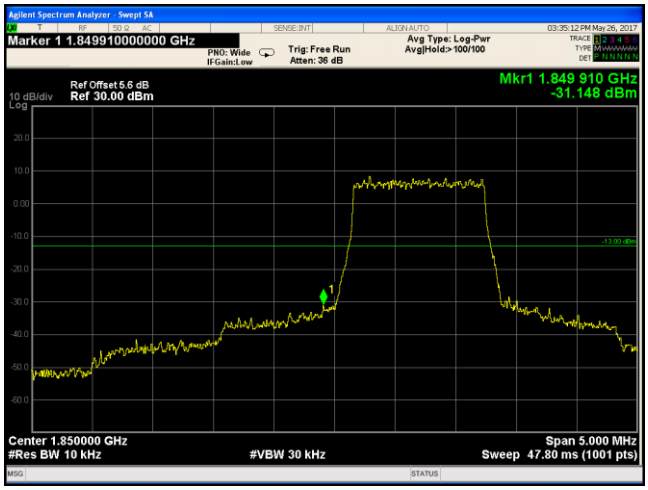
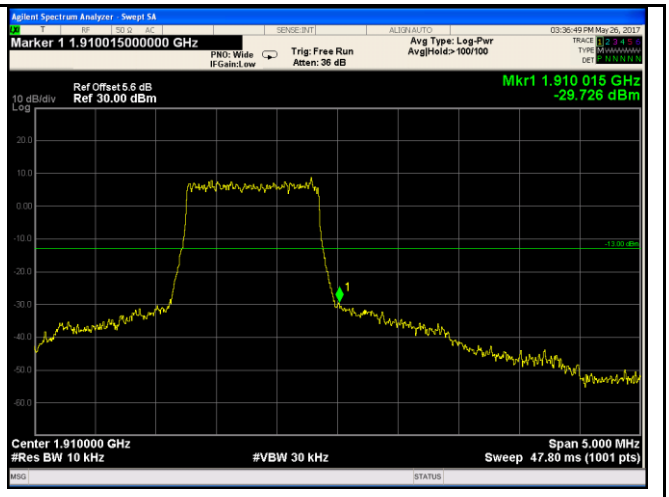
Test Plots

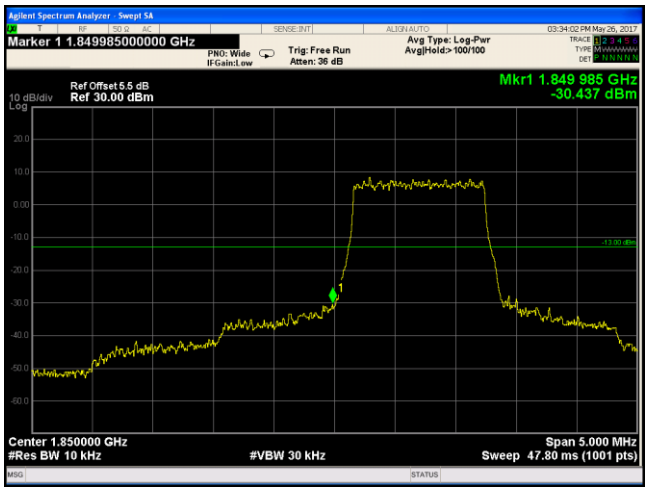
LTE Band II (Part 24E)



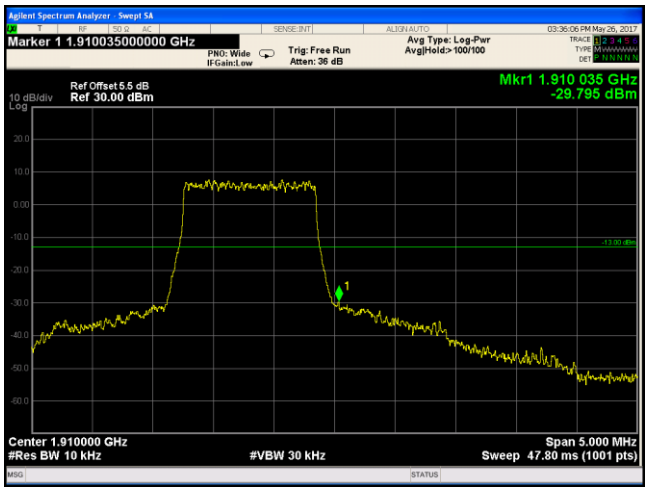
LTE Band II - Low Channel QPSK-1.4
Note: Offset=Cable loss (4.5) + 10log (12.86/10)=4.5+1.1=5.6dB



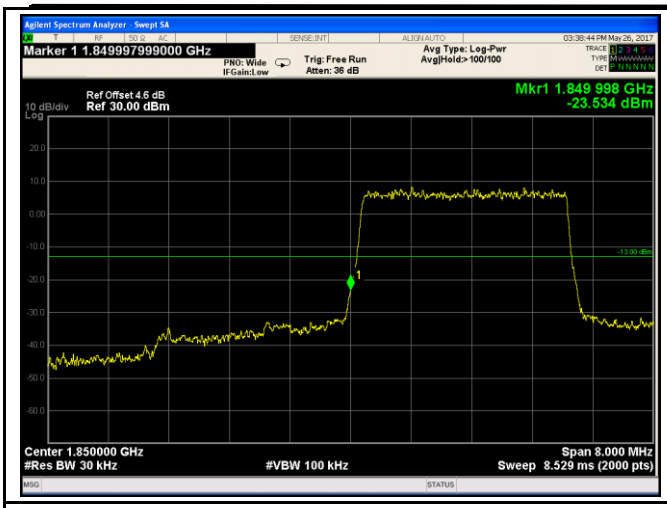
LTE Band II - High Channel QPSK-1.4
Note: Offset=Cable loss (4.5) + 10log (12.80/10)=4.5+1.1=5.6dB



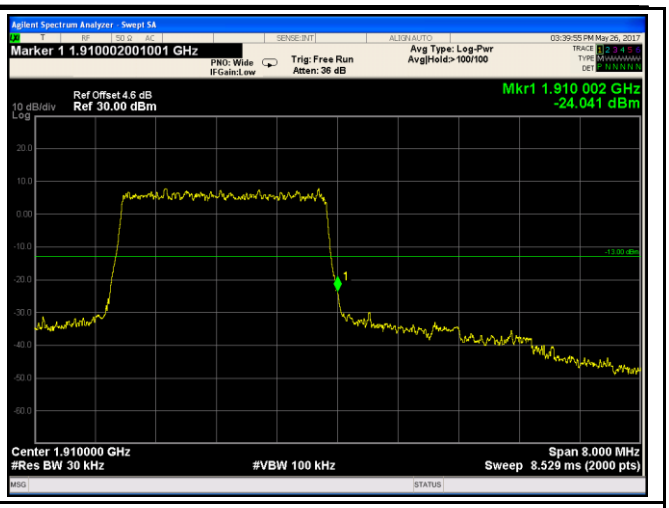
LTE Band II - Low Channel 16QAM-1.4
Note: Offset=Cable loss (4.5) + 10log (12.61/10)=4.5+1.0=5.5 dB



LTE Band II - High Channel 16QAM-1.4
Note: Offset=Cable loss (4.5) + 10log (12.60/10)=4.5+1.0=5.5 dB



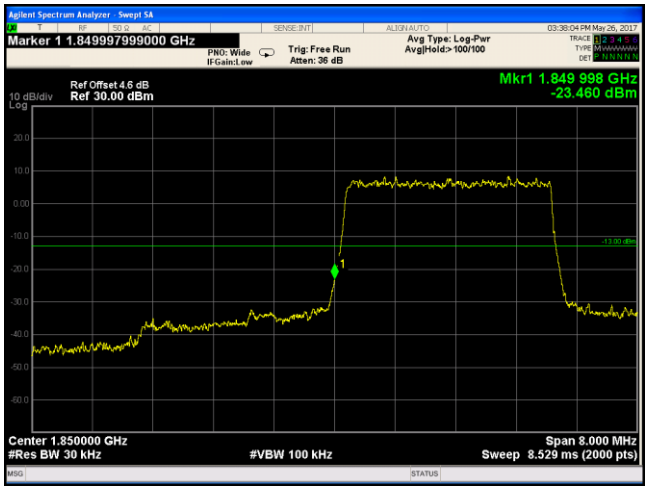
LTE Band II - Low Channel QPSK-3



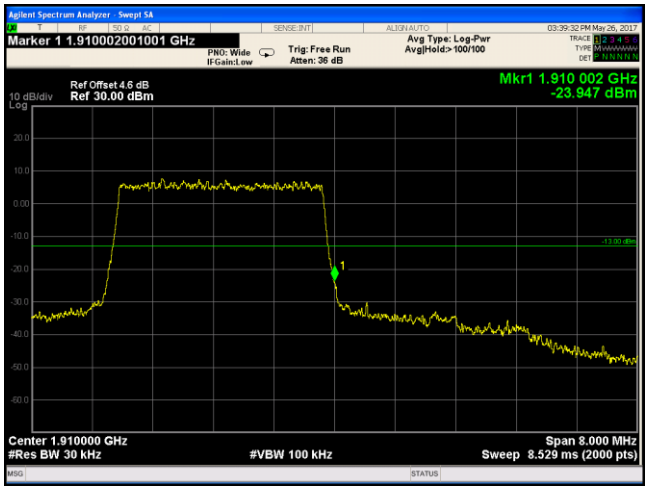
LTE Band II - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.43/30)=4.5+0.1=4.6 dB

Note: Offset=Cable loss (4.5) + 10log (30.69/30)=4.5+0.1=4.6 dB



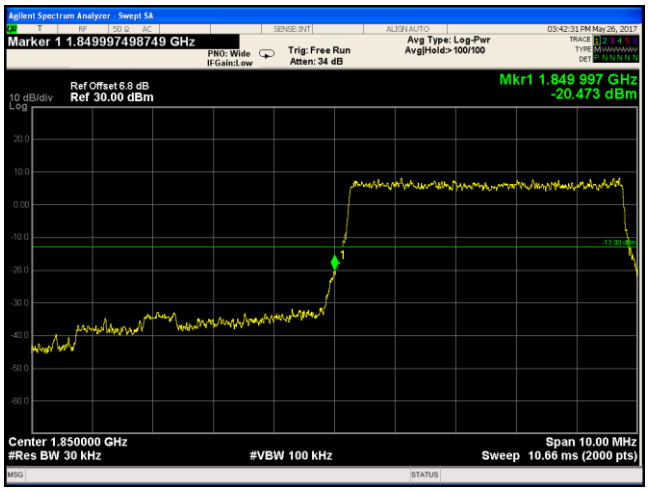
LTE Band II - Low Channel 16QAM-3



LTE Band II - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.63/30)=4.5+0.1=4.6 dB

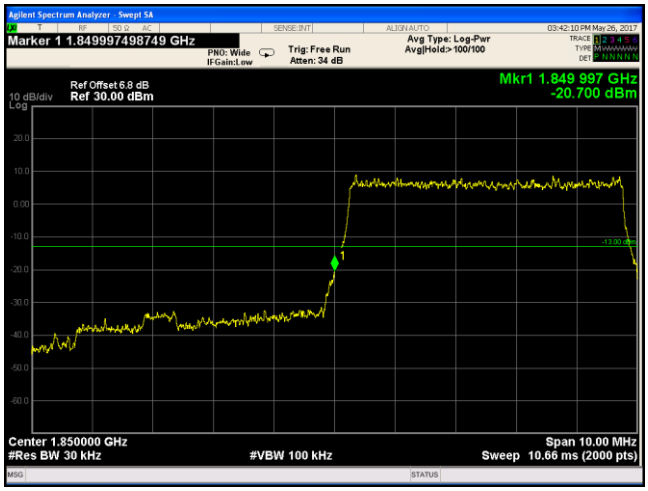
Note: Offset=Cable loss (4.5) + 10log (30.71/30)=4.5+0.1=4.6 dB



LTE Band II - Low Channel QPSK-5

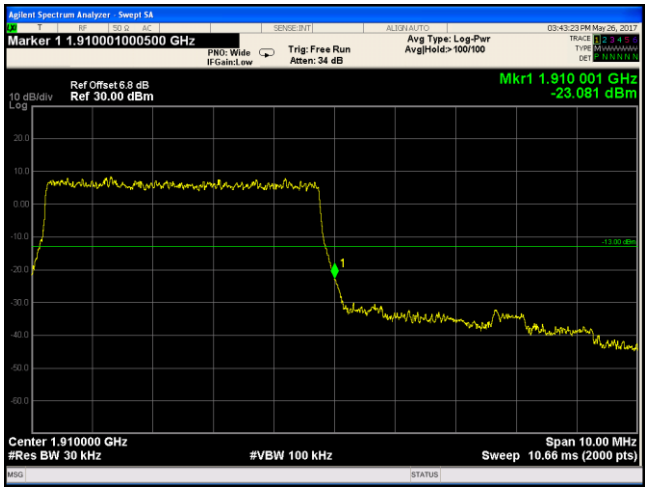
LTE Band II - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.95/30)=4.5+2.3=6.8 dB



