

FCC REPORT

(LTE)

Applicant: Melandy Group Corp.

Address of Applicant: 5971 SW 45 Street Miami Florida 33155 USA

Equipment Under Test (EUT)

Product Name: 4G Feature Phone

Model No.: B10

Trade mark: ALPHA MOBILITY

FCC ID: 2AUIAB10

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 H
FCC CFR Title 47 Part 27 Subpart E

Date of sample receipt: 05 Sep., 2019

Date of Test: 06 Sep., to 26 Sep., 2019

Date of report issued: 27 Sep., 2019

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	27 Sep., 2019	Original
01	14 Oct., 2019	Update page 1, page 5

Tested by:

Carey Chen

Test Engineer

Date:

27 Sep., 2019

Reviewed by:

Winner Zhang

Project Engineer

Date:

27 Sep., 2019

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4. Test Summary

Test Items	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Passed (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 27.50 (c)(10) Part 27.50 (d)(4) Part 27.50 (b)(10)	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(c)	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(c)	Pass
Field strength of spurious radiation	Part 22.917(a) Part 27.53 (g) Part 27.53 (h) Part 27.53(c)(f)	Pass
Frequency stability vs. temperature	Part 22.355 Part 27.54 Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 22.355 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 (provided by the customer).		
Test Method:	ANSI/TIA-603-E-2016 ANSI C63.26-2015	

5. General Information

5.1 Client Information

Applicant:	Melandy Group Corp.
Address:	5971 SW 45 Street Miami Florida 33155 USA
Manufacturer:	Shenzhen Tianruixiang Communication Equipment Co., Ltd
Address:	Rm810, Block E, Taojindi Building, Tenglong Road, Longhua District, Shenzhen, China
Factory:	GUIZHOU HANRAY ELECTRONICS CO., LTD.
Address:	West No.9 Road, Industrial Park Xixiu District Anshun, Guizhou 56100, China

5.2 General Description of E.U.T.

Product Name:	4G Feature Phone
Model No.:	B10
Operation Frequency range:	LTE Band 4: TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 5: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 12: TX: 699MHz-716MHz, RX: 729MHz-746MHz LTE Band 13: 777MHz-787MHz, RX: 746MHz-756MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	LTE Band 4: 1.1 dBi LTE Band 5: 1.0 dBi LTE Band 12: 0.8 dBi LTE Band 13: 0.85 dBi
Power supply:	Rechargeable Li-ion Battery DC3.7V-1400mAh
AC adapter:	Model: B10 Input: AC100-240V, 50/60Hz, 0.15A Output: 5.0V, 0.5A
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 12 (1.4MHz)		LTE Band 12 (3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
23017	699.70	23025	700.50
23756	699.80	23026	700.60
....			
23094	707.40	23094	707.40
23095	707.50	23095	707.50
23096	707.60	23096	707.60
...	...	...	...
23172	715.20	23164	714.40
23173	715.30	23165	714.50
LTE Band 12 (5MHz)		LTE Band 12 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
23035	701.50	23060	704.00
23036	701.60	23061	704.10
....			
23094	707.40	23094	707.40
23095	707.50	23095	707.50
23096	707.60	23096	707.60
...	...	...	...
23154	713.40	23129	710.90
23155	713.50	23130	711.00

LTE Band 13 (5MHz)		LTE Band 13 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
23205	779.50	/	/
23206	779.60	/	/
....		/	/
23229	781.90	/	/
23230	782.00	23230	782.00
23231	782.10	/	/
...	...	/	/
23255	784.50	/	/
23256	784.60	/	/

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

LTE Band 13(5MHz)			LTE Band 13(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	23205	779.5	Lowest channel	/	/
Middle channel	23230	782.0	Middle channel	23230	782.00
Highest channel	23255	784.5	Highest channel	/	/

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 4.20Vdc
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

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. ● CNAS - Registration No.: CNAS L6048 Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048. ● A2LA - Registration No.: 4346.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.9 Laboratory Location

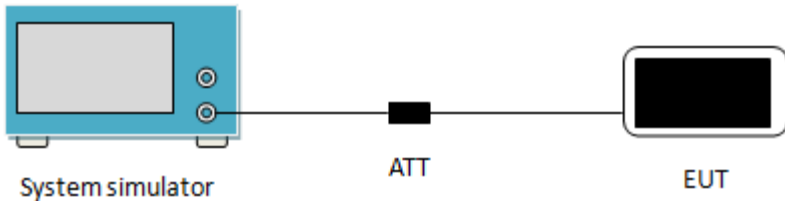
Shenzhen Zhongjian Nanfang Testing Co., Ltd. Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info@ccis-cb.com, Website: http://www.ccis-cb.com
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5.10 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	11-21-2018	11-20-2019
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	10-29-2018	10-28-2019
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	MWRFTTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTTEST	MTS8200	Version: 2.0.0.0		
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-18-2019	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	10-31-2018	10-30-2019
Temperature	HengPu	HPGDS-500	20140828008	09-24-2018	09-23-2019
Humidity Chamber				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)(2), part 27.50(c)(10), Part 27.50(d)(4), Part 27.50 (b)(10)
Limit:	LTE Band 4: 1W, LTE Band 5: 7W, LTE Band 12: 3W, LTE Band 13: 3W
Test Setup:	 The diagram illustrates the test setup. On the left is a blue rectangular box labeled 'System simulator'. A line connects its right side to a small black rectangle labeled 'ATT' (attenuator). Another line connects the right side of the 'ATT' 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	23.02	23.38	23.16	
			1	2	23.08	23.35	23.30	
			1	5	23.00	23.19	23.26	
			3	0	22.22	22.38	22.26	
			3	1	22.17	22.43	22.39	
			3	2	22.03	22.30	22.21	
			6	0	22.06	22.45	22.35	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				24.48		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	22.09	22.70	22.38	
			1	2	22.24	22.76	22.40	
			1	5	22.10	22.22	22.68	
			3	0	21.11	21.39	21.52	
			3	1	21.07	21.51	21.41	
			3	2	21.33	21.79	21.53	
			6	0	21.12	21.33	21.02	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				23.86		
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	22.80	23.09	23.07	
			1	7	22.75	23.11	23.09	
			1	14	22.83	23.00	23.05	
			8	0	22.10	22.16	22.28	
			8	4	22.05	22.11	22.20	
			8	7	21.95	22.20	22.11	
			15	0	22.08	22.20	22.13	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				24.21		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	22.04	22.02	22.28	
			1	7	22.29	22.24	22.91	
			1	14	22.26	22.37	22.75	
			8	0	21.10	21.22	21.00	
			8	4	21.15	21.10	21.03	
			8	7	21.02	21.17	21.04	
			15	0	21.24	21.10	21.30	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				24.01		
EIRP Limit (dBm):				30.00				
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi).								

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

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					19975	20175	20375	
					1712.5MHz	1732.5MHz	1752.5MHz	
4	5	QPSK	1	0	22.91	23.05	22.77	
			1	12	22.95	23.09	23.03	
			1	24	22.76	23.05	22.91	
			12	0	21.97	22.11	22.07	
			12	6	21.82	22.09	22.17	
			12	11	21.71	22.14	22.10	
			25	0	21.81	21.97	21.11	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				24.19		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	22.08	22.30	22.19	
			1	12	22.36	22.34	22.01	
			1	24	22.14	22.17	22.18	
			12	0	21.17	21.23	21.09	
			12	6	21.58	21.05	21.30	
			12	11	21.03	21.15	21.15	
			25	0	20.96	21.01	21.38	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				23.46		
		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	22.68	22.86	22.93	
			1	24	22.74	22.91	22.95	
			1	49	22.60	22.74	22.85	
			25	0	21.65	21.96	22.01	
			25	12	21.86	21.91	21.93	
			25	24	21.82	21.97	22.05	
			50	0	21.90	21.92	22.00	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				24.05		
		EIRP Limit (dBm):				30.00		
		16QAM	1	0	22.02	22.04	22.33	
			1	24	22.05	22.01	22.41	
			1	49	22.20	22.21	22.02	
			25	0	20.77	21.07	21.18	
			25	12	21.01	20.90	20.90	
			25	24	20.95	20.81	21.12	
			50	0	20.89	20.86	20.82	
		Antenna Gain (dBi):				1.1		
		Max. EIRP (dBm):				23.51		
		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	22.65	22.77	22.87
			1	37	22.72	22.82	22.79
			1	74	22.74	22.67	22.77
			36	0	21.84	22.01	21.83
			36	16	21.87	21.90	21.90
			36	35	21.91	21.91	21.84
			75	0	21.75	21.98	21.94
		Antenna Gain (dBi):			1.1		
		Max. EIRP (dBm):			23.97		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	22.15	22.27	22.21
			1	37	22.14	22.37	22.65
			1	74	22.45	22.20	22.18
			36	0	21.04	20.92	21.06
			36	16	21.03	20.80	20.96
			36	35	21.00	20.93	20.79
			75	0	20.95	20.81	20.95
		Antenna Gain (dBi):			1.1		
Max. EIRP (dBm):			23.75				
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	22.87	23.17	22.97
			1	49	23.07	23.11	23.27
			1	99	22.88	22.85	22.90
			50	0	22.04	22.24	22.21
			50	24	22.03	22.07	22.25
			50	49	22.08	22.22	22.04
			100	0	22.12	22.26	22.20
		Antenna Gain (dBi):			1.1		
		Max. EIRP (dBm):			24.37		
		EIRP Limit (dBm):			30.00		
		16QAM	1	0	22.20	22.06	22.22
			1	49	22.29	22.13	22.43
			1	99	22.05	22.10	22.20
			50	0	20.85	20.78	20.77
			50	24	20.88	20.76	20.89
			50	49	20.89	20.93	20.76
			100	0	20.83	20.80	20.91
		Antenna Gain (dBi):			1.1		
Max. EIRP (dBm):			23.53				
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	22.73	22.57	22.64
			1	2	22.70	22.72	22.46
			1	5	22.68	22.55	22.37
			3	0	21.81	21.77	21.85
			3	1	21.89	21.89	21.63
			3	2	21.78	21.79	21.73
			6	0	21.78	21.86	21.64
		Antenna Gain(dBi):			1.0		
		Max. ERP (dBm):			21.74		
		ERP Limit (dBm):			38.45		
		16QAM	1	0	21.67	21.56	21.71
			1	2	21.97	21.89	21.89
			1	5	21.71	21.85	21.45
			3	0	20.80	20.87	20.74
			3	1	20.84	20.90	20.61
			3	2	20.89	20.84	20.66
			6	0	20.75	20.62	20.61
		Antenna Gain(dBi):			1.0		
		Max. ERP (dBm):			20.82		
		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	22.65	22.59	22.62
			1	7	22.77	22.71	22.80
			1	14	22.72	22.51	22.37
			8	0	21.73	21.72	21.82
			8	4	21.75	21.84	21.87
			8	7	21.76	21.82	21.57
			15	0	21.68	21.77	21.71
		Antenna Gain(dBi):			1.0		
		Max. ERP (dBm):			21.65		
		ERP Limit (dBm):			38.45		
		16QAM	1	0	21.68	21.31	21.71
			1	7	21.43	21.66	21.79
			1	14	21.63	21.77	21.51
			8	0	20.69	20.83	20.76
			8	4	20.62	20.45	20.85
			8	7	20.73	20.44	20.54
			15	0	20.70	20.70	20.98
		Antenna Gain(dBi):			1.0		
		Max. ERP (dBm):			20.64		
		ERP Limit (dBm):			38.45		
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). ERP (dBm) = EIRP (dBm) - 2.15 (dB).							

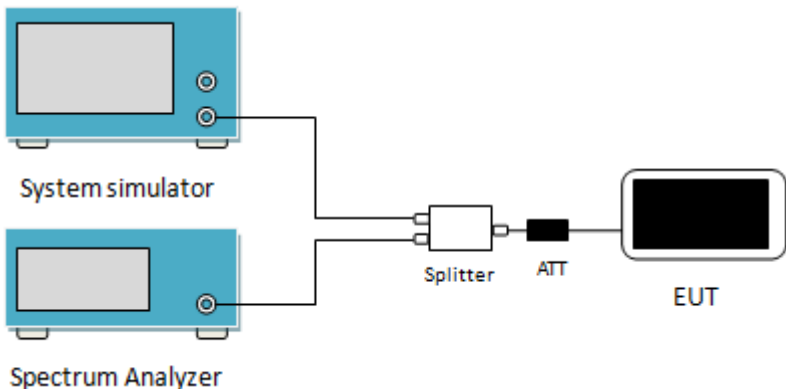
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					20425	20525	20625	
					826.5MHz	836.5MHz	846.5MHz	
5	5	QPSK	1	0	22.61	22.68	22.54	
			1	12	22.79	22.80	22.90	
			1	24	22.81	22.69	22.51	
			12	0	21.73	21.72	21.72	
			12	6	21.77	21.84	21.80	
			12	11	21.76	21.73	21.69	
			25	0	21.76	21.80	21.79	
		Antenna Gain(dBi):				1.0		
		Max. ERP (dBm):				21.75		
		ERP Limit (dBm):				38.45		
		16QAM	1	0	21.78	21.84	21.51	
			1	12	21.95	21.94	21.79	
			1	24	21.64	21.78	21.66	
			12	0	20.94	20.91	20.71	
			12	6	21.04	20.82	21.04	
			12	11	21.03	20.75	21.09	
			25	0	20.92	20.73	21.02	
		Antenna Gain(dBi):				1.0		
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	22.59	22.52	22.54	
			1	24	22.78	22.63	22.90	
			1	49	22.48	22.51	22.48	
			25	0	21.85	21.68	21.87	
			25	12	21.67	21.96	21.56	
			25	24	21.60	21.60	21.74	
			50	0	21.65	21.78	21.49	
		Antenna Gain(dBi):				1.0		
		Max. ERP (dBm):				21.75		
		ERP Limit (dBm):				38.45		
		16QAM	1	0	21.59	21.91	21.81	
			1	24	21.64	22.04	21.71	
			1	49	21.87	21.89	21.71	
			25	0	20.88	20.86	20.69	
			25	12	20.66	20.65	20.61	
			25	24	20.58	20.52	20.96	
			50	0	20.64	20.66	20.62	
		Antenna Gain(dBi):				1.0		
Max. ERP (dBm):				20.89				
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)		
					23017	23095	23173
					699.7MHz	707.5MHz	715.3MHz
12	1.4	QPSK	1	0	22.50	22.61	22.30
			1	2	22.62	22.56	22.58
			1	5	22.49	22.67	22.28
			3	0	21.68	21.69	21.43
			3	1	21.79	21.83	21.91
			3	2	21.70	21.75	21.79
			6	0	21.58	21.71	21.67
		Antenna Gain(dBi):			0.8		
		Max. ERP (dBm):			21.32		
		ERP Limit (dBm):			34.77		
		16QAM	1	0	21.51	21.45	21.83
			1	2	21.56	21.65	21.76
			1	5	21.37	21.72	21.55
			3	0	20.58	20.78	20.67
			3	1	20.69	20.65	20.73
			3	2	20.74	20.63	20.81
			6	0	20.44	20.91	20.93
		Antenna Gain(dBi):			0.8		
		Max. ERP (dBm):			20.48		
		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	22.52	22.63	22.22
			1	7	22.70	22.62	22.31
			1	14	22.61	22.68	22.38
			8	0	21.57	21.52	21.83
			8	4	21.59	21.71	21.71
			8	7	21.71	21.72	21.61
			15	0	21.53	21.66	21.67
		Antenna Gain(dBi):			0.8		
		Max. ERP (dBm):			21.35		
		ERP Limit (dBm):			34.77		
		16QAM	1	0	21.49	21.84	21.69
			1	7	21.50	21.67	21.45
			1	14	21.55	21.47	21.84
			8	0	20.47	20.42	20.65
			8	4	20.26	20.94	20.67
			8	7	20.79	20.72	20.55
			15	0	20.65	21.09	20.80
		Antenna Gain(dBi):			0.8		
		Max. ERP (dBm):			20.49		
		ERP Limit (dBm):			34.77		
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). ERP (dBm) = EIRP (dBm) - 2.15 (dB).							

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					23035	23095	23155	
					701.5MHz	707.5MHz	713.5MHz	
12	5	QPSK	1	0	22.53	22.58	22.60	
			1	12	22.75	22.59	22.51	
			1	24	22.72	22.52	22.76	
			12	0	21.53	21.56	21.52	
			12	6	21.68	21.72	21.72	
			12	11	21.72	21.68	21.69	
			25	0	21.70	21.59	21.71	
		Antenna Gain(dBi):				0.8		
		Max. ERP (dBm):				21.41		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	21.64	21.23	21.55	
			1	12	21.77	21.76	21.95	
			1	24	21.73	21.33	21.96	
			12	0	20.67	20.51	20.86	
			12	6	20.83	20.77	20.79	
			12	11	20.94	20.98	20.78	
			25	0	20.91	21.05	20.86	
		Antenna Gain(dBi):				0.8		
		Max. ERP (dBm):				20.61		
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	22.42	22.33	22.61	
			1	24	22.58	22.52	22.65	
			1	49	22.40	22.34	22.57	
			25	0	21.72	21.66	21.70	
			25	12	21.89	21.73	21.69	
			25	24	21.59	21.83	21.78	
			50	0	21.84	21.71	21.73	
		Antenna Gain(dBi):				0.8		
		Max. ERP (dBm):				21.23		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	21.29	21.55	21.17	
			1	24	21.56	21.72	21.43	
			1	49	21.42	21.44	21.41	
			25	0	21.89	20.75	20.98	
			25	12	20.86	20.92	20.72	
			25	24	20.65	20.68	20.86	
			50	0	20.88	20.75	20.62	
		Antenna Gain(dBi):				0.8		
		Max. ERP (dBm):				20.54		
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)			
					23205	23230	23255	
					779.5MHz	782.0MHz	784.5MHz	
13	5	QPSK	1	0	22.81	22.84	22.80	
			1	12	22.97	22.97	22.91	
			1	24	22.78	22.73	22.74	
			12	0	21.98	21.86	21.68	
			12	6	21.93	21.94	21.77	
			12	11	21.83	21.70	21.93	
			25	0	21.99	21.94	21.60	
		Antenna Gain(dBi):				0.85		
		Max. ERP (dBm):				21.67		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	22.26	21.93	21.90	
			1	12	22.05	21.97	21.83	
			1	24	22.37	21.95	21.89	
			12	0	21.02	21.07	20.86	
			12	6	21.06	21.03	20.87	
			12	11	21.05	21.06	20.95	
			25	0	21.07	20.93	20.89	
		Antenna Gain(dBi):				0.85		
		Max. ERP (dBm):				21.07		
		ERP Limit (dBm):				34.77		
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)			
					23230	23230	23230	
					782.0MHz	782.0MHz	782.0MHz	
13	10	QPSK	1	0	/	22.74	/	
			1	24	/	22.93	/	
			1	49	/	22.78	/	
			25	0	/	21.90	/	
			25	12	/	21.95	/	
			25	24	/	21.73	/	
			50	0	/	22.06	/	
		Antenna Gain(dBi):				0.85		
		Max. ERP (dBm):				21.63		
		ERP Limit (dBm):				34.77		
		16QAM	1	0	/	22.19	/	
			1	24	/	22.08	/	
			1	49	/	22.11	/	
			25	0	/	21.02	/	
			25	12	/	20.92	/	
			25	24	/	20.84	/	
			50	0	/	20.80	/	
		Antenna Gain(dBi):				0.85		
		Max. ERP (dBm):				20.89		
		ERP Limit (dBm):				34.77		
Note: EIRP (dBm) = Average power (dBm) + Antenna Gain (dBi). ERP (dBm) = EIRP (dBm) - 2.15 (dB).								

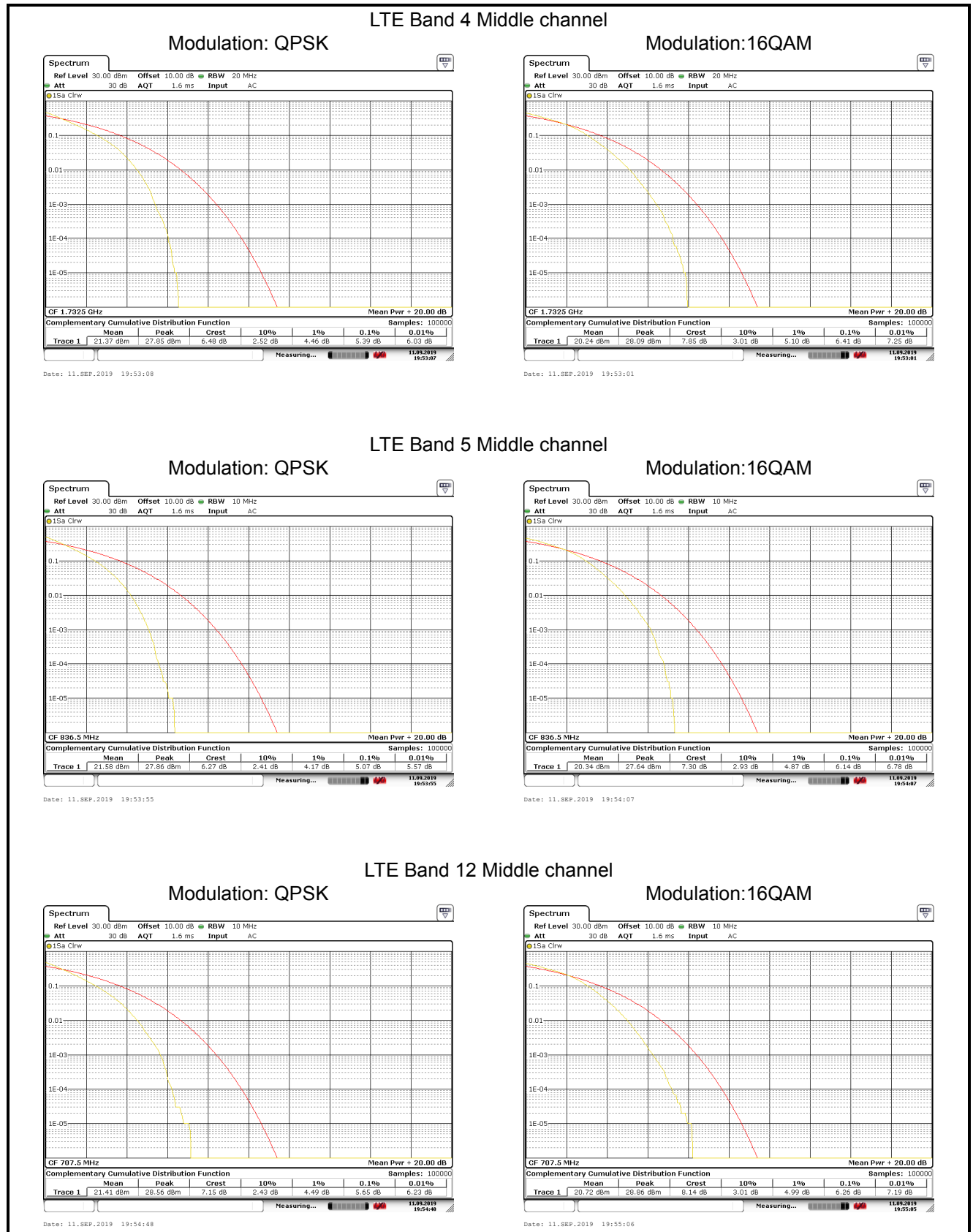
6.2 Peak-to-Average Ratio

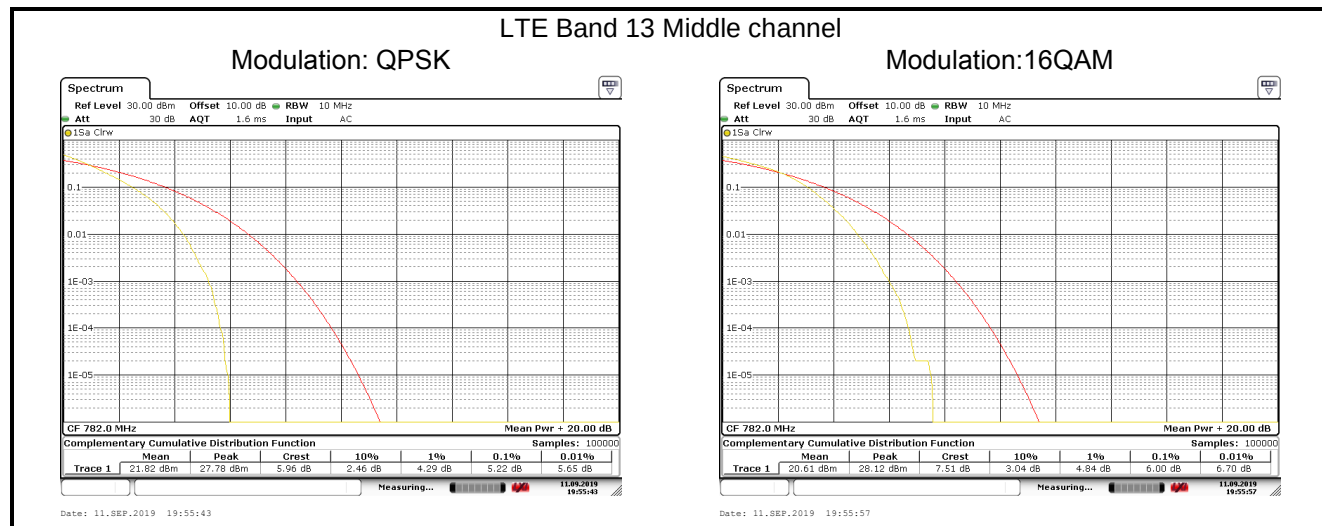
Test Requirement:	Part 27.50(d)(5)
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	 The diagram illustrates the test setup. On the left, there are two blue rectangular units: the top one is labeled 'System simulator' and the bottom one is labeled 'Spectrum Analyzer'. Both have a single output port on their right side. These two ports are connected to a single input port of a white rectangular unit labeled 'Splitter'. The 'Splitter' has two output ports on its right side. 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):

