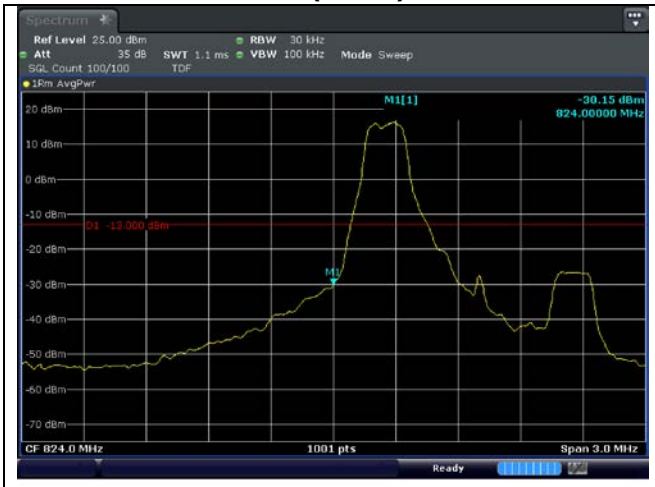
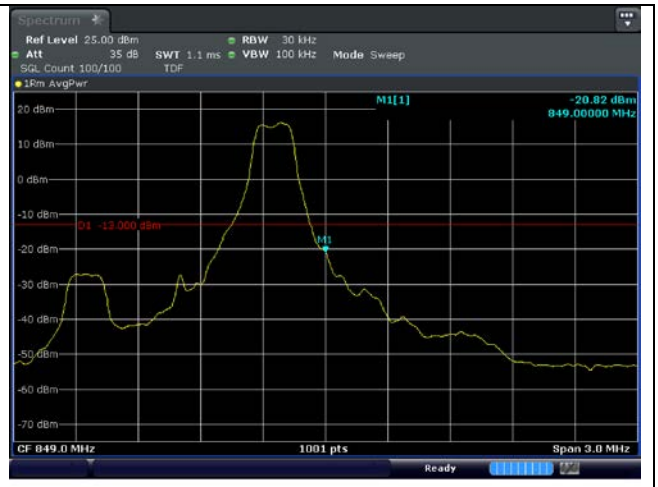
LTE band 26/5_Part 22 (1.4 ㎒)



QPSK Low Channel - 1 RB



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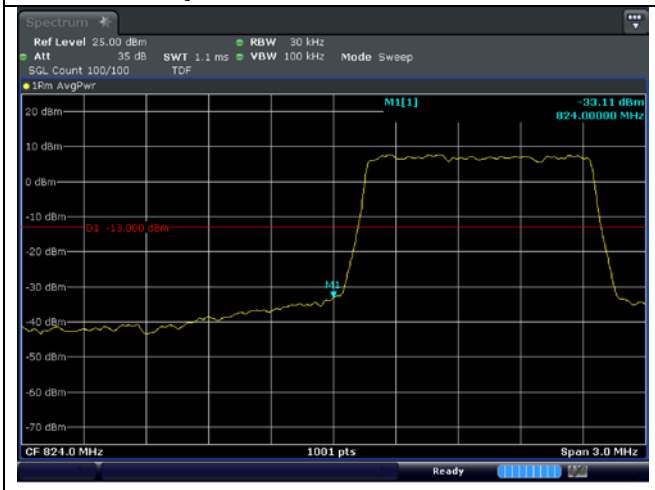
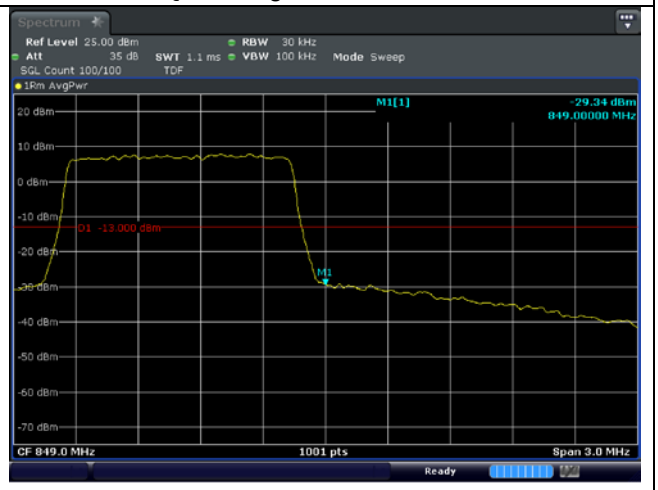
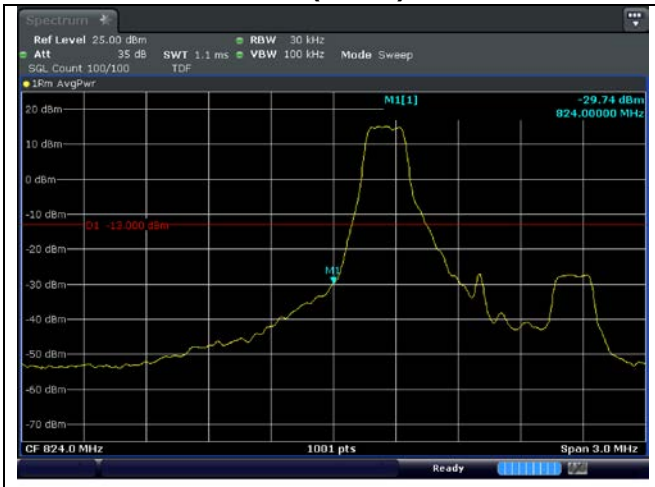


QPSK Low Channel - Full RB



QPSK High Channel - Full RB

LTE band 26/5_Part 22 (1.4 ㎒)



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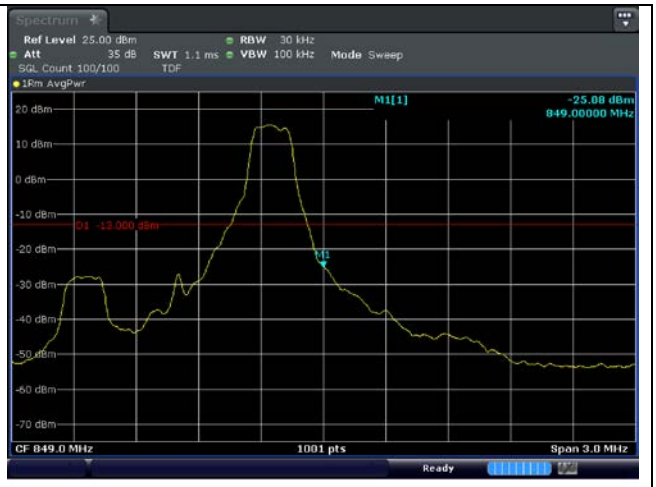

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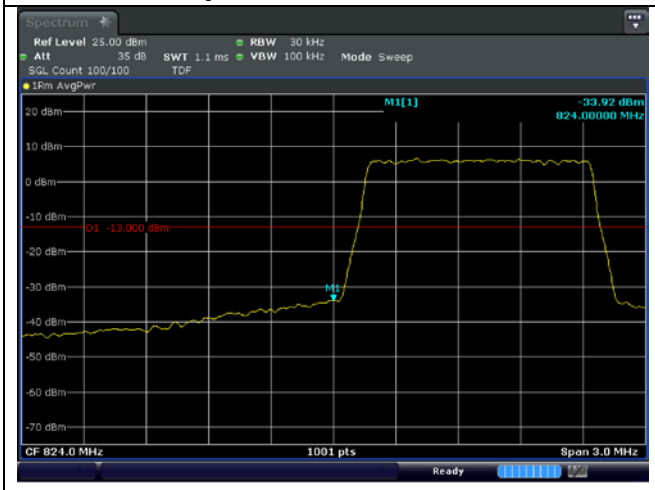

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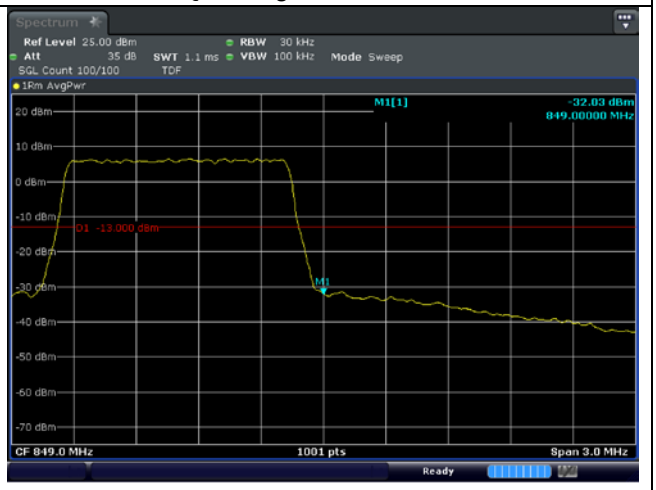
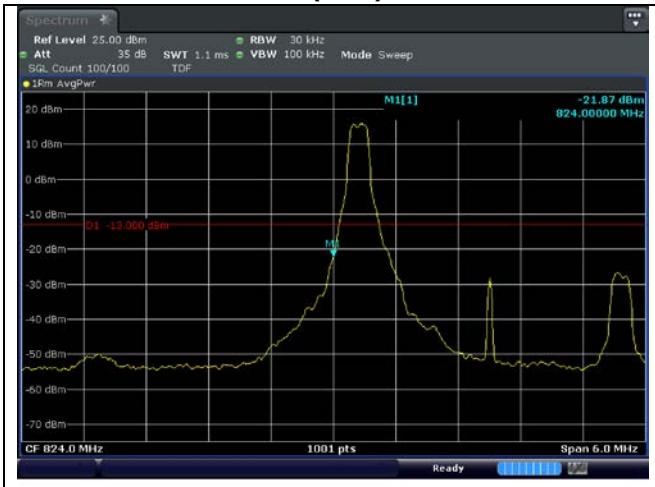


16QAM High Channel - Full RB

LTE band 26/5_Part 22 (3 ㎒)



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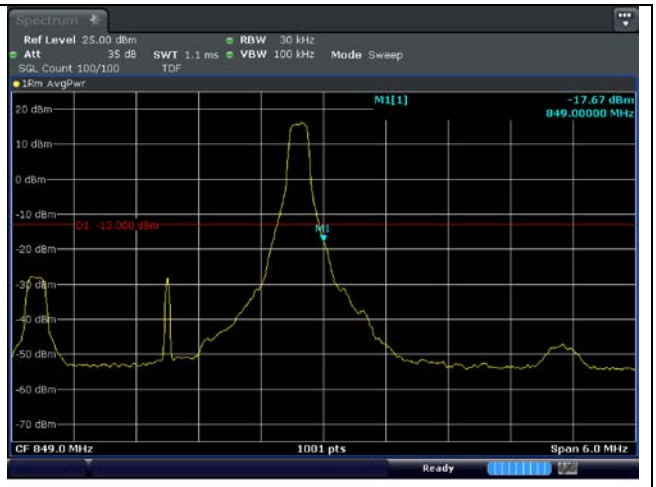

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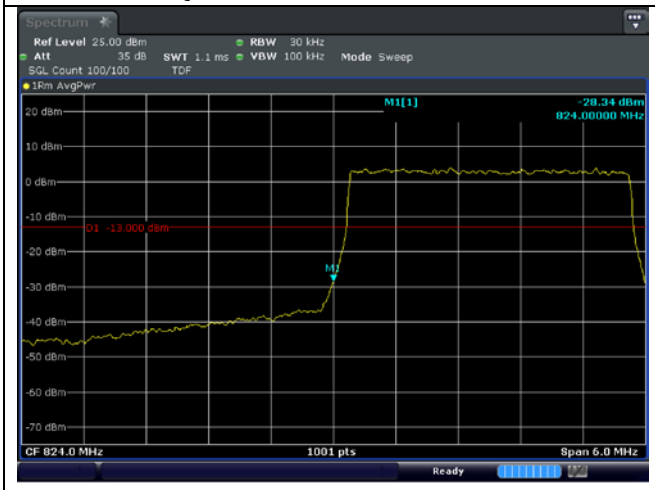

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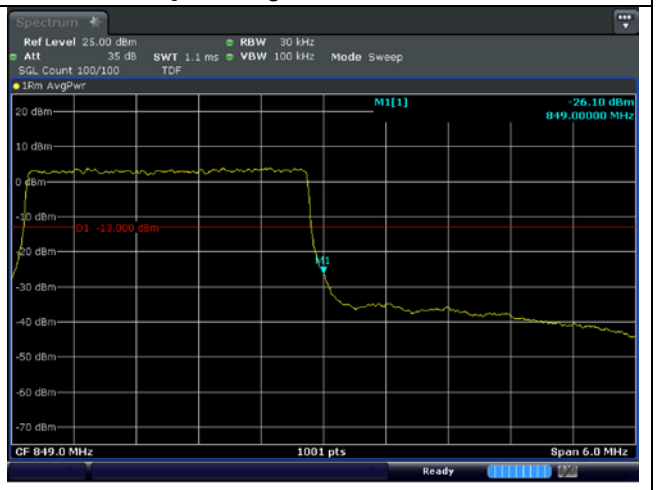
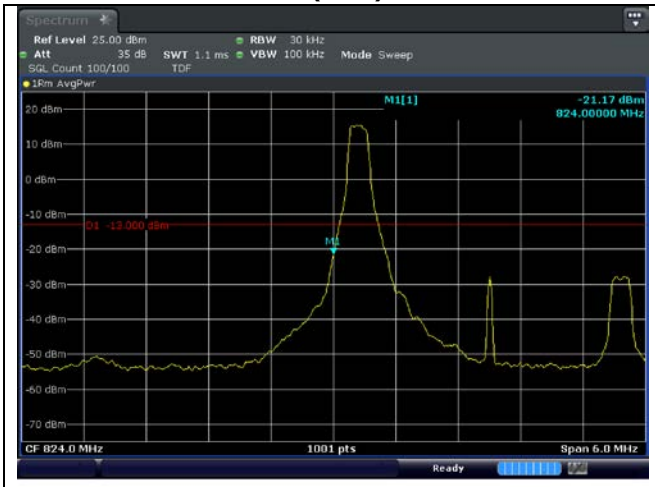


QPSK High Channel - Full RB

LTE band 26/5_Part 22 (3 ㎒)



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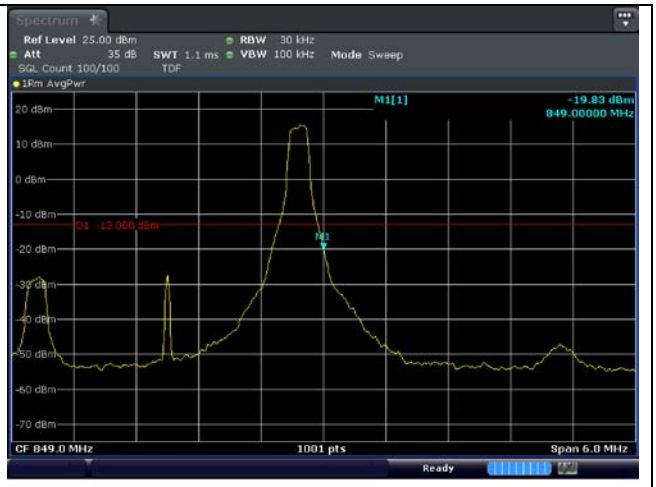

