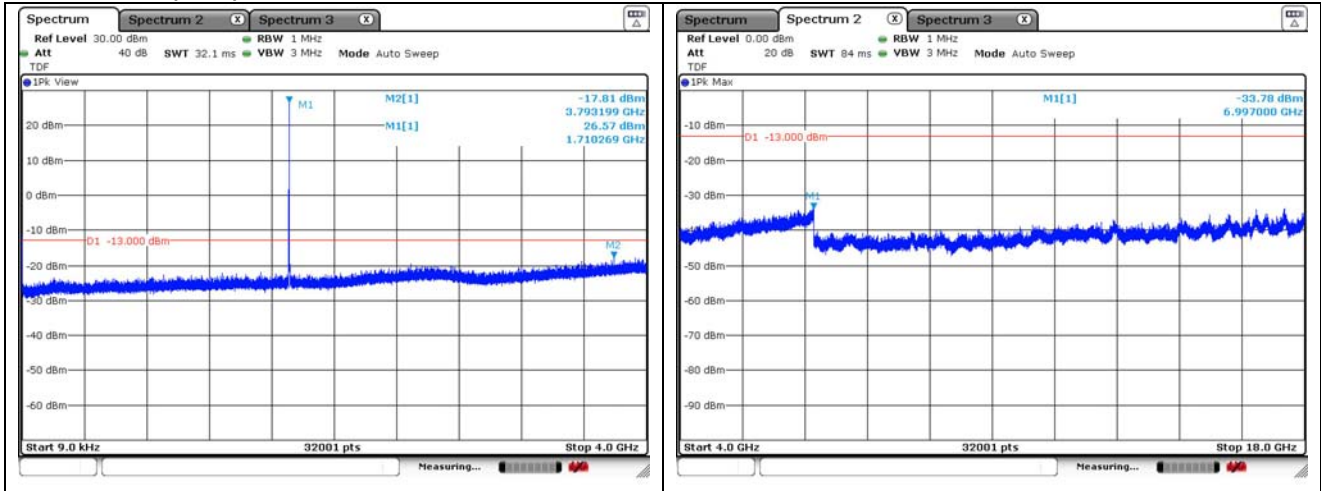
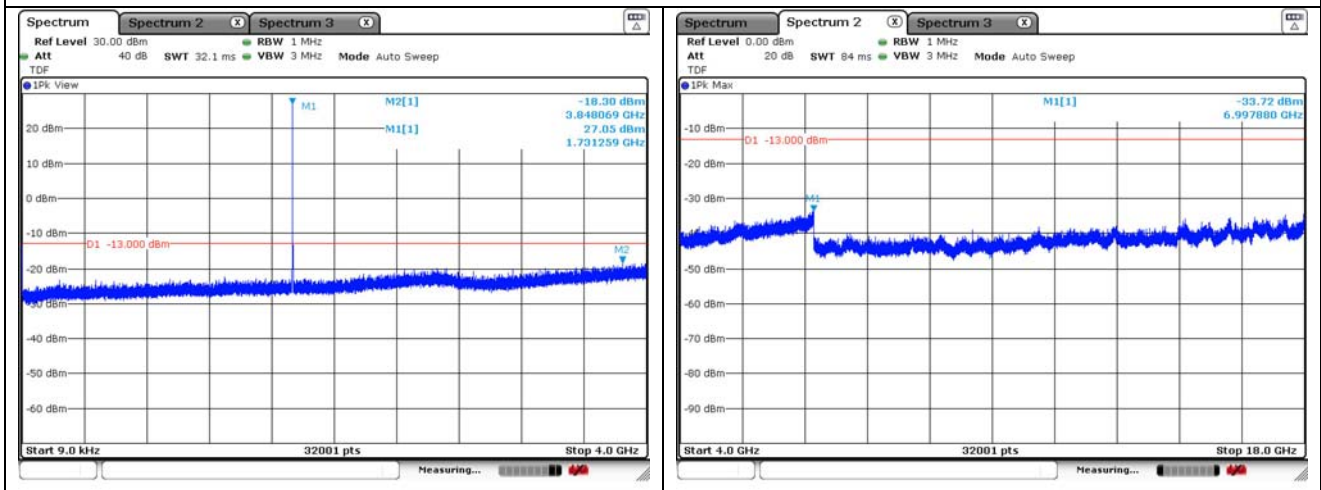


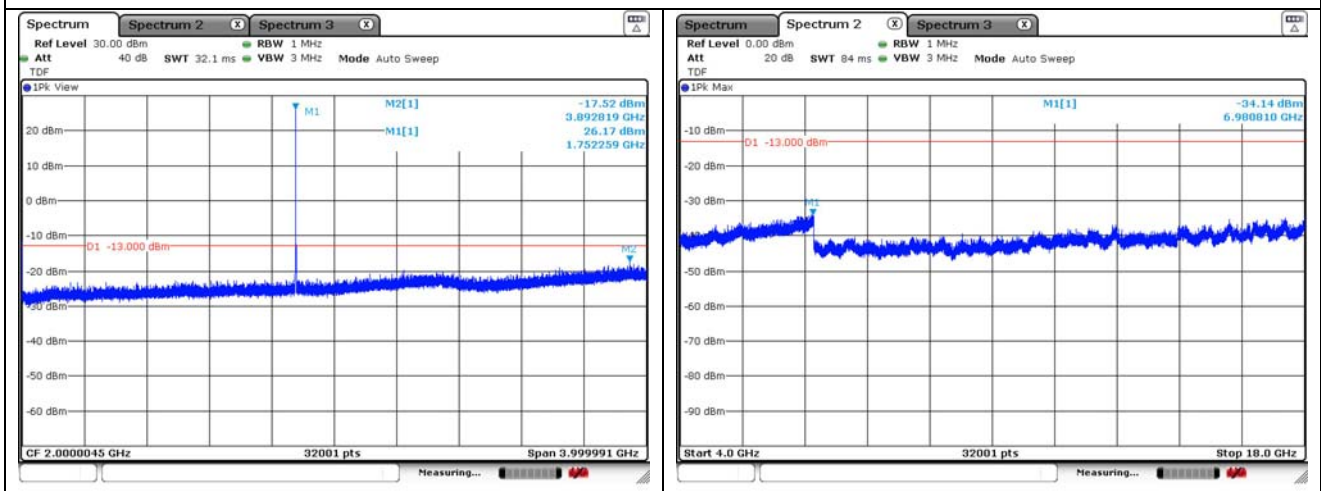
LTE band 4 (3 MHz)



QPSK Low Channel - 1 RB

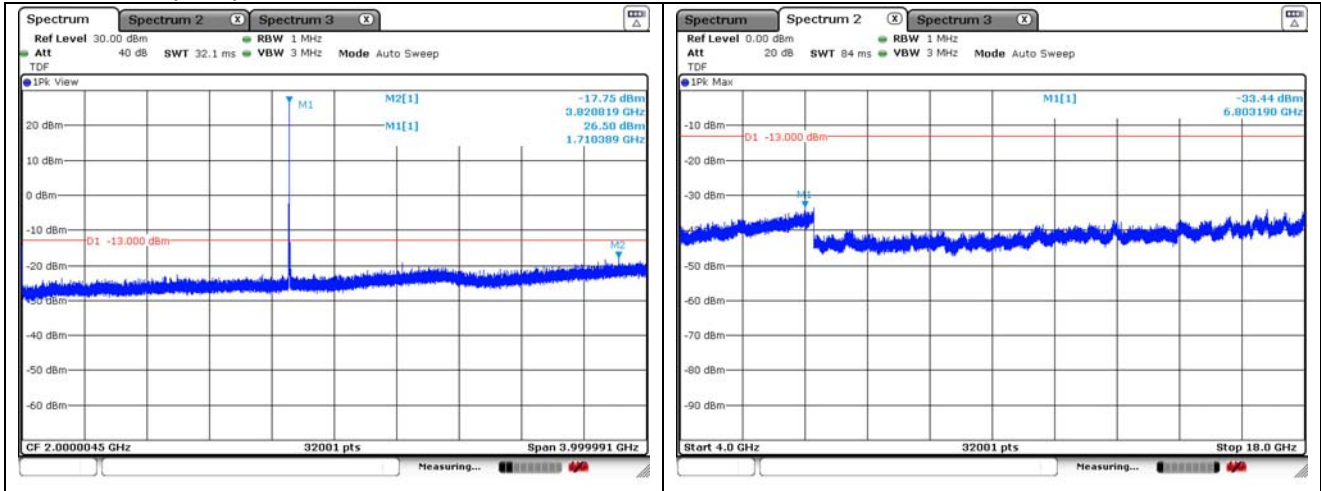


QPSK Middle Channel - 1 RB

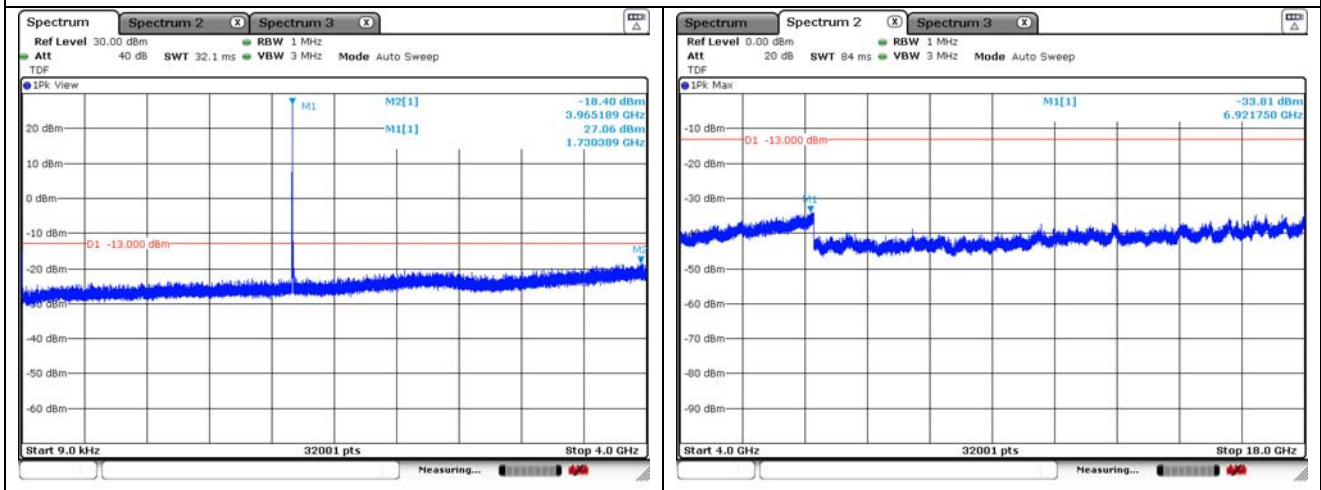


QPSK High Channel - 1 RB

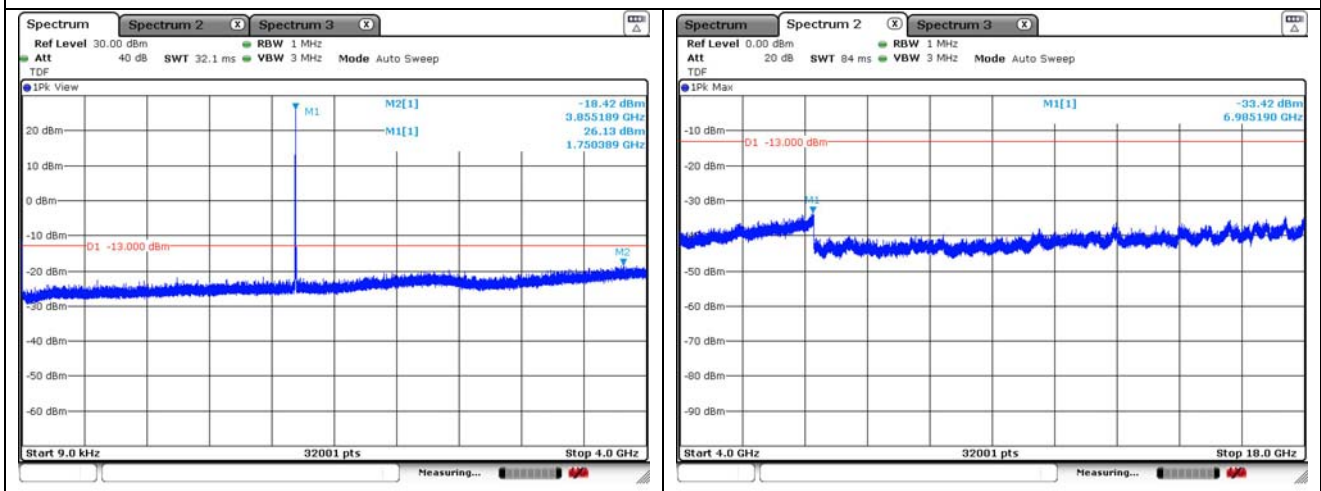
LTE band 4 (5 MHz)



QPSK Low Channel - 1 RB

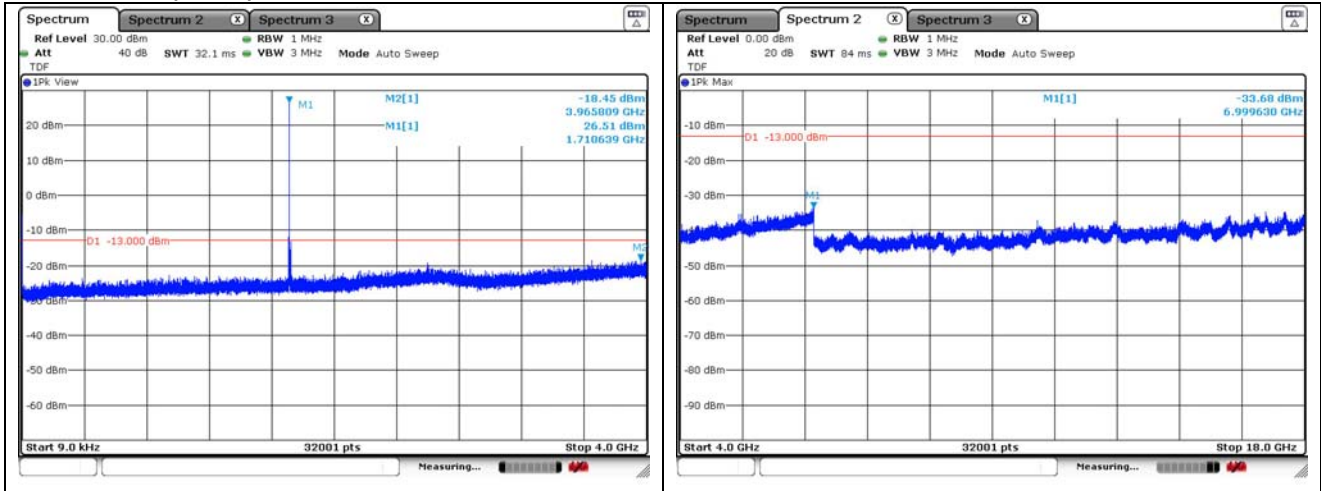


QPSK Middle Channel - 1 RB

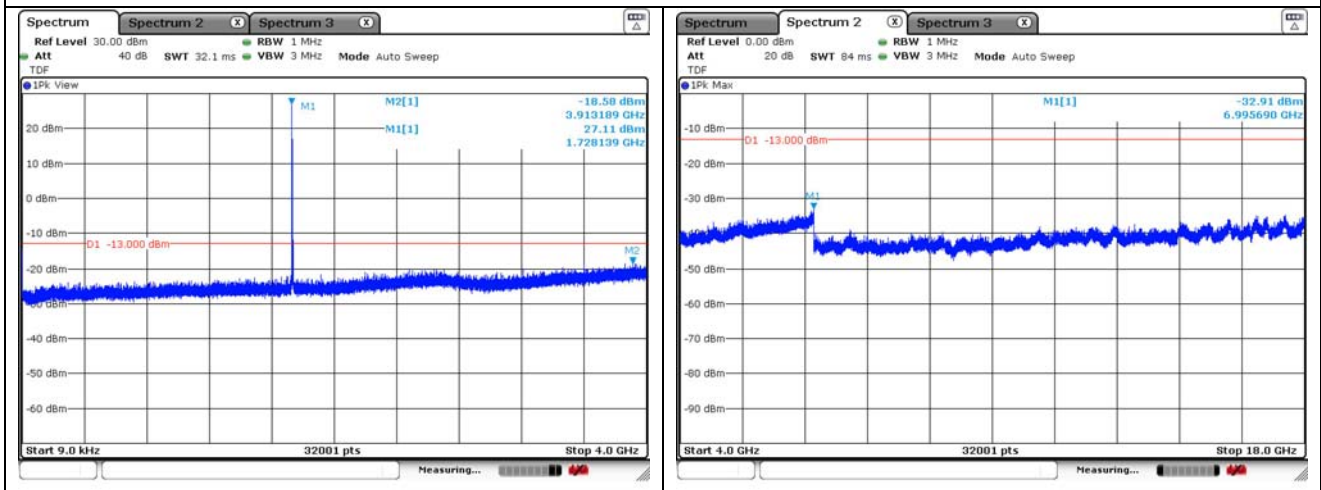


QPSK High Channel - 1 RB

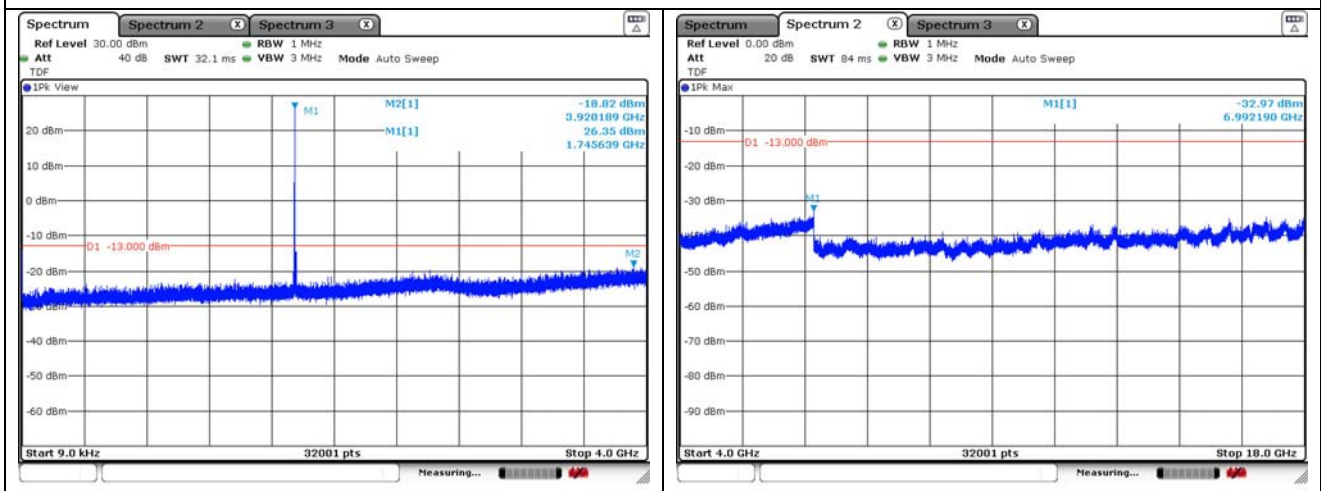
LTE band 4 (10 MHz)



