



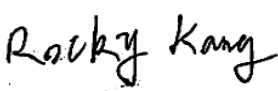
FCC PART 27
FCC PART 22H, PART 24E
TEST REPORT

For

K2KONNECT LLC

2323 NW 82ND AVE, DORAL, FL 33122, USA

FCC ID: 2AMVGPICT

Report Type: Original Report	Product Type: 4G Phone
Report Number: RSZ180301001-00D	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *K2KONNECT LLC*'s product, model number: EPIC T (*FCC ID: 2AMVGEP ICT*) or the "EUT" in this report was a *4G Phone*, which was measured approximately: 16.6 cm (L) × 8.8 cm (W) × 1.7 cm (H), rated with input voltage: DC 3.8V battery or DC 5.0V/ DC 9.0V/ DC 12.0V from adapter.

Adapter Information:

Model: A824-120150U-US1

Input: AC 100-240V, 50/60Hz, 0.5 A

Output: DC 5.0V, 2.0A/ DC 9.0V, 2.0A/ DC 12.0V, 1.5A

**All measurement and test data in this report was gathered from production sample serial number: 1800240 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2018-03-01.*

Objective

This test report is prepared on behalf of *K2KONNECT LLC* 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, Part 15.247 DTS and Part 15B JBP submissions with FCC ID: 2AMVGEP ICT.

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		$\pm 5\%$
RF output power, conducted		$\pm 1.5\text{dB}$
Unwanted Emission, conducted		$\pm 1.5\text{dB}$
Emissions, radiated	Below 1GHz	$\pm 4.70\text{dB}$
	Above 1GHz	$\pm 4.80\text{dB}$
Temperature		$\pm 1^\circ\text{C}$
Supply voltages		$\pm 0.4\%$

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.: 382179, the FCC Designation No.: CN5001.

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.

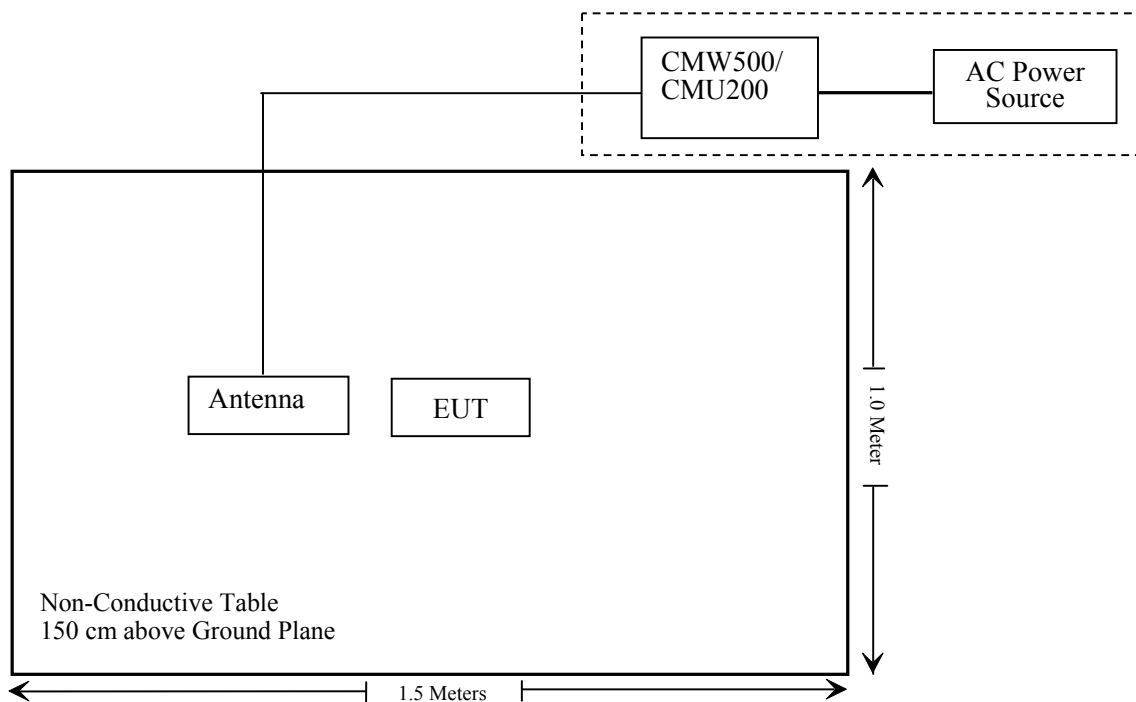
Equipment Modifications

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 (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 (h)(m)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 (h)(m)	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: RSZ180301001-20

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Sunol Sciences	Horn Antenna	DRH-118	A052604	2017-12-22	2020-12-21
Rohde & Schwarz	Signal ANALYZER	FSIQ26	8386001028	2017-04-24	2018-04-24
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2017-11-19	2018-05-21
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2017-05-21	2018-05-21
HP	Amplifier	HP8447E	1937A01046	2017-11-19	2018-05-21
Anritsu	Signal Generator	68369B	004114	2017-12-07	2018-12-07
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2018-01-11	2019-01-11
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2017-11-19	2018-05-21
Ducommun technologies	RF Cable	104PEA	218124002	2017-11-19	2018-05-21
Ducommun technologies	RF Cable	RG-214	1	2017-11-19	2018-05-21
Ducommun technologies	RF Cable	RG-214	2	2017-11-22	2018-05-22
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-04	2017-12-29	2020-12-28
Ducommun technologies	Horn Antenna	ARH-4223-02	1007726-03	2017-12-29	2020-12-28
Ducommun technologies	Pre-amplifier	ALN-22093530-01	991373-01	2017-08-03	2018-08-03

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2017-12-24	2018-12-24
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2017-12-21	2018-12-21
Long Wei	DC Power Supply	TPR-6420D	398363	NCR	NCR
Aglient	ESG Vector Signal Generator	E4438C	MY42080875	2017-05-09	2018-05-09
Rohde & Schwarz	Wideband Radio Communication Tester	CMU200	106891	2017-12-14	2018-12-14
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2017-04-24	2018-04-24
Ducommun technologies	RF Cable	RG-214	3	2017-11-22	2018-05-22
WEINSCHTEL	10dB Attenuator	5324	AU 3842	2017-11-22	2018-05-23
WEINSCHTEL	3dB Attenuator	N/A	N/A	2017-11-22	2018-05-23
N/A	Power Splitter	N/A	N/A	2017-05-21	2018-05-21

* 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: RSZ180301001-20.

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(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(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.

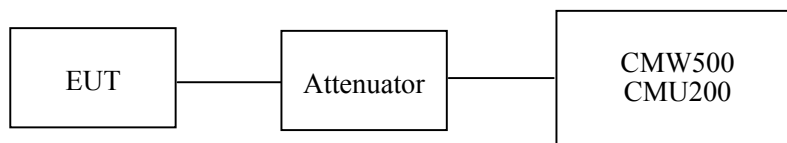
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz.

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

The testing was performed by Nancy Wang on 2018-03-08.

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

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	31.66	38.45
	190	836.6	31.44	38.45
	251	848.8	31.28	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.38	31.48	29.71	28.22	38.45
	190	836.6	32.26	31.26	29.58	28.56	38.45
	251	848.8	32.12	31.18	29.42	28.73	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	25.66	24.30	22.07	20.74	38.45
	190	836.6	25.28	23.92	21.58	20.23	38.45
	251	848.8	25.00	23.62	21.26	19.92	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		21.82	21.83	21.71
		HSDPA	1	20.83	20.76	20.63
			2	20.64	20.39	20.48
			3	20.76	20.55	20.63
			4	20.66	20.48	20.47
		HSUPA	1	21.02	20.91	20.81
			2	20.77	20.61	20.84
			3	20.69	20.57	20.63
			4	20.59	20.42	20.59
			5	20.64	20.69	20.77
		HSPA+	1	20.22	20.58	20.12

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	28.49	33
	661	1880.0	28.45	33
	810	1909.8	28.46	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	28.64	27.92	26.23	25.13	33
	661	1880.0	28.59	27.84	26.18	25.35	33
	810	1909.8	28.58	27.85	26.14	25.43	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	25.73	24.55	23.52	22.37	33
	661	1880.0	25.88	24.64	23.85	22.53	33
	810	1909.8	25.63	24.52	23.46	22.43	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		22.40	22.32	22.44
		HSDPA	1	21.38	21.25	21.34
			2	21.68	21.49	21.43
			3	21.86	21.67	21.64
			4	21.74	21.59	21.74
		HSUPA	1	21.38	21.32	21.43
			2	21.63	21.46	21.39
			3	21.74	21.68	21.55
			4	21.52	21.44	21.43
			5	21.76	21.68	21.58
		HSPA+	1	21.22	21.17	21.43

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.21	13
	Middle	3.08	13
	High	3.17	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.58	13
	Middle	3.22	13
	High	3.31	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.18	13
	Middle	3.22	13
	High	3.69	13
HSDPA (16QAM)	Low	3.68	13
	Middle	3.66	13
	High	3.52	13
HSUPA (BPSK)	Low	3.46	13
	Middle	3.28	13
	High	3.29	13
HSPA+	Low	3.32	13
	Middle	3.54	13
	High	3.72	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	2.57	13
	Middle	2.34	13
	High	2.19	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	2.67	13
	Middle	2.26	13
	High	2.32	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.43	13
	Middle	3.24	13
	High	3.46	13
HSDPA (16QAM)	Low	3.79	13
	Middle	3.68	13
	High	3.81	13
HSUPA (BPSK)	Low	3.75	13
	Middle	3.90	13
	High	3.85	13
HSPA+	Low	3.94	13
	Middle	3.45	13
	High	3.25	13

