

# FCC REPORT (LTE)

**Applicant:** NEXUS TELECOM SERVICES (HK) LIMITED

**Address of Applicant:** R112, 11/F Hollywood Plaza, Mangkok, Kowloon Hong Kong

## Equipment Under Test (EUT)

**Product Name:** MOBILE PHONE

**Model No.:** GO1006

**Trade mark:** GOMOBILE

**FCC ID:** 2AHDFGO1006

FCC CFR Title 47 Part 2

**Applicable standards:** FCC CFR Title 47 Part 27 Subpart L  
FCC CFR Title 47 Part 27 Subpart H

**Date of sample receipt:** 29 Sep., 2018

**Date of Test:** 29 Sep., to 02 Nov., 2018

**Date of report issued:** 05 Nov., 2018

**Test Result:** PASS\*

\*In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang

Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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**2. Version**

Version No.	Date	Description
00	05 Nov., 2018	Original

**Tested by:****Date:**

05 Nov., 2018

**Test Engineer****Reviewed by:****Date:**

05 Nov., 2018

**Project Engineer**

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## 4. Test Summary

Test Items	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Passed (Please refer to SAR Report)
	Part 2.1046 Part 27.50 (c)(10) Part 27.50 (d)(4)	Pass
Peak-to-Average Ratio	Part 27.50(d)(5)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 27.53(g) Part 27.53(h)	Pass
Out of band emission at antenna terminals	Part 2.1053 Part 27.53 (g) Part 27.53 (h)	Pass
Field strength of spurious radiation	Part 27.53 (g) Part 27.53 (h)	Pass
Frequency stability vs. temperature	Part 22.355 Part 24.235 Part 27.54 Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 22.355 Part 24.235 Part 27.54 Part 2.1055(d)(2)	Pass
<i>Pass: The EUT complies with the essential requirements in the standard.</i>		

## 5. General Information

### 5.1 Client Information

Applicant:	NEXUS TELECOM SERVICES (HK) LIMITED
Address:	R112, 11/F Hollywood Plaza, Mangkok, Kowloon Hong Kong
Manufacturer:	Guizhou Fortuneship Technology Co., Ltd
Address:	2nd Floor, Factory Building 4, Hi-Tech Industrial Park, Xinpu Economic Development Zone, Xinpu New District, Zunyi City, Guizhou Province, P. R. China

### 5.2 General Description of E.U.T.

Product Name:	MOBILE PHONE
Model No.:	GO1006
Operation Frequency range:	LTE Band 4: TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 12: TX: 699MHz-716MHz, RX: 729MHz-746MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	LTE Band 4: 1.5dBi LTE Band 12: 1.15dBi
Power supply:	Rechargeable Li-ion Battery DC3.7V-2000mAh
AC adapter:	Model: GO1006 Input: AC100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 1000mA
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

**Operation Frequency List:**

LTE Band 4 (1.4MHz)		LTE Band 4 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19957	1710.70	19965	1711.50
19958	1710.80	19966	1711.60
....	....	....	....
20174	1732.40	20174	1732.40
20175	1732.50	20175	1732.50
20176	1732.60	20176	1732.60
...	...	...	...
20392	1754.20	20384	1753.40
20393	1754.30	20385	1753.50
LTE Band 4 (5MHz)		LTE Band 4 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19975	1712.50	20000	1715.00
19976	1712.60	20001	1715.10
....	....	....	....
20174	1732.40	20174	1732.40
20175	1732.50	20175	1732.50
20176	1732.60	20176	1732.60
...	...	...	...
20374	1752.40	20349	1749.90
20375	1752.50	20350	1750.00
LTE Band 4 (15MHz)		LTE Band 4 (20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20025	1717.50	20050	1720.00
20026	1717.60	20051	1720.10
....	....	....	....
20174	1732.40	20174	1732.40
20175	1732.50	20175	1732.50
20176	1732.60	20176	1732.60
...	...	...	...
20324	1747.40	20299	1744.90
20325	1747.50	20300	1745.00

LTE Band 12 (1.4MHz)		LTE Band 12 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
23017	699.70	23025	700.50
23756	699.80	23026	700.60
....	....	....	....
23094	707.40	23094	707.40
23095	707.50	23095	707.50
23096	707.60	23096	707.60
...	...	...	...
23172	715.20	23164	714.40
23173	715.30	23165	714.50
LTE Band 12 (5MHz)		LTE Band 12 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
23035	701.50	23060	704.00
23036	701.60	23061	704.10
....	....	....	....
23094	707.40	23094	707.40
23095	707.50	23095	707.50
23096	707.60	23096	707.60
...	...	...	...
23154	713.40	23129	710.90
23155	713.50	23130	711.00

Regards to the operating frequency range, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels as below:

LTE Band 4 (1.4MHz)			LTE Band 4 (3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	19957	1710.70	Lowest channel	19965	1711.50
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20393	1754.30	Highest channel	20385	1753.50
LTE Band 4 (5MHz)			LTE Band 4 (10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	19975	1712.50	Lowest channel	20000	1715.00
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20375	1752.50	Highest channel	20350	1750.00
LTE Band 4 (15MHz)			LTE Band 4 (20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	20025	1717.50	Lowest channel	20050	1720.00
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20325	1747.50	Highest channel	20300	1745.00

LTE Band 12(1.4MHz)			LTE Band 12(3MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	23017	699.70	Lowest channel	23025	700.50
Middle channel	23095	707.50	Middle channel	23095	707.50
Highest channel	23173	715.30	Highest channel	23165	714.50
LTE Band 12(5MHz)			LTE Band 12(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	23035	701.50	Lowest channel	23060	704.00
Middle channel	23095	707.50	Middle channel	23095	707.50
Highest channel	23155	713.50	Highest channel	23130	711.00

### 5.3 Test environment and mode

<b>Operating Environment:</b>	
Temperature:	Normal: 15°C ~ 35°C, Extreme: -30°C ~ +50°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.7Vdc, Extreme: Low 3.5Vdc, High 4.2Vdc
<b>Test mode:</b>	
LTE QPSK mode	Keep the EUT communication with simulated station in QPSK mode
LTE 16-QAM mode	Keep the EUT communication with simulated station in 16-QAM mode
Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes with power adaptor, earphone and Data cable. Just the worst case position (H mode) shown in report.	

### 5.4 Description of Support Units

Test Equipment	Manufacturer	Model No.	Serial No.
Simulated Station	Anritsu	MT8820C	6201026545

### 5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Radiated Emission (9kHz ~ 30MHz)	±2.76 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.28 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.72 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±2.88 dB (k=2)

### 5.6 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.

### 5.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 727551**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

- IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

- A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

### 5.8 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,  
Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

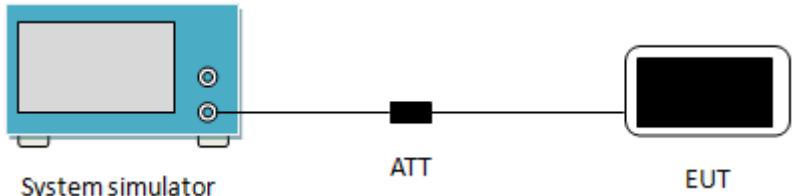
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

## 5.9 Test Instruments list

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-16-2018	03-15-2019
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-16-2018	03-15-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-21-2017	11-20-2018
EMI Test Software	AUDIX	E3		Version: 6.110919b	
Pre-amplifier	HP	8447D	2944A09358	03-07-2018	03-06-2019
Pre-amplifier	CD	PAP-1G18	11804	03-07-2018	03-06-2019
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-07-2018	03-06-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-07-2018	03-06-2019
Spectrum Analyzer	Agilent	N9020A	MY50510123	11-10-2017	11-09- 2018
Signal Generator	Rohde & Schwarz	SMX	835454/016	03-07-2018	03-06-2019
Signal Generator	R&S	SMR20	1008100050	03-07-2018	03-06-2019
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTEST	MTS8200		Version: 2.0.0.0	
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2018	03-06-2019
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2018	03-06-2019
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2018	03-06-2019
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	10-31-2017	10-30-2018
				10-31-2018	10-30-2019
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	09-24-2018	09-23-2019
Simulated Station	Rohde & Schwarz	CMW500	140493	07-16-2018	07-15-2019

## 6. Test results

### 6.1 Conducted Output Power, ERP and EIRP

Test Requirement:	part 27.50(c)(10), Part 27.50(d)(4),		
Test Method:	ANSI/TIA-603-D 2010		
Limit:	LTE Band 4: 1W, LTE Band 12: 3W		
Test Setup:	 <p>The diagram illustrates the test setup. On the left is a blue rectangular box labeled "System simulator". Two circular ports are visible on its right side. A horizontal line extends from the top port to a small black square labeled "ATT". From the right side of the "ATT" square, another horizontal line extends to a second blue rectangular box labeled "EUT".</p>		
Test Procedure:	The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the CMW500. Transmitter output power was read off in dBm.		
Test Instruments:	Refer to section 5.9 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

**Measurement Data:**

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19957	20175	20393
					1710.7MHz	1732.5MHz	1754.3MHz
4	1.4	QPSK	1	0	22.85	23.05	23.01
			1	2	22.93	23.10	22.98
			1	5	22.87	23.14	22.97
			3	0	21.99	22.21	22.27
			3	1	22.04	22.26	22.38
			3	2	21.98	22.19	22.21
			6	0	21.80	22.18	22.27
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.64		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	22.30	22.03	22.58
			1	2	22.15	22.04	22.54
			1	5	22.27	22.16	22.87
			3	0	21.65	22.26	22.30
			3	1	21.91	22.33	22.23
			3	2	21.95	22.27	22.43
			6	0	21.13	21.02	21.52
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.37		
		EIRP Limit (dBm):			30.00		
4	3	QPSK	1	0	22.93	23.05	23.00
			1	7	22.90	23.04	23.02
			1	14	22.96	23.04	23.08
			8	0	21.91	22.15	22.10
			8	4	21.81	22.13	22.16
			8	7	21.52	22.09	22.15
			15	0	21.74	22.07	22.23
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.58		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	22.67	21.97	22.33
			1	7	22.53	22.18	22.81
			1	14	22.21	22.05	22.40
			8	0	20.79	20.96	21.11
			8	4	20.80	20.91	20.95
			8	7	20.98	20.99	21.12
			15	0	20.94	21.23	21.08
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.31		
		EIRP Limit (dBm):			30.00		

Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19975	20175	20375
					1712.5MHz	1732.5MHz	1752.5MHz
4	5	QPSK	1	0	22.96	23.14	23.03
			1	12	23.05	23.07	23.05
			1	24	22.96	23.03	22.94
			12	0	21.84	22.17	22.29
			12	6	21.99	22.10	22.23
			12	11	22.07	22.19	22.27
			25	0	22.08	22.07	22.08
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.64		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	22.03	22.54	22.10
			1	12	22.12	22.24	22.01
			1	24	22.22	22.45	22.10
			12	0	20.78	21.09	21.19
			12	6	21.03	21.01	20.96
			12	11	21.09	20.70	21.17
			25	0	21.07	21.16	21.13
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.04		
		EIRP Limit (dBm):			30.00		
4	10	QPSK	1	0	22.95	22.93	23.15
			1	24	22.92	22.99	23.04
			1	49	22.85	22.96	23.15
			25	0	22.11	22.16	22.13
			25	12	22.04	22.00	22.25
			25	24	21.70	21.97	22.13
			50	0	22.06	22.05	22.23
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.65		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	22.12	22.49	22.36
			1	24	22.12	22.36	22.29
			1	49	22.07	22.22	22.05
			25	0	20.97	21.00	21.33
			25	12	21.33	20.89	21.49
			25	24	21.10	21.03	21.24
			50	0	20.95	21.20	21.21
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			23.99		
		EIRP Limit (dBm):			30.00		

Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20025	20175	20325
					1717.5MHz	1732.5MHz	1747.5MHz
4	15	QPSK	1	0	23.05	23.04	23.17
			1	37	23.05	23.00	23.06
			1	74	22.91	23.03	23.08
			36	0	22.14	22.21	22.19
			36	16	21.82	22.12	22.14
			36	35	21.24	22.15	22.07
			75	0	21.81	22.17	22.18
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.67		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	22.24	22.34	22.32
			1	37	22.08	22.20	22.18
			1	74	22.23	22.58	22.19
			36	0	20.95	21.83	21.94
			36	16	20.90	21.11	21.48
			36	35	20.89	21.05	21.55
			75	0	20.90	20.98	21.37
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.08		
		EIRP Limit (dBm):			30.00		
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20050	20175	20300
					1720.0MHz	1732.5MHz	1745.0MHz
4	20	QPSK	1	0	23.03	23.05	23.17
			1	49	23.09	23.02	23.07
			1	99	22.95	23.02	22.95
			50	0	22.10	22.13	22.19
			50	24	21.96	22.12	22.19
			50	49	21.89	22.03	22.17
			100	0	21.80	22.08	22.18
		Antenna Gain (dBi):			1.5		
		Max. EIRP (dBm):			24.67		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	21.69	21.73	22.67
			1	49	21.80	21.70	22.35
			1	99	21.87	22.47	22.17
			50	0	20.85	21.24	21.34
			50	24	20.98	21.12	21.05
			50	49	20.91	21.03	21.28
			100	0	21.05	21.10	21.08
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).					1.5		

