TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 22H, PART 24E,PART 27
MEASUREMENT AND TEST REPORT

For

Shenzhen Lilian Communication Technology Co., Ltd.

Room1207BiwanbuildingXixiangSubdistrictBaoanShenzhenChina

FCC ID:2AV8R-67

Report Type:	**Product Type:**
Original Report	4G LTE Mobile WIFI

Report Number:	RDG200421001-00B
Report Date:	2020-05-20
Reviewed By:	Ivan Cao Assistant manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	4G LTE Mobile WIFI
EUT Model:	M7
Multiple Models:	M7XX,M6,M6XX.(“X” stands for 0-9 and “X” stands for a-z or A-Z)
Operation modes:	FDD-LTE,TDD-LTE
Modulation Type:	QPSK, 16QAM
Rated Input Voltage:	DC 3.7V from battery or DC5V from USB port
Serial Number:	RBJ190927050-RF-S1
EUT Received Date:	2019/10/9
EUT Received Status:	Good

Notes: *Model M7 was selected for fully testing, the detailed information about the difference among M7 and model M7XX,M6,M6XX can be referred to the declaration letter which was stated and guaranteed by the manufacturer.*

Objective

This report is prepared on behalf of ***Shenzhen Lilian Communication Technology Co., Ltd.*** in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, Part 27, Part 90 of the Federal Communication Commissions rules.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: 2AV8R-67.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services
Part 27 - Miscellaneous wireless communications services

TIA/EIA 603-D-2010.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp.(Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Unwanted Emissions, radiated	30MHz ~ 1GHz:5.85 dB 1G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "△ ". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to TIA/EIA-603-D 2010.

The test items were performed with the EUT operating at testing mode. The device operates on LTE band 2/4/5/7/12/13/25/40, test was performed with channels as below table:

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE Band 2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE Band 4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE Band 5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE Band 7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE Band 12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
LTE Band 13	5	779.5	782	784.5
	10	/	782	/
LTE Band 25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860	1882.5	1905
LTE Band 40 Lower 2305-2315MHz	5	2307.5	2310	2312.5
	10	/	2310	/
LTE Band 40 Upper 2350-2360MHz	5	2352.5	2355	2357.5
	10	/	2355	/

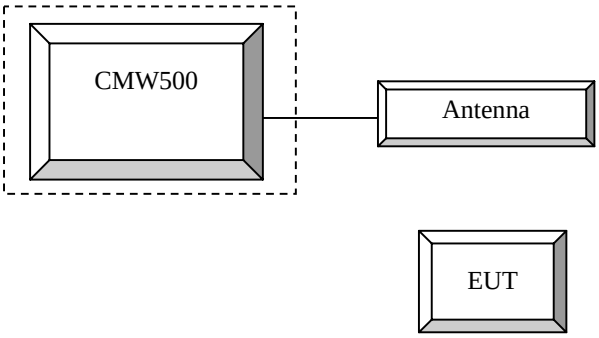
Equipment Modifications

No modification was made to the EUT.

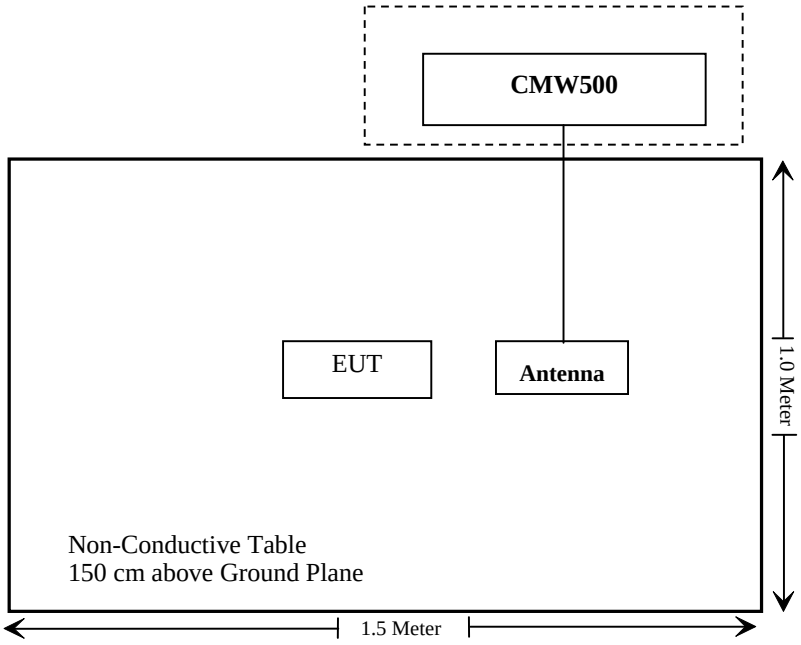
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Wideband Radio Communication Tester	CMW500	147473
Unknown	ANTENNA	Unknown	/

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC§1.1310, §2.1093	RF Exposure	Compliance
FCC§2.1046; § 22.913 (a); § 24.232 (c); §27.50	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
FCC§ 2.1051, § 22.917 (a); § 24.238 (a); §27.53	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
FCC§ 22.917 (a); § 24.238 (a); §27.53	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 § 22.355; § 24.235; §27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

FCC §1.1310 , §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: RDG200421001-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E, Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50 - RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §24.232 (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

According to FCC §2.1046 and §27.50 (d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50

(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

(c) (10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

(h),(2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

Test Procedure

LTE (FDD):

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

LTE(TDD):

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T_s) x # of S + # of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
where
T_s = 1/(15000 x 2048) seconds

Radiated method:

ANSI/TIA-603-D section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESR3	102453	2019-06-26	2020-06-26
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2019-05-06	2020-05-06
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-05-09	2020-05-09
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
R&S	Wideband Radio Communication Tester	CMW500	147473	2019-08-03	2020-08-03
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Test Items:	Radiation Below 1GHz	Radiation Above 1GHz	Conducted Output Power
Temperature:	24.8°C	24.1°C	23.9 °C
Relative Humidity:	53 %	53%	58 %
ATM Pressure:	101.4 kPa	101.4 kPa	101.8 kPa
Tester:	Vern Shen	FelixWang	Chris Mo
Test Date:	2020-04-29	2020-04-29	2020-04-27

Conducted Output Power

LTE Band 2

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	22.56	22.64	22.73
		RB1#3	22.63	22.67	22.93
		RB1#5	22.57	22.62	22.79
		RB3#0	22.39	22.43	22.78
		RB3#3	22.44	22.31	22.76
		RB6#0	21.43	21.48	21.88
	16QAM	RB1#0	21.61	21.66	22.08
		RB1#3	21.69	21.61	22.62
		RB1#5	21.58	21.59	22.58
		RB3#0	21.62	21.67	21.86
		RB3#3	21.56	21.69	21.78
		RB6#0	20.26	20.41	20.83
3MHz	QPSK	RB1#0	22.54	22.86	22.84
		RB1#8	22.66	22.74	22.86
		RB1#14	22.43	22.67	23.08
		RB6#0	21.91	21.75	21.93
		RB6#9	21.70	21.66	22.08
		RB15#0	22.01	21.66	21.89
	16QAM	RB1#0	22.04	22.09	21.89
		RB1#8	21.98	21.90	21.52
		RB1#14	21.92	21.87	21.53
		RB6#0	20.74	20.99	20.88
		RB6#9	20.71	20.95	20.58
		RB15#0	20.79	20.93	20.90
5MHz	QPSK	RB1#0	22.56	22.51	22.67
		RB1#13	22.53	22.43	22.87
		RB1#24	22.60	22.63	22.90
		RB15#0	21.98	21.79	22.00
		RB15#10	21.99	21.76	21.85
		RB25#0	21.74	21.69	21.92
	16QAM	RB1#0	21.14	21.92	21.57
		RB1#13	21.08	21.88	21.73
		RB1#24	21.14	21.78	21.57
		RB15#0	20.70	20.81	21.09
		RB15#10	20.58	20.64	20.75
		RB25#0	20.76	20.76	20.97

10MHz	QPSK	RB1#0	22.58	22.88	22.69
		RB1#25	22.57	23.05	23.19
		RB1#49	22.91	22.82	22.93
		RB25#0	21.93	21.89	21.94
		RB25#25	21.81	21.72	21.99
		RB50#0	21.90	21.77	22.02
	16QAM	RB1#0	22.10	22.32	21.69
		RB1#25	21.89	22.79	21.73
		RB1#49	22.20	22.42	21.51
		RB25#0	21.04	20.78	20.94
		RB25#25	20.69	20.71	20.91
		RB50#0	20.97	20.85	21.01
15MHz	QPSK	RB1#0	23.00	22.68	22.94
		RB1#38	22.79	22.54	22.78
		RB1#74	22.97	22.55	22.51
		RB36#0	21.92	21.92	21.99
		RB36#39	21.82	21.74	22.00
		RB75#0	21.79	21.85	22.02
	16QAM	RB1#0	22.01	22.48	21.67
		RB1#38	22.16	22.15	21.93
		RB1#74	22.05	22.14	21.60
		RB36#0	20.82	21.17	20.98
		RB36#39	20.89	20.72	20.92
		RB75#0	20.88	20.96	21.12
20MHz	QPSK	RB1#0	22.91	22.59	22.71
		RB1#50	22.93	23.03	23.21
		RB1#99	22.42	22.74	23.16
		RB50#0	21.70	21.90	21.89
		RB50#50	21.72	21.66	21.96
		RB100#0	21.74	21.79	22.03
	16QAM	RB1#0	22.59	22.49	22.00
		RB1#50	22.66	22.52	21.73
		RB1#99	22.69	21.95	21.30
		RB50#0	20.92	21.07	20.95
		RB50#50	20.79	20.90	20.97
		RB100#0	20.76	20.97	20.89

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.01	22.48	22.84
		RB1#3	23.00	22.75	22.87
		RB1#5	23.00	22.61	22.79
		RB3#0	22.87	22.60	22.72
		RB3#3	22.64	22.72	22.73
		RB6#0	21.71	21.76	21.71
	16QAM	RB1#0	21.88	21.98	21.83
		RB1#3	22.09	22.18	21.60
		RB1#5	21.87	22.10	21.49
		RB3#0	21.62	22.07	21.72
		RB3#3	21.73	22.06	21.70
		RB6#0	20.80	21.01	20.74
3MHz	QPSK	RB1#0	22.60	22.72	22.41
		RB1#8	22.49	22.86	22.55
		RB1#14	22.51	22.95	22.53
		RB6#0	21.64	21.73	21.55
		RB6#9	21.63	21.73	21.55
		RB15#0	21.65	21.72	21.66
	16QAM	RB1#0	21.84	21.93	21.84
		RB1#8	21.77	22.21	21.78
		RB1#14	21.82	22.36	21.79
		RB6#0	20.55	21.03	20.75
		RB6#9	20.51	21.18	20.57
		RB15#0	20.54	20.82	20.77
5MHz	QPSK	RB1#0	22.35	22.56	22.42
		RB1#13	22.40	22.84	22.65
		RB1#24	22.50	22.82	22.75
		RB15#0	21.61	21.67	21.75
		RB15#10	21.58	21.70	21.78
		RB25#0	21.47	21.64	21.75
	16QAM	RB1#0	20.76	21.88	21.22
		RB1#13	20.87	22.03	21.31
		RB1#24	20.85	21.99	21.37
		RB15#0	20.87	20.62	20.71
		RB15#10	20.86	20.95	20.76
		RB25#0	20.78	20.70	20.73

10MHz	QPSK	RB1#0	22.72	22.62	22.51
		RB1#25	22.97	22.98	22.65
		RB1#49	22.58	22.53	22.59
		RB25#0	21.59	21.66	21.45
		RB25#25	21.64	21.61	21.47
		RB50#0	21.70	21.70	21.49
	16QAM	RB1#0	21.89	22.40	22.21
		RB1#25	22.18	22.37	22.38
		RB1#49	21.59	22.24	22.22
		RB25#0	20.75	20.33	20.53
		RB25#25	20.60	20.55	20.44
		RB50#0	20.73	20.42	20.66
15MHz	QPSK	RB1#0	22.41	22.92	22.75
		RB1#38	22.48	22.68	22.50
		RB1#74	22.78	22.50	22.71
		RB36#0	21.60	21.65	21.82
		RB36#39	21.69	21.69	21.78
		RB75#0	21.62	21.63	21.70
	16QAM	RB1#0	21.88	22.28	21.63
		RB1#38	22.00	22.71	21.62
		RB1#74	21.64	22.22	21.27
		RB36#0	20.63	20.52	20.84
		RB36#39	20.65	20.74	20.59
		RB75#0	20.65	20.58	20.83
20MHz	QPSK	RB1#0	22.53	22.82	22.96
		RB1#50	22.87	23.04	22.93
		RB1#99	22.77	21.42	22.55
		RB50#0	21.77	21.45	21.48
		RB50#50	21.87	21.45	21.41
		RB100#0	21.84	21.41	21.54
	16QAM	RB1#0	21.84	22.32	21.50
		RB1#50	22.32	22.23	21.64
		RB1#99	21.80	21.88	21.04
		RB50#0	20.88	20.53	20.70
		RB50#50	20.71	20.55	20.62
		RB100#0	20.91	20.58	20.56

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	21.84	20.75	22.56
		RB1#3	22.00	20.65	22.28
		RB1#5	22.06	20.54	22.06
		RB3#0	21.79	20.80	22.39
		RB3#3	21.95	20.66	22.10
		RB6#0	21.84	20.62	22.14
	16QAM	RB1#0	20.75	20.35	21.81
		RB1#3	20.99	20.20	21.65
		RB1#5	21.08	21.50	21.50
		RB3#0	20.94	21.70	21.88
		RB3#3	21.18	20.84	21.72
		RB6#0	20.90	20.78	21.15
3MHz	QPSK	RB1#0	21.57	21.58	22.27
		RB1#8	22.20	21.23	22.45
		RB1#14	22.60	20.96	21.89
		RB6#0	21.69	21.50	22.39
		RB6#9	22.44	21.10	22.03
		RB15#0	22.07	21.36	22.29
	16QAM	RB1#0	21.03	21.18	21.21
		RB1#8	21.74	20.76	21.77
		RB1#14	22.16	20.44	21.34
		RB6#0	20.84	20.95	21.47
		RB6#9	21.59	20.50	21.50
		RB15#0	21.20	20.72	21.65
5MHz	QPSK	RB1#0	22.04	22.08	21.33
		RB1#13	22.96	21.48	22.71
		RB1#24	22.67	20.98	22.11
		RB15#0	21.93	21.88	22.05
		RB15#10	21.92	21.43	22.22
		RB25#0	21.99	21.60	22.27
	16QAM	RB1#0	20.91	21.46	20.50
		RB1#13	21.96	20.82	22.00
		RB1#24	21.64	20.20	21.69
		RB15#0	20.91	21.26	21.00
		RB15#10	20.93	20.73	21.04
		RB25#0	20.99	21.00	21.32
10MHz	QPSK	RB1#0	21.14	22.37	20.95
		RB1#25	23.39	21.21	21.79
		RB1#49	21.94	20.21	22.47
		RB25#0	22.38	21.92	21.21
		RB25#25	22.37	20.93	22.36
		RB50#0	22.27	21.47	21.72
	16QAM	RB1#0	20.66	21.91	19.88
		RB1#25	22.87	20.71	20.70
		RB1#49	21.56	19.53	21.65
		RB25#0	21.10	21.32	20.28
		RB25#25	21.41	20.77	21.46
		RB50#0	21.38	20.53	20.77

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.52	21.49	21.51
		RB1#13	21.71	21.70	21.88
		RB1#24	21.57	21.63	21.78
		RB15#0	20.73	20.83	20.72
		RB15#10	20.68	20.75	20.88
		RB25#0	20.67	20.73	20.75
	16QAM	RB1#0	20.27	20.27	21.01
		RB1#13	20.83	20.48	21.37
		RB1#24	20.61	20.28	21.29
		RB15#0	19.64	19.85	19.38
		RB15#10	19.66	19.78	19.46
		RB25#0	19.65	19.77	19.48
10MHz	QPSK	RB1#0	21.49	21.62	22.27
		RB1#25	21.71	22.07	22.23
		RB1#49	21.59	21.89	21.95
		RB25#0	20.78	20.76	20.89
		RB25#25	20.70	20.88	20.97
		RB50#0	20.74	20.85	20.91
	16QAM	RB1#0	20.60	21.26	21.23
		RB1#25	21.18	21.66	20.76
		RB1#49	20.52	21.45	20.58
		RB25#0	19.71	19.72	19.94
		RB25#25	19.69	19.87	20.07
		RB50#0	19.58	19.67	19.75
15MHz	QPSK	RB1#0	21.50	21.62	21.79
		RB1#38	21.56	21.86	21.72
		RB1#74	21.57	21.80	21.68
		RB36#0	20.78	20.69	20.94
		RB36#39	20.56	20.77	20.94
		RB75#0	20.71	20.71	20.85
	16QAM	RB1#0	21.02	21.26	20.98
		RB1#38	21.12	21.71	20.92
		RB1#74	20.27	21.45	20.88
		RB36#0	19.67	19.95	19.75
		RB36#39	19.50	20.02	19.78
		RB75#0	19.70	19.60	19.68
20MHz	QPSK	RB1#0	21.31	21.65	21.67
		RB1#50	21.92	22.15	22.05
		RB1#99	21.47	21.85	21.87
		RB50#0	20.72	20.76	20.98
		RB50#50	20.68	20.86	20.99
		RB100#0	20.71	20.80	20.91
	16QAM	RB1#0	21.03	20.77	21.67
		RB1#50	21.29	21.01	21.70
		RB1#99	20.55	20.36	21.49
		RB50#0	19.84	19.80	19.81
		RB50#50	19.66	19.94	19.79
		RB100#0	19.76	19.77	19.84

LTE Band 12

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.75	23.82	23.25
		RB1#3	23.75	23.86	23.17
		RB1#5	23.91	23.87	23.41
		RB3#0	23.71	23.55	23.61
		RB3#3	23.82	23.43	23.42
		RB6#0	22.77	22.61	22.50
	16QAM	RB1#0	22.47	22.84	22.75
		RB1#3	22.63	23.07	22.81
		RB1#5	23.02	22.58	22.80
		RB3#0	22.86	22.56	22.87
		RB3#3	22.97	22.60	22.62
		RB6#0	21.80	21.65	21.65
3MHz	QPSK	RB1#0	23.70	23.54	16.59
		RB1#8	23.76	23.70	23.96
		RB1#14	23.60	23.52	24.31
		RB6#0	22.76	22.59	23.42
		RB6#9	22.75	22.91	23.35
		RB15#0	22.81	21.51	23.51
	16QAM	RB1#0	23.04	21.65	24.05
		RB1#8	23.57	21.08	23.90
		RB1#14	22.98	21.10	23.70
		RB6#0	21.65	19.97	22.54
		RB6#9	21.65	19.96	22.08
		RB15#0	21.78	21.55	22.50
5MHz	QPSK	RB1#0	24.40	24.20	24.27
		RB1#13	24.52	24.32	24.12
		RB1#24	24.35	24.27	24.03
		RB15#0	23.60	23.51	23.44
		RB15#10	23.37	23.45	23.34
		RB25#0	23.45	23.33	23.42
	16QAM	RB1#0	23.38	22.96	23.60
		RB1#13	23.01	22.95	23.07
		RB1#24	23.07	22.56	23.39
		RB15#0	22.63	22.22	22.35
		RB15#10	22.41	22.58	22.03
		RB25#0	22.39	22.34	22.33
10MHz	QPSK	RB1#0	24.20	24.26	24.51
		RB1#25	24.37	24.43	24.71
		RB1#49	24.40	24.55	24.29
		RB25#0	23.44	23.41	23.41
		RB25#25	23.38	23.43	23.50
		RB50#0	23.58	23.41	23.36
	16QAM	RB1#0	23.74	23.95	23.18
		RB1#25	23.43	23.93	24.08
		RB1#49	23.30	24.53	22.76
		RB25#0	22.45	22.26	22.32
		RB25#25	22.41	22.45	22.61
		RB50#0	22.60	22.32	22.34

LTE Band 13

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	19.87	20.05	20.61
		RB1#13	20.45	21.25	20.49
		RB1#24	20.66	20.39	20.01
		RB15#0	19.54	19.78	19.52
		RB15#10	19.78	20.04	19.48
		RB25#0	19.69	19.86	19.56
	16QAM	RB1#0	18.75	19.34	19.11
		RB1#13	19.26	19.89	19.24
		RB1#24	19.49	20.00	18.92
		RB15#0	18.54	18.16	18.50
		RB15#10	18.52	18.82	18.56
		RB25#0	18.74	18.27	18.46
10MHz	QPSK	RB1#0	/	19.76	/
		RB1#25	/	20.65	/
		RB1#49	/	19.96	/
		RB25#0	/	19.18	/
		RB25#25	/	19.74	/
		RB50#0	/	19.30	/
	16QAM	RB1#0	/	18.96	/
		RB1#25	/	20.50	/
		RB1#49	/	19.47	/
		RB25#0	/	18.43	/
		RB25#25	/	18.54	/
		RB50#0	/	18.29	/

LTE Band 25

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.55	23.93	23.53
		RB1#3	24.01	24.05	23.70
		RB1#5	24.01	24.01	23.74
		RB3#0	24.08	23.86	23.95
		RB3#3	23.82	23.84	23.79
		RB6#0	22.77	22.85	22.90
	16QAM	RB1#0	22.63	22.92	23.04
		RB1#3	22.82	23.05	23.20
		RB1#5	22.80	23.02	23.06
		RB3#0	22.90	22.81	22.72
		RB3#3	23.05	22.84	22.64
		RB6#0	21.88	21.94	21.84
3MHz	QPSK	RB1#0	23.71	23.70	23.76
		RB1#8	23.90	23.74	23.81
		RB1#14	23.94	23.71	23.86
		RB6#0	22.82	22.76	22.88
		RB6#9	22.86	22.70	23.00
		RB15#0	22.82	22.76	22.95
	16QAM	RB1#0	23.08	23.45	22.86
		RB1#8	23.06	23.00	22.85
		RB1#14	23.01	22.89	22.61
		RB6#0	21.67	21.84	21.88
		RB6#9	21.80	21.71	21.98
		RB15#0	21.85	21.56	21.88
5MHz	QPSK	RB1#0	23.52	23.58	23.95
		RB1#13	23.70	23.64	23.95
		RB1#24	23.83	23.73	23.73
		RB15#0	22.79	22.76	23.00
		RB15#10	22.87	22.81	22.87
		RB25#0	22.84	22.85	22.92
	16QAM	RB1#0	22.41	23.01	22.81
		RB1#13	22.44	23.14	22.52
		RB1#24	22.04	23.04	22.62
		RB15#0	21.76	21.60	21.67
		RB15#10	21.83	21.73	21.65
		RB25#0	21.86	21.66	21.96
10MHz	QPSK	RB1#0	23.62	23.78	23.77
		RB1#25	24.03	24.11	24.00
		RB1#49	24.17	23.97	23.94
		RB25#0	22.82	22.86	22.96
		RB25#25	22.89	22.73	22.87
		RB50#0	22.90	22.90	22.94
	16QAM	RB1#0	23.10	23.41	22.63
		RB1#25	23.61	23.75	22.81
		RB1#49	23.84	23.39	22.59
		RB25#0	21.71	21.72	22.05
		RB25#25	21.89	21.87	22.06
		RB50#0	21.66	21.73	21.88

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15MHz	QPSK	RB1#0	23.68	23.76	23.47
		RB1#38	23.95	23.84	23.50
		RB1#74	24.10	23.66	23.70
		RB36#0	22.72	22.87	23.05
		RB36#39	22.86	22.74	22.93
		RB75#0	22.80	22.81	22.93
	16QAM	RB1#0	23.12	23.33	23.09
		RB1#38	23.18	23.87	22.88
		RB1#74	23.13	23.29	22.10
		RB36#0	21.72	22.00	21.81
		RB36#39	21.71	21.88	21.69
		RB75#0	21.60	21.79	21.85
20MHz	QPSK	RB1#0	23.78	23.66	23.84
		RB1#50	24.13	24.15	24.09
		RB1#99	23.62	23.79	24.38
		RB50#0	22.73	22.88	23.02
		RB50#50	22.92	22.84	22.94
		RB100#0	22.79	22.94	22.99
	16QAM	RB1#0	22.98	22.85	23.52
		RB1#50	23.66	22.97	23.95
		RB1#99	22.68	22.24	24.03
		RB50#0	21.75	21.90	21.85
		RB50#50	21.89	21.75	21.54
		RB100#0	21.62	21.64	21.85

LTE Band 40 Lower Band

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	20.62	19.80	20.35
		RB1#13	20.66	19.92	20.39
		RB1#24	20.40	20.04	20.51
		RB15#0	19.81	19.28	19.21
		RB15#10	19.69	19.28	19.32
		RB25#0	19.73	19.22	19.20
	16QAM	RB1#0	19.33	19.53	19.46
		RB1#13	19.26	19.64	19.52
		RB1#24	18.91	19.51	19.37
		RB15#0	18.49	18.18	18.36
		RB15#10	18.58	18.18	18.20
		RB25#0	18.60	18.28	18.11
10MHz	QPSK	RB1#0	\	20.10	\
		RB1#25	\	20.05	\
		RB1#49	\	20.06	\
		RB25#0	\	19.28	\
		RB25#25	\	19.35	\
		RB50#0	\	19.25	\
	16QAM	RB1#0	\	19.12	\
		RB1#25	\	19.85	\
		RB1#49	\	19.63	\
		RB25#0	\	18.33	\
		RB25#25	\	18.33	\
		RB50#0	\	18.34	\

Note: the device is a mobile station. For 5MHz mode, the channel power is equal to the test result in dBm/5MHz. For 10MHz mode, the PSD as below:

Channel Bandwidth	Modulation	Resource Block & RB offset	Middle Channel (dBm/5MHz)
10MHz	QPSK	RB1#0	17.54
		RB1#25	17.65
		RB1#49	17.51
		RB25#0	17.25
		RB25#25	17.23
		RB50#0	17.15
	16QAM	RB1#0	17.02
		RB1#25	16.98
		RB1#49	16.99
		RB25#0	16.52
		RB25#25	16.55
		RB50#0	16.75

LTE Band 40 Upper Band

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.19	20.29	20.55
		RB1#13	20.94	20.39	20.40
		RB1#24	20.76	20.62	20.69
		RB15#0	19.89	19.35	19.54
		RB15#10	19.80	19.41	19.56
		RB25#0	19.92	19.29	19.66
	16QAM	RB1#0	19.72	19.90	19.58
		RB1#13	19.42	19.87	19.36
		RB1#24	19.50	19.88	19.39
		RB15#0	18.70	18.39	18.56
		RB15#10	18.70	18.36	18.48
		RB25#0	18.86	18.28	18.53
10MHz	QPSK	RB1#0	\	20.25	\
		RB1#25	\	20.60	\
		RB1#49	\	20.48	\
		RB25#0	\	19.28	\
		RB25#25	\	19.49	\
		RB50#0	\	19.33	\
	16QAM	RB1#0	\	19.28	\
		RB1#25	\	18.97	\
		RB1#49	\	19.03	\
		RB25#0	\	18.41	\
		RB25#25	\	18.40	\
		RB50#0	\	18.23	\

Note: the device is a mobile station. For 5MHz mode, the channel power is equal to the test result in dBm/5MHz. For 10MHz mode, the PSD as below:

Channel Bandwidth	Modulation	Resource Block & RB offset	Middle Channel (dBm/5MHz)
10MHz	QPSK	RB1#0	17.85
		RB1#25	17.54
		RB1#49	17.25
		RB25#0	17.00
		RB25#25	6.78
		RB50#0	16.52
	16QAM	RB1#0	16.65
		RB1#25	16.25
		RB1#49	16.14
		RB25#0	16.41
		RB25#25	16.32
		RB50#0	16.55

PAR, Band 2

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.04	3.96	3.96	13
	100 RB		5.20	5.16	5.12	13
16QAM	1 RB	20 MHz	5.00	4.92	4.64	13
	100 RB		6.16	6.12	6.04	13

PAR, Band 4

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.56	3.68	4.60	13
	100 RB		5.28	5.20	5.28	13
16QAM	1 RB	20 MHz	5.52	4.60	5.56	13
	100 RB		6.20	6.16	6.24	13

PAR, Band 5

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.16	1.80	2.28	13
	50 RB		4.64	4.16	5.12	13
16QAM	1 RB	10 MHz	5.08	2.40	3.00	13
	50 RB		5.60	4.68	6.04	13

PAR, Band 7

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.13	3.40	4.87	13
	100 RB		5.22	4.78	5.29	13
16QAM	1 RB	20 MHz	4.94	5.67	5.51	13
	100 RB		6.19	5.67	6.15	13

PAR, LTE Band 12

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.01	5.06	4.97	13
	50 RB		5.83	5.71	4.55	13
16QAM	1 RB	10 MHz	4.84	5.74	5.99	13
	50 RB		6.51	6.76	5.83	13

PAR, LTE Band 13

Test Modulation		Channel Bandwidth	Middle Channel (dB)	Limit (dB)
QPSK	1 RB	10 MHz	3.52	13
	50 RB		4.52	13
16QAM	1 RB	10 MHz	4.24	13
	50 RB		5.56	13

PAR, LTE Band 25

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.32	3.84	3.80	13
	100 RB		5.12	5.08	5.16	13
16QAM	1 RB	20 MHz	4.08	4.64	4.84	13
	100RB		6.08	6.12	6.08	13

Note: peak-to-average ratio (PAR) <13 dB.

Band 40 Duty cycle:

2305-2315MHz

Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.269	10.032	32.59	38
	10M	3.205	10.032	31.95	
16-QAM	5M	3.205	10.032	31.95	
	10M	3.205	10.032	31.95	

2350-2360MHz

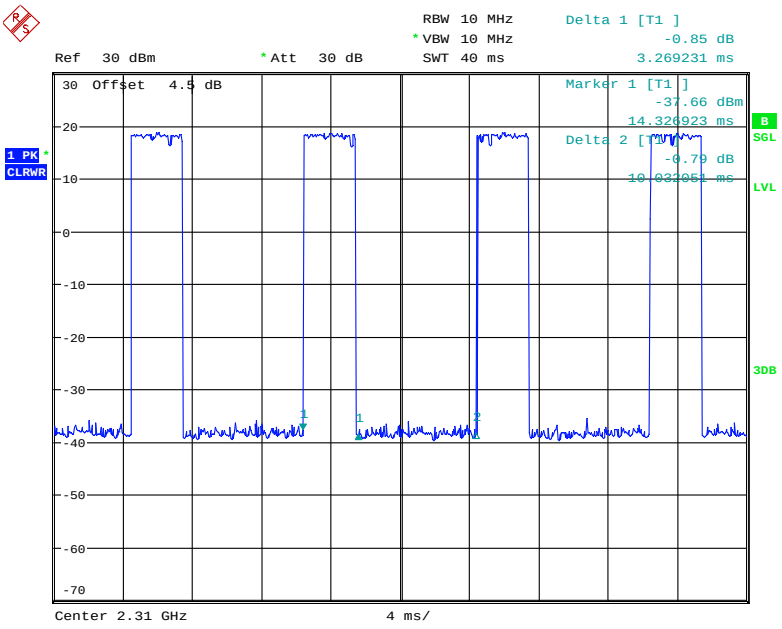
Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.205	10.032	31.95	38
	10M	3.141	10.032	31.31	
16-QAM	5M	3.205	10.032	31.95	
	10M	3.205	10.032	31.95	

Note: EUT setup is as following:

Uplink Downlink configuration	Subframe number									
	0	1	2	3	4	5	6	7	8	9
3	D	S	U	U	U	D	D	D	D	D

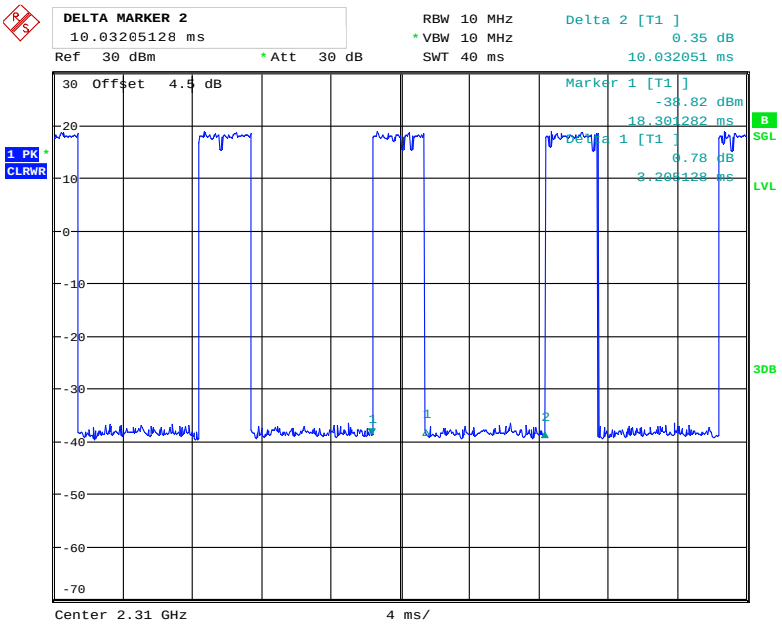
Band 40(2305-2315MHz)

QPSK, 5MHz



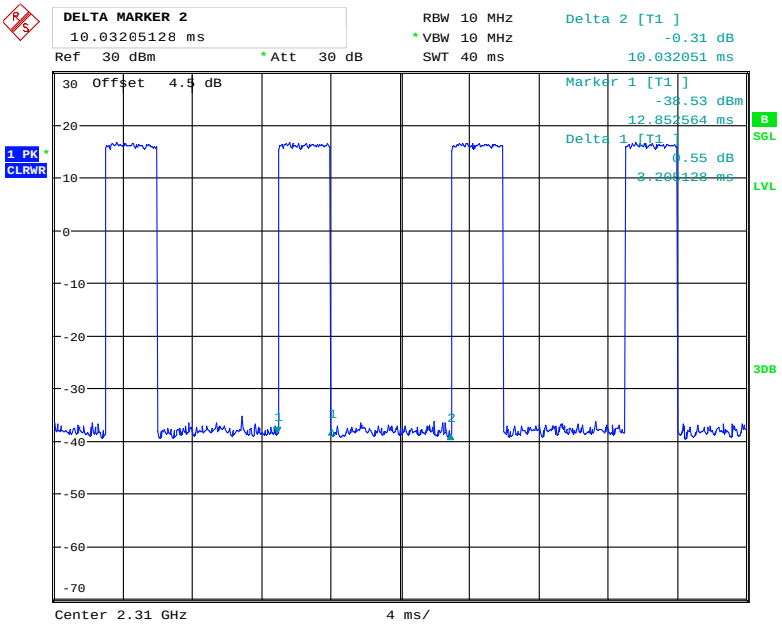
Date: 15.MAY.2020 12:28:36

QPSK, 10MHz



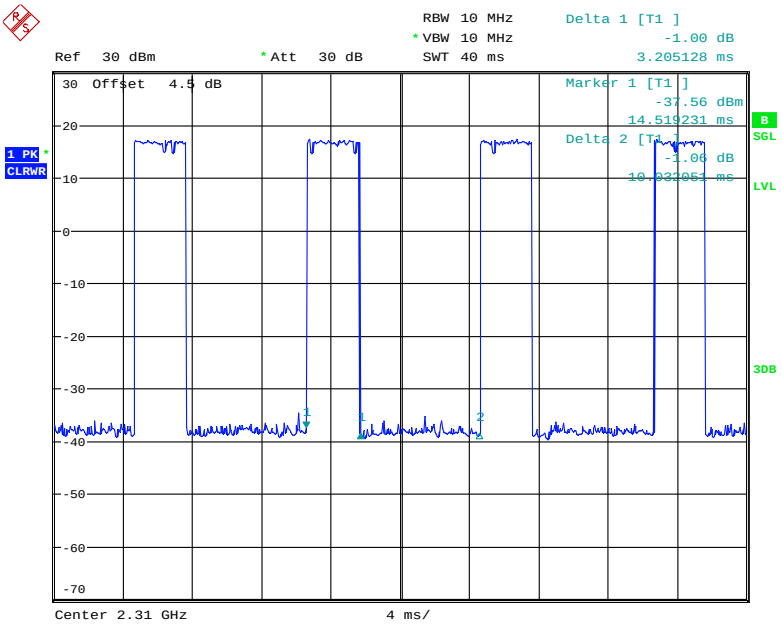
Date: 15.MAY.2020 12:29:39

16-QAM, 5MHz



Date: 15.MAY.2020 12:23:47

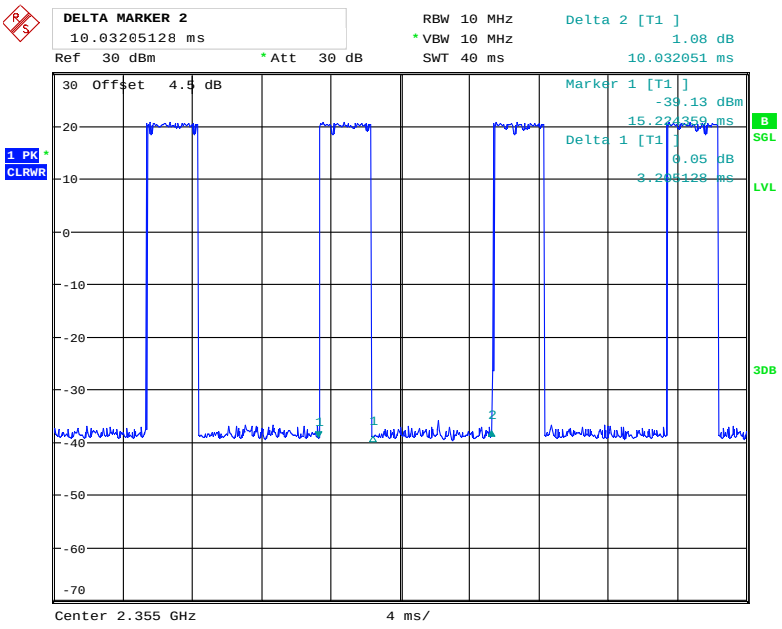
16-QAM, 10MHz



Date: 15.MAY.2020 12:22:50

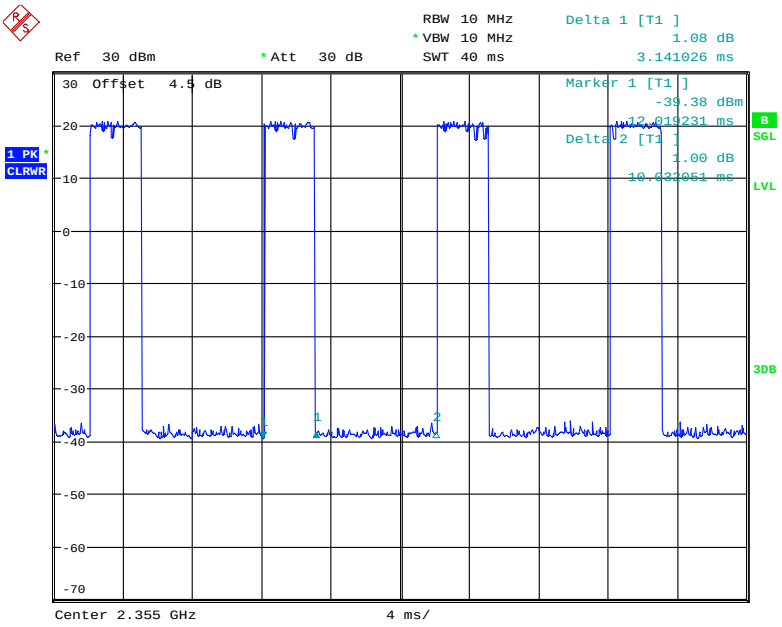
Band 40(2350-2360MHz)

QPSK, 5MHz



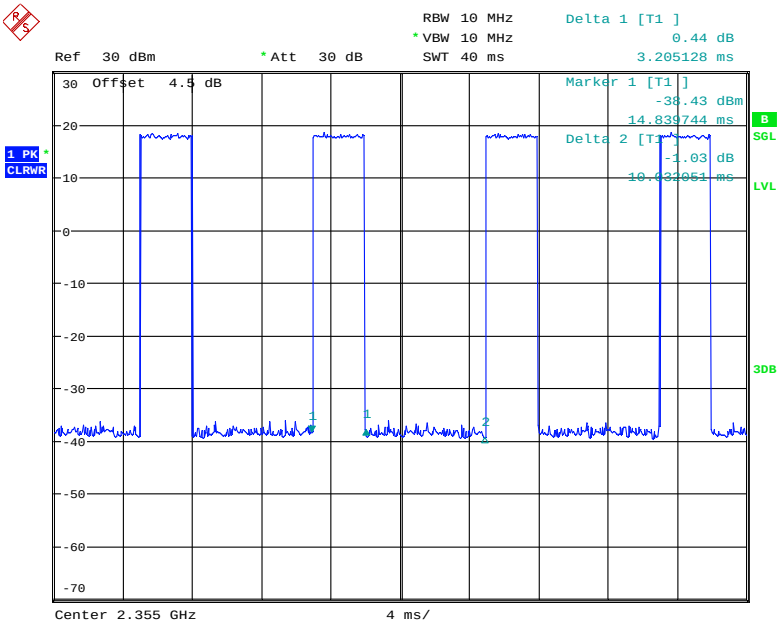
Date: 15.MAY.2020 12:31:37

QPSK, 10MHz



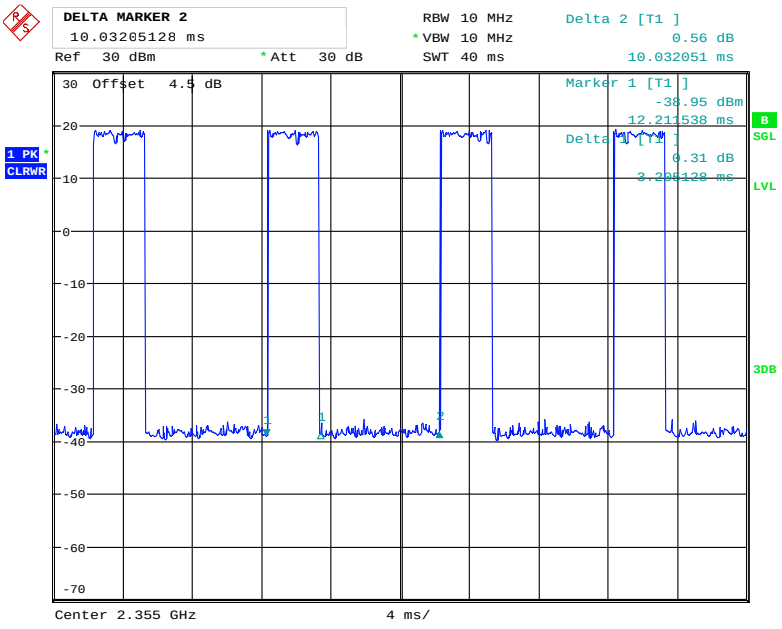
Date: 15.MAY.2020 12:30:59

16-QAM, 5MHz



Date: 15.MAY.2020 12:14:27

16-QAM, 10MHz



Date: 15.MAY.2020 12:15:35

ERP & EIRP:

LTE Band 2

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1880.00	1.40	QPSK	H	87.53	14.92	11.66	2.66	23.92	33.00	9.08
1880.00			V	88.98	16.51	11.66	2.66	25.51	33.00	7.49
1880.00	3.00		H	87.57	14.96	11.66	2.66	23.96	33.00	9.04
1880.00			V	88.77	16.30	11.66	2.66	25.30	33.00	7.70
1880.00	5.00		H	87.32	14.71	11.66	2.66	23.71	33.00	9.29
1880.00			V	88.40	15.93	11.66	2.66	24.93	33.00	8.07
1880.00	10.00		H	87.34	14.73	11.66	2.66	23.73	33.00	9.27
1880.00			V	88.41	15.94	11.66	2.66	24.94	33.00	8.06
1880.00	15.00		H	87.50	14.89	11.66	2.66	23.89	33.00	9.11
1880.00			V	88.67	16.20	11.66	2.66	25.20	33.00	7.80
1880.00	20.00		H	87.73	15.12	11.66	2.66	24.12	33.00	8.88
1880.00			V	88.83	16.36	11.66	2.66	25.36	33.00	7.64
1880.00	1.40	16QAM	H	86.69	14.08	11.66	2.66	23.08	33.00	9.92
1880.00			V	87.72	15.25	11.66	2.66	24.25	33.00	8.75
1880.00	3.00		H	86.30	13.69	11.66	2.66	22.69	33.00	10.31
1880.00			V	87.45	14.98	11.66	2.66	23.98	33.00	9.02
1880.00	5.00		H	86.31	13.70	11.66	2.66	22.70	33.00	10.30
1880.00			V	87.23	14.76	11.66	2.66	23.76	33.00	9.24
1880.00	10.00		H	86.10	13.49	11.66	2.66	22.49	33.00	10.51
1880.00			V	87.31	14.84	11.66	2.66	23.84	33.00	9.16
1880.00	15.00		H	86.38	13.77	11.66	2.66	22.77	33.00	10.23
1880.00			V	87.56	15.09	11.66	2.66	24.09	33.00	8.91
1880.00	20.00		H	86.61	14.00	11.66	2.66	23.00	33.00	10.00
1880.00			V	87.99	15.52	11.66	2.66	24.52	33.00	8.48

LTE Band 4

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1732.50	1.40	QPSK	H	85.53	12.92	11.66	2.66	21.92	33.00	11.08
1732.50			V	86.98	14.51	11.66	2.66	23.51	33.00	9.49
1732.50	3.00		H	85.57	12.96	11.66	2.66	21.96	33.00	11.04
1732.50			V	86.77	14.30	11.66	2.66	23.30	33.00	9.70
1732.50	5.00		H	85.32	12.71	11.66	2.66	21.71	33.00	11.29
1732.50			V	86.40	13.93	11.66	2.66	22.93	33.00	10.07
1732.50	10.00		H	85.34	12.73	11.66	2.66	21.73	33.00	11.27
1732.50			V	86.41	13.94	11.66	2.66	22.94	33.00	10.06
1732.50	15.00		H	85.50	12.89	11.66	2.66	21.89	33.00	11.11
1732.50			V	86.67	14.20	11.66	2.66	23.20	33.00	9.80
1732.50	20.00		H	85.73	13.12	11.66	2.66	22.12	33.00	10.88
1732.50			V	86.83	14.36	11.66	2.66	23.36	33.00	9.64
1732.50	1.40	16QAM	H	84.69	12.08	11.66	2.66	21.08	33.00	11.92
1732.50			V	85.72	13.25	11.66	2.66	22.25	33.00	10.75
1732.50	3.00		H	84.30	11.69	11.66	2.66	20.69	33.00	12.31
1732.50			V	85.45	12.98	11.66	2.66	21.98	33.00	11.02
1732.50	5.00		H	84.31	11.70	11.66	2.66	20.70	33.00	12.30
1732.50			V	85.23	12.76	11.66	2.66	21.76	33.00	11.24
1732.50	10.00		H	84.10	11.49	11.66	2.66	20.49	33.00	12.51
1732.50			V	85.31	12.84	11.66	2.66	21.84	33.00	11.16
1732.50	15.00		H	84.38	11.77	11.66	2.66	20.77	33.00	12.23
1732.50			V	85.56	13.09	11.66	2.66	22.09	33.00	10.91
1732.50	20.00		H	84.61	12.00	11.66	2.66	21.00	33.00	12.00
1732.50			V	85.99	13.52	11.66	2.66	22.52	33.00	10.48

LTE Band 5

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
836.50	1.40	QPSK	H	86.62	11.69	0.00	0.97	10.72	38.45	27.73
836.50			V	96.32	24.53	0.00	0.97	23.56	38.45	14.89
836.50	3.00		H	85.81	10.88	0.00	0.97	9.91	38.45	28.54
836.50			V	95.52	23.73	0.00	0.97	22.76	38.45	15.69
836.50	5.00		H	85.37	10.44	0.00	0.97	9.47	38.45	28.98
836.50			V	95.06	23.27	0.00	0.97	22.30	38.45	16.15
836.50	10.00		H	84.84	9.91	0.00	0.97	8.94	38.45	29.51
836.50			V	94.55	22.76	0.00	0.97	21.79	38.45	16.66
836.50	1.40	16QAM	H	85.98	11.05	0.00	0.97	10.08	38.45	28.37
836.50			V	95.46	23.67	0.00	0.97	22.70	38.45	15.75
836.50	3.00		H	85.45	10.52	0.00	0.97	9.55	38.45	28.90
836.50			V	94.93	23.14	0.00	0.97	22.17	38.45	16.28
836.50	5.00		H	85.19	10.26	0.00	0.97	9.29	38.45	29.16
836.50			V	94.67	22.88	0.00	0.97	21.91	38.45	16.54
836.50	10.00		H	83.94	9.01	0.00	0.97	8.04	38.45	30.41
836.50			V	93.42	21.63	0.00	0.97	20.66	38.45	17.79

LTE Band 7

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2535.00	5.00	QPSK	H	86.16	13.55	13.14	3.10	23.59	33.00	9.41
2535.00			V	84.42	13.27	13.14	3.10	23.31	33.00	9.69
2535.00	10.00		H	85.90	13.29	13.14	3.10	23.33	33.00	9.67
2535.00			V	84.31	13.16	13.14	3.10	23.20	33.00	9.80
2535.00	15.00		H	86.17	13.56	13.14	3.10	23.60	33.00	9.40
2535.00			V	84.48	13.33	13.14	3.10	23.37	33.00	9.63
2535.00	20.00		H	86.11	13.50	13.14	3.10	23.54	33.00	9.46
2535.00			V	84.72	13.57	13.14	3.10	23.61	33.00	9.39
2535.00	5.00	16QAM	H	85.03	12.42	13.14	3.10	22.46	33.00	10.54
2535.00			V	83.17	12.02	13.14	3.10	22.06	33.00	10.94
2535.00	10.00		H	84.90	12.29	13.14	3.10	22.33	33.00	10.67
2535.00			V	83.15	12.00	13.14	3.10	22.04	33.00	10.96
2535.00	15.00		H	85.16	12.55	13.14	3.10	22.59	33.00	10.41
2535.00			V	83.63	12.48	13.14	3.10	22.52	33.00	10.48
2535.00	20.00		H	85.36	12.75	13.14	3.10	22.79	33.00	10.21
2535.00			V	83.74	12.59	13.14	3.10	22.63	33.00	10.37

LTE Band 12

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
707.50	1.40	QPSK	H	83.83	6.97	0.00	0.94	6.03	34.77	28.74
707.50			V	91.86	17.44	0.00	0.94	16.50	34.77	18.27
707.50	3.00		H	82.53	5.67	0.00	0.94	4.73	34.77	30.04
707.50			V	90.56	16.14	0.00	0.94	15.20	34.77	19.57
707.50	5.00		H	82.74	5.88	0.00	0.94	4.94	34.77	29.83
707.50			V	90.77	16.35	0.00	0.94	15.41	34.77	19.36
707.50	10.00		H	81.18	4.32	0.00	0.94	3.38	34.77	31.39
707.50			V	89.21	14.79	0.00	0.94	13.85	34.77	20.92
707.50	1.40	16QAM	H	84.43	7.57	0.00	0.94	6.63	34.77	28.14
707.50			V	92.46	18.04	0.00	0.94	17.10	34.77	17.67
707.50	3.00		H	84.05	7.19	0.00	0.94	6.25	34.77	28.52
707.50			V	92.08	17.66	0.00	0.94	16.72	34.77	18.05
707.50	5.00		H	83.44	6.58	0.00	0.94	5.64	34.77	29.13
707.50			V	91.47	17.05	0.00	0.94	16.11	34.77	18.66
707.50	10.00		H	82.67	5.81	0.00	0.94	4.87	34.77	29.90
707.50			V	90.70	16.28	0.00	0.94	15.34	34.77	19.43

LTE Band 13

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
782.00	5.00	QPSK	H	82.96	7.43	0.00	0.93	6.50	34.77	28.27
782.00			V	90.28	17.67	0.00	0.93	16.74	34.77	18.03
782.00	10.00		H	82.10	6.57	0.00	0.93	5.64	34.77	29.13
782.00			V	89.42	16.81	0.00	0.93	15.88	34.77	18.89
782.00	5.00	16QAM	H	82.94	7.41	0.00	0.93	6.48	34.77	28.29
782.00			V	90.26	17.65	0.00	0.93	16.72	34.77	18.05
782.00	10.00		H	81.79	6.26	0.00	0.93	5.33	34.77	29.44
782.00			V	89.11	16.50	0.00	0.93	15.57	34.77	19.20

LTE Band 25

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1882.5	1.40	QPSK	H	86.69	14.11	11.68	2.66	23.13	33.00	9.87
1882.5			V	86.82	14.40	11.68	2.66	23.42	33.00	9.58
1882.5	3.00		H	86.43	13.85	11.68	2.66	22.87	33.00	10.13
1882.5			V	86.59	14.17	11.68	2.66	23.19	33.00	9.81
1882.5	5.00		H	86.38	13.80	11.68	2.66	22.82	33.00	10.18
1882.5			V	86.46	14.04	11.68	2.66	23.06	33.00	9.94
1882.5	10.00		H	86.34	13.76	11.68	2.66	22.78	33.00	10.22
1882.5			V	85.47	13.05	11.68	2.66	22.07	33.00	10.93
1882.5	15.00		H	86.78	14.20	11.68	2.66	23.22	33.00	9.78
1882.5			V	86.76	14.34	11.68	2.66	23.36	33.00	9.64
1882.5	20.00		H	86.85	14.27	11.68	2.66	23.29	33.00	9.71
1882.5			V	86.97	14.55	11.68	2.66	23.57	33.00	9.43
1882.5	1.40	16QAM	H	85.52	12.94	11.68	2.66	21.96	33.00	11.04
1882.5			V	85.78	13.36	11.68	2.66	22.38	33.00	10.62
1882.5	3.00		H	85.64	13.06	11.68	2.66	22.08	33.00	10.92
1882.5			V	85.39	12.97	11.68	2.66	21.99	33.00	11.01
1882.5	5.00		H	85.11	12.53	11.68	2.66	21.55	33.00	11.45
1882.5			V	85.21	12.79	11.68	2.66	21.81	33.00	11.19
1882.5	10.00		H	85.28	12.70	11.68	2.66	21.72	33.00	11.28
1882.5			V	85.29	12.87	11.68	2.66	21.89	33.00	11.11
1882.5	15.00		H	85.69	13.11	11.68	2.66	22.13	33.00	10.87
1882.5			V	85.59	13.17	11.68	2.66	22.19	33.00	10.81
1882.5	20.00		H	85.86	13.28	11.68	2.66	22.30	33.00	10.70
1882.5			V	86.04	13.62	11.68	2.66	22.64	33.00	10.36

LTE Band 40

Lower:

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2310.00	5.00	QPSK	H	79.72	8.98	11.75	3.04	17.69	24.00	6.31
2310.00			V	82.19	12.20	11.75	3.04	20.91	24.00	3.09
2310.00	10.00		H	79.96	9.22	11.75	3.04	17.93	24.00	6.07
2310.00			V	82.07	12.08	11.75	3.04	20.79	24.00	3.21
2310.00	5.00	16QAM	H	79.76	9.02	11.75	3.04	17.73	24.00	6.27
2310.00			V	82.55	12.56	11.75	3.04	21.27	24.00	2.73
2310.00	10.00		H	79.70	8.96	11.75	3.04	17.67	24.00	6.33
2310.00			V	82.21	12.22	11.75	3.04	20.93	24.00	3.07

Upper:

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2355.00	5.00	QPSK	H	78.75	8.01	11.75	3.04	16.72	24.00	7.28
2355.00			V	80.95	10.96	11.75	3.04	19.67	24.00	4.33
2355.00	10.00		H	78.40	7.66	11.75	3.04	16.37	24.00	7.63
2355.00			V	80.61	10.62	11.75	3.04	19.33	24.00	4.67
2355.00	5.00	16QAM	H	78.52	7.78	11.75	3.04	16.49	24.00	7.51
2355.00			V	80.76	10.77	11.75	3.04	19.48	24.00	4.52
2355.00	10.00		H	78.59	7.85	11.75	3.04	16.56	24.00	7.44
2355.00			V	80.84	10.85	11.75	3.04	19.56	24.00	4.44

Note:
1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
3) Margin = Limit-Absolute Level

FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53- OCCUPIED BANDWIDTH

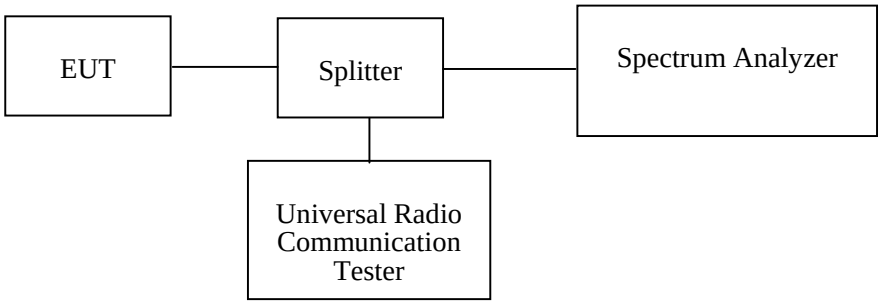
Applicable Standard

FCC §2.1049, §22.917, §22.905, §24.238, §27.53.

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-01-04	2021-01-04
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each Time	/

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26~27.5°C
Relative Humidity:	52~72 %
ATM Pressure:	100.2~100.9 kPa
Tester:	Chris Mo
Test Date:	2020-05-07~2020-05-15

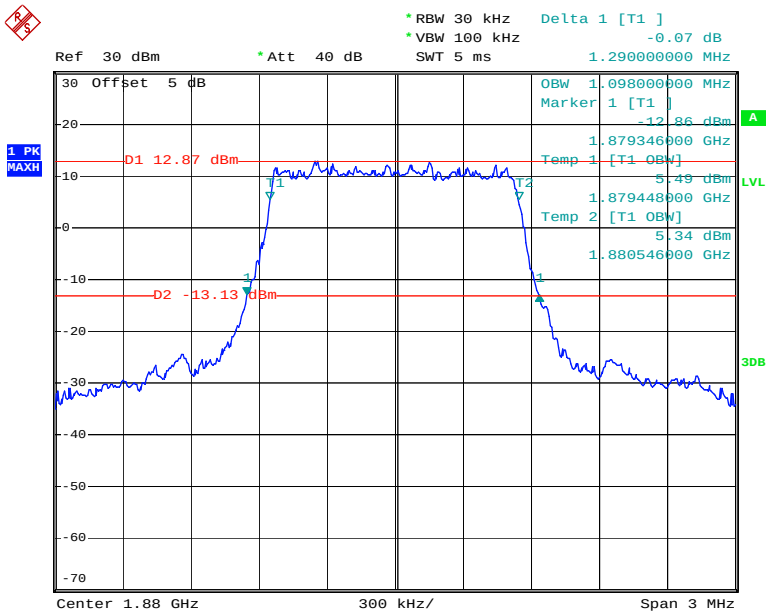
Test Mode: Transmitting
Test Result: Compliant. Please refer to the following table and plots.

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.098	1.290
		16QAM	1.104	1.314
	3 MHz	QPSK	2.688	2.928
		16QAM	2.688	2.976
	5 MHz	QPSK	4.540	4.980
		16QAM	4.520	5.020
	10 MHz	QPSK	8.960	9.800
		16QAM	8.960	9.720
	15 MHz	QPSK	13.500	14.880
		16QAM	13.500	14.880
	20 MHz	QPSK	18.000	19.440
		16QAM	18.000	19.600
LTE Band 4	1.4 MHz	QPSK	1.098	1.296
		16QAM	1.098	1.308
	3 MHz	QPSK	2.688	2.928
		16QAM	2.700	2.964
	5 MHz	QPSK	4.540	5.060
		16QAM	4.520	5.020
	10 MHz	QPSK	8.960	9.720
		16QAM	8.960	9.640
	15 MHz	QPSK	13.500	14.820
		16QAM	13.500	14.820
	20 MHz	QPSK	18.000	19.520
		16QAM	17.920	19.440
LTE Band 5	1.4 MHz	QPSK	1.596	2.430
		16QAM	1.488	2.418
	3 MHz	QPSK	3.012	4.812
		16QAM	3.084	4.788
	5 MHz	QPSK	5.340	8.020
		16QAM	5.420	8.039
	10 MHz	QPSK	8.920	9.720
		16QAM	8.880	9.680

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 7	5 MHz	QPSK	4.540	5.020
		16QAM	4.520	5.000
	10 MHz	QPSK	8.960	9.840
		16QAM	8.960	9.720
	15 MHz	QPSK	13.500	14.940
		16QAM	13.500	14.820
	20 MHz	QPSK	18.000	19.440
		16QAM	17.920	19.440
LTE Band 12	1.4 MHz	QPSK	1.110	1.290
		16QAM	1.098	1.314
	3 MHz	QPSK	2.700	2.940
		16QAM	2.688	2.964
	5 MHz	QPSK	4.540	4.960
		16QAM	4.520	4.960
	10 MHz	QPSK	8.880	9.480
		16QAM	8.840	9.440
LTE Band 13	5 MHz	QPSK	4.500	5.020
		16QAM	4.540	5.040
	10 MHz	QPSK	8.960	10.200
		16QAM	8.960	9.600
LTE Band 25	1.4 MHz	QPSK	1.110	1.284
		16QAM	1.104	1.302
	3 MHz	QPSK	2.700	2.952
		16QAM	2.700	2.940
	5 MHz	QPSK	4.560	5.000
		16QAM	4.520	5.060
	10 MHz	QPSK	8.960	9.800
		16QAM	8.960	9.720
	15 MHz	QPSK	13.500	15.000
		16QAM	13.500	14.820
	20 MHz	QPSK	18.000	19.440
		16QAM	18.000	19.440
LTE Band 40 Lower	5 MHz	QPSK	4.52	4.984
		16QAM	4.52	5.026
	10 MHz	QPSK	8.96	9.715
		16QAM	8.92	9.571
LTE Band 40 Upper	5 MHz	QPSK	4.52	5.07
		16QAM	4.52	5.005
	10 MHz	QPSK	8.96	9.764
		16QAM	8.96	9.677

LTE Band 2

QPSK_1.4 MHz



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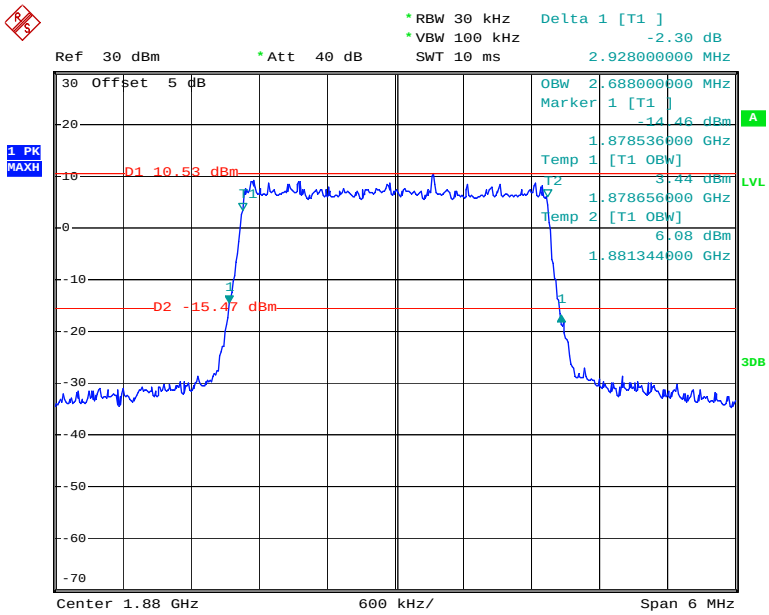
QPSK_3 MHz



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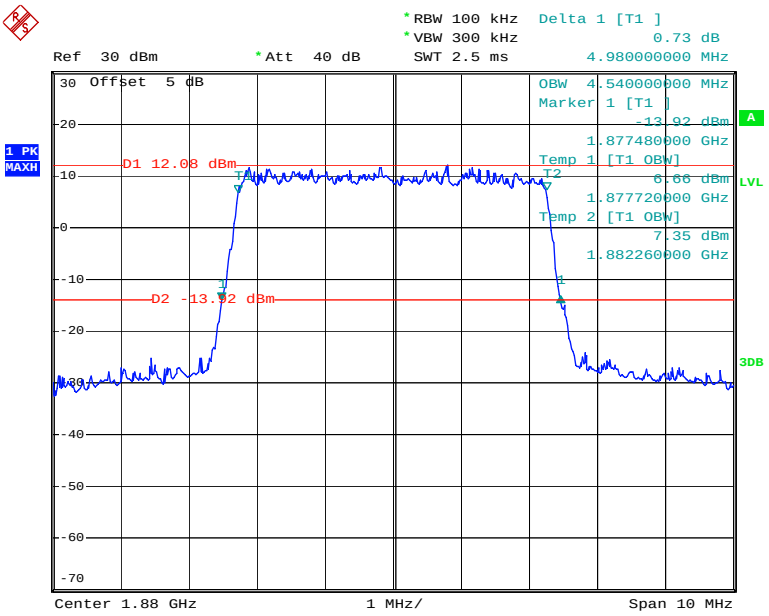
QPSK_5 MHz



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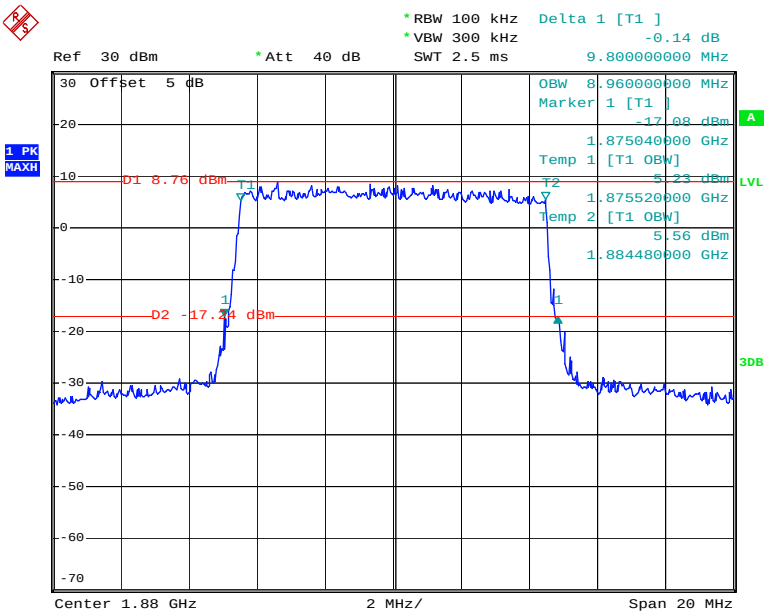
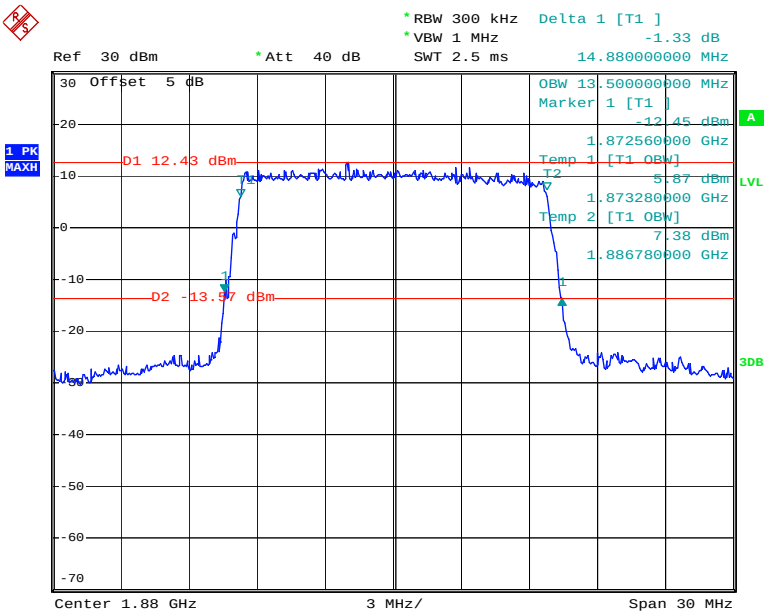
QPSK_10 MHz



Date: 7.MAY.2020 12:26:02

QPSK_15 MHz



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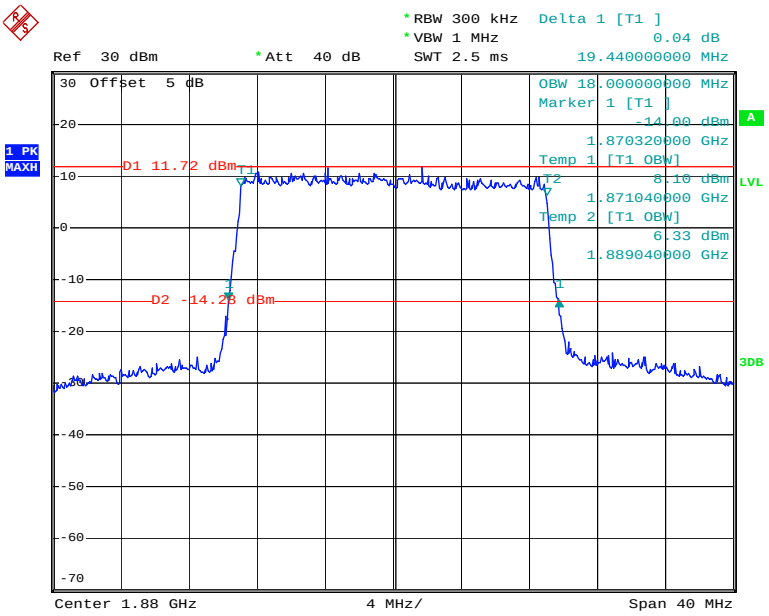
QPSK_20 MHz



