

FCC REPORT

(LTE)

Applicant: SWAGTEK

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

Equipment Under Test (EUT)

Product Name: 4.0 inch 4G Smart Phone

Model No.: L4T, UN40, RUSH

Trade mark: LOGIC, iSWAG, UNONU

FCC ID: O55402220

Applicable standards: FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 22 Subpart H
FCC CFR Title 47 Part 27 Subpart L
FCC CFR Title 47 Part 27 Subpart M
FCC CFR Title 47 Part 27 Subpart H

Date of sample receipt: 01 Jun., 2020

Date of Test: 01 Jun., to 08 Jul., 2020

Date of report issued: 09 Jul., 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	09 Jul., 2020	Original

Tested by:

Carey Chen

Test Engineer

Date:

09 Jul., 2020

Reviewed by:

Winner Zhang

Project Engineer

Date:

09 Jul., 2020

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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 27.50 (c)(10) 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 27.53(g) Part 27.53(h) Part 27.53(m)	Pass
Out of band emission at antenna terminals	Part 2.1053 Part 22.917(a) Part 27.53 (g) Part 27.53 (h) Part 27.53(m)	Pass
Field strength of spurious radiation	Part 22.917(a) Part 27.53 (g) 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
Remark: 1. Pass: The EUT complies with the essential requirements in the standard. 2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB(Fundamental Frequency below 1GHz)/1.0dB(Fundamental Frequency above 1GHz) (provided by the customer).		
Test Method:	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:	4.0 inch 4G Smart Phone
Model No.:	L4T, UN40, RUSH
Operation Frequency range:	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 LTE Band 12: TX: 699MHz-716MHz, RX: 729MHz-746MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	LTE Band 4: 0.37dBi LTE Band 5: 0.23dBi LTE Band 7: 0.35dBi LTE Band 12: -0.22dBi
Power supply:	Rechargeable Li-ion Battery DC3.7V-1400mAh
AC adapter:	Model: LM-FU050070USBO1 Input: AC100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 700mA
Remark:	Model No.: L4T, UN40, RUSH, were identical inside, the electrical circuit design, layout, components used and internal wiring. L4T model corresponds to the trademark LOGIC. UN40 model correspond to the trademark iSWAG. RUSH model corresponds to the trademark UNONU.
Test Sample Condition:	The applicant provided engineering samples for staying in continuously transmitting for testing.

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 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

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

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

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

LTE Band 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

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

5.3 Test environment and mode

Operating Environment:	
Temperature:	Normal: 15°C ~ 35°C, Extreme: -30°C ~ +50°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.7Vdc, Extreme: Low 3.5Vdc, High 4.2Vdc
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. 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)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 dB (k=2)

5.6 Related Submittal(s) / Grant (s)

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

5.7 Additions to, deviations, or exclusions from the method

No

5.8 Laboratory Facility

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

● **FCC - Designation No.: CN1211**

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.

● **ISED – CAB identifier.: CN0021**

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.

● **A2LA - Registration No.: 4346.01**

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

5.9 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China

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

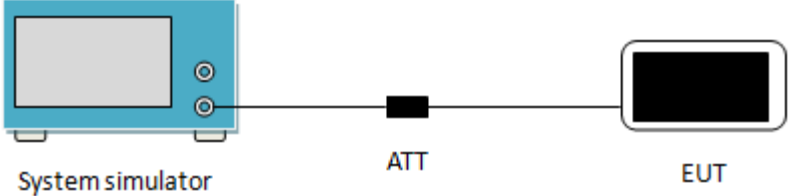
Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

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	03-18-2020	03-17-2021
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-22-2017	06-21-2020
				06-20-2020	06-19-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
				06-20-2020	06-19-2021
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2019	11-17-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-07-2020	03-06-2021
Pre-amplifier	CD	PAP-1G18	11804	03-07-2020	03-06-2021
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-05-2020	03-04-2021
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2019	11-17-2020
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-05-2020	03-04-2021
Spectrum Analyzer	Agilent	N9020A	MY50510123	11-18-2019	11-17-2020
Signal Generator	Rohde & Schwarz	SMX	835454/016	03-05-2020	03-04-2021
Signal Generator	R&S	SMR20	1008100050	03-05-2020	03-04-2021
RF Switch Unit	MWRFTTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTTEST	MTS8200	Version: 2.0.0.0		
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2020	03-06-2021
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2020	03-06-2021
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2020	03-06-2021
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	09-25-2019	09-24-2020
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	11-01-2019	11-31-2020
Simulated Station	Rohde & Schwarz	CMW500	140493	07-22-2019	07-21-2020

6. Test results

6.1 Conducted Output Power, ERP and EIRP

Test Requirement:	Part 22.913(a)(5), part 27.50(c)(10), Part 27.50(d)(4), Part 27.50 (h)(2)
Limit:	LTE Band 4: 1W, LTE Band 5: 7W, LTE Band 7: 2W, LTE Band 12: 3W
Test Setup:	 The diagram illustrates the test setup. On the left is a blue rectangular box labeled 'System simulator'. A red line connects its right side to a small black rectangular box labeled 'ATT' (attenuator). Another red line connects the right side of the 'ATT' box to a black rectangular box labeled 'EUT' (Equipment Under Test).
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)		
					19957	20175	20393
					1710.7MHz	1732.5MHz	1754.3MHz
4	1.4	QPSK	1	0	24.36	24.72	24.68
			1	2	24.61	24.91	24.56
			1	5	24.41	24.69	24.52
			3	0	24.47	24.81	24.63
			3	1	24.60	24.82	24.72
			3	2	24.53	24.76	24.57
			6	0	24.47	24.00	23.81
		Antenna Gain (dBi):			0.37		
		Max. EIRP (dBm):			25.28		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	24.16	24.21	24.01
			1	2	24.38	24.12	24.07
			1	5	24.33	24.22	24.02
			3	0	24.31	24.01	24.04
			3	1	24.47	24.00	24.06
			3	2	24.32	24.06	24.05
			6	0	24.51	23.06	23.01
		Antenna Gain (dBi):			0.37		
		Max. EIRP (dBm):			24.88		
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	24.75	24.80	24.51
			1	7	24.84	24.70	24.39
			1	14	24.90	24.64	24.60
			8	0	24.28	23.86	23.64
			8	4	24.34	23.79	23.55
			8	7	24.21	23.74	23.74
			15	0	24.25	23.74	23.53
		Antenna Gain (dBi):			0.37		
		Max. EIRP (dBm):			25.27		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	24.66	24.16	24.04
			1	7	24.42	24.12	24.03
			1	14	24.49	24.09	24.01
			8	0	23.38	23.02	22.87
			8	4	23.45	23.00	22.66
			8	7	23.35	23.05	22.77
			15	0	23.55	23.00	22.87
		Antenna Gain (dBi):			0.37		
		Max. EIRP (dBm):			25.03		
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	24.61	24.94	24.63	
			1	12	25.19	24.87	24.64	
			1	24	24.81	24.90	24.72	
			12	0	23.73	23.93	23.71	
			12	6	24.55	24.01	23.81	
			12	11	24.47	23.88	23.69	
			25	0	24.45	23.86	23.70	
		Antenna Gain (dBi):				0.37		
		Max. EIRP (dBm):				25.56		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	24.03	24.24	23.97	
			1	12	24.51	24.20	23.90	
			1	24	24.41	24.25	23.93	
			12	0	22.90	23.36	22.89	
			12	6	23.44	23.22	22.97	
			12	11	23.48	23.18	22.75	
			25	0	23.54	23.13	22.89	
Antenna Gain (dBi):				0.37				
Max. EIRP (dBm):				24.88				
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	24.66	24.89	24.79	
			1	24	25.10	24.90	24.76	
			1	49	24.98	24.71	24.65	
			25	0	24.30	23.89	23.78	
			25	12	24.24	23.92	23.64	
			25	24	24.21	23.79	23.79	
			50	0	24.16	23.91	23.75	
		Antenna Gain (dBi):				0.37		
		Max. EIRP (dBm):				25.47		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	24.55	24.34	24.19	
			1	24	24.49	24.19	24.06	
			1	49	24.55	24.00	23.85	
			25	0	23.43	23.03	23.24	
			25	12	23.35	23.07	23.05	
			25	24	23.34	23.08	23.02	
			50	0	23.42	23.06	22.94	
Antenna Gain (dBi):				0.37				
Max. EIRP (dBm):				24.92				
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	24.96	24.94	24.84	
			1	37	25.05	24.60	24.59	
			1	74	24.77	24.59	24.58	
			36	0	24.11	23.87	23.84	
			36	16	24.07	23.73	23.66	
			36	35	23.93	23.65	23.69	
			75	0	24.04	23.68	23.75	
		Antenna Gain (dBi):				0.37		
		Max. EIRP (dBm):				25.42		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	24.66	24.03	24.44	
			1	37	24.54	24.09	24.09	
			1	74	24.30	24.01	24.05	
			36	0	23.28	23.07	22.92	
			36	16	23.24	23.00	22.78	
			36	35	23.08	22.96	22.86	
			75	0	23.20	22.90	22.90	
		Antenna Gain (dBi):				0.37		
		Max. EIRP (dBm):				25.03		
		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	24.19	24.46	24.83	
			1	49	24.63	24.75	24.71	
			1	99	24.75	24.65	24.64	
			50	0	24.34	24.01	23.89	
			50	24	24.24	23.78	23.68	
			50	49	24.00	23.86	23.75	
			100	0	24.10	23.93	23.68	
		Antenna Gain (dBi):				0.37		
		Max. EIRP (dBm):				25.20		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	24.48	24.29	24.28	
			1	49	24.62	24.25	24.16	
			1	99	24.67	24.15	24.30	
			50	0	23.56	23.16	23.06	
			50	24	23.22	23.05	23.00	
			50	49	23.14	23.01	22.95	
			100	0	23.35	23.08	23.02	
		Antenna Gain (dBi):				0.37		
		Max. EIRP (dBm):				25.04		
		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	23.00	22.89	23.20	
			1	2	22.95	23.04	23.24	
			1	5	23.01	23.02	23.29	
			3	0	23.12	23.17	23.38	
			3	1	23.18	23.21	23.42	
			3	2	23.28	23.27	23.31	
			6	0	22.12	22.16	22.34	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				21.50		
		ERP Limit (dBm):				38.45		
		16QAM	1	0	22.09	22.26	22.55	
			1	2	22.26	22.34	22.17	
			1	5	22.05	22.22	22.15	
			3	0	22.24	22.45	22.31	
			3	1	22.25	22.35	22.32	
			3	2	22.18	22.55	22.41	
			6	0	21.21	21.32	21.25	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				20.63		
		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	22.94	23.01	23.27	
			1	7	22.98	23.04	23.21	
			1	14	22.89	23.03	23.20	
			8	0	22.13	22.18	22.35	
			8	4	22.16	22.19	22.24	
			8	7	22.08	22.12	22.33	
			15	0	22.02	22.16	22.25	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				21.35		
		ERP Limit (dBm):				38.45		
		16QAM	1	0	22.05	22.12	22.10	
			1	7	22.22	22.35	22.25	
			1	14	22.18	22.46	22.16	
			8	0	21.07	21.49	21.17	
			8	4	21.11	21.09	21.32	
			8	7	21.05	21.12	21.28	
			15	0	21.43	21.48	21.40	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				20.54		
		ERP Limit (dBm):				38.45		
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). ERP (dBm) = EIRP (dBm) - 2.15 (dB).								

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					20425	20525	20625	
					826.5MHz	836.5MHz	846.5MHz	
5	5	QPSK	1	0	23.21	23.24	23.40	
			1	12	23.14	23.28	23.28	
			1	24	23.22	23.31	23.45	
			12	0	22.30	22.42	22.45	
			12	6	22.34	22.29	22.32	
			12	11	22.27	22.40	22.47	
			25	0	22.36	22.27	22.36	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				21.53		
		ERP Limit (dBm):				38.45		
		16QAM	1	0	22.64	22.24	22.57	
			1	12	22.25	22.13	22.61	
			1	24	22.44	22.33	22.24	
			12	0	21.28	21.32	21.59	
			12	6	21.16	21.12	21.50	
			12	11	21.11	21.23	21.65	
			25	0	21.31	21.34	21.47	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				20.72		
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	23.08	23.18	23.20	
			1	24	23.27	23.21	23.31	
			1	49	23.16	23.23	23.27	
			25	0	22.25	22.28	22.24	
			25	12	22.19	22.35	22.28	
			25	24	22.24	22.23	22.26	
			50	0	22.18	22.28	22.42	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				21.39		
		ERP Limit (dBm):				38.45		
		16QAM	1	0	22.29	22.53	22.48	
			1	24	22.09	22.69	22.32	
			1	49	22.55	22.16	22.71	
			25	0	21.16	21.46	21.51	
			25	12	21.31	21.30	21.49	
			25	24	21.45	21.40	21.37	
			50	0	21.16	21.45	21.40	
		Antenna Gain(dBi):				0.23		
		Max. ERP (dBm):				20.79		
ERP Limit (dBm):				38.45				
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). ERP (dBm) = EIRP (dBm) - 2.15 (dB).								

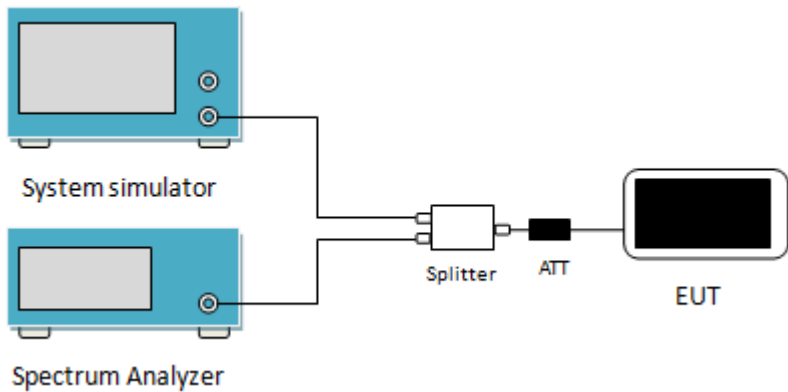
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					20775	21100	21425	
					2502.5MHz	2535.0MHz	2567.5MHz	
7	5	QPSK	1	0	22.03	21.92	22.13	
			1	12	22.01	21.93	22.17	
			1	24	22.02	21.98	22.21	
			12	0	21.14	21.11	21.22	
			12	6	21.24	21.13	21.34	
			12	11	21.15	21.14	21.44	
			25	0	21.11	21.16	21.23	
		Antenna Gain (dBi):				0.35		
		Max. EIRP (dBm):				22.56		
		EIRP Limit (dBm):				33.00		
		16QAM	1	0	21.54	21.09	21.34	
			1	12	21.14	21.37	21.31	
			1	24	21.12	21.00	21.45	
			12	0	20.52	20.32	20.62	
			12	6	20.18	20.34	20.63	
			12	11	20.51	20.38	20.60	
25	0		20.47	20.43	20.67			
Antenna Gain (dBi):				0.35				
Max. EIRP (dBm):				21.89				
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	21.88	21.57	21.85	
			1	24	21.83	21.79	21.84	
			1	49	21.65	21.78	21.90	
			25	0	21.01	20.84	21.02	
			25	12	21.00	20.92	21.04	
			25	24	21.01	20.85	21.01	
			50	0	20.87	20.79	21.11	
		Antenna Gain (dBi):				0.35		
		Max. EIRP (dBm):				22.25		
		EIRP Limit (dBm):				33.00		
		16QAM	1	0	21.34	21.21	21.24	
			1	24	21.11	21.35	21.32	
			1	49	21.10	21.10	21.43	
			25	0	20.21	20.12	20.24	
			25	12	20.16	20.36	20.22	
			25	24	20.19	20.12	20.25	
50	0		20.18	20.03	20.43			
Antenna Gain (dBi):				0.35				
Max. EIRP (dBm):				21.78				
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	21.89	21.77	21.94	
			1	37	21.78	21.74	22.02	
			1	74	21.74	21.80	22.15	
			36	0	20.87	20.83	21.04	
			36	16	20.79	20.80	21.14	
			36	35	20.86	20.99	21.06	
			75	0	20.94	20.83	21.07	
		Antenna Gain (dBi):				0.35		
		Max. EIRP (dBm):				22.50		
		EIRP Limit (dBm):				33.00		
		16QAM	1	0	21.27	21.06	21.27	
			1	37	21.16	21.19	21.32	
			1	74	21.05	21.21	21.29	
			36	0	20.21	20.11	20.30	
			36	16	20.05	20.13	20.21	
			36	35	20.15	20.25	20.31	
			75	0	20.08	20.07	20.28	
		Antenna Gain (dBi):				0.35		
		Max. EIRP (dBm):				21.67		
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	22.00	21.79	22.00	
			1	49	21.82	21.80	22.12	
			1	99	21.79	22.05	22.19	
			50	0	20.93	20.85	20.97	
			50	24	20.95	20.75	21.07	
			50	49	20.80	21.02	21.09	
			100	0	20.76	20.83	21.04	
		Antenna Gain (dBi):				0.35		
		Max. EIRP (dBm):				22.54		
		EIRP Limit (dBm):				33.00		
		16QAM	1	0	21.27	21.11	21.53	
			1	49	21.17	21.16	21.79	
			1	99	21.11	21.41	21.61	
			50	0	20.26	20.03	20.25	
			50	24	20.17	20.05	20.43	
			50	49	20.10	20.02	20.41	
			100	0	20.02	20.07	20.26	
		Antenna Gain (dBi):				0.35		
		Max. EIRP (dBm):				22.14		
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)			
					23017	23095	23173	
					699.7MHz	707.5MHz	715.3MHz	
12	1.4	QPSK	1	0	22.33	22.17	22.55	
			1	2	22.40	22.21	22.74	
			1	5	22.47	22.40	22.56	
			3	0	22.50	22.39	22.64	
			3	1	22.39	22.53	22.58	
			3	2	22.52	22.54	22.69	
			6	0	21.50	21.58	21.70	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				20.37		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	21.82	21.38	21.59	
			1	2	21.53	21.24	21.81	
			1	5	21.21	21.21	21.79	
			3	0	21.38	21.64	21.54	
			3	1	21.75	21.43	21.64	
			3	2	21.22	21.65	21.57	
			6	0	20.47	20.45	20.67	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				19.45		
		ERP Limit (dBm):				34.77		
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	22.34	22.21	22.41	
			1	7	22.51	22.34	22.49	
			1	14	22.44	22.27	22.51	
			8	0	21.19	21.37	21.53	
			8	4	21.58	21.43	21.38	
			8	7	21.53	21.46	21.58	
			15	0	21.46	21.39	21.46	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				20.14		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	21.31	21.34	21.51	
			1	7	21.52	21.73	21.28	
			1	14	21.37	21.42	21.61	
			8	0	20.54	20.45	20.84	
			8	4	20.30	20.31	20.47	
			8	7	20.39	20.45	20.56	
			15	0	20.55	20.45	20.73	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				19.36		
		ERP Limit (dBm):				34.77		
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). ERP (dBm) = EIRP (dBm) - 2.15 (dB).								

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					23035	23095	23155	
					701.5MHz	707.5MHz	713.5MHz	
12	5	QPSK	1	0	22.62	22.51	22.58	
			1	12	22.64	22.44	22.74	
			1	24	22.77	22.52	22.77	
			12	0	21.68	21.62	21.69	
			12	6	21.69	21.58	21.76	
			12	11	21.64	21.82	21.75	
			25	0	21.70	21.62	21.62	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				20.40		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	21.82	21.63	21.78	
			1	12	21.68	21.72	21.34	
			1	24	21.71	21.62	21.40	
			12	0	20.71	20.41	20.81	
			12	6	20.69	20.45	20.99	
			12	11	20.88	20.50	20.89	
			25	0	20.58	20.59	20.86	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				19.45		
ERP Limit (dBm):				34.77				
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	22.34	22.25	22.26	
			1	24	22.33	22.27	22.32	
			1	49	22.26	22.43	22.37	
			25	0	21.37	21.36	21.31	
			25	12	21.42	21.57	21.45	
			25	24	21.40	21.46	21.64	
			50	0	21.43	21.47	21.38	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				20.06		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	21.30	21.66	21.22	
			1	24	21.17	21.54	21.46	
			1	49	21.26	21.42	21.39	
			25	0	20.54	20.49	20.57	
			25	12	20.46	20.48	20.61	
			25	24	20.66	20.66	20.97	
			50	0	20.56	20.47	20.62	
		Antenna Gain(dBi):				-0.22		
		Max. ERP (dBm):				19.29		
ERP Limit (dBm):				34.77				
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). ERP (dBm) = EIRP (dBm) - 2.15 (dB).								

