FCC REPORT
(LTE)

Applicant:	Plus One Marketing Ltd.
Address of Applicant:	2-8-6 Nishi-Shimbashi, Minatoku, Tokyo, JAPAN
Equipment Under Test (EUT)	
Product Name:	Mobile Phone
Model No.:	FTU18A00
FCC ID:	2AG5L-FTU18A00
Applicable standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part 22 Subpart H FCC CFR Title 47 Part 24 Subpart E FCC CFR Title 47 Part 27 Subpart L FCC CFR Title 47 Part 27 Subpart H FCC CFR Title 47 Part 27 Subpart D
Date of sample receipt:	23 Oct., 2017
Date of Test:	23 Oct., to 12 Dec., 2017
Date of report issued:	13 Dec., 2017
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	*13 Dec., 2017*	*Original*
01	*18 Jan.,2018*	*Update page 5*

Tested by:	Carey Chen ***Test Engineer***	***Date:***	*13 Dec., 2017*
Reviewed by:	Winner Zhang ***Project Engineer***	***Date:***	*13 Dec., 2017*

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4. Test Summary

Test Items	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Passed (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c) Part 27.50 (c)(10) Part 27.50 (d)(4) Part 27.50 (a)(3)	Pass
Peak-to-Average Ratio	Part 24.232 (d) Part 27.50 (d)(5)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 (b) Part 24.238 (b) Part 27.53 (g) Part 27.53 (h) Part 27.53 (a)(5)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h) Part 27.53 (a)(4)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h) Part 27.53 (a)(4)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h) Part 27.53 (a)(4)	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
Pass: The EUT complies with the essential requirements in the standard.		

5. General Information

5.1 Client Information

Applicant:	Plus One Marketing Ltd.
Address of Applicant:	2-8-6 Nishi-Shimbashi, Minatoku, Tokyo, JAPAN
Manufacturer:	Plus one marketing Ltd.
Address of Manufacturer:	2-8-6 Nishi-Shimbashi, Minatoku, Tokyo, JAPAN
Factory:	Shenzhen Zhenhua Communication Equipment Co., Ltd
Address of Factory:	NO.2, NO.3 building, Zhenhua industrial park, NO.44, TieZai Rd, XiXiang town, BaoAn Area, ShenZhen, Guangdong, China.

5.2 General Description of E.U.T.

Product Name:	Mobile Phone
Model No.:	FTU18A00
Operation Frequency range:	LTE Band 2: TX: 1850MHz-1910MHz, RX: 1930MHz-1990MHz LTE Band 4/66: TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz (Remark: LTE Band 66 not configured the CC;TX:1755-1780,RX:2155-2200Not applicable) LTE Band 5: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 12: TX: 699MHz-716MHz, RX: 729MHz-746MHz LTE Band 30: TX: 2305MHz-2315MHz, RX: 2350MHz-2360MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	LTE Band 2: 1.7 dBi LTE Band 4/66: 1.9 dBi LTE Band 5: -2.1 dBi LTE Band 12: -3.8 dBi LTE Band 30: 1.8 dBi
AC adapter:	Rechargeable Li-ion Battery DC3.8V-2500mAh
Power supply:	Model: A8A-050150U-US2 Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 1.5A

Operation Frequency List:

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

LTE Band 4/66 (1.4MHz)		LTE Band 4/66 (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 4/66 (5MHz)		LTE Band 4/66 (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 4/66 (15MHz)		LTE Band 4/66 (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
Remark: LTE Band 66 at EUT not configured the CC.			

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 30 (5MHz)		LTE Band 30 (10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
27685	2307.50	/	/
27686	2307.60	/	/
….	….	/	/
27709	2309.90	/	
27710	2310.00	27710	2310.00
27711	2310.10	/	/
…	…	/	/
27734	2312.40	/	/
27735	2312.50	/	/

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

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

LTE Band 4/66 (1.4MHz)			LTE Band 4/66 (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 4/66 (5MHz)			LTE Band 4/66 (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 4/66 (15MHz)			LTE Band 4/66 (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 30 (5MHz)			LTE Band 30 (10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	27685	2307.50	/	/	/
Middle channel	27710	2310.00	Middle channel	27710	2310.00
Highest channel	27735	2312.50	/	/	/

5.3 Test environment and mode

Operating Environment:	
Temperature:	Normal: 15℃ ~ 35℃, Extreme: -30℃ ~ +50℃
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.8Vdc, Extreme: Low 3.5 Vdc, High 4.35 Vdc
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)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

5.6 Related Submittal(s) / Grant (s)

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

5.7 Laboratory Facility

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

- **FCC - Registration No.: 727551**

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

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

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

- **CNAS - Registration No.: CNAS L6048**

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

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

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

5.8 Laboratory Location

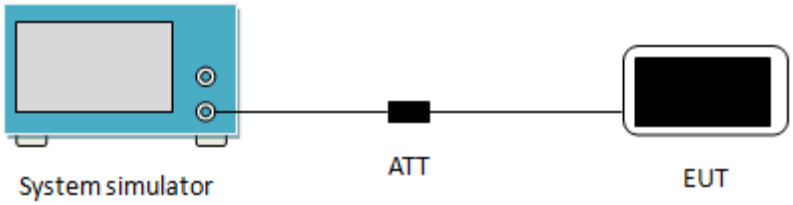
Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.9 Test Instruments list

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	02-25-2017	02-24-2018
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-22-2017	06-21-2018
Horn Antenna	SCHWARZBECK	BBHA9120D	916	02-25-2017	02-24-2018
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	02-25-2017	02-24-2018
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	02-25-2017	02-24-2018
Pre-amplifier	CD	PAP-1G18	11804	02-25-2017	02-24-2018
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	02-25-2017	02-24-2018
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	02-25-2017	02-24-2018
Spectrum Analyzer	Agilent	N9020A	MY50510123	10-29-2017	10-28- 2018
Signal Generator	Rohde & Schwarz	SMX	835454/016	02-25-2017	02-24- 2018
Signal Generator	R&S	SMR20	1008100050	02-25-2017	02-24-2018
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Cable	ZDECL	Z108-NJ-NJ-81	1608458	02-25-2017	02-24-2018
Cable	MICRO-COAX	MFR64639	K10742-5	02-25-2017	02-24-2018
Cable	SUHNER	SUCOFLEX100	58193/4PE	02-25-2017	02-24-2018
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	10-31-2017	10-30-2018
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	09-24-2017	09-23-2018
Simulated Station	Rohde & Schwarz	CMW500	140493	06-24-2017	06-23-2018

6. Test results

6.1 Conducted Output Power

Test Requirement:	Part 22.913(a)(2), Part 24.232(c), part 27.50(c)(10), Part 27.50(d)(4), Part 27.50 (a)(3)
Test Method:	ANSI/TIA-603-D 2010
Limit:	LTE Band 2: 2W LTE Band 4/66: 1W LTE Band 5: 7W LTE Band 12: 3W LTE Band 30: 0.25W
Test Setup:	
Test Procedure:	The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the CMW500. Transmitter output power was read off in dBm.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					18607	18900	19193
					1850.7MHz	1880.0MHz	1909.3MHz
2	1.4	QPSK	1	0	22.62	22.59	22.75
			1	2	22.75	22.77	22.76
			1	5	22.66	22.72	22.56
			3	0	21.64	21.75	21.64
			3	1	21.75	21.96	21.65
			3	2	21.78	21.93	21.76
			6	0	21.75	21.79	21.72
		16QAM	1	0	21.71	21.81	21.10
			1	2	21.27	21.67	21.42
			1	5	21.61	21.59	21.20
			3	0	21.77	21.73	21.85
			3	1	21.85	21.95	21.93
			3	2	21.96	21.78	21.86
			6	0	20.69	20.72	20.55

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					18615	18900	19185
					1851.5MHz	1880.0MHz	1908.5MHz
2	3	QPSK	1	0	22.79	22.59	22.61
			1	7	22.78	22.71	22.74
			1	14	22.67	22.68	22.65
			8	0	21.84	21.72	21.79
			8	4	21.85	21.76	21.73
			8	7	21.88	21.76	21.66
			15	0	21.83	21.82	21.79
		16QAM	1	0	21.26	21.41	21.78
			1	7	21.32	21.50	21.02
			1	14	21.24	21.48	21.17
			8	0	20.68	20.34	20.58
			8	4	20.89	20.72	20.65
			8	7	20.77	20.74	20.70
			15	0	20.98	20.73	20.84

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					18625	18900	19175
					1852.5MHz	1880.0MHz	1907.5MHz
2	5	QPSK	1	0	22.78	22.63	22.51
			1	12	22.76	22.76	22.42
			1	24	22.76	22.72	22.56
			12	0	21.84	21.80	21.88
			12	6	21.83	21.85	21.76
			12	11	21.80	21.85	21.65
			25	0	21.82	21.83	21.78
		16QAM	1	0	20.94	21.91	21.44
			1	12	20.97	21.60	21.11
			1	24	21.24	21.48	20.52
			12	0	20.55	20.47	20.55
			12	6	20.64	20.77	20.69
			12	11	20.50	20.67	20.37
			25	0	20.58	20.76	20.81

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					18650	18900	19150
					1855.0MHz	1880.0MHz	1905.0MHz
2	10	QPSK	1	0	22.65	22.65	22.75
			1	24	22.98	22.90	22.97
			1	49	22.56	22.86	23.07
			25	0	21.74	22.00	21.84
			25	12	21.90	21.88	21.81
			25	24	21.78	21.66	21.56
			50	0	21.82	22.03	21.89
		16QAM	1	0	21.46	21.79	21.63
			1	24	21.49	21.84	21.69
			1	49	20.91	21.02	20.78
			25	0	20.76	20.73	20.63
			25	12	20.96	20.97	20.66
			25	24	20.79	21.06	20.60
			50	0	20.77	20.71	20.89
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					18675	18900	19125
					1857.5MHz	1880.0MHz	1902.5MHz
2	15	QPSK	1	0	22.88	22.81	22.64
			1	37	23.03	23.00	22.94
			1	74	22.43	22.68	22.97
			36	0	21.72	22.00	22.07
			36	16	21.87	21.70	21.78
			36	35	21.89	21.85	21.75
			75	0	21.85	21.86	21.94
		16QAM	1	0	21.69	21.49	21.38
			1	37	21.79	21.86	21.27
			1	74	21.42	21.20	20.82
			36	0	21.09	20.99	21.14
			36	16	20.94	20.82	20.88
			36	35	20.99	20.91	20.77
			75	0	20.70	20.94	21.02
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					18700	18900	19100
					1860.0MHz	1880.0MHz	1900.0MHz
2	20	QPSK	1	0	22.80	22.83	22.70
			1	49	23.00	22.94	23.00
			1	99	22.72	22.53	22.73
			50	0	22.02	22.01	21.99
			50	24	21.97	21.73	21.90
			50	49	21.85	21.85	21.83
			100	0	21.80	21.89	21.93
		16QAM	1	0	21.86	22.38	21.00
			1	49	22.03	22.27	22.23
			1	99	21.09	21.09	21.49
			50	0	20.77	20.77	21.01
			50	24	21.09	20.84	20.86
			50	49	21.01	20.95	20.63
			100	0	20.78	21.01	20.87

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19957	20175	20393
					1710.7MHz	1732.5MHz	1754.3MHz
4/66	1.4	QPSK	1	0	22.32	22.85	22.62
			1	2	22.93	22.81	22.73
			1	5	22.85	22.90	22.60
			3	0	22.06	22.18	21.61
			3	1	21.90	22.01	21.67
			3	2	21.93	22.08	21.65
			6	0	21.82	22.00	21.85
		16QAM	1	0	21.64	22.12	22.07
			1	2	21.20	21.36	21.80
			1	5	21.08	21.56	21.81
			3	0	21.47	22.11	22.32
			3	1	21.91	21.99	22.50
			3	2	22.29	22.18	21.75
			6	0	20.91	21.06	20.90
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19965	20175	20385
					1711.5MHz	1732.5MHz	1753.5MHz
4/66	3	QPSK	1	0	22.93	23.04	22.93
			1	7	22.37	2284	22.60
			1	14	22.37	22.87	22.73
			8	0	21.87	22.13	21.95
			8	4	21.81	22.02	22.06
			8	7	21.80	22.07	22.04
			15	0	21.82	22.09	21.96
		16QAM	1	0	21.32	21.58	21.82
			1	7	21.17	21.72	22.12
			1	14	21.16	21.43	21.95
			8	0	20.77	21.04	20.46
			8	4	20.91	21.01	20.64
			8	7	20.79	20.90	20.95
			15	0	20.86	20.97	20.94
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19975	20175	20375
					1712.5MHz	1732.5MHz	1752.5MHz
4/66	5	QPSK	1	0	22.31	22.92	22.96
			1	12	23.03	22.68	23.11
			1	24	22.45	22.51	22.61
			12	0	21.81	22.04	22.11
			12	6	21.89	21.95	22.13
			12	11	21.86	21.97	22.16
			25	0	21.90	22.12	22.11
		16QAM	1	0	21.60	21.72	22.12
			1	12	21.51	21.17	21.63
			1	24	21.56	21.42	21.78
			12	0	20.70	20.78	21.02
			12	6	20.72	20.84	21.24
			12	11	20.72	20.87	21.13
			25	0	20.76	21.06	21.00

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20000	20175	20350
					1715.0MHz	1732.5MHz	1750.0MHz
4/66	10	QPSK	1	0	22.73	23.05	22.85
			1	24	23.37	22.97	23.01
			1	49	22.76	22.76	22.98
			25	0	21.86	22.10	22.20
			25	12	22.07	21.92	22.61
			25	24	21.94	21.87	22.02
			50	0	21.92	21.91	22.41
		16QAM	1	0	21.75	21.74	21.84
			1	24	22.20	22.02	21.88
			1	49	21.53	21.70	22.00
			25	0	20.97	21.14	21.46
			25	12	21.25	20.99	21.64
			25	24	21.32	20.96	21.13
			50	0	21.02	21.03	20.94
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20025	20175	20325
					1717.5MHz	1732.5MHz	1747.5MHz
4/66	15	QPSK	1	0	23.07	23.13	23.13
			1	37	22.95	22.90	23.47
			1	74	22.94	22.90	23.18
			36	0	21.92	22.20	22.20
			36	16	21.78	21.96	21.75
			36	35	21.97	21.93	22.37
			75	0	21.95	22.17	22.24
		16QAM	1	0	21.61	22.42	21.62
			1	37	21.52	21.11	21.69
			1	74	21.71	21.23	22.03
			36	0	20.96	21.20	21.21
			36	16	20.87	20.96	21.53
			36	35	20.81	20.84	20.95
			75	0	21.02	20.94	21.40
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20050	20175	20300
					1720.0MHz	1732.5MHz	1745.0MHz
4/66	20	QPSK	1	0	22.95	23.15	22.91
			1	49	23.08	22.93	23.33
			1	99	22.60	22.68	23.17
			50	0	22.08	22.08	22.33
			50	24	22.04	22.03	22.31
			50	49	22.04	21.98	22.21
			100	0	21.88	22.14	22.22
		16QAM	1	0	21.54	22.03	21.65
			1	49	21.21	21.54	21.63
			1	99	21.24	21.03	21.66
			50	0	21.23	20.96	21.45
			50	24	21.24	20.96	21.49
			50	49	21.01	20.84	21.27
			100	0	21.02	21.17	21.39

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	22.90	22.69	22.94
			1	2	23.02	22.77	23.01
			1	5	22.97	22.71	22.84
			3	0	22.01	21.93	22.11
			3	1	22.12	21.93	22.05
			3	2	22.04	21.95	22.11
			6	0	22.05	21.99	22.08
		16QAM	1	0	21.74	21.58	21.86
			1	2	21.63	21.76	21.82
			1	5	21.63	21.54	21.82
			3	0	21.86	22.05	21.80
			3	1	22.07	22.11	21.88
			3	2	21.94	22.23	22.05
			6	0	20.94	20.90	20.95
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	22.78	22.70	22.94
			1	7	22.94	22.65	22.94
			1	14	23.04	22.84	22.90
			8	0	21.99	22.08	22.05
			8	4	22.07	21.99	21.96
			8	7	22.03	21.94	22.00
			15	0	21.94	21.95	22.07
		16QAM	1	0	21.68	21.67	21.81
			1	7	21.53	21.42	21.60
			1	14	21.44	21.57	21.20
			8	0	21.09	20.95	20.97
			8	4	20.96	20.96	20.83
			8	7	20.92	20.94	21.08
			15	0	20.96	20.94	20.90
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	22.51	22.84	22.74
			1	12	23.01	22.88	22.94
			1	24	22.84	22.79	22.80
			12	0	21.87	22.02	22.07
			12	6	21.98	22.00	22.03
			12	11	21.97	21.99	22.00
			25	0	21.90	22.01	22.03
		16QAM	1	0	21.61	21.45	21.69
			1	12	21.86	21.64	21.76
			1	24	21.55	21.41	21.04
			12	0	20.71	20.76	20.80
			12	6	20.82	20.74	20.84
			12	11	20.94	20.65	20.59
			25	0	20.89	20.85	20.94

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	23.02	22.73	22.65
			1	24	23.10	22.86	23.33
			1	49	22.83	22.63	22.72
			25	0	22.05	22.04	22.11
			25	12	22.14	22.06	22.14
			25	24	21.94	21.97	21.96
			50	0	22.01	22.01	22.00
		16QAM	1	0	21.46	21.72	21.72
			1	24	21.56	21.90	21.92
			1	49	21.25	21.22	21.16
			25	0	21.00	21.04	20.83
			25	12	21.12	21.08	21.07
			25	24	21.03	20.95	20.99
			50	0	21.08	20.97	20.99

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	23.01	22.93	23.12
			1	2	23.21	22.91	23.06
			1	5	23.20	22.90	23.08
			3	0	22.11	22.09	22.11
			3	1	22.22	22.17	22.16
			3	2	22.23	22.11	22.24
			6	0	22.36	22.18	22.01
		16QAM	1	0	22.06	22.46	22.16
			1	2	22.03	22.02	22.51
			1	5	22.51	22.12	22.24
			3	0	21.02	21.34	21.63
			3	1	21.39	21.33	21.48
			3	2	21.38	21.33	21.39
			6	0	21.25	21.37	21.41
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	23.07	23.20	23.02
			1	7	23.23	23.16	23.09
			1	14	23.13	23.00	23.03
			8	0	22.19	22.05	22.06
			8	4	22.26	22.03	22.06
			8	7	22.24	22.07	22.03
			15	0	22.14	22.00	22.05
		16QAM	1	0	21.87	21.83	21.79
			1	7	21.87	22.11	21.85
			1	14	21.92	22.04	21.84
			8	0	21.00	20.96	21.03
			8	4	21.39	20.89	21.02
			8	7	21.41	21.07	20.90
			15	0	21.17	21.00	21.07

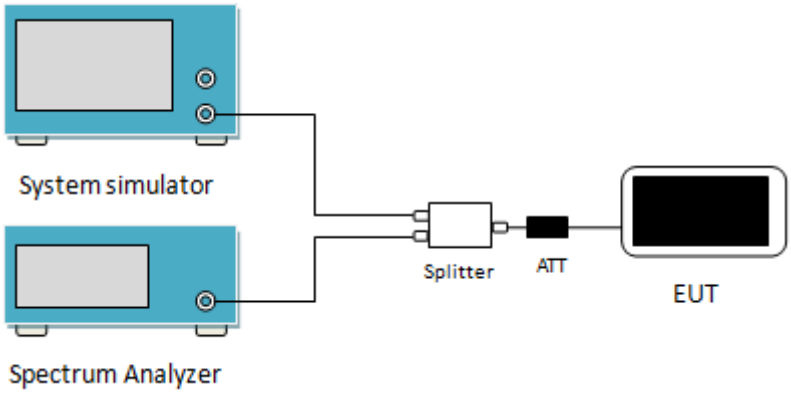
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					23035	23095	23155
					701.5MHz	707.5MHz	713.5MHz
12	5	QPSK	1	0	22.81	22.77	22.91
			1	12	23.23	22.83	23.10
			1	24	23.17	22.78	22.99
			12	0	22.07	22.01	21.98
			12	6	22.28	22.14	22.19
			12	11	22.24	22.09	22.14
			25	0	22.22	22.14	22.10
		16QAM	1	0	22.22	22.08	21.77
			1	12	21.66	22.10	21.87
			1	24	22.06	21.67	21.63
			12	0	21.08	20.80	20.88
			12	6	21.02	20.86	20.85
			12	11	21.03	20.85	20.79
			25	0	21.04	21.03	20.98

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					23060	23095	23130
					704.0MHz	707.5MHz	711.0MHz
12	10	QPSK	1	0	23.22	22.94	22.96
			1	24	23.37	23.14	23.07
			1	49	22.79	22.87	23.04
			25	0	22.18	22.12	22.14
			25	12	22.19	22.16	22.23
			25	24	22.20	22.03	22.13
			50	0	22.09	22.07	22.12
		16QAM	1	0	21.55	21.55	21.94
			1	24	22.07	21.74	22.11
			1	49	21.41	21.54	21.76
			25	0	21.09	21.11	21.03
			25	12	21.39	21.23	21.15
			25	24	21.37	21.02	21.04
			50	0	21.01	21.01	21.12

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					27685	27710	27735
					2307.5MHz	2310.0MHz	2312.5MHz
30	5	QPSK	1	0	22.67	22.57	22.57
			1	12	22.72	22.90	22.86
			1	24	22.64	22.64	22.71
			12	0	21.89	22.11	21.96
			12	6	21.91	22.06	21.86
			12	11	21.79	21.82	21.81
			25	0	21.77	21.89	21.90
		16QAM	1	0	22.83	21.42	21.36
			1	12	22.95	21.68	21.41
			1	24	22.80	21.26	20.94
			12	0	21.93	20.69	20.61
			12	6	21.97	20.86	20.48
			12	11	21.84	20.69	20.59
			25	0	20.71	20.87	20.88

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)
					27710
					2310.0MHz
30	10	QPSK	1	0	23.20
			1	12	23.12
			1	24	23.00
			12	0	22.11
			12	6	22.07
			12	11	21.88
			25	0	22.05
		16QAM	1	0	21.70
			1	12	21.81
			1	24	21.08
			12	0	20.99
			12	6	20.99
			12	11	20.76
			25	0	21.01

6.2 Peak-to-Average Ratio

Test Requirement:	Part 24.232 (d), Part 27.50(d)(5)
Test Method:	ANSI/TIA-603-D 2010
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	
Test Procedure:	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 ≥ 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 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

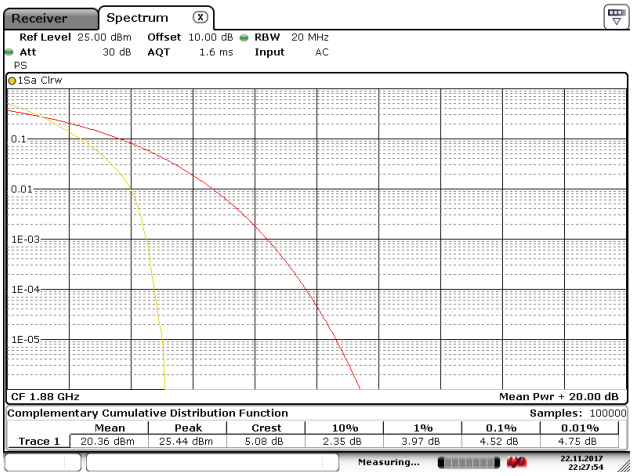
Measurement Data:

Bandwidth	Modulation	RB Size	RB Offset	PAPR
LTE Band 2 (Middle Channel)				
20MHz	QPSK	100	0	4.52
	16QAM	100	0	5.48
LTE Band 4/66 (Middle Channel)				
20MHz	QPSK	100	0	4.49
	16QAM	100	0	5.51
LTE Band 5 (Middle Channel)				
10MHz	QPSK	50	0	4.87
	16QAM	50	0	5.88
LTE Band 12 (Middle Channel)				
10MHz	QPSK	100	0	4.46
	16QAM	100	0	5.42
LTE Band 30 (Middle Channel)				
10MHz	QPSK	50	0	4.43
	16QAM	50	0	5.39

Test plots as below:

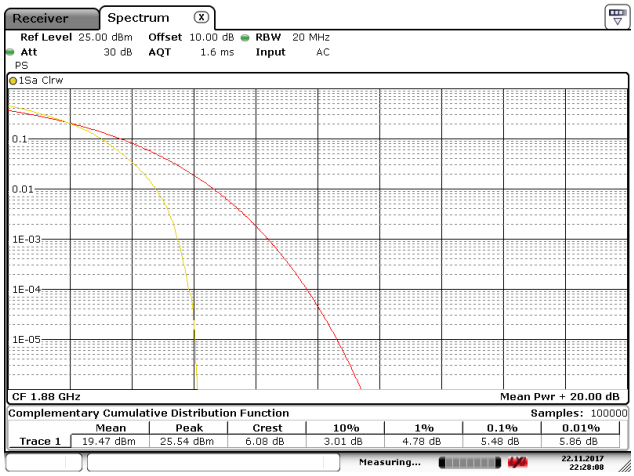
LTE Band 2 Middle channel

Modulation: QPSK



Date: 22.NOV.2017 22:27:54

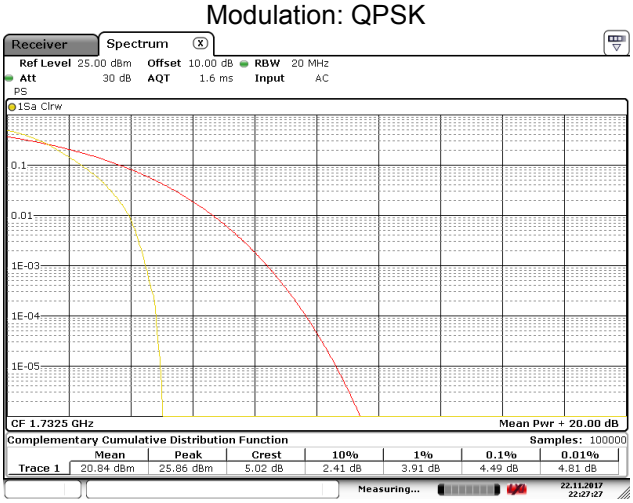
Modulation:16QAM



Date: 22.NOV.2017 22:28:08

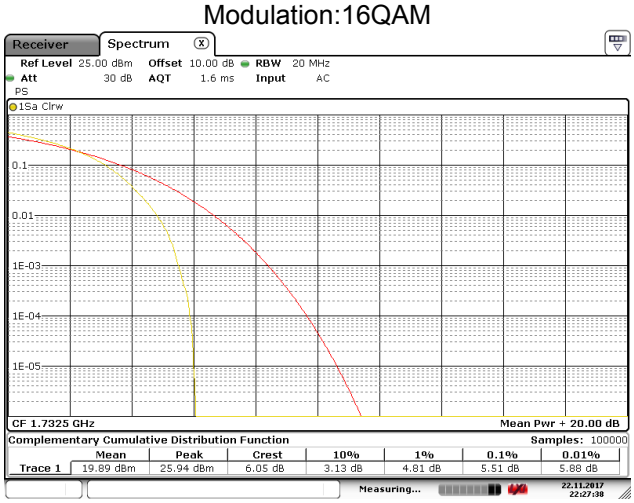
LTE Band 4/66 Middle channel

Modulation: QPSK



Date: 22.NOV.2017 22:27:27

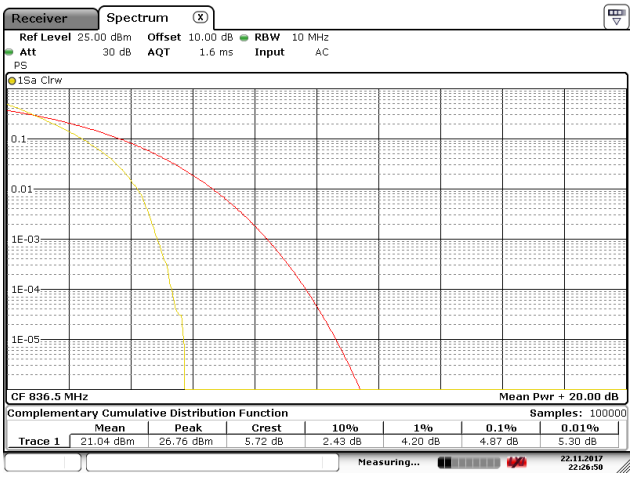
Modulation:16QAM



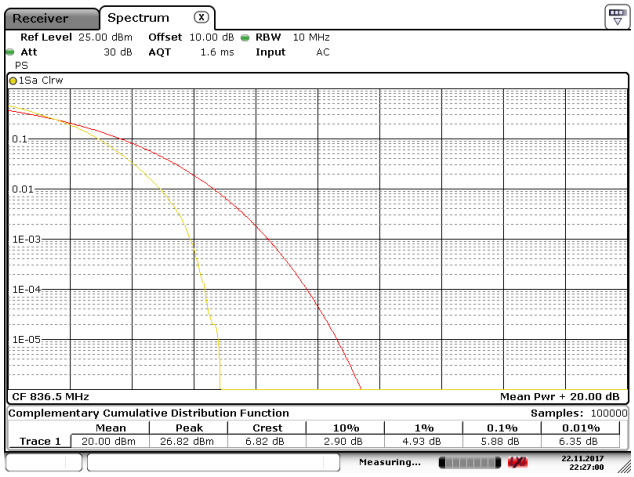
Date: 22.NOV.2017 22:27:37

LTE Band 5 Middle channel

Modulation: QPSK

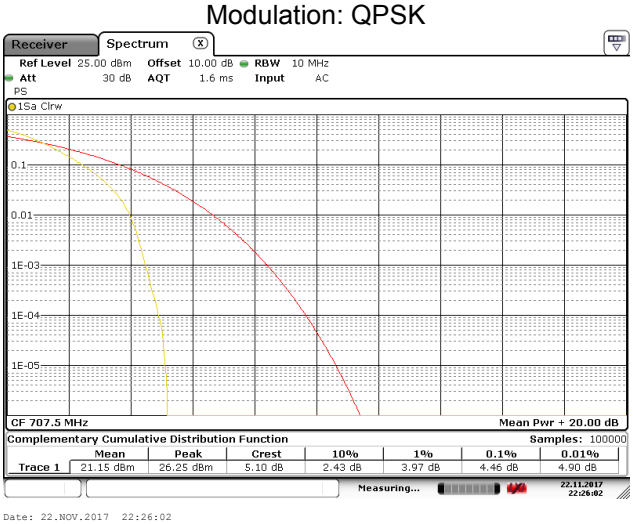


Modulation:16QAM

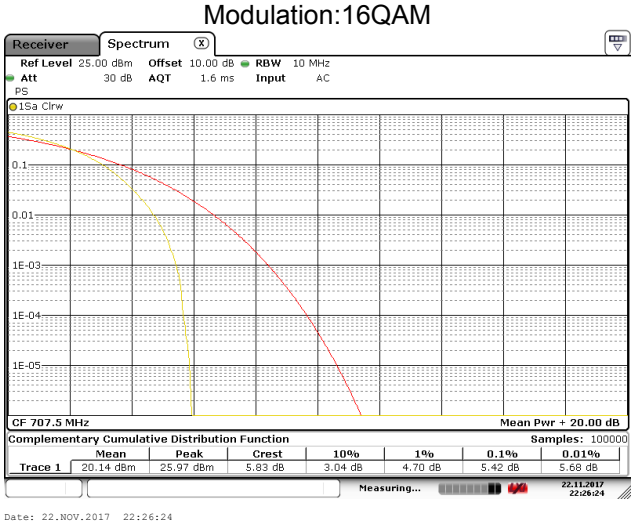


LTE Band 12 Middle channel

Modulation: QPSK

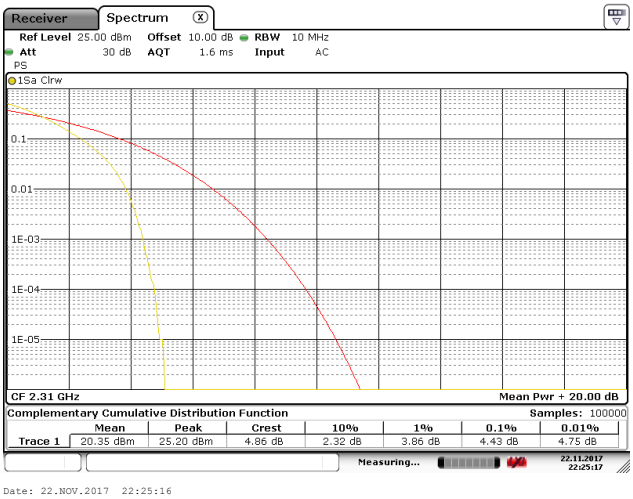


Modulation:16QAM



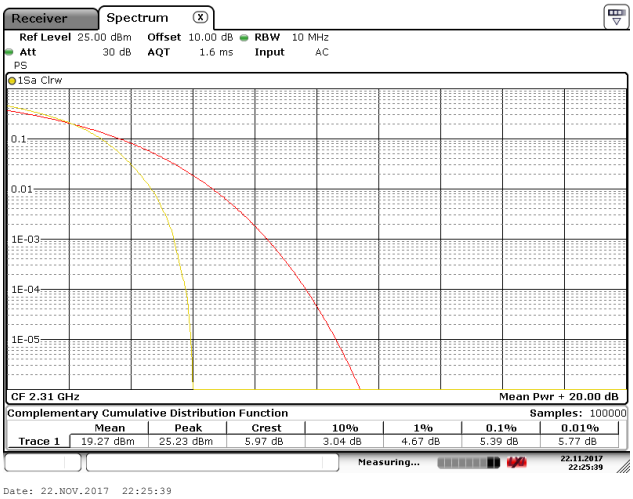
LTE Band 30 Middle channel

Modulation: QPSK



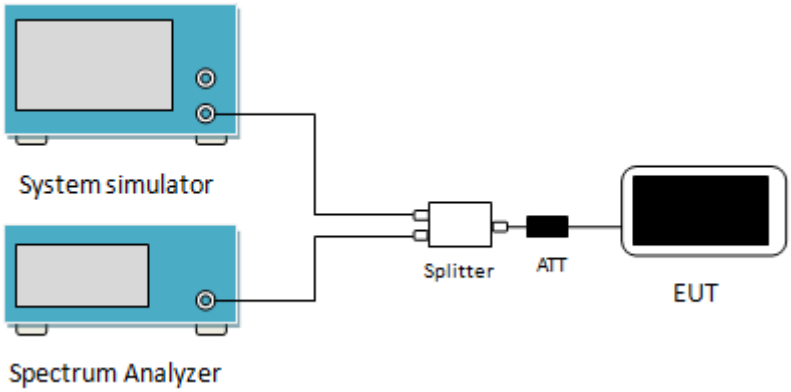
Date: 22.NOV.2017 22:25:16

Modulation:16QAM



Date: 22.NOV.2017 22:25:39

6.3 Occupy Bandwidth

Test Requirement:	Part 22.917(b), Part 24.238(b), Part 27.53(g), Part 27.53(h), Part 27.53(a)(5)
Test Method:	ANSI/TIA-603-D 2010
Test Setup:	
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 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:
LTE Band 2 part:

Bandwidth	Channel	Frequency(MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	18607	1850.70	16QAM	1098	1290
			QPSK	1104	1284
	18900	1880.00	16QAM	1098	1302
			QPSK	1098	1278
	19193	1909.30	16QAM	1098	1284
			QPSK	1104	1284
3MHz	18615	1851.50	16QAM	2724	3036
			QPSK	2736	3060
	18900	1880.00	16QAM	2736	3024
			QPSK	2748	3048
	19185	1908.50	16QAM	2736	2964
			QPSK	2736	3060
5MHz	18625	1852.50	16QAM	4480	4880
			QPSK	4520	5000
	18900	1880.00	16QAM	4520	4940
			QPSK	4540	4960
	19175	1907.50	16QAM	4480	4900
			QPSK	4520	5000
10MHz	18650	1855.00	16QAM	9040	10200
			QPSK	9080	10240
	18900	1880.00	16QAM	9080	10000
			QPSK	9040	10240
	19150	1905.00	16QAM	9040	10040
			QPSK	9040	10200
15MHz	18675	1857.50	16QAM	13500	14640
			QPSK	13560	14820
	18900	1880.00	16QAM	13560	14640
			QPSK	13440	14700
	19125	1902.50	16QAM	13440	14700
			QPSK	13440	14760
20MHz	18700	1860.00	16QAM	17840	19200
			QPSK	18000	19520
	18900	1880.00	16QAM	17920	19120
			QPSK	18000	19440
	19100	1900.00	16QAM	17840	19200
			QPSK	17920	19120

LTE Band 4/66 part:

Bandwidth	Channel	Frequency(MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	19957	1710.7	16QAM	1092	1296
			QPSK	1098	1296
	20175	1732.5	16QAM	1104	1278
			QPSK	1098	1284
	20393	1754.3	16QAM	1092	1284
			QPSK	1104	1272
3MHz	19965	1711.5	16QAM	2724	3024
			QPSK	2736	3048
	20175	1732.5	16QAM	2712	3048
			QPSK	2724	3060
	20385	1750.5	16QAM	2724	3012
			QPSK	2748	3060
5MHz	19975	1712.5	16QAM	4480	4840
			QPSK	4500	4980
	20175	1732.5	16QAM	4500	4860
			QPSK	4520	4960
	20375	1752.5	16QAM	4500	4860
			QPSK	4500	5020
10MHz	20000	1715.0	16QAM	9040	10160
			QPSK	9080	10200
	20175	1732.5	16QAM	9080	9960
			QPSK	9040	10160
	20350	1750.0	16QAM	9040	10120
			QPSK	9080	10200
15MHz	20025	1717.5	16QAM	13500	14700
			QPSK	13500	14820
	20175	1732.5	16QAM	13440	14760
			QPSK	13440	14580
	20325	1747.5	16QAM	13500	14700
			QPSK	13560	14940
20MHz	20050	1720.0	16QAM	17920	19120
			QPSK	18000	12360
	20175	1732.5	16QAM	17920	19200
			QPSK	17920	19440
	20300	1745.0	16QAM	17920	19120
			QPSK	18000	19360

LTE Band 5 part:

Bandwidth	Channel	Frequency(MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	20407	824.7	16QAM	1104	1260
			QPSK	1104	1296
	20525	836.5	16QAM	1098	1236
			QPSK	1098	1260
	20643	848.3	16QAM	1092	1308
			QPSK	1104	1290
3MHz	20415	825.5	16QAM	2724	3012
			QPSK	2736	3036
	20525	836.50	16QAM	2724	2976
			QPSK	2736	3060
	20635	847.50	16QAM	2724	3036
			QPSK	2748	3060
5MHz	20425	826.50	16QAM	4500	4900
			QPSK	4520	4960
	20525	836.50	16QAM	4520	4860
			QPSK	4540	4940
	20625	846.50	16QAM	4480	4860
			QPSK	4500	4940
10MHz	20450	829.00	16QAM	9080	10000
			QPSK	9080	10200
	20525	836.50	16QAM	9040	9960
			QPSK	9040	10280
	20600	844.00	16QAM	9080	10040
			QPSK	9040	10200

LTE Band 12 part:

Bandwidth	Channel	Frequency(MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	23017	699.7	16QAM	1092	1284
			QPSK	1104	1266
	23095	707.5	16QAM	1092	1278
			QPSK	1098	1278
	23173	715.3	16QAM	1098	1302
			QPSK	1104	1284
3MHz	23025	700.5	16QAM	2736	2988
			QPSK	2746	3036
	23095	707.5	16QAM	2724	2988
			QPSK	2736	3072
	23165	714.5	16QAM	2736	2976
			QPSK	2736	3036
5MHz	23035	701.5	16QAM	4480	4840
			QPSK	4500	4940
	23095	707.5	16QAM	4500	4820
			QPSK	4520	4980
	23155	713.5	16QAM	4500	4840
			QPSK	4520	4940
10MHz	23060	704.0	16QAM	9040	10040
			QPSK	9000	10080
	23095	707.5	16QAM	9040	10080
			QPSK	9080	10160
	23130	711.0	16QAM	9080	10160
			QPSK	9080	10040

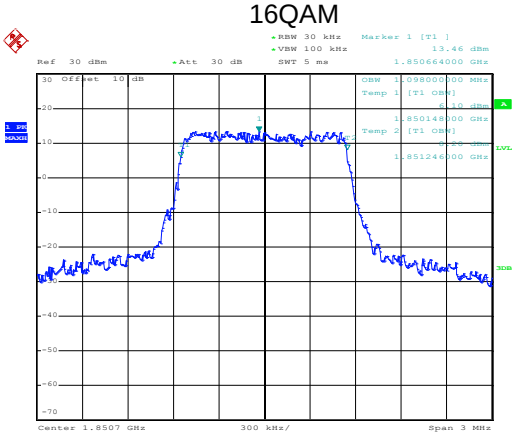
LTE Band 30 part

Bandwidth	Channel	Frequency(MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
5MHz	27685	2307.5	16QAM	4500	4880
			QPSK	4500	4940
	27710	2310.0	16QAM	4520	4860
			QPSK	4520	4980
	27735	2312.5	16QAM	4500	4960
			QPSK	4520	5000
10MHz	27710	2310.0	16QAM	9080	10000
			QPSK	9080	10200

Test plot as follows:
LTE Band 2 part

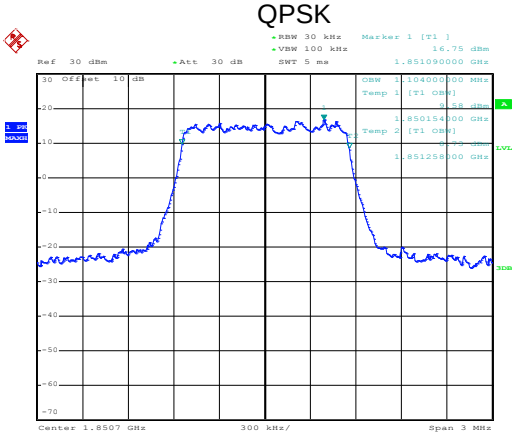
99% Occupy bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 19:06:08

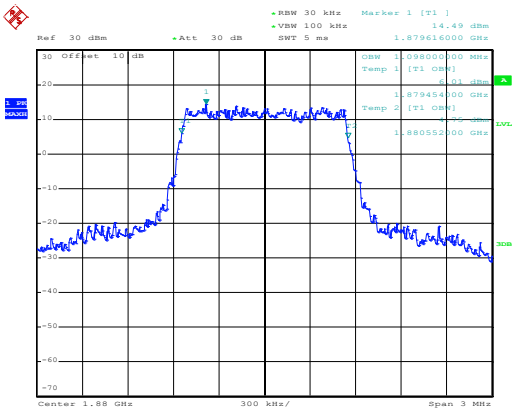
QPSK



Date: 2.NOV.2017 19:05:54

Lowest channel

16QAM



Date: 2.NOV.2017 19:06:57

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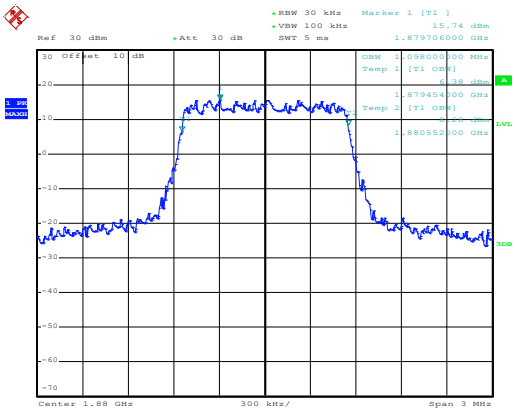
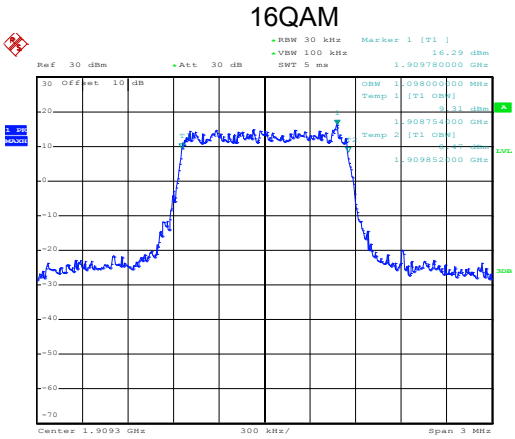


Date: 2.NOV.2017 19:06:52

Middle channel

16QAM



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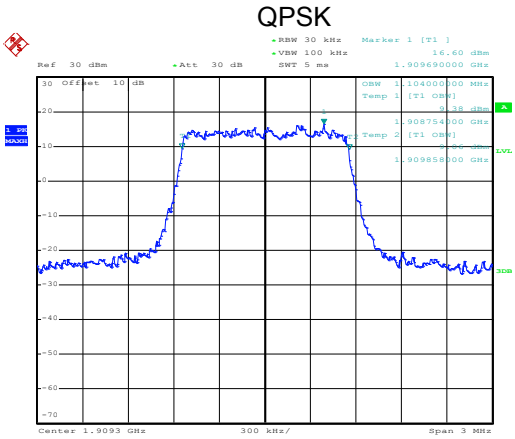
QPSK

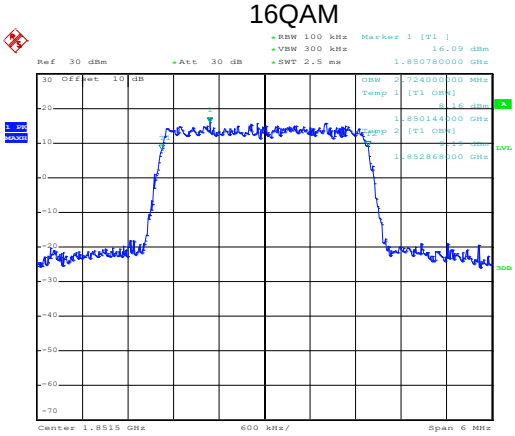


Date: 2.NOV.2017 19:07:13

Highest channel

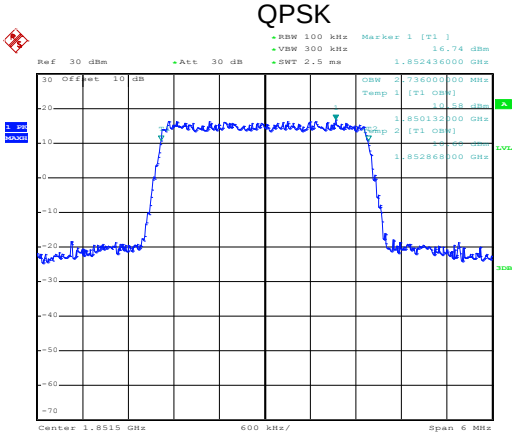
99% Occupy bandwidth
BW: 3MHz

16QAM



Date: 2.NOV.2017 19:08:29

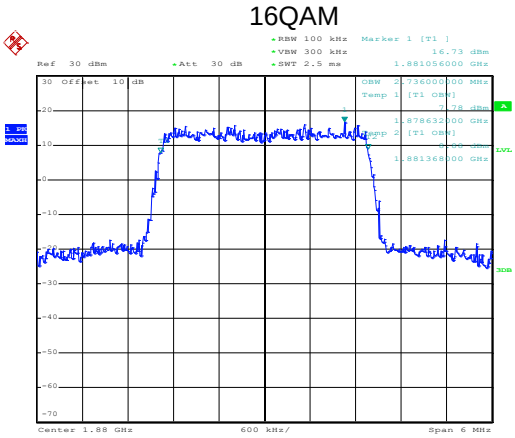
QPSK



Date: 2.NOV.2017 19:08:24

Lowest channel

16QAM



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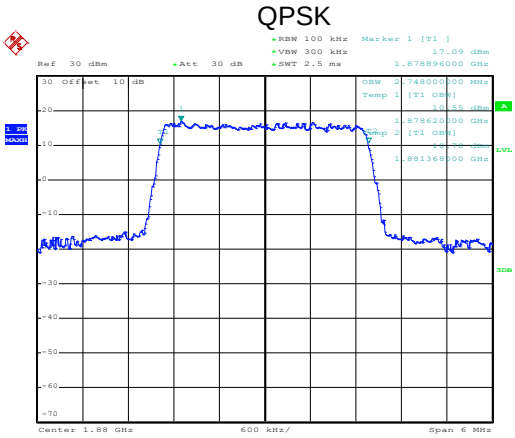
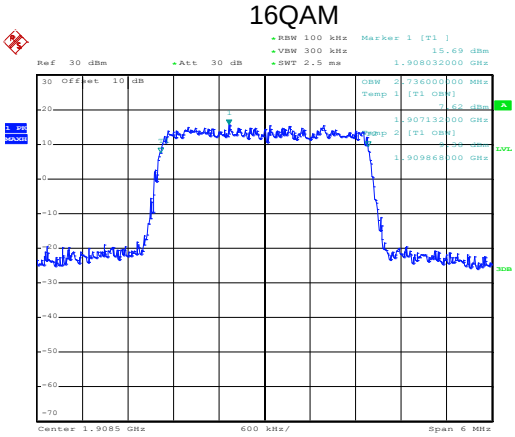


Date: 2.NOV.2017 19:08:48

Middle channel

16QAM



Date: 2.NOV.2017 19:09:46

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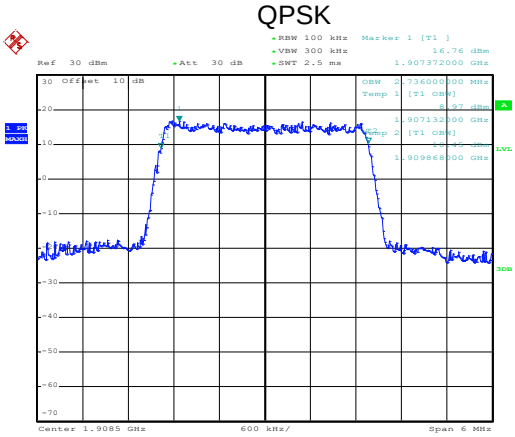
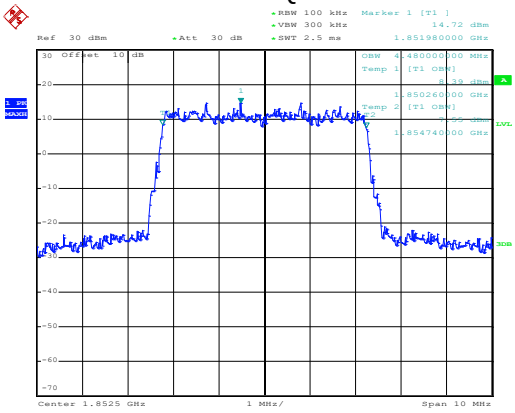


Date: 2.NOV.2017 19:09:42

Highest channel

99% Occupy bandwidth
BW: 5MHz

16QAM



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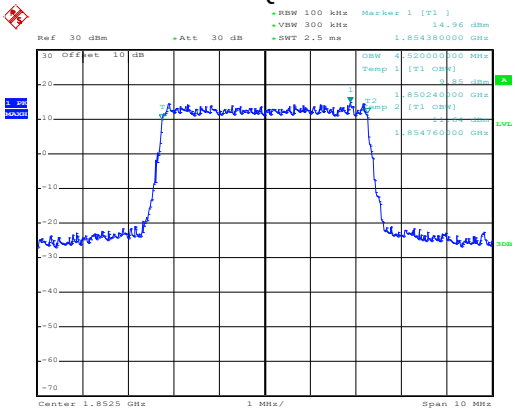

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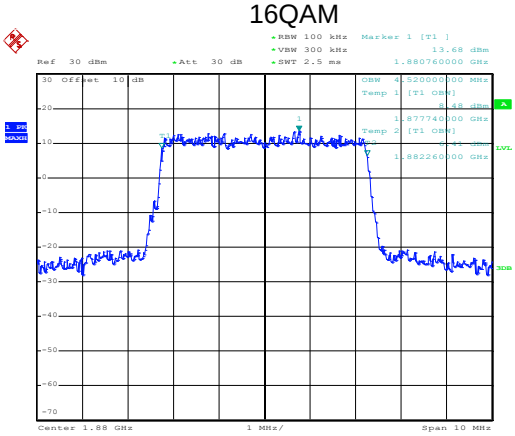
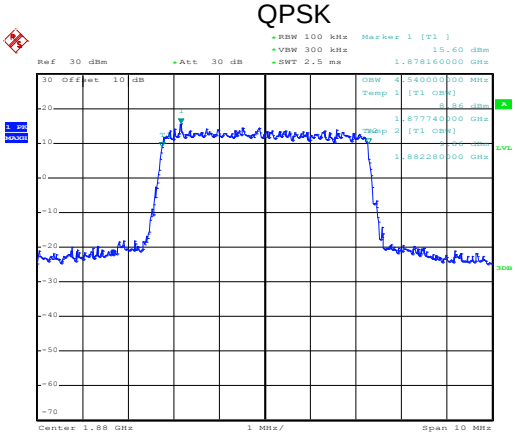
Lowest channel

16QAM



Date: 2.NOV.2017 19:11:02

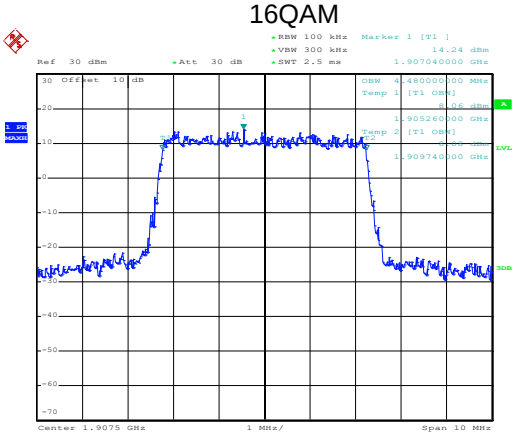
QPSK



Date: 2.NOV.2017 19:10:57

Middle channel

16QAM



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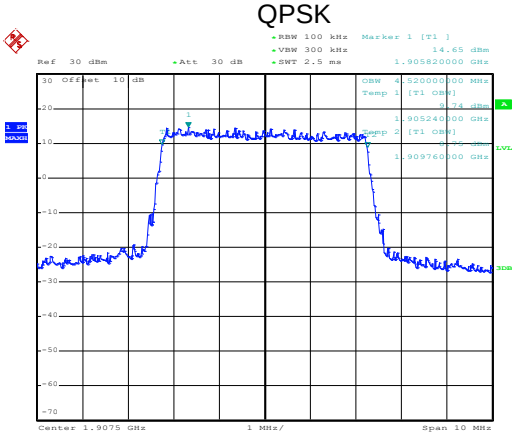
QPSK

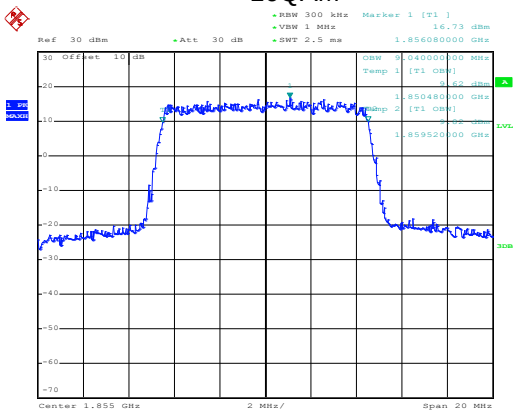


Date: 2.NOV.2017 19:11:46

Highest channel

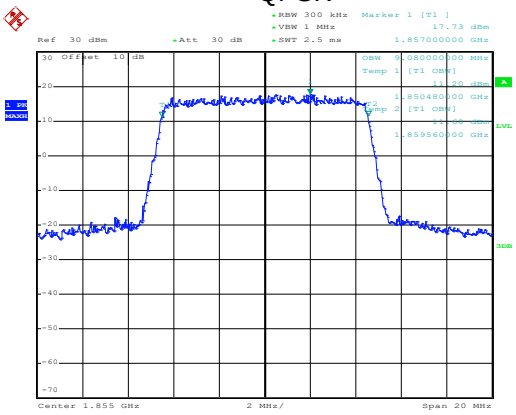
99% Occupy bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 19:12:29

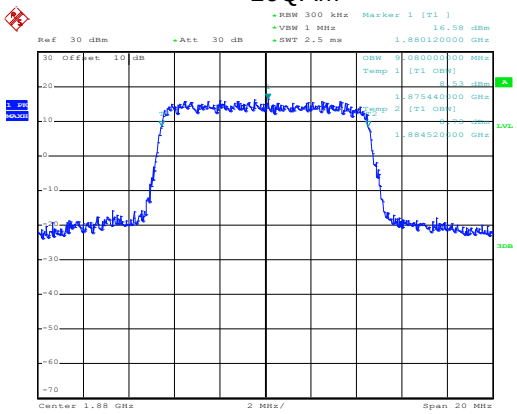
QPSK



Date: 2.NOV.2017 19:12:24

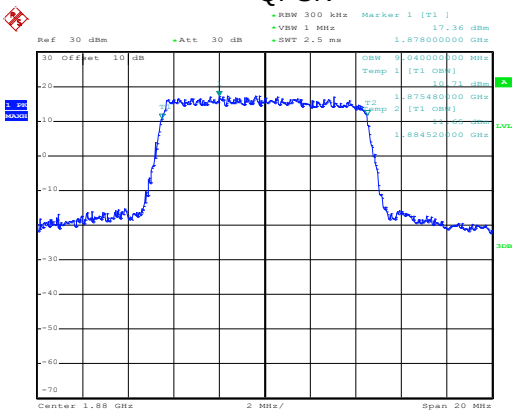
Lowest channel

16QAM



Date: 2.NOV.2017 19:13:19

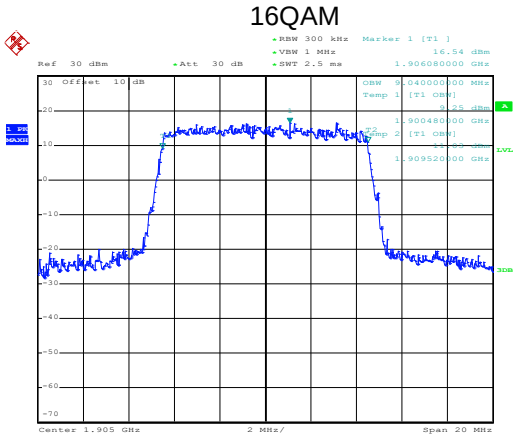
QPSK



Date: 2.NOV.2017 19:13:12

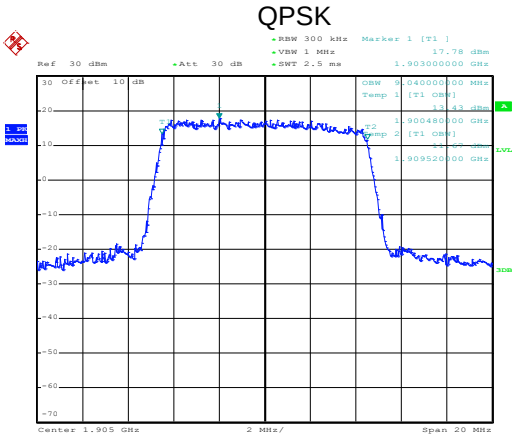
Middle channel

16QAM



Date: 2.NOV.2017 19:13:39

QPSK

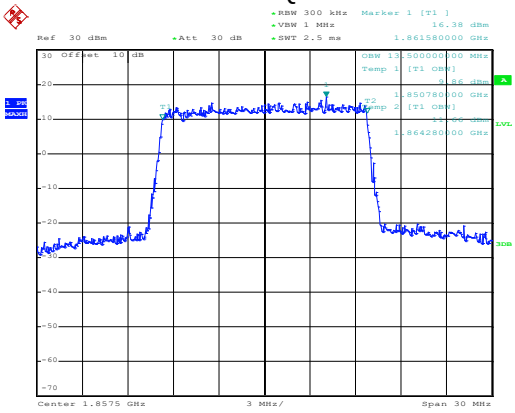


Date: 2.NOV.2017 19:13:33

Highest channel

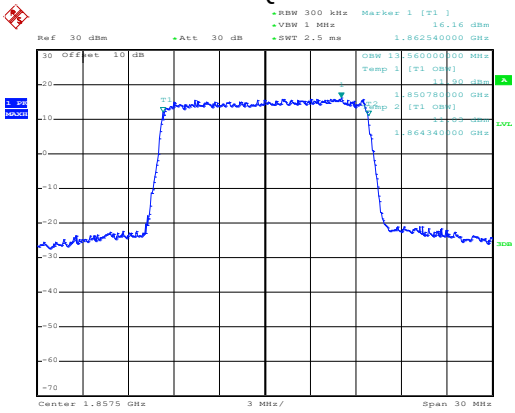
99% Occupy bandwidth
BW: 15MHz

16QAM



Date: 2.NOV.2017 19:15:07

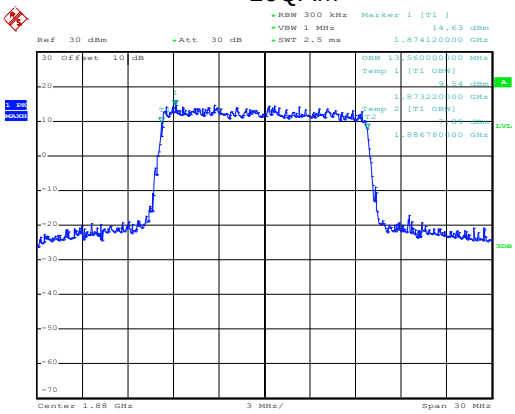
QPSK



Date: 2.NOV.2017 19:14:59

Lowest channel

16QAM



Date: 2.NOV.2017 19:15:28

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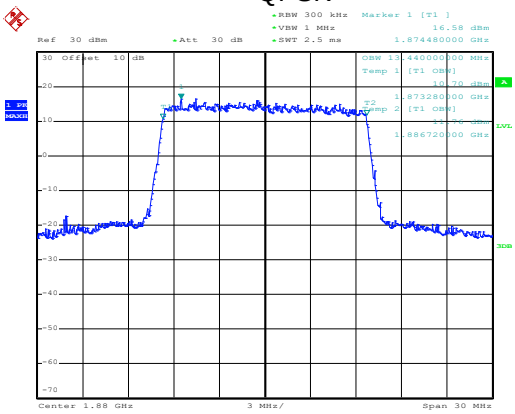
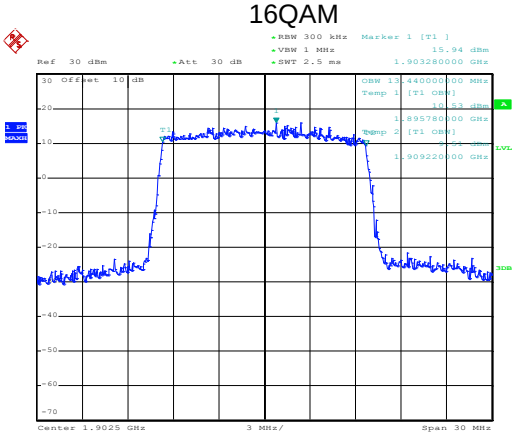


Date: 2.NOV.2017 19:15:21

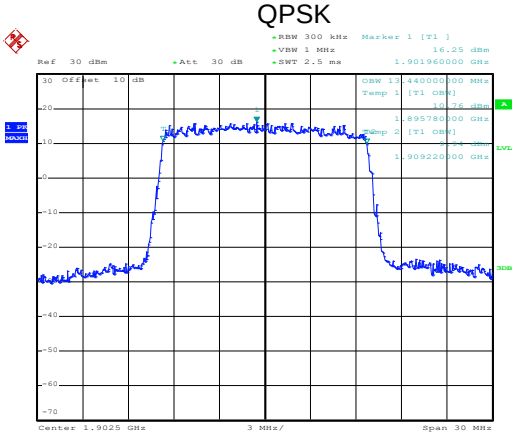
Middle channel

16QAM



Date: 2.NOV.2017 19:16:31

QPSK

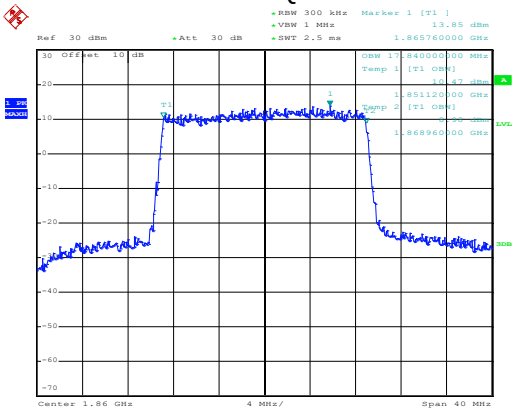


Date: 2.NOV.2017 19:16:25

Highest channel

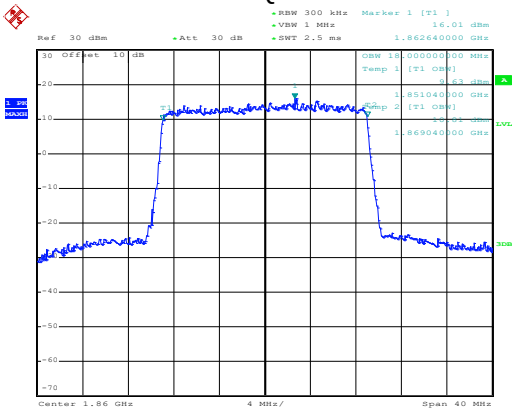
99% Occupy bandwidth
BW: 20MHz

16QAM



Date: 2.NOV.2017 19:17:04

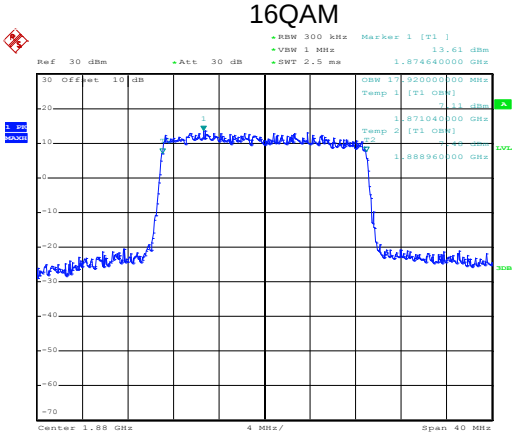
QPSK



Date: 2.NOV.2017 19:16:58

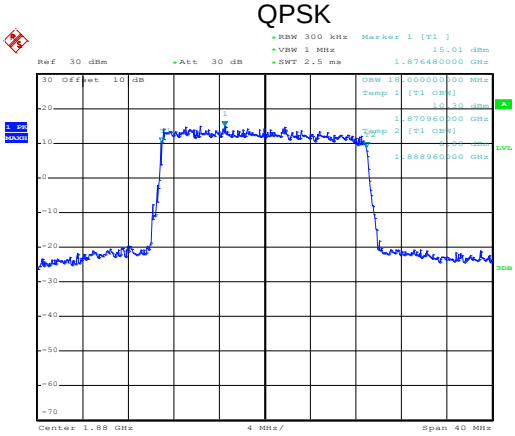
Lowest channel

16QAM



Date: 2.NOV.2017 19:17:53

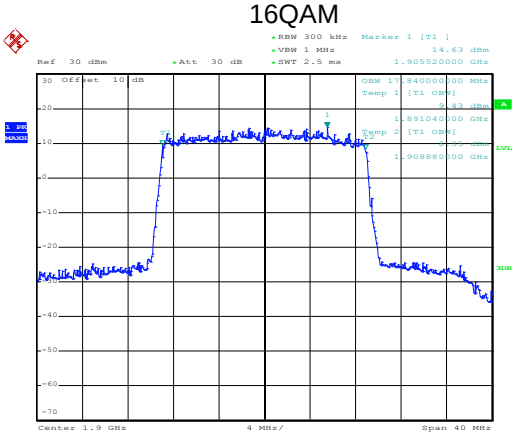
QPSK



Date: 2.NOV.2017 19:17:46

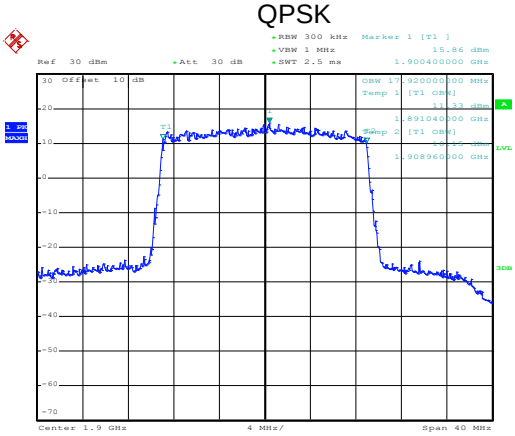
Middle channel

16QAM



Date: 2.NOV.2017 19:18:18

QPSK

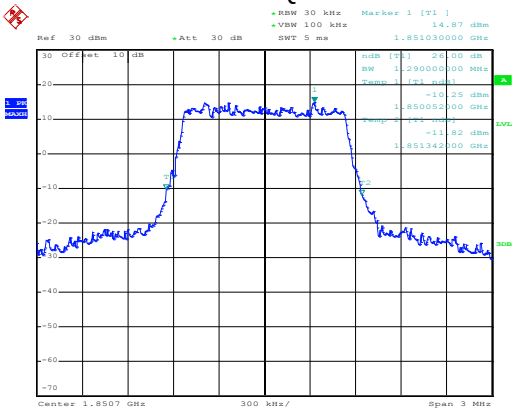


Date: 2.NOV.2017 19:18:09

Highest channel

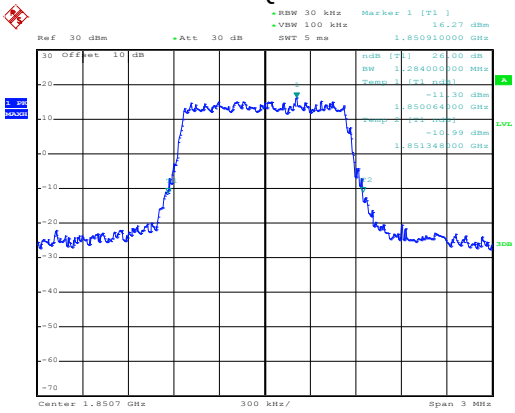
-26dBc bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 19:06:24

