

# FCC REPORT

## (LTE)

**Applicant:** Alleswolke Inc.

**Address of Applicant:** 39899 Balentine Drive Suite 200, Newark, CA, USA 94536

**Equipment Under Test (EUT)**

Product Name: alleswolke LTE Dashcam

Model No.: UCM 3310, UCM 3320, UCM 3300, UCM 4300

**FCC ID:** 2AOYPUCM3310

**Applicable standards:** FCC CFR Title 47 Part 2  
FCC CFR Title 47 Part 22 Subpart H  
FCC CFR Title 47 Part 24 Subpart E  
FCC CFR Title 47 Part 27 Subpart L  
FCC CFR Title 47 Part 27 Subpart H  
FCC CFR Title 47 Part 90 Subpart S

**Date of sample receipt:** 22 Jan., 2018

**Date of Test:** 22 Jan., to 09 Mar., 2018

**Date of report issued:** 09 Mar., 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	09 Mar., 2018	Original

**Tested by:**

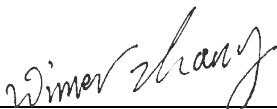


**Test Engineer**

**Date:**

09 Mar., 2018

**Reviewed by:**



**Project Engineer**

**Date:**

09 Mar., 2018

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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)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c) Part 27.50 (c)(10) Part 27.50 (d)(4) Part 90.635 (b)	Pass
Peak-to-Average Ratio	Part 24.232 (d) Part 27.50(d)(5)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917(b) Part 24.238(b) Part 27.53(g) Part 27.53(h) Part 90.691(a)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917(a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h) Part 90.691(a)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917(a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h) Part 90.691(a)	Pass
Out of band emission, Band Edge	Part 22.917(a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h) Part 90.691(a)	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:	Alleswolke Inc.
Address:	39899 Balentine Drive Suite 200, Newark, CA, USA 94536
Manufacturer:	Nanjing Miaoow Planet Technology Co., Ltd.
Address:	Building 4 SEU Science Park Changjianghou St Xuanwu Nanjing

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

Product Name:	alleswolke LTE Dashcam
Model No.:	UCM 3310, UCM 3320, UCM 3300, UCM 4300
Operation Frequency range:	LTE Band 4: TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 5: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 12: 699MHz-716MHz, RX: 729MHz-746MHz LTE Band 25 : TX: 1850MHz-1915MHz, RX: 1930MHz-1995MHz LTE Band 26: TX: 814MHz-849MHz, RX: 859MHz-894MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	LTE Band 4: 2dBi LTE Band 5: 2dBi LTE Band 12: 2dBi LTE Band 25: 2dBi LTE Band 26:2dBi
Power supply:	DC 12V
AC adapter:	Model: WSD-1202000-P07 Input: AC 100-240V, 50/60Hz, 0.6A Output: DC 12V, 2.0A
Remark:	The No.: UCM 3310, UCM 3320, UCM 3300, UCM 4300 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name and color.

**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 5 (1.4MHz)		LTE Band 5 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20407	824.70	20415	825.50
20408	824.80	20416	825.60
....	....	....	....
20524	836.40	20524	836.40
20525	836.50	20525	836.50
20526	836.60	20526	836.60
...	...	...	...
20642	848.20	20634	847.40
20643	848.30	20635	847.50
LTE Band 5 (5MHz)		LTE Band 5 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20425	826.50	20450	829.00
20426	826.60	20451	829.10
....	....	....	....
20524	836.40	20524	836.40
20525	836.50	20525	836.50
20526	836.60	20526	836.60
...	...	...	...
20624	846.40	20599	839.90
20625	846.50	20600	844.00

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

LTE Band 25 (1.4MHz)		LTE Band 25 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26047	1850.70	26055	1851.50
26048	1850.80	26056	1851.60
....	....	....	....
26364	1882.40	26367	1882.40
26365	1882.50	26365	1882.50
26366	1882.60	26366	1882.60
...	...	...	...
26682	1914.20	26676	1913.40
26683	1914.30	26675	1913.50
LTE Band 25 (5MHz)		LTE Band 25 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26065	1852.50	26090	1855.00
26066	1852.60	26091	1855.10
....	....	....	....
26364	1882.40	26364	1882.40
26365	1882.50	26365	1882.50
26366	1882.60	26366	1882.60
...	...	...	...
26664	1912.40	26639	1909.90
26665	1912.50	26640	1910.00
LTE Band 25 (15MHz)		LTE Band 25 (20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26115	1857.50	26140	1860.00
26116	1857.60	26139	1860.10
....	....	....	....
26364	1882.40	26364	1882.40
26365	1882.50	26365	1882.50
36366	1882.60	26366	1882.60
...	...	...	...
26614	1907.40	26589	1904.90
26615	1907.50	26590	1905.00



LTE Band 26 (1.4MHz)		LTE Band 26 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26697	814.70	26705	815.50
26698	814.80	26706	815.60
....	....	....	....
26864	831.40	26864	831.40
26865	831.50	26865	831.50
26866	831.60	26866	831.60
...	...	...	...
27032	848.20	27024	847.40
27033	848.30	27025	847.50
LTE Band 26 (5MHz)		LTE Band 26 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26715	816.50	26740	819.00
26716	816.60	26750	819.10
....	....	....	....
26864	831.40	26864	831.40
26865	831.50	26865	831.50
26866	831.60	26866	831.60
...	...	...	...
27014	846.40	26980	843.90
27015	846.50	26990	844.00
LTE Band 26 (15MHz)			
Channel	Frequency (MHz)		
26765	821.50		
26766	821.60		
....	....		
26864	831.40		
26865	831.50		
26866	831.60		
...	...		
26964	841.40		
26965	841.50		

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

LTE Band 25 (1.4MHz)			LTE Band 25 (3MHz)		
Channel:	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26047	1850.70	Lowest channel	26055	1851.50
Middle channel	26365	1882.50	Middle channel	26365	1882.50
Highest channel	26683	1914.30	Highest channel	26675	1913.50
LTE Band 25 (5MHz)			LTE Band 25 (10MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26065	1852.50	Lowest channel	26090	1855.00
Middle channel	26365	1882.50	Middle channel	26365	1882.50
Highest channel	26665	1912.50	Highest channel	26640	1910.00
LTE Band 25 (15MHz)			LTE Band 25 (20MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26115	1857.50	Lowest channel	26140	1860.00
Middle channel	26365	1882.50	Middle channel	26365	1882.50
Highest channel	26615	1907.50	Highest channel	26590	1905.00

LTE Band 5&26(1.4MHz) for Part 22			LTE Band 26(1.4MHz) for Part 90		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26797	824.7	Lowest channel	26697	814.7
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	27033	848.3	Highest channel	26783	823.3
LTE Band 5&26(3MHz) for Part 22			LTE Band 26(3MHz) for Part 90		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26805	825.5	Lowest channel	26705	815.5
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	27025	847.5	Highest channel	26775	822.5
LTE Band 5&26(5MHz) for Part 22			LTE Band 26(5MHz) for Part 90		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26815	826.5	Lowest channel	26715	816.5
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	27015	846.5	Highest channel	26765	821.5
LTE Band 5&26(10MHz) for Part 22			LTE Band 26(10MHz) for Part 90		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26840	829.0	Lowest channel	/	/
Middle channel	26915	836.5	Middle channel	26740	819.0
Highest channel	26990	844.0	Highest channel	/	/
LTE Band 26(15MHz) for Part 22H			LTE Band 26(15MHz) (Straddling Part 22H, 90S)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	26865	831.5	Lowest channel	26765	821.5
Middle Channel	26915	836.5			
Highest channel	26965	841.5			

### 5.3 Test environment and mode

Operating Environment:	
Temperature:	Normal: 15°C ~ 35°C, Extreme: -30°C ~ +50°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 120Vac, Extreme: Low 102Vac, High 138Vac
Test mode:	
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
<ol style="list-style-type: none"> <li>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.</li> <li>The operating frequency range of LTE FDD Band 25 includes the operating frequency range of LTE FDD Band 2, so only testing LTE FDD Band 25 and reflected in this the report.</li> </ol>	

## 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)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

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

This is an original grant, no related submittals and grants.
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## 5.7 Laboratory Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> <li>● <b>FCC - Registration No.: 727551</b> Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.</li> <li>● <b>IC - Registration No.: 10106A-1</b> 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.</li> <li>● <b>CNAS - Registration No.: CNAS L6048</b> 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.</li> <li>● <b>A2LA - Registration No.: 4346.01</b> 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: <a href="https://portal.a2la.org/scopepdf/4346-01.pdf">https://portal.a2la.org/scopepdf/4346-01.pdf</a></li> </ul>
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## 5.8 Laboratory Location

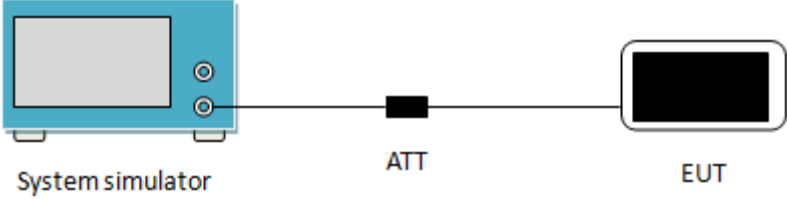
<p>Shenzhen Zhongjian Nanfang Testing Co., Ltd. Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info@ccis-cb.com, Website: http://www.ccis-cb.com</p>
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### 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	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Biconical Antenna	SCHWARZBECK	VUBA9117	359	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	916	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Pre-amplifier	CD	PAP-1G18	11804	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Spectrum Analyzer	Agilent	N9020A	MY50510123	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Signal Generator	Rohde & Schwarz	SMX	835454/016	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Signal Generator	R&S	SMR20	1008100050	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Cable	ZDECL	Z108-NJ-NJ-81	1608458	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Cable	MICRO-COAX	MFR64639	K10742-5	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Cable	SUHNER	SUCOFLEX100	58193/4PE	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	09-24-2017	09-23-2018
Simulated Station	Rohde & Schwarz	CMW500	140493	02-25-2017	02-24-2018
				02-25-2018	02-24-2019

## 6. Test results

### 6.1 Conducted Output Power

Test Requirement:	Part 22.913(a)(2), Part 24.232(c), part 27.50(c)(10), Part 27.50(d)(4), Part90.635 (b)
Test Method:	ANSI/TIA-603-D 2010
Limit:	LTE Band 4: 1W, LTE Band 5: 7W, LTE Band 12: 3W, LTE Band 25: 2W, LTE Band 26: 7W (for Part 22H), 100W (for Part 90S)
Test Setup:	 <p>The diagram illustrates the test setup. On the left is a blue 'System simulator' with a screen and two ports. A black line representing a cable connects it to a small black square labeled 'ATT' (attenuator). Another black line connects the 'ATT' to a black rectangular device labeled 'EUT' (Equipment Under Test).</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	23.06	23.06	23.15
			1	2	23.00	23.32	23.31
			1	5	23.04	23.15	23.24
			3	0	23.05	23.23	23.24
			3	1	23.03	23.24	23.31
			3	2	22.96	23.17	23.17
		16QAM	6	0	22.02	22.22	22.28
			1	0	22.05	22.18	22.15
			1	2	22.08	22.31	22.03
			1	5	22.34	22.03	22.14
			3	0	22.25	22.33	22.10
			3	1	22.06	22.34	22.42
			3	2	21.98	22.12	22.31
			6	0	21.07	21.17	21.29
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19965	20175	20385
					1711.5MHz	1732.5MHz	1753.5MHz
4	3	QPSK	1	0	22.96	23.15	23.34
			1	7	23.07	23.21	23.06
			1	14	23.03	23.04	23.16
			8	0	22.06	22.27	22.24
			8	4	22.12	22.26	22.22
			8	7	22.07	22.19	22.35
		16QAM	15	0	22.02	22.12	22.14
			1	0	22.30	22.19	22.50
			1	7	22.06	22.56	22.65
			1	14	22.37	22.17	22.18
			8	0	21.06	21.23	21.26
			8	4	21.17	21.17	21.34
			8	7	21.08	21.23	21.40
			15	0	21.16	21.15	21.27
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	23.10	23.31
			1	12	23.14	23.17	23.21
			1	24	23.16	23.16	23.17
			12	0	22.12	22.12	22.16
			12	6	22.03	22.20	22.27
			12	11	22.00	22.21	22.18
		16QAM	25	0	21.95	22.06	22.15
			1	0	21.78	21.82	22.31
			1	12	22.27	22.34	22.29
			1	24	22.09	22.24	21.92
			12	0	21.04	21.22	21.40
			12	6	21.21	21.23	21.41
			12	11	21.10	21.23	21.13
			25	0	21.03	21.04	21.16

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20000	20175	20350
					1715.0MHz	1732.5MHz	1750.0MHz
4	10	QPSK	1	0	23.03	23.05	23.20
			1	24	23.12	23.15	23.16
			1	49	23.15	23.07	22.92
			25	0	21.94	21.98	22.07
			25	12	21.99	22.07	22.03
			25	24	21.89	22.03	21.92
			50	0	21.82	21.93	22.03
		16QAM	1	0	22.36	21.87	22.20
			1	24	22.45	22.12	21.41
			1	49	21.88	22.50	21.80
			25	0	21.03	21.14	21.24
			25	12	20.97	21.06	21.17
			25	24	21.07	21.03	21.23
			50	0	20.84	20.92	21.05
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	23.15	23.12
			1	37	23.03	23.34	23.05
			1	74	22.94	23.03	23.15
			36	0	21.91	21.87	21.99
			36	16	21.91	22.01	21.93
			36	35	21.85	21.91	21.85
			75	0	21.90	21.83	21.82
		16QAM	1	0	22.12	21.72	21.51
			1	37	22.15	22.41	21.73
			1	74	22.06	22.40	21.00
			36	0	20.87	20.83	20.92
			36	16	20.89	20.91	20.84
			36	35	20.87	20.84	20.82
			75	0	20.78	20.77	20.90
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	22.96	23.17	23.03
			1	49	23.05	23.06	23.13
			1	99	22.87	22.98	22.93
			50	0	21.88	21.81	21.93
			50	24	21.78	21.78	21.80
			50	49	21.74	21.85	21.78
			100	0	21.82	21.92	21.88
		16QAM	1	0	21.98	22.62	22.05
			1	49	21.87	22.15	21.98
			1	99	22.04	22.22	22.45
			50	0	20.89	20.73	20.86
			50	24	20.71	20.76	20.87
			50	49	20.72	20.77	20.74
			100	0	20.91	20.88	20.90



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	22.90	23.13	23.07			
			1	2	22.89	23.26	23.12			
			1	5	22.93	23.09	23.15			
			3	0	22.90	23.14	23.12			
			3	1	22.98	23.14	23.12			
			3	2	22.95	23.08	23.17			
		16QAM	6	0	22.05	22.11	22.13			
			1	0	21.91	21.92	22.31			
			1	2	22.07	22.62	22.20			
			1	5	21.95	22.04	22.51			
			3	0	22.03	22.25	22.05			
			3	1	22.17	22.28	22.30			
			3	2	22.12	22.36	22.21			
			6	0	21.08	21.15	21.11			
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)					
					23025	23095	23165			
					700.5MHz	707.5MHz	714.5MHz			
12	3	QPSK	1	0	22.86	23.10	22.87			
			1	7	23.03	23.15	23.06			
			1	14	23.04	23.14	23.18			
			8	0	22.04	22.20	22.05			
			8	4	22.01	22.17	22.12			
			8	7	21.97	22.15	22.12			
		16QAM	15	0	21.97	22.09	21.91			
			1	0	21.98	22.01	21.90			
			1	7	22.02	22.17	22.08			
			1	14	22.05	22.16	22.21			
			8	0	21.04	21.37	21.07			
			8	4	21.08	21.01	20.89			
			8	7	21.22	21.24	21.22			
			15	0	21.10	21.12	21.01			
			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	22.85	22.98	23.06
1	12	23.01				23.13	22.95			
1	24	23.14				23.07	23.18			
12	0	21.99				22.12	22.05			
12	6	22.01				22.13	22.06			
12	11	22.12				22.13	21.98			
16QAM	25	0			21.93	22.06	21.89			
	1	0			21.86	21.69	21.92			
	1	12			22.03	22.01	21.76			
	1	24			21.81	22.12	22.19			
	12	0			20.95	21.17	21.04			
	12	6			21.17	21.32	21.16			
	12	11			21.15	21.27	20.91			
	25	0			20.98	21.03	20.98			

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					23060	23095	23130
					704.0MHz	707.5MHz	711.0MHz
12	10	QPSK	1	0	22.89	23.15	23.03
			1	24	23.13	23.18	23.14
			1	49	23.03	22.90	23.08
			25	0	21.97	22.02	22.02
			25	12	22.11	22.03	21.98
			25	24	22.07	21.96	21.89
			50	0	21.94	21.88	21.86
		16QAM	1	0	21.87	22.00	22.05
			1	24	21.51	22.16	21.46
			1	49	21.84	21.79	22.36
			25	0	20.97	21.07	21.06
			25	12	21.08	21.09	21.00
			25	24	21.08	21.03	20.96
			50	0	20.90	20.82	20.80

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26047	26365	26683
					1850.70MHz	1882.5MHz	1914.3MHz
25	1.4	QPSK	1	0	23.12	23.05	23.10
			1	2	23.24	23.30	23.27
			1	5	23.16	23.20	23.18
			3	0	23.20	23.26	23.20
			3	1	23.21	23.34	23.32
			3	2	23.19	23.29	23.32
			6	0	22.18	22.31	22.31
		16QAM	1	0	22.30	22.13	22.09
			1	2	22.41	22.30	22.03
			1	5	22.78	22.58	22.21
			3	0	22.16	22.36	22.43
			3	1	22.46	22.48	22.38
			3	2	22.17	22.34	22.14
			6	0	21.04	21.32	21.10

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26055	26365	26675
					1851.50MHz	1882.5MHz	1913.5MHz
25	3	QPSK	1	0	23.26	23.32	23.29
			1	7	23.14	23.35	23.26
			1	14	23.12	23.16	23.23
			8	0	22.20	22.39	22.30
			8	4	22.24	22.28	22.27
			8	7	22.21	22.40	22.34
			15	0	22.20	22.25	22.27
		16QAM	1	0	22.52	22.65	22.21
			1	7	22.50	22.07	22.32
			1	14	22.10	22.18	22.18
			8	0	21.17	21.43	21.17
			8	4	21.01	21.37	21.20
			8	7	21.24	21.27	21.12
			15	0	21.13	21.29	21.21

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26065	26365	26665
					1852.5MHz	1882.5MHz	1912.5MHz
25	5	QPSK	1	0	23.24	23.30	23.23
			1	12	23.37	23.39	23.31
			1	24	23.24	23.28	23.28
			12	0	22.23	22.40	22.30
			12	6	22.23	22.32	22.33
			12	11	22.25	22.29	22.24
			25	0	22.09	22.21	22.19
		16QAM	1	0	22.55	22.06	22.37
			1	12	22.34	22.24	22.28
			1	24	22.45	22.23	22.54
			12	0	21.23	21.43	21.28
			12	6	21.14	21.36	21.34
			12	11	21.24	21.36	21.31
			25	0	21.11	21.16	21.16
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26090	26365	26640
					1855.00MHz	1882.5MHz	1910.0MHz
25	10	QPSK	1	0	23.25	23.45	23.17
			1	24	23.25	23.28	23.42
			1	49	23.19	23.18	23.18
			25	0	22.17	22.30	22.15
			25	12	22.12	22.13	22.24
			25	24	22.08	22.21	22.10
			50	0	21.96	22.05	22.05
		16QAM	1	0	21.53	22.27	22.57
			1	24	22.56	22.46	22.39
			1	49	22.19	22.20	22.04
			25	0	21.16	21.35	21.10
			25	12	21.13	21.15	21.26
			25	24	21.16	21.16	21.14
			50	0	20.95	21.03	21.05
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26115	26365	26615
					1857.50MHz	1882.5MHz	1907.5MHz
25	15	QPSK	1	0	23.21	23.37	23.28
			1	37	23.34	23.34	23.45
			1	74	23.25	23.26	23.34
			36	0	22.14	22.32	22.25
			36	16	22.04	22.17	22.10
			36	35	22.06	22.19	22.10
			75	0	22.05	22.19	22.20
		16QAM	1	0	22.02	22.44	21.98
			1	37	22.13	22.91	22.13
			1	74	22.76	22.05	21.96
			36	0	21.11	21.22	21.17
			36	16	21.12	21.16	21.13
			36	35	21.05	21.21	21.06
			75	0	21.01	21.14	21.08

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26140	26365	26590
					1860.00MHz	1882.50MHz	1905.00MHz
25	20	QPSK	1	0	23.16	23.27	23.21
			1	49	23.37	23.37	23.32
			1	99	23.26	23.12	23.21
			50	0	21.97	22.18	22.17
			50	24	22.04	22.12	22.13
			50	49	22.07	22.09	22.11
			100	0	22.02	22.16	22.16
		16QAM	1	0	21.74	22.43	22.36
			1	49	22.24	22.39	22.37
			1	99	22.02	22.63	22.96
			50	0	21.03	21.15	21.12
			50	24	21.03	21.11	21.08
			50	49	21.05	21.04	20.94
			100	0	21.01	21.05	21.09

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26797	26915	27033
					824.7MHz	836.5MHz	848.3MHz
5&26 (Part 22H)	1.4	QPSK	1	0	23.33	23.22	23.29
			1	2	23.34	23.16	23.24
			1	5	23.34	23.10	23.12
			3	0	23.37	23.50	23.32
			3	1	23.33	23.53	23.28
			3	2	23.25	23.05	23.18
			6	0	22.27	22.21	22.60
		16QAM	1	0	22.21	22.51	22.21
			1	2	22.22	22.49	22.10
			1	5	22.28	22.51	22.19
			3	0	22.69	22.39	22.42
			3	1	22.39	22.41	22.38
			3	2	22.21	22.38	22.26
			6	0	21.30	21.48	21.25

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26805	26915	27025
					825.5MHz	836.5MHz	847.5MHz
5&26 (Part 22H)	3	QPSK	1	0	23.43	23.27	23.37
			1	7	23.37	23.34	23.35
			1	14	23.30	23.35	23.13
			8	0	22.37	22.43	22.37
			8	4	22.31	22.06	22.36
			8	7	22.30	22.49	22.29
			15	0	22.28	22.47	22.42
		16QAM	1	0	22.69	22.13	22.20
			1	7	22.32	22.18	22.24
			1	14	22.45	22.38	22.06
			8	0	21.23	21.42	21.33
			8	4	21.35	21.46	21.47
			8	7	21.26	21.48	21.35
			15	0	21.33	21.36	21.44

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26815	26915	27015
					826.5MHz	836.5MHz	846.5MHz
5&26 (Part 22H)	5	QPSK	1	0	23.36	23.35	23.27
			1	12	23.36	23.27	23.38
			1	24	23.34	23.28	23.03
			12	0	22.22	22.24	22.36
			12	6	22.29	22.28	22.33
			12	11	22.35	22.34	22.31
		16QAM	25	0	22.19	21.86	22.19
			1	0	22.78	22.40	22.05
			1	12	22.45	22.05	22.35
			1	24	22.43	22.13	22.03
			12	0	21.31	21.49	21.47
			12	6	21.43	21.28	21.31
			12	11	21.44	21.18	21.36
			25	0	21.22	20.87	21.18
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26840	26915	26990
					829MHz	836.5MHz	844MHz
5&26 (Part 22H)	10	QPSK	1	0	23.31	23.25	23.35
			1	24	23.30	23.31	23.41
			1	49	23.29	23.34	23.08
			25	0	22.14	22.26	22.24
			25	12	22.12	22.12	22.22
			25	24	22.18	22.34	22.20
		16QAM	50	0	22.00	22.31	22.13
			1	0	22.20	22.46	22.37
			1	24	22.11	22.44	22.24
			1	49	22.82	22.69	22.80
			25	0	21.27	21.16	21.37
			25	12	21.20	21.12	21.23
			25	24	21.19	21.23	21.28
			50	0	21.01	20.85	21.21
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26865	26915	26965
					831.5MHz	836.5MHz	841.5MHz
26 (Part 22H)	15	QPSK	1	0	23.28	23.24	23.15
			1	37	23.42	23.26	23.46
			1	74	23.31	23.23	23.18
			36	0	22.03	22.05	22.34
			36	16	22.12	22.02	22.06
			36	35	22.36	22.25	22.15
		16QAM	75	0	22.03	21.97	21.97
			1	0	22.38	22.26	22.21
			1	37	22.37	22.19	22.45
			1	74	22.31	22.44	22.34
			36	0	20.98	20.95	21.03
			36	16	21.12	21.01	21.15
			36	35	21.14	20.77	21.14
			75	0	21.07	21.28	21.13

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26697	26740	26783
					814.7MHz	819.0MHz	823.3MHz
26 (Part 90S)	1.4	QPSK	1	0	23.25	23.29	23.19
			1	2	23.31	23.21	23.30
			1	5	23.28	23.26	23.28
			3	0	23.35	23.16	23.31
			3	1	23.33	23.17	23.32
			3	2	23.22	23.24	23.23
		16QAM	6	0	22.29	22.22	22.33
			1	0	22.68	22.49	22.10
			1	2	22.42	21.99	22.42
			1	5	22.38	22.36	22.73
			3	0	22.69	22.16	22.37
			3	1	22.37	22.19	22.32
			3	2	22.37	22.24	22.16
			6	0	21.30	21.15	21.35
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26705	26740	26775
					815.5MHz	819.0MHz	822.5MHz
26 (Part 90S)	3	QPSK	1	0	23.15	23.12	23.20
			1	7	23.42	23.27	23.41
			1	14	23.20	23.11	23.40
			8	0	22.26	22.23	22.35
			8	4	22.39	22.26	22.27
			8	7	22.32	22.12	22.29
			15	0	22.30	22.15	22.27
		16QAM	1	0	22.26	22.38	22.00
			1	7	22.01	22.52	22.30
			1	14	22.41	22.16	22.66
			8	0	21.24	21.34	21.28
			8	4	21.27	21.37	21.18
			8	7	21.38	21.28	21.23
			15	0	21.35	21.17	21.30
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26715	26740	26765
					816.5MHz	819.0MHz	821.5MHz
26 (Part 90S)	5	QPSK	1	0	23.31	23.55	23.19
			1	12	23.47	23.30	23.24
			1	24	23.26	23.26	23.26
			12	0	22.32	22.15	22.20
			12	6	22.29	22.17	22.27
			12	11	22.27	22.22	22.25
			25	0	22.17	21.95	22.07
		16QAM	1	0	22.26	22.29	22.26
			1	12	22.56	22.21	22.39
			1	24	22.39	22.22	22.09
			12	0	21.44	21.19	21.37
			12	6	21.41	21.34	21.44
			12	11	21.43	21.33	21.17
			25	0	21.22	21.06	21.12

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					/	26740	/
					819MHz	/	/
26 (Part 90S)	10	QPSK	1	0	/	23.07	/
			1	24	/	23.34	/
			1	49	/	23.39	/
			25	0	/	22.23	/
			25	12	/	22.20	/
			25	24	/	22.20	/
		16QAM	50	0	/	22.05	/
			1	0	/	22.26	/
			1	24	/	22.12	/
			1	49	/	22.27	/
			25	0	/	21.38	/
			25	12	/	21.26	/
			25	24	/	21.29	/
			50	0	/	21.05	/
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					26765	/	/
					821.5MHz	/	/
26 (Part 90S)	15	QPSK	1	0	23.40	/	/
			1	37	23.37	/	/
			1	74	23.28	/	/
			36	0	22.07	/	/
			36	16	22.26	/	/
			36	35	22.22	/	/
			75	0	22.09	/	/
		16QAM	1	0	22.35	/	/
			1	37	22.54	/	/
			1	74	22.36	/	/
			36	0	21.08	/	/
			36	16	21.14	/	/
			36	35	21.14	/	/
			75	0	21.01	/	/