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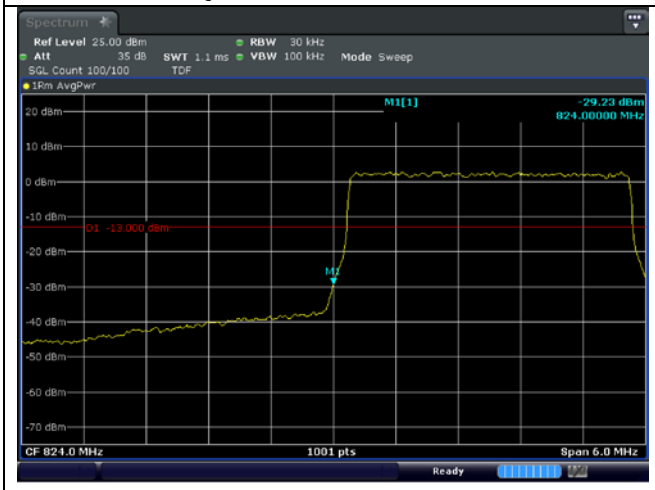

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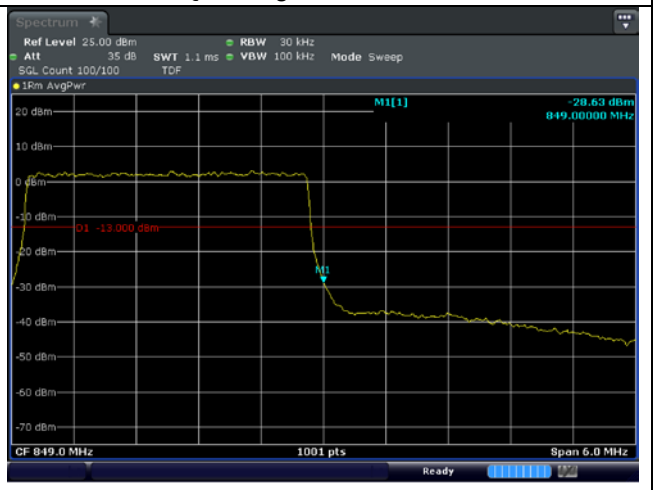
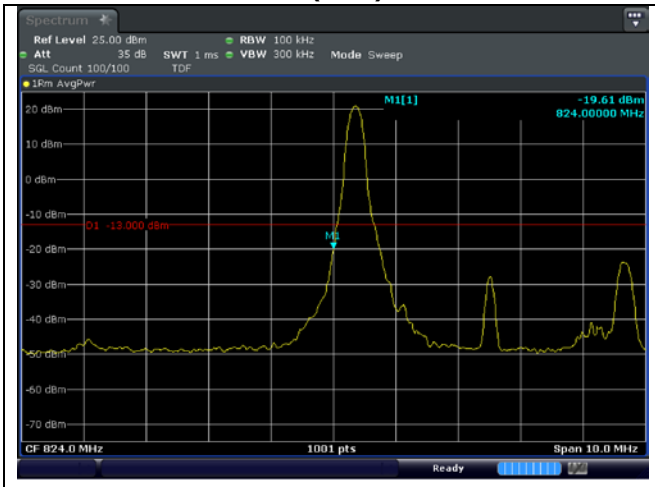


16QAM High Channel - Full RB

LTE band 26/5_Part 22 (5 ㎒)



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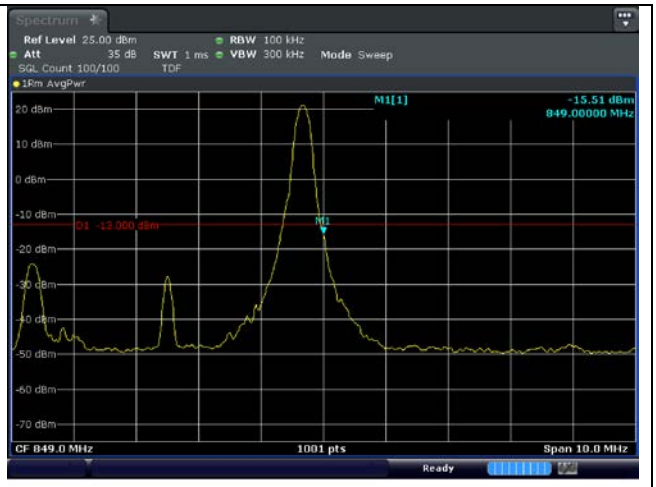

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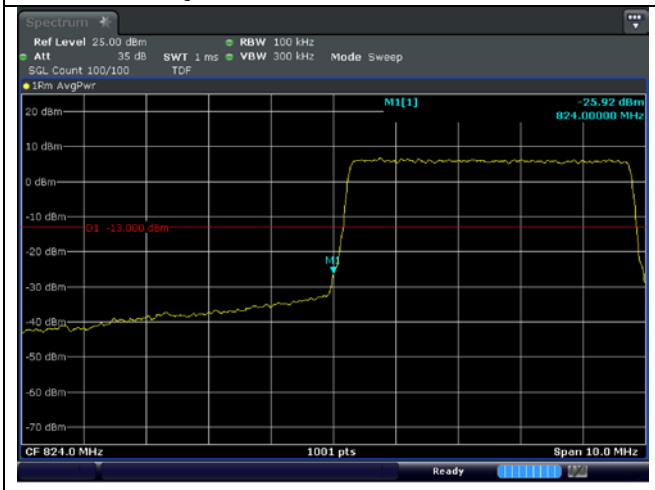

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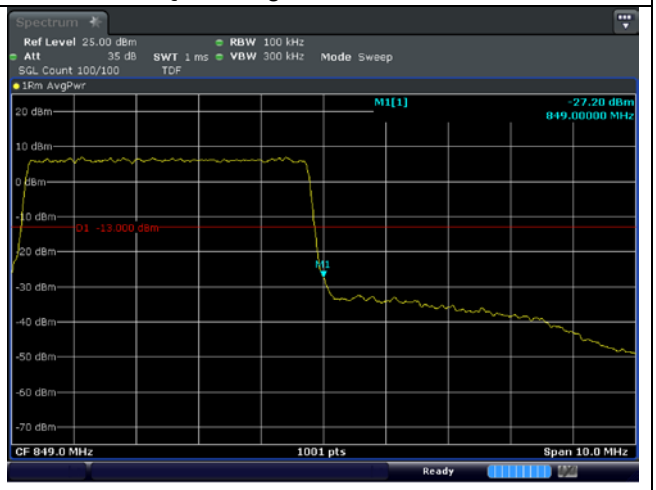

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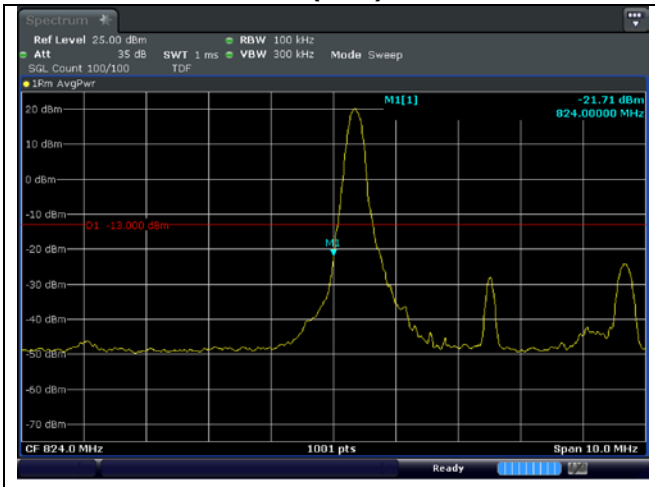
LTE band 26/5_Part 22 (5 ㎒)



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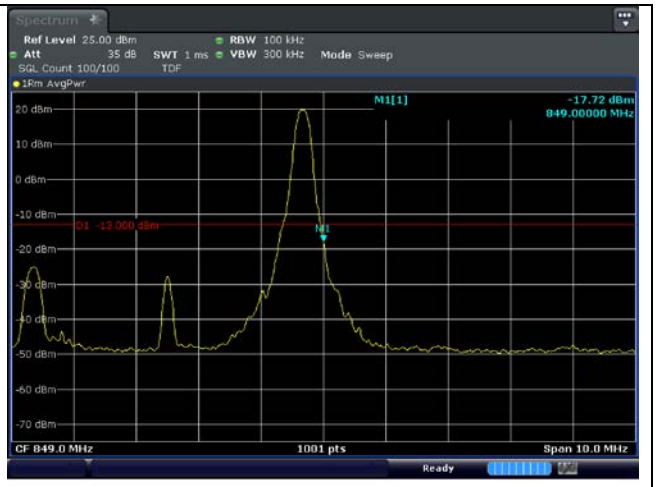

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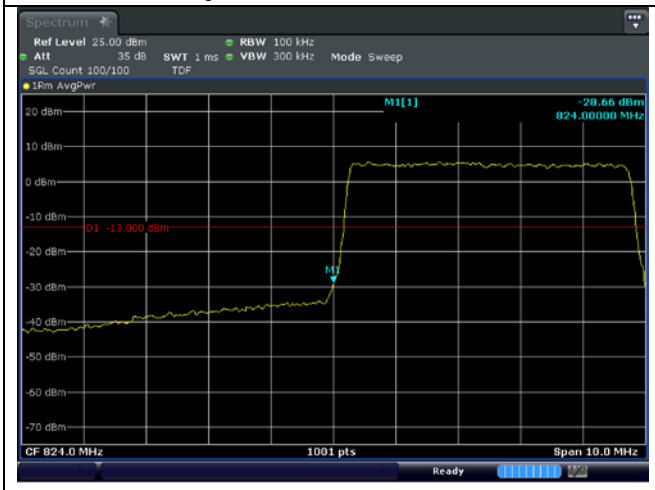

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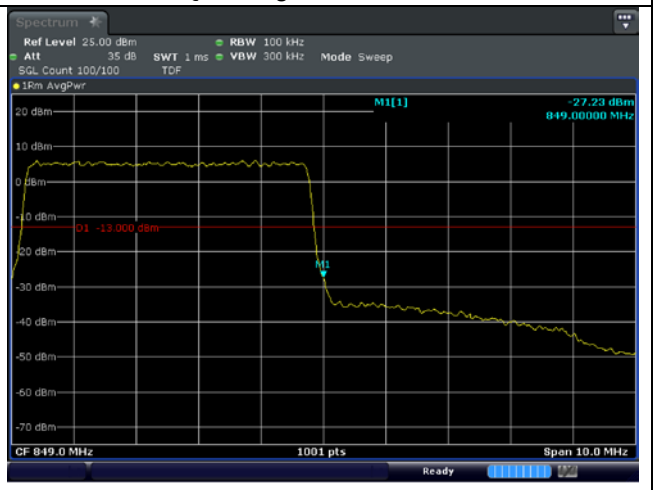
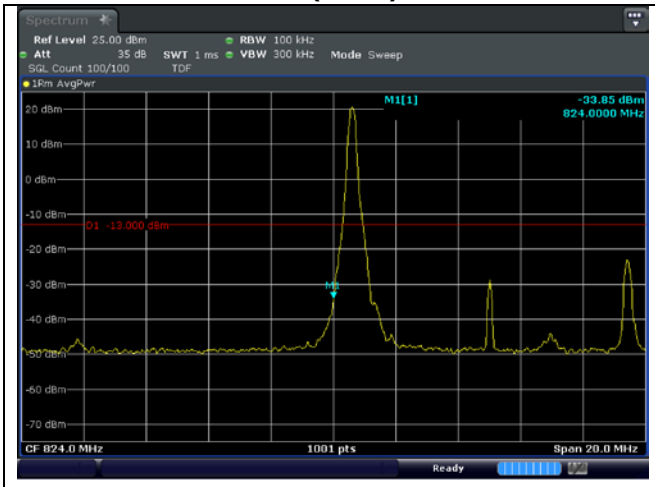


16QAM High Channel - Full RB

LTE band 26/5_Part 22 (10 ㎒)



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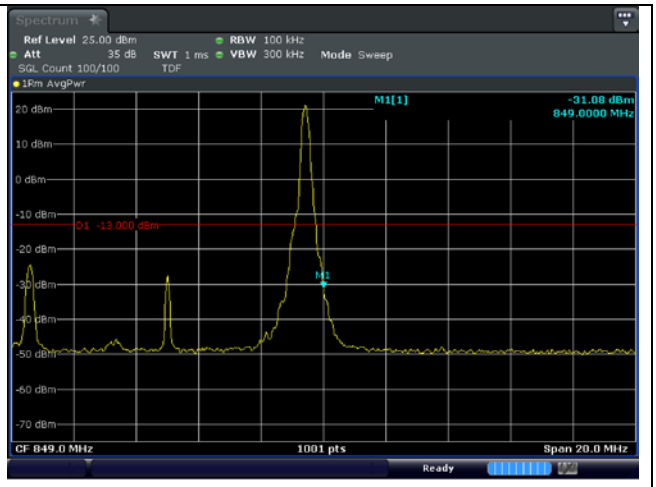

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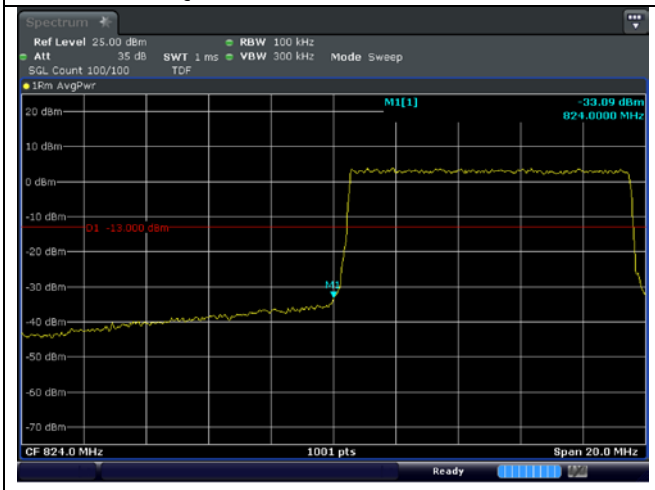

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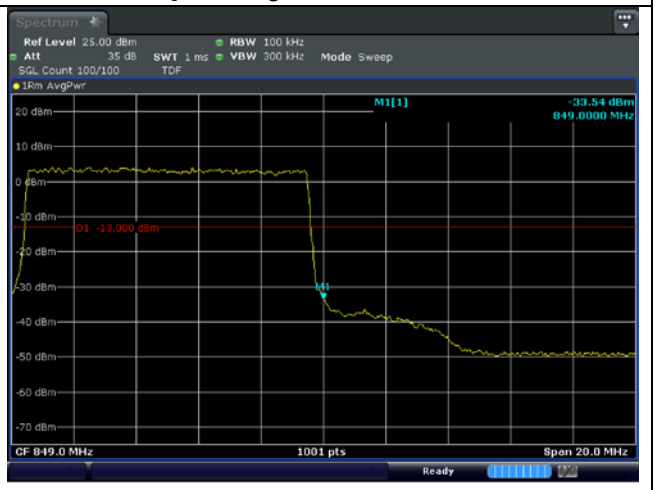
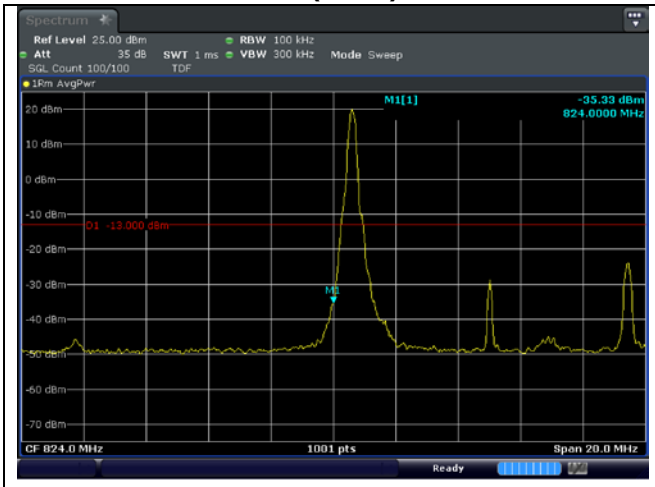