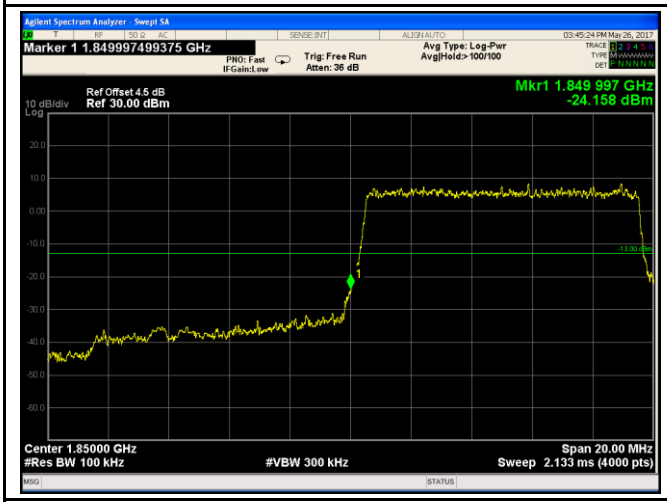
LTE Band II - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.74/30)=4.5+2.3=6.8 dB



LTE Band II - High Channel 16QAM-5

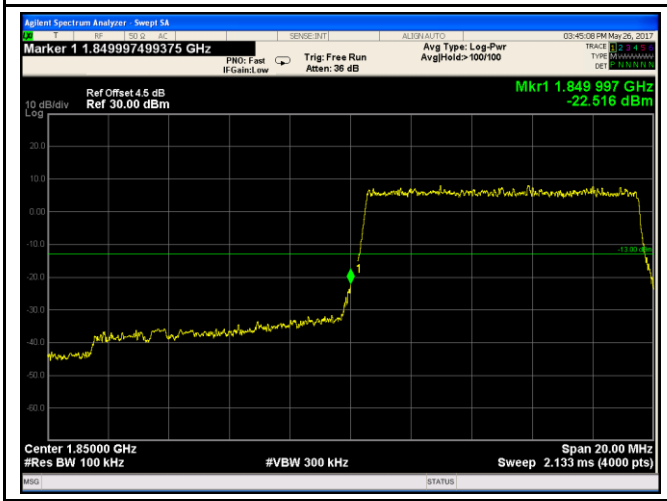
Note: Offset=Cable loss (4.5) + 10log (50.92/30)=4.5+2.3=6.8 dB



LTE Band II - Low Channel QPSK-10

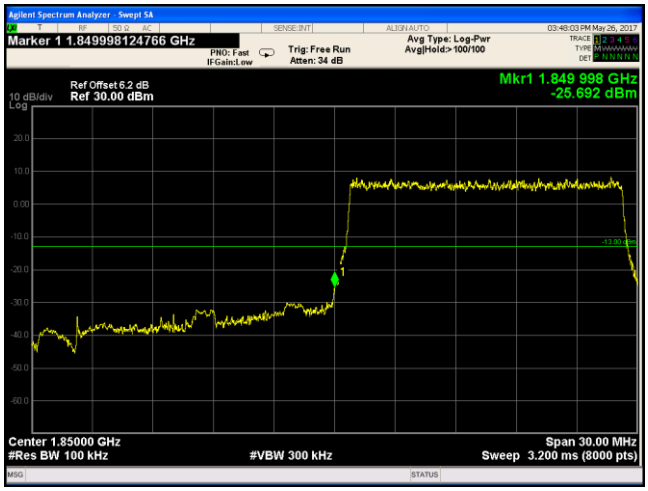
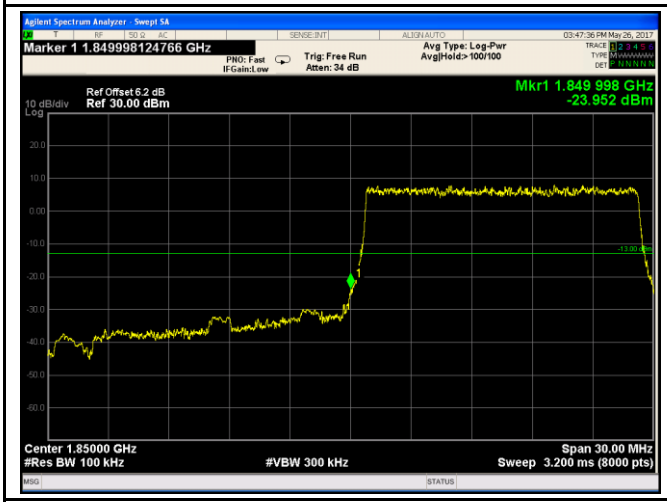
Note: Offset=Cable loss (4.5) + 10log (50.71/30)=4.5+2.3=6.8 dB

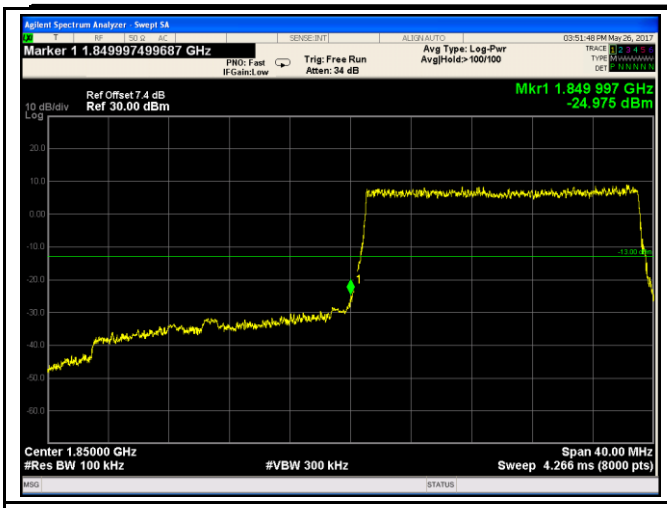
LTE Band II - High Channel QPSK-10



LTE Band II - Low Channel 16QAM-10

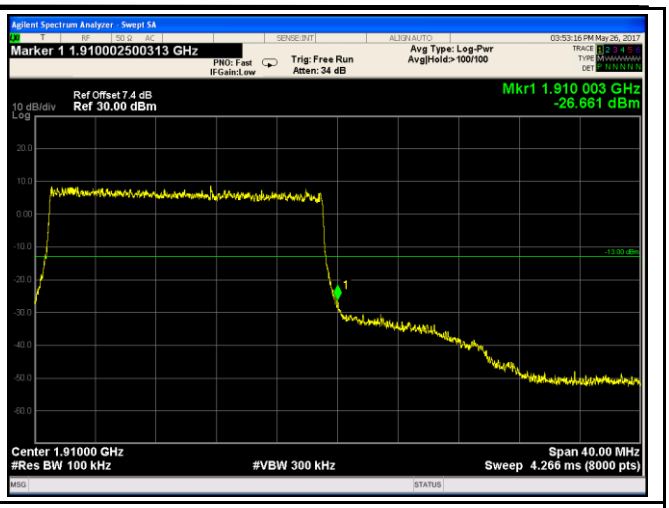
LTE Band II - High Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log (100.9/100)=4.5+0.0=4.5 dB	Note: Offset=Cable loss (4.5) + 10log (101.6/100)=4.5+0.0=4.5 dB
	
LTE Band II - Low Channel QPSK-15	LTE Band II - High Channel QPSK-15
Note: Offset=Cable loss (4.5) + 10log (148.6/100)=4.5+1.7=6.2 dB	Note: Offset=Cable loss (4.5) + 10log (148.5/100)=4.5+1.7=6.2 dB
	
LTE Band II - Low Channel 16QAM-15	LTE Band II - High Channel 16QAM-15
Note: Offset=Cable loss (4.5) + 10log (148.6/100)=4.5+1.7=6.2 dB	Note: Offset=Cable loss (4.5) + 10log (148.9/100)=4.5+1.7=6.2 dB



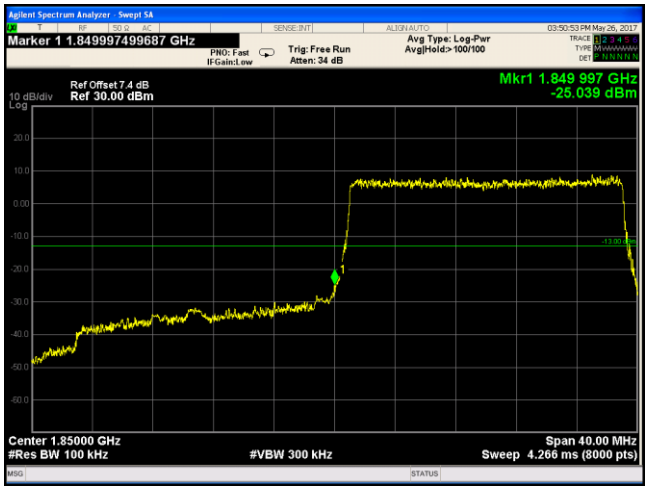
LTE Band II - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (194/100)=4.5+2.9=7.4 dB



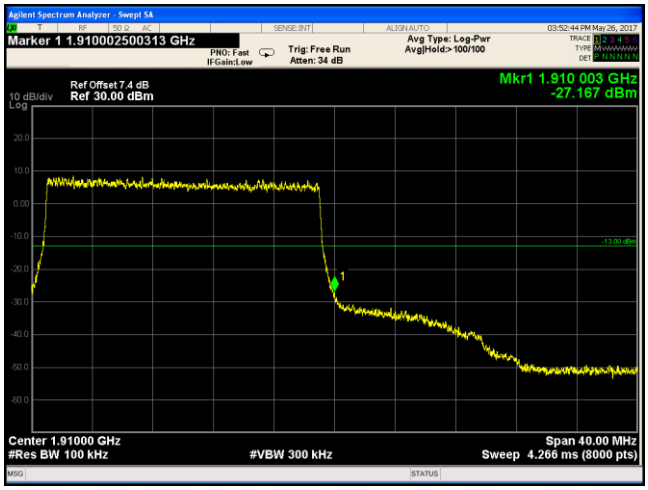
LTE Band II - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (194.1/100)=4.5+2.9=7.4 dB



LTE Band II - Low Channel 16QAM-20

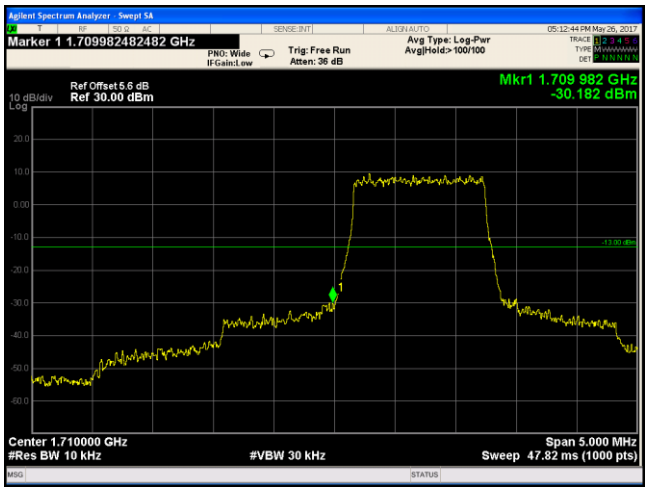
Note: Offset=Cable loss (4.5) + 10log (193.9/100)=4.5+2.9=7.4 dB



LTE Band II - High Channel 16QAM-20

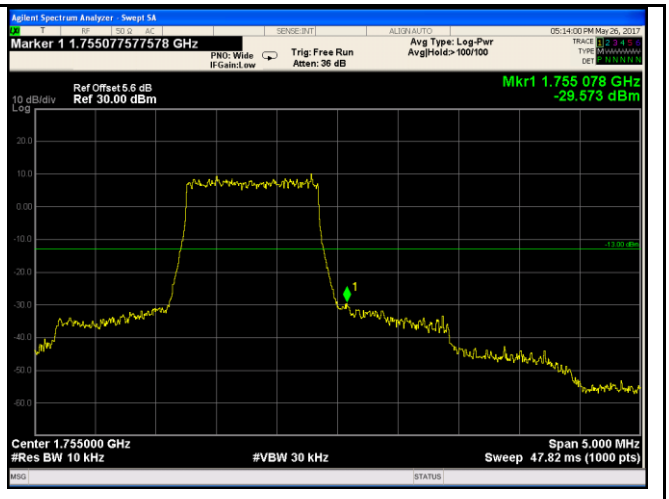
Note: Offset=Cable loss (4.5) + 10log (194.2/100)=4.5+2.9=7.4 dB

LTE Band IV (Part 27)



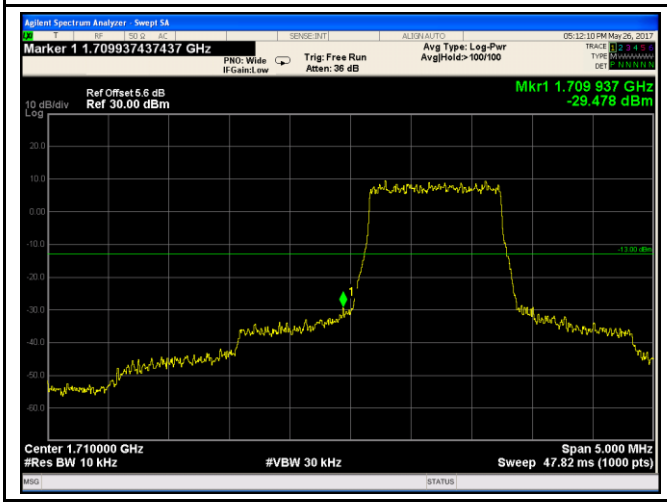
LTE Band IV - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.82/10)=4.5+1.1=5.6 dB