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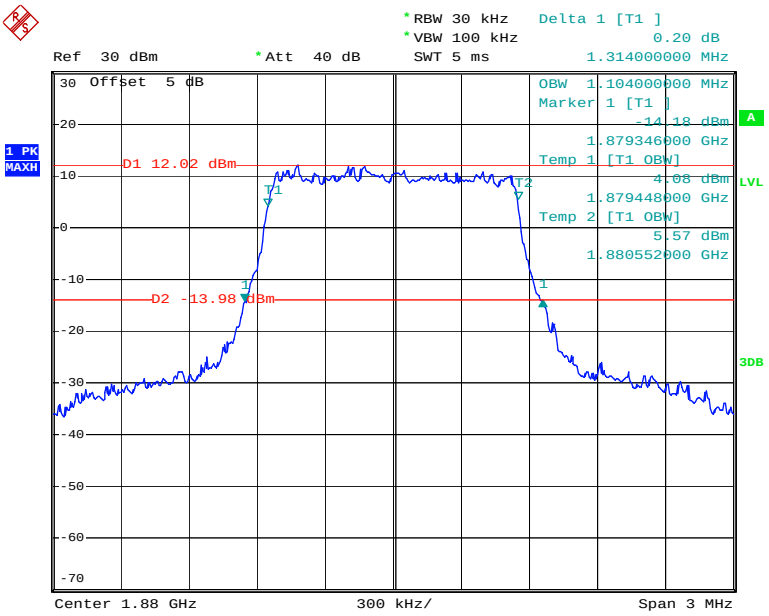
16QAM_1.4 MHz



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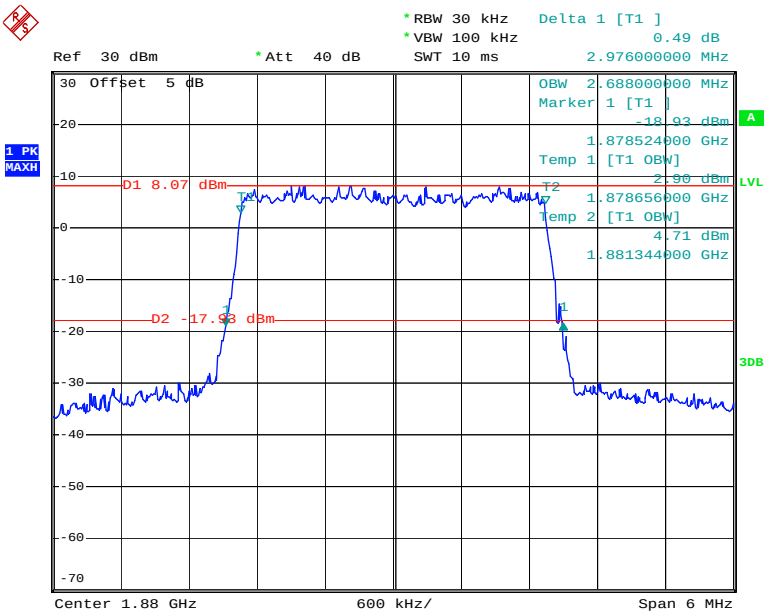
16QAM_3 MHz



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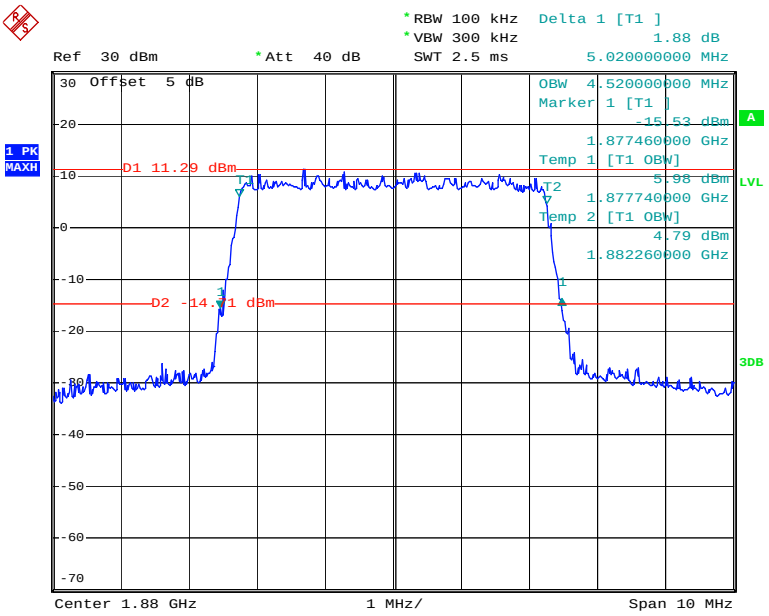
16QAM_5 MHz



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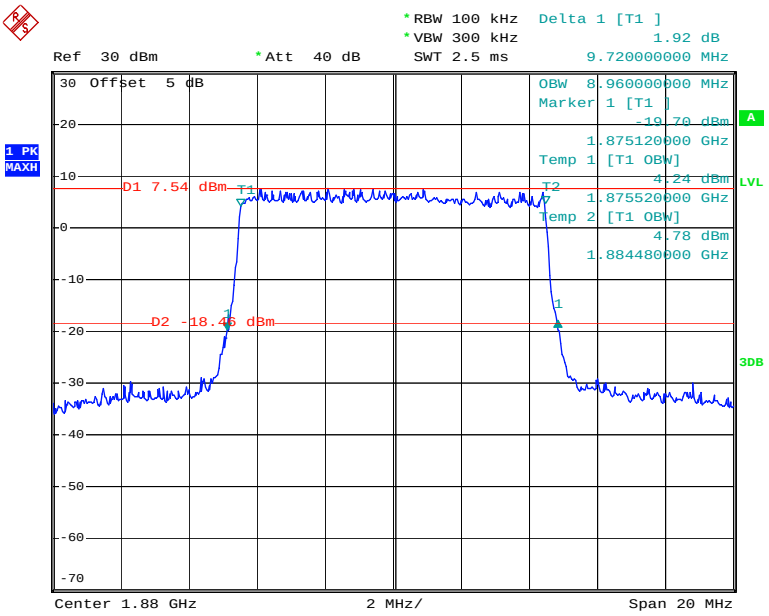
16QAM_10 MHz



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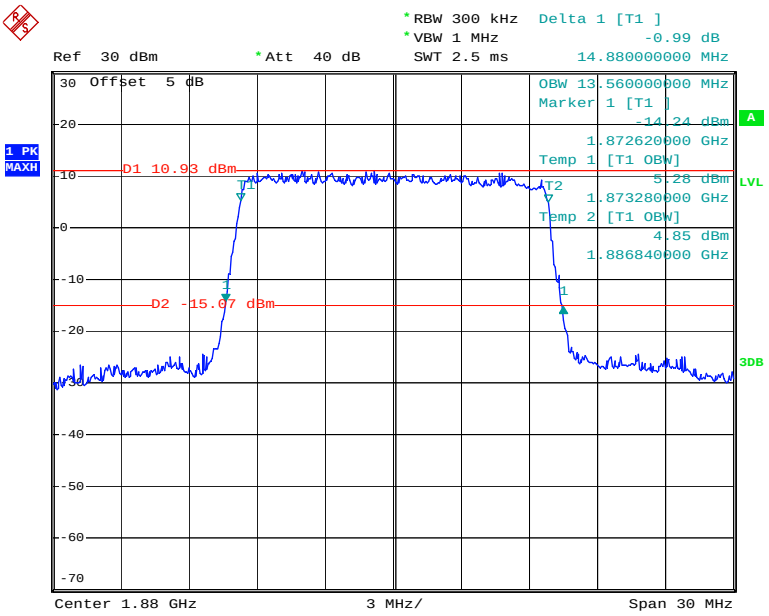
16QAM_15 MHz



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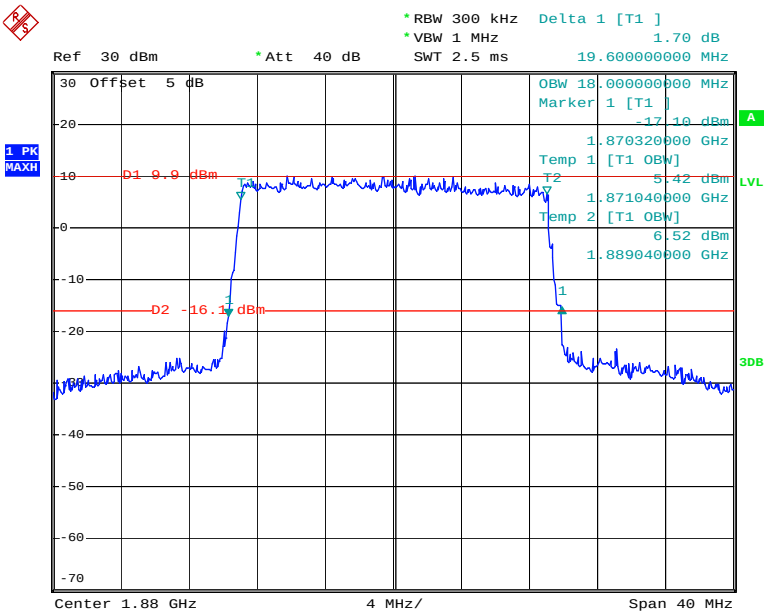
16QAM_20 MHz



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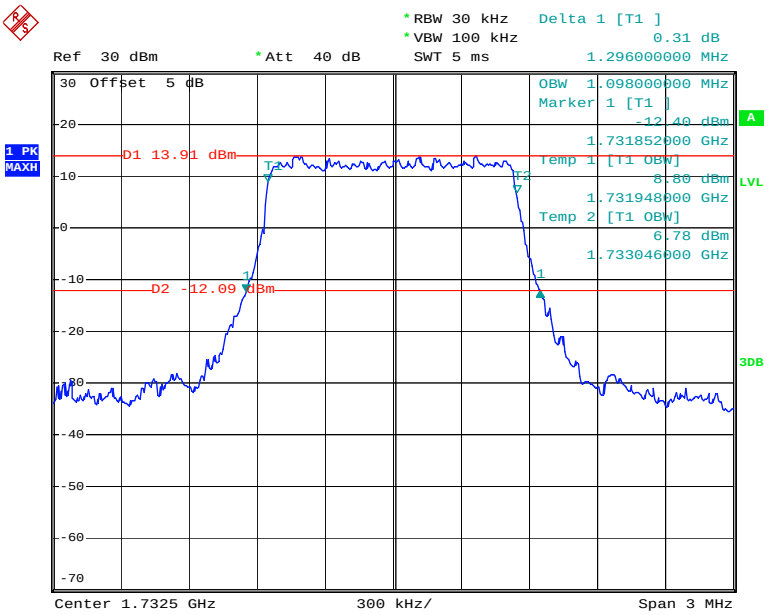
LTE Band 4

QPSK_1.4 MHz



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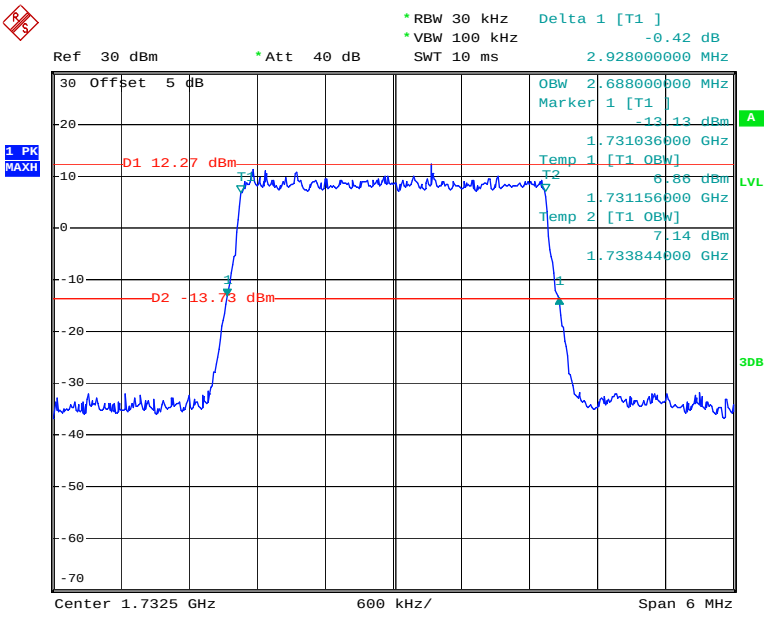
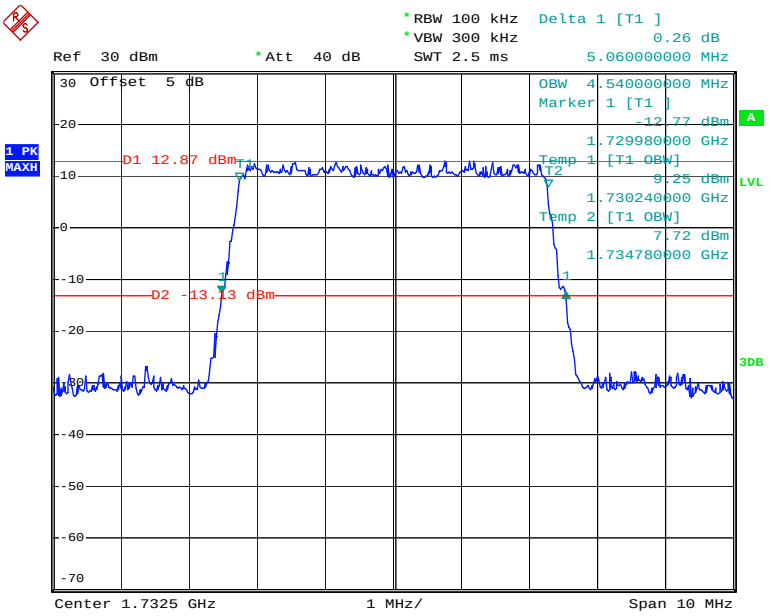
QPSK_3 MHz



Date: 7.MAY.2020 12:29:13

QPSK_5 MHz



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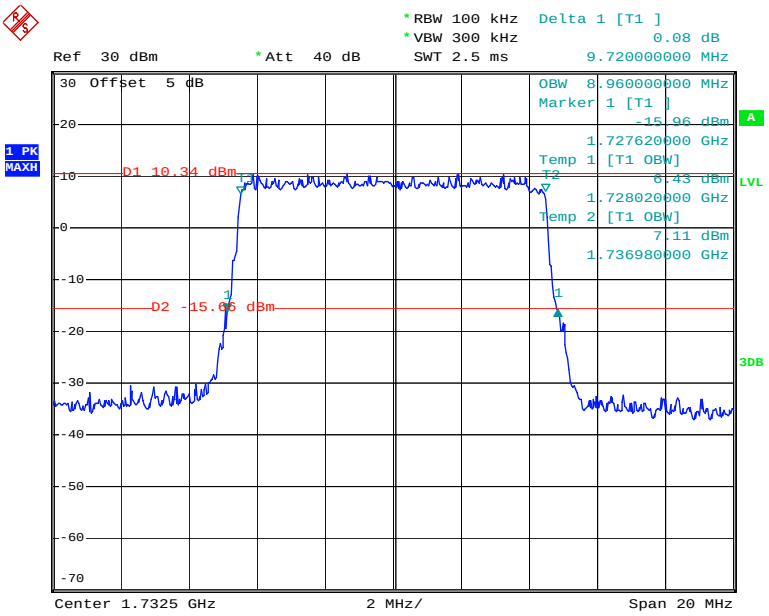
QPSK_10 MHz



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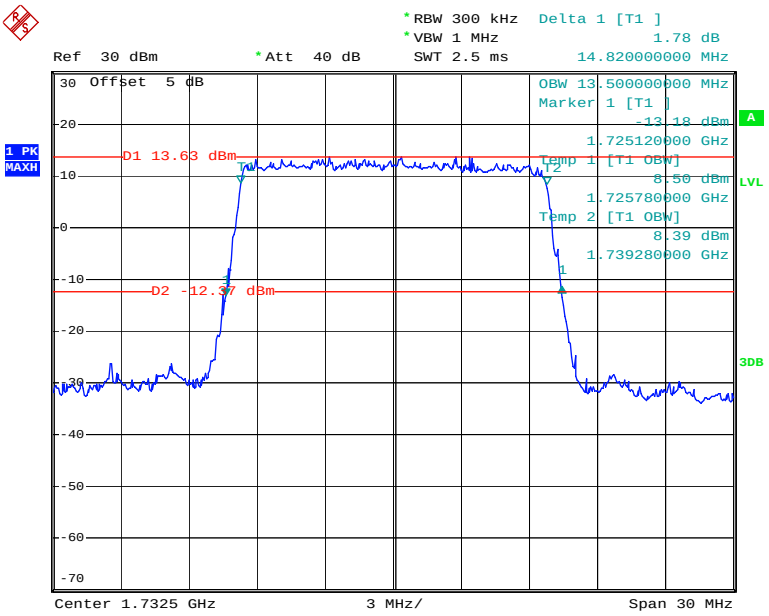
QPSK_15 MHz



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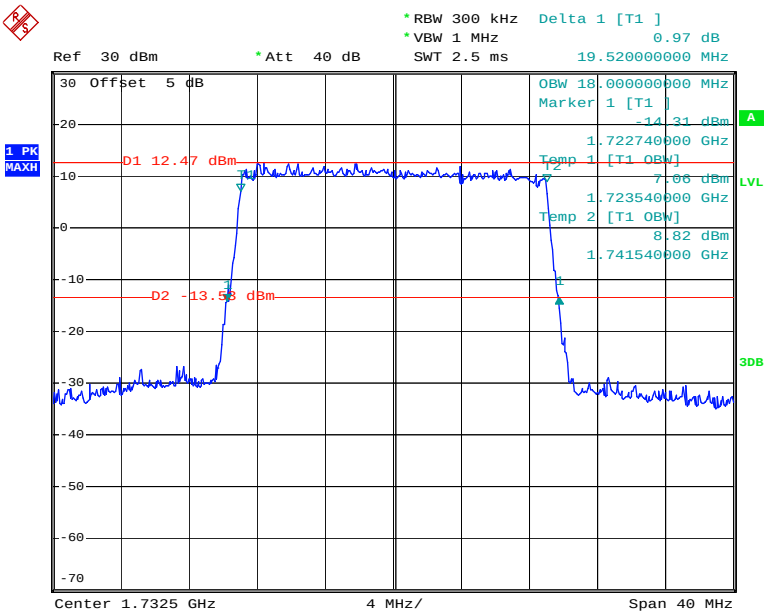
QPSK_20 MHz



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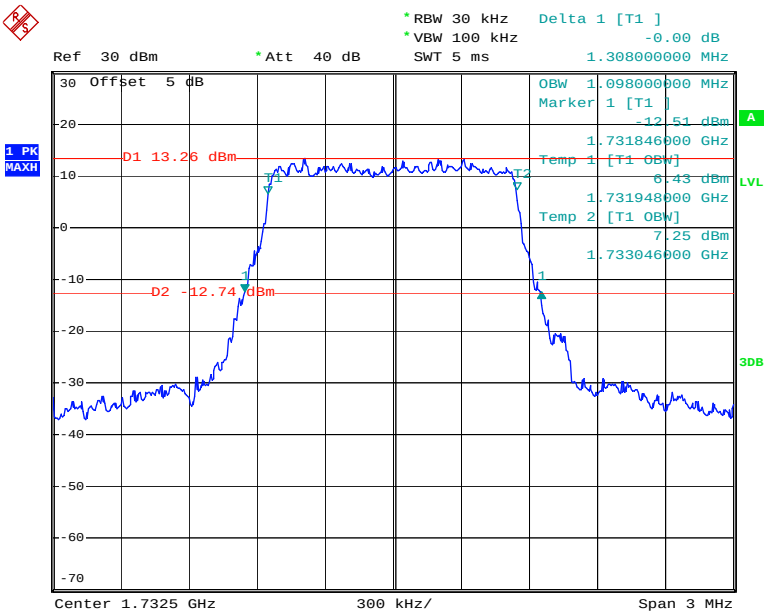
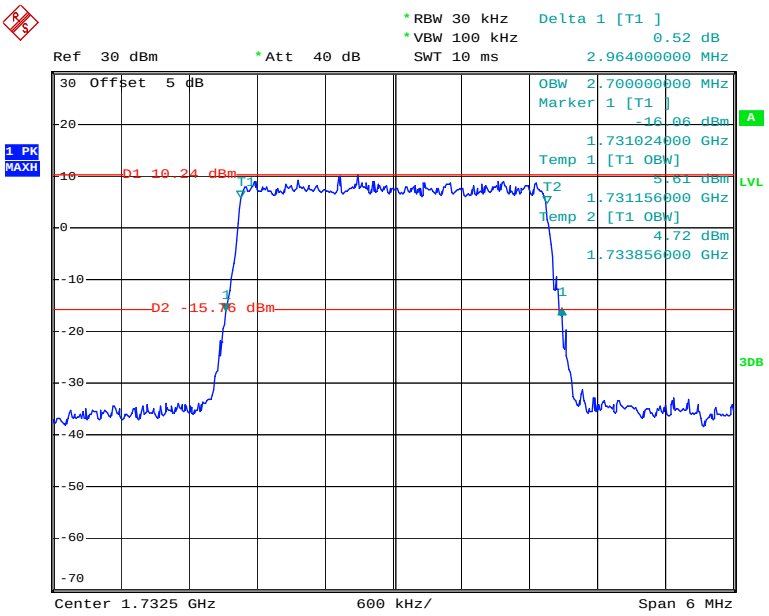
16QAM_1.4 MHz



Date: 7.MAY.2020 12:28:49

16QAM_3 MHz



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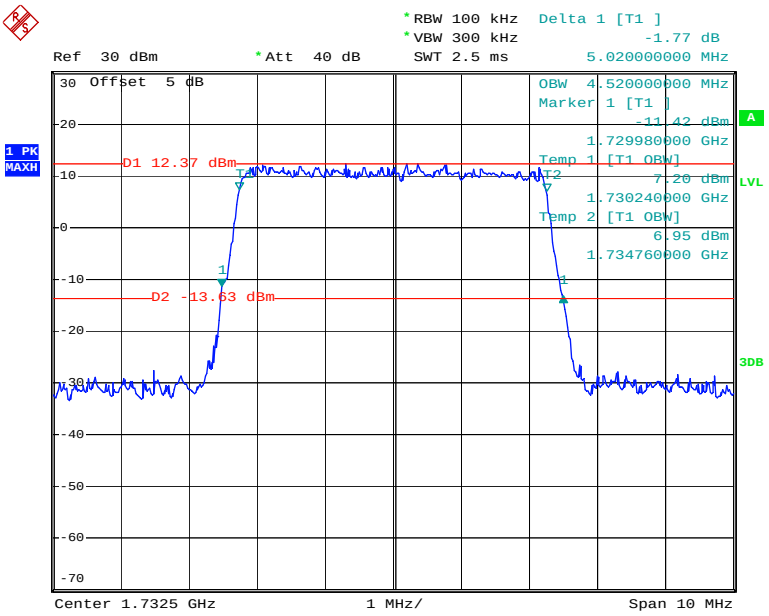
16QAM_5 MHz



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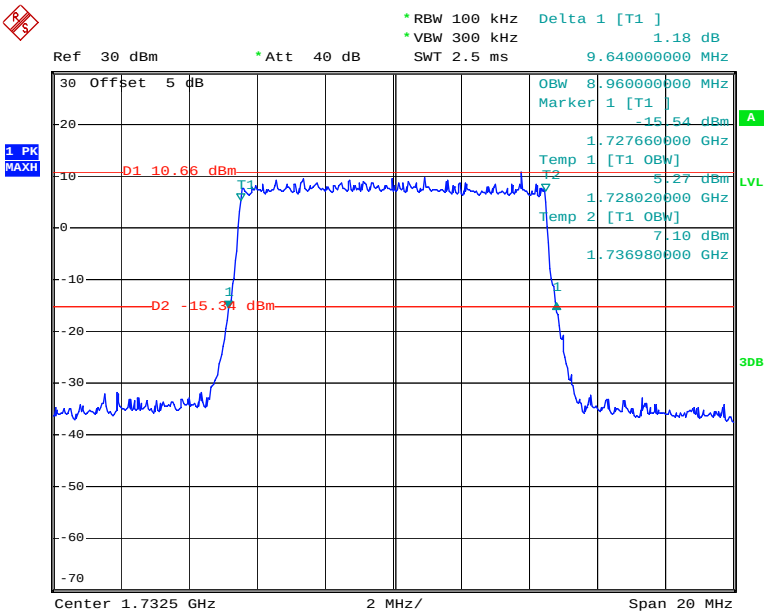
16QAM_10 MHz



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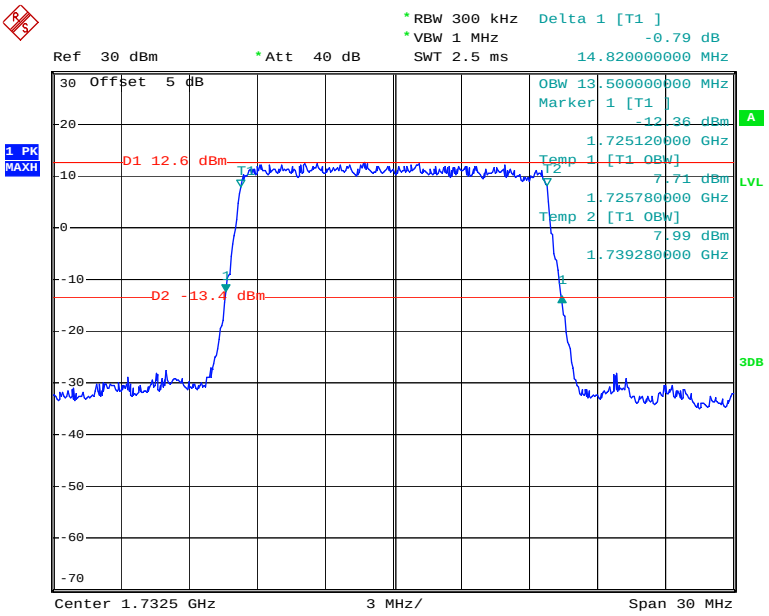
16QAM_15 MHz



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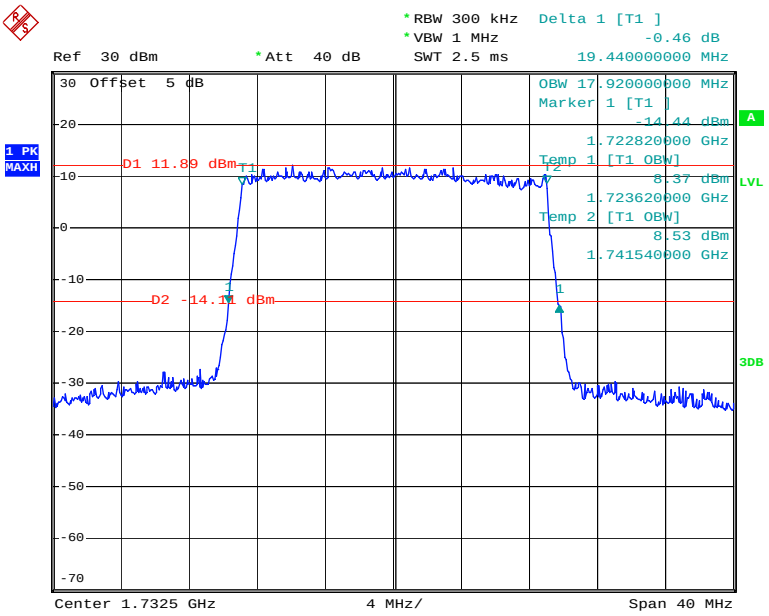
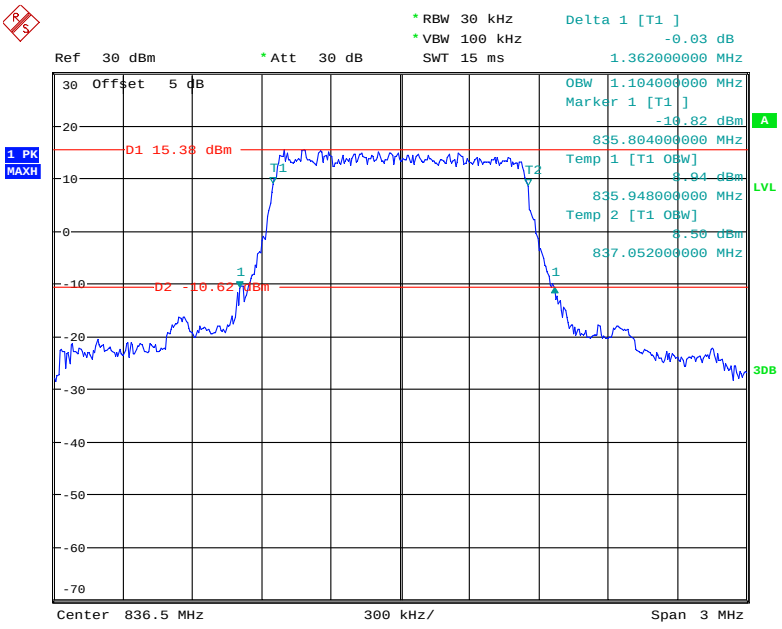
16QAM_20 MHz



Date: 7.MAY.2020 12:32:53

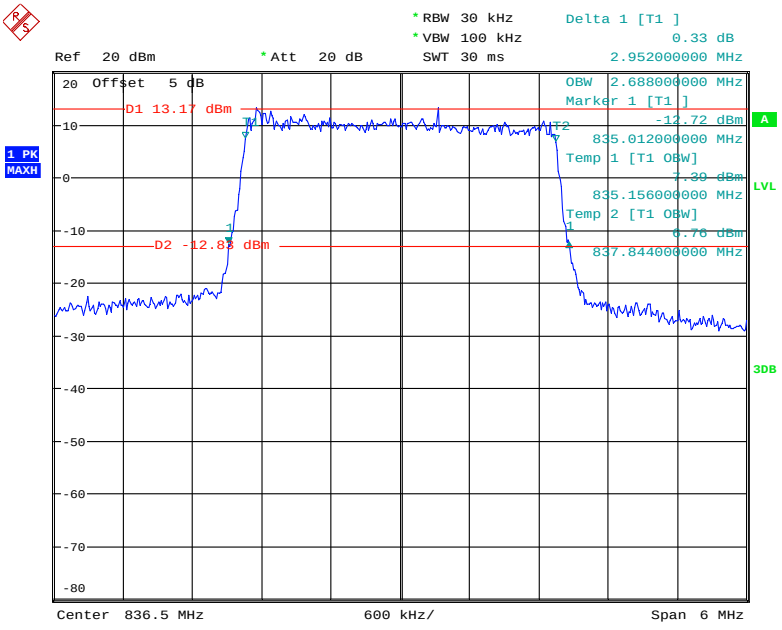
LTE Band 5:

QPSK_1.4 MHz



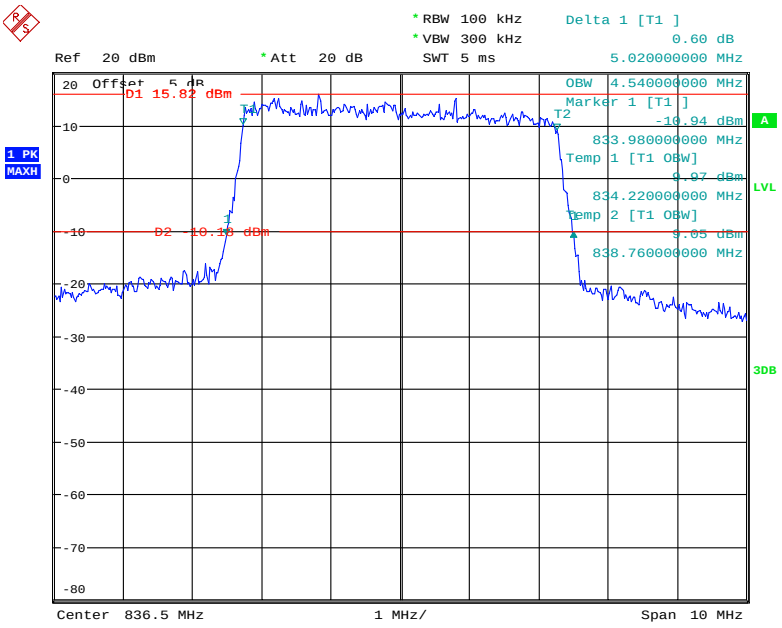
Date: 15.MAY.2020 09:49:37

QPSK_3 MHz



Date: 15.MAY.2020 09:50:16

QPSK_5 MHz



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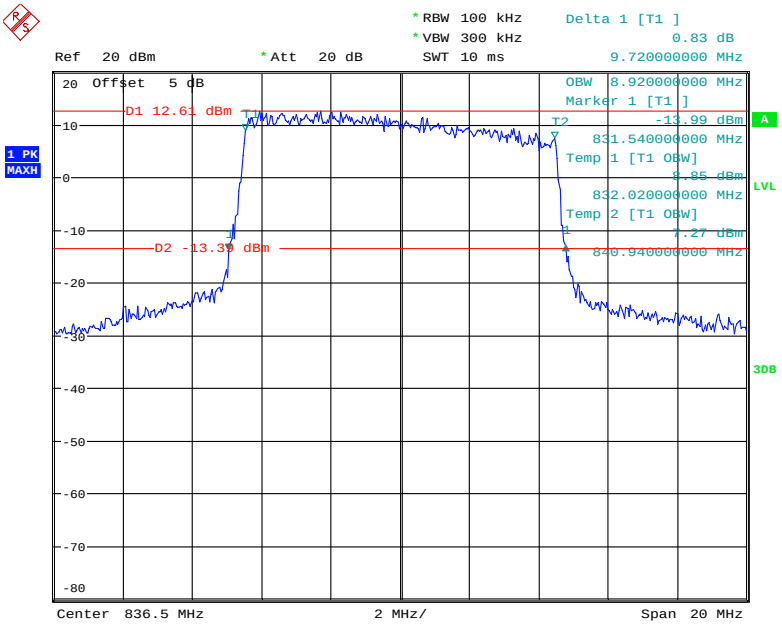
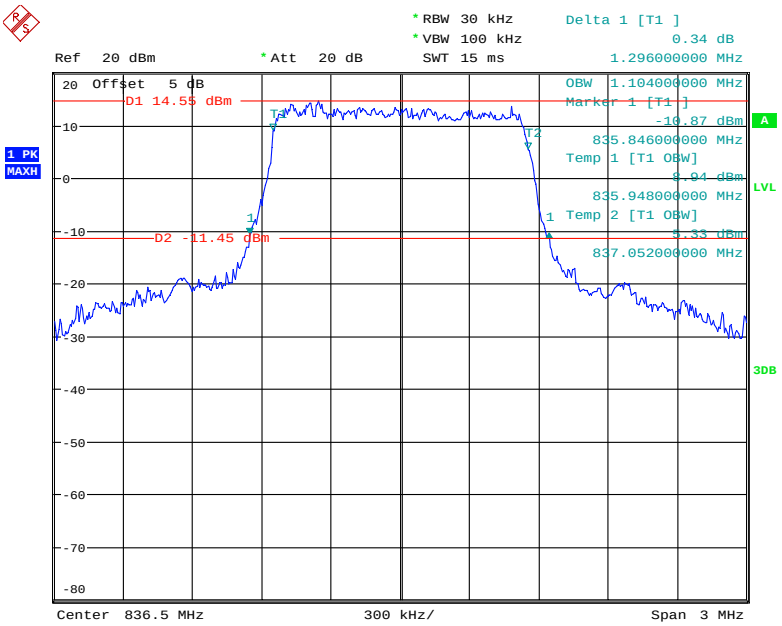
QPSK_10 MHz



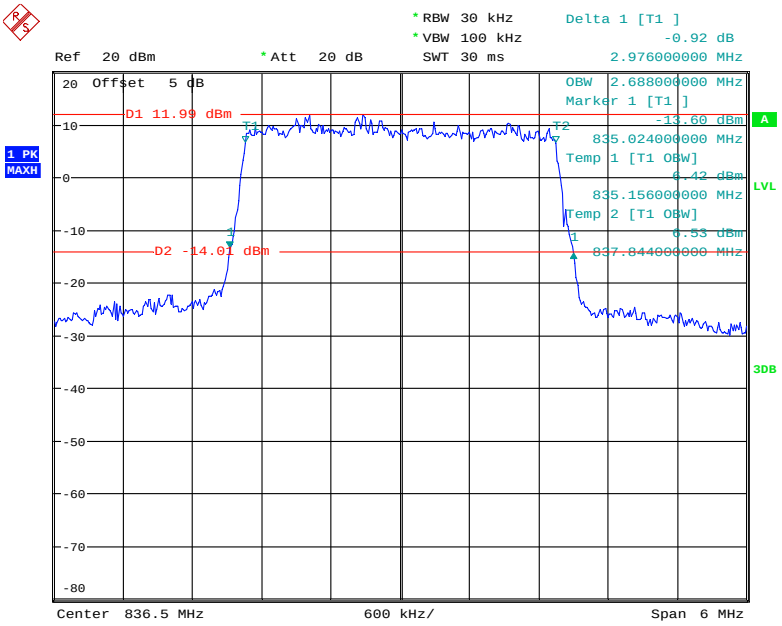
Date: 15.MAY.2020 09:51:42

16QAM_1.4 MHz



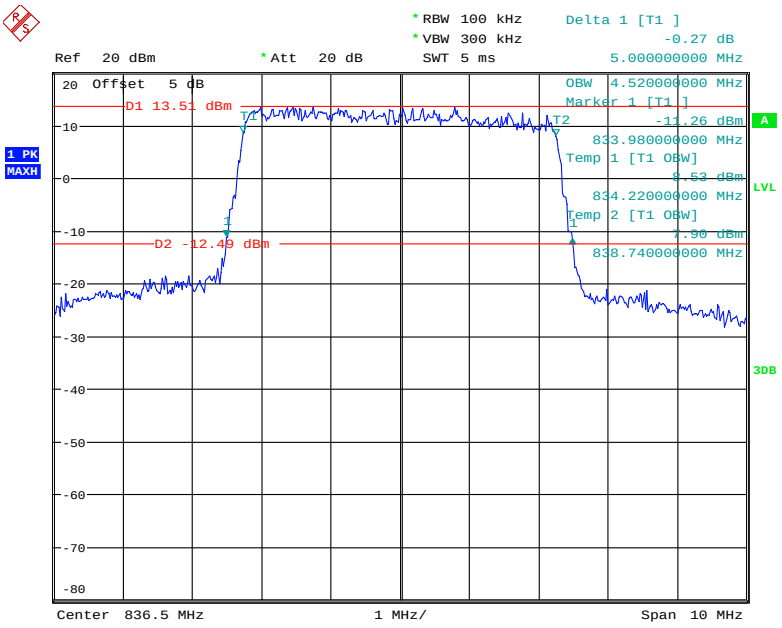
Date: 15.MAY.2020 09:49:56

16QAM_3 MHz



Date: 15.MAY.2020 09:50:34

16QAM_5 MHz



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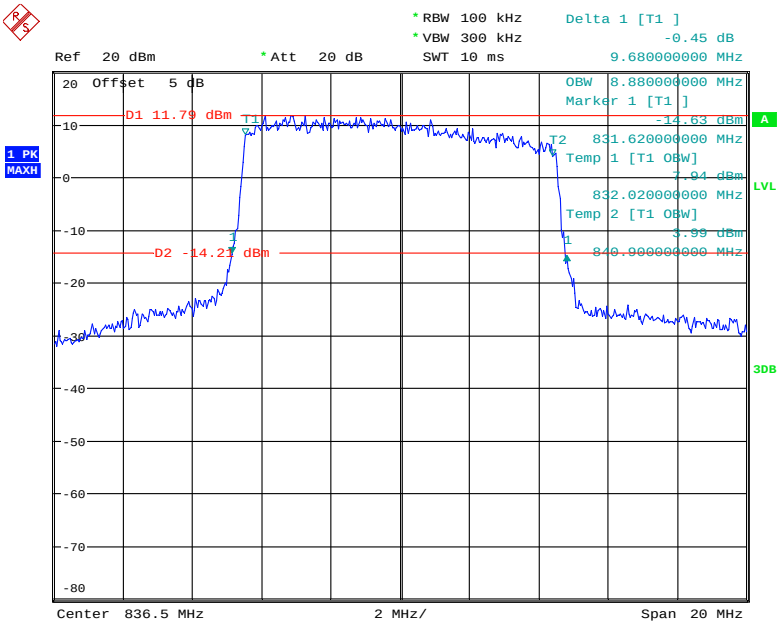
16QAM_10 MHz



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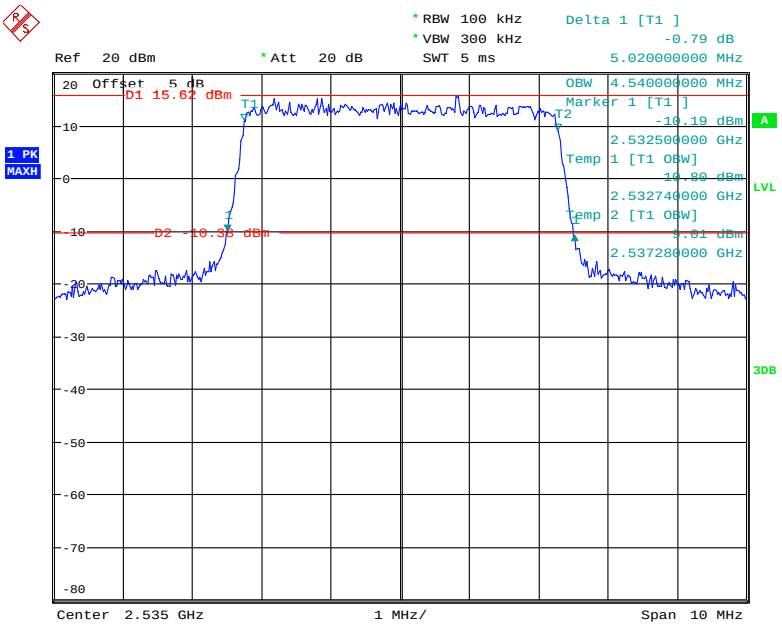
LTE Band 7:

QPSK_5 MHz



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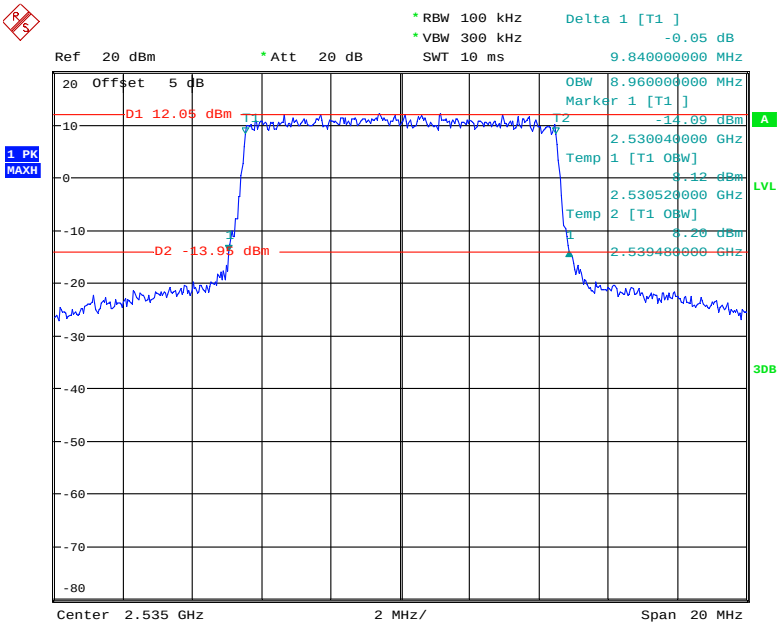
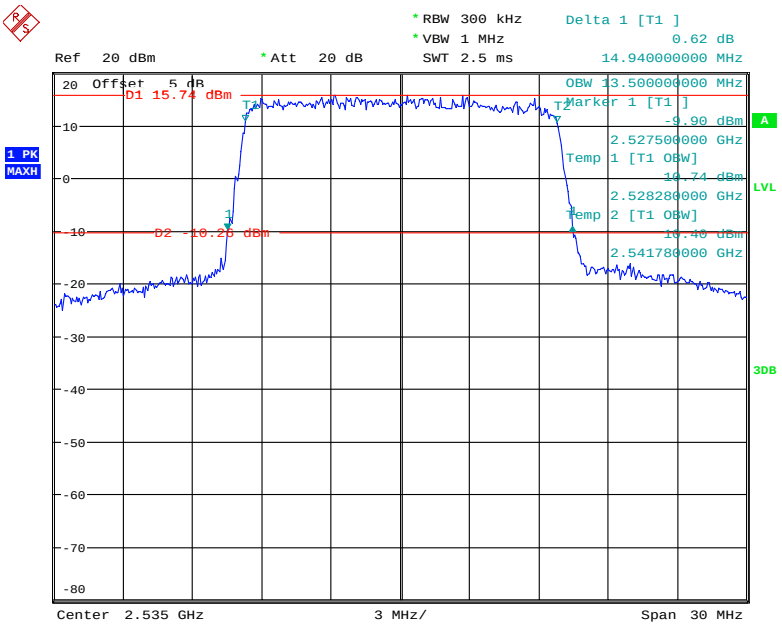
QPSK_10 MHz



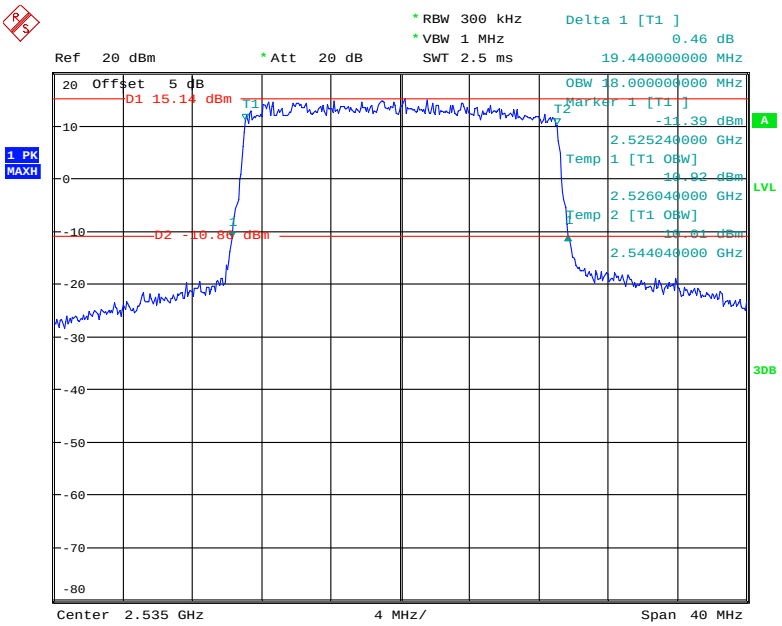
Date: 15.MAY.2020 09:57:33

QPSK_15 MHz



Date: 15.MAY.2020 09:58:21

QPSK_20 MHz



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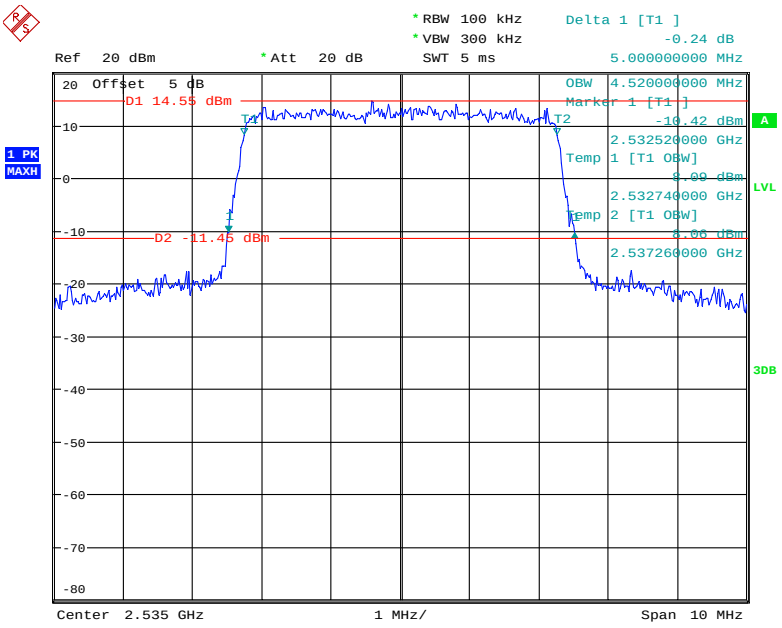
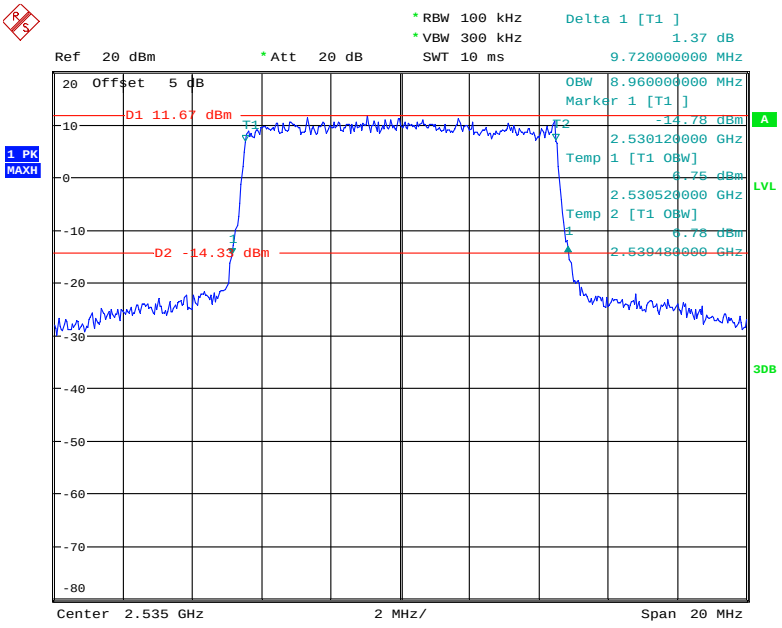
16QAM_5 MHz



Date: 15.MAY.2020 09:57:08

16QAM_10 MHz



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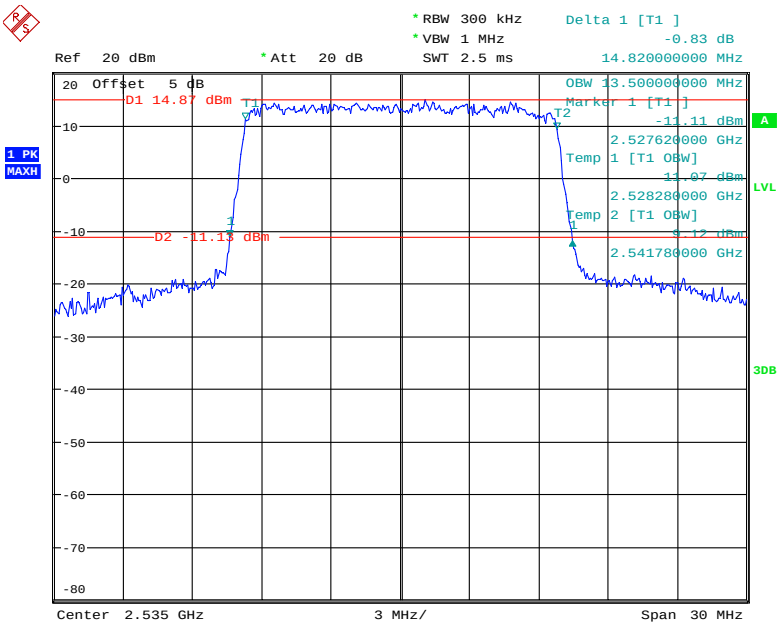
16QAM_15 MHz



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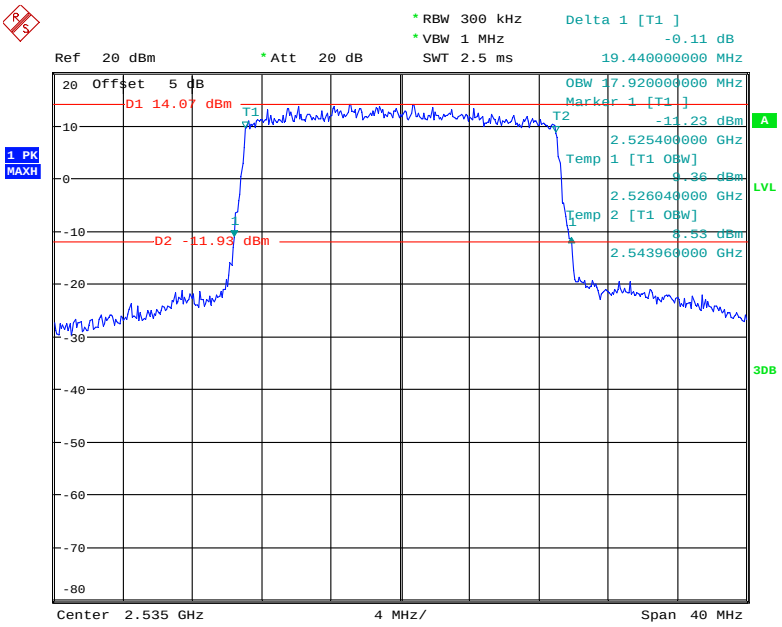
16QAM_20 MHz



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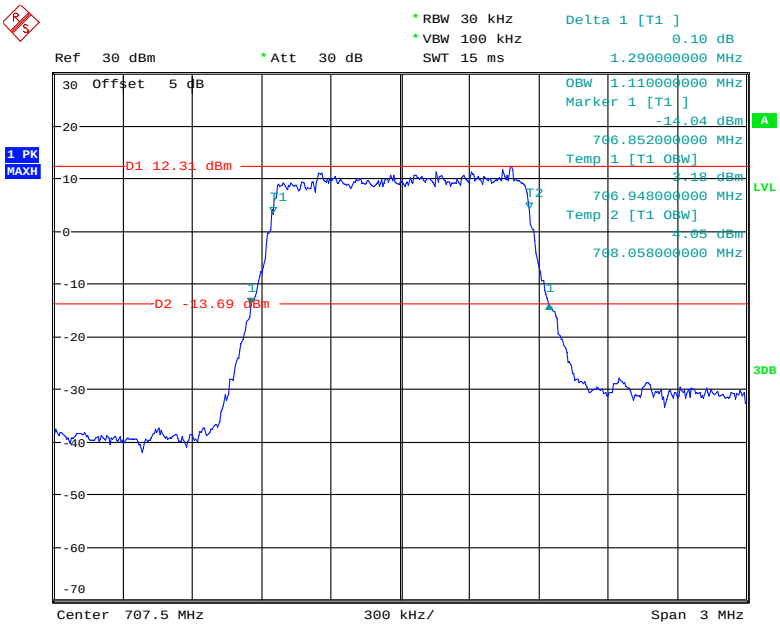
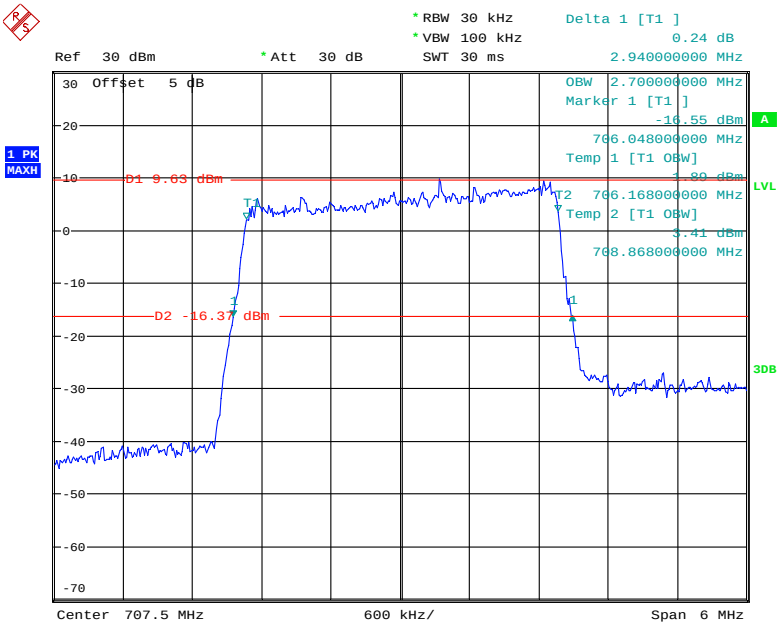
LTE Band 12:

QPSK_1.4 MHz



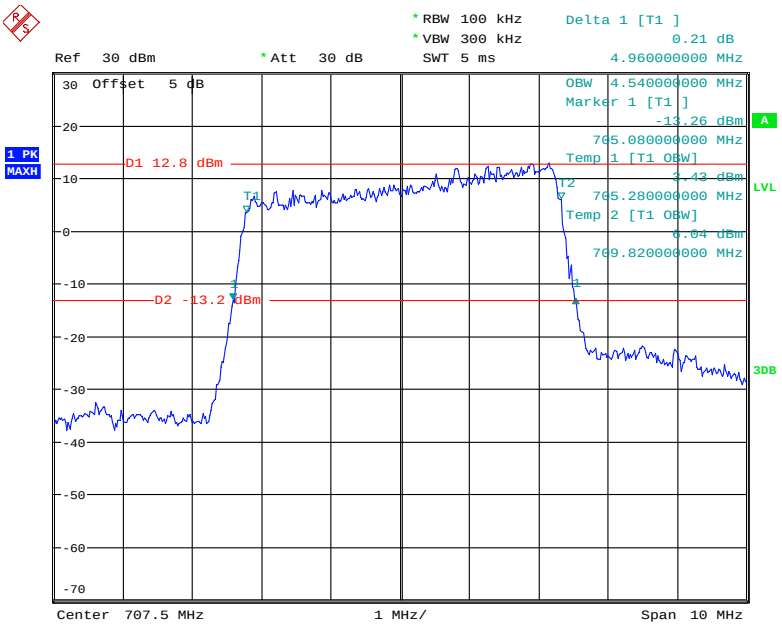
Date: 15.MAY.2020 18:03:01

QPSK_3 MHz



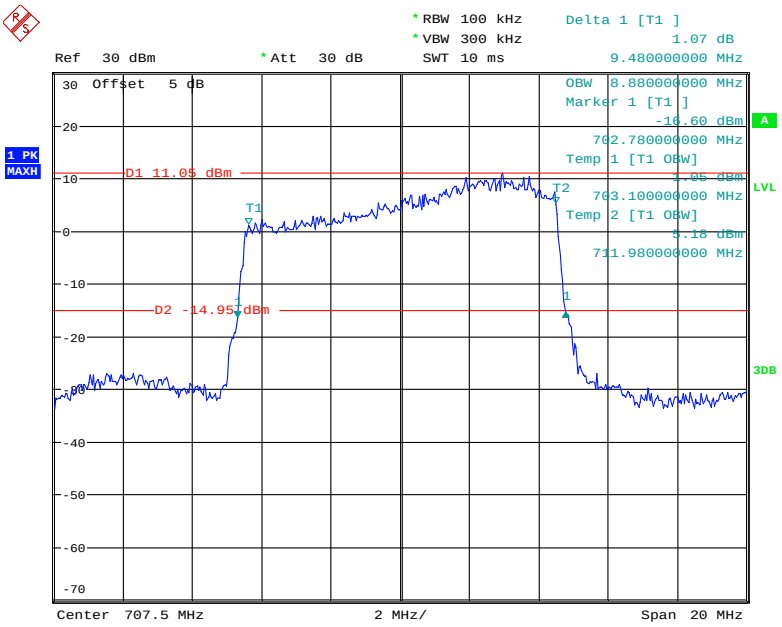
Date: 15.MAY.2020 18:03:49

QPSK_5 MHz



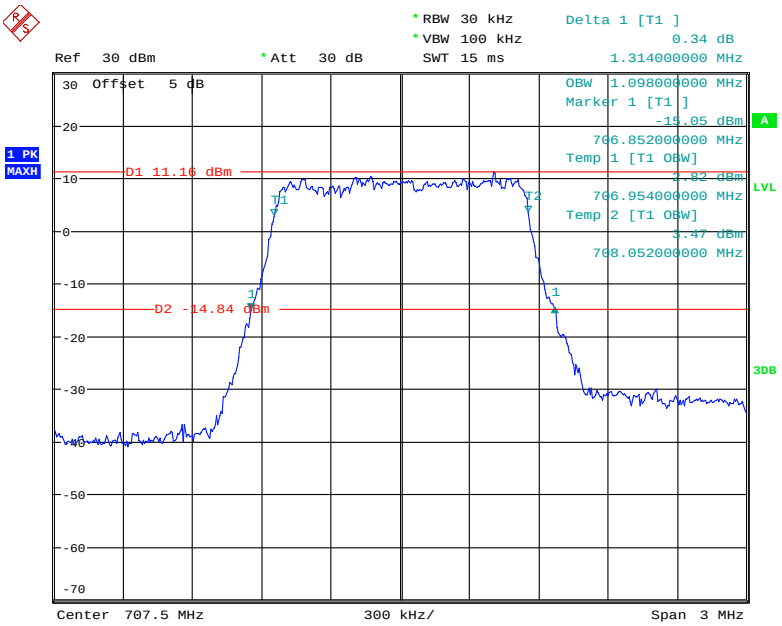
Date: 15.MAY.2020 18:04:30

QPSK_10 MHz



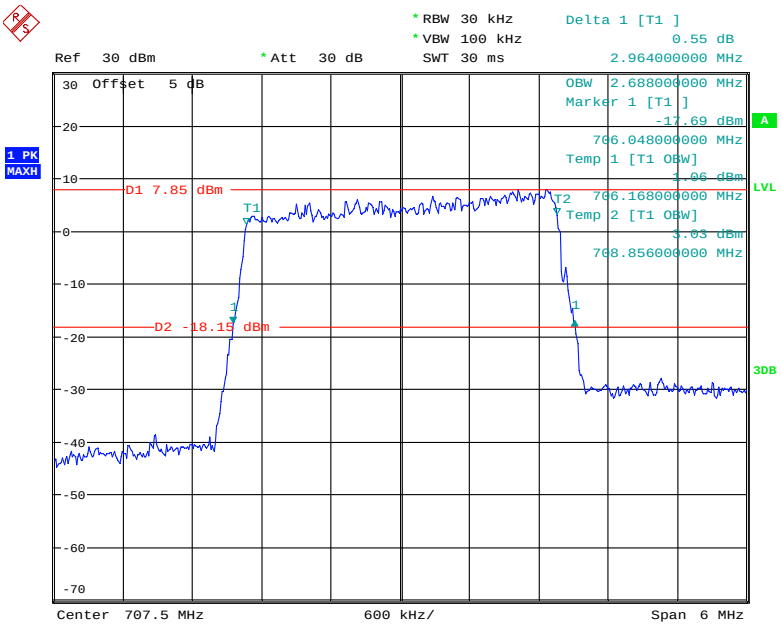
Date: 15.MAY.2020 18:05:16

16QAM_1.4 MHz



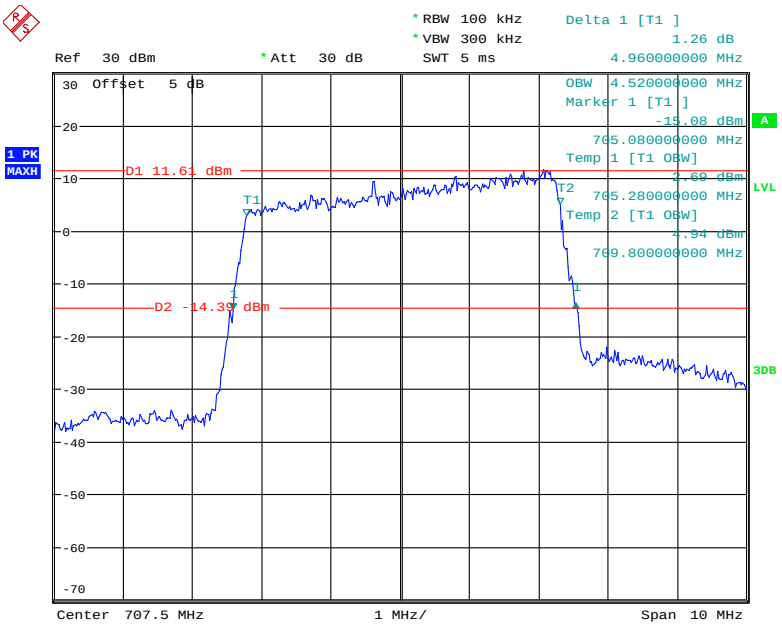
Date: 15.MAY.2020 18:03:25

16QAM_3 MHz



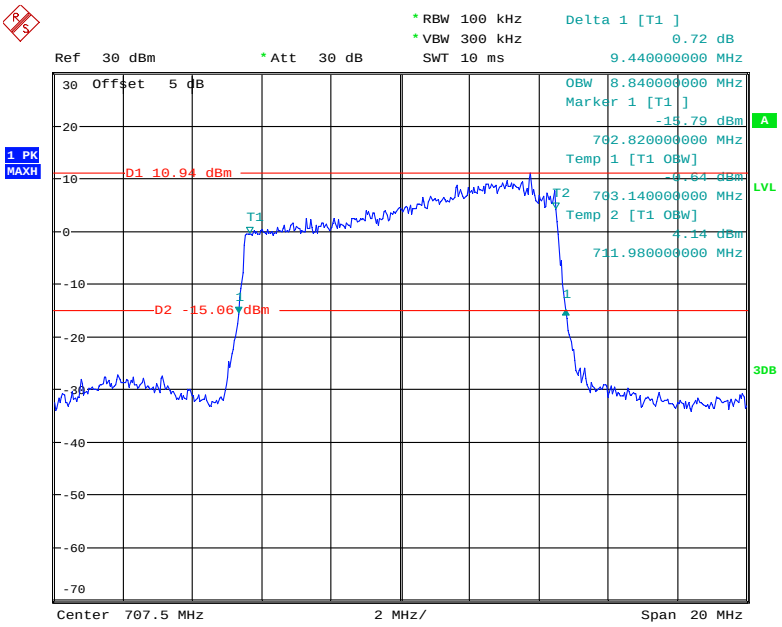
Date: 15.MAY.2020 18:04:07

16QAM_5 MHz



Date: 15.MAY.2020 18:04:51

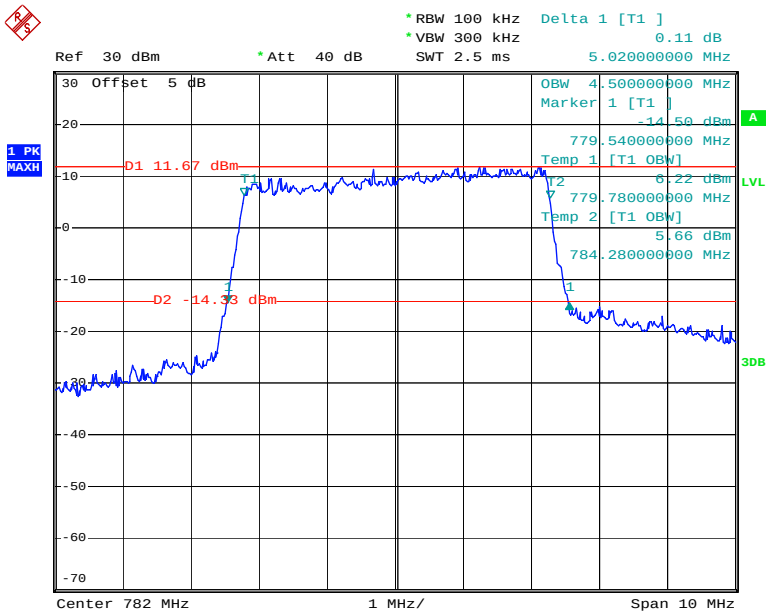
16QAM_10 MHz



Date: 15.MAY.2020 18:05:41

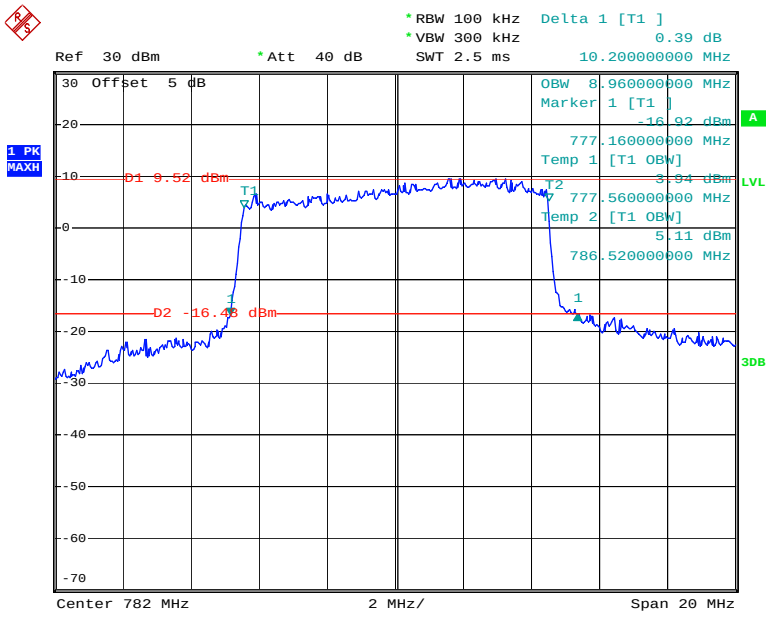
LTE Band 13:

QPSK_5 MHz



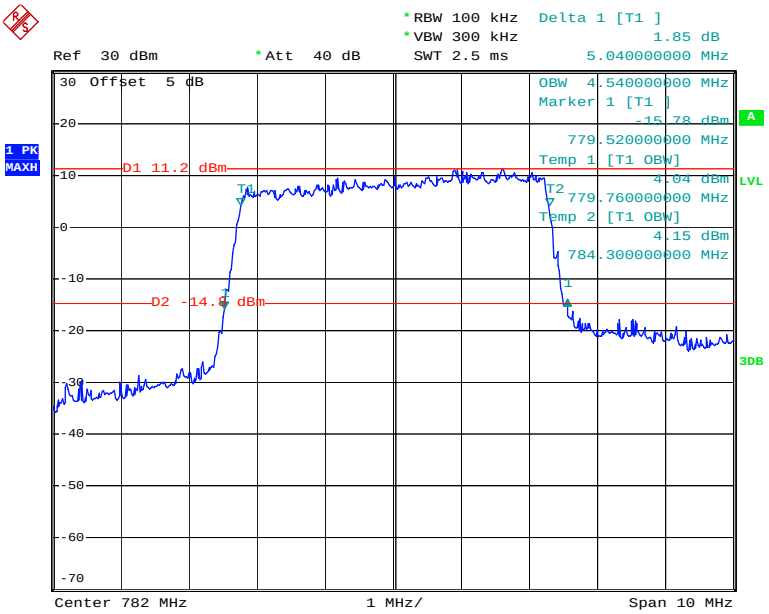
Date: 7.MAY.2020 12:56:07

QPSK_10 MHz



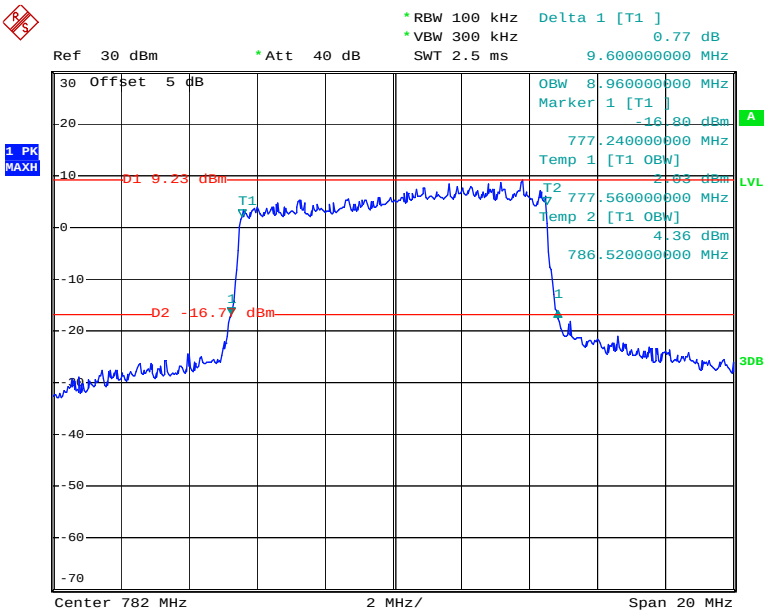
Date: 7.MAY.2020 14:04:41

16QAM_5 MHz



Date: 7.MAY.2020 12:56:30

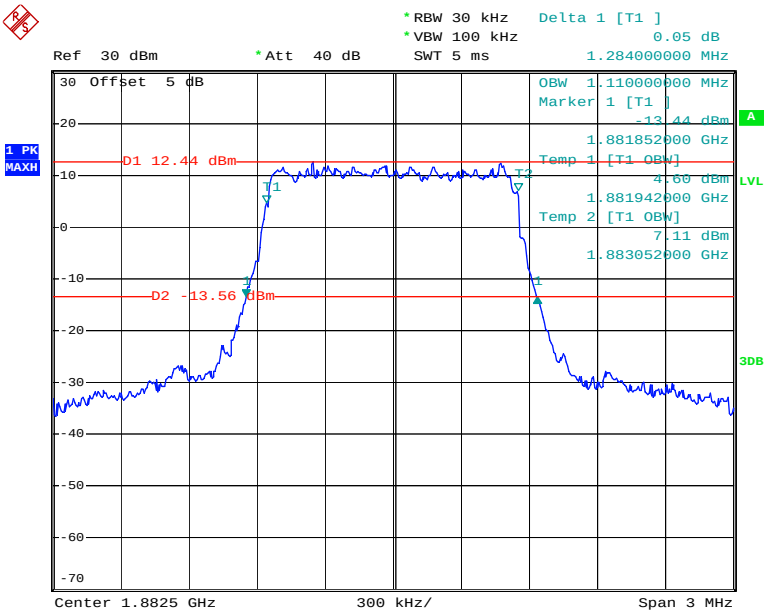
16QAM_10MHz



Date: 7.MAY.2020 14:05:03

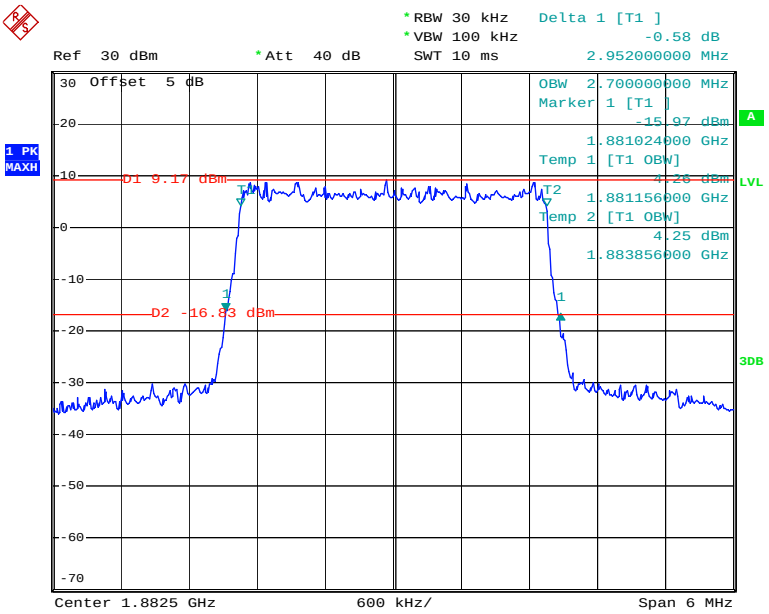
LTE Band 25:

QPSK_1.4 MHz



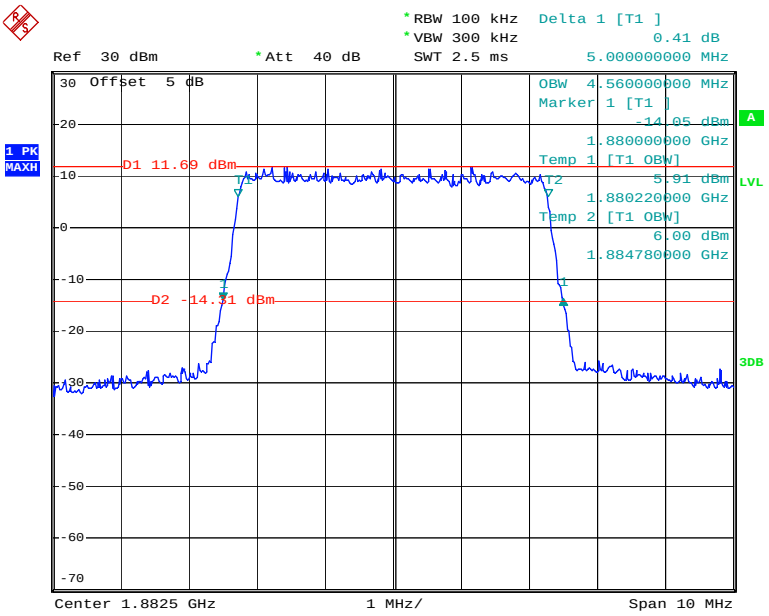
Date: 7.MAY.2020 14:05:42

QPSK_3 MHz



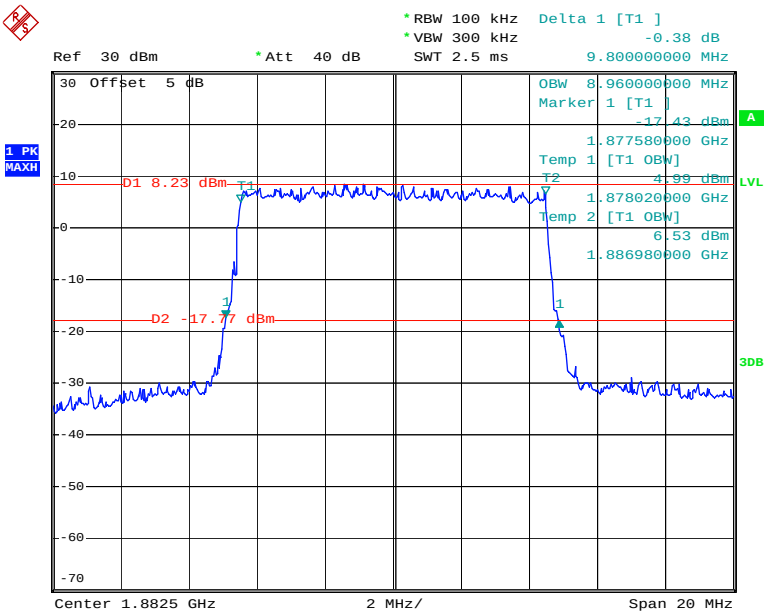
Date: 7.MAY.2020 14:06:23

QPSK_5 MHz



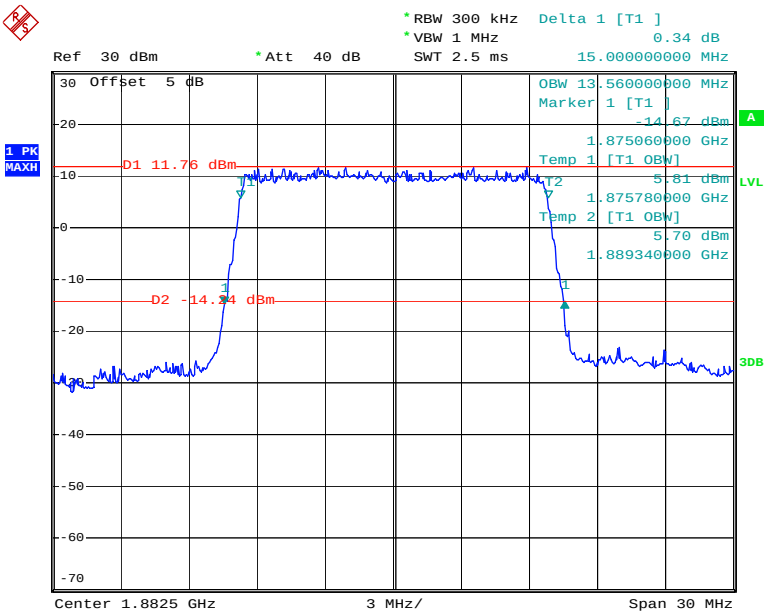
Date: 7.MAY.2020 14:07:12

QPSK_10 MHz



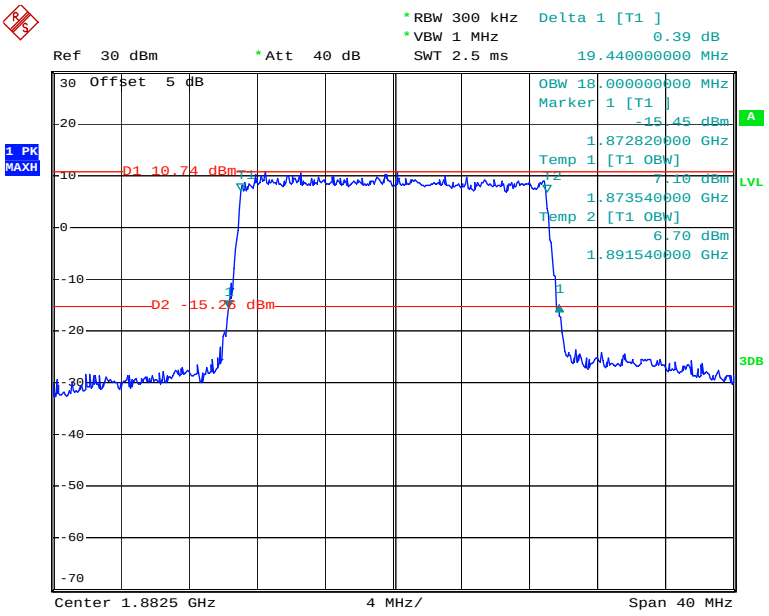
Date: 7.MAY.2020 14:07:59

QPSK_15 MHz



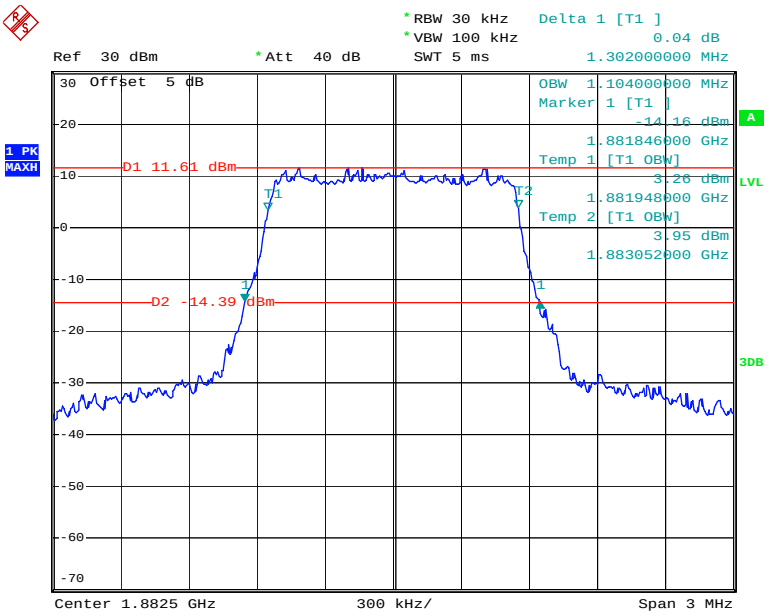
Date: 7.MAY.2020 14:08:44

QPSK_20MHz



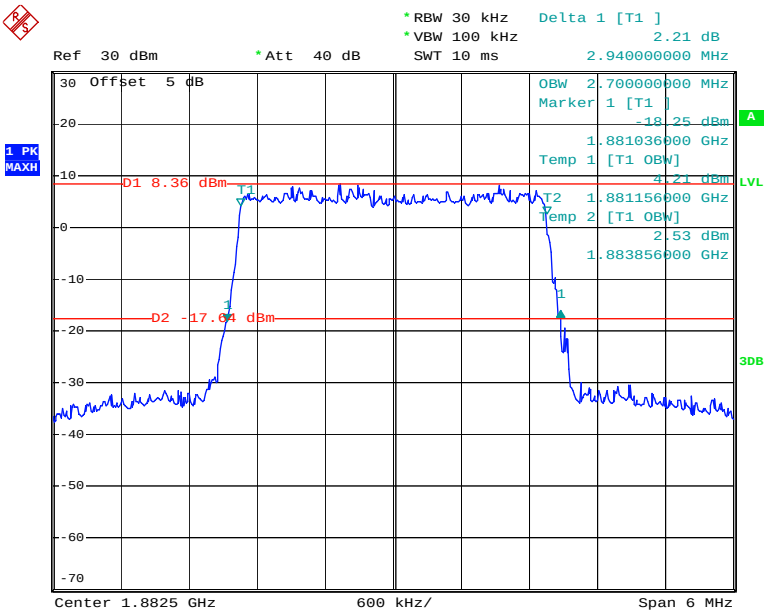
Date: 7.MAY.2020 14:09:35

16QAM_1.4 MHz



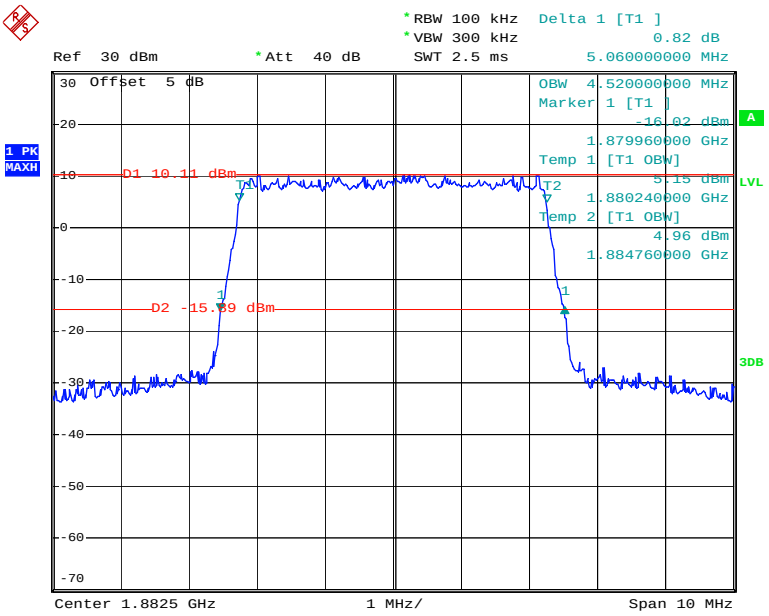
Date: 7.MAY.2020 14:06:03

16QAM_3 MHz



Date: 7.MAY.2020 14:06:44

16QAM_5 MHz



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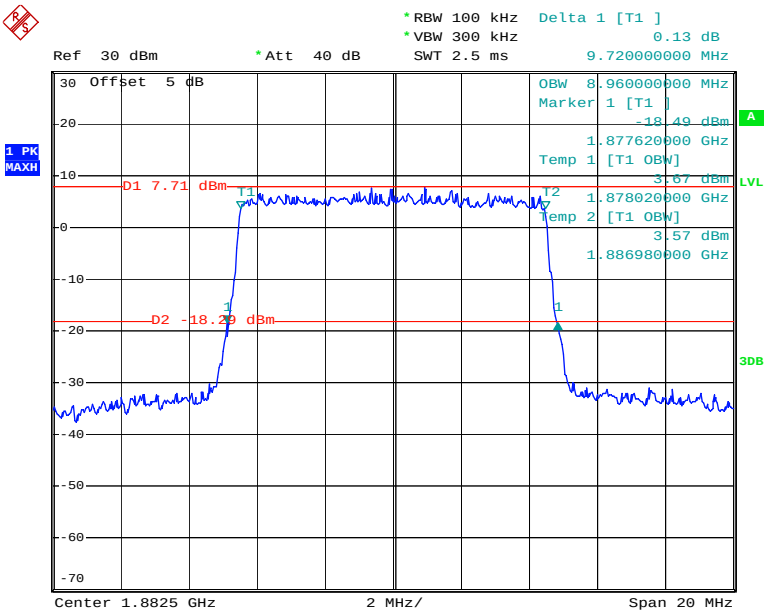
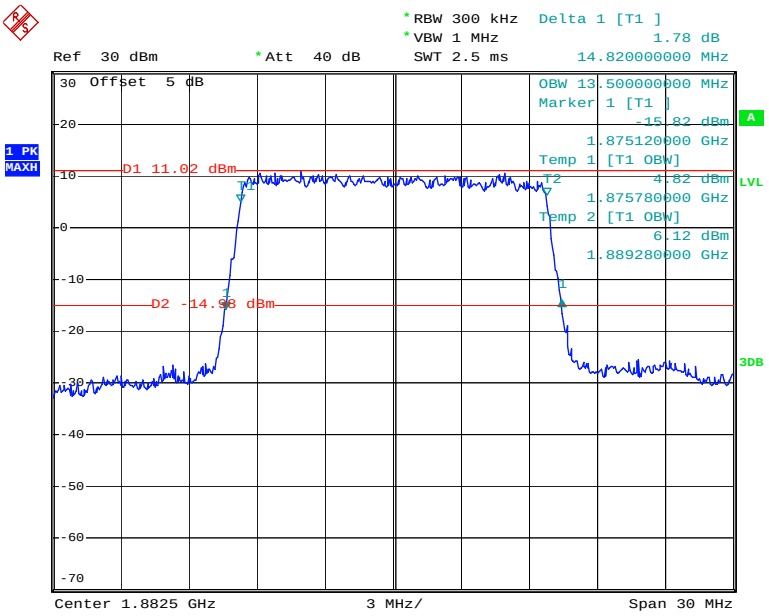
16QAM_10 MHz



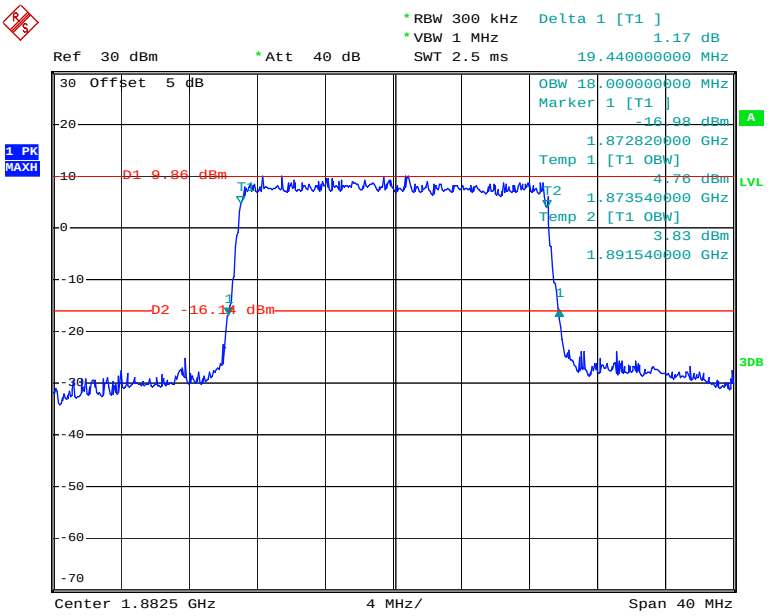
Date: 7.MAY.2020 14:08:19

16QAM_15 MHz



Date: 7.MAY.2020 14:09:09

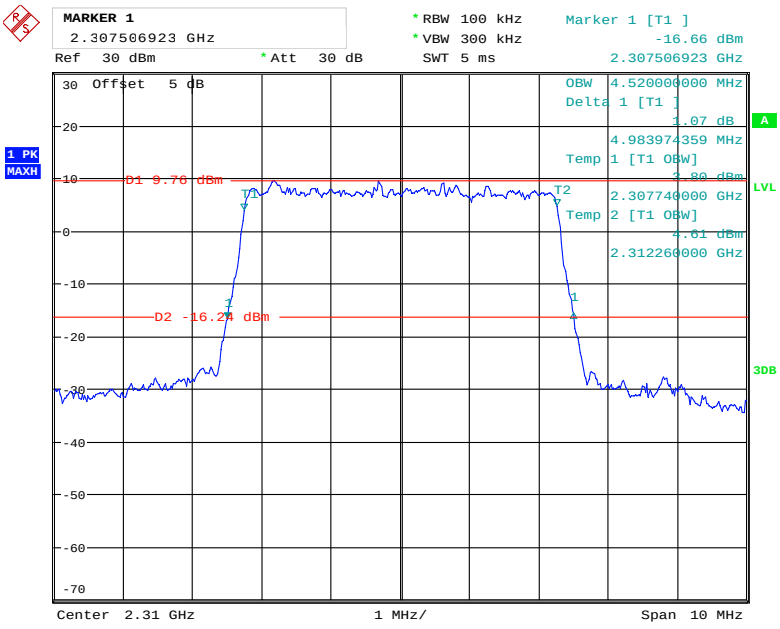
16QAM_20 MHz



Date: 7.MAY.2020 14:09:57

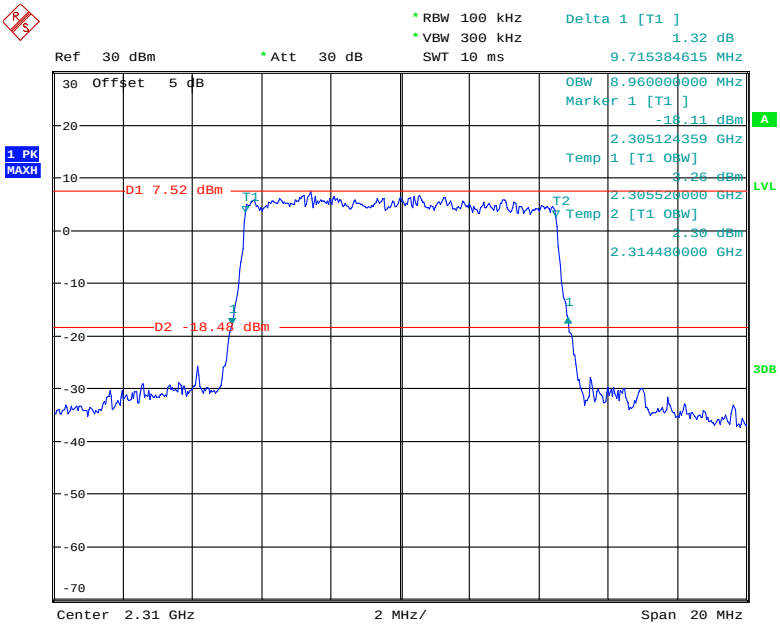
LTE Band 40
Lower:

QPSK_5 MHz



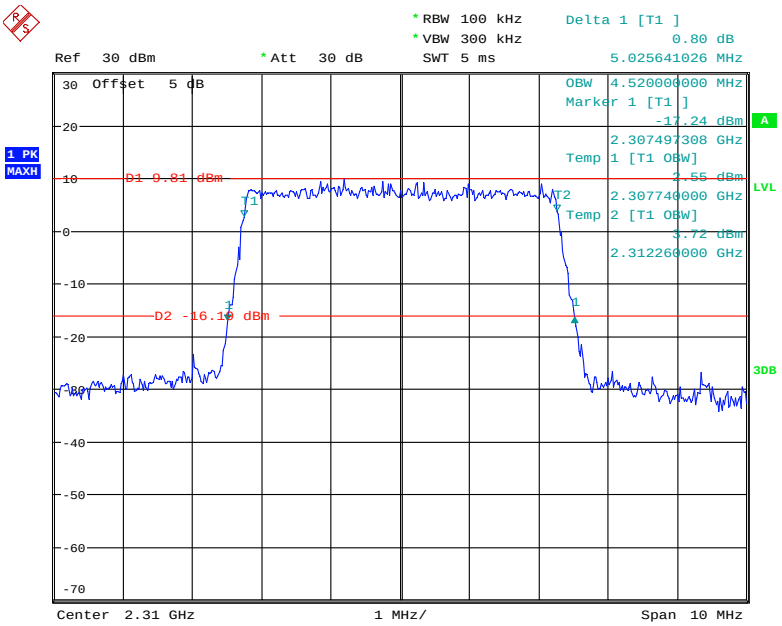
Date: 15.MAY.2020 14:23:14

QPSK_10 MHz



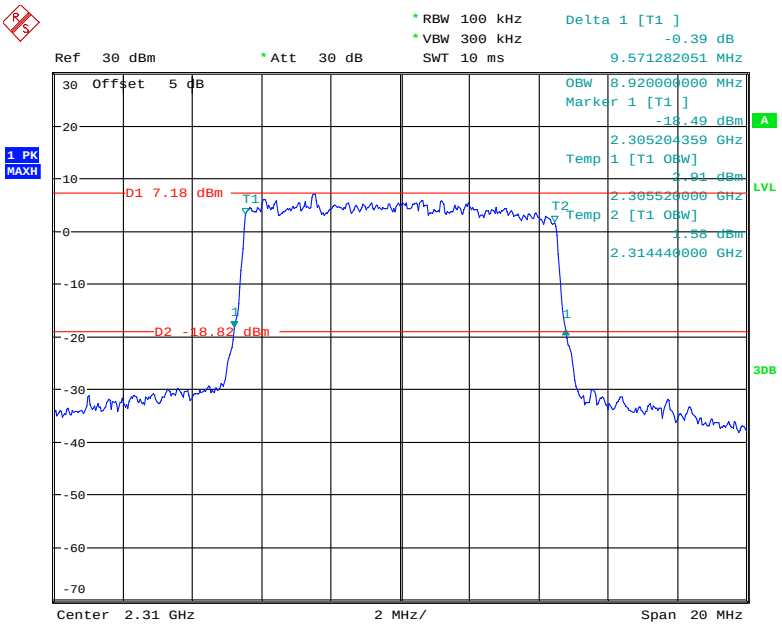
Date: 15.MAY.2020 14:38:16

16QAM_5 MHz



Date: 15.MAY.2020 14:24:36

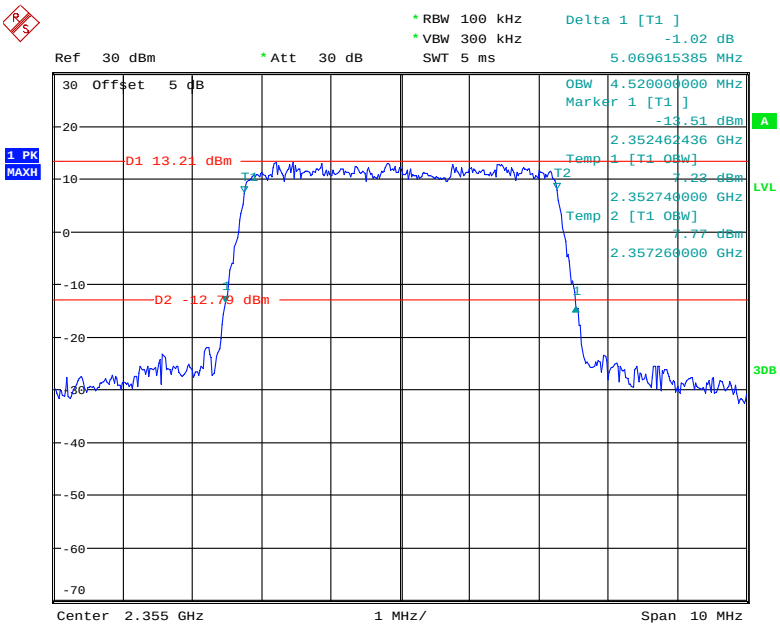
16QAM_10 MHz



Date: 15.MAY.2020 14:36:32

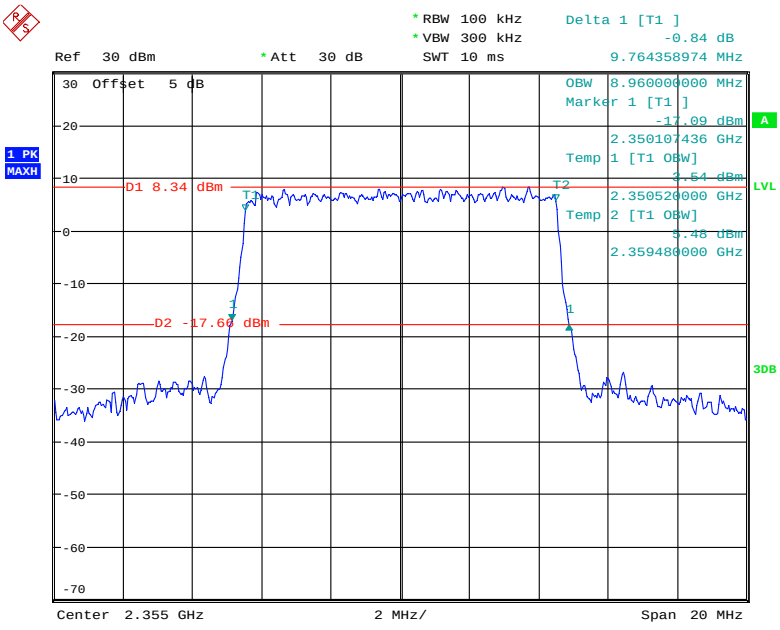
Upper:

QPSK_5 MHz



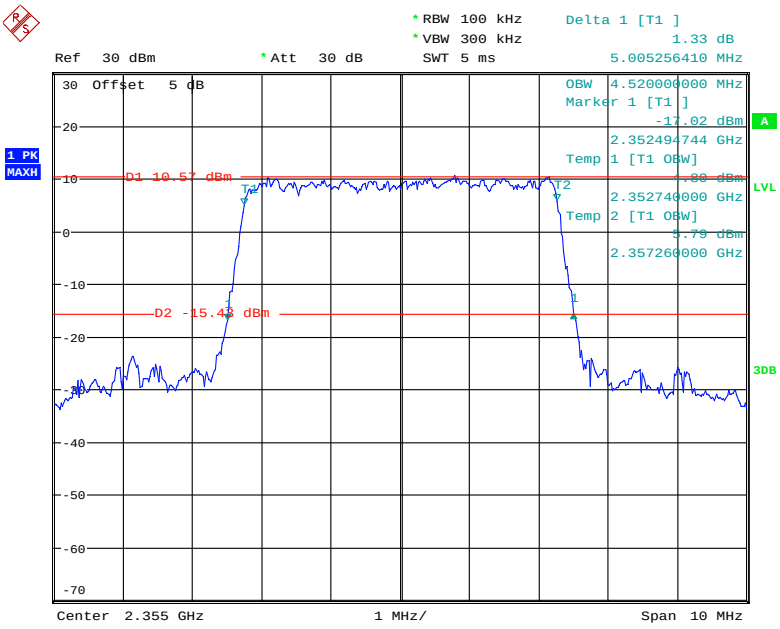
Date: 15.MAY.2020 14:28:18

QPSK_10 MHz



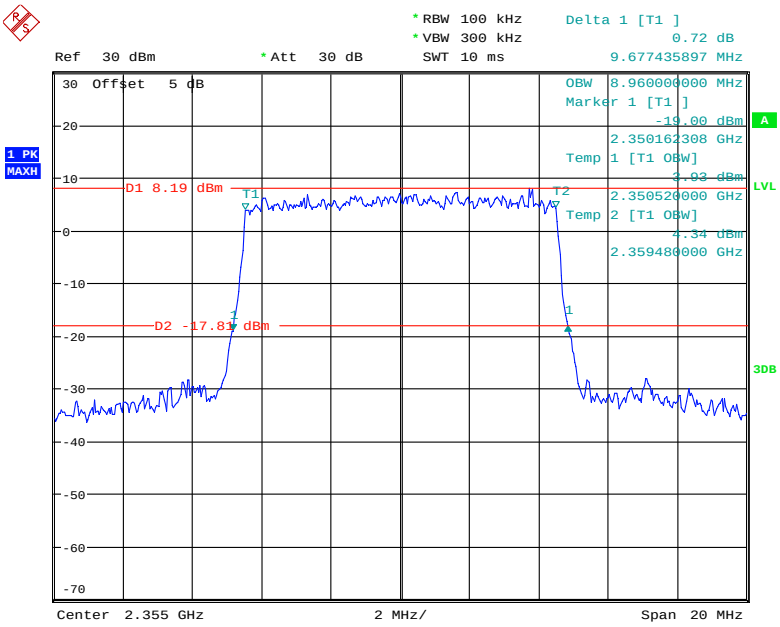
Date: 15.MAY.2020 14:32:51

16QAM_5 MHz



Date: 15.MAY.2020 14:26:02

16QAM_10 MHz



Date: 15.MAY.2020 14:34:00

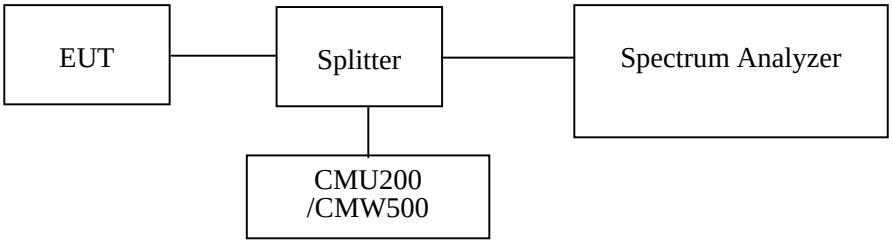
FCC §2.1051, §22.917(a) & §24.238(a) & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 ,§ 27.53.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-01-04	2021-01-04
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each Time	/

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

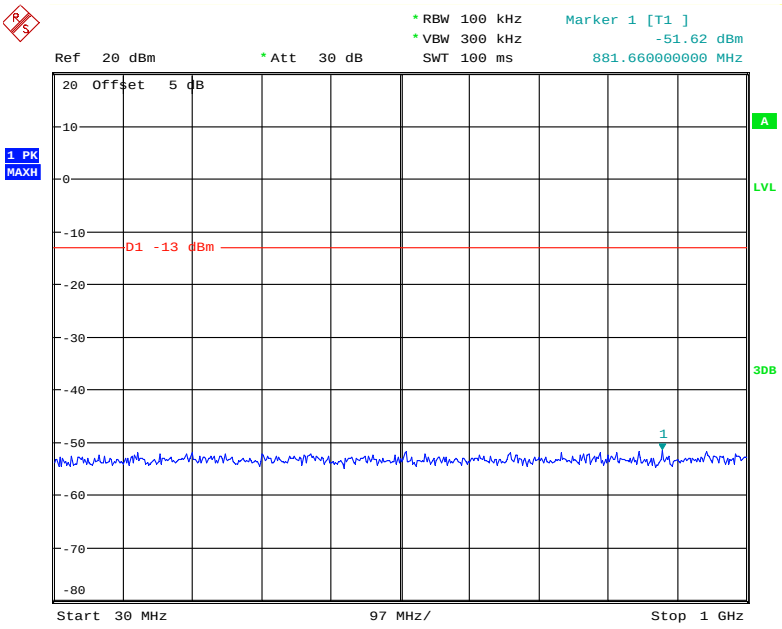
Environmental Conditions

Temperature:	26~27.5°C
Relative Humidity:	52~72 %
ATM Pressure:	100.2~100.9 kPa
Tester:	Chris Mo
Test Date:	2020-05-08~2020-05-19

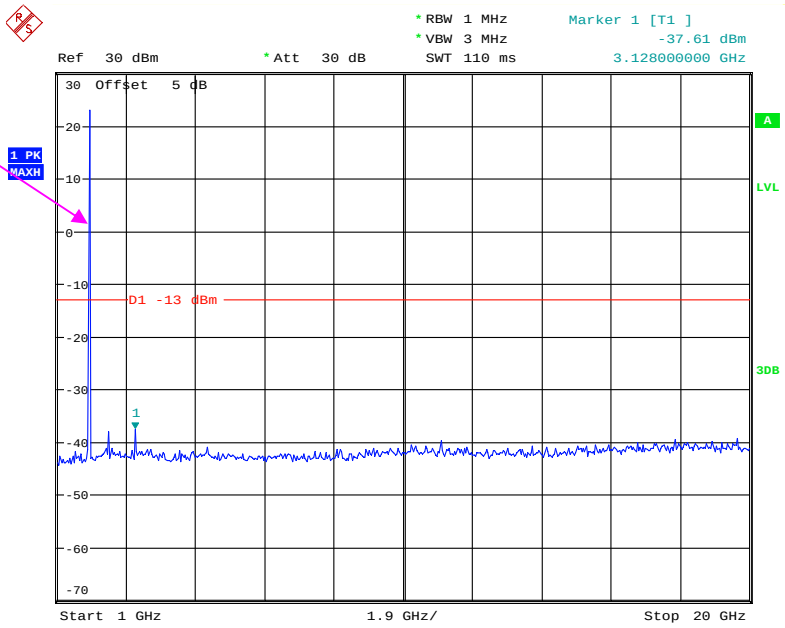
Please refer to the following plots.

LTE Band 2 (Middle Channel)

QPSK_1.4 MHz



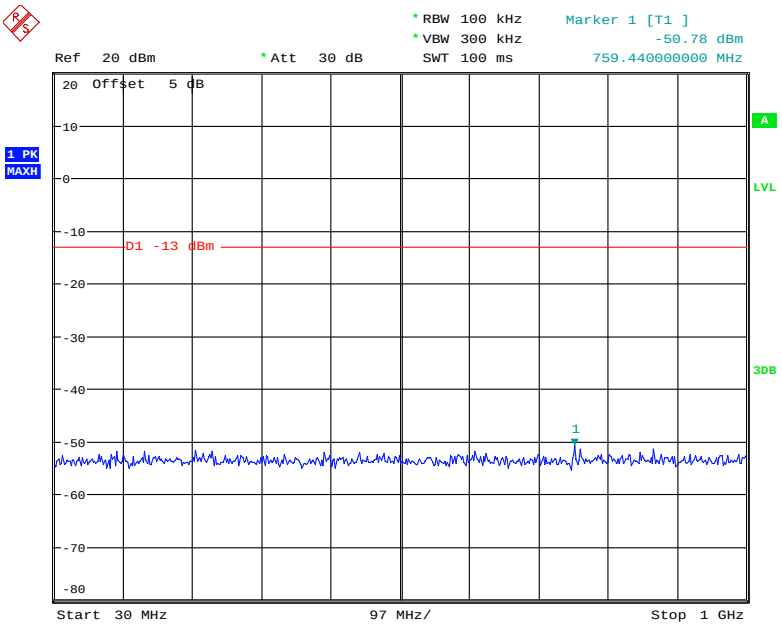
Date: 8.MAY.2020 10:14:08



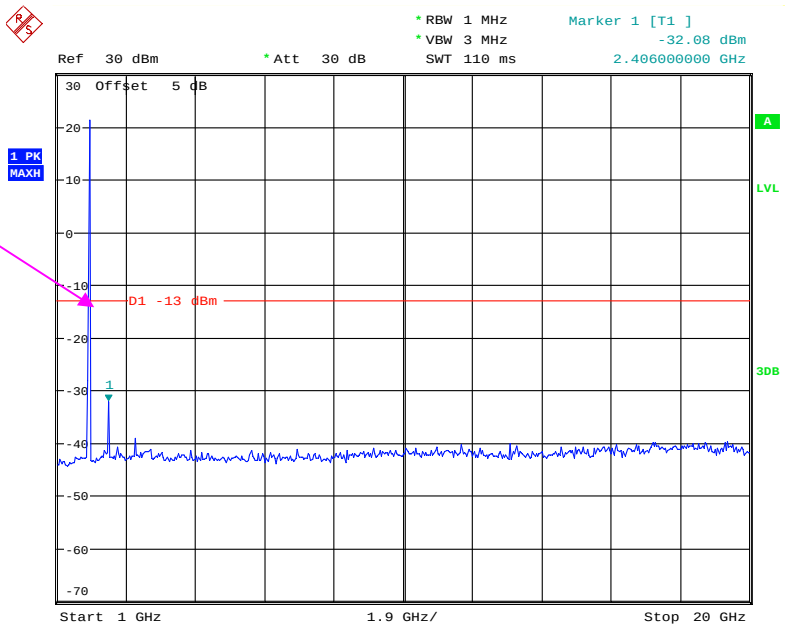
Fundamental

Date: 8.MAY.2020 10:14:20

QPSK_3 MHz



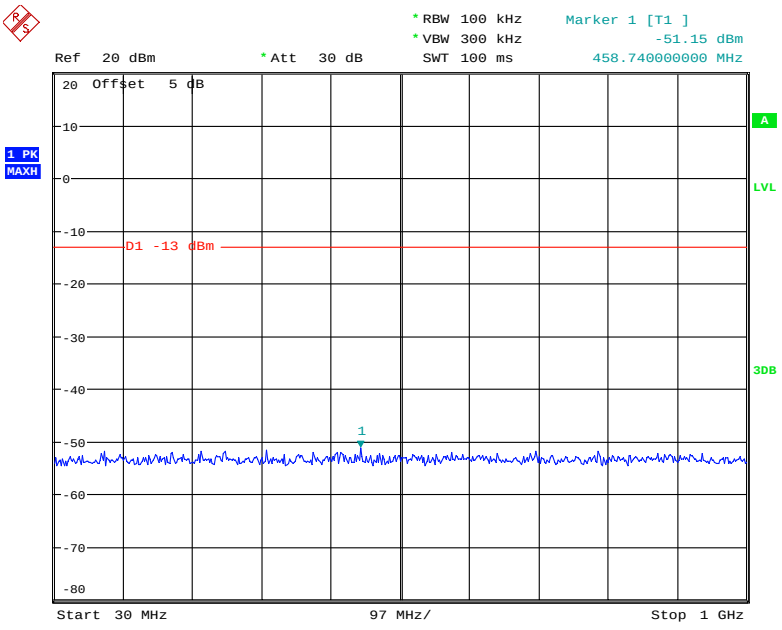
Date: 8.MAY.2020 10:14:39



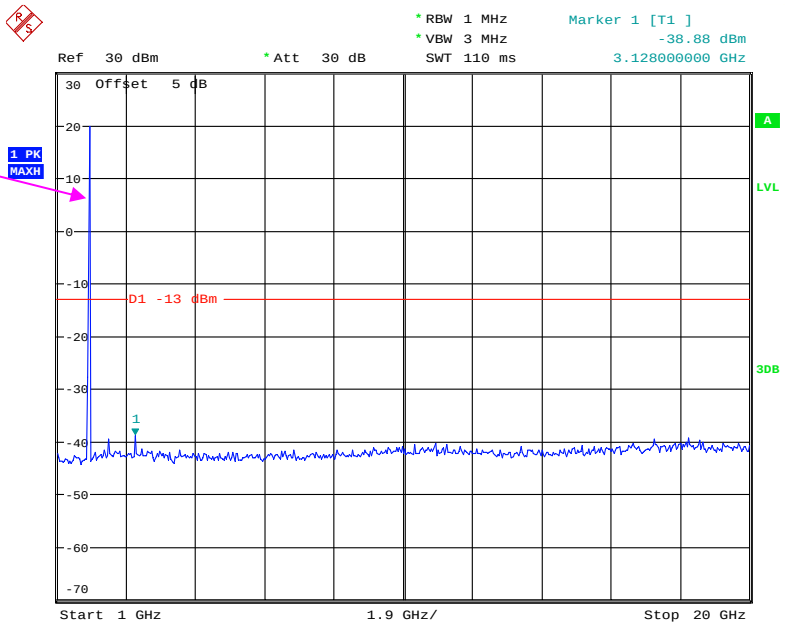
Fundamental

Date: 8.MAY.2020 10:14:51

QPSK_5 MHz



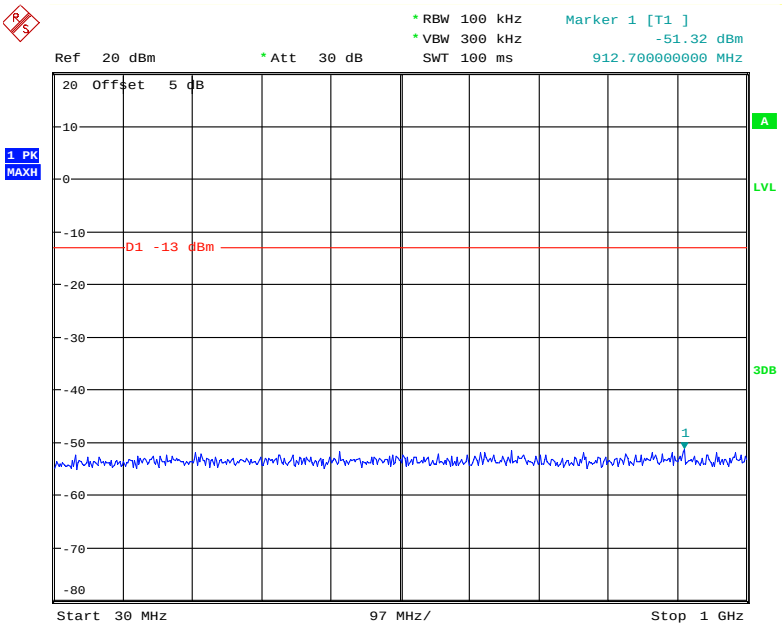
Date: 8.MAY.2020 10:15:13



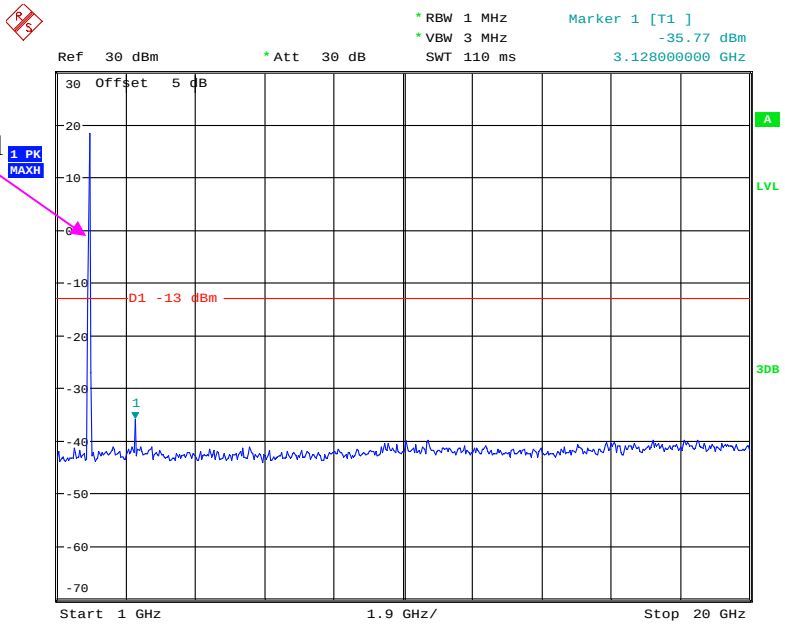
Fundamental

Date: 8.MAY.2020 10:15:25

QPSK_10 MHz

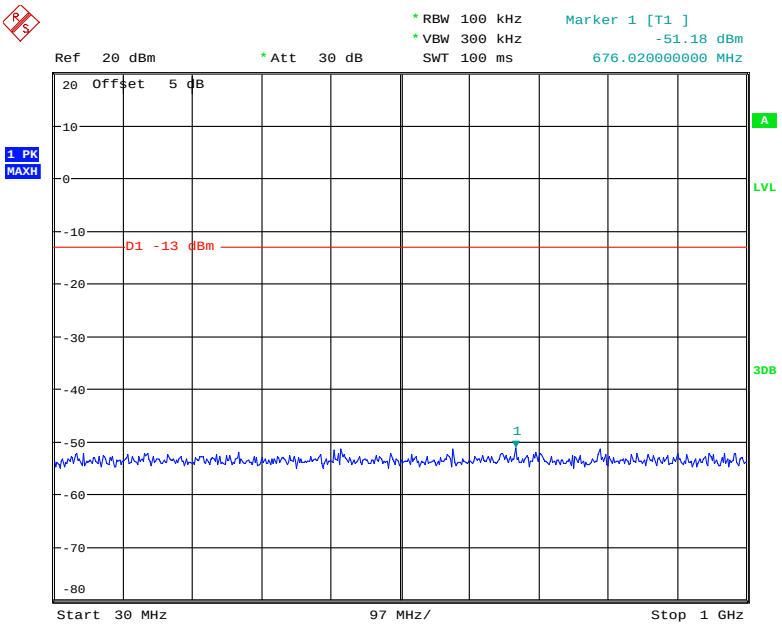


Date: 8.MAY.2020 10:15:45

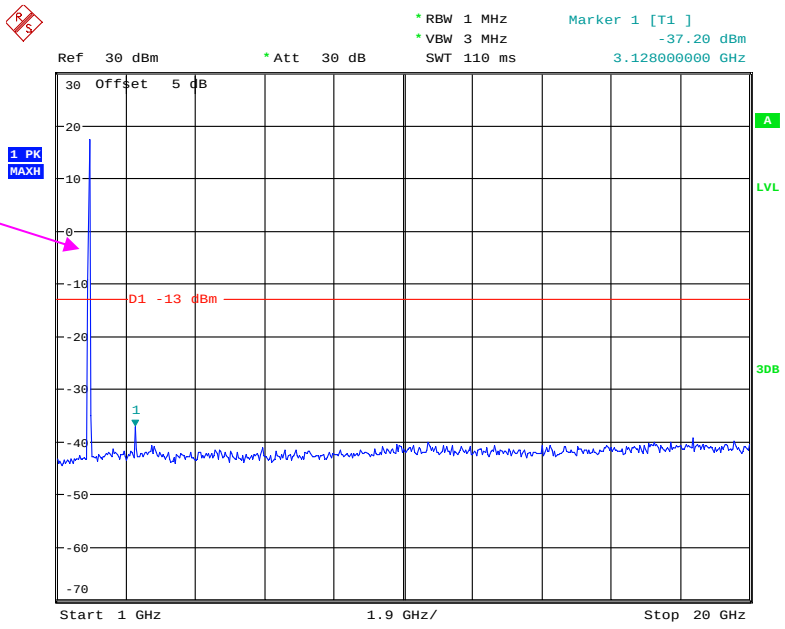


Date: 8.MAY.2020 10:15:57

QPSK_15 MHz



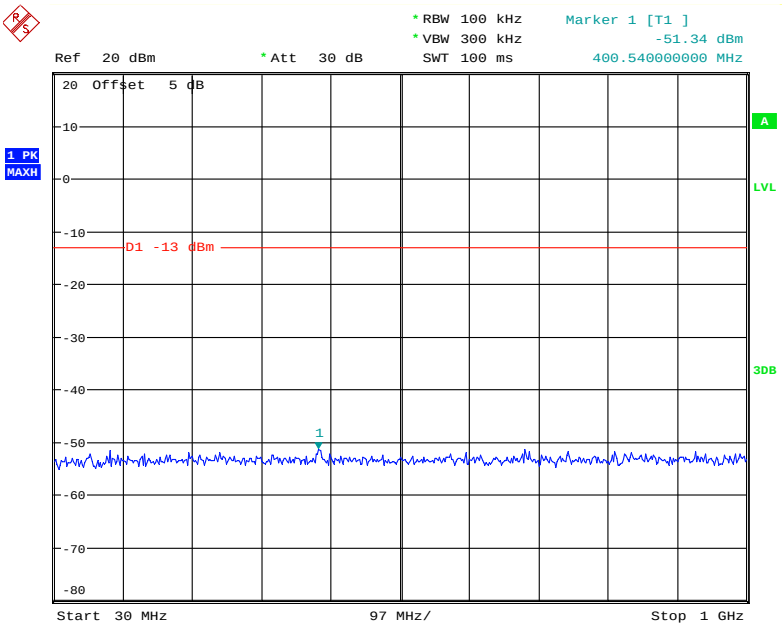
Date: 8.MAY.2020 10:16:19



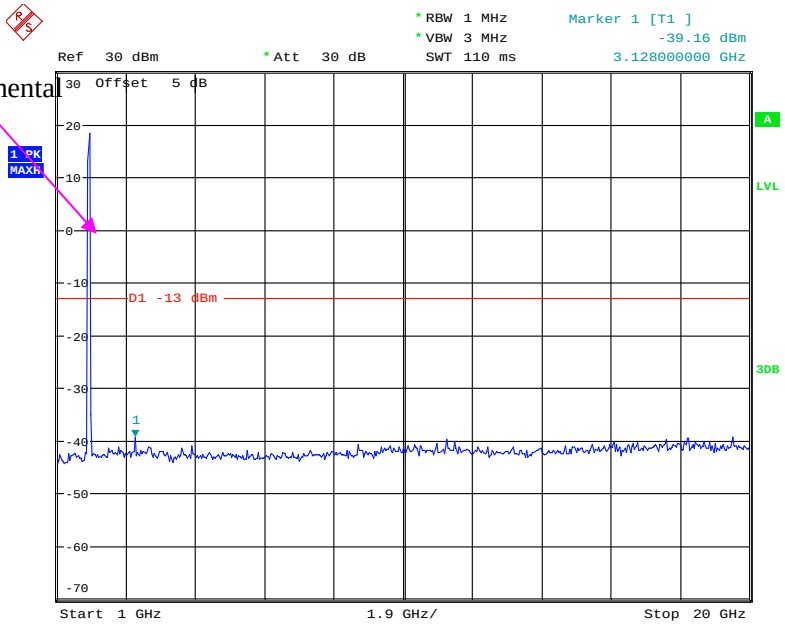
Fundamental

Date: 8.MAY.2020 10:16:31

QPSK_20 MHz



Date: 8.MAY.2020 10:16:56

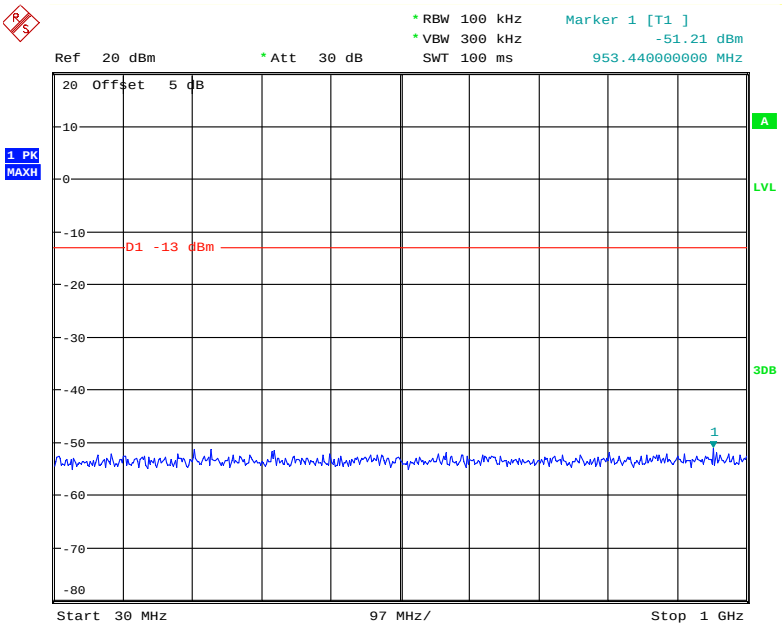


Fundamental

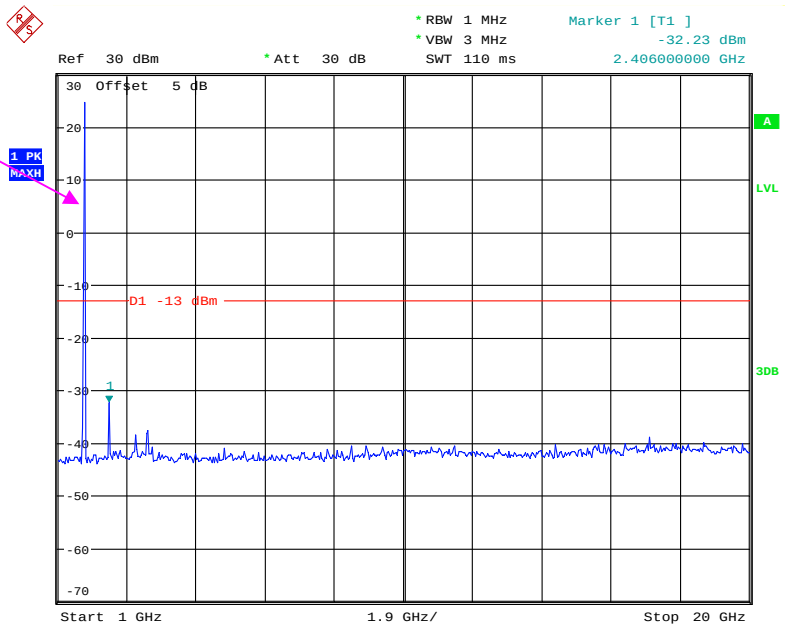
Date: 8.MAY.2020 10:17:08

LTE Band 4 (Middle Channel)

QPSK_1.4 MHz



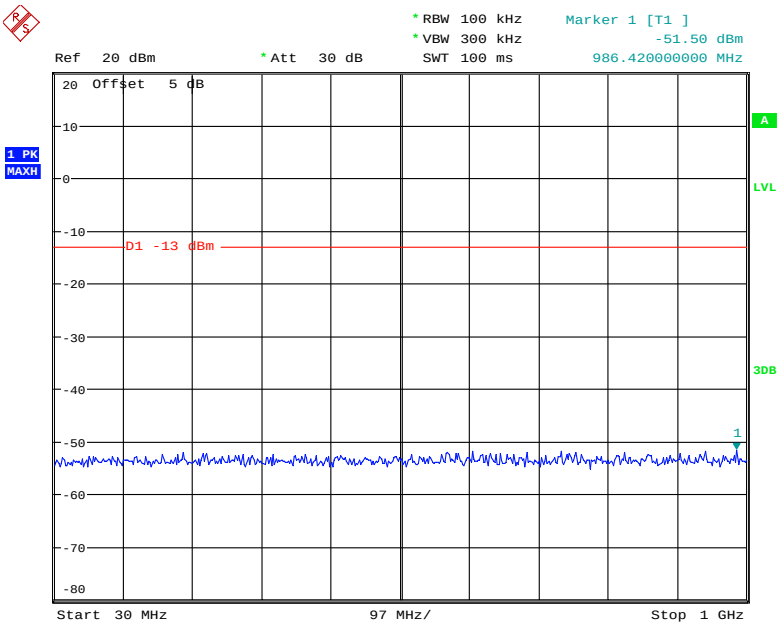
Date: 8.MAY.2020 10:17:33



Fundamental

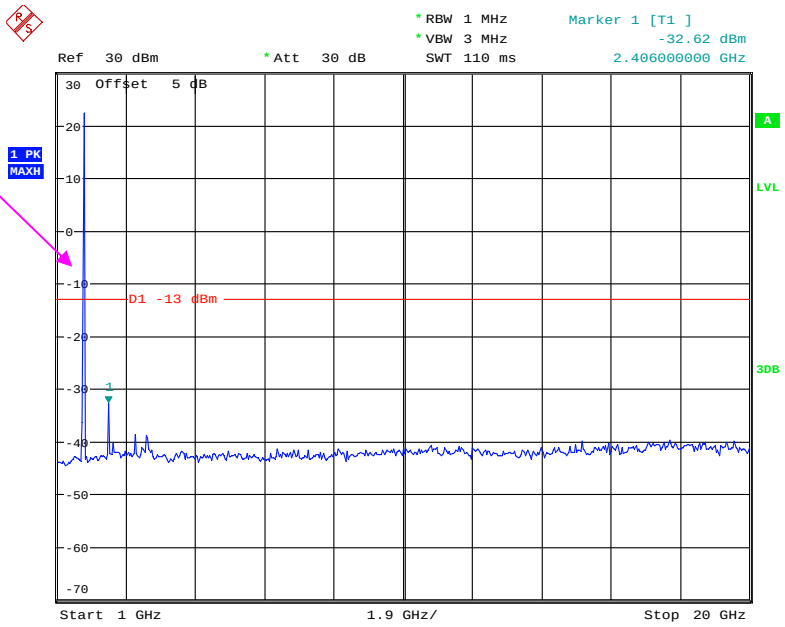
Date: 8.MAY.2020 10:17:45

QPSK_3 MHz



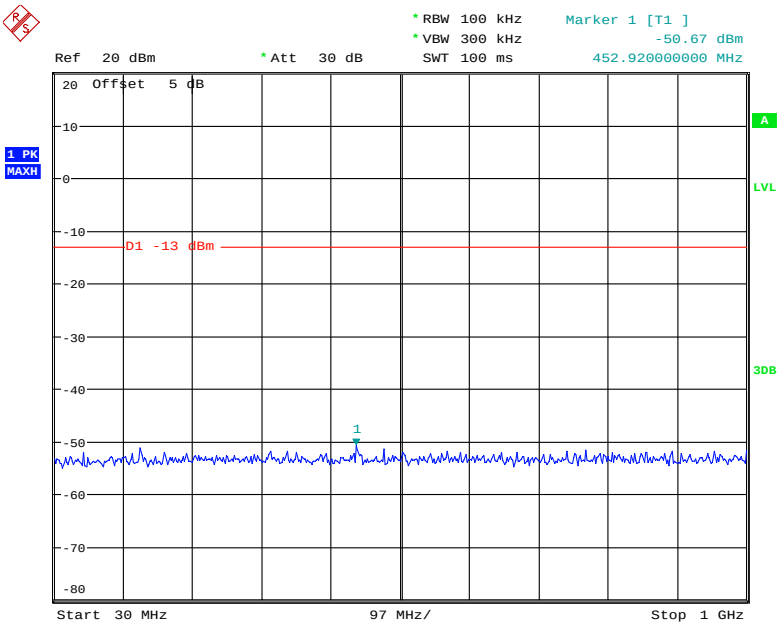
Date: 8.MAY.2020 10:18:03

Fundamental

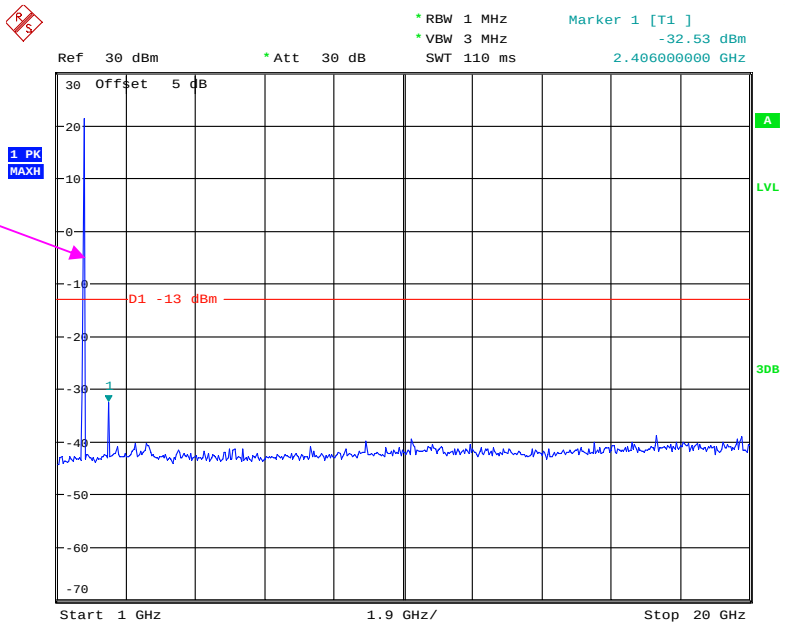


Date: 8.MAY.2020 10:18:15

QPSK_5 MHz



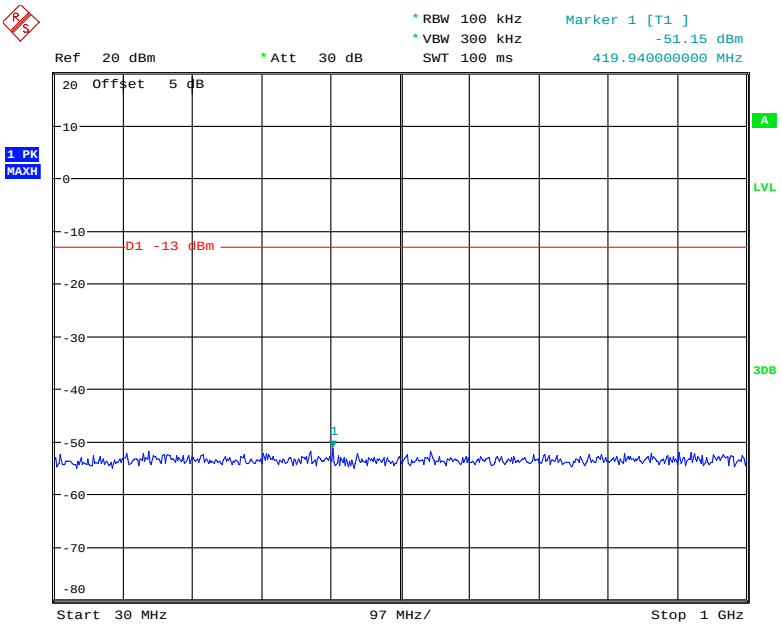
Date: 8.MAY.2020 10:18:37



Fundamental

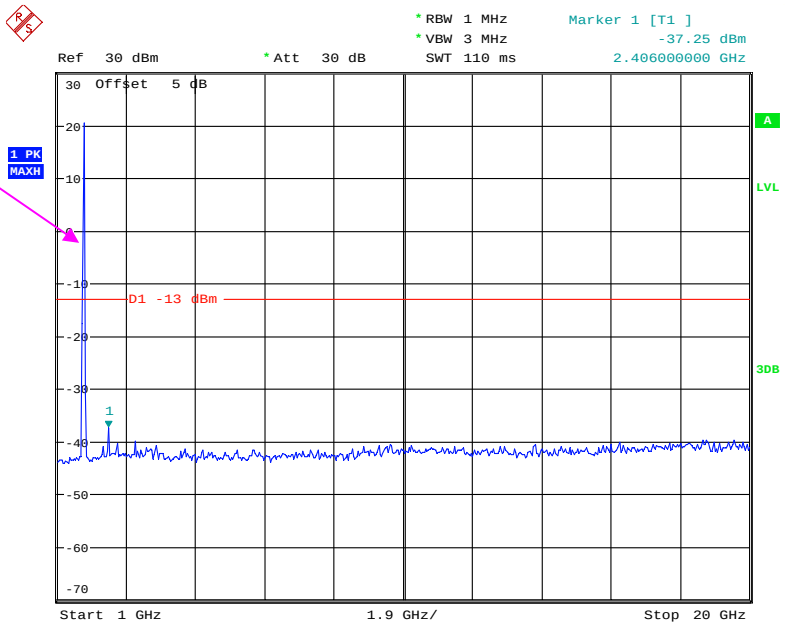
Date: 8.MAY.2020 10:18:49

QPSK_10 MHz



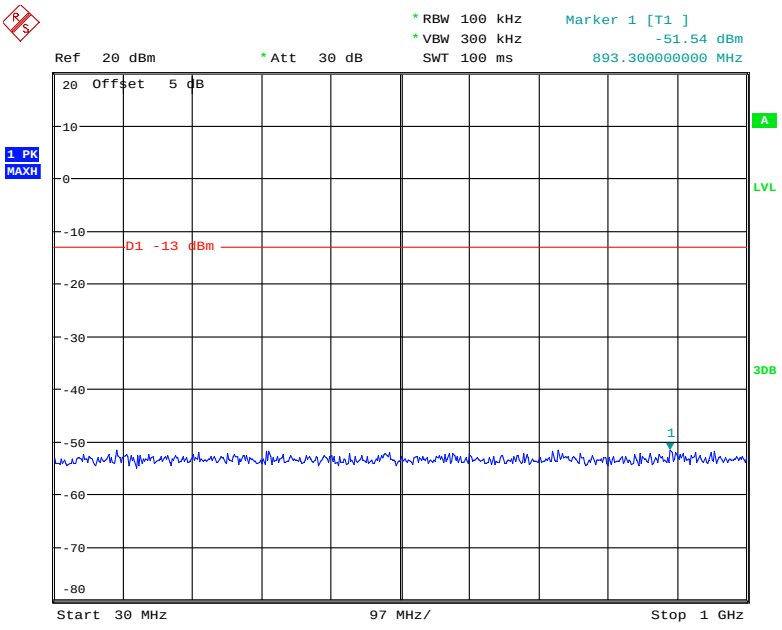
Date: 8.MAY.2020 10:19:09

Fundamental

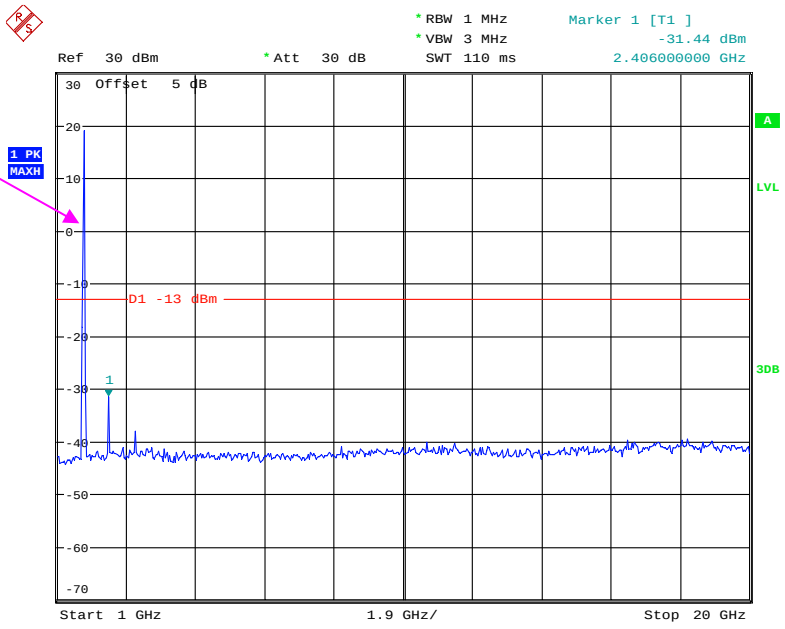


Date: 8.MAY.2020 10:19:21

QPSK_15 MHz



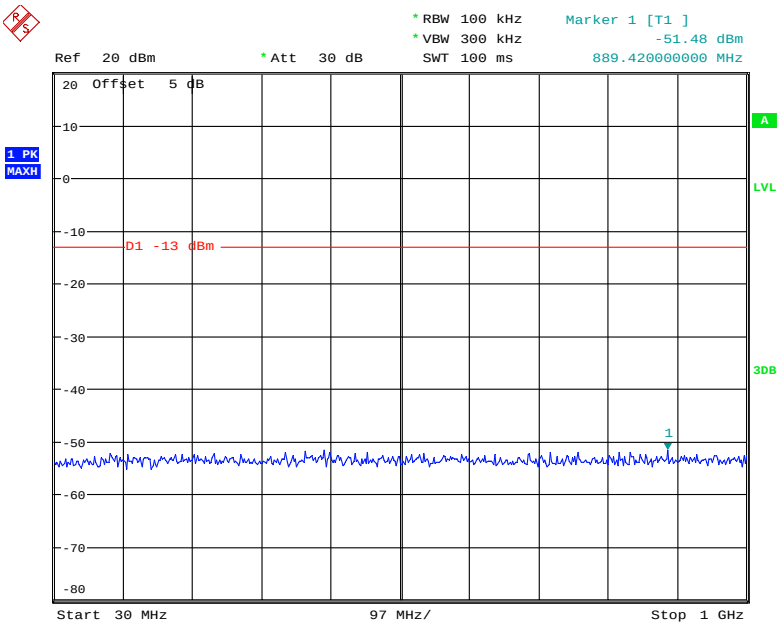
Date: 8.MAY.2020 10:19:47



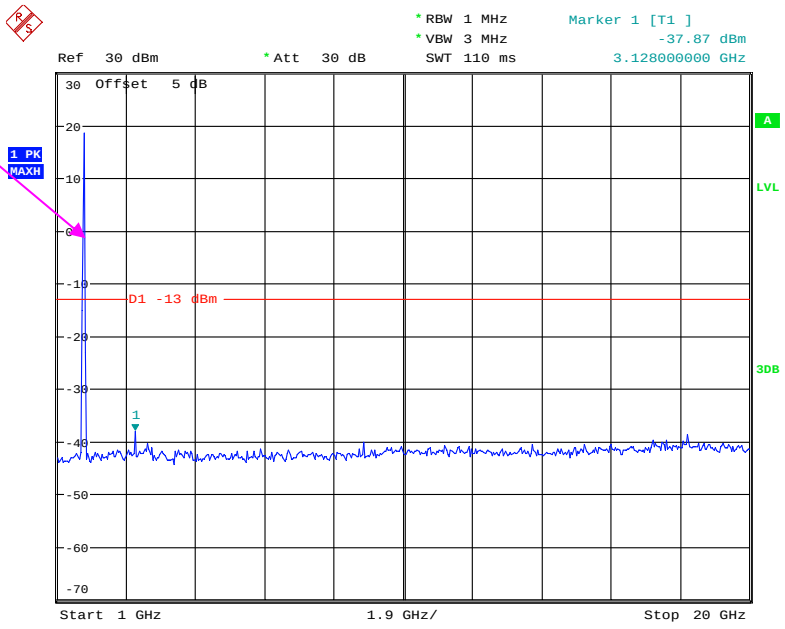
Fundamental

Date: 8.MAY.2020 10:19:58

QPSK_20 MHz



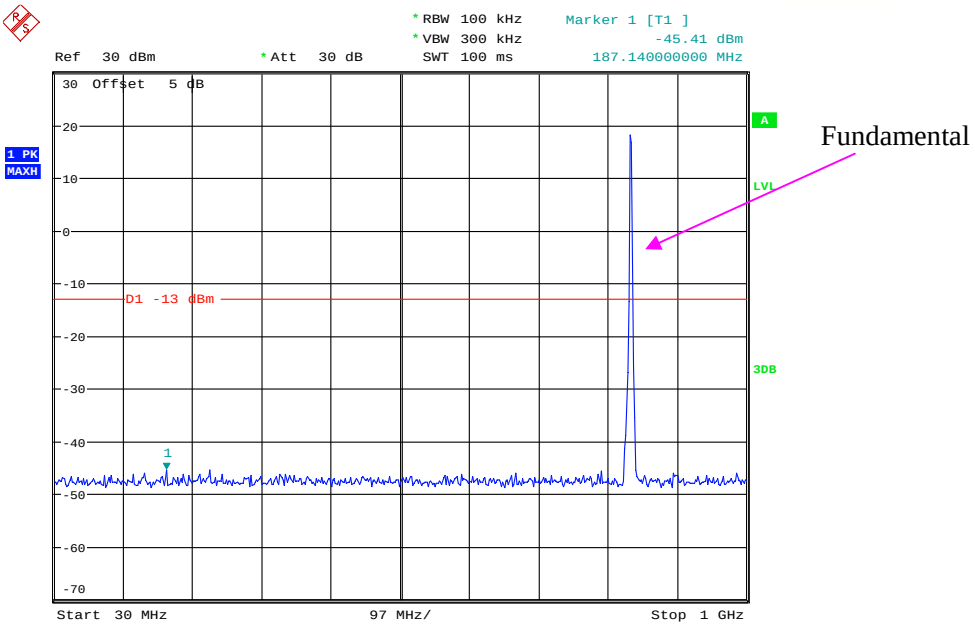
Date: 8.MAY.2020 10:20:21



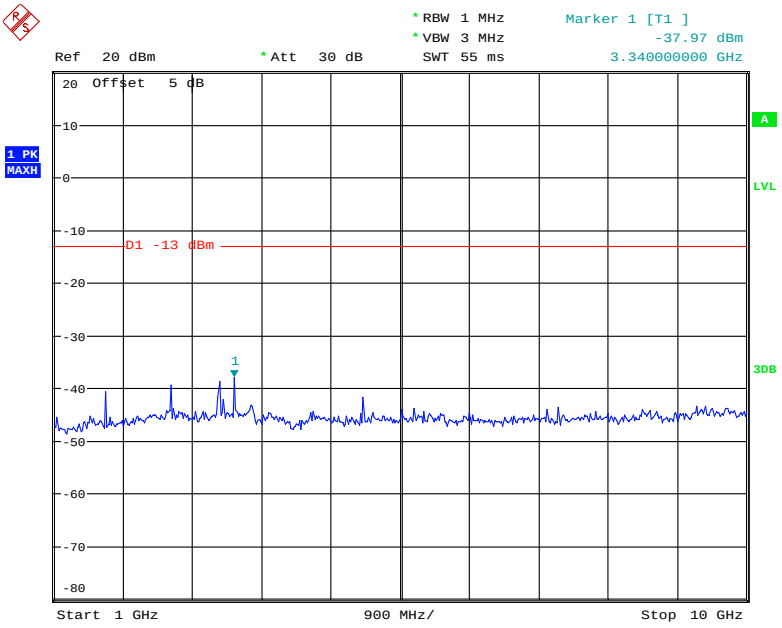
Date: 8.MAY.2020 10:20:33

LTE Band 5 (Middle Channel)