QPSK High Channel - Full RB

LTE band 26/5_Part 22 (10 ㎒)



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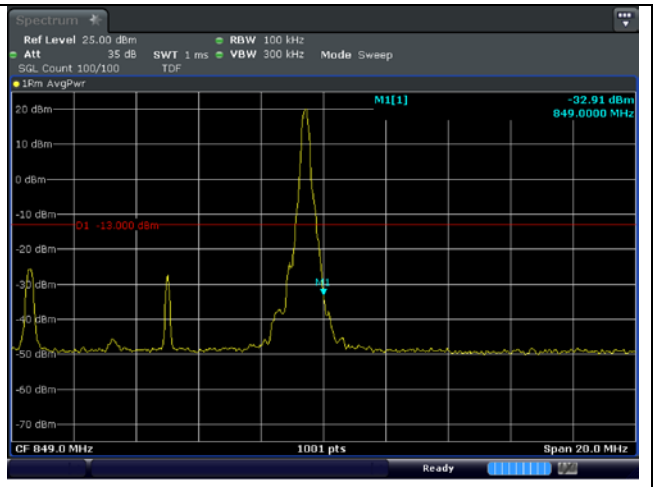

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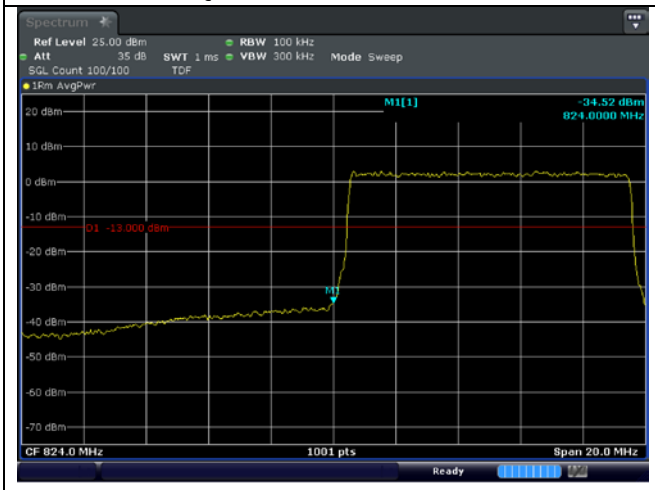

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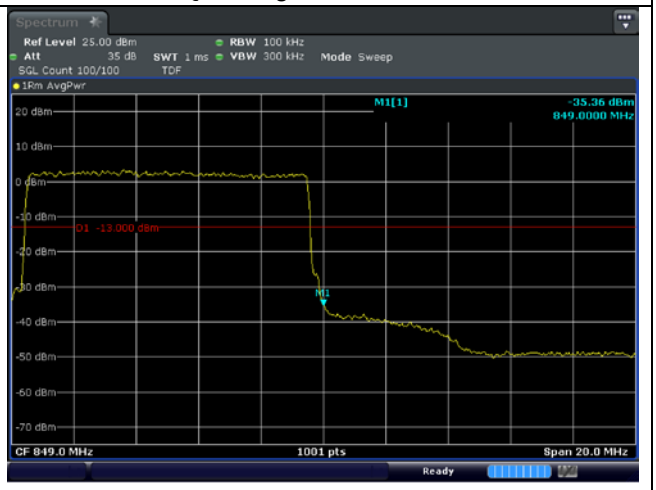
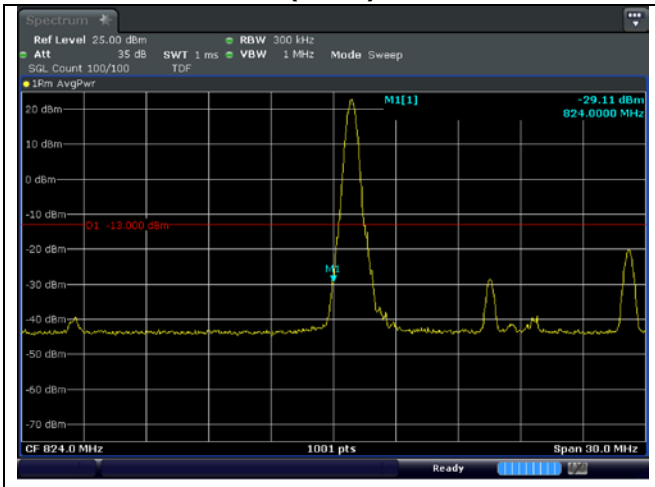


16QAM High Channel - Full RB

LTE band 26_Part 22 (15 ㎒)



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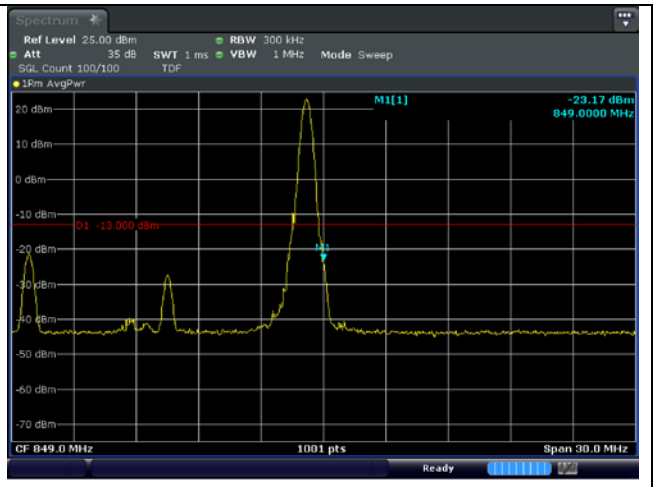

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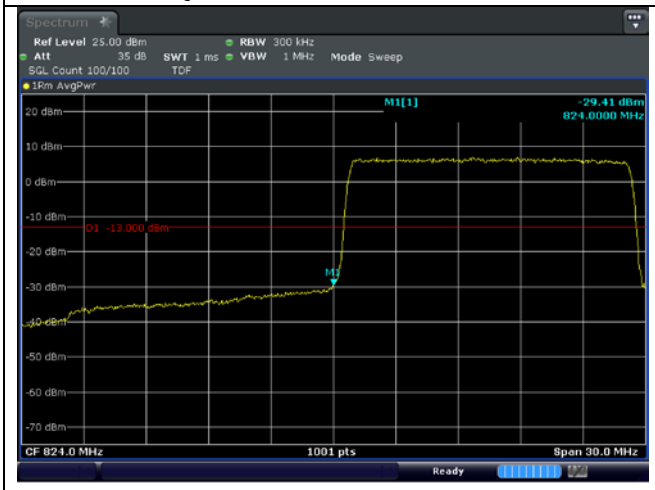

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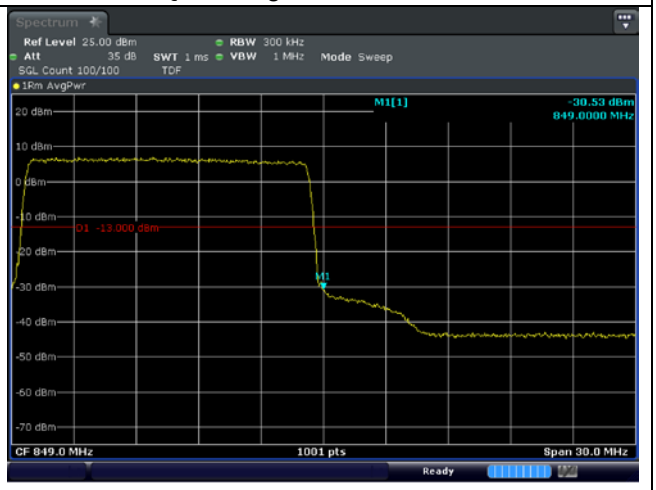
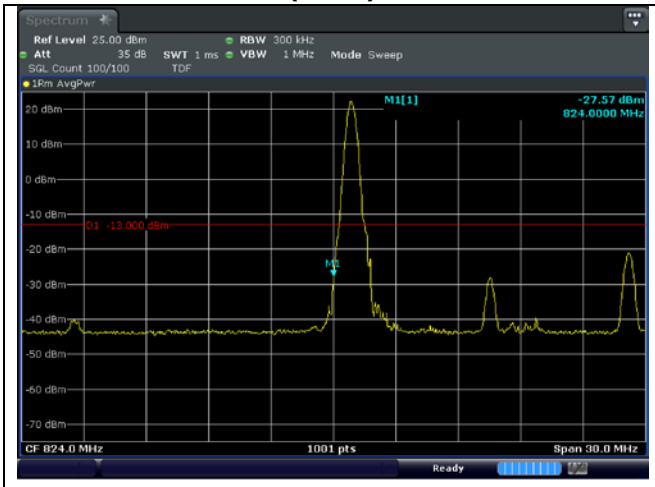


QPSK High Channel - Full RB

LTE band 26_Part 22 (15 ㎒)



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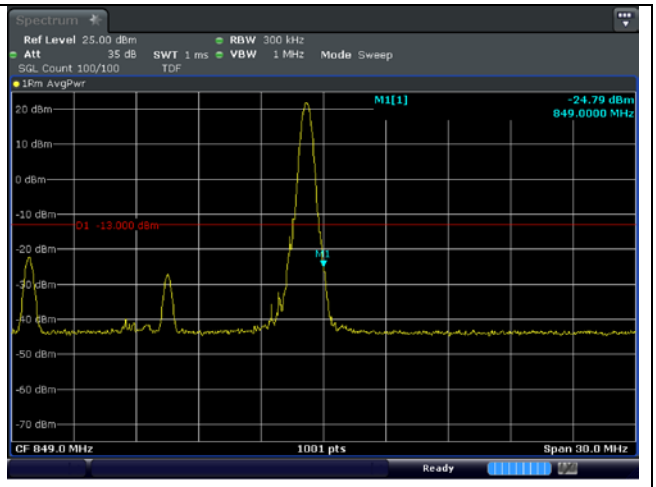

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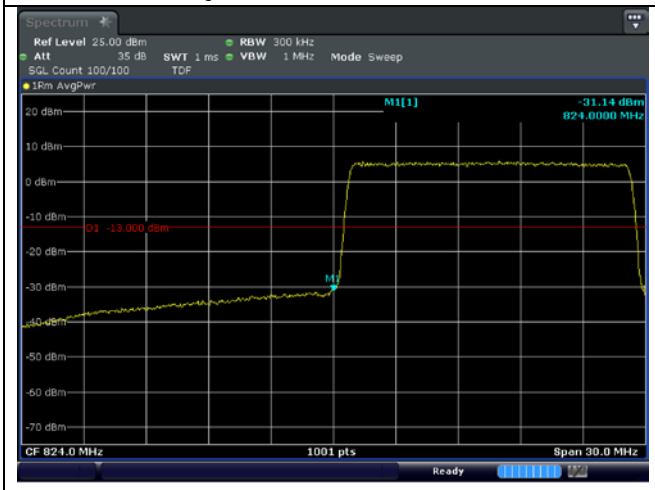

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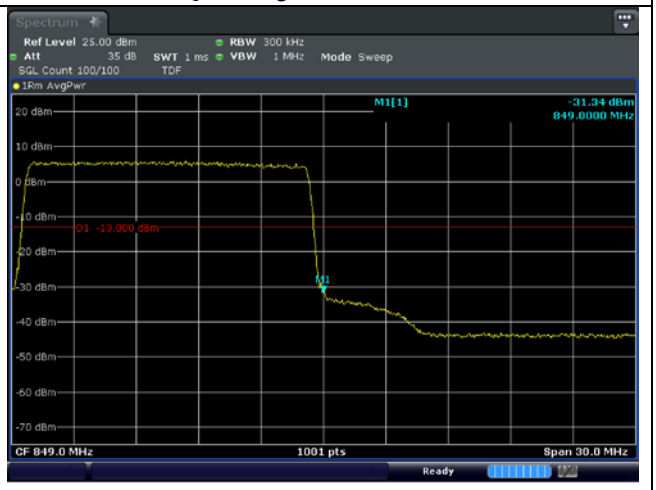
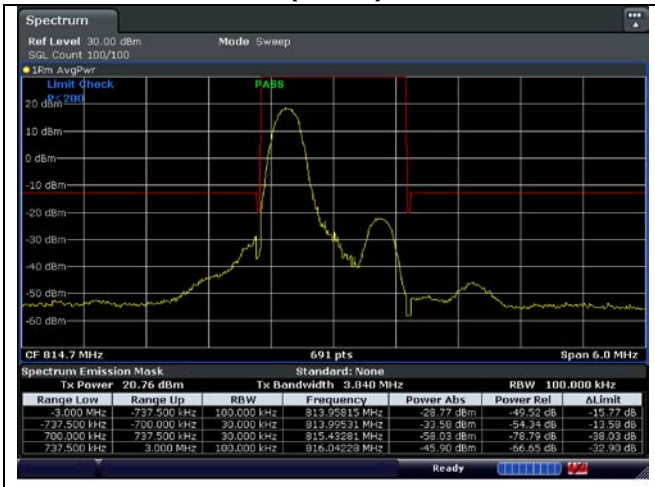


16QAM High Channel - Full RB

LTE band 26_Part 90 (1.4 ㎒)



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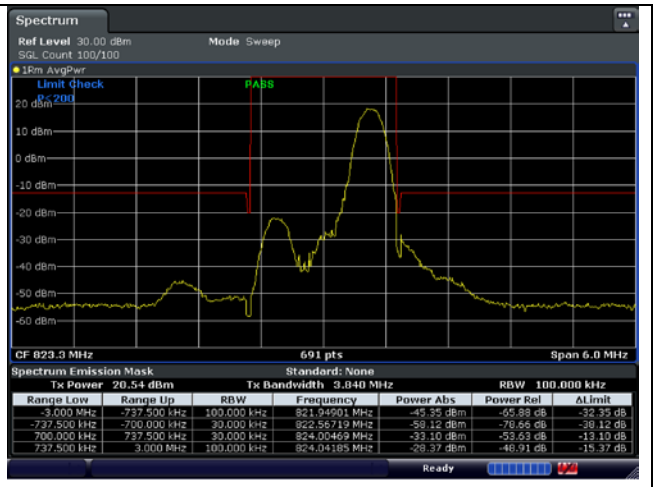

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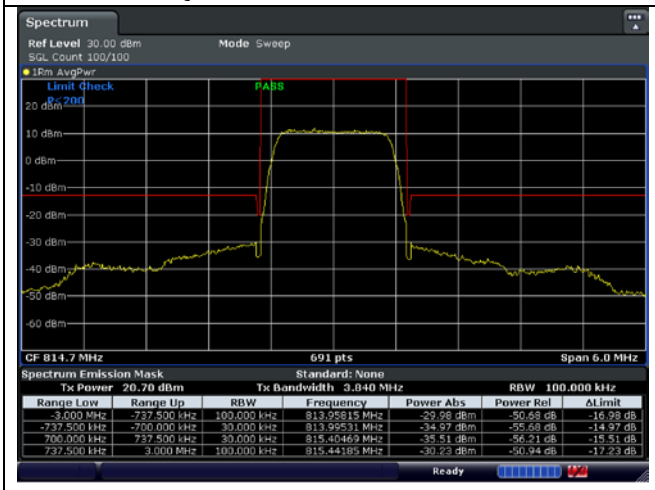