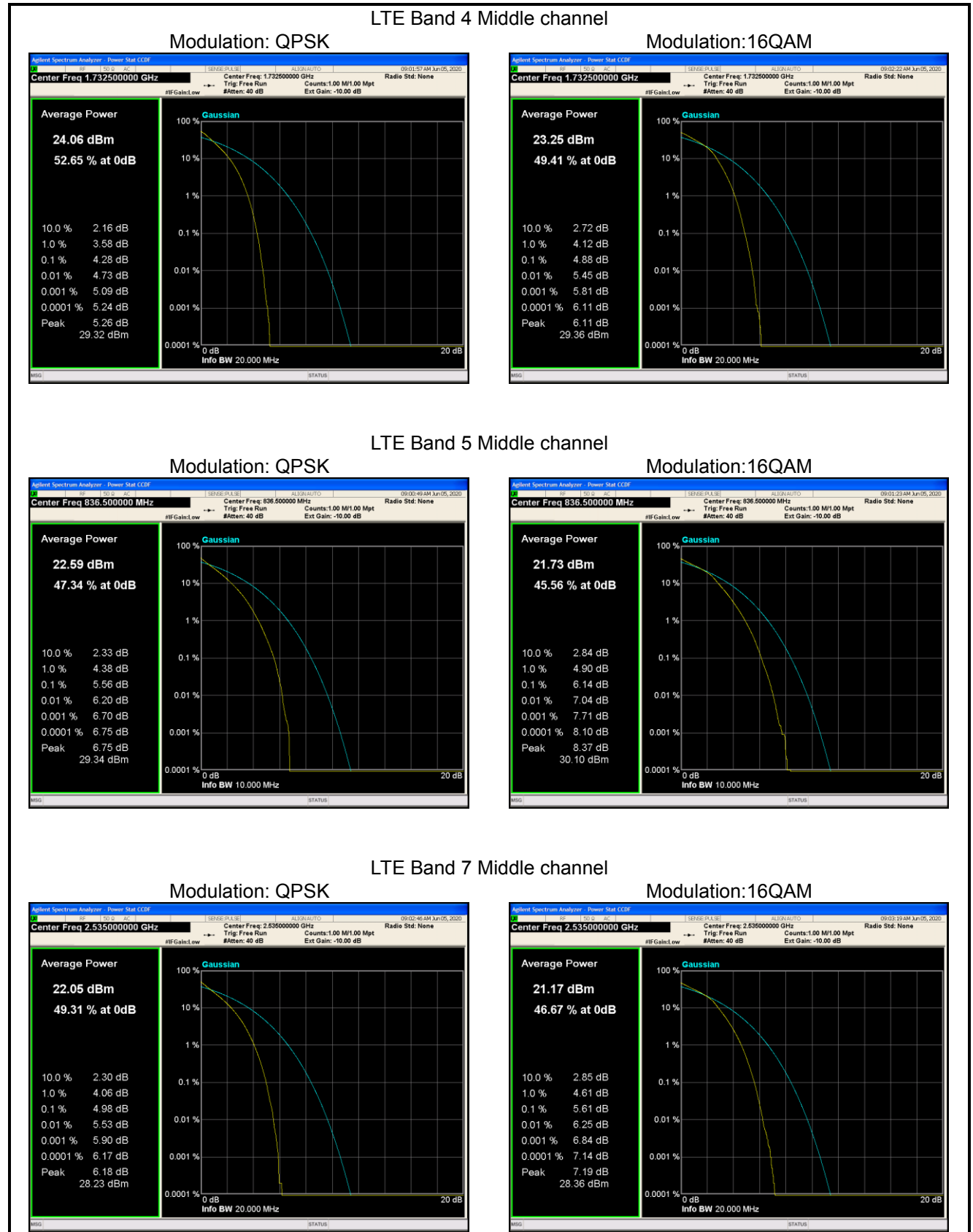
6.2 Peak-to-Average Ratio

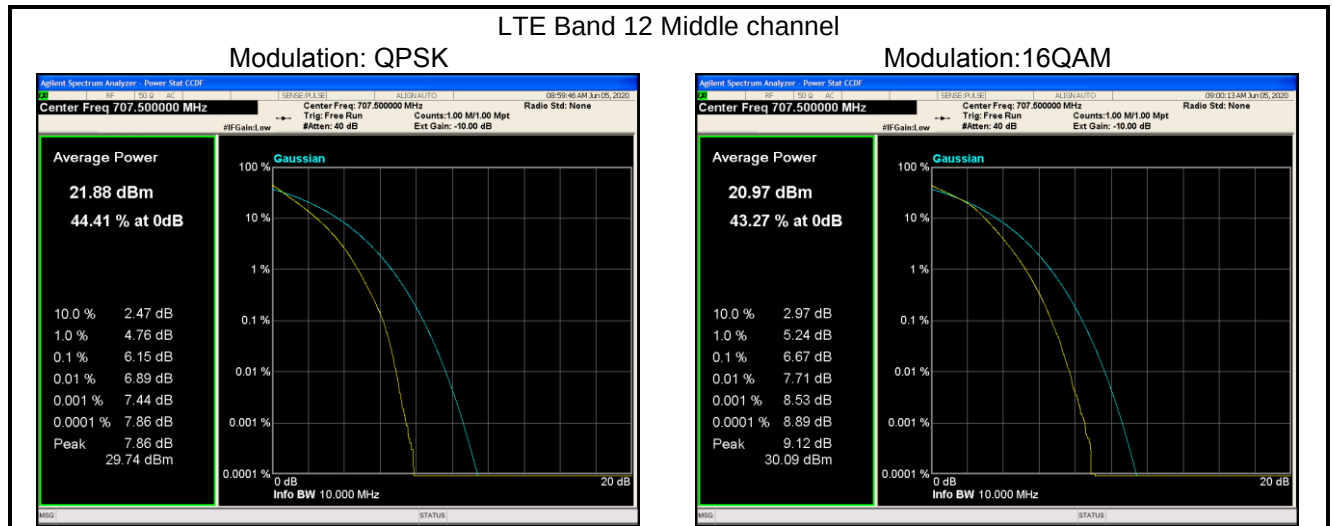
Test Requirement:	Part 22.913(d), Part 24.232 (d), Part 27.50(d)(5)
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	 The diagram illustrates the test setup. On the left, there are two blue rectangular units: the top one is labeled 'System simulator' and the bottom one is labeled 'Spectrum Analyzer'. Both have a single output port. These two ports are connected to a single input port of a white rectangular unit labeled 'Splitter'. The 'Splitter' has two output ports. One output port is connected to a black rectangular unit labeled 'ATT' (Attenuator). The other output port is connected to a black rectangular unit labeled 'EUT' (Equipment Under Test).
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 Set the CCDF option in spectrum analyzer, $RBW \geq OBW$, 3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level. 4 Repeat step 1~3 at other frequency and modulations.
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):

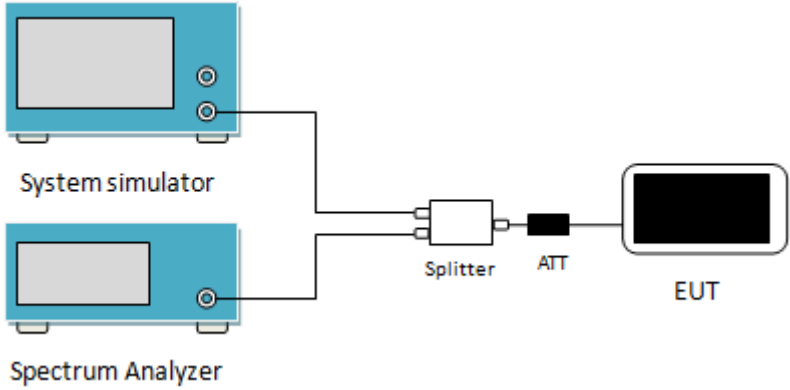
Bandwidth	Modulation	RB Size	RB Offset	PAPR
LTE Band 4 (Middle Channel)				
20MHz	QPSK	100	0	4.28
	16QAM	100	0	4.88
LTE Band 5 (Middle Channel)				
10MHz	QPSK	50	0	5.56
	16QAM	50	0	6.14
LTE Band 7 (Middle Channel)				
20MHz	QPSK	100	0	4.98
	16QAM	100	0	5.61
LTE Band 12 (Middle Channel)				
10MHz	QPSK	50	0	6.15
	16QAM	50	0	6.67

Test plots as below:





6.3 Occupy Bandwidth

Test Requirement:	Part 22.917(b), Part 27.53(g), Part 27.53(h), Part 27.53(m)
Test Setup:	 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 single output port. These two ports are connected to a single input port of a white rectangular 'Splitter'. The other output port of the 'Splitter' is connected to a black rectangular 'ATT' (Attenuator). Finally, the output of the 'ATT' is connected to the input of a white rectangular 'EUT' (Equipment Under Test) which has a black screen.
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW. 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.
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 4					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	19957	1710.7	16QAM	1104	1254
			QPSK	1104	1284
	20175	1732.5	16QAM	1110	1278
			QPSK	1110	1290
	20393	1754.3	16QAM	1098	1266
			QPSK	1104	1284
3MHz	19965	1711.5	16QAM	2760	3216
			QPSK	2784	3720
	20175	1732.5	16QAM	2772	3132
			QPSK	2784	3336
	20385	1750.5	16QAM	2772	3072
			QPSK	2760	3144
5MHz	19975	1712.5	16QAM	4520	4880
			QPSK	4560	5400
	20175	1732.5	16QAM	4520	4920
			QPSK	4540	5000
	20375	1752.5	16QAM	4500	4960
			QPSK	4500	5060
10MHz	20000	1715.0	16QAM	9200	10320
			QPSK	9200	10920
	20175	1732.5	16QAM	9160	10200
			QPSK	9160	10600
	20350	1750.0	16QAM	9120	10080
			QPSK	9160	10240
15MHz	20025	1717.5	16QAM	13620	14820
			QPSK	1362	17040
	20175	1732.5	16QAM	13560	15120
			QPSK	13560	15300
	20325	1747.5	16QAM	13560	14700
			QPSK	13560	15000
20MHz	20050	1720.0	16QAM	18000	19760
			QPSK	18160	20640
	20175	1732.5	16QAM	18000	19520
			QPSK	18080	20160
	20300	1745.0	16QAM	18000	19600
			QPSK	18080	19360

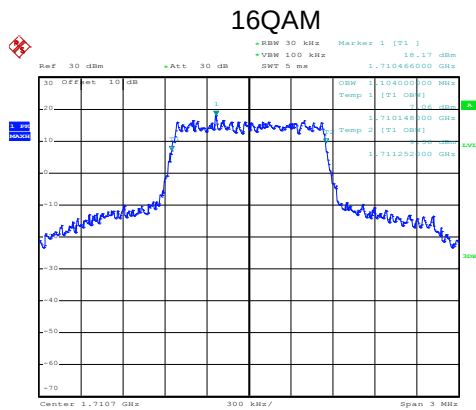
TE Band 5					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	20407	824.7	16QAM	1092	1236
			QPSK	1098	1242
	20525	836.5	16QAM	1104	1242
			QPSK	1098	1260
	20643	848.3	16QAM	1098	1248
			QPSK	1098	1254
3MHz	20415	825.5	16QAM	2736	3048
			QPSK	2748	3120
	20525	836.50	16QAM	2736	3012
			QPSK	2736	3108
	20635	847.50	16QAM	2748	3072
			QPSK	2748	3120
5MHz	20425	826.50	16QAM	4500	4920
			QPSK	4520	5120
	20525	836.50	16QAM	4520	4940
			QPSK	4500	4980
	20625	846.50	16QAM	4460	4860
			QPSK	4480	5000
10MHz	20450	829.00	16QAM	9080	10040
			QPSK	9080	10280
	20525	836.50	16QAM	9120	10040
			QPSK	9120	10120
	20600	844.00	16QAM	9040	10040
			QPSK	9080	10240

LTE Band 7					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
5MHz	20775	2502.5	16QAM	4500	4880
			QPSK	4520	4980
	21100	2535.0	16QAM	4480	4960
			QPSK	4520	4900
	21425	2567.5	16QAM	4520	4880
			QPSK	4540	5100
10MHz	20800	2505.0	16QAM	9080	10080
			QPSK	9160	10440
	21100	2535.0	16QAM	9120	10040
			QPSK	9120	10200
	21400	2565.0	16QAM	9200	10360
			QPSK	9160	11520
15MHz	20825	2507.5	16QAM	13500	14760
			QPSK	13560	150060
	21100	2535.0	16QAM	13500	14820
			QPSK	13620	15180
	21375	2562.5	16QAM	13500	15060
			QPSK	13620	15420
20MHz	20850	2510.0	16QAM	18000	19280
			QPSK	18000	19760
	21100	2535.0	16QAM	18080	19440
			QPSK	18080	19520
	21350	2560.0	16QAM	17920	19440
			QPSK	18000	19760

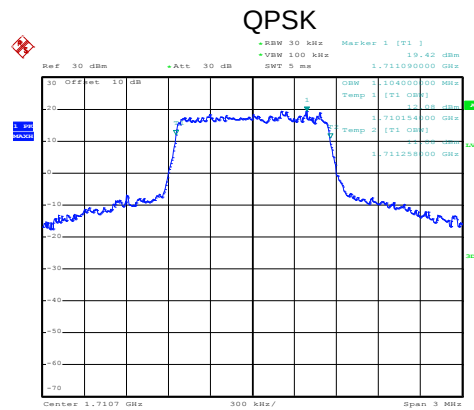
LTE Band 12					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	23017	699.7	16QAM	1092	1242
			QPSK	1092	1254
	23095	707.5	16QAM	1098	1272
			QPSK	1098	1248
	23173	715.3	16QAM	1098	1242
			QPSK	1104	1254
3MHz	23025	700.5	16QAM	27242	3072
			QPSK	2736	3096
	23095	707.5	16QAM	2748	3036
			QPSK	2760	3120
	23165	714.5	16QAM	2748	3036
			QPSK	2772	3120
5MHz	23035	701.5	16QAM	4480	4880
			QPSK	4480	4880
	23095	707.5	16QAM	4500	4940
			QPSK	4540	4960
	23155	713.5	16QAM	4500	4880
			QPSK	4500	4940
10MHz	23060	704.0	16QAM	9120	10160
			QPSK	9160	10280
	23095	707.5	16QAM	9120	10080
			QPSK	9160	10160
	23130	711.0	16QAM	9040	9920
			QPSK	9040	10040

Test plot as follows:
LTE Band 4 part:

LTE Band 4: 99% Occupy bandwidth
BW: 1.4MHz

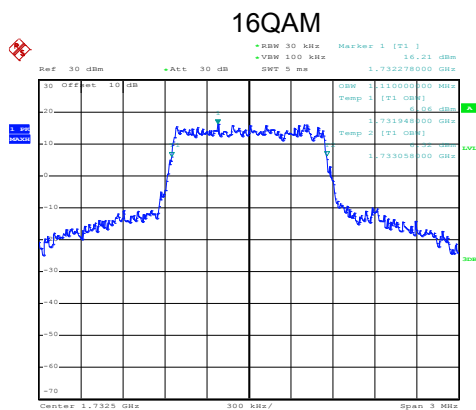


Date: 3.JUN.2020 17:03:53

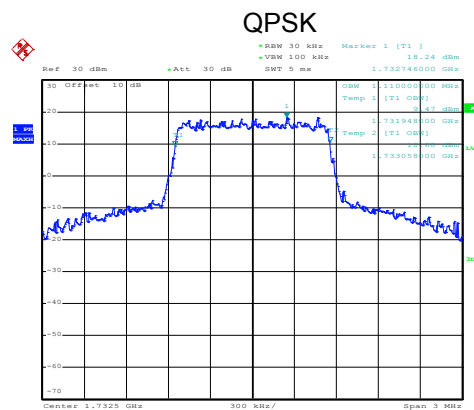


Date: 3.JUN.2020 17:03:50

Lowest channel

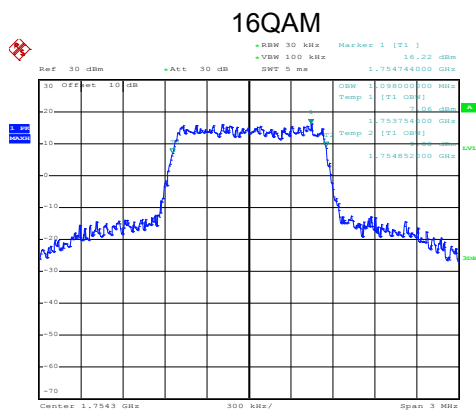


Date: 3.JUN.2020 17:04:35

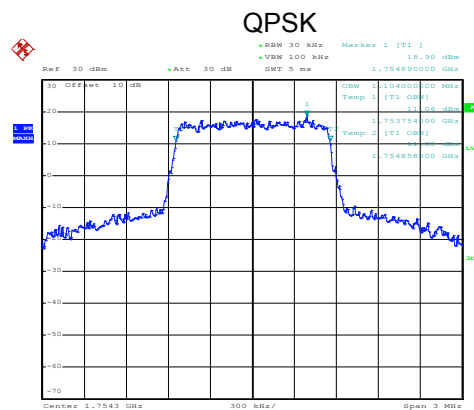


Date: 3.JUN.2020 17:04:32

Middle channel



Date: 3.JUN.2020 17:04:55

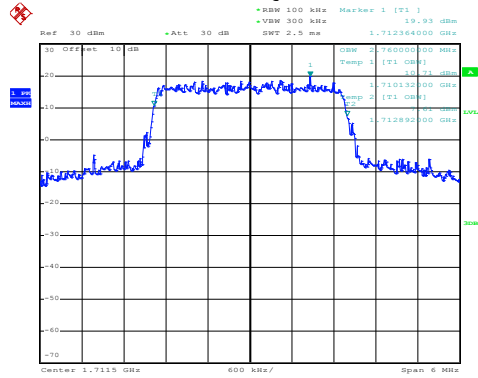


Date: 3.JUN.2020 17:04:52

Highest channel

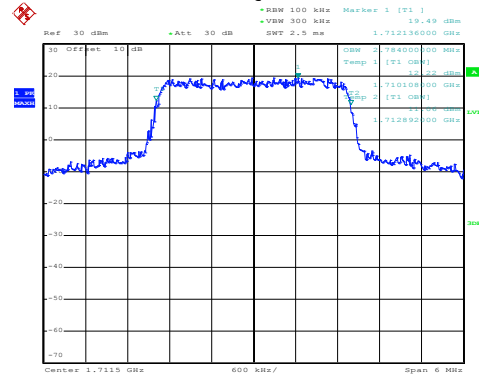
LTE Band 4: 99% Occupancy bandwidth
BW: 3MHz

16QAM



Date: 3.JUN.2020 17:06:51

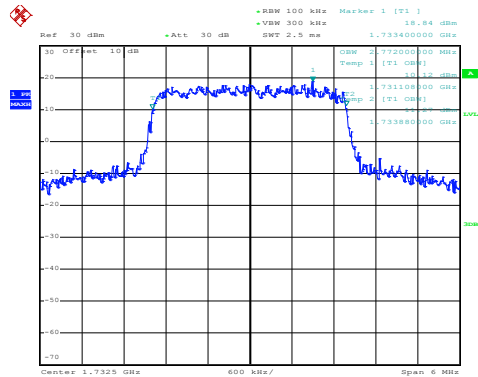
QPSK



Date: 3.JUN.2020 17:06:48

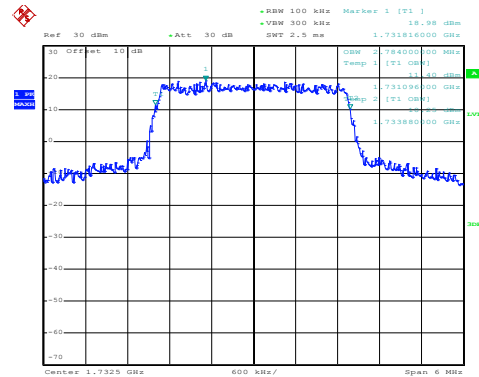
Lowest channel

16QAM



Date: 3.JUN.2020 17:07:04

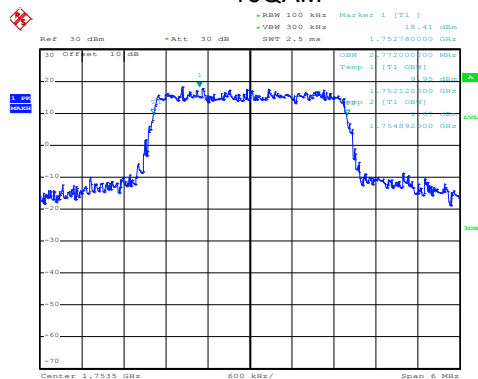
QPSK



Date: 3.JUN.2020 17:07:00

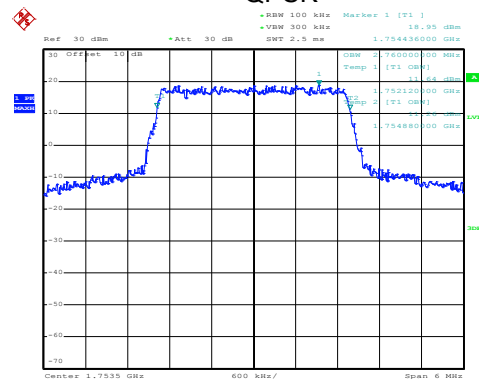
Middle channel

16QAM



Date: 3.JUN.2020 17:07:51

QPSK

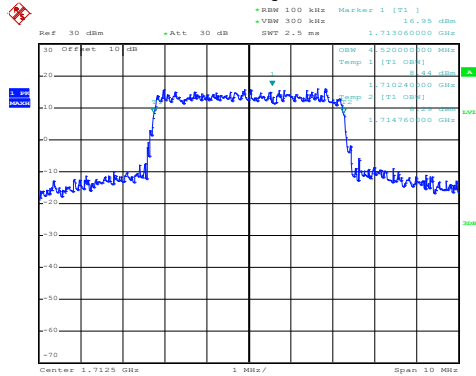


Date: 3.JUN.2020 17:07:48

Highest channel

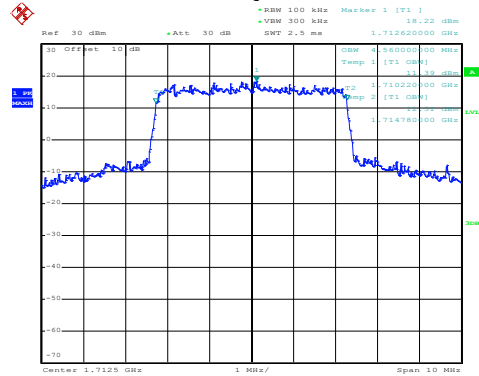
LTE Band 4: 99% Occupancy bandwidth
BW: 5MHz

