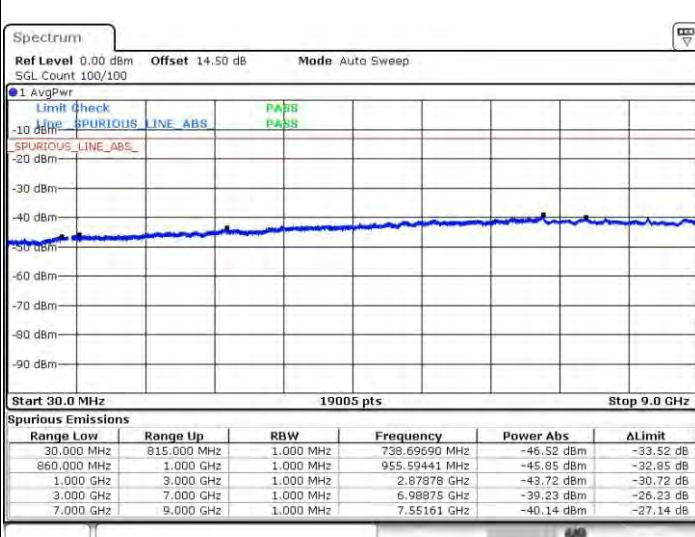
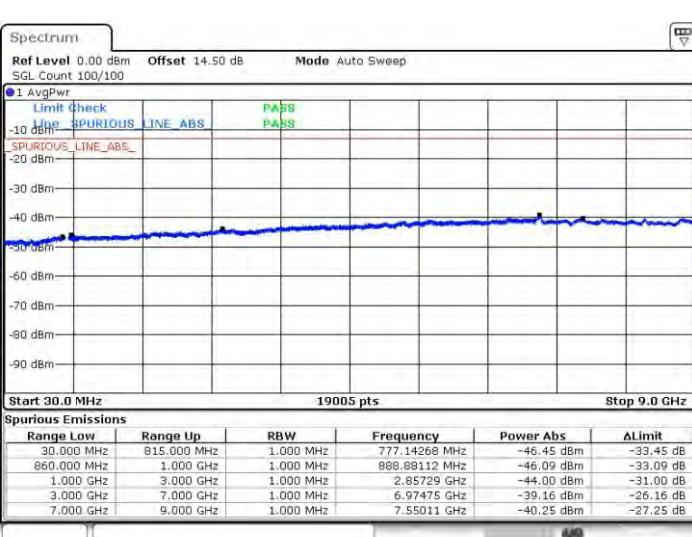




LTE Band 5 / 5MHz

Highest Channel / QPSK

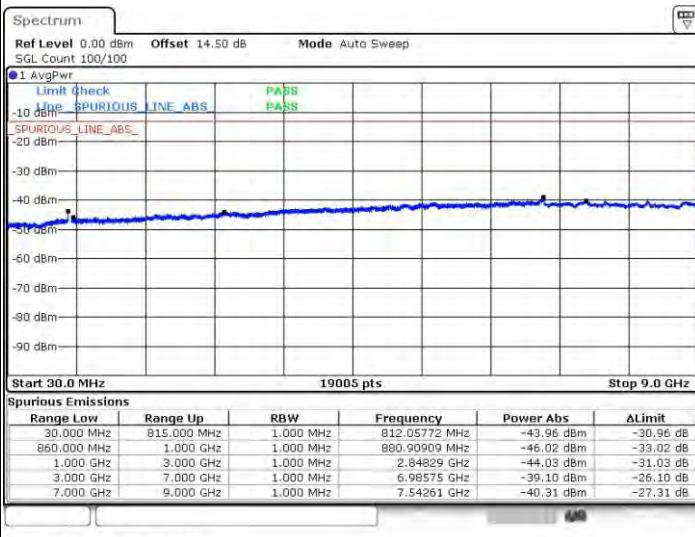
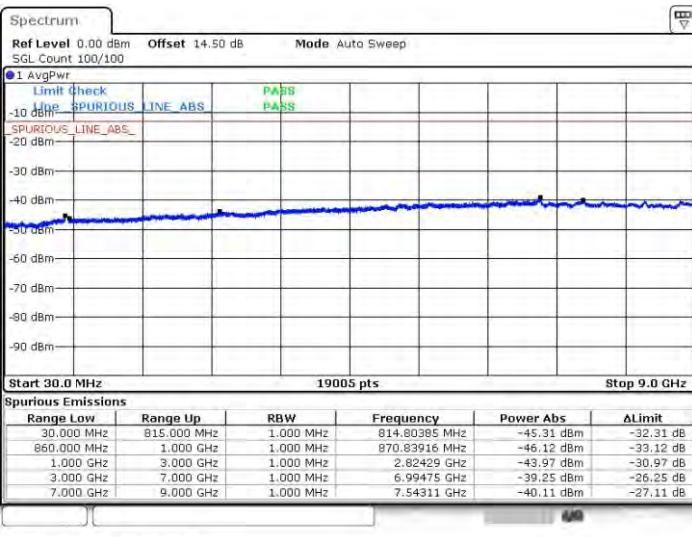
Highest Channel / 16QAM

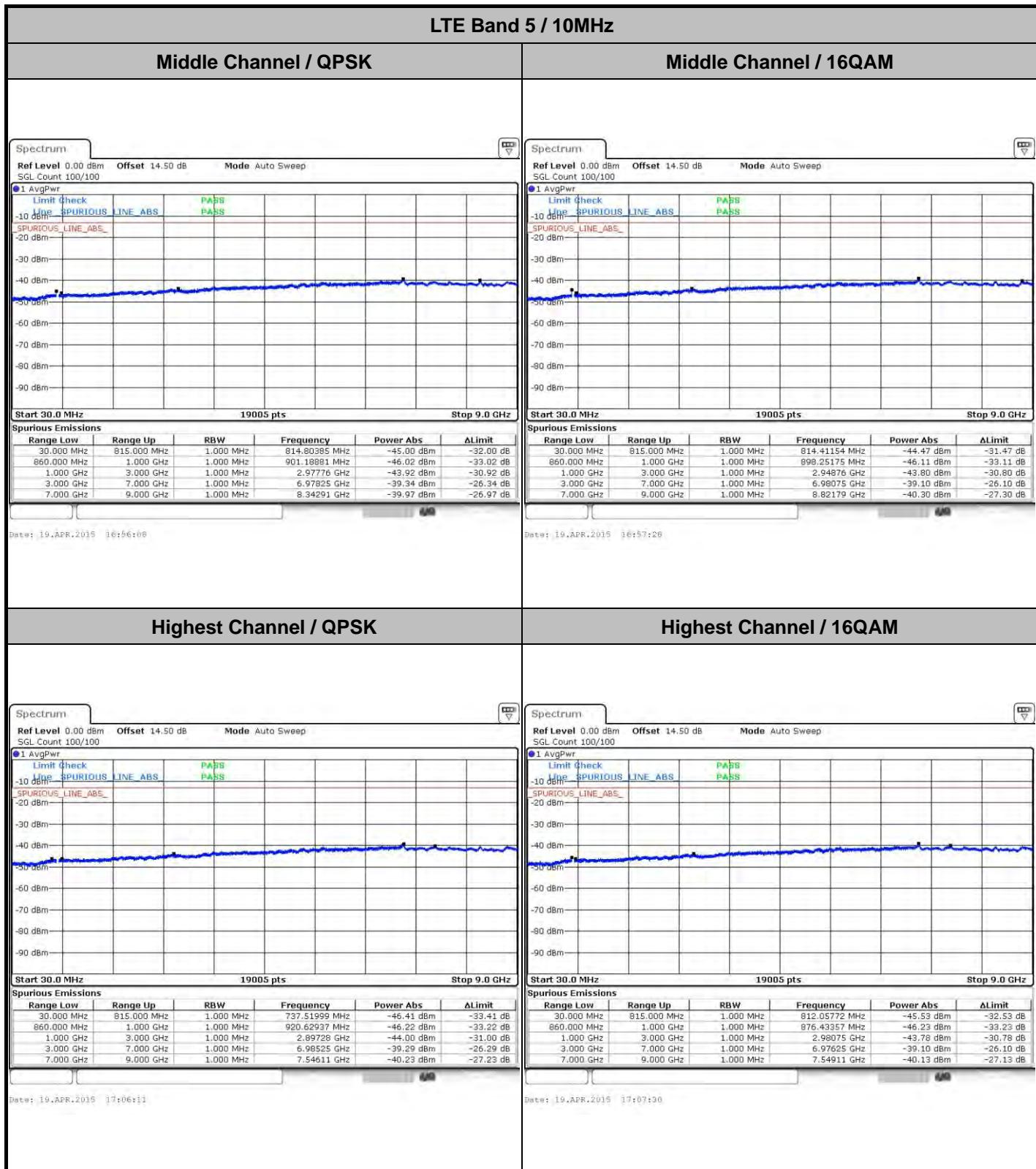


LTE Band 5 / 10MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM







Frequency Stability

Test Conditions		LTE Band 5 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	2.5ppm
		Deviation (ppm)	Result
50	Normal Voltage	0.0000	PASS
40	Normal Voltage	0.0012	
30	Normal Voltage	0.0108	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0120	
0	Normal Voltage	0.0012	
-10	Normal Voltage	0.0132	
-20	Normal Voltage	0.0120	
-30	Normal Voltage	0.0036	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0108	

Note:

1. Normal Voltage = 3.3V. ; Battery End Point (BEP) = 3.135 V. ; Maximum Voltage = 4.4 V
2. Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



LTE Band 7

Conducted Output Power(Average power)

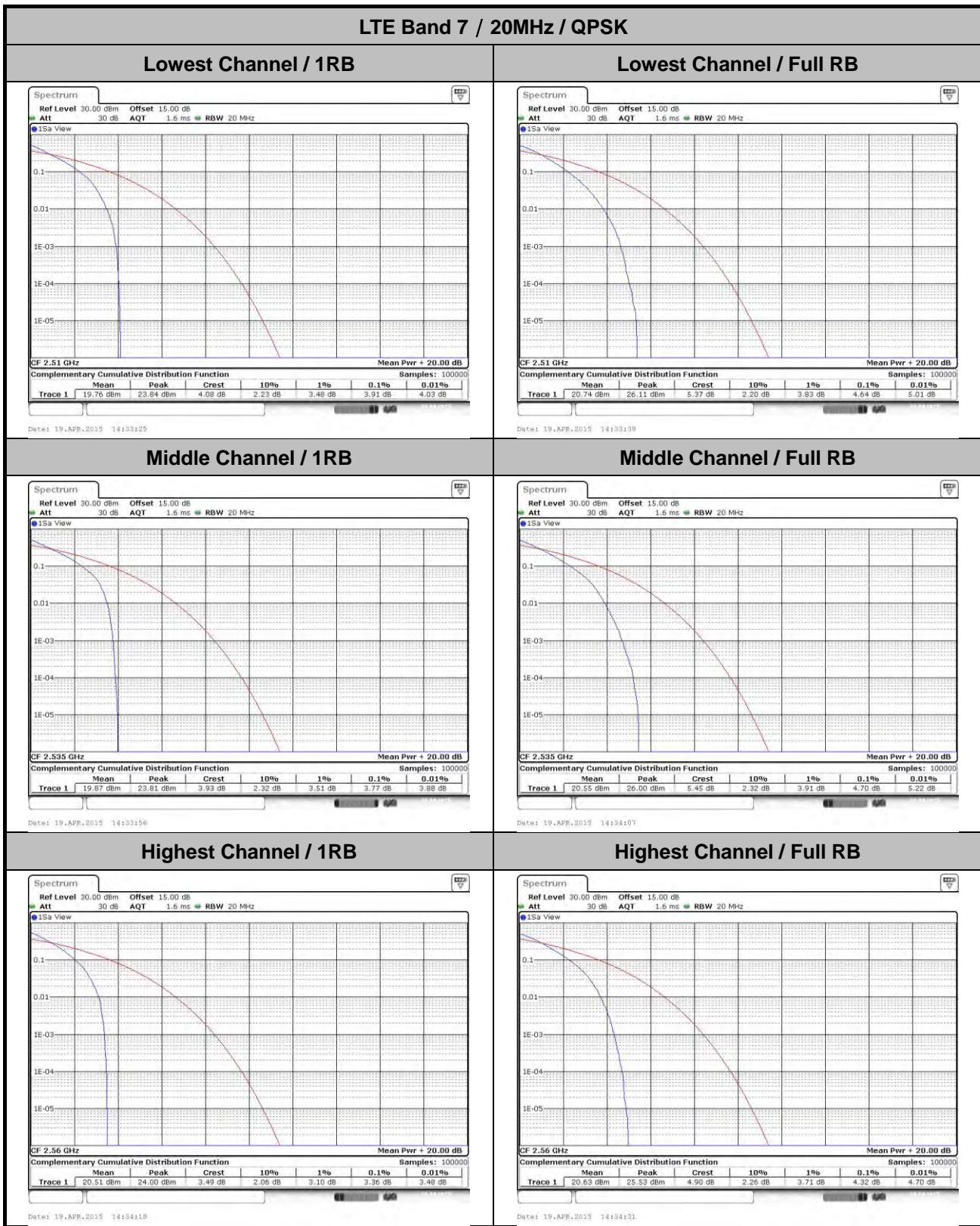
LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.85	22.28	22.49
	1	12		21.91	22.30	22.44
	1	24		21.75	22.13	22.36
	12	0		20.94	21.35	21.60
	12	6		20.72	21.34	21.54
	12	11		20.74	21.26	21.55
	25	0		20.89	21.29	21.54
	1	0		20.80	21.15	21.38
5	1	12	16-QAM	20.75	21.09	21.28
	1	24		20.64	21.04	21.23
	12	0		20.27	20.69	20.94
	12	6		20.32	20.71	20.88
	12	11		20.01	20.56	20.87
	25	0		20.20	20.61	20.85
	1	0		22.14	22.58	22.81
	1	24		21.87	22.35	22.51
10	1	49	QPSK	21.78	22.27	22.53
	25	0		21.10	21.48	21.73
	25	12		20.96	21.29	21.55
	25	24		20.75	21.31	21.56
	50	0		20.94	21.30	21.58
	1	0		21.23	21.29	21.68
	1	24		21.22	21.48	22.01
	1	49		21.03	21.67	21.37
10	25	0	16-QAM	20.41	20.74	21.00
	25	12		20.20	20.56	20.81
	25	24		20.03	20.59	20.87
	50	0		20.33	20.67	20.98

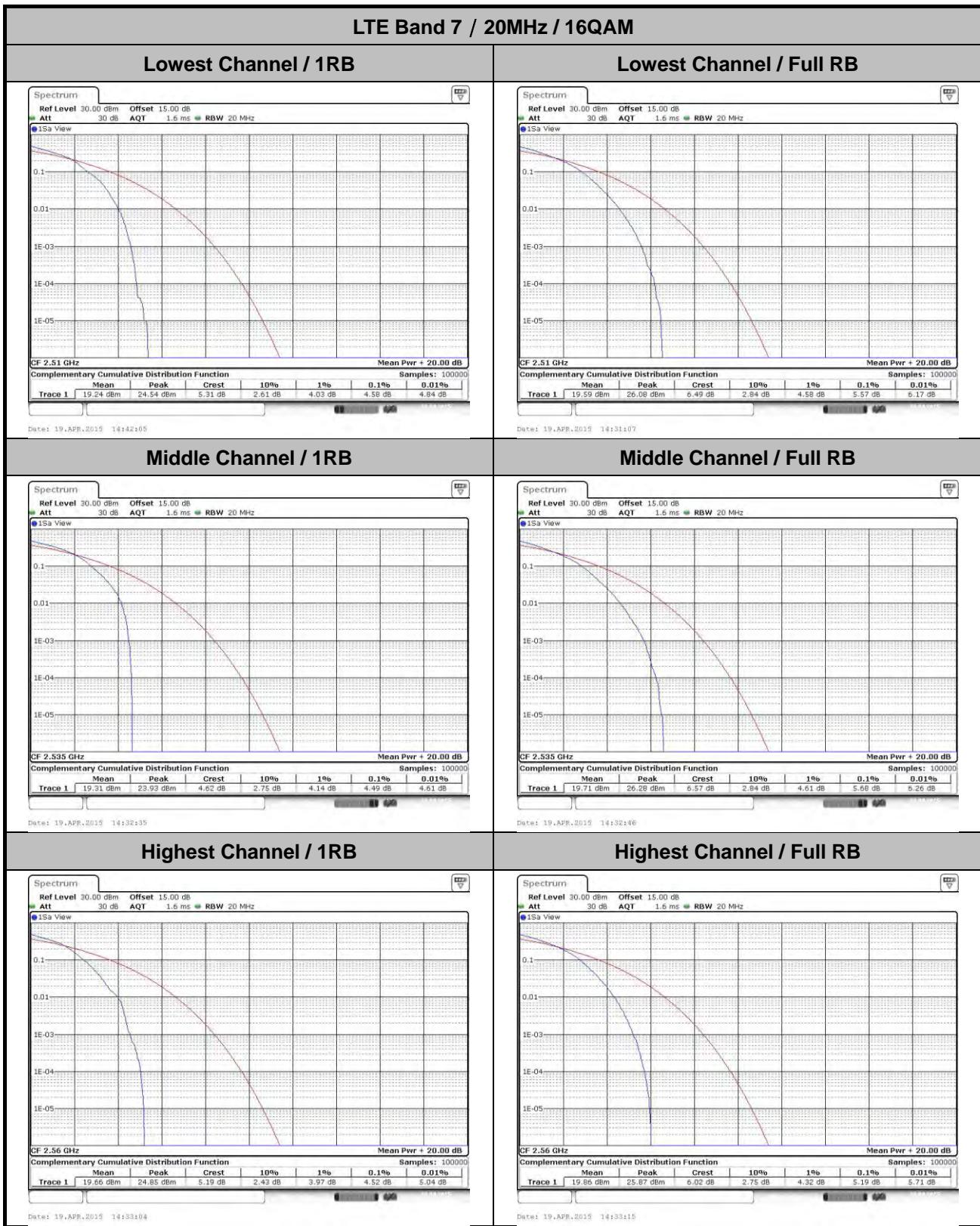


LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.54	22.61	23.18
	1	37		22.04	22.34	22.81
	1	74		22.09	22.35	22.60
	36	0		21.34	21.67	21.72
	36	18		21.02	21.41	21.64
	36	37		21.03	21.29	21.65
	75	0		21.15	21.52	21.79
15	1	0	16-QAM	21.55	21.90	22.01
	1	37		21.03	21.27	21.67
	1	74		20.88	21.37	21.60
	36	0		20.59	20.95	21.36
	36	18		20.30	20.67	20.85
	36	37		20.26	20.65	20.96
	75	0		20.36	20.78	21.07
20	1	0	QPSK	22.71	22.87	22.96
	1	49		22.22	22.23	22.35
	1	99		22.24	22.33	22.36
	50	0		21.54	21.74	21.94
	50	24		21.03	21.37	21.65
	50	49		21.14	21.35	21.65
	100	0		21.39	21.63	21.83
20	1	0	16-QAM	21.88	22.10	22.56
	1	49		21.09	21.35	21.36
	1	99		21.15	21.26	21.69
	50	0		20.72	20.95	21.22
	50	24		20.31	20.69	20.88
	50	49		20.36	20.70	20.84
	100	0		20.60	21.02	21.00