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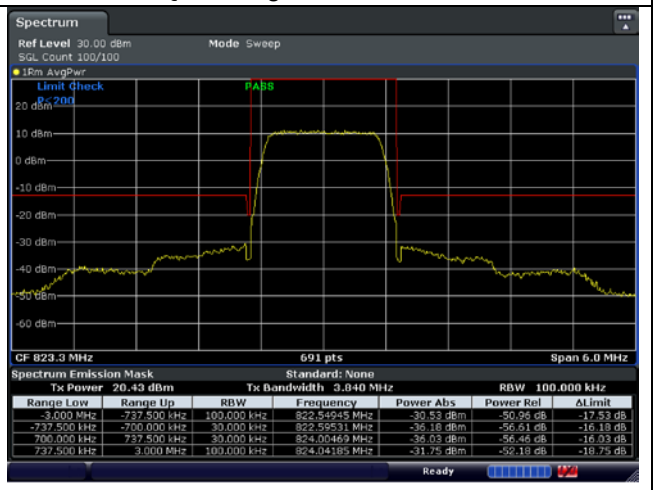
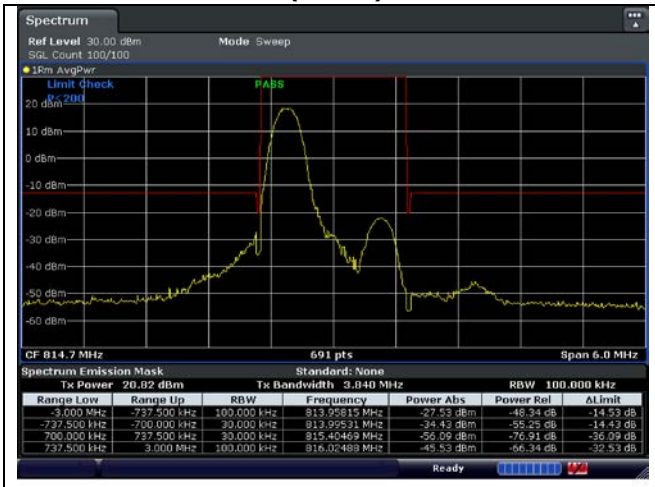


QPSK High Channel - Full RB

LTE band 26_Part 90 (1.4 ㎒)



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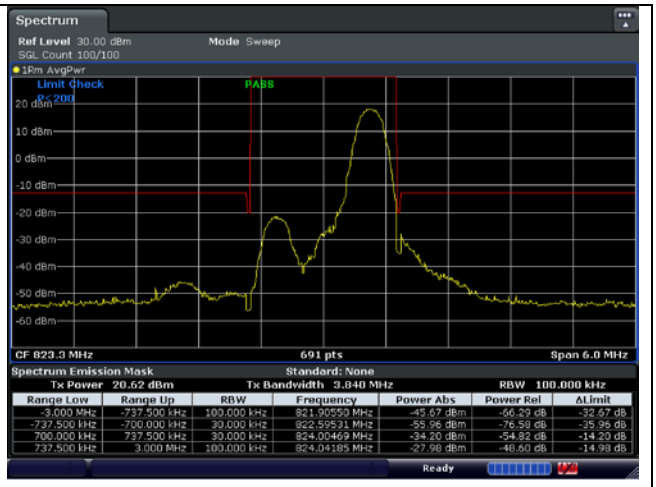

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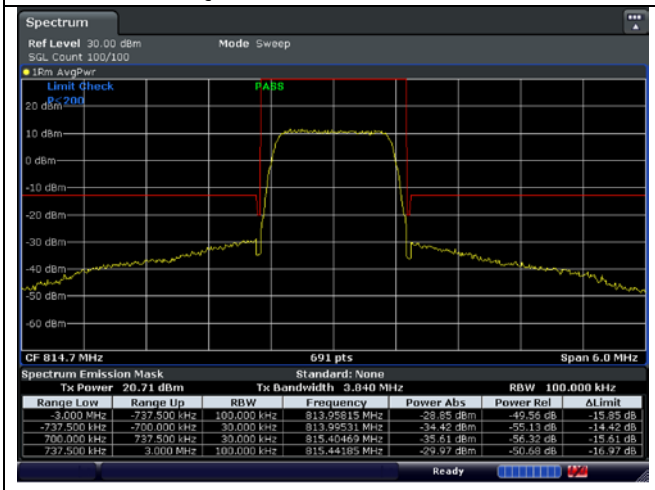

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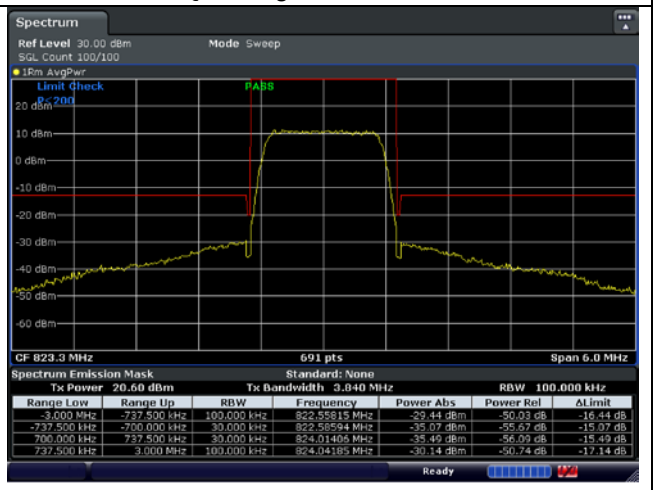
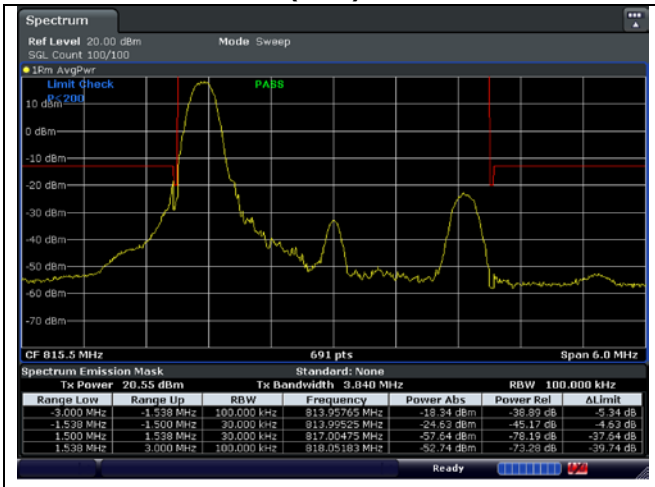


16QAM High Channel - Full RB

LTE band 26_Part 90 (3 ㎒)



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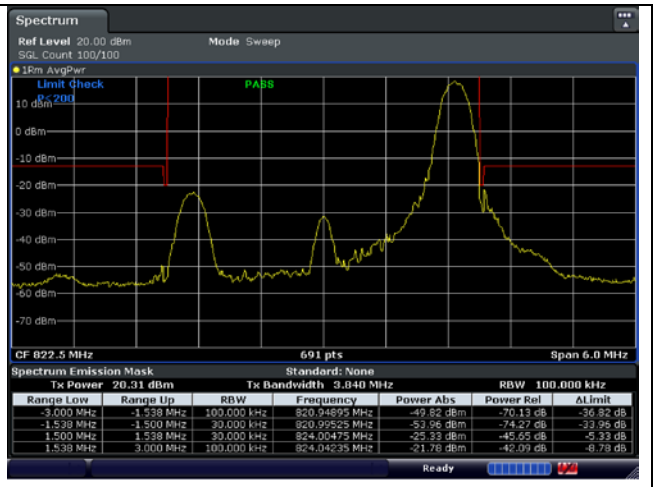

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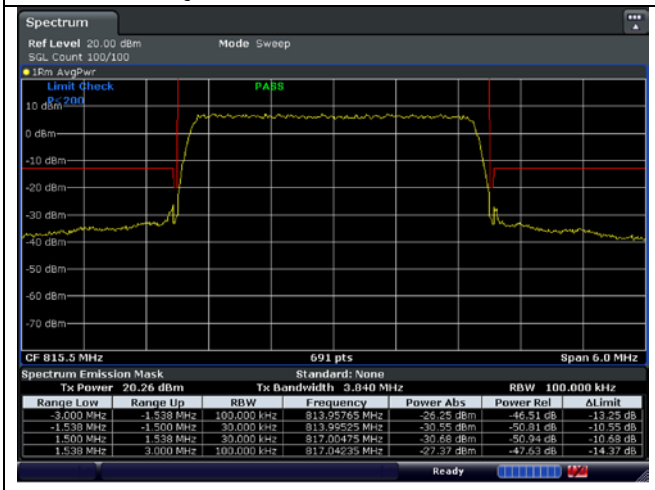

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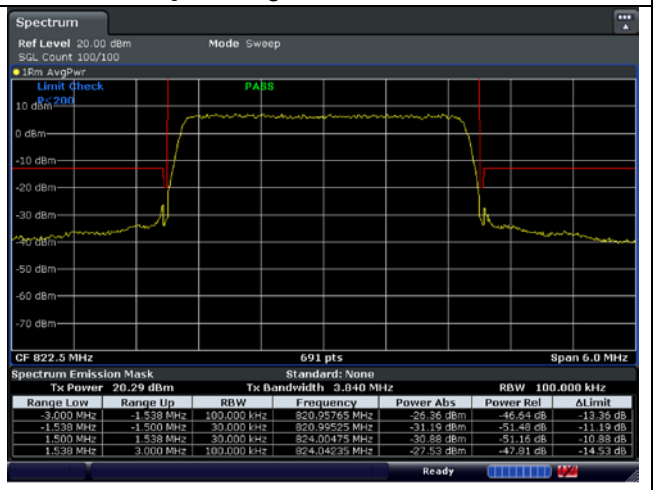
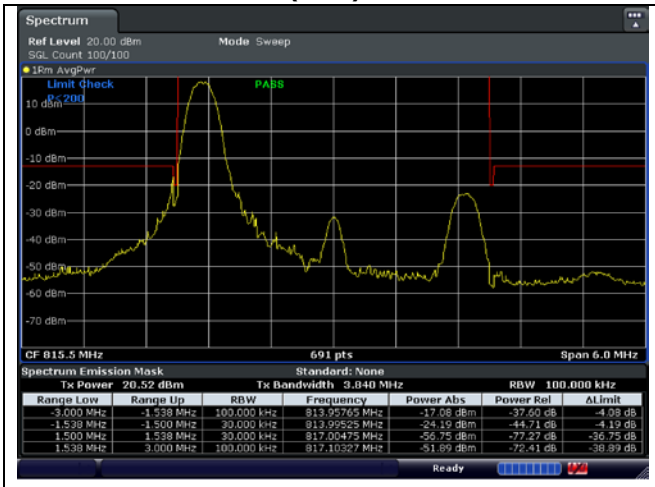


QPSK High Channel - Full RB

LTE band 26_Part 90 (3 ㎒)



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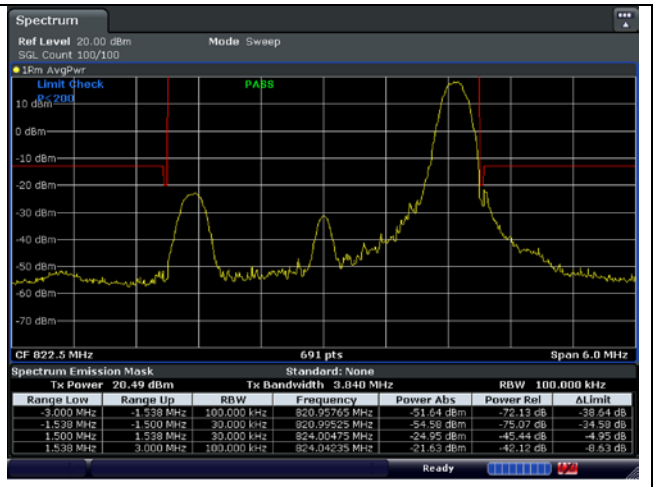

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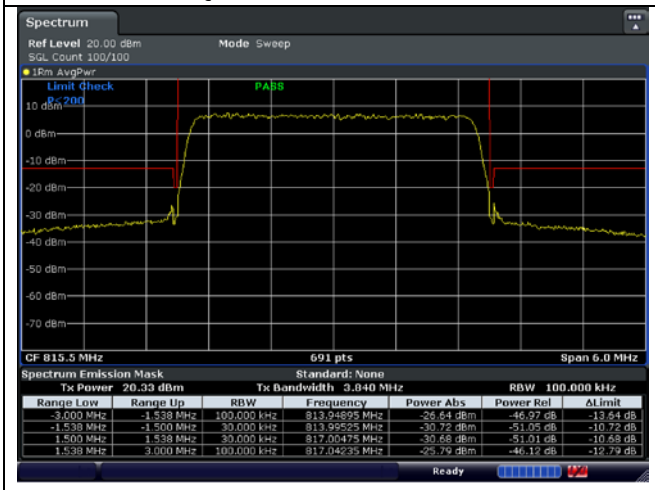

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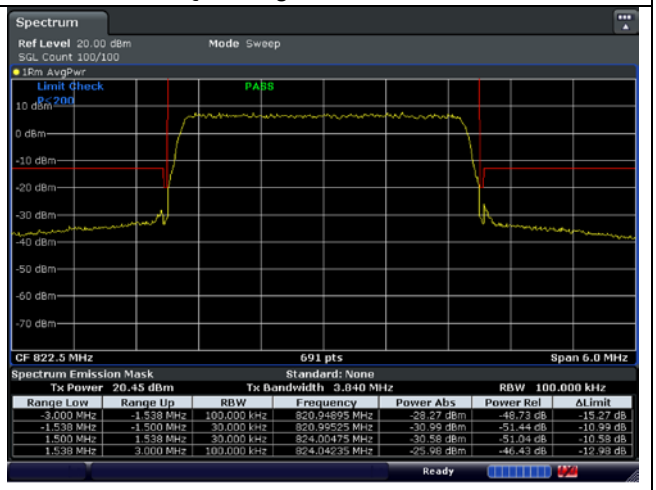
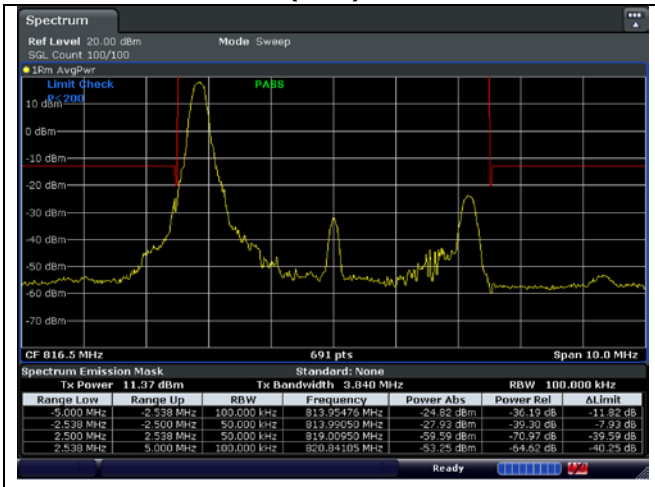


