

### LTE Band 5 (Part 22H) result

| BW(MHz) | Channel | Frequency (MHz) | Mode  | Emission (dBm) | Limit (dBm) |
|---------|---------|-----------------|-------|----------------|-------------|
| 1.4     | 20407   | 824.7           | QPSK  | -38.222        | -13         |
|         |         |                 | 16QAM | -41.235        | -13         |
| 1.4     | 20643   | 848.3           | QPSK  | -38.226        | -13         |
|         |         |                 | 16QAM | -38.131        | -13         |
| 3       | 20415   | 825.5           | QPSK  | -33.039        | -13         |
|         |         |                 | 16QAM | -31.710        | -13         |
| 3       | 20635   | 847.5           | QPSK  | -32.598        | -13         |
|         |         |                 | 16QAM | -31.073        | -13         |
| 5       | 20425   | 826.5           | QPSK  | -27.524        | -13         |
|         |         |                 | 16QAM | -27.822        | -13         |
| 5       | 20625   | 846.5           | QPSK  | -24.064        | -13         |
|         |         |                 | 16QAM | -23.323        | -13         |
| 10      | 20450   | 829             | QPSK  | -27.517        | -13         |
|         |         |                 | 16QAM | -27.088        | -13         |
| 10      | 20800   | 844             | QPSK  | -29.487        | -13         |
|         |         |                 | 16QAM | -30.181        | -13         |

### LTE Band 12 (Part 27) result

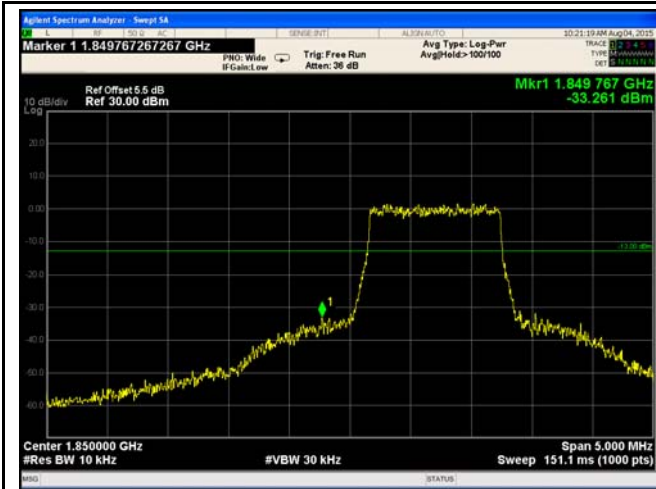
| BW(MHz) | Channel | Frequency (MHz) | Mode  | Emission (dBm) | Limit (dBm) |
|---------|---------|-----------------|-------|----------------|-------------|
| 1.4     | 23017   | 699.7           | QPSK  | -35.584        | -13         |
|         |         |                 | 16QAM | -35.939        | -13         |
| 1.4     | 23173   | 715.3           | QPSK  | -38.739        | -13         |
|         |         |                 | 16QAM | -39.730        | -13         |
| 3       | 23025   | 700.5           | QPSK  | -33.400        | -13         |
|         |         |                 | 16QAM | -31.324        | -13         |
| 3       | 23165   | 714.5           | QPSK  | -34.357        | -13         |
|         |         |                 | 16QAM | -33.504        | -13         |
| 5       | 23035   | 701.5           | QPSK  | -28.429        | -13         |
|         |         |                 | 16QAM | -28.437        | -13         |
| 5       | 23155   | 713.5           | QPSK  | -30.319        | -13         |
|         |         |                 | 16QAM | -30.226        | -13         |
| 10      | 23060   | 704             | QPSK  | -29.160        | -13         |
|         |         |                 | 16QAM | -27.749        | -13         |
| 10      | 23130   | 711             | QPSK  | -29.814        | -13         |
|         |         |                 | 16QAM | -30.678        | -13         |

### LTE Band 17 (Part 27) result

| BW(MHz) | Channel | Frequency (MHz) | Mode  | Emission (dBm) | Limit (dBm) |
|---------|---------|-----------------|-------|----------------|-------------|
| 5       | 23755   | 706.5           | QPSK  | -28.787        | -13         |
|         |         |                 | 16QAM | -27.813        | -13         |
| 5       | 23825   | 713.5           | QPSK  | -30.404        | -13         |
|         |         |                 | 16QAM | -30.351        | -13         |
| 10      | 23780   | 709             | QPSK  | -27.628        | -13         |
|         |         |                 | 16QAM | -28.778        | -13         |
| 10      | 23800   | 711             | QPSK  | -32.671        | -13         |
|         |         |                 | 16QAM | -29.954        | -13         |

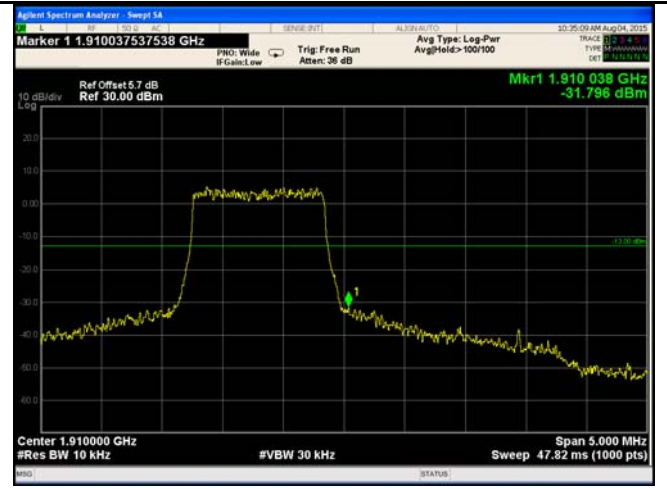
## Test Plots

### LTE Band 2 (Part 24E)



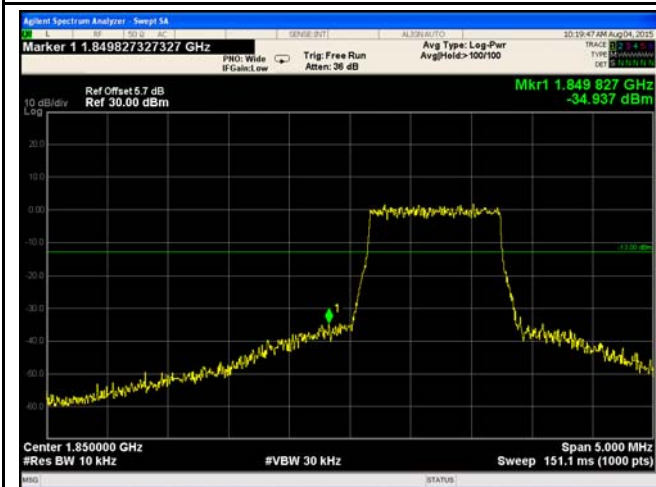
LTE Band 2 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(13.03/10)=4.5+1.0=5.5 dB



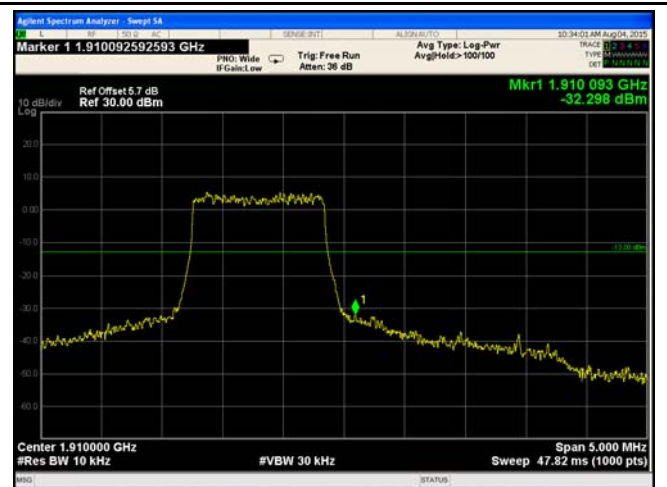
LTE Band 2 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(13.11/10)=4.5+1.2=5.7 dB



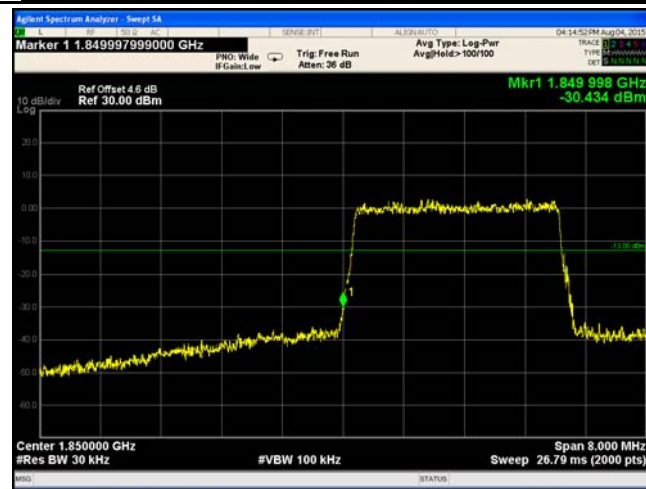
LTE Band 2 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(13.02/10)=4.5+1.2=5.7 dB



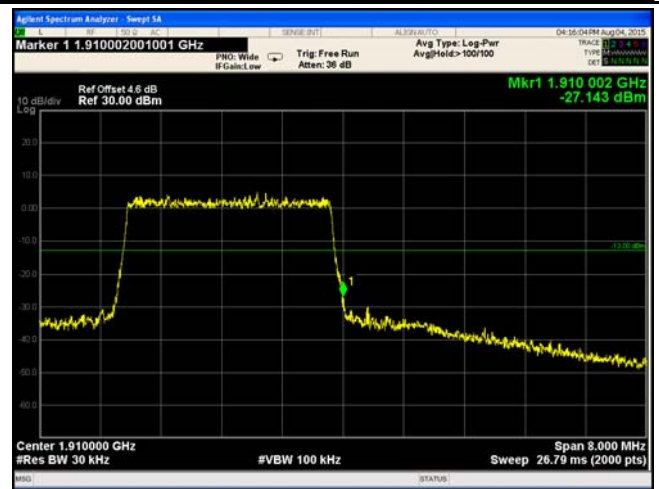
LTE Band 2 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(13.12/10)=4.5+1.2=5.7 dB



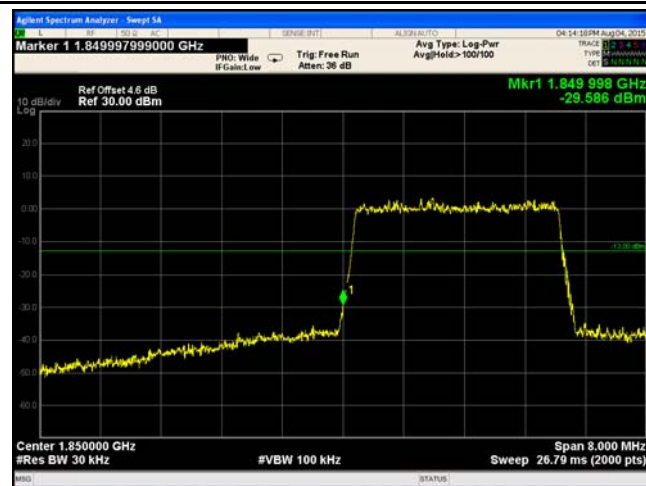
LTE Band 2 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.44/30)=4.5+0.1=4.6 dB



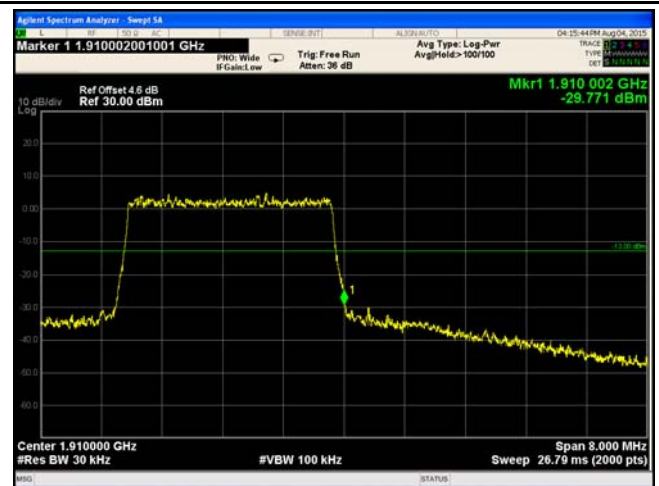
LTE Band 2 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.50/30)=4.5+0.1=4.6 dB



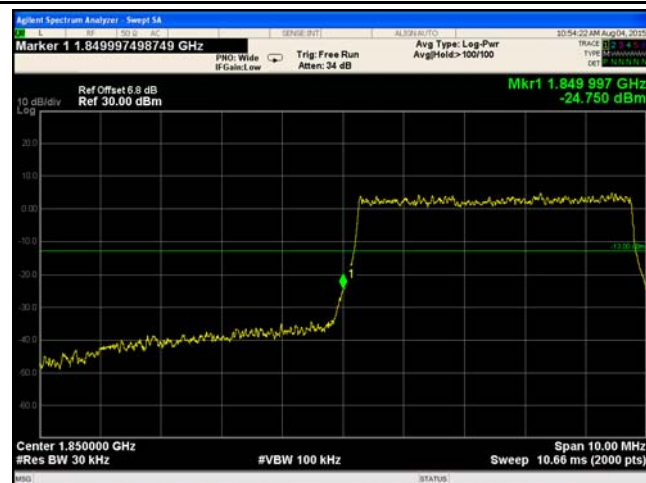
LTE Band 2 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(30.46/30)=4.5+0.1=4.6 dB



LTE Band 2 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(30.67/30)=4.5+0.1=4.6 dB

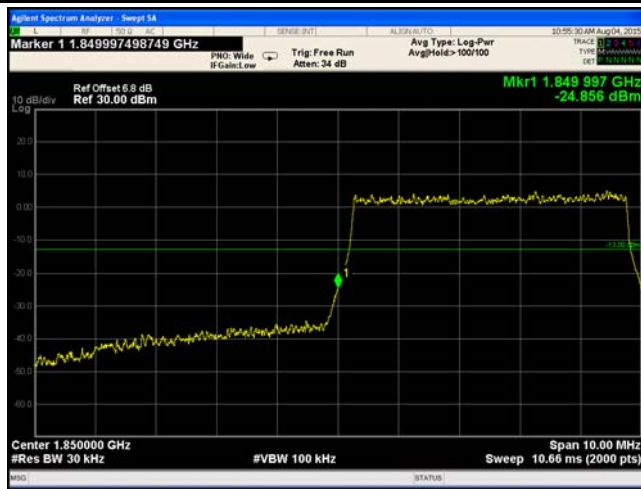


LTE Band 2 - Low Channel QPSK-5



LTE Band 2 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log  
(50.76/30)=4.5+2.3=6.8 dB



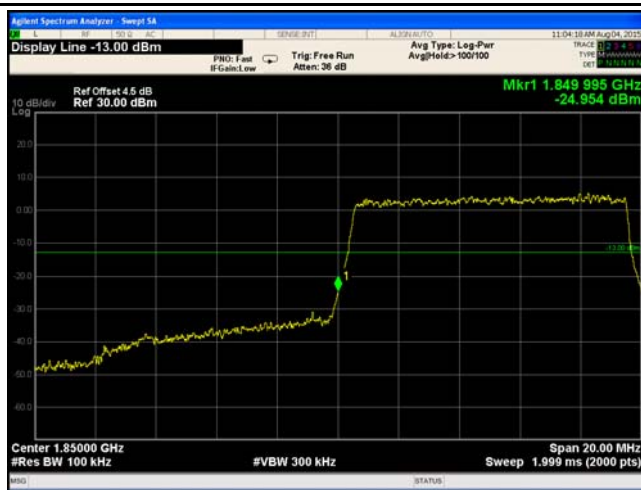
LTE Band 2 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(50.84/30)=4.5+2.3=6.8 dB



