



Frequency Stability

Test Conditions		LTE Band 2 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0225	PASS
40	Normal Voltage	0.0197	
30	Normal Voltage	0.0183	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0028	
0	Normal Voltage	0.0014	
-10	Normal Voltage	0.0000	
-20	Normal Voltage	0.0042	
-30	Normal Voltage	0.0042	
20	Maximum Voltage	0.0014	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0014	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5V. ; Maximum Voltage = 4.35 V
2. Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



LTE Band 4

Conducted Output Power(Average power)

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	22.63	22.95	23.15
	1	49		22.68	23.13	23.17
	1	99		22.96	23.22	23.24
	50	0		21.71	22.18	22.37
	50	24		21.76	22.26	22.32
	50	50		21.91	22.30	22.39
	100	0		21.79	22.22	22.28
	1	0		21.85	22.10	22.36
20	1	49	16-QAM	21.89	22.19	22.42
	1	99		21.94	22.32	22.26
	50	0		20.70	21.09	21.30
	50	24		20.72	21.15	21.28
	50	50		20.85	21.19	21.24
	100	0		20.75	21.14	21.22
	1	0		22.58	23.01	23.20
	1	37		22.65	23.16	23.19
15	1	74	QPSK	22.75	23.19	23.02
	36	0		21.69	22.12	22.35
	36	20		21.71	22.19	22.31
	36	39		21.76	22.25	22.24
	75	0		21.74	22.20	22.30
	1	0		21.84	22.14	22.43
	1	37		21.91	22.20	22.44
	1	74		21.92	22.32	22.26
15	36	0	16-QAM	20.67	21.04	21.28
	36	20		20.69	21.10	21.27
	36	39		20.74	21.16	21.21
	75	0		20.71	21.10	21.25



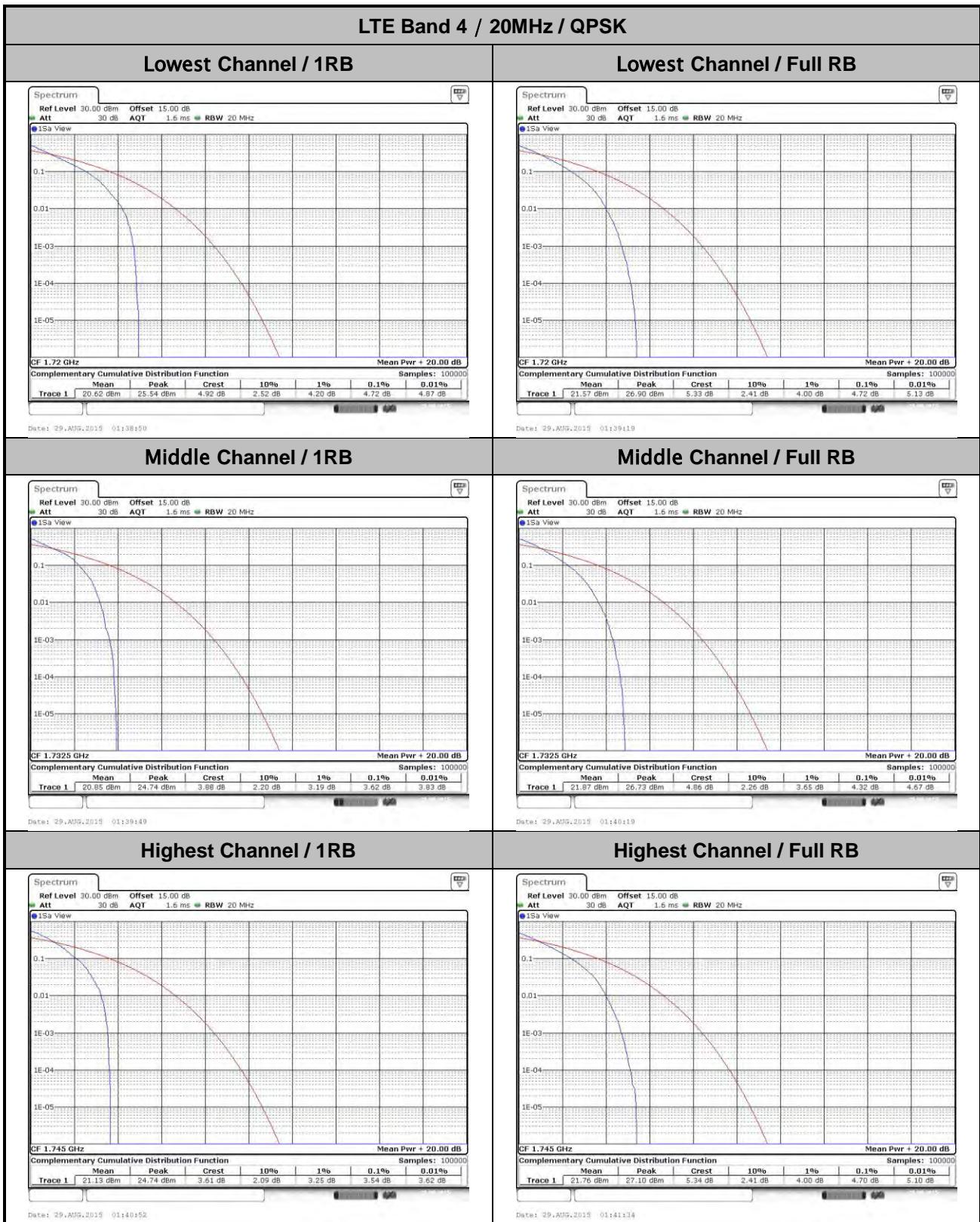
LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	22.55	23.03	23.18
	1	25		22.59	23.10	23.17
	1	49		22.58	23.16	22.98
	25	0		21.62	22.14	22.27
	25	12		21.65	22.18	22.24
	25	25		21.68	22.22	22.17
	50	0		21.66	22.24	22.26
10	1	0	16-QAM	21.79	22.10	22.44
	1	25		21.84	22.14	22.38
	1	49		21.82	22.20	22.19
	25	0		20.60	21.05	21.23
	25	12		20.63	21.10	21.20
	25	25		20.67	21.12	21.14
	50	0		20.63	21.14	21.23
5	1	0	QPSK	22.47	23.04	23.19
	1	12		22.52	23.13	23.11
	1	24		22.47	23.07	22.93
	12	0		21.59	22.14	22.26
	12	7		21.59	22.17	22.19
	12	13		21.60	22.18	22.16
	25	0		21.58	22.17	22.18
5	1	0	16-QAM	21.75	22.14	22.38
	1	12		21.82	22.19	22.33
	1	24		21.72	22.14	22.18
	12	0		20.58	21.08	21.23
	12	7		20.58	21.09	21.18
	12	13		20.58	21.10	21.13
	25	0		20.54	21.08	21.14

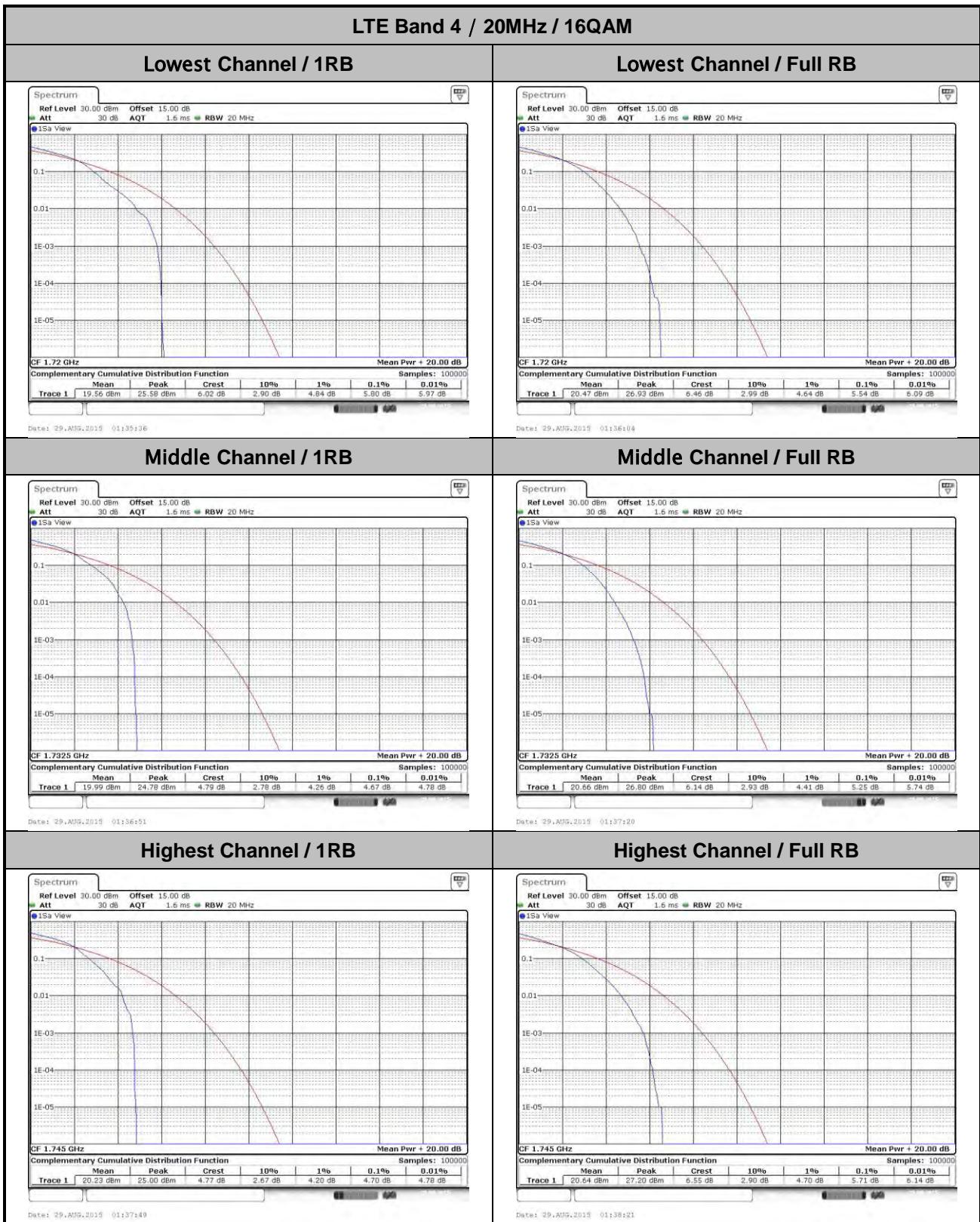


LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
3	1	0	QPSK	22.43	22.99	23.04
	1	8		22.47	23.07	23.03
	1	14		22.40	23.02	22.93
	8	0		21.53	22.17	22.16
	8	4		21.54	22.17	22.12
	8	7		21.55	22.16	22.08
	15	0		21.55	22.17	22.11
3	1	0	16-QAM	21.57	22.02	22.22
	1	8		21.65	22.07	22.23
	1	14		21.59	22.05	22.13
	8	0		20.58	21.14	21.19
	8	4		20.58	21.13	21.16
	8	7		20.61	21.11	21.13
	15	0		20.57	21.11	21.11
1.4	1	0	QPSK	22.41	23.03	22.99
	1	3		22.51	23.12	23.09
	1	5		22.41	23.06	22.97
	3	0		22.50	23.15	23.08
	3	1		22.46	23.14	23.04
	3	3		22.48	23.13	23.05
	6	0		21.52	22.15	22.08
1.4	1	0	16-QAM	21.69	22.12	22.23
	1	3		21.80	22.23	22.35
	1	5		21.68	22.16	22.23
	3	0		21.50	22.04	22.09
	3	1		21.47	22.03	22.04
	3	3		21.46	22.01	22.03
	6	0		20.56	21.12	21.14

**Peak-to-Average Ratio**

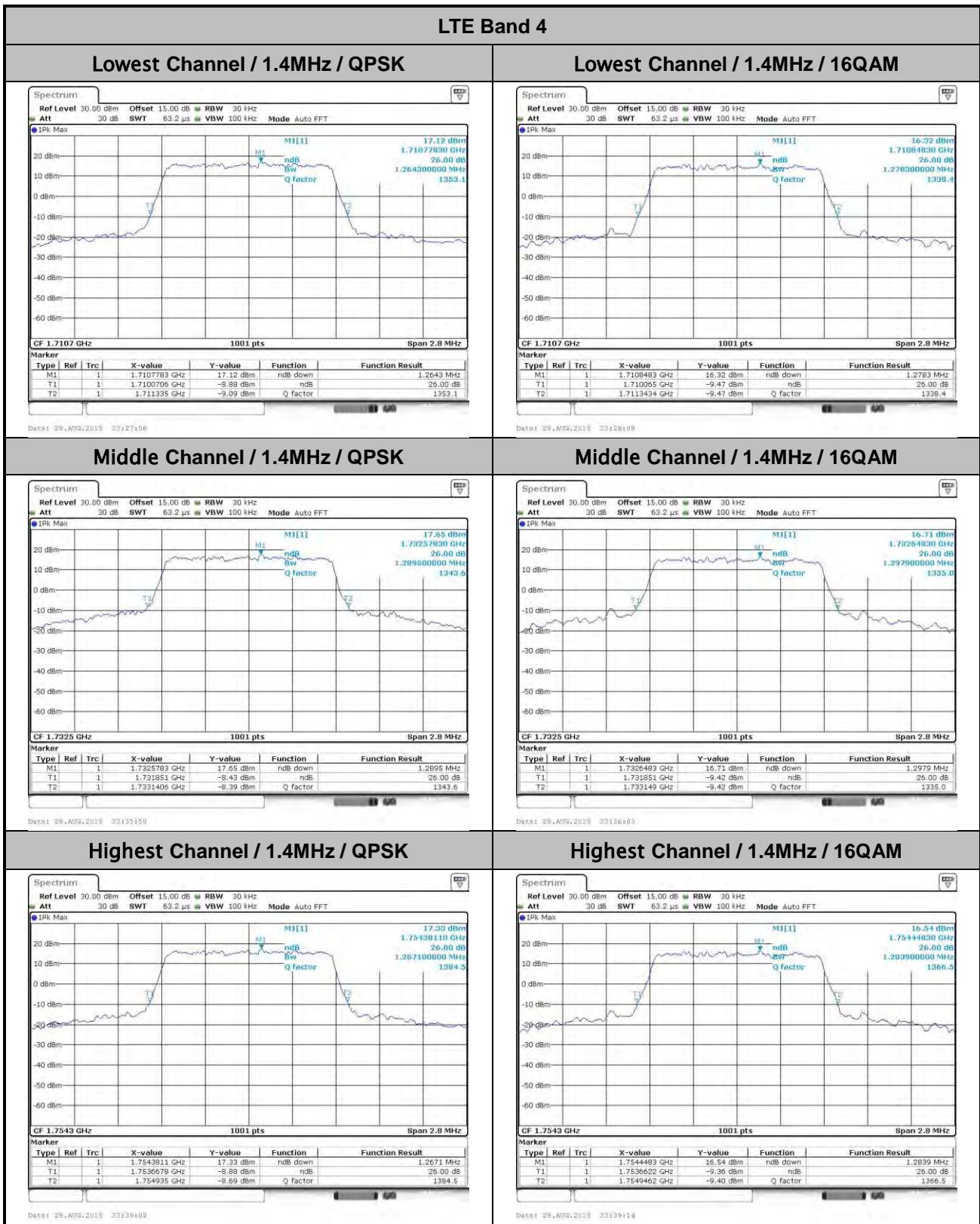
Mode	LTE Band 4 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	4.72	4.72	5.80	5.54	PASS
Middle CH	3.62	4.32	4.67	5.25	
Highest CH	3.54	4.70	4.70	5.71	