16QAM



Date: 3.JUN.2020 17:08:30

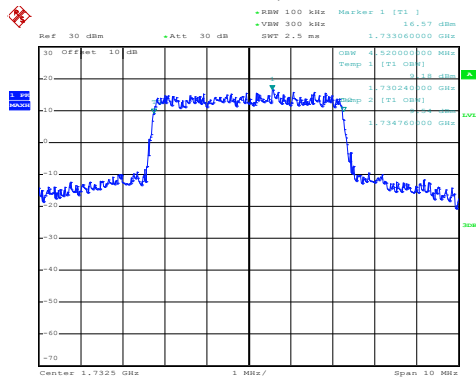
QPSK



Date: 3.JUN.2020 17:08:27

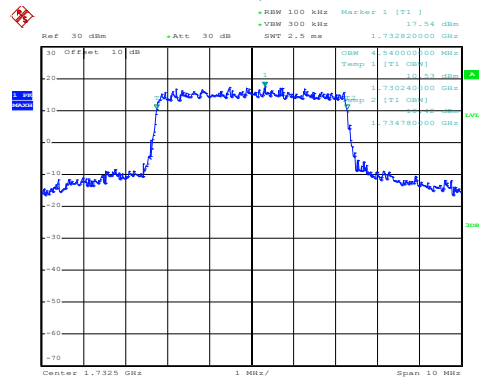
Lowest channel

16QAM



Date: 3.JUN.2020 17:09:06

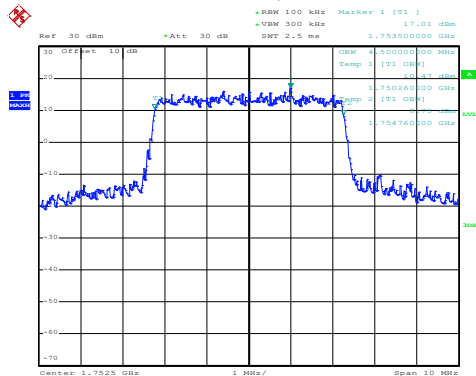
QPSK



Date: 3.JUN.2020 17:09:01

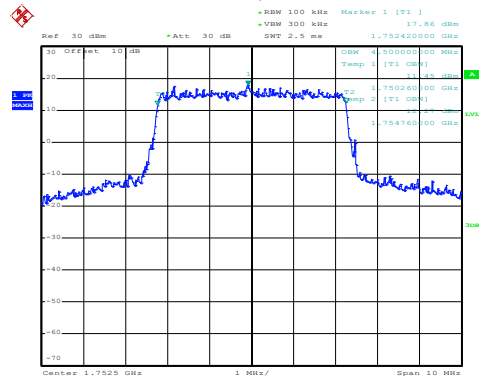
Middle channel

16QAM



Date: 3.JUN.2020 17:09:29

QPSK

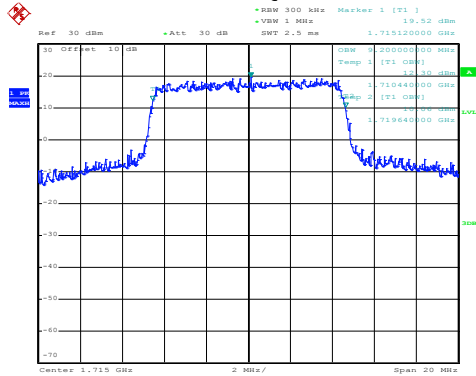


Date: 3.JUN.2020 17:09:22

Highest channel

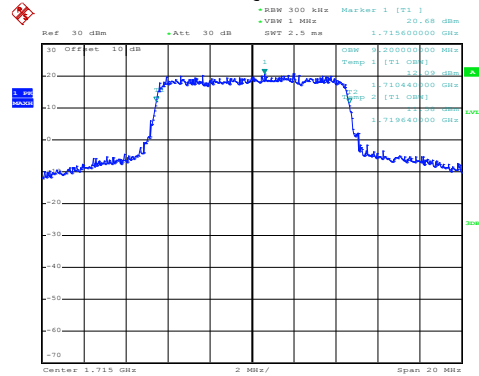
LTE Band 4: 99% Occupancy bandwidth
BW: 10MHz

16QAM



Date: 3.JUN.2020 17:10:42

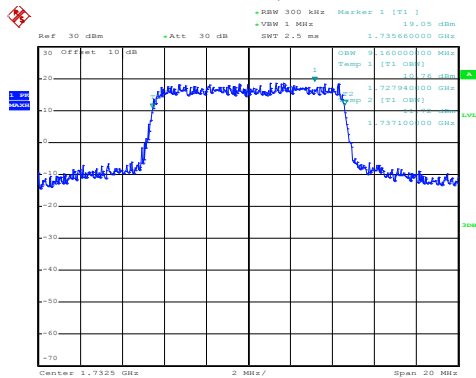
QPSK



Date: 3.JUN.2020 17:10:36

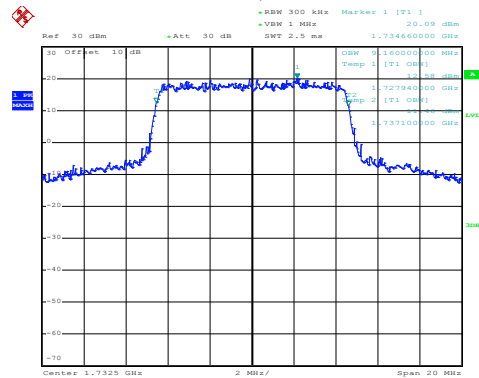
Lowest channel

16QAM



Date: 3.JUN.2020 17:10:57

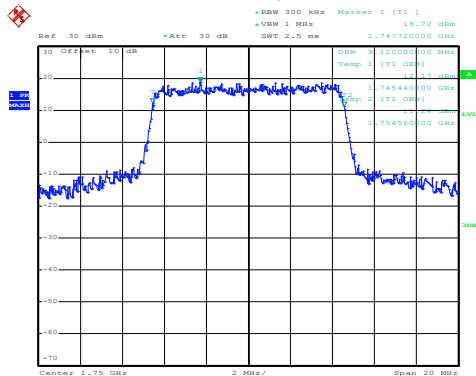
QPSK



Date: 3.JUN.2020 17:10:52

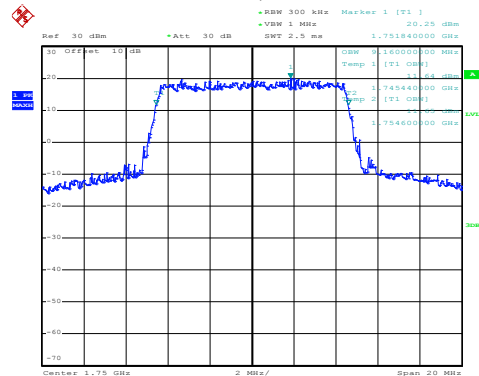
Middle channel

16QAM



Date: 3.JUN.2020 17:11:46

QPSK

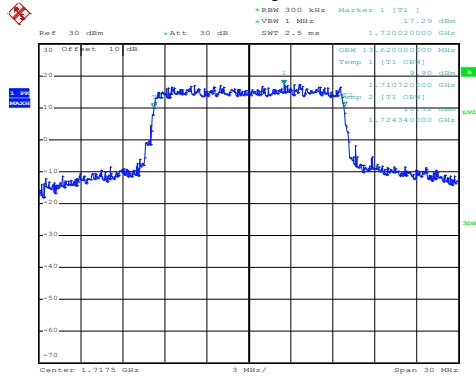


Date: 3.JUN.2020 17:11:40

Highest channel

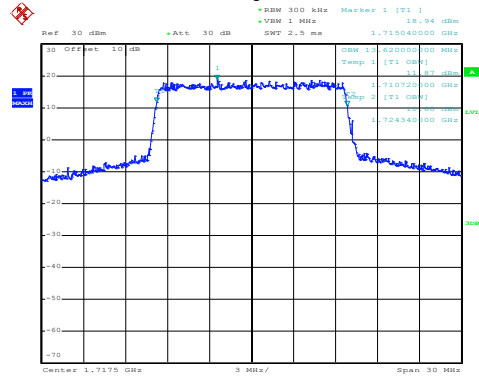
LTE Band 4: 99% Occupancy bandwidth
BW: 15MHz

