

# FCC REPORT

## (LTE)

**Applicant:** SWAGTEK

**Address of Applicant:** 10205 NW 19th St. Suite 101, Miami, FL, 33172

**Equipment Under Test (EUT)**

Product Name: 6.0 inch 4G Smart Phone

Model No.: L60, RAPTOR, N60

Trade mark: LOGIC, iSWAG, UNONU

**FCC ID:** O55604619

**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 M

**Date of sample receipt:** 04 Dec., 2019

**Date of Test:** 05 Dec., to 11 Dec., 2019

**Date of report issued:** 02 Jan., 2020

**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	12 Dec., 2019	Original
01	02 Jan., 2020	Update Page 26, 106
	09 Jan., 2020	Update Page 1, 5, Update Applicant Company, Manufacturer Company and Factory Company

**Tested by:**

*Mike.Ou*

**Date:**

02 Jan., 2020

**Test Engineer**

**Reviewed by:**

*Winner Zhang*

**Date:**

02 Jan., 2020

**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)
RF Output Power	Part 2.1046 Part 22.913 (a)(5) Part 24.232 (c) Part 27.50 (d)(4) Part 27.50 (h)(2)	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(h) Part 27.53(m)	Pass
Out of band emission at antenna terminals	Part 2.1053 Part 22.917(a) Part 24.238 (a) Part 27.53 (h) Part 27.53(m)	Pass
Field strength of spurious radiation	Part 22.917(a) Part 24.238 (a) Part 27.53 (h) Part 27.53(m)	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
<b>Remark:</b>		
<ol style="list-style-type: none"> <li>1. Pass: The EUT complies with the essential requirements in the standard.</li> <li>2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).</li> </ol>		
<b>Test Method:</b>	ANSI/TIA-603-E-2016 ANSI C63.26-2015	

## 5. General Information

### 5.1 Client Information

Applicant:	SWAGTEK
Address:	10205 NW 19th St. Suite 101, Miami, FL, 33172
Manufacturer/ Factory:	SWAGTEK
Address:	10205 NW 19th St. Suite 101, Miami, FL, 33172

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

Product Name:	6.0 inch 4G Smart Phone
Model No.:	L60, RAPTOR, N60
Operation Frequency range:	LTE Band 2: TX: 1850MHz-1910MHz, RX: 1930MHz-1990MHz LTE Band 4: TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 5: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 7: TX: 2500MHz-2570MHz, RX: 2620MHz-2690MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	LTE Band 2: 0.49dBi LTE Band 4: 0.47dBi LTE Band 5: -0.52dBi LTE Band 7: 0.63dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-3000mAh
AC adapter:	Model: TPA-98B050100UU01 Input: AC100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 1A
Test Sample Condition:	The applicant provided engineering samples for staying in continuously transmitting for testing.
Remark:	Model No.: L60, RAPTOR, N60, were identical inside, the electrical circuit design, layout, components used and internal wiring. The difference between them is as follows: L60 model corresponds to the trademark LOGIC. RAPTOR model correspond to the trademark iSWAG. N60 model corresponds to the trademark UNONU.

**Operation Frequency List:**

LTE Band 2 (1.4MHz)		LTE Band 2 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
18607	1850.70	18615	1851.50
18608	1850.80	18616	1851.60
....	....	....	....
18899	1879.90	18899	1879.90
18900	1880.00	18900	1880.00
18901	1880.10	18901	1880.10
...	...	...	...
19193	1909.20	19185	1908.40
19194	1909.30	19186	1908.50
LTE Band 2 (5MHz)		LTE Band 2 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
18625	1852.50	18650	1855.00
18626	1852.60	18651	1855.10
....	....	....	....
18899	1879.90	18899	1879.90
18900	1880.00	18900	1880.00
18901	1880.10	18901	1880.10
...	...	...	...
19175	1907.40	19150	1904.90
19176	1907.50	19151	1905.00
LTE Band 2 (15MHz)		LTE Band 2 (20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
18675	1857.50	18700	1860.00
18676	1857.60	18701	1860.10
....	....	....	....
18899	1879.90	18899	1879.90
18900	1880.00	18900	1880.00
18901	1880.10	18901	1880.10
...	...	...	...
19125	1902.40	19100	1899.90
19126	1902.50	19101	1900.00

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 7 (5MHz)		LTE Band 7 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20775	2502.50	20800	2505.00
20776	2502.60	20801	2502.10
....	....	....	....
21099	2534.90	21099	2534.90
21100	2535.00	21100	2535.00
21101	2535.20	21101	2535.20
...	...	...	...
21424	2567.40	21399	2564.90
21425	2567.50	21400	2565.00
LTE Band 7 (15MHz)		LTE Band 7 (20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20825	2507.50	20850	2510.00
20826	2507.60	20851	2510.10
....	....	....	....
21099	2534.90	21099	2534.90
21100	2535.00	21100	2535.00
21101	2535.20	21101	2535.20
...	...	...	...
21374	2562.40	21349	2559.90
21375	2562.50	21350	2560.00



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 2 (1.4MHz)			LTE Band 2 (3MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	18607	1850.70	Lowest channel	18615	1851.50
Middle channel	18900	1880.00	Middle channel	18900	1880.00
Highest channel	19193	1909.30	Highest channel	19185	1908.50
LTE Band 2 (5MHz)			LTE Band 2 (10MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	18625	1852.50	Lowest channel	18650	1855.00
Middle channel	18900	1880.00	Middle channel	18900	1880.00
Highest channel	19175	1907.50	Highest channel	19150	1905.00
LTE Band 2 (15MHz)			LTE Band 2 (20MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	18675	1857.50	Lowest channel	18700	1860.00
Middle channel	18900	1880.00	Middle channel	18900	1880.00
Highest channel	19125	1902.50	Highest channel	19100	1900.00

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 5 (1.4MHz)			LTE Band 5 (3MHz)		
Channel:	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	20407	824.70	Lowest channel	20415	825.50
Middle channel	20525	836.50	Middle channel	20525	836.50
Highest channel	20643	848.30	Highest channel	20635	847.50
LTE Band 5 (5MHz)			LTE Band 5 (10MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	20425	826.50	Lowest channel	20450	829.00
Middle channel	20525	836.50	Middle channel	20525	836.50
Highest channel	20625	846.50	Highest channel	20600	844.00

LTE Band 7 (5MHz)			LTE Band 7 (10MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	20775	2502.50	Lowest channel	20800	2505.00
Middle channel	21100	2535.00	Middle channel	21100	2535.00
Highest channel	21425	2567.50	Highest channel	21400	2565.00
LTE Band 7 (15MHz)			LTE Band 7 (20MHz)		
Channel	Frequency (MHz)		Channel	Frequency (MHz)	
Lowest channel	20825	2507.50	Lowest channel	20850	2510.00
Middle channel	21100	2535.00	Middle channel	21100	2535.00
Highest channel	21375	2562.50	Highest channel	21350	2560.00

### 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: 3.8Vdc, Extreme: Low 3.5Vdc, High 4.35Vdc
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
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)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.38 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.36 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 Additions to, deviations, or exclusions from the method

No
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### 5.8 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 - Designation No.: CN1211</b> Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 727551.</li> <li>● <b>ISED – CAB identifier.: CN0021</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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## 5.9 Laboratory Location

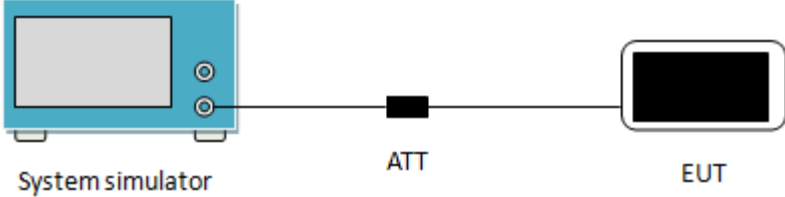
Shenzhen Zhongjian Nanfang Testing Co., Ltd.  
 Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,  
 Bao'an District, Shenzhen, Guangdong, China  
 Tel: +86-755-23118282, Fax: +86-755-23116366  
 Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

## 5.10 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	03-18-2019	03-17-2020
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-18-2019	03-17-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-21-2019	11-20-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-18-2019	03-17-2020
Pre-amplifier	CD	PAP-1G18	11804	03-18-2019	03-17-2020
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-18-2019	03-17-2020
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-18-2019	03-17-2020
Spectrum Analyzer	Agilent	N9020A	MY50510123	10-29-2019	10-28-2020
Signal Generator	Rohde & Schwarz	SMX	835454/016	03-18-2019	03-17-2020
Signal Generator	R&S	SMR20	1008100050	03-18-2019	03-17-2020
RF Switch Unit	MWRFTST	MW200	N/A	N/A	N/A
Test Software	MWRFTST	MTS8200	Version: 2.0.0.0		
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-18-2019	03-17-2020
Cable	MICRO-COAX	MFR64639	K10742-5	03-18-2019	03-17-2020
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-18-2019	03-17-2020
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	10-31-2019	10-30-2020
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	09-24-2018	09-23-2019
				09-24-2019	09-23-2020
Simulated Station	Rohde & Schwarz	CMW500	140493	07-16-2019	07-15-2020

## 6. Test results

### 6.1 Conducted Output Power, ERP and EIRP

Test Requirement:	Part 22.913(a)(5), Part 24.232(c), Part 27.50(d)(4), Part 27.50 (h)(2)
Limit:	LTE Band 2: 2W, LTE Band 4: 1W, LTE Band 5: 7W, LTE Band 7: 2W,
Test Setup:	 <p>The diagram illustrates the test setup. On the left is a blue 'System simulator' with a screen and two ports. A line connects it to a black 'ATT' (attenuator) block. Another line connects the 'ATT' to a black 'EUT' (Equipment Under Test) device.</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 5.10 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)				
					18607	18900	19193		
					1850.7MHz	1880.0MHz	1909.3MHz		
2	1.4	QPSK	1	0	23.72	23.83	23.62		
			1	2	23.77	23.82	23.67		
			1	5	23.71	23.85	23.60		
			3	0	23.36	23.42	23.15		
			3	1	23.41	23.46	23.22		
			3	2	23.40	23.44	23.16		
			6	0	23.36	23.44	23.18		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.34		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	23.74	23.52	23.73		
			1	2	23.79	23.56	23.87		
			1	5	23.65	23.51	23.76		
			3	0	22.63	22.48	22.53		
			3	1	22.58	22.51	22.42		
			3	2	22.57	22.49	22.45		
			6	0	22.41	22.49	22.30		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.36		
		EIRP Limit (dBm):					33.00		
		LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
18615	18900						19185		
1851.5MHz	1880.0MHz						1908.5MHz		
2	3	QPSK	1	0	23.73	23.63	23.58		
			1	7	23.79	23.66	23.53		
			1	14	23.72	23.72	23.51		
			8	0	23.33	23.22	23.19		
			8	4	23.37	23.21	23.11		
			8	7	23.31	23.32	23.15		
			15	0	23.23	23.15	23.16		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.28		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	23.60	23.30	23.58		
			1	7	23.66	23.15	23.31		
			1	14	23.75	23.36	23.56		
			8	0	22.56	22.29	22.30		
			8	4	22.55	22.22	22.23		
			8	7	22.51	22.32	22.33		
			15	0	22.45	22.51	22.45		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.24		
		EIRP Limit (dBm):					33.00		

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

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)				
					18625	18900	19175		
					1852.5MHz	1880.0MHz	1907.5MHz		
2	5	QPSK	1	0	23.65	23.70	23.53		
			1	12	23.51	23.60	23.52		
			1	24	23.52	23.65	23.56		
			12	0	23.15	23.27	23.06		
			12	6	23.17	23.19	23.15		
			12	11	23.18	23.25	23.08		
			25	0	23.16	23.22	23.05		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.19		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	23.71	23.61	23.68		
			1	12	23.36	23.38	23.36		
			1	24	23.24	23.53	23.19		
			12	0	22.25	22.30	22.41		
			12	6	22.16	22.20	22.32		
			12	11	22.18	22.28	22.34		
			25	0	22.23	22.51	22.36		
		Antenna Gain (dBi):					0.49		
Max. EIRP (dBm):					24.20				
EIRP Limit (dBm):					33.00				

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)				
					18650	18900	19150		
					1855.0MHz	1880.0MHz	1905.0MHz		
2	10	QPSK	1	0	23.62	23.60	23.58		
			1	24	23.58	23.61	23.55		
			1	49	23.48	23.53	23.52		
			25	0	23.21	23.13	23.01		
			25	12	23.12	23.12	23.09		
			25	24	23.04	23.15	23.12		
			50	0	23.17	23.14	23.06		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.11		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	23.52	23.64	23.55		
			1	24	23.42	23.57	23.50		
			1	49	23.51	23.65	23.35		
			25	0	22.42	22.34	22.31		
			25	12	22.44	22.55	22.42		
			25	24	22.39	22.39	22.25		
			50	0	22.39	22.26	22.26		
		Antenna Gain (dBi):					0.49		
Max. EIRP (dBm):					24.06				
EIRP Limit (dBm):					33.00				

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

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)				
					18675	18900	19125		
					1857.5MHz	1880.0MHz	1902.5MHz		
2	15	QPSK	1	0	23.61	23.51	23.42		
			1	37	23.52	23.46	23.45		
			1	74	23.55	23.42	23.35		
			36	0	23.11	23.28	23.04		
			36	16	23.15	23.18	23.01		
			36	35	23.08	23.26	23.12		
			75	0	23.09	23.25	23.02		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.10		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	23.67	23.52	23.58		
			1	37	23.53	23.25	23.32		
			1	74	23.60	23.11	23.30		
			36	0	22.32	22.47	22.14		
			36	16	22.39	22.36	22.21		
			36	35	22.29	22.38	22.18		
			75	0	22.27	22.24	22.25		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.16		
		EIRP Limit (dBm):					33.00		
		LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
18700	18900						19100		
1860.0MHz	1880.0MHz						1900.0MHz		
2	20	QPSK	1	0	23.65	23.61	23.62		
			1	49	23.48	23.57	23.40		
			1	99	23.51	23.52	23.48		
			50	0	23.11	23.08	23.06		
			50	24	23.12	23.06	23.08		
			50	49	23.00	23.03	22.99		
			100	0	23.21	23.15	23.01		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.14		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	23.64	23.37	23.15		
			1	49	23.56	23.30	23.20		
			1	99	23.54	23.20	23.47		
			50	0	22.28	22.40	22.18		
			50	24	22.24	22.22	22.15		
			50	49	22.22	22.11	22.13		
			100	0	22.16	22.29	22.15		
		Antenna Gain (dBi):					0.49		
		Max. EIRP (dBm):					24.13		
		EIRP Limit (dBm):					33.00		

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



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	23.23	23.11	23.29		
			1	2	23.33	23.16	23.27		
			1	5	23.28	23.23	23.24		
			3	0	22.81	22.73	22.91		
			3	1	22.85	22.78	22.96		
			3	2	22.88	22.74	22.98		
		6	0	22.88	22.80	22.85			
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.8		
		EIRP Limit (dBm):					30.00		
		16QAM	1	0	23.21	23.31	23.35		
			1	2	23.37	23.33	23.06		
			1	5	23.40	23.19	23.32		
			3	0	22.28	22.08	22.26		
			3	1	22.21	22.14	22.15		
			3	2	22.11	22.13	22.16		
		6	0	22.01	22.00	22.09			
		Antenna Gain (dBi):					0.47		
Max. EIRP (dBm):					23.87				
EIRP Limit (dBm):					30.00				
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	23.17	23.16	23.15		
			1	7	23.23	23.12	23.19		
			1	14	23.18	23.19	23.20		
			8	0	22.92	22.88	22.76		
			8	4	22.76	22.83	22.78		
			8	7	22.72	22.77	22.76		
		15	0	22.73	22.78	22.74			
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.70		
		EIRP Limit (dBm):					30.00		
		16QAM	1	0	23.23	23.15	23.31		
			1	7	23.22	23.29	23.35		
			1	14	23.30	23.11	23.34		
			8	0	22.05	21.96	21.92		
			8	4	22.08	22.00	21.80		
			8	7	22.04	21.95	21.91		
		15	0	22.13	22.06	22.28			
		Antenna Gain (dBi):					0.47		
Max. EIRP (dBm):					23.82				
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	23.24	23.26	23.14		
			1	12	23.28	23.15	23.12		
			1	24	23.26	23.14	23.10		
			12	0	22.77	22.70	22.70		
			12	6	22.70	22.82	22.74		
			12	11	22.81	22.71	22.85		
			25	0	22.76	22.67	22.72		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.75		
		EIRP Limit (dBm):					30.00		
		16QAM	1	0	23.25	23.20	23.24		
			1	12	23.08	22.90	23.04		
			1	24	23.14	23.15	22.90		
			12	0	21.86	21.93	21.83		
			12	6	21.80	21.86	21.82		
			12	11	21.90	21.88	21.96		
			25	0	21.95	21.85	21.87		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.72		
		EIRP Limit (dBm):					30.00		
		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	23.33	23.26	23.37		
			1	24	23.26	23.16	23.27		
			1	49	23.27	23.15	23.22		
			25	0	22.87	22.82	22.78		
			25	12	22.72	22.80	22.77		
			25	24	22.76	22.71	22.88		
			50	0	22.73	22.68	22.87		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.84		
		EIRP Limit (dBm):					30.00		
		16QAM	1	0	23.38	23.29	23.28		
			1	24	23.19	23.21	23.15		
			1	49	23.36	23.19	23.14		
			25	0	22.23	21.99	22.02		
			25	12	22.19	22.00	22.09		
			25	24	22.10	22.07	22.00		
			50	0	22.06	21.93	21.96		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.85		
		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	23.25	23.29	23.27		
			1	37	23.23	23.17	23.25		
			1	74	23.15	23.07	23.26		
			36	0	22.88	22.82	22.76		
			36	16	22.82	22.83	22.81		
			36	35	22.81	22.75	22.73		
			75	0	22.80	22.86	22.82		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.76		
		EIRP Limit (dBm):					30.00		
		16QAM	1	0	23.49	23.43	23.24		
			1	37	23.41	23.36	23.41		
			1	74	23.48	23.35	23.38		
			36	0	22.87	22.01	22.05		
			36	16	22.81	21.91	21.97		
			36	35	22.85	21.93	22.07		
			75	0	21.90	21.96	21.92		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					23.96		
		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	23.38	23.60	23.42		
			1	49	23.32	23.45	23.33		
			1	99	23.21	23.42	23.43		
			50	0	22.88	23.18	22.93		
			50	24	22.81	22.92	23.03		
			50	49	22.70	23.00	23.05		
			100	0	22.77	22.99	22.97		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					24.07		
		EIRP Limit (dBm):					30.00		
		16QAM	1	0	23.05	23.52	23.49		
			1	49	23.01	23.21	23.45		
			1	99	23.20	23.46	23.54		
			50	0	22.06	22.22	22.17		
			50	24	21.91	22.20	22.31		
			50	49	21.86	22.02	22.07		
			100	0	21.94	22.07	22.08		
		Antenna Gain (dBi):					0.47		
		Max. EIRP (dBm):					24.01		
		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)				
					20407	20525	20643		
					824.7MHz	836.5MHz	848.3MHz		
5	1.4	QPSK	1	0	23.33	23.26	23.46		
			1	2	23.41	23.34	23.57		
			1	5	23.38	23.36	23.56		
			3	0	22.55	22.56	22.66		
			3	1	22.52	22.60	22.71		
			3	2	22.62	22.61	22.66		
			6	0	22.54	22.47	22.73		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					20.9		
		ERP Limit (dBm):					38.45		
		16QAM	1	0	22.04	22.22	22.74		
			1	2	22.26	22.58	22.42		
			1	5	22.18	22.65	22.65		
			3	0	21.67	21.90	21.56		
			3	1	21.74	21.81	21.85		
			3	2	21.73	21.96	21.73		
			6	0	21.60	21.53	21.70		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					20.07		
		ERP Limit (dBm):					38.45		
		LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
20415	20525						20635		
825.5MHz	836.5MHz						847.50MHz		
5	3	QPSK	1	0	23.24	23.29	23.56		
			1	7	23.32	23.39	23.58		
			1	14	23.35	23.37	23.49		
			8	0	22.51	22.34	22.67		
			8	4	22.50	22.49	22.54		
			8	7	22.51	22.56	22.69		
			15	0	22.45	22.45	22.50		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					20.91		
		ERP Limit (dBm):					38.45		
		16QAM	1	0	22.51	22.38	22.62		
			1	7	22.56	22.71	22.66		
			1	14	22.57	22.56	22.57		
			8	0	21.57	21.66	21.59		
			8	4	21.47	21.54	21.57		
			8	7	21.44	21.67	21.78		
			15	0	21.69	21.68	21.70		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					20.04		
		ERP Limit (dBm):					38.45		
		<p>Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).  ERP (dBm) = EIRP (dBm) - 2.15 (dB).</p>							

