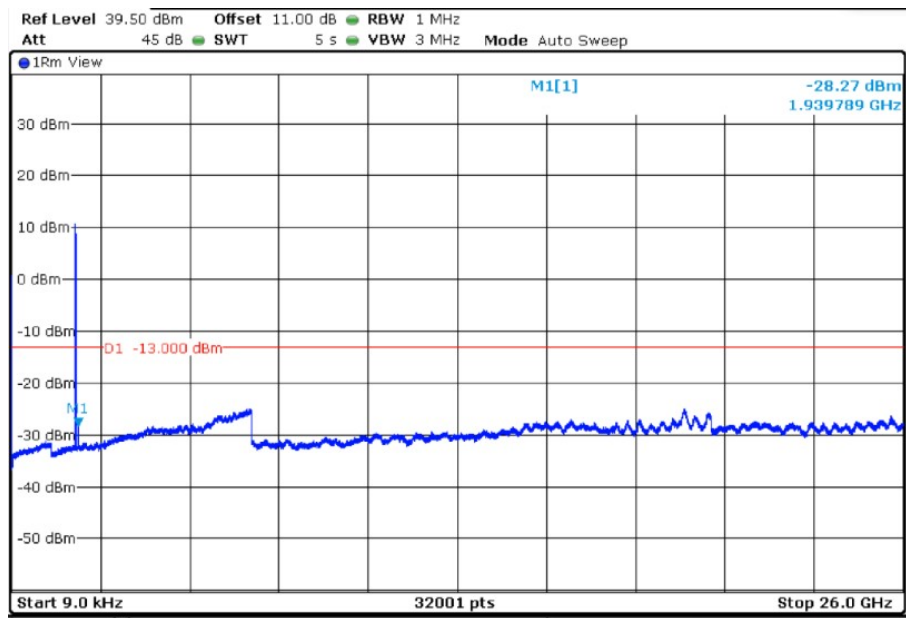
## TEST RESULTS (Cont):

Highest Channel



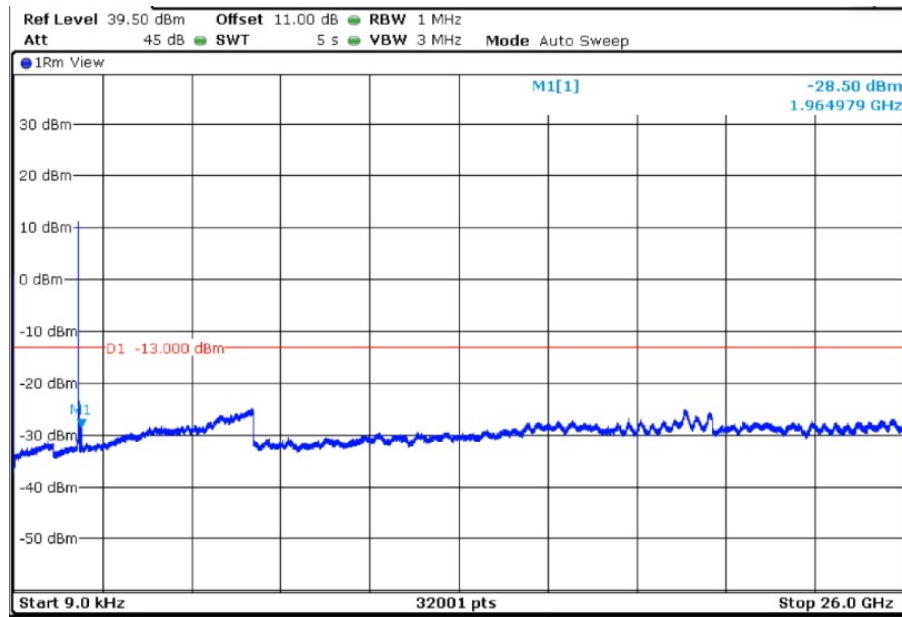
LTE QPSK MODULATION. BW = 20 MHz

Lowest Channel

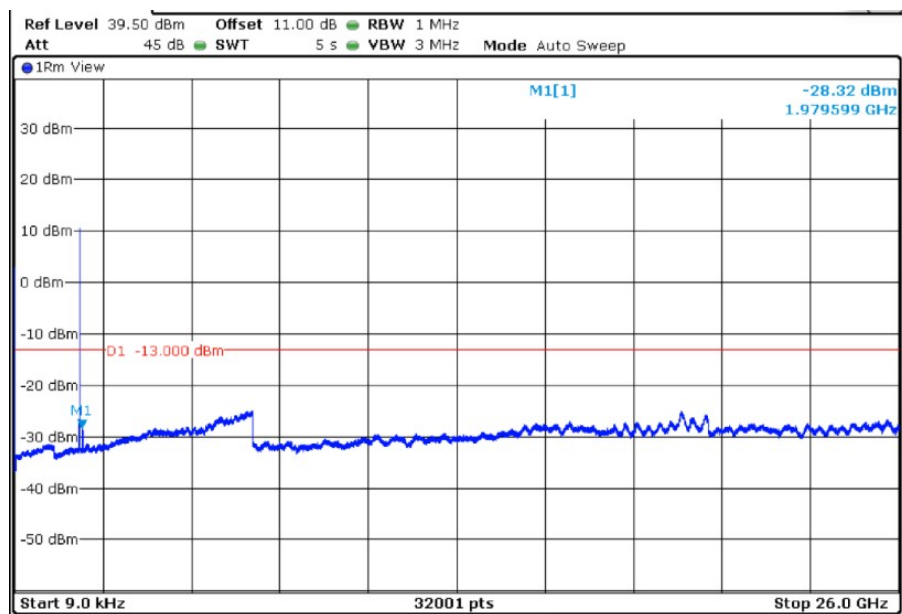


## TEST RESULTS (Cont):

### Middle Channel



### Highest Channel



## TEST A.6: SPURIOUS EMISSIONS AT ANTENNA TERMINALS AT BLOCK EDGES

|                |                   |                                                    |
|----------------|-------------------|----------------------------------------------------|
| <b>LIMITS:</b> | Product standard: | FCC Part 24 / IC RSS-133                           |
|                | Test standard:    | FCC § 24.238 and FCC §2.1051 / RSS 133- Clause 6.6 |

### LIMITS

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. P in watts.

At  $P_o$  transmitting power of 2 watts (33 dBm), the specified minimum attenuation becomes  $43 + 10 \log (P_o)$ . and the level in dBm relative to  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in watts})] = -13 \text{ dBm}$$

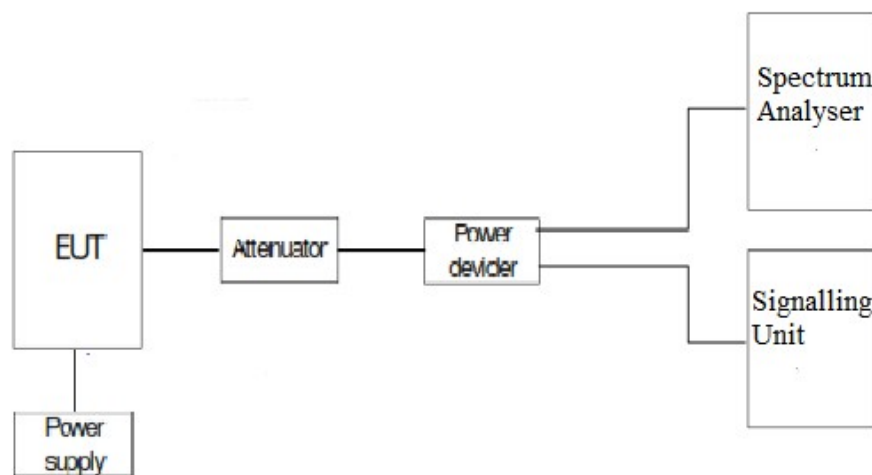
### **TEST SETUP**

The EUT RF output connector was connected to a spectrum analyzer and to the Universal Radio Communication Tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using a 50 ohm attenuator and a power splitter.

The reading of the spectrum analyzer is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyzer.

For LTE mode the configuration of modulation which is the worst case for conducted power was used.

As indicated in FCC part 24, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block or band, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

