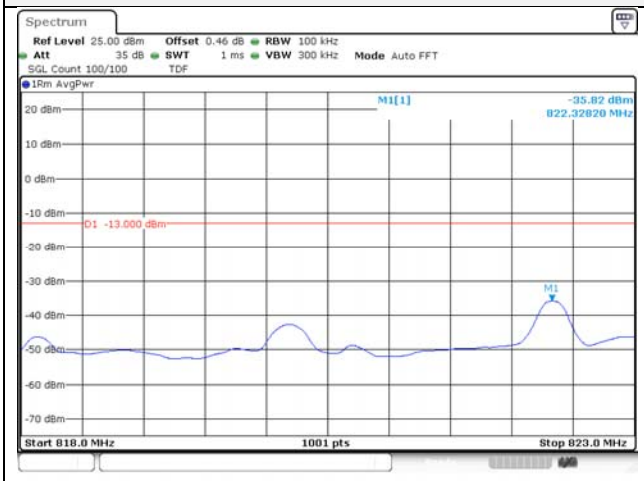
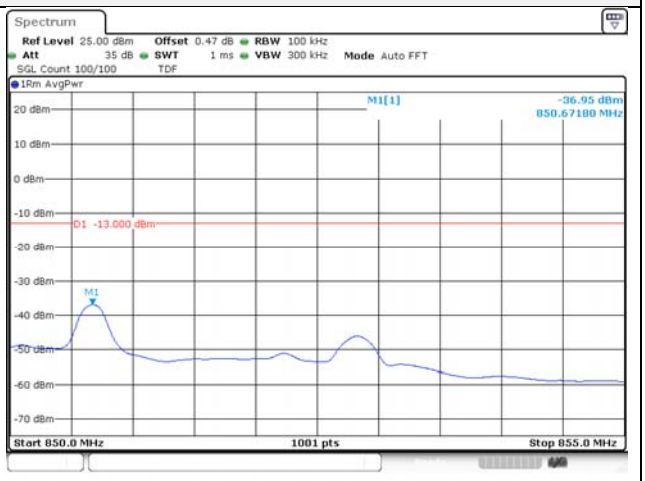
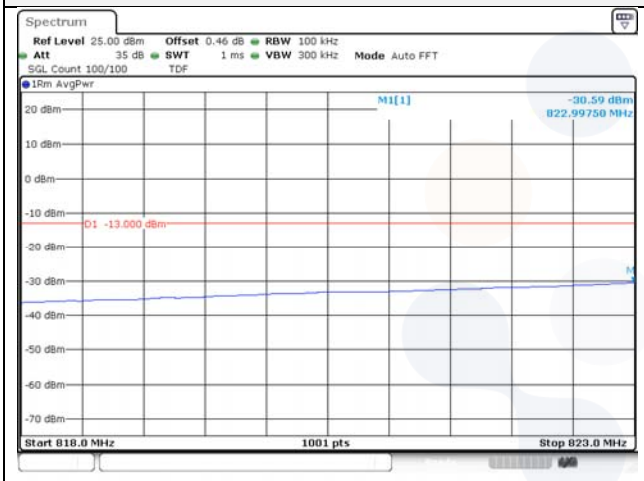
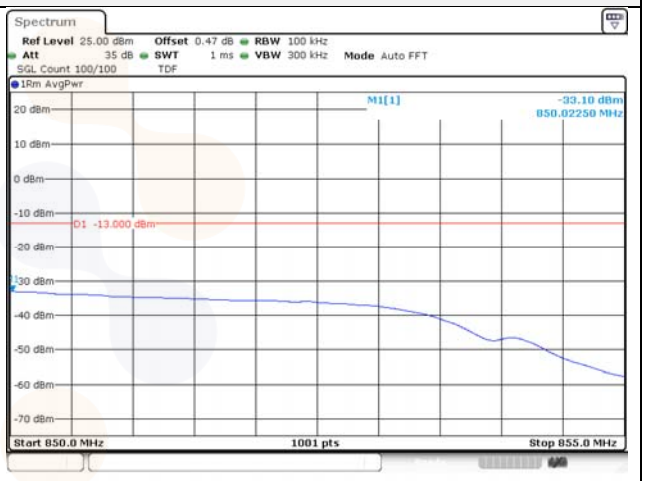
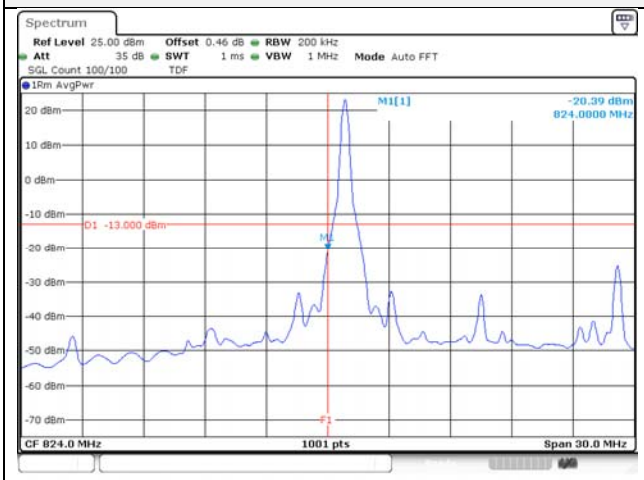
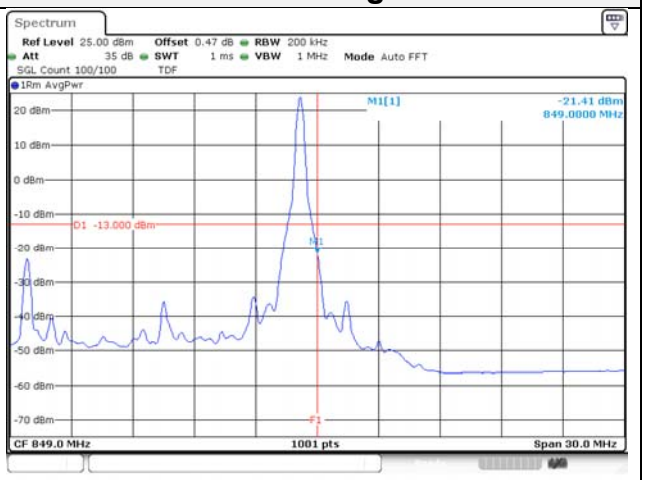
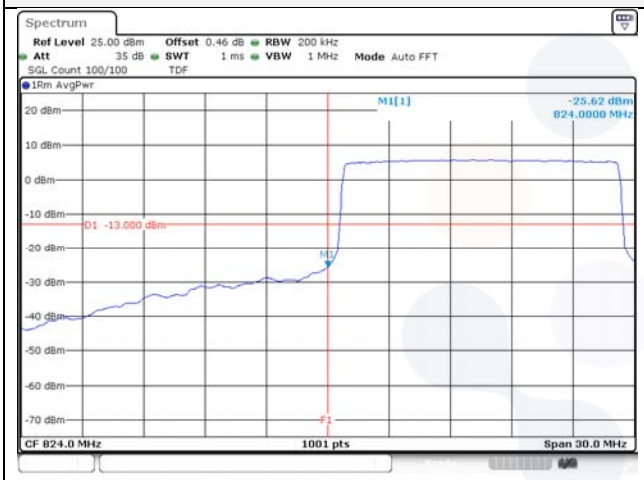
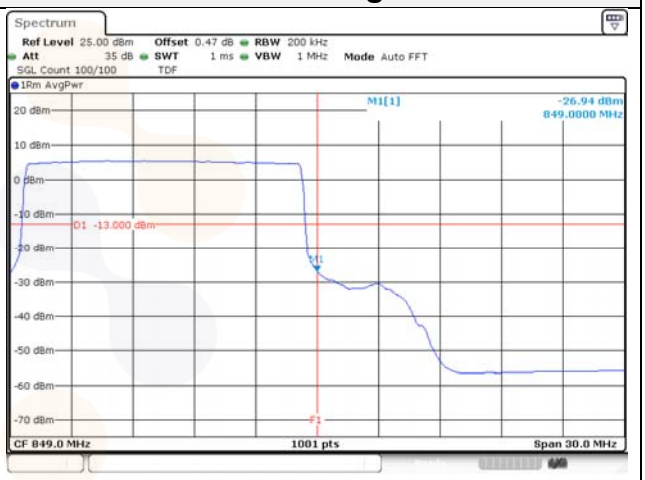
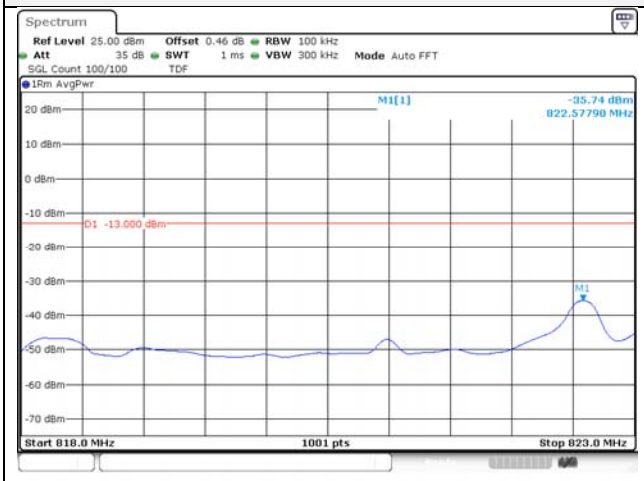
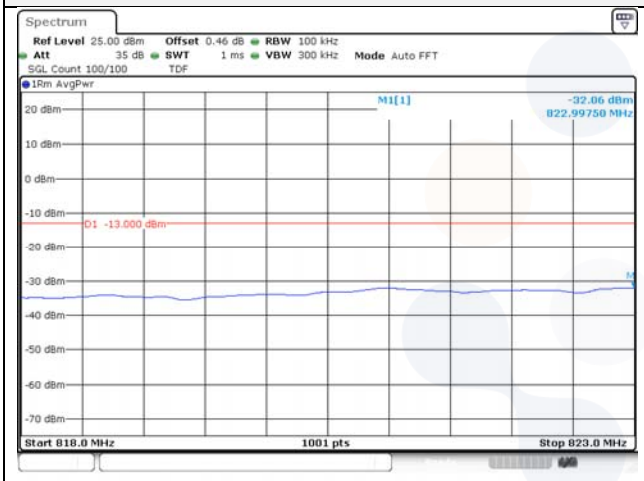
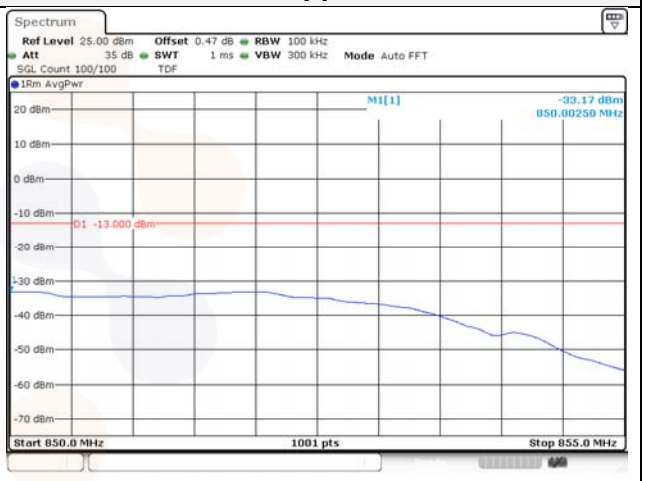
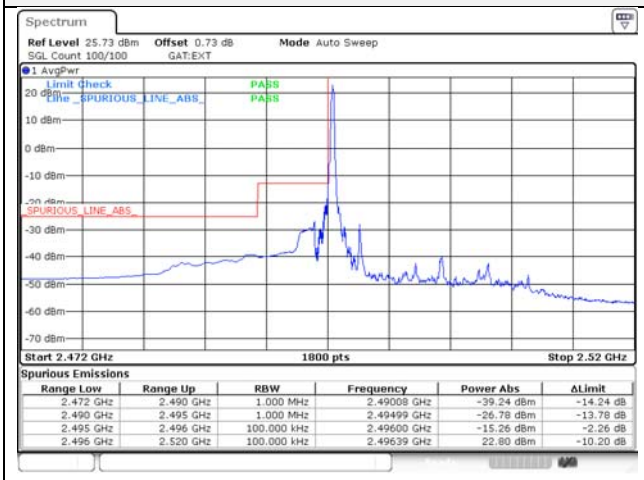
10M BW QPSK Lower extended 1RB	10M BW QPSK Upper extended 1RB
	
10M BW QPSK Lower extended FRB	**10M BW QPSK Upper extended FRB**
	

15M BW QPSK Low ch. 1RB	15M BW QPSK High ch. 1RB
	
15M BW QPSK Low ch. FRB	**15M BW QPSK High ch. FRB**
	

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

Test mode: LTE Band 41(PC2)

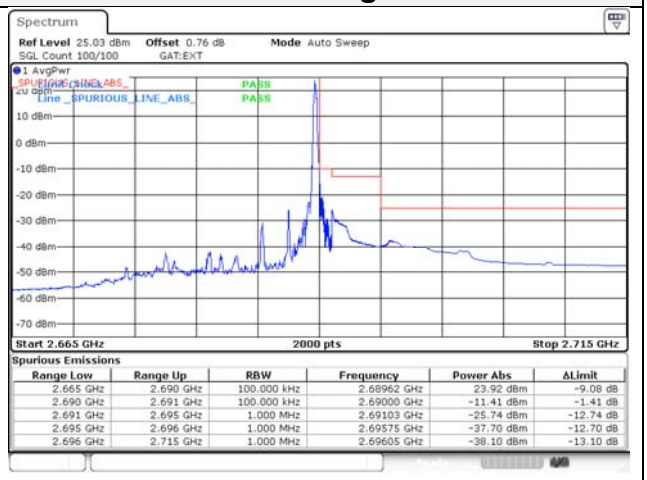
5M BW QPSK Low ch. 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.472 GHz	2.490 GHz	1.000 MHz	2.49008 GHz	-39.24 dBm	-14.24 dB
2.490 GHz	2.495 GHz	1.000 MHz	2.49499 GHz	-26.78 dBm	-13.78 dB
2.495 GHz	2.496 GHz	100.000 kHz	2.49600 GHz	-15.26 dBm	-2.26 dB
2.496 GHz	2.520 GHz	100.000 kHz	2.49639 GHz	22.80 dBm	-10.20 dB

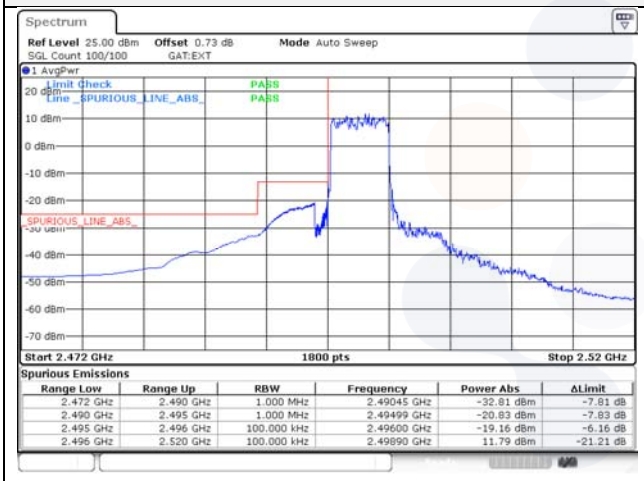
5M BW QPSK High ch. 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.665 GHz	2.690 GHz	100.000 kHz	2.68962 GHz	23.92 dBm	-9.08 dB
2.690 GHz	2.691 GHz	100.000 kHz	2.69000 GHz	-11.41 dBm	-1.41 dB
2.691 GHz	2.695 GHz	1.000 MHz	2.69103 GHz	-25.74 dBm	-12.74 dB
2.695 GHz	2.696 GHz	1.000 MHz	2.69575 GHz	-37.70 dBm	-12.70 dB
2.696 GHz	2.715 GHz	1.000 MHz	2.69605 GHz	-38.10 dBm	-13.10 dB

5M BW QPSK Low ch. FRB



Spurious Emissions

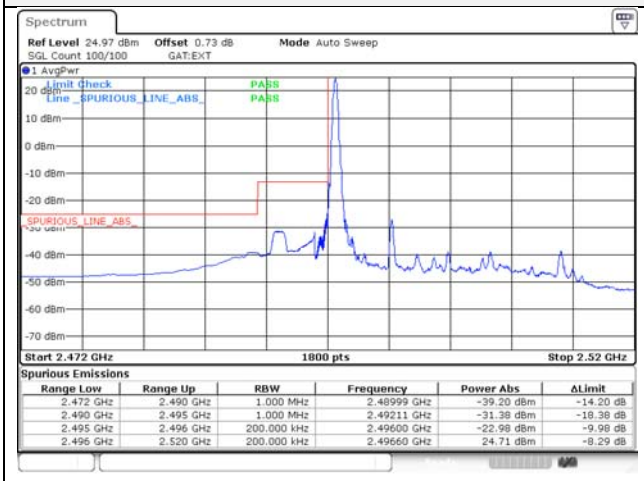
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.472 GHz	2.490 GHz	1.000 MHz	2.49045 GHz	-32.81 dBm	-7.81 dB
2.490 GHz	2.495 GHz	1.000 MHz	2.49499 GHz	-20.83 dBm	-7.83 dB
2.495 GHz	2.496 GHz	100.000 kHz	2.49600 GHz	-19.16 dBm	-6.16 dB
2.496 GHz	2.520 GHz	100.000 kHz	2.49890 GHz	11.79 dBm	-21.21 dB

5M BW QPSK High ch. FRB

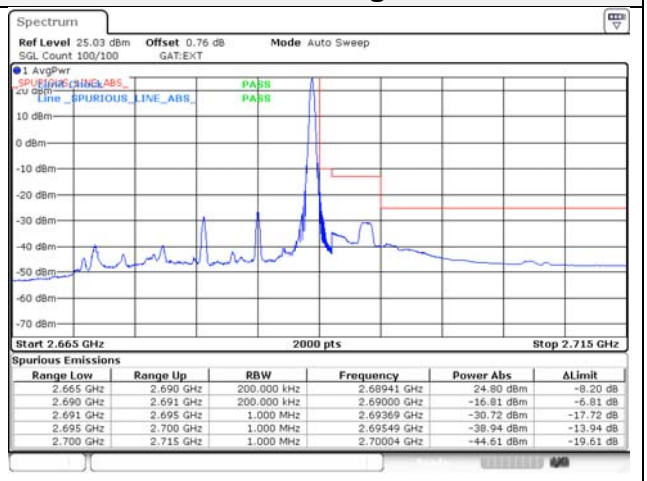
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.665 GHz	2.690 GHz	100.000 kHz	2.68913 GHz	11.33 dBm	-21.67 dB
2.690 GHz	2.691 GHz	100.000 kHz	2.69000 GHz	-16.32 dBm	-6.32 dB
2.691 GHz	2.695 GHz	1.000 MHz	2.69101 GHz	-17.76 dBm	-4.76 dB
2.695 GHz	2.696 GHz	1.000 MHz	2.69505 GHz	-28.44 dBm	-3.44 dB
2.696 GHz	2.715 GHz	1.000 MHz	2.69605 GHz	-32.51 dBm	-7.51 dB