QPSK_1.4 MHz

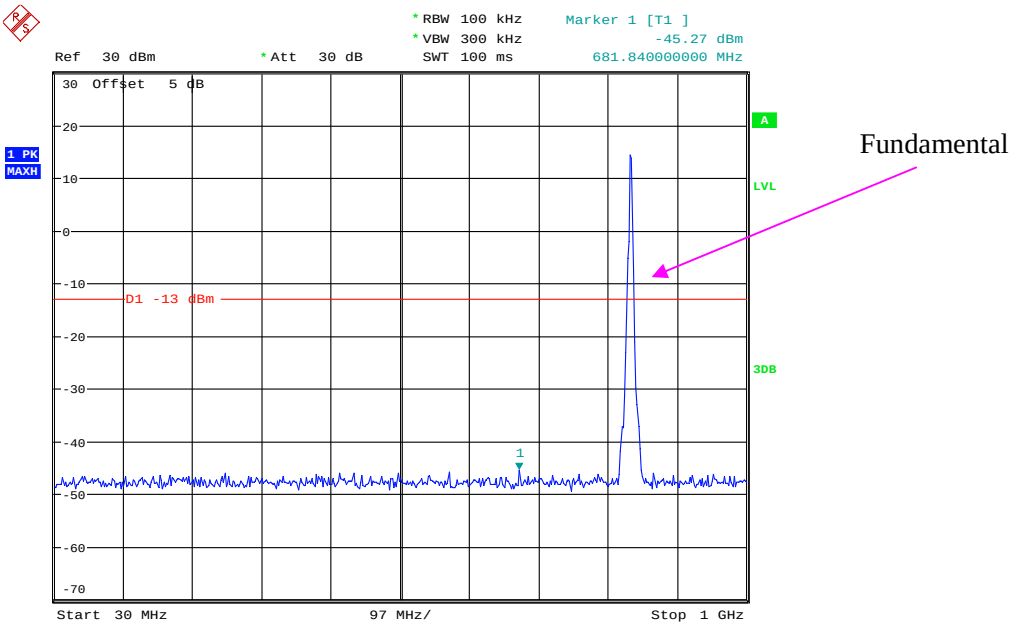


Date: 8.MAY.2020 10:21:03

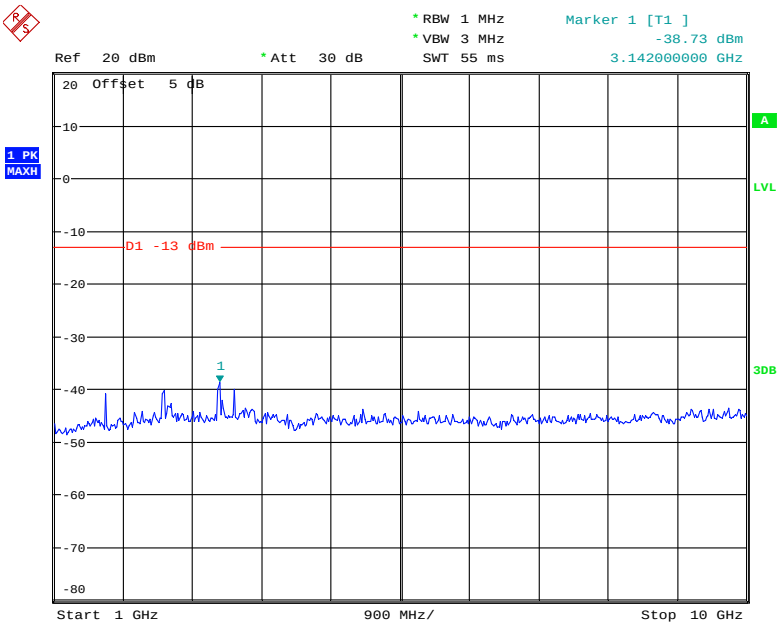


Date: 8.MAY.2020 10:21:14

QPSK_3 MHz

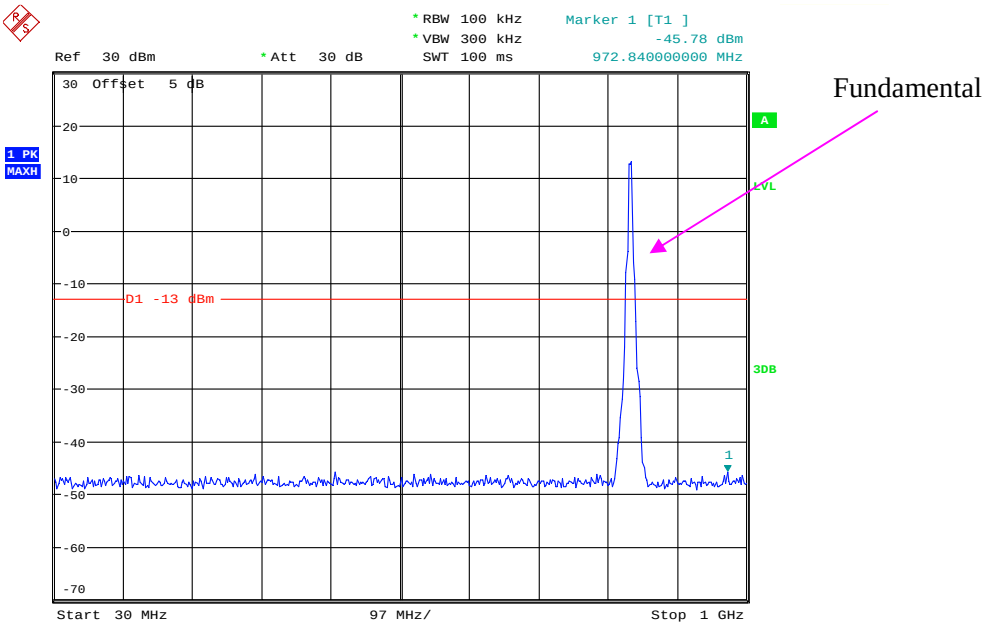


Date: 8.MAY.2020 10:21:33

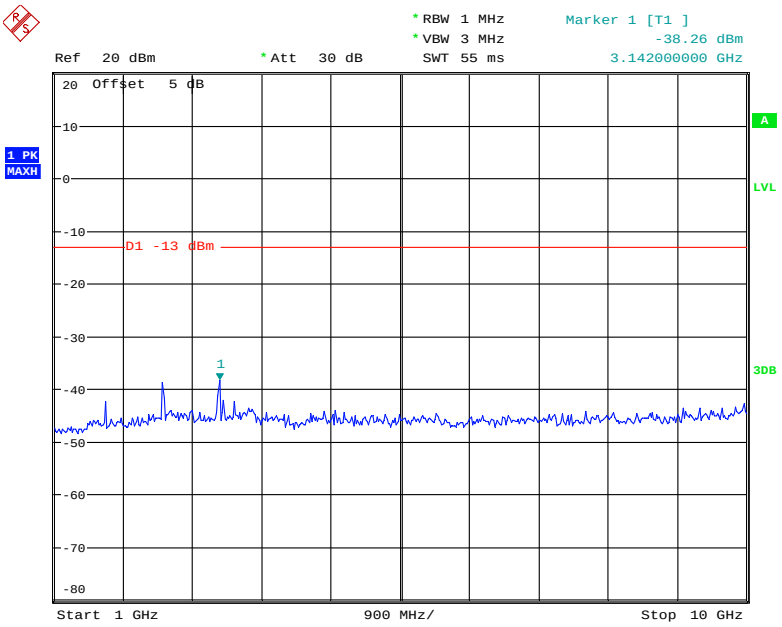


Date: 8.MAY.2020 10:21:45

QPSK_5 MHz

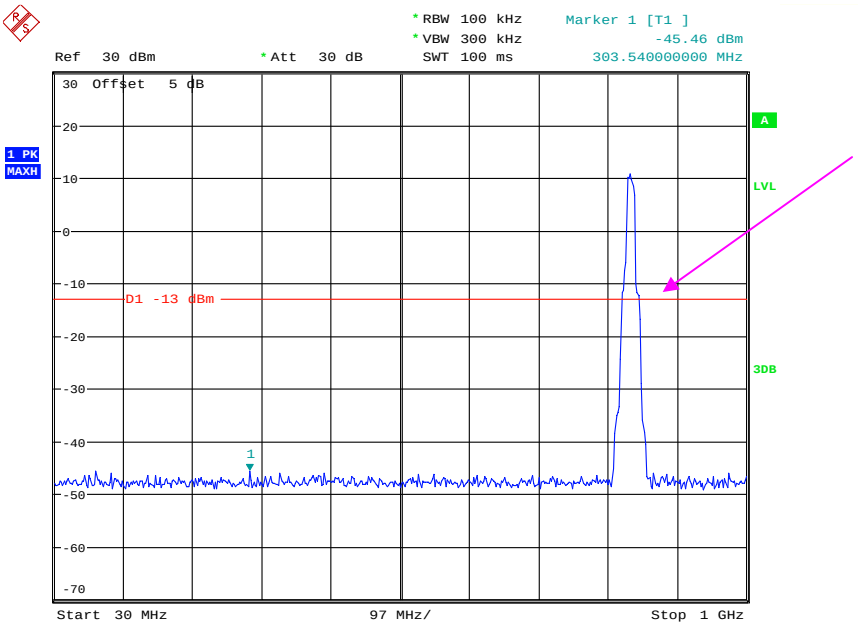


Date: 8.MAY.2020 10:22:04



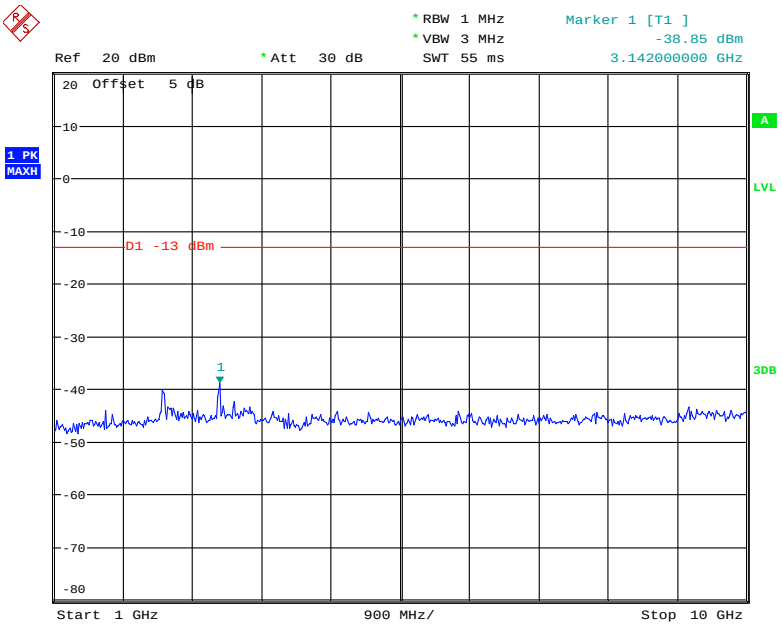
Date: 8.MAY.2020 10:22:16

QPSK_10 MHz



Fundamental

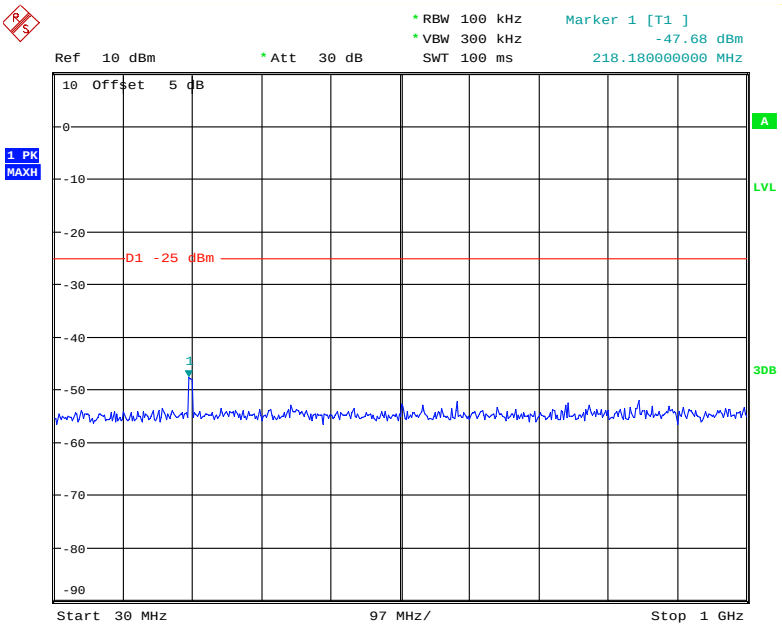
Date: 8.MAY.2020 10:22:36



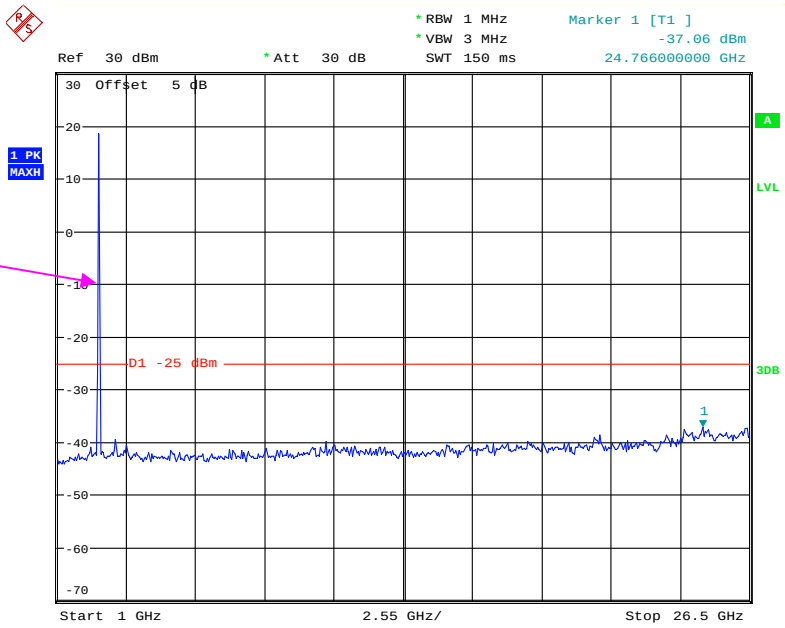
Date: 8.MAY.2020 10:22:48

LTE Band 7 (Middle Channel)

QPSK_5 MHz



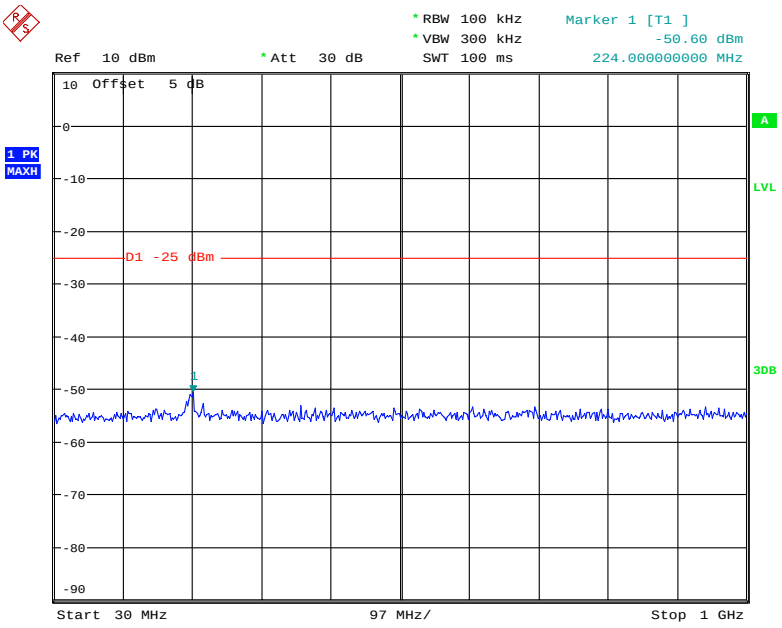
Date: 15.MAY.2020 11:00:21



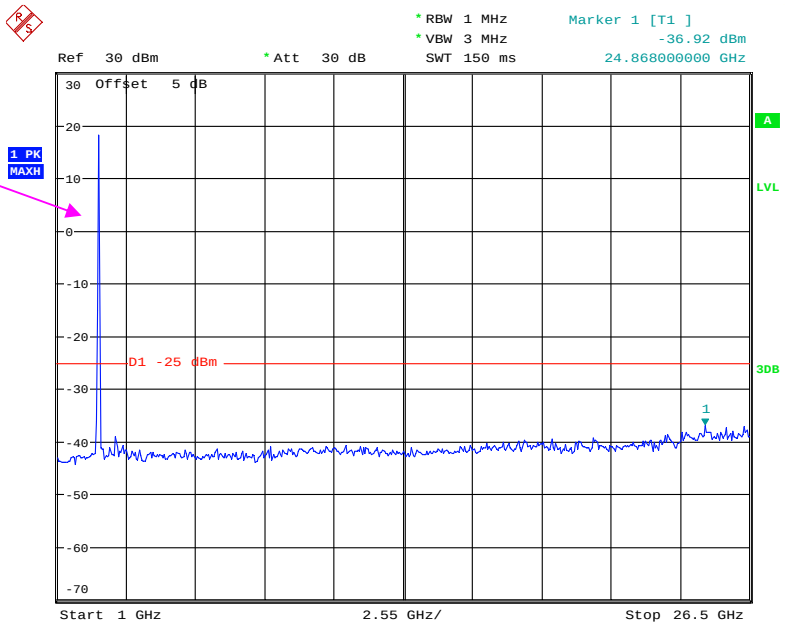
Fundamental

Date: 15.MAY.2020 11:00:33

QPSK_10 MHz



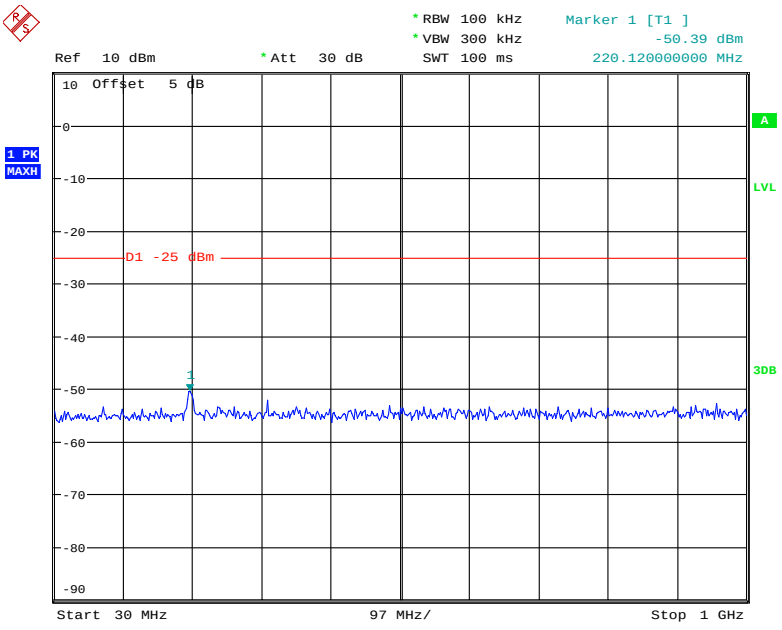
Date: 15.MAY.2020 11:01:18



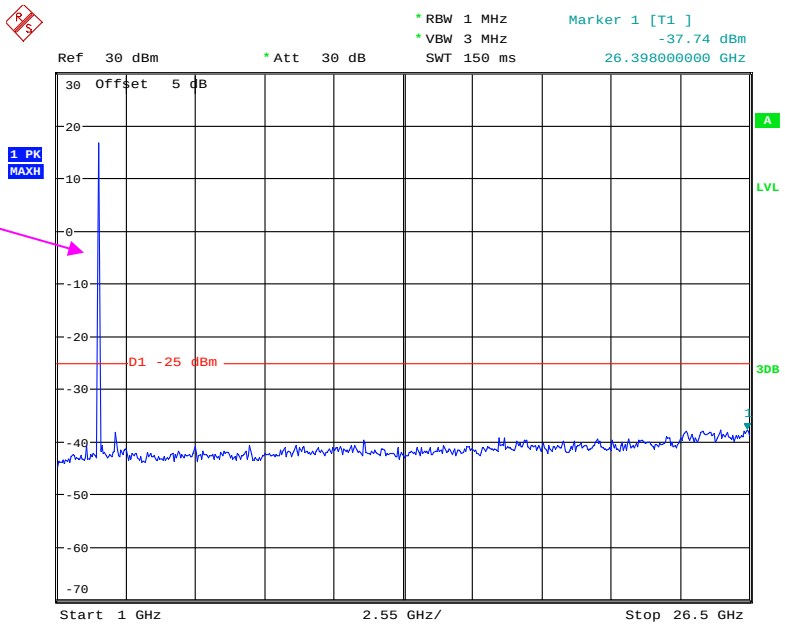
Fundamental

Date: 15.MAY.2020 11:01:30

QPSK_15 MHz



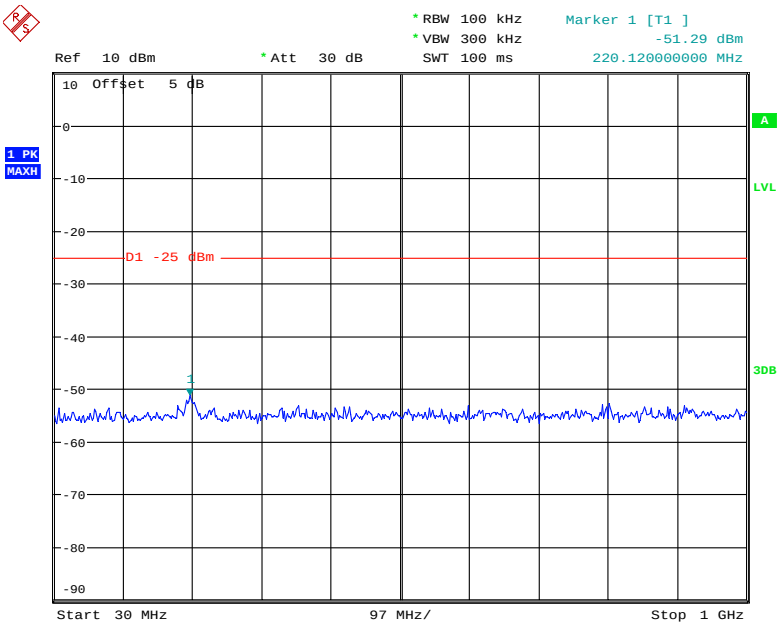
Date: 15.MAY.2020 11:01:55



Fundamental

Date: 15.MAY.2020 11:02:07

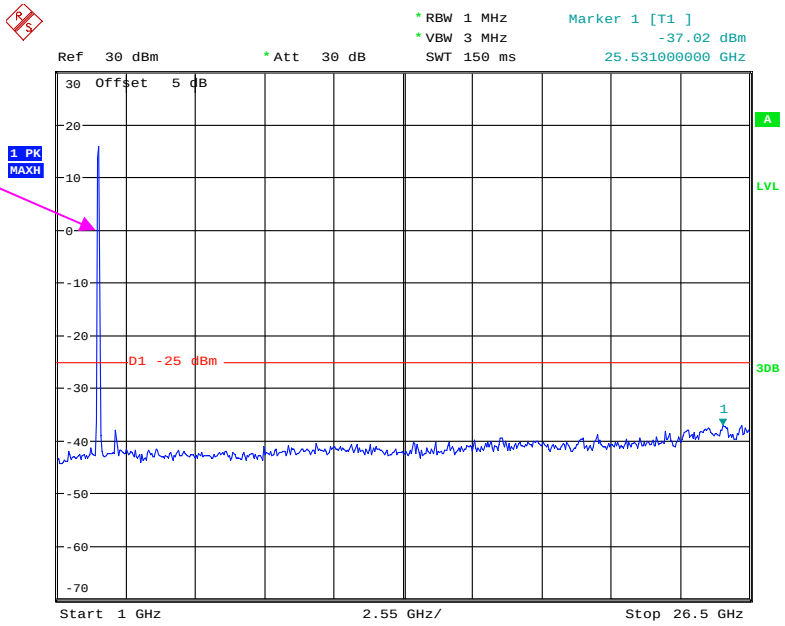
QPSK_20 MHz



Date: 15.MAY.2020 11:02:30

QPSK_20 MHz

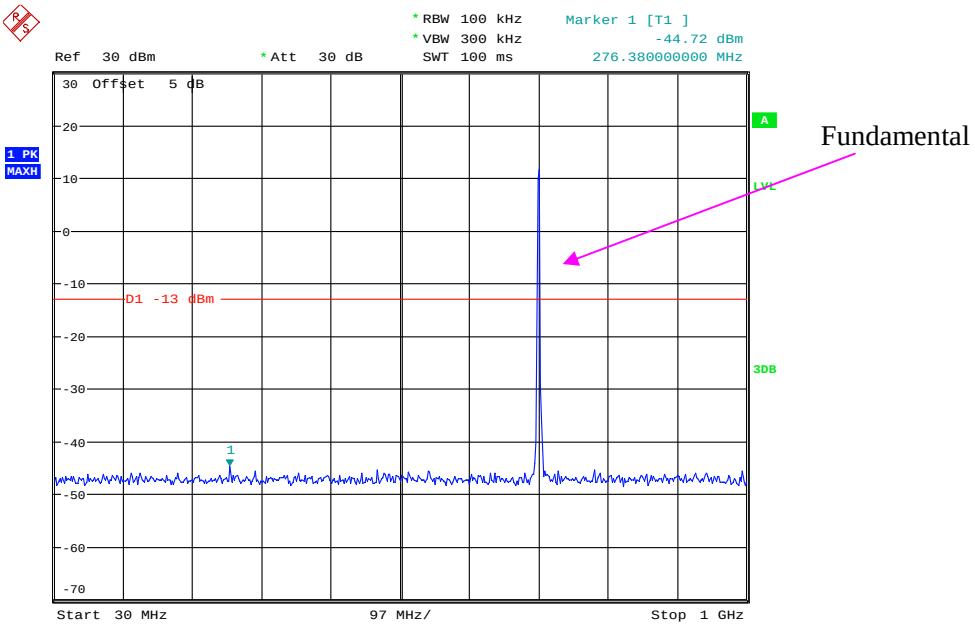
Fundamental



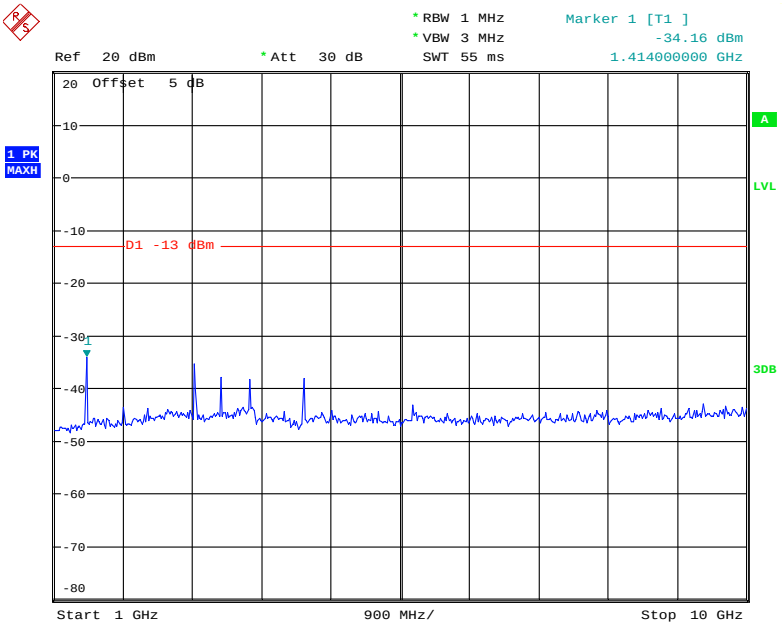
Date: 15.MAY.2020 11:02:42

LTE Band 12 (Middle Channel)

QPSK_1.4 MHz

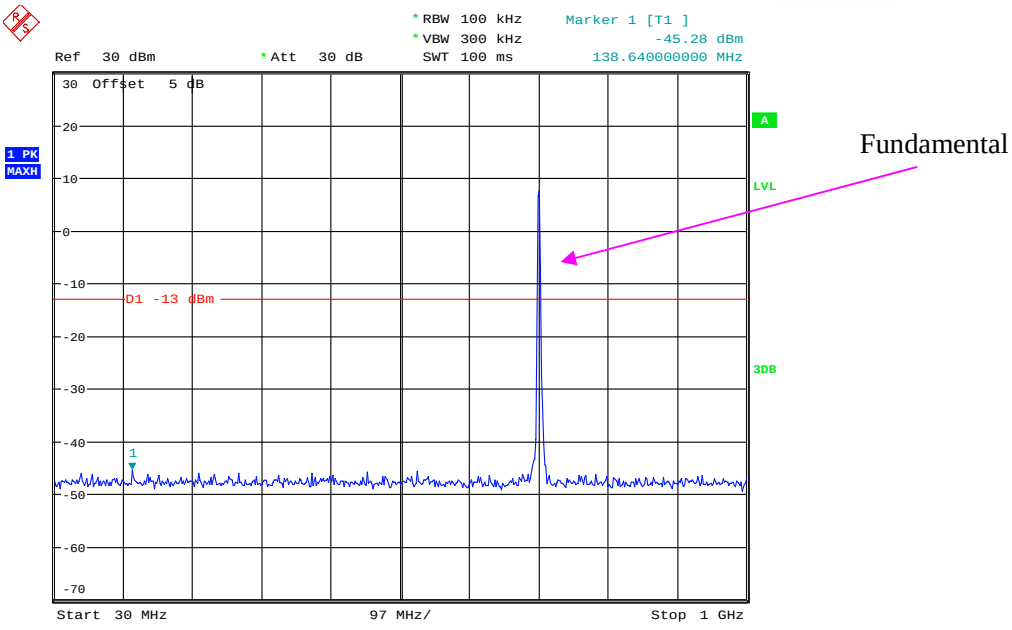


Date: 15.MAY.2020 17:22:33

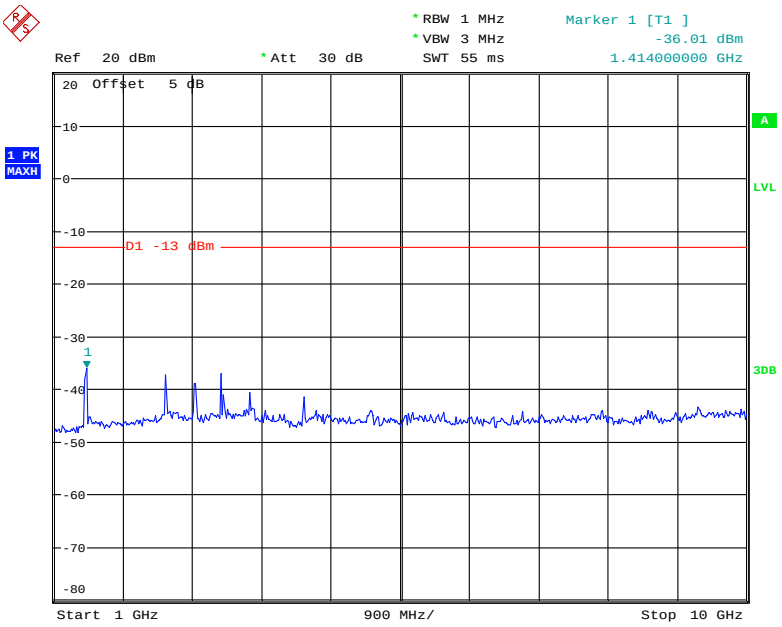


Date: 15.MAY.2020 17:22:45

QPSK_3 MHz

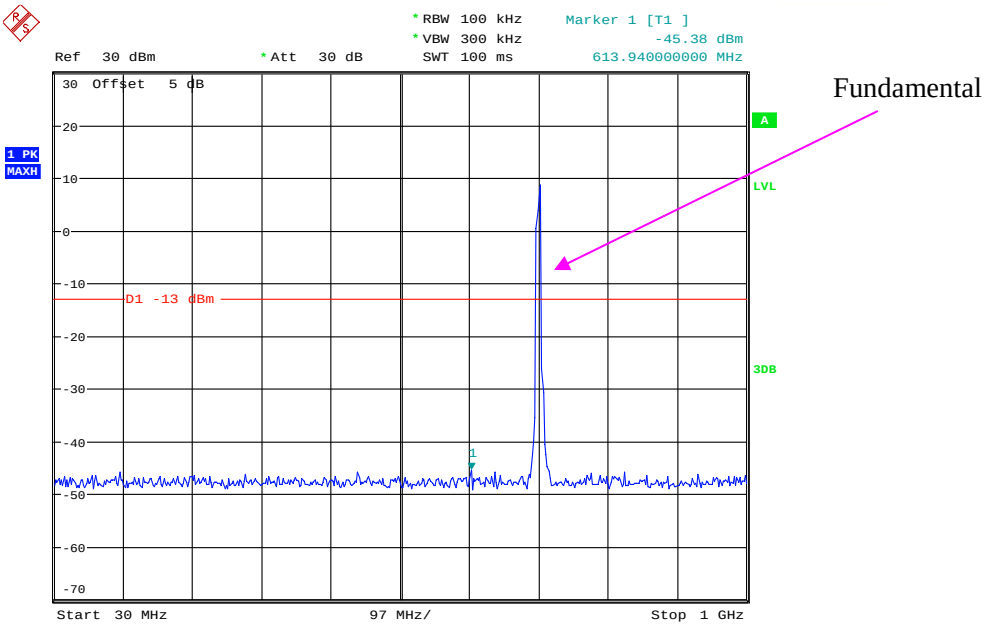


Date: 15.MAY.2020 17:23:04

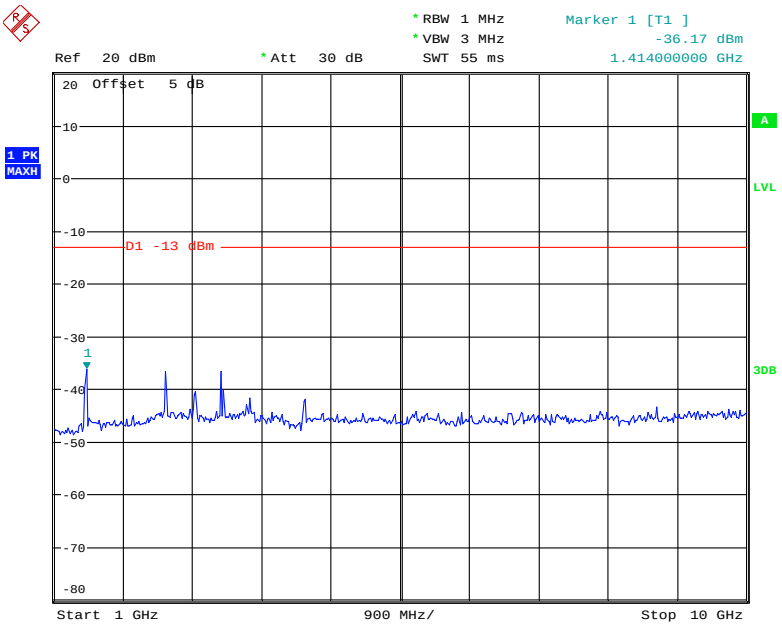


Date: 15.MAY.2020 17:23:16

QPSK_5 MHz

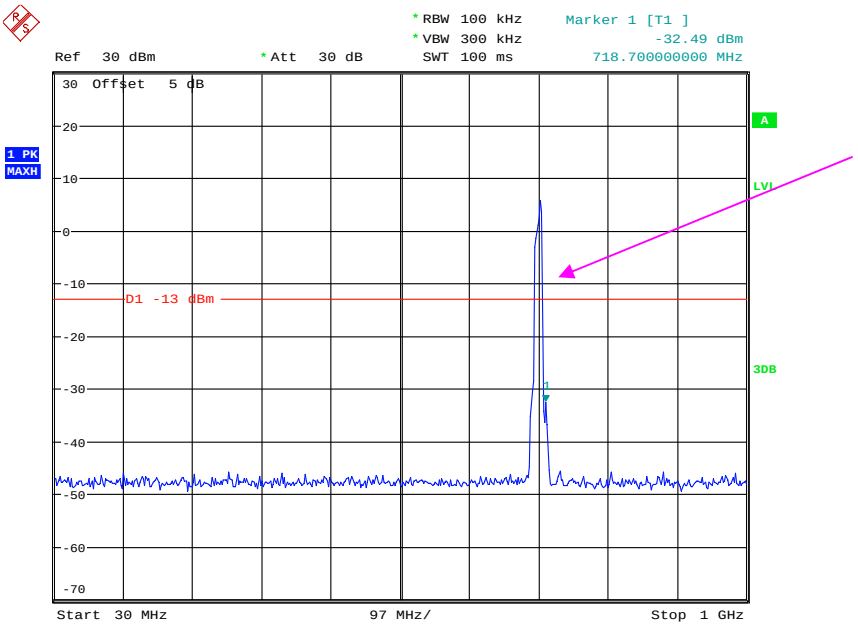


Date: 15.MAY.2020 17:23:35



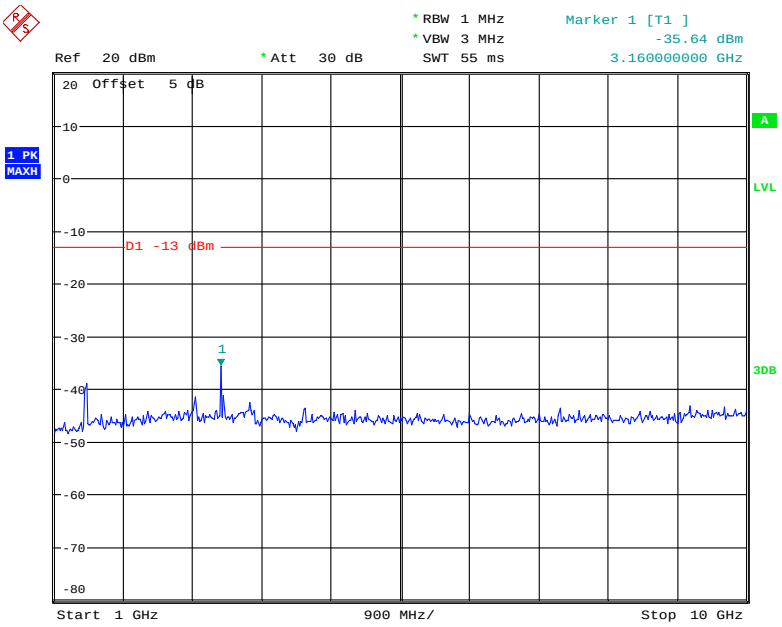
Date: 15.MAY.2020 17:23:46

QPSK_10 MHz



Fundamental

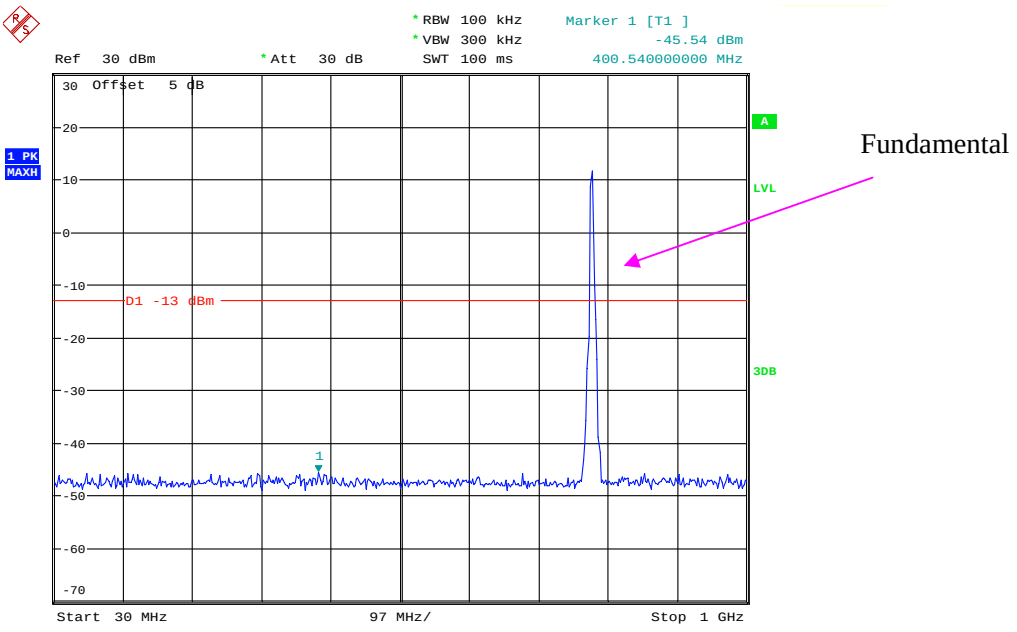
Date: 15.MAY.2020 17:24:06



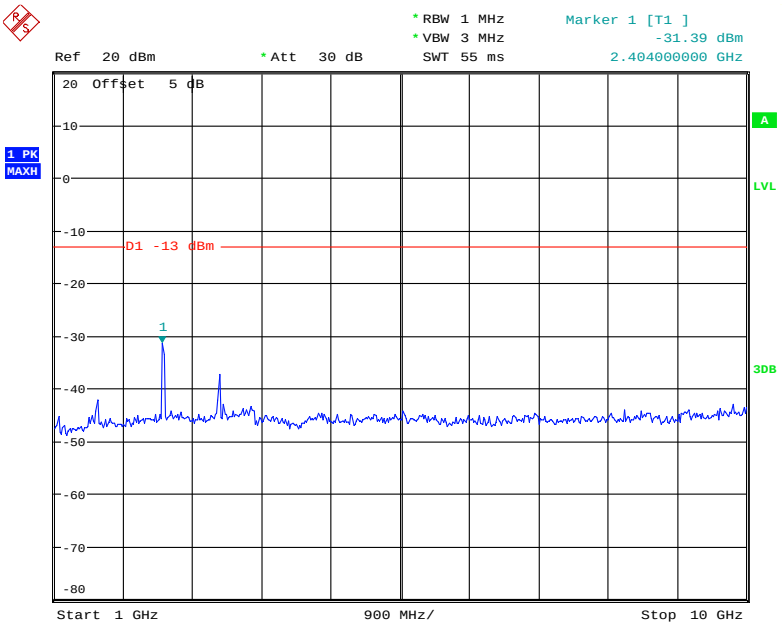
Date: 15.MAY.2020 17:24:18

LTE Band 13 (Middle Channel)

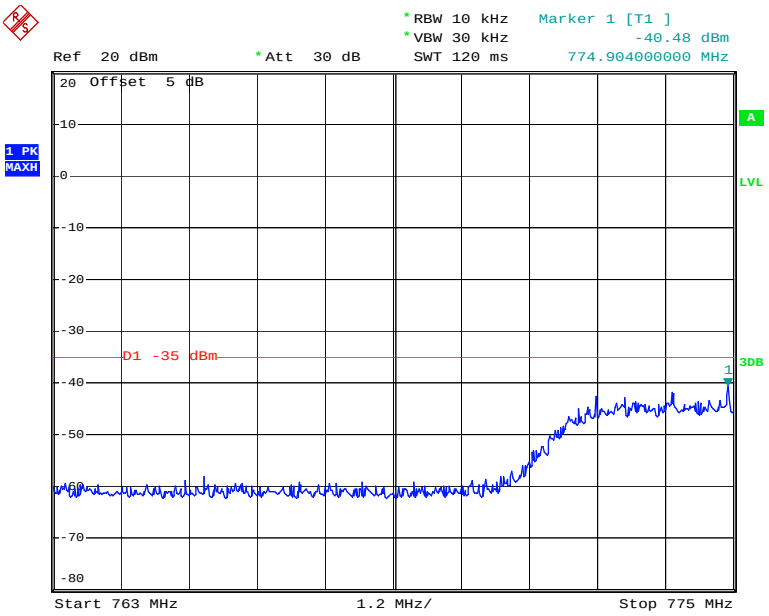
QPSK_5 MHz



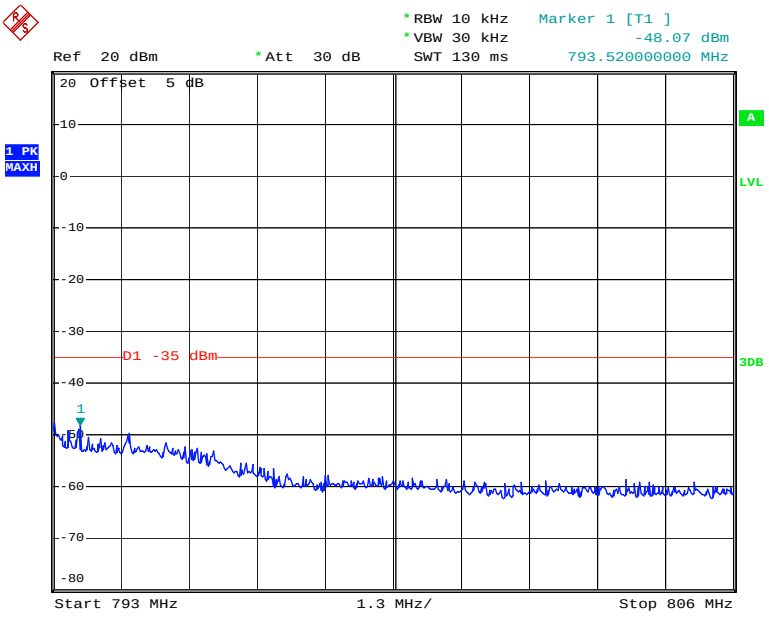
Date: 8.MAY.2020 10:28:53



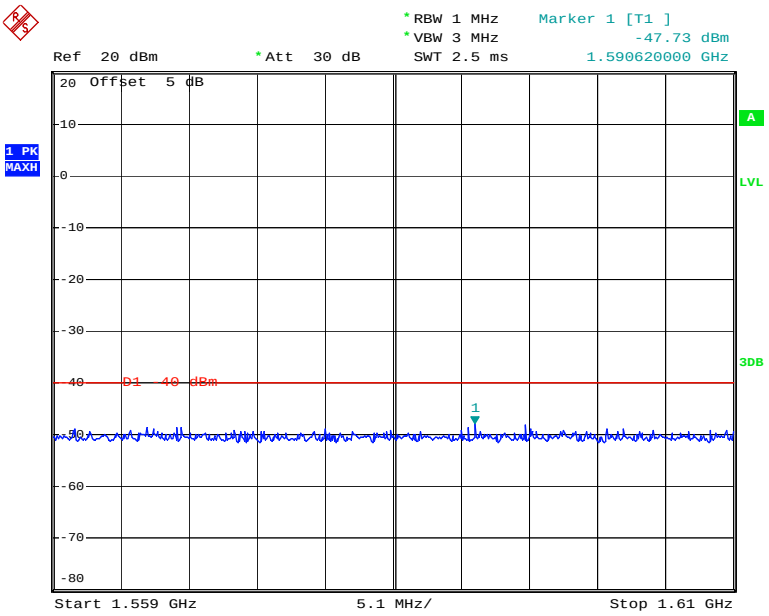
Date: 8.MAY.2020 10:29:05



Date: 19.MAY.2020 20:19:08

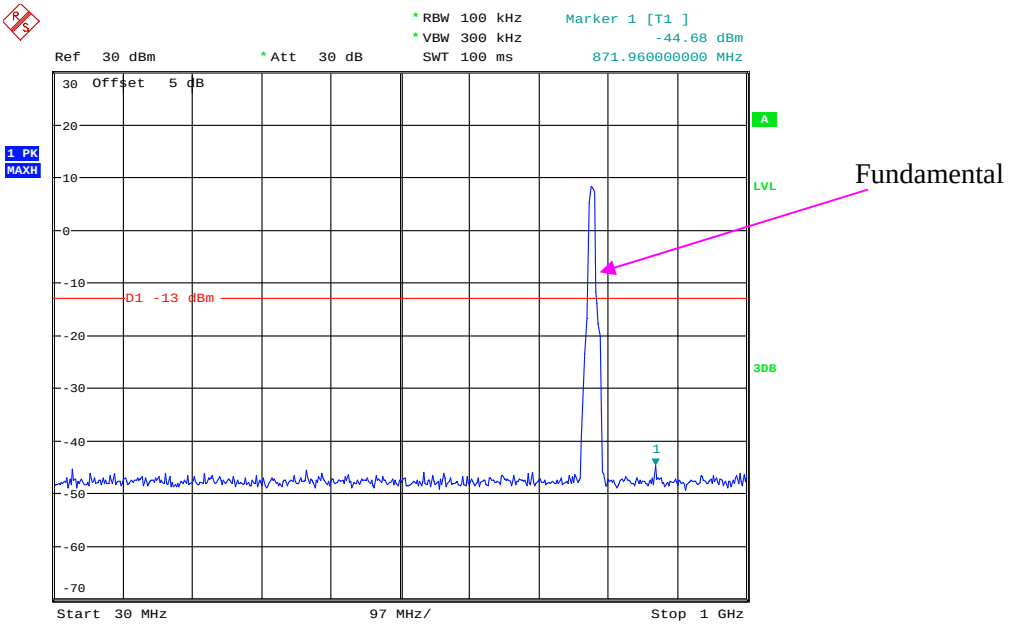


Date: 19.MAY.2020 20:20:20

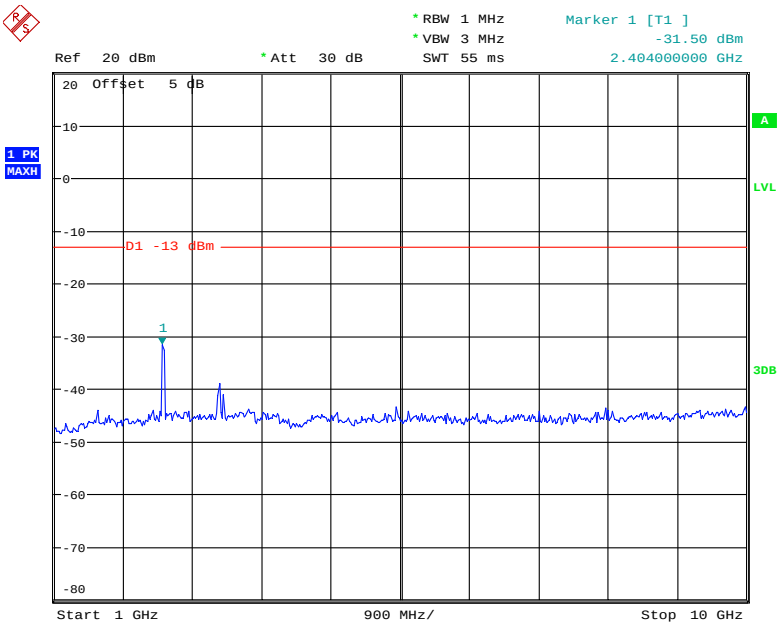


Date: 19.MAY.2020 20:25:58

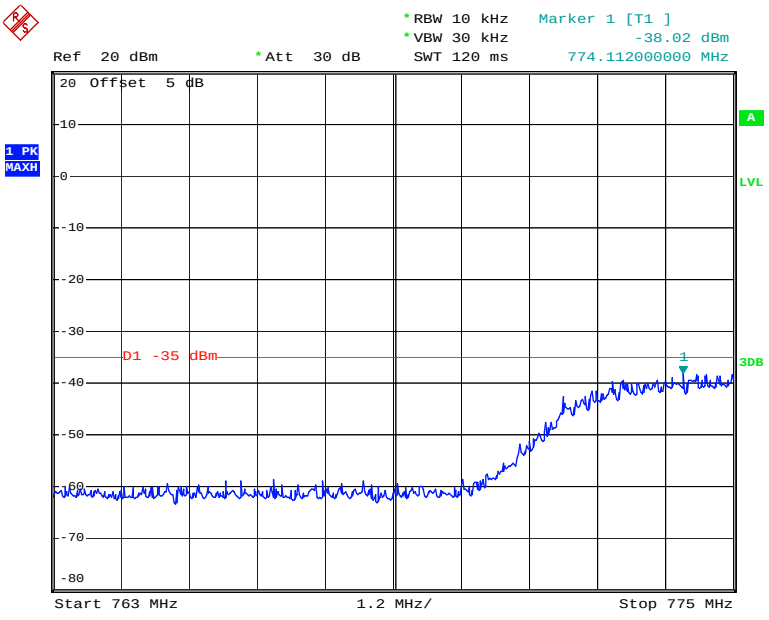
QPSK_10 MHz



Date: 8.MAY.2020 10:29:25



Date: 8.MAY.2020 10:29:40



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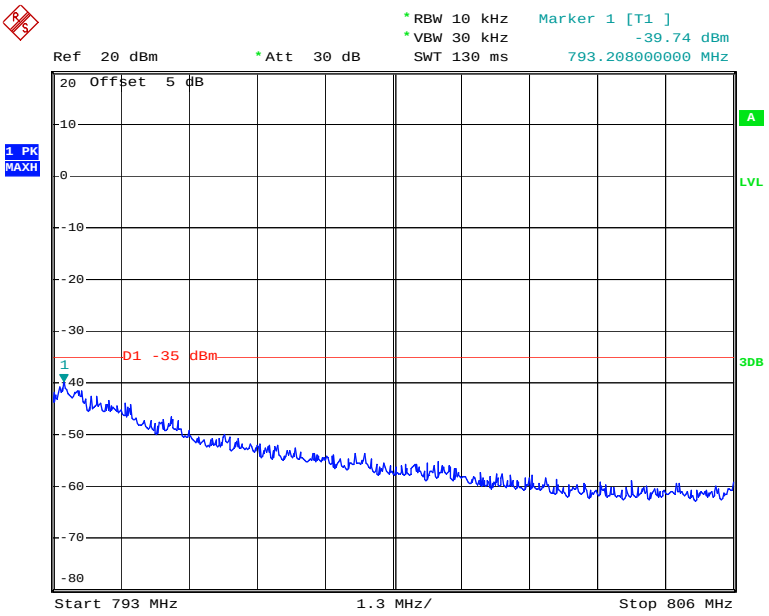

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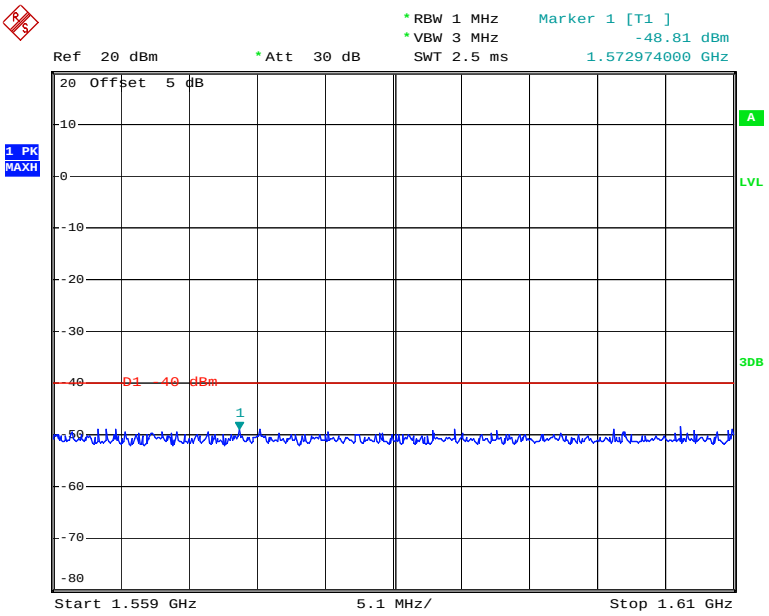
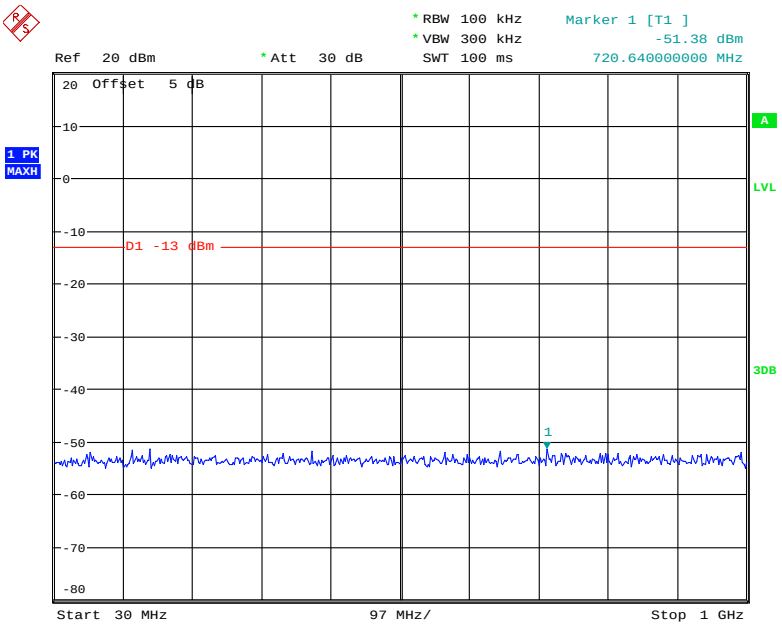


Date: 19.MAY.2020 20:27:00

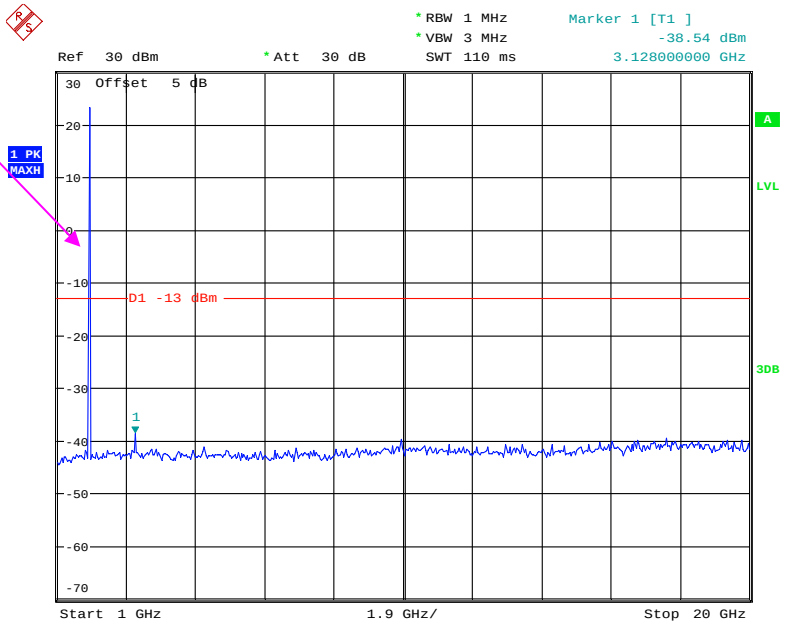
LTE Band 25 (Middle Channel)