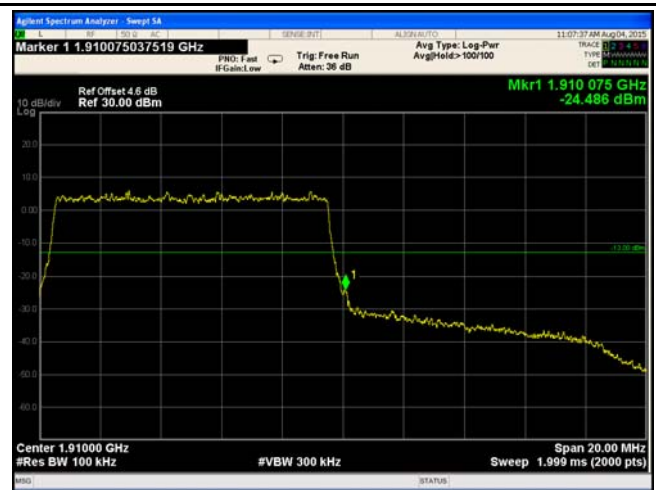
LTE Band 2 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(50.75/30)=4.5+2.3=6.8 dB

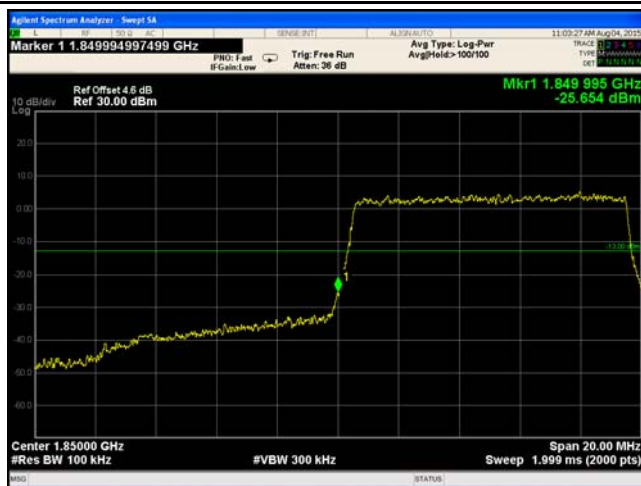


LTE Band 2 - Low Channel QPSK-10

Note: Offset=Cable loss (4.5) + 10log  
(51.14/30)=4.5+2.3=6.8 dB



LTE Band 2 - High Channel QPSK-10



LTE Band 2 - Low Channel 16QAM-10



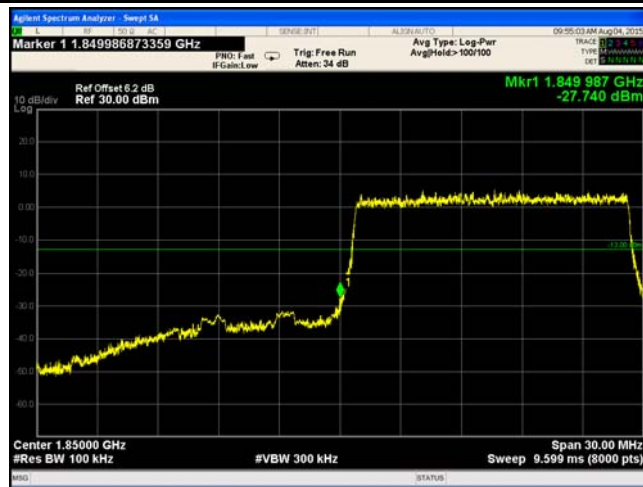
LTE Band 2 - High Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log  
(101.8/100)=4.5+0.1=4.6 dB



LTE Band 2 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log  
(148.6/100)=4.5+1.7=6.2dB



LTE Band 2 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log  
(148.4/100)=4.5+1.7=6.2 dB

Note: Offset=Cable loss (4.5) + 10log  
(101.7/100)=4.5+0.1=4.6 dB



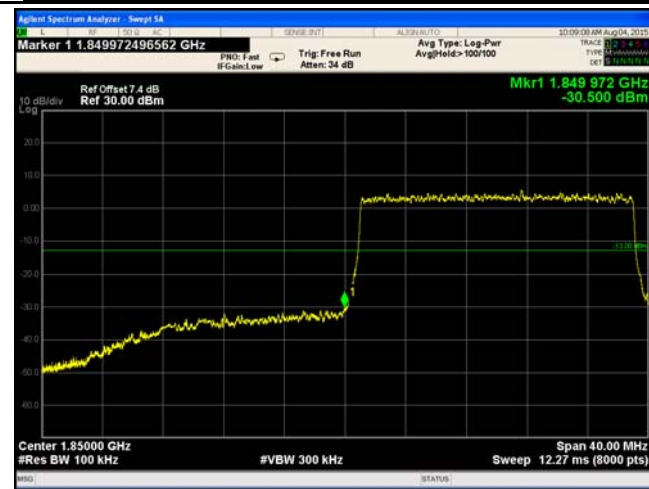
LTE Band 2 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log  
(148.1/100)=4.5+1.7=6.2 dB



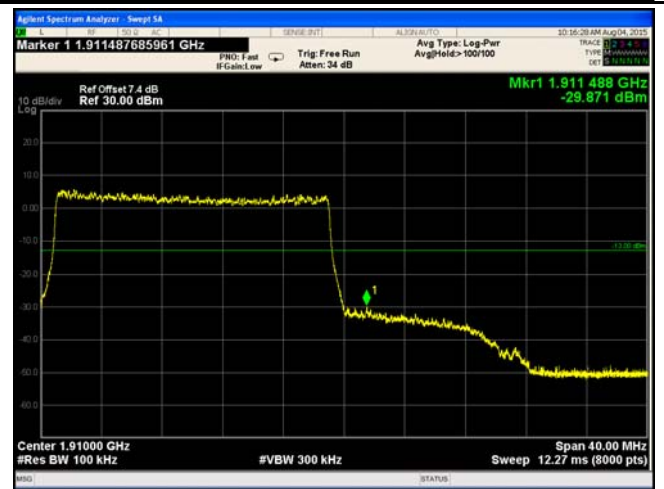
LTE Band 2 - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log  
(149.0/100)=4.5+1.7=6.2 dB



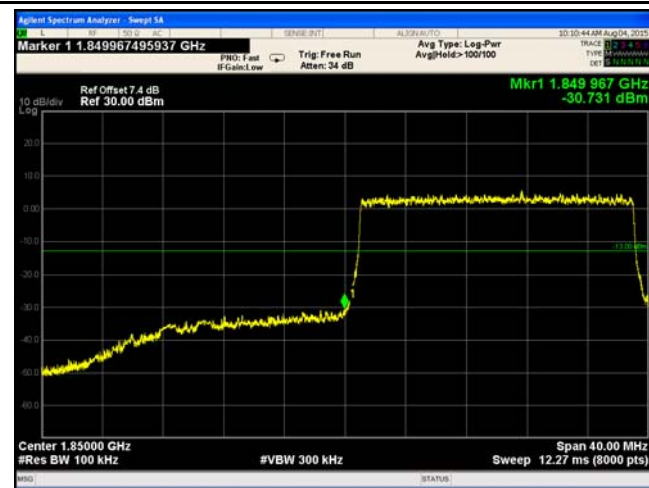
LTE Band 2 - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log  
(194.8/100)=4.5+2.9=7.4dB



LTE Band 2 - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log  
(196.4/100)=4.5+2.9=7.4 dB



LTE Band 2 - Low Channel 16QAM-20

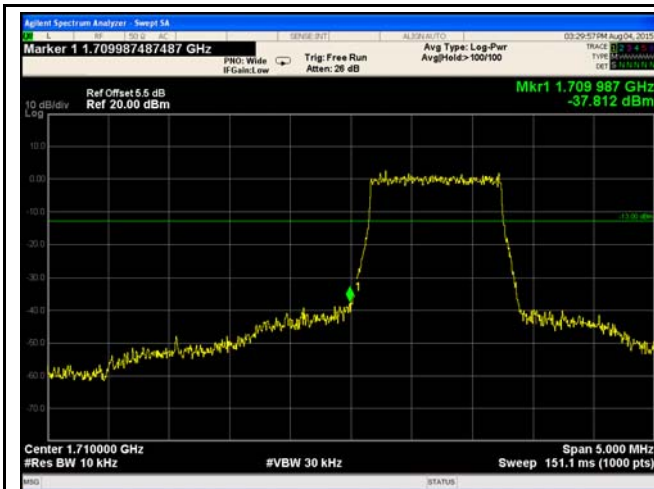
Note: Offset=Cable loss (4.5) + 10log  
(194.9/100)=4.5+2.9=7.4 dB



LTE Band 2 - High Channel 16QAM-20

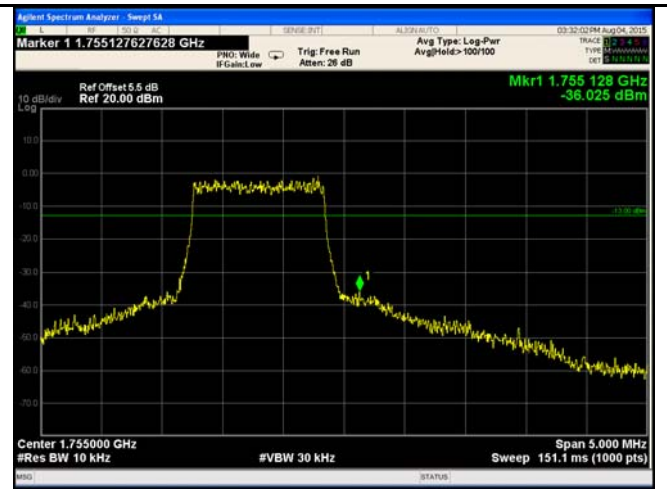
Note: Offset=Cable loss (4.5) + 10log  
(193.6/100)=4.5+2.9=7.4 dB

## LTE Band 4 (Part 27)



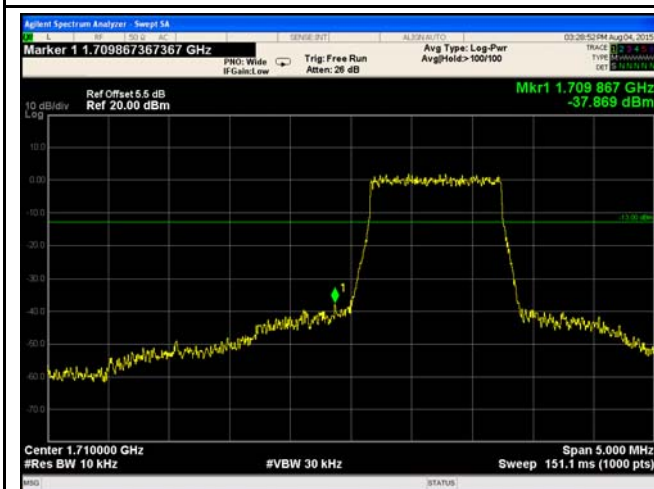
LTE Band 4 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.65/10)=4.5+1.0=5.5 dB



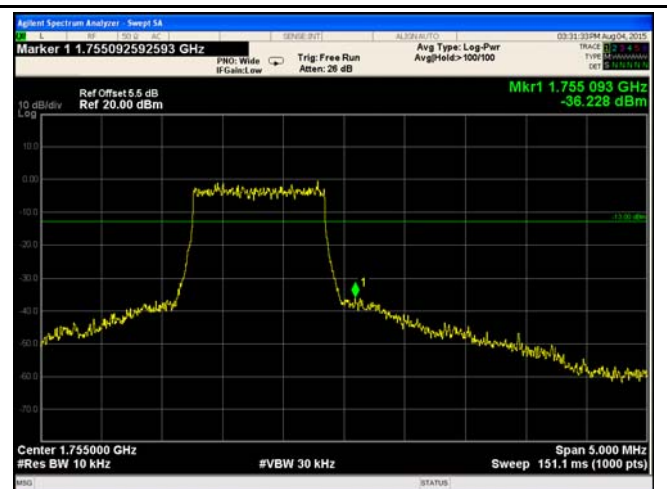
LTE Band 4 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.56/10)=4.5+1.0=5.5 dB



LTE Band 4 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.63/10)=4.5+1.0=5.5 dB



LTE Band 4 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.65/10)=4.5+1.0=5.5 dB



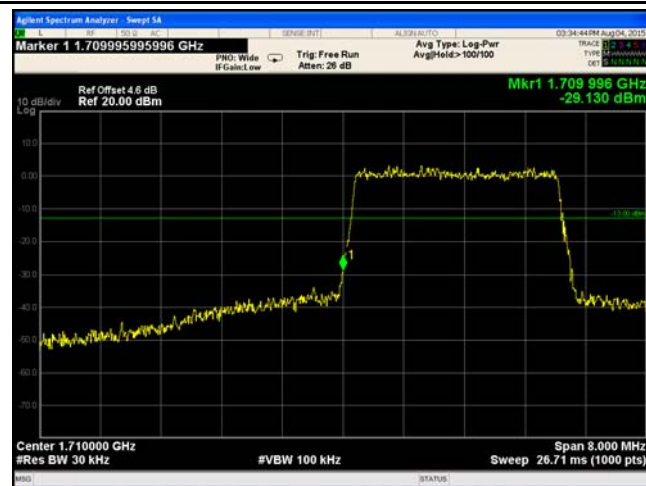
LTE Band 4 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.29/30)=4.5+0.1=4.6 dB



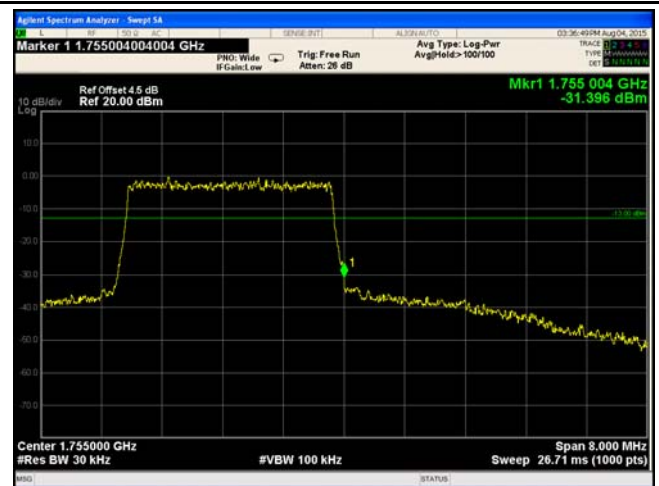
LTE Band 4 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.40/30)=4.5+0.1=4.6 dB



