



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

For

Epik One America Corporation

801 Brickell Ave. #900 Miami Florida United States

FCC ID: 2AO6ZX547

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Report Number: RSZ200311001-00D	
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Reviewed By: RF Engineer	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	4G Smart Phone
Model	X547
Frequency Range	EGSM850/WCDMA B5/LTE B5: 824-849MHz(TX)/869-894MHz(RX) PCS1900/WCDMA B2/LTE B2: 1850-1910MHz(TX)/1930-1990MHz(RX) LTE B4: 1710-1755MHz(TX)/2110-2155MHz(RX) LTE B7: 2500-2570MHz(TX)/2620-2690MHz(RX)
Maximum Target Output Power	EGSM850: 32.8dBm(GMSK), 25.8dBm(8PSK) PCS1900: 29.6dBm(GMSK), 24.9dBm(8PSK) WCDMA Band 2: 23.0dBm WCDMA Band 5: 22.2dBm LTE Band 2: 23.4dBm LTE Band 4: 23.1dBm LTE Band 5: 22.9dBm LTE Band 7: 22.8dBm
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification	2G/3G/4G: FPC Antennas
Voltage Range	DC 3.8V from battery or DC 5V from adapter
Date of Test	2020/03/12~2020/04/02
Sample serial number	RSZ200311001-RF-S1 (Assigned by BACL, Shenzhen)
Received date	2020/03/11
Sample/EUT Status	Good condition
Normal/Extreme Condition	N.V.: Nominal Voltage: 3.8V _{DC} L.V.: Low Voltage: 3.6V _{DC} H.V.: High Voltage: 4.35V _{DC}
Adapter information	Model: YMK-6W050100 Input: AC 100-240V, 50/60Hz, 0.2A Output: DC 5V, 1000mA

Objective

This test report is prepared on behalf of *Epik One America Corporation* in accordance with Part 2-Subpart J, Part 22-Subpart H and Part 24-Subpart E and Subpart 27 of the Federal Communication Commissions rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

Related Submittal(s)/Grant(s)

FCC Part 15.247 DSS & DTS submissions with FCC ID: 2AO6ZX547.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart 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

Applicable Standards: TIA/EIA 603-D.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±0.73dB
Unwanted Emission, conducted		±1.6dB
Emissions, Radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB
Temperature		±1 °C
Humidity		±6%
Supply voltages		±0.4%

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

The final qualification test was performed with the EUT operating at normal mode.

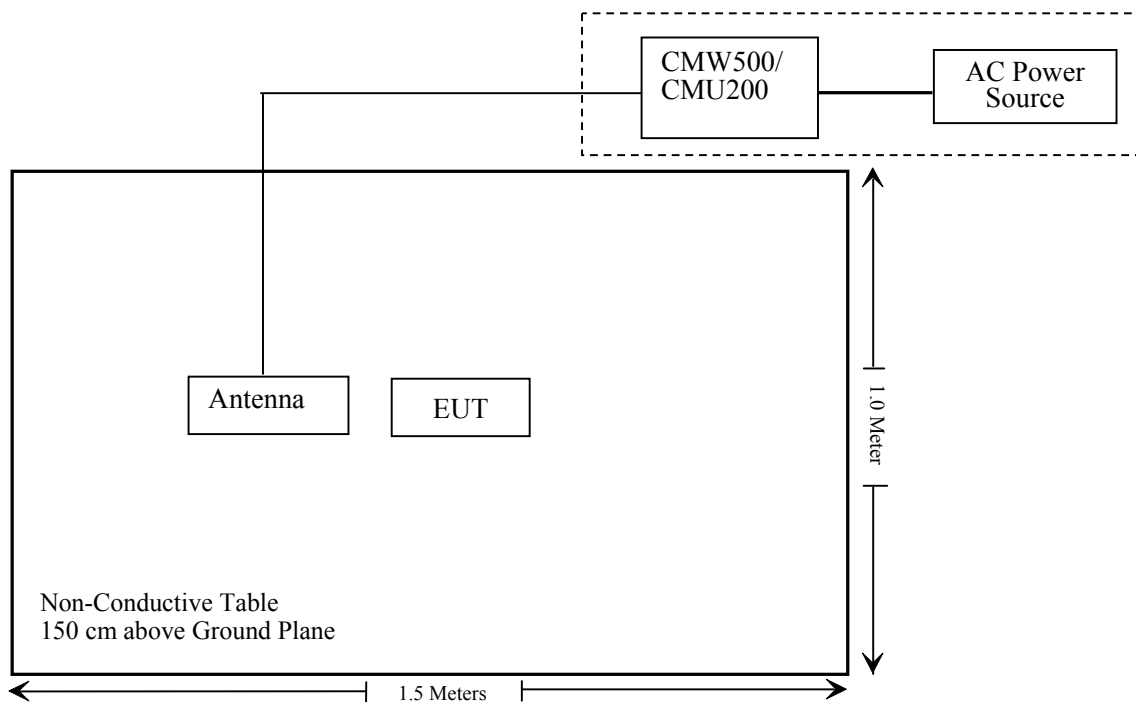
Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-116218-UY
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 , §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (b (c) (d) (h)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53(h) (m)	Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliance

Note: * Please refer to SAR report released by BACL, report number: RSZ200311001-SA.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2019/7/9	2020/7/8
Sonoma instrument	Pre-amplifier	310 N	186238	2019/4/20	2020/4/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017/12/22	2020/12/21
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Unknown	Cable 2	RF Cable 2	F-03-EM197	2019/11/29	2020/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2019/11/29	2020/11/28
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2019/7/22	2020/07/21
COM-POWER	Pre-amplifier	PA-122	181919	2019/11/29	2020/11/28
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2019/11/29	2020/11/28
Sunol Sciences	Horn Antenna	DRH-118	A052604	2017/12/22	2020/12/21
A.H.System	Horn Antenna	SAS-200/571	135	2018/9/1	2021/8/31
Insulted Wire Inc.	RF Cable	SPS-2503-3150	02222010	2019/11/29	2020/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2019/11/29	2020/11/28
MICRO-TRONICS	Passband filter	HPM50111	F-19-EM006	2019/4/20	2020/4/20
Unknown	High Pass filter	1.3GHz	101120	2019/4/20	2020/4/20
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-02 1304	2017/12/6	2020/12/5
Ducommun Technologies	Horn antenna	ARH-2823-02	1007726-02 1302	2017/12/6	2020/12/5
Agilent	Signal Generator	N5183A	MY51040755	2019/12/4	2020/12/4

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2020/3/2	2021/3/1
WEINSCHTEL	3dB Attenuator	Unknown	F-03-EM121	2019/11/29	2020/11/28
Unknown	RF Cable	Unknown	2301 276	2019/11/29	2020/11/28
Weinschel	Power divider	1515	RH386	2019/4/20	2020/4/20
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200982	2020/3/2	2021/3/1
Unknown	RF Cable	Unknown	DLO J5/W6102	2019/11/29	2020/11/28
Weinschel	Power divider	1515	MY628	2019/11/29	2020/11/28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2019/7/22	2020/7/21
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2019/7/9	2020/7/8
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
ESPEC	Temperature & Humidity Chamber	EL-10KA	9107726	2020/01/05	2021/01/05
Fluke	Digital Multimeter	287	19000011	2019/04/12	2020/04/12
Wainwright Germany	Band Reject filter	WRCG1850/1910-1835/1925-40/8SS	22	2020/3/2	2021/3/1
Wainwright Germany	Band Reject Filter	WRCG823/850-813/860-40/8SS	7	2020/3/2	2021/3/1

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

FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ200311001-SA.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E & 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 (b) (c) (d) (h) - 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.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

According to §27.50(b), 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.

According to §27.50(c), 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.

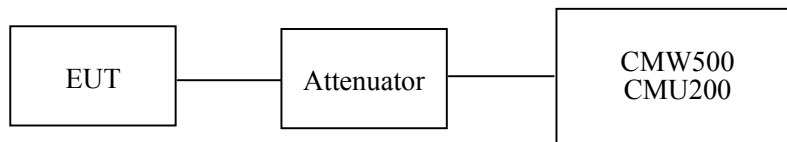
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz.

According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2500-2570MHz.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the CMW500/CMU200 through sufficient attenuation.



Radiated method:

TIA 603-D section 2.2.17

Test Data

Environmental Conditions

Temperature:	24~25 °C
Relative Humidity:	52~56 %
ATM Pressure:	101.0 kPa

The testing was performed by George Zhong on 2020-03-12 and by Charlie Cha on 2020-03-19.

Conducted Power**Cellular Band (Part 22H)**

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	32.52	38.45
	190	836.6	32.56	38.45
	251	848.8	32.58	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.46	30.36	28.46	26.34	38.45
	190	836.6	32.61	30.43	28.50	26.30	38.45
	251	848.8	32.55	30.33	28.42	26.24	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	25.3	24.03	20.64	18.43	38.45
	190	836.6	25.6	24.22	21.51	19.38	38.45
	251	848.8	25.39	24.21	21.36	19.12	38.45

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	RMC12.2k		21.11	21.98	21.99
		HSDPA	1	21.38	21.05	21.19
			2	21.36	21.08	21.2
			3	21.4	21.08	21.21
			4	21.39	21.08	21.23
		HSUPA	1	21.4	21.11	21.25
			2	21.4	21.09	21.22
			3	21.35	21.11	21.25
			4	21.44	21.11	21.25
			5	21.41	21.25	21.23

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	29.22	33
	661	1880.0	29.23	33
	810	1909.8	29.35	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.23	27.25	25.67	23.74	33
	661	1880.0	29.20	27.01	25.39	23.53	33
	810	1909.8	29.33	26.87	25.26	23.35	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	23.53	21.76	19.70	16.77	33
	661	1880.0	24.65	22.81	20.46	17.70	33
	810	1909.8	24.84	23.14	20.39	17.31	33

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	RMC12.2k		22.74	22.67	22.73
		HSDPA	1	21.85	21.90	21.73
			2	21.85	21.89	21.77
			3	21.85	21.89	21.70
			4	21.92	21.97	21.79
		HSUPA	1	21.86	21.88	21.73
			2	21.81	21.91	21.78
			3	21.90	21.92	21.70
			4	22.00	22.01	21.89
			5	21.88	21.96	21.82

Peak-to-average ratio (PAR)**Cellular Band**

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	1.63	13
	Middle	1.54	13
	High	1.48	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	1.62	13
	Middle	1.37	13
	High	1.52	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.24	13
	Middle	3.54	13
	High	3.62	13
HSDPA (16QAM)	Low	3.55	13
	Middle	4.55	13
	High	4.28	13
HSUPA (BPSK)	Low	4.41	13
	Middle	4.11	13
	High	5.00	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	1.48	13
	Middle	1.44	13
	High	1.37	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	1.32	13
	Middle	1.64	13
	High	1.28	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.23	13
	Middle	3.23	13
	High	3.27	13
HSDPA (16QAM)	Low	4.55	13
	Middle	4.00	13
	High	4.37	13
HSUPA (BPSK)	Low	3.78	13
	Middle	3.66	13
	High	3.78	13

Radiated Power**GSM Mode:**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
ERP for Cellular Band (Part 22H), Middle Channel										
836.6	90.24	278	2.0	H	30.9	1.35	0.0	29.55	38.45	8.90
836.6	83.94	156	1.5	V	23.9	1.90	0.0	22.00	38.45	16.45
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	89.12	287	1.0	H	19.4	1.30	9.40	27.50	33	5.50
1880.00	88.75	23	1.9	V	18.9	1.30	9.40	27.00	33	6.00

EDGE Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dBi)			
ERP, Cellular Band (Part 22H), Middle Channel										
836.6	86.68	55	2.0	H	27.3	1.35	0.0	25.95	38.45	12.50
836.6	84.33	170	1.9	V	24.3	1.35	0.0	22.95	38.45	15.50
EIRP, PCS Band (Part 24E), Middle Channel										
1880.00	86.77	184	1.4	H	17.1	1.30	9.40	25.20	33	7.80
1880.00	83.45	73	1.0	V	13.6	1.30	9.40	21.70	33	11.30

WCDMA Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
ERP for WCDMA Band V (Part 22H), Middle Channel										
836.6	81.24	263	1.4	H	21.9	1.35	0.0	20.55	38.45	17.90
836.6	82.65	12	1.5	V	22.7	1.35	0.0	21.35	38.45	17.10
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	80.66	163	1.8	H	11.0	1.30	9.40	19.10	33	13.90
1880.00	81.12	31	1.7	V	11.2	1.30	9.40	19.30	33	13.70

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

dBd is for the ERP, dBi is for EIRP.

LTE Band 2:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	22.63	22.94	22.88
		RB Size=1, RB Offset=2	22.65	22.95	22.86
		RB Size=1, RB Offset=5	22.70	23.00	22.83
		RB Size=3, RB Offset=0	22.88	22.89	22.98
		RB Size=3, RB Offset=1	22.89	22.94	22.99
		RB Size=3, RB Offset=2	22.74	22.82	22.83
		RB Size=6, RB Offset=0	21.84	21.75	21.96
	16QAM	RB Size=1, RB Offset=0	22.58	22.32	22.65
		RB Size=1, RB Offset=2	22.55	22.32	22.62
		RB Size=1, RB Offset=5	22.56	22.34	22.65
		RB Size=3, RB Offset=0	21.78	21.92	21.87
		RB Size=3, RB Offset=1	21.81	21.95	21.87
		RB Size=3, RB Offset=2	21.68	2.88	21.66
		RB Size=6, RB Offset=0	20.96	21.11	21.09
3.0	QPSK	RB Size=1, RB Offset=0	22.73	22.82	22.86
		RB Size=1, RB Offset=7	22.72	22.78	22.90
		RB Size=1, RB Offset=14	22.72	22.86	22.94
		RB Size=8, RB Offset=0	21.80	21.86	21.93
		RB Size=8, RB Offset=4	21.72	21.89	21.96
		RB Size=8, RB Offset=7	21.82	21.67	21.73
		RB Size=15, RB Offset=0	21.77	21.88	21.84
	16QAM	RB Size=1, RB Offset=0	22.07	22.38	21.73
		RB Size=1, RB Offset=7	22.03	22.41	21.73
		RB Size=1, RB Offset=14	22.01	22.39	21.77
		RB Size=8, RB Offset=0	21.02	21.10	21.20
		RB Size=8, RB Offset=4	21.02	21.14	21.23
		RB Size=8, RB Offset=7	21.24	21.18	21.19
		RB Size=15, RB Offset=0	20.95	20.97	20.99

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.69	22.97	22.79
		RB Size=1, RB Offset=12	22.68	23.04	22.87
		RB Size=1, RB Offset=24	22.72	23.06	22.82
		RB Size=12, RB Offset=0	21.79	21.79	21.79
		RB Size=12, RB Offset=6	21.75	21.83	21.87
		RB Size=12, RB Offset=11	21.65	21.77	21.84
		RB Size=25, RB Offset=0	21.73	21.85	21.91
	16QAM	RB Size=1, RB Offset=0	21.09	22.04	21.47
		RB Size=1, RB Offset=12	21.08	22.01	21.55
		RB Size=1, RB Offset=24	21.04	22.06	21.59
		RB Size=12, RB Offset=0	21.01	20.88	21.02
		RB Size=12, RB Offset=6	21.02	20.96	21.02
		RB Size=12, RB Offset=11	21.24	21.16	21.09
		RB Size=25, RB Offset=0	21.02	21.01	20.88
10.0	QPSK	RB Size=1, RB Offset=0	22.64	22.82	22.78
		RB Size=1, RB Offset=24	22.69	22.80	22.77
		RB Size=1, RB Offset=49	22.68	22.86	22.89
		RB Size=25, RB Offset=0	21.77	21.77	21.88
		RB Size=25, RB Offset=12	21.69	21.79	21.79
		RB Size=25, RB Offset=24	21.57	21.66	21.83
		RB Size=50, RB Offset=0	21.74	21.76	21.82
	16QAM	RB Size=1, RB Offset=0	22.01	21.93	21.33
		RB Size=1, RB Offset=24	21.97	21.96	21.32
		RB Size=1, RB Offset=49	22.02	22.06	21.40
		RB Size=25, RB Offset=0	20.91	21.03	21.05
		RB Size=25, RB Offset=12	20.85	21.06	21.09
		RB Size=25, RB Offset=24	20.79	21.03	20.99
		RB Size=50, RB Offset=0	20.88	21.07	20.94

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15.0	QPSK	RB Size=1, RB Offset=0	22.67	22.68	22.84
		RB Size=1, RB Offset=37	22.69	22.78	22.76
		RB Size=1, RB Offset=74	22.69	22.82	22.85
		RB Size=36, RB Offset=0	21.76	21.81	21.88
		RB Size=36, RB Offset=18	21.83	21.88	21.95
		RB Size=36, RB Offset=37	21.86	21.73	21.87
		RB Size=75, RB Offset=0	21.73	21.87	21.91
	16QAM	RB Size=1, RB Offset=0	22.25	22.10	22.33
		RB Size=1, RB Offset=37	22.25	22.22	22.31
		RB Size=1, RB Offset=74	22.17	22.31	22.36
		RB Size=36, RB Offset=0	20.90	20.98	21.02
		RB Size=36, RB Offset=18	20.94	21.00	21.00
		RB Size=36, RB Offset=37	21.82	20.89	21.11
		RB Size=75, RB Offset=0	20.97	20.97	21.07
20.0	QPSK	RB Size=1, RB Offset=0	22.85	22.77	22.95
		RB Size=1, RB Offset=49	22.89	22.87	22.87
		RB Size=1, RB Offset=99	22.92	22.91	23.02
		RB Size=50, RB Offset=0	21.84	21.80	21.92
		RB Size=50, RB Offset=24	21.73	21.98	21.91
		RB Size=50, RB Offset=49	21.69	21.84	21.83
		RB Size=100, RB Offset=0	21.78	21.78	21.82
	16QAM	RB Size=1, RB Offset=0	22.04	21.84	22.63
		RB Size=1, RB Offset=49	22.00	21.92	22.61
		RB Size=1, RB Offset=99	22.05	21.93	22.63
		RB Size=50, RB Offset=0	21.01	20.90	20.99
		RB Size=50, RB Offset=24	21.00	21.11	21.02
		RB Size=50, RB Offset=49	21.11	21.24	21.16
		RB Size=100, RB Offset=0	20.87	20.88	21.04

Peak-to-average ratio (PAR)

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.46	4.87	5.10	13	Pass
QPSK (100RB Size)	5.45	5.29	5.51	13	Pass
16QAM (1RB Size)	4.78	5.48	6.51	13	Pass
16QAM (100RB Size)	6.28	6.09	6.35	13	Pass

QPSK:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	85.68	16	2.2	H	16.0	1.30	9.40	24.10	33
1880.00	83.61	275	1.4	V	13.7	1.30	9.40	21.80	33
3 MHz Bandwidth									
1880.00	85.43	173	1.5	H	15.8	1.30	9.40	23.90	33
1880.00	83.51	152	1.8	V	13.6	1.30	9.40	21.70	33
5 MHz Bandwidth									
1880.00	85.41	342	1.8	H	15.7	1.30	9.40	23.80	33
1880.00	83.34	276	1.1	V	13.4	1.30	9.40	21.50	33
10 MHz Bandwidth									
1880.00	85.31	78	1.7	H	15.6	1.30	9.40	23.70	33
1880.00	83.19	3	2.4	V	13.3	1.30	9.40	21.40	33
15 MHz Bandwidth									
1880.00	85.12	216	1.2	H	15.4	1.30	9.40	23.50	33
1880.00	83.07	268	1.5	V	13.2	1.30	9.40	21.30	33
20 MHz Bandwidth									
1880.00	84.89	57	2.4	H	15.2	1.30	9.40	23.30	33
1880.00	82.78	49	1.4	V	12.9	1.30	9.40	21.00	33

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	85.79	334	1.1	H	16.1	1.30	9.40	24.20	33
1880.00	84.19	245	1.9	V	14.3	1.30	9.40	22.40	33
3 MHz Bandwidth									
1880.00	85.64	230	2.2	H	16.0	1.30	9.40	24.10	33
1880.00	84.12	284	1.6	V	14.2	1.30	9.40	22.30	33
5 MHz Bandwidth									
1880.00	85.45	4	1.7	H	15.8	1.30	9.40	23.90	33
1880.00	83.98	202	2.3	V	14.1	1.30	9.40	22.20	33
10 MHz Bandwidth									
1880.00	85.35	3	2.2	H	15.7	1.30	9.40	23.80	33
1880.00	83.84	246	2.0	V	13.9	1.30	9.40	22.00	33
15 MHz Bandwidth									
1880.00	84.95	95	2.1	H	15.3	1.30	9.40	23.40	33
1880.00	83.77	129	1.6	V	13.9	1.30	9.40	22.00	33
20 MHz Bandwidth									
1880.00	84.81	320	2.4	H	15.1	1.30	9.40	23.20	33
1880.00	83.61	336	1.6	V	13.7	1.30	9.40	21.80	33

LTE Band 4:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	22.81	22.29	22.45
		RB Size=1, RB Offset=2	22.76	22.13	22.04
		RB Size=1, RB Offset=5	22.83	22.17	22.45
		RB Size=3, RB Offset=0	22.85	21.55	21.38
		RB Size=3, RB Offset=1	22.85	21.34	21.35
		RB Size=3, RB Offset=2	22.74	21.58	21.48
		RB Size=6, RB Offset=0	21.66	21.17	21.12
	16QAM	RB Size=1, RB Offset=0	22.45	22.08	22.56
		RB Size=1, RB Offset=2	22.45	22.5	22.4
		RB Size=1, RB Offset=5	22.42	22.49	22.47
		RB Size=3, RB Offset=0	21.91	21.15	21.06
		RB Size=3, RB Offset=1	21.90	21.22	21.53
		RB Size=3, RB Offset=2	21.19	21.45	21.37
		RB Size=6, RB Offset=0	21.08	21.36	21.09
3.0	QPSK	RB Size=1, RB Offset=0	22.25	22.18	22.28
		RB Size=1, RB Offset=7	22.08	22.36	22.14
		RB Size=1, RB Offset=14	22.24	22.51	22.02
		RB Size=8, RB Offset=0	21.56	21.1	21.08
		RB Size=8, RB Offset=4	21.19	21.08	21.07
		RB Size=8, RB Offset=7	21.45	21.36	21.28
		RB Size=15, RB Offset=0	21.29	21.51	21.09
	16QAM	RB Size=1, RB Offset=0	22.13	22.22	22.48
		RB Size=1, RB Offset=7	22.39	22.43	22.53
		RB Size=1, RB Offset=14	22.07	22.36	22.3
		RB Size=8, RB Offset=0	21.46	21.21	21.43
		RB Size=8, RB Offset=4	21.27	21.38	21.51
		RB Size=8, RB Offset=7	21.33	21.39	21.48
		RB Size=15, RB Offset=0	21.06	21.33	21.47

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.19	22.36	22.45
		RB Size=1, RB Offset=12	22.55	22.39	22.05
		RB Size=1, RB Offset=24	22.56	22.59	22.12
		RB Size=12, RB Offset=0	21.16	21.19	21.12
		RB Size=12, RB Offset=6	21.04	21.57	21.04
		RB Size=12, RB Offset=11	21.35	21.48	21.26
		RB Size=25, RB Offset=0	21.2	21.01	21.56
	16QAM	RB Size=1, RB Offset=0	22.34	22.29	22.31
		RB Size=1, RB Offset=12	22.22	22.4	22.36
		RB Size=1, RB Offset=24	22.3	22.01	22.19
		RB Size=12, RB Offset=0	21.51	21.55	21.31
		RB Size=12, RB Offset=6	21.53	21.33	21.02
		RB Size=12, RB Offset=11	21.46	21.35	21.26
		RB Size=25, RB Offset=0	21.39	21.25	21.43
10.0	QPSK	RB Size=1, RB Offset=0	22.22	22.13	22.33
		RB Size=1, RB Offset=24	22.27	22.15	22.32
		RB Size=1, RB Offset=49	22.58	22.02	22.58
		RB Size=25, RB Offset=0	21.36	21.1	21.07
		RB Size=25, RB Offset=12	21.28	21.44	21.26
		RB Size=25, RB Offset=24	21.34	21.33	21.29
		RB Size=50, RB Offset=0	21.1	21.23	21.58
	16QAM	RB Size=1, RB Offset=0	22.46	22.38	22.04
		RB Size=1, RB Offset=24	22.22	22.52	22.37
		RB Size=1, RB Offset=49	22.12	22.15	22.54
		RB Size=25, RB Offset=0	21.19	21.11	21.3
		RB Size=25, RB Offset=12	21.08	21.02	21.5
		RB Size=25, RB Offset=24	21.33	21.29	21.42
		RB Size=50, RB Offset=0	21.42	21.53	21.1

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15.0	QPSK	RB Size=1, RB Offset=0	22.4	22.55	22.4
		RB Size=1, RB Offset=37	22.5	22.43	22.12
		RB Size=1, RB Offset=74	22.09	22.34	22.27
		RB Size=36, RB Offset=0	21.39	21.34	21.55
		RB Size=36, RB Offset=18	21.44	21.55	21.1
		RB Size=36, RB Offset=37	21.34	21.46	21.28
		RB Size=75, RB Offset=0	21.52	21.28	21.48
	16QAM	RB Size=1, RB Offset=0	22.11	22.15	22.25
		RB Size=1, RB Offset=37	22.27	22.02	22.42
		RB Size=1, RB Offset=74	22.32	22.53	22.11
		RB Size=36, RB Offset=0	21.42	21.32	21.48
		RB Size=36, RB Offset=18	21.52	21.24	21.55
		RB Size=36, RB Offset=37	21.46	21.35	21.63
		RB Size=75, RB Offset=0	21.07	21.22	21.31
20.0	QPSK	RB Size=1, RB Offset=0	22.06	22.06	22.37
		RB Size=1, RB Offset=49	22.54	22.14	22.36
		RB Size=1, RB Offset=99	22.13	22.23	22.23
		RB Size=50, RB Offset=0	21.18	21.15	21.36
		RB Size=50, RB Offset=24	21.29	21.06	21.16
		RB Size=50, RB Offset=49	21.33	21.25	21.66
		RB Size=100, RB Offset=0	21.39	21.46	21.19
	16QAM	RB Size=1, RB Offset=0	22.13	22.12	22.52
		RB Size=1, RB Offset=49	22.58	22.14	22.27
		RB Size=1, RB Offset=99	22.5	22.53	22.08
		RB Size=50, RB Offset=0	21.37	21.49	21.2
		RB Size=50, RB Offset=24	21.25	21.17	21.33
		RB Size=50, RB Offset=49	21.44	21.35	21.42
		RB Size=100, RB Offset=0	21.09	21.33	21.57

Peak-to-average ratio (PAR)

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.36	4.01	4.26	13	Pass
QPSK (100RB Size)	5.67	5.26	5.58	13	Pass
16QAM (1RB Size)	5.71	5.19	5.19	13	Pass
16QAM (100RB Size)	6.44	6.15	6.41	13	Pass

QPSK:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
1.4 MHz Bandwidth									
1732.50	86.57	221	2.3	H	13.2	1.30	8.90	20.80	30
1732.50	84.63	101	2.2	V	11.9	1.30	8.90	19.50	30
3 MHz Bandwidth									
1732.50	86.62	97	2.1	H	13.3	1.30	8.90	20.90	30
1732.50	84.33	295	2.5	V	11.6	1.30	8.90	19.20	30
5 MHz Bandwidth									
1732.50	86.38	125	1.5	H	13.1	1.30	8.90	20.70	30
1732.50	84.57	323	2.3	V	11.8	1.30	8.90	19.40	30
10 MHz Bandwidth									
1732.50	86.22	138	1.2	H	12.9	1.30	8.90	20.50	30
1732.50	83.93	153	1.5	V	11.2	1.30	8.90	18.80	30
15 MHz Bandwidth									
1732.50	86.31	95	2.1	H	13.0	1.30	8.90	20.60	30
1732.50	84.19	101	2.2	V	11.5	1.30	8.90	19.10	30
20 MHz Bandwidth									
1732.50	86.02	24	1.9	H	12.7	1.30	8.90	20.30	30
1732.50	83.54	89	2.0	V	10.8	1.30	8.90	18.40	30

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
1.4 MHz Bandwidth									
1732.50	87.05	295	1.7	H	13.7	1.30	8.90	21.30	30
1732.50	85.95	285	2.4	V	13.2	1.30	8.90	20.80	30
3 MHz Bandwidth									
1732.50	86.98	218	2.3	H	13.7	1.30	8.90	21.30	30
1732.50	85.78	4	1.7	V	13.1	1.30	8.90	20.70	30
5 MHz Bandwidth									
1732.50	86.79	233	2.5	H	13.5	1.30	8.90	21.10	30
1732.50	85.69	226	2.1	V	13.0	1.30	8.90	20.60	30
10 MHz Bandwidth									
1732.50	86.54	46	2.2	H	13.2	1.30	8.90	20.80	30
1732.50	85.42	271	2.4	V	12.7	1.30	8.90	20.30	30
15 MHz Bandwidth									
1732.50	86.33	266	2.1	H	13.0	1.30	8.90	20.60	30
1732.50	85.31	103	1.8	V	12.6	1.30	8.90	20.20	30
20 MHz Bandwidth									
1732.50	86.24	115	1.4	H	12.9	1.30	8.90	20.50	30
1732.50	85.14	85	1.8	V	12.4	1.30	8.90	20.00	30

LTE Band 5:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	22.56	22.04	22.08
		RB Size=1, RB Offset=2	22.55	22.38	22.07
		RB Size=1, RB Offset=5	22.43	22.17	22.39
		RB Size=3, RB Offset=0	21.46	21.27	21.29
		RB Size=3, RB Offset=1	21.49	21.29	21.39
		RB Size=3, RB Offset=2	21.55	21.36	21.28
		RB Size=6, RB Offset=0	21.06	21.04	21.02
	16QAM	RB Size=1, RB Offset=0	22.4	22.45	22.54
		RB Size=1, RB Offset=2	22.43	22.56	22.34
		RB Size=1, RB Offset=5	22.33	22.3	22.33
		RB Size=3, RB Offset=0	21.26	21.07	21.01
		RB Size=3, RB Offset=1	21.32	21.1	21.22
		RB Size=3, RB Offset=2	21.43	21.48	21.36
		RB Size=6, RB Offset=0	21.53	21.5	21.13
3.0	QPSK	RB Size=1, RB Offset=0	22.52	22.51	22.24
		RB Size=1, RB Offset=7	22.13	22.44	22.58
		RB Size=1, RB Offset=14	22.58	22.25	22.51
		RB Size=8, RB Offset=0	21.13	21.25	21.39
		RB Size=8, RB Offset=4	21.57	21.57	21.28
		RB Size=8, RB Offset=7	21.53	21.62	21.44
		RB Size=15, RB Offset=0	21.13	21.01	21.23
	16QAM	RB Size=1, RB Offset=0	22.26	22.38	22.34
		RB Size=1, RB Offset=7	22.47	22.48	22.07
		RB Size=1, RB Offset=14	22.13	22.1	22.19
		RB Size=8, RB Offset=0	21.39	21.23	21.3
		RB Size=8, RB Offset=4	21.38	21.22	21.43
		RB Size=8, RB Offset=7	21.27	21.34	21.45
		RB Size=15, RB Offset=0	21.07	21.29	21.15

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.56	22.48	22.52
		RB Size=1, RB Offset=12	22.07	22.12	22.12
		RB Size=1, RB Offset=24	22.52	22.51	22.29
		RB Size=12, RB Offset=0	21.01	21.13	21.35
		RB Size=12, RB Offset=6	21.48	21.05	21.13
		RB Size=12, RB Offset=11	21.35	21.22	21.29
		RB Size=25, RB Offset=0	21.29	21.17	21.29
	16QAM	RB Size=1, RB Offset=0	22.34	22.46	22.31
		RB Size=1, RB Offset=12	22.29	22.39	22.22
		RB Size=1, RB Offset=24	22.25	22.01	22.12
		RB Size=12, RB Offset=0	21.55	21.01	21.17
		RB Size=12, RB Offset=6	21.42	21.22	21.47
		RB Size=12, RB Offset=11	21.47	21.35	21.34
		RB Size=25, RB Offset=0	21.34	21.54	21.22
10.0	QPSK	RB Size=1, RB Offset=0	22.1	22.25	22.2
		RB Size=1, RB Offset=24	22.21	22.03	22.01
		RB Size=1, RB Offset=49	22.23	22.19	22.16
		RB Size=25, RB Offset=0	21.09	21.03	21.15
		RB Size=25, RB Offset=12	21.34	21.02	21.17
		RB Size=25, RB Offset=24	21.32	21.18	21.24
		RB Size=50, RB Offset=0	21.1	21.46	21.38
	16QAM	RB Size=1, RB Offset=0	22.47	22.39	22.06
		RB Size=1, RB Offset=24	22.31	22.03	22.26
		RB Size=1, RB Offset=49	22.3	22.2	22.35
		RB Size=25, RB Offset=0	21.58	21.56	21.07
		RB Size=25, RB Offset=12	21.19	21.44	21.52
		RB Size=25, RB Offset=24	21.22	21.35	21.47
		RB Size=50, RB Offset=0	21.38	21.3	21.27

Peak-to-average ratio (PAR)

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.52	4.90	5.22	13	Pass
QPSK (50RB Size)	5.45	5.64	5.54	13	Pass
16QAM (1RB Size)	5.38	6.35	6.38	13	Pass
16QAM (50RB Size)	6.19	6.44	6.41	13	Pass

QPSK:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
1.4 MHz Bandwidth									
836.5	82.54	111	2.3	H	23.2	1.35	0.0	21.85	38.45
836.5	79.45	146	2.0	V	19.5	1.35	0.0	18.15	38.45
3 MHz Bandwidth									
836.5	82.67	123	2.0	H	23.3	1.35	0.0	21.95	38.45
836.5	79.33	198	2.0	V	19.3	1.35	0.0	17.95	38.45
5 MHz Bandwidth									
836.5	83.13	37	1.1	H	23.8	1.35	0.0	22.45	38.45
836.5	79.84	276	1.4	V	19.8	1.35	0.0	18.45	38.45
10 MHz Bandwidth									
836.5	82.93	207	2.2	H	23.6	1.35	0.0	22.25	38.45
836.5	79.64	33	1.5	V	19.6	1.35	0.0	18.25	38.45

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
1.4 MHz Bandwidth									
836.5	82.52	164	1.8	H	23.1	1.35	0.0	21.75	38.45
836.5	78.87	105	1.4	V	18.9	1.35	0.0	17.55	38.45
3 MHz Bandwidth									
836.5	81.94	61	1.3	H	22.6	1.35	0.0	21.25	38.45
836.5	79.22	352	1.3	V	19.2	1.35	0.0	17.85	38.45
5 MHz Bandwidth									
836.5	82.28	205	1.7	H	22.9	1.35	0.0	21.55	38.45
836.5	79.36	171	1.2	V	19.4	1.35	0.0	18.05	38.45
10 MHz Bandwidth									
836.5	82.64	193	2.2	H	23.3	1.35	0.0	21.95	38.45
836.5	79.55	311	2.3	V	19.6	1.35	0.0	18.25	38.45

LTE Band 7:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5	QPSK	RB Size=1, RB Offset=0	22.3	22.46	22.4
		RB Size=1, RB Offset=12	22.09	22.34	22.46
		RB Size=1, RB Offset=24	22.19	22.18	22.42
		RB Size=12, RB Offset=0	21.13	21.39	21.17
		RB Size=12, RB Offset=6	21.52	21.02	21.43
		RB Size=12, RB Offset=11	21.44	21.64	21.47
		RB Size=25, RB Offset=0	21.55	21.21	21.43
	16QAM	RB Size=1, RB Offset=0	22.25	22.4	22.48
		RB Size=1, RB Offset=12	22.01	22.34	22.33
		RB Size=1, RB Offset=24	22.55	22.14	22.08
		RB Size=12, RB Offset=0	21.56	21.49	21.52
		RB Size=12, RB Offset=6	21.04	21.39	21.42
		RB Size=12, RB Offset=11	21.57	21.55	21.47
		RB Size=25, RB Offset=0	21.54	21.24	21.11
10	QPSK	RB Size=1, RB Offset=0	22.03	22.04	22.38
		RB Size=1, RB Offset=24	22.44	22.15	22.47
		RB Size=1, RB Offset=49	22.08	22.14	22.56
		RB Size=25, RB Offset=0	21.55	21.29	21.19
		RB Size=25, RB Offset=12	21.11	21.45	21.29
		RB Size=25, RB Offset=24	21.27	21.39	21.47
		RB Size=50, RB Offset=0	21.11	21.34	21.43
	16QAM	RB Size=1, RB Offset=0	22.2	22.4	22.07
		RB Size=1, RB Offset=24	22.37	22.36	22.24
		RB Size=1, RB Offset=49	22.05	22.04	22.39
		RB Size=25, RB Offset=0	21.49	21.4	21.08
		RB Size=25, RB Offset=12	21.35	21.03	21.34
		RB Size=25, RB Offset=24	21.25	21.11	21.39
		RB Size=50, RB Offset=0	21.54	21.3	21.24

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15	QPSK	RB Size=1, RB Offset=0	22.4	22.12	22.38
		RB Size=1, RB Offset=37	22.48	22.33	22.05
		RB Size=1, RB Offset=74	22.33	22.37	22.19
		RB Size=36, RB Offset=0	21.23	21.39	21.41
		RB Size=36, RB Offset=18	21.17	21.25	21.18
		RB Size=36, RB Offset=37	21.24	21.32	21.24
		RB Size=75, RB Offset=0	21.28	21.34	21.39
	16QAM	RB Size=1, RB Offset=0	22.43	22.32	22.15
		RB Size=1, RB Offset=37	22.35	22.36	22.55
		RB Size=1, RB Offset=74	22.27	22.12	22.2
		RB Size=36, RB Offset=0	21.1	21.54	21.28
		RB Size=36, RB Offset=18	21.11	21.47	21.39
		RB Size=36, RB Offset=37	21.28	21.52	21.47
		RB Size=75, RB Offset=0	21.37	21.11	21.38
20	QPSK	RB Size=1, RB Offset=0	22.08	22.12	22.32
		RB Size=1, RB Offset=49	22.01	22.14	22.24
		RB Size=1, RB Offset=99	22.41	22.24	22.4
		RB Size=50, RB Offset=0	21.41	21.05	21.03
		RB Size=50, RB Offset=24	21.22	21.43	21.58
		RB Size=50, RB Offset=49	21.38	21.55	21.49
		RB Size=100, RB Offset=0	21.21	21.06	21.1
	16QAM	RB Size=1, RB Offset=0	22.25	22.41	22.24
		RB Size=1, RB Offset=49	22.04	22.38	22.09
		RB Size=1, RB Offset=99	22.06	22.23	22.19
		RB Size=50, RB Offset=0	21.49	21.48	21.37
		RB Size=50, RB Offset=24	21.03	21.57	21.03
		RB Size=50, RB Offset=49	21.32	21.45	21.28
		RB Size=100, RB Offset=0	21.24	21.07	21.18

Peak-to-average ratio (PAR)

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.87	4.65	4.36	13	Pass
QPSK (100RB Size)	5.54	5.58	5.48	13	Pass
16QAM (1RB Size)	5.61	5.67	5.77	13	Pass
16QAM (100RB Size)	6.28	6.41	6.25	13	Pass

EIRP:**QPSK:**

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
5 MHz Bandwidth									
2535.00	88.36	227	1.6	H	18.2	2.60	10.20	25.80	33
2535.00	86.18	348	1.6	V	16.6	2.60	10.20	24.20	33
10 MHz Bandwidth									
2535.00	88.12	145	2.3	H	18.0	2.60	10.20	25.60	33
2535.00	85.98	336	1.8	V	16.4	2.60	10.20	24.00	33
15 MHz Bandwidth									
2535.00	87.85	263	1.2	H	17.7	2.60	10.20	25.30	33
2535.00	85.71	262	1.5	V	16.2	2.60	10.20	23.80	33
20 MHz Bandwidth									
2535.00	87.65	292	1.4	H	17.5	2.60	10.20	25.10	33
2535.00	85.49	189	2.0	V	15.9	2.60	10.20	23.50	33

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi)		
Middle Channel									
5 MHz Bandwidth									
2535.00	87.56	278	1.1	H	17.4	2.60	10.20	25.00	33
2535.00	86.19	124	1.9	V	16.6	2.60	10.20	24.20	33
10 MHz Bandwidth									
2535.00	86.57	220	1.7	H	16.4	2.60	10.20	24.00	33
2535.00	85.67	49	1.8	V	16.1	2.60	10.20	23.70	33
15 MHz Bandwidth									
2535.00	86.34	55	2.1	H	16.2	2.60	10.20	23.80	33
2535.00	85.27	155	1.9	V	15.7	2.60	10.20	23.30	33
20 MHz Bandwidth									
2535.00	86.11	14	1.1	H	15.9	2.60	10.20	23.50	33
2535.00	84.87	351	1.2	V	15.3	2.60	10.20	22.90	33

Note:

All above data were tested with no amplifier

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

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

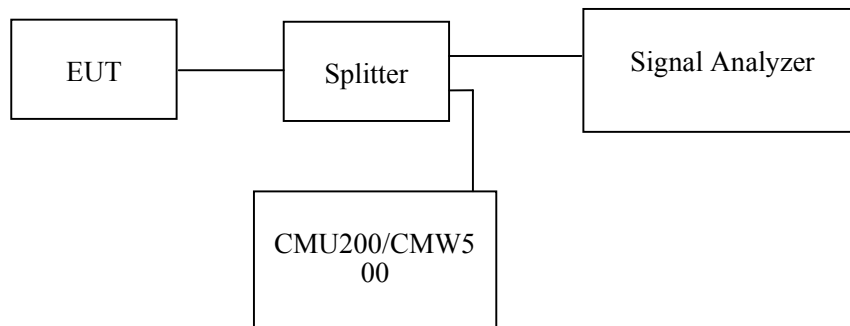
Applicable Standard

FCC 47 §2.1049, §22.917, §22.905, §24.238 and §27.53.

Test Procedure

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

The resolution bandwidth of the spectrum analyzer was set at 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	24~25 °C
Relative Humidity:	52~55 %
ATM Pressure:	101.0 kPa

The testing was performed by George Zhong from 2020-03-12 to 2020-04-02.

EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the following tables and plots.