16QAM



Date: 3.JUN.2020 17:12:12

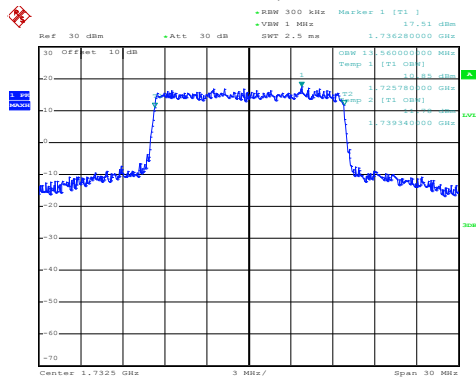
QPSK



Date: 3.JUN.2020 17:12:06

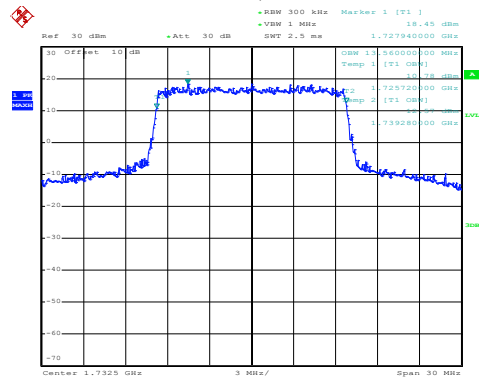
Lowest channel

16QAM



Date: 3.JUN.2020 17:12:57

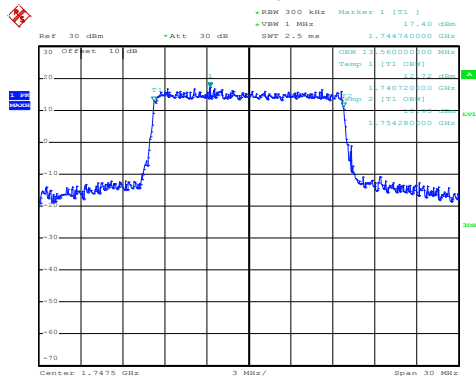
QPSK



Date: 3.JUN.2020 17:12:52

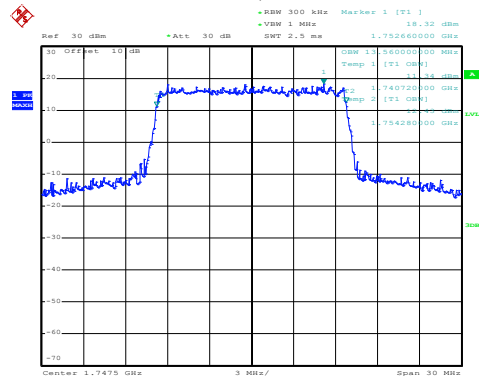
Middle channel

16QAM



Date: 3.JUN.2020 17:13:15

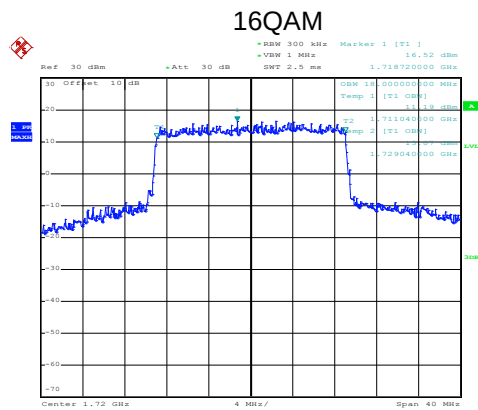
QPSK



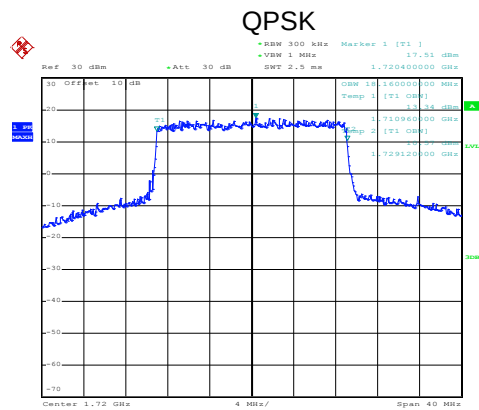
Date: 3.JUN.2020 17:13:09

Highest channel

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

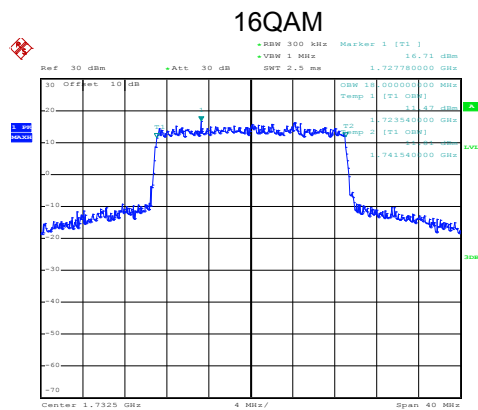


Date: 3.JUN.2020 17:14:14

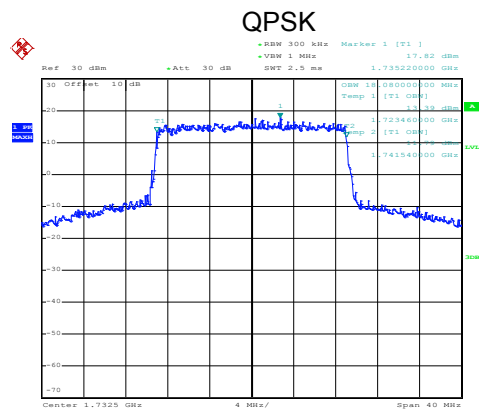


Date: 3.JUN.2020 17:14:08

Lowest channel

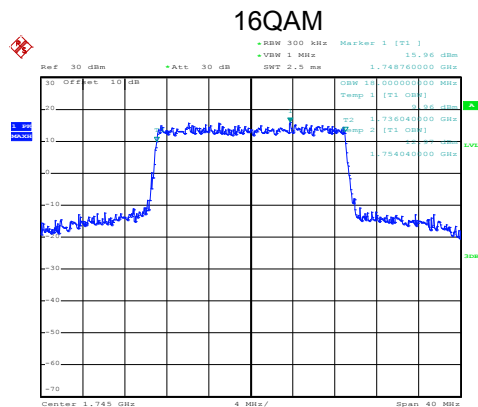


Date: 3.JUN.2020 17:14:30

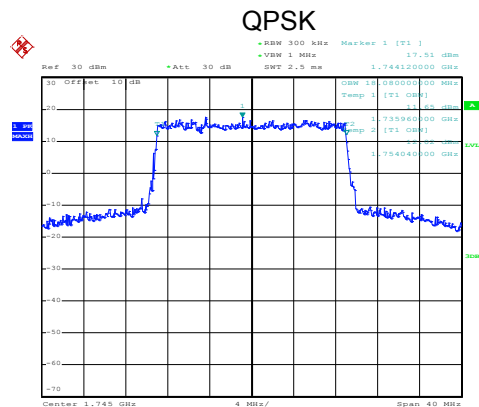


Date: 3.JUN.2020 17:14:25

Middle channel



Date: 3.JUN.2020 17:15:18

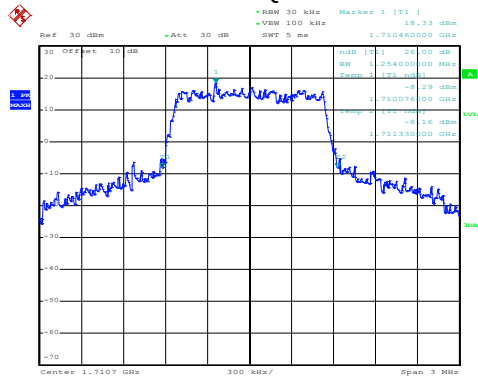


Date: 3.JUN.2020 17:15:11

Highest channel

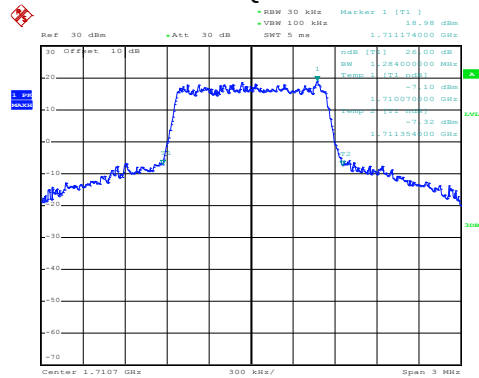
LTE Band 4: -26dBc bandwidth
BW: 1.4MHz

16QAM



Date: 3.JUN.2020 17:04:04

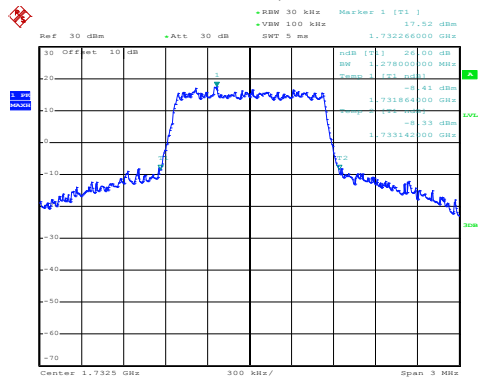
QPSK



Date: 3.JUN.2020 17:04:00

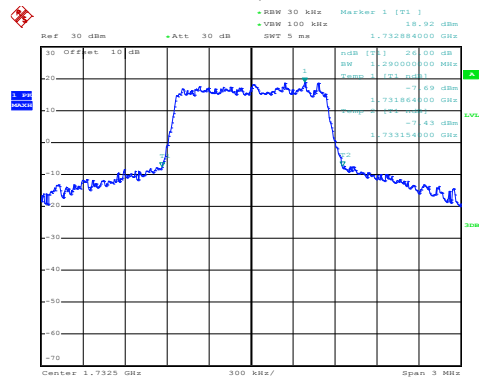
Lowest channel

16QAM



Date: 3.JUN.2020 17:04:25

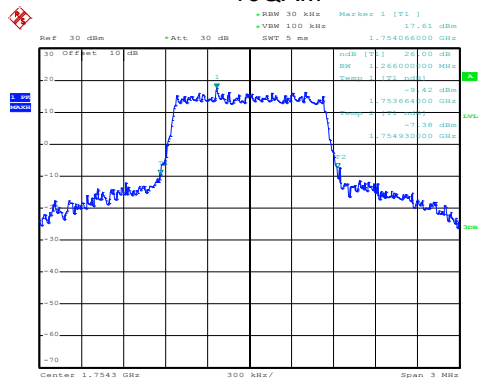
QPSK



Date: 3.JUN.2020 17:04:19

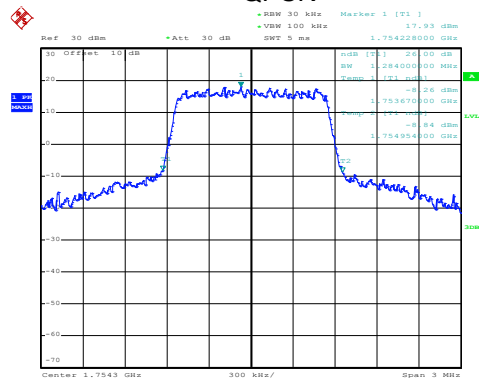
Middle channel

16QAM



Date: 3.JUN.2020 17:05:08

QPSK

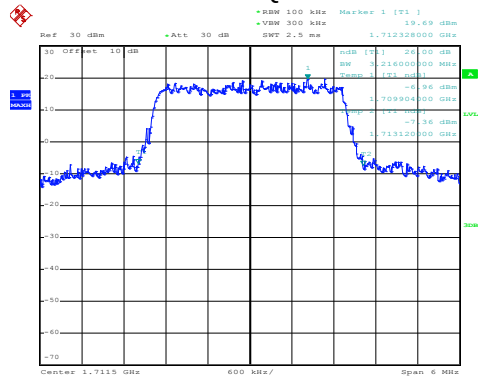


Date: 3.JUN.2020 17:05:02

Highest channel

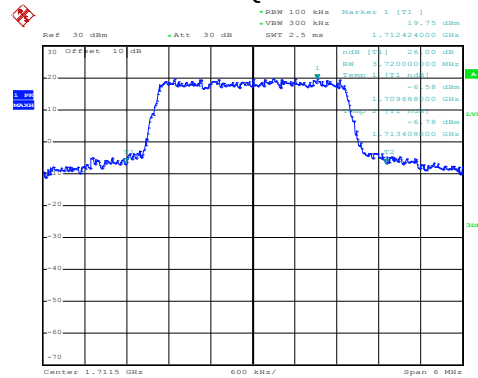
LTE Band 4: -26dBc bandwidth
BW: 3MHz

16QAM



Date: 3.JUN.2020 17:06:42

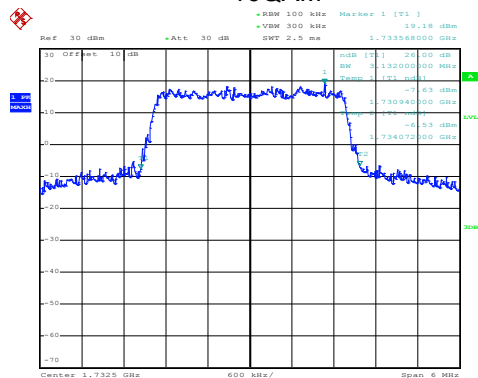
QPSK



Date: 3.JUN.2020 17:06:38

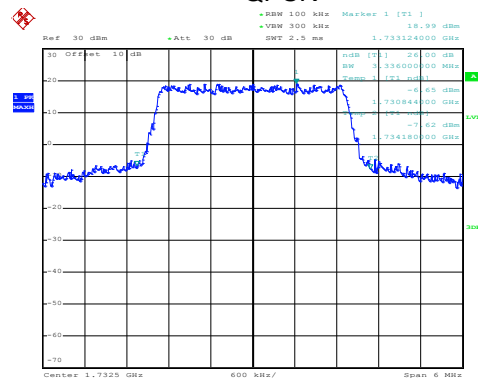
Lowest channel

16QAM



Date: 3.JUN.2020 17:07:14

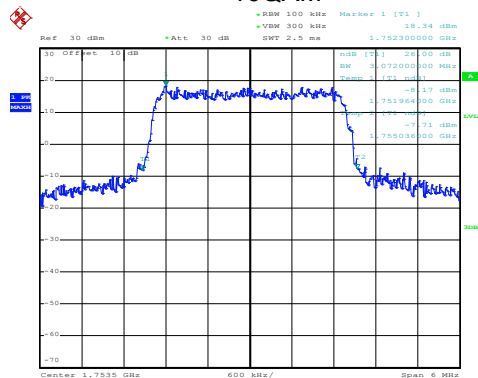
QPSK



Date: 3.JUN.2020 17:07:10

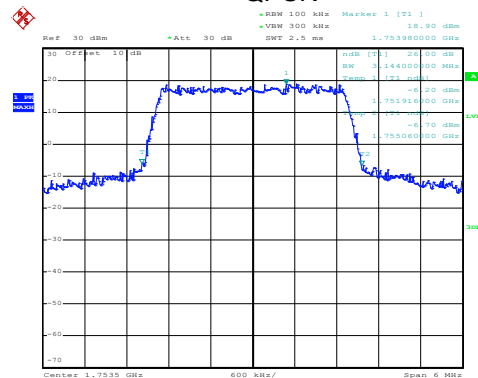
Middle channel

16QAM



Date: 3.JUN.2020 17:07:41

QPSK

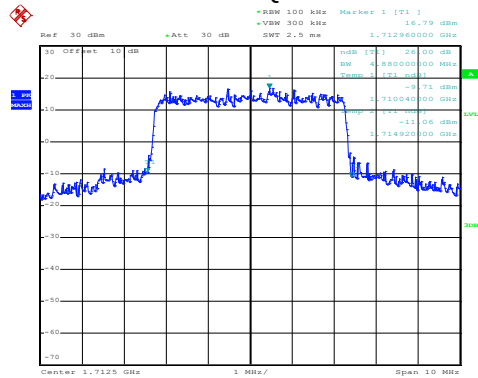


Date: 3.JUN.2020 17:07:38

Highest channel

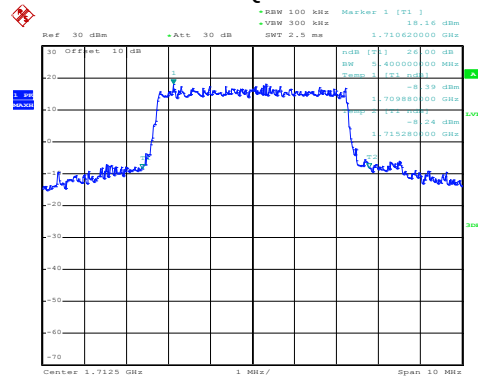
LTE Band 4: -26dBc bandwidth
BW: 5MHz

16QAM



Date: 3.JUN.2020 17:08:40

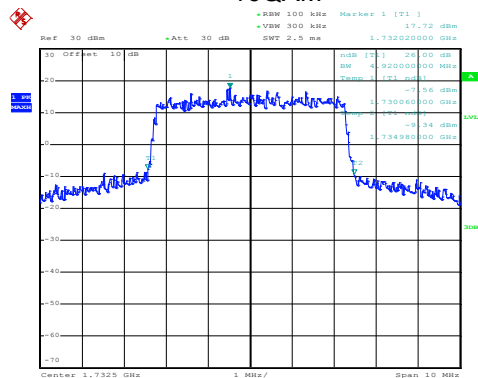
QPSK



Date: 3.JUN.2020 17:08:36

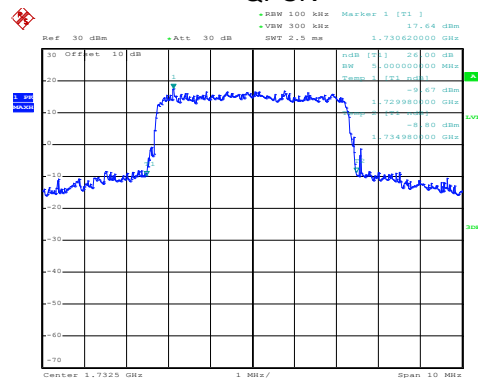
Lowest channel

16QAM



Date: 3.JUN.2020 17:08:53

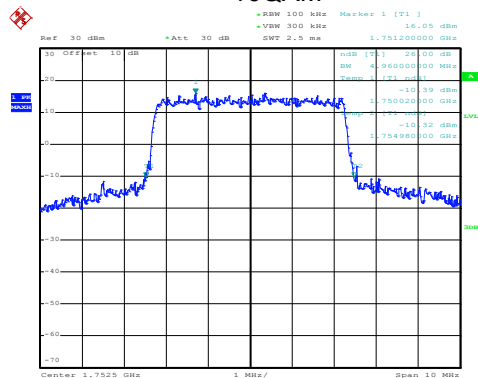
QPSK



Date: 3.JUN.2020 17:08:50

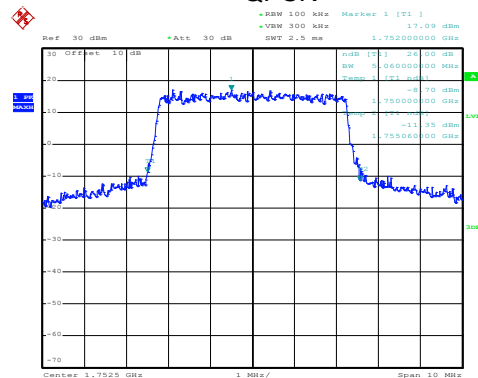
Middle channel

16QAM



Date: 3.JUN.2020 17:09:42

QPSK

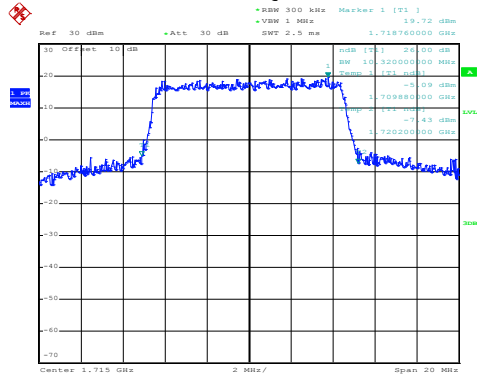


Date: 3.JUN.2020 17:09:37

Highest channel

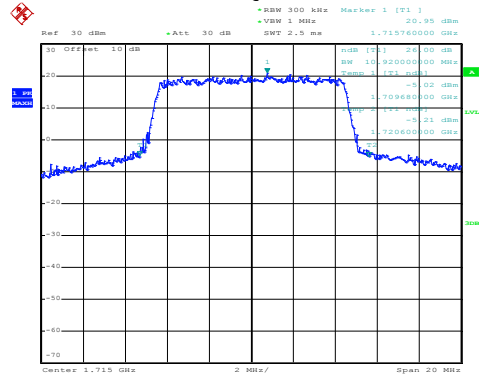
LTE Band 4: -26dBc bandwidth
BW: 10MHz

16QAM



Date: 3.JUN.2020 17:10:28

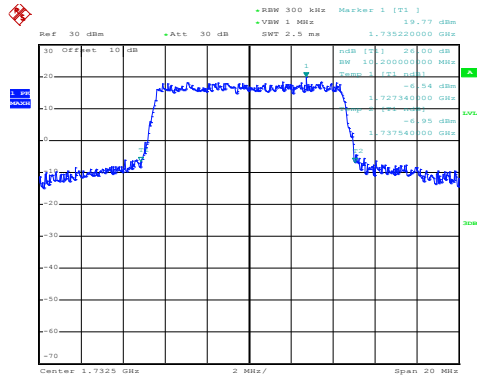
QPSK



Date: 3.JUN.2020 17:10:21

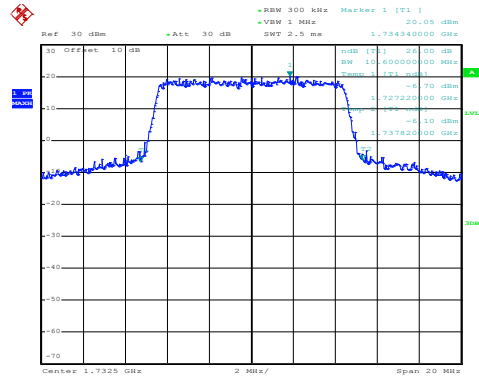
Lowest channel

16QAM



Date: 3.JUN.2020 17:11:11

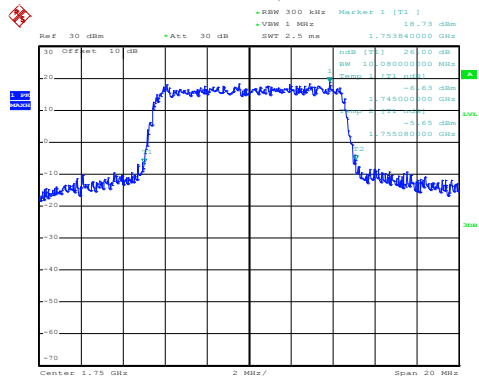
QPSK



Date: 3.JUN.2020 17:11:05

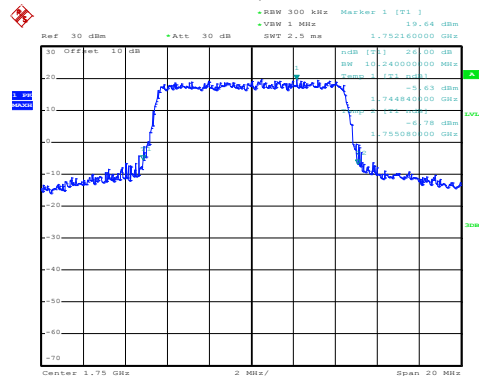
Middle channel

16QAM



Date: 3.JUN.2020 17:11:32

QPSK

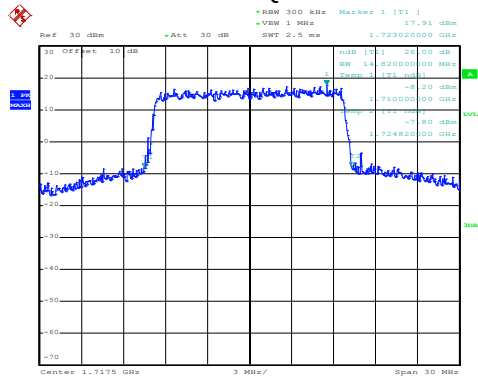


Date: 3.JUN.2020 17:11:26

Highest channel

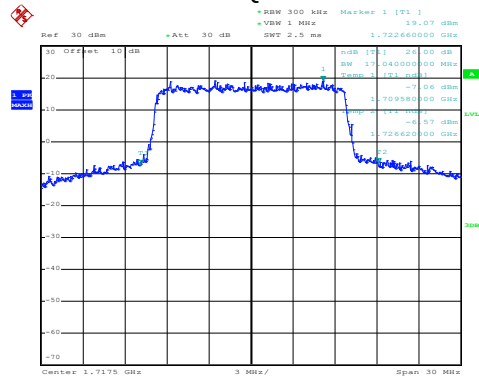
LTE Band 4: -26dBc bandwidth
BW: 15MHz

16QAM



Date: 3.JUN.2020 17:12:26

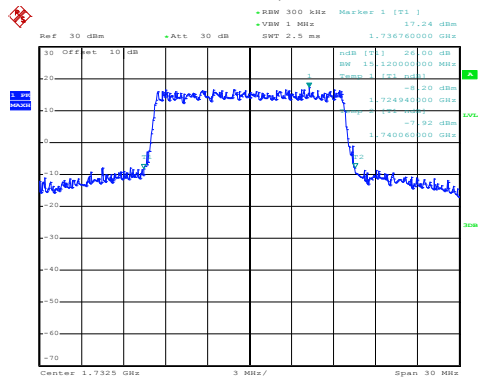
QPSK



Date: 3.JUN.2020 17:12:20

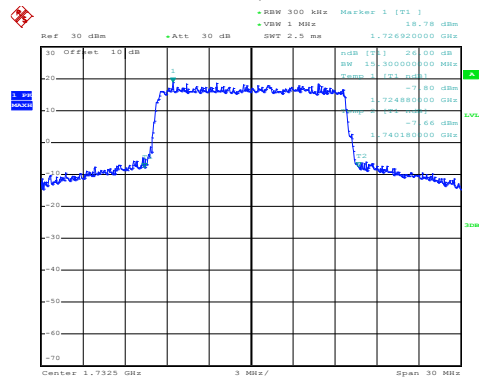
Lowest channel

16QAM



Date: 3.JUN.2020 17:12:43

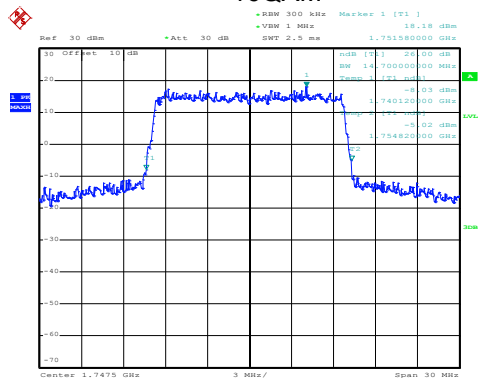
QPSK



Date: 3.JUN.2020 17:12:38

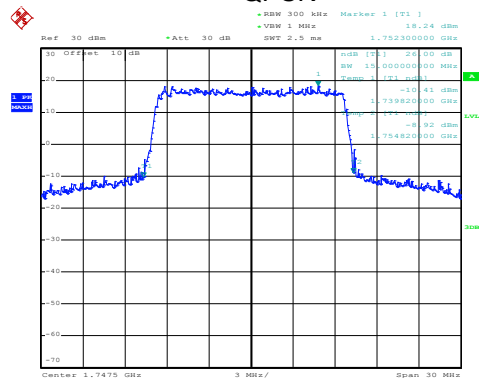
Middle channel

16QAM



Date: 3.JUN.2020 17:13:29

QPSK

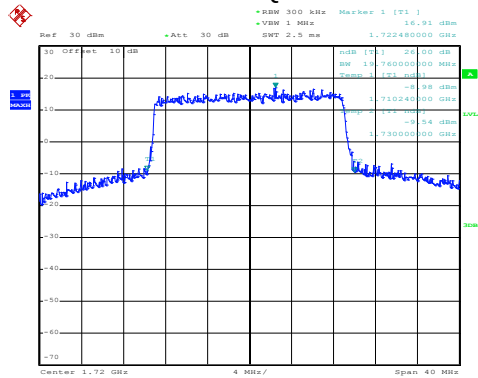


Date: 3.JUN.2020 17:13:23

Highest channel

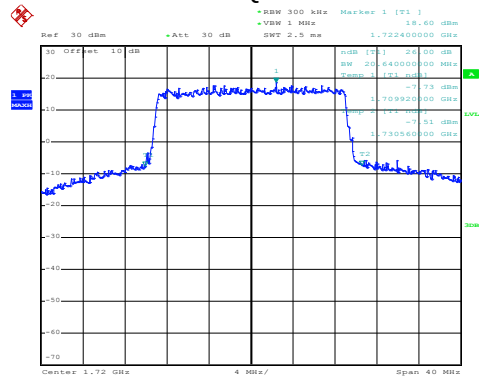
LTE Band 4: -26dBc bandwidth
BW: 20MHz

16QAM



Date: 3.JUN.2020 17:14:00

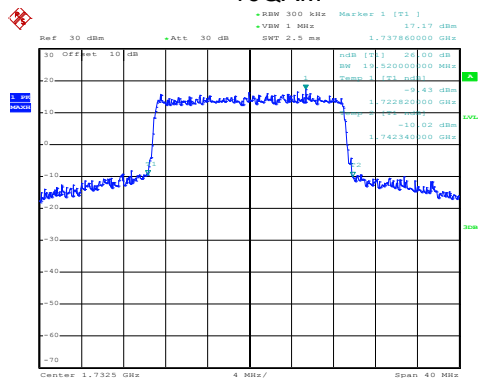
QPSK



Date: 3.JUN.2020 17:13:54

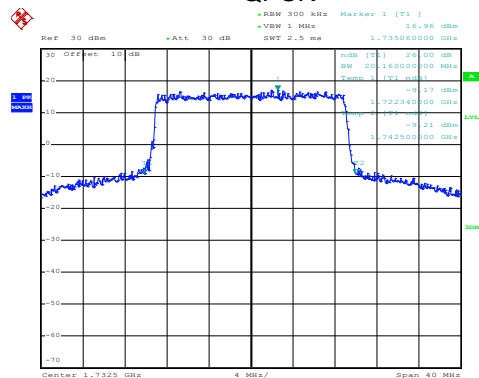
Lowest channel

16QAM



Date: 3.JUN.2020 17:14:44

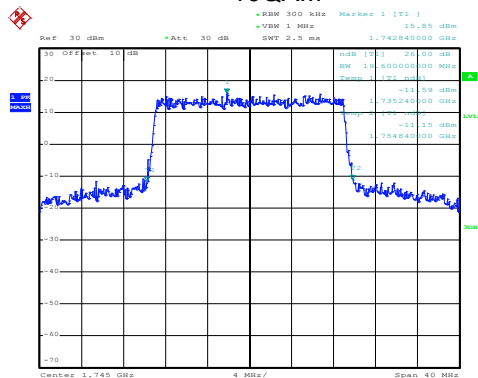
QPSK



Date: 3.JUN.2020 17:14:39

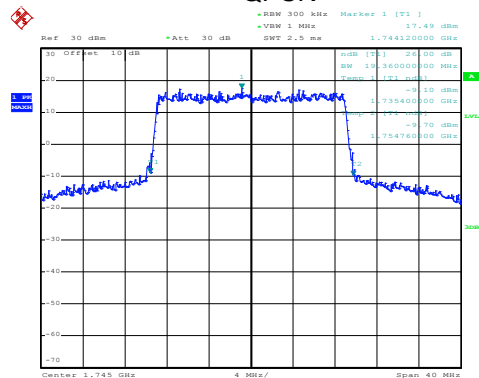
Middle channel

16QAM



Date: 3.JUN.2020 17:15:03

QPSK



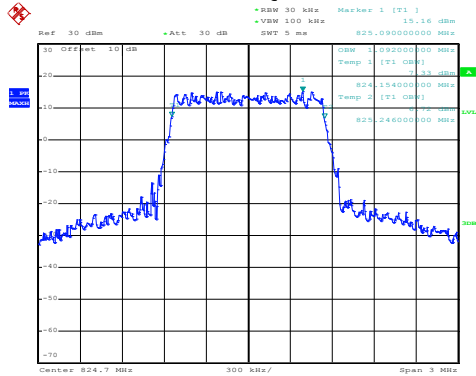
Date: 3.JUN.2020 17:14:58

Highest channel

LTE Band 5 part:

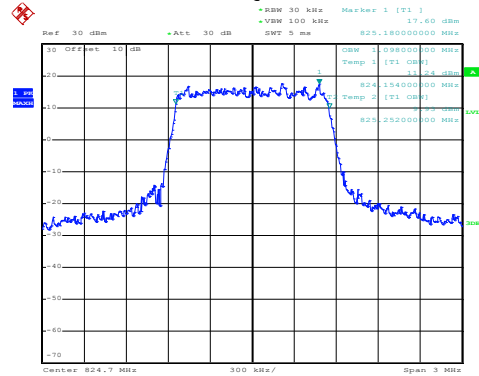
LTE Band 5: 99% Occupancy bandwidth
BW: 1.4MHz

16QAM



Date: 3.JUN.2020 17:36:14

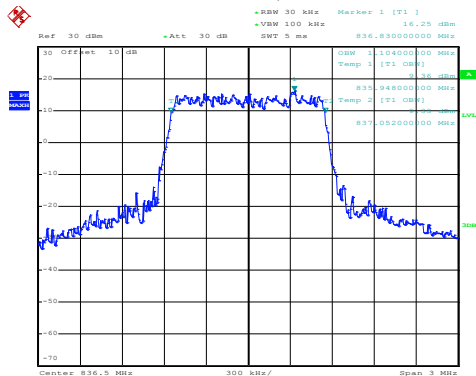
QPSK



Date: 3.JUN.2020 17:36:10

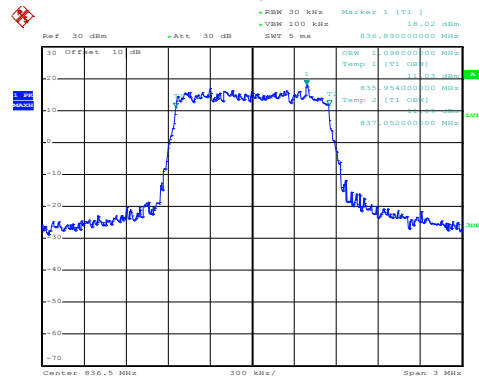
Lowest channel

16QAM



Date: 3.JUN.2020 17:36:26

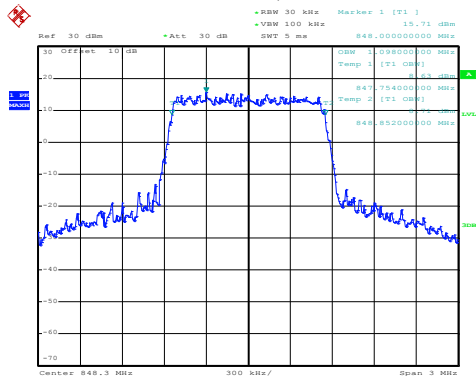
QPSK



Date: 3.JUN.2020 17:36:22

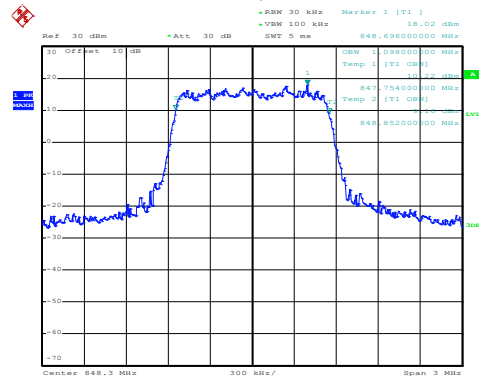
Middle channel

16QAM



Date: 3.JUN.2020 17:37:07

QPSK

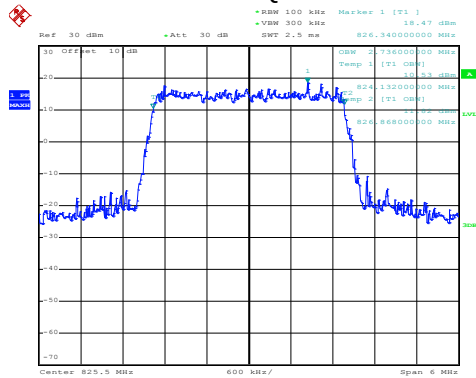


Date: 3.JUN.2020 17:37:01

Highest channel

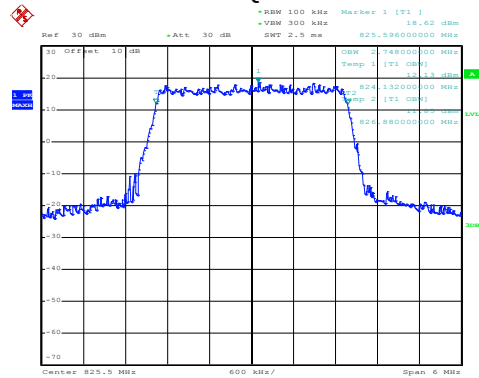
LTE Band 5: 99% Occupancy bandwidth
BW: 3MHz