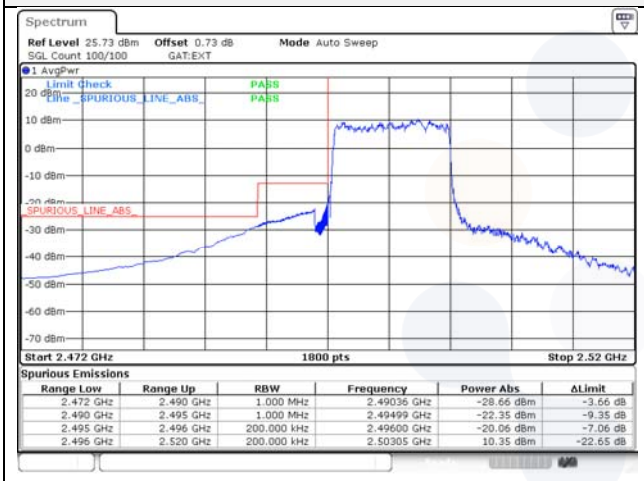
10M BW QPSK Low ch. 1RB



10M BW QPSK High ch. 1RB

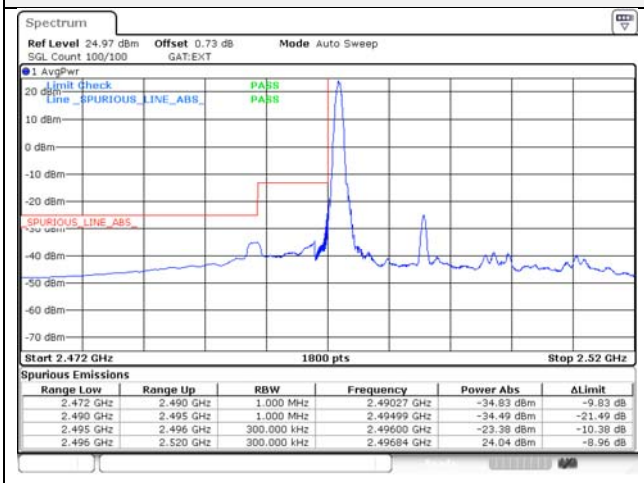


10M BW QPSK Low ch. FRB

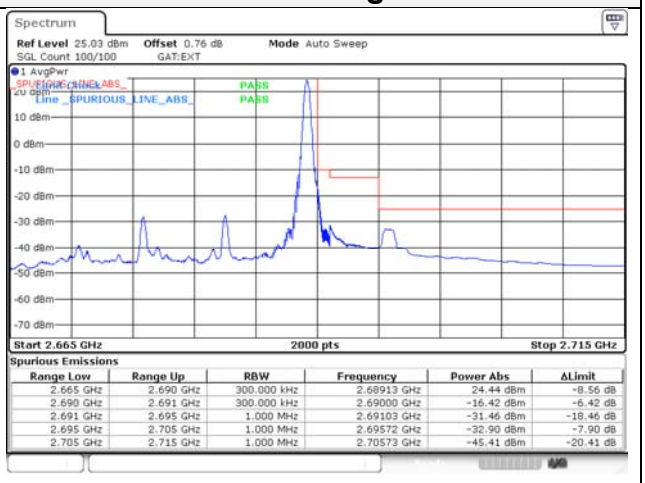


10M BW QPSK High ch. FRB

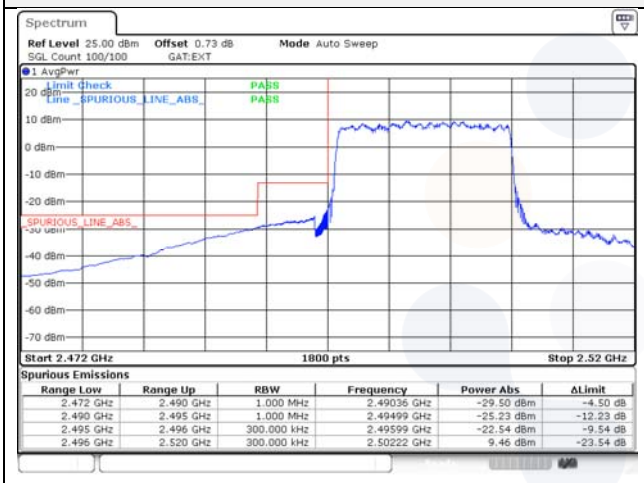
15M BW QPSK Low ch. 1RB



15M BW QPSK High ch. 1RB

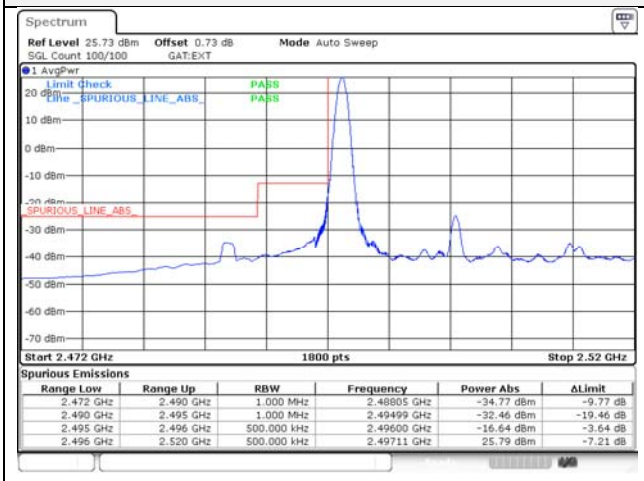


15M BW / QPSK / Low ch. / FRB



15M BW / QPSK / High ch. / FRB

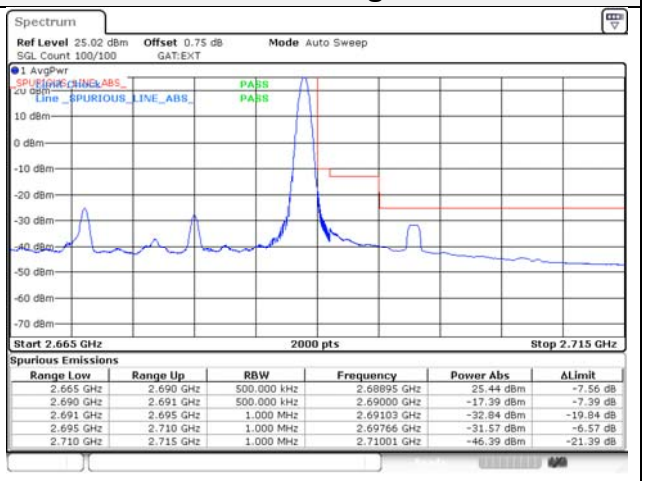
20M BW QPSK Low ch. 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.472 GHz	2.490 GHz	1.000 MHz	2.48805 GHz	-34.77 dBm	-9.77 dB
2.490 GHz	2.495 GHz	1.000 MHz	2.49499 GHz	-32.46 dBm	-19.46 dB
2.495 GHz	2.496 GHz	500.000 kHz	2.49600 GHz	-16.64 dBm	-3.64 dB
2.496 GHz	2.520 GHz	500.000 kHz	2.49711 GHz	25.79 dBm	-7.21 dB

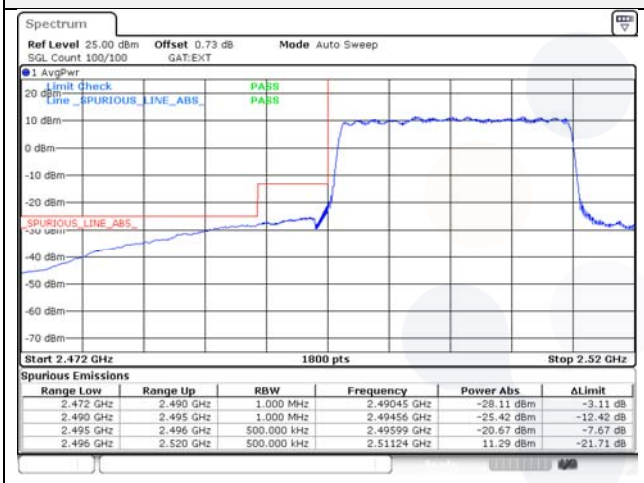
20M BW QPSK High ch. 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.665 GHz	2.690 GHz	500.000 kHz	2.68895 GHz	25.44 dBm	-7.56 dB
2.690 GHz	2.691 GHz	500.000 kHz	2.69000 GHz	-17.39 dBm	-7.39 dB
2.691 GHz	2.695 GHz	1.000 MHz	2.69103 GHz	-32.84 dBm	-19.84 dB
2.695 GHz	2.710 GHz	1.000 MHz	2.69766 GHz	-31.57 dBm	-6.57 dB
2.710 GHz	2.715 GHz	1.000 MHz	2.71001 GHz	-46.39 dBm	-21.39 dB

20M BW QPSK Low ch. FRB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.472 GHz	2.490 GHz	1.000 MHz	2.49045 GHz	-28.11 dBm	-3.11 dB
2.490 GHz	2.495 GHz	1.000 MHz	2.49456 GHz	-25.42 dBm	-12.42 dB
2.495 GHz	2.496 GHz	500.000 kHz	2.49599 GHz	-20.67 dBm	-7.67 dB
2.496 GHz	2.520 GHz	500.000 kHz	2.51124 GHz	11.29 dBm	-21.71 dB

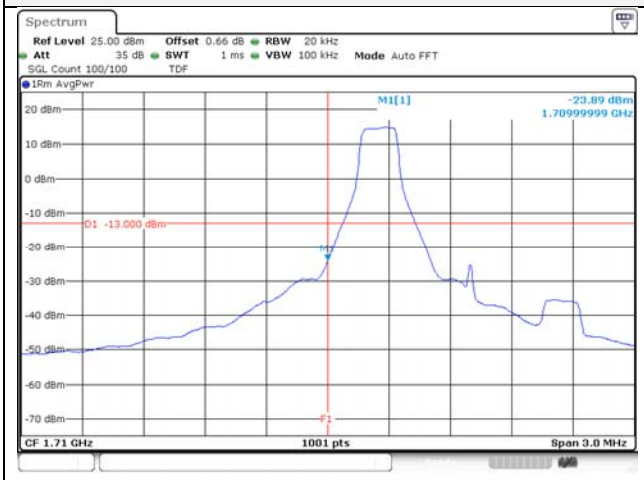
20M BW QPSK High ch. FRB

Spurious Emissions

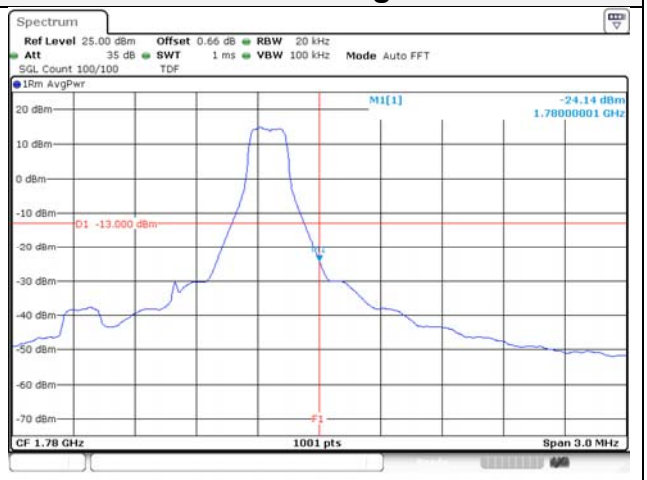
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.665 GHz	2.690 GHz	500.000 kHz	2.68159 GHz	11.25 dBm	-21.75 dB
2.690 GHz	2.691 GHz	500.000 kHz	2.69000 GHz	-24.03 dBm	-14.03 dB
2.691 GHz	2.695 GHz	1.000 MHz	2.69101 GHz	-25.49 dBm	-12.49 dB
2.695 GHz	2.710 GHz	1.000 MHz	2.69639 GHz	-27.66 dBm	-2.66 dB
2.710 GHz	2.715 GHz	1.000 MHz	2.71046 GHz	-36.99 dBm	-11.99 dB

Test mode: LTE Band 66/4

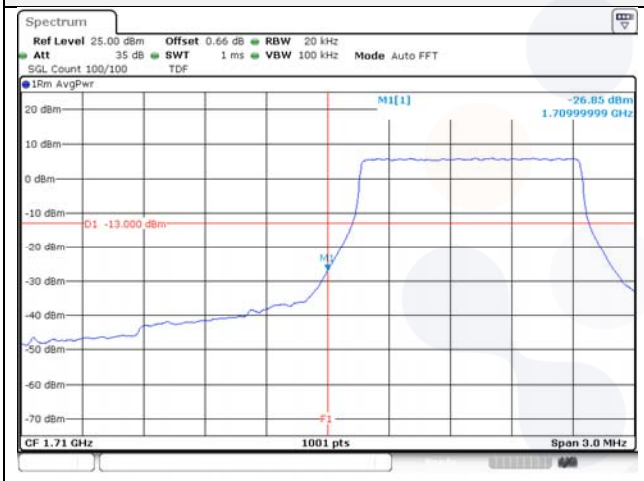
1.4M BW QPSK Low ch. 1RB



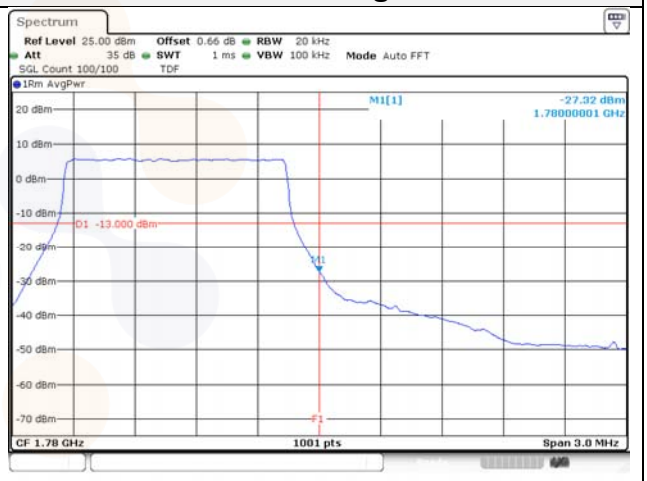
1.4M BW QPSK High ch. 1RB

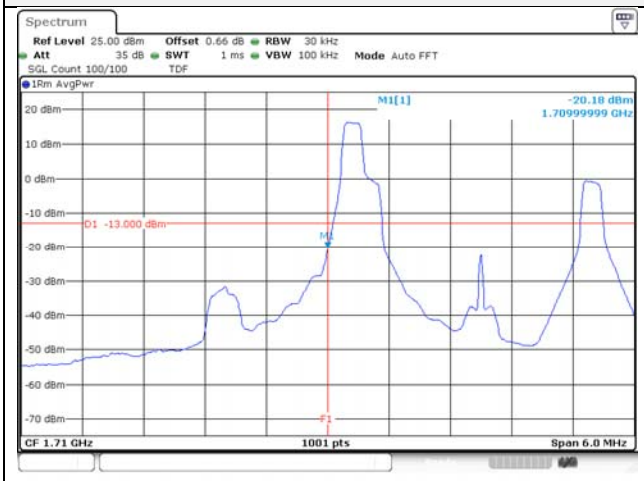
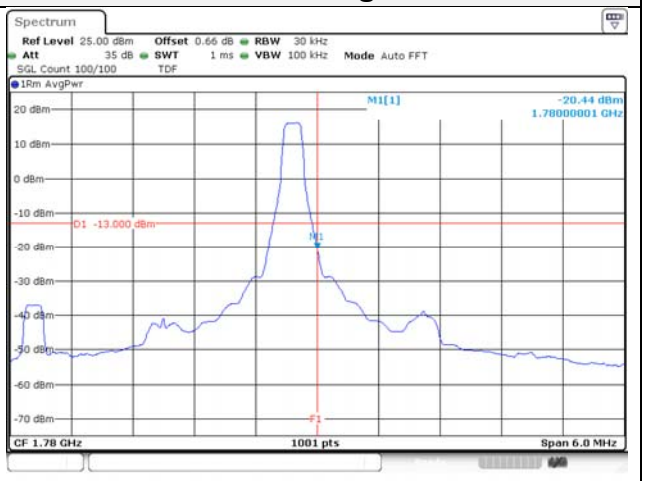
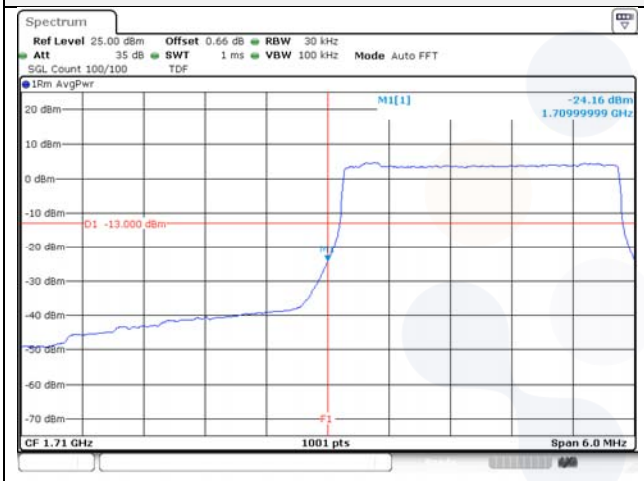
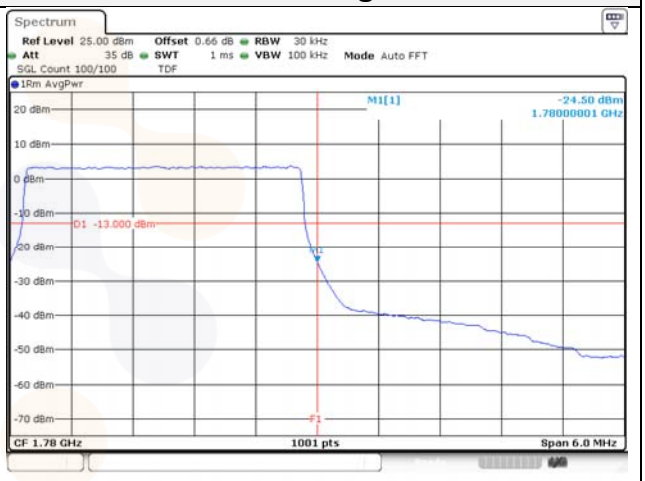


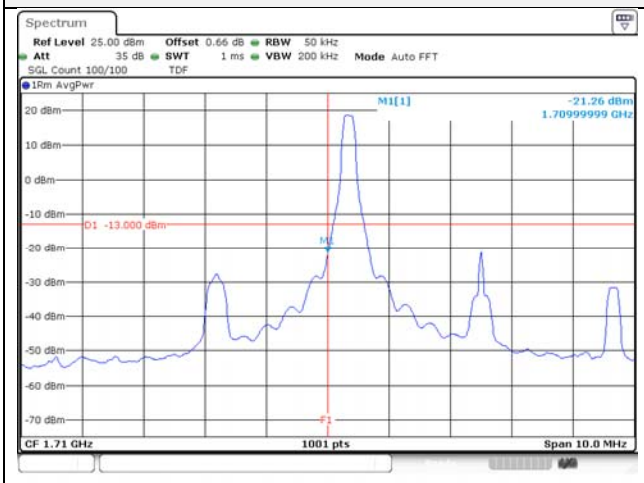
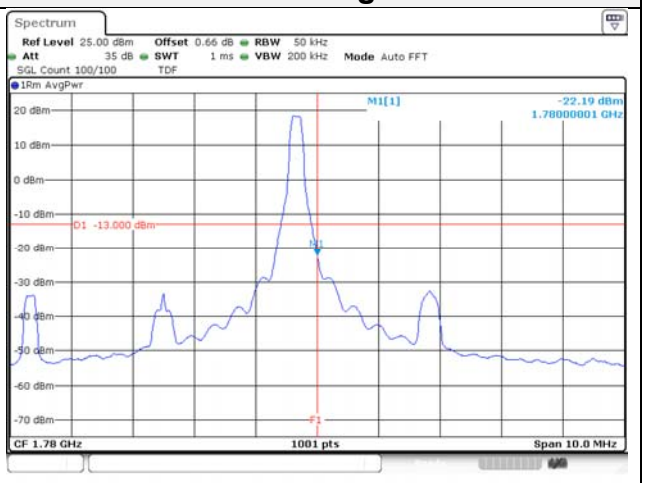
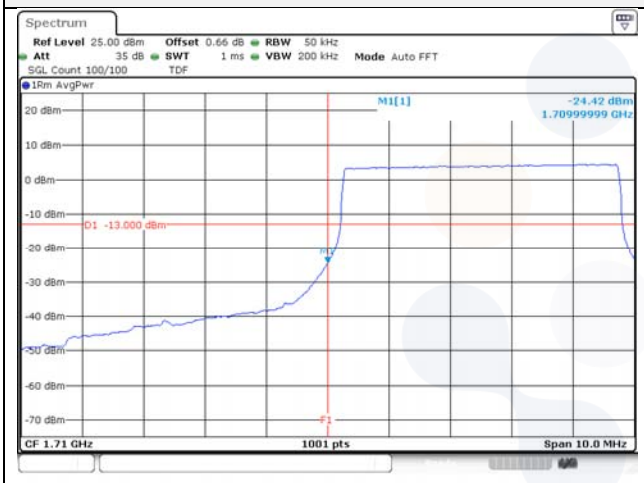
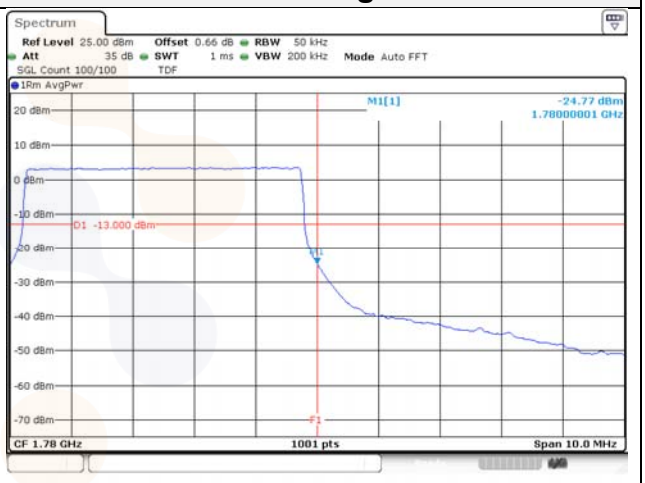
1.4M BW QPSK Low ch. FRB