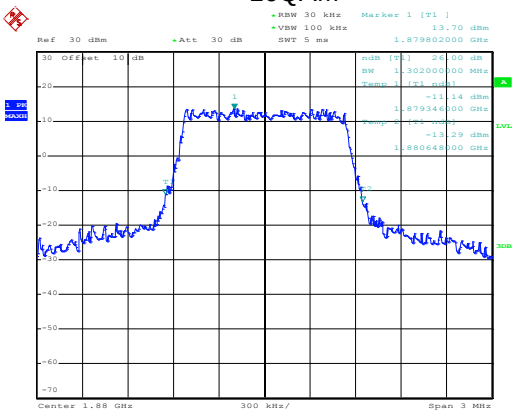
QPSK



Date: 2.NOV.2017 19:06:15

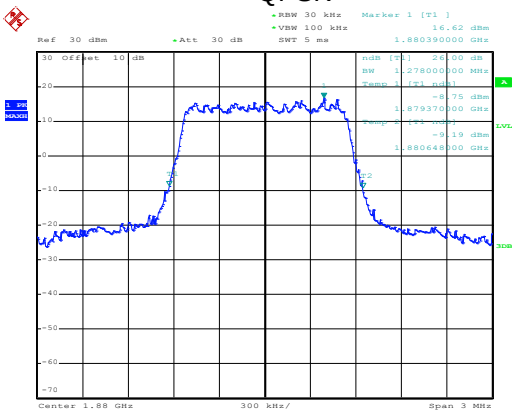
Lowest channel

16QAM



Date: 2.NOV.2017 19:06:44

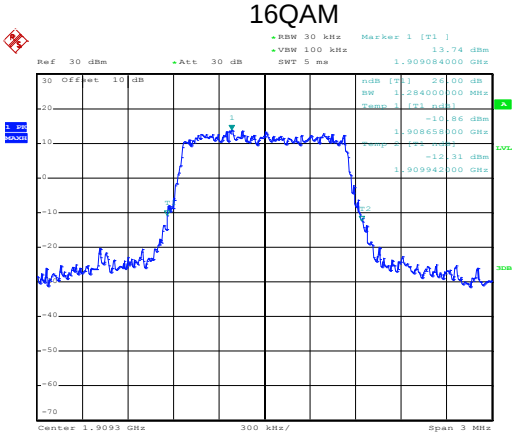
QPSK



Date: 2.NOV.2017 19:06:39

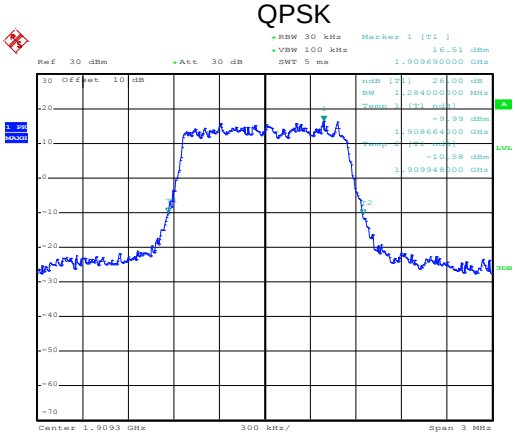
Middle channel

16QAM



Date: 2.NOV.2017 19:07:29

QPSK

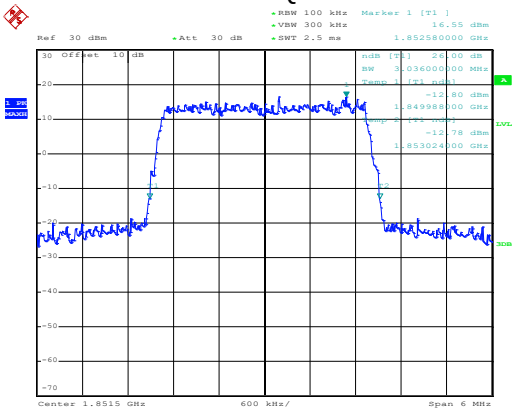


Date: 2.NOV.2017 19:07:24

Highest channel

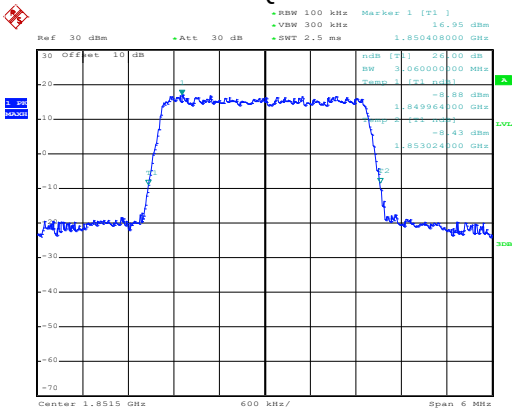
-26dBc bandwidth
BW: 3MHz

16QAM



Date: 2.NOV.2017 19:08:18

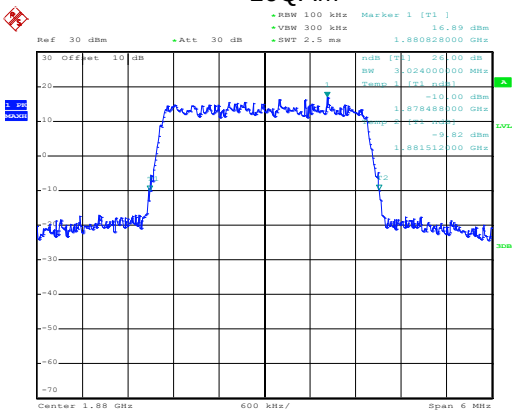
QPSK



Date: 2.NOV.2017 19:08:13

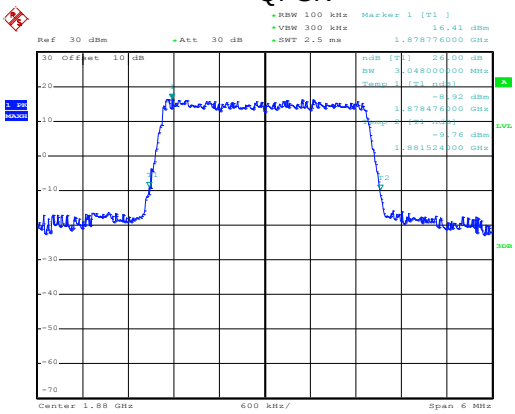
Lowest channel

16QAM



Date: 2.NOV.2017 19:09:11

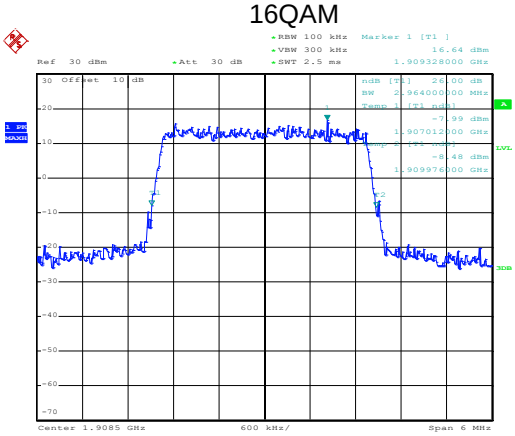
QPSK



Date: 2.NOV.2017 19:08:59

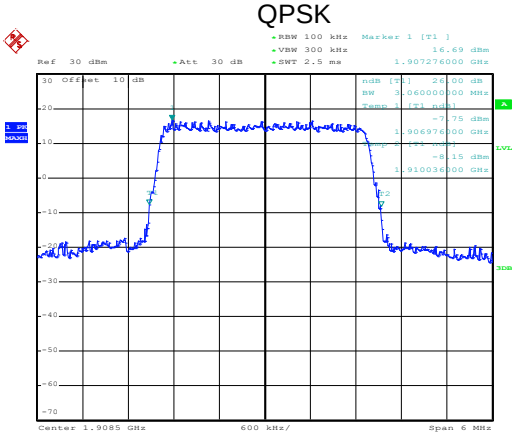
Middle channel

16QAM



Date: 2.NOV.2017 19:09:34

QPSK

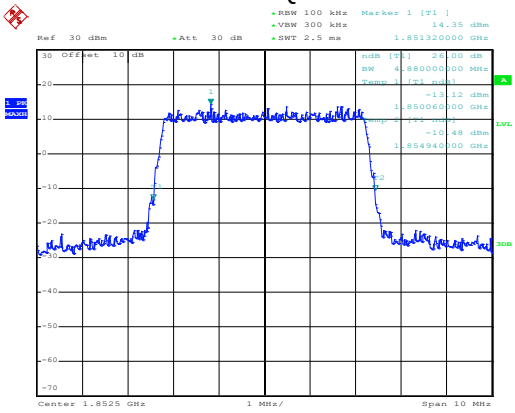


Date: 2.NOV.2017 19:09:54

Highest channel

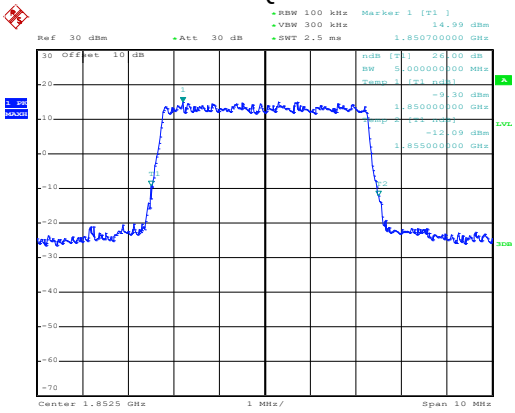
-26dBc bandwidth
BW: 5MHz

16QAM



Date: 2.NOV.2017 19:10:30

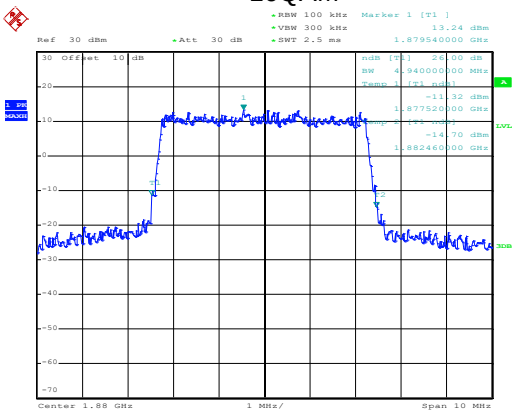
QPSK



Date: 2.NOV.2017 19:10:25

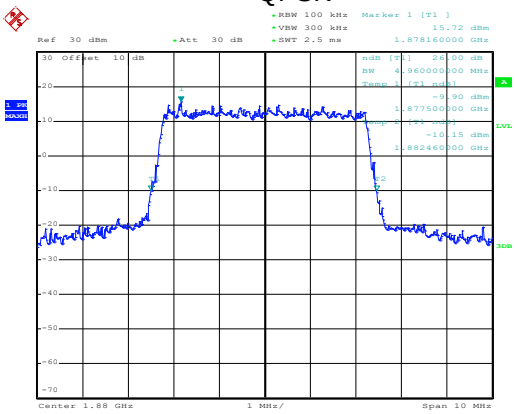
Lowest channel

16QAM



Date: 2.NOV.2017 19:11:18

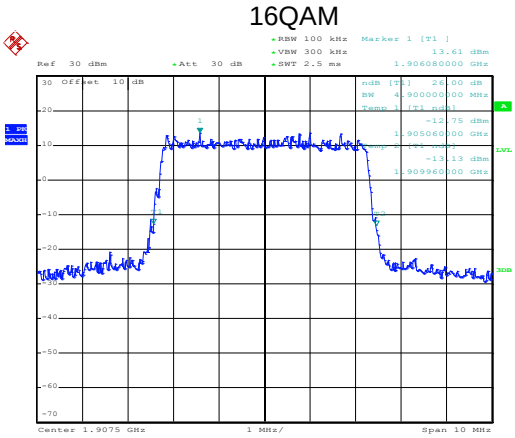
QPSK



Date: 2.NOV.2017 19:11:12

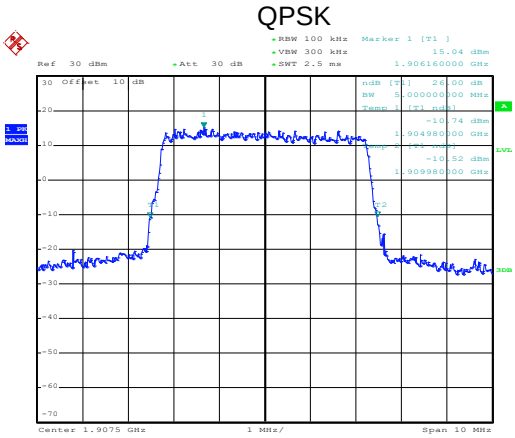
Middle channel

16QAM



Date: 2.NOV.2017 19:11:37

QPSK

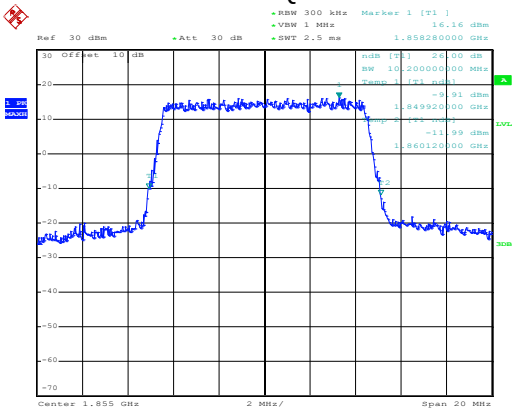


Date: 2.NOV.2017 19:11:32

Highest channel

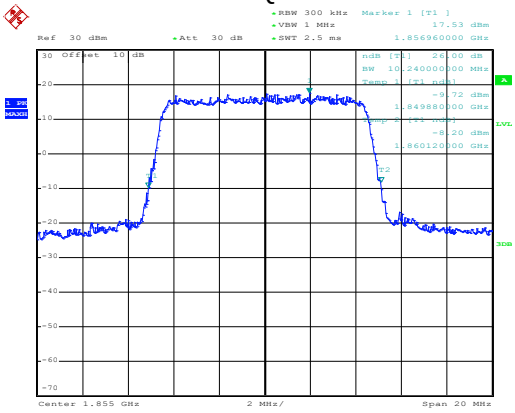
-26dBc bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 19:12:43

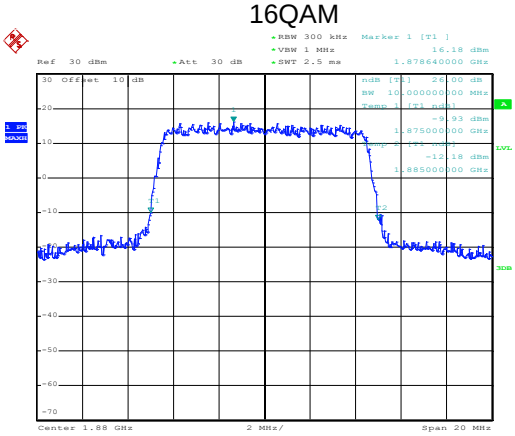
QPSK



Date: 2.NOV.2017 19:12:38

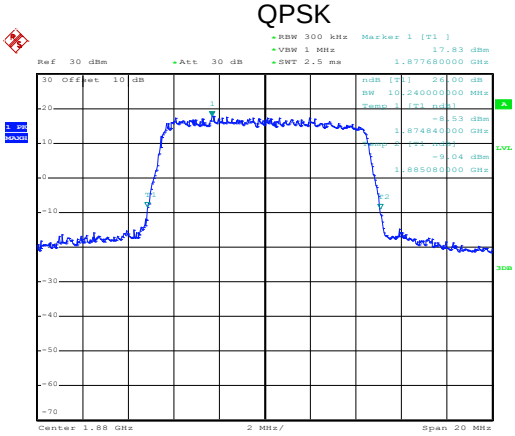
Lowest channel

16QAM



Date: 2.NOV.2017 19:13:02

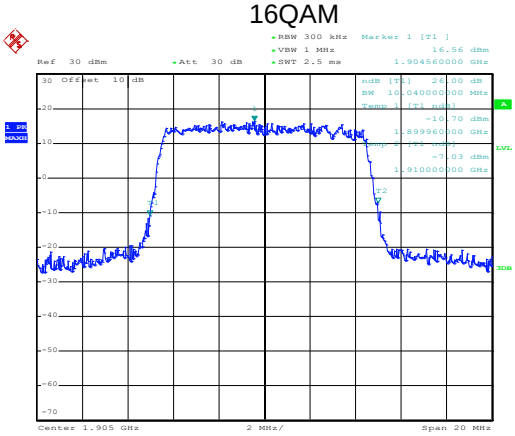
QPSK



Date: 2.NOV.2017 19:12:57

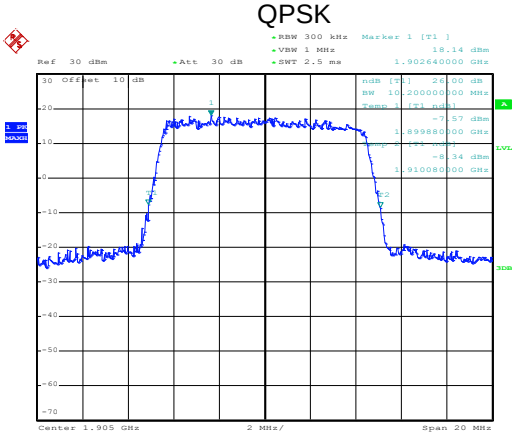
Middle channel

16QAM



Date: 2.NOV.2017 19:13:53

QPSK

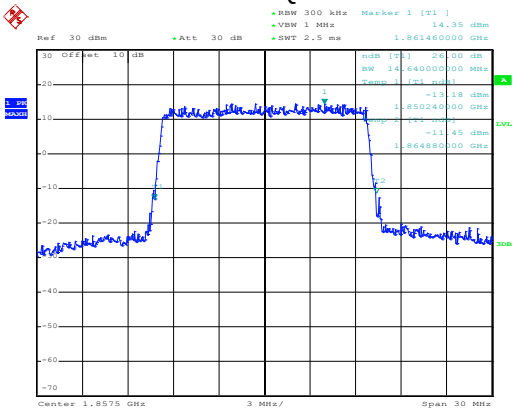


Date: 2.NOV.2017 19:13:48

Highest channel

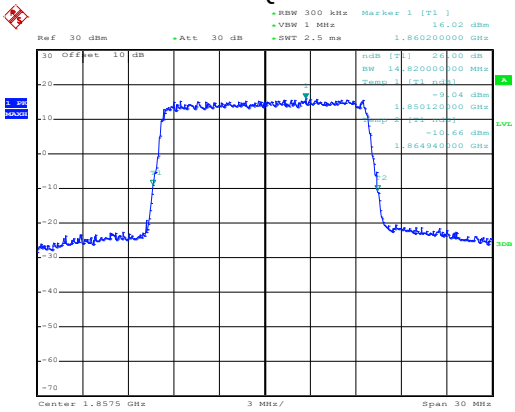
-26dBc bandwidth
BW: 15MHz

16QAM



Date: 2.NOV.2017 19:14:36

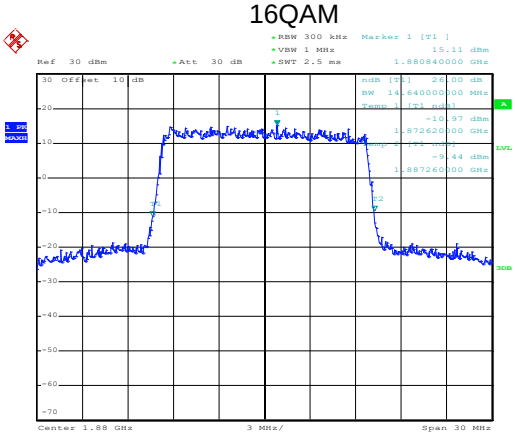
QPSK



Date: 2.NOV.2017 19:14:30

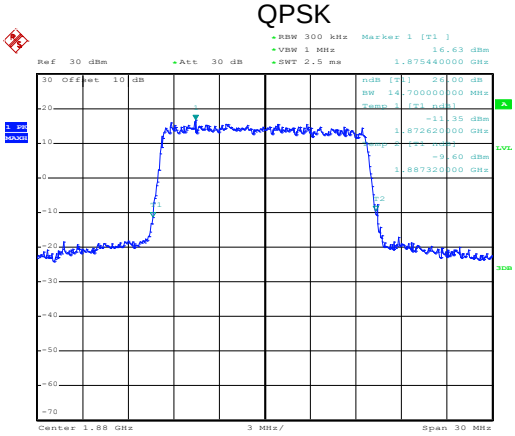
Lowest channel

16QAM



Date: 2.NOV.2017 19:15:47

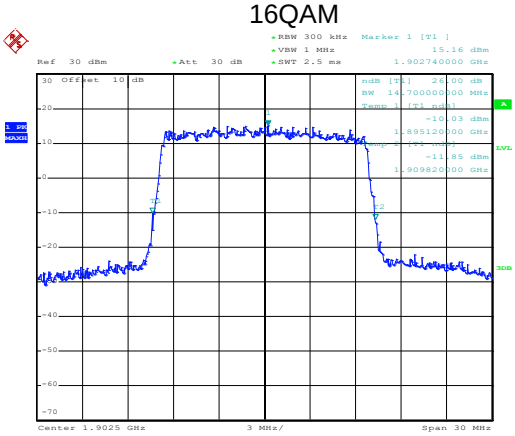
QPSK



Date: 2.NOV.2017 19:15:38

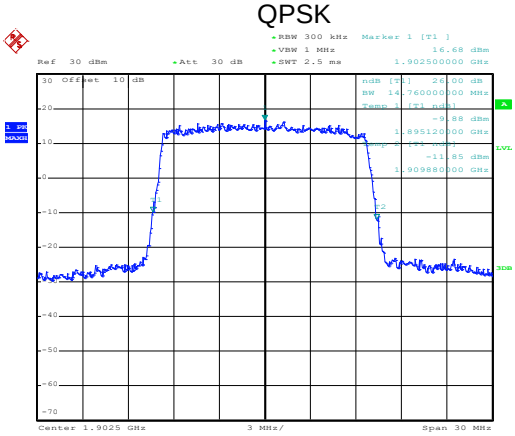
Middle channel

16QAM



Date: 2.NOV.2017 19:16:18

QPSK

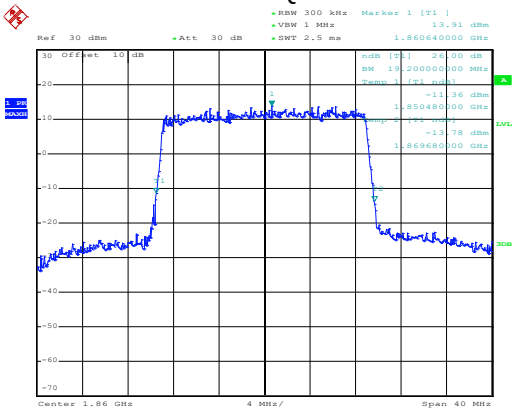


Date: 2.NOV.2017 19:16:11

Highest channel

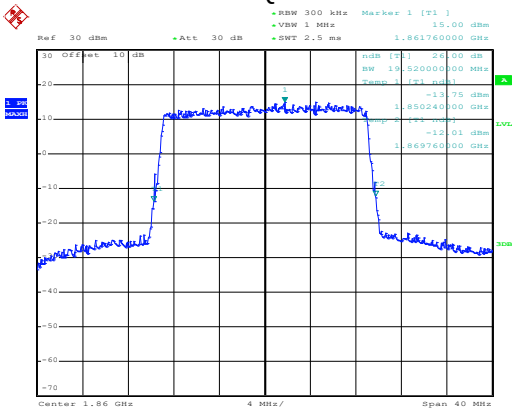
-26dBc bandwidth
BW: 20MHz

16QAM



Date: 2.NOV.2017 19:17:18

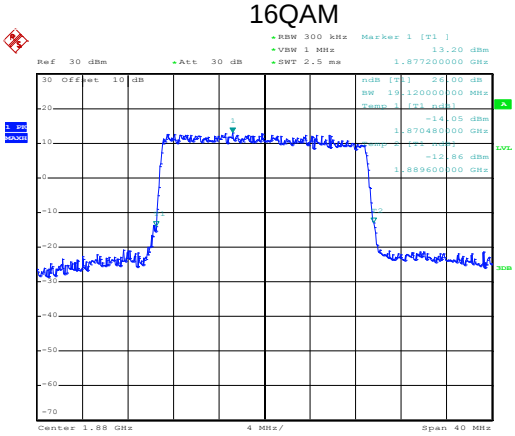
QPSK



Date: 2.NOV.2017 19:17:12

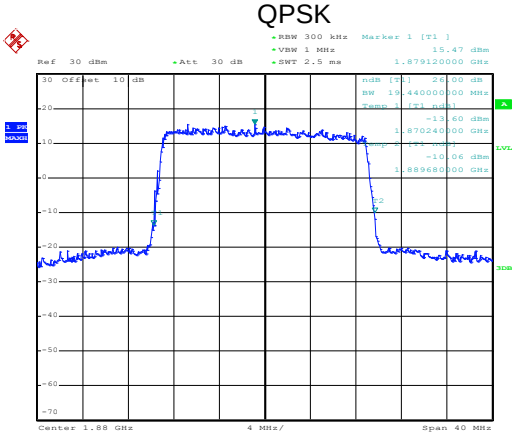
Lowest channel

16QAM



Date: 2.NOV.2017 19:17:37

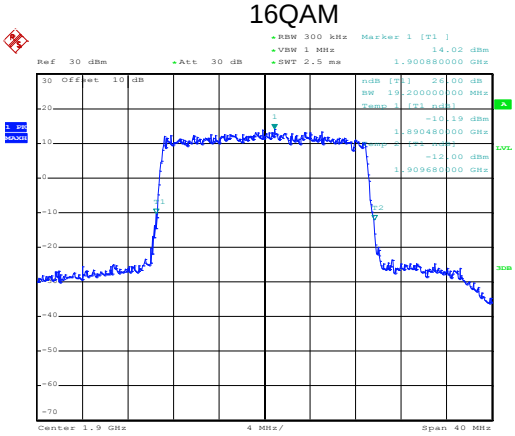
QPSK



Date: 2.NOV.2017 19:17:32

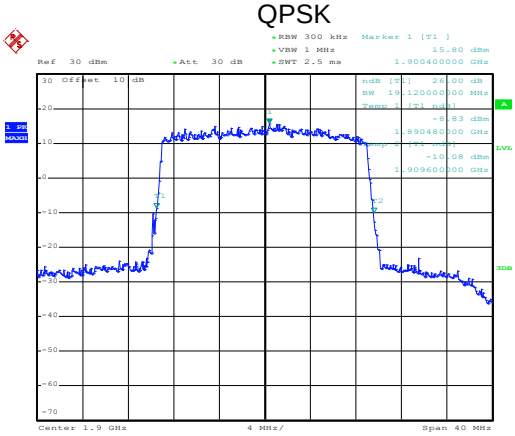
Middle channel

16QAM



Date: 2.NOV.2017 19:18:33

QPSK



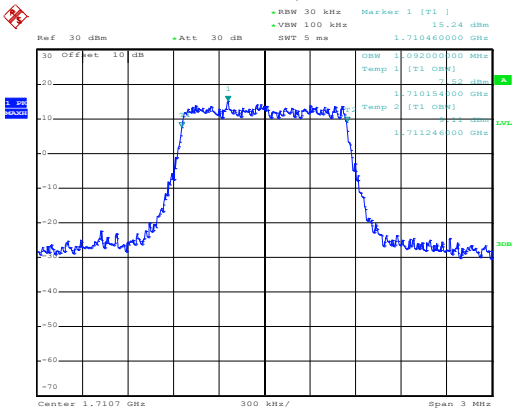
Date: 2.NOV.2017 19:18:27

Highest channel

LTE Band 4/66 part

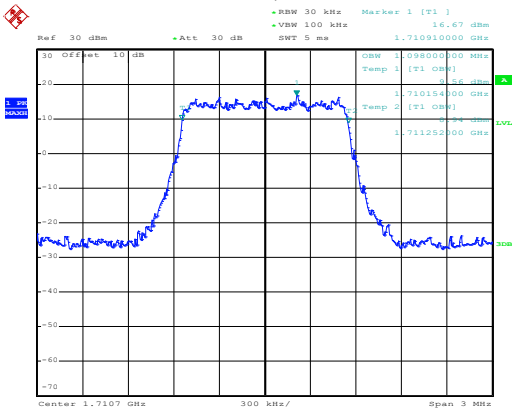
99% Occupy bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 19:25:19