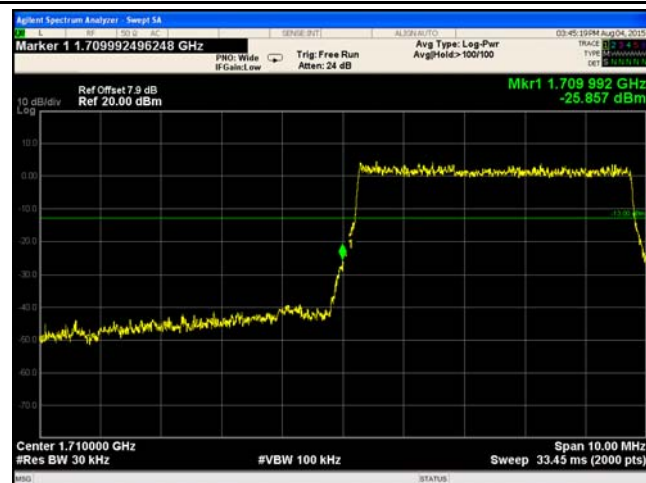
LTE Band 4 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(30.51/30)=4.5+0.1=4.6 dB



LTE Band 4 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(31.33/30)=4.5+0.0=4.5 dB



LTE Band 4 - Low Channel QPSK-5



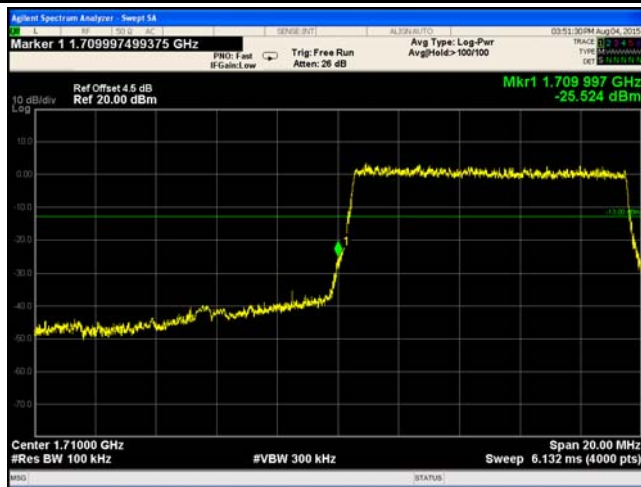
LTE Band 4 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log  
(65.29/30)=4.5+3.4=7.9 dB

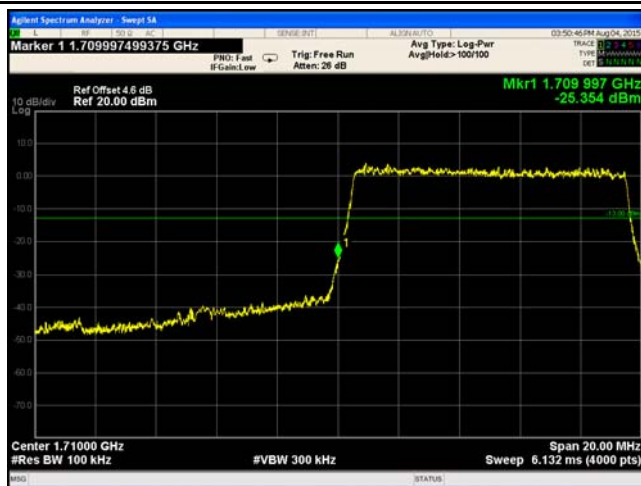


LTE Band 4 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(65.72/30)=4.5+3.4=7.9dB



LTE Band 4 - Low Channel QPSK-10



LTE Band 4 - Low Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log  
(59.41/30)=4.5+3.0=7.5 dB



LTE Band 4 - High Channel 16QAM-5

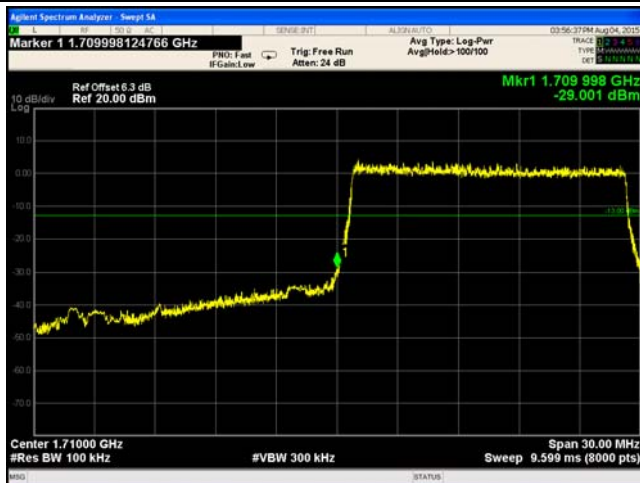
Note: Offset=Cable loss (4.5) + 10log  
(62.55/30)=4.5+3.2=7.7 dB



LTE Band 4 - High Channel QPSK-10



LTE Band 4 - High Channel 16QAM-10



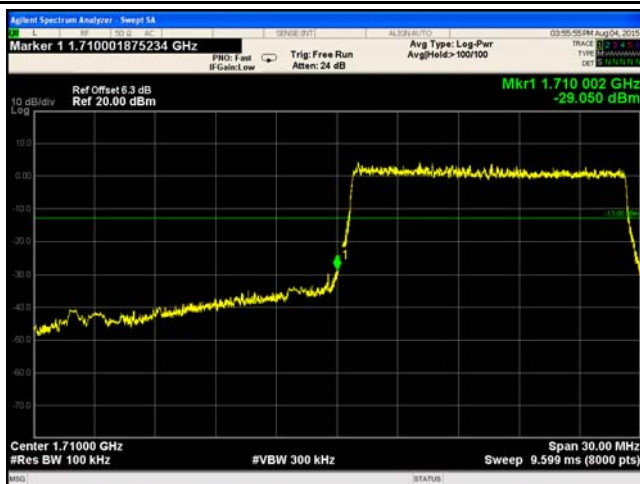
LTE Band 4 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log  
(150.6/100)=4.5+1.8=6.3 dB



LTE Band 4 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log  
(148.1/100)=4.5+1.7=6.2 dB



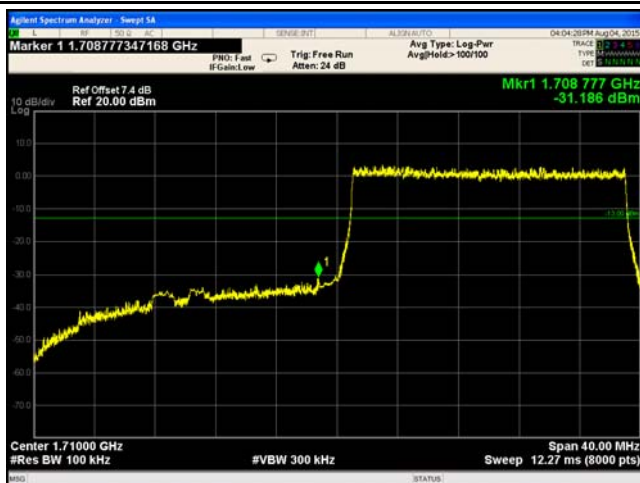
LTE Band 4 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log  
(149.7/100)=4.5+1.8=6.3 dB



LTE Band 4 - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log  
(148.3/100)=4.5+1.7=6.2 dB



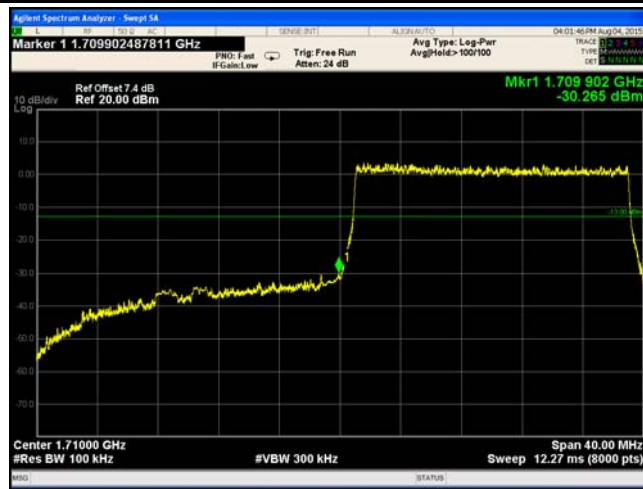
LTE Band 4 - Low Channel QPSK-20



LTE Band 4 - High Channel QPSK-20

|             |                 |
|-------------|-----------------|
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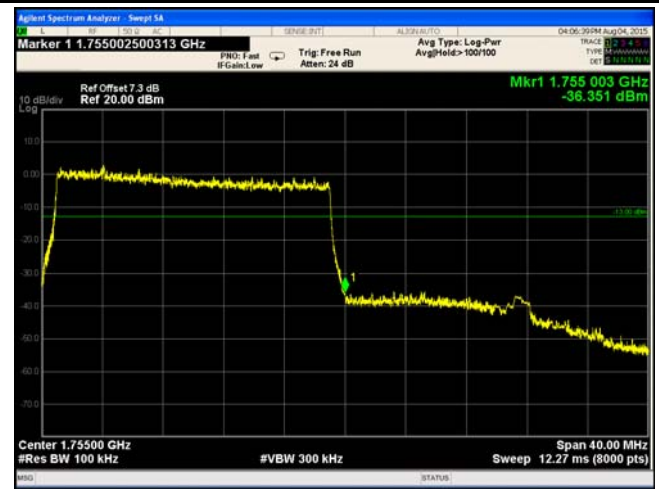
Note: Offset=Cable loss (4.5) + 10log  
(193.7/100)=4.5+2.9=7.4 dB



LTE Band 4 - Low Channel 16QAM-20

Note: Offset=Cable loss (4.5) + 10log  
(194.6/100)=4.5+2.9=7.4 dB

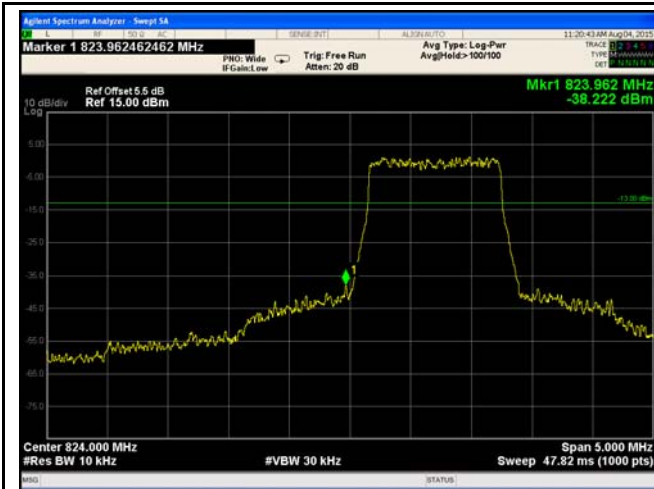
Note: Offset=Cable loss (4.5) + 10log  
(192.9/100)=4.5+2.9=7.4 dB



LTE Band 4 - High Channel 16QAM-20

Note: Offset=Cable loss (4.5) + 10log  
(190.9/100)=4.5+2.8=7.3 dB

## LTE Band 5 (Part 22H)



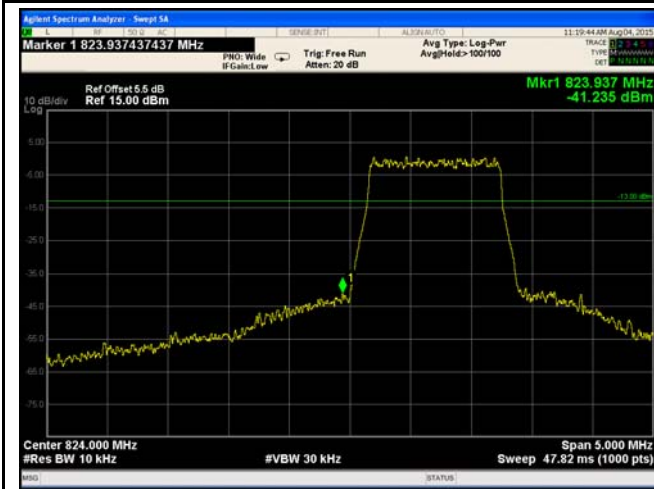
LTE Band 5 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.68/10)=4.5+1.0=5.5 dB



LTE Band 5 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.53/10)=4.5+1.0=5.5 dB



LTE Band 5 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.68/10)=4.5+1.0=5.5 dB



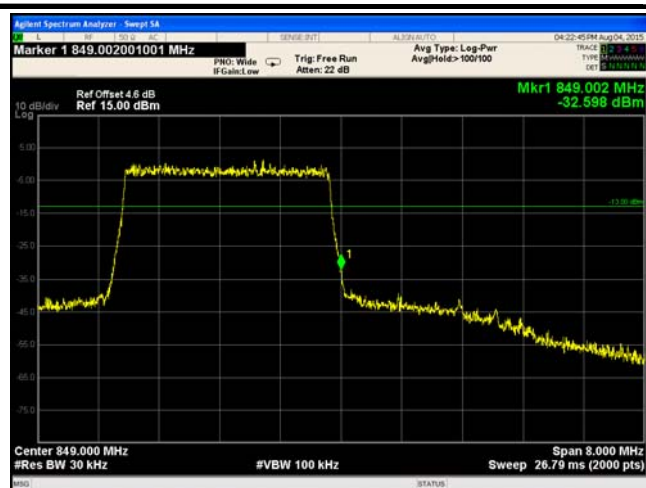
LTE Band 5 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.60/10)=4.5+1.0=5.5 dB



LTE Band 5 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.29/30)=4.5+0.0=4.5 dB



LTE Band 5 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.45/30)=4.5+0.1=4.6 dB



LTE Band 5 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(30.02/30)=4.5+0.0=4.5 dB



LTE Band 5 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(31.50/30)=4.5+0.1=4.6 dB

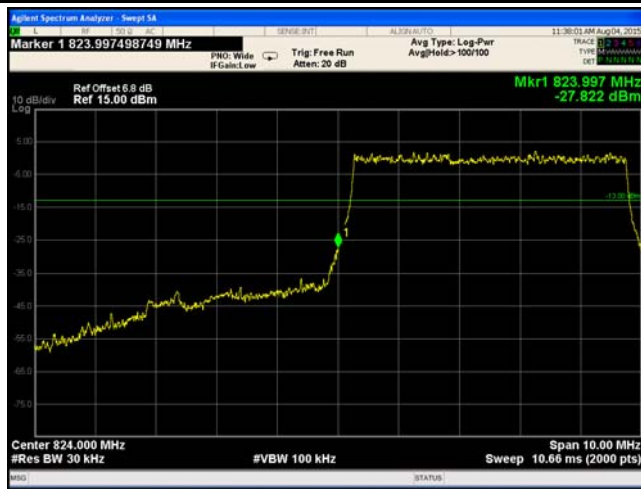


LTE Band 5 - Low Channel QPSK-5



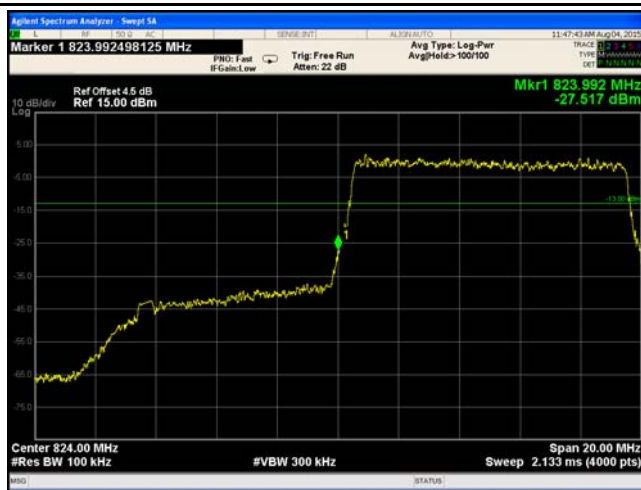
LTE Band 5 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log  
(50.36/30)=4.5+2.2=6.7 dB