Cellular Band (Part 22H)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	836.6	246.79	315.71
EGPRS(8PSK)	836.6	254.81	326.92

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	836.6	4.15	4.70
HSUPA (BPSK)	836.6	4.15	4.68
HSDPA (16QAM)	836.6	4.17	4.70

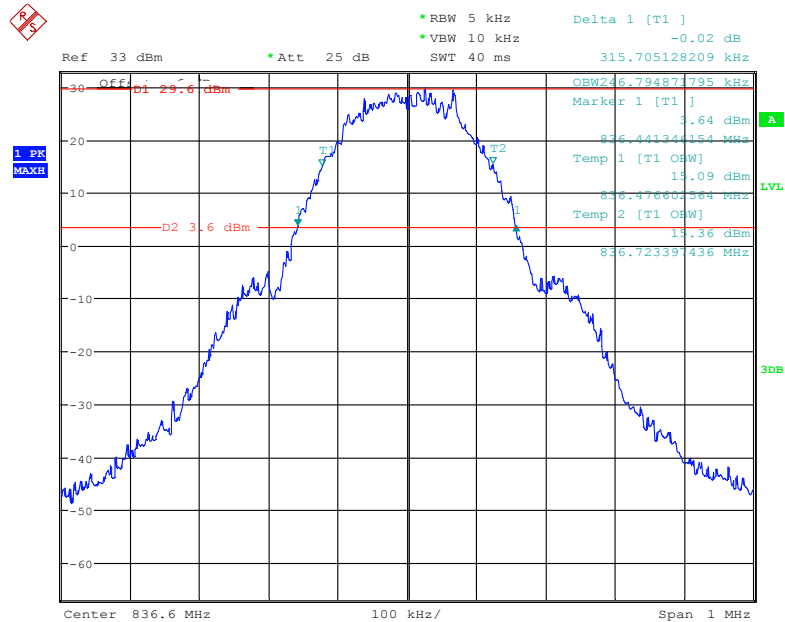
PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1880.0	245.19	315.71
EGPRS(8PSK)	1880.0	243.59	310.90

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1880.0	4.15	4.70
HSUPA (BPSK)	1880.0	4.15	4.70
HSDPA (16QAM)	1880.0	4.15	4.70

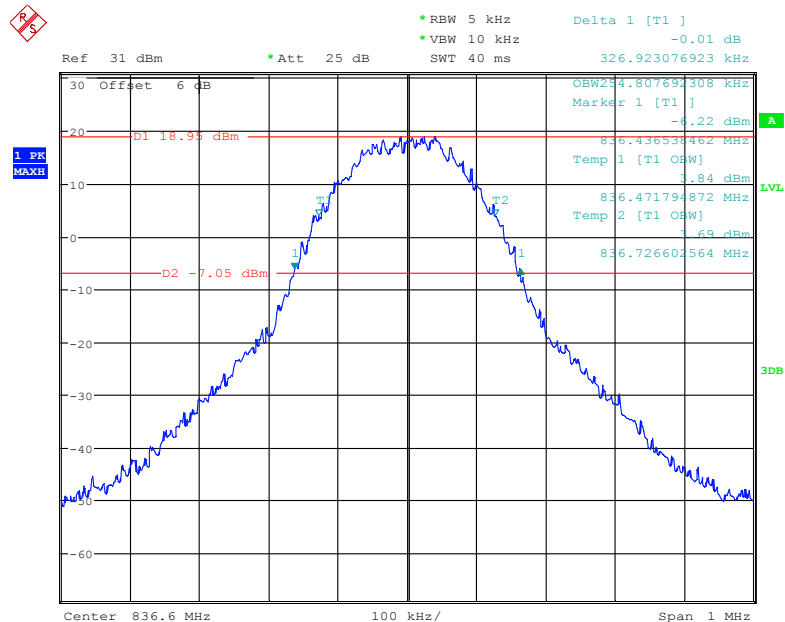
Cellular Band (Part 22H)

26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode



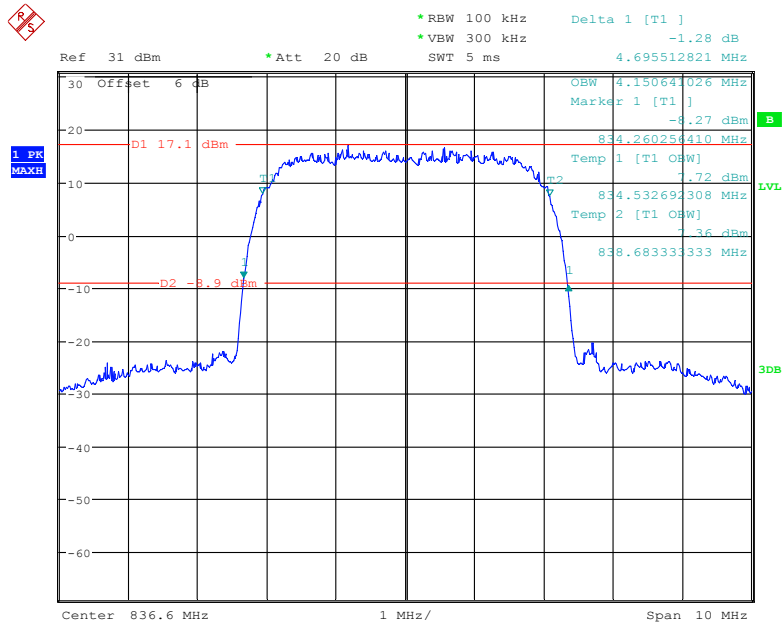
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26 dB Emissions & 99% Occupied Bandwidth for EDGE Mode



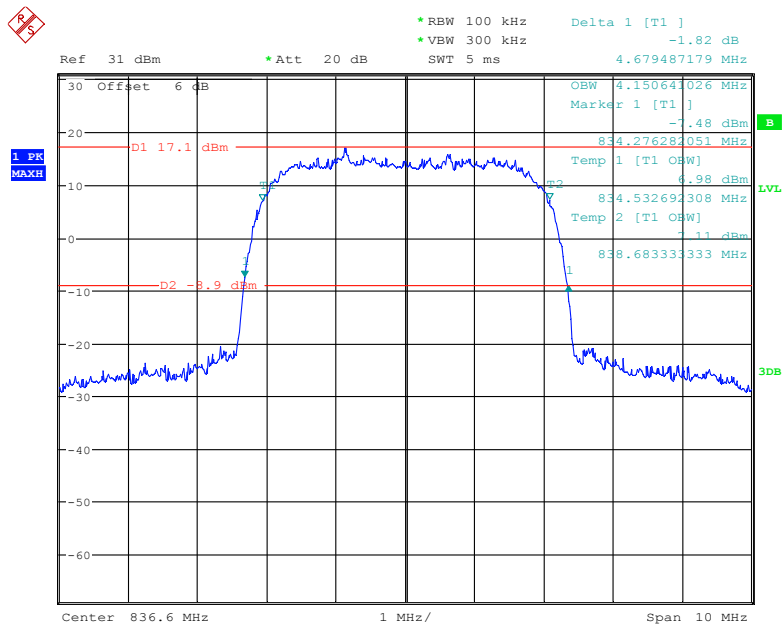
Date: 12.MAR.2020 17:19:04

26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode

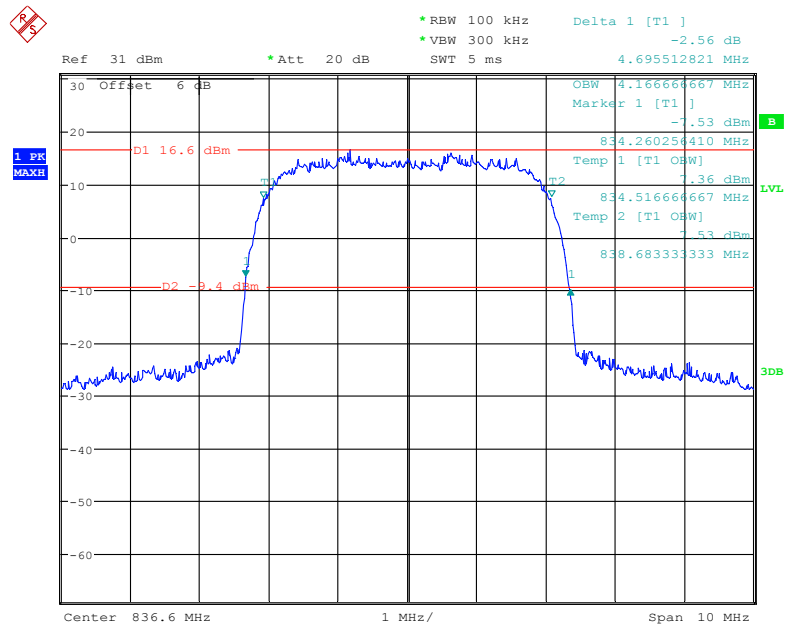


Date: 13.MAR.2020 14:15:03

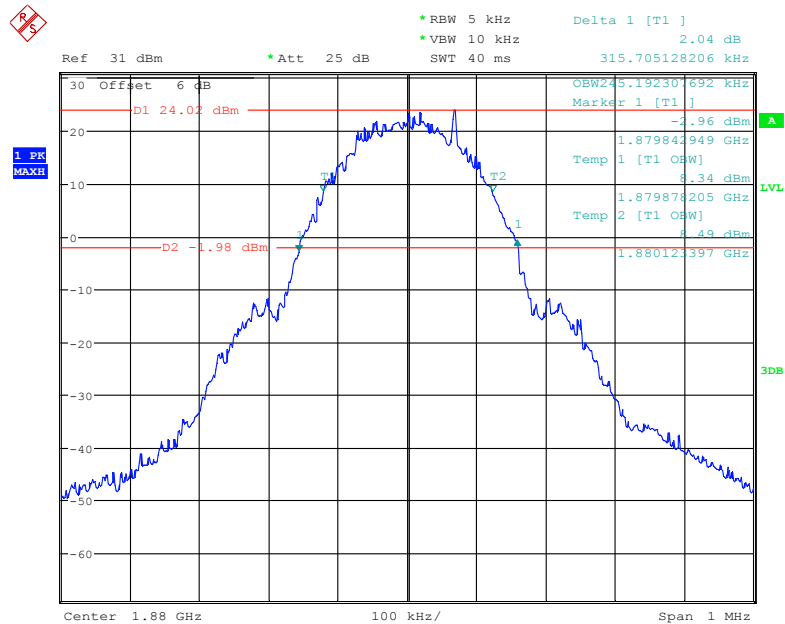
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode



Date: 13.MAR.2020 14:06:29

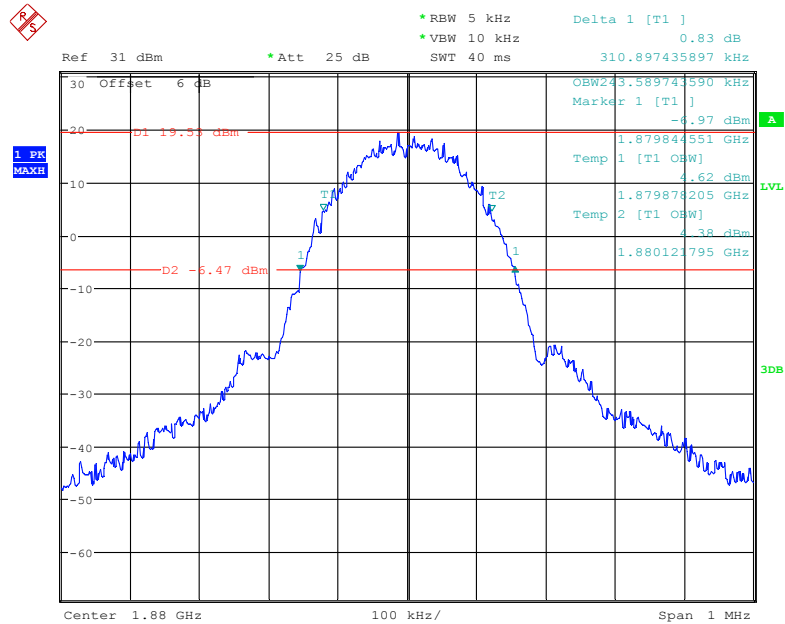
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode

Date: 13.MAR.2020 14:10:46

PCS Band (Part 24E)**26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode**

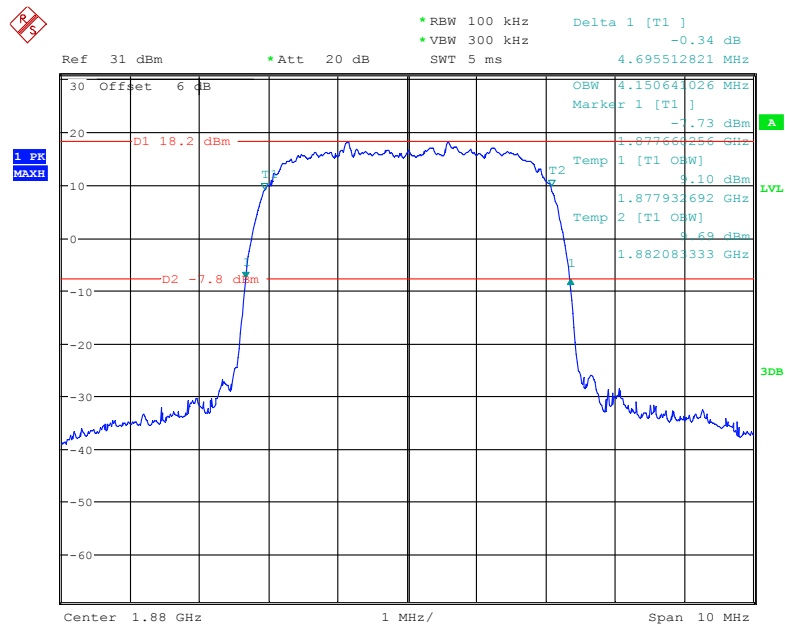
Date: 12.MAR.2020 17:27:33

26 dB Emissions & 99% Occupied Bandwidth for EDGE Mode



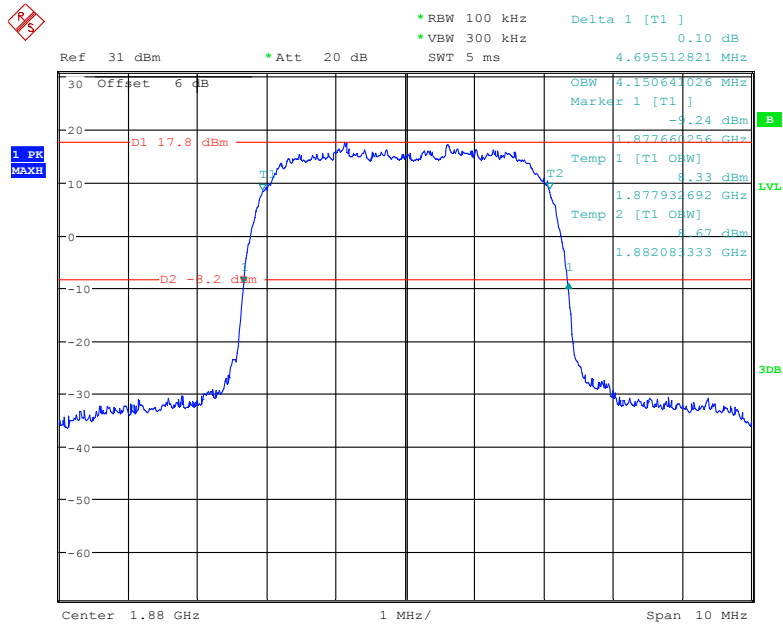
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26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode



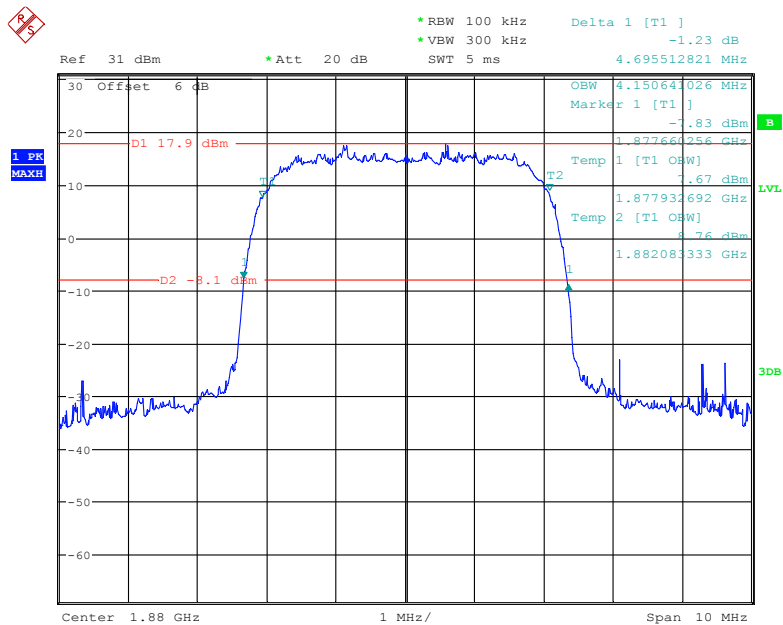
Date: 13.MAR.2020 13:17:43

26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode



Date: 13.MAR.2020 14:01:02

26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode

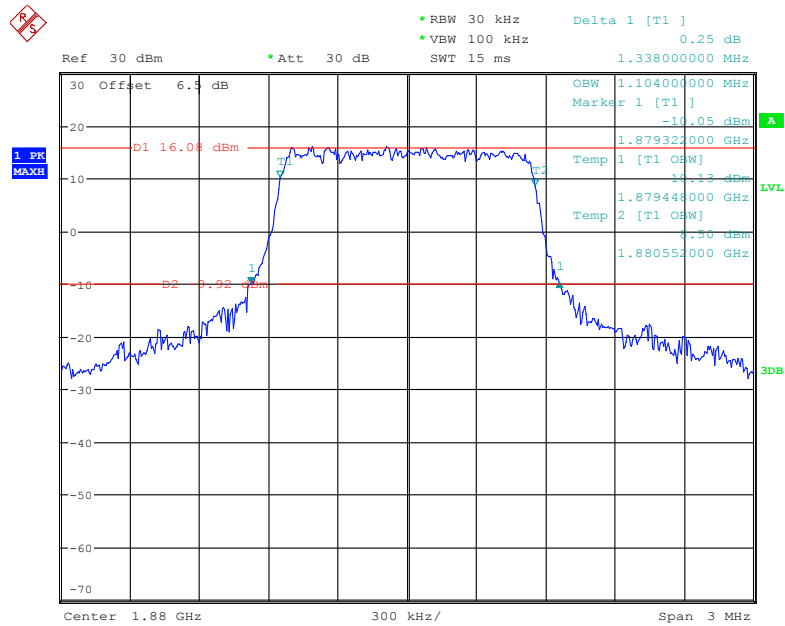


Date: 13.MAR.2020 13:58:39

LTE Band 2: (Middle Channel)

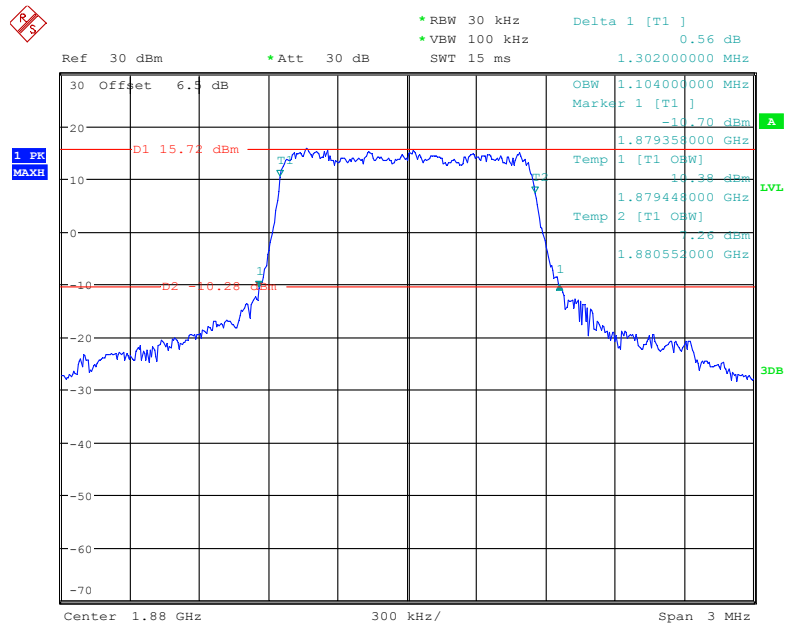
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.104	1.338
	16QAM	1.104	1.302
3.0	QPSK	2.700	3.012
	16QAM	2.700	3.024
5.0	QPSK	4.560	5.360
	16QAM	4.540	5.300
10.0	QPSK	8.960	9.800
	16QAM	8.960	9.800
15.0	QPSK	13.560	15.420
	16QAM	13.560	15.180
20.0	QPSK	18.080	19.680
	16QAM	18.080	19.840

QPSK (1.4 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



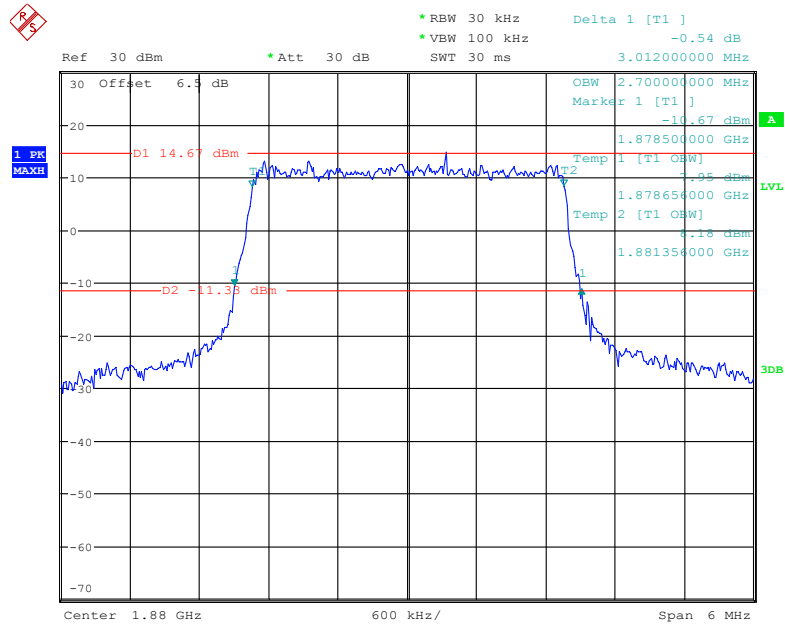
Date: 12.MAR.2020 19:30:09

16-QAM (1.4 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



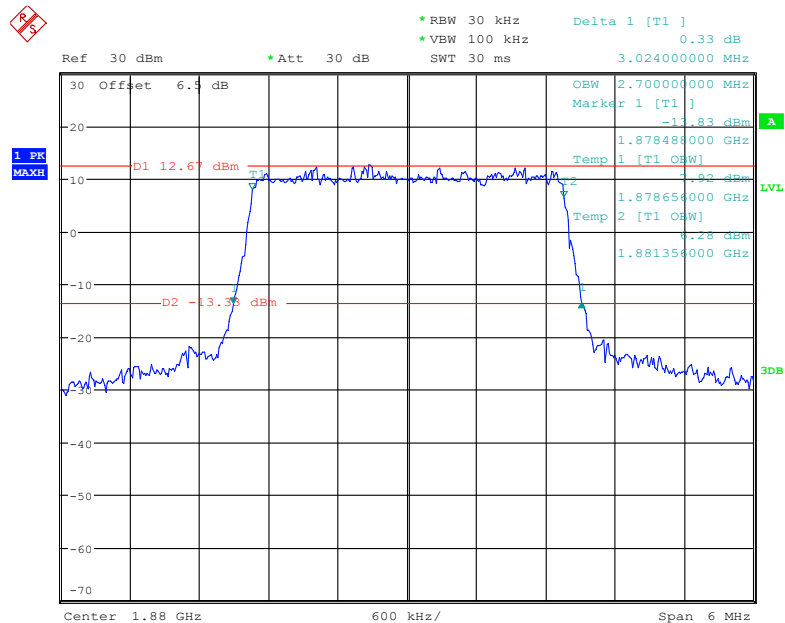
Date: 12.MAR.2020 19:30:29

QPSK (3.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



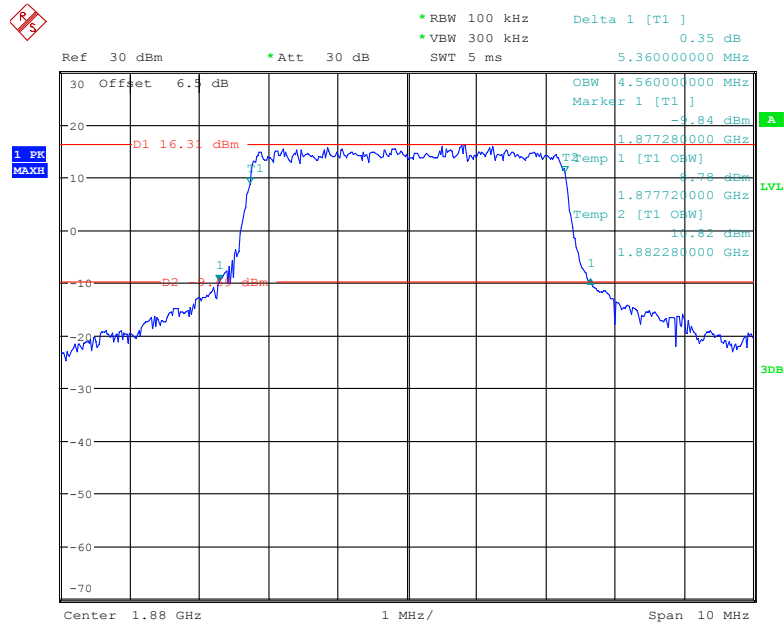
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16-QAM (3.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



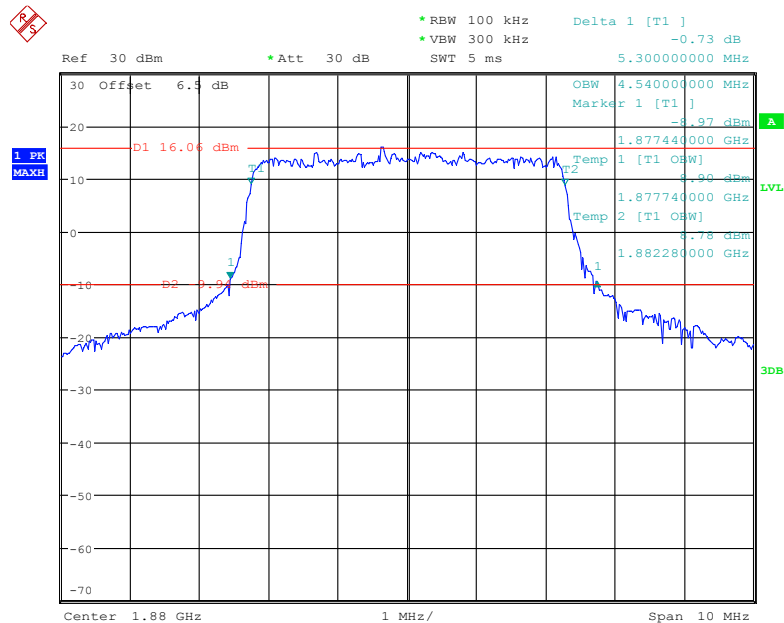
Date: 12.MAR.2020 19:31:07

QPSK (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



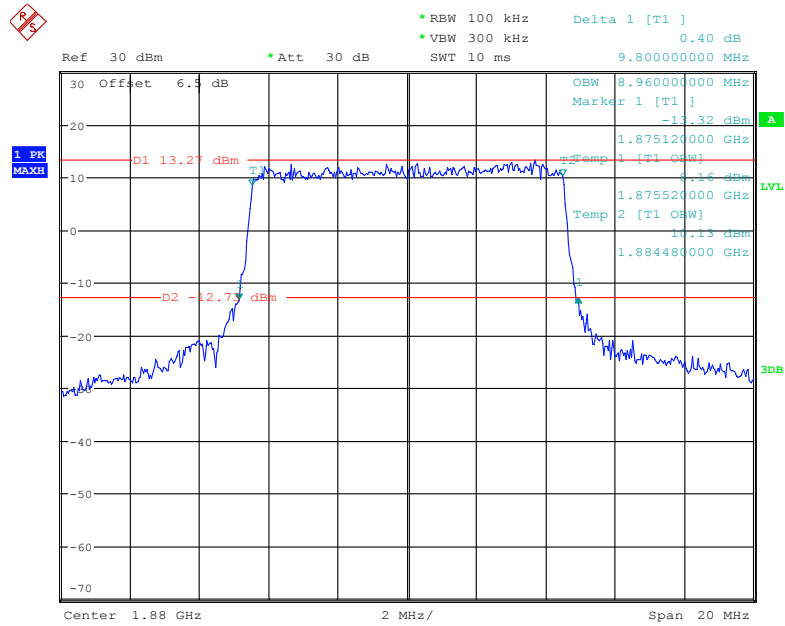
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16-QAM (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



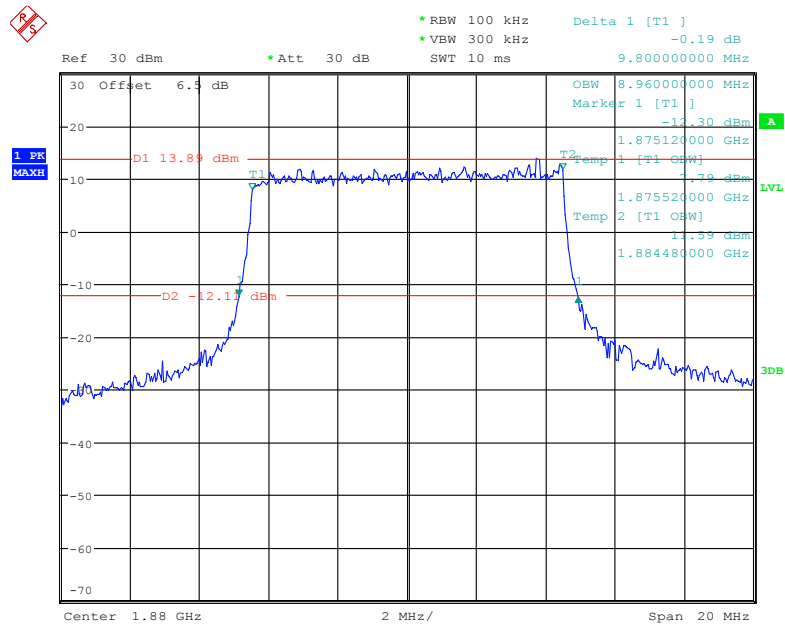
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QPSK (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



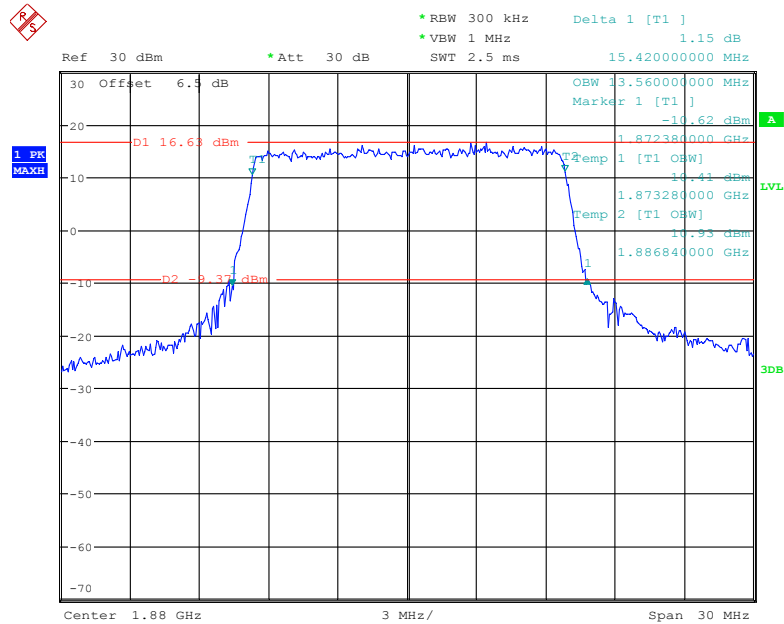
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16-QAM (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



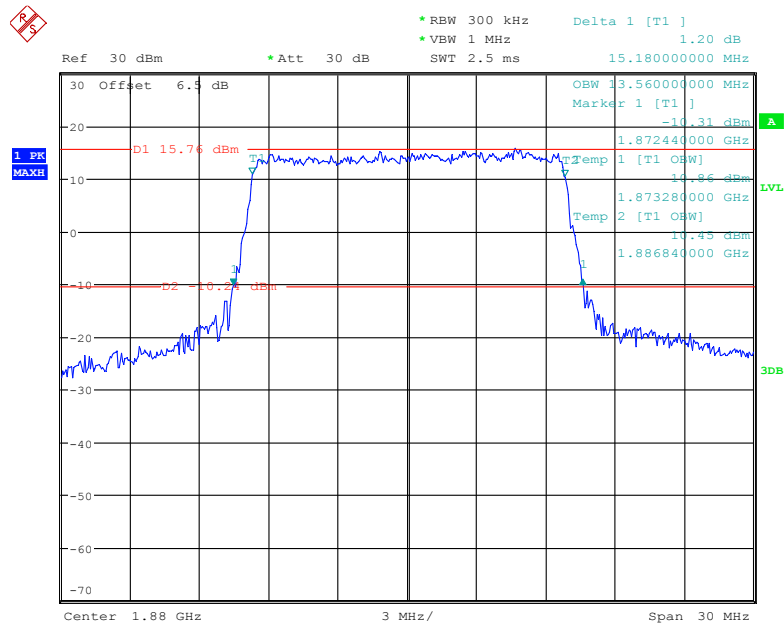
Date: 12.MAR.2020 19:32:47

QPSK (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

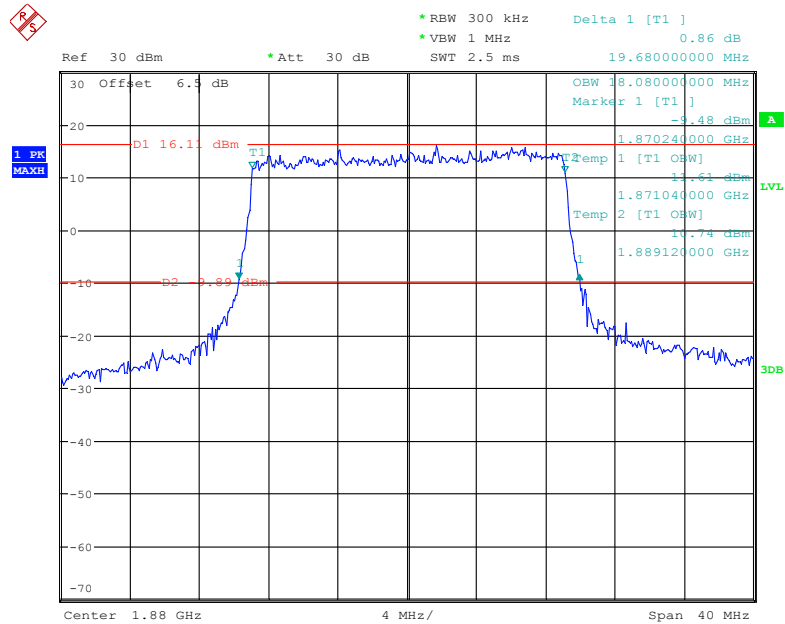


Date: 12.MAR.2020 19:33:20

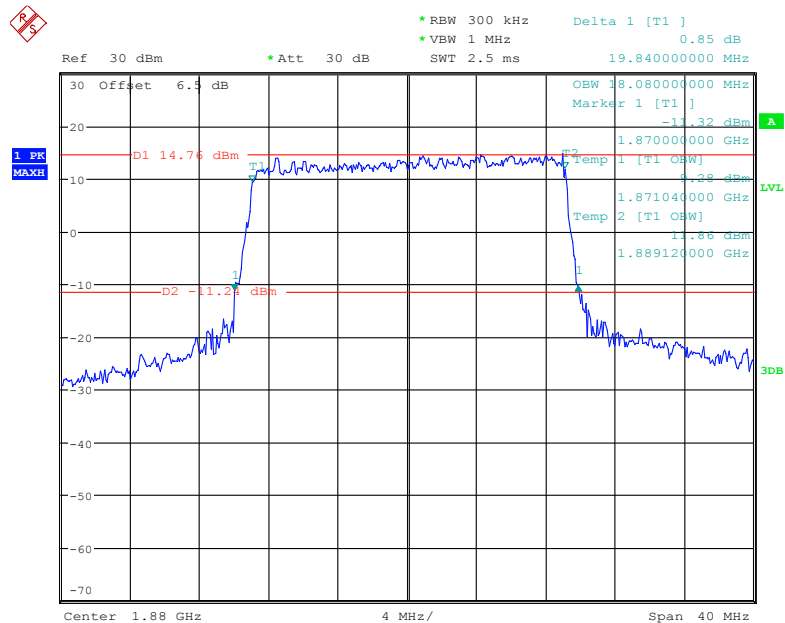
16-QAM (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 12.MAR.2020 19:33:47

QPSK (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

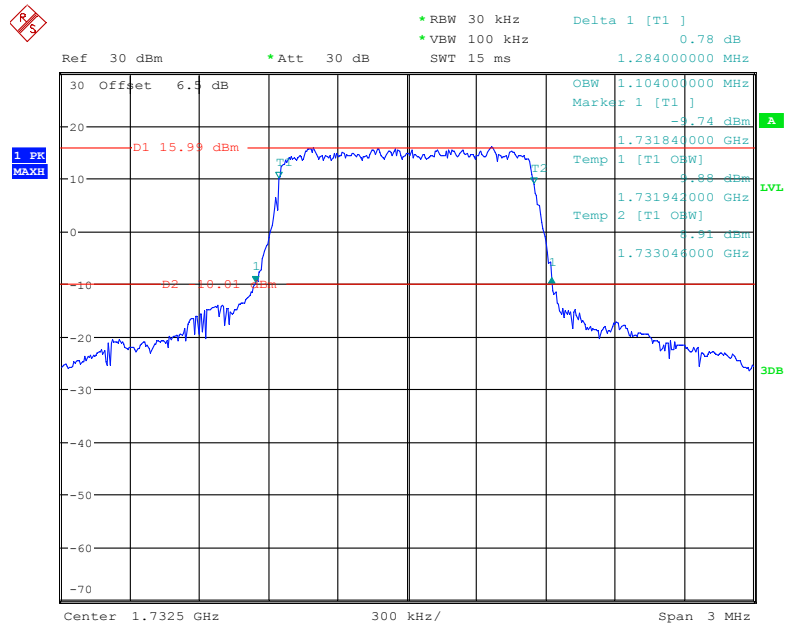
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16-QAM (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

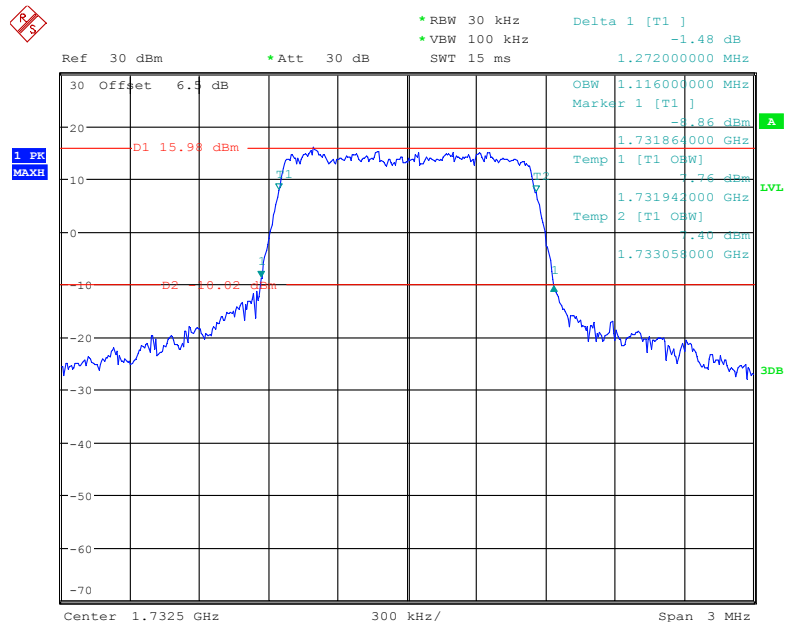
Date: 12.MAR.2020 19:34:37

LTE Band 4: (Middle Channel)

Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.104	1.284
	16QAM	1.116	1.272
3.0	QPSK	2.700	3.024
	16QAM	2.700	3.012
5.0	QPSK	4.560	5.360
	16QAM	4.540	5.340
10.0	QPSK	8.960	9.760
	16QAM	8.960	9.760
15.0	QPSK	13.560	15.420
	16QAM	13.560	15.120
20.0	QPSK	18.000	19.760
	16QAM	18.000	20.000

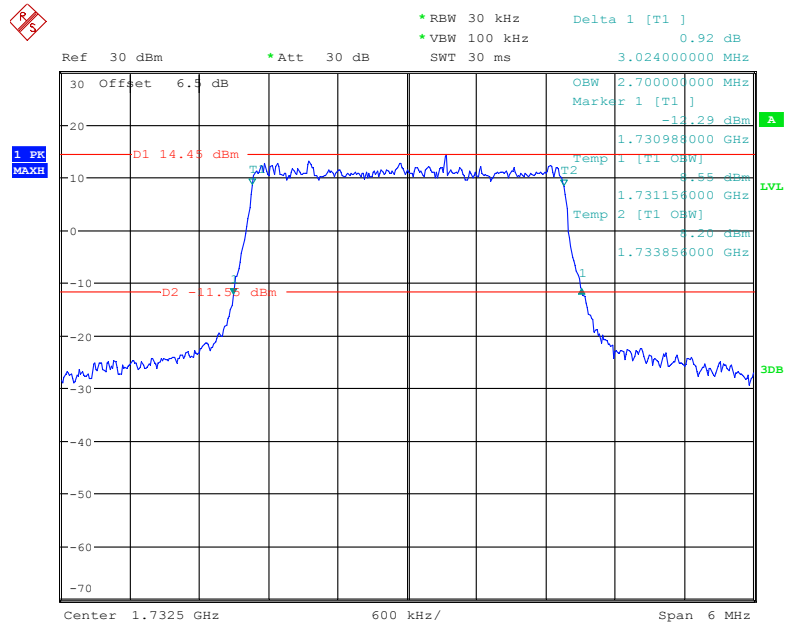
QPSK (1.4 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

Date: 12.MAR.2020 19:34:59

16-QAM (1.4 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

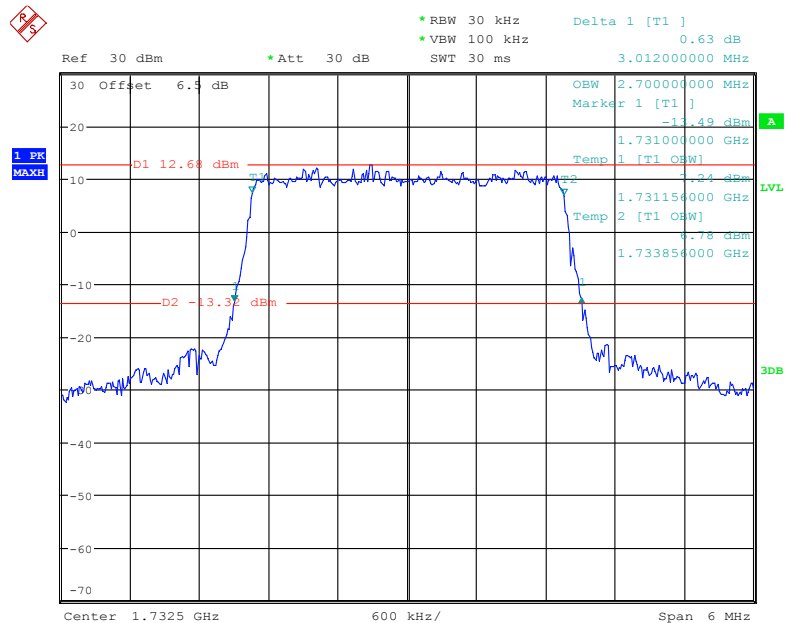
Date: 12.MAR.2020 19:35:19

QPSK (3.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



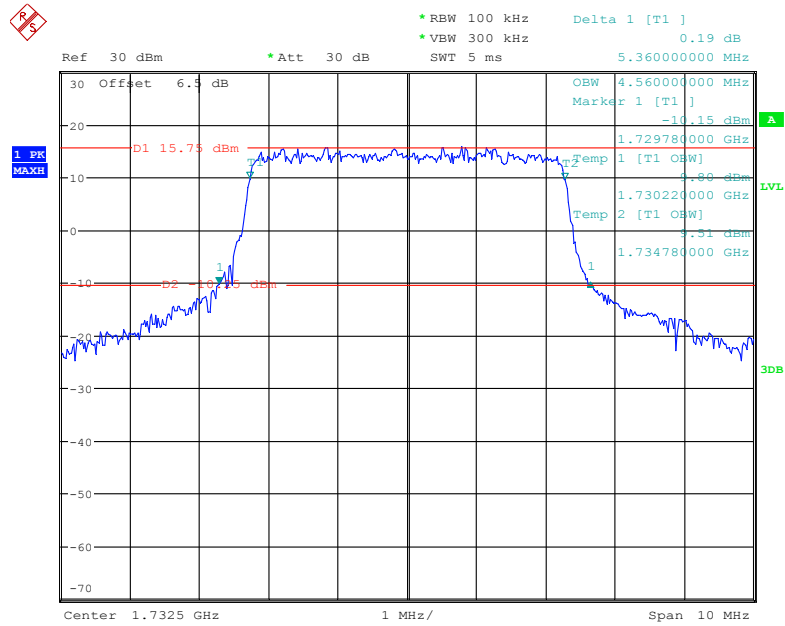
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16-QAM (3.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



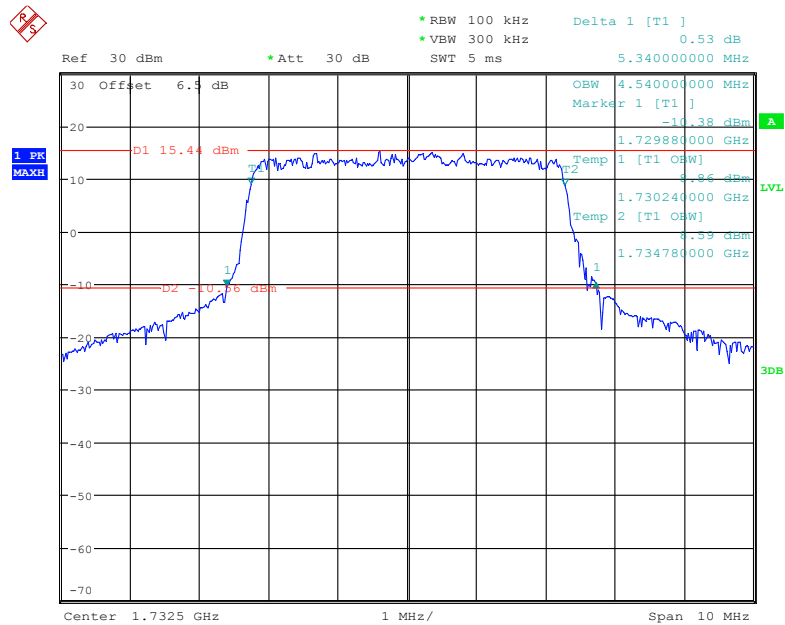
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QPSK (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



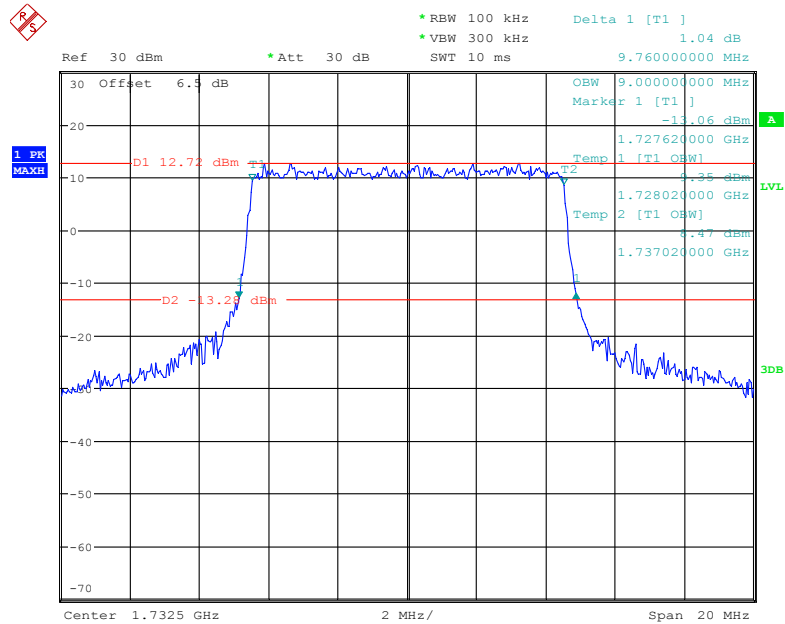
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16-QAM (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



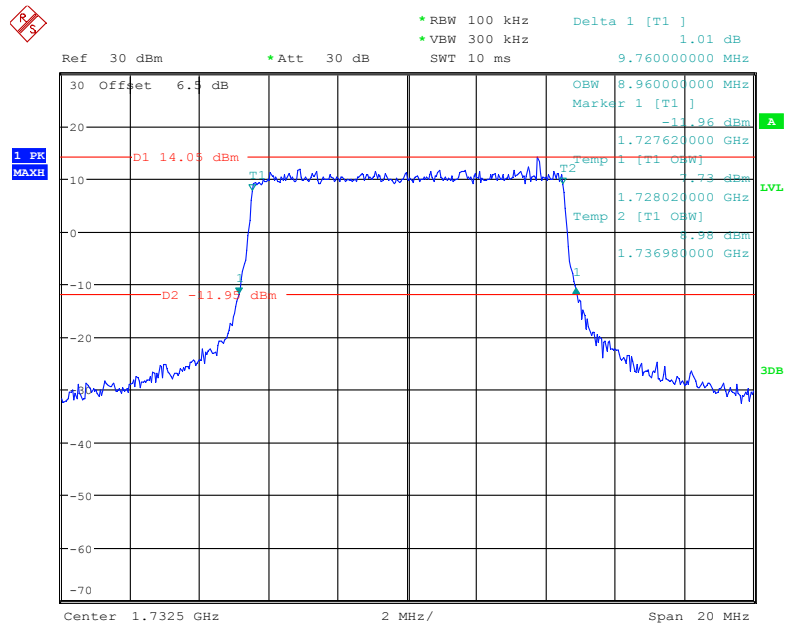
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QPSK (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



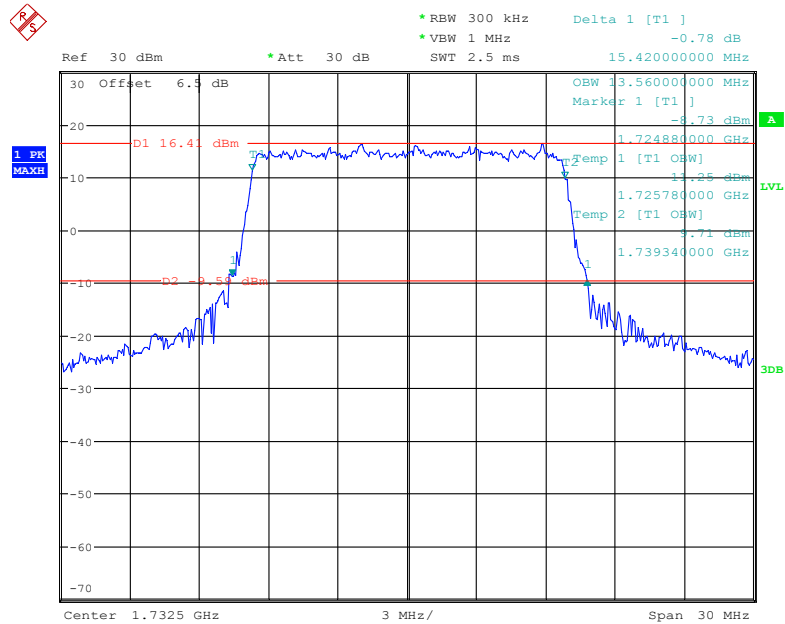
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16-QAM (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



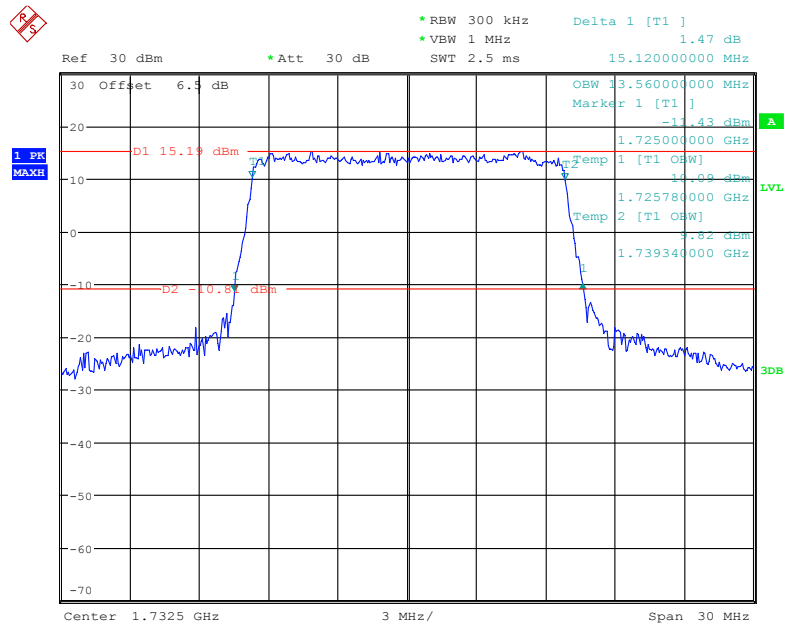
Date: 12.MAR.2020 19:37:30

QPSK (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



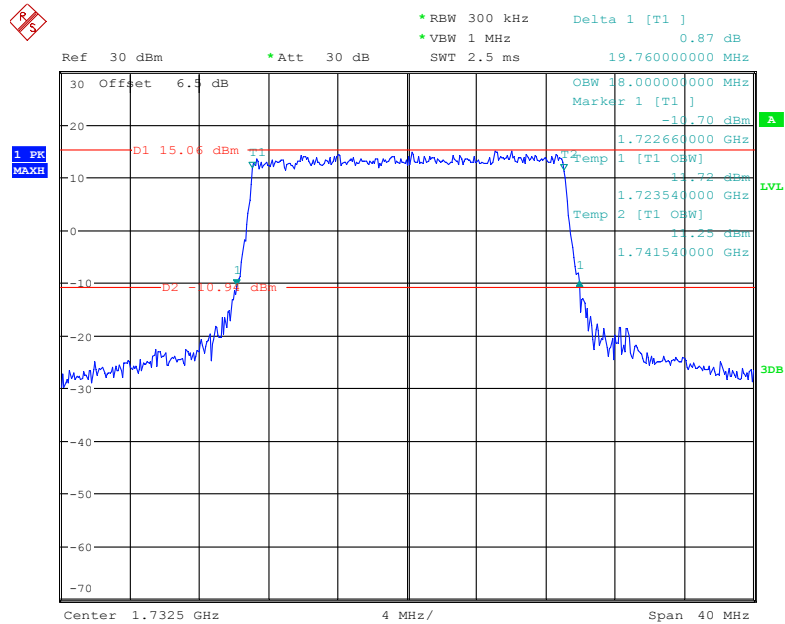
Date: 12.MAR.2020 19:38:00

16-QAM (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



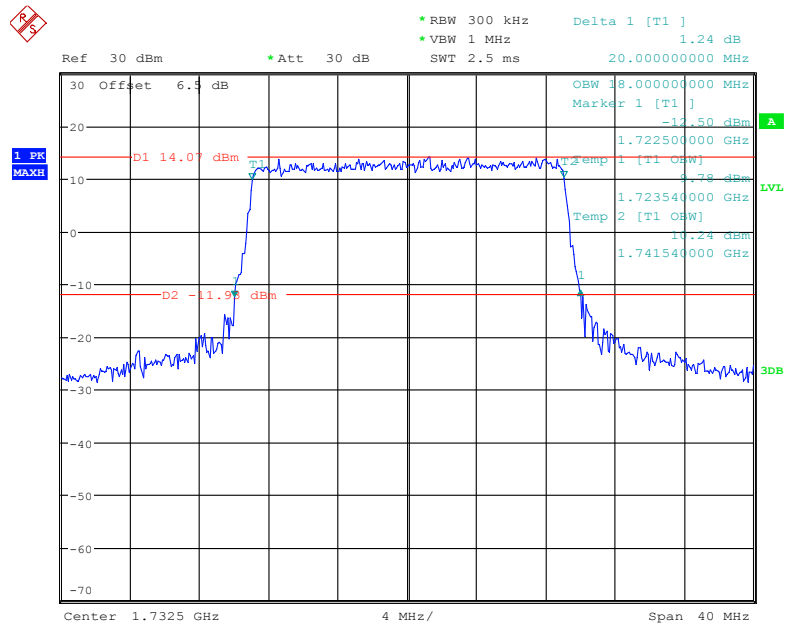
Date: 12.MAR.2020 19:38:24

QPSK (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 12.MAR.2020 19:38:51

16-QAM (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

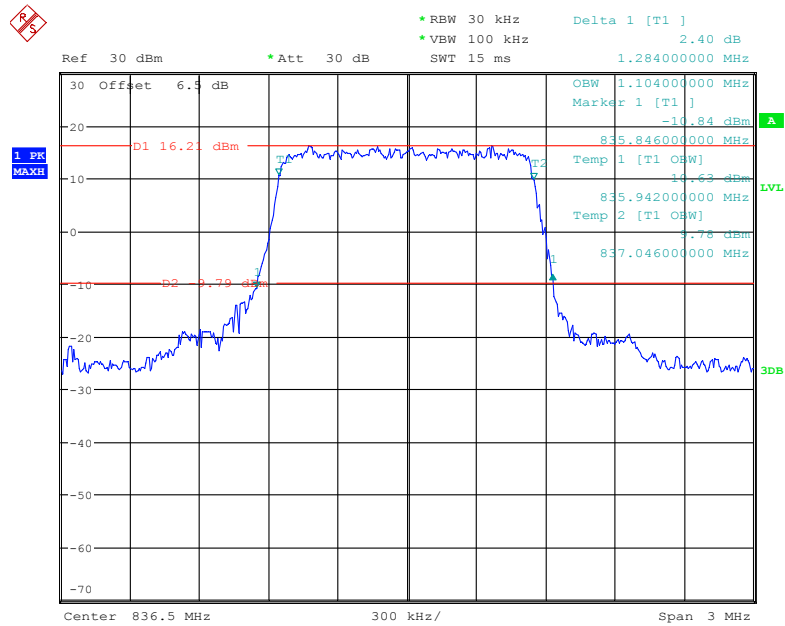


Date: 12.MAR.2020 19:39:15

LTE Band 5: (Middle Channel)