QPSK Low Channel - 1 RB

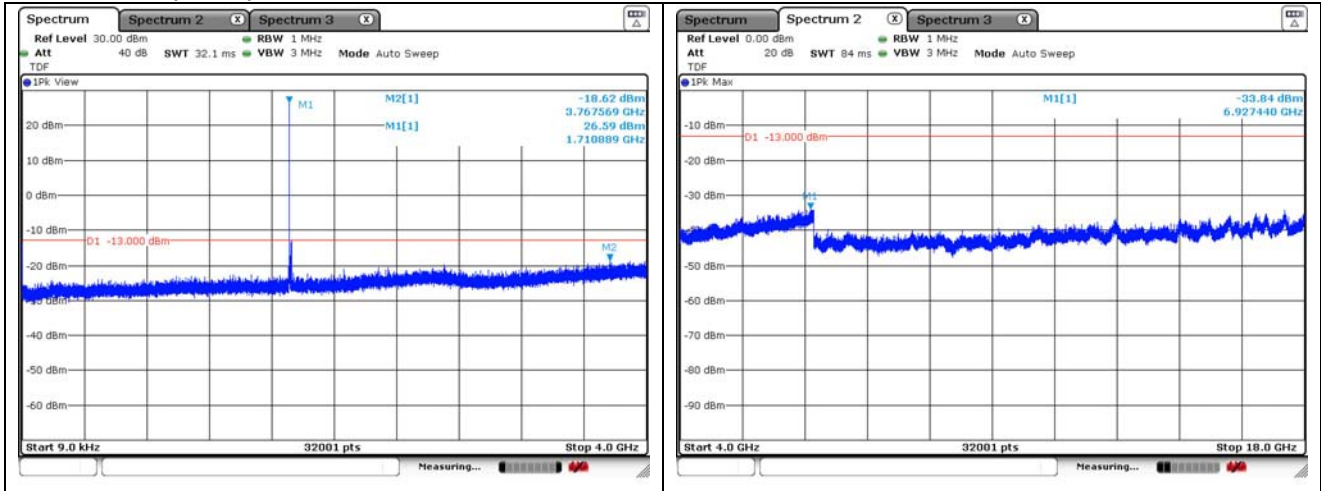


QPSK Middle Channel - 1 RB

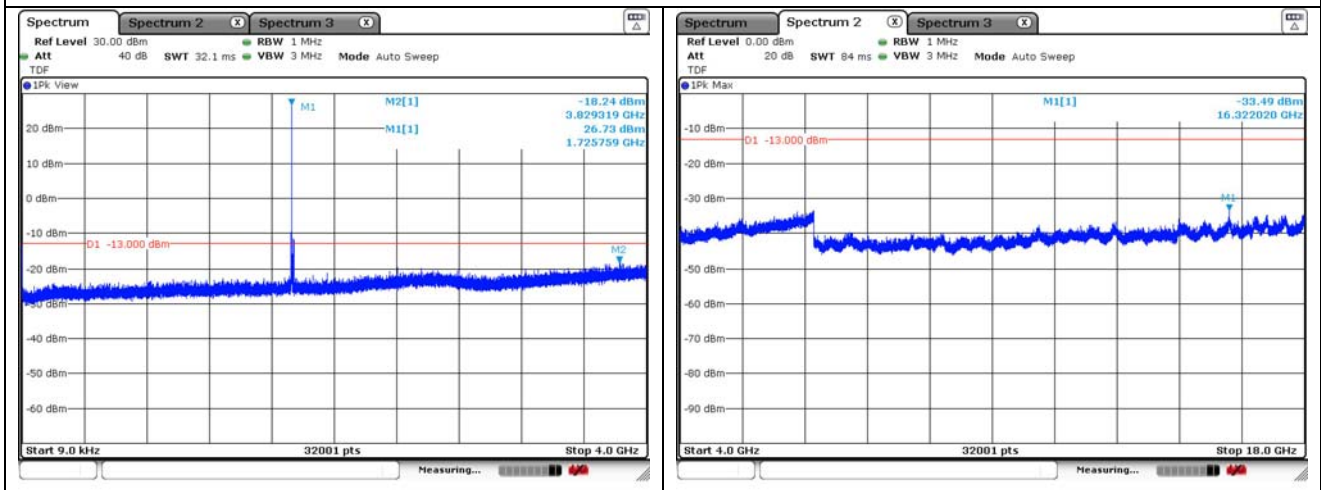


QPSK High Channel - 1 RB

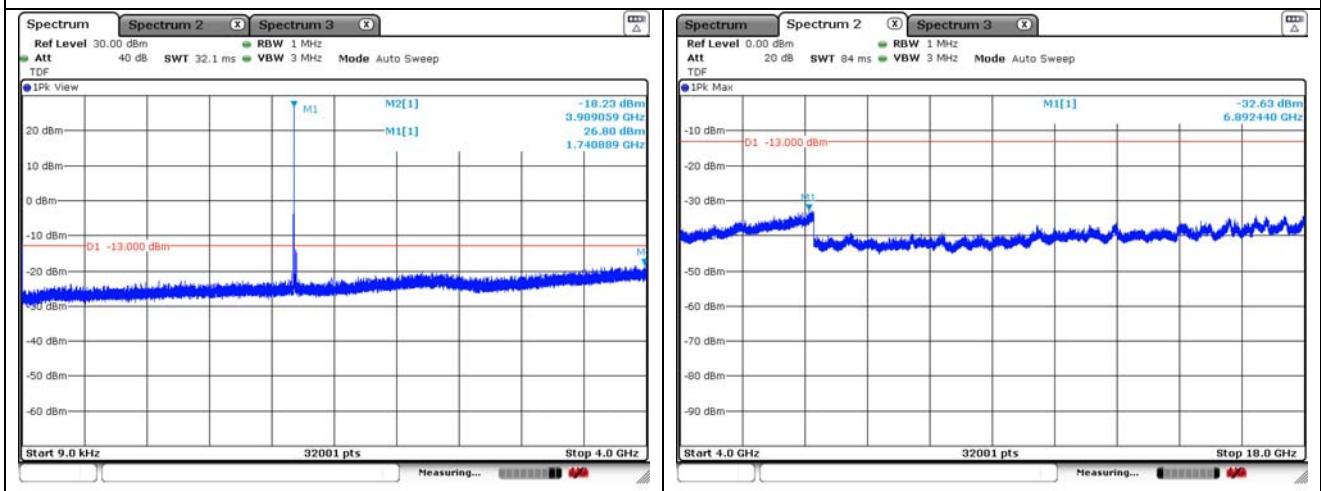
LTE band 4 (15 MHz)



QPSK Low Channel - 1 RB

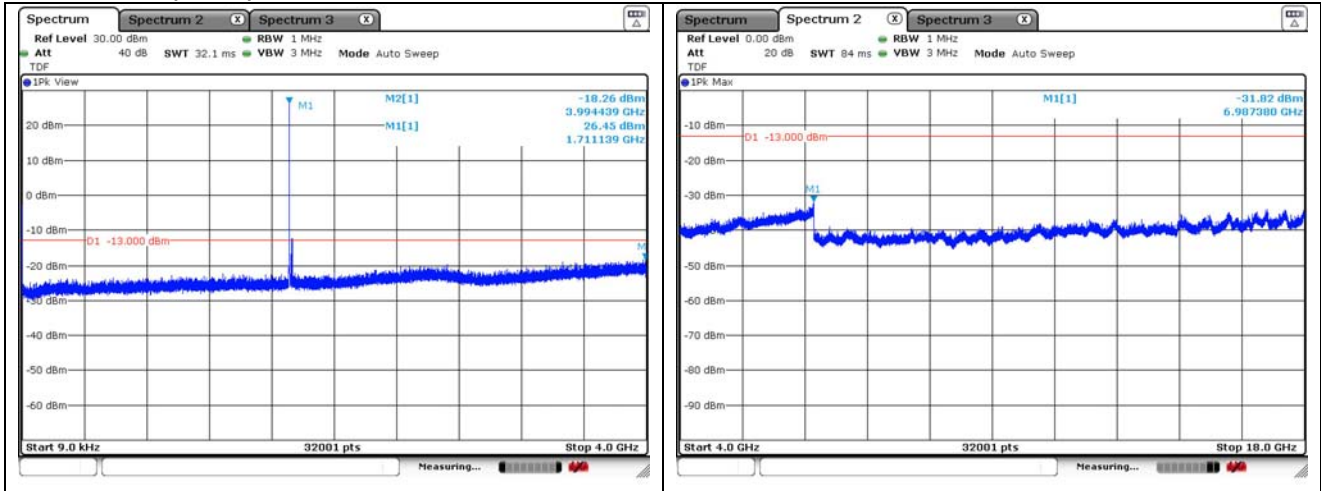


QPSK Middle Channel - 1 RB

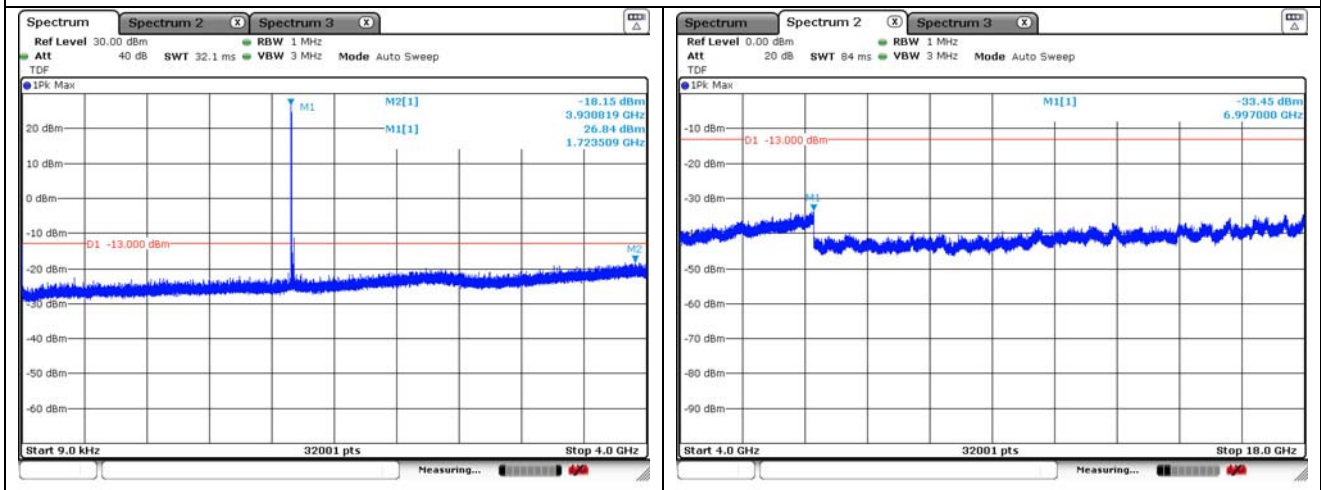


QPSK High Channel - 1 RB

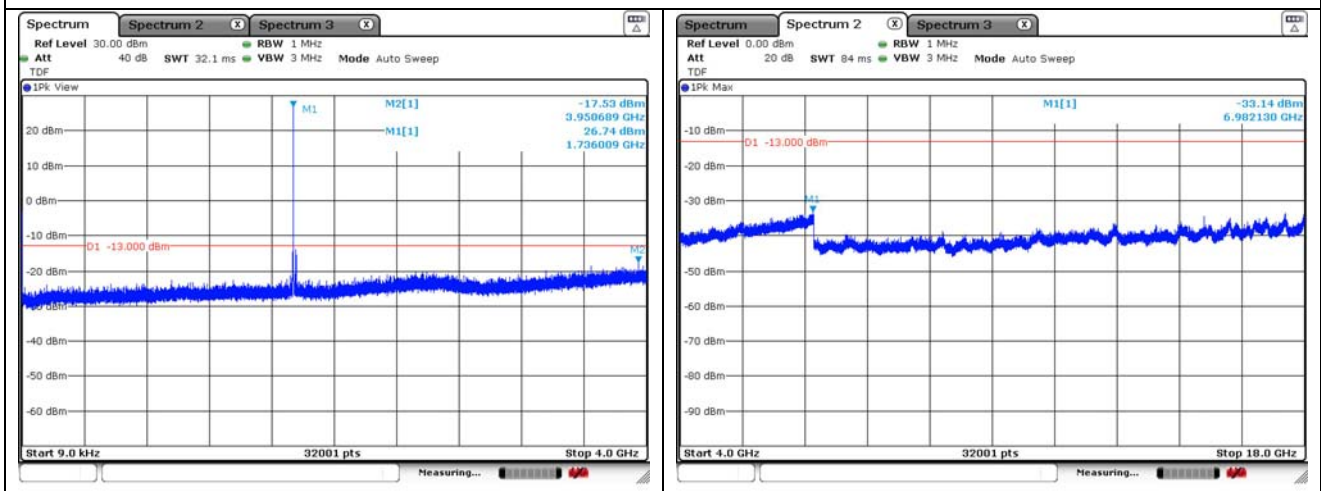
LTE band 4 (20 MHz)