QPSK_1.4 MHz



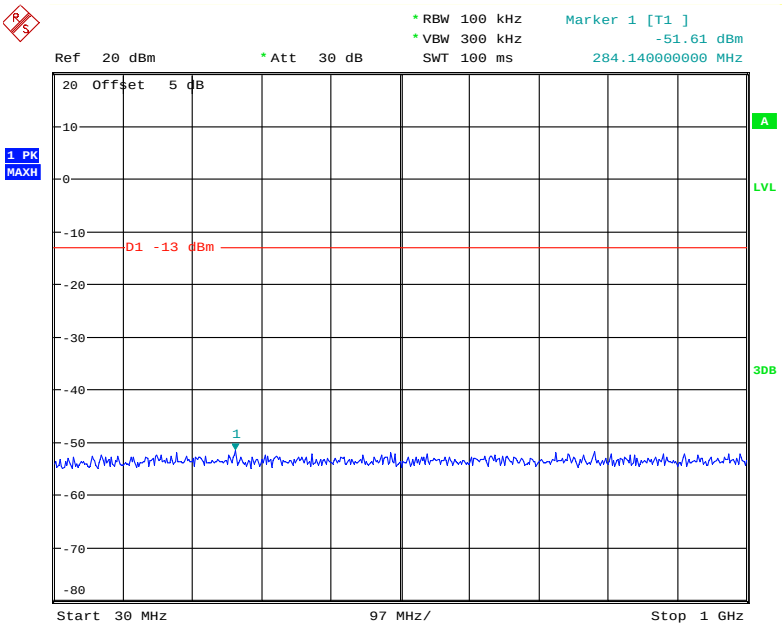
Date: 8.MAY.2020 10:30:17

Fundamental



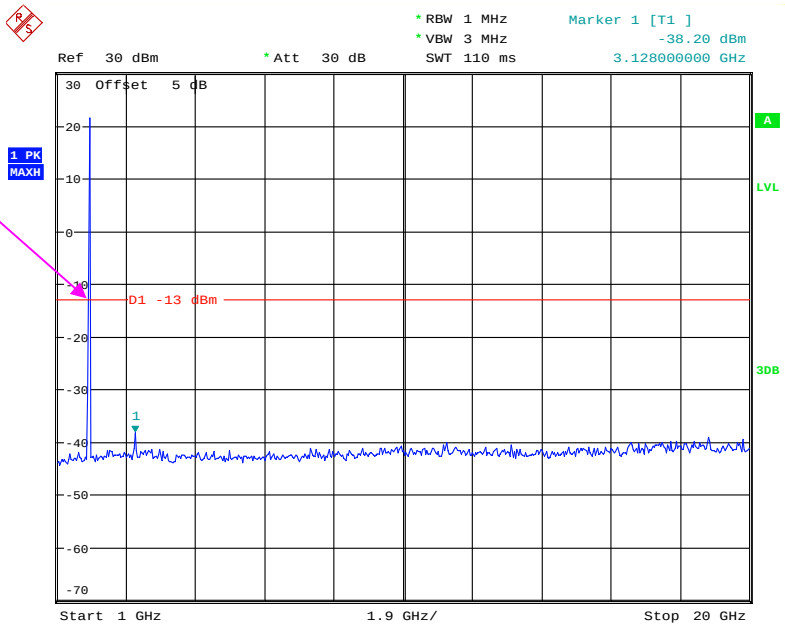
Date: 8.MAY.2020 10:30:29

QPSK_3 MHz



Date: 8.MAY.2020 10:30:48

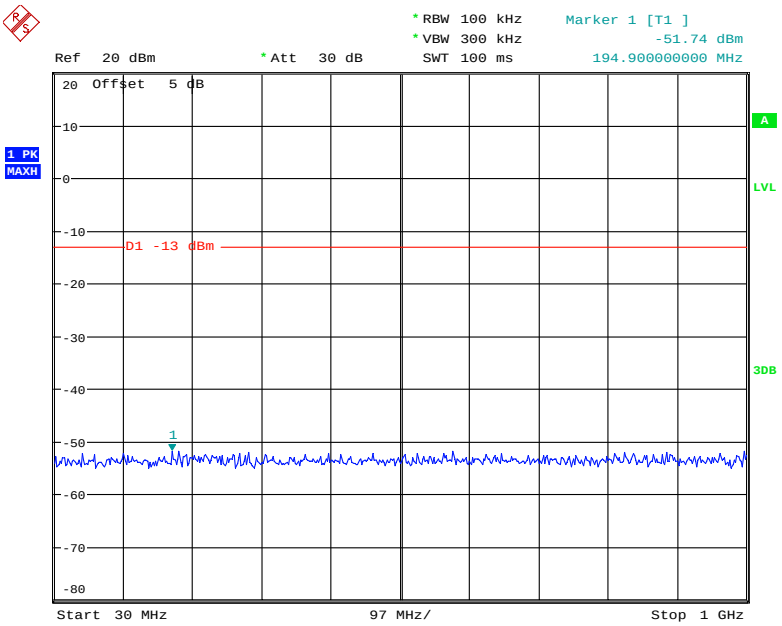
QPSK_3 MHz



Fundamental

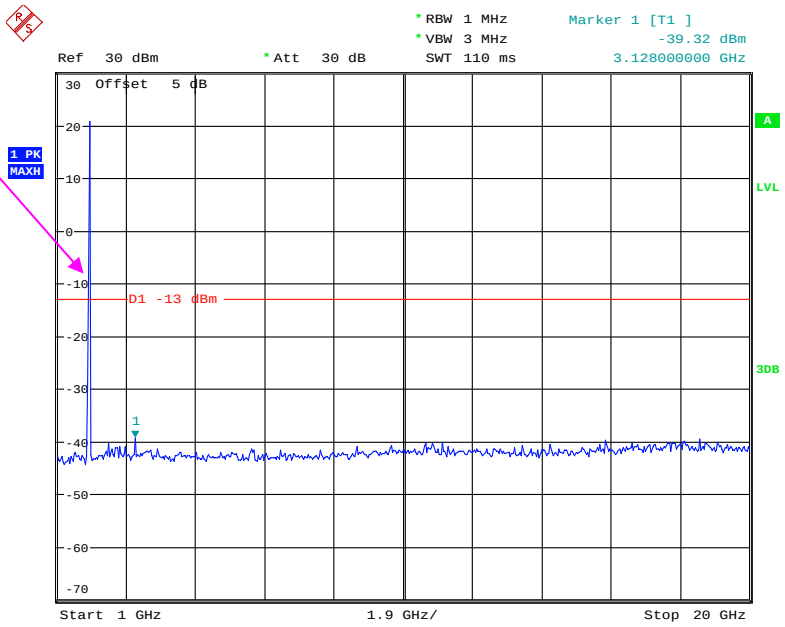
Date: 8.MAY.2020 10:31:00

QPSK_5 MHz



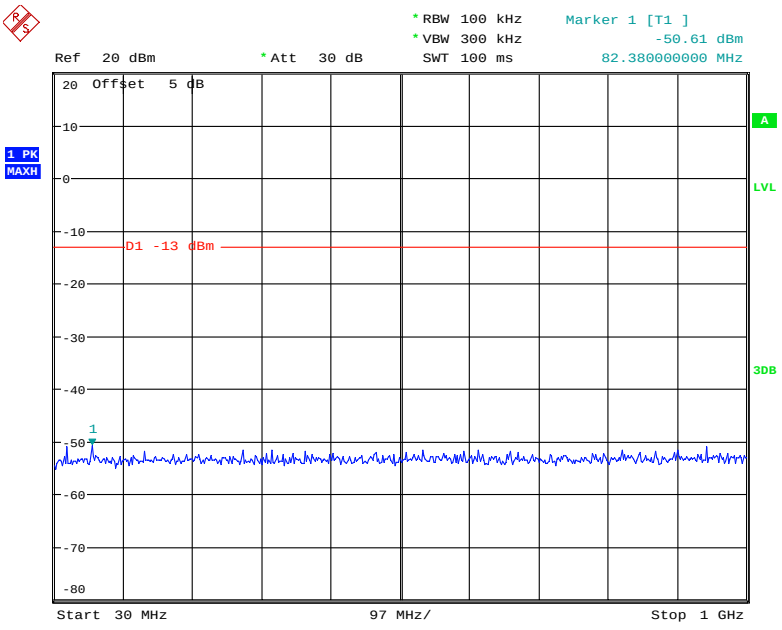
Date: 8.MAY.2020 10:31:19

Fundamental



Date: 8.MAY.2020 10:31:30

QPSK_10 MHz



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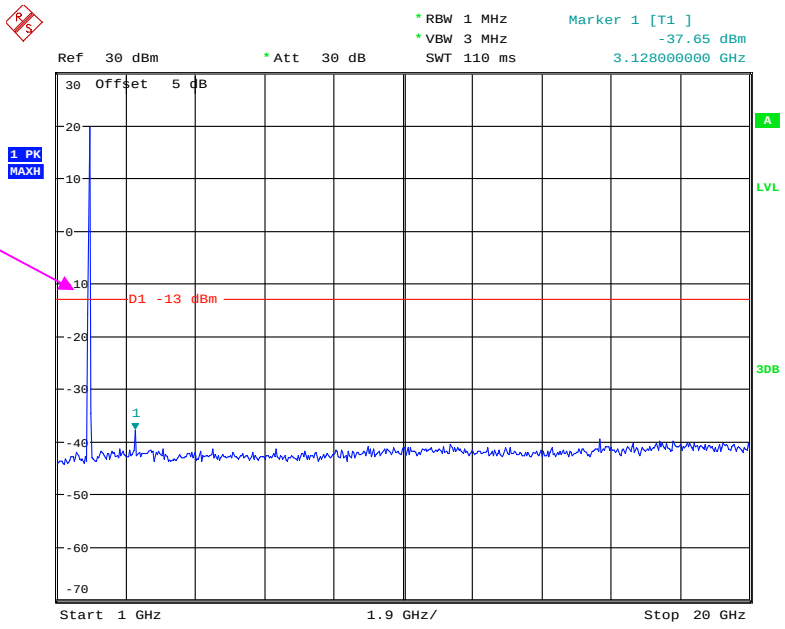
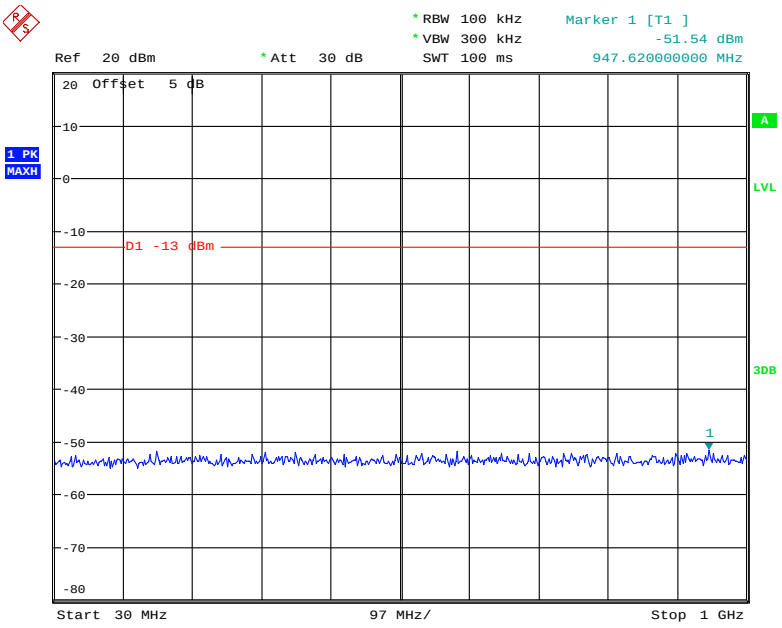


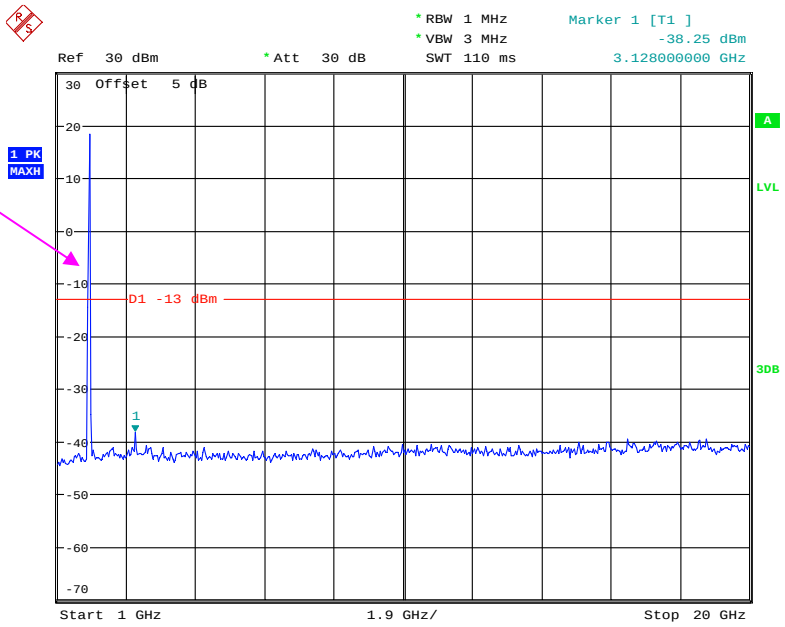
Fundamental

Date: 8.MAY.2020 10:32:05

QPSK_15 MHz



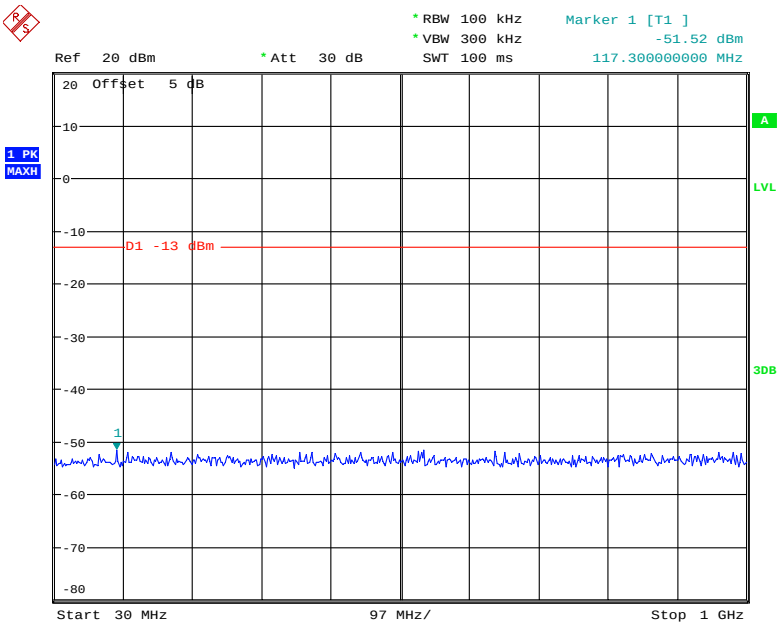
Date: 8.MAY.2020 10:32:28



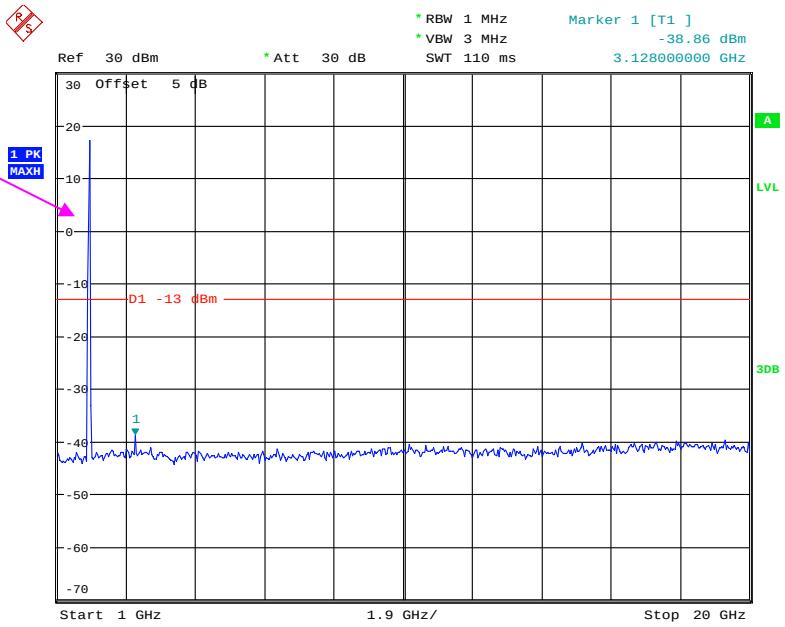
Fundamental

Date: 8.MAY.2020 10:32:40

QPSK_20 MHz



Date: 8.MAY.2020 10:33:02

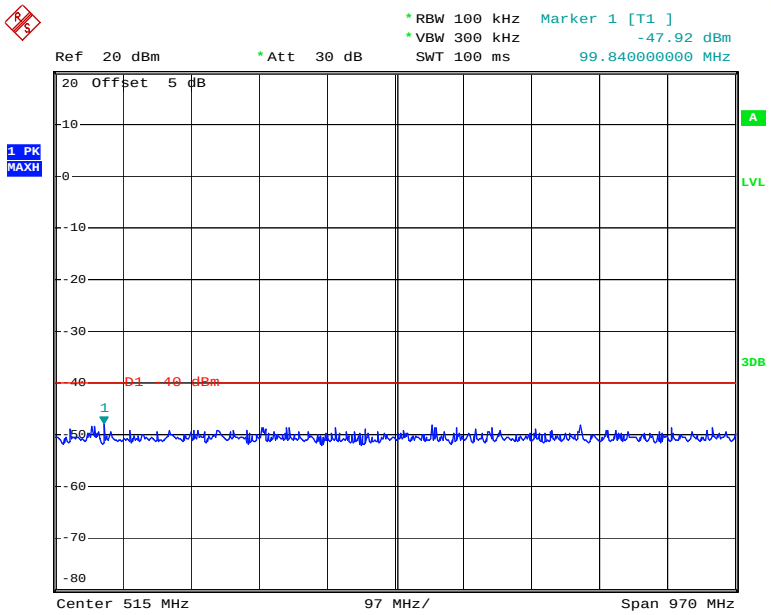


Fundamental

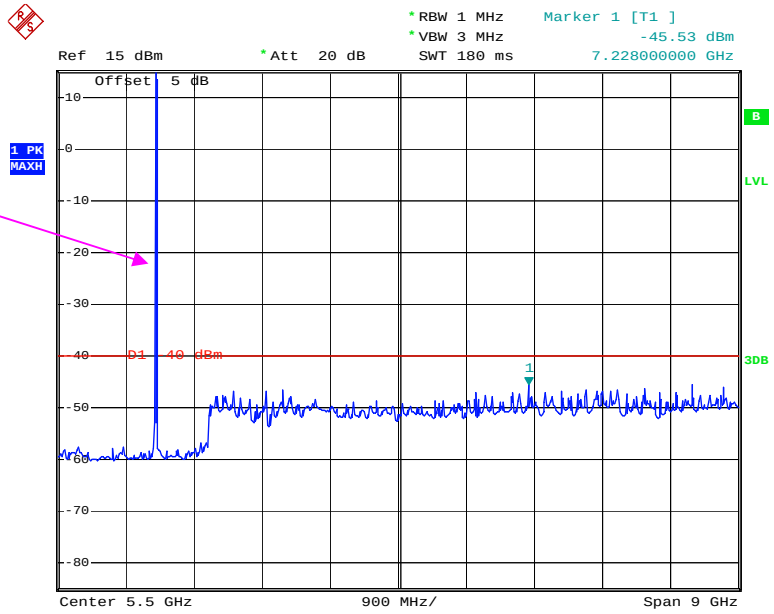
Date: 8.MAY.2020 10:33:14

LTE Band 40 Lower:

QPSK_5 MHz

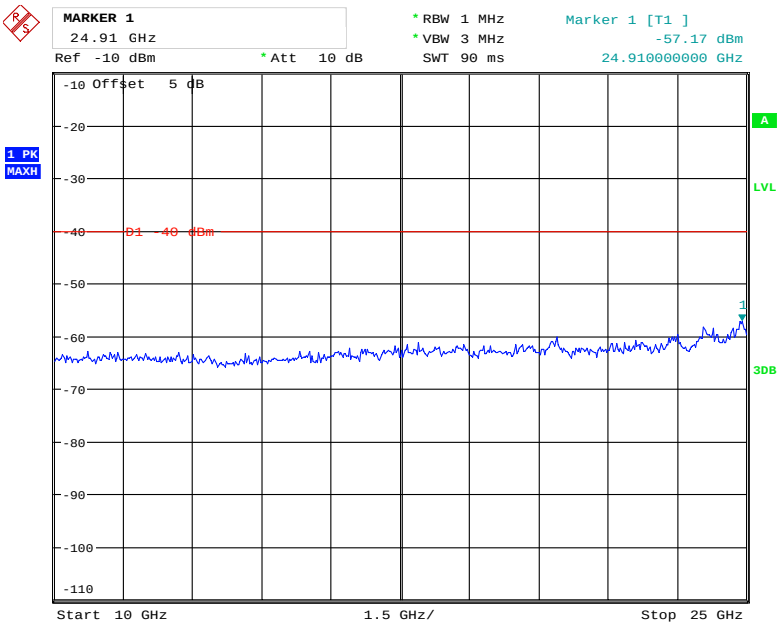


Date: 15.MAY.2020 12:49:28



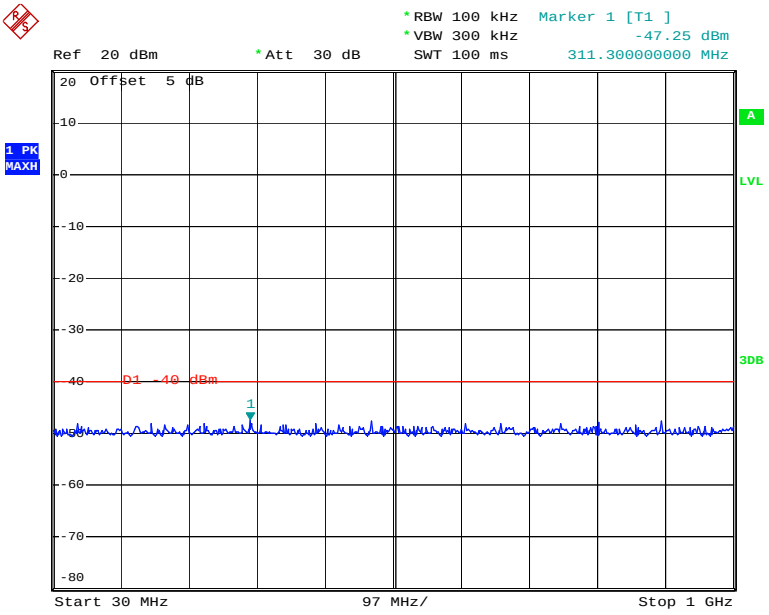
Fundamental

Date: 15.MAY.2020 12:49:15

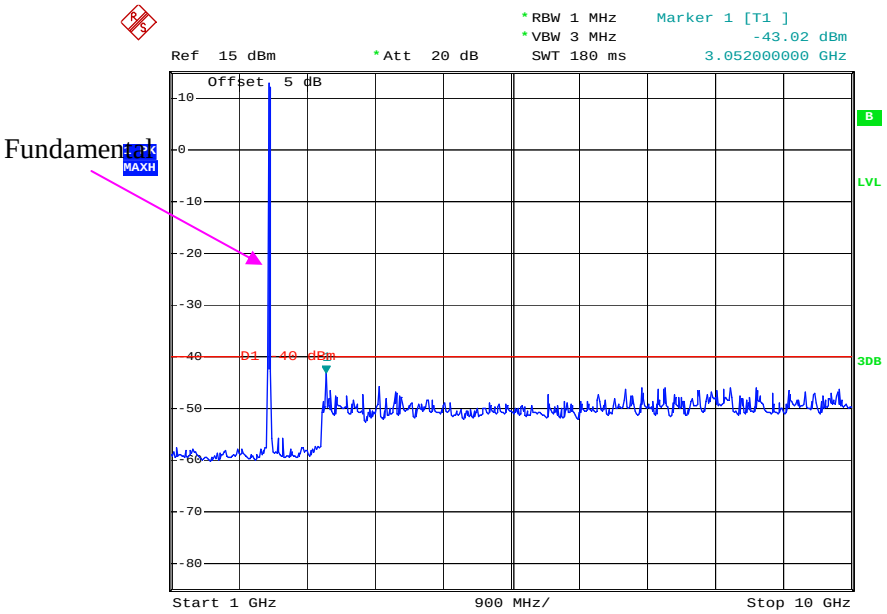


Date: 15.MAY.2020 14:51:16

QPSK_10 MHz

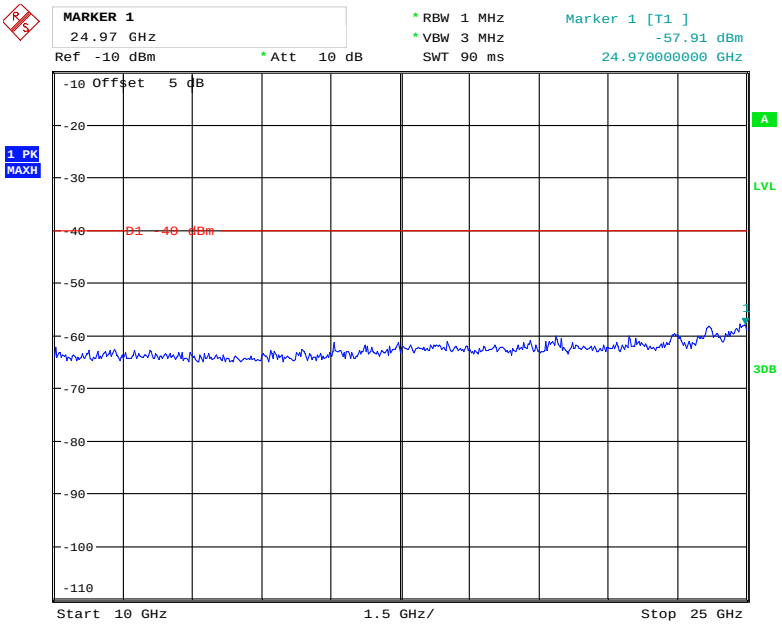


Date: 15.MAY.2020 12:43:47



Fundamental

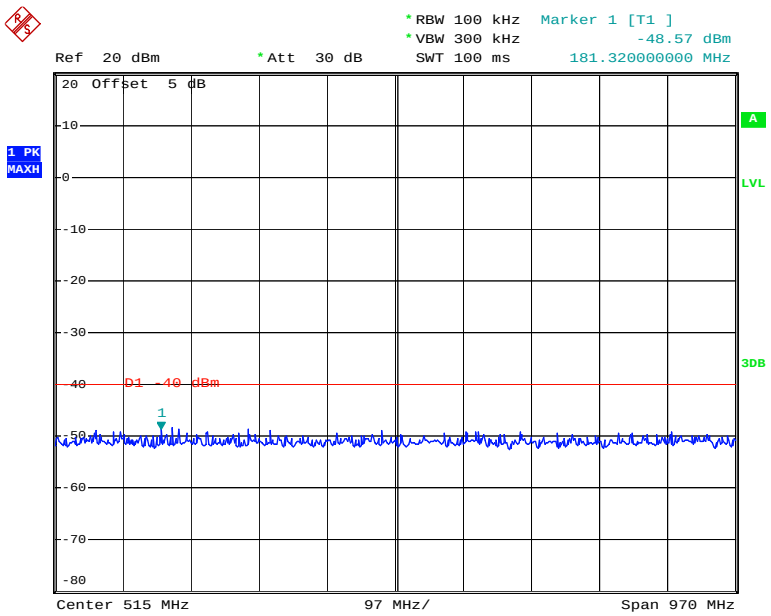
Date: 15.MAY.2020 12:45:41



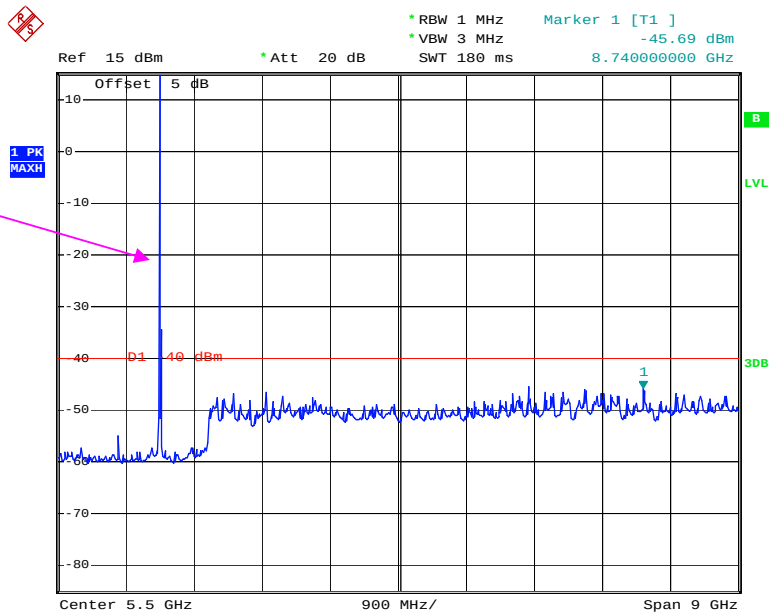
Date: 15.MAY.2020 14:52:41

LTE Band 40 Upper:

QPSK_5 MHz

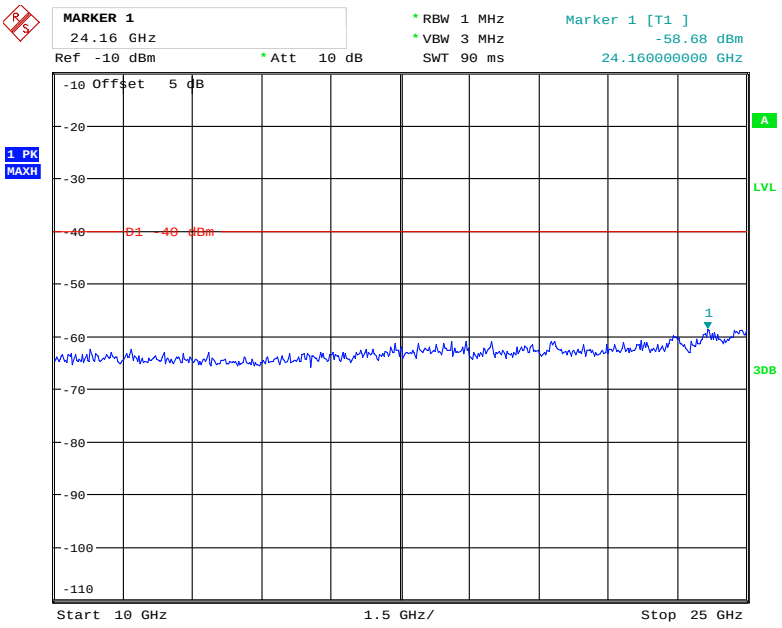


Date: 15.MAY.2020 12:48:38



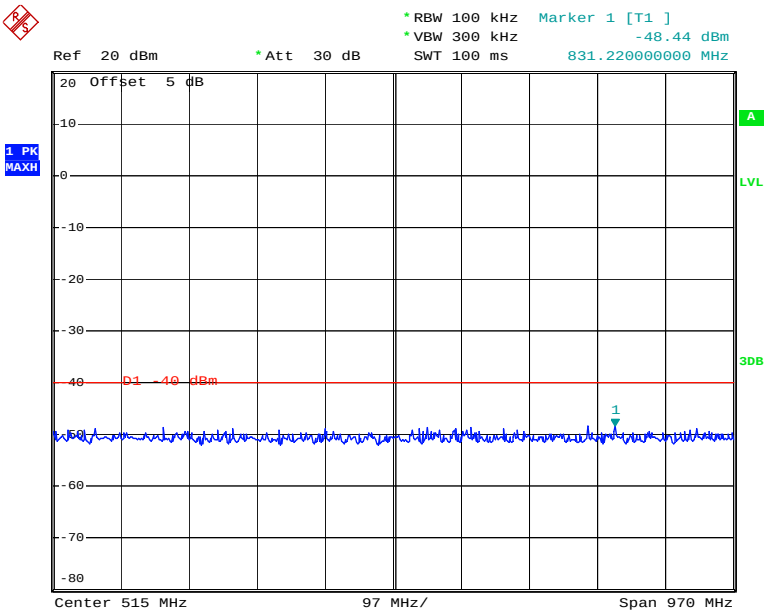
Fundamental

Date: 15.MAY.2020 12:48:50



Date: 15.MAY.2020 14:52:02

QPSK_10 MHz



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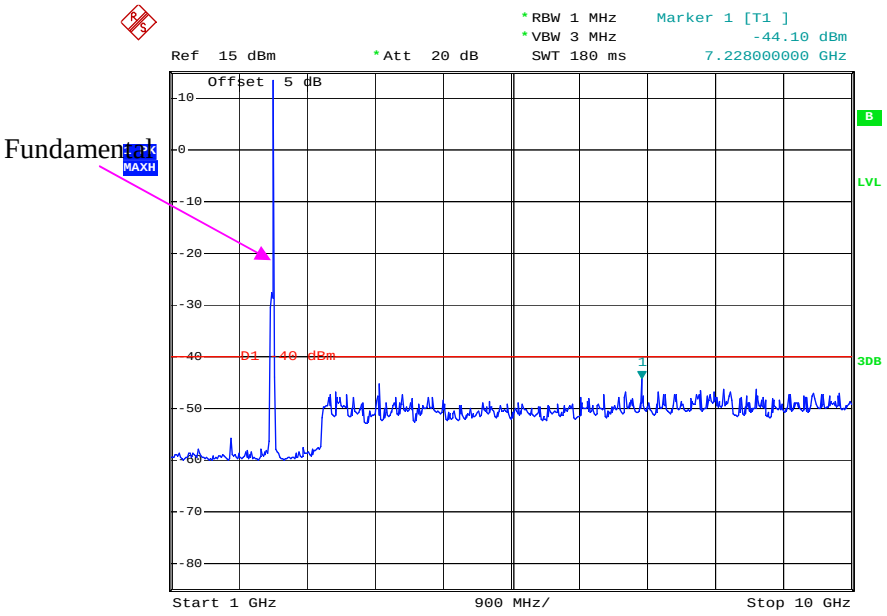
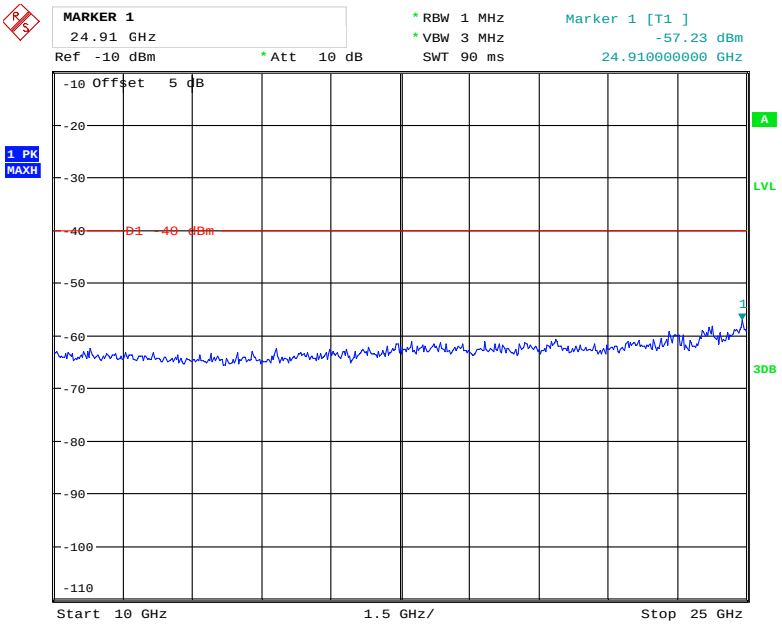


Fundamental

Date: 15.MAY.2020 12:47:39



Date: 15.MAY.2020 14:53:11

FCC §2.1053, §22.917 & §24.238 & §27.53& §90.691- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53 &§90.691.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESR3	102453	2019-06-26	2020-06-26
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2019-05-06	2020-05-06
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
HP	Amplifier	8447D	2727A05902	2019-09-05	2020-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-05-09	2020-05-09
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2019-09-05	2020-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2019-06-27	2020-06-27
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2019-11-18	2022-11-18
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2019-11-18	2022-11-18
Sinoscite	Band-stop filter	BSF1710-1785MN-0383-003	0383003	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF824-862MS-1438-001	1438001	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF2300-2400MS-0777-003	0777003	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF1850-1910MS-0935V2	0935V2	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF2500-2750MS-1439-001	1437001	2019-06-16	2020-06-16

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	24.1~24.8°C
Relative Humidity:	53 %
ATM Pressure:	101.4 kPa
Tester:	Vern Shen, Felix Wang
Test Date:	2020-04-29

EUT Operation Mode: Transmitting

LTE Band 2 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1880.000 MHz								
3760.00	H	38.85	-58.79	13.76	1.63	-46.66	-13.00	33.66
3760.00	V	38.42	-59.08	13.76	1.63	-46.95	-13.00	33.95
5640.00	H	34.87	-58.72	14.02	1.31	-46.01	-13.00	33.01
5640.00	V	35.69	-57.79	14.02	1.31	-45.08	-13.00	32.08
399.69	H	40.14	-64.68	0.00	0.61	-65.29	-13.00	52.29
399.90	V	40.68	-67.49	0.00	0.61	-68.10	-13.00	55.10

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1732.500 MHz								
3465.00	H	44.30	-54.89	13.91	1.62	-42.60	-13.00	29.60
3465.00	V	43.06	-56.16	13.91	1.62	-43.87	-13.00	30.87
5197.50	H	35.27	-59.42	14.00	1.52	-46.94	-13.00	33.94
5197.50	V	36.43	-58.33	14.00	1.52	-45.85	-13.00	32.85
399.90	H	39.29	-65.52	0.00	0.61	-66.13	-13.00	53.13
399.90	V	38.76	-69.41	0.00	0.61	-70.02	-13.00	57.02

LTE Band 5 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:836.500 MHz								
1673.00	H	43.70	-60.24	10.61	0.73	-50.36	-13.00	37.36
1673.00	V	47.52	-57.02	10.61	0.73	-47.14	-13.00	34.14
2509.50	H	40.25	-62.66	13.11	1.25	-50.80	-13.00	37.80
2509.50	V	41.52	-61.42	13.11	1.25	-49.56	-13.00	36.56
3346.00	H	43.66	-56.02	13.83	1.61	-43.80	-13.00	30.80
3346.00	V	41.94	-57.78	13.83	1.61	-45.56	-13.00	32.56
399.69	H	40.18	-64.64	0.00	0.61	-65.25	-13.00	52.25
399.52	V	39.57	-68.61	0.00	0.61	-69.22	-13.00	56.22

LTE Band 7 (30MHz-26.5GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 2535.000 MHz								
5070.00	H	45.42	-49.69	13.93	1.34	-37.10	-25.00	12.10
5070.00	V	42.26	-52.66	13.93	1.34	-40.07	-25.00	15.07
7605.00	H	36.34	-52.54	13.21	1.40	-40.73	-25.00	15.73
7605.00	V	35.69	-53.59	13.21	1.40	-41.78	-25.00	16.78
399.90	H	38.98	-65.83	0.00	0.61	-66.44	-25.00	41.44
399.90	V	39.04	-69.13	0.00	0.61	-69.74	-25.00	44.74

LTE Band 12 (30MHz-10 GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 707.500 MHz								
1415.00	H	46.22	-57.39	9.08	1.22	-49.53	-13.00	36.53
1415.00	V	46.97	-57.16	9.08	1.22	-49.30	-13.00	36.30
2122.50	H	38.02	-63.99	11.27	1.11	-53.83	-13.00	40.83
2122.50	V	37.66	-64.33	11.27	1.11	-54.17	-13.00	41.17
2830.00	H	44.45	-56.97	13.34	1.36	-44.99	-13.00	31.99
2830.00	V	42.38	-59.27	13.34	1.36	-47.29	-13.00	34.29
399.90	H	40.57	-64.24	0.00	0.61	-64.85	-13.00	51.85
399.90	V	38.24	-69.93	0.00	0.61	-70.54	-13.00	57.54

LTE Band 13 (30MHz-10 GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 782.000 MHz								
1564.00	H	38.07	-66.65	9.88	0.92	-57.69	-40.00	17.69
1564.00	V	42.32	-62.82	9.88	0.92	-53.86	-40.00	13.86
2346.00	H	39.92	-62.37	11.71	1.26	-51.92	-13.00	38.92
2346.00	V	40.66	-61.67	11.71	1.26	-51.22	-13.00	38.22
3128.00	H	36.58	-63.00	13.31	1.76	-51.45	-13.00	38.45
3128.00	V	36.72	-62.87	13.31	1.76	-51.32	-13.00	38.32
399.69	H	40.24	-64.58	0.00	0.61	-65.19	-13.00	52.19
399.90	V	39.02	-69.15	0.00	0.61	-69.76	-13.00	56.76

LTE Band 25 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1882.500 MHz								
3765.00	H	39.14	-58.47	13.74	1.62	-46.35	-13.00	33.35
3765.00	V	38.37	-59.09	13.74	1.62	-46.97	-13.00	33.97
5647.50	H	34.72	-58.92	14.01	1.31	-46.22	-13.00	33.22
5647.50	V	35.27	-58.25	14.01	1.31	-45.55	-13.00	32.55
399.90	H	39.68	-65.13	0.00	0.61	-65.74	-13.00	52.74
399.90	V	38.27	-69.90	0.00	0.61	-70.51	-13.00	57.51

LTE Band 40 Lower(30MHz-25GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:2310.000 MHz								
4620.00	H	41.88	-55.35	14.40	1.67	-42.62	-40.00	2.62
4620.00	V	41.98	-55.34	14.40	1.67	-42.61	-40.00	17.61
6930.00	H	35.64	-54.65	13.35	1.78	-43.08	-40.00	18.08
6930.00	V	35.68	-54.51	13.35	1.78	-42.94	-40.00	17.94
399.90	H	39.87	-64.94	0.00	0.61	-65.55	-40.00	40.55
399.90	V	37.06	-71.11	0.00	0.61	-71.72	-40.00	46.72

LTE Band 40 Upper(30MHz-25GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:2355.000 MHz								
4710.00	H	42.38	-55.00	13.23	1.50	-43.27	-40.00	3.27
4710.00	V	42.25	-55.20	13.23	1.50	-43.47	-40.00	3.47
7065.00	H	34.65	-57.09	13.32	1.76	-45.53	-40.00	5.53
7065.00	V	35.76	-56.25	13.32	1.76	-44.69	-40.00	4.69
399.90	H	39.55	-65.26	0.00	0.61	-65.87	-40.00	25.87
399.90	V	37.44	-70.73	0.00	0.61	-71.34	-40.00	31.34

Note:
1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
3) Margin = Limit-Absolute Level

FCC §22.917(a) & §24.238(a) & §27.53- BAND EDGES

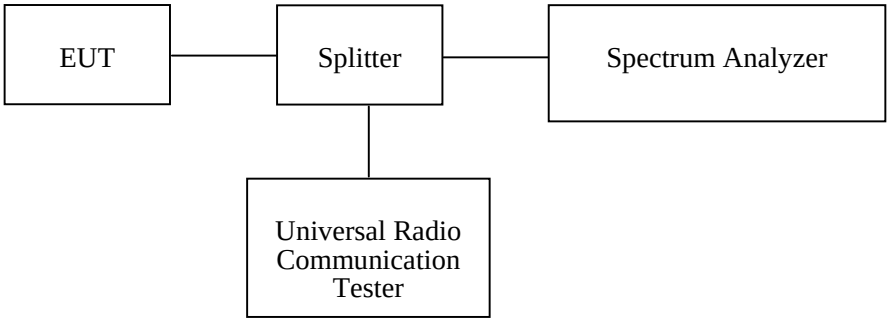
Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53 & §90.691.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-01-04	2021-01-04
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each Time	/

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

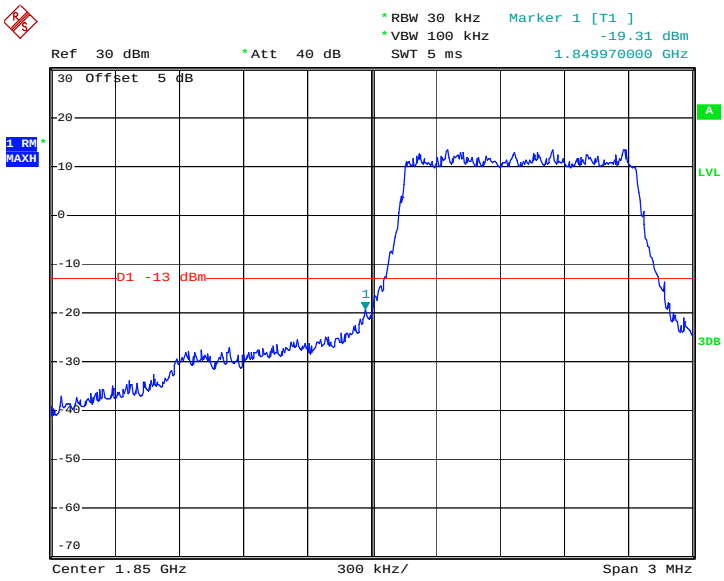
Environmental Conditions

Temperature:	26~27.5°C
Relative Humidity:	52~72 %
ATM Pressure:	100.2~100.9 kPa
Tester:	Chris Mo
Test Date:	2020-05-07~2020-05-20

Test Mode: Transmitting
Test Result: Compliant. Please refer to the following plots.