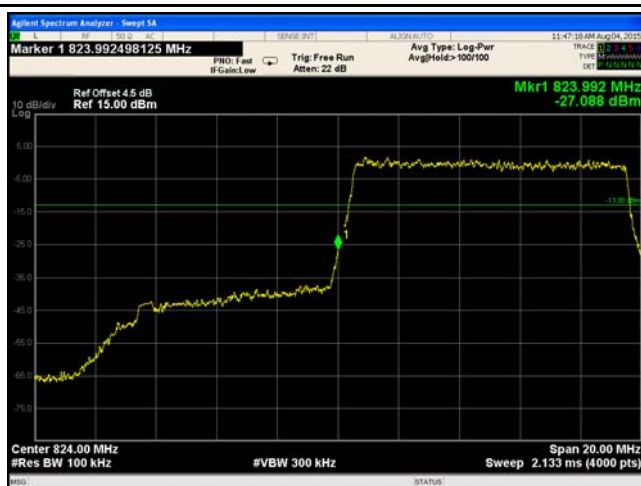


LTE Band 5 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(50.38/30)=4.5+2.3=6.8 dB



LTE Band 5 - Low Channel QPSK-10



LTE Band 5 - Low Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log  
(50.22/30)=4.5+2.2=6.7 dB



LTE Band 5 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(49.84/30)=4.5+2.2=6.7 dB

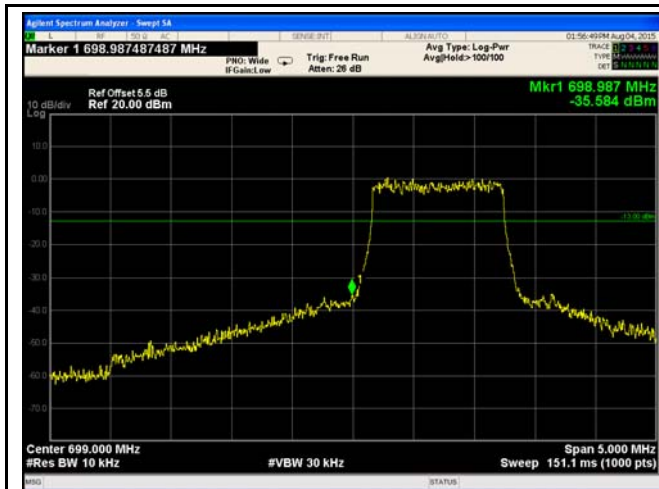


LTE Band 5 - High Channel QPSK-10



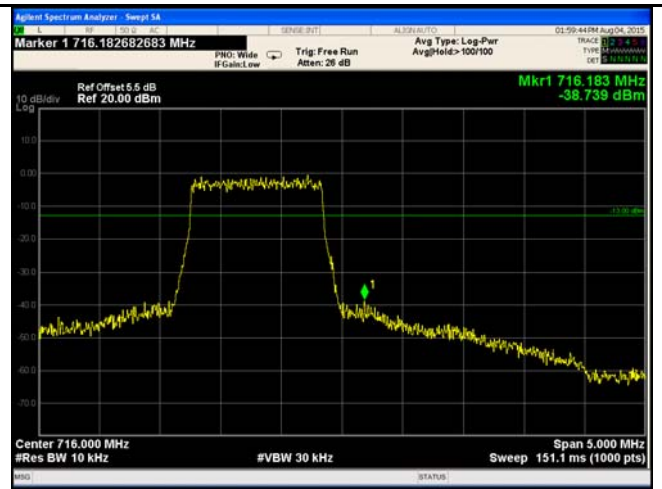
LTE Band 5 - High Channel 16QAM-10

## LTE Band 12 (Part 27)



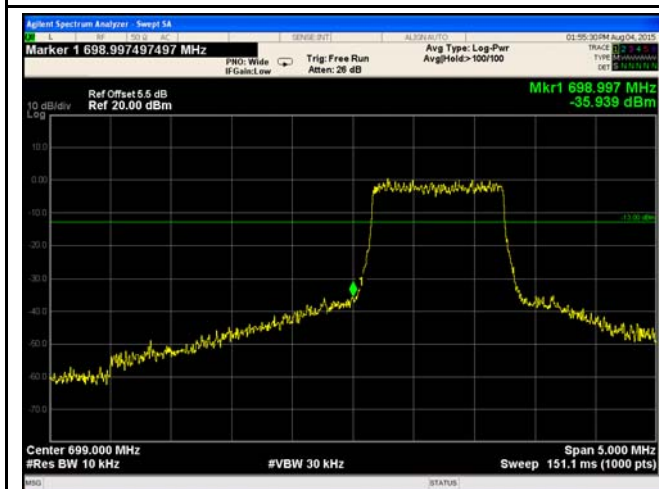
LTE Band 12 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.73/10)=4.5+1.0=5.6 dB



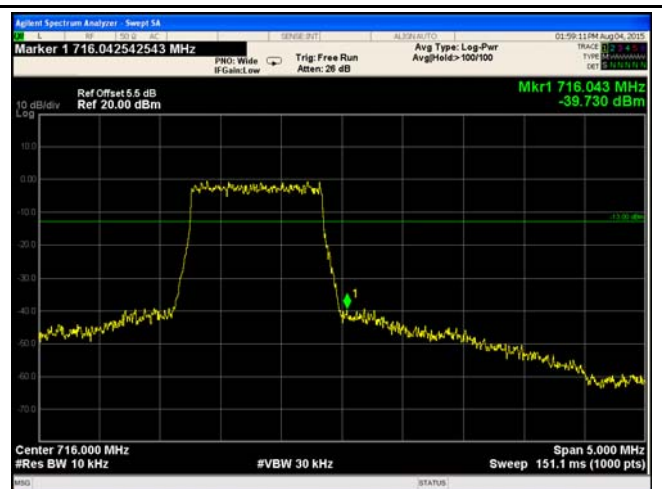
LTE Band 12 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.61/10)=4.5+1.0=5.5 dB



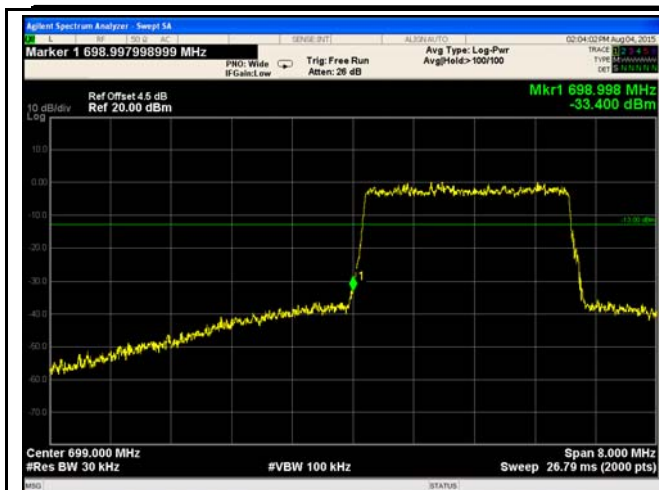
LTE Band 12 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.65/10)=4.5+1.0=5.5 dB



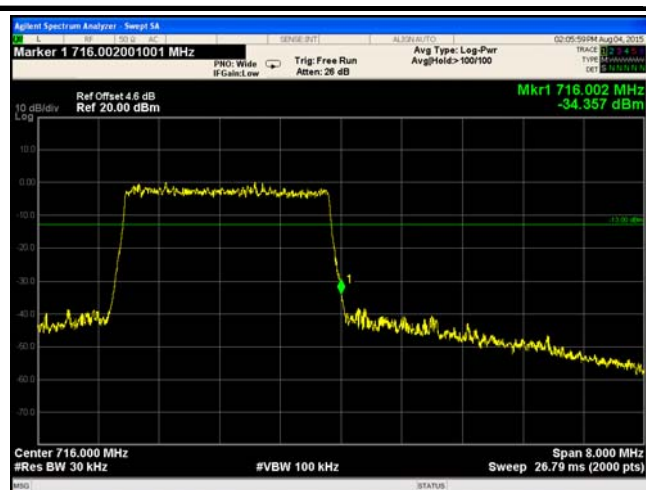
LTE Band 12 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log  
(12.56/10)=4.5+1.0=5.5 dB



LTE Band 12 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.10/30)=4.5+0.0=4.5 dB



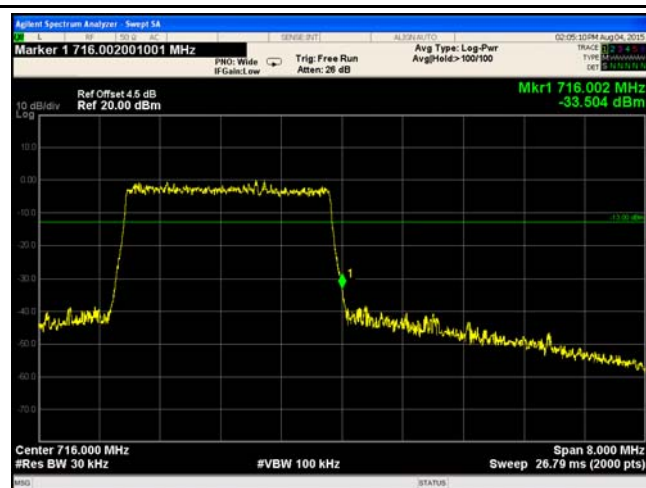
LTE Band 12 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log  
(30.35/30)=4.5+0.1=4.6 dB



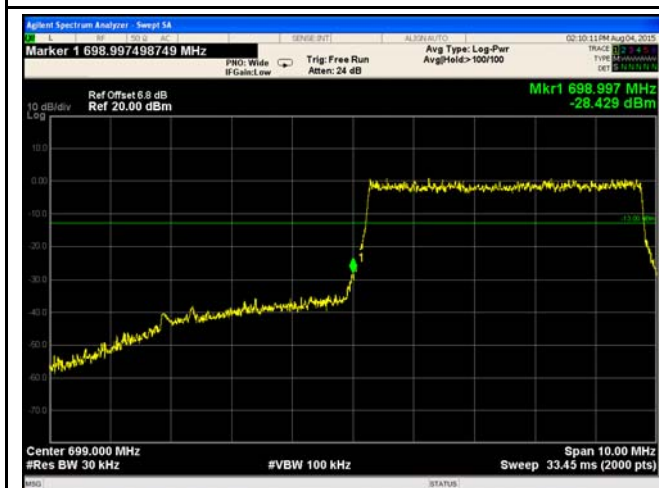
LTE Band 12 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(30.26/30)=4.5+0.0=4.5 dB

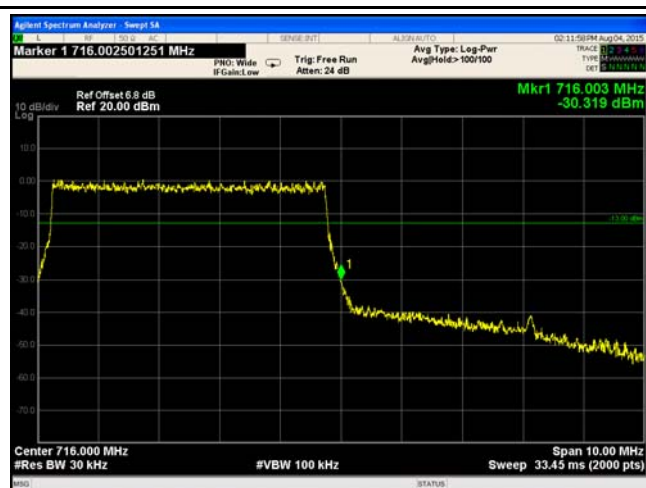


LTE Band 12 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log  
(30.34/30)=4.5+0.0=4.5 dB



LTE Band 12 - Low Channel QPSK-5



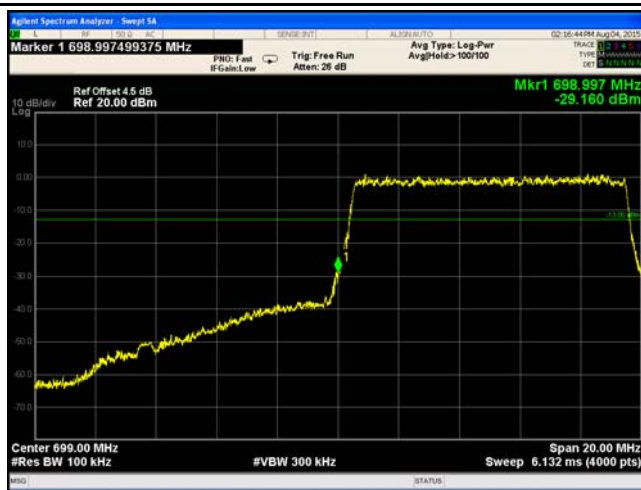
LTE Band 12 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log  
(50.49/30)=4.5+2.3=6.8 dB

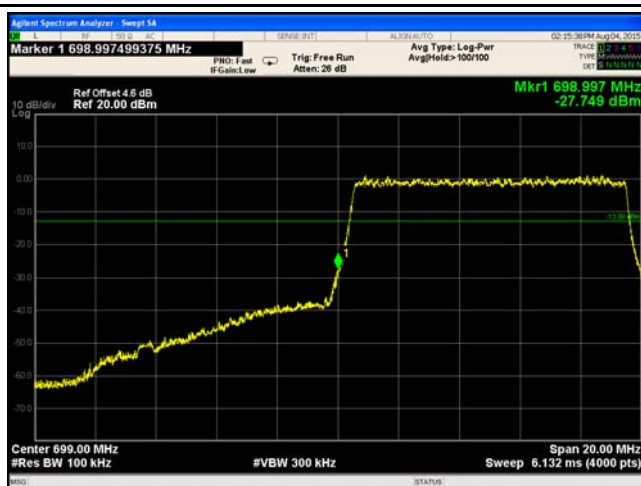


LTE Band 12 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(50.94/30)=4.5+2.3=6.8 dB



LTE Band 12 - Low Channel QPSK-10



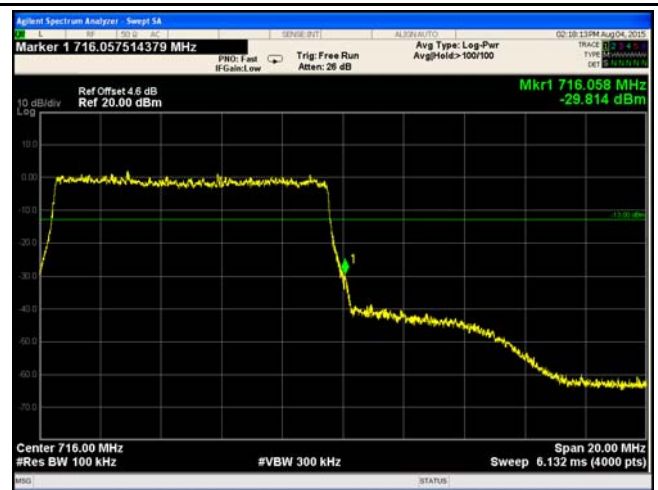
LTE Band 12 - Low Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log  
(50.58/30)=4.5+2.3=6.8 dB