## 6.2 Peak-to-Average Ratio

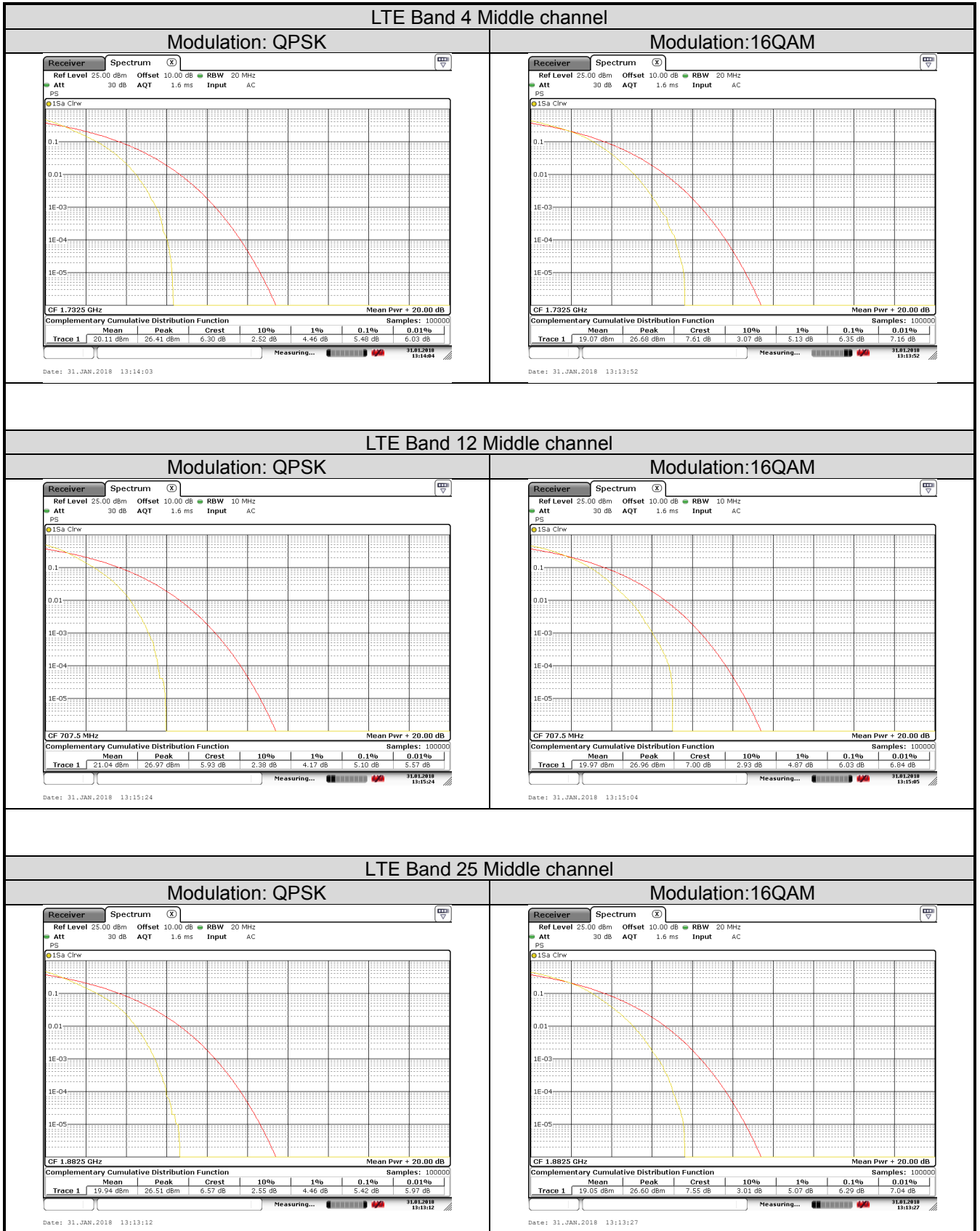
Test Requirement:	Part 24.232 (d), Part 27.50(d)(5)
Test Method:	ANSI/TIA-603-D 2010
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	
Test Procedure:	<ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer 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):**

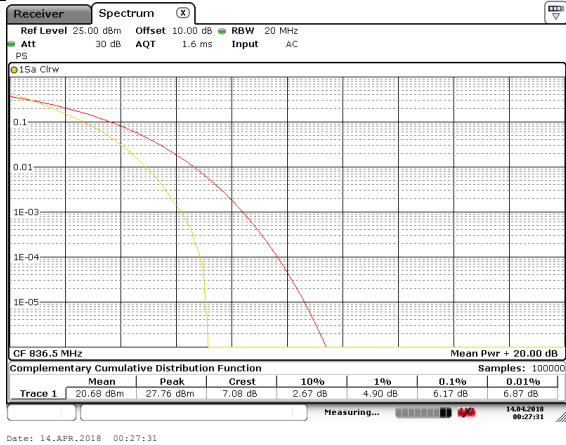
Bandwidth	Modulation	RB Size	RB Offset	PAPR
LTE Band 4 (Middle Channel)				
20MHz	QPSK	100	0	5.48
	16QAM	100	0	6.35
LTE Band 12 (Middle Channel)				
10MHz	QPSK	50	0	5.10
	16QAM	50	0	6.03
LTE Band 25 (Middle Channel)				
20MHz	QPSK	100	0	5.42
	16QAM	100	0	6.29
LTE Band 5&26(part 22H) (Middle Channel)				
15MHz	QPSK	75	0	6.17
	16QAM	75	0	6.84
LTE Band 26(part 90S) (Middle Channel)				
15MHz	QPSK	75	0	5.91
	16QAM	75	0	6.67

Test plots as below:

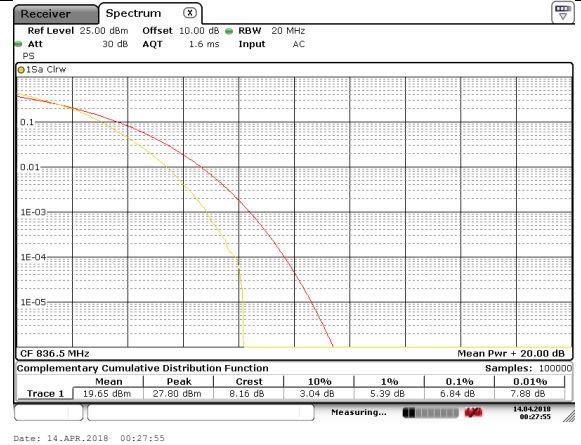


## LTE Band 5&26(part 22H) Middle channel

Modulation: QPSK

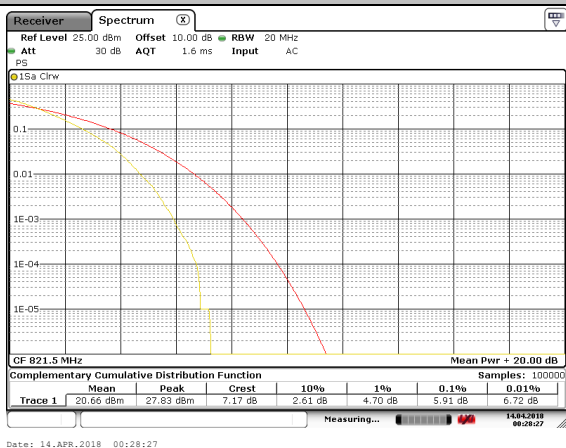


Modulation:16QAM

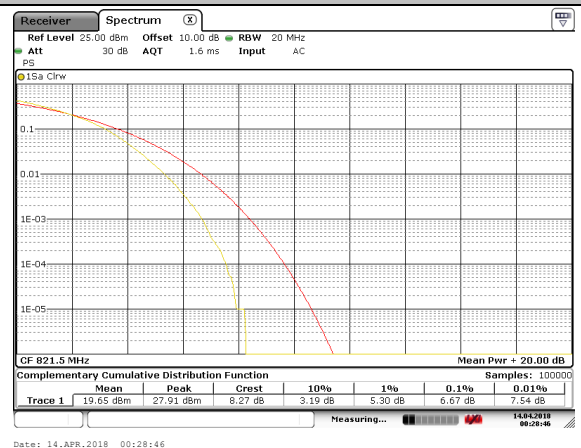


## LTE Band 26 (part 90S) Middle channel

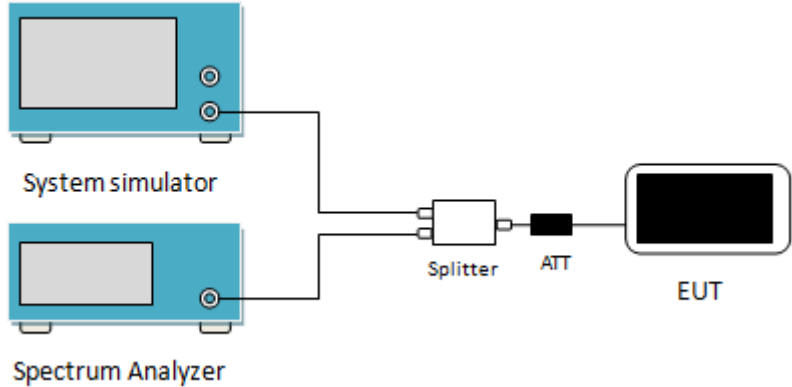
Modulation: QPSK



Modulation:16QAM



## 6.3 Occupy Bandwidth

Test Requirement:	Part 22.917(b), Part 24.238(b), Part 27.53(g), Part 27.53(h), Part 90.691(a)
Test Method:	ANSI/TIA-603-D 2010
Test Setup:	 <p>The diagram illustrates the test setup. On the left, there are two blue rectangular units: the top one is labeled 'System simulator' and the bottom one is labeled 'Spectrum Analyzer'. Both have their output ports connected to a central 'Splitter' box. From the 'Splitter', one line goes to an 'ATT' (attenuator) block, and another line goes to an 'EUT' (Equipment Under Test) represented by a black rectangle with a white border.</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	1098	1308
			QPSK	1104	1308
	20175	1732.5	16QAM	1104	1326
			QPSK	1098	1302
	20393	1754.3	16QAM	1098	1314
			QPSK	1104	1296
3MHz	19965	1711.5	16QAM	2736	3072
			QPSK	2748	3132
	20175	1732.5	16QAM	2724	3108
			QPSK	2748	3120
	20385	1750.5	16QAM	2736	3096
			QPSK	2748	3120
5MHz	19975	1712.5	16QAM	4500	5080
			QPSK	4520	5020
	20175	1732.5	16QAM	4520	5020
			QPSK	4500	5060
	20375	1752.5	16QAM	4500	5020
			QPSK	4520	5000
10MHz	20000	1715.0	16QAM	9120	10280
			QPSK	9080	10200
	20175	1732.5	16QAM	9080	10200
			QPSK	9080	10240
	20350	1750.0	16QAM	9040	10240
			QPSK	9040	10240
15MHz	20025	1717.5	16QAM	13440	14940
			QPSK	13500	15000
	20175	1732.5	16QAM	13500	14880
			QPSK	13500	15120
	20325	1747.5	16QAM	13440	14940
			QPSK	13500	14880
20MHz	20050	1720.0	16QAM	17920	19520
			QPSK	18000	19520
	20175	1732.5	16QAM	18000	19520
			QPSK	18080	19680
	20300	1745.0	16QAM	17920	19440
			QPSK	17920	19520

LTE Band 12					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	23017	699.7	16QAM	1104	1314
			QPSK	1110	1314
	23095	707.5	16QAM	1104	1320
			QPSK	1098	1308
	23173	715.3	16QAM	1104	1302
			QPSK	1104	1296
3MHz	23025	700.5	16QAM	2724	3096
			QPSK	2736	3120
	23095	707.5	16QAM	2736	3096
			QPSK	2748	3132
	23165	714.5	16QAM	2736	3096
			QPSK	2748	3156
5MHz	23035	701.5	16QAM	4520	4980
			QPSK	4520	5040
	23095	707.5	16QAM	4500	5000
			QPSK	4520	5000
	23155	713.5	16QAM	4520	5040
			QPSK	4540	5040
10MHz	23060	704.0	16QAM	9120	10280
			QPSK	9080	10200
	23095	707.5	16QAM	9040	10200
			QPSK	9040	10160
	23130	711.0	16QAM	9120	10200
			QPSK	9120	10280

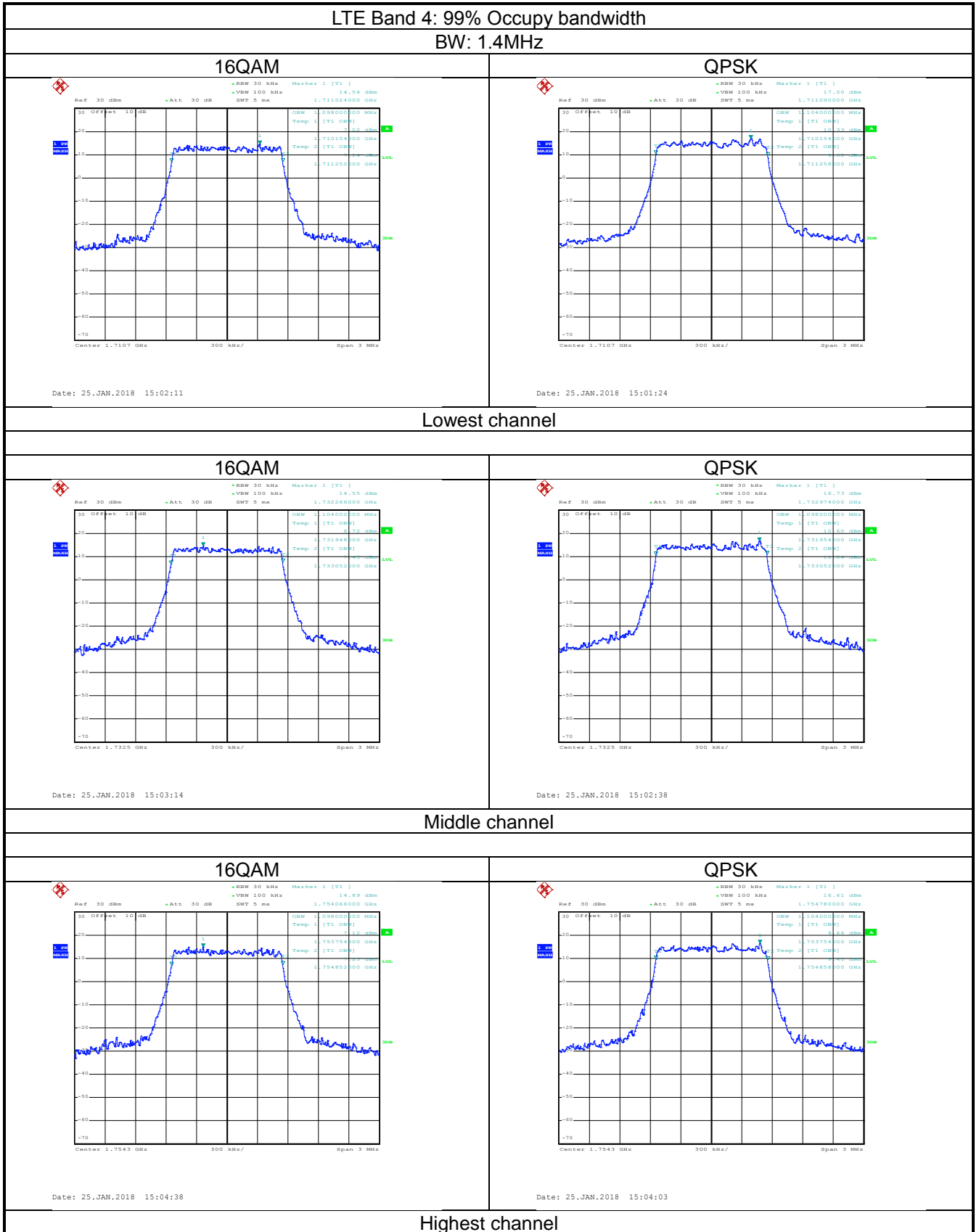
LTE Band 25					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	26047	1850.7	16QAM	1098	1326
			QPSK	1104	1314
	26365	1882.5	16QAM	1098	1326
			QPSK	1104	1302
	26683	1914.3	16QAM	1098	1295
			QPSK	1104	1302
3MHz	26055	1851.5	16QAM	2736	3072
			QPSK	2748	3132
	26365	1882.5	16QAM	2724	3096
			QPSK	2736	3132
	26675	1913.5	16QAM	2736	3084
			QPSK	2748	3132
5MHz	26065	1852.5	16QAM	4480	5020
			QPSK	4520	5080
	26365	1882.5	16QAM	4480	4980
			QPSK	4520	5060
	26665	1912.5	16QAM	4480	5000
			QPSK	4520	5020
10MHz	26090	1855.0	16QAM	9080	10160
			QPSK	9080	10080
	26365	1882.5	16QAM	9080	10200
			QPSK	9080	10240
	26640	1910.0	16QAM	9080	10160
			QPSK	9080	10120
15MHz	26115	1857.5	16QAM	13500	14760
			QPSK	13500	14880
	26365	1882.5	16QAM	13500	15120
			QPSK	13560	15120
	26615	1907.5	16QAM	13560	15060
			QPSK	13560	14940
20MHz	26140	1860.0	16QAM	17840	19440
			QPSK	17920	19520
	26365	1882.5	16QAM	17920	19520
			QPSK	18000	19600
	26590	1905.0	16QAM	17800	19440
			QPSK	18000	19520

LTE Band 5&26(part 22H)					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	26697	824.7	16QAM	1098	1296
			QPSK	1098	1296
	26865	836.5	16QAM	1098	1278
			QPSK	1098	1284
	27033	848.3	16QAM	1098	1320
			QPSK	1104	1302
3MHz	26705	825.5	16QAM	2724	3096
			QPSK	2736	3132
	26865	836.5	16QAM	2724	3060
			QPSK	2760	3120
	27025	847.5	16QAM	2736	3084
			QPSK	2736	3144
5MHz	26715	826.5	16QAM	4500	5040
			QPSK	4520	5020
	26865	836.5	16QAM	4480	4940
			QPSK	4520	5060
	27015	846.5	16QAM	4500	5040
			QPSK	4500	5060
10MHz	26740	829.0	16QAM	9120	10000
			QPSK	9120	10160
	26865	836.5	16QAM	9120	10240
			QPSK	9120	10360
	26990	844.0	16QAM	9120	10240
			QPSK	9120	10320
15MHz	26765	831.5	16QAM	13560	14760
			QPSK	13560	14820
	26865	836.5	16QAM	13500	14820
			QPSK	13560	14940
	26965	841.5	16QAM	13560	15120
			QPSK	13500	15000



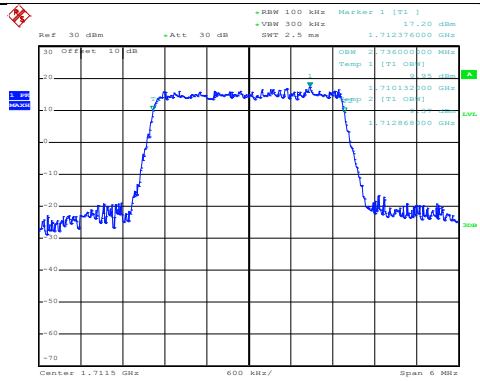
LTE Band 26(part 90S)					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	26697	814.7	16QAM	1104	1308
			QPSK	1098	1302
	26865	819.0	16QAM	1098	1302
			QPSK	1098	1302
	27033	823.3	16QAM	1104	1314
			QPSK	1098	1320
3MHz	26705	815.5	16QAM	2736	3060
			QPSK	2748	3120
	26865	819.0	16QAM	2760	3048
			QPSK	2748	3156
	27025	822.5	16QAM	2748	3048
			QPSK	2724	3144
5MHz	26715	816.5	16QAM	4520	5120
			QPSK	4520	5000
	26865	819.0	16QAM	4520	5000
			QPSK	4500	5040
	27015	821.5	16QAM	4500	4900
			QPSK	4500	5020
10 MHz	26865	819.0	16QAM	9120	10200
			QPSK	9120	10320
15 MHz	26765	821.5	16QAM	13500	14760
			QPSK	13500	14940

Test plot as follows:  
LTE Band 4 part:



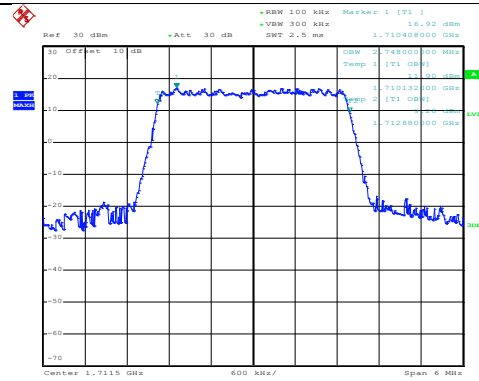
LTE Band 4: 99% Occupancy bandwidth  
BW: 3MHz

16QAM



Date: 25.JAN.2018 15:06:51

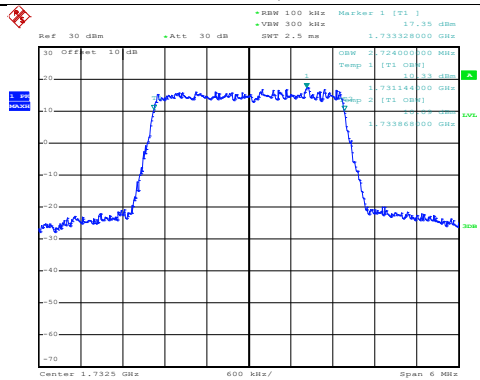
QPSK



Date: 25.JAN.2018 15:06:17

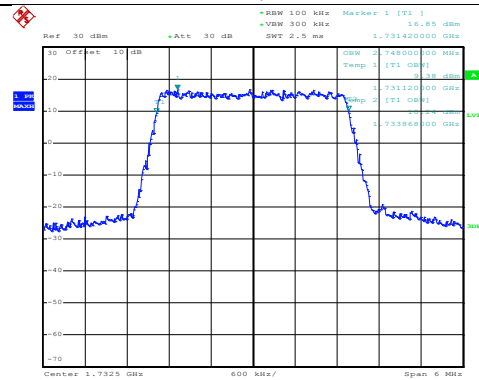
Lowest channel

16QAM



Date: 25.JAN.2018 15:07:31

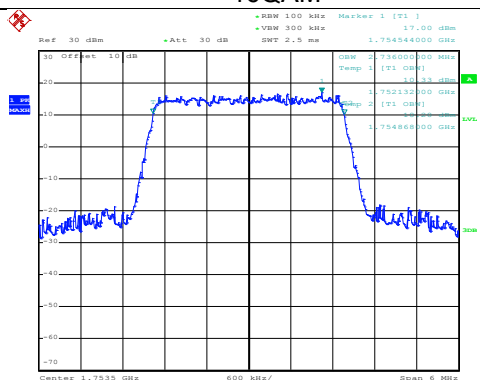
QPSK



Date: 25.JAN.2018 15:08:19

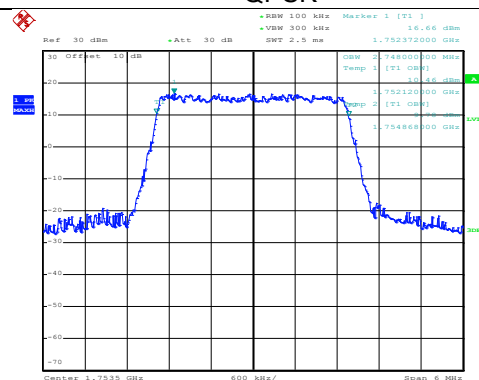
Middle channel

16QAM



Date: 25.JAN.2018 15:09:37

QPSK

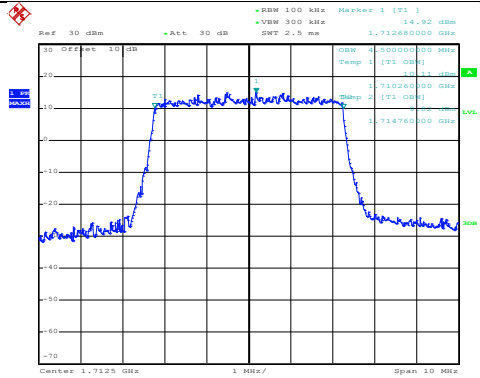


Date: 25.JAN.2018 15:08:58

Highest channel

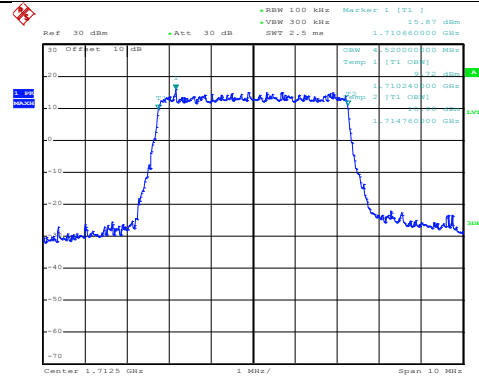
LTE Band 4: 99% Occupy bandwidth  
BW: 5MHz

16QAM



Date: 25.JAN.2018 15:14:24

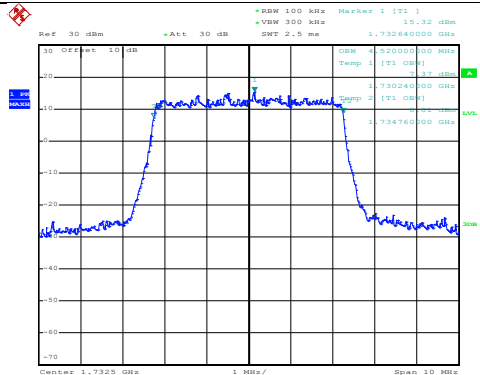
QPSK



Date: 25.JAN.2018 15:13:43

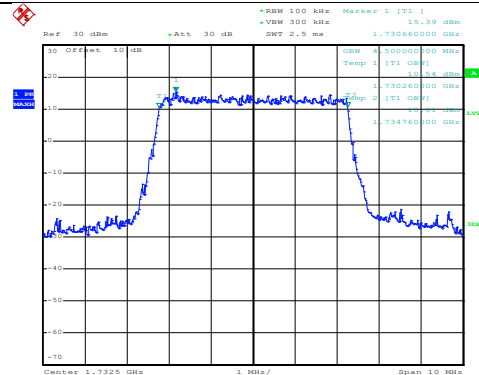
Lowest channel

16QAM



Date: 25.JAN.2018 15:15:50

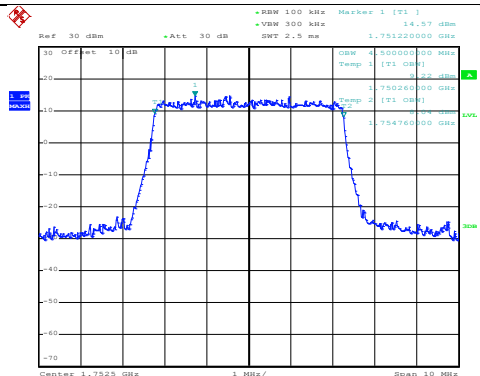
QPSK



Date: 25.JAN.2018 15:15:38

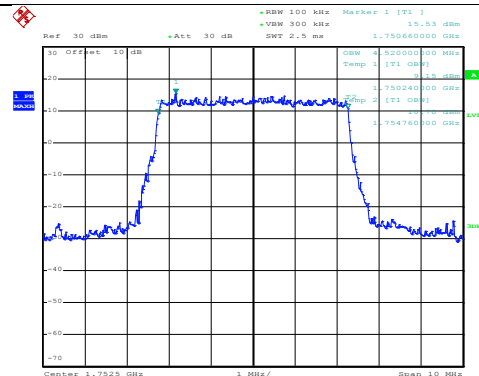
Middle channel

16QAM



Date: 25.JAN.2018 15:17:24

QPSK

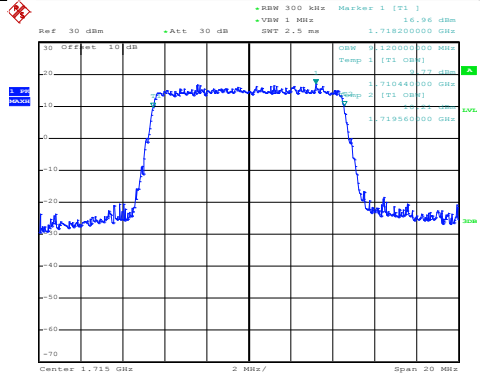


Date: 25.JAN.2018 15:17:08

Highest channel

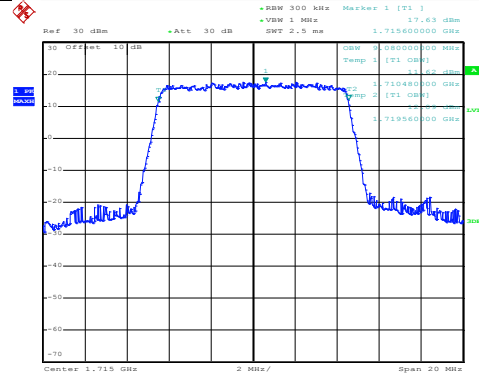
LTE Band 4: 99% Occupancy bandwidth  
BW: 10MHz

