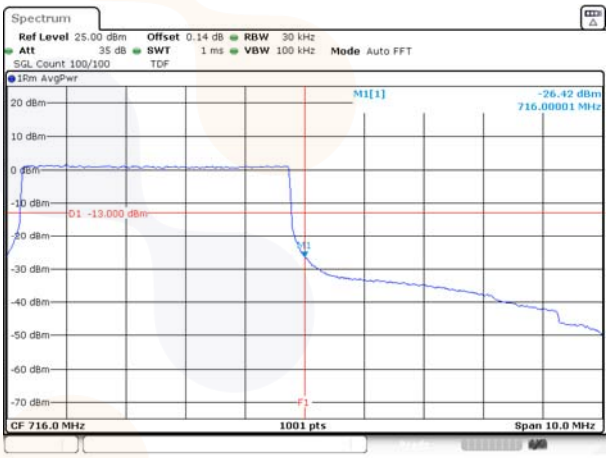
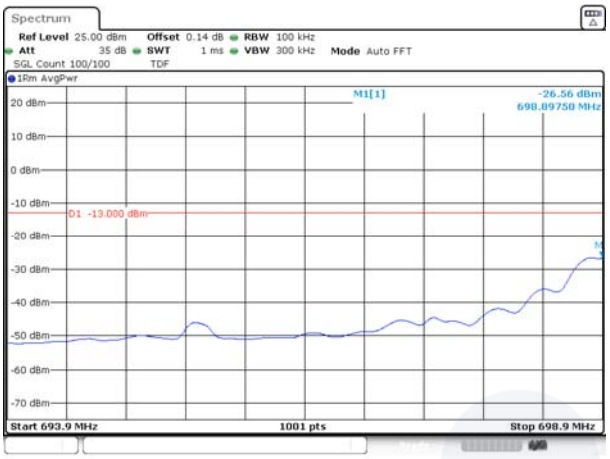
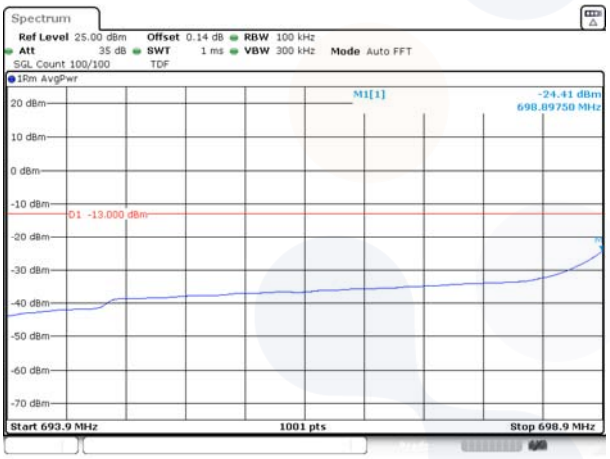
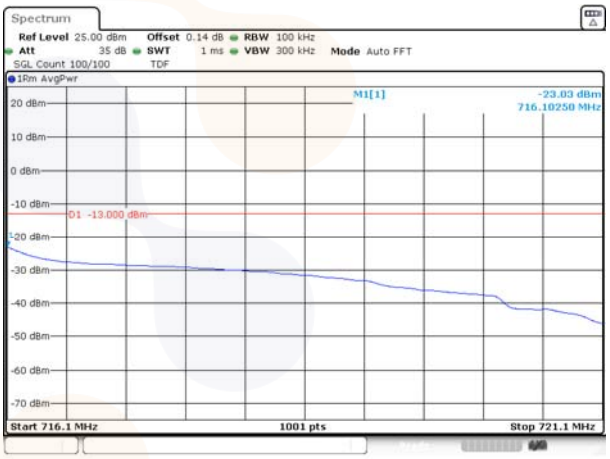
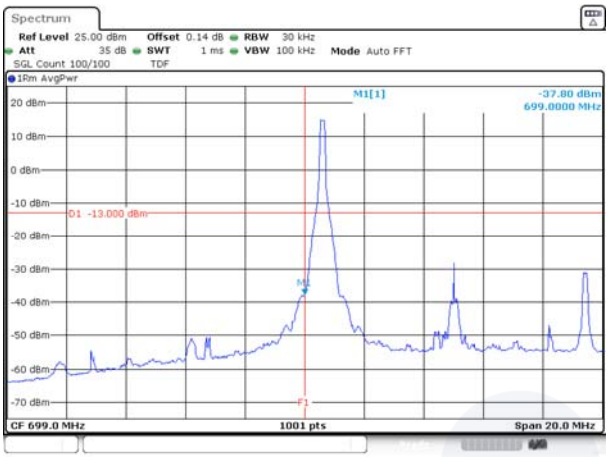
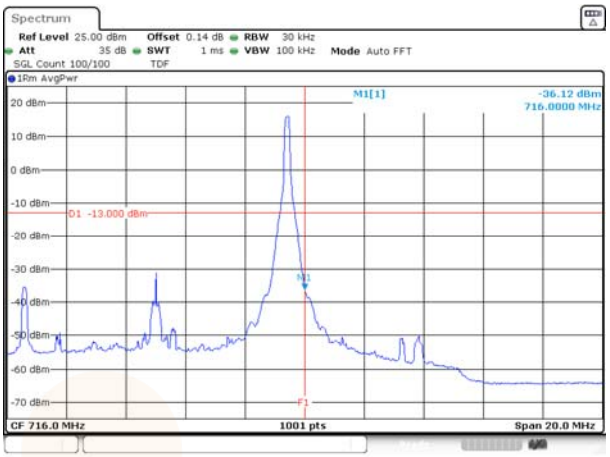
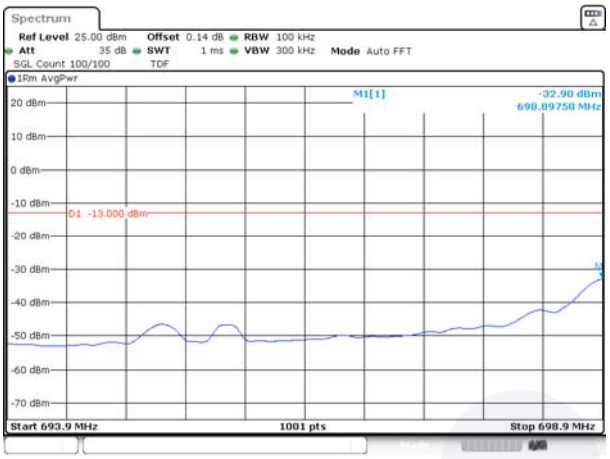
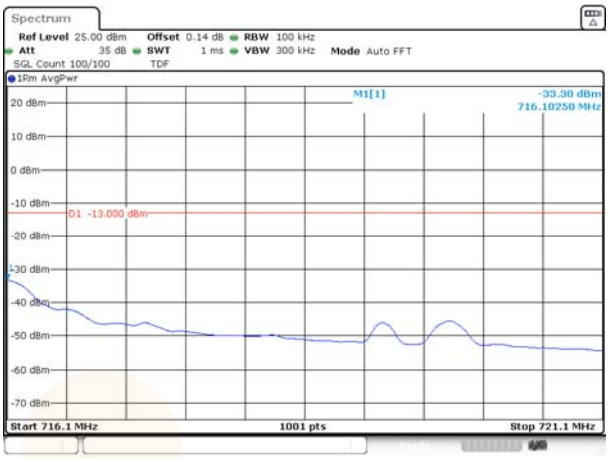
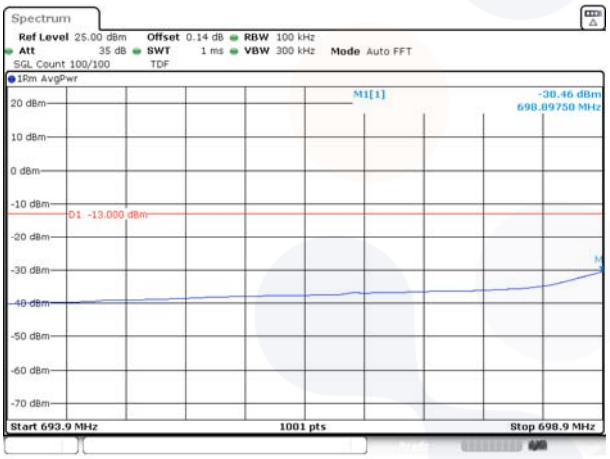
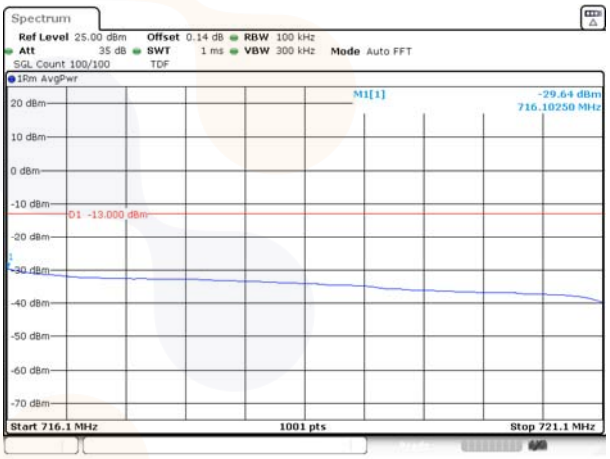
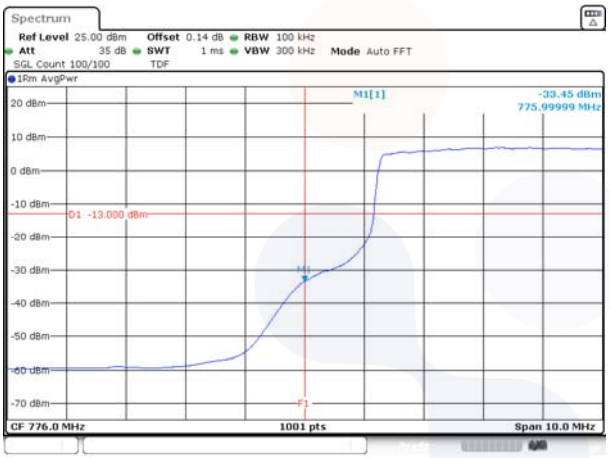
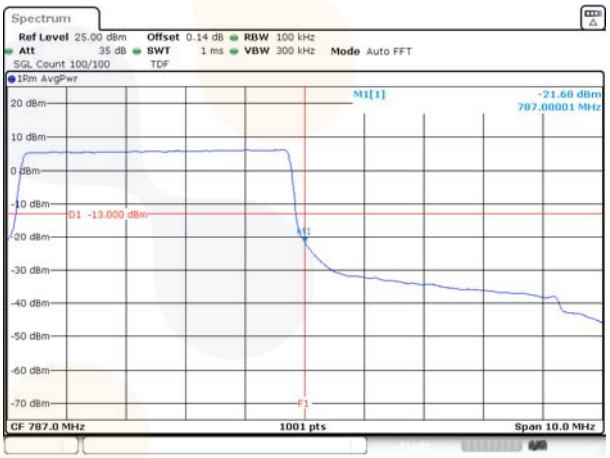
5M BW QPSK	
Low channel 1RB	**High channel 1RB**
Low channel FRB	**High channel FRB**
	

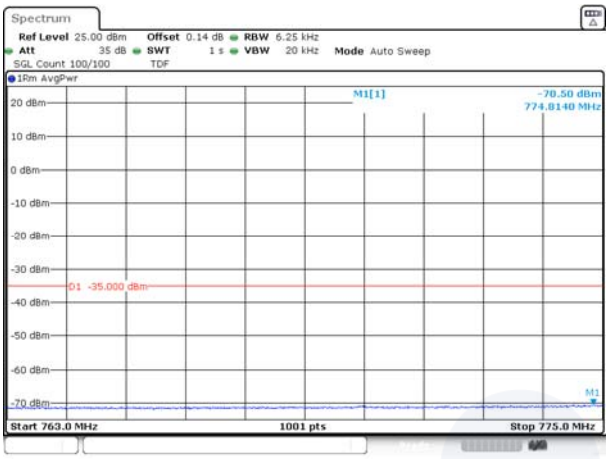
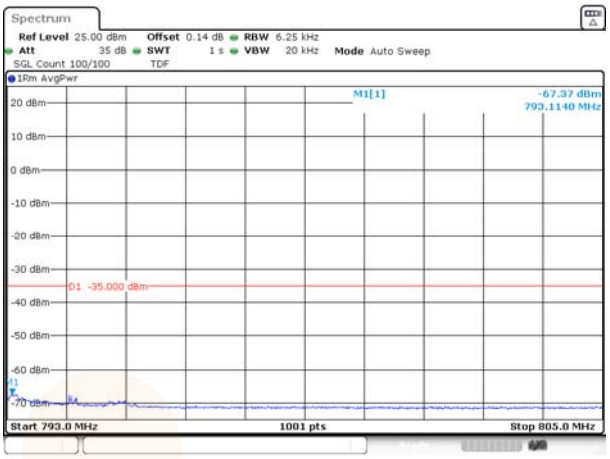
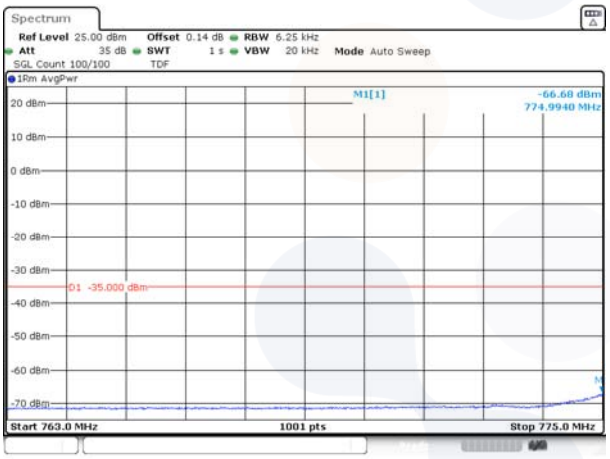
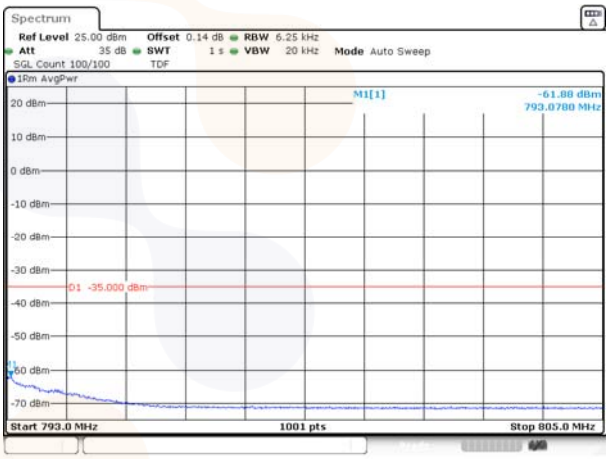
5M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
	
Lower extended FRB	**Upper extended FRB**
	

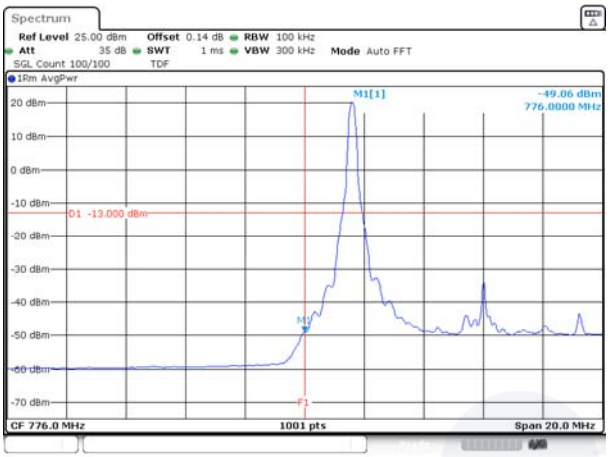
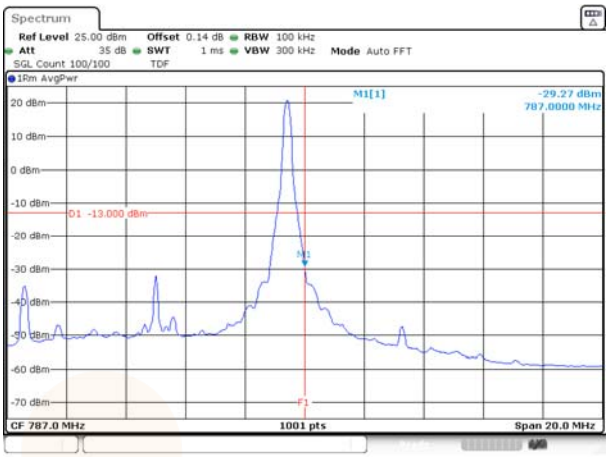
10M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**