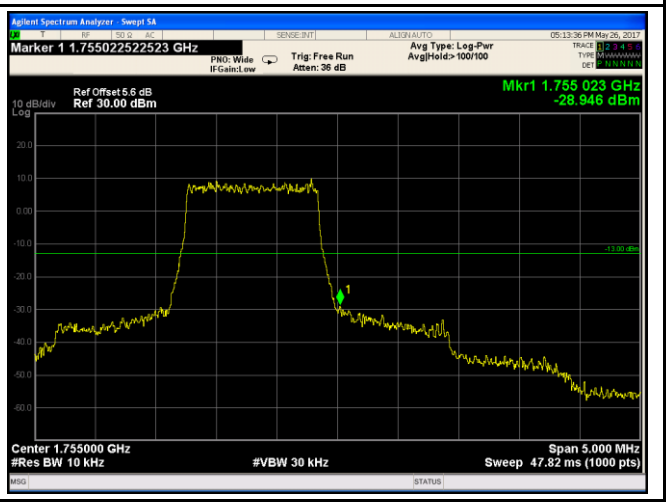
LTE Band IV - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.78/10)=4.5+1.1=5.6 dB



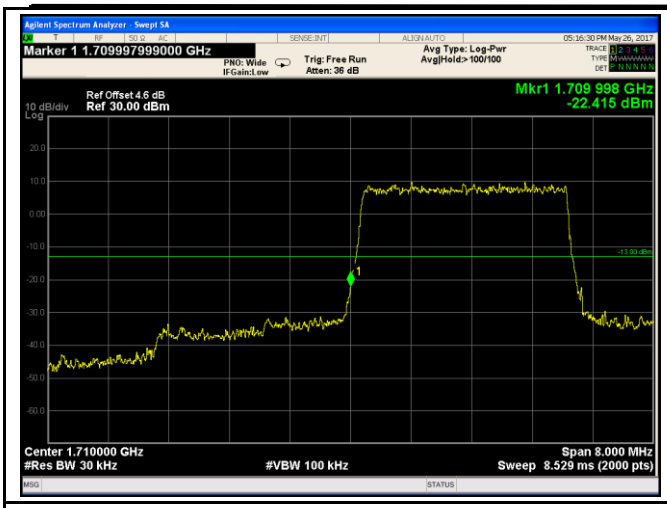
LTE Band IV - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.84/10)=4.5+1.1=5.6 dB

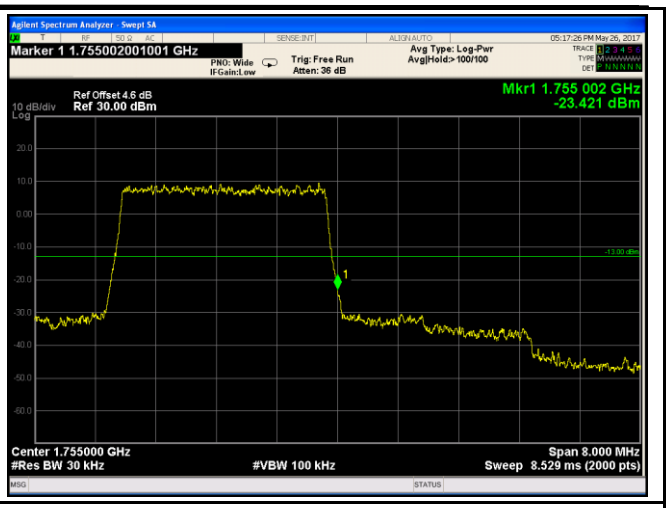


LTE Band IV - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log ((12.76/10)=4.5+1.1=5.6 dB



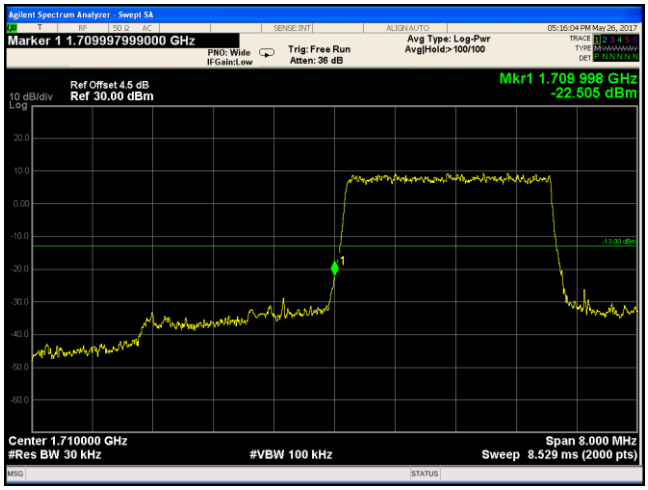
LTE Band IV - Low Channel QPSK-3



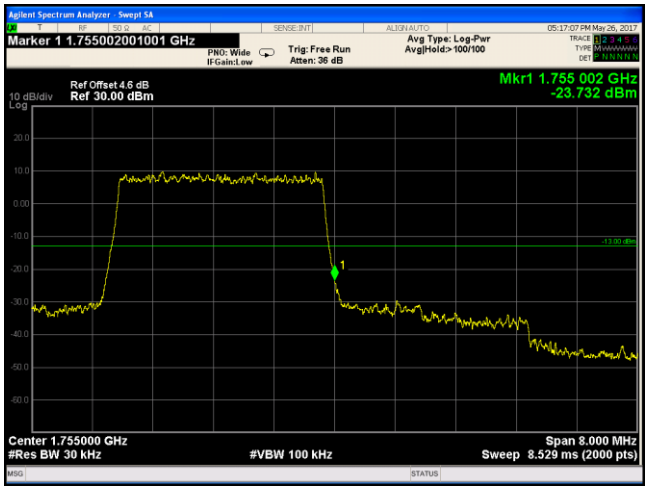
LTE Band IV - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.36/30)=4.5+0.1=4.6 dB

Note: Offset=Cable loss (4.5) + 10log (30.42/30)=4.5+0.1=4.6 dB



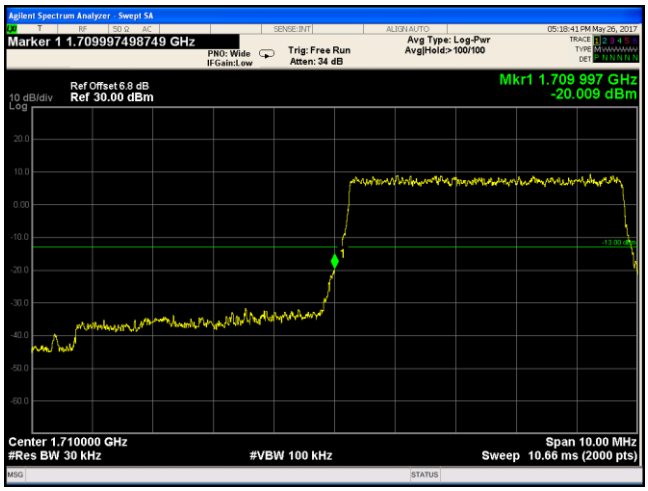
LTE Band IV - Low Channel 16QAM-3



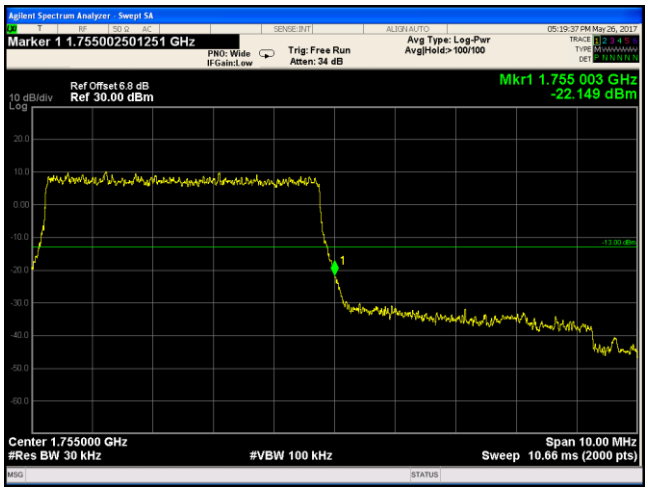
LTE Band IV - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.31/30)=4.5+0.0=4.5 dB

Note: Offset=Cable loss (4.5) + 10log (30.59/30)=4.5+0.1=4.6 dB

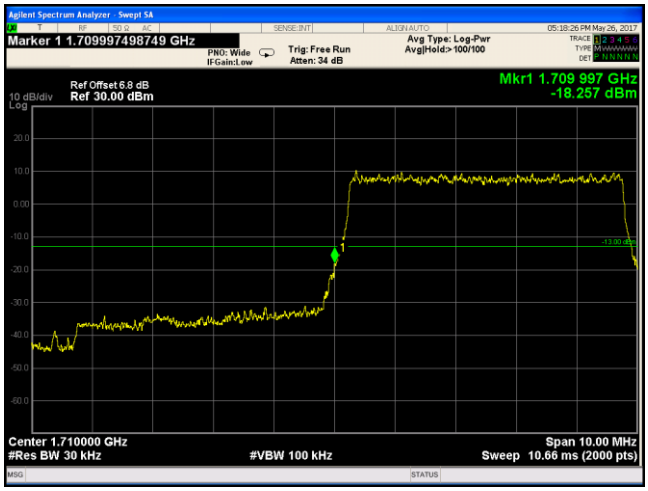


LTE Band IV - Low Channel QPSK-5



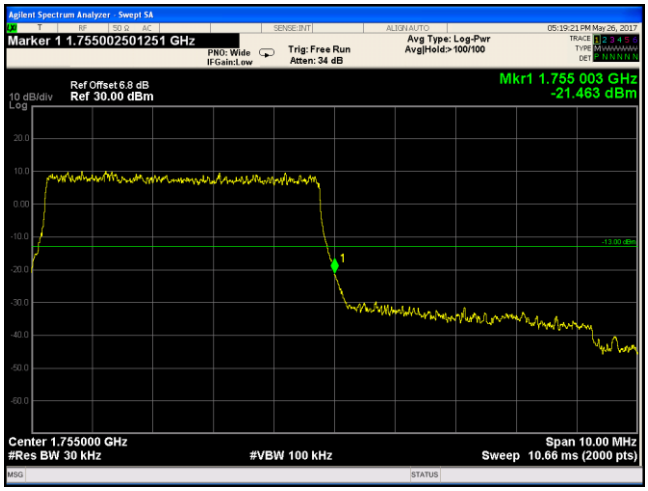
LTE Band IV - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.95/30)=4.5+2.3=6.8 dB



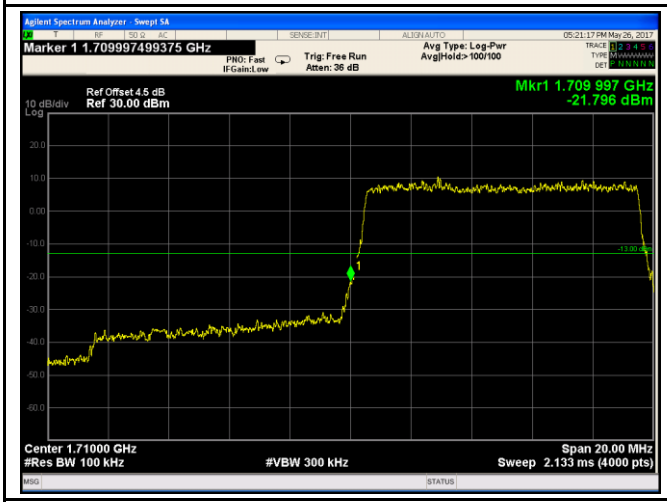
LTE Band IV - Low Channel 16QAM-5

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



LTE Band IV - High Channel 16QAM-5

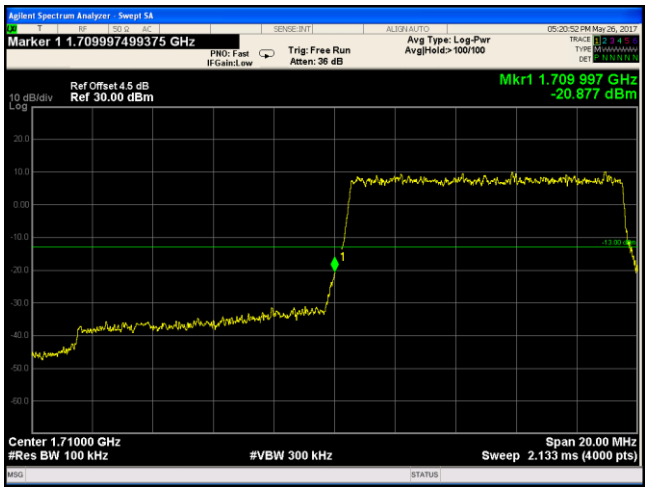
Note: Offset=Cable loss (4.5) + 10log (51.01/30)=4.5+2.3=6.8 dB