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					23017	23095	23173
					699.7MHz	707.5MHz	715.3MHz
12	1.4	QPSK	1	0	22.94	23.12	22.88
			1	2	23.08	23.22	22.98
			1	5	22.07	22.15	22.07
			3	0	22.09	22.15	22.17
			3	1	22.10	22.22	22.22
			3	2	23.10	23.22	23.22
			6	0	22.08	22.29	22.15
		Antenna Gain(dBi):				1.15	
		Max. ERP (dBm):				22.22	
		ERP Limit (dBm):				34.77	
		16QAM	1	0	22.01	22.42	22.16
			1	2	22.09	22.14	22.09
			1	5	22.01	22.05	22.11
			3	0	22.05	22.16	22.07
			3	1	22.34	22.34	22.25
			3	2	22.35	22.36	22.31
			6	0	21.26	21.24	21.09
		Antenna Gain(dBi):				1.15	
		Max. ERP (dBm):				21.42	
		ERP Limit (dBm):				34.77	
12	3	QPSK	1	0	22.91	23.09	22.93
			1	7	23.00	23.12	22.91
			1	14	22.93	23.07	23.03
			8	0	22.05	22.02	22.02
			8	4	22.19	22.15	22.00
			8	7	21.94	22.13	22.20
			15	0	22.00	22.24	22.65
		Antenna Gain(dBi):				1.15	
		Max. ERP (dBm):				22.12	
		ERP Limit (dBm):				34.77	
		16QAM	1	0	22.32	22.16	22.17
			1	7	22.02	22.49	22.10
			1	14	22.37	22.41	22.06
			8	0	20.97	20.93	20.91
			8	4	20.93	21.12	20.74
			8	7	20.88	21.30	20.75
			15	0	21.15	21.29	21.19
		Antenna Gain(dBi):				1.15	
		Max. ERP (dBm):				21.49	
		ERP Limit (dBm):				34.77	

Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).

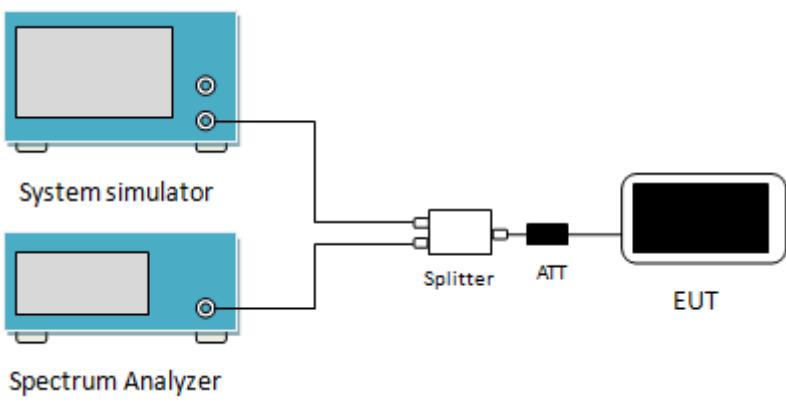
ERP (dBm) = EIRP (dBm) - 2.15 (dB).

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					23035	23095	23155	
					701.5MHz	707.5MHz	713.5MHz	
12	5	QPSK	1	0	22.96	22.95	22.94	
			1	12	22.92	23.05	23.05	
			1	24	23.17	22.99	23.12	
			12	0	21.93	22.01	21.95	
			12	6	22.04	22.23	22.12	
			12	11	22.04	22.20	22.24	
			25	0	22.01	22.21	22.15	
		Antenna Gain(dBi):			1.15			
		Max. ERP (dBm):			22.17			
		ERP Limit (dBm):			34.77			
		16QAM	1	0	21.98	22.43	22.49	
			1	12	22.07	22.14	22.41	
			1	24	22.13	22.16	22.29	
			12	0	20.86	20.86	21.00	
			12	6	20.76	20.85	21.21	
			12	11	20.71	20.95	21.13	
			25	0	20.59	21.03	21.28	
		Antenna Gain(dBi):			1.15			
		Max. ERP (dBm):			21.49			
		ERP Limit (dBm):			34.77			
12	10	QPSK	RB Size	RB Offset	Average Power (dBm)			
					23060	23095	23130	
					704.0MHz	707.5MHz	711.0MHz	
					1	22.80	22.85	22.93
					1	23.06	23.01	22.82
					1	23.01	22.89	22.99
					25	21.99	22.05	21.96
			16QAM	RB Offset	25	22.23	22.13	22.02
					25	22.11	22.07	22.15
					50	22.03	21.92	22.13
					Antenna Gain(dBi):			
					1.15			
					Max. ERP (dBm):			
					22.06			
		ERP Limit (dBm):			34.77			
		QPSK	RB Size	RB Offset	1	22.05	21.80	22.18
					1	22.41	22.09	21.57
					1	22.48	22.28	21.31
					25	20.81	20.99	21.08
					25	20.77	21.35	21.27
					25	20.31	21.02	21.34
					50	21.05	21.13	21.06
		Antenna Gain(dBi):			1.15			
		Max. ERP (dBm):			21.48			
		ERP Limit (dBm):			34.77			

Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).

ERP (dBm) = EIRP (dBm) - 2.15 (dB).

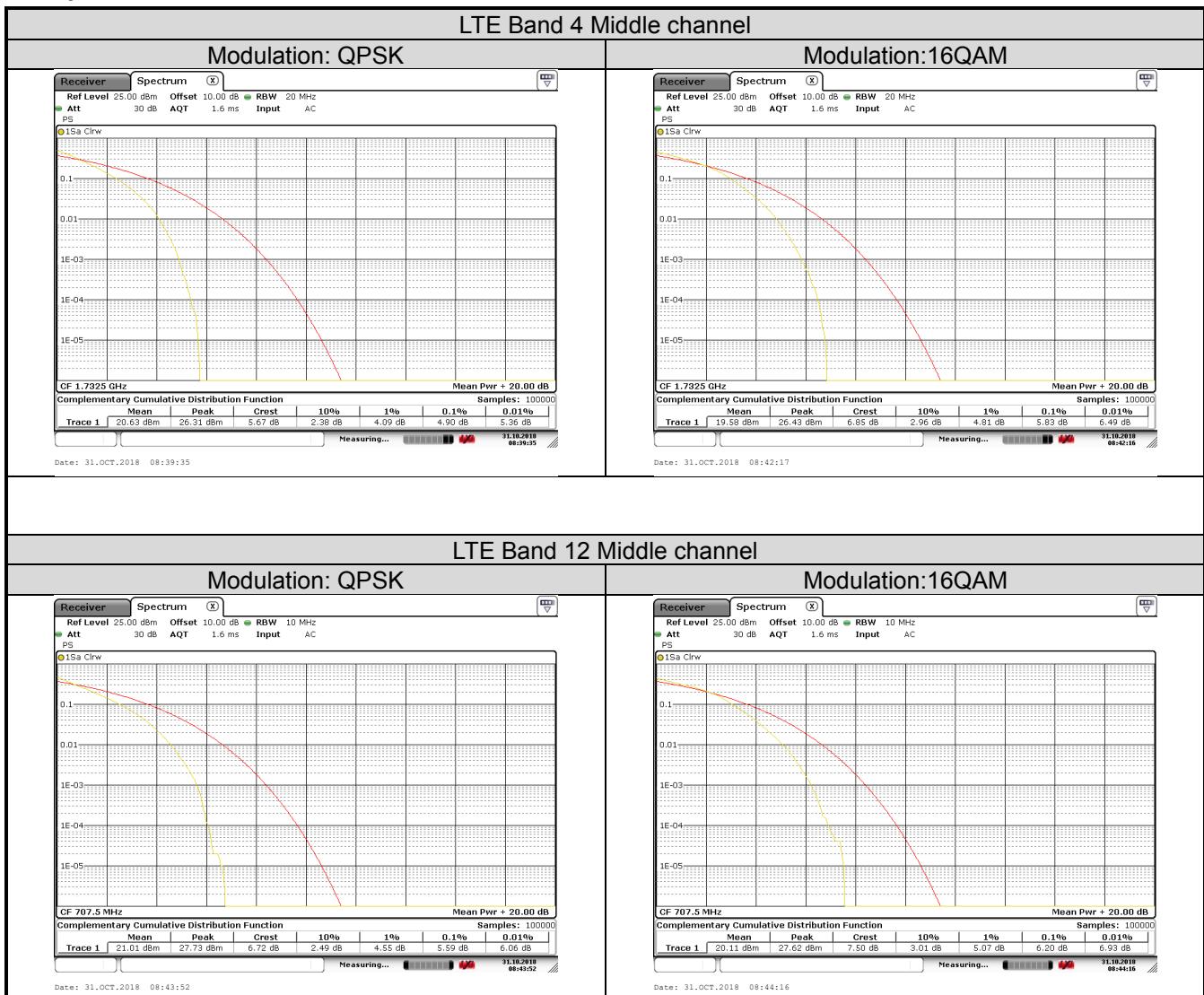
## 6.2 Peak-to-Average Ratio

Test Requirement:	Part 27.50(d)(5)
Test Method:	ANSI/TIA-603-D 2010
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	 <p>The diagram illustrates the test setup for measuring Peak-to-Average Ratio (PAR). It shows a 'System simulator' (represented by a blue rectangle with two circular ports) connected to a 'Spectrum Analyzer' (also represented by a blue rectangle with one circular port). A 'Splitter' (represented by a small white rectangle) is connected between the system simulator and the spectrum analyzer. An 'ATT' (Attenuator) is connected between the splitter and the 'EUT' (Equipment Under Test), which is shown as a black rectangle.</p>
Test Procedure:	<ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.</li> <li>2 Set the CCDF option in spectrum analyzer, <math>RBW \geq OBW</math>,</li> <li>3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.</li> <li>4 Repeat step 1~3 at other frequency and modulations.</li> </ol>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

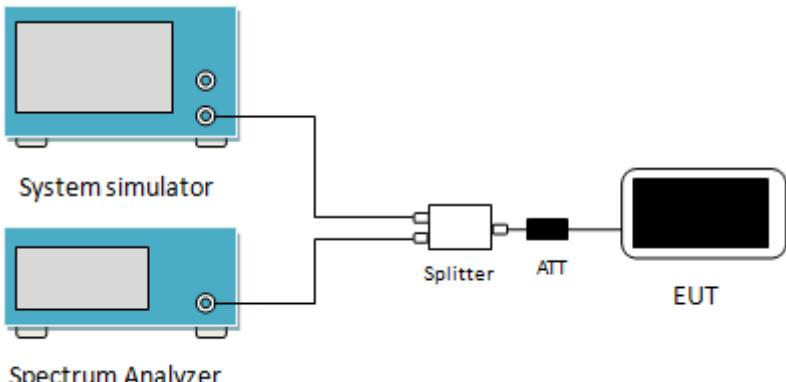
**Measurement Data (Worst case):**

Bandwidth	Modulation	RB Size	RB Offset	PAPR
LTE Band 4 (Middle Channel)				
20MHz	QPSK	100	0	4.90
	16QAM	100	0	5.83
LTE Band 12 (Middle Channel)				
10MHz	QPSK	50	0	5.59
	16QAM	50	0	6.20

Test plots as below:



### 6.3 Occupy Bandwidth

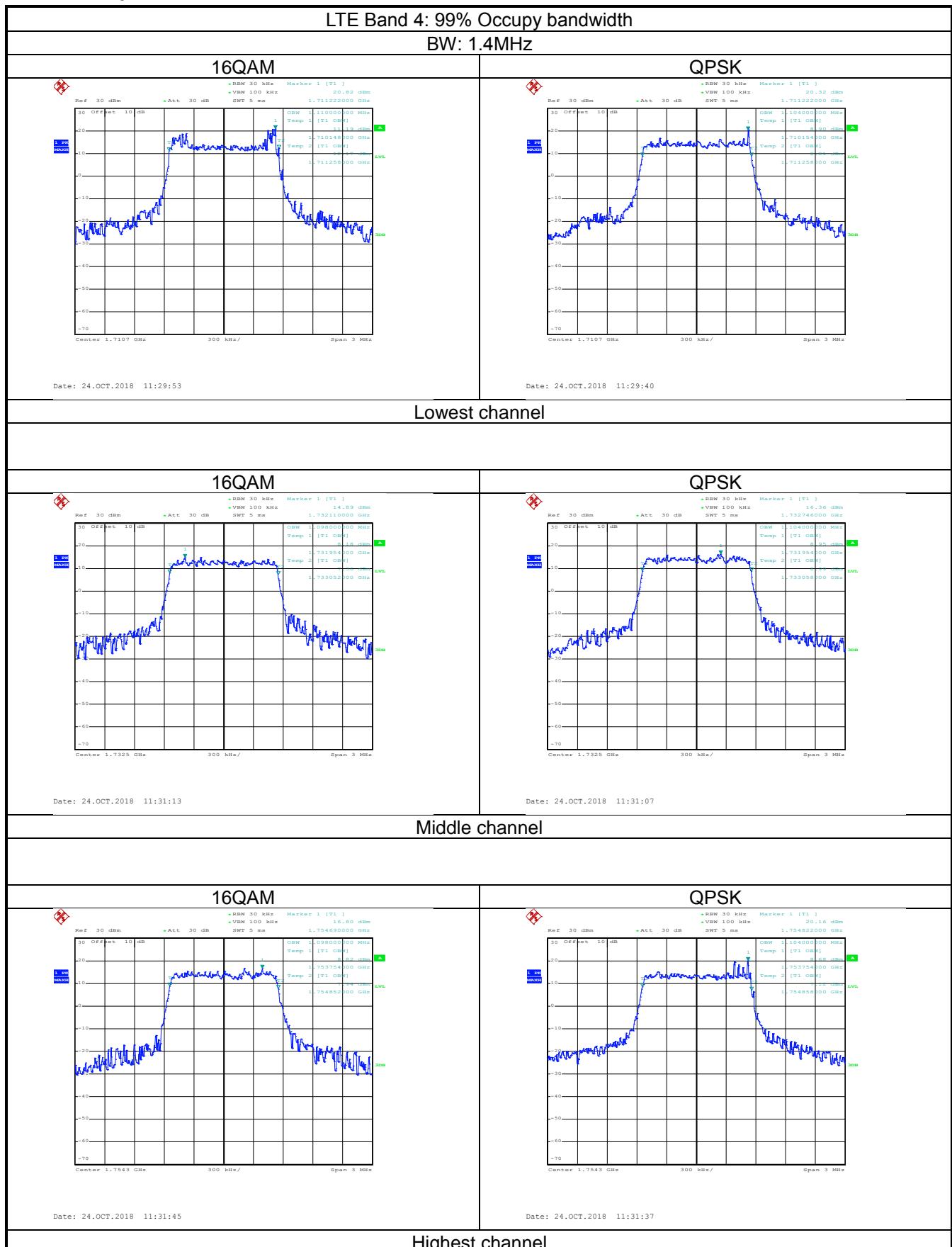
Test Requirement:	Part 27.53(g), Part 27.53(h),
Test Method:	ANSI/TIA-603-D 2010
Test Setup:	 <p>The diagram illustrates the test setup. A blue rectangular box labeled "System simulator" has two circular ports on its right side. A blue rectangular box labeled "Spectrum Analyzer" also has a circular port on its right side. A horizontal line connects the top port of the System simulator to the bottom port of the Spectrum Analyzer. This connection passes through a small white rectangular component labeled "Splitter". Following the Splitter, there is a small black rectangular component labeled "ATT". Finally, a horizontal line leads from the Spectrum Analyzer to a black rectangular box labeled "EUT".</p>
Test Procedure:	<ol style="list-style-type: none"> <li>1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer</li> <li>2. RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW.</li> <li>3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.</li> </ol>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

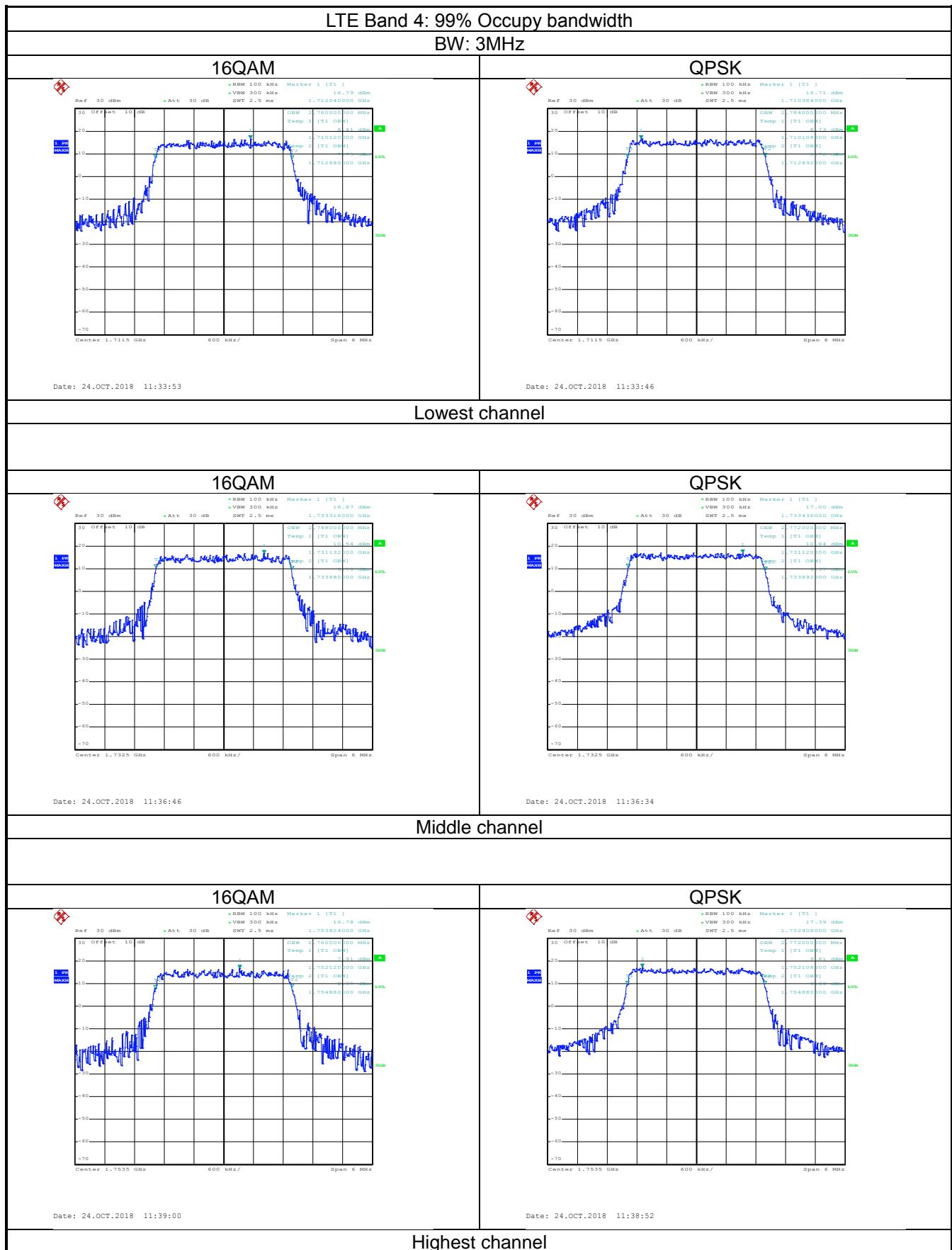
**Measurement Data:**

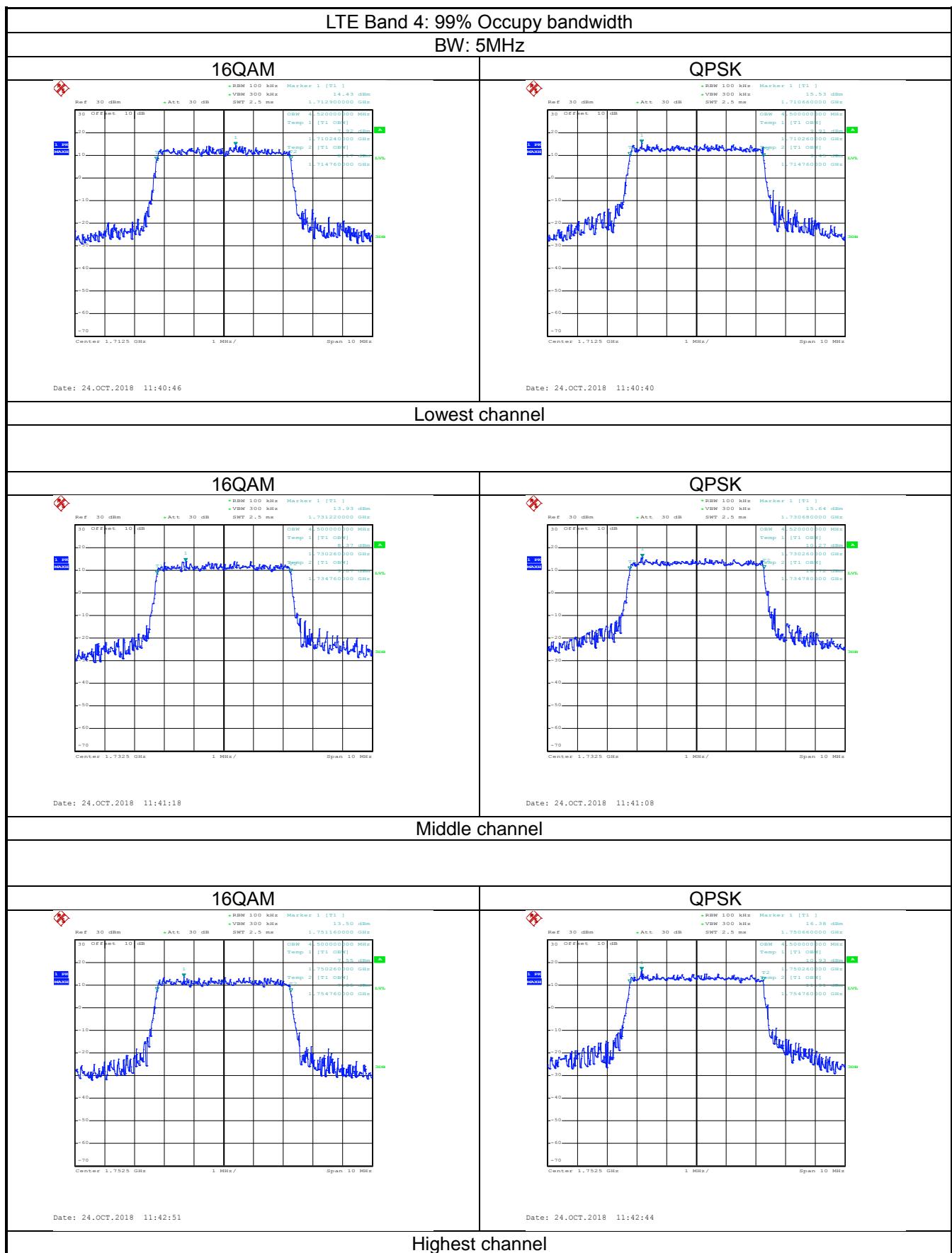
LTE Band 4					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	19957	1710.7	16QAM	1110	1254
			QPSK	1104	1230
	20175	1732.5	16QAM	1098	1278
			QPSK	1104	1242
	20393	1754.3	16QAM	1098	1242
			QPSK	1104	1266
3MHz	19965	1711.5	16QAM	2760	3096
			QPSK	2784	3108
	20175	1732.5	16QAM	2748	3072
			QPSK	2772	3036
	20385	1750.5	16QAM	2760	3204
			QPSK	2772	3084
5MHz	19975	1712.5	16QAM	4520	4940
			QPSK	4500	5080
	20175	1732.5	16QAM	4500	4960
			QPSK	4520	5020
	20375	1752.5	16QAM	4500	4920
			QPSK	4500	5040
10MHz	20000	1715.0	16QAM	9080	10160
			QPSK	9120	10400
	20175	1732.5	16QAM	9080	10120
			QPSK	9120	10800
	20350	1750.0	16QAM	9120	10320
			QPSK	9120	10400
15MHz	20025	1717.5	16QAM	13560	14880
			QPSK	13560	15000
	20175	1732.5	16QAM	13500	14880
			QPSK	13560	14940
	20325	1747.5	16QAM	13560	14940
			QPSK	13440	15000
20MHz	20050	1720.0	16QAM	17920	19520
			QPSK	18080	19920
	20175	1732.5	16QAM	18000	19840
			QPSK	18160	19920
	20300	1745.0	16QAM	18000	19680
			QPSK	18080	19920