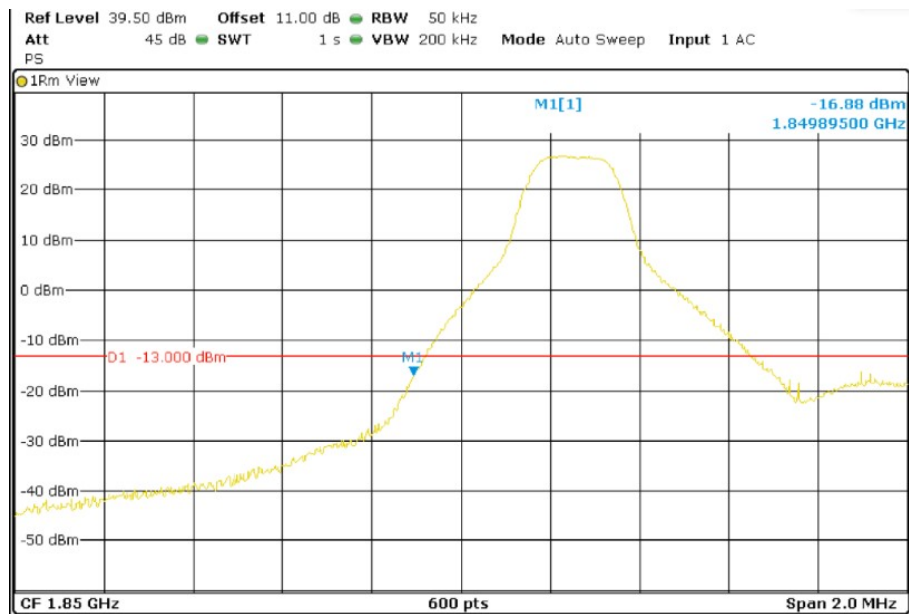


|                                                                    |                                             |                                              |                                              |                                               |                                               |                                               |
|--------------------------------------------------------------------|---------------------------------------------|----------------------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| <b>TESTED SAMPLES:</b>                                             |                                             | S/01                                         |                                              |                                               |                                               |                                               |
| <b>TESTED CONDITIONS MODES:</b>                                    |                                             | TC#01                                        |                                              |                                               |                                               |                                               |
| <b>TEST RESULTS:</b>                                               |                                             | PASS                                         |                                              |                                               |                                               |                                               |
| LTE QPSK MODULATION                                                | RB=1.<br><br>Offset=0.<br><br>BW=1.4 MHz    | RB=1.<br><br>Offset =0.<br><br>BW = 3 MHz    | RB=1.<br><br>Offset =0.<br><br>BW = 5 MHz    | RB=1.<br><br>Offset =0.<br><br>BW = 10 MHz    | RB=1.<br><br>Offset =0.<br><br>BW = 15 MHz    | RB=1.<br><br>Offset =0.<br><br>BW = 20 MHz    |
| Maximum measured level at lowest Block Edge at antenna port (dBm)  | -16.88                                      | -17.34                                       | -18.04                                       | -15.86                                        | -15.93                                        | -19.7                                         |
| LTE QPSK MODULATION:<br>);                                         | RB= All.<br><br>Offset=0.<br><br>BW=1.4 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 3 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 5 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 10 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 15 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 20 MHz |
| Maximum measured level at lowest Block Edge at antenna port (dBm)  | -22.15                                      | -20.24                                       | -15.48                                       | -16.26                                        | -20.39                                        | -21.09                                        |
| LTE QPSK MODULATION:                                               | RB= 1.<br><br>Offset=Max.<br><br>BW=1.4 MHz | RB= 1.<br><br>Offset=Max.<br><br>BW = 3 MHz  | RB= 1.<br><br>Offset=Max.<br><br>BW = 5 MHz  | RB= 1.<br><br>Offset=Max.<br><br>BW = 10 MHz  | RB= 1.<br><br>Offset=Max.<br><br>BW = 15 MHz  | RB= 1.<br><br>Offset=Max.<br><br>BW = 20 MHz  |
| Maximum measured level at highest Block Edge at antenna port (dBm) | -18.43                                      | -17.77                                       | -15.31                                       | -15.41                                        | -17.39                                        | -20.45                                        |
| LTE QPSK MODULATION:                                               | RB= All.<br><br>Offset=0.<br><br>BW=1.4 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 3 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 5 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 10 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 15 MHz | RB= All.<br><br>Offset =0.<br><br>BW = 20 MHz |
| Maximum measured level at highest Block Edge at antenna port (dBm) | -16.01                                      | -24.39                                       | -14.82                                       | -18.23                                        | -21.76                                        | -26.61                                        |

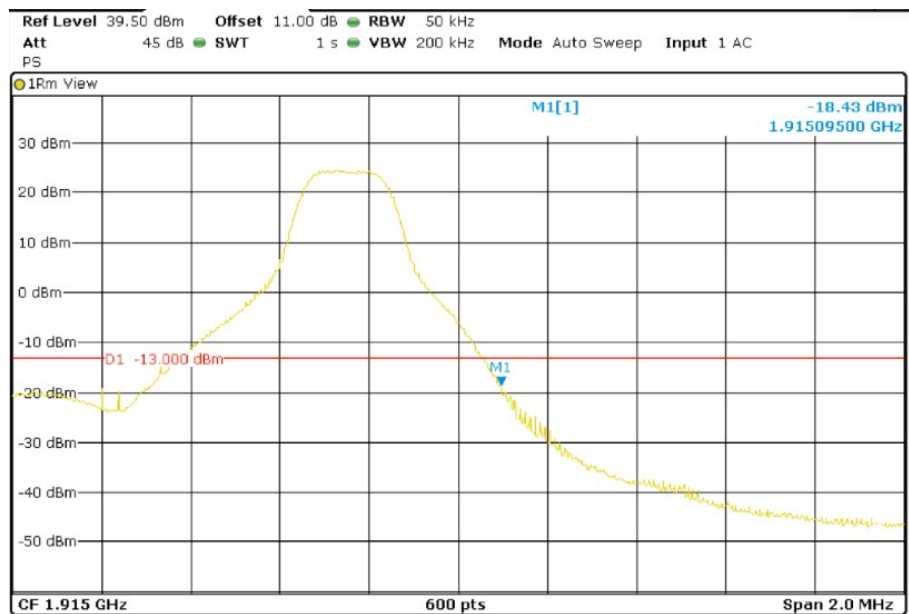
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 1.4 MHz

Lowest Channel



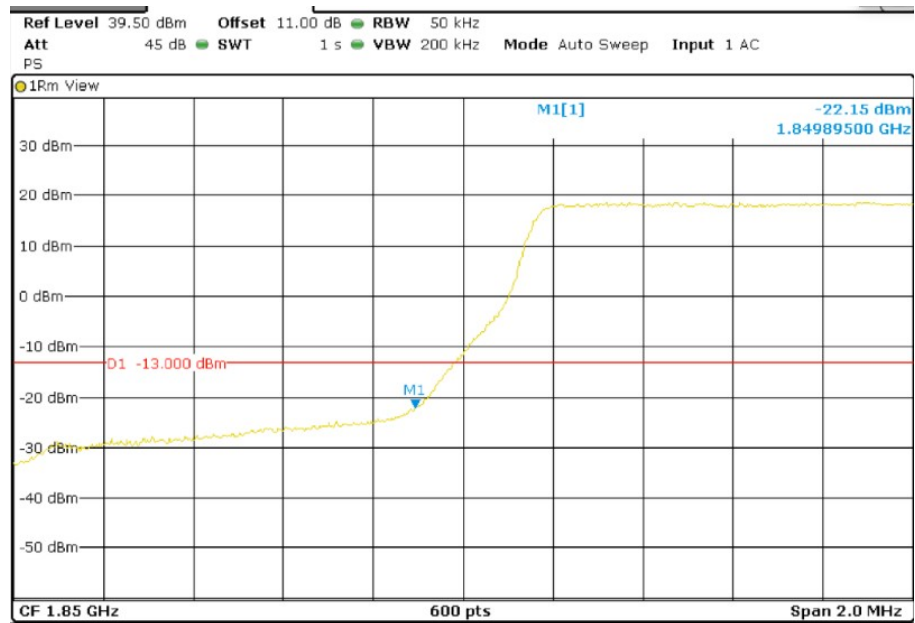
Highest Channel



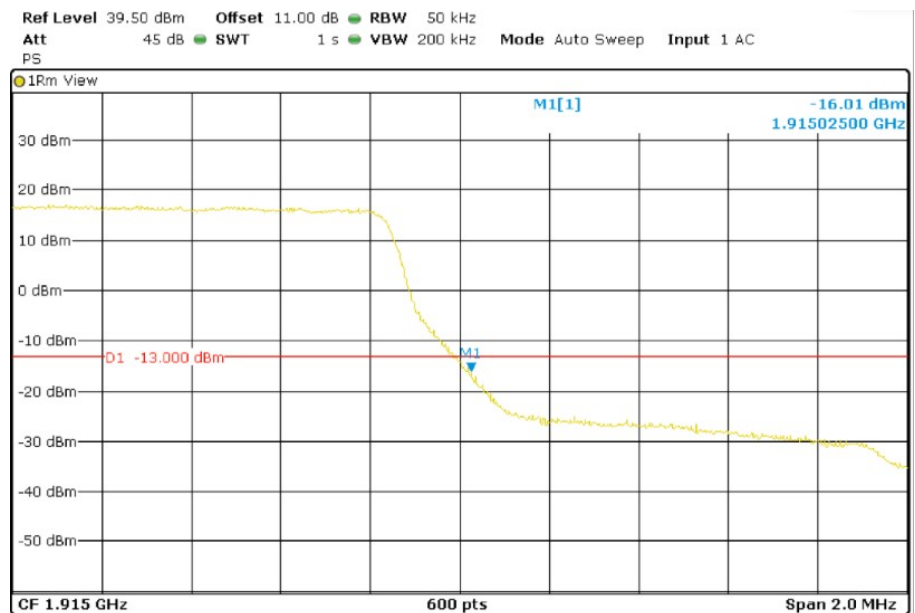
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 6. Offset = 0. BW = 1.4 MHz