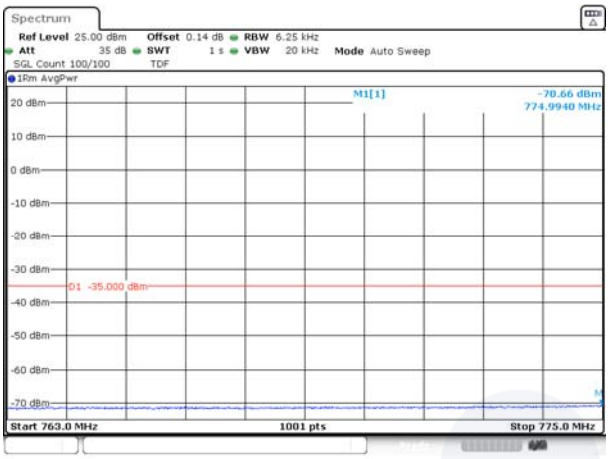
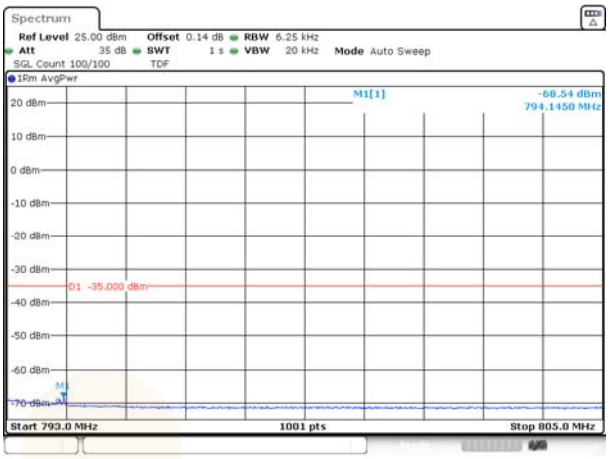
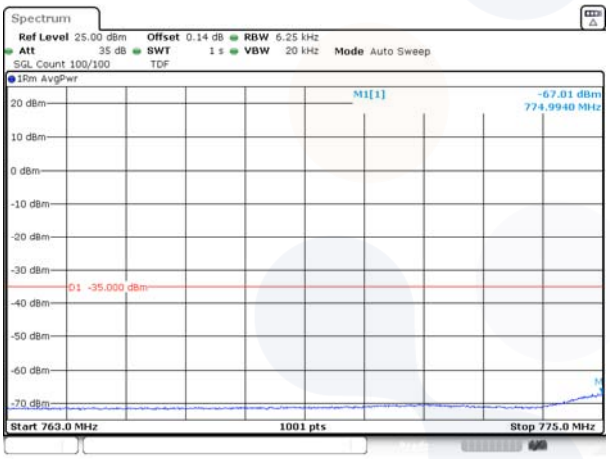
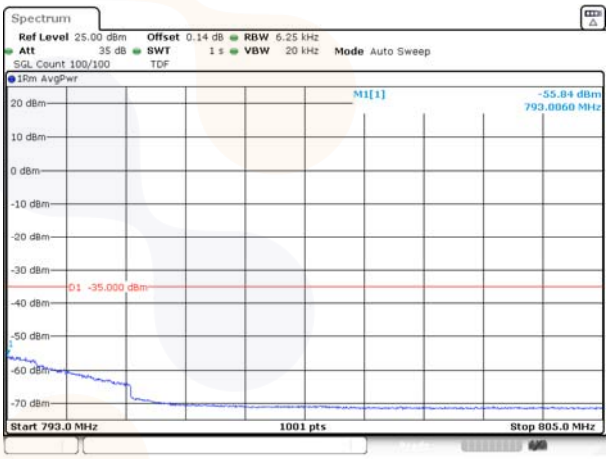
10M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
	
Lower extended FRB	**Upper extended FRB**
	

Test mode: LTE B13

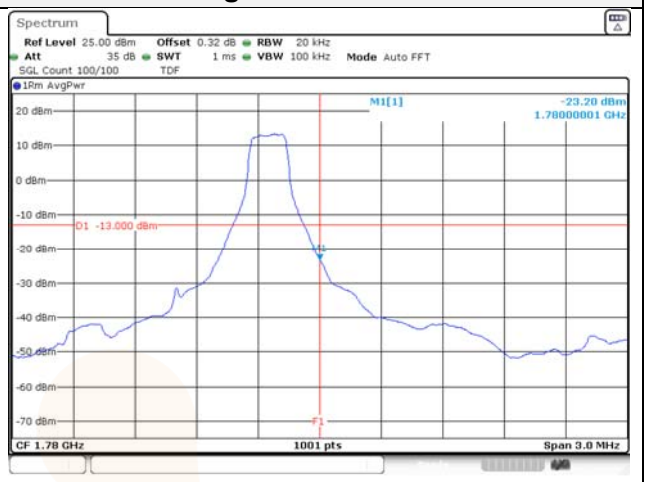
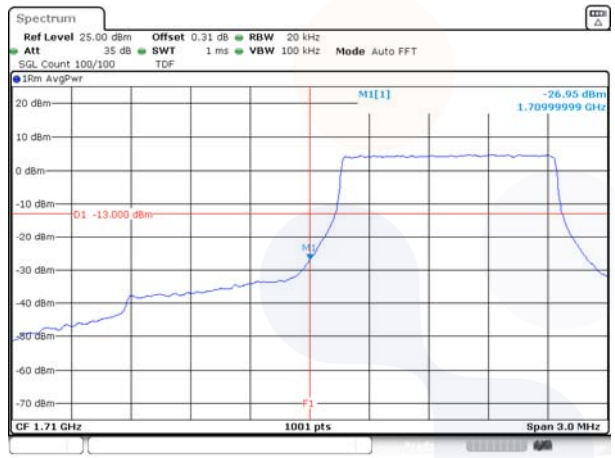
5M BW QPSK	
Low channel 1RB	**High channel 1RB**
Low channel FRB	**High channel FRB**
	

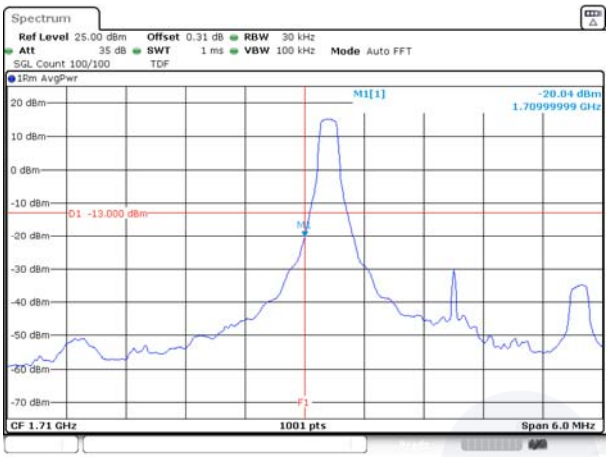
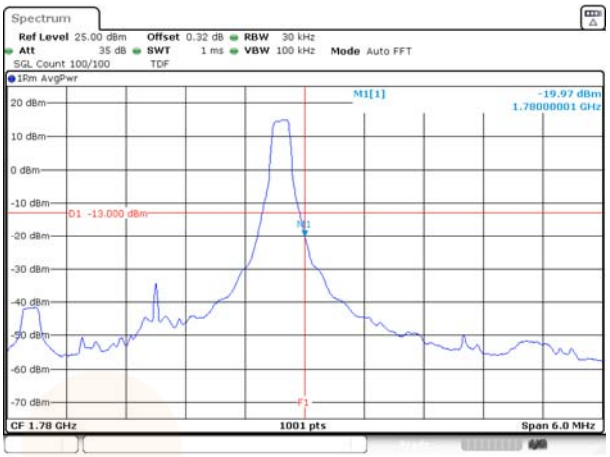
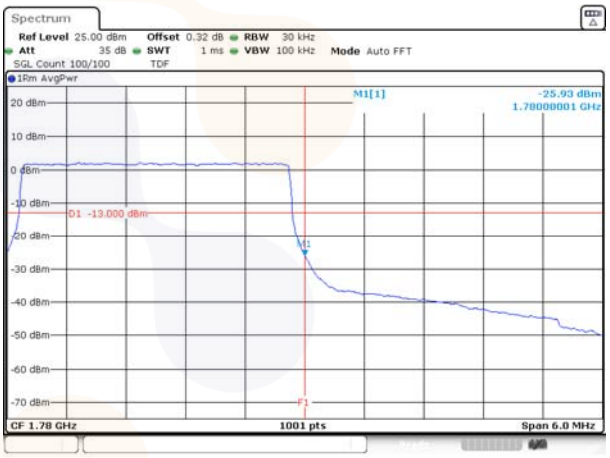
5M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
	
Lower extended FRB	**Upper extended FRB**
	

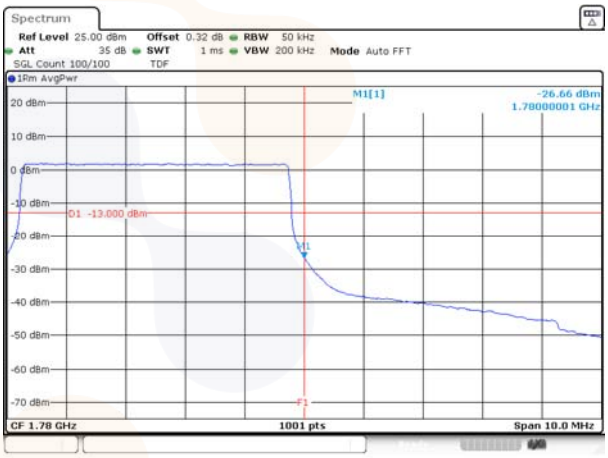
10M BW QPSK	
Middle channel Lower 1RB	**Middle channel Upper 1RB**
	
Middle channel Lower FRB	**Middle channel Upper FRB**

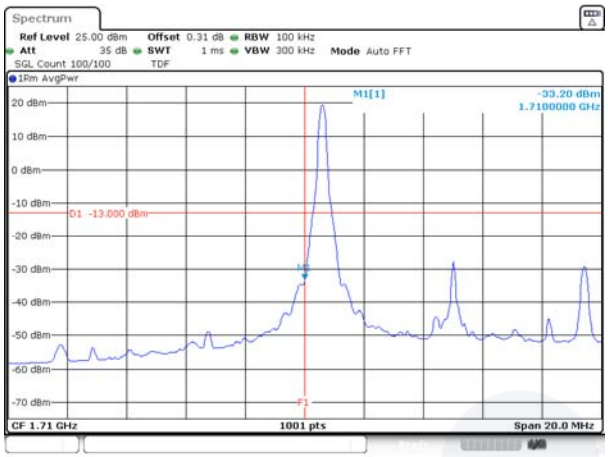
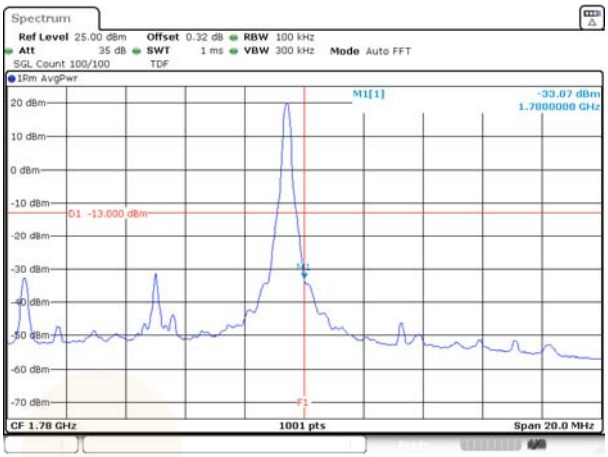
10M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
	
Lower extended FRB	**Upper extended FRB**
	

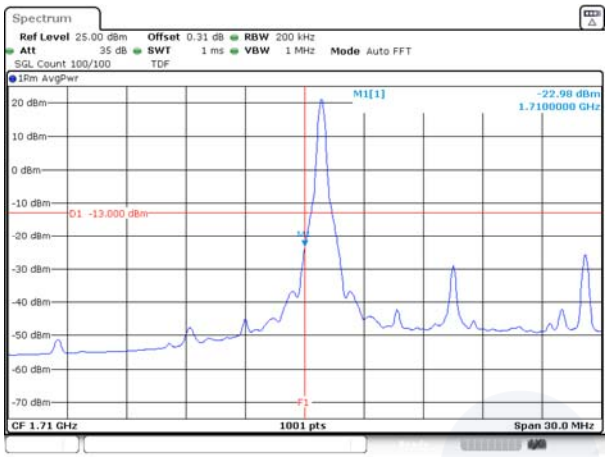
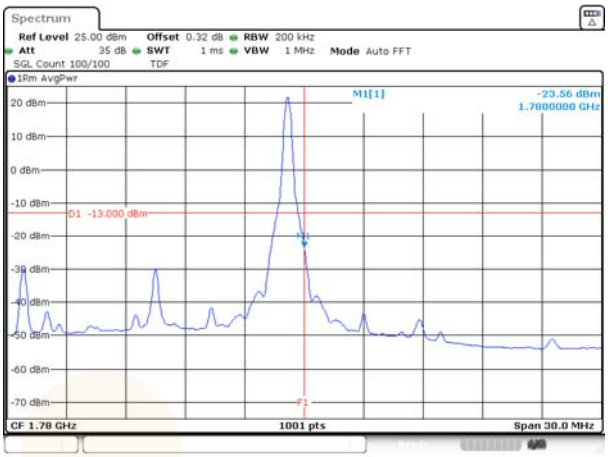
Test mode: LTE B66/4

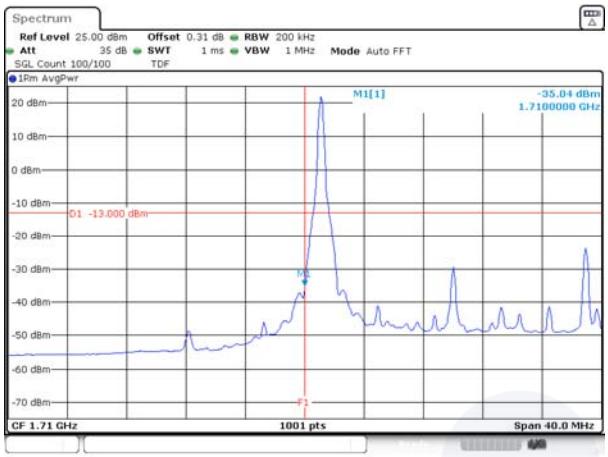
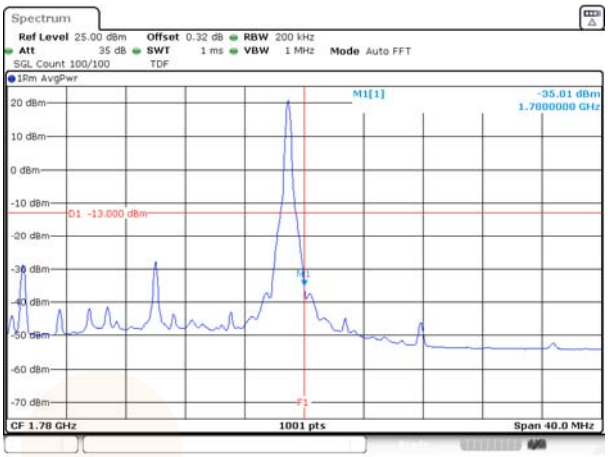
1.4M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**
	

3M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**
	

5M BW QPSK	
Low channel 1RB	**High channel 1RB**
Low channel FRB	**High channel FRB**
	

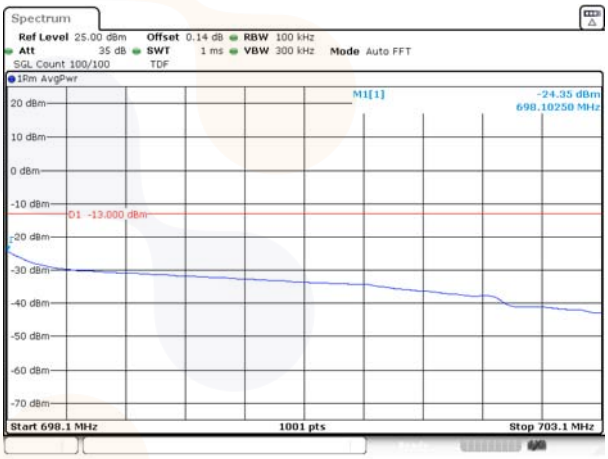
10M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**