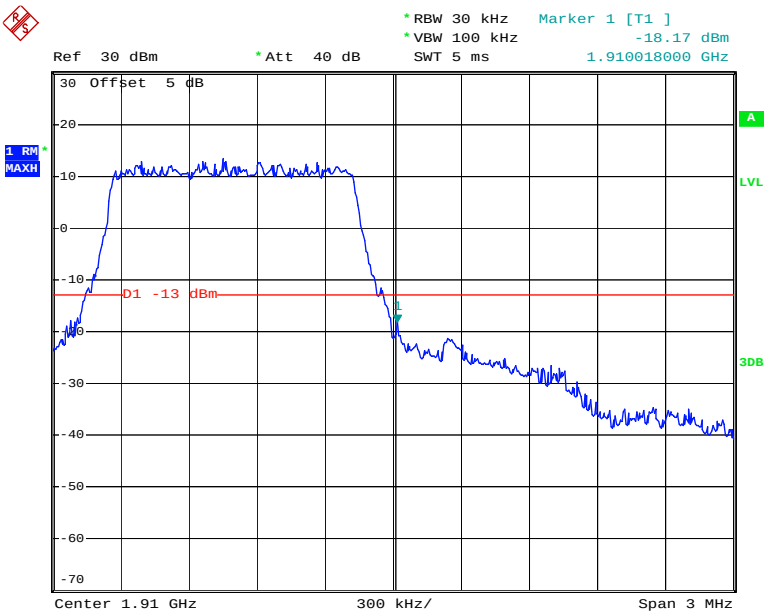
LTE Band 2

QPSK_1.4MHz_ 6 RB_ Left



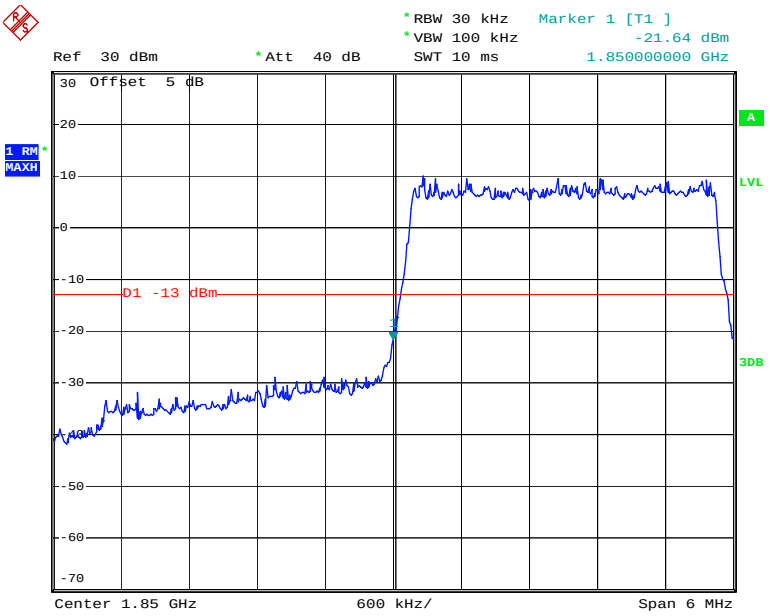
Date: 7.MAY.2020 15:46:31

QPSK_1.4MHz_ 6 RB_ Right



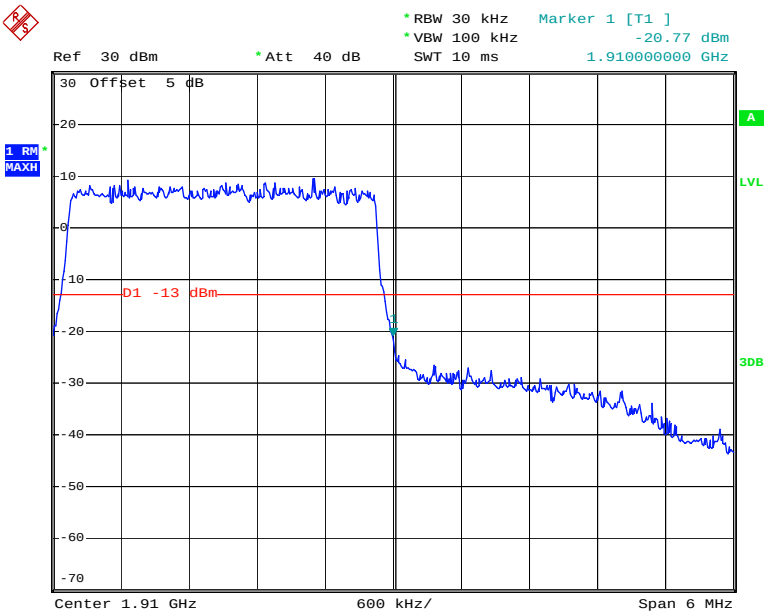
Date: 7.MAY.2020 15:47:06

QPSK_3MHz_ 15 RB_ Left



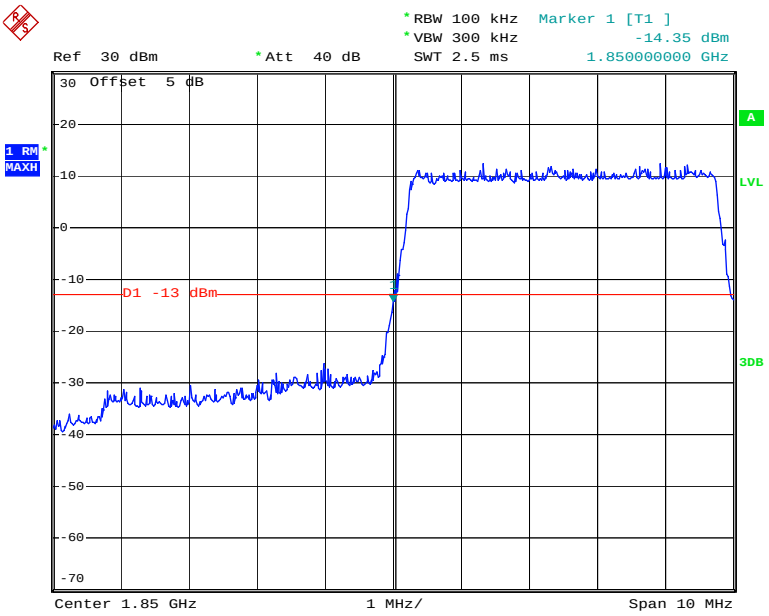
Date: 7.MAY.2020 15:47:49

QPSK_3MHz_ 15 RB_ Right



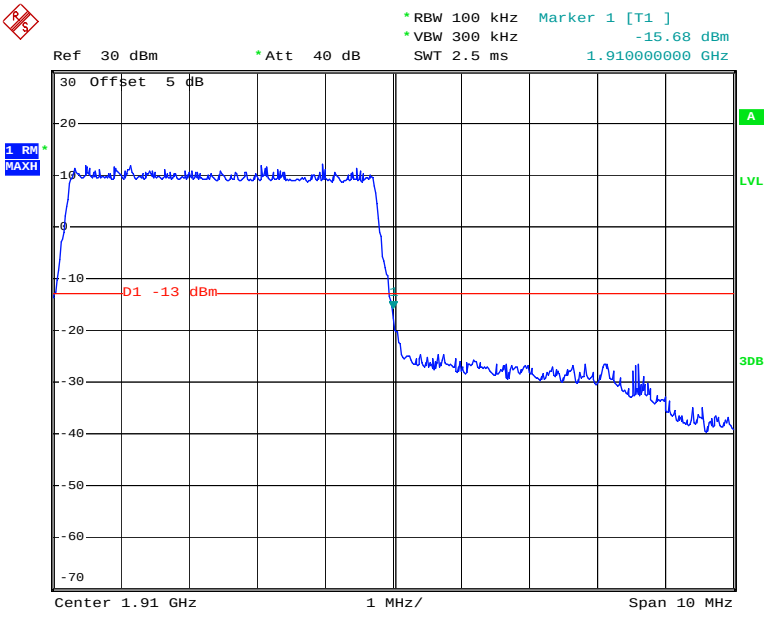
Date: 7.MAY.2020 15:48:27

QPSK_5MHz_ 25 RB_ Left



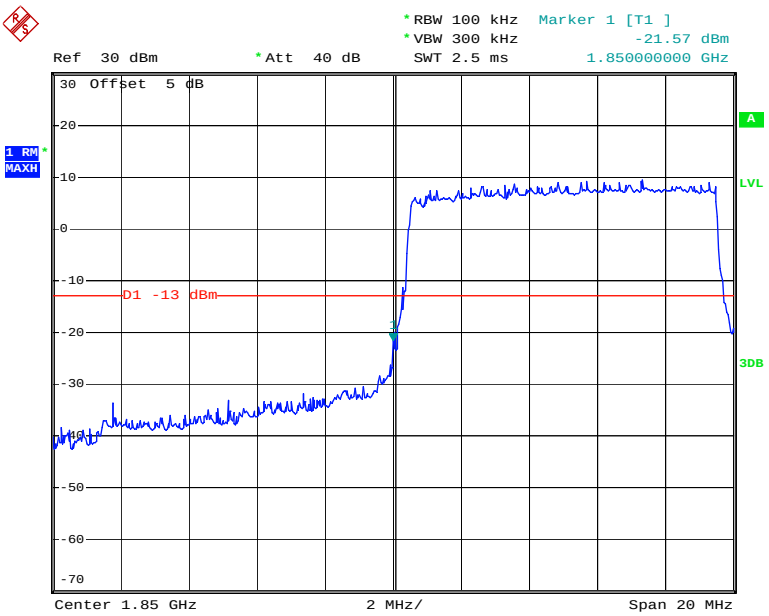
Date: 7.MAY.2020 15:49:15

QPSK_5MHz_ 25 RB_ Right



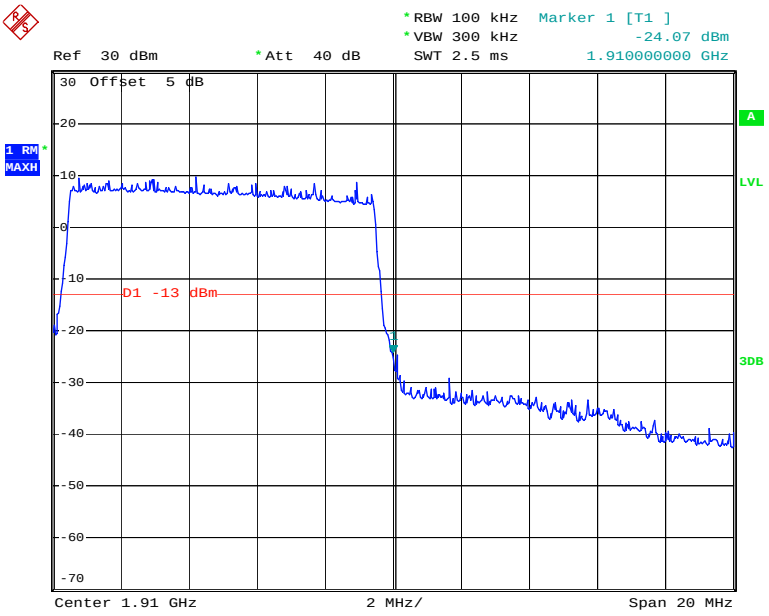
Date: 7.MAY.2020 15:49:54

QPSK_10MHz_ 50 RB_ Left



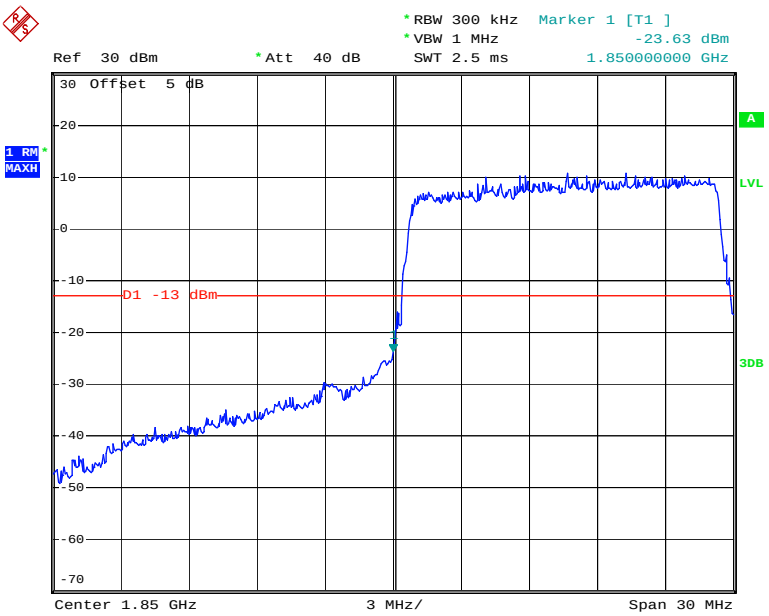
Date: 7.MAY.2020 15:50:35

QPSK_10MHz_ 50 RB_ Right



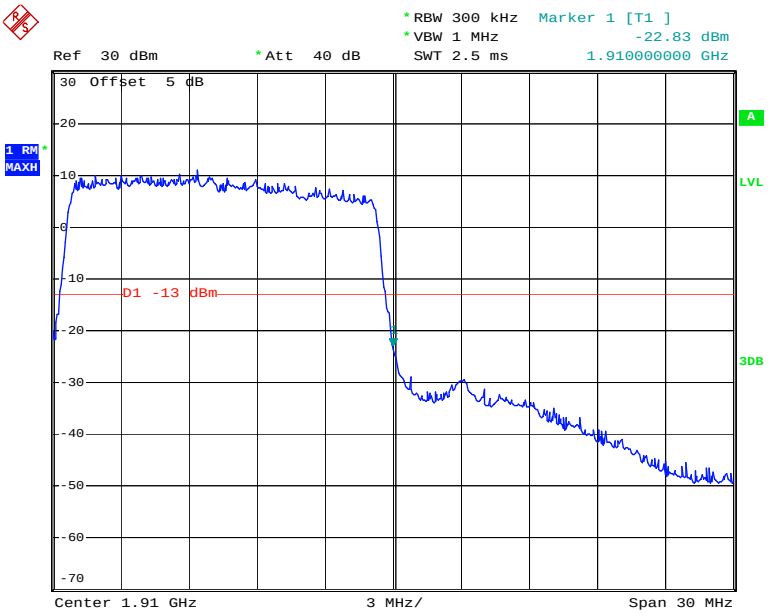
Date: 7.MAY.2020 15:51:16

QPSK_15MHz_ 75 RB_ Left



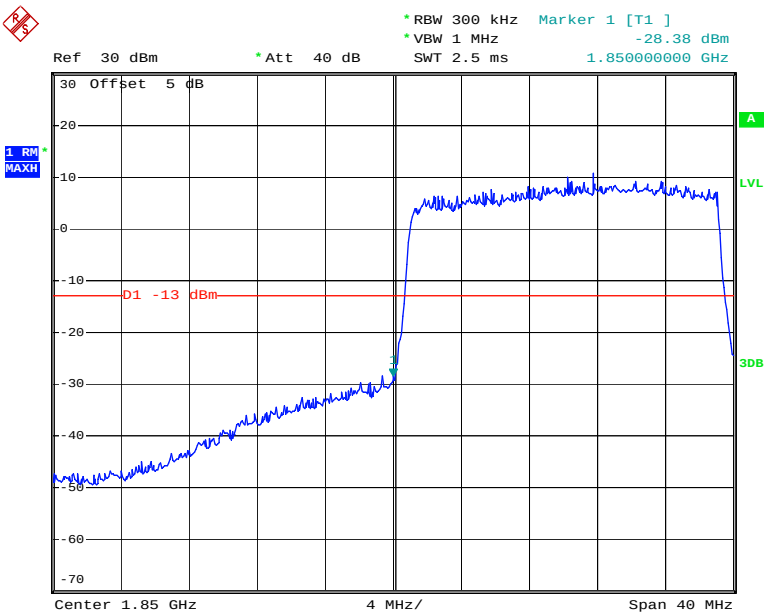
Date: 7.MAY.2020 15:52:04

QPSK_15MHz_ 75 RB_ Right



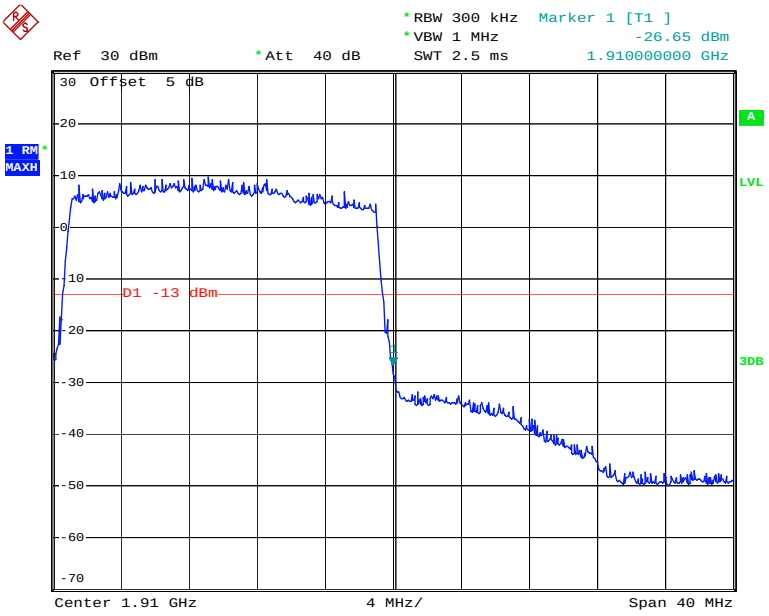
Date: 7.MAY.2020 15:52:46

QPSK_20MHz_ FULL RB_ Left



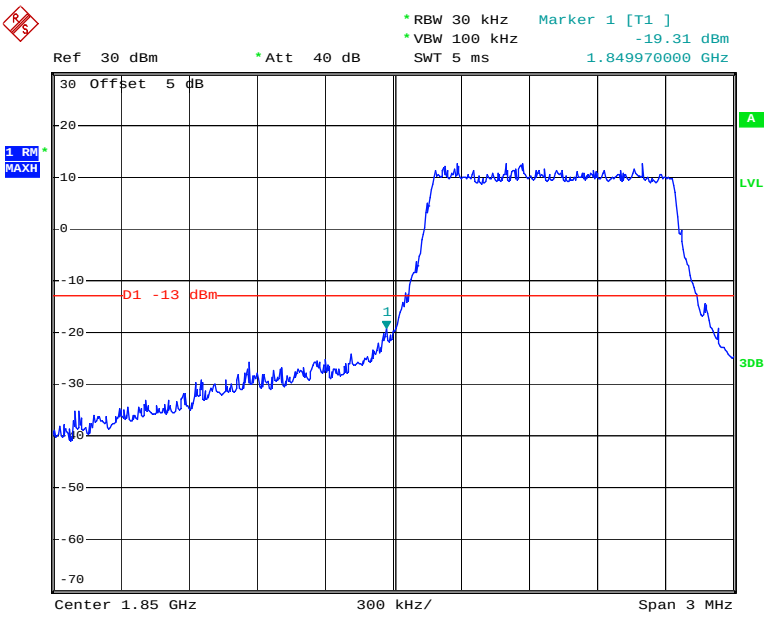
Date: 7.MAY.2020 15:53:33

QPSK_20MHz_ FULL RB_ Right



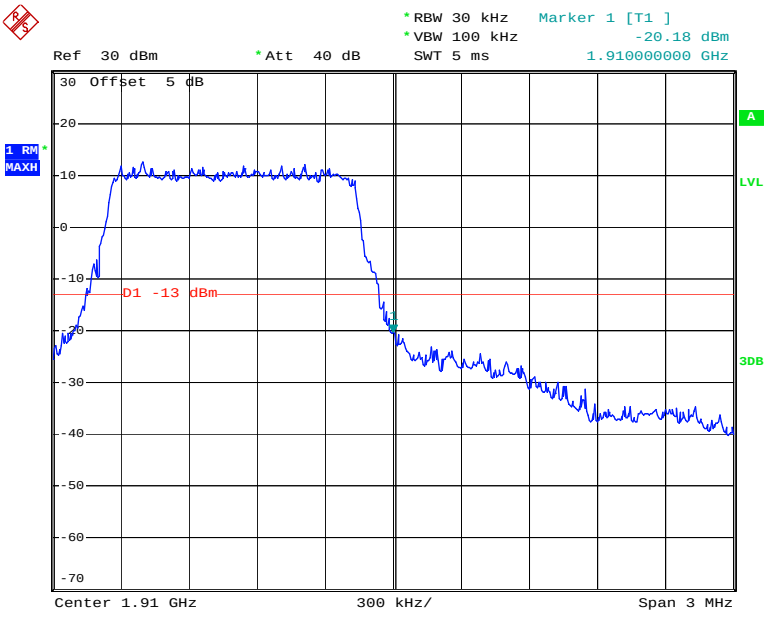
Date: 7.MAY.2020 15:54:15

16QAM_1.4MHz_ 6 RB_ Left



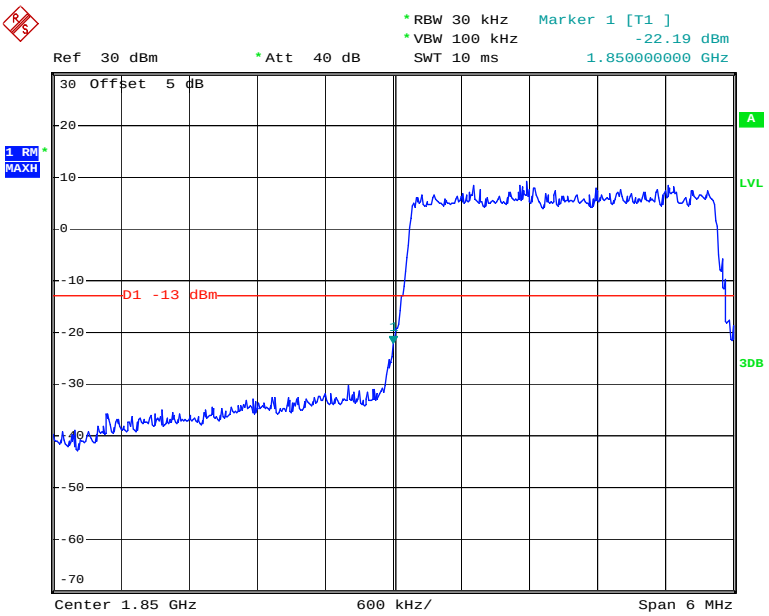
Date: 7.MAY.2020 15:46:48

16QAM_1.4MHz_ 6 RB_ Right



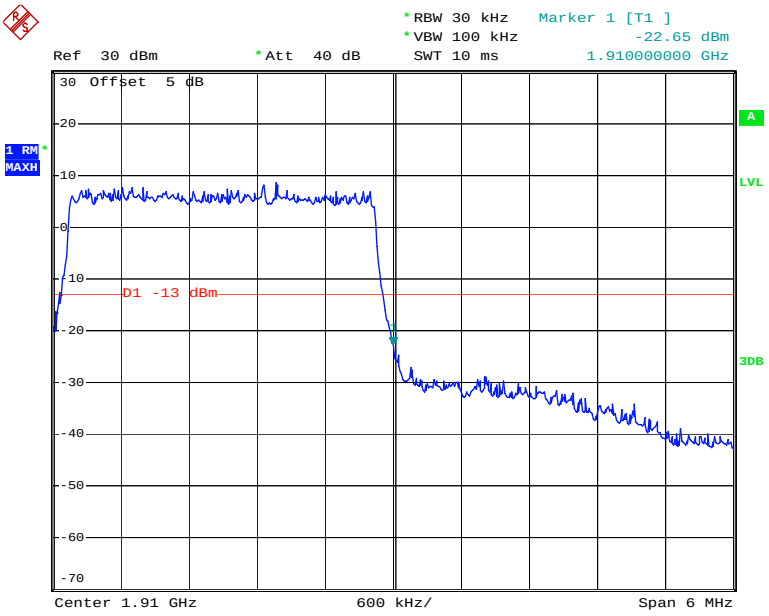
Date: 7.MAY.2020 15:47:23

16QAM_3MHz_ 15 RB_ Left



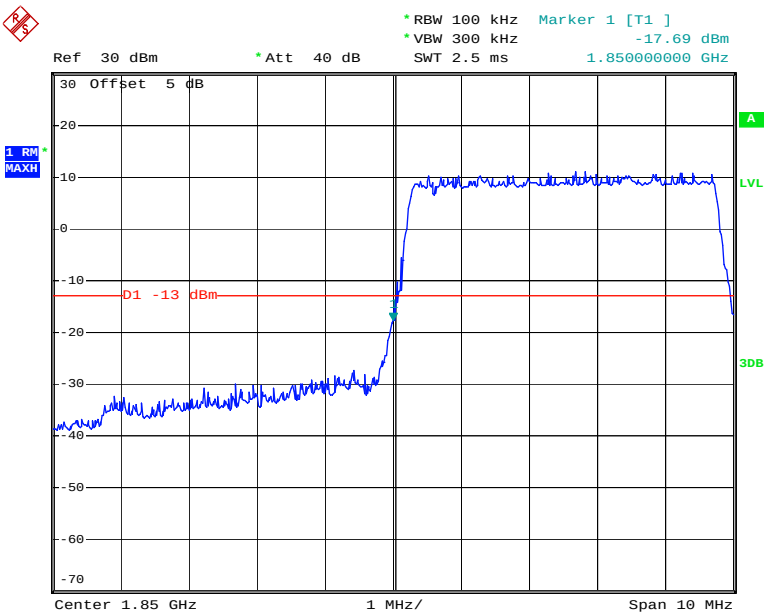
Date: 7.MAY.2020 15:48:06

16QAM_3MHz_ 15 RB_ Right



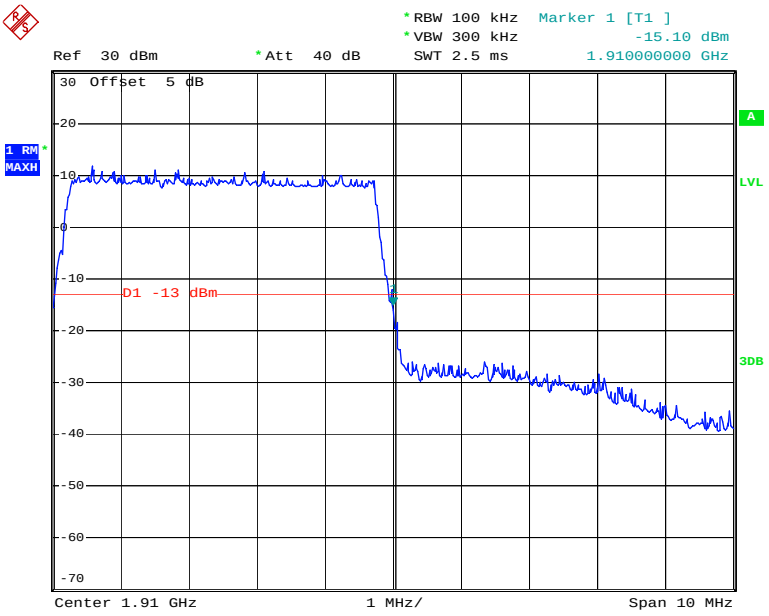
Date: 7.MAY.2020 15:48:48

16QAM_5MHz_ 25 RB_ Left



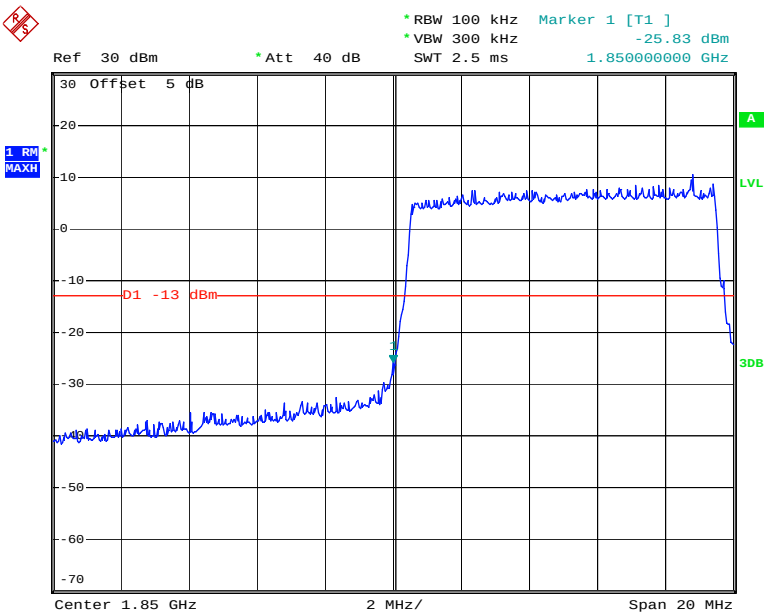
Date: 7.MAY.2020 15:49:32

16QAM_5MHz_ 25 RB_ Right



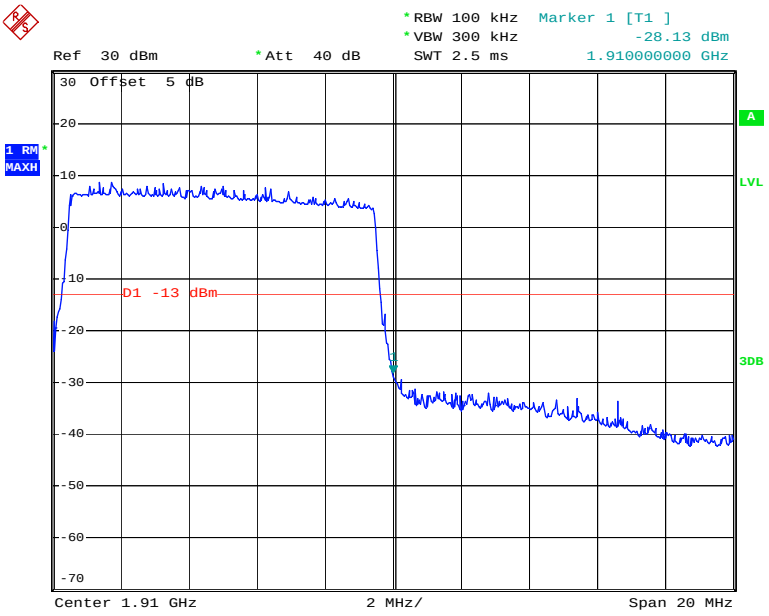
Date: 7.MAY.2020 15:50:11

16QAM_10MHz_ 50 RB_ Left



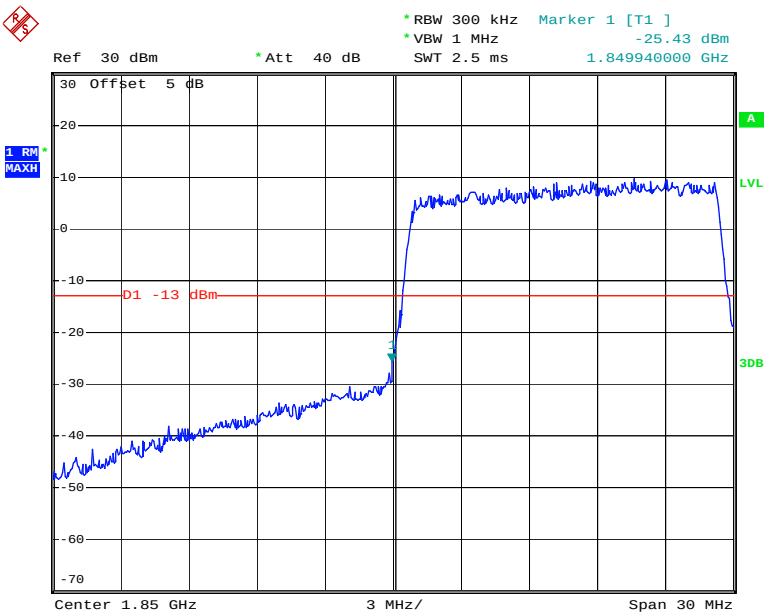
Date: 7.MAY.2020 15:50:56

16QAM_10MHz_ 50 RB_ Right



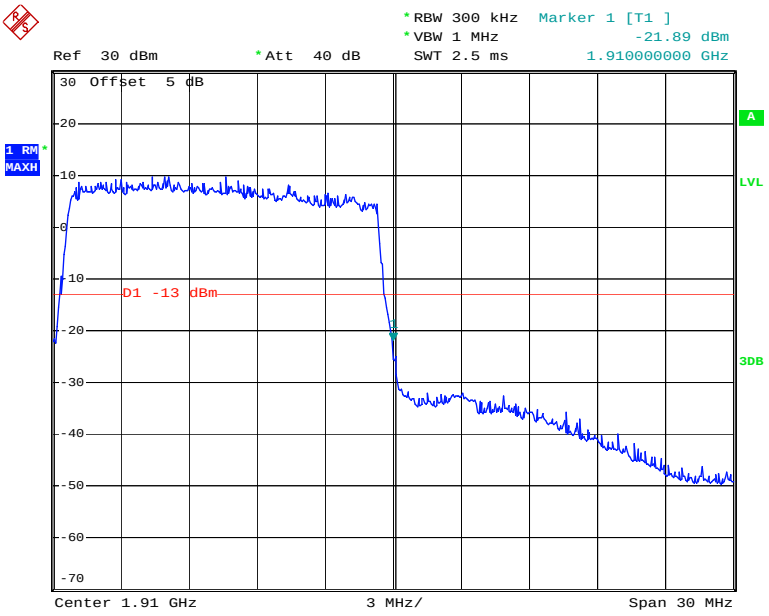
Date: 7.MAY.2020 15:51:37

16QAM_15MHz_ 75 RB_ Left



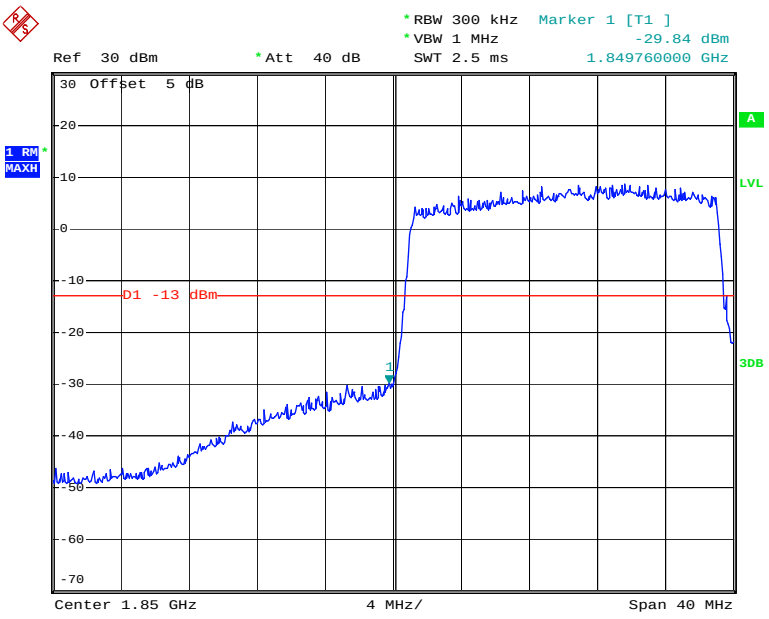
Date: 7.MAY.2020 15:52:24

16QAM_15MHz_ 75 RB_ Right



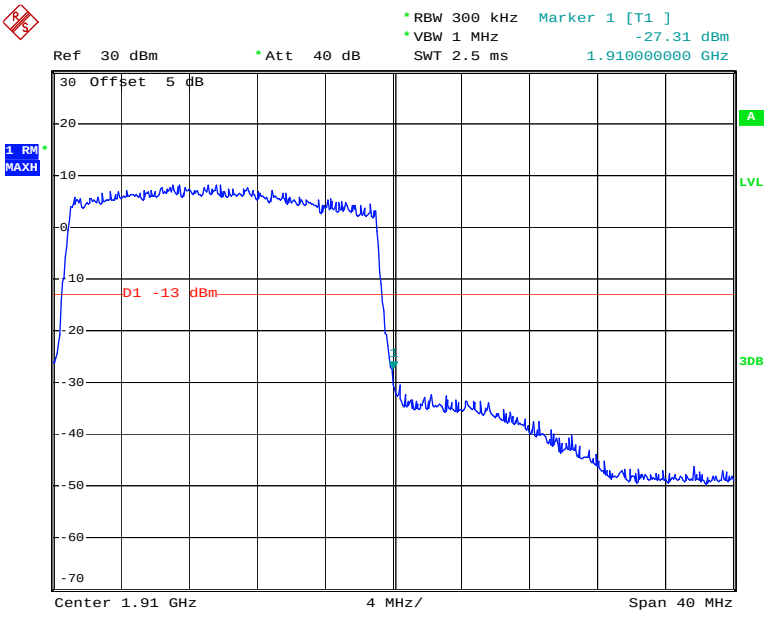
Date: 7.MAY.2020 15:53:06

16QAM_20MHz_ FULL RB_ Left



Date: 7.MAY.2020 15:53:53

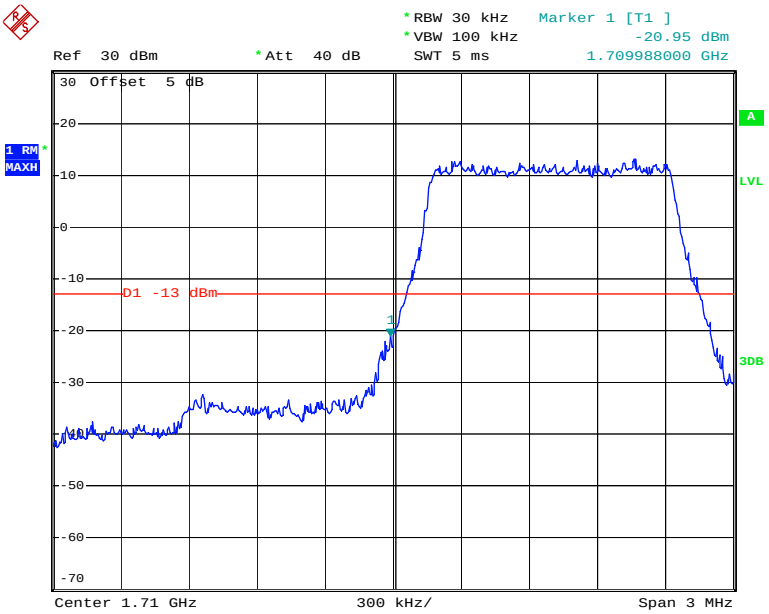
16QAM_20MHz_ FULL RB_ Right



Date: 7.MAY.2020 15:54:38

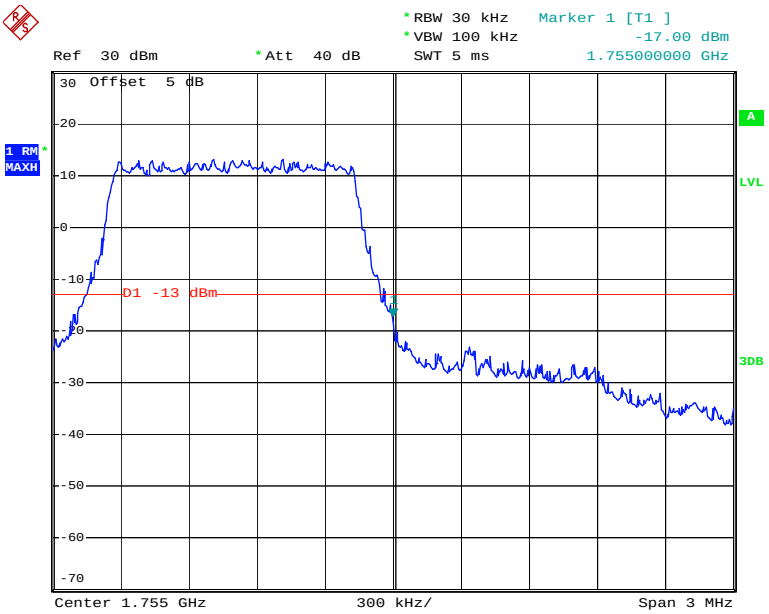
LTE Band 4

QPSK_1.4MHz_ 6 RB_ Left



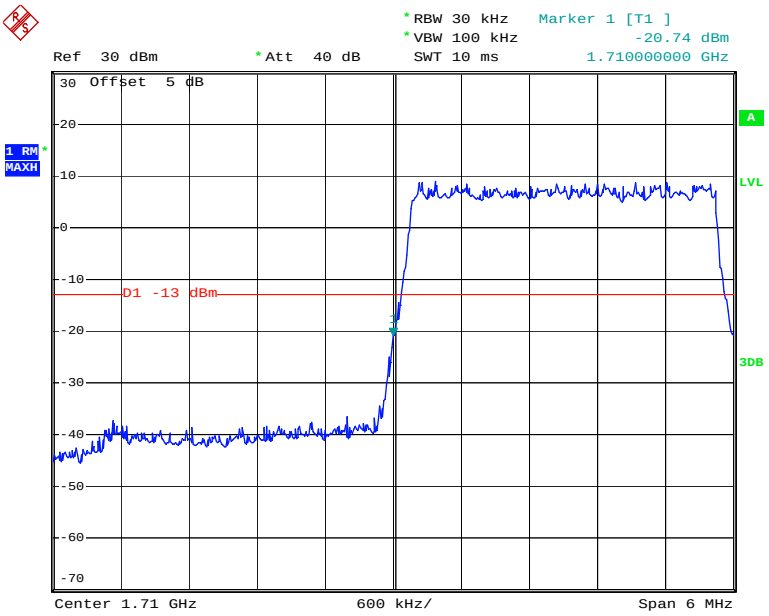
Date: 7.MAY.2020 15:55:05

QPSK_1.4MHz_ 6 RB_ Right



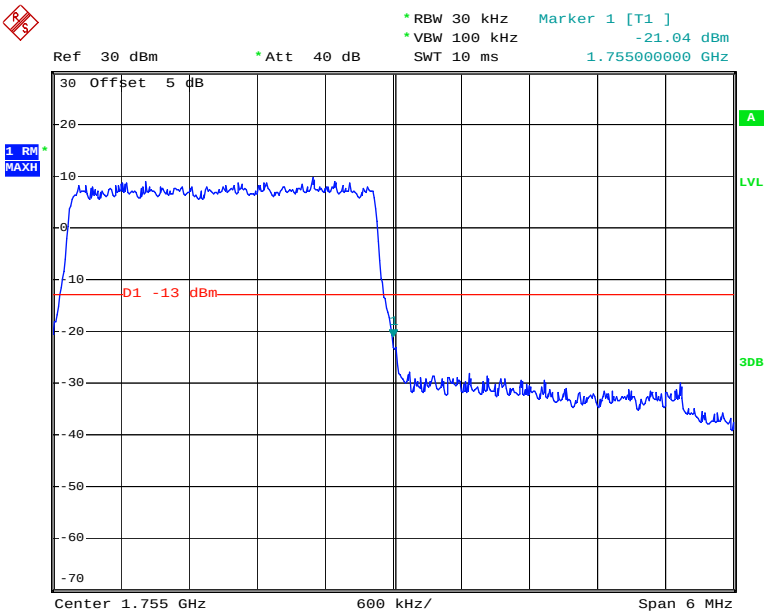
Date: 7.MAY.2020 15:55:46

QPSK_3MHz_ 15 RB_ Left



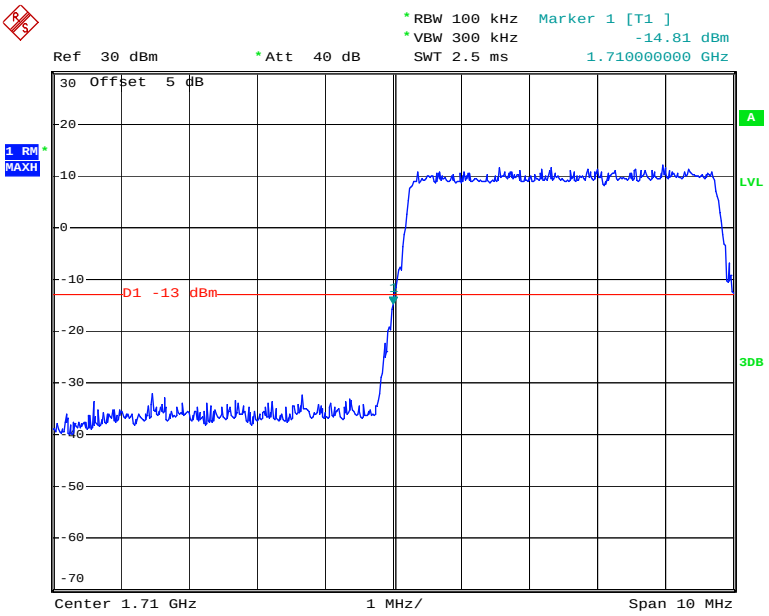
Date: 7.MAY.2020 15:56:30

QPSK_3MHz_ 15 RB_ Right



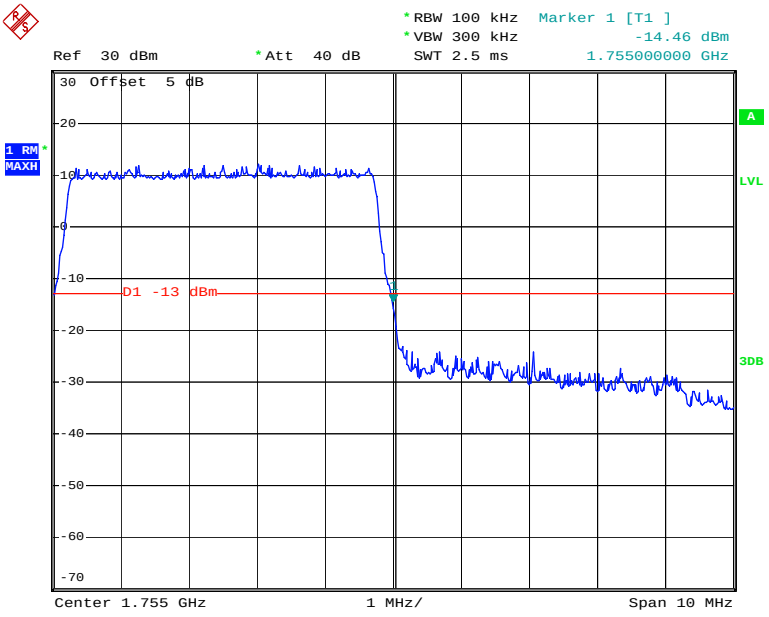
Date: 7.MAY.2020 15:57:12

QPSK_5MHz_ 25 RB_ Left



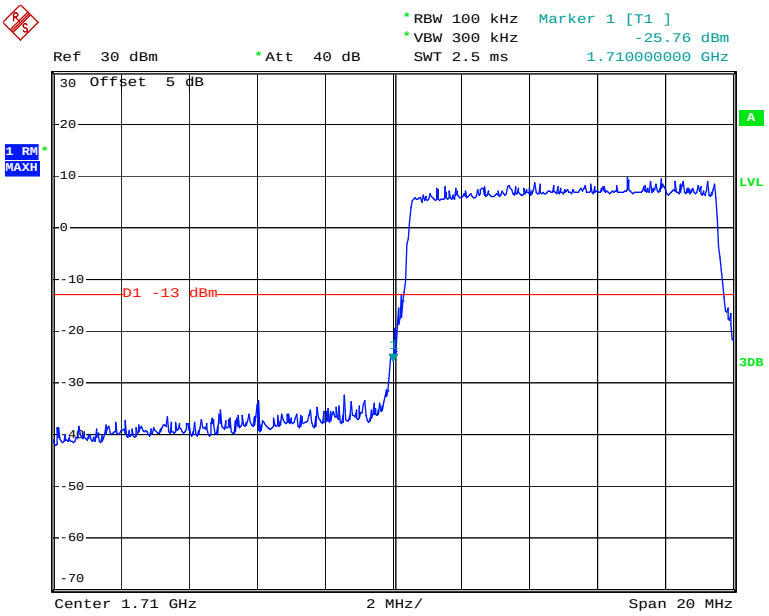
Date: 7.MAY.2020 15:57:57

QPSK_5MHz_ 25 RB_ Right



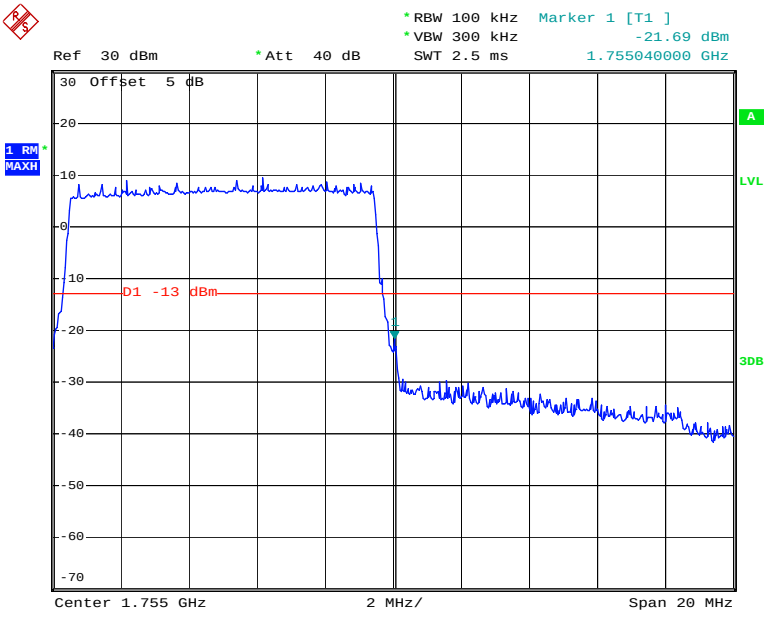
Date: 7.MAY.2020 15:58:35

QPSK_10MHz_ 50 RB_ Left



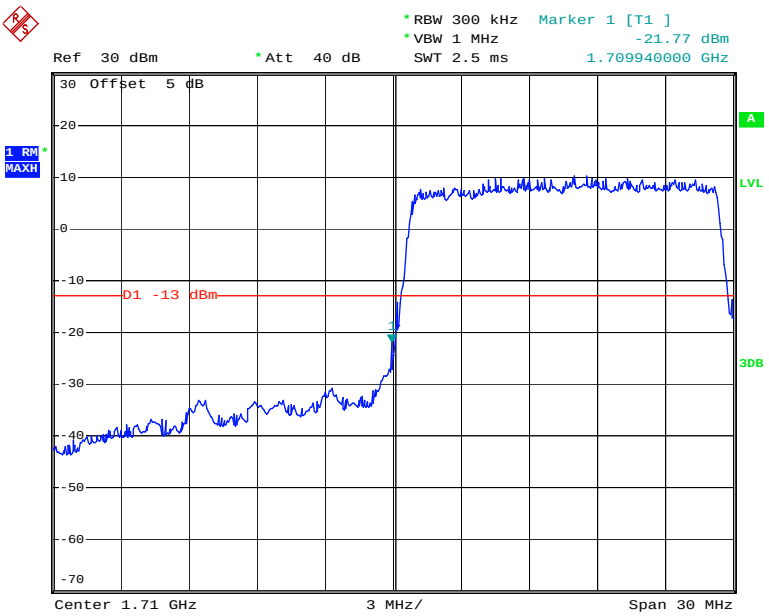
Date: 7.MAY.2020 15:59:19

QPSK_10MHz_ 50 RB_ Right



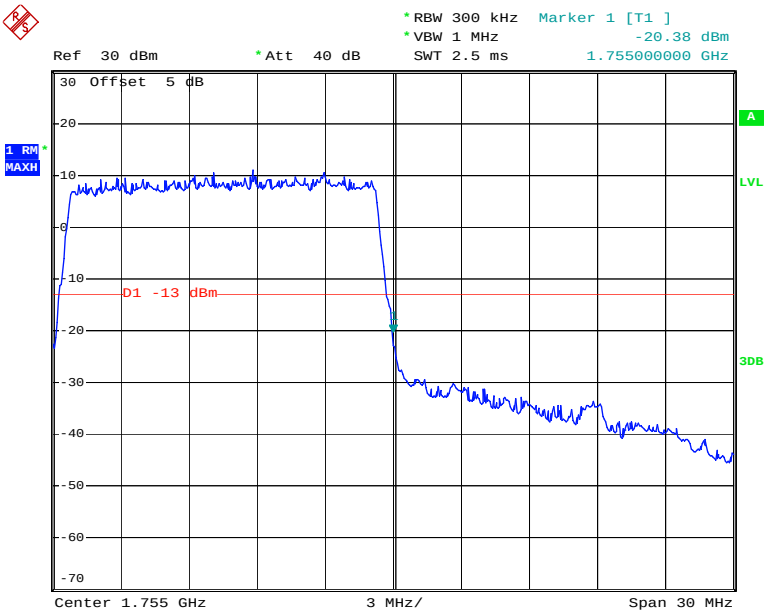
Date: 7.MAY.2020 16:00:00

QPSK_15MHz_ 75 RB_ Left



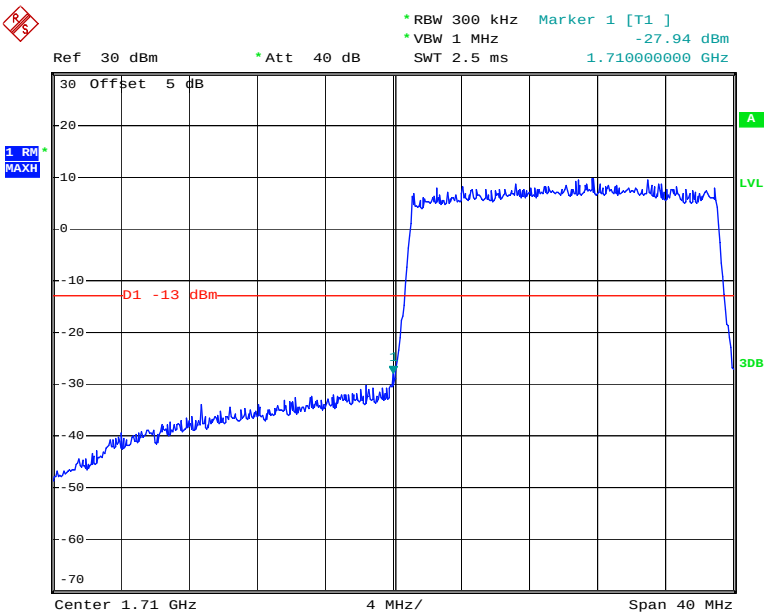
Date: 7.MAY.2020 16:00:45

QPSK_15MHz_ 75 RB_ Right



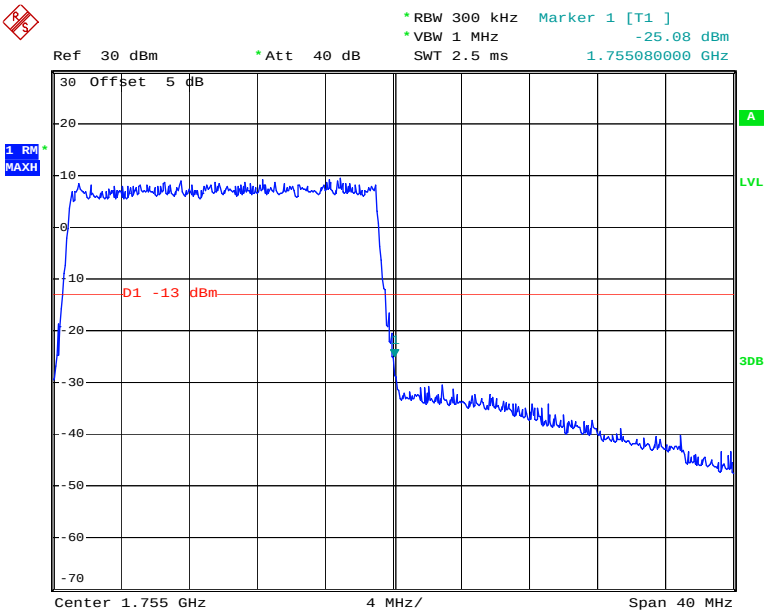
Date: 7.MAY.2020 16:01:27

QPSK_20MHz_ FULL RB_ Left



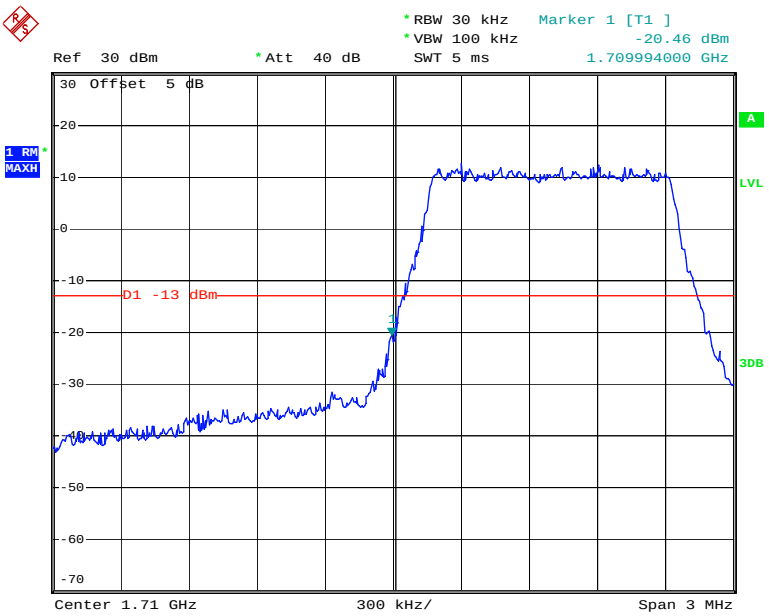
Date: 7.MAY.2020 16:02:10

QPSK_20MHz_ FULL RB_ Right



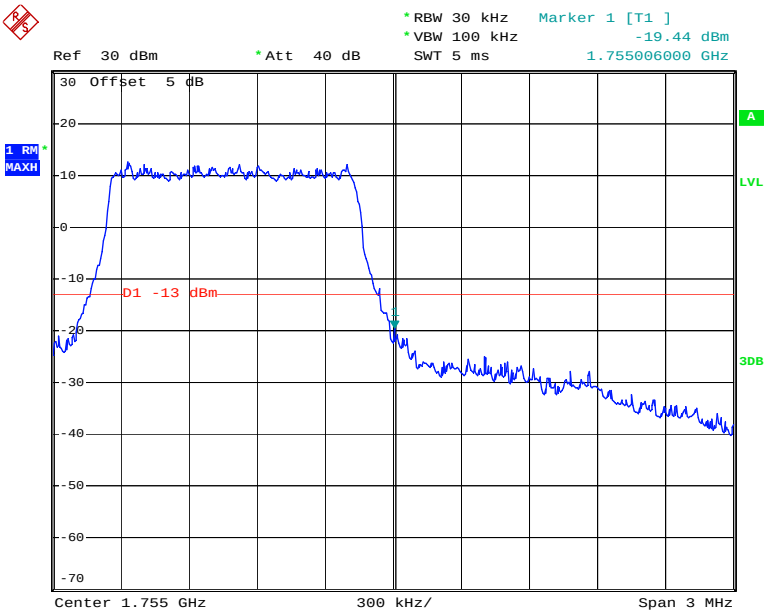
Date: 7.MAY.2020 16:02:55

16QAM_1.4MHz_ 6 RB_ Left



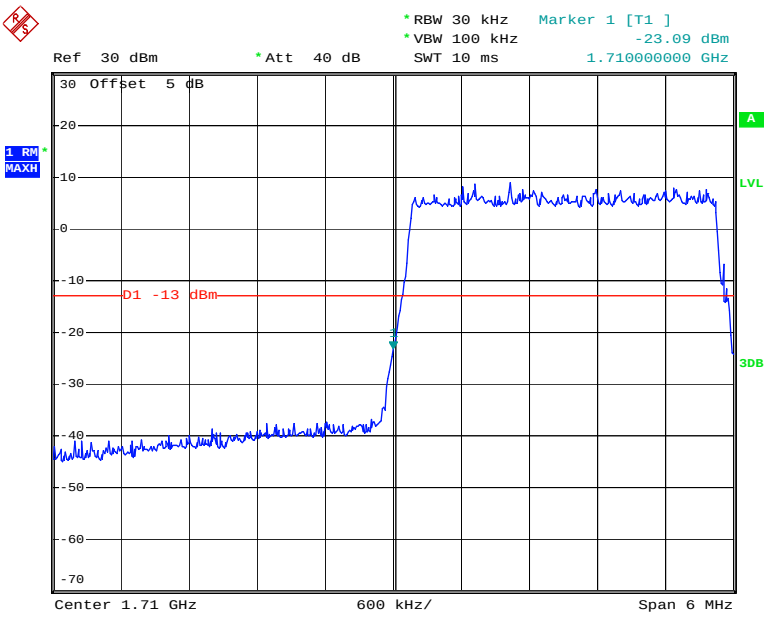
Date: 7.MAY.2020 15:55:25

16QAM_1.4MHz_ 6 RB_ Right



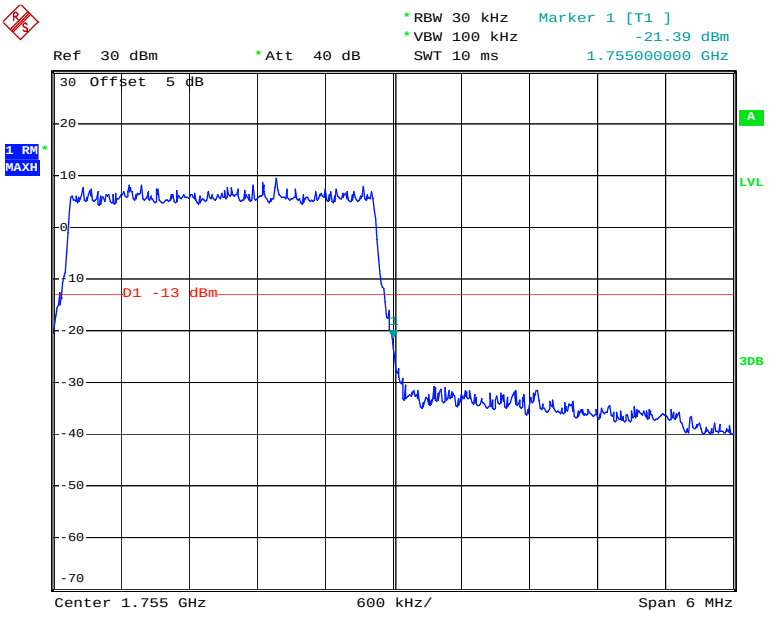
Date: 7.MAY.2020 15:56:03

16QAM_3MHz_ 15 RB_ Left



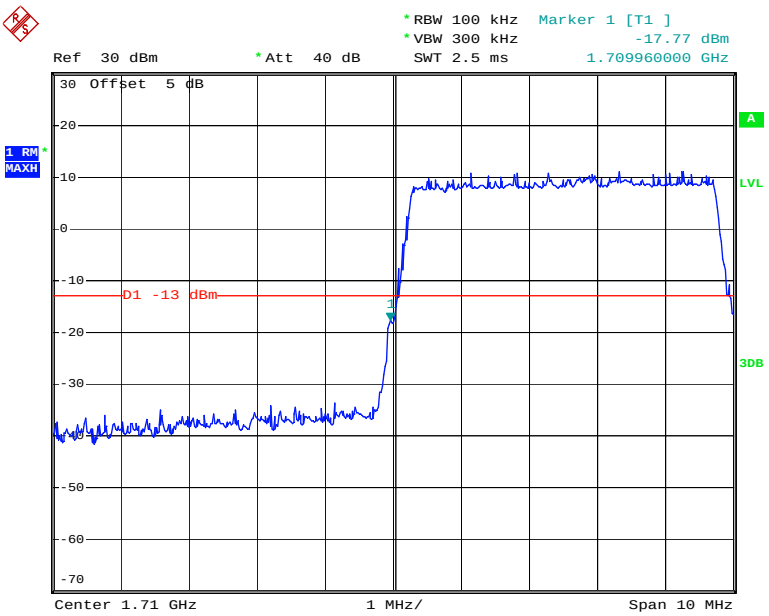
Date: 7.MAY.2020 15:56:51

16QAM_3MHz_ 15 RB_ Right



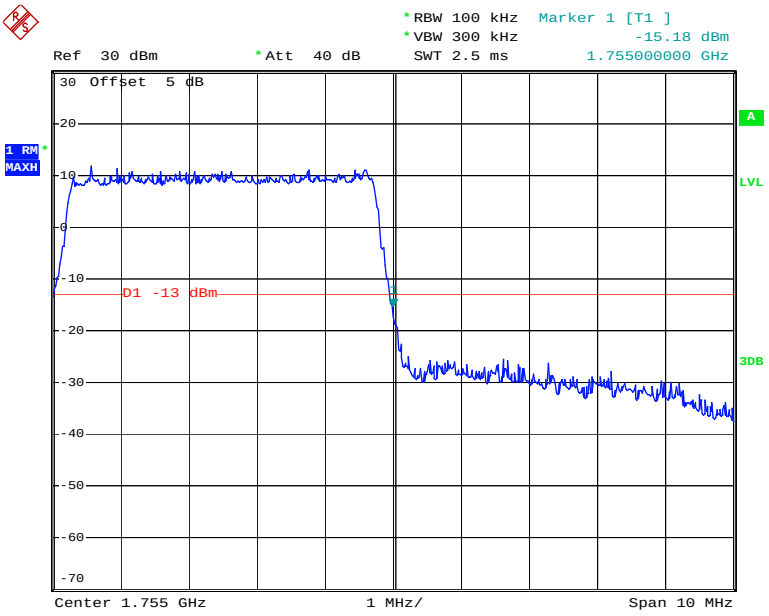
Date: 7.MAY.2020 15:57:29

16QAM_5MHz_ 25 RB_ Left



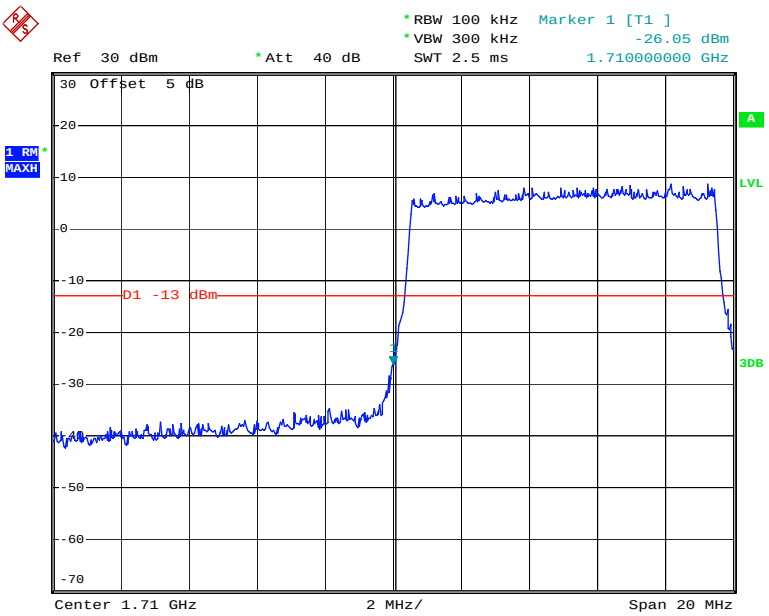
Date: 7.MAY.2020 15:58:14

16QAM_5MHz_ 25 RB_ Right



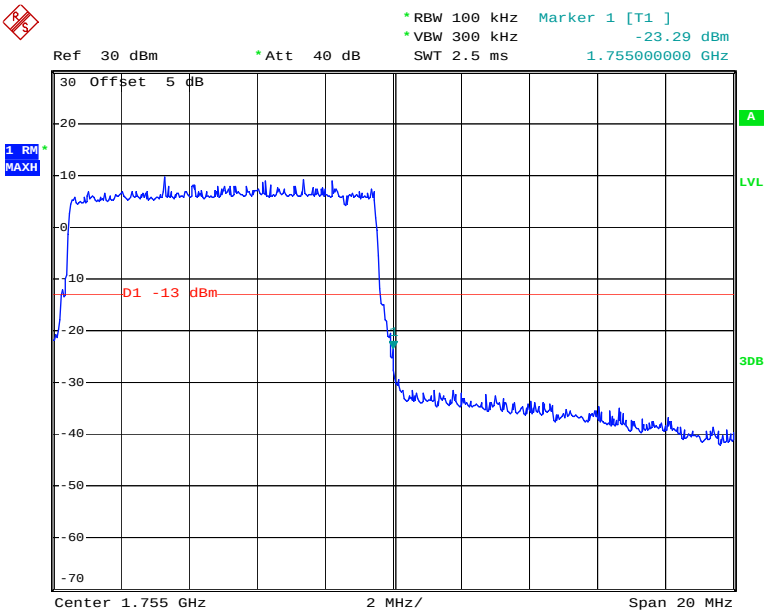
Date: 7.MAY.2020 15:58:56

16QAM_10MHz_ 50 RB_ Left



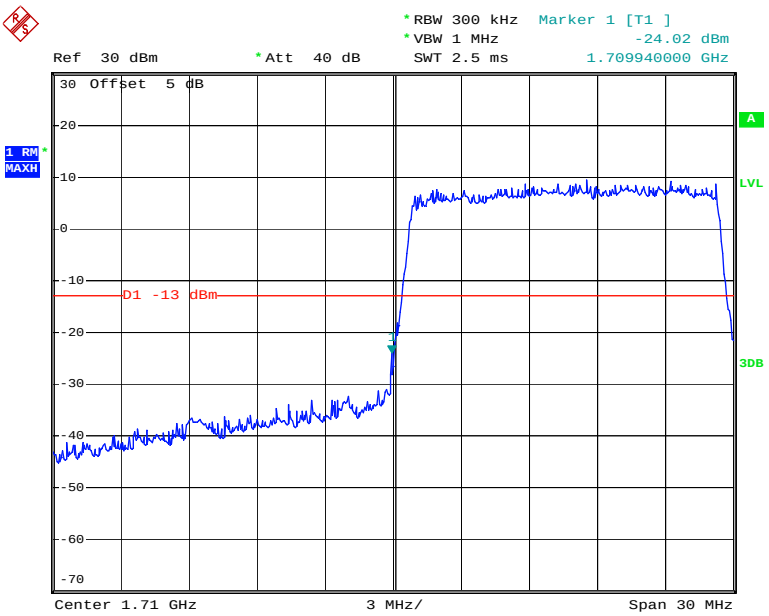
Date: 7.MAY.2020 15:59:41

16QAM_10MHz_ 50 RB_ Right



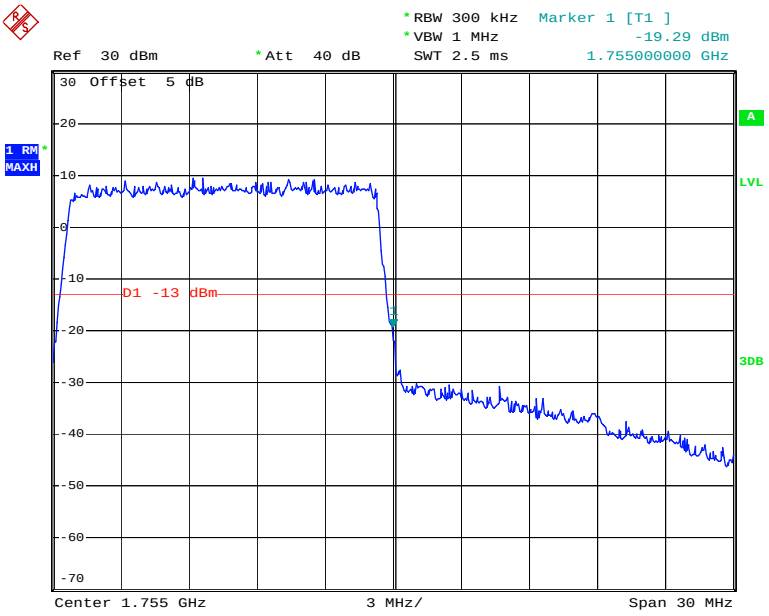
Date: 7.MAY.2020 16:00:18

16QAM_15MHz_ 75 RB_ Left



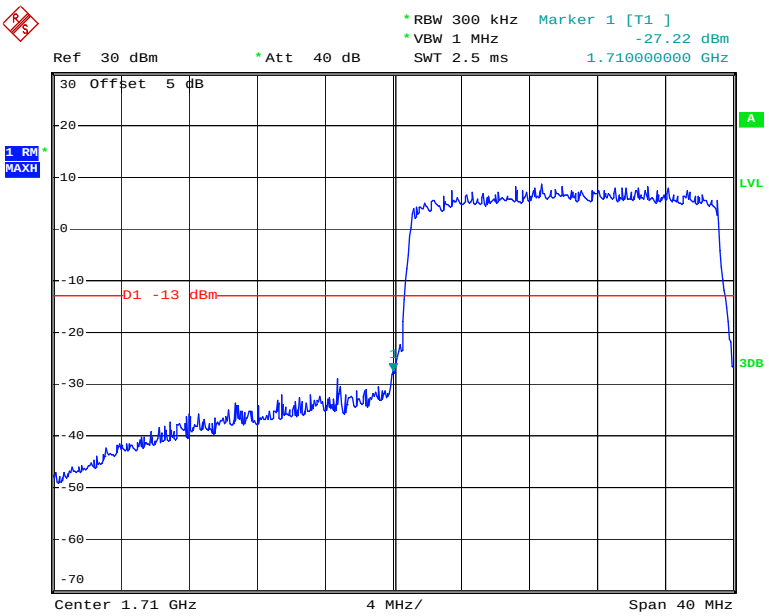
Date: 7.MAY.2020 16:01:05

16QAM_15MHz_ 75 RB_ Right



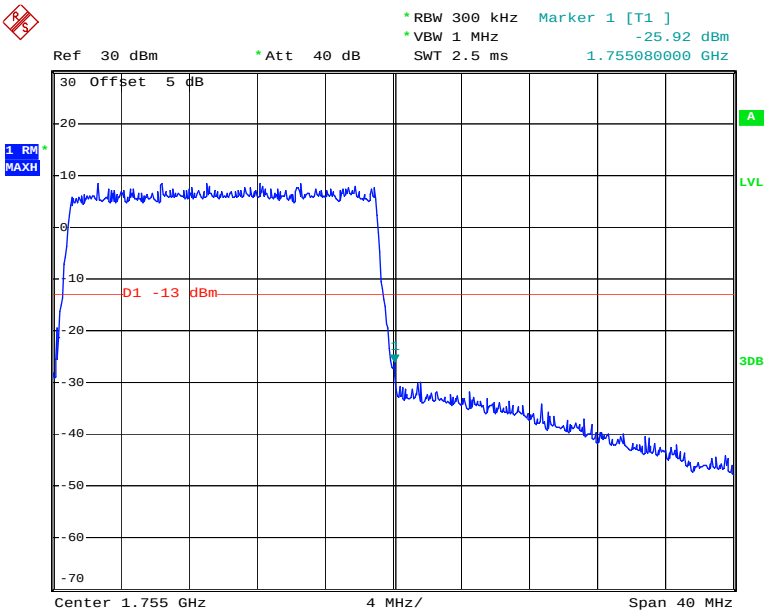
Date: 7.MAY.2020 16:01:47

16QAM_20MHz_ FULL RB_ Left



Date: 7.MAY.2020 16:02:30

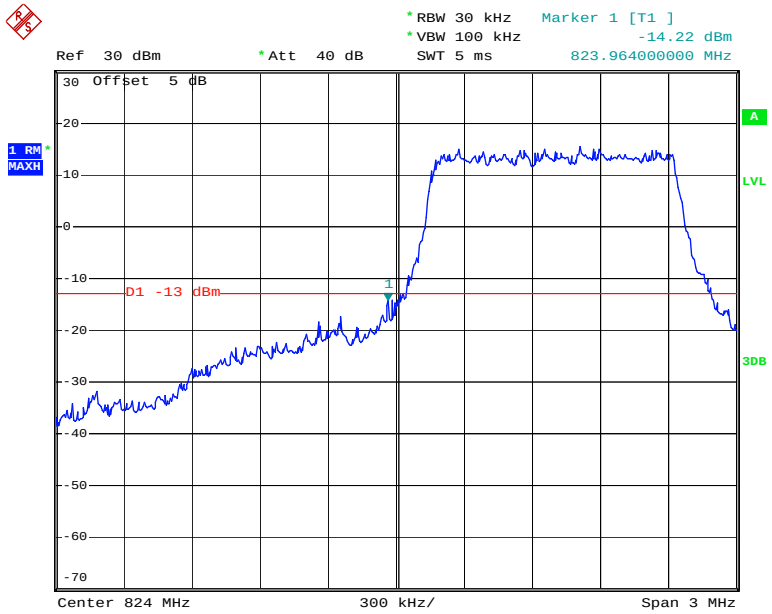
16QAM_20MHz_ FULL RB_ Right



Date: 7.MAY.2020 16:03:18

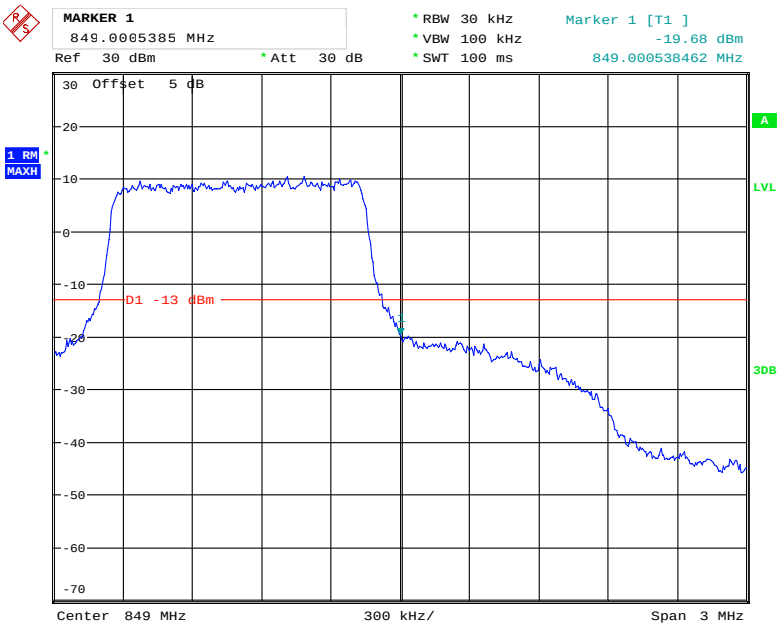
LTE Band 5

QPSK_1.4MHz_ 6 RB_ Left



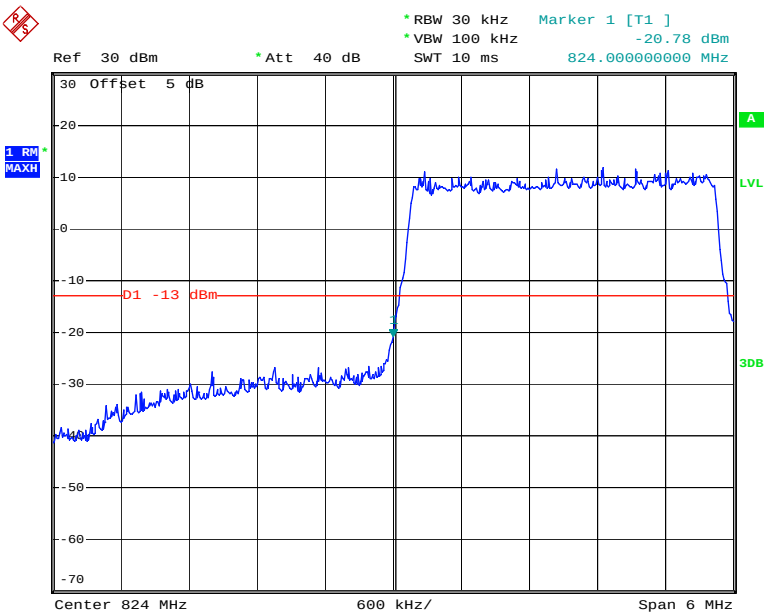
Date: 7.MAY.2020 16:03:49

QPSK_1.4MHz_ 6 RB_ Right



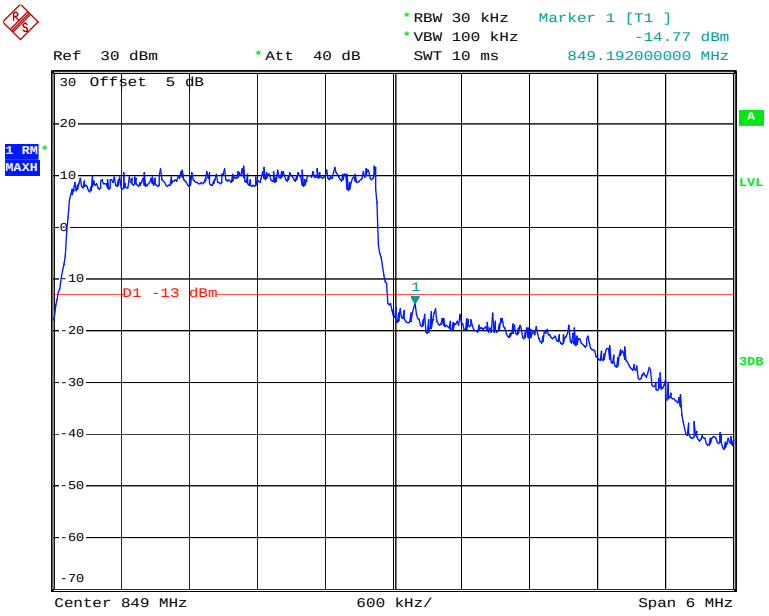
Date: 8.MAY.2020 12:08:05

QPSK_3MHz_ 15 RB_ Left



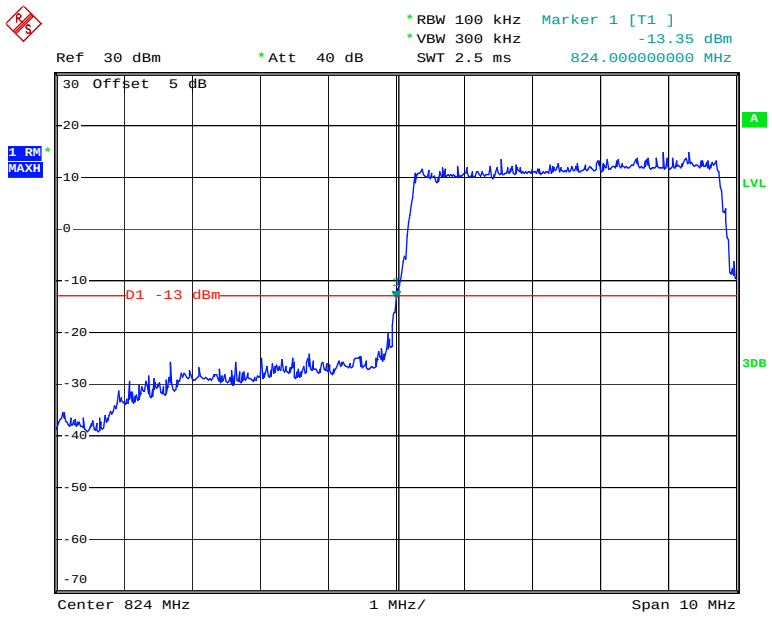
Date: 7.MAY.2020 16:05:08

QPSK_3MHz_ 15 RB_ Right



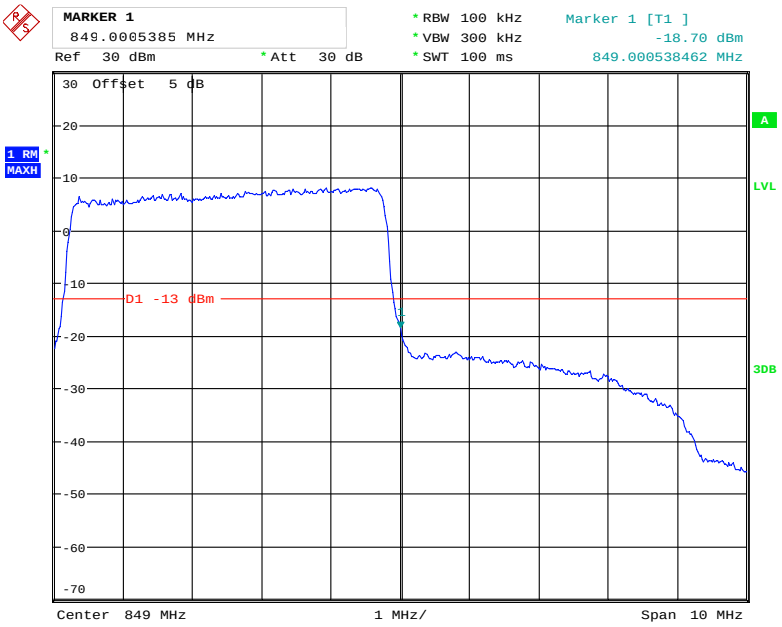
Date: 7.MAY.2020 16:05:46

QPSK_5MHz_ 25 RB_ Left



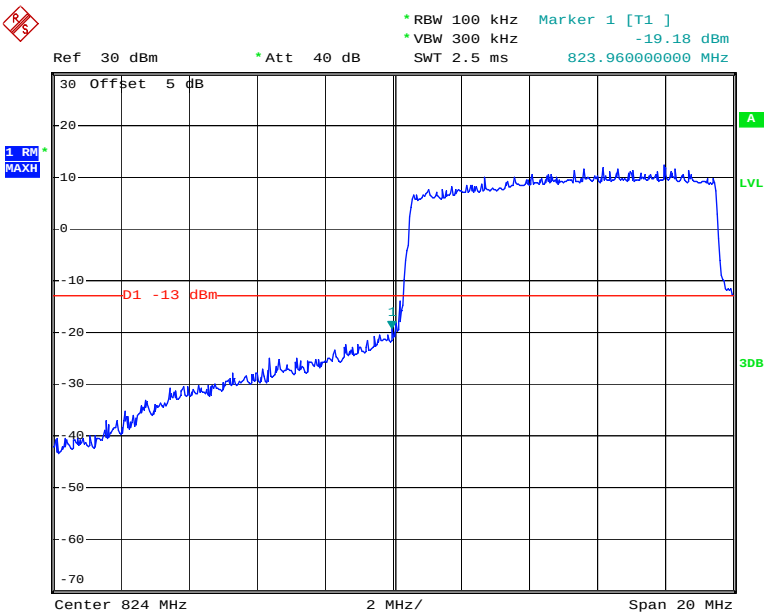
Date: 7.MAY.2020 16:06:31

QPSK_5MHz_ 25 RB_ Right



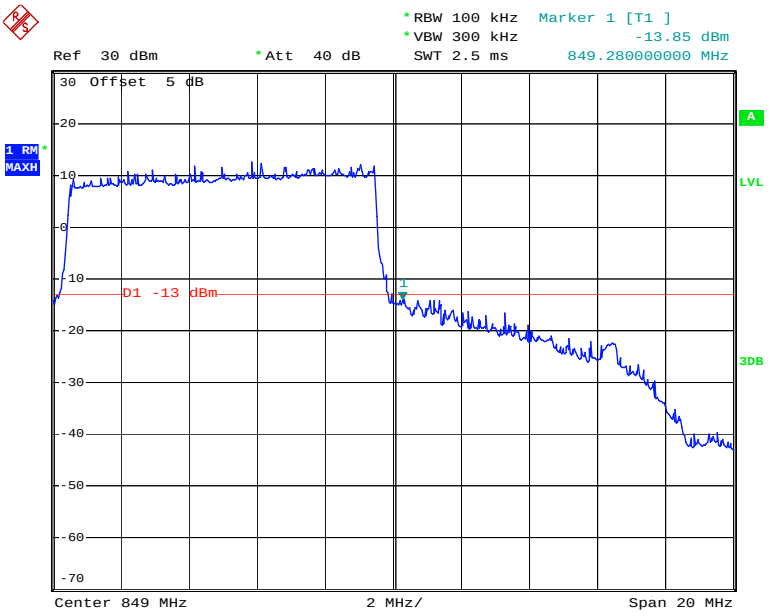
Date: 8.MAY.2020 12:14:36

QPSK_10MHz_ 50 RB_ Left



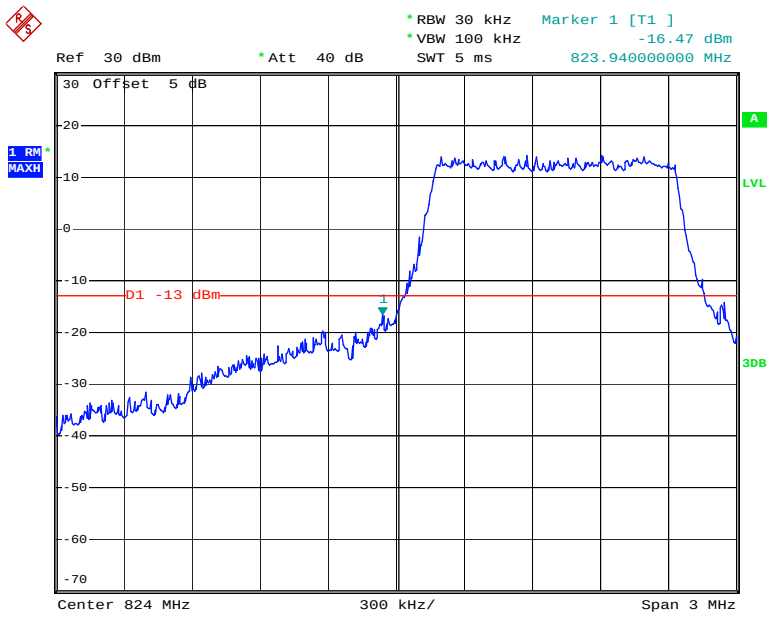
Date: 7.MAY.2020 16:07:52

QPSK_10MHz_ 50 RB_ Right



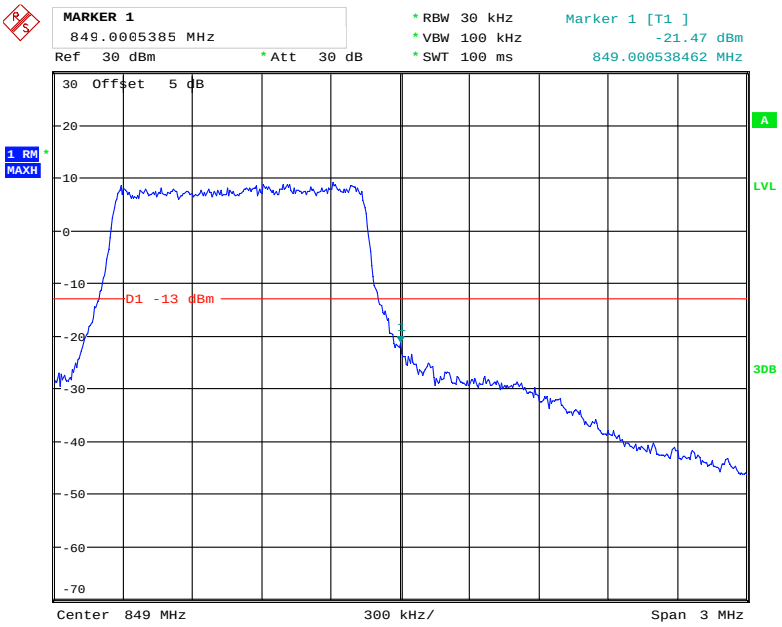
Date: 7.MAY.2020 16:08:32

16QAM_1.4MHz_ 6 RB_ Left



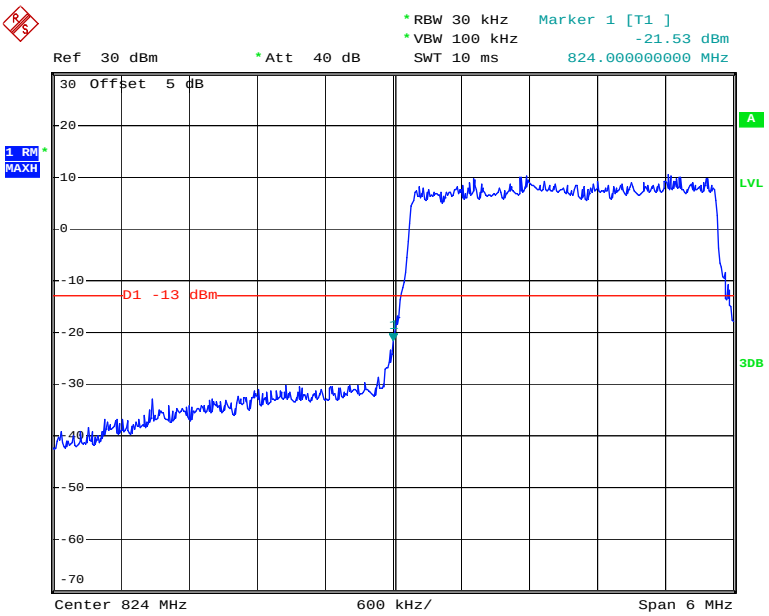
Date: 7.MAY.2020 16:04:06

16QAM_1.4MHz_ 6 RB_ Right



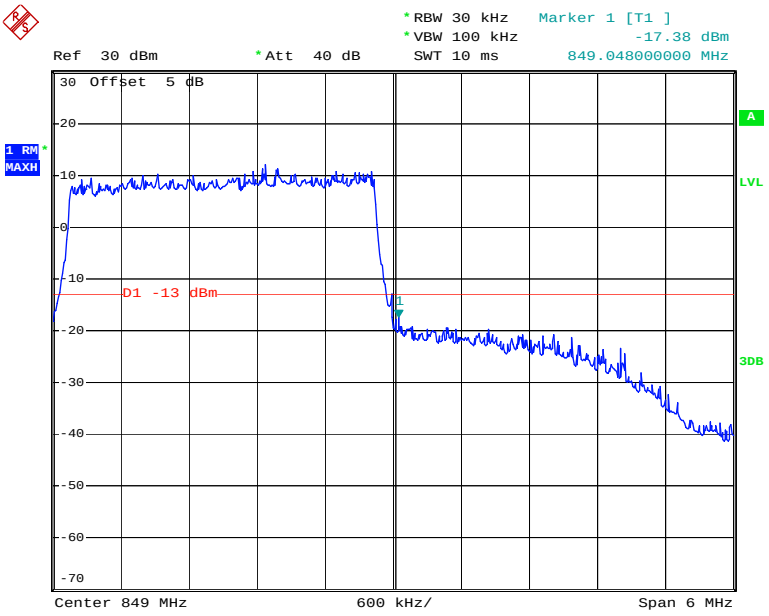
Date: 8.MAY.2020 12:09:27

16QAM_3MHz_ 15 RB_ Left



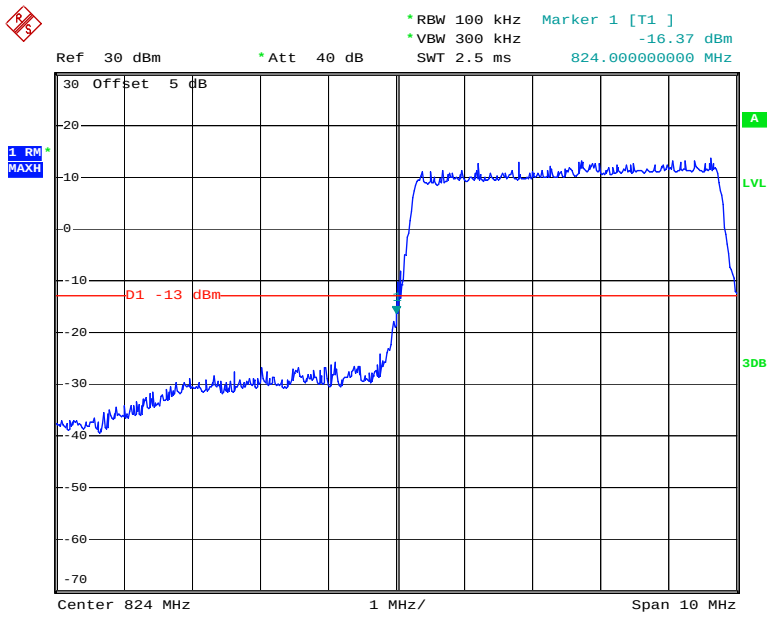
Date: 7.MAY.2020 16:05:28

16QAM_3MHz_ 15 RB_ Right



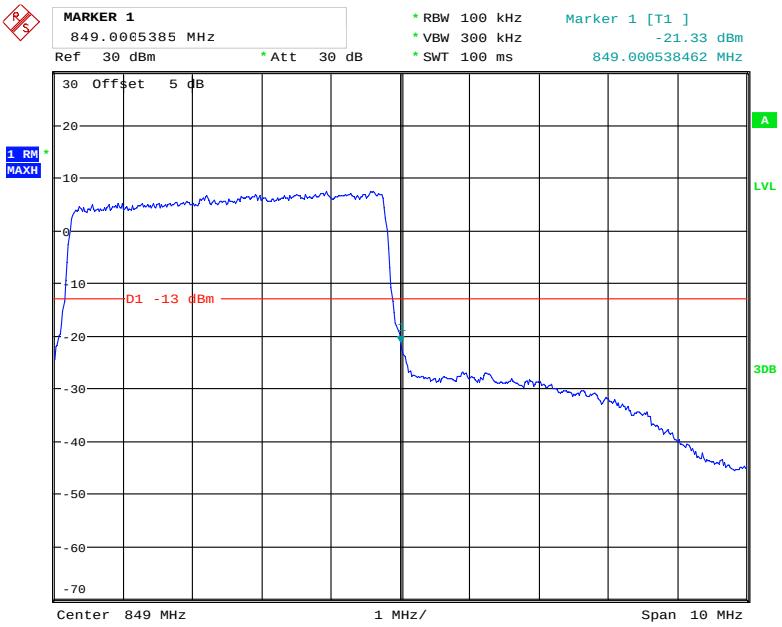
Date: 7.MAY.2020 16:06:07

16QAM_5MHz_ 25 RB_ Left



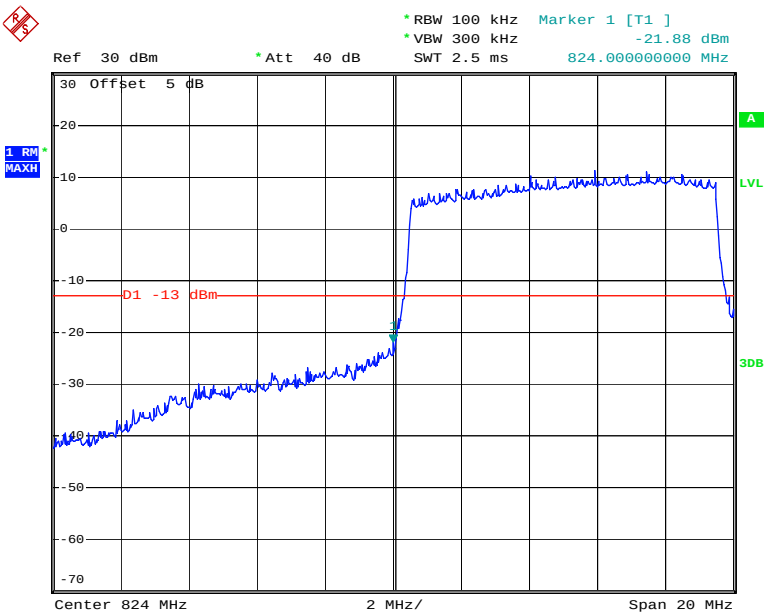
Date: 7.MAY.2020 16:06:51

16QAM_5MHz_ 25 RB_ Right



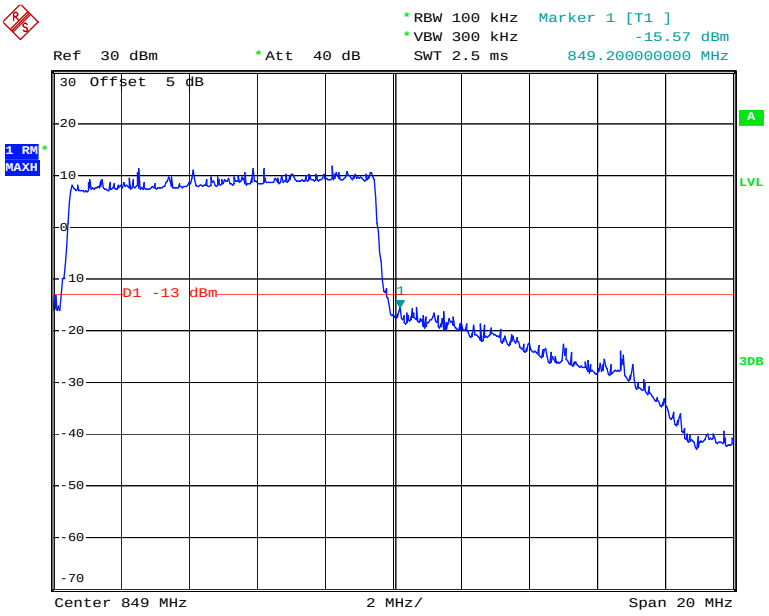
Date: 8.MAY.2020 12:13:30

16QAM_10MHz_ 50 RB_ Left



Date: 7.MAY.2020 16:08:13

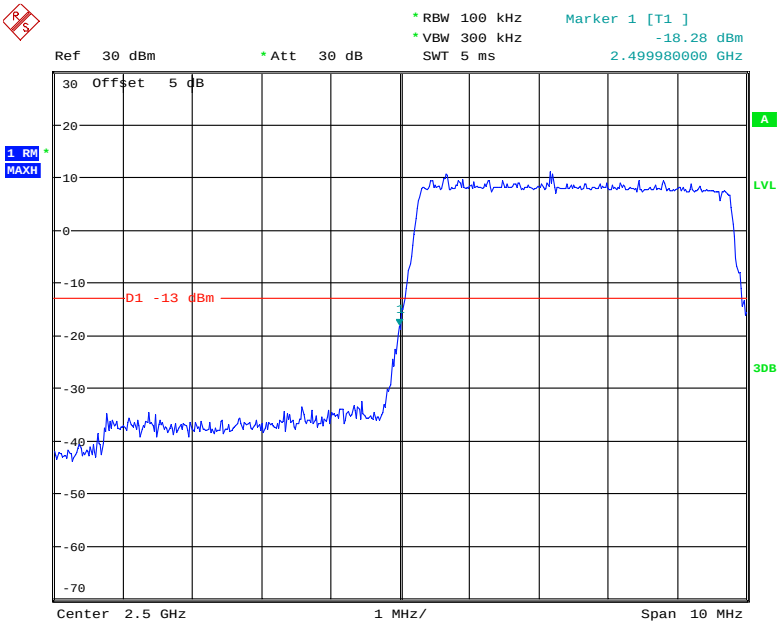
16QAM_10MHz_ 50 RB_ Right



Date: 7.MAY.2020 16:08:50

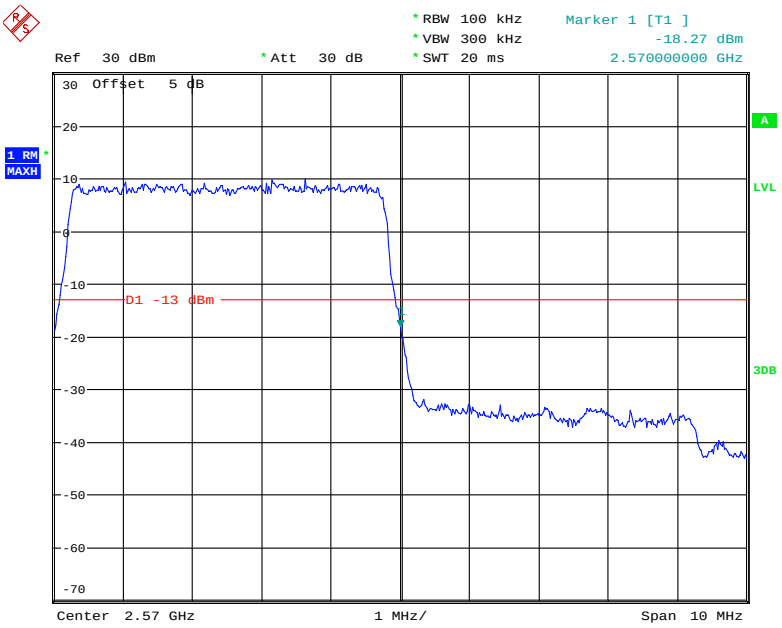
LTE Band 7

QPSK_5MHz_ 25 RB_ Left



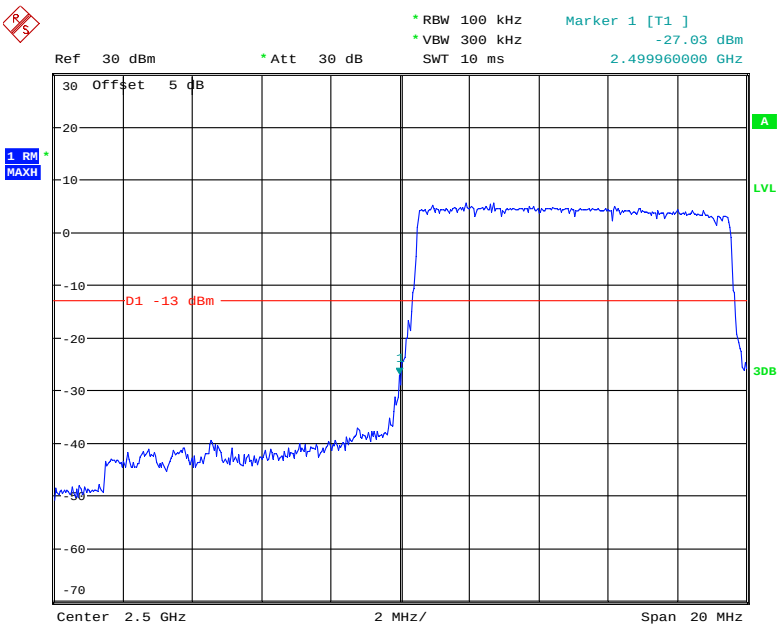
Date: 15.MAY.2020 10:29:27

QPSK_5MHz_ 25 RB_ Right



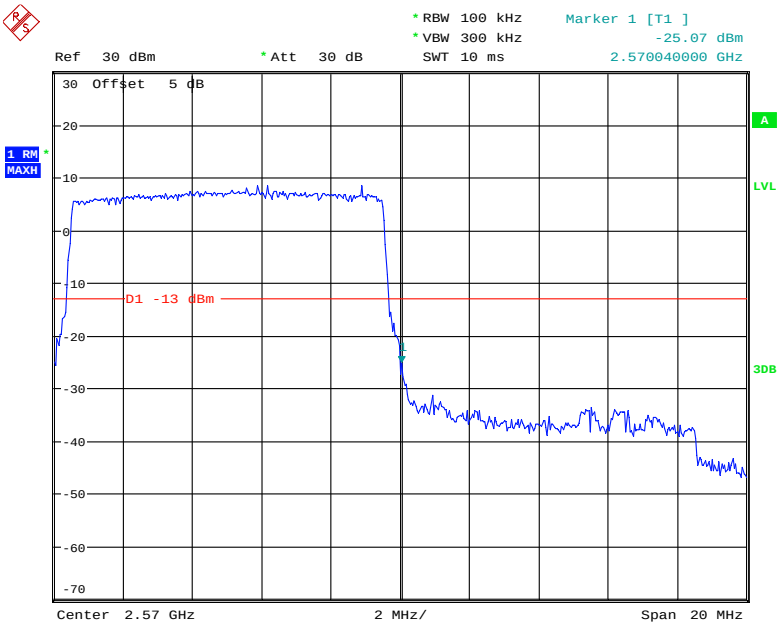
Date: 15.MAY.2020 10:30:24

QPSK_10MHz_ 50 RB_ Left



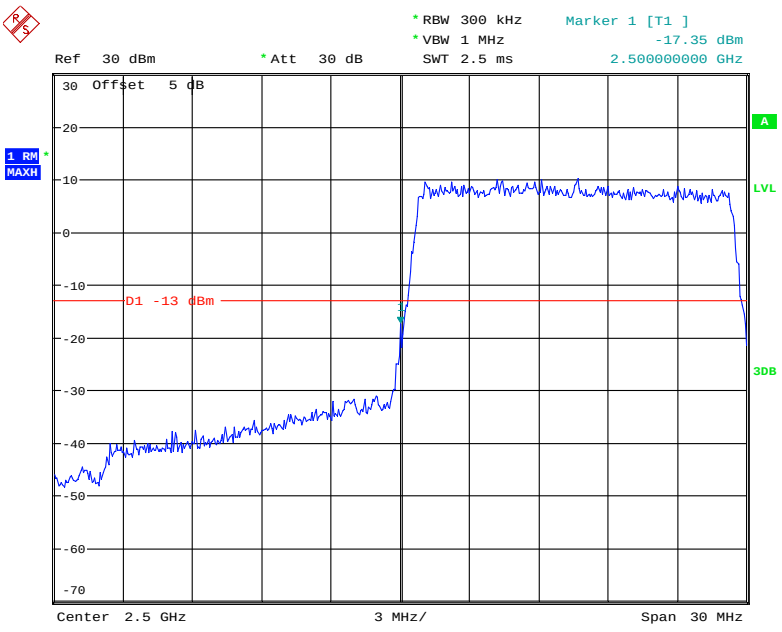
Date: 15.MAY.2020 10:31:07

QPSK_10MHz_ 50 RB_ Right



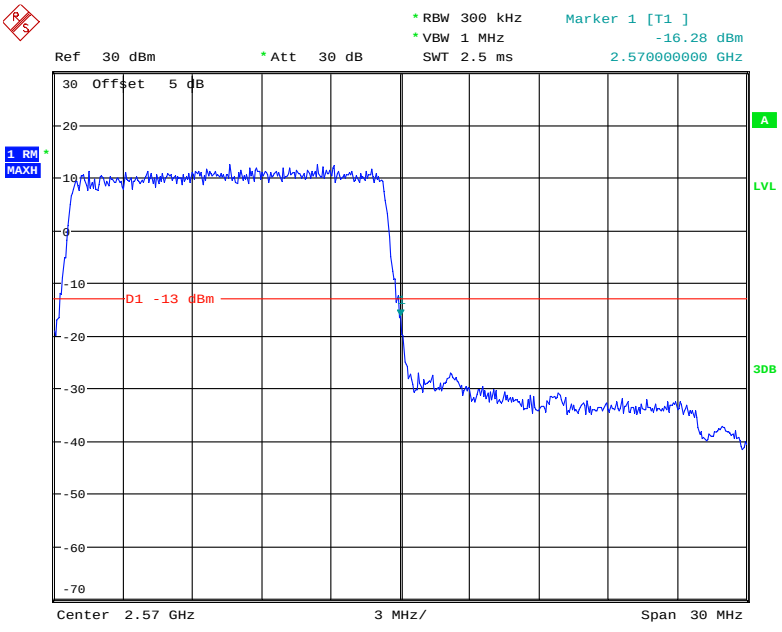
Date: 15.MAY.2020 10:31:44

QPSK_15MHz_ 75 RB_ Left



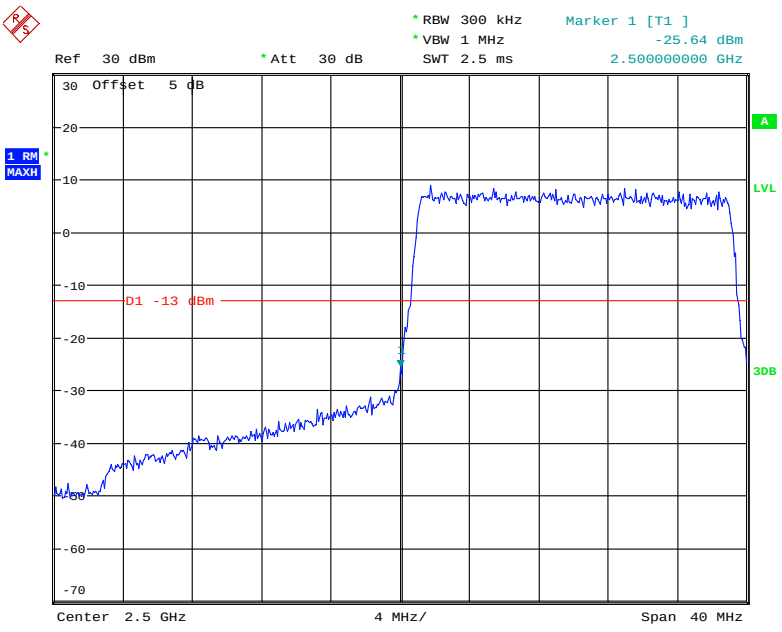
Date: 15.MAY.2020 10:32:29

QPSK_15MHz_ 75 RB_ Right



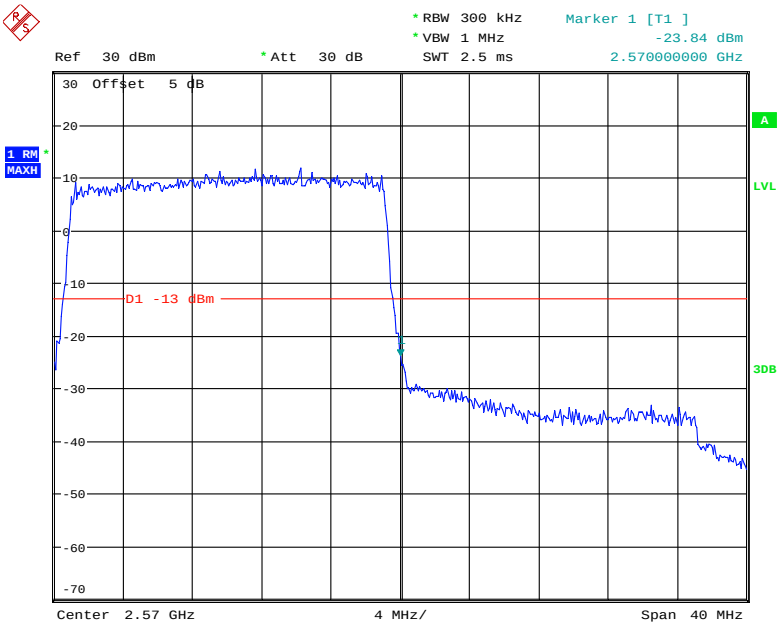
Date: 15.MAY.2020 10:33:10

QPSK_20MHz_ FULL RB_ Left



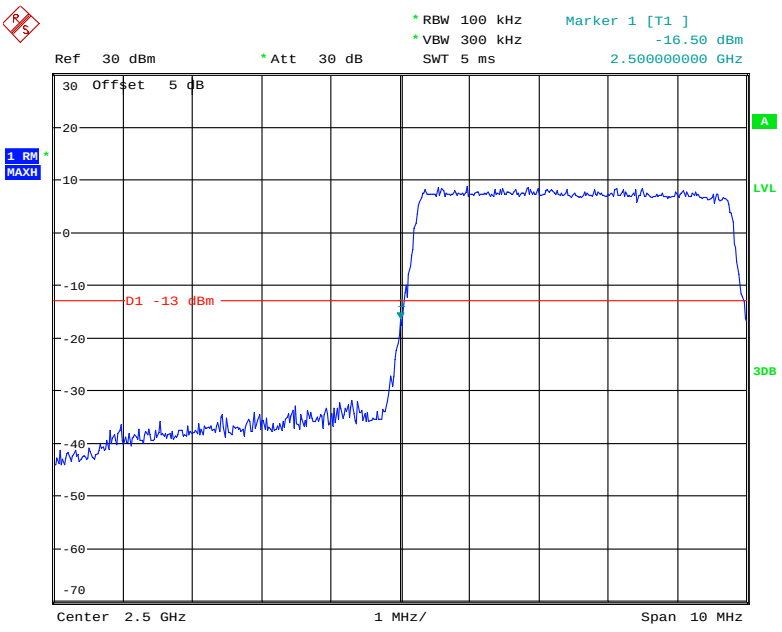
Date: 15.MAY.2020 10:36:00

QPSK_20MHz_ FULL RB_ Right



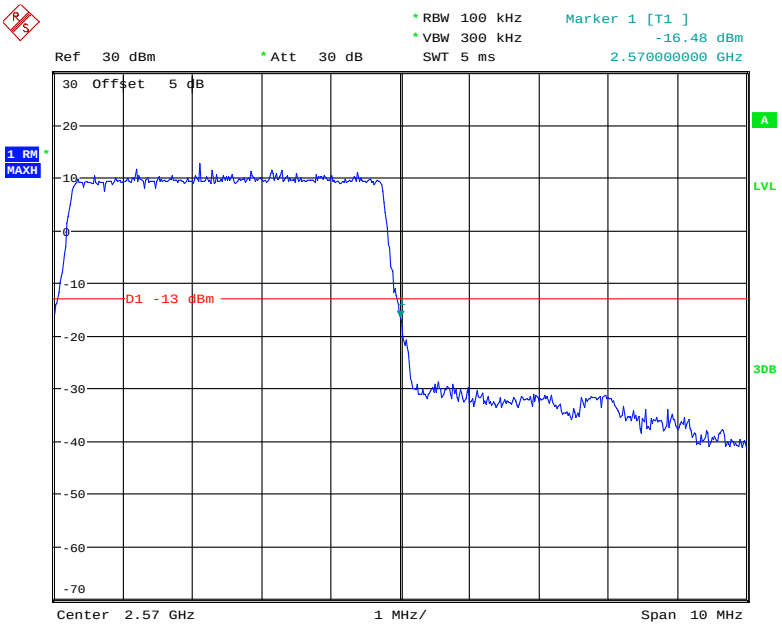
Date: 15.MAY.2020 10:36:41

16QAM_5MHz_ 25 RB_ Left



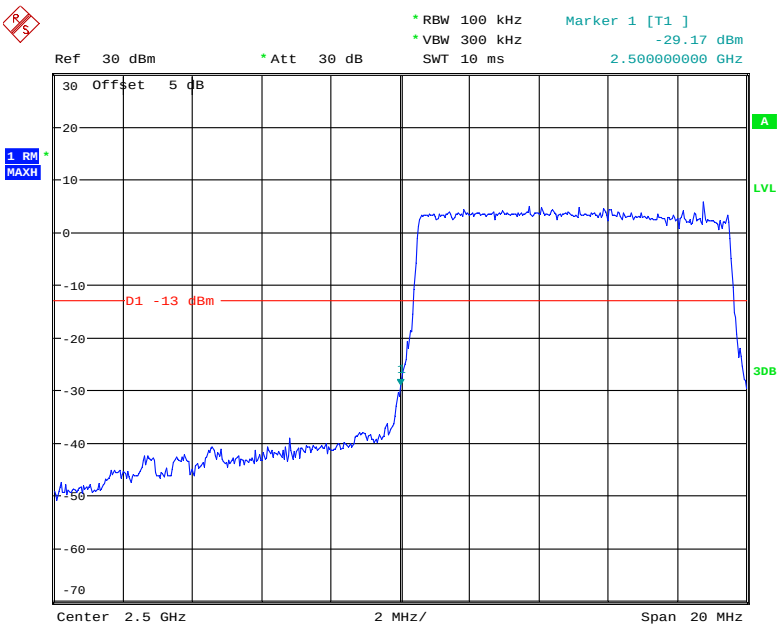
Date: 15.MAY.2020 10:29:47

16QAM_5MHz_ 25 RB_ Right



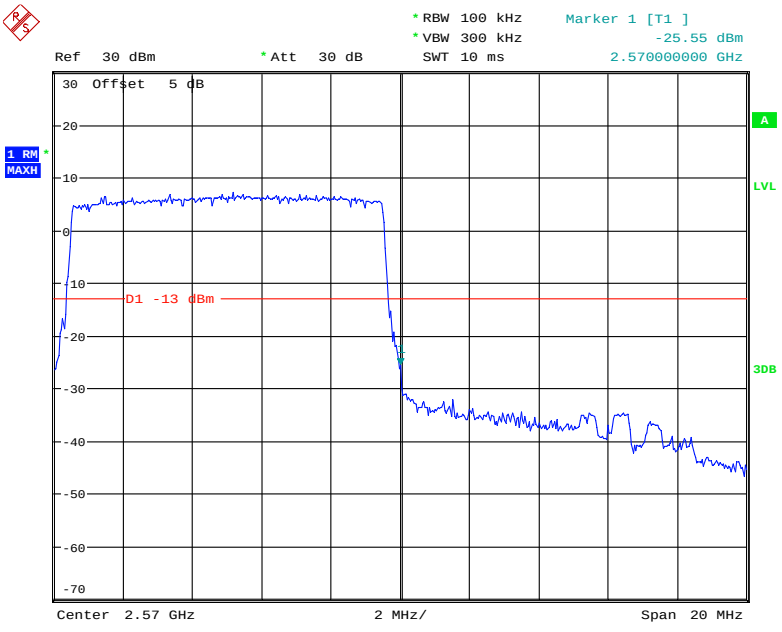
Date: 15.MAY.2020 10:30:41

16QAM_10MHz_ 50 RB_ Left



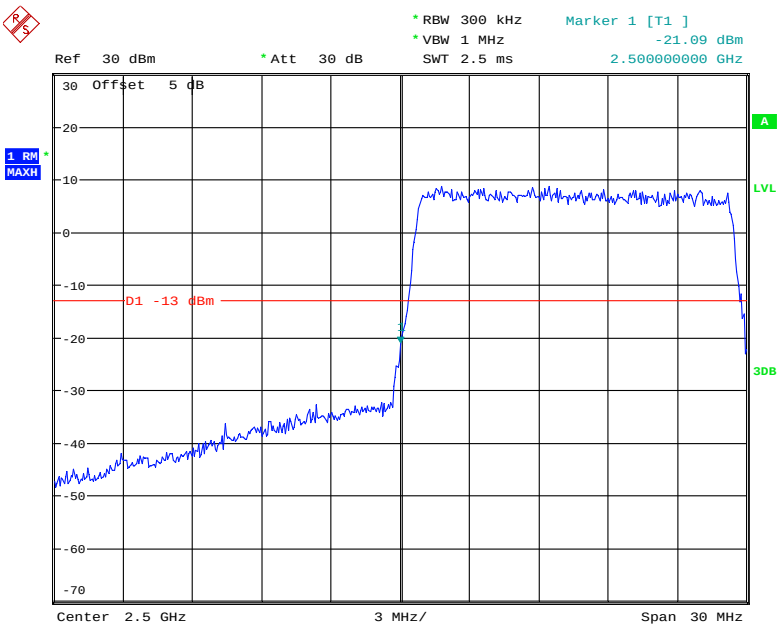