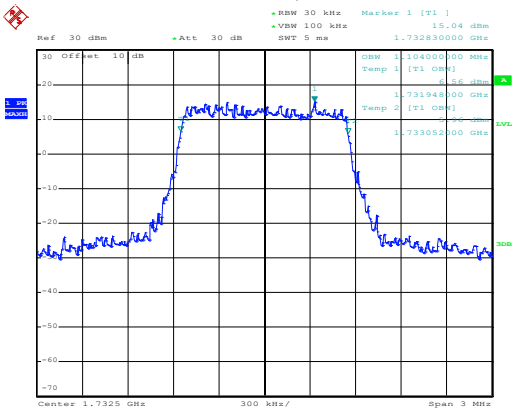
QPSK



Date: 2.NOV.2017 19:25:14

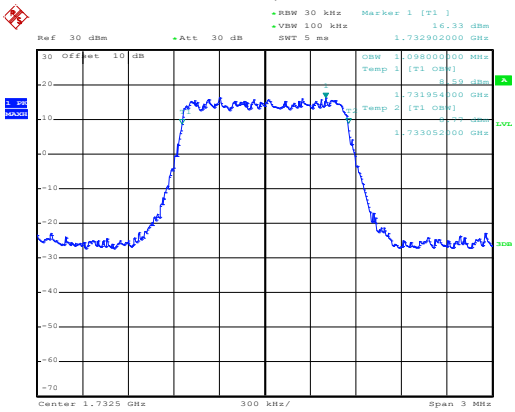
Lowest channel

16QAM



Date: 2.NOV.2017 19:25:40

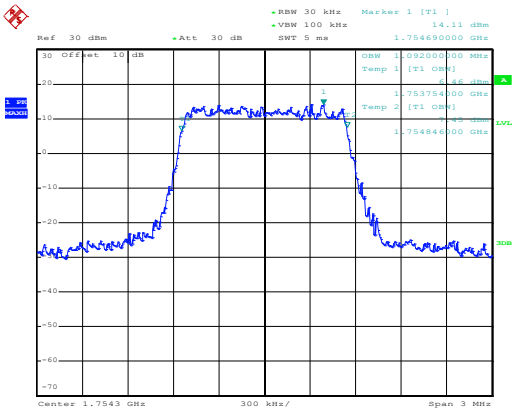
QPSK



Date: 2.NOV.2017 19:25:35

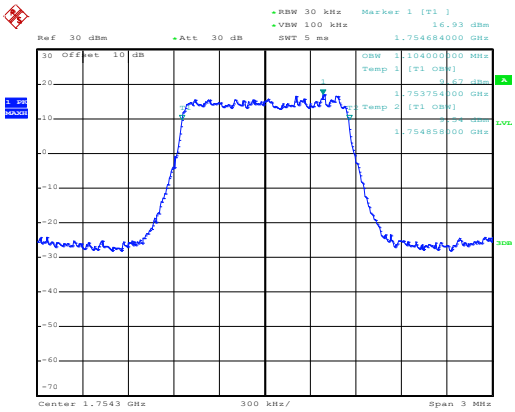
Middle channel

16QAM



Date: 2.NOV.2017 19:26:36

QPSK

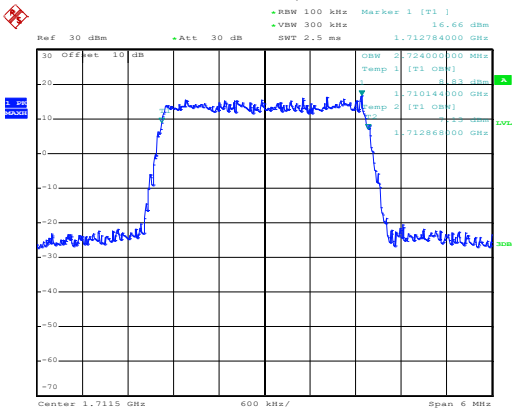


Date: 2.NOV.2017 19:26:30

Highest channel

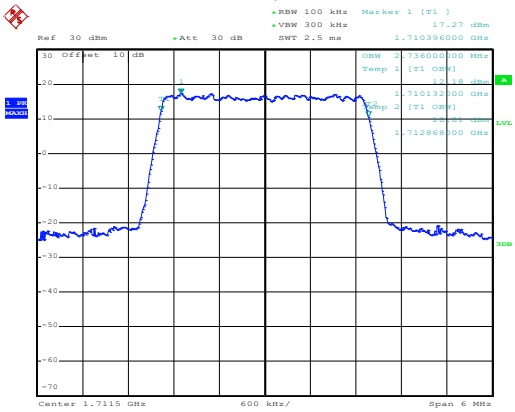
99% Occupy bandwidth
BW: 3MHz

16QAM



Date: 2.NOV.2017 19:28:10

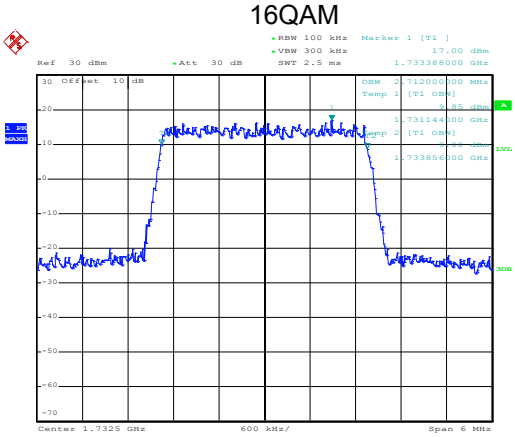
QPSK



Date: 2.NOV.2017 19:28:05

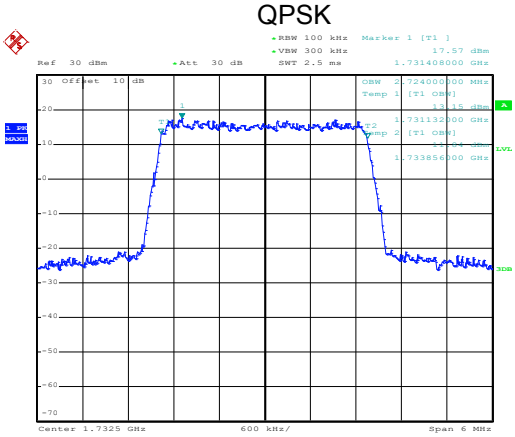
Lowest channel

16QAM



Date: 2.NOV.2017 19:34:17

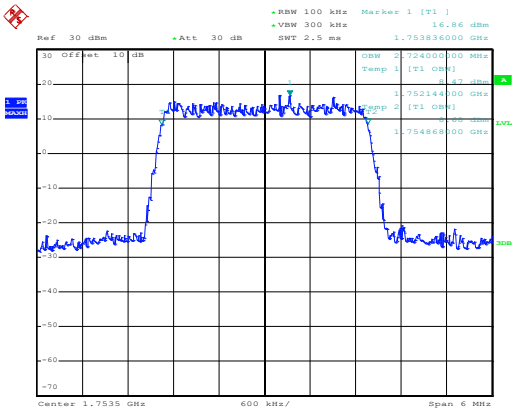
QPSK



Date: 2.NOV.2017 19:32:02

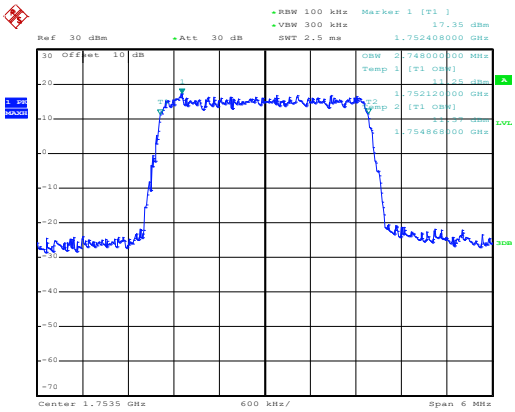
Middle channel

16QAM



Date: 2.NOV.2017 19:35:17

QPSK

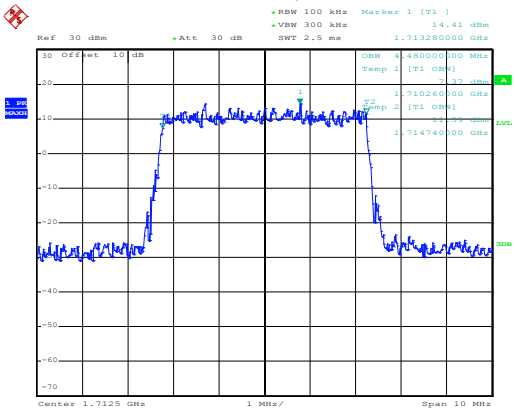


Date: 2.NOV.2017 19:35:13

Highest channel

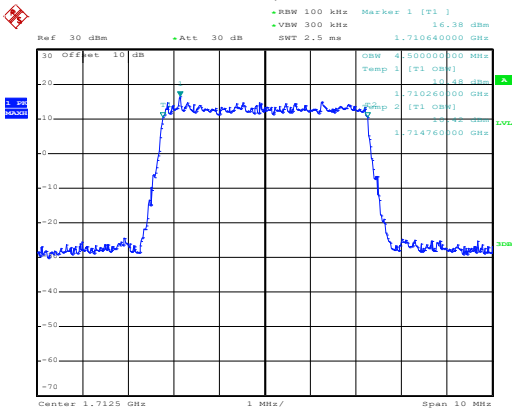
99% Occupy bandwidth
BW: 5MHz

16QAM



Date: 2.NOV.2017 19:35:45

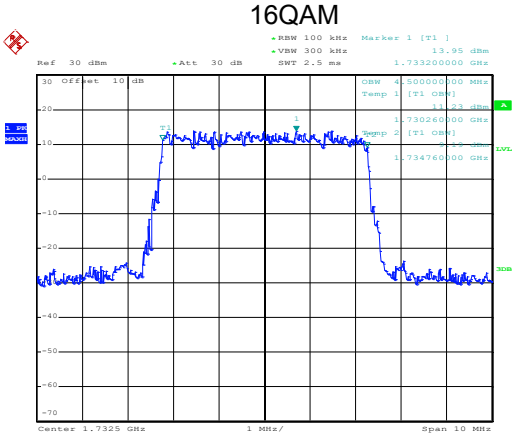
QPSK



Date: 2.NOV.2017 19:36:10

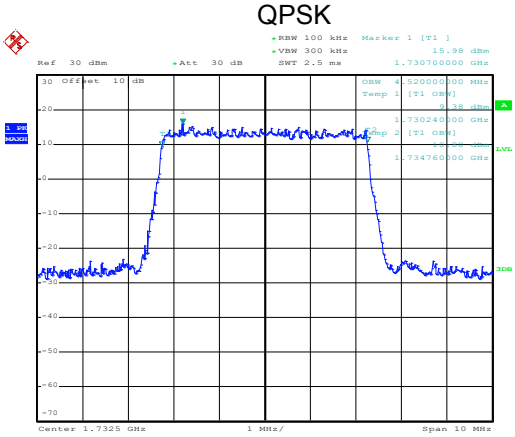
Lowest channel

16QAM



Date: 2.NOV.2017 19:36:28

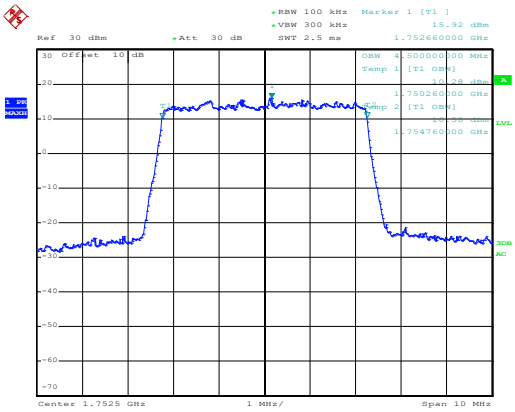
QPSK



Date: 2.NOV.2017 19:36:25

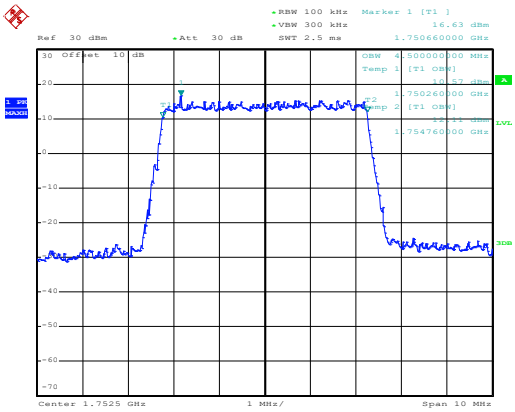
Middle channel

16QAM



Date: 7.NOV.2017 22:57:37

QPSK

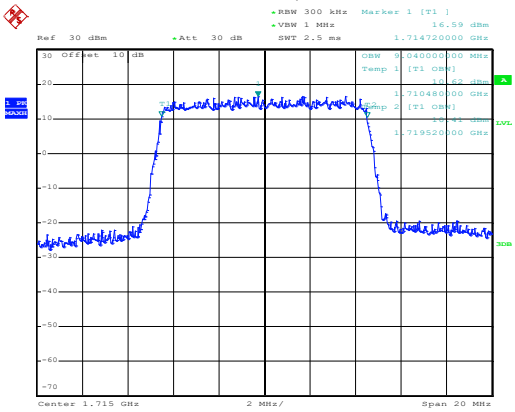


Date: 2.NOV.2017 19:59:19

Highest channel

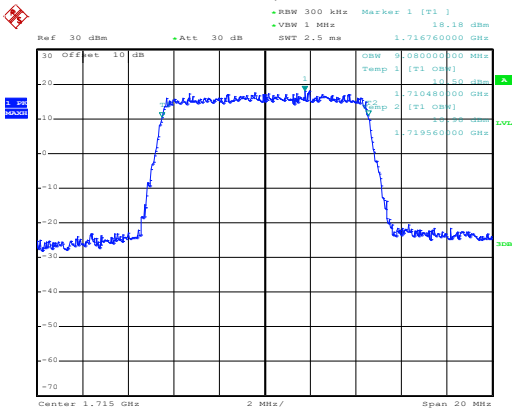
99% Occupy bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 19:37:55

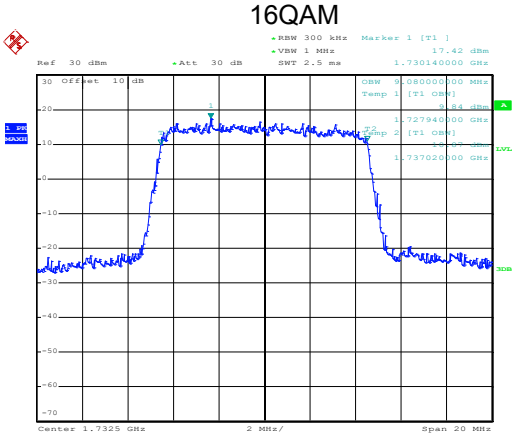
QPSK



Date: 2.NOV.2017 19:37:50

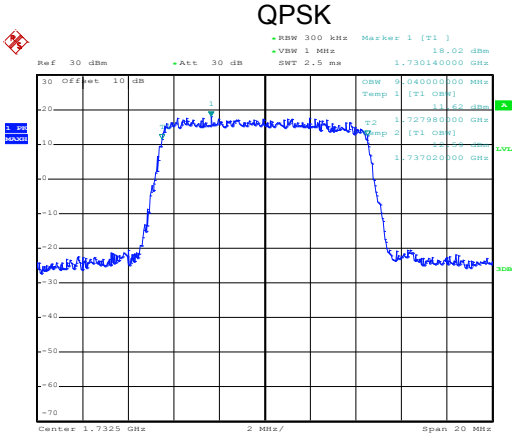
Lowest channel

16QAM



Date: 2.NOV.2017 19:38:14

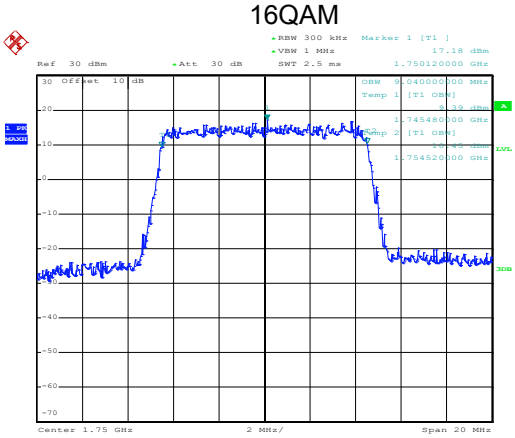
QPSK



Date: 2.NOV.2017 19:38:37

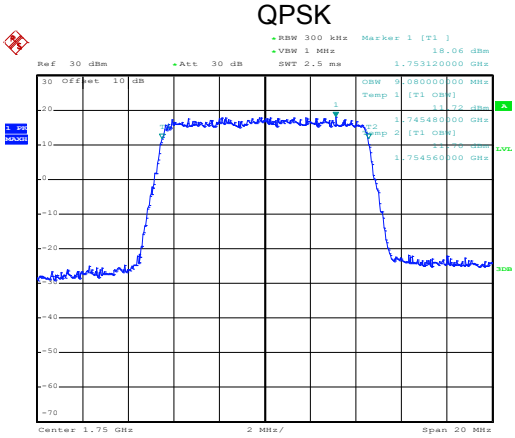
Middle channel

16QAM



Date: 2.NOV.2017 19:39:07

QPSK

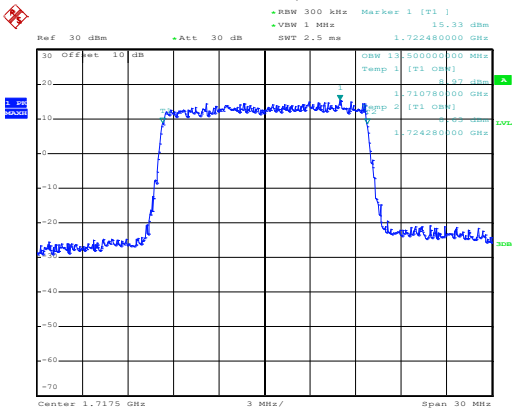


Date: 2.NOV.2017 19:39:02

Highest channel

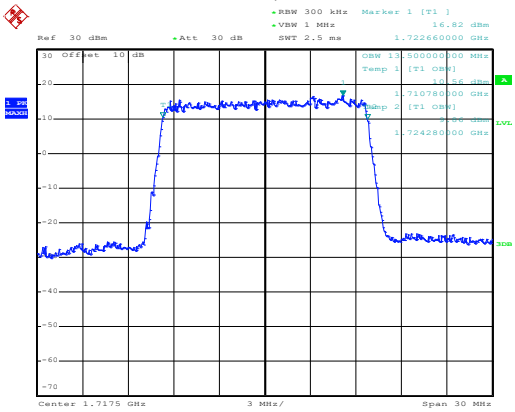
99% Occupy bandwidth
BW: 15MHz

16QAM



Date: 2.NOV.2017 19:40:14

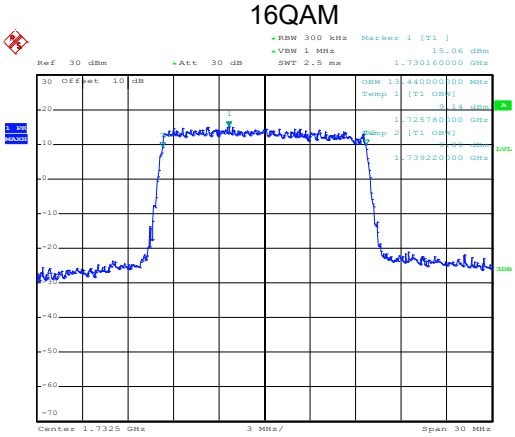
QPSK



Date: 2.NOV.2017 19:40:09

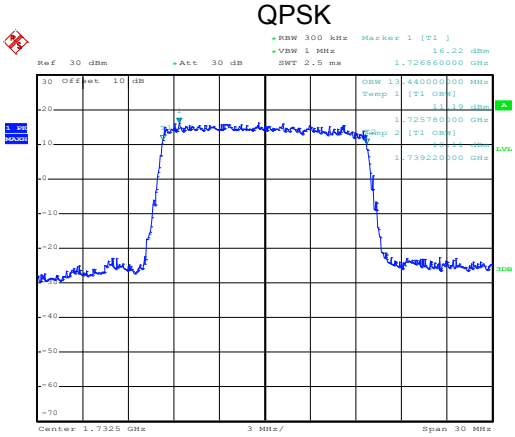
Lowest channel

16QAM



Date: 2.NOV.2017 19:40:48

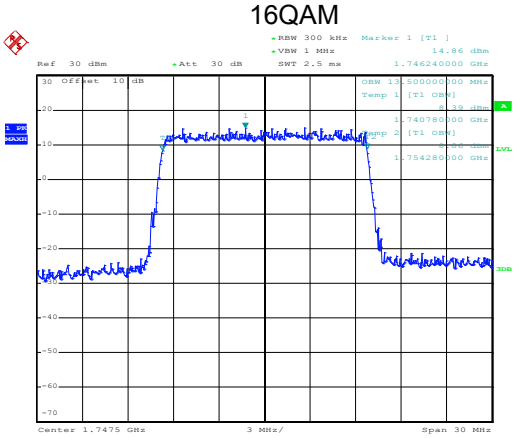
QPSK



Date: 2.NOV.2017 19:40:42

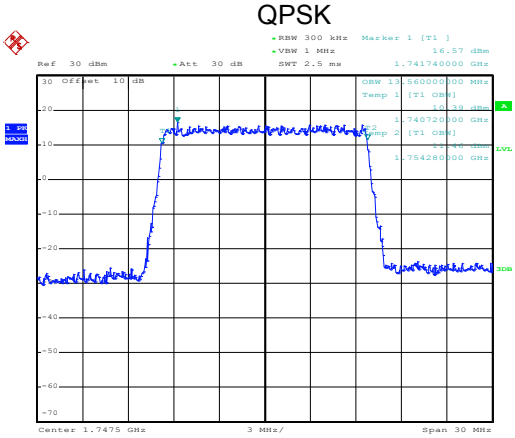
Middle channel

16QAM



Date: 2.NOV.2017 19:41:29

QPSK

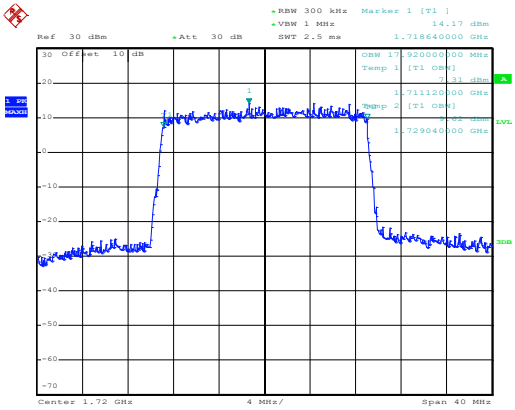


Date: 2.NOV.2017 19:41:24

Highest channel

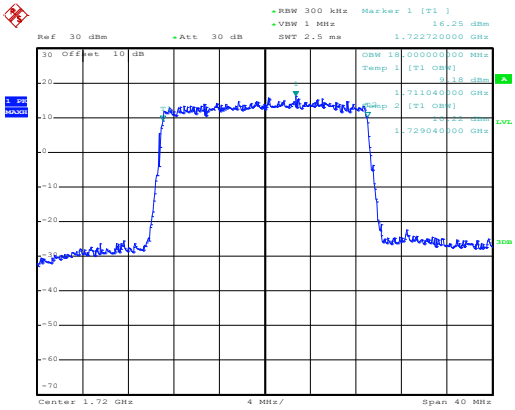
99% Occupy bandwidth
BW: 20MHz

16QAM



Date: 2.NOV.2017 19:41:56

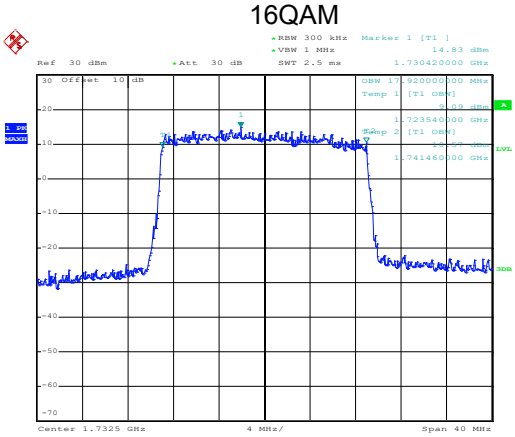
QPSK



Date: 2.NOV.2017 19:41:51

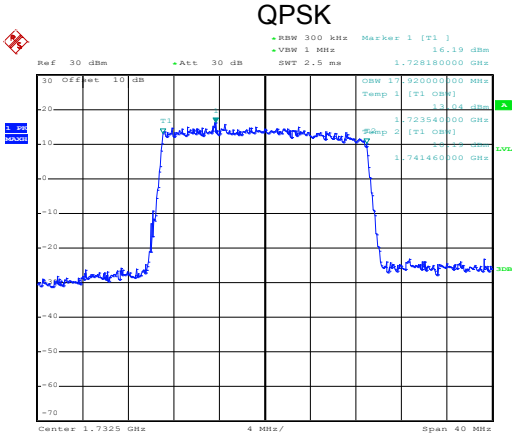
Lowest channel

16QAM



Date: 2.NOV.2017 19:42:38

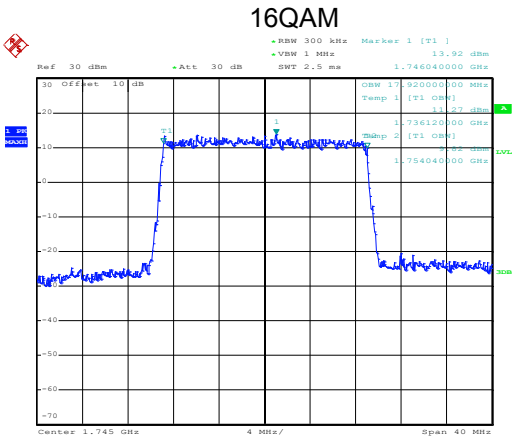
QPSK



Date: 2.NOV.2017 19:42:33

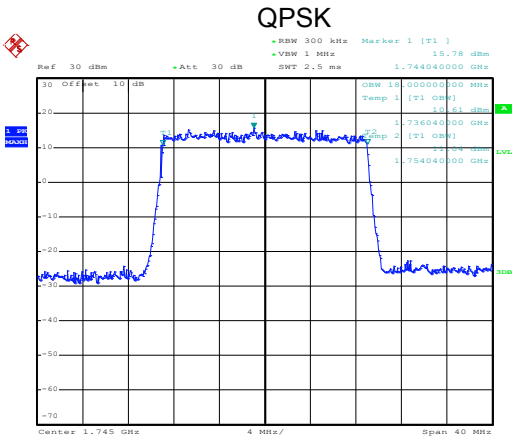
Middle channel

16QAM



Date: 2.NOV.2017 19:42:58

QPSK

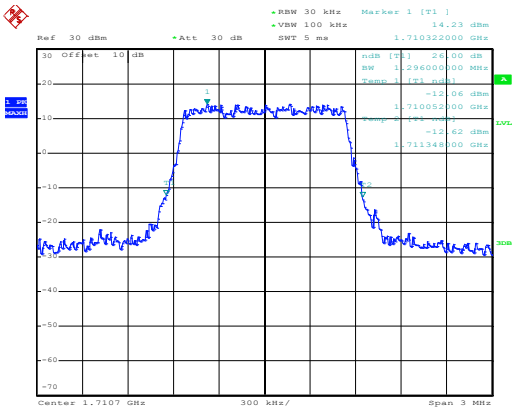


Date: 2.NOV.2017 19:42:52

Highest channel

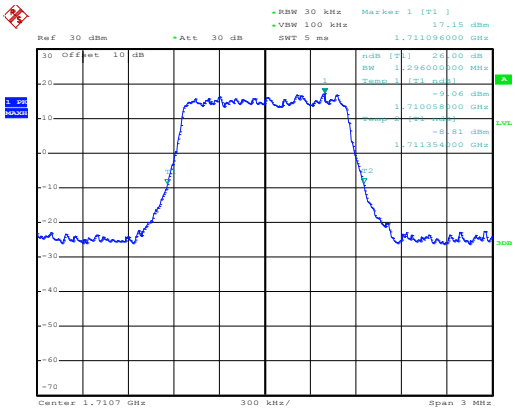
-26dBc bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 19:25:07

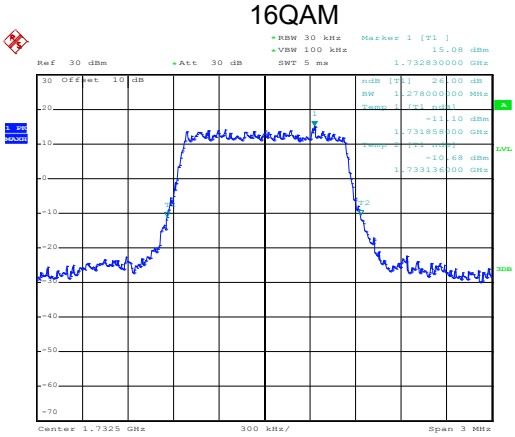
QPSK



Date: 2.NOV.2017 19:24:01

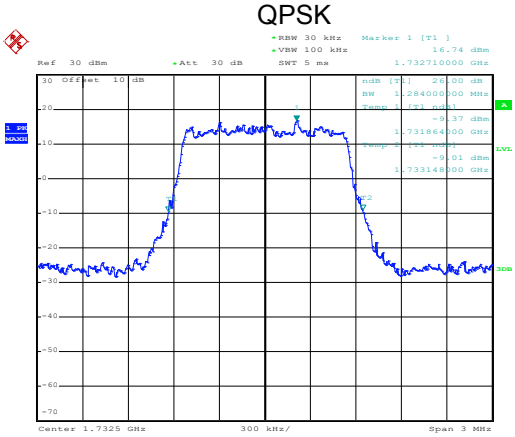
Lowest channel

16QAM



Date: 2.NOV.2017 19:25:52

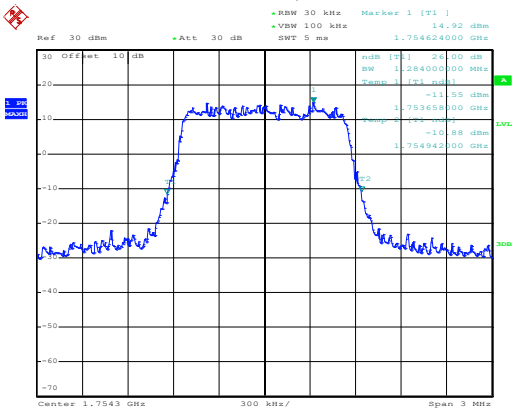
QPSK



Date: 2.NOV.2017 19:25:47

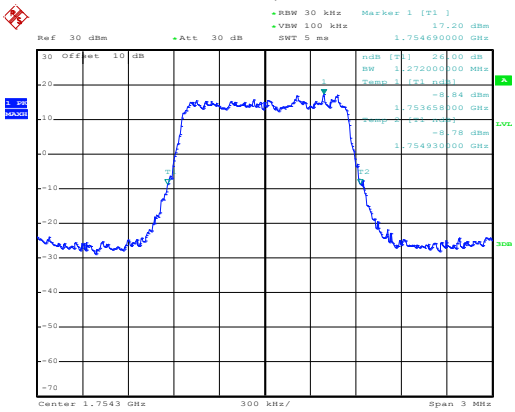
Middle channel

16QAM



Date: 2.NOV.2017 19:26:16

QPSK

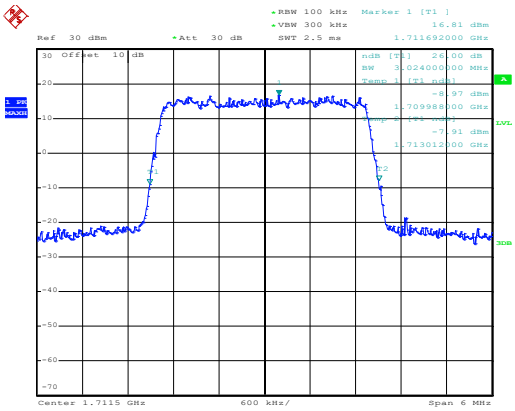


Date: 2.NOV.2017 19:26:10

Highest channel

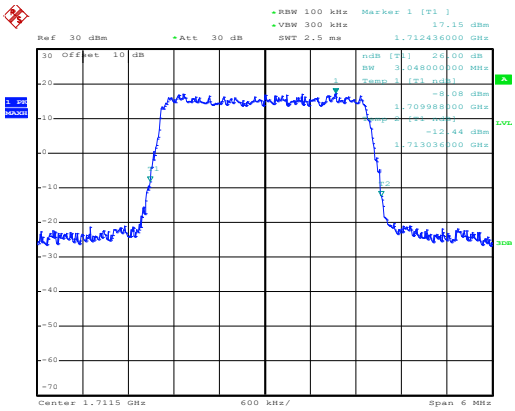
-26dBc bandwidth
BW: 3MHz

16QAM



Date: 2.NOV.2017 19:30:12

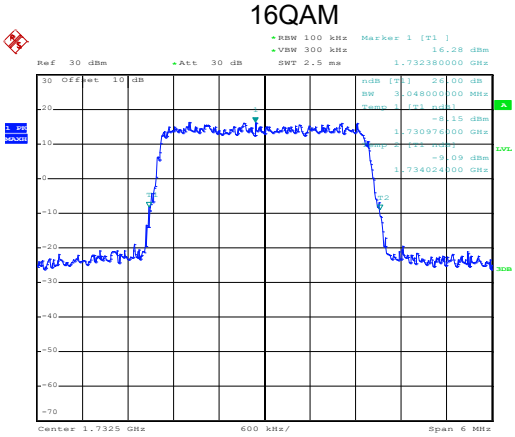
QPSK



Date: 2.NOV.2017 19:30:02

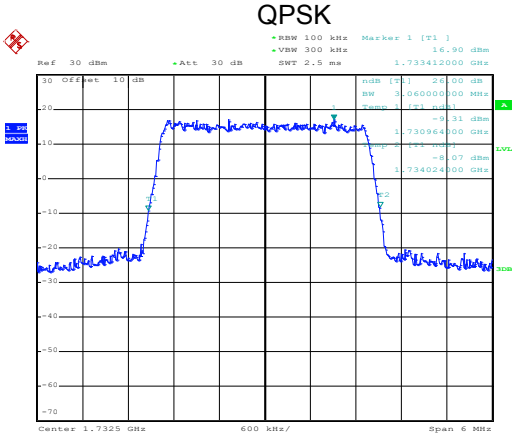
Lowest channel

16QAM



Date: 2.NOV.2017 19:31:52

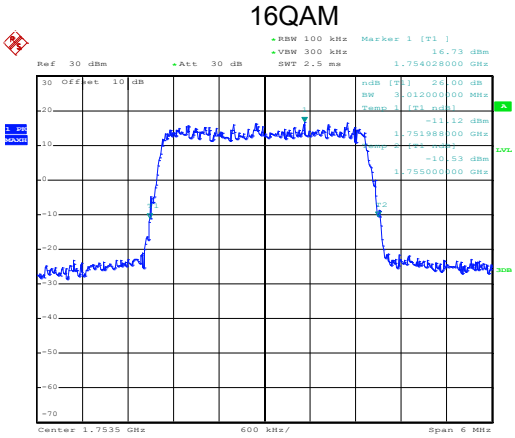
QPSK



Date: 2.NOV.2017 19:34:27

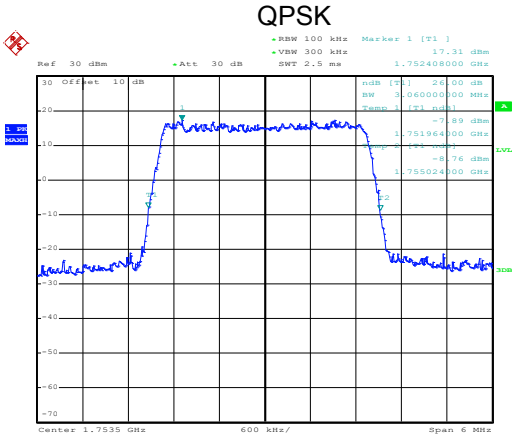
Middle channel

16QAM



Date: 2.NOV.2017 19:34:55

QPSK

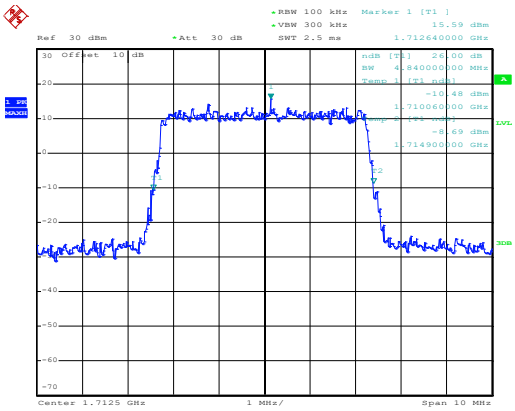


Date: 2.NOV.2017 19:34:45

Highest channel

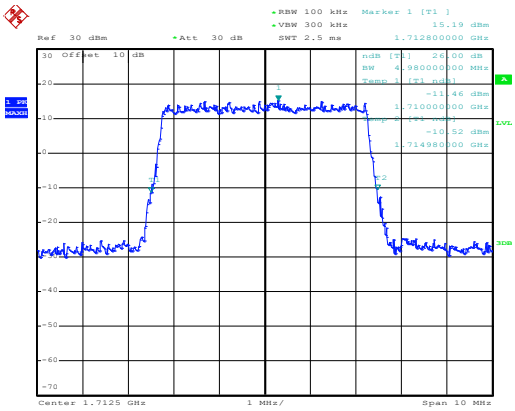
-26dBc bandwidth
BW: 5MHz

16QAM



Date: 2.NOV.2017 19:36:00

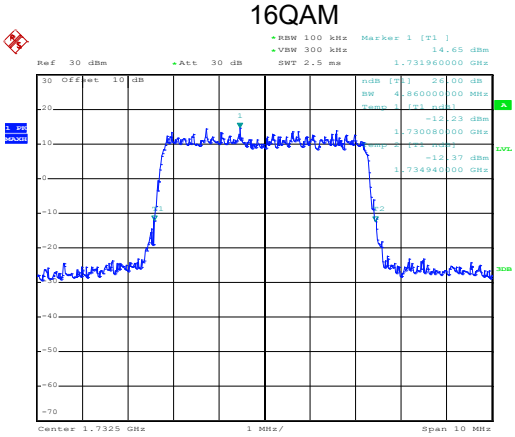
QPSK



Date: 2.NOV.2017 19:35:54

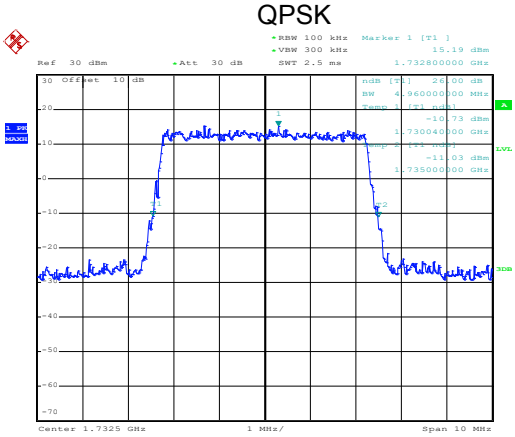
Lowest channel

16QAM



Date: 2.NOV.2017 19:36:40

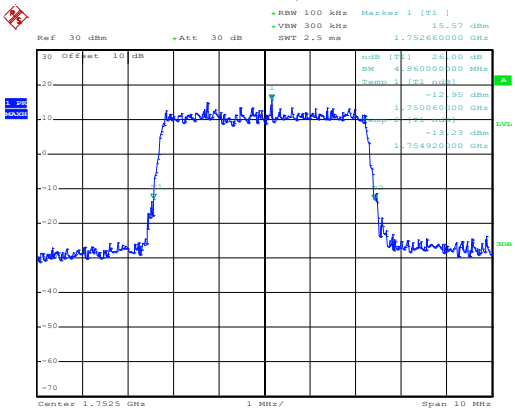
QPSK



Date: 2.NOV.2017 19:36:35

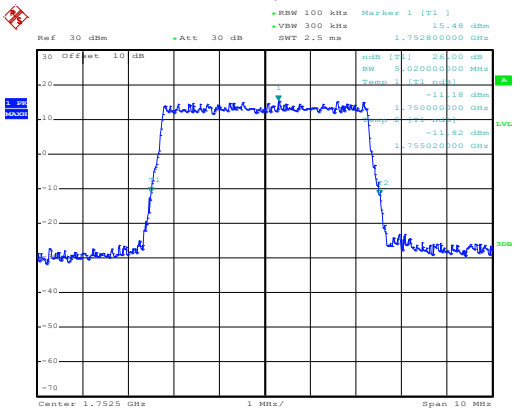
Middle channel

16QAM



Date: 2.NOV.2017 19:36:58

QPSK

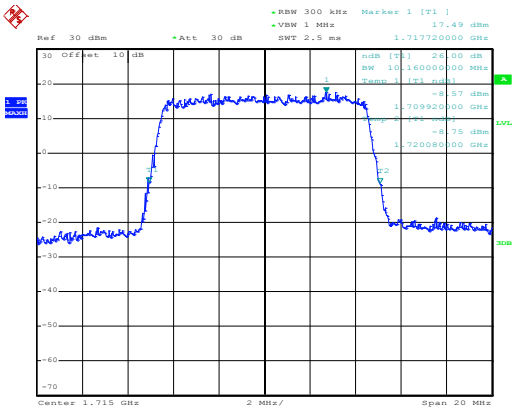


Date: 2.NOV.2017 19:36:54

Highest channel

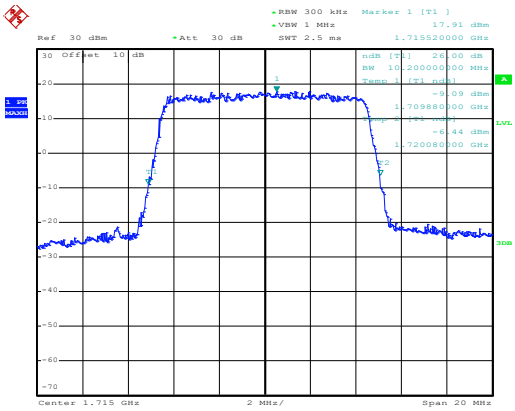
-26dBc bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 19:37:44