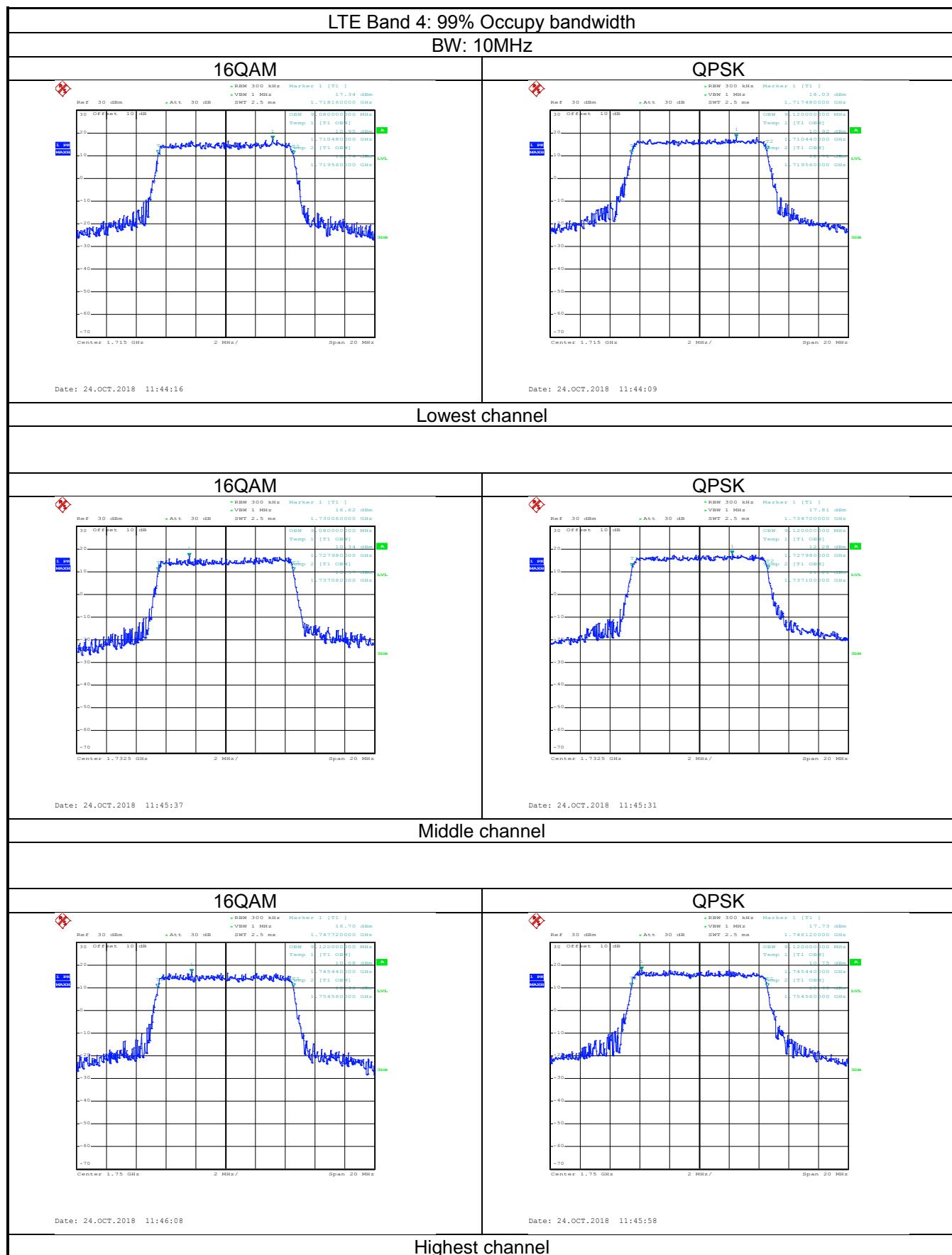
LTE Band 12					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	23017	699.7	16QAM	1098	1248
			QPSK	1098	1218
	23095	707.5	16QAM	1104	1254
			QPSK	1110	1266
	23173	715.3	16QAM	1104	1218
			QPSK	1110	1272
3MHz	23025	700.5	16QAM	2772	3048
			QPSK	2748	3132
	23095	707.5	16QAM	2760	3180
			QPSK	2784	3204
	23165	714.5	16QAM	2748	3084
			QPSK	2772	3180
5MHz	23035	701.5	16QAM	4480	4880
			QPSK	4460	4960
	23095	707.5	16QAM	4520	4960
			QPSK	4540	4980
	23155	713.5	16QAM	4500	4880
			QPSK	4520	4940
10MHz	23060	704.0	16QAM	9040	10120
			QPSK	9080	10320
	23095	707.5	16QAM	9200	10240
			QPSK	9200	10320
	23130	711.0	16QAM	9000	10040
			QPSK	9080	10000

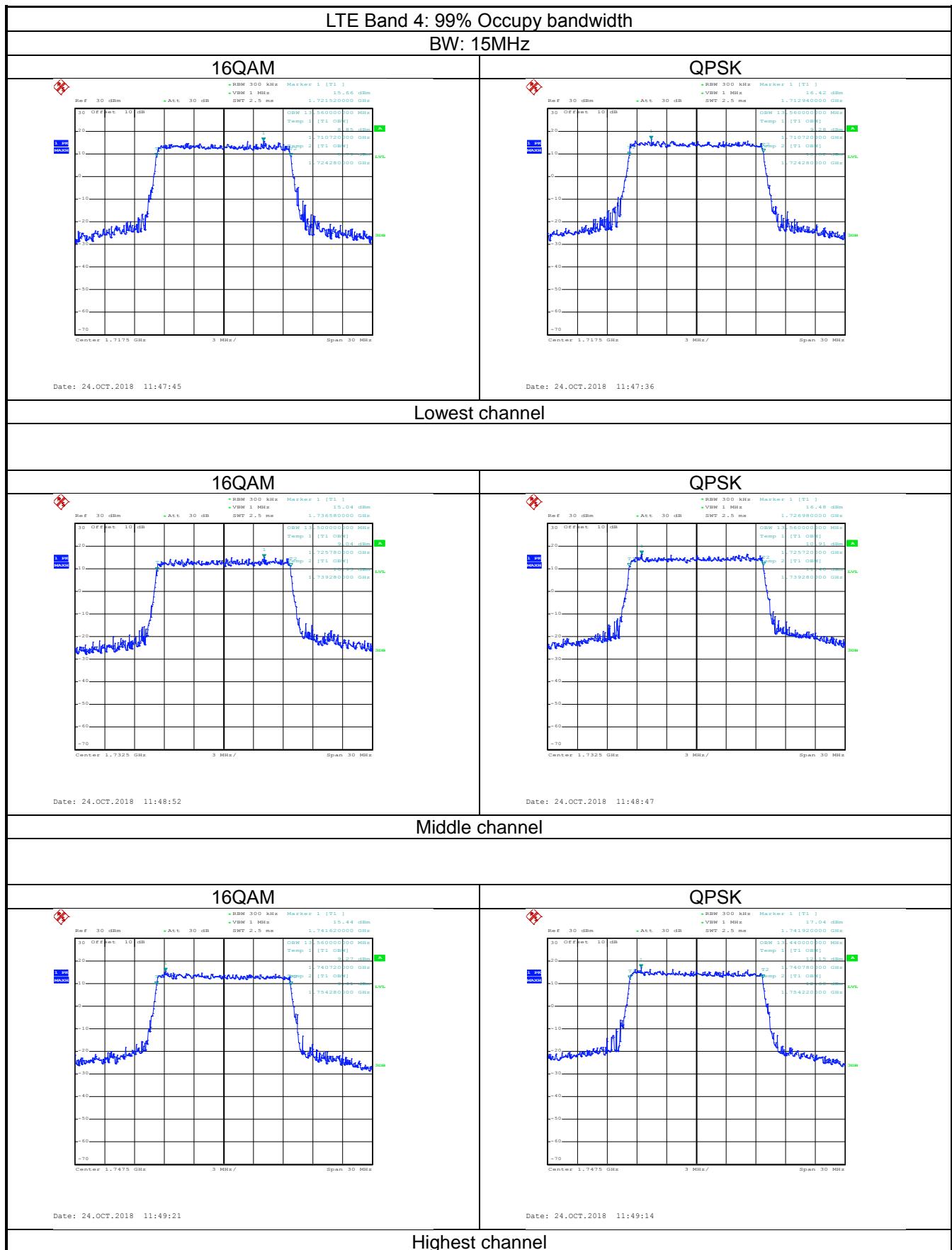
**Test plot as follows:**  
**LTE Band 4 part:**