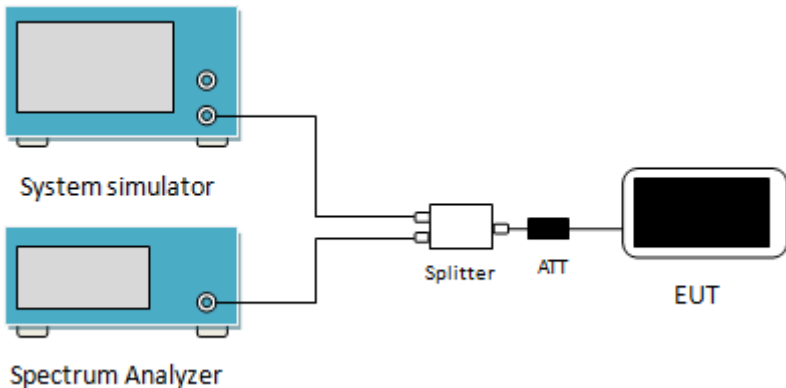
Bandwidth	Modulation	RB Size	RB Offset	PAPR
LTE Band 4 (Middle Channel)				
20MHz	QPSK	100	0	5.39
	16QAM	100	0	6.41
LTE Band 5 (Middle Channel)				
10MHz	QPSK	50	0	5.07
	16QAM	50	0	6.14
LTE Band 12 (Middle Channel)				
10MHz	QPSK	50	0	5.65
	16QAM	50	0	6.26
LTE Band 13 (Middle Channel)				
10MHz	QPSK	50	0	5.22
	16QAM	50	0	6.00

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(c)
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 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	1098.00	1278.00
			QPSK	1098.00	1242.00
	20175	1732.5	16QAM	1104.00	1296.00
			QPSK	1098.00	1248.00
	20393	1754.3	16QAM	1098.00	1254.00
			QPSK	1098.00	1254.00
3MHz	19965	1711.5	16QAM	2736.00	3048.00
			QPSK	2760.00	3144.00
	20175	1732.5	16QAM	2736.00	3096.00
			QPSK	2748.00	3120.00
	20385	1750.5	16QAM	2736.00	3096.00
			QPSK	2760.00	3132.00
5MHz	19975	1712.5	16QAM	4480.00	4820.00
			QPSK	4540.00	4980.00
	20175	1732.5	16QAM	4480.00	4900.00
			QPSK	4520.00	4940.00
	20375	1752.5	16QAM	4480.00	4940.00
			QPSK	4520.00	5000.00
10MHz	20000	1715.0	16QAM	9080.00	9920.00
			QPSK	9160.00	10280.00
	20175	1732.5	16QAM	9040.00	10120.00
			QPSK	9120.00	10360.00
	20350	1750.0	16QAM	9040.00	9960.00
			QPSK	9120.00	10400.00
15MHz	20025	1717.5	16QAM	13440.00	14400.00
			QPSK	13500.00	15000.00
	20175	1732.5	16QAM	13500.00	14580.00
			QPSK	13560.00	14760.00
	20325	1747.5	16QAM	13500.00	14820.00
			QPSK	13500.00	15000.00
20MHz	20050	1720.0	16QAM	17920.00	18960.00
			QPSK	18000.00	19680.00
	20175	1732.5	16QAM	18000.00	19040.00
			QPSK	18000.00	19600.00
	20300	1745.0	16QAM	18000.00	19360.00
			QPSK	18000.00	19360.00

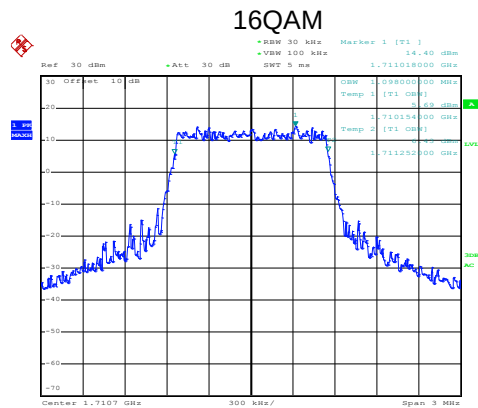
TE Band 5					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	20407	824.7	16QAM	1086.00	1230.00
			QPSK	1098.00	1260.00
	20525	836.5	16QAM	1086.00	1260.00
			QPSK	1098.00	1248.00
	20643	848.3	16QAM	1092.00	1260.00
			QPSK	1092.00	1266.00
3MHz	20415	825.5	16QAM	2724.00	3036.00
			QPSK	2760.00	3132.00
	20525	836.50	16QAM	2736.00	3084.00
			QPSK	2760.00	3108.00
	20635	847.50	16QAM	2736.00	3036.00
			QPSK	2772.00	3132.00
5MHz	20425	826.50	16QAM	4480.00	4960.00
			QPSK	4520.00	4980.00
	20525	836.50	16QAM	4480.00	4900.00
			QPSK	4500.00	4960.00
	20625	846.50	16QAM	4460.00	4920.00
			QPSK	4480.00	4880.00
10MHz	20450	829.00	16QAM	9040.00	10040.00
			QPSK	9120.00	10320.00
	20525	836.50	16QAM	9080.00	10000.00
			QPSK	9080.00	10240.00
	20600	844.00	16QAM	9040.00	10000.00
			QPSK	9120.00	10360.00

LTE Band 12					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	23017	699.7	16QAM	1092.00	1224.00
			QPSK	1098.00	1260.00
	23095	707.5	16QAM	1098.00	1242.00
			QPSK	1098.00	1260.00
	23173	715.3	16QAM	1092.00	1260.00
			QPSK	1098.00	1254.00
3MHz	23025	700.5	16QAM	2724.00	3024.00
			QPSK	2760.00	3132.00
	23095	707.5	16QAM	2724.00	2988.00
			QPSK	2748.00	3120.00
	23165	714.5	16QAM	2748.00	3000.00
			QPSK	2760.00	3120.00
5MHz	23035	701.5	16QAM	4480.00	4720.00
			QPSK	4500.00	4980.00
	23095	707.5	16QAM	4500.00	4820.00
			QPSK	4520.00	4960.00
	23155	713.5	16QAM	4460.00	4800.00
			QPSK	4520.00	5040.00
10MHz	23060	704.0	16QAM	9080.00	10080.00
			QPSK	9120.00	10520.00
	23095	707.5	16QAM	9120.00	9960.00
			QPSK	9160.00	10440.00
	23130	711.0	16QAM	9080.00	10000.00
			QPSK	9080.00	10200.00

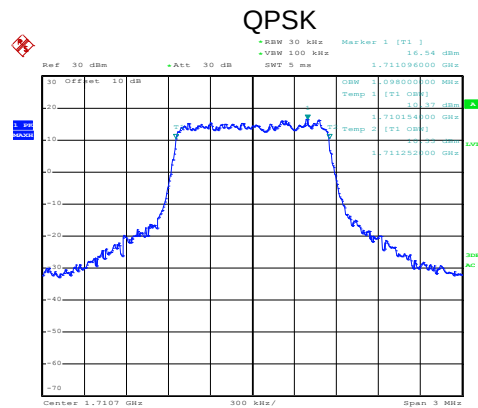
LTE Band 13					
Bandwidth	Channel	Frequency (MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
5MHz	23205	779.5	16QAM	4480.00	4860.00
			QPSK	4500.00	4940.00
	23230	782.0	16QAM	4480.00	4960.00
			QPSK	4520.00	5000.00
	23255	784.5	16QAM	4500.00	4920.00
			QPSK	4520.00	4980.00
10MHz	23230	782.0	16QAM	9040.00	10080.00
			QPSK	9120.00	10360.00

Test plot as follows:
LTE Band 4 part:

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

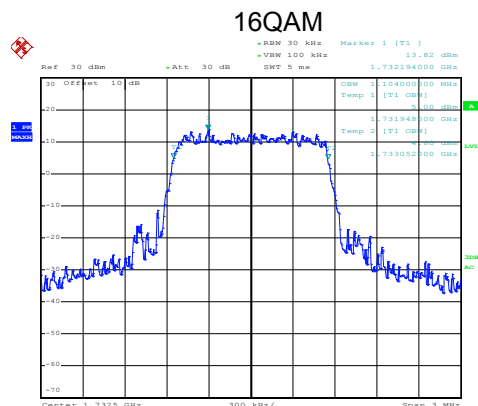


Date: 17.SEP.2019 16:55:32

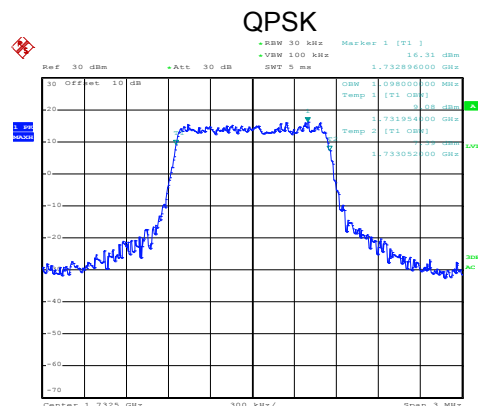


Date: 17.SEP.2019 16:55:25

Lowest channel

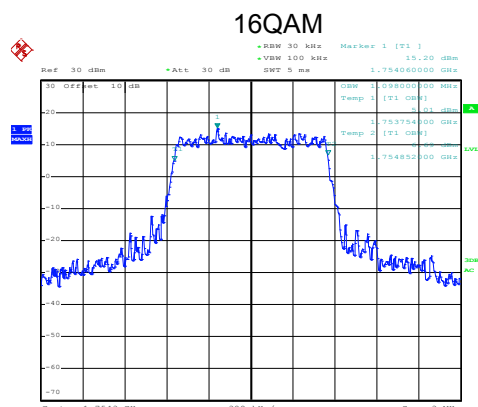


Date: 17.SEP.2019 16:56:08

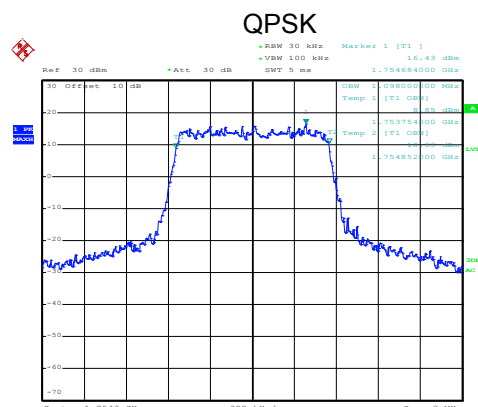


Date: 17.SEP.2019 16:56:05

Middle channel



Date: 17.SEP.2019 16:56:27

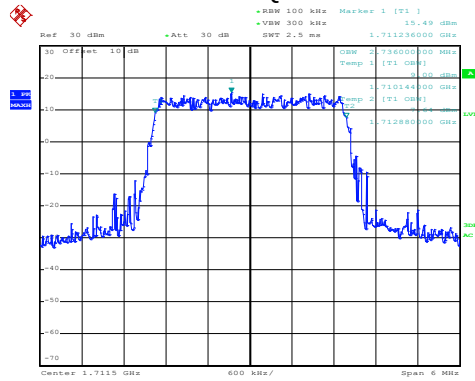


Date: 17.SEP.2019 16:56:24

Highest channel

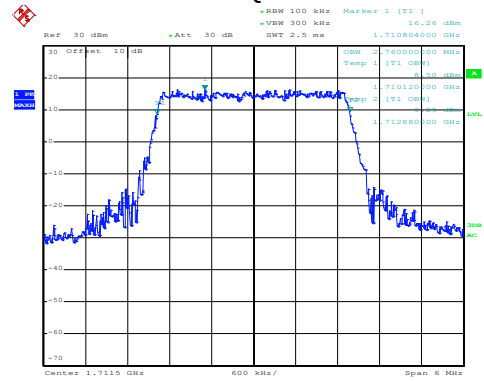
LTE Band 4: 99% Occupancy bandwidth
BW: 3MHz

16QAM



Date: 17.SEP.2019 16:58:39

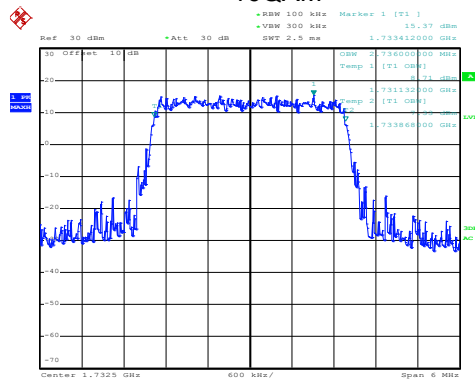
QPSK



Date: 17.SEP.2019 16:58:36

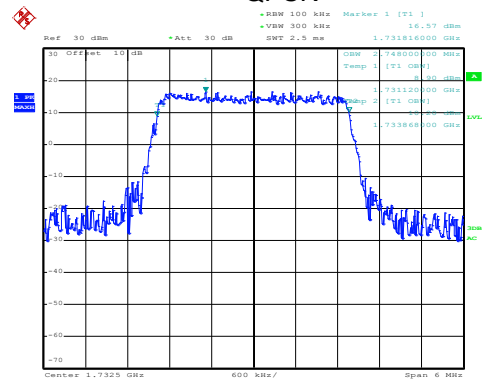
Lowest channel

16QAM



Date: 17.SEP.2019 16:58:51

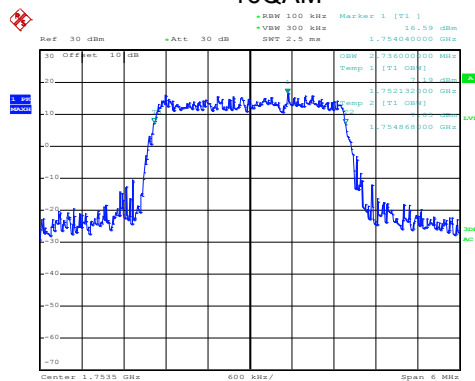
QPSK



Date: 17.SEP.2019 16:58:48

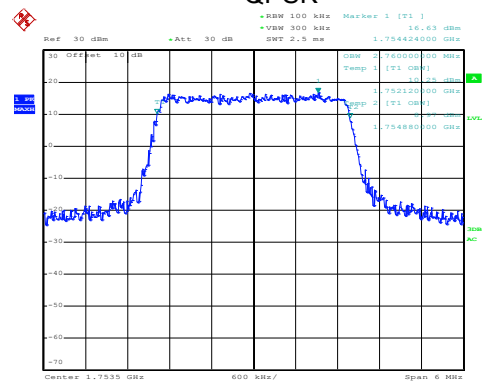
Middle channel

16QAM



Date: 17.SEP.2019 16:59:29

QPSK

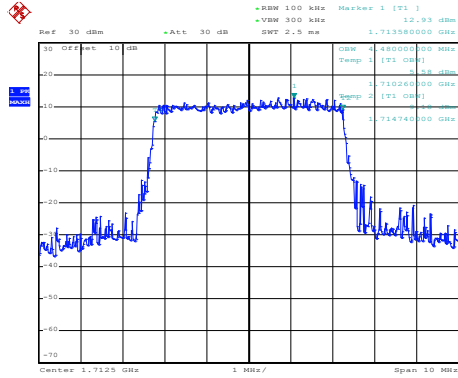


Date: 17.SEP.2019 16:59:26

Highest channel

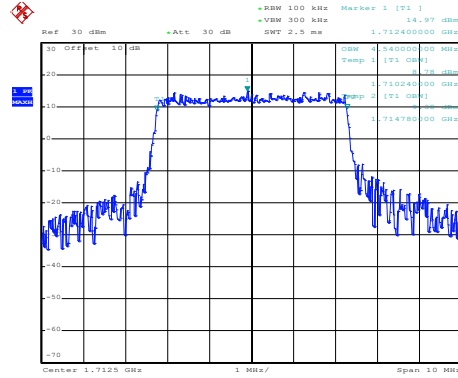
LTE Band 4: 99% Occupancy bandwidth BW: 5MHz

16QAM



Date: 17.SEP.2019 17:00:02

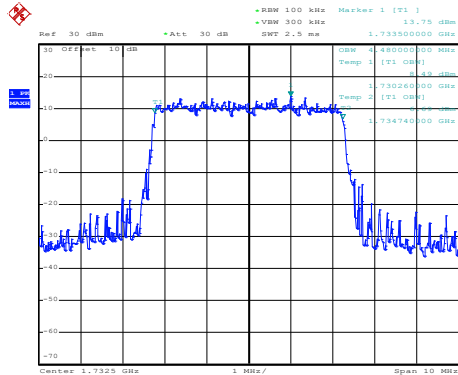
QPSK



Date: 17.SEP.2019 16:59:58

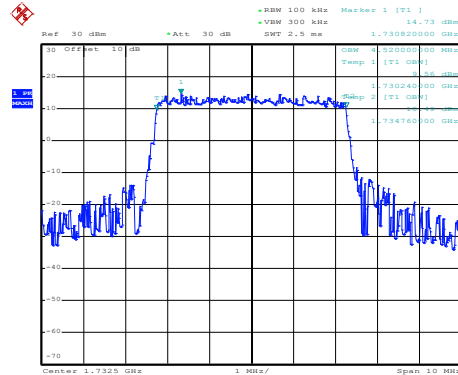
Lowest channel

16QAM



Date: 17.SEP.2019 17:00:39

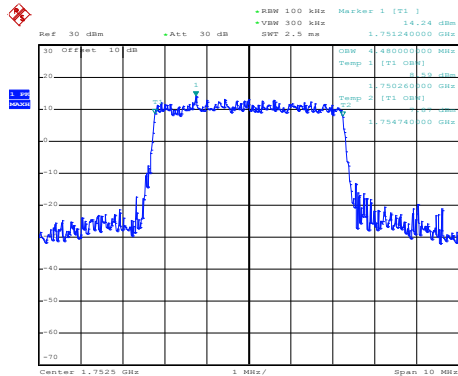
QPSK



Date: 17.SEP.2019 17:00:36

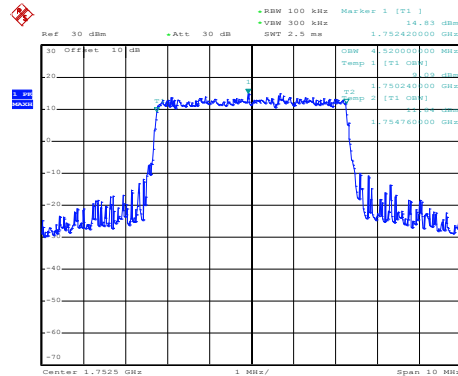
Middle channel

16QAM



Date: 17.SEP.2019 17:00:55

QPSK

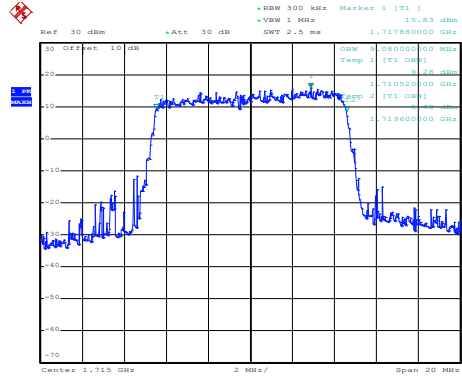


Date: 17.SEP.2019 17:00:52

Highest channel

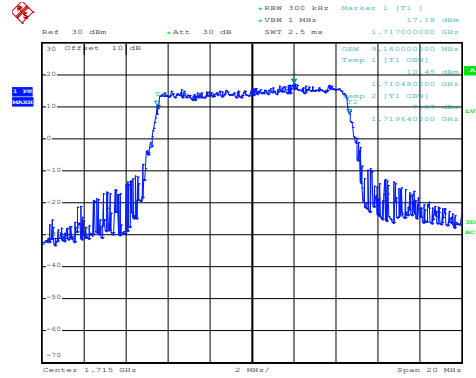
LTE Band 4: 99% Occupancy bandwidth BW: 10MHz