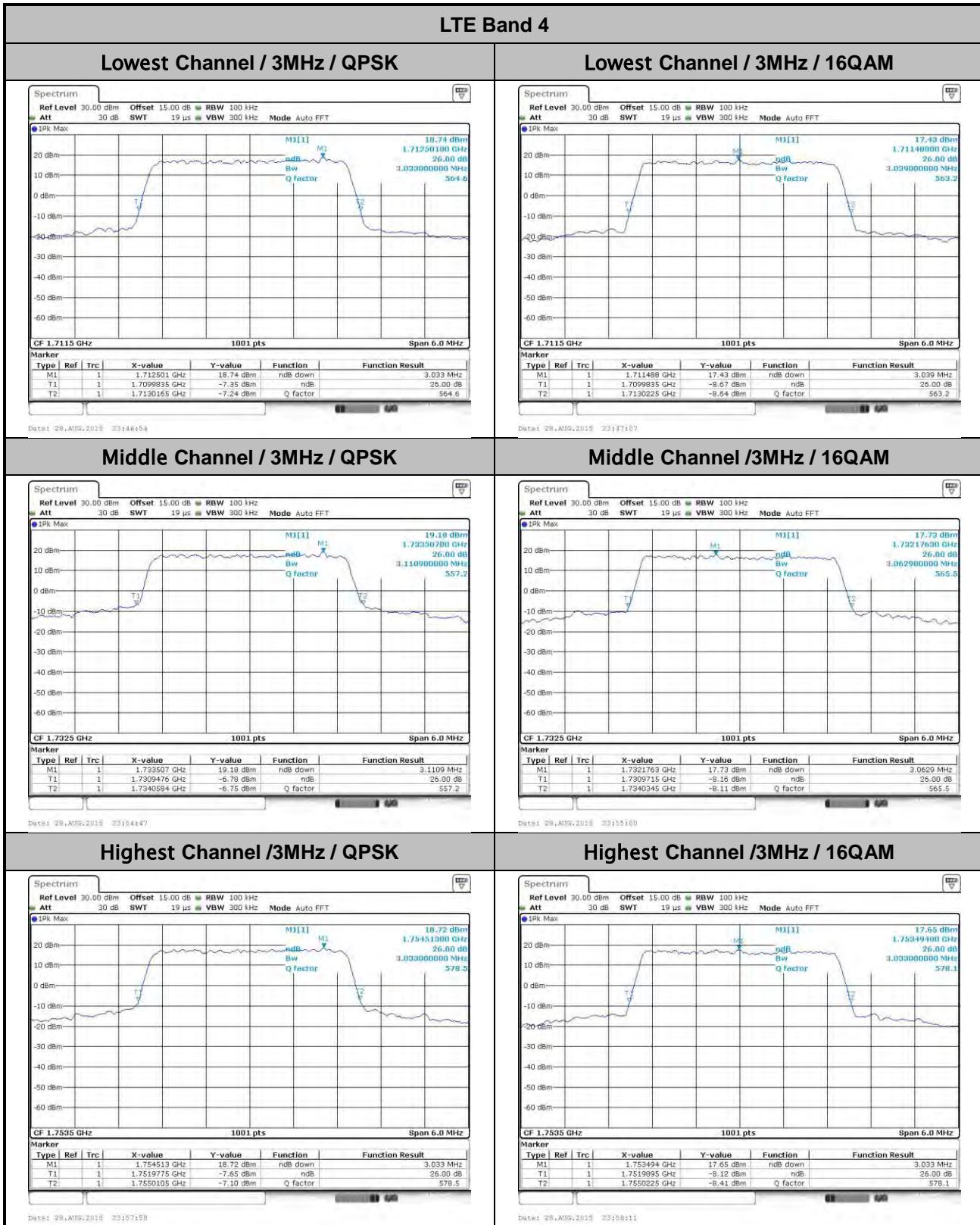


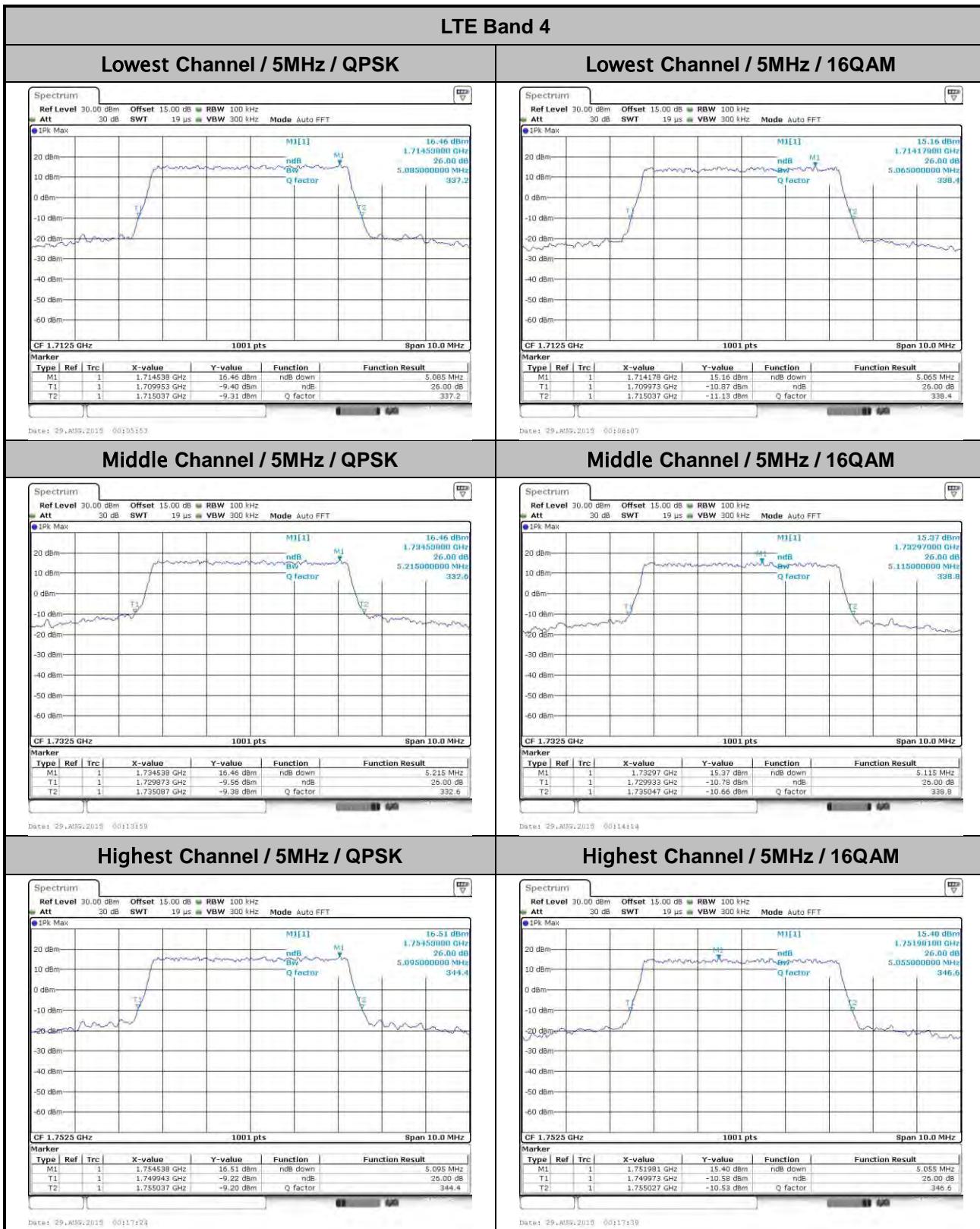


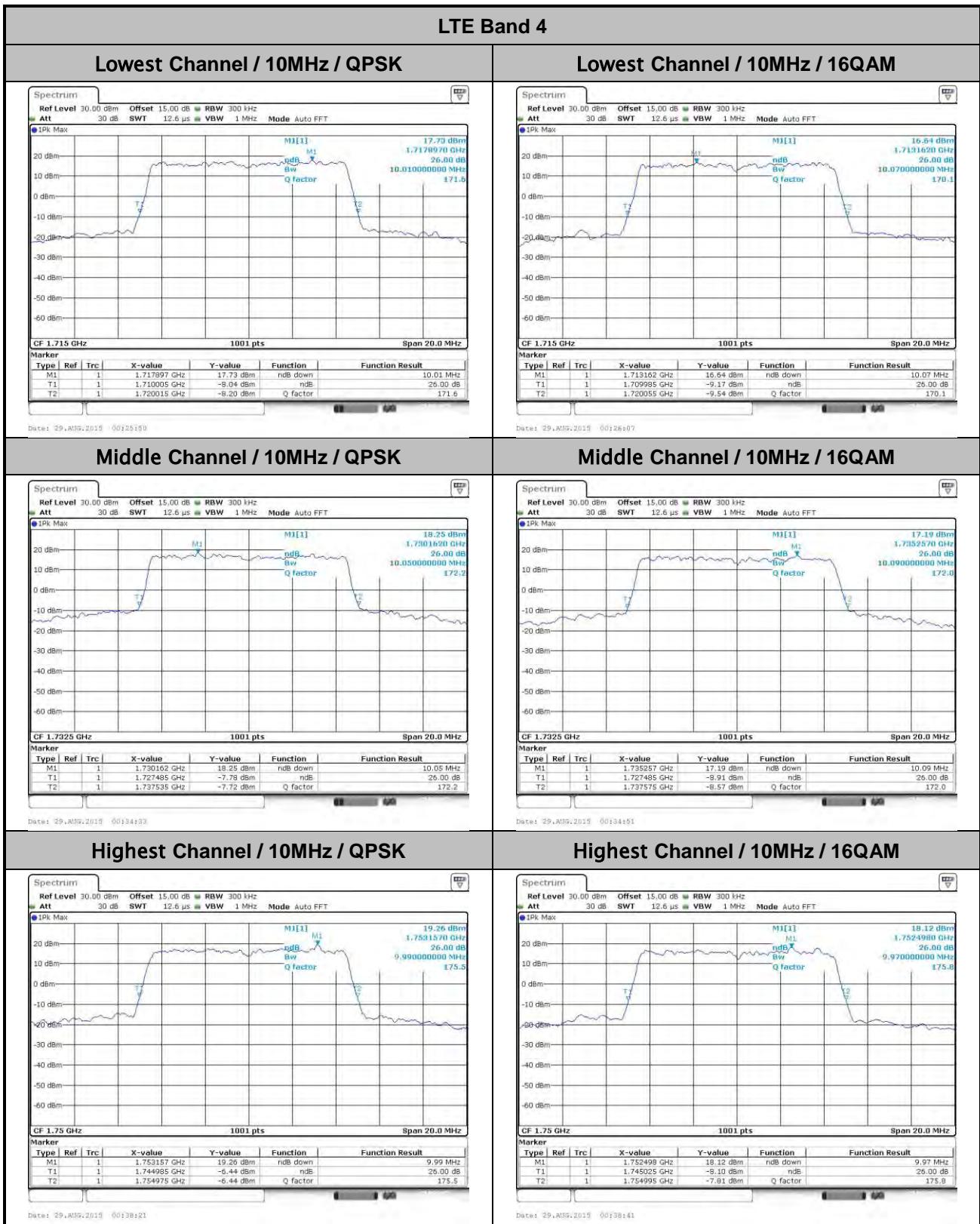
**26dB Bandwidth**

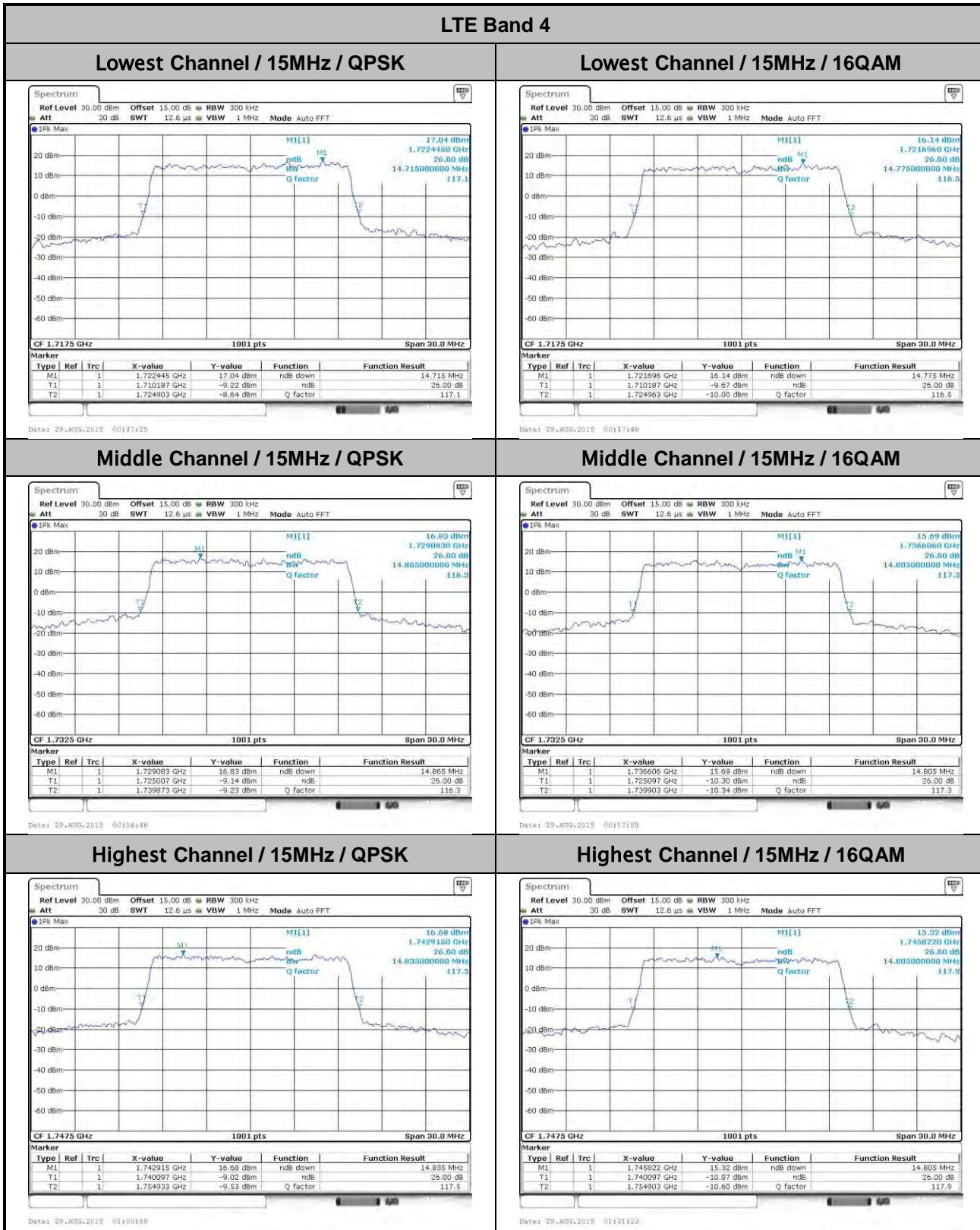
Mode	LTE Band 4 : 26dB BW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.26	1.28	3.03	3.04	5.09	5.07	10.01	10.07	14.72	14.78	20.26	20.38
Middle CH	1.29	1.30	3.11	3.06	5.22	5.12	10.05	10.09	14.87	14.81	20.66	20.50
Highest CH	1.27	1.28	3.03	3.03	5.10	5.06	9.99	9.97	14.84	14.81	20.38	20.34