16QAM



Date: 25.JAN.2018 15:20:18

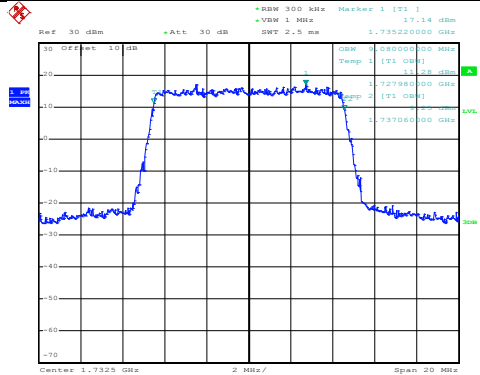
QPSK



Date: 25.JAN.2018 15:19:39

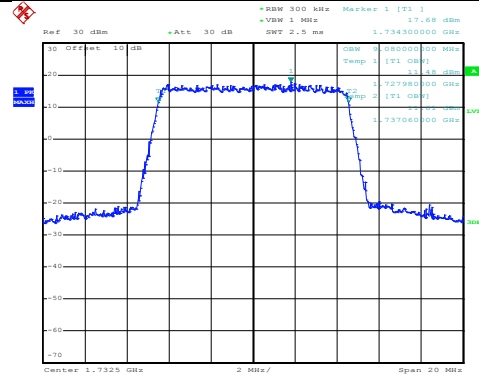
Lowest channel

16QAM



Date: 25.JAN.2018 15:21:19

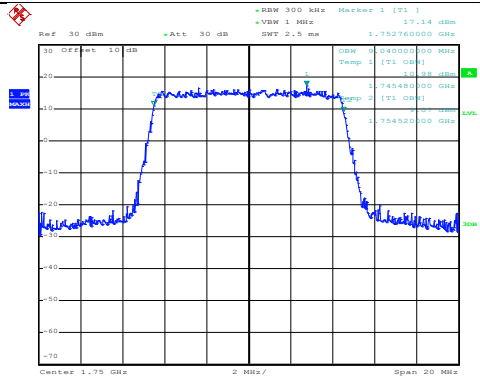
QPSK



Date: 25.JAN.2018 15:20:45

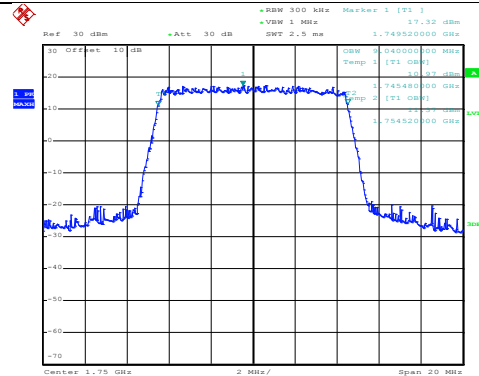
Middle channel

16QAM



Date: 25.JAN.2018 15:24:31

QPSK

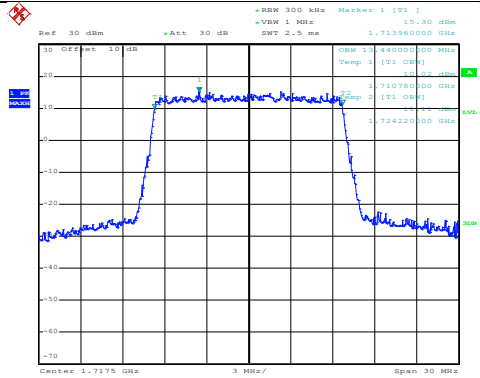


Date: 25.JAN.2018 15:22:03

Highest channel

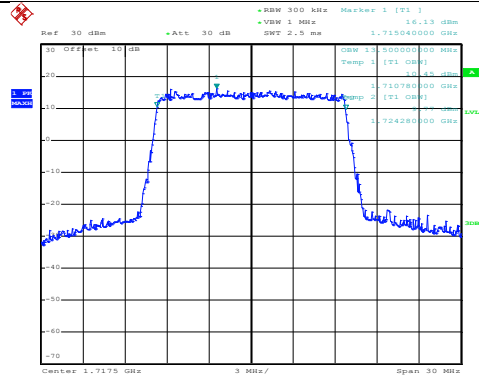
LTE Band 4: 99% Occupy bandwidth  
BW: 15MHz

16QAM



Date: 25.JAN.2018 15:25:51

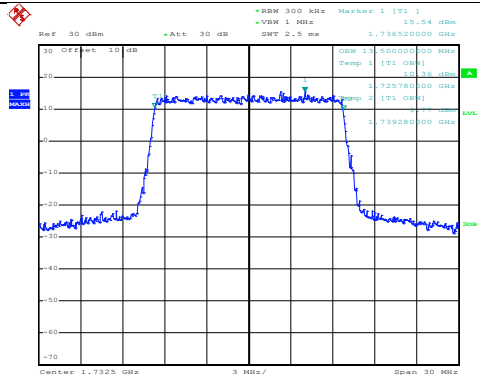
QPSK



Date: 25.JAN.2018 15:25:37

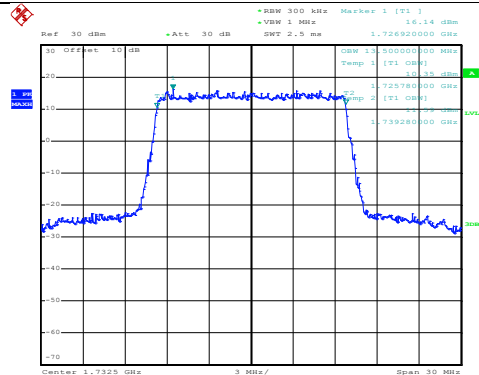
Lowest channel

16QAM



Date: 25.JAN.2018 15:26:46

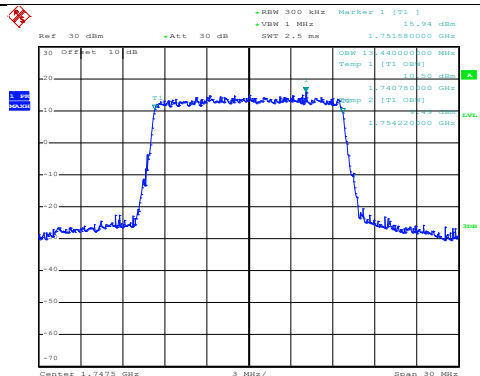
QPSK



Date: 25.JAN.2018 15:26:36

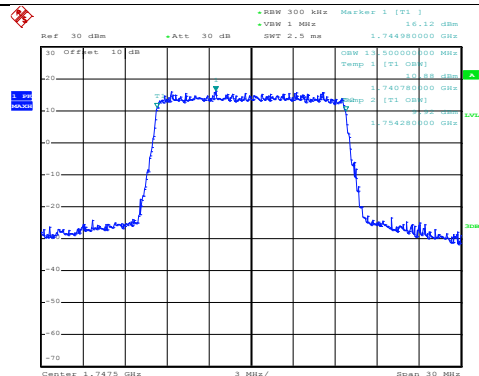
Middle channel

16QAM



Date: 25.JAN.2018 15:27:39

QPSK

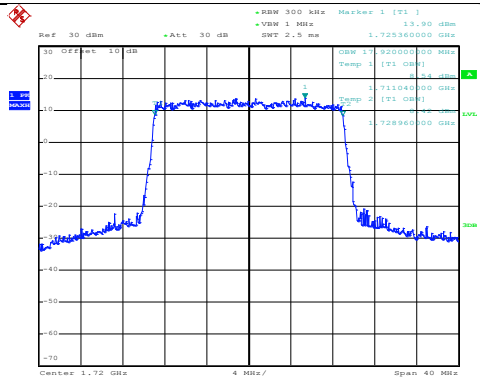


Date: 25.JAN.2018 15:27:28

Highest channel

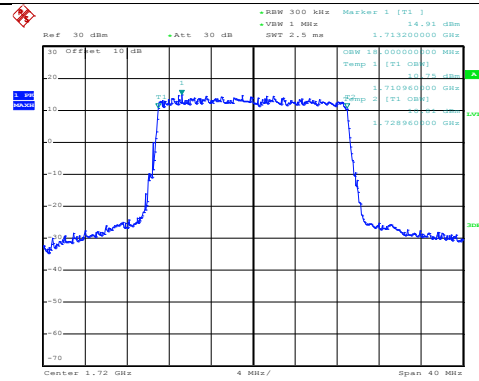
LTE Band 4: 99% Occupy bandwidth  
BW: 20MHz

16QAM



Date: 25.JAN.2018 15:28:59

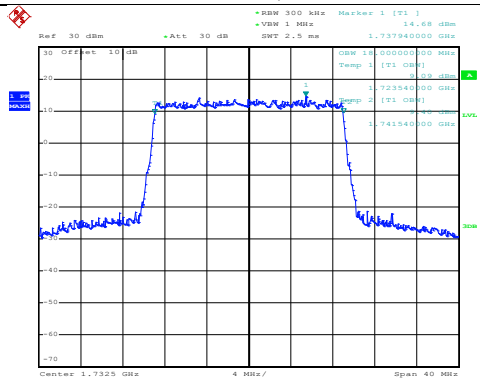
QPSK



Date: 25.JAN.2018 15:28:48

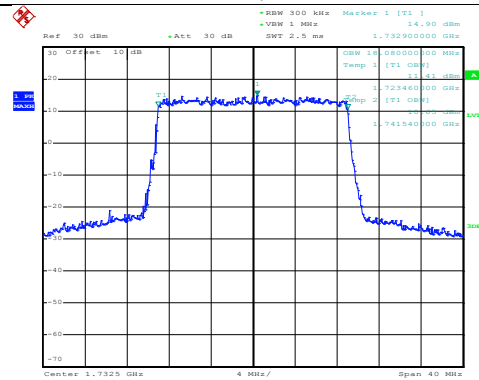
Lowest channel

16QAM



Date: 25.JAN.2018 15:30:14

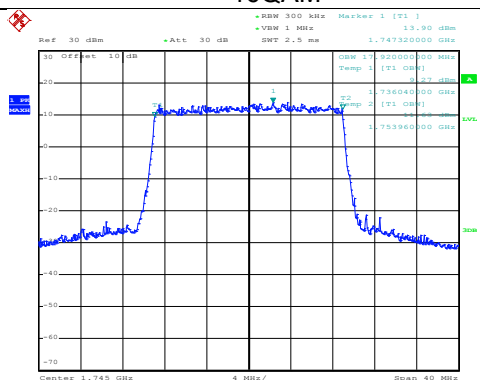
QPSK



Date: 25.JAN.2018 15:30:00

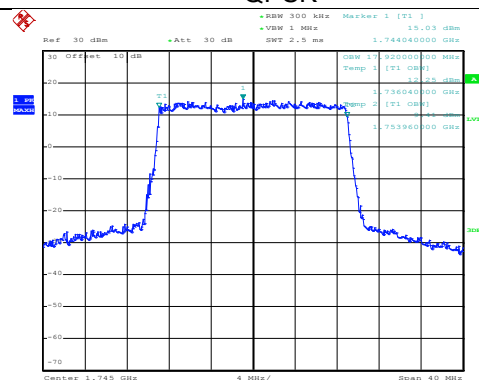
Middle channel

16QAM



Date: 25.JAN.2018 15:31:20

QPSK

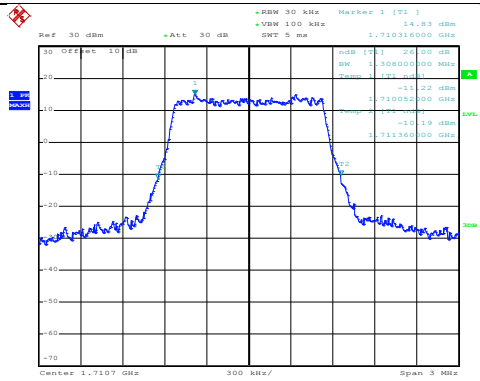


Date: 25.JAN.2018 15:31:10

Highest channel

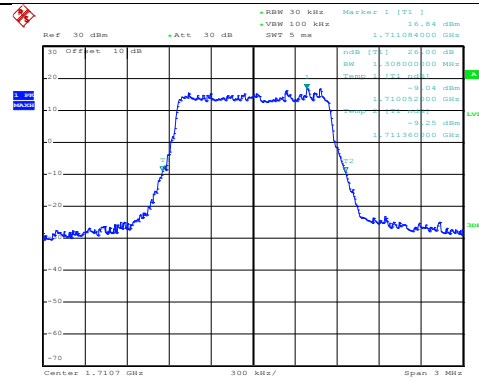
LTE Band 4: -26dBc bandwidth  
BW: 1.4MHz