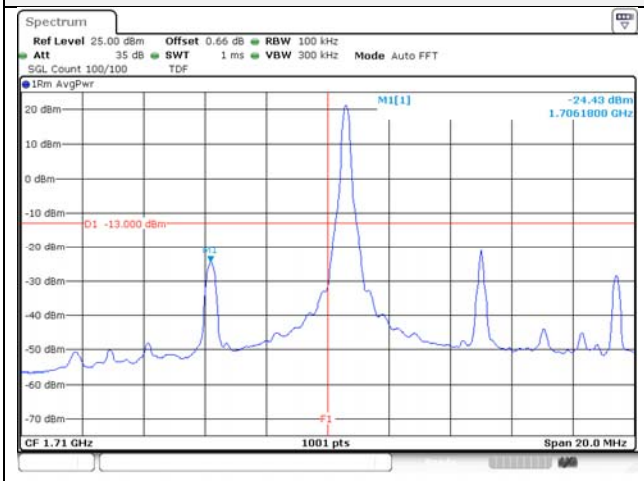
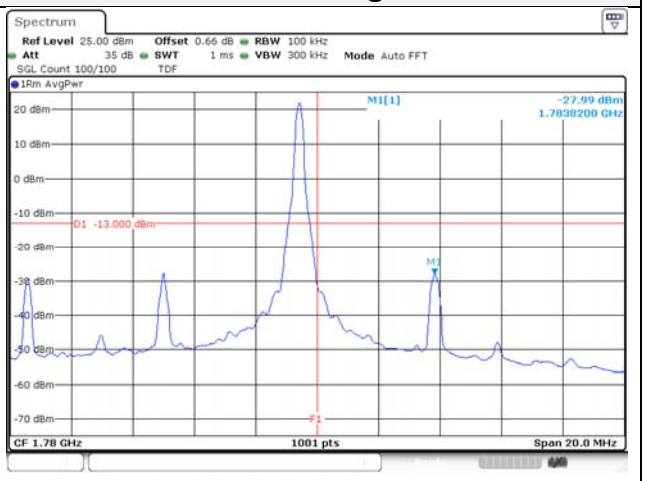
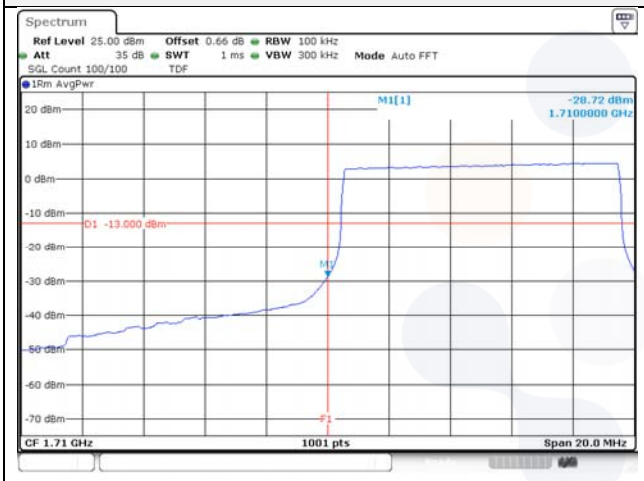
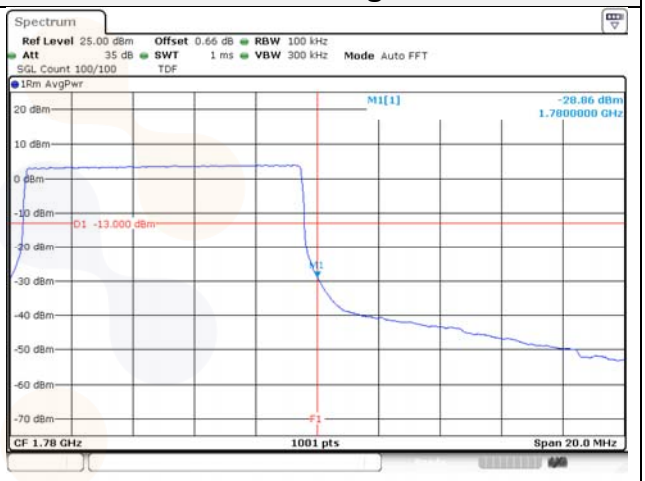


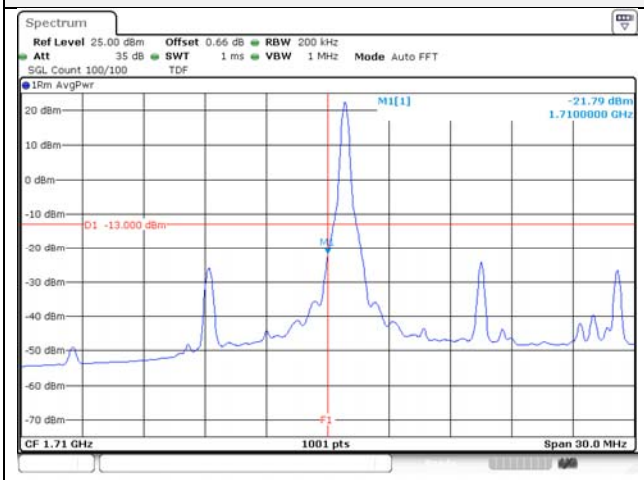
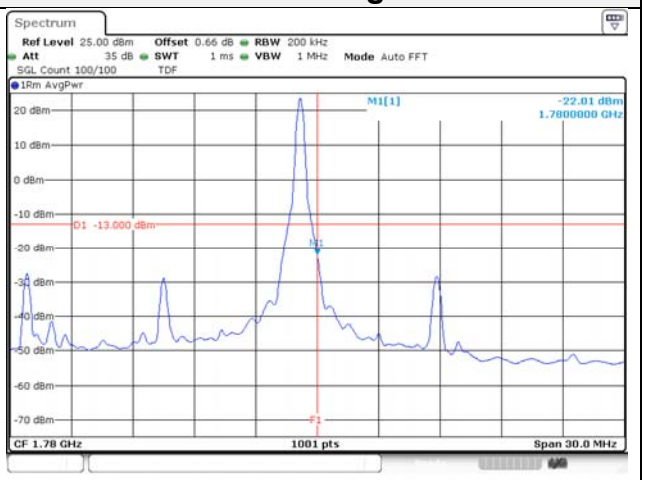
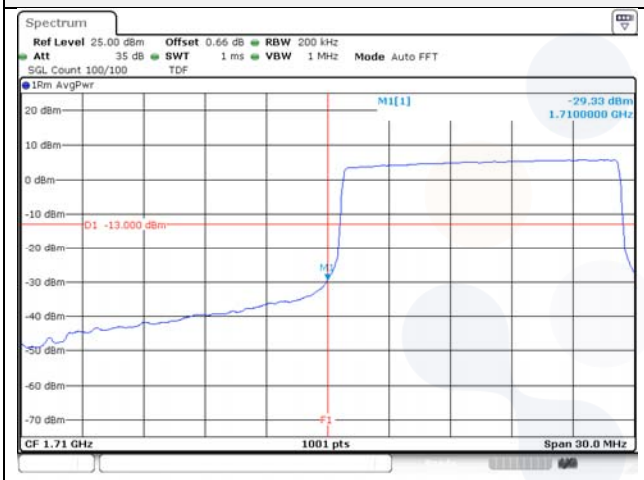
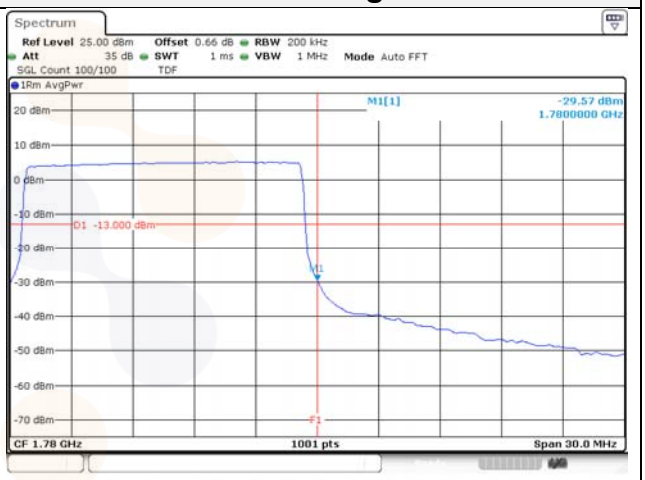
1.4M BW QPSK High ch. FRB

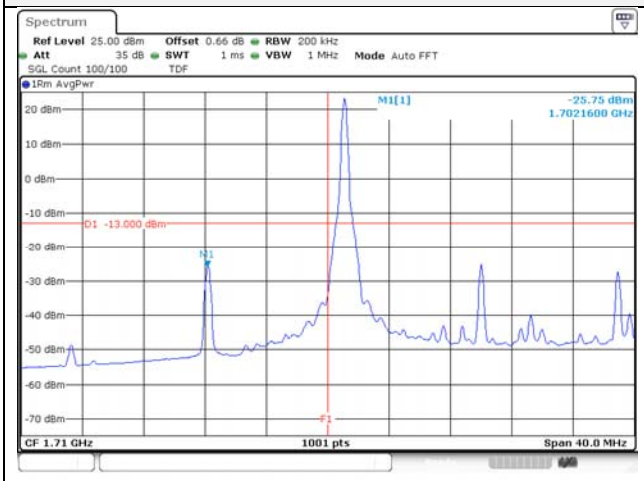
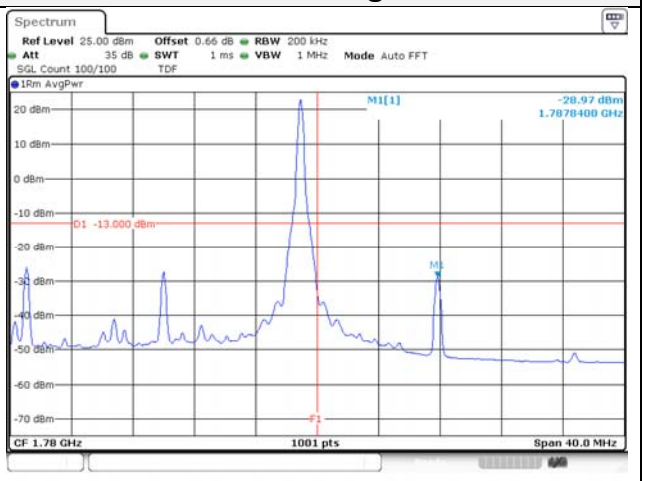
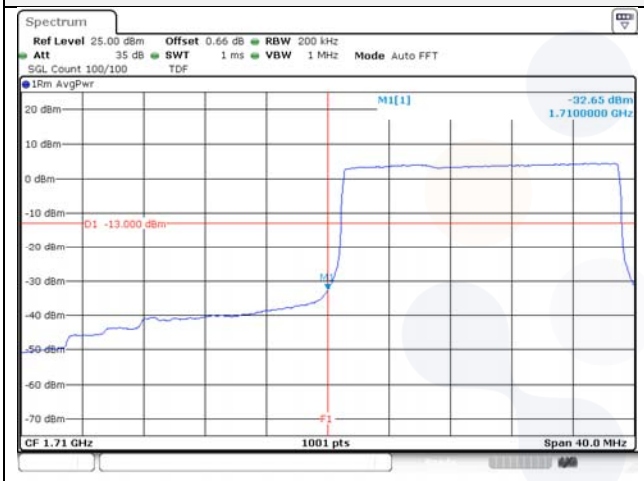
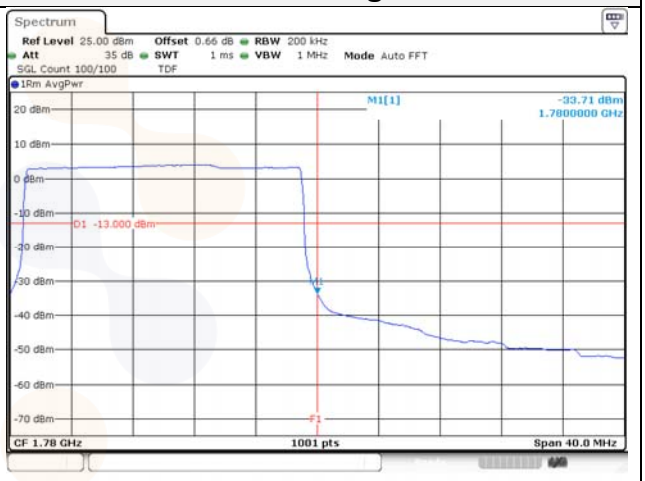


3M BW QPSK Low ch. 1RB	3M BW QPSK High ch. 1RB
	
3M BW QPSK Low ch. FRB	**3M BW QPSK High ch. FRB**
	

5M BW QPSK Low ch. 1RB	5M BW QPSK High ch. 1RB
	
5M BW QPSK Low ch. FRB	**5M BW QPSK High ch. FRB**
	

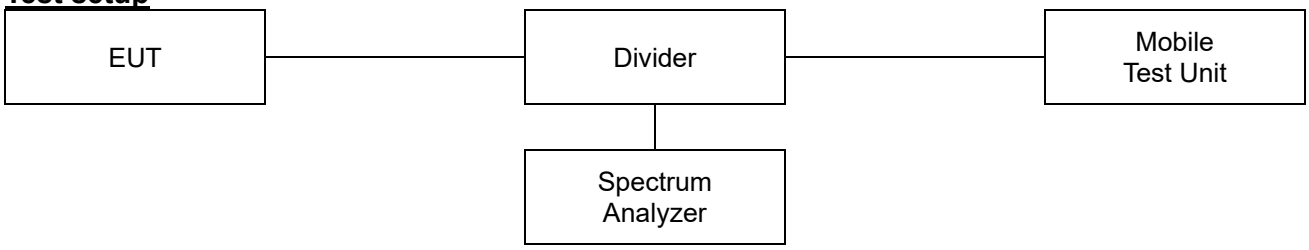
10M BW QPSK Low ch. 1RB	10M BW QPSK High ch. 1RB
	
10M BW QPSK Low ch. FRB	**10M BW QPSK High ch. FRB**
	

15M BW QPSK Low ch. 1RB	15M BW QPSK High ch. 1RB
	
15M BW QPSK Low ch. FRB	**15M BW QPSK High ch. FRB**
	

20M BW QPSK Low ch. 1RB	20M BW QPSK High ch. 1RB
	
20M BW QPSK Low ch. FRB	**20M BW QPSK High ch. FRB**
	

7.4. Spurious Emissions at Antenna Terminal

Test setup



Limit

According to §22.917(a), §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log($P_{[Watts]}$) ㏈.

According to §27.53(c)(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 ($P_{[Watts]}$) ㏈.

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($P_{[Watts]}$) ㏈.

According to §27.53(m)(4), the minimum permissible attenuation level of any spurious emission is 55 + 10log($P_{[Watts]}$) ㏈.

Test procedure

971168 D01 v03r01 - Section 6
ANSI 63.26-2015 – Section 5.7

Test settings

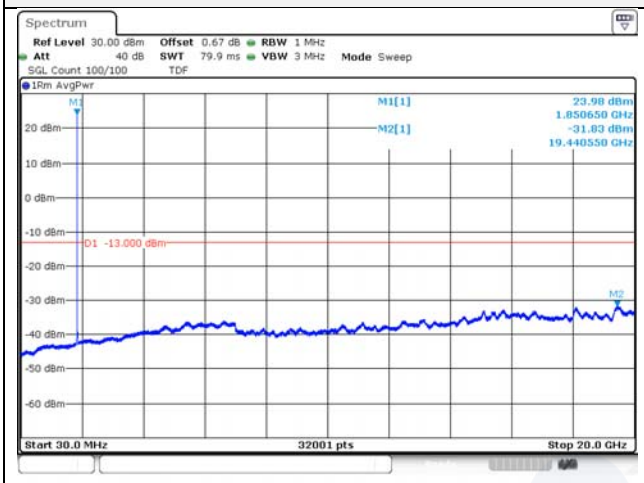
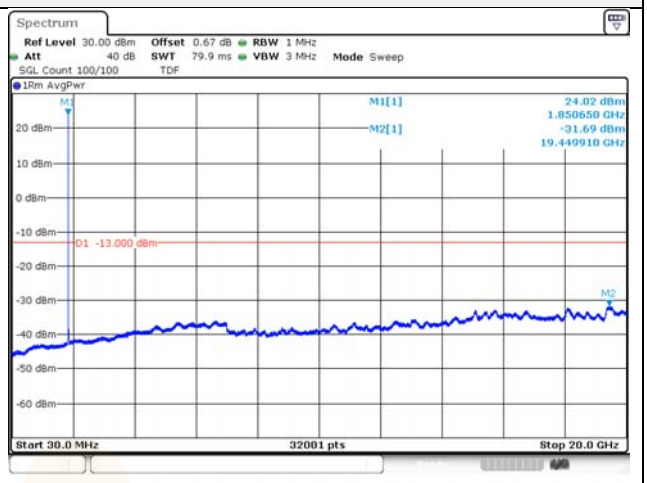
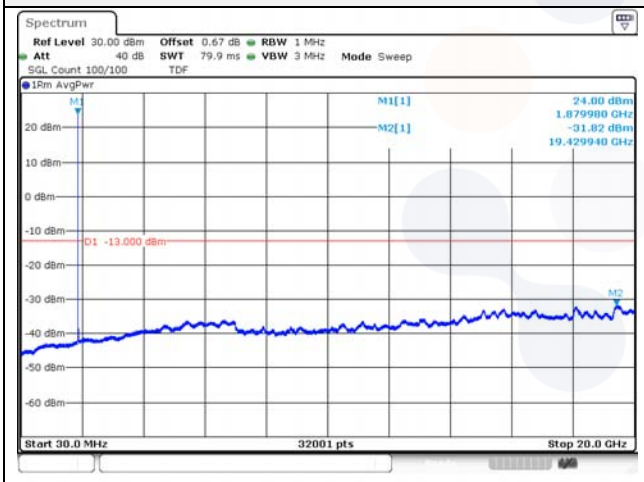
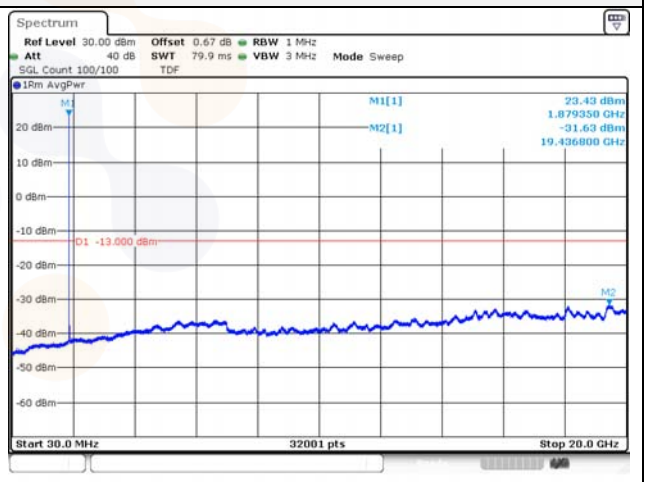
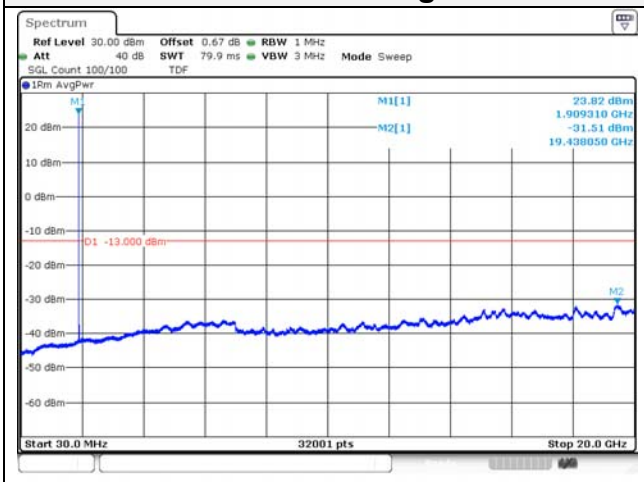
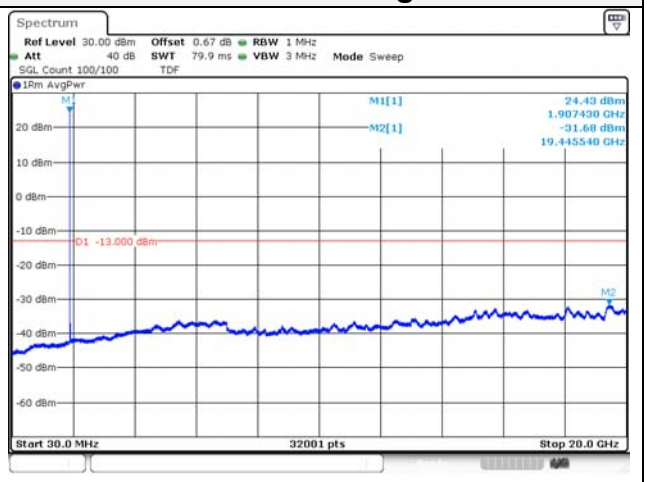
1) Start frequency was set to 30 ㎒ and stop frequency was set to at least 10th the fundamental frequency.
2) Detector = RMS
3) Sweep time = auto couple.
4) Trace mode = trace average
5) Allow trace to fully stabilize.
6) Please see test notes below RBW and VBW settings.