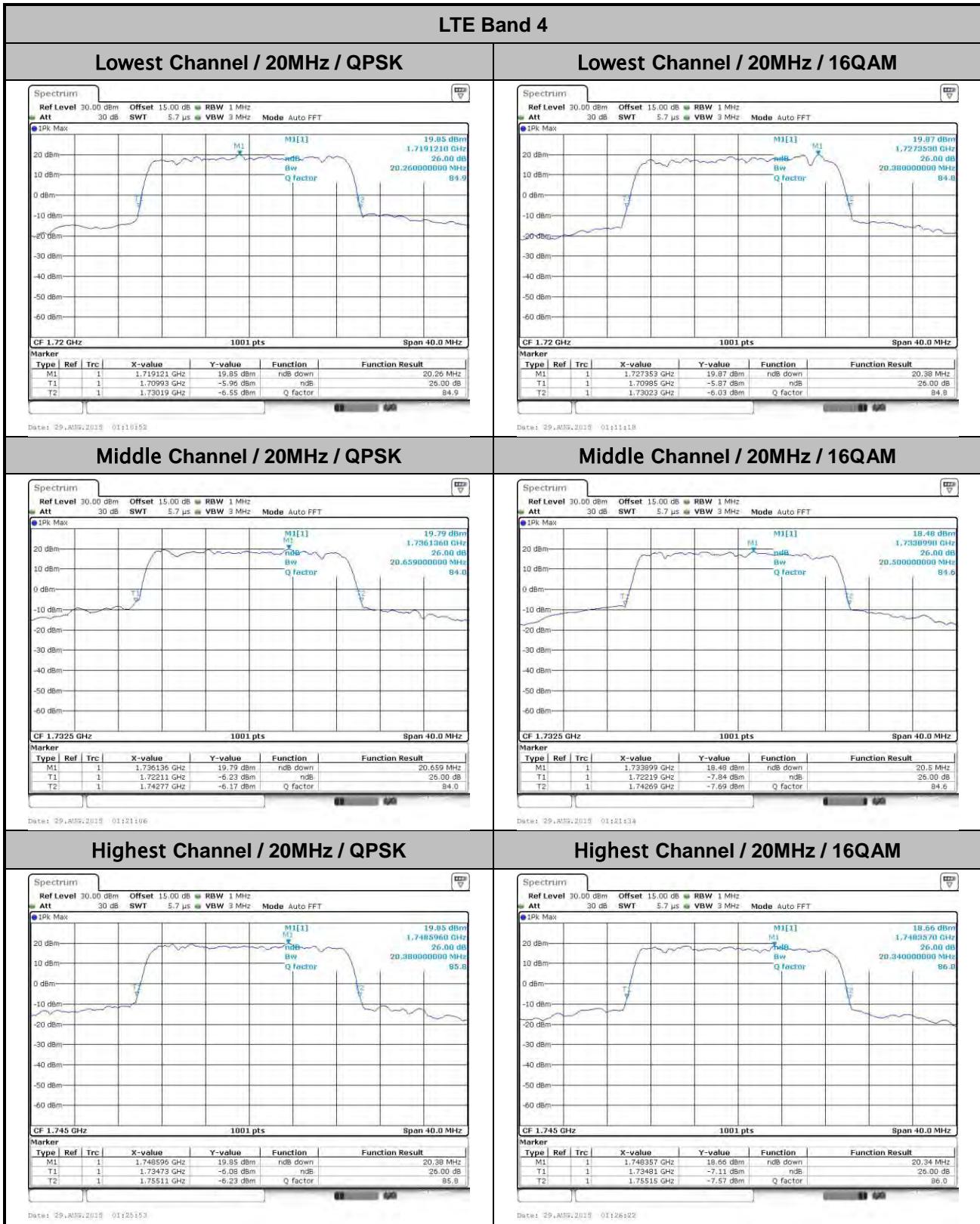






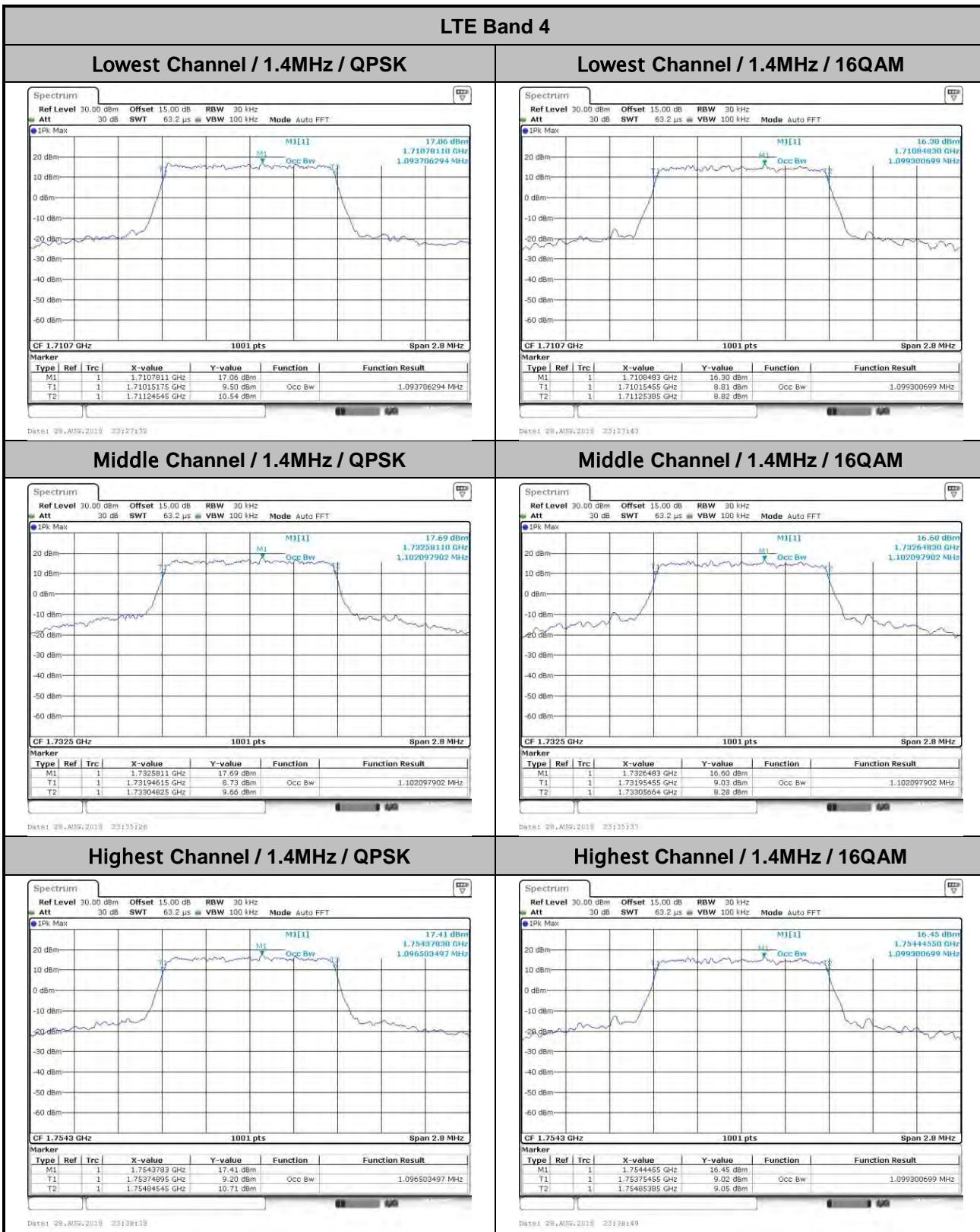




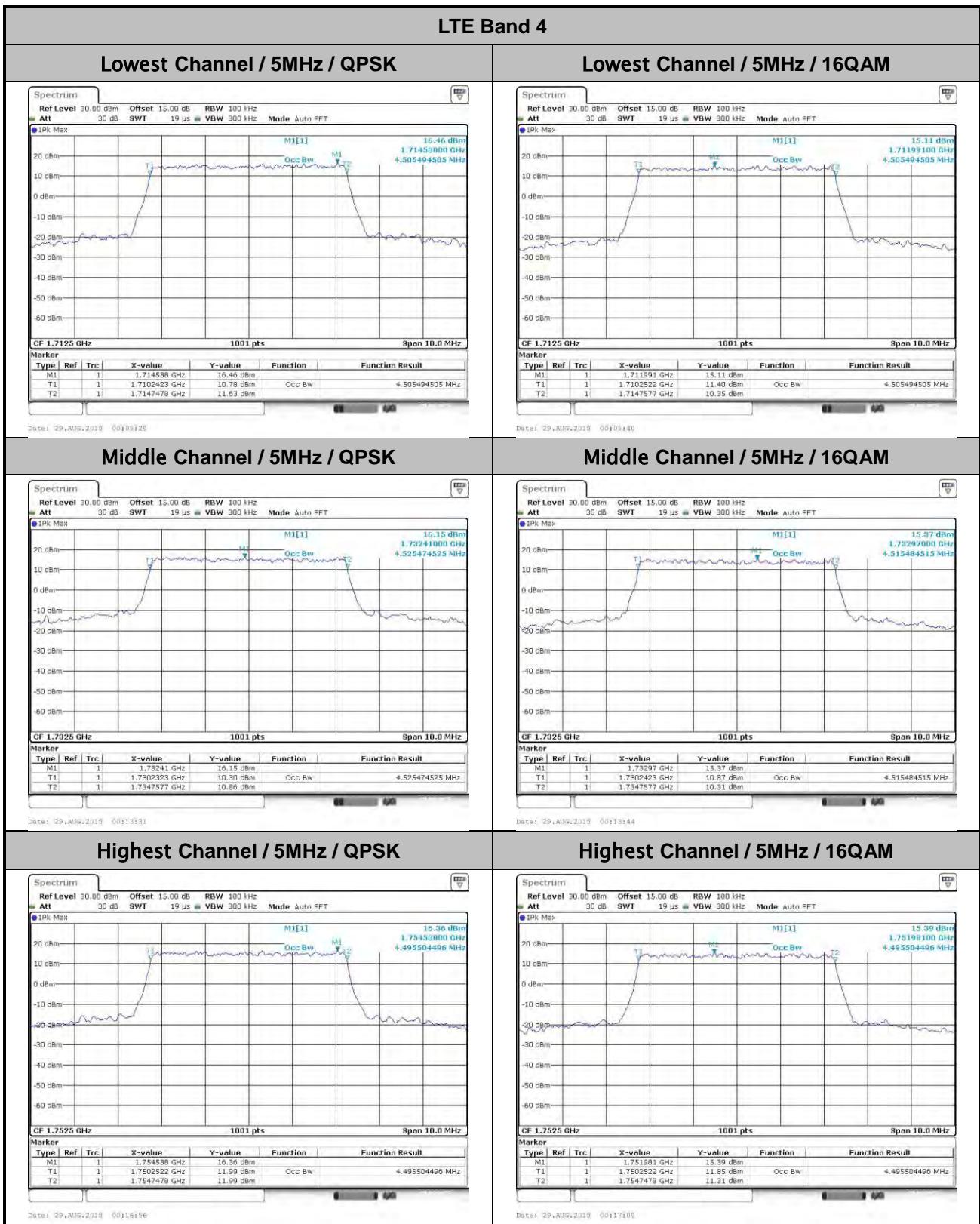


**Occupied Bandwidth**

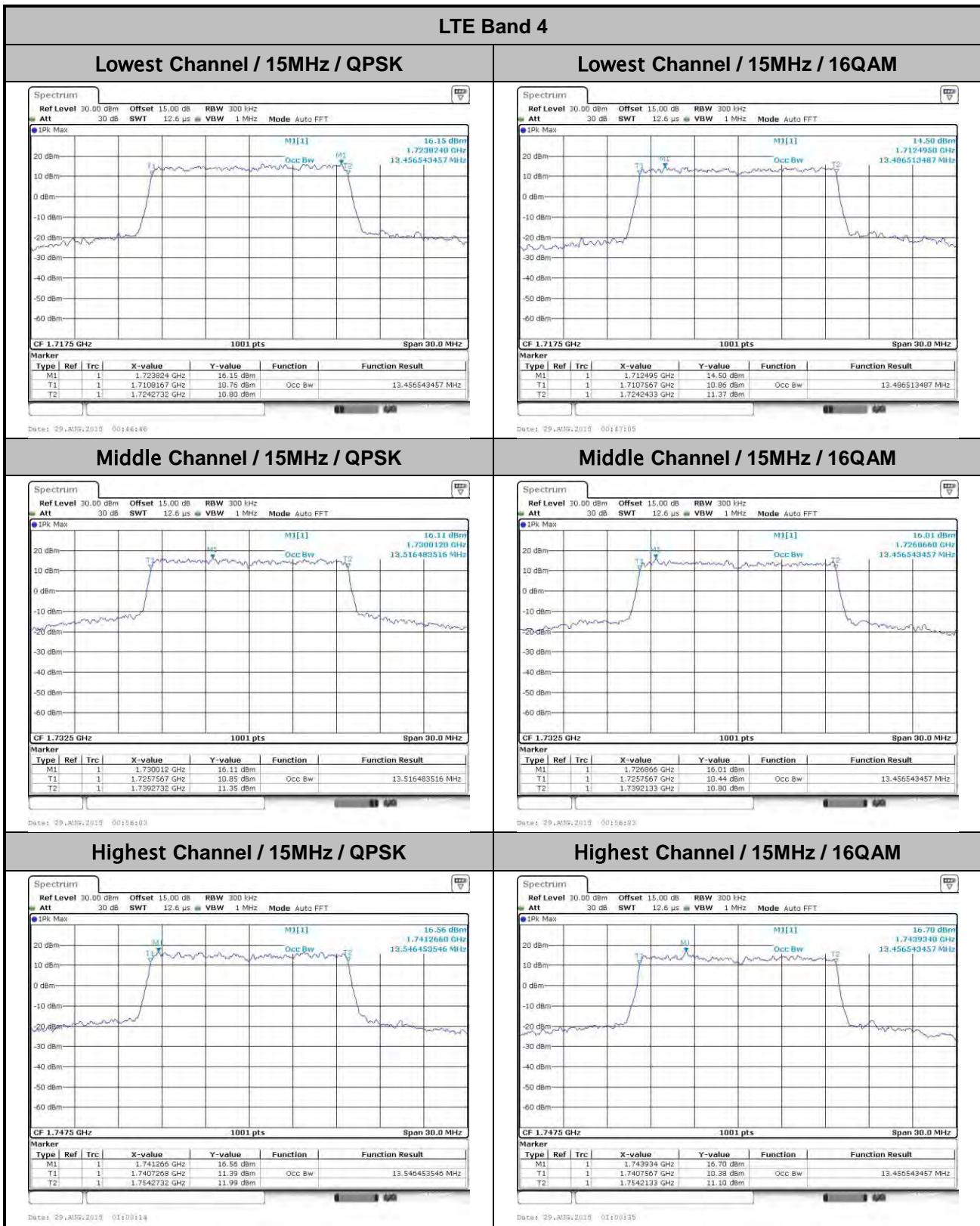
Mode	LTE Band 4 : 99%OBW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.09	1.10	2.73	2.72	4.51	4.51	9.05	8.99	13.46	13.49	18.34	18.46
Middle CH	1.10	1.10	2.74	2.72	4.53	4.52	9.11	9.03	13.52	13.46	18.42	18.46
Highest CH	1.10	1.10	2.73	2.72	4.50	4.50	9.05	9.01	13.55	13.46	18.42	18.46