16QAM



Date: 25.JAN.2018 15:02:01

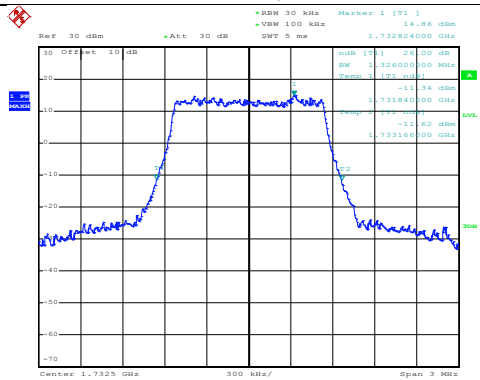
QPSK



Date: 25.JAN.2018 15:01:46

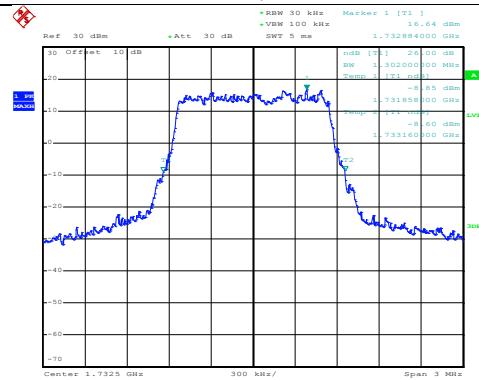
Lowest channel

16QAM



Date: 25.JAN.2018 15:03:02

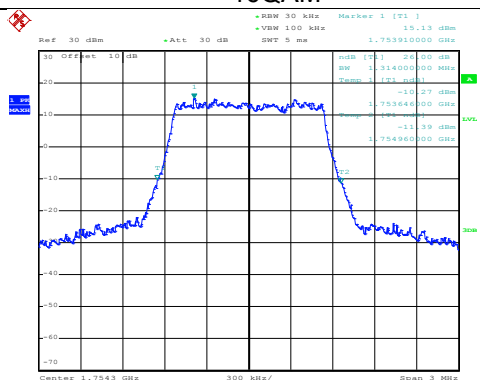
QPSK



Date: 25.JAN.2018 15:02:49

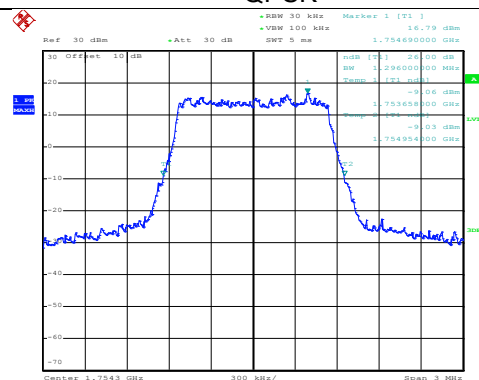
Middle channel

16QAM



Date: 25.JAN.2018 15:04:28

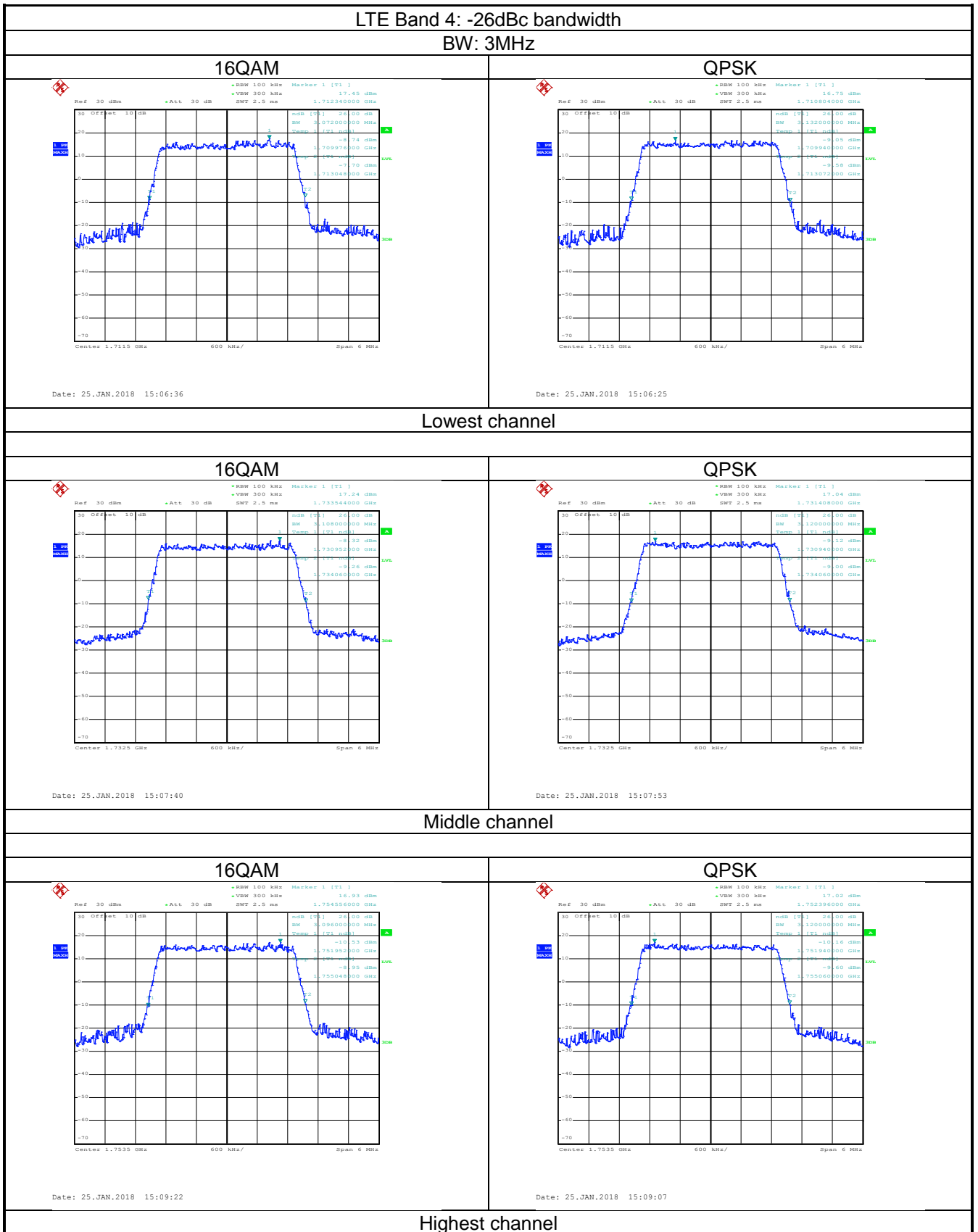
QPSK

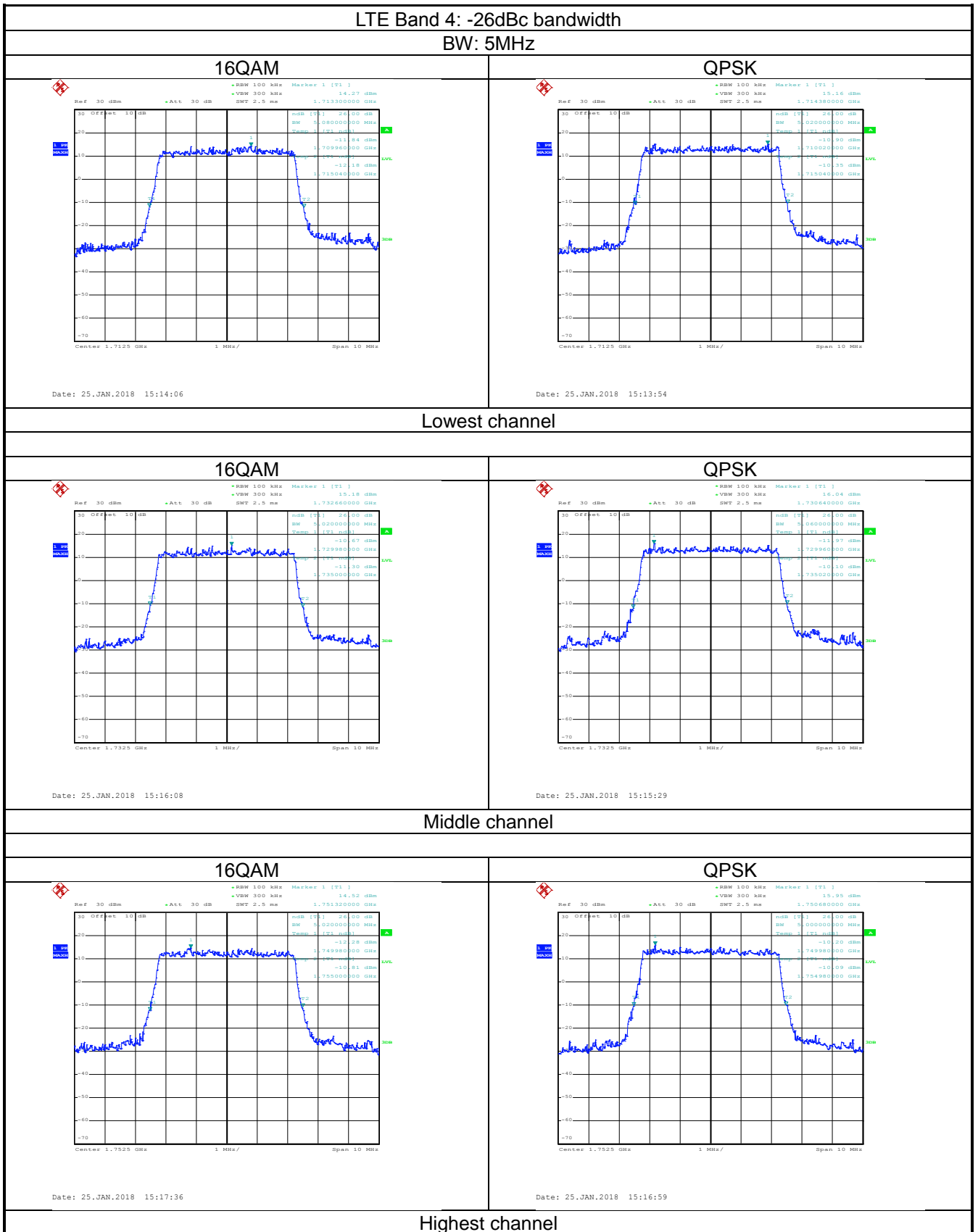


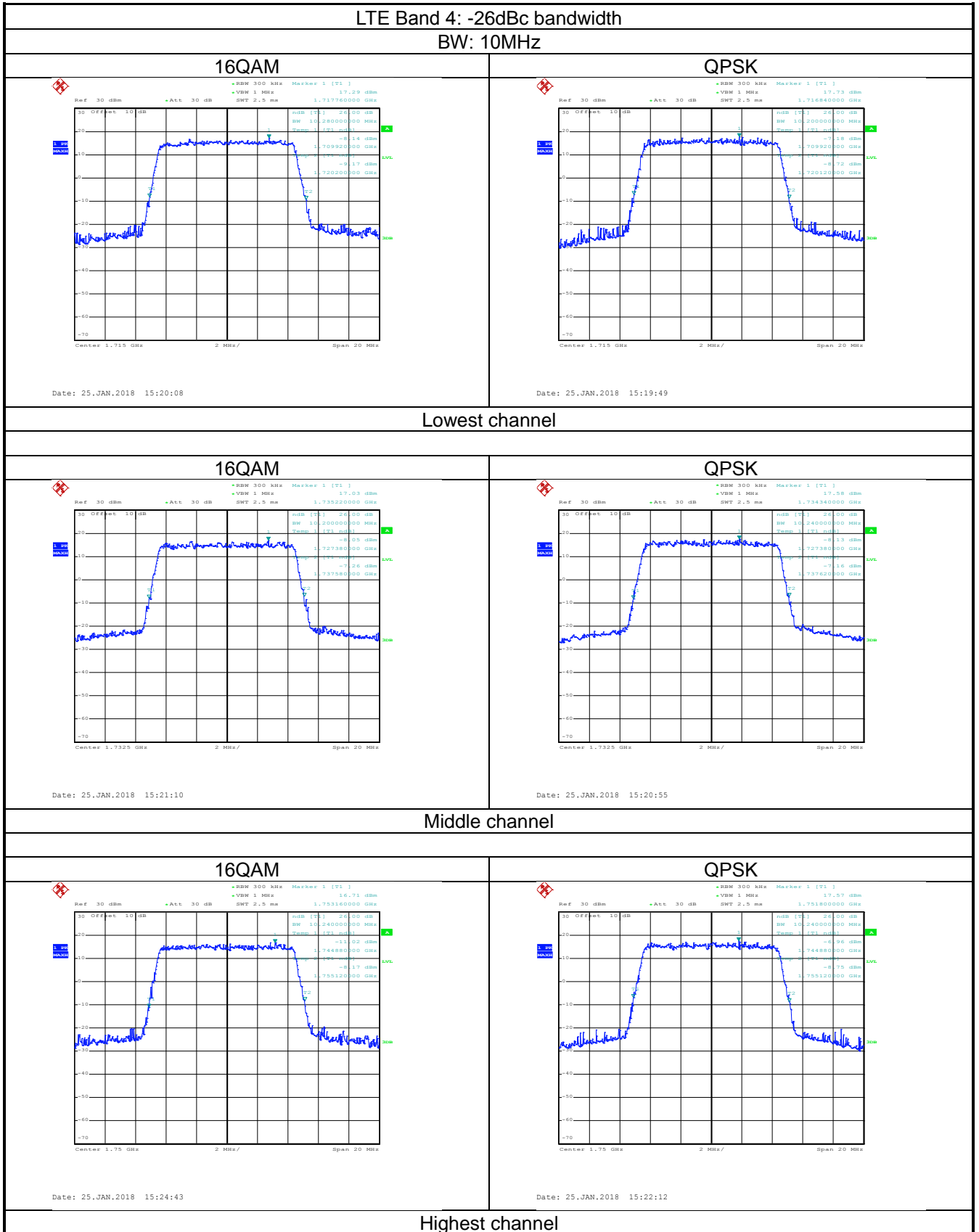
Date: 25.JAN.2018 15:04:11

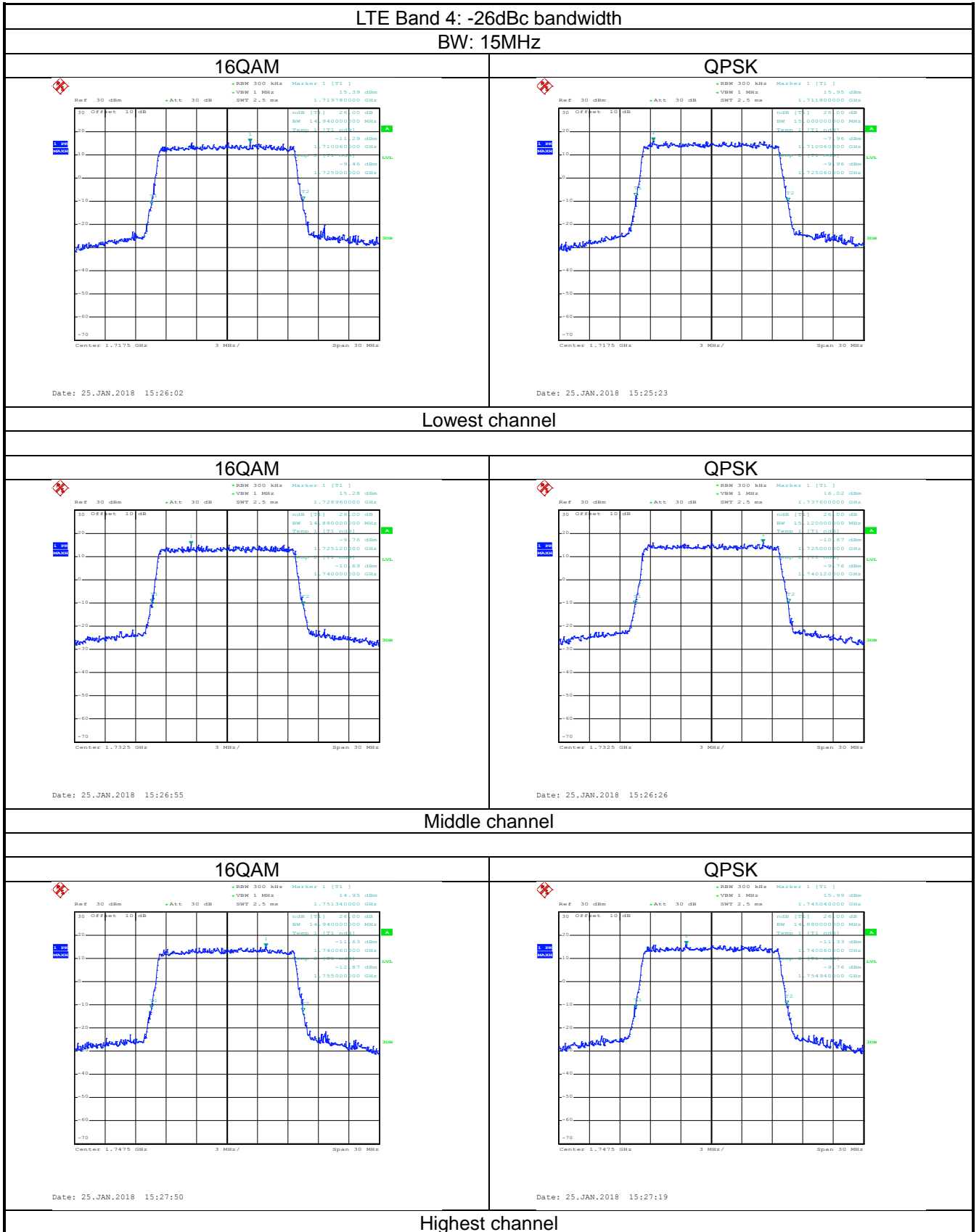
Highest channel

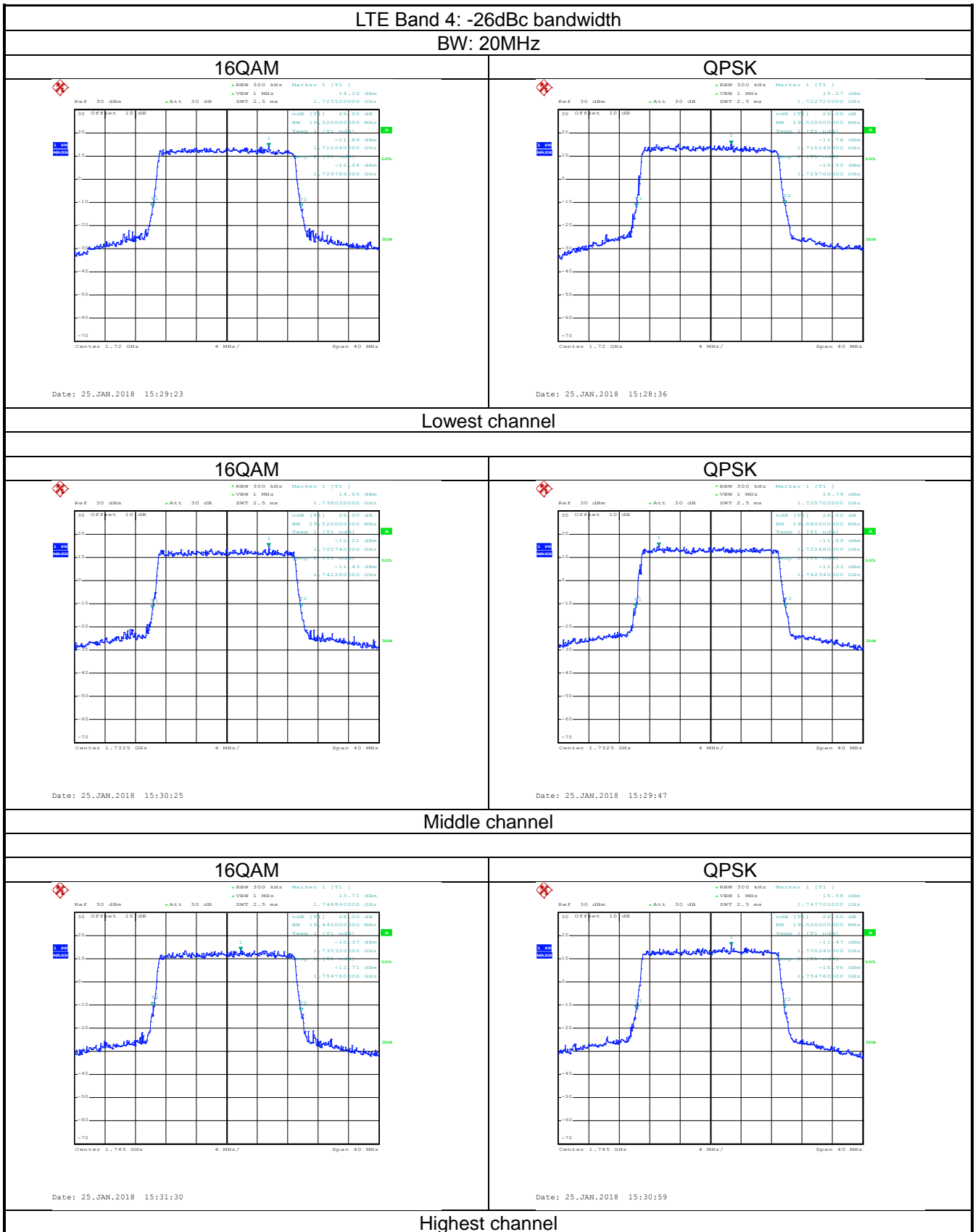




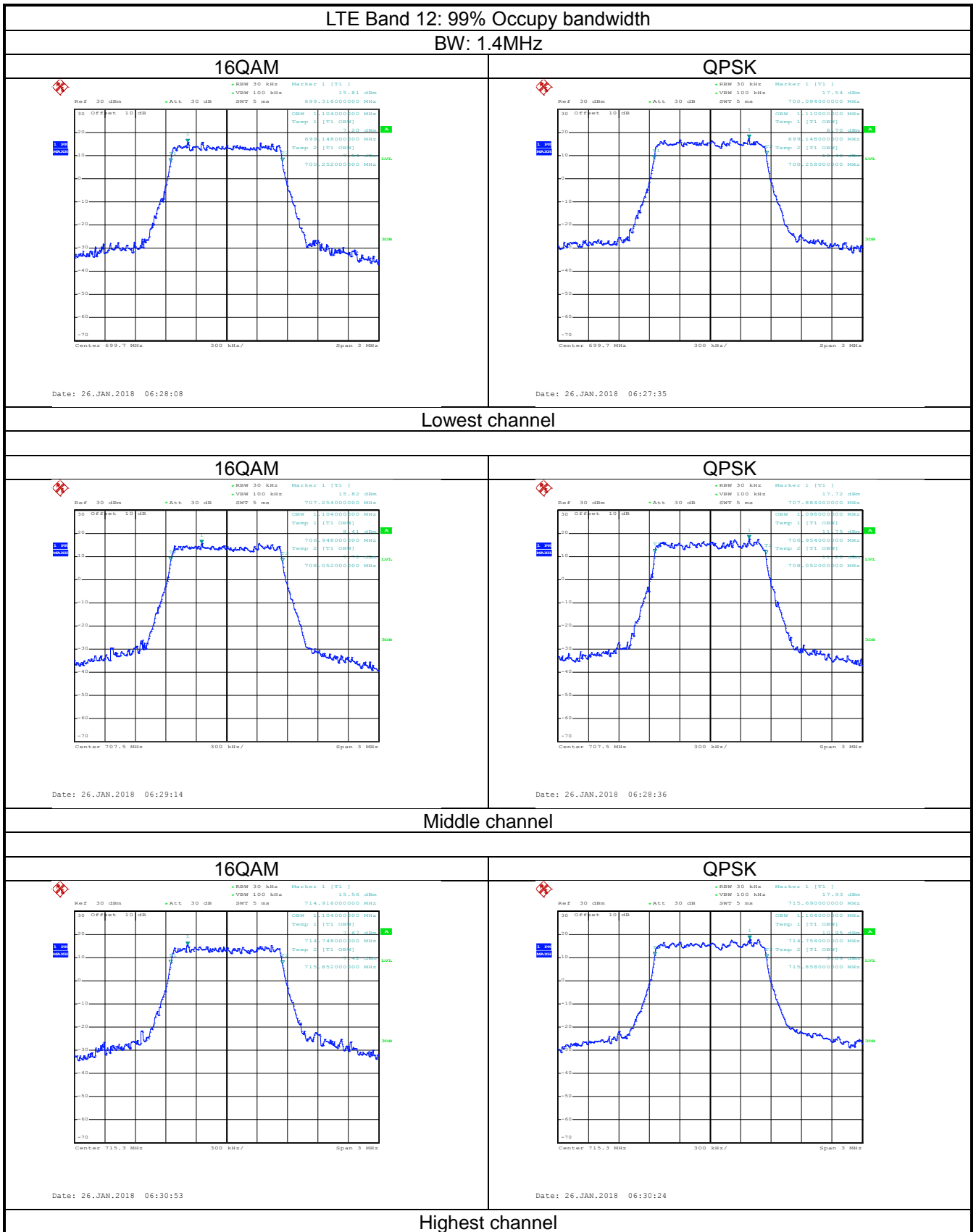






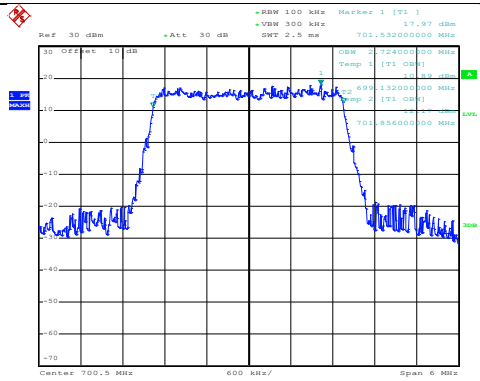


LTE-Band 12 part:



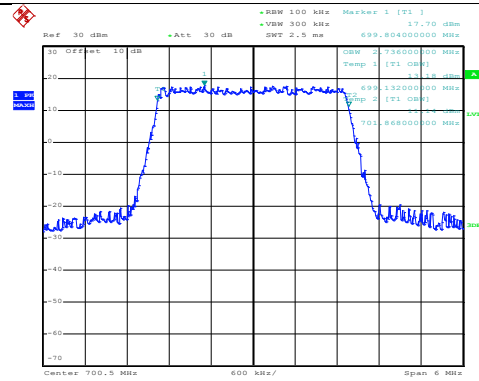
LTE Band 12: 99% Occupy bandwidth  
 BW: 3MHz

16QAM



Date: 26.JAN.2018 06:32:32

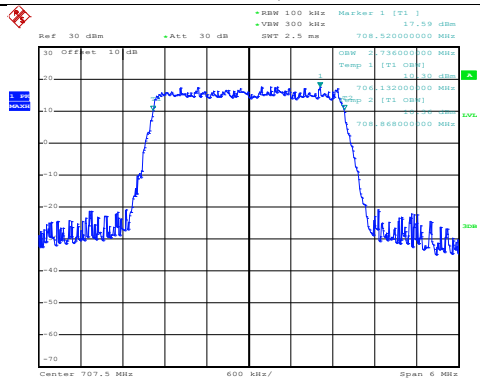
QPSK



Date: 26.JAN.2018 06:31:57

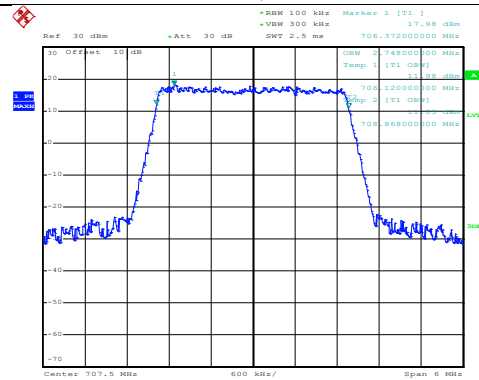
Lowest channel

16QAM



Date: 26.JAN.2018 06:33:59

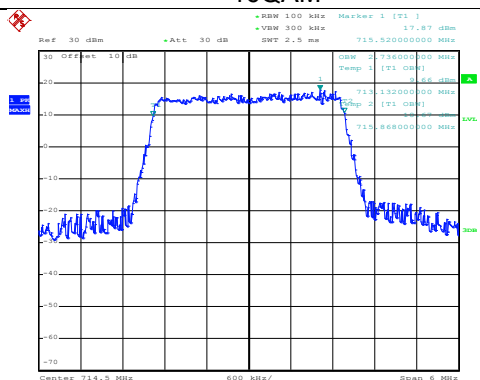
QPSK



Date: 26.JAN.2018 06:33:26

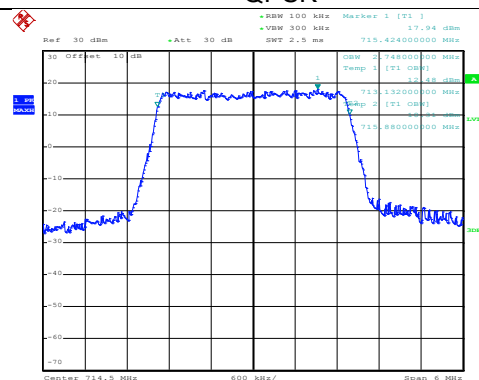
Middle channel

16QAM



Date: 26.JAN.2018 06:34:54

QPSK



Date: 26.JAN.2018 06:34:24

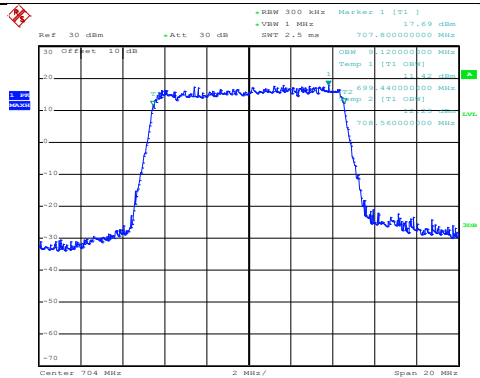
Highest channel





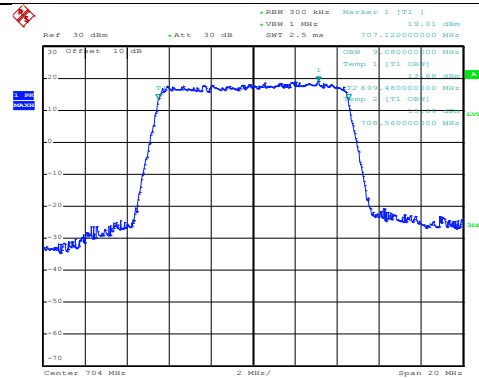
LTE Band 12: 99% Occupy bandwidth  
 BW: 10MHz

16QAM



Date: 26.JAN.2018 06:42:32

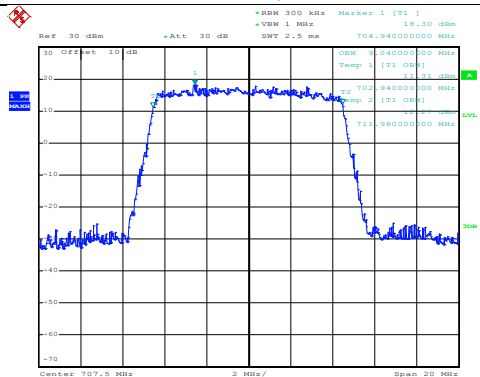
QPSK



Date: 26.JAN.2018 06:41:57

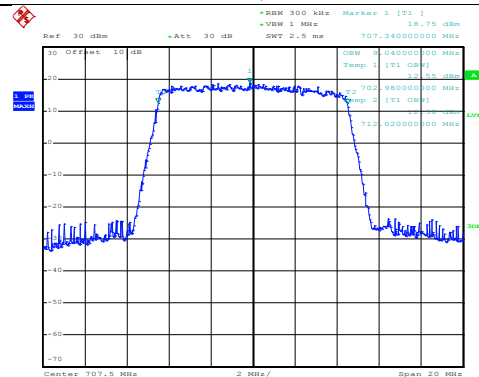
Lowest channel

16QAM



Date: 26.JAN.2018 06:43:36

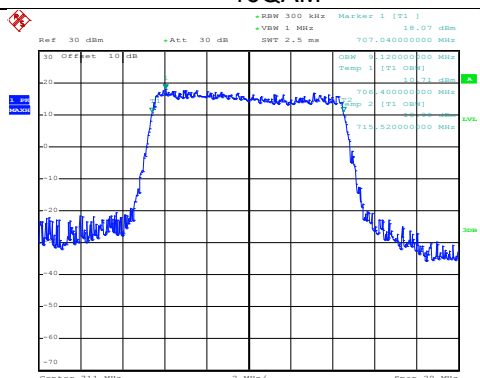
QPSK



Date: 26.JAN.2018 06:43:00

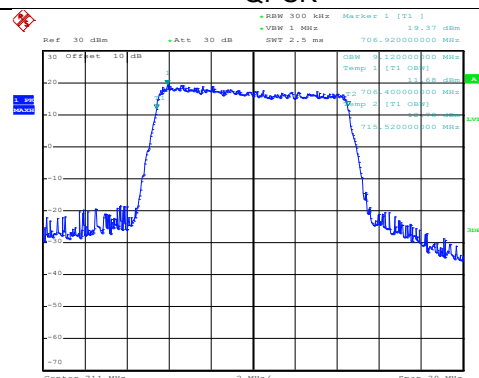
Middle channel

16QAM



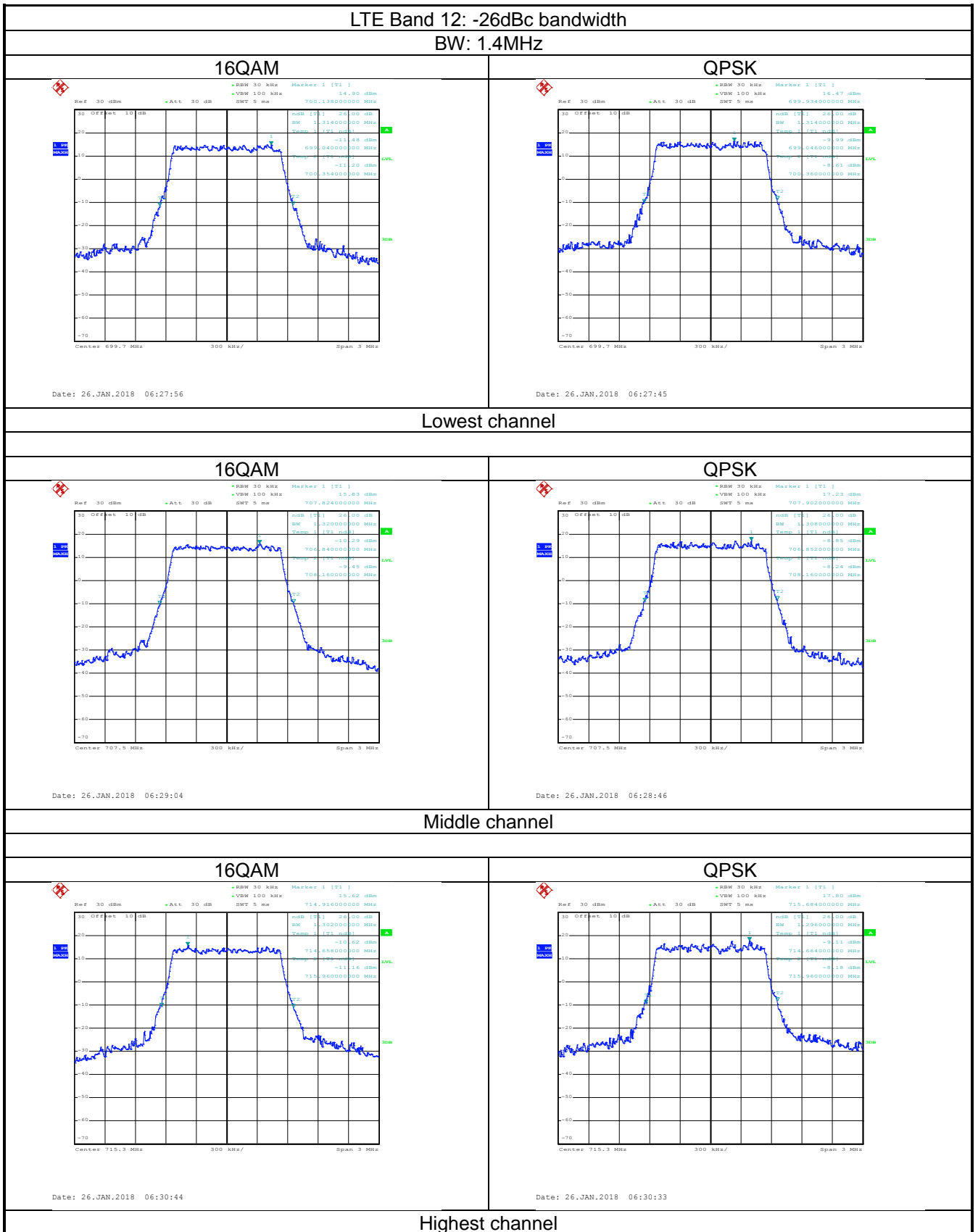
Date: 26.JAN.2018 06:44:38

QPSK



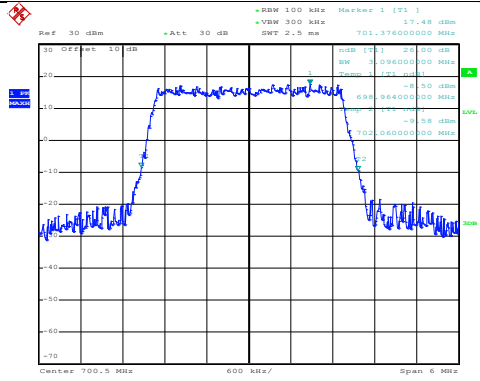
Date: 26.JAN.2018 06:44:01

Highest channel



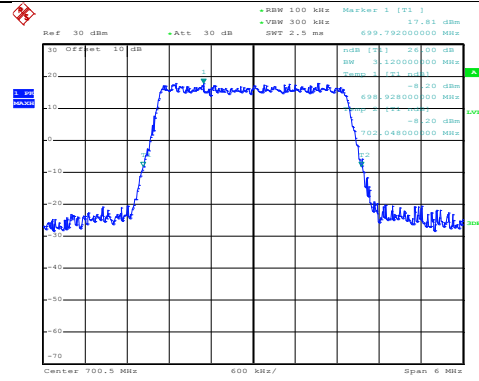
LTE Band 12: -26dBc bandwidth  
BW: 3MHz