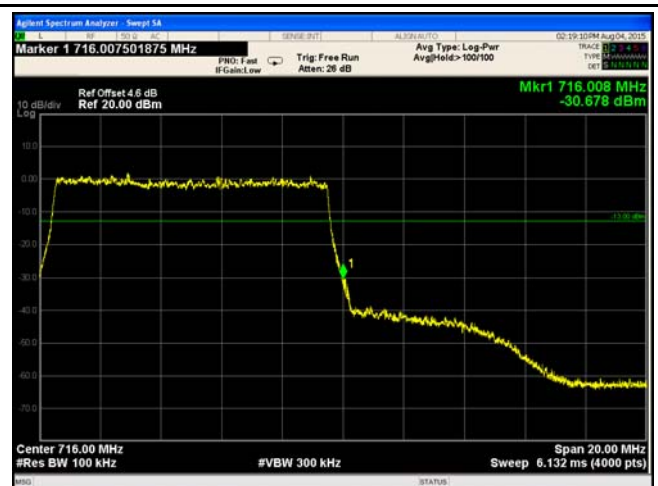


LTE Band 12 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(51.39/30)=4.5+2.3=6.8 dB

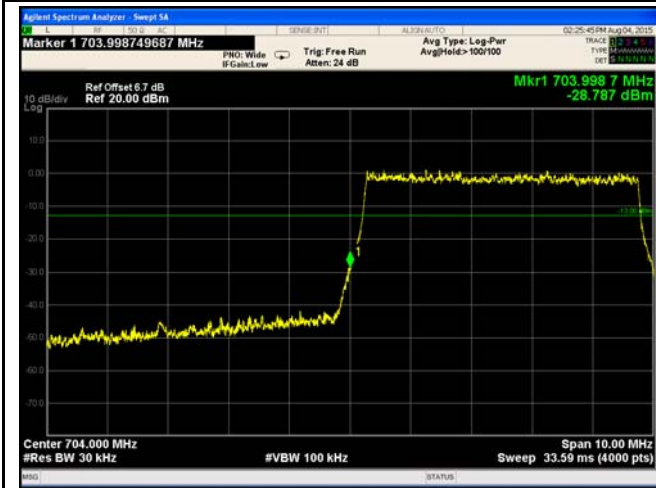


LTE Band 12 - High Channel QPSK-10



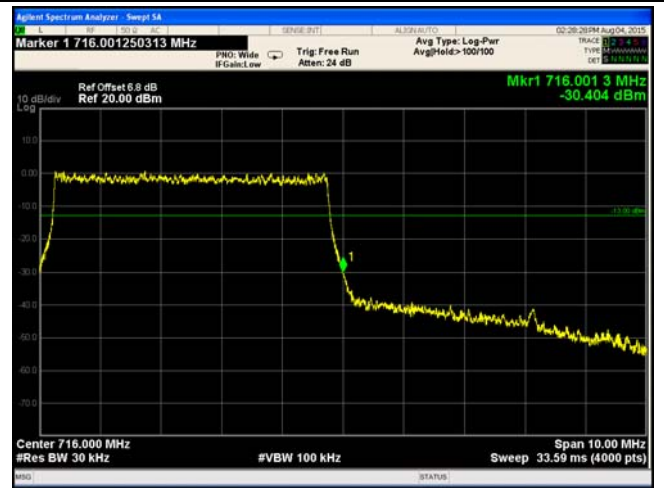
LTE Band 12 - High Channel 16QAM-10

## LTE Band 17 (Part 27)



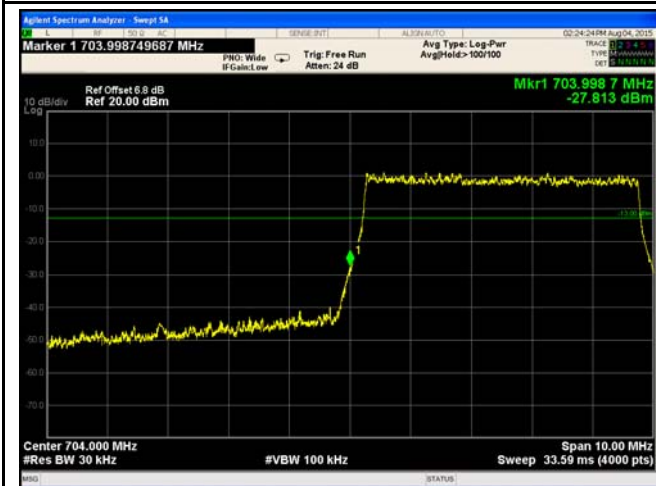
LTE Band 17 - Low Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log  
(50.08/30)=4.5+2.2=6.7 dB



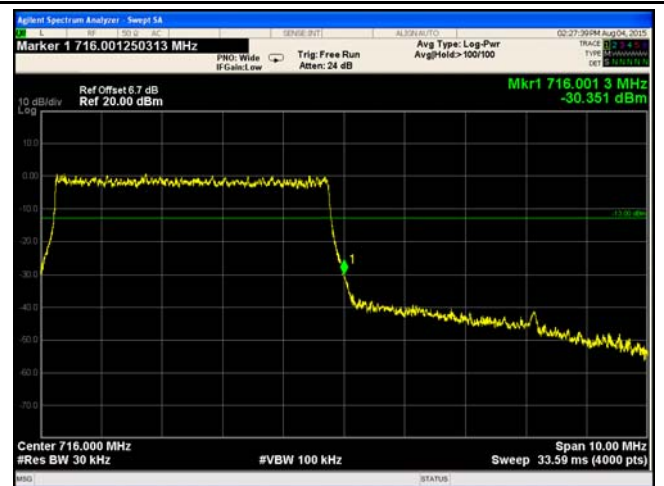
LTE Band 17 - High Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log  
(50.60/30)=4.5+2.3=6.8 dB



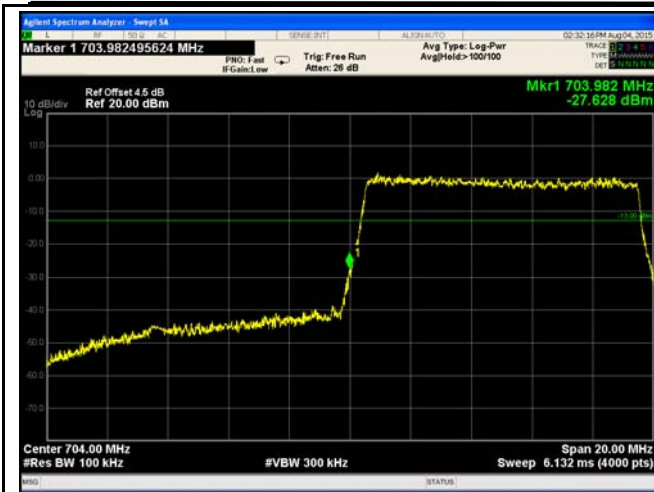
LTE Band 17 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log  
(50.69/30)=4.5+2.3=6.8 dB



LTE Band 17 - High Channel 16QAM-5

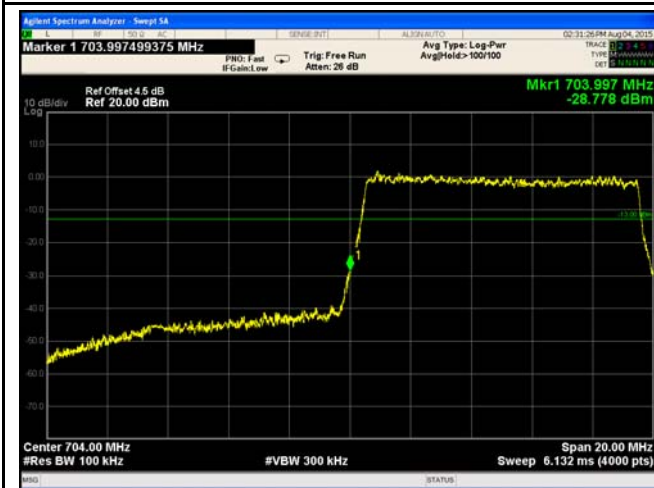
Note: Offset=Cable loss (4.0) + 10log  
(50.17/30)=4.5+2.2=6.7 dB



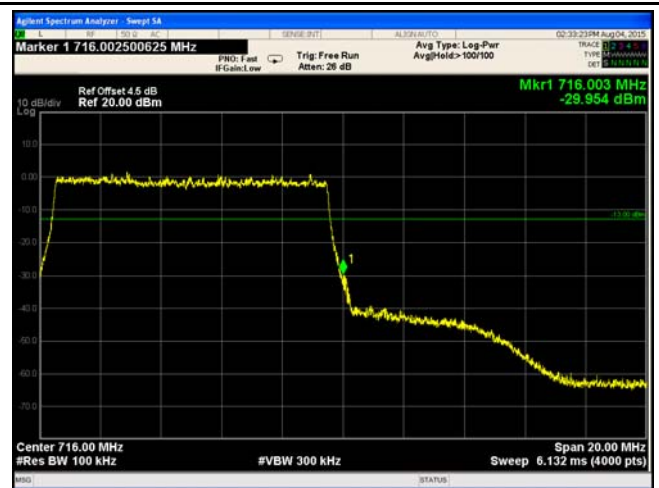
LTE Band 17 - Low Channel QPSK-10



LTE Band 17 - High Channel QPSK-10



LTE Band 17 - Low Channel 16QAM-10

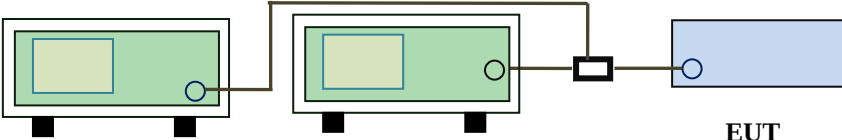


LTE Band 17 - High Channel 16QAM-10

## 6.9 Band Edge 27.53(m)

|                      |                 |
|----------------------|-----------------|
| Temperature          | 22°C            |
| Relative Humidity    | 57%             |
| Atmospheric Pressure | 1005mbar        |
| Test date :          | August 05, 2015 |
| Tested By :          | Winnie Zhang    |

### Requirement(s):

| Spec           | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Applicable                          |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| §27.53(m)      | According to FCC 27.53(m)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power(P) by a factor shall be not less than $43+10\log(P)$ dB at the channel edge, the limit of emission equal to -13dBm. And $55+10\log(P)$ dB at 5.5MHz from the channel edges, the limit of emission equal to -25dBm. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. | <input checked="" type="checkbox"/> |
| Test Setup     |  <p style="text-align: center;">Base Station      Spectrum Analyzer      EUT</p>                                                                                                                                                                                                                                                                                                                                                                                                                |                                     |
| Test Procedure | <ul style="list-style-type: none"> <li>- The EUT was connected to Spectrum Analyzer and Base Station via power divider.</li> <li>- The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers.</li> </ul>                                                                                                                                                                                                                                                                                                                                            |                                     |
| Remark         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |
| Result         | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |

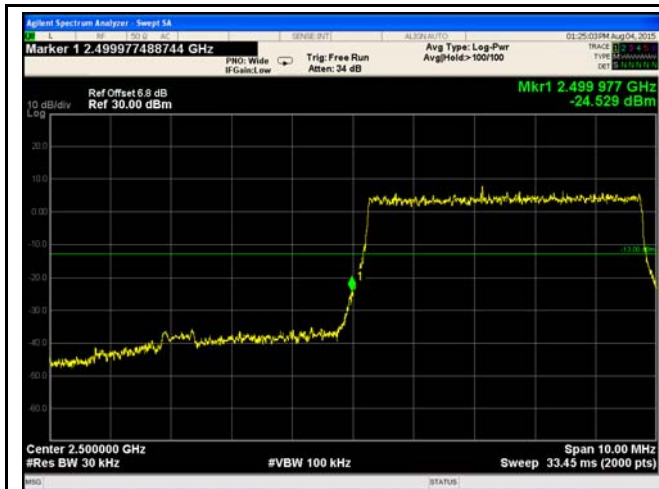
Test Data    ☒ Yes      ☐ N/A

Test Plot    ☒ Yes (See below)      ☐ N/A

### LTE Band 7 (Part 27) result

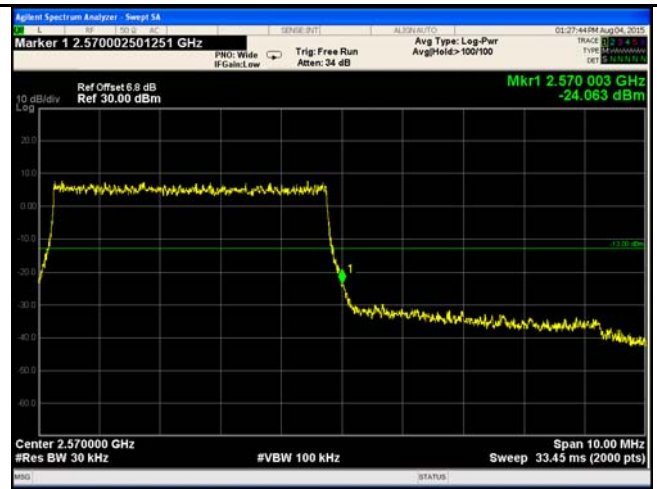
| BW(MHz) | Channel | Frequency (MHz) | Mode  | Emission (dBm) | Limit (dBm) |
|---------|---------|-----------------|-------|----------------|-------------|
| 5       | 20775   | 2502.5          | QPSK  | -23.638        | -13         |
|         |         |                 | 16QAM | -24.529        | -13         |
| 5       | 21425   | 2567.5          | QPSK  | -24.063        | -13         |
|         |         |                 | 16QAM | -22.212        | -13         |
| 10      | 20800   | 2505            | QPSK  | -24.361        | -13         |
|         |         |                 | 16QAM | -24.212        | -13         |
| 10      | 21400   | 2562.5          | QPSK  | -23.266        | -13         |
|         |         |                 | 16QAM | -21.934        | -13         |
| 15      | 20825   | 2507.5          | QPSK  | -23.779        | -13         |
|         |         |                 | 16QAM | -24.088        | -13         |
| 15      | 21400   | 2562.5          | QPSK  | -24.420        | -13         |
|         |         |                 | 16QAM | -26.129        | -13         |
| 20      | 20850   | 2510            | QPSK  | -29.917        | -13         |
|         |         |                 | 16QAM | -29.193        | -13         |
| 20      | 21350   | 2560            | QPSK  | -29.190        | -13         |
|         |         |                 | 16QAM | -28.352        | -13         |

## LTE Band 7 (Part 27)



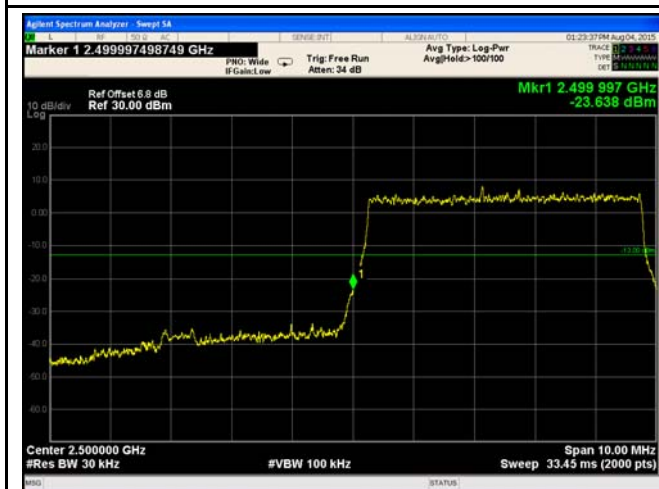
LTE Band 7 - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log  
(50.5/30)=4.5+2.3=6.8 dB