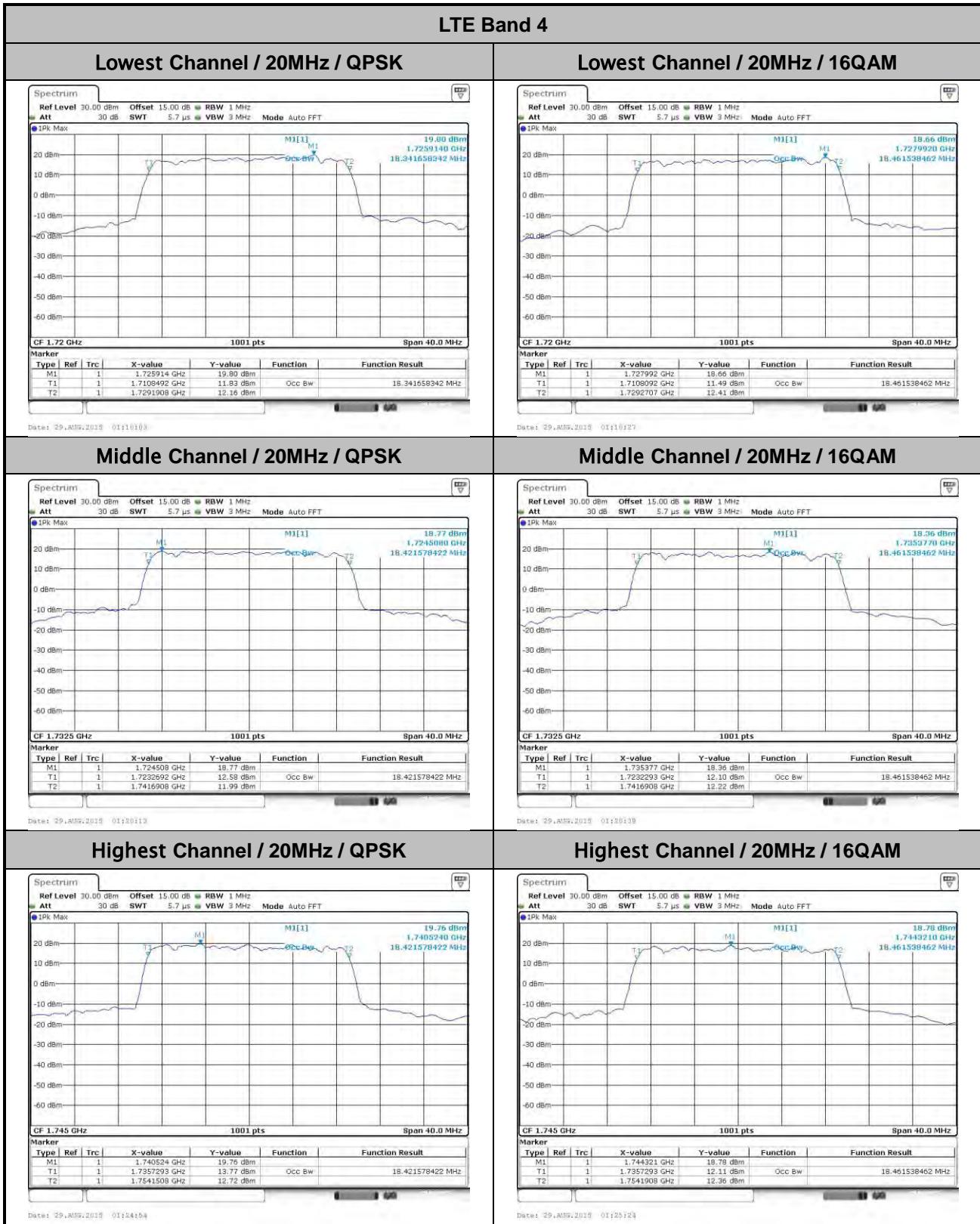






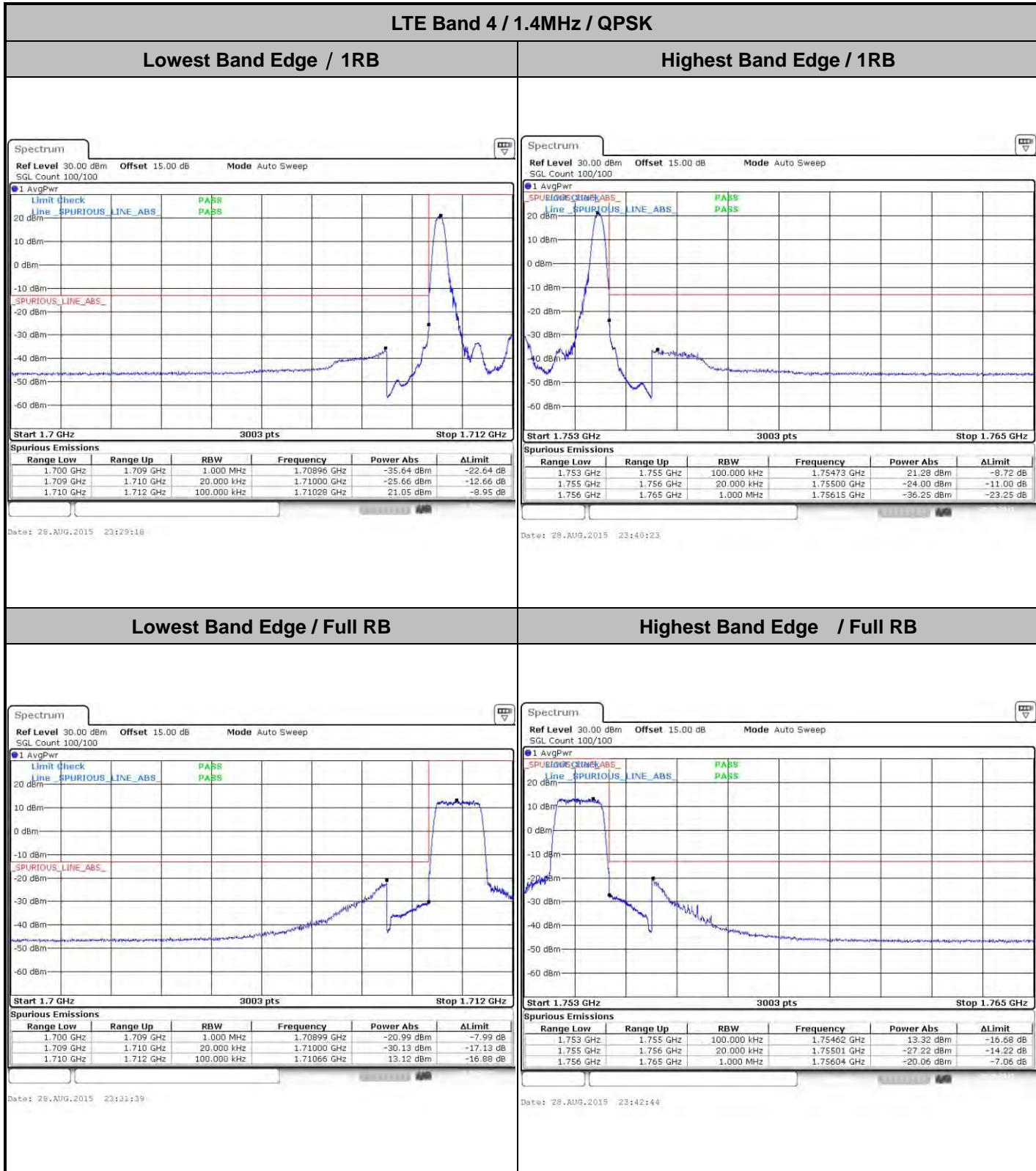


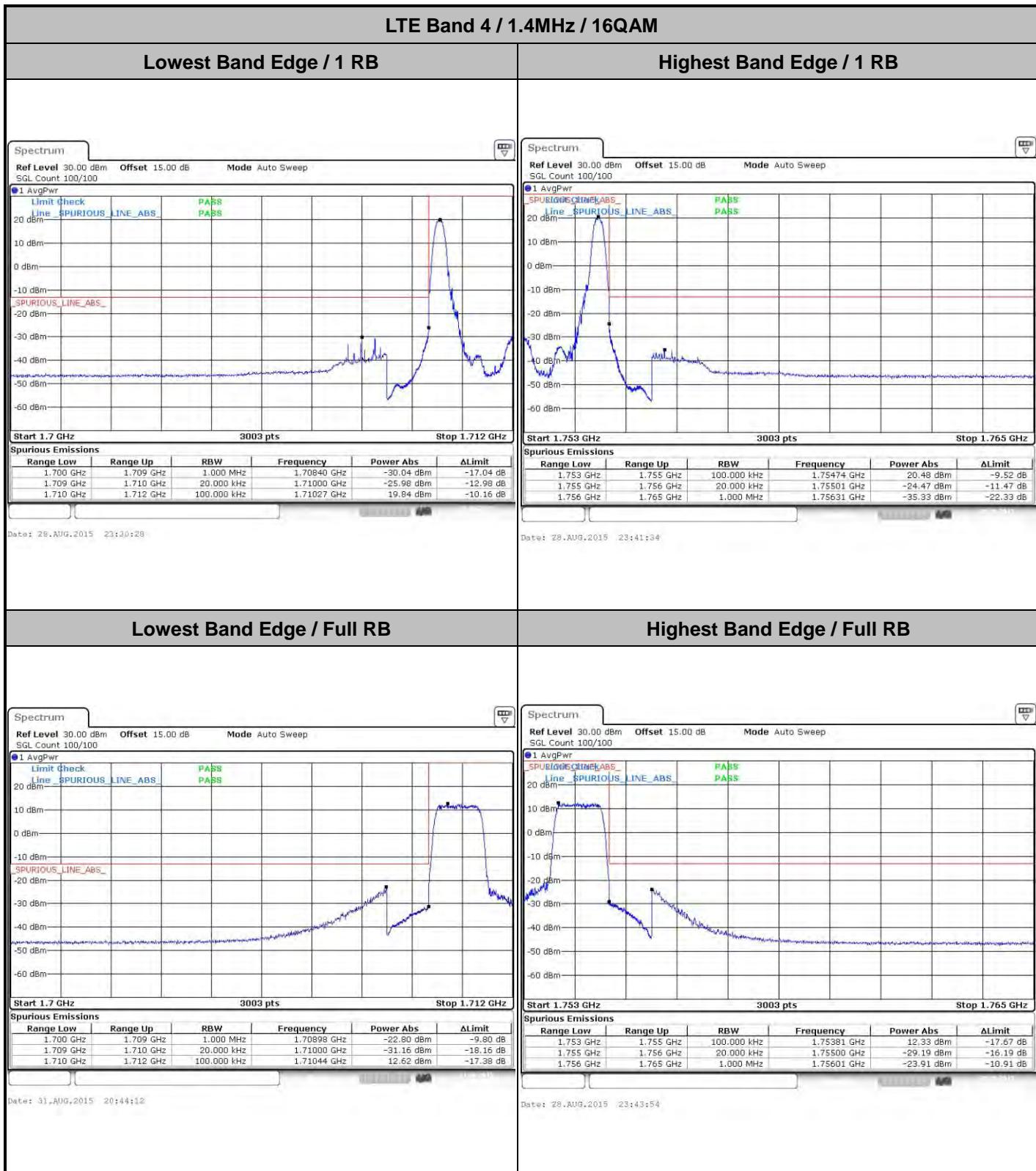


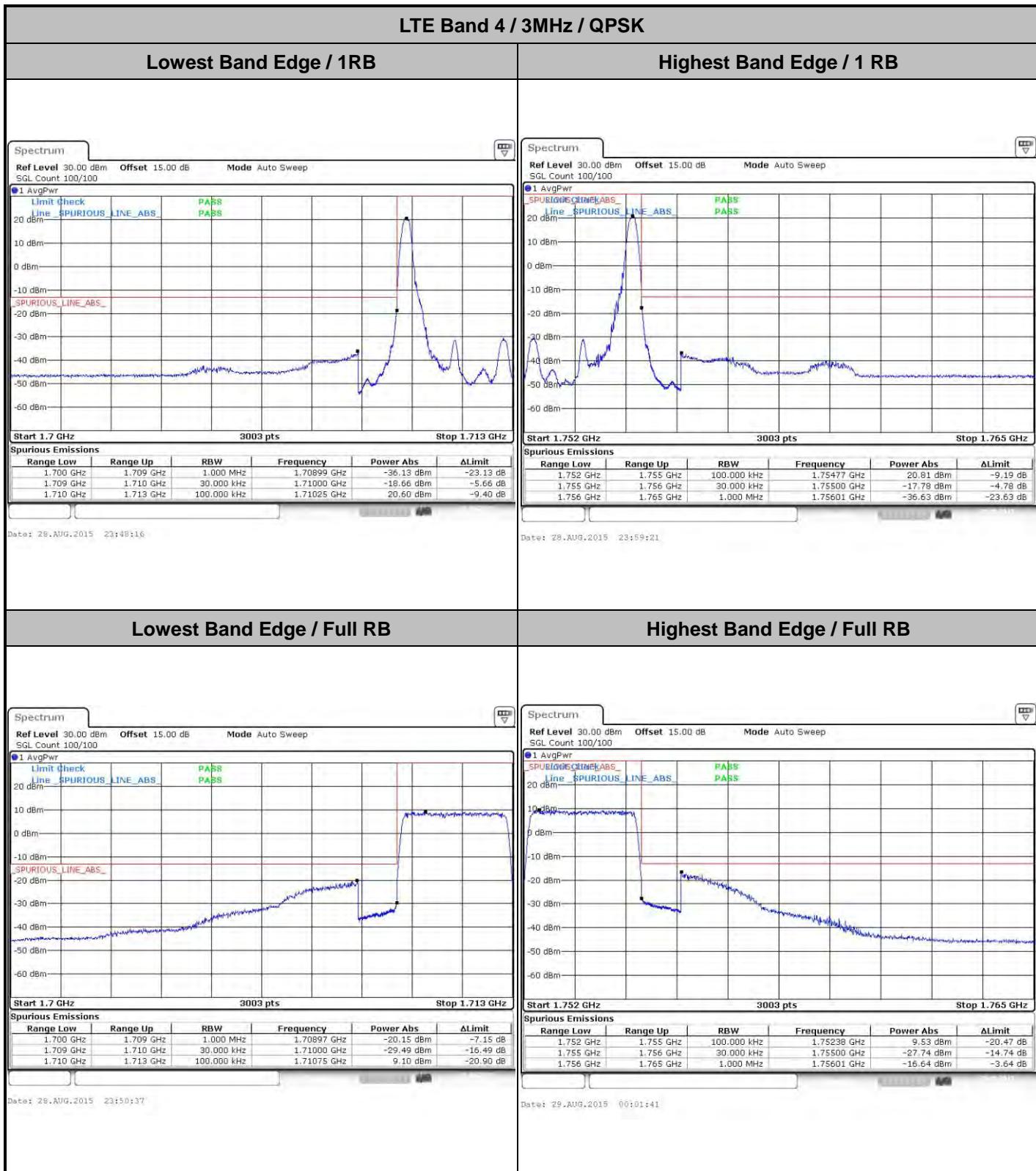


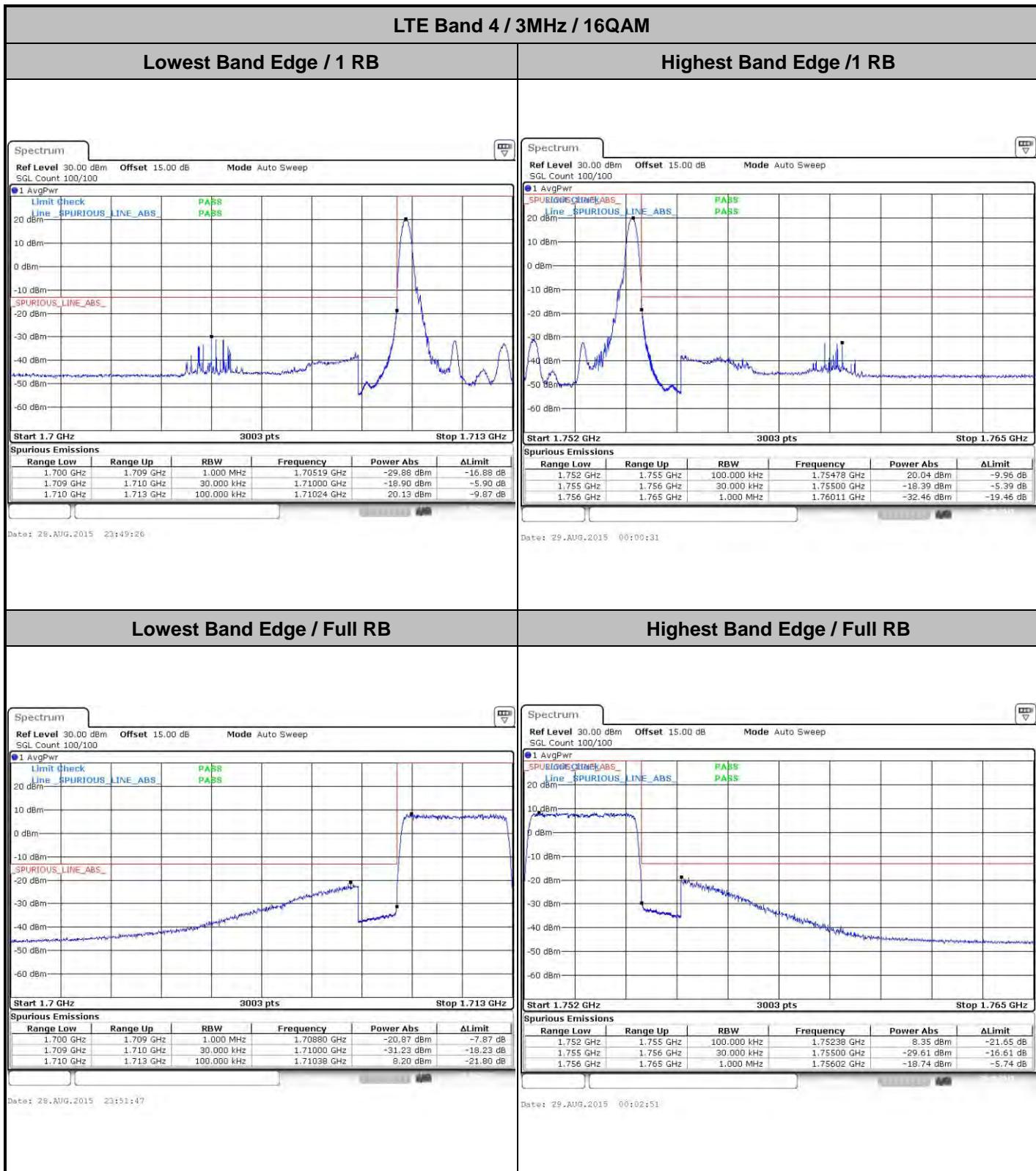


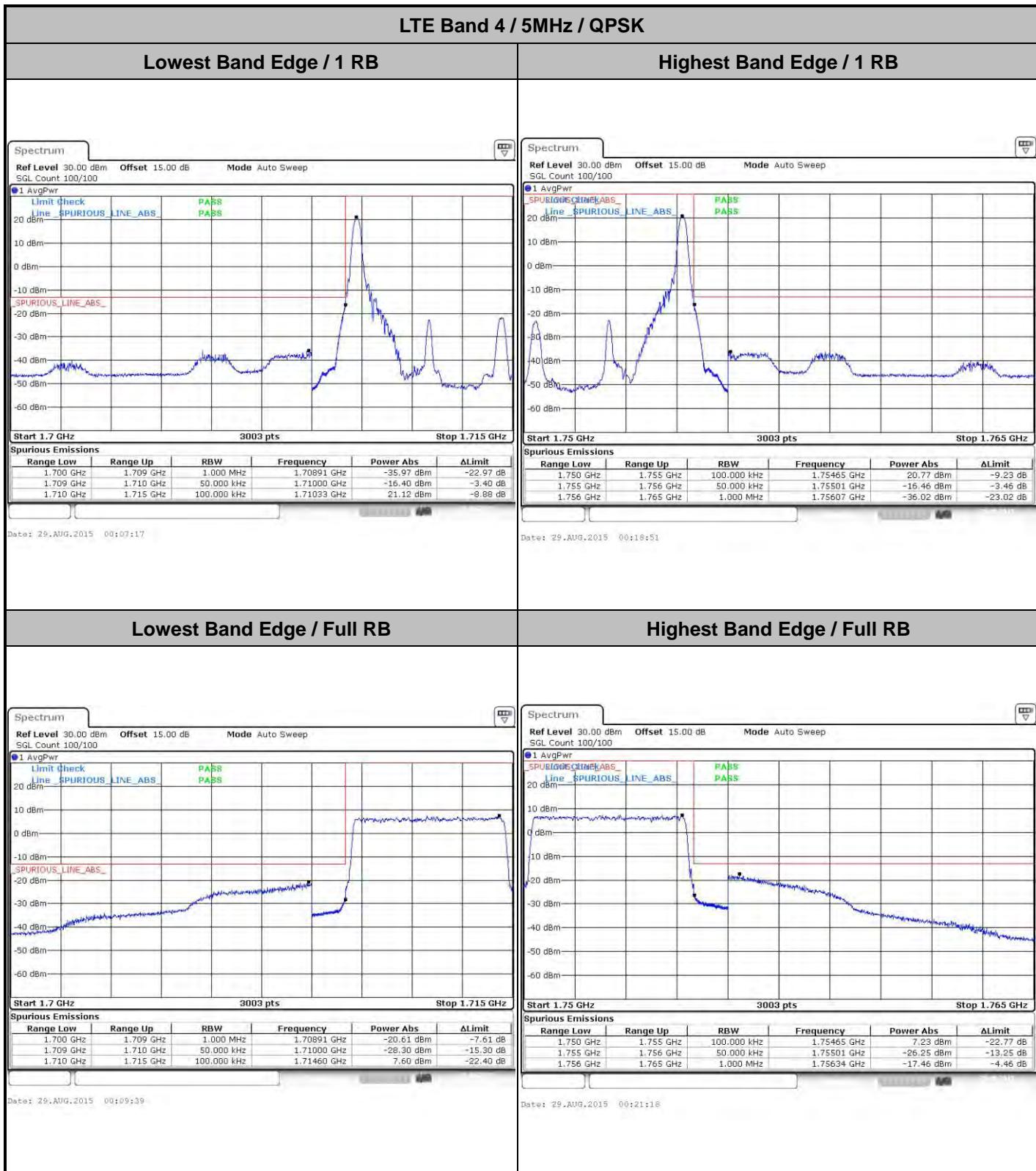
Conducted Band Edge

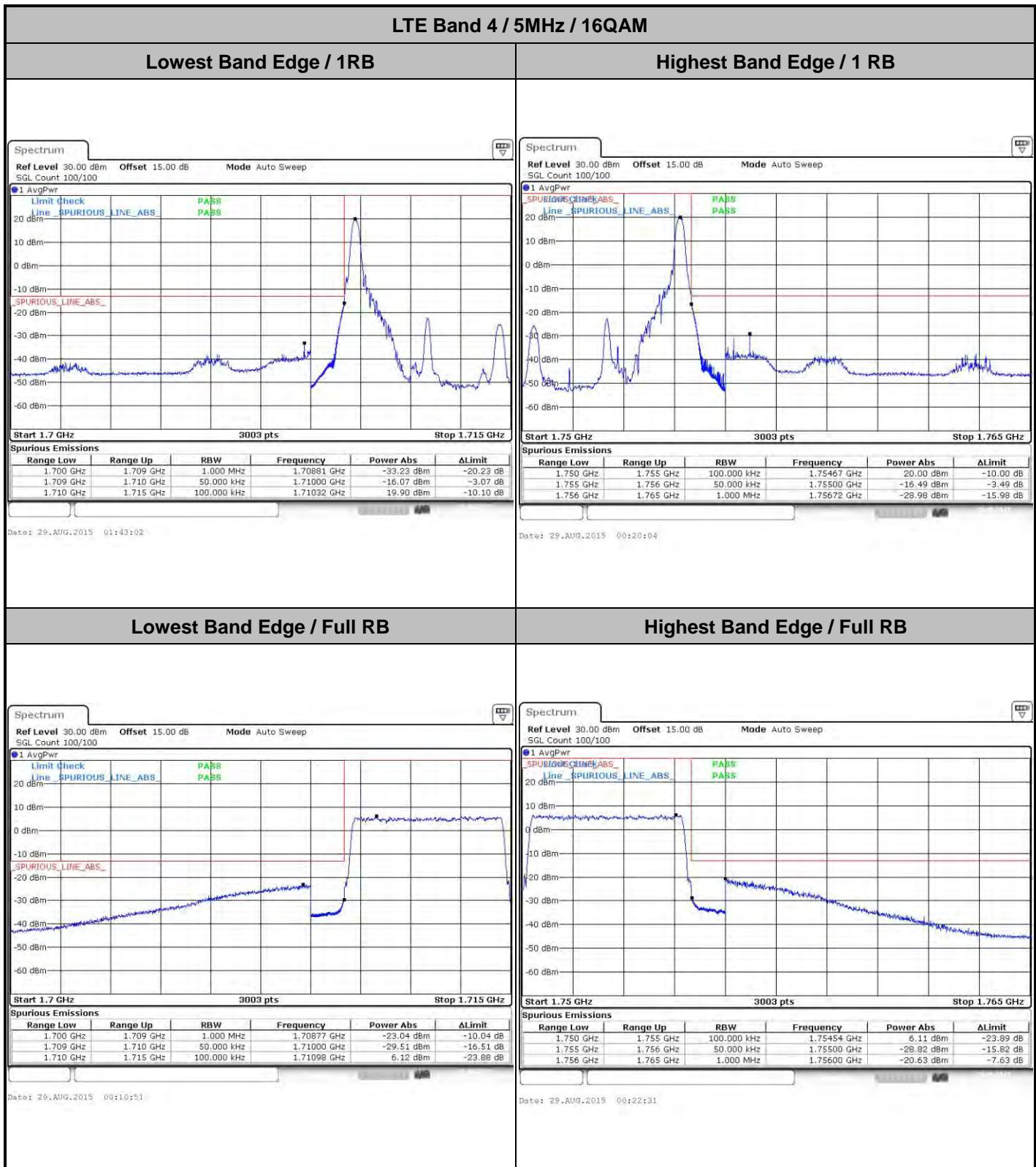


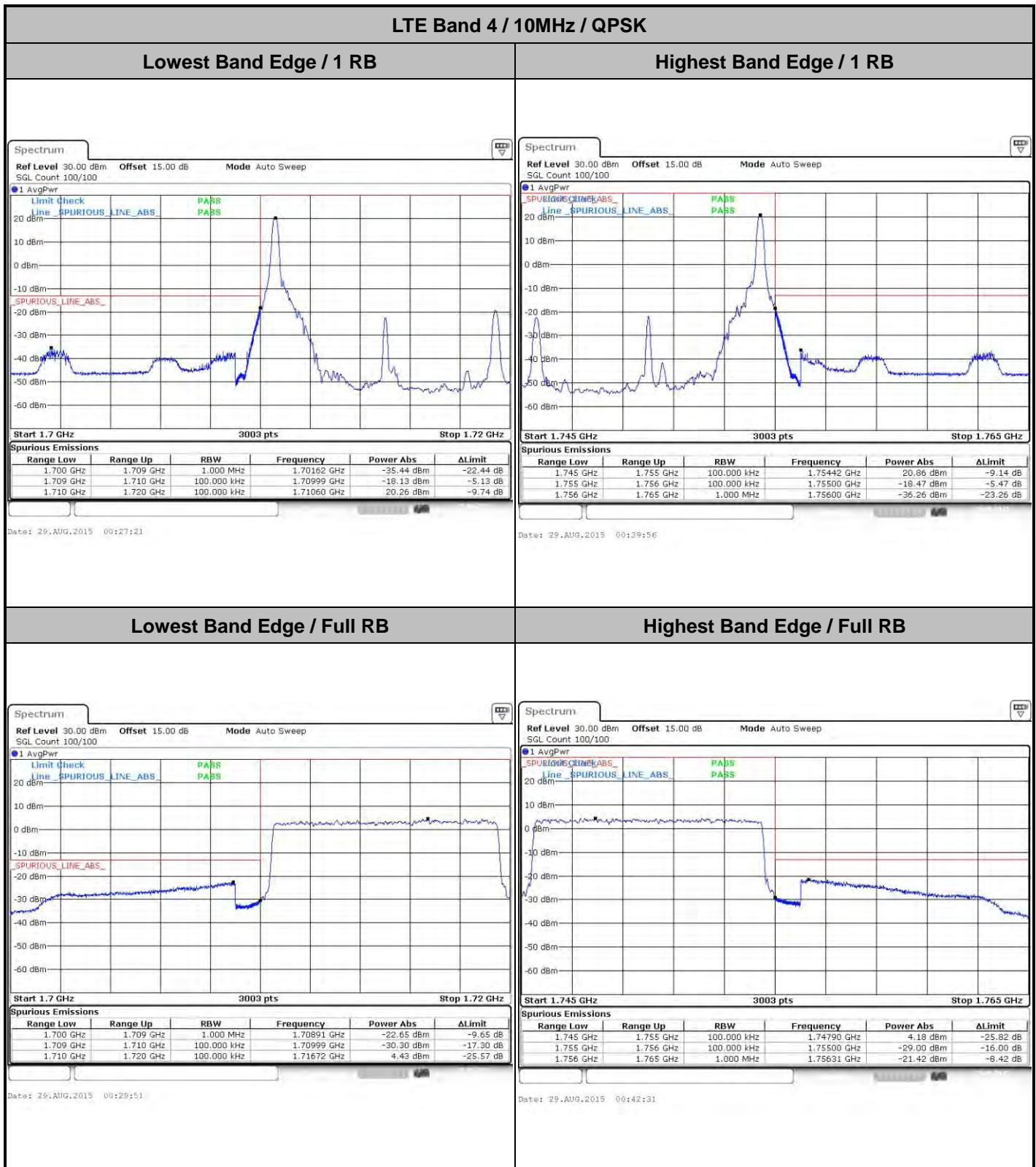


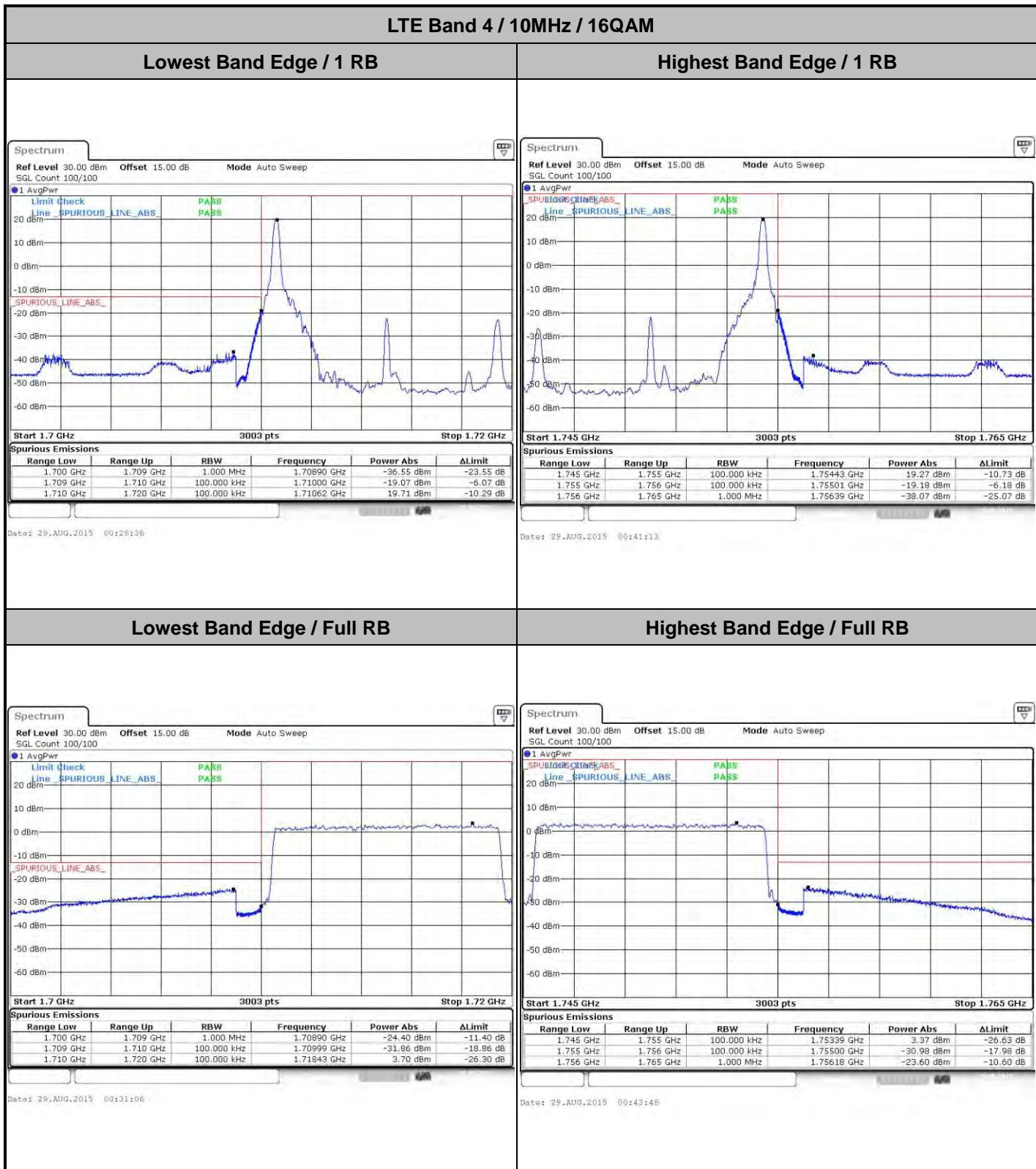


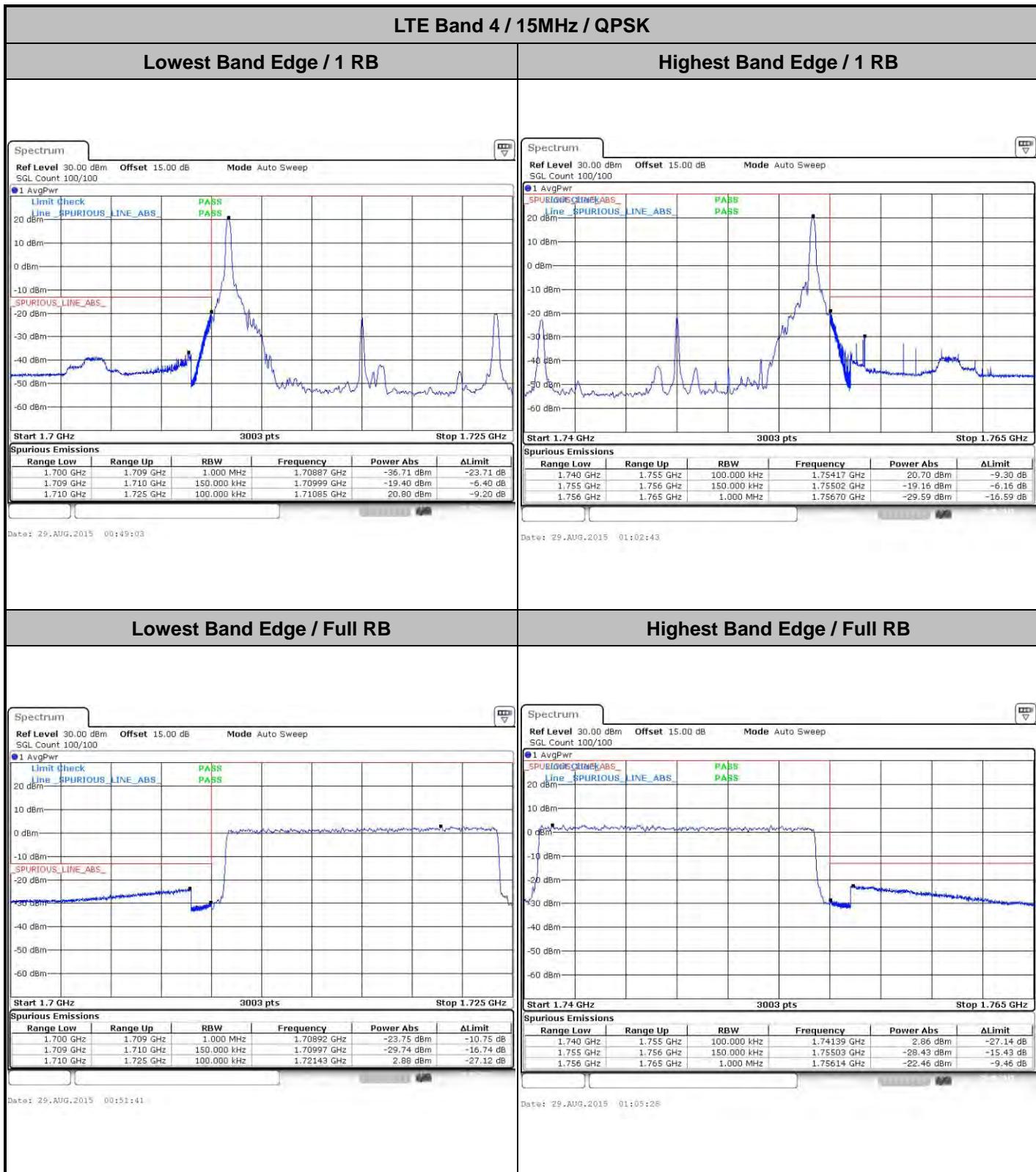