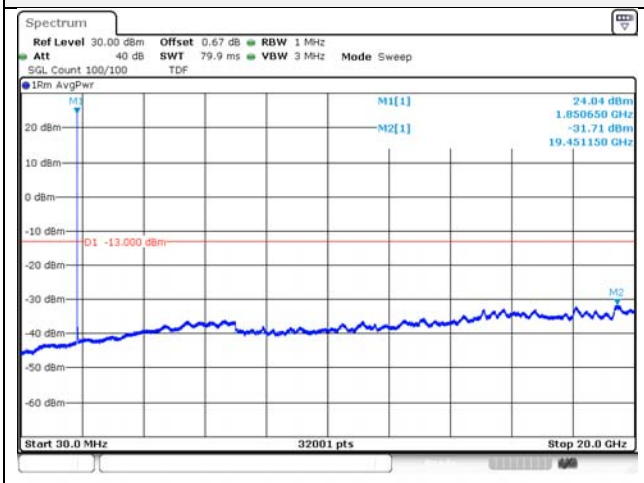
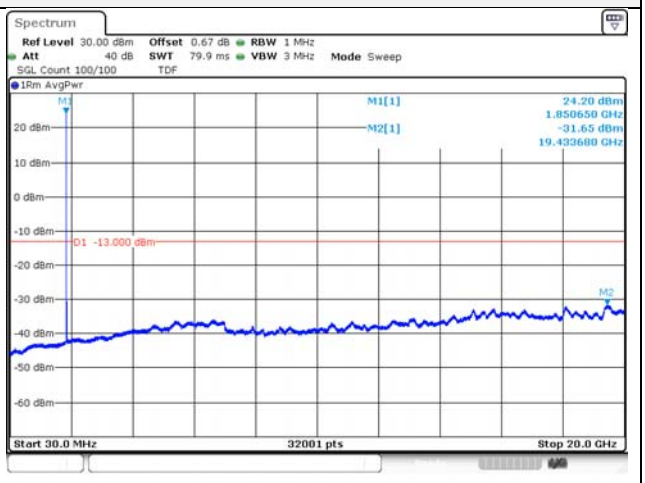
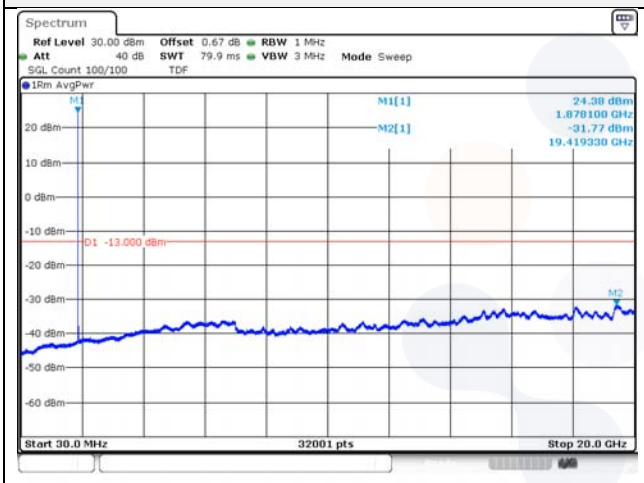
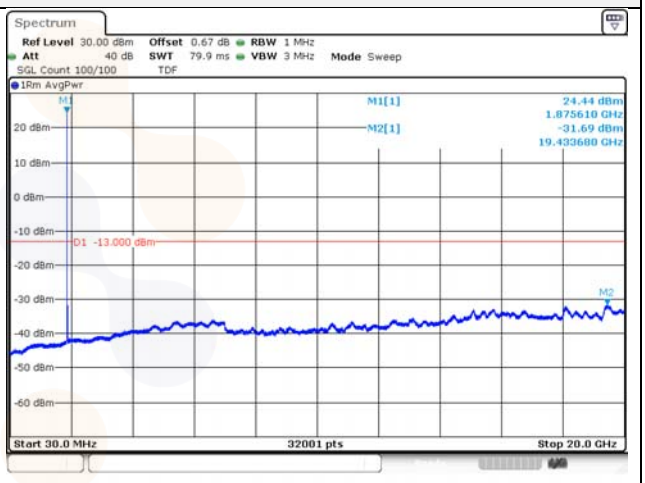
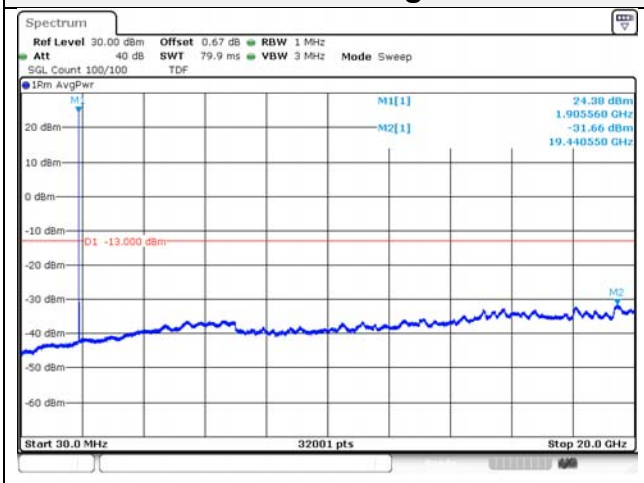
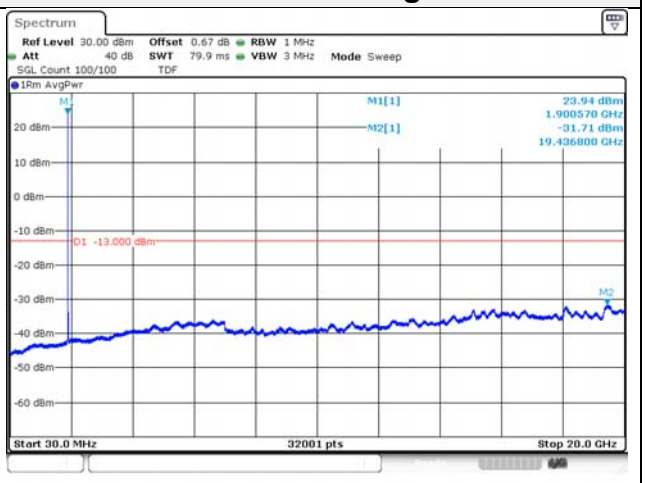
Notes:

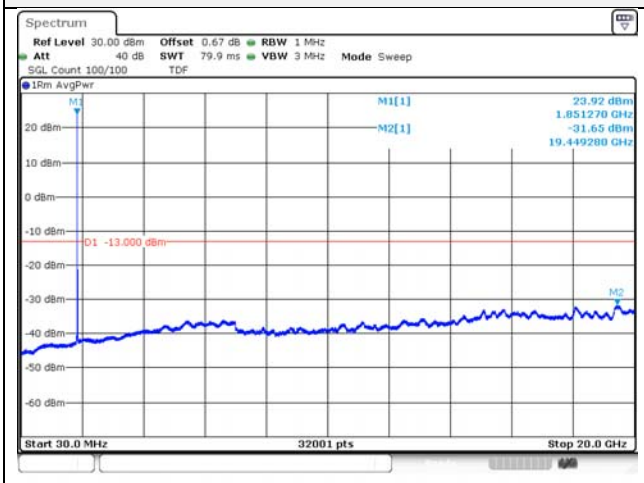
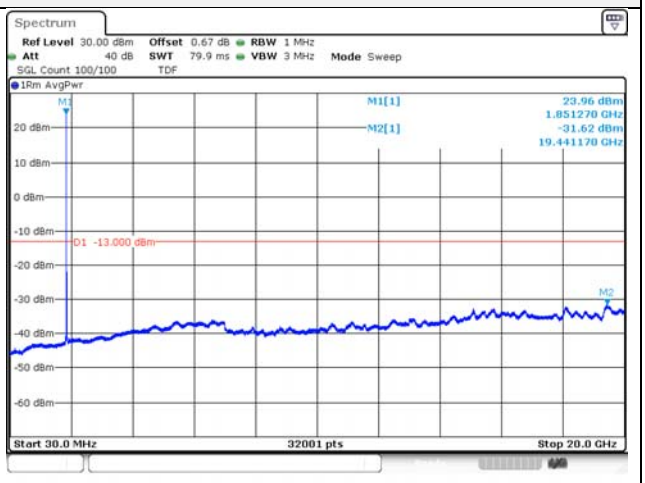
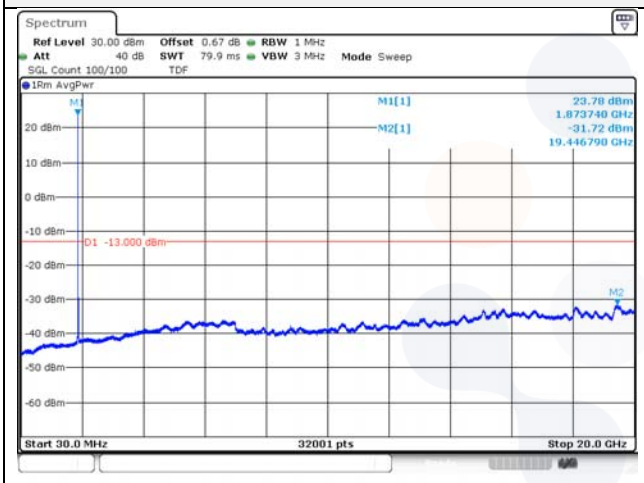
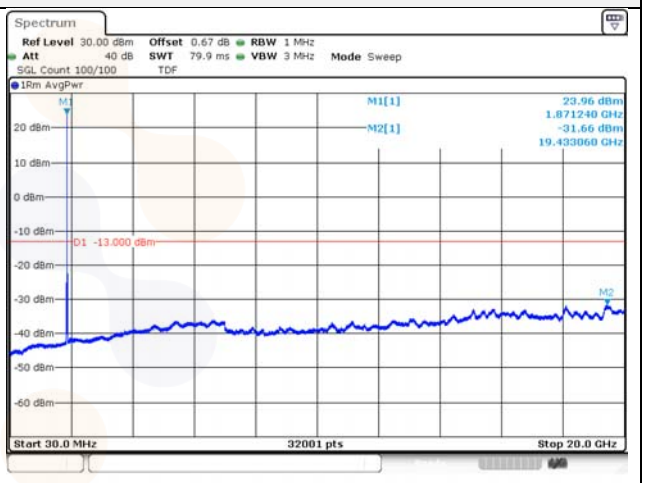
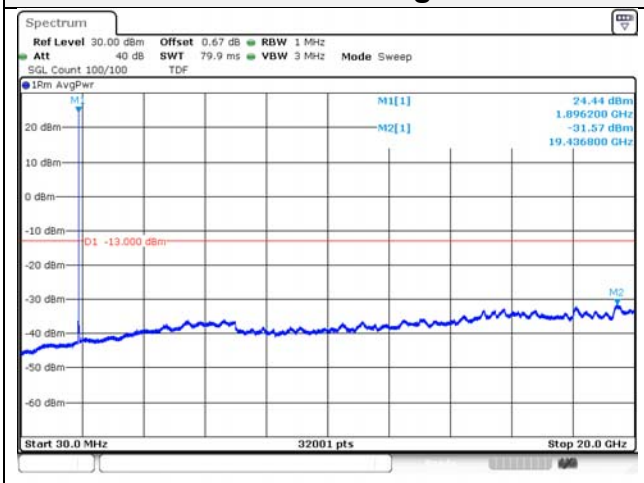
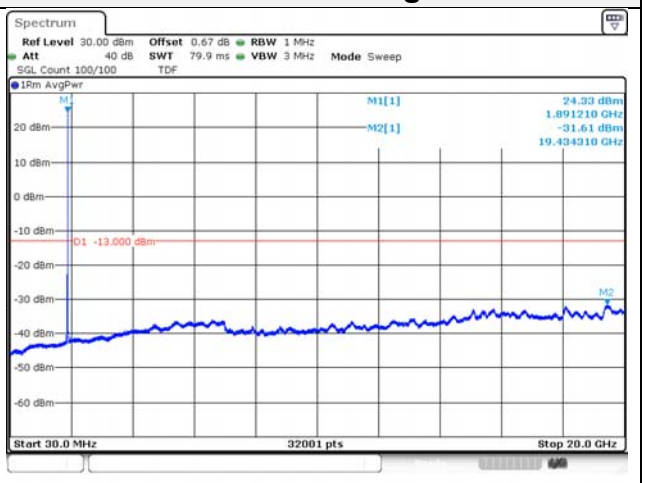
1. Per 22.917(b), 24.238(b), 27.53(c), 27.53(g), 27.53(h)(3), 27.53(m)(6), compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 ㎑ or greater for frequencies less than 1 ㎓ and 1 ㎒ or greater for frequencies greater than 1 ㎓.
   The 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.

Test results

Test mode: LTE Band 2

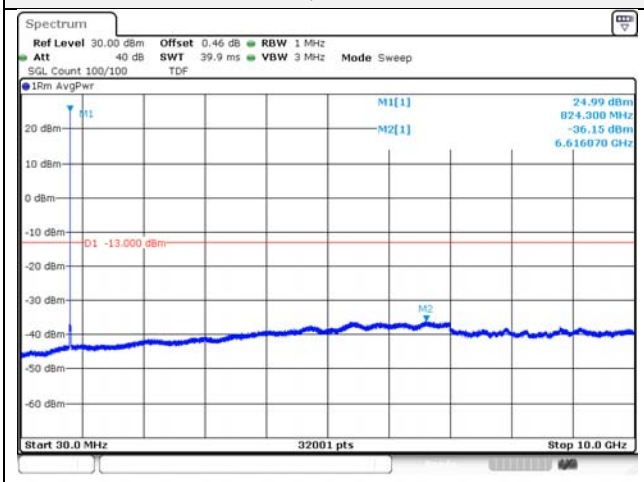
1.4M BW QPSK Low ch.	3M BW QPSK Low ch.
	
1.4M BW QPSK Mid ch.	**3M BW QPSK Mid ch.**
	
1.4M BW QPSK High ch.	**3M BW QPSK High ch.**
	

5M BW QPSK Low ch.	10M BW QPSK Low ch.
	
5M BW QPSK Mid ch.	**10M BW QPSK Mid ch.**
	
5M BW QPSK High ch.	**10M BW QPSK High ch.**
	

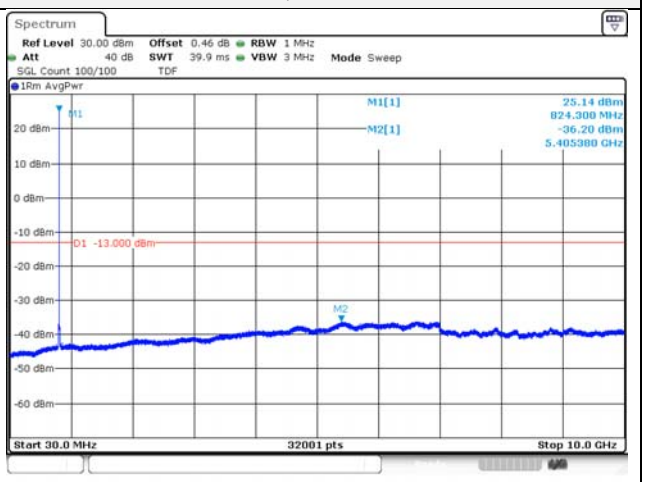
15M BW QPSK Low ch.	20M BW QPSK Low ch.
	
15M BW QPSK Mid ch.	**20M BW QPSK Mid ch.**
	
15M BW QPSK High ch.	**20M BW QPSK High ch.**
	

Test mode: LTE Band 5

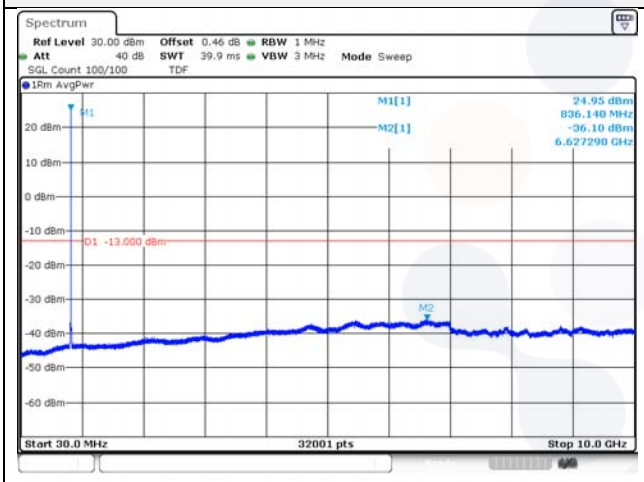
1.4M BW QPSK Low ch.



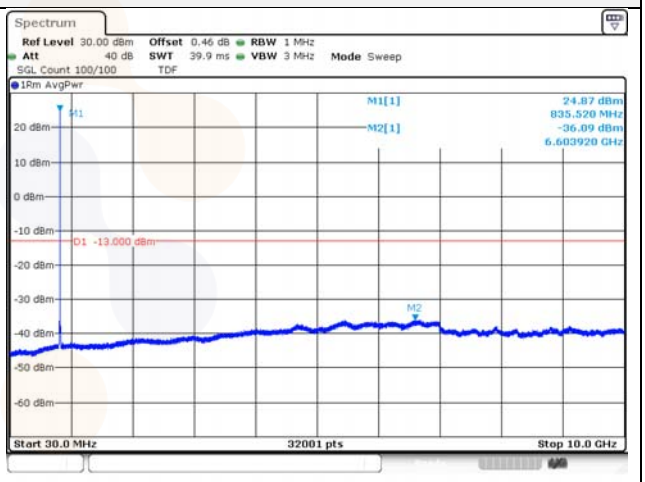
3M BW QPSK Low ch.



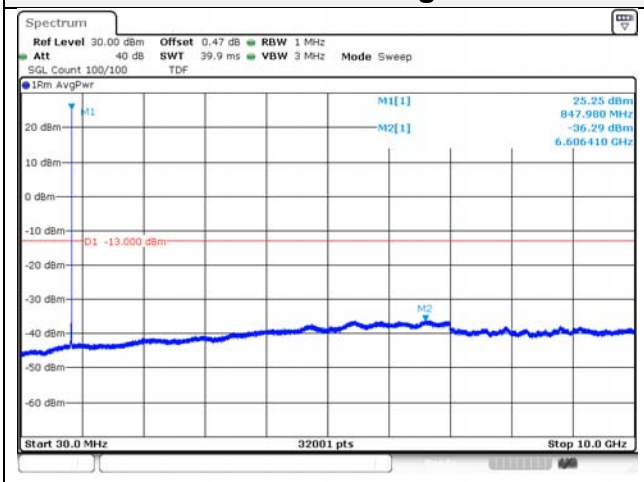
1.4M BW QPSK Mid ch.



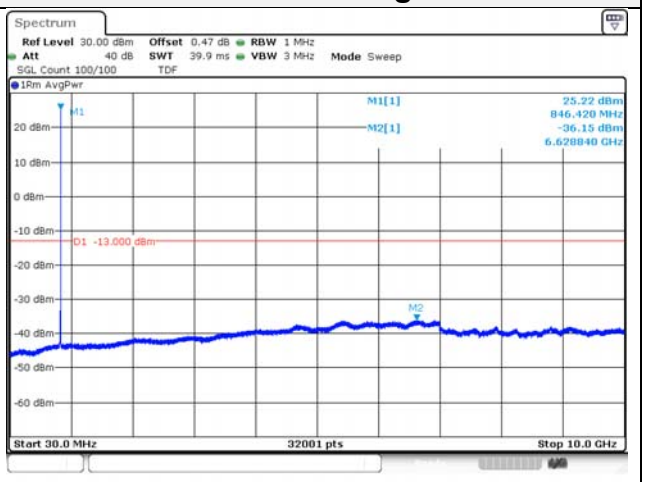
3M BW QPSK Mid ch.