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)				
					20425	20525	20625		
					826.5MHz	836.5MHz	846.5MHz		
5	5	QPSK	1	0	23.47	23.29	23.43		
			1	12	23.46	23.26	23.35		
			1	24	23.39	23.31	23.48		
			12	0	22.40	22.30	22.58		
			12	6	22.52	22.42	22.53		
			12	11	22.50	22.45	22.55		
			25	0	22.51	22.41	22.54		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					20.81		
		ERP Limit (dBm):					38.45		
		16QAM	1	0	22.86	22.46	22.79		
			1	12	22.94	22.43	22.56		
			1	24	22.70	22.52	22.55		
			12	0	21.60	21.26	21.50		
			12	6	21.70	21.34	21.40		
			12	11	21.56	21.47	21.47		
			25	0	21.67	21.51	21.57		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					20.80		
		ERP Limit (dBm):					38.45		
		LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
20450	20525						20600		
829.0MHz	836.5MHz						844.0MHz		
5	10	QPSK	1	0	23.69	23.81	23.65		
			1	24	23.71	23.73	23.62		
			1	49	23.65	23.85	23.73		
			25	0	22.83	22.87	22.82		
			25	12	22.82	22.86	22.71		
			25	24	22.68	22.84	22.74		
			50	0	22.77	22.98	22.79		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					21.18		
		ERP Limit (dBm):					38.45		
		16QAM	1	0	23.08	22.91	23.15		
			1	24	22.91	22.94	23.20		
			1	49	23.04	22.91	23.22		
			25	0	21.89	21.82	21.93		
			25	12	21.90	21.96	21.91		
			25	24	22.00	21.95	21.83		
			50	0	21.86	21.92	21.85		
		Antenna Gain(dBi):					-0.52		
		Max. ERP (dBm):					20.55		
		ERP Limit (dBm):					38.45		
		<p>Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).  ERP (dBm) = EIRP (dBm) - 2.15 (dB).</p>							

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)				
					20775	21100	21425		
					2502.5MHz	2535.0MHz	2567.5MHz		
7	5	QPSK	1	0	24.41	24.52	24.35		
			1	12	24.40	24.47	24.39		
			1	24	24.42	24.36	24.33		
			12	0	24.18	24.06	24.18		
			12	6	24.07	24.07	24.14		
			12	11	24.15	24.17	24.05		
			25	0	24.09	24.09	24.02		
		Antenna Gain (dBi):					0.63		
		Max. EIRP (dBm):					25.15		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	24.08	24.11	24.32		
			1	12	24.10	24.27	24.31		
			1	24	24.17	24.23	24.11		
			12	0	23.33	23.41	23.46		
			12	6	23.43	23.33	23.52		
			12	11	23.29	23.32	23.25		
			25	0	23.16	23.35	23.40		
Antenna Gain (dBi):					0.63				
Max. EIRP (dBm):					24.95				
EIRP Limit (dBm):					33.00				

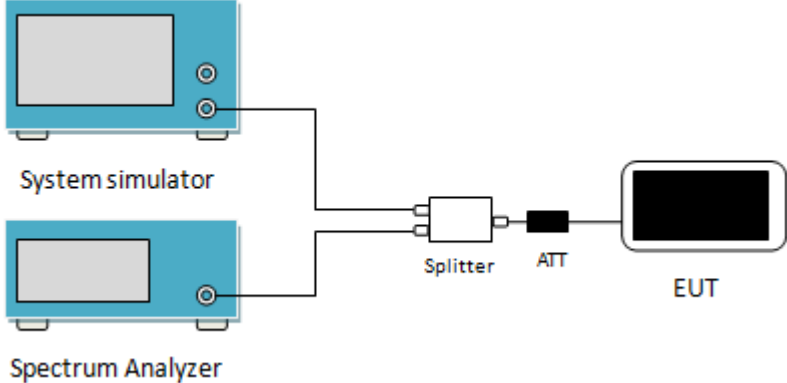
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)				
					20800	21100	21400		
					2505.0MHz	2535.0MHz	2565.0MHz		
7	10	QPSK	1	0	24.38	24.35	24.41		
			1	24	24.42	24.37	24.36		
			1	49	24.36	24.26	24.26		
			25	0	24.04	23.99	24.07		
			25	12	24.02	23.93	23.91		
			25	24	23.96	23.91	23.98		
			50	0	24.18	23.96	23.90		
		Antenna Gain (dBi):					0.63		
		Max. EIRP (dBm):					25.05		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	24.41	24.43	24.44		
			1	24	24.31	24.42	24.39		
			1	49	24.45	24.46	24.47		
			25	0	23.24	23.16	23.22		
			25	12	23.22	23.12	23.24		
			25	24	23.17	23.27	23.19		
			50	0	23.22	23.16	23.26		
Antenna Gain (dBi):					0.63				
Max. EIRP (dBm):					25.10				
EIRP Limit (dBm):					33.00				

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

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)				
					20825	21100	21375		
					2507.5MHz	2535.0MHz	2562.5MHz		
7	15	QPSK	1	0	24.42	24.45	24.40		
			1	37	24.36	24.32	24.48		
			1	74	24.42	24.31	24.32		
			36	0	24.03	23.94	24.11		
			36	16	24.05	23.97	24.06		
			36	35	23.97	24.00	24.02		
			75	0	23.95	23.98	24.04		
		Antenna Gain (dBi):					0.63		
		Max. EIRP (dBm):					25.11		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	24.33	24.31	24.30		
			1	37	24.29	24.42	24.34		
			1	74	24.14	24.39	24.44		
			36	0	23.51	23.11	23.16		
			36	16	23.33	23.09	23.13		
			36	35	23.37	23.04	23.17		
			75	0	23.16	23.11	23.19		
		Antenna Gain (dBi):					0.63		
		Max. EIRP (dBm):					25.07		
		EIRP Limit (dBm):					33.00		
		LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
20850	21100						21350		
2510.0MHz	2535.0MHz						2560.0MHz		
7	20	QPSK	1	0	24.52	24.43	24.33		
			1	49	24.47	24.25	24.45		
			1	99	24.37	24.28	24.43		
			50	0	24.07	23.90	23.89		
			50	24	23.95	23.91	24.06		
			50	49	24.15	23.95	23.98		
			100	0	24.12	24.10	24.07		
		Antenna Gain (dBi):					0.63		
		Max. EIRP (dBm):					25.15		
		EIRP Limit (dBm):					33.00		
		16QAM	1	0	24.27	24.45	24.26		
			1	49	23.94	24.29	24.22		
			1	99	24.36	24.12	24.20		
			50	0	23.22	23.11	23.17		
			50	24	23.26	23.06	23.26		
			50	49	23.21	23.07	23.21		
			100	0	23.17	23.14	23.14		
		Antenna Gain (dBi):					0.63		
		Max. EIRP (dBm):					25.08		
		EIRP Limit (dBm):					33.00		

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

## 6.2 Peak-to-Average Ratio

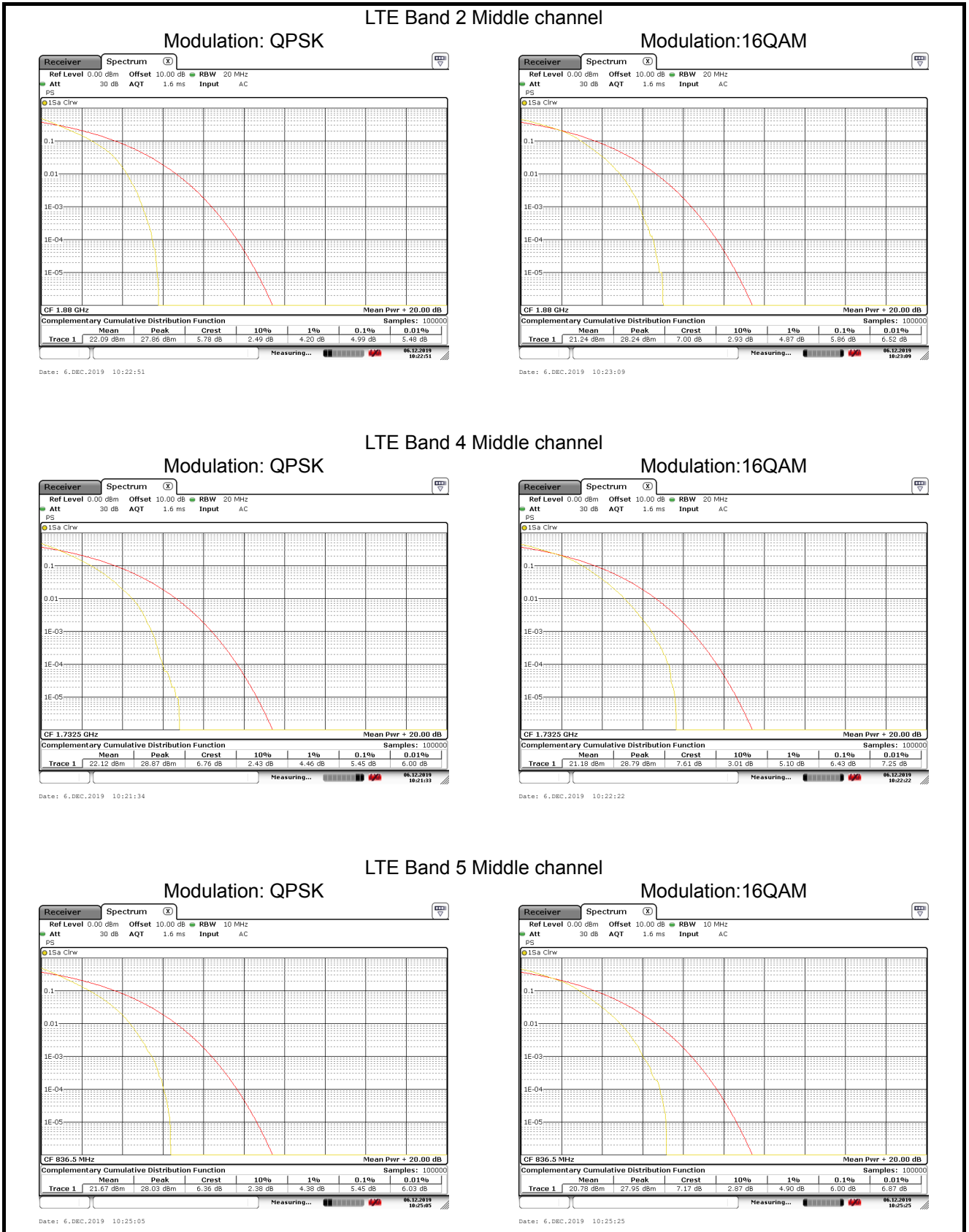
Test Requirement:	Part 24.232 (d), Part 27.50(d)(5)
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	 <p>The diagram illustrates the test setup. On the left, there are two blue rectangular units: the top one is labeled 'System simulator' and the bottom one is labeled 'Spectrum Analyzer'. Both have a screen and two circular ports. A single line connects the right-side ports of both units to a central 'Splitter' box. From the right side of the 'Splitter', a line goes to a black rectangular 'ATT' (Attenuator) block. Finally, a line connects the right side of the 'ATT' block to a black rectangular 'EUT' (Equipment Under Test) block.</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 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

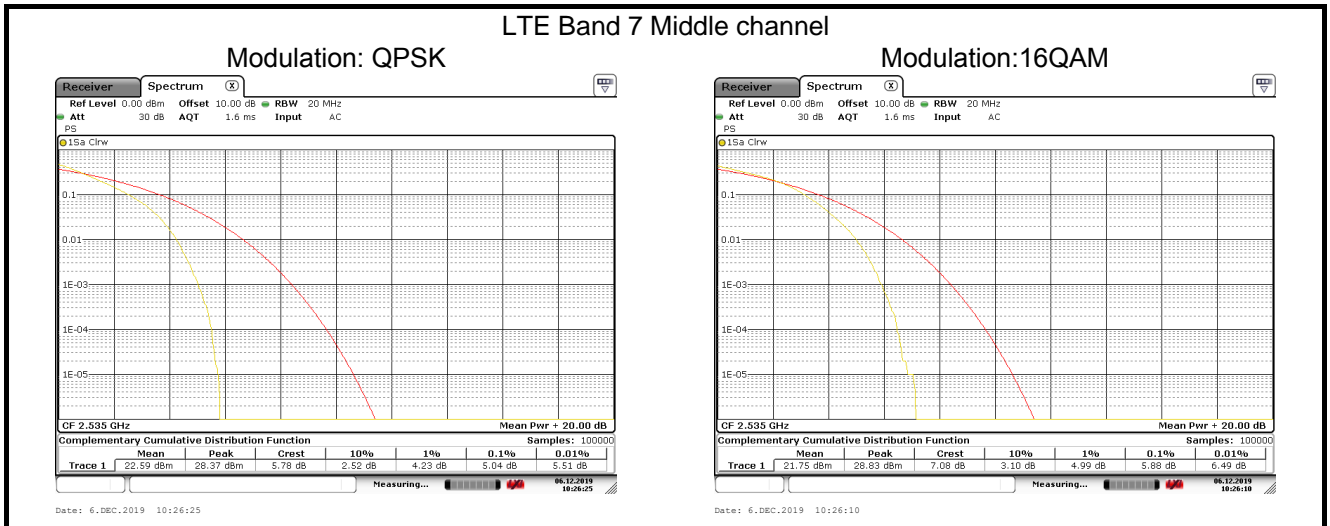


**Measurement Data (Worst case):**

Bandwidth	Modulation	RB Size	RB Offset	PAPR
LTE Band 2 (Middle Channel)				
20MHz	QPSK	100	0	4.99
	16QAM	100	0	5.86
LTE Band 4 (Middle Channel)				
20MHz	QPSK	100	0	5.45
	16QAM	100	0	6.43
LTE Band 5 (Middle Channel)				
10MHz	QPSK	50	0	5.45
	16QAM	50	0	6.00
LTE Band 7 (Middle Channel)				
20MHz	QPSK	100	0	5.04
	16QAM	100	0	5.88

Test plots as below:





## 6.3 Occupy Bandwidth

Test Requirement:	Part 22.917(b), Part 24.238(b), Part 27.53(h), Part 27.53(m)
Test Setup:	<p>The diagram shows a test setup for measuring occupied bandwidth. 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 a screen and two circular ports on the right side. A single line connects the two ports of the System simulator to the top port of a white rectangular 'Splitter'. Another line connects the two ports of the Spectrum Analyzer to the bottom port of the Splitter. From the right side of the Splitter, a line goes to a small black rectangular 'ATT' (attenuator). From the right side of the ATT, a line goes to a black rectangular 'EUT' (Equipment Under Test).</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 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Measurement Data:**

LTE Band 2					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	18607	1850.70	16QAM	1098	1284
			QPSK	1104	1266
	18900	1880.00	16QAM	1098	1266
			QPSK	1104	1266
	19193	1909.30	16QAM	1098	1278
			QPSK	1098	1254
3MHz	18615	1851.50	16QAM	2748	3228
			QPSK	2772	3228
	18900	1880.00	16QAM	2760	3156
			QPSK	2760	3192
	19185	1908.50	16QAM	2760	3288
			QPSK	2772	3144
5MHz	18625	1852.50	16QAM	4500	4980
			QPSK	4540	5280
	18900	1880.00	16QAM	4500	5020
			QPSK	4520	5100
	19175	1907.50	16QAM	4520	4980
			QPSK	4520	4960
10MHz	18650	1855.00	16QAM	9120	10240
			QPSK	9160	10520
	18900	1880.00	16QAM	9160	10240
			QPSK	9160	10840
	19150	1905.00	16QAM	9120	10360
			QPSK	9120	10680
15MHz	18675	1857.50	16QAM	13560	15420
			QPSK	13620	15300
	18900	1880.00	16QAM	13560	15600
			QPSK	13560	15060
	19125	1902.50	16QAM	13560	15480
			QPSK	13560	15240
20MHz	18700	1860.00	16QAM	18000	19760
			QPSK	18080	20080
	18900	1880.00	16QAM	18000	19920
			QPSK	18160	20000
	19100	1900.00	16QAM	17920	19680
			QPSK	18000	19600