QPSK Low Channel - 1 RB

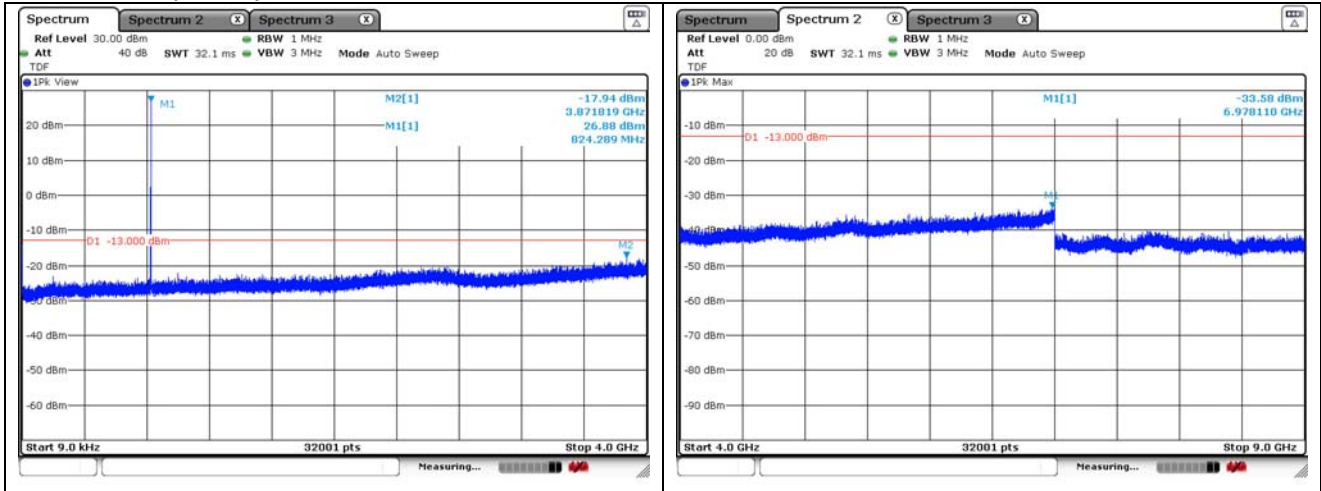


QPSK Middle Channel - 1 RB

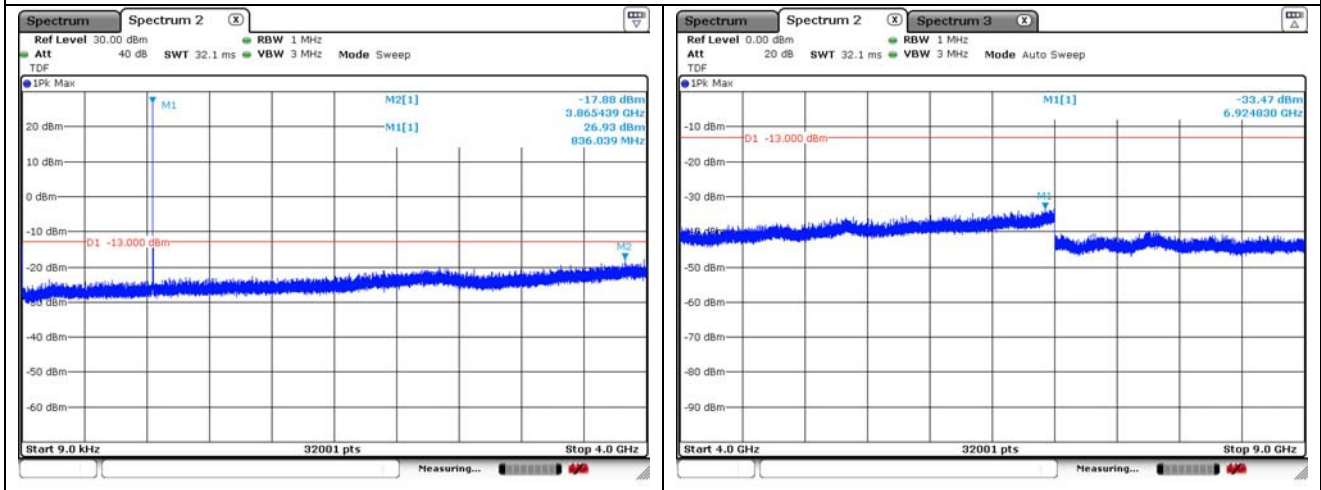


QPSK High Channel - 1 RB

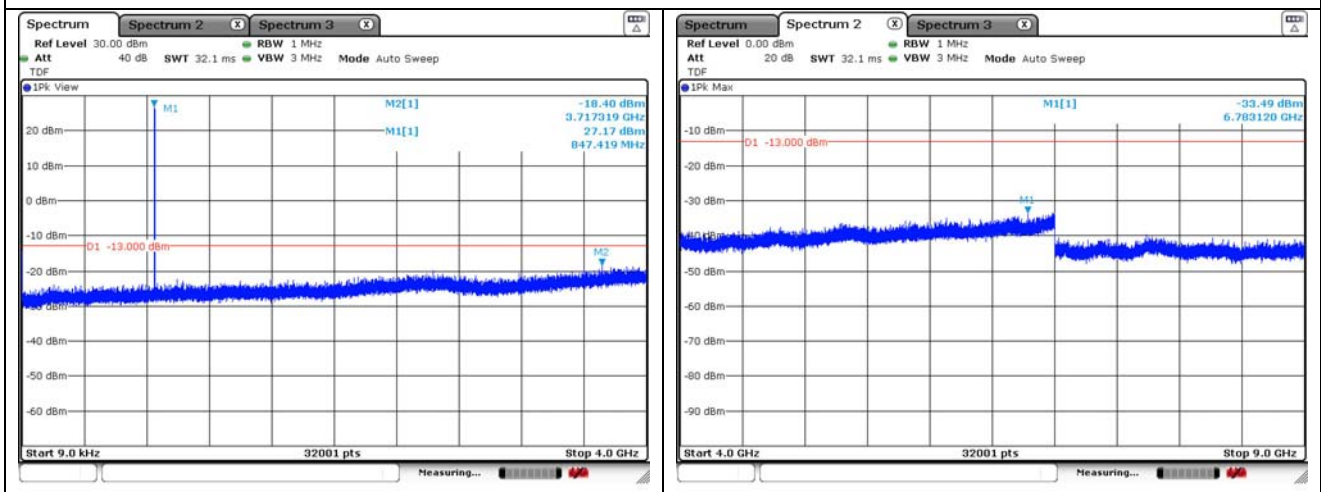
LTE band 5 (1.4 MHz)



QPSK Low Channel - 1 RB

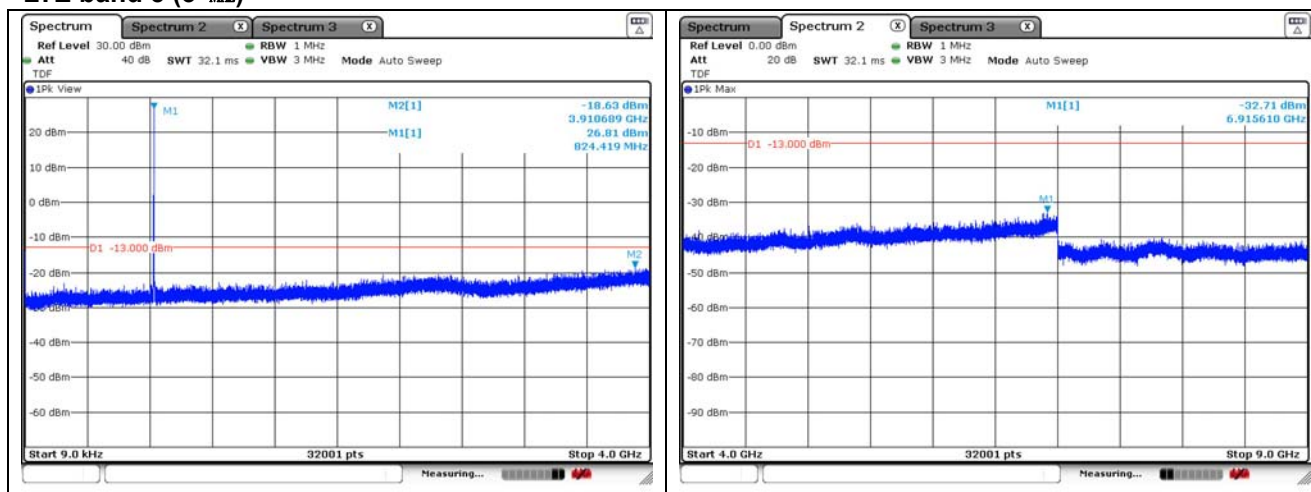


QPSK Middle Channel - 1 RB

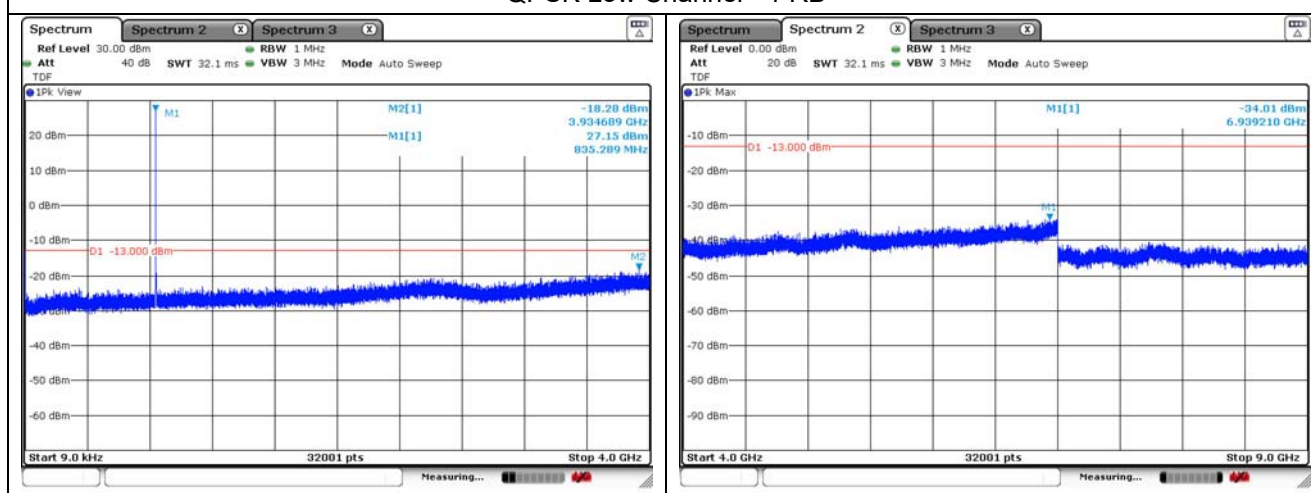


QPSK High Channel - 1 RB

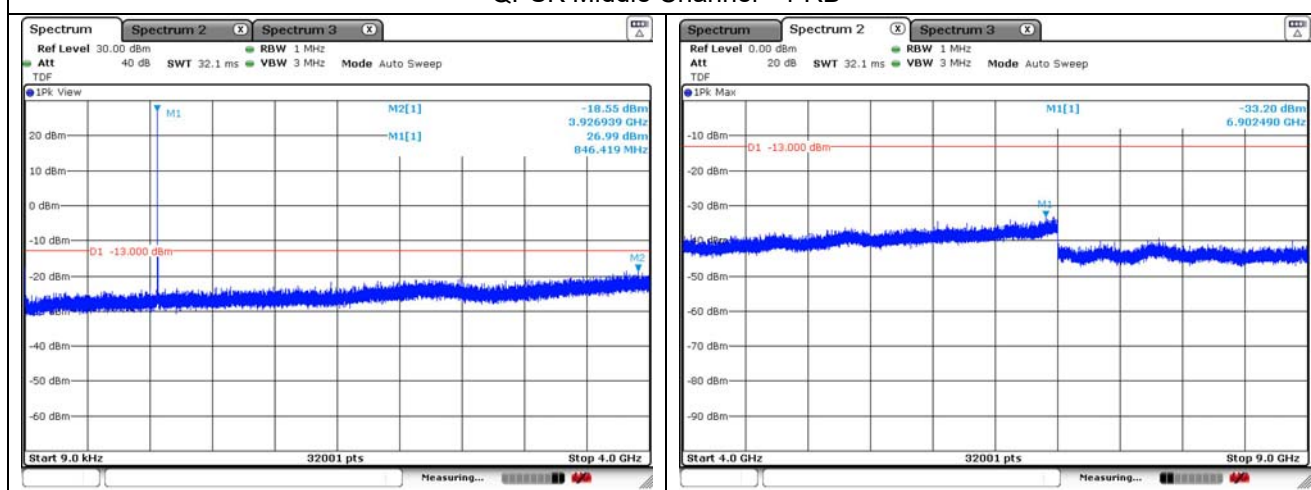
LTE band 5 (3 MHz)



QPSK Low Channel - 1 RB

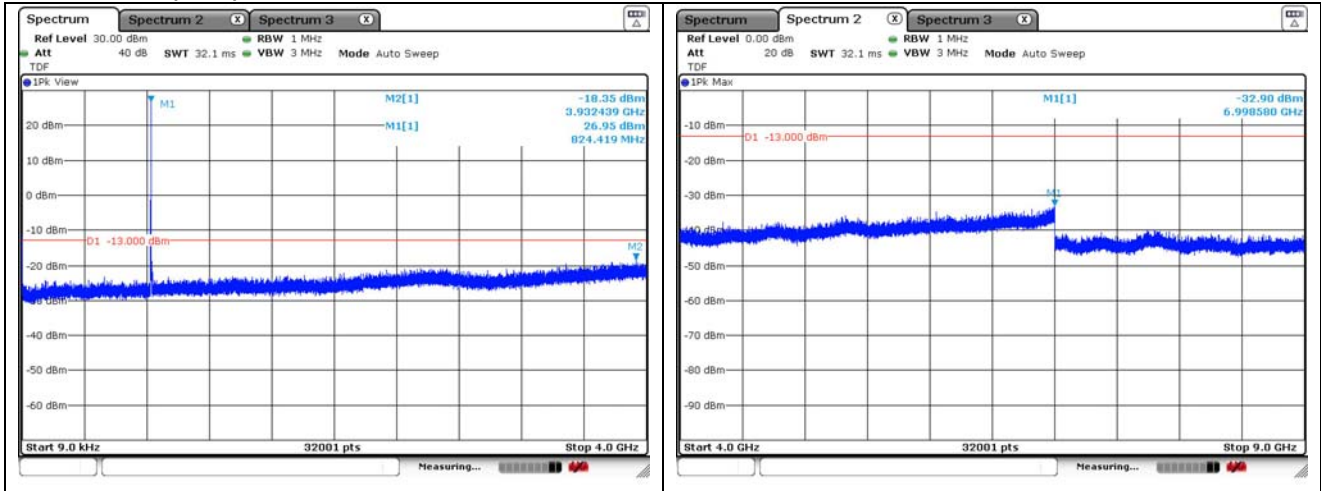


QPSK Middle Channel - 1 RB

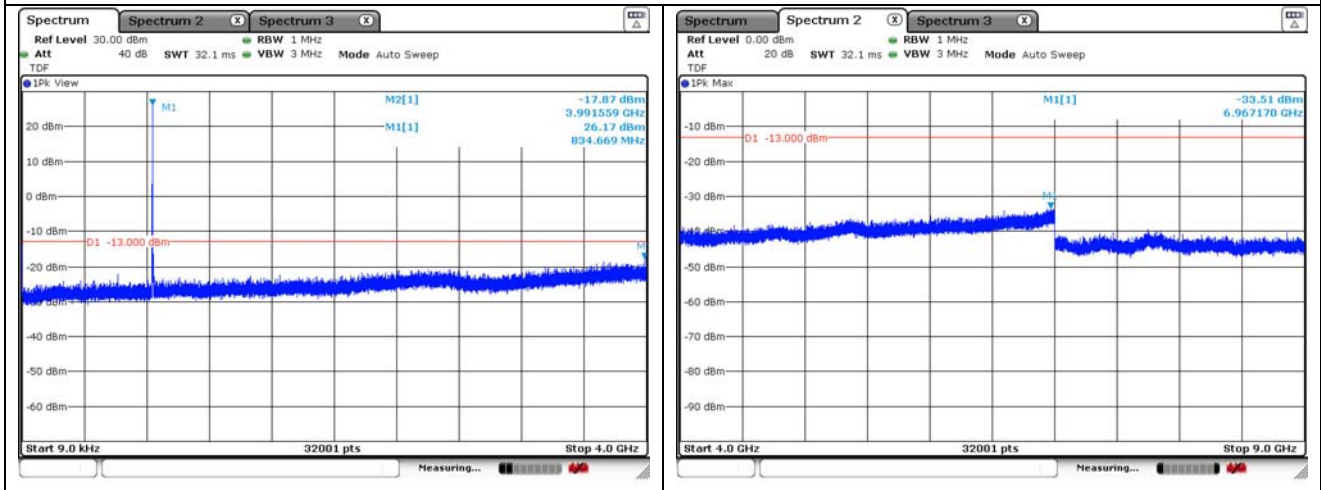


QPSK High Channel - 1 RB

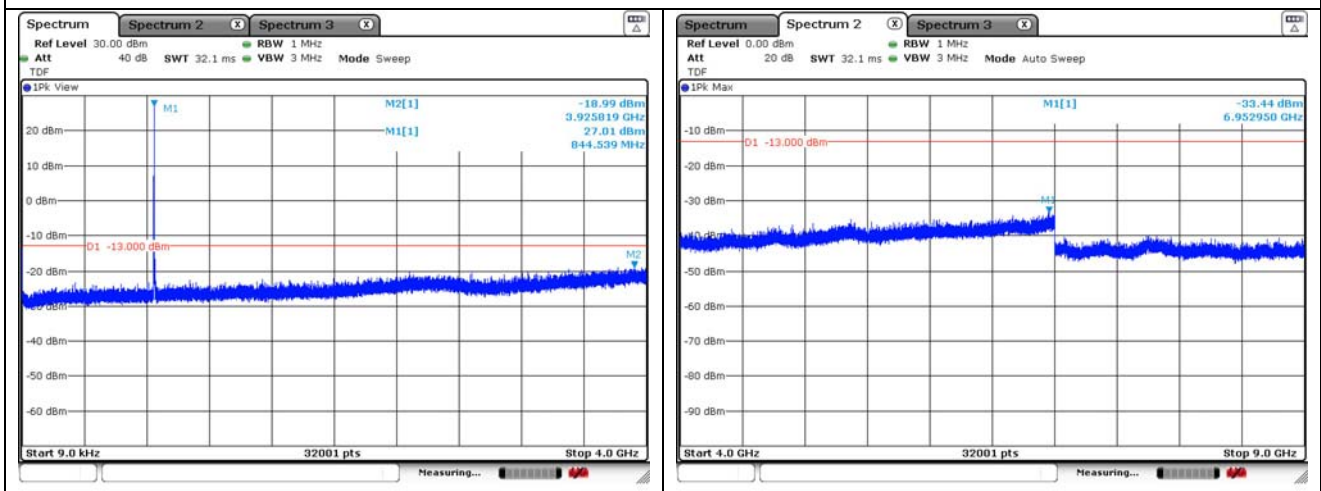
LTE band 5 (5 MHz)