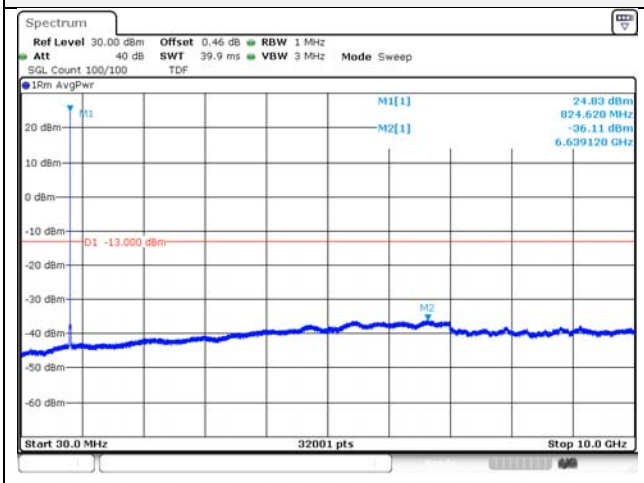
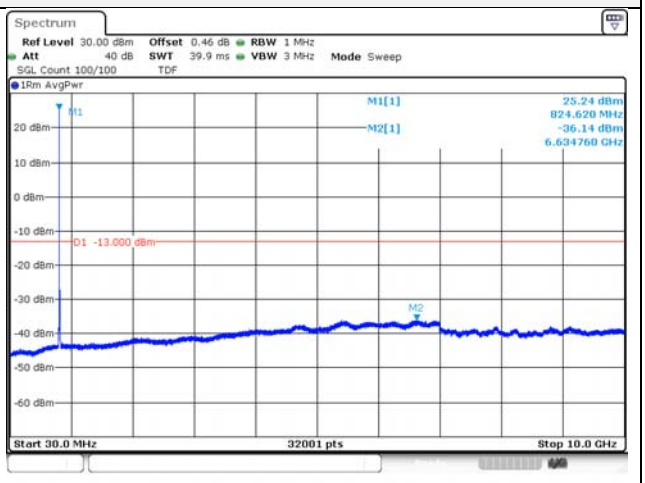
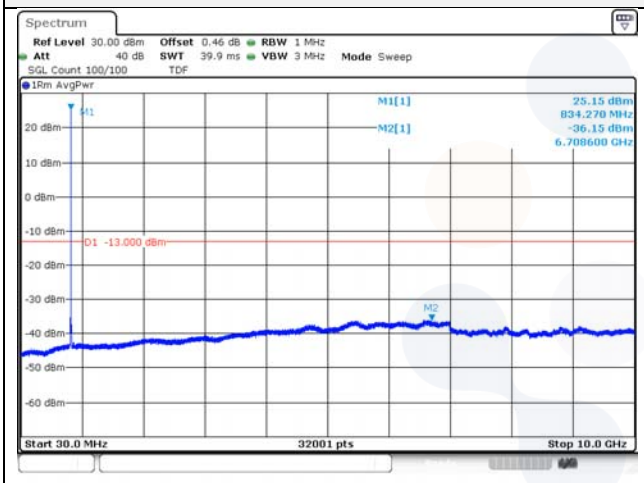
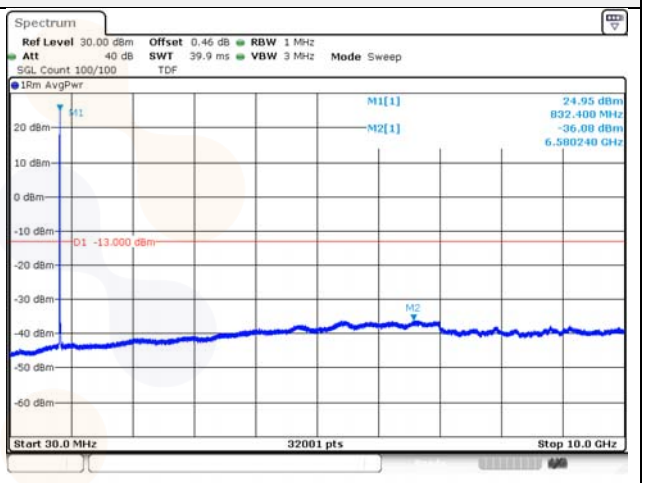
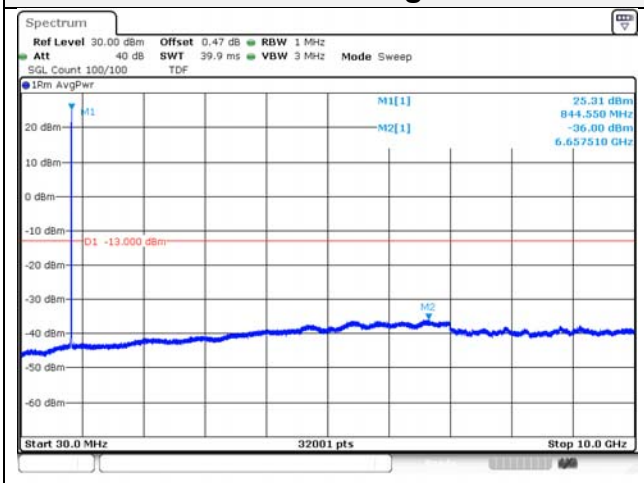
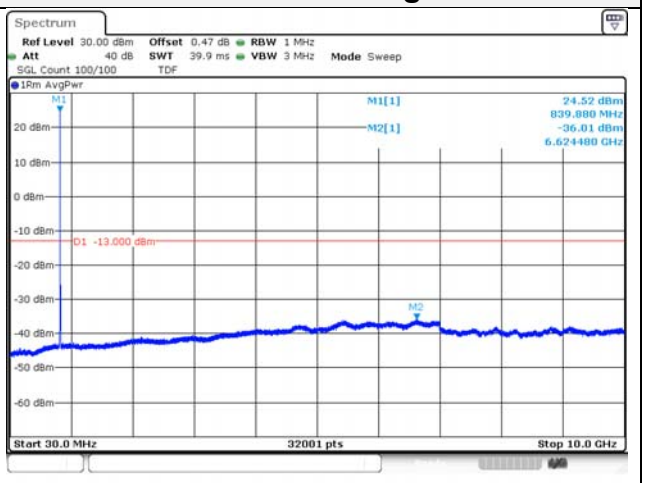


1.4M BW QPSK High ch.



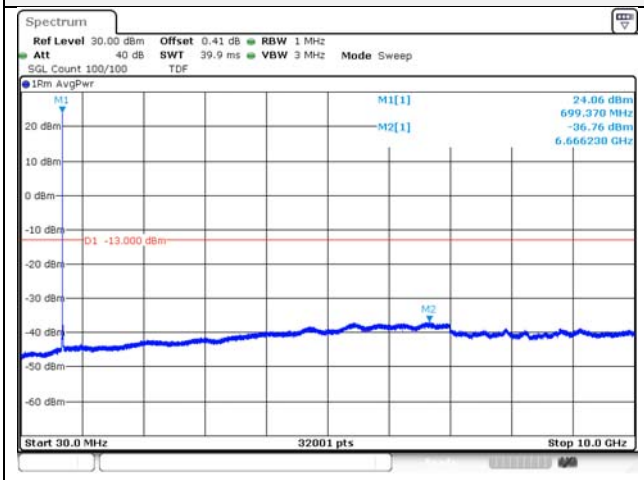
3M BW QPSK High ch.



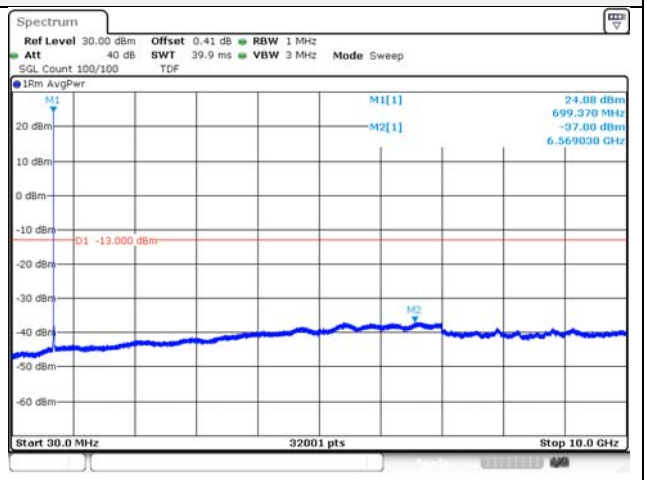
5M BW QPSK Low ch.	10M BW QPSK Low ch.
	
5M BW QPSK Mid ch.	**10M BW QPSK Mid ch.**
	
5M BW QPSK High ch.	**10M BW QPSK High ch.**
	

Test mode: LTE Band 12

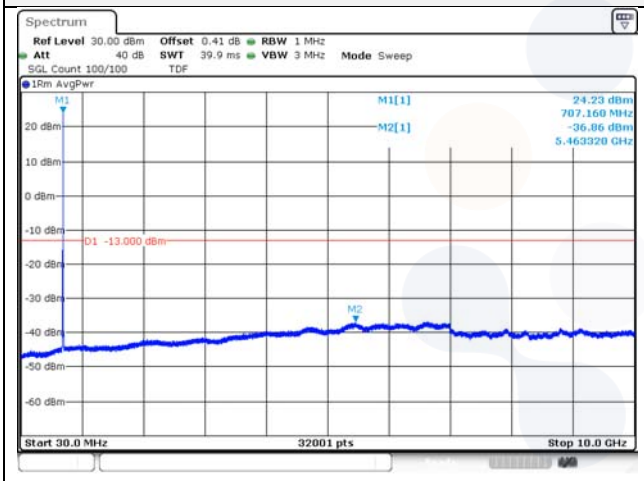
1.4M BW QPSK Low ch.



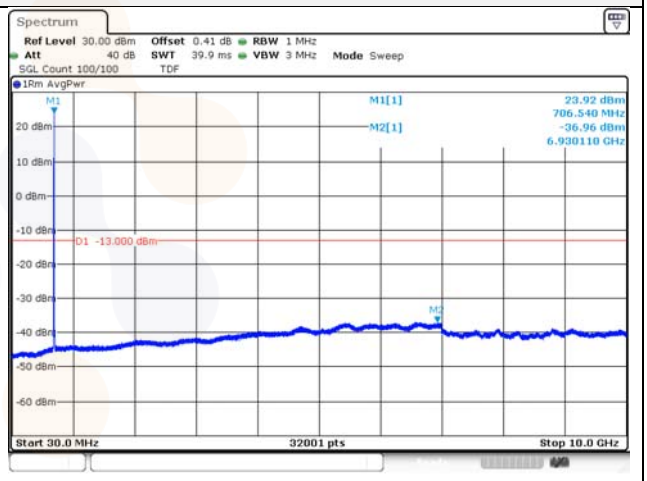
3M BW QPSK Low ch.



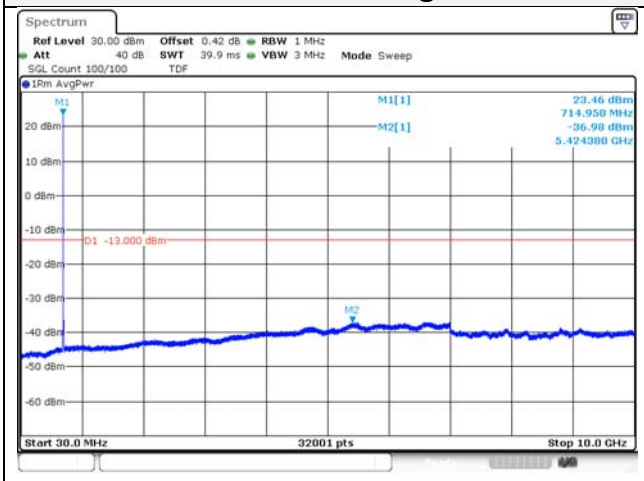
1.4M BW QPSK Mid ch.



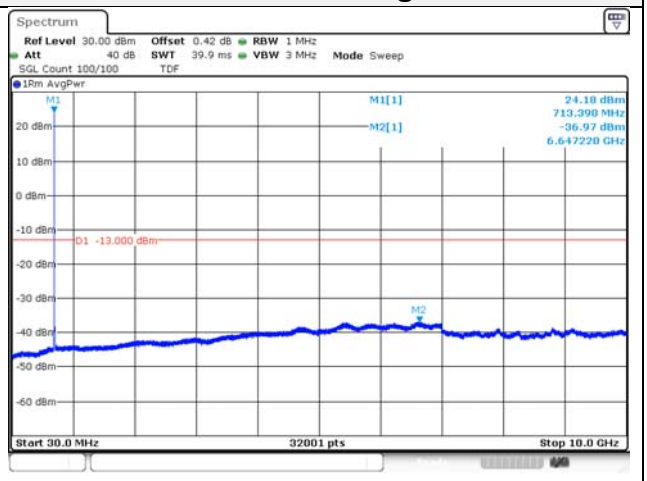
3M BW QPSK Mid ch.



1.4M BW QPSK High ch.

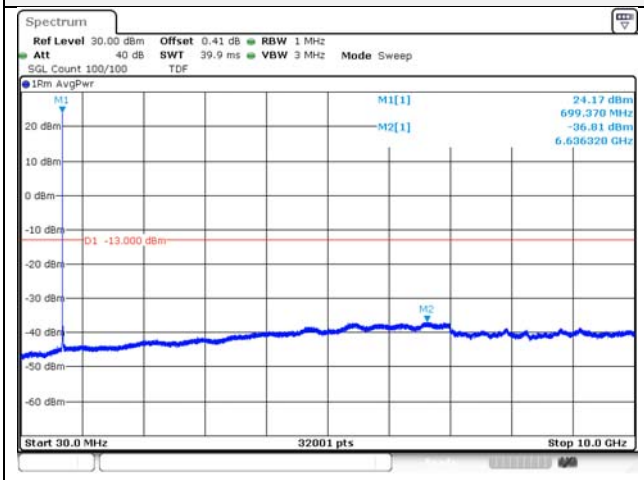


3M BW QPSK High ch.

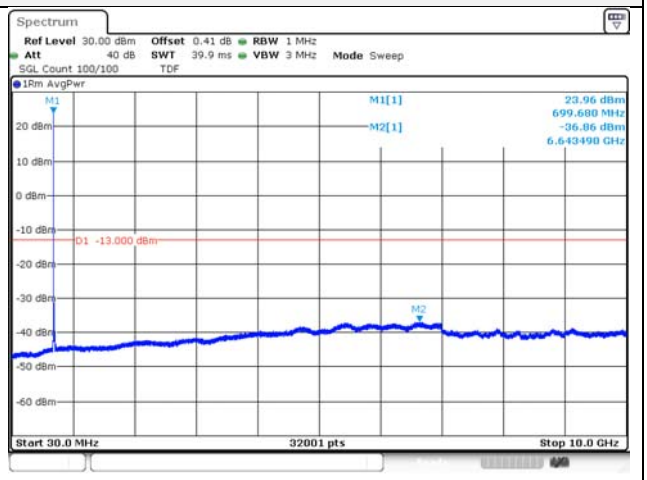


Test mode: LTE Band 12/17

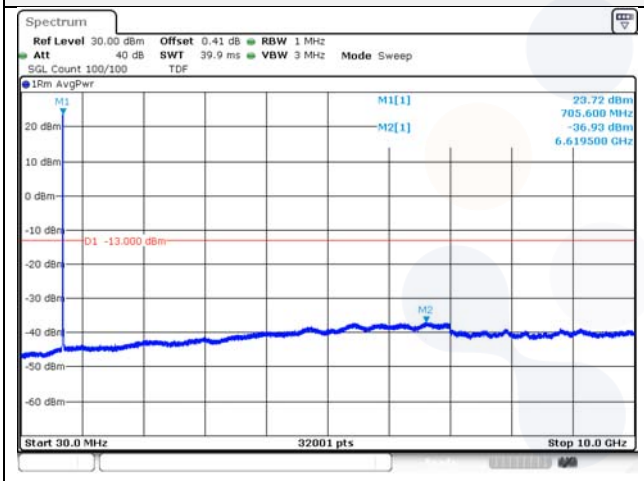
5M BW QPSK Low ch.



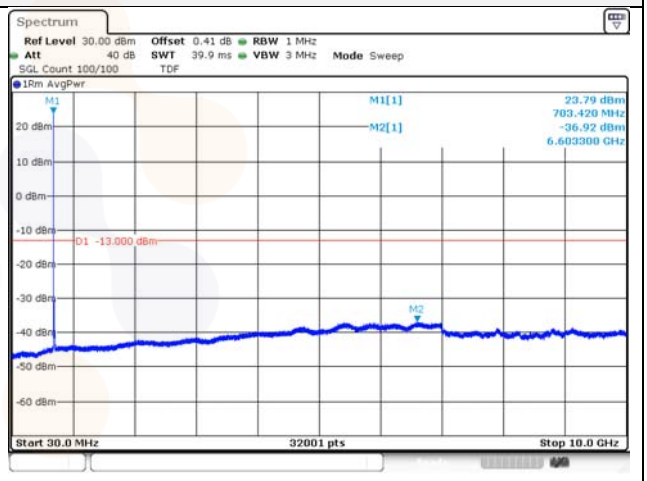
10M BW QPSK Low ch.



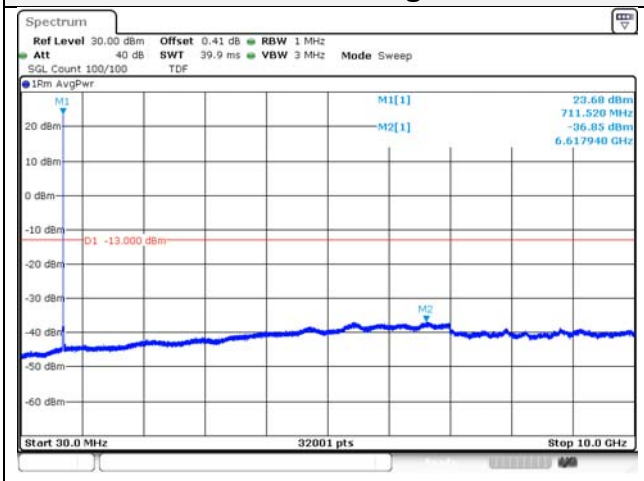
5M BW QPSK Mid ch.



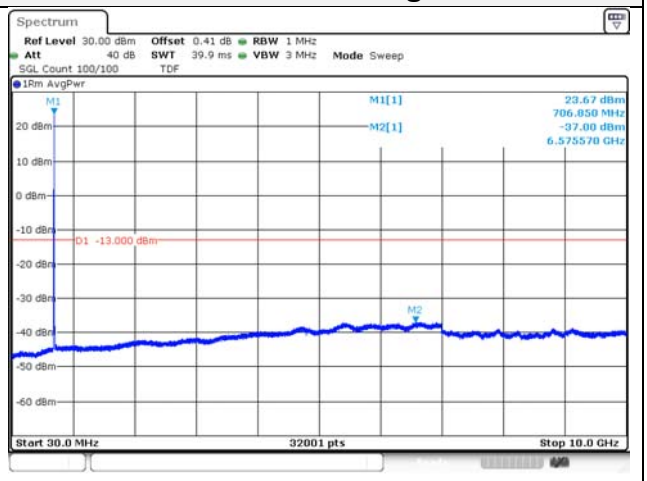
10M BW QPSK Mid ch.



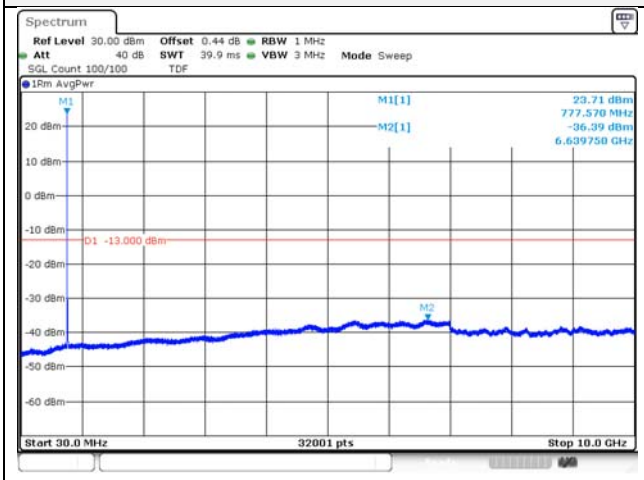
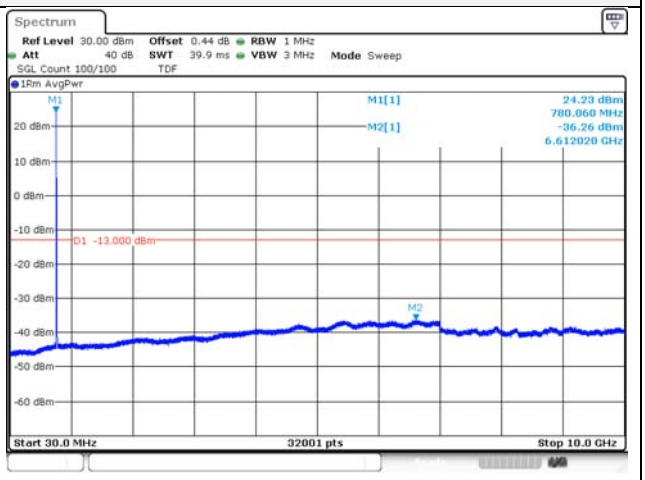
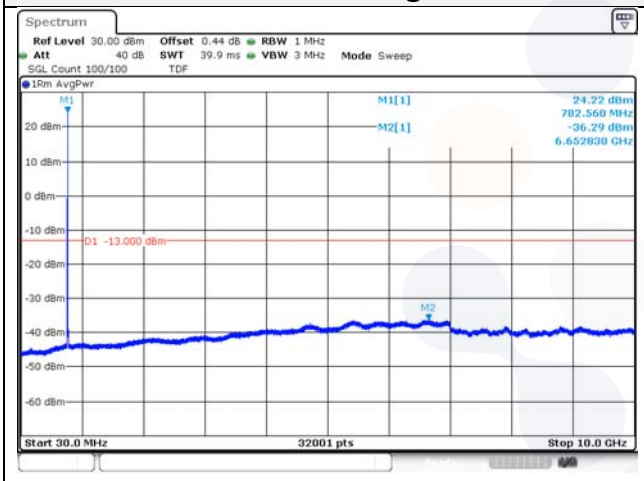
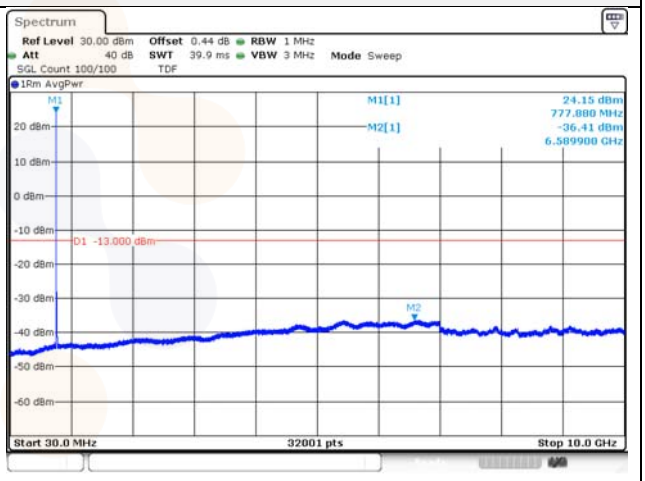
5M BW QPSK High ch.