LTE Band 4					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	19957	1710.7	16QAM	1104	1272
			QPSK	1104	1266
	20175	1732.5	16QAM	1098	1302
			QPSK	1104	1272
	20393	1754.3	16QAM	1098	1284
			QPSK	1104	1266
3MHz	19965	1711.5	16QAM	2748	3252
			QPSK	2772	3264
	20175	1732.5	16QAM	2748	3252
			QPSK	2772	3204
	20385	1750.5	16QAM	2748	3240
			QPSK	2760	3156
5MHz	19975	1712.5	16QAM	4520	4960
			QPSK	4540	5040
	20175	1732.5	16QAM	4520	4980
			QPSK	4540	5240
	20375	1752.5	16QAM	4500	5040
			QPSK	4540	5200
10MHz	20000	1715.0	16QAM	9120	10320
			QPSK	9160	10880
	20175	1732.5	16QAM	9120	10320
			QPSK	9120	10280
	20350	1750.0	16QAM	9120	10280
			QPSK	9120	10360
15MHz	20025	1717.5	16QAM	13560	15060
			QPSK	13560	15180
	20175	1732.5	16QAM	13560	15480
			QPSK	13560	15120
	20325	1747.5	16QAM	13500	15480
			QPSK	13620	15360
20MHz	20050	1720.0	16QAM	18000	19920
			QPSK	18080	19760
	20175	1732.5	16QAM	18000	19920
			QPSK	18080	20000
	20300	1745.0	16QAM	18000	20160
			QPSK	18000	20320

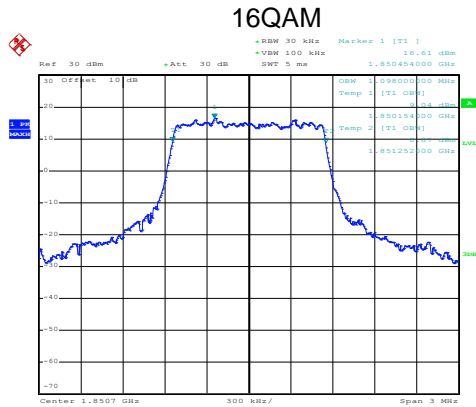
TE Band 5					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	20407	824.7	16QAM	1098	1302
			QPSK	1098	1266
	20525	836.5	16QAM	1098	1290
			QPSK	1098	1266
	20643	848.3	16QAM	1104	1260
			QPSK	1098	1260
3MHz	20415	825.5	16QAM	2736	3144
			QPSK	2772	3168
	20525	836.50	16QAM	2736	3264
			QPSK	2772	3120
	20635	847.50	16QAM	2736	3168
			QPSK	2760	3156
5MHz	20425	826.50	16QAM	4500	5000
			QPSK	4540	5080
	20525	836.50	16QAM	4500	5020
			QPSK	4540	5220
	20625	846.50	16QAM	4480	5020
			QPSK	4500	5260
10MHz	20450	829.00	16QAM	9160	10320
			QPSK	9200	10840
	20525	836.50	16QAM	9120	10240
			QPSK	9120	10440
	20600	844.00	16QAM	9120	10200
			QPSK	9160	10800

LTE Band 7					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
5MHz	20775	2502.5	16QAM	4500	4960
			QPSK	4540	5240
	21100	2535.0	16QAM	4500	5020
			QPSK	4540	5160
	21425	2567.5	16QAM	4520	4980
			QPSK	4540	5180
10MHz	20800	2505.0	16QAM	9160	10200
			QPSK	9160	10960
	21100	2535.0	16QAM	9120	10200
			QPSK	9120	10520
	21400	2565.0	16QAM	9120	10120
			QPSK	9120	10360
15MHz	20825	2507.5	16QAM	13560	15000
			QPSK	13560	15180
	21100	2535.0	16QAM	13500	15120
			QPSK	13500	15300
	21375	2562.5	16QAM	13500	15240
			QPSK	13500	15120
20MHz	20850	2510.0	16QAM	18000	20000
			QPSK	18160	20160
	21100	2535.0	16QAM	18000	19840
			QPSK	18000	20000
	21350	2560.0	16QAM	18000	19760
			QPSK	18000	19760

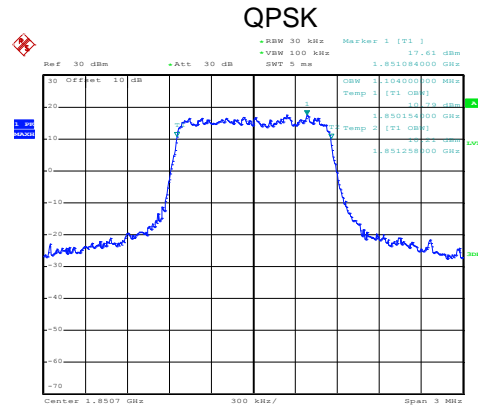


Test plot as follows:  
LTE Band 2 part:

LTE Band 2: 99% Occupy bandwidth  
BW: 1.4MHz

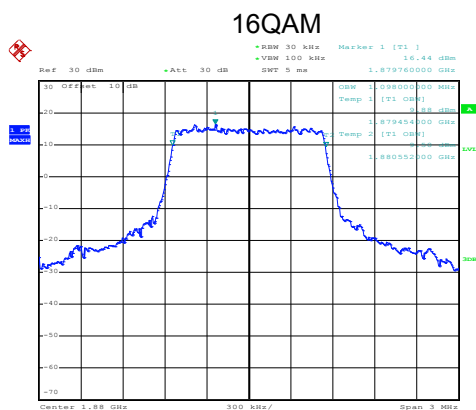


Date: 6.DEC.2019 11:47:14

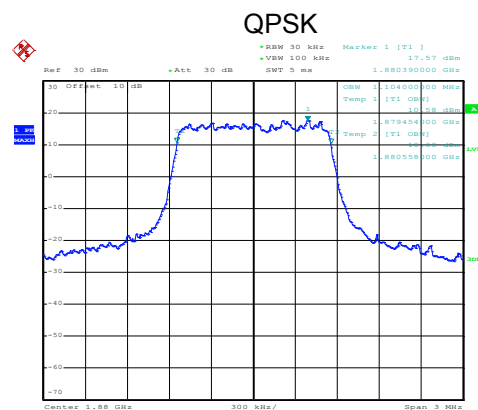


Date: 6.DEC.2019 11:46:22

Lowest channel

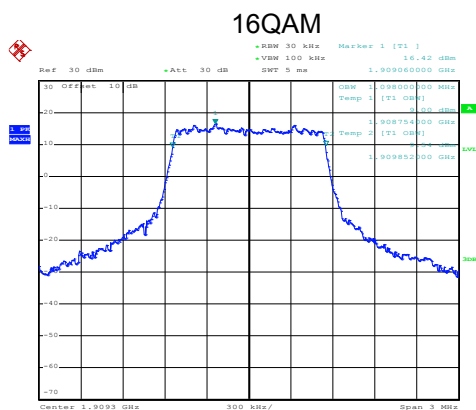


Date: 6.DEC.2019 11:45:29

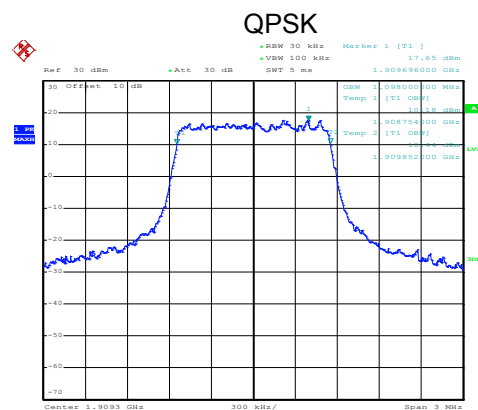


Date: 6.DEC.2019 11:44:32

Middle channel



Date: 6.DEC.2019 11:48:53

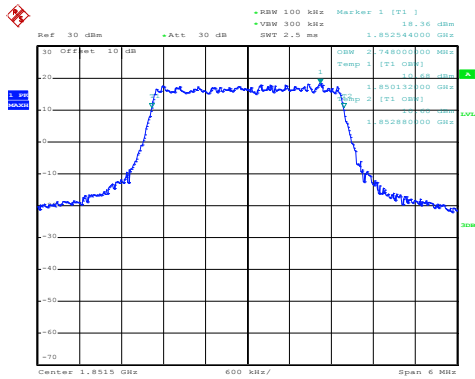


Date: 6.DEC.2019 11:47:58

Highest channel

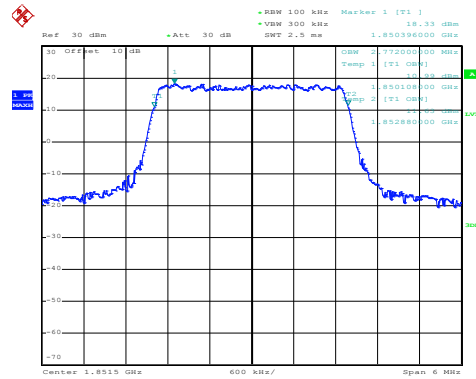
LTE Band 2: 99% Occupy bandwidth  
BW: 3MHz

16QAM



Date: 6.DEC.2019 11:51:43

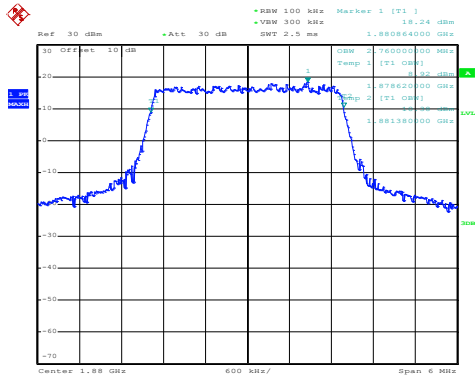
QPSK



Date: 6.DEC.2019 11:50:34

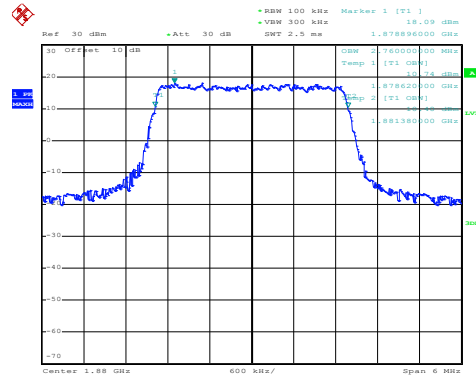
Lowest channel

16QAM



Date: 6.DEC.2019 11:53:00

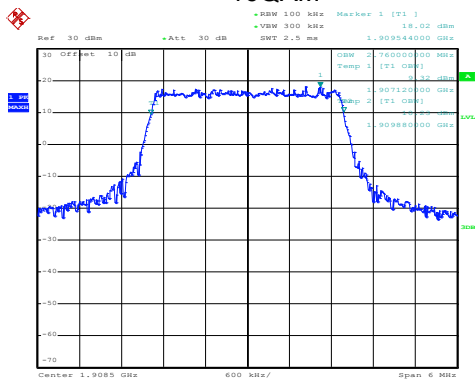
QPSK



Date: 6.DEC.2019 11:52:15

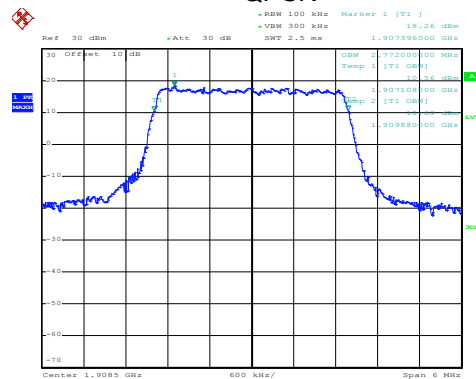
Middle channel

16QAM



Date: 6.DEC.2019 11:55:09

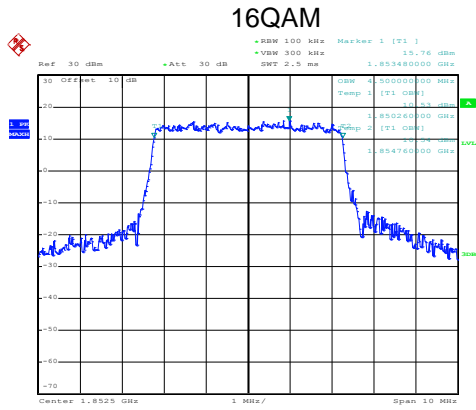
QPSK



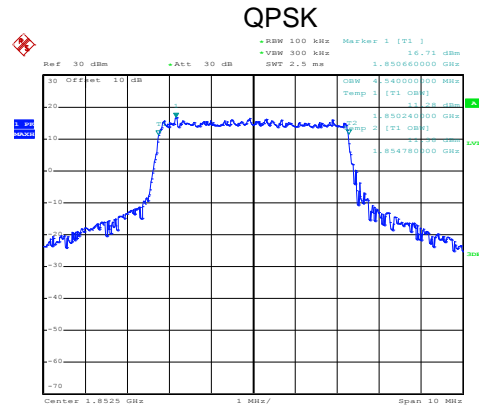
Date: 6.DEC.2019 11:53:51

Highest channel

LTE Band 2: 99% Occupy bandwidth  
BW: 5MHz

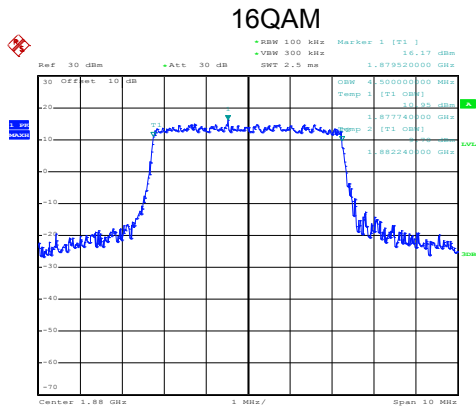


Date: 6.DEC.2019 11:58:13

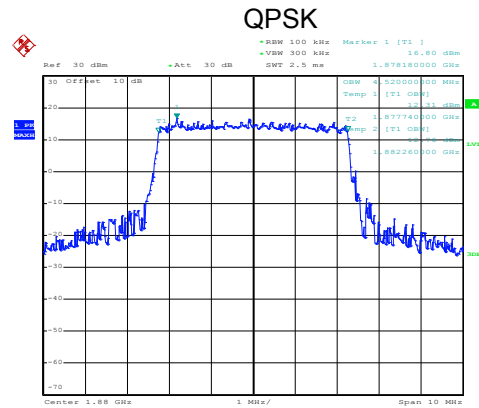


Date: 6.DEC.2019 11:56:14

Lowest channel

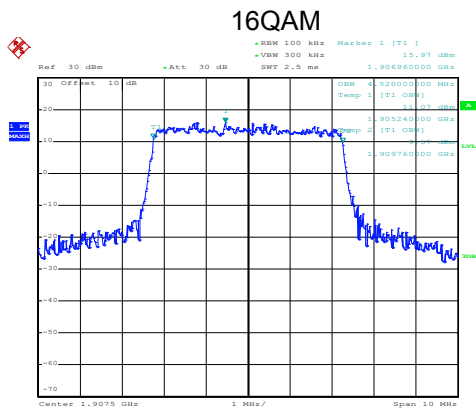


Date: 6.DEC.2019 11:59:37

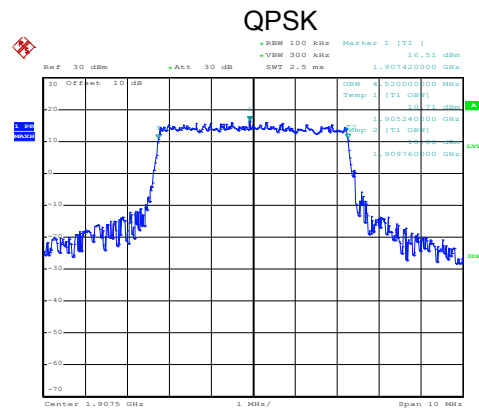


Date: 6.DEC.2019 11:58:46

Middle channel



Date: 6.DEC.2019 12:00:43

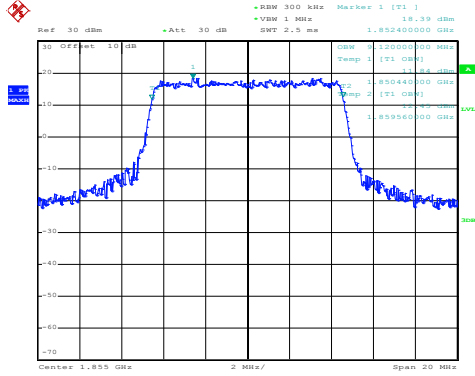


Date: 6.DEC.2019 12:00:06

Highest channel

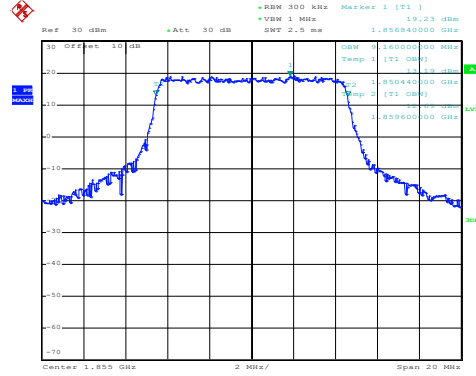
LTE Band 2: 99% Occupy bandwidth  
BW: 10MHz