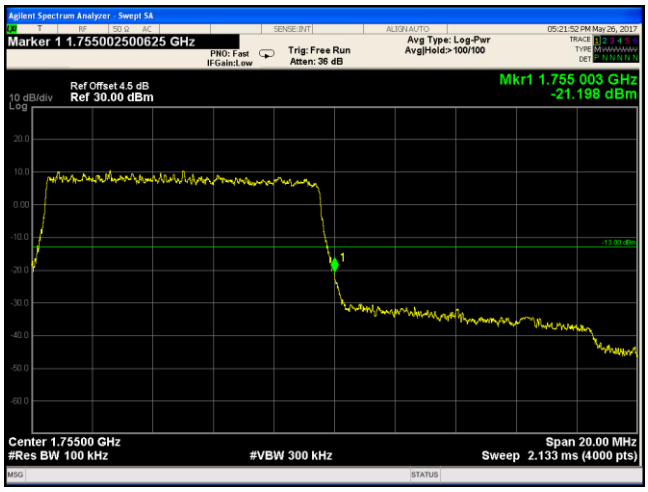
LTE Band IV - Low Channel QPSK-10

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

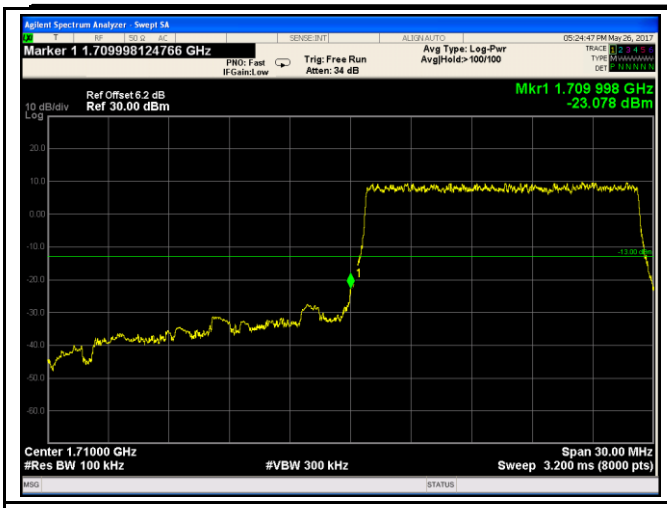
LTE Band IV - High Channel QPSK-10



LTE Band IV - Low Channel 16QAM-10



LTE Band IV - High Channel 16QAM-10

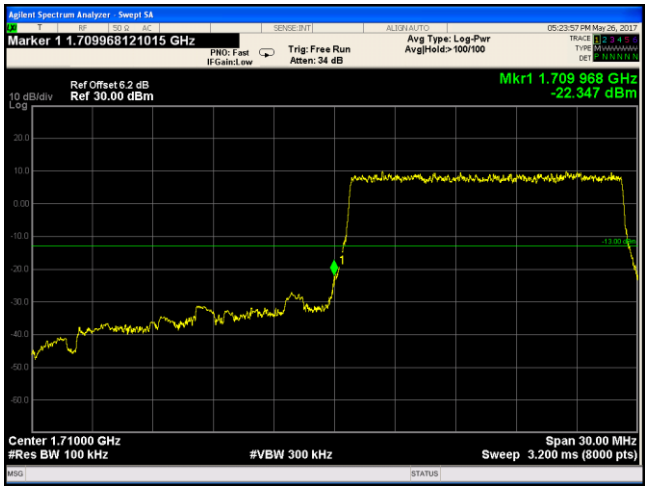


LTE Band IV - Low Channel QPSK-15

LTE Band IV - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (135/100)=4.5+1.7=6.2 dB

Note: Offset=Cable loss (4.5) + 10log (135/100)=4.5+1.7=6.2 dB

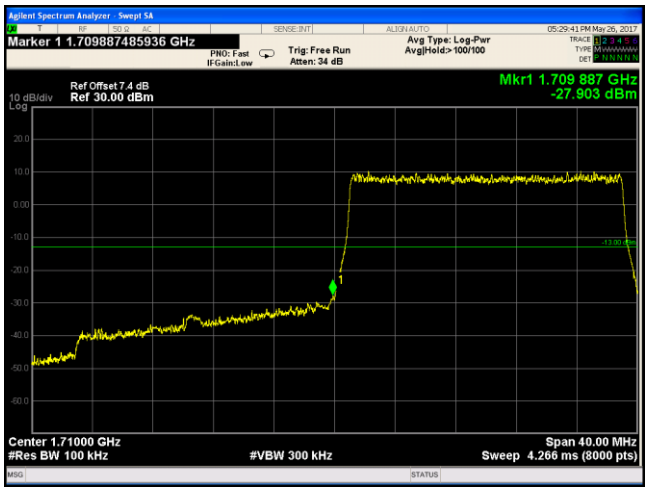


LTE Band IV - Low Channel 16QAM-15

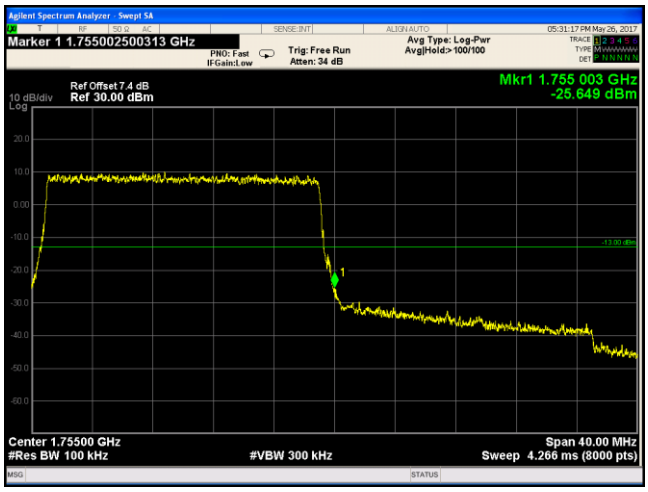
LTE Band IV - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (135/100)=4.5+1.7=6.2 dB

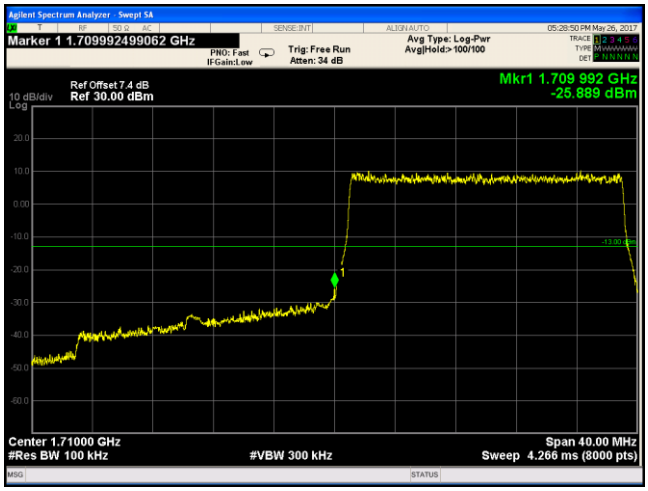
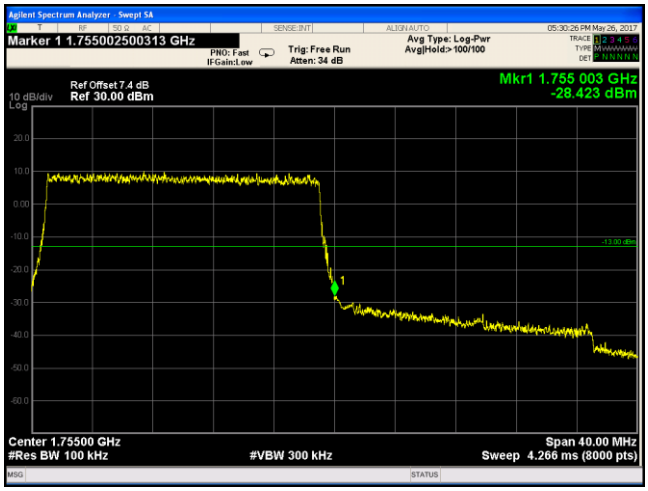
Note: Offset=Cable loss (4.5) + 10log (135/100)=4.5+1.7=6.2 dB



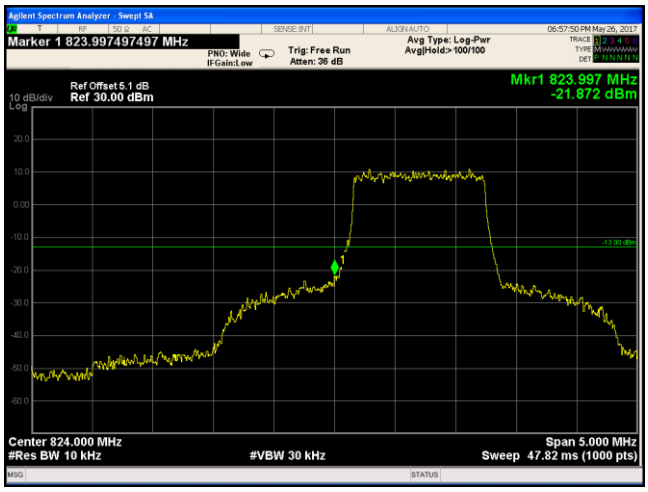
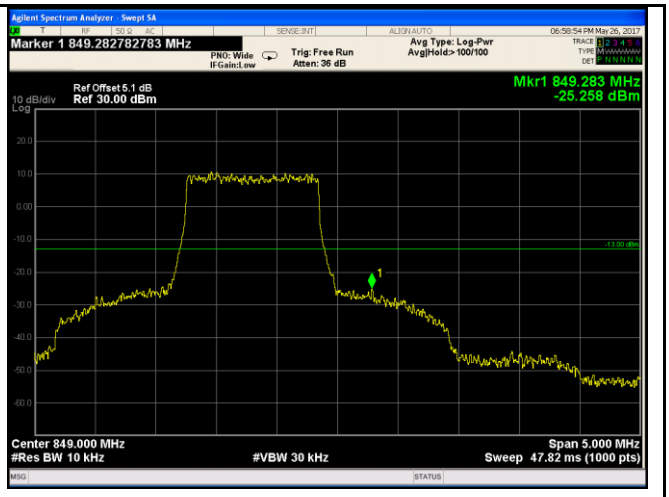
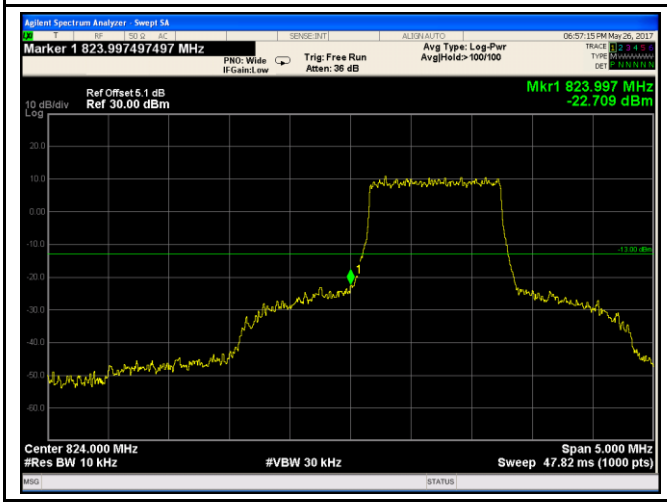
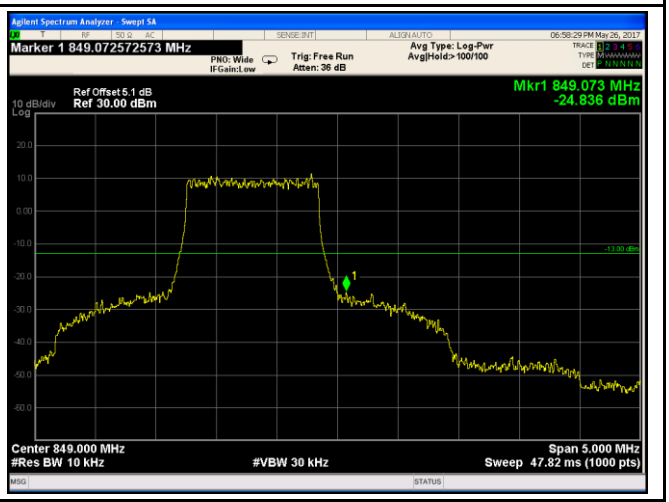
LTE Band IV - Low Channel QPSK-20

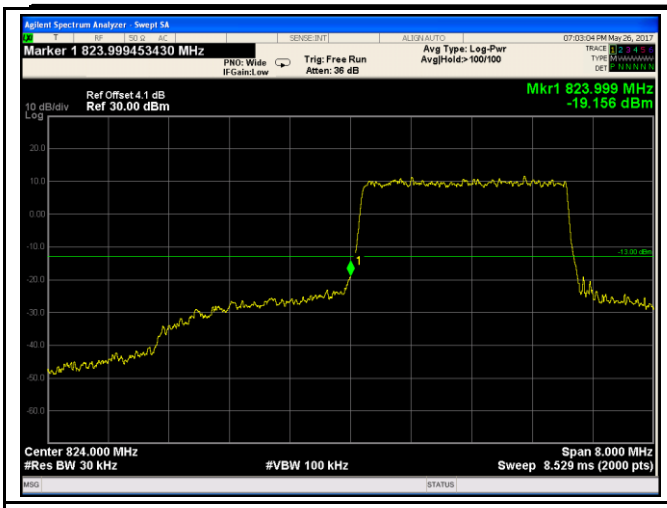


LTE Band IV - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (179.1/100)=4.5+2.9=7.4 dB	Note: Offset=Cable loss (4.5) + 10log (199/100)=4.5+2.9=7.4 dB
	