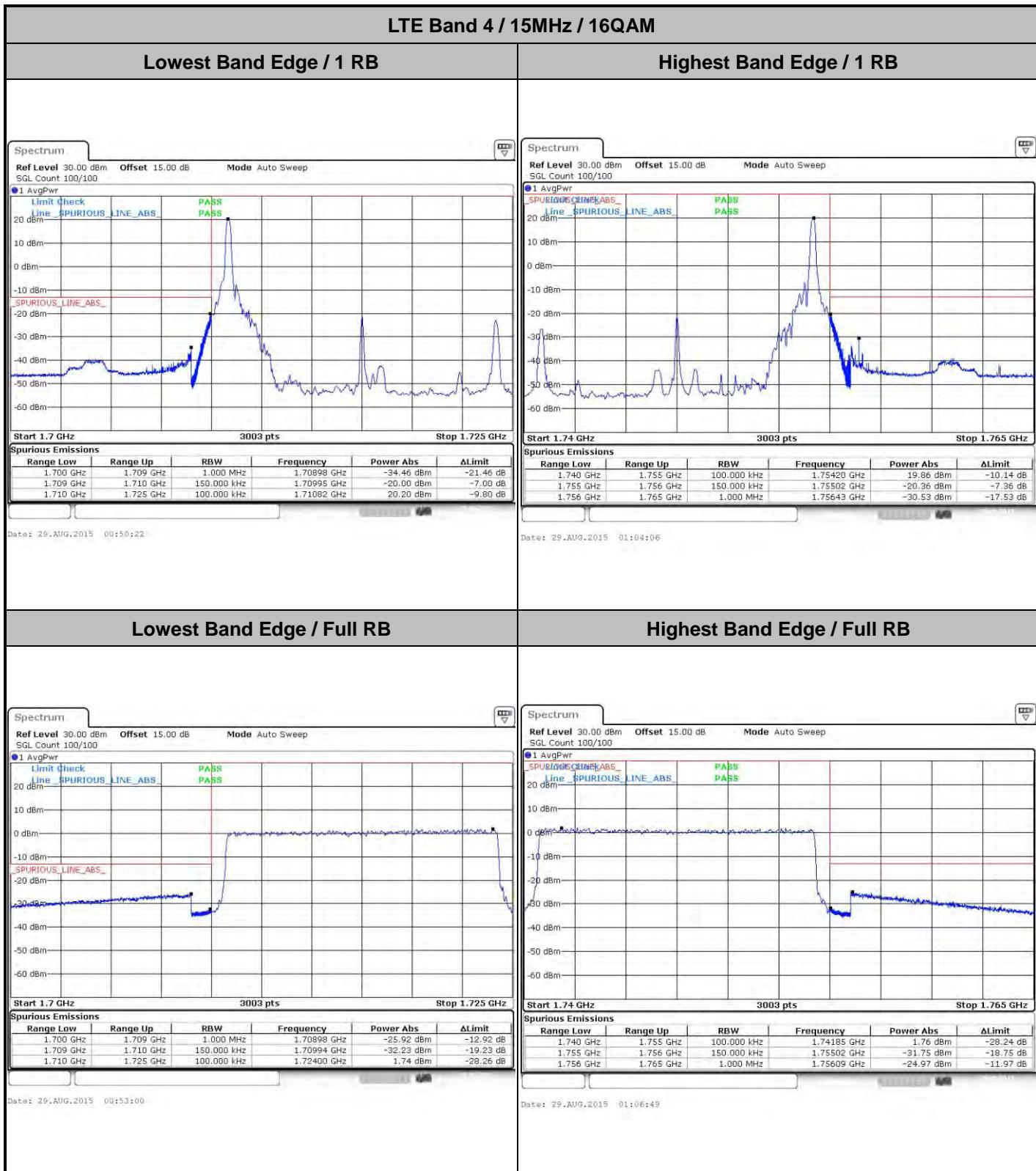


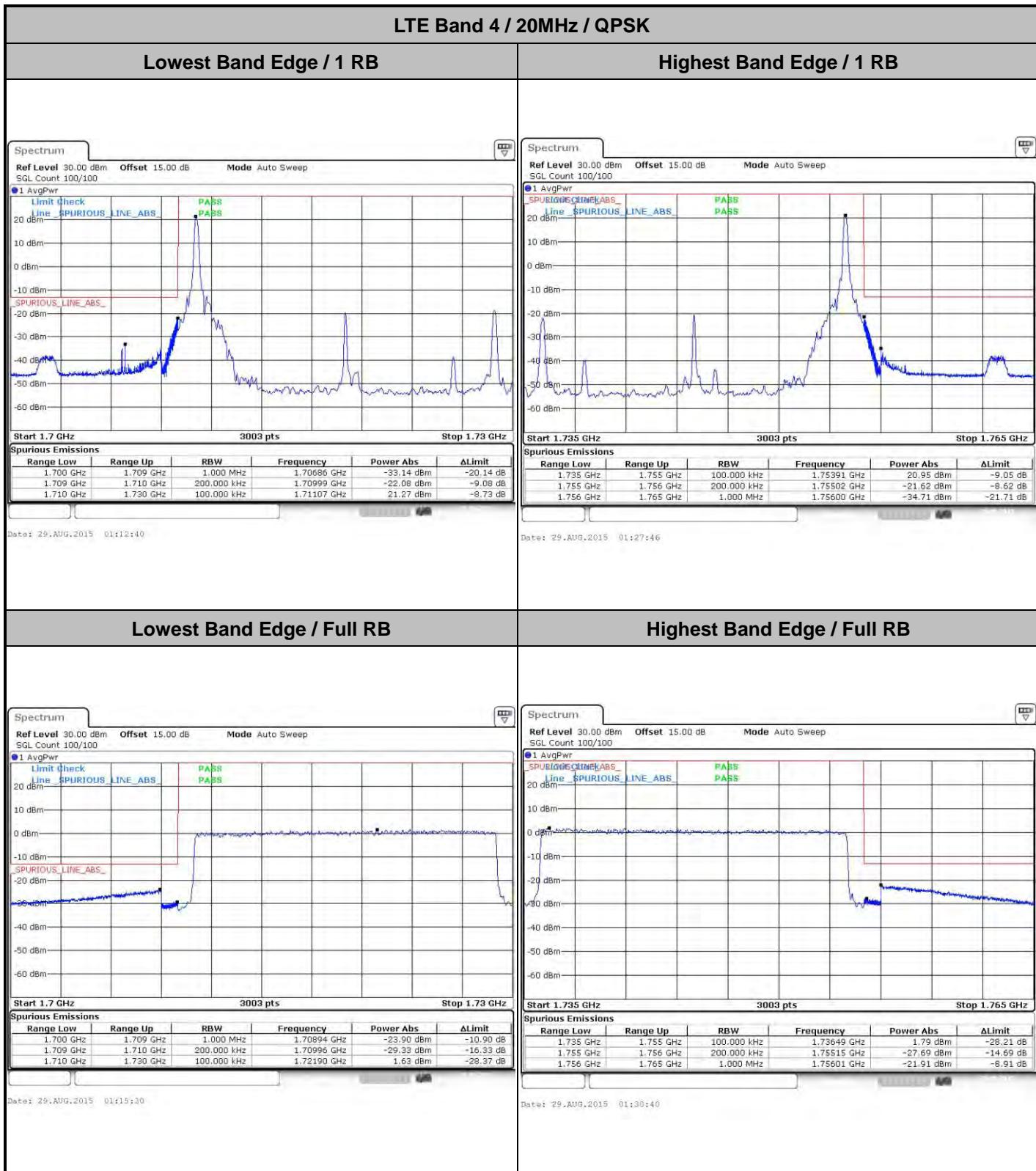


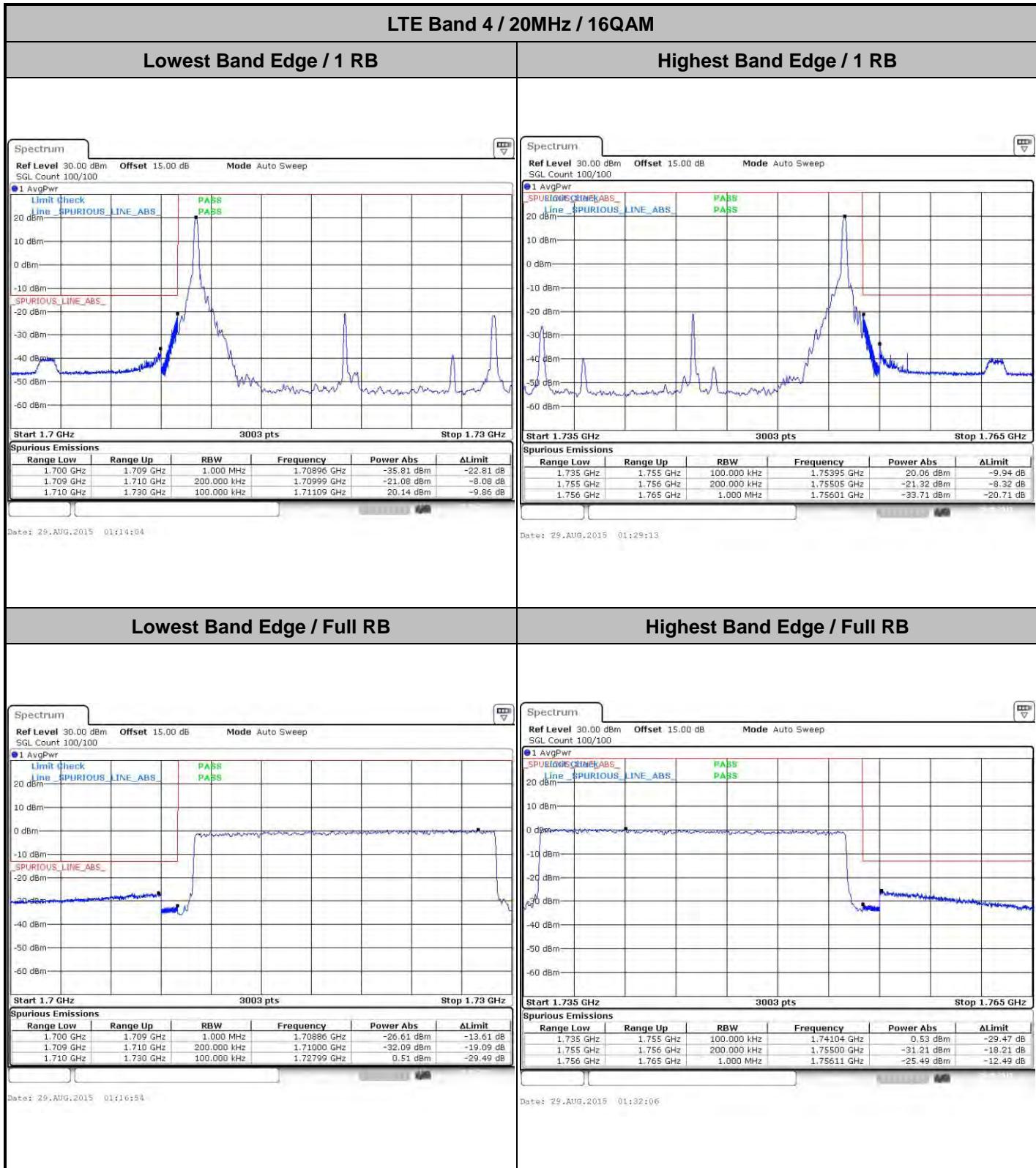






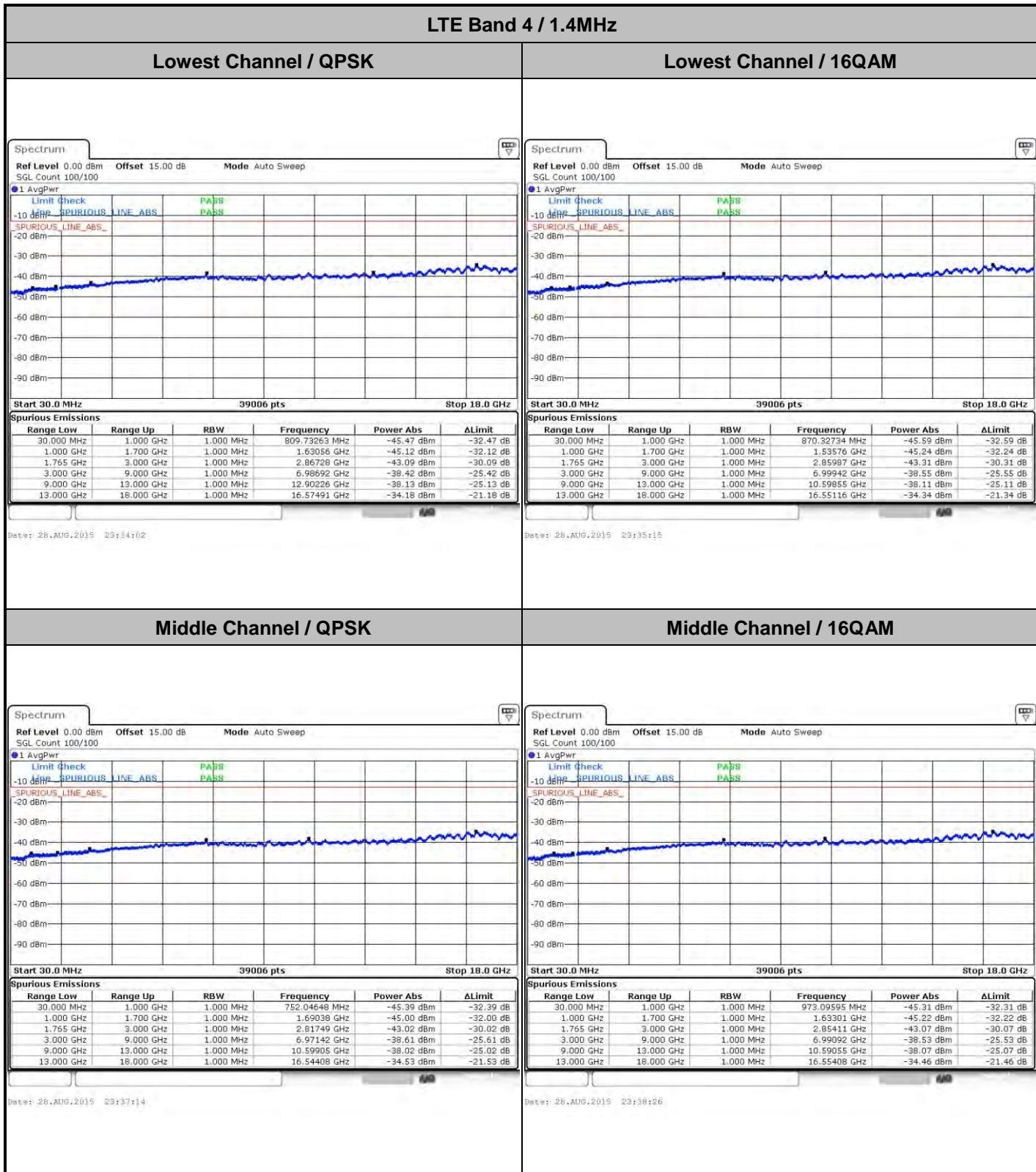








Conducted Spurious Emission

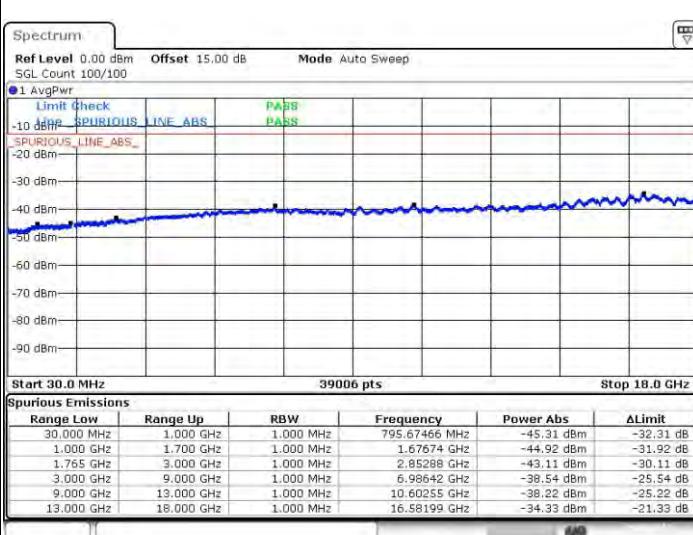
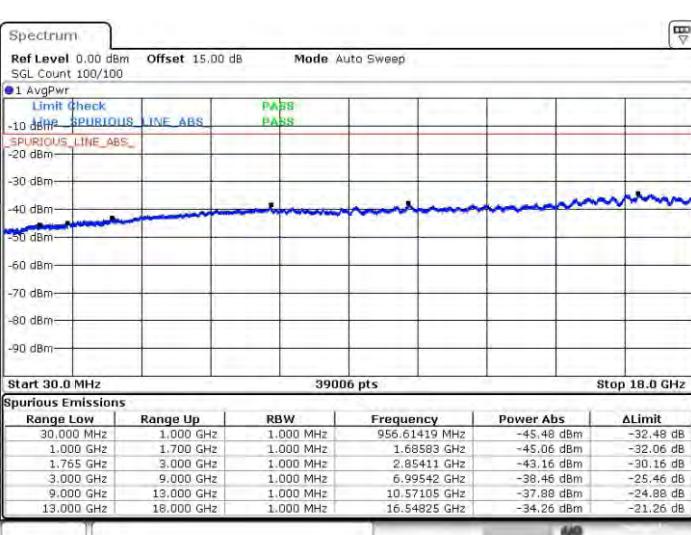




LTE Band 4 / 1.4MHz

Highest Channel / QPSK

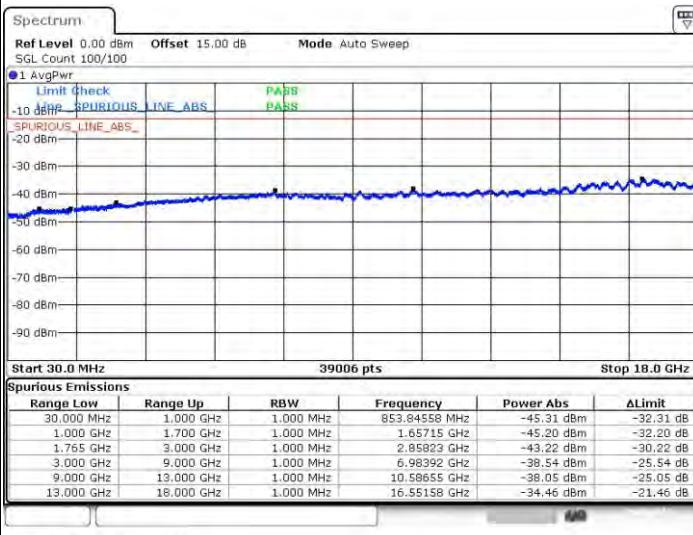
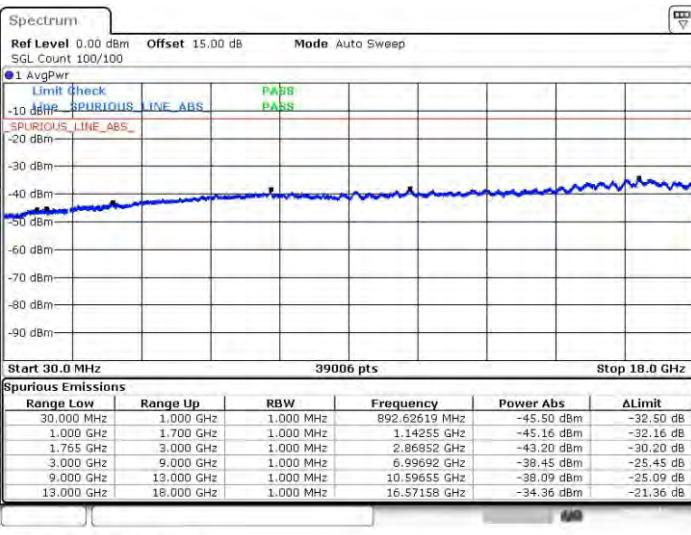
Highest Channel / 16QAM