**Peak-to-Average Ratio**

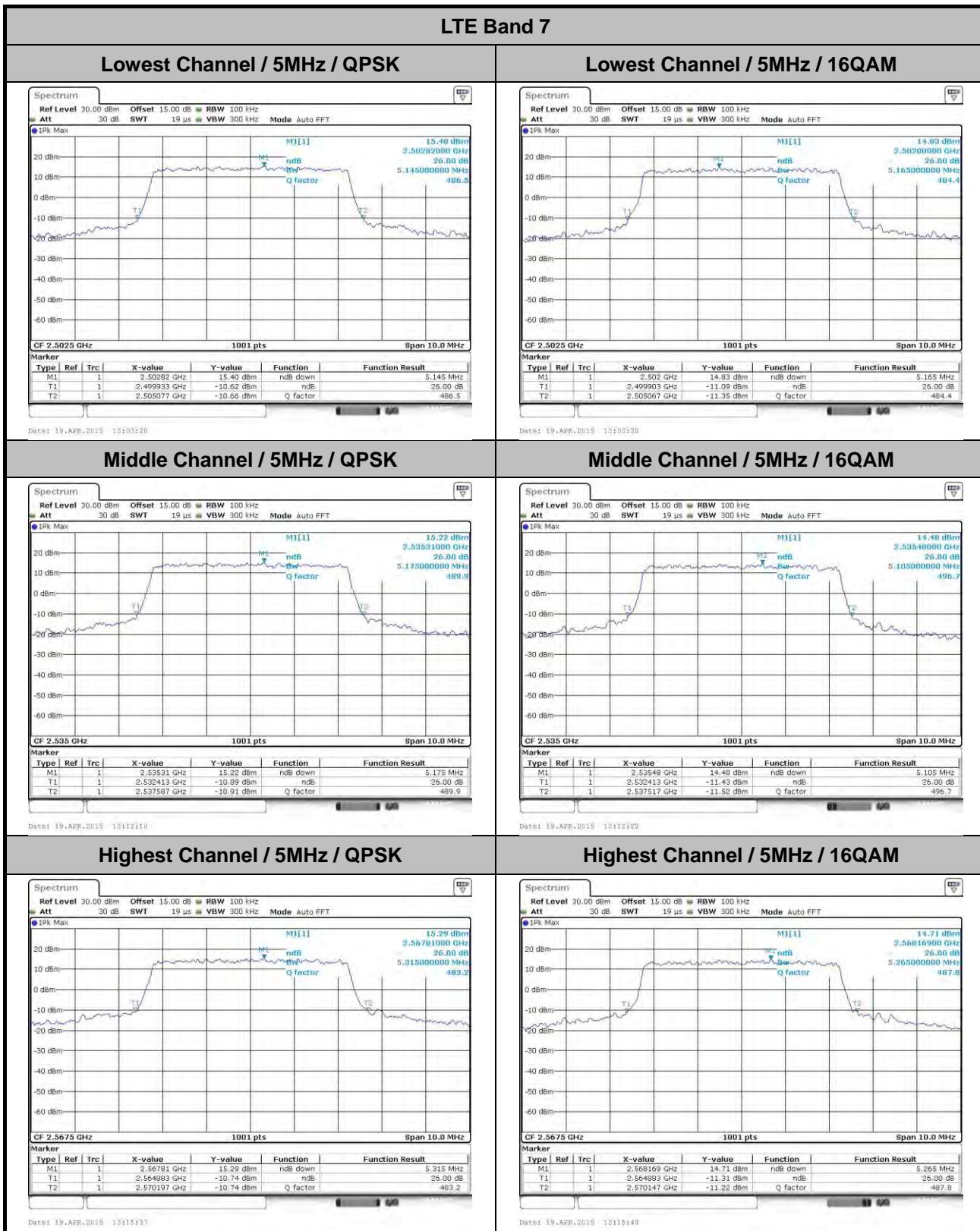
Mode	LTE Band 7 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	3.91	4.64	4.58	5.57	PASS
Middle CH	3.77	4.70	4.49	5.68	
Highest CH	3.36	4.32	4.52	5.19	





**26dB Bandwidth**

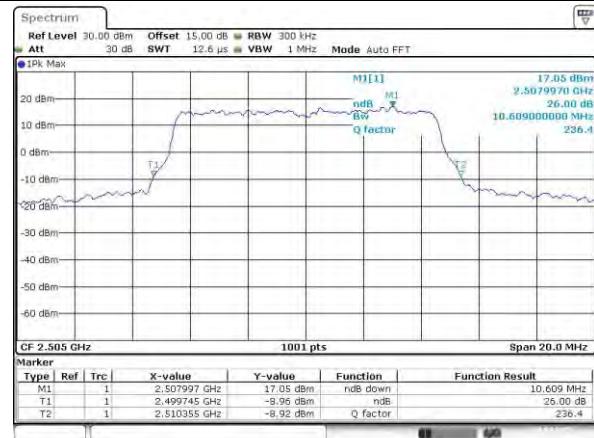
Mode	LTE Band 7 : 26dB BW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	5.15	5.17	10.61	10.21	15.73	15.58	21.86	20.98
Middle CH	-	-	-	-	5.18	5.11	10.55	10.55	16.03	15.94	21.42	21.22
Highest CH	-	-	-	-	5.32	5.27	10.63	10.41	15.58	16.09	21.30	21.42