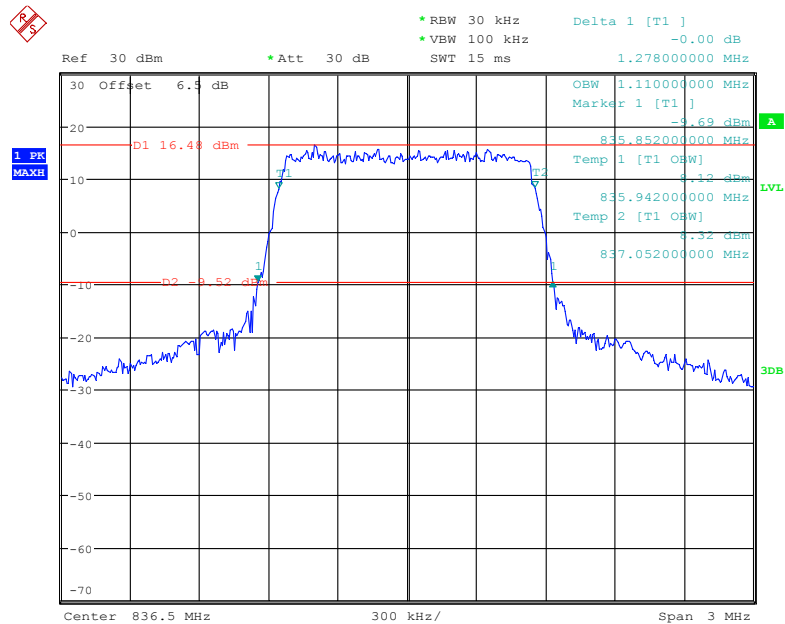
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.104	1.284
	16QAM	1.110	1.278
3.0	QPSK	2.700	3.036
	16QAM	2.700	3.024
5.0	QPSK	4.540	5.380
	16QAM	4.540	5.280
10.0	QPSK	8.960	9.880
	16QAM	8.960	9.920

QPSK (1.4 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



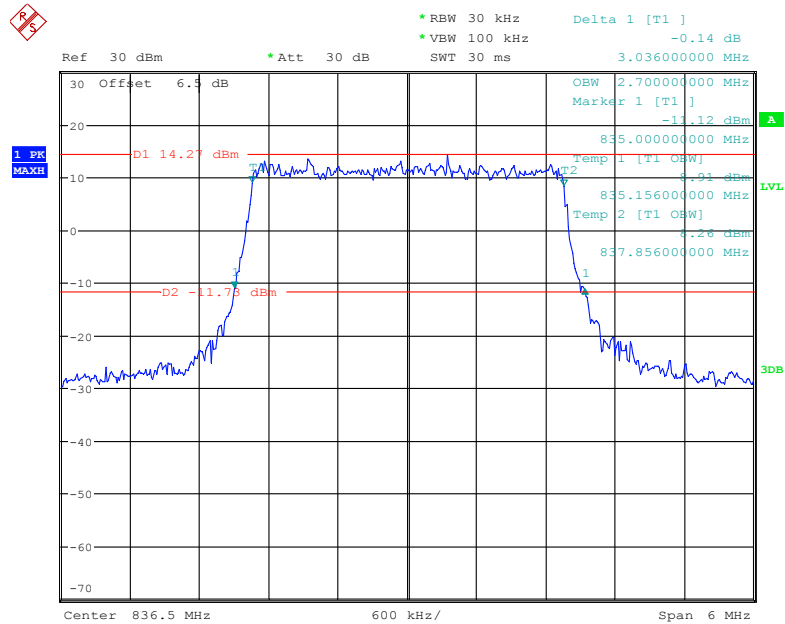
Date: 12.MAR.2020 19:39:37

16-QAM (1.4 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



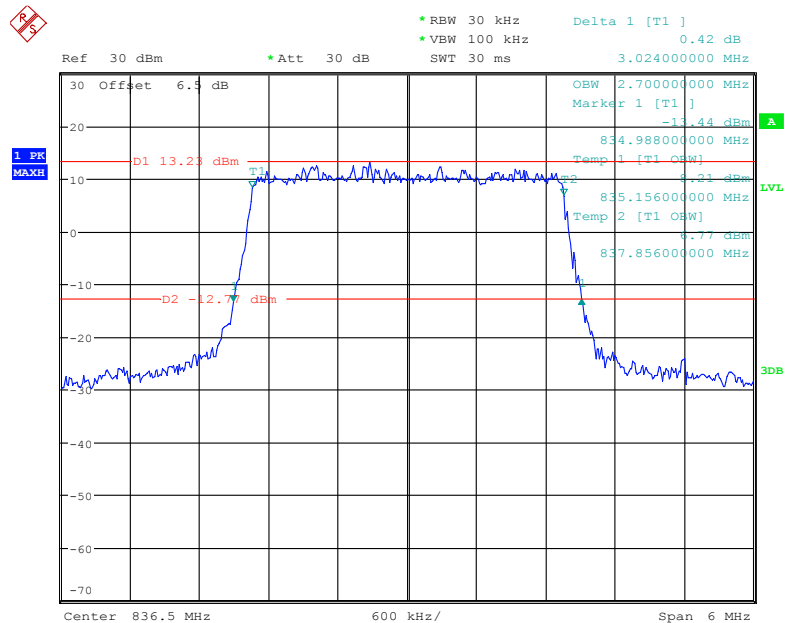
Date: 12.MAR.2020 19:39:56

QPSK (3.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



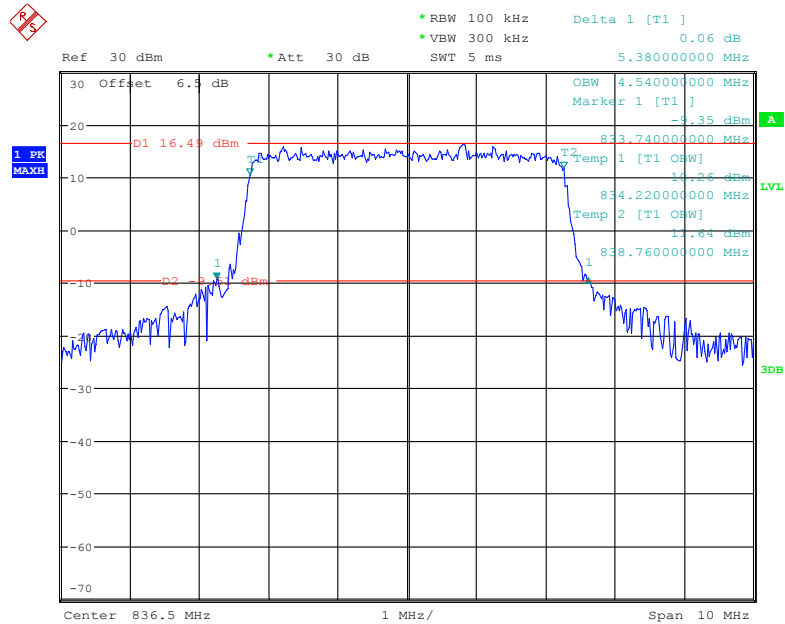
Date: 12.MAR.2020 19:40:18

16-QAM (3.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



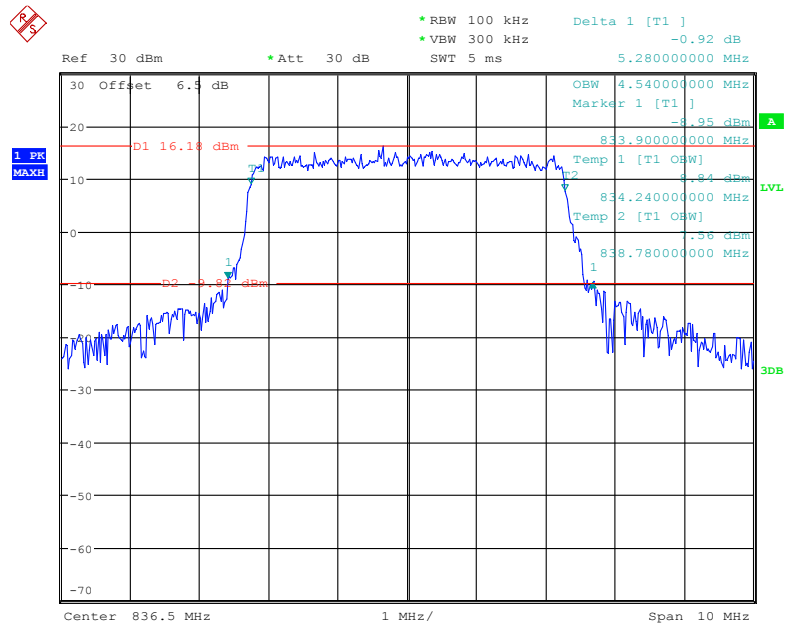
Date: 12.MAR.2020 19:40:37

QPSK (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

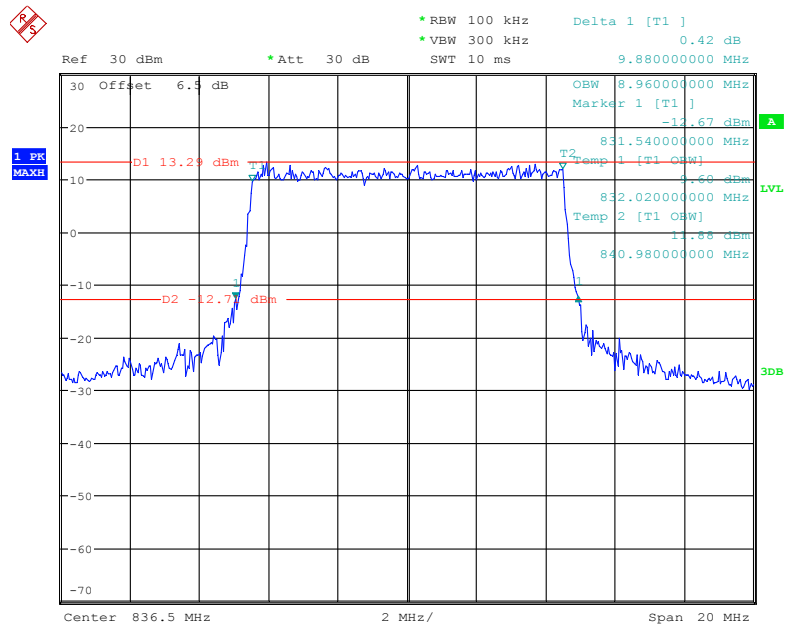


Date: 12.MAR.2020 19:41:12

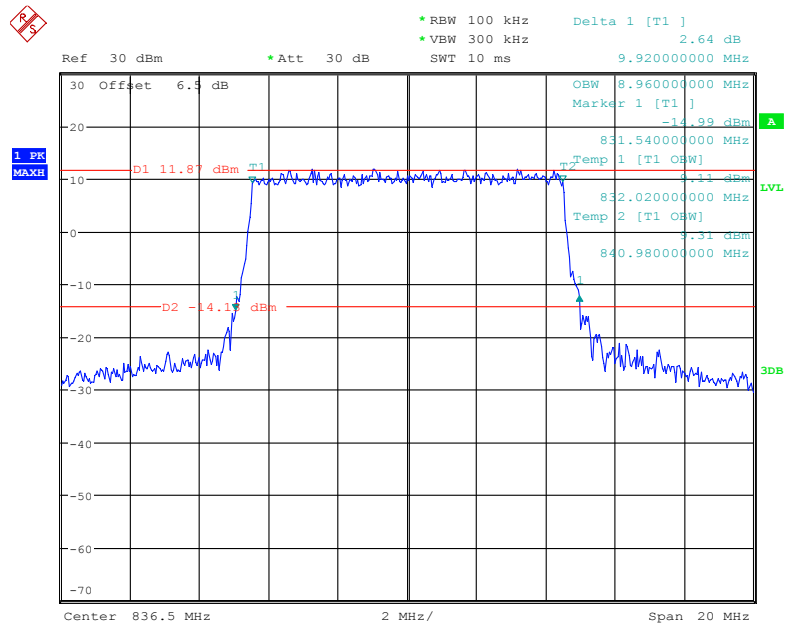
16-QAM (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 12.MAR.2020 19:41:39

QPSK (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

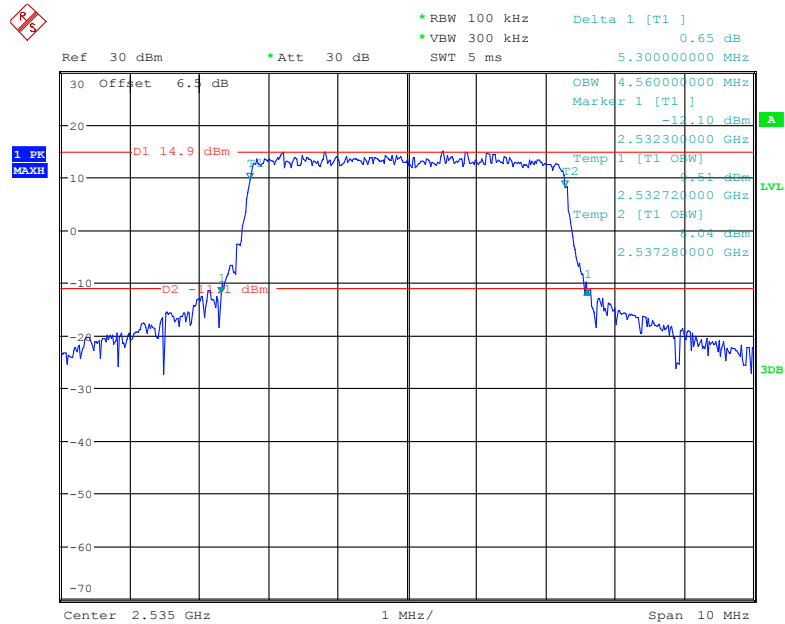
Date: 12.MAR.2020 19:42:05

16-QAM (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

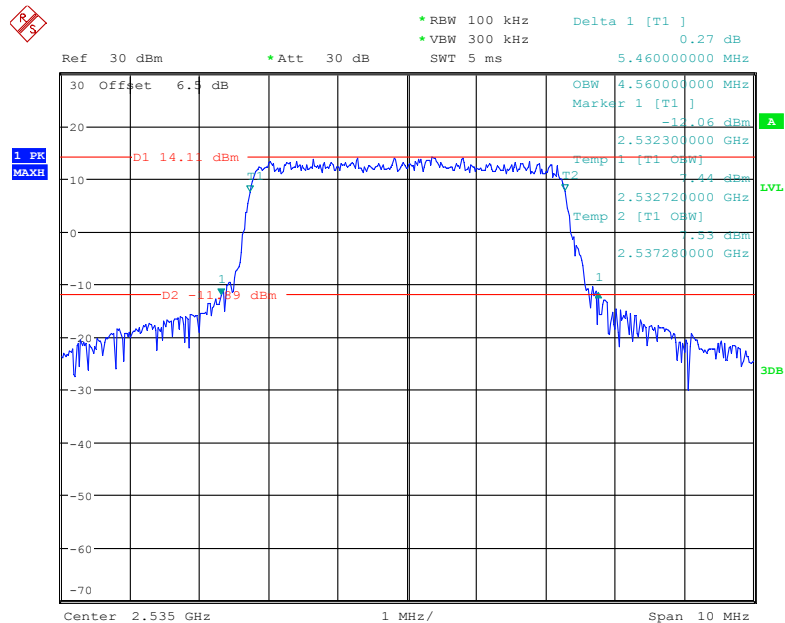
Date: 12.MAR.2020 19:42:26

LTE Band 7: (Middle Channel)

Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.560	5.300
	16QAM	4.560	5.460
10.0	QPSK	8.960	9.840
	16QAM	8.960	9.960
15.0	QPSK	13.620	15.660
	16QAM	13.620	15.120
20.0	QPSK	18.080	19.920
	16QAM	18.080	20.320

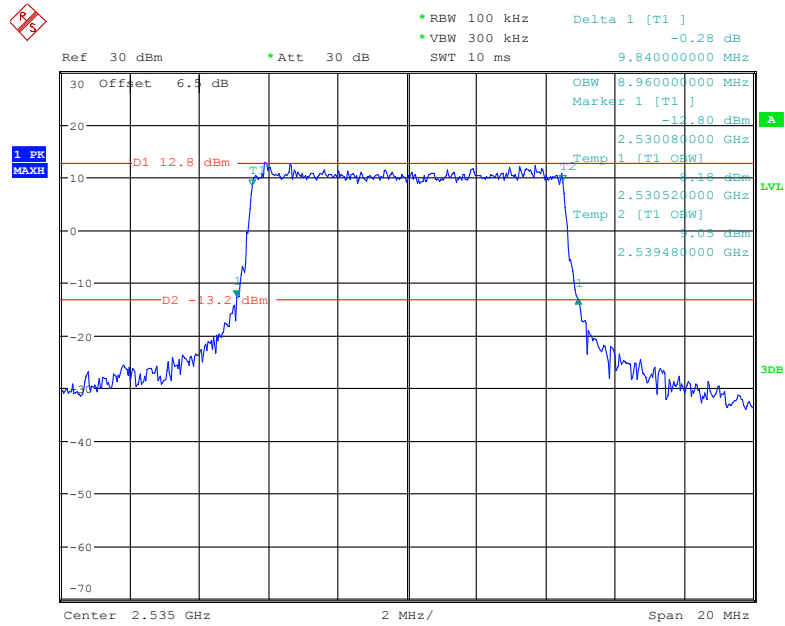
QPSK (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

Date: 12.MAR.2020 19:43:01

16-QAM (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

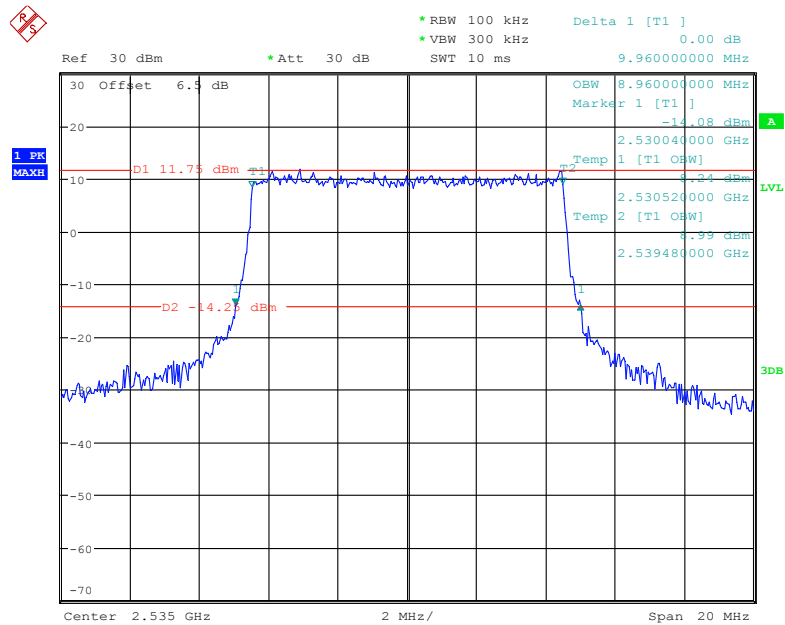
Date: 12.MAR.2020 19:43:28

QPSK (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



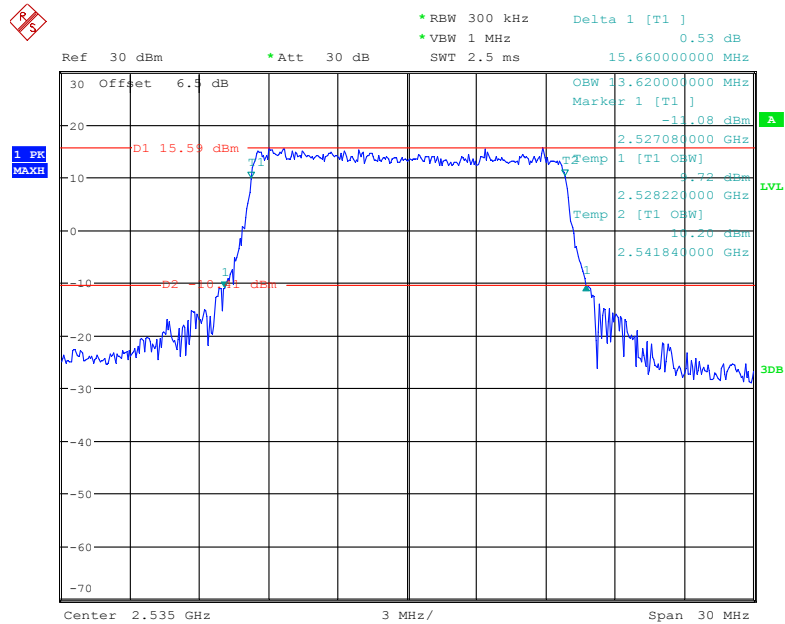
Date: 12.MAR.2020 19:43:54

16-QAM (10.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



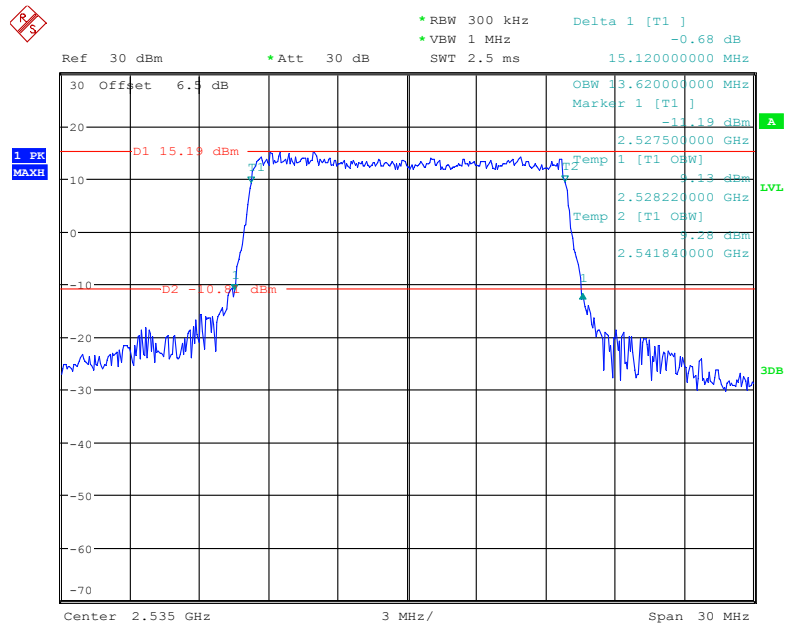
Date: 12.MAR.2020 19:44:17

QPSK (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



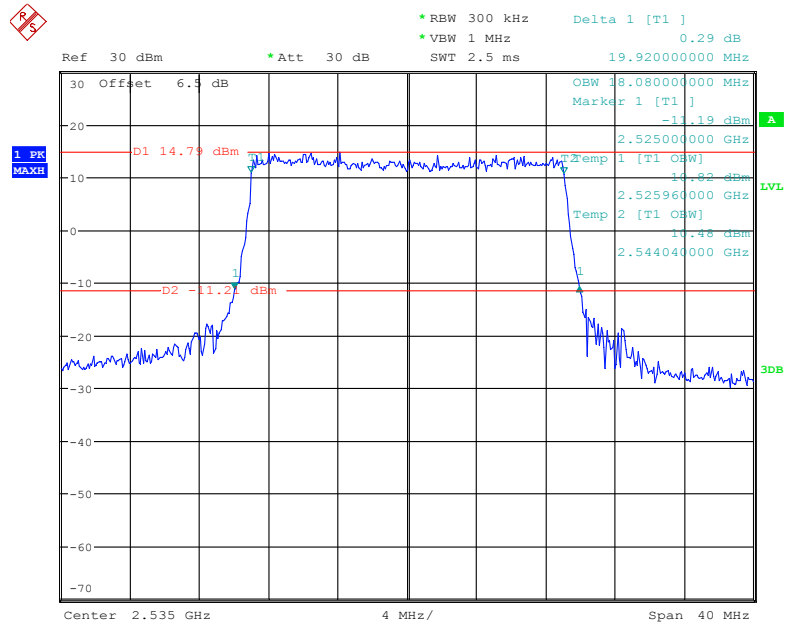
Date: 12.MAR.2020 19:44:43

16-QAM (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



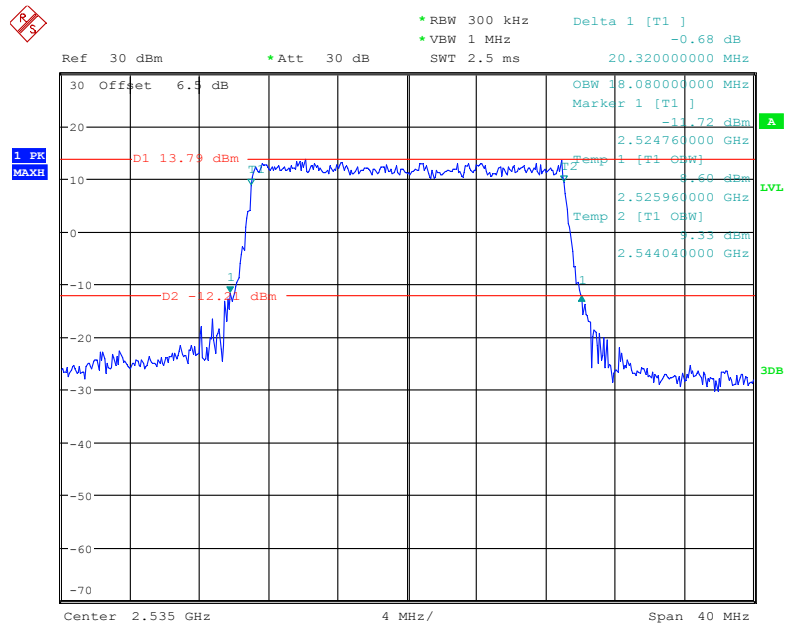
Date: 12.MAR.2020 19:45:07

QPSK (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 12.MAR.2020 19:45:37

16-QAM (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 12.MAR.2020 19:46:00

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

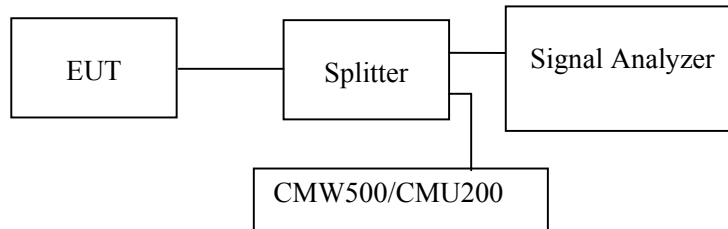
Applicable Standard

FCC §2.1051, §22.917(a) and §24.238(a) and §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Data

Environmental Conditions

Temperature:	24~25 °C
Relative Humidity:	52~56%
ATM Pressure:	101.0 kPa

The testing was performed by Charlie Cha from 2020-03-12 to 2020-04-02.

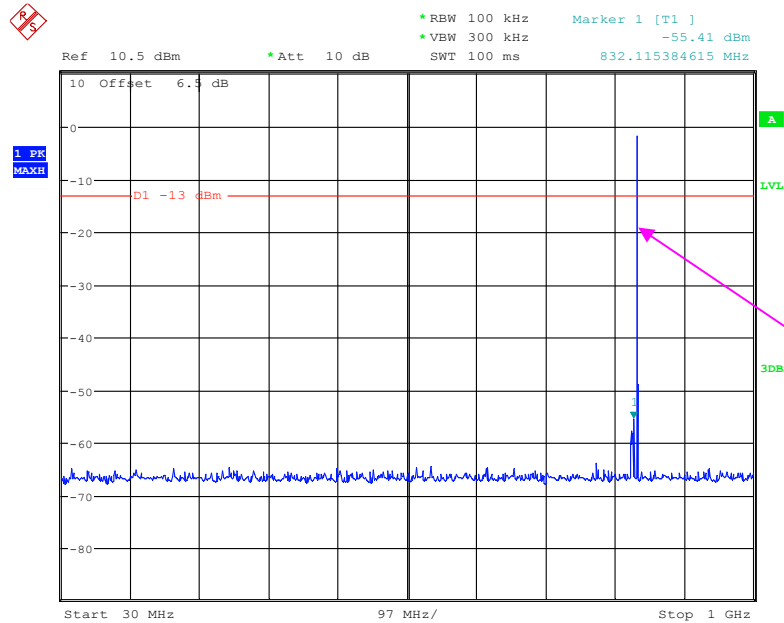
Test result: Compliance.

EUT operation mode: transmitting

Please refer to the following plots.

Cellular Band (Part 22H)

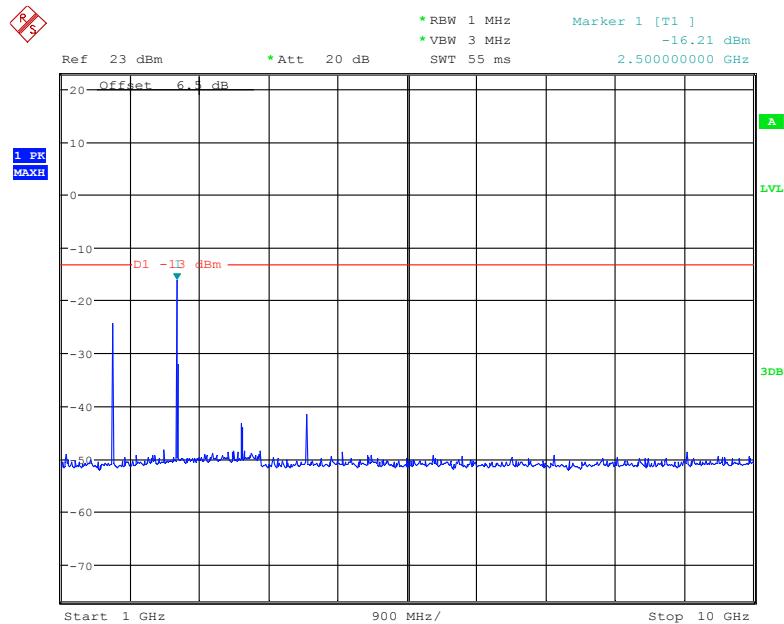
30 MHz – 1 GHz (GSM Mode)



Fundamental test with filter

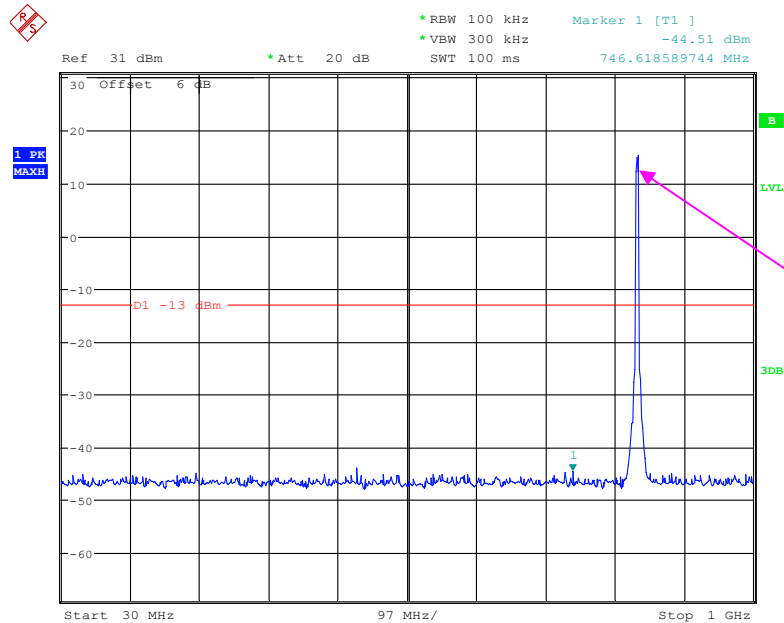
Date: 2.APR.2020 11:48:37

1 GHz – 10 GHz (GSM Mode)



Date: 25.MAR.2020 11:58:00

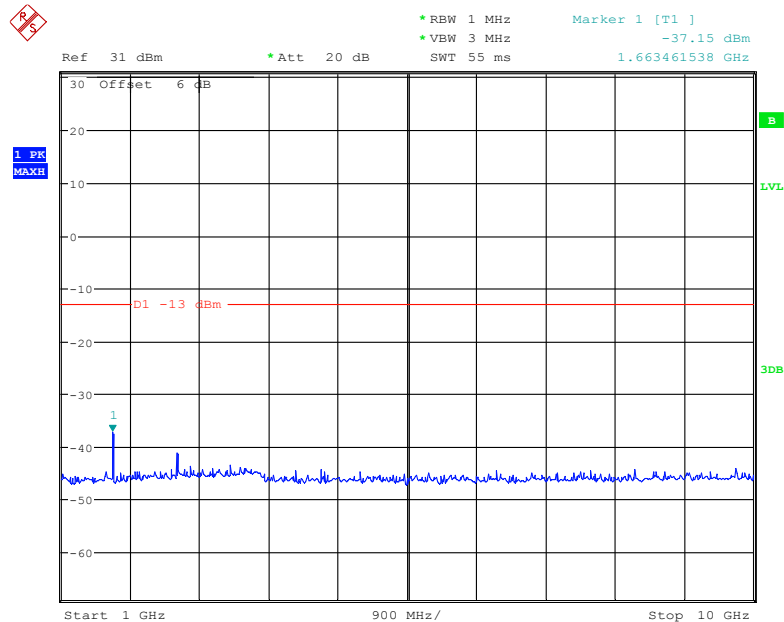
30 MHz – 1 GHz (WCDMA Mode)



Fundamental test
With filter

Date: 13.MAR.2020 14:17:30

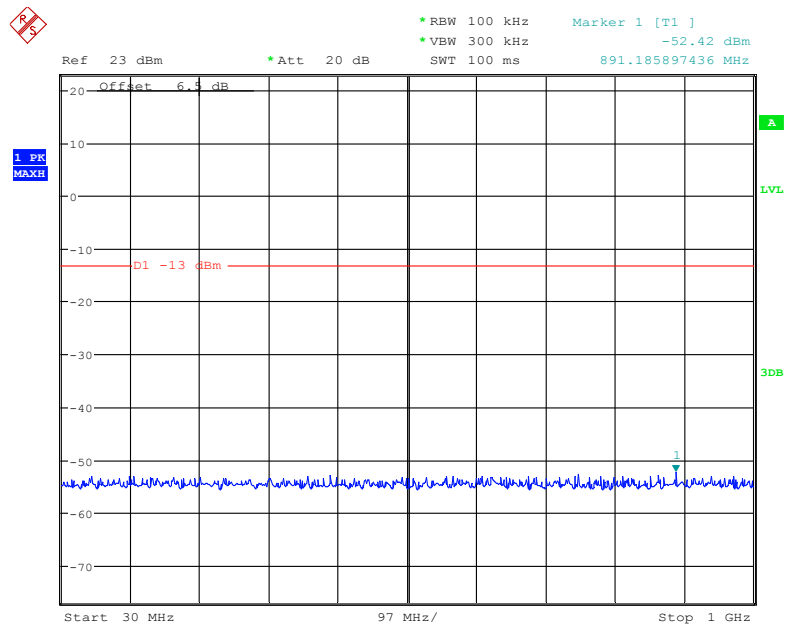
1 GHz – 10 GHz (WCDMA Mode)



Date: 13.MAR.2020 14:18:19

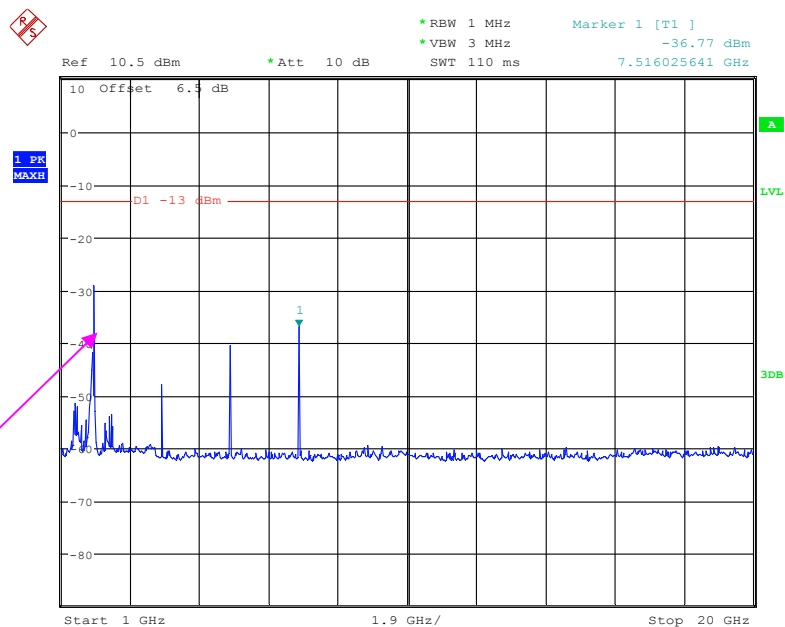
PCS Band (Part 24E)

30 MHz – 1 GHz (GSM Mode)



Date: 25.MAR.2020 11:59:54

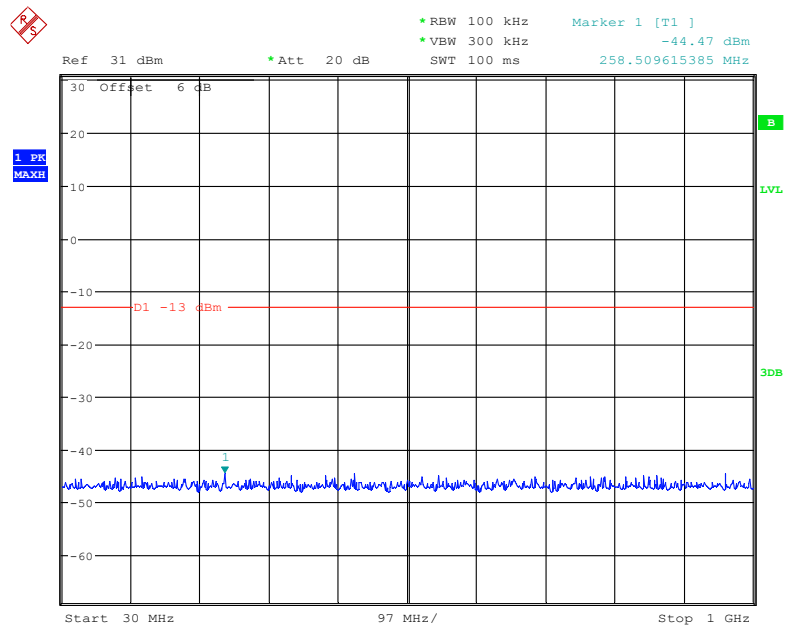
1 GHz – 20 GHz (GSM Mode)



Fundamen
tal test
With filter

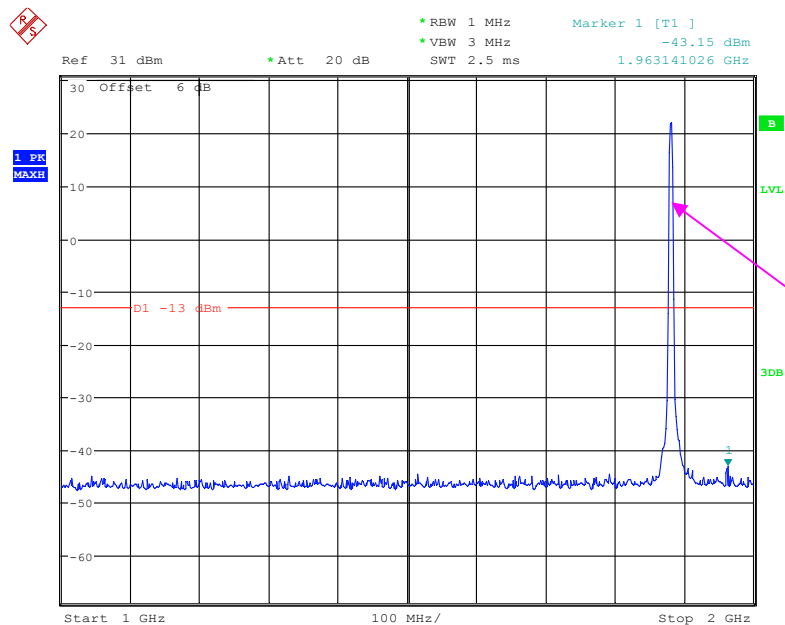
Date: 2.APR.2020 11:43:34

30 MHz – 1 GHz (WCDMA Mode)



Date: 13.MAR.2020 13:51:40

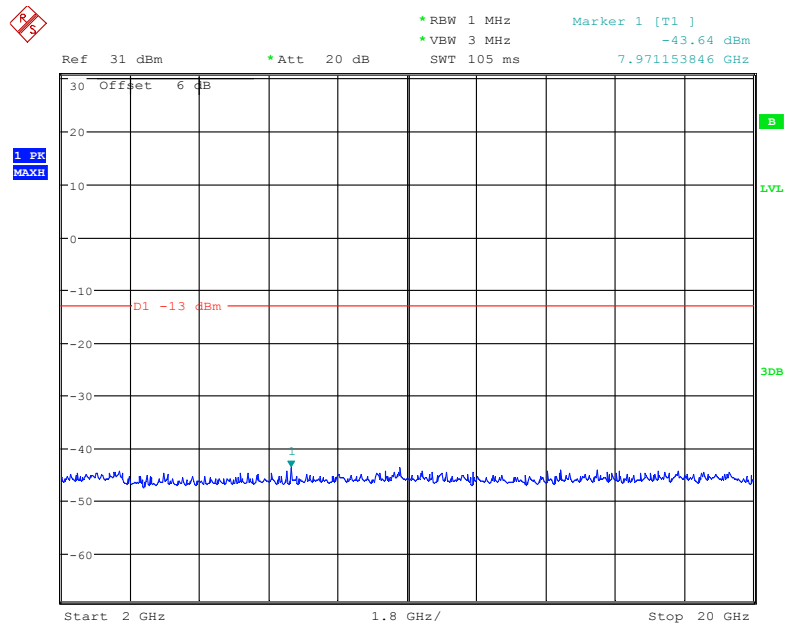
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

Date: 13.MAR.2020 13:52:51

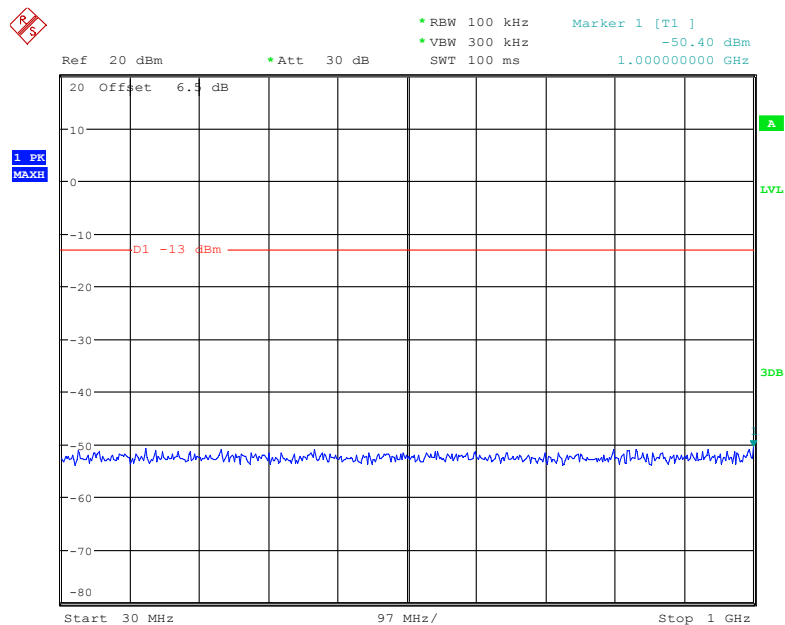
2 GHz – 20 GHz (WCDMA Mode)



Date: 13.MAR.2020 13:53:15

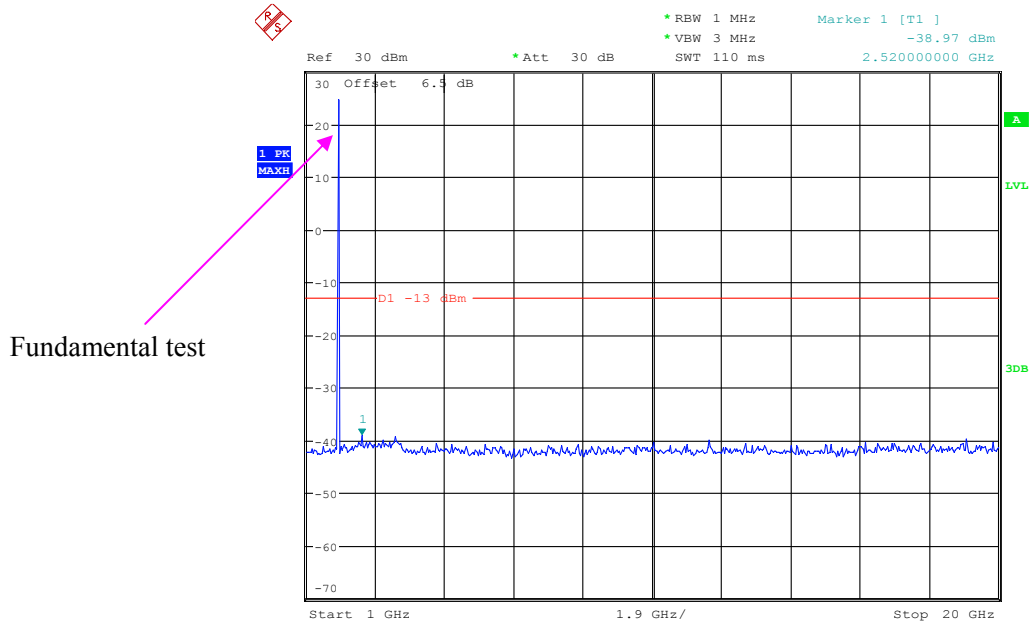
LTE Band 2:

30 MHz - 1 GHz (1.4 MHz, Middle Channel)



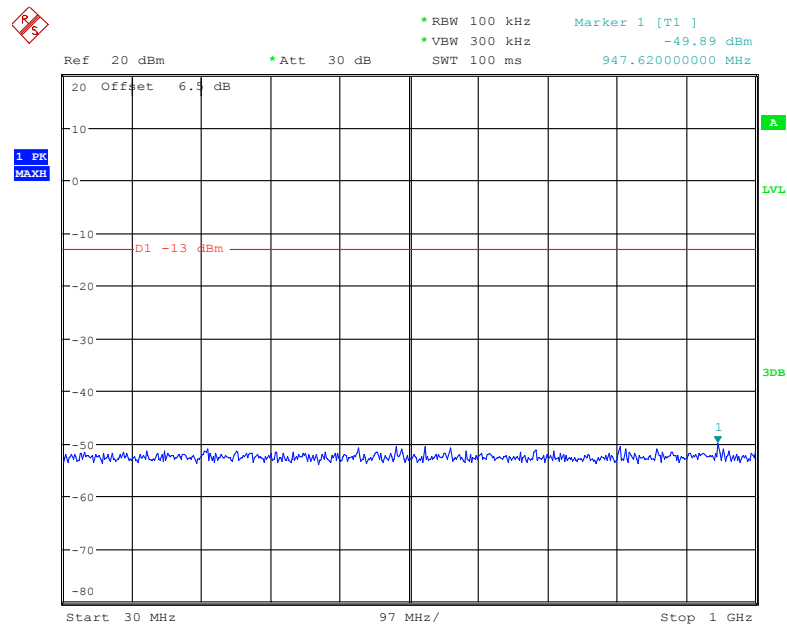
Date: 12.MAR.2020 20:23:41

1 GHz – 20 GHz (1.4 MHz, Middle Channel)

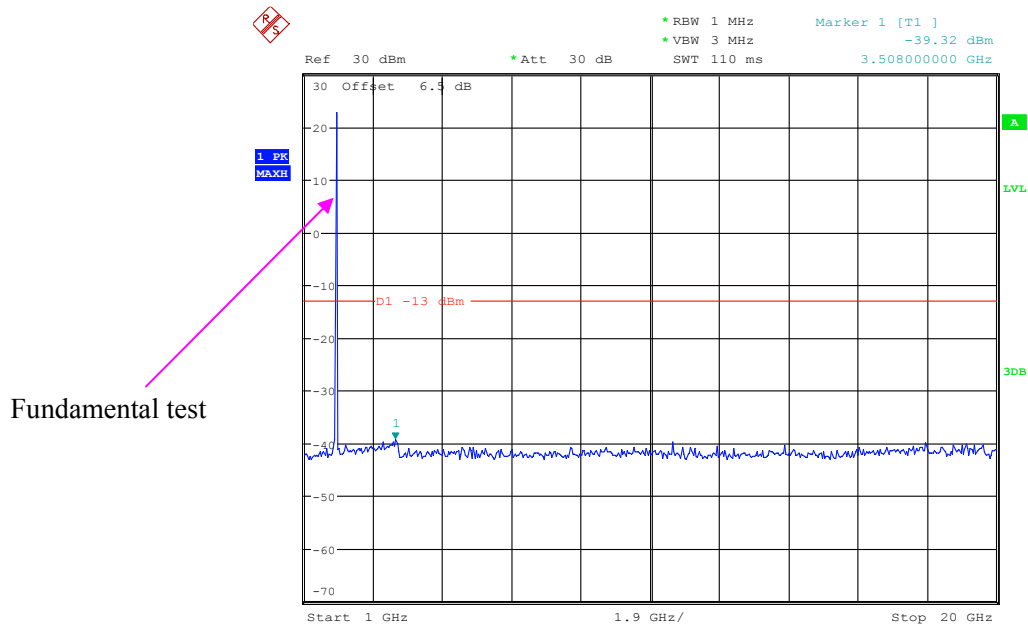


Date: 12.MAR.2020 20:23:51

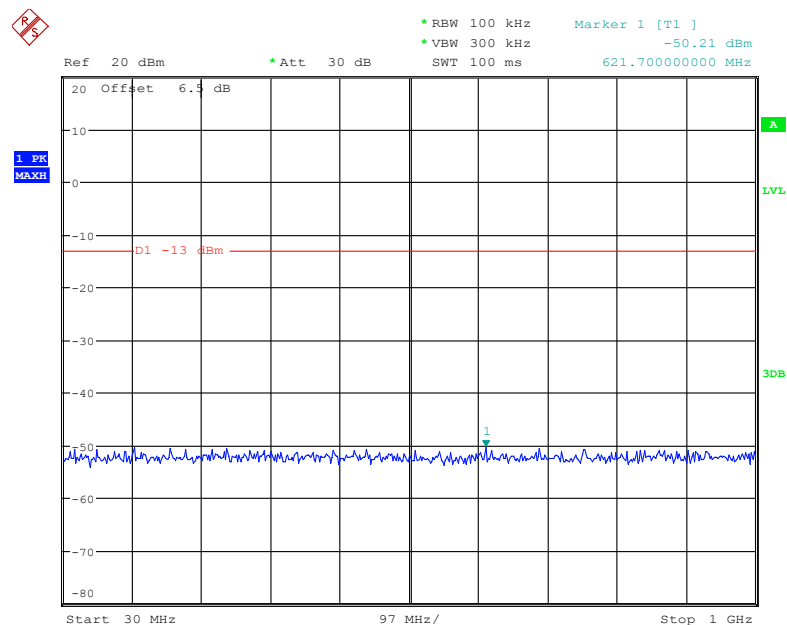
30 MHz - 1 GHz (3.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:24:09

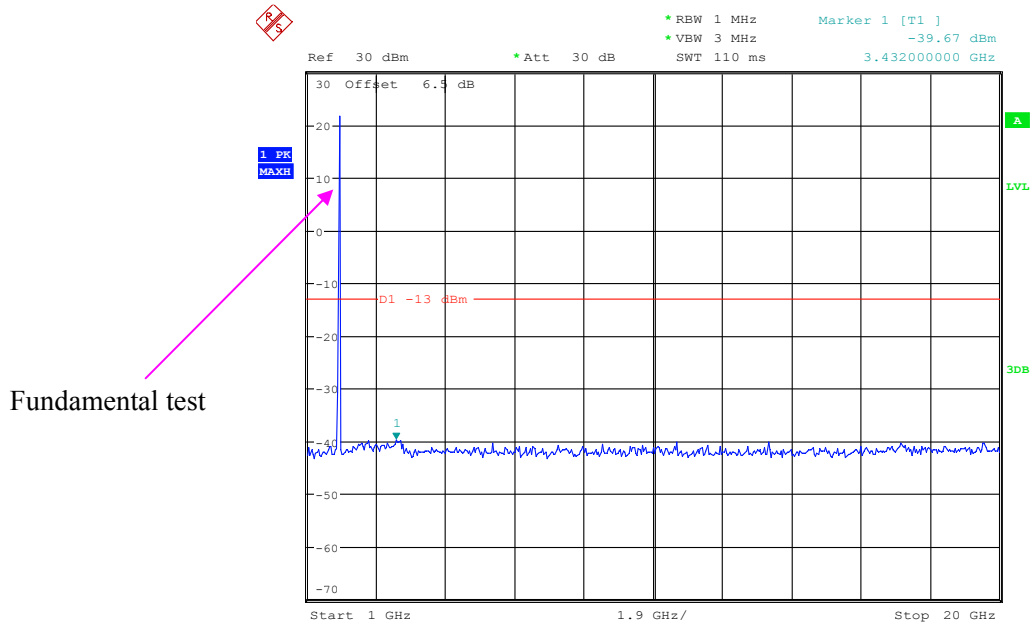
1 GHz – 20 GHz (3.0 MHz, Middle Channel)

Date: 12.MAR.2020 20:24:20

30 MHz - 1 GHz (5.0 MHz, Middle Channel)

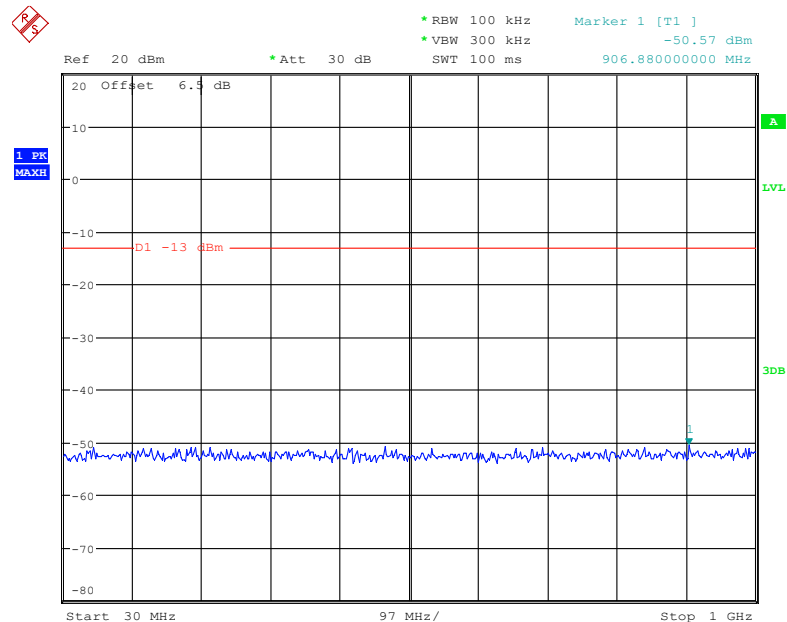
Date: 12.MAR.2020 20:24:42

1 GHz – 20 GHz (5.0 MHz, Middle Channel)



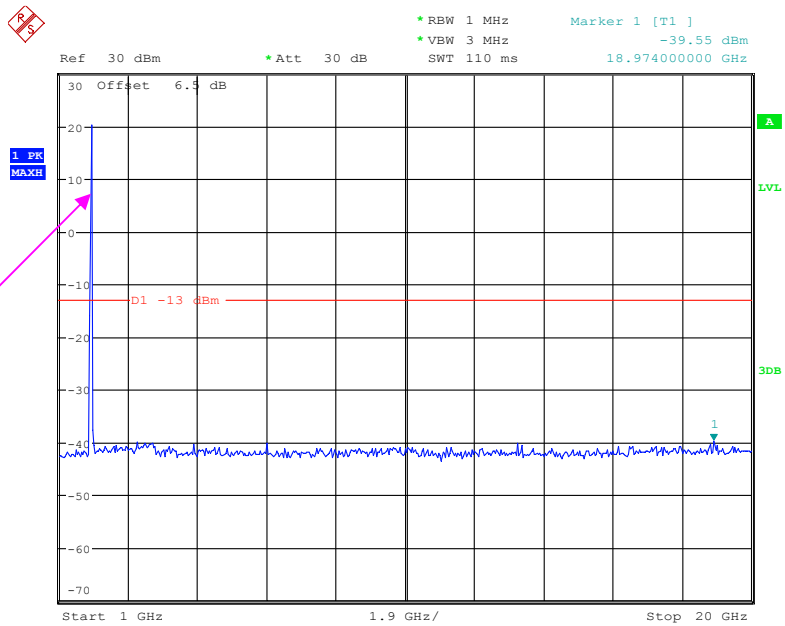
Date: 12.MAR.2020 20:24:52

30 MHz - 1 GHz (10.0 MHz, Middle Channel)



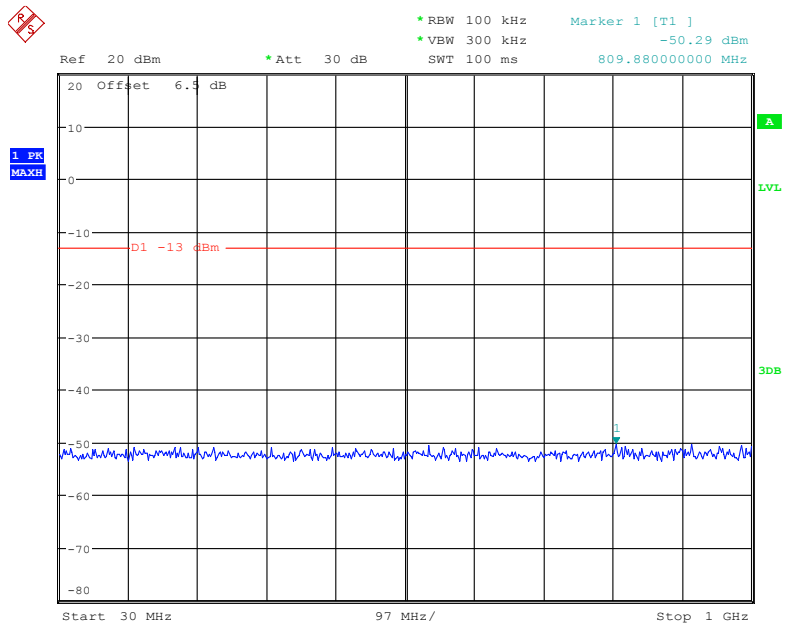
Date: 12.MAR.2020 20:25:11

1 GHz – 20 GHz (10.0 MHz, Middle Channel)

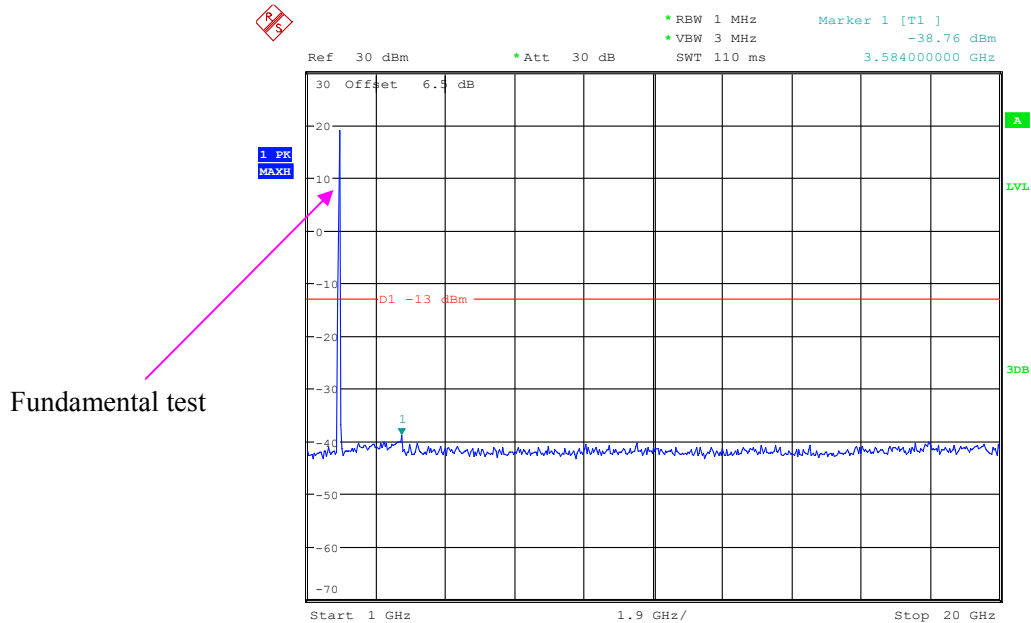


Date: 12.MAR.2020 20:25:22

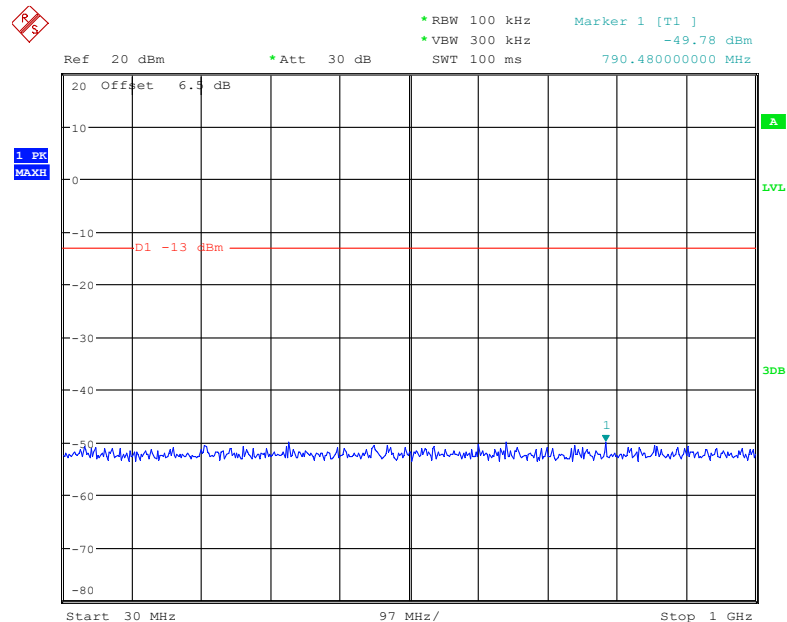
30 MHz - 1 GHz (15.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:25:47

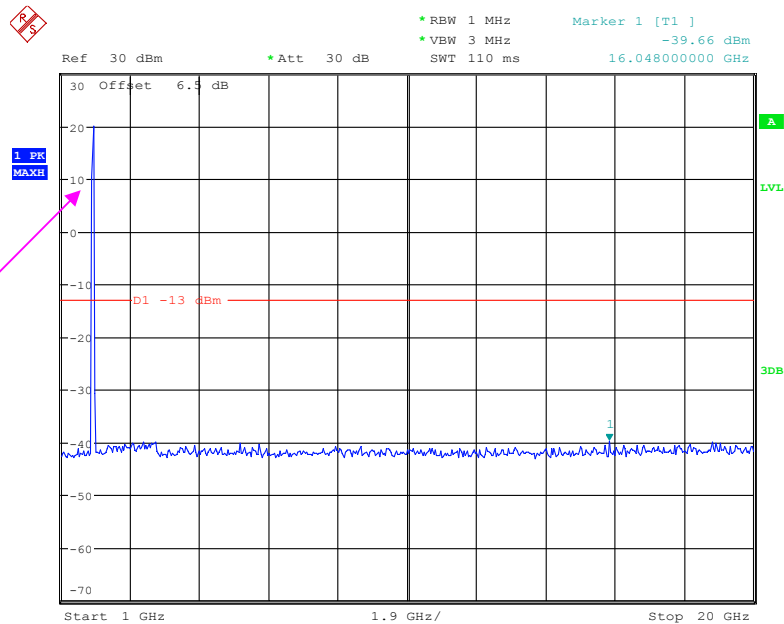
1 GHz – 20 GHz (15.0 MHz, Middle Channel)

Date: 12.MAR.2020 20:25:58

30 MHz - 1 GHz (20.0 MHz, Middle Channel)

Date: 12.MAR.2020 20:26:23

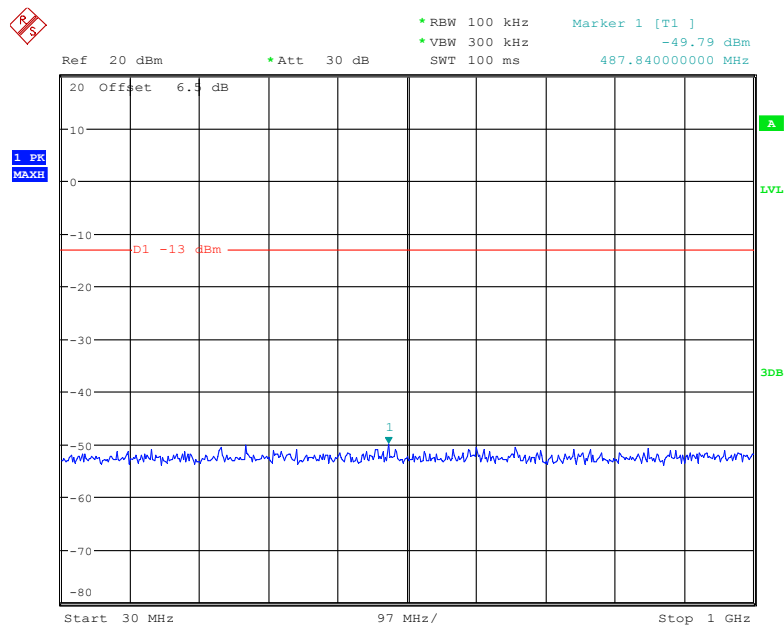
1 GHz – 20 GHz (20.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:26:34

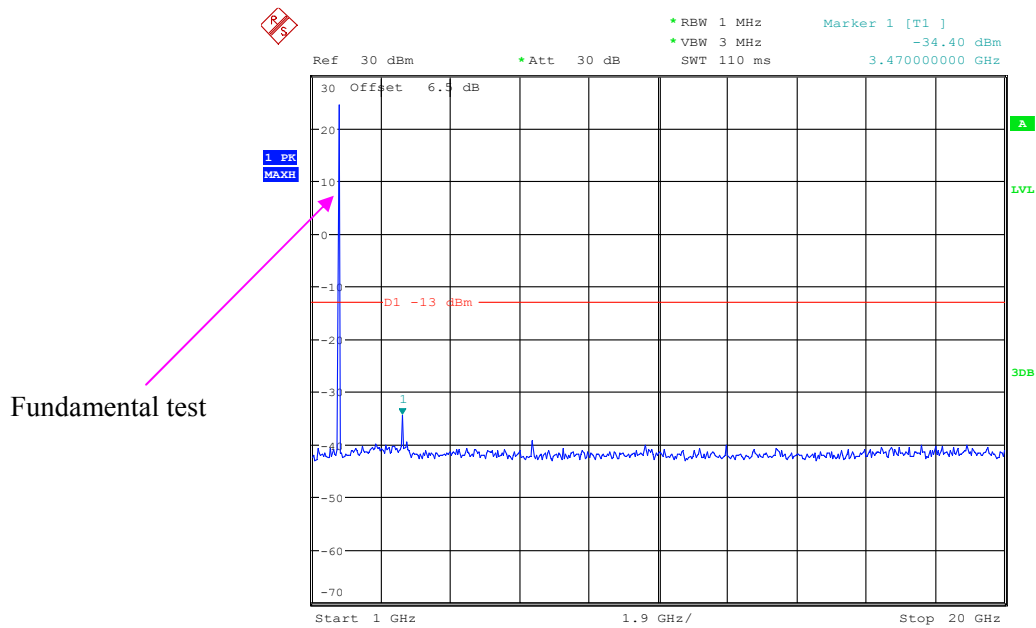
LTE Band 4:

30 MHz - 1 GHz (1.4 MHz, Middle Channel)



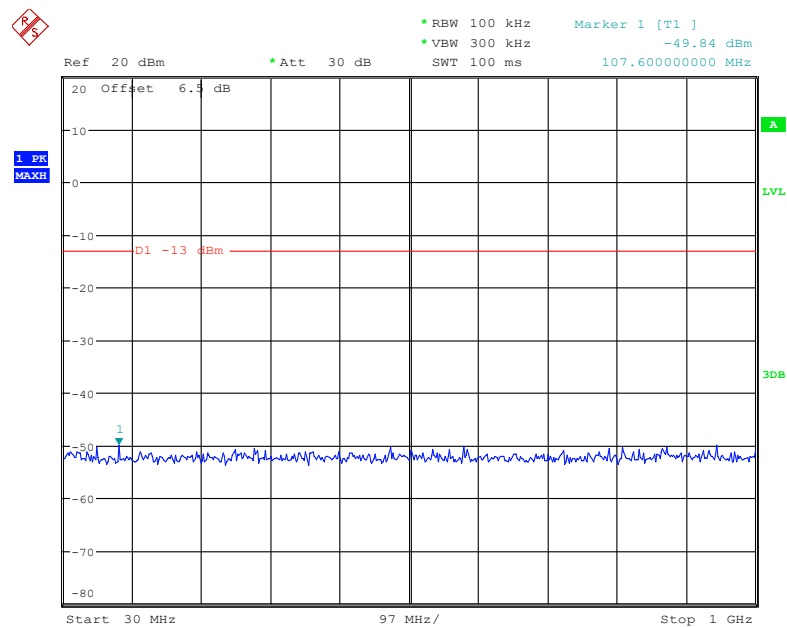
Date: 12.MAR.2020 20:26:52

1 GHz – 20 GHz (1.4 MHz, Middle Channel)



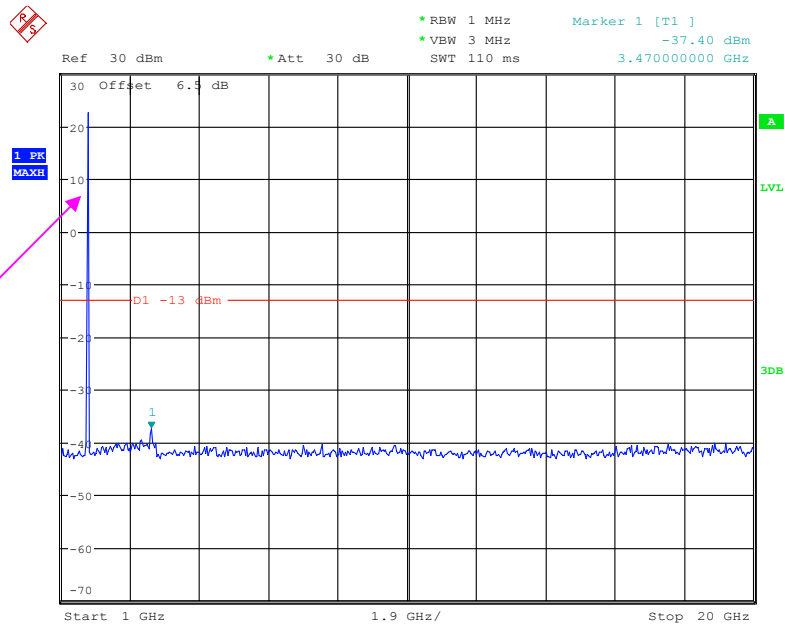
Date: 12.MAR.2020 20:27:02

30 MHz - 1 GHz (3.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:27:23

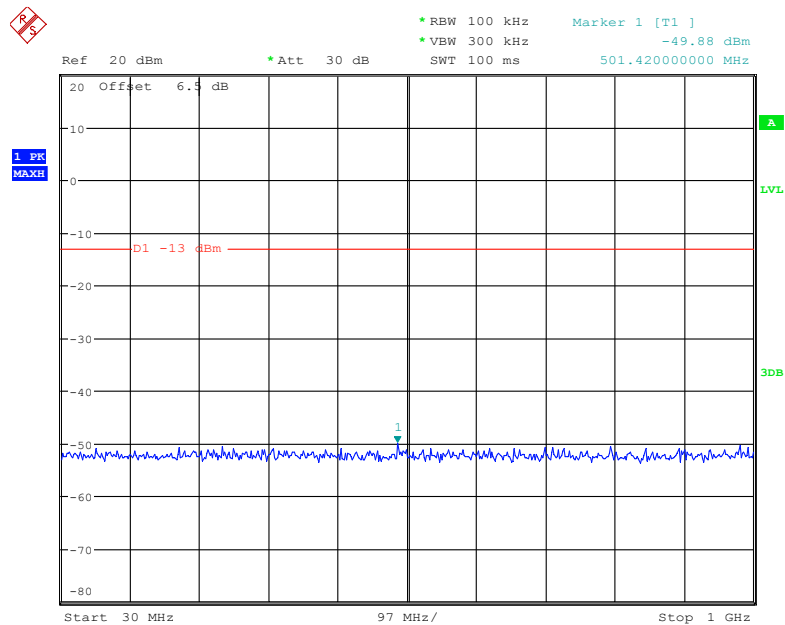
1 GHz – 20 GHz (3.0 MHz, Middle Channel)



Fundamental test

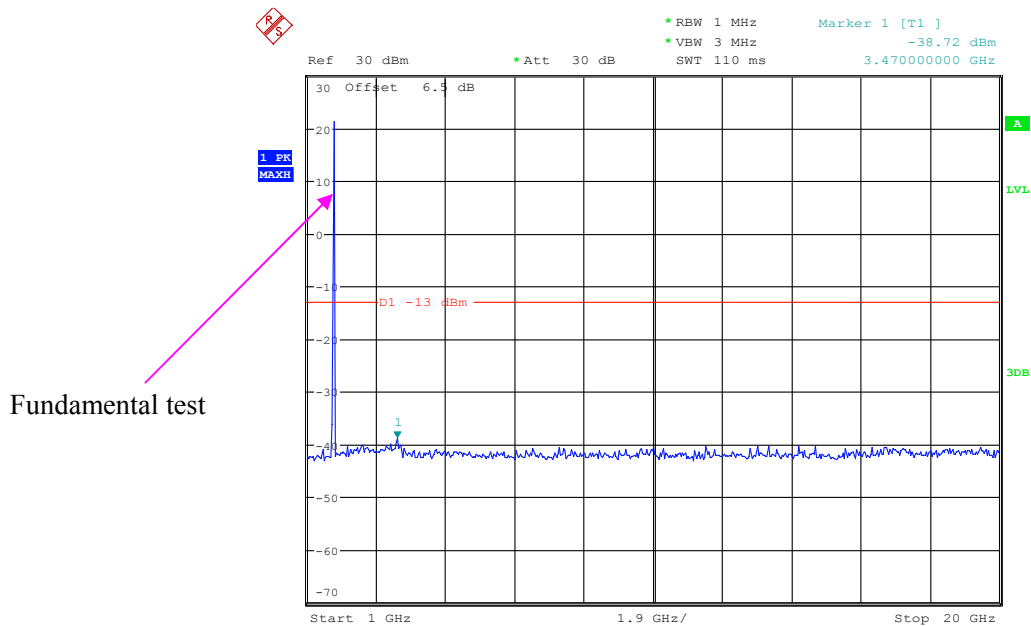
Date: 12.MAR.2020 20:27:33

30 MHz - 1 GHz (5.0 MHz, Middle Channel)



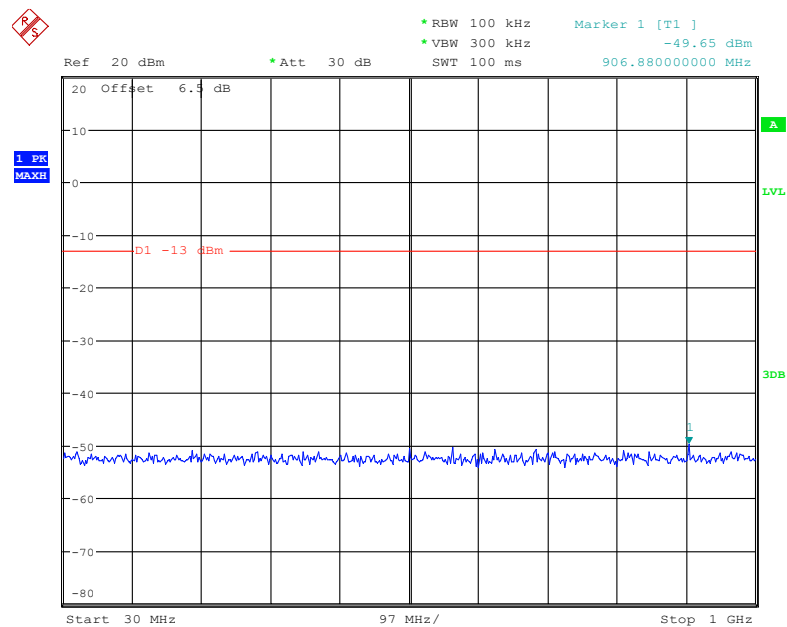
Date: 12.MAR.2020 20:27:55

1 GHz – 20 GHz (5.0 MHz, Middle Channel)



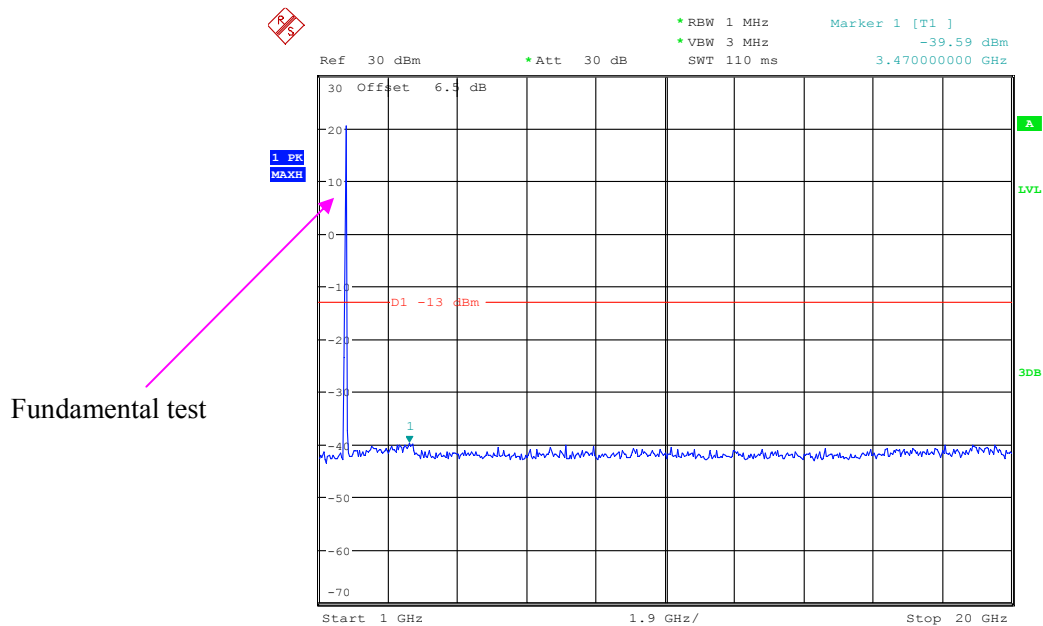
Date: 12.MAR.2020 20:28:06

30 MHz - 1 GHz (10.0 MHz, Middle Channel)



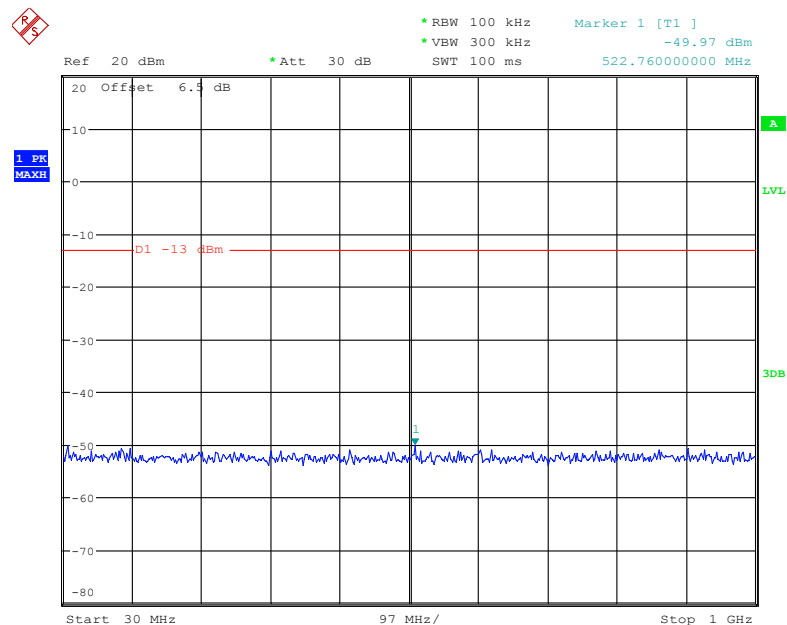
Date: 12.MAR.2020 20:28:24

1 GHz – 20 GHz (10.0 MHz, Middle Channel)



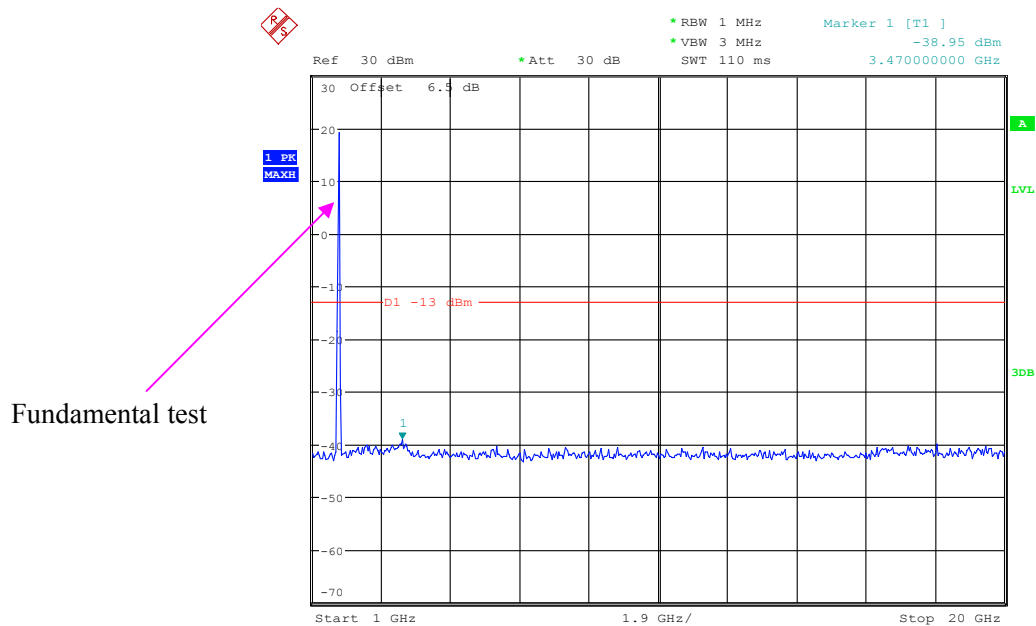
Date: 12.MAR.2020 20:28:35

30 MHz - 1 GHz (15.0 MHz, Middle Channel)



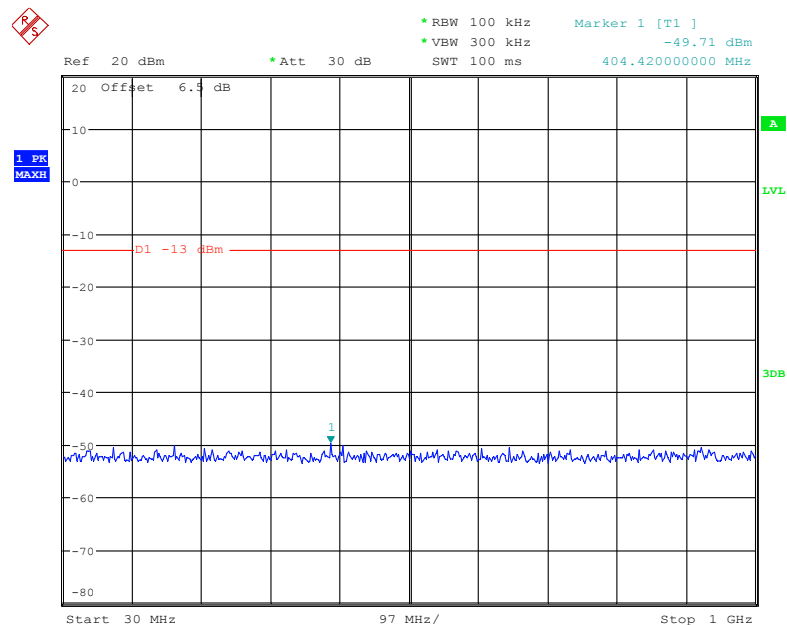
Date: 12.MAR.2020 20:28:57

1 GHz – 20 GHz (15.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:29:08

30 MHz - 1 GHz (20.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:29:33

Ref 30 dBm * Att 30 dB * RBW 1 MHz Marker 1 [T1] -39.74 dBm
 * VBW 3 MHz SWT 110 ms 3.43200000 GHz

30 Offset 6.3 dB

1 PK
MAXH

D1 -13 dBm

1

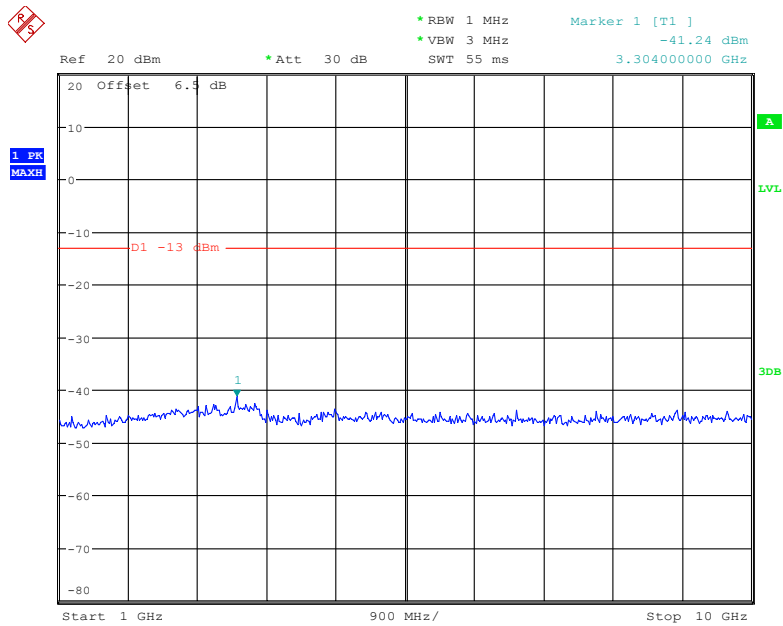
Start 1 GHz 1.9 GHz/ Stop 20 GHz

Fundamental test

The spectrum plot shows a signal with a sharp peak at 97.72000000 MHz. The peak is labeled 'Marker 1 [T1]' and has a value of -45.22 dBm. The plot also shows a noise floor at approximately -50 dBm. The x-axis is labeled 'Start 30 MHz', '97 MHz/', and 'Stop 1 GHz'. The y-axis is labeled '30 Offset 6.3 dB', '1 PK', 'MAXH', and '30 dB'. The plot includes a red line at -13 dBm labeled 'D1 -13 dBm' and a green line at -45.22 dBm labeled 'Marker 1 [T1]'. The plot also shows a green line at -45.22 dBm labeled 'Marker 1 [T1]' and a green line at -45.22 dBm labeled 'Marker 1 [T1]'.