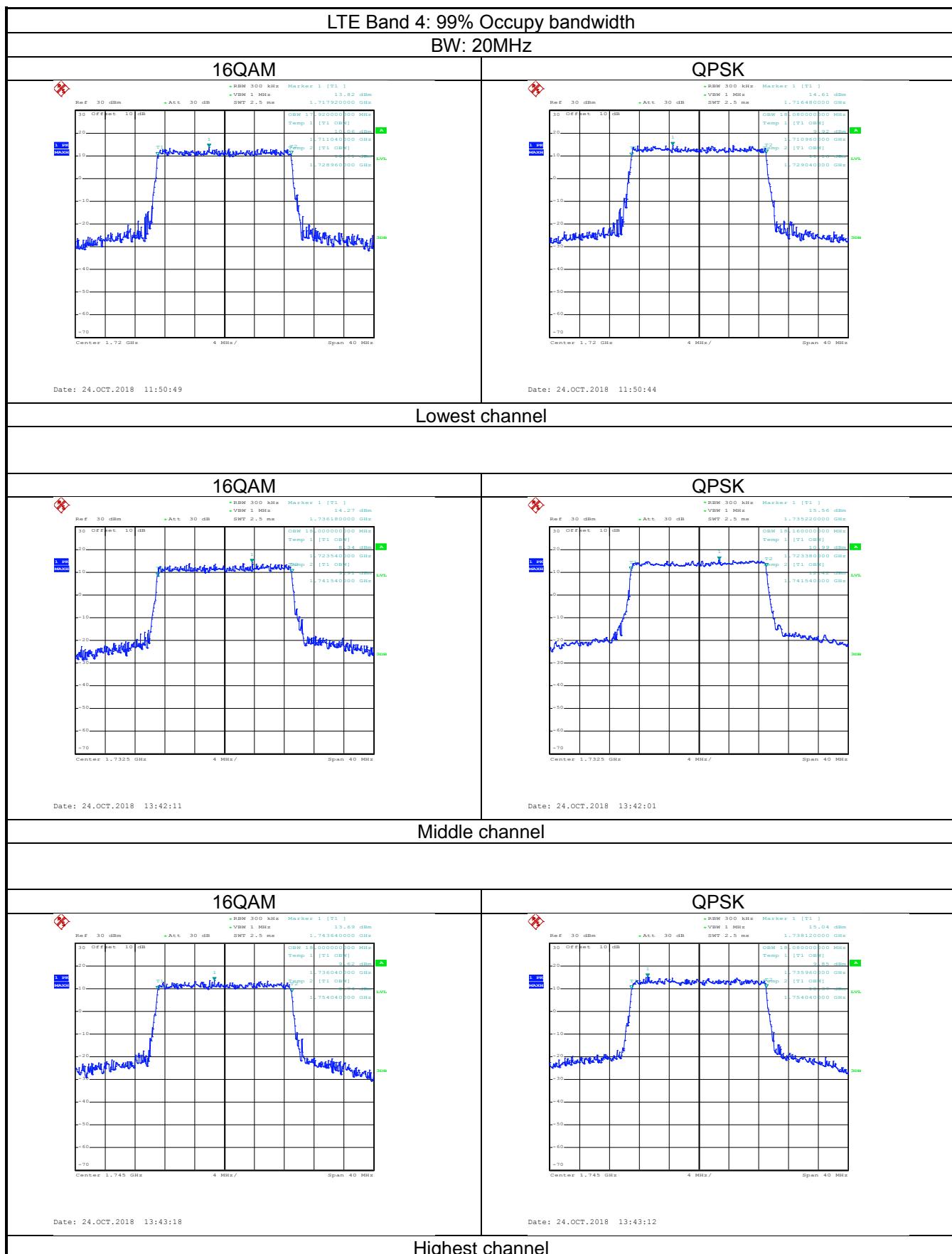


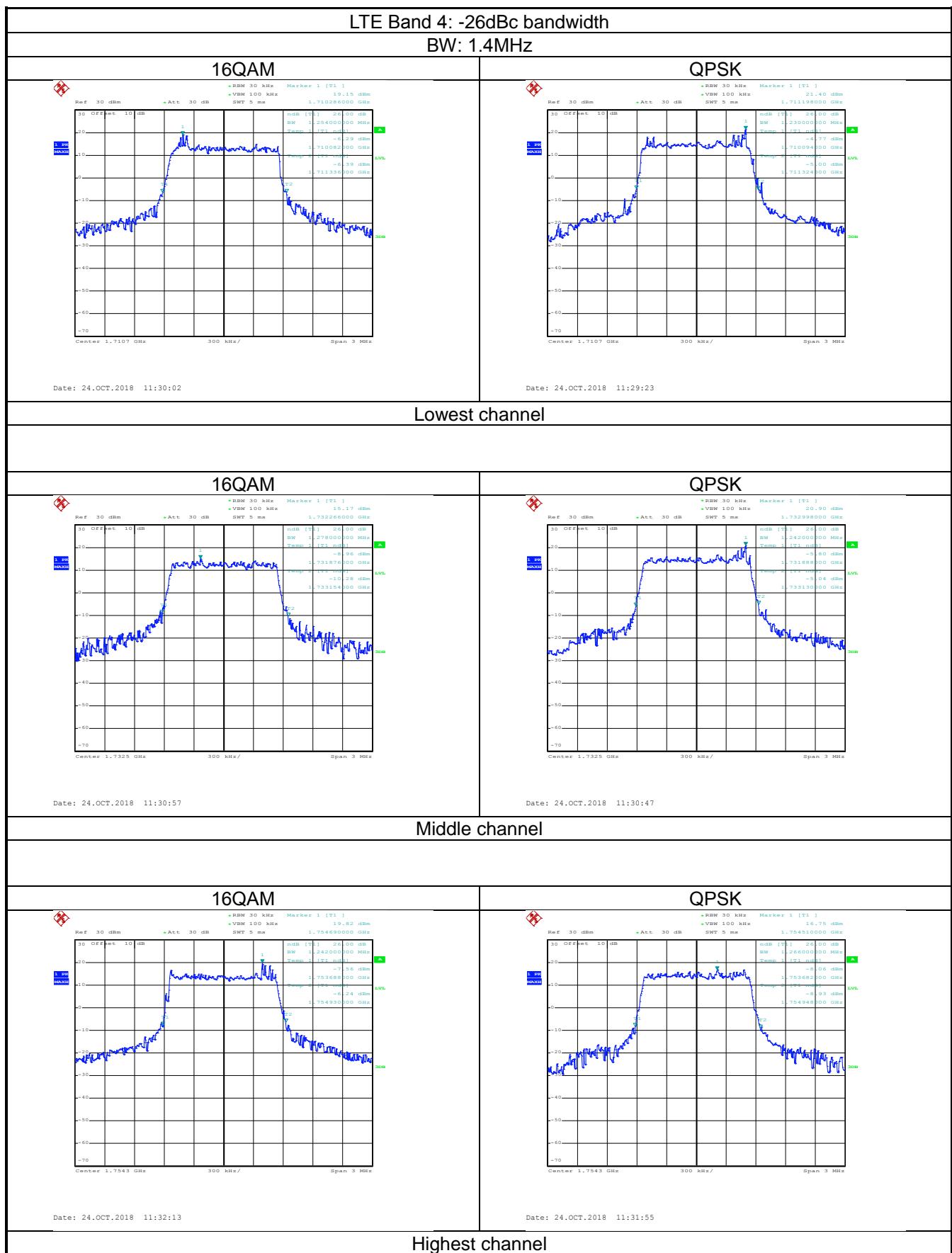


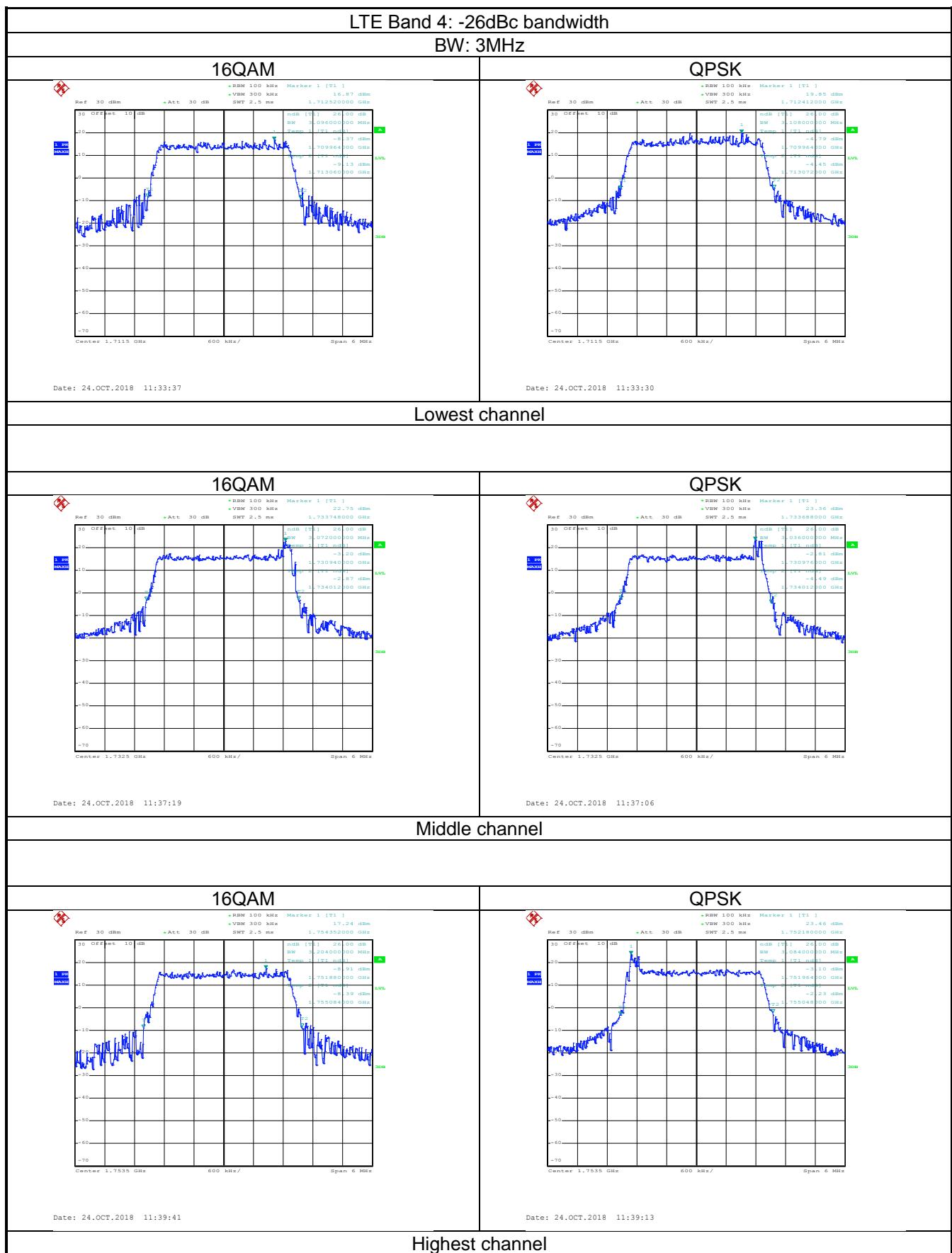


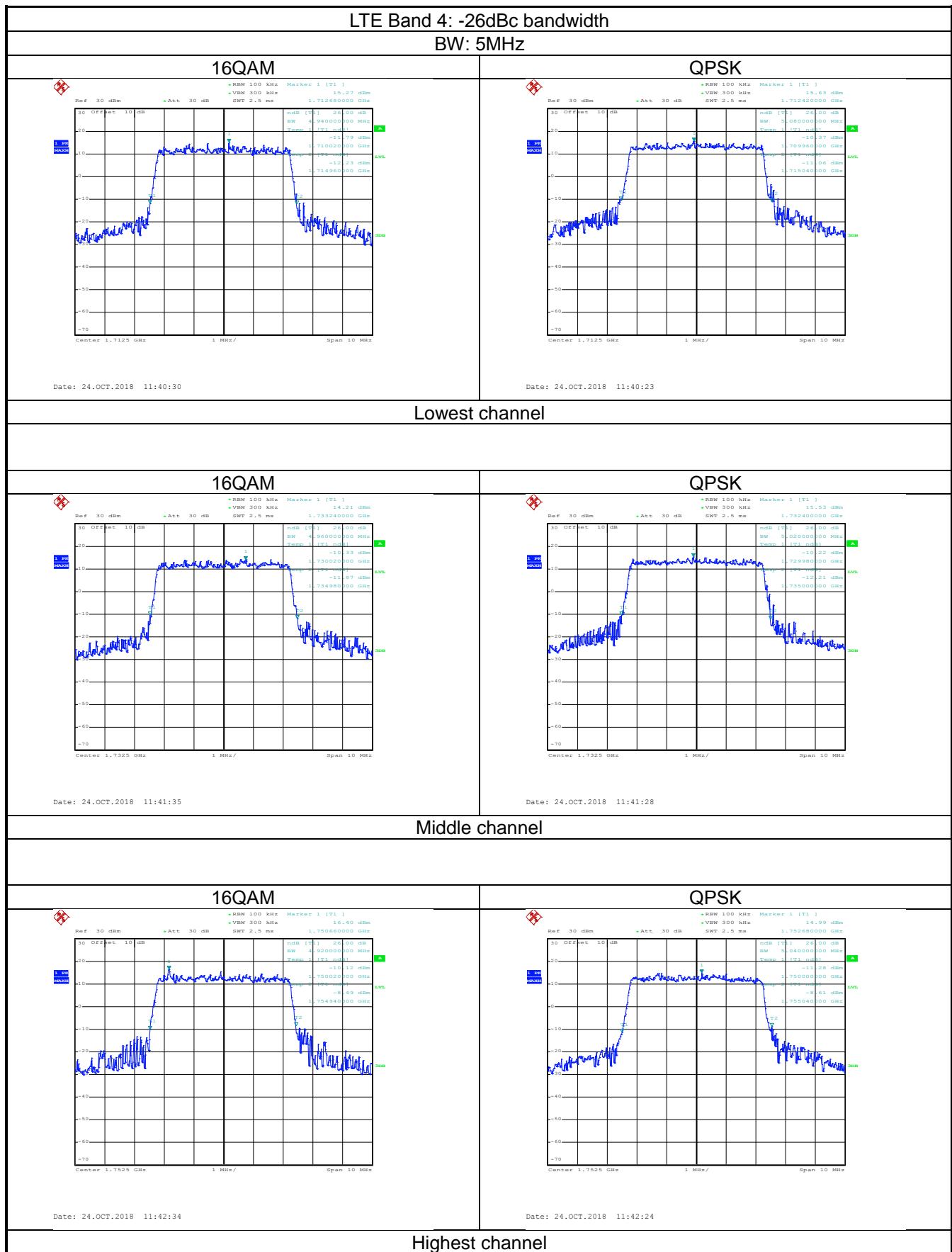