10M BW QPSK High ch.

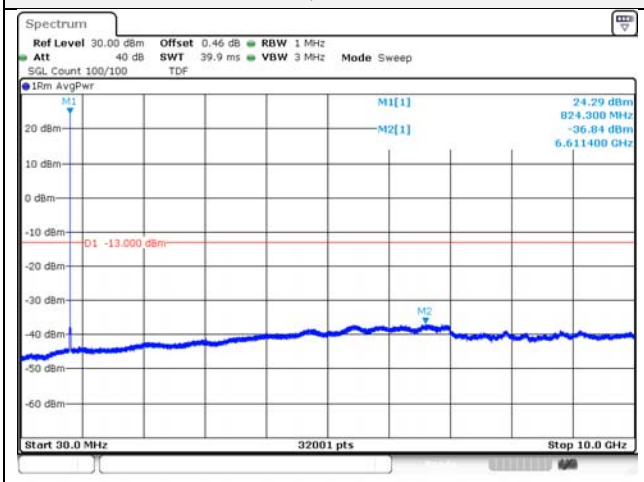


Test mode: LTE Band 13

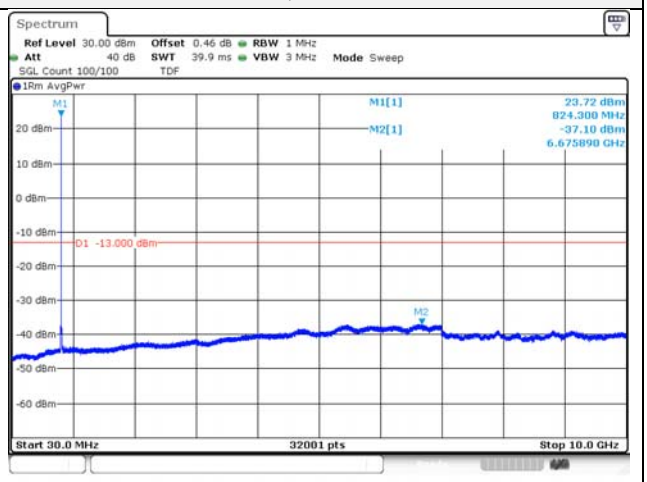
5M BW QPSK Low ch.	5M BW QPSK Mid ch.
	
5M BW QPSK High ch.	**10M BW QPSK Mid ch.**
	

Test mode: LTE Band 26

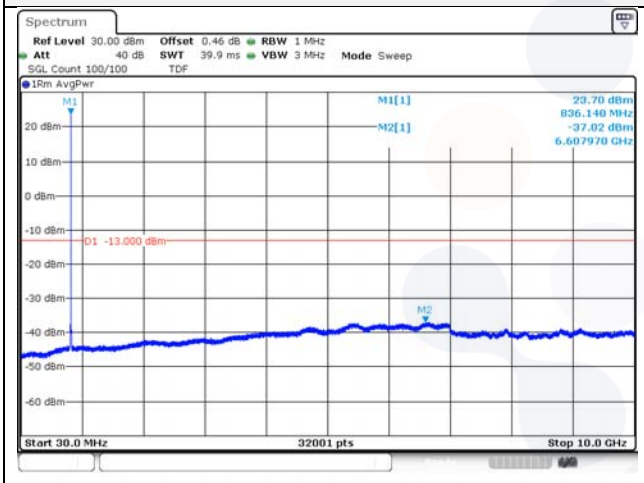
1.4M BW QPSK Low ch.



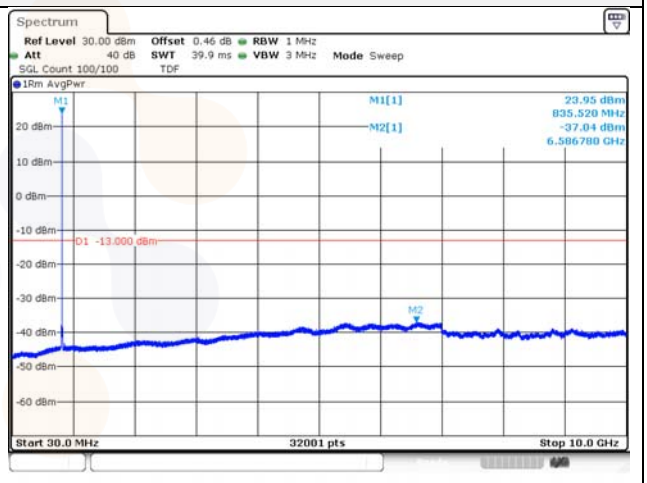
3M BW QPSK Low ch.



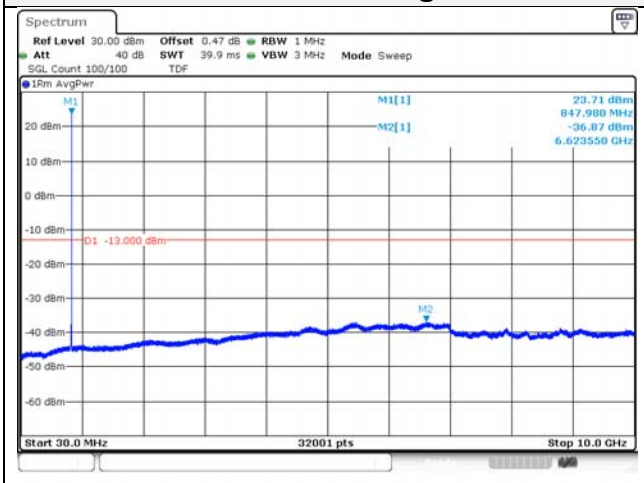
1.4M BW QPSK Mid ch.



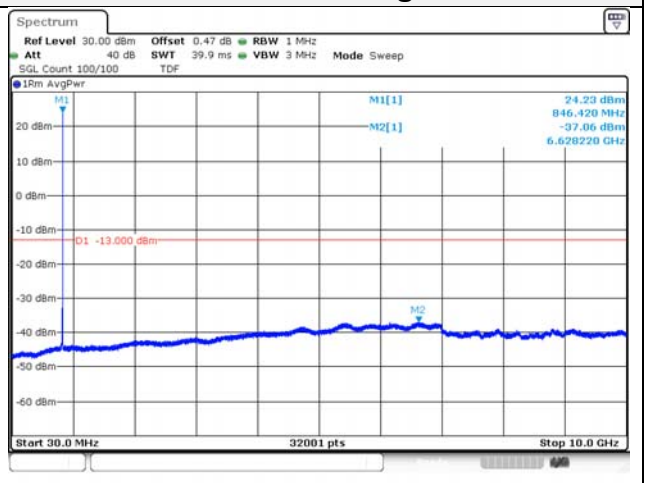
3M BW QPSK Mid ch.

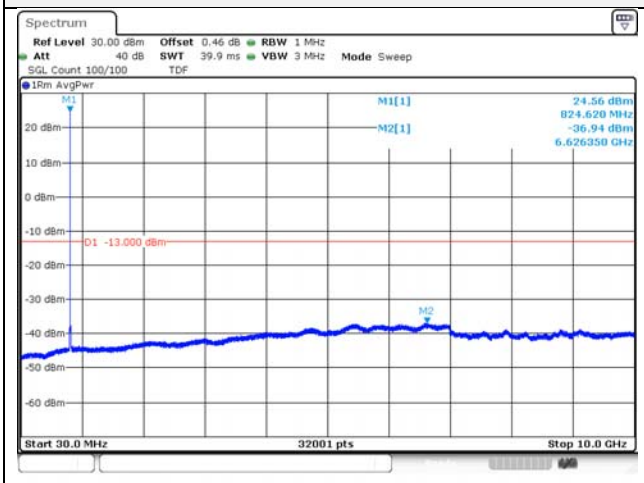
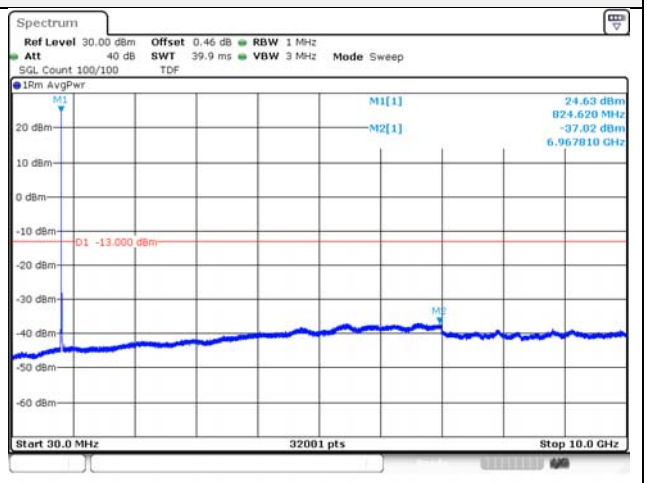
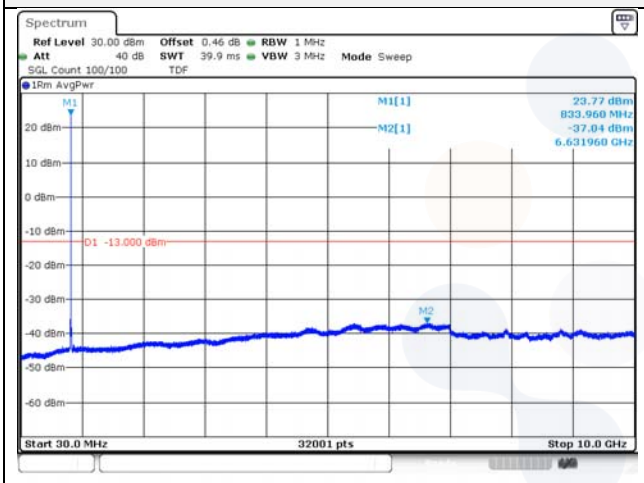
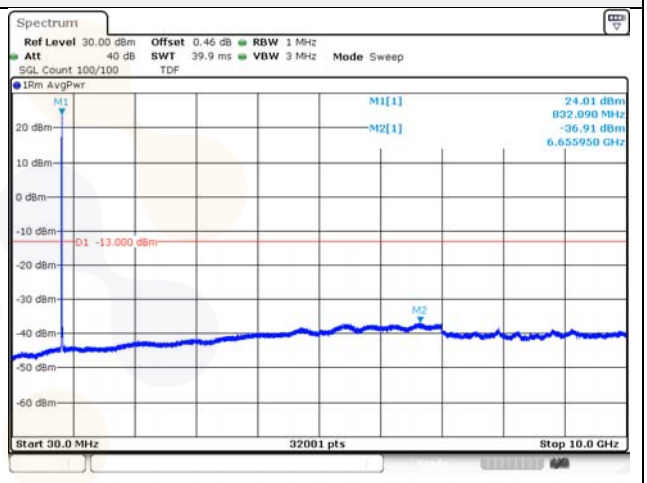
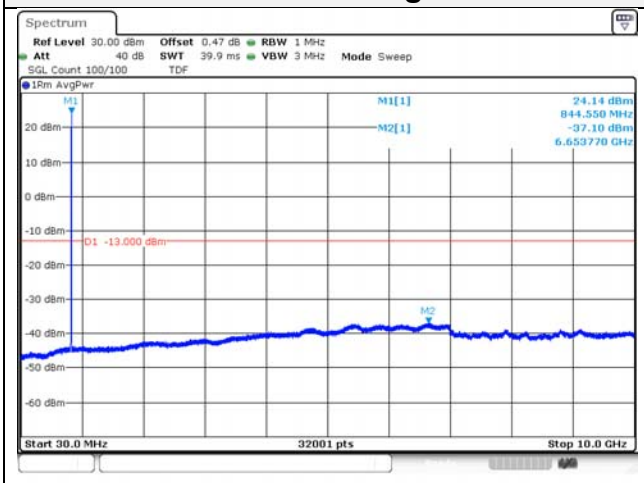
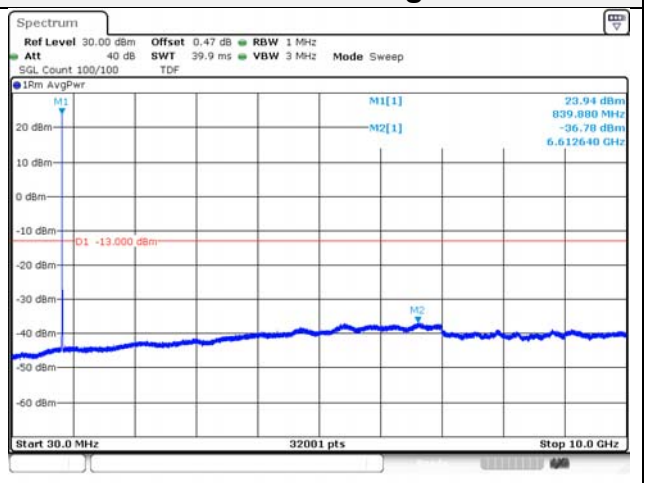


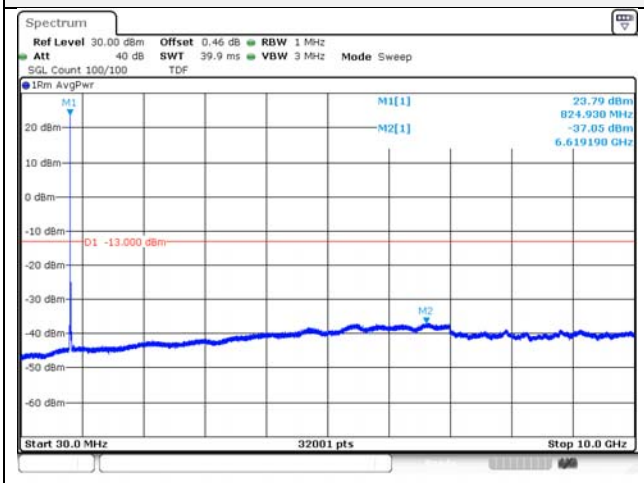
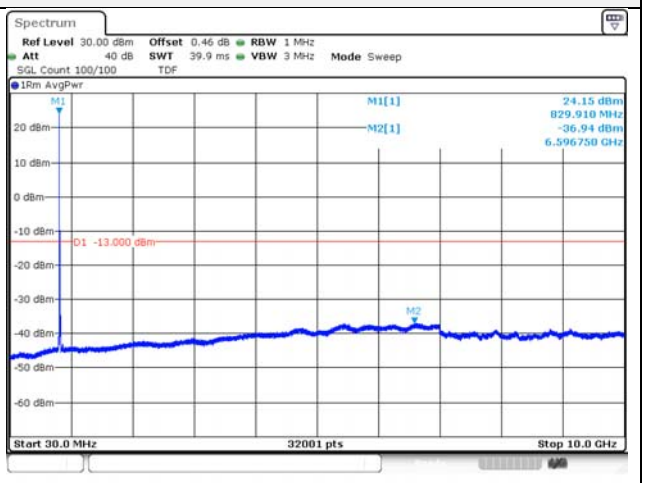
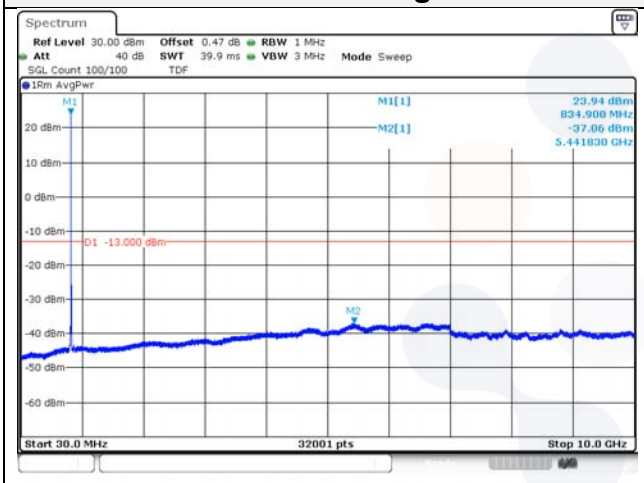
1.4M BW QPSK High ch.



3M BW QPSK High ch.

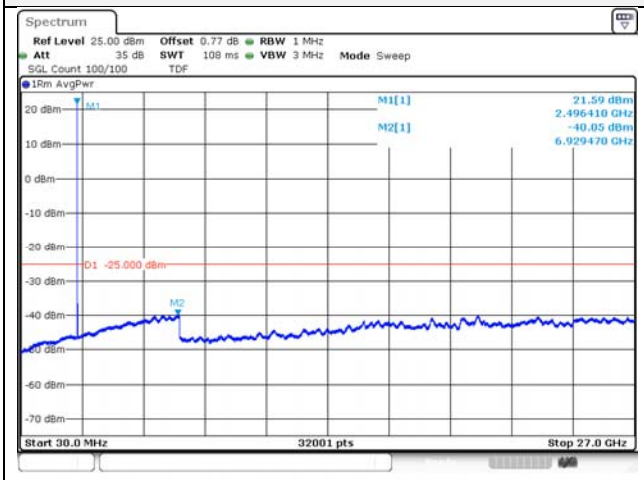


5M BW QPSK Low ch.	10M BW QPSK Low ch.
	
5M BW QPSK Mid ch.	**10M BW QPSK Mid ch.**
	
5M BW QPSK High ch.	**10M BW QPSK High ch.**
	

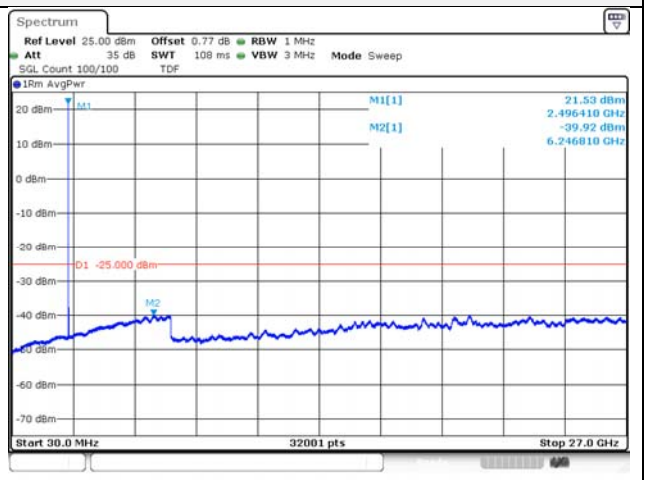
15M BW QPSK Low ch.	15M BW QPSK Mid ch.
	
15M BW QPSK High ch.	**-**
	Blank

Test mode: LTE Band 41(PC2)

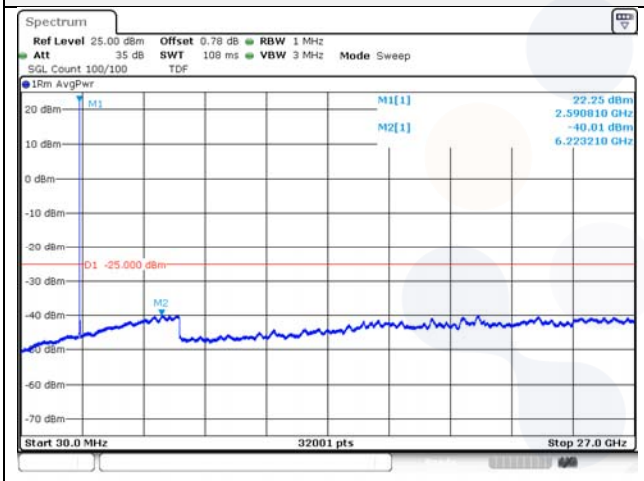
5M BW QPSK Low ch.