16QAM High Channel - Full RB

LTE band 26_Part 90 (5 ㎒)



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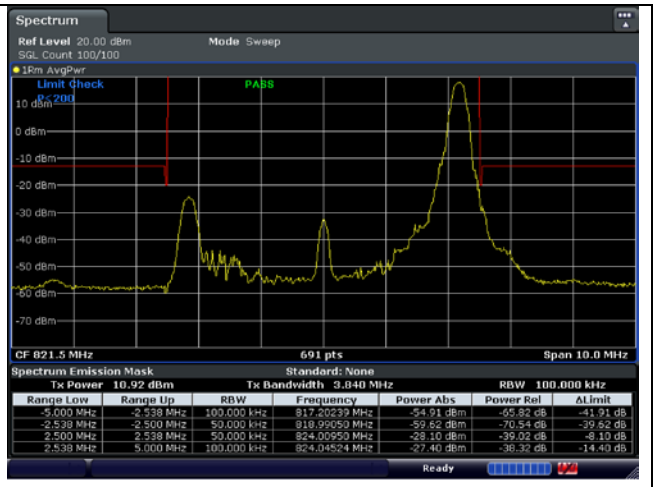
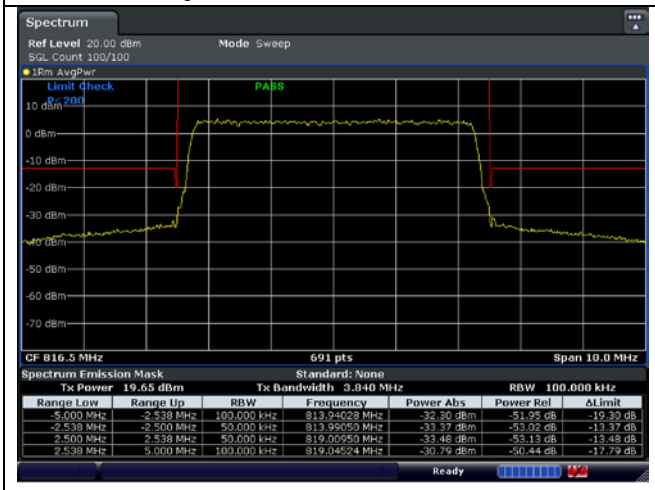
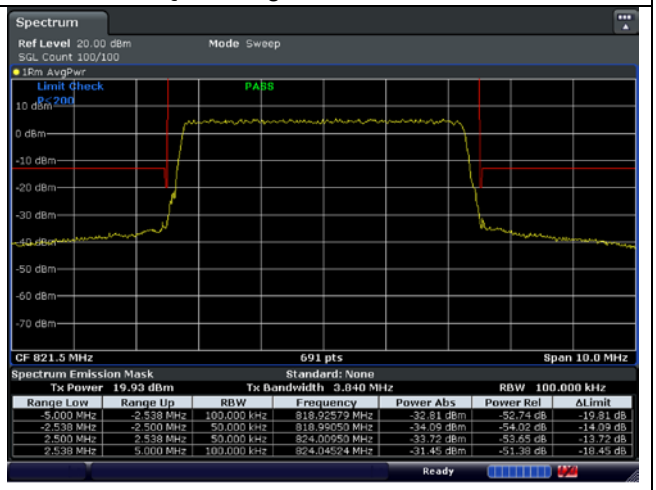


QPSK High Channel - 1 RB

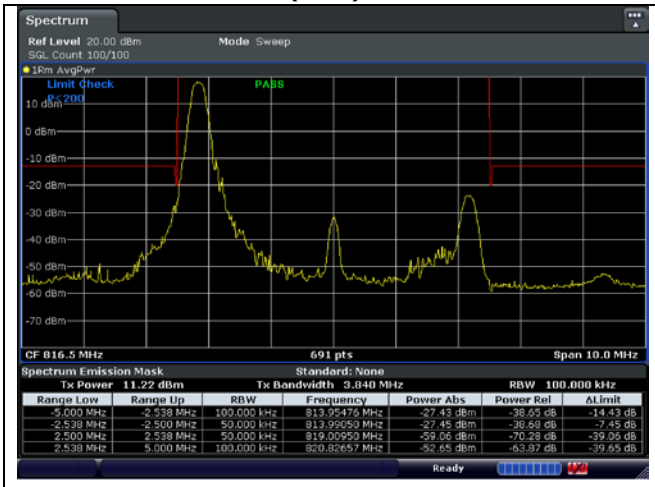


QPSK Low Channel - Full RB

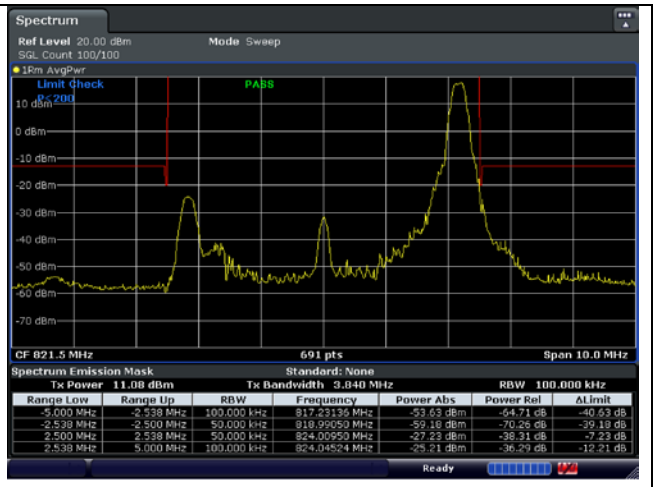


QPSK High Channel - Full RB

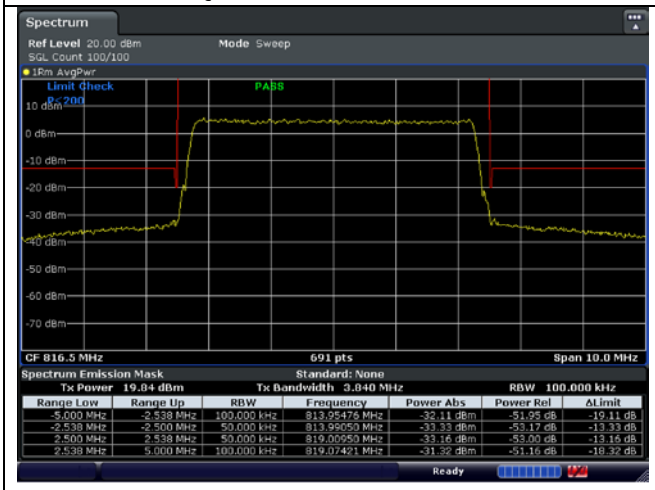
LTE band 26_Part 90 (5 ㎒)



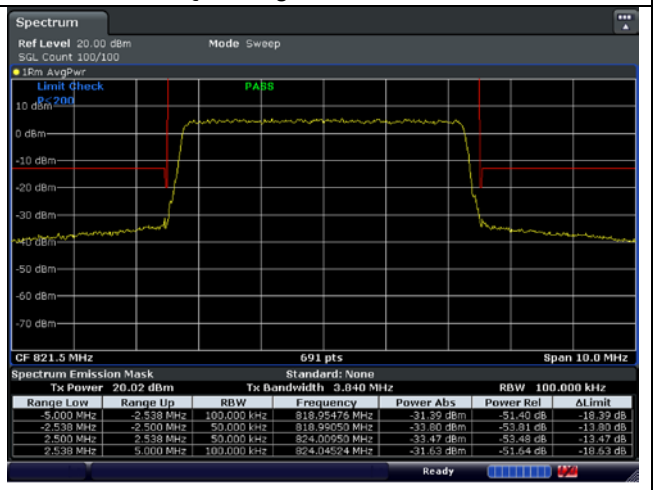
16QAM Low Channel - 1 RB



16QAM High Channel - 1 RB

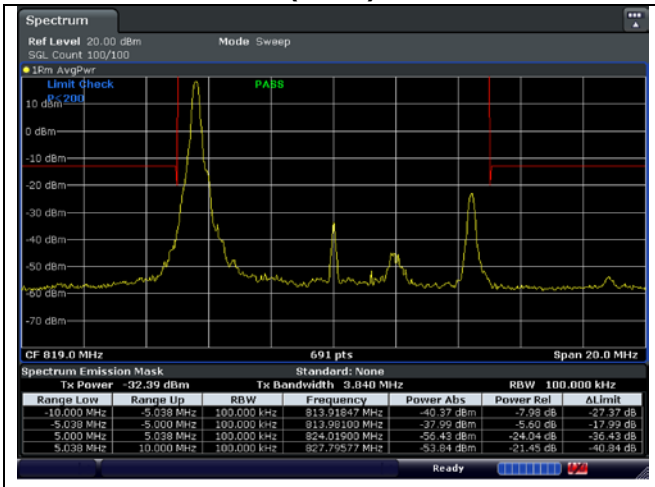


16QAM Low Channel - Full RB

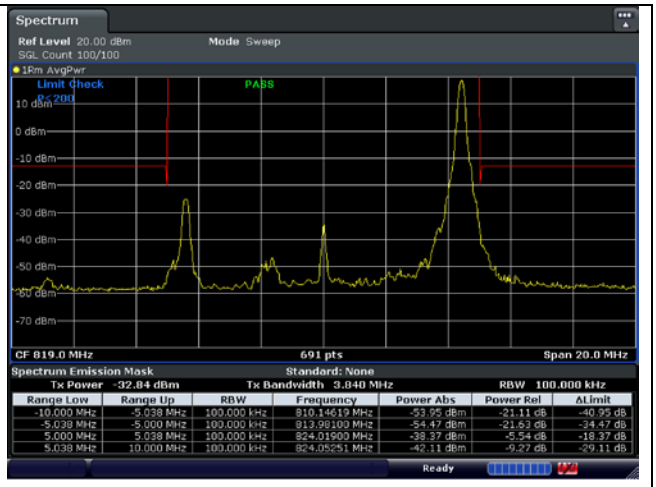


16QAM High Channel - Full RB

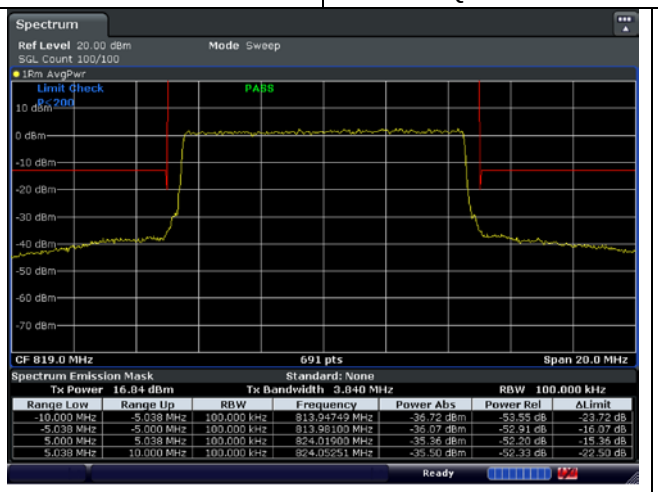
LTE band 26_Part 90 (10 ㎒)



QPSK Middle Channel - 1 RB Low

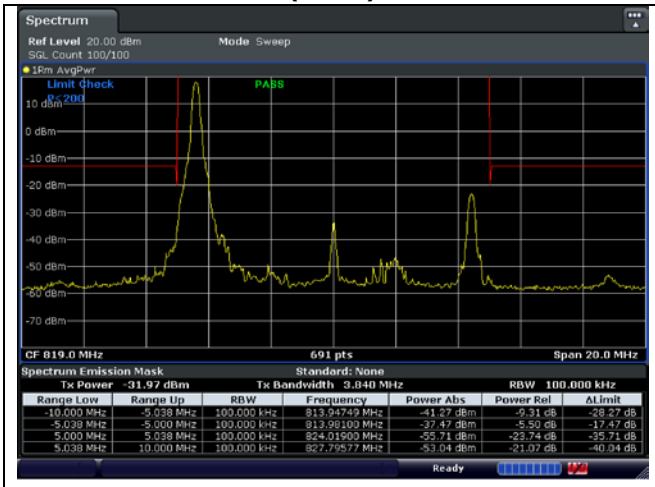


QPSK Middle Channel - 1 RB High

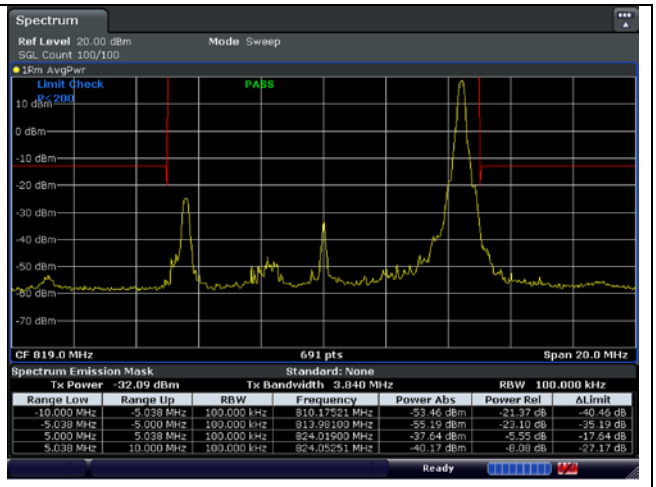


QPSK Middle Channel - Full RB

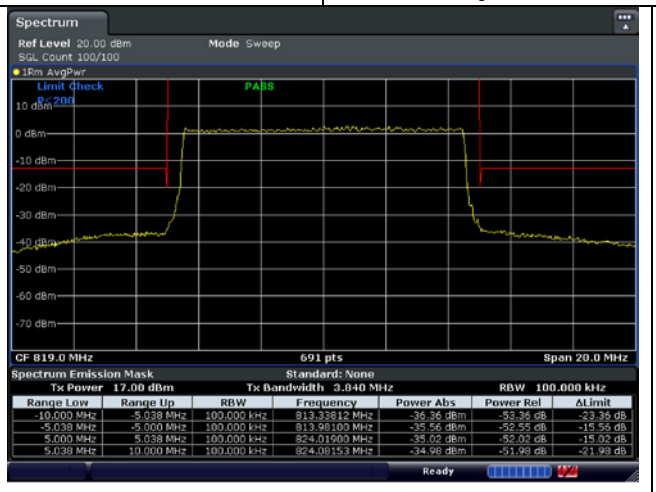
LTE band 26_Part 90 (10 ㎒)