**Radiated Power
GSM Mode:**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
ERP for Cellular Band (Part 22H), Middle Channel										
836.6	87.91	178	1.4	H	25.5	0.7	0.0	24.80	38.45	13.65
836.6	91.84	110	2.3	V	31.4	0.7	0.0	30.70	38.45	7.75
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	90.44	230	1.9	H	20.4	1.30	9.40	28.50	33	4.5
1880.00	90.09	212	2.3	V	19.8	1.30	9.40	27.90	33	5.1

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 (dB)			
ERP, Cellular Band (Part 22H), Middle Channel										
836.6	83.14	7	2.1	H	20.7	0.7	0.0	20.00	38.45	18.45
836.6	85.93	203	1.1	V	25.5	0.7	0.0	24.80	38.45	13.65
EIRP, PCS Band (Part 24E), Middle Channel										
1880.00	88.34	239	2.0	H	18.3	1.30	9.40	26.40	33	6.6
1880.00	85.61	36	1.8	V	15.3	1.30	9.40	23.40	33	9.6

WCDMA Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
ERP for WCDMA Band V (Part 22H), Middle Channel										
836.6	76.55	18	1.8	H	14.5	0.7	0.0	13.80	38.45	24.65
836.6	79.38	255	1.9	V	18.9	0.7	0.0	18.20	38.45	20.25
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	83.07	47	1.0	H	13.0	1.30	9.40	21.10	33	11.9
1880.00	82.01	47	1.5	V	11.7	1.30	9.40	19.80	33	13.2

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

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	21.45	21.52	21.48
		RB Size=1, RB Offset=2	21.75	21.83	21.75
		RB Size=1, RB Offset=5	21.99	22.00	21.21
		RB Size=3, RB Offset=0	21.86	21.88	21.98
		RB Size=3, RB Offset=1	21.96	21.22	21.92
		RB Size=3, RB Offset=2	21.89	21.92	21.86
		RB Size=6, RB Offset=0	21.97	21.58	22.02
	16QAM	RB Size=1, RB Offset=0	21.71	21.56	21.24
		RB Size=1, RB Offset=2	20.42	20.41	20.38
		RB Size=1, RB Offset=5	20.51	20.41	20.65
		RB Size=3, RB Offset=0	20.46	20.56	20.42
		RB Size=3, RB Offset=1	20.47	20.46	20.54
		RB Size=3, RB Offset=2	20.42	20.48	20.54
		RB Size=6, RB Offset=0	20.44	20.52	20.52
3.0	QPSK	RB Size=1, RB Offset=0	21.25	21.28	21.31
		RB Size=1, RB Offset=7	21.38	21.39	21.38
		RB Size=1, RB Offset=14	21.34	21.32	21.21
		RB Size=8, RB Offset=0	20.56	20.41	20.47
		RB Size=8, RB Offset=4	20.48	20.58	20.63
		RB Size=8, RB Offset=7	20.38	20.39	20.47
		RB Size=15, RB Offset=0	20.49	20.52	20.57
	16QAM	RB Size=1, RB Offset=0	21.37	21.21	21.43
		RB Size=1, RB Offset=7	21.38	21.19	21.38
		RB Size=1, RB Offset=14	21.33	21	21.44
		RB Size=8, RB Offset=0	20.58	20.48	20.58
		RB Size=8, RB Offset=4	20.46	20.57	20.66
		RB Size=8, RB Offset=7	20.48	20.57	20.63
		RB Size=15, RB Offset=0	20.49	20.57	20.46

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	21.22	21.18	21.53
		RB Size=1, RB Offset=12	21.22	21.35	22.36
		RB Size=1, RB Offset=24	21.38	21.39	21.39
		RB Size=12, RB Offset=0	20.93	20.58	20.69
		RB Size=12, RB Offset=6	20.48	20.67	20.65
		RB Size=12, RB Offset=11	20.44	20.54	20.36
		RB Size=25, RB Offset=0	20.52	20.47	20.54
	16QAM	RB Size=1, RB Offset=0	20.47	20.59	20.68
		RB Size=1, RB Offset=12	20.56	20.48	20.55
		RB Size=1, RB Offset=24	21.88	21.27	21.83
		RB Size=12, RB Offset=0	20.59	20.63	20.58
		RB Size=12, RB Offset=6	20.63	20.62	20.52
		RB Size=12, RB Offset=11	20.68	20.59	20.63
		RB Size=25, RB Offset=0	20.55	20.48	20.63
10.0	QPSK	RB Size=1, RB Offset=0	21.36	21.43	21.39
		RB Size=1, RB Offset=24	21.43	21.28	21.36
		RB Size=1, RB Offset=49	21.46	21.00	21.36
		RB Size=25, RB Offset=0	21.43	21.44	21.32
		RB Size=25, RB Offset=12	21.25	21.19	21.25
		RB Size=25, RB Offset=24	21.12	21.08	21.11
		RB Size=50, RB Offset=0	20.63	20.74	20.69
	16QAM	RB Size=1, RB Offset=0	20.76	20.74	20.63
		RB Size=1, RB Offset=24	20.62	20.67	20.59
		RB Size=1, RB Offset=49	20.58	20.47	20.56
		RB Size=25, RB Offset=0	20.56	20.62	20.47
		RB Size=25, RB Offset=12	20.48	20.48	20.43
		RB Size=25, RB Offset=24	20.42	20.54	20.48
		RB Size=50, RB Offset=0	20.39	20.40	20.47

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	21.68	21.59	21.65
		RB Size=1, RB Offset=37	21.76	21.67	21.59
		RB Size=1, RB Offset=74	21.59	21.63	21.55
		RB Size=36, RB Offset=0	21.62	21.57	21.42
		RB Size=36, RB Offset=18	21.57	21.43	21.32
		RB Size=36, RB Offset=37	21.43	21.39	21.26
		RB Size=75, RB Offset=0	20.84	21.79	21.74
	16QAM	RB Size=1, RB Offset=0	20.76	21.01	21.87
		RB Size=1, RB Offset=37	21	21.04	21.12
		RB Size=1, RB Offset=74	21.02	21.06	21.69
		RB Size=36, RB Offset=0	21.12	21.03	20.97
		RB Size=36, RB Offset=18	20.65	21.12	20.76
		RB Size=36, RB Offset=37	20.67	20.69	20.59
		RB Size=75, RB Offset=0	20.59	20.74	20.74
20.0	QPSK	RB Size=1, RB Offset=0	21.56	21.78	21.55
		RB Size=1, RB Offset=49	21.64	21.69	21.67
		RB Size=1, RB Offset=99	21.66	21.76	21.63
		RB Size=50, RB Offset=0	21.52	21.74	21.59
		RB Size=50, RB Offset=24	21.46	21.64	21.37
		RB Size=50, RB Offset=49	21.44	21.63	21.54
		RB Size=100, RB Offset=0	21.39	21.36	21.49
	16QAM	RB Size=1, RB Offset=0	21.10	21.78	21.42
		RB Size=1, RB Offset=49	21.67	21.68	21.69
		RB Size=1, RB Offset=99	21.62	21.58	21.51
		RB Size=50, RB Offset=0	20.69	20.81	20.78
		RB Size=50, RB Offset=24	20.54	20.74	20.88
		RB Size=50, RB Offset=49	20.48	20.52	20.75
		RB Size=100, RB Offset=0	20.43	20.49	20.49