QPSK Low Channel - 1 RB

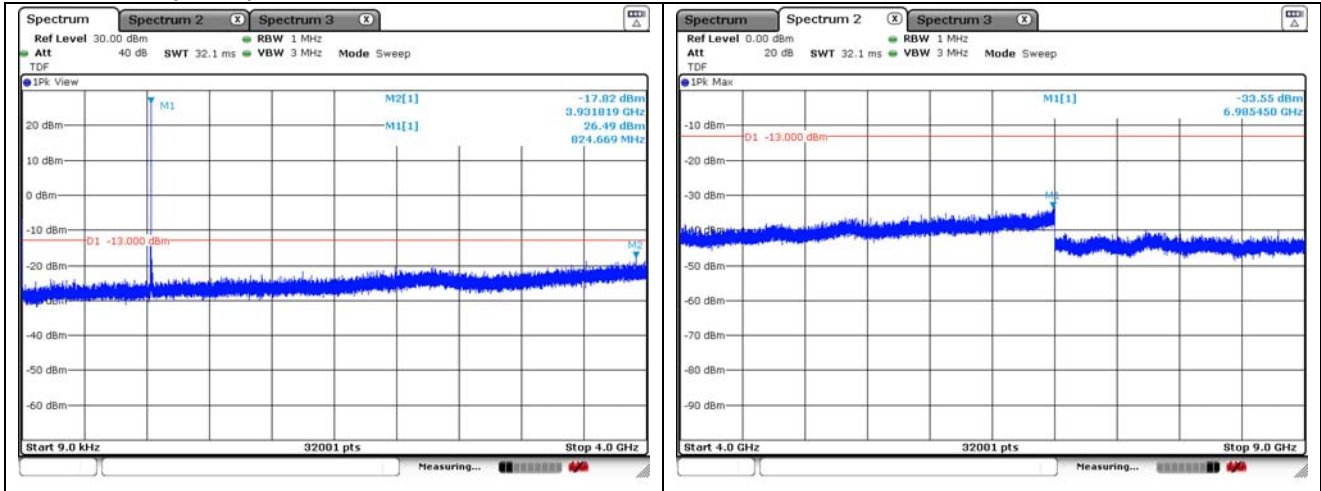


QPSK Middle Channel - 1 RB

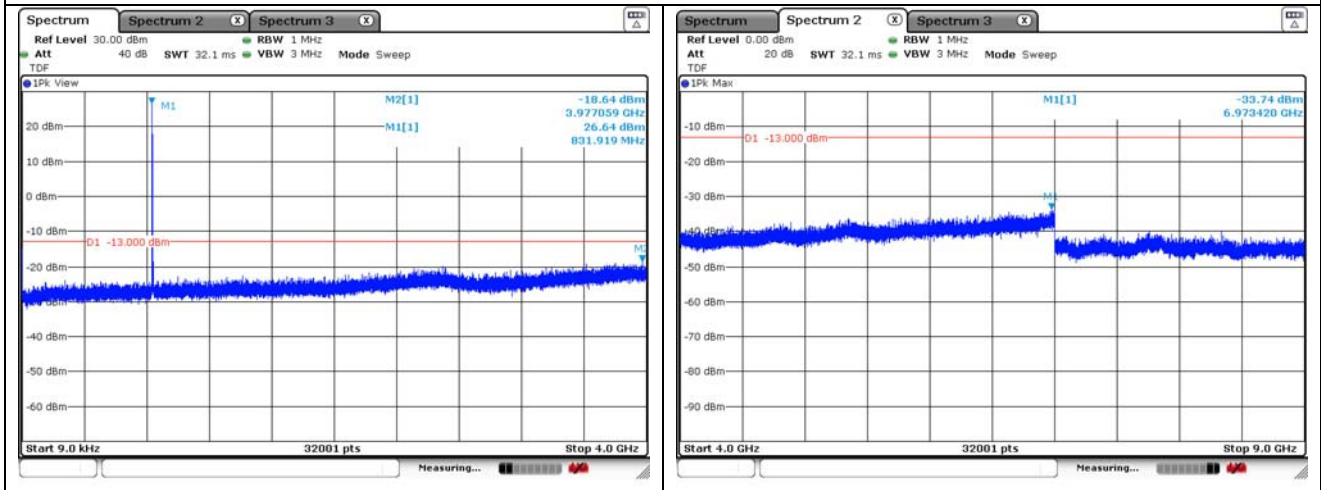


QPSK High Channel - 1 RB

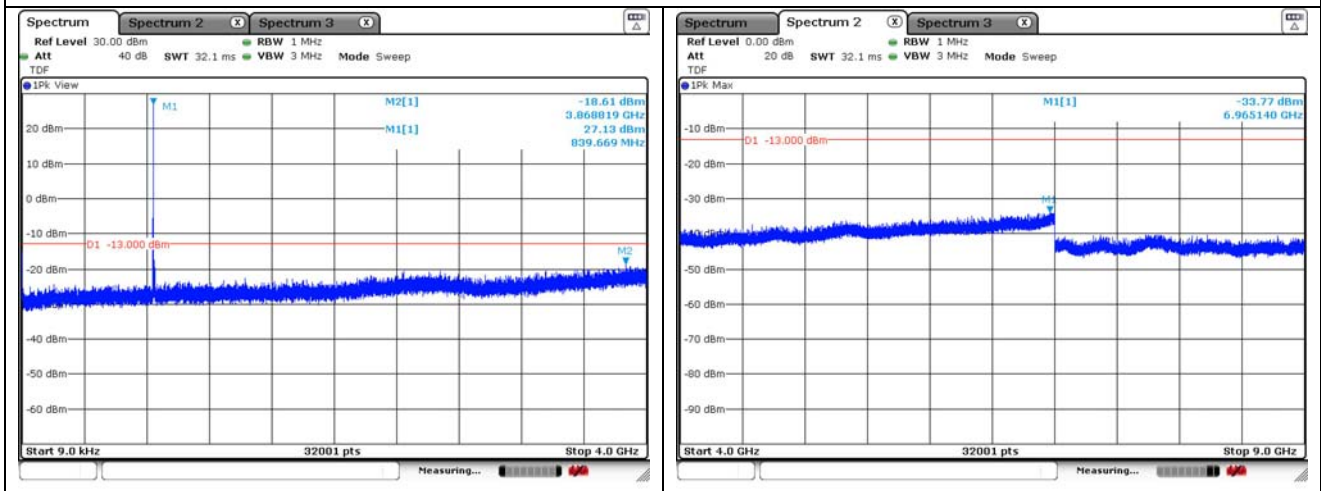
LTE band 5 (10 MHz)



QPSK Low Channel - 1 RB

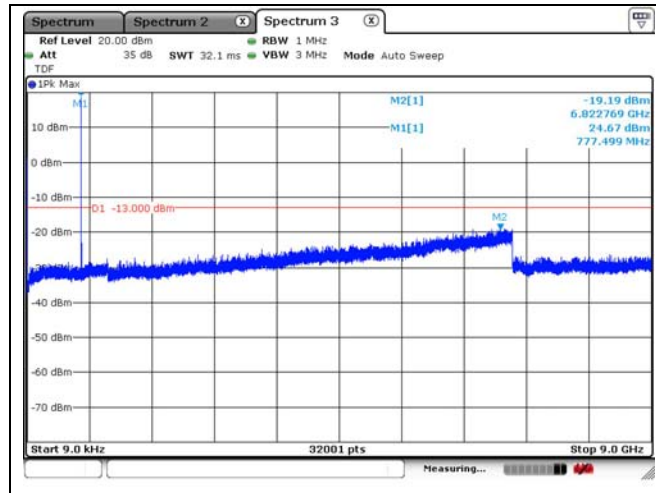


QPSK Middle Channel - 1 RB

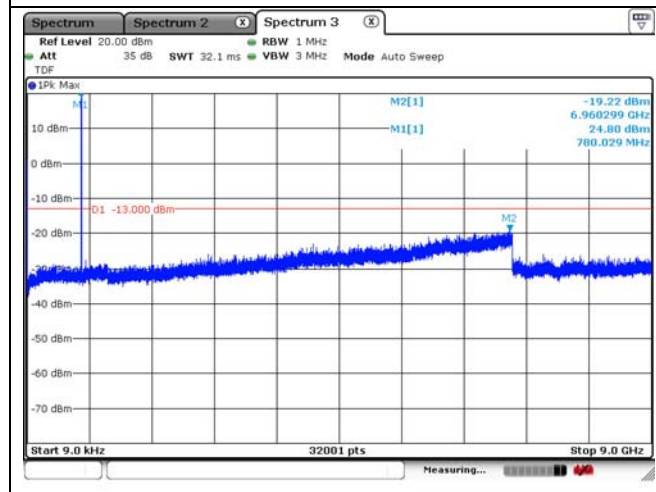


QPSK High Channel - 1 RB

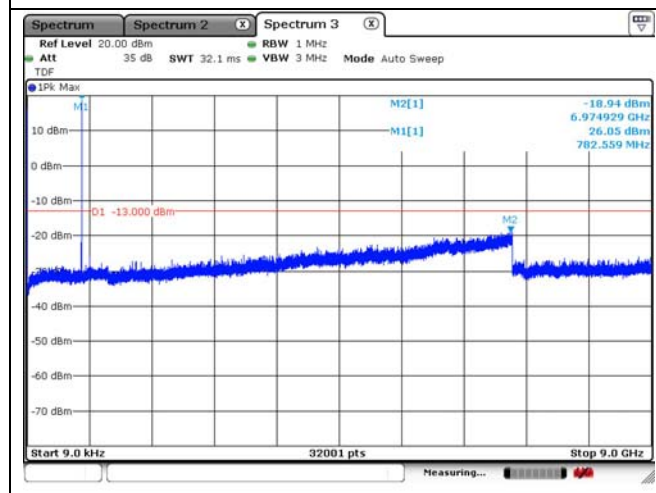
LTE band 13 (5 MHz)



QPSK Low Channel - 1 RB

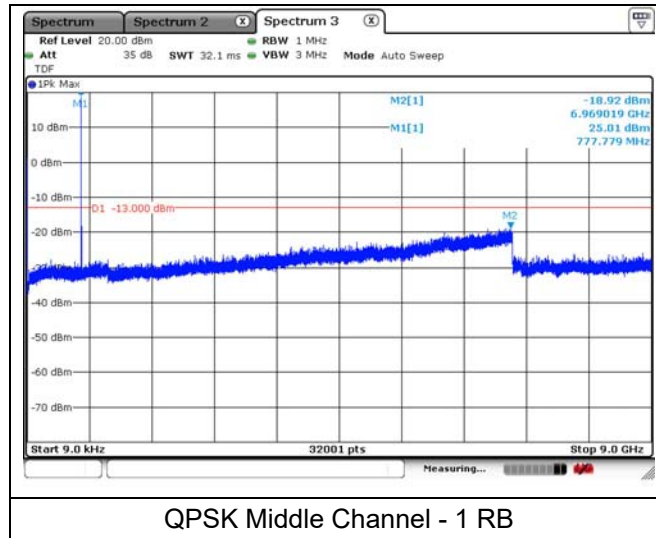


QPSK Middle Channel - 1 RB



QPSK High Channel - 1 RB

LTE band 13 (10 MHz)



7. Band Edge

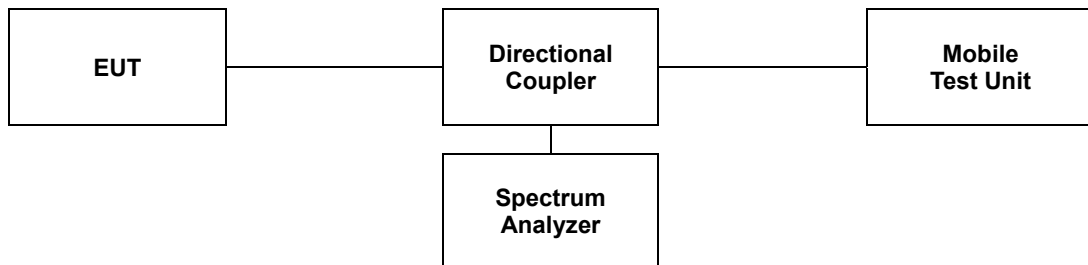
7.1. Limit

- §22.917(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 $43 + 10\log(P)$ dB.
- §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 $43 + 10 \log(P)$ dB.
- §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 $43 + 10 \log(P)$ dB.
- §27.53(h)(1), for operations in the 1 695-1 710 MHz, 1 710-1 755 MHz, 1 755-1 780 MHz, 1 915-1 920 MHz, 1 995-2 000 MHz, 2 000-2 020 MHz, 2 110-2 155 MHz, 2 155-2 180 MHz, and 2 180-2 200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

7.2. Test Procedure

The test follows section 5.7.3 of ANSI C63.26-2015

1. Span was set large enough so as to capture all out of band emissions near the band edge.
2. $RBW \geq 1\%$ of the OBW.
3. $VBW \geq 3 \times RBW$.
4. Detector = RMS.
5. Trace mode = Average.
6. Sweep time = Auto.
7. The trace was allowed to stabilize.
8. All path loss of frequency range was investigated and compensated to spectrum analyzer as TDF function.

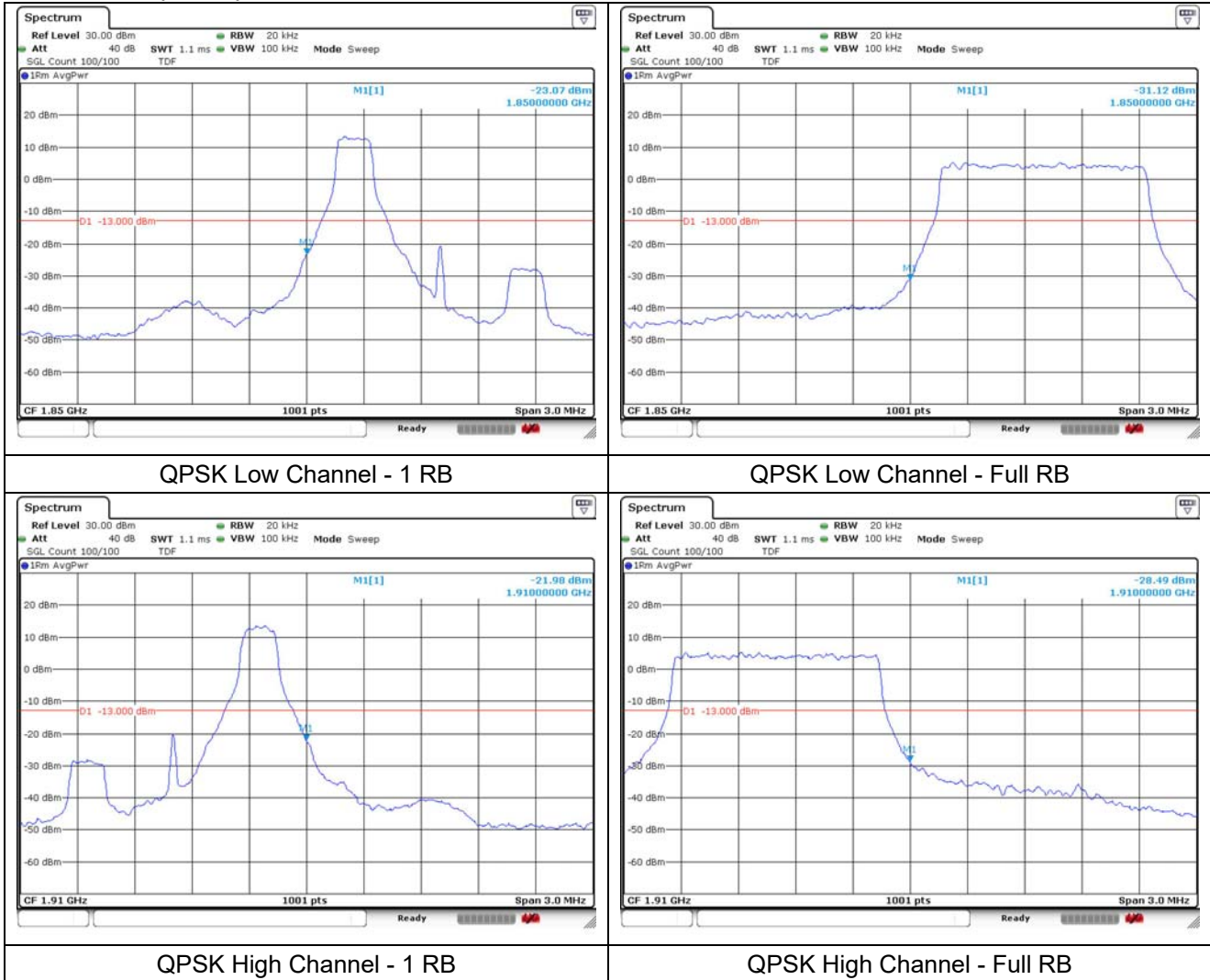


7.3. Test Results

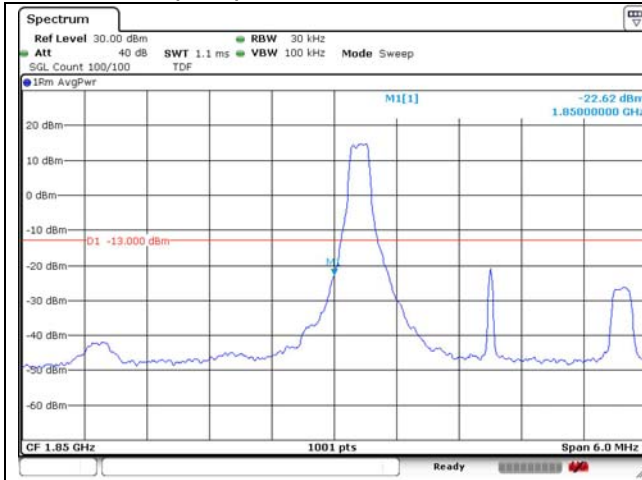
Ambient temperature : (23 ± 1) °C
 Relative humidity : 47 % R.H.