16QAM Middle Channel - 1 RB Low

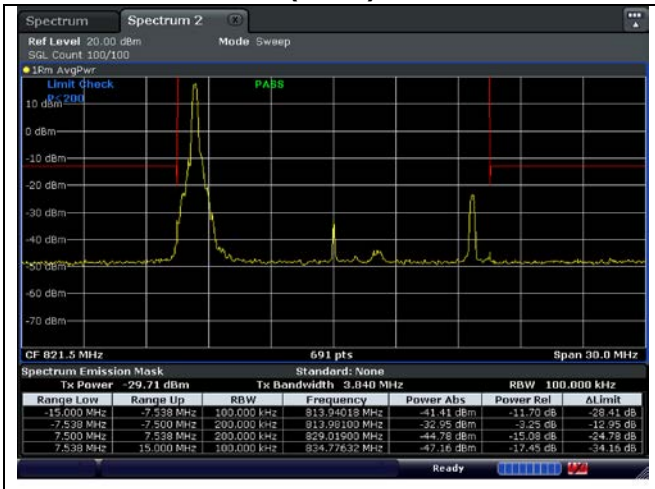


16QAM Middle Channel - 1 RB High

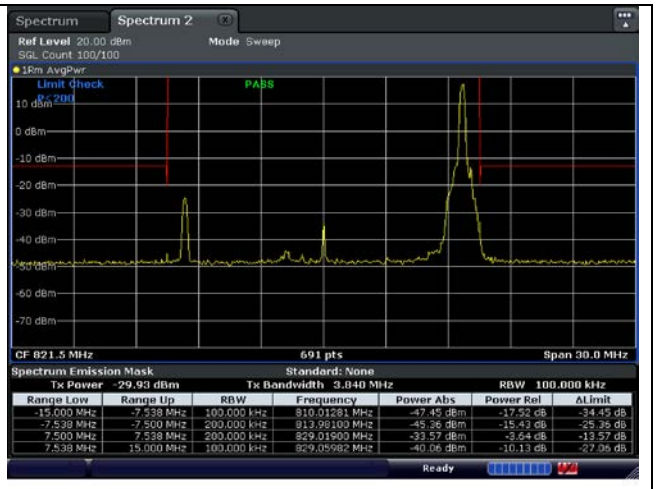


16QAM Middle Channel - Full RB

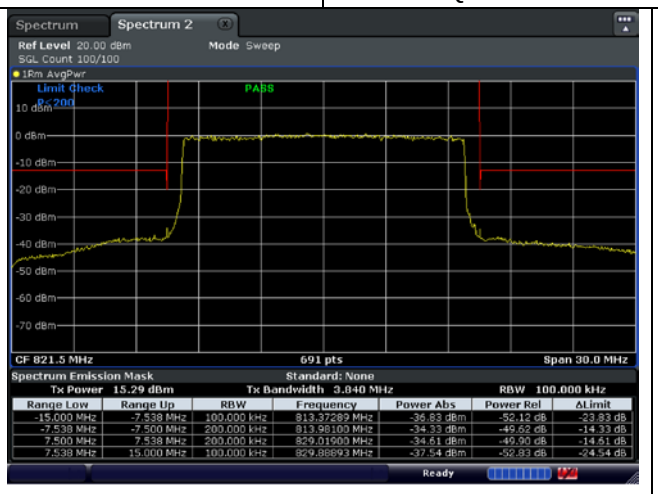
LTE band 26_Part 90 (15 ㎒)



QPSK Middle Channel - 1 RB Low

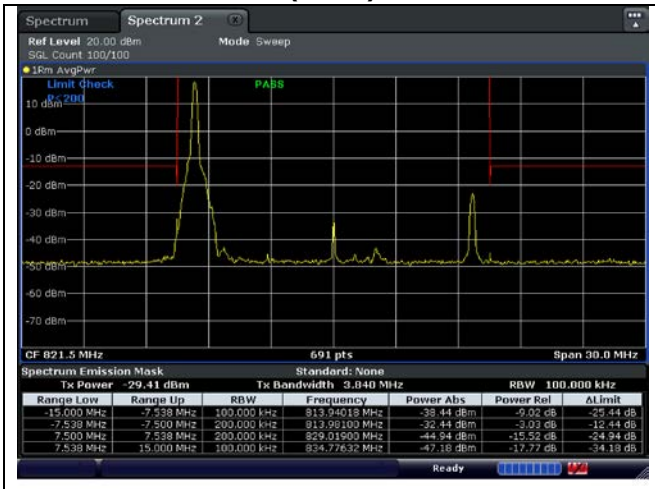


QPSK Middle Channel - 1 RB High

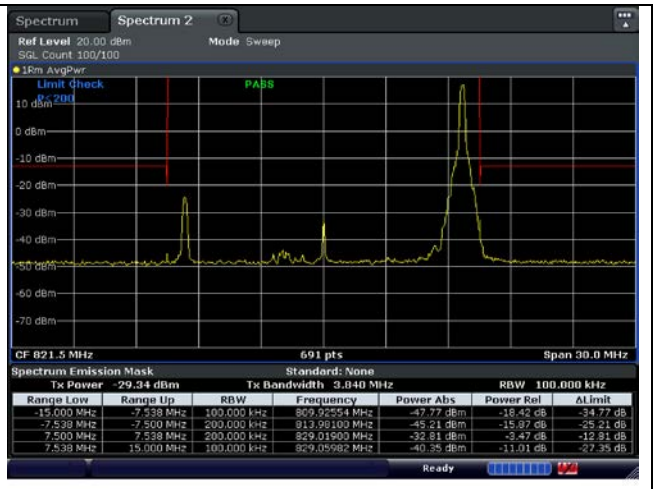


QPSK Middle Channel - Full RB

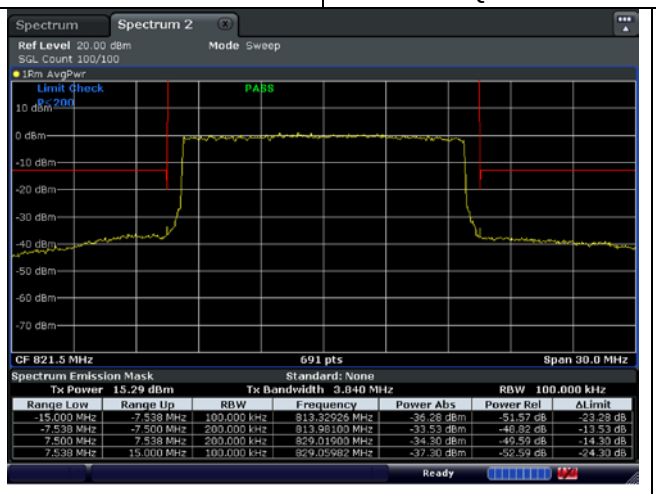
LTE band 26_Part 90 (15 ㎒)



16QAM Middle Channel - 1 RB Low

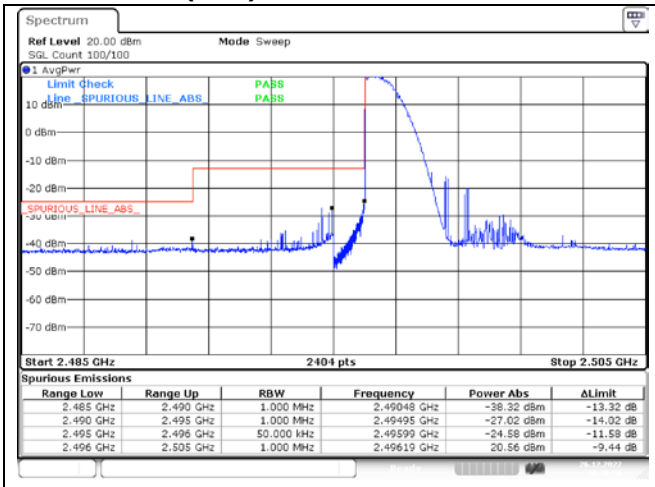


16QAM Middle Channel - 1 RB High

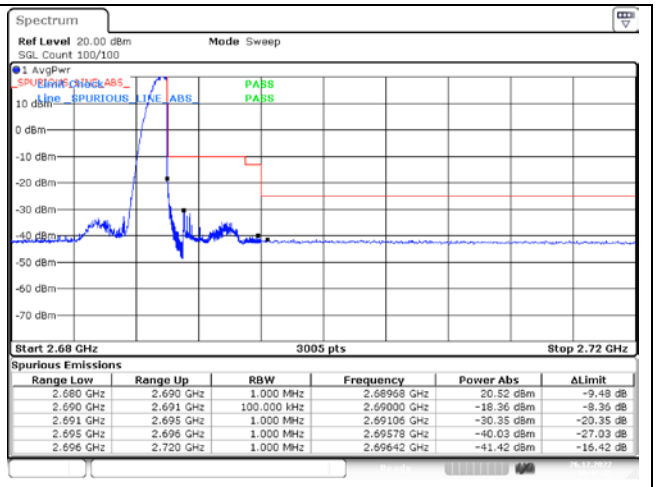


16QAM Middle Channel - Full RB

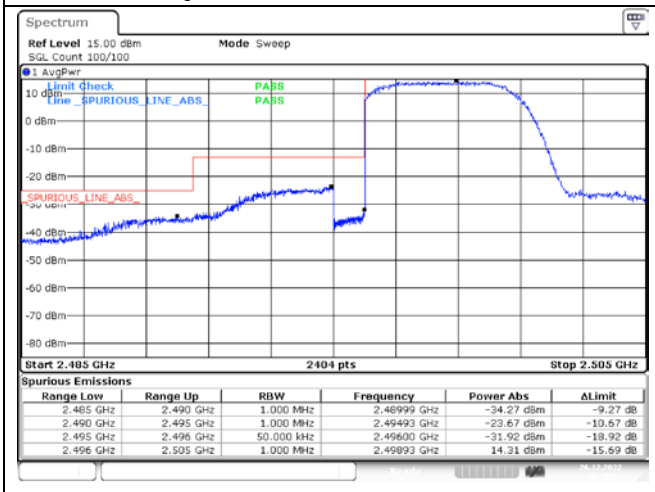
LTE band 41 (5 ㎒)



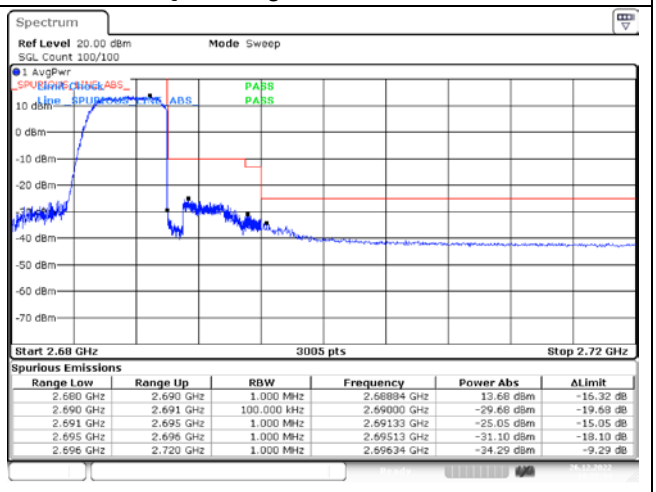
QPSK Low Channel - 1 RB



QPSK High Channel - 1 RB

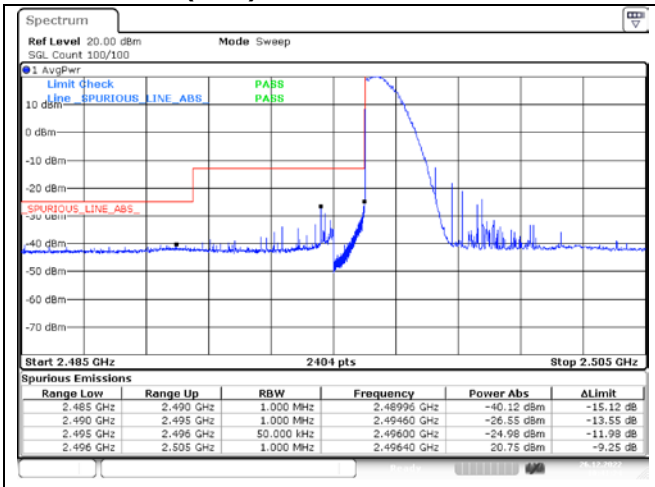


QPSK Low Channel - Full RB

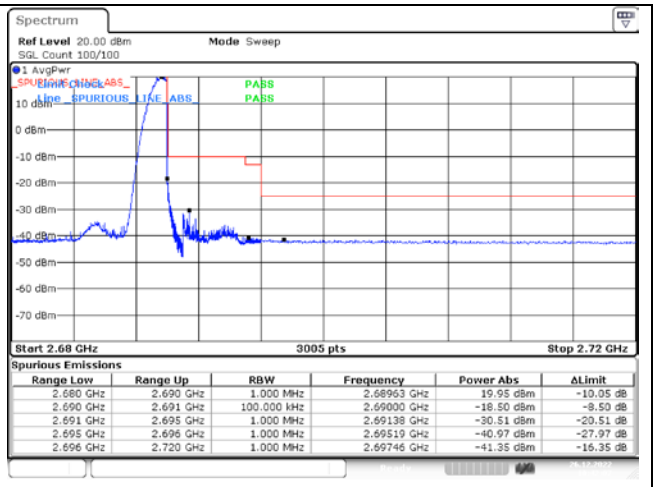


QPSK High Channel - Full RB

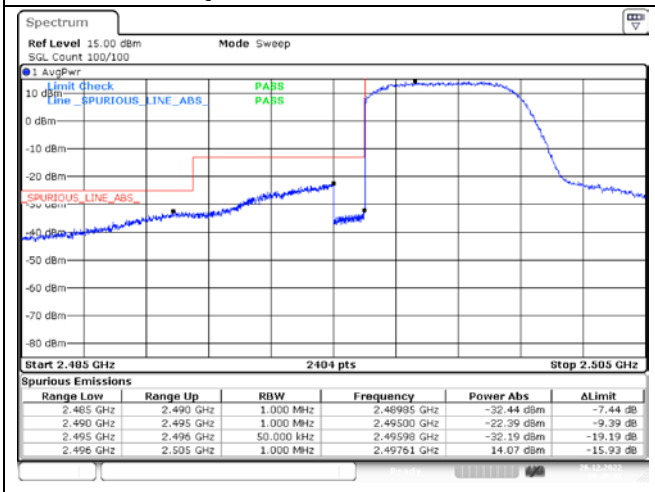
LTE band 41 (5 ㎒)