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.23	13	Pass
QPSK (100RB Size)	6.11	13	Pass
16QAM (1RB Size)	6.09	13	Pass
16QAM (100RB Size)	6.38	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 (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	83.96	294	1.7	H	13.9	1.30	9.40	22.00	33
1880.00	83.18	199	1.7	V	12.9	1.30	9.40	21.00	33
3 MHz Bandwidth									
1880.00	84.27	194	1.2	H	14.2	1.30	9.40	22.30	33
1880.00	83.68	210	1.8	V	13.4	1.30	9.40	21.50	33
5 MHz Bandwidth									
1880.00	84.52	295	2.3	H	14.5	1.30	9.40	22.60	33
1880.00	83.71	274	1.2	V	13.4	1.30	9.40	21.50	33
10 MHz Bandwidth									
1880.00	84.54	206	1.8	H	14.5	1.30	9.40	22.60	33
1880.00	83.61	296	1.0	V	13.3	1.30	9.40	21.40	33
15 MHz Bandwidth									
1880.00	84.60	118	2.0	H	14.6	1.30	9.40	22.70	33
1880.00	83.11	38	2.5	V	12.8	1.30	9.40	20.90	33
20 MHz Bandwidth									
1880.00	84.20	143	2.2	H	14.2	1.30	9.40	22.30	33
1880.00	83.11	302	1.9	V	12.8	1.30	9.40	20.90	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 (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	83.55	218	2.3	H	13.5	1.30	9.40	21.60	33
1880.00	83.67	140	1.7	V	13.4	1.30	9.40	21.50	33
3 MHz Bandwidth									
1880.00	84.64	160	1.1	H	14.6	1.30	9.40	22.70	33
1880.00	84.84	146	1.3	V	14.6	1.30	9.40	22.70	33
5 MHz Bandwidth									
1880.00	83.54	326	1.3	H	13.5	1.30	9.40	21.60	33
1880.00	84.04	131	1.0	V	13.8	1.30	9.40	21.90	33
10 MHz Bandwidth									
1880.00	83.69	333	2.4	H	13.6	1.30	9.40	21.70	33
1880.00	84.01	236	1.1	V	13.7	1.30	9.40	21.80	33
15 MHz Bandwidth									
1880.00	84.19	186	1.8	H	14.1	1.30	9.40	22.20	33
1880.00	84.31	16	1.4	V	14.0	1.30	9.40	22.10	33
20 MHz Bandwidth									
1880.00	84.29	92	1.3	H	14.2	1.30	9.40	22.30	33
1880.00	84.69	313	1.0	V	14.4	1.30	9.40	22.50	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	21.28	21.33	21.49
		RB Size=1, RB Offset=2	21.52	21.83	21.51
		RB Size=1, RB Offset=5	21.39	21.32	21.56
		RB Size=3, RB Offset=0	21.63	21.56	21.57
		RB Size=3, RB Offset=1	21.52	21.58	21.74
		RB Size=3, RB Offset=2	21.54	21.41	21.49
		RB Size=6, RB Offset=0	20.87	20.98	20.74
	16QAM	RB Size=1, RB Offset=0	20.67	20.82	20.81
		RB Size=1, RB Offset=2	20.64	20.59	20.98
		RB Size=1, RB Offset=5	20.49	20.59	20.48
		RB Size=3, RB Offset=0	21.69	21.78	21.74
		RB Size=3, RB Offset=1	21.74	21.38	21.58
		RB Size=3, RB Offset=2	21.08	20.65	20.55
		RB Size=6, RB Offset=0	20.61	20.54	20.37
3.0	QPSK	RB Size=1, RB Offset=0	21.66	21.78	21.76
		RB Size=1, RB Offset=7	21.68	21.83	21.67
		RB Size=1, RB Offset=14	21.58	21.71	21.59
		RB Size=8, RB Offset=0	21.42	21.36	21.42
		RB Size=8, RB Offset=4	21.41	21.33	21.32
		RB Size=8, RB Offset=7	21.34	21.28	21.54
		RB Size=15, RB Offset=0	21.5	21.62	21.42
	16QAM	RB Size=1, RB Offset=0	21.54	21.47	21.52
		RB Size=1, RB Offset=7	21.37	21.41	21.51
		RB Size=1, RB Offset=14	21.27	21.28	21.34
		RB Size=8, RB Offset=0	20.77	20.74	20.81
		RB Size=8, RB Offset=4	20.68	20.78	20.69
		RB Size=8, RB Offset=7	20.62	20.61	20.54
		RB Size=15, RB Offset=0	20.59	20.48	20.47

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	21.69	21.63	21.76
		RB Size=1, RB Offset=12	21.88	21.75	22.79
		RB Size=1, RB Offset=24	21.76	21.77	22.69
		RB Size=12, RB Offset=0	21.59	21.53	21.74
		RB Size=12, RB Offset=6	21.66	21.58	21.86
		RB Size=12, RB Offset=11	21.74	21.77	21.86
		RB Size=25, RB Offset=0	21.69	21.79	21.74
	16QAM	RB Size=1, RB Offset=0	21.86	21.68	21.67
		RB Size=1, RB Offset=12	21.75	21.59	21.89
		RB Size=1, RB Offset=24	21.28	21.34	21.38
		RB Size=12, RB Offset=0	20.67	20.85	20.86
		RB Size=12, RB Offset=6	20.87	20.87	20.72
		RB Size=12, RB Offset=11	20.72	20.86	20.71
		RB Size=25, RB Offset=0	20.68	20.62	20.63
10.0	QPSK	RB Size=1, RB Offset=0	21.43	22.43	22.4
		RB Size=1, RB Offset=24	21.23	22.09	22.33
		RB Size=1, RB Offset=49	21.34	22.03	21.92
		RB Size=25, RB Offset=0	21.31	21.8	21.61
		RB Size=25, RB Offset=12	21.54	21.68	21.63
		RB Size=25, RB Offset=24	21.62	21.64	21.73
		RB Size=50, RB Offset=0	21.59	21.6	21.59
	16QAM	RB Size=1, RB Offset=0	21.48	22.57	22.63
		RB Size=1, RB Offset=24	21.39	21.63	21.56
		RB Size=1, RB Offset=49	21.05	21.09	21.64
		RB Size=25, RB Offset=0	20.88	20.61	20.69
		RB Size=25, RB Offset=12	20.74	21.11	20.87
		RB Size=25, RB Offset=24	20.86	20.75	21.12
		RB Size=50, RB Offset=0	20.74	20.63	20.54

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	21.56	21.77	21.86
		RB Size=1, RB Offset=37	21.87	21.64	21.79
		RB Size=1, RB Offset=74	21.97	21.99	21.87
		RB Size=36, RB Offset=0	20.46	20.56	21.28
		RB Size=36, RB Offset=18	20.39	20.45	21.19
		RB Size=36, RB Offset=37	20.40	20.87	21.09
		RB Size=75, RB Offset=0	21.19	21.34	21.06
	16QAM	RB Size=1, RB Offset=0	21.14	20.78	21.21
		RB Size=1, RB Offset=37	21.06	21.12	20.87
		RB Size=1, RB Offset=74	21.01	20.64	20.88
		RB Size=36, RB Offset=0	20.84	20.76	20.68
		RB Size=36, RB Offset=18	20.69	20.69	20.49
		RB Size=36, RB Offset=37	20.73	20.72	20.74
		RB Size=75, RB Offset=0	20.66	20.69	20.59
20.0	QPSK	RB Size=1, RB Offset=0	21.84	21.97	21.87
		RB Size=1, RB Offset=49	21.98	21.79	21.79
		RB Size=1, RB Offset=99	21.97	21.50	22.01
		RB Size=50, RB Offset=0	20.58	21.54	21.49
		RB Size=50, RB Offset=24	20.36	21.46	21.43
		RB Size=50, RB Offset=49	20.49	20.47	21.04
		RB Size=100, RB Offset=0	20.52	20.87	21.11
	16QAM	RB Size=1, RB Offset=0	21.62	21.33	21.58
		RB Size=1, RB Offset=49	21.58	21.12	21.44
		RB Size=1, RB Offset=99	21.08	21.02	21.06
		RB Size=50, RB Offset=0	20.89	20.78	20.69
		RB Size=50, RB Offset=24	21.08	20.69	20.59
		RB Size=50, RB Offset=49	20.54	20.52	20.47
		RB Size=100, RB Offset=0	20.39	20.46	20.41

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	6.14	13	Pass
QPSK (100RB Size)	6.63	13	Pass
16QAM (1RB Size)	5.15	13	Pass
16QAM (100RB Size)	5.87	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 (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1732.50	84.91	310	2.4	H	11.7	1.30	8.90	19.30	30
1732.50	85.74	235	1.9	V	13.2	1.30	8.90	20.80	30
3 MHz Bandwidth									
1732.50	84.72	68	2.1	H	11.6	1.30	8.90	19.20	30
1732.50	85.67	214	2.1	V	13.1	1.30	8.90	20.70	30
5 MHz Bandwidth									
1732.50	85.44	335	1.0	H	12.3	1.30	8.90	19.90	30
1732.50	85.50	92	1.6	V	12.9	1.30	8.90	20.50	30
10 MHz Bandwidth									
1732.50	85.74	86	2.3	H	12.6	1.30	8.90	20.20	30
1732.50	85.39	343	2.4	V	12.8	1.30	8.90	20.40	30
15 MHz Bandwidth									
1732.50	85.37	3	1.9	H	12.2	1.30	8.90	19.80	30
1732.50	85.76	73	1.8	V	13.2	1.30	8.90	20.80	30
20 MHz Bandwidth									
1732.50	85.61	309	1.3	H	12.4	1.30	8.90	20.00	30
1732.50	85.26	181	1.9	V	12.7	1.30	8.90	20.30	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 (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1732.50	84.25	11	1.8	H	11.1	1.30	8.90	18.70	30
1732.50	84.79	283	2.3	V	12.2	1.30	8.90	19.80	30
3 MHz Bandwidth									
1732.50	85.11	218	1.6	H	11.9	1.30	8.90	19.50	30
1732.50	84.39	352	1.5	V	11.8	1.30	8.90	19.40	30
5 MHz Bandwidth									
1732.50	84.44	57	1.0	H	11.3	1.30	8.90	18.90	30
1732.50	84.67	241	1.8	V	12.1	1.30	8.90	19.70	30
10 MHz Bandwidth									
1732.50	85.01	201	1.4	H	11.8	1.30	8.90	19.40	30
1732.50	84.69	278	1.8	V	12.1	1.30	8.90	19.70	30
15 MHz Bandwidth									
1732.50	85.38	323	1.7	H	12.2	1.30	8.90	19.80	30
1732.50	84.97	136	1.3	V	12.4	1.30	8.90	20.00	30
20 MHz Bandwidth									
1732.50	85.14	280	1.0	H	12.0	1.30	8.90	19.60	30
1732.50	85.33	43	1.5	V	12.8	1.30	8.90	20.40	30

LTE Band 7:

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5	QPSK	RB Size=1, RB Offset=0	21.33	21.33	21.38
		RB Size=1, RB Offset=12	21.35	21.49	21.52
		RB Size=1, RB Offset=24	21.54	21.59	21.45
		RB Size=12, RB Offset=0	21.34	21.39	21.49
		RB Size=12, RB Offset=6	21.60	21.42	21.55
		RB Size=12, RB Offset=11	21.09	21.34	21.41
		RB Size=25, RB Offset=0	21.02	21.25	21.22
	16QAM	RB Size=1, RB Offset=0	21.22	21.03	21.02
		RB Size=1, RB Offset=12	21.41	21.14	21.05
		RB Size=1, RB Offset=24	21.52	21.89	21.23
		RB Size=12, RB Offset=0	20.73	20.86	20.62
		RB Size=12, RB Offset=6	20.60	20.74	20.62
		RB Size=12, RB Offset=11	20.54	20.69	20.47
		RB Size=25, RB Offset=0	20.49	20.57	20.62
10	QPSK	RB Size=1, RB Offset=0	21.52	21.63	21.65
		RB Size=1, RB Offset=24	21.47	21.66	21.41
		RB Size=1, RB Offset=49	21.46	21.35	21.64
		RB Size=25, RB Offset=0	21.34	21.45	21.37
		RB Size=25, RB Offset=12	21.66	21.74	21.65
		RB Size=25, RB Offset=24	21.72	21.76	21.68
		RB Size=50, RB Offset=0	21.71	21.48	21.54
	16QAM	RB Size=1, RB Offset=0	21.75	21.69	21.72
		RB Size=1, RB Offset=24	21.69	21.58	21.64
		RB Size=1, RB Offset=49	20.62	20.63	20.65
		RB Size=25, RB Offset=0	21.54	20.59	20.31
		RB Size=25, RB Offset=12	20.49	20.47	20.66
		RB Size=25, RB Offset=24	20.44	20.49	20.75
		RB Size=50, RB Offset=0	20.37	20.56	20.43

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15	QPSK	RB Size=1, RB Offset=0	21.36	21.42	21.23
		RB Size=1, RB Offset=37	21.33	21.49	21.37
		RB Size=1, RB Offset=74	21.39	21.38	21.25
		RB Size=36, RB Offset=0	21.49	21.6	21.44
		RB Size=36, RB Offset=18	21.45	21.01	21.51
		RB Size=36, RB Offset=37	21.33	21.17	21.28
		RB Size=75, RB Offset=0	21.27	21.58	21.14
	16QAM	RB Size=1, RB Offset=0	21.43	21.25	21.32
		RB Size=1, RB Offset=37	21.54	21.55	21.37
		RB Size=1, RB Offset=74	21.45	21.49	21.54
		RB Size=36, RB Offset=0	21.63	21.62	21.59
		RB Size=36, RB Offset=18	20.62	20.7	20.69
		RB Size=36, RB Offset=37	20.65	20.54	20.74
		RB Size=75, RB Offset=0	20.64	20.49	20.97
20	QPSK	RB Size=1, RB Offset=0	21.86	21.96	21.71
		RB Size=1, RB Offset=49	21.02	21.99	21.06
		RB Size=1, RB Offset=99	21.91	21.69	21.85
		RB Size=50, RB Offset=0	21.89	21.85	21.95
		RB Size=50, RB Offset=24	21.84	21.89	21.96
		RB Size=50, RB Offset=49	21.01	21.94	21.07
		RB Size=100, RB Offset=0	21.61	22.55	21.65
	16QAM	RB Size=1, RB Offset=0	21.18	22.28	21.19
		RB Size=1, RB Offset=49	21.84	21.87	21.81
		RB Size=1, RB Offset=99	21.94	21.84	21.94
		RB Size=50, RB Offset=0	20.85	20.72	20.97
		RB Size=50, RB Offset=24	20.87	20.87	20.84
		RB Size=50, RB Offset=49	20.81	20.94	20.96
		RB Size=100, RB Offset=0	20.71	20.77	20.74

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.41	13	Pass
QPSK (100RB Size)	5.36	13	Pass
16QAM (1RB Size)	6.17	13	Pass
16QAM (100RB Size)	6.08	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 (dB)		
Middle Channel									
5 MHz Bandwidth									
2535.00	77.55	352	1.1	H	6.1	2.60	10.20	15.70	33
2535.00	79.94	51	1.8	V	10.6	2.60	10.20	18.70	33
10 MHz Bandwidth									
2535.00	77.12	298	1.7	H	7.6	2.60	10.20	15.20	33
2535.00	80.44	32	1.3	V	10.6	2.60	10.20	19.20	33
15 MHz Bandwidth									
2535.00	76.28	223	1.2	H	6.8	2.60	10.20	14.40	33
2535.00	80.14	13	1.1	V	10.3	2.60	10.20	18.90	33
20 MHz Bandwidth									
2535.00	76.85	316	1.8	H	7.4	2.60	10.20	15.00	33
2535.00	80.51	174	1.4	V	10.6	2.60	10.20	19.20	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 (dB)		
Middle Channel									
5 MHz Bandwidth									
2535.00	76.64	44	2.4	H	7.2	2.60	10.20	14.80	33
2535.00	79.81	210	1.0	V	10.4	2.60	10.20	18.50	33
10 MHz Bandwidth									
2535.00	76.84	351	1.3	H	7.4	2.60	10.20	15.00	33
2535.00	80.23	74	2.4	V	10.4	2.60	10.20	19.00	33
15 MHz Bandwidth									
2535.00	77.11	319	1.1	H	7.6	2.60	10.20	15.20	33
2535.00	80.42	335	2.2	V	10.5	2.60	10.20	19.10	33
20 MHz Bandwidth									
2535.00	76.94	78	1.6	H	7.5	2.60	10.20	15.10	33
2535.00	80.28	267	1.9	V	10.4	2.60	10.20	19.00	33

LTE Band 17:

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	21.41	21.47	21.47
		RB Size=1, RB Offset=12	21.39	21.59	21.57
		RB Size=1, RB Offset=24	21.49	21.62	21.64
		RB Size=12, RB Offset=0	21.44	21.44	21.51
		RB Size=12, RB Offset=6	21.58	21.52	21.48
		RB Size=12, RB Offset=11	21.12	21.37	21.45
		RB Size=25, RB Offset=0	21.05	21.26	21.28
	16QAM	RB Size=1, RB Offset=0	21.18	21.14	21.15
		RB Size=1, RB Offset=12	21.39	21.28	21.09
		RB Size=1, RB Offset=24	21.47	21.24	21.19
		RB Size=12, RB Offset=0	20.69	20.79	20.76
		RB Size=12, RB Offset=6	20.74	20.82	20.69
		RB Size=12, RB Offset=11	20.84	20.74	20.54
		RB Size=25, RB Offset=0	20.59	20.58	20.44
10.0	QPSK	RB Size=1, RB Offset=0	21.62	21.63	21.74
		RB Size=1, RB Offset=24	21.53	21.66	21.54
		RB Size=1, RB Offset=49	21.49	21.35	21.69
		RB Size=25, RB Offset=0	21.39	21.45	21.37
		RB Size=25, RB Offset=12	21.74	21.74	21.64
		RB Size=25, RB Offset=24	21.69	21.76	21.62
		RB Size=50, RB Offset=0	21.74	21.48	21.59
	16QAM	RB Size=1, RB Offset=0	21.63	21.69	21.72
		RB Size=1, RB Offset=24	21.58	21.74	21.64
		RB Size=1, RB Offset=49	20.74	20.74	20.69
		RB Size=25, RB Offset=0	21.41	20.76	20.42
		RB Size=25, RB Offset=12	20.68	20.68	20.76
		RB Size=25, RB Offset=24	20.59	20.58	20.75
		RB Size=50, RB Offset=0	20.42	20.64	20.46

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.66	13	Pass
QPSK (50RB Size)	5.69	13	Pass
16QAM (1RB Size)	6.48	13	Pass
16QAM (50RB Size)	6.35	13	Pass

ERP:**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 (dB)		
Middle Channel									
5 MHz Bandwidth									
710	84.62	207	2.1	H	22.0	0.62	0.0	21.38	34.77
710	79.35	201	1.3	V	20.1	0.62	0.0	19.48	34.77
10 MHz Bandwidth									
710	84.83	307	1.5	H	22.2	0.62	0.0	21.58	34.77
710	79.54	105	1.8	V	20.3	0.62	0.0	19.68	34.77

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 (dB)		
Middle Channel									
5 MHz Bandwidth									
710	84.52	93	1.4	H	21.9	0.62	0.0	21.28	34.77
710	79.66	234	1.7	V	20.5	0.62	0.0	19.88	34.77
10 MHz Bandwidth									
710	84.41	65	2.3	H	21.7	0.62	0.0	21.08	34.77
710	78.97	252	2.4	V	19.8	0.62	0.0	19.18	34.77

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

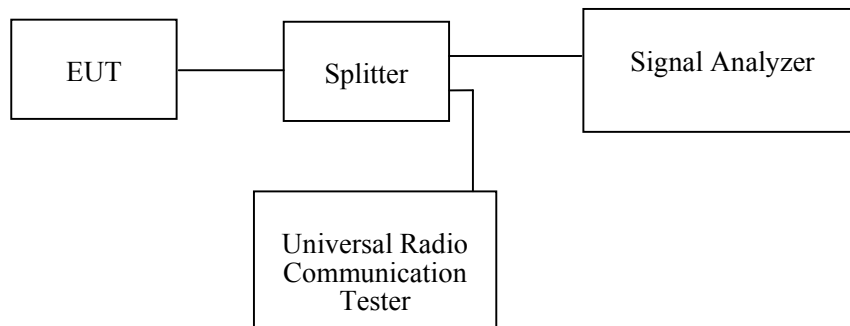
Applicable Standard

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

The testing was performed by Nancy Wang on 2018-03-06 and 2018-03-07.