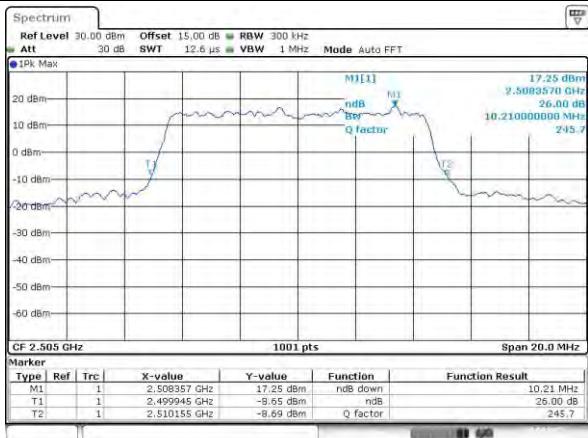


LTE Band 7

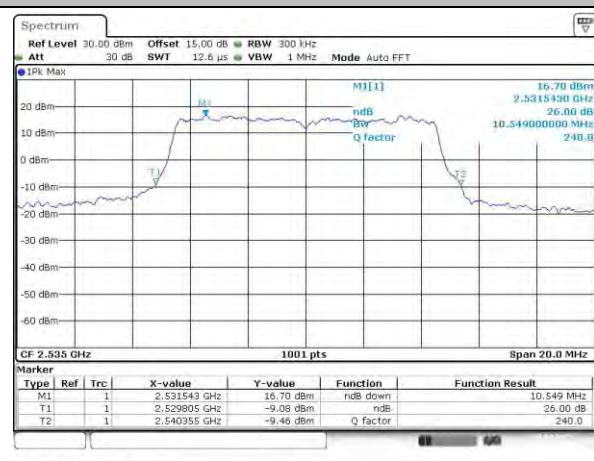
Lowest Channel / 10MHz / QPSK



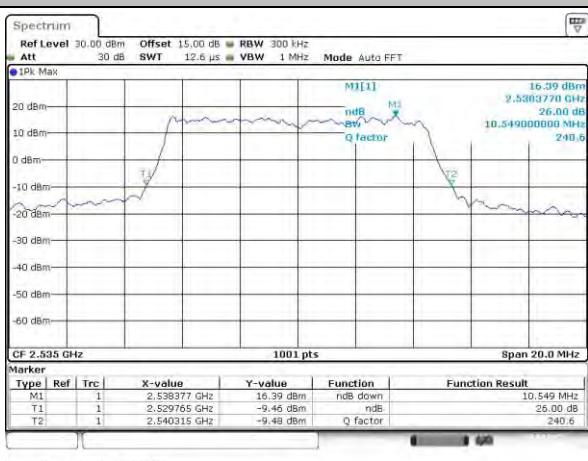
Lowest Channel / 10MHz / 16QAM



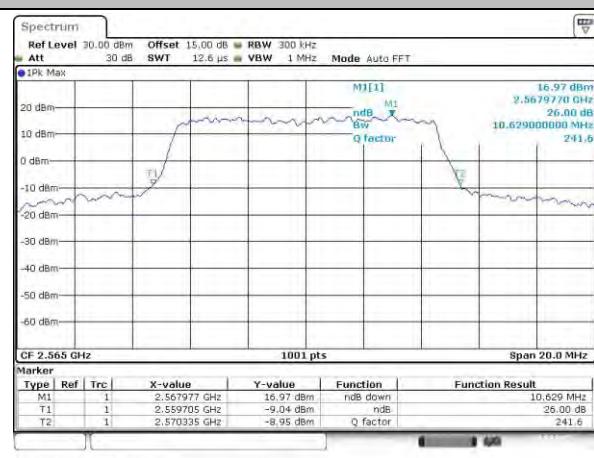
Middle Channel / 10MHz / QPSK



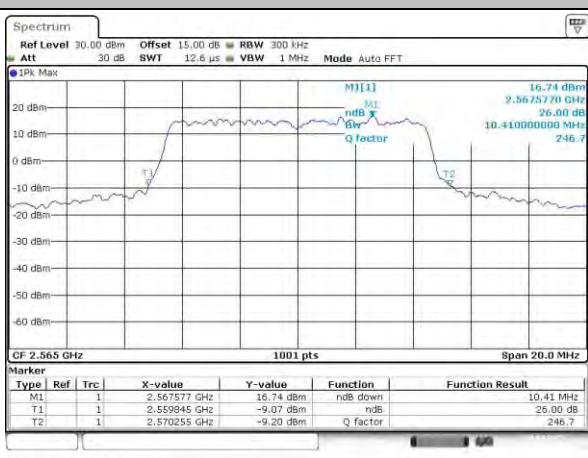
Middle Channel / 10MHz / 16QAM

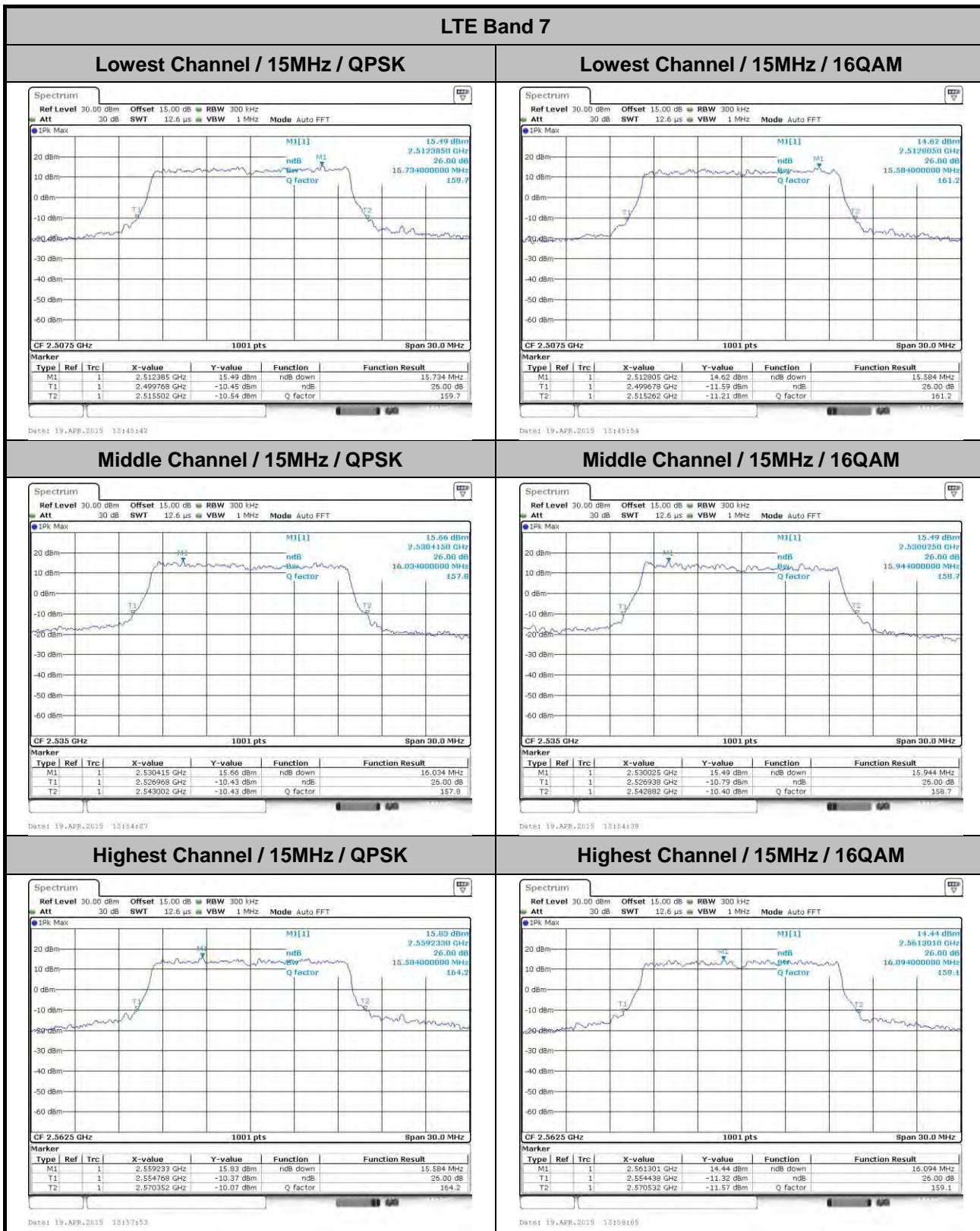


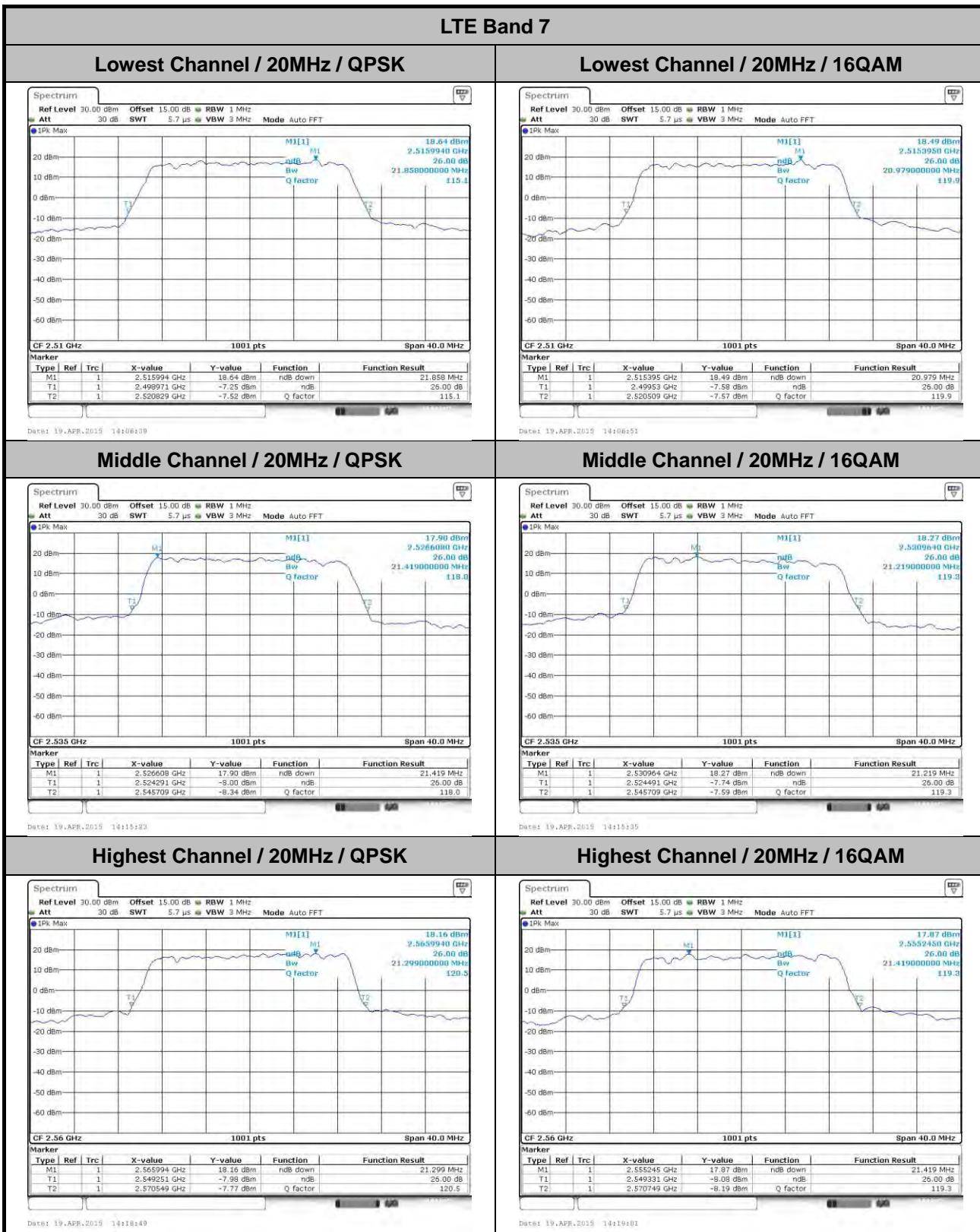
Highest Channel / 10MHz / QPSK



Highest Channel / 10MHz / 16QAM

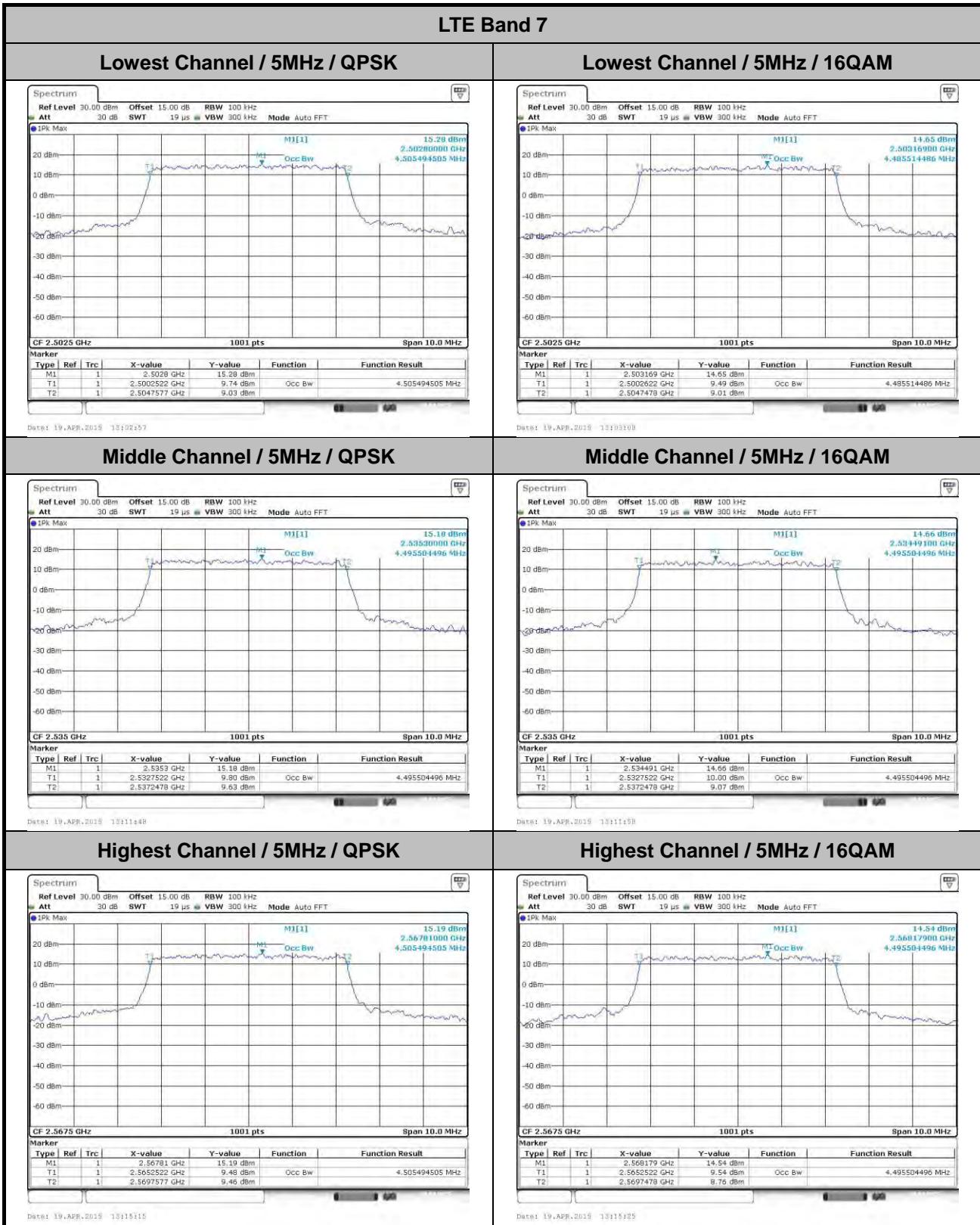


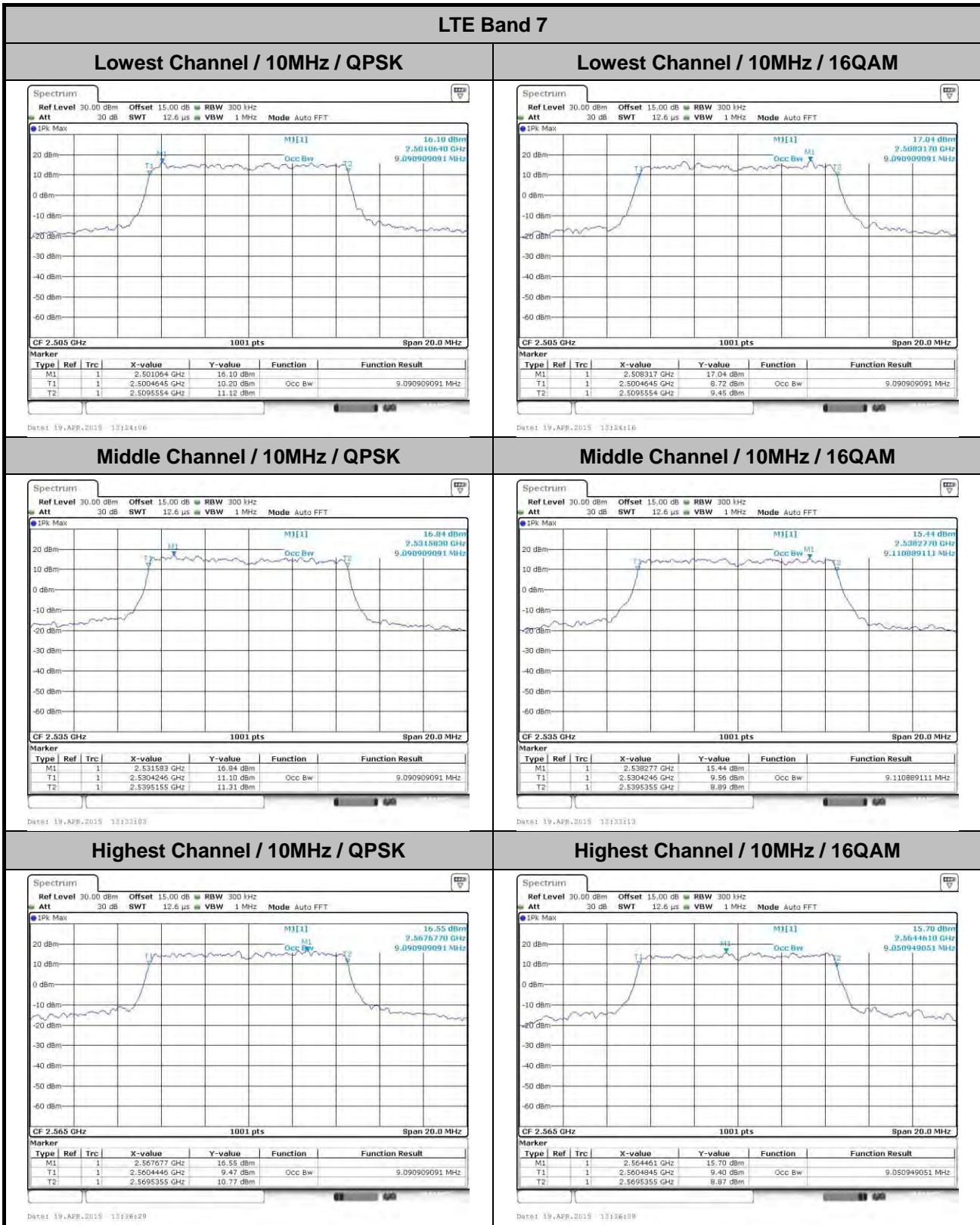


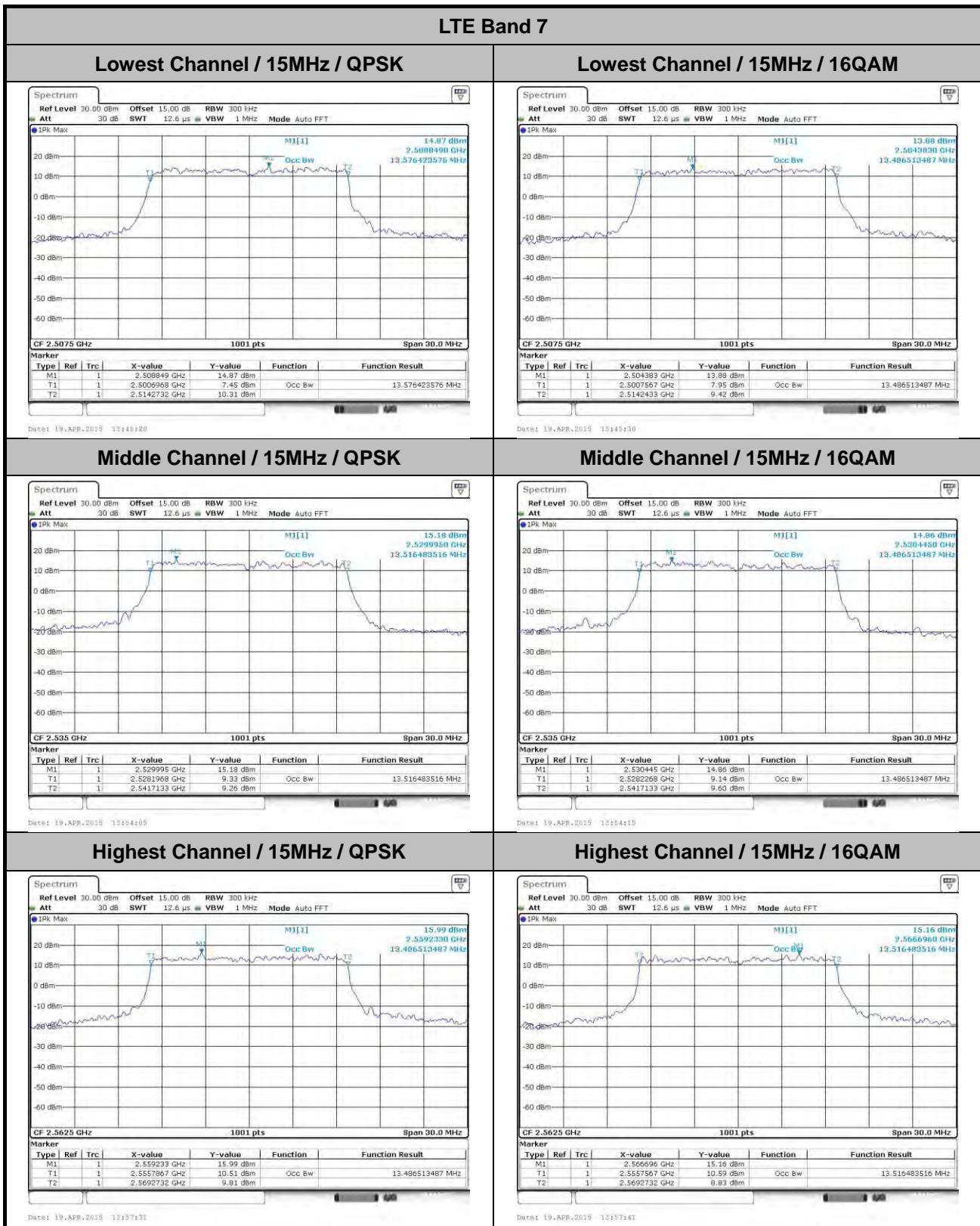


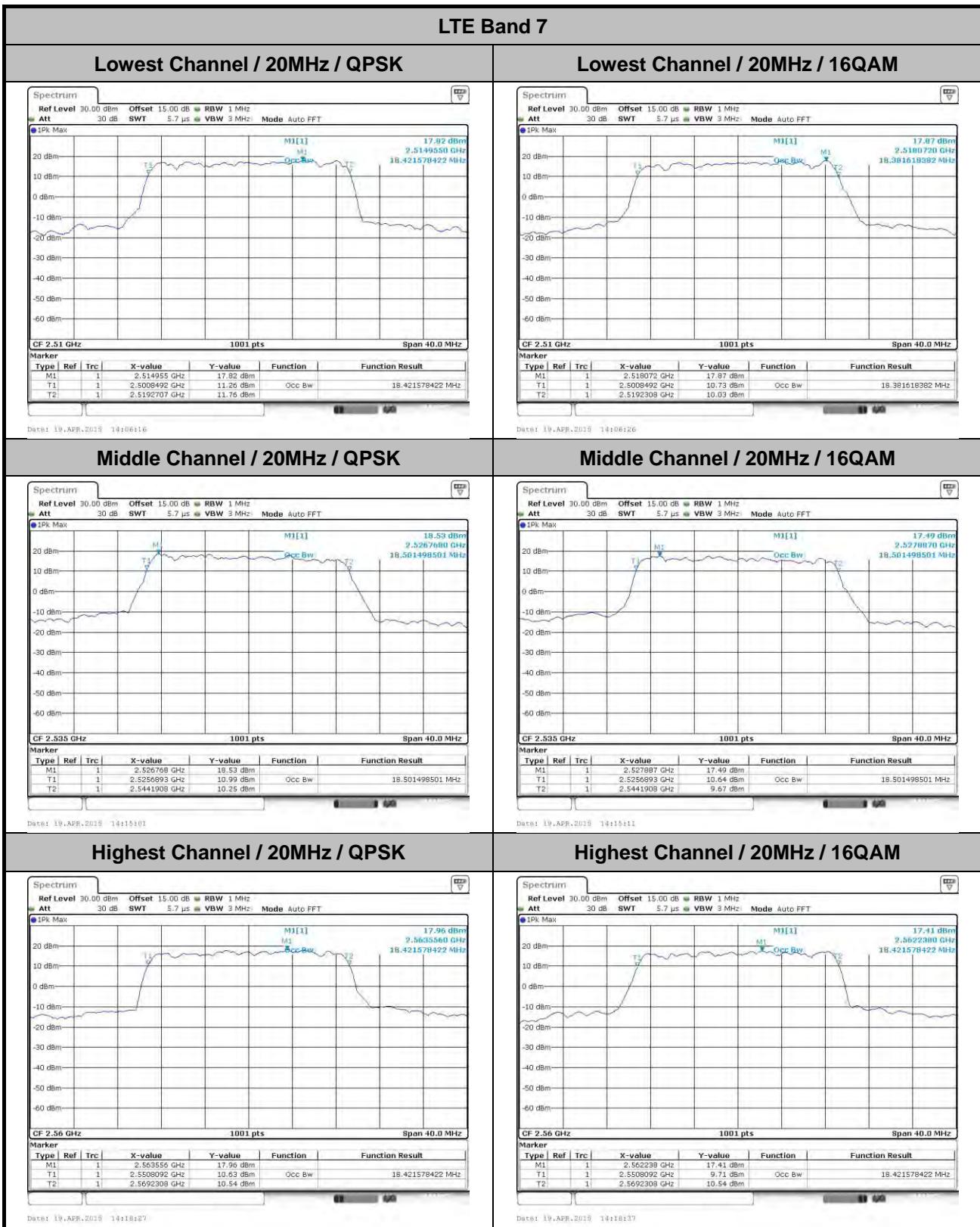
**Occupied Bandwidth**

Mode	LTE Band 7 : 99%OBW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.51	4.49	9.09	9.09	13.58	13.49	18.42	18.38
Middle CH	-	-	-	-	4.50	4.50	9.09	9.11	13.52	13.49	18.50	18.50
Highest CH	-	-	-	-	4.51	4.50	9.09	9.05	13.49	13.52	18.42	18.42