16QAM



Date: 17.SEP.2019 17:01:47

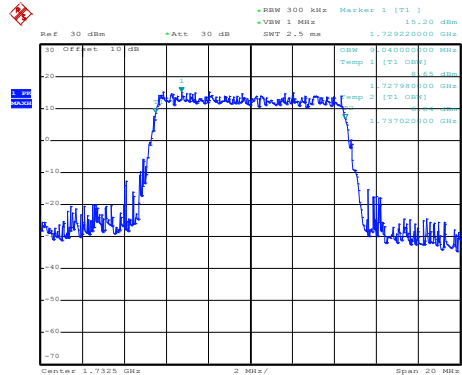
QPSK



Date: 17.SEP.2019 17:01:44

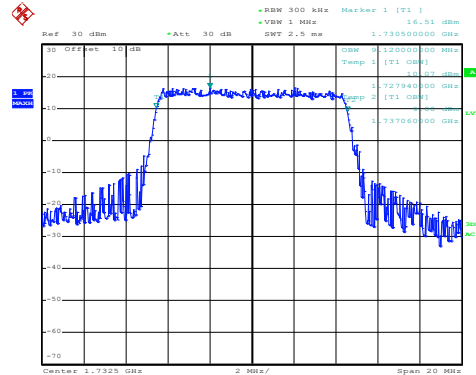
Lowest channel

16QAM



Date: 17.SEP.2019 17:02:02

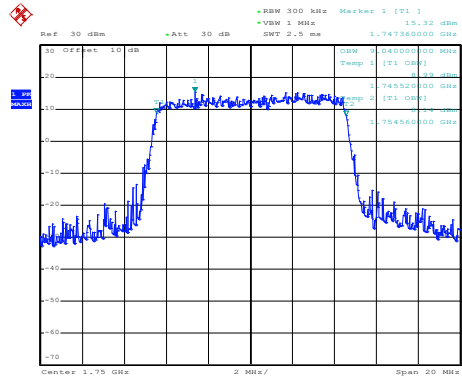
QPSK



Date: 17.SEP.2019 17:01:59

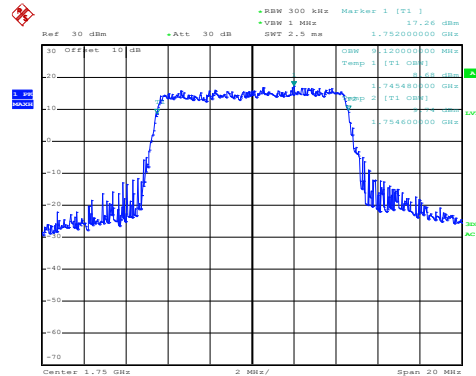
Middle channel

16QAM



Date: 17.SEP.2019 17:02:47

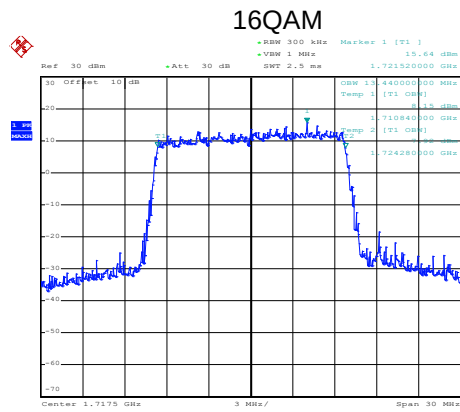
QPSK



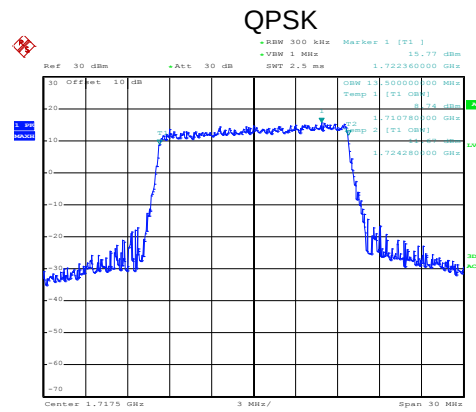
Date: 17.SEP.2019 17:02:44

Highest channel

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

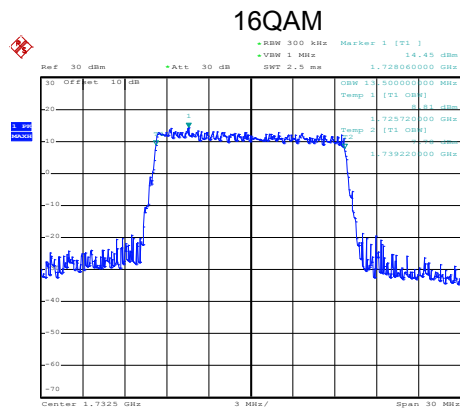


Date: 17.SEP.2019 17:03:15

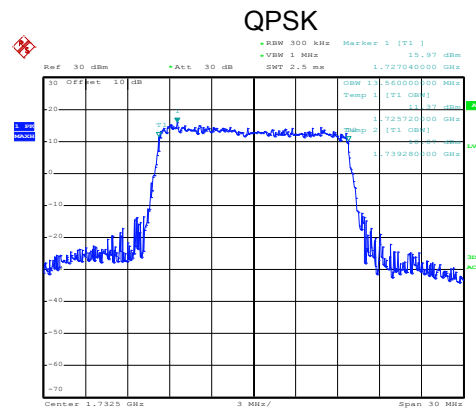


Date: 17.SEP.2019 17:03:12

Lowest channel

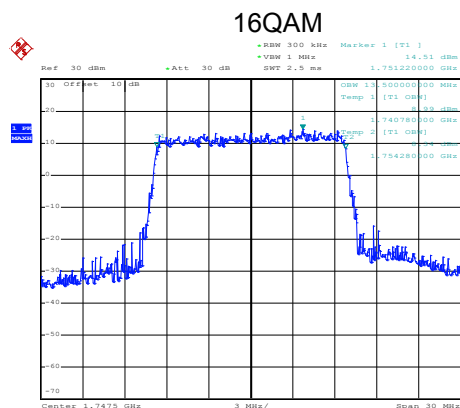


Date: 17.SEP.2019 17:03:51

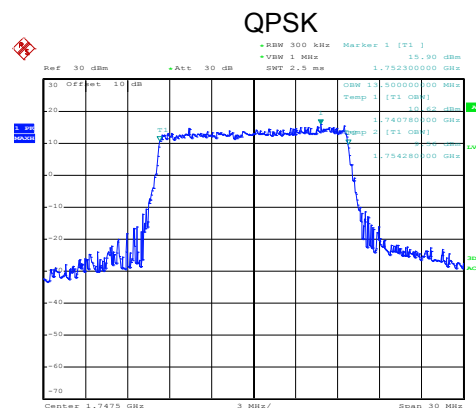


Date: 17.SEP.2019 17:03:47

Middle channel



Date: 17.SEP.2019 17:04:21

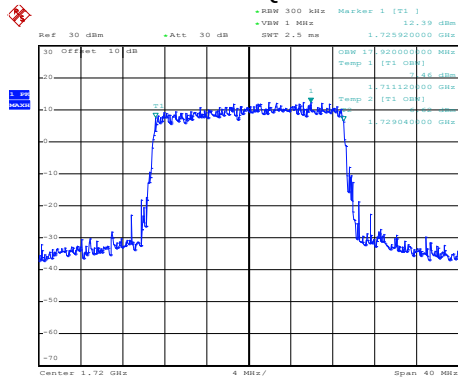


Date: 17.SEP.2019 17:04:17

Highest channel

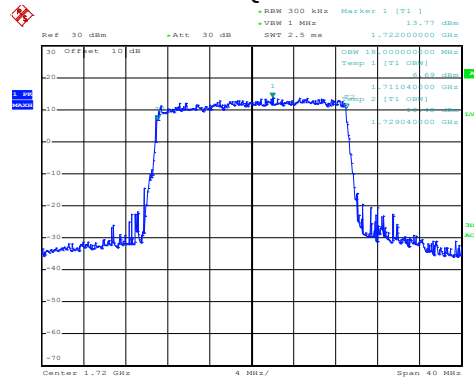
LTE Band 4: 99% Occupancy bandwidth
BW: 20MHz