Lowest Channel



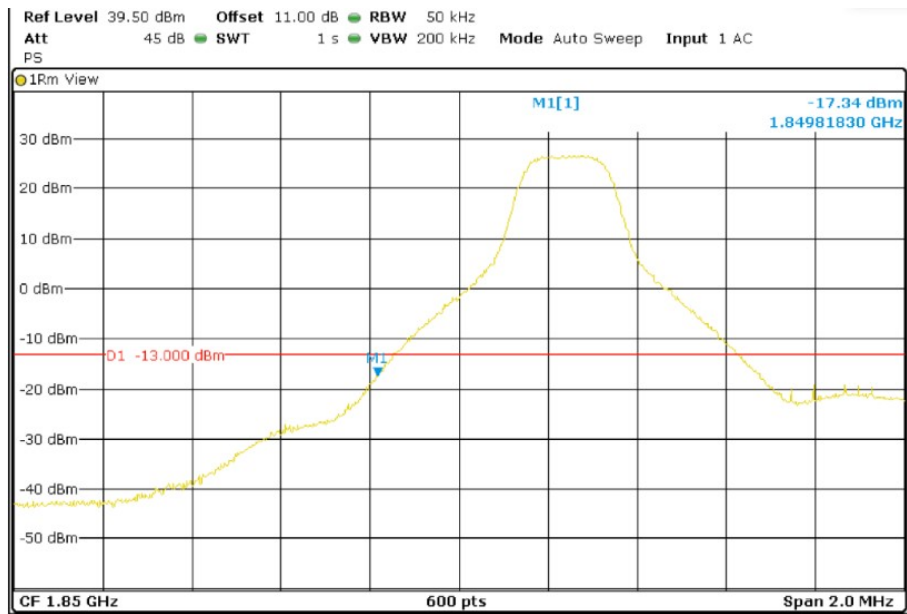
Highest Channel



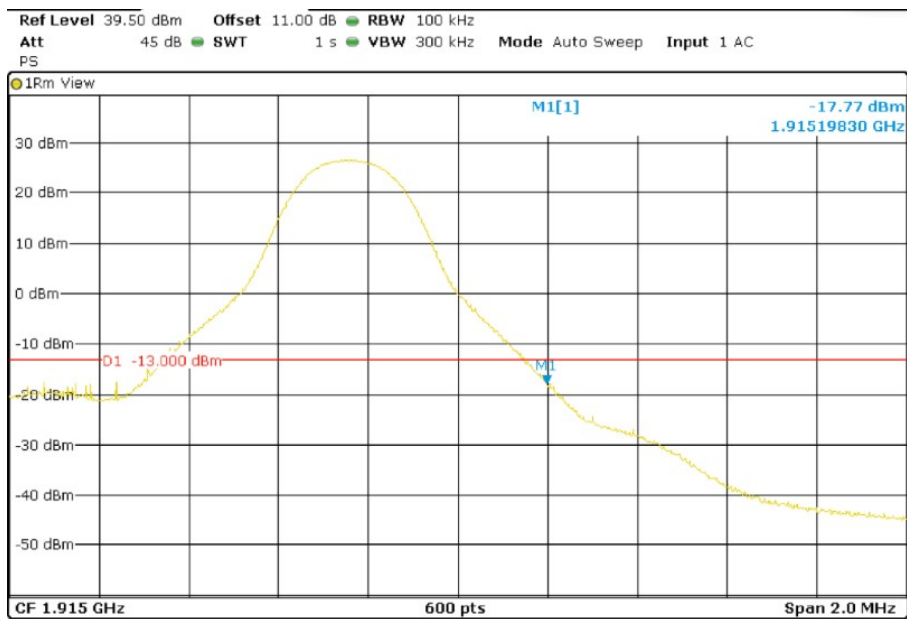
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 3 MHz

Lowest Channel



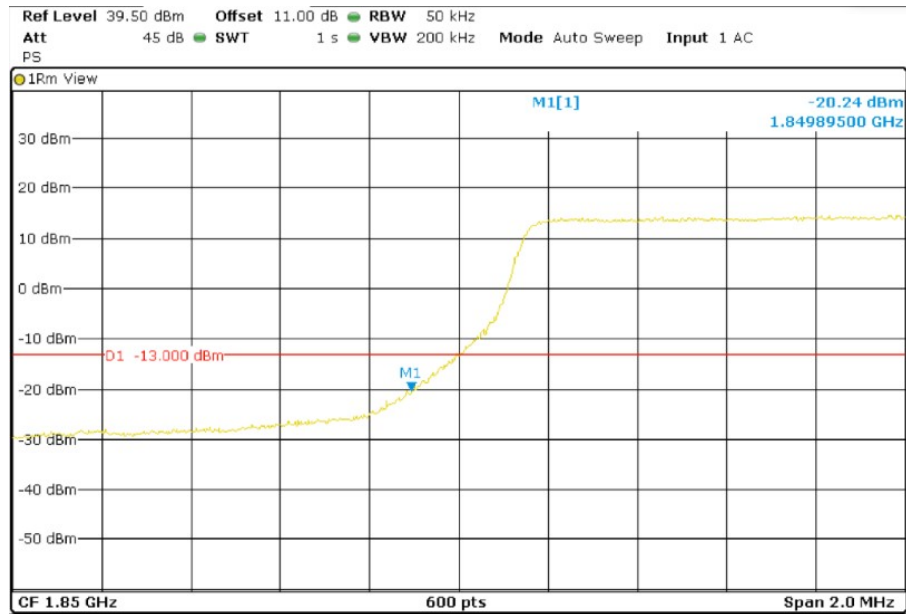
Highest Channel



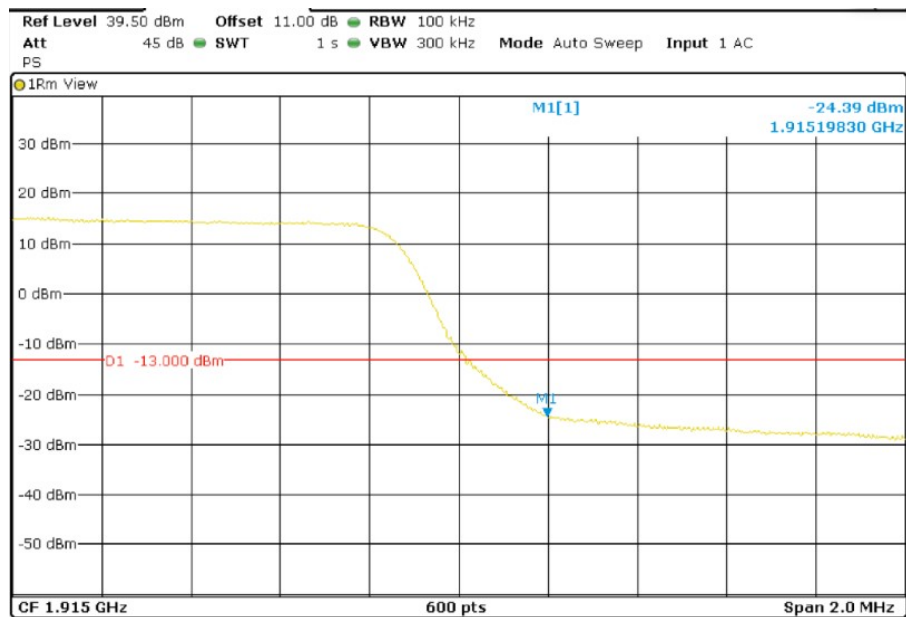
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 15. Offset = 0. BW = 3 MHz

Lowest Channel



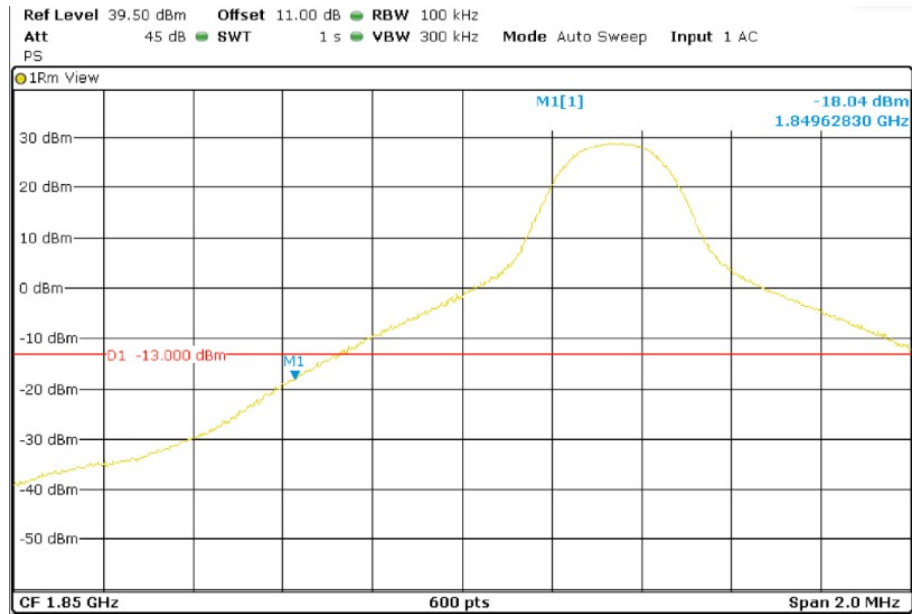
Highest Channel



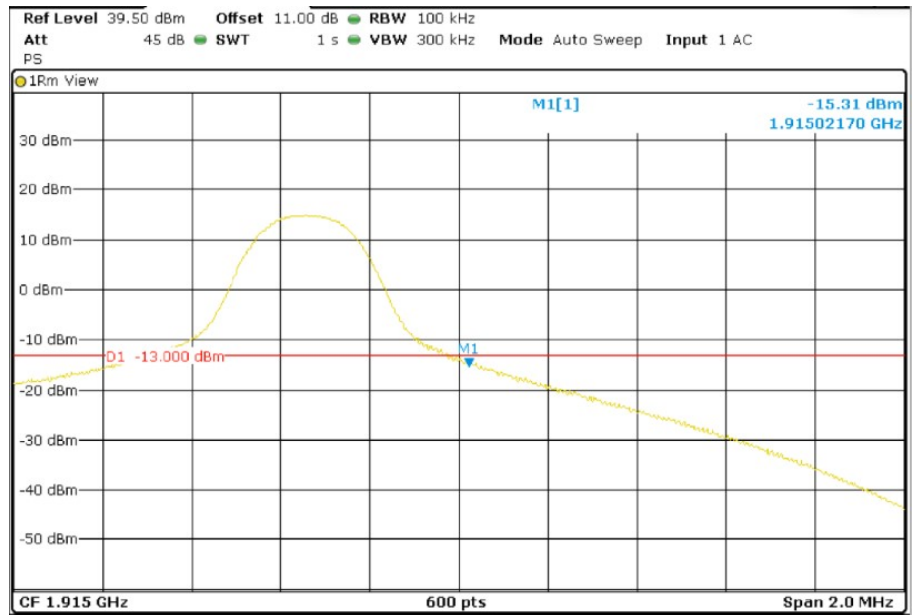
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 5 MHz