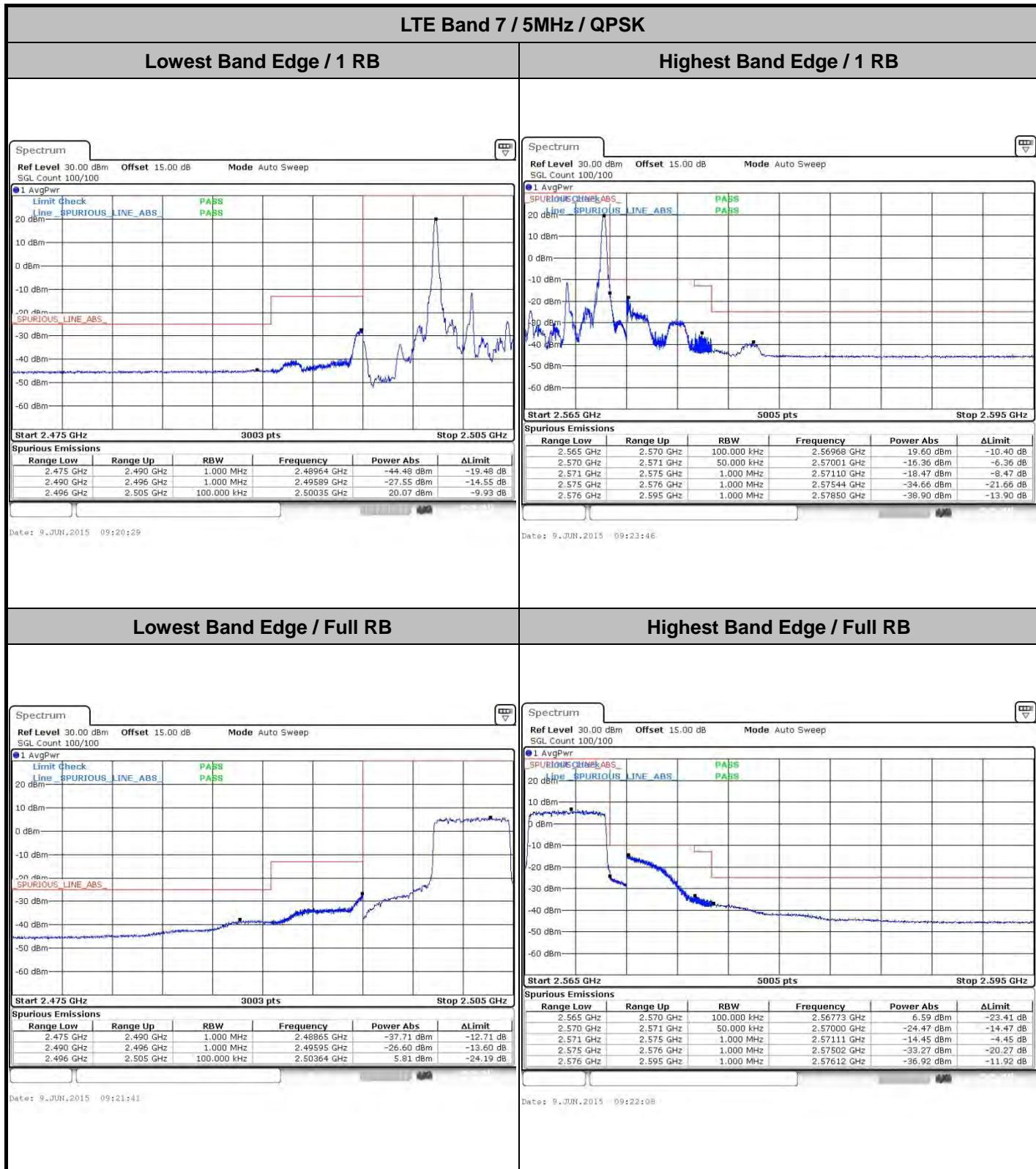


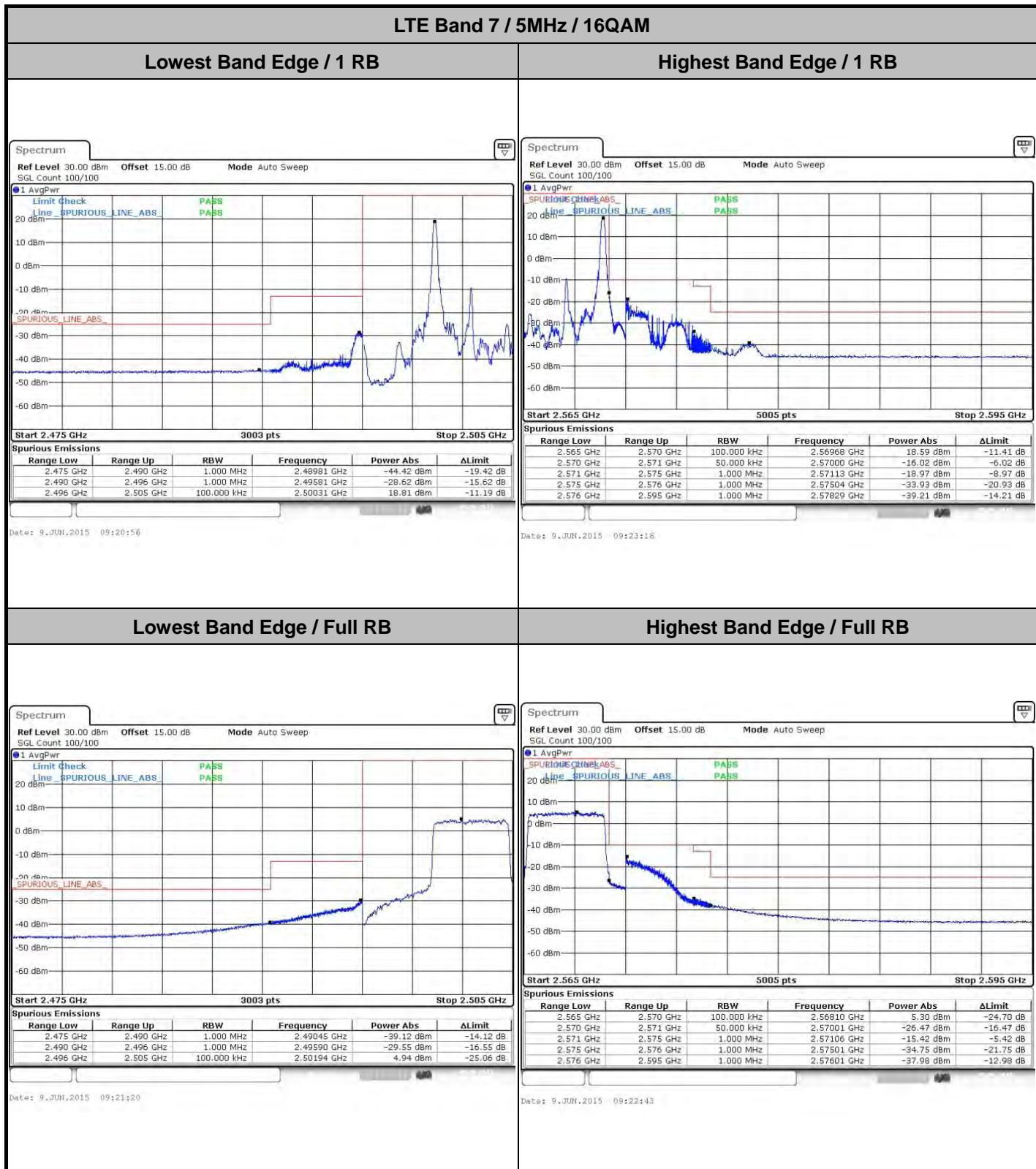


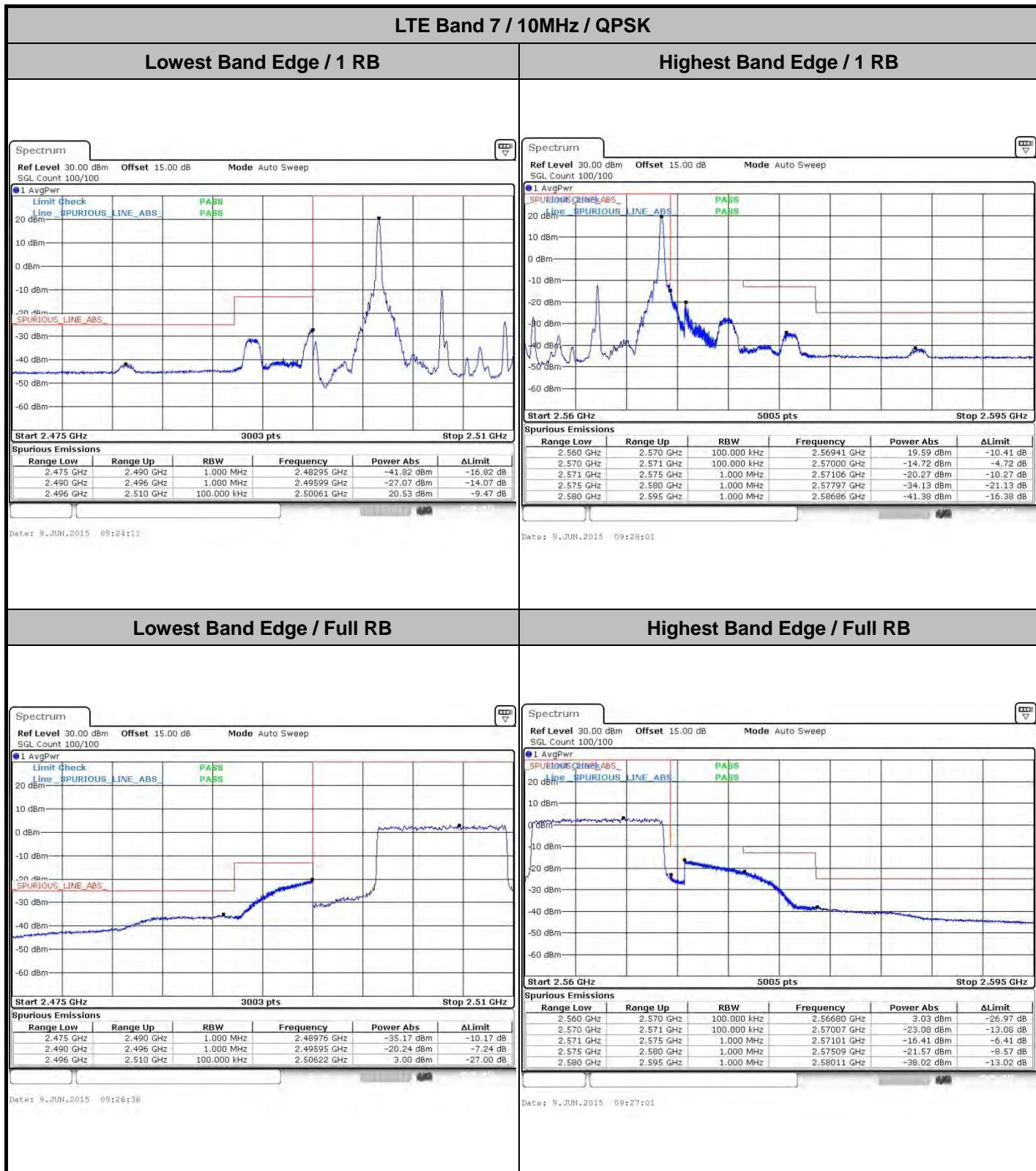


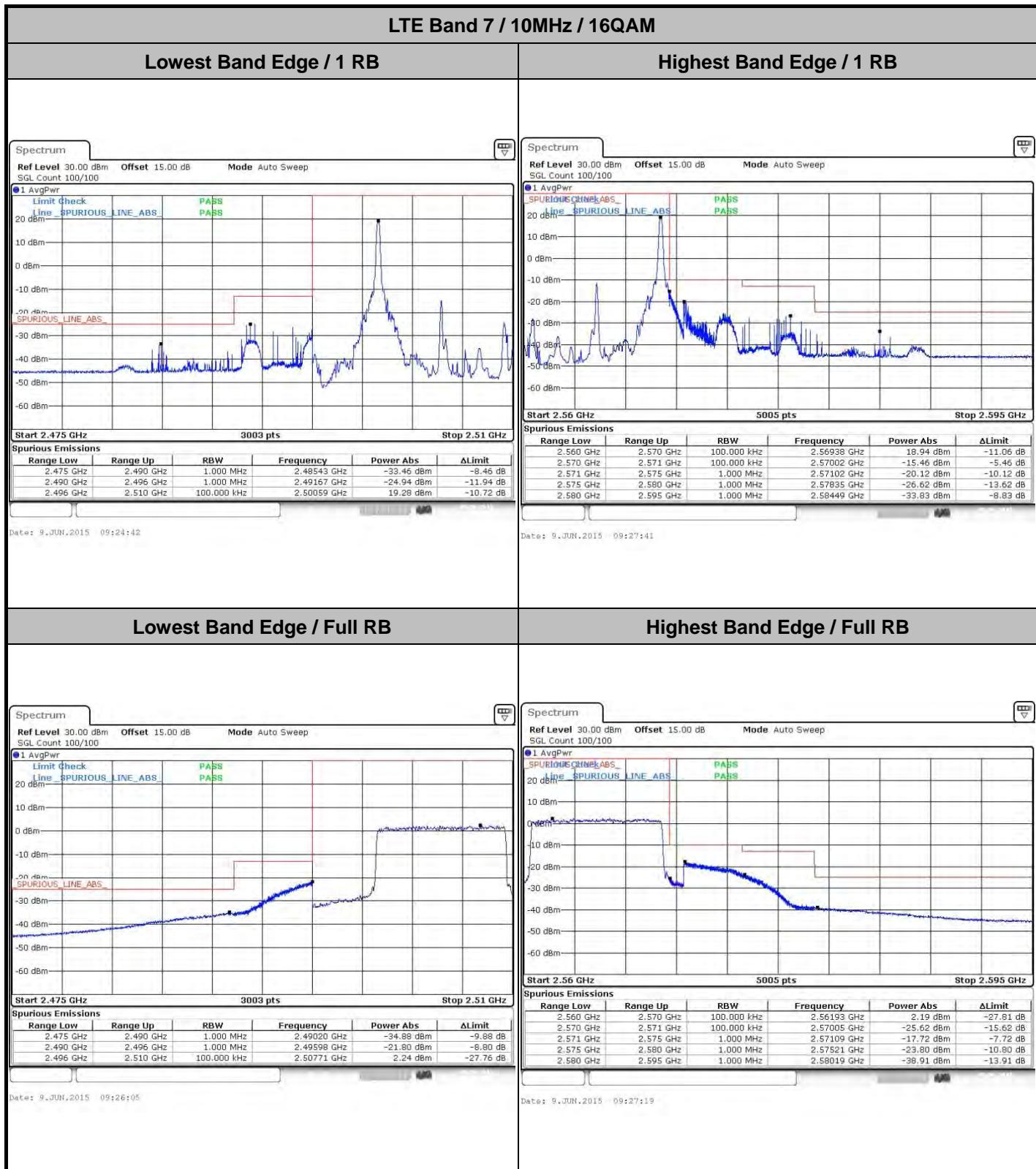


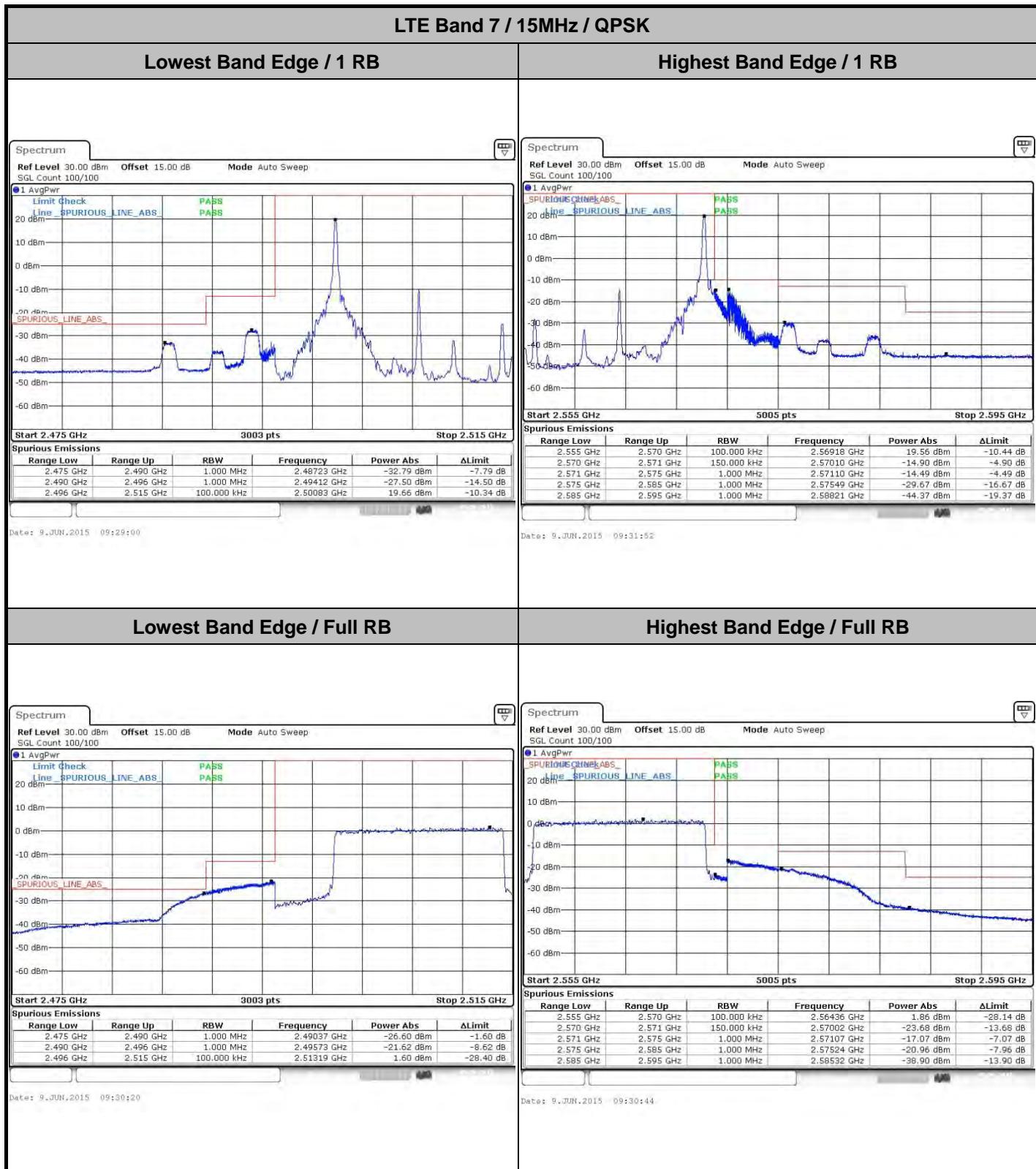
Conducted Band Edge

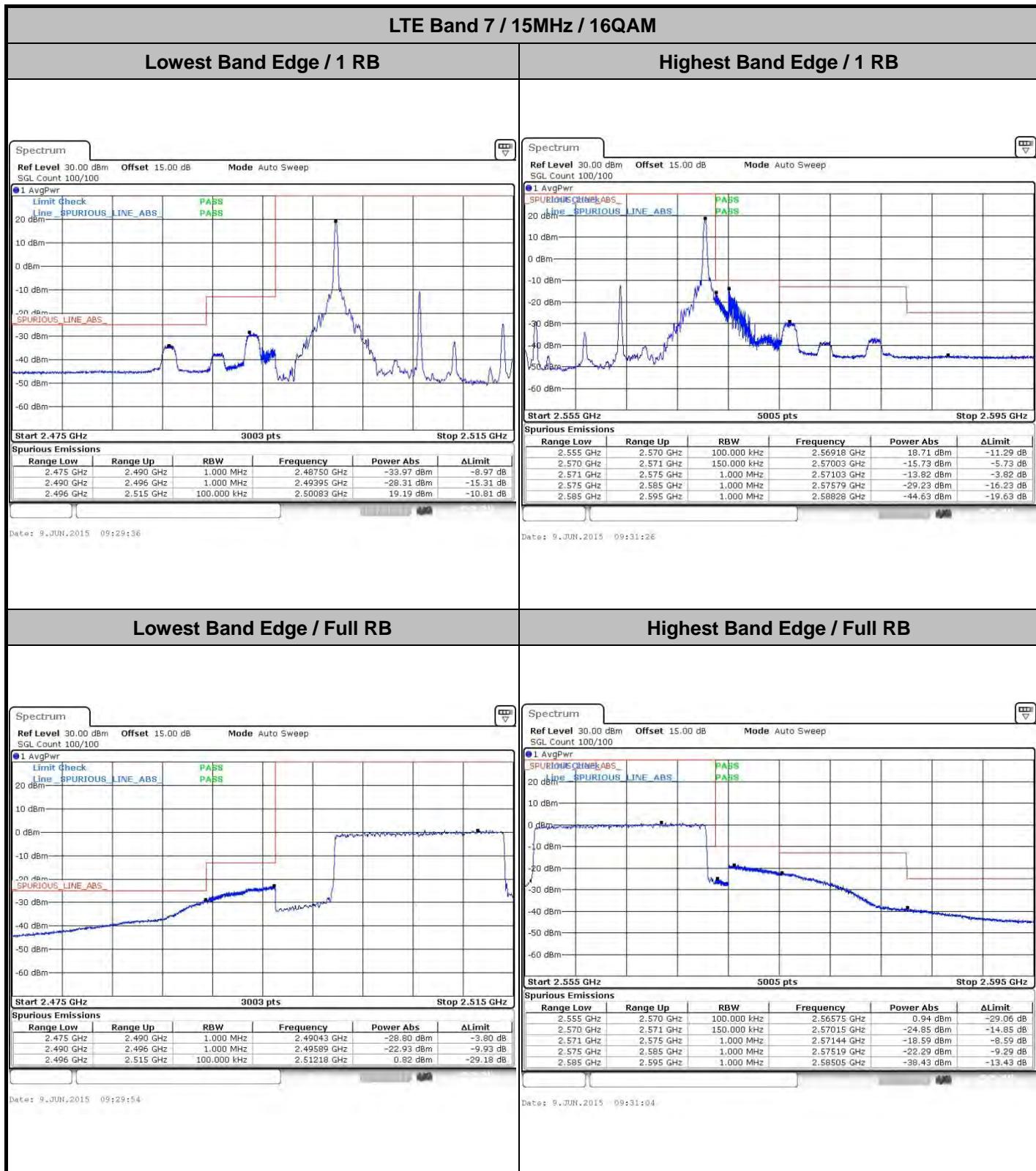


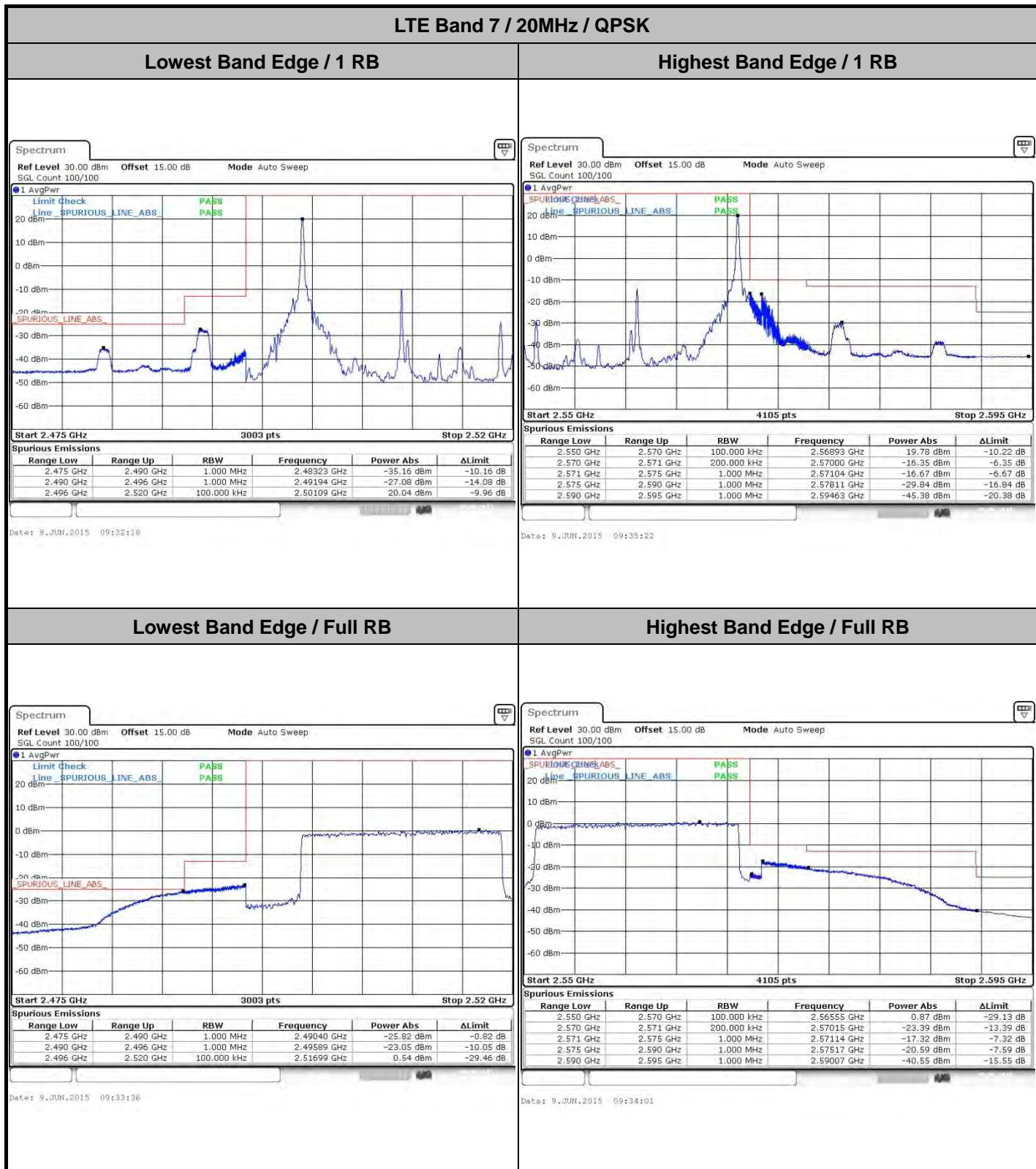


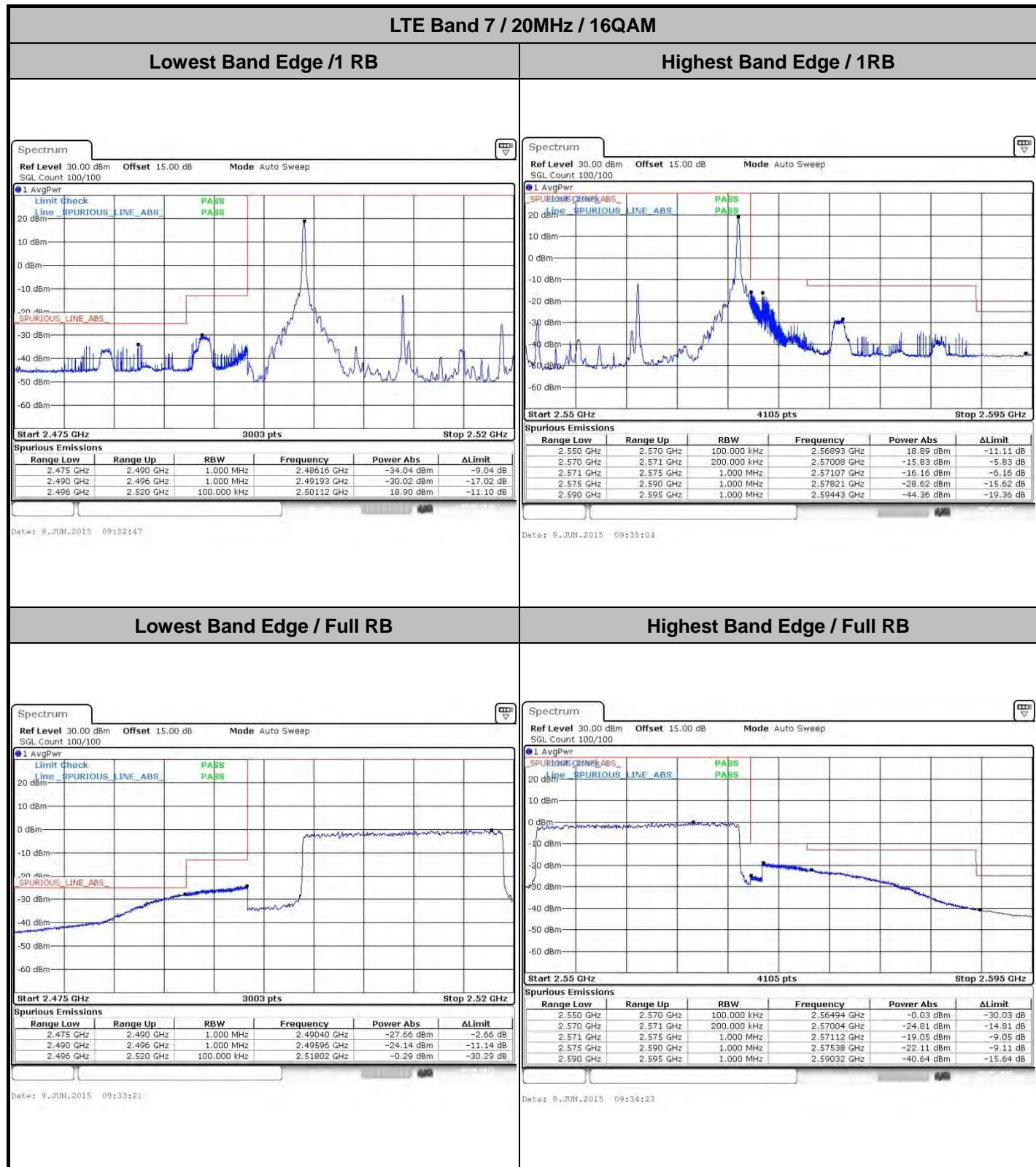












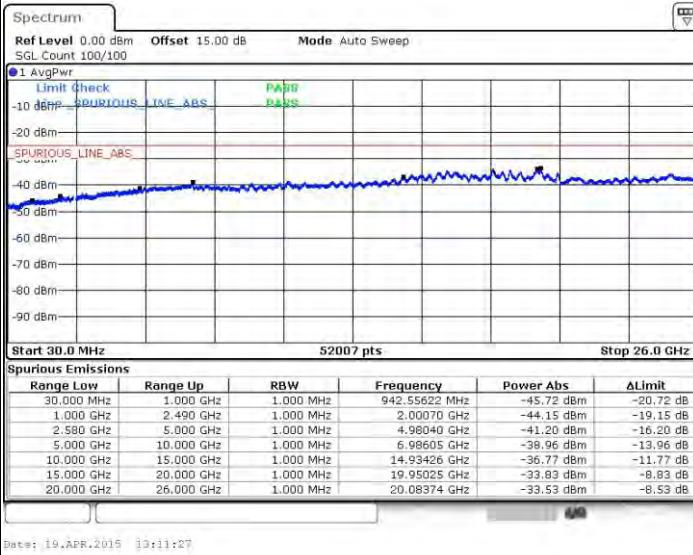
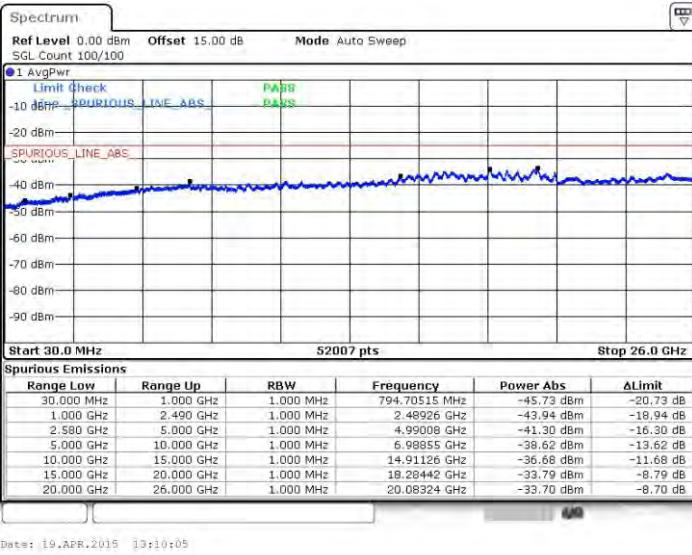


Conducted Spurious Emission

LTE Band 7 / 5MHz

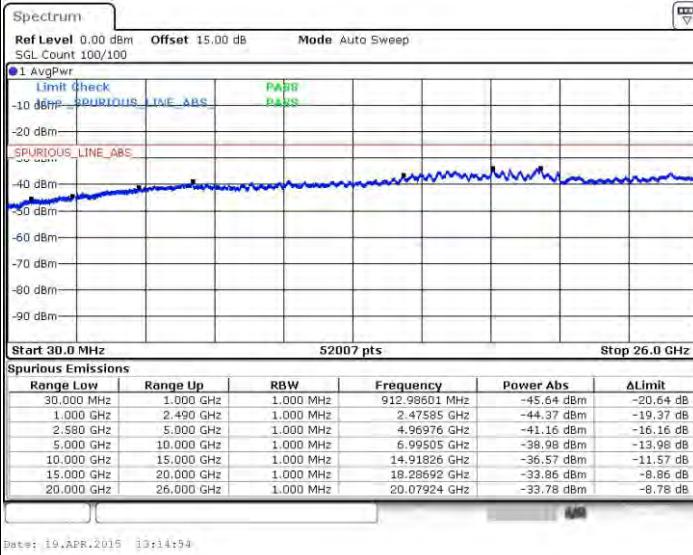