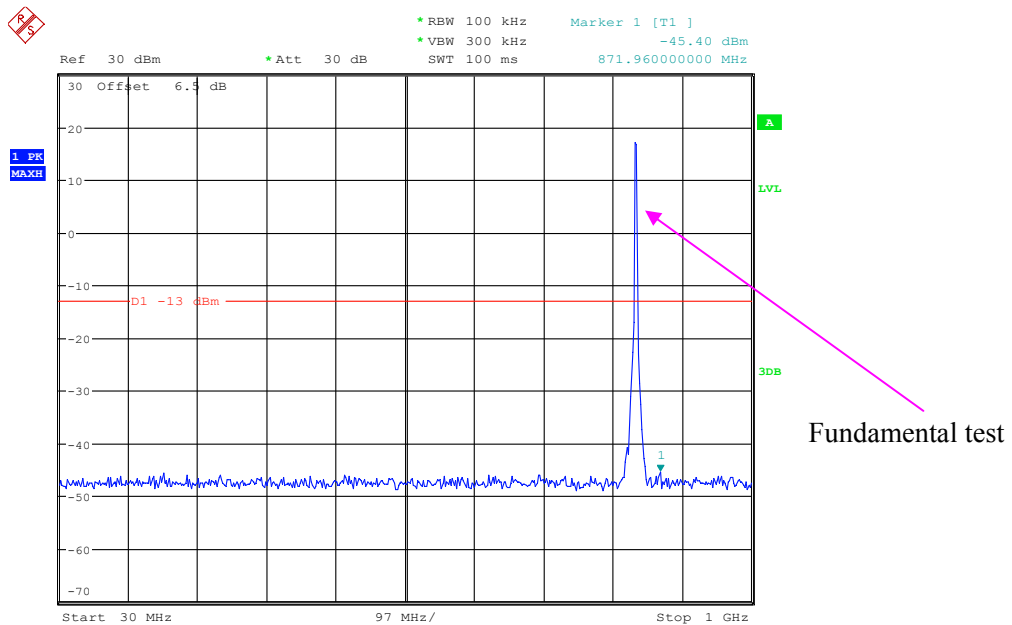
Fundamental test

1 GHz – 10 GHz (1.4 MHz, Middle Channel)



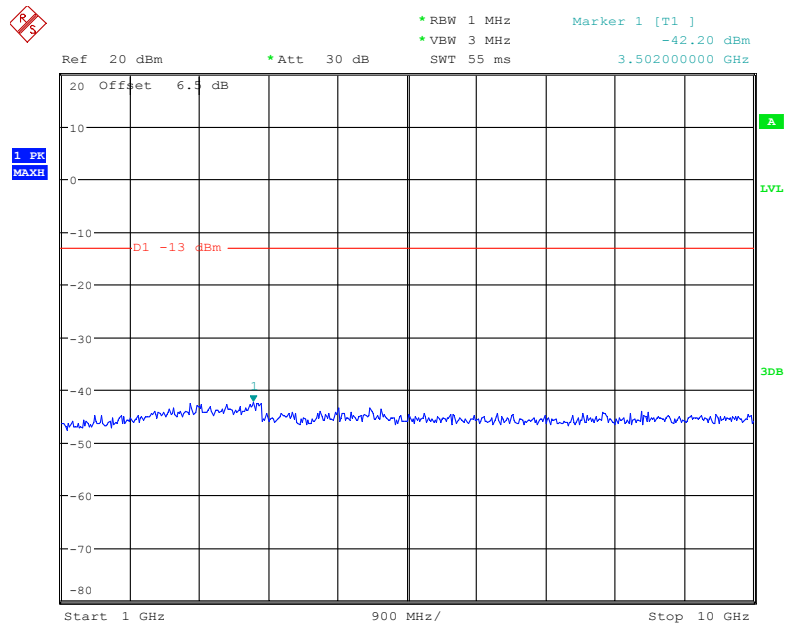
Date: 12.MAR.2020 20:30:12

30 MHz - 1 GHz (3.0 MHz, Middle Channel)



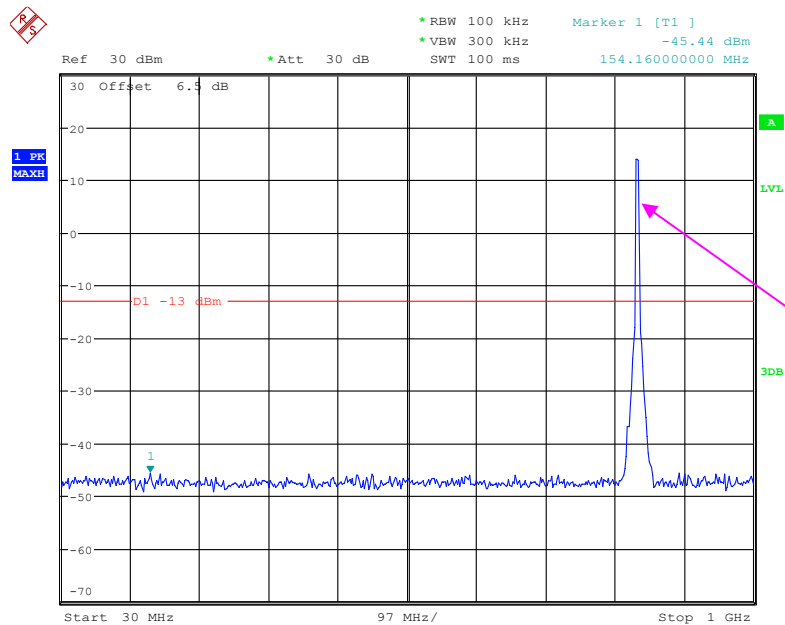
Date: 12.MAR.2020 20:30:29

1 GHz – 10 GHz (3.0 MHz, Middle Channel)



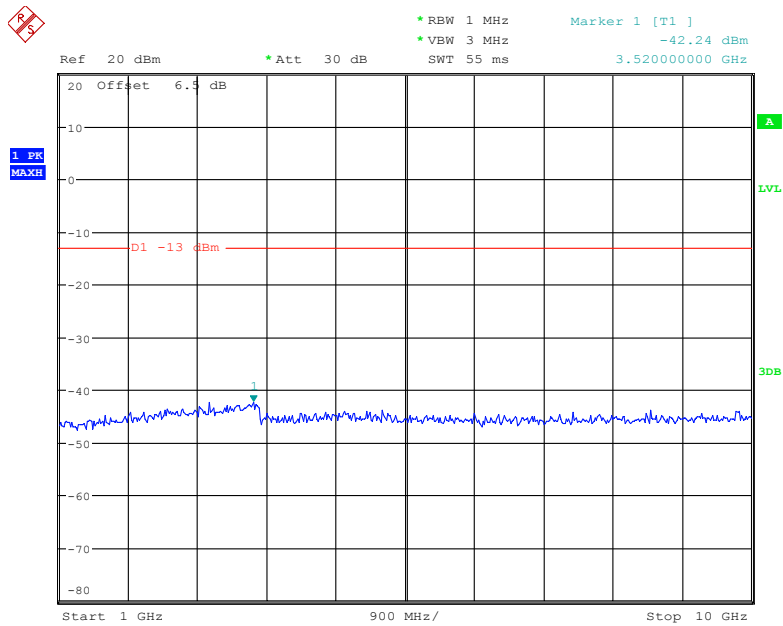
Date: 12.MAR.2020 20:30:39

30 MHz - 1 GHz (5.0 MHz, Middle Channel)



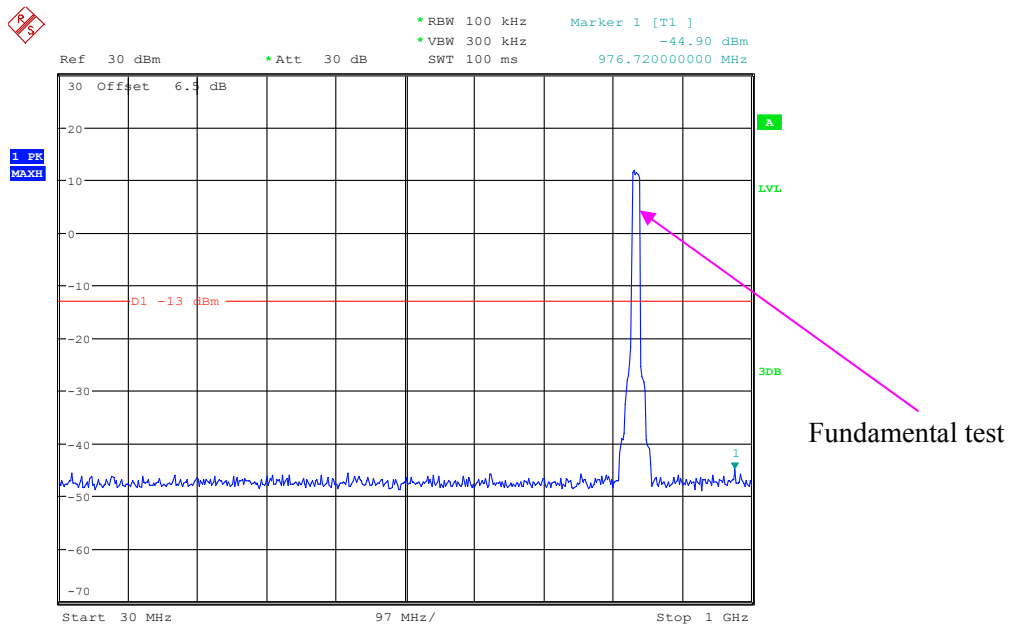
Date: 12.MAR.2020 20:30:58

1 GHz – 10 GHz (5.0 MHz, Middle Channel)



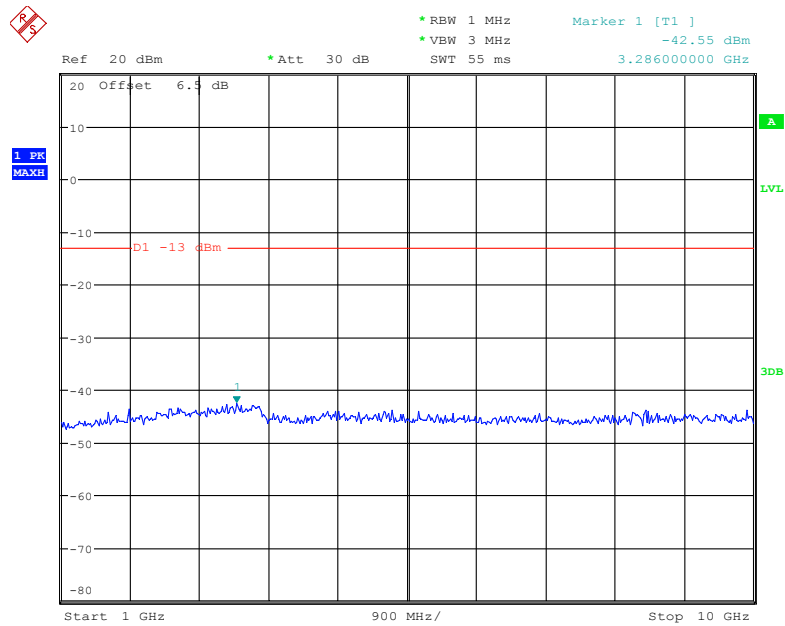
Date: 12.MAR.2020 20:31:08

30 MHz - 1 GHz (10.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:31:26

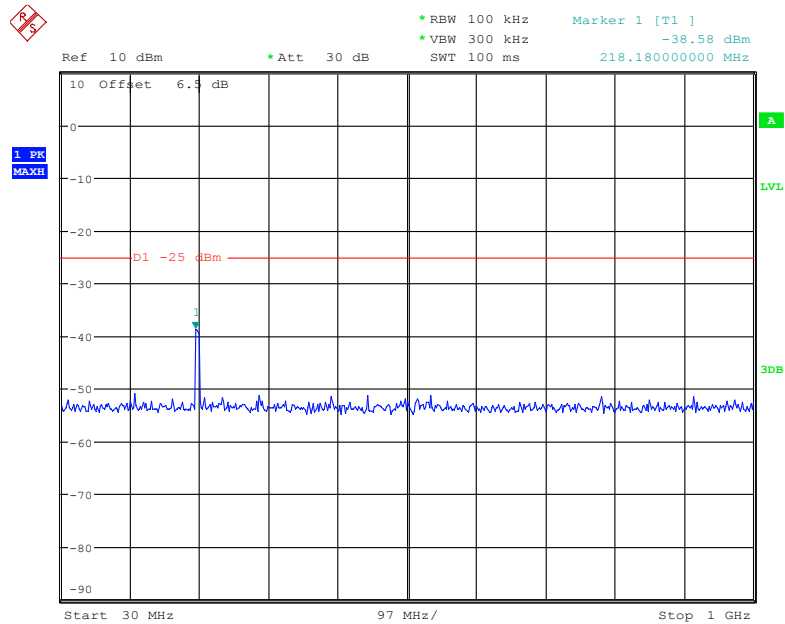
1 GHz – 10 GHz (10.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:31:37

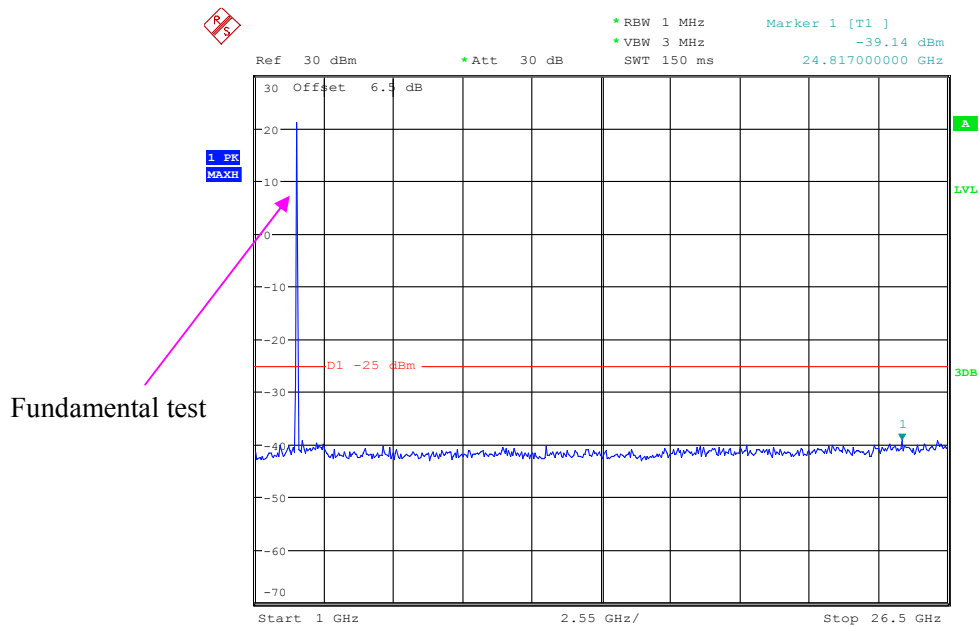
LTE Band 7:

30 MHz – 1 GHz (5.0 MHz, Middle Channel)



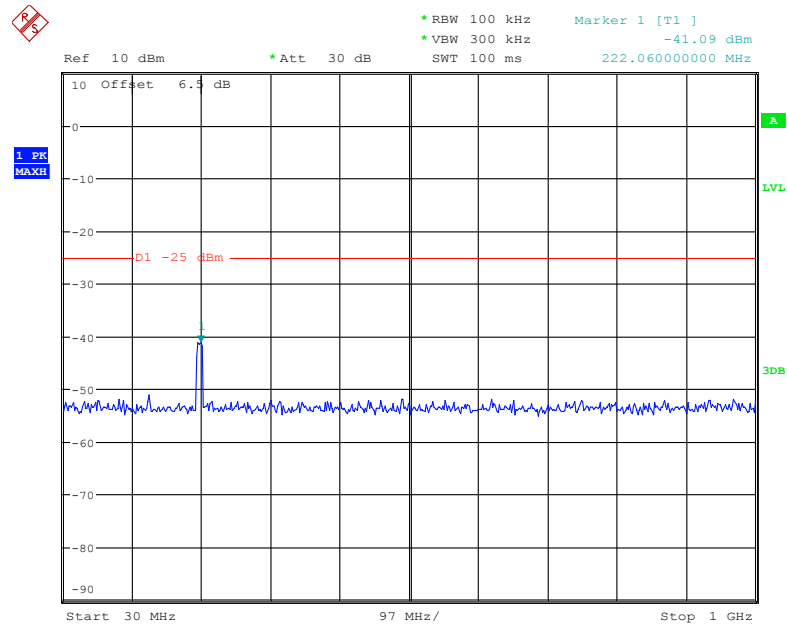
Date: 12.MAR.2020 20:31:56

1 GHz – 26.5 GHz (5.0 MHz, Middle Channel)



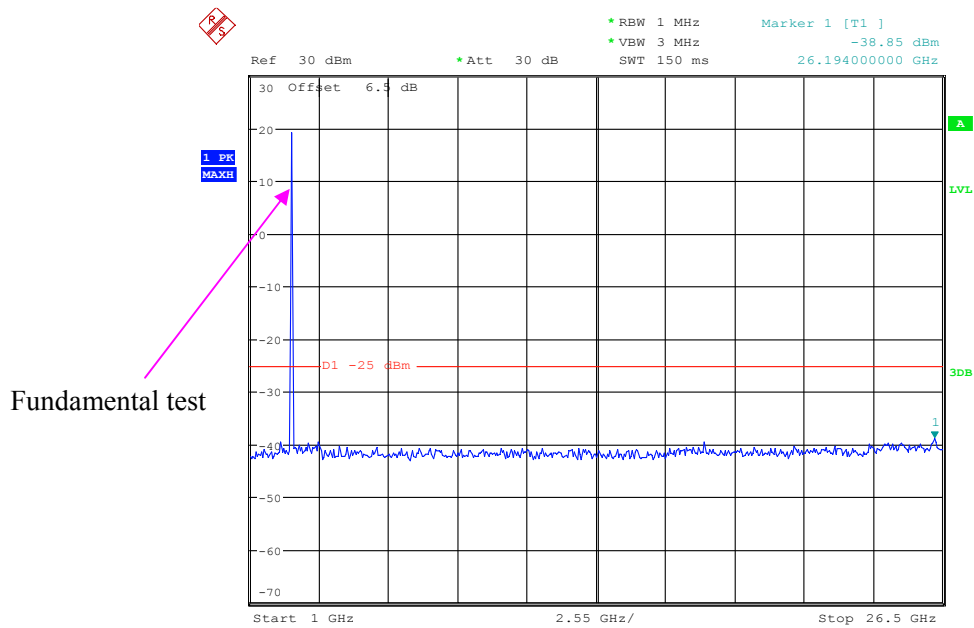
Date: 12.MAR.2020 20:32:06

30 MHz – 1.0 GHz (10.0 MHz, Middle Channel)



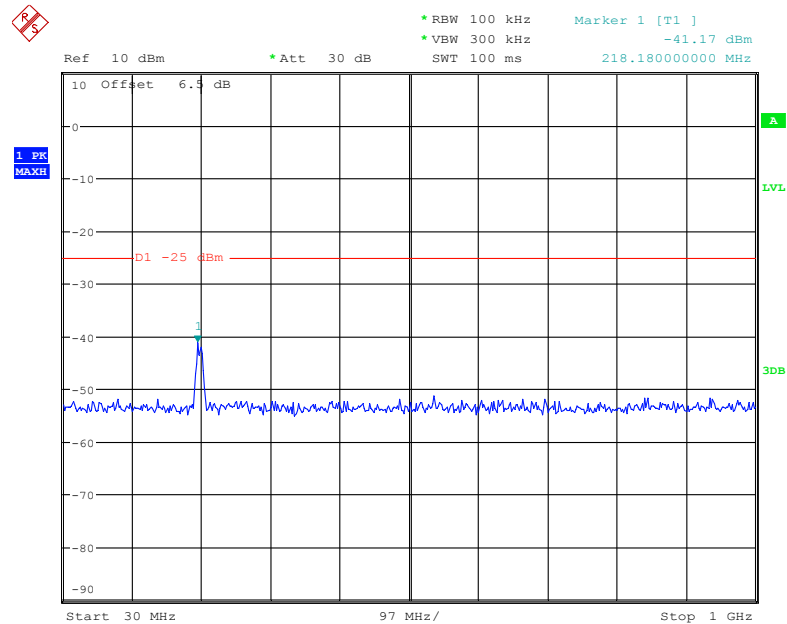
Date: 12.MAR.2020 20:32:25

1 GHz – 26.5 GHz (10.0 MHz, Middle Channel)



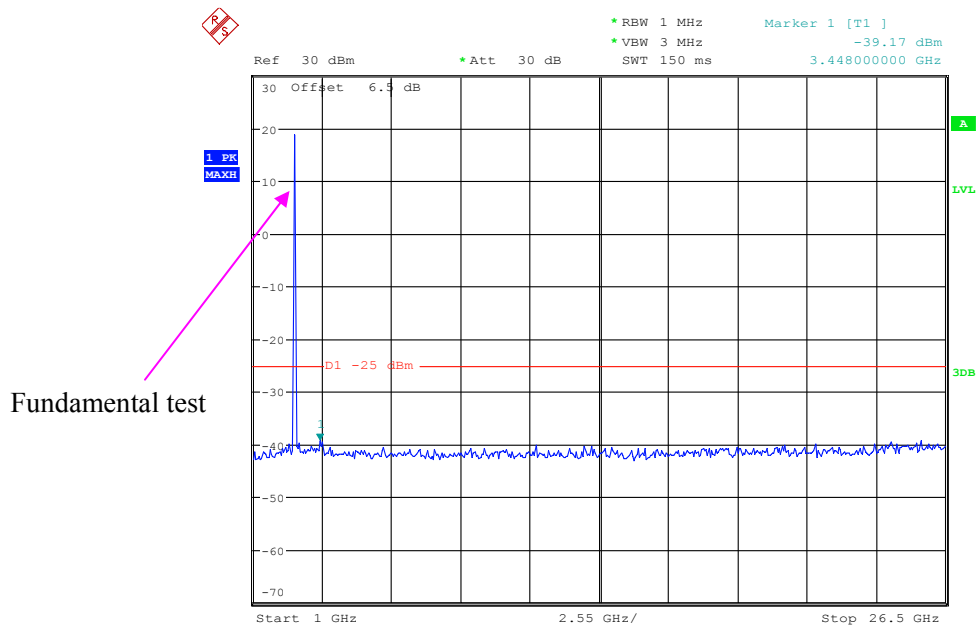
Date: 12.MAR.2020 20:32:35

30 MHz – 1 GHz (15.0 MHz, Middle Channel)



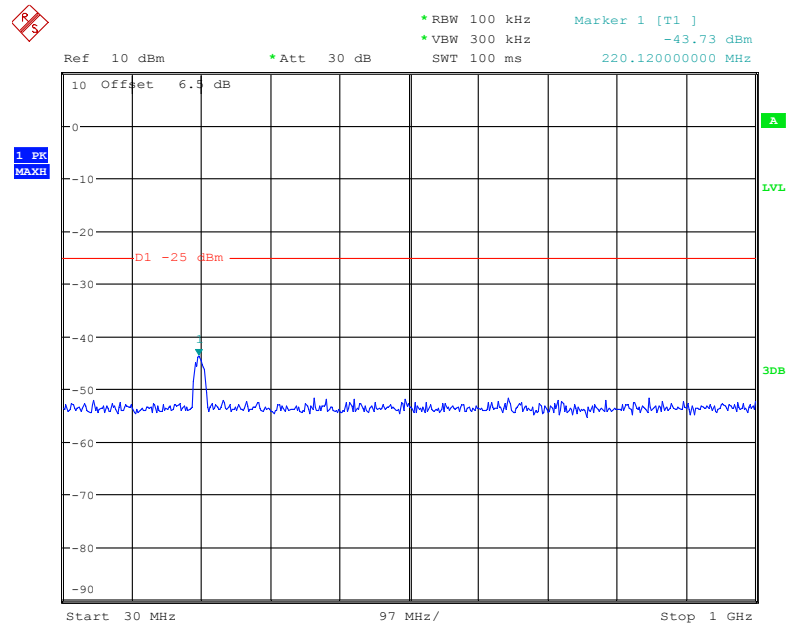
Date: 12.MAR.2020 20:32:57

1 GHz – 26.5 GHz (15.0 MHz, Middle Channel)



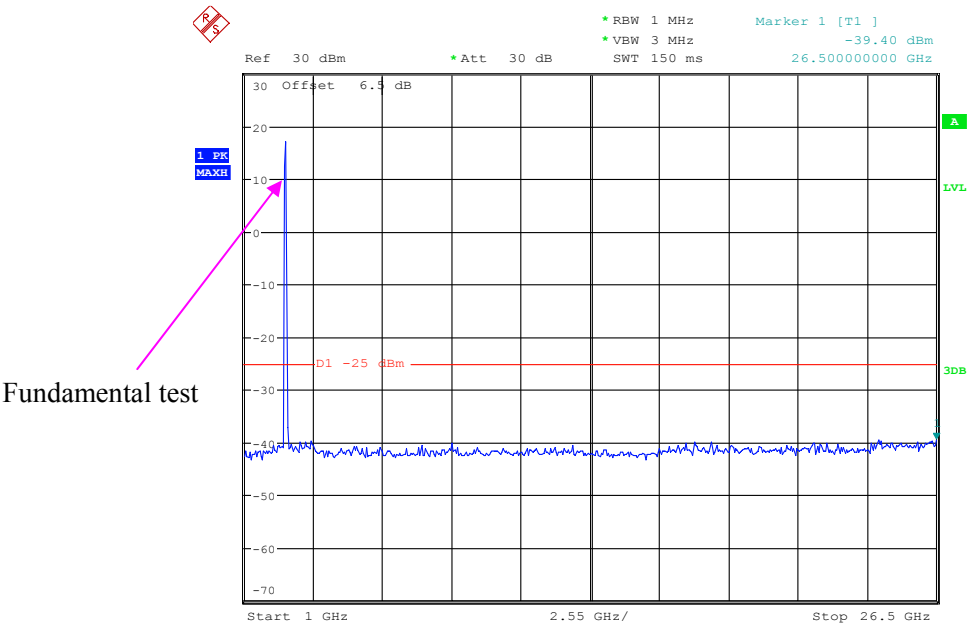
Date: 12.MAR.2020 20:33:08

30 MHz – 1 GHz (20.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:33:30

1 GHz – 26.5 GHz (20.0 MHz, Middle Channel)



Date: 12.MAR.2020 20:33:40

FCC § 2.1053; § 22.917 (a); § 24.238 (a); § 27.53 SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, § 22.917(a) and § 24.238(a) and § 27.53

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 receiving 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.

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Charlie Cha on 2020-03-19.

EUT operation mode: Transmitting

Pre-scan with Low, Middle and High channel, the worst case as below:

30 MHz ~ 10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode, middle channel										
548.27	36.21	217	2.4	H	-60.8	0.51	0	-61.31	-13	48.31
548.27	35.05	197	2.5	V	-61.9	0.51	0	-62.41	-13	49.41
1673.20	56.41	196	1.7	H	-49.9	1.30	8.90	-42.30	-13	29.30
1673.20	55.61	166	1.1	V	-50.1	1.30	8.90	-42.50	-13	29.50
2509.80	58.67	77	2.4	H	-44.7	2.60	10.20	-37.10	-13	24.10
2509.80	60.24	133	2.2	V	-42.5	2.60	10.20	-34.90	-13	21.90
3346.40	54.94	205	2.3	H	-46.0	1.50	11.70	-35.80	-13	22.80
3346.40	57.09	150	2.2	V	-43.8	1.50	11.70	-33.60	-13	20.60
WCDMA Mode, Middle channel										
548.27	35.48	21	2.1	H	-61.5	0.51	0	-62.01	-13	49.01
548.27	35.99	118	2.1	V	-61.0	0.51	0	-61.51	-13	48.51
1673.20	43.89	293	1.1	H	-62.4	1.30	8.90	-54.80	-13	41.80
1673.20	43.45	104	1.8	V	-62.3	1.30	8.90	-54.70	-13	41.70
2509.80	49.81	349	2.4	H	-53.5	2.60	10.20	-45.90	-13	32.90
2509.80	48.91	63	2.4	V	-53.8	2.60	10.20	-46.20	-13	33.20
3346.40	43.52	198	2.1	H	-57.4	1.50	11.70	-47.20	-13	34.20
3346.40	43.37	172	2.1	V	-57.6	1.50	11.70	-47.40	-13	34.40

30 MHz ~ 20 GHz:**PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode, middle channel										
548.27	35.30	333	2.2	H	-61.7	0.51	0	-62.21	-13	49.21
548.27	36.47	168	1.6	V	-60.5	0.51	0	-61.01	-13	48.01
3760.00	51.15	223	1.9	H	-50.9	1.50	11.80	-40.60	-13	27.60
3760.00	48.34	188	1.2	V	-53.2	1.50	11.80	-42.90	-13	29.90
5640.00	52.86	65	2.2	H	-46.8	1.70	12.40	-36.10	-13	23.10
5640.00	55.27	216	1.6	V	-44.1	1.70	12.40	-33.40	-13	20.40
7520.00	43.59	259	1.6	H	-52.3	1.90	10.70	-43.50	-13	30.50
7520.00	43.87	82	1.5	V	-51.6	1.90	10.70	-42.80	-13	29.80
WCDMA Mode Band II, Middle channel										
548.27	35.26	182	1.9	H	-61.7	0.51	0	-62.21	-13	49.21
548.27	35.31	98	2.0	V	-61.7	0.51	0	-62.21	-13	49.21
3760.00	44.57	246	1.1	H	-57.5	1.50	11.80	-47.20	-13	34.20
3760.00	44.67	137	1.7	V	-56.9	1.50	11.80	-46.60	-13	33.60

LTE Band: (Pre-scan with all the bandwidths, and worse case is lowest bandwidth QPSK mode as below)

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2, Middle channel										
548.27	36.42	281	1.8	H	-60.6	0.51	0	-61.11	-13	48.11
548.27	36.56	250	1.3	V	-60.4	0.51	0	-60.91	-13	47.91
3760.00	44.12	329	1.7	H	-58.3	1.50	11.80	-48.00	-13	35.00
3760.00	43.86	198	2.1	V	-58.1	1.50	11.80	-47.80	-13	34.80
Band 4, Middle channel										
548.27	36.89	76	2.4	H	-60.1	0.51	0	-60.61	-13	47.61
548.27	35.39	11	1.6	V	-61.6	0.51	0	-62.11	-13	49.11
3465.00	43.95	297	1.4	H	-56.9	1.50	12.00	-46.40	-13	33.40
3465.00	43.76	155	1.6	V	-57.9	1.50	12.00	-47.40	-13	34.40
Band 5, Middle channel										
548.27	36.54	126	1.5	H	-60.5	0.51	0	-61.01	-13	48.01
548.27	36.52	325	1.7	V	-60.5	0.51	0	-61.01	-13	48.01
1451.00	43.69	231	1.7	H	-64.9	1.60	8.50	-58.00	-13	45.00
1451.00	43.59	25	2.3	V	-65.3	1.60	8.50	-58.40	-13	45.40
Band 7, Middle channel										
548.27	36.19	77	1.1	H	-60.8	0.51	0	-61.31	-25	36.31
548.27	35.25	117	1.8	V	-61.8	0.51	0	-62.31	-25	37.31
5070.00	44.35	1	1.3	H	-53.3	1.60	12.10	-42.80	-25	17.80
5070.00	43.97	18	1.3	V	-53.7	1.60	12.10	-43.20	-25	18.20

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit - Absolute Level

dBd is for the ERP, dBi is for EIRP.

FCC § 22.917 (a);§ 24.238 (a); §27.53 (h)(m) - BAND EDGES**Applicable Standard**

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

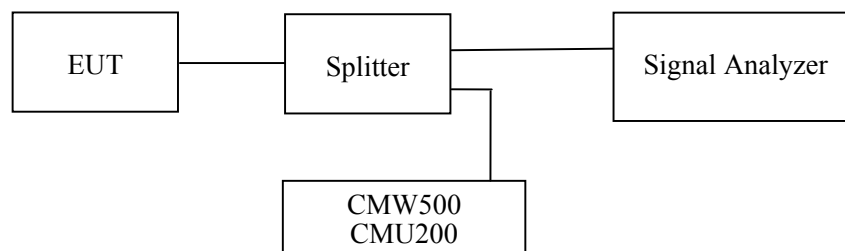
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC §27.53 (h)(m), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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 Data****Environmental Conditions**

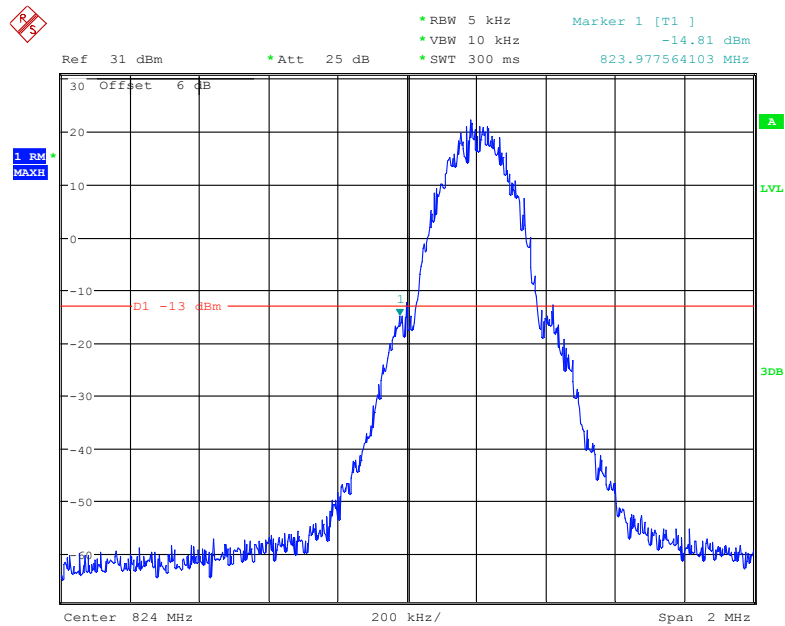
Temperature:	24~25 °C
Relative Humidity:	52~56%
ATM Pressure:	101.0 kPa

The testing was performed by George Zhong from 2020-03-12 to 2020-03-14.

EUT operation mode: Transmitting

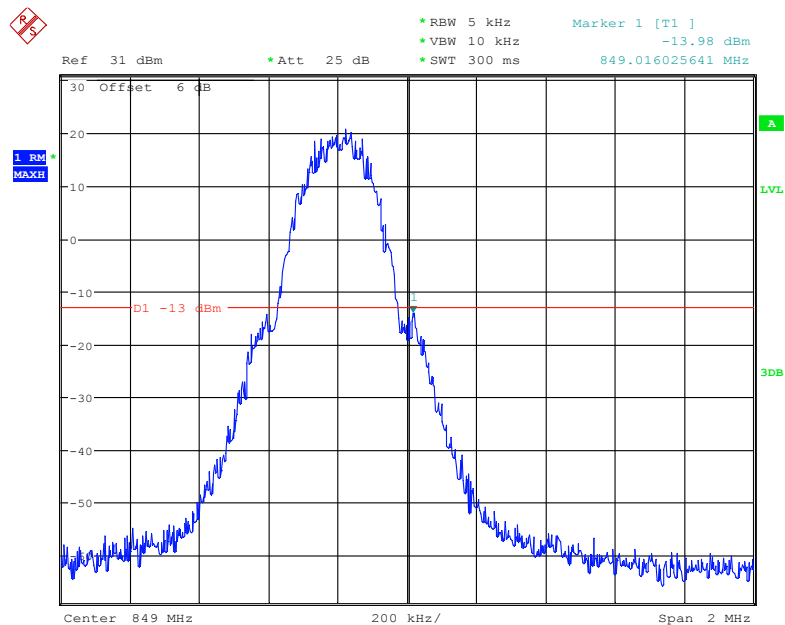
Test Result: Compliance. Please refer to the following plots.