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	325.32
EGPRS(8PSK)	836.6	248.40	318.91

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	836.6	4.167	4.728
HSUPA (BPSK)	836.6	4.167	4.712
HSDPA (16QAM)	836.6	4.167	4.712

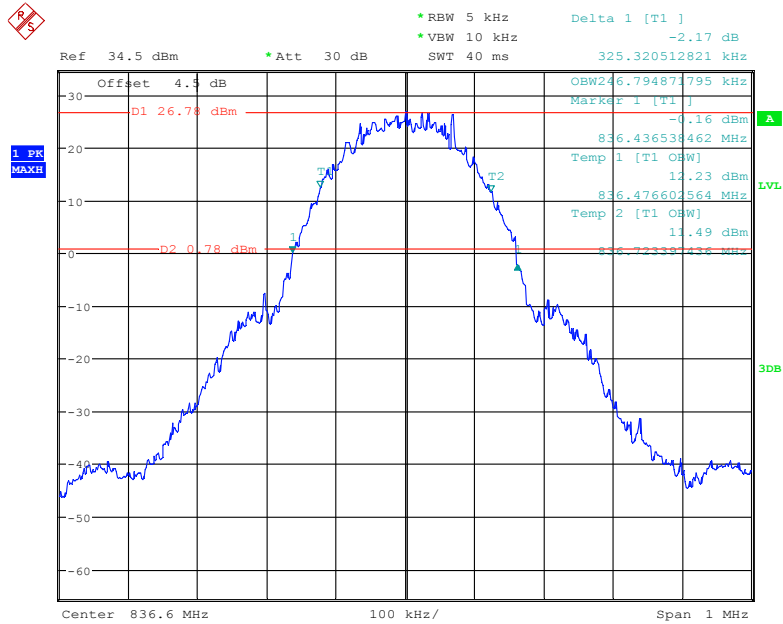
PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1880.0	241.99	312.50
EGPRS(8PSK)	1880.0	250.00	317.31

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1880.0	4.167	4.728
HSUPA (BPSK)	1880.0	4.167	4.712
HSDPA (16QAM)	1880.0	4.167	4.696

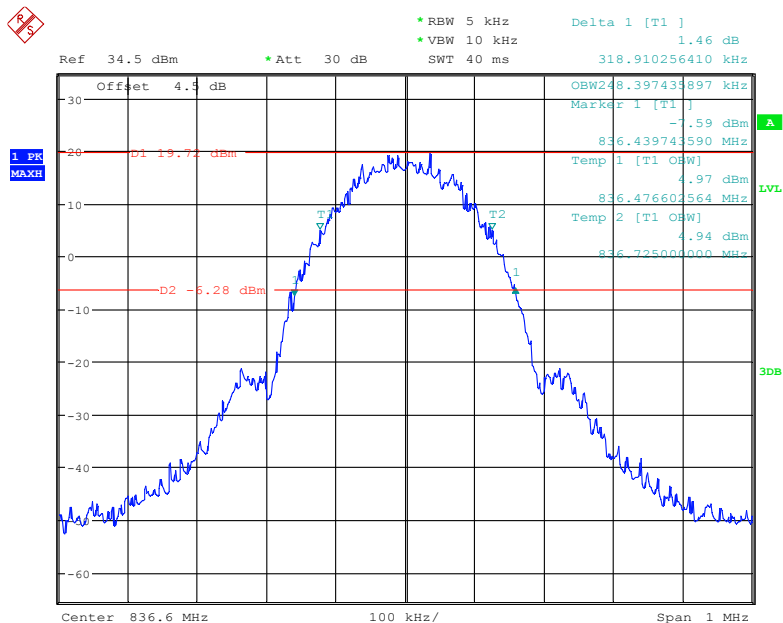
Cellular Band (Part 22H)