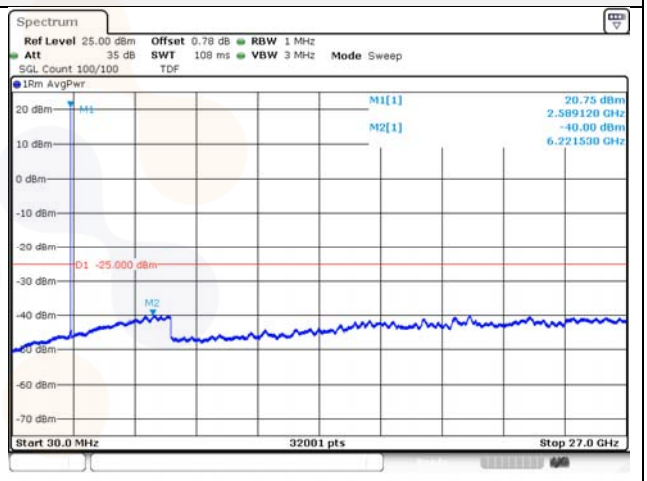
10M BW QPSK Low ch.



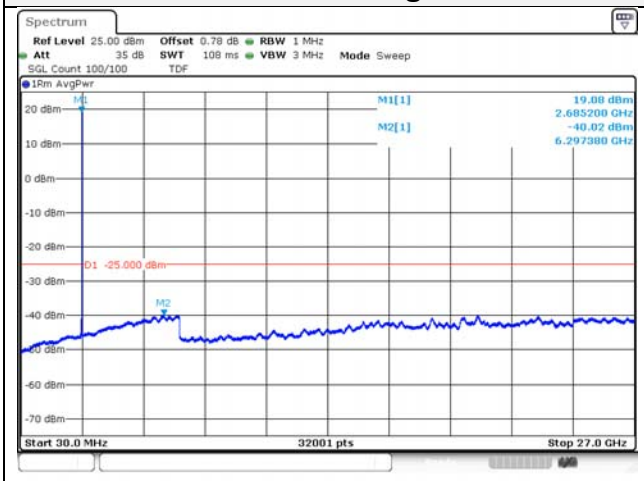
5M BW QPSK Mid ch.



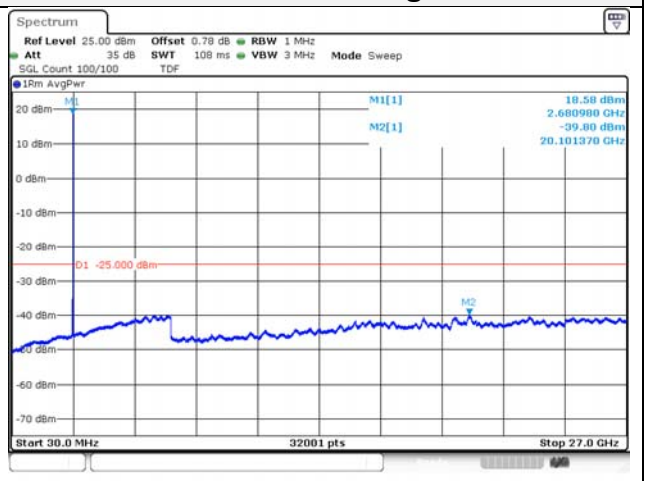
10M BW QPSK Mid ch.



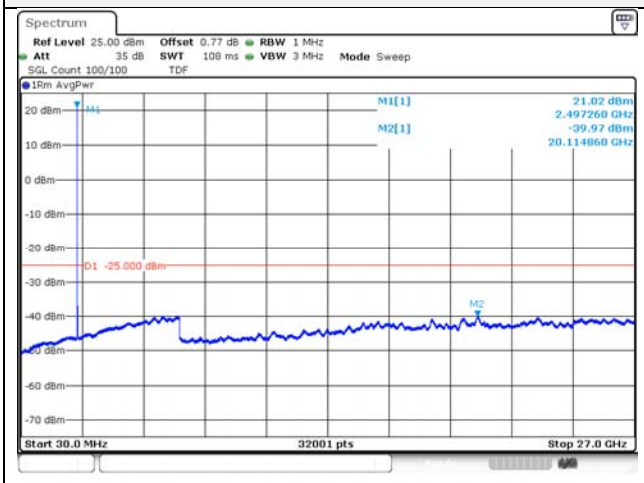
5M BW QPSK High ch.



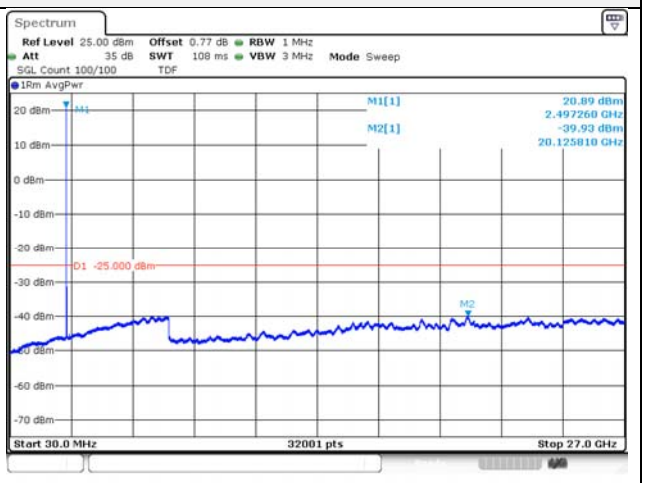
10M BW QPSK High ch.



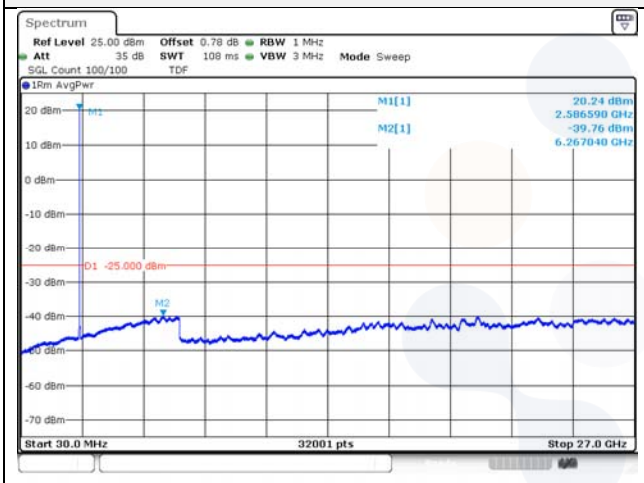
15M BW QPSK Low ch.



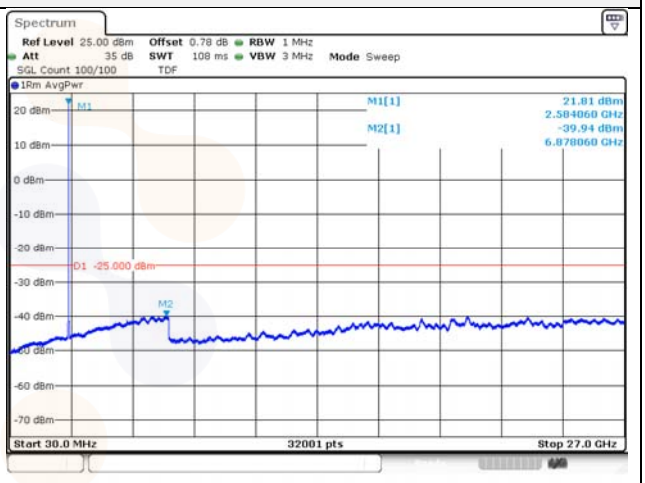
20M BW QPSK Low ch.



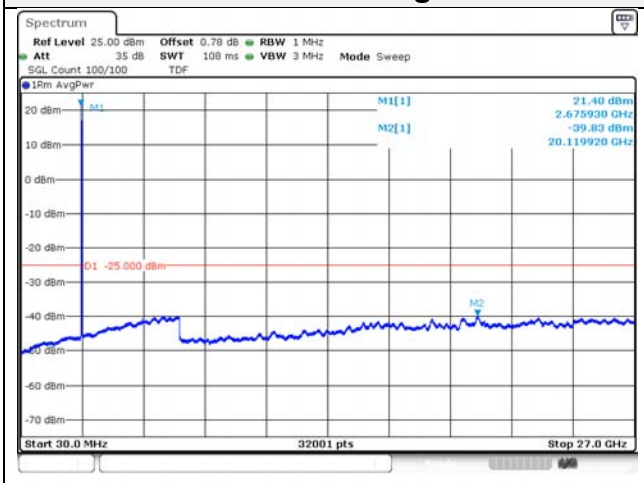
15M BW QPSK Mid ch.



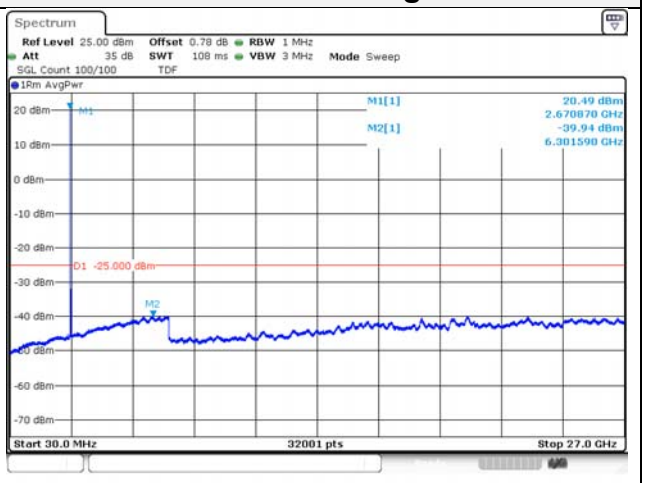
20M BW QPSK Mid ch.



15M BW QPSK High ch.

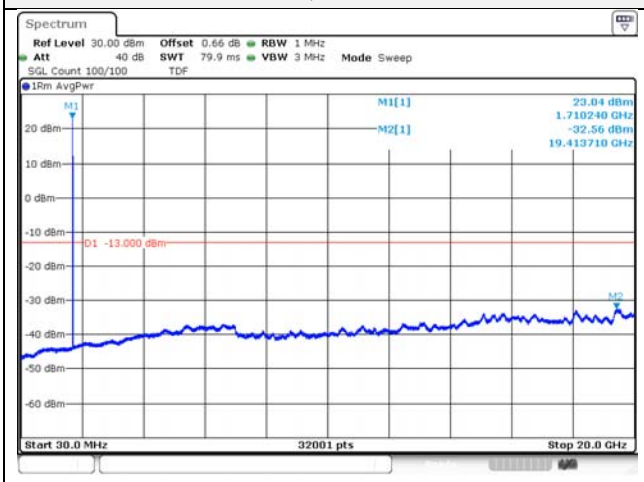


20M BW QPSK High ch.

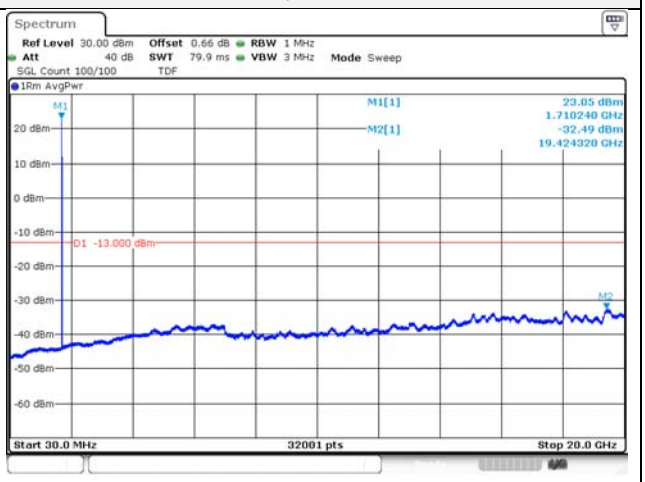


Test mode: LTE Band 66/4

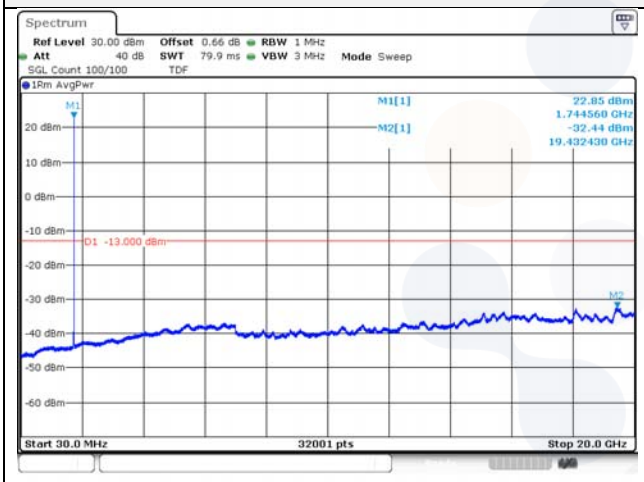
1.4M BW QPSK Low ch.



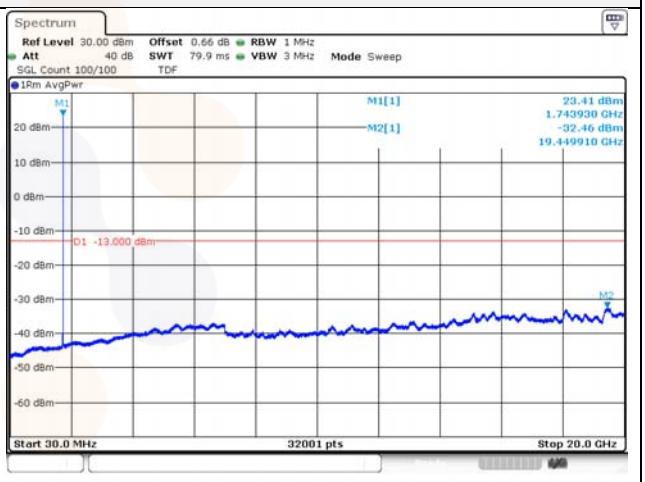
3M BW QPSK Low ch.



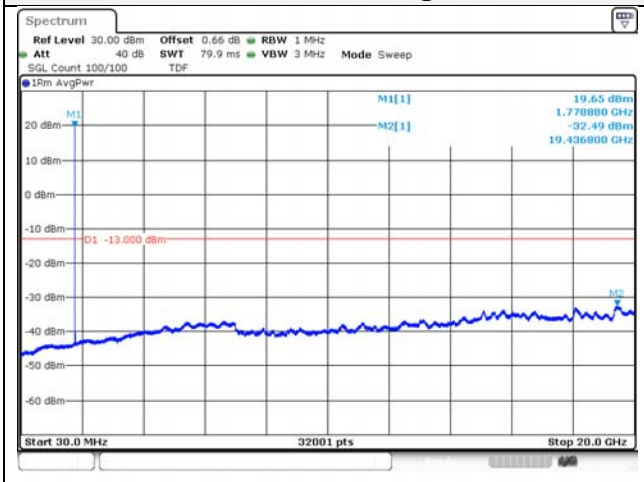
1.4M BW QPSK Mid ch.



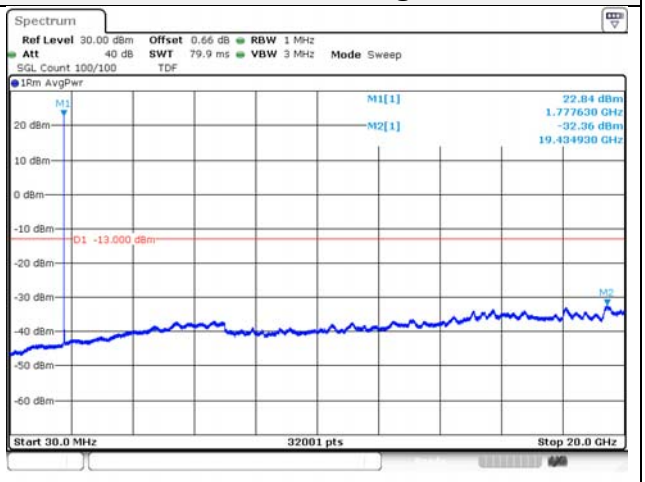
3M BW QPSK Mid ch.



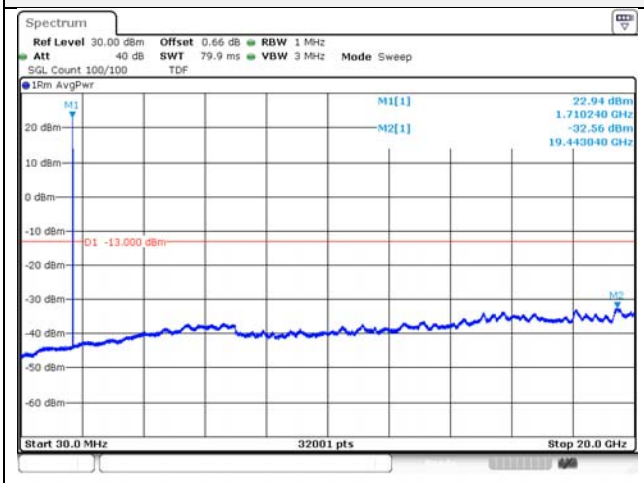
1.4M BW QPSK High ch.



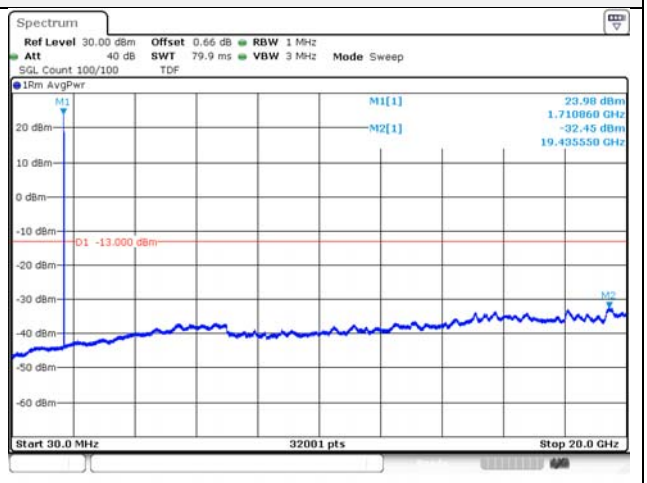
3M BW QPSK High ch.



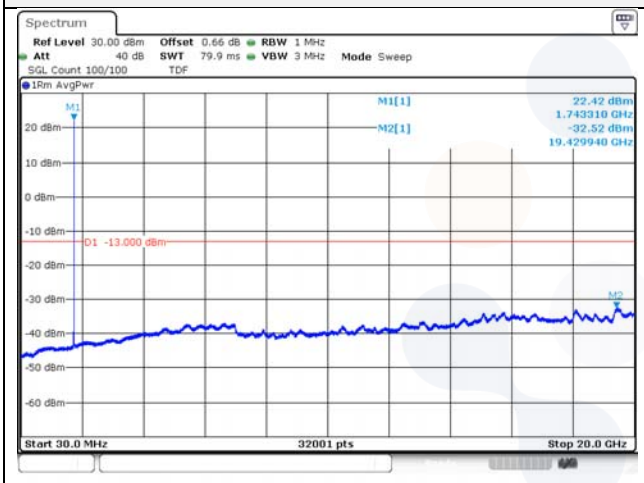
5M BW QPSK Low ch.



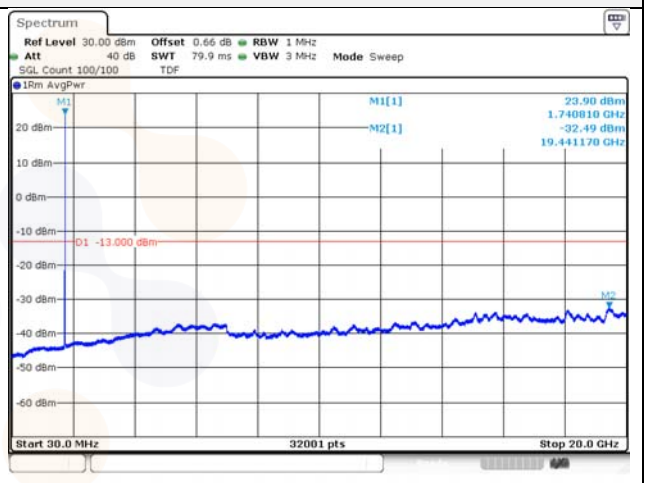
10M BW QPSK Low ch.



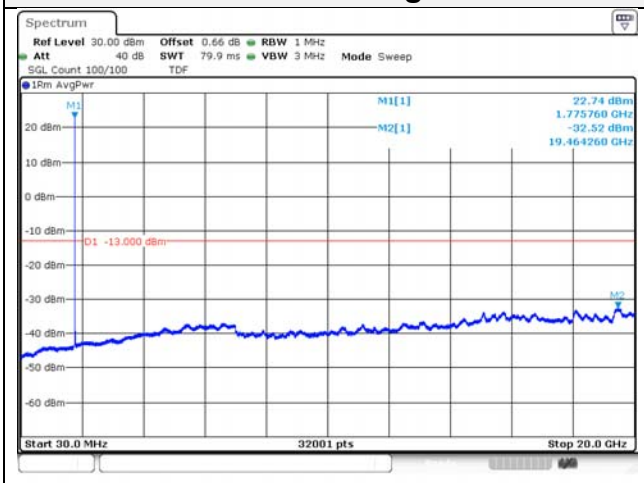
5M BW QPSK Mid ch.