16QAM



Date: 17.SEP.2019 17:05:09

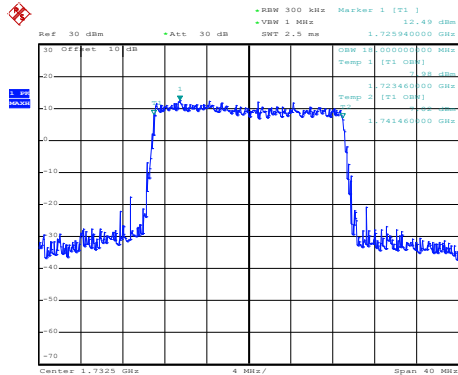
QPSK



Date: 17.SEP.2019 17:05:06

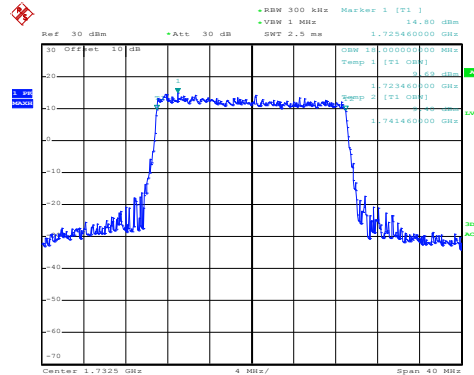
Lowest channel

16QAM



Date: 17.SEP.2019 17:05:24

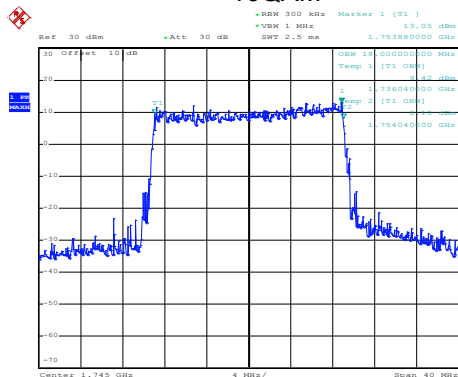
QPSK



Date: 17.SEP.2019 17:05:21

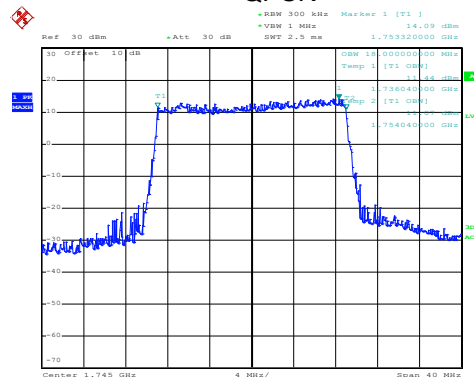
Middle channel

16QAM



Date: 17.SEP.2019 17:06:12

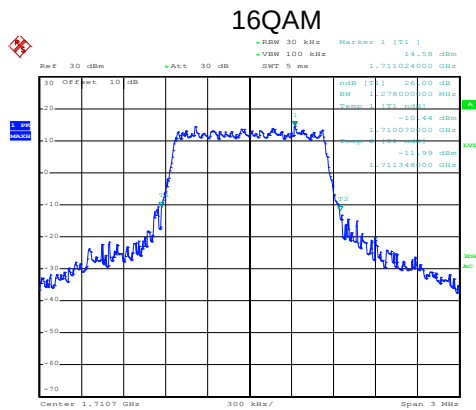
QPSK



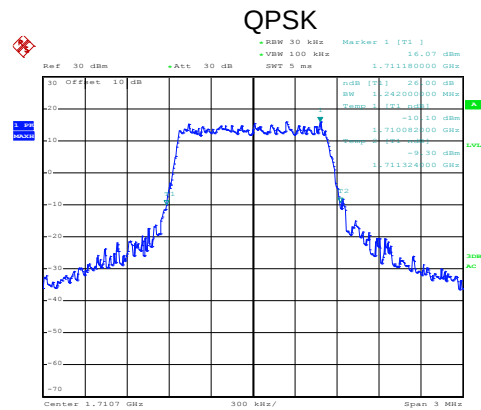
Date: 17.SEP.2019 17:06:09

Highest channel

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

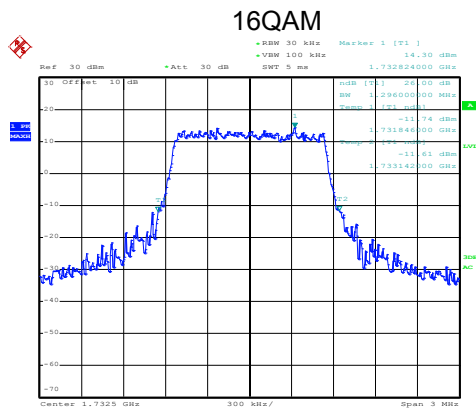


Date: 17.SEP.2019 16:57:30

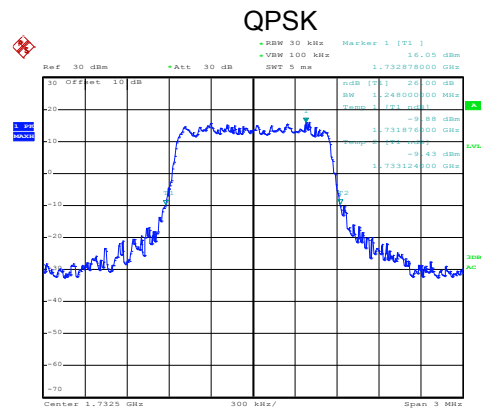


Date: 17.SEP.2019 16:57:25

Lowest channel

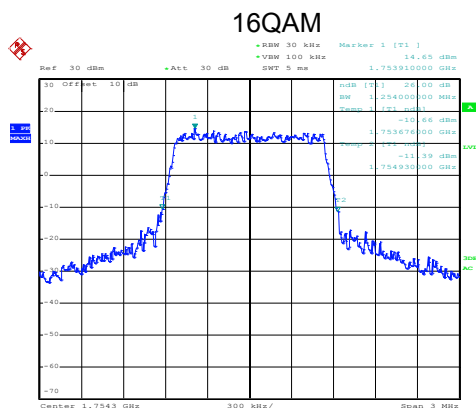


Date: 17.SEP.2019 16:57:08

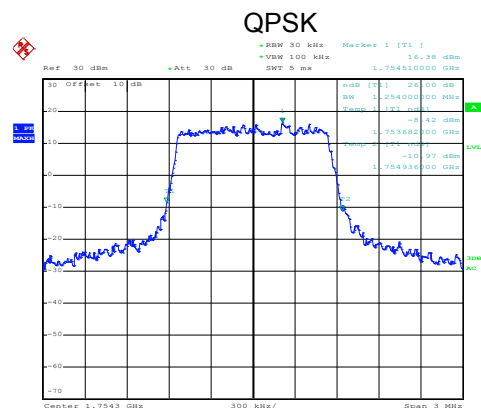


Date: 17.SEP.2019 16:57:03

Middle channel



Date: 17.SEP.2019 16:56:49

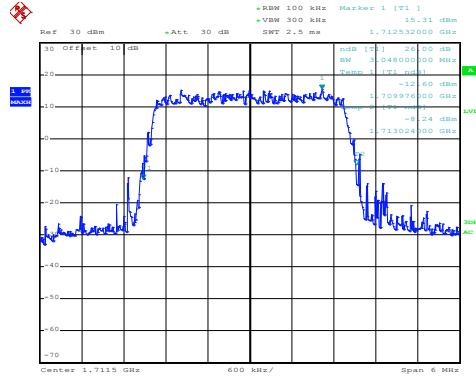


Date: 17.SEP.2019 16:56:45

Highest channel

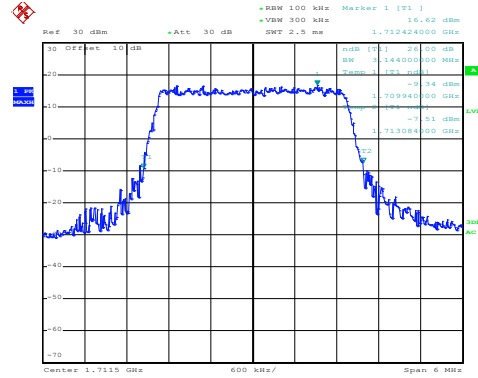
LTE Band 4: -26dBc bandwidth
BW: 3MHz

16QAM



Date: 17.SEP.2019 16:58:28

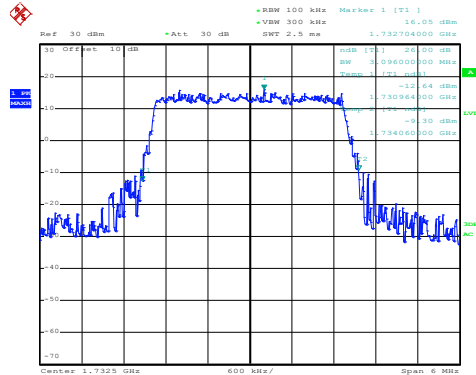
QPSK



Date: 17.SEP.2019 16:58:24

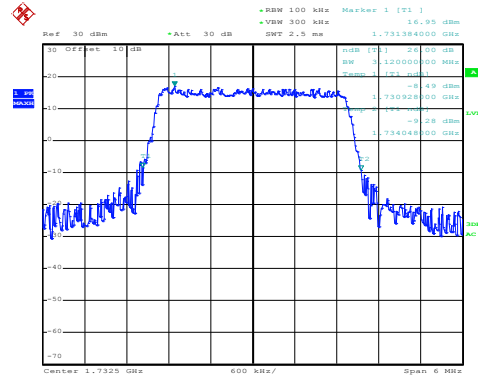
Lowest channel

16QAM



Date: 17.SEP.2019 16:59:02

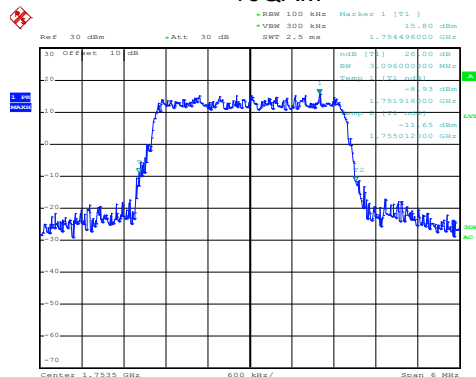
QPSK



Date: 17.SEP.2019 16:58:58

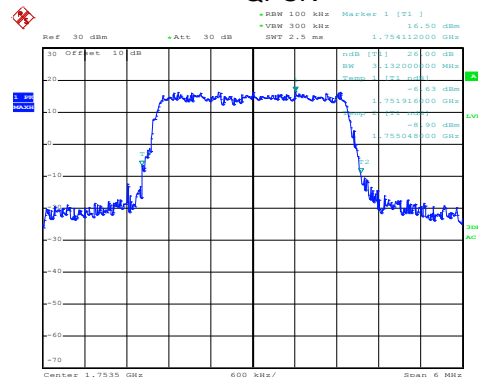
Middle channel

16QAM



Date: 17.SEP.2019 16:59:17

QPSK

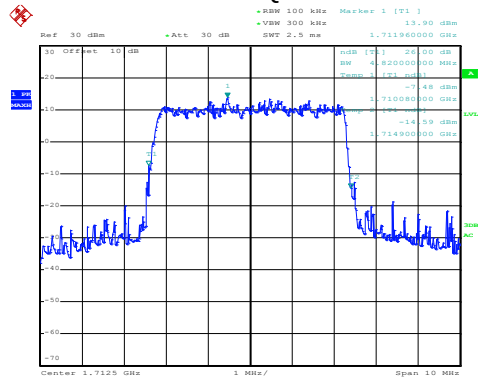


Date: 17.SEP.2019 16:59:14

Highest channel

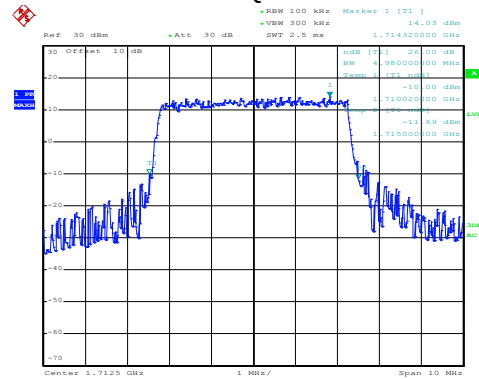
LTE Band 4: -26dBc bandwidth
BW: 5MHz

16QAM



Date: 17.SEP.2019 17:00:14

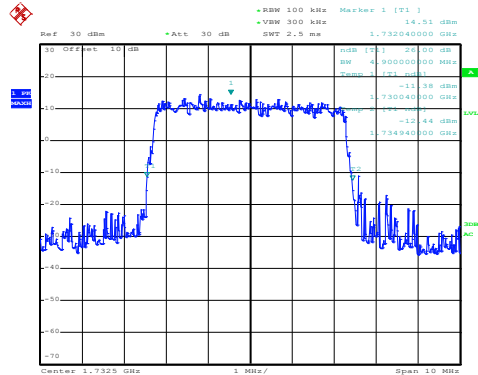
QPSK



Date: 17.SEP.2019 17:00:09

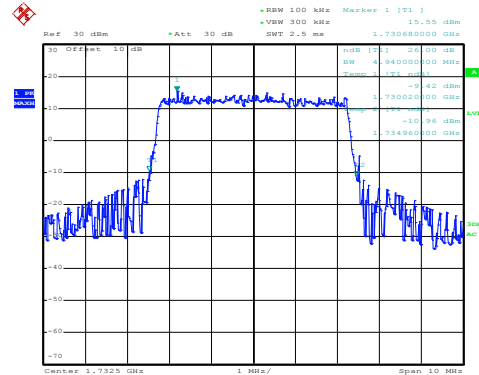
Lowest channel

16QAM



Date: 17.SEP.2019 17:00:28

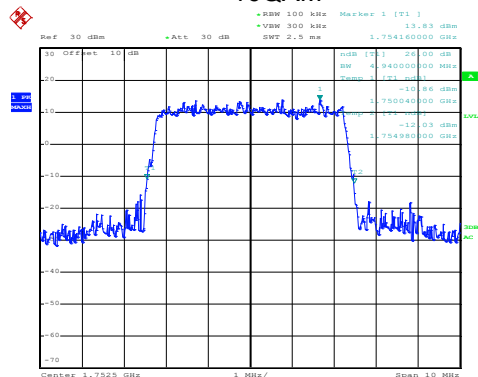
QPSK



Date: 17.SEP.2019 17:00:25

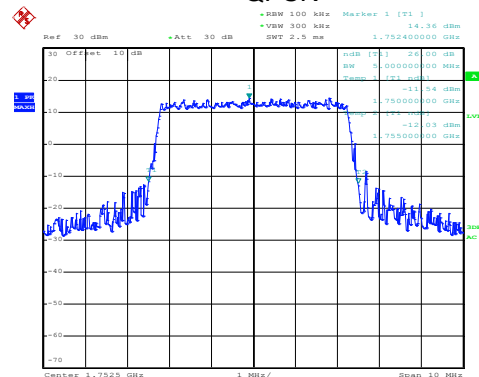
Middle channel

16QAM



Date: 17.SEP.2019 17:01:05

QPSK

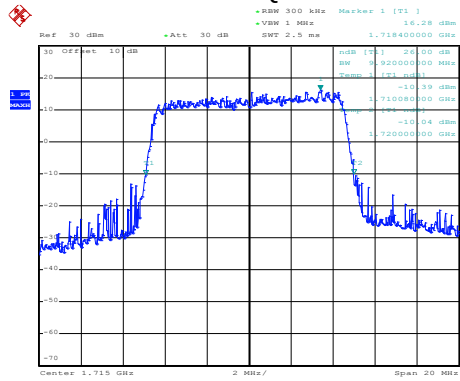


Date: 17.SEP.2019 17:01:02

Highest channel

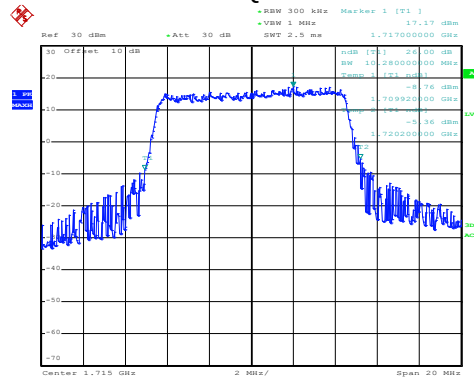
LTE Band 4: -26dBc bandwidth
BW: 10MHz

16QAM



Date: 17.SEP.2019 17:01:37

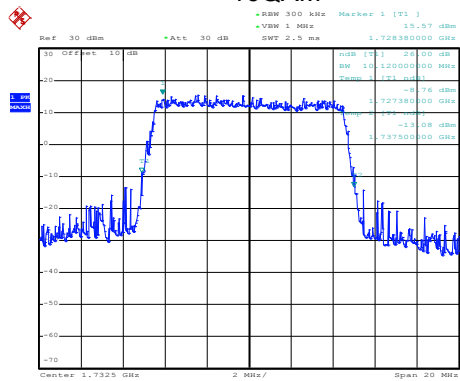
QPSK



Date: 17.SEP.2019 17:01:34

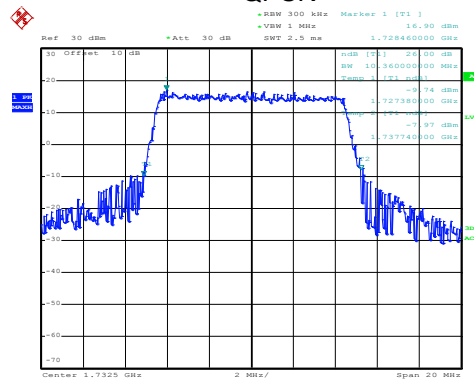
Lowest channel

16QAM



Date: 17.SEP.2019 17:02:18

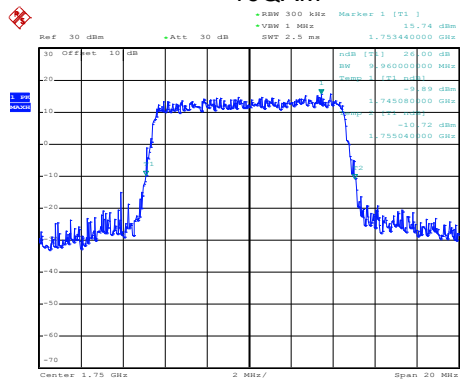
QPSK



Date: 17.SEP.2019 17:02:15

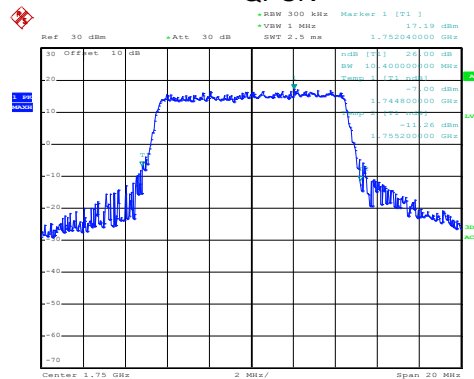
Middle channel

16QAM



Date: 17.SEP.2019 17:02:36

QPSK

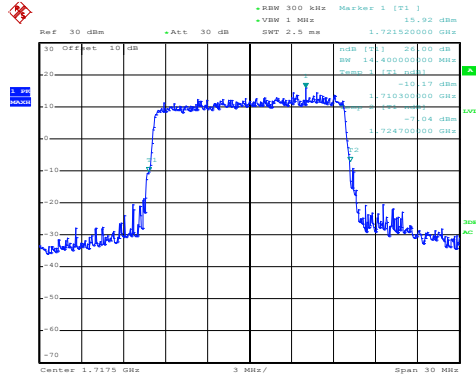


Date: 17.SEP.2019 17:02:33

Highest channel

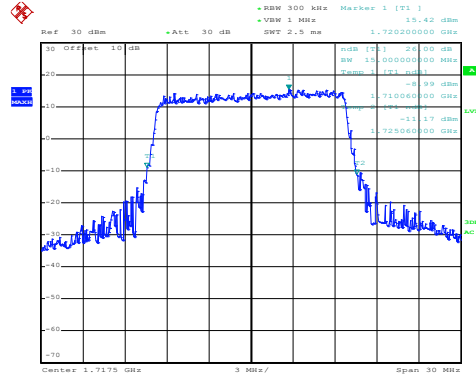
LTE Band 4: -26dBc bandwidth BW: 15MHz

16QAM



Date: 17.SEP.2019 17:03:25

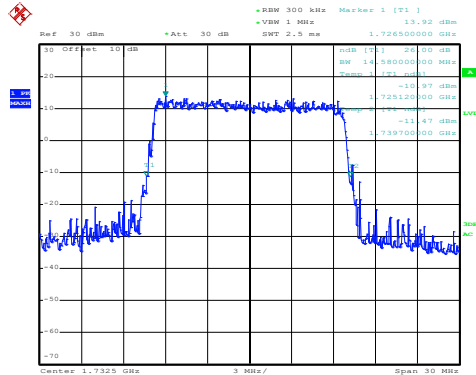
QPSK



Date: 17.SEP.2019 17:03:22

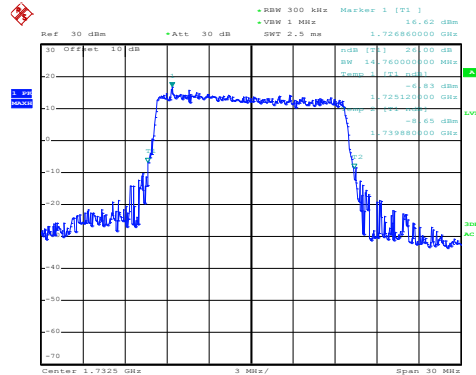
Lowest channel

16QAM



Date: 17.SEP.2019 17:03:39

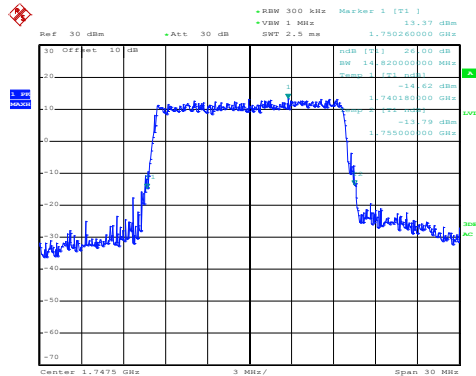
QPSK



Date: 17.SEP.2019 17:03:34

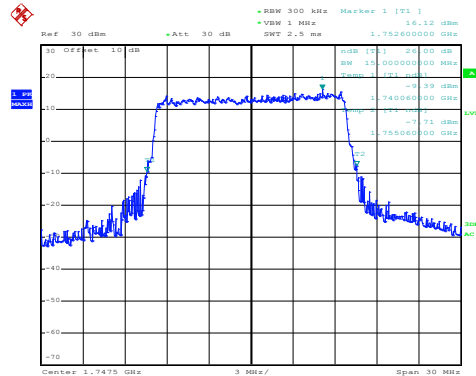
Middle channel

16QAM



Date: 17.SEP.2019 17:04:31

QPSK

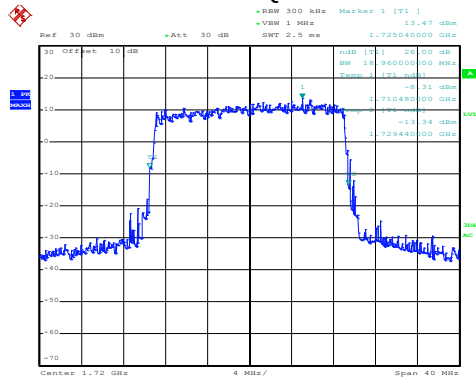


Date: 17.SEP.2019 17:04:28

Highest channel

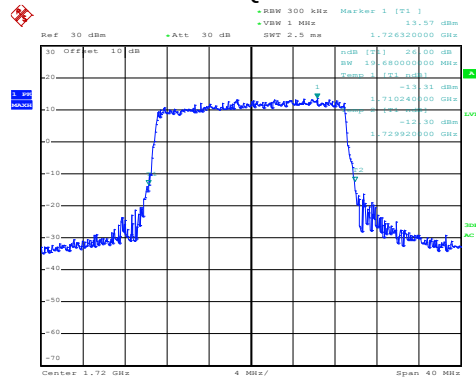
LTE Band 4: -26dBc bandwidth BW: 20MHz

16QAM



Date: 17.SEP.2019 17:04:59

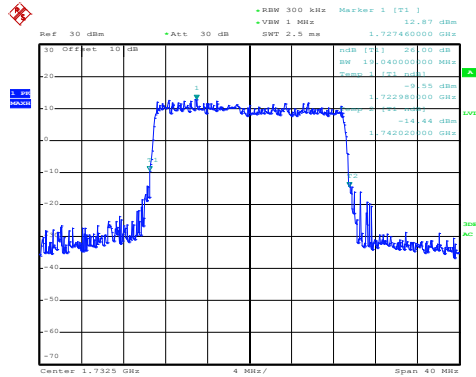
QPSK



Date: 17.SEP.2019 17:04:56

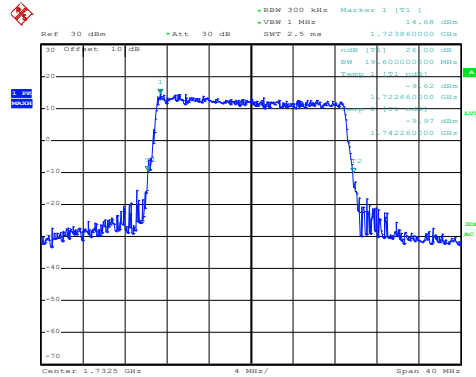
Lowest channel

16QAM



Date: 17.SEP.2019 17:05:36

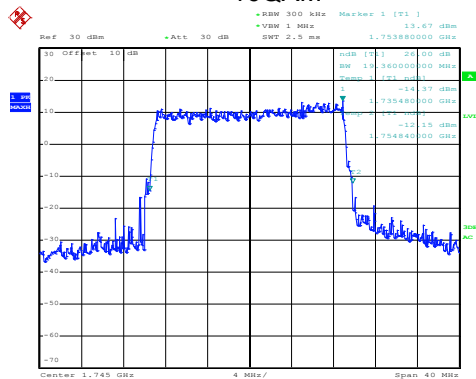
QPSK



Date: 17.SEP.2019 17:05:32

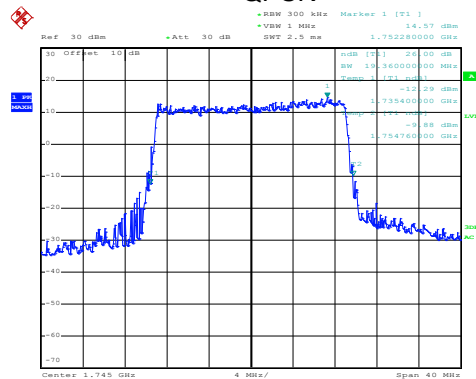
Middle channel

16QAM



Date: 17.SEP.2019 17:05:52

QPSK

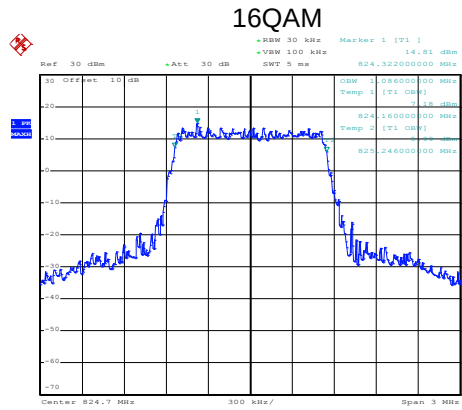


Date: 17.SEP.2019 17:05:49

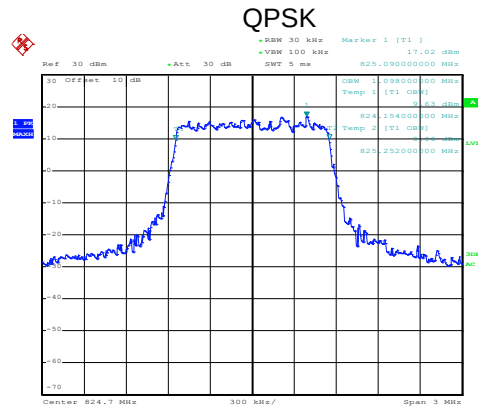
Highest channel

LTE Band 5 part:

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

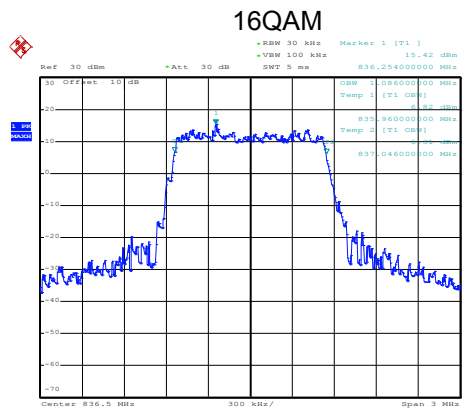


Date: 17.SEP.2019 17:07:00

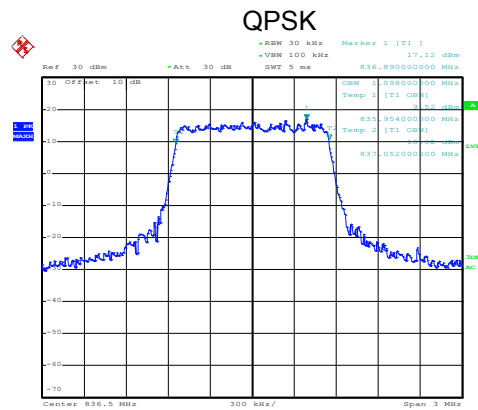


Date: 17.SEP.2019 17:06:57

Lowest channel

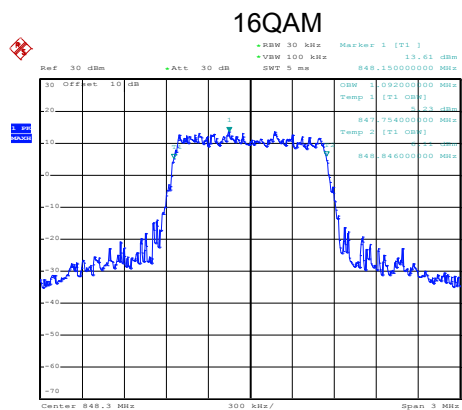


Date: 17.SEP.2019 17:07:36

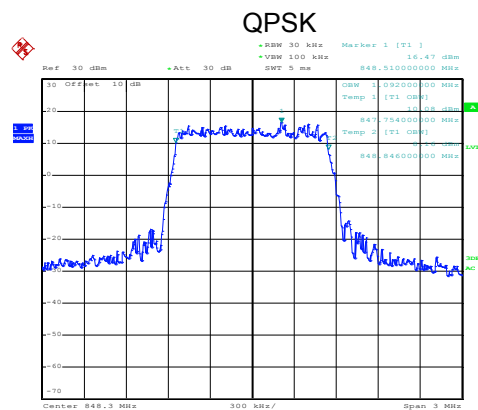


Date: 17.SEP.2019 17:07:32

Middle channel



Date: 17.SEP.2019 17:07:50

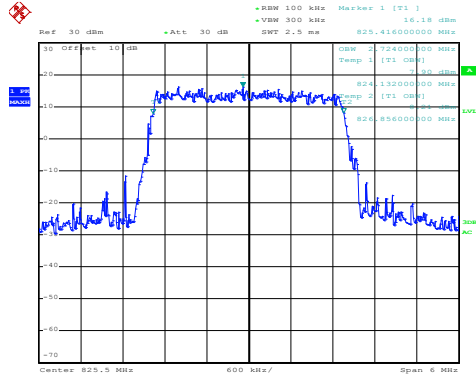


Date: 17.SEP.2019 17:07:47

Highest channel

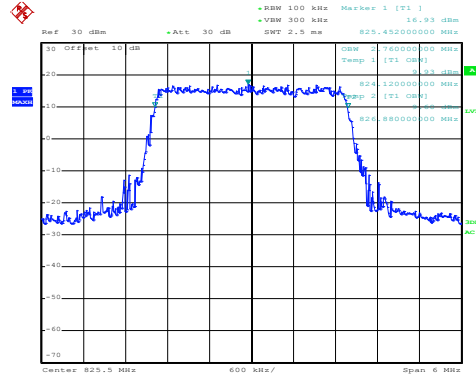
LTE Band 5: 99% Occupancy bandwidth BW: 3MHz

16QAM



Date: 17.SEP.2019 17:08:43

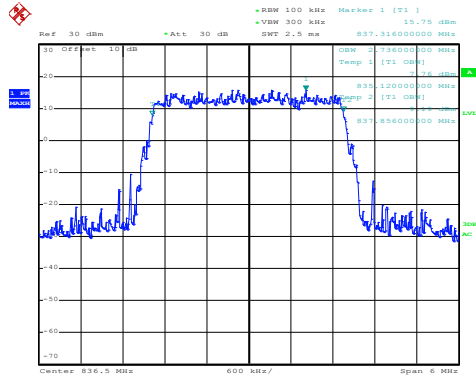
QPSK



Date: 17.SEP.2019 17:08:40

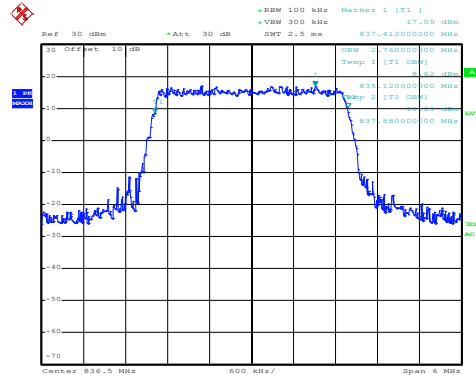
Lowest channel

16QAM



Date: 17.SEP.2019 17:08:55

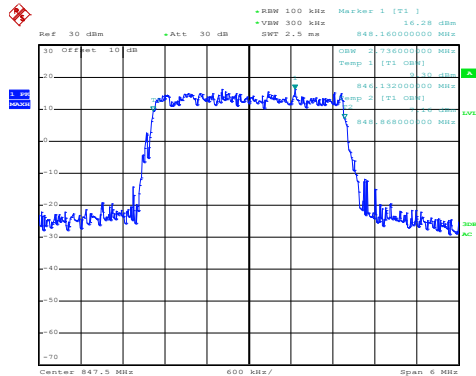
QPSK



Date: 17.SEP.2019 17:09:18

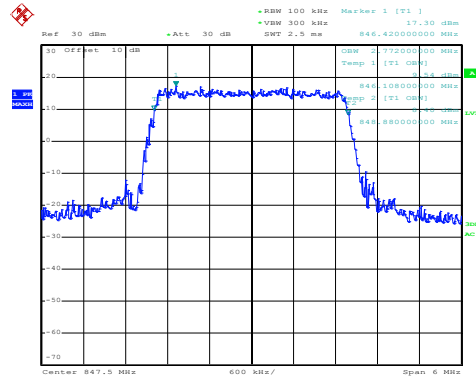
Middle channel

16QAM



Date: 17.SEP.2019 17:09:32

QPSK

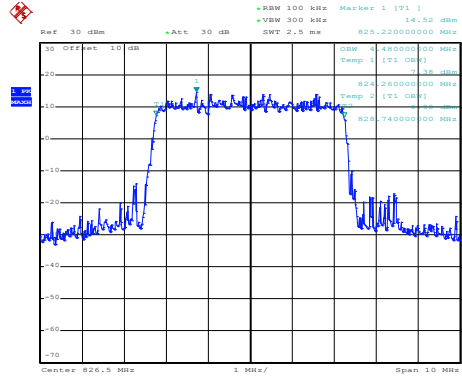


Date: 17.SEP.2019 17:09:29

Highest channel

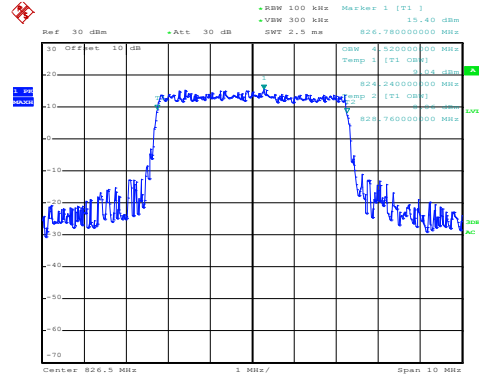
LTE Band 5: 99% Occupancy bandwidth
BW: 5MHz

16QAM



Date: 17.SEP.2019 17:10:35

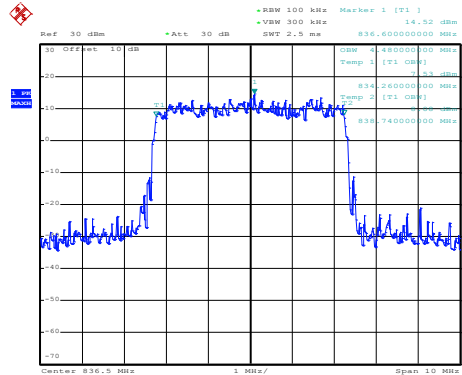
QPSK



Date: 17.SEP.2019 17:10:32

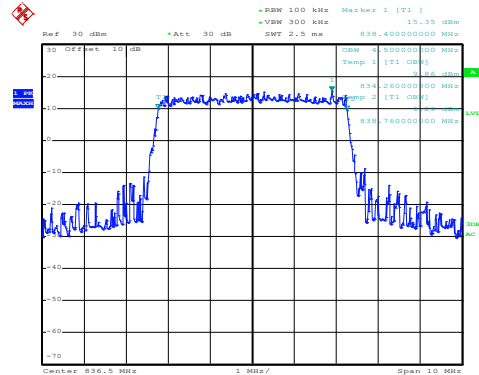
Lowest channel

16QAM



Date: 17.SEP.2019 17:10:50

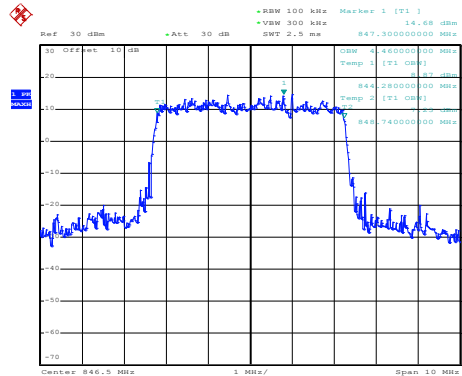
QPSK



Date: 17.SEP.2019 17:11:11

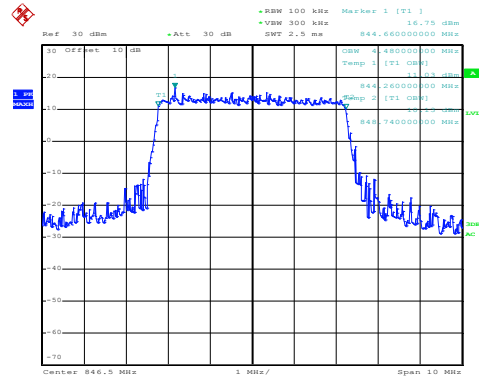
Middle channel

16QAM



Date: 17.SEP.2019 17:11:27

QPSK

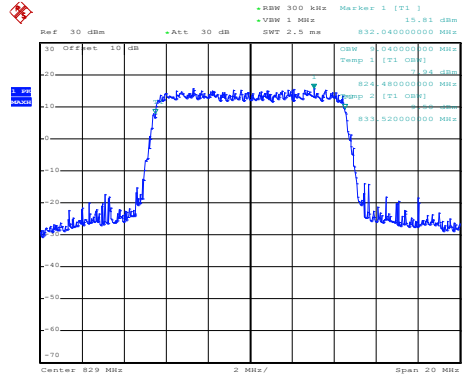


Date: 17.SEP.2019 17:11:46

Highest channel

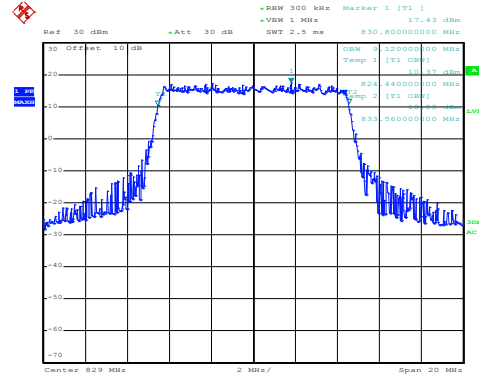
LTE Band 5: 99% Occupancy bandwidth BW: 10MHz