16QAM



Date: 6.DEC.2019 12:02:44

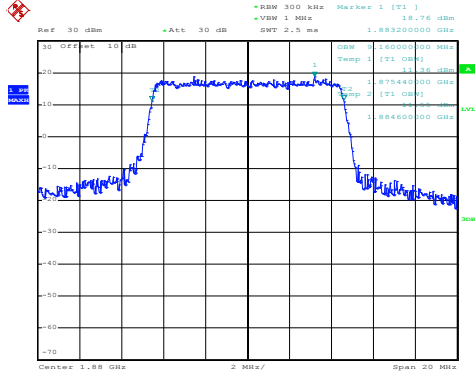
QPSK



Date: 6.DEC.2019 12:01:57

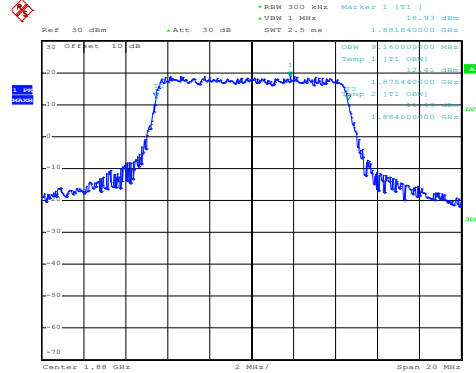
Lowest channel

16QAM



Date: 6.DEC.2019 12:04:25

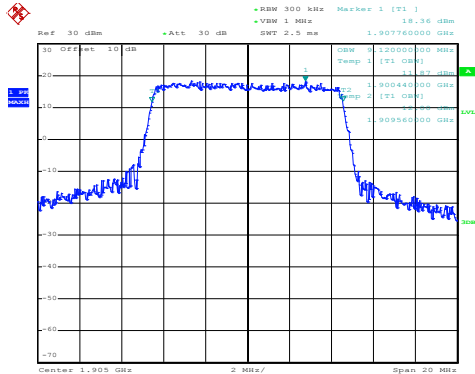
QPSK



Date: 6.DEC.2019 12:03:21

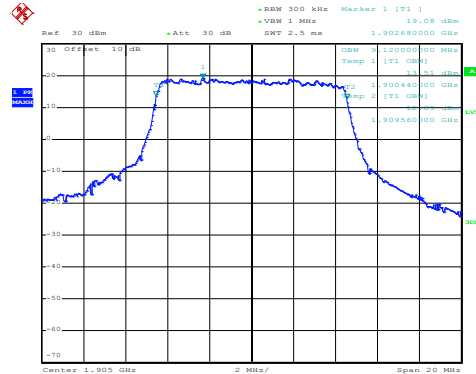
Middle channel

16QAM



Date: 6.DEC.2019 12:07:22

QPSK

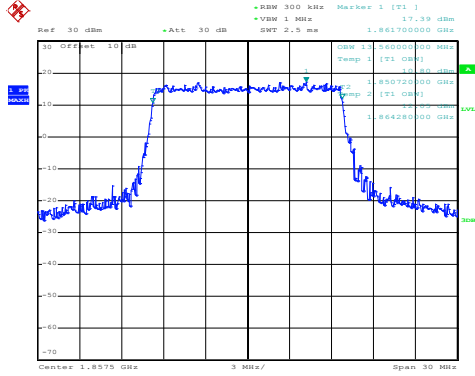


Date: 6.DEC.2019 12:05:53

Highest channel

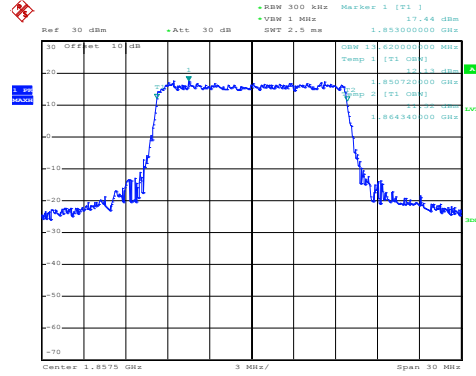
LTE Band 2: 99% Occupy bandwidth  
BW: 15MHz

16QAM



Date: 6.DEC.2019 12:09:21

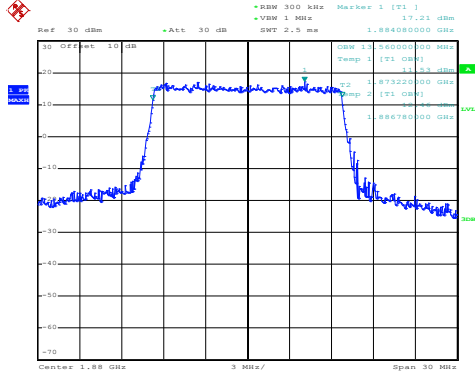
QPSK



Date: 6.DEC.2019 12:08:06

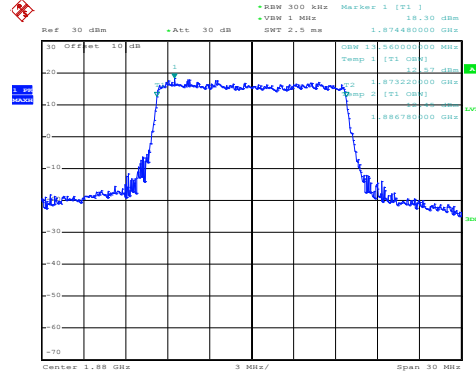
Lowest channel

16QAM



Date: 6.DEC.2019 12:11:13

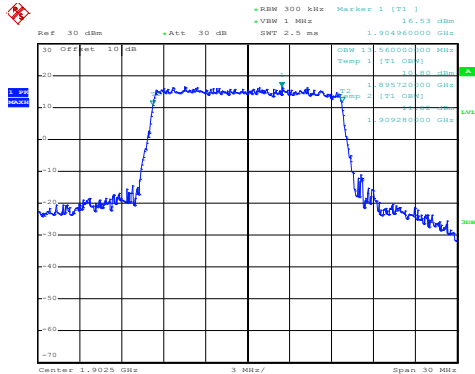
QPSK



Date: 6.DEC.2019 12:09:52

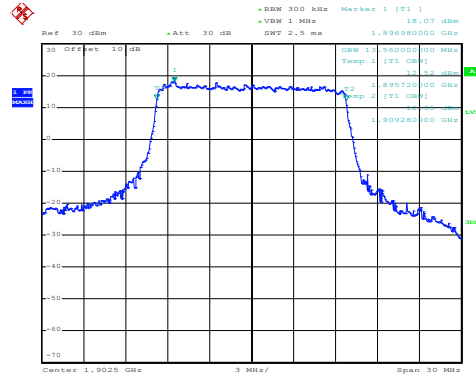
Middle channel

16QAM



Date: 6.DEC.2019 12:14:48

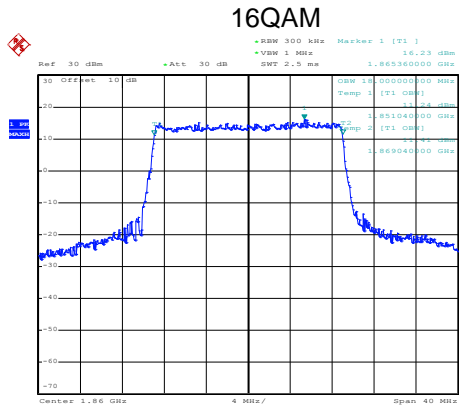
QPSK



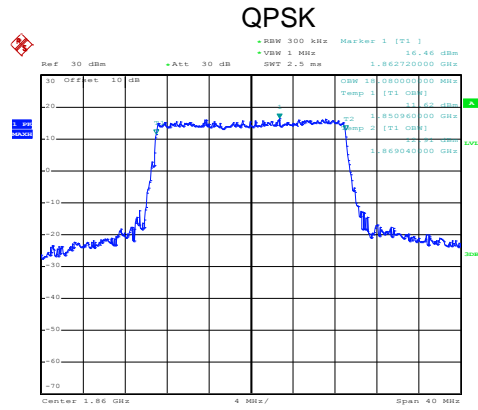
Date: 6.DEC.2019 12:12:50

Highest channel

LTE Band 2: 99% Occupy bandwidth  
BW: 20MHz

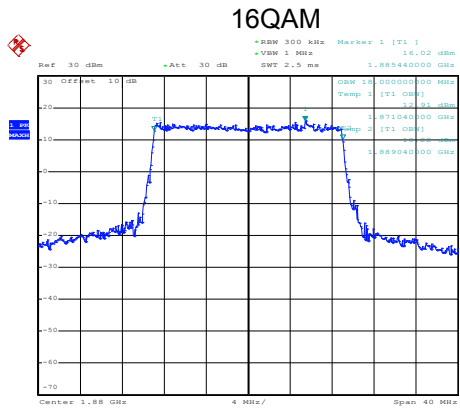


Date: 6.DEC.2019 12:17:17

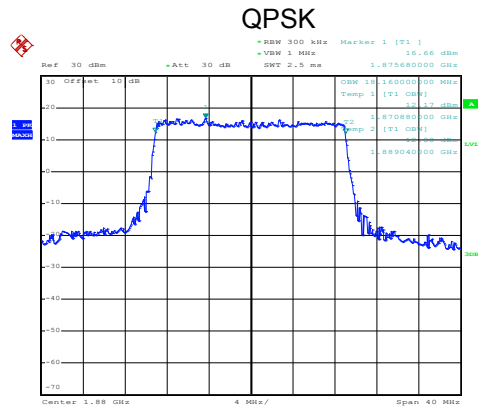


Date: 6.DEC.2019 12:15:52

Lowest channel

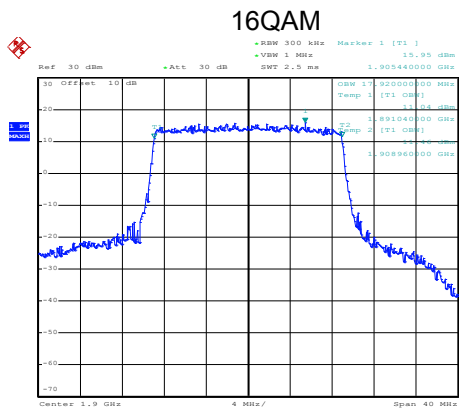


Date: 6.DEC.2019 12:19:18

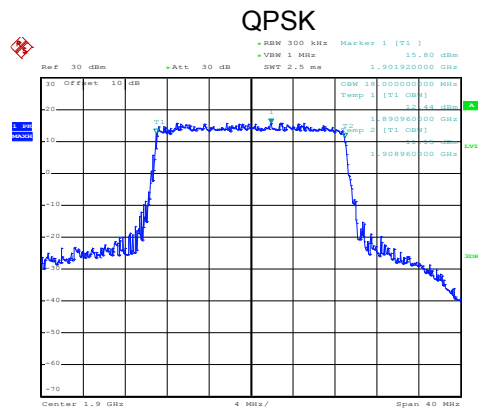


Date: 6.DEC.2019 12:18:12

Middle channel



Date: 6.DEC.2019 12:20:27

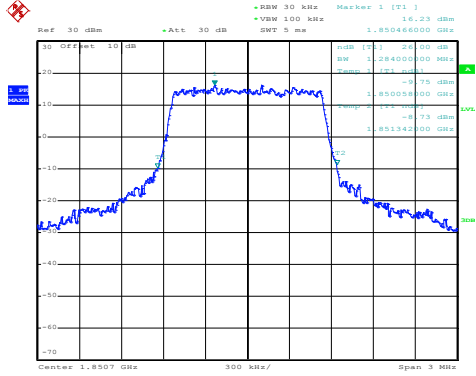


Date: 6.DEC.2019 12:19:42

Highest channel

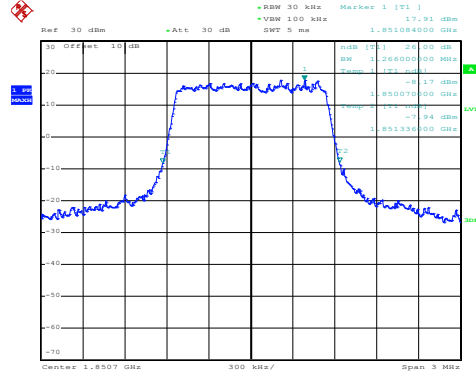
LTE Band 2: -26dBc bandwidth  
BW: 1.4MHz

16QAM



Date: 6.DEC.2019 11:46:51

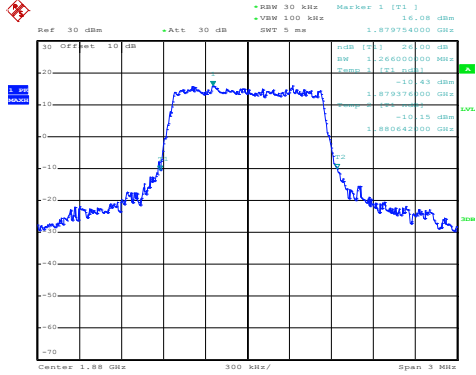
QPSK



Date: 6.DEC.2019 11:46:36

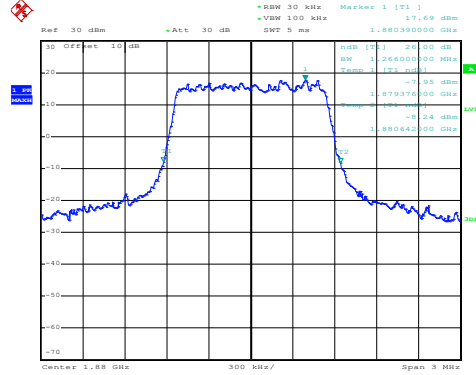
Lowest channel

16QAM



Date: 6.DEC.2019 11:45:09

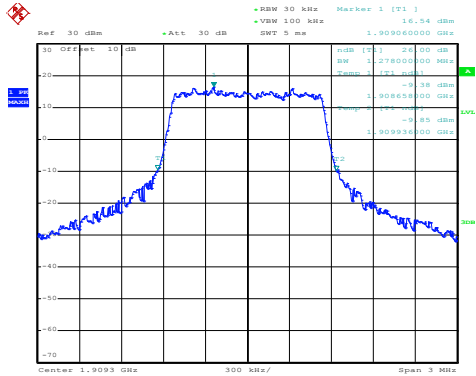
QPSK



Date: 6.DEC.2019 11:44:59

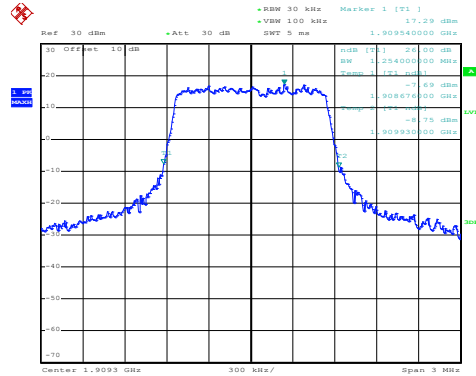
Middle channel

16QAM



Date: 6.DEC.2019 11:48:30

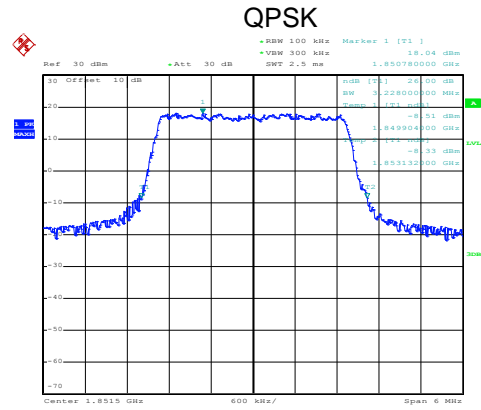
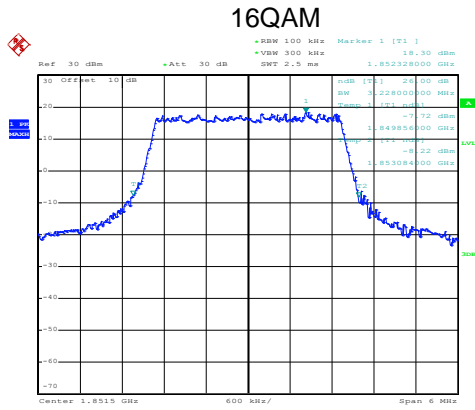
QPSK



Date: 6.DEC.2019 11:48:14

Highest channel

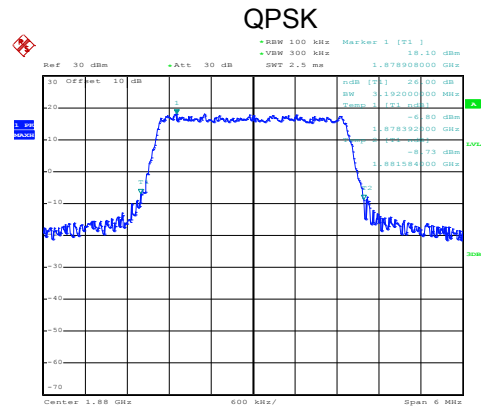
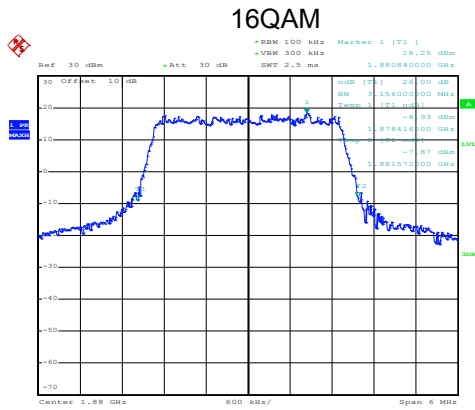
LTE Band 2: -26dBc bandwidth  
BW: 3MHz



Date: 6.DEC.2019 11:51:19

Date: 6.DEC.2019 11:50:54

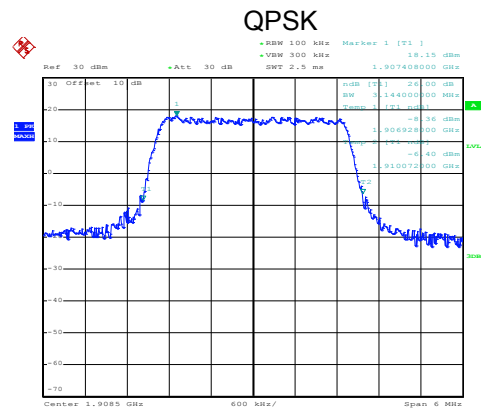
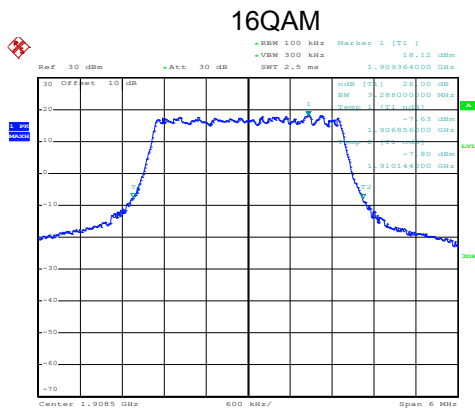
Lowest channel