Date: 15.MAY.2020 10:31:25

16QAM_10MHz_ 50 RB_ Right



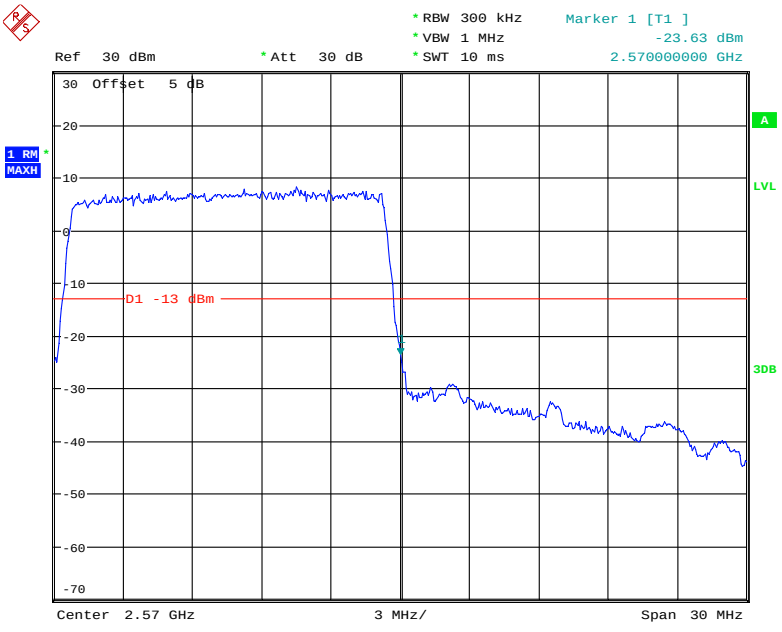
Date: 15.MAY.2020 10:32:02

16QAM_15MHz_ 75 RB_ Left



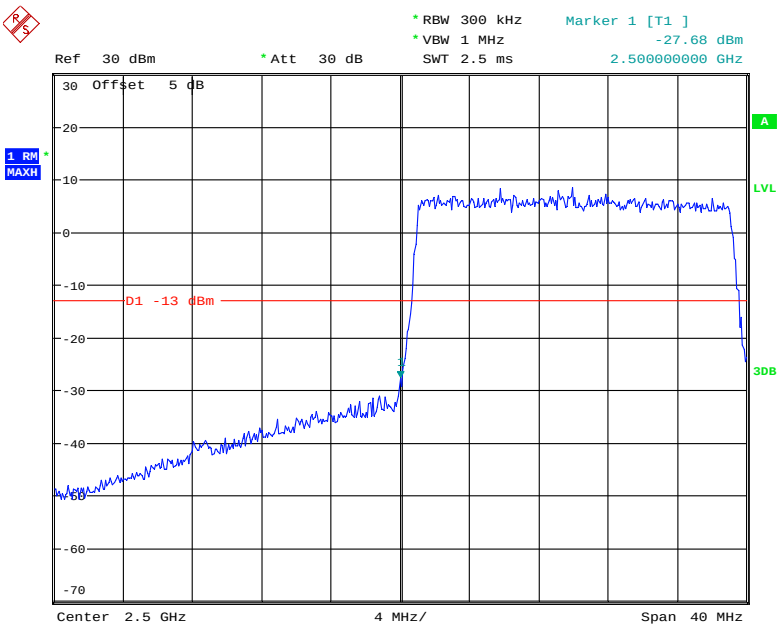
Date: 15.MAY.2020 10:32:49

16QAM_15MHz_ 75 RB_ Right



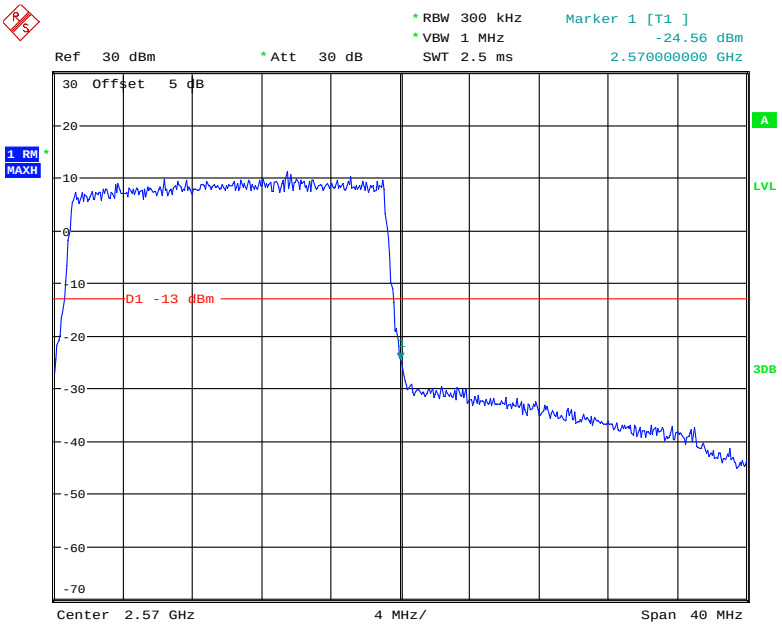
Date: 15.MAY.2020 10:34:12

16QAM_20MHz_ FULL RB_ Left



Date: 15.MAY.2020 10:36:20

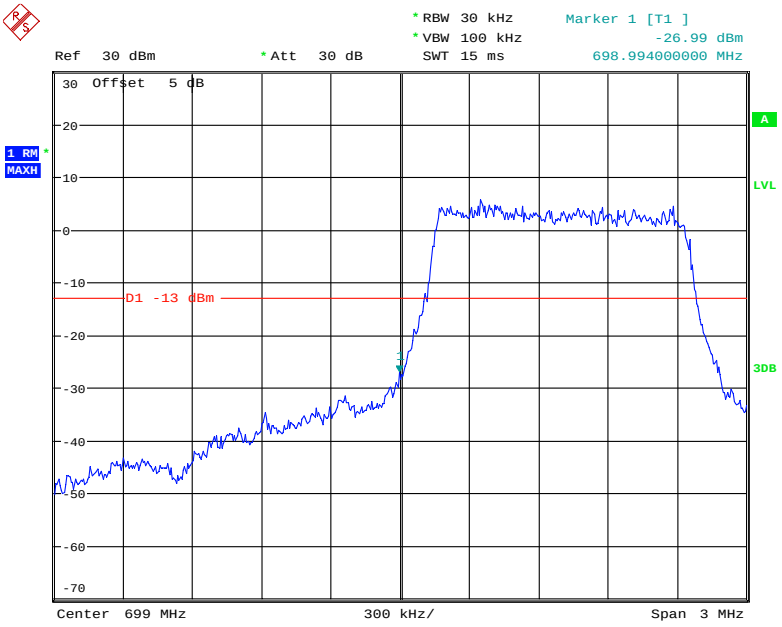
16QAM_20MHz_ FULL RB_ Right



Date: 15.MAY.2020 10:37:04

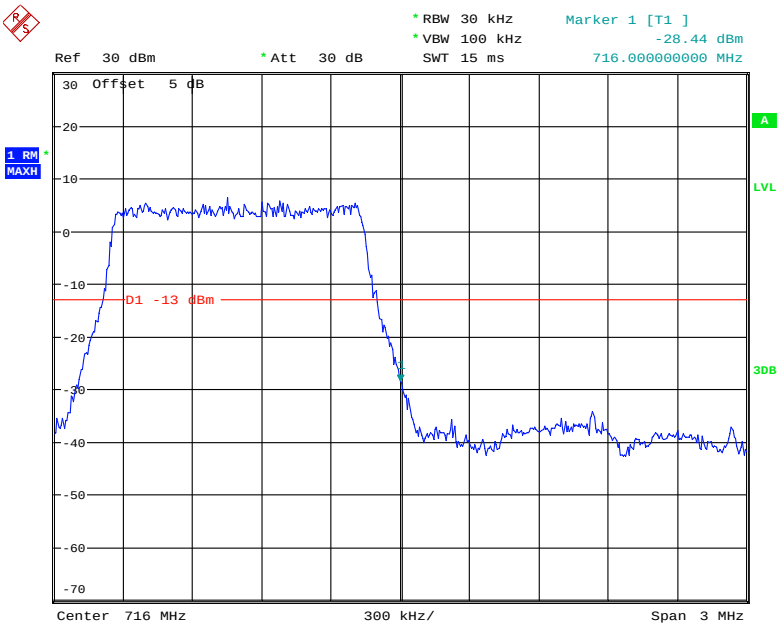
LTE Band 12

QPSK_1.4MHz_ 6 RB_ Left



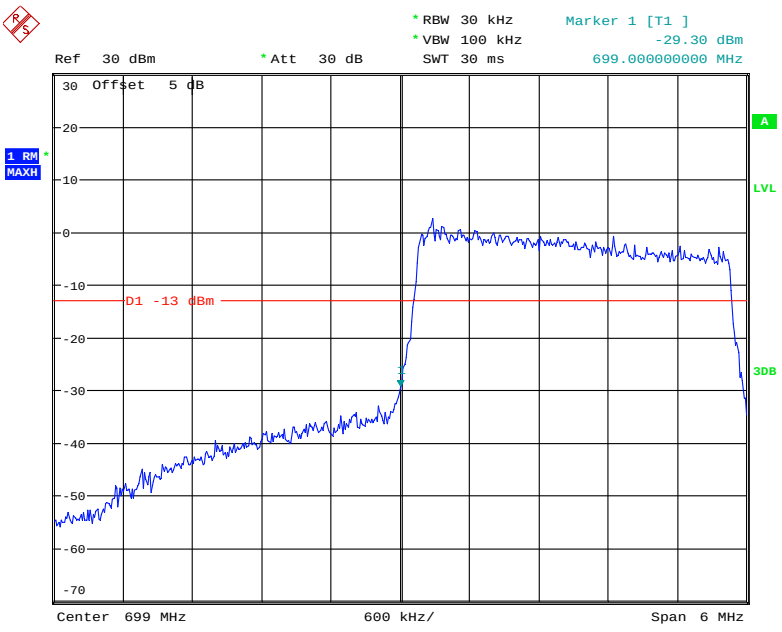
Date: 15.MAY.2020 17:27:28

QPSK_1.4MHz_ 6 RB_ Right



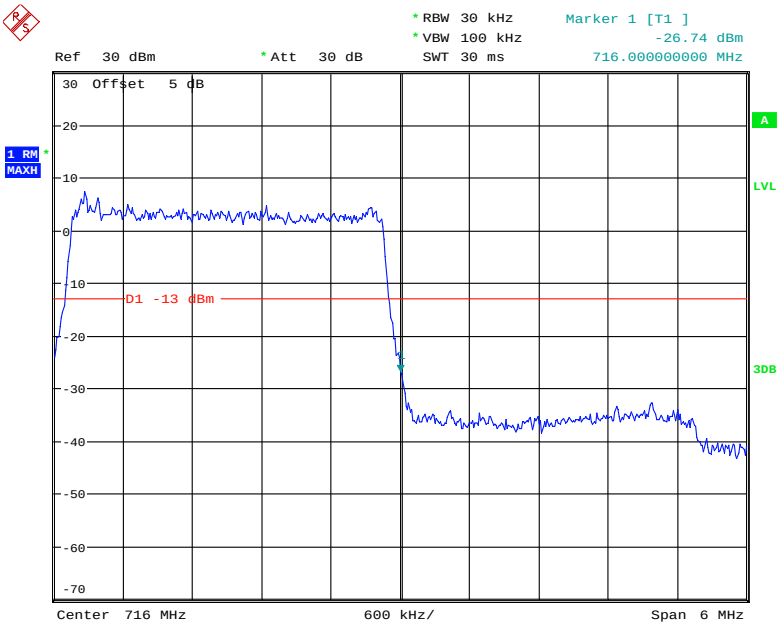
Date: 15.MAY.2020 17:38:04

QPSK_3MHz_ 15 RB_ Left



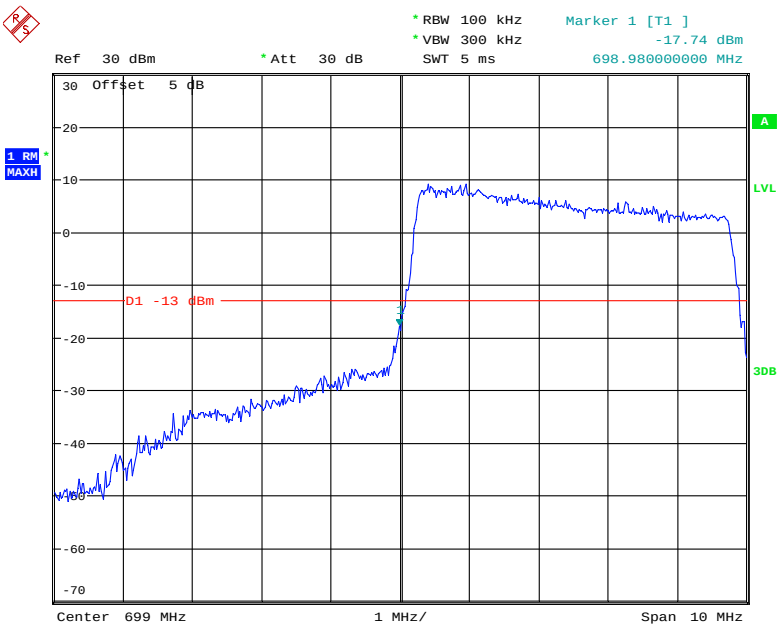
Date: 15.MAY.2020 17:38:44

QPSK_3MHz_ 15 RB_ Right



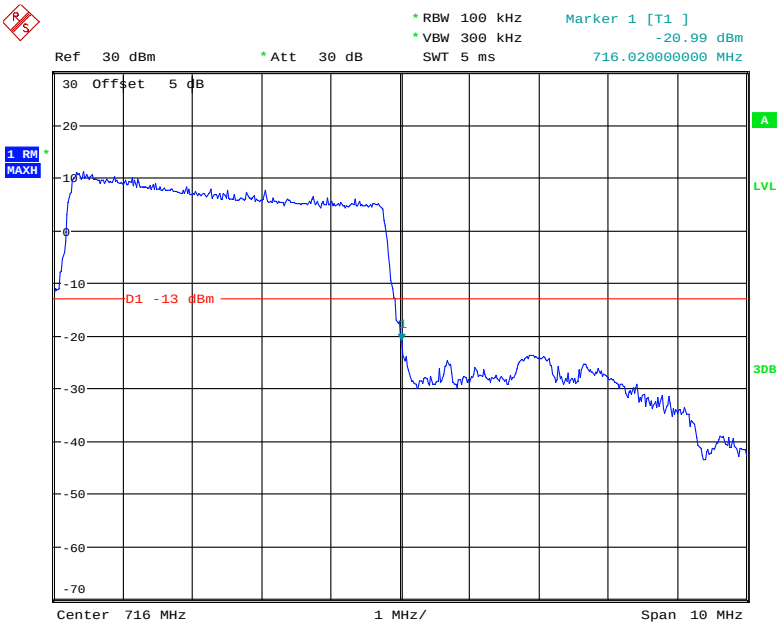
Date: 15.MAY.2020 17:41:18

QPSK_5MHz_ 25 RB_ Left



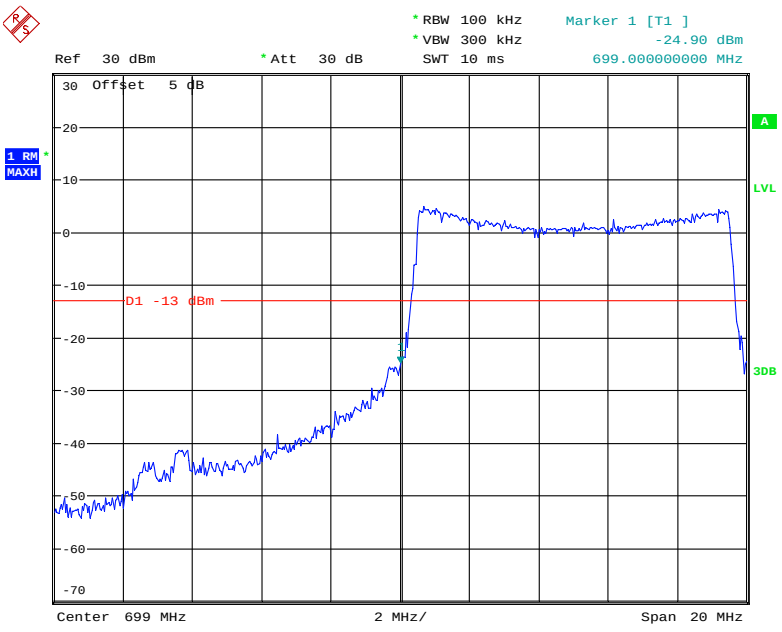
Date: 15.MAY.2020 17:41:58

QPSK_5MHz_ 25 RB_ Right



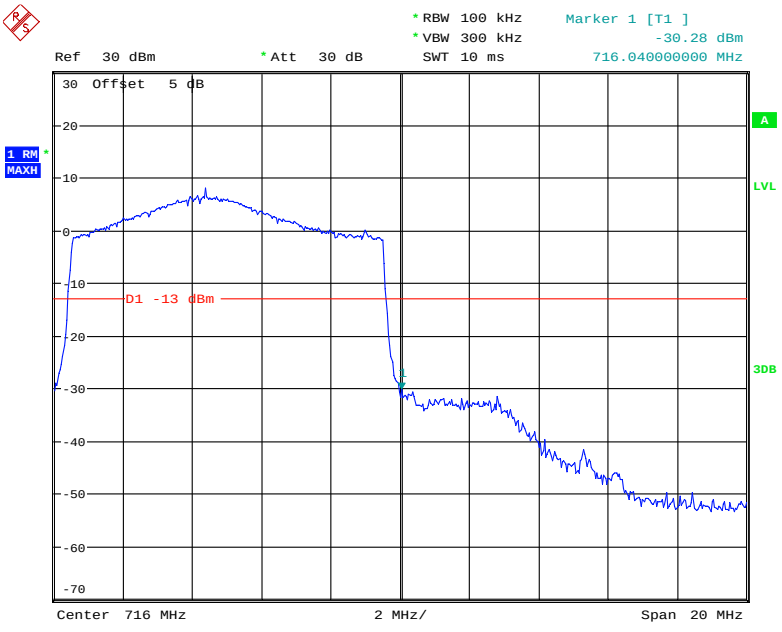
Date: 15.MAY.2020 17:42:35

QPSK_10MHz_ 50 RB_ Left



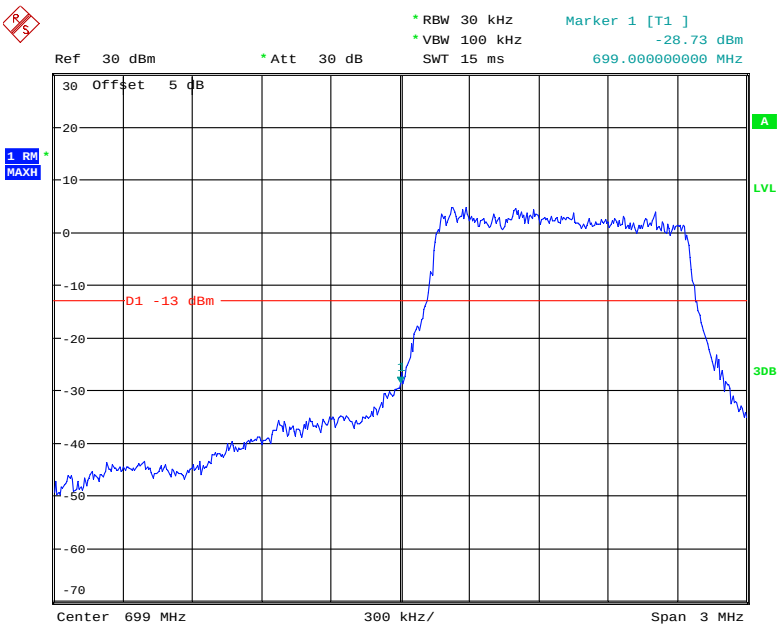
Date: 15.MAY.2020 17:43:16

QPSK_10MHz_ 50 RB_ Right



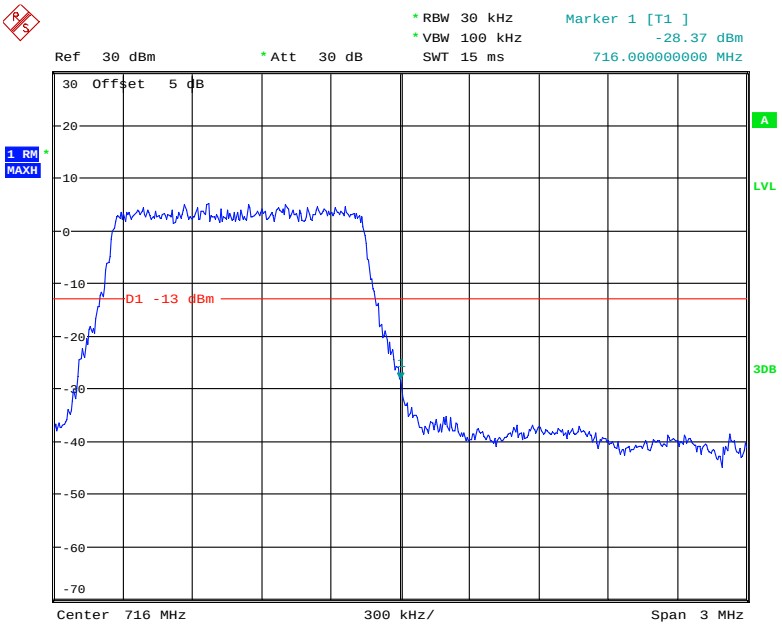
Date: 15.MAY.2020 17:43:52

16QAM_1.4MHz_ 6 RB_ Left



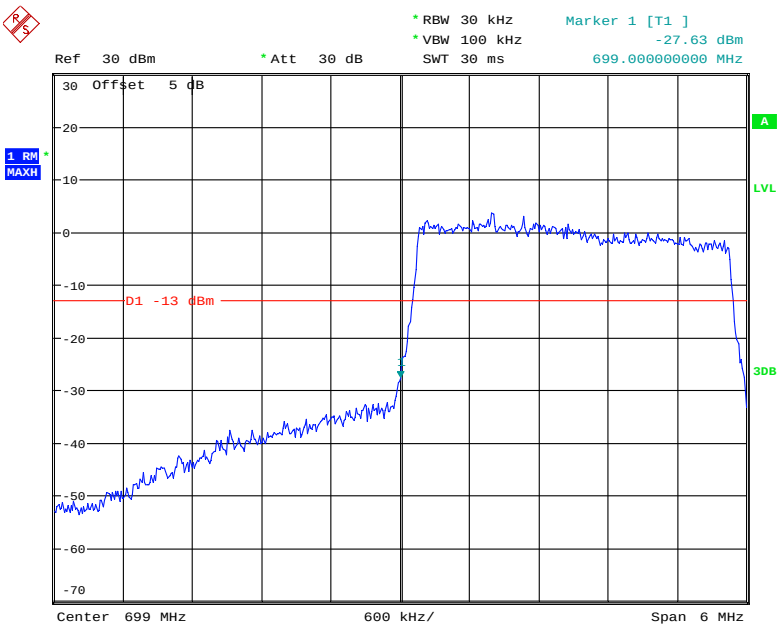
Date: 15.MAY.2020 17:27:51

16QAM_1.4MHz_ 6 RB_ Right



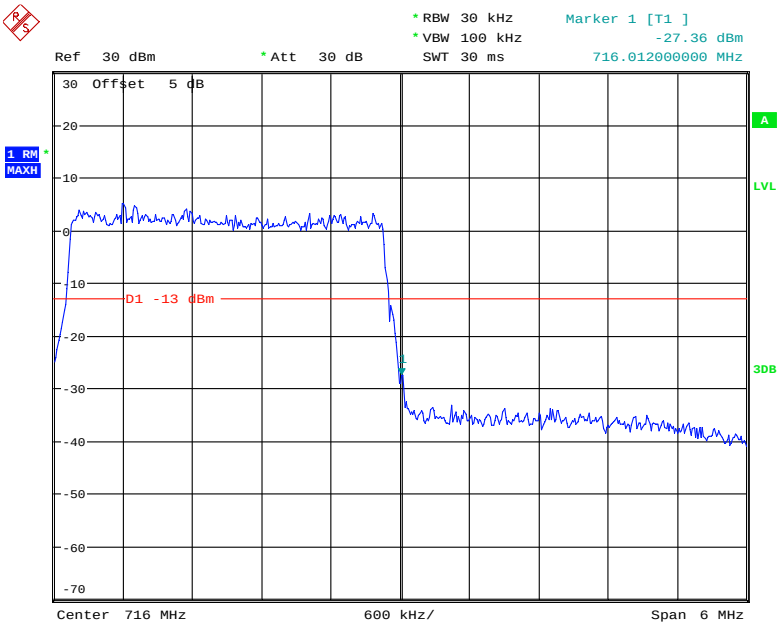
Date: 15.MAY.2020 17:38:21

16QAM_3MHz_ 15 RB_ Left



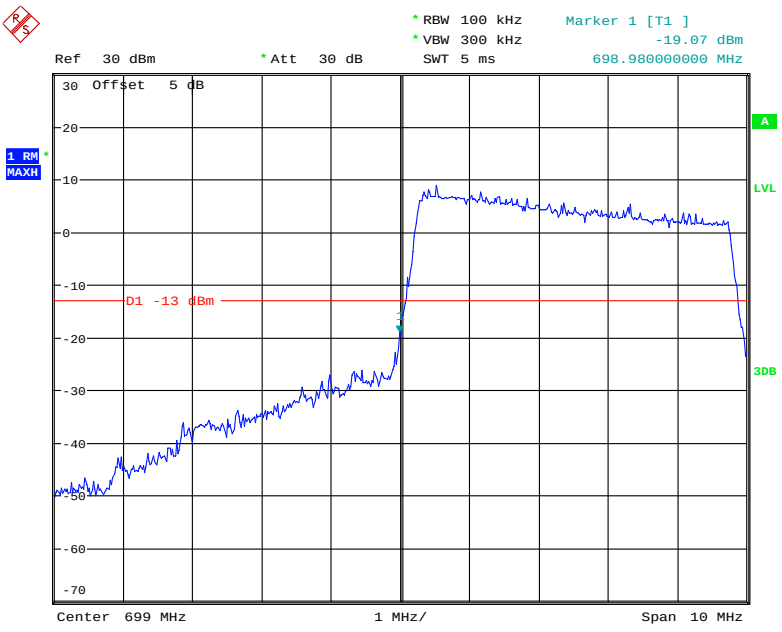
Date: 15.MAY.2020 17:41:01

16QAM_3MHz_ 15 RB_ Right



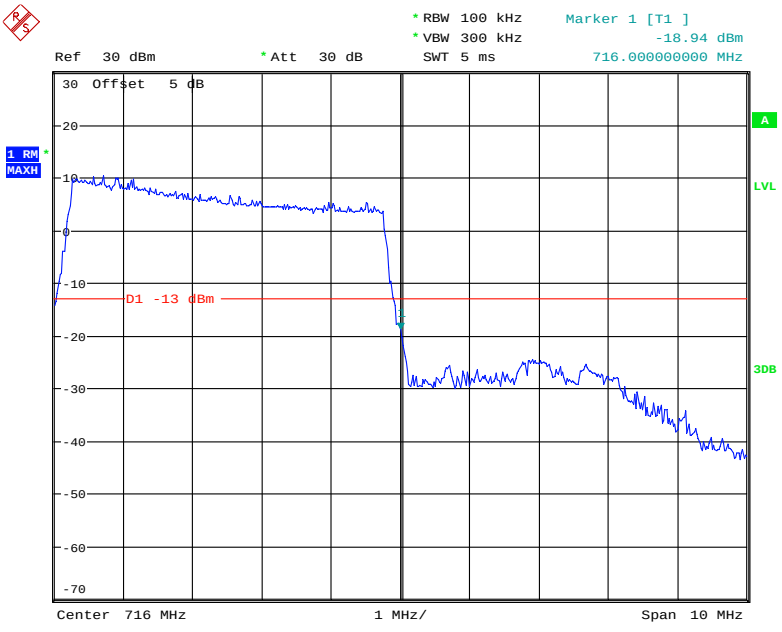
Date: 15.MAY.2020 17:41:35

16QAM_5MHz_ 25 RB_ Left



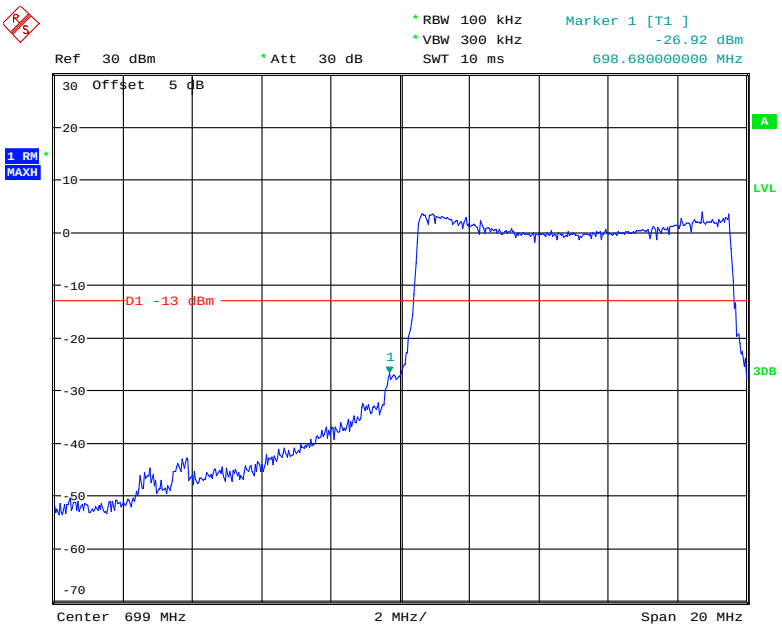
Date: 15.MAY.2020 17:42:18

16QAM_5MHz_ 25 RB_ Right



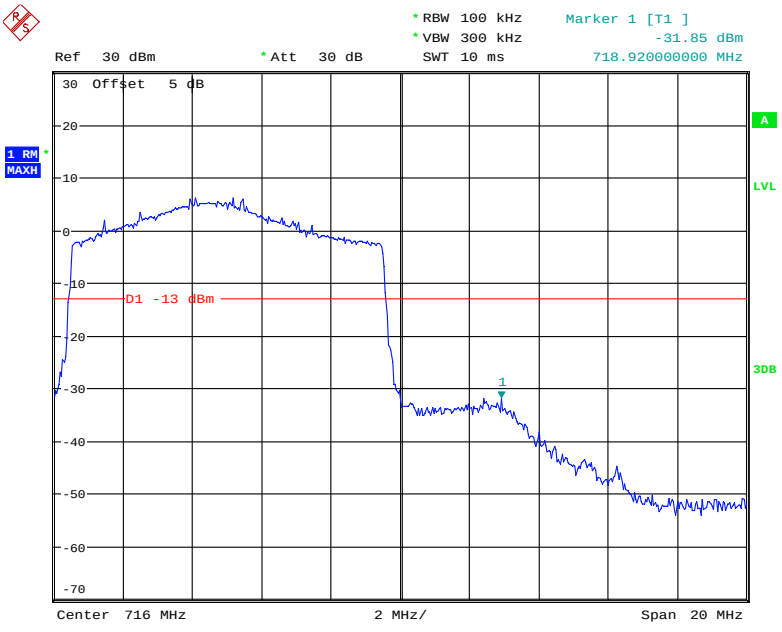
Date: 15.MAY.2020 17:42:52

16QAM_10MHz_ 50 RB_ Left



Date: 15.MAY.2020 17:43:34

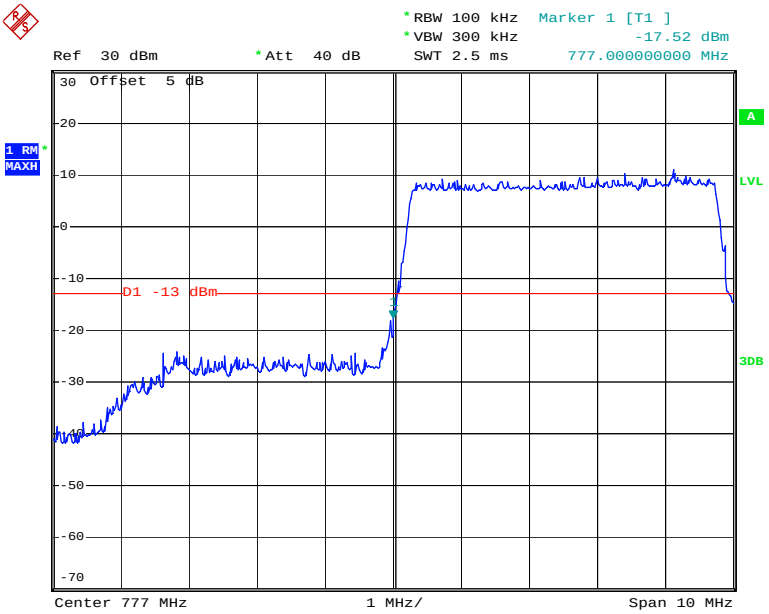
16QAM_10MHz_ 50 RB_ Right



Date: 15.MAY.2020 17:44:10

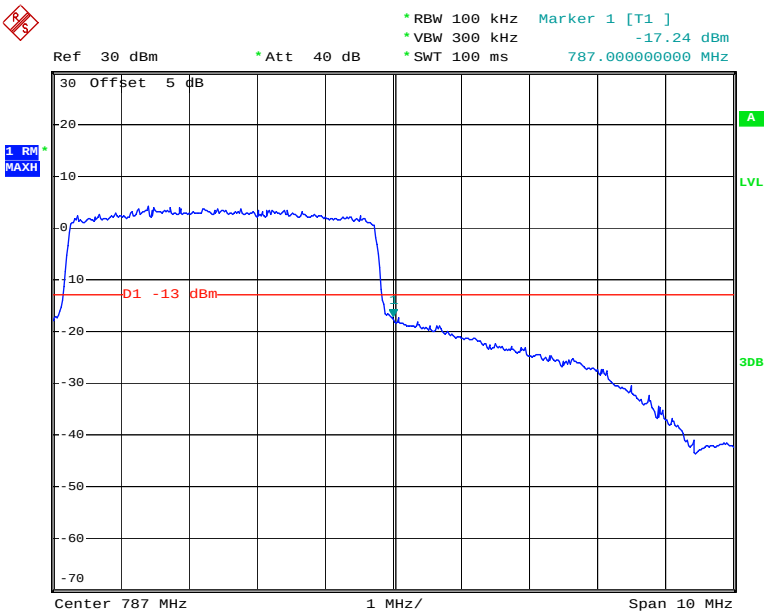
LTE Band 13

QPSK_5MHz_ 25 RB_ Left



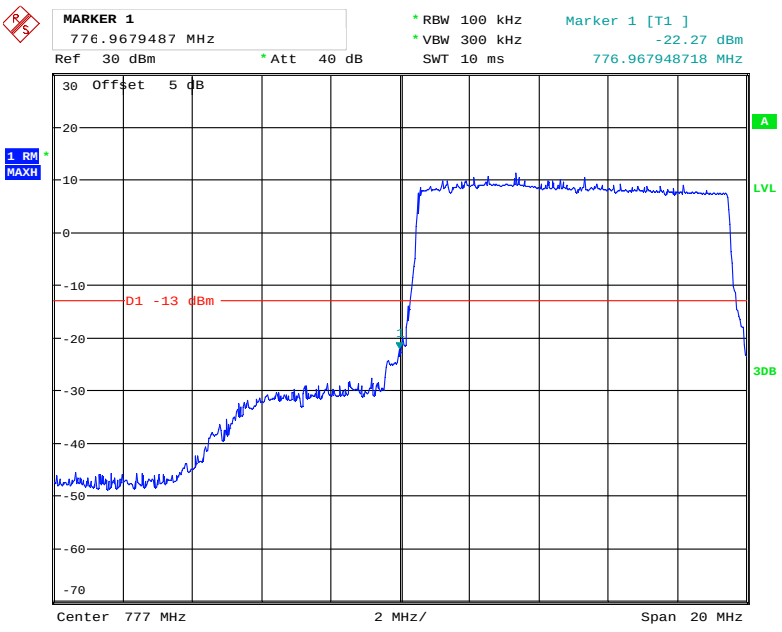
Date: 7.MAY.2020 16:33:12

QPSK_5MHz_ 25 RB_ Right



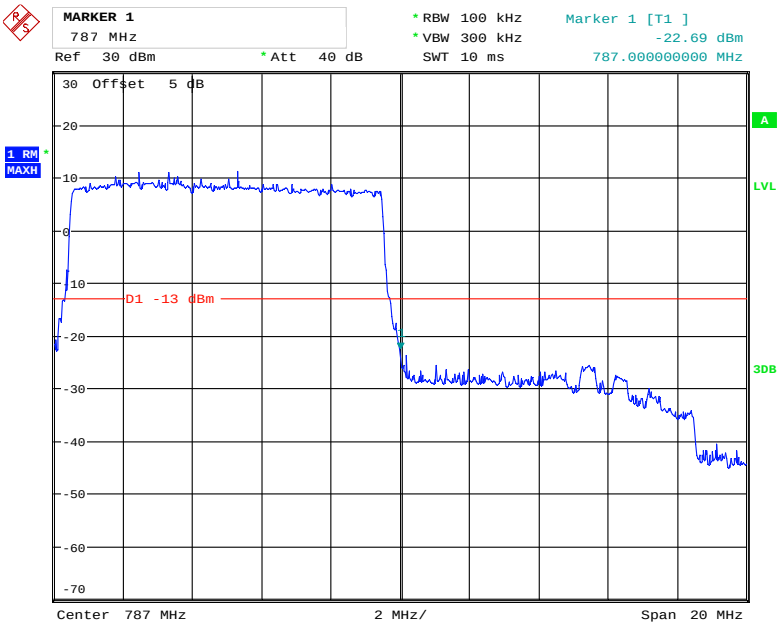
Date: 7.MAY.2020 16:34:05

QPSK_10MHz_ 50 RB_ Left



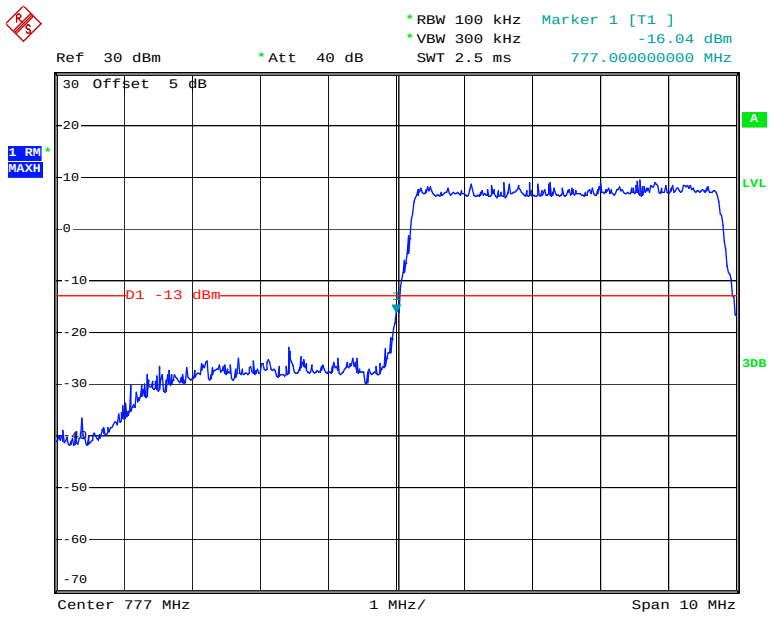
Date: 20.MAY.2020 10:12:06

QPSK_10MHz_ 50 RB_ Right



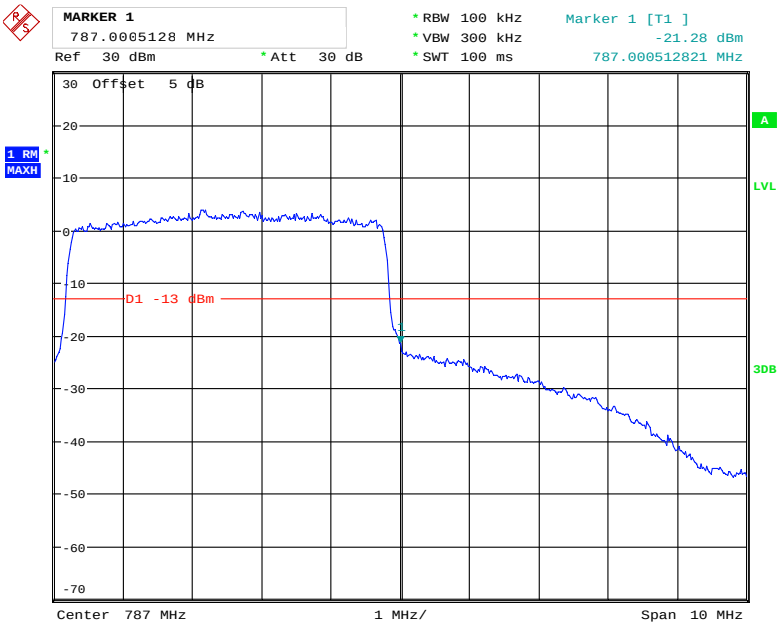
Date: 20.MAY.2020 10:12:41

16QAM_5MHz_ 25 RB_ Left



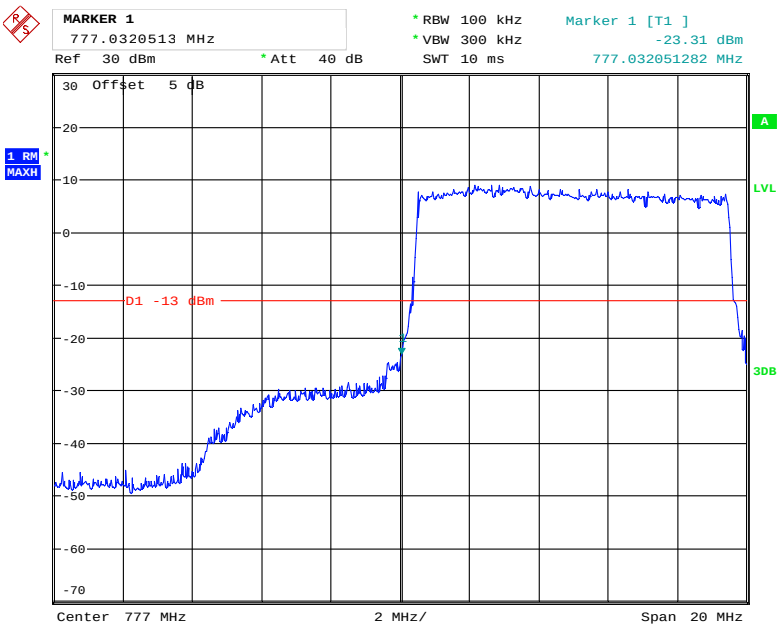
Date: 7.MAY.2020 16:33:32

16QAM_5MHz_ 25 RB_ Right



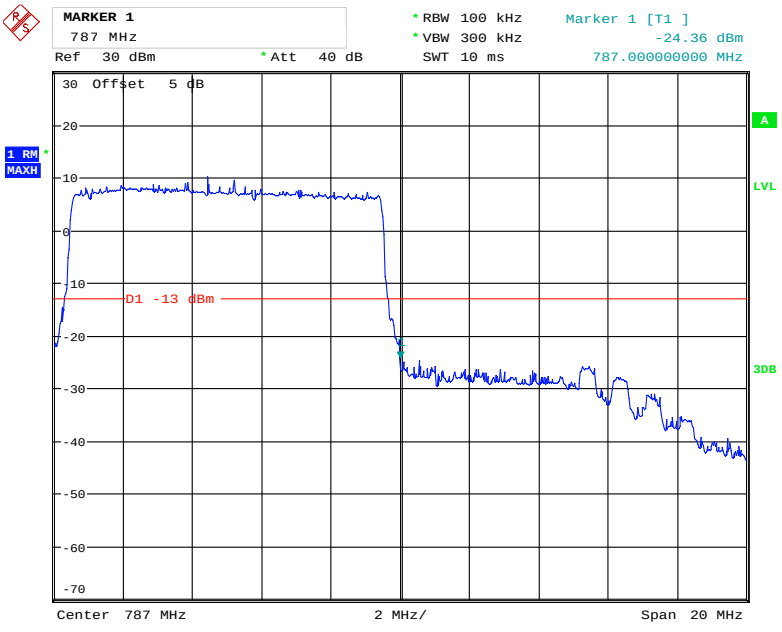
Date: 8.MAY.2020 12:17:30

16QAM_5MHz_ 50 RB_ Left



Date: 20.MAY.2020 10:14:12

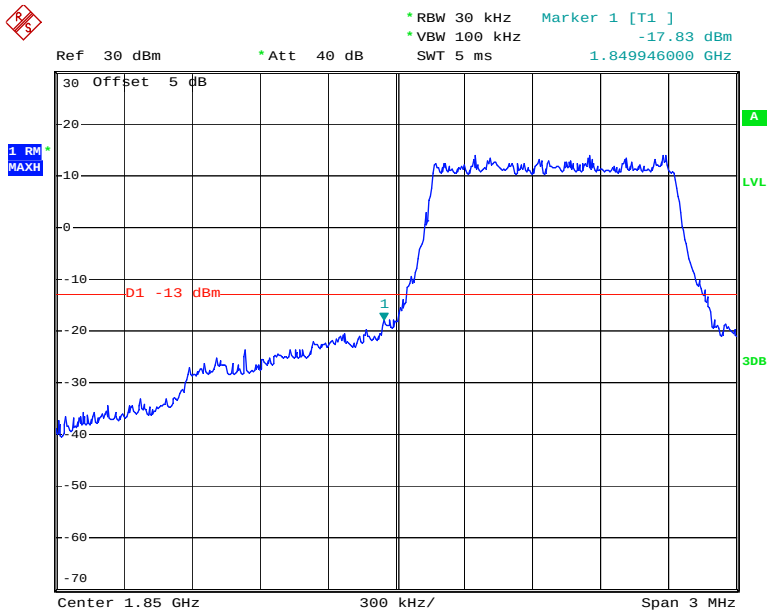
16QAM_5MHz_50 RB_ Right



Date: 20.MAY.2020 10:13:53

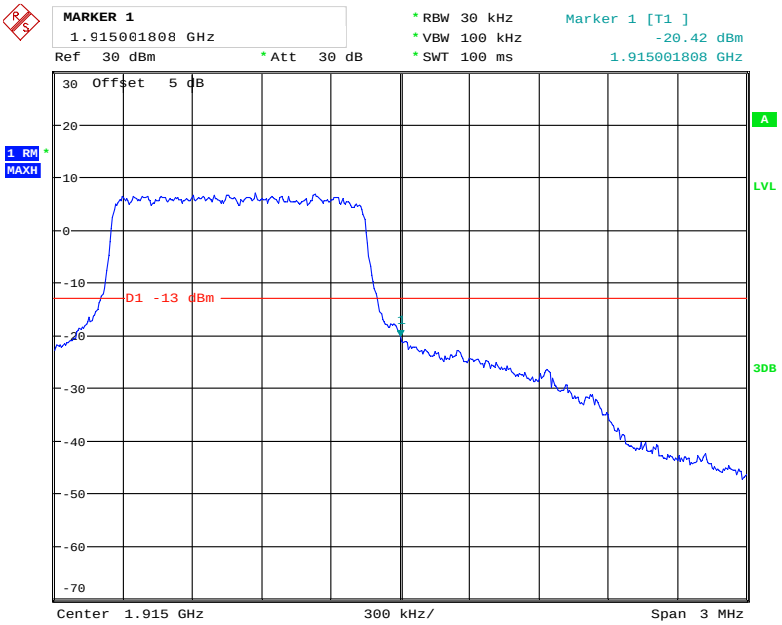
LTE Band 25

QPSK_1.4MHz_ 6 RB_ Left



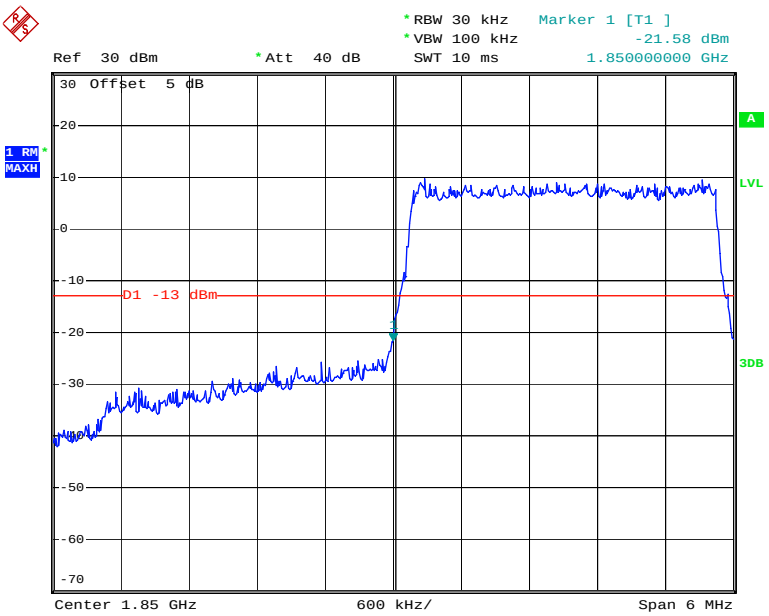
Date: 7.MAY.2020 17:43:29

QPSK_1.4MHz_ 6 RB_ Right



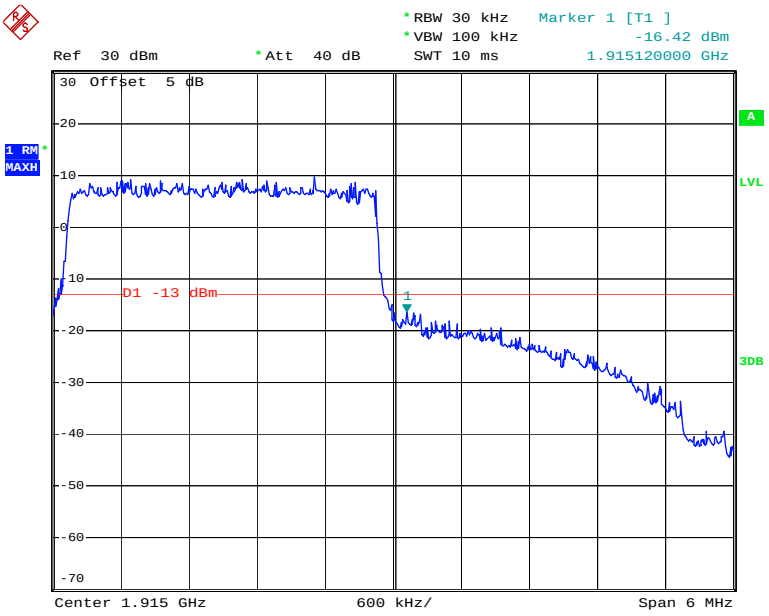
Date: 8.MAY.2020 12:20:04

QPSK_3MHz_ 15 RB_ Left



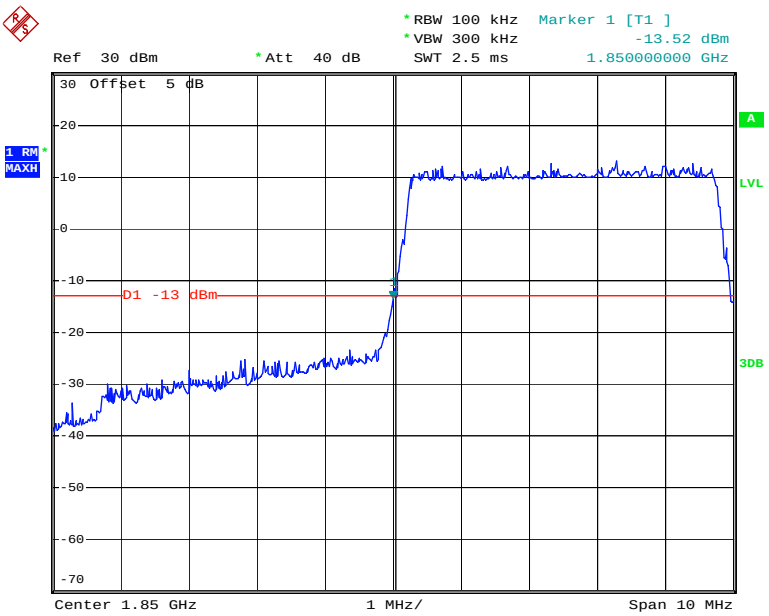
Date: 7.MAY.2020 17:44:53

QPSK_3MHz_ 15 RB_ Right



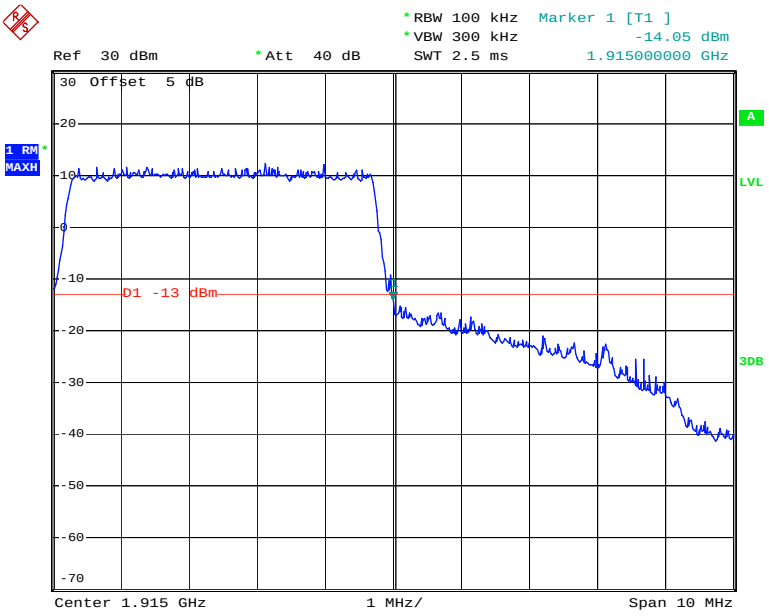
Date: 7.MAY.2020 17:45:32

QPSK_5MHz_ 25 RB_ Left



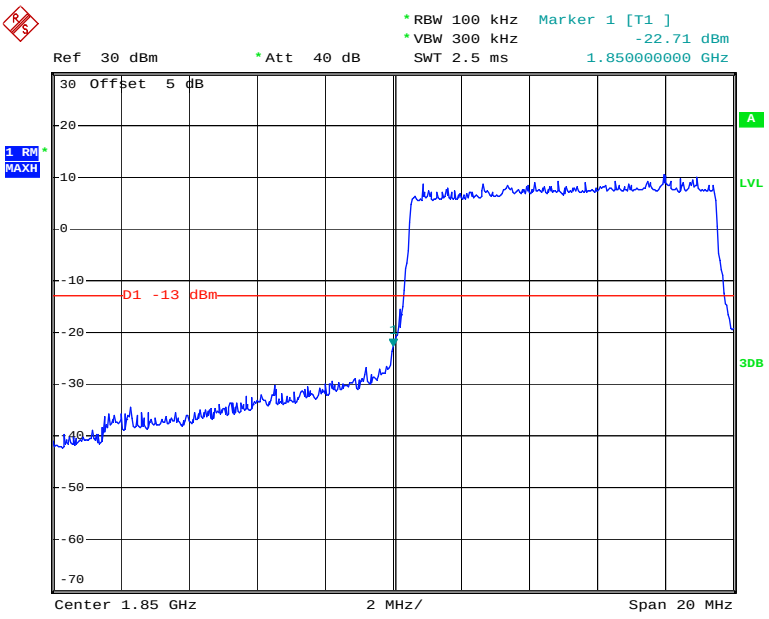
Date: 7.MAY.2020 17:46:22

QPSK_5MHz_ 25 RB_ Right



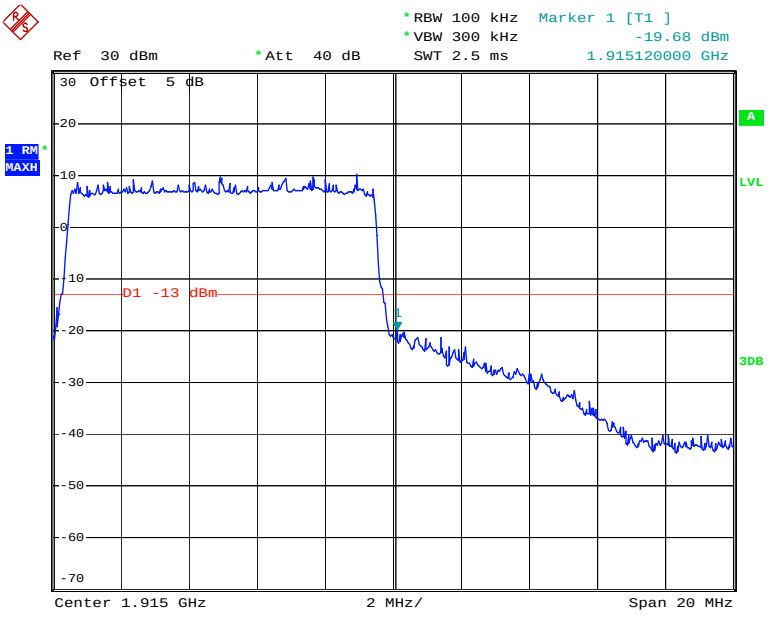
Date: 7.MAY.2020 17:46:57

QPSK_10MHz_ 50 RB_ Left



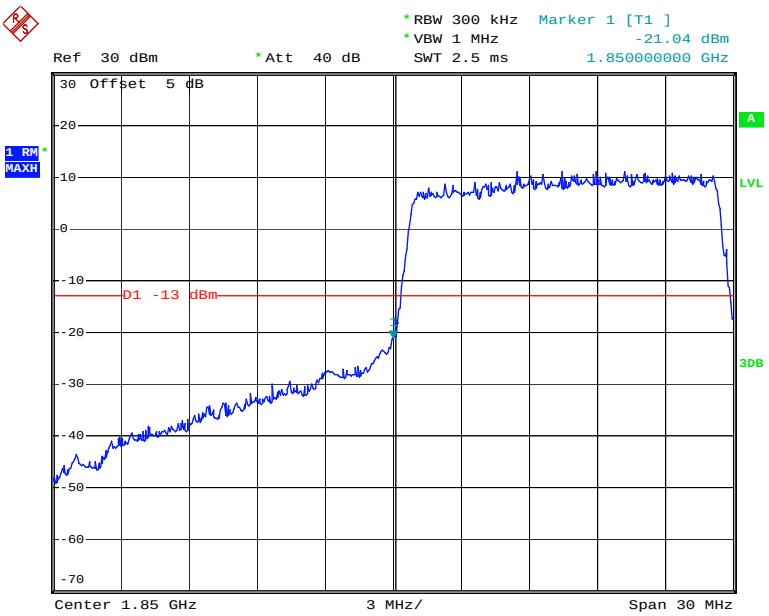
Date: 7.MAY.2020 17:47:39

QPSK_10MHz_ 50 RB_ Right



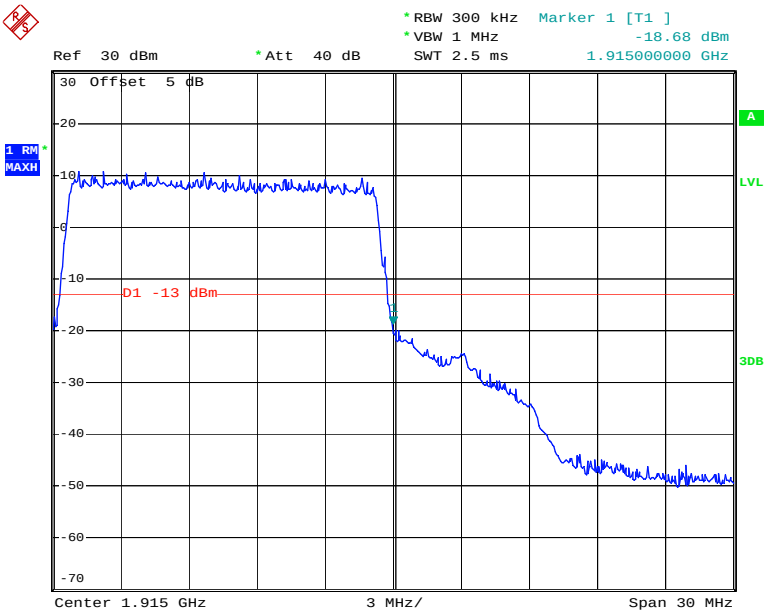
Date: 7.MAY.2020 17:48:20

QPSK_15MHz_ 75 RB_ Left



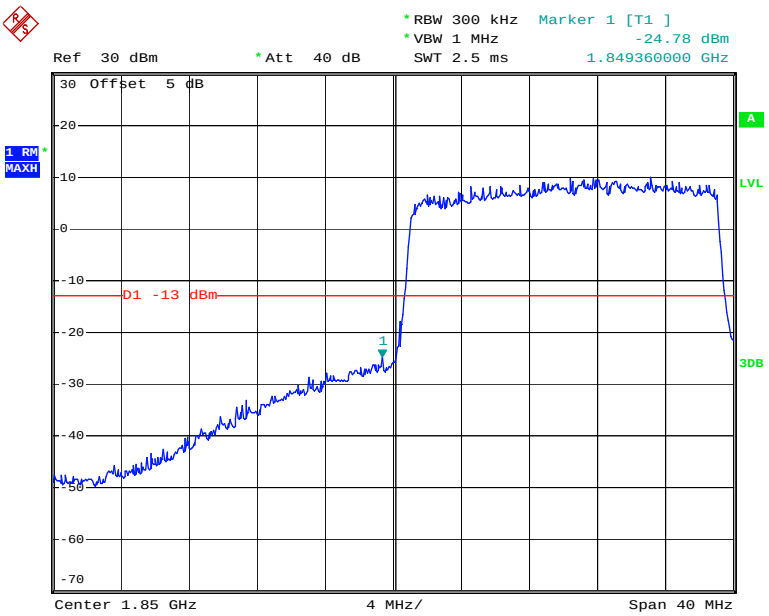
Date: 7.MAY.2020 17:49:09

QPSK_15MHz_ 75 RB_ Right



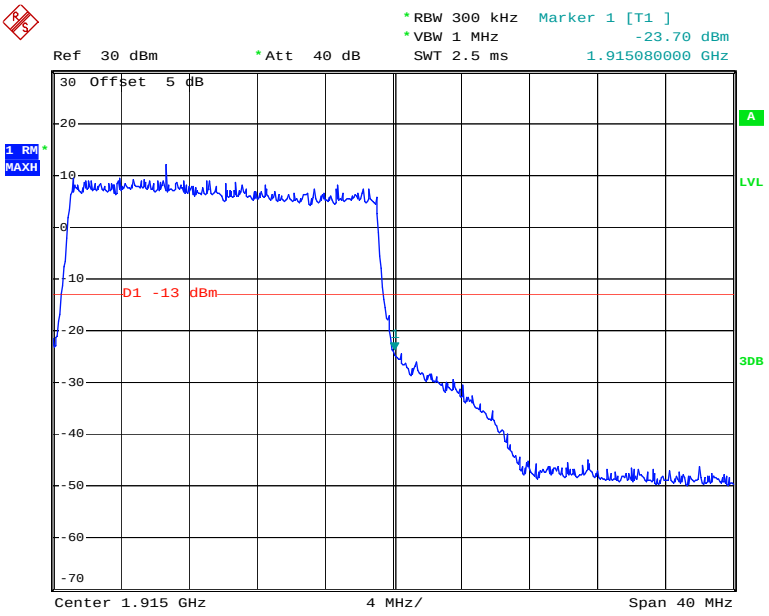
Date: 7.MAY.2020 17:49:51

QPSK_20MHz_ 100 RB_ Left



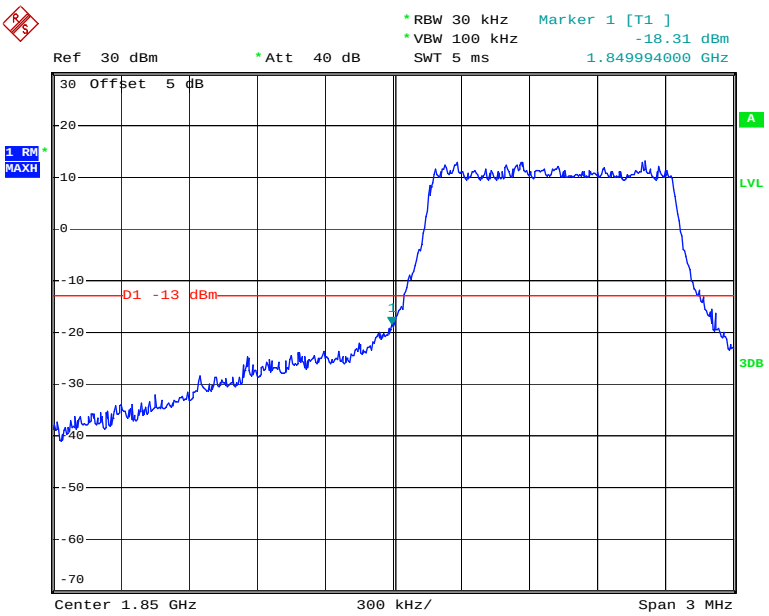
Date: 7.MAY.2020 17:50:39

QPSK_20MHz_100 RB_ Right



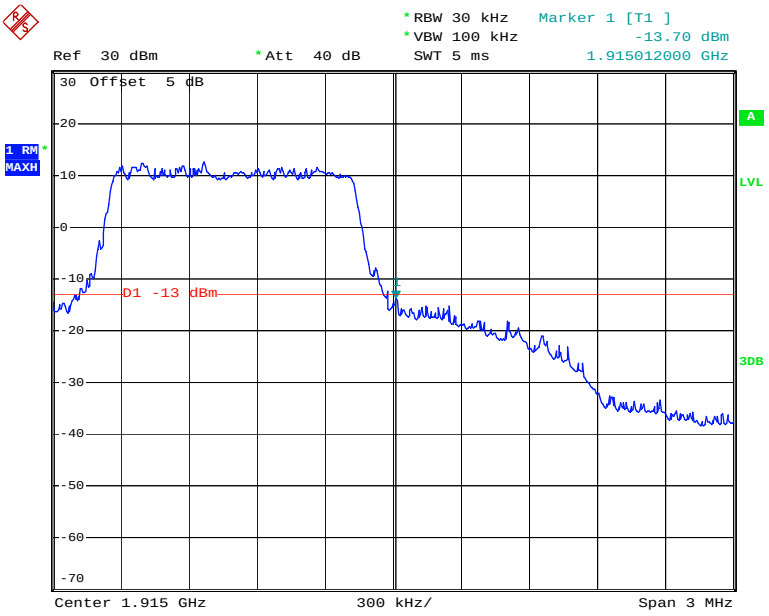
Date: 7.MAY.2020 17:51:21

16QAM_1.4MHz_ 6 RB_ Left



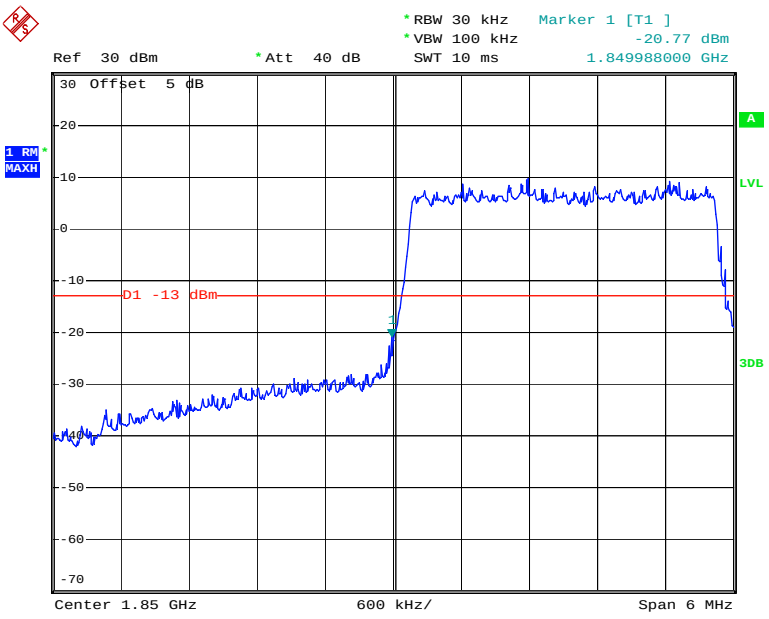
Date: 7.MAY.2020 17:43:50

16QAM_1.4MHz_ 6 RB_ Right



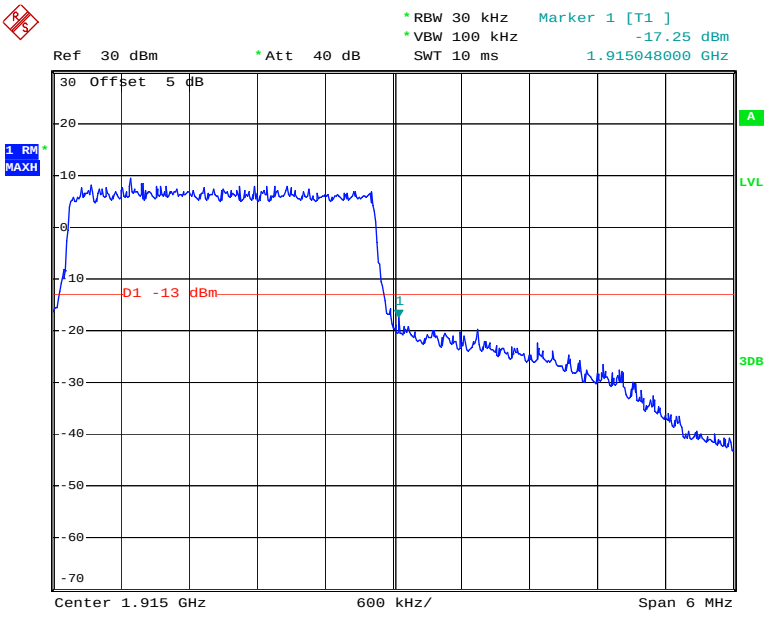
Date: 7.MAY.2020 17:44:28

16QAM_3MHz_ 15 RB_ Left



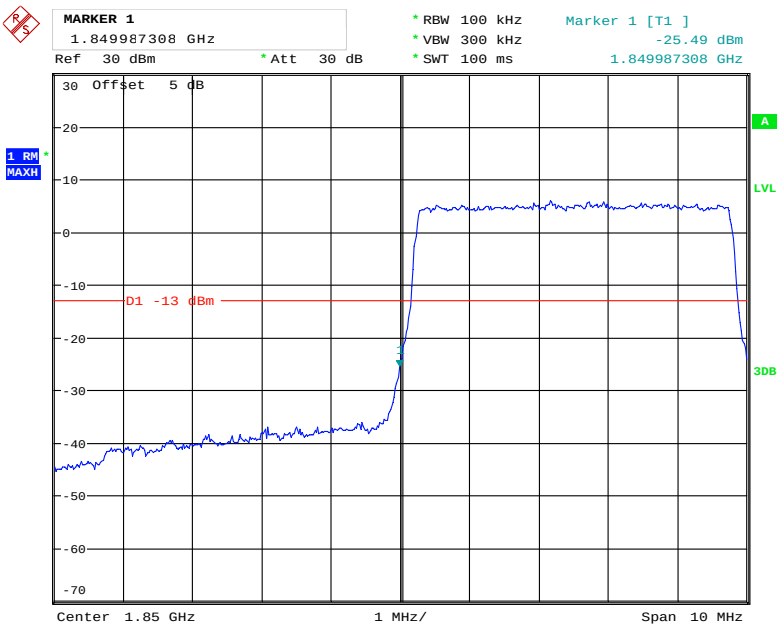
Date: 7.MAY.2020 17:45:14

16QAM_3MHz_ 15 RB_ Right



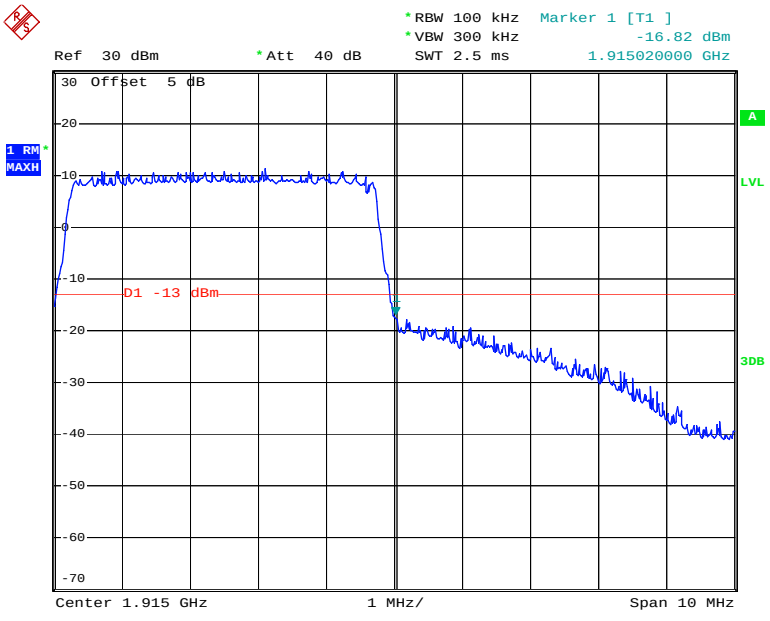
Date: 7.MAY.2020 17:45:55

16QAM_5MHz_ 25 RB_ Left



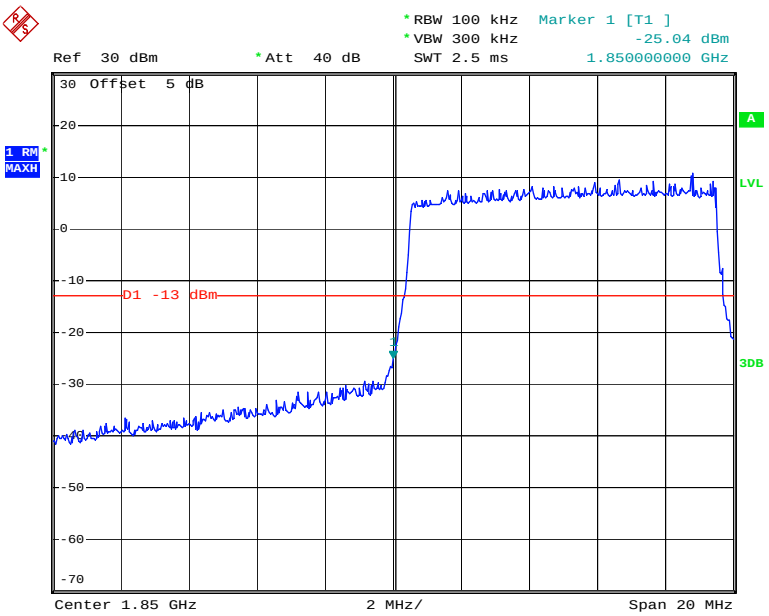
Date: 8.MAY.2020 12:22:04

16QAM_5MHz_ 25 RB_ Right



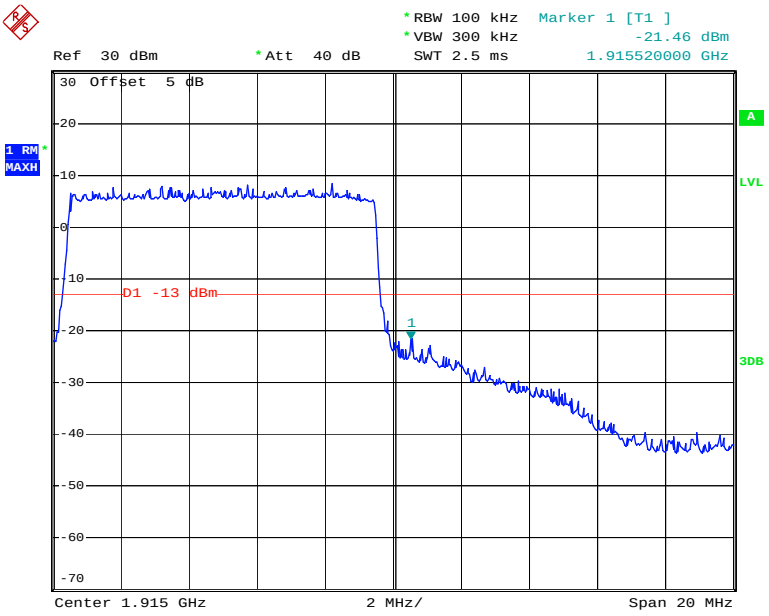
Date: 7.MAY.2020 17:47:14

16QAM_10MHz_ 50 RB_ Left



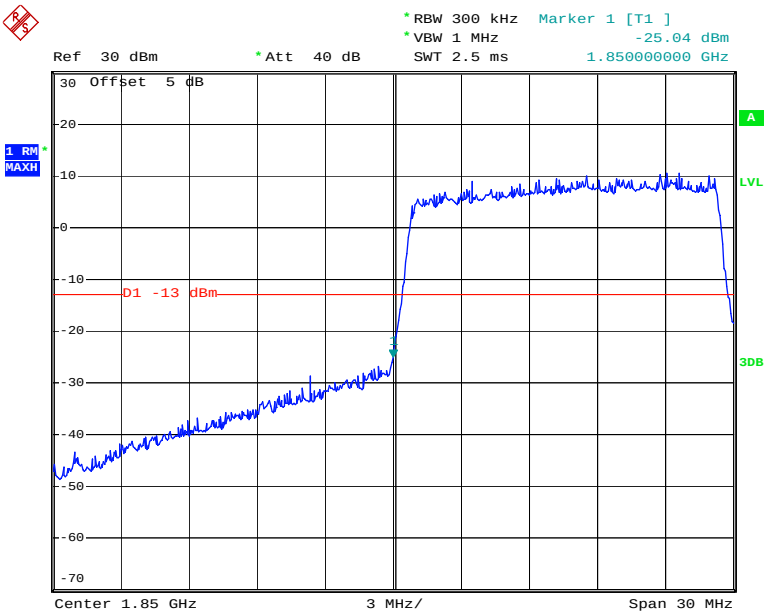
Date: 7.MAY.2020 17:48:01

16QAM_10MHz_ 50 RB_ Right



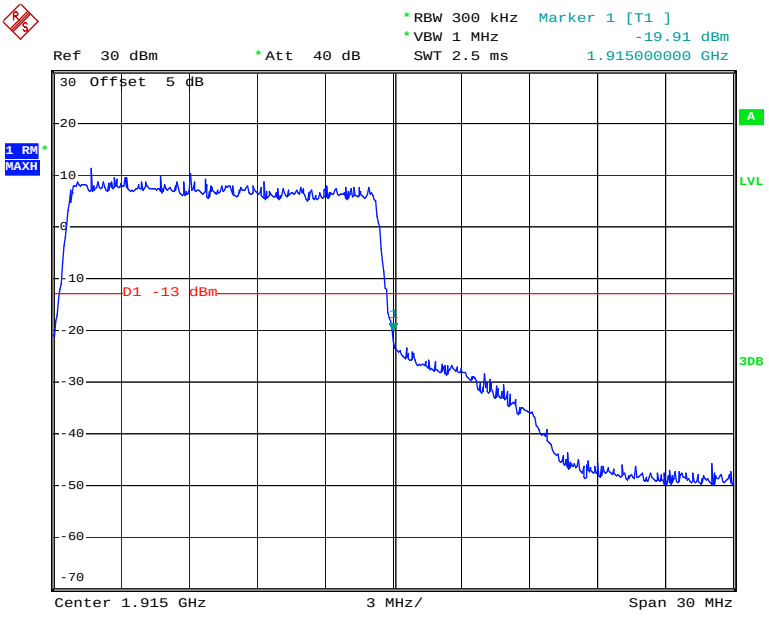
Date: 7.MAY.2020 17:48:38

16QAM_15MHz_ 75 RB_ Left



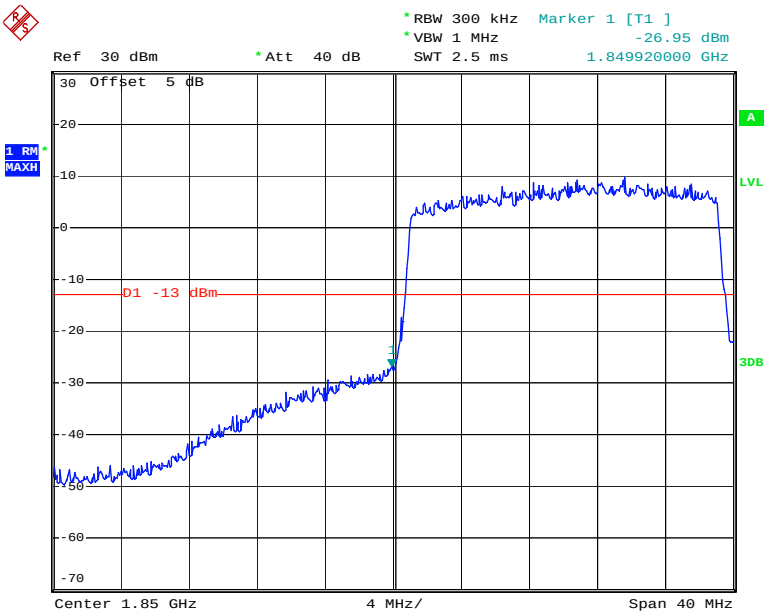
Date: 7.MAY.2020 17:49:29

16QAM_15MHz_ 75 RB_ Right



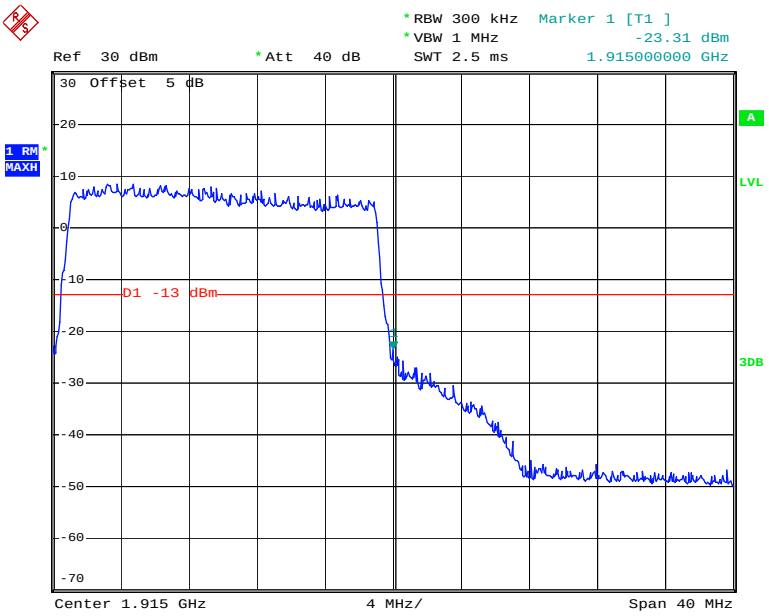
Date: 7.MAY.2020 17:50:11

16QAM_20MHz_ 100 RB_ Left



Date: 7.MAY.2020 17:51:00

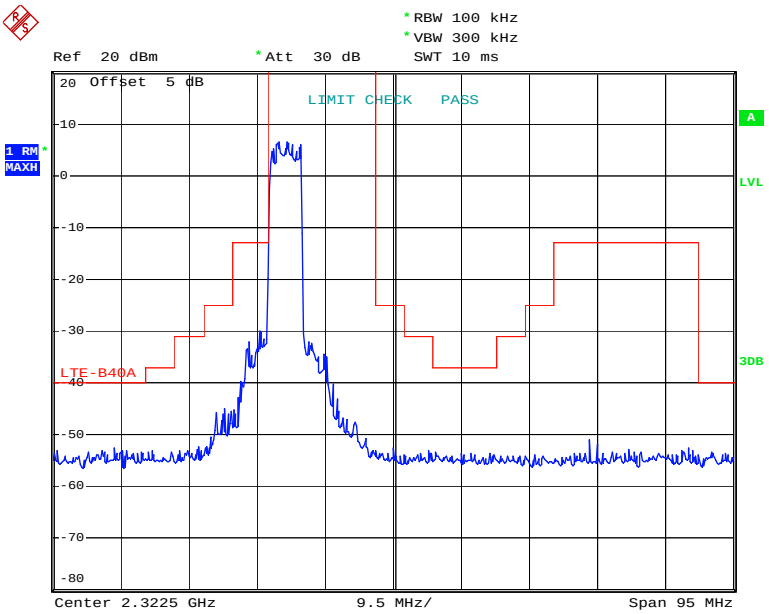
16QAM_20MHz_100 RB_ Right



Date: 7.MAY.2020 17:51:41

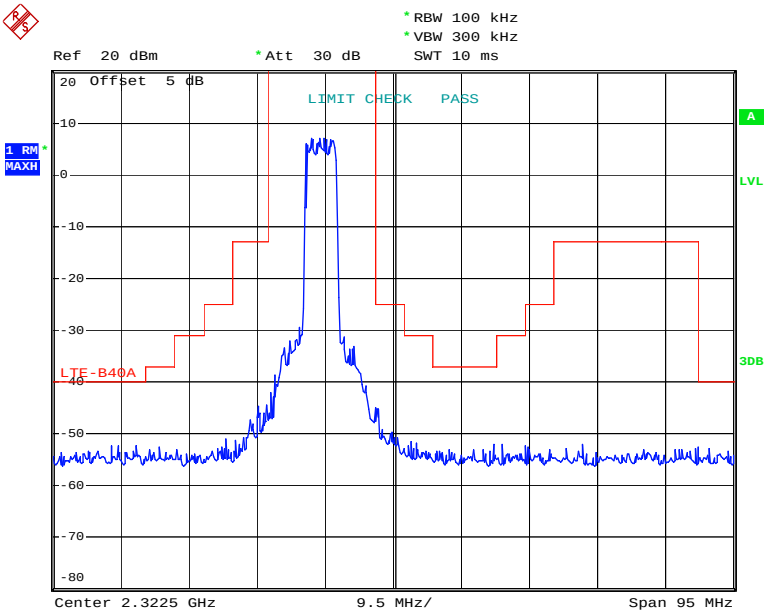
LTE Band 40,Lower:

QPSK_5MHz_ 25 RB_ Left



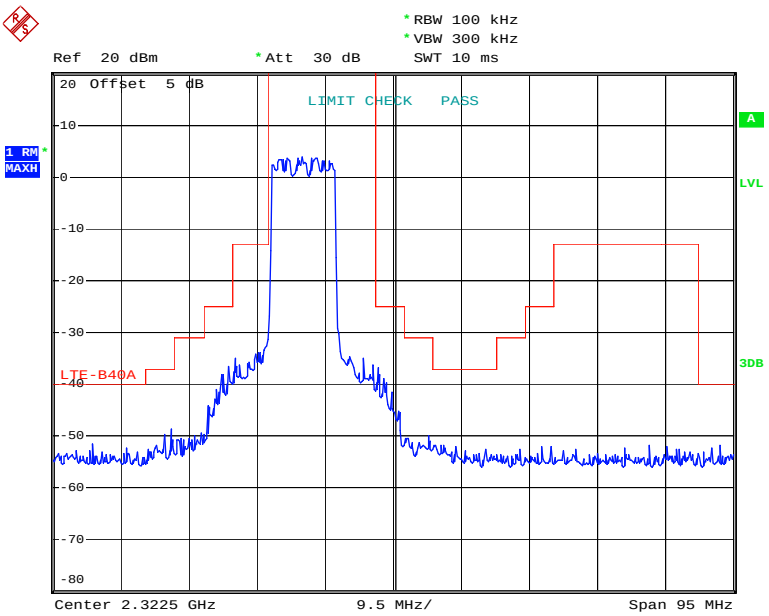
Date: 15.MAY.2020 14:04:01

QPSK_5MHz_ 25 RB_ Right



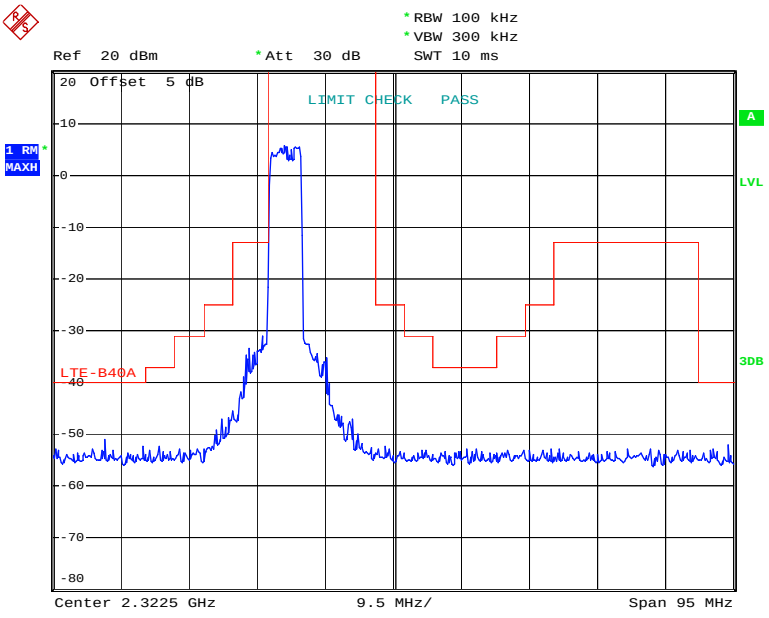
Date: 15.MAY.2020 14:05:33

QPSK_10MHz_ 50 RB



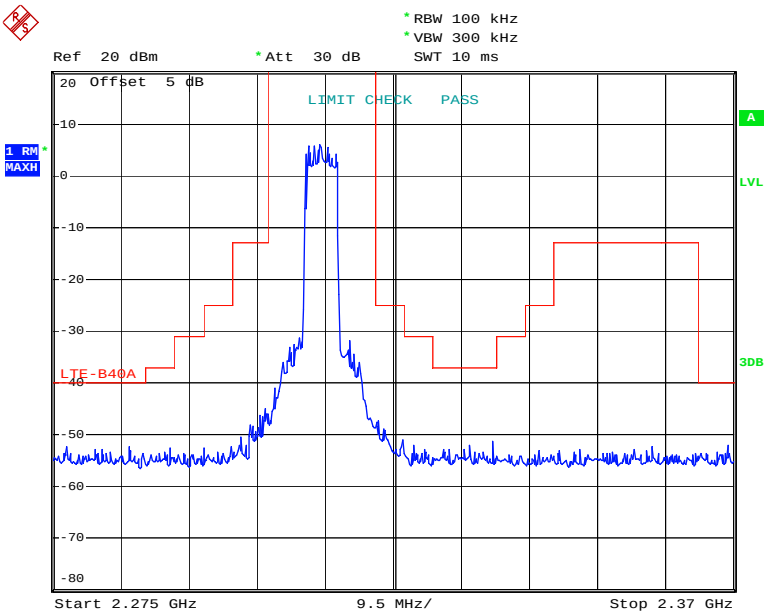
Date: 15.MAY.2020 14:06:36

16QAM_5MHz_ 25 RB_ Left



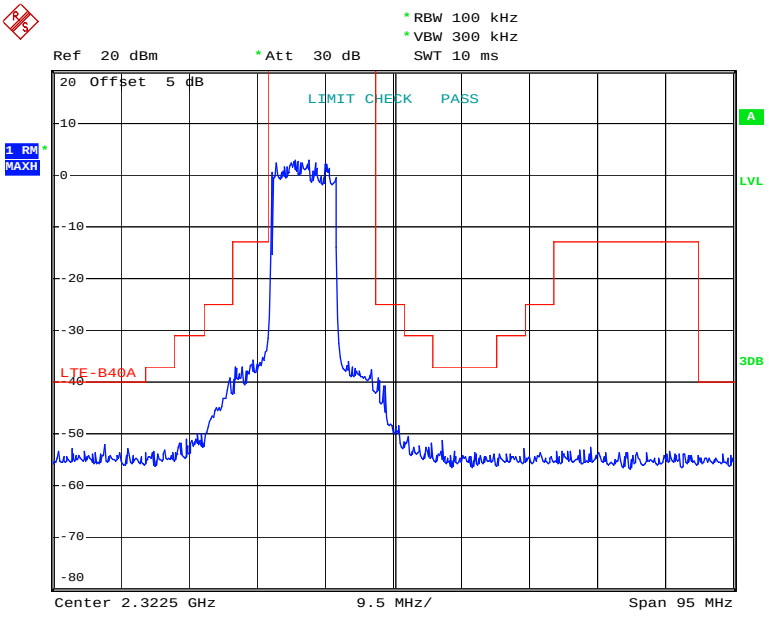
Date: 15.MAY.2020 14:04:37

16QAM_5MHz_ 25 RB_ Right



Date: 15.MAY.2020 14:05:14

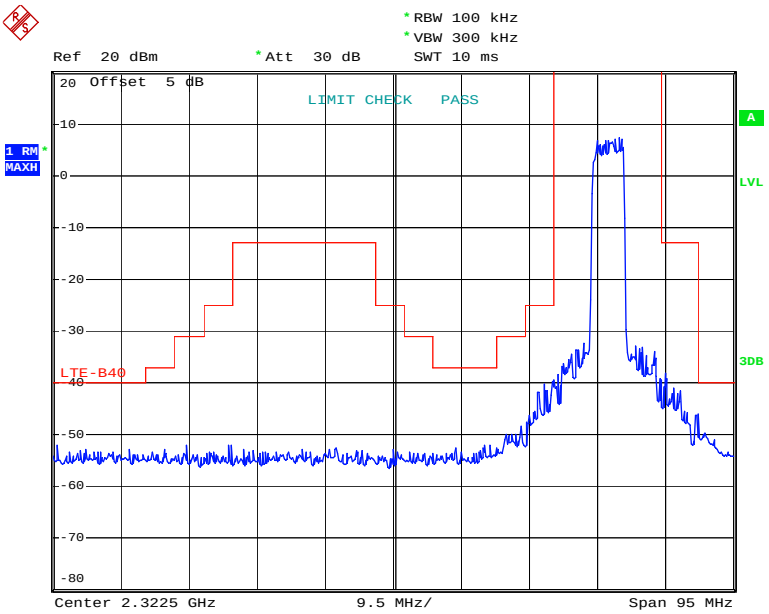
16QAM_10MHz_ 50 RB



Date: 15.MAY.2020 14:07:00

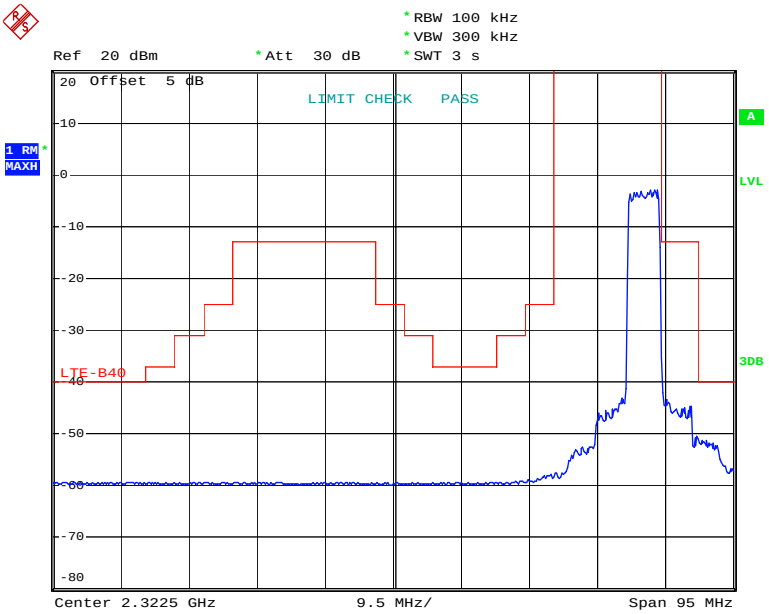
LTE Band 40-High

QPSK_5MHz_ 25 RB_ Left



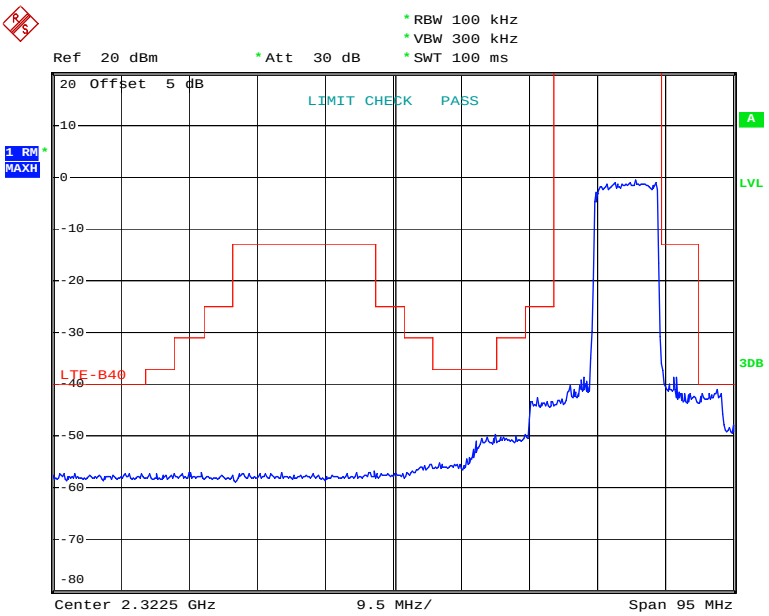
Date: 15.MAY.2020 14:10:04

QPSK_5MHz_ 25 RB_ Right



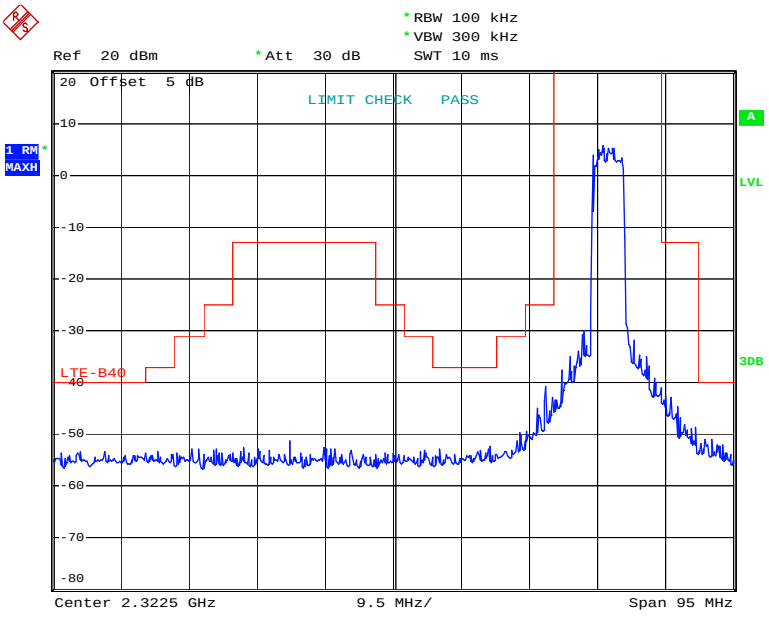
Date: 15.MAY.2020 14:13:04

QPSK_10MHz_ 50 RB



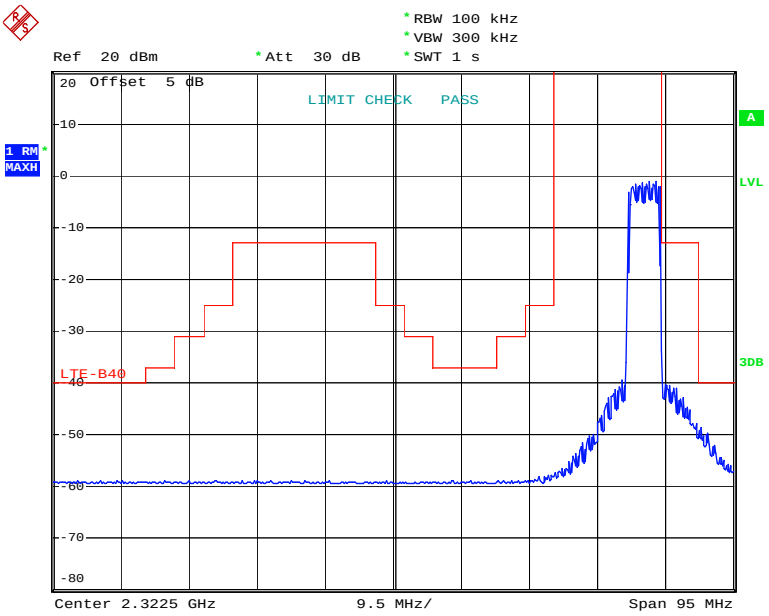
Date: 15.MAY.2020 14:08:54

16QAM_5MHz_ 25 RB_ Left



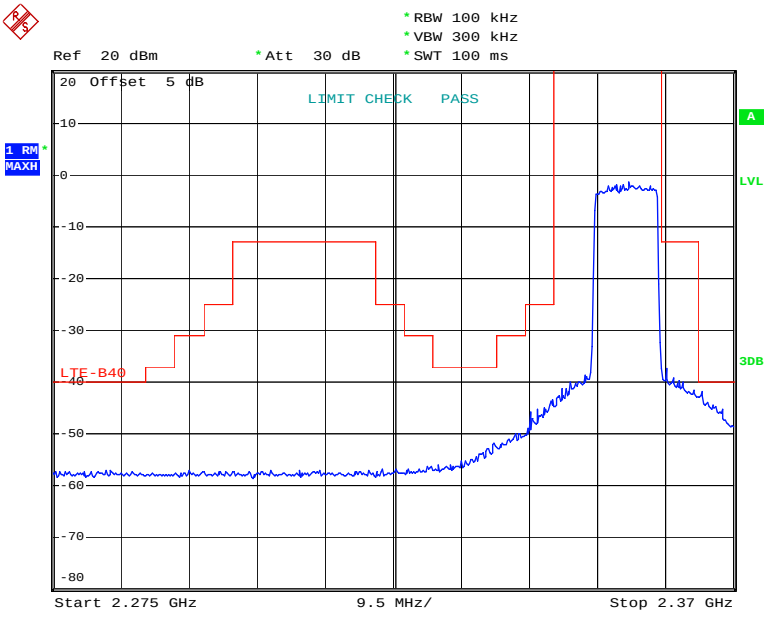
Date: 15.MAY.2020 14:10:19

16QAM_5MHz_ 25 RB_ Right



Date: 15.MAY.2020 14:11:33

16QAM_10MHz_ 50 RB



Date: 15.MAY.2020 14:08:21

FCC §2.1055, §22.355 & §24.235 & §27.54& §90.213 - FREQUENCY STABILITY

Applicable Standard

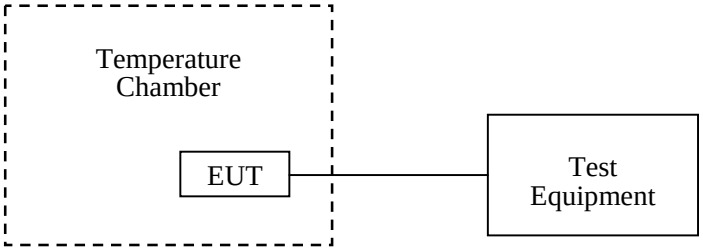
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235，§27.54, §90.213.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable AC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-01-04	2021-01-04
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	147473	2019-08-03	2020-08-03
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2020-03-26	2021-03-26
UNI-T	Multimeter	UT39A	M130199938	2019-07-23	2020-07-23
Pro instrument	DC Power Supply	pps3300	3300012	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26~27.5°C
Relative Humidity:	52~72 %
ATM Pressure:	100.2~100.9 kPa
Tester:	Chris Mo
Test Date:	2020-05-07~2020-05-15

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.7	-4.62	-0.0025	Pass
-20		7.97	0.0042	
-10		-1.11	-0.0006	
0		-1.86	-0.0010	
10		7.90	0.0042	
20		6.76	0.0036	
30		-6.17	-0.0033	
40		1.94	0.0010	
50		10.89	0.0058	