Lowest Channel



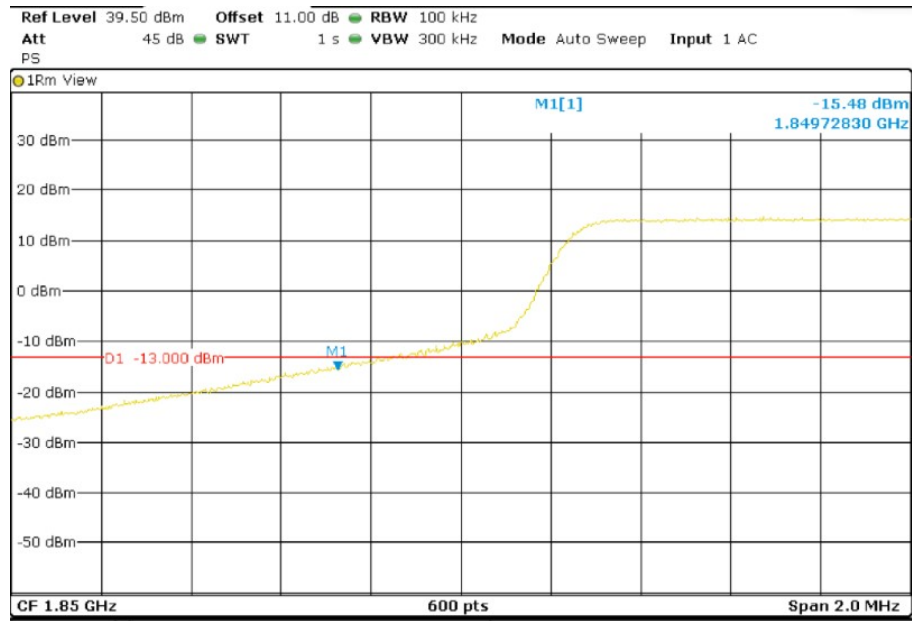
Highest Channel



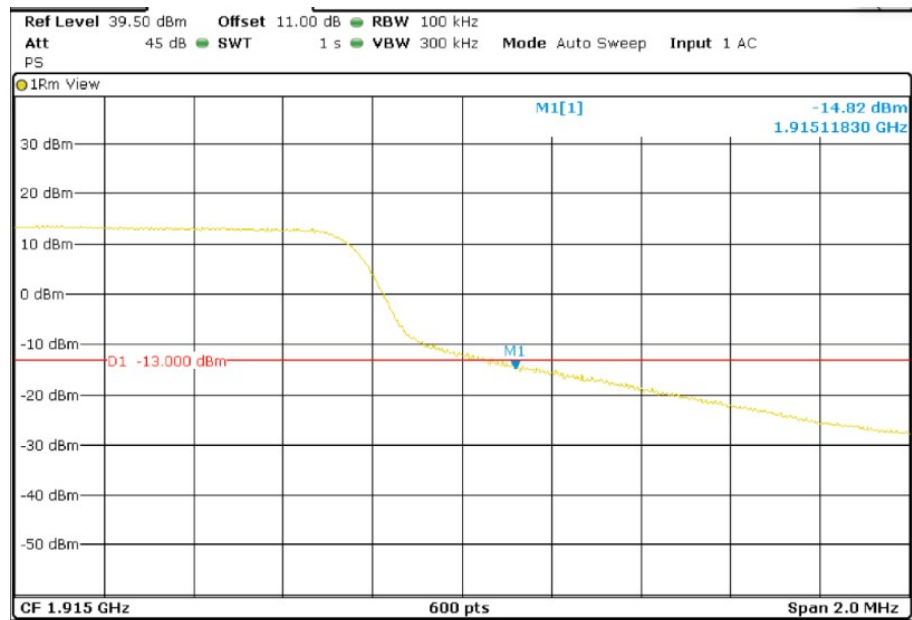
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 25. Offset = 0. BW = 5 MHz

Lowest Channel



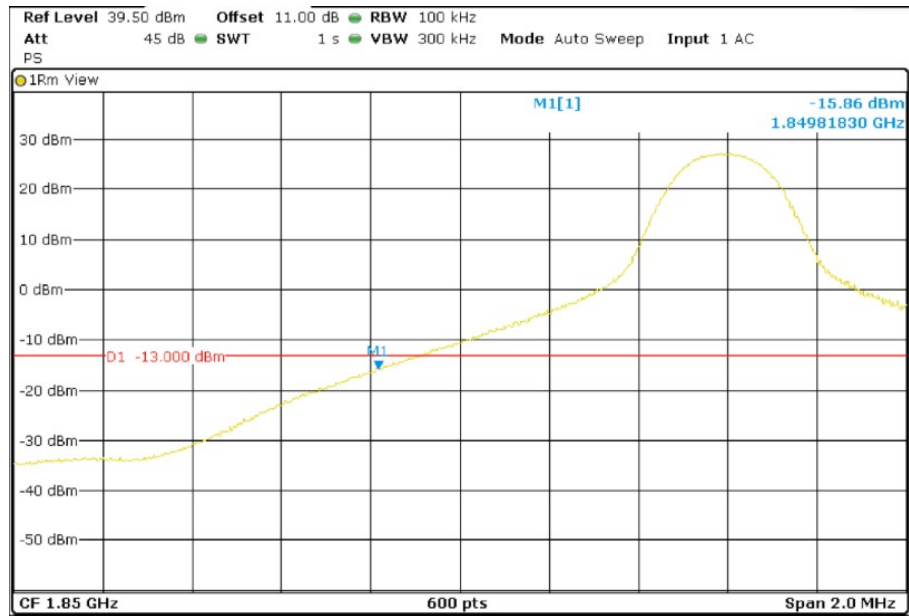
Highest Channel



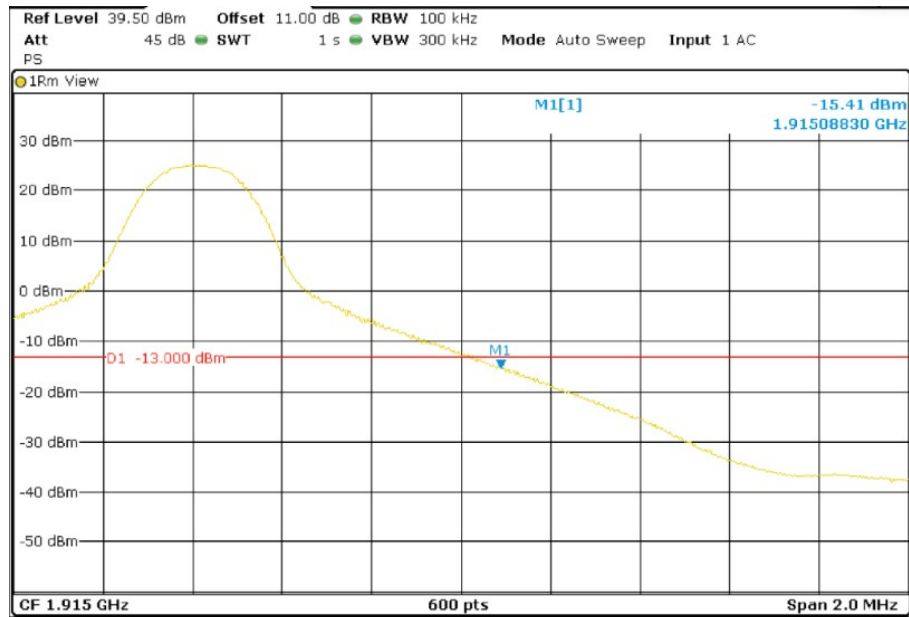
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 10 MHz

Lowest Channel



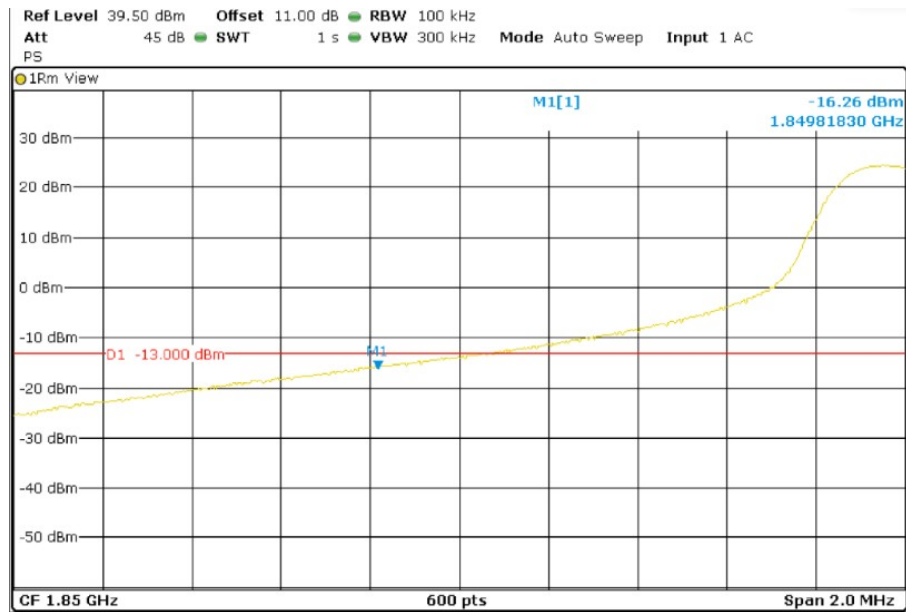
Highest Channel



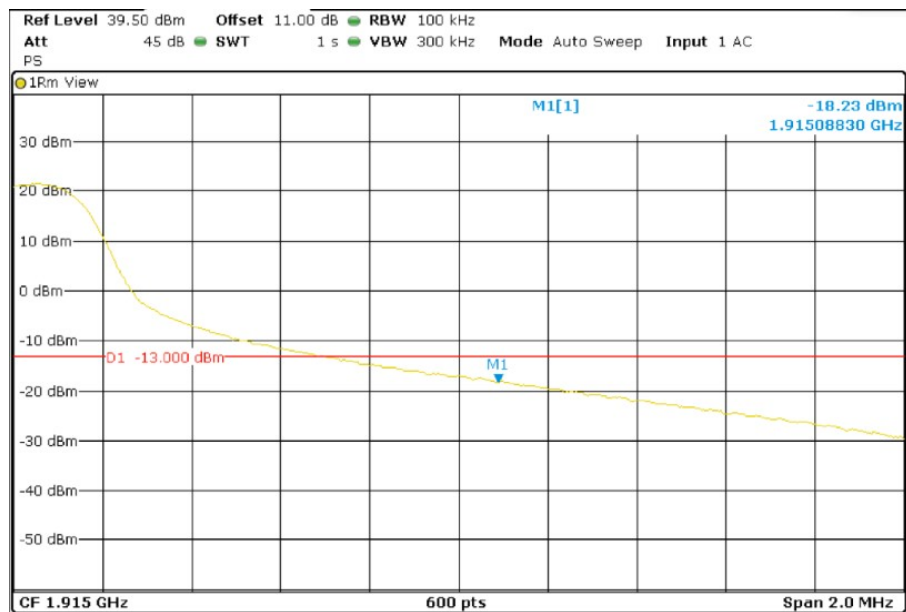
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 50. Offset = 0. BW = 10 MHz