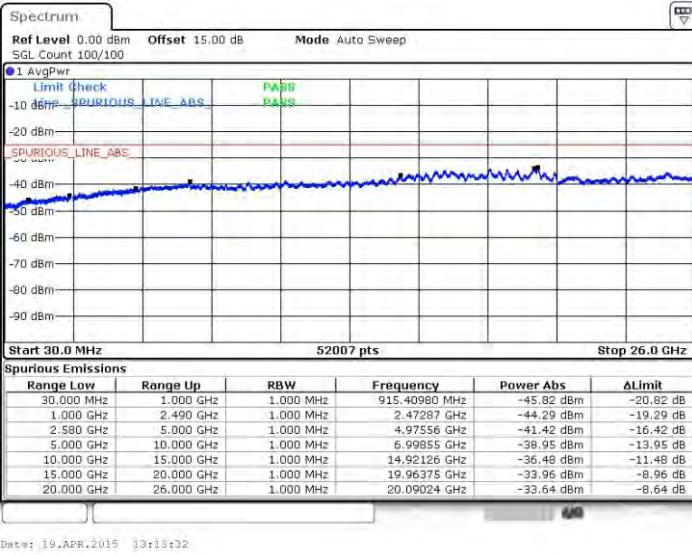
Lowest Channel / QPSK

Lowest Channel / 16QAM



Middle Channel / QPSK

Middle Channel / 16QAM

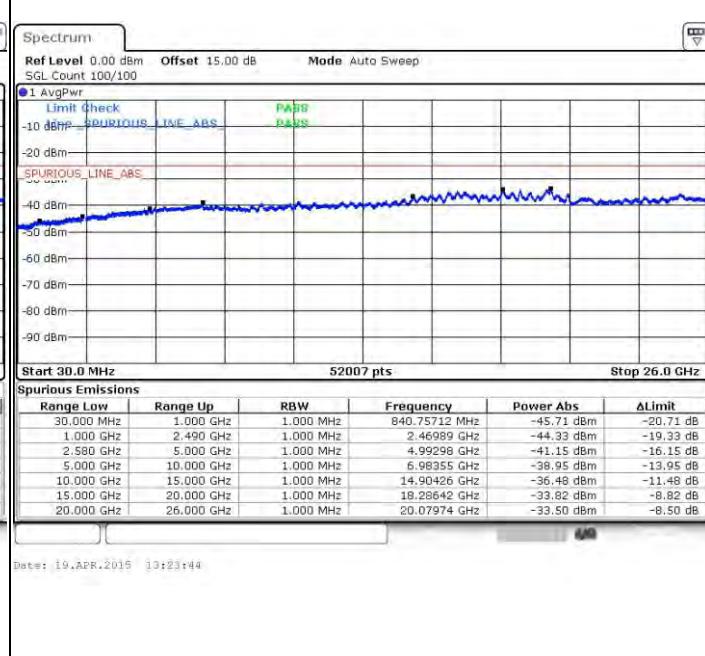
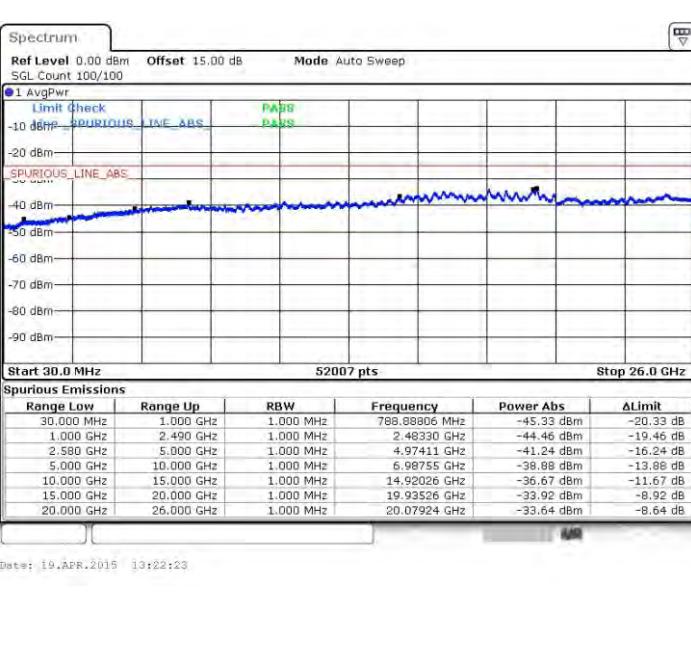




LTE Band 7 / 5MHz

Highest Channel / QPSK

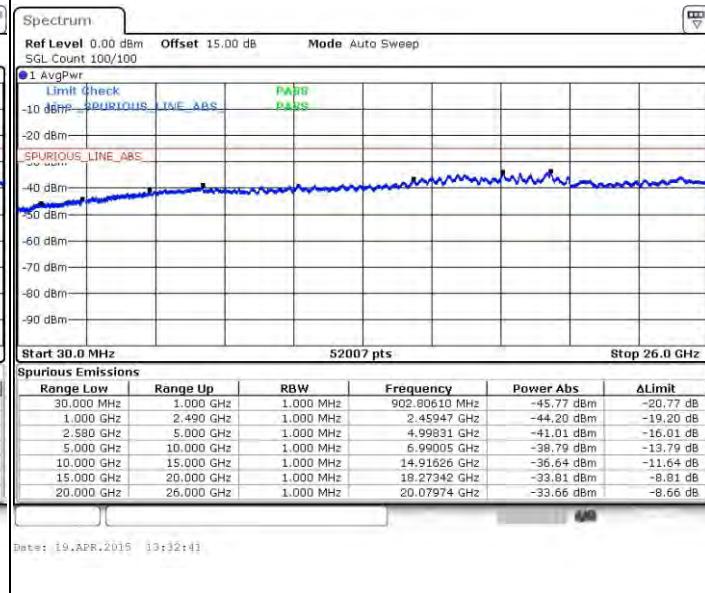
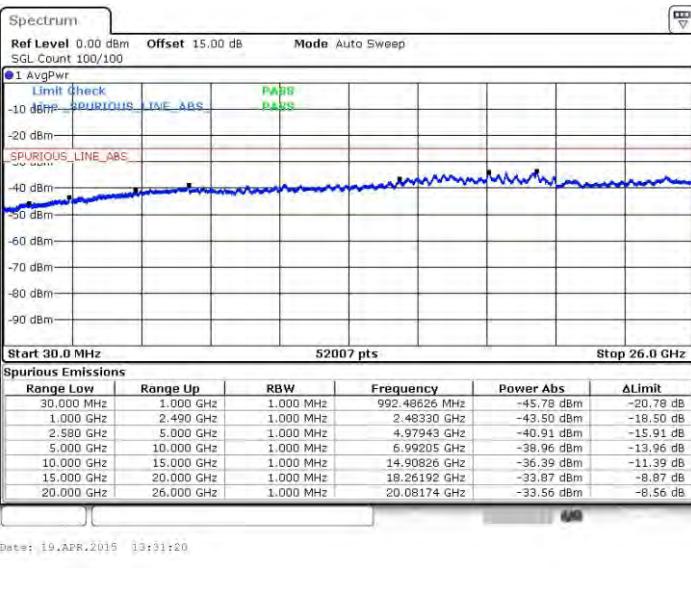
Highest Channel / 16QAM

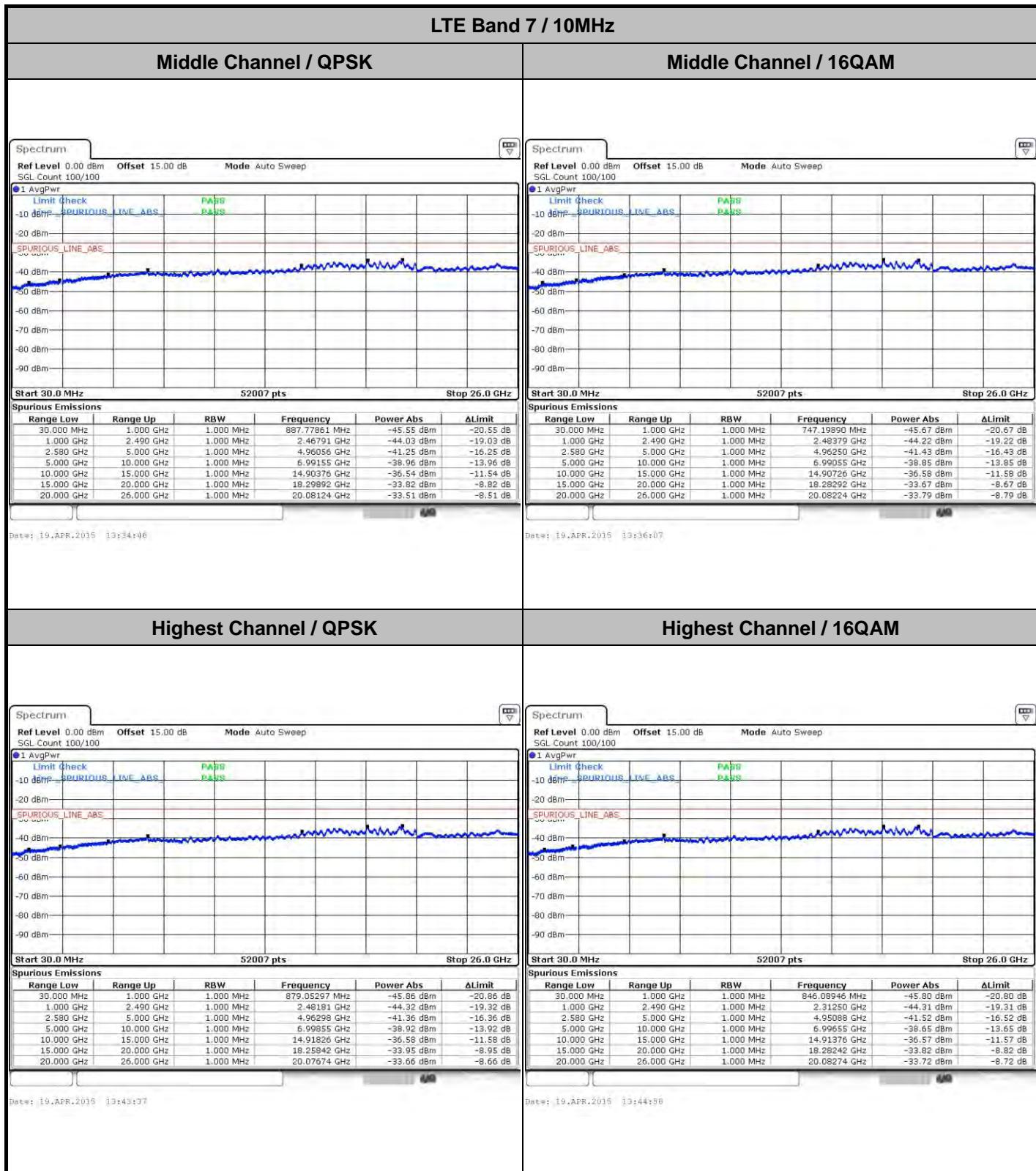


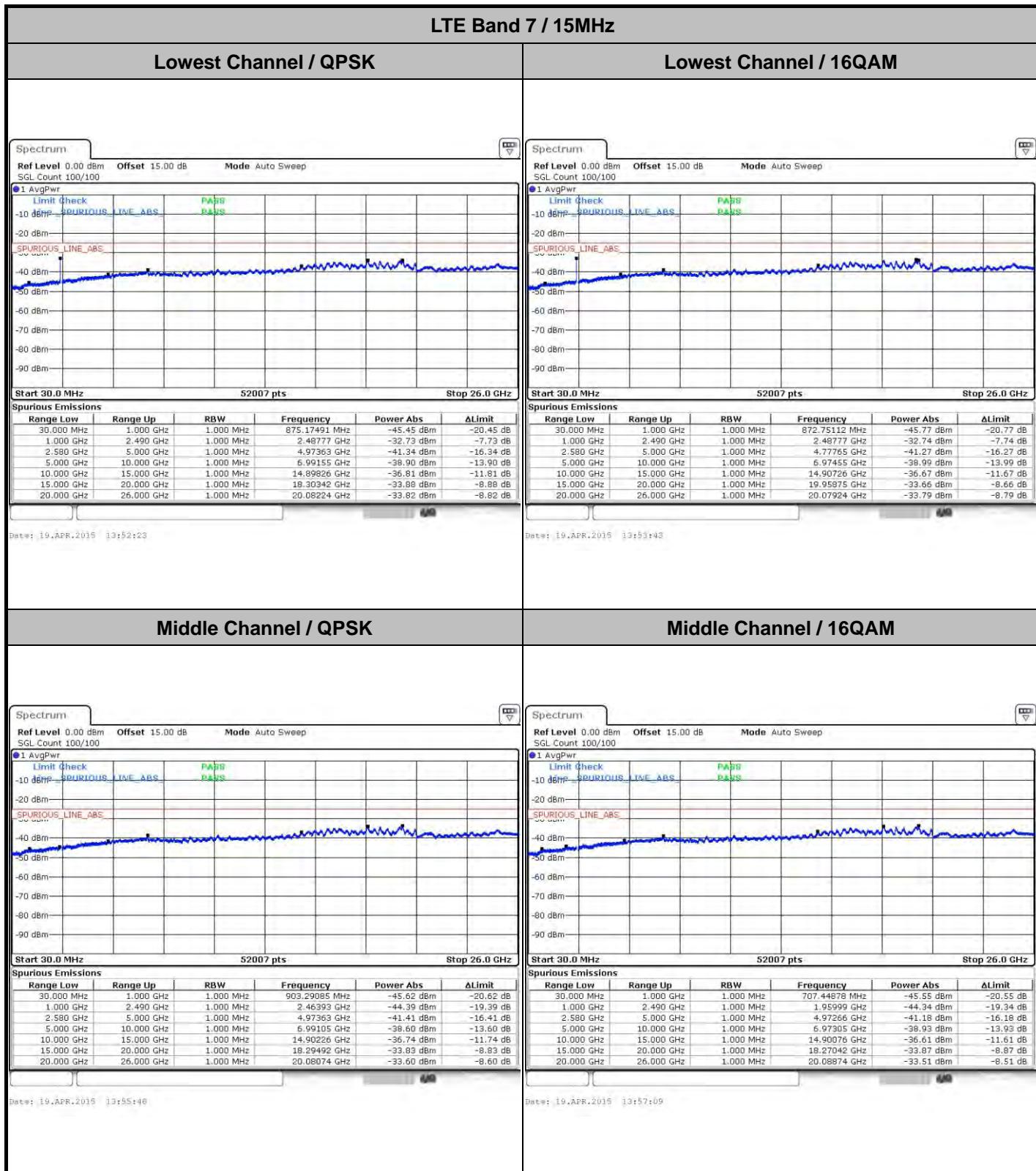
LTE Band 7 / 10MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM





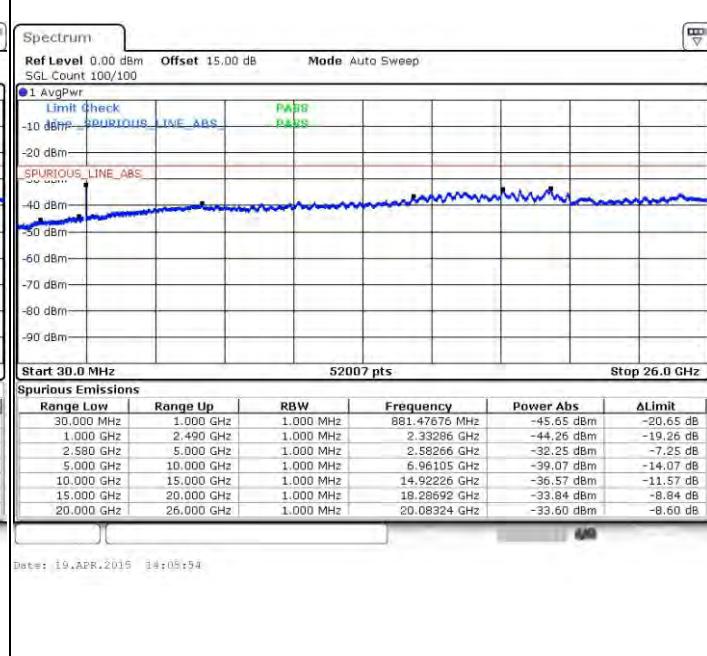
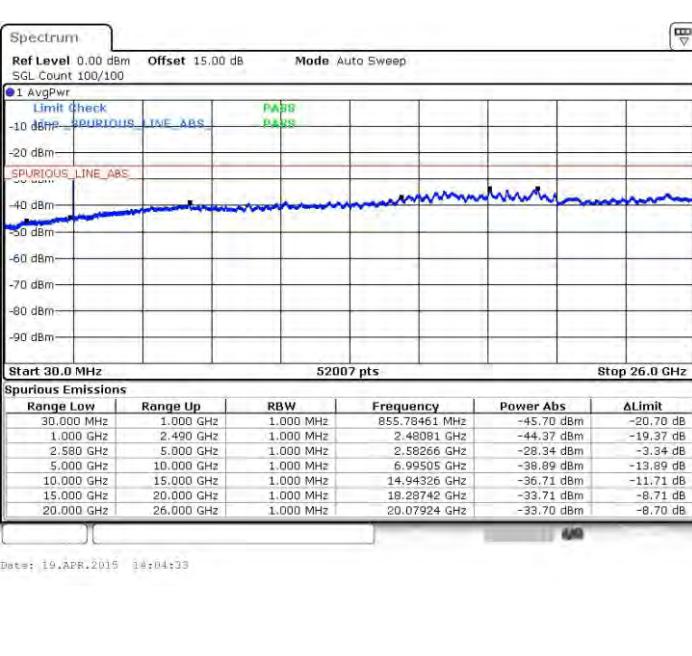




LTE Band7 / 15MHz

Highest Channel / QPSK

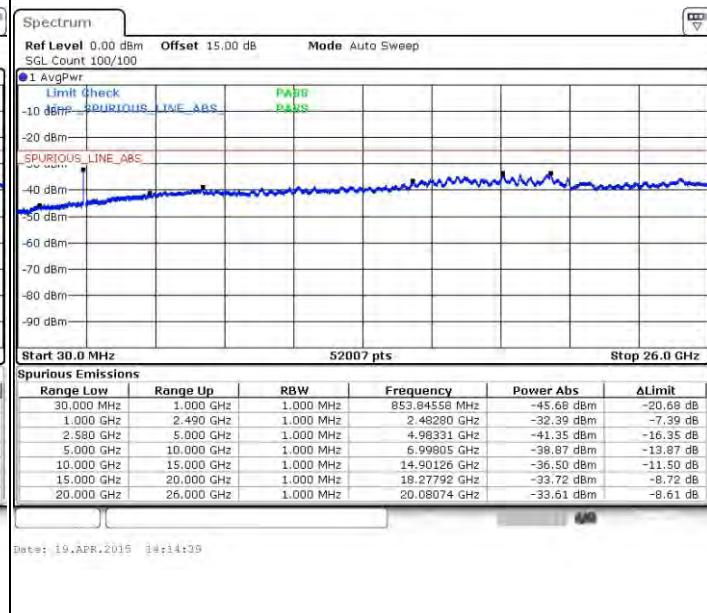
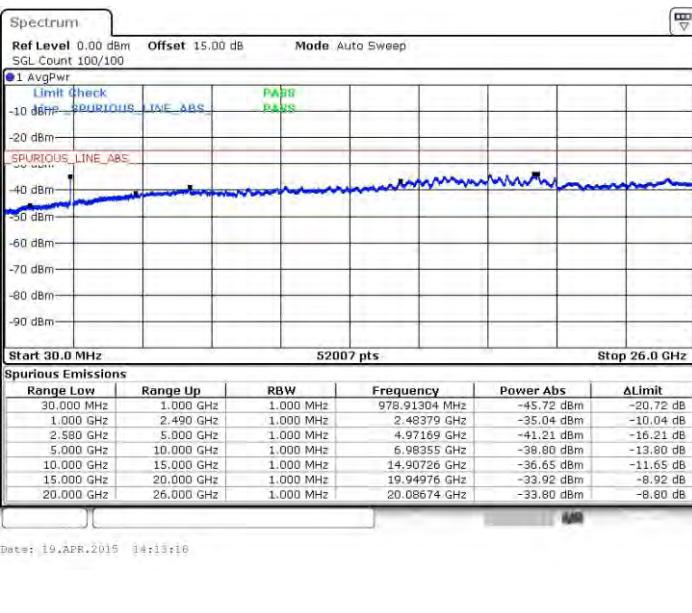
Highest Channel / 16QAM

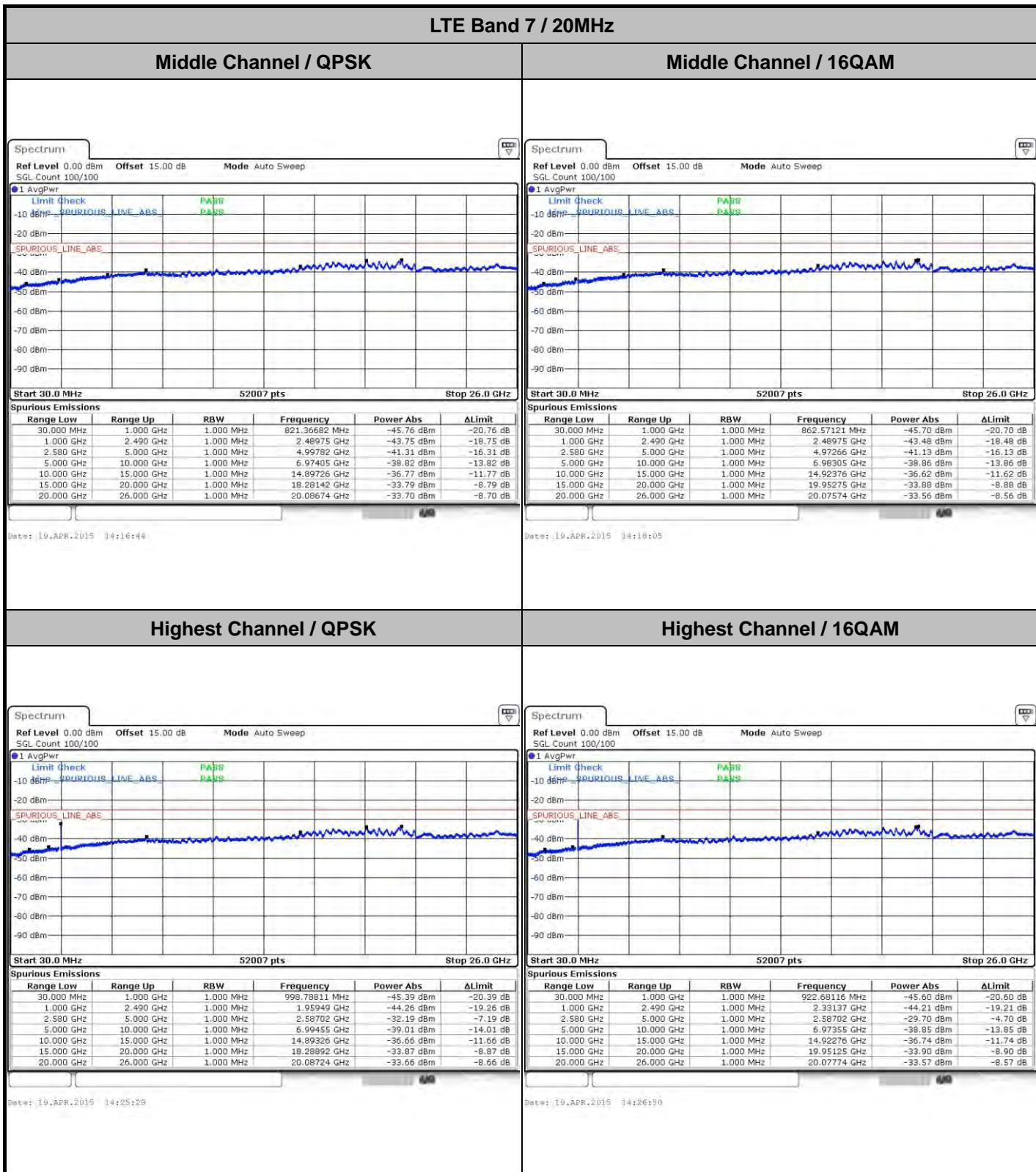


LTE Band 7 / 20MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM







Frequency Stability

Test Conditions		LTE Band 7 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0020	PASS
40	Normal Voltage	0.0008	
30	Normal Voltage	0.0012	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0004	
0	Normal Voltage	0.0004	
-10	Normal Voltage	0.0008	
-20	Normal Voltage	0.0000	
-30	Normal Voltage	0.0008	
20	Maximum Voltage	0.0008	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0004	

Note:

1. Normal Voltage = 3.3V. ; Battery End Point (BEP) = 3.135V. ; Maximum Voltage =4.4V
2. Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



LTE Band 13

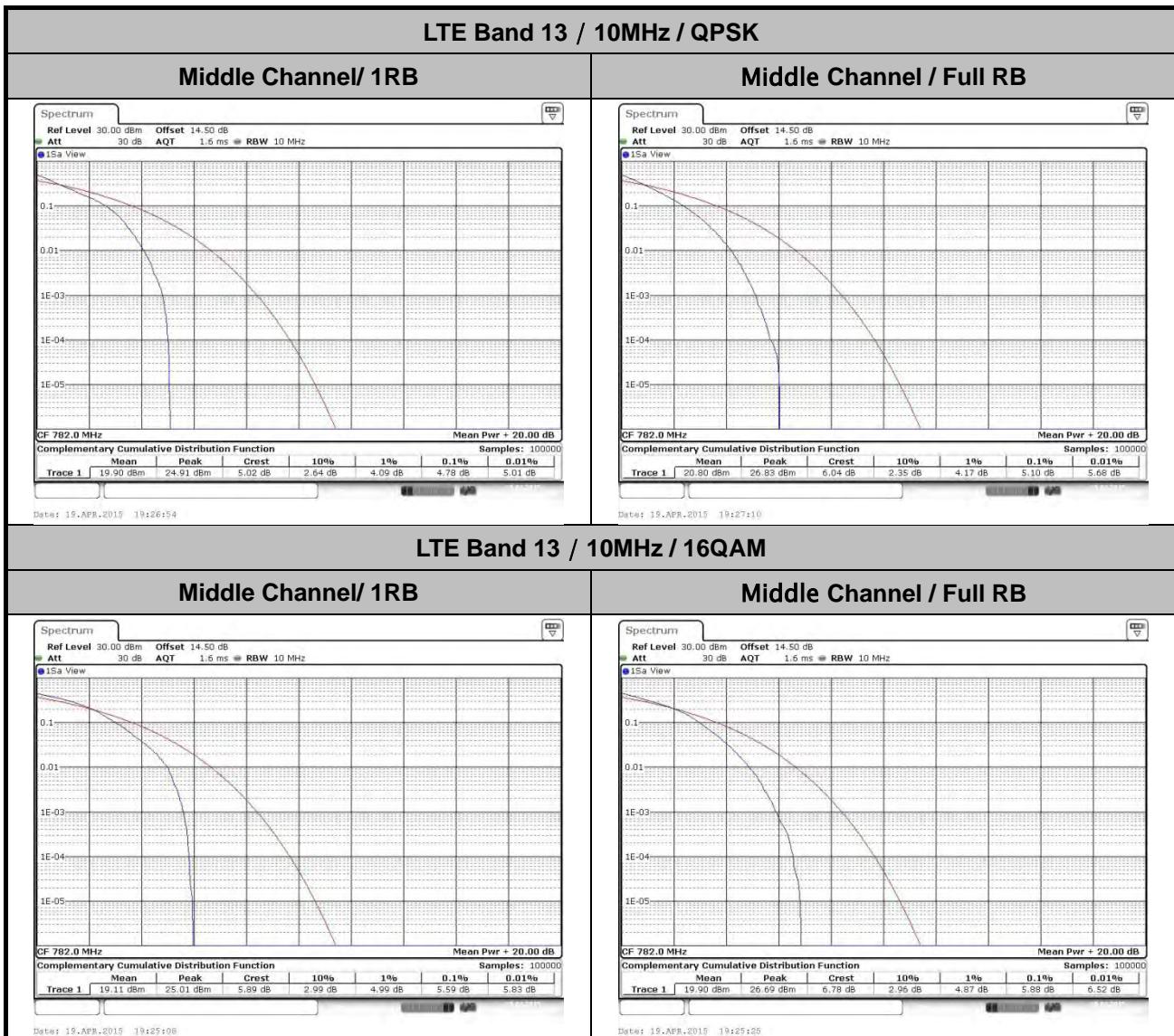
Conducted Output Power(Average power)

LTE Band 13 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.70	21.74	21.77
	1	12		21.80	21.79	21.82
	1	24		21.79	21.68	21.73
	12	0		20.74	20.68	20.78
	12	6		20.69	20.75	20.74
	12	11		20.71	20.74	20.73
	25	0		20.71	20.76	20.69
	1	0		20.99	21.14	21.10
5	1	12	16-QAM	21.13	21.08	21.13
	1	24		21.04	21.10	20.97
	12	0		19.74	19.85	19.77
	12	6		19.76	19.80	19.74
	12	11		19.69	19.85	19.75
	25	0		19.70	19.73	19.71
	1	0			21.51	
	1	24			21.69	
10	1	49	QPSK		21.19	
	25	0			20.69	
	25	12			20.68	
	25	24			20.64	
	50	0			20.72	
	1	0			20.86	
	1	24			21.02	
	1	49			20.52	
10	25	0	16-QAM		19.80	
	25	12			19.64	
	25	24			19.67	
	50	0			19.70	