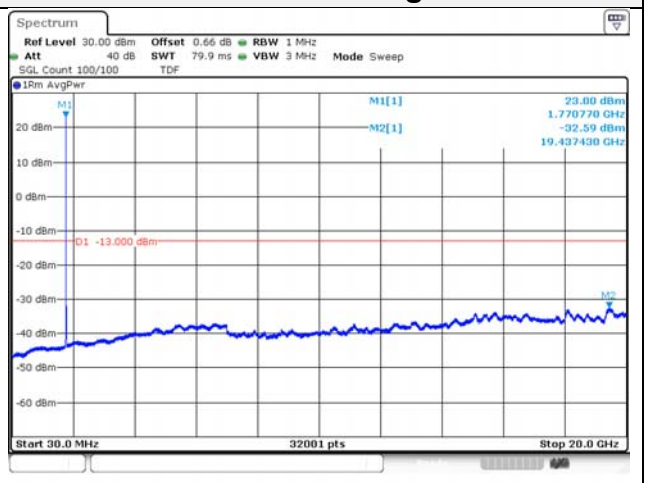
10M BW QPSK Mid ch.

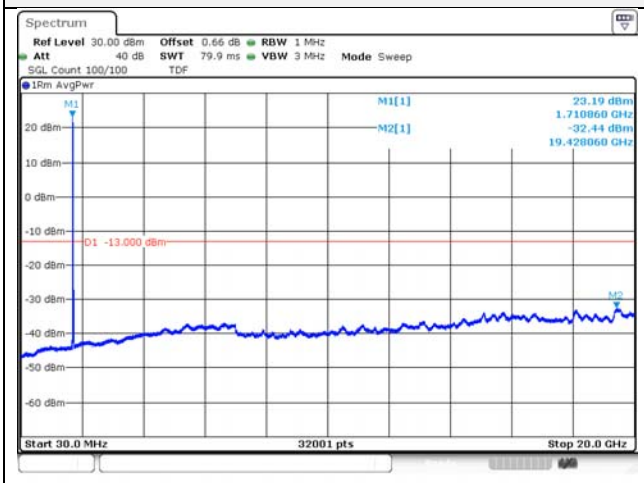
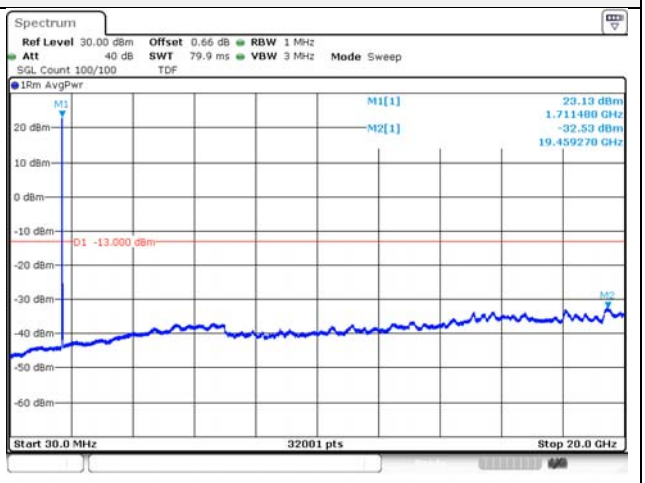
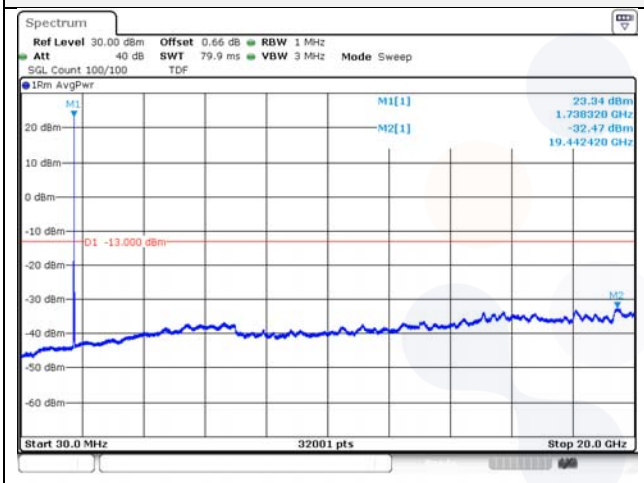
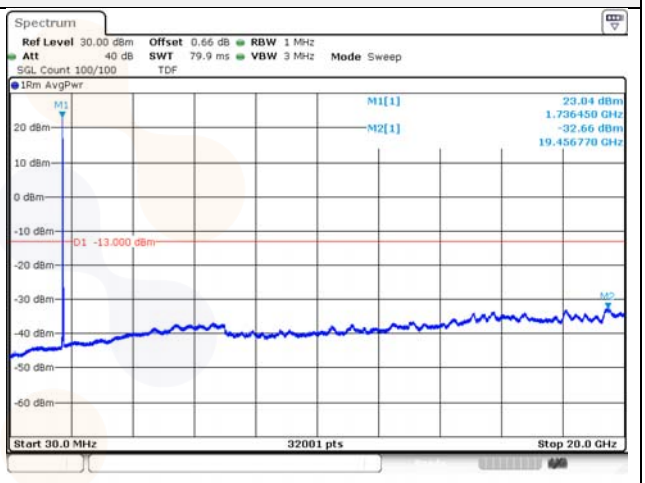
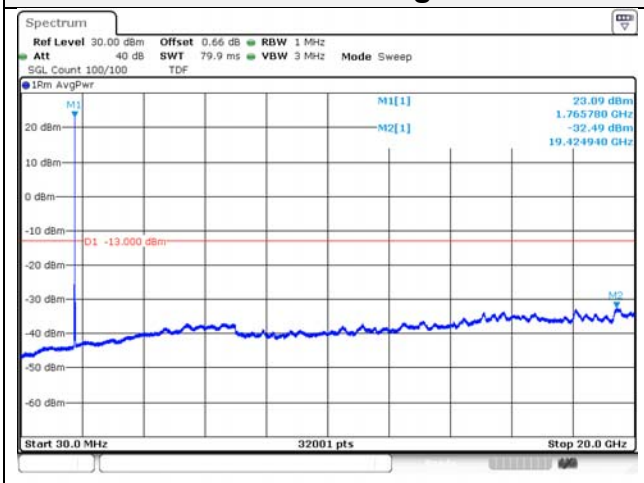
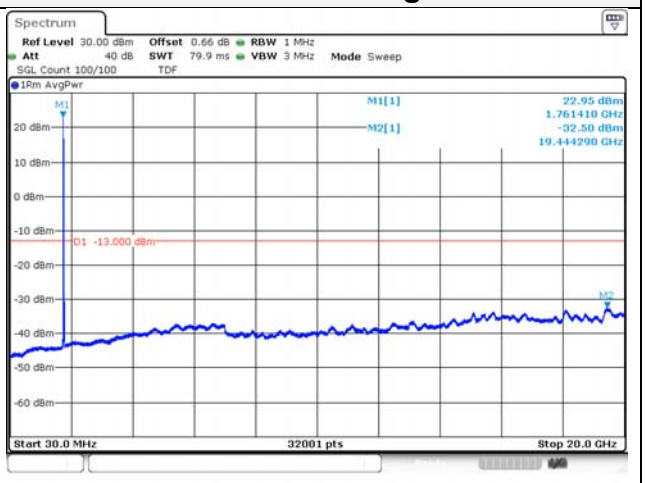


5M BW QPSK High ch.



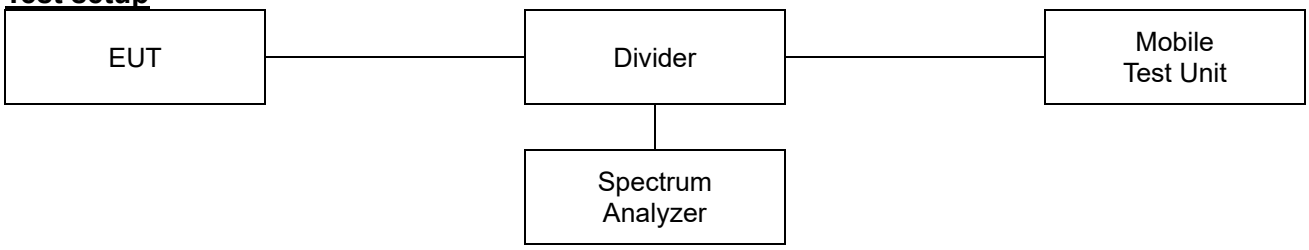
10M BW QPSK High ch.



15M BW QPSK Low ch.	20M BW QPSK Low ch.
	
15M BW QPSK Mid ch.	**20M BW QPSK Mid ch.**
	
15M BW QPSK High ch.	**20M BW QPSK High ch.**
	

7.5. Peak to Average Power Ratio (PAPR)

Test setup



Limit

According to §24.232(d), §27.50(d)(5), the peak-to-average ratio(PAR) of the transmission must not exceed 13 dB.

Test procedure

971168 D01 v03r01 - Section 5.7.2
971168 D02 v02r02 – Section VII
ANSI 63.26-2015 – Section 5.2.3.4

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%

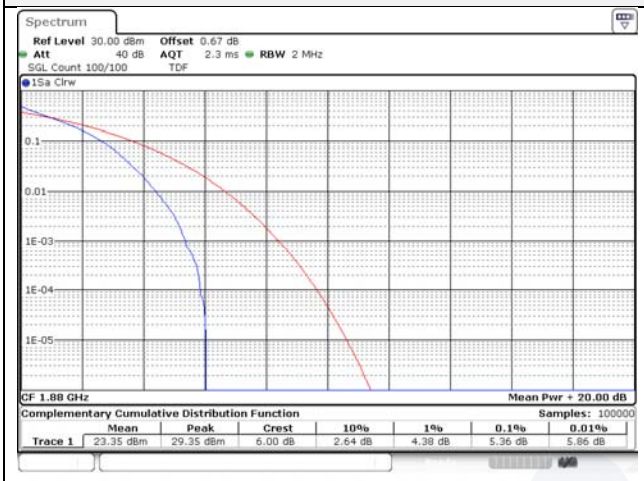
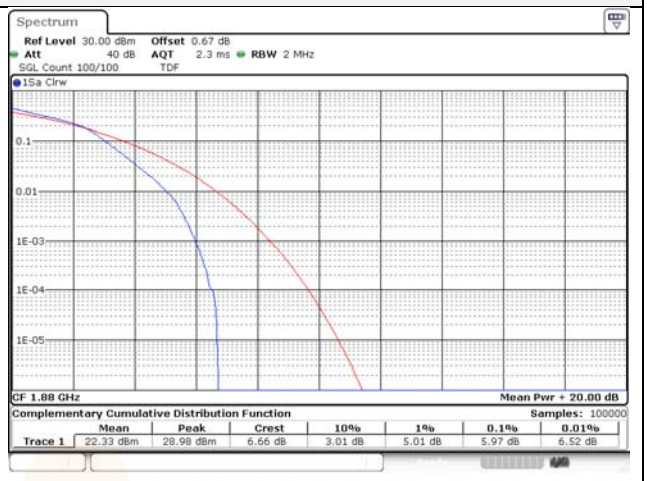
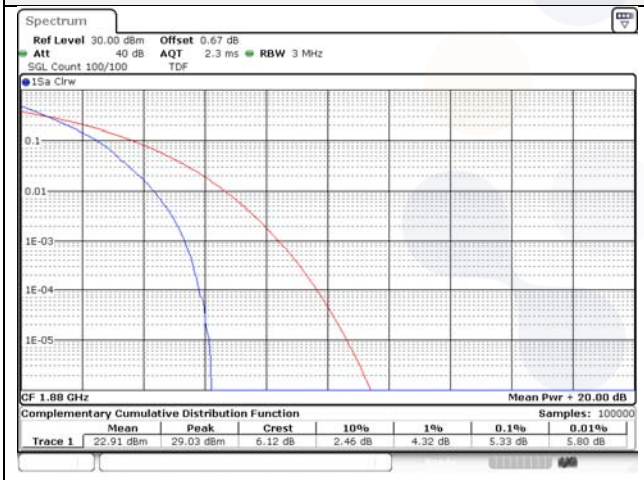
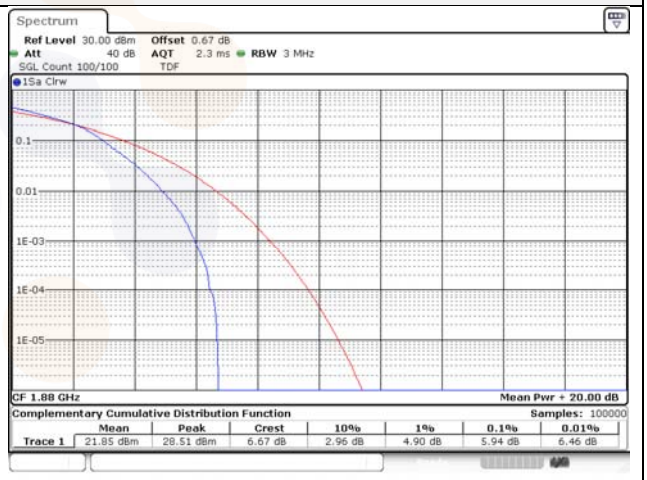
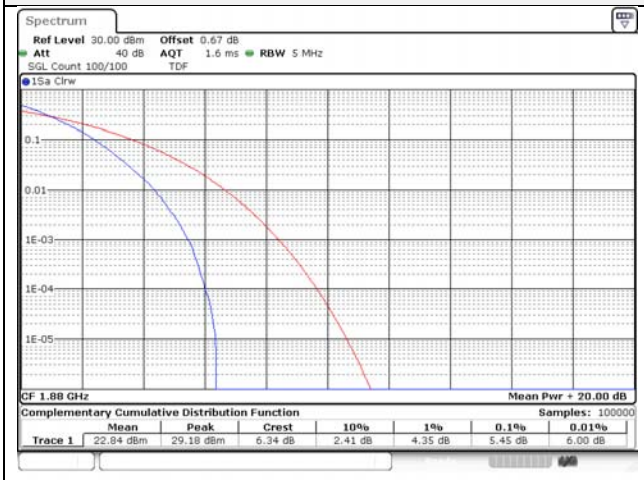
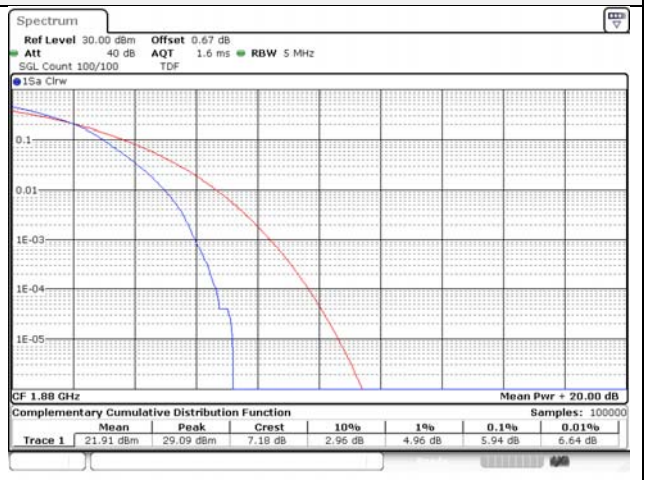
5.2.6 Peak-to-average power ratio

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:

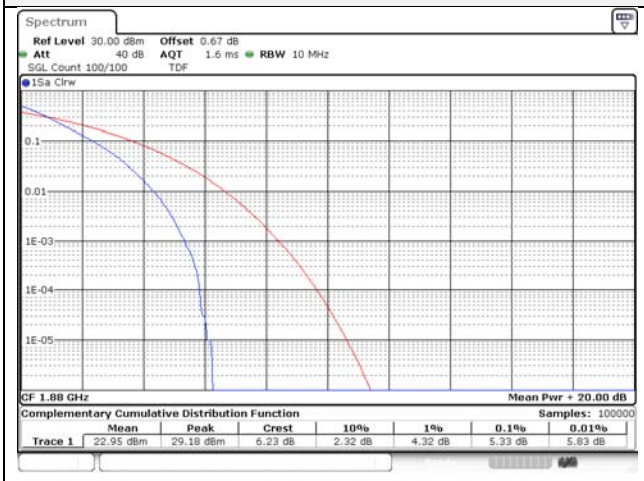
$PAPR(dB) = P_{PK}(dBm \text{ or } dBW) - P_{AG}(dBm \text{ or } dBW)$

Test results

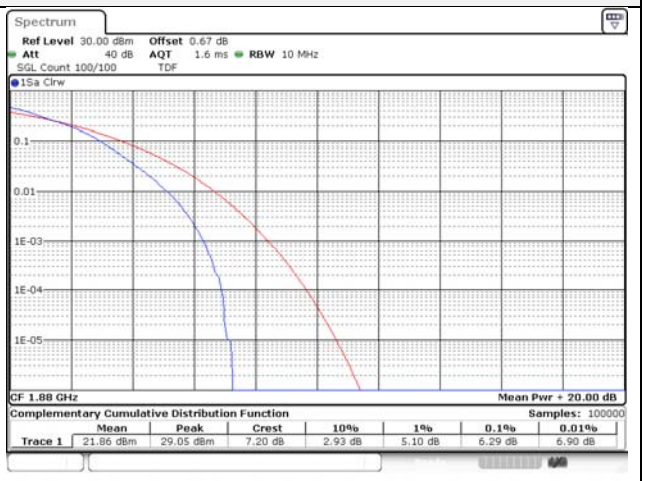
Test mode: LTE Band 2

1.4M BW QPSK Mid ch.	1.4M BW 16QAM Mid ch.
	
3M BW QPSK Mid ch.	**3M BW 16QAM Mid ch.**
	
5M BW QPSK Mid ch.	**5M BW 16QAM Mid ch.**
	

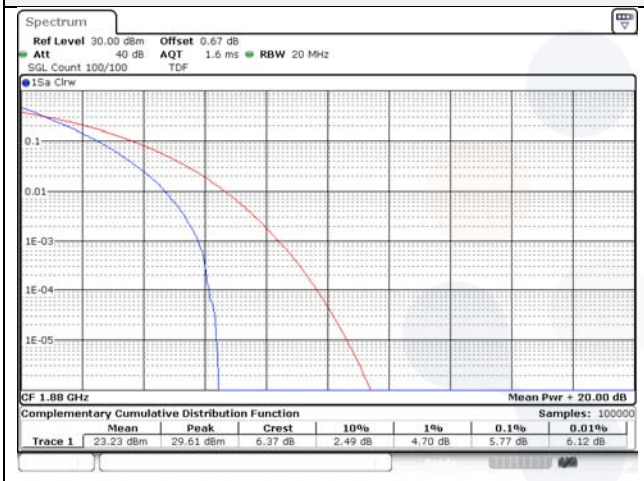
10M BW QPSK Mid ch.



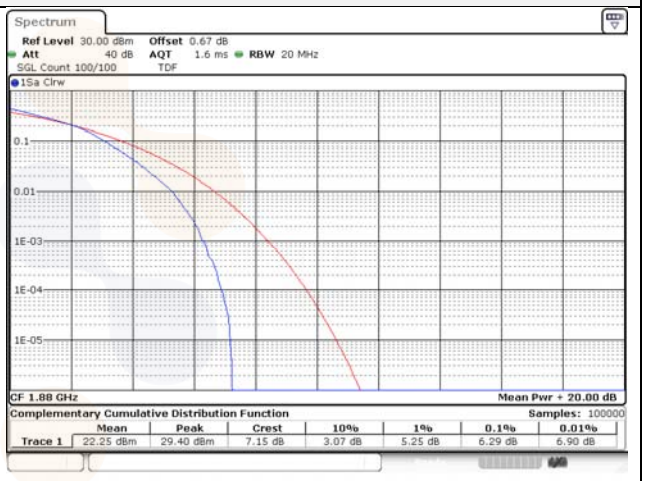
10M BW 16QAM Mid ch.



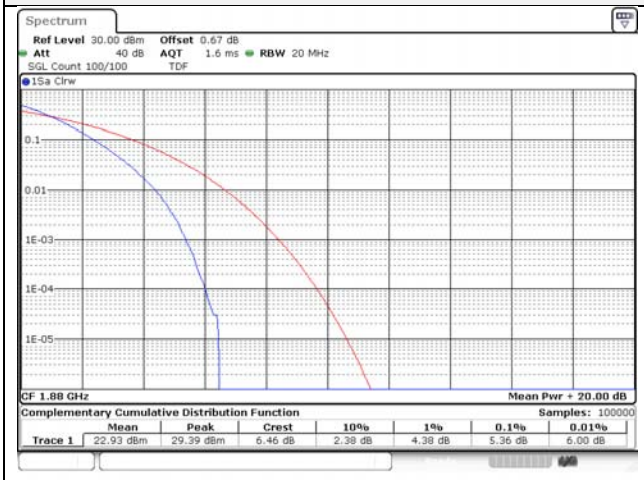
15M BW QPSK Mid ch.



15M BW 16QAM Mid ch.



20M BW QPSK / Mid ch.



20M BW 16QAM Mid ch.