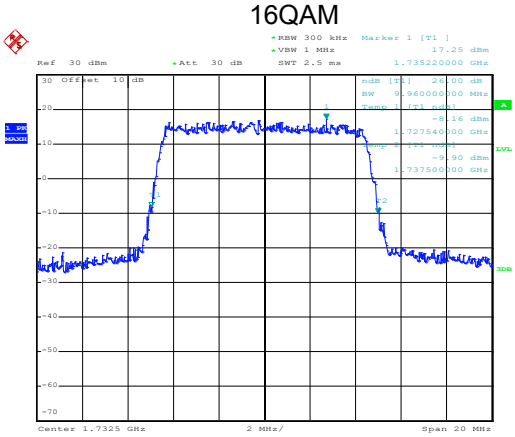
QPSK



Date: 2.NOV.2017 19:37:34

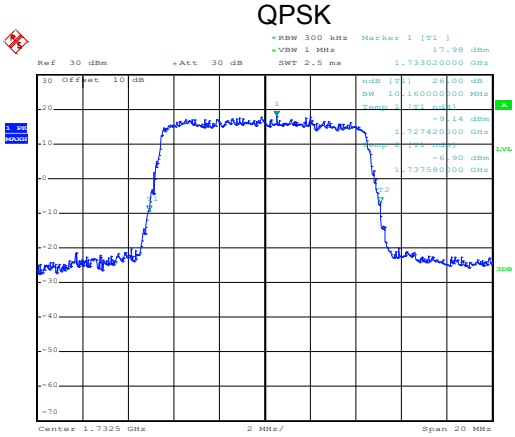
Lowest channel

16QAM



Date: 2.NOV.2017 19:38:30

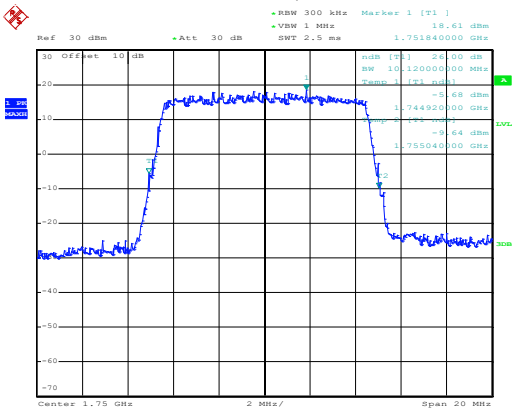
QPSK



Date: 2.NOV.2017 19:38:21

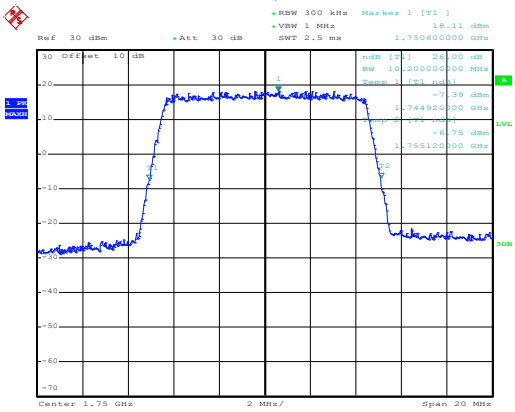
Middle channel

16QAM



Date: 2.NOV.2017 19:39:27

QPSK

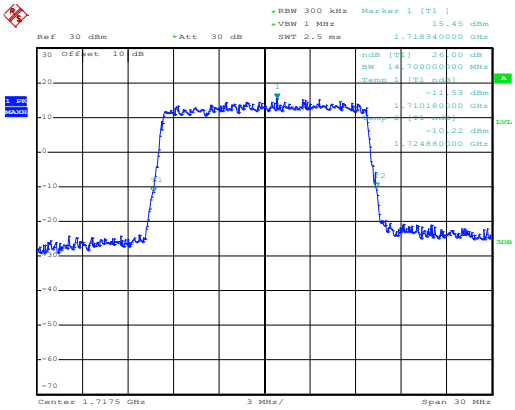


Date: 2.NOV.2017 19:39:22

Highest channel

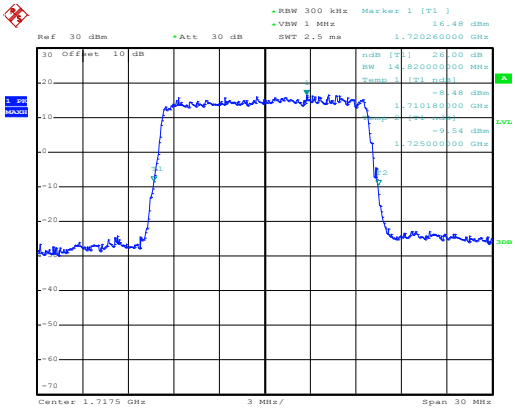
-26dBc bandwidth
BW: 15MHz

16QAM



Date: 2.NOV.2017 19:40:01

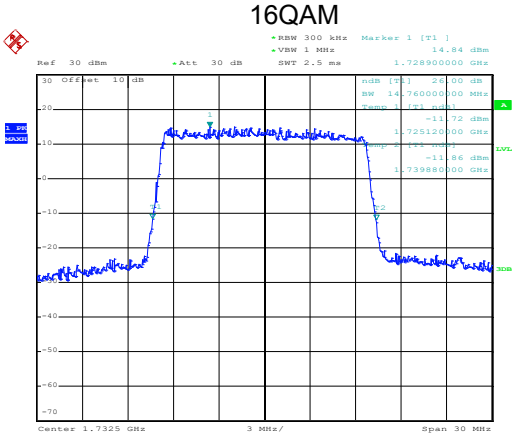
QPSK



Date: 2.NOV.2017 19:39:55

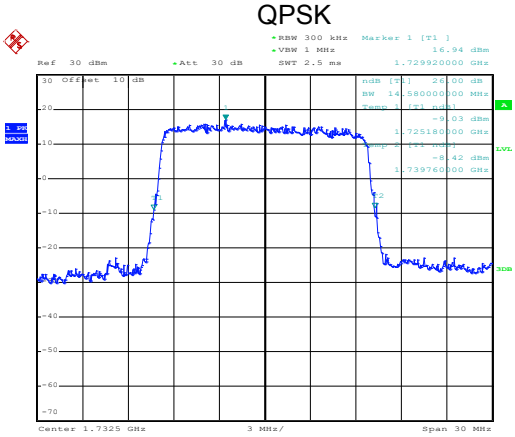
Lowest channel

16QAM



Date: 2.NOV.2017 19:40:59

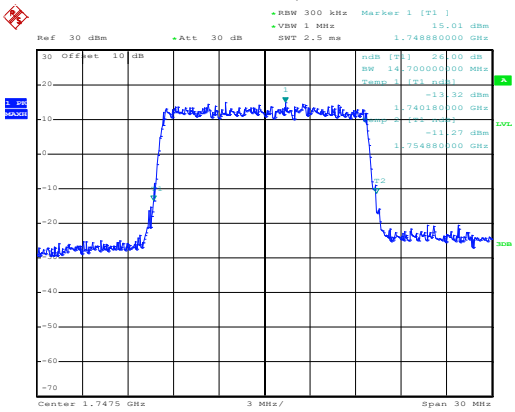
QPSK



Date: 2.NOV.2017 19:40:54

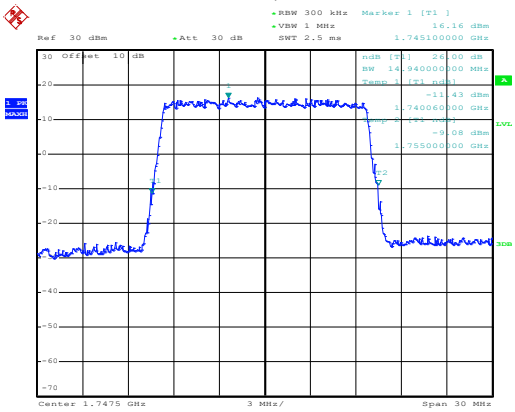
Middle channel

16QAM



Date: 2.NOV.2017 19:41:18

QPSK

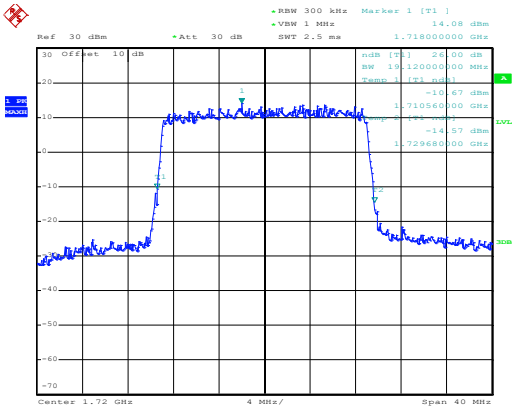


Date: 2.NOV.2017 19:41:14

Highest channel

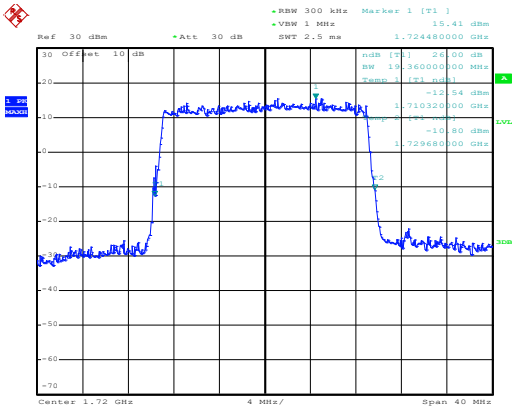
-26dBc bandwidth
BW: 20MHz

16QAM



Date: 2.NOV.2017 19:42:07

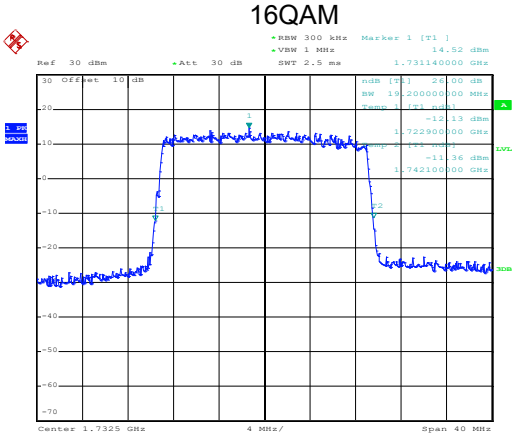
QPSK



Date: 2.NOV.2017 19:42:03

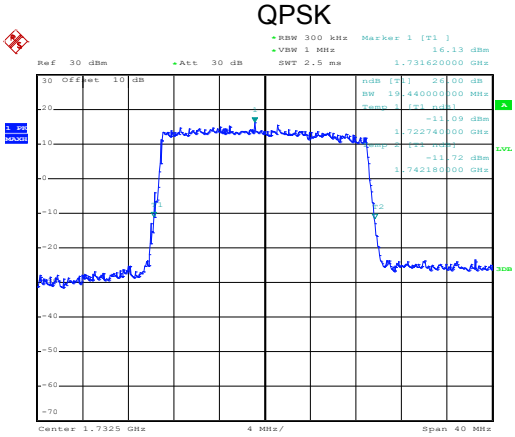
Lowest channel

16QAM



Date: 2.NOV.2017 19:42:25

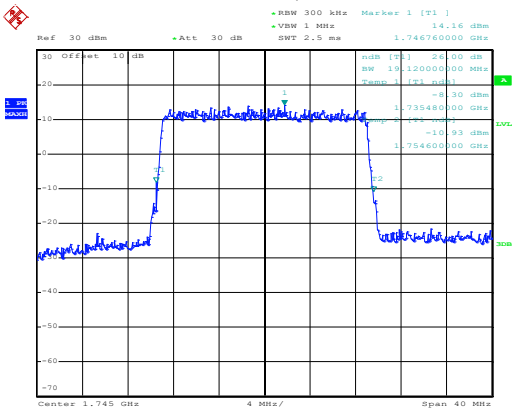
QPSK



Date: 2.NOV.2017 19:42:20

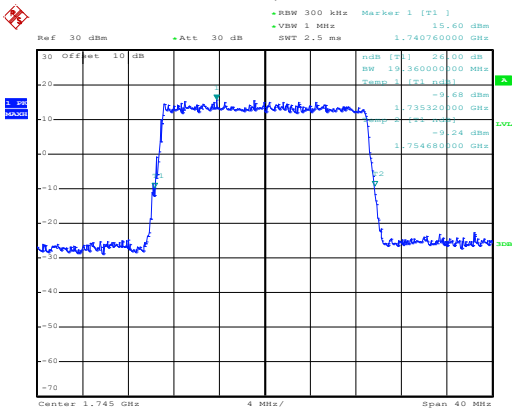
Middle channel

16QAM



Date: 2.NOV.2017 19:43:13

QPSK



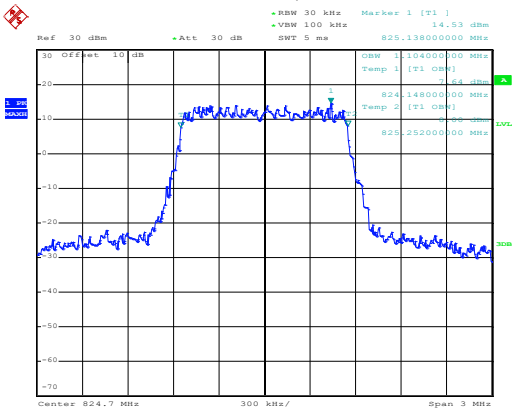
Date: 2.NOV.2017 19:43:08

Highest channel

LTE-Band 5 part

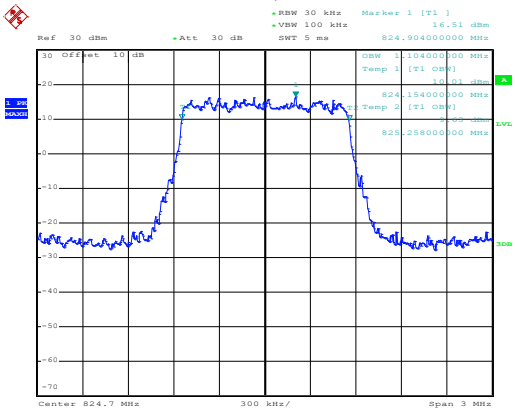
99% Occupy bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 19:48:03

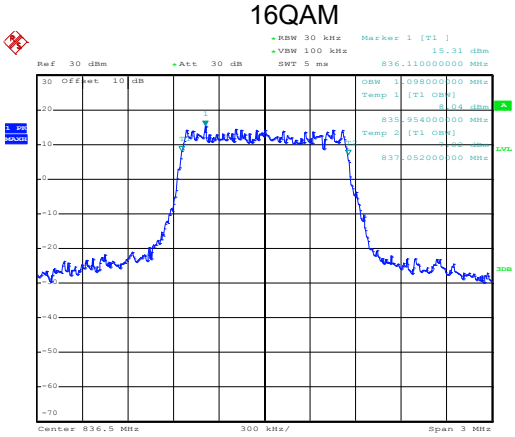
QPSK



Date: 2.NOV.2017 19:47:59

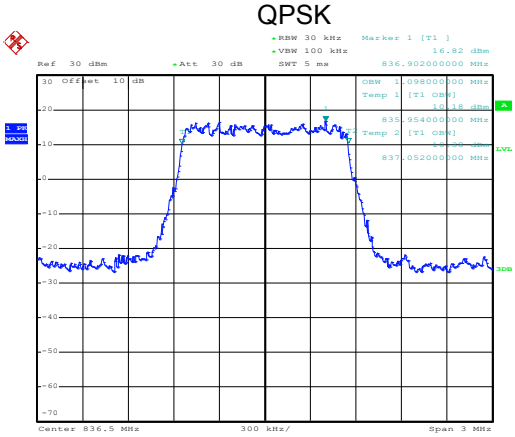
Lowest channel

16QAM



Date: 2.NOV.2017 19:48:19

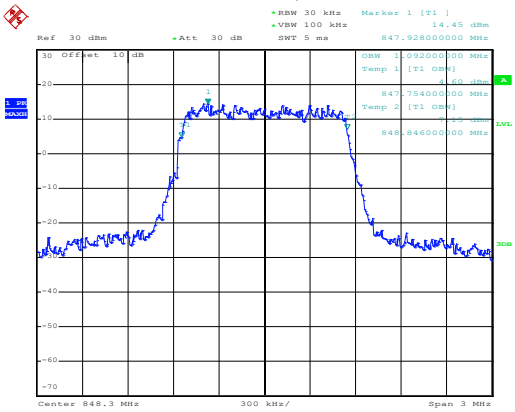
QPSK



Date: 2.NOV.2017 19:48:15

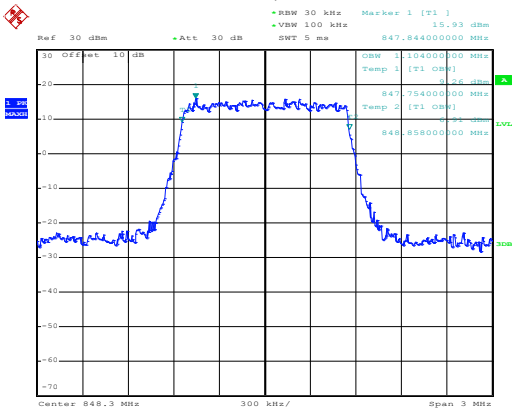
Middle channel

16QAM



Date: 2.NOV.2017 19:48:55

QPSK

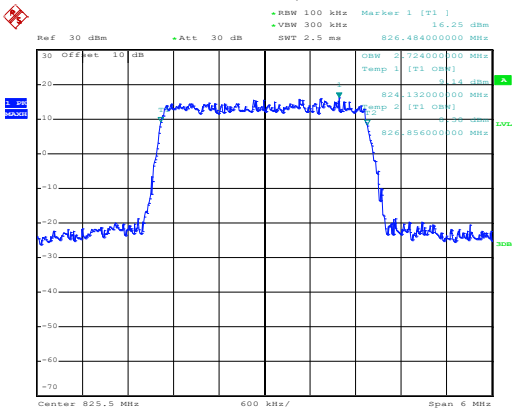


Date: 2.NOV.2017 19:48:51

Highest channel

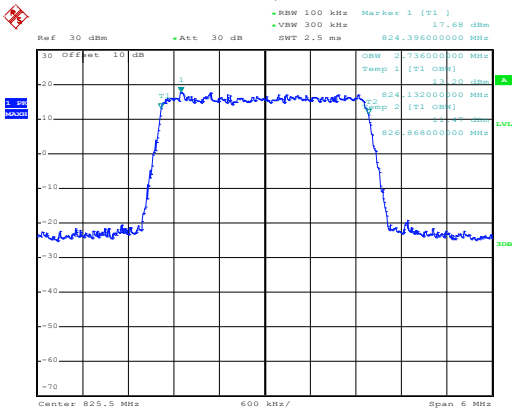
99% Occupy bandwidth
BW: 3MHz

16QAM



Date: 2.NOV.2017 19:49:26

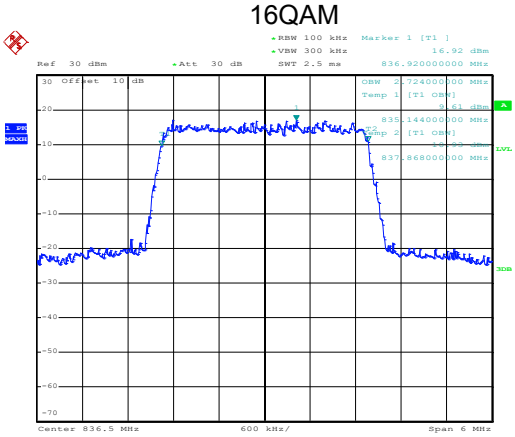
QPSK



Date: 2.NOV.2017 19:49:22

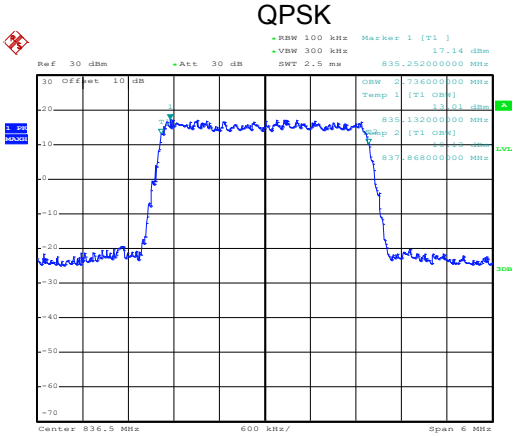
Lowest channel

16QAM



Date: 2.NOV.2017 19:50:09

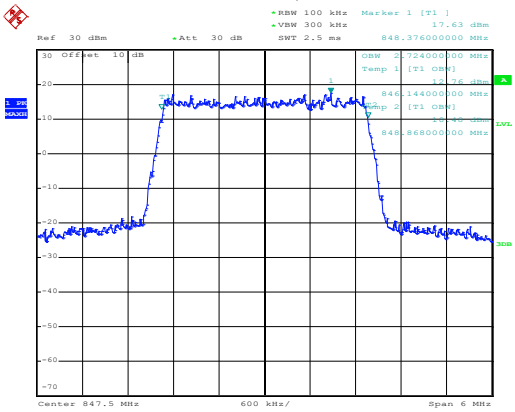
QPSK



Date: 2.NOV.2017 19:50:03

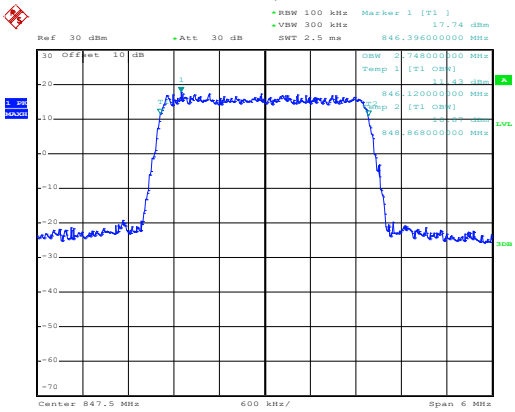
Middle channel

16QAM



Date: 2.NOV.2017 19:50:29

QPSK

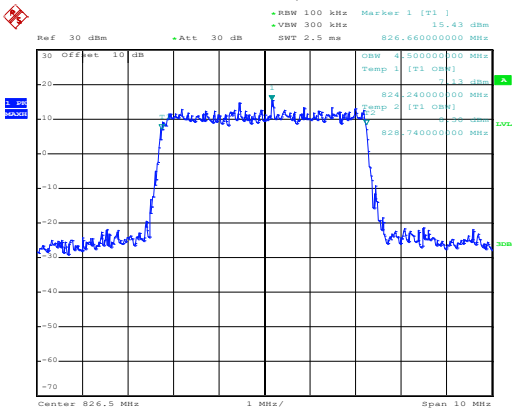


Date: 2.NOV.2017 19:50:22

Highest channel

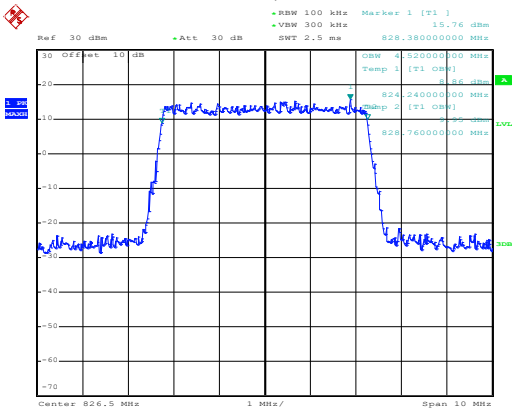
99% Occupy bandwidth
BW: 5MHz

16QAM



Date: 2.NOV.2017 19:56:11

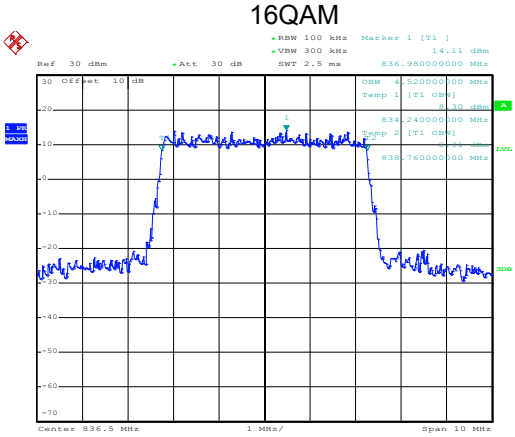
QPSK



Date: 2.NOV.2017 19:56:07

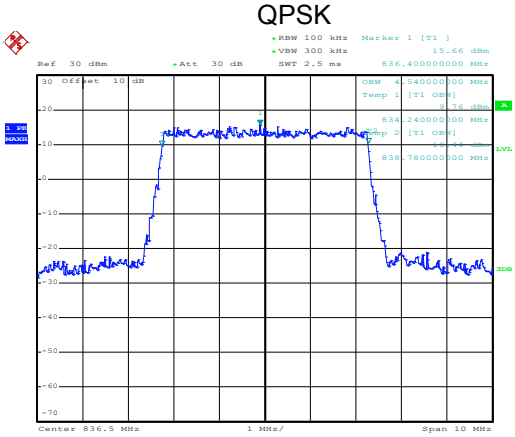
Lowest channel

16QAM



Date: 2.NOV.2017 19:56:29

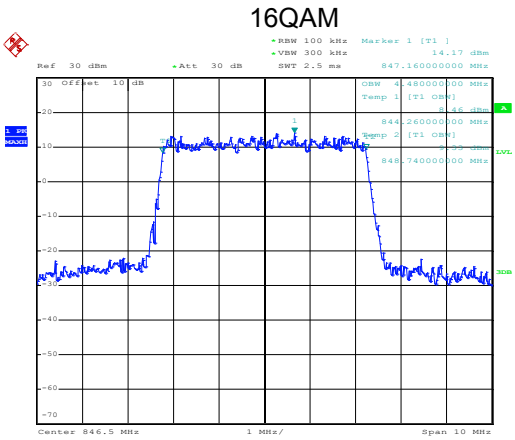
QPSK



Date: 2.NOV.2017 19:56:25

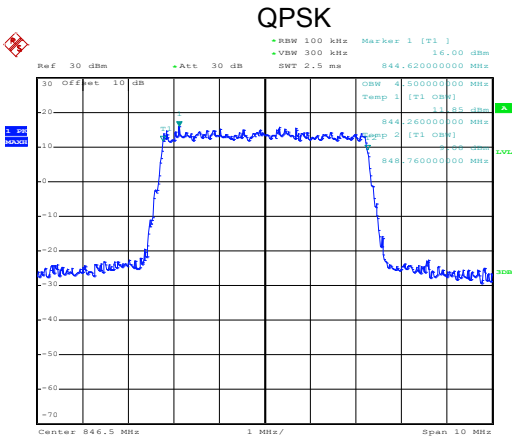
Middle channel

16QAM



Date: 2.NOV.2017 19:57:08

QPSK

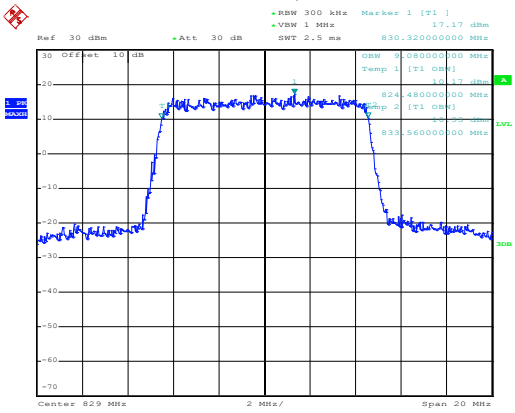


Date: 2.NOV.2017 19:57:04

Highest channel

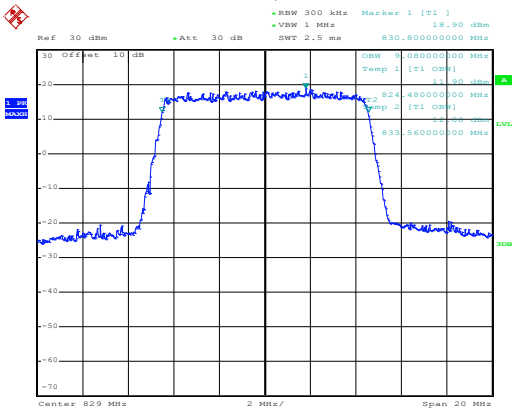
99% Occupy bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 19:57:37

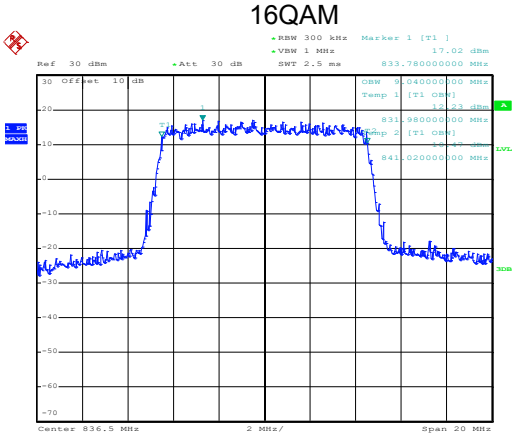
QPSK



Date: 2.NOV.2017 19:57:33

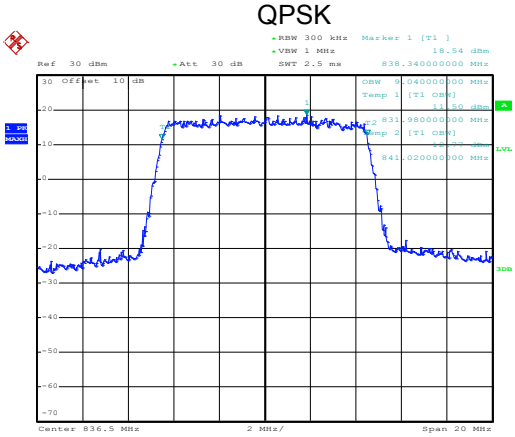
Lowest channel

16QAM



Date: 2.NOV.2017 19:58:20

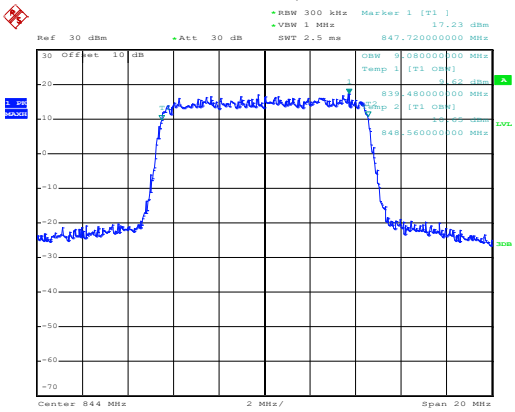
QPSK



Date: 2.NOV.2017 19:58:16

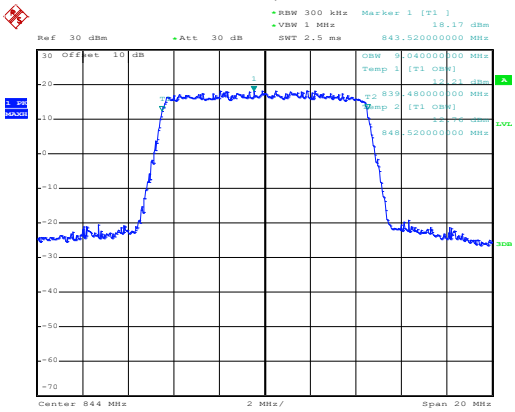
Middle channel

16QAM



Date: 2.NOV.2017 19:58:38

QPSK

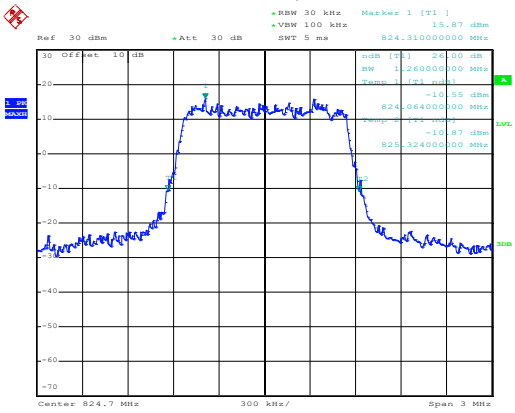


Date: 2.NOV.2017 19:58:34

Highest channel

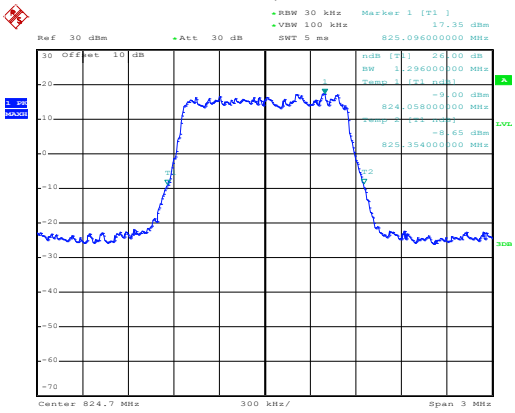
-26dBc bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 19:47:52