Lowest Channel



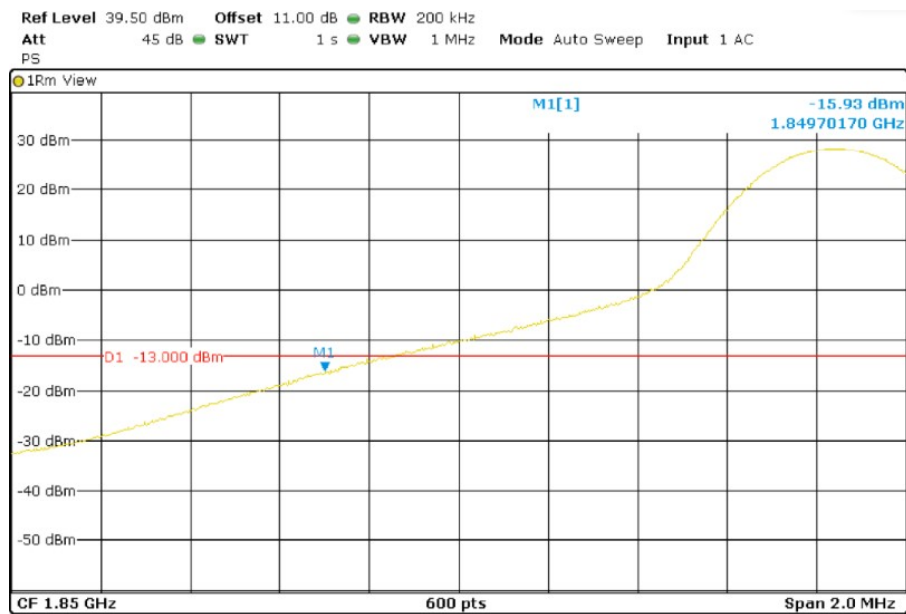
Highest Channel



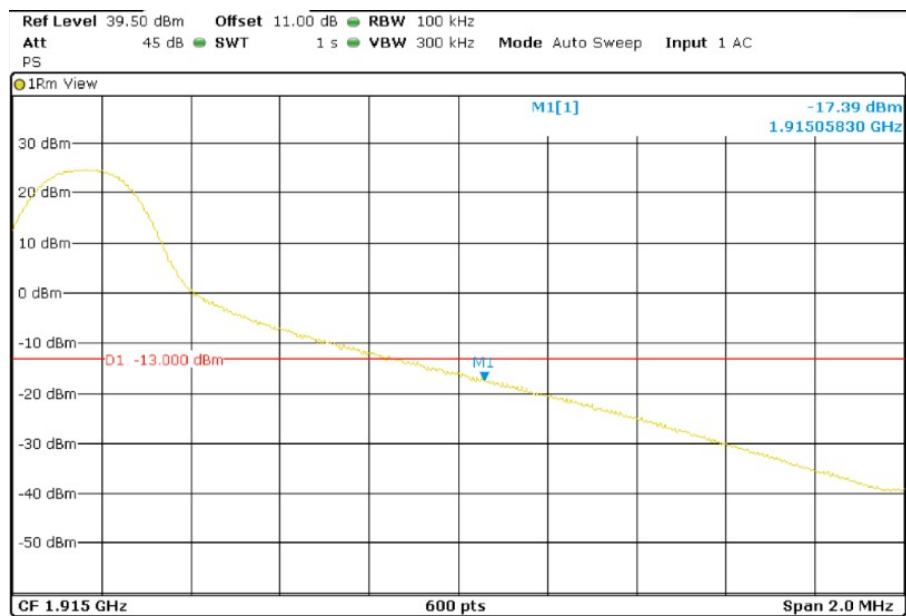
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 15 MHz

Lowest Channel



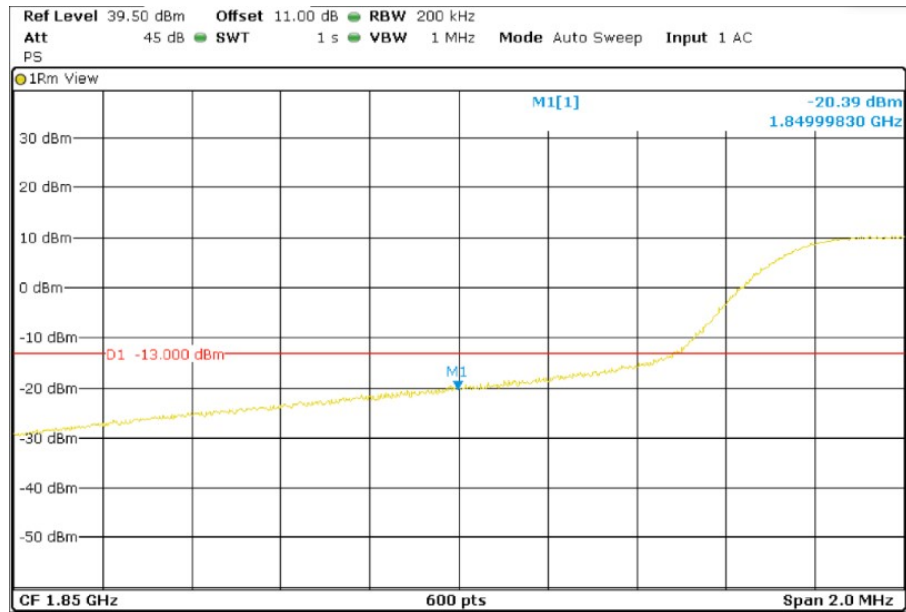
Highest Channel



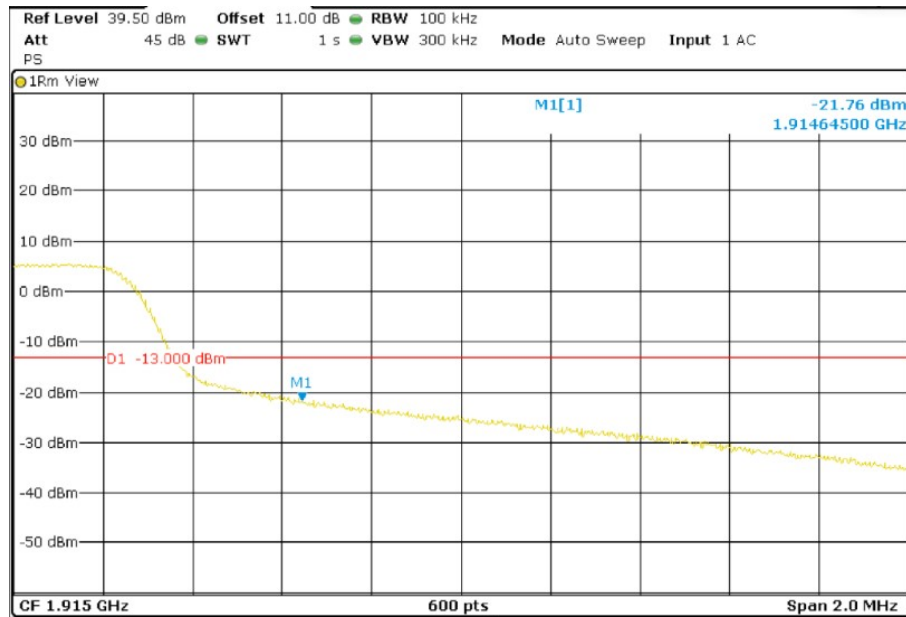
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 75. Offset = 0. BW = 15 MHz