- Test plots

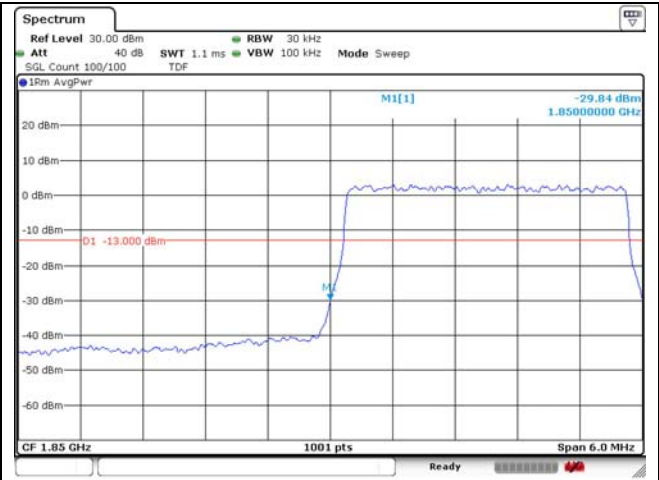
LTE band 2 (1.4 MHz)



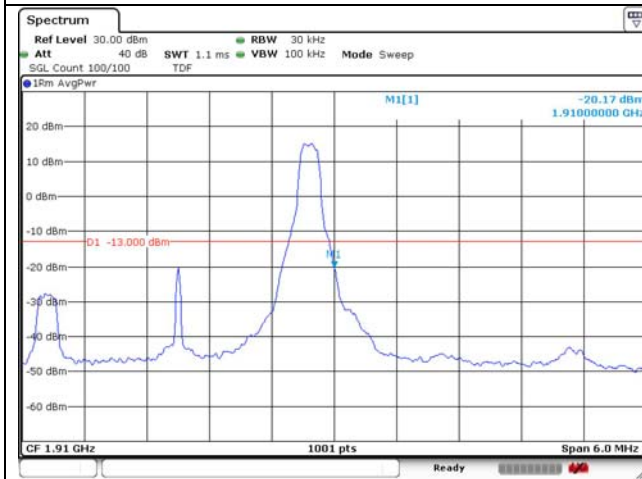
LTE band 2 (3 MHz)



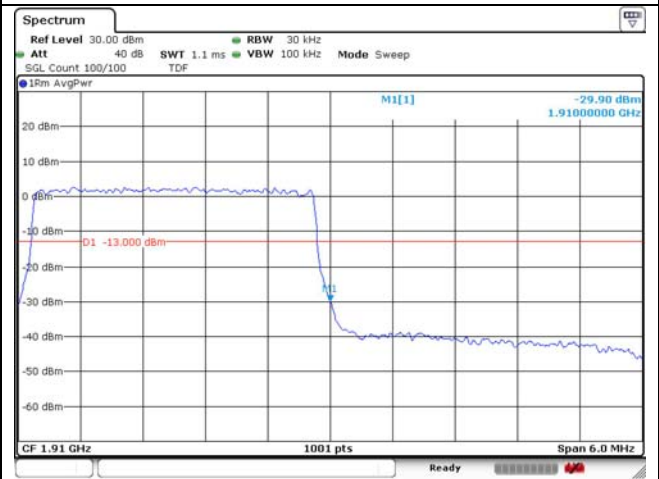
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

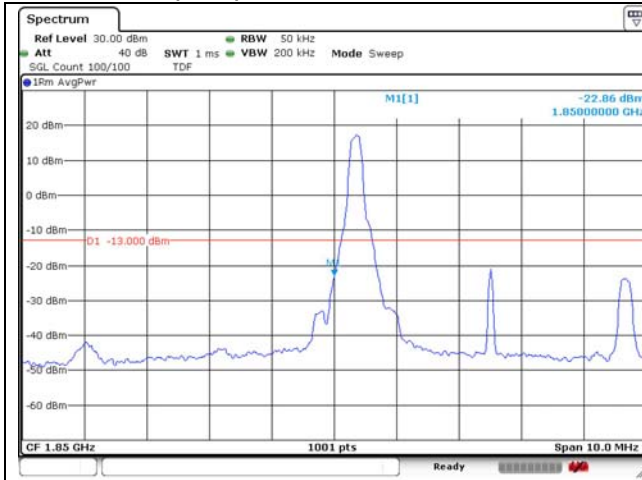


QPSK High Channel - 1 RB

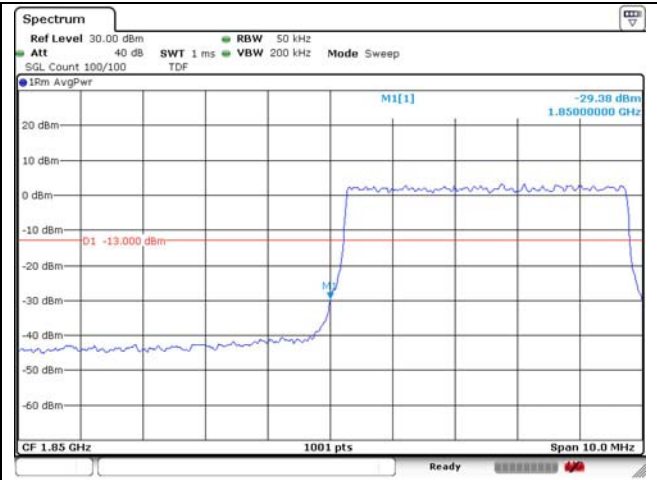


QPSK High Channel - Full RB

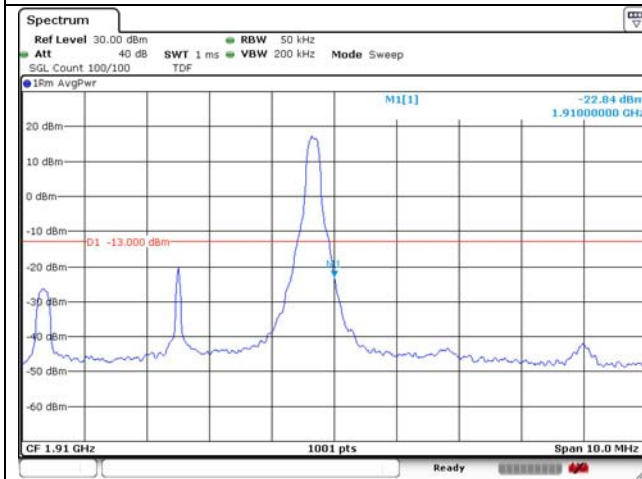
LTE band 2 (5 MHz)



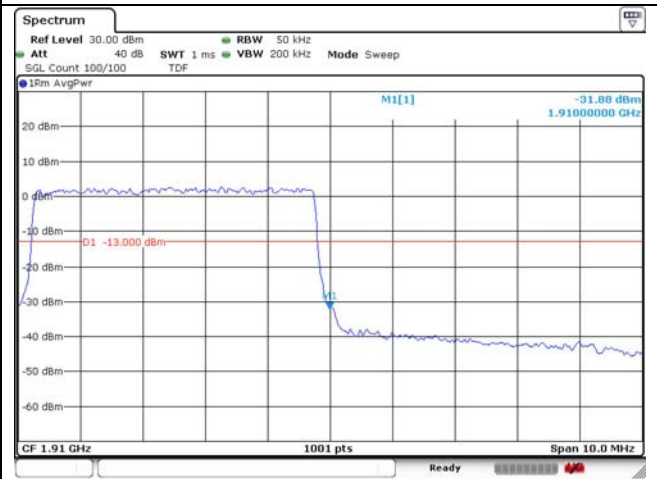
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

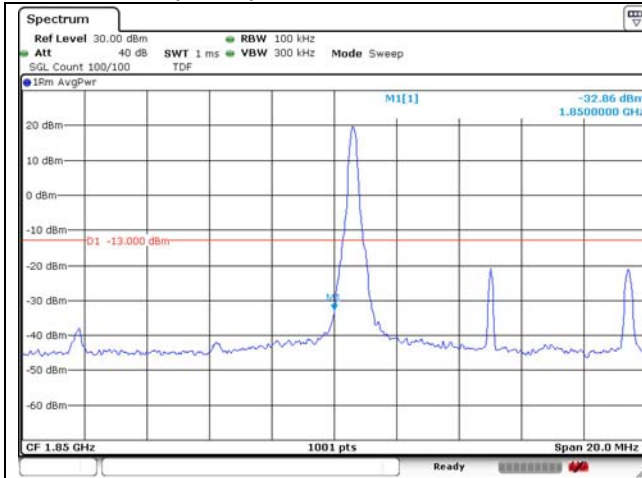


QPSK High Channel - 1 RB

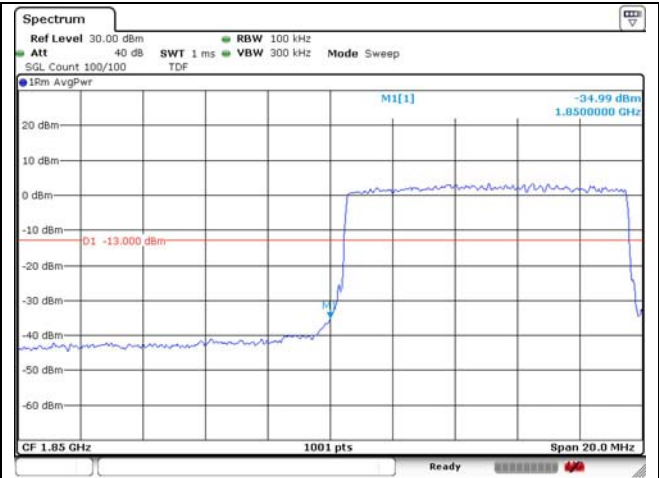


QPSK High Channel - Full RB

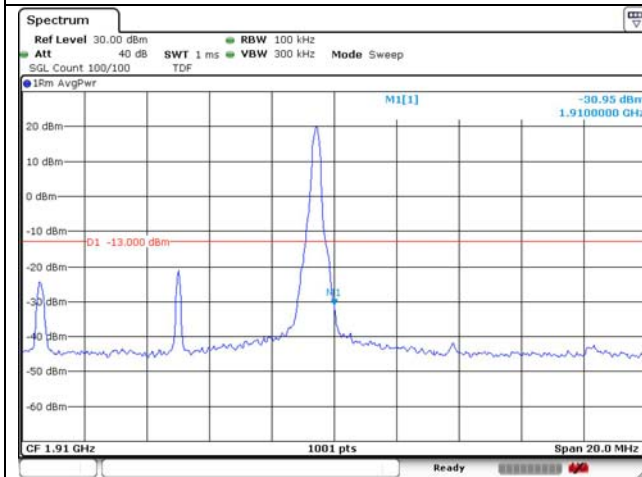
LTE band 2 (10 MHz)



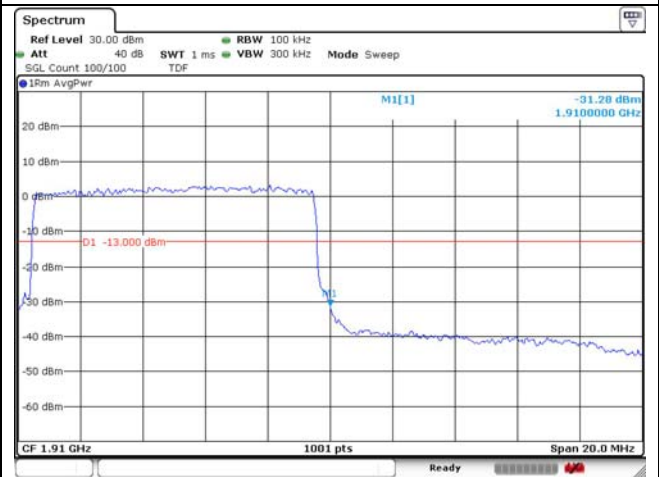
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

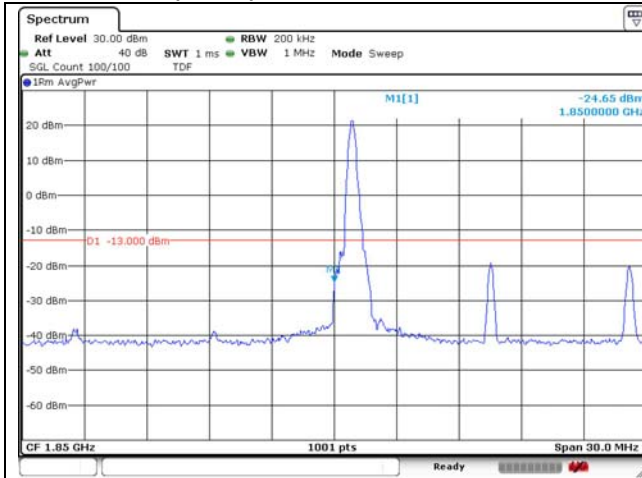


QPSK High Channel - 1 RB

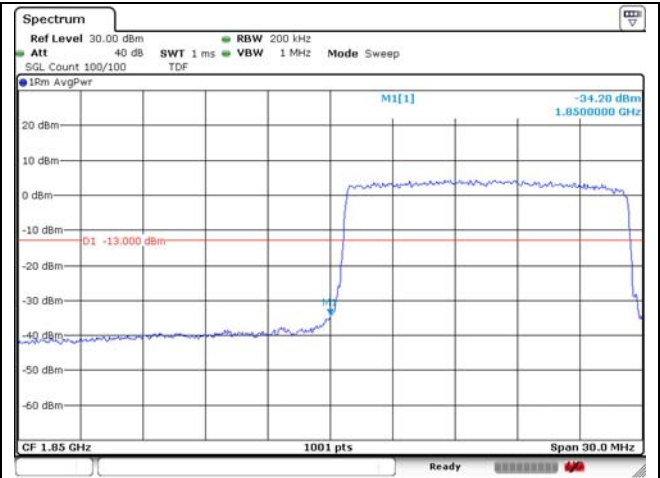


QPSK High Channel - Full RB

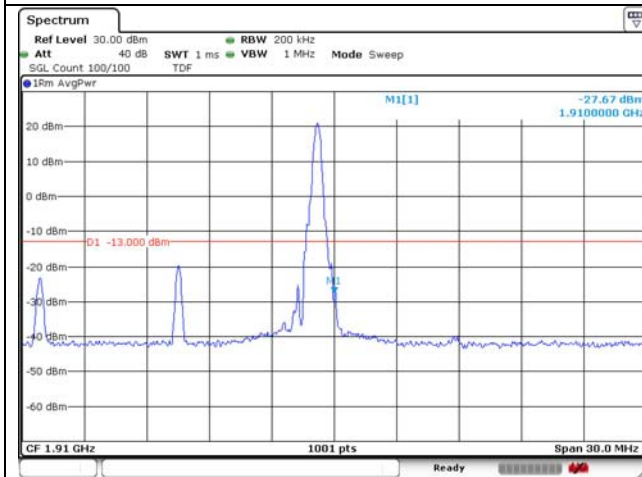
LTE band 2 (15 MHz)



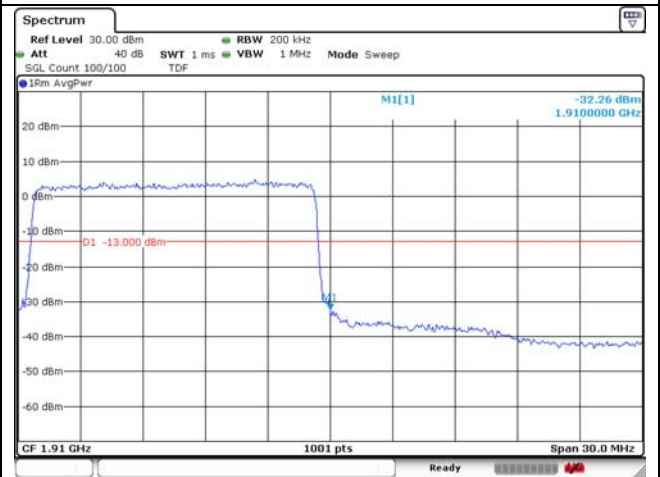
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

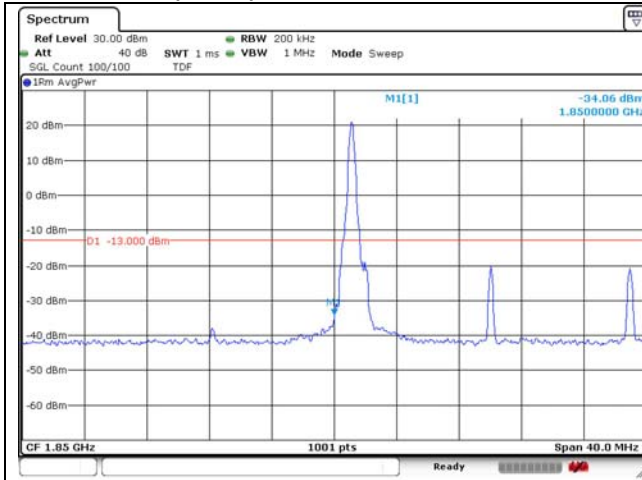


QPSK High Channel - 1 RB

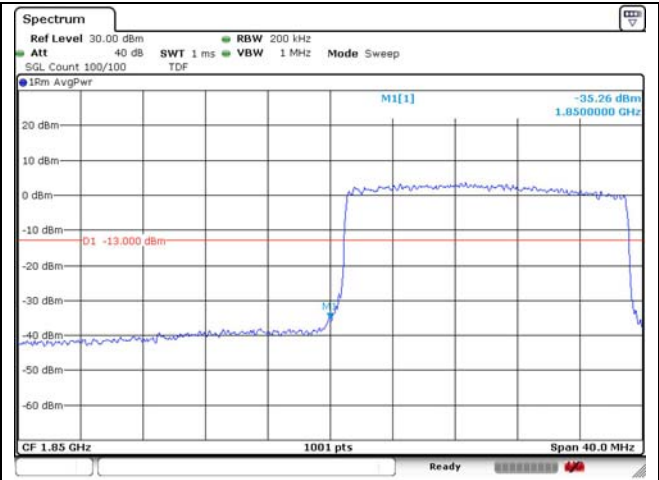


QPSK High Channel - Full RB

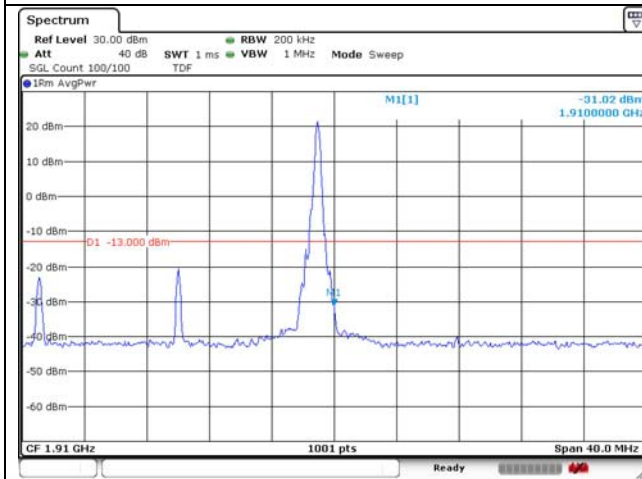
LTE band 2 (20 MHz)