Date: 6.DEC.2019 11:52:43

Date: 6.DEC.2019 11:52:27

Middle channel



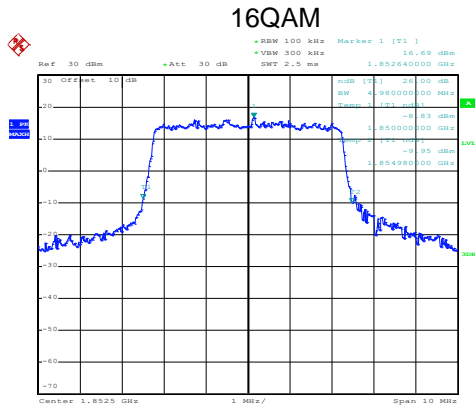
Date: 6.DEC.2019 11:54:54

Date: 6.DEC.2019 11:54:08

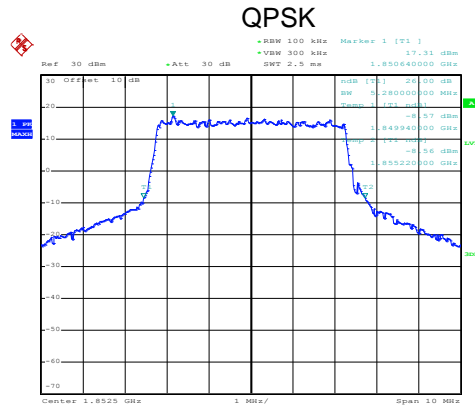
Highest channel



LTE Band 2: -26dBc bandwidth  
BW: 5MHz

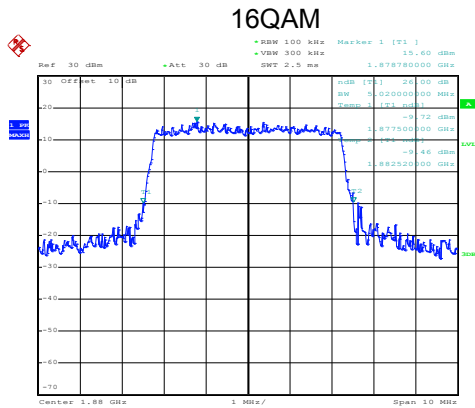


Date: 6.DEC.2019 11:57:59

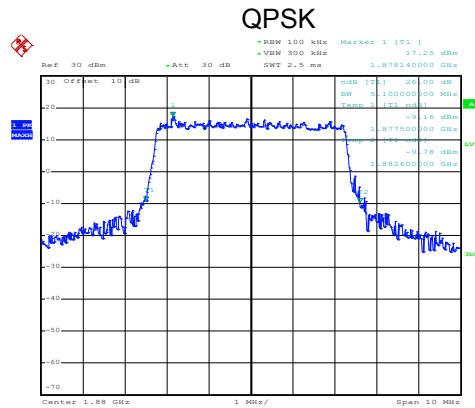


Date: 6.DEC.2019 11:57:18

Lowest channel

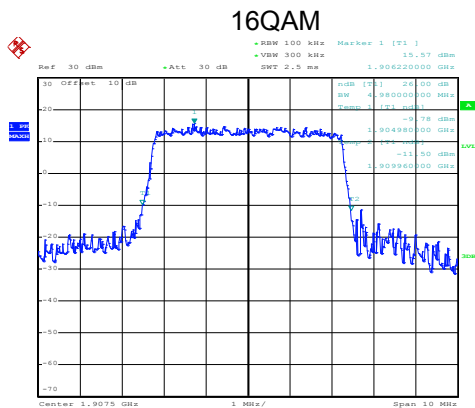


Date: 6.DEC.2019 11:59:21

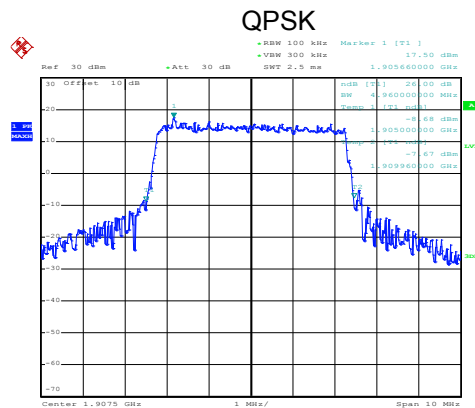


Date: 6.DEC.2019 11:59:10

Middle channel



Date: 6.DEC.2019 12:00:29

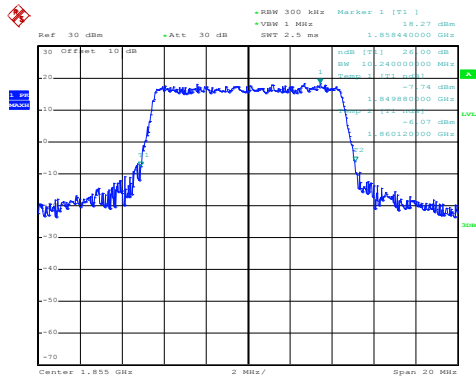


Date: 6.DEC.2019 12:00:19

Highest channel

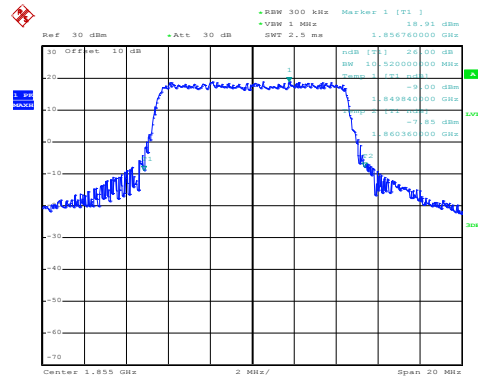
LTE Band 2: -26dBc bandwidth  
BW: 10MHz

16QAM



Date: 6.DEC.2019 12:02:28

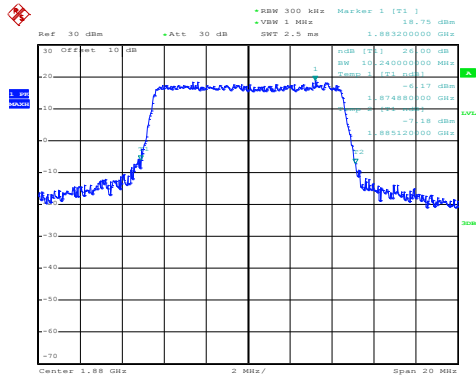
QPSK



Date: 6.DEC.2019 12:02:12

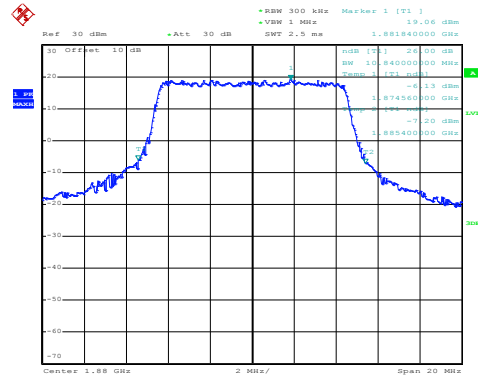
Lowest channel

16QAM



Date: 6.DEC.2019 12:04:14

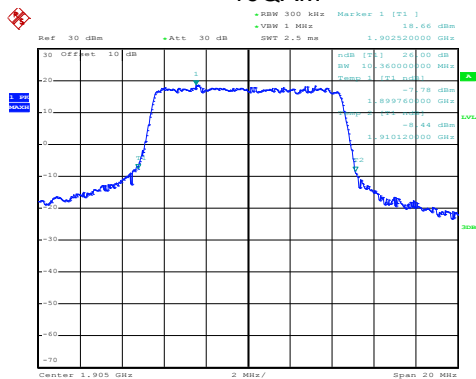
QPSK



Date: 6.DEC.2019 12:04:01

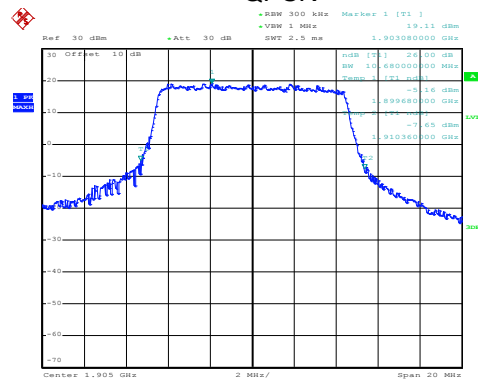
Middle channel

16QAM



Date: 6.DEC.2019 12:07:09

QPSK

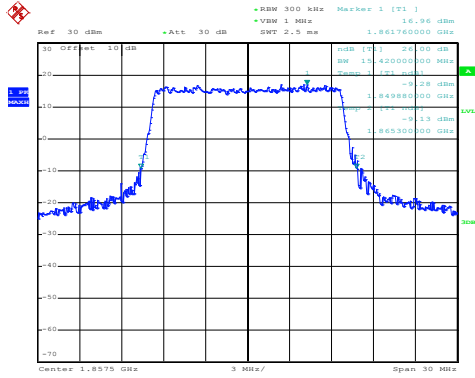


Date: 6.DEC.2019 12:06:25

Highest channel

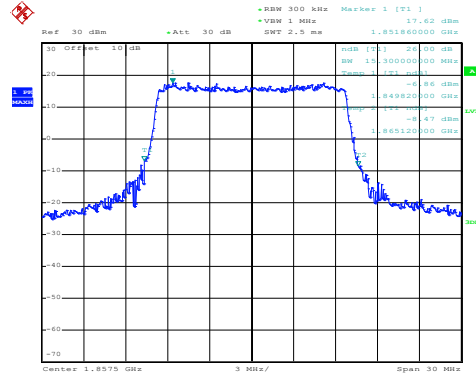
LTE Band 2: -26dBc bandwidth  
BW: 15MHz

16QAM



Date: 6.DEC.2019 12:09:06

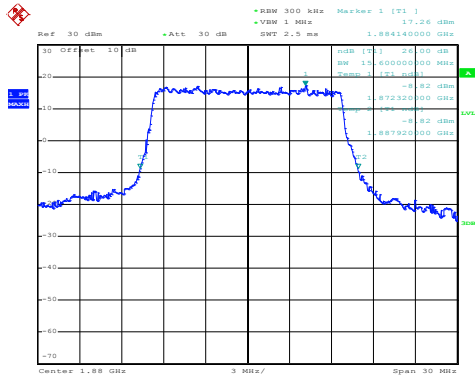
QPSK



Date: 6.DEC.2019 12:08:28

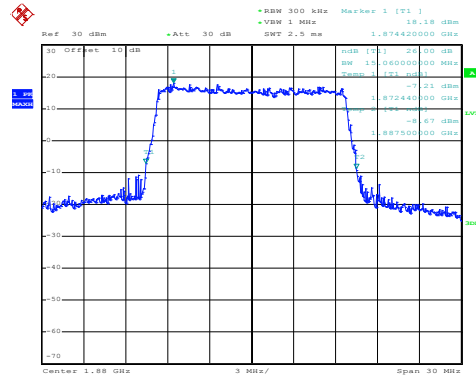
Lowest channel

16QAM



Date: 6.DEC.2019 12:10:56

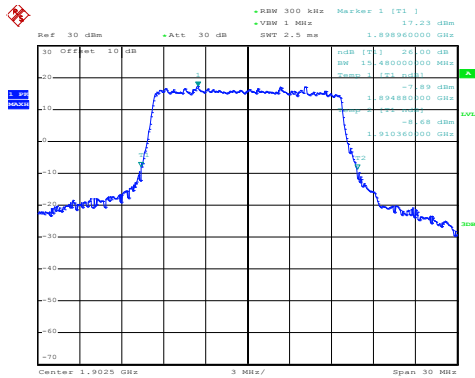
QPSK



Date: 6.DEC.2019 12:10:05

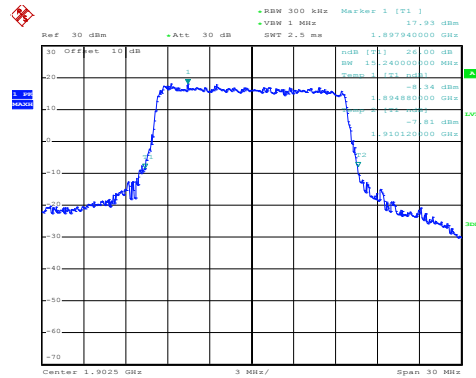
Middle channel

16QAM



Date: 6.DEC.2019 12:14:34

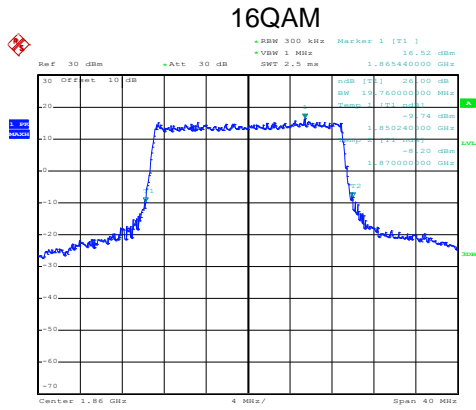
QPSK



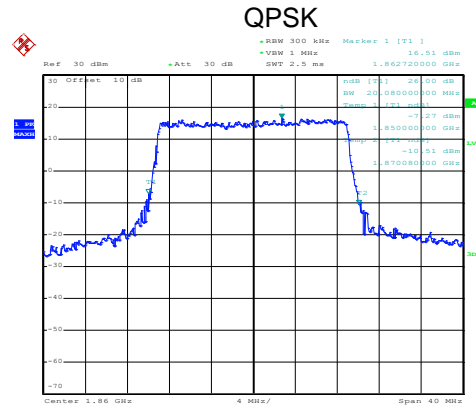
Date: 6.DEC.2019 12:13:27

Highest channel

LTE Band 2: -26dBc bandwidth  
BW: 20MHz

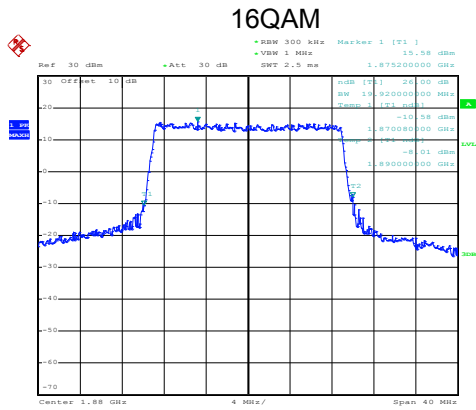


Date: 6.DEC.2019 12:16:58

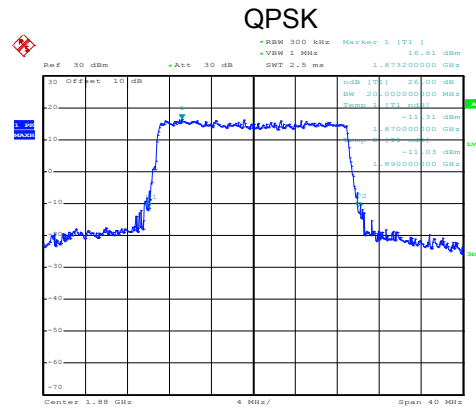


Date: 6.DEC.2019 12:16:31

Lowest channel

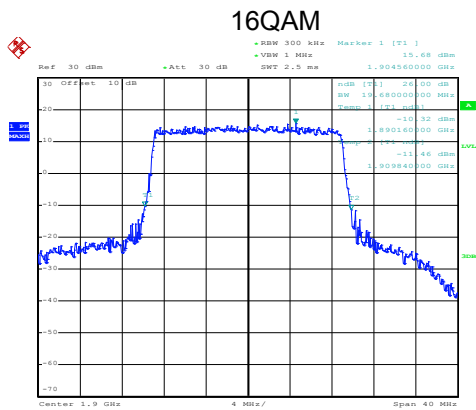


Date: 6.DEC.2019 12:19:04

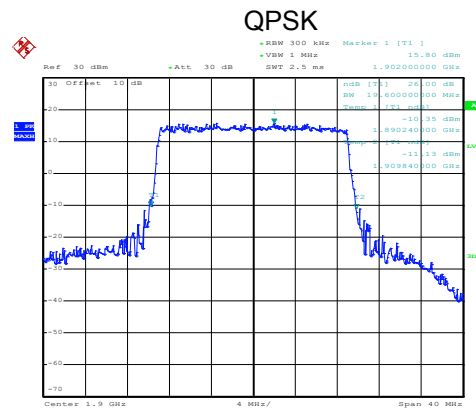


Date: 6.DEC.2019 12:18:36

Middle channel



Date: 6.DEC.2019 12:20:08

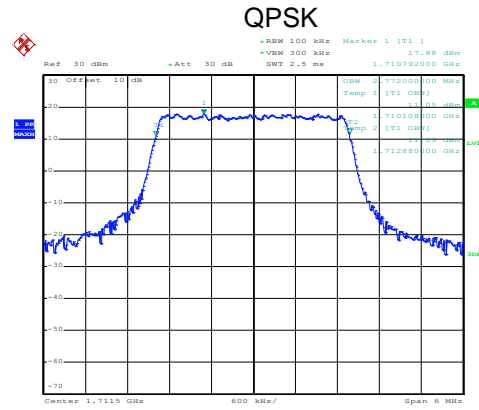
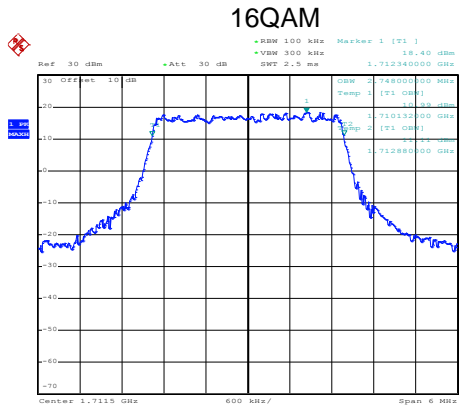


Date: 6.DEC.2019 12:19:53

Highest channel



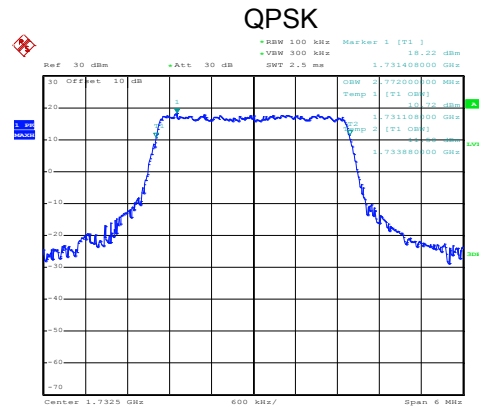
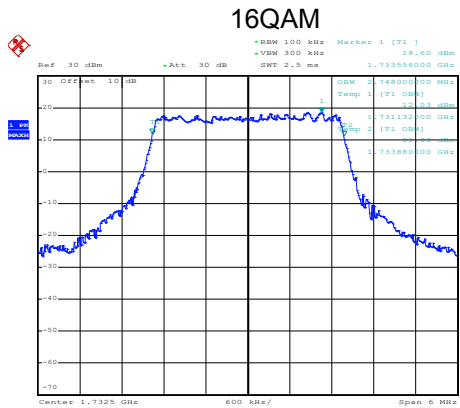
LTE Band 4: 99% Occupancy bandwidth  
BW: 3MHz