Cellular Band, Left Band Edge for GSM (GMSK) Mode



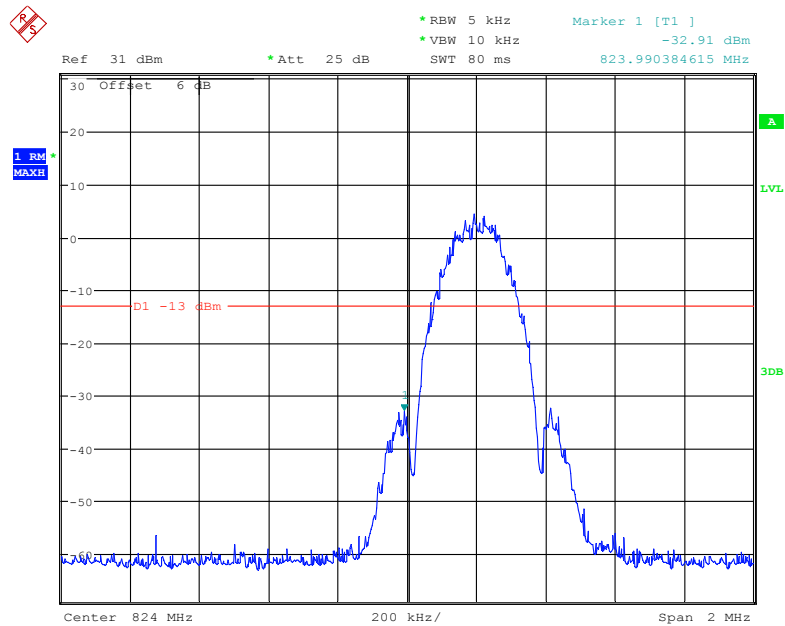
Date: 12.MAR.2020 17:09:43

Cellular Band, Right Band Edge for GSM (GMSK) Mode



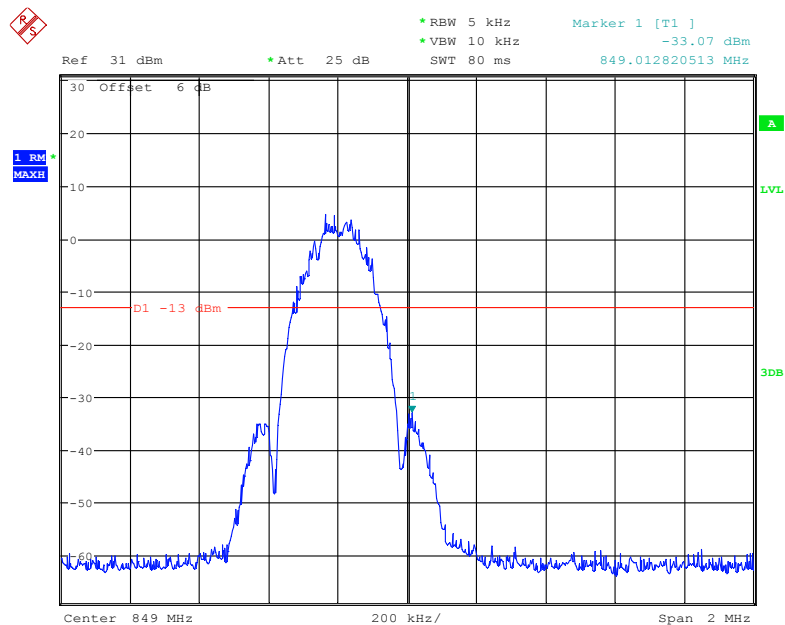
Date: 12.MAR.2020 17:10:17

Cellular Band, Left Band Edge for EDGE Mode



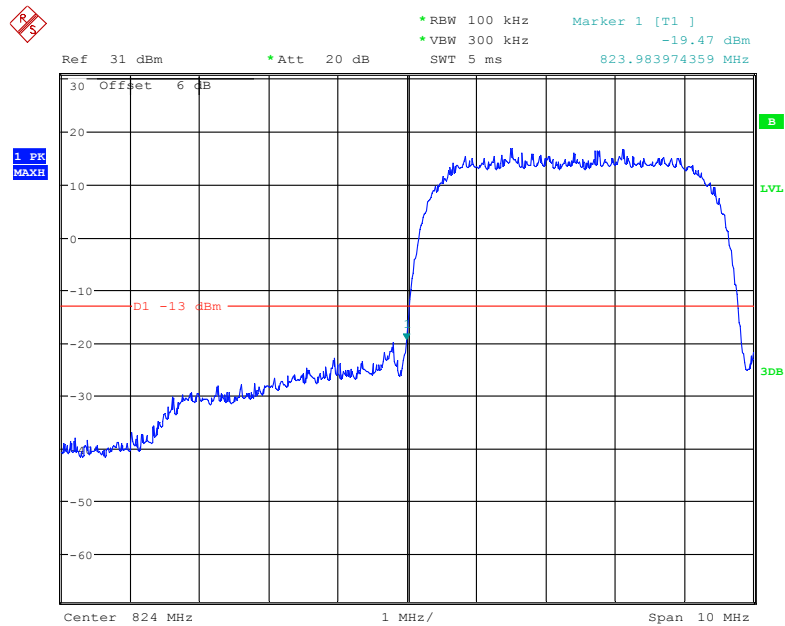
Date: 12.MAR.2020 16:43:53

Cellular Band, Right Band Edge for EDGE Mode



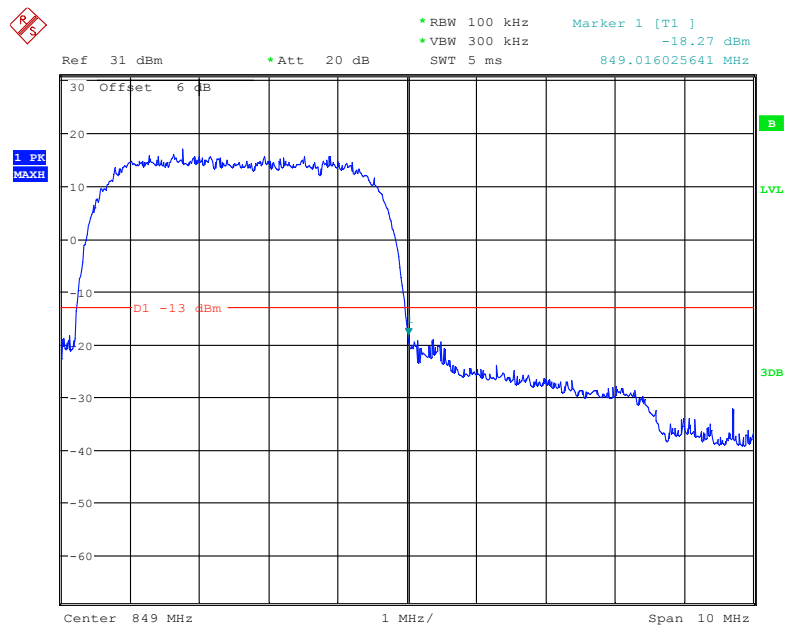
Date: 12.MAR.2020 16:44:50

Cellular Band, Left Band Edge for WCDMA (BPSK) Mode



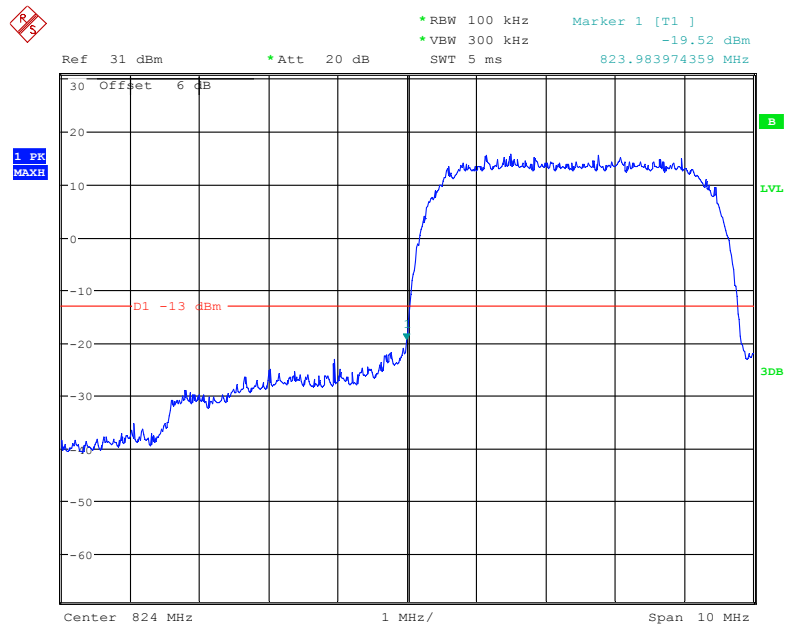
Date: 13.MAR.2020 14:13:36

Cellular Band, Right Band Edge for WCDMA (BPSK) Mode



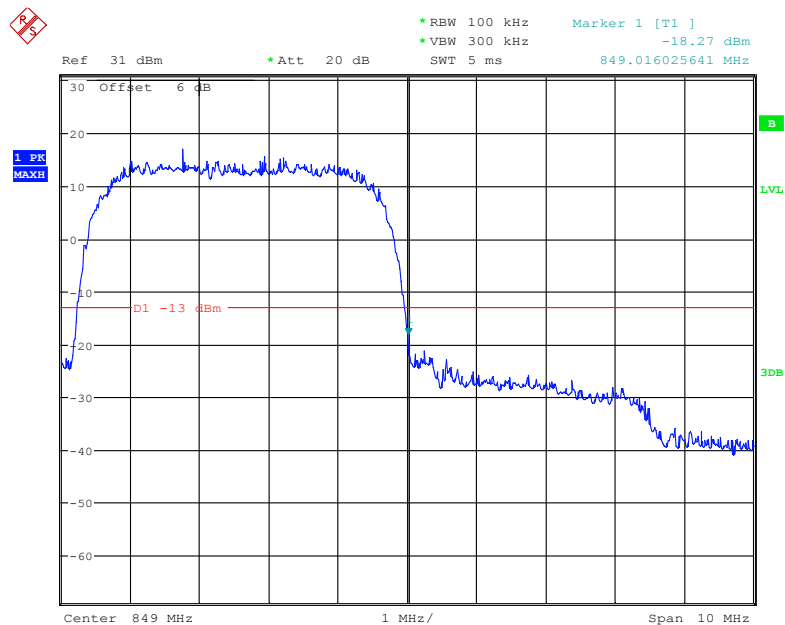
Date: 13.MAR.2020 14:13:11

Cellular Band, Left Band Edge for HSDPA (16QAM) Mode



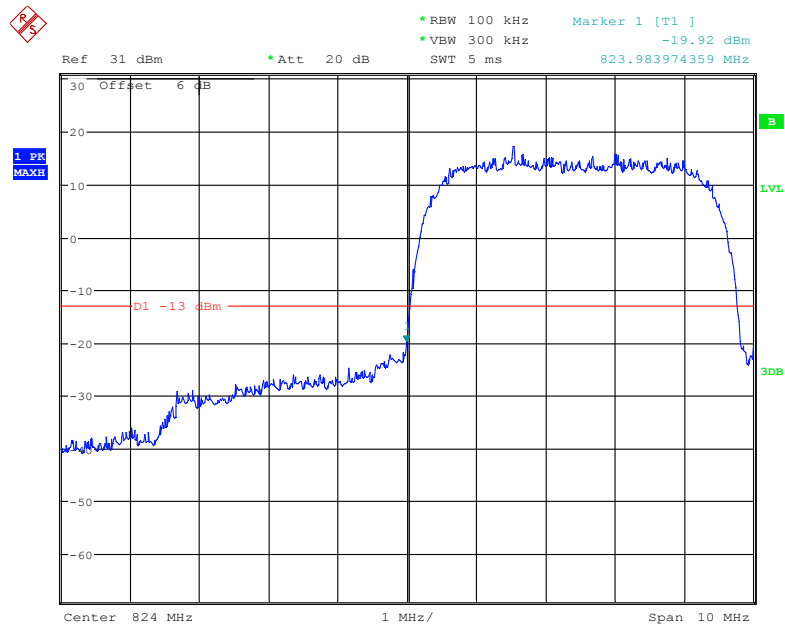
Date: 13.MAR.2020 14:12:06

Cellular Band, Right Band Edge for HSDPA (16QAM) Mode



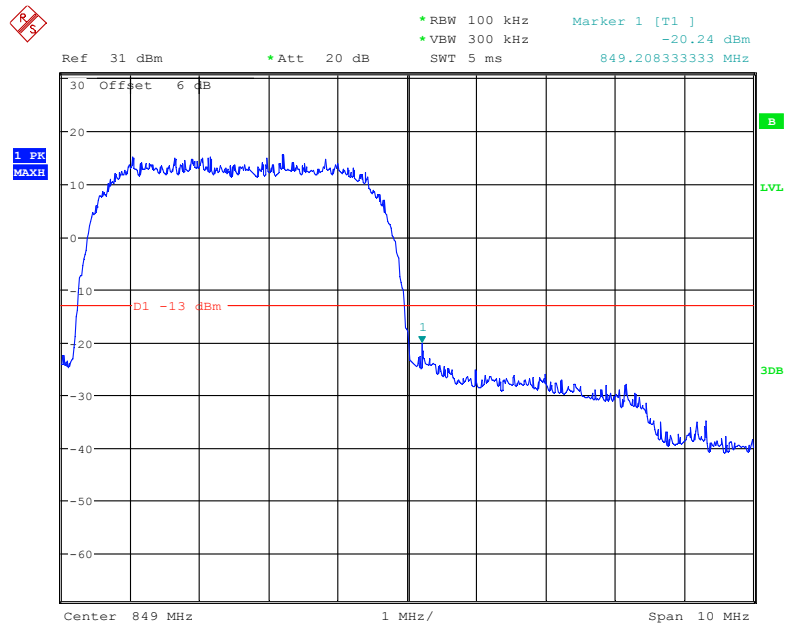
Date: 13.MAR.2020 14:12:43

Cellular Band, Left Band Edge for HSUPA (BPSK) Mode



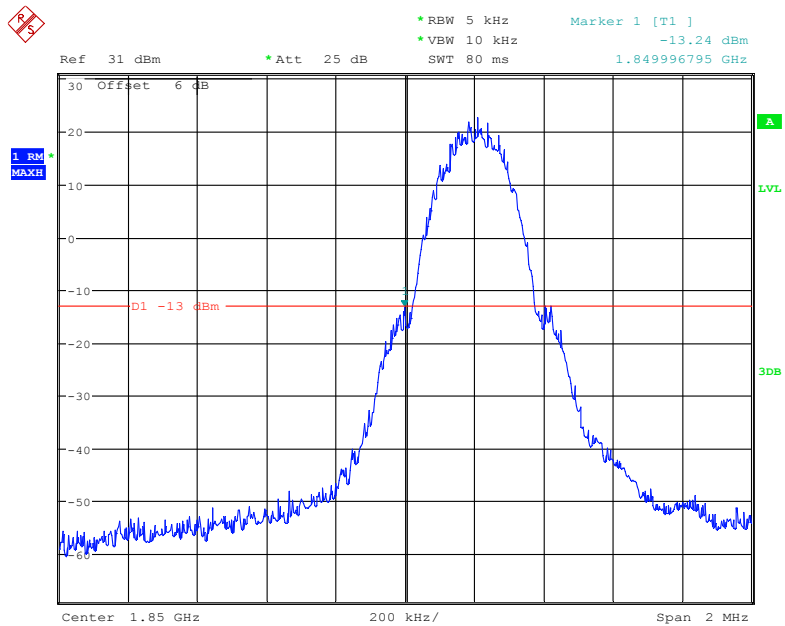
Date: 13.MAR.2020 14:03:58

Cellular Band, Right Band Edge for HSUPA (BPSK) Mode



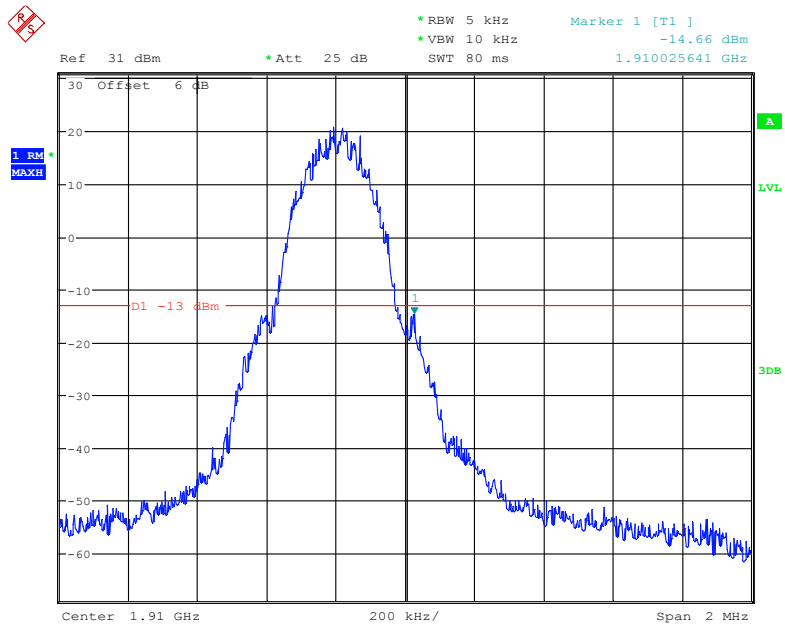
Date: 13.MAR.2020 14:04:27

PCS Band, Left Band Edge for GSM (GMSK) Mode



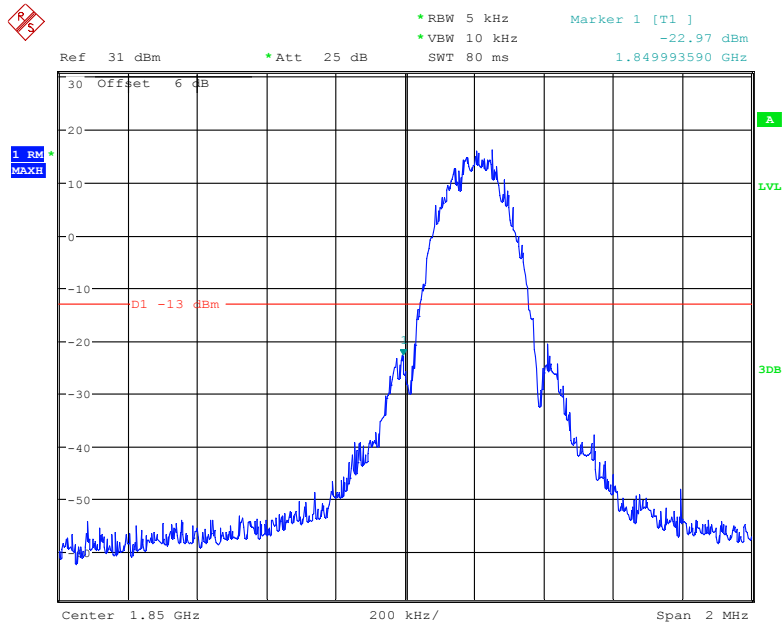
Date: 12.MAR.2020 16:35:56

PCS Band, Right Band Edge for GSM (GMSK) Mode



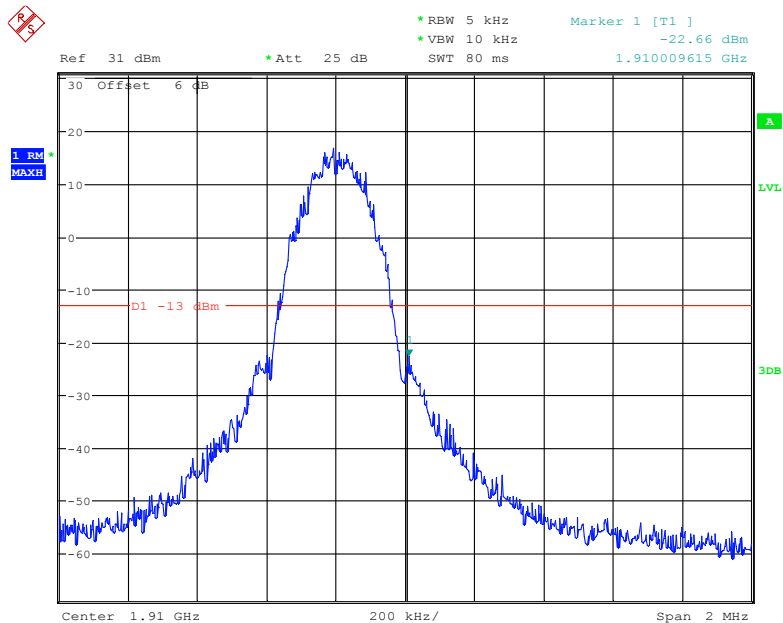
Date: 12.MAR.2020 16:37:31

PCS Band, Left Band Edge for EDGE Mode



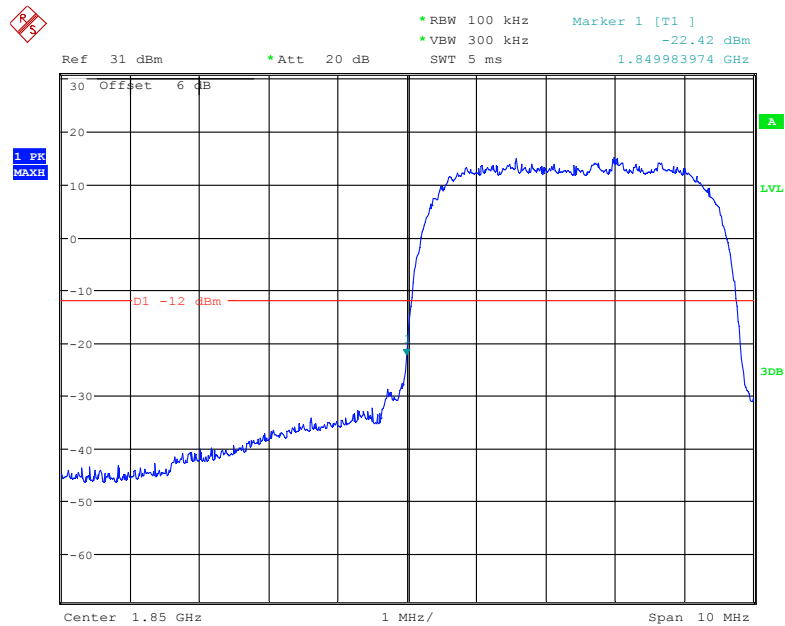
Date: 12.MAR.2020 16:40:56

PCS Band, Right Band Edge for EDGE Mode



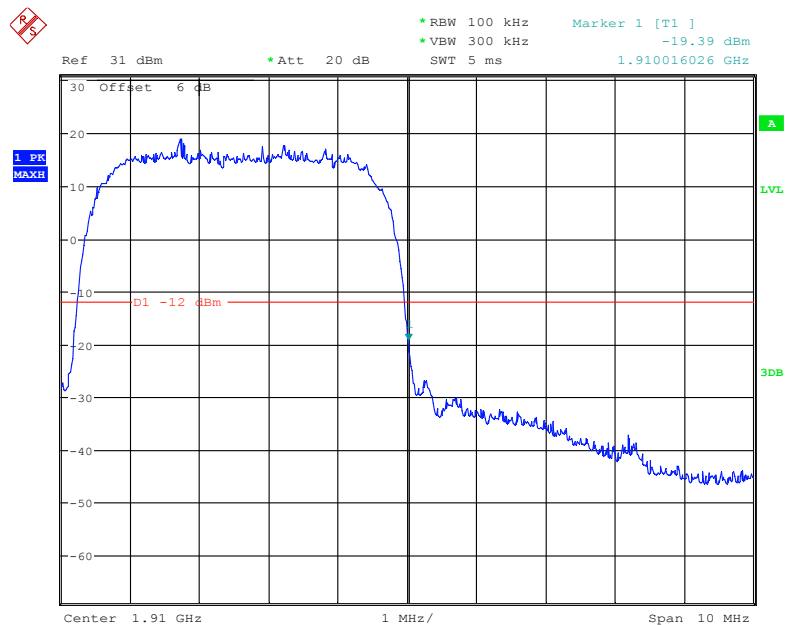
Date: 12.MAR.2020 16:40:02

PCS Band, Left Band Edge for WCDMA (BPSK) Mode



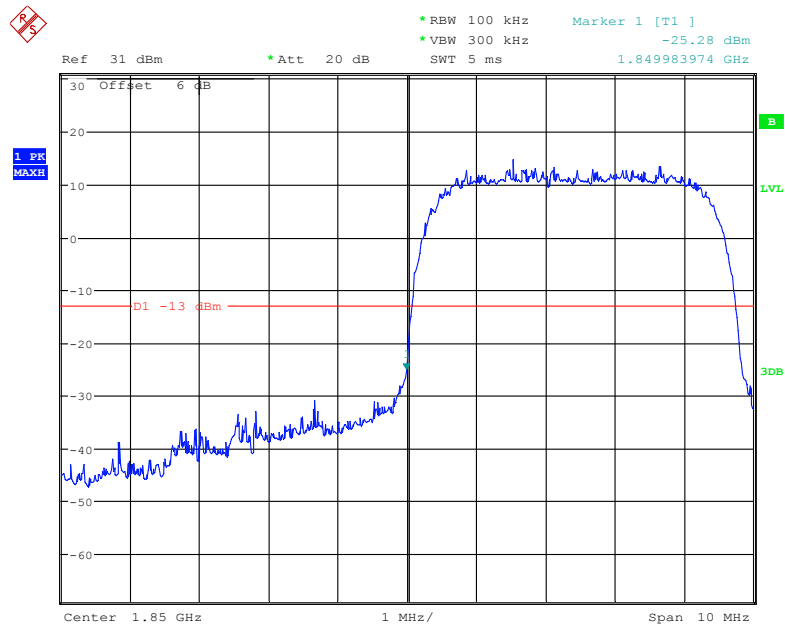
Date: 13.MAR.2020 13:11:08

PCS Band, Right Band Edge for WCDMA (BPSK) Mode



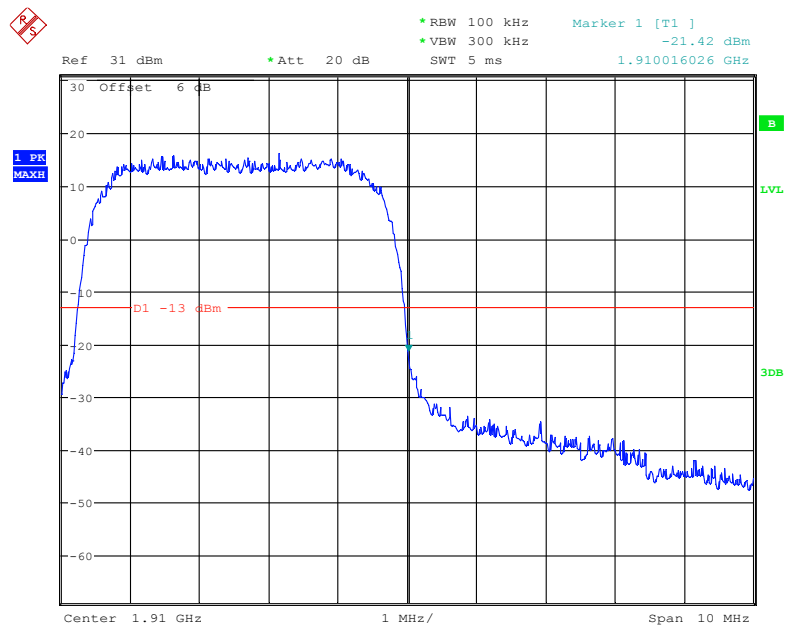
Date: 13.MAR.2020 13:12:32

PCS Band, Left Band Edge for HSDPA (16QAM) Mode



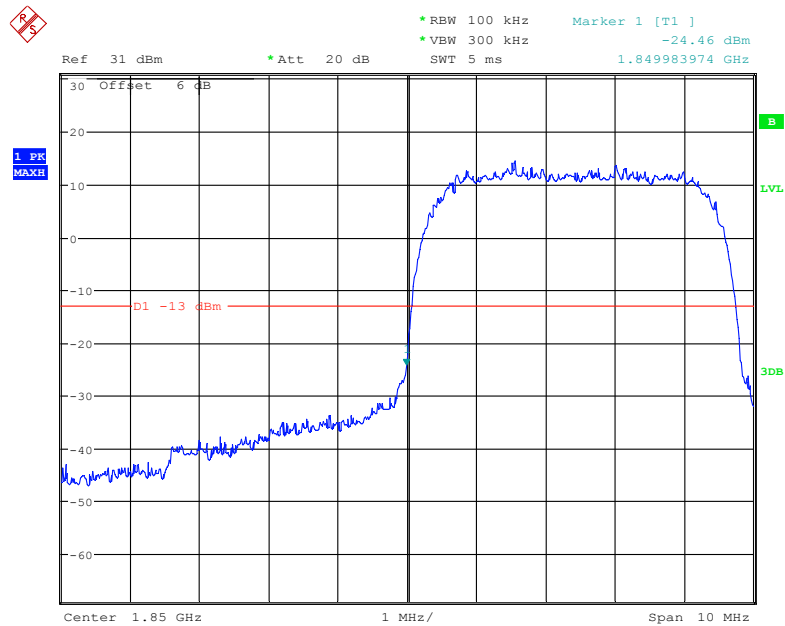
Date: 13.MAR.2020 13:56:14

PCS Band, Right Band Edge for HSDPA (16QAM) Mode



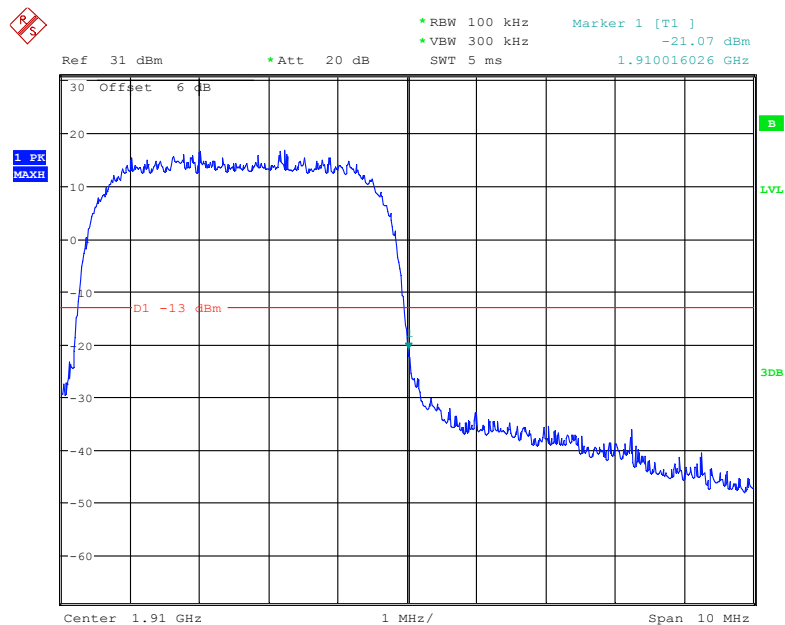
Date: 13.MAR.2020 13:57:09

PCS Band, Left Band Edge for HSUPA (BPSK) Mode



Date: 13.MAR.2020 14:01:47

PCS Band, Right Band Edge for HSUPA (BPSK) Mode



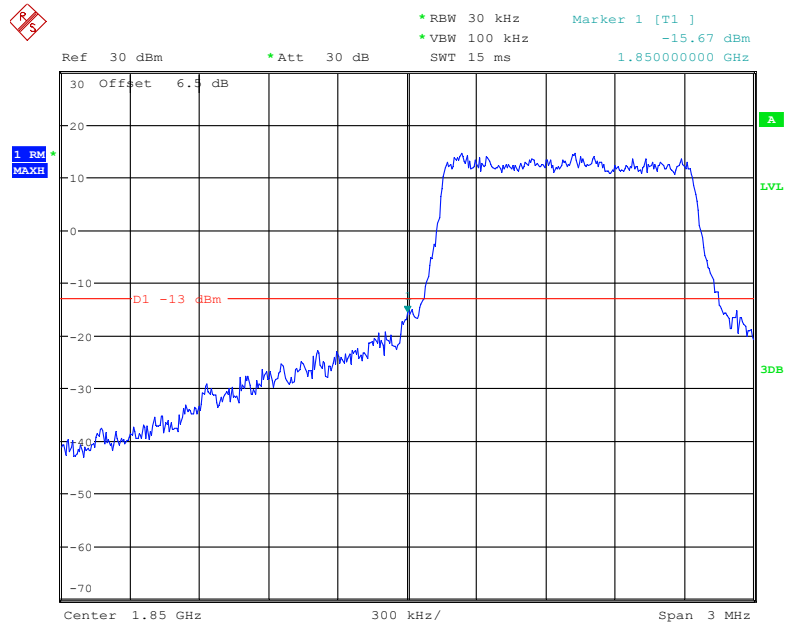
Date: 13.MAR.2020 14:02:18

QPSK (1.4 MHz, FULL RB) - Left Band Edge



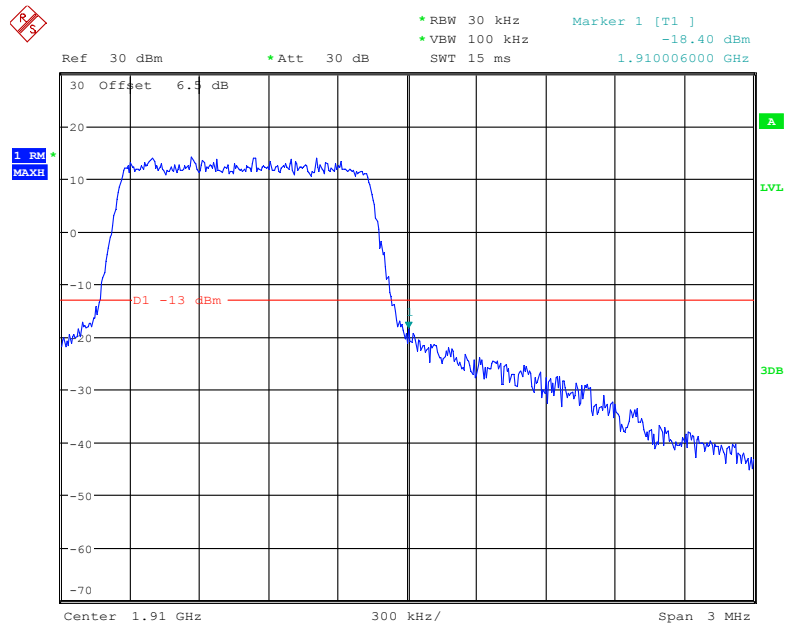
Date: 12.MAR.2020 19:50:34

16-QAM (1.4 MHz, FULL RB) - Left Band Edge



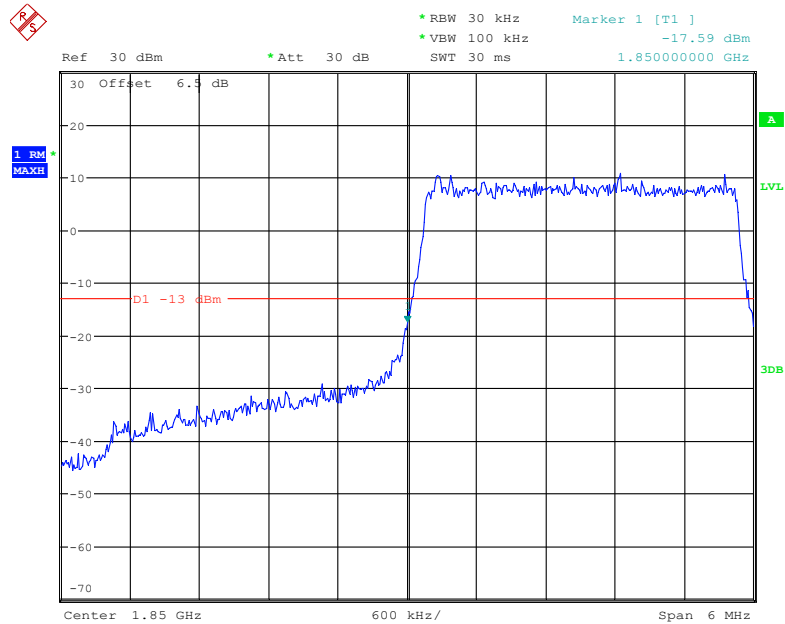
Date: 12.MAR.2020 19:49:37

16-QAM (1.4 MHz, FULL RB) - Right Band Edge



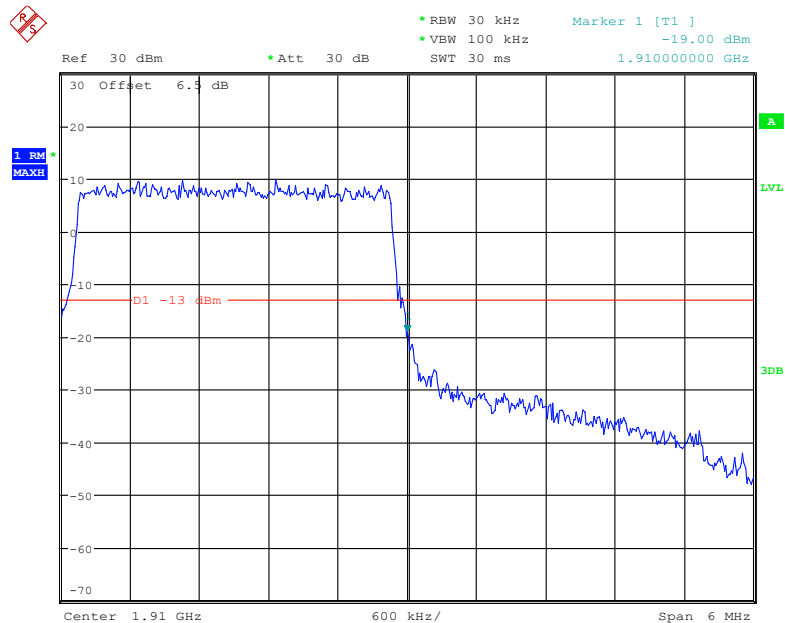
Date: 12.MAR.2020 19:50:55

QPSK (3.0 MHz, FULL RB) - Left Band Edge



Date: 12.MAR.2020 19:51:14

QPSK (3.0 MHz, FULL RB) - Right Band Edge



Date: 12.MAR.2020 19:51:52

Ref 30 dBm * Att 30 dB

* RBW 30 kHz * VBW 100 kHz * Marker 1 [T1] -18.90 dBm
SWT 30 ms 1.850000000 GHz

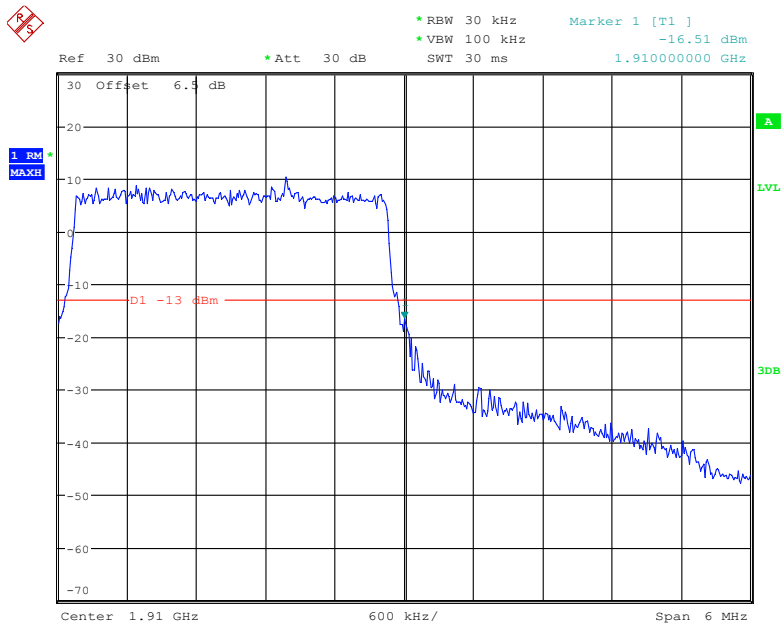
30 Offset 6.3 dB

1 RM MAXH

D1 -13 dBm

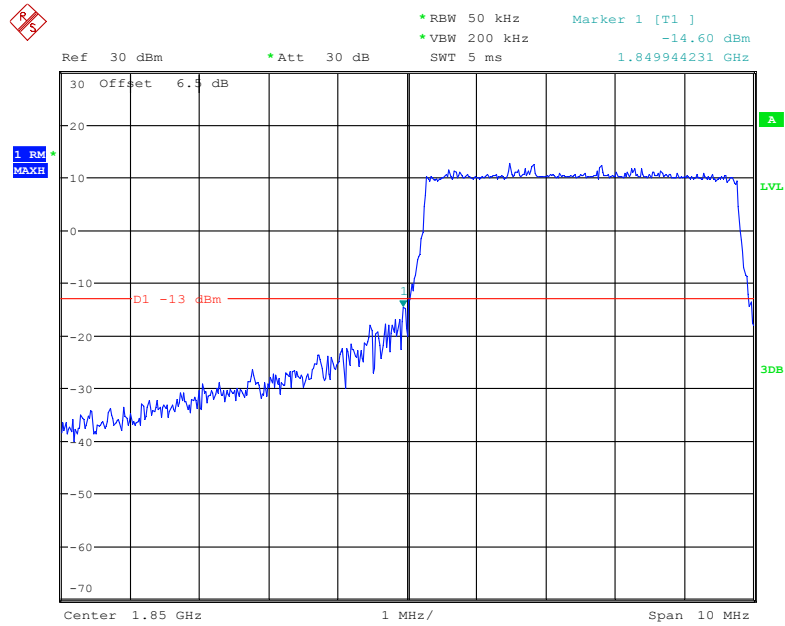
Center 1.85 GHz 600 kHz/ Span 6 MHz

16-QAM (3.0 MHz, FULL RB) - Right Band Edge



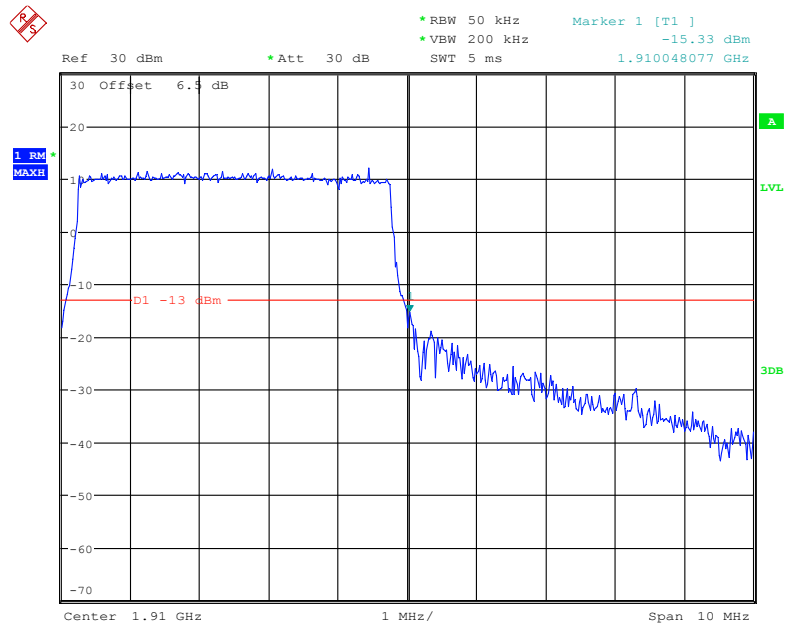
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QPSK (5.0 MHz, FULL RB) - Left Band Edge



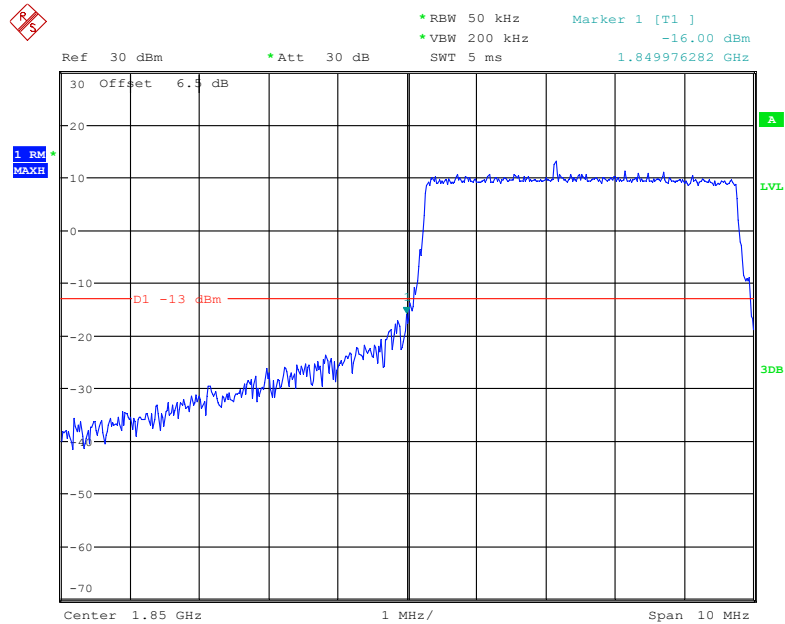
Date: 13.MAR.2020 23:56:46

QPSK (5.0 MHz, FULL RB) - Right Band Edge



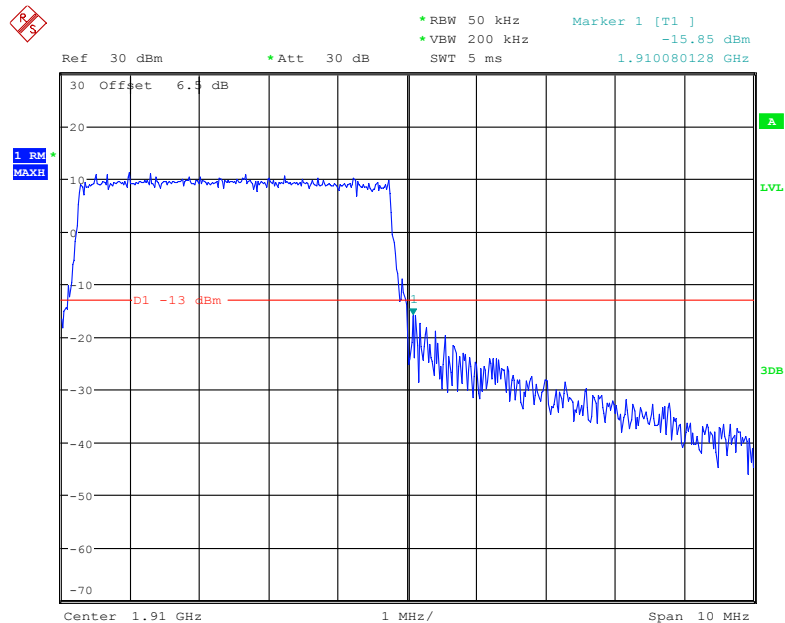
Date: 13.MAR.2020 23:57:49

16-QAM (5.0 MHz, FULL RB) - Left Band Edge



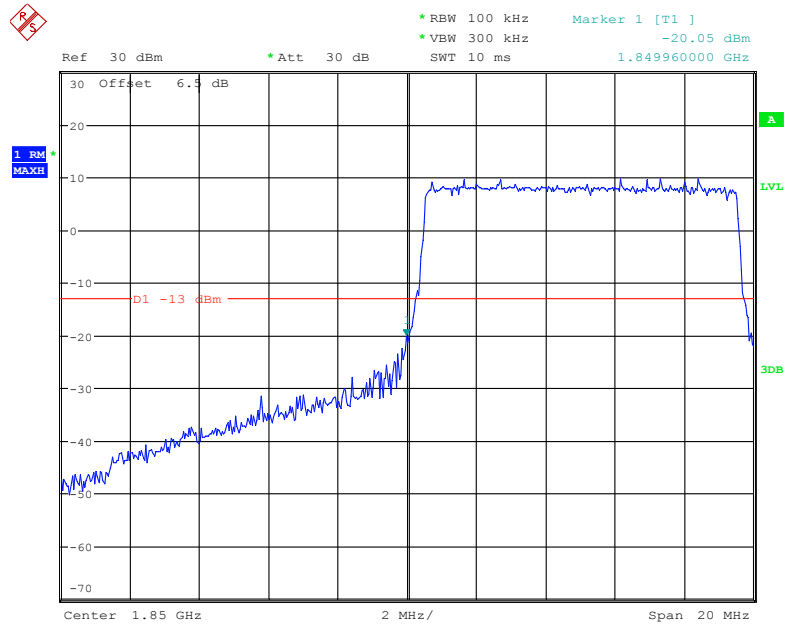
Date: 13.MAR.2020 23:55:55

16-QAM (5.0 MHz, FULL RB) - Right Band Edge



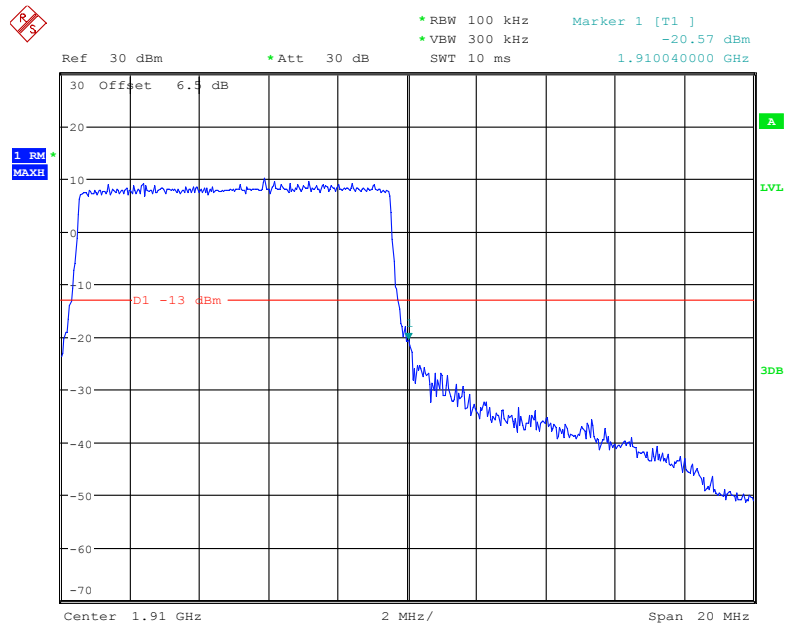
Date: 13.MAR.2020 23:58:37

QPSK (10.0 MHz, FULL RB) - Left Band Edge



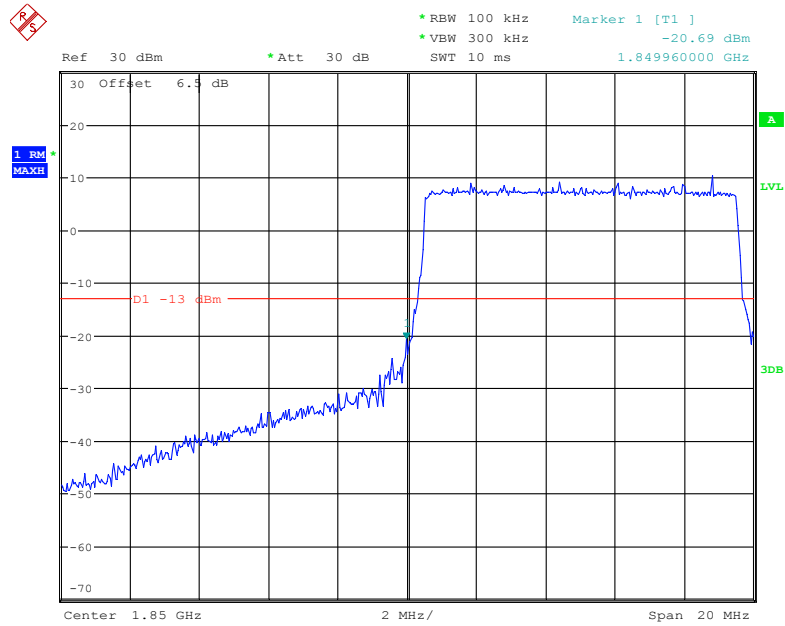
Date: 12.MAR.2020 19:54:02

QPSK (10.0 MHz, FULL RB) - Right Band Edge



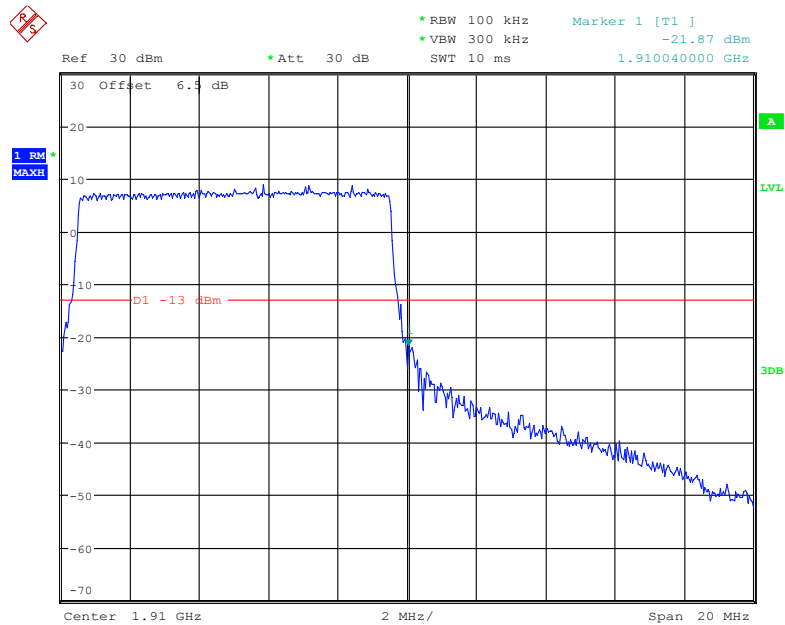
Date: 12.MAR.2020 19:54:43

16-QAM (10.0 MHz, FULL RB) - Left Band Edge



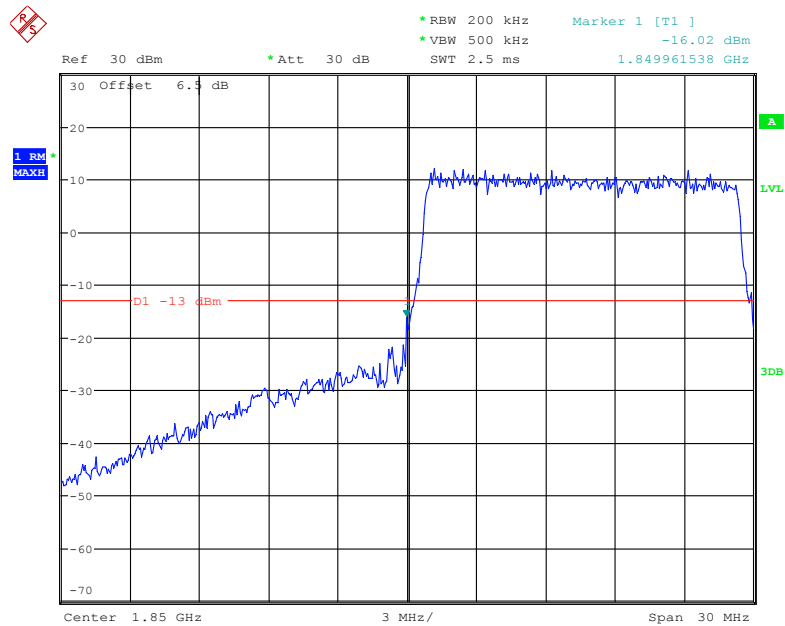
Date: 12.MAR.2020 19:54:22

16-QAM (10.0 MHz, FULL RB) - Right Band Edge



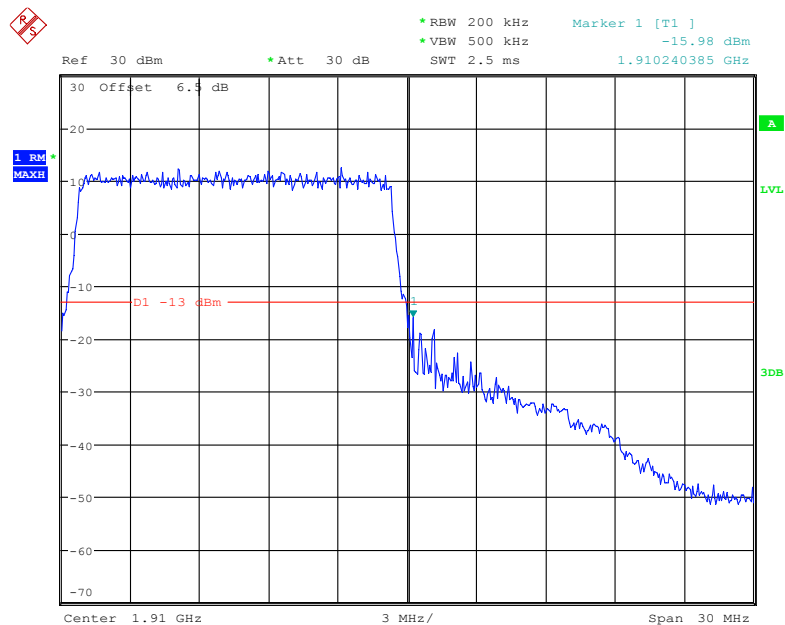
Date: 12.MAR.2020 19:55:02

QPSK (15.0 MHz, FULL RB) - Left Band Edge



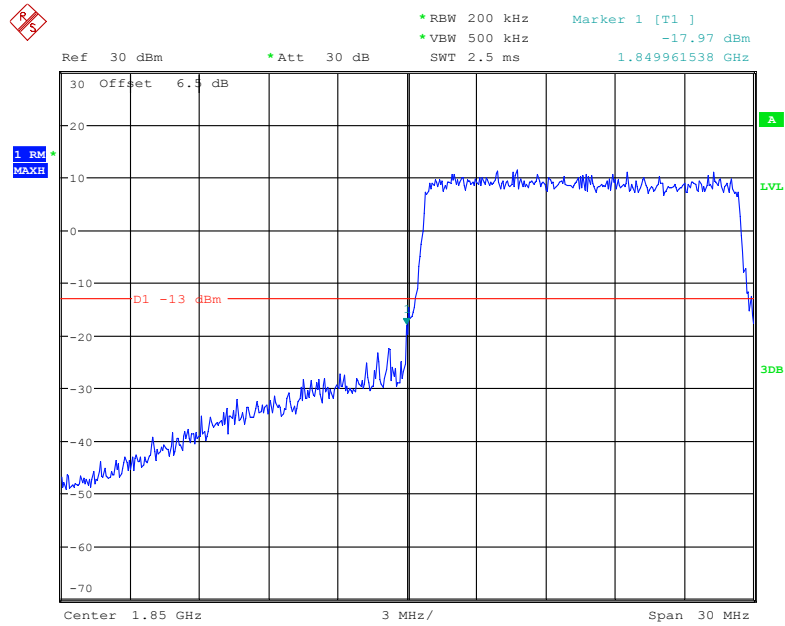
Date: 14.MAR.2020 00:02:27

QPSK (15.0 MHz, FULL RB) - Right Band Edge



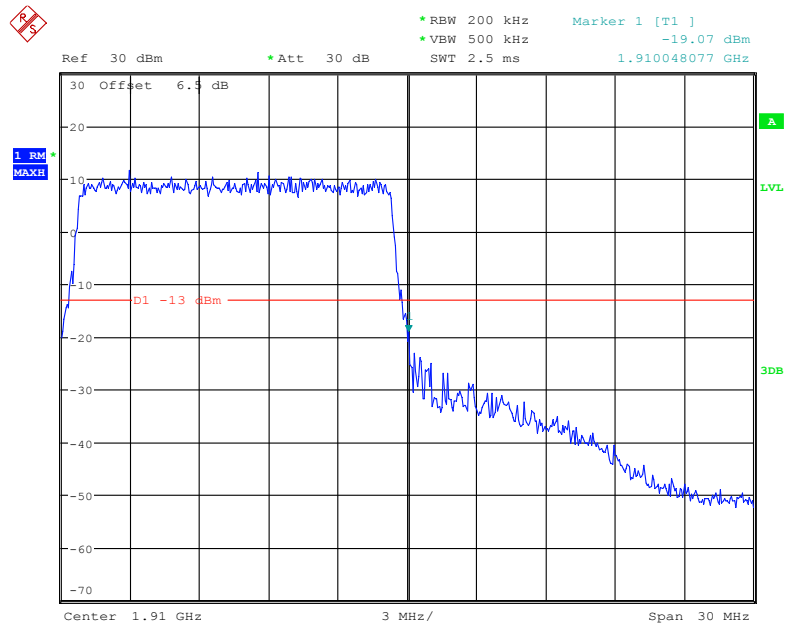
Date: 14.MAR.2020 00:03:53

16-QAM (15.0 MHz, FULL RB) - Left Band Edge



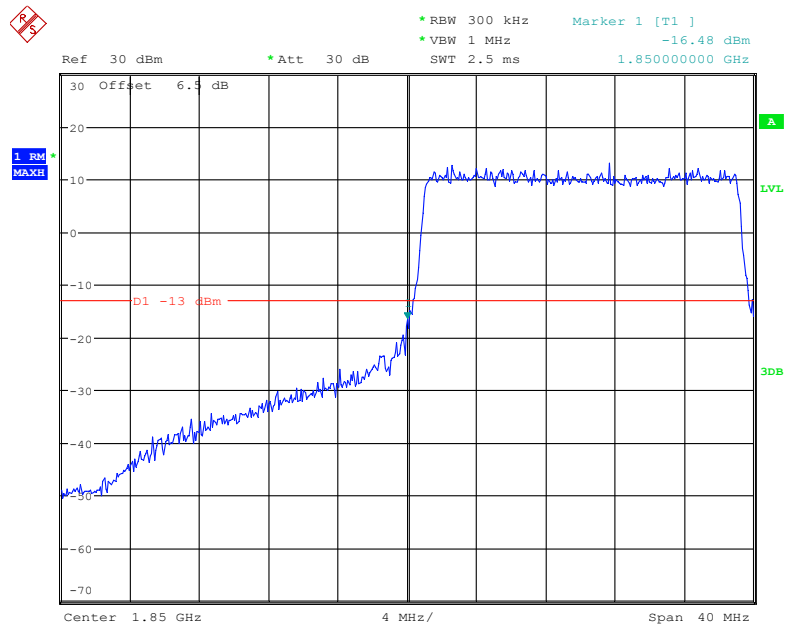
Date: 14.MAR.2020 00:02:59

16-QAM (15.0 MHz, FULL RB) - Right Band Edge



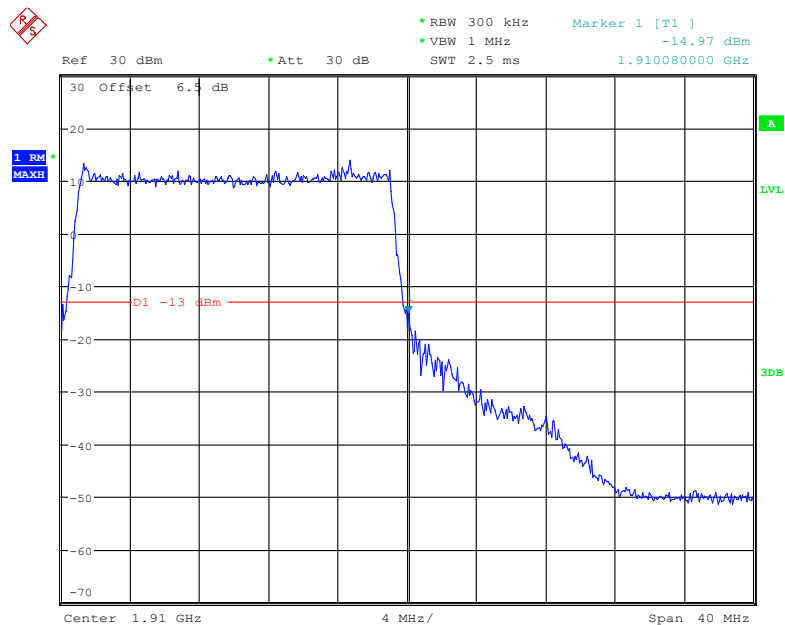
Date: 14.MAR.2020 00:04:17

QPSK (20.0 MHz, FULL RB) - Left Band Edge



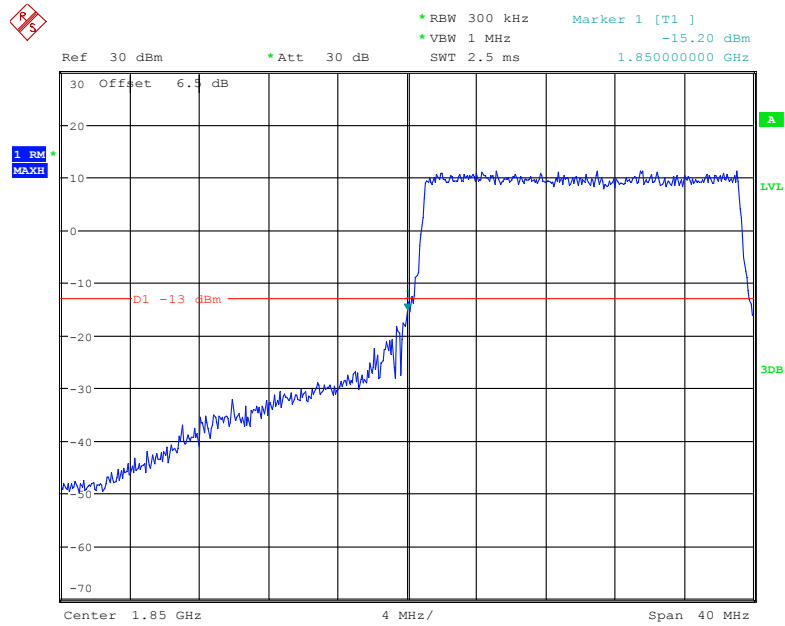
Date: 12.MAR.2020 19:57:05

QPSK (20.0 MHz, FULL RB) - Right Band Edge



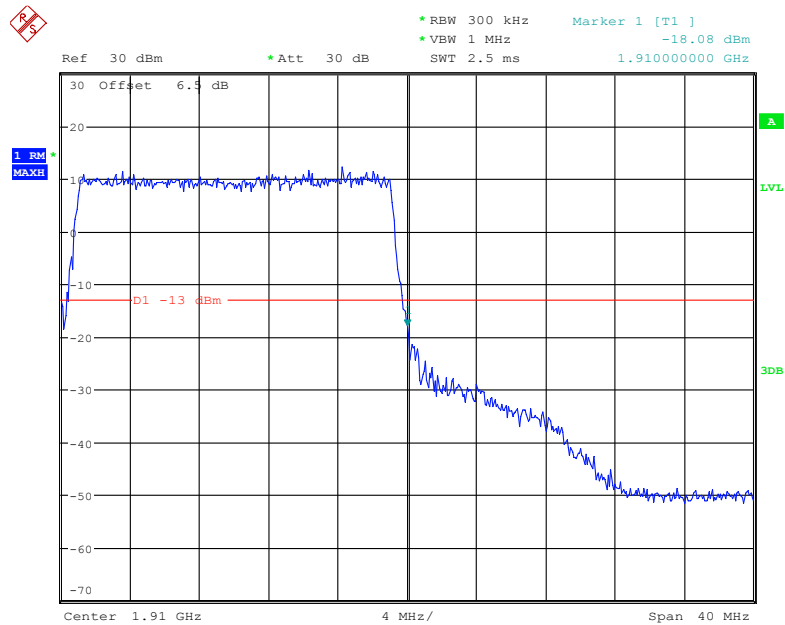
Date: 12.MAR.2020 19:57:52

16-QAM (20.0 MHz, FULL RB) - Left Band Edge



Date: 12.MAR.2020 19:57:28

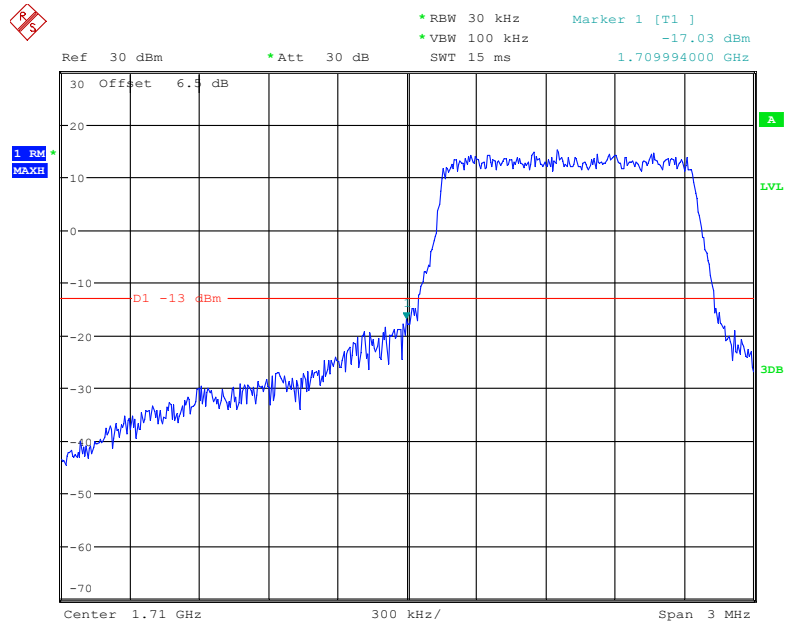
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 12.MAR.2020 19:58:11