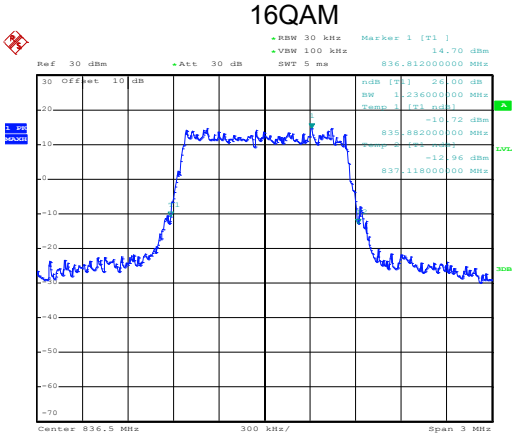
QPSK



Date: 2.NOV.2017 19:47:47

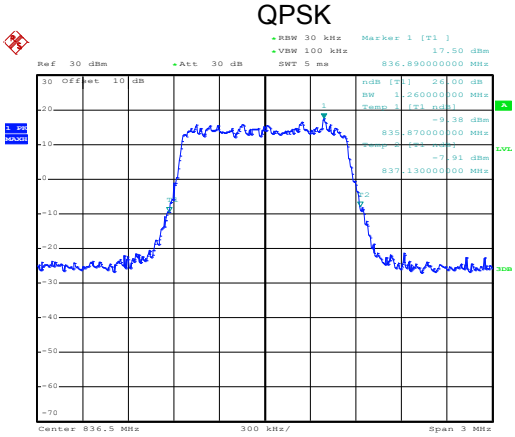
Lowest channel

16QAM



Date: 2.NOV.2017 19:48:29

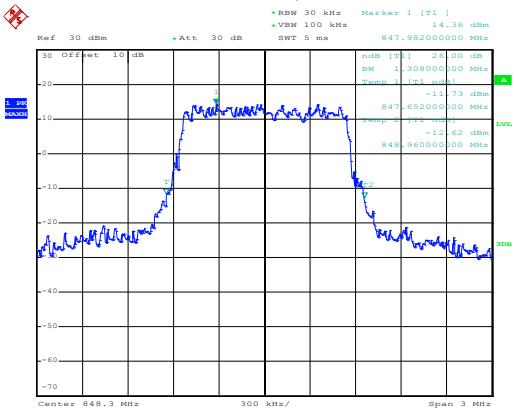
QPSK



Date: 2.NOV.2017 19:48:25

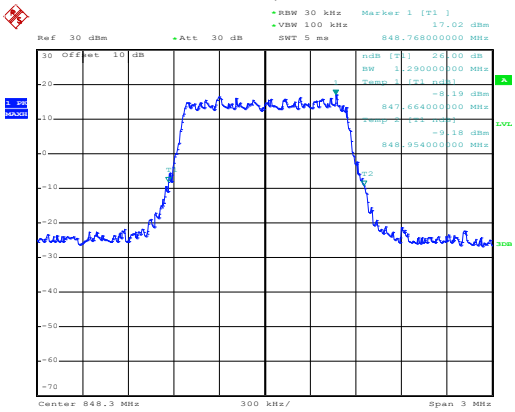
Middle channel

16QAM



Date: 2.NOV.2017 19:48:45

QPSK

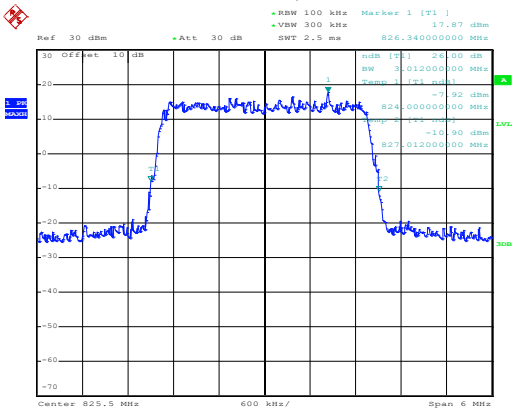


Date: 2.NOV.2017 19:48:41

Highest channel

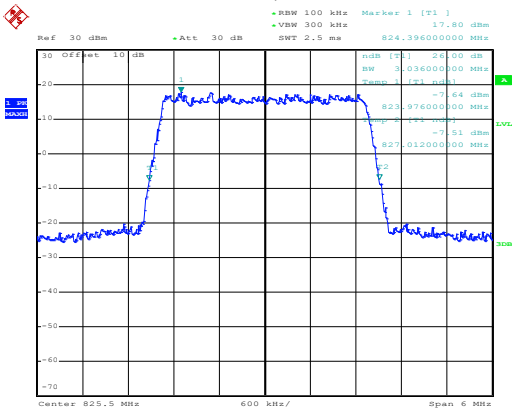
-26dBc bandwidth
BW: 3MHz

16QAM



Date: 2.NOV.2017 19:49:38

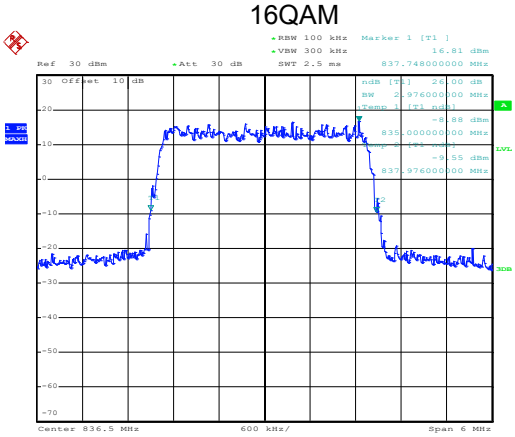
QPSK



Date: 2.NOV.2017 19:49:34

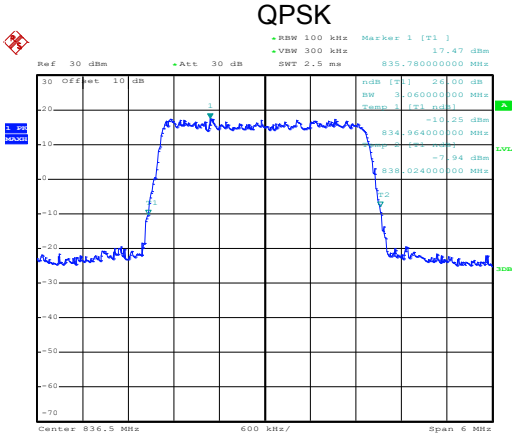
Lowest channel

16QAM



Date: 2.NOV.2017 19:49:55

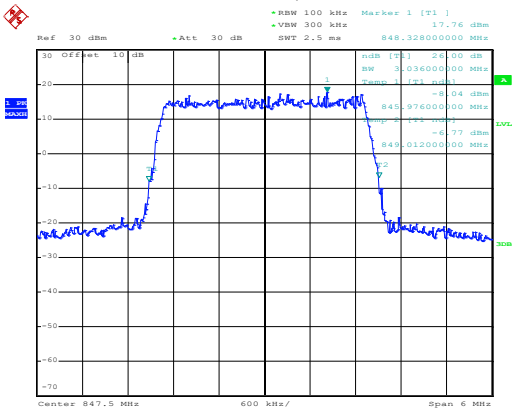
QPSK



Date: 2.NOV.2017 19:49:51

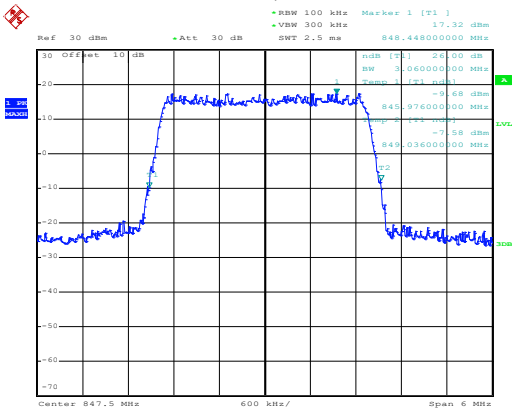
Middle channel

16QAM



Date: 2.NOV.2017 19:50:41

QPSK

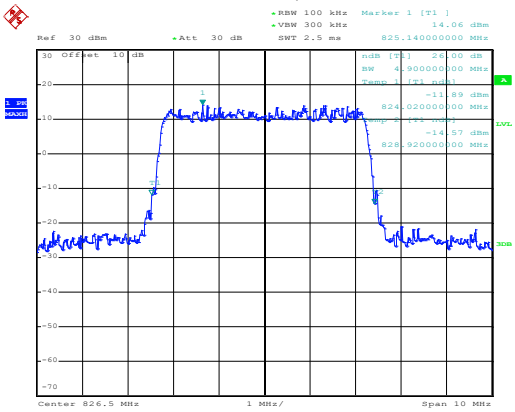


Date: 2.NOV.2017 19:50:35

Highest channel

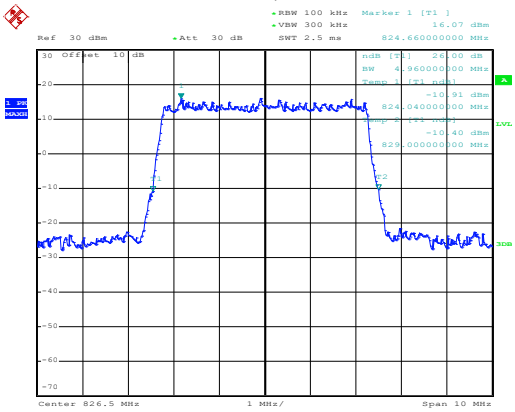
-26dBc bandwidth
BW: 5MHz

16QAM



Date: 2.NOV.2017 19:56:01

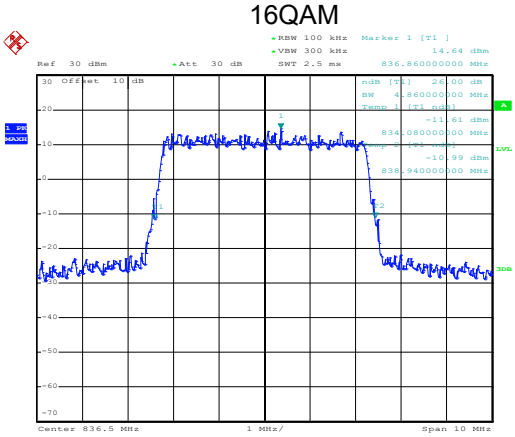
QPSK



Date: 2.NOV.2017 19:55:56

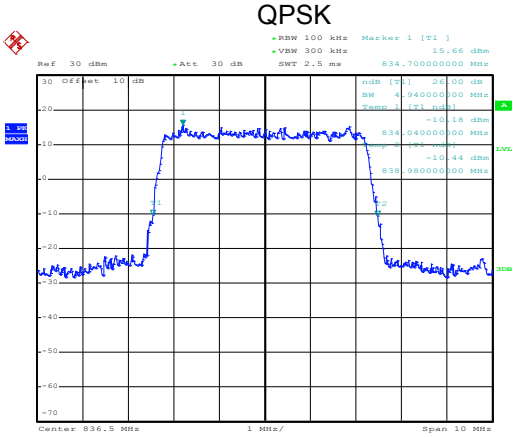
Lowest channel

16QAM



Date: 2.NOV.2017 19:56:39

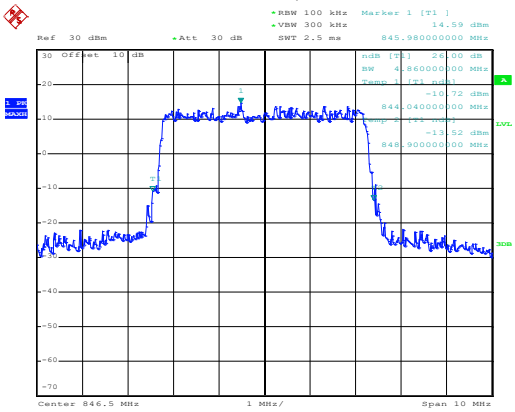
QPSK



Date: 2.NOV.2017 19:56:36

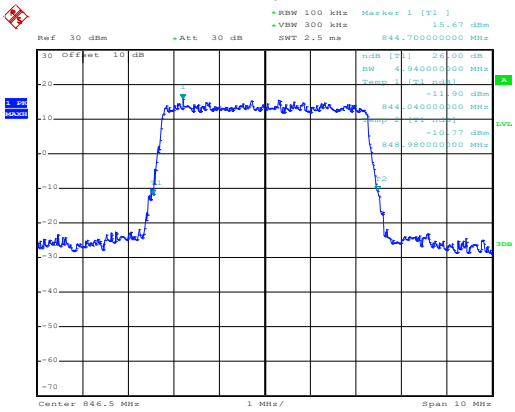
Middle channel

16QAM



Date: 2.NOV.2017 19:56:55

QPSK

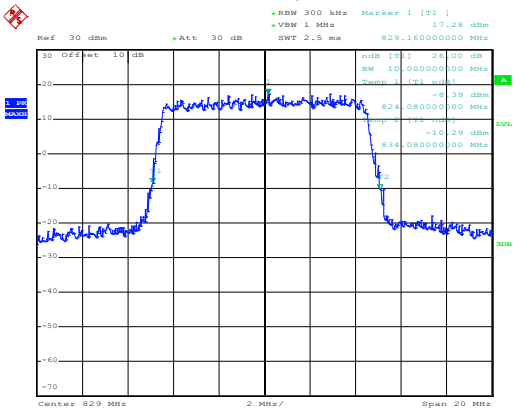


Date: 2.NOV.2017 19:56:51

Highest channel

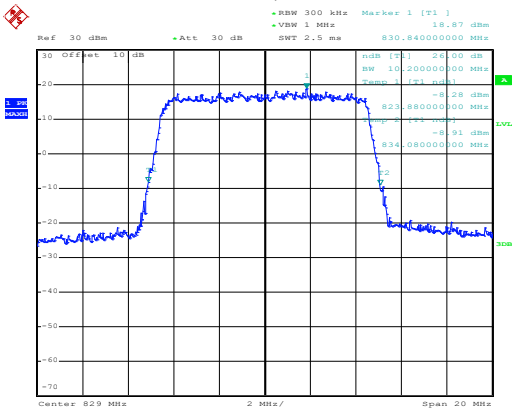
-26dBc bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 19:57:49

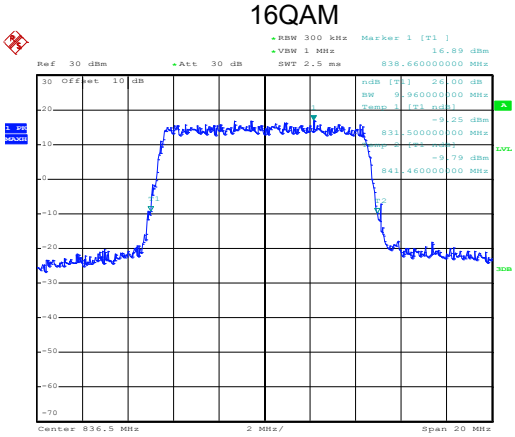
QPSK



Date: 2.NOV.2017 19:57:45

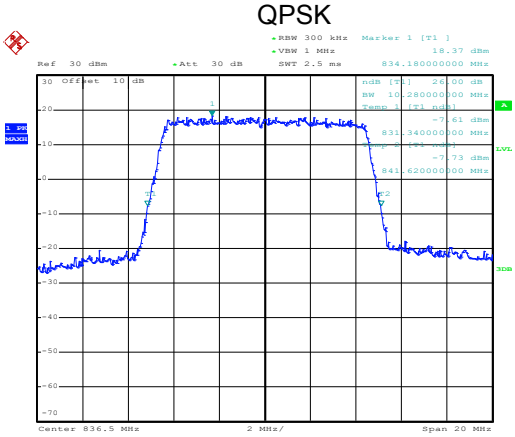
Lowest channel

16QAM



Date: 2.NOV.2017 19:58:09

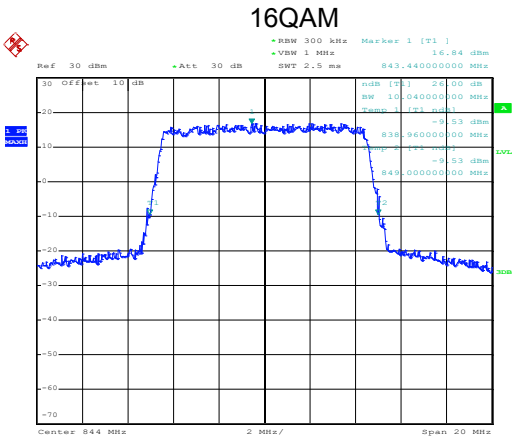
QPSK



Date: 2.NOV.2017 19:58:05

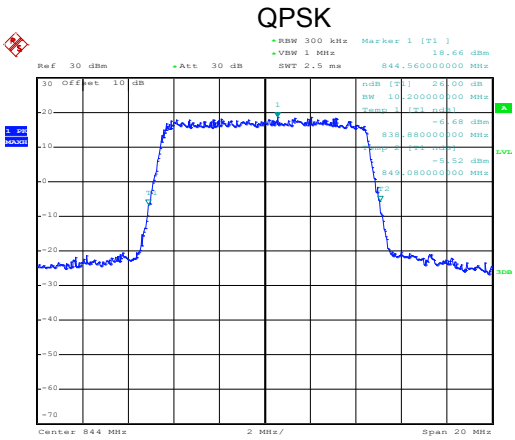
Middle channel

16QAM



Date: 2.NOV.2017 20:05:02

QPSK



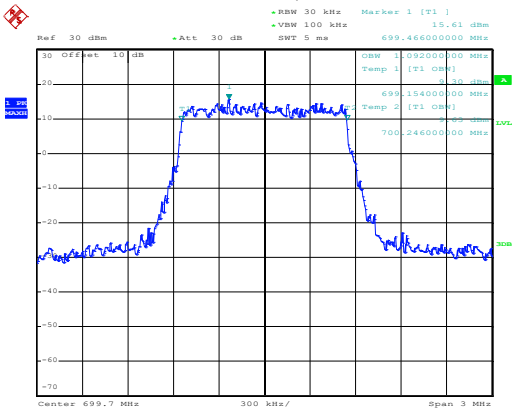
Date: 2.NOV.2017 20:04:56

Highest channel

LTE Band 12 part

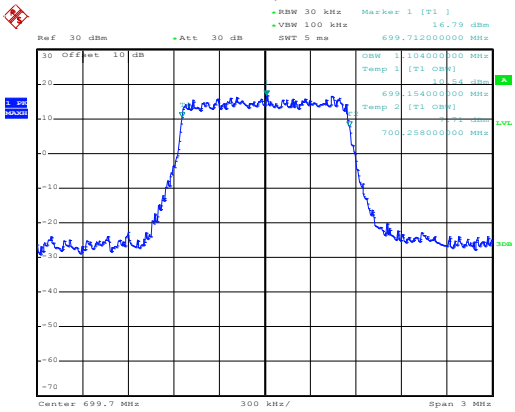
99% Occupy bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 20:05:54

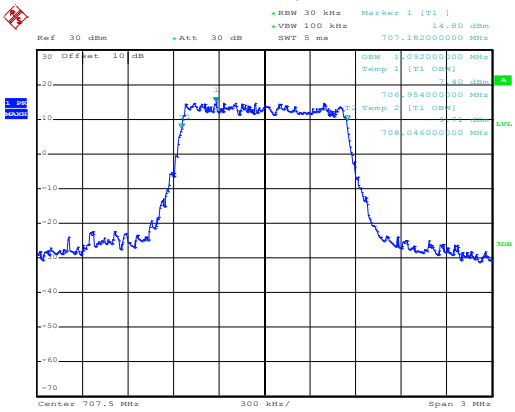
QPSK



Date: 2.NOV.2017 20:05:49

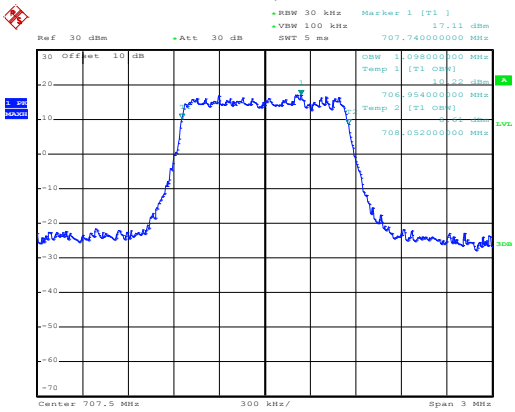
Lowest channel

16QAM



Date: 2.NOV.2017 20:06:13

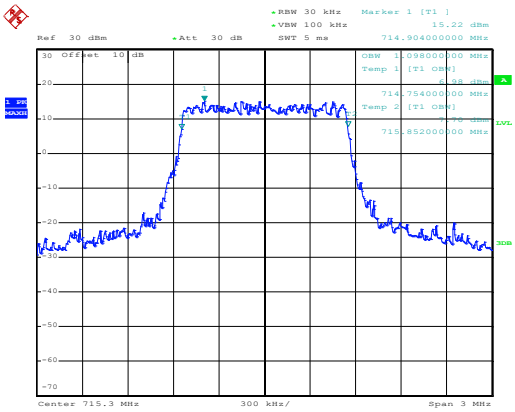
QPSK



Date: 2.NOV.2017 20:06:08

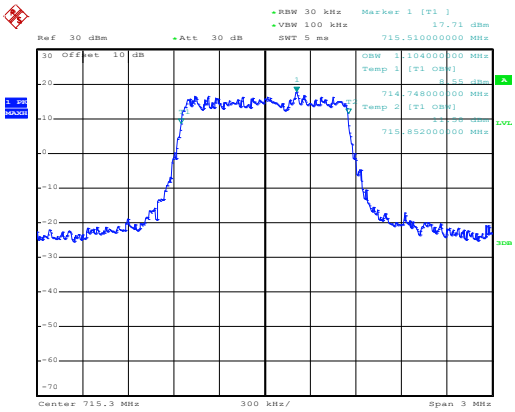
Middle channel

16QAM



Date: 2.NOV.2017 20:07:22

QPSK

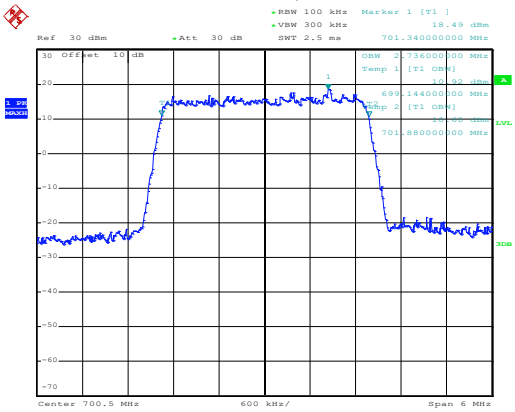


Date: 2.NOV.2017 20:07:10

Highest channel

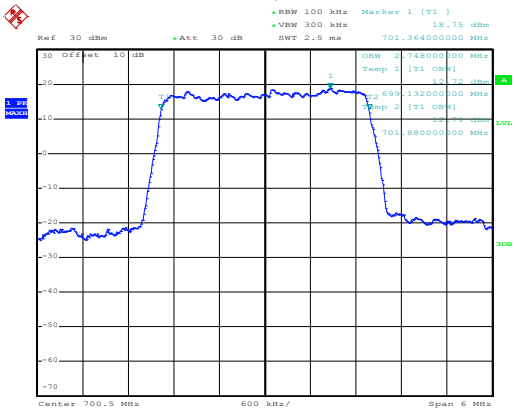
99% Occupy bandwidth
BW: 3MHz

16QAM



Date: 12.DEC.2017 23:22:15

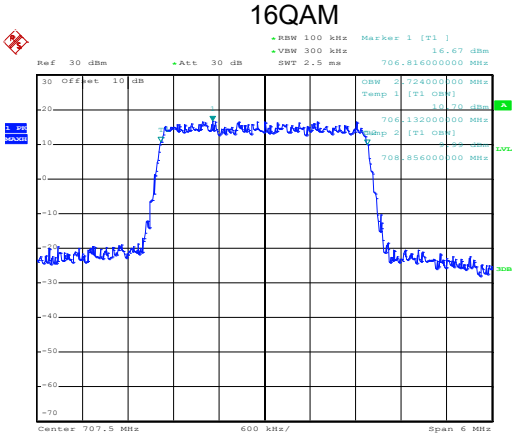
QPSK



Date: 12.DEC.2017 23:21:54

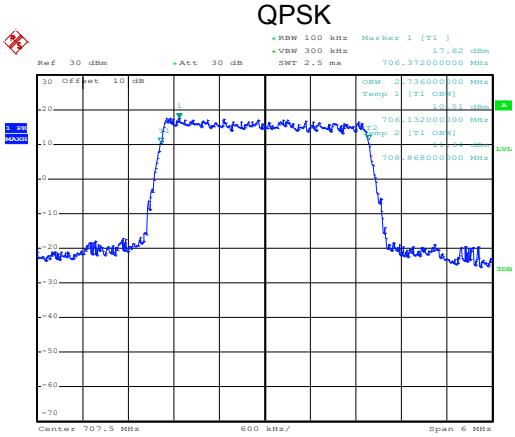
Lowest channel

16QAM



Date: 2.NOV.2017 20:08:57

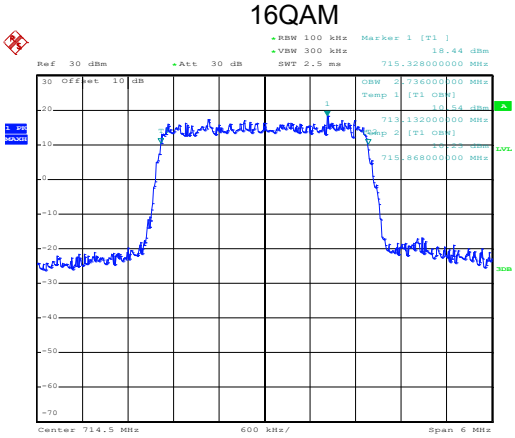
QPSK



Date: 2.NOV.2017 20:08:53

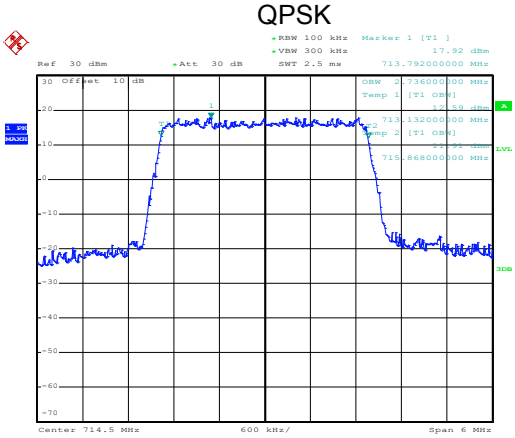
Middle channel

16QAM



Date: 2.NOV.2017 20:09:30

QPSK

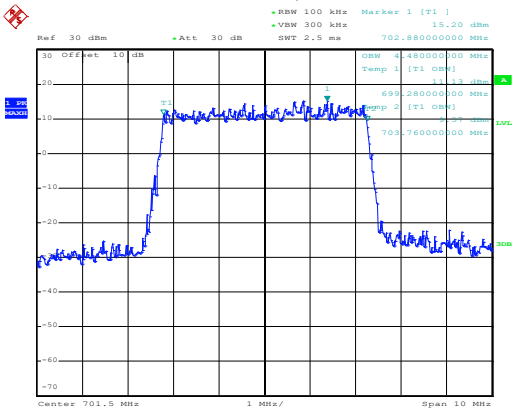


Date: 2.NOV.2017 20:09:25

Highest channel

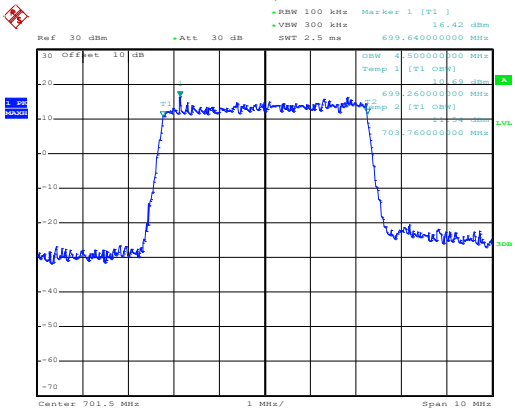
99% Occupy bandwidth
BW: 5MHz

16QAM



Date: 2.NOV.2017 20:10:30

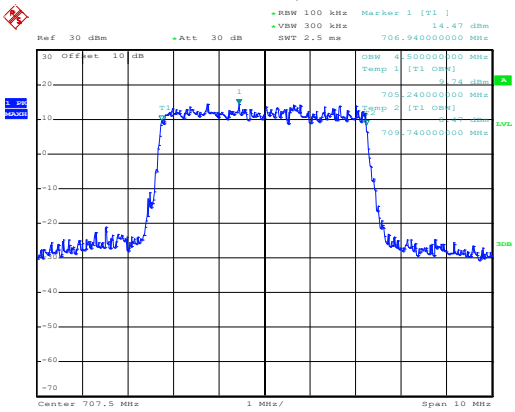
QPSK



Date: 2.NOV.2017 20:10:26

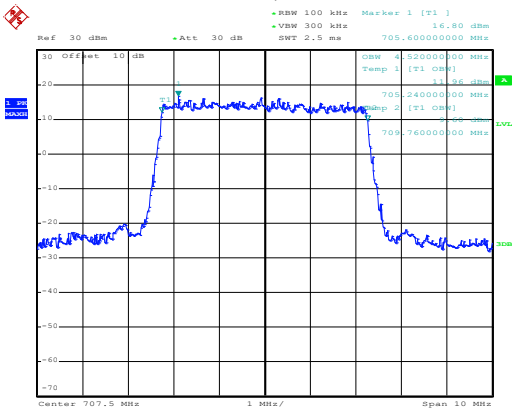
Lowest channel

16QAM



Date: 2.NOV.2017 20:10:48

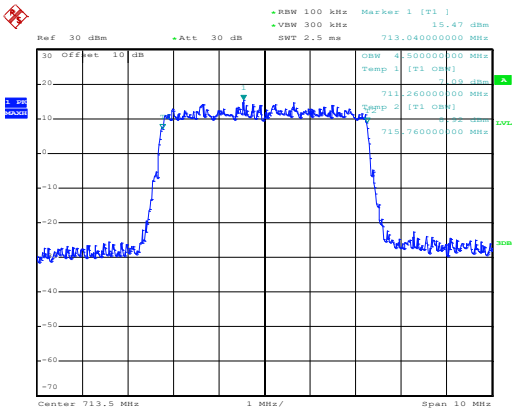
QPSK



Date: 2.NOV.2017 20:10:44

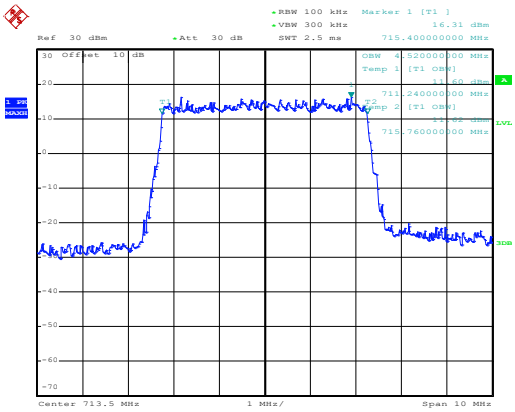
Middle channel

16QAM



Date: 2.NOV.2017 20:11:29

QPSK

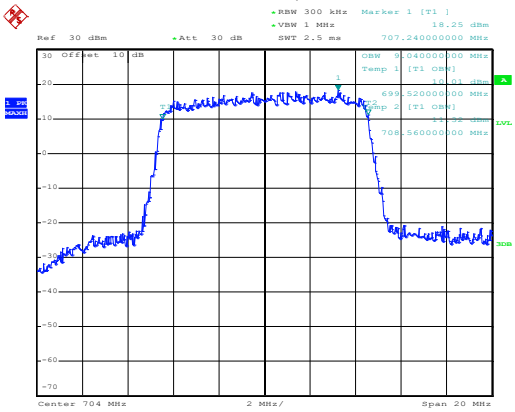


Date: 2.NOV.2017 20:11:24

Highest channel

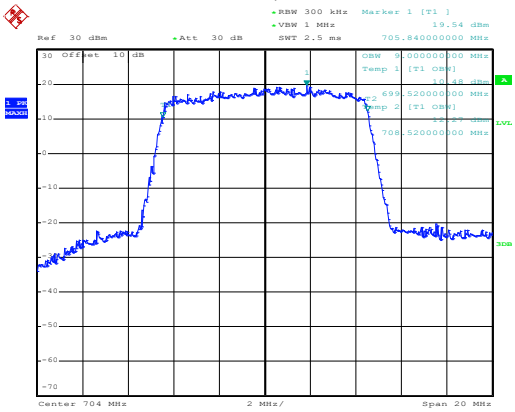
99% Occupy bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 20:12:01