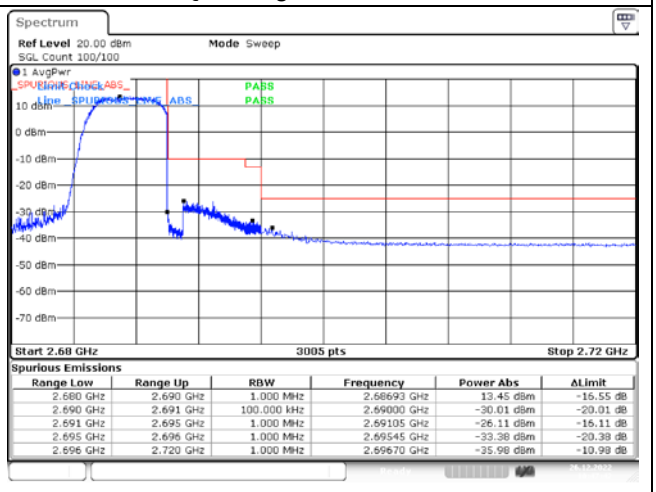
16QAM Low Channel - 1 RB



16QAM High Channel - 1 RB

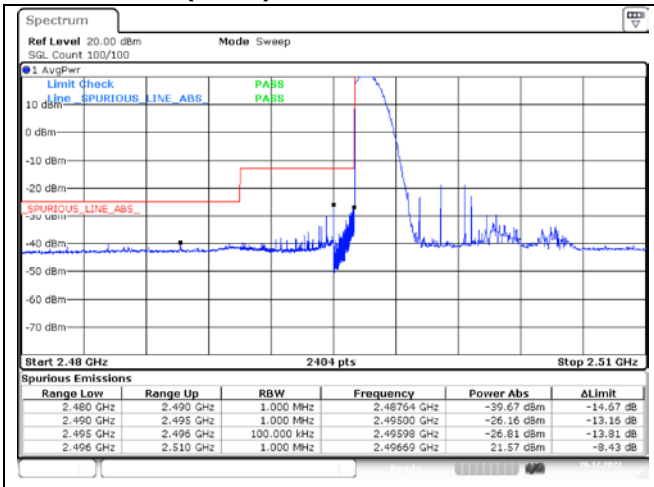


16QAM Low Channel - Full RB

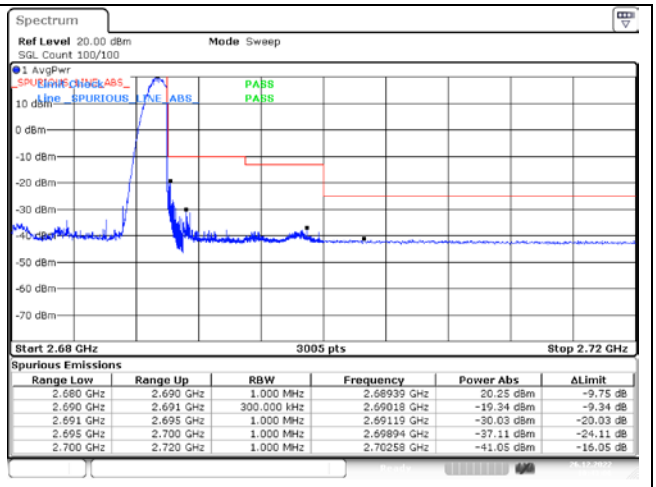


16QAM High Channel - Full RB

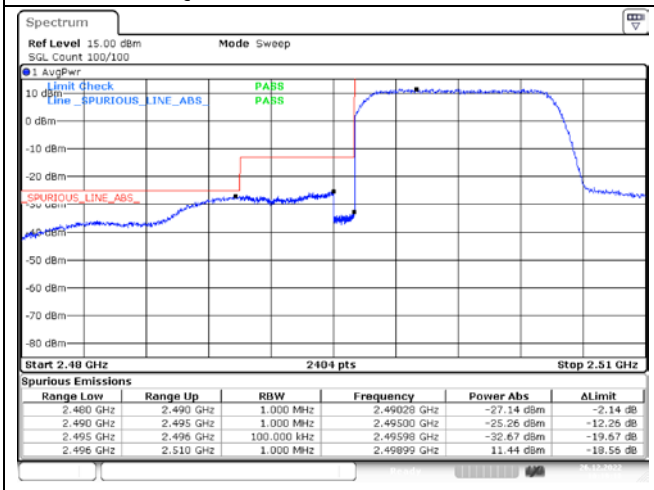
LTE band 41 (10 ㎒)



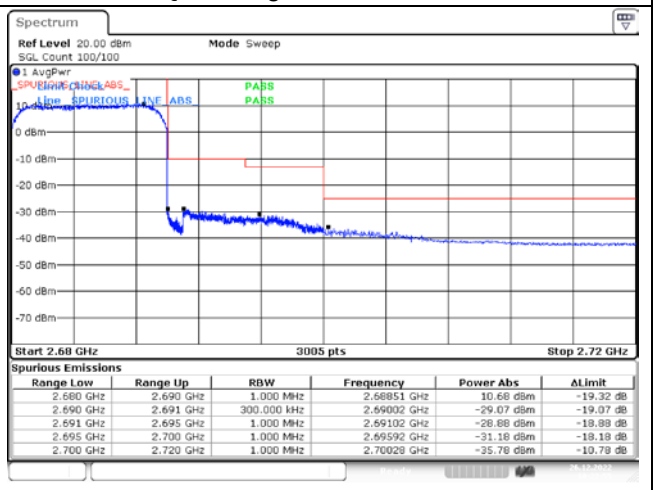
QPSK Low Channel - 1 RB



QPSK High Channel - 1 RB

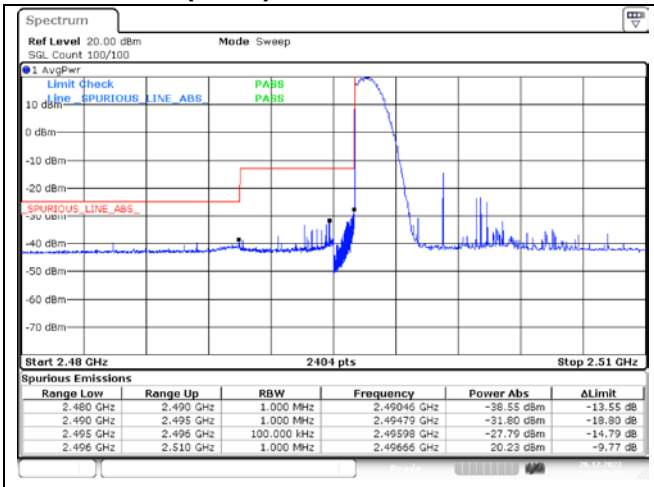


QPSK Low Channel - Full RB

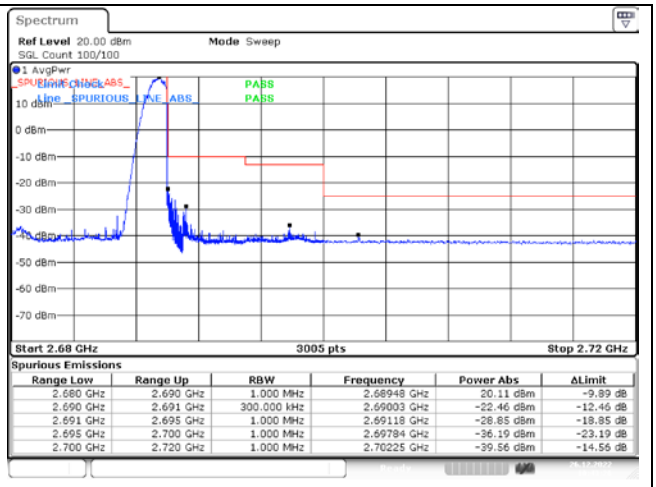


QPSK High Channel - Full RB

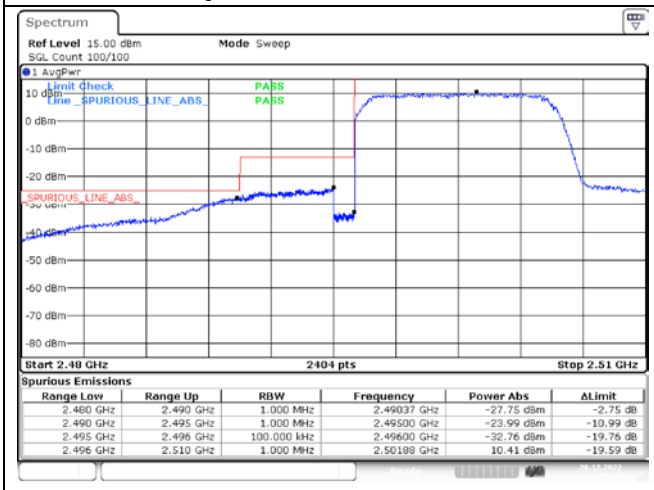
LTE band 41 (10 ㎒)



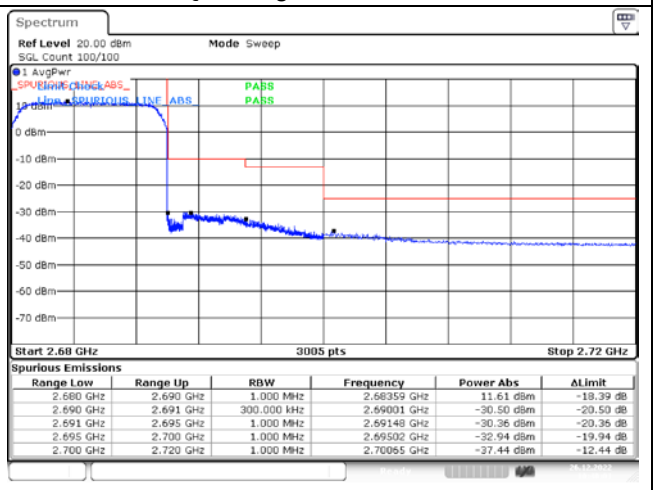
16QAM Low Channel - 1 RB



16QAM High Channel - 1 RB

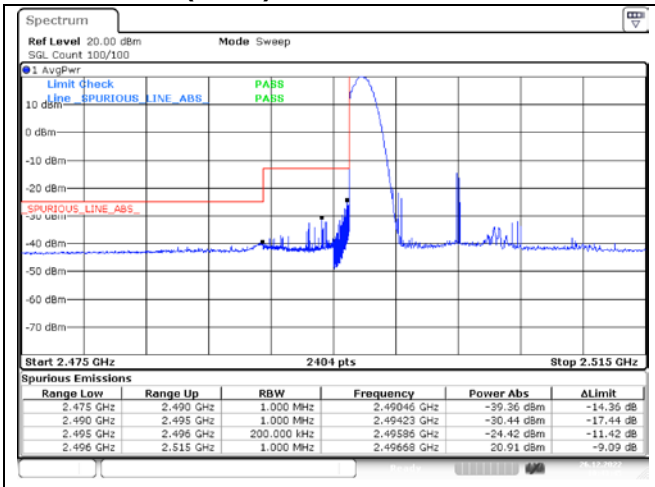


16QAM Low Channel - Full RB

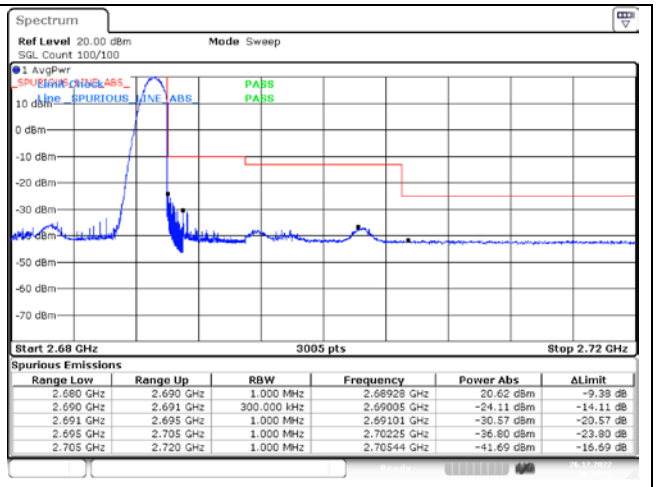


16QAM High Channel - Full RB

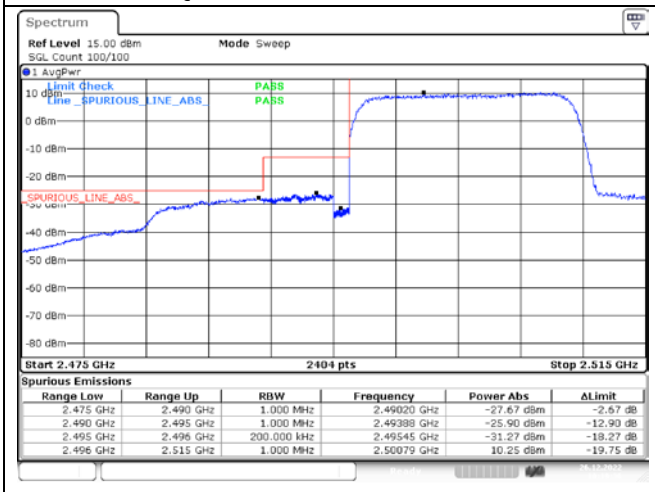
LTE band 41 (15 ㎒)



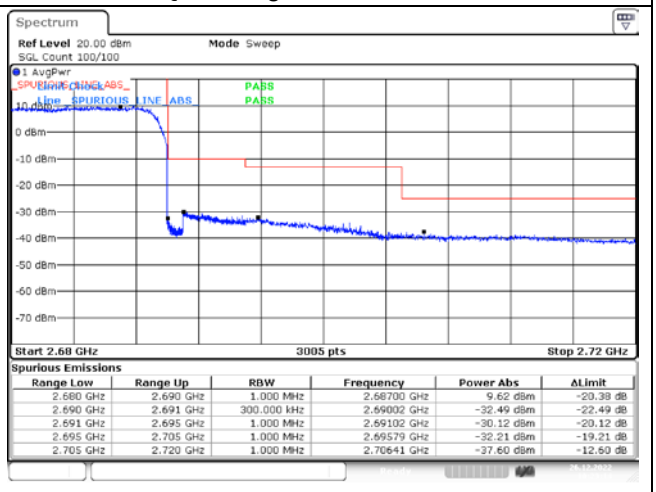
QPSK Low Channel - 1 RB



QPSK High Channel - 1 RB

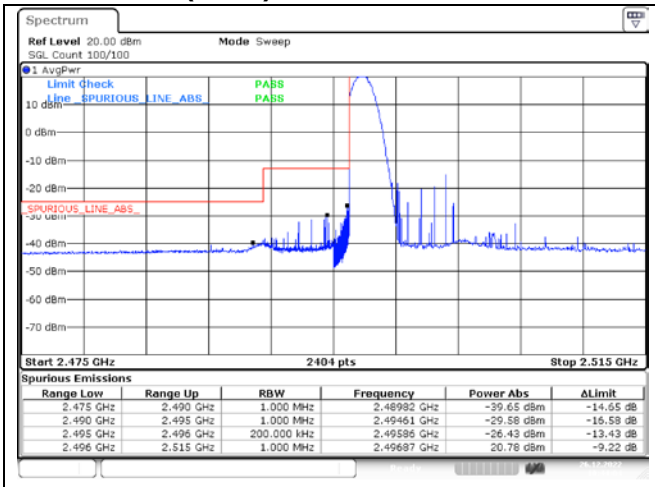


QPSK Low Channel - Full RB

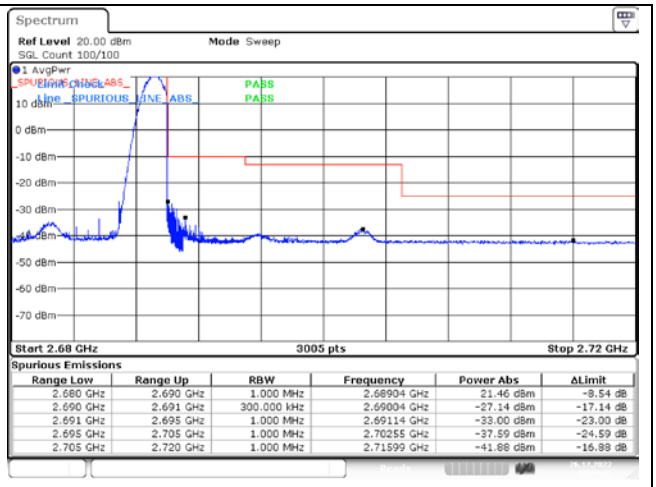


QPSK High Channel - Full RB

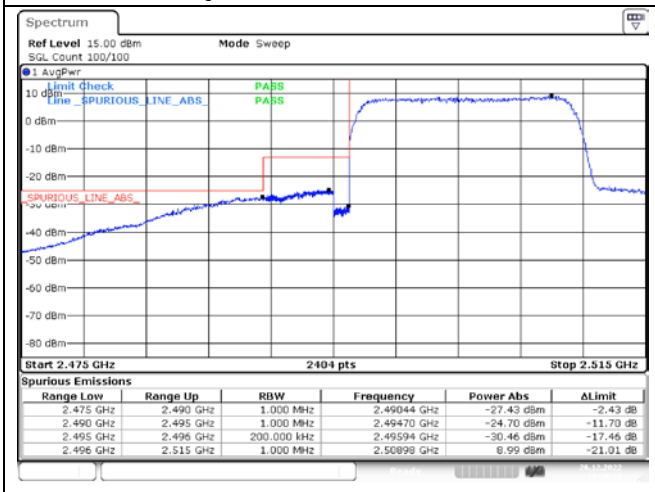
LTE band 41 (15 ㎒)