Lowest Channel



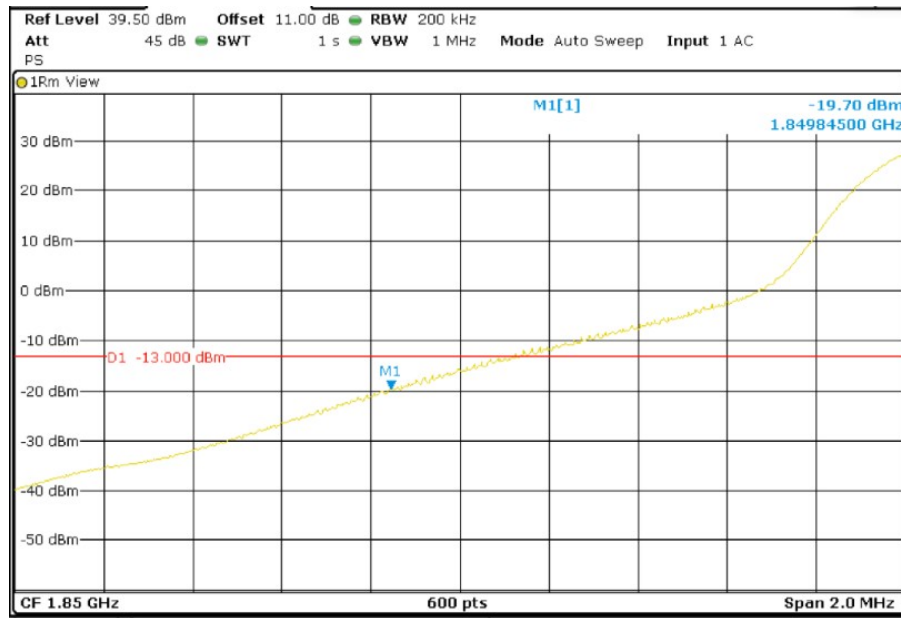
Highest Channel



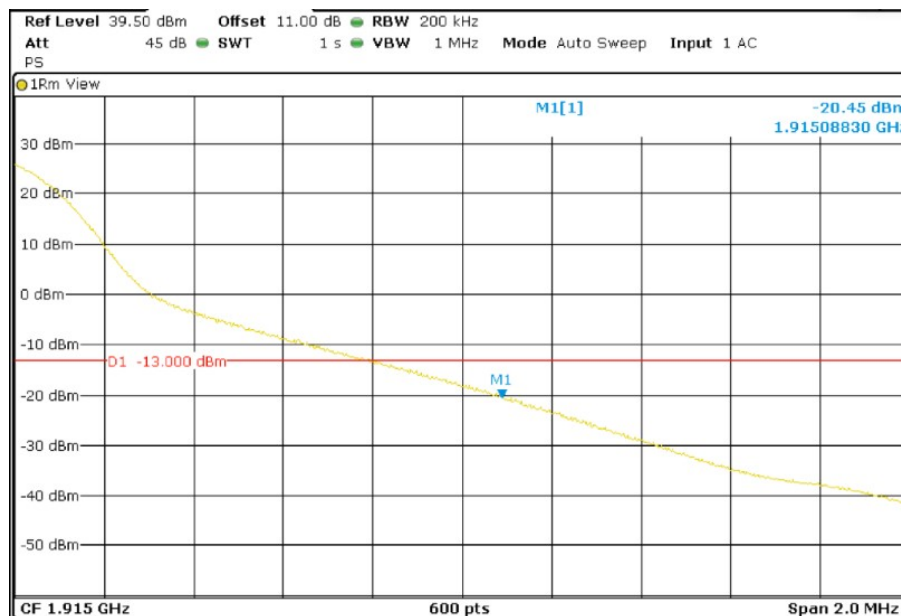
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 20 MHz

Lowest Channel



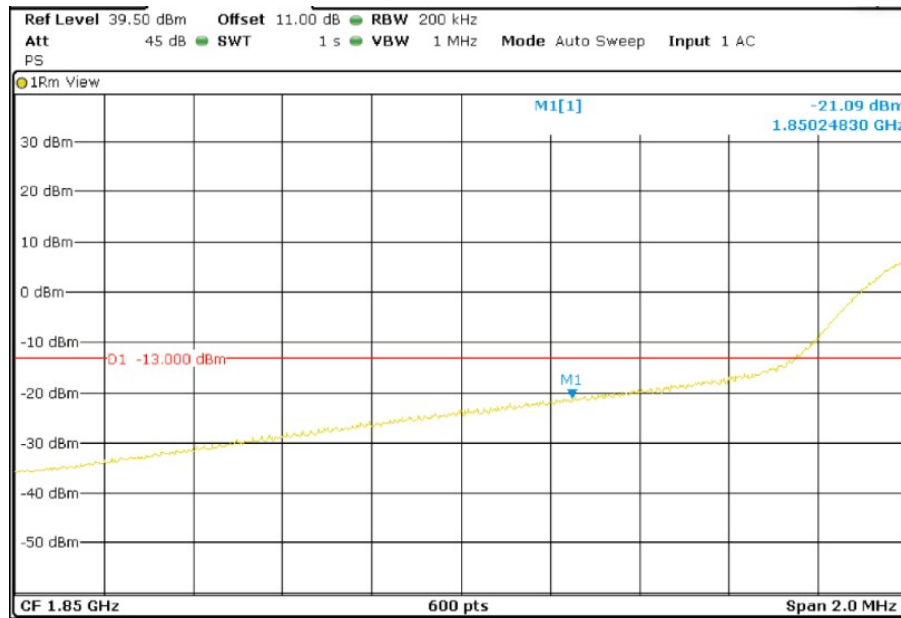
Highest Channel



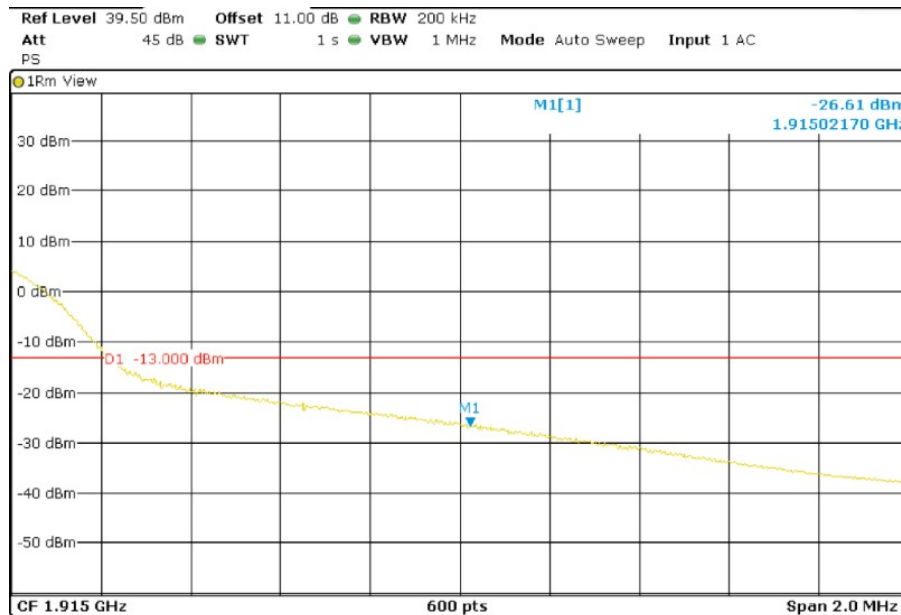
## TEST RESULTS (Cont):

LTE QPSK MODULATION. RB = 100. Offset = 0. BW = 20 MHz

Lowest Channel



Highest Channel



## TEST A.7: RADIATED EMISSIONS

|                |                   |                                             |
|----------------|-------------------|---------------------------------------------|
| <b>LIMITS:</b> | Product standard: | FCC Part 24 / IC RSS-133                    |
|                | Test standard:    | FCC §2.1053 and §24.238 /RSS-133 Clause 6.6 |

### LIMITS

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. P in watts.

At  $P_o$  transmitting power of 2 watts (33 dBm), the specified minimum attenuation becomes  $43 + 10 \log (P_o)$ . and the level in dBm relative to  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in watts})] = -13 \text{ dBm}$$

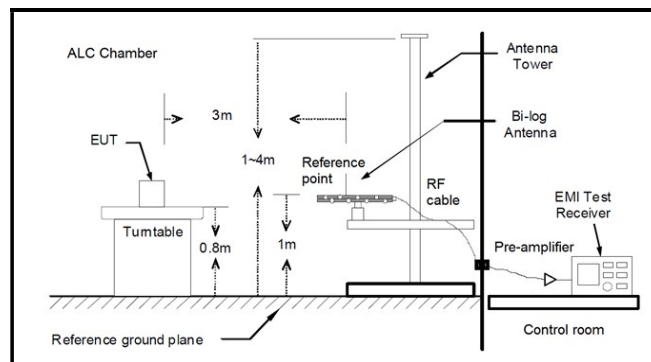
### TEST SETUP

The measurement was performed with the EUT inside an anechoic chamber. The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency generated within the equipment.

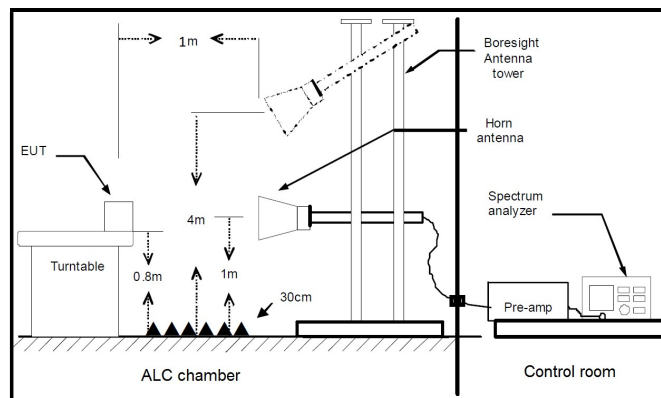
The EUT was placed on a non-conductive stand at a 3-meter distance from the measuring antenna for measurements below 1 GHz and at 1-meter distance for measurements above 1 GHz.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum reading was recorded.

Radiated measurements < 1GHz



Radiated measurements > 1GHz



|                                 |       |
|---------------------------------|-------|
| <b>TESTED SAMPLES:</b>          | S/01  |
| <b>TESTED CONDITIONS MODES:</b> | TC#01 |
| <b>TEST RESULTS:</b>            | PASS  |

## RESULTS

A preliminary scan determined the QPSK 1.4 MHz bandwidth as the worst case. The configuration of Resource Blocks which is the worst case for conducted power was used.

The following plots show the results for this configuration.