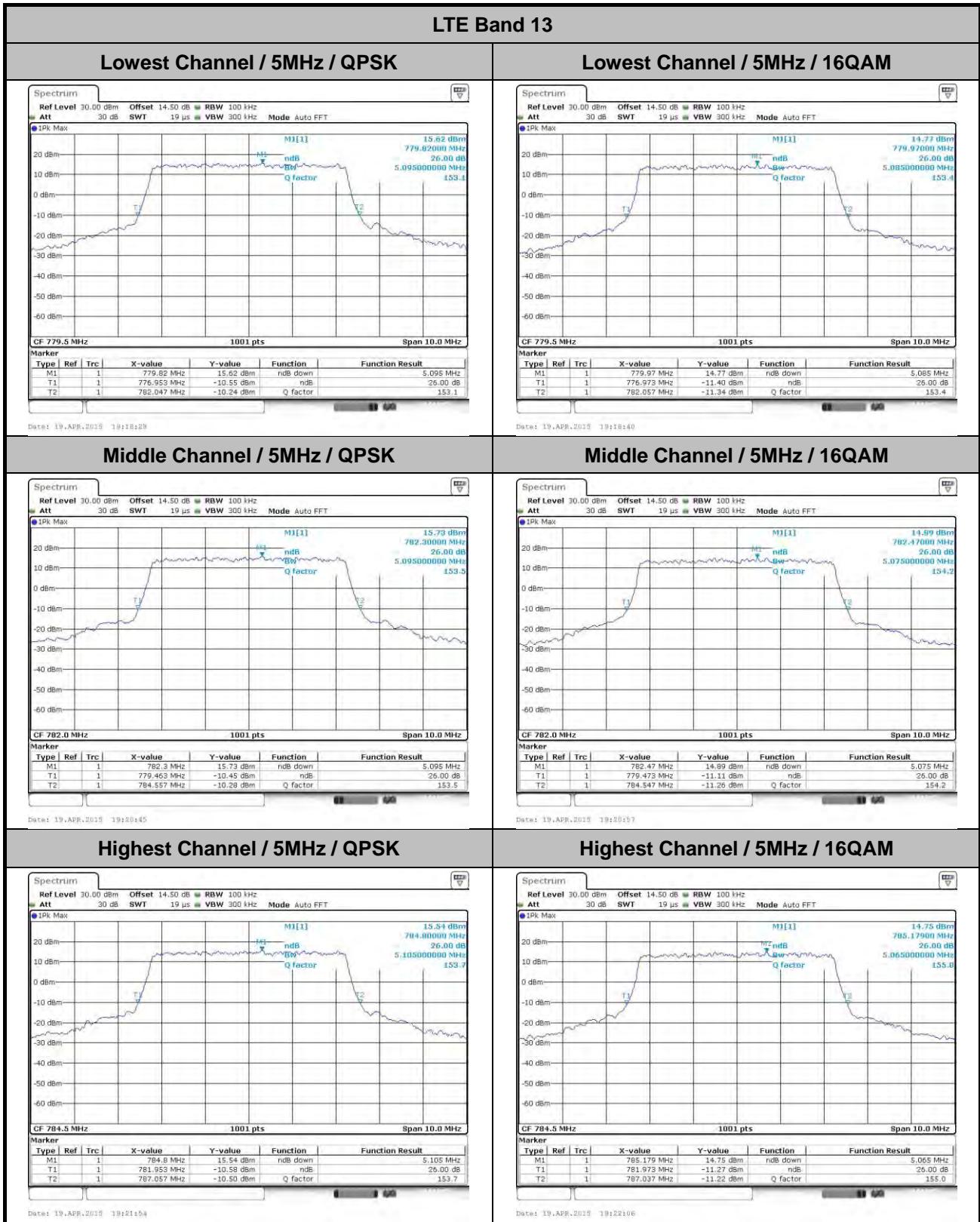
Peak-to-Average Ratio

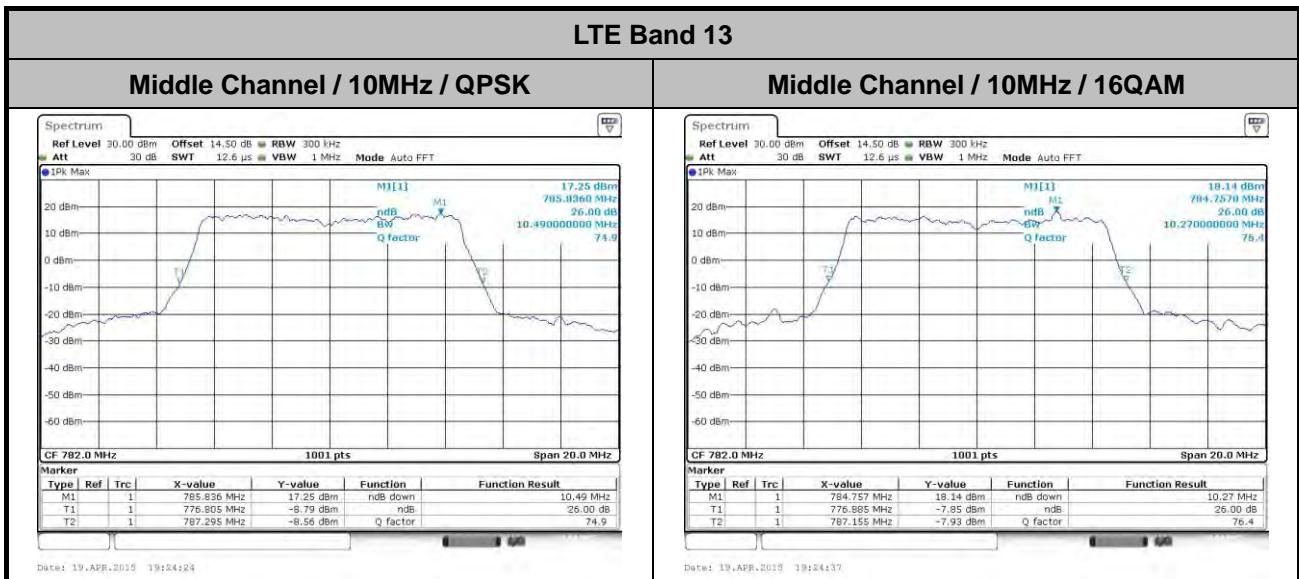
Mode	LTE Band 13 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	-	-	-	-	
Middle CH	4.78	5.1	5.59	5.88	PASS
Highest CH	-	-	-	-	



**26dB Bandwidth**

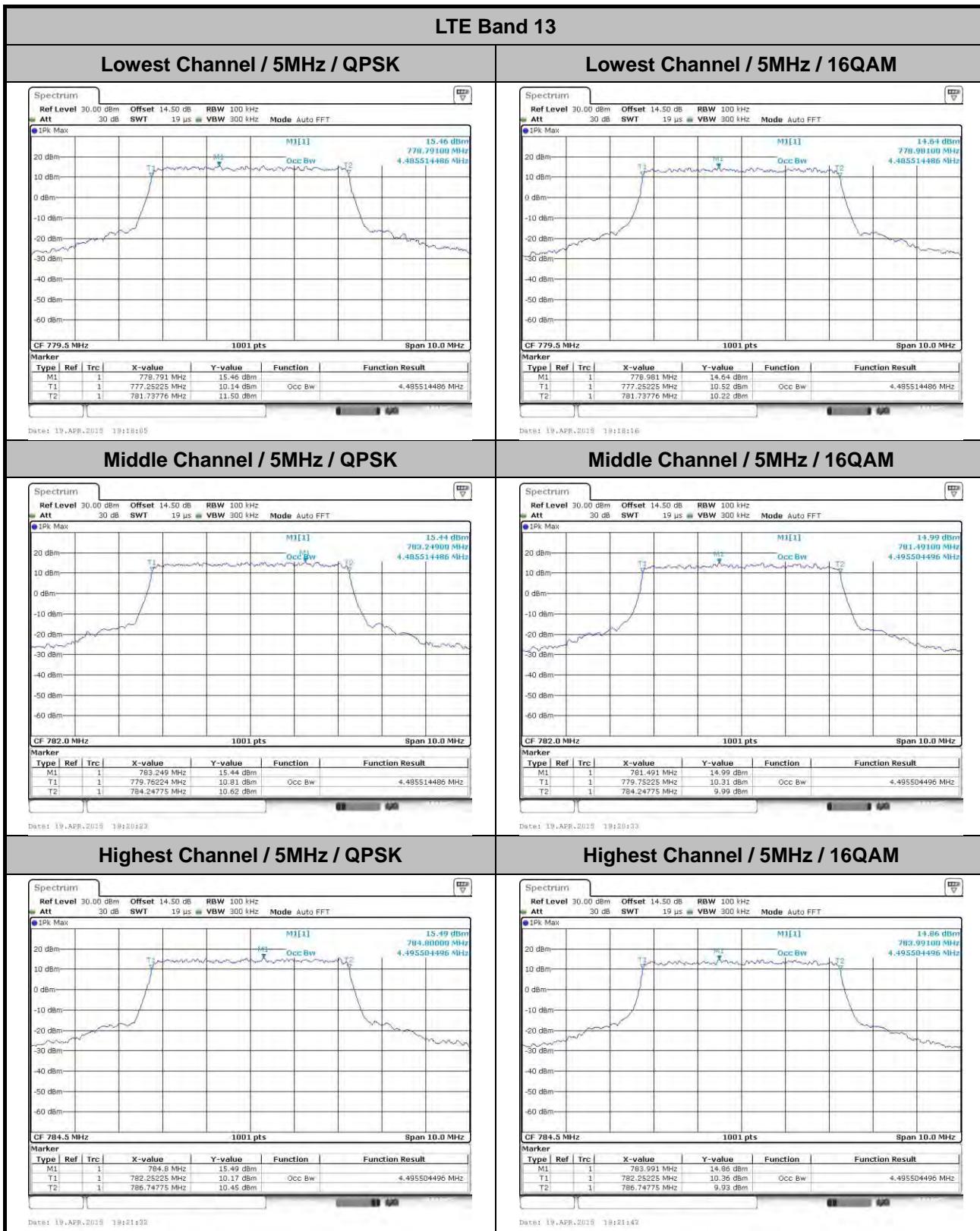
Mode	LTE Band 13 : 26dB BW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	5.10	5.09			-	-	-	-
Middle CH	-	-	-	-	5.10	5.08	10.49	10.27	-	-	-	-
Highest CH	-	-	-	-	5.11	5.07			-	-	-	-

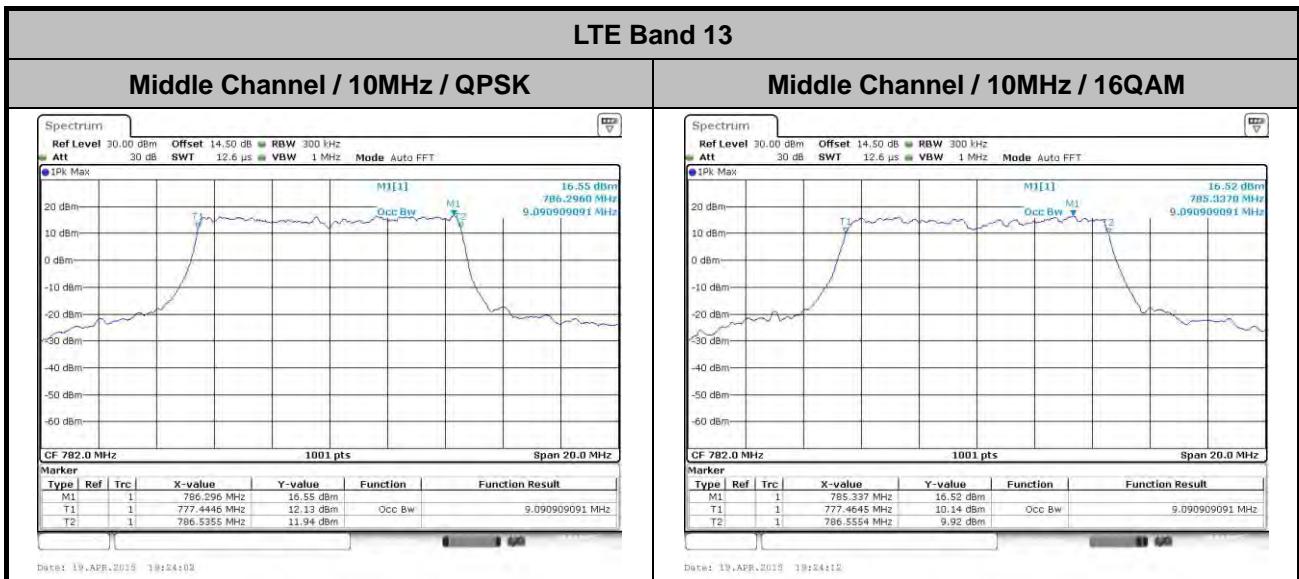




**Occupied Bandwidth**

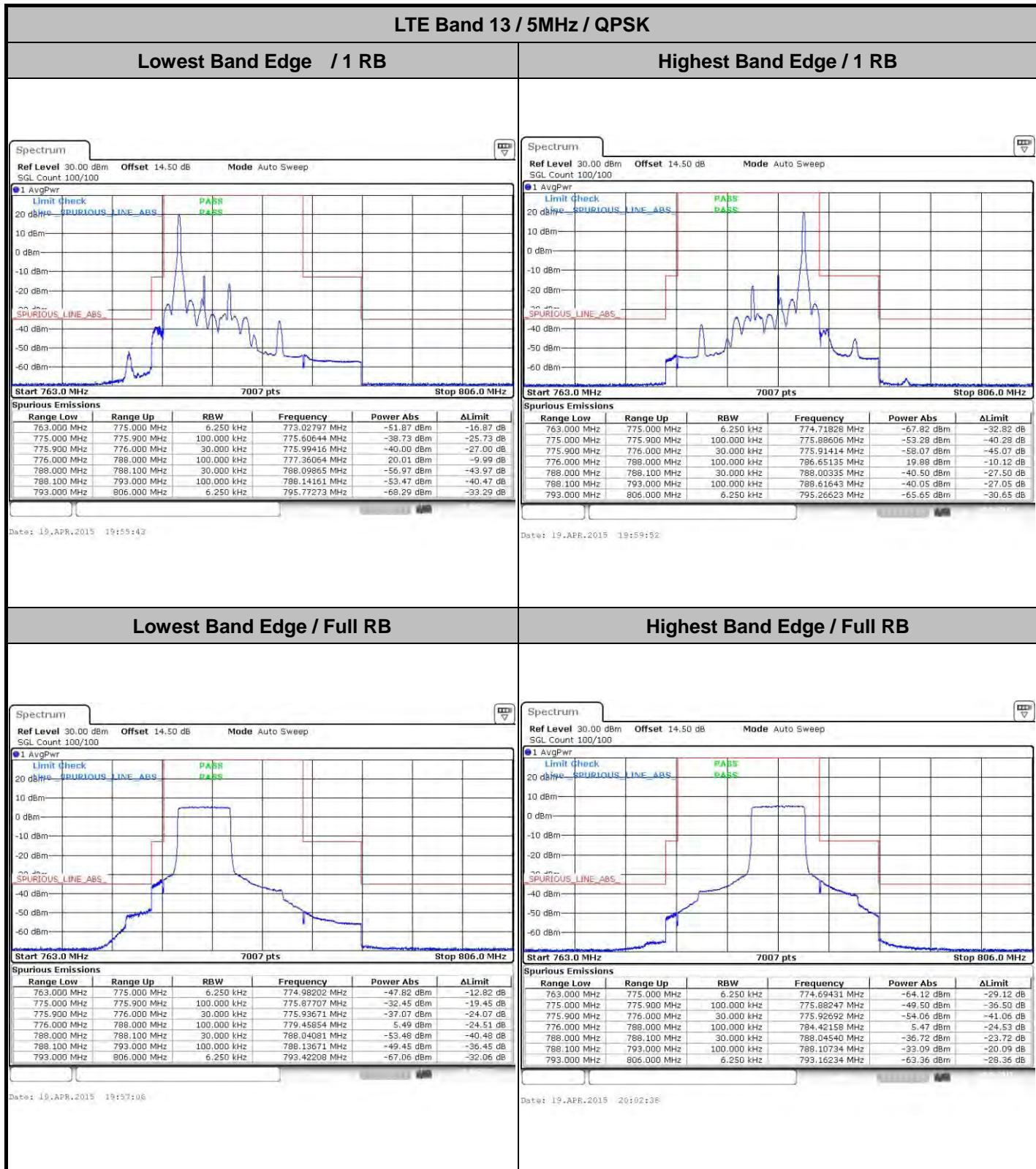
Mode	LTE Band 13 : 99%OBW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.49	4.49	-	-	-	-	-	-
Middle CH	-	-	-	-	4.49	4.50	9.09	9.09	-	-	-	-
Highest CH	-	-	-	-	4.50	4.50	-	-	-	-	-	-

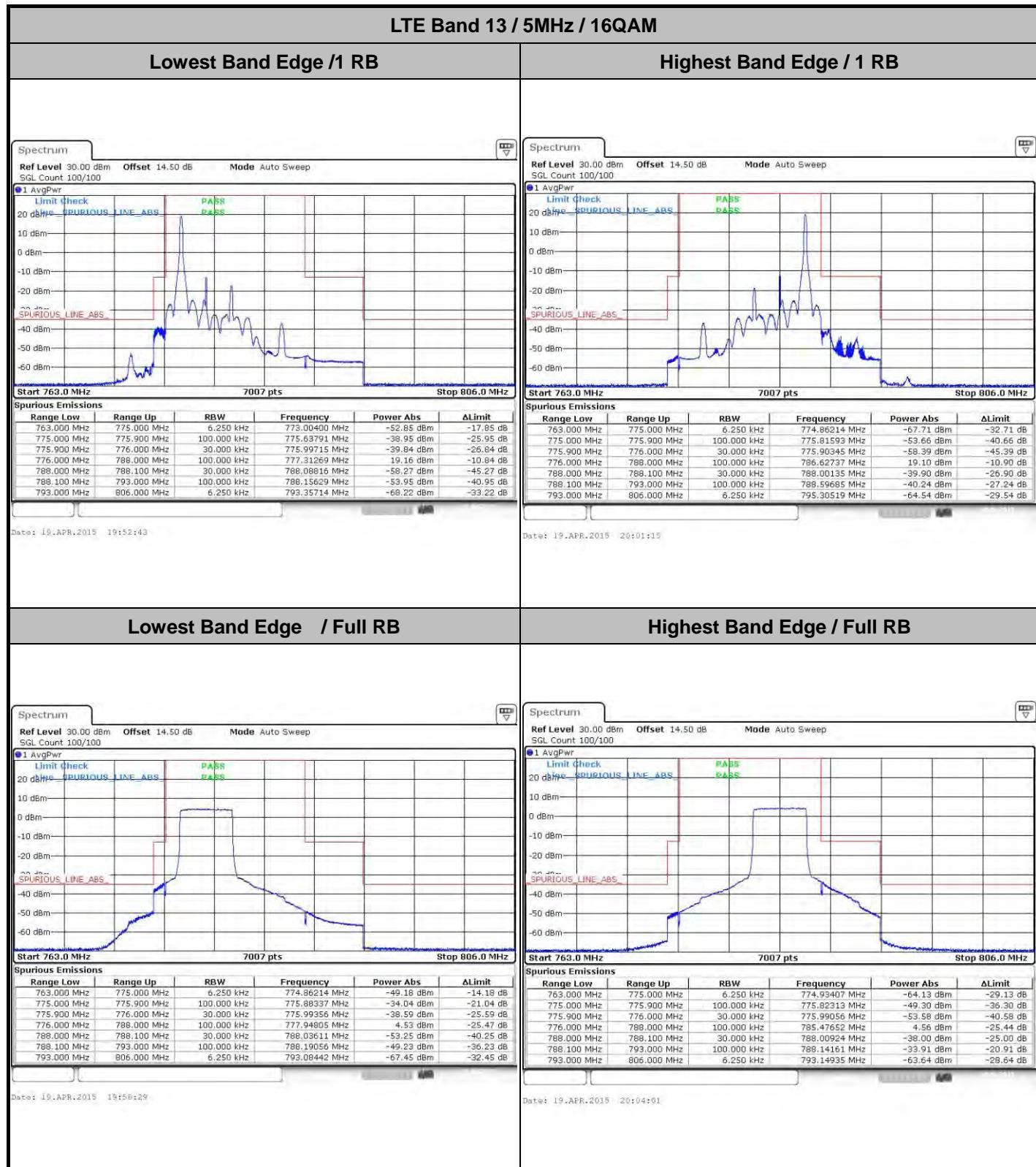






Conducted Band Edge



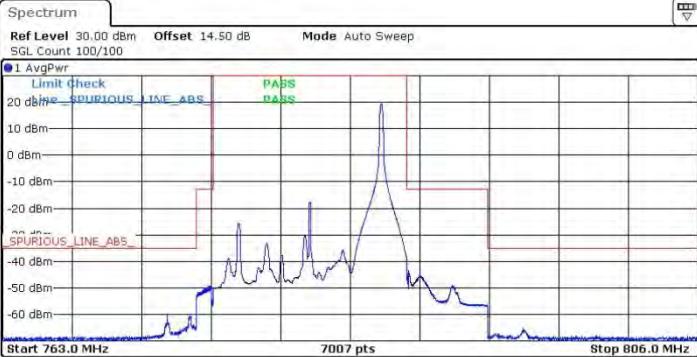
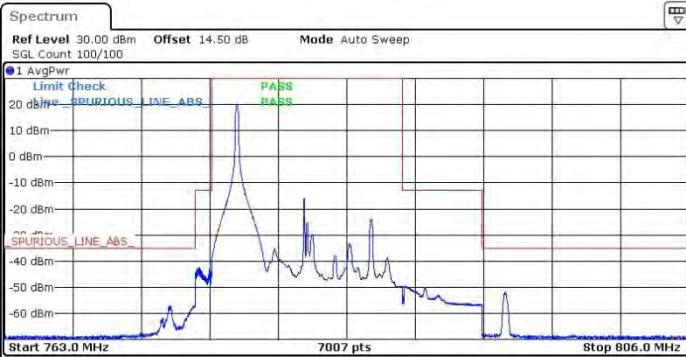