LTE Band IV - Low Channel 16QAM-20	LTE Band IV - High Channel 16QAM-20
Note: Offset=Cable loss (4.5) + 10log (179.1/100)=4.5+2.9=7.4dB	Note: Offset=Cable loss (4.5) + 10log (179/100)=4.5+2.9=7.4 dB

LTE Band V (Part 22H)

	
LTE Band V - Low Channel QPSK-1.4	LTE Band V - High Channel QPSK-1.4
Note: Offset=Cable loss (4.5) + 10log (12.92/10)=4.0+1.1=5.1 dB	Note: Offset=Cable loss (4.5) + 10log (12.79/10)=4.0+1.1=5.1 dB
	
LTE Band V - Low Channel 16QAM-1.4	LTE Band V - High Channel 16QAM-1.4
Note: Offset=Cable loss (4.5) + 10log (12.88/10)=4.0+1.1=5.1dB	Note: Offset=Cable loss (4.5) + 10log (12.85/10)=4.0+1.1=5.1 dB

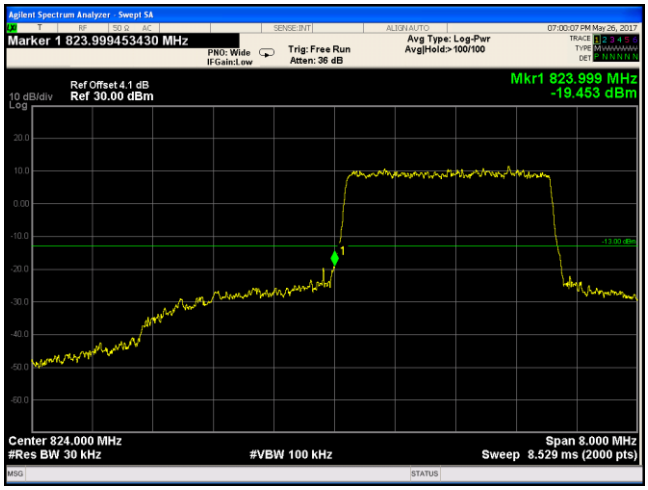


LTE Band V - Low Channel QPSK-3

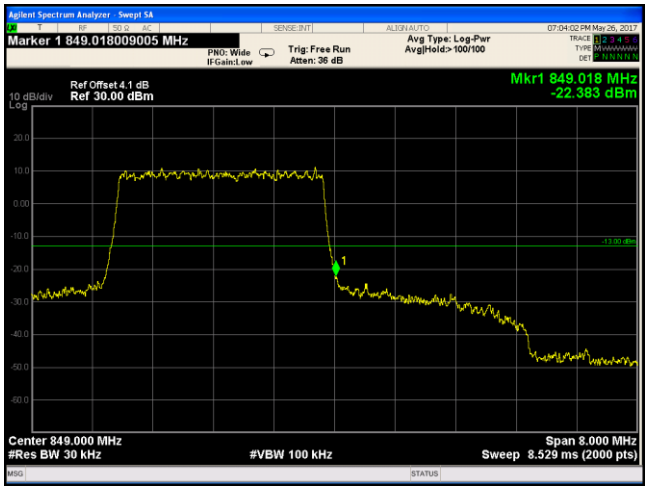
LTE Band V - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.6/30)=4.0+0.1=4.1 dB

Note: Offset=Cable loss (4.5) + 10log (30.58/30)=4.0+0.1=4.1 dB



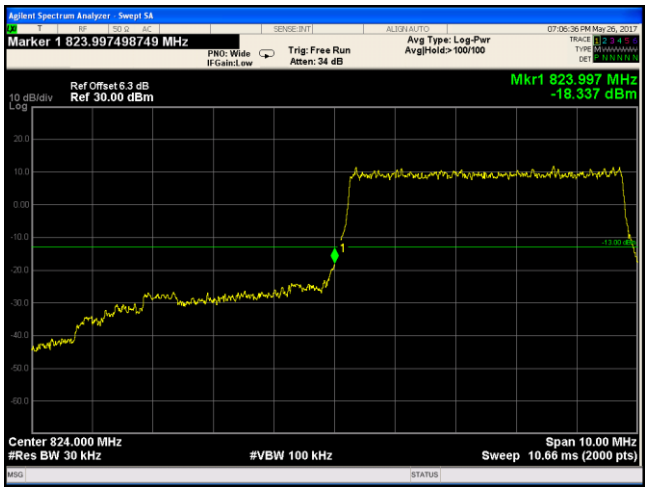
LTE Band V - Low Channel 16QAM-3



LTE Band V - High Channel 16QAM-3

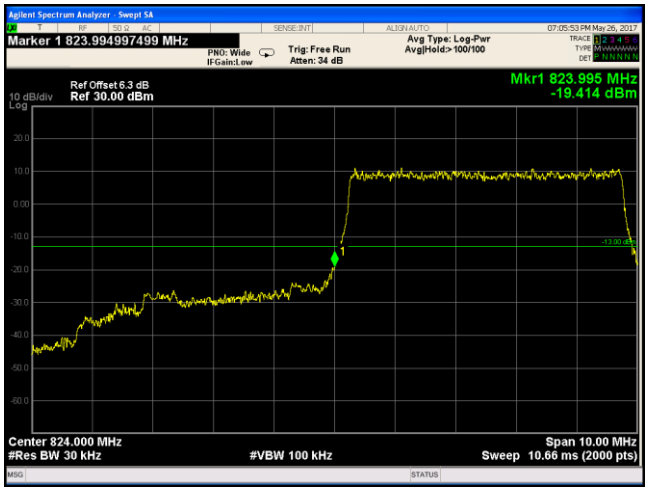
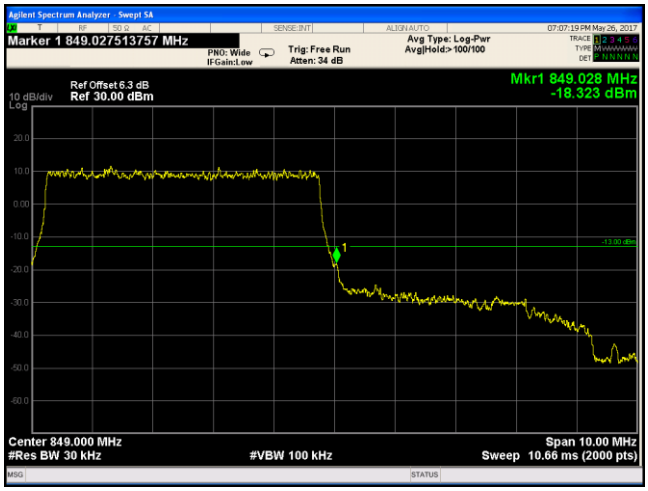
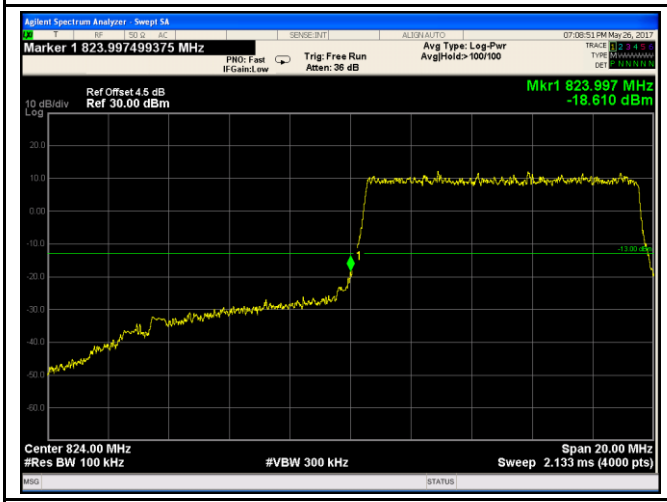
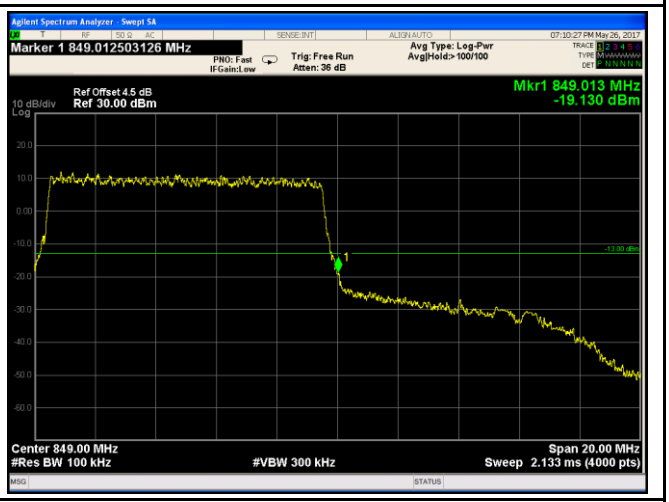
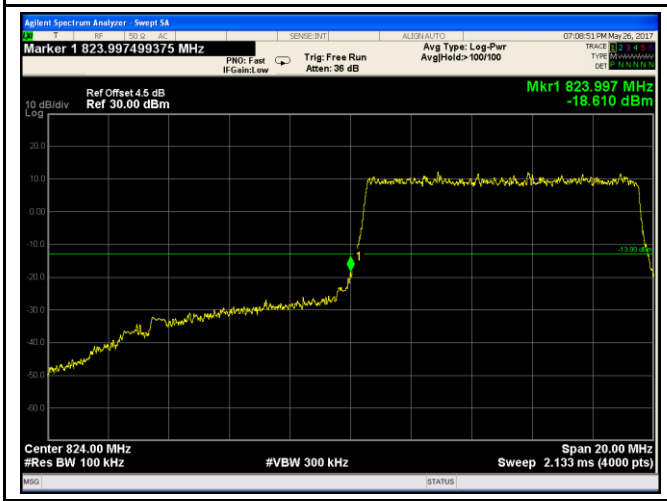
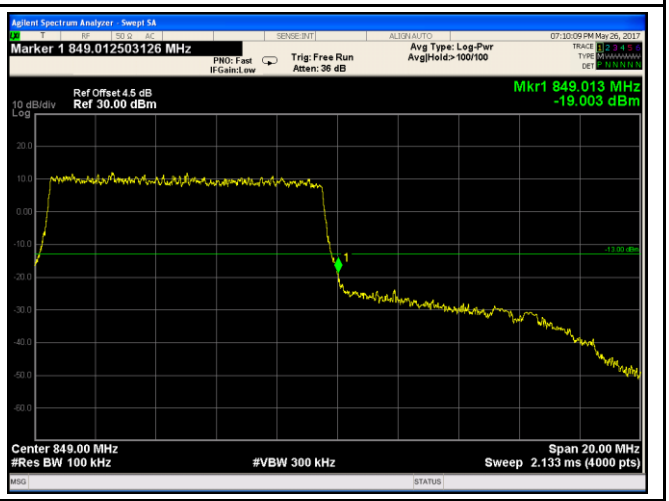
Note: Offset=Cable loss (4.5) + 10log (30.63/30)=4.0+0.1=4.1 dB

Note: Offset=Cable loss (4.5) + 10log (30.51/30)=4.5+0.1=4.1 dB

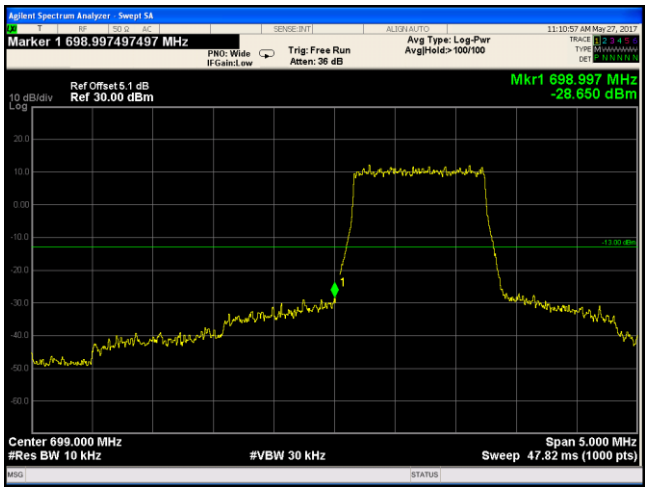


LTE Band V - Low Channel QPSK-5

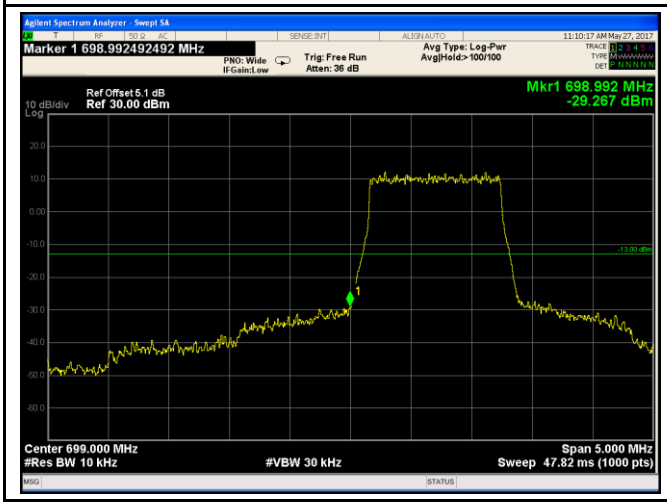
LTE Band V - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (51.06/30)=4.0+2.3=6.3 dB	Note: Offset=Cable loss (4.5) + 10log (50.65/30)=4.0+2.3=6.3 dB
	