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



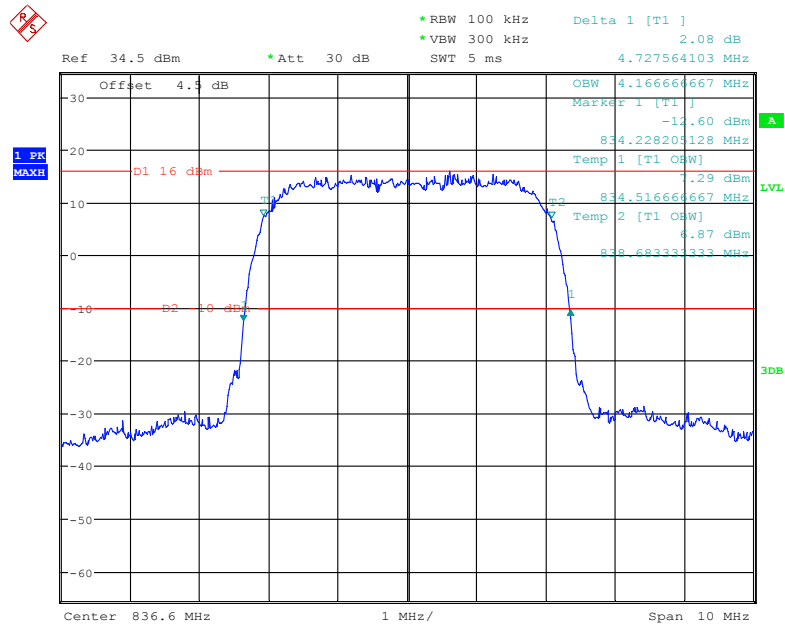
Date: 6.MAR.2018 14:20:40

26 dB Emissions & 99% Occupied Bandwidth for EDGE Mode



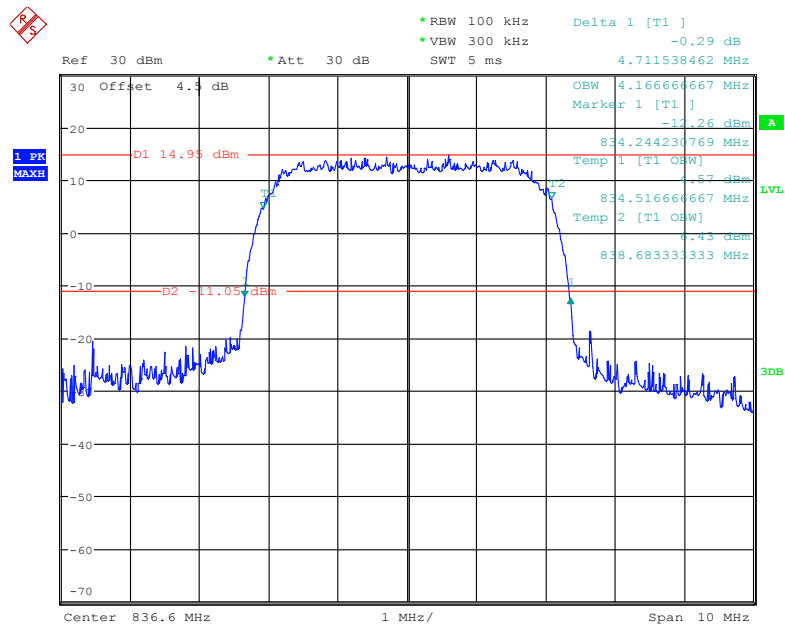
Date: 6.MAR.2018 14:50:07

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



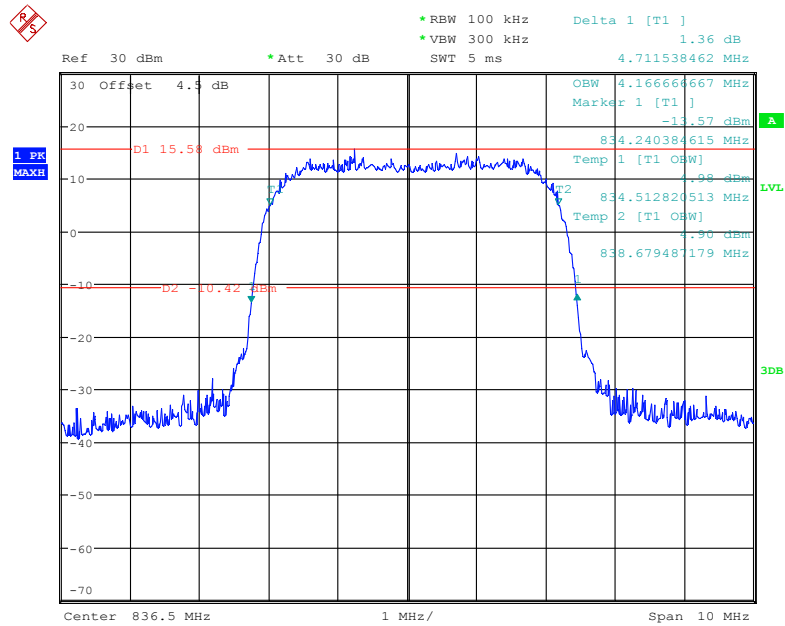
Date: 6.MAR.2018 15:05:43

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



Date: 6.MAR.2018 15:23:43

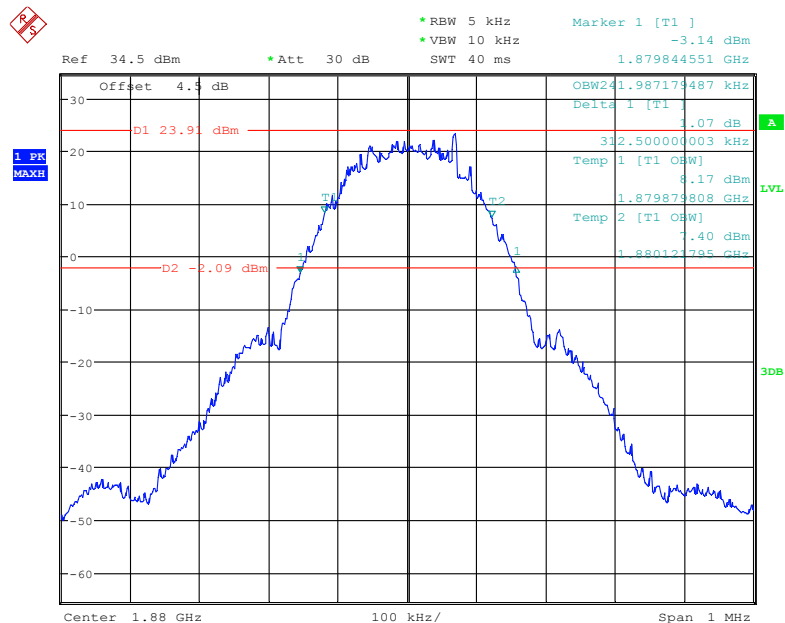
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode



Date: 6.MAR.2018 15:28:31

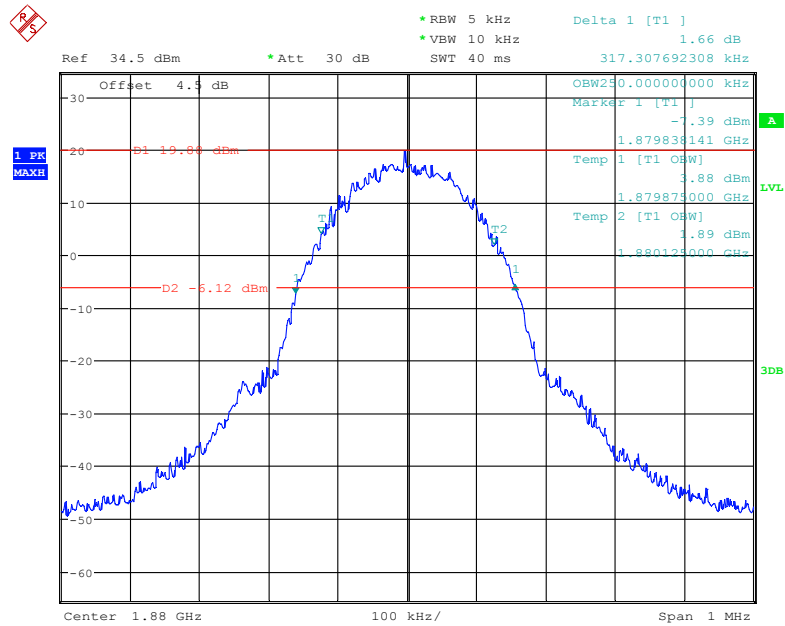
PCS Band (Part 24E)

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



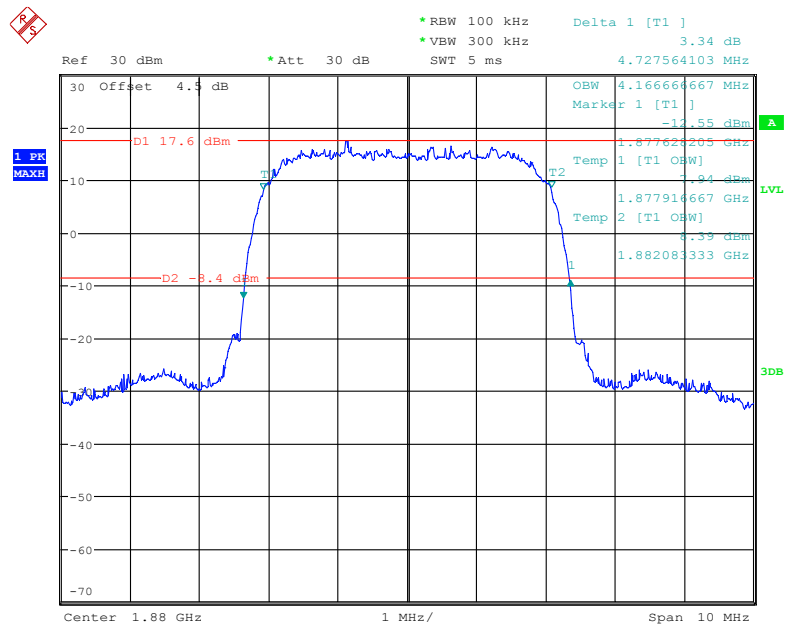
Date: 6.MAR.2018 14:34:41

26 dB Emissions & 99% Occupied Bandwidth for EDGE Mode



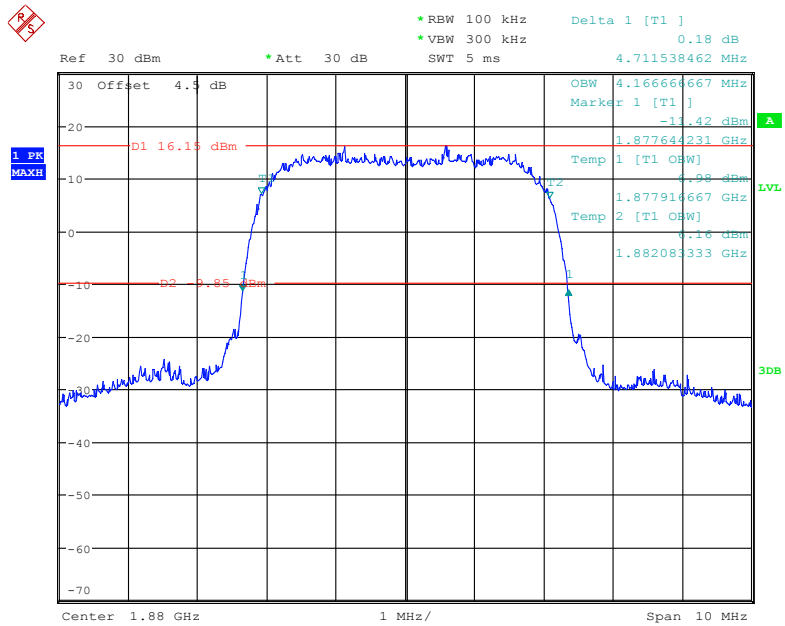
Date: 6.MAR.2018 14:41:54

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



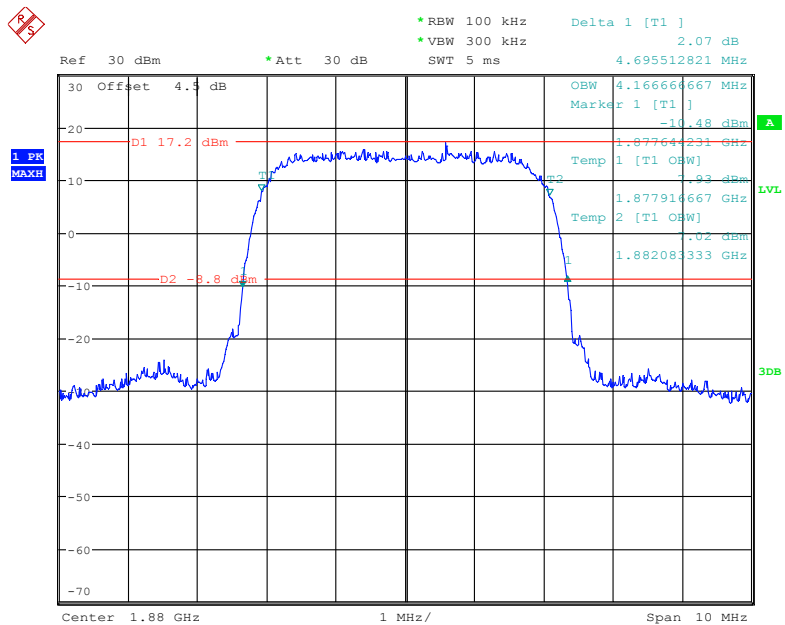
Date: 6.MAR.2018 15:18:40

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



Date: 6.MAR.2018 15:22:08

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

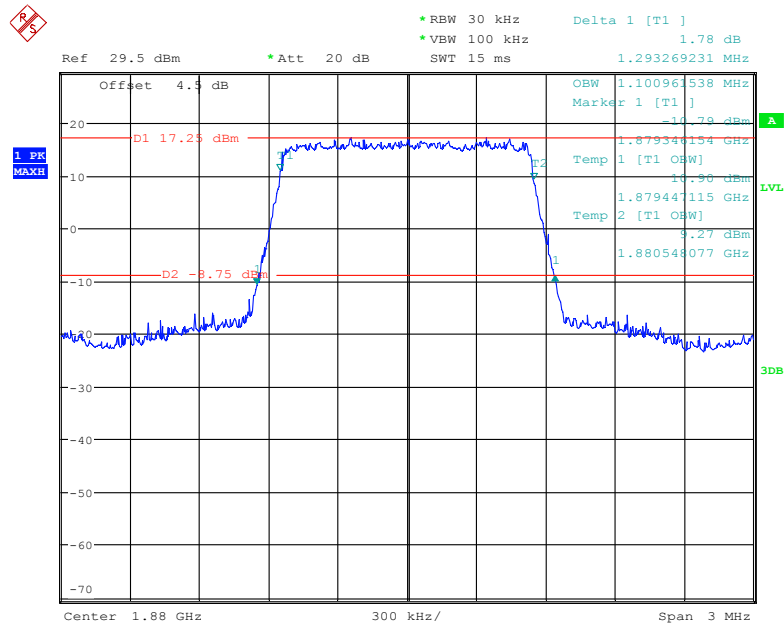


Date: 6.MAR.2018 15:29:51

LTE Band 2: (Middle Channel)