Date: 6.DEC.2019 12:59:12

Date: 6.DEC.2019 12:54:16

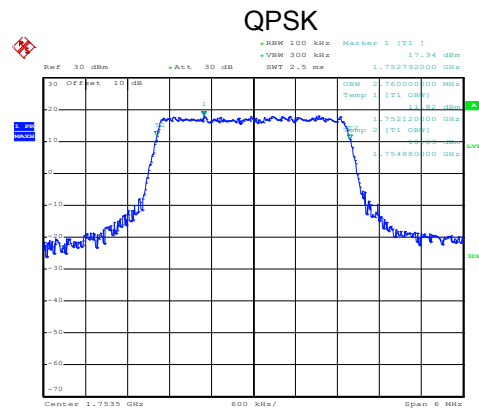
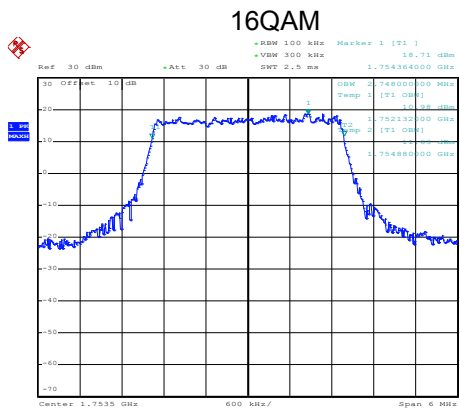
Lowest channel



Date: 6.DEC.2019 13:01:31

Date: 6.DEC.2019 12:59:54

Middle channel

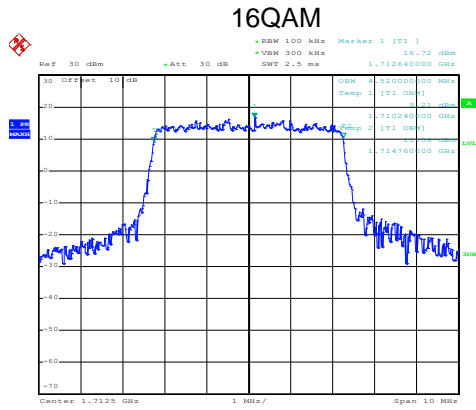


Date: 6.DEC.2019 13:03:25

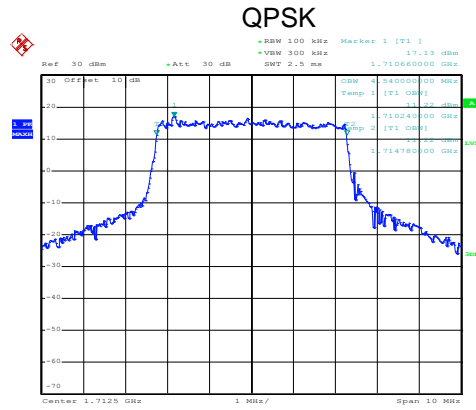
Date: 6.DEC.2019 13:02:10

Highest channel

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

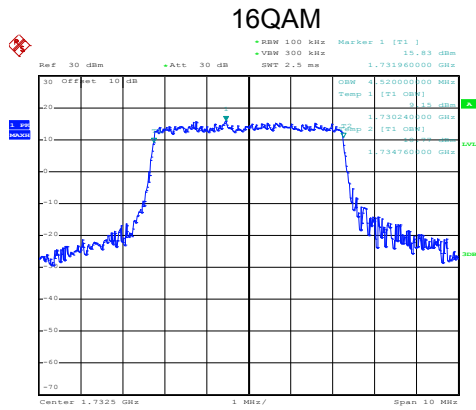


Date: 6.DEC.2019 12:47:33

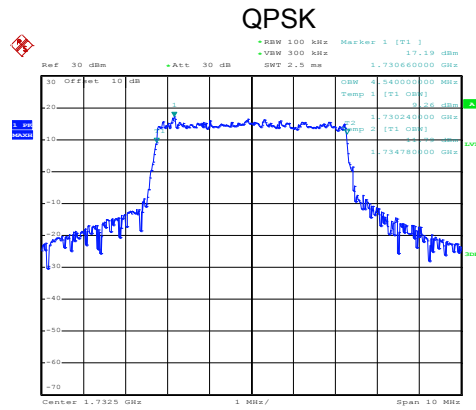


Date: 6.DEC.2019 12:46:34

Lowest channel

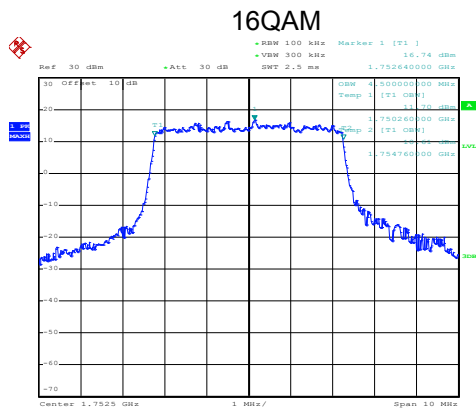


Date: 6.DEC.2019 12:49:23

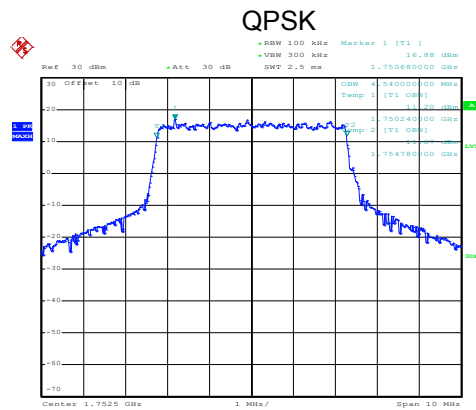


Date: 6.DEC.2019 12:48:06

Middle channel



Date: 6.DEC.2019 12:52:40



Date: 6.DEC.2019 12:50:22

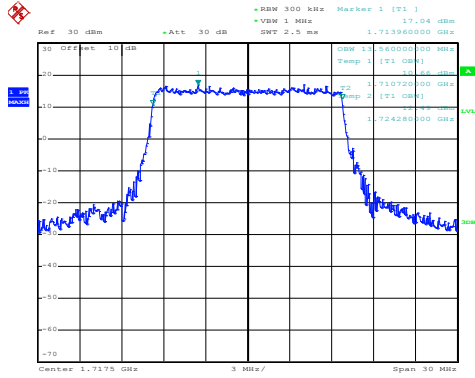
Highest channel





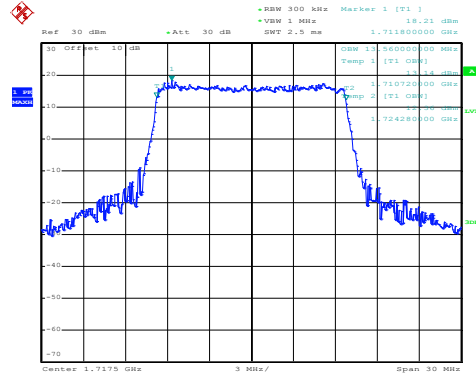
LTE Band 4: 99% Occupancy bandwidth  
BW: 15MHz

16QAM



Date: 6.DEC.2019 12:35:29

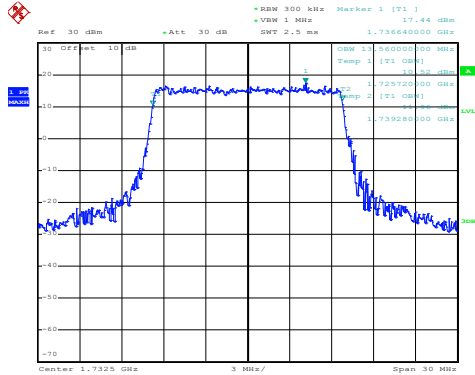
QPSK



Date: 6.DEC.2019 12:34:44

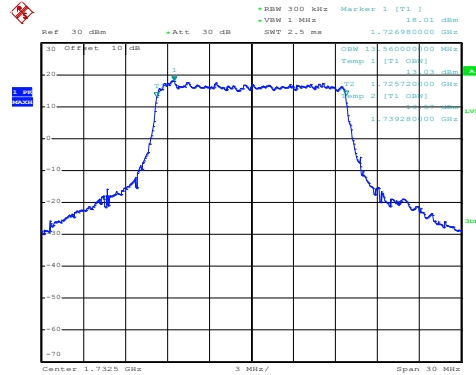
Lowest channel

16QAM



Date: 6.DEC.2019 12:34:10

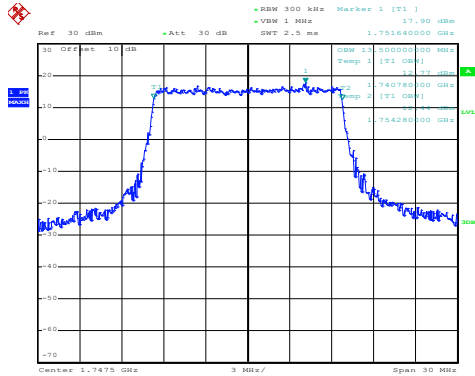
QPSK



Date: 6.DEC.2019 12:33:00

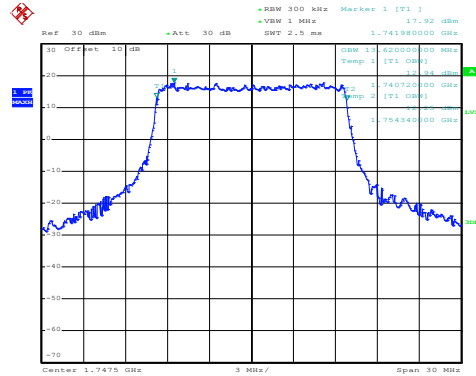
Middle channel

16QAM



Date: 6.DEC.2019 12:38:10

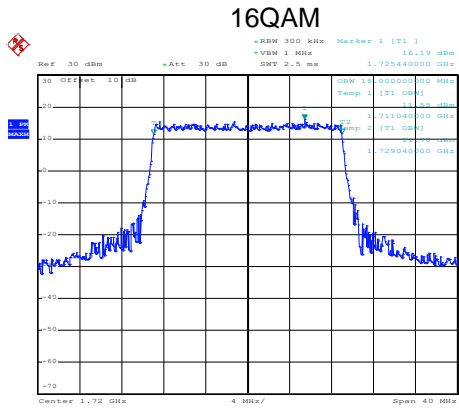
QPSK



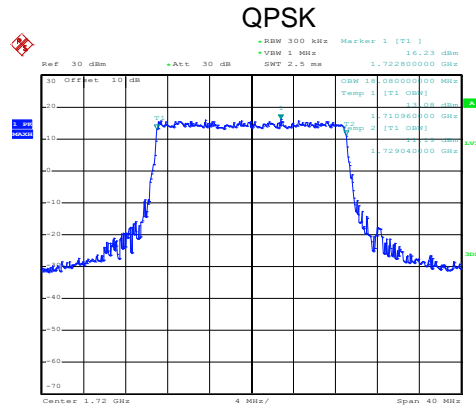
Date: 6.DEC.2019 12:36:35

Highest channel

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

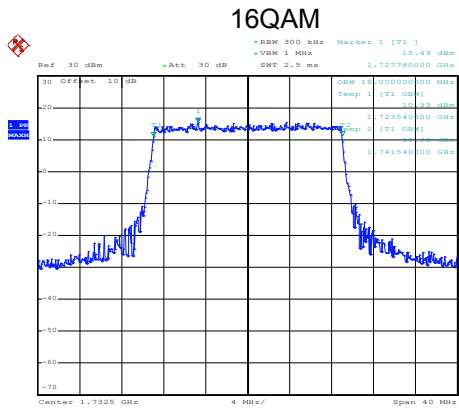


Date: 6.DEC.2019 12:24:36

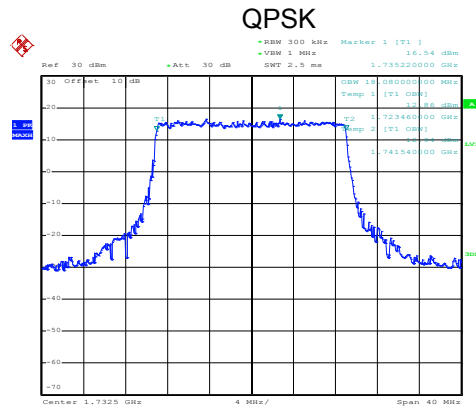


Date: 6.DEC.2019 12:23:24

Lowest channel

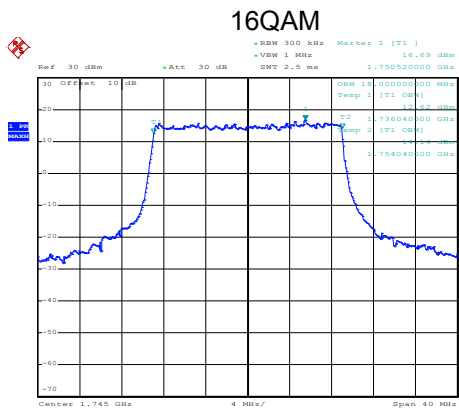


Date: 6.DEC.2019 12:22:54

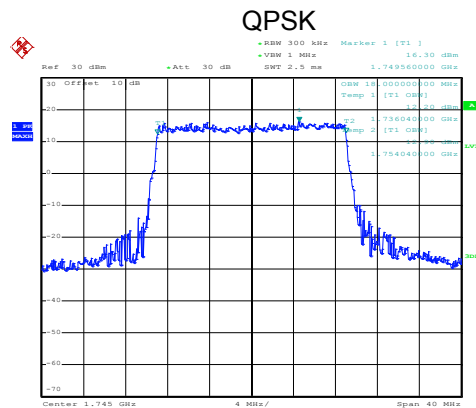


Date: 6.DEC.2019 12:21:47

Middle channel



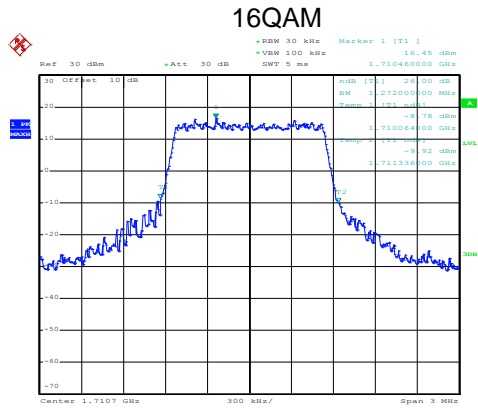
Date: 6.DEC.2019 12:28:59



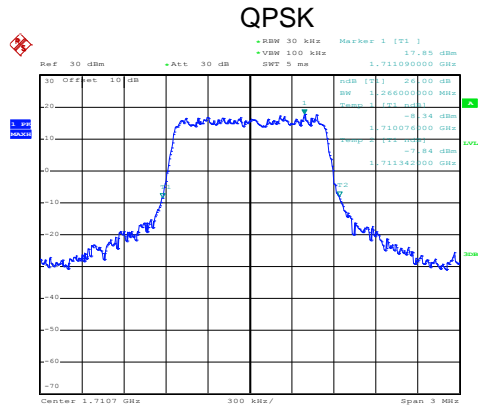
Date: 6.DEC.2019 12:24:59

Highest channel

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

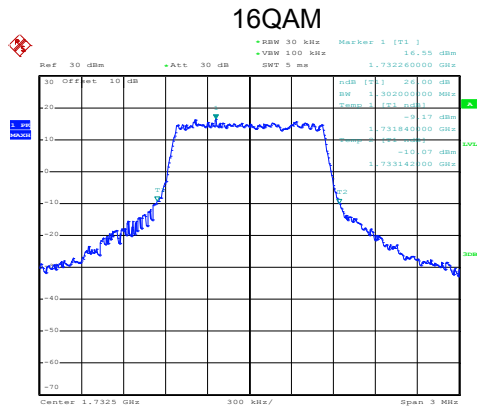


Date: 6.DEC.2019 13:05:08

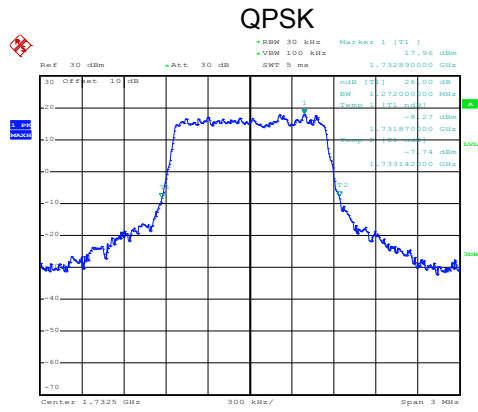


Date: 6.DEC.2019 13:04:54

Lowest channel

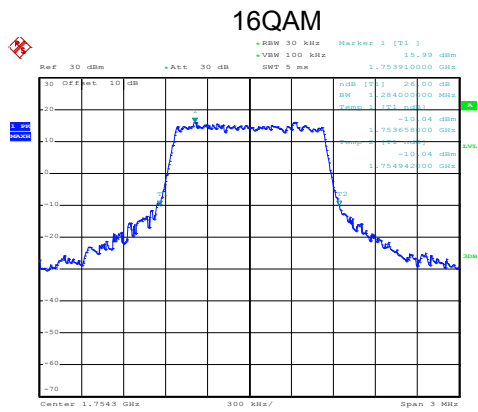


Date: 6.DEC.2019 13:06:28

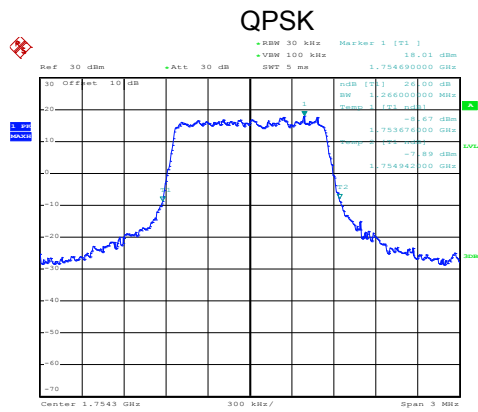


Date: 6.DEC.2019 13:06:03

Middle channel



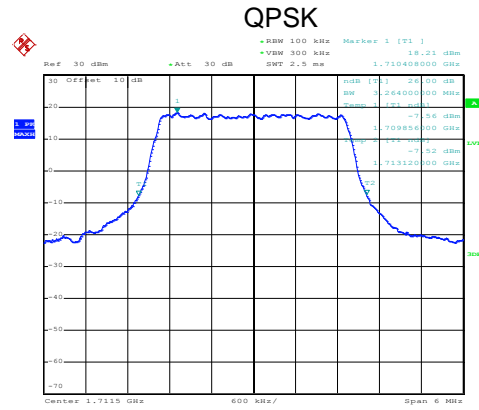
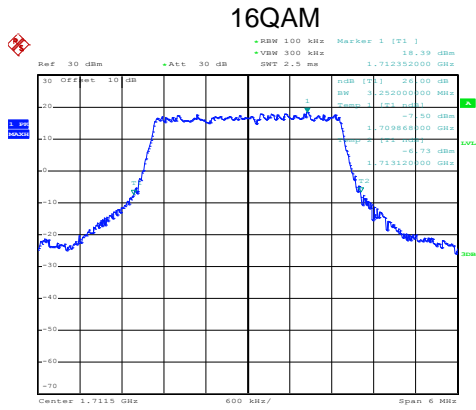
Date: 6.DEC.2019 13:07:58