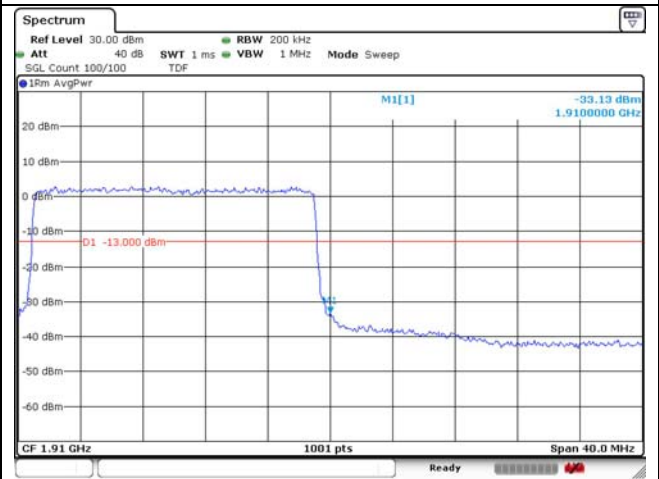
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

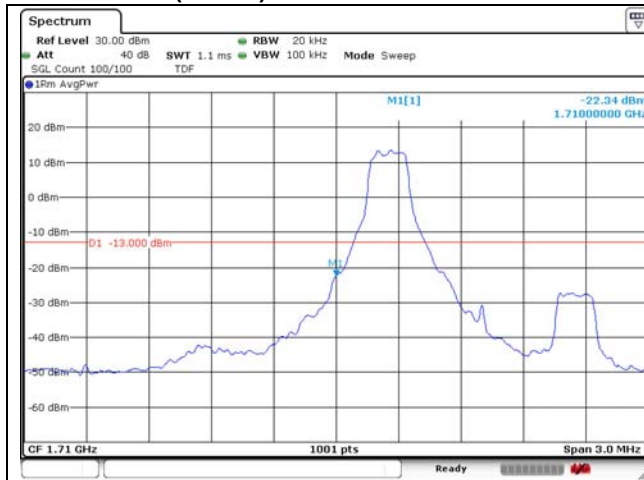


QPSK High Channel - 1 RB

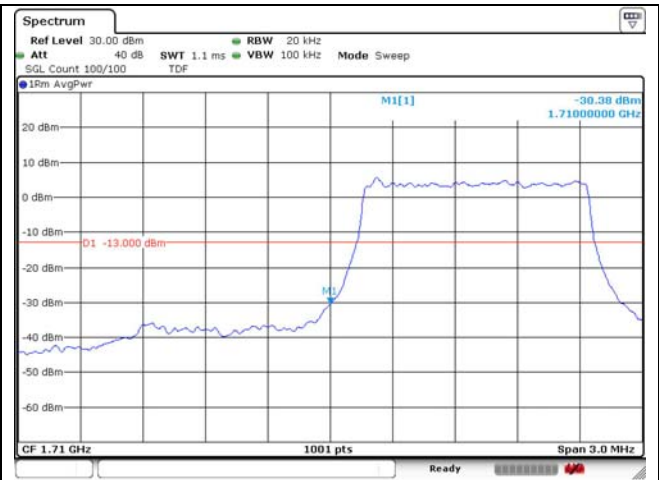


QPSK High Channel - Full RB

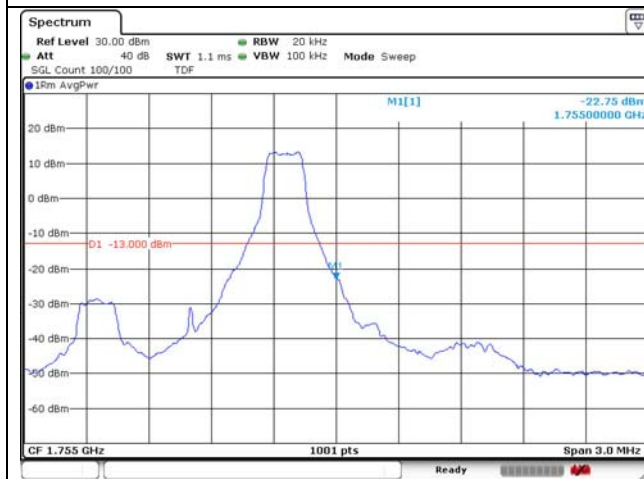
LTE band 4 (1.4 MHz)



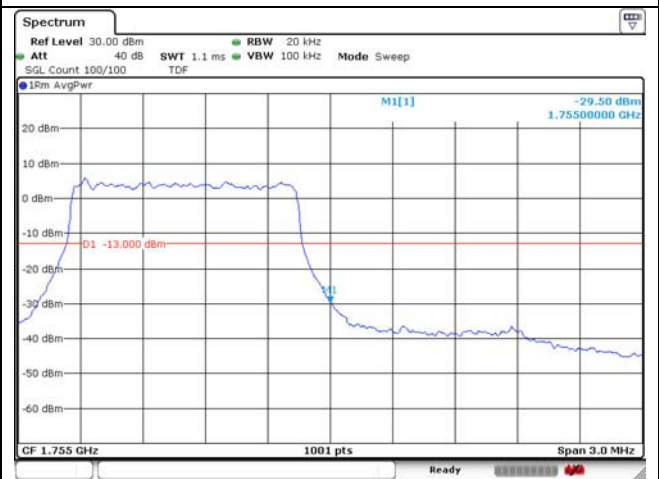
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

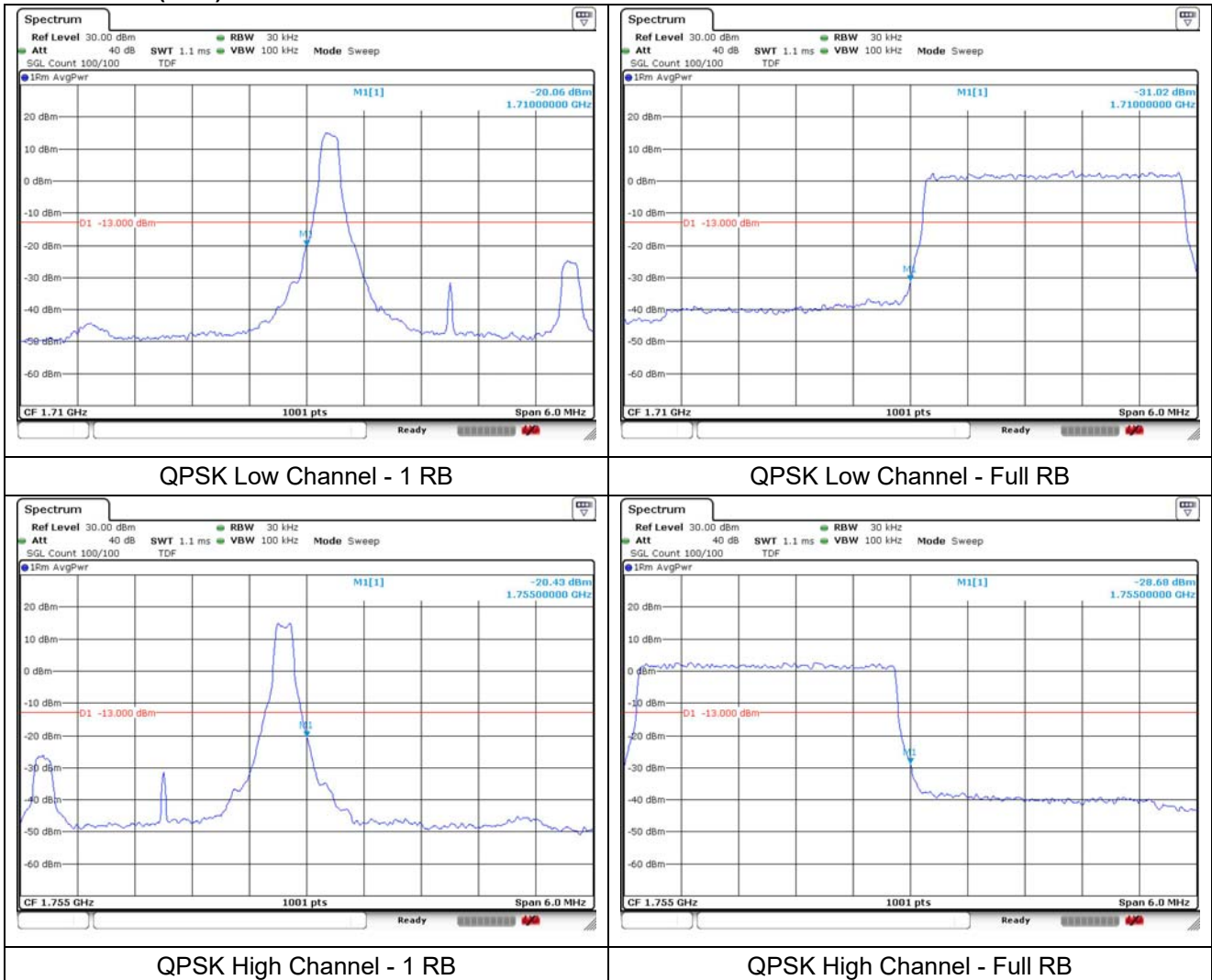


QPSK High Channel - 1 RB

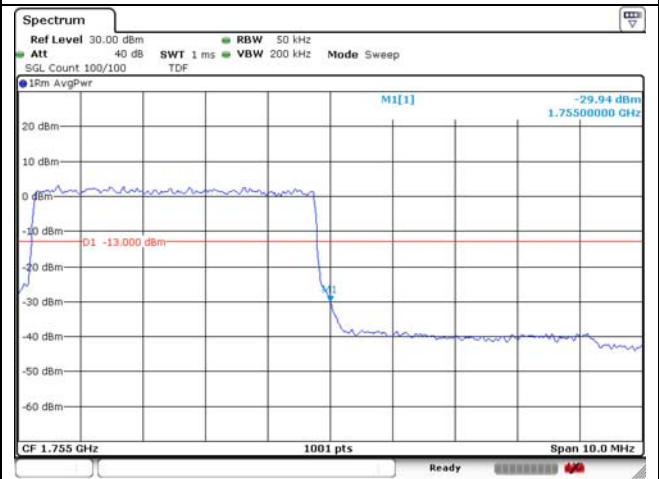
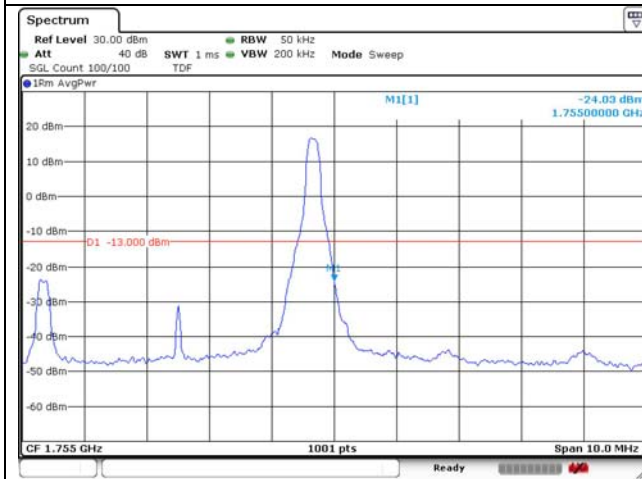
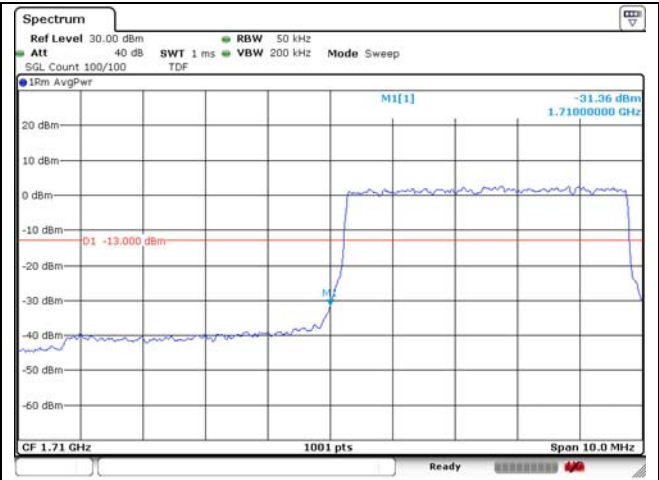
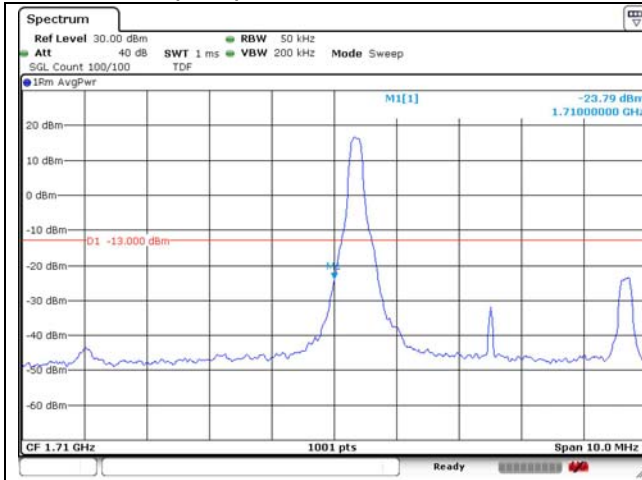


QPSK High Channel - Full RB

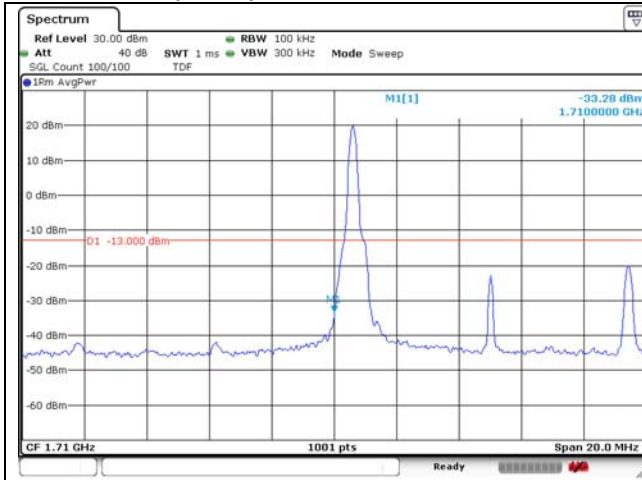
LTE band 4 (3 MHz)



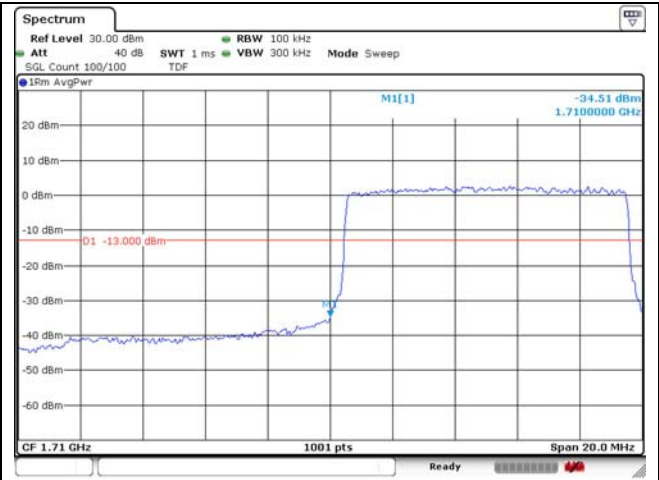
LTE band 4 (5 MHz)



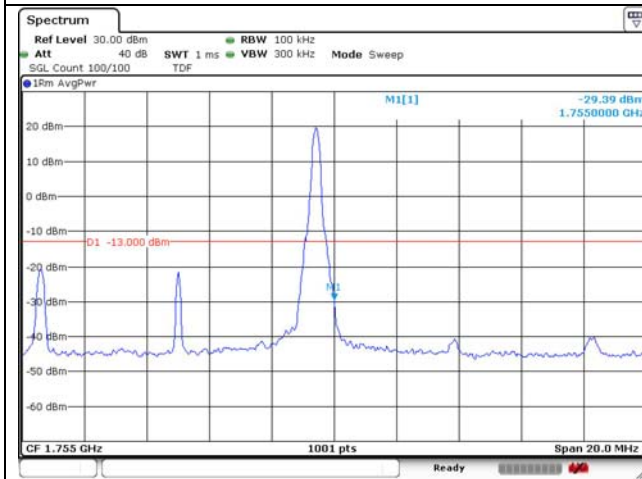
LTE band 4 (10 MHz)



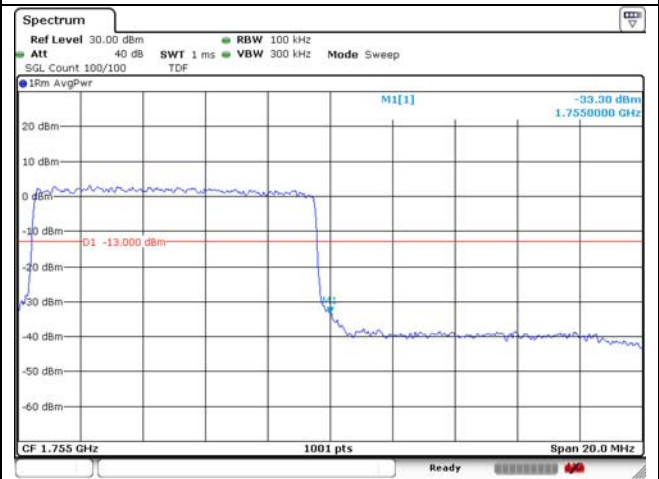
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