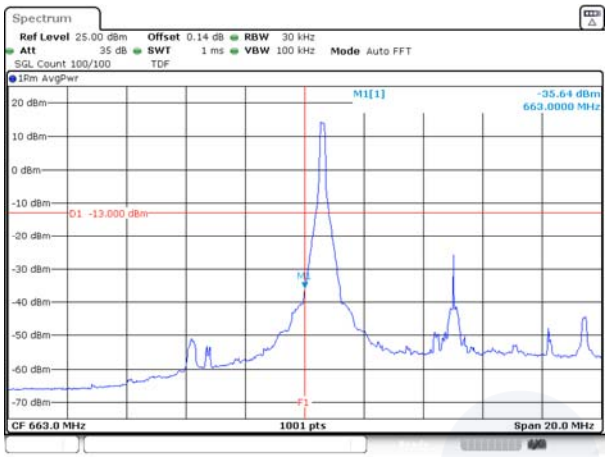
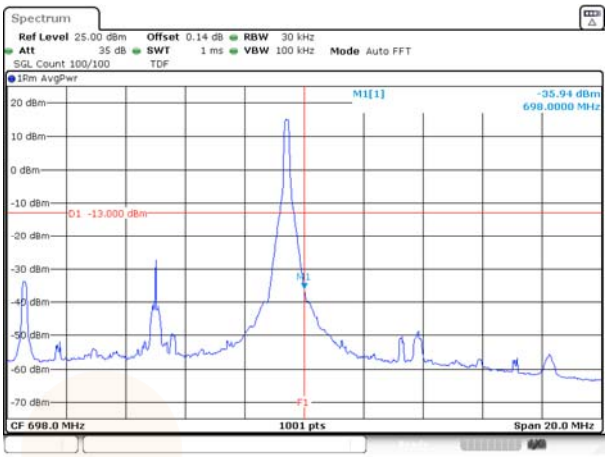
15M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**

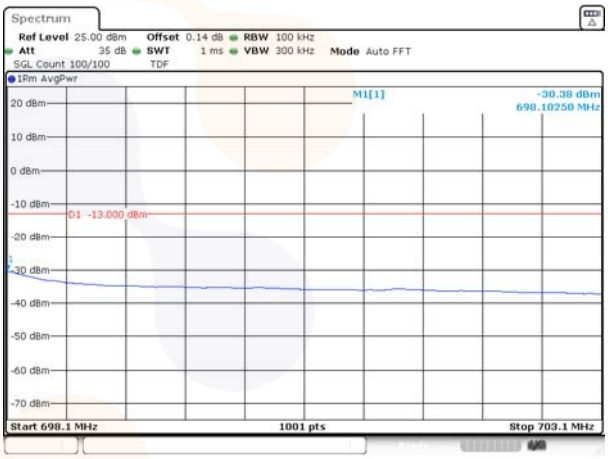
20M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**

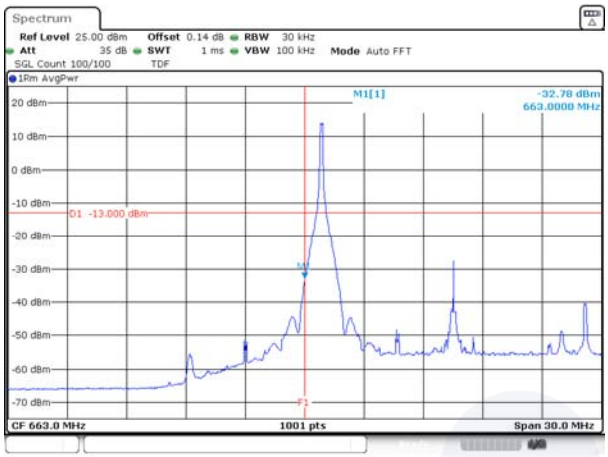
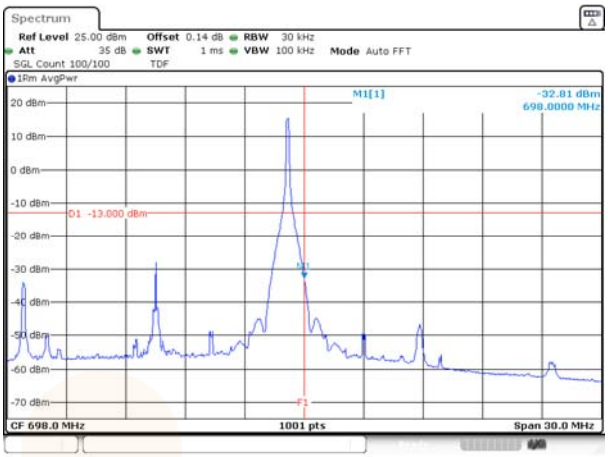
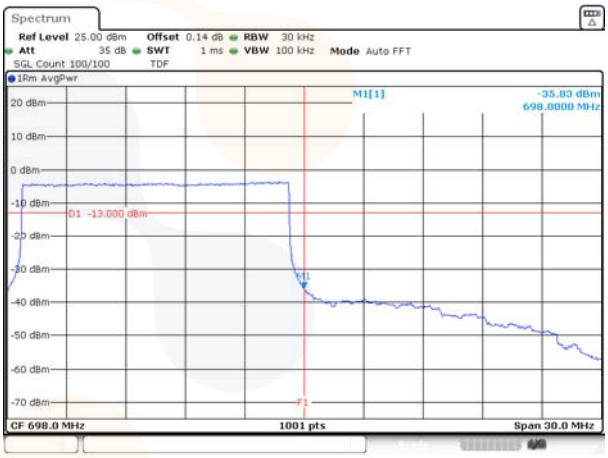
Test mode: LTE B71

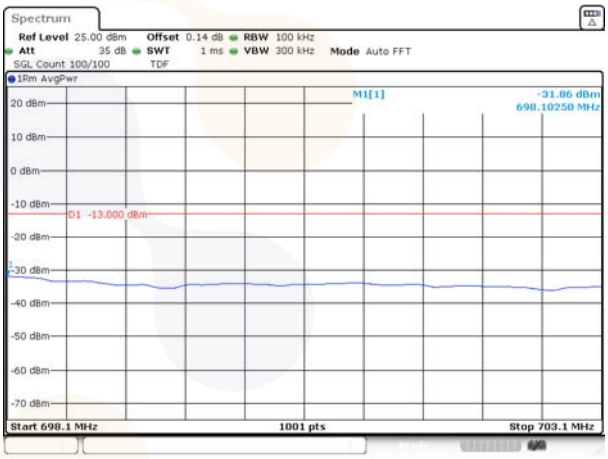
5M BW QPSK	
Low channel 1RB	**High channel 1RB**
Low channel FRB	**High channel FRB**

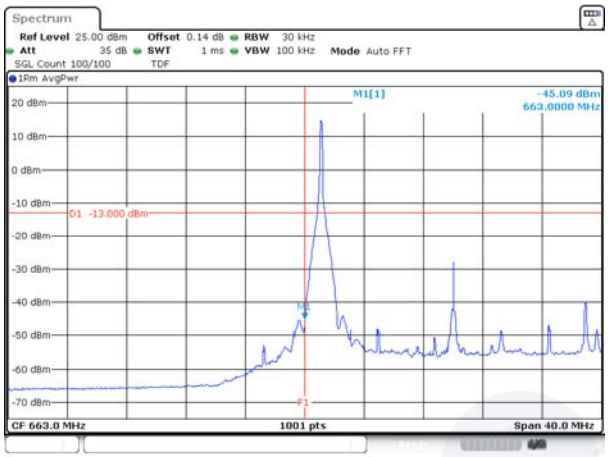
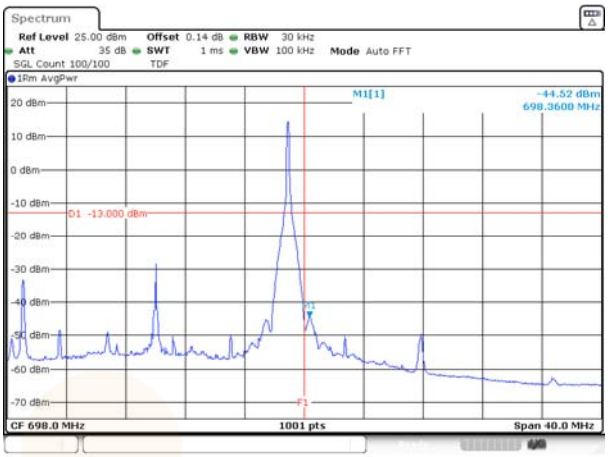
5M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
Lower extended FRB	**Upper extended FRB**
	

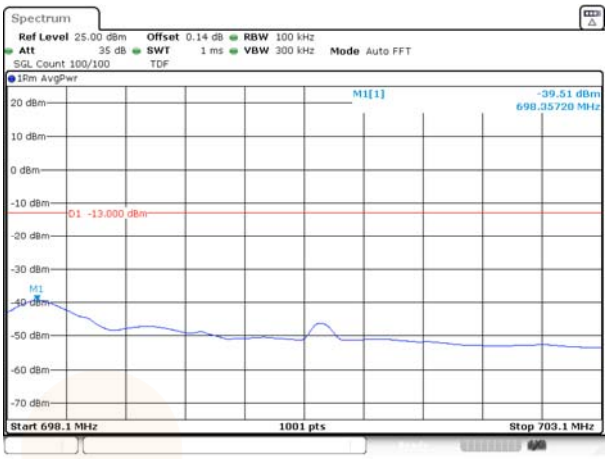
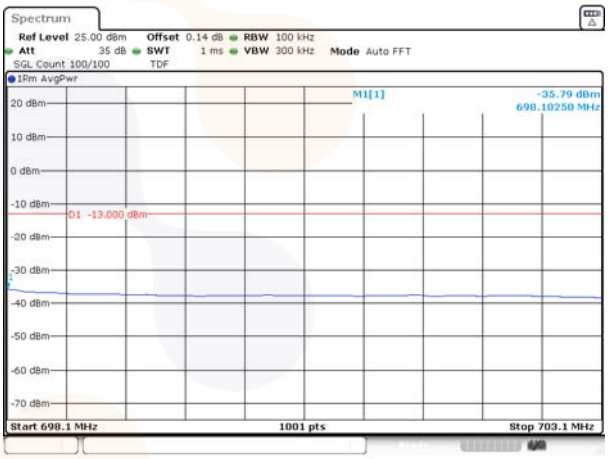
10M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**

10M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
Lower extended FRB	**Upper extended FRB**
	

15M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**
	

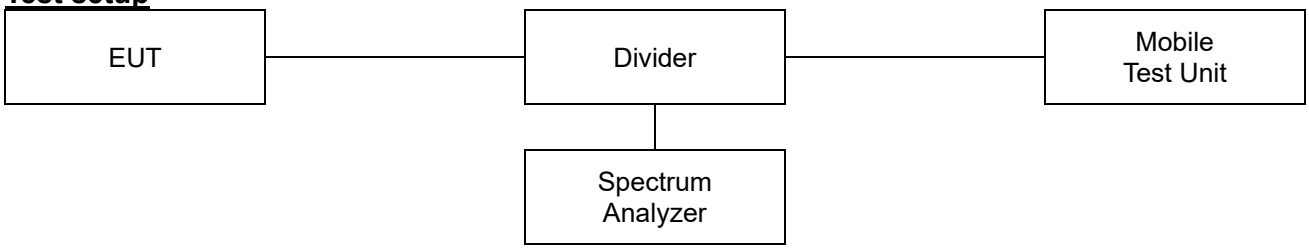
15M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
Lower extended FRB	**Upper extended FRB**
	

20M BW QPSK	
Low channel 1RB	**High channel 1RB**
	
Low channel FRB	**High channel FRB**

20M BW QPSK	
Lower extended 1RB	**Upper extended 1RB**
	
Lower extended FRB	**Upper extended FRB**
	

7.4. Spurious Emissions at Antenna Terminal

Test setup



Limit

According to §27.53(c)(2),

For operations in the 746–758 ㎒ band and the 776–788 ㎒ band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746–758 ㎒ band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) ㏈;

(2) On any frequency outside the 776–788 ㎒ band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) ㏈;

(3) On all frequencies between 763–775 ㎒ and 793–805 ㎒, by a factor not less than 76 + 10 log (P) ㏈ in a 6.25 ㎑ band segment, for base and fixed stations;

(4) On all frequencies between 763–775 ㎒ and 793–805 ㎒, by a factor not less than 65 + 10 log (P) ㏈ in a 6.25 ㎑ band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 ㎑ or greater. However, in the 100 ㎑ bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 ㎑ may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 ㎑ segment

According to §27.53(g),

For operations in the 600 ㎒ band and the 698-746 ㎒ band, the power of any emission outside a licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10log($P_{[Watts]}$) ㏈.

According to §27.53(h),

The power of any emission outside a licensee’s frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10log($P_{[Watts]}$) ㏈.

Test procedure

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ANSI 63.26-2015 – Section 5.7

Test settings

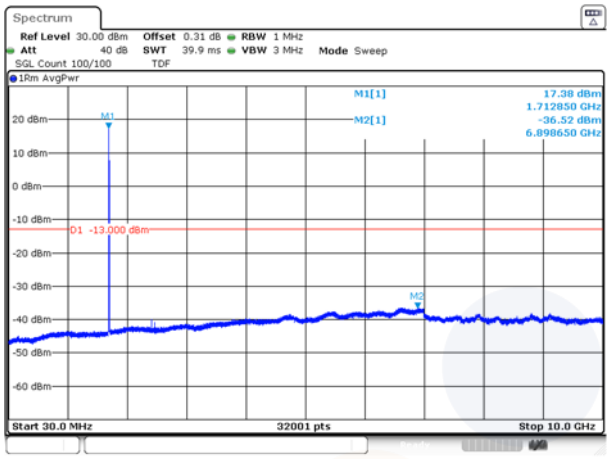
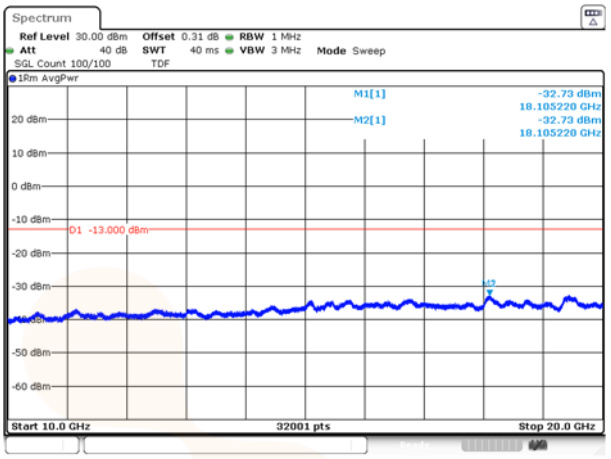
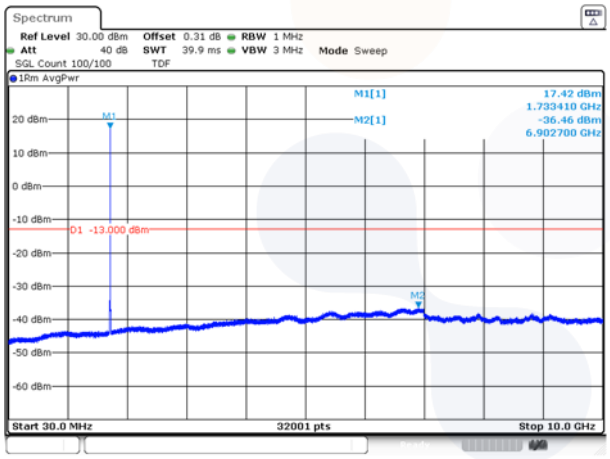
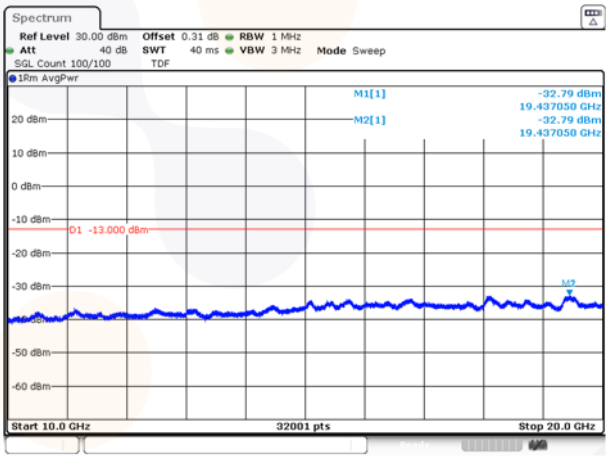
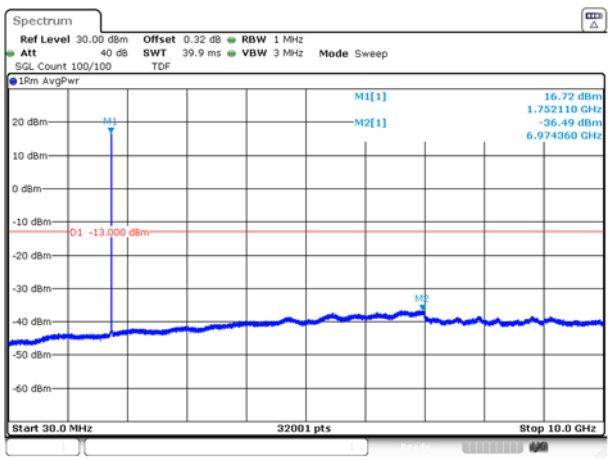
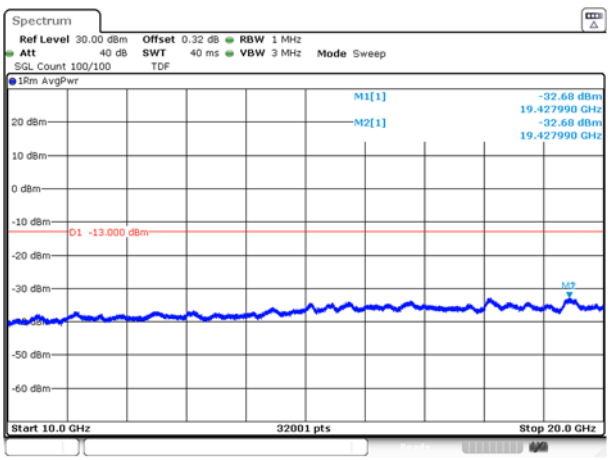
1) Start frequency was set to 30 ㎒ and stop frequency was set to at least 10th the fundamental frequency.
2) Detector = RMS
3) Sweep time = auto couple.
4) Trace mode = trace average
5) Allow trace to fully stabilize.
6) Please see test notes below RBW and VBW settings.