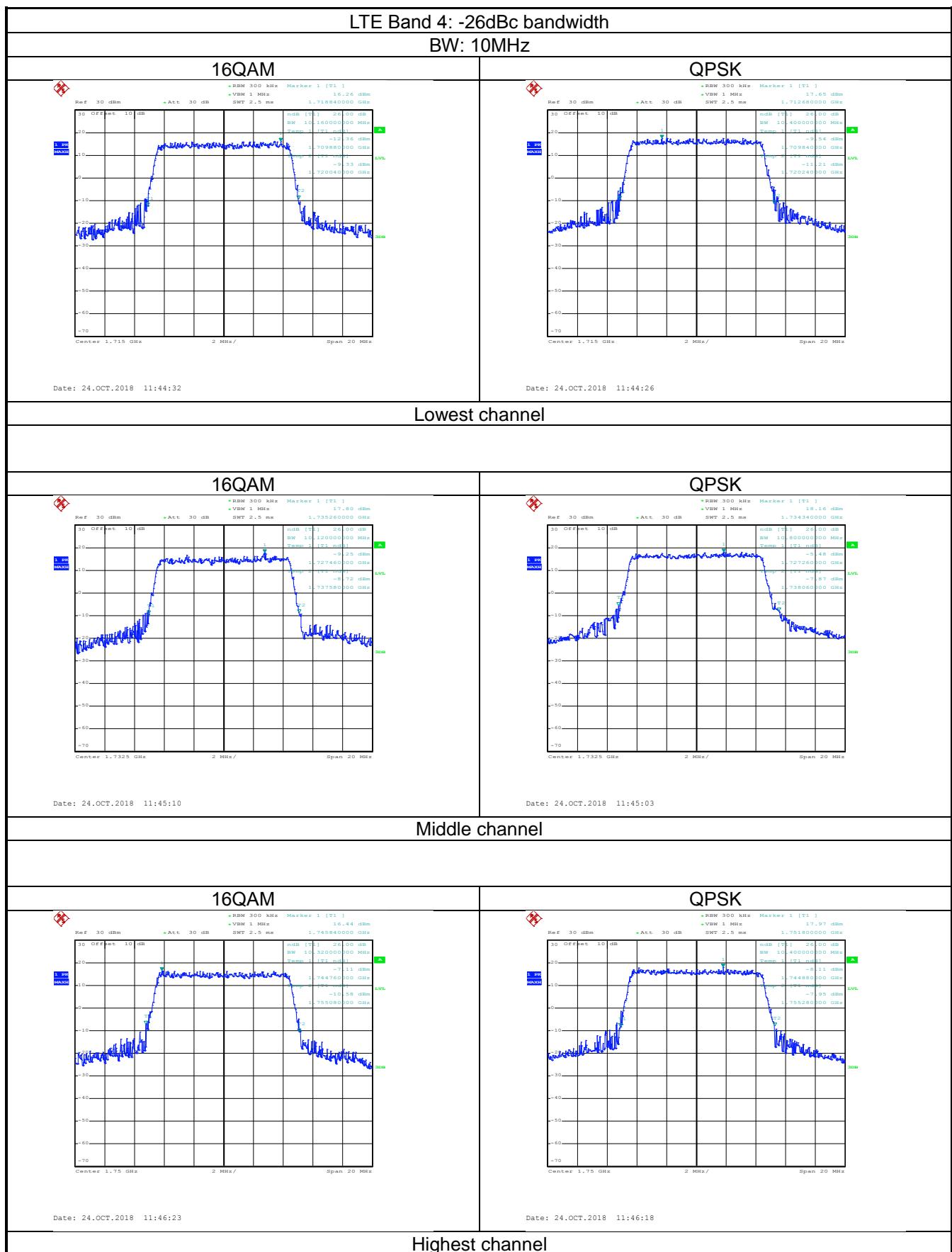


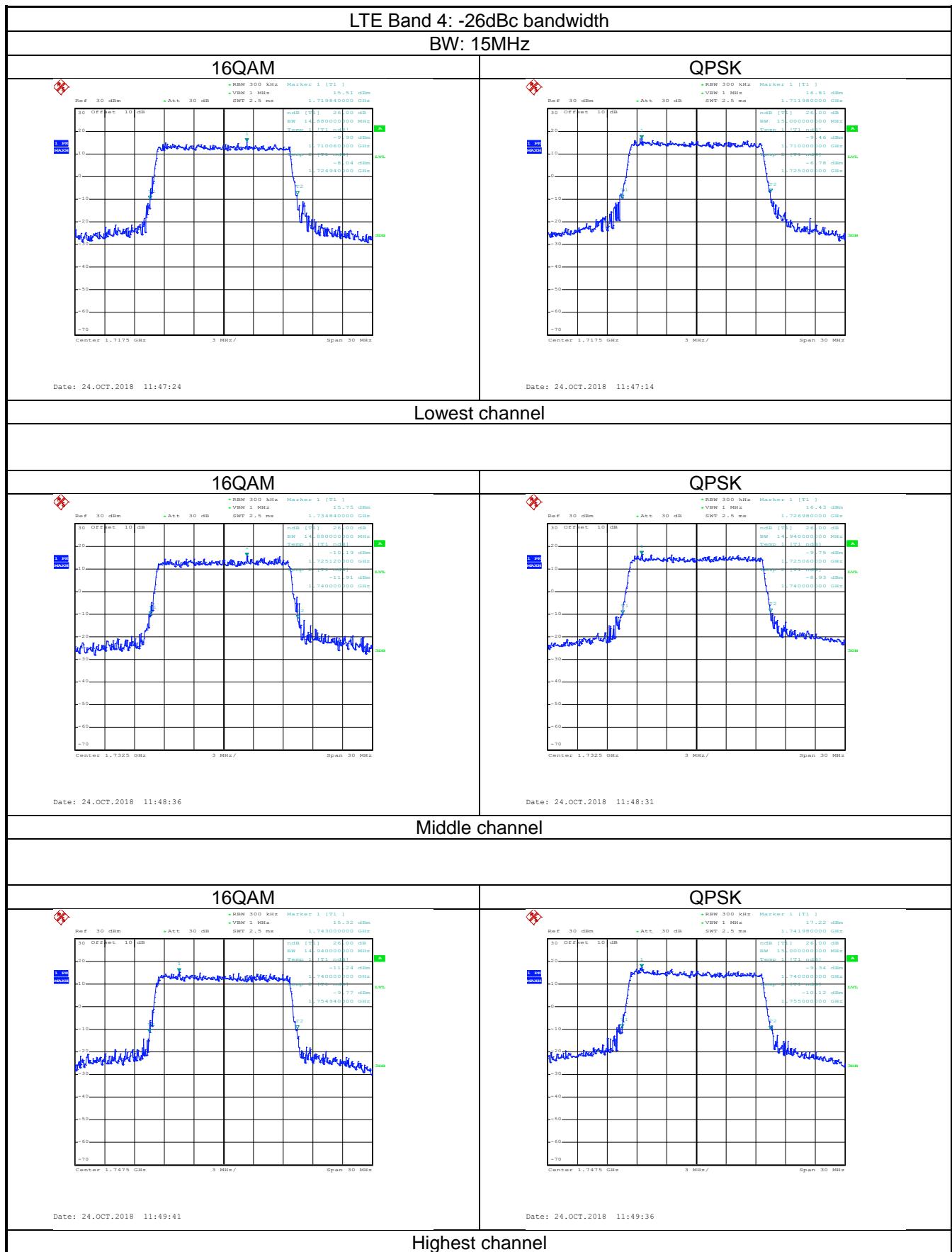


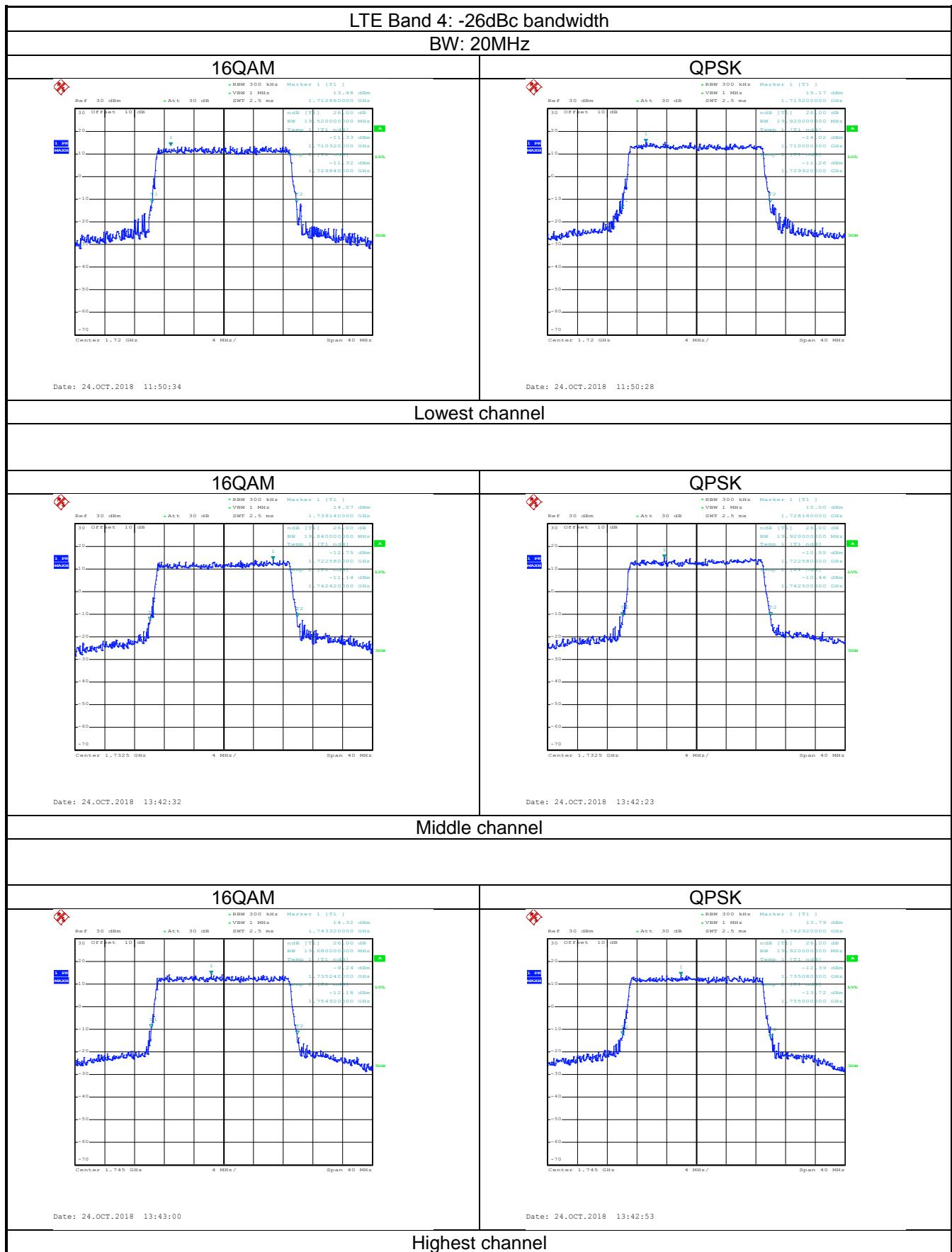




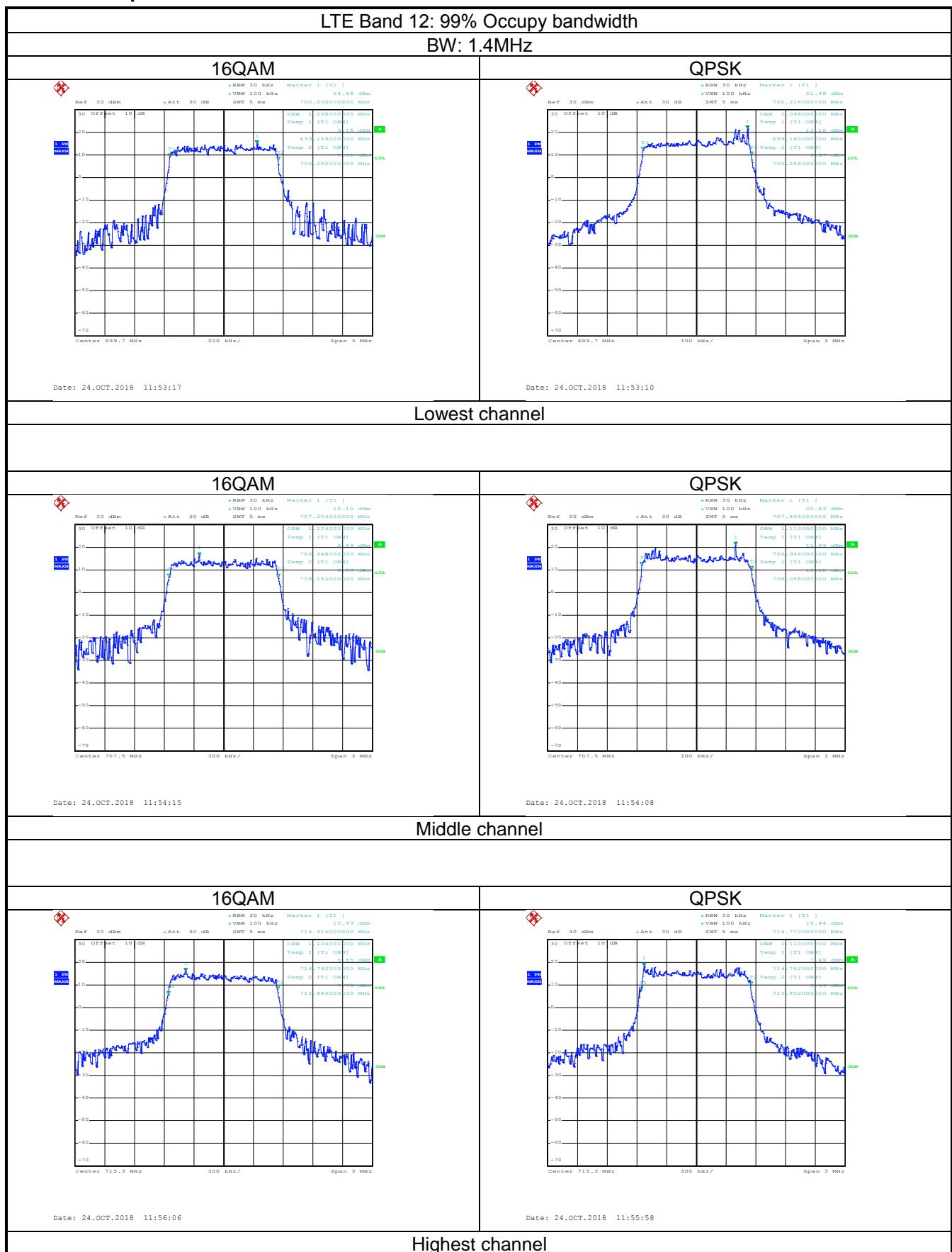