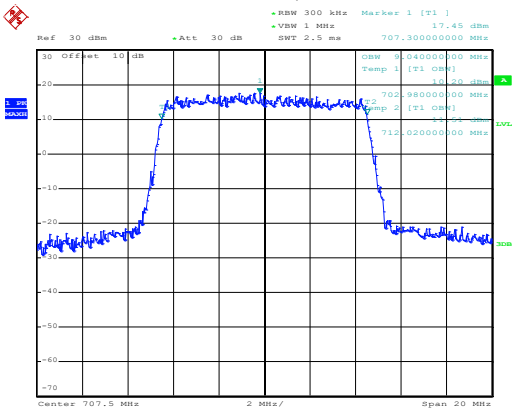
QPSK



Date: 2.NOV.2017 20:11:56

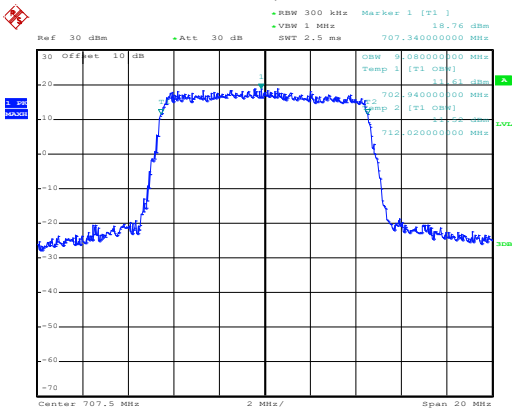
Lowest channel

16QAM



Date: 2.NOV.2017 20:12:45

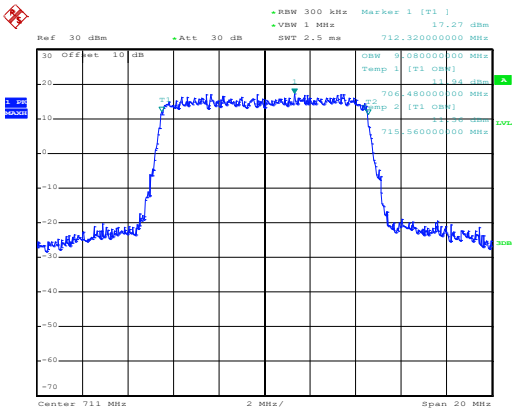
QPSK



Date: 2.NOV.2017 20:12:41

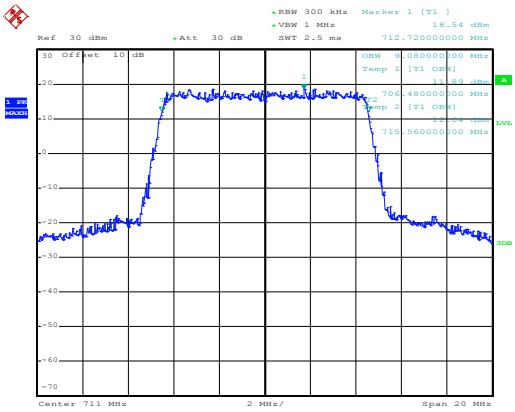
Middle channel

16QAM



Date: 2.NOV.2017 20:13:03

QPSK

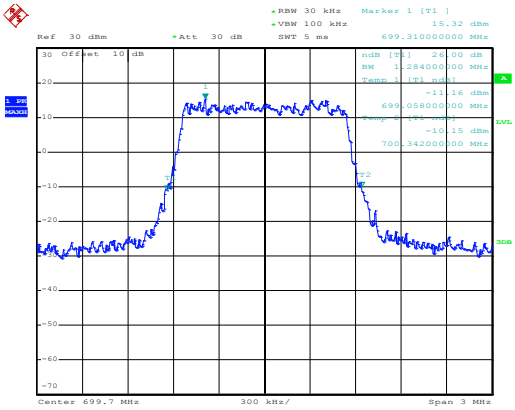


Date: 2.NOV.2017 20:12:58

Highest channel

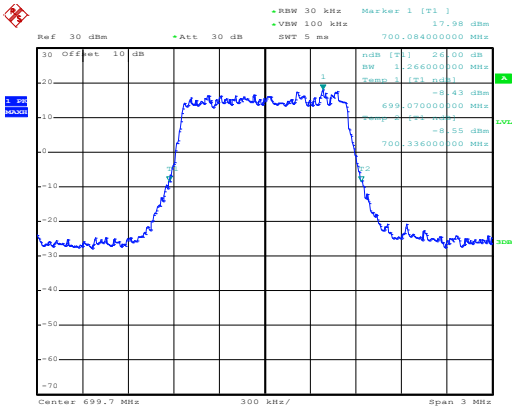
-26dBc bandwidth
BW: 1.4MHz

16QAM



Date: 2.NOV.2017 20:05:43

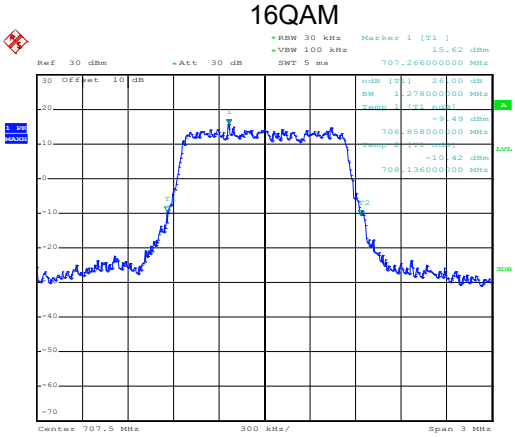
QPSK



Date: 2.NOV.2017 20:05:37

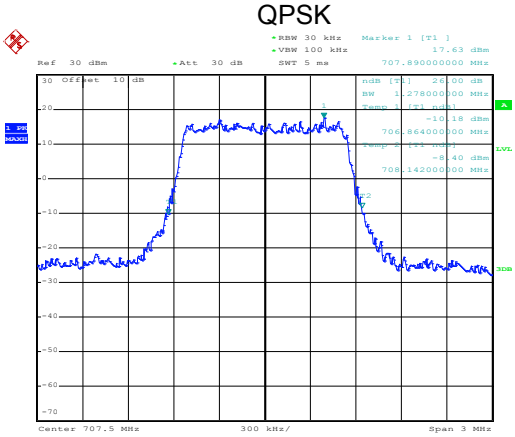
Lowest channel

16QAM



Date: 2.NOV.2017 20:06:25

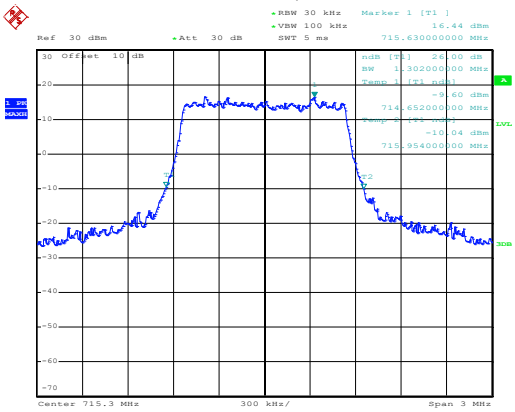
QPSK



Date: 2.NOV.2017 20:06:20

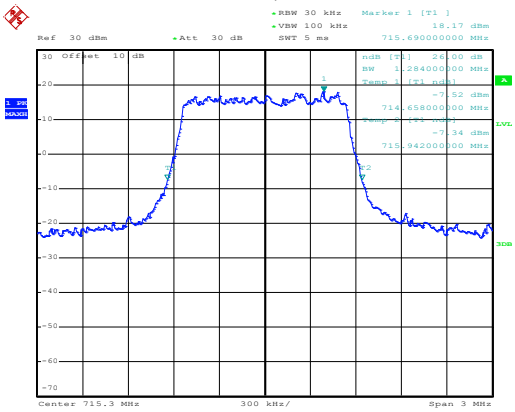
Middle channel

16QAM



Date: 2.NOV.2017 20:07:00

QPSK

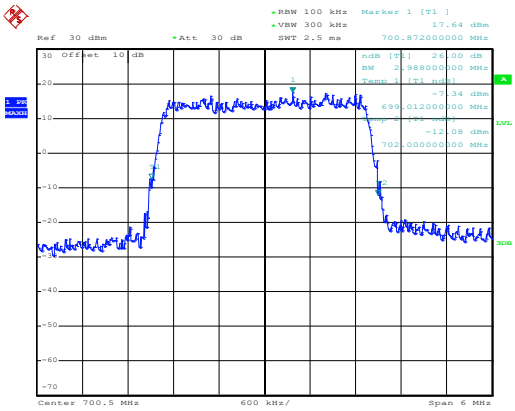


Date: 2.NOV.2017 20:06:49

Highest channel

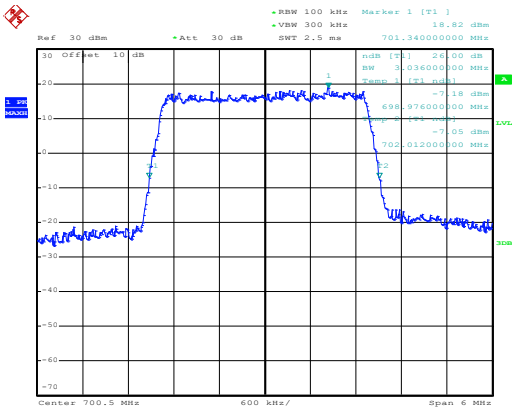
-26dBc bandwidth
BW: 3MHz

16QAM



Date: 2.NOV.2017 20:08:29

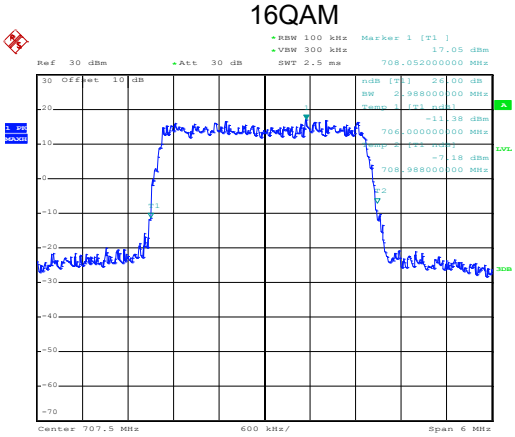
QPSK



Date: 2.NOV.2017 20:08:23

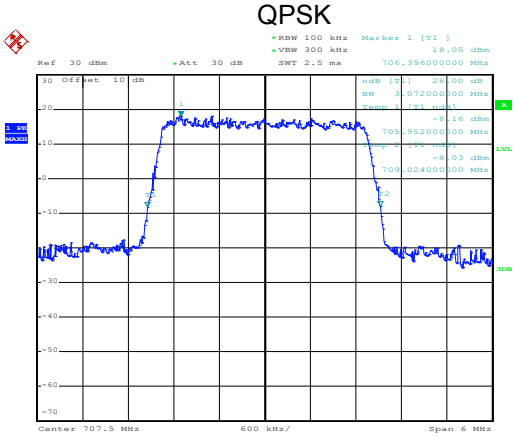
Lowest channel

16QAM



Date: 2.NOV.2017 20:08:46

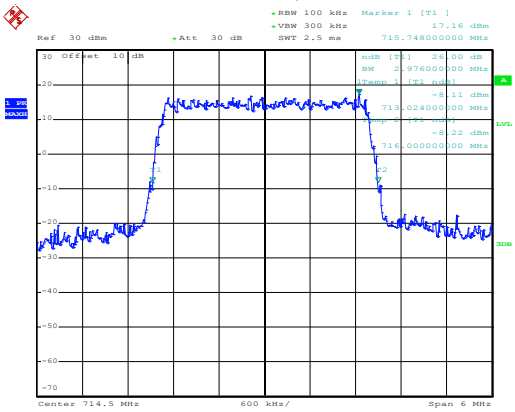
QPSK



Date: 2.NOV.2017 20:08:42

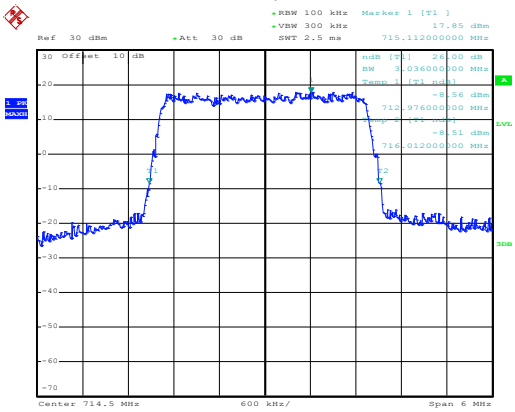
Middle channel

16QAM



Date: 2.NOV.2017 20:09:42

QPSK

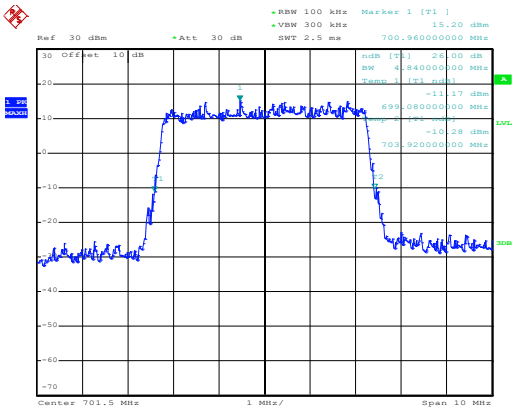


Date: 2.NOV.2017 20:09:38

Highest channel

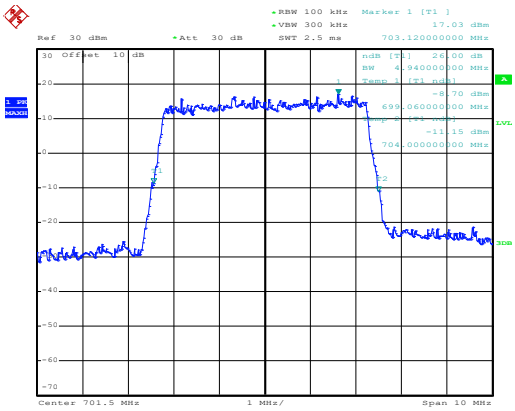
-26dBc bandwidth
BW: 5MHz

16QAM



Date: 2.NOV.2017 20:10:18

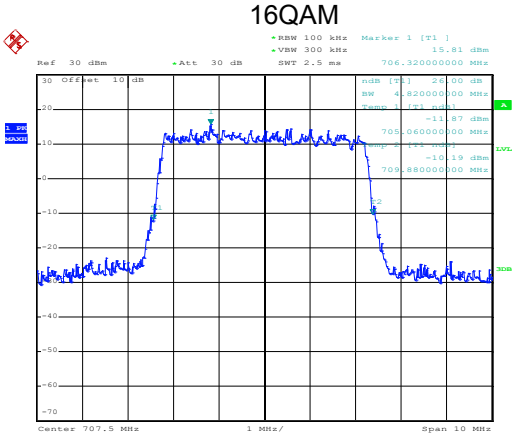
QPSK



Date: 2.NOV.2017 20:10:14

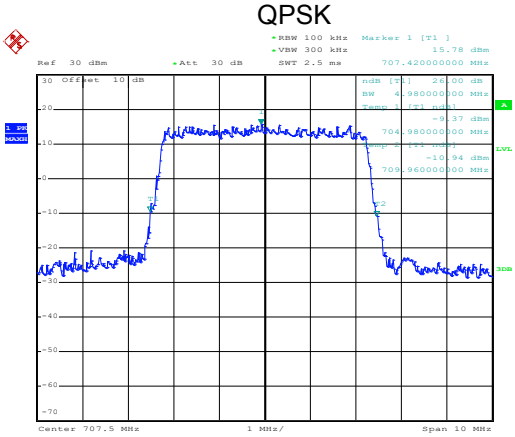
Lowest channel

16QAM



Date: 2.NOV.2017 20:10:59

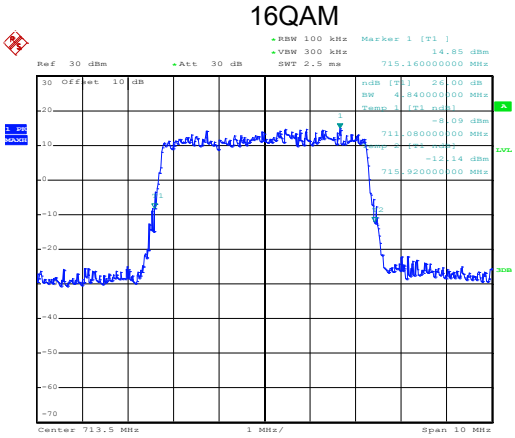
QPSK



Date: 2.NOV.2017 20:10:54

Middle channel

16QAM



Date: 2.NOV.2017 20:11:18

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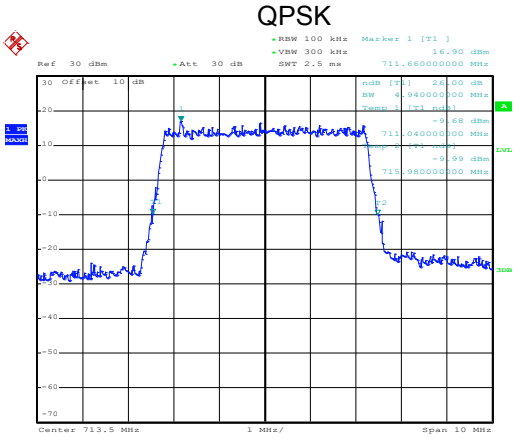
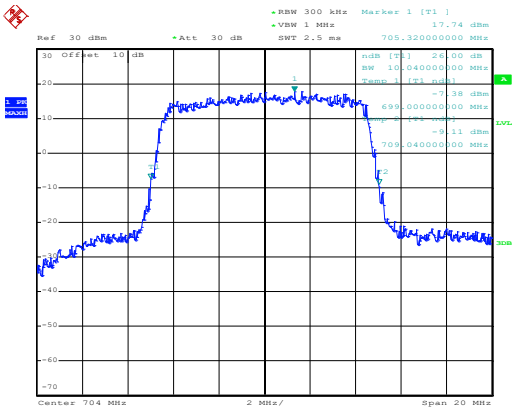


Date: 2.NOV.2017 20:11:13

Highest channel

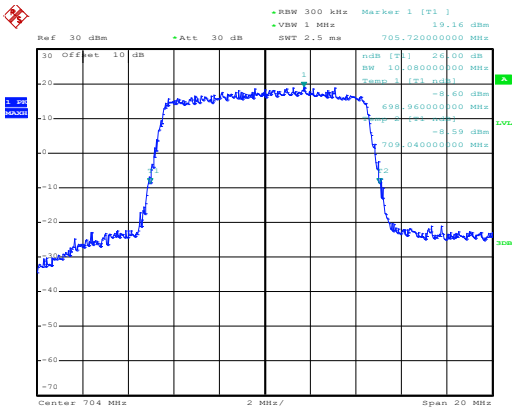
-26dBc bandwidth
BW: 10MHz

16QAM



Date: 2.NOV.2017 20:12:13

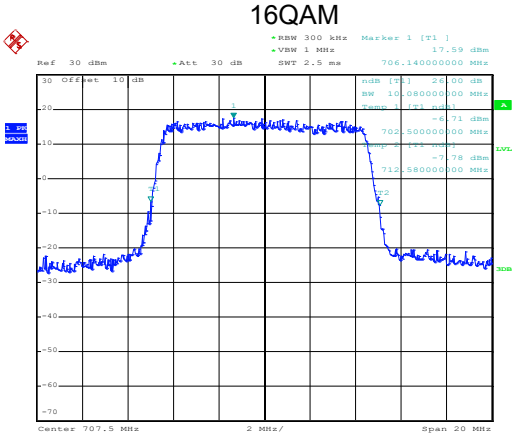
QPSK



Date: 2.NOV.2017 20:12:09

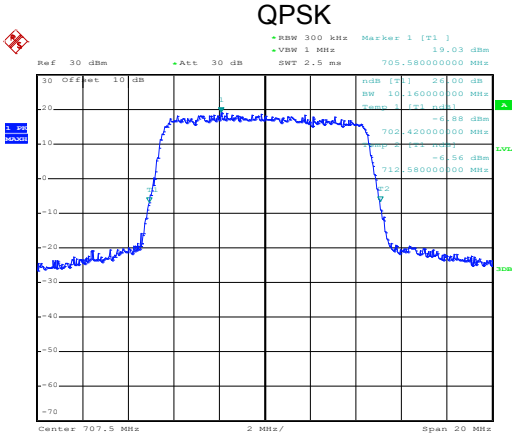
Lowest channel

16QAM



Date: 2.NOV.2017 20:12:34

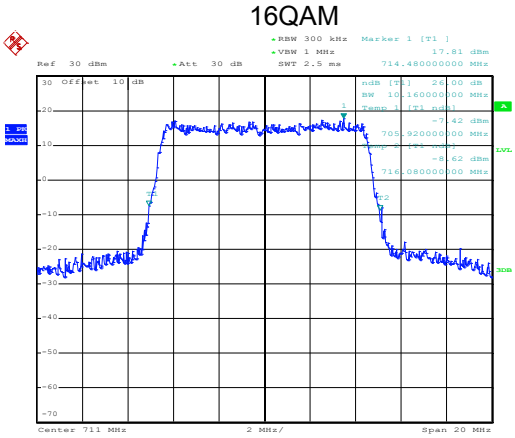
QPSK



Date: 2.NOV.2017 20:12:30

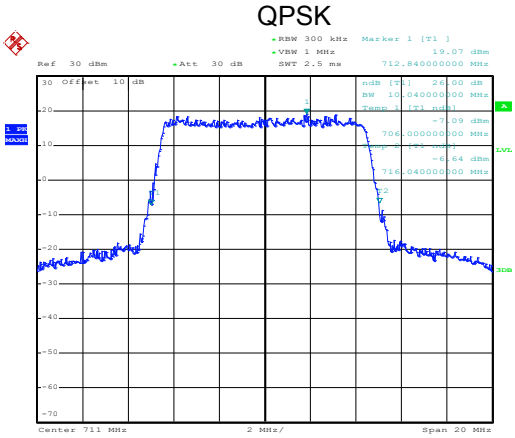
Middle channel

16QAM



Date: 2.NOV.2017 20:13:13

QPSK



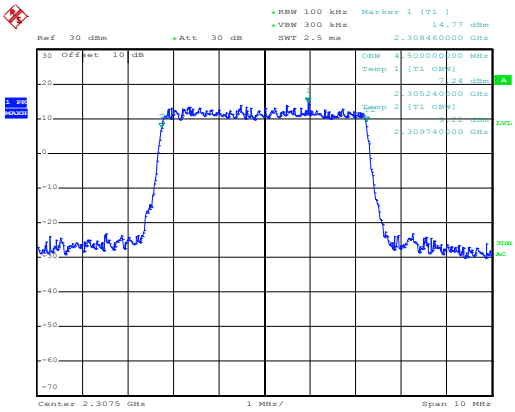
Date: 2.NOV.2017 20:13:09

Highest channel

LTE-Band 30 part

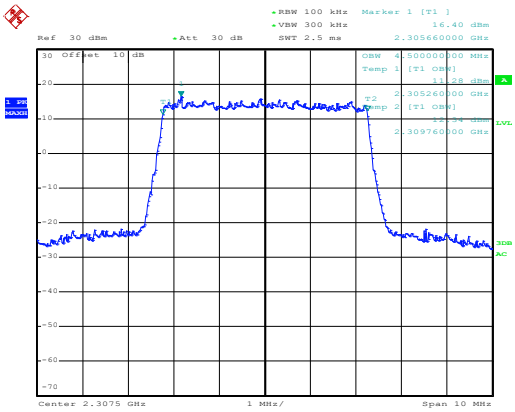
99% Occupy bandwidth
BW: 5MHz

16QAM



Date: 7.NOV.2017 21:39:34

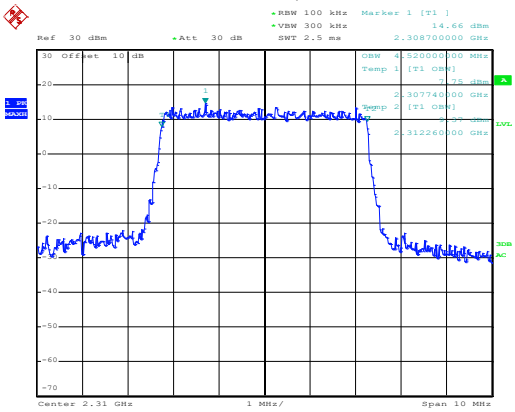
QPSK



Date: 7.NOV.2017 21:39:26

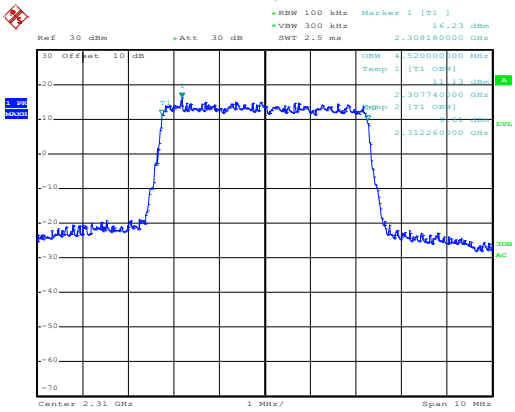
Lowest channel

16QAM



Date: 7.NOV.2017 21:40:18

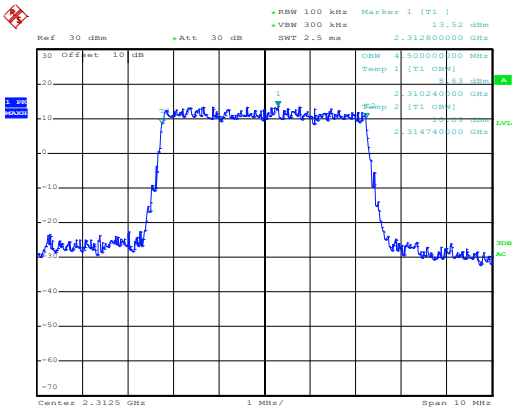
QPSK



Date: 7.NOV.2017 21:40:13

Middle channel

16QAM



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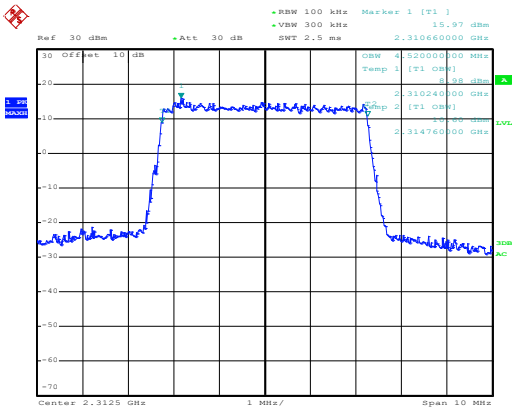
QPSK

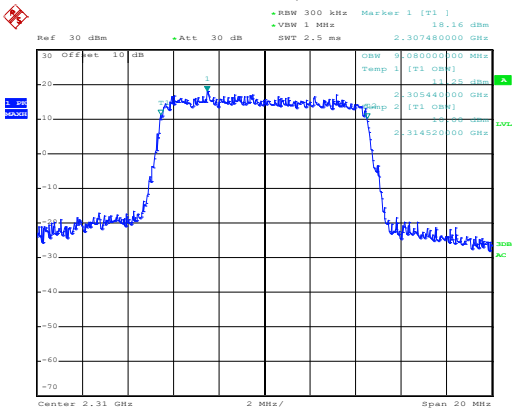


Date: 7.NOV.2017 21:40:37

Highest channel

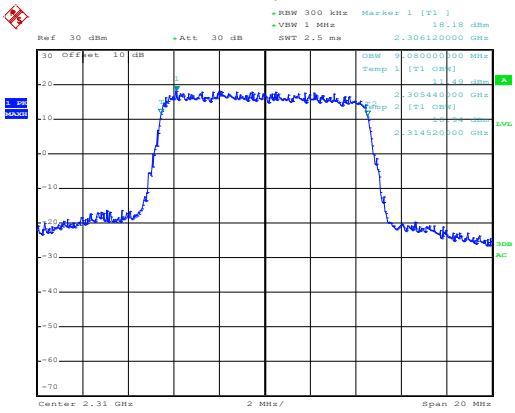
99% Occupy bandwidth
BW: 10MHz

16QAM



Date: 7.NOV.2017 21:41:34

QPSK

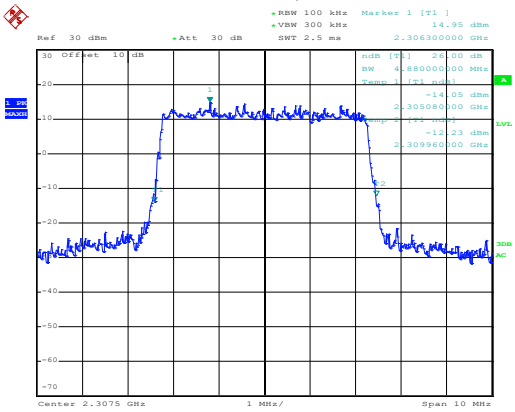


Date: 7.NOV.2017 21:41:30

Lowest channel

-26dBc bandwidth
BW: 5MHz

16QAM



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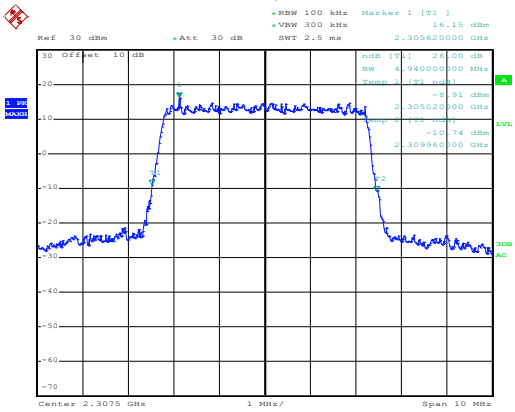
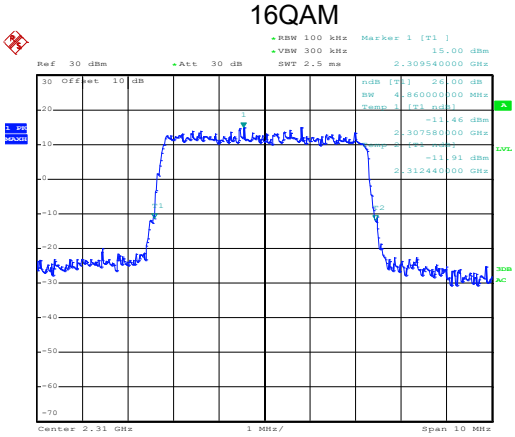
QPSK



Date: 7.NOV.2017 21:39:41

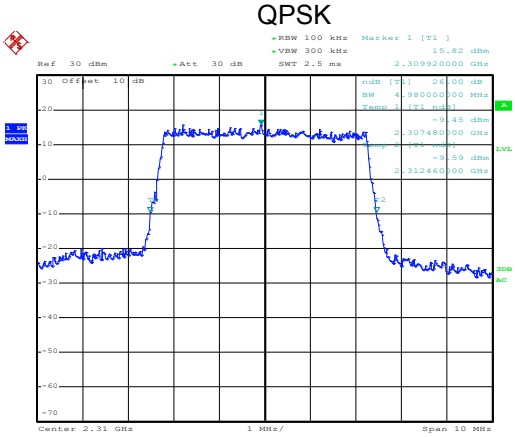
Lowest channel

16QAM



Date: 7.NOV.2017 21:40:04

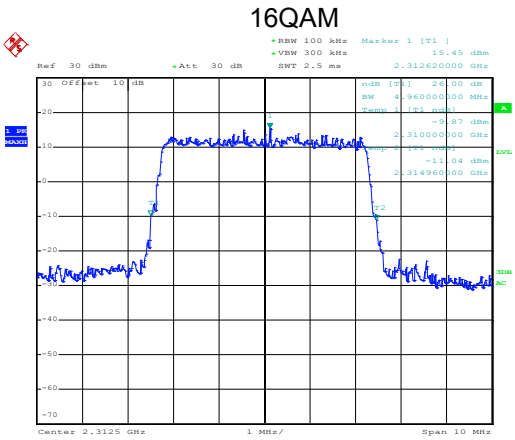
QPSK



Date: 7.NOV.2017 21:39:59

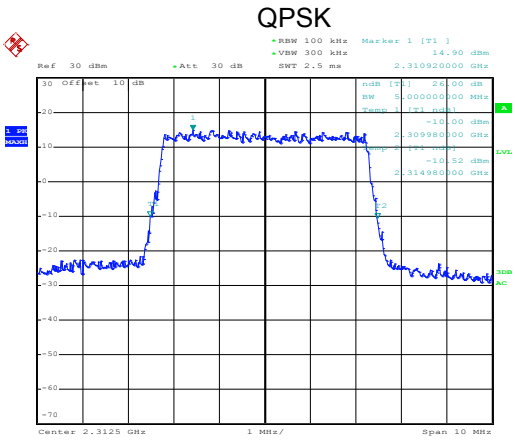
Middle channel

16QAM



Date: 7.NOV.2017 21:40:53

QPSK

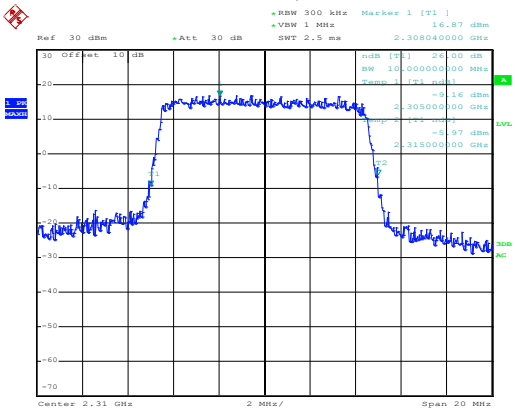


Date: 7.NOV.2017 21:40:49

Highest channel

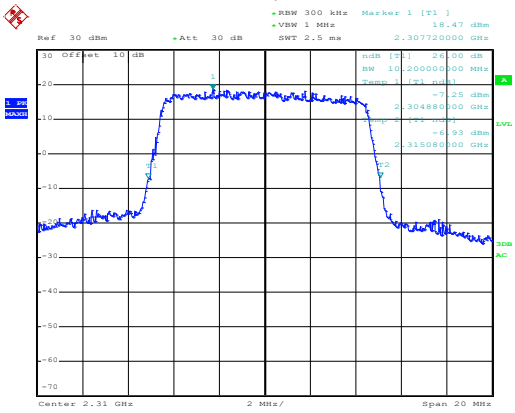
-26dBc bandwidth
BW: 10MHz

16QAM



Date: 7.NOV.2017 21:41:23

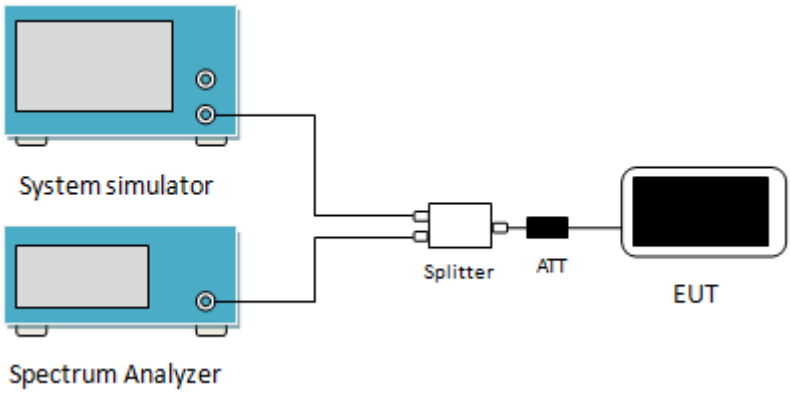
QPSK



Date: 7.NOV.2017 21:41:19

Lowest channel

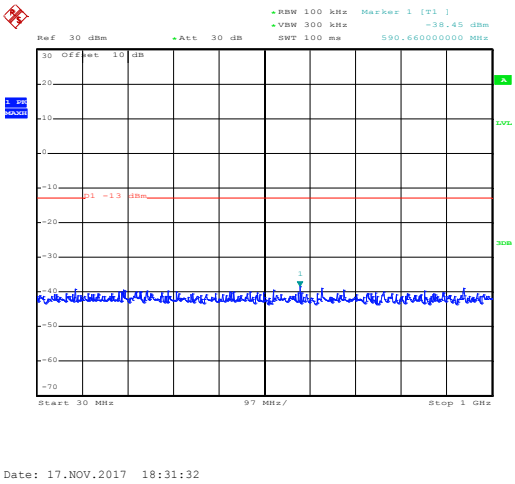
6.4 Out of band emission at antenna terminals

Test Requirement:	Part 22.917 (a),Part 24.238 (a), part 27.53(g), part 27.53(h), Part 27.53(a)(4)
Test Method:	ANSI/TIA-603-D 2010
Limit:	LTE Band 2 & 4/66 & 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 30:(1)By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz.(2) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz.(3) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.
Test Setup:	
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 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

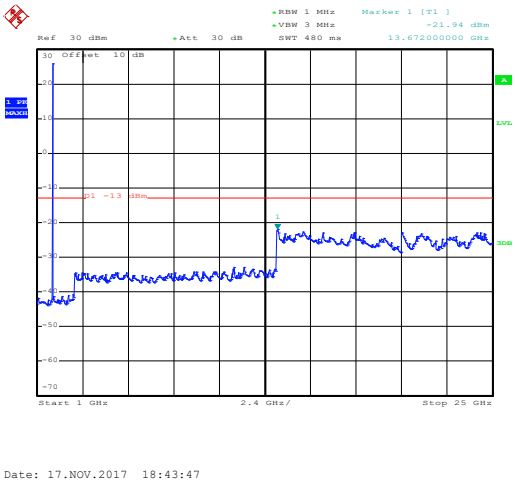
Test plots as follows:
Conducted spurious emission
LTE band 2, 1.4MHz