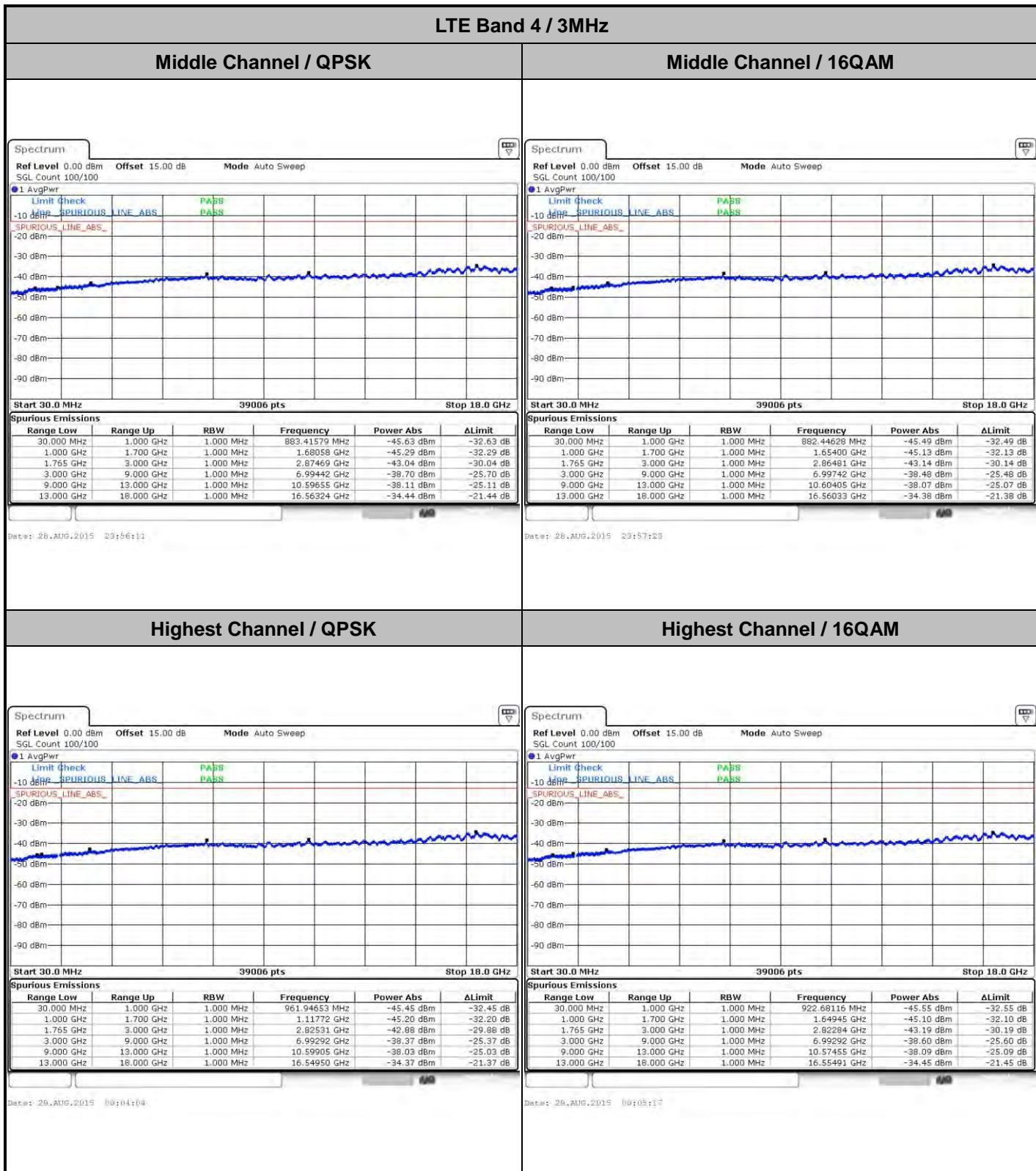


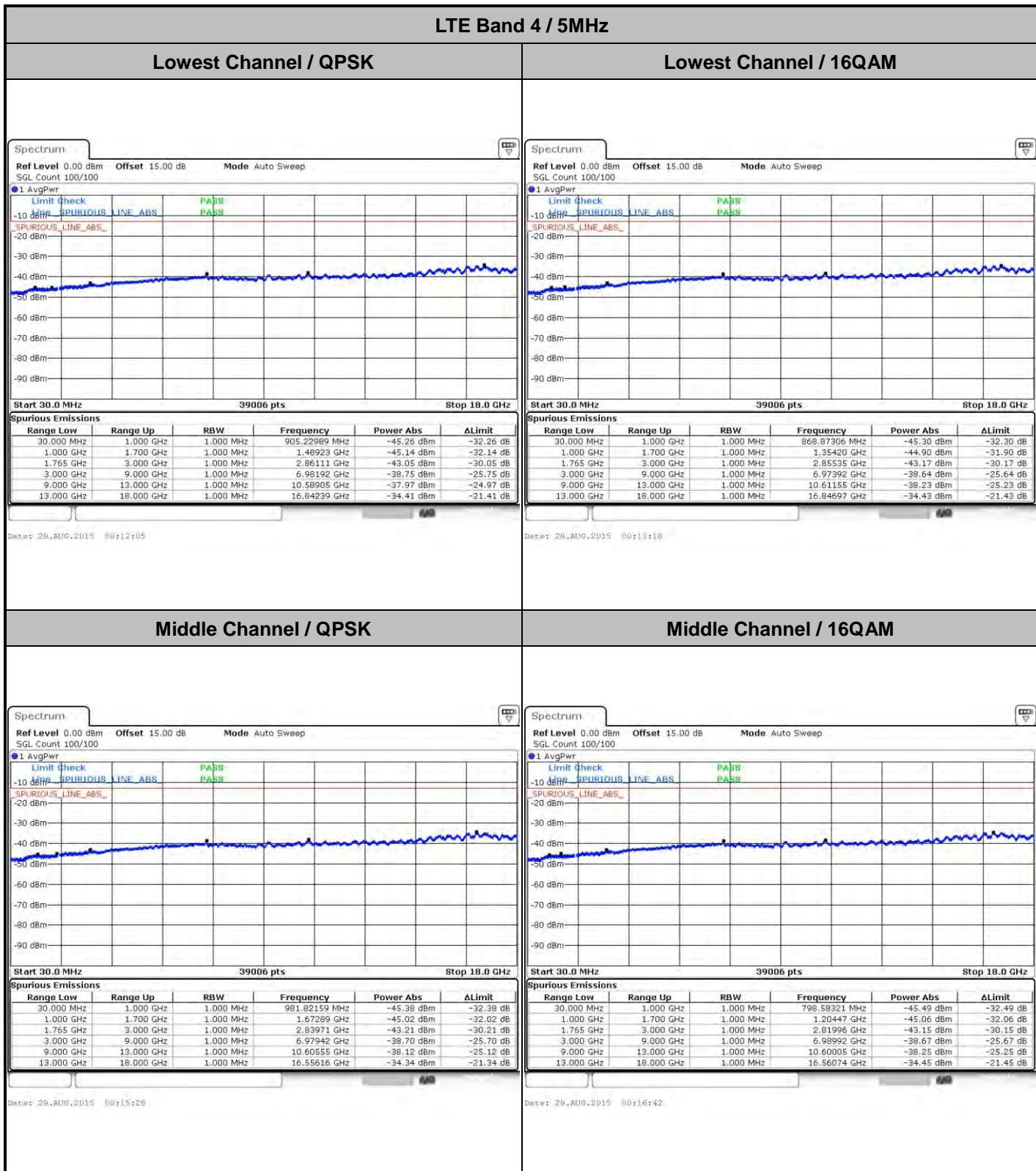
LTE Band 4 / 3MHz

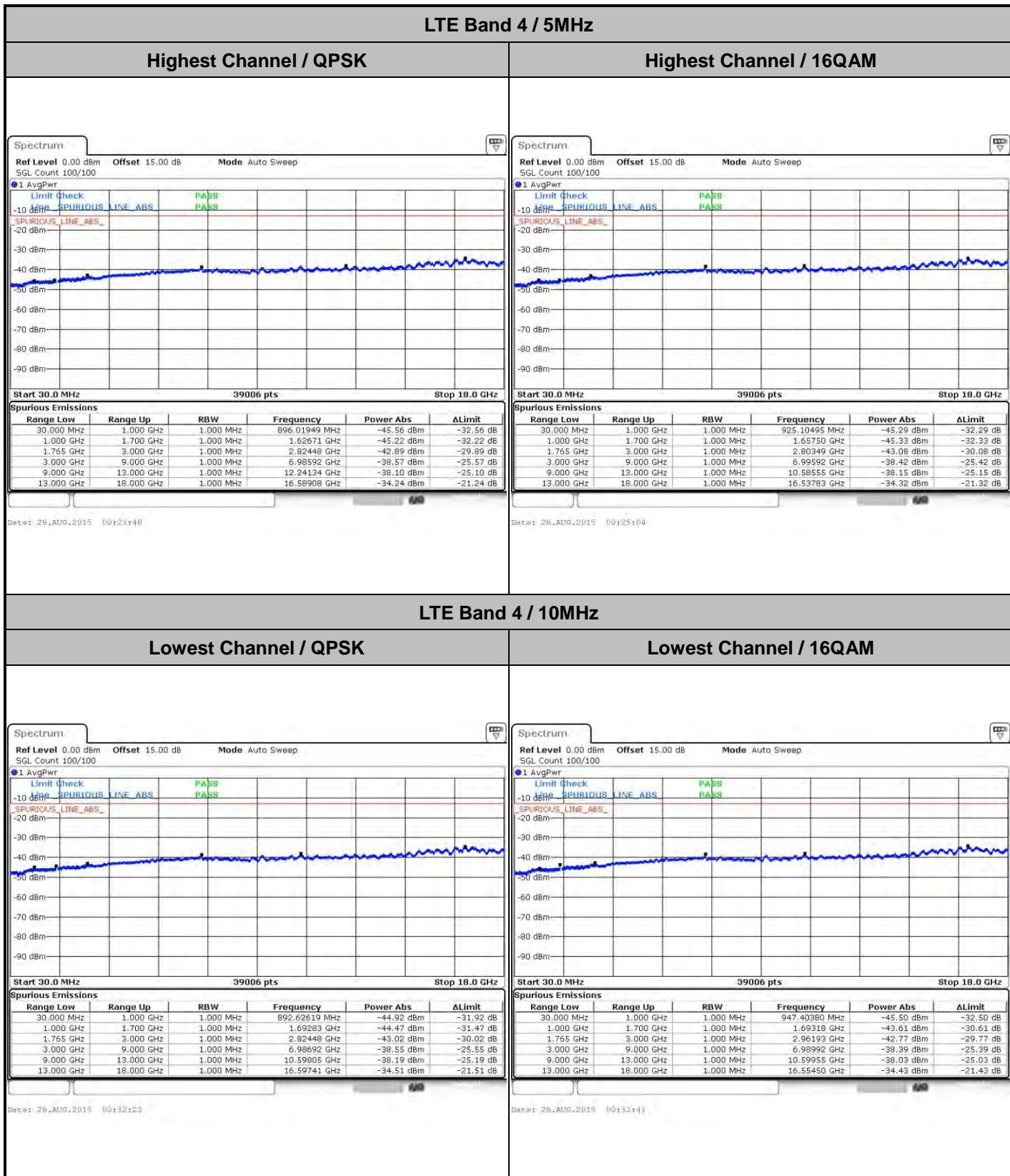
Lowest Channel / QPSK

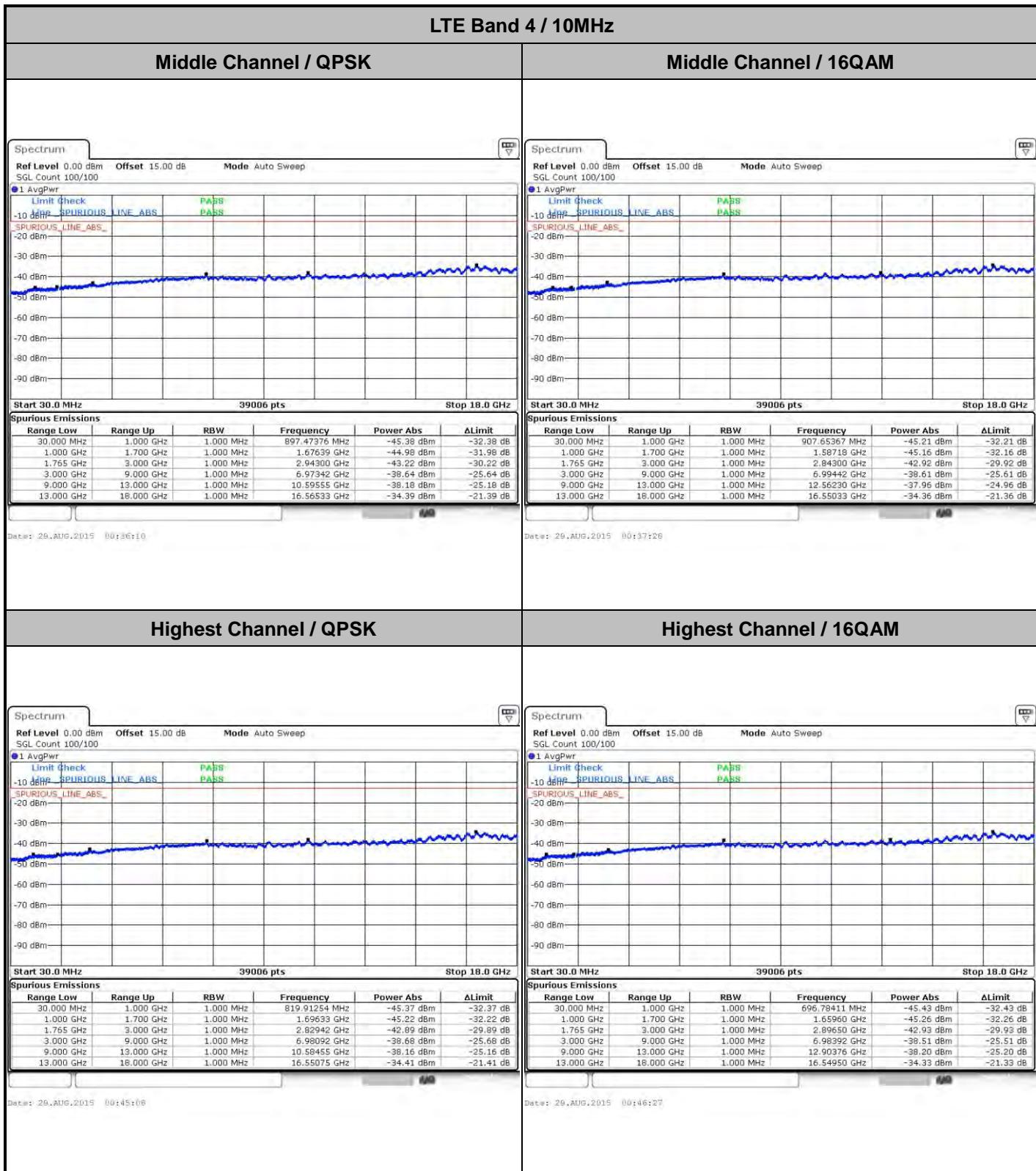
Lowest Channel / 16QAM

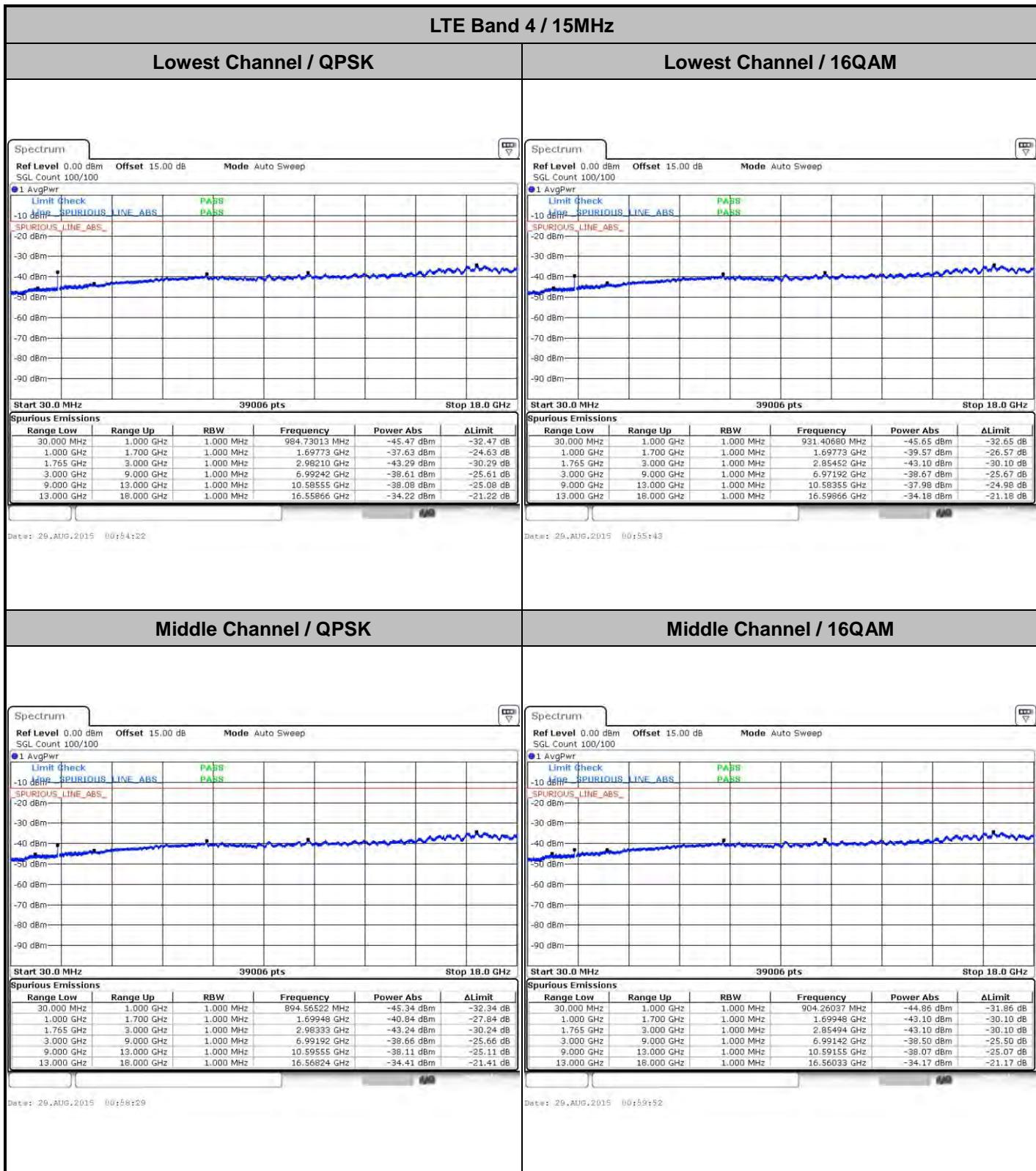


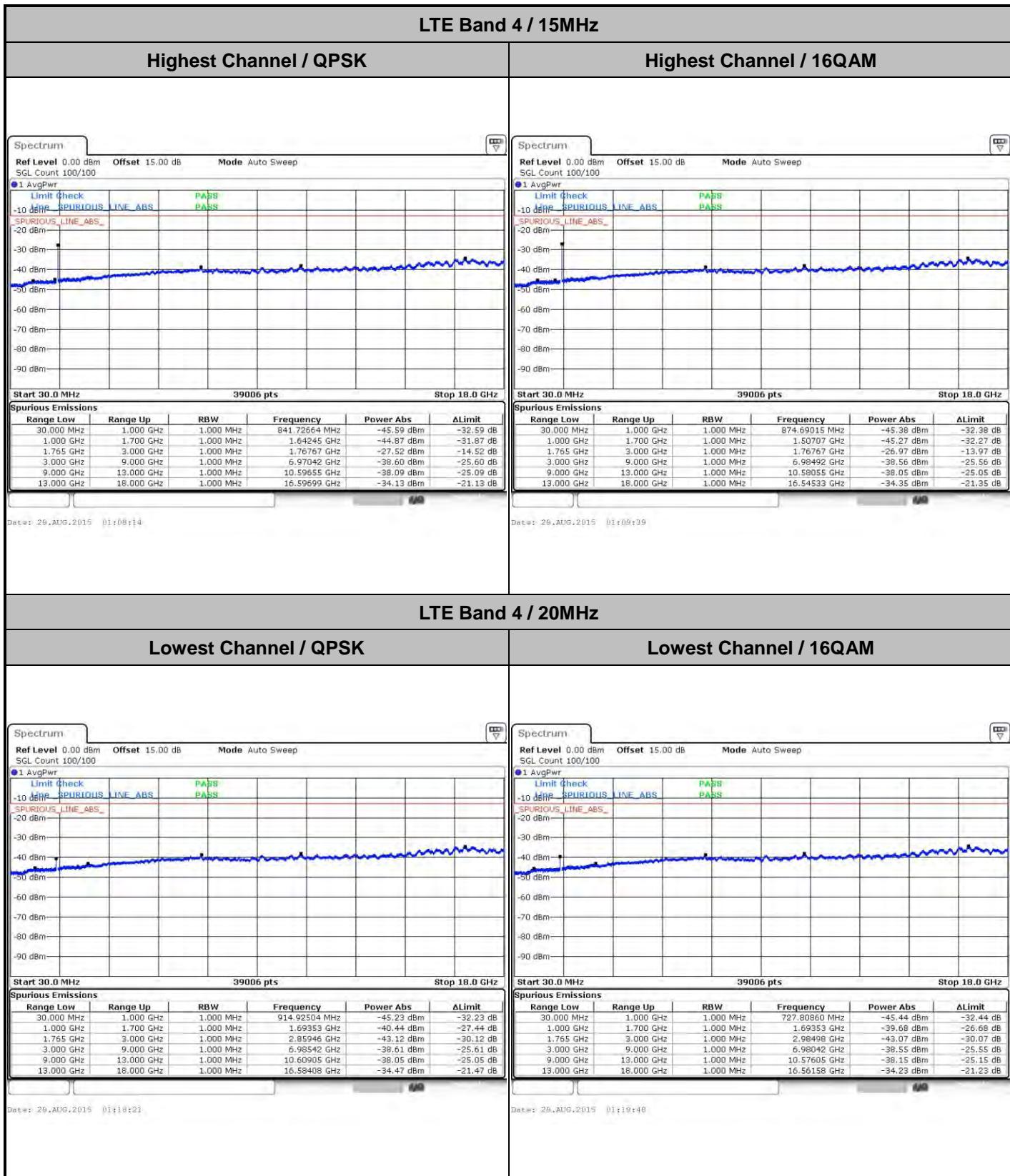


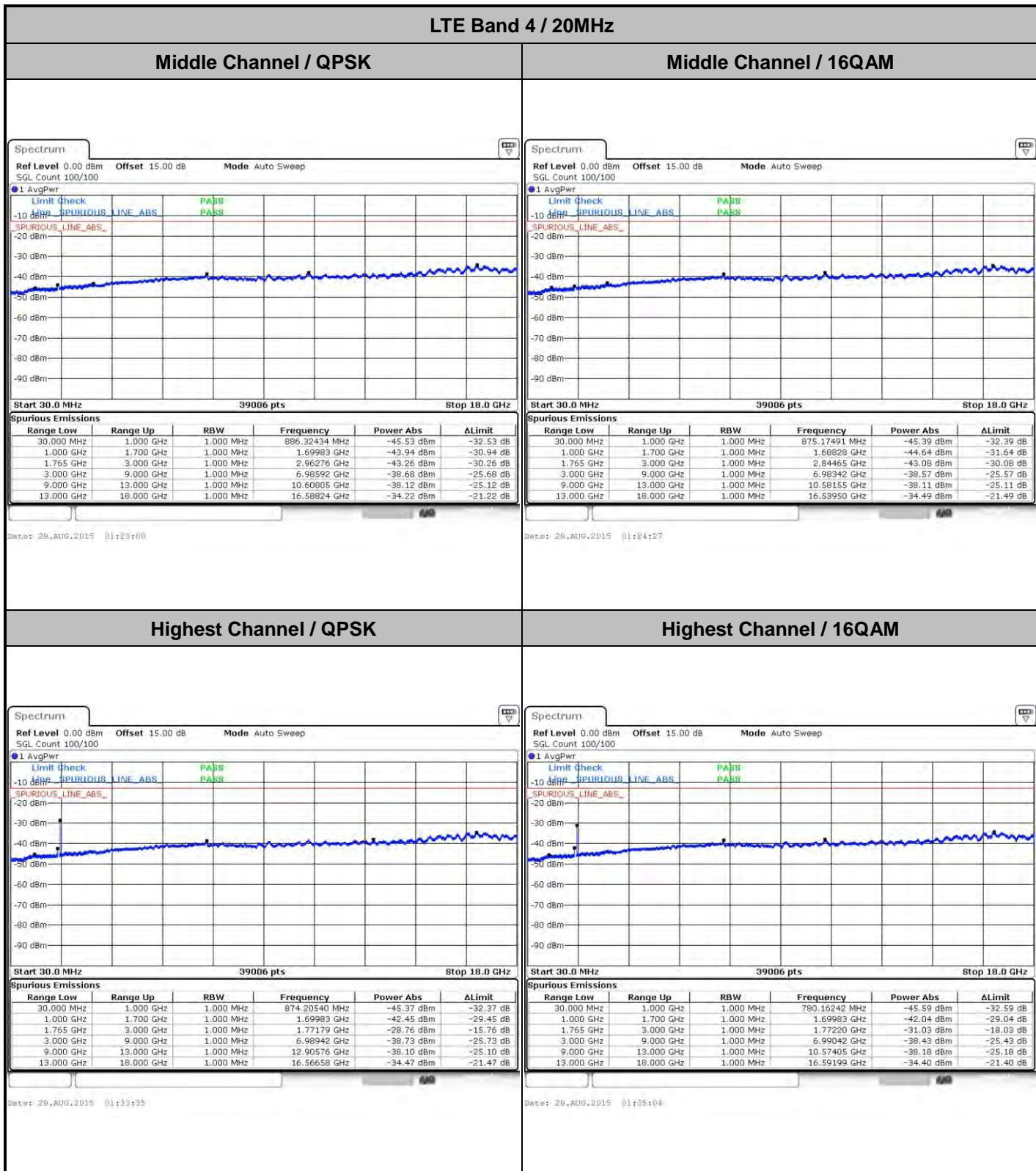














Frequency Stability

Test Conditions		LTE Band 4 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0352	PASS
40	Normal Voltage	0.0310	
30	Normal Voltage	0.0282	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0028	
0	Normal Voltage	0.0014	
-10	Normal Voltage	0.0042	
-20	Normal Voltage	0.0070	
-30	Normal Voltage	0.0085	
20	Maximum Voltage	0.0028	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0042	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5V. ; Maximum Voltage = 4.35 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
20	1	0	QPSK	22.53	22.51	21.94
	1	49		22.48	22.43	21.84
	1	99		22.43	22.21	21.93
	50	0		21.55	21.53	20.89
	50	24		21.54	21.45	20.83
	50	50		21.52	21.39	20.84
	100	0		21.53	21.44	20.85
	1	0		21.69	21.83	21.21
20	1	49	16-QAM	21.79	21.61	21.17
	1	99		21.78	21.44	21.28
	50	0		20.55	20.53	19.92
	50	24		20.57	20.44	19.87
	50	50		20.57	20.38	19.92
	100	0		20.52	20.42	19.88
	1	0		22.40	22.48	21.82
	1	37		22.46	22.40	21.85
15	1	74	QPSK	22.45	22.25	21.91