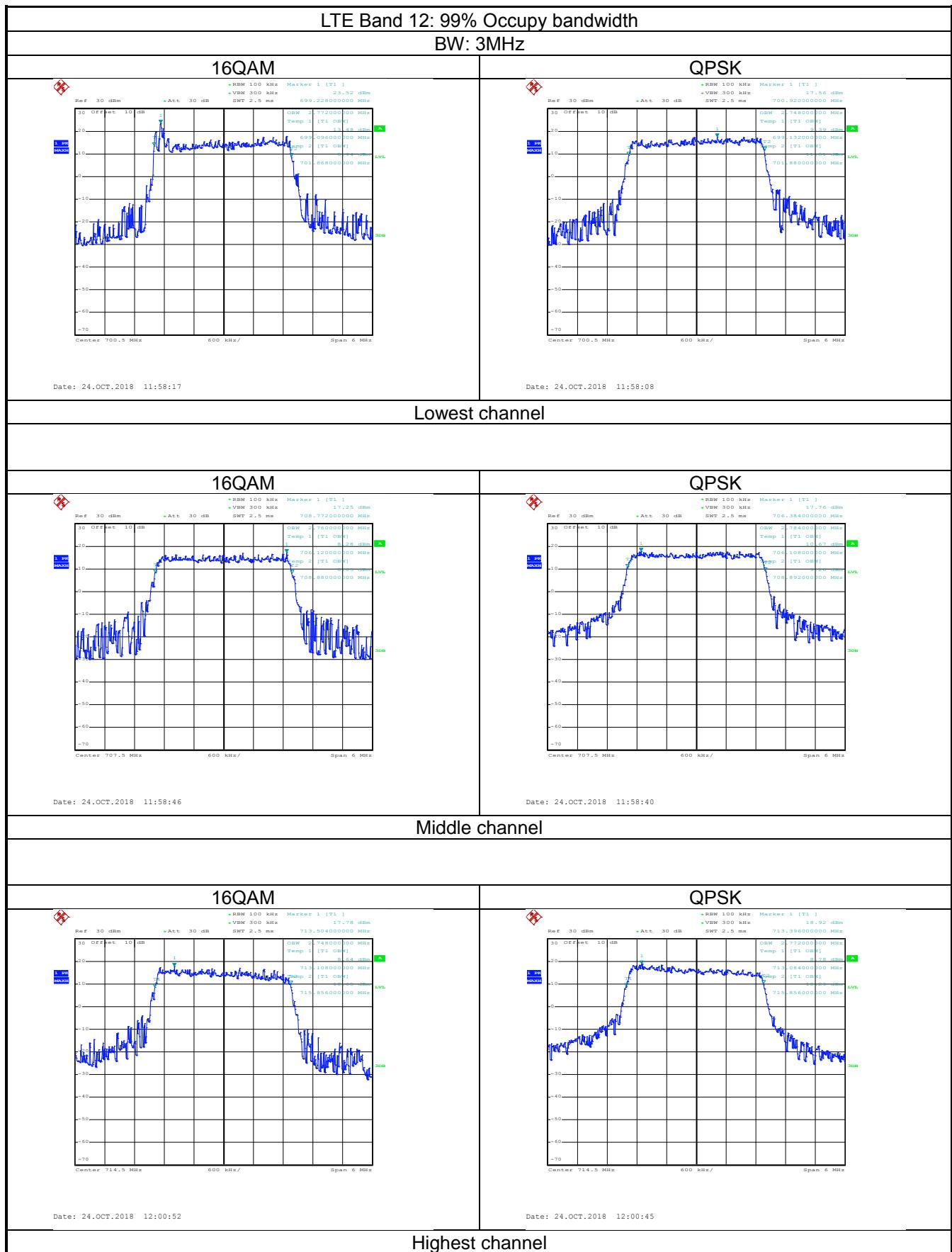


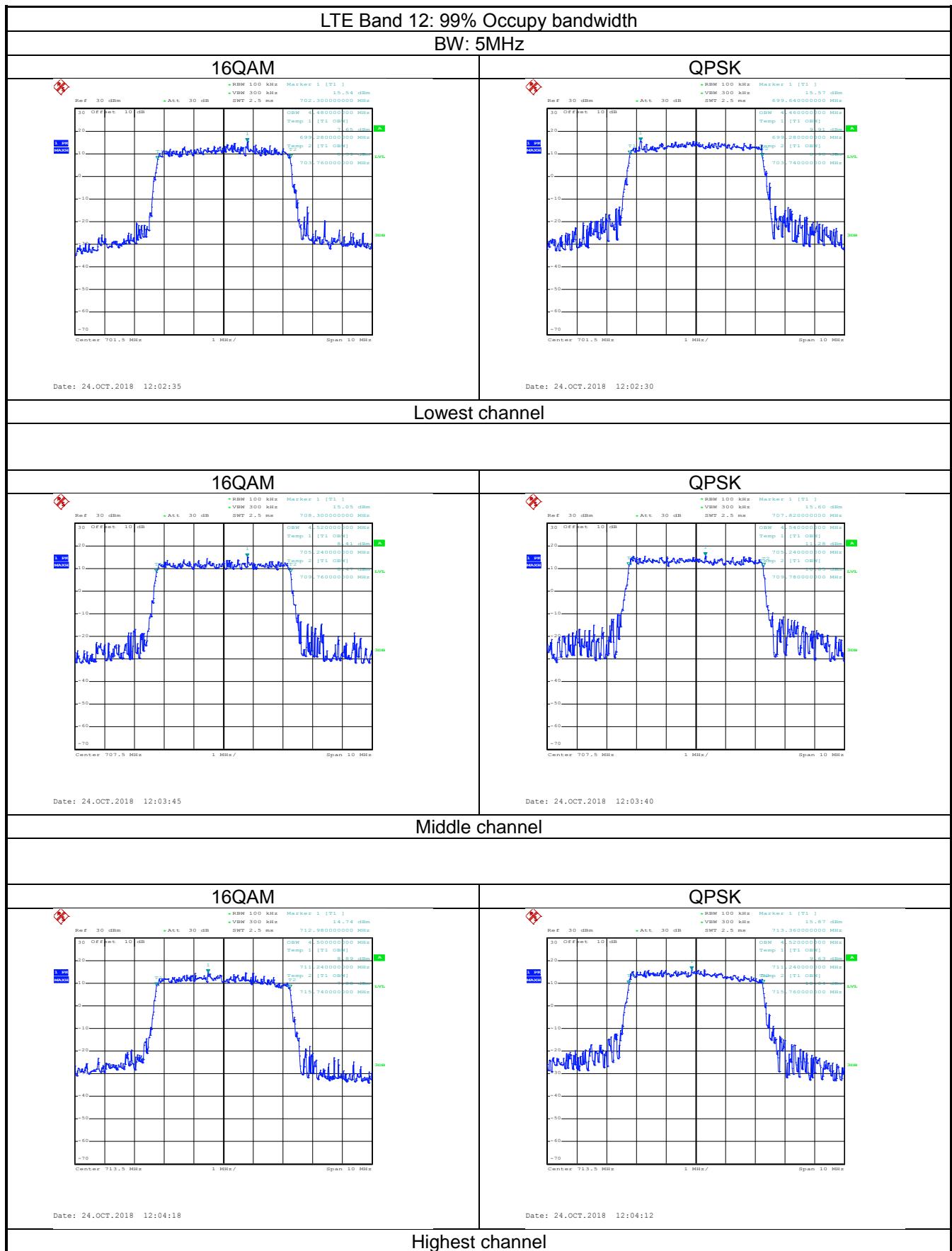


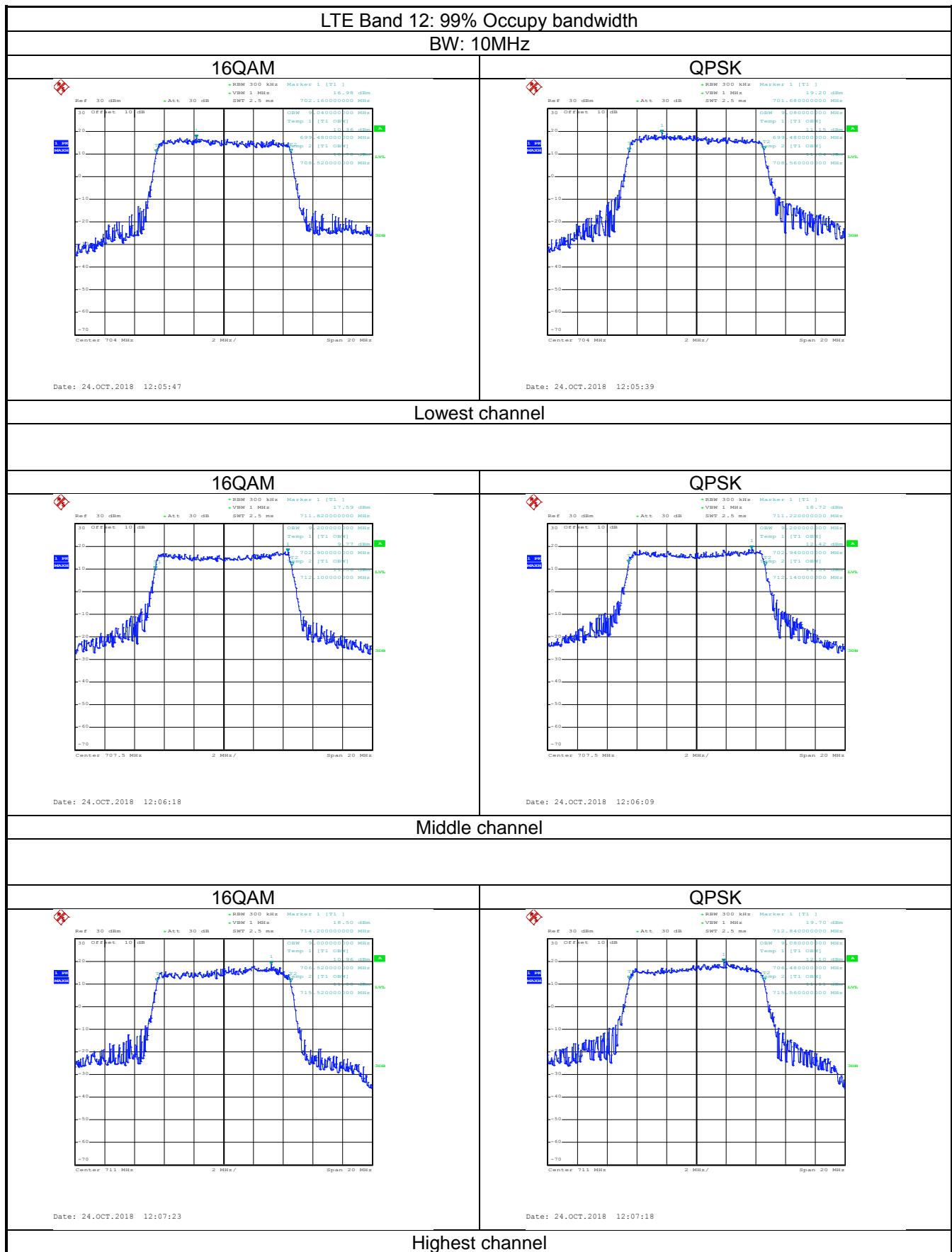


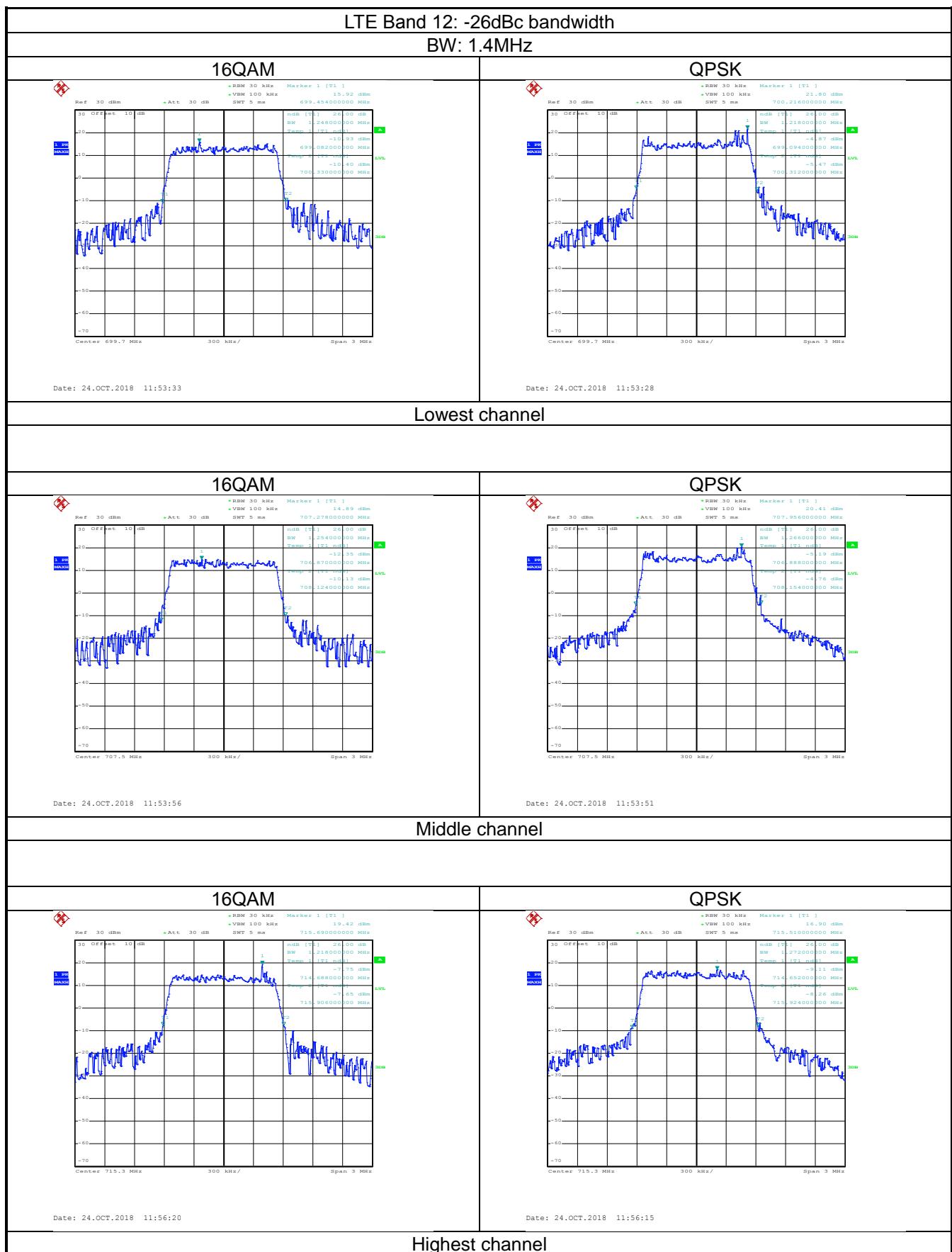
LTE Band 12 part:

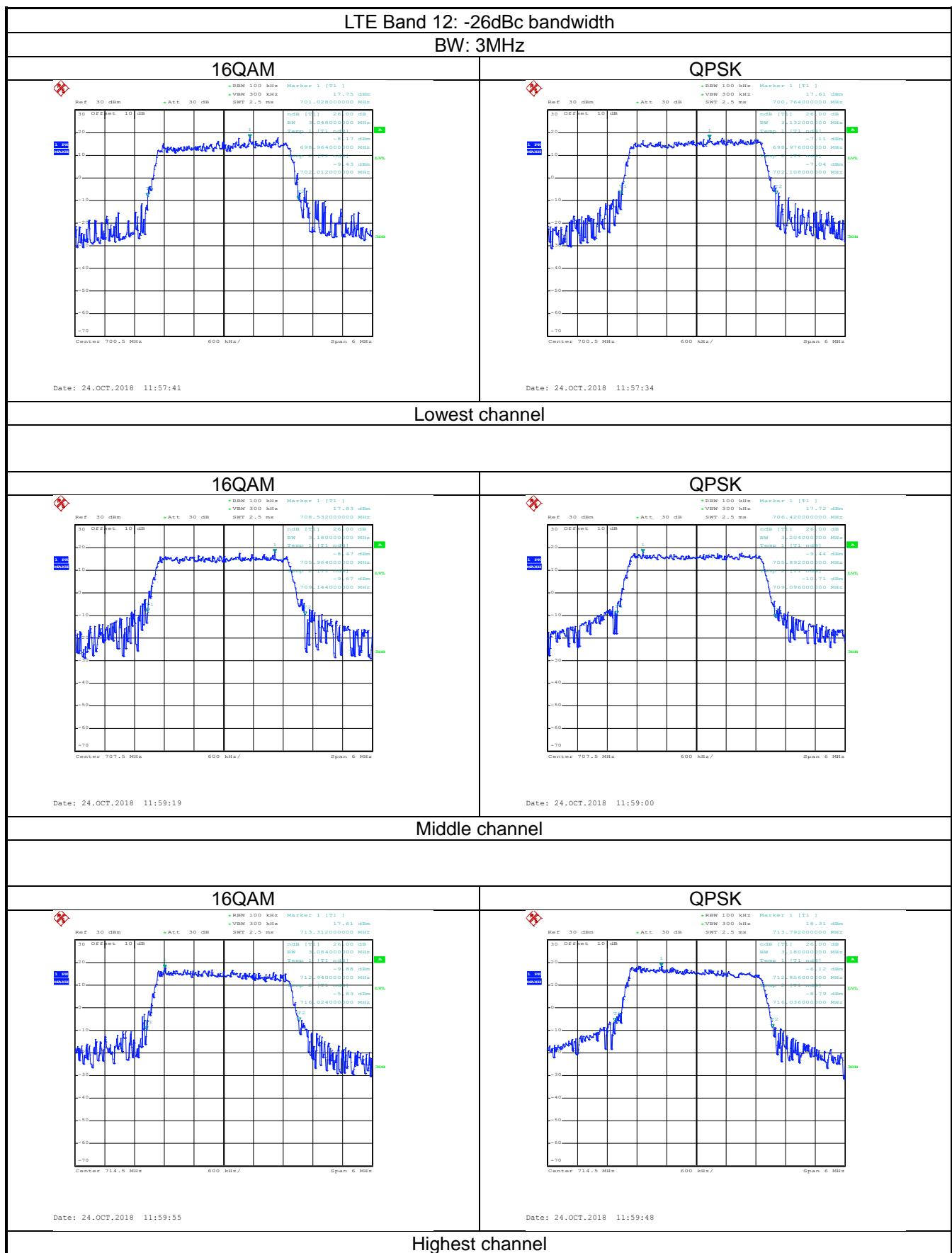


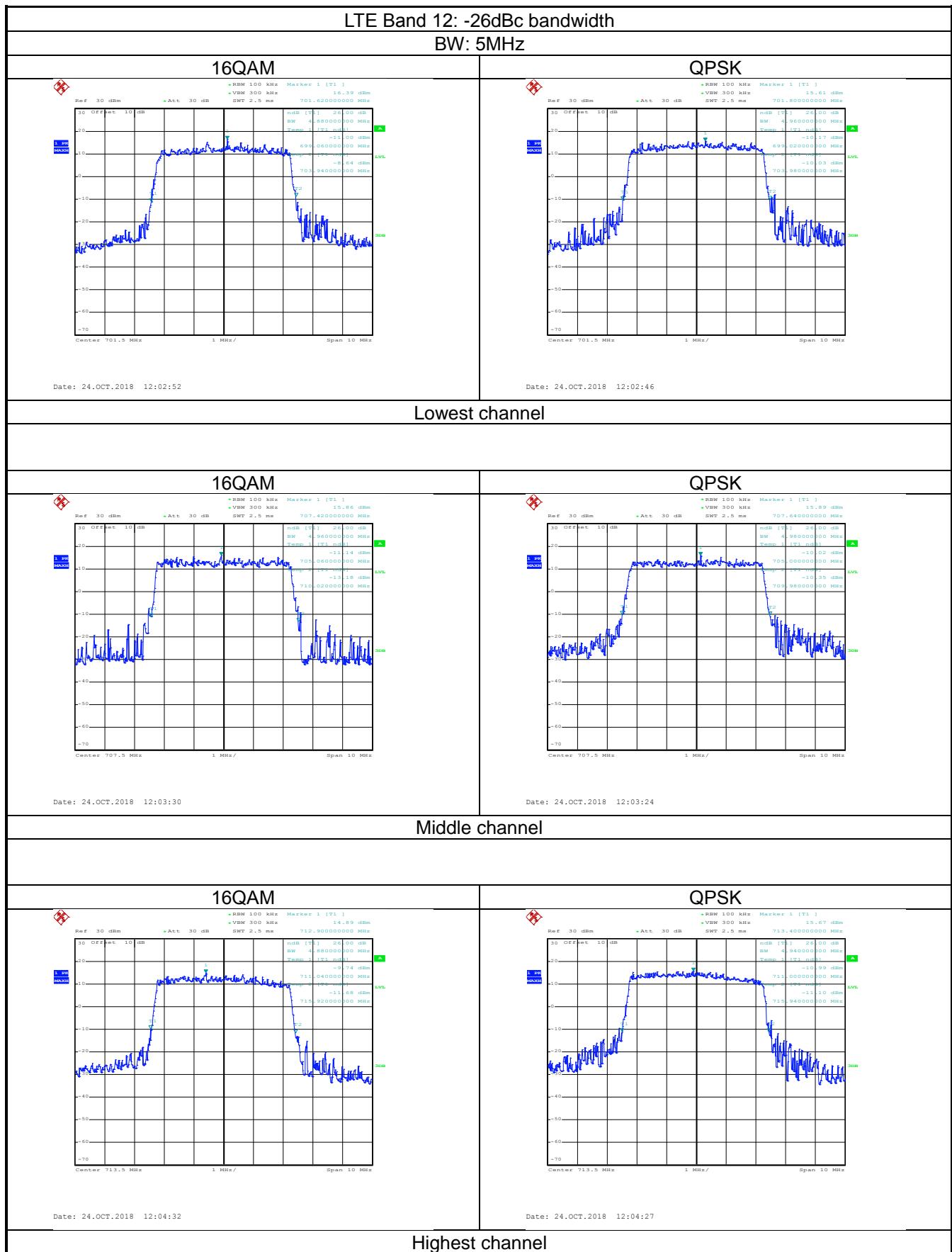


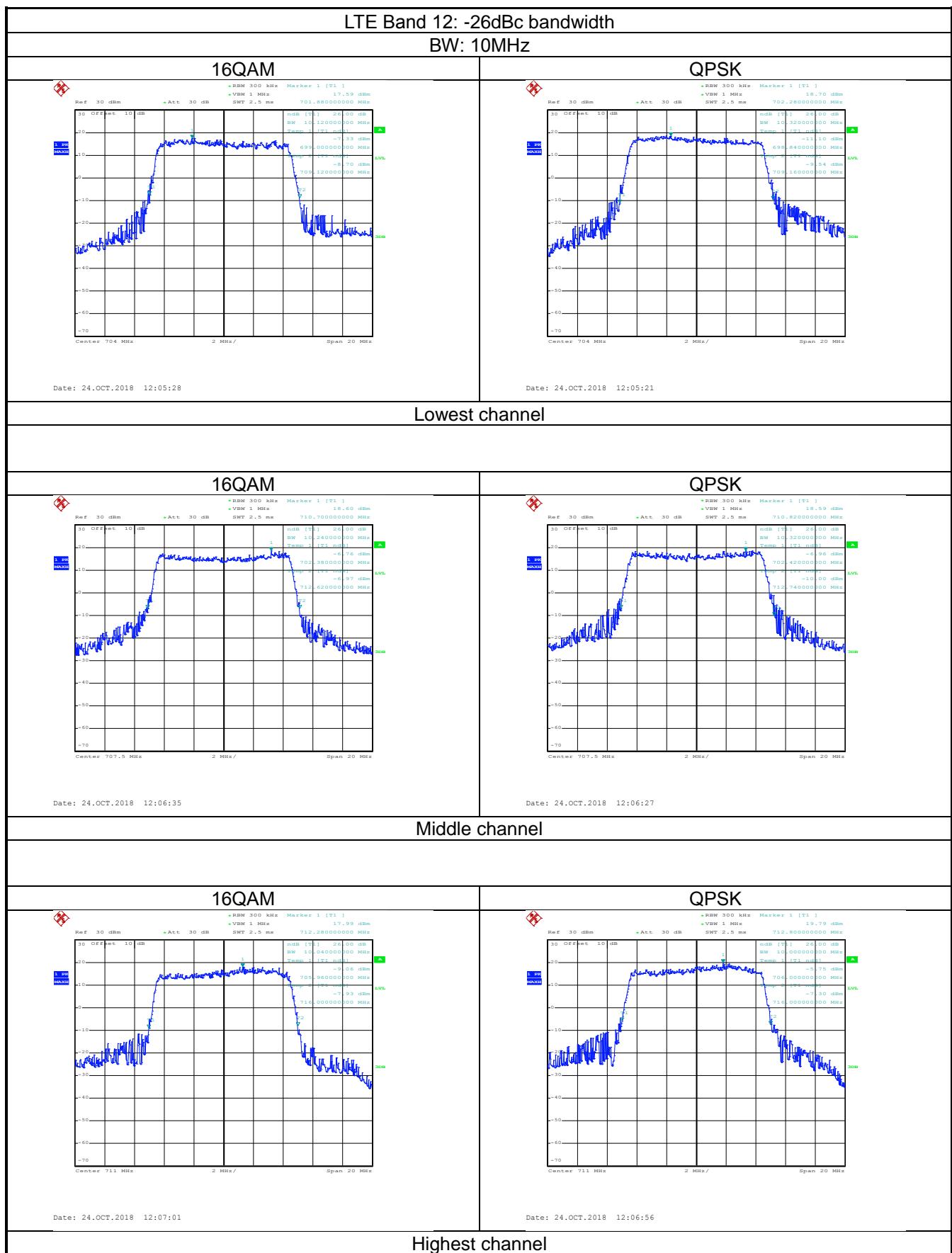












## 6.4 Out of band emission at antenna terminals

Test Requirement:	part 27.53(g), part 27.53(h)
Test Method:	ANSI/TIA-603-D 2010
Limit:	LTE Band 4 & 12: 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 (-13 dBm).
Test Setup:	<p>The diagram illustrates the test setup. A 'System simulator' (top) and a 'Spectrum Analyzer' (bottom) are connected via a 'Splitter' and an 'ATT' (attenuator) to an 'EUT' (Equipment Under Test). The 'System simulator' has two output ports, each with a circular connector.</p>
Test Procedure:	<ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.</li> <li>2 The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.</li> <li>3 For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic.</li> <li>4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.</li> </ol>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	Pre-scan all RB Size and offset, and found the RB Size and offset of worst case, so the report shows only the worst case test data.

**Test plots as follows (Conducted spurious emission) (worst case):  
LTE Band 4 part:**