Notes:

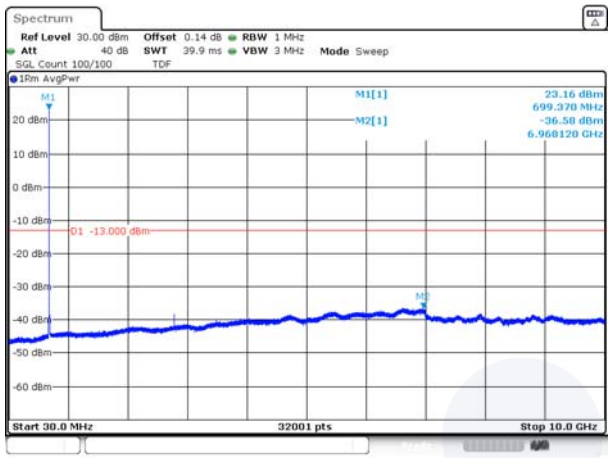
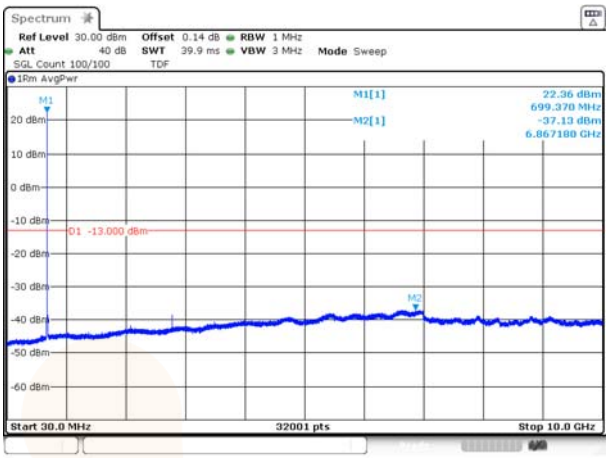
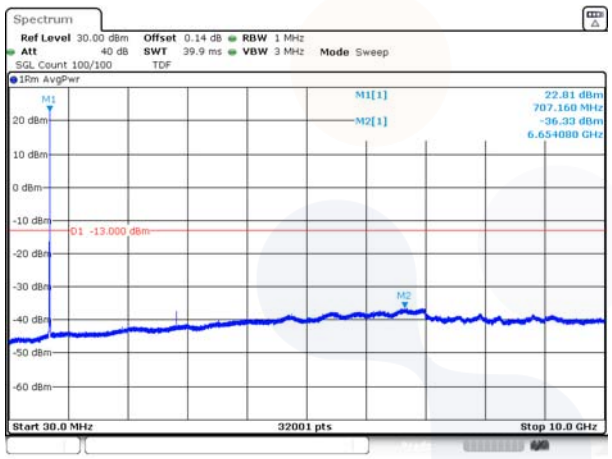
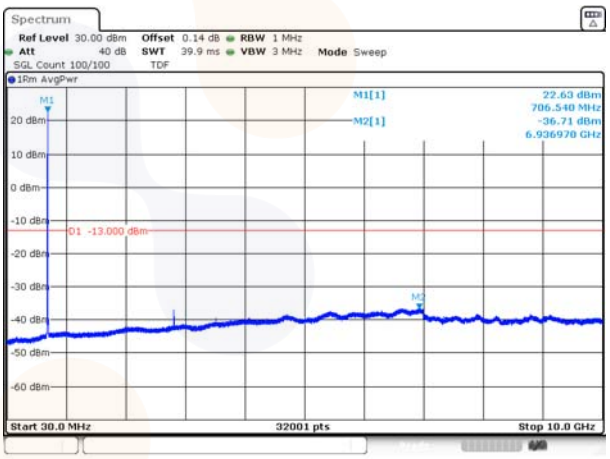
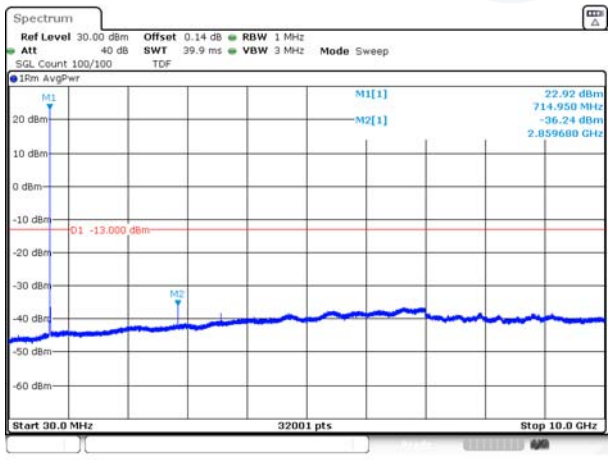
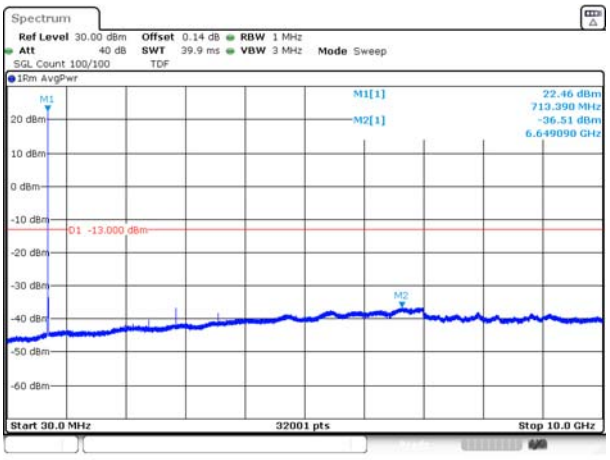
1. Per 27.53(c), 27.53(g), 27.53(h)(3), compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 ㎑ or greater for frequencies less than 1 ㎓ and 1 ㎒ or greater for frequencies greater than 1 ㎓.
   The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 ㏈ below the transmitter power.
2. All modes of operation were investigated and the worst-case configuration results are reported.

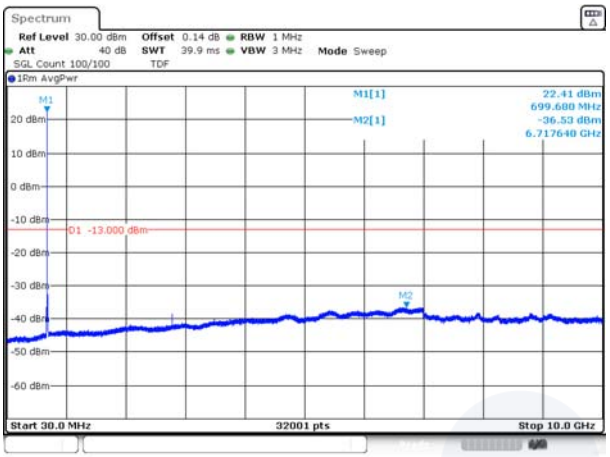
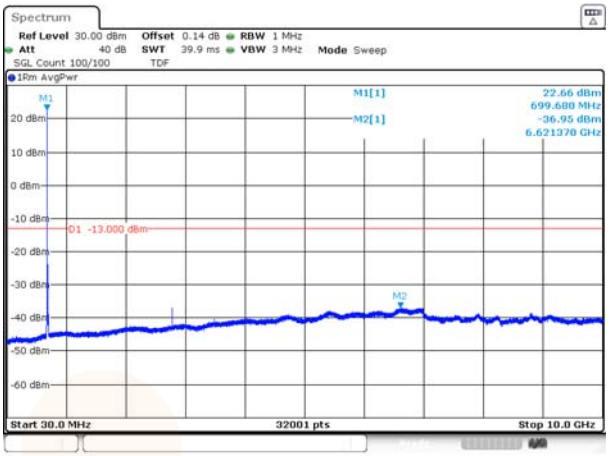
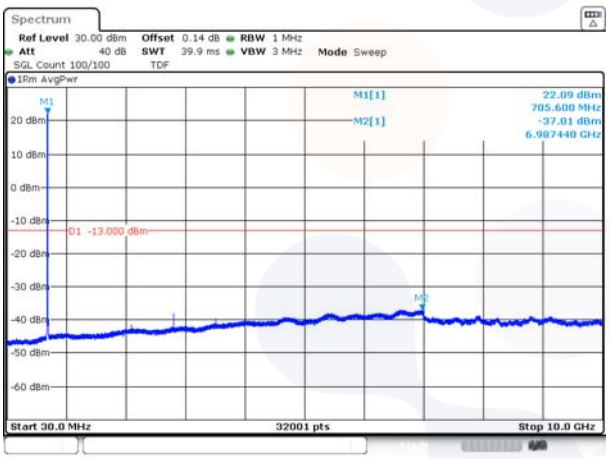
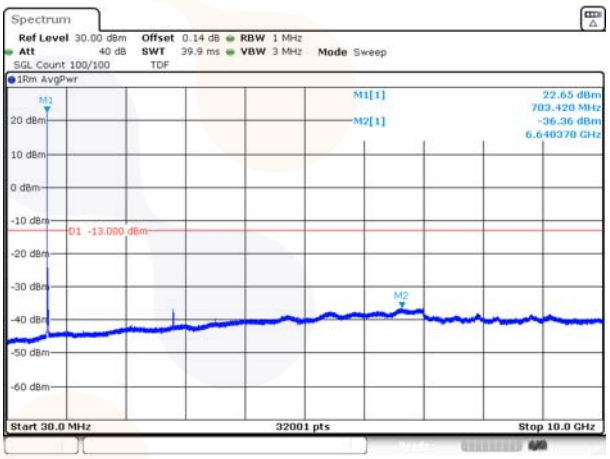
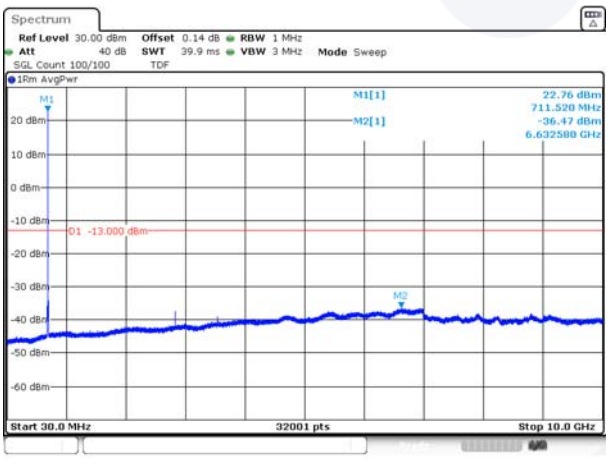
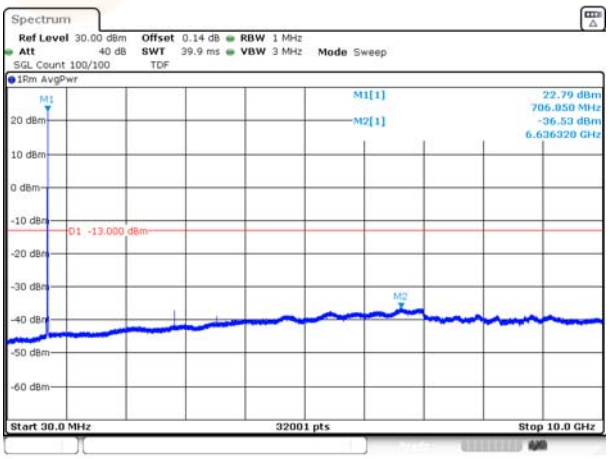
Test results

Test mode: WCDMA 1700

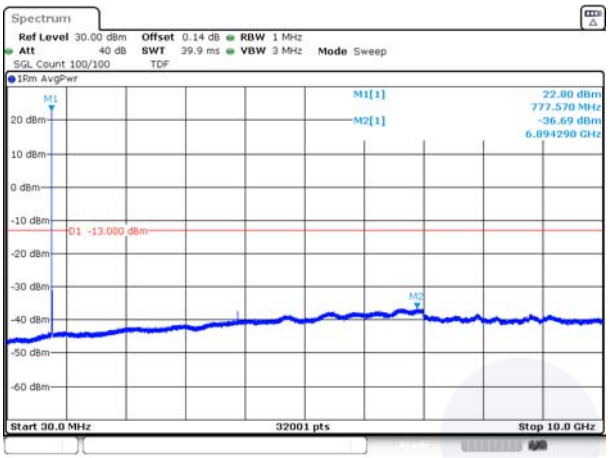
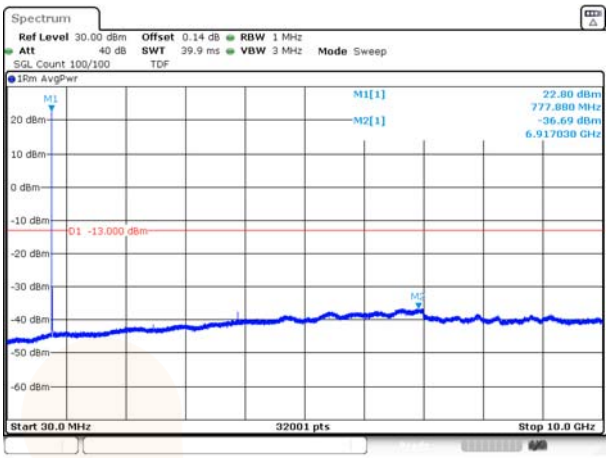
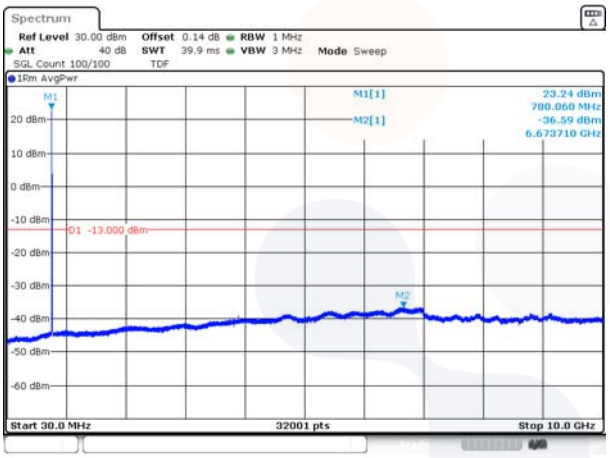
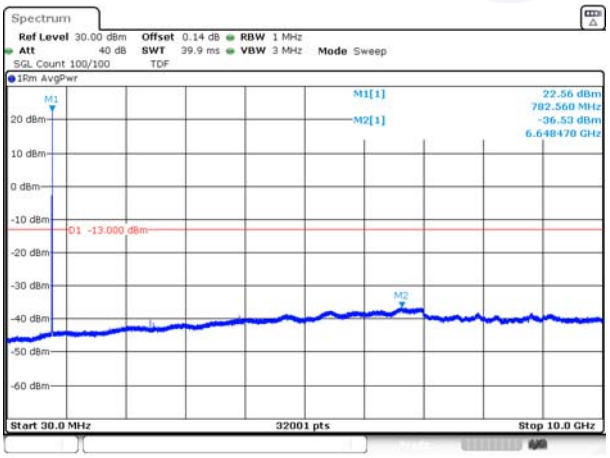
RMC	
Low channel (30 ㎒ ~ 10 ㎓)	Low channel (10 ㎓ ~ 20 ㎓)
	
Middle channel (30 ㎒ ~ 10 ㎓)	Middle channel (10 ㎓ ~ 20 ㎓)
	