### 16QAM



Date: 26.JAN.2018 06:32:21

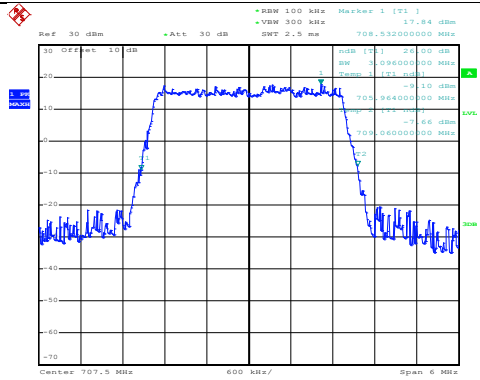
### QPSK



Date: 26.JAN.2018 06:32:08

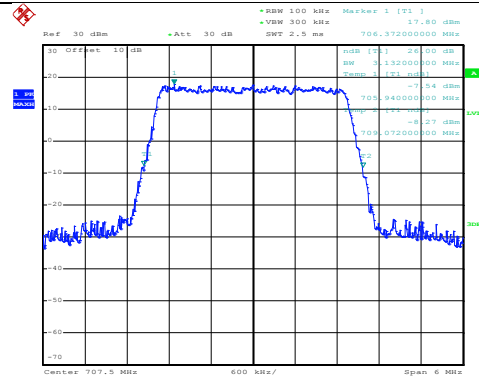
### Lowest channel

### 16QAM



Date: 26.JAN.2018 06:33:49

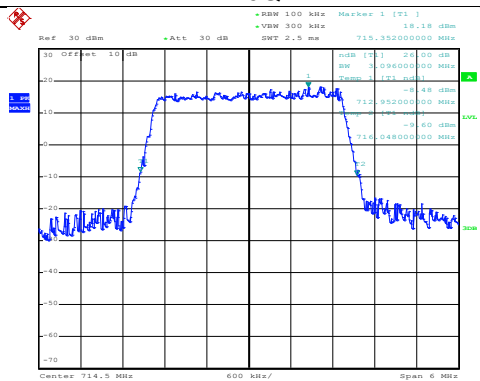
### QPSK



Date: 26.JAN.2018 06:33:38

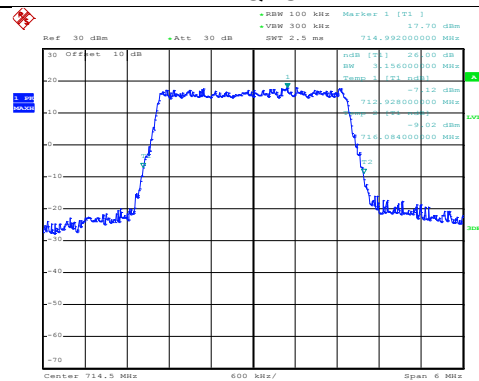
### Middle channel

### 16QAM



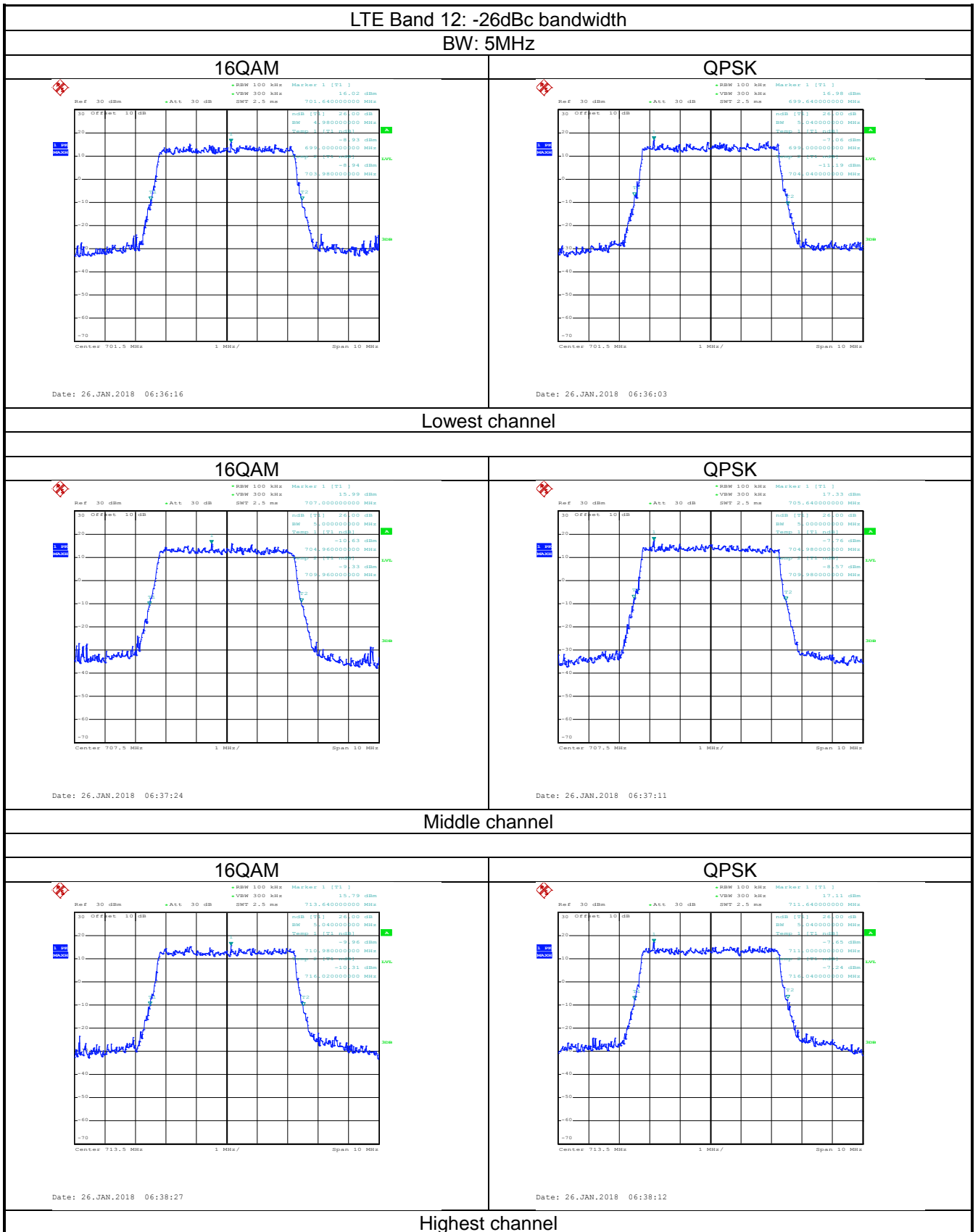
Date: 26.JAN.2018 06:34:44

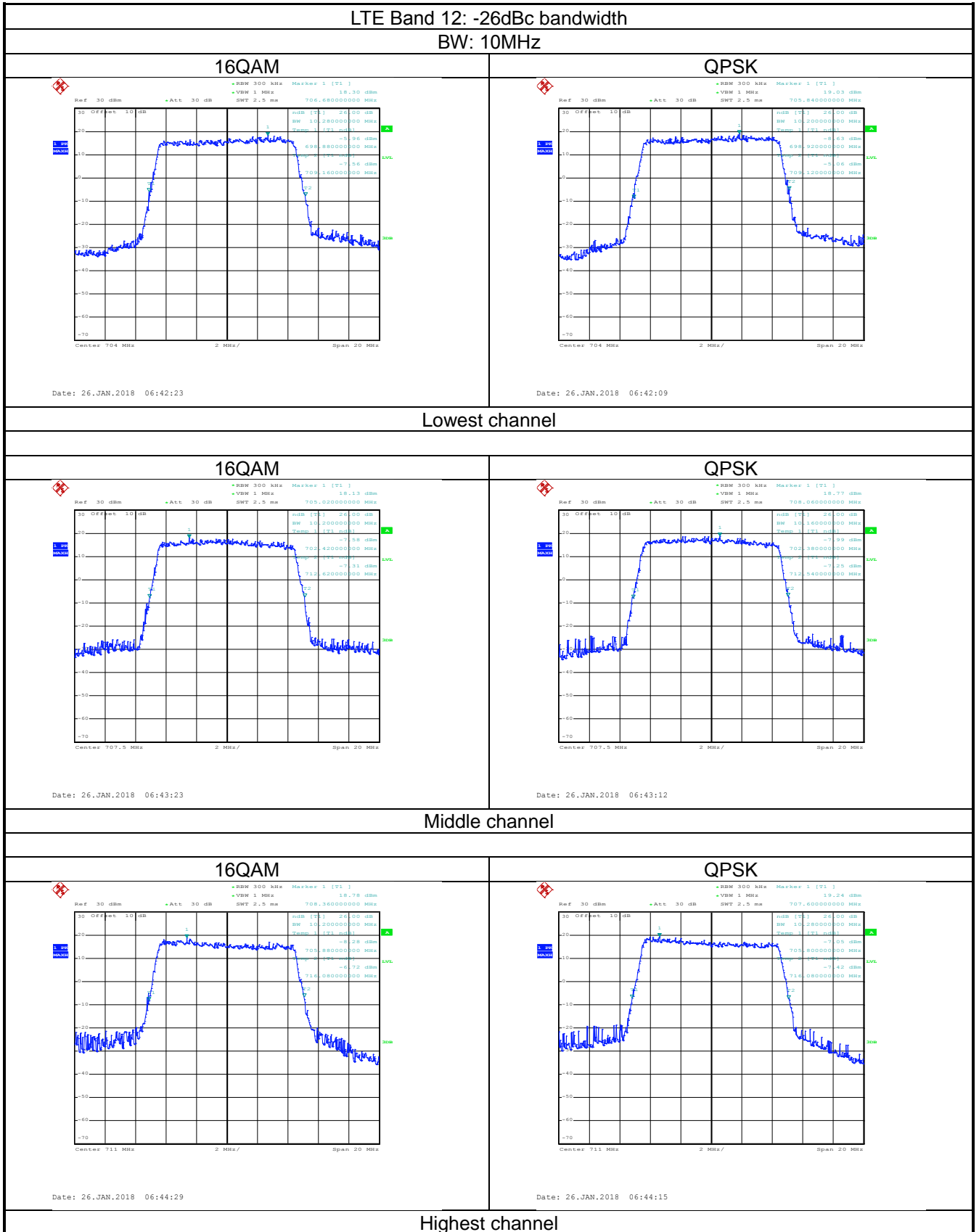
### QPSK



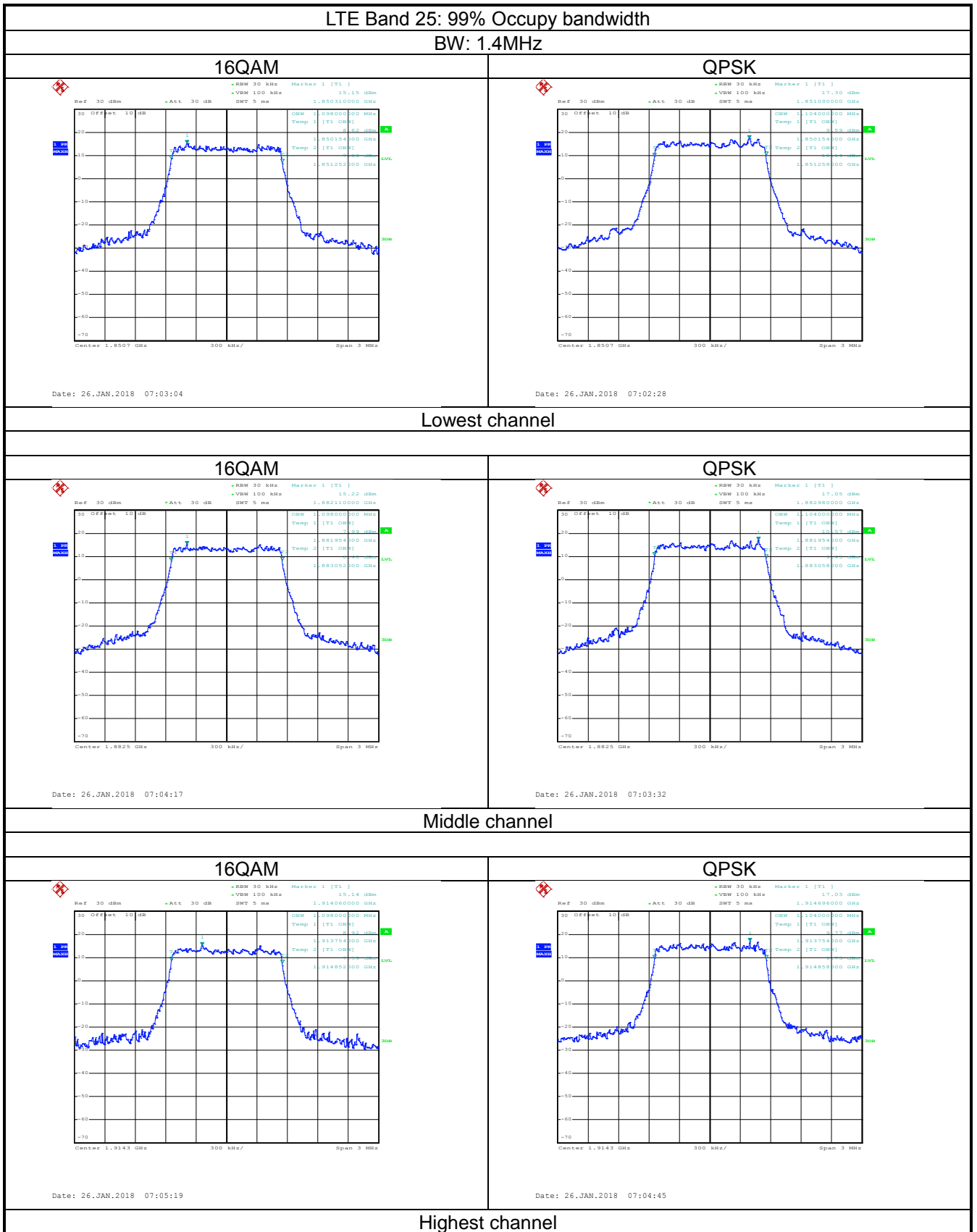
Date: 26.JAN.2018 06:34:34

### Highest channel



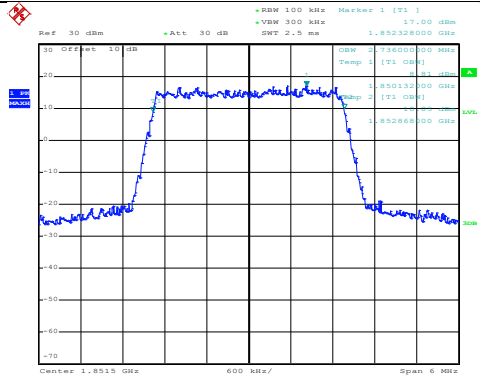


LTE Band 25 part:



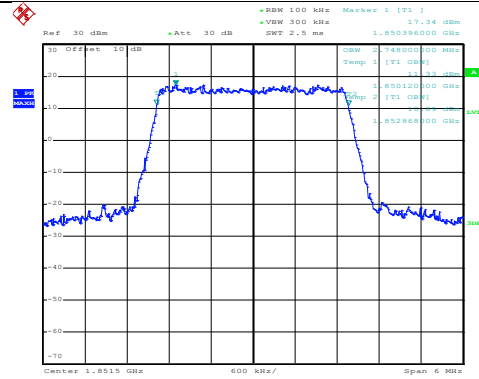
LTE Band 25: 99% Occupy bandwidth  
 BW: 3MHz

16QAM



Date: 26.JAN.2018 07:07:35

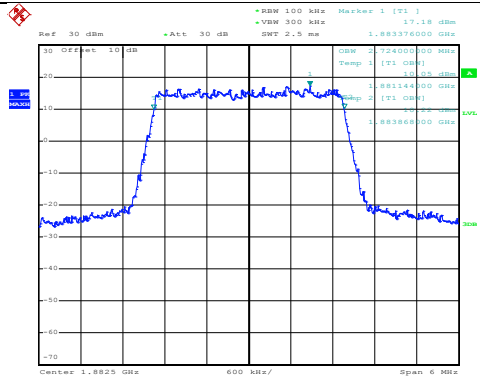
QPSK



Date: 26.JAN.2018 07:07:00

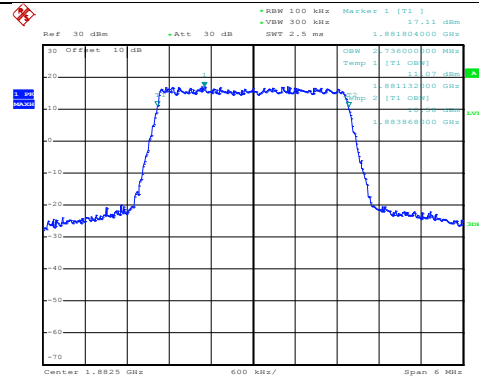
Lowest channel

16QAM



Date: 26.JAN.2018 07:08:47

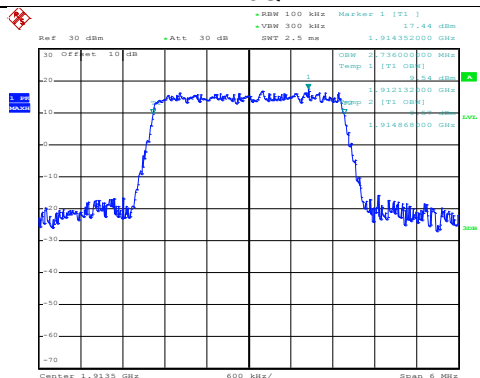
QPSK



Date: 26.JAN.2018 07:08:09

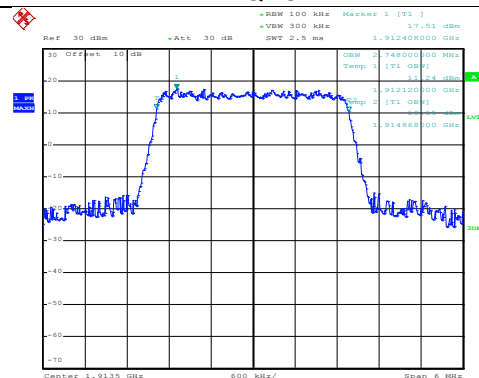
Middle channel

16QAM



Date: 26.JAN.2018 07:10:02

QPSK

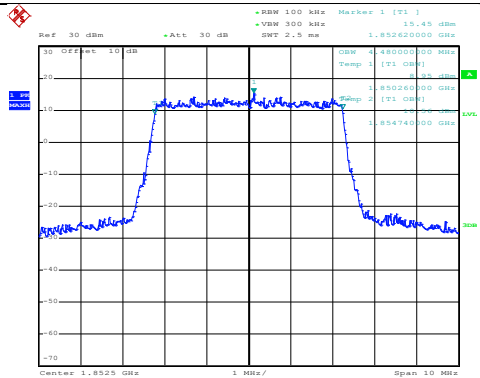


Date: 26.JAN.2018 07:09:30

Highest channel

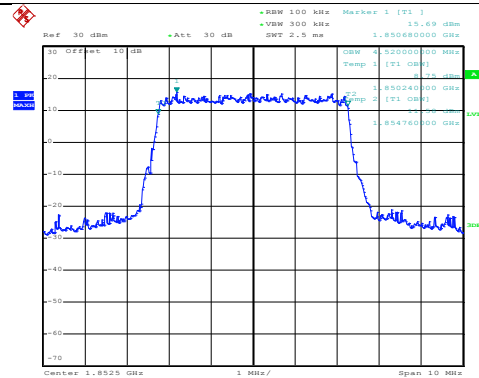
LTE Band 25: 99% Occupy bandwidth  
 BW: 5MHz

16QAM



Date: 26.JAN.2018 07:11:50

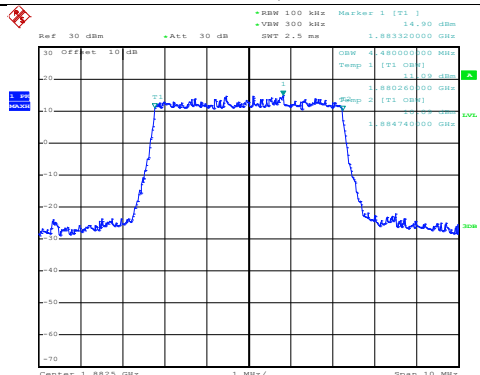
QPSK



Date: 26.JAN.2018 07:11:14

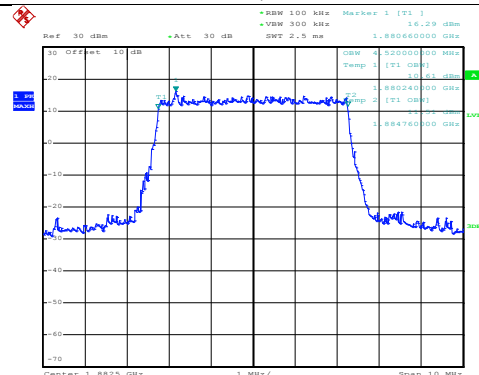
Lowest channel

16QAM



Date: 26.JAN.2018 07:12:56

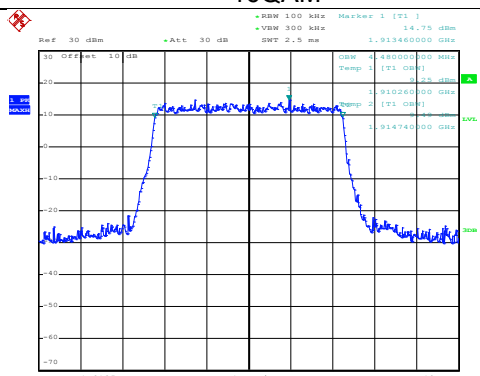
QPSK



Date: 26.JAN.2018 07:12:18

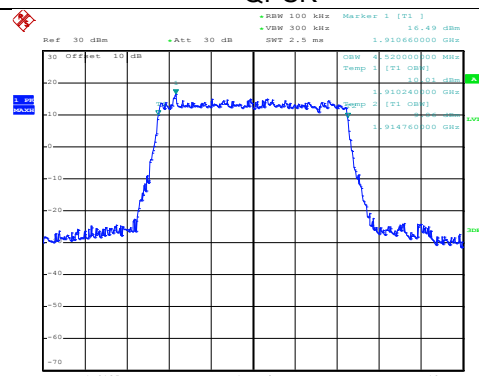
Middle channel

16QAM



Date: 26.JAN.2018 07:14:09

QPSK



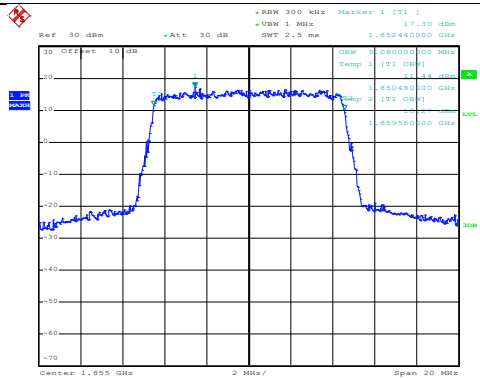
Date: 26.JAN.2018 07:13:32

Highest channel



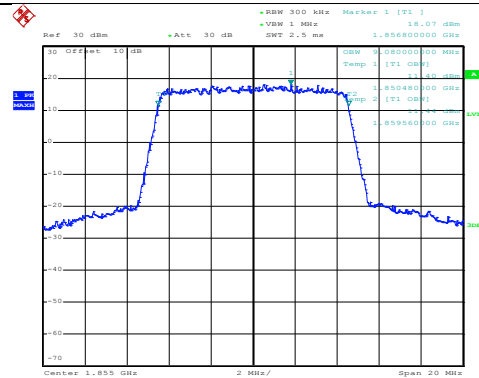
LTE Band 25: 99% Occupy bandwidth  
 BW: 10MHz

16QAM



Date: 26.JAN.2018 07:15:31

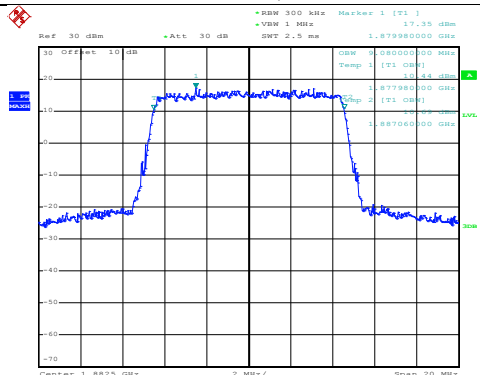
QPSK



Date: 26.JAN.2018 07:15:01

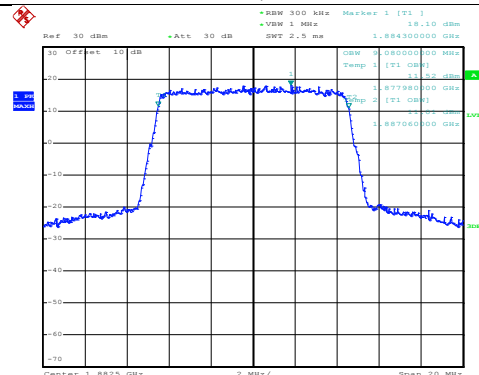
Lowest channel

16QAM



Date: 26.JAN.2018 07:16:26

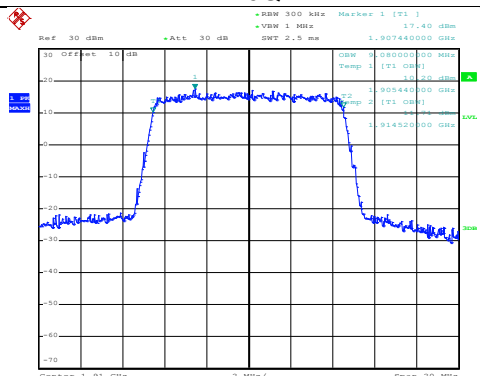
QPSK



Date: 26.JAN.2018 07:15:57

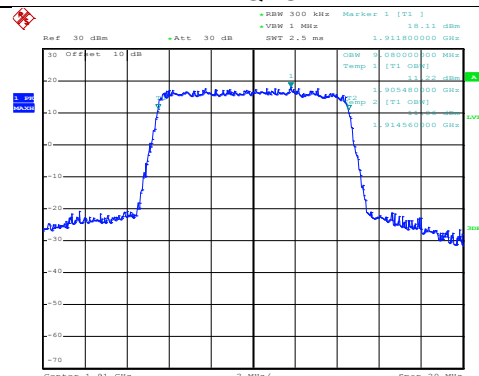
Middle channel

16QAM



Date: 26.JAN.2018 07:17:31

QPSK

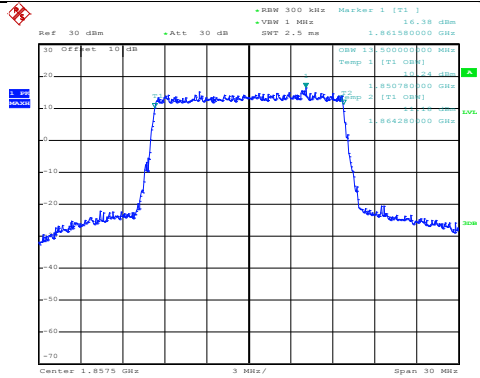


Date: 26.JAN.2018 07:17:05

Highest channel

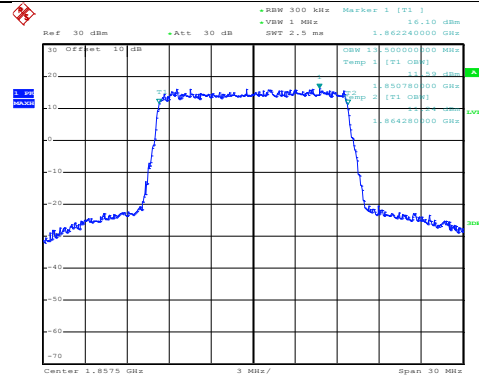
LTE Band 25: 99% Occupancy bandwidth  
BW: 15MHz