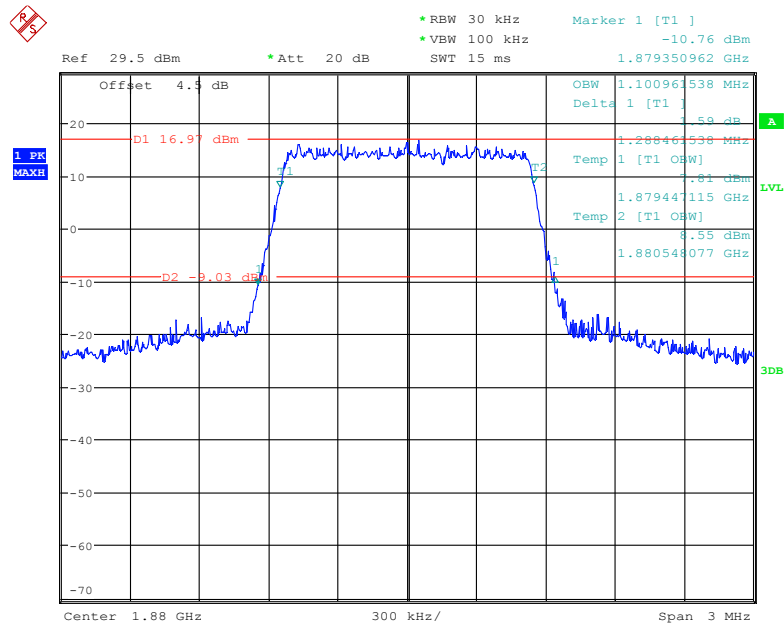
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.101	1.293
	16QAM	1.101	1.200
3.0	QPSK	2.692	2.947
	16QAM	2.692	2.966
5.0	QPSK	4.519	5.120
	16QAM	4.535	5.104
10.0	QPSK	8.974	9.864
	16QAM	8.974	9.896
15.0	QPSK	13.462	14.880
	16QAM	13.510	14.832
20.0	QPSK	17.949	19.479
	16QAM	17.949	19.607

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



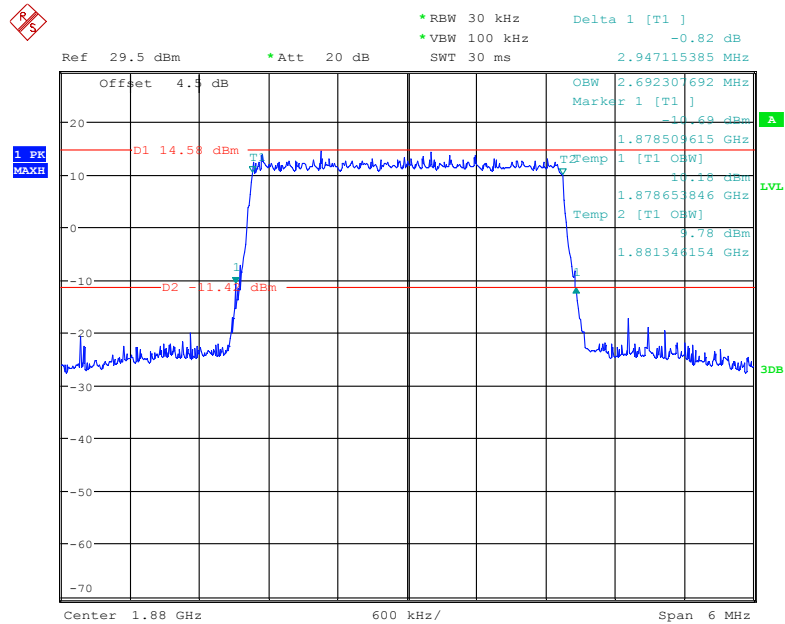
Date: 7.MAR.2018 10:25:00

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



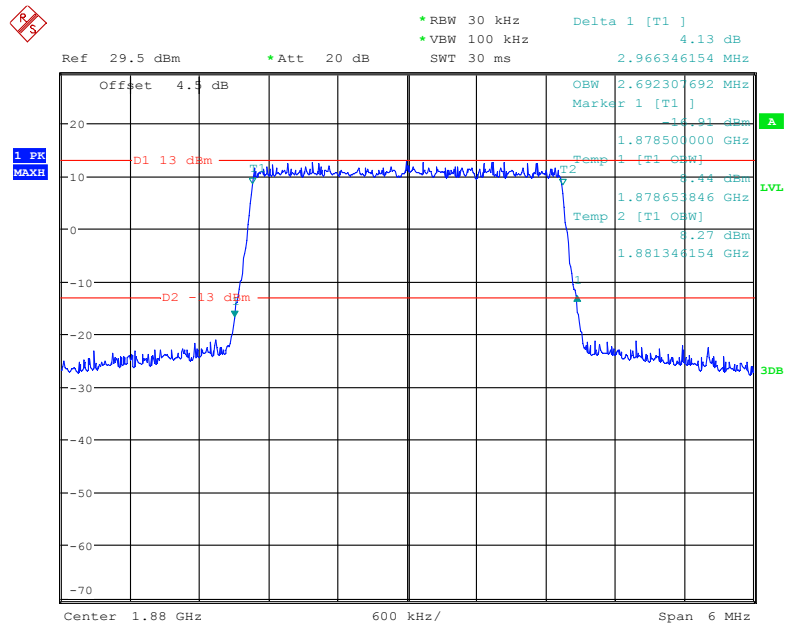
Date: 7.MAR.2018 10:27:01

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

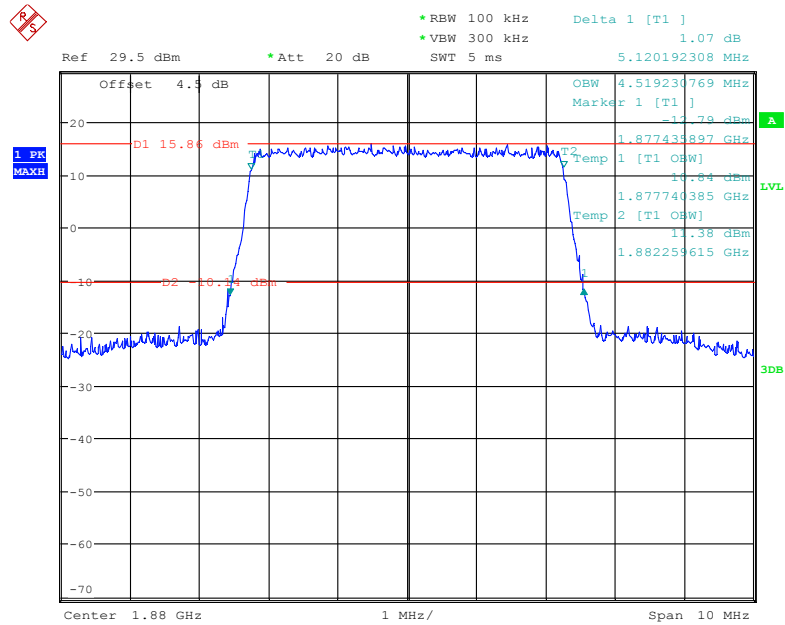


Date: 7.MAR.2018 10:28:31

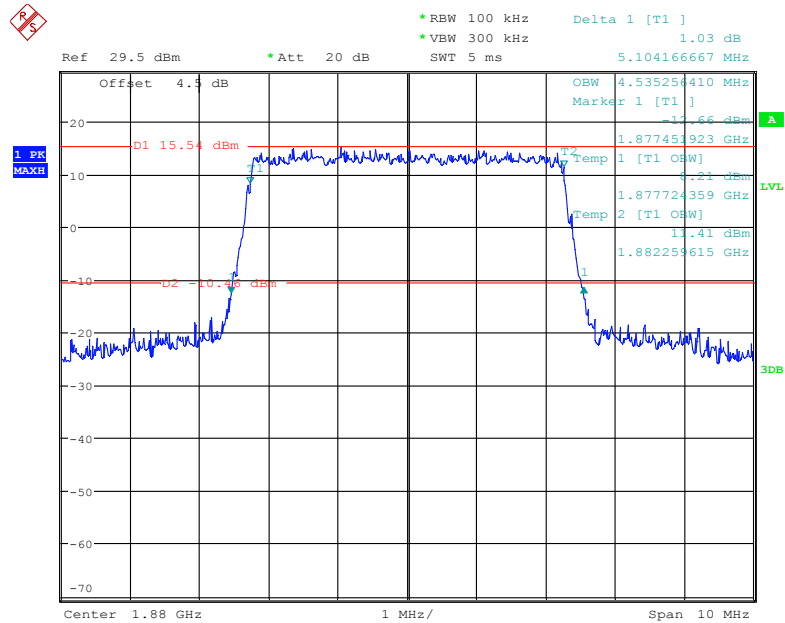
16-QAM (3.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 7.MAR.2018 10:29:57

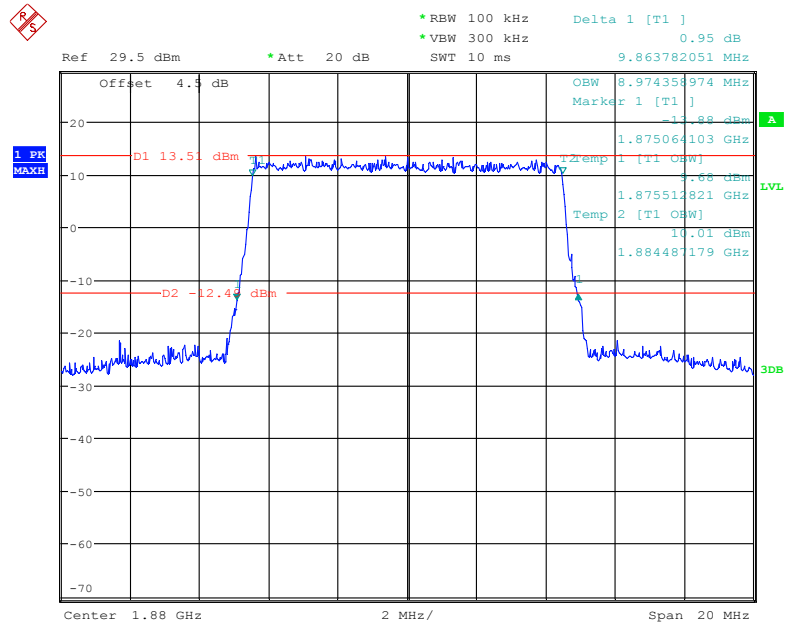
QPSK (5.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

Date: 7.MAR.2018 10:31:24

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

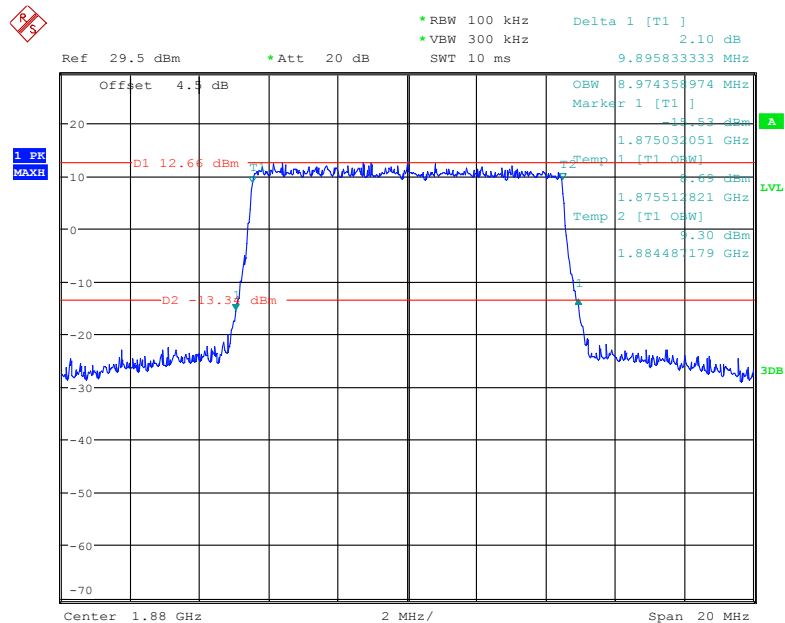
Date: 7.MAR.2018 10:32:57

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



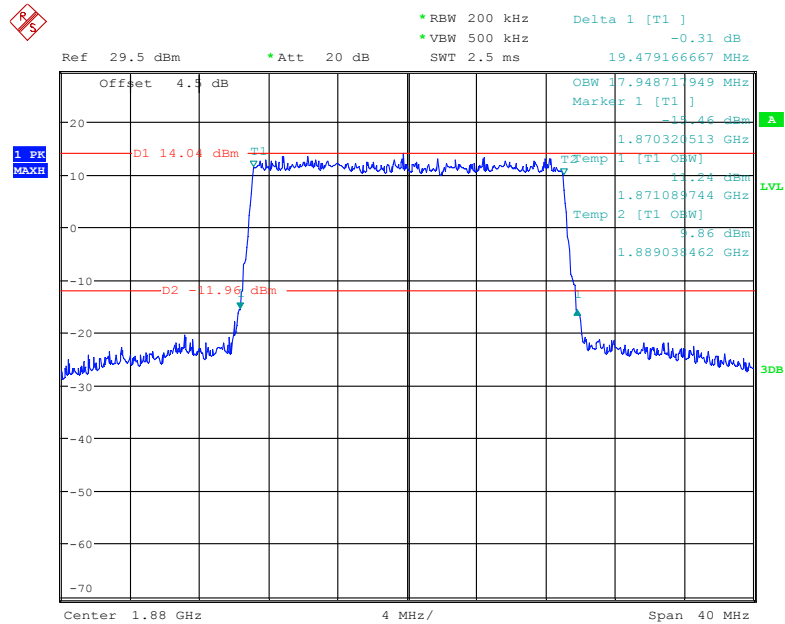
Date: 7.MAR.2018 10:34:21

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

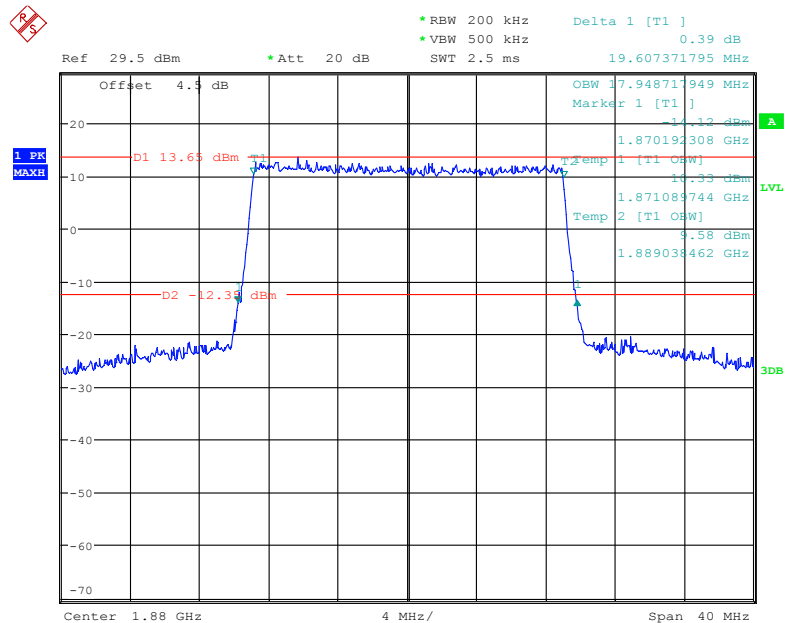


Date: 7.MAR.2018 10:36:09



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

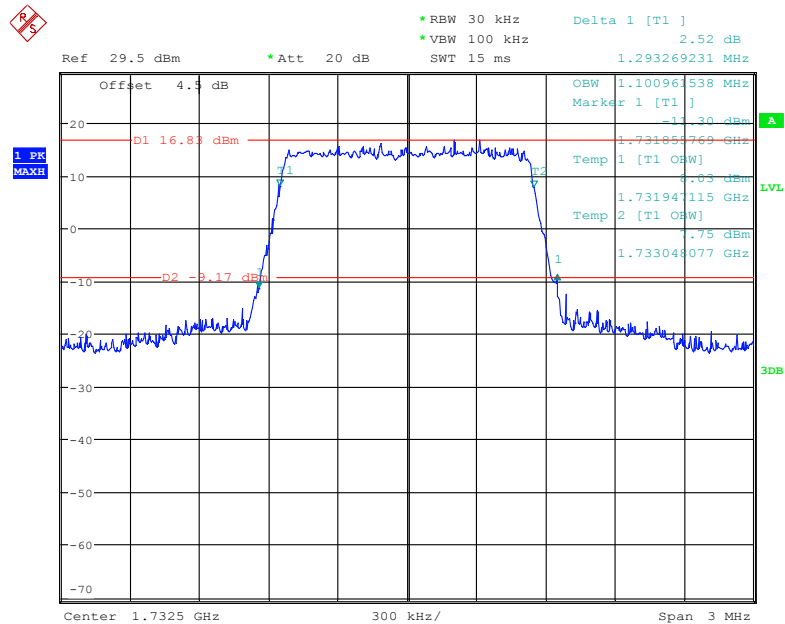
Date: 7.MAR.2018 10:40:37

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