High channel (30 ㎒ ~ 10 ㎓)	High channel (10 ㎓ ~ 20 ㎓)
	

Test mode: LTE B12

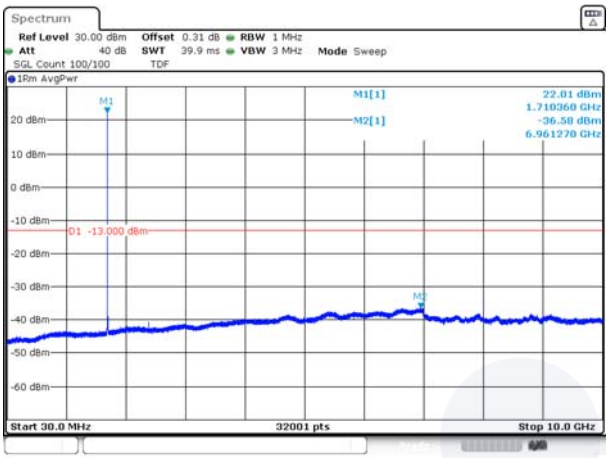
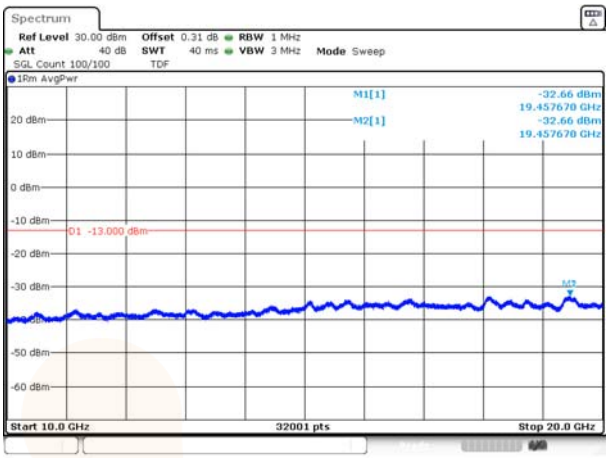
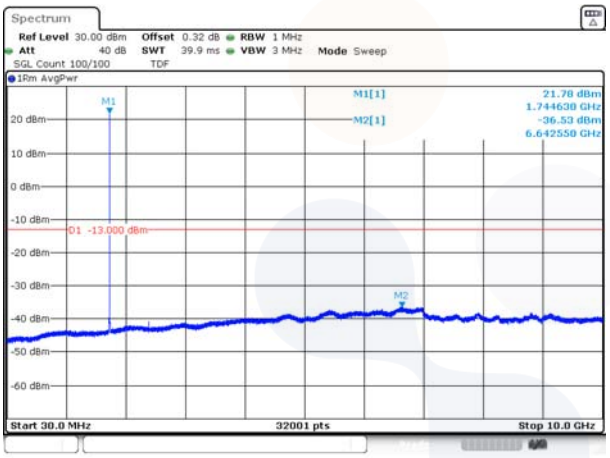
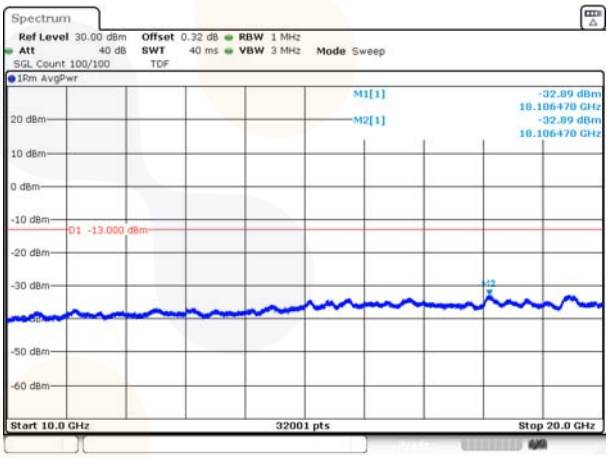
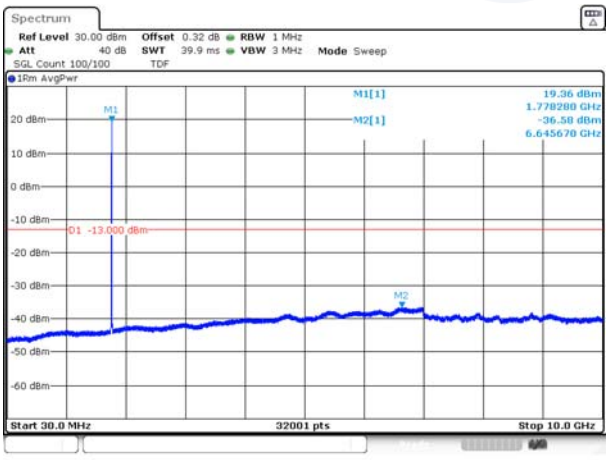
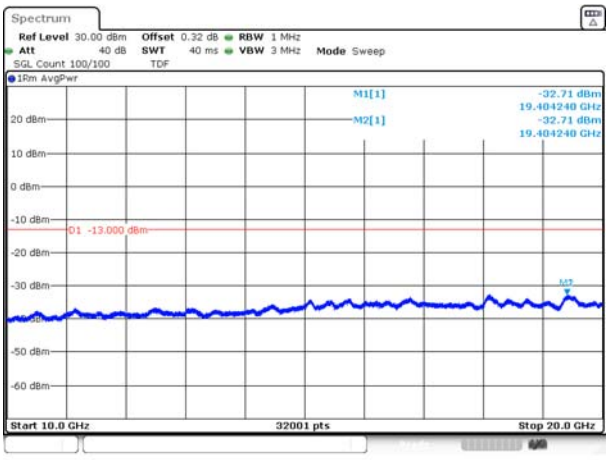
1.4M BW QPSK	3M BW QPSK
Low channel (30 ㎒ ~ 10 ㎓)	**Low channel (30 ㎒ ~ 10 ㎓)**
	
Middle channel (30 ㎒ ~ 10 ㎓)	**Middle channel (30 ㎒ ~ 10 ㎓)**
	
High channel (30 ㎒ ~ 10 ㎓)	**High channel (30 ㎒ ~ 10 ㎓)**
	

5M BW QPSK	10M BW QPSK
Low channel (30 ㎒ ~ 10 ㎓)	**Low channel (30 ㎒ ~ 10 ㎓)**
	
Middle channel (30 ㎒ ~ 10 ㎓)	**Middle channel (30 ㎒ ~ 10 ㎓)**
	
High channel (30 ㎒ ~ 10 ㎓)	**High channel (30 ㎒ ~ 10 ㎓)**
	

Test mode: LTE B13

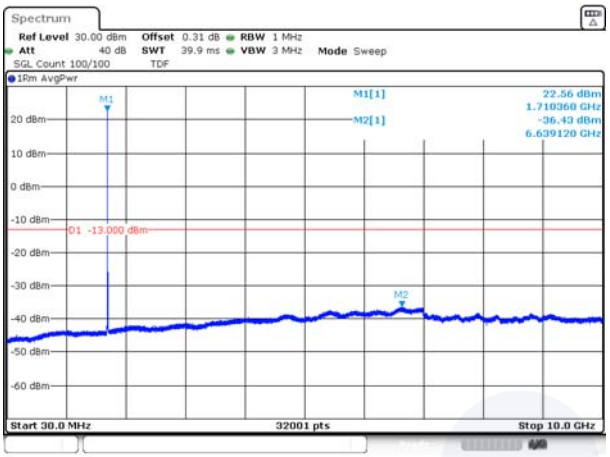
5M BW QPSK	10M BW QPSK
Low channel (30 ㎒ ~ 10 ㎓)	**Middle channel (30 ㎒ ~ 10 ㎓)**
	
Middle channel (30 ㎒ ~ 10 ㎓)	**-**
	Blank
High channel (30 ㎒ ~ 10 ㎓)	**-**
	Blank

Test mode: LTE B66/4

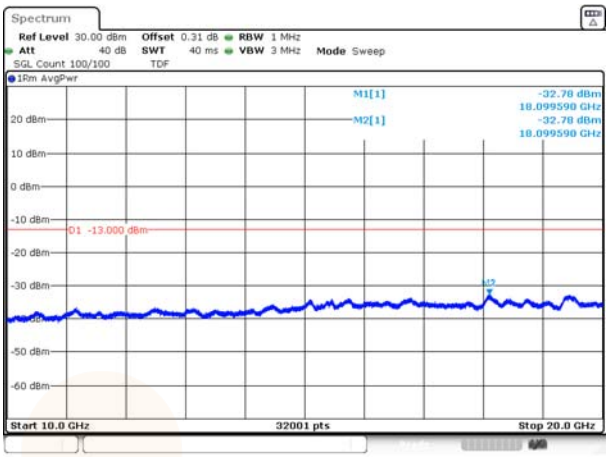
1.4M BW QPSK	
Low channel (30 ㎒ ~ 10 ㎓)	**Low channel (10 ㎓ ~ 20 ㎓)**
	
Middle channel (30 ㎒ ~ 10 ㎓)	**Middle channel (10 ㎓ ~ 20 ㎓)**
	
High channel (30 ㎒ ~ 10 ㎓)	**High channel (10 ㎓ ~ 20 ㎓)**
	

3M BW QPSK

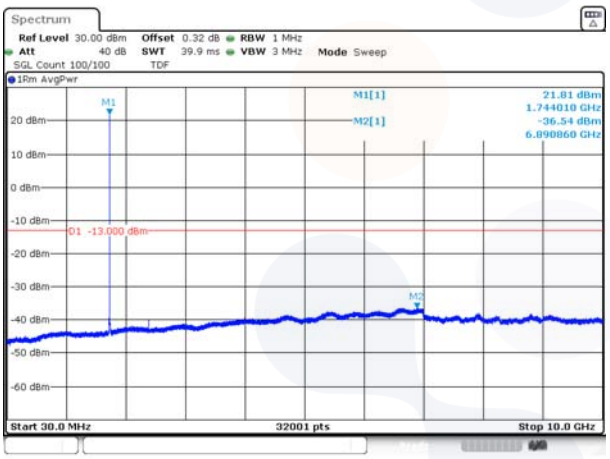
Low channel (30 ㎒ ~ 10 ㎓)



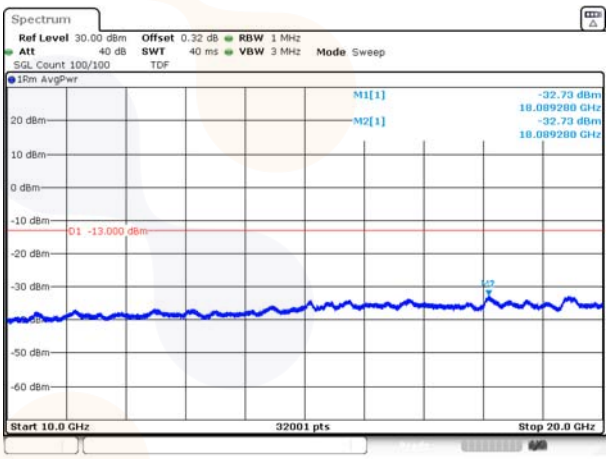
Low channel (10 ㎓ ~ 20 ㎓)



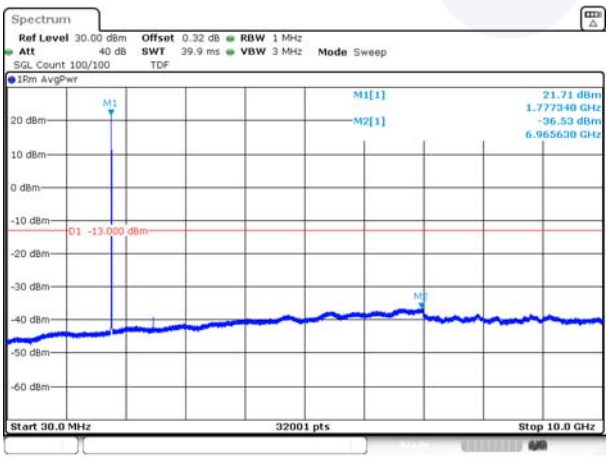
Middle channel (30 ㎒ ~ 10 ㎓)



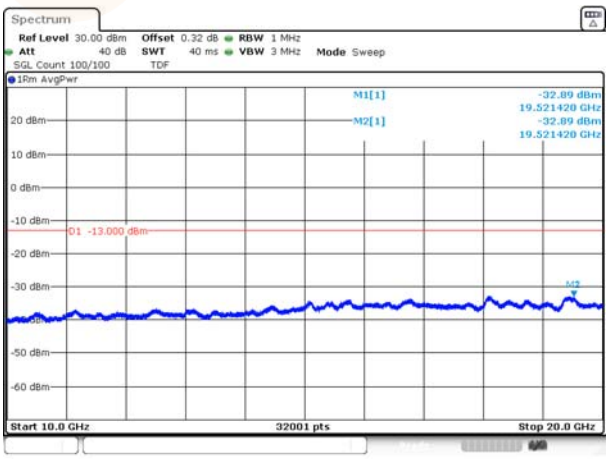
Middle channel (10 ㎓ ~ 20 ㎓)

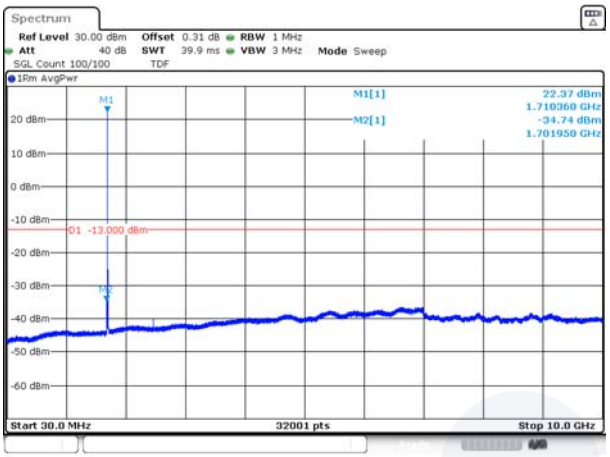
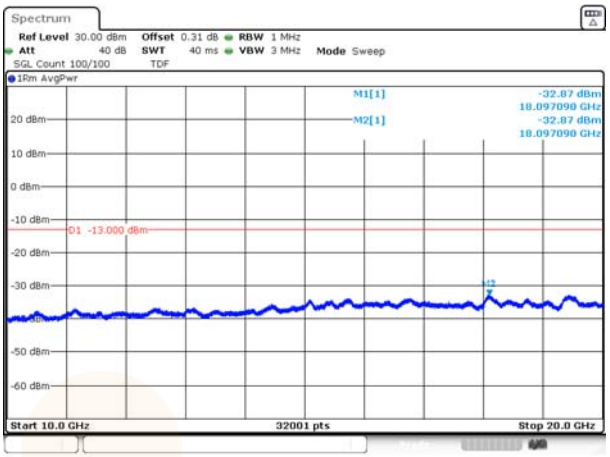
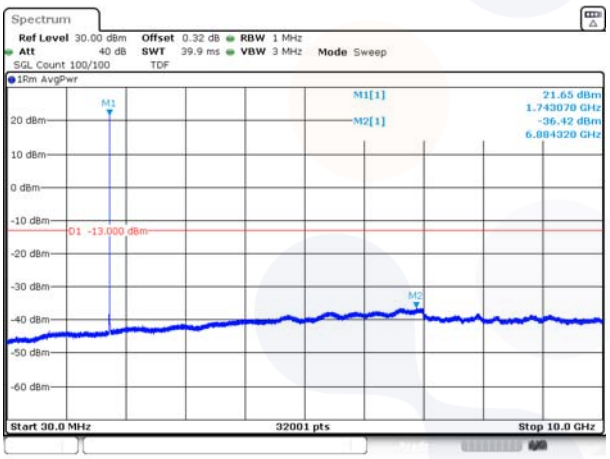
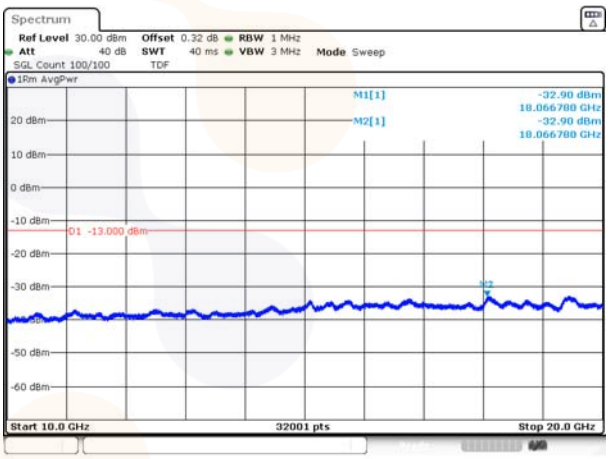
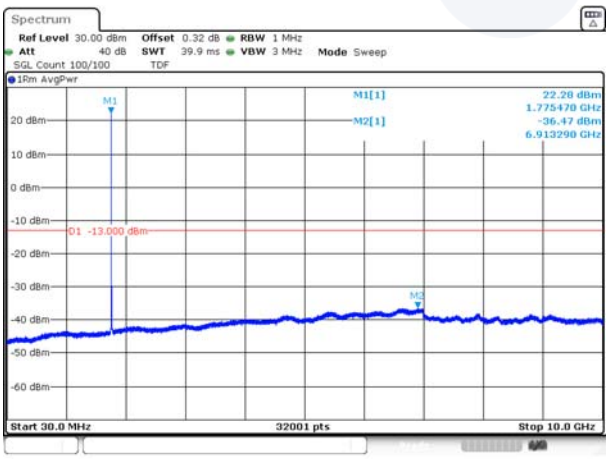
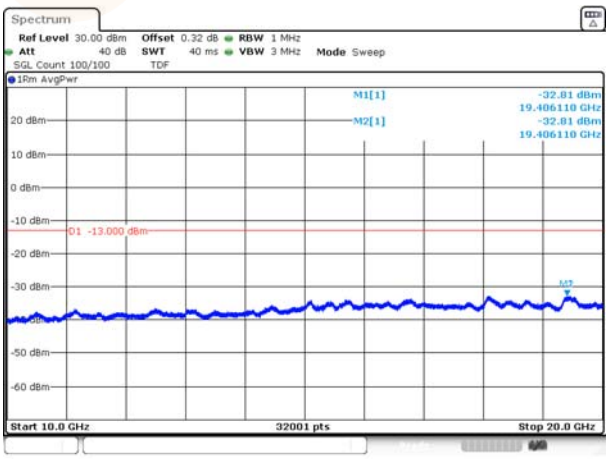