16QAM



Date: 3.JUN.2020 17:34:06

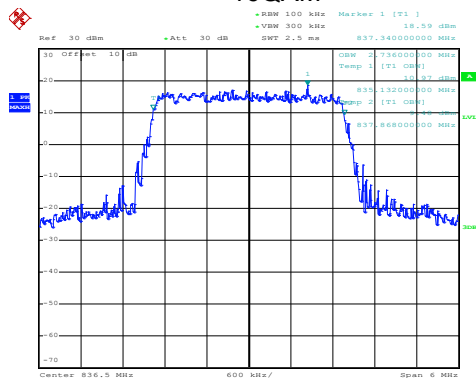
QPSK



Date: 3.JUN.2020 17:34:00

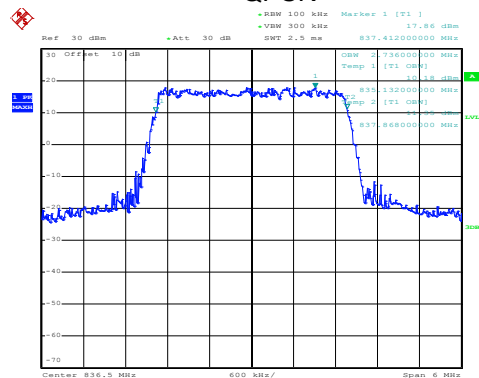
Lowest channel

16QAM



Date: 3.JUN.2020 17:34:52

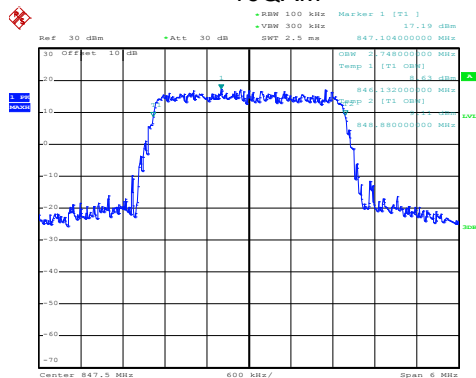
QPSK



Date: 3.JUN.2020 17:34:48

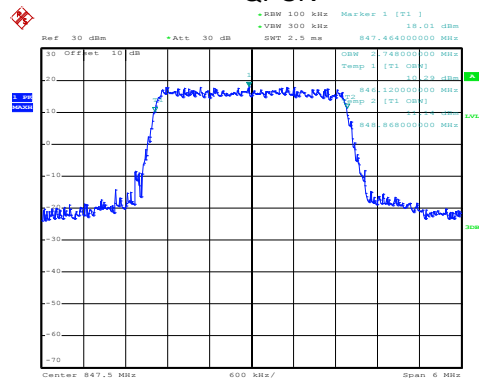
Middle channel

16QAM



Date: 3.JUN.2020 17:35:06

QPSK

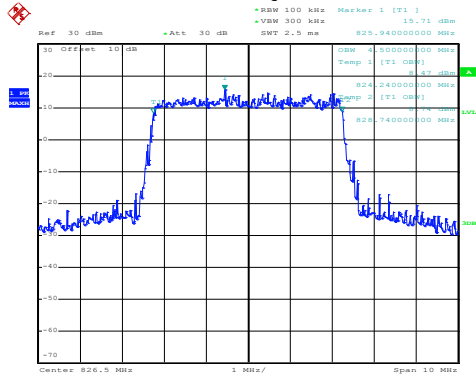


Date: 3.JUN.2020 17:35:02

Highest channel

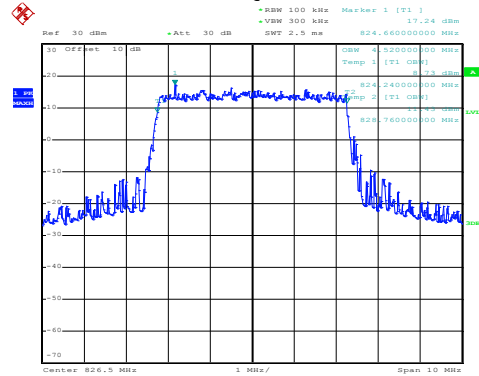
LTE Band 5: 99% Occupancy bandwidth
BW: 5MHz

16QAM



Date: 3.JUN.2020 17:32:32

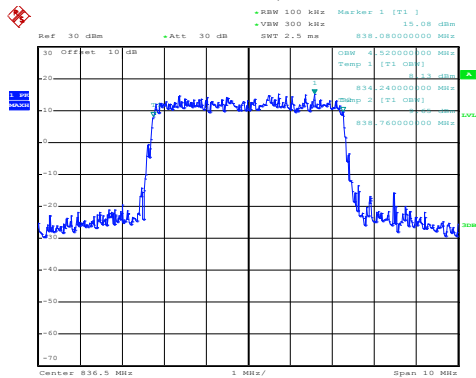
QPSK



Date: 3.JUN.2020 17:32:26

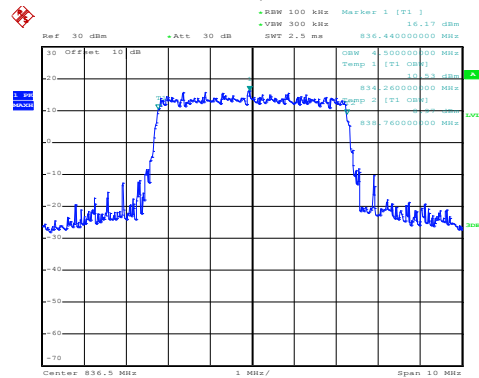
Lowest channel

16QAM



Date: 3.JUN.2020 17:32:46

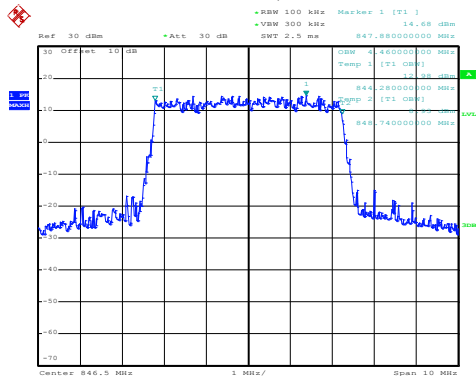
QPSK



Date: 3.JUN.2020 17:32:41

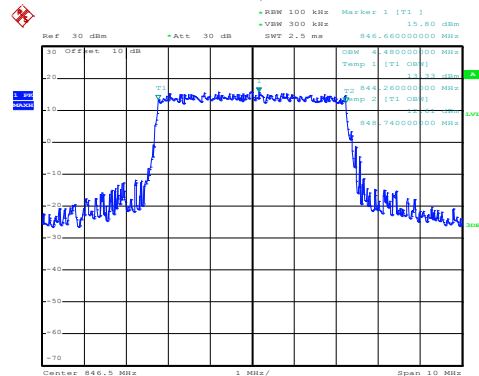
Middle channel

16QAM



Date: 3.JUN.2020 17:33:36

QPSK

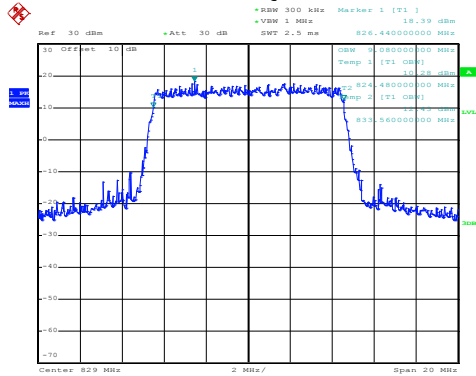


Date: 3.JUN.2020 17:33:30

Highest channel

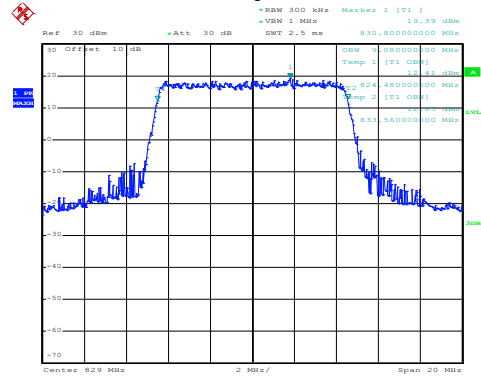
LTE Band 5: 99% Occupancy bandwidth
BW: 10MHz

16QAM



Date: 3.JUN.2020 17:30:38

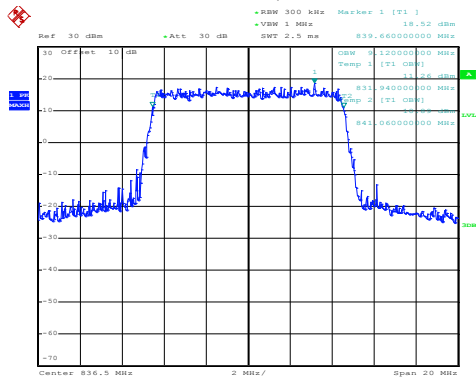
QPSK



Date: 3.JUN.2020 17:30:34

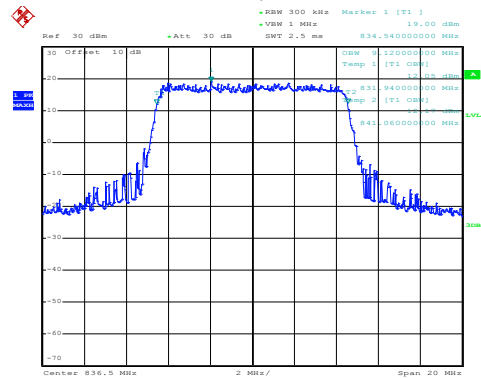
Lowest channel

16QAM



Date: 3.JUN.2020 17:31:11

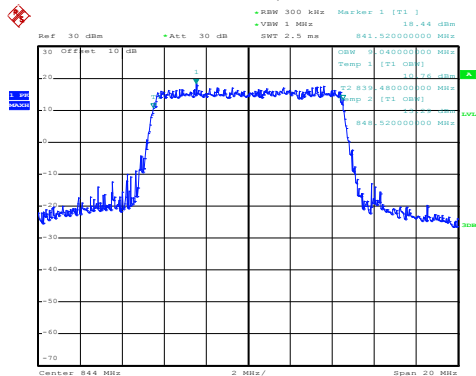
QPSK



Date: 3.JUN.2020 17:31:07

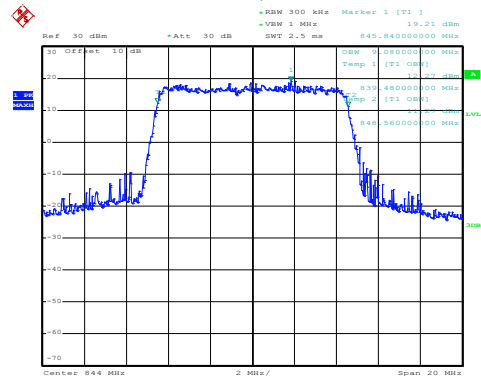
Middle channel

16QAM



Date: 3.JUN.2020 17:31:27

QPSK



Date: 3.JUN.2020 17:31:23

Highest channel

16QAM



Date: 3.JUN.2020 17:35:57

16QAM



Date: 3.JUN.2020 17:36:33

16QAM

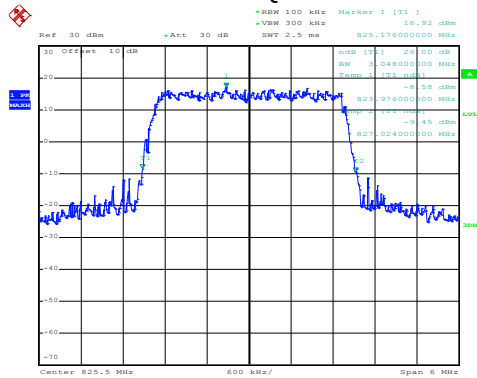


Date: 3.JUN.2020 17:36:50

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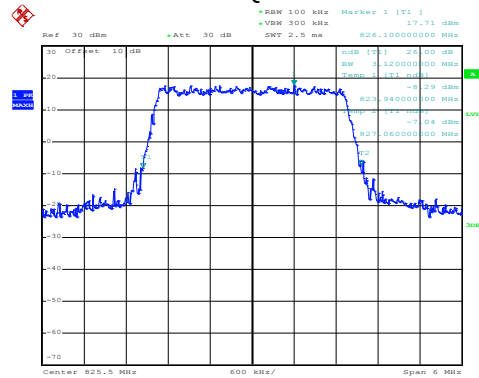
LTE Band 5: -26dBc bandwidth
BW: 3MHz

16QAM



Date: 3.JUN.2020 17:34:22

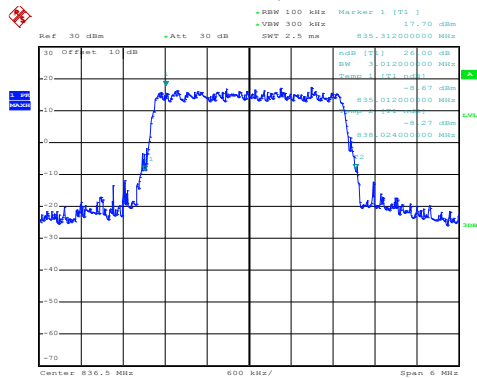
QPSK



Date: 3.JUN.2020 17:34:18

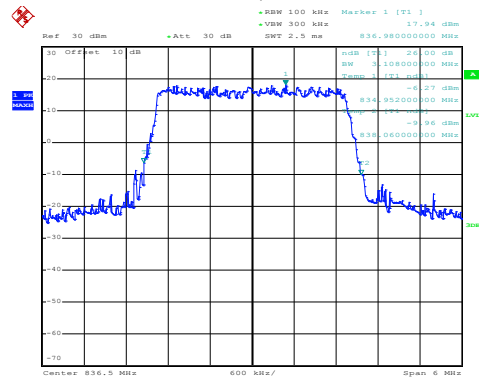
Lowest channel

16QAM



Date: 3.JUN.2020 17:34:41

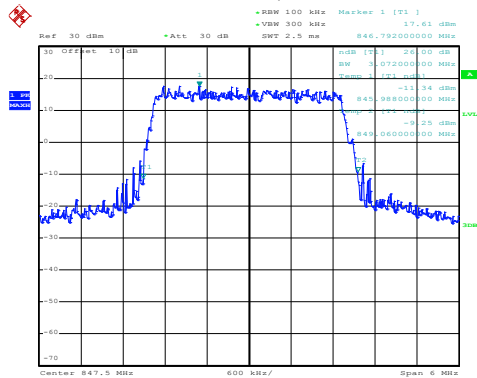
QPSK



Date: 3.JUN.2020 17:34:37

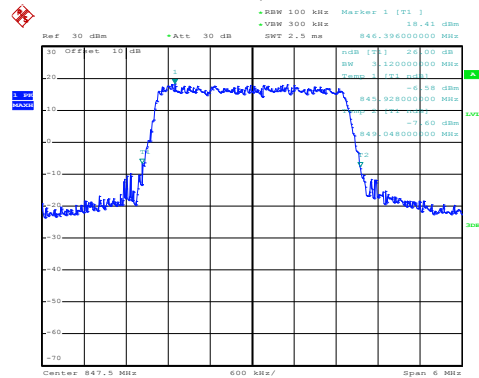
Middle channel

16QAM



Date: 3.JUN.2020 17:35:17

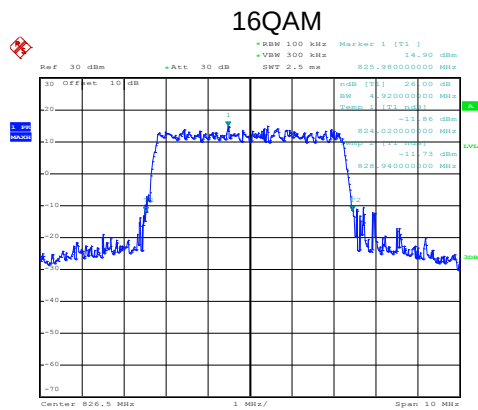
QPSK



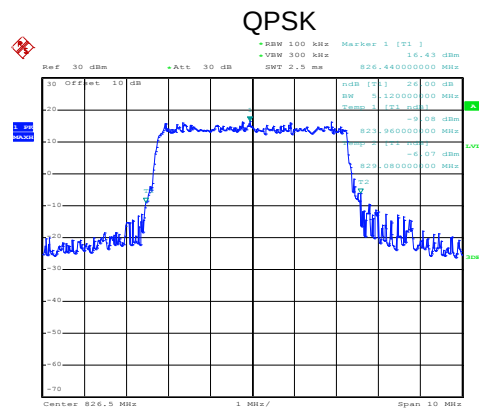
Date: 3.JUN.2020 17:35:13

Highest channel

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

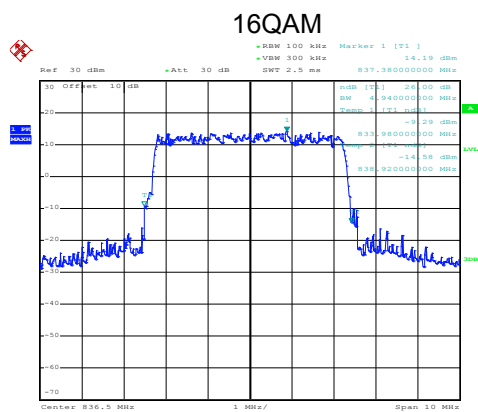


Date: 3.JUN.2020 17:32:17

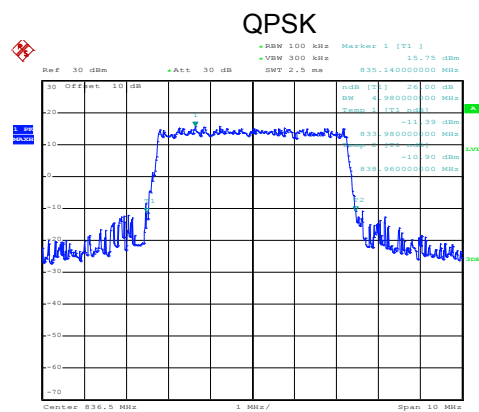


Date: 3.JUN.2020 17:32:12

Lowest channel

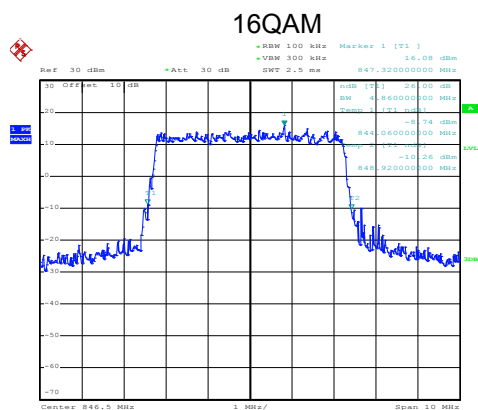


Date: 3.JUN.2020 17:33:00

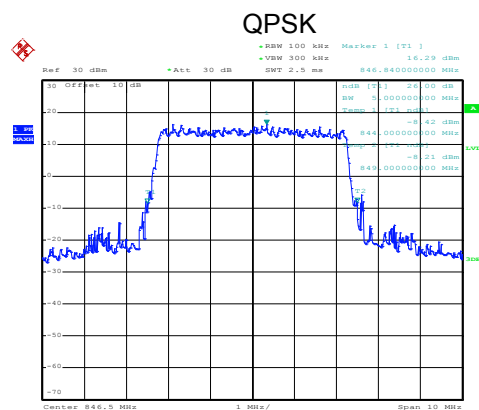


Date: 3.JUN.2020 17:32:54

Middle channel



Date: 3.JUN.2020 17:33:21

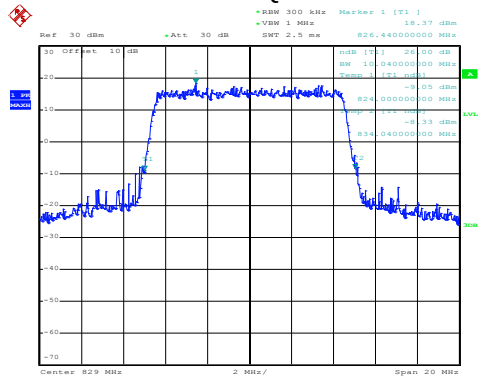


Date: 3.JUN.2020 17:33:15

Highest channel

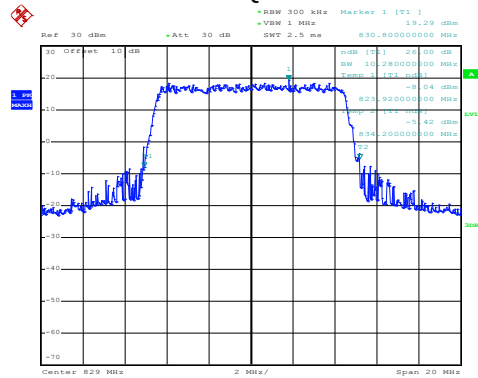
LTE Band 5: -26dBc bandwidth
BW: 10MHz

16QAM



Date: 3.JUN.2020 17:30:49

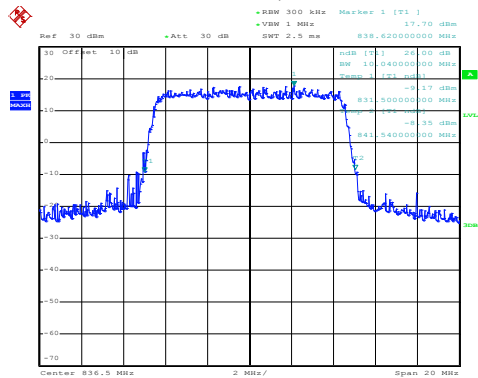
QPSK



Date: 3.JUN.2020 17:30:45

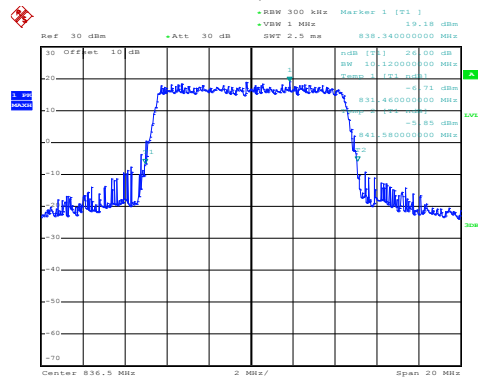
Lowest channel

16QAM



Date: 3.JUN.2020 17:31:00

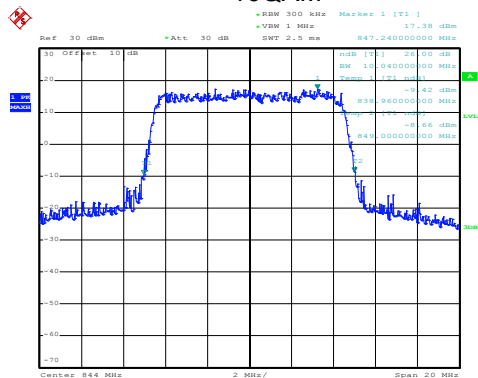
QPSK



Date: 3.JUN.2020 17:30:56

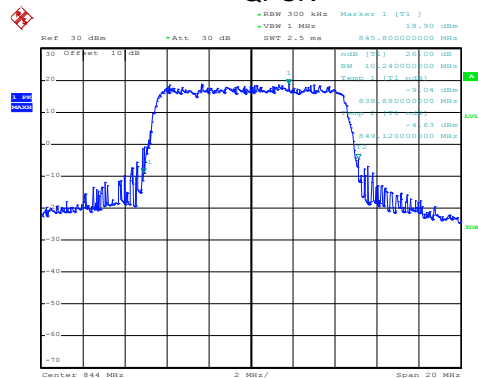
Middle channel

16QAM



Date: 3.JUN.2020 17:31:38

QPSK



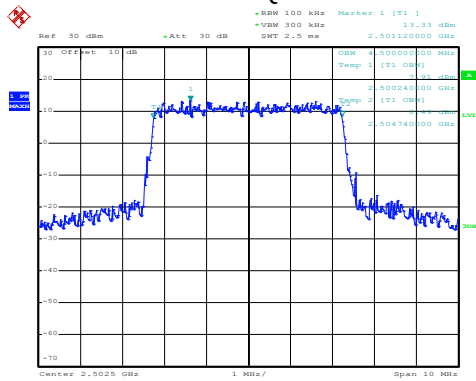
Date: 3.JUN.2020 17:31:34

Highest channel

LTE-Band 7 part:

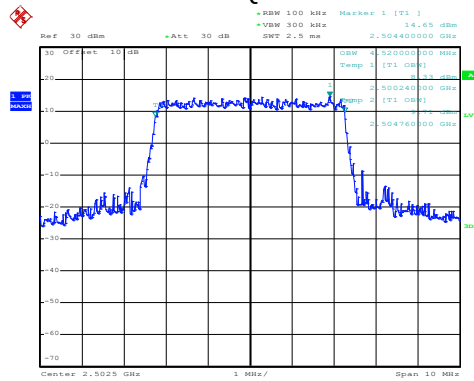
LTE Band 7: 99% Occupancy bandwidth
BW: 5MHz

16QAM



Date: 3.JUN.2020 17:21:45

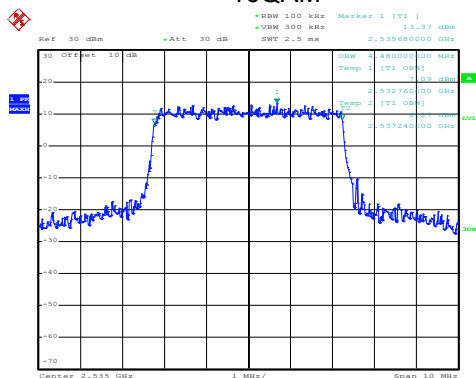
QPSK



Date: 3.JUN.2020 17:21:40

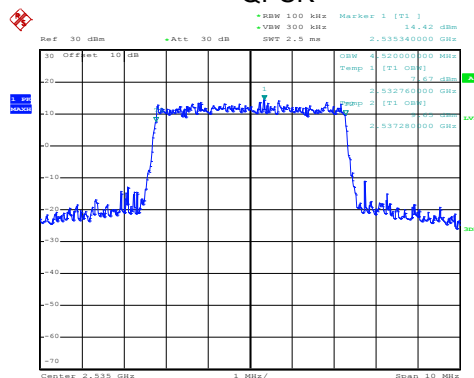
Lowest channel

16QAM



Date: 3.JUN.2020 17:22:10

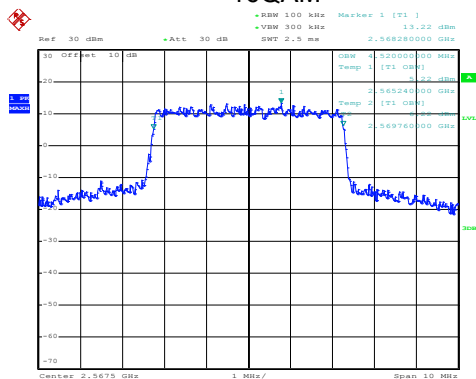
QPSK



Date: 3.JUN.2020 17:22:04

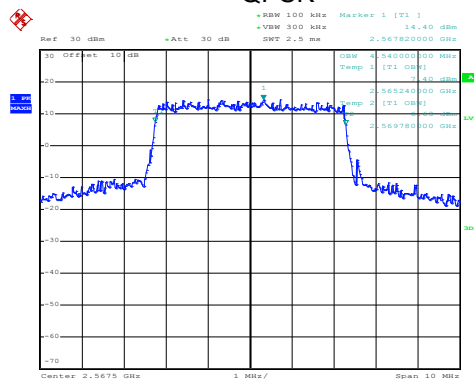
Middle channel

16QAM



Date: 3.JUN.2020 17:22:59

QPSK

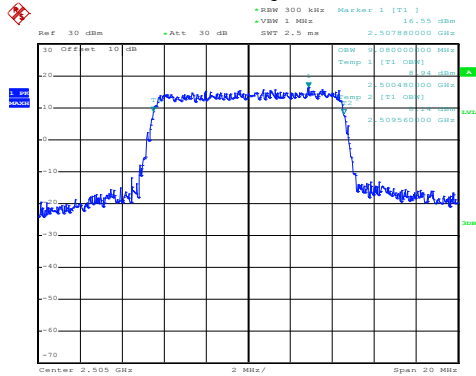


Date: 3.JUN.2020 17:22:53

Highest channel

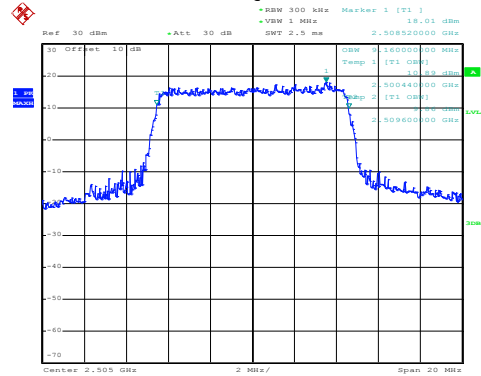
LTE Band 7: 99% Occupancy bandwidth
BW: 10MHz

16QAM



Date: 3.JUN.2020 17:19:41

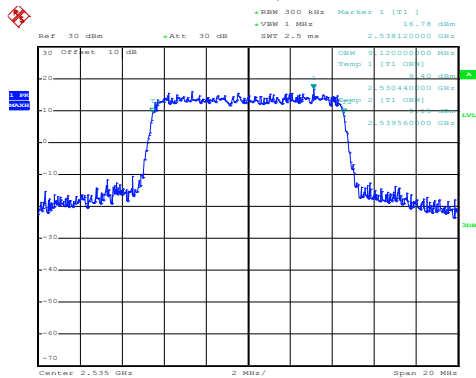
QPSK



Date: 3.JUN.2020 17:19:36

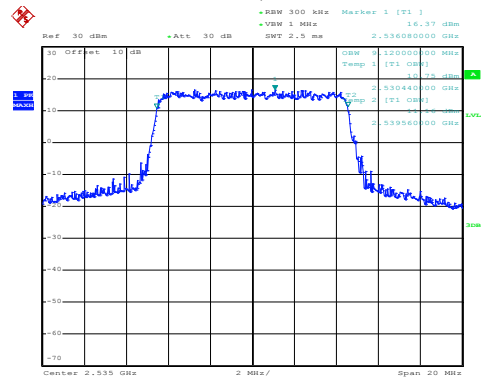
Lowest channel

16QAM



Date: 3.JUN.2020 17:20:27

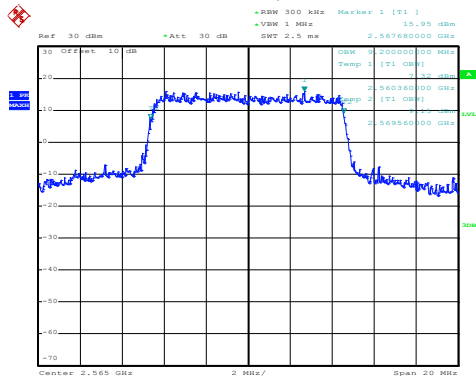
QPSK



Date: 3.JUN.2020 17:20:21

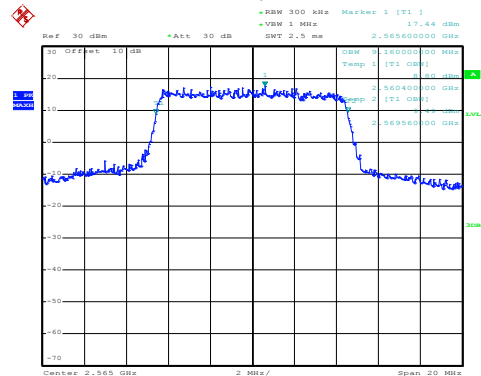
Middle channel

16QAM



Date: 3.JUN.2020 17:20:42

QPSK

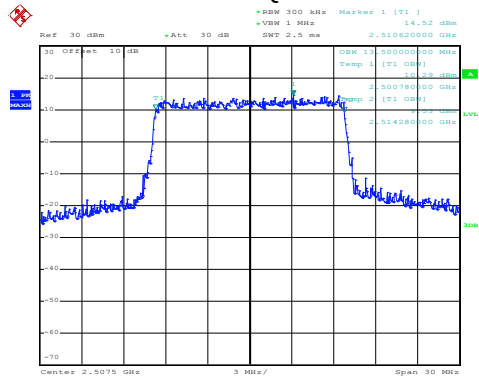


Date: 3.JUN.2020 17:20:37

Highest channel

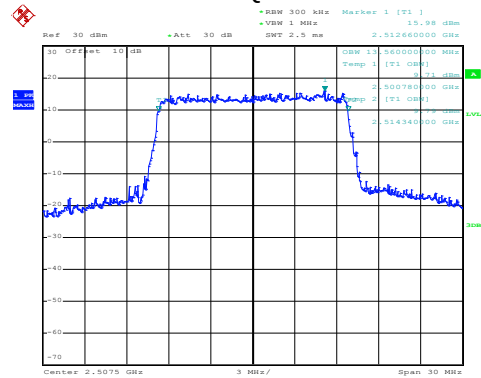
LTE Band 7: 99% Occupancy bandwidth
BW: 15MHz

16QAM



Date: 3.JUN.2020 17:17:51

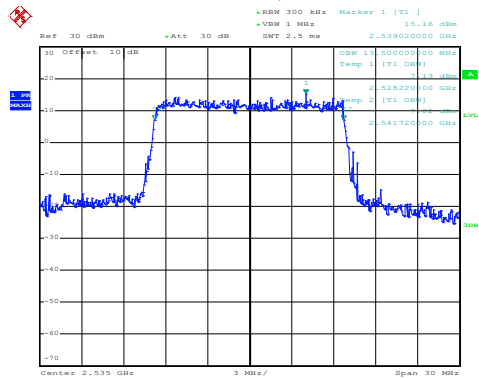
QPSK



Date: 3.JUN.2020 17:17:45

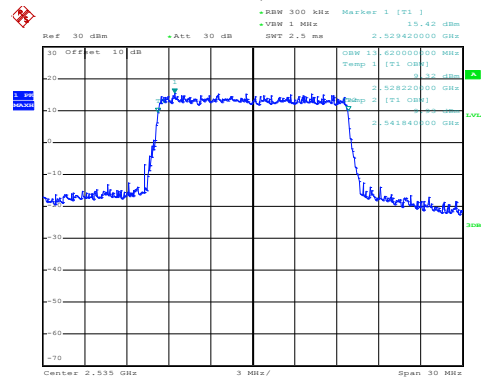
Lowest channel

16QAM



Date: 3.JUN.2020 17:18:26

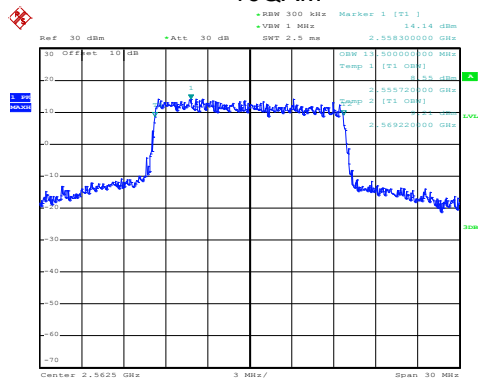
QPSK



Date: 3.JUN.2020 17:18:21

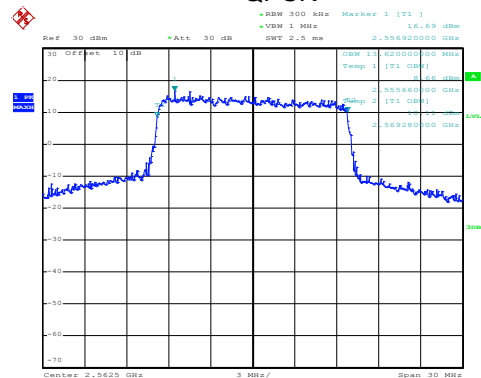
Middle channel

16QAM



Date: 3.JUN.2020 17:19:09

QPSK



Date: 3.JUN.2020 17:19:05

Highest channel

16QAM



QPSK



Lowest channel

16QAM



QPSK



Middle channel

16QAM



QPSK



Highest channel

16QAM



QPSK



Lowest channel

16QAM



QPSK



Middle channel

16QAM

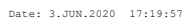


QPSK



Highest channel

16QAM



Date: 3.JUN.2020 17:19:51

16QAM



Date: 3.JUN.2020 17:20:08

16QAM

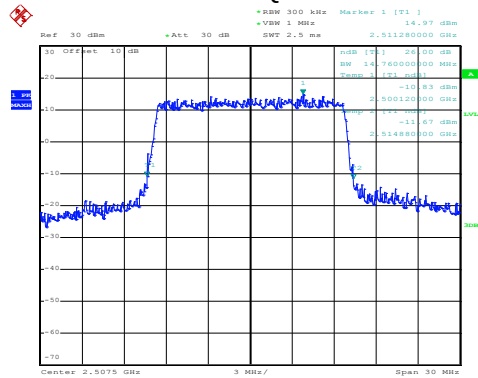


Date: 3.JUN.2020 17:20:51

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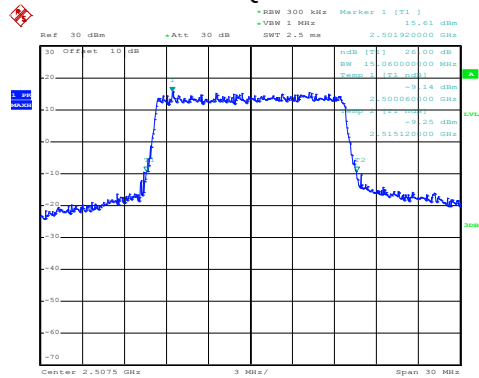
LTE Band 7: -26dBc bandwidth
BW: 15MHz

16QAM



Date: 3.JUN.2020 17:17:37

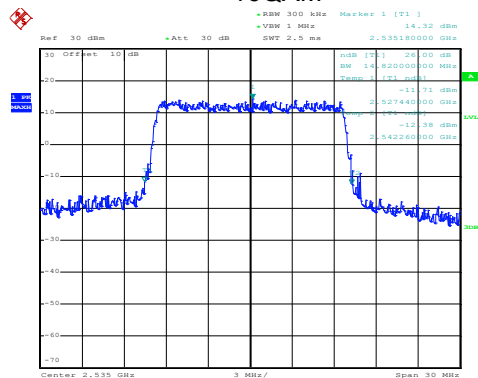
QPSK



Date: 3.JUN.2020 17:17:31

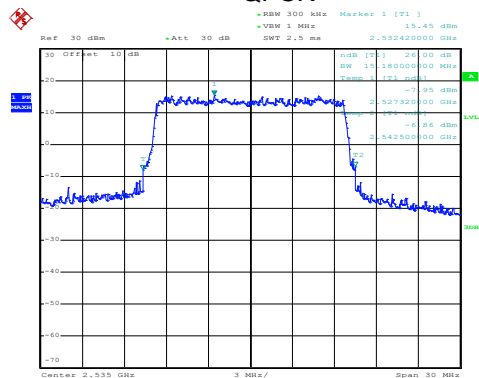
Lowest channel

16QAM



Date: 3.JUN.2020 17:18:39

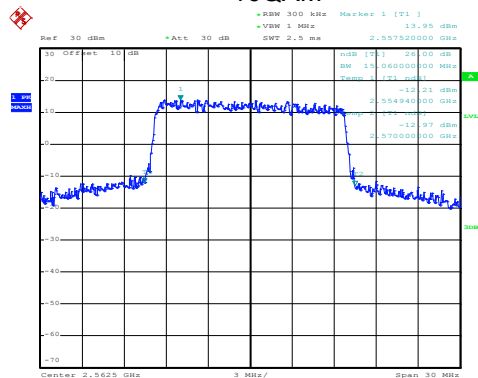
QPSK



Date: 3.JUN.2020 17:18:34

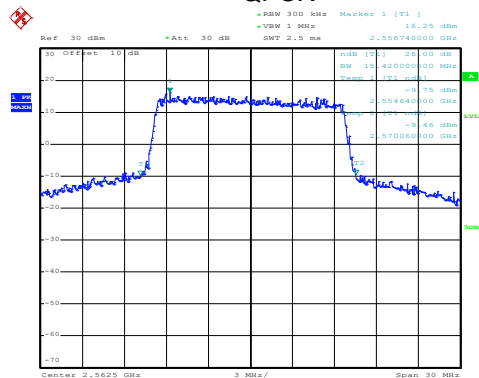
Middle channel

16QAM



Date: 3.JUN.2020 17:18:57

QPSK

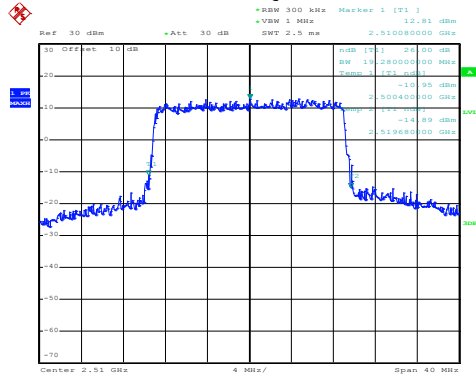


Date: 3.JUN.2020 17:18:52

Highest channel

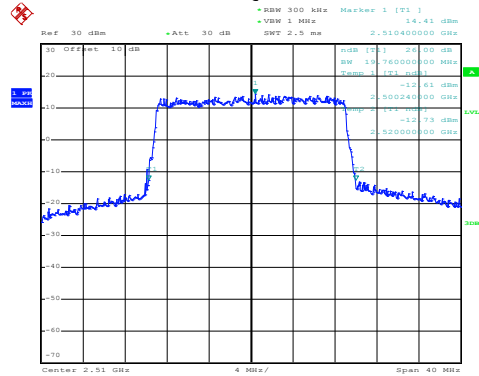
LTE Band 7: -26dBc bandwidth
BW: 20MHz

16QAM



Date: 3.JUN.2020 17:15:59

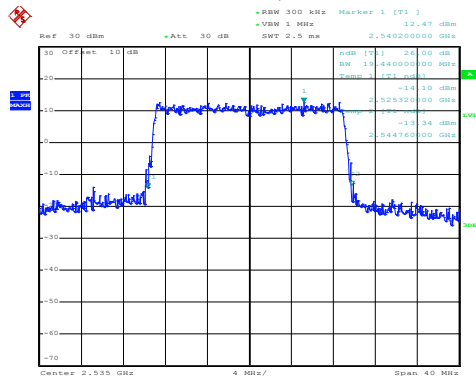
QPSK



Date: 3.JUN.2020 17:15:53

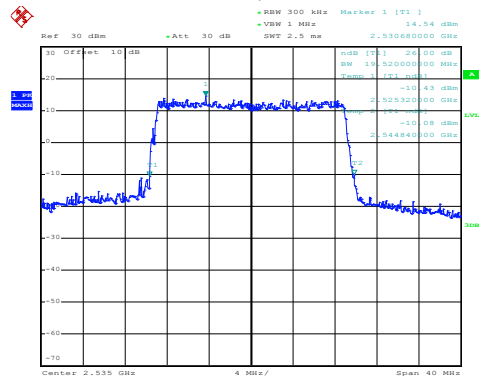
Lowest channel

16QAM



Date: 3.JUN.2020 17:16:17

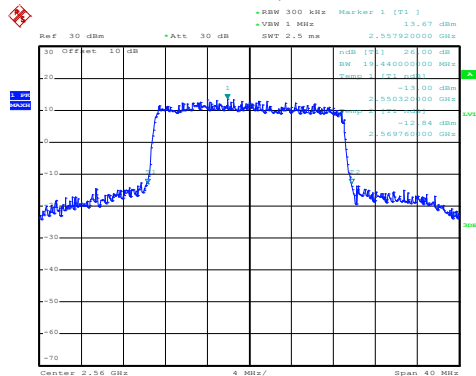
QPSK



Date: 3.JUN.2020 17:16:12

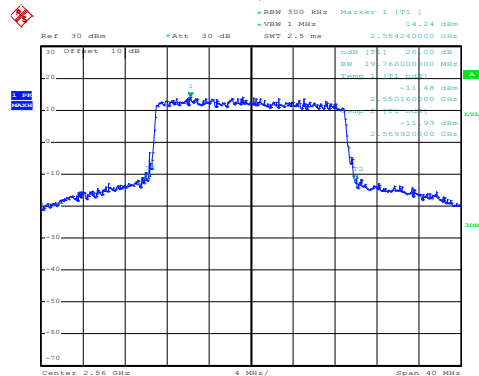
Middle channel

16QAM



Date: 3.JUN.2020 17:17:05

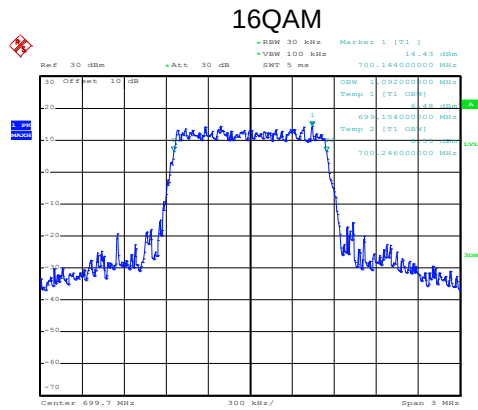
QPSK



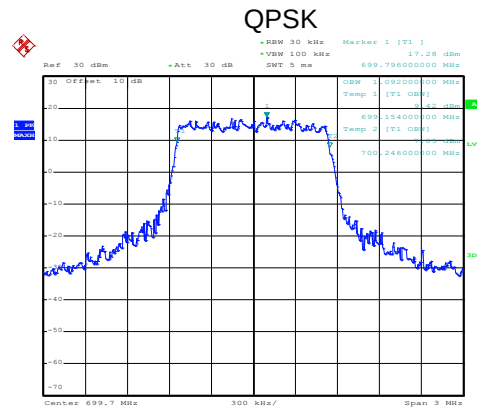
Date: 3.JUN.2020 17:17:00

Highest channel

LTE Band 12 part:

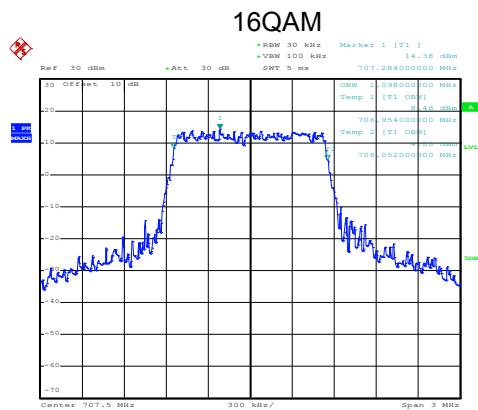
LTE Band 12: 99% Occupancy bandwidth
BW: 1.4MHz

Date: 3.JUN.2020 17:23:47

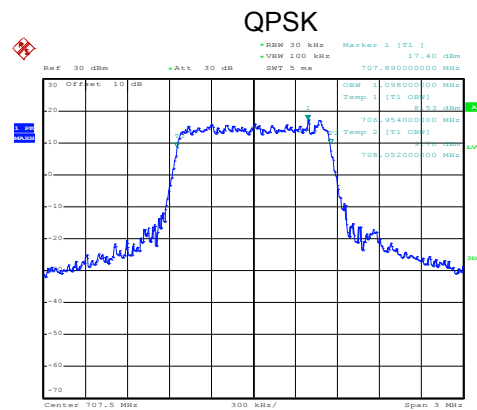


Date: 3.JUN.2020 17:23:41

Lowest channel

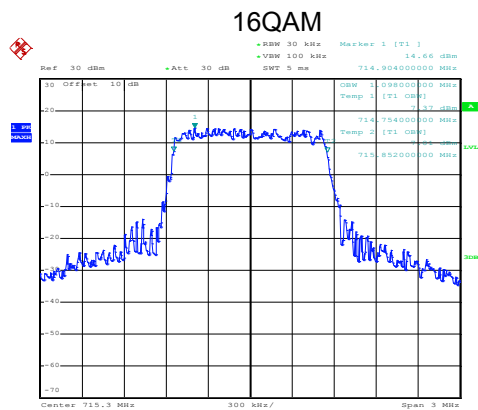


Date: 3.JUN.2020 17:24:27

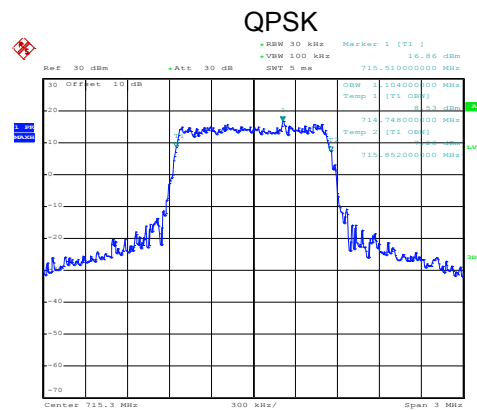


Date: 3.JUN.2020 17:24:21

Middle channel



Date: 3.JUN.2020 17:24:45



Date: 3.JUN.2020 17:24:39

Highest channel

16QAM



Date: 3.JUN.2020 17:25:44

16QAM



Date: 3.JUN.2020 17:26:02

16QAM

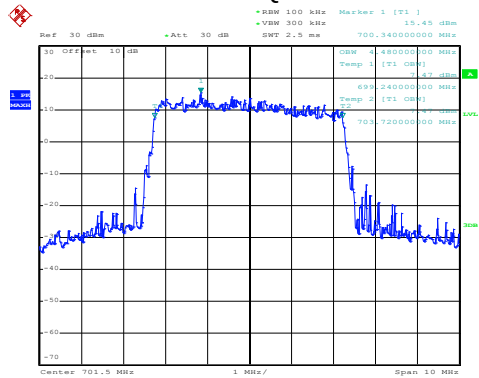


Date: 3.JUN.2020 17:26:50

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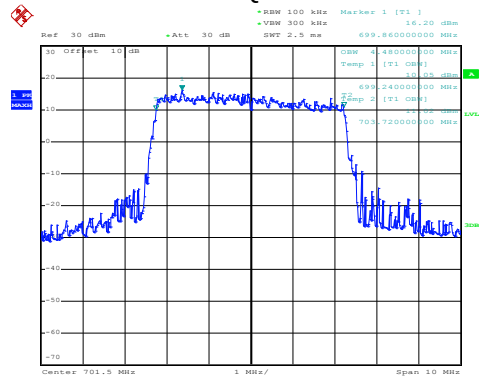
LTE Band 12: 99% Occupancy bandwidth
BW: 5MHz

16QAM



Date: 3.JUN.2020 17:27:26

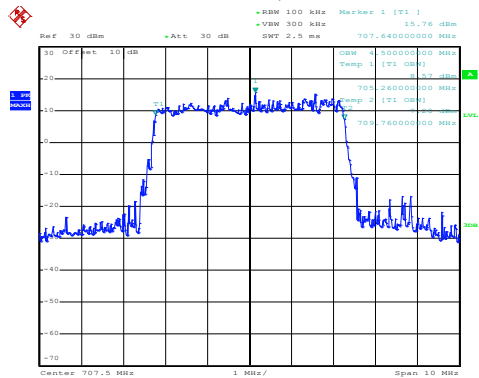
QPSK



Date: 3.JUN.2020 17:27:20

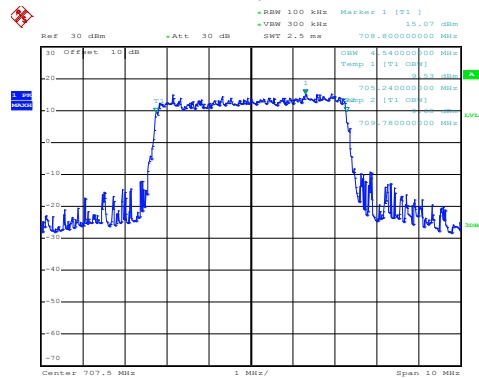
Lowest channel

16QAM



Date: 3.JUN.2020 17:28:10

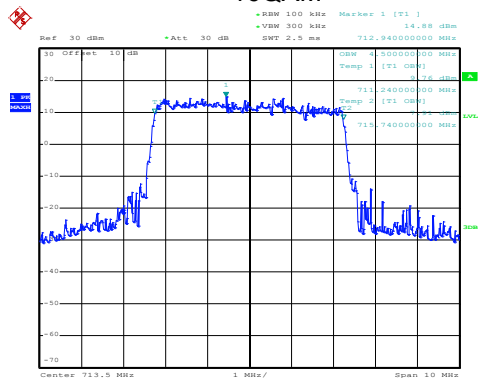
QPSK



Date: 3.JUN.2020 17:28:05

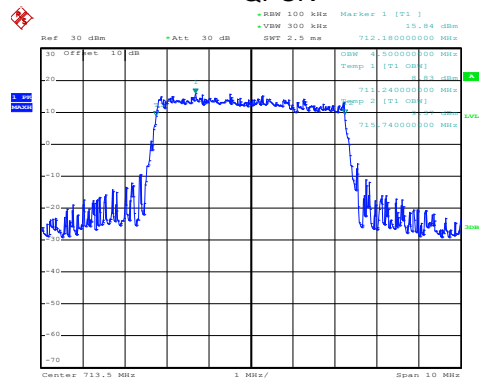
Middle channel

16QAM



Date: 3.JUN.2020 17:28:26

QPSK

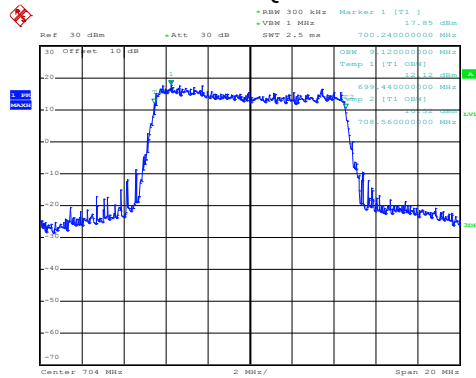


Date: 3.JUN.2020 17:28:20

Highest channel

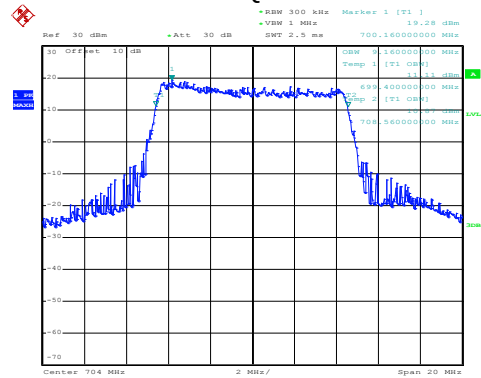
LTE Band 12: 99% Occupancy bandwidth
BW: 10MHz