	36	0		21.53	21.52	20.86
	36	20		21.56	21.47	20.91
	36	39		21.57	21.44	20.88
	75	0		21.54	21.47	20.86
	1	0		21.62	21.75	21.14
	1	37		21.71	21.67	21.22
	1	74		21.74	21.50	21.34
15	36	0	16-QAM	20.53	20.53	19.89
	36	20		20.56	20.46	19.91
	36	39		20.57	20.42	19.94
	75	0		20.55	20.44	19.91

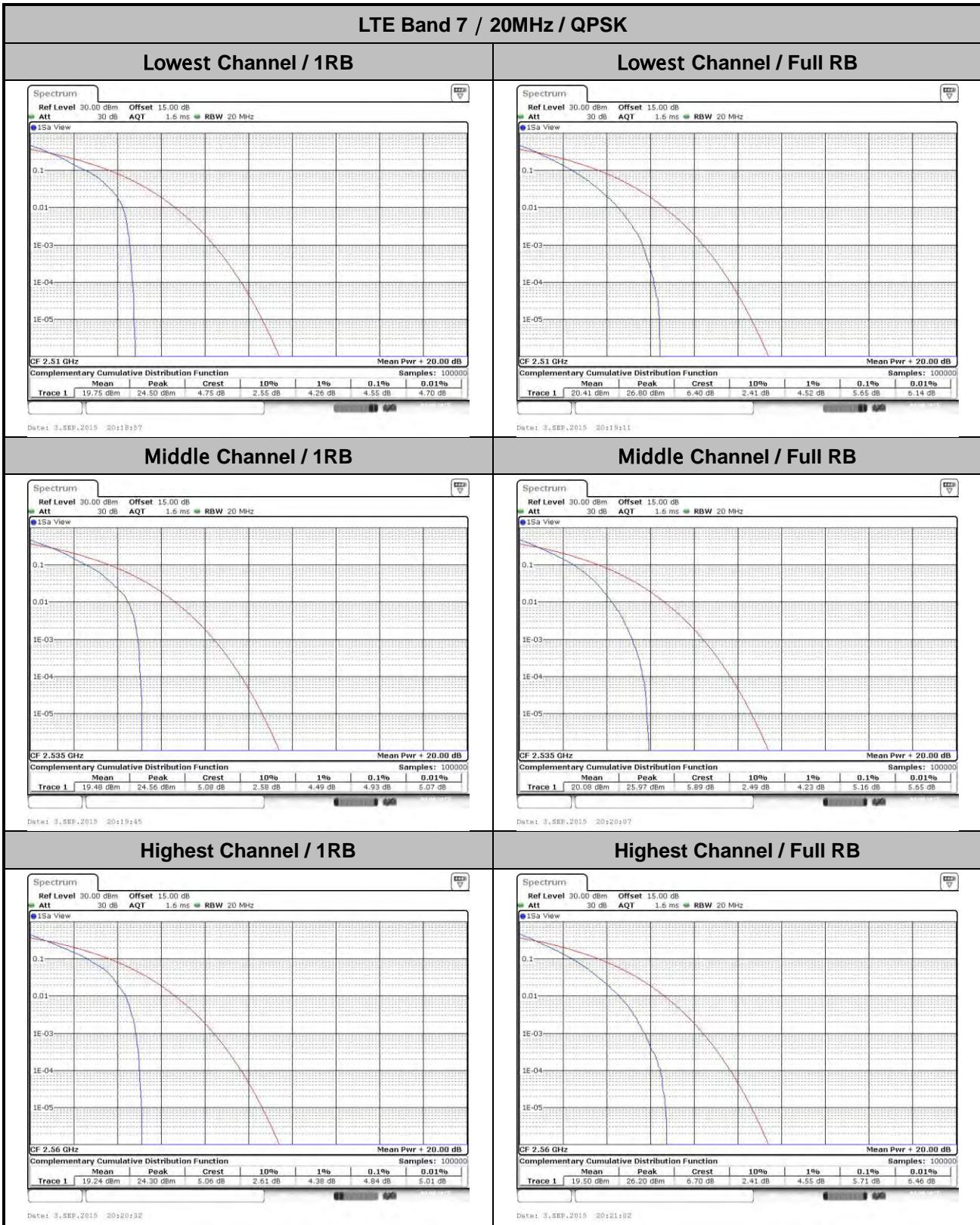


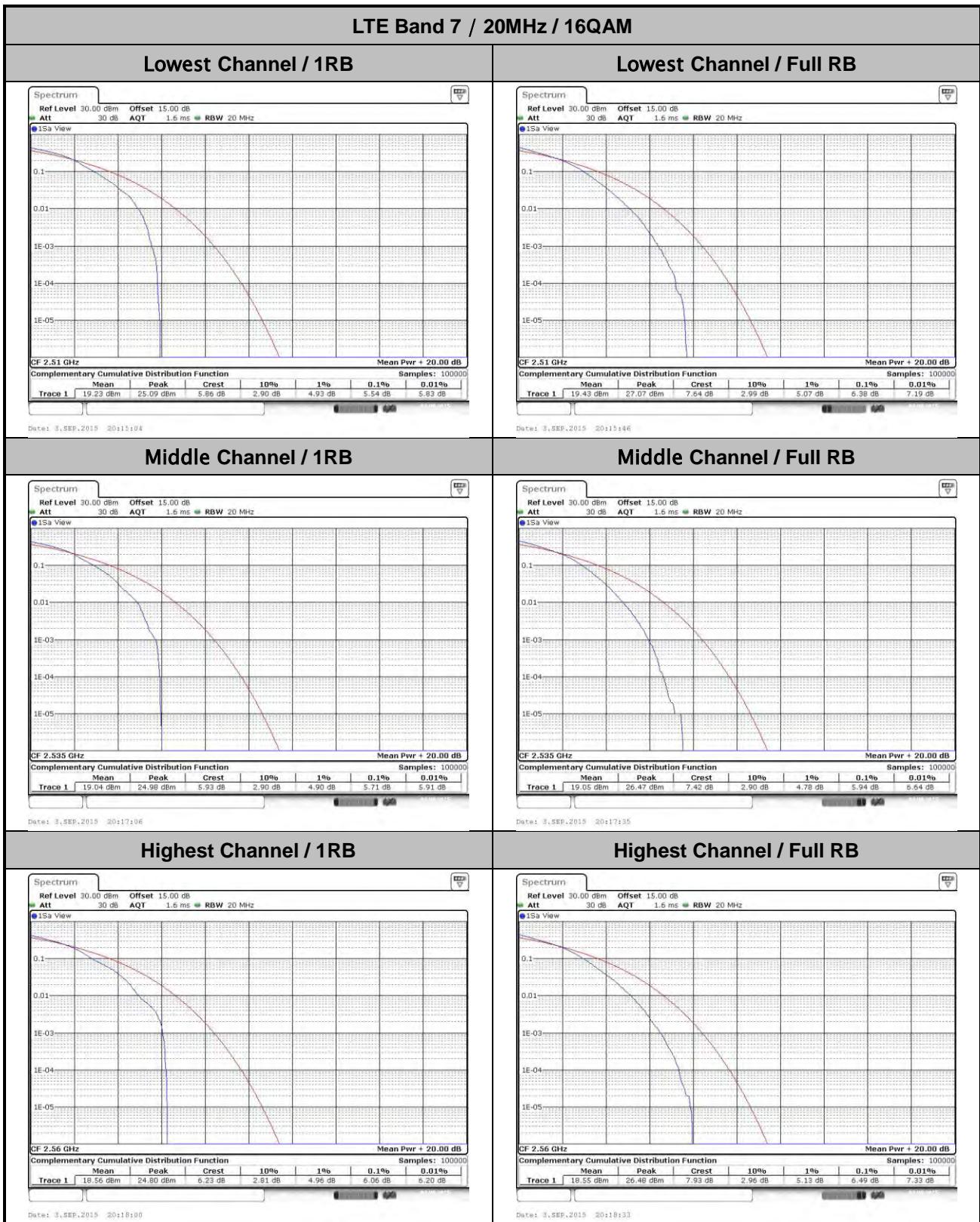
LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	22.26	22.43	21.73
	1	25		22.30	22.37	21.75
	1	49		22.29	22.25	21.80
	25	0		21.34	21.46	20.73
	25	12		21.36	21.42	20.75
	25	25		21.38	21.41	20.78
	50	0		21.39	21.46	20.74
10	1	0	16-QAM	21.53	21.69	21.09
	1	25		21.57	21.65	21.14
	1	49		21.61	21.50	21.16
	25	0		20.36	20.48	19.76
	25	12		20.38	20.41	19.78
	25	25		20.40	20.39	19.84
	50	0		20.40	20.44	19.78
5	1	0	QPSK	22.24	22.42	21.73
	1	12		22.28	22.40	21.80
	1	24		22.23	22.25	21.75
	12	0		21.39	21.49	20.83
	12	7		21.37	21.46	20.86
	12	13		21.39	21.44	20.86
	25	0		21.33	21.43	20.80
5	1	0	16-QAM	21.52	21.66	21.12
	1	12		21.55	21.65	21.16
	1	24		21.51	21.50	21.11
	12	0		20.39	20.49	19.90
	12	7		20.38	20.47	19.90
	12	13		20.39	20.45	19.92
	25	0		20.34	20.41	19.84



Peak-to-Average Ratio

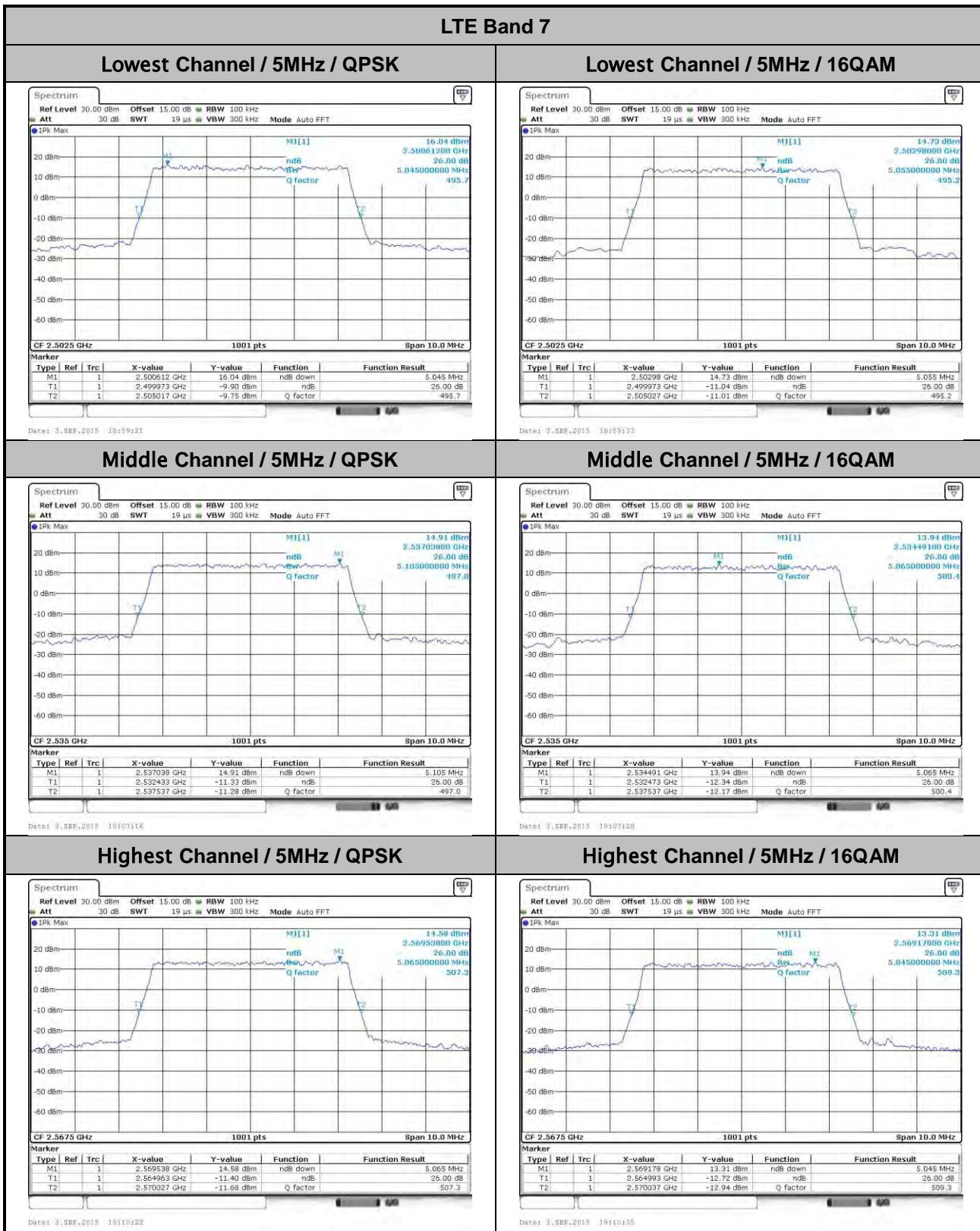
Mode	LTE Band 7 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	4.55	5.65	5.54	6.38	PASS
Middle CH	4.93	5.16	5.71	5.94	
Highest CH	4.84	5.71	6.06	6.49	