LTE Band 13 / 10MHz / QPSK

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

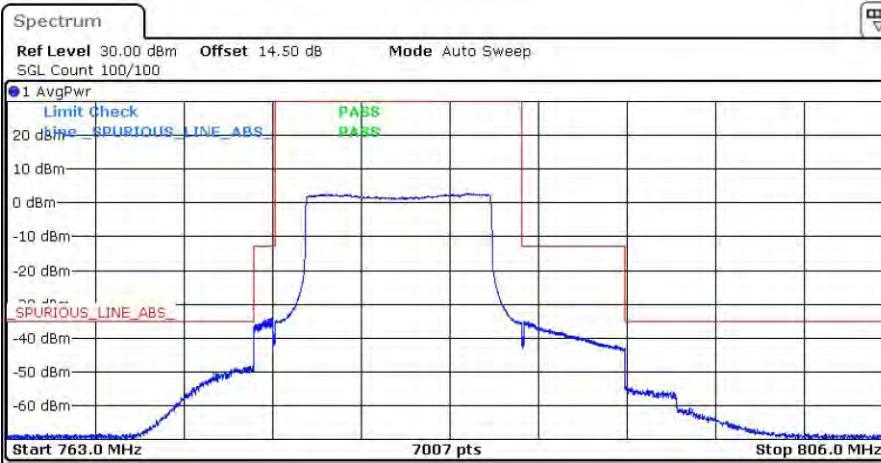


Spurious Emissions						
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit	
763.000 MHz	775.000 MHz	6.250 kHz	774.97003 MHz	-56.88 dBm	-21.88 dB	
775.000 MHz	775.900 MHz	100.000 kHz	775.89775 MHz	-41.80 dBm	-28.80 dB	
775.900 MHz	776.000 MHz	30.000 kHz	775.99845 MHz	-43.19 dBm	-30.19 dB	
776.000 MHz	788.000 MHz	100.000 kHz	777.59881 MHz	19.74 dBm	-10.26 dB	
788.000 MHz	788.100 MHz	30.000 kHz	788.02023 MHz	-53.49 dBm	-40.49 dB	
788.100 MHz	793.000 MHz	100.000 kHz	788.13182 MHz	-49.59 dBm	-36.59 dB	
793.000 MHz	806.000 MHz	6.250 kHz	794.38312 MHz	-52.16 dBm	-17.16 dB	

Spurious Emissions						
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit	
763.000 MHz	775.000 MHz	6.250 kHz	773.15984 MHz	-60.07 dBm	-25.07 dB	
775.000 MHz	775.900 MHz	100.000 kHz	775.82582 MHz	-49.27 dBm	-36.27 dB	
775.900 MHz	776.000 MHz	30.000 kHz	775.97448 MHz	-54.48 dBm	-41.48 dB	
776.000 MHz	788.000 MHz	100.000 kHz	786.43556 MHz	19.32 dBm	-10.68 dB	
788.000 MHz	788.100 MHz	30.000 kHz	788.00395 MHz	-43.96 dBm	-30.96 dB	
788.100 MHz	793.000 MHz	100.000 kHz	788.10734 MHz	-43.50 dBm	-30.50 dB	
793.000 MHz	806.000 MHz	6.250 kHz	795.16831 MHz	-65.44 dBm	-30.44 dB	

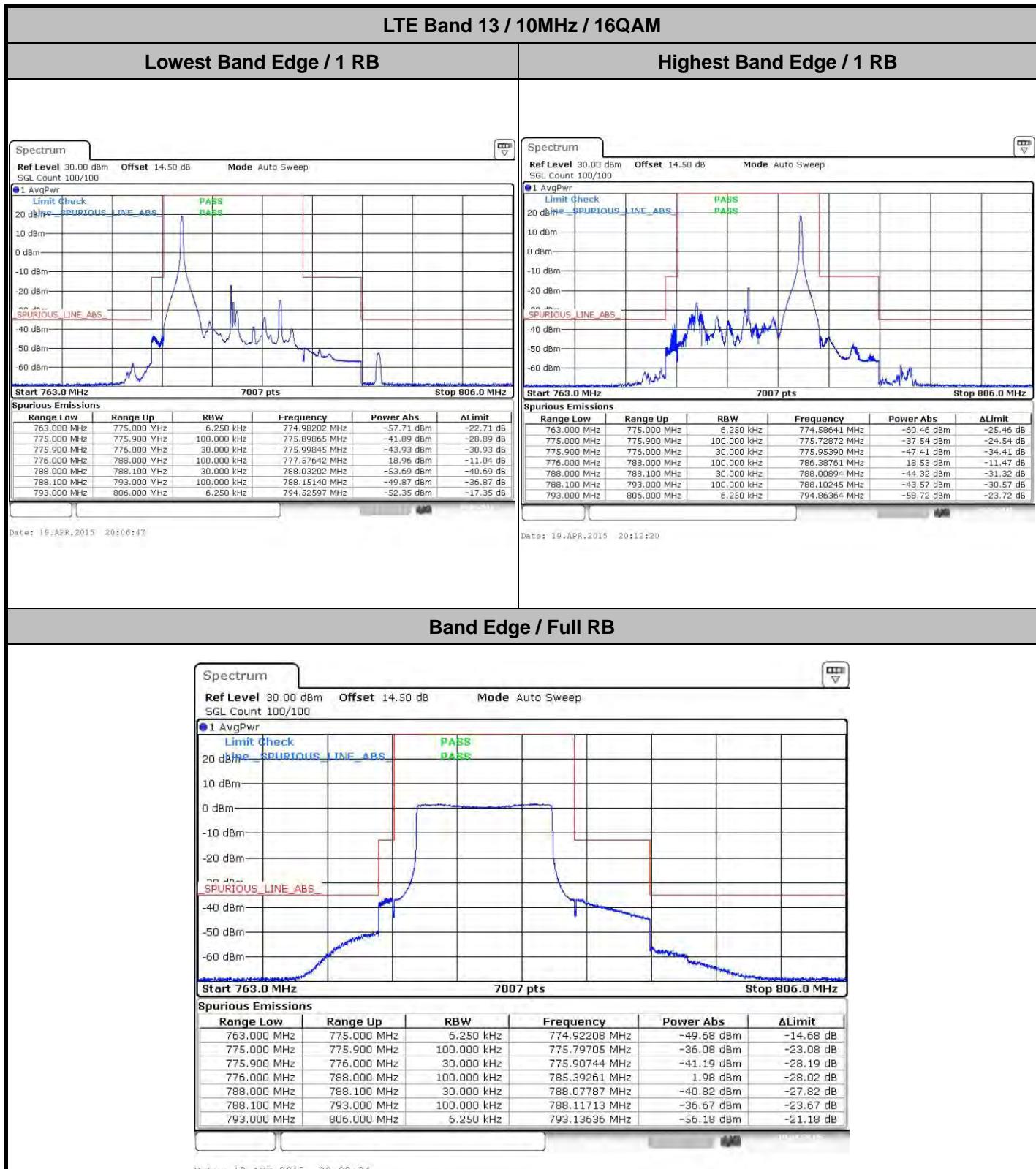
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Band Edge / Full RB



Spurious Emissions						
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit	
763.000 MHz	775.000 MHz	6.250 kHz	774.94605 MHz	-48.34 dBm	-13.34 dB	
775.000 MHz	775.900 MHz	100.000 kHz	775.83392 MHz	-34.15 dBm	-21.15 dB	
775.900 MHz	776.000 MHz	30.000 kHz	775.98916 MHz	-39.03 dBm	-26.03 dB	
776.000 MHz	788.000 MHz	100.000 kHz	785.24875 MHz	2.85 dBm	-27.15 dB	
788.000 MHz	788.100 MHz	30.000 kHz	788.09206 MHz	-39.48 dBm	-26.48 dB	
788.100 MHz	793.000 MHz	100.000 kHz	788.11224 MHz	-35.17 dBm	-22.17 dB	
793.000 MHz	806.000 MHz	6.250 kHz	793.04545 MHz	-54.35 dBm	-19.35 dB	

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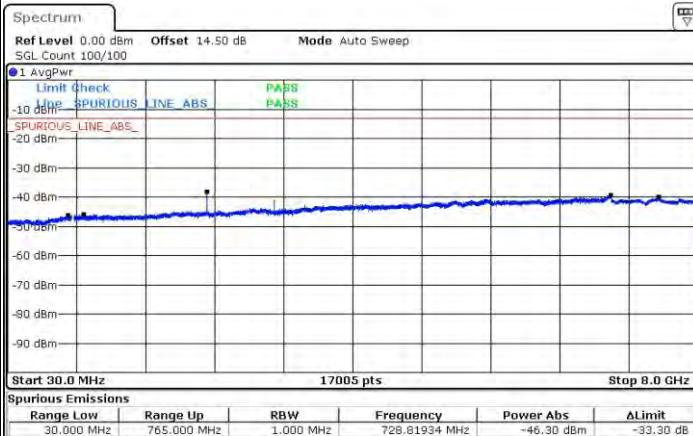
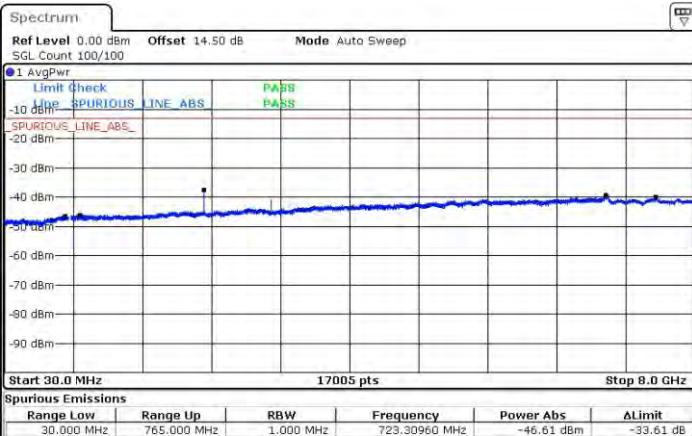


Conducted Spurious Emission

LTE Band 13 / 5MHz

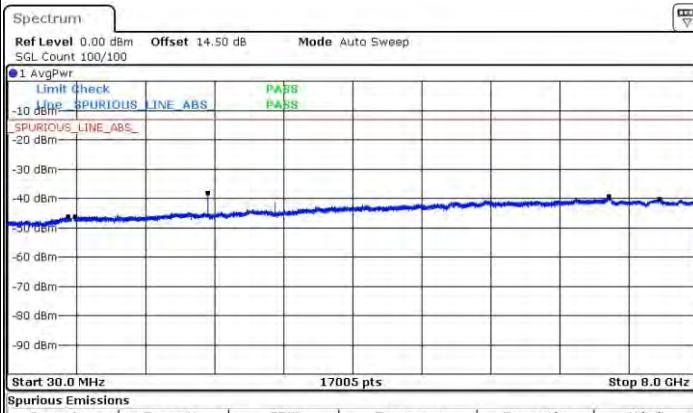
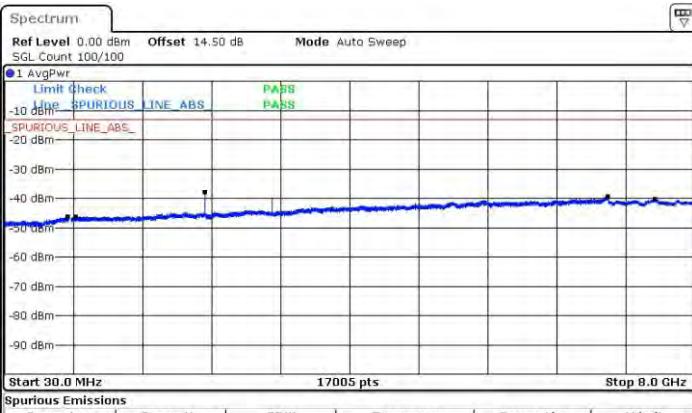
Lowest Channel / QPSK

Lowest Channel / 16QAM



Middle Channel / QPSK

Middle Channel / 16QAM

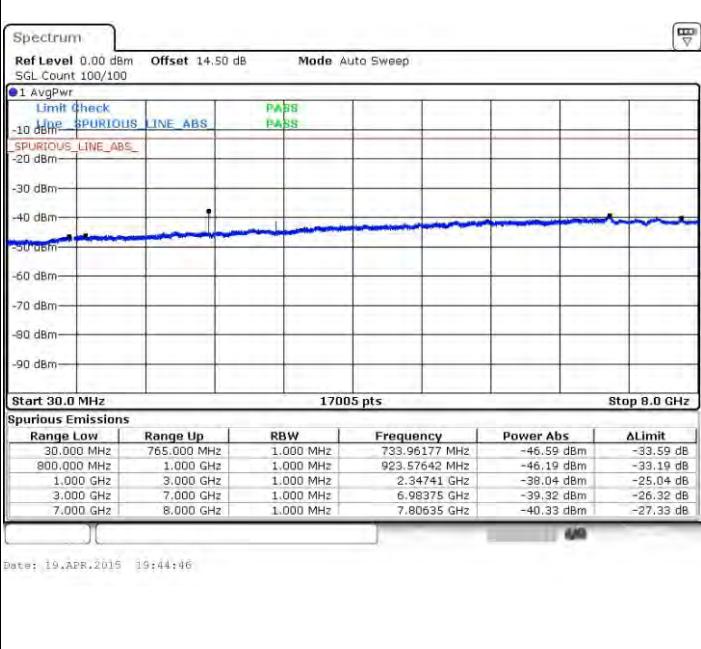
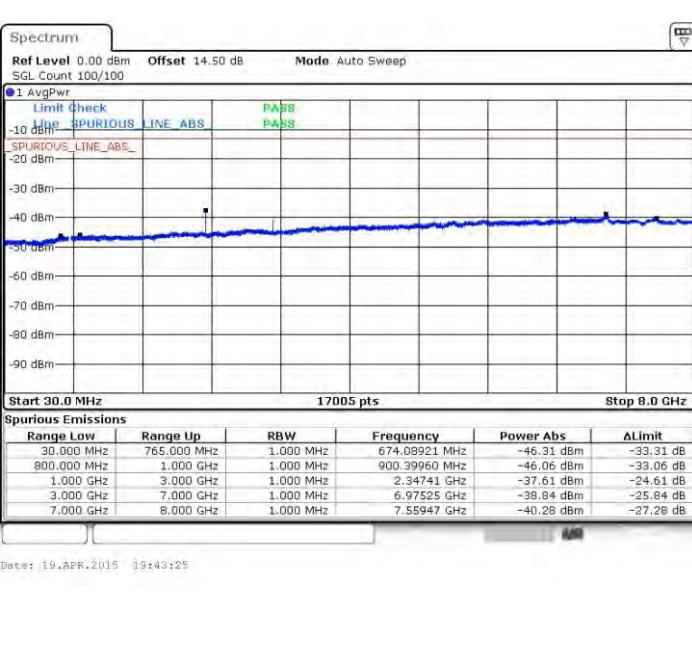




LTE Band 13 / 5MHz

Highest Channel / QPSK

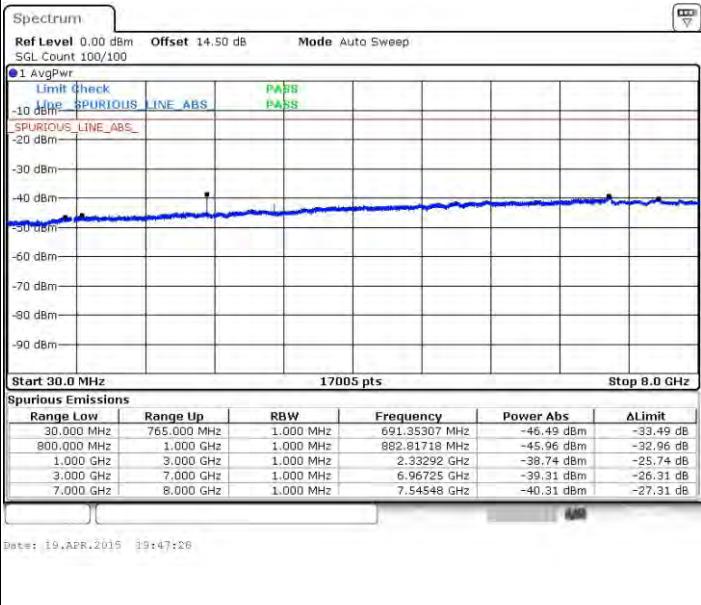
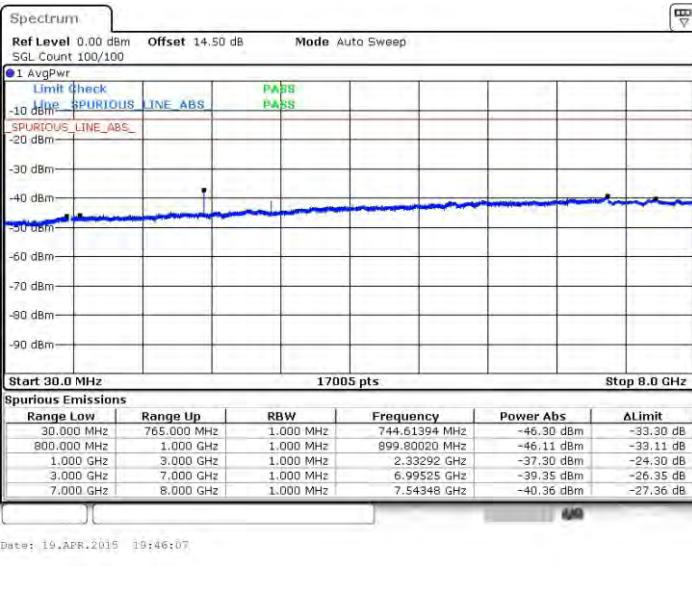
Highest Channel / 16QAM



LTE Band 13 / 10MHz

Middle Channel / QPSK

Middle Channel / 16QAM





Frequency Stability

Test Conditions		LTE Band 13 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0179	PASS
40	Normal Voltage	0.0166	
30	Normal Voltage	0.0153	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0026	
0	Normal Voltage	0.0013	
-10	Normal Voltage	0.0192	
-20	Normal Voltage	0.0179	
-30	Normal Voltage	0.0166	
20	Maximum Voltage	0.0166	
20	Normal Voltage	0.0166	
20	Battery End Point	0.0013	

Note:

1. Normal Voltage = 3.3V. ; Battery End Point (BEP) = 3.135 V. ; Maximum Voltage = 4.4 V
2. Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



LTE Band 17

Conducted Output Power(Average power)

LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.01	22.20	22.06
	1	12		21.91	22.24	22.04
	1	24		21.79	22.04	22.00
	12	0		21.04	21.22	21.11
	12	6		20.95	21.25	21.12
	12	11		21.01	21.15	21.11
	25	0		20.95	21.18	21.14
	1	0		21.16	21.41	21.06
5	1	12	16-QAM	21.17	21.30	21.08
	1	24		21.07	21.11	21.03
	12	0		20.16	20.38	20.15
	12	6		20.14	20.30	20.22
	12	11		20.14	20.34	20.22
	25	0		20.16	20.35	20.19
	1	0		22.08	22.08	22.18
	1	24		22.11	22.27	22.19
10	1	49	QPSK	21.85	22.15	22.02
	25	0		20.93	21.46	21.26
	25	12		21.02	21.29	21.27
	25	24		20.94	21.23	21.24
	50	0		20.97	21.22	21.25
	1	0		21.66	21.85	21.82
	1	24		21.60	21.76	21.81
	1	49		21.40	21.79	21.60
10	25	0	16-QAM	20.18	20.30	20.39
	25	12		20.12	20.36	20.34
	25	24		20.06	20.30	20.29
	50	0		20.18	20.38	20.29

**Peak-to-Average Ratio**

Mode	LTE Band 17 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	4.90	5.04	5.94	5.97	PASS
Middle CH	4.67	5.13	5.25	6.20	
Highest CH	4.96	5.13	5.97	6.00	