20	3.5	-4.61	-0.0025	
20	4.2	-6.47	-0.0034	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.7	-2.60	-0.0014	Pass
-20		4.76	0.0025	
-10		7.79	0.0041	
0		-4.50	-0.0024	
10		-2.83	-0.0015	
20		-6.61	-0.0035	
30		7.16	0.0038	
40		7.42	0.0039	
50		0.49	0.0003	
20	3.5	-0.74	-0.0004	
20	4.2	-7.43	-0.0040	

LTE Band 4:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.7	1710.544772	1754.453421	1710	1755
-20		1710.544972	1754.452421	1710	1755
-10		1710.544272	1754.451821	1710	1755
0		1710.543872	1754.452121	1710	1755
10		1710.543272	1754.453121	1710	1755
20		1710.544872	1754.455128	1710	1755
30		1710.548072	1754.453321	1710	1755
40		1710.548672	1754.453421	1710	1755
50		1710.547972	1754.453521	1710	1755
20	3.5	1710.548272	1754.454021	1710	1755
20	4.2	1710.547772	1754.453321	1710	1755

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.7	1710.545172	1754.452621	1710	1755
-20		1710.544572	1754.452021	1710	1755
-10		1710.545072	1754.451021	1710	1755
0		1710.544572	1754.450821	1710	1755
10		1710.543872	1754.450221	1710	1755
20		1710.544872	1754.452821	1710	1755
30		1710.546672	1754.450721	1710	1755
40		1710.546672	1754.451621	1710	1755
50		1710.546272	1754.451121	1710	1755
20	3.5	1710.546272	1754.450121	1710	1755
20	4.2	1710.546772	1754.449321	1710	1755

LTE Band 5:

Middle Channel, f_c = 836.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.7	-1.29	-0.0015	2.5
-20		1.31	0.0016	
-10		-1.73	-0.0021	
0		1.79	0.0021	
10		-4.47	-0.0053	
20		2.00	0.0024	
30		10.98	0.0131	
40		-7.49	-0.0090	
50		1.71	0.0020	
20	3.5	8.84	0.0106	
20	4.2	10.47	0.0125	

Middle Channel, f_c = 836.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.7	-1.54	-0.0018	2.5
-20		-5.81	-0.0069	
-10		-2.10	-0.0025	
0		-8.70	-0.0104	
10		5.23	0.0063	
20		9.64	0.0115	
30		1.89	0.0023	
40		7.61	0.0091	
50		10.75	0.0129	
20	3.5	-1.92	-0.0023	
20	4.2	-8.76	-0.0105	

LTE Band 7:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.7	2500.520700	2569.480100	2500	2570
-20		2500.520000	2569.480000	2500	2570
-10		2500.519000	2569.479000	2500	2570
0		2500.519900	2569.478800	2500	2570
10		2500.520500	2569.479800	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2500.518400	2569.478900	2500	2570
40		2500.517400	2569.478000	2500	2570
50		2500.517900	2569.477000	2500	2570
20	3.5	2500.517700	2569.477200	2500	2570
20	4.2	2500.517500	2569.476400	2500	2570

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.7	2500.520400	2569.480000	2500	2570
-20		2500.520900	2569.480500	2500	2570
-10		2500.520200	2569.480700	2500	2570
0		2500.519400	2569.481600	2500	2570
10		2500.521200	2569.481400	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2500.521000	2569.480200	2500	2570
40		2500.521900	2569.480100	2500	2570
50		2500.522500	2569.480800	2500	2570
20	3.5	2500.522400	2569.480600	2500	2570
20	4.2	2500.522200	2569.480800	2500	2570

LTE Band 12:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.7	699.479000	715.398700	699	716
-20		699.479900	715.398500	699	716
-10		699.480200	715.398000	699	716
0		699.479300	715.398800	699	716
10		699.479400	715.397700	699	716
20		699.480000	715.410000	699	716
30		699.480200	715.397500	699	716
40		699.480200	715.398700	699	716
50		699.479800	715.397500	699	716
20	3.5	699.480800	715.396000	699	716
20	4.2	699.481700	715.397000	699	716

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.7	699.480300	715.399000	699	716
-20		699.480700	715.398000	699	716
-10		699.479700	715.398500	699	716
0		699.480100	715.398400	699	716
10		699.479100	715.398700	699	716
20		699.480000	715.400000	699	716
30		699.481800	715.398500	699	716
40		699.481000	715.397700	699	716
50		699.481300	715.398500	699	716
20	3.5	699.482200	715.398900	699	716
20	4.2	699.483200	715.399300	699	716

LTE Band 13:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	**V_{DC}**	**F_L**	**F_H**	**F_L**	**F_H**
-30	3.7	777.559700	786.480800	777	787
-20		777.558900	786.479800	777	787
-10		777.558600	786.479500	777	787
0		777.558300	786.478900	777	787
10		777.558300	786.478400	777	787
20		777.560000	786.480000	777	787
30		777.558300	786.480200	777	787
40		777.557400	786.479900	777	787
50		777.557000	786.479600	777	787
20	3.5	777.556200	786.479900	777	787
20	4.2	777.555800	786.480600	777	787

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	**V_{DC}**	**F_L**	**F_H**	**F_L**	**F_H**
-30	3.7	777.559300	786.520900	777	787
-20		777.558300	786.521800	777	787
-10		777.558000	786.522000	777	787
0		777.557900	786.521800	777	787
10		777.560200	786.522100	777	787
20		777.560000	786.520000	777	787
30		777.561400	786.521500	777	787
40		777.560500	786.521100	777	787
50		777.560200	786.521000	777	787
20	3.5	777.560900	786.520600	777	787
20	4.2	777.561800	786.520600	777	787

LTE Band 25:

Middle Channel, f_c = 1882.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.7	1.19	0.0006	Pass
-20		4.07	0.0022	
-10		-6.06	-0.0032	
0		-1.25	-0.0007	
10		-7.32	-0.0039	
20		1.34	0.0007	
30		-3.96	-0.0021	
40		6.21	0.0033	
50		6.07	0.0032	
20	3.5	2.32	0.0012	
20	4.2	10.53	0.0056	

Middle Channel, f_c = 1882.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.7	0.43	0.0002	Pass
-20		-7.26	-0.0039	
-10		-6.50	-0.0035	
0		1.59	0.0008	
10		5.47	0.0029	
20		8.95	0.0048	
30		-3.18	-0.0017	
40		-0.88	-0.0005	
50		3.33	0.0018	
20	3.5	2.10	0.0011	
20	4.2	1.46	0.0008	

LTE Band 40:
Lower:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.63	2305.5317	2314.5095	2305	2315
-20		2305.5318	2314.5090	2305	2315
-10		2305.5307	2314.5097	2305	2315
0		2305.5311	2314.5038	2305	2315
10		2305.5301	2314.5086	2305	2315
20		2305.5310	2314.5020	2305	2315
30		2305.5300	2314.5094	2305	2315
40		2305.5310	2314.5087	2305	2315
50		2305.5306	2314.5096	2305	2315
20	4.2	2305.5314	2314.5040	2305	2315
20	3.5	2305.5312	2314.5096	2305	2315

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.63	2305.5317	2314.4696	2305	2315
-20		2305.5314	2314.4688	2305	2315
-10		2305.5313	2314.4686	2305	2315
0		2305.5306	2314.4692	2305	2315
10		2305.5307	2314.4693	2305	2315
20		2305.5310	2314.4680	2305	2315
30		2305.5310	2314.4683	2305	2315
40		2305.5311	2314.4691	2305	2315
50		2305.5311	2314.4695	2305	2315
20	4.2	2305.5308	2314.4698	2305	2315
20	3.5	2305.5312	2314.4688	2305	2315

Upper:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.63	2350.5314	2359.4690	2350	2360
-20		2350.5312	2359.4690	2350	2360
-10		2350.5312	2359.4692	2350	2360
0		2350.5314	2359.4685	2350	2360
10		2350.5306	2359.4687	2350	2360
20		2350.5310	2359.4689	2350	2360
30		2350.5308	2359.4685	2350	2360
40		2350.5311	2359.4692	2350	2360
50		2350.5309	2359.4693	2350	2360
20	4.2	2350.5312	2359.4693	2350	2360
20	3.5	2350.5306	2359.4686	2350	2360

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.63	2350.5311	2359.4691	2350	2360
-20		2350.5306	2359.4690	2350	2360
-10		2350.5314	2359.4688	2350	2360
0		2350.5305	2359.4692	2350	2360
10		2350.5311	2359.4684	2350	2360
20		2350.5310	2359.4680	2350	2360
30		2350.5304	2359.4687	2350	2360
40		2350.5309	2359.4688	2350	2360
50		2350.5317	2359.4690	2350	2360
20	4.2	2350.5305	2359.4687	2350	2360
20	3.5	2350.5307	2359.4697	2350	2360

Note: The fundamental emissions stay within the authorized bands of operation based on the frequency deviation measured is small, the extreme voltage was declared by applicant.

******* END OF REPORT *******