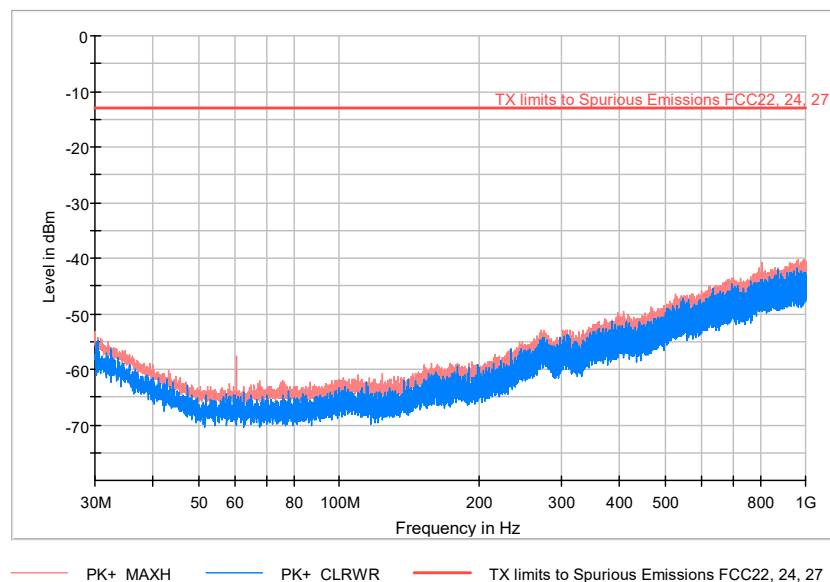
No spurious signal was found at less than 20dB respect to the limit in all the frequency ranges.

LTE QPSK MODULATION. RB = 1. Offset = 0. BW = 1.4 MHz

|                             |             |
|-----------------------------|-------------|
| <b>TEST RESULTS (Cont):</b> | Low Channel |
|-----------------------------|-------------|

## FREQUENCY RANGE: 30-1000 MHz

| Frequency (MHz) | PK+ _CLRWR (dBm) | PK+ _MAXH (dBm) | Comment |
|-----------------|------------------|-----------------|---------|
| 60.425667       | -67.52           | -57.68          |         |
| 806.291000      | -46.48           | -40.70          |         |

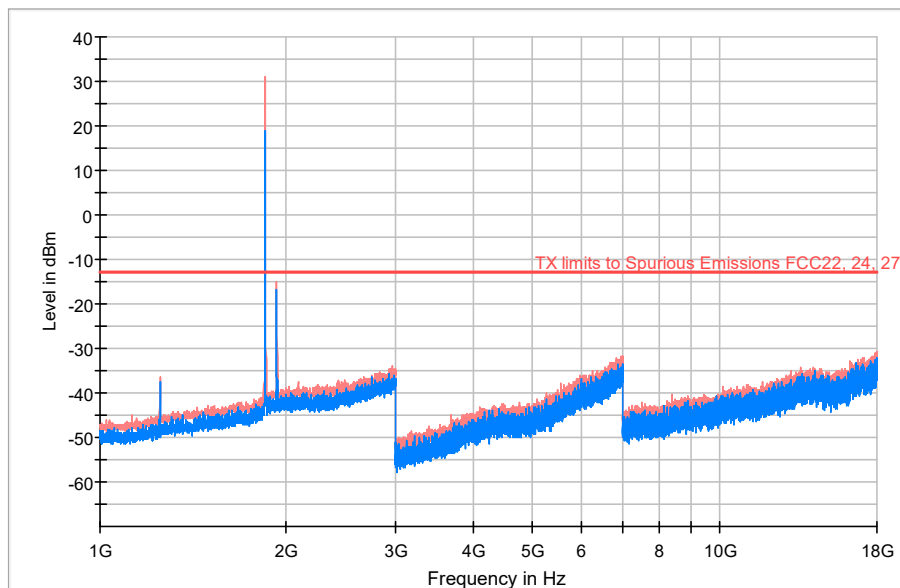


**TEST RESULTS (Cont):**

Low Channel

FREQUENCY RANGE: 1-18 GHz

| Frequency (MHz) | PK+ _CLRWR (dBm) | PK+ _MAXH (dBm) | Comment     |
|-----------------|------------------|-----------------|-------------|
| 1250.000000     | -37.33           | -36.56          |             |
| 1851.000000     | 17.83            | 31.13           | Fundamental |
| 1930.500000     | -16.84           | -14.96          |             |

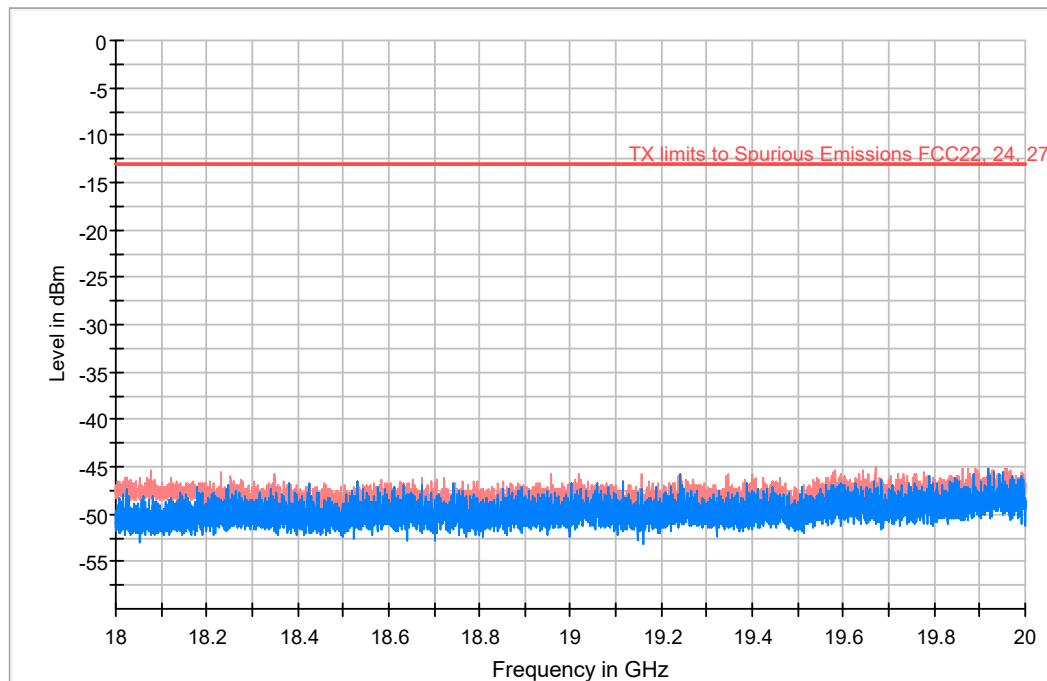


— PK+ \_MAXH — PK+ \_CLRWR — TX limits to Spurious Emissions FCC22, 24, 27

TEST RESULTS (Cont):

Low Channel

FREQUENCY RANGE: 18-20 GHz



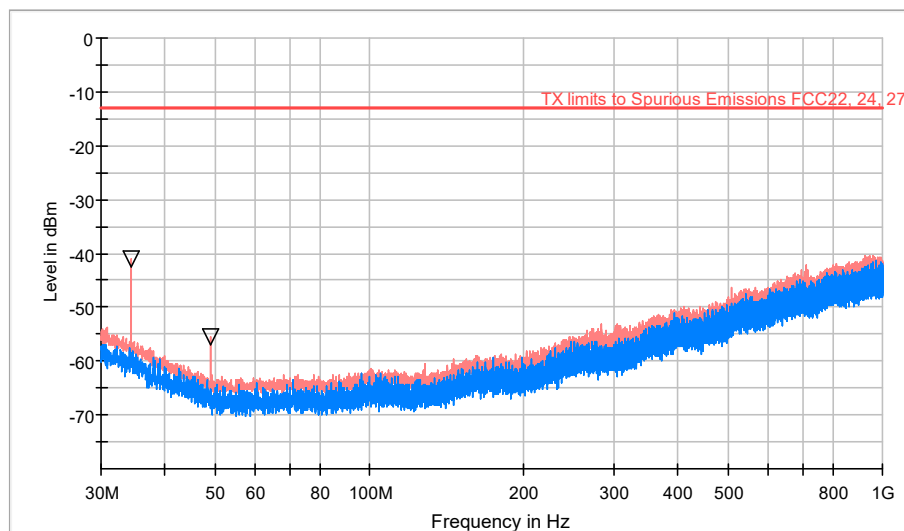
— PK+\_MAXH — PK+\_CLRWR — TX limits to Spurious Emissions FCC22, 24, 27

**TEST RESULTS(Cont.):**

Middle Channel

FREQUENCY RANGE: 30-1000 MHz

| Frequency (MHz) | PK+ _CLRWR (dBm) | PK+ _MAXH (dBm) | Comment |
|-----------------|------------------|-----------------|---------|
| 34.268000       | -60.7            | -40.9           |         |
| 49.109000       | -65.1            | -55.6           |         |



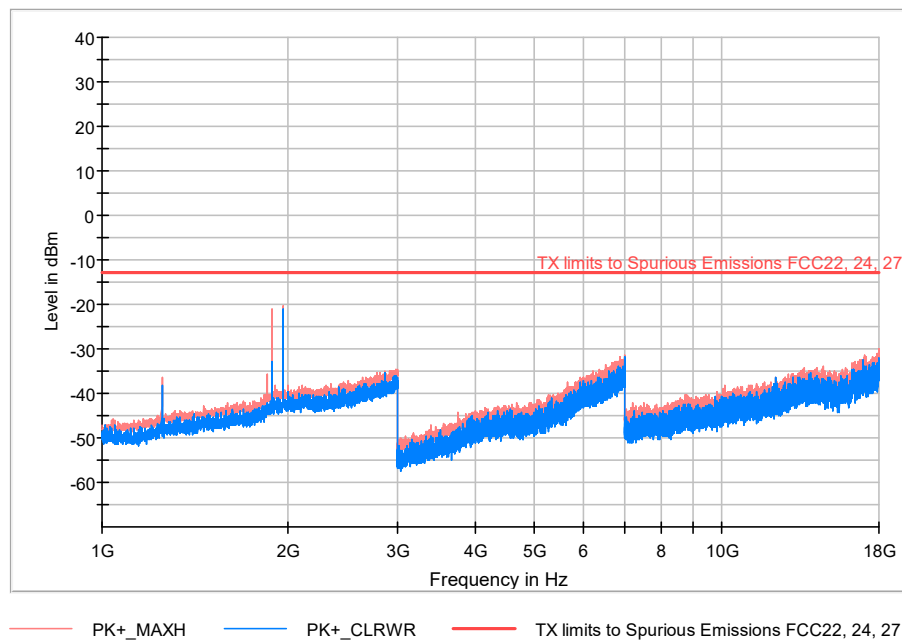
PK+ \_MAXH  
 PK+ \_CLRWR  
 TX limits to Spurious Emissions FCC22, 24, 27  
 ▽ PK+ \_MAXH(1)@RE0105\_LR\_30MHz-1GHz-\_Band 25\_Mid Channel\_QPSK