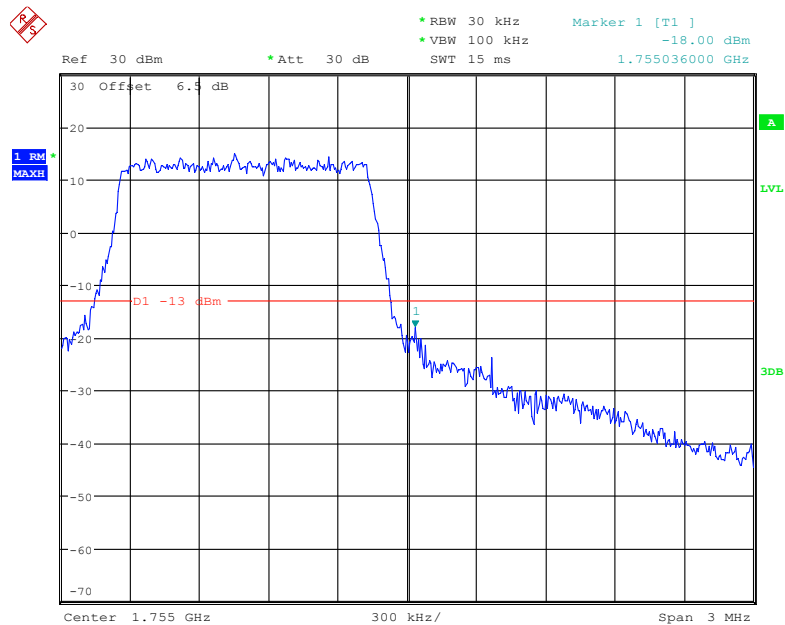
Band 4:

QPSK (1.4 MHz, FULL RB) - Left Band Edge



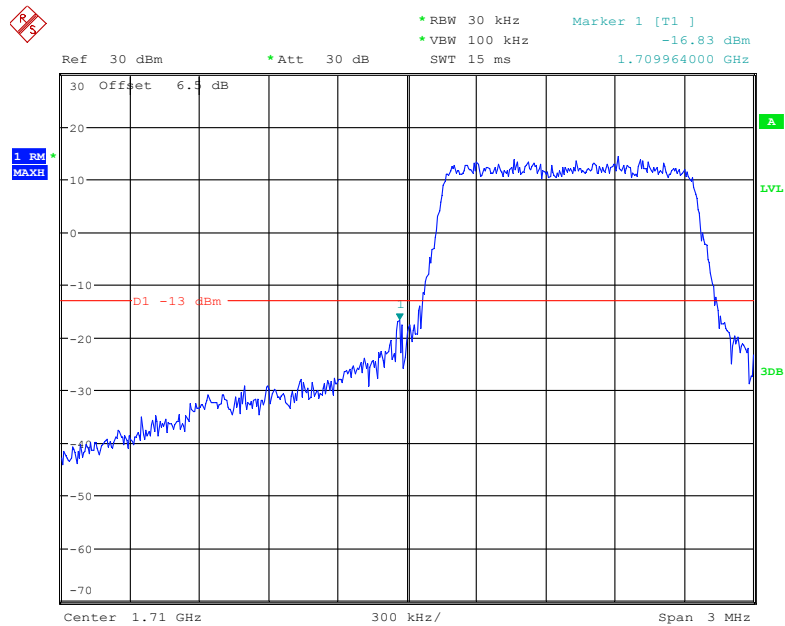
Date: 12.MAR.2020 19:58:33

QPSK (1.4 MHz, FULL RB) - Right Band Edge



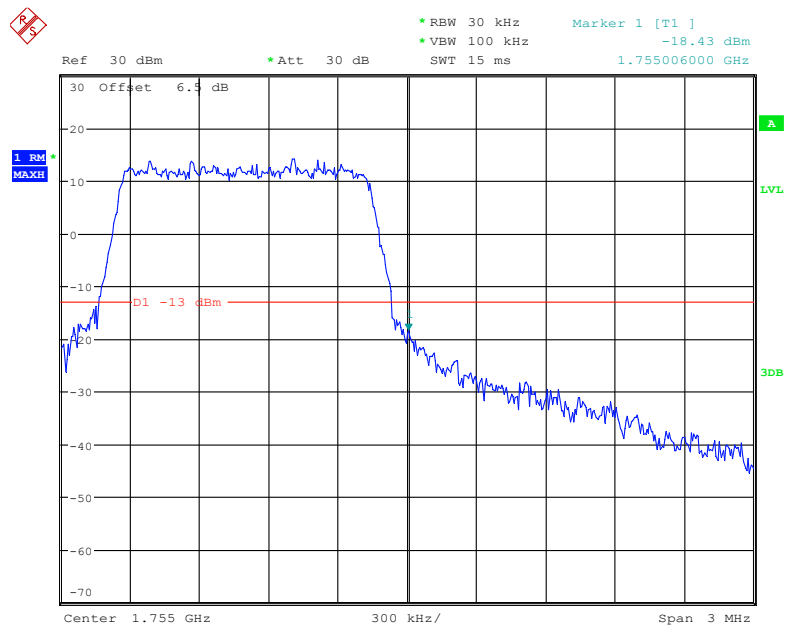
Date: 12.MAR.2020 19:59:48

16-QAM (1.4 MHz, FULL RB) - Left Band Edge



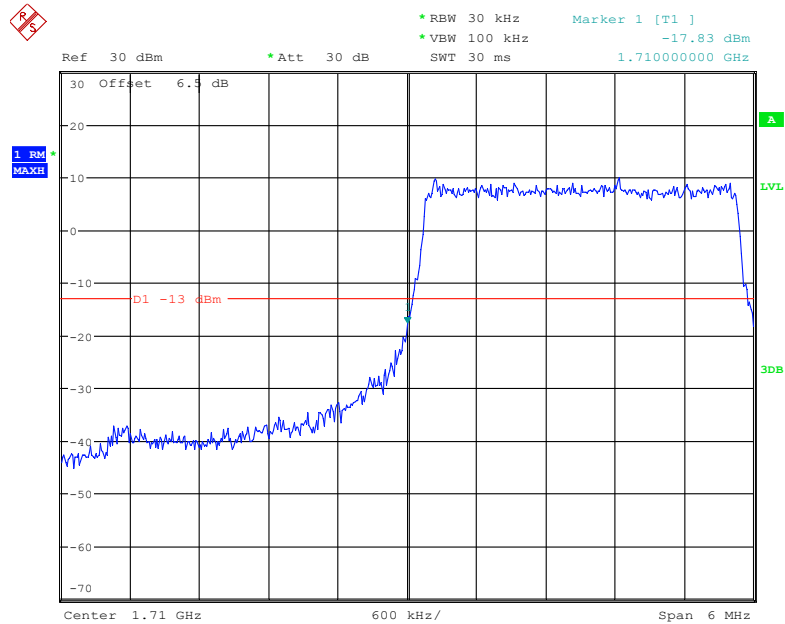
Date: 12.MAR.2020 19:58:52

16-QAM (1.4 MHz, FULL RB) - Right Band Edge



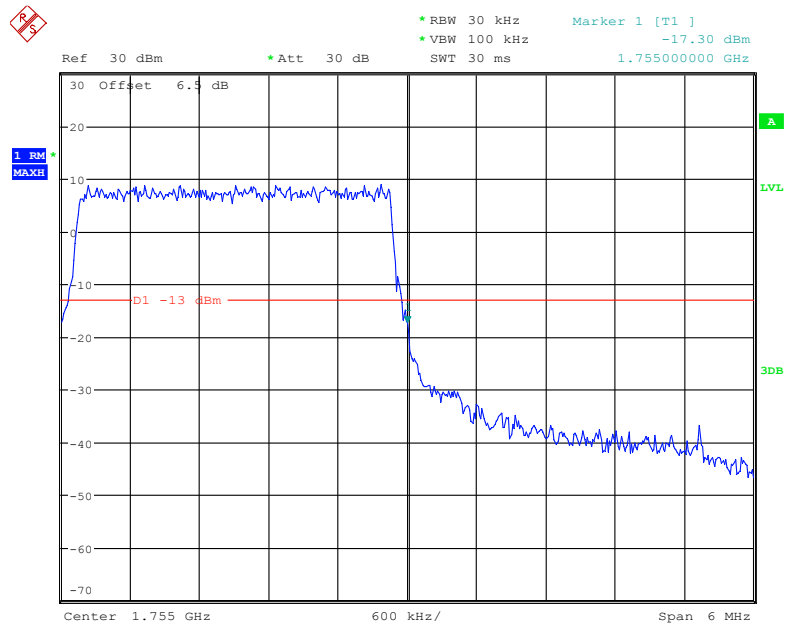
Date: 12.MAR.2020 20:00:07

QPSK (3.0 MHz, FULL RB) - Left Band Edge



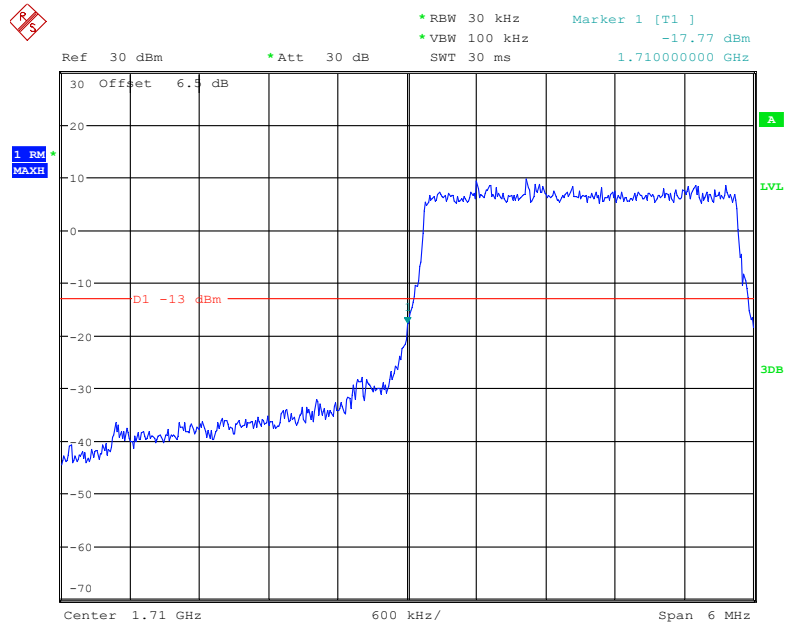
Date: 12.MAR.2020 20:00:25

QPSK (3.0 MHz, FULL RB) - Right Band Edge



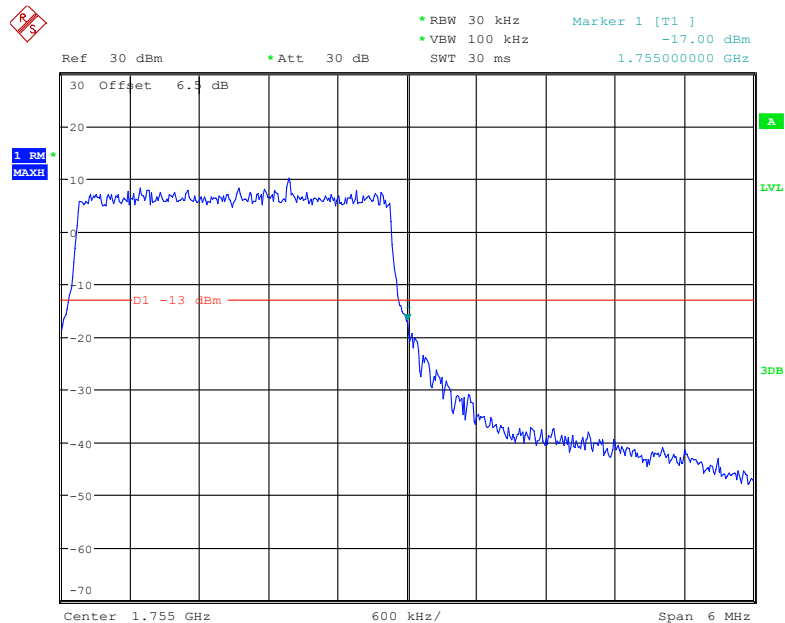
Date: 12.MAR.2020 20:01:00

16-QAM (3.0 MHz, FULL RB) - Left Band Edge



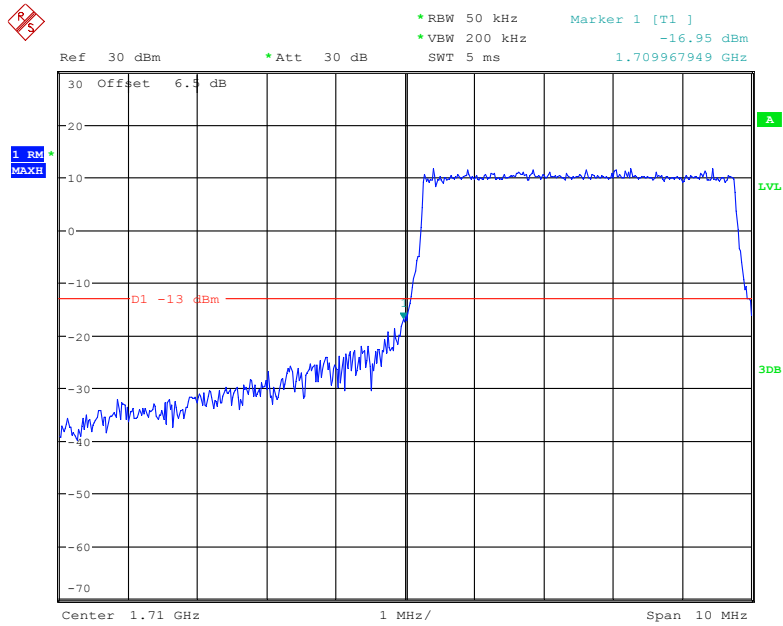
Date: 12.MAR.2020 20:00:44

16-QAM (3.0 MHz, FULL RB) - Right Band Edge



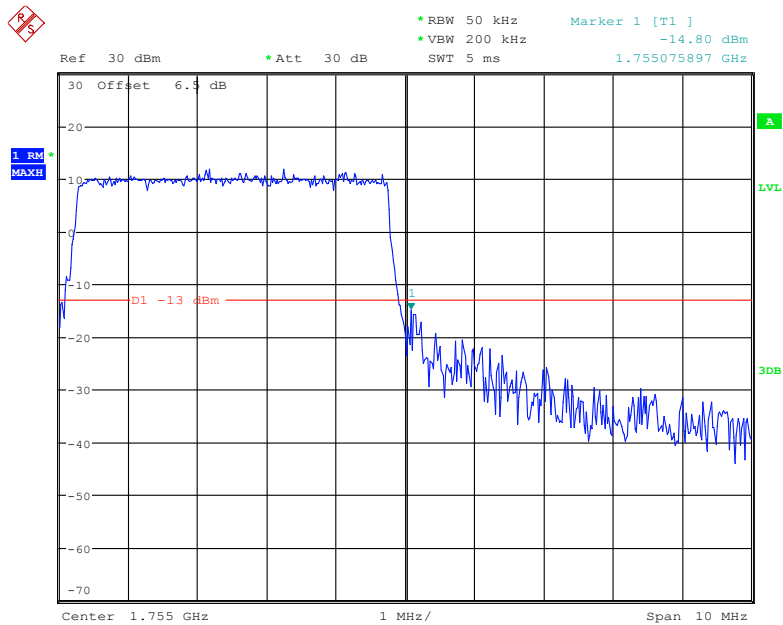
Date: 12.MAR.2020 20:01:16

QPSK (5.0 MHz, FULL RB) - Left Band Edge



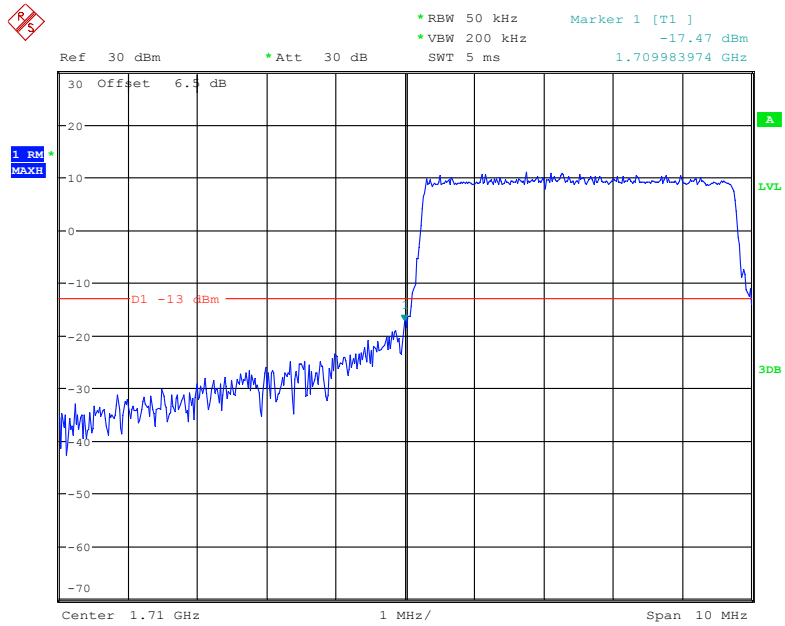
Date: 14.MAR.2020 00:06:08

QPSK (5.0 MHz, FULL RB) - Right Band Edge



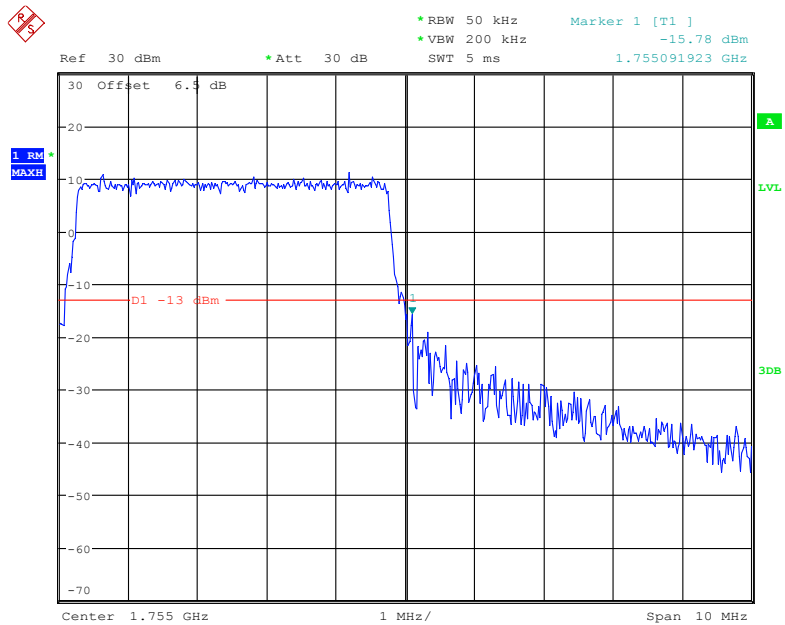
Date: 14.MAR.2020 00:07:21

16-QAM (5.0 MHz, FULL RB) - Left Band Edge



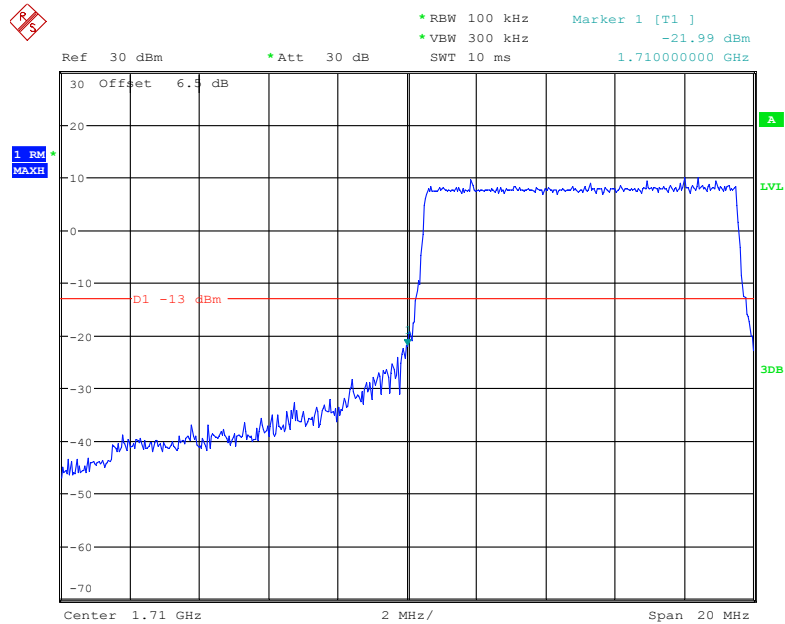
Date: 14.MAR.2020 00:06:43

16-QAM (5.0 MHz, FULL RB) - Right Band Edge



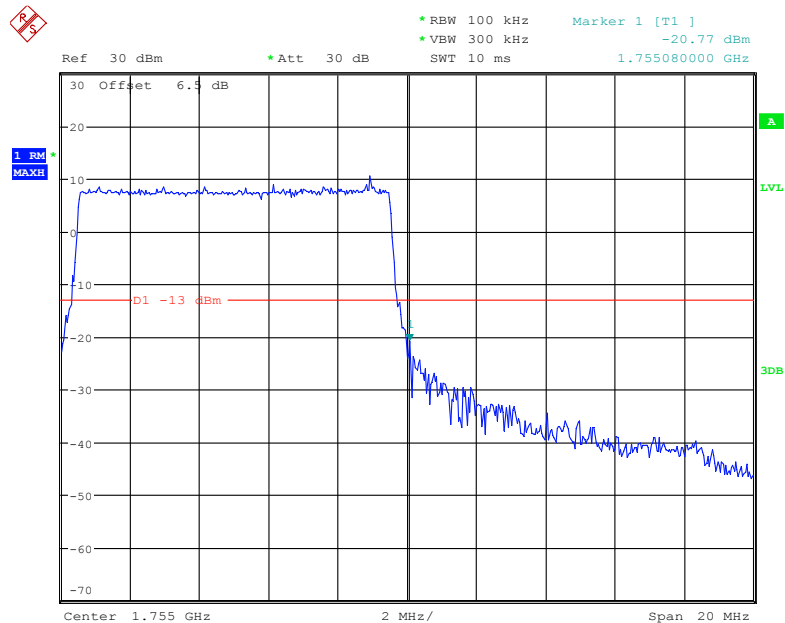
Date: 14.MAR.2020 00:07:50

QPSK (10.0 MHz, FULL RB) - Left Band Edge



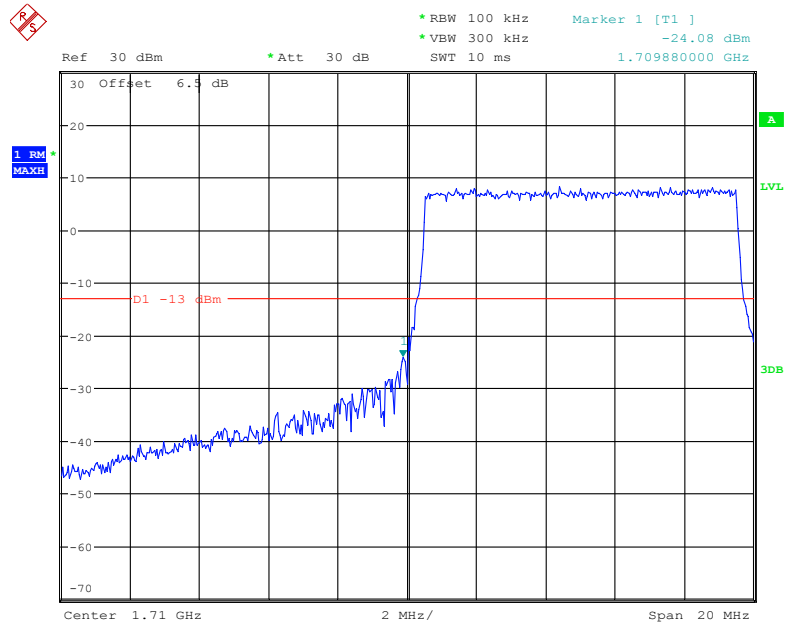
Date: 12.MAR.2020 20:03:23

QPSK (10.0 MHz, FULL RB) - Right Band Edge



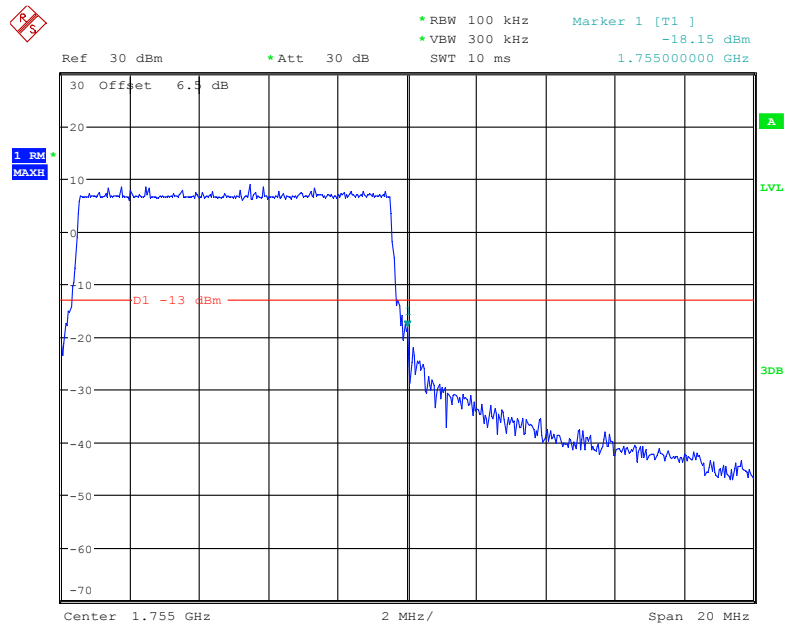
Date: 12.MAR.2020 20:04:00

16-QAM (10.0 MHz, FULL RB) - Left Band Edge



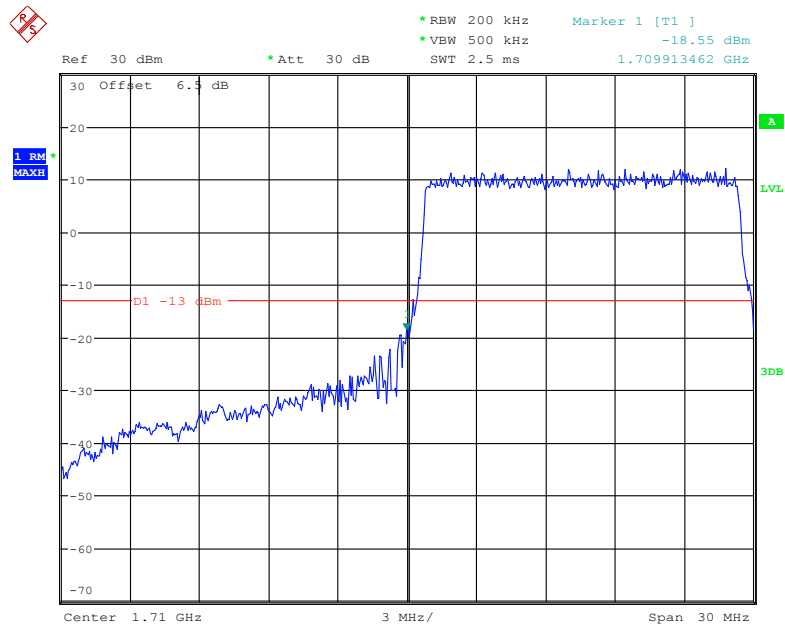
Date: 12.MAR.2020 20:03:40

16-QAM (10.0 MHz, FULL RB) - Right Band Edge



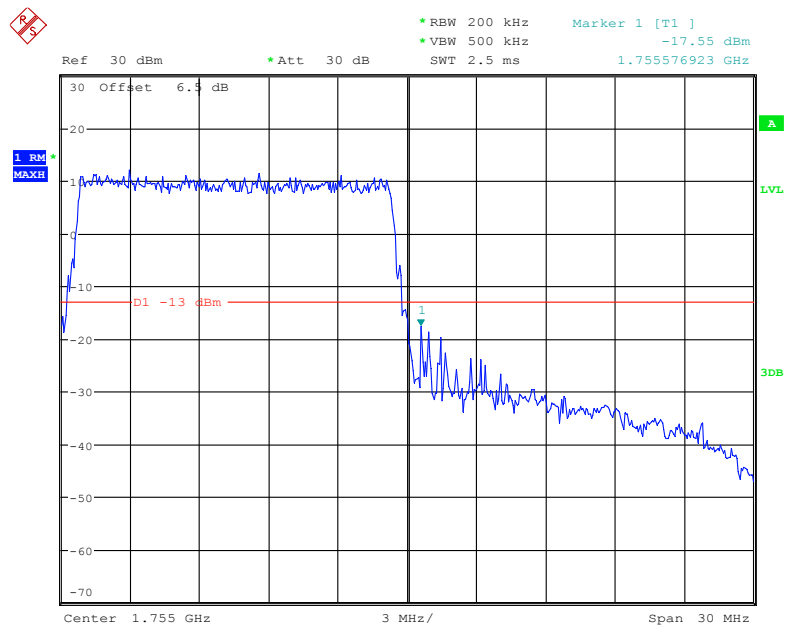
Date: 12.MAR.2020 20:04:20

QPSK (15.0 MHz, FULL RB) - Left Band Edge



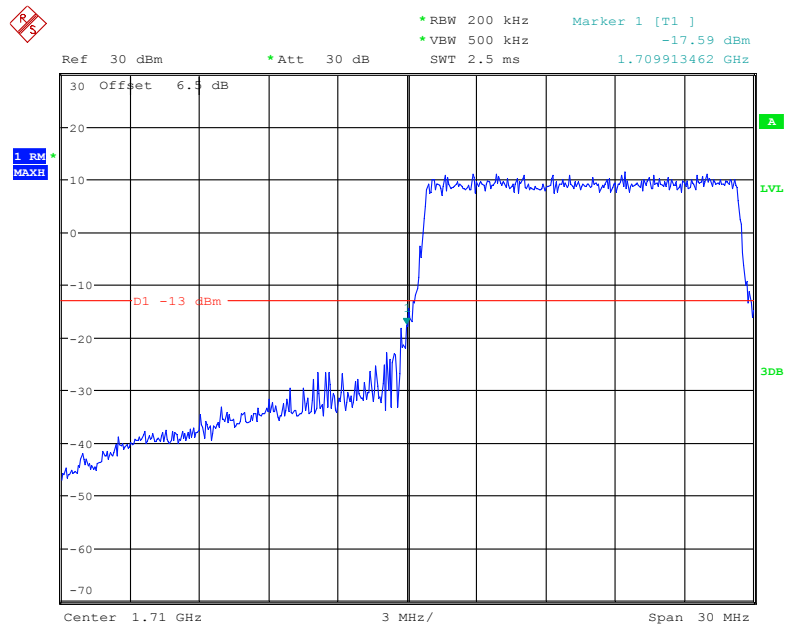
Date: 14.MAR.2020 00:09:42

QPSK (15.0 MHz, FULL RB) - Right Band Edge



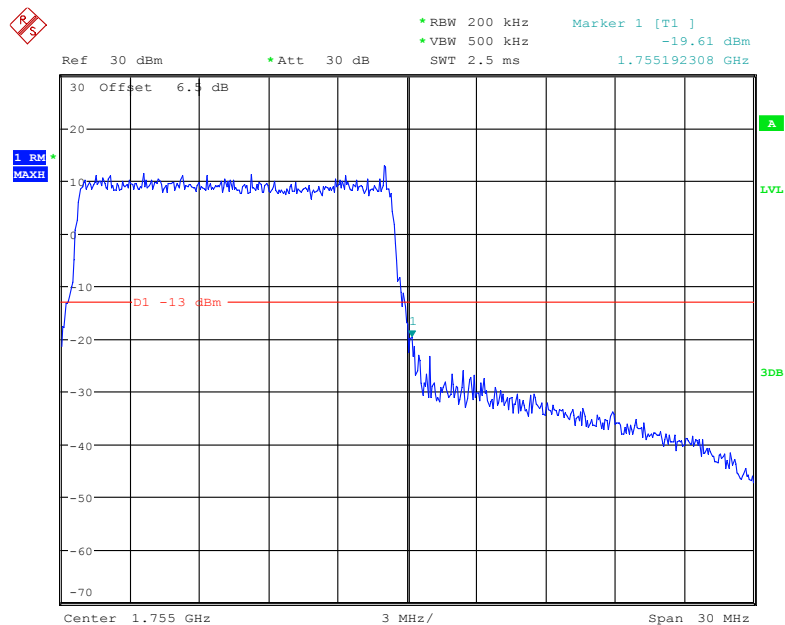
Date: 14.MAR.2020 00:11:24

16-QAM (15.0 MHz, FULL RB) - Left Band Edge



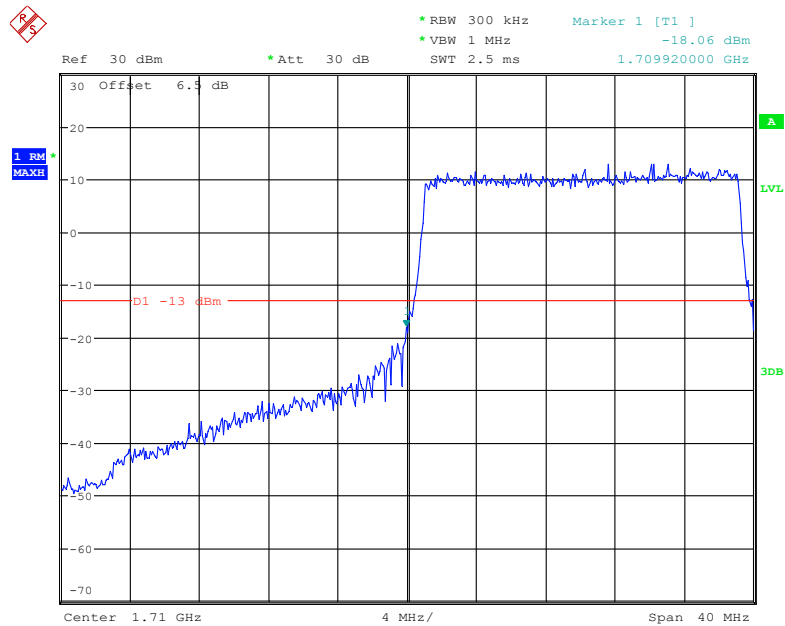
Date: 14.MAR.2020 00:10:34

16-QAM (15.0 MHz, FULL RB) - Right Band Edge



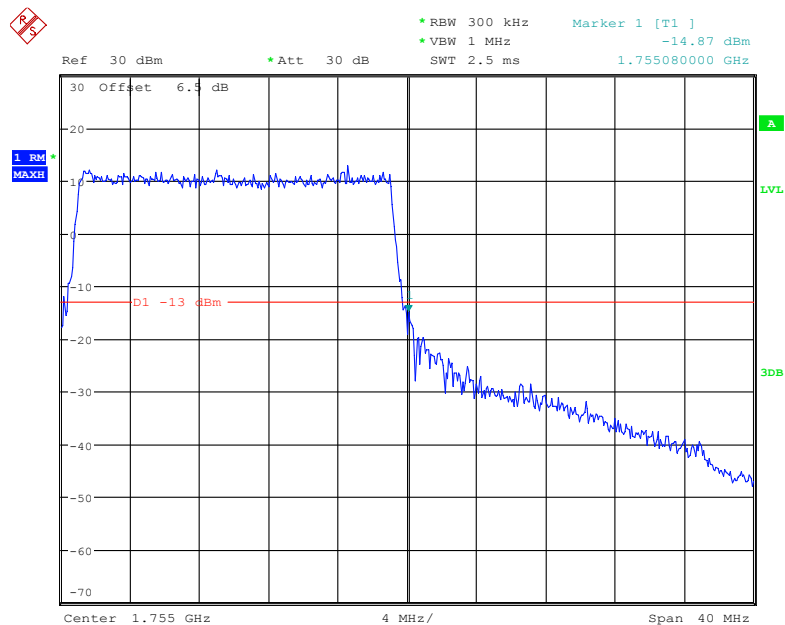
Date: 14.MAR.2020 00:11:54

QPSK (20.0 MHz, FULL RB) - Left Band Edge



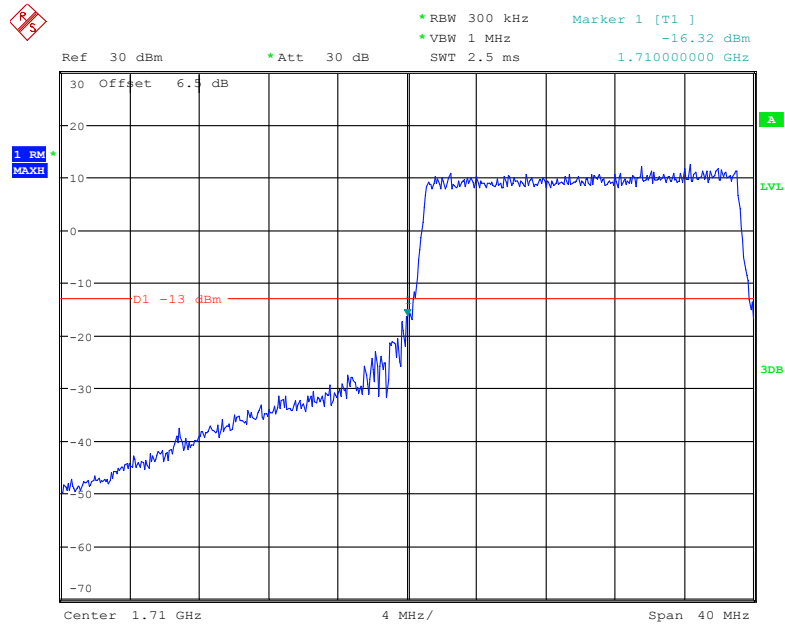
Date: 12.MAR.2020 20:06:22

QPSK (20.0 MHz, FULL RB) - Right Band Edge



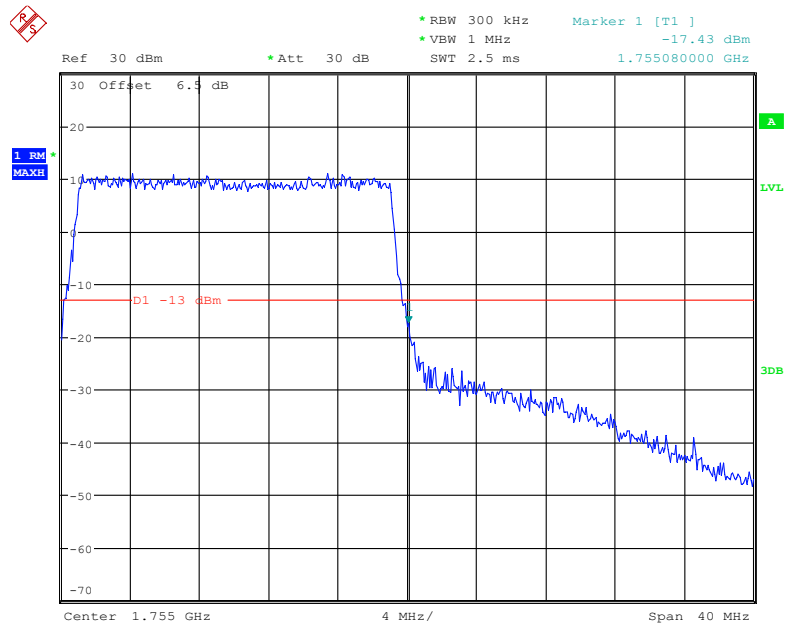
Date: 12.MAR.2020 20:07:09

16-QAM (20.0 MHz, FULL RB) - Left Band Edge



Date: 12.MAR.2020 20:06:45

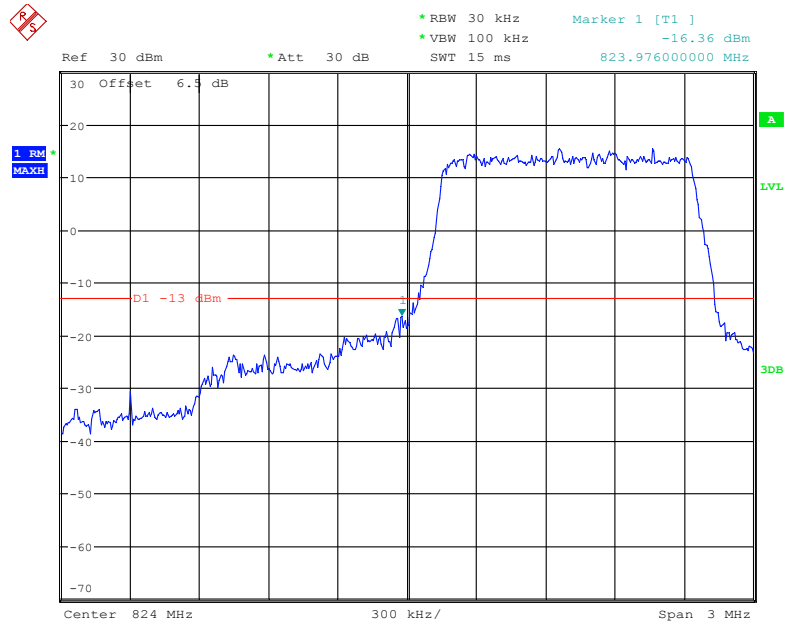
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 12.MAR.2020 20:07:32

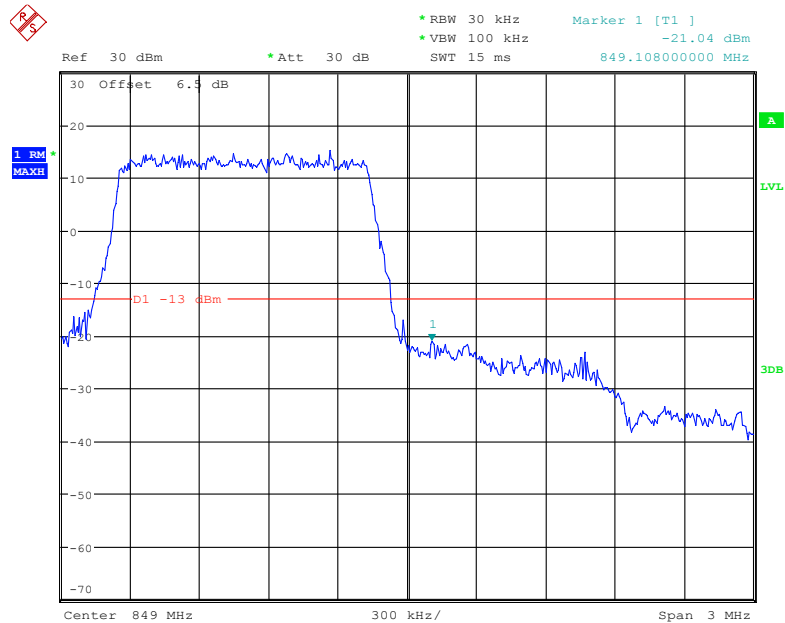
Band 5:

QPSK (1.4 MHz, FULL RB) - Left Band Edge



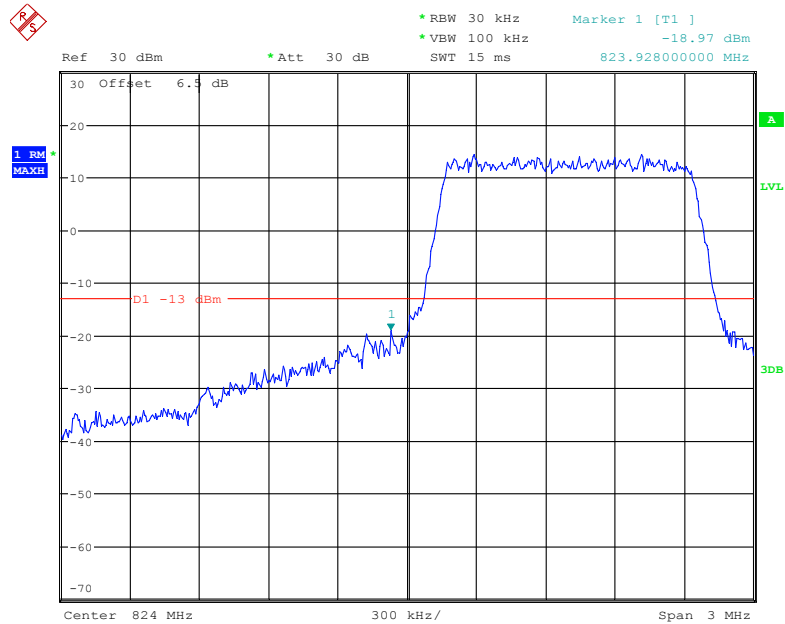
Date: 12.MAR.2020 20:07:54

QPSK (1.4 MHz, FULL RB) - Right Band Edge



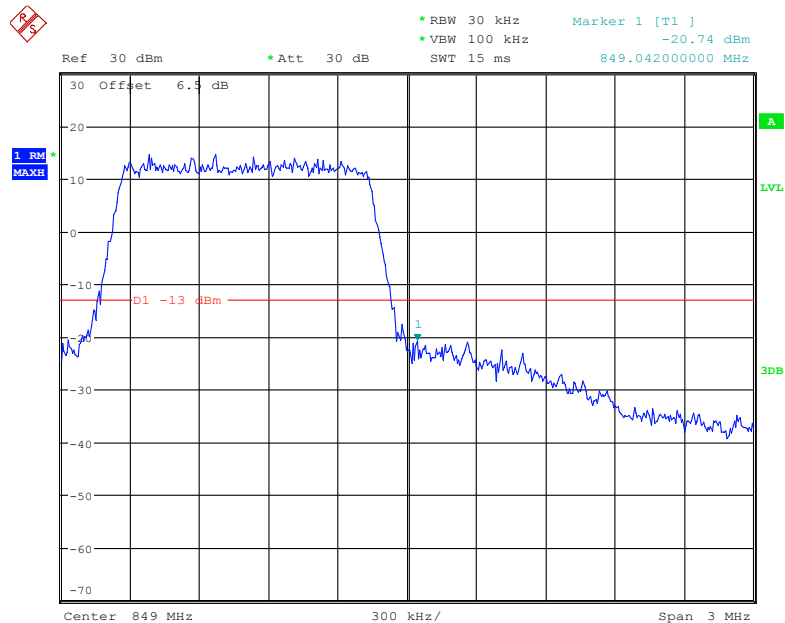
Date: 12.MAR.2020 20:08:43

16-QAM 1.4 MHz, FULL RB) - Left Band Edge

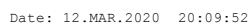


Date: 12.MAR.2020 20:08:10

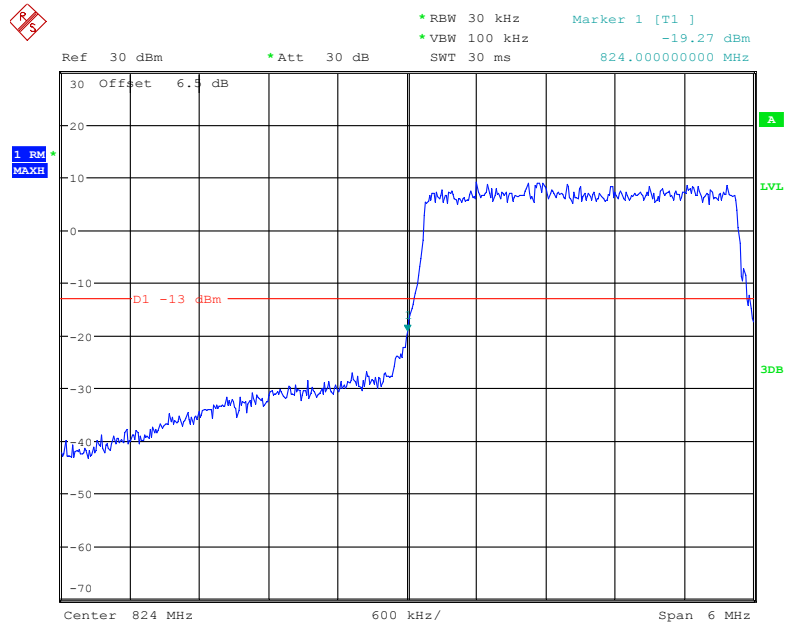
16-QAM (1.4MHz, FULL RB) - Right Band Edge