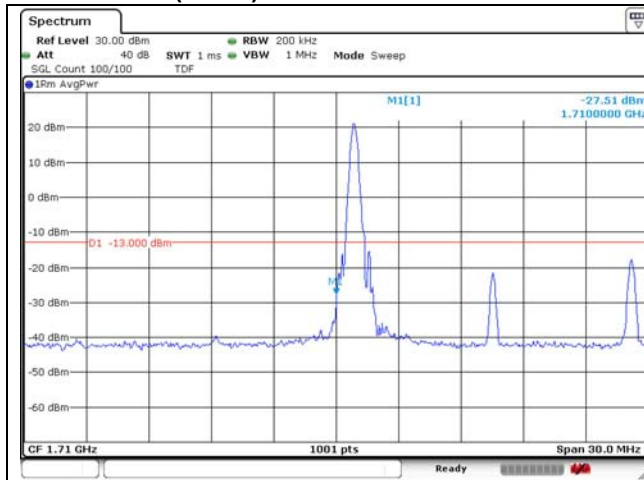


QPSK High Channel - 1 RB

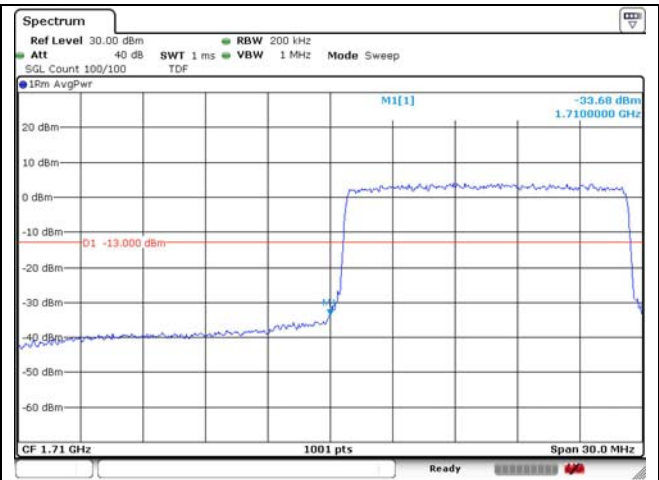


QPSK High Channel - Full RB

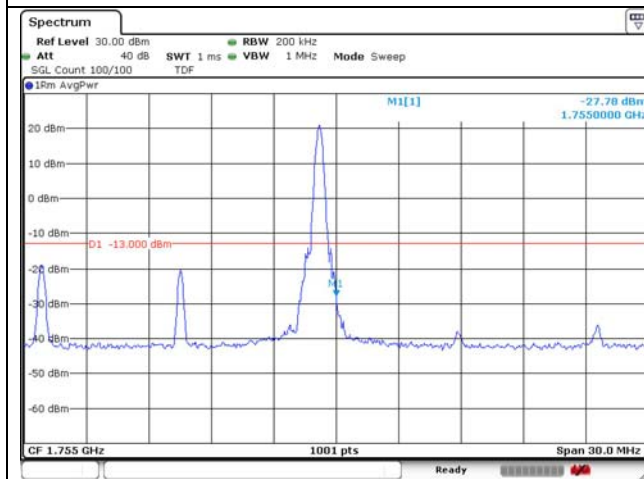
LTE band 4 (15 MHz)



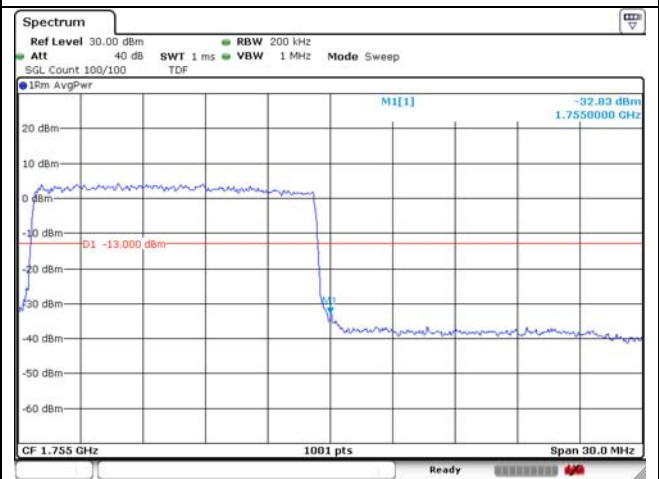
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

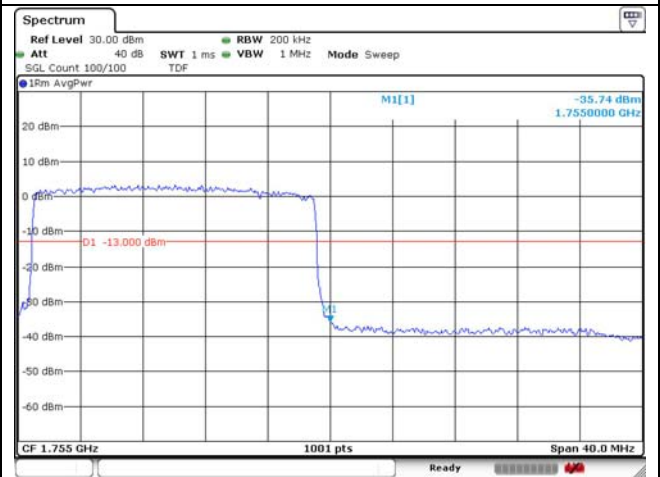
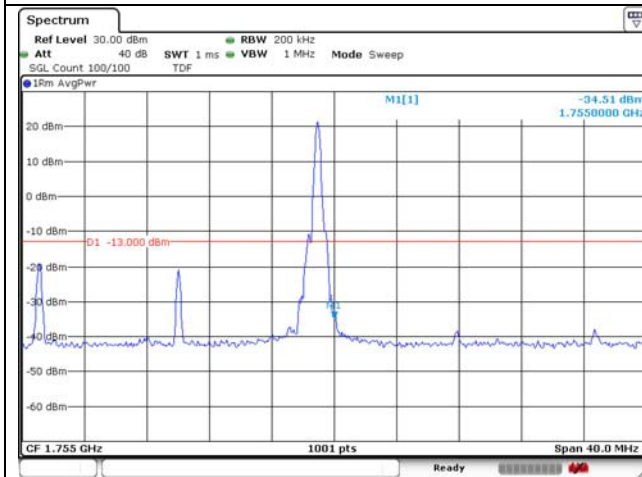
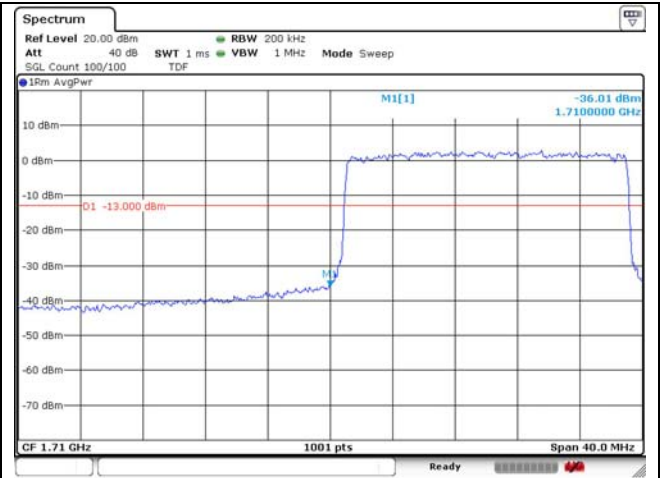
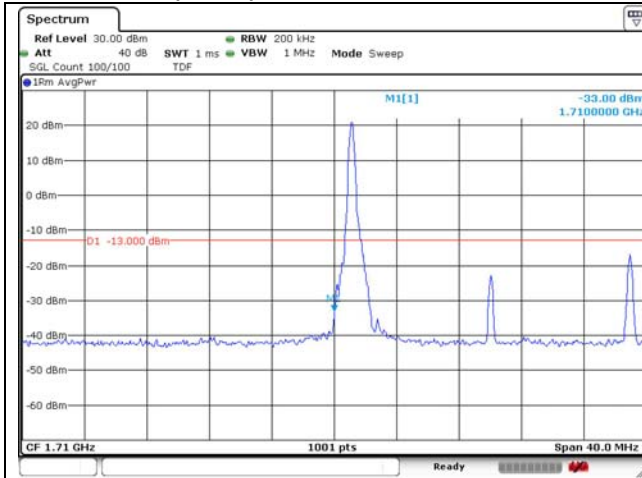


QPSK High Channel - 1 RB



QPSK High Channel - Full RB

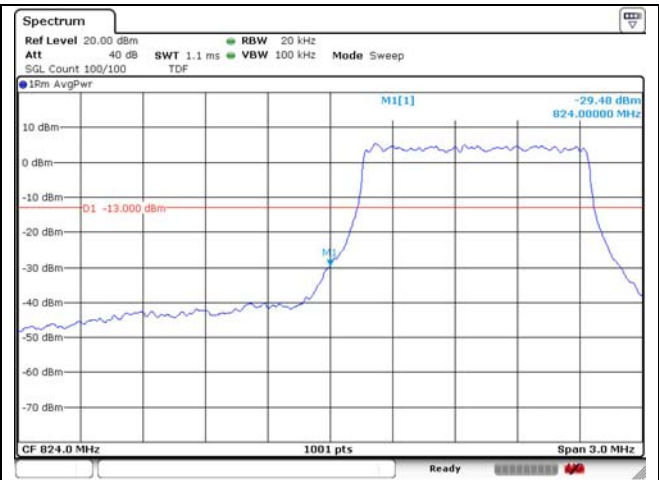
LTE band 4 (20 MHz)



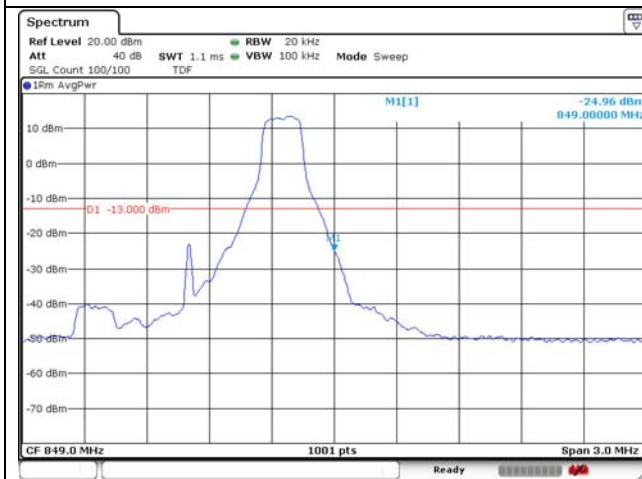
LTE band 5 (1.4 MHz)