Date: 6.DEC.2019 13:07:41

Highest channel

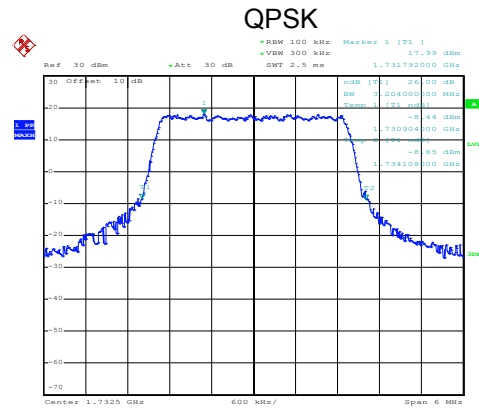
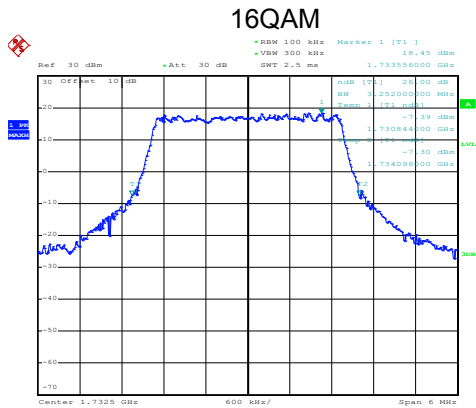
LTE Band 4: -26dBc bandwidth  
BW: 3MHz



Date: 6.DEC.2019 12:58:36

Date: 6.DEC.2019 12:58:03

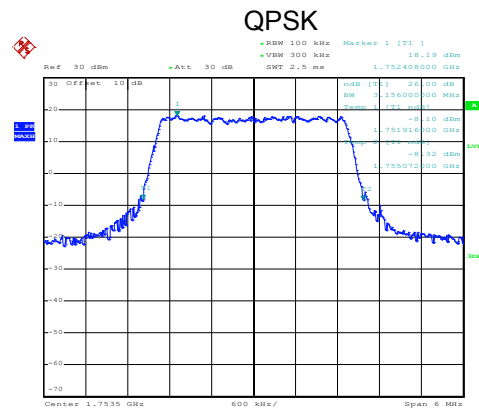
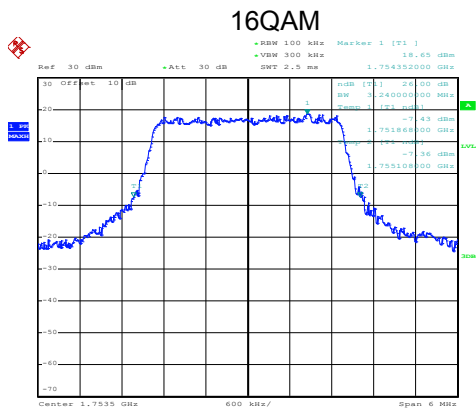
Lowest channel



Date: 6.DEC.2019 13:01:02

Date: 6.DEC.2019 13:00:23

Middle channel

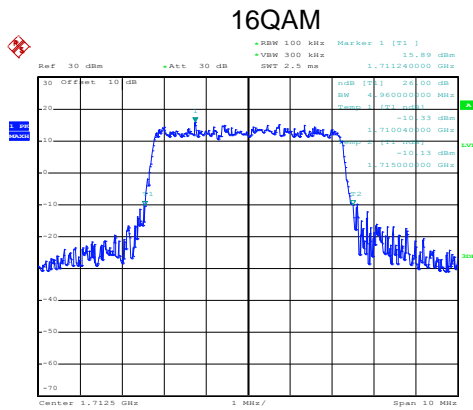


Date: 6.DEC.2019 13:03:04

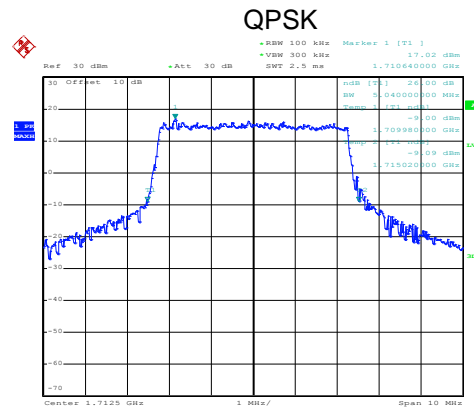
Date: 6.DEC.2019 13:02:40

Highest channel

LTE Band 4: -26dBc bandwidth  
BW: 5MHz

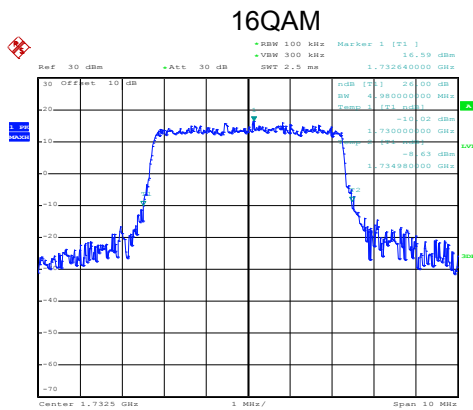


Date: 6.DEC.2019 12:47:14

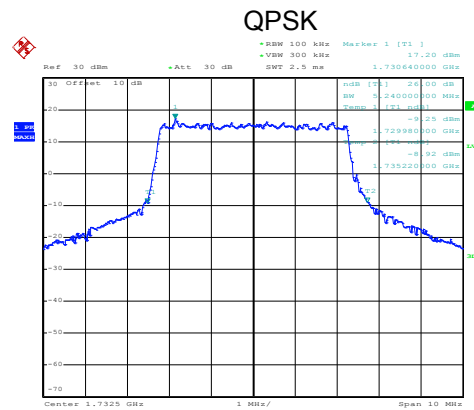


Date: 6.DEC.2019 12:47:06

Lowest channel

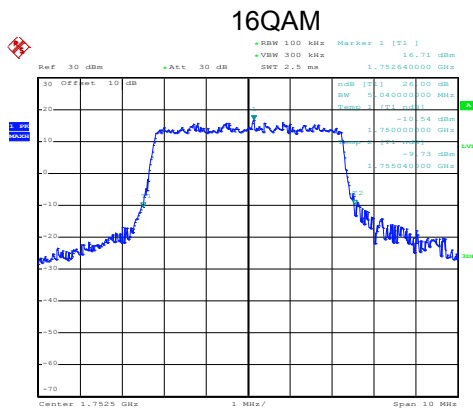


Date: 6.DEC.2019 12:49:08

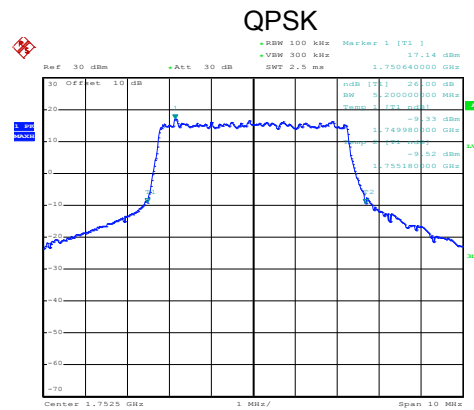


Date: 6.DEC.2019 12:48:56

Middle channel



Date: 6.DEC.2019 12:52:09

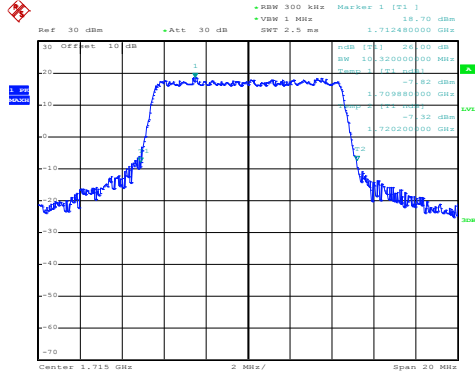


Date: 6.DEC.2019 12:51:43

Highest channel

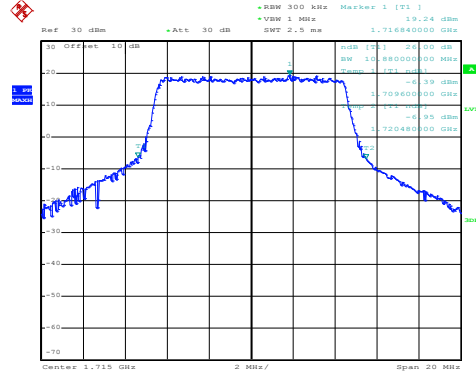
LTE Band 4: -26dBc bandwidth  
BW: 10MHz

16QAM



Date: 6.DEC.2019 12:41:36

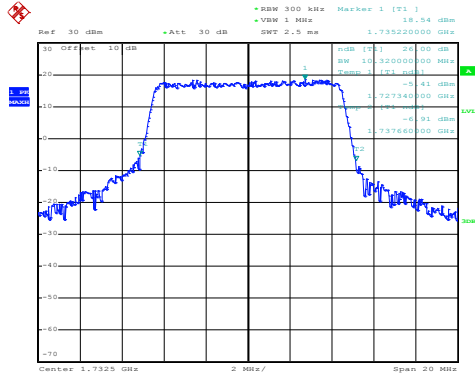
QPSK



Date: 6.DEC.2019 12:41:10

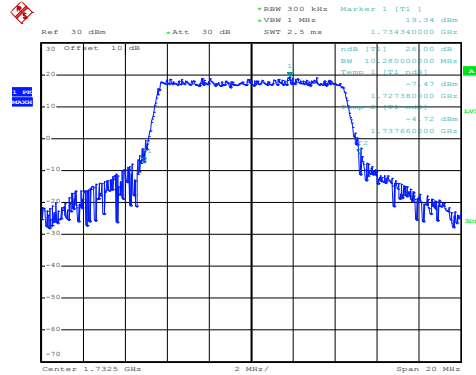
Lowest channel

16QAM



Date: 6.DEC.2019 12:43:39

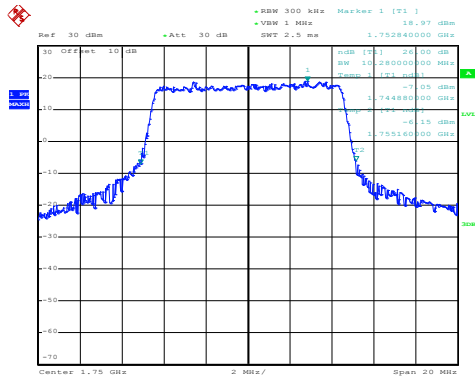
QPSK



Date: 6.DEC.2019 12:43:08

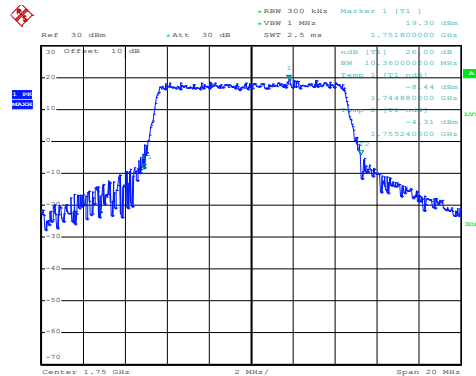
Middle channel

16QAM



Date: 6.DEC.2019 12:45:08

QPSK

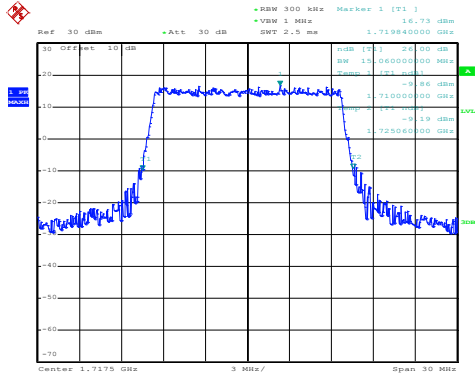


Date: 6.DEC.2019 12:44:41

Highest channel

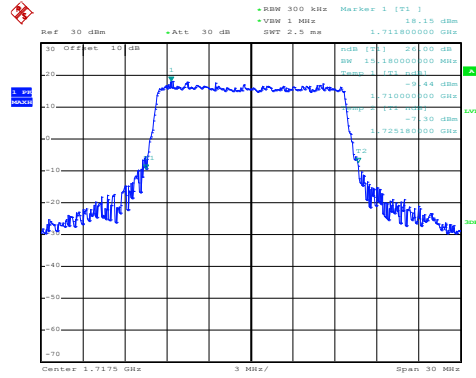
LTE Band 4: -26dBc bandwidth  
BW: 15MHz