LTE Band V - Low Channel 16QAM-5	LTE Band V - High Channel 16QAM-5
Note: Offset=Cable loss (4.5) + 10log (51.10/30)=4.0+2.3=6.3 dB	Note: Offset=Cable loss (4.5) + 10log (50.82/30)=4.0+2.3=6.3dB
	
LTE Band V - Low Channel QPSK-10	LTE Band V - High Channel QPSK-10
	
LTE Band V - Low Channel 16QAM-10	LTE Band V - High Channel 16QAM-10

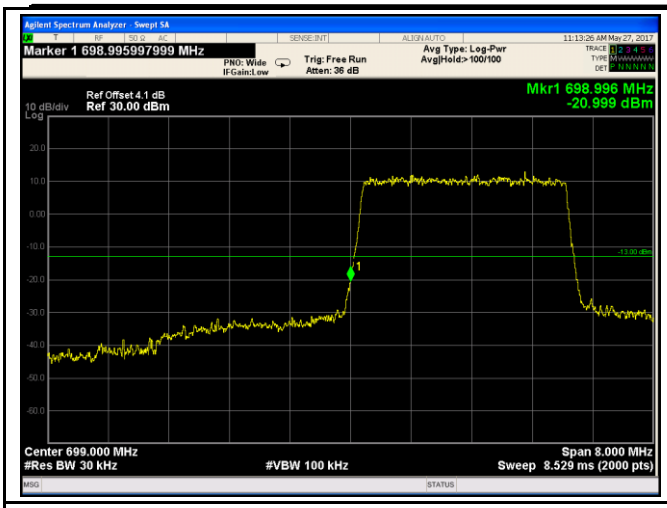
LTE Band XII (Part 27)



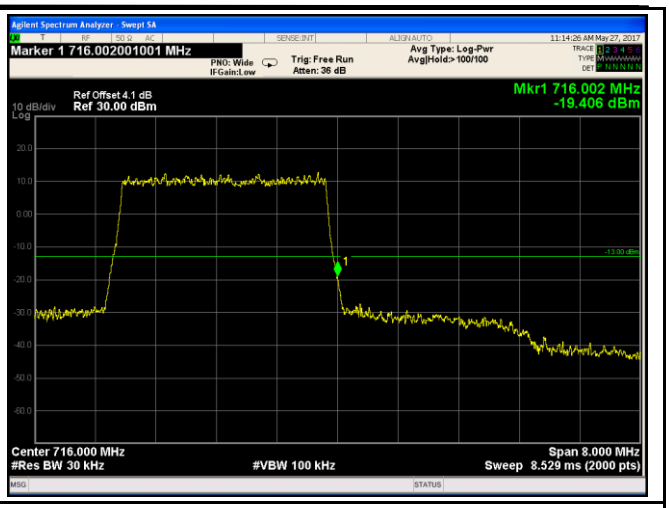
LTE Band XII - Low Channel QPSK-1.4	LTE Band XII - High Channel QPSK-1.4
Note: Offset=Cable loss (4.5) + 10log (12.96/10)=4.0+1.1=5.1 dB	Note: Offset=Cable loss (4.5) + 10log (12.90/10)=4.0+1.1=5.1 dB



LTE Band XII - Low Channel 16QAM-1.4	LTE Band XII - High Channel 16QAM-1.4
Note: Offset=Cable loss (4.5) + 10log (12.99/10)=4.0+1.1=5.1 dB	Note: Offset=Cable loss (4.5) + 10log (12.84/10)=4.0+1.1=5.1 dB



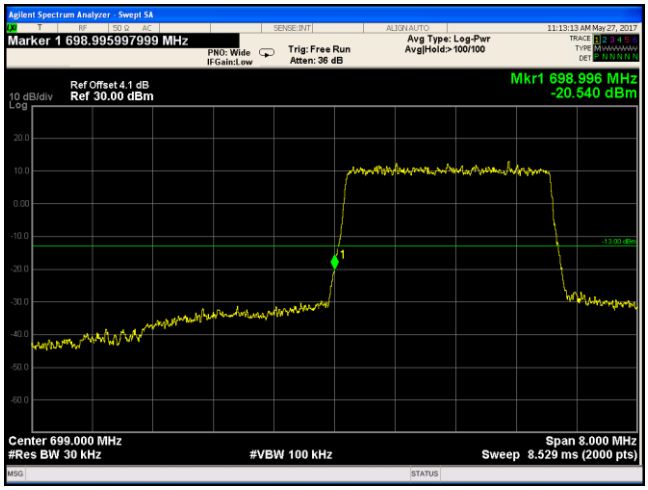
LTE Band XII - Low Channel QPSK-3



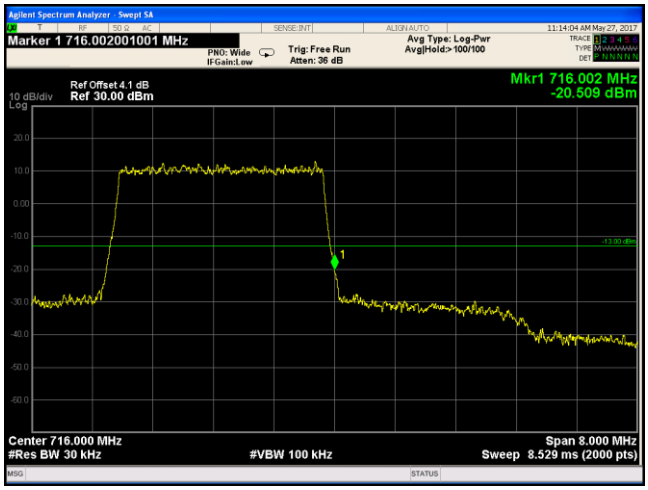
LTE Band XII - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.54/30)=4.0+0.1=4.1 dB

Note: Offset=Cable loss (4.5) + 10log (30.53/30)=4.0+0.1=4.1 dB



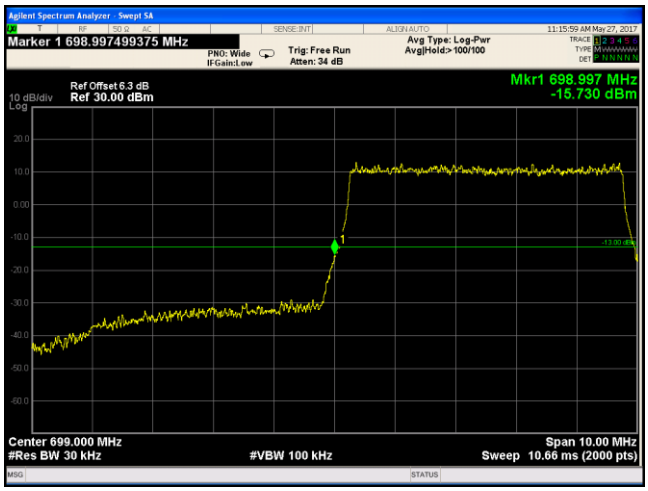
LTE Band XII - Low Channel 16QAM-3



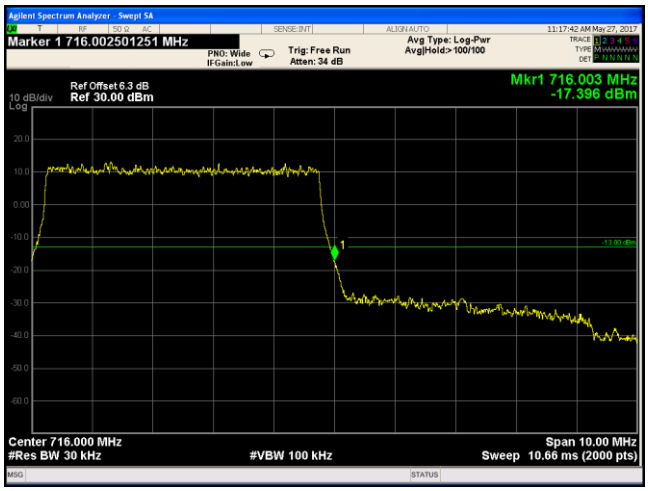
LTE Band XII - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.53/30)=4.0+0.1=4.1 dB

Note: Offset=Cable loss (4.5) + 10log (30.62/30)=4.0+0.1=4.1 dB

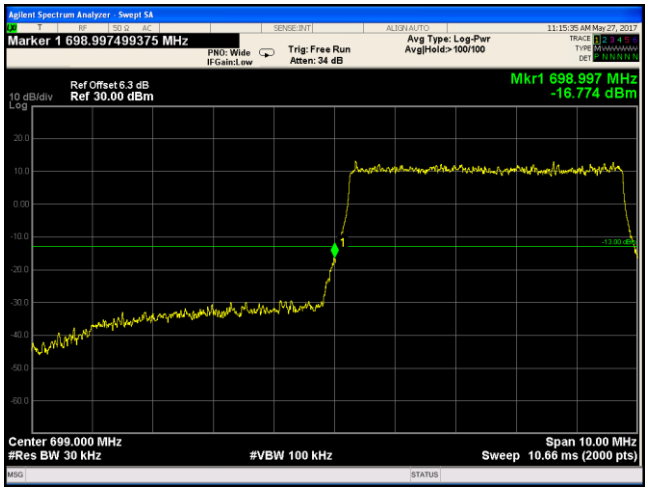


LTE Band XII - Low Channel QPSK-5



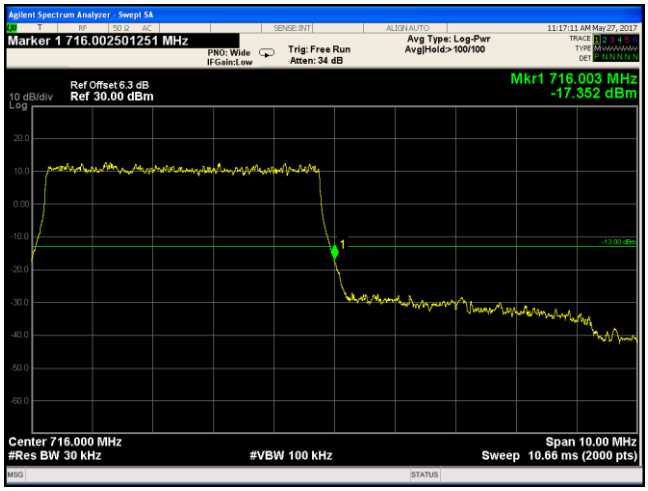
LTE Band XII - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (51.07/30)=4.0+2.3=6.3 dB



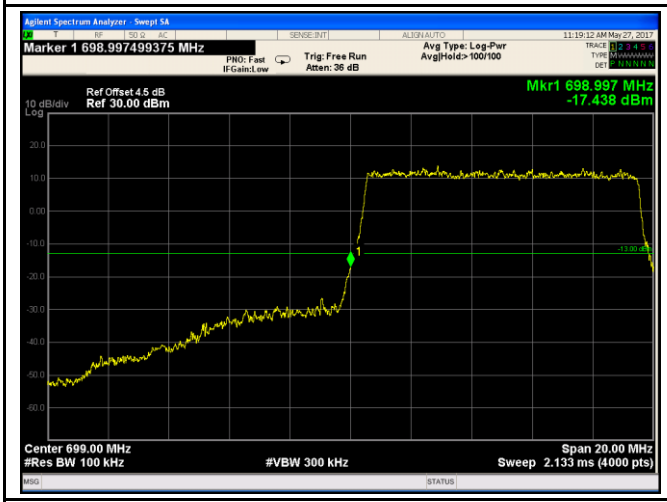
LTE Band XII - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.68/30)=4.0+2.3=6.3 dB



LTE Band XII - High Channel 16QAM-5

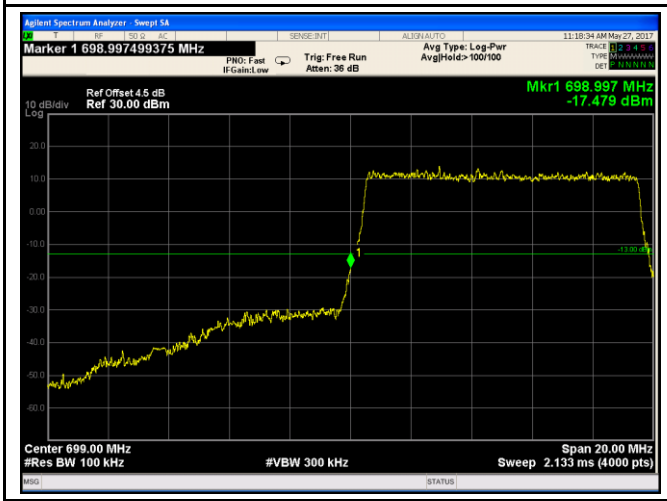
Note: Offset=Cable loss (4.5) + 10log (51.05/30)=4.0+2.3=6.3 dB