16QAM



Date: 17.SEP.2019 17:12:18

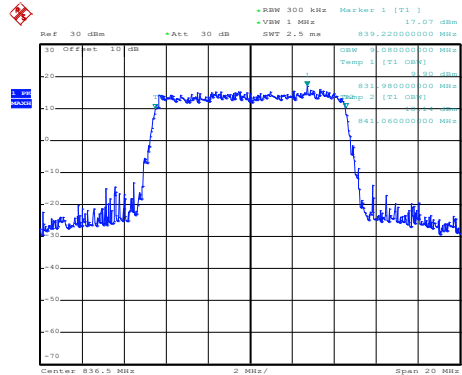
QPSK



Date: 17.SEP.2019 17:12:43

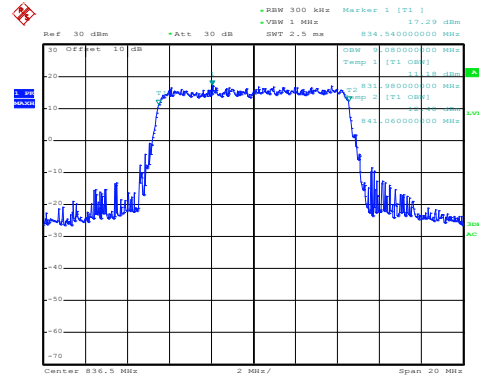
Lowest channel

16QAM



Date: 17.SEP.2019 17:13:06

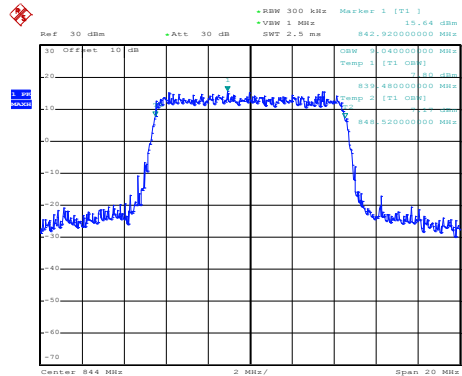
QPSK



Date: 17.SEP.2019 17:13:01

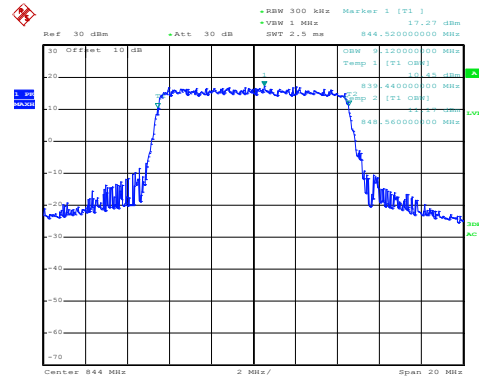
Middle channel

16QAM



Date: 17.SEP.2019 17:13:49

QPSK

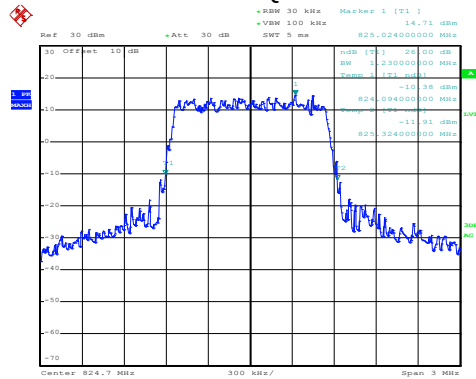


Date: 17.SEP.2019 17:13:46

Highest channel

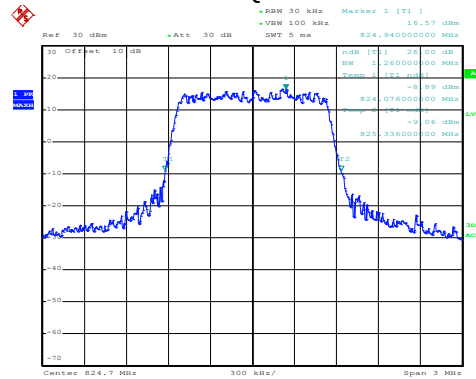
LTE Band 5: -26dBc bandwidth
BW: 1.4MHz

16QAM



Date: 17.SEP.2019 17:07:10

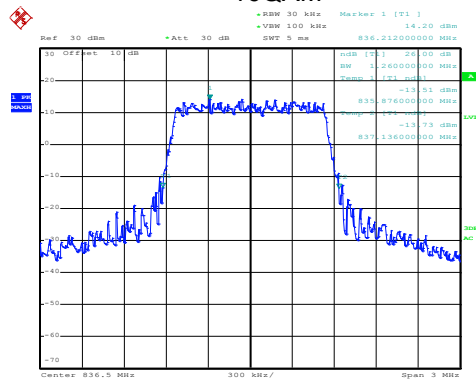
QPSK



Date: 17.SEP.2019 17:07:07

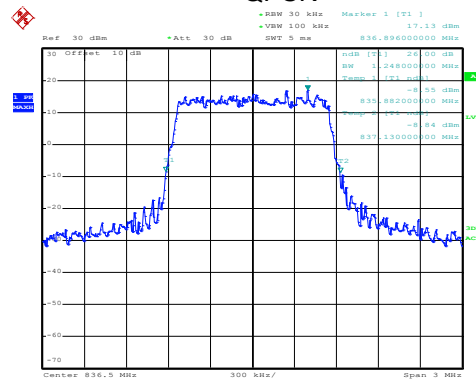
Lowest channel

16QAM



Date: 17.SEP.2019 17:07:22

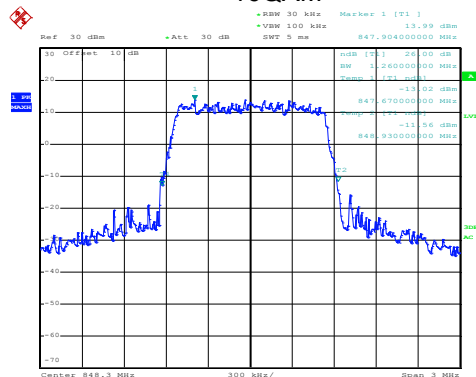
QPSK



Date: 17.SEP.2019 17:07:19

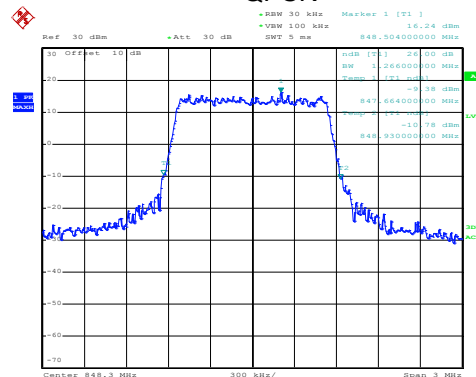
Middle channel

16QAM



Date: 17.SEP.2019 17:08:01

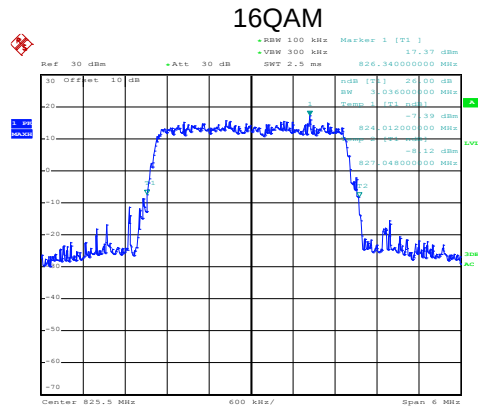
QPSK



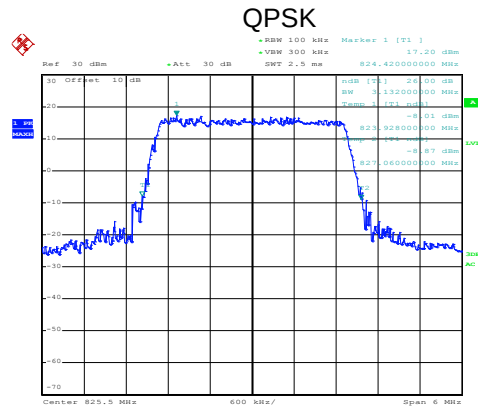
Date: 17.SEP.2019 17:07:58

Highest channel

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

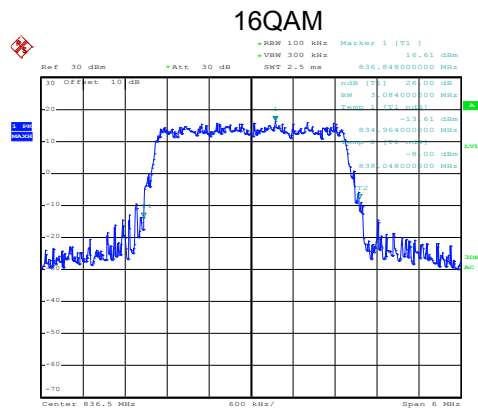


Date: 17.SEP.2019 17:08:30

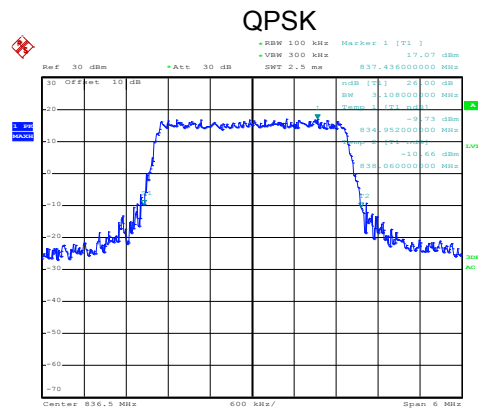


Date: 17.SEP.2019 17:08:27

Lowest channel

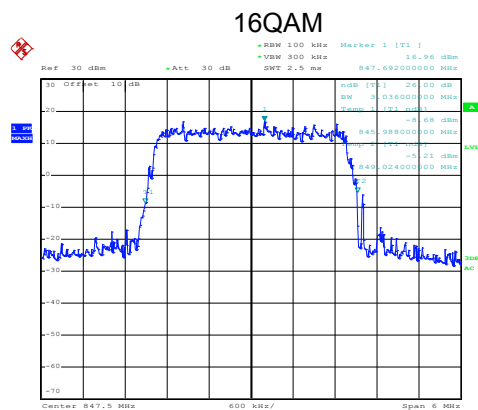


Date: 17.SEP.2019 17:09:06

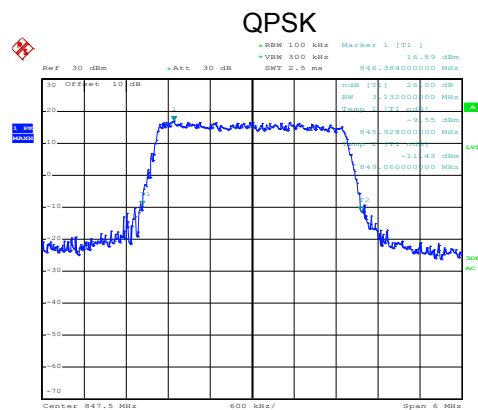


Date: 17.SEP.2019 17:09:02

Middle channel



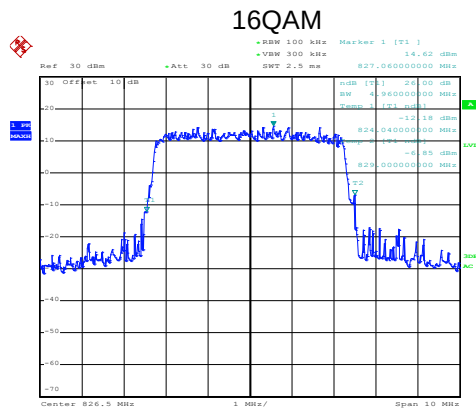
Date: 17.SEP.2019 17:09:43



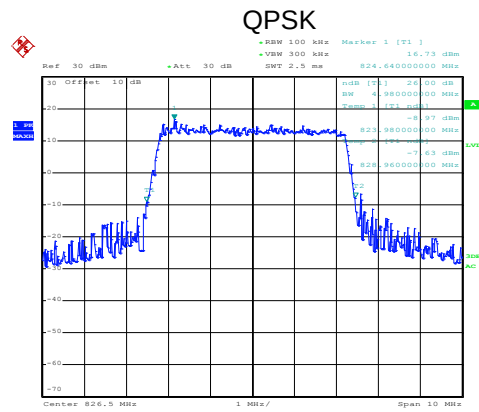
Date: 17.SEP.2019 17:09:40

Highest channel

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

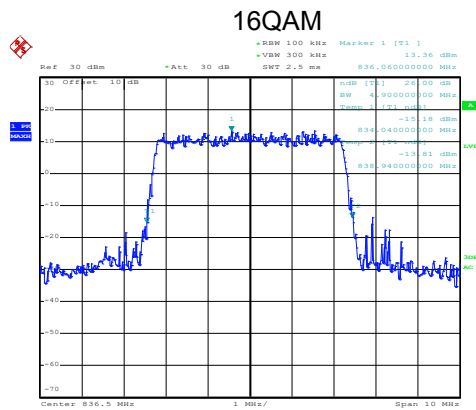


Date: 17.SEP.2019 17:10:24

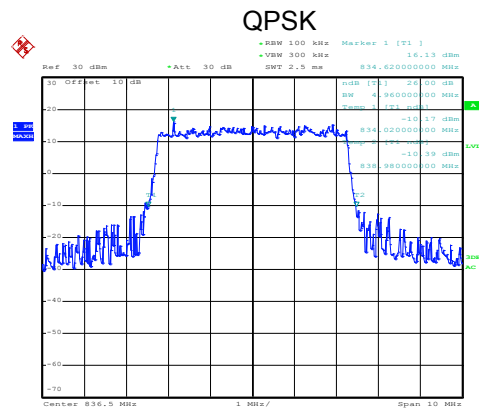


Date: 17.SEP.2019 17:10:19

Lowest channel

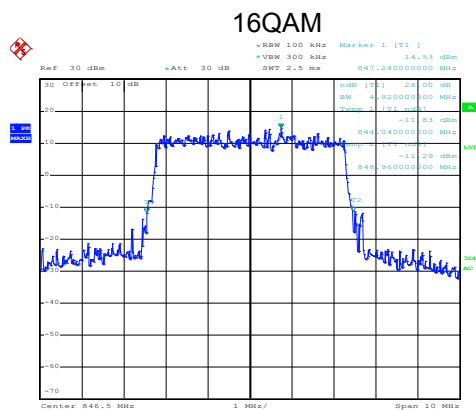


Date: 17.SEP.2019 17:11:01

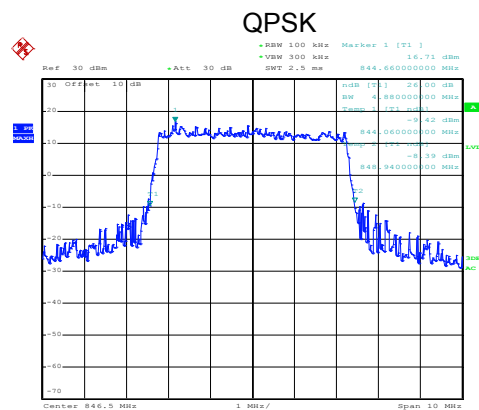


Date: 17.SEP.2019 17:10:57

Middle channel



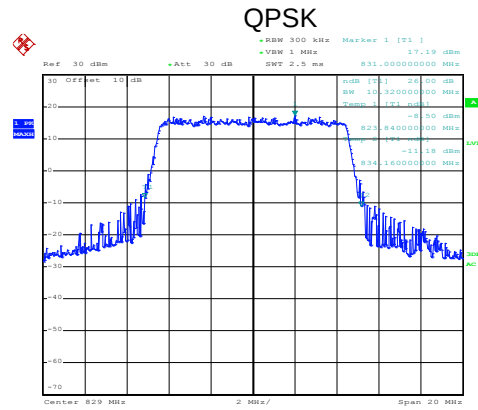
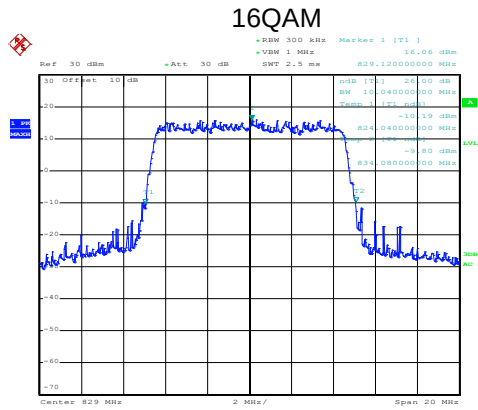
Date: 17.SEP.2019 17:11:37



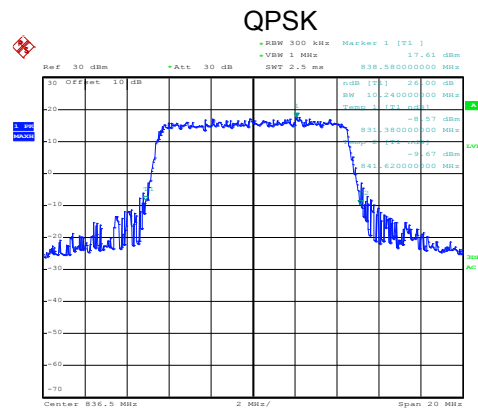
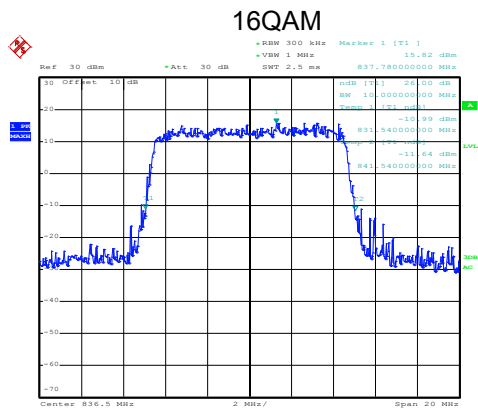
Date: 17.SEP.2019 17:11:34

Highest channel

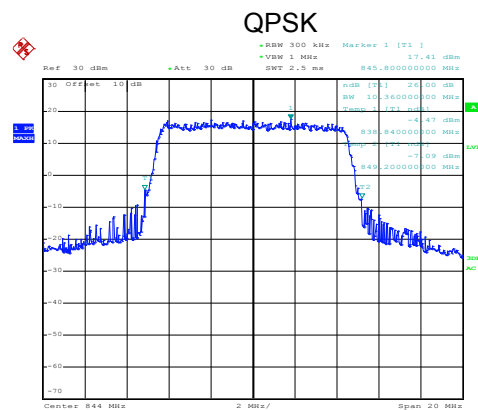
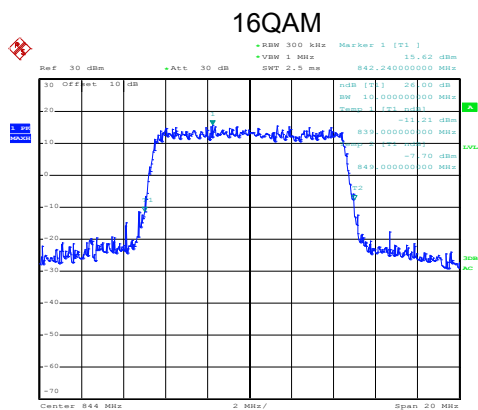
LTE Band 5: -26dBc bandwidth BW: 10MHz



Lowest channel



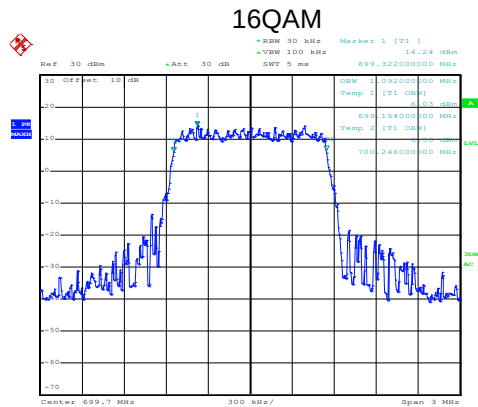
Middle channel



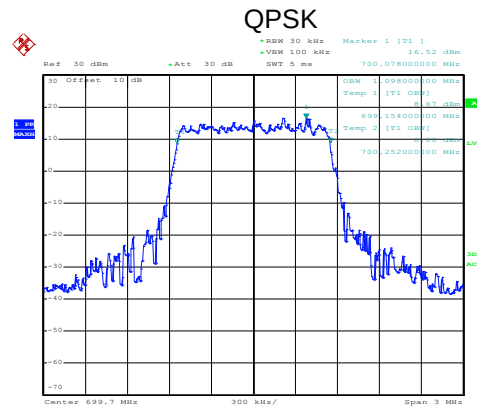
Highest channel

LTE Band 12 part:

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

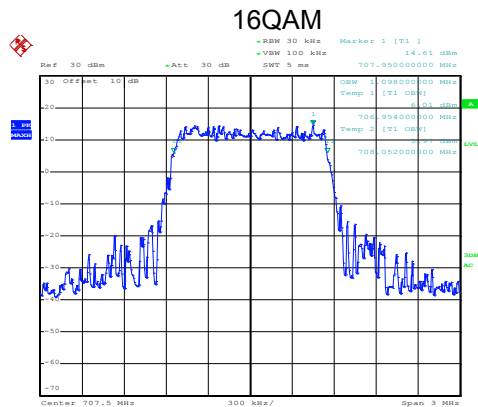


Date: 17.SEP.2019 17:14:54

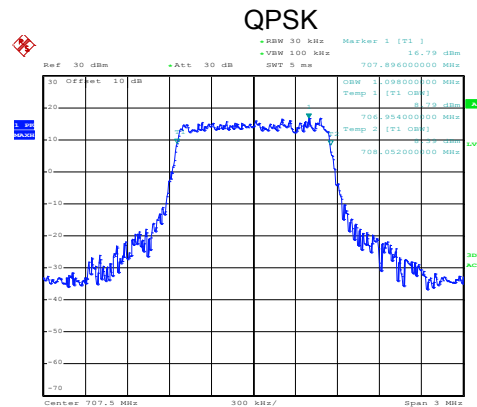


Date: 17.SEP.2019 17:14:50

Lowest channel

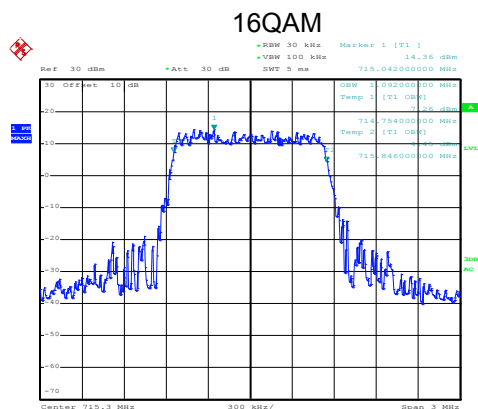


Date: 17.SEP.2019 17:15:07

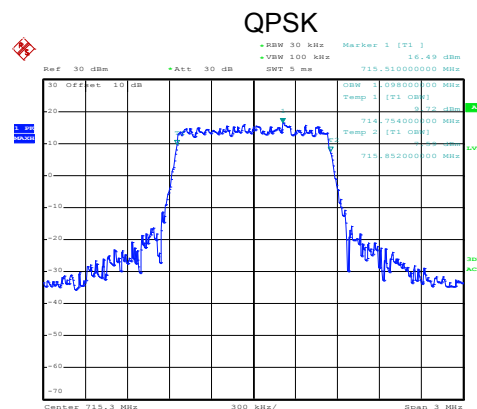


Date: 17.SEP.2019 17:15:31

Middle channel



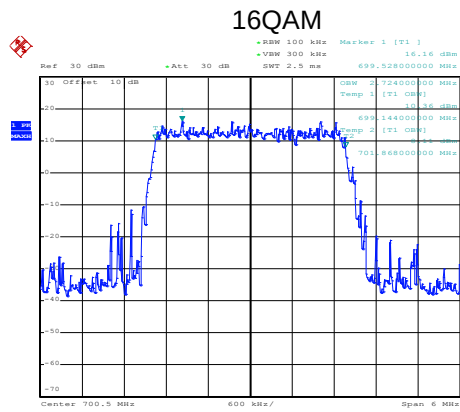
Date: 17.SEP.2019 17:15:47



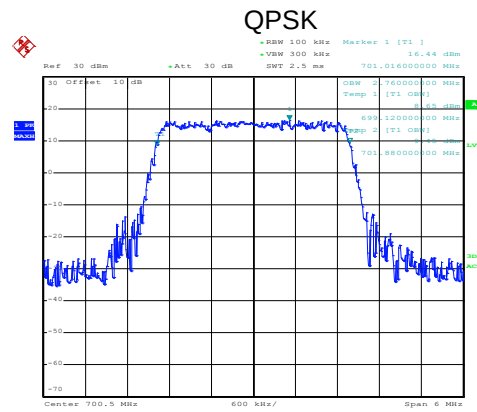
Date: 17.SEP.2019 17:16:06

Highest channel

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

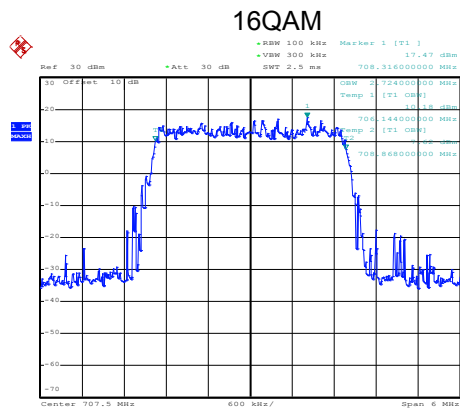


Date: 17.SEP.2019 17:16:37

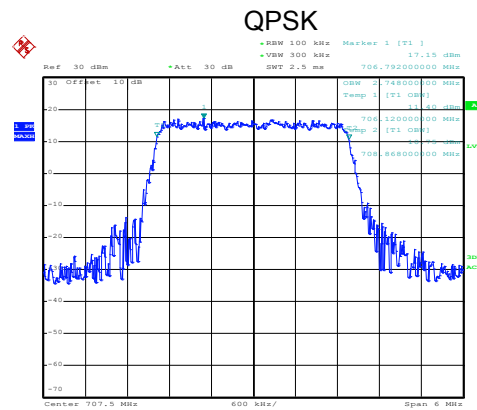


Date: 17.SEP.2019 17:16:34

Lowest channel

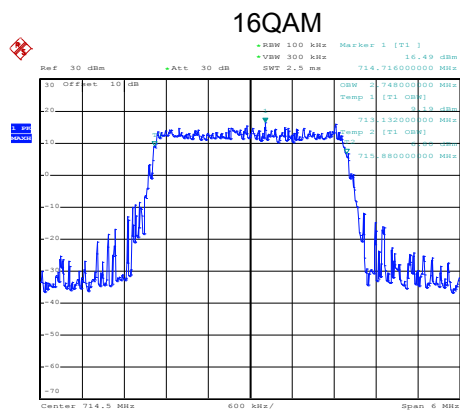


Date: 17.SEP.2019 17:17:13

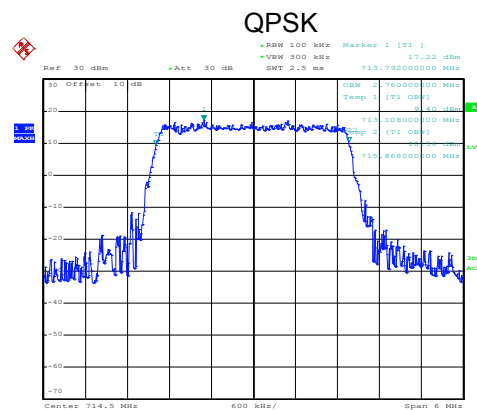


Date: 17.SEP.2019 17:17:09

Middle channel



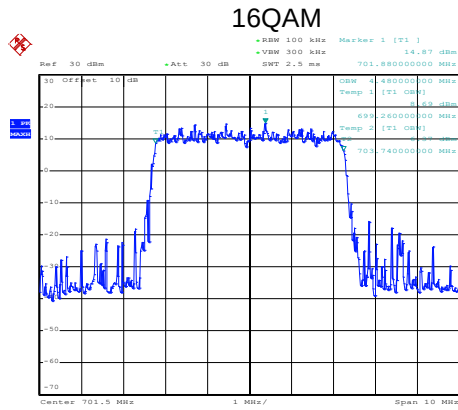
Date: 17.SEP.2019 17:17:35



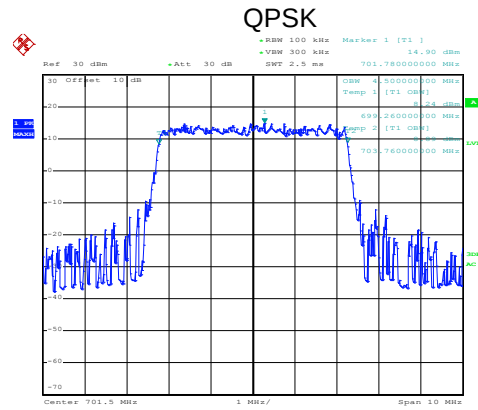
Date: 17.SEP.2019 17:17:32

Highest channel

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

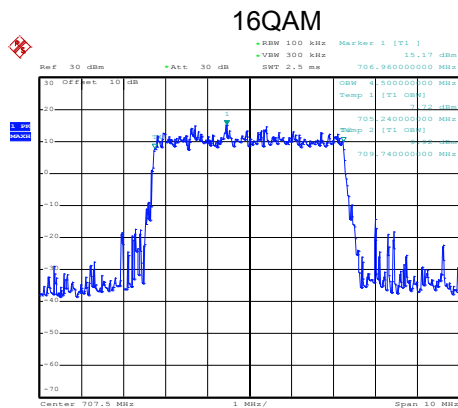


Date: 17.SEP.2019 17:18:31

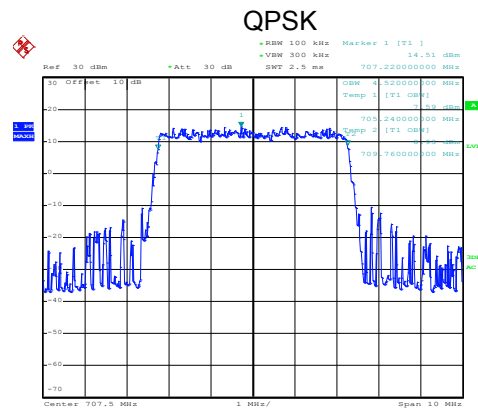


Date: 17.SEP.2019 17:18:27

Lowest channel

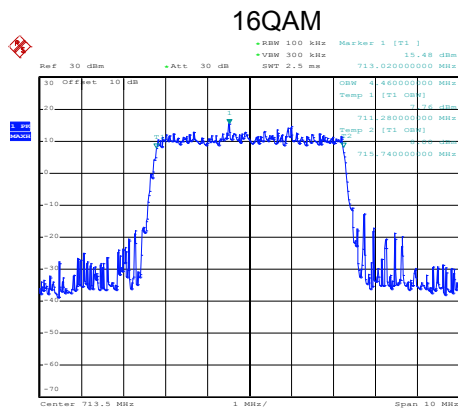


Date: 17.SEP.2019 17:18:43

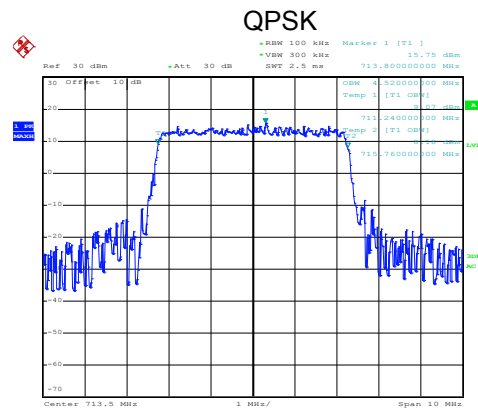


Date: 17.SEP.2019 17:18:40

Middle channel



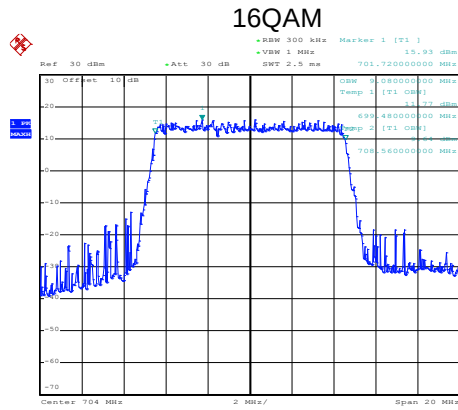
Date: 17.SEP.2019 17:19:23



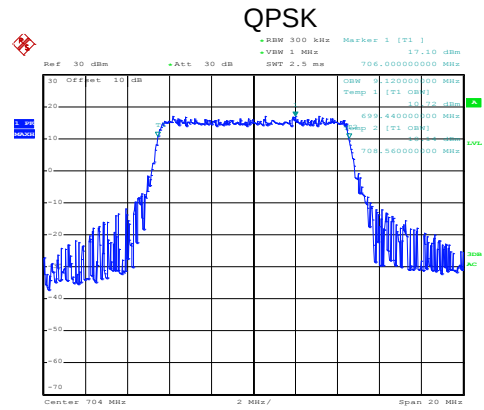
Date: 17.SEP.2019 17:19:19

Highest channel

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

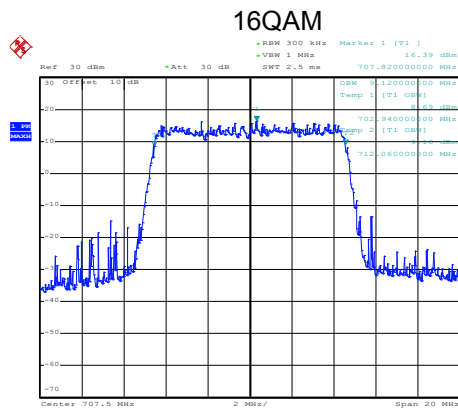


Date: 17.SEP.2019 17:23:06

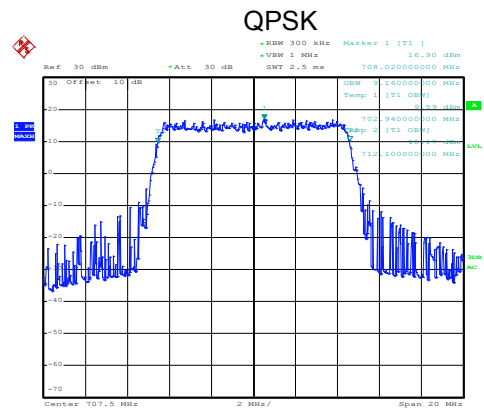


Date: 17.SEP.2019 17:23:03

Lowest channel

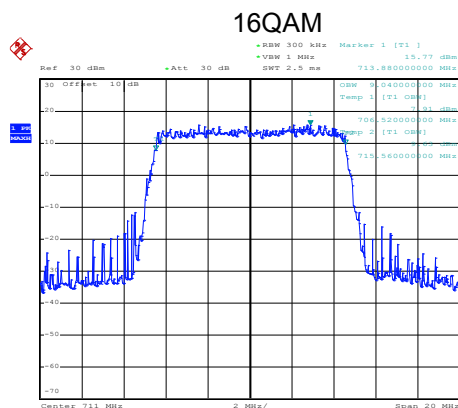


Date: 17.SEP.2019 17:23:20

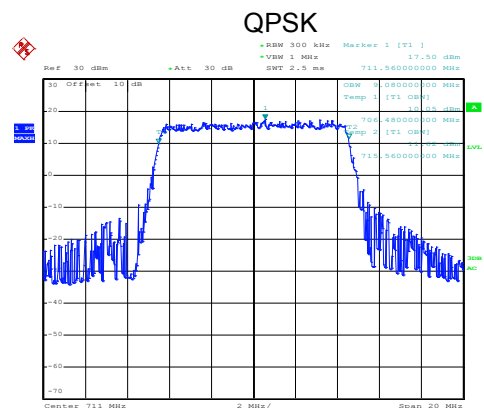


Date: 17.SEP.2019 17:23:16

Middle channel



Date: 17.SEP.2019 17:24:08

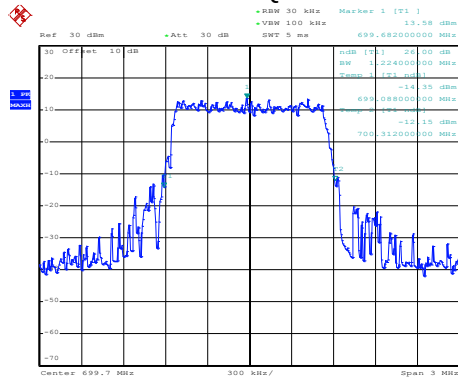


Date: 17.SEP.2019 17:24:04

Highest channel

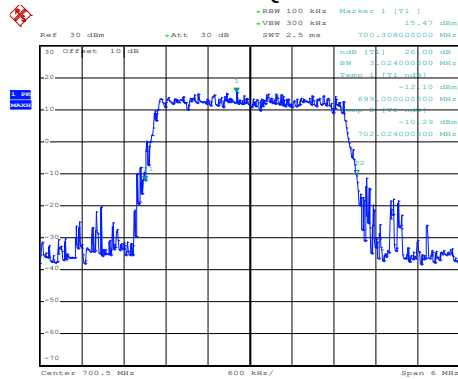
LTE Band 12: -26dBc bandwidth
BW: 1.4MHz

16QAM



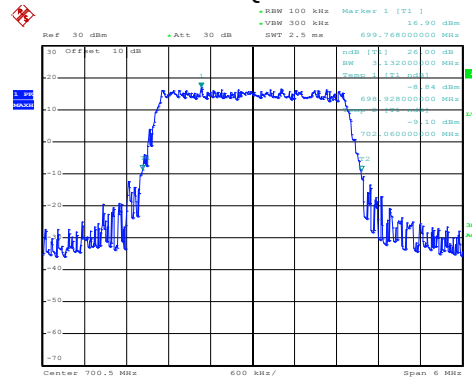
LTE Band 12: -26dBc bandwidth
BW: 3MHz

16QAM



Date: 17.SEP.2019 17:16:48

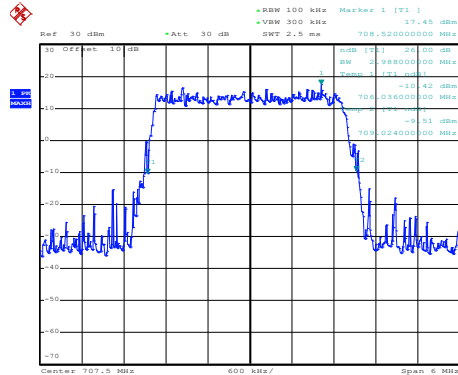
QPSK



Date: 17.SEP.2019 17:16:44

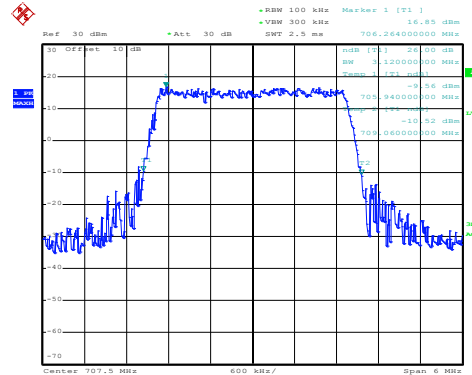
Lowest channel

16QAM



Date: 17.SEP.2019 17:17:01

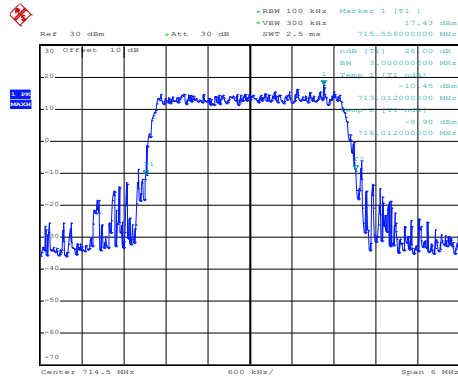
QPSK



Date: 17.SEP.2019 17:16:58

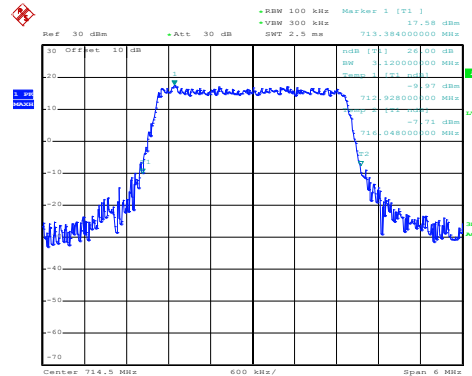
Middle channel

16QAM



Date: 17.SEP.2019 17:17:47

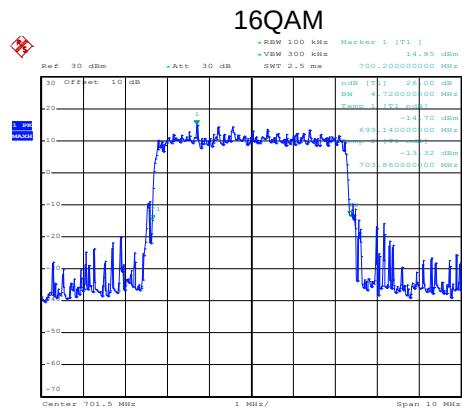
QPSK



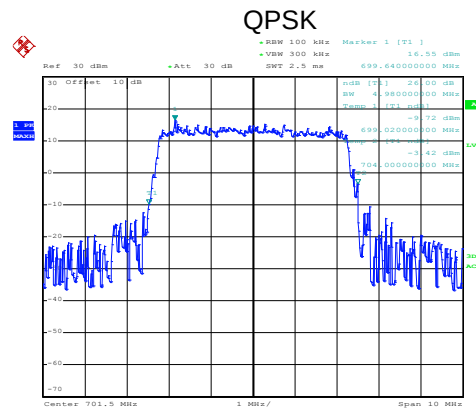
Date: 17.SEP.2019 17:17:43

Highest channel

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

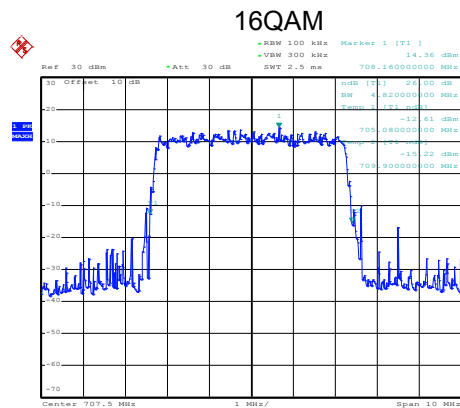


Date: 17.SEP.2019 17:18:20

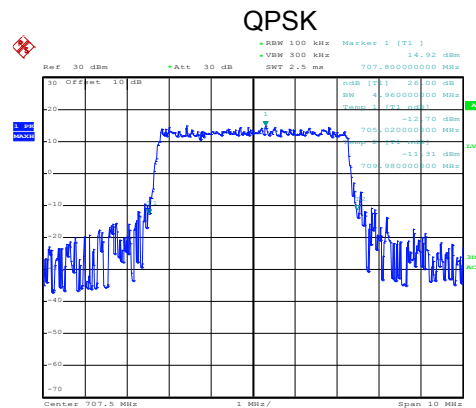


Date: 17.SEP.2019 17:18:16

Lowest channel

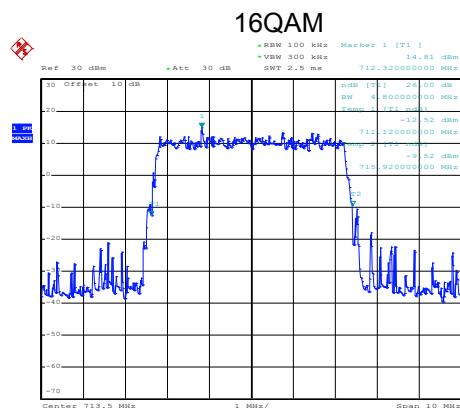


Date: 17.SEP.2019 17:18:54

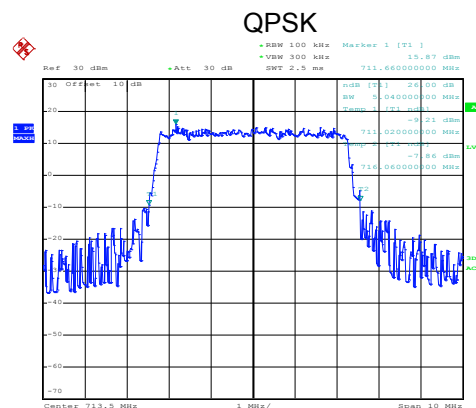


Date: 17.SEP.2019 17:18:51

Middle channel



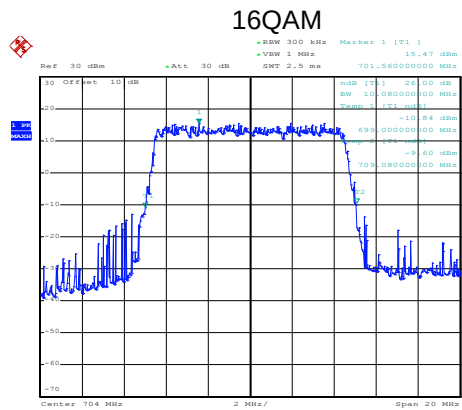
Date: 17.SEP.2019 17:19:11



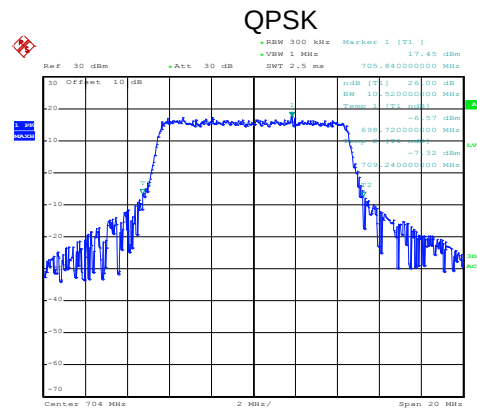
Date: 17.SEP.2019 17:19:31

Highest channel

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

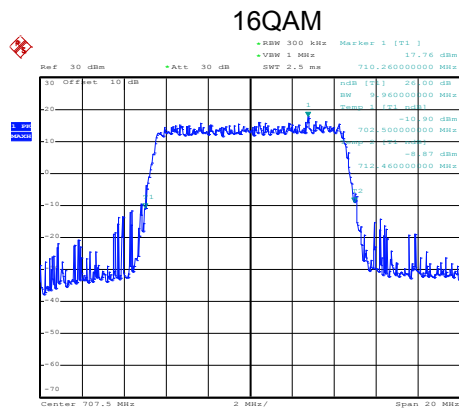


Date: 17.SEP.2019 17:22:54

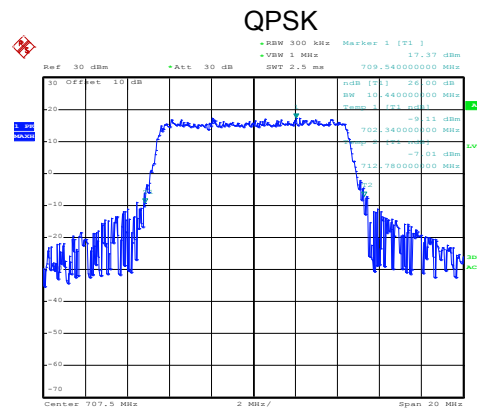


Date: 17.SEP.2019 17:22:51

Lowest channel

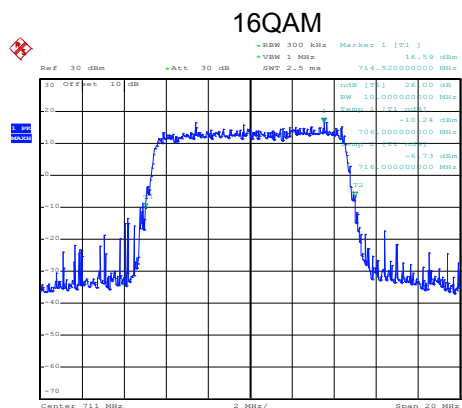


Date: 17.SEP.2019 17:23:33

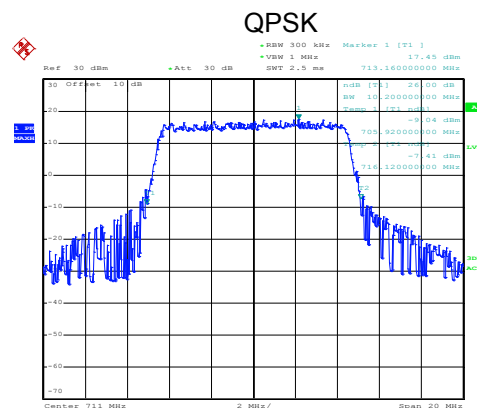


Date: 17.SEP.2019 17:23:29

Middle channel



Date: 17.SEP.2019 17:23:56

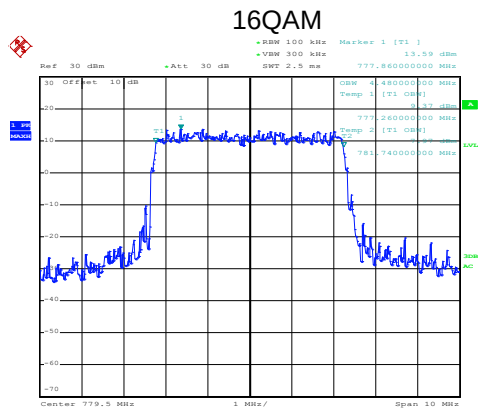


Date: 17.SEP.2019 17:24:16

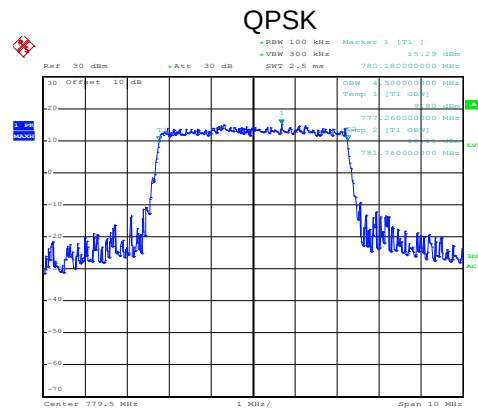
Highest channel

LTE-Band 13 part:

LTE Band 13: 99% Occupy bandwidth
BW: 5MHz

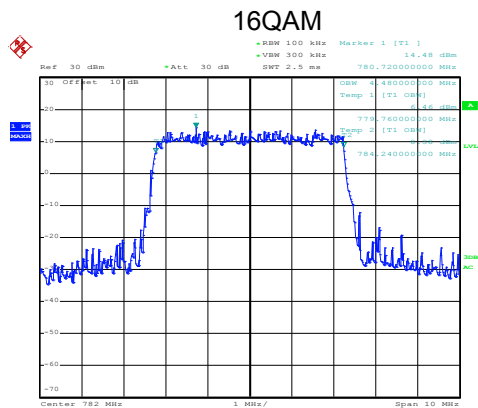


Date: 17.SEP.2019 17:26:12

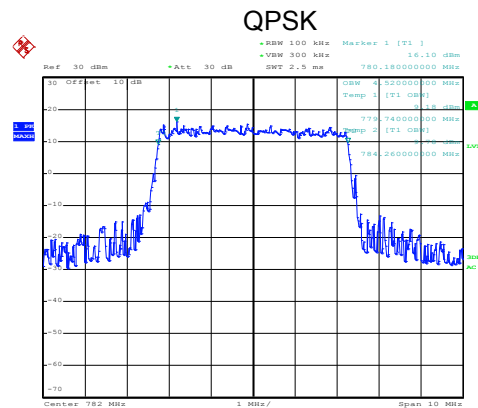


Date: 17.SEP.2019 17:26:08

Lowest channel

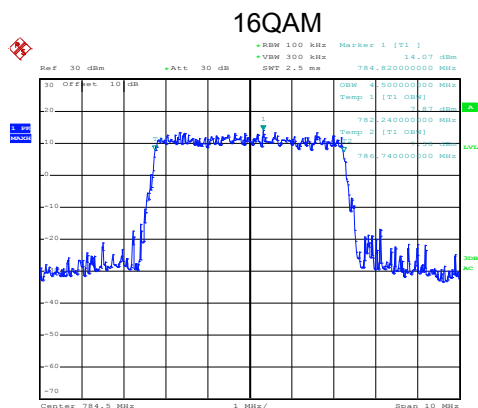


Date: 17.SEP.2019 17:25:27

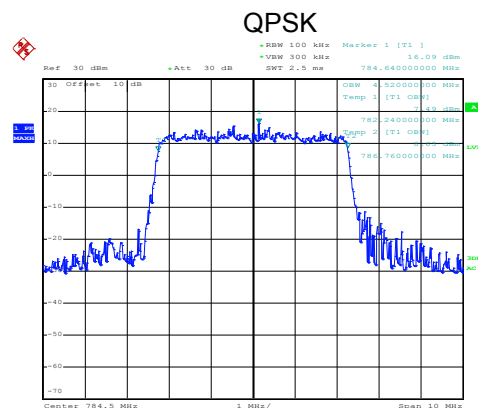


Date: 17.SEP.2019 17:25:22

Middle channel



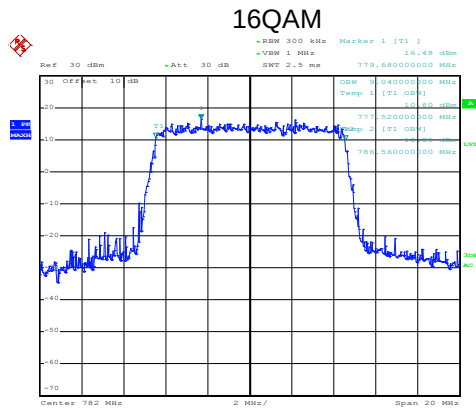
Date: 17.SEP.2019 17:26:30



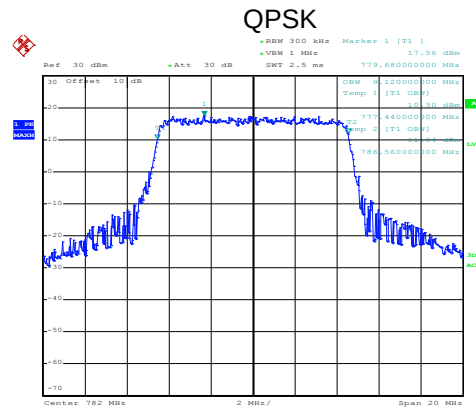
Date: 17.SEP.2019 17:26:26

Highest channel

LTE Band 13: 99% Occupy bandwidth
BW: 10MHz



Date: 17.SEP.2019 17:25:02

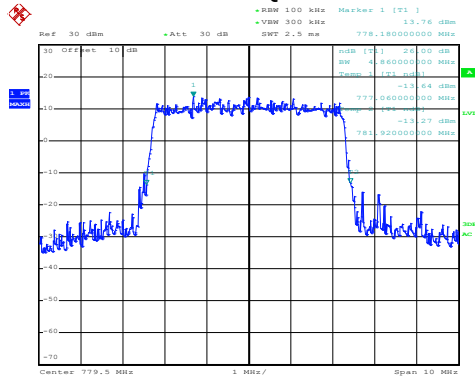


Date: 17.SEP.2019 17:24:58

Middle channel

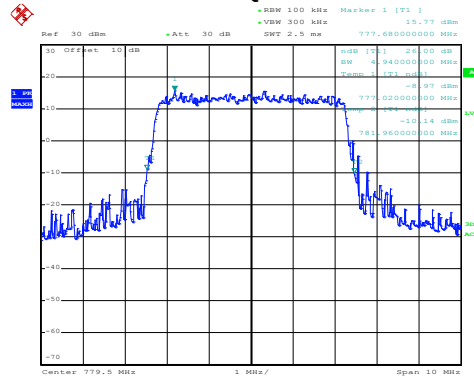
LTE Band 13: -26dBc bandwidth BW: 5MHz

16QAM



Date: 17.SEP.2019 17:26:00

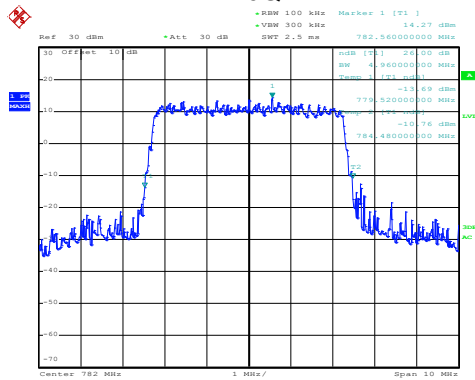
QPSK



Date: 17.SEP.2019 17:25:57

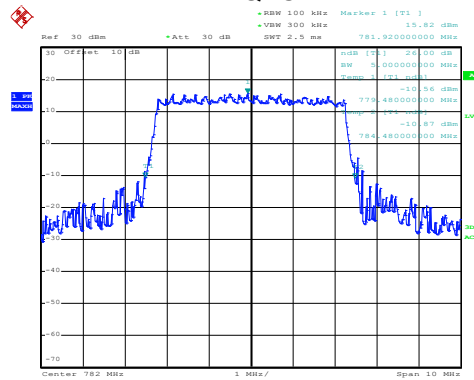
Lowest channel

16QAM



Date: 17.SEP.2019 17:25:40

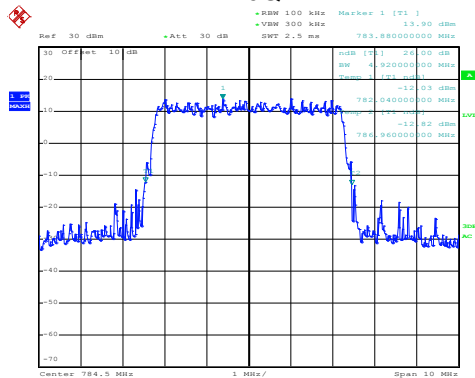
QPSK



Date: 17.SEP.2019 17:25:36

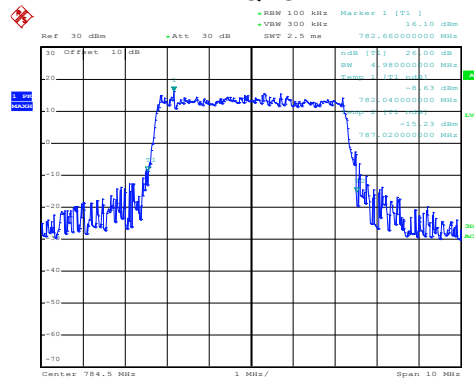
Middle channel

16QAM



Date: 17.SEP.2019 17:26:43

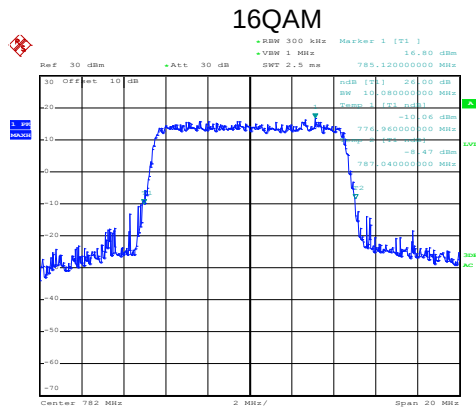
QPSK



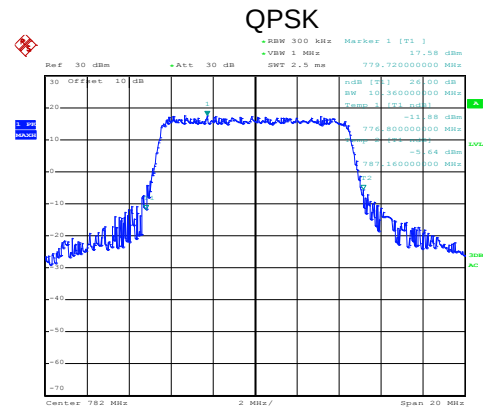
Date: 17.SEP.2019 17:26:40

Highest channel

LTE Band 13: -26dBc bandwidth
BW: 10MHz



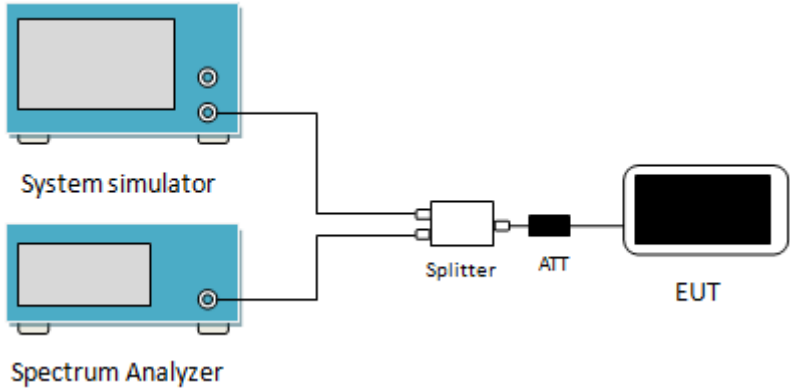
Date: 17.SEP.2019 17:24:46



Date: 17.SEP.2019 17:24:42

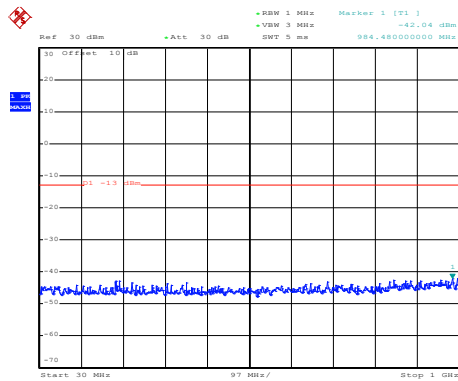
Middle channel

6.4 Out of band emission at antenna terminals

Test Requirement:	Part 22.917(b), part 27.53(g), part 27.53(h), Part 27.53(c)
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 13: The power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB(-13 dBm). On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.
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 small white rectangle with two input ports and one output port. The output of the Splitter is connected to an 'ATT' (Attenuator), represented by a black rectangle. Finally, the output of the ATT is connected to the 'EUT' (Equipment Under Test), which is a black rectangular device with a screen.
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
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.

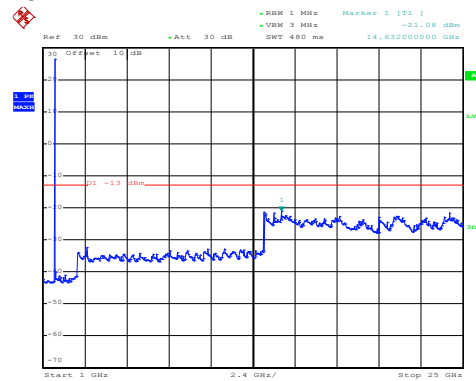
Test plots as follows (Conducted spurious emission) (worst case):
LTE Band 4 part:

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



Date: 17.SEP.2019 18:08:20

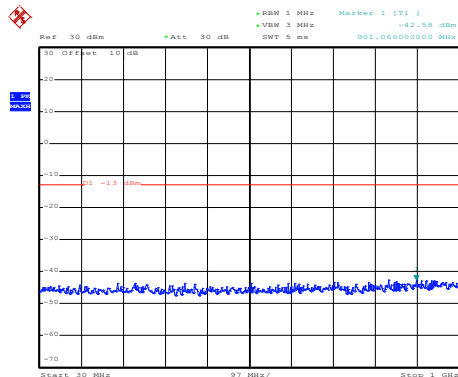
30MHz~1GHz



Date: 17.SEP.2019 18:33:45

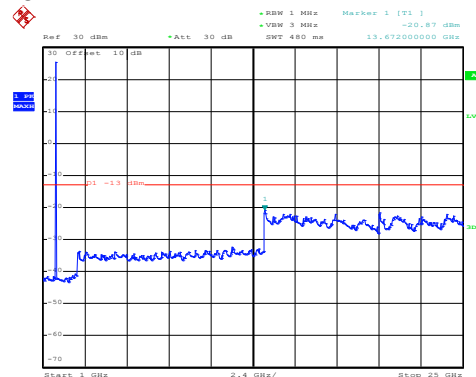
1GHz~25GHz

Middle channel



Date: 17.SEP.2019 18:09:11

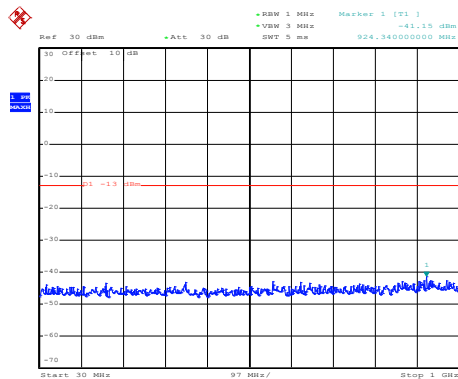
30MHz~1GHz



Date: 17.SEP.2019 18:35:02

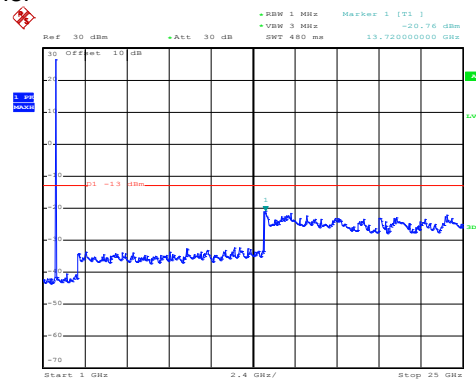
1GHz~25GHz

High channel



Date: 17.SEP.2019 18:09:28

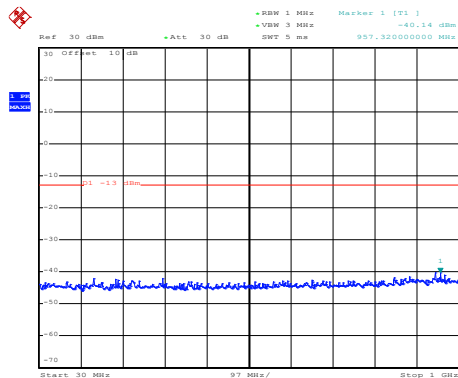
30MHz~1GHz



Date: 17.SEP.2019 18:35:23

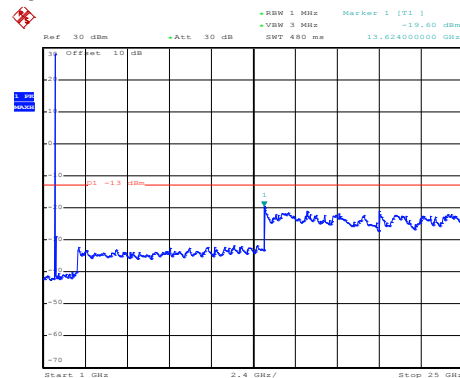
1GHz~25GHz

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



Date: 17.SEP.2019 18:08:13

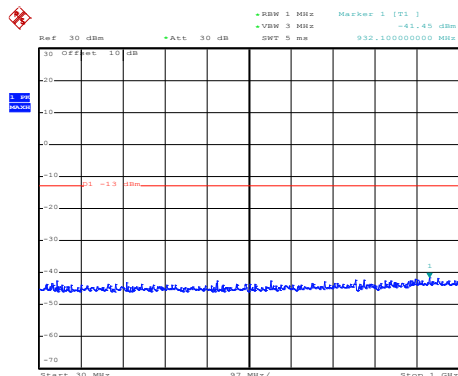
30MHz~1GHz



Date: 17.SEP.2019 18:33:33

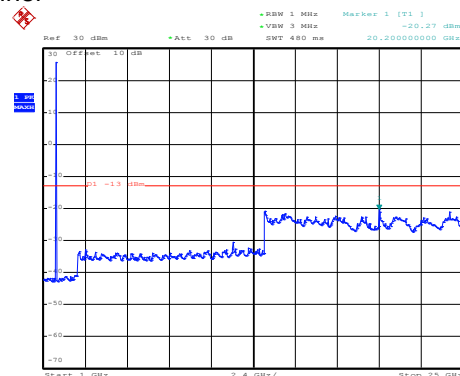
1GHz~25GHz

Middle channel



Date: 17.SEP.2019 18:09:06

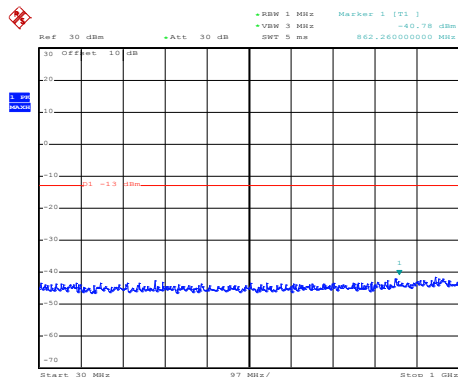
30MHz~1GHz



Date: 17.SEP.2019 18:34:52

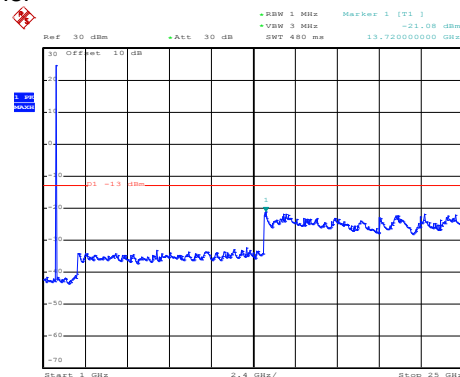
1GHz~25GHz

High channel



Date: 17.SEP.2019 18:09:23

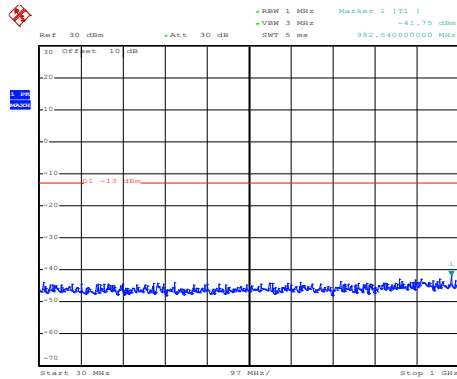
30MHz~1GHz



Date: 17.SEP.2019 18:35:16

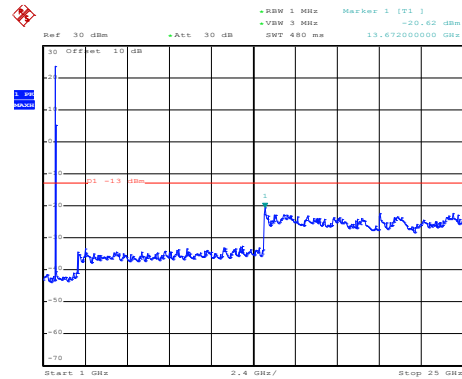
1GHz~25GHz

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



Date: 17.SEP.2019 18:22:05

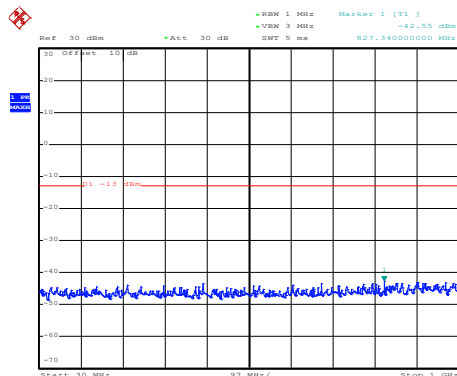
30MHz~1GHz



Date: 17.SEP.2019 18:47:14

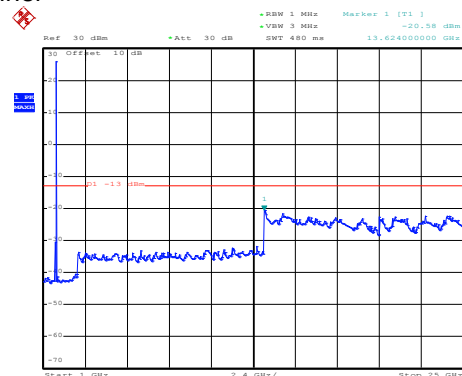
1GHz~25GHz

Middle channel



Date: 17.SEP.2019 18:22:47

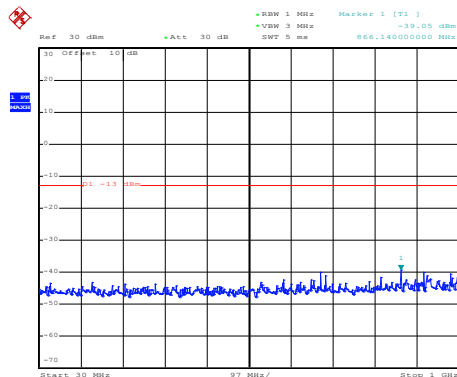
30MHz~1GHz



Date: 17.SEP.2019 18:48:19

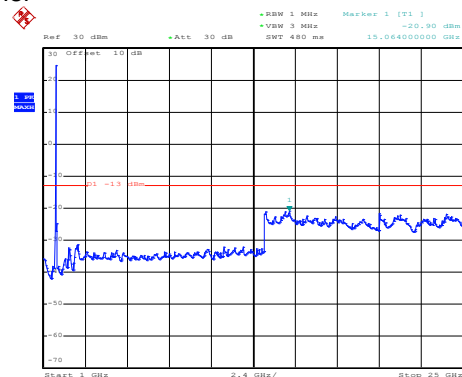
1GHz~25GHz

High channel



Date: 17.SEP.2019 18:23:12

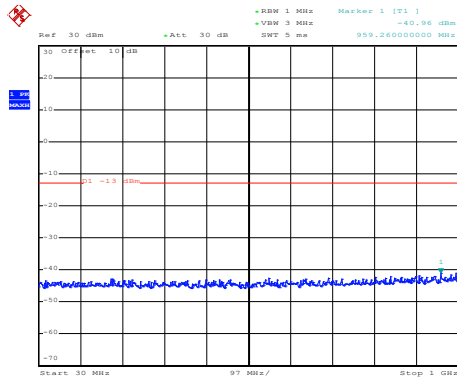
30MHz~1GHz



Date: 17.SEP.2019 18:49:02

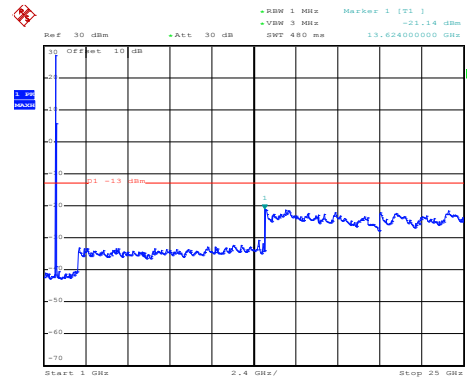
1GHz~25GHz

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



Date: 17.SEP.2019 18:22:00

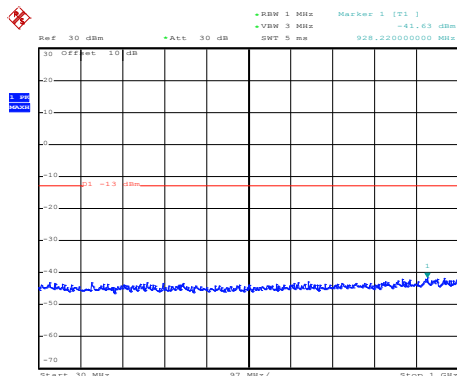
30MHz~1GHz



Date: 17.SEP.2019 18:47:06

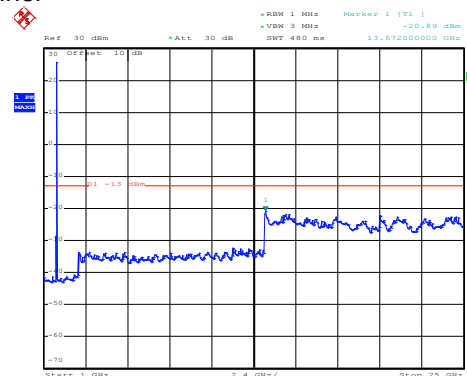
1GHz~25GHz

Middle channel



Date: 17.SEP.2019 18:22:41

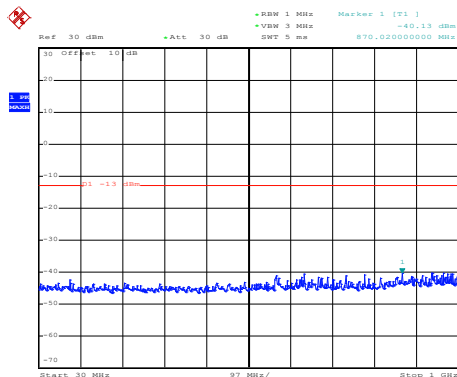
30MHz~1GHz



Date: 17.SEP.2019 18:48:33

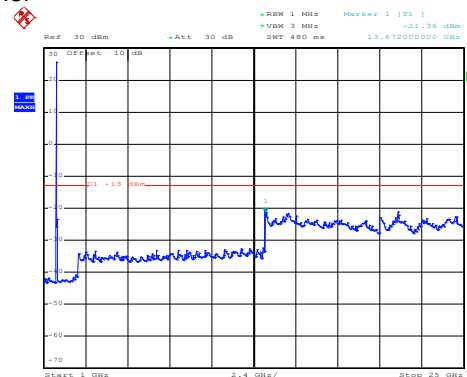
1GHz~25GHz

High channel



Date: 17.SEP.2019 18:23:00

30MHz~1GHz

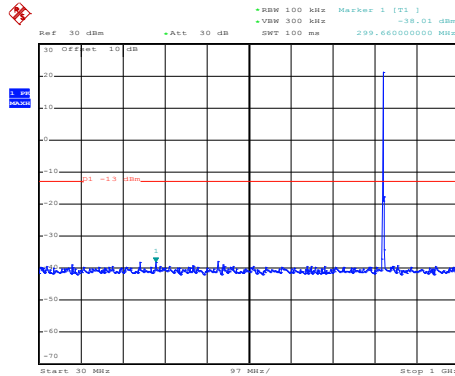


Date: 17.SEP.2019 18:48:45

1GHz~25GHz

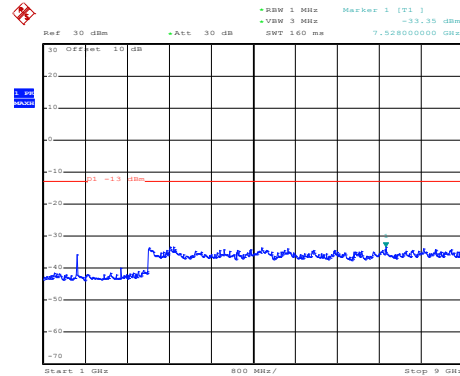
LTE Band 5 part:

LTE Band 5: 16 QAM & RB Size 1 BW: 1.4MHz Lowest channel



Date: 17.SEP.2019 17:56:09

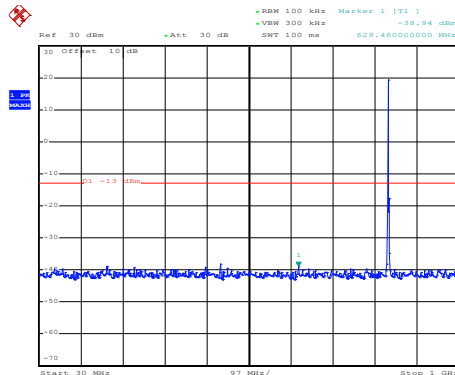
30MHz~1GHz



Date: 17.SEP.2019 18:50:52

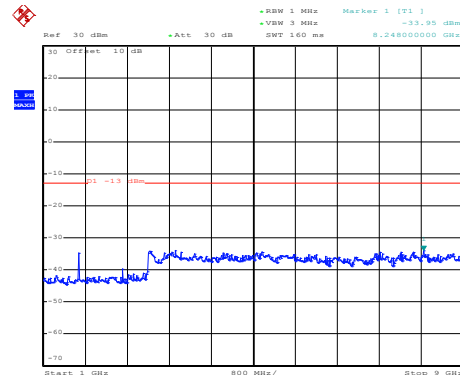
1GHz~9GHz

Middle channel



Date: 17.SEP.2019 17:57:18

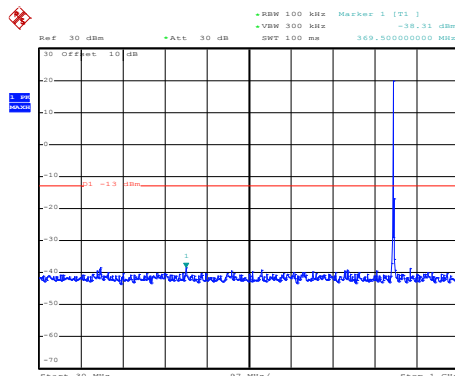
30MHz~1GHz



Date: 17.SEP.2019 18:51:41

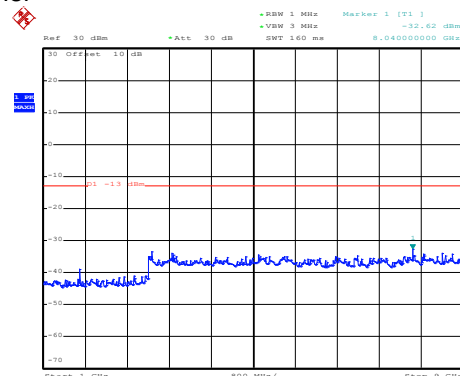
1GHz~9GHz

High channel



Date: 17.SEP.2019 17:57:45

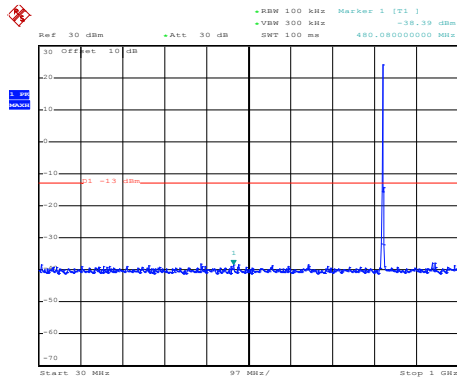
30MHz~1GHz



Date: 17.SEP.2019 18:51:57

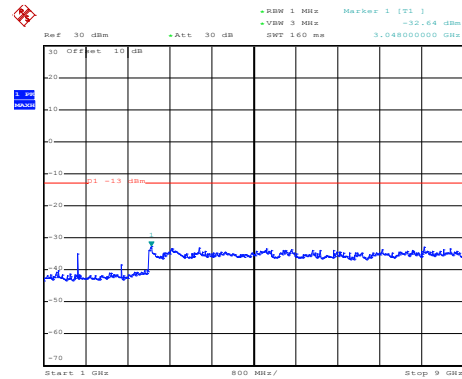
1GHz~9GHz

LTE Band 5: QPSK & RB Size 1 BW: 1.4MHz Lowest channel



Date: 17.SEP.2019 17:55:54

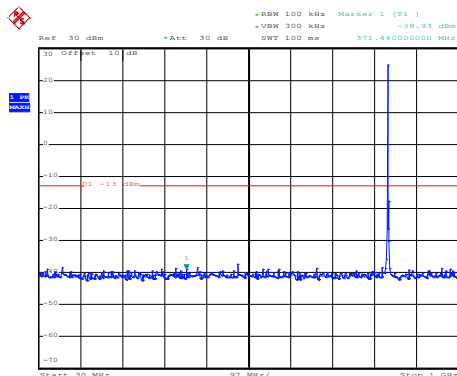
30MHz~1GHz



Date: 17.SEP.2019 18:50:43

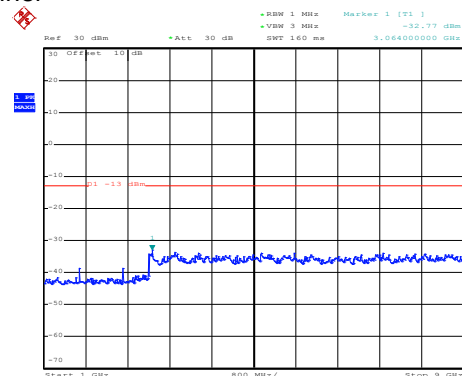
1GHz~9GHz

Middle channel



Date: 17.SEP.2019 17:57:10

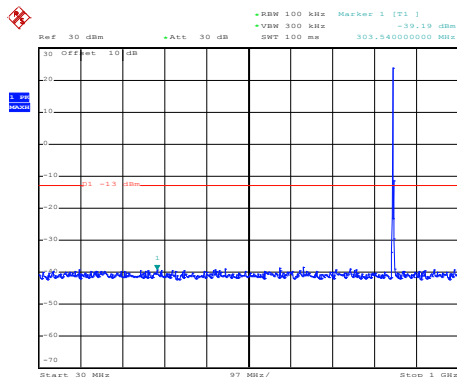
30MHz~1GHz



Date: 17.SEP.2019 18:51:35

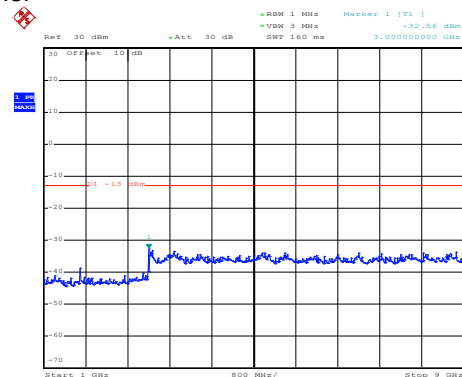
1GHz~9GHz

High channel



Date: 17.SEP.2019 17:57:39

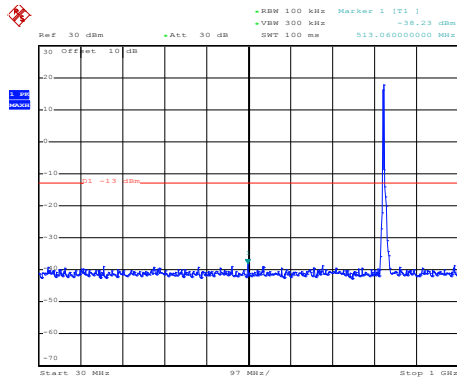
30MHz~1GHz



Date: 17.SEP.2019 18:51:52

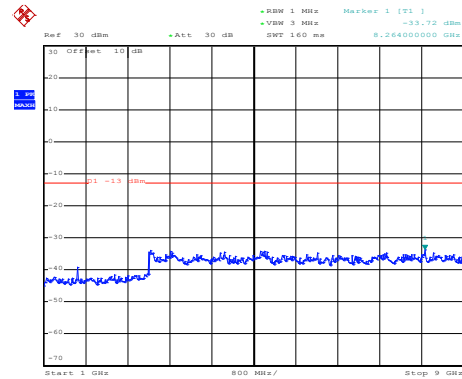
1GHz~9GHz

LTE Band 5: 16 QAM & RB Size 1 BW: 10MHz Lowest channel



Date: 17.SEP.2019 18:04:25

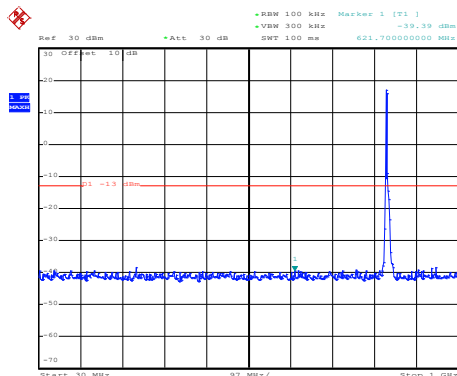
30MHz~1GHz



Date: 17.SEP.2019 18:56:57

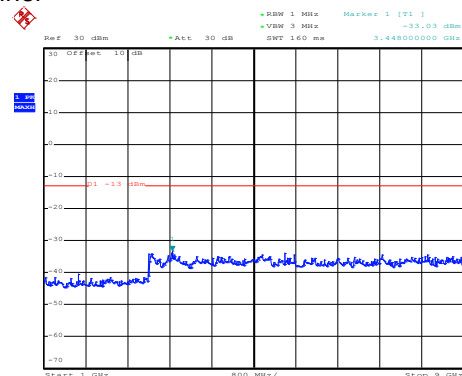
1GHz~9GHz

Middle channel



Date: 17.SEP.2019 18:05:24

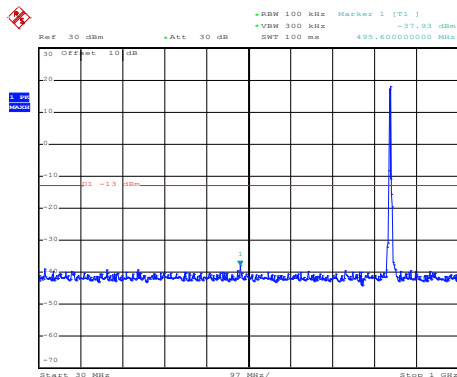
30MHz~1GHz



Date: 17.SEP.2019 18:57:43

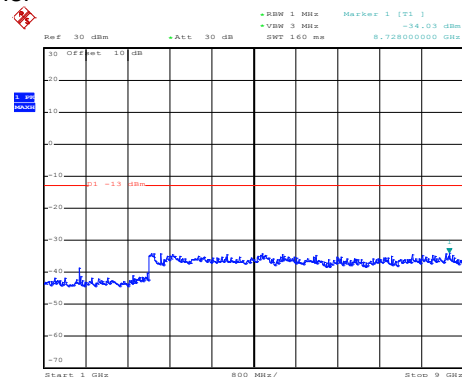
1GHz~9GHz

High channel



Date: 17.SEP.2019 18:05:44

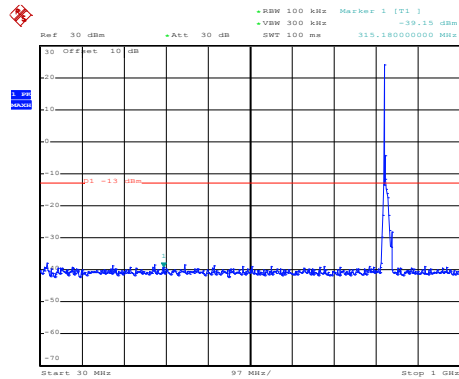
30MHz~1GHz



Date: 17.SEP.2019 18:58:01

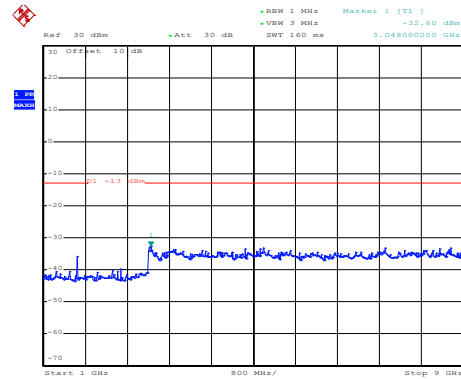
1GHz~9GHz

LTE Band 5: QPSK & RB Size 1 BW: 10MHz Lowest channel



Date: 17.SEP.2019 18:04:13

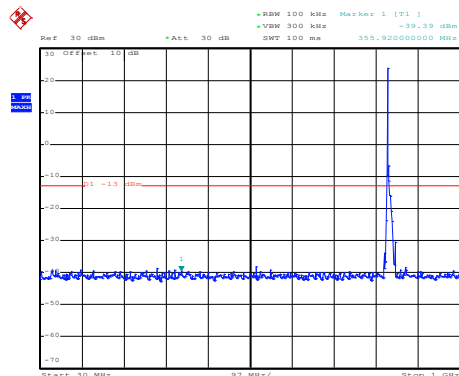
30MHz~1GHz



Date: 17.SEP.2019 18:56:52

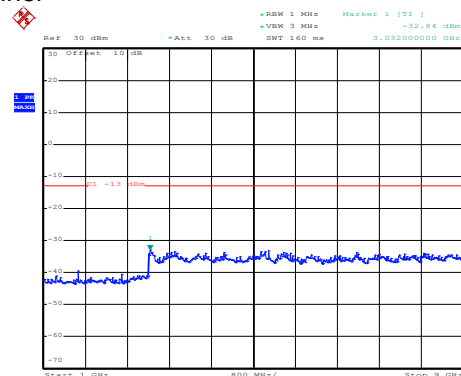
1GHz~9GHz

Middle channel



Date: 17.SEP.2019 18:05:14

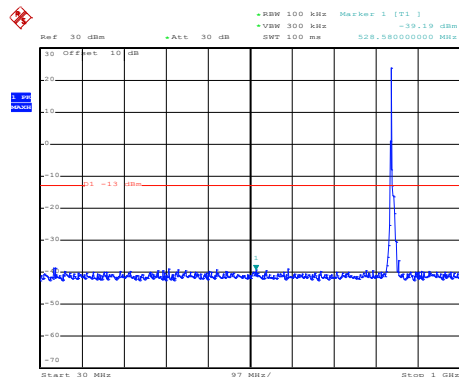
30MHz~1GHz



Date: 17.SEP.2019 18:57:38

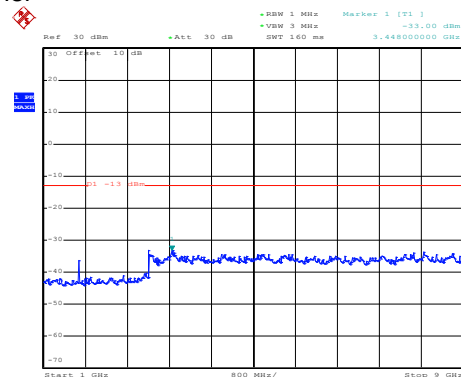
1GHz~9GHz

High channel



Date: 17.SEP.2019 18:05:38

30MHz~1GHz

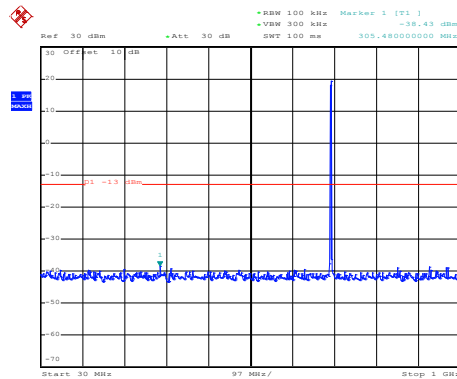


Date: 17.SEP.2019 18:57:55

1GHz~9GHz

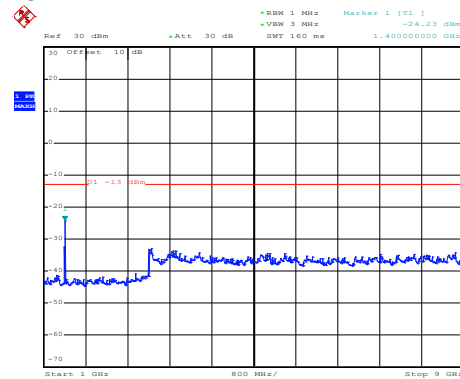
LTE Band 12 part:

LTE Band 12: 16 QAM & RB Size 1 BW: 1.4MHz Lowest channel



Date: 17.SEP.2019 17:51:04

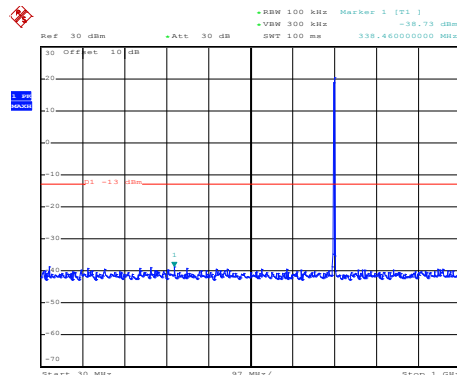
30MHz~1GHz



Date: 17.SEP.2019 18:59:04

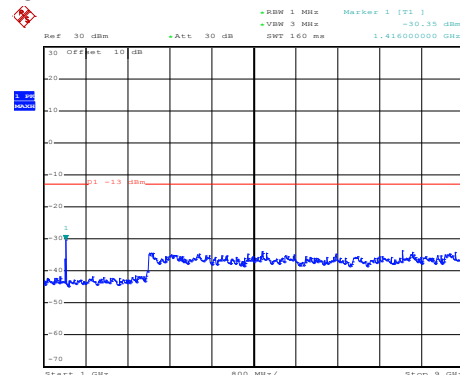
1GHz~25GHz

Middle channel



Date: 17.SEP.2019 17:52:13

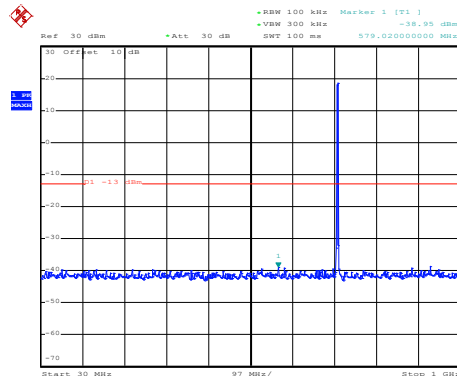
30MHz~1GHz



Date: 17.SEP.2019 18:59:56

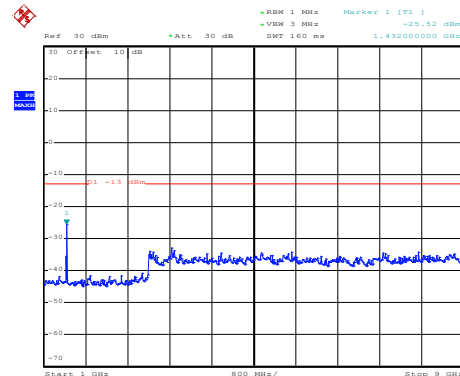
1GHz~25GHz

High channel



Date: 17.SEP.2019 17:52:36

30MHz~1GHz



Date: 17.SEP.2019 19:00:13

1GHz~25GHz