16QAM



Date: 6.DEC.2019 12:35:14

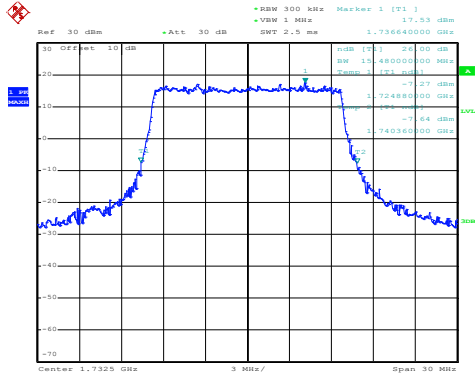
QPSK



Date: 6.DEC.2019 12:35:00

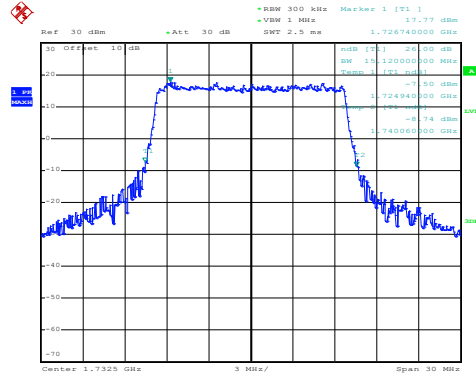
Lowest channel

16QAM



Date: 6.DEC.2019 12:33:52

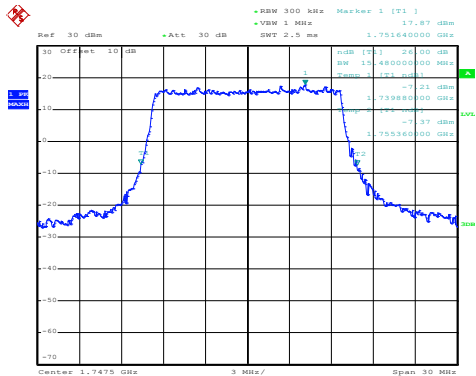
QPSK



Date: 6.DEC.2019 12:33:18

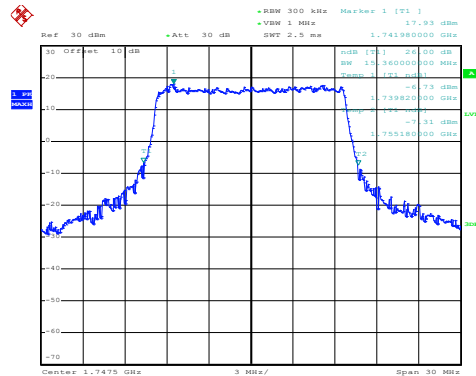
Middle channel

16QAM



Date: 6.DEC.2019 12:37:48

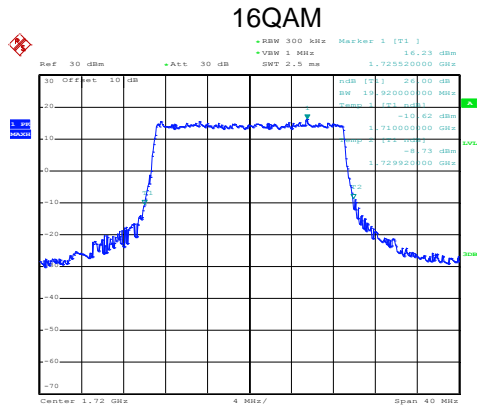
QPSK



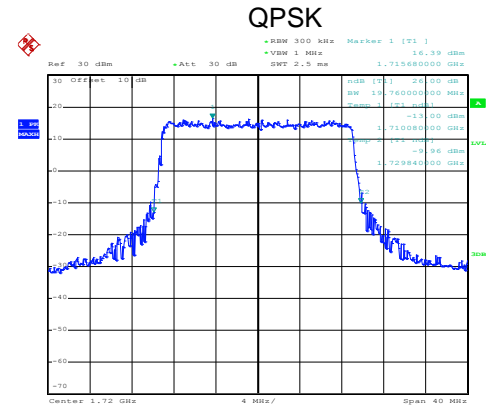
Date: 6.DEC.2019 12:37:04

Highest channel

LTE Band 4: -26dBc bandwidth  
BW: 20MHz

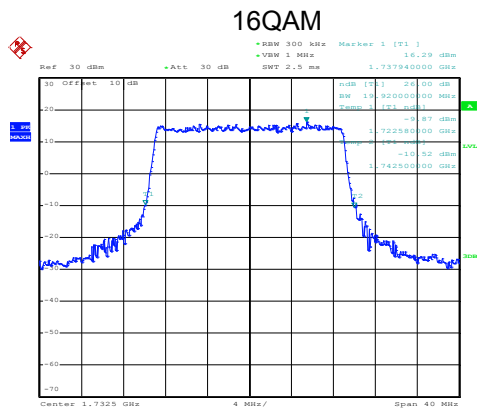


Date: 6.DEC.2019 12:24:22

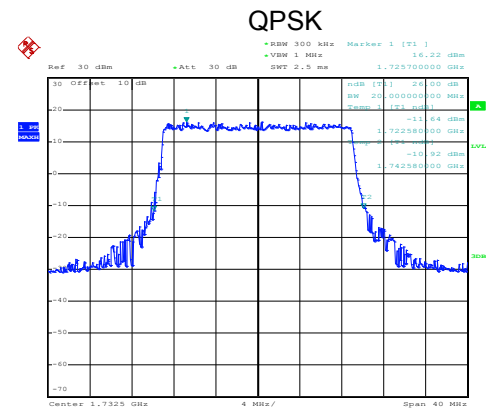


Date: 6.DEC.2019 12:23:44

Lowest channel

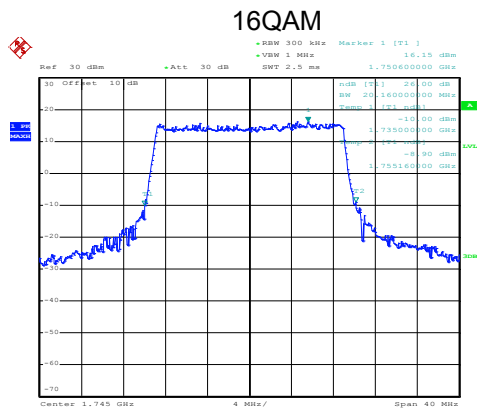


Date: 6.DEC.2019 12:22:41

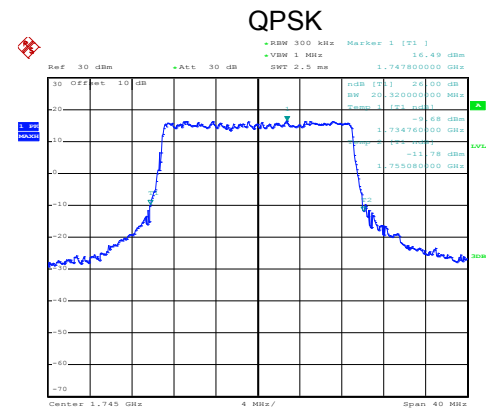


Date: 6.DEC.2019 12:22:03

Middle channel



Date: 6.DEC.2019 12:26:51



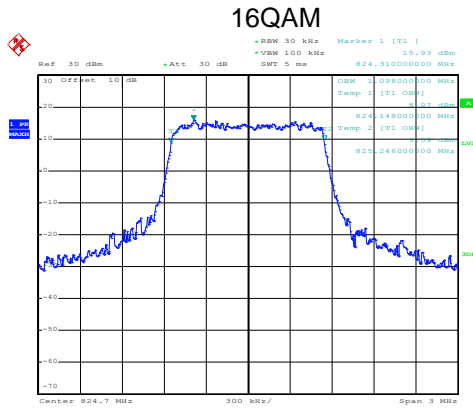
Date: 6.DEC.2019 12:26:16

Highest channel

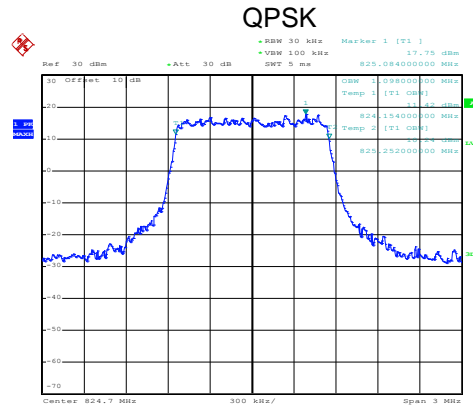


LTE Band 5 part:

LTE Band 5: 99% Occupy bandwidth  
BW: 1.4MHz

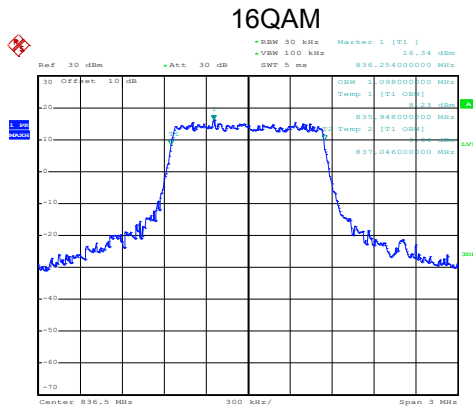


Date: 6.DEC.2019 13:14:48

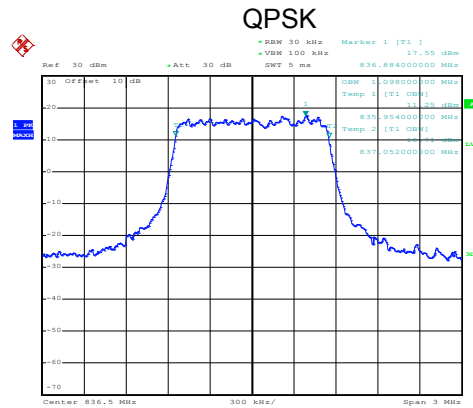


Date: 6.DEC.2019 13:13:54

Lowest channel

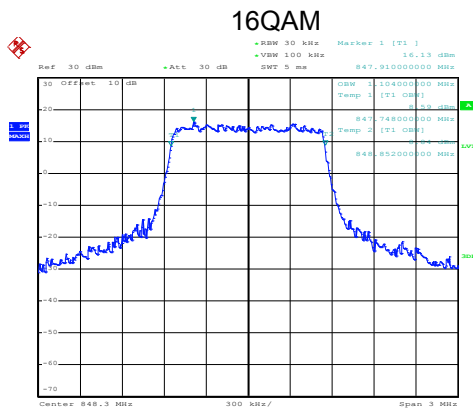


Date: 6.DEC.2019 13:13:09

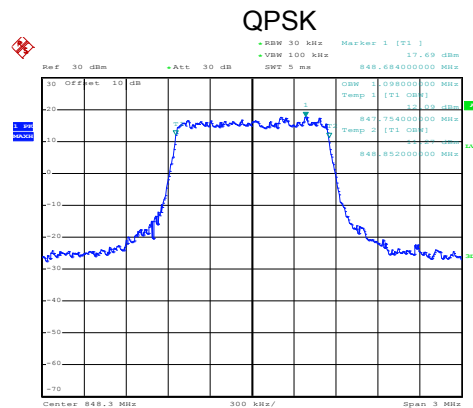


Date: 6.DEC.2019 13:12:13

Middle channel



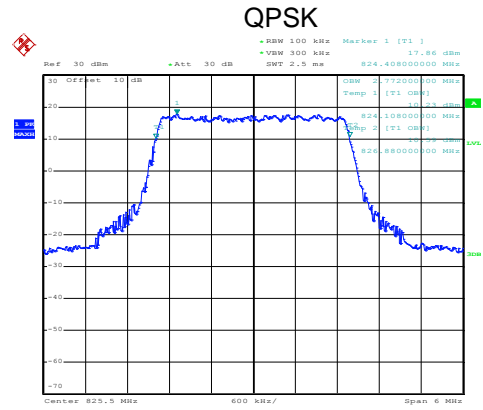
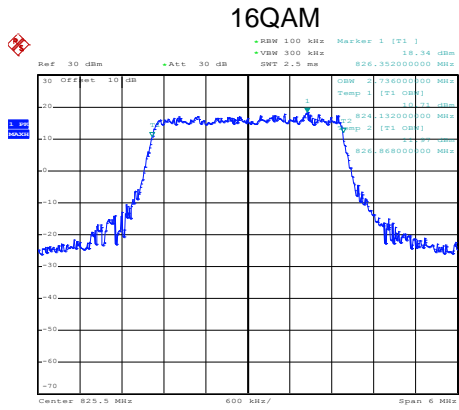
Date: 6.DEC.2019 13:15:54



Date: 6.DEC.2019 13:15:24

Highest channel

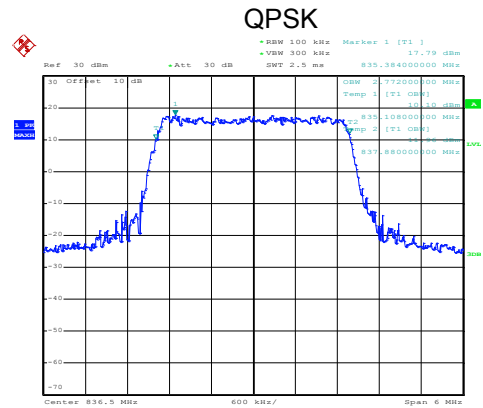
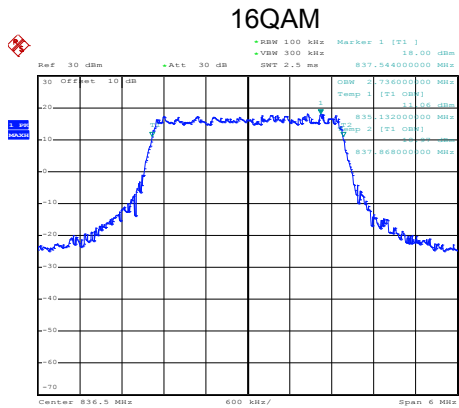
LTE Band 5: 99% Occupancy bandwidth  
BW: 3MHz



Date: 6.DEC.2019 13:17:37

Date: 6.DEC.2019 13:17:00

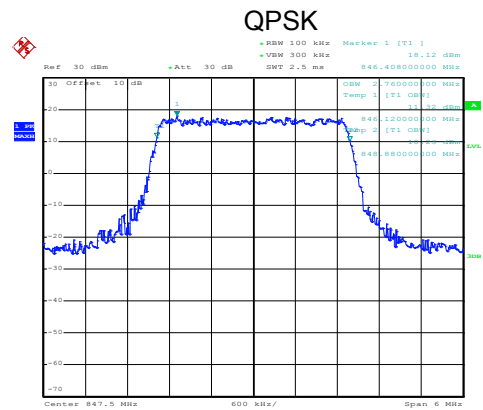
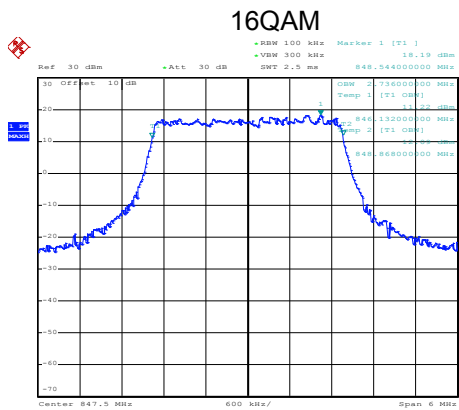
Lowest channel



Date: 6.DEC.2019 13:19:03

Date: 6.DEC.2019 13:17:59

Middle channel



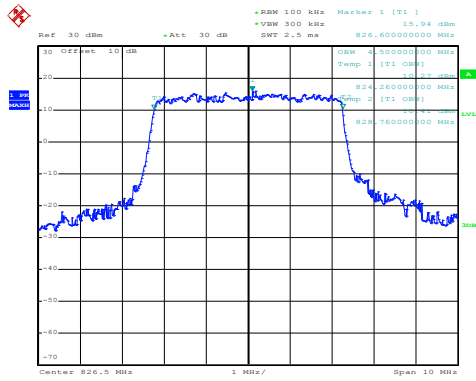
Date: 6.DEC.2019 13:20:46

Date: 6.DEC.2019 13:19:30

Highest channel

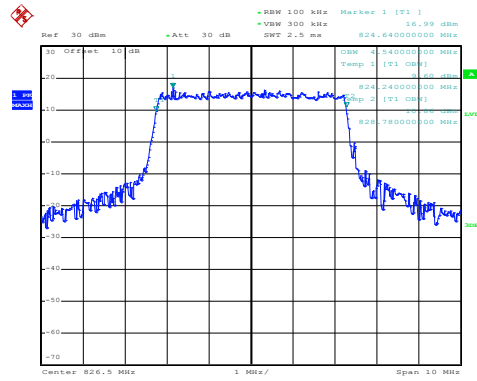
LTE Band 5: 99% Occupancy bandwidth  
BW: 5MHz

16QAM



Date: 6.DEC.2019 13:23:02

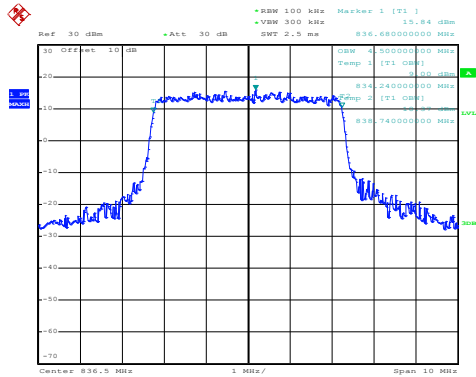
QPSK



Date: 6.DEC.2019 13:21:47

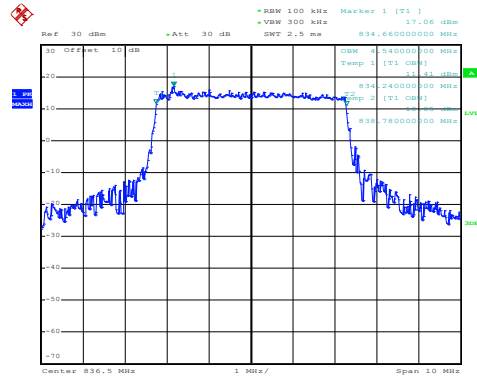
Lowest channel

16QAM



Date: 6.DEC.2019 13:25:14

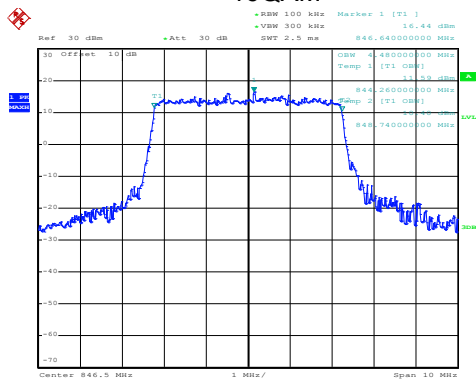
QPSK



Date: 6.DEC.2019 13:23:33

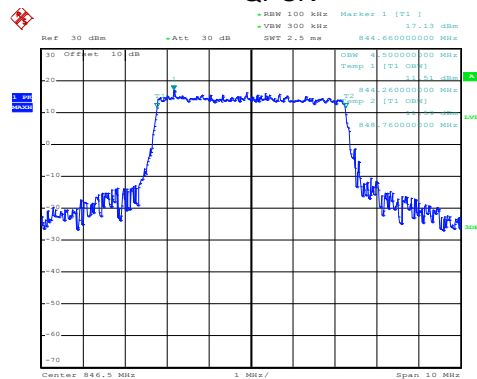
Middle channel

16QAM



Date: 6.DEC.2019 13:27:36

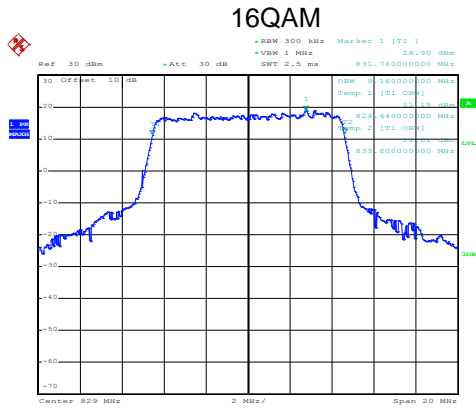
QPSK



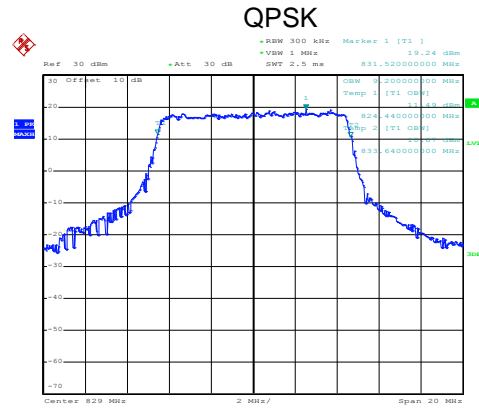
Date: 6.DEC.2019 13:25:43

Highest channel

LTE Band 5: 99% Occupancy bandwidth  
BW: 10MHz

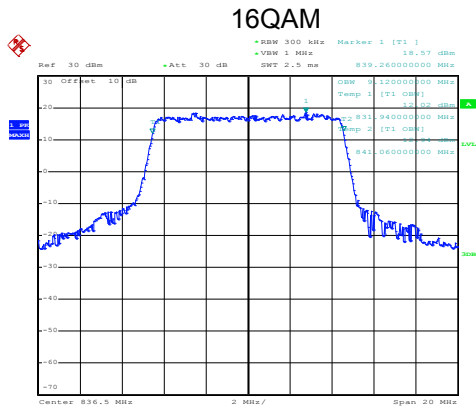


Date: 6.DEC.2019 13:31:32

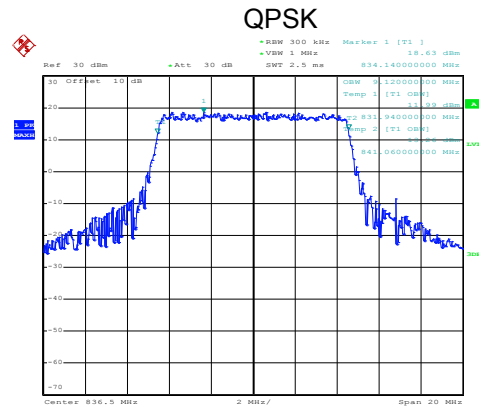


Date: 6.DEC.2019 13:29:03

Lowest channel

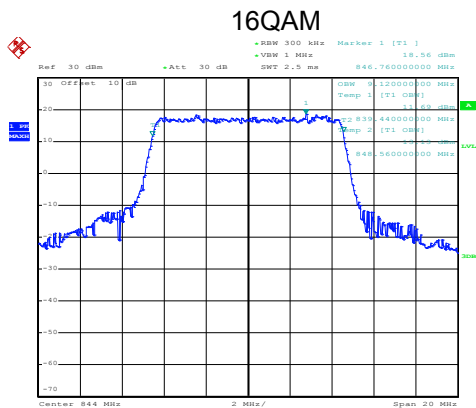


Date: 6.DEC.2019 13:33:06

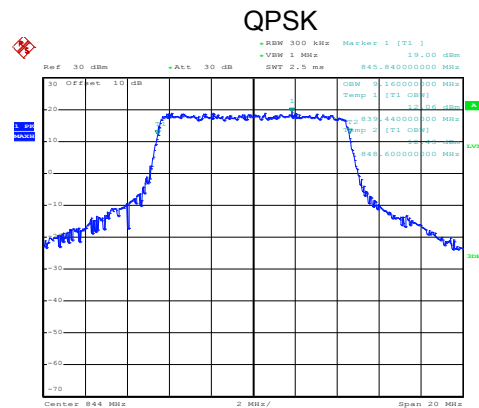


Date: 6.DEC.2019 13:31:59

Middle channel



Date: 6.DEC.2019 13:36:01



Date: 6.DEC.2019 13:33:55

Highest channel