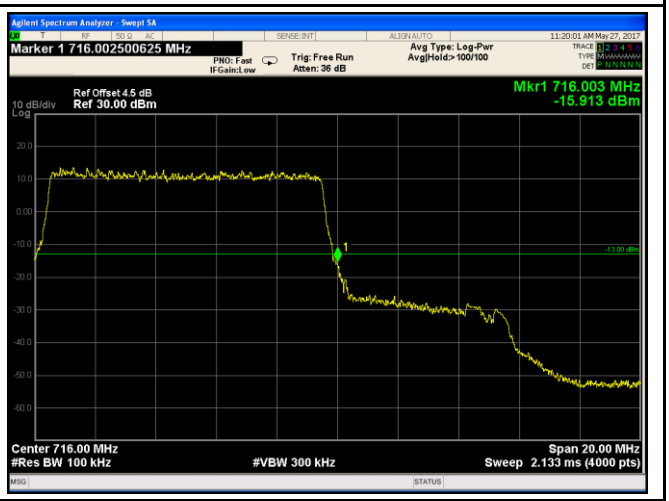
LTE Band XII - Low Channel QPSK-10

Note: Offset=Cable loss (4.5) + 10log (50.68/30)=4.0+2.3=6.3 dB

LTE Band XII - High Channel QPSK-10

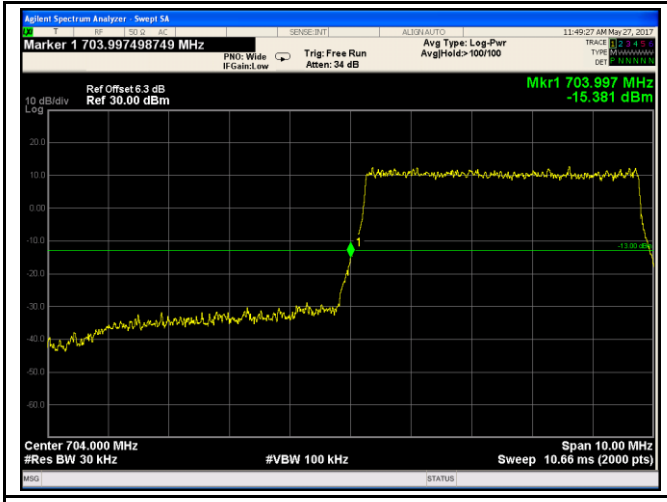
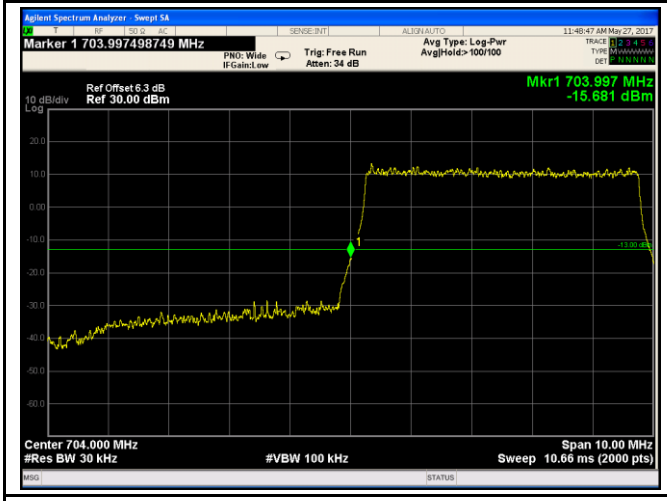


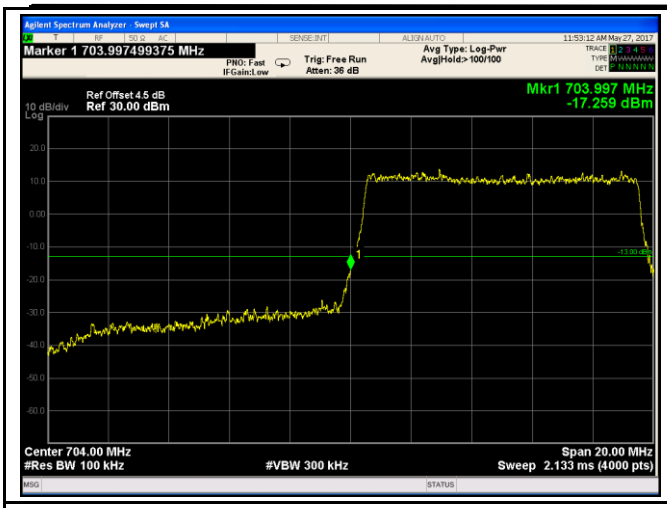
LTE Band XII - Low Channel 16QAM-10



LTE Band XII - High Channel 16QAM-10

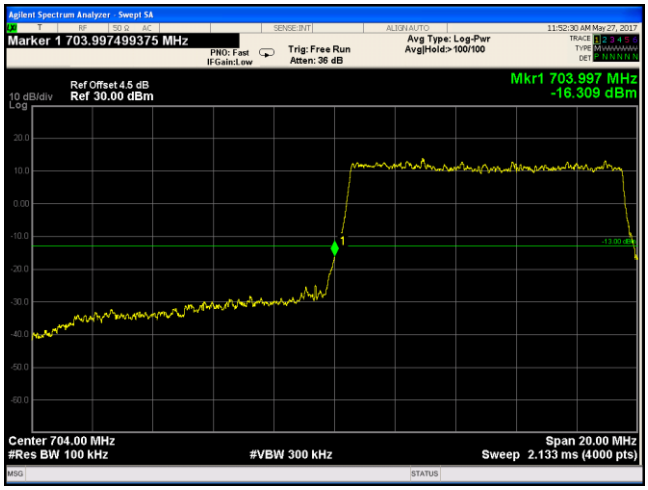
LTE Band XVII (Part 27)

	
LTE Band XVII - Low Channel QPSK-5	LTE Band XVII - High Channel QPSK-5
Note: Offset=Cable loss (4.0) + 10log (51.03/30)=4.0+2.3=6.3 dB	Note: Offset=Cable loss (4.0) + 10log (51.04/30)=4.0+2.3=6.3 dB
	
LTE Band XVII - Low Channel 16QAM-5	LTE Band XVII - High Channel 16QAM-5
Note: Offset=Cable loss (4.0) + 10log (50.89/30)=4.0+2.3=6.3 dB	Note: Offset=Cable loss (4.0) + 10log (51.04/30)=4.0+2.3=6.3 dB

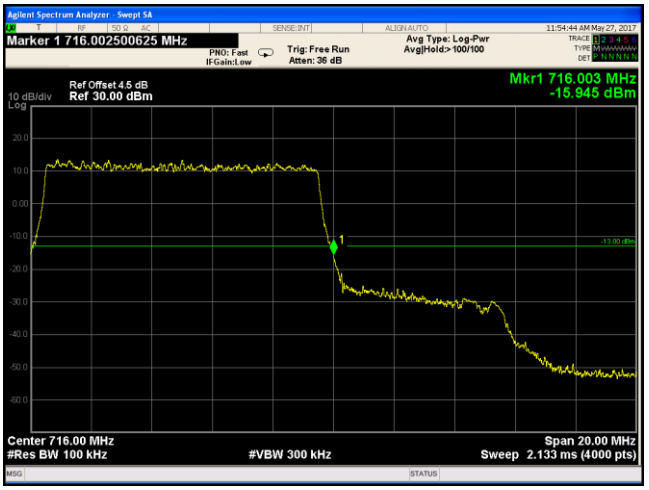


LTE Band XVII - Low Channel QPSK-10

LTE Band XVII - High Channel QPSK-10



LTE Band XVII - Low Channel 16QAM-10

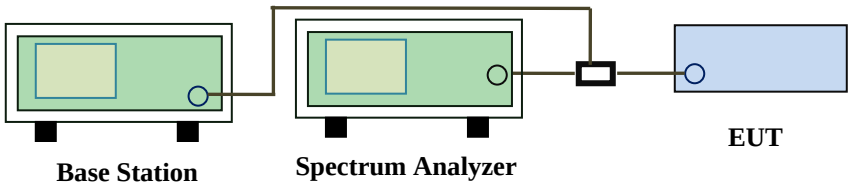


LTE Band XVII - High Channel 16QAM-10

6.8 Band Edge 27.53(m)

Temperature	25℃
Relative Humidity	56%
Atmospheric Pressure	1020mbar
Test date :	May 26&27, 2017
Tested By :	Vera Zhang

Requirement(s):

Spec	Requirement	Applicable
§27.53(m)	According to FCC 27.53(m)(4) specified that power of any emmission ouutside of the channel edge must be attenuated below the transmitting power(P) by a factor shall be not less than 43+10log (P)dB at the channel edge, the limit of emission equal to -13dBm. And 55+10log (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 frenqency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.	☑
Test Setup		
Test Procedure	- The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers.	
Remark		
Result	☑ Pass ☐ Fail	

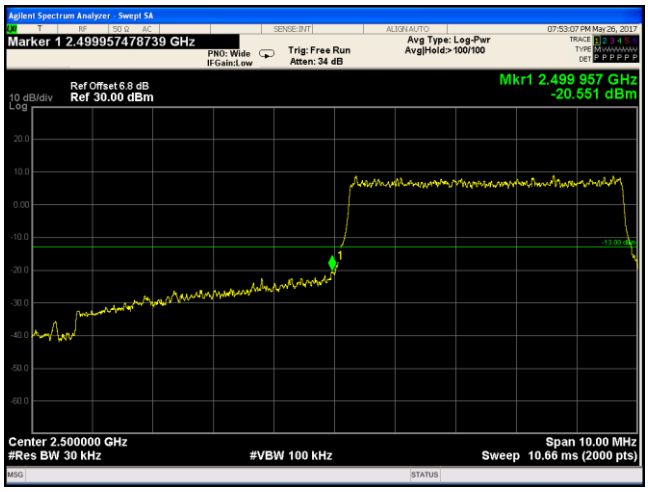
Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

LTE Band VII (Part 27) result

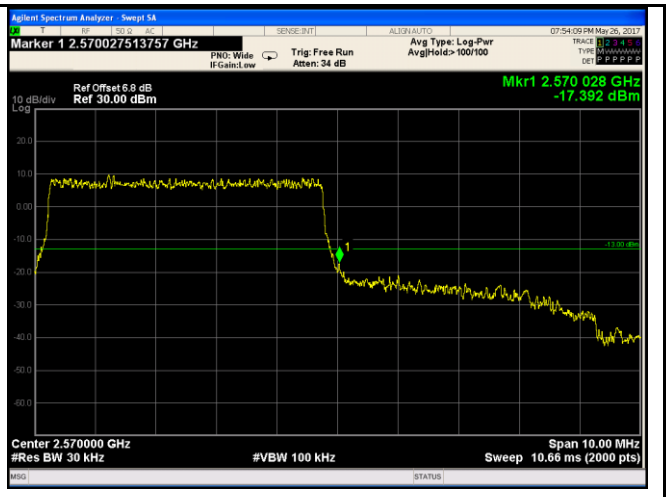
BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
5	20775	2500	QPSK	-20.551	-13
			16QAM	-20.136	-13
5	21425	2570	QPSK	-19.392	-13
			16QAM	-19.443	-13
10	20800	2500	QPSK	-20.537	-13
			16QAM	-20.613	-13
10	21400	2570	QPSK	-19.805	-13
			16QAM	-19.624	-13
15	20825	2500	QPSK	-17.441	-13
			16QAM	-17.575	-13
15	21400	2570	QPSK	-18.547	-13
			16QAM	-18.708	-13
20	20850	2500	QPSK	-18.830	-13
			16QAM	-19.408	-13
20	21350	2571	QPSK	-20.598	-13
			16QAM	-19.930	-13

LTE Band VII (Part 27)



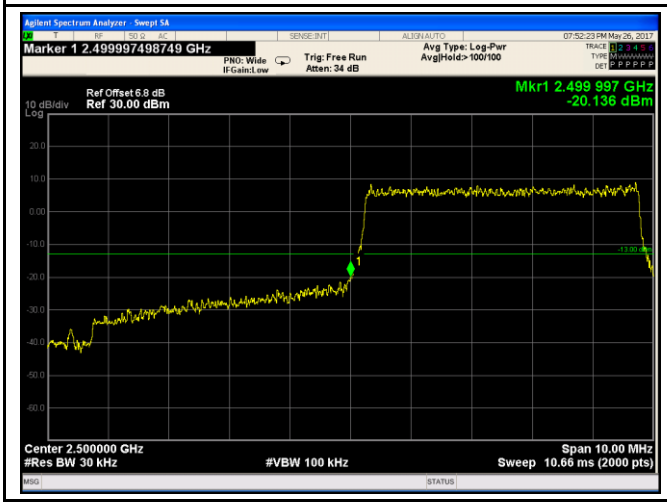
LTE Band VII - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.82/30)=4.5+2.3=6.8 dB



LTE Band VII - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.74/30)=4.5+2.3=6.8 dB