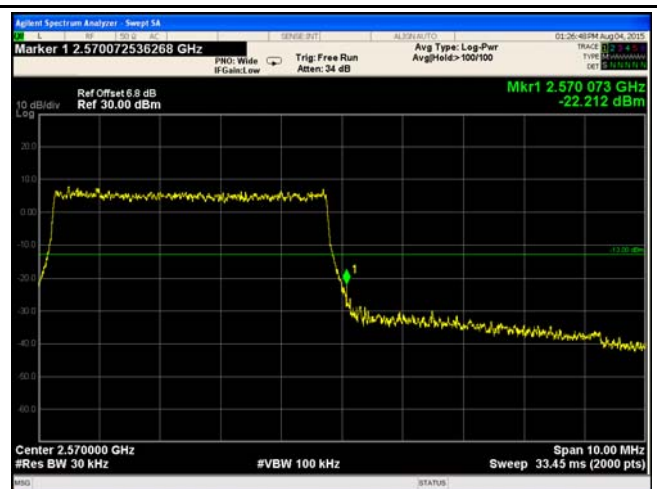
LTE Band 7 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log  
(50.8/30)=4.5+2.3=6.8 dB



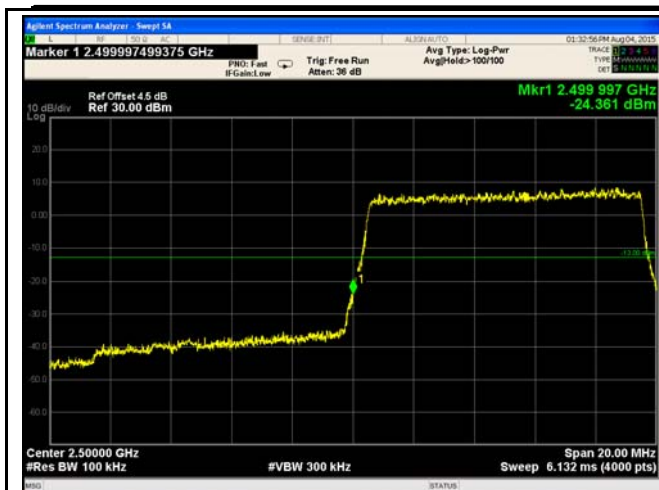
LTE Band 7 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log  
(50.5/30)=4.5+2.3=6.8 dB

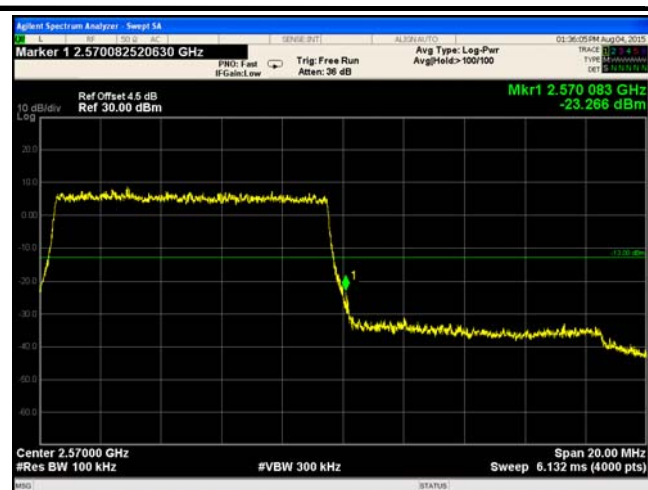


LTE Band 7 - High Channel 16QAM-5

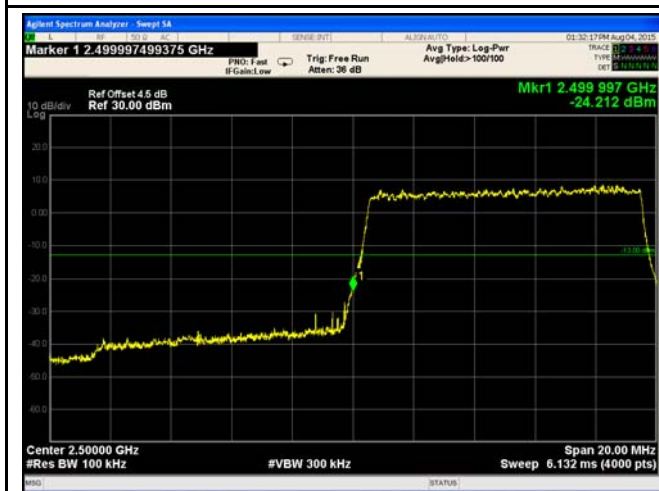
Note: Offset=Cable loss (4.5) + 10log  
(50.4/30)=4.5+2.3=6.8 dB



LTE Band 7 - Low Channel QPSK-10



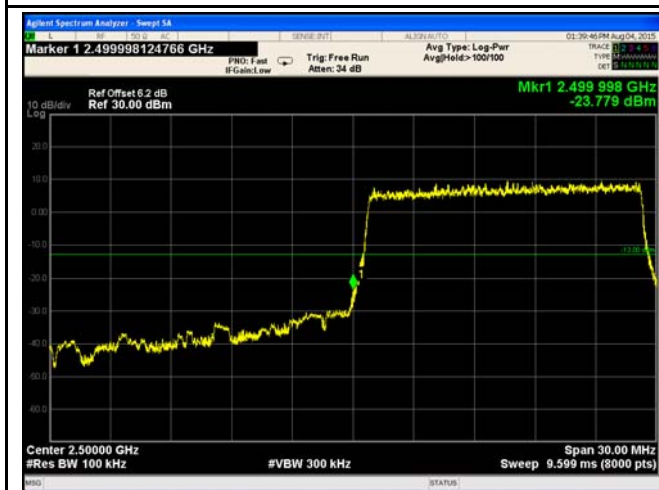
LTE Band 7 - High Channel QPSK-10



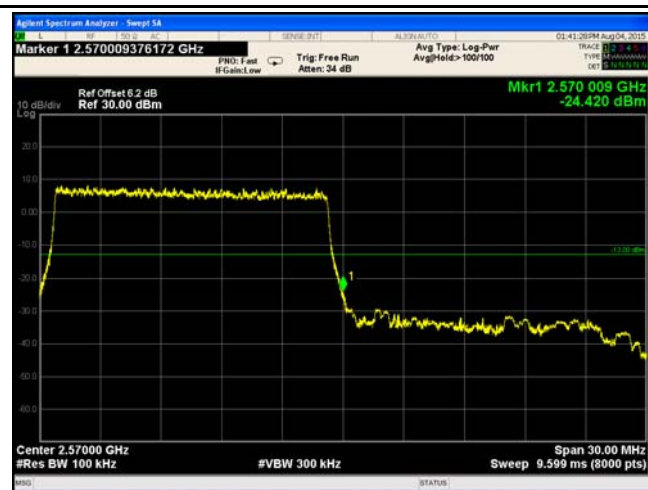
LTE Band 7 - Low Channel 16QAM-10



LTE Band 7 - High Channel 16QAM-10



LTE Band 7 - Low Channel QPSK-15



LTE Band 7 - High Channel QPSK-15

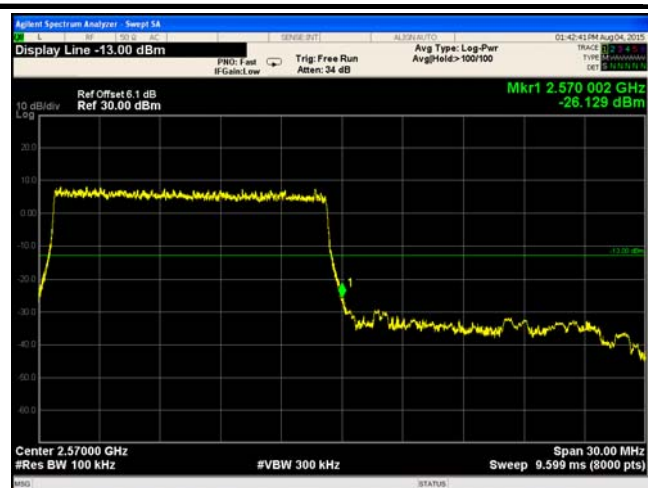
Note: Offset=Cable loss (4.5) + 10log  
(148.5/100)=4.5+1.7=6.2 dB

Note: Offset=Cable loss (4.5) + 10log  
(147.4/100)=4.5+1.7=6.2 dB



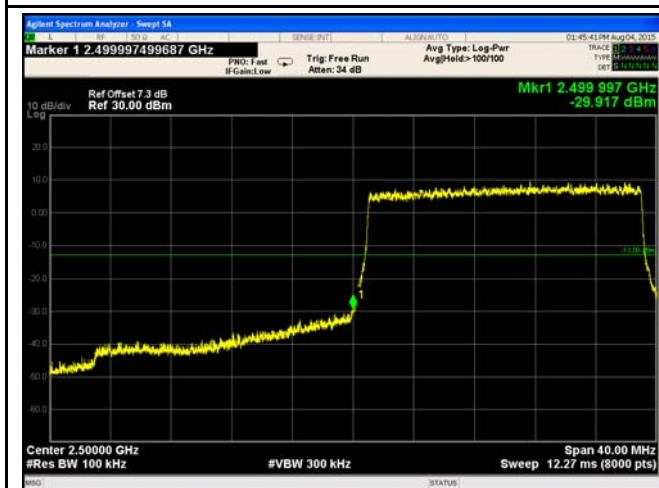
LTE Band 7 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log  
(147.2/100)=4.5+1.7=6.2 dB



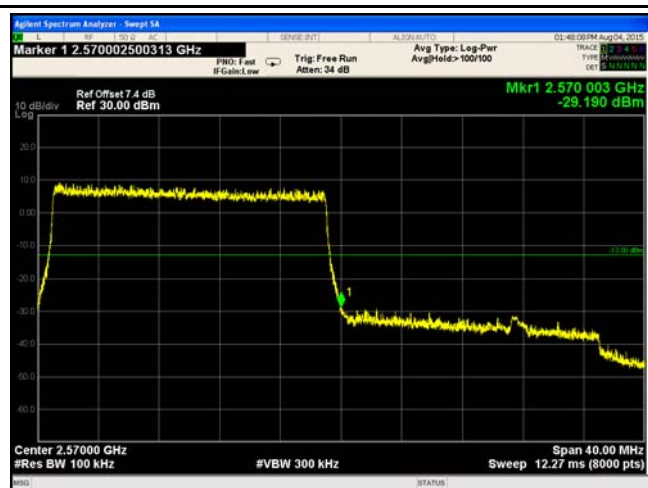
LTE Band 7 - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log  
(146.0/100)=4.5+1.6=6.1 dB



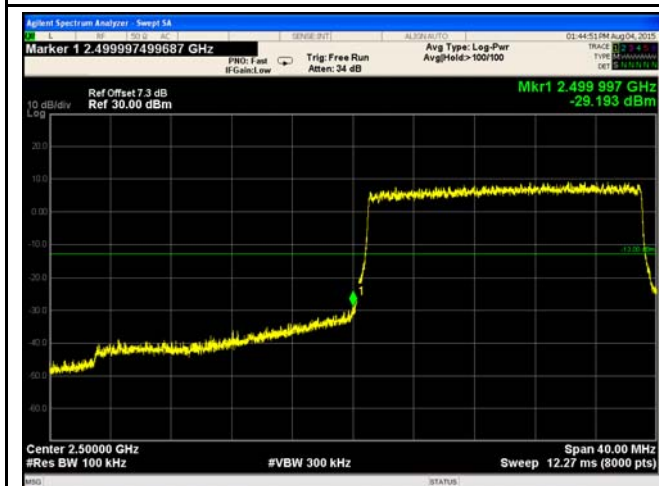
LTE Band 7 - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log  
(191.4/100)=4.5+2.8=7.3dB

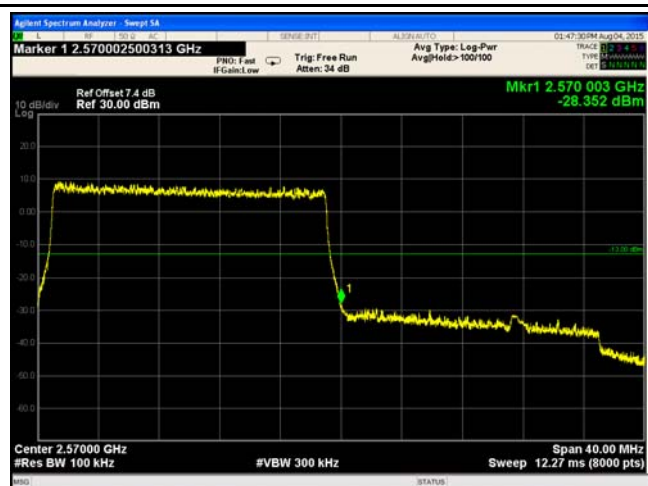


LTE Band 7 - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log  
(192.9/100)=4.5+2.9=7.4dB



LTE Band 7 - Low Channel 16QAM-20



LTE Band 7 - High Channel 16QAM-20

|             |                 |
|-------------|-----------------|
| Test Report | 15070591-FCC-R5 |
| Page        | 132 of 149      |

Note: Offset=Cable loss (4.5) + 10log  
(190.9/100)=4.5+2.8=7.3 dB

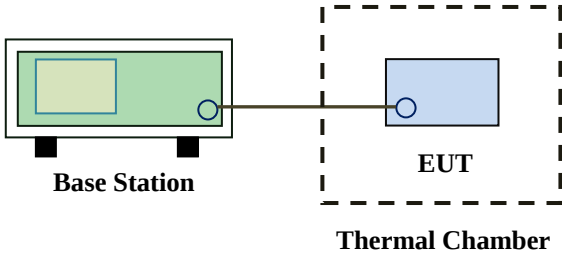
Note: Offset=Cable loss (4.5) + 10log  
(193.2/100)=4.5+2.9=7.4 dB

## 6.10 Frequency Stability

|                      |                 |
|----------------------|-----------------|
| Temperature          | 24°C            |
| Relative Humidity    | 56%             |
| Atmospheric Pressure | 1004mbar        |
| Test date :          | August 04, 2015 |
| Tested By :          | Winnie Zhang    |