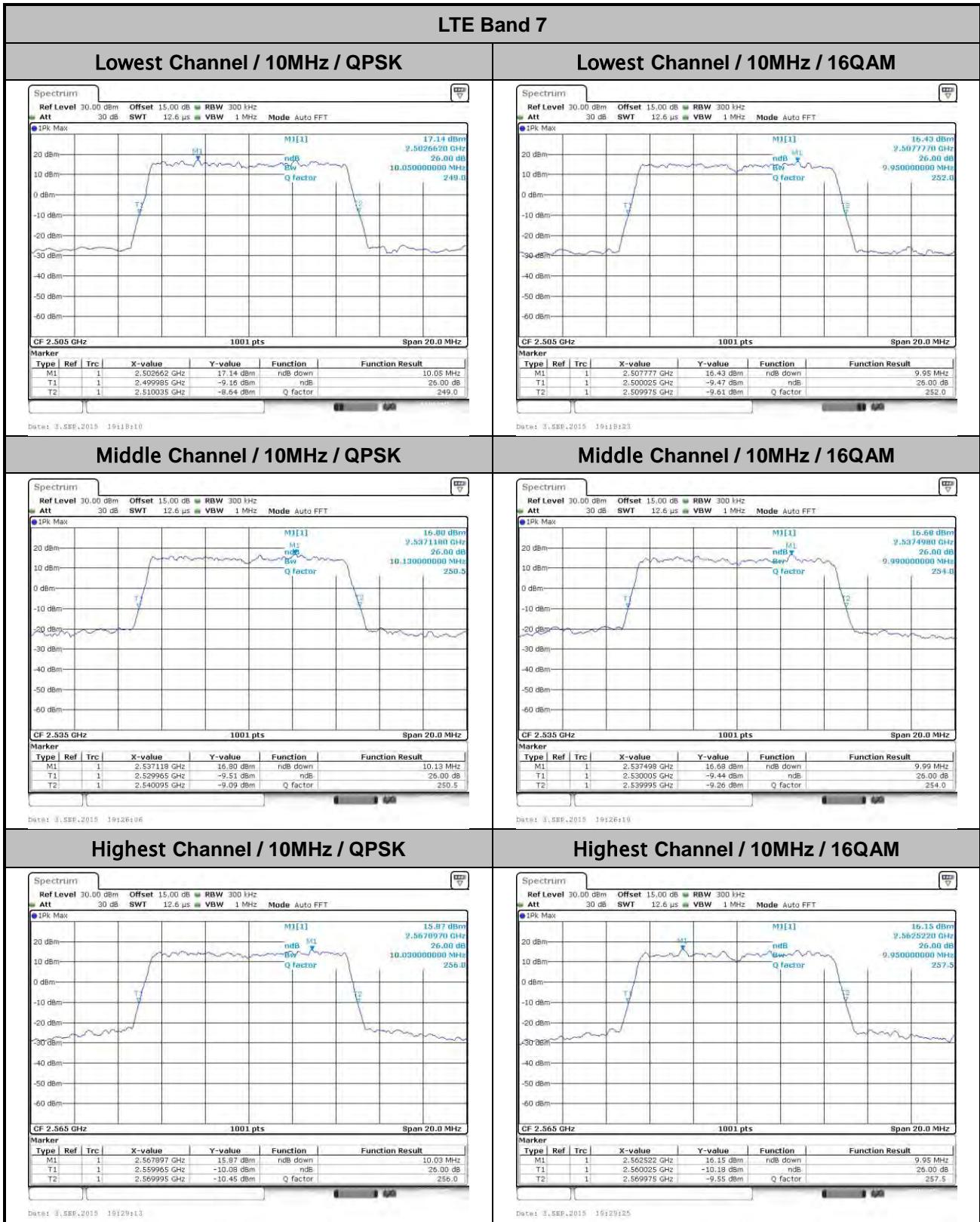


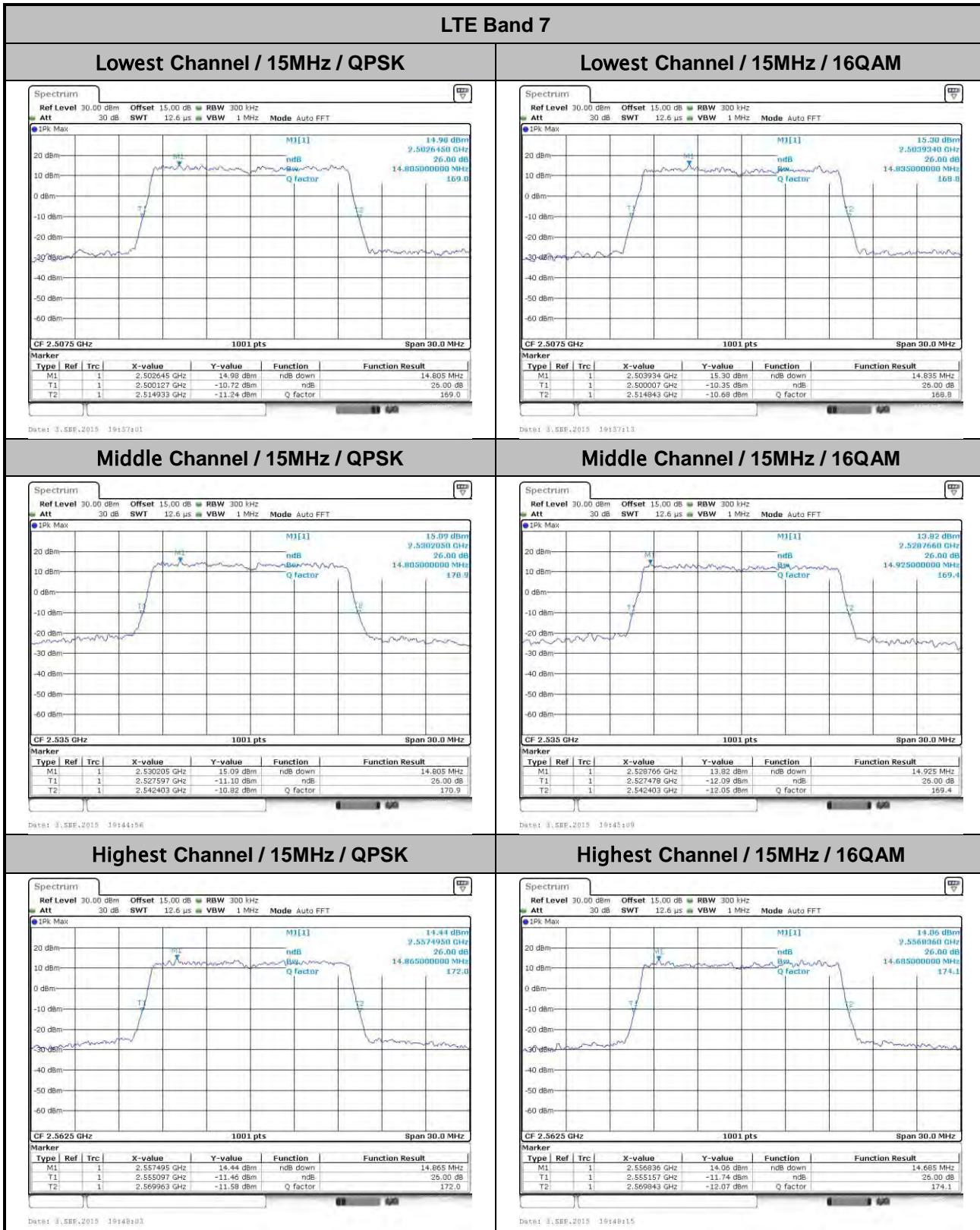


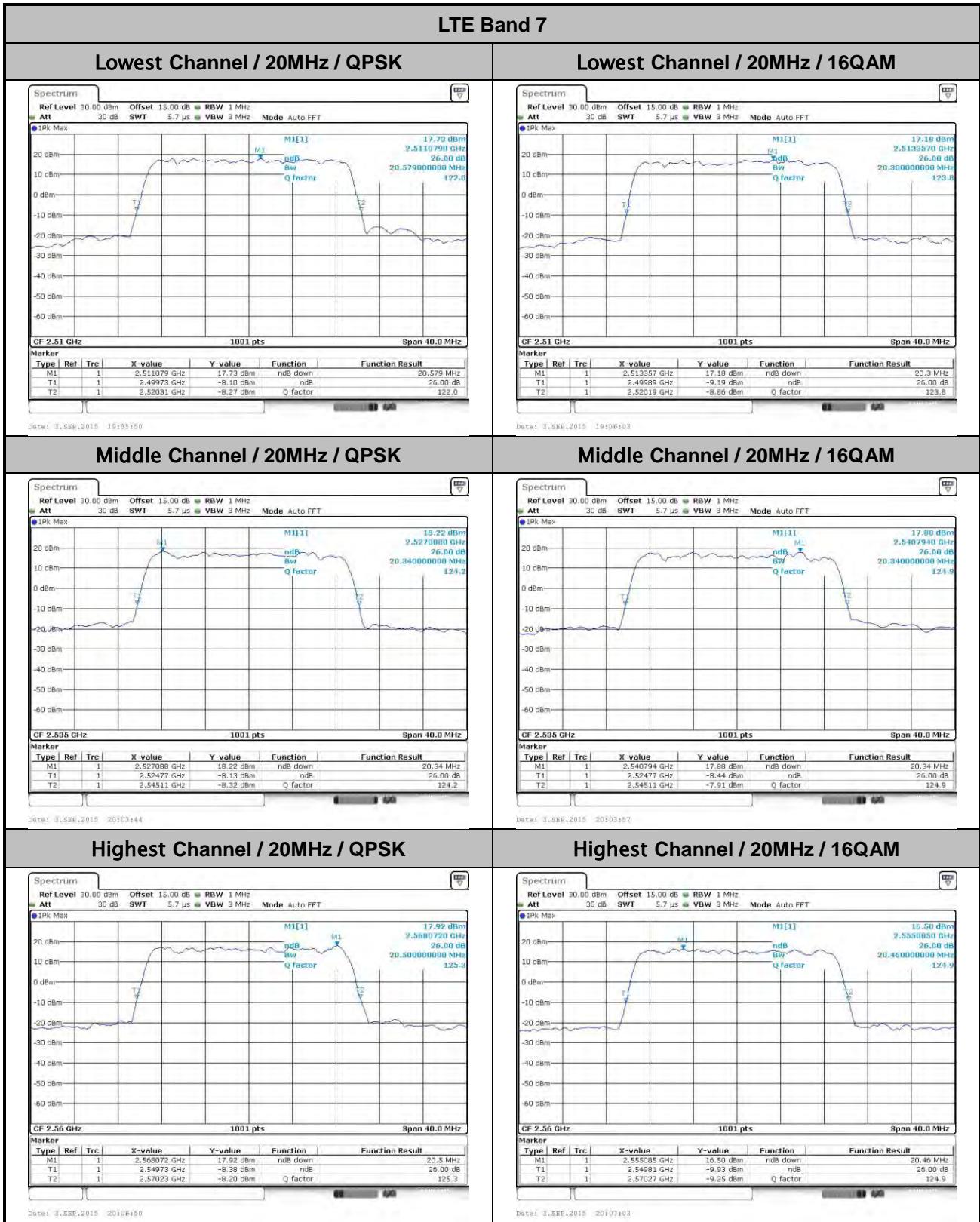
**26dB Bandwidth**

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	-	-	-	-	5.05	5.06	10.05	9.95	14.81	14.84	20.58	20.30
Middle CH	-	-	-	-	5.11	5.07	10.13	9.99	14.81	14.93	20.34	20.34
Highest CH	-	-	-	-	5.07	5.05	10.03	9.95	14.87	14.69	20.50	20.46



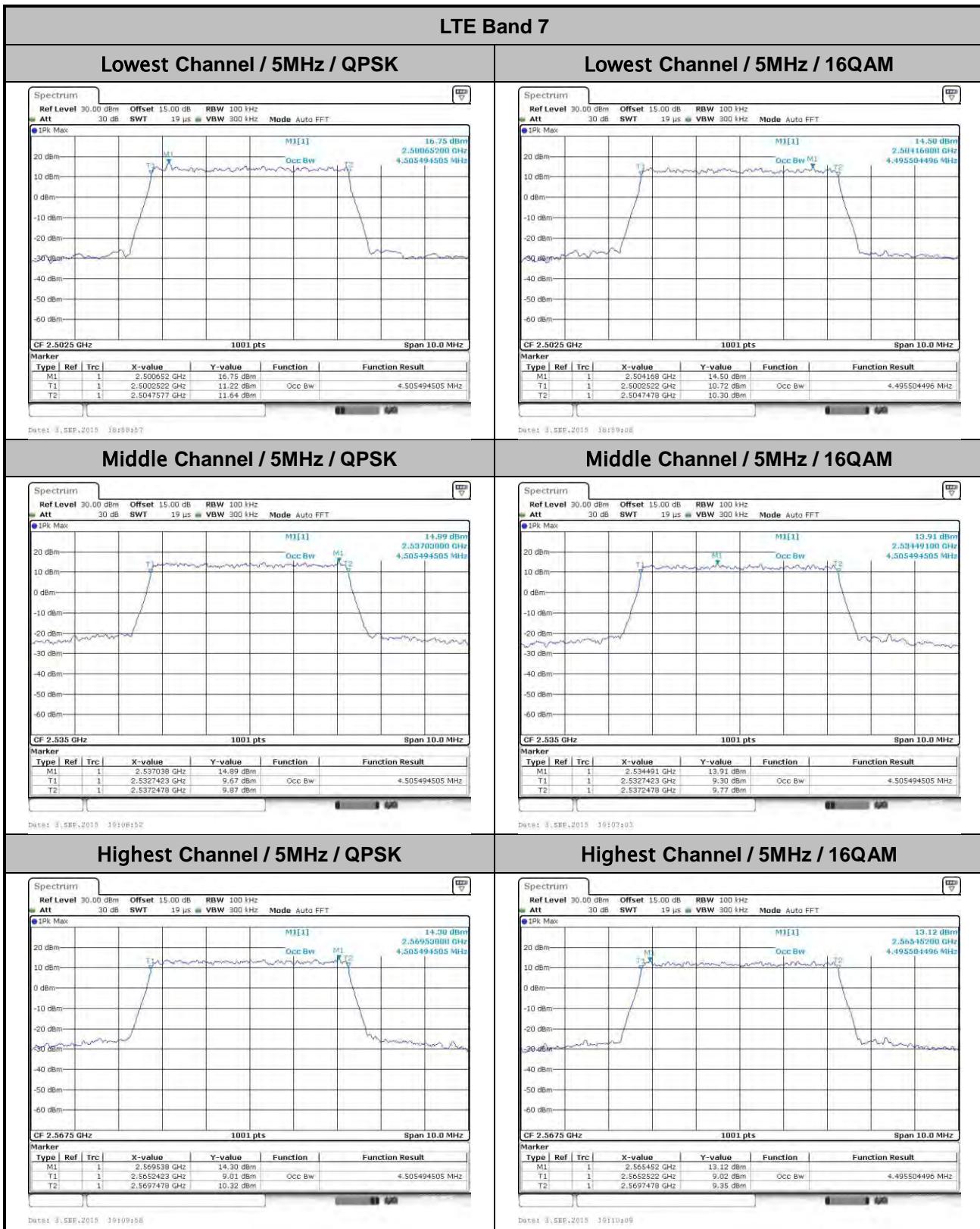


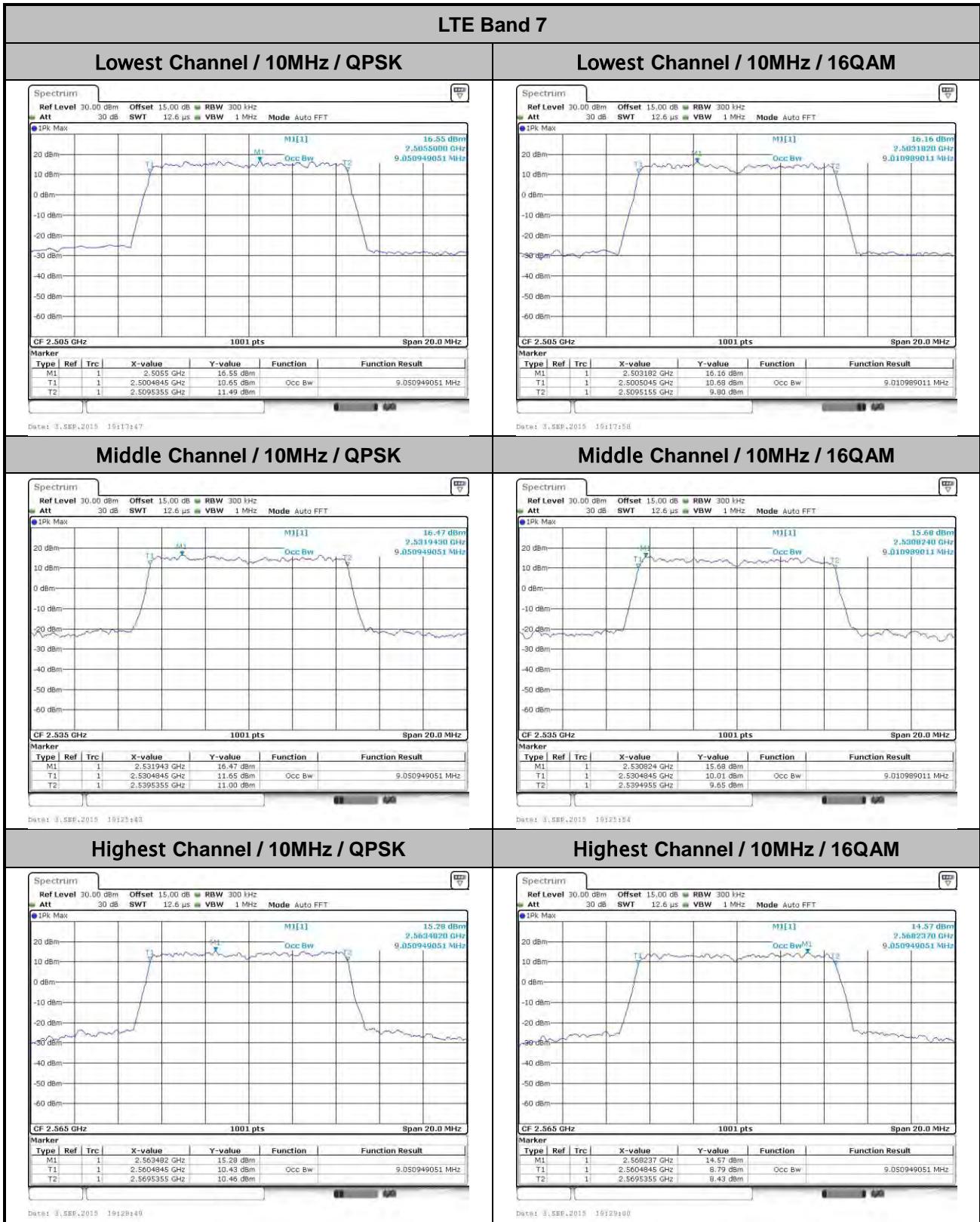


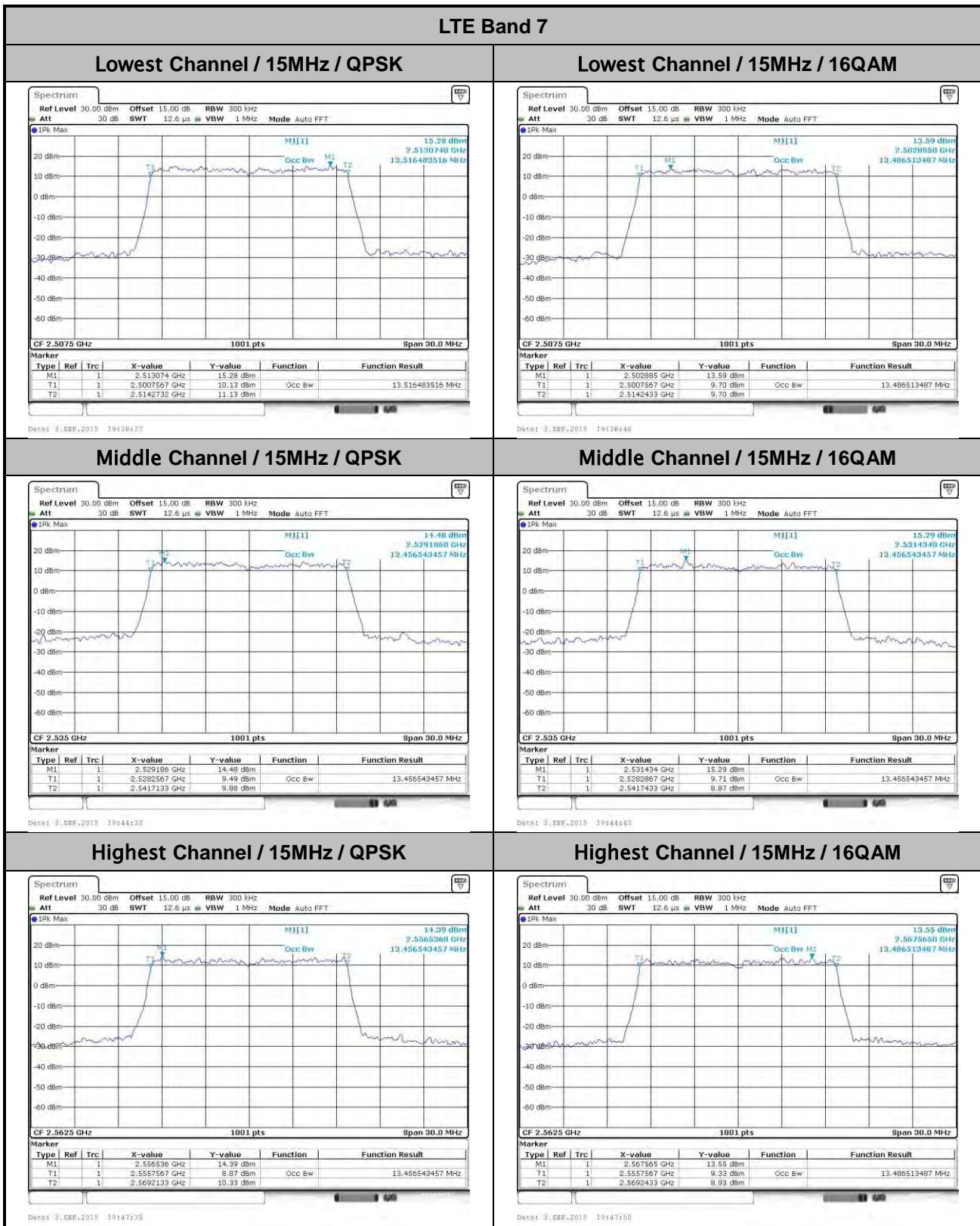


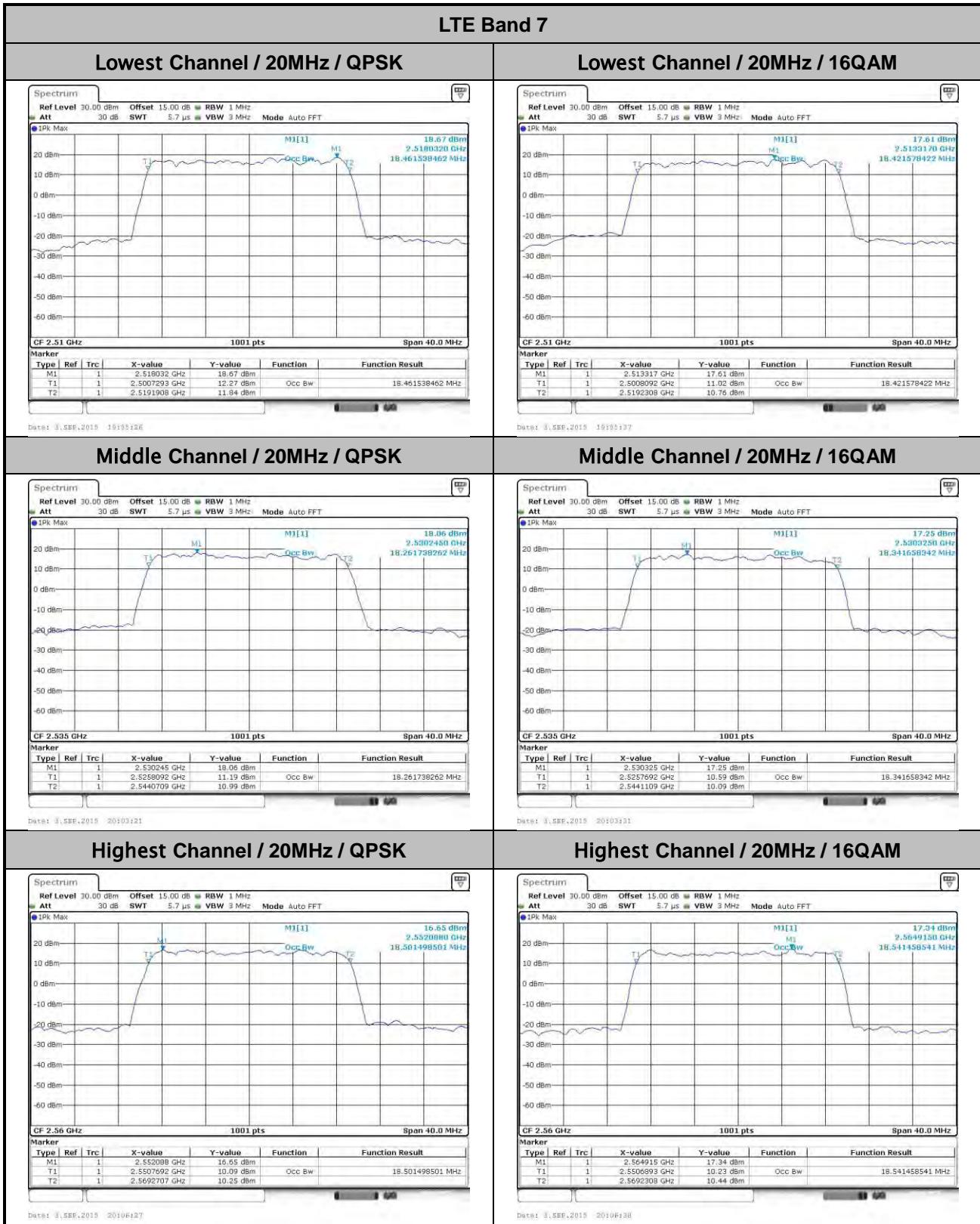
**Occupied Bandwidth**

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	4.50	9.05	9.01	13.52	13.49	18.46	18.42
Middle CH	-	-	-	-	4.51	4.51	9.05	9.01	13.46	13.46	18.26	18.34
Highest CH	-	-	-	-	4.51	4.50	9.05	9.05	13.46	13.49	18.50	18.54











Conducted Band Edge