**TEST RESULTS (Cont):**

Middle Channel

FREQUENCY RANGE: 1-18 GHz

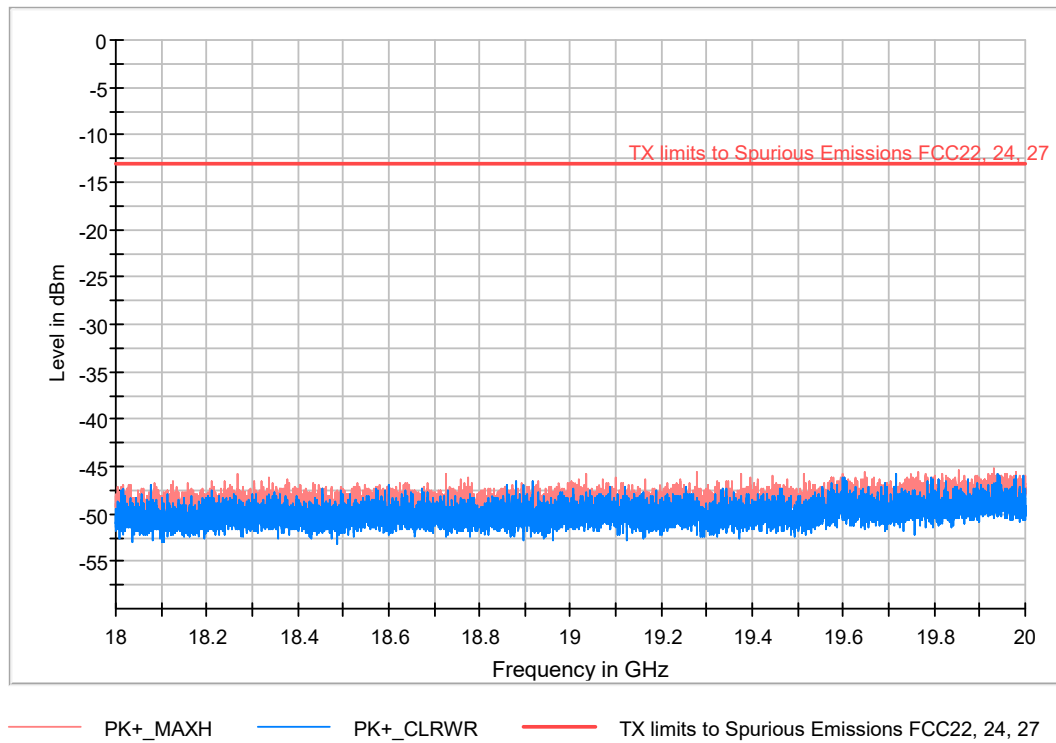
| Frequency (MHz) | PK+_CLRWR (dBm) | PK+_MAXH (dBm) | Comment     |
|-----------------|-----------------|----------------|-------------|
| 1250.500000     | -38.48          | -36.82         |             |
| 1882.000000     | -34.45          | -21.38         | Fundamental |
| 1962.500000     | -21.10          | -20.23         |             |



TEST RESULTS (Cont):

Middle Channel

FREQUENCY RANGE: 18-20 GHz

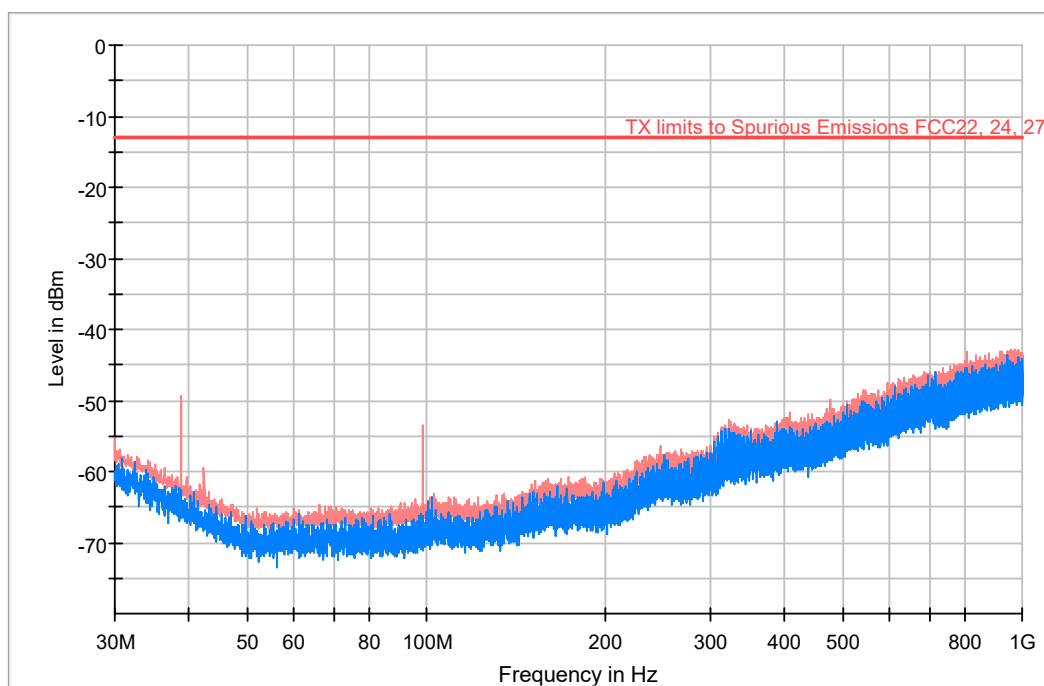


**TEST RESULTS(Cont.):**

High Channel

FREQUENCY RANGE: 30-1000 MHz

| Frequency (MHz) | PK+ _CLRWR (dBm) | PK+ _MAXH (dBm) | Comment |
|-----------------|------------------|-----------------|---------|
| 38.859333       | -66.12           | -49.28          |         |
| 98.837667       | -66.19           | -53.59          |         |
| 477.105333      | -55.43           | -49.90          |         |
| 804.739000      | -49.32           | -43.23          |         |



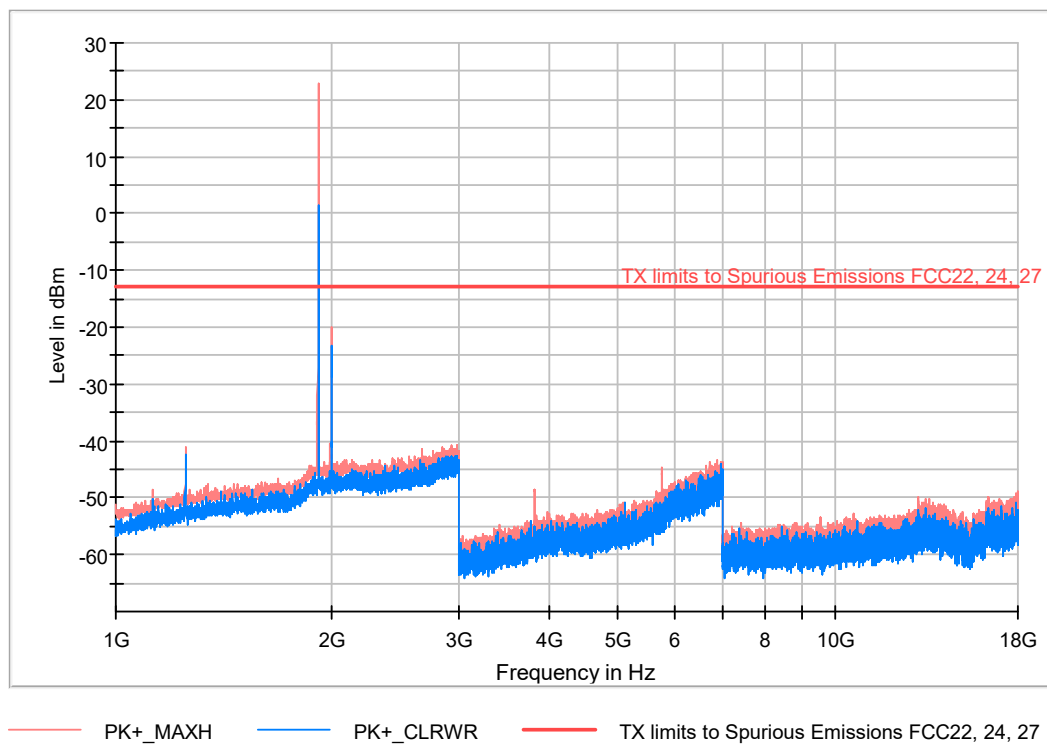
— PK+ \_MAXH — PK+ \_CLRWR — TX limits to Spurious Emissions FCC22, 24, 27

**TEST RESULTS (Cont):**

High Channel

FREQUENCY RANGE: 1-18 GHz

| Frequency (MHz) | PK+_CLRWR (dBm) | PK+_MAXH (dBm) | Comment     |
|-----------------|-----------------|----------------|-------------|
| 1249.500000     | -43.19          | -41.13         |             |
| 1914.000000     | 1.58            | 22.81          | Fundamental |
| 1994.500000     | -23.40          | -20.13         |             |
| 3829.500000     | -54.92          | -48.60         |             |
| 5742.500000     | -52.50          | -44.57         |             |
| 9571.500000     | -60.23          | -53.59         |             |
| 13053.500000    | -56.92          | -49.88         |             |



**TEST RESULTS (Cont):**

High Channel

FREQUENCY RANGE: 18-20 GHz