### Requirement(s):

| Spec                                                      | Item              | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Applicable             |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
|-----------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|------------------------|------------------------|----------|------|------|------|--------|-----|-----|------|------------|-----|-----|-----|------------|-----|-----|-----|-------------|-----|-----|-----|-------------|-----|-----|-----|--------------|------|-----|-----|-------------------------------------|
| §2.1055,<br>§22.355 &<br>§24.235<br>§ 27.5(h);<br>§ 27.54 | a)                | <p>According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:</p> <p>Frequency Tolerance for Transmitters in the Public Mobile Services</p> <table border="1"> <thead> <tr> <th>Frequency Range (MHz)</th><th>Base, fixed (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th></tr> </thead> <tbody> <tr> <td>25 to 50</td><td>20.0</td><td>20.0</td><td>50.0</td></tr> <tr> <td>to 450</td><td>5.0</td><td>5.0</td><td>50.0</td></tr> <tr> <td>450 to 512</td><td>2.5</td><td>5.0</td><td>5 0</td></tr> <tr> <td>821 to 896</td><td>1.5</td><td>2.5</td><td>2.5</td></tr> <tr> <td>928 to 929.</td><td>5.0</td><td>N/A</td><td>N/A</td></tr> <tr> <td>929 to 960.</td><td>1.5</td><td>N/A</td><td>N/A</td></tr> <tr> <td>2110 to 2220</td><td>10.0</td><td>N/A</td><td>N/A</td></tr> </tbody> </table> <p>According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.</p> <p>According to §27.54, The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.</p> | Frequency Range (MHz)  | Base, fixed (ppm) | Mobile ≤ 3 watts (ppm) | Mobile ≤ 3 watts (ppm) | 25 to 50 | 20.0 | 20.0 | 50.0 | to 450 | 5.0 | 5.0 | 50.0 | 450 to 512 | 2.5 | 5.0 | 5 0 | 821 to 896 | 1.5 | 2.5 | 2.5 | 928 to 929. | 5.0 | N/A | N/A | 929 to 960. | 1.5 | N/A | N/A | 2110 to 2220 | 10.0 | N/A | N/A | <input checked="" type="checkbox"/> |
| Frequency Range (MHz)                                     | Base, fixed (ppm) | Mobile ≤ 3 watts (ppm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Mobile ≤ 3 watts (ppm) |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
| 25 to 50                                                  | 20.0              | 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 50.0                   |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
| to 450                                                    | 5.0               | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 50.0                   |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
| 450 to 512                                                | 2.5               | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5 0                    |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
| 821 to 896                                                | 1.5               | 2.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.5                    |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
| 928 to 929.                                               | 5.0               | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                    |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
| 929 to 960.                                               | 1.5               | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                    |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |
| 2110 to 2220                                              | 10.0              | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                    |                   |                        |                        |          |      |      |      |        |     |     |      |            |     |     |     |            |     |     |     |             |     |     |     |             |     |     |     |              |      |     |     |                                     |

|            |                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test setup |  <p>Base Station</p> <p>EUT</p> <p>Thermal Chamber</p>                                                                                                                                                                                                                                                          |
| Procedure  | <p>A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage.</p> <p>Limit: The frequency stability of the transmitter shall be maintained within <math>\pm 0.00025\%</math> (<math>\pm 2.5\text{ppm}</math>) of the center frequency.</p> |
| Remark     | <p>Frequency Stability versus Temperature: The Frequency tolerance of the carrier signal shall be maintained within 2.5ppm of the operating frequency over a temperature variation of <math>-10^{\circ}\text{C}</math> to <math>+55^{\circ}\text{C}</math> at normal supply voltage.</p>                                                                                                          |
| Result     | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                            |

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

### LTE Band 2 (Part 24E) result

| Middle Channel, $f_0 = 1880$ MHz |                                   |                      |                       |             |
|----------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                 | Power Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10                              | 3.7                               | -7                   | 0.0037                | 2.5         |
| 0                                |                                   | -8                   | 0.0043                | 2.5         |
| 10                               |                                   | -7                   | 0.0037                | 2.5         |
| 20                               |                                   | -10                  | 0.0053                | 2.5         |
| 30                               |                                   | -9                   | 0.0048                | 2.5         |
| 40                               |                                   | -7                   | 0.0037                | 2.5         |
| 50                               |                                   | -12                  | 0.0064                | 2.5         |
| 55                               |                                   | -6                   | 0.0032                | 2.5         |
| 25                               | 4.2                               | -9                   | 0.0048                | 2.5         |
|                                  | 3.5                               | -12                  | 0.0064                | 2.5         |

### LTE Band 4 (Part 27) result

| Middle Channel, $f_0 = 1732.5$ MHz |                                   |                      |                       |             |
|------------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10                                | 3.7                               | -13                  | 0.0075                | 2.5         |
| 0                                  |                                   | -16                  | 0.0092                | 2.5         |
| 10                                 |                                   | -11                  | 0.0063                | 2.5         |
| 20                                 |                                   | -11                  | 0.0063                | 2.5         |
| 30                                 |                                   | -10                  | 0.0058                | 2.5         |
| 40                                 |                                   | -12                  | 0.0069                | 2.5         |
| 50                                 |                                   | -14                  | 0.0081                | 2.5         |
| 55                                 |                                   | -15                  | 0.0087                | 2.5         |
| 25                                 | 4.2                               | -17                  | 0.0098                | 2.5         |
|                                    | 3.5                               | -16                  | 0.0092                | 2.5         |

### LTE Band 5 (Part 22H) result

| Middle Channel, $f_0 = 1732.5$ MHz |                                   |                      |                       |             |
|------------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10                                | 3.7                               | 6                    | 0.0072                | 2.5         |
| 0                                  |                                   | 3                    | 0.0036                | 2.5         |
| 10                                 |                                   | 7                    | 0.0084                | 2.5         |
| 20                                 |                                   | 8                    | 0.0096                | 2.5         |
| 30                                 |                                   | 11                   | 0.0132                | 2.5         |
| 40                                 |                                   | 9                    | 0.0108                | 2.5         |
| 50                                 |                                   | 11                   | 0.0132                | 2.5         |
| 55                                 |                                   | 7                    | 0.0084                | 2.5         |
| 25                                 | 4.2                               | 5                    | 0.0060                | 2.5         |
|                                    | 3.5                               | 9                    | 0.0108                | 2.5         |

### LTE Band 7 (Part 27) result

| Middle Channel, $f_0 = 2535$ MHz |                                   |                      |                       |             |
|----------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                 | Power Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10                              | 3.7                               | -11                  | 0.0059                | 2.5         |
| 0                                |                                   | -7                   | 0.0037                | 2.5         |
| 10                               |                                   | -12                  | 0.0064                | 2.5         |
| 20                               |                                   | -11                  | 0.0059                | 2.5         |
| 30                               |                                   | -9                   | 0.0048                | 2.5         |
| 40                               |                                   | -7                   | 0.0037                | 2.5         |
| 50                               |                                   | -11                  | 0.0059                | 2.5         |
| 55                               |                                   | -10                  | 0.0053                | 2.5         |
| 25                               | 4.2                               | -12                  | 0.0064                | 2.5         |
|                                  | 3.5                               | -11                  | 0.0059                | 2.5         |

### LTE Band 12 (Part 27) result

| Middle Channel, $f_0 = 707.5\text{MHz}$ |                                   |                      |                       |             |
|-----------------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                        | Power Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10                                     | 3.7                               | 9                    | 0.0048                | 2.5         |
| 0                                       |                                   | 10                   | 0.0053                | 2.5         |
| 10                                      |                                   | 12                   | 0.0064                | 2.5         |
| 20                                      |                                   | 9                    | 0.0048                | 2.5         |
| 30                                      |                                   | 9                    | 0.0048                | 2.5         |
| 40                                      |                                   | 11                   | 0.0059                | 2.5         |
| 50                                      |                                   | 9                    | 0.0048                | 2.5         |
| 55                                      |                                   | 9                    | 0.0048                | 2.5         |
| 25                                      | 4.2                               | 7                    | 0.0037                | 2.5         |
|                                         | 3.5                               | 10                   | 0.0053                | 2.5         |

### LTE Band 17 (Part 27) result

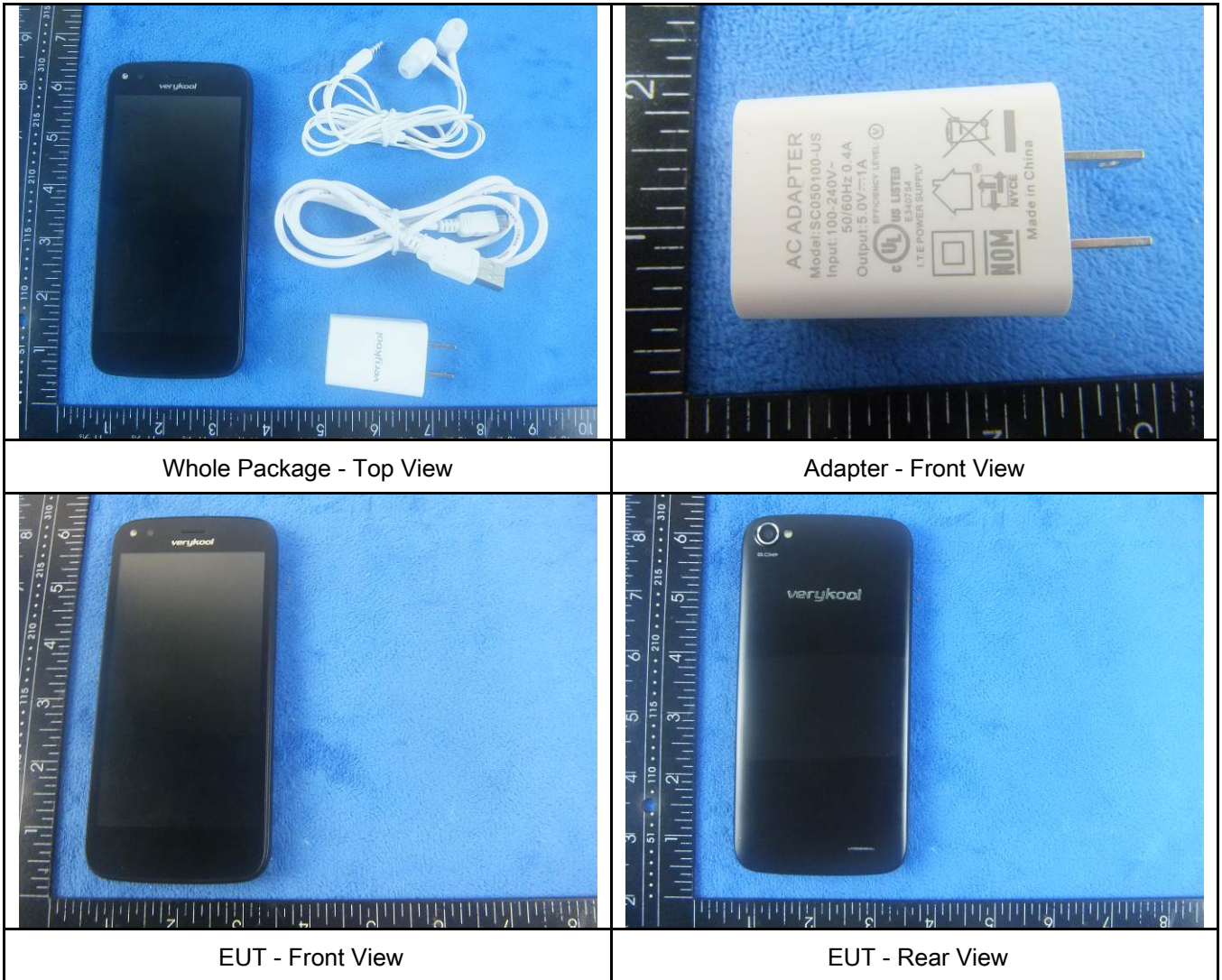
| Middle Channel, $f_0 = 710\text{ MHz}$ |                                   |                      |                       |             |
|----------------------------------------|-----------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                       | Power Supplied (V <sub>DC</sub> ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -10                                    | 3.7                               | 7                    | 0.0099                | 2.5         |
| 0                                      |                                   | 9                    | 0.0113                | 2.5         |
| 10                                     |                                   | 4                    | 0.0141                | 2.5         |
| 20                                     |                                   | 5                    | 0.0056                | 2.5         |
| 30                                     |                                   | 6                    | 0.0028                | 2.5         |
| 40                                     |                                   | 6                    | 0.0155                | 2.5         |
| 50                                     |                                   | 11                   | 0.0197                | 2.5         |
| 55                                     |                                   | 7                    | 0.0028                | 2.5         |
| 25                                     | 4.2                               | 9                    | 0.0127                | 2.5         |
|                                        | 3.5                               | 11                   | 0.0183                | 2.5         |

## Annex A. TEST INSTRUMENT

| Instrument                             | Model           | Serial #   | Cal Date   | Cal Due    | In use                              |
|----------------------------------------|-----------------|------------|------------|------------|-------------------------------------|
| <b>RF Conducted Test</b>               |                 |            |            |            |                                     |
| Agilent ESA-E SERIES SPECTRUM ANALYZER | E4407B          | MY45108319 | 09/17/2014 | 09/16/2015 | <input checked="" type="checkbox"/> |
| Power Splitter                         | 1#              | 1#         | 09/02/2014 | 09/01/2015 | <input checked="" type="checkbox"/> |
| Universal Radio Communication Tester   | CMU200          | 121393     | 09/26/2014 | 09/25/2015 | <input checked="" type="checkbox"/> |
| Wideband Radio Communication Tester    | CMW500          | 120906     | 03/29/2014 | 03/28/2015 | <input checked="" type="checkbox"/> |
| Temperature/Humidity Chamber           | UHL-270         | 001        | 10/10/2014 | 10/09/2015 | <input checked="" type="checkbox"/> |
| DC Power Supply                        | E3640A          | MY40004013 | 09/18/2014 | 09/17/2015 | <input checked="" type="checkbox"/> |
| <b>Radiated Emissions</b>              |                 |            |            |            |                                     |
| EMI test receiver                      | ESL6            | 100262     | 09/18/2014 | 09/17/2015 | <input checked="" type="checkbox"/> |
| OPT 010 AMPLIFIER (0.1-1300MHz)        | 8447E           | 2727A02430 | 09/02/2014 | 09/01/2015 | <input checked="" type="checkbox"/> |
| Microwave Preamplifier (0.5 ~ 18GHz)   | PAM-118         | 443008     | 09/02/2014 | 09/01/2015 | <input checked="" type="checkbox"/> |
| Bilog Antenna (30MHz~6GHz)             | JB6             | A110712    | 09/22/2014 | 09/21/2015 | <input checked="" type="checkbox"/> |
| Bilog Antenna (30MHz~2GHz)             | JB1             | A112017    | 09/22/2014 | 09/21/2015 | <input checked="" type="checkbox"/> |
| Double Ridge Horn Antenna (1 ~18GHz)   | AH-118          | 71259      | 09/25/2014 | 09/24/2015 | <input checked="" type="checkbox"/> |
| Double Ridge Horn Antenna (1 ~18GHz)   | AH-118          | 71283      | 09/25/2014 | 09/24/2015 | <input checked="" type="checkbox"/> |
| SYNTHESIZED SIGNAL GENERATOR           | 8665B           | 3744A01293 | 09/18/2014 | 09/17/2015 | <input checked="" type="checkbox"/> |
| Tunable Notch Filter                   | 3NF-800/1000-S  | AA4        | 09/02/2014 | 09/01/2015 | <input checked="" type="checkbox"/> |
| Tunable Notch Filter                   | 3NF-1000/2000-S | AM 4       | 09/02/2014 | 09/01/2015 | <input checked="" type="checkbox"/> |

## Annex B. EUT And Test Setup Photographs

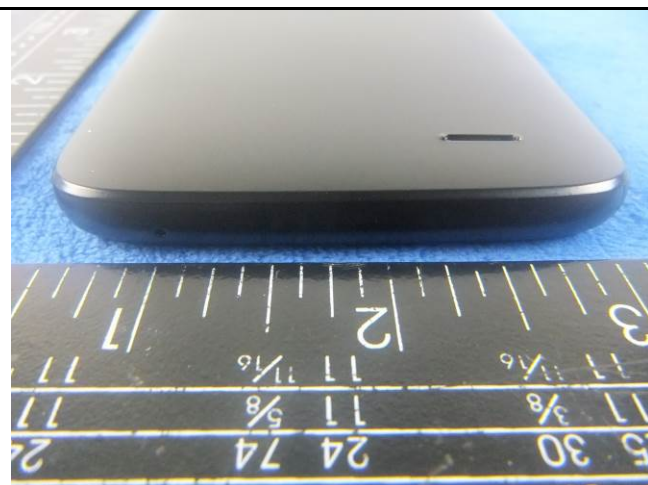
### Annex B.i. Photograph: EUT External Photo