16 QAM & RB Size 1

Lowest channel

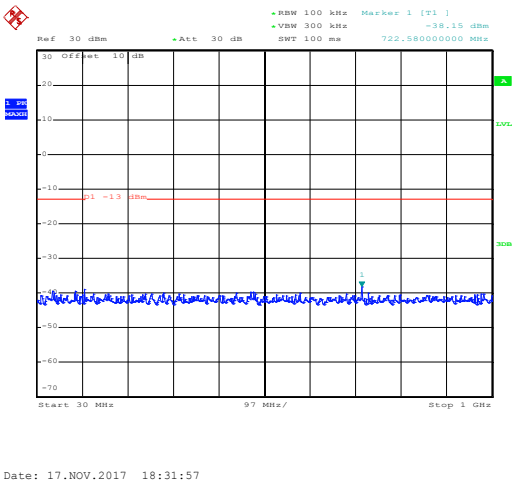


30MHz~1GHz

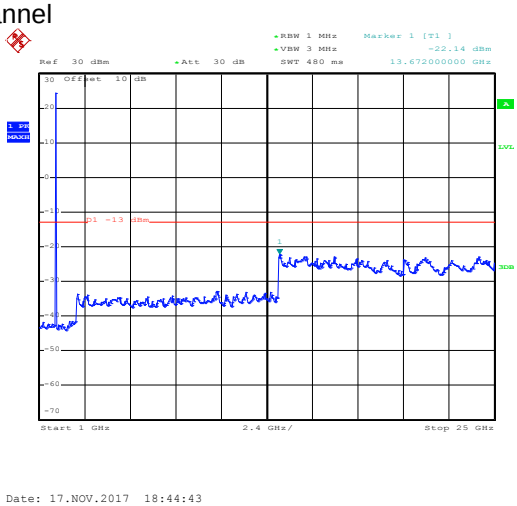


1GHz~25GHz

Middle channel

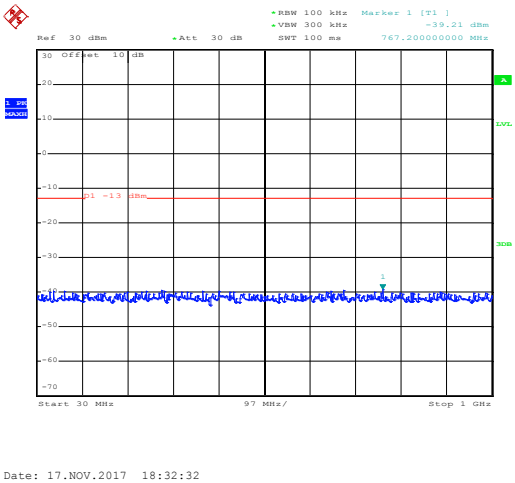


30MHz~1GHz

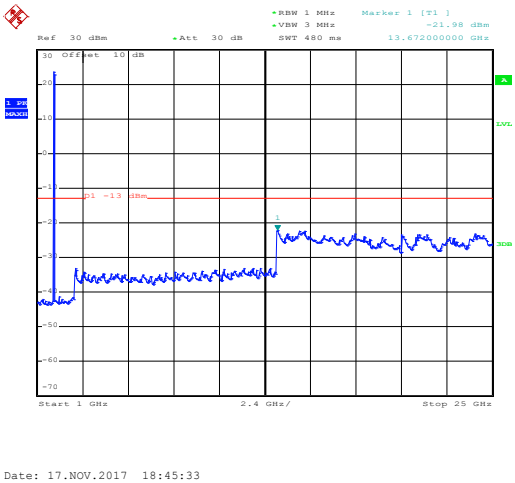


1GHz~25GHz

High channel



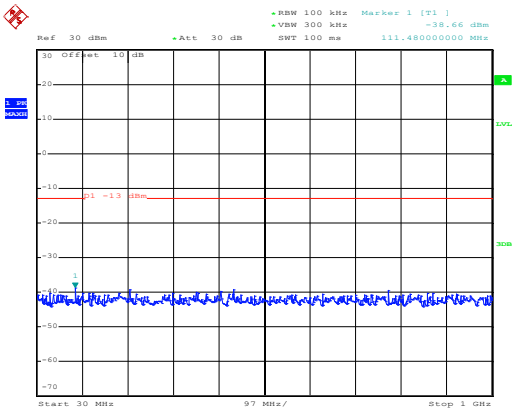
30MHz~1GHz



1GHz~25GHz

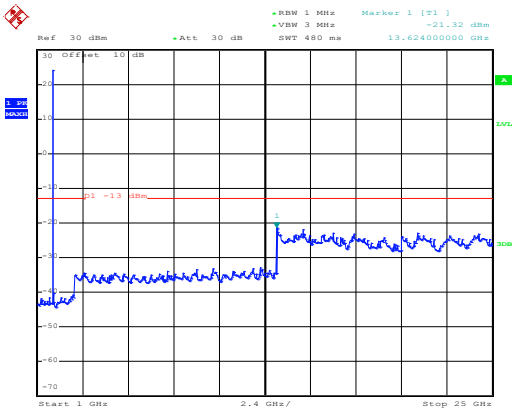
16 QAM & RB Size 6

Lowest channel



Date: 17.NOV.2017 18:31:42

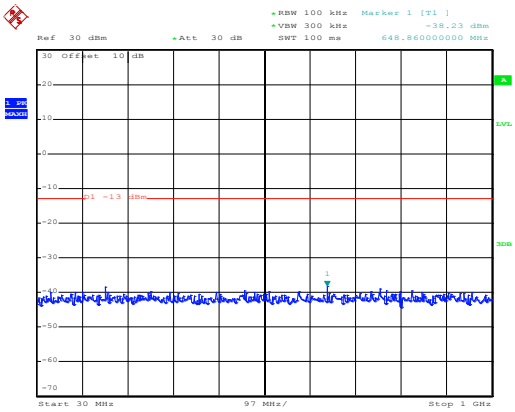
30MHz~1GHz



Date: 17.NOV.2017 18:44:09

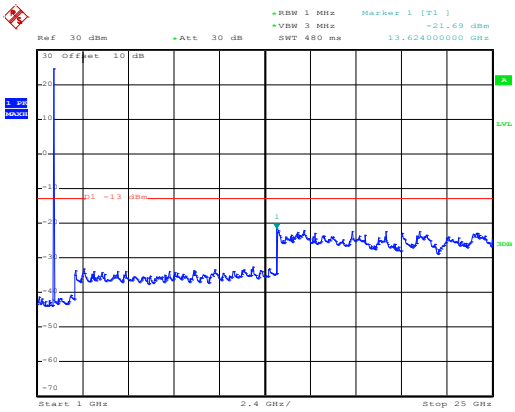
1GHz~25GHz

Middle channel



Date: 17.NOV.2017 18:32:05

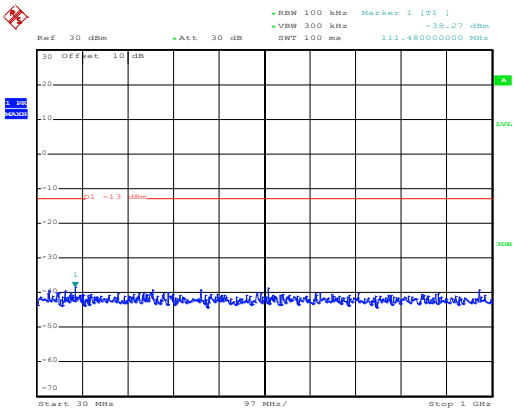
30MHz~1GHz



Date: 17.NOV.2017 18:45:03

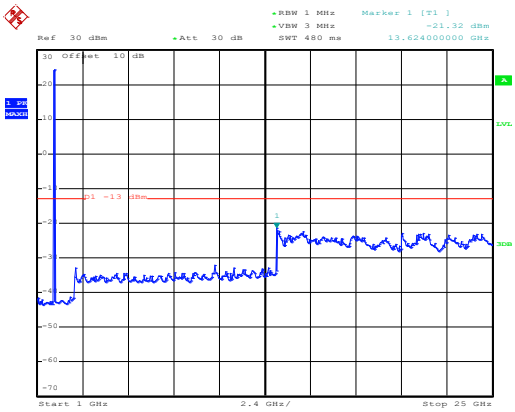
1GHz~25GHz

High channel



Date: 17.NOV.2017 18:32:52

30MHz~1GHz

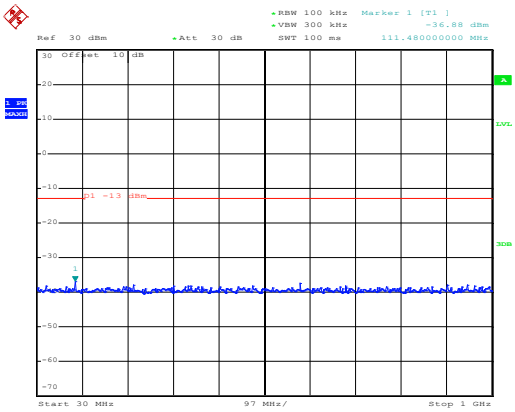


Date: 17.NOV.2017 18:45:56

1GHz~25GHz

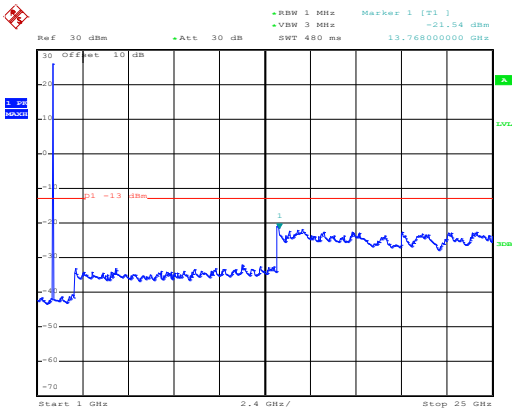
QPSK & RB Size 1

Lowest channel



Date: 17.NOV.2017 18:31:29

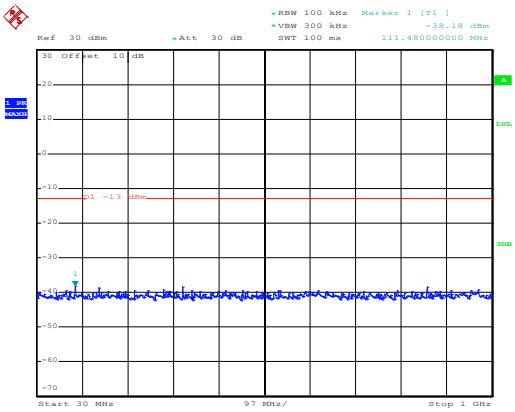
30MHz~1GHz



Date: 17.NOV.2017 18:43:33

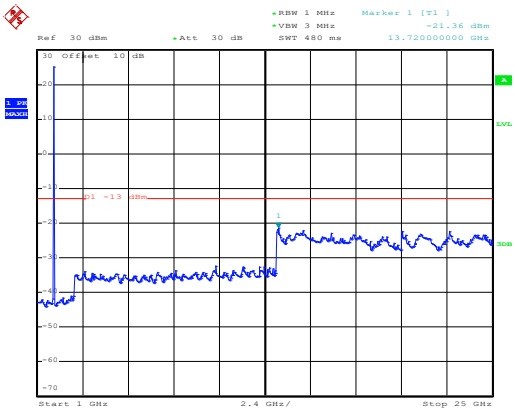
1GHz~25GHz

Middle channel



Date: 17.NOV.2017 18:31:53

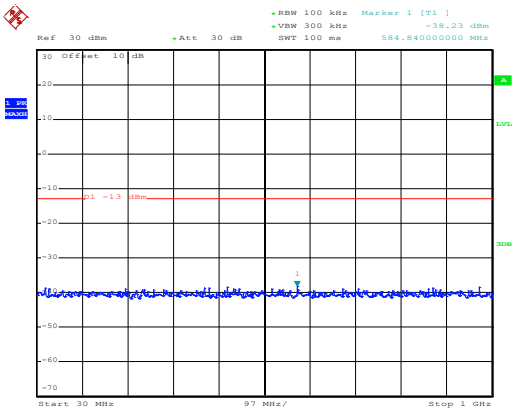
30MHz~1GHz



Date: 17.NOV.2017 18:44:26

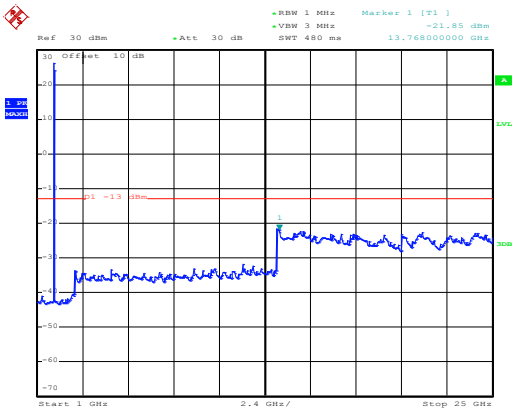
1GHz~25GHz

High channel



Date: 17.NOV.2017 18:32:27

30MHz~1GHz

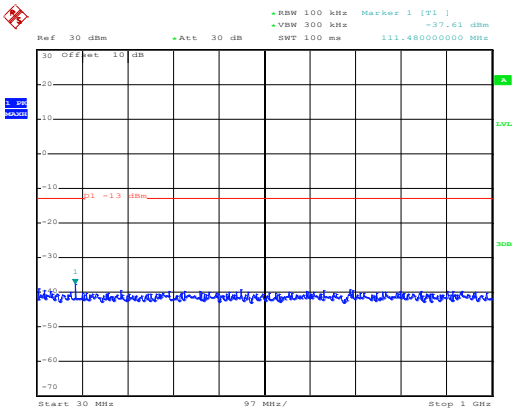


Date: 17.NOV.2017 18:45:23

1GHz~25GHz

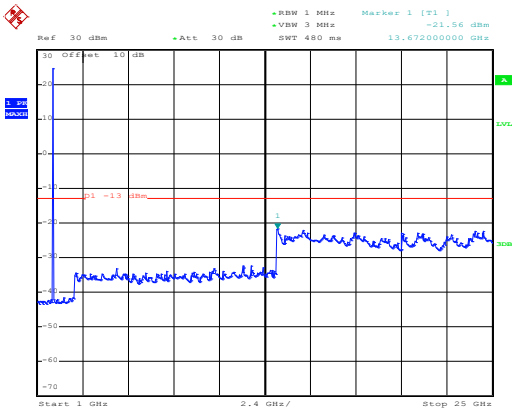
QPSK & RB Size 6

Lowest channel



Date: 17.NOV.2017 18:31:39

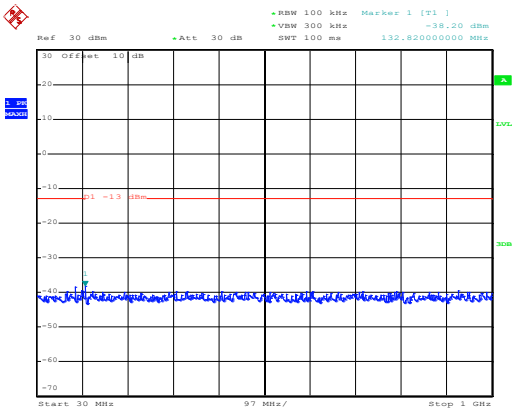
30MHz~1GHz



Date: 17.NOV.2017 18:44:01

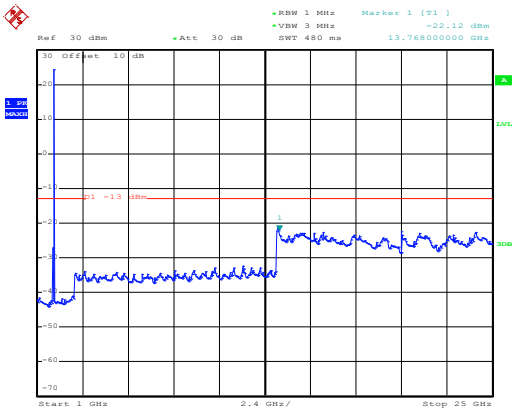
1GHz~25GHz

Middle channel



Date: 17.NOV.2017 18:32:01

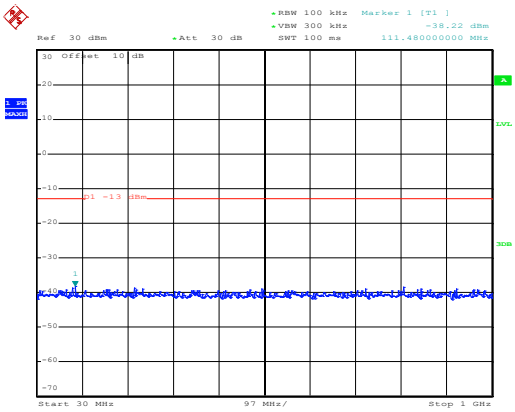
30MHz~1GHz



Date: 17.NOV.2017 18:44:54

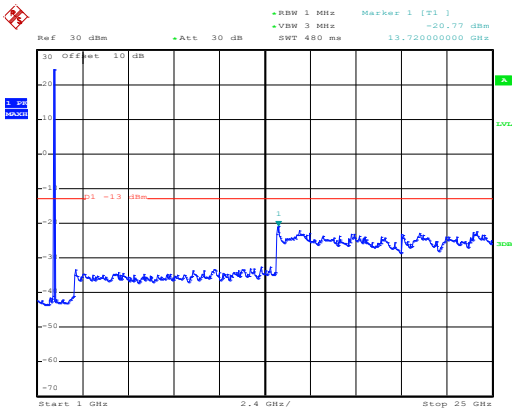
1GHz~25GHz

High channel



Date: 17.NOV.2017 18:32:49

30MHz~1GHz



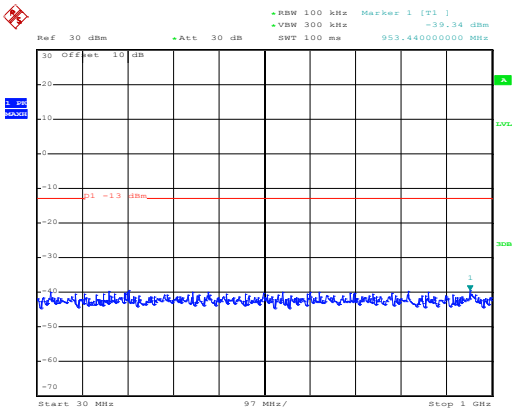
Date: 17.NOV.2017 18:45:46

1GHz~25GHz

3MHz

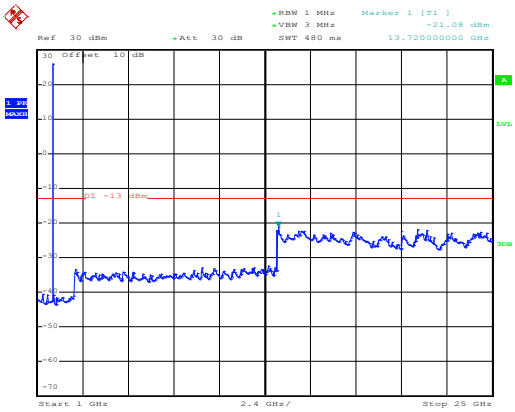
16 QAM & RB Size 1

Lowest channel



Date: 17.NOV.2017 18:33:48

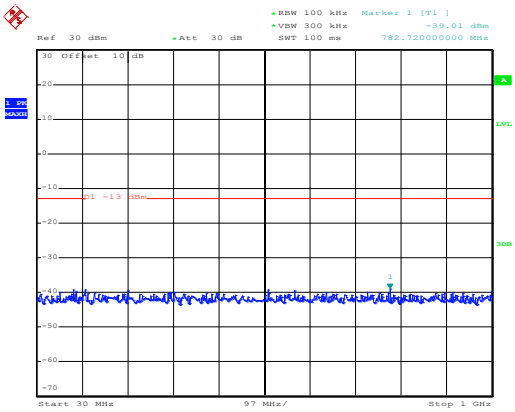
30MHz~1GHz



Date: 17.NOV.2017 18:47:18

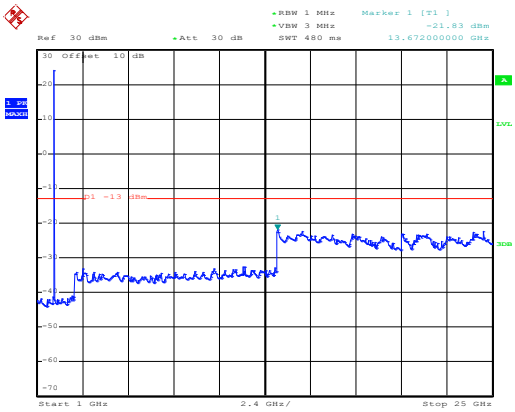
1GHz~25GHz

Middle channel



Date: 17.NOV.2017 18:34:09

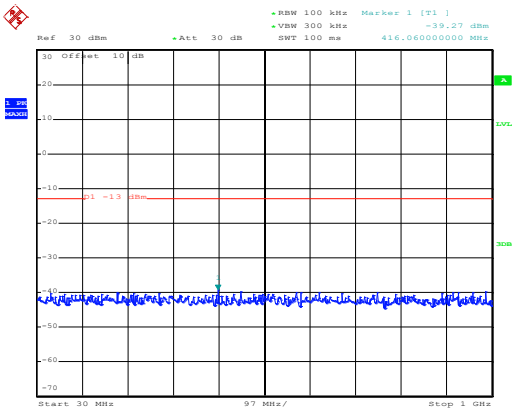
30MHz~1GHz



Date: 17.NOV.2017 18:48:19

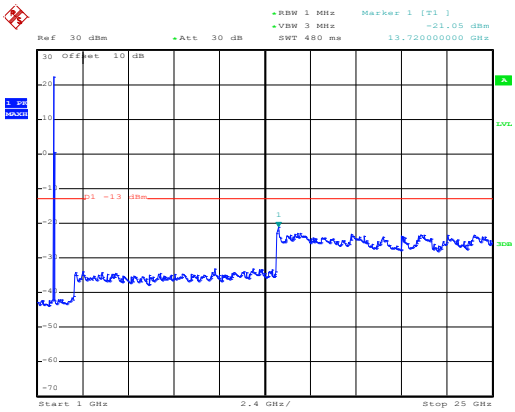
1GHz~25GHz

High channel



Date: 17.NOV.2017 18:34:30

30MHz~1GHz

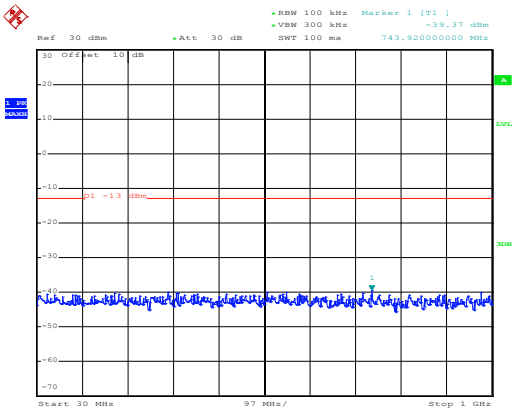


Date: 17.NOV.2017 18:49:18

1GHz~25GHz

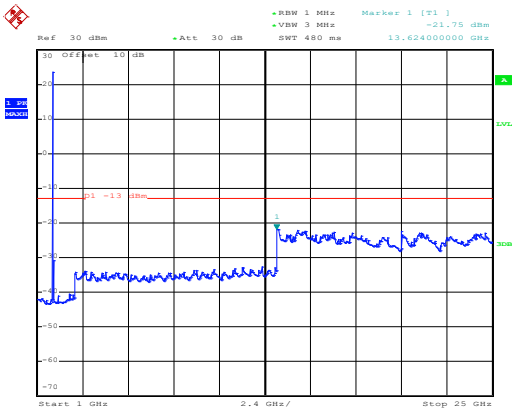
16 QAM & RB Size 15

Lowest channel



Date: 17.NOV.2017 18:33:57

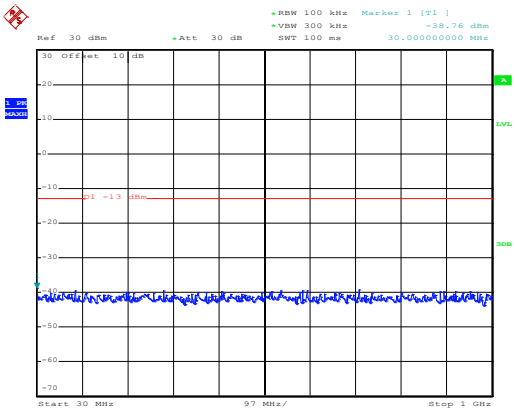
30MHz~1GHz



Date: 17.NOV.2017 18:47:48

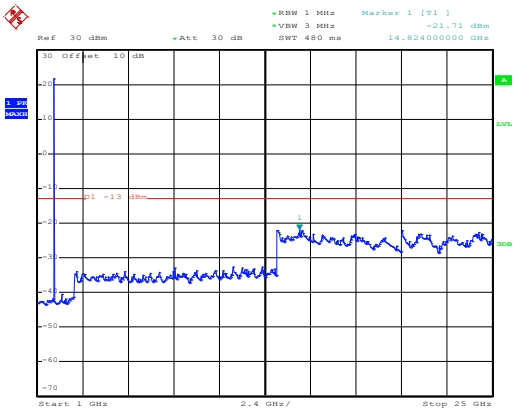
1GHz~25GHz

Middle channel



Date: 17.NOV.2017 18:34:20

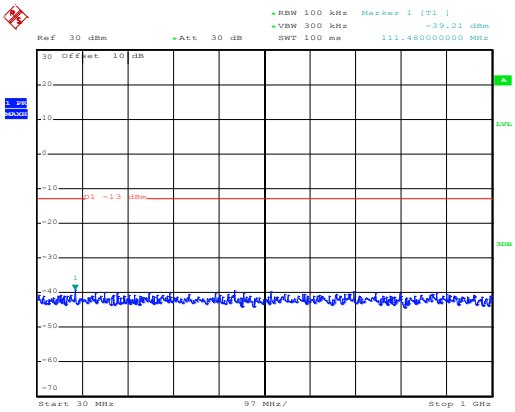
30MHz~1GHz



Date: 17.NOV.2017 18:48:49

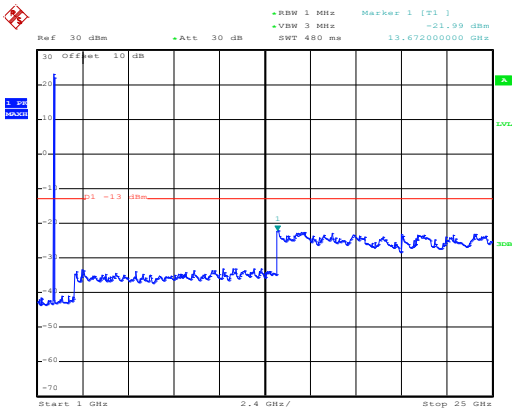
1GHz~25GHz

High channel



Date: 17.NOV.2017 18:34:44

30MHz~1GHz

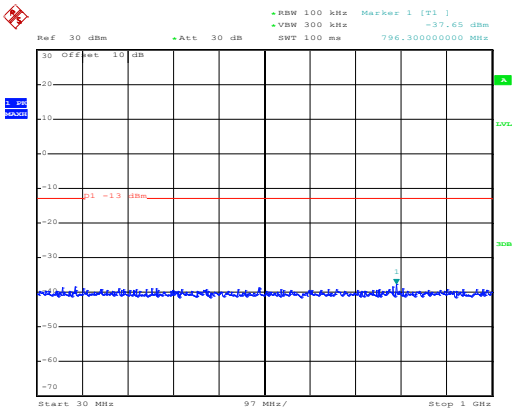


Date: 17.NOV.2017 18:49:44

1GHz~25GHz

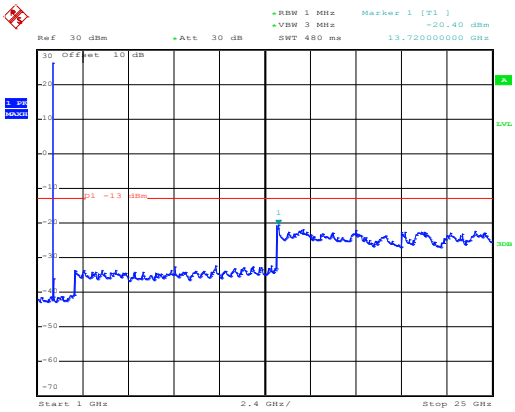
QPSK & RB Size 1

Lowest channel



Date: 17.NOV.2017 18:33:44

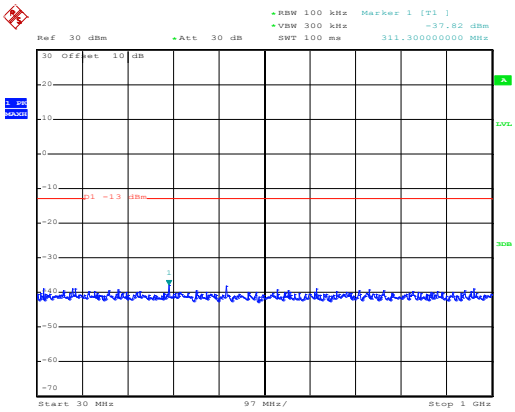
30MHz~1GHz



Date: 17.NOV.2017 18:46:57

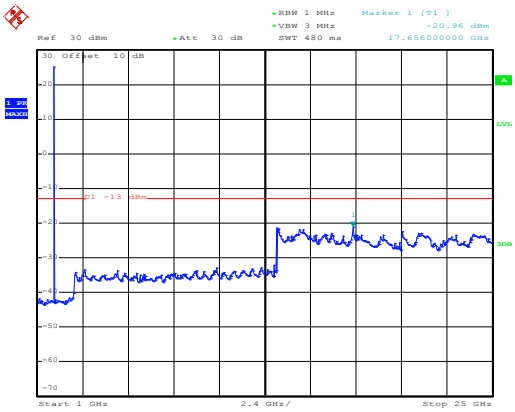
1GHz~25GHz

Middle channel



Date: 17.NOV.2017 18:34:04

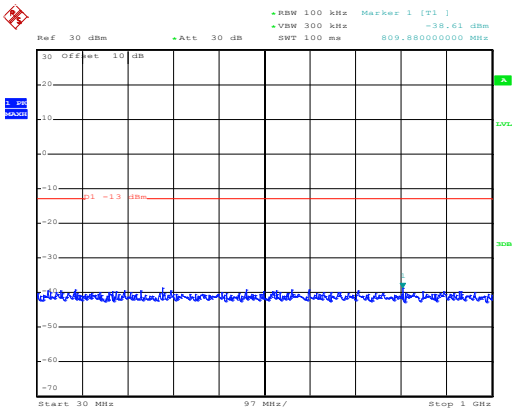
30MHz~1GHz



Date: 17.NOV.2017 18:48:08

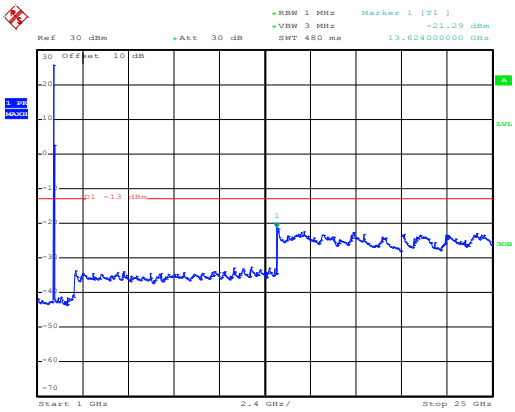
1GHz~25GHz

High channel



Date: 17.NOV.2017 18:34:27

30MHz~1GHz

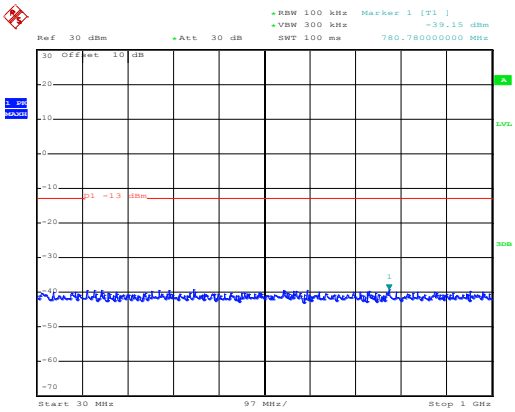


Date: 17.NOV.2017 18:49:07

1GHz~25GHz

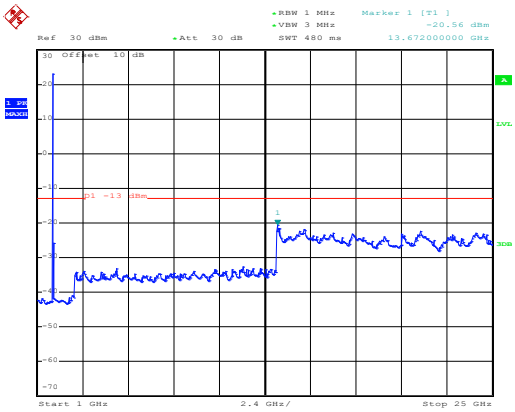
QPSK & RB Size 15

Lowest channel



Date: 17.NOV.2017 18:33:54

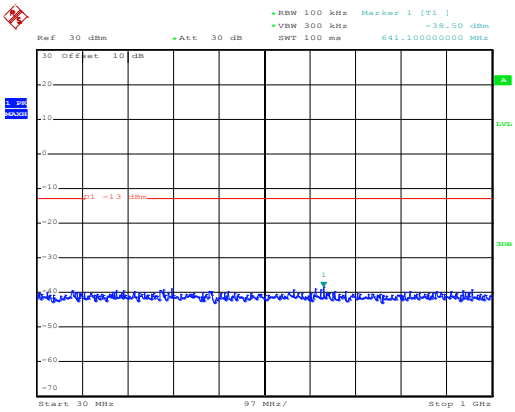
30MHz~1GHz



Date: 17.NOV.2017 18:47:32

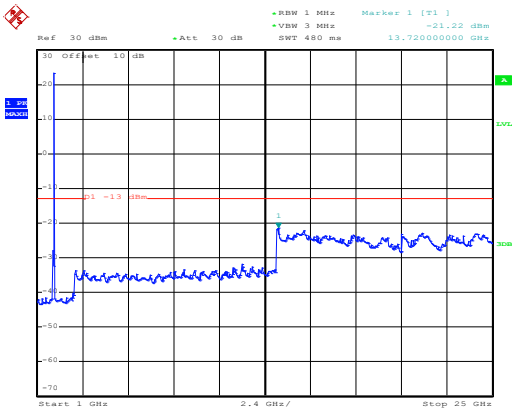
1GHz~25GHz

Middle channel



Date: 17.NOV.2017 18:34:16

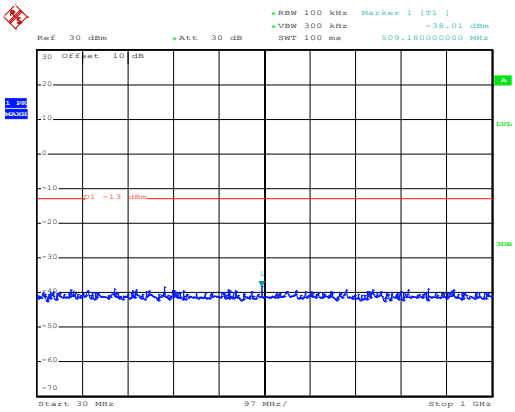
30MHz~1GHz



Date: 17.NOV.2017 18:48:38

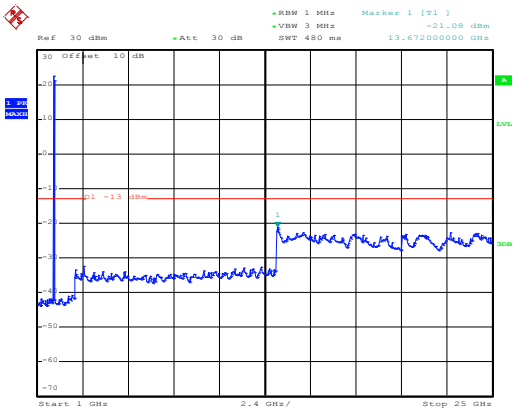
1GHz~25GHz

High channel



Date: 17.NOV.2017 18:34:40

30MHz~1GHz



Date: 17.NOV.2017 18:49:32

1GHz~25GHz