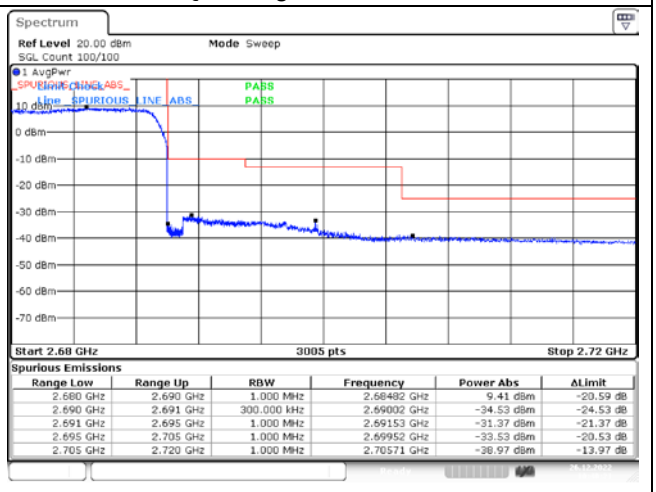
16QAM Low Channel - 1 RB



16QAM High Channel - 1 RB

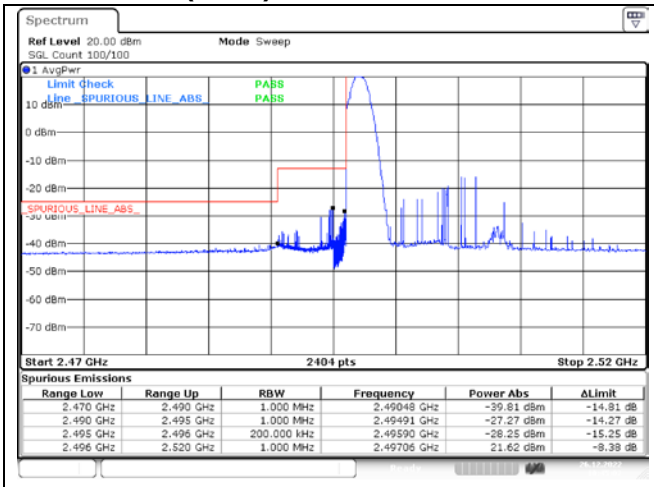


16QAM Low Channel - Full RB

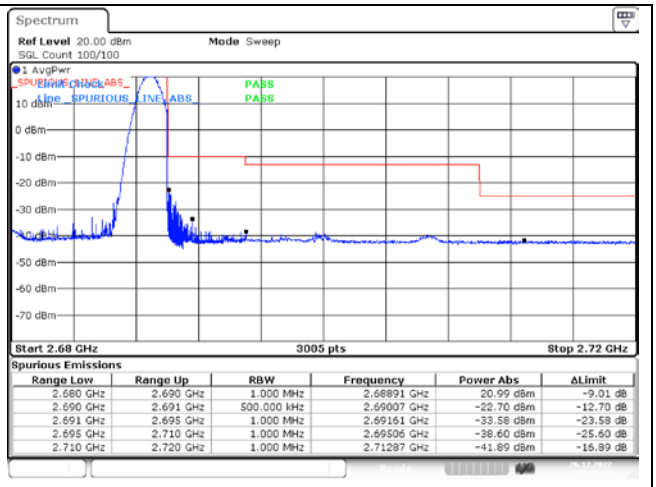


16QAM High Channel - Full RB

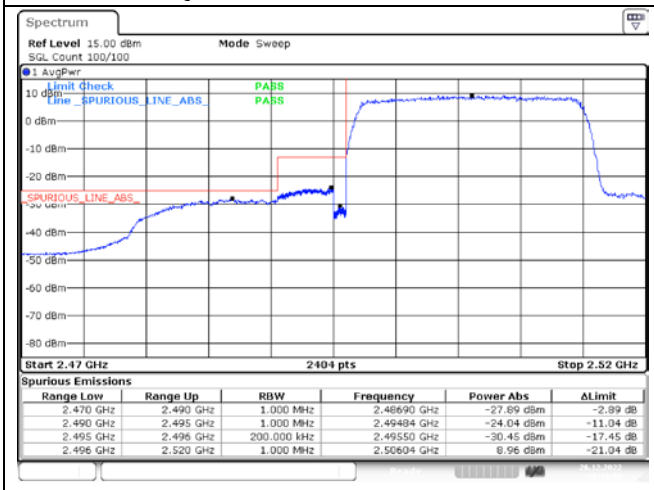
LTE band 41 (20 ㎒)



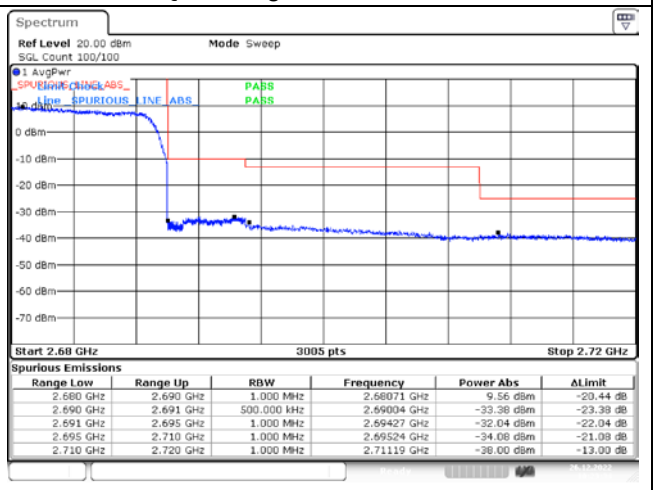
QPSK Low Channel - 1 RB



QPSK High Channel - 1 RB

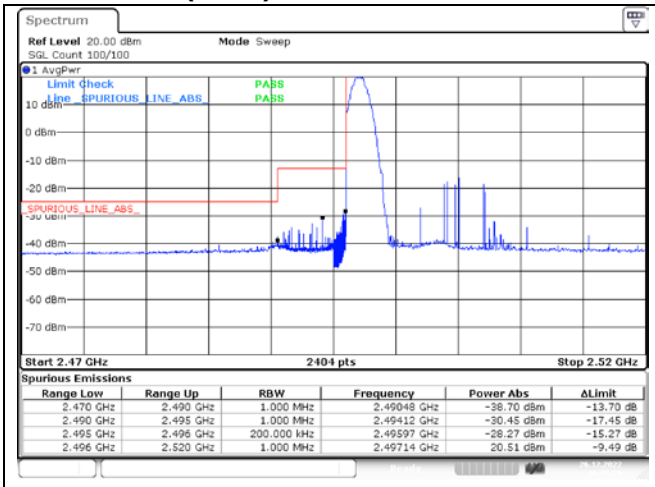


QPSK Low Channel - Full RB

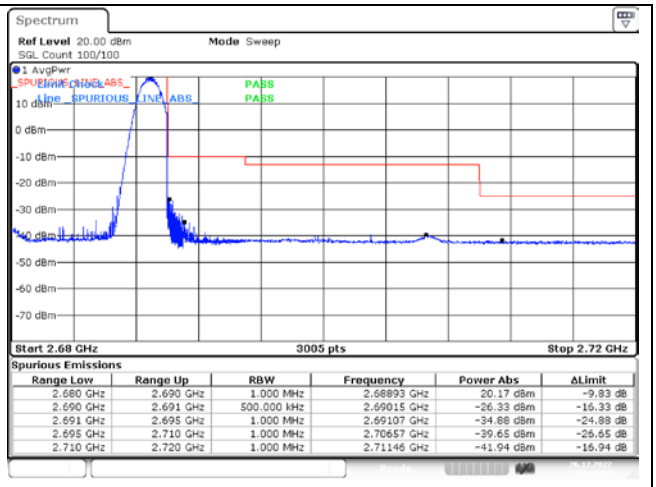


QPSK High Channel - Full RB

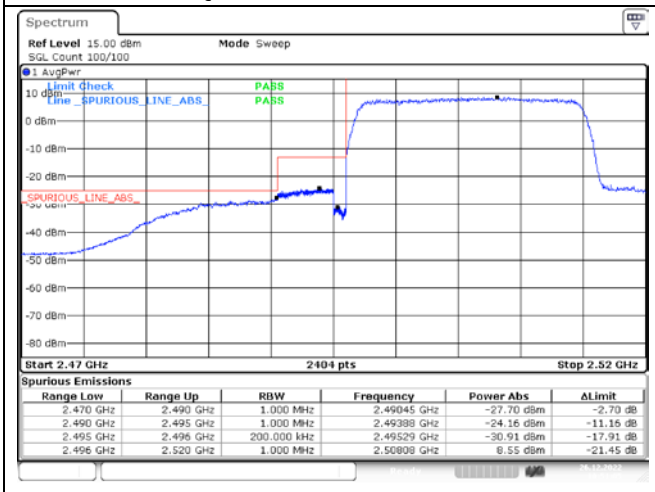
LTE band 41 (20 ㎒)



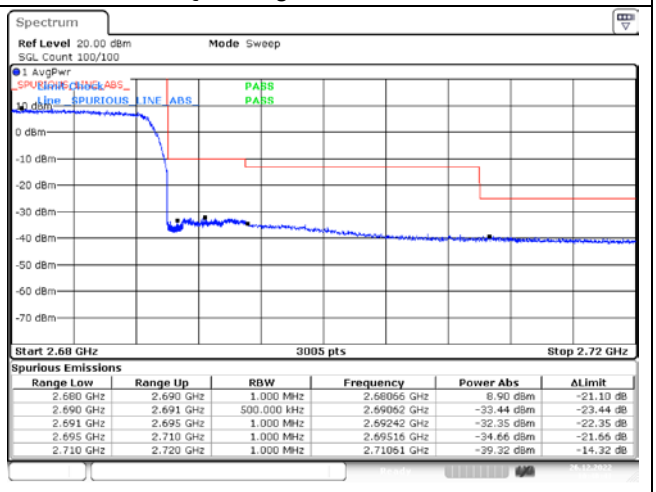
16QAM Low Channel - 1 RB



16QAM High Channel - 1 RB



16QAM Low Channel - Full RB



16QAM High Channel - Full RB

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

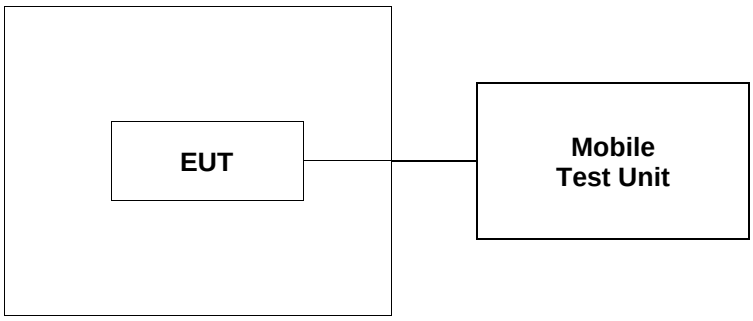
- §24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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

- §90.213, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table.
For Mobile devices operating in the 809 to 824 ㎒ band at a power level 2 Watts or less, the limit specified in Table is +/- 2.5 ppm.

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.



Temperature Chamber

8.3. Test Results

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

LTE band 2 at middle channel

Reference Frequency: 1 880.0 ㎒			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12.5	14.23	0.000 19
40		13.36	-0.000 28
30		11.53	-0.001 25
20(Ref.)		13.88	-
10		16.74	0.001 52
0		14.28	0.000 21
-10		14.19	0.000 16
-20		13.07	-0.000 43
-30		15.02	0.000 61
Frequency Stability versus Power Supply			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
20	10.63 (85%)	14.11	0.000 12
	14.38 (115%)	13.29	-0.000 31

LTE band 4 at middle channel

Reference Frequency: 1 732.5 ㎒			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12.5	14.44	0.001 25
40		14.29	0.001 17
30		14.75	0.001 43
20(Ref.)		12.27	-
10		11.24	-0.000 59
0		12.06	-0.000 12
-10		14.06	0.001 03
-20		13.49	0.000 70
-30		17.02	0.002 74
Frequency Stability versus Power Supply			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
20	10.63 (85%)	13.97	0.000 98
	14.38 (115%)	13.55	0.000 74

LTE band 7 at middle channel

Reference Frequency: 2 535.0 ㎒			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12.5	13.44	0.000 60
40		12.22	0.000 11
30		13.65	0.000 68
20(Ref.)		11.93	-
10		12.90	0.000 38
0		13.12	0.000 47
-10		13.82	0.000 75
-20		13.12	0.000 47
-30		15.38	0.001 36
Frequency Stability versus Power Supply			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
20	10.63 (85%)	12.48	0.000 22
	14.38 (115%)	14.11	0.000 86

LTE band 12/17 at middle channel

Reference Frequency: 707.5 ㎒			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12.5	3.11	-0.000 10
40		2.15	-0.001 46
30		-3.26	-0.009 10
20(Ref.)		3.18	-
10		-2.29	-0.007 73
0		0.70	-0.003 51
-10		-1.57	-0.006 71
-20		2.99	-0.000 27
-30		4.89	0.002 42
Frequency Stability versus Power Supply			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
20	10.63 (85%)	2.99	-0.000 27
	14.38 (115%)	3.11	-0.000 10

LTE band 26/5_Part 22 at middle channel

Reference Frequency: 836.5 ㎒			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12.5	0.44	-0.001 06
40		0.07	-0.001 51
30		0.33	-0.001 20
20(Ref.)		1.33	-
10		2.10	0.000 92
0		1.44	0.000 13
-10		3.75	0.002 90
-20		2.68	0.001 61
-30		3.12	0.002 14
Frequency Stability versus Power Supply			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
20	10.63 (85%)	2.22	0.001 06
	14.38 (115%)	2.13	0.000 96

LTE band 26_Part 90 at middle channel

Reference Frequency: 821.5 ㎒			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12.5	3.12	0.000 15
40		2.83	-0.000 21
30		5.52	0.003 07
20(Ref.)		3.00	-
10		7.30	0.005 23
0		7.34	0.005 28
-10		8.80	0.007 06
-20		5.49	0.003 03
-30		6.19	0.003 88
Frequency Stability versus Power Supply			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
20	10.63 (85%)	1.38	-0.001 97
	14.38 (115%)	2.44	-0.000 68

LTE band 41 at middle channel

Reference Frequency: 2 593.0 ㎒			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12.5	13.24	0.000 27
40		12.75	0.000 08
30		13.12	0.000 22
20(Ref.)		12.55	-
10		13.12	0.000 22
0		14.88	0.000 90
-10		12.49	-0.000 02
-20		13.22	0.000 26
-30		14.11	0.000 60
Frequency Stability versus Power Supply			
Environment Temperature (℃)	**Power Supplied (V)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
20	10.63 (85%)	12.94	0.000 15
	14.38 (115%)	12.75	0.000 08

- End of the Test Report -