16QAM



Date: 3.JUN.2020 17:29:25

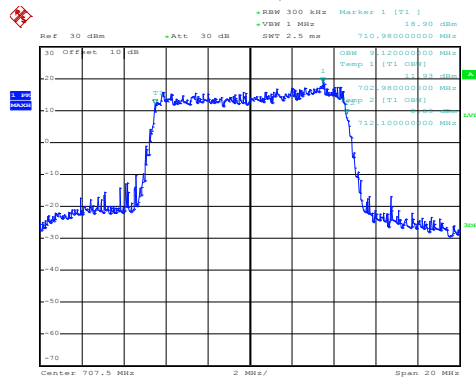
QPSK



Date: 3.JUN.2020 17:29:20

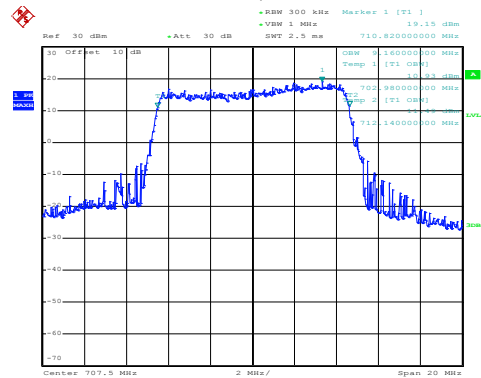
Lowest channel

16QAM



Date: 3.JUN.2020 17:29:43

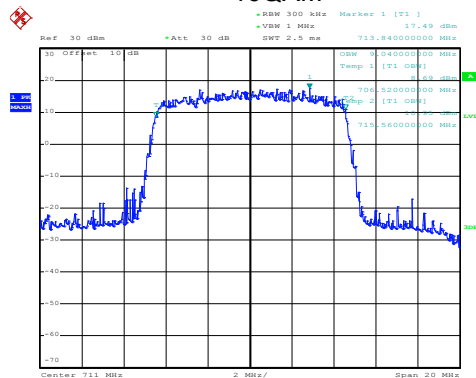
QPSK



Date: 3.JUN.2020 17:29:39

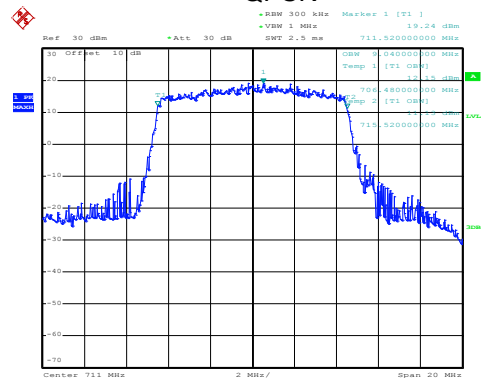
Middle channel

16QAM



Date: 3.JUN.2020 17:30:21

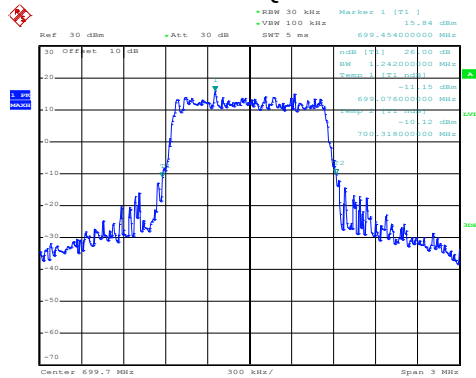
QPSK



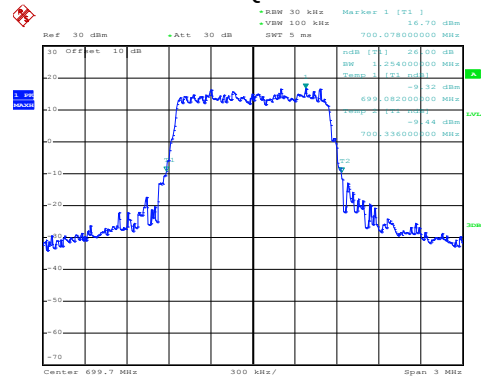
Date: 3.JUN.2020 17:30:17

Highest channel

QPSK

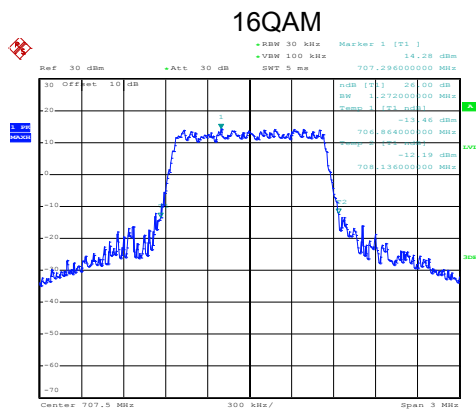


Date: 3.JUN.2020 17:23:59

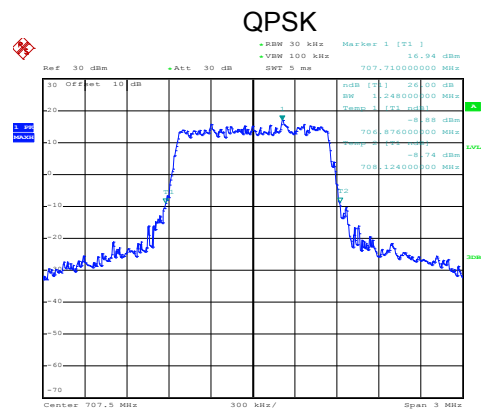


Date: 3.JUN.2020 17:23:55

Lowest channel

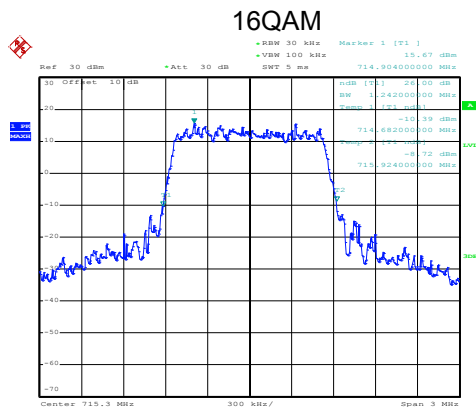


Date: 3.JUN.2020 17:24:13

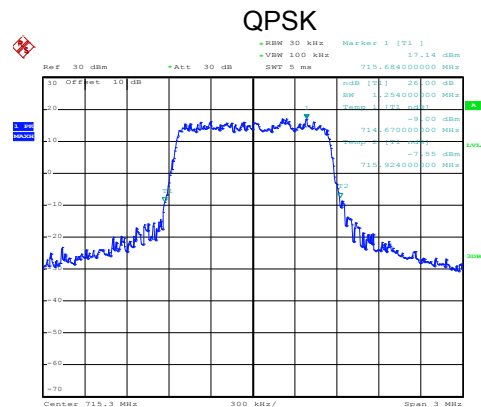


Date: 3.JUN.2020 17:24:08

Middle channel



Date: 3.JUN.2020 17:25:00

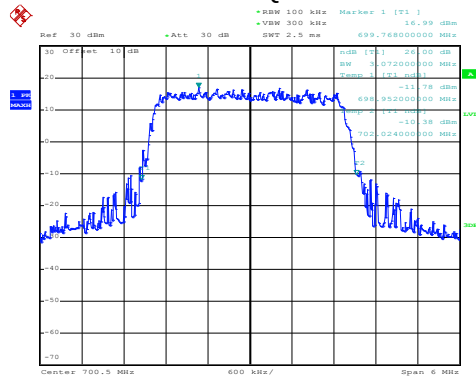


Date: 3.JUN.2020 17:24:54

Highest channel

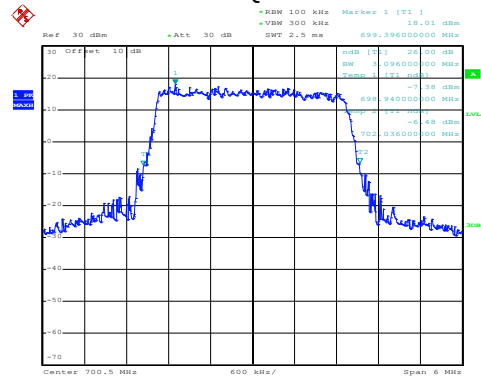
LTE Band 12: -26dBc bandwidth
BW: 3MHz

16QAM



Date: 3.JUN.2020 17:25:35

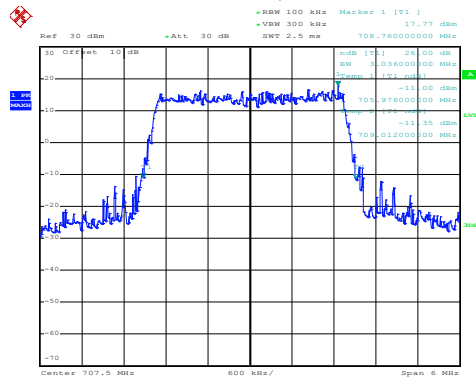
QPSK



Date: 3.JUN.2020 17:25:27

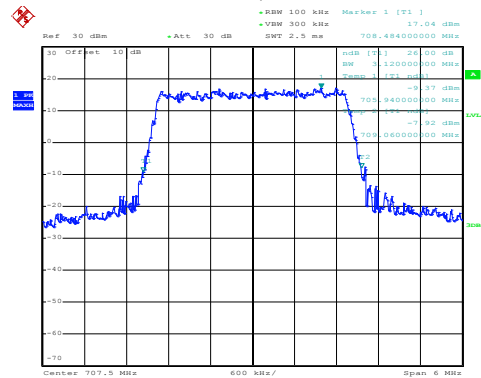
Lowest channel

16QAM



Date: 3.JUN.2020 17:26:22

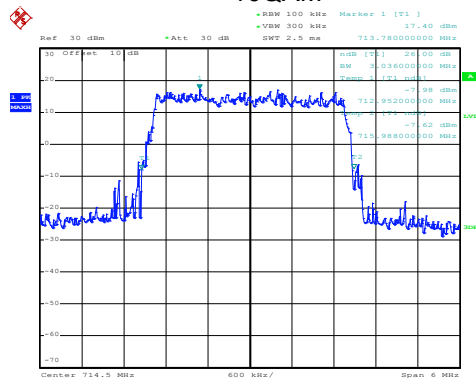
QPSK



Date: 3.JUN.2020 17:26:16

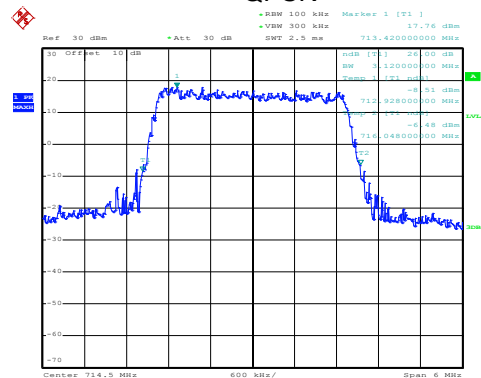
Middle channel

16QAM



Date: 3.JUN.2020 17:26:42

QPSK

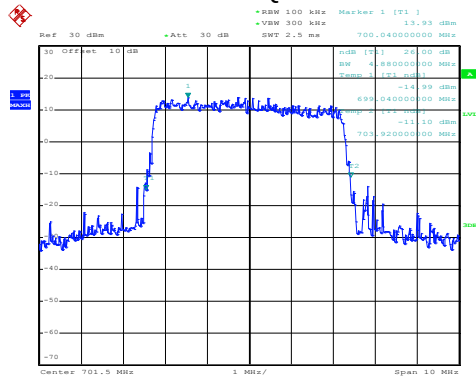


Date: 3.JUN.2020 17:26:36

Highest channel

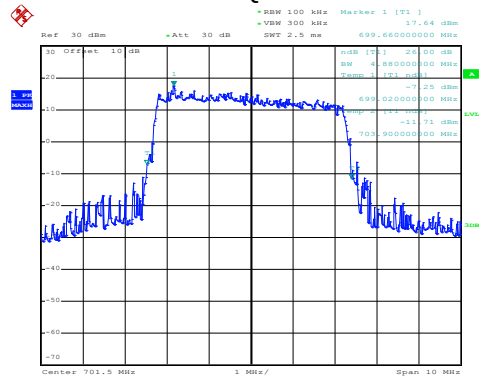
LTE Band 12: -26dBc bandwidth
BW: 5MHz

16QAM



Date: 3.JUN.2020 17:27:41

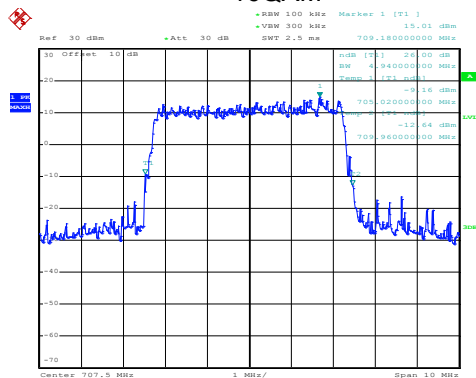
QPSK



Date: 3.JUN.2020 17:27:35

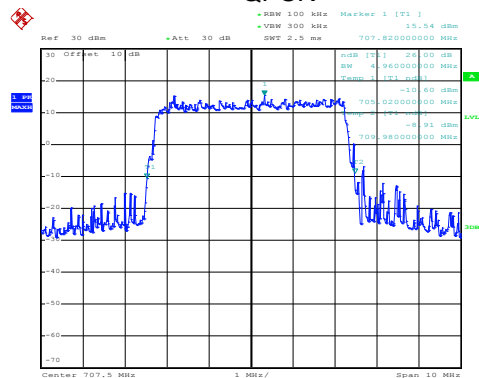
Lowest channel

16QAM



Date: 3.JUN.2020 17:27:57

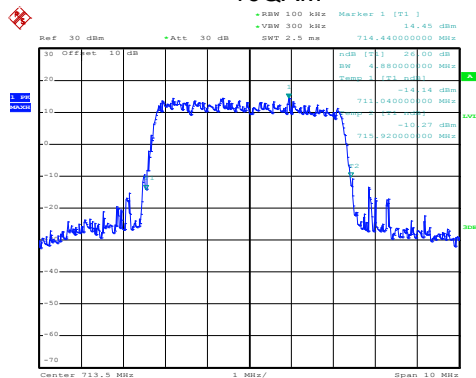
QPSK



Date: 3.JUN.2020 17:27:50

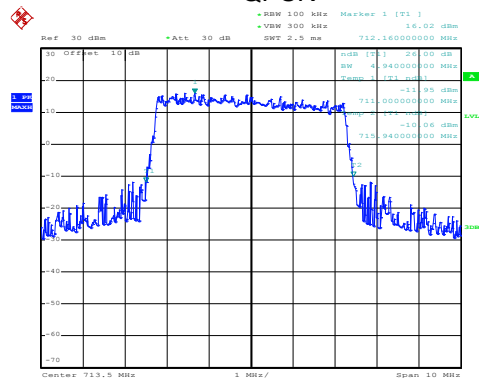
Middle channel

16QAM



Date: 3.JUN.2020 17:28:40

QPSK

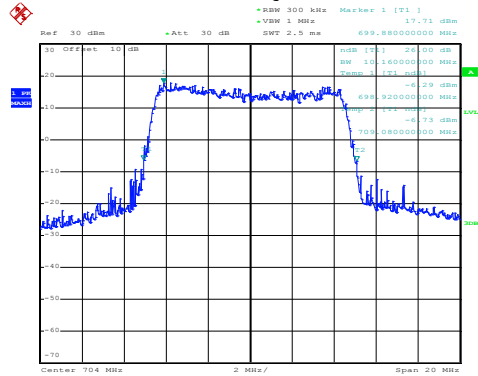


Date: 3.JUN.2020 17:28:35

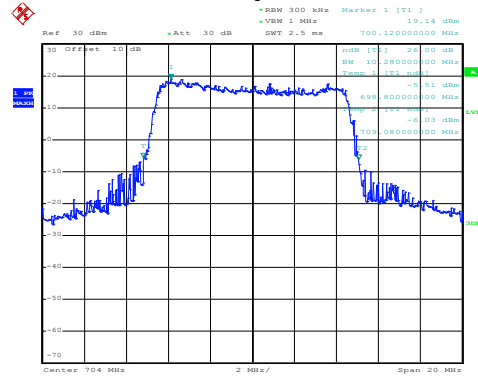
Highest channel

LTE Band 12: -26dBc bandwidth
BW: 10MHz

16QAM

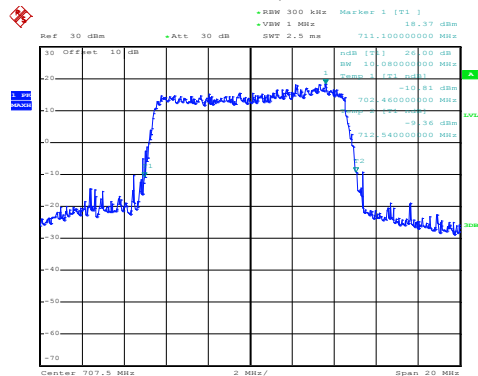


QPSK

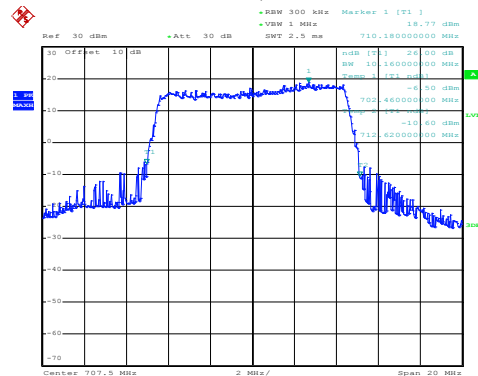


Lowest channel

16QAM

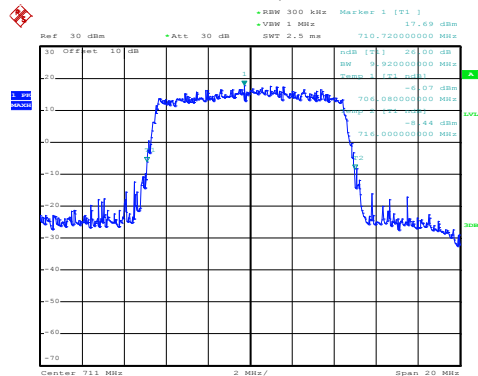


QPSK

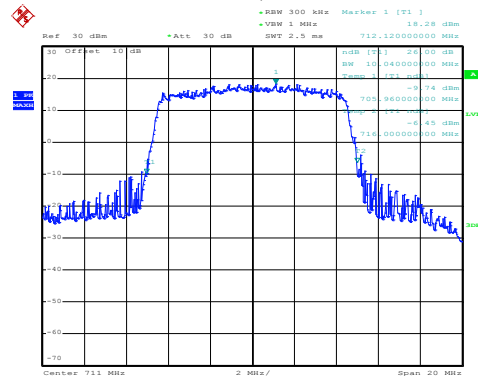


Middle channel

16QAM

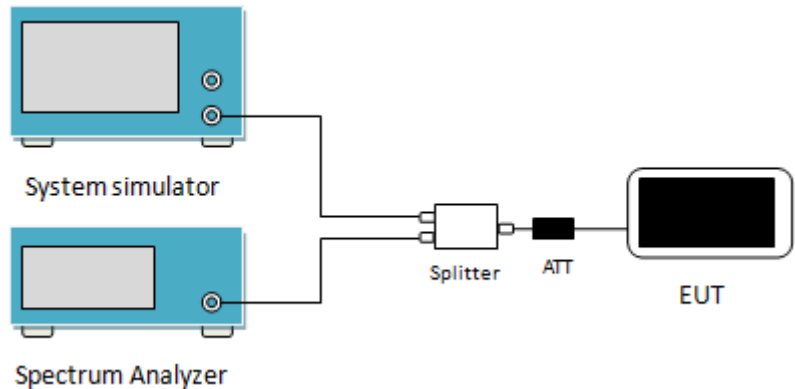


QPSK



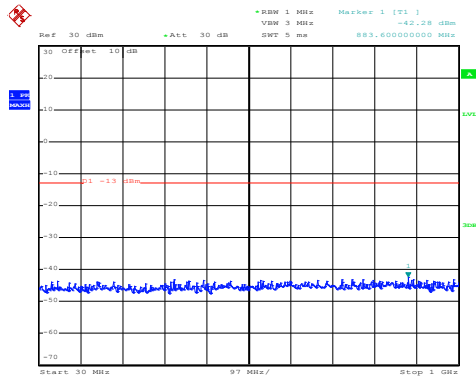
Highest channel

6.4 Out of band emission at antenna terminals

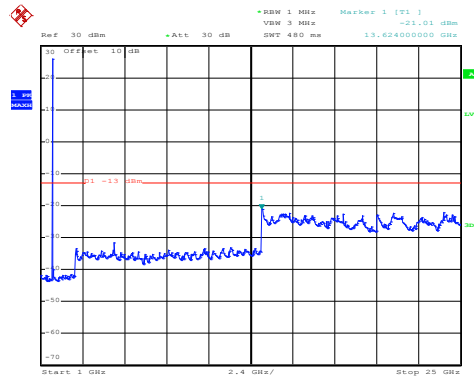
Test Requirement:	Part 22.917(a), part 27.53(g), part 27.53(h), Part 27.53(m)
Limit:	LTE Band 4 & 5 & 12: The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB (-13 dBm). LTE Band 7: For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz.
Test Setup:	 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 single output port. These two ports are connected to a central 'Splitter' unit, which is a white rectangle with two input ports and one output port. The output of the Splitter is connected to a black rectangular unit labeled 'ATT' (Attenuator). Finally, the output of the ATT is connected to a black rectangular unit labeled 'EUT' (Equipment Under Test).
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 For the out of band: For Band 5 & 12 & 17 set the RBW=100 kHz, VBW=300 kHz and for Band 2 & 4 & 7 set the RBW=1 MHz, VBW=3 MHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic. 3 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	Pre-scan all RB Size and offset, and found the RB Size and offset of worst case, so the report shows only the worst case test data.

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

LTE Band 4: 16 QAM & RB Size 1
BW: 1.4MHz
Lowest channel

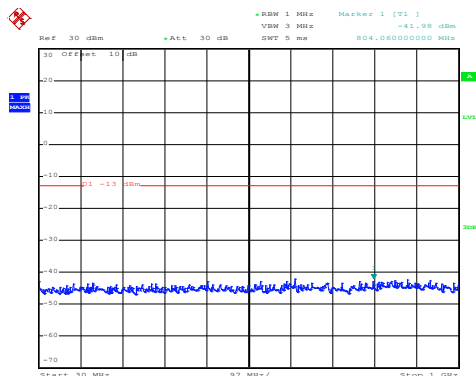


30MHz~1GHz

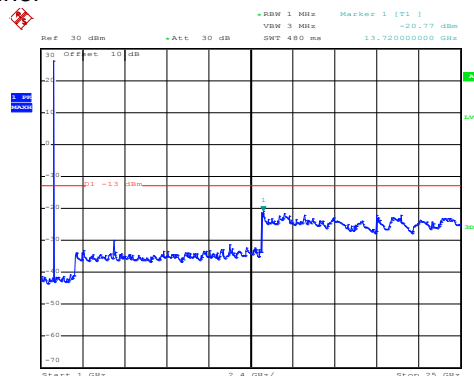


1GHz~25GHz

Middle channel

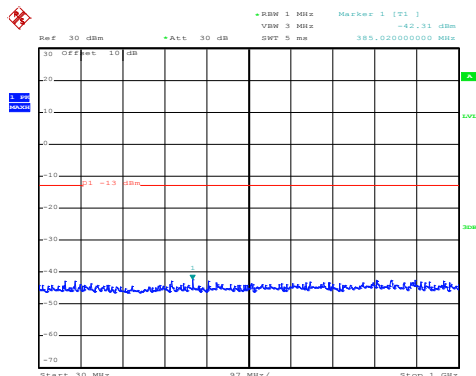


30MHz~1GHz

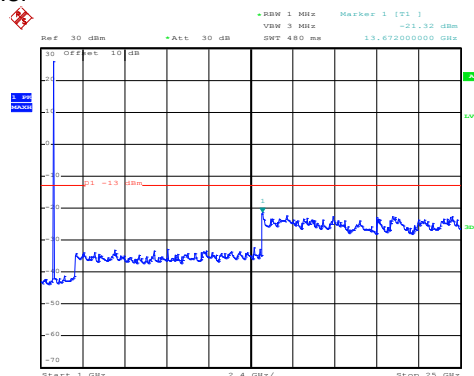


1GHz~25GHz

High channel

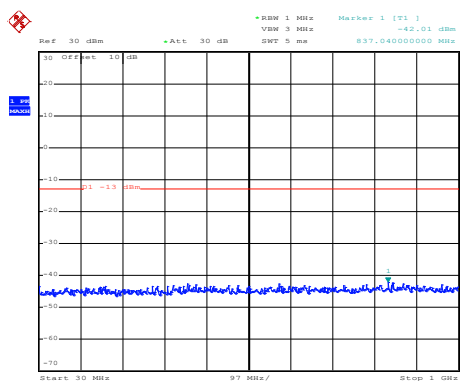


30MHz~1GHz



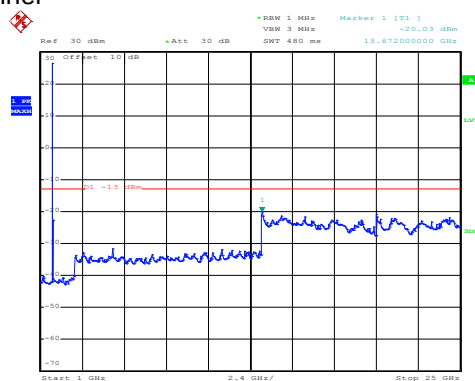
1GHz~25GHz

LTE Band 4: QPSK & RB Size 1

BW: 1.4MHz
Lowest channel

Date: 3.JUN.2020 15:06:50

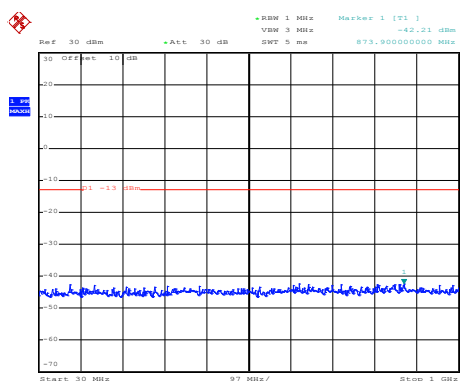
30MHz~1GHz



Date: 3.JUN.2020 15:04:48

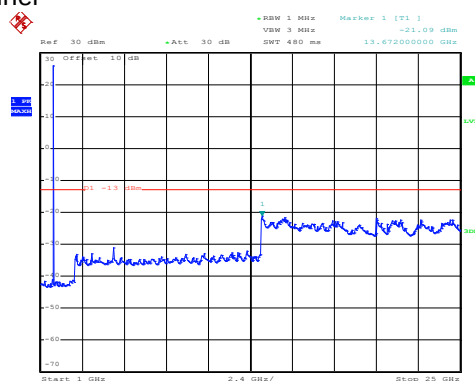
1GHz~25GHz

Middle channel



Date: 3.JUN.2020 15:06:30

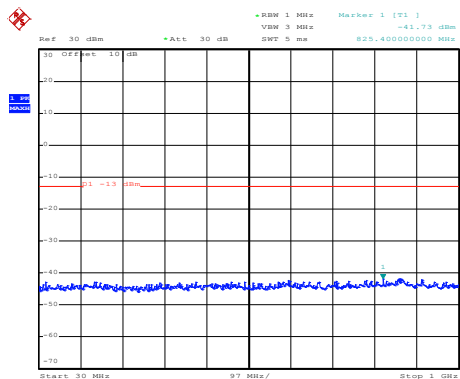
30MHz~1GHz



Date: 3.JUN.2020 15:05:12

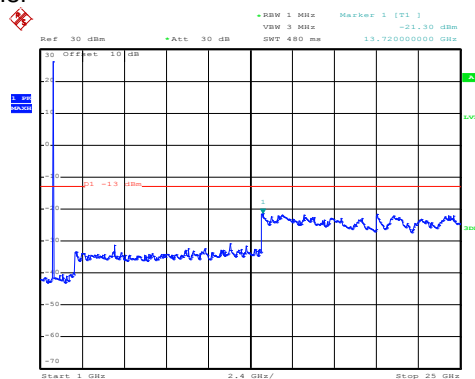
1GHz~25GHz

High channel



Date: 3.JUN.2020 15:06:14

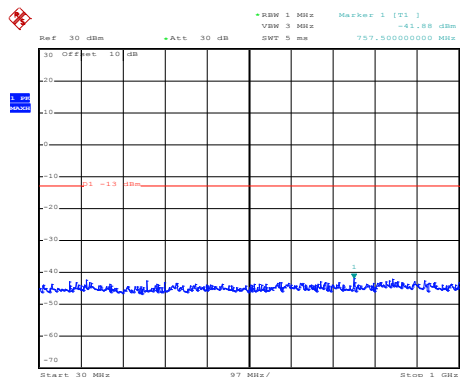
30MHz~1GHz



Date: 3.JUN.2020 15:05:51

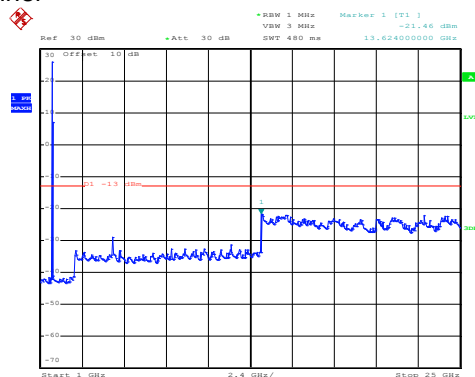
1GHz~25GHz

LTE Band 4: 16 QAM & RB Size 1
BW: 20MHz
Lowest channel



Date: 3.JUN.2020 14:55:22

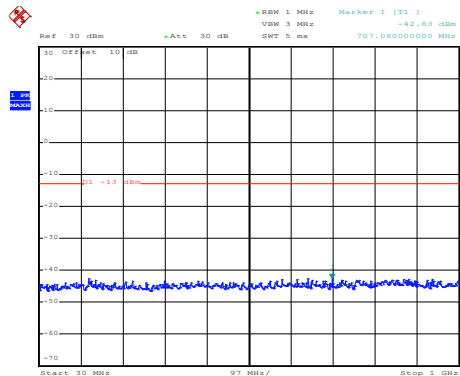
30MHz~1GHz



Date: 3.JUN.2020 14:57:09

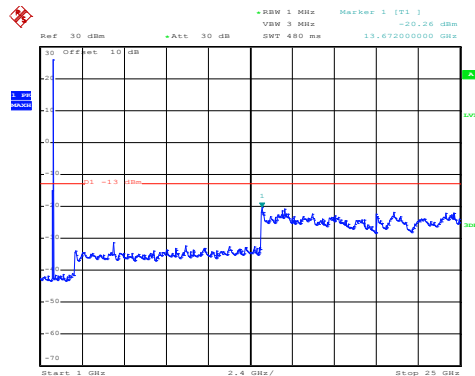
1GHz~25GHz

Middle channel



Date: 3.JUN.2020 14:55:40

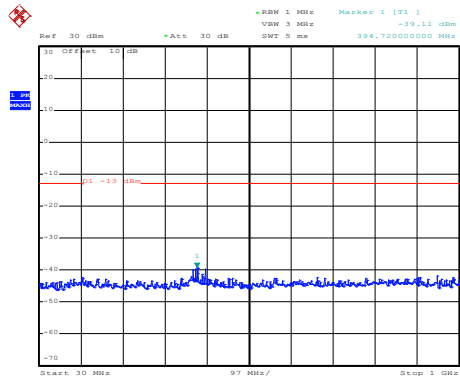
30MHz~1GHz



Date: 3.JUN.2020 14:56:42

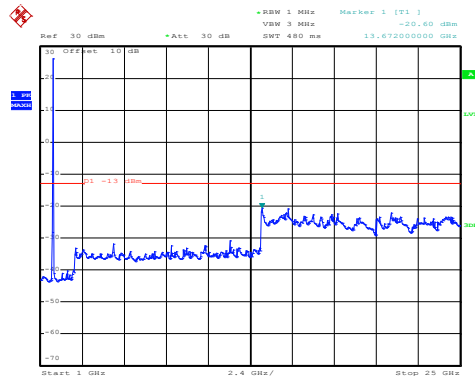
1GHz~25GHz

High channel



Date: 3.JUN.2020 14:55:58

30MHz~1GHz



Date: 3.JUN.2020 14:56:23

1GHz~25GHz