Date: 12.MAR.2020 20:08:59

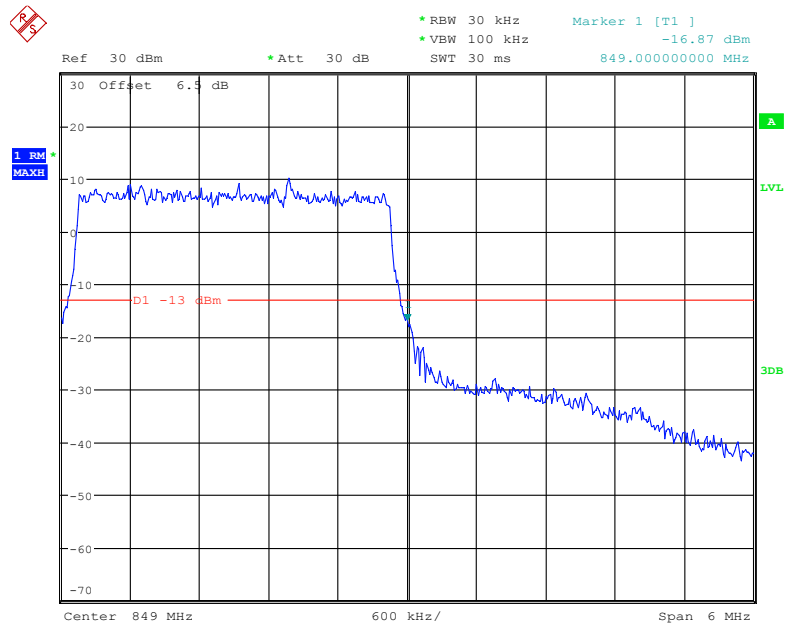


16-QAM (3.0 MHz, FULL RB) - Left Band Edge



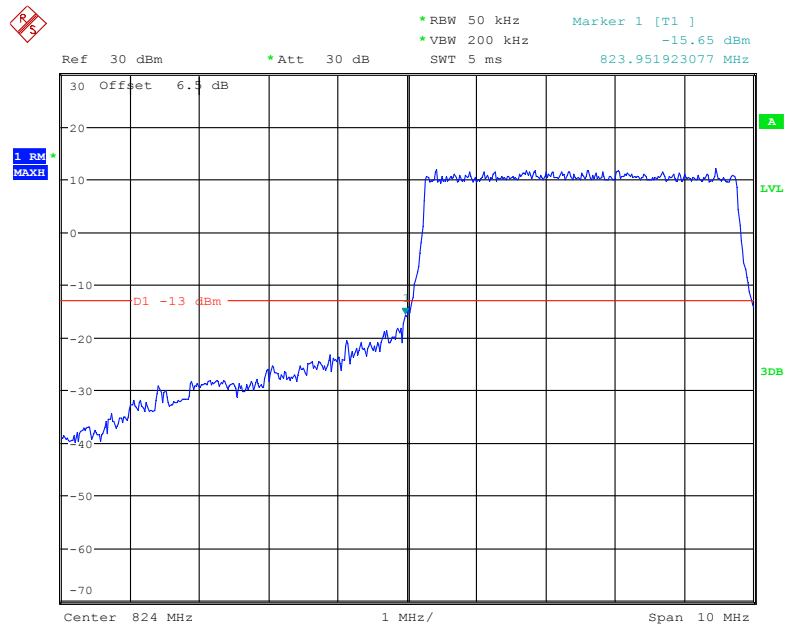
Date: 12.MAR.2020 20:09:35

16-QAM (3.0 MHz, FULL RB) - Right Band Edge



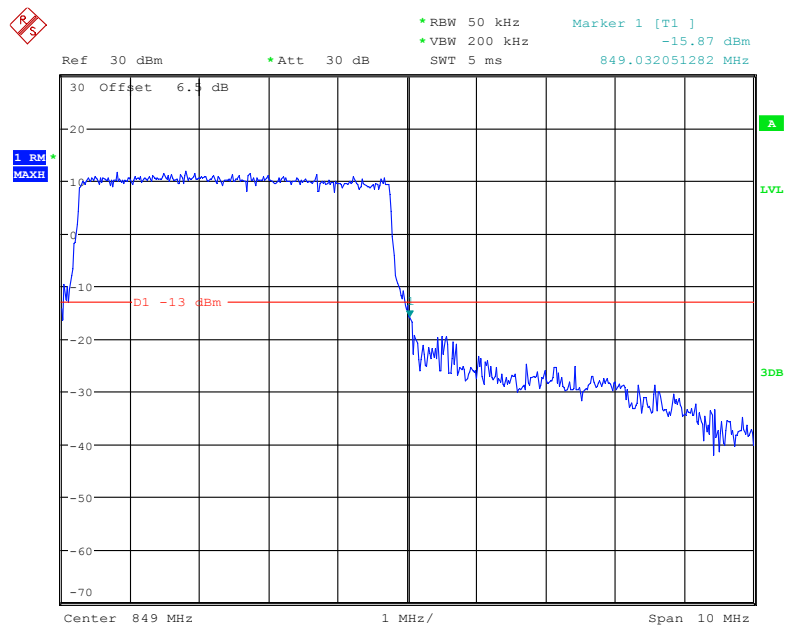
Date: 12.MAR.2020 20:10:07

QPSK (5.0 MHz, FULL RB) - Left Band Edge



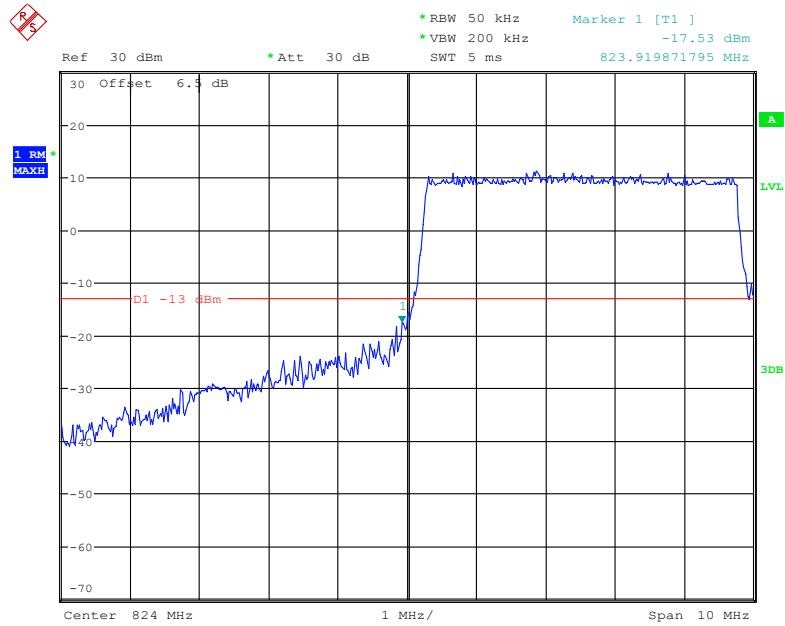
Date: 14.MAR.2020 00:14:34

QPSK (5.0 MHz, FULL RB) - Right Band Edge



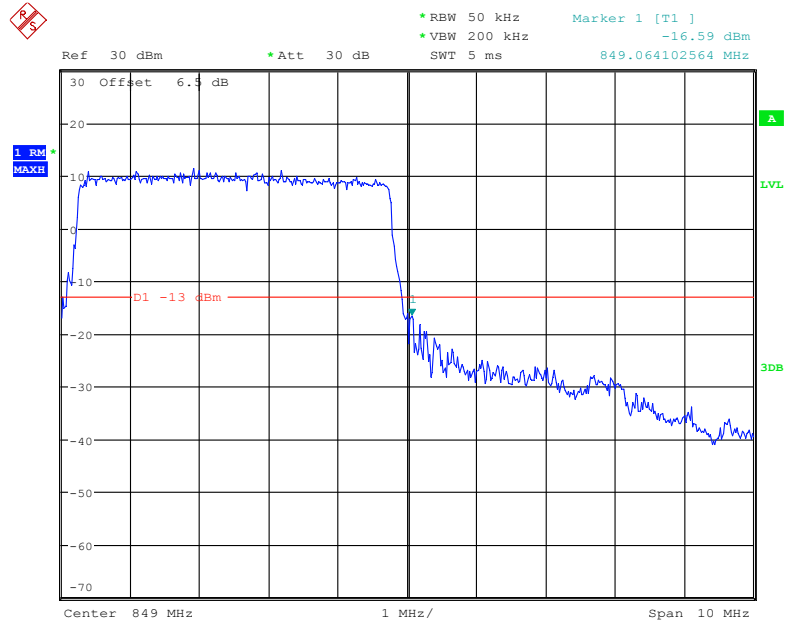
Date: 14.MAR.2020 00:15:54

16-QAM (5.0 MHz, FULL RB) - Left Band Edge



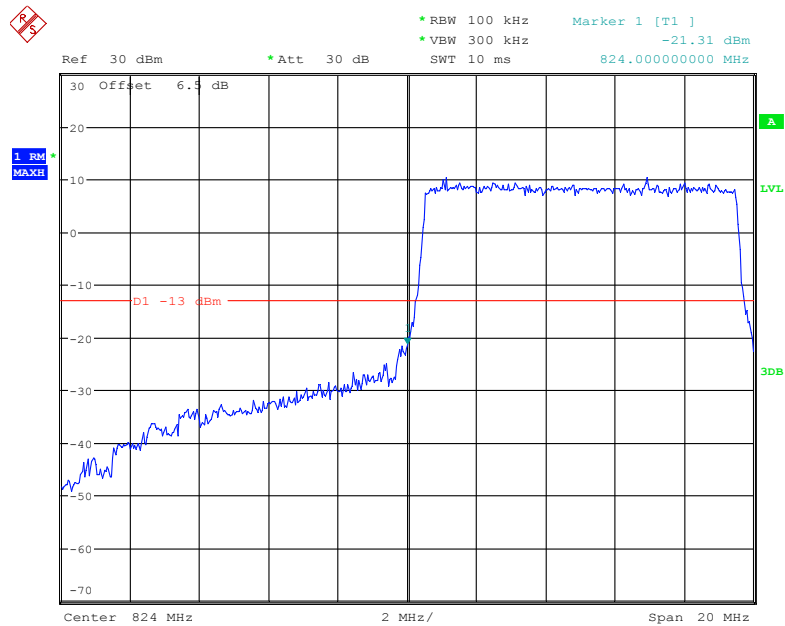
Date: 14.MAR.2020 00:15:00

16-QAM (5.0 MHz, FULL RB) - Right Band Edge



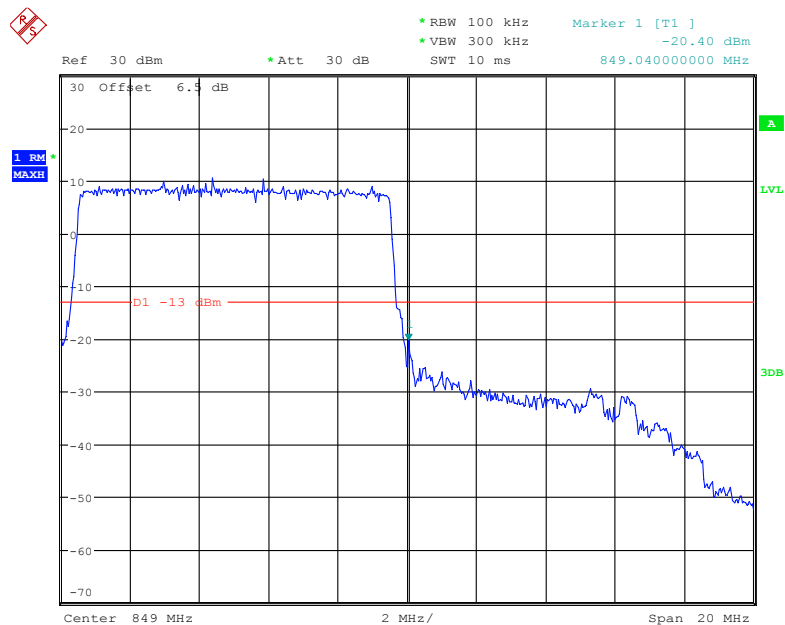
Date: 14.MAR.2020 00:16:19

QPSK (10.0 MHz, FULL RB) - Left Band Edge



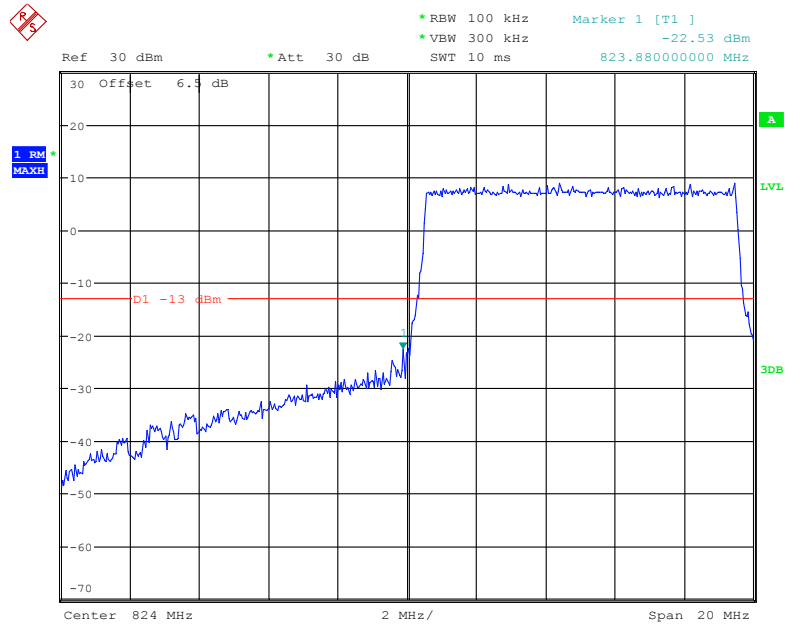
Date: 12.MAR.2020 20:11:53

QPSK (10.0 MHz, FULL RB) - Right Band Edge



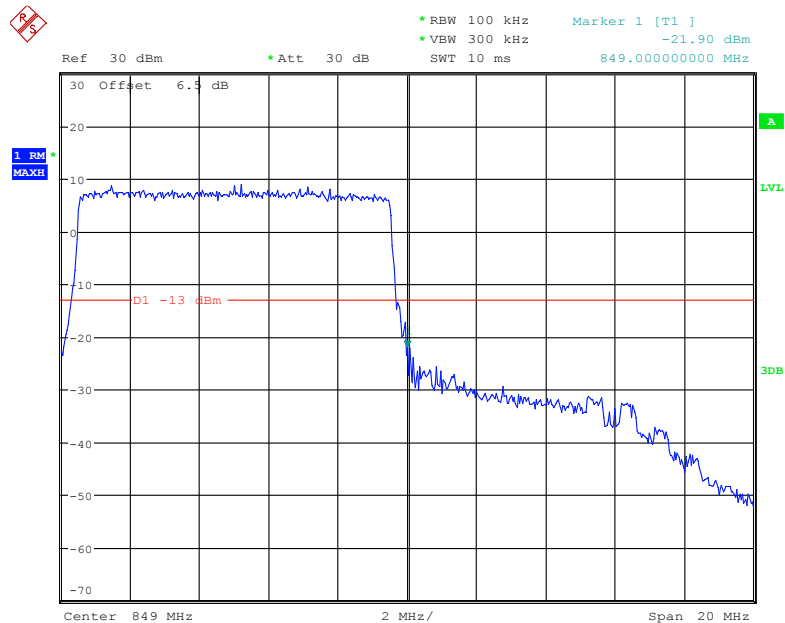
Date: 12.MAR.2020 20:12:27

16-QAM (10.0 MHz, FULL RB) - Left Band Edge



Date: 12.MAR.2020 20:12:09

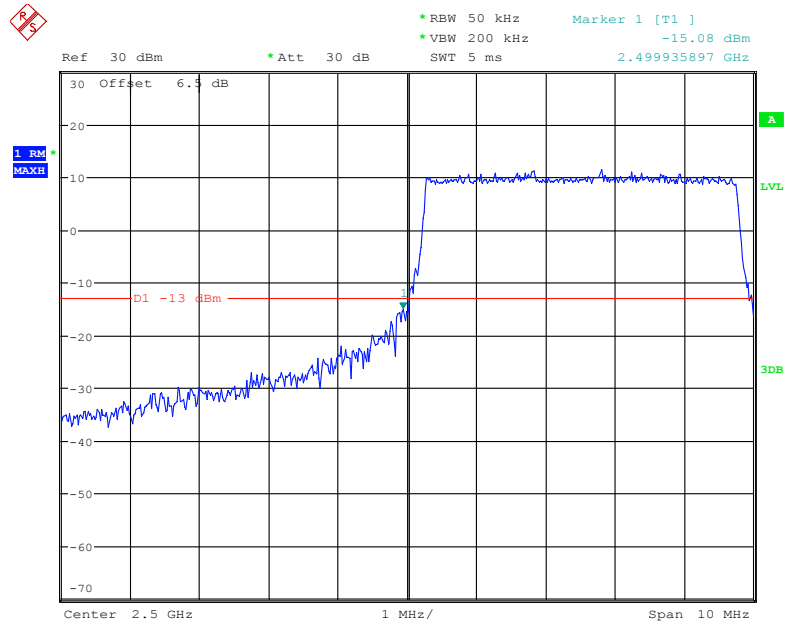
16-QAM (10.0 MHz, FULL RB) - Right Band Edge



Date: 12.MAR.2020 20:12:43

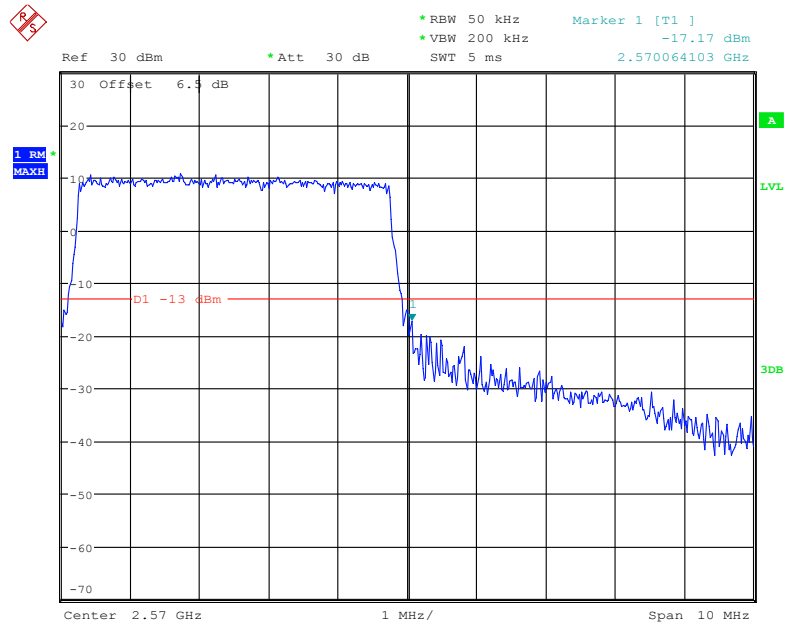
Band 7:

QPSK (5.0 MHz, FULL RB) - Left Band Edge



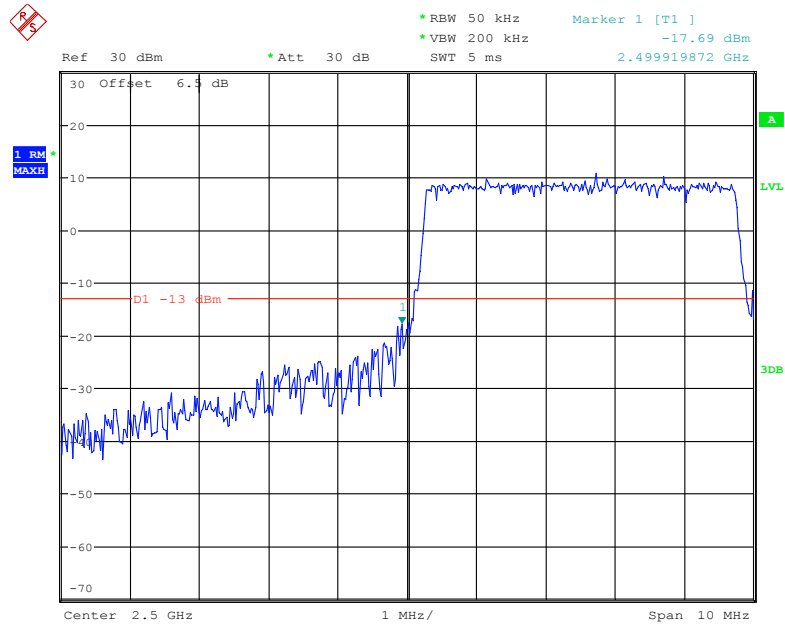
Date: 14.MAR.2020 00:18:25

QPSK (5.0 MHz, FULL RB) - Right Band Edge



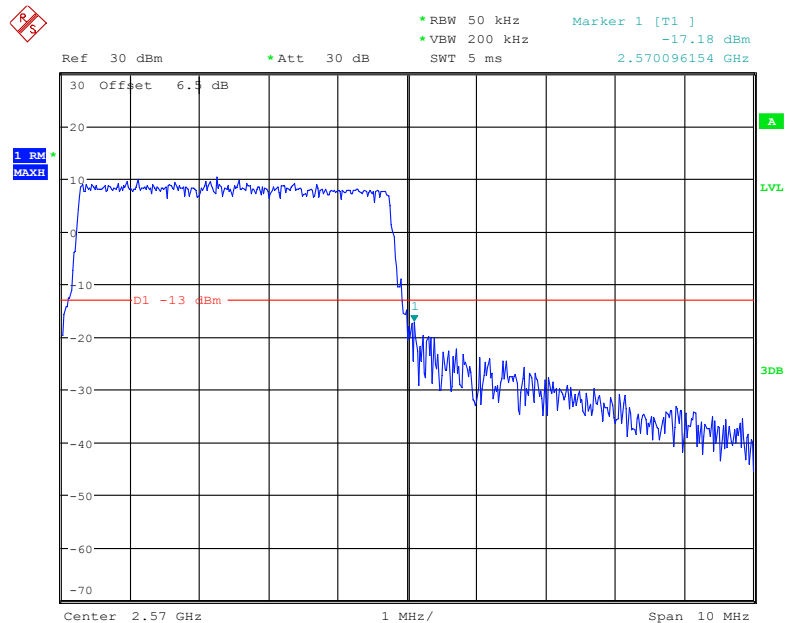
Date: 14.MAR.2020 00:19:20

16-QAM (5.0 MHz, FULL RB) - Left Band Edge



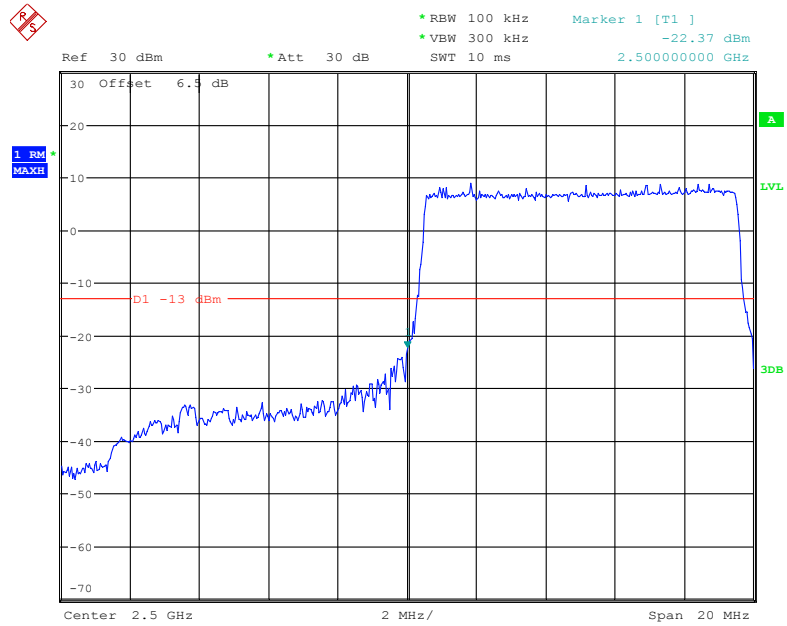
Date: 14.MAR.2020 00:18:39

16-QAM (5.0 MHz, FULL RB) - Right Band Edge



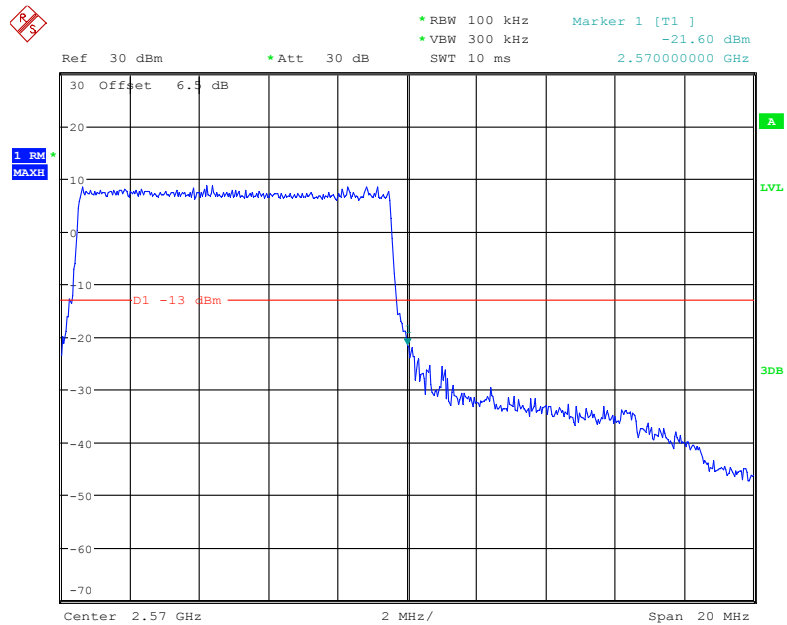
Date: 14.MAR.2020 00:19:48

QPSK (10.0 MHz, FULL RB) - Left Band Edge



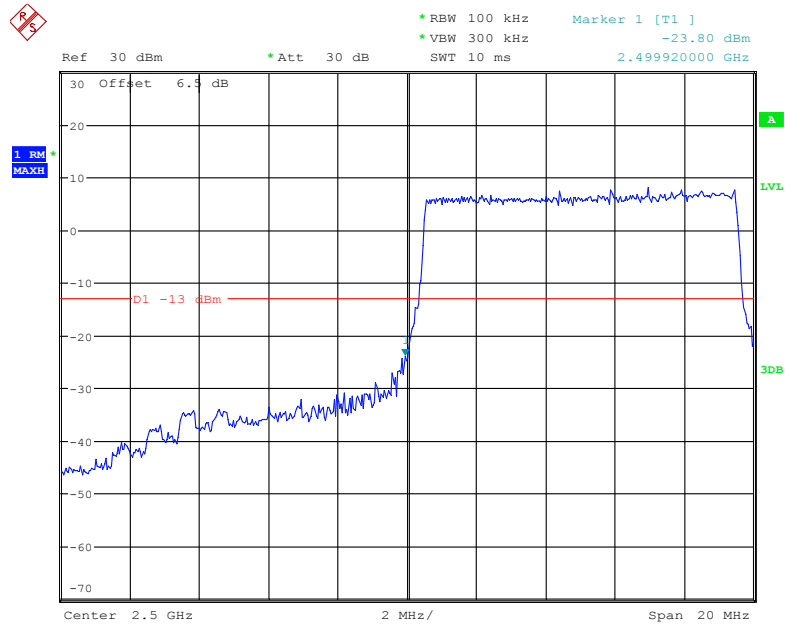
Date: 12.MAR.2020 20:14:45

QPSK (10.0 MHz, FULL RB) - Right Band Edge



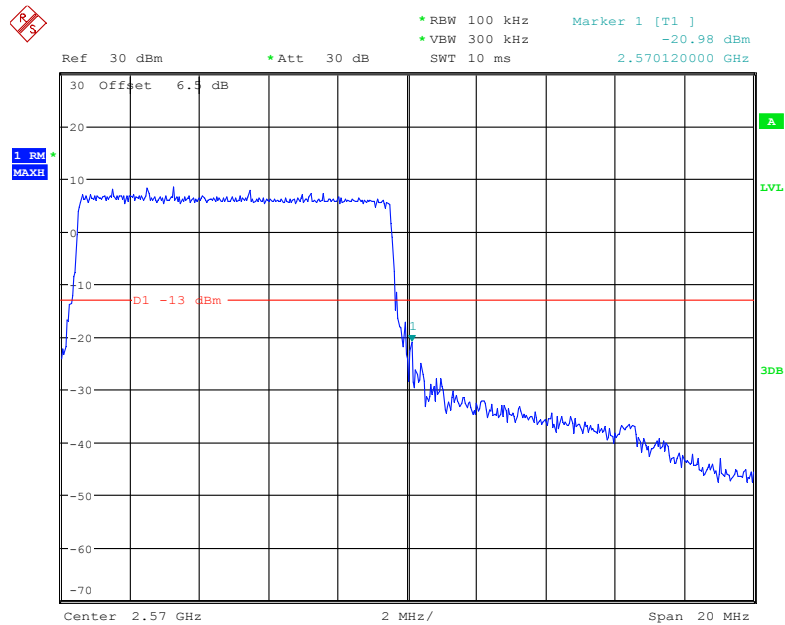
Date: 12.MAR.2020 20:15:22

16-QAM (10.0 MHz, FULL RB) - Left Band Edge



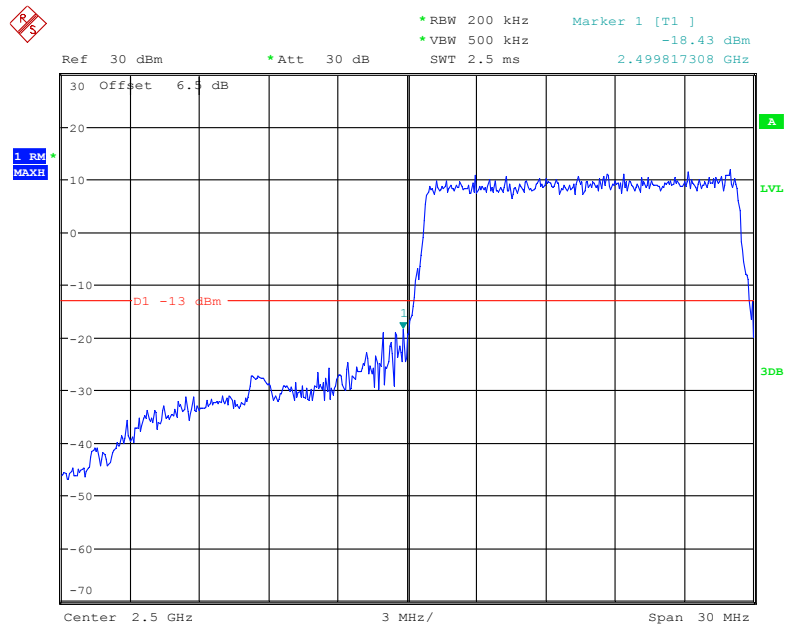
Date: 12.MAR.2020 20:15:02

16-QAM (10.0 MHz, FULL RB) - Right Band Edge



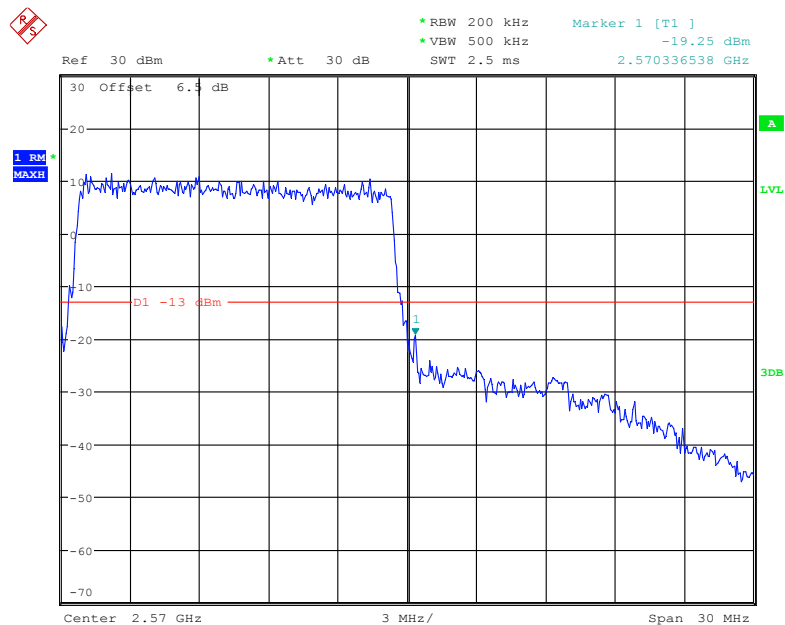
Date: 12.MAR.2020 20:15:39

QPSK (15.0 MHz, FULL RB) - Left Band Edge



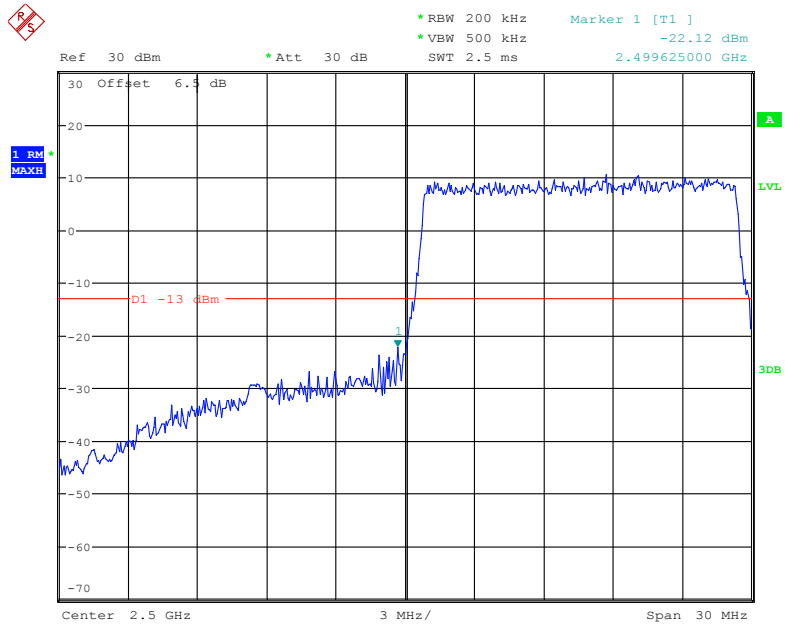
Date: 14.MAR.2020 00:22:34

QPSK (15.0 MHz, FULL RB) - Right Band Edge



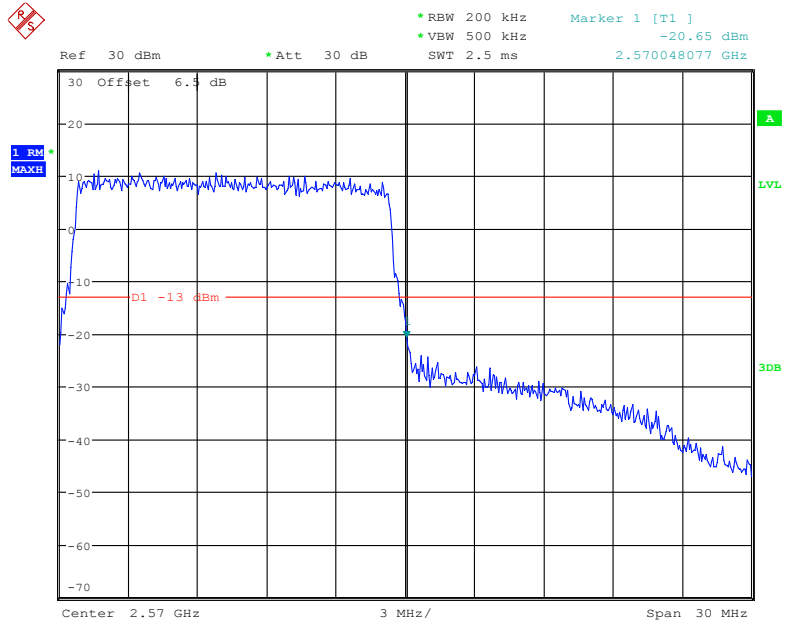
Date: 14.MAR.2020 00:23:39

16-QAM (15.0 MHz, FULL RB) - Left Band Edge



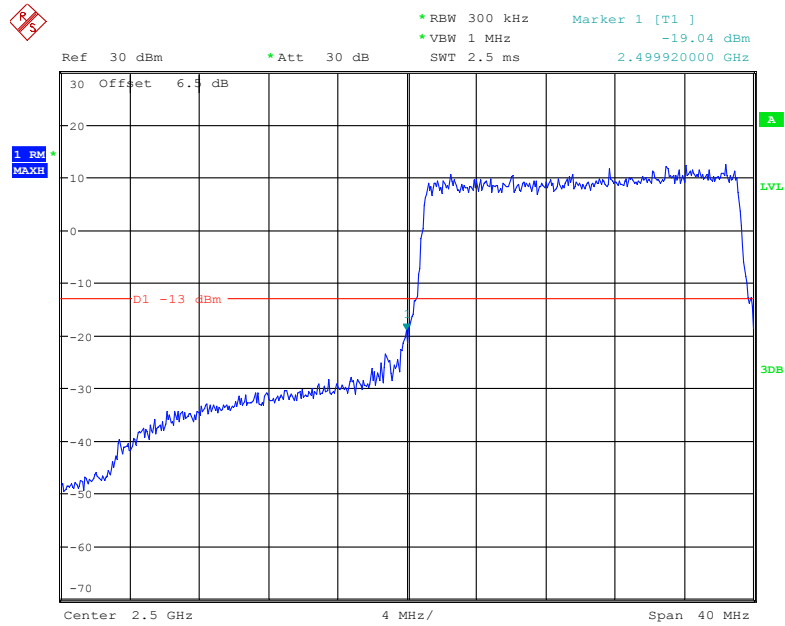
Date: 14.MAR.2020 00:23:02

16-QAM (15.0 MHz, FULL RB) - Right Band Edge



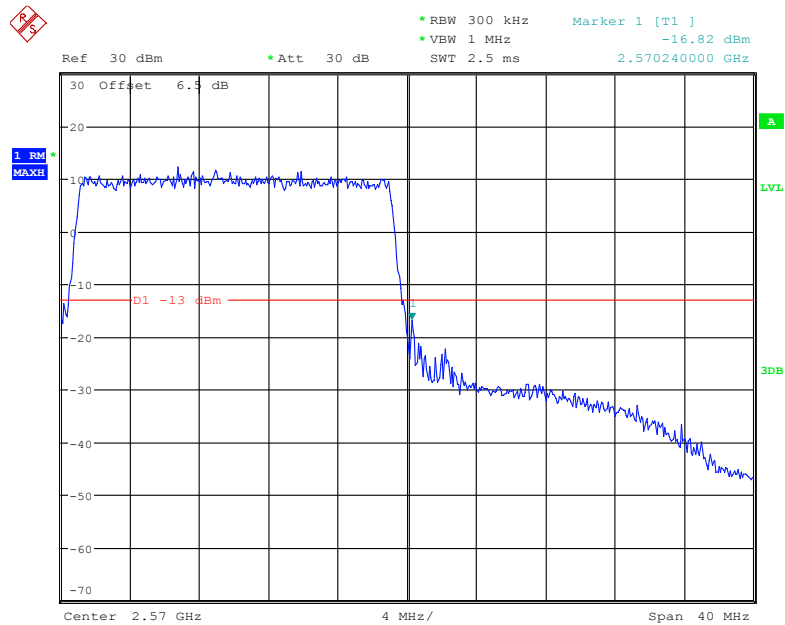
Date: 14.MAR.2020 00:24:07

QPSK (20.0 MHz, FULL RB) - Left Band Edge



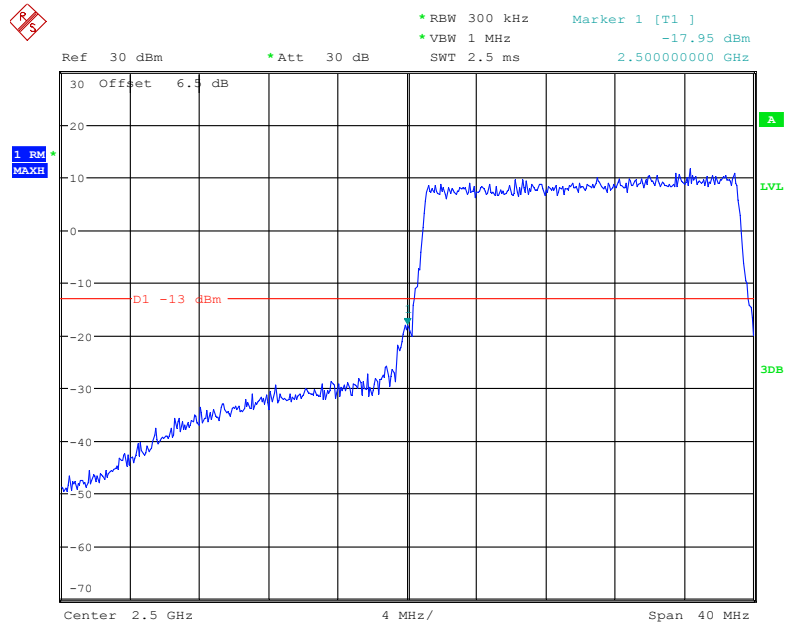
Date: 12.MAR.2020 20:17:30

QPSK (20.0 MHz, FULL RB) - Right Band Edge



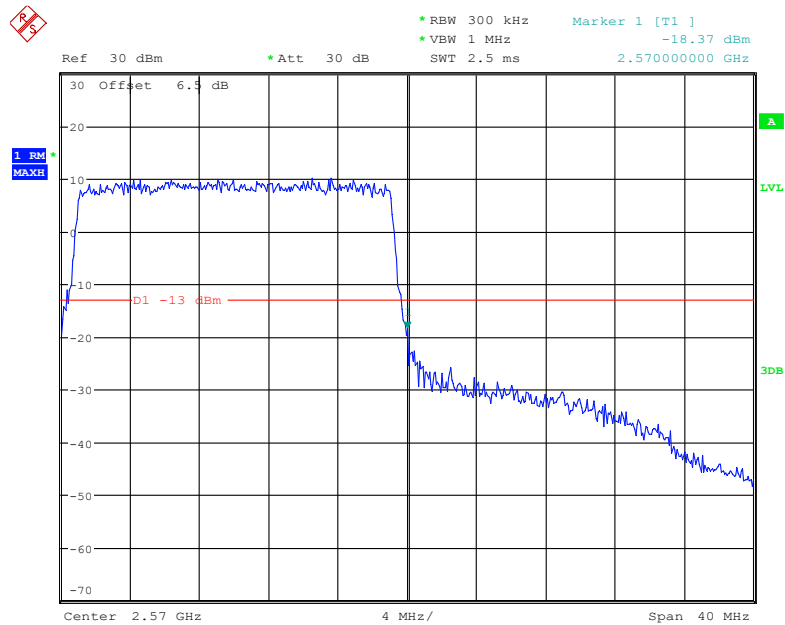
Date: 12.MAR.2020 20:18:10

16-QAM (20.0 MHz, FULL RB) - Left Band Edge



Date: 12.MAR.2020 20:17:49

16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 12.MAR.2020 20:18:30

FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY**Applicable Standard**

FCC § 2.1055, §22.355, §24.235 and §27.54.

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile > 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

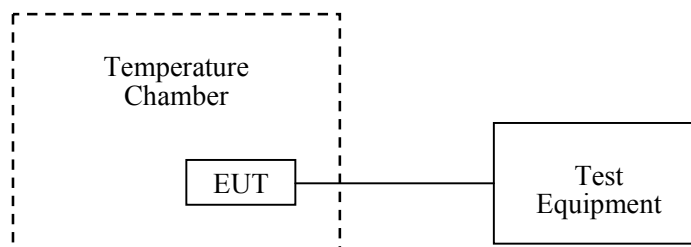
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC 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 DC 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: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data**Environmental Conditions**

Temperature:	20 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by George Zhong on 2020-03-12.

EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the following tables.

Cellular Band (Part 22H)**GSM Mode**

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	5	0.0060	2.5
-20		6	0.0072	2.5
-10		1	0.0012	2.5
0		2	0.0024	2.5
10		3	0.0036	2.5
20		1	0.0012	2.5
30		-4	-0.0048	2.5
40		2	0.0024	2.5
50		-5	-0.0060	2.5
20	L.V.	3	0.0036	2.5
	H.V.	-1	-0.0012	2.5

EDGE Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-3	-0.0036	2.5
-20		5	0.0060	2.5
-10		-2	-0.0024	2.5
0		1	0.0012	2.5
10		2	0.0024	2.5
20		4	0.0048	2.5
30		-2	-0.0024	2.5
40		-3	-0.0036	2.5
50		5	0.0060	2.5
20	L.V.	-3	-0.0036	2.5
	H.V.	4	0.0048	2.5

WCDMA Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-11	-0.013	2.5
-20		9	0.011	2.5
-10		8	0.010	2.5
0		-5	-0.006	2.5
10		3	0.004	2.5
20		6	0.0072	2.5
30		4	0.005	2.5
40		-7	-0.008	2.5
50		-10	-0.012	2.5
20	L.V.	15	0.018	2.5
	H.V.	-12	-0.014	2.5

PCS Band (Part 24E)**GSM Mode**

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	6	0.0032	pass
-20		-2	-0.0011	pass
-10		4	0.0021	pass
0		-3	-0.0016	pass
10		-2	-0.0011	pass
20		1	0.0005	pass
30		-5	-0.0027	pass
40		2	0.0011	pass
50		4	0.0021	pass
20	L.V.	-1	-0.0005	pass
	H.V.	4	0.0021	pass

EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	4	0.0021	pass
-20		-2	-0.0011	pass
-10		1	0.0005	pass
0		-6	-0.0032	pass
10		3	0.0016	pass
20		-2	-0.0011	pass
30		-1	-0.0005	pass
40		-7	-0.0037	pass
50		2	0.0011	pass
20	L.V.	5	0.0027	pass
	H.V.	-3	-0.0016	pass

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	11	0.0059	pass
-20		8	0.0043	pass
-10		-9	-0.0048	pass
0		-6	-0.0032	pass
10		7	0.0037	pass
20		11	0.0059	pass
30		-7	-0.0037	pass
40		8	0.0043	pass
50		8	0.0043	pass
20	L.V.	-9	0.0048	pass
	H.V.	-10	-0.0053	pass

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	16.19	0.0086	pass
-20		-9.97	-0.0053	pass
-10		-6.13	-0.0033	pass
0		6.17	0.0033	pass
10		7.92	0.0042	pass
20		6.46	0.0034	pass
30		-6.52	-0.0035	pass
40		7.18	0.0038	pass
50		-9.69	-0.0052	pass
20	L.V.	-8.17	-0.0043	pass
	H.V.	-7.05	-0.0038	pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Voltage Supplied	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	N.V.	1710.459	1754.843	1710	1755
-20		1710.46	1754.844	1710	1755
-10		1710.461	1754.843	1710	1755
0		1710.461	1754.844	1710	1755
10		1710.460	1754.845	1710	1755
20		1710.460	1754.843	1710	1755
30		1710.460	1754.844	1710	1755
40		1710.459	1754.844	1710	1755
50		1710.461	1754.844	1710	1755
20	L.V.	1710.459	1754.845	1710	1755
	H.V.	1710.458	1754.844	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	9.67	0.0116	2.5
-20		-6.97	-0.0083	2.5
-10		-5.50	-0.0066	2.5
0		6.06	0.0072	2.5
10		9.80	0.0117	2.5
20		5.03	0.006	2.5
30		-6.62	-0.0079	2.5
40		-8.73	-0.0104	2.5
50		-7.05	-0.0084	2.5
20	L.V.	8.99	0.0107	2.5
	H.V.	-7.17	-0.0086	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Voltage Supplied	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	N.V.	2500.698	2569.741	2500	2570
-20		2500.700	2569.742	2500	2570
-10		2500.698	2569.743	2500	2570
0		2500.698	2569.743	2500	2570
10		2500.698	2569.744	2500	2570
20		2500.700	2569.741	2500	2570
30		2500.698	2569.743	2500	2570
40		2500.698	2569.741	2500	2570
50		2500.698	2569.742	2500	2570
20	L.V.	2500.698	2569.741	2500	2570
	H.V.	2500.700	2569.743	2500	2570

16QAM:**Band 2:**

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	13.65	0.0073	pass
-20		-6.68	-0.0036	pass
-10		9.77	0.0052	pass
0		-7.62	-0.0041	pass
10		-9.91	-0.0053	pass
20		-9.82	-0.0052	pass
30		-6.68	-0.0036	pass
40		-8.85	-0.0047	pass
50		5.67	0.003	pass
20	L.V.	6.05	0.0032	pass
	H.V.	7.52	0.004	pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Voltage Supplied	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	N.V.	1710.431	1754.774	1710	1755
-20		1710.432	1754.774	1710	1755
-10		1710.432	1754.774	1710	1755
0		1710.432	1754.775	1710	1755
10		1710.431	1754.775	1710	1755
20		1710.433	1754.773	1710	1755
30		1710.431	1754.773	1710	1755
40		1710.432	1754.774	1710	1755
50		1710.432	1754.775	1710	1755
20	L.V.	1710.431	1754.774	1710	1755
	H.V.	1710.431	1754.774	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_o=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	9.06	0.0108	2.5
-20		8.10	0.0097	2.5
-10		-8.59	-0.0103	2.5
0		9.33	0.0112	2.5
10		-6.94	-0.0083	2.5
20		7.54	0.009	2.5
30		6.43	0.0077	2.5
40		-6.17	-0.0074	2.5
50		-6.44	-0.0077	2.5
20	L.V.	6.34	0.0076	2.5
	H.V.	-6.89	-0.0082	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Voltage Supplied	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	N.V.	2500.843	2569.692	2500	2570
-20		2500.845	2569.692	2500	2570
-10		2500.843	2569.694	2500	2570
0		2500.844	2569.694	2500	2570
10		2500.843	2569.693	2500	2570
20		2500.845	2569.695	2500	2570
30		2500.844	2569.694	2500	2570
40		2500.845	2569.695	2500	2570
50		2500.844	2569.695	2500	2570
20	L.V.	2500.845	2569.694	2500	2570
	H.V.	2500.846	2569.694	2500	2570

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