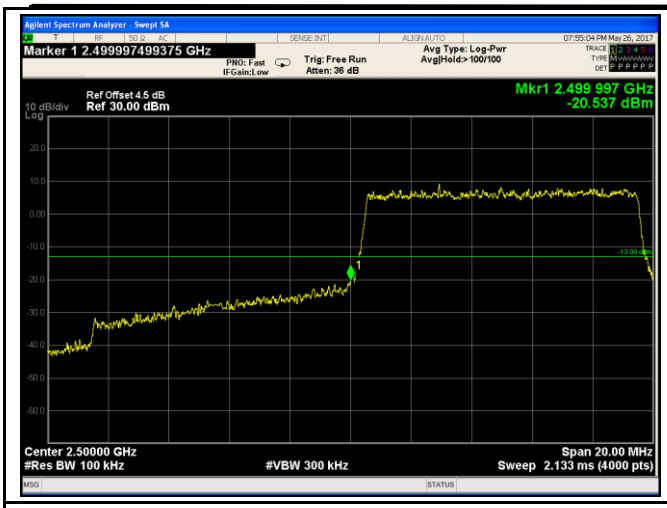


LTE Band VII - Low Channel 16QAM-5

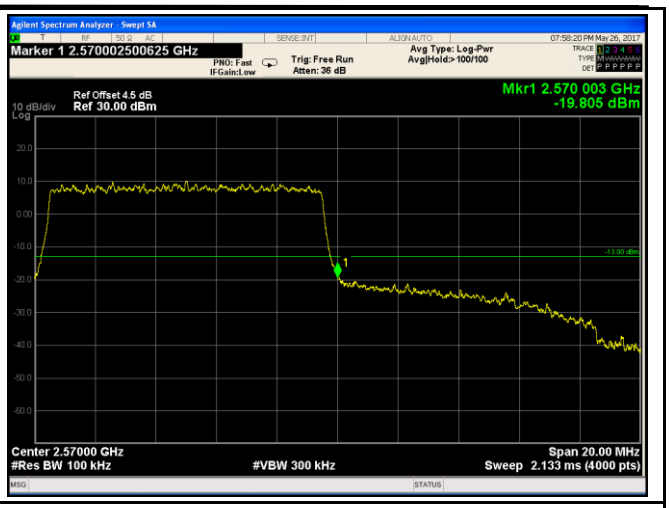
Note: Offset=Cable loss (4.5) + 10log (50.82/30)=4.5+2.3=6.8 dB

LTE Band VII - High Channel 16QAM-5

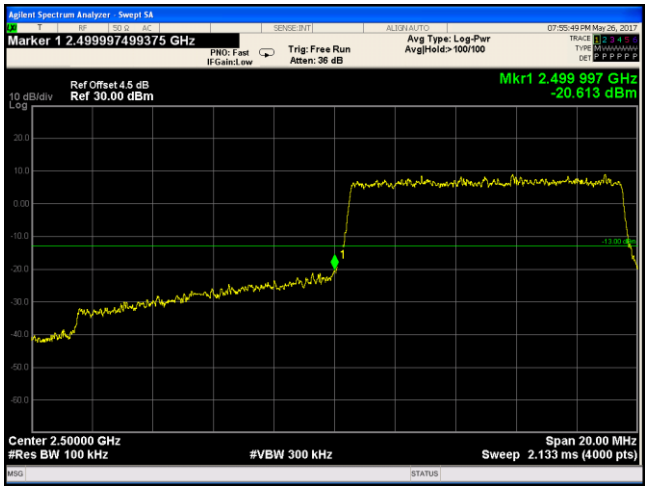
Note: Offset=Cable loss (4.5) + 10log (50.85/30)=4.5+2.3=6.8 dB



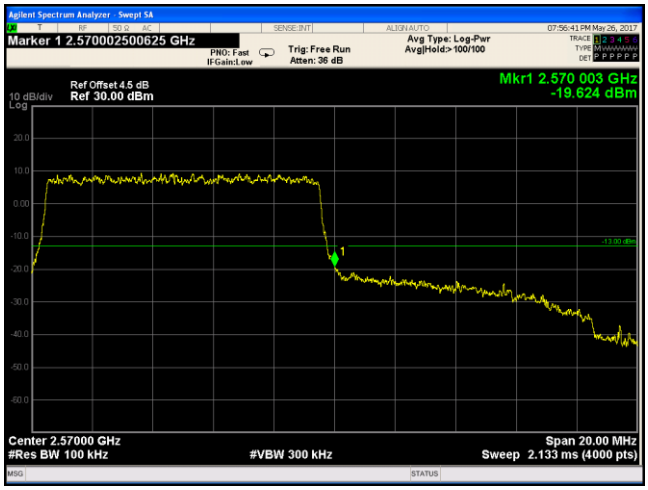
LTE Band VII - Low Channel QPSK-10



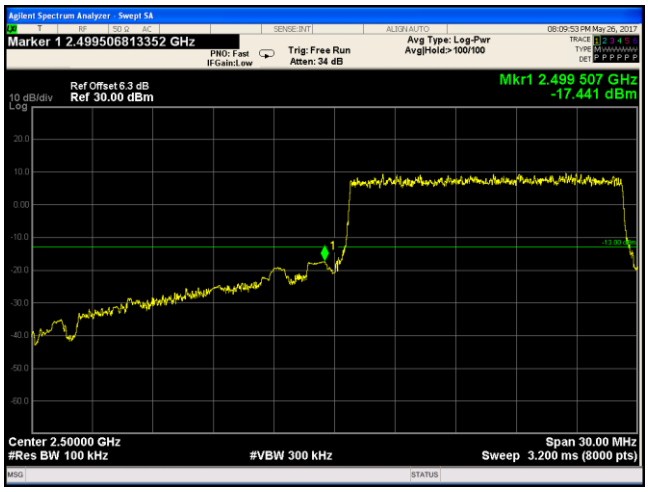
LTE Band VII - High Channel QPSK-10



LTE Band VII - Low Channel 16QAM-10

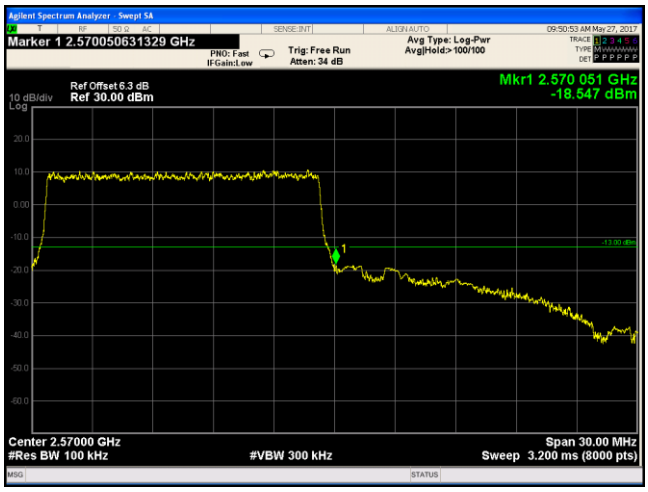


LTE Band VII - High Channel 16QAM-10



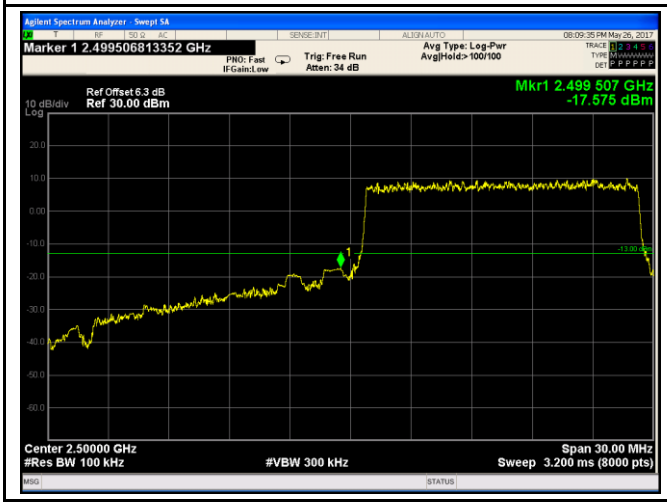
LTE Band VII - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (150.2/100)=4.5+1.8=6.3 dB



LTE Band VII - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (150.3/100)=4.5+1.8=6.3 dB

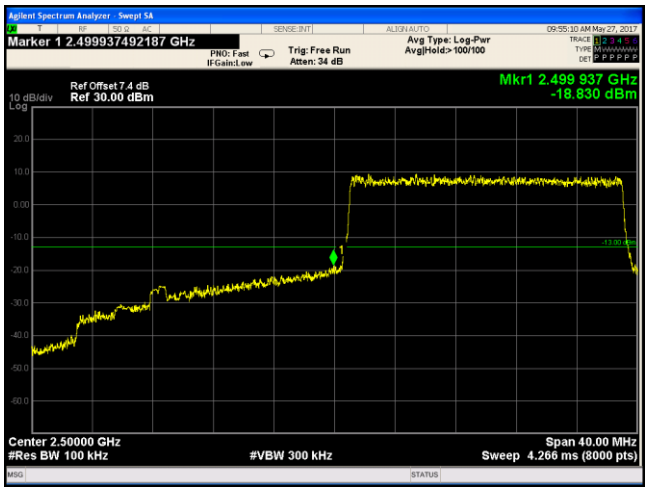


LTE Band VII - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (150.7/100)=4.5+1.8=6.3dB

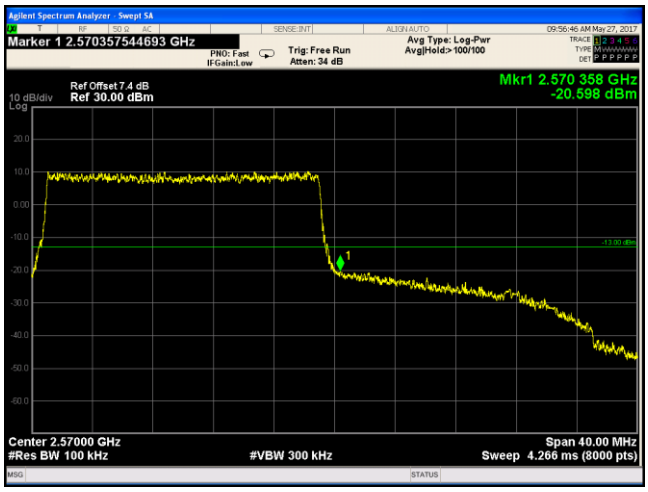
LTE Band VII - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (150.3/100)=4.5+1.8=6.3 dB



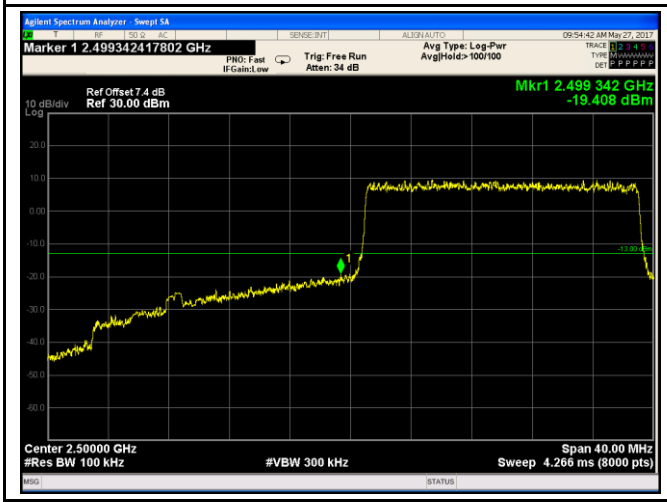
LTE Band VII - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (195.2/100)=4.5+2.9=7.4 dB



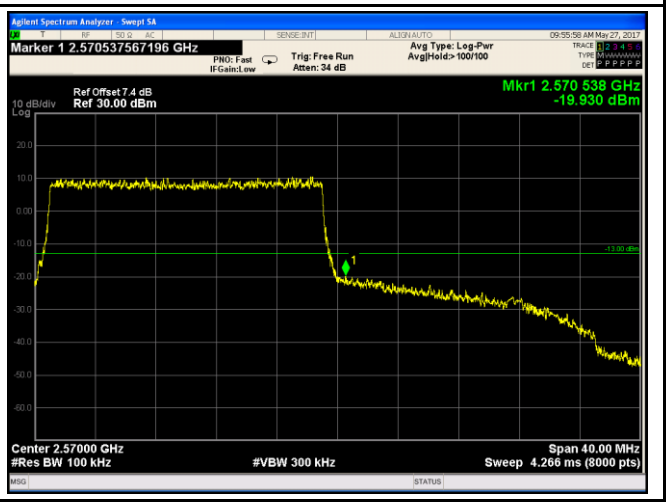
LTE Band VII - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (194 /100)=4.5+2.9=7.4dB



LTE Band VII - Low Channel 16QAM-20

Note: Offset=Cable loss (4.5) + 10log (191.6/100)=4.5+2.9=7.4 dB



LTE Band VII - High Channel 16QAM-20

Note: Offset=Cable loss (4.5) + 10log (194.7/100)=4.5+2.9=7.4 dB

6.9 Frequency Stability

Temperature	25℃
Relative Humidity	56%
Atmospheric Pressure	1021mbar
Test date :	May 25, 2017
Tested By :	Vera Zhang

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>§2.1055, §22.355 & §24.235 § 27.5(h); § 27.54</td><td>a)</td><td>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:
Frequency Tolerance for Transmitters in the Public Mobile Services
<table>
<tr><th>Frequency Range (MHz)</th><th>Base, fixed (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th></tr>
<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>
</table>
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.
According to §27.54, The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.</td><td>☑</td></tr>
</table>