High channel (30 ㎒ ~ 10 ㎓)



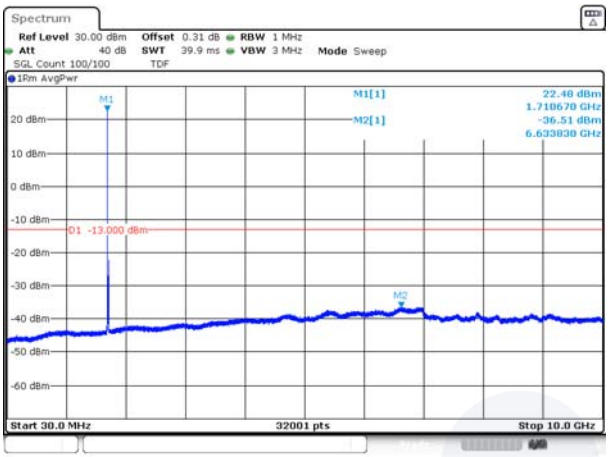
High channel (10 ㎓ ~ 20 ㎓)



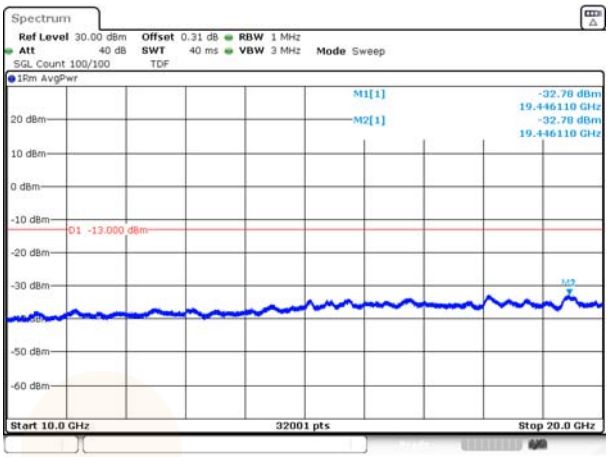
5M BW QPSK	
Low channel (30 ㎒ ~ 10 ㎓)	**Low channel (10 ㎓ ~ 20 ㎓)**
	
Middle channel (30 ㎒ ~ 10 ㎓)	**Middle channel (10 ㎓ ~ 20 ㎓)**
	
High channel (30 ㎒ ~ 10 ㎓)	**High channel (10 ㎓ ~ 20 ㎓)**
	

10M BW QPSK

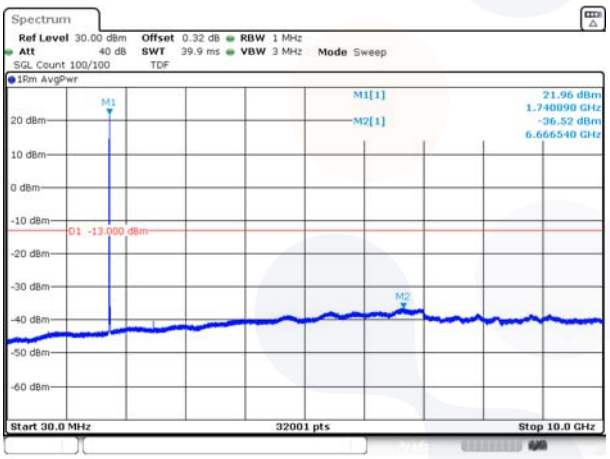
Low channel (30 ㎒ ~ 10 ㎓)



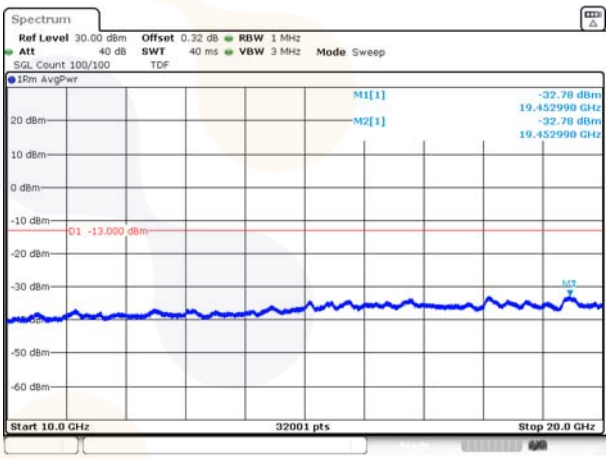
Low channel (10 ㎓ ~ 20 ㎓)



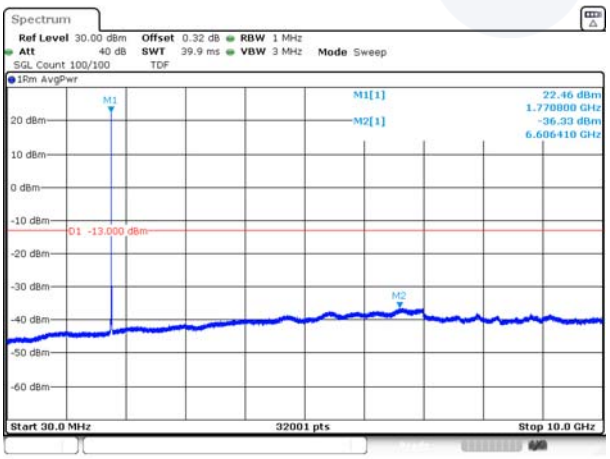
Middle channel (30 ㎒ ~ 10 ㎓)



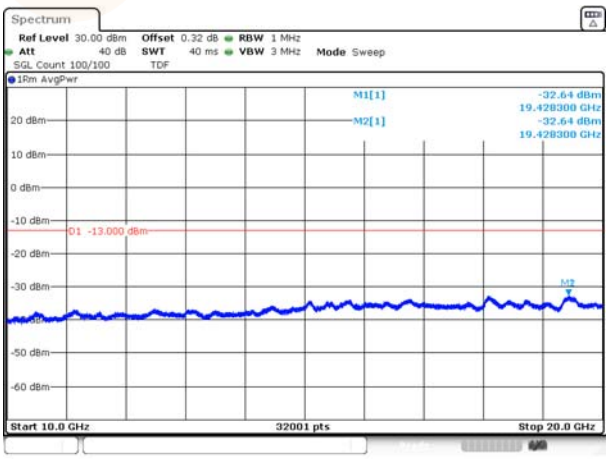
Middle channel (10 ㎓ ~ 20 ㎓)



High channel (30 ㎒ ~ 10 ㎓)

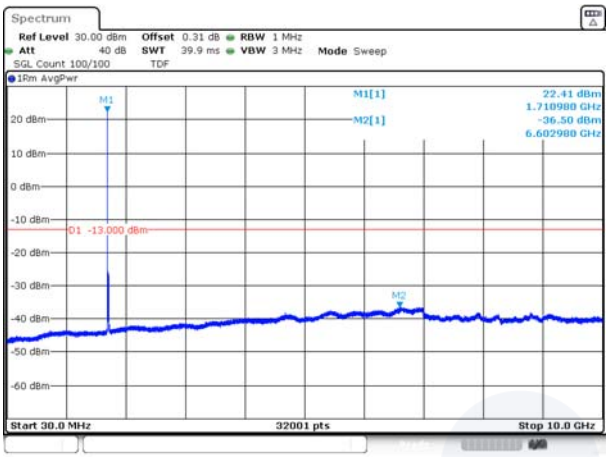


High channel (10 ㎓ ~ 20 ㎓)

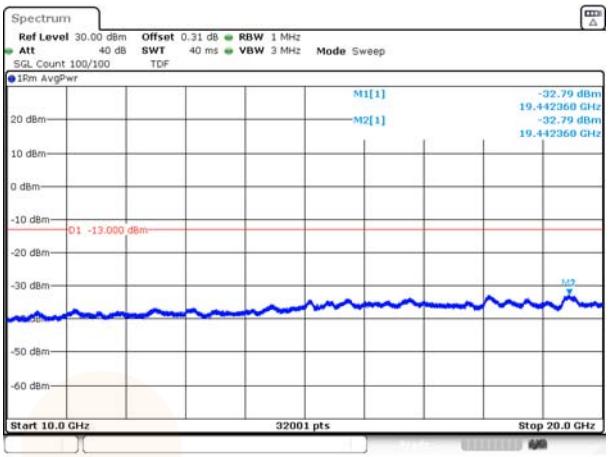


15M BW QPSK

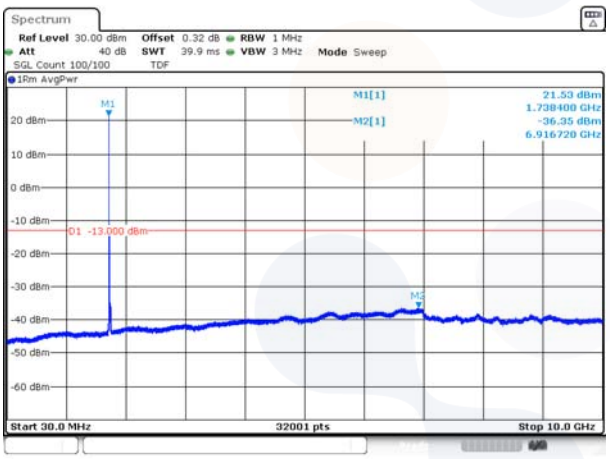
Low channel (30 ㎒ ~ 10 ㎓)



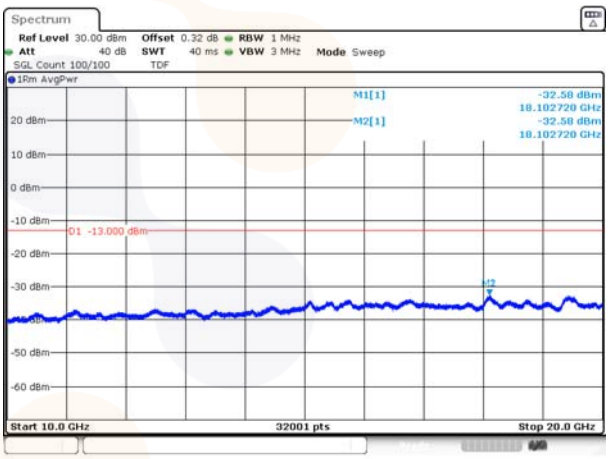
Low channel (10 ㎓ ~ 20 ㎓)



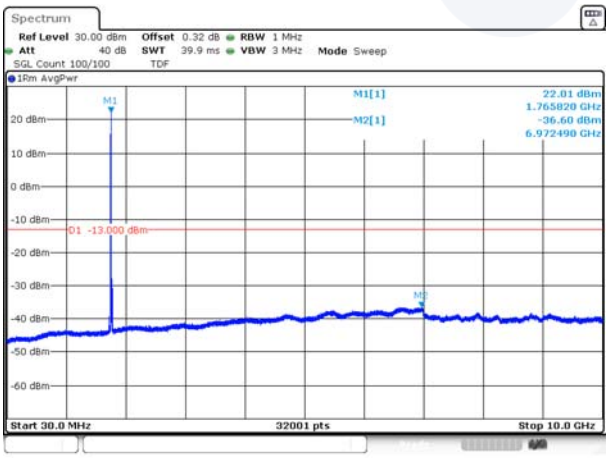
Middle channel (30 ㎒ ~ 10 ㎓)



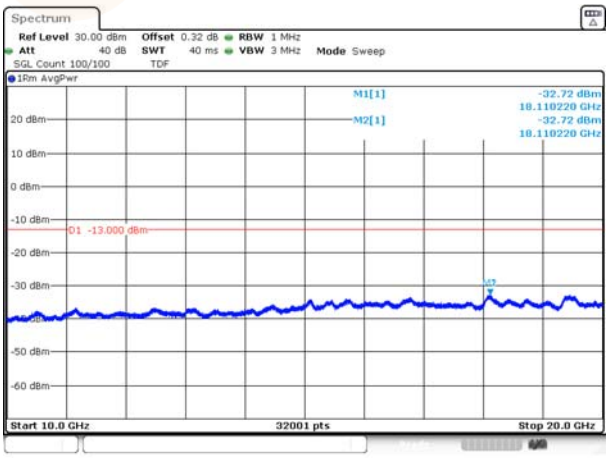
Middle channel (10 ㎓ ~ 20 ㎓)



High channel (30 ㎒ ~ 10 ㎓)

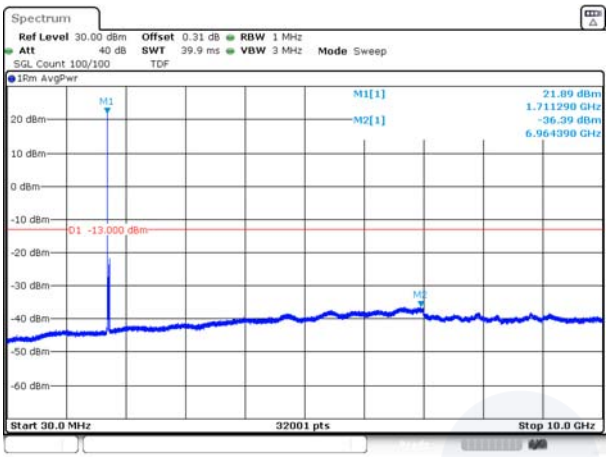


High channel (10 ㎓ ~ 20 ㎓)

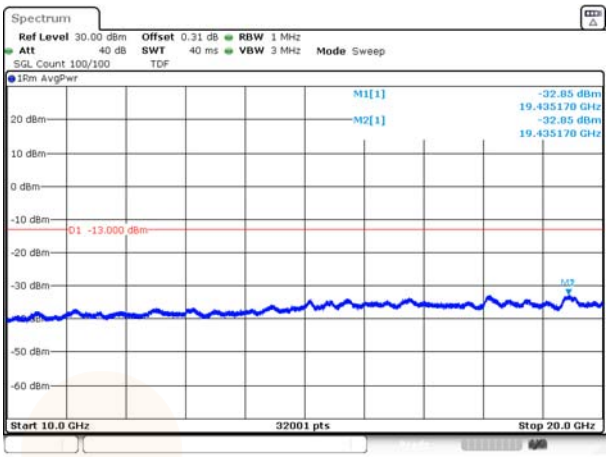


20M BW QPSK

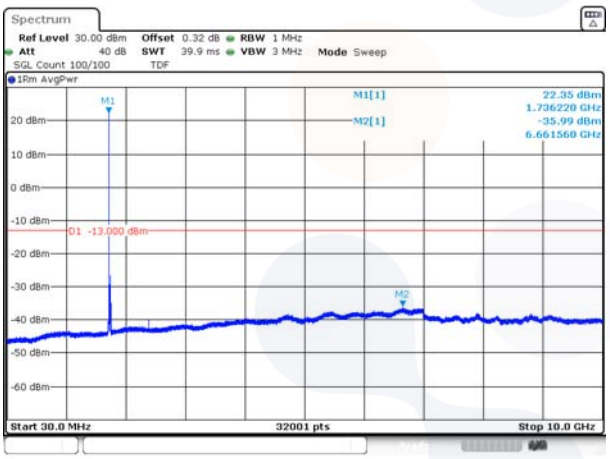
Low channel (30 ㎒ ~ 10 ㎓)