16QAM



Date: 26.JAN.2018 07:18:43

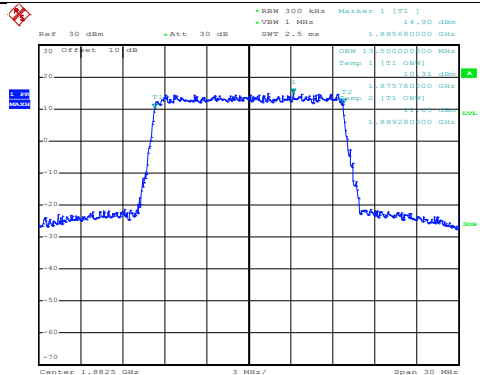
QPSK



Date: 26.JAN.2018 07:18:16

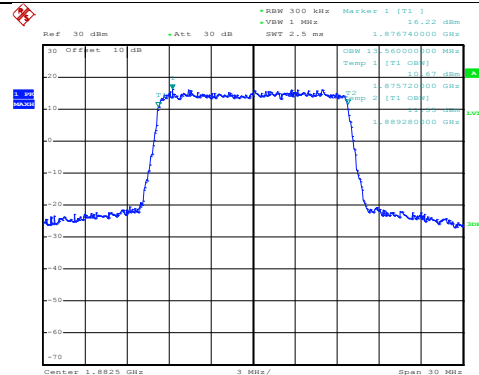
Lowest channel

16QAM



Date: 26.JAN.2018 07:20:17

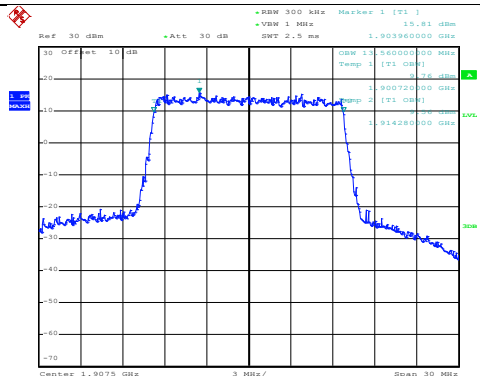
QPSK



Date: 26.JAN.2018 07:19:22

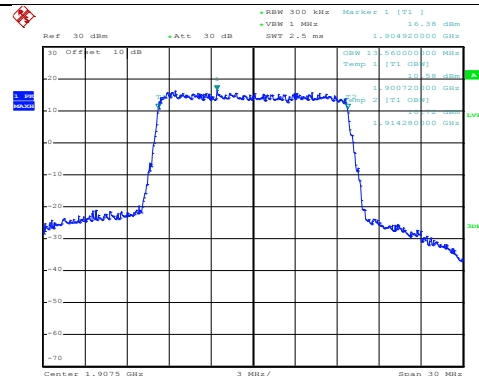
Middle channel

16QAM



Date: 26.JAN.2018 07:21:12

QPSK

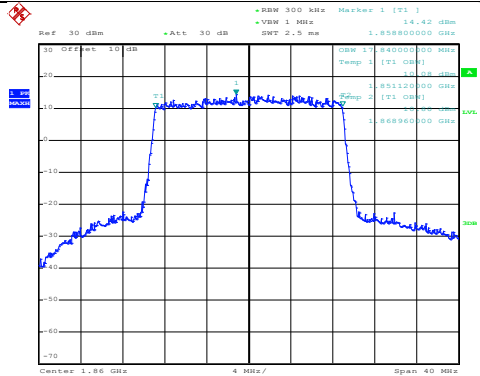


Date: 26.JAN.2018 07:20:44

Highest channel

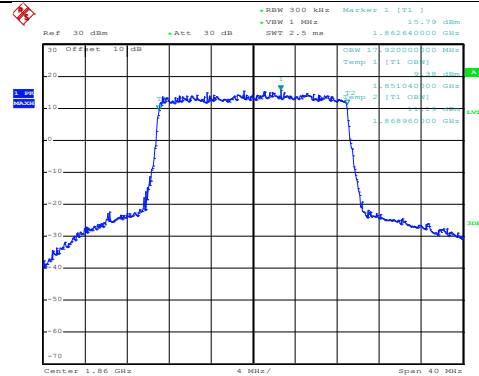
LTE Band 25: 99% Occupancy bandwidth  
BW: 20MHz