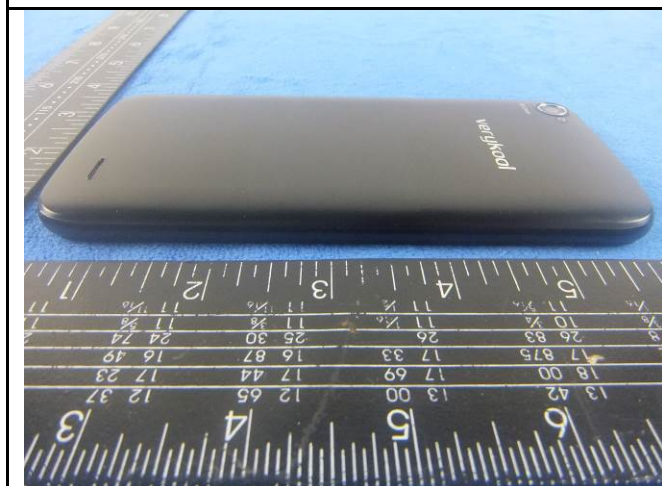
|             |                 |
|-------------|-----------------|
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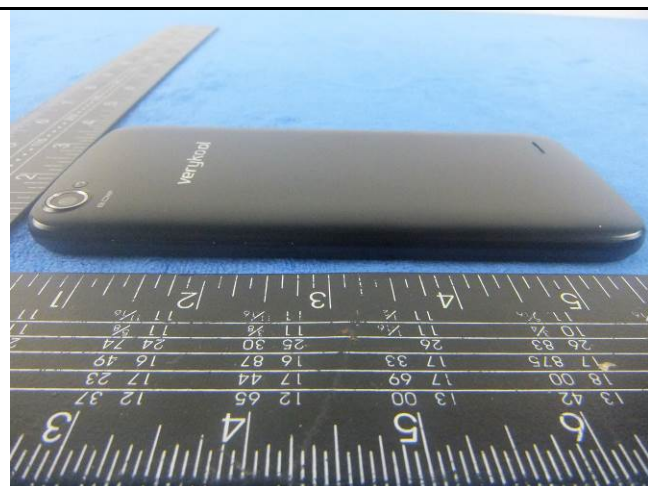
EUT - Top View



EUT - Bottom View



EUT - Left View



EUT - Right View

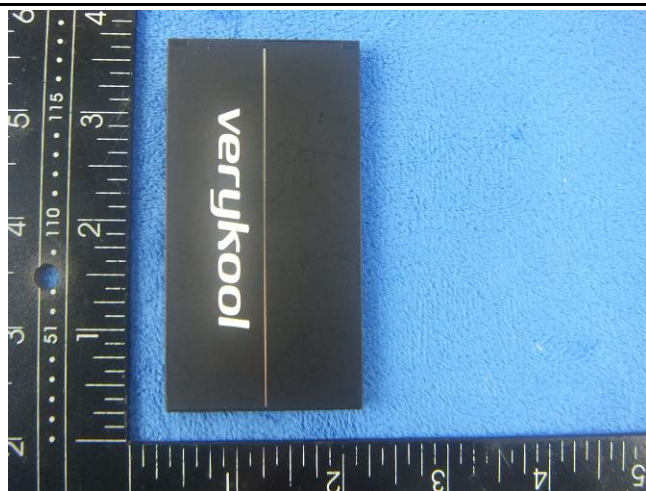
**Annex B.ii. Photograph: EUT Internal Photo**



Cover Off - Top View 1



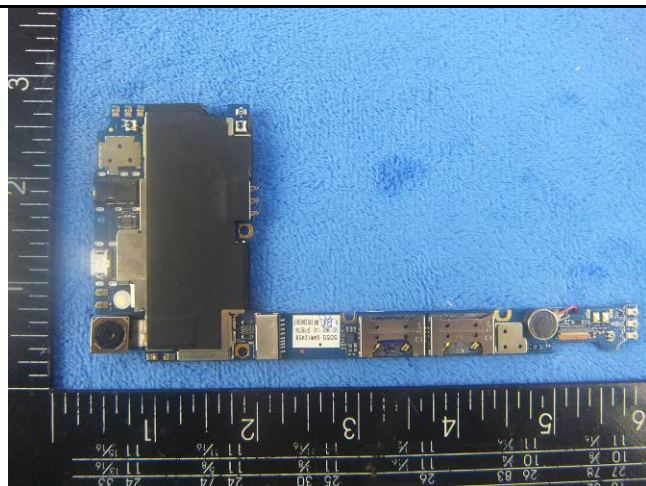
Cover Off - Top View 2



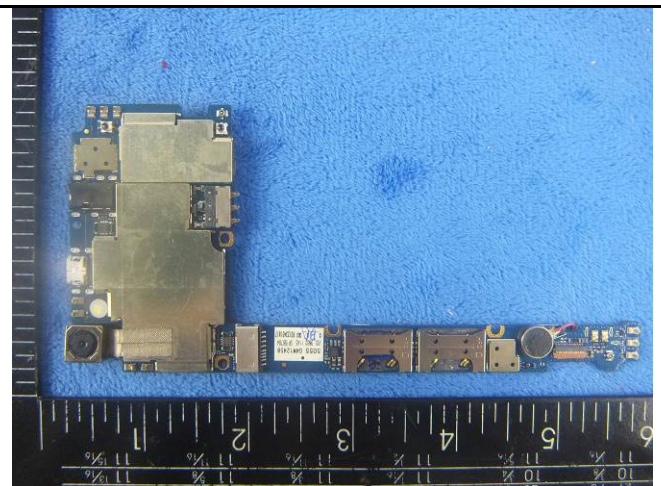
Battery - Top View



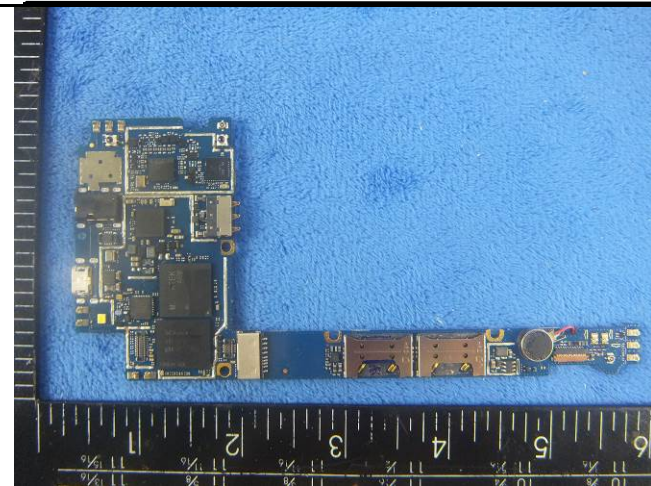
Battery - Bottom View



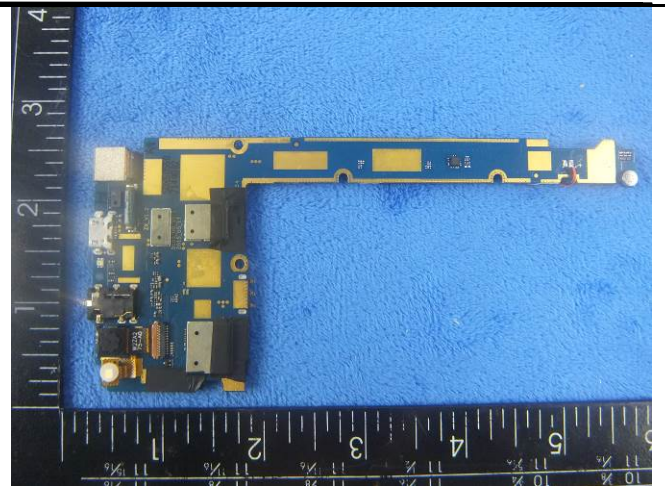
Mainboard with Shielding - Front View 1



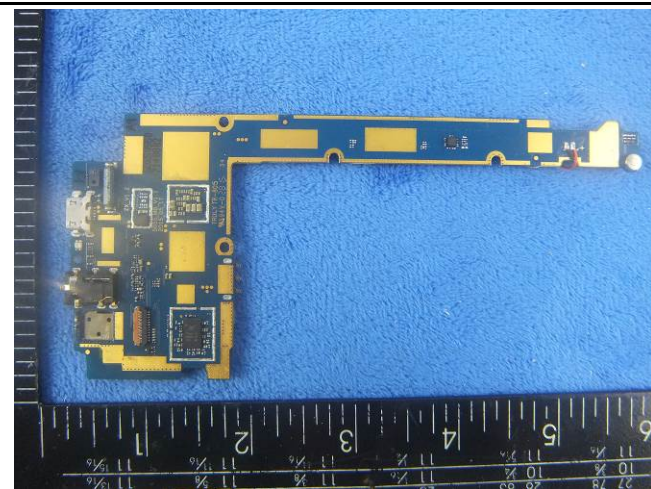
Mainboard with Shielding - Front View 2



Mainboard without Shielding – Front View



Mainboard With Shielding - Rear View



Mainboard Without Shielding - Rear View



LCD – Front View



LCD – Rear View

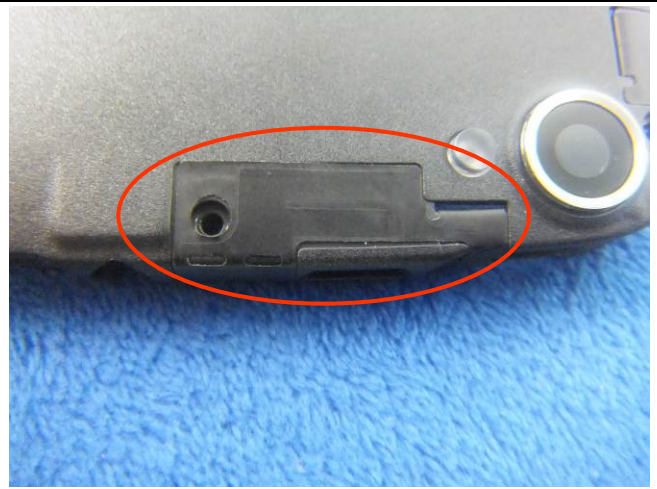


GSM/PCS/UMTS-FDD/LTE Antenna View

|             |                 |
|-------------|-----------------|
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WIFI/BT/BLE - Antenna View



GPS - Antenna View

**Annex B.iii. Photograph: Test Setup Photo**



Radiated Spurious Emissions Test Setup Below 1GHz

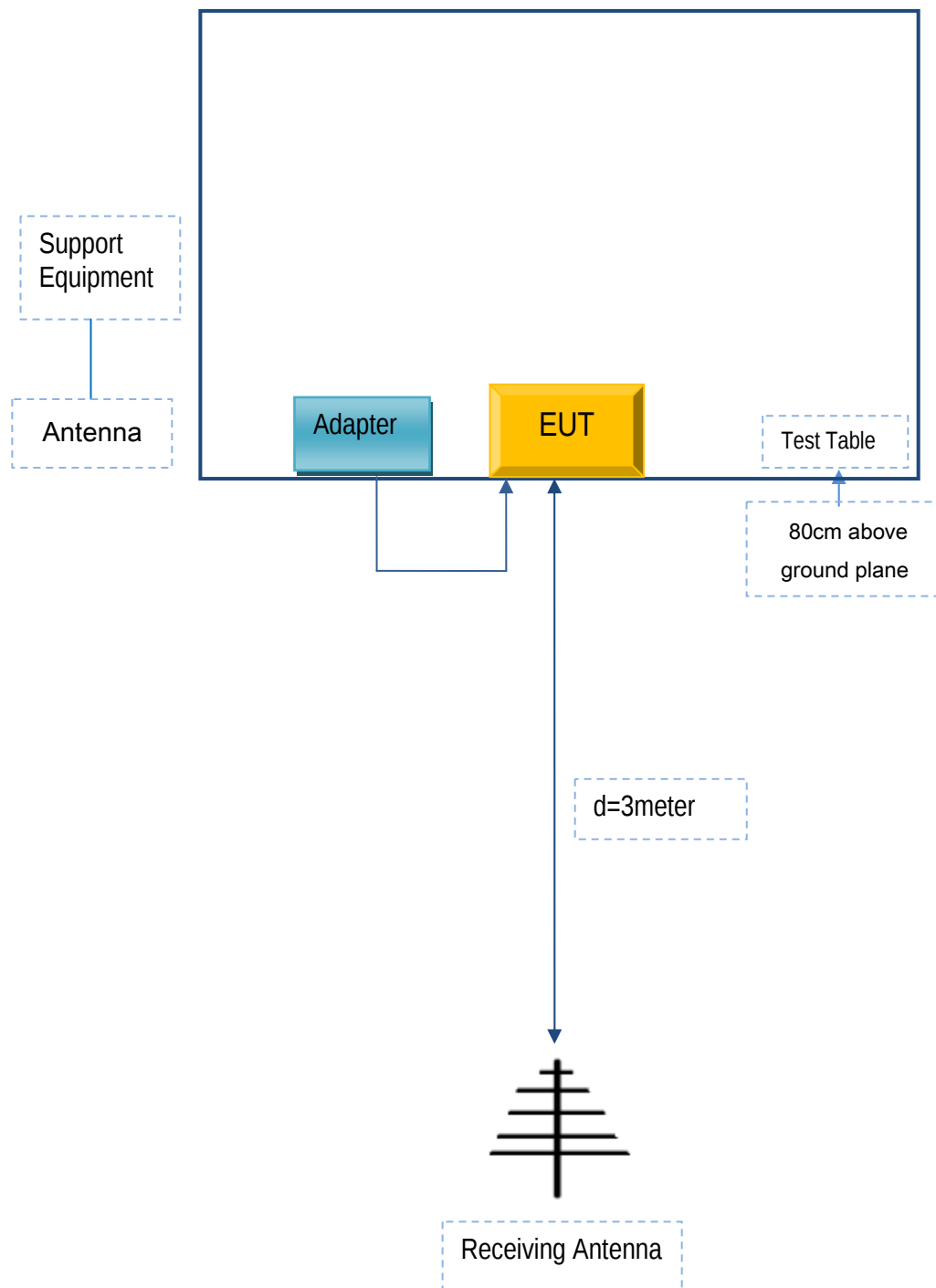


Radiated Spurious Emissions Test Setup Above  
1GHz

## Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

### Annex C.ii. TEST SET UP BLOCK

#### Block Configuration Diagram for Radiated Emissions



## **Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION**

The following is a description of supporting equipment and details of cables used with the EUT.

| Manufacturer | Equipment Description | Model | Calibration Date | Calibration Due Date |
|--------------|-----------------------|-------|------------------|----------------------|
| N/A          | N/A                   | N/A   | N/A              | N/A                  |

|             |                 |
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## Annex C.ii. EUT OPERATING CONKITIONS

N/A

|             |                 |
|-------------|-----------------|
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## Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see attachment

|             |                 |
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## Annex E. DECLARATION OF SIMILARITY

N/A