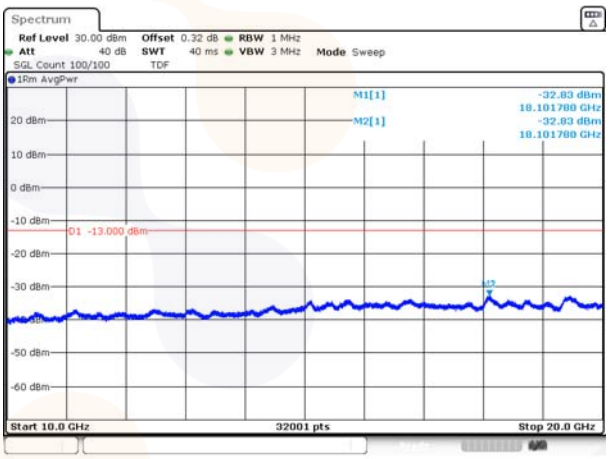
Low channel (10 ㎓ ~ 20 ㎓)



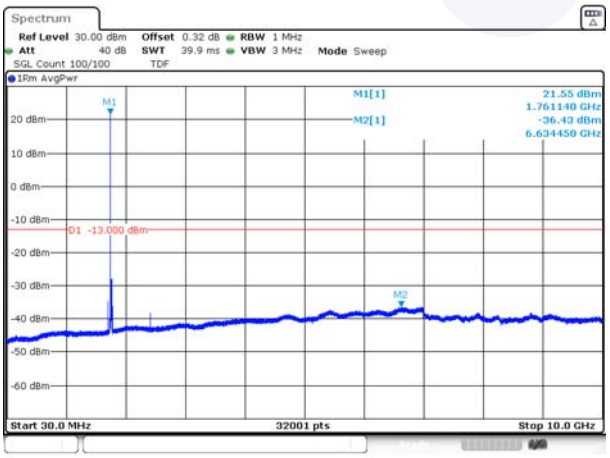
Middle channel (30 ㎒ ~ 10 ㎓)



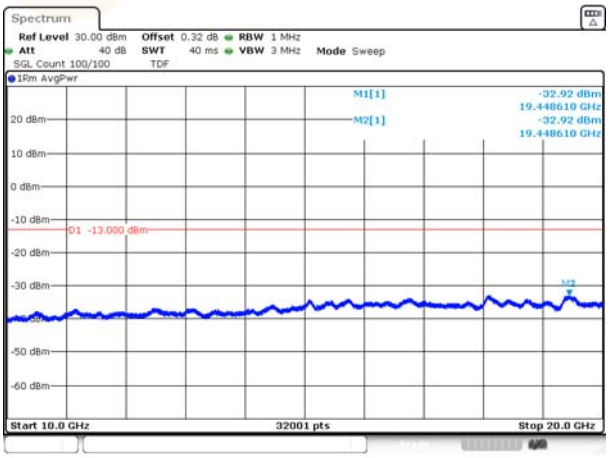
Middle channel (10 ㎓ ~ 20 ㎓)



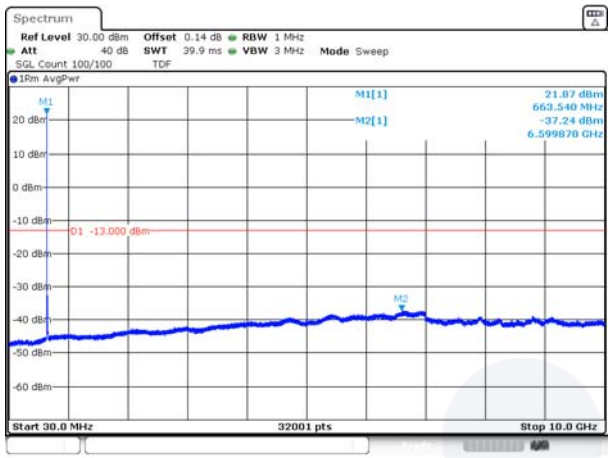
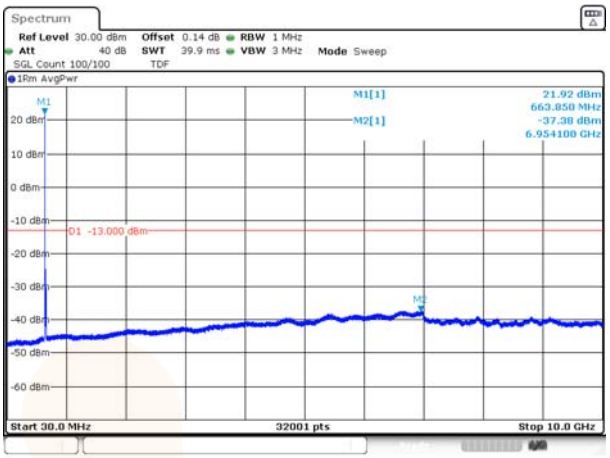
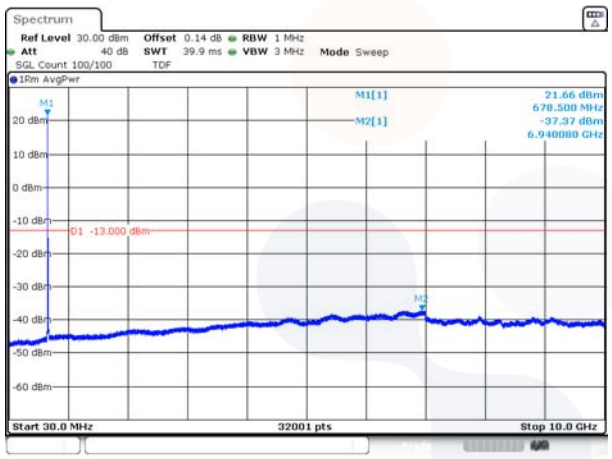
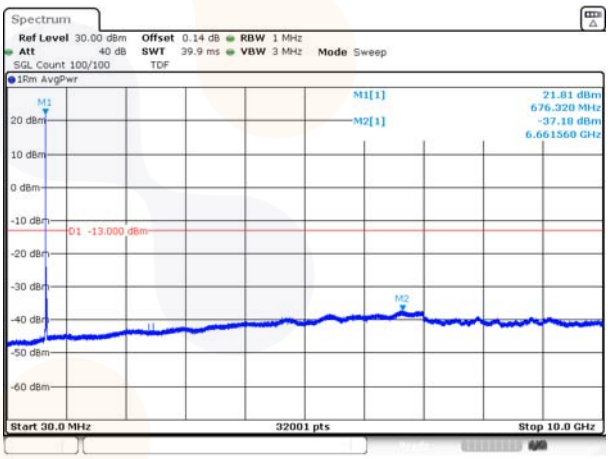
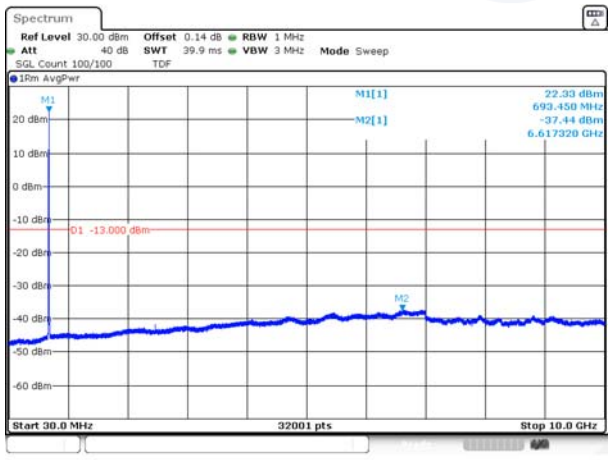
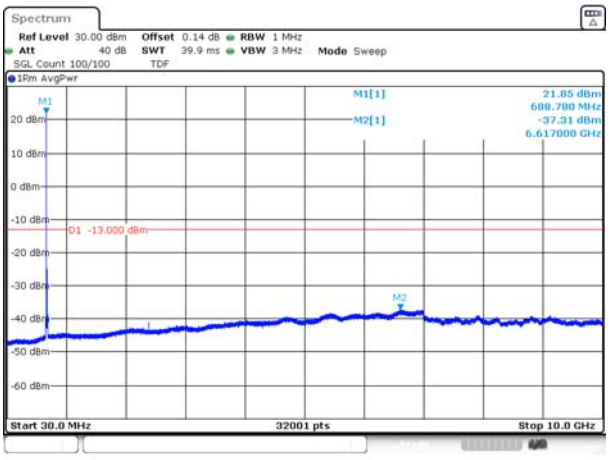
High channel (30 ㎒ ~ 10 ㎓)

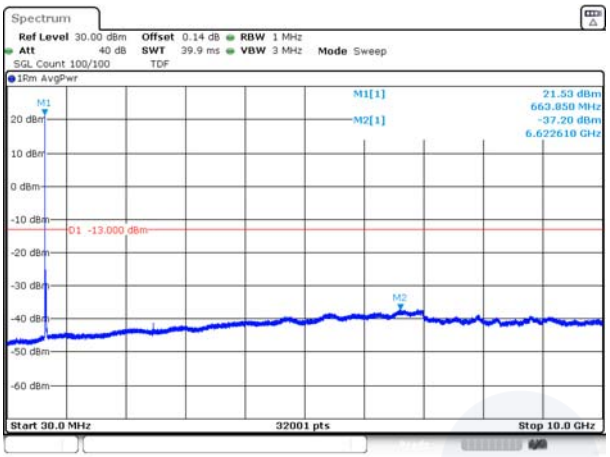
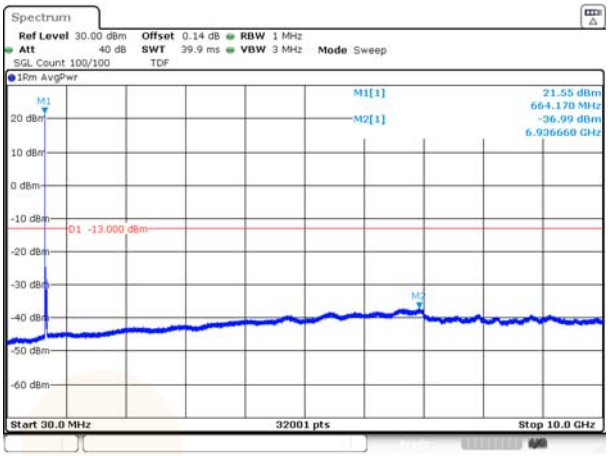
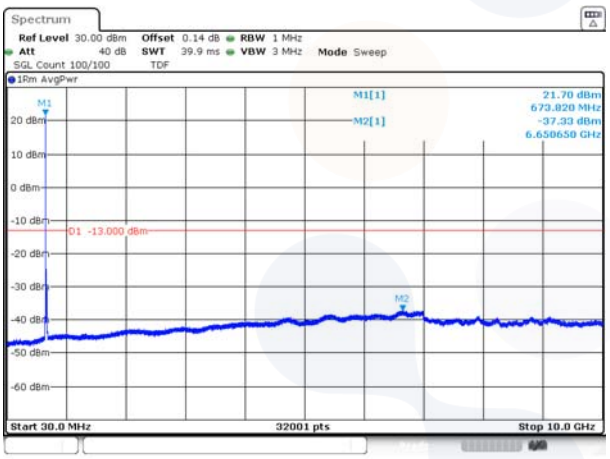
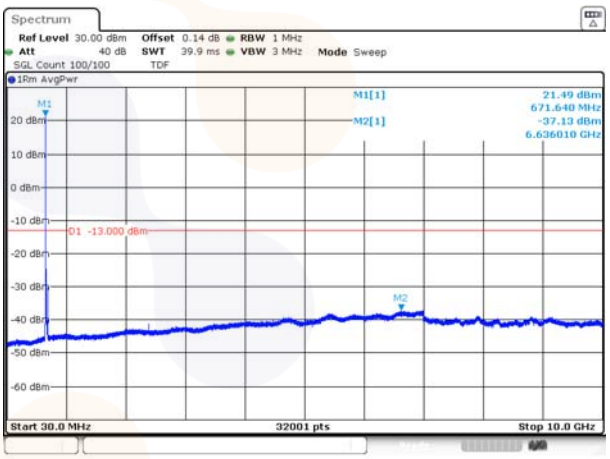
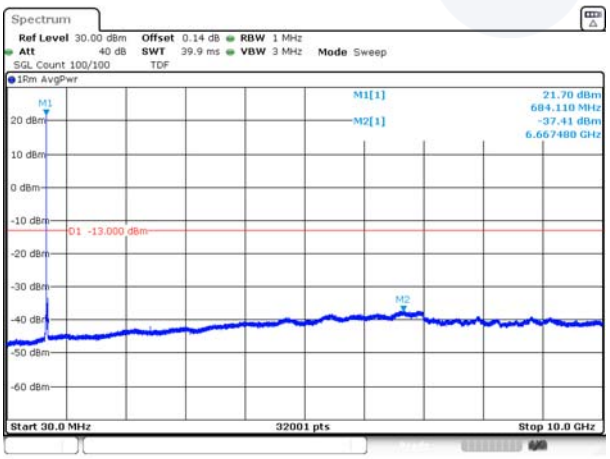
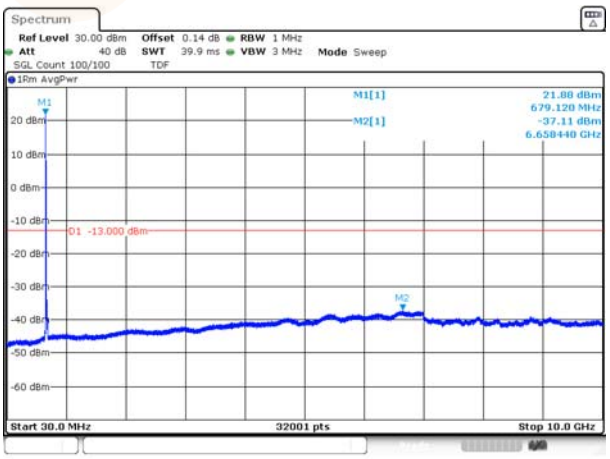


High channel (10 ㎓ ~ 20 ㎓)



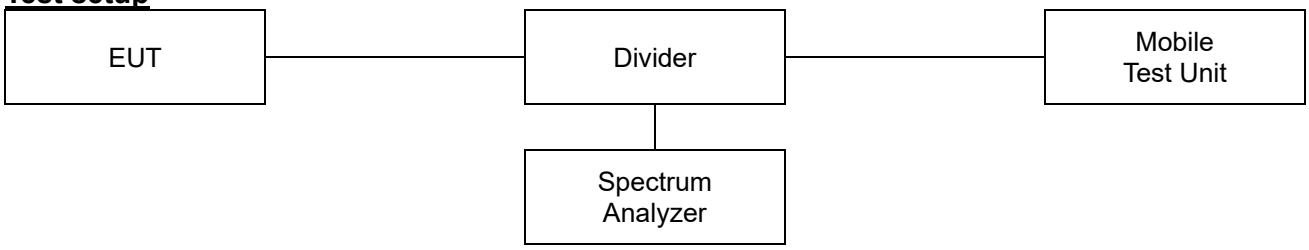
Test mode: LTE B71

5M BW QPSK	10M BW QPSK
Low channel (30 ㎒ ~ 10 ㎓)	**Low channel (30 ㎒ ~ 10 ㎓)**
	
Middle channel (30 ㎒ ~ 10 ㎓)	**Middle channel (30 ㎒ ~ 10 ㎓)**
	
High channel (30 ㎒ ~ 10 ㎓)	**High channel (30 ㎒ ~ 10 ㎓)**
	

15M BW QPSK	20M BW QPSK
Low channel (30 ㎒ ~ 10 ㎓)	**Low channel (30 ㎒ ~ 10 ㎓)**
	
Middle channel (30 ㎒ ~ 10 ㎓)	**Middle channel (30 ㎒ ~ 10 ㎓)**
	
High channel (30 ㎒ ~ 10 ㎓)	**High channel (30 ㎒ ~ 10 ㎓)**
	

7.5. Peak to Average Power Ratio (PAPR)

Test setup



Limit

According to §27.50(d),

The peak-to-average ratio(PAR) of the transmission must not exceed 13 dB.