16QAM



Date: 26.JAN.2018 07:22:49

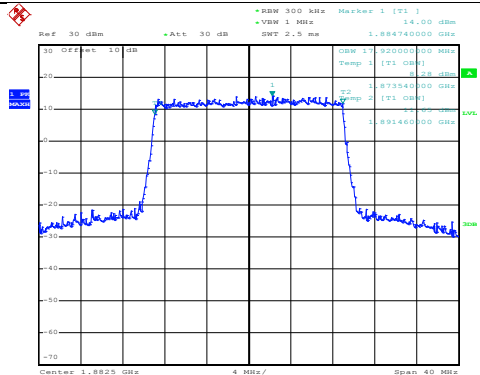
QPSK



Date: 26.JAN.2018 07:22:08

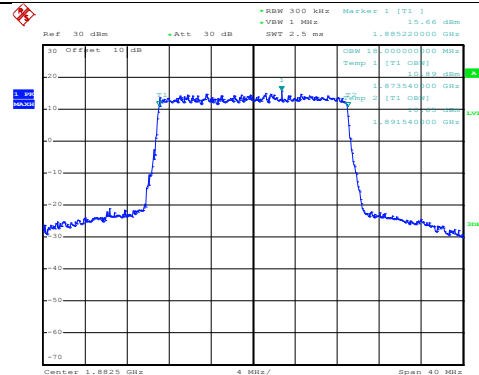
Lowest channel

16QAM



Date: 26.JAN.2018 07:23:44

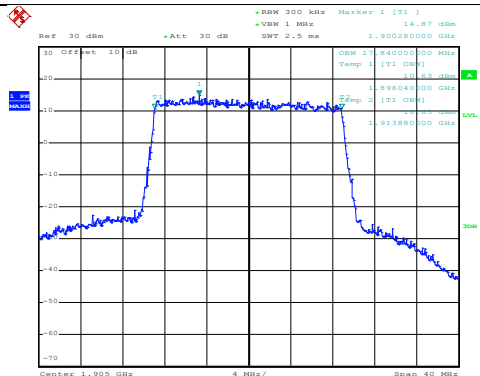
QPSK



Date: 26.JAN.2018 07:23:17

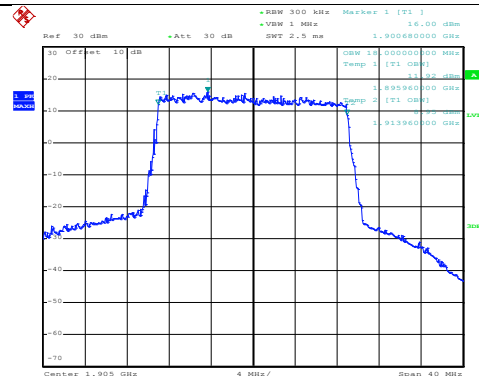
Middle channel

16QAM



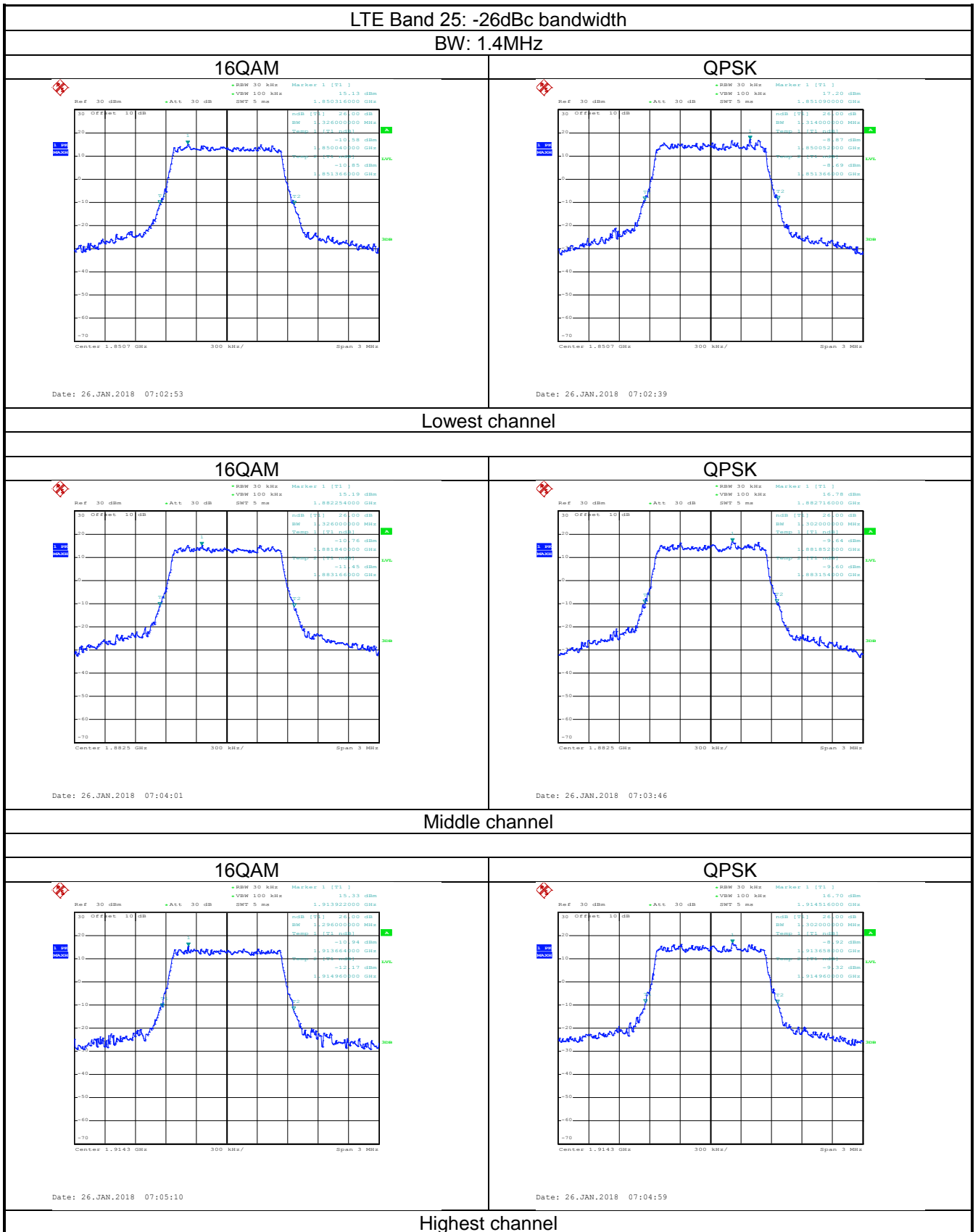
Date: 26.JAN.2018 07:24:42

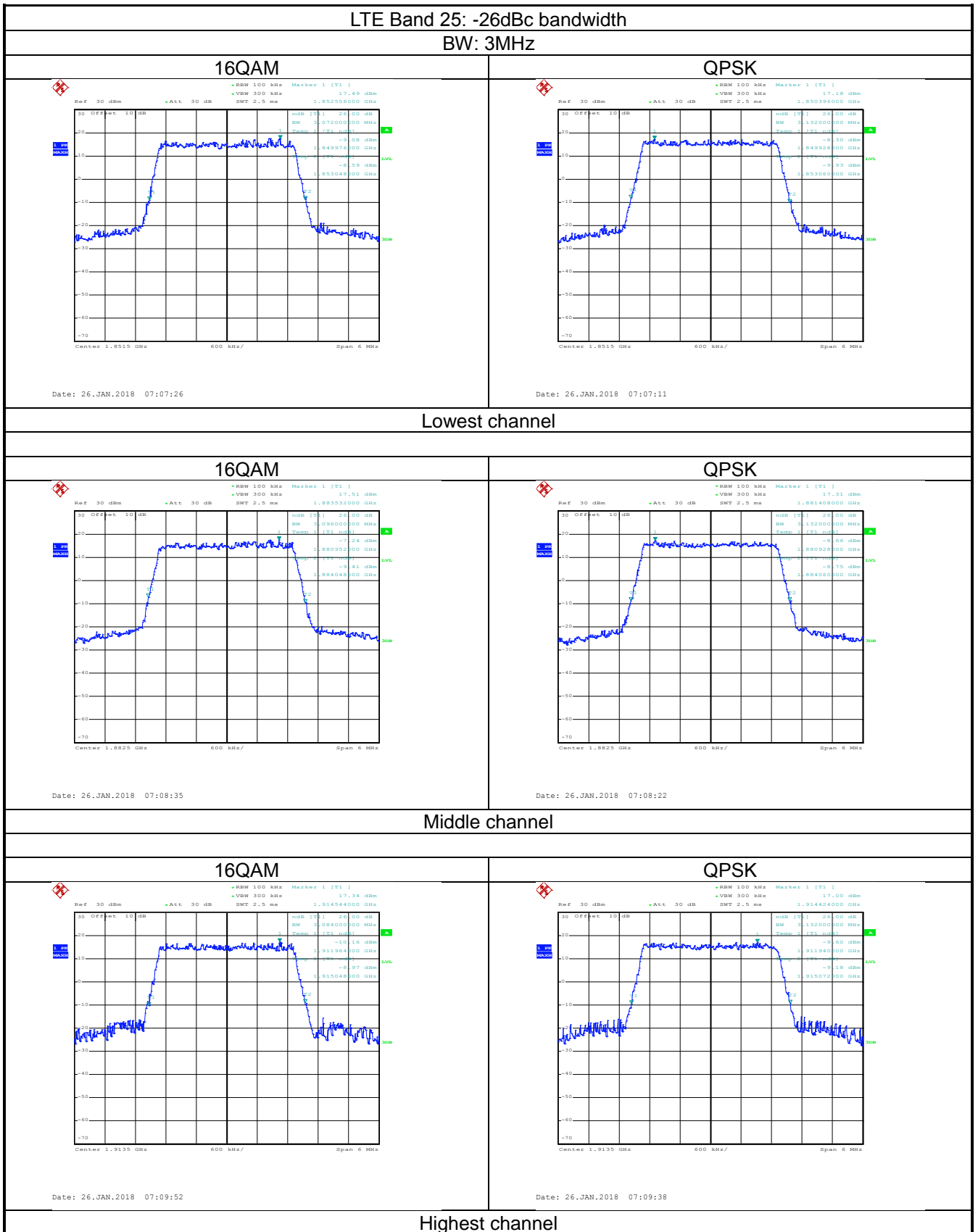
QPSK

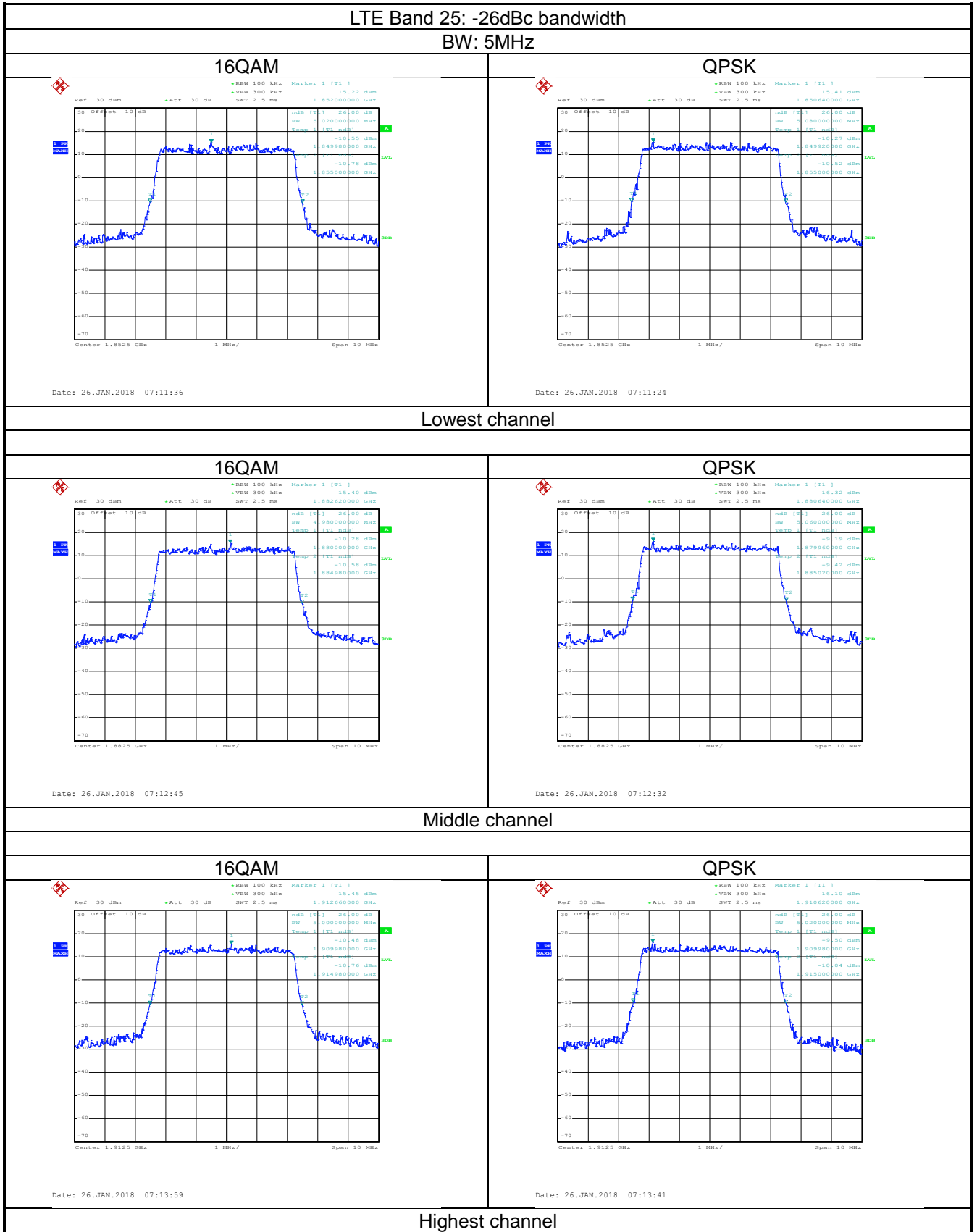


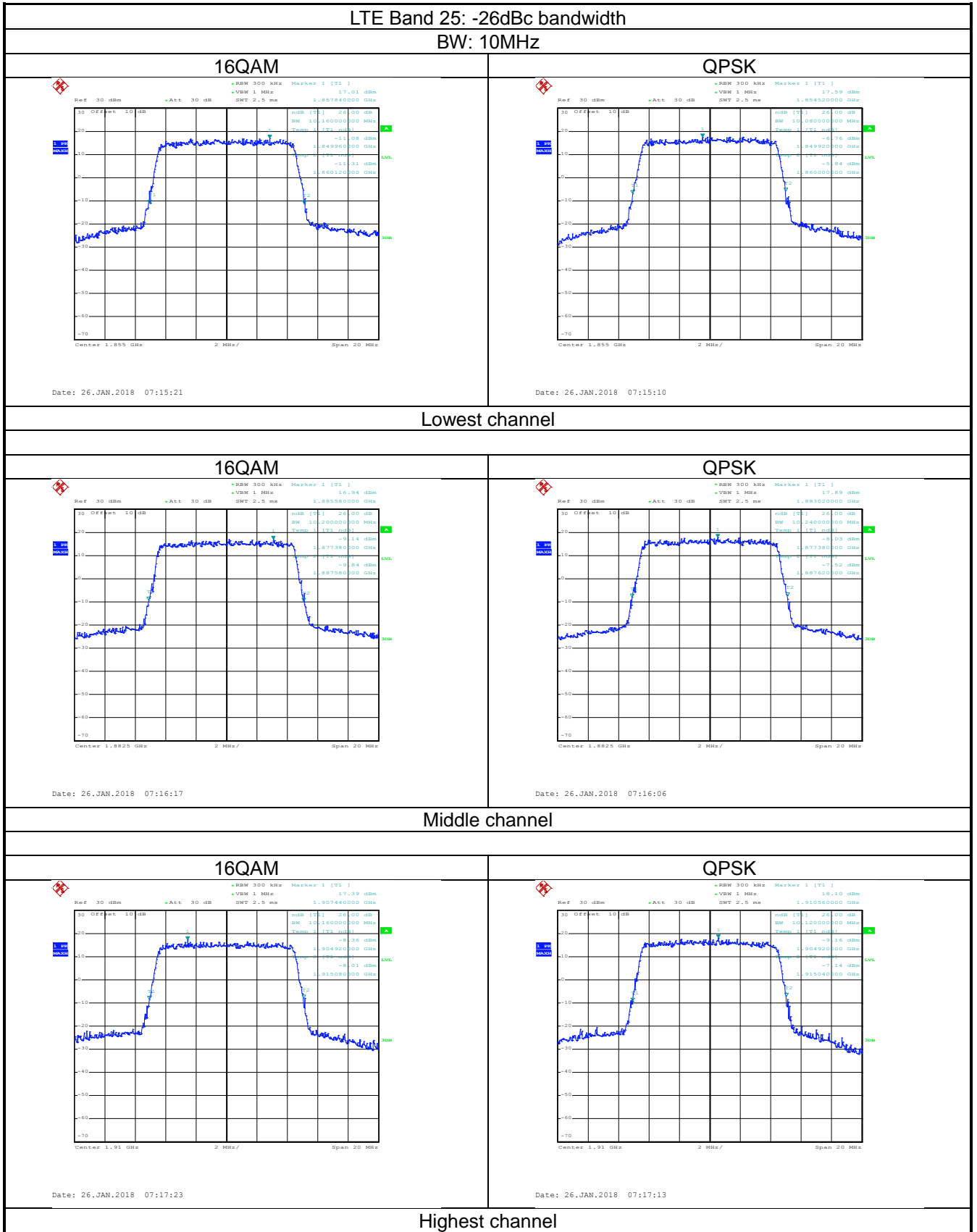
Date: 26.JAN.2018 07:24:13

Highest channel





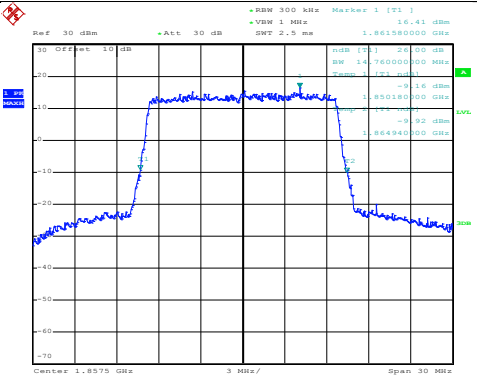




LTE Band 25: -26dBc bandwidth

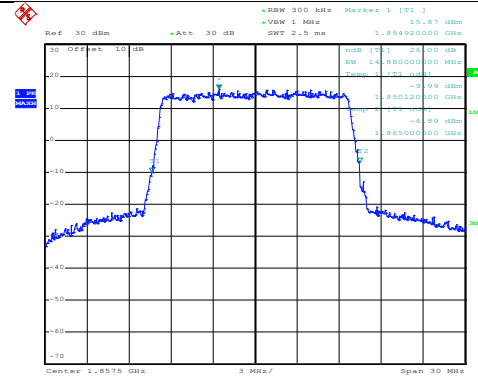
BW: 15Hz

16QAM



Date: 26.JAN.2018 07:18:34

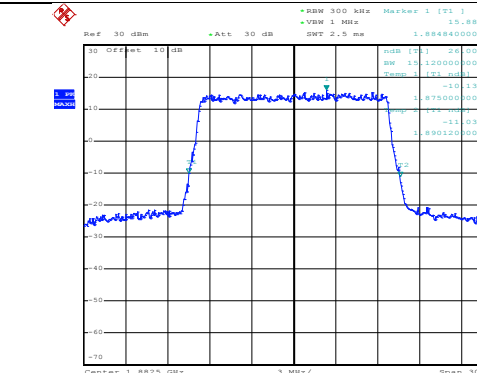
QPSK



Date: 26.JAN.2018 07:18:24

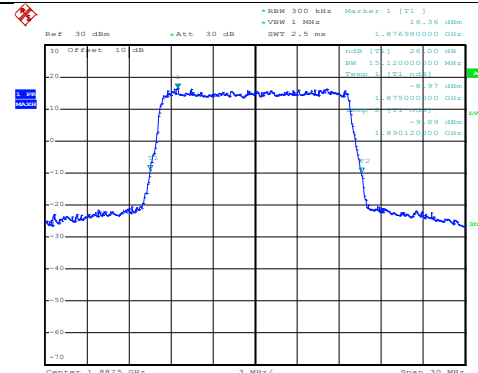
Lowest channel

16QAM



Date: 26.JAN.2018 07:20:09

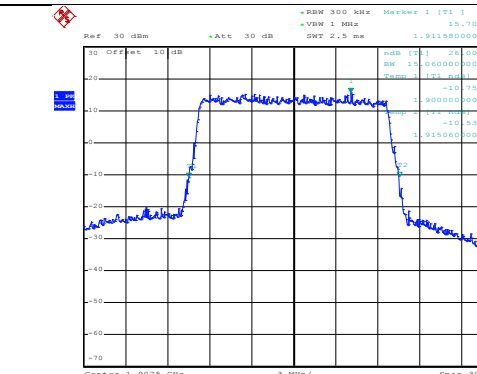
QPSK



Date: 26.JAN.2018 07:19:47

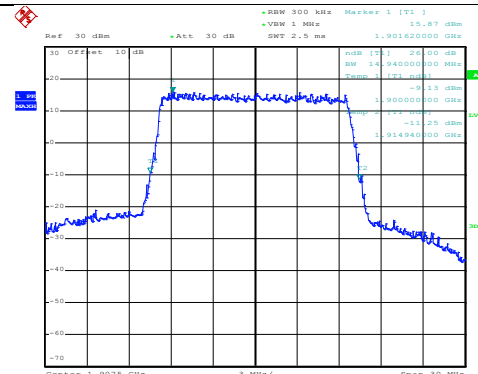
Middle channel

16QAM



Date: 26.JAN.2018 07:21:03

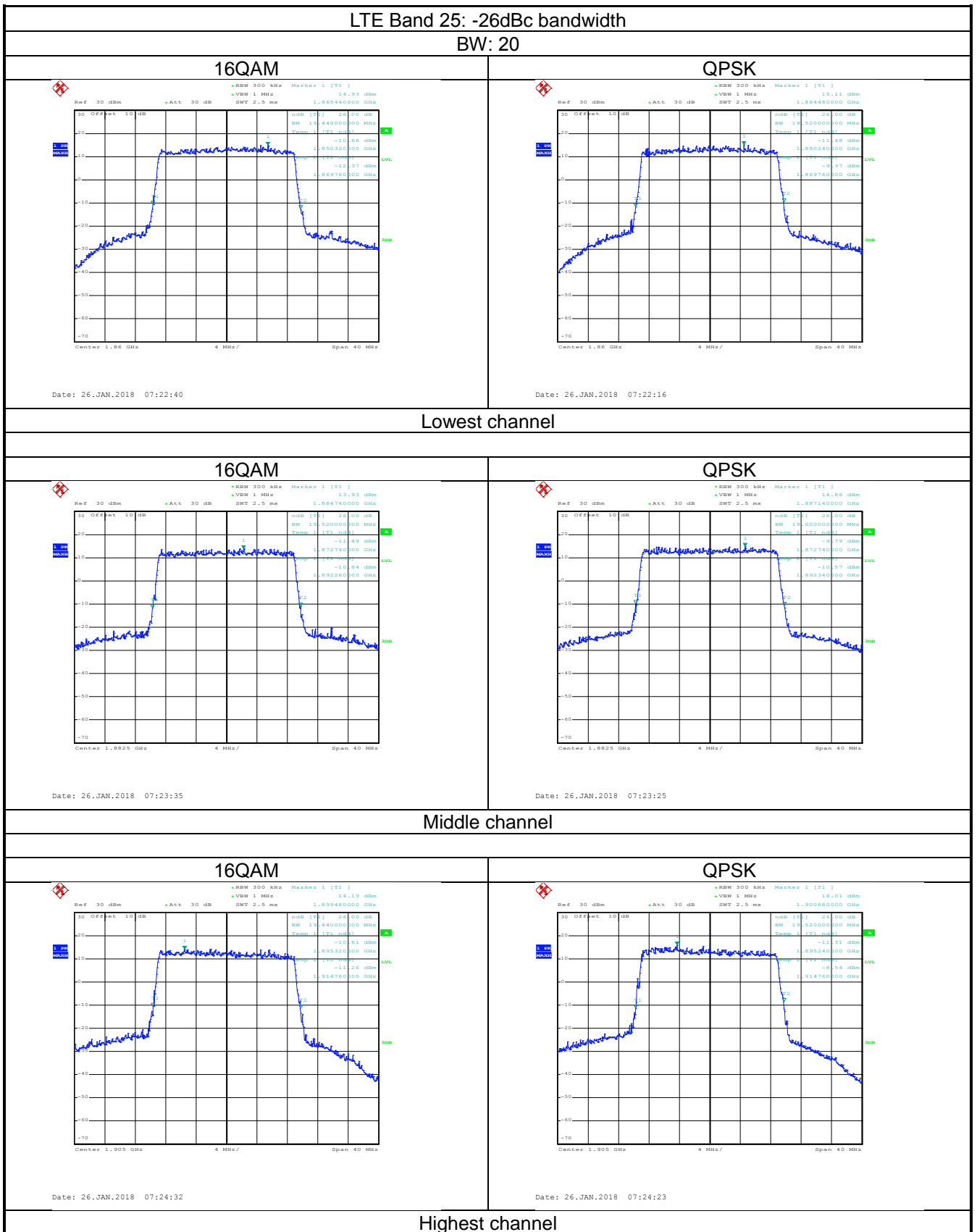
QPSK



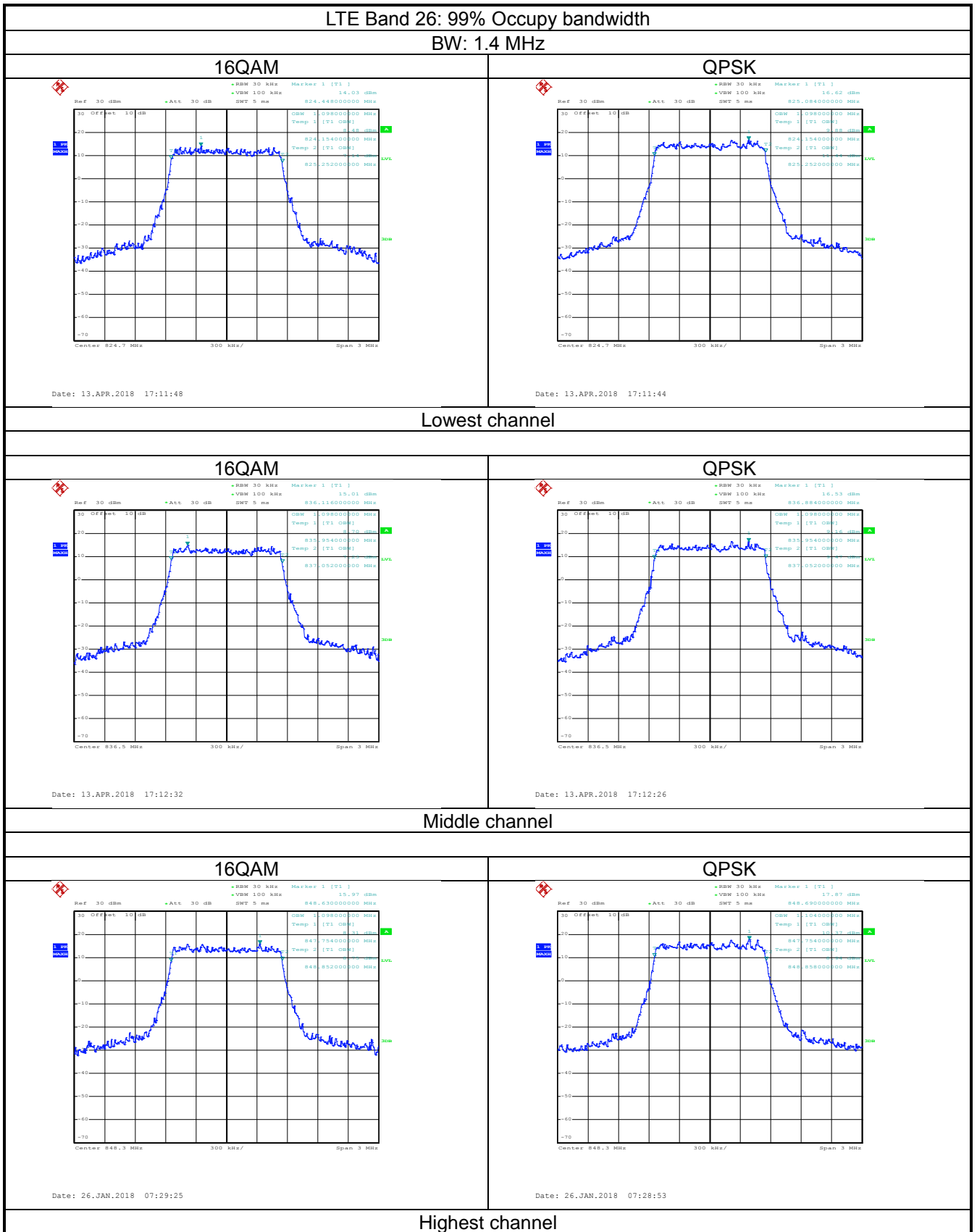
Date: 26.JAN.2018 07:20:52

Highest channel



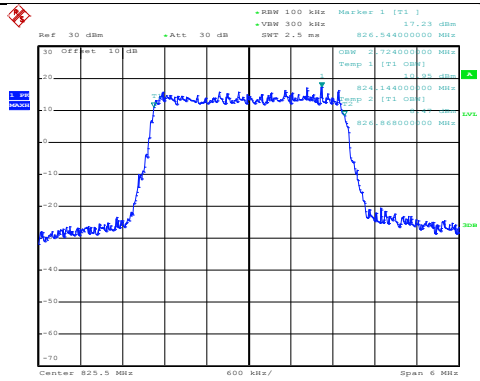


LTE Band 5&26(part 22H):



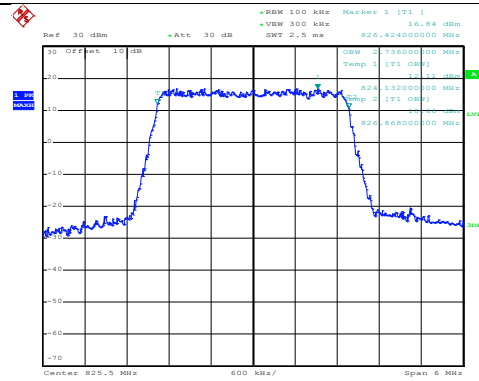
LTE Band 26: 99% Occupy bandwidth  
 BW: 3 MHz

16QAM



Date: 13.APR.2018 17:13:50

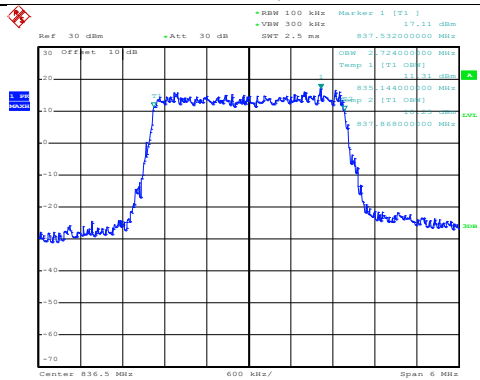
QPSK



Date: 13.APR.2018 17:13:46

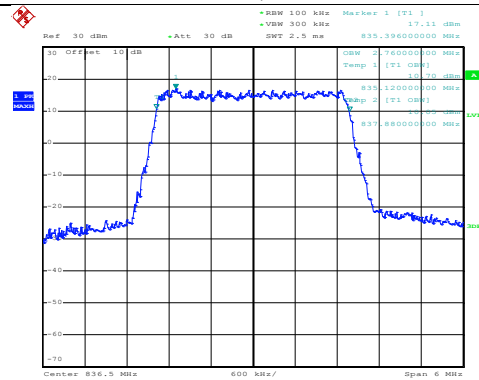
Lowest channel

16QAM



Date: 13.APR.2018 17:14:44

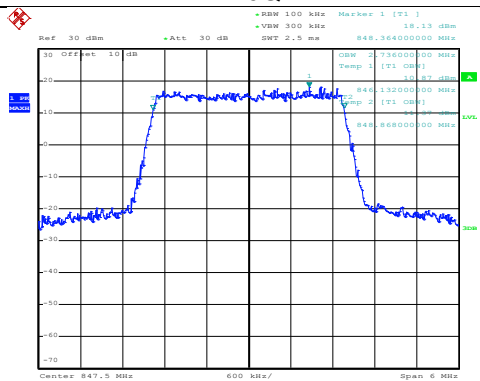
QPSK



Date: 13.APR.2018 17:14:40

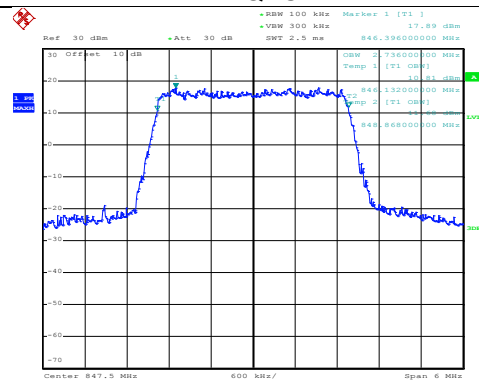
Middle channel

16QAM



Date: 26.JAN.2018 07:32:58

QPSK

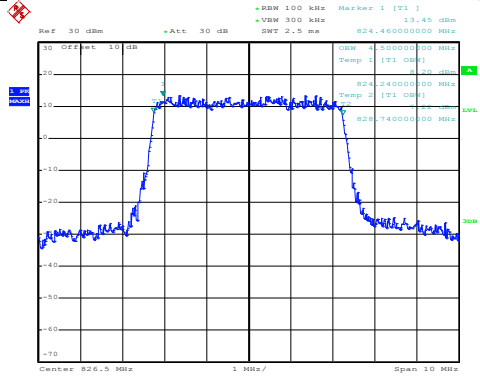


Date: 26.JAN.2018 07:32:47

Highest channel

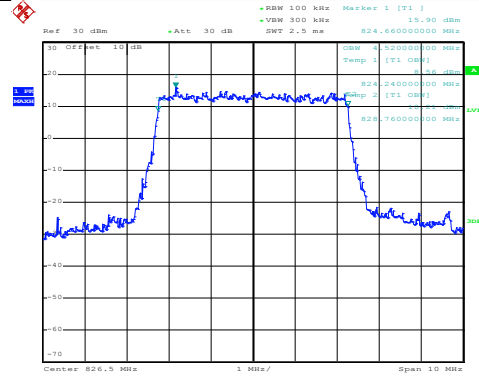
LTE Band 26: 99% Occupy bandwidth  
 BW: 5MHz

16QAM



Date: 13.APR.2018 17:18:42

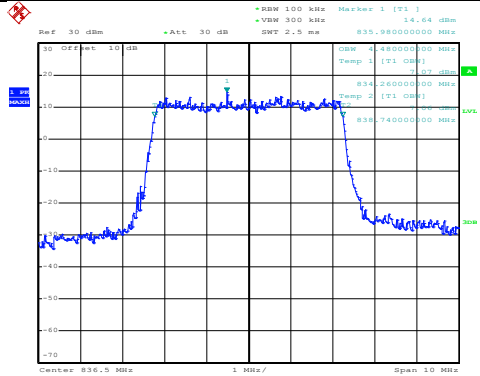
QPSK



Date: 13.APR.2018 17:18:38

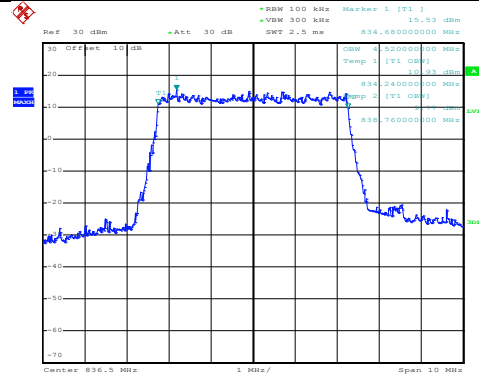
Lowest channel

16QAM



Date: 13.APR.2018 17:19:11

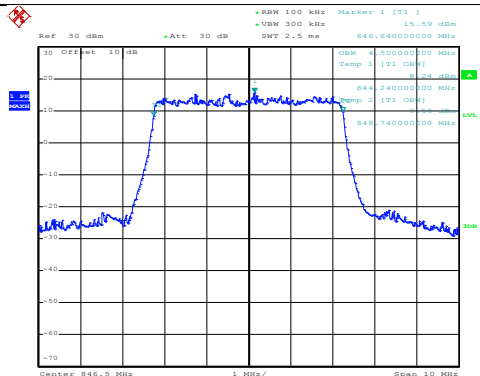
QPSK



Date: 13.APR.2018 17:19:36

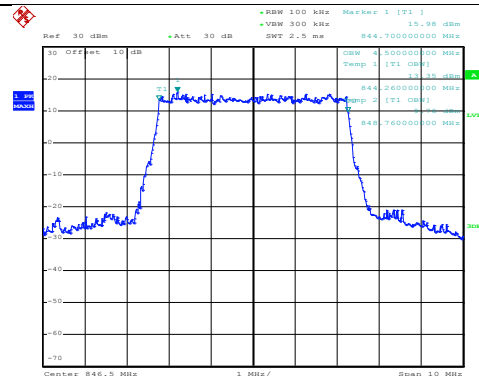
Middle channel

16QAM



Date: 26.JAN.2018 07:48:10

QPSK

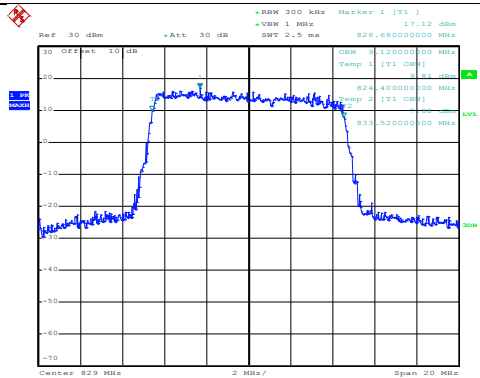


Date: 26.JAN.2018 07:47:50

Highest channel

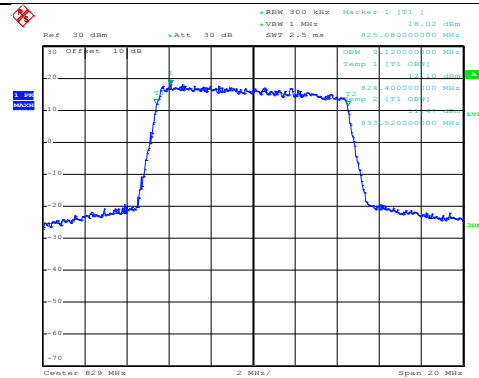
LTE Band 26: 99% Occupy bandwidth  
 BW: 10MHz

16QAM



Date: 13.APR.2018 17:20:39

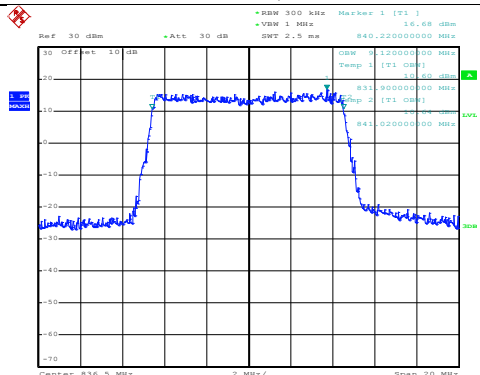
QPSK



Date: 13.APR.2018 17:20:35

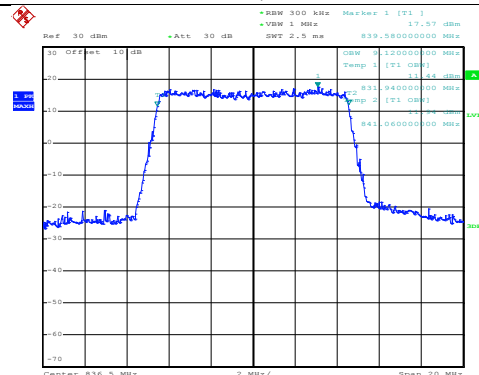
Lowest channel

16QAM



Date: 13.APR.2018 17:21:21

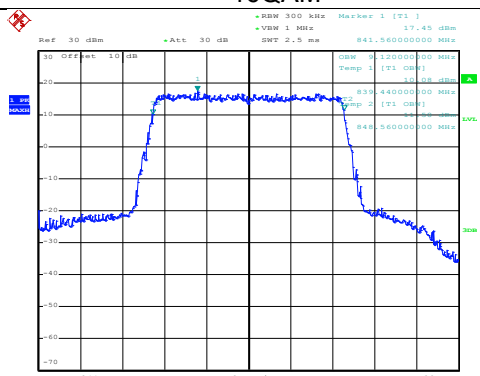
QPSK



Date: 13.APR.2018 17:21:17

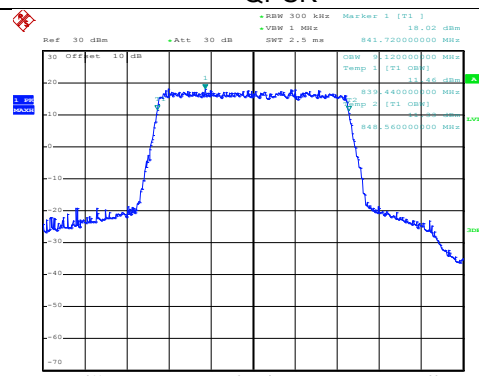
Middle channel

16QAM



Date: 26.JAN.2018 07:52:45

QPSK

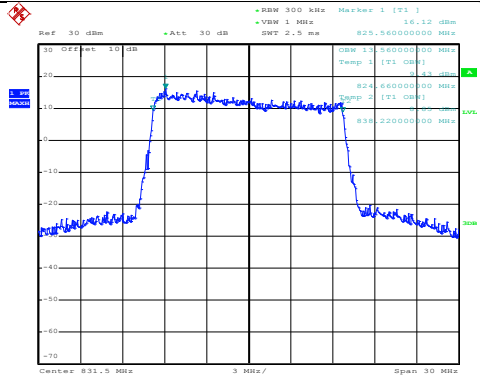


Date: 26.JAN.2018 07:52:33

Highest channel

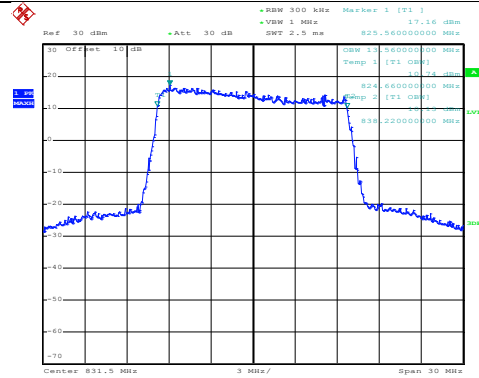
LTE Band 26: 99% Occupy bandwidth  
BW: 15 MHz