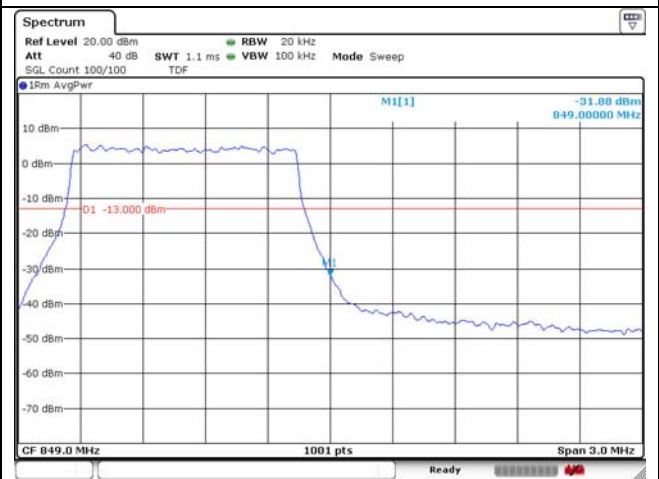
QPSK Low Channel - 1 RB



QPSK Low Channel - Full RB

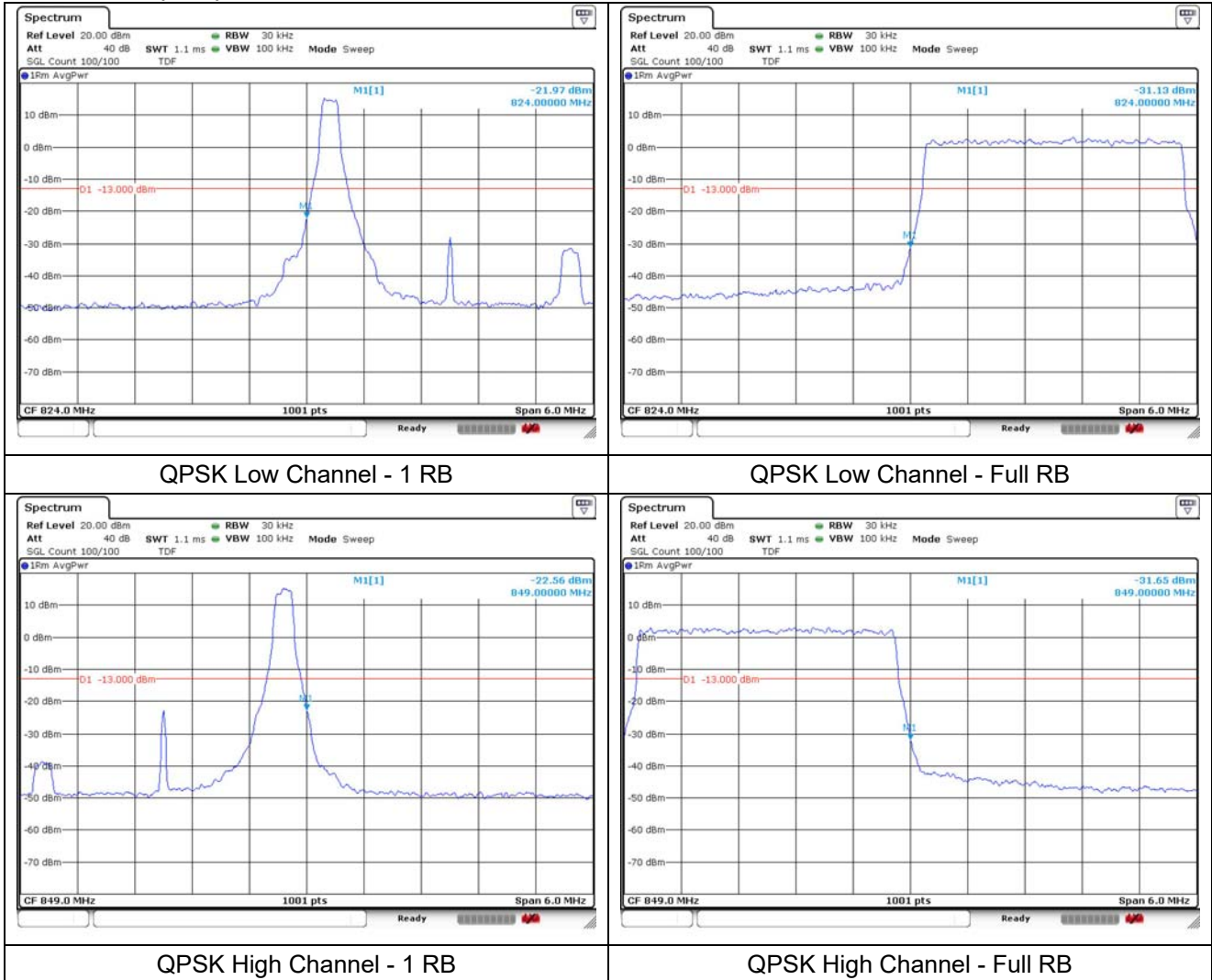


QPSK High Channel - 1 RB

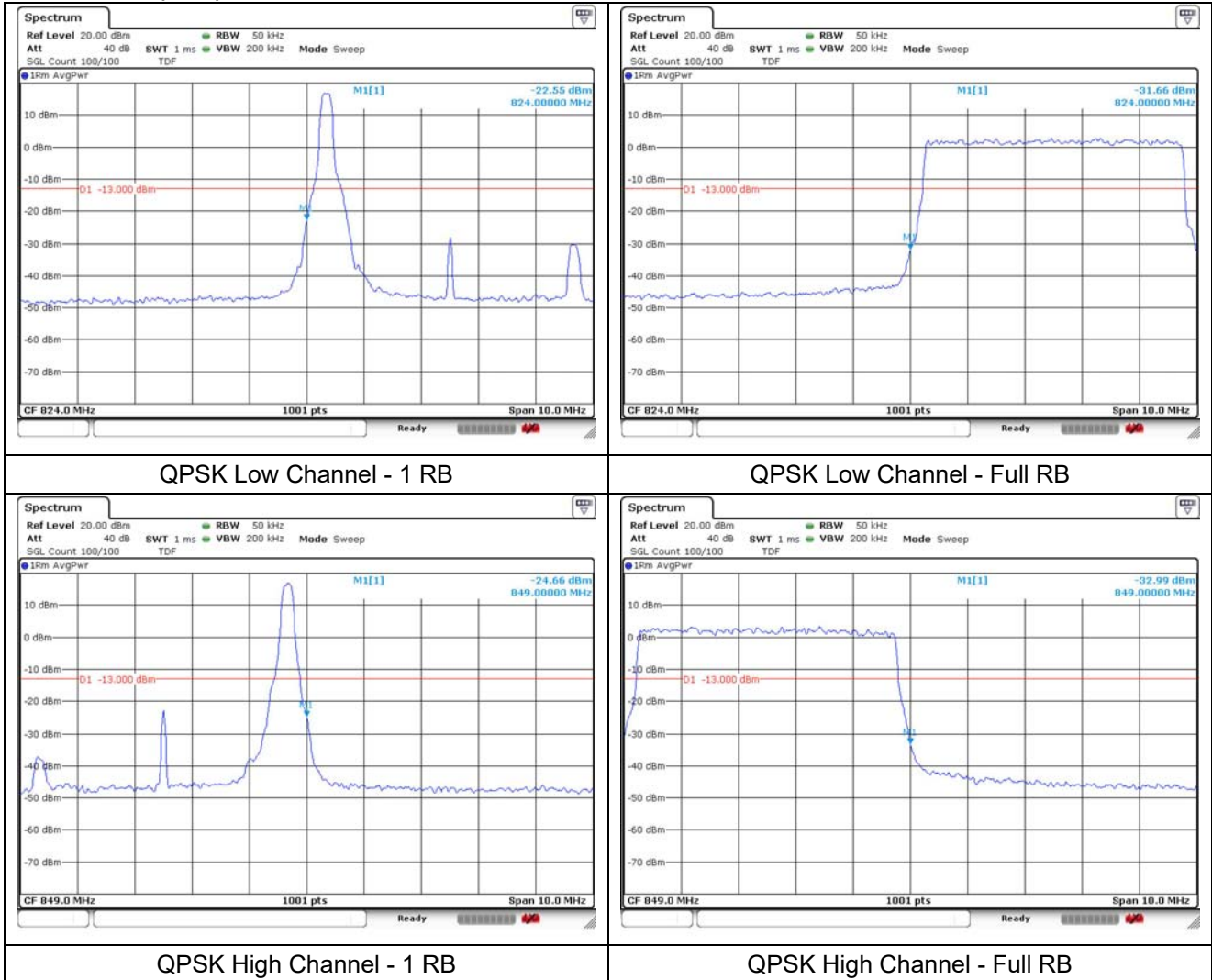


QPSK High Channel - Full RB

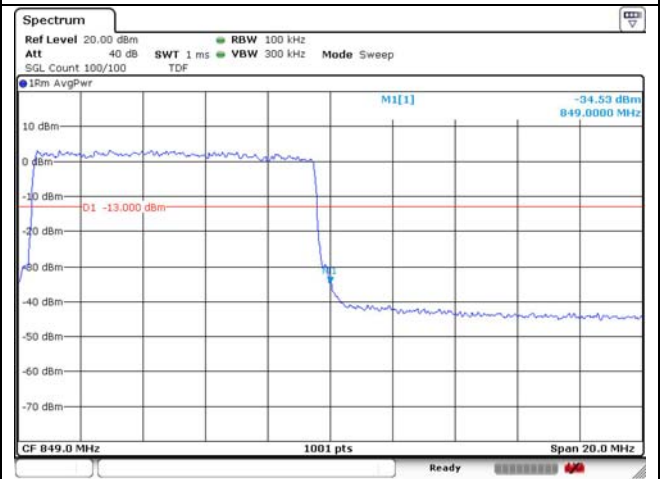
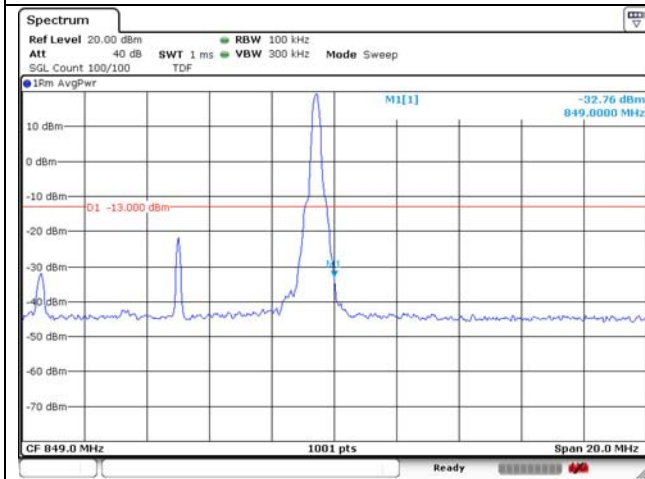
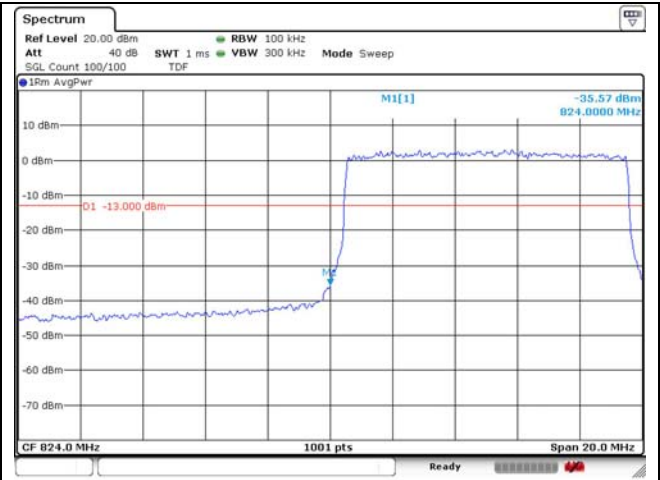
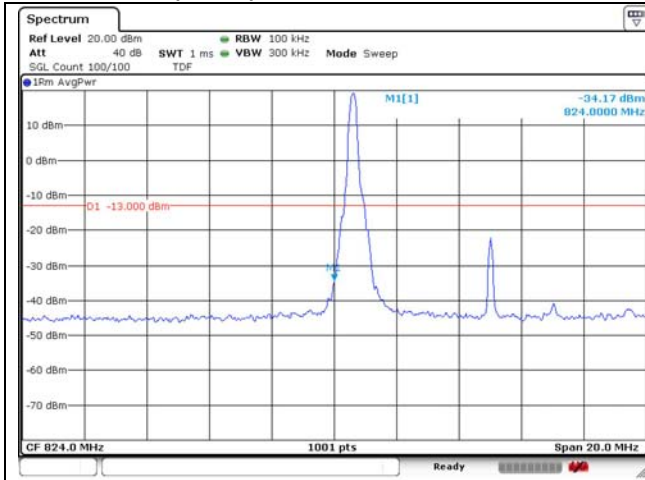
LTE band 5 (3 MHz)



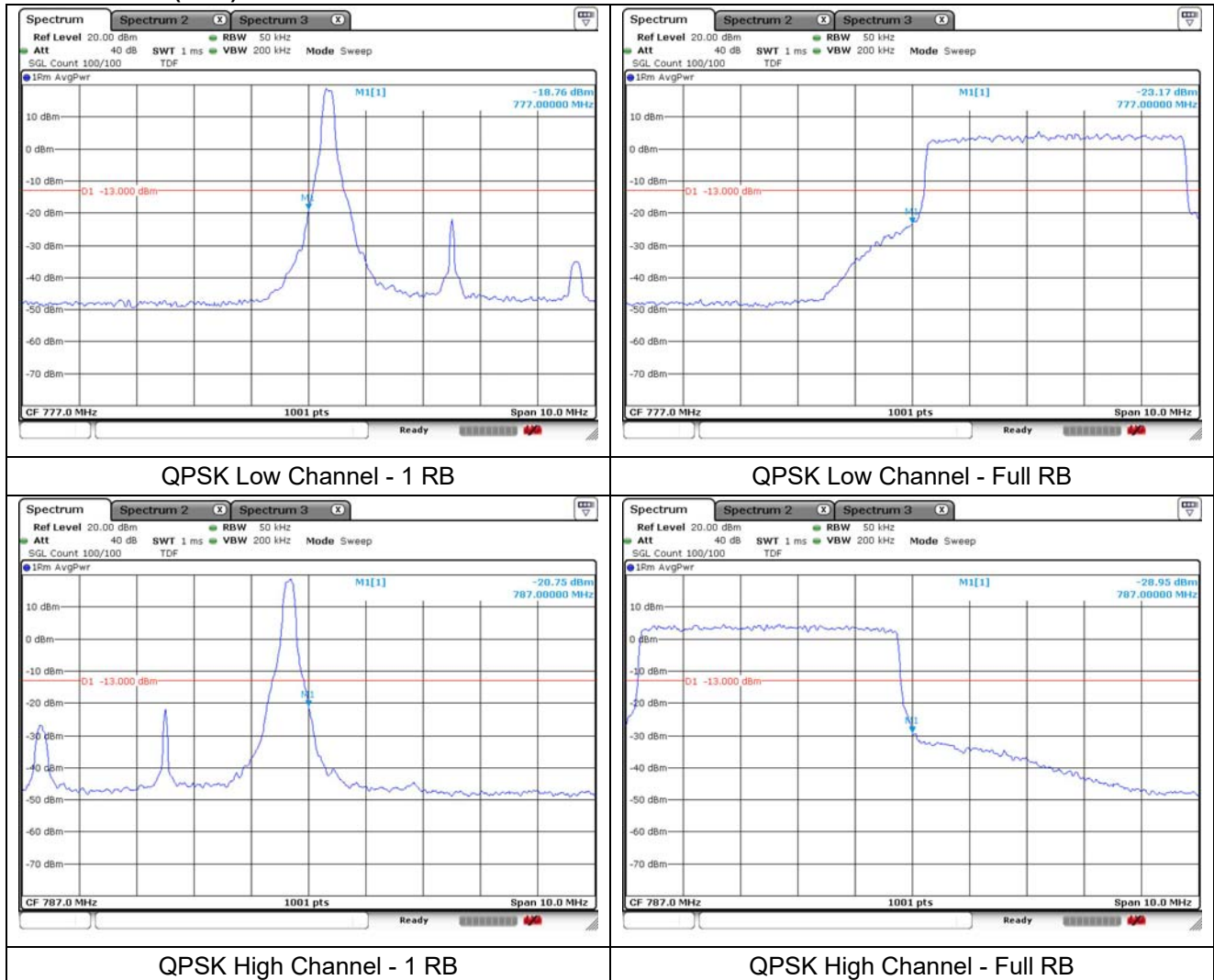
LTE band 5 (5 MHz)



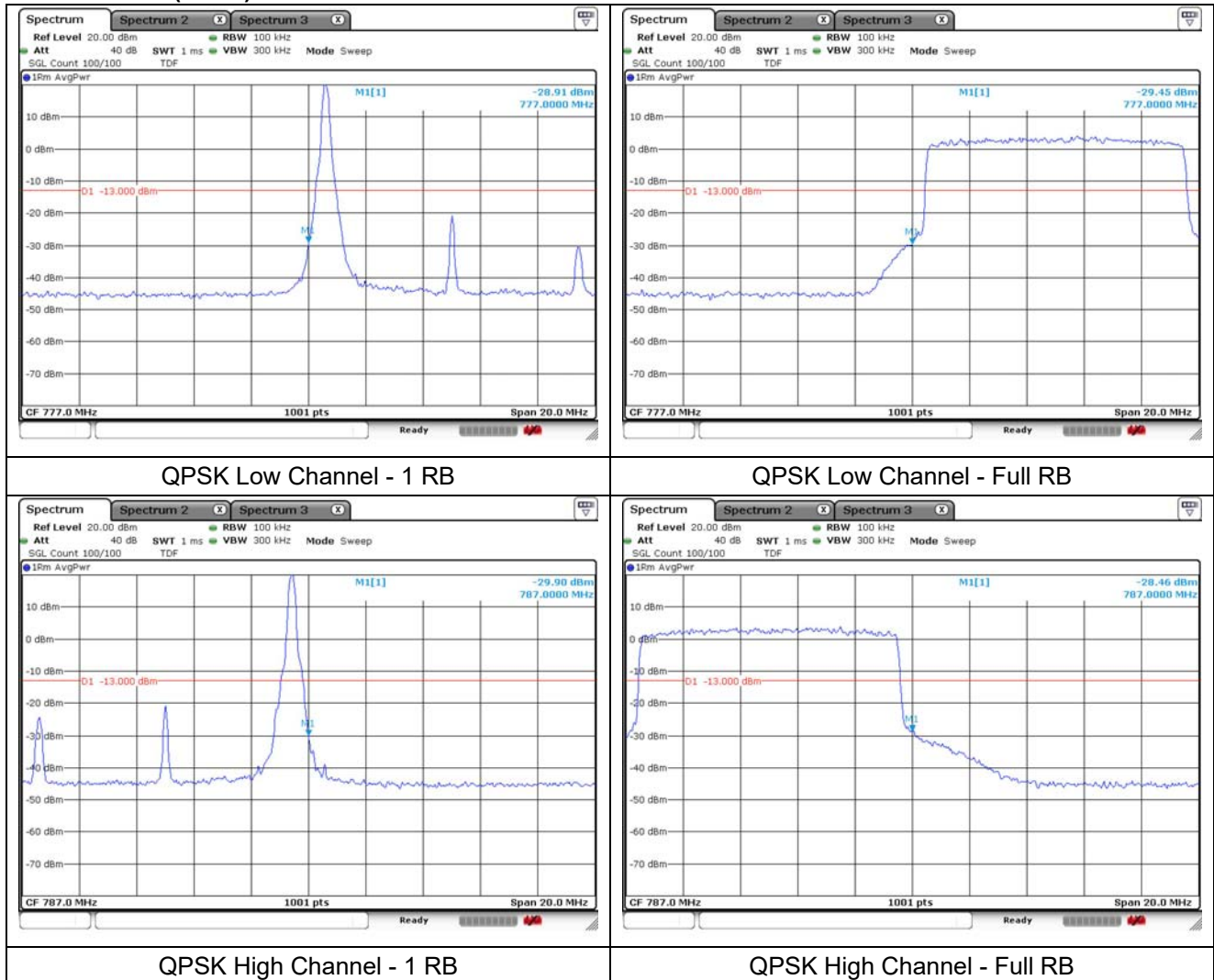
LTE band 5 (10 MHz)



LTE band 13 (5 MHz)



LTE band 13 (10 MHz)



8. Frequency Stability

8.1. Limit

- § 2.1055 (a), § 2.1055 (d) & following:

- §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table of this section.

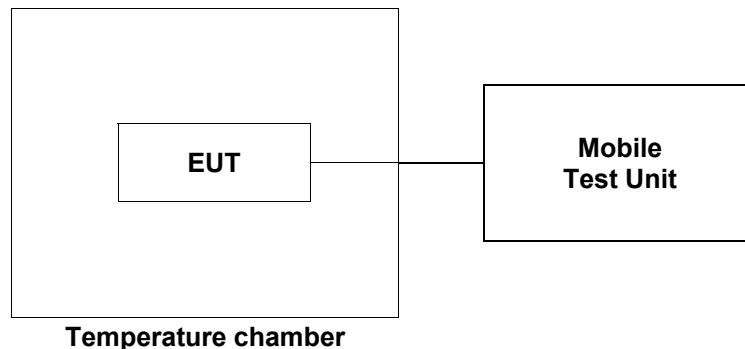
For Mobile devices operating in the 824 to 849 MHz band at a power level less than or equal to 3 Watts, the limit specified in Table C-1 is +/- 2.5 ppm.

- §24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

- §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

8.2. Test Procedure

1. Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a Mobile Test Unit via feed-through attenuators.
2. The EUT was placed inside the temperature chamber.
3. After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from Mobile Test Unit.



8.3. Test Results

Ambient temperature : (23 ± 1) °C
 Relative humidity : 47 % R.H.

LTE band 2 at middle channel

Operating Frequency: 1 880.0 MHz			
Frequency Stability versus Temperature			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
50	4.0	-4.26	-0.000 02
40		-3.44	0.000 41
30		-2.08	0.001 14
20 (Ref.)		-4.22	-
10		-4.19	0.000 02
0		-3.25	0.000 52
-10		-2.41	0.000 96
-20		-3.24	0.000 52
-30		-4.54	-0.000 17
Frequency Stability versus Power Supply			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
20	4.60	-2.49	0.000 92
	3.40	-4.28	-0.000 03

LTE band 4 at middle channel

Operating Frequency: 1 732.5 MHz			
Frequency Stability versus Temperature			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
50	4.0	-2.45	0.000 99
40		-1.54	0.001 52
30		-3.59	0.000 33
20 (Ref.)		-4.17	-
10		-1.24	0.001 69
0		1.21	0.003 11
-10		-2.71	0.000 84
-20		-3.47	0.000 40
-30		-2.54	0.000 94
Frequency Stability versus Power Supply			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
20	4.60	-4.12	0.000 03
	3.40	-3.29	0.000 51

LTE band 5 at middle channel

Operating Frequency: 836.5 MHz			
Frequency Stability versus Temperature			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
50	4.0	-2.44	0.000 02
40		-1.26	0.001 43
30		-1.29	0.001 40
20 (Ref.)		-2.46	-
10		-1.24	0.001 46
0		-3.32	-0.001 03
-10		-1.54	0.001 10
-20		-3.12	-0.000 79
-30		1.56	0.004 81
Frequency Stability versus Power Supply			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
20	4.60	-1.06	0.001 67
	3.40	-2.40	0.000 07

LTE band 13 at middle channel

Operating Frequency: 782.0 MHz			
Frequency Stability versus Temperature			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
50	4.0	-1.45	-0.000 19
40		-2.60	-0.001 66
30		-3.08	-0.002 28
20 (Ref.)		-1.30	-
10		-1.40	-0.000 13
0		-2.01	-0.000 91
-10		-2.78	-0.001 89
-20		-2.80	-0.001 92
-30		-2.90	-0.002 05
Frequency Stability versus Power Supply			
Environment Temperature (°C)	Power Supplied (V)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
20	4.60	-1.98	-0.000 87
	3.40	-2.04	-0.000 95

- End of the Test Report -