Test procedure

971168 D01 v03r01 - Section 5.7.2 or 5.7.3
ANSI 63.26-2015 – Section 5.2.3.4 or 5.2.6

Test settings

5.2.3.4 Measurement of peak power in a broadband noise-like signal using CCDF

1) Set resolution/measurement bandwidth ≥ OBW or specified reference bandwidth
2) Set the number of counts to a value that stabilizes the measured CCDF curve.
3) Set the measurement interval as follows:
   a) For continuous transmissions, set to the greater of [10 x (number of points in sweep) x (transmission symbol period)] or 1 ms.
   b) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement internal to a time that is less than or equal to the burst duration.
   c) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.
4) Record the maximum PAPR level associated with a probability of 0.1%

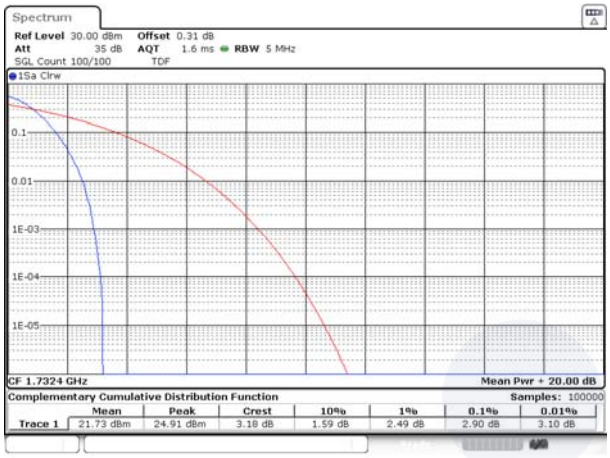
5.2.6 Peak-to-average power ratio

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as P_{PK}.
Use one of the applicable procedure presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P_{AG}. Determine the P.A.P.R from:

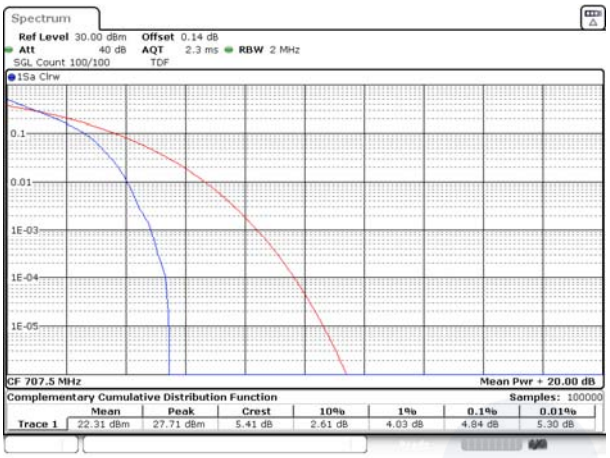
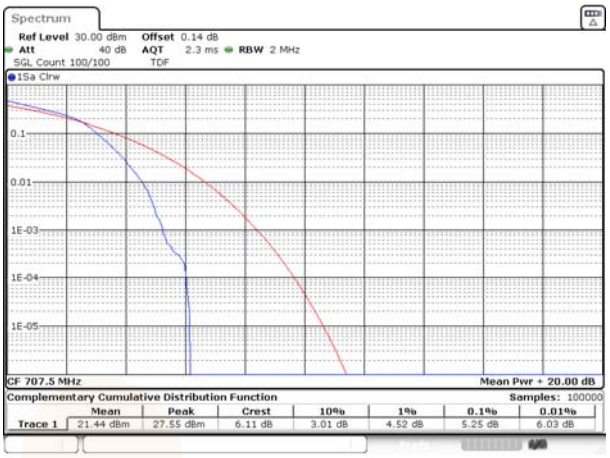
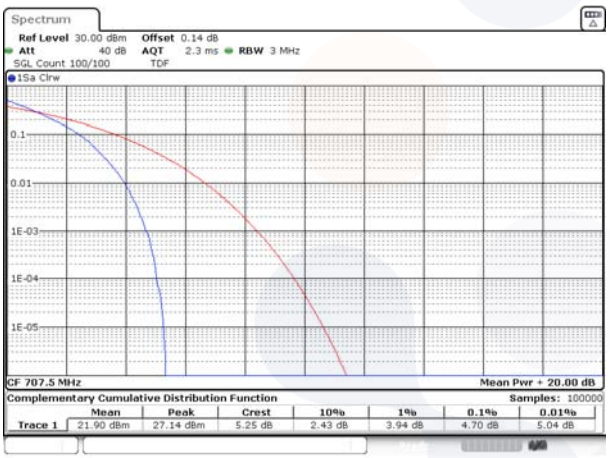
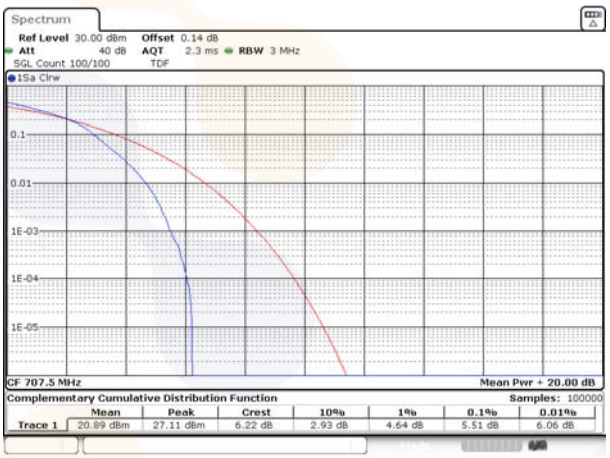
$$PAPR(dB) = P_{PK}(dBm \text{ or } dBW) - P_{AG}(dBm \text{ or } dBW)$$

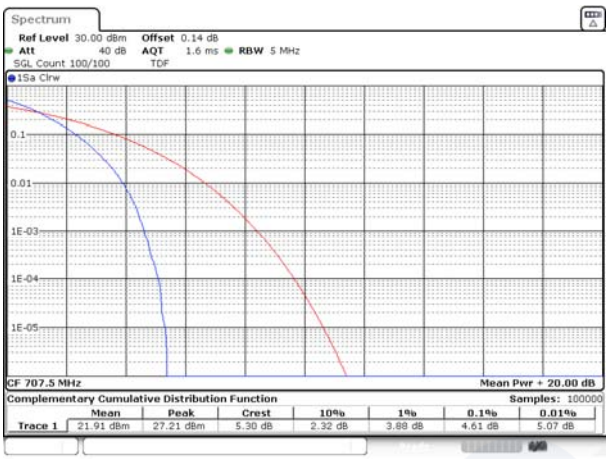
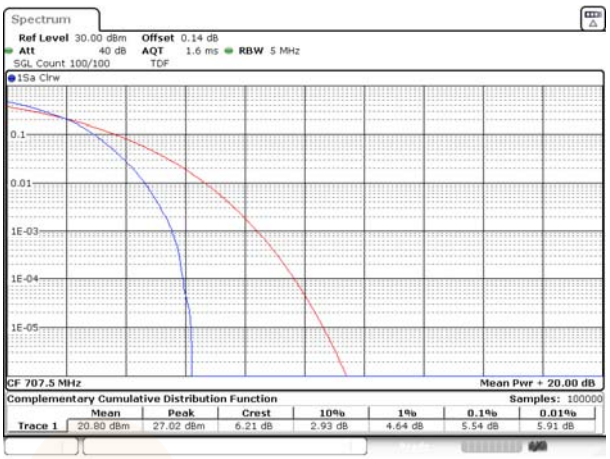
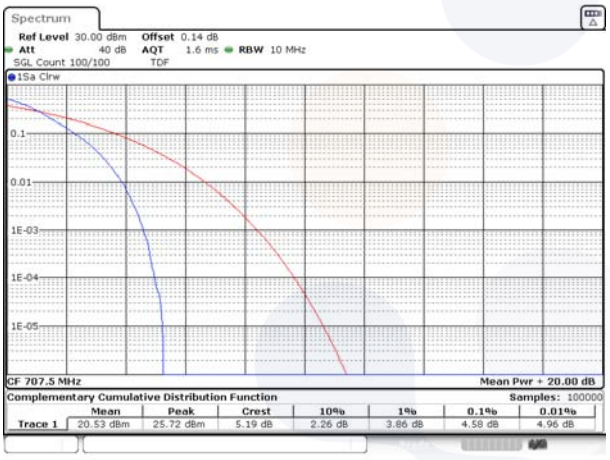
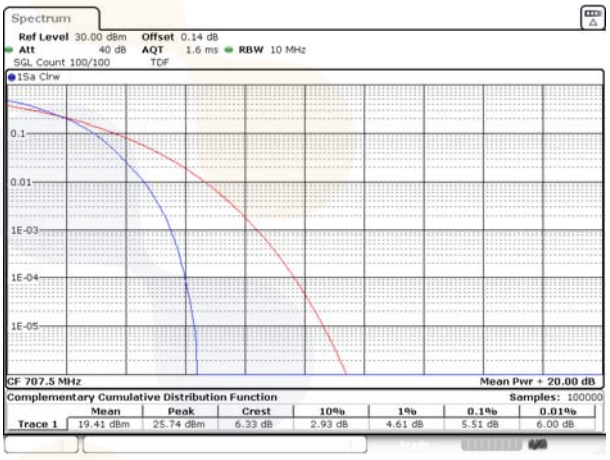
Test results

WCDMA 1700

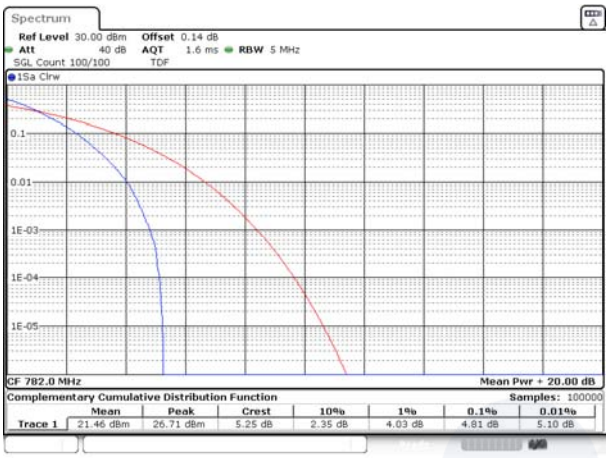
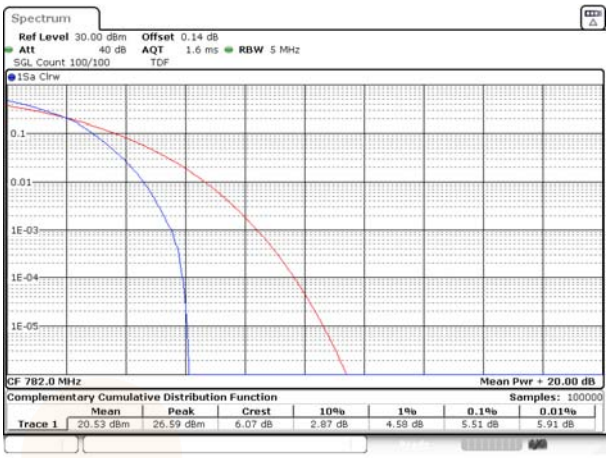
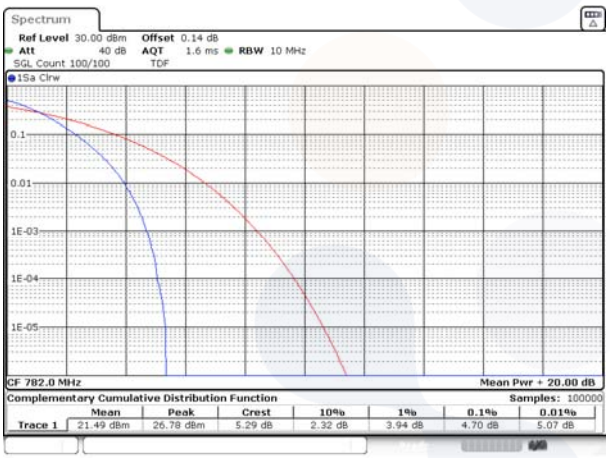
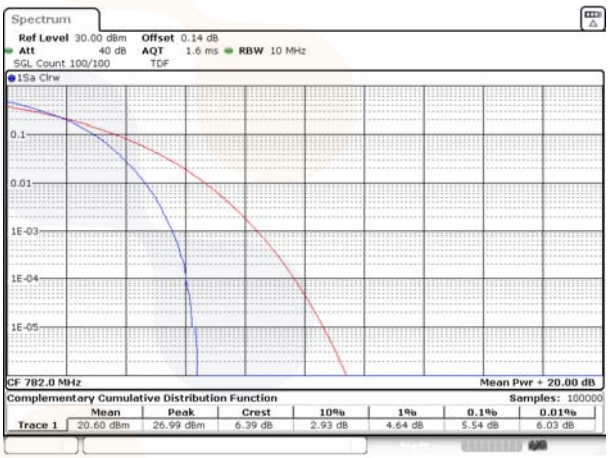
RMC Middle channel	-
	Blank

Test mode: LTE B12

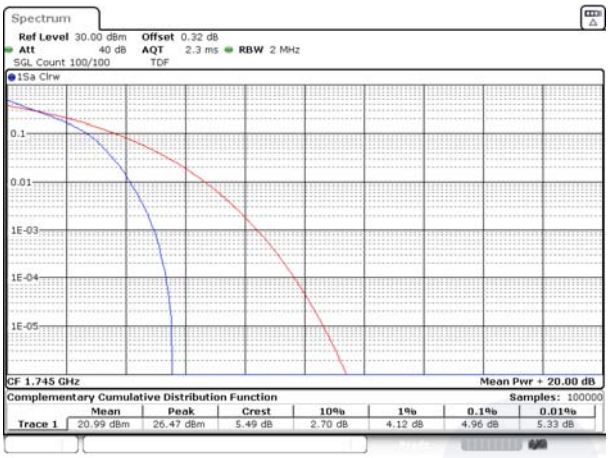
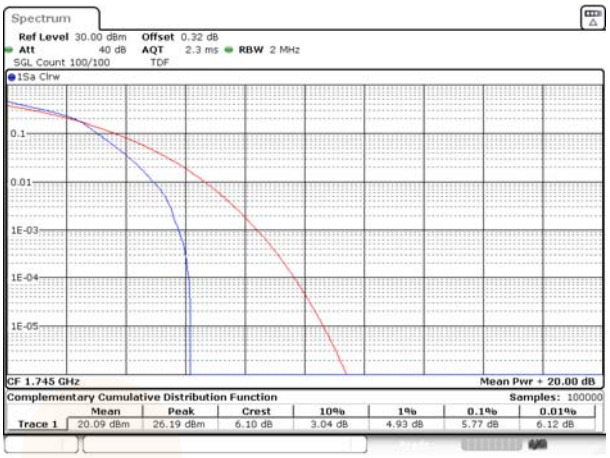
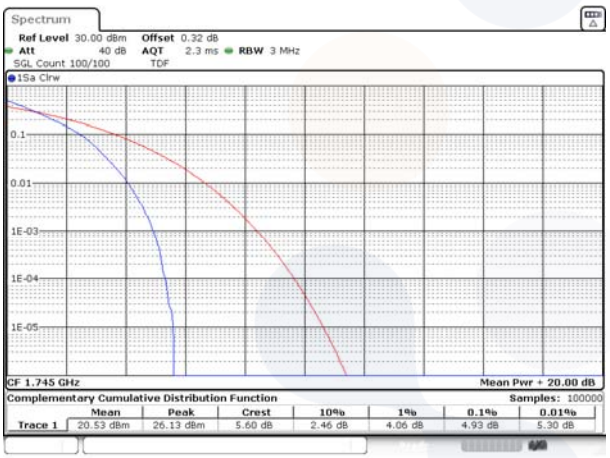
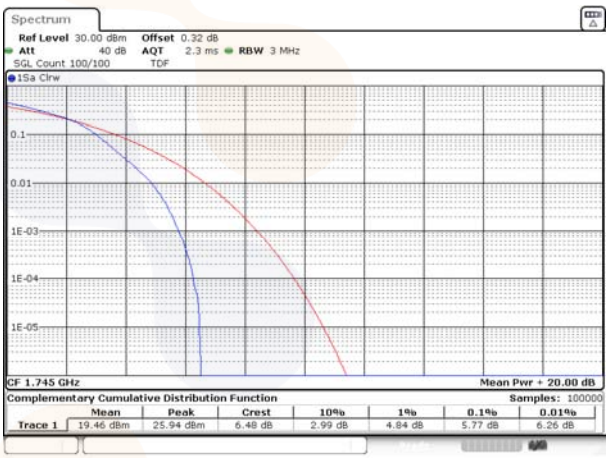
1.4M BW QPSK Middle channel	1.4M BW 16QAM Middle channel
	
3M BW QPSK Middle channel	**3M BW 16QAM Middle channel**
	

5M BW QPSK Middle channel	5M BW 16QAM Middle channel
	
10M BW QPSK Middle channel	**10M BW 16QAM Middle channel**
	

Test mode: LTE B13

5M BW QPSK Middle channel	5M BW 16QAM Middle channel
	
10M BW QPSK Middle channel	**10M BW 16QAM Middle channel**
	

Test mode: LTE B66/4

1.4M BW QPSK Middle channel	1.4M BW 16QAM Middle channel
	
3M BW QPSK Middle channel	**3M BW 16QAM Middle channel**