16QAM



Date: 13.APR.2018 17:22:11

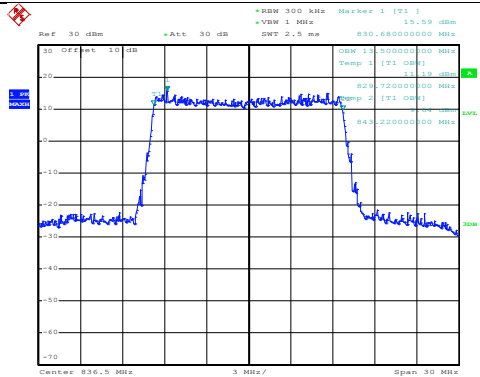
QPSK



Date: 13.APR.2018 17:22:07

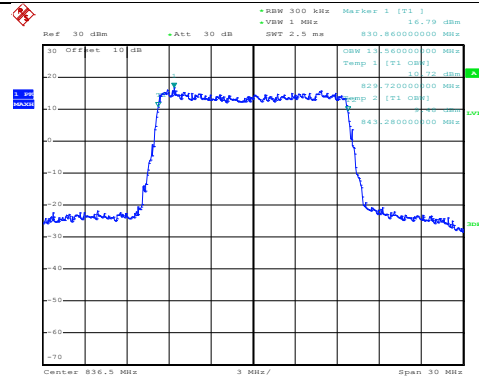
Lowest channel

16QAM



Date: 13.APR.2018 17:22:54

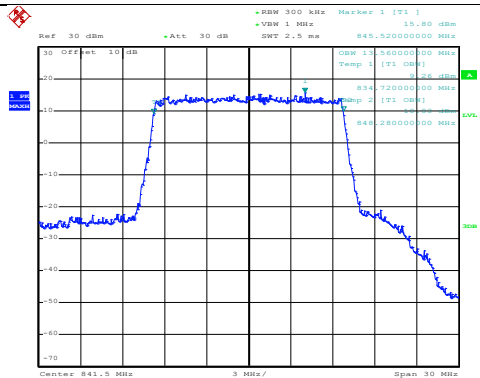
QPSK



Date: 13.APR.2018 17:22:49

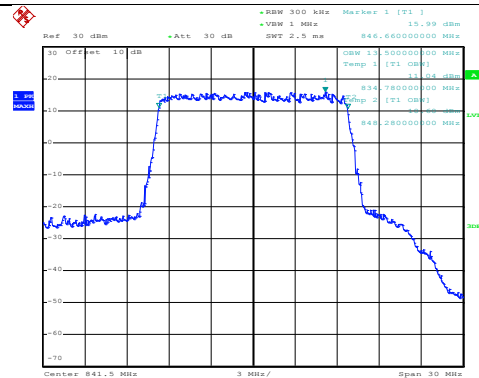
Middle channel

16QAM



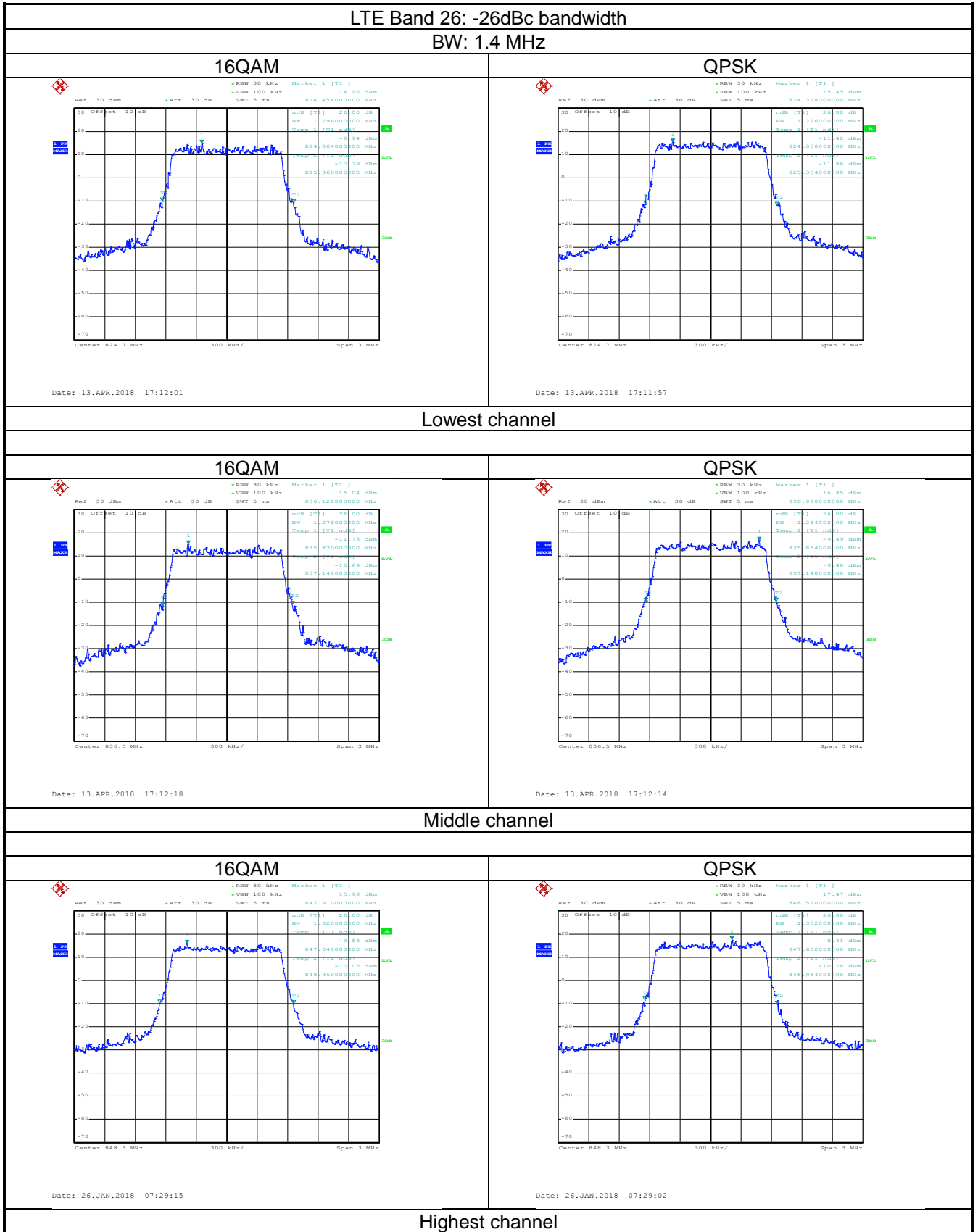
Date: 26.JAN.2018 07:56:36

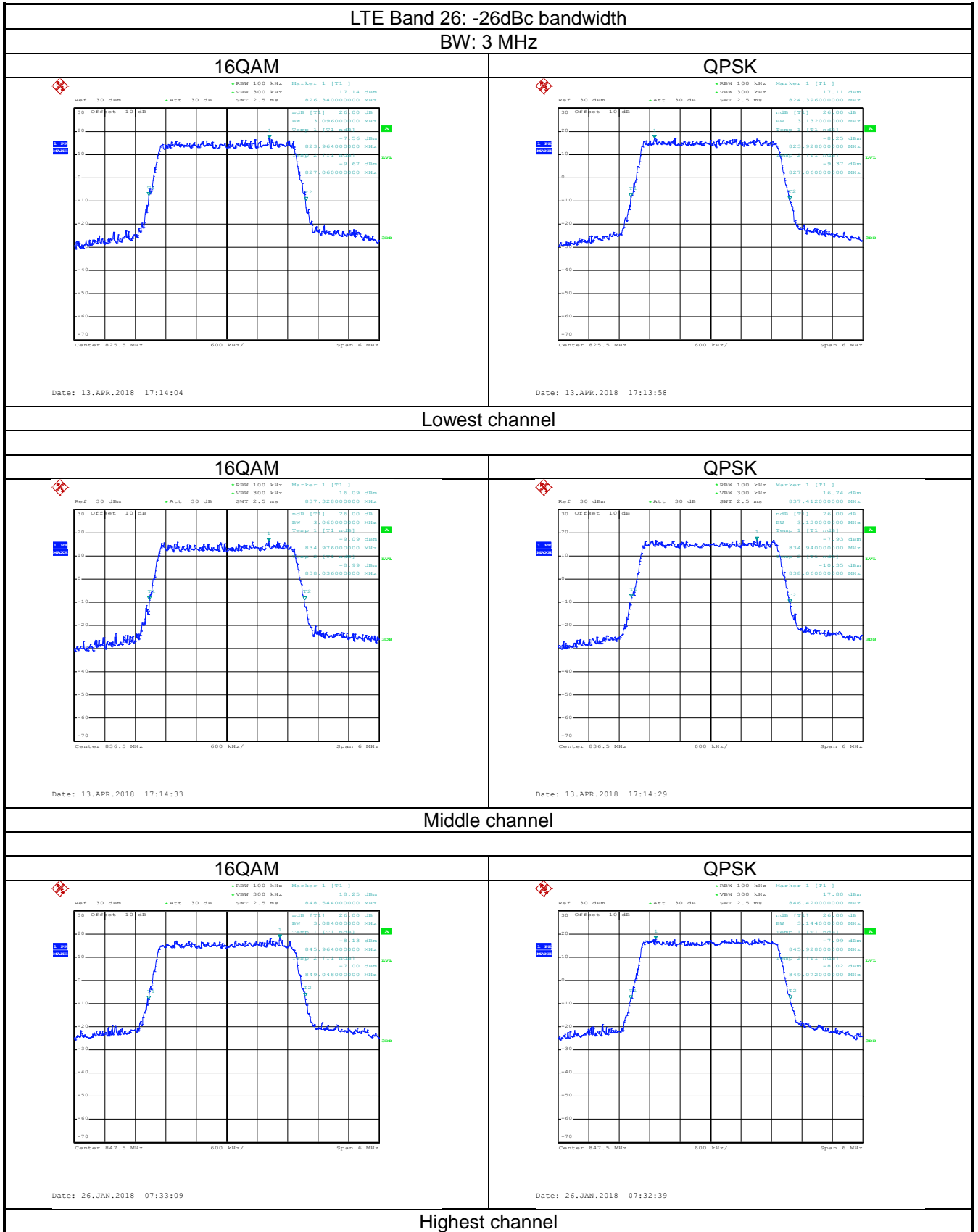
QPSK



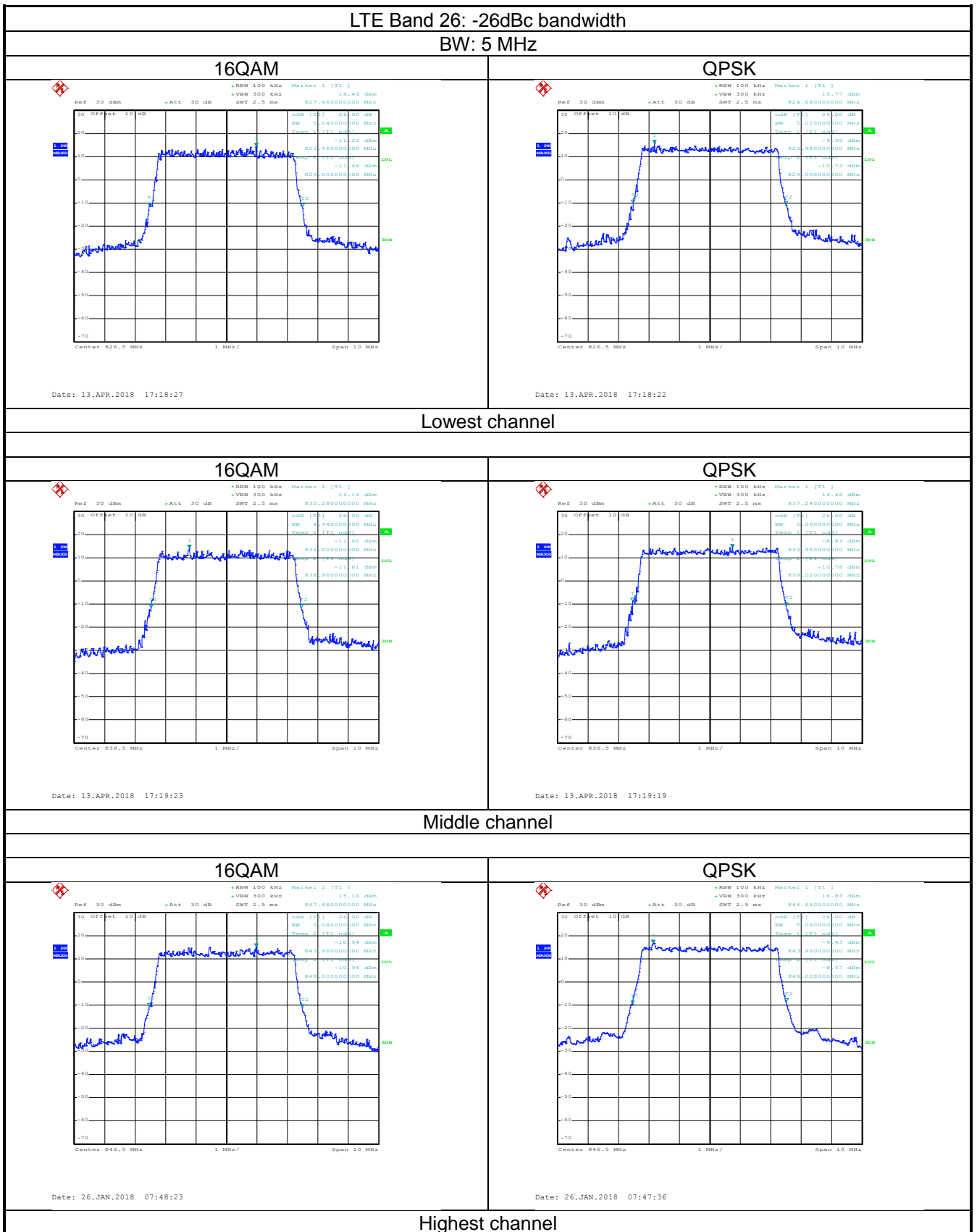
Date: 26.JAN.2018 07:56:26

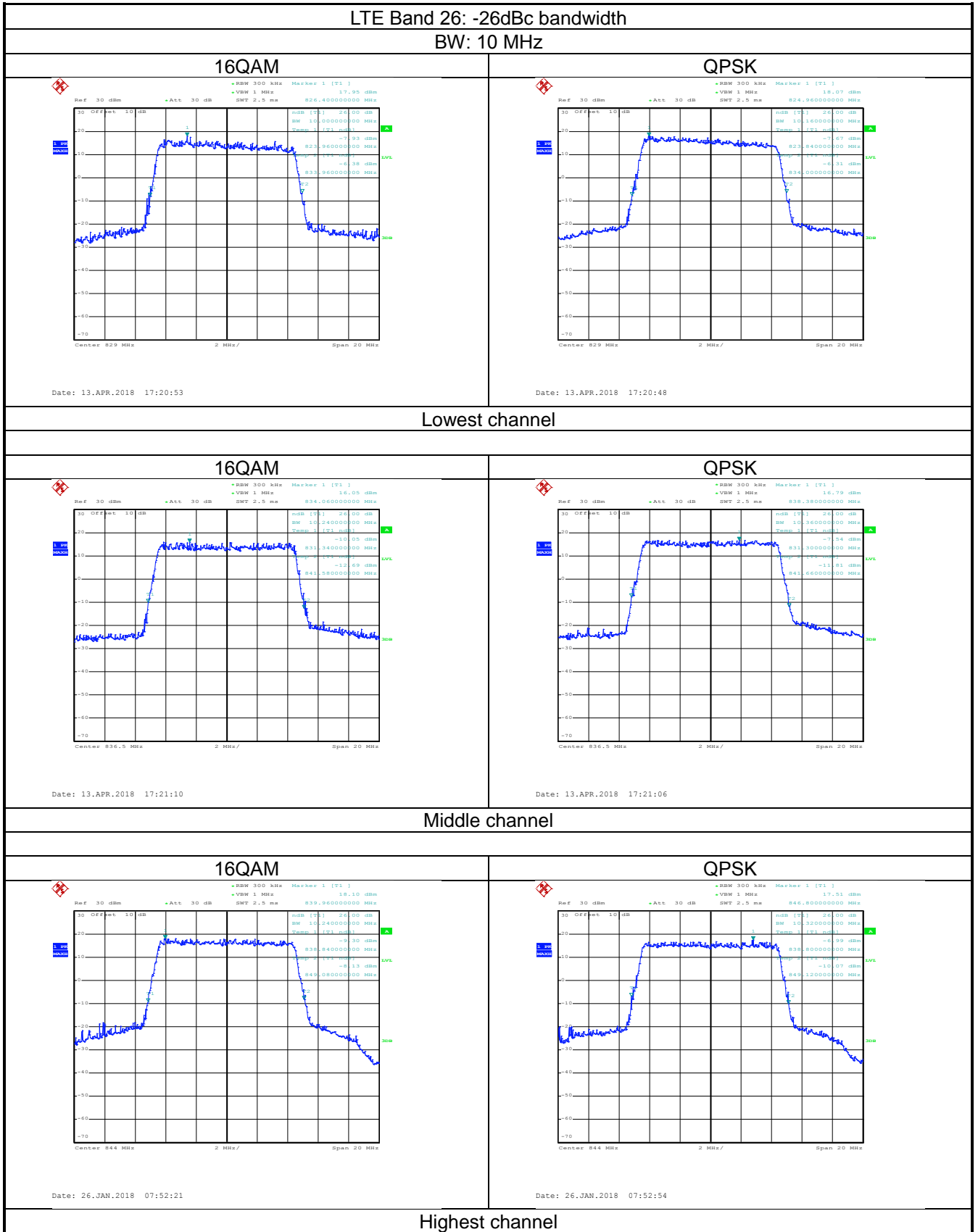
Highest channel







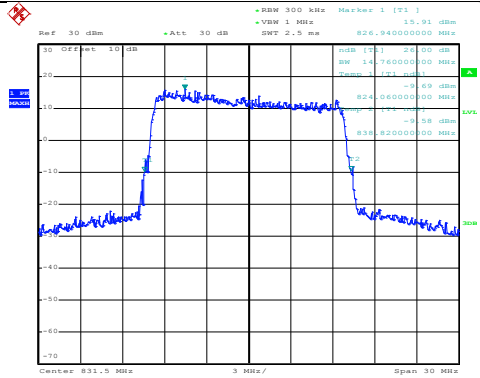




LTE Band 26: -26dBc bandwidth

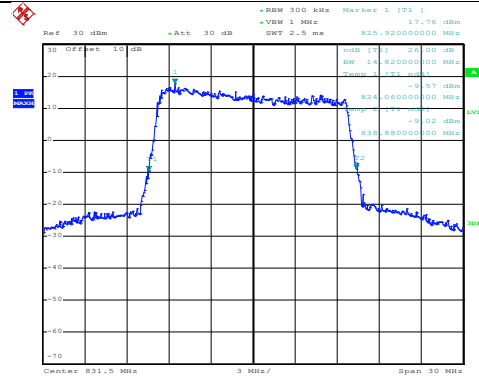
BW: 15 MHz

16QAM



Date: 13.APR.2018 17:22:24

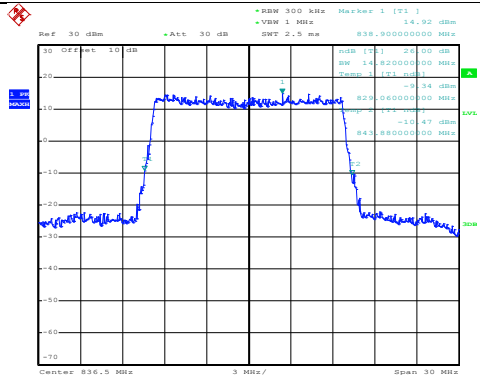
QPSK



Date: 13.APR.2018 17:22:19

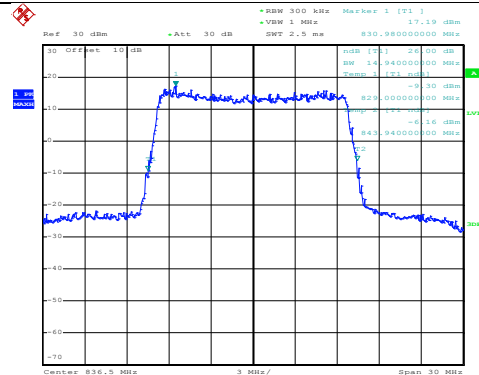
Lowest channel

16QAM



Date: 13.APR.2018 17:22:41

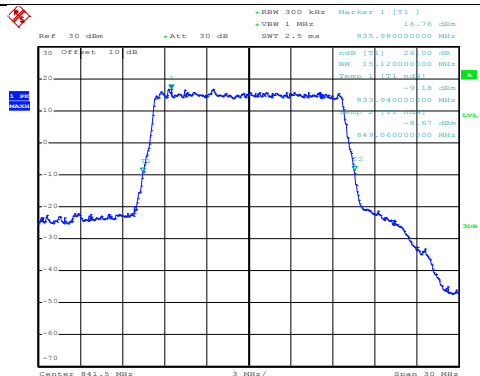
QPSK



Date: 13.APR.2018 17:22:36

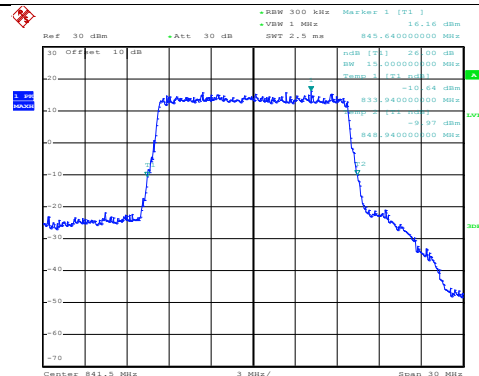
Middle channel

16QAM



Date: 26.JAN.2018 07:56:17

QPSK



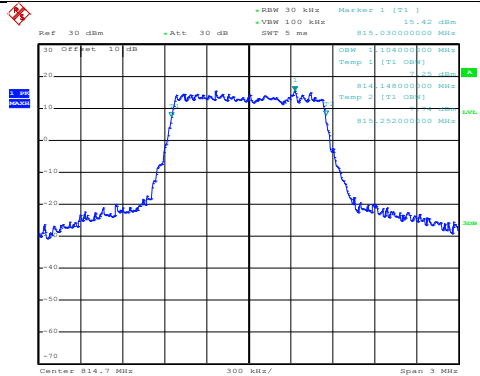
Date: 26.JAN.2018 07:56:47

Highest channel

LTE Band 26(part 90S):

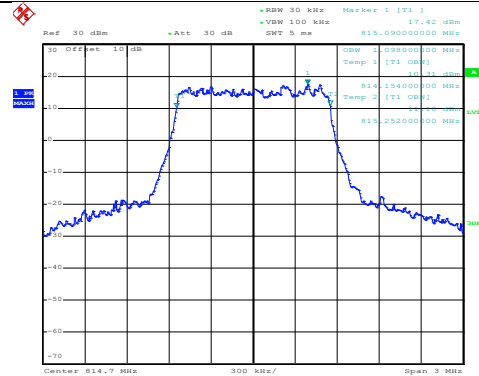
Test Item: 99% Occupy bandwidth  
 BW: 1.4MHz

Modulation: 16QAM



Date: 26.JAN.2018 07:27:30

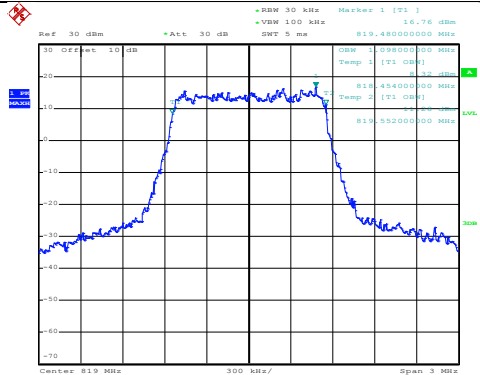
Modulation: QPSK



Date: 26.JAN.2018 07:27:01

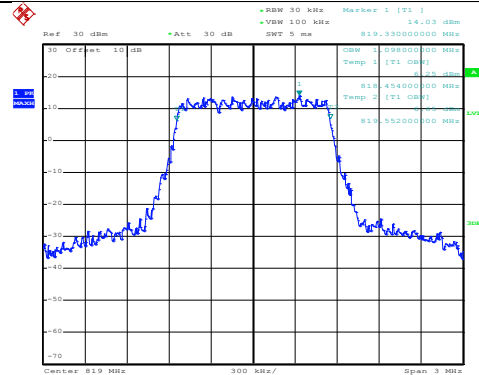
Lowest channel

Modulation: 16QAM



Date: 13.APR.2018 17:11:12

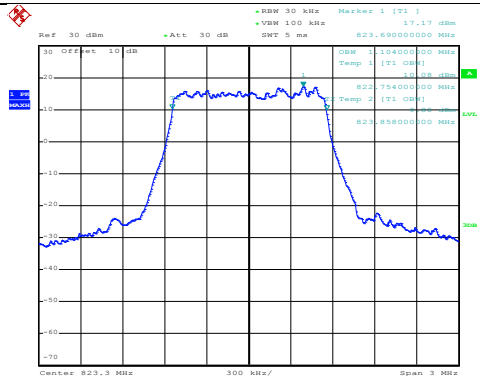
Modulation: QPSK



Date: 13.APR.2018 17:11:16

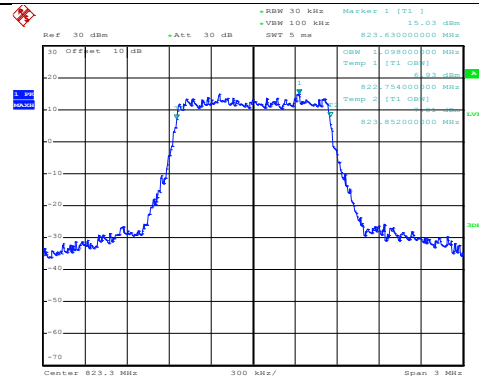
Middle channel

Modulation: 16QAM



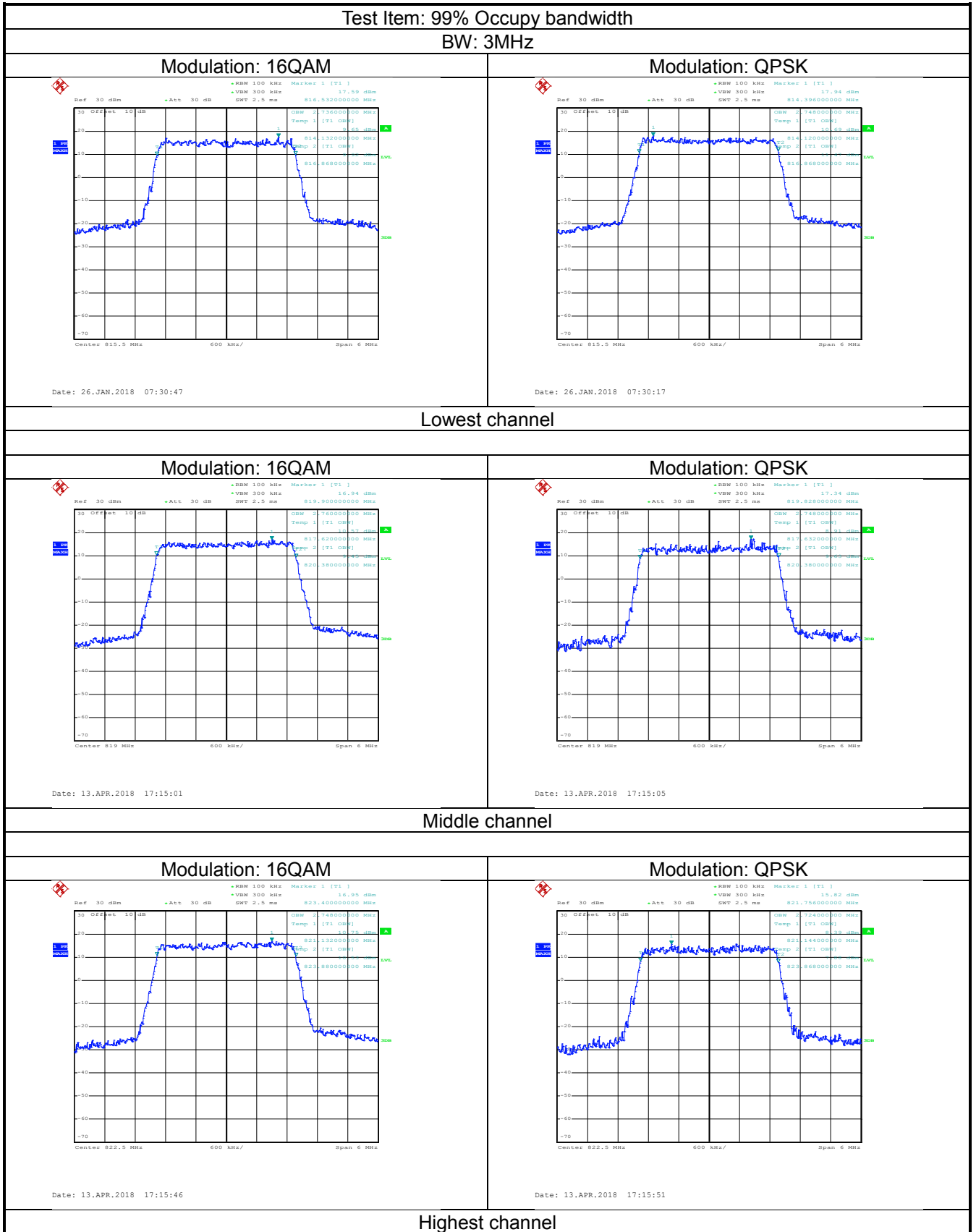
Date: 13.APR.2018 17:09:58

Modulation: QPSK



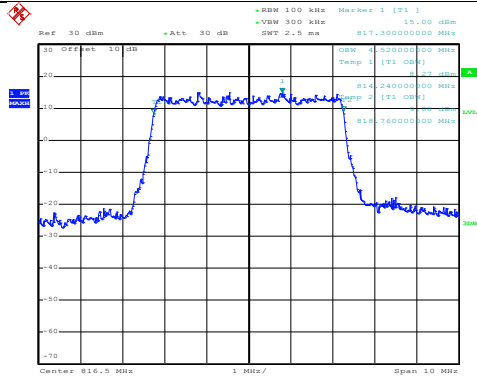
Date: 13.APR.2018 17:10:04

Highest channel



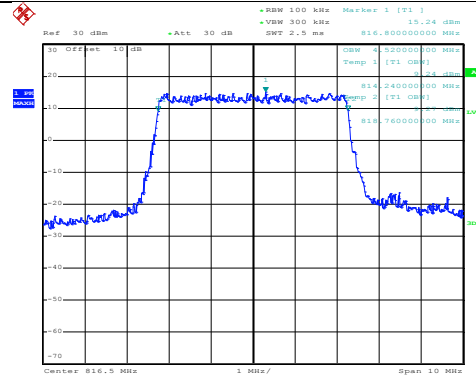
Test Item: 99% Occupy bandwidth  
BW: 5MHz

Modulation: 16QAM



Date: 26.JAN.2018 07:41:41

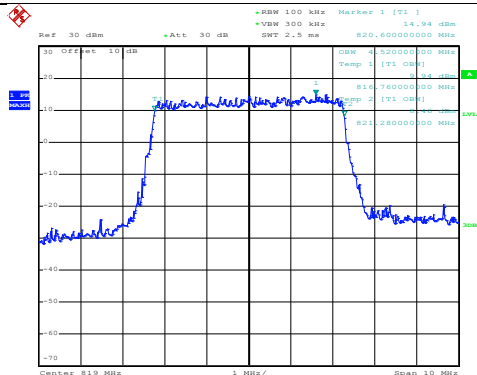
Modulation: QPSK



Date: 26.JAN.2018 07:41:26

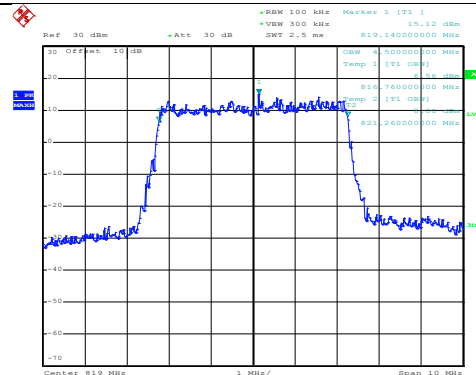
Lowest channel

Modulation: 16QAM



Date: 13.APR.2018 17:17:29

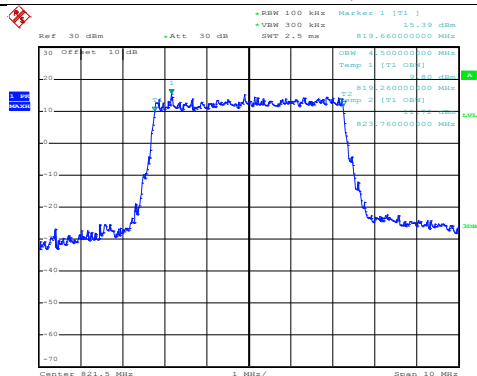
Modulation: QPSK



Date: 13.APR.2018 17:17:34

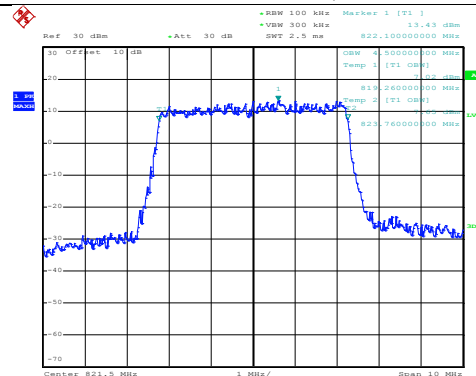
Middle channel

Modulation: 16QAM



Date: 13.APR.2018 17:17:47

Modulation: QPSK

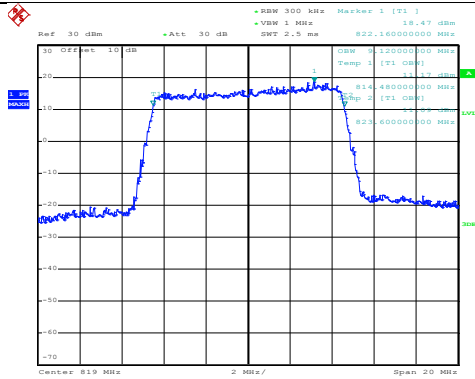


Date: 13.APR.2018 17:17:51

Highest channel

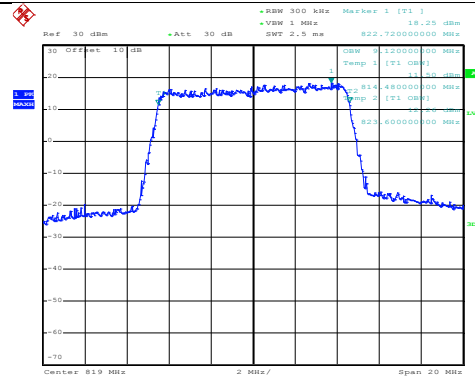
Test Item: 99% Occupy bandwidth  
 BW: 10MHz

Modulation: 16QAM



Date: 26.JAN.2018 07:50:36

Modulation: QPSK

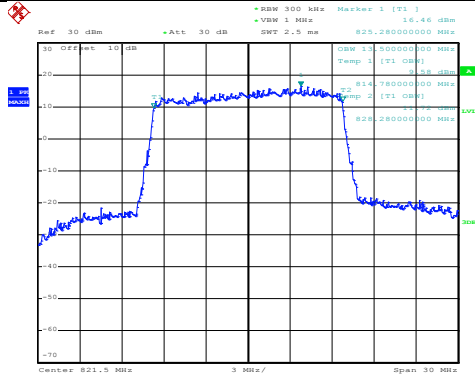


Date: 26.JAN.2018 07:50:25

Middle channel

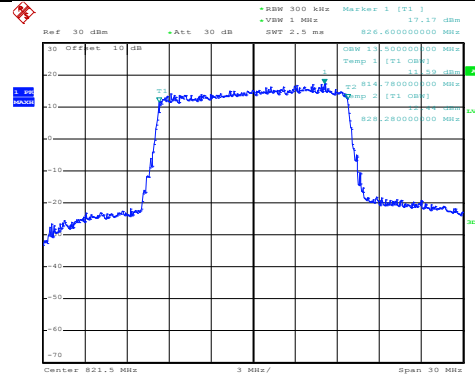
Test Item: 99% Occupy bandwidth  
 BW: 15MHz

Modulation: 16QAM



Date: 26.JAN.2018 07:54:07

Modulation: QPSK



Date: 26.JAN.2018 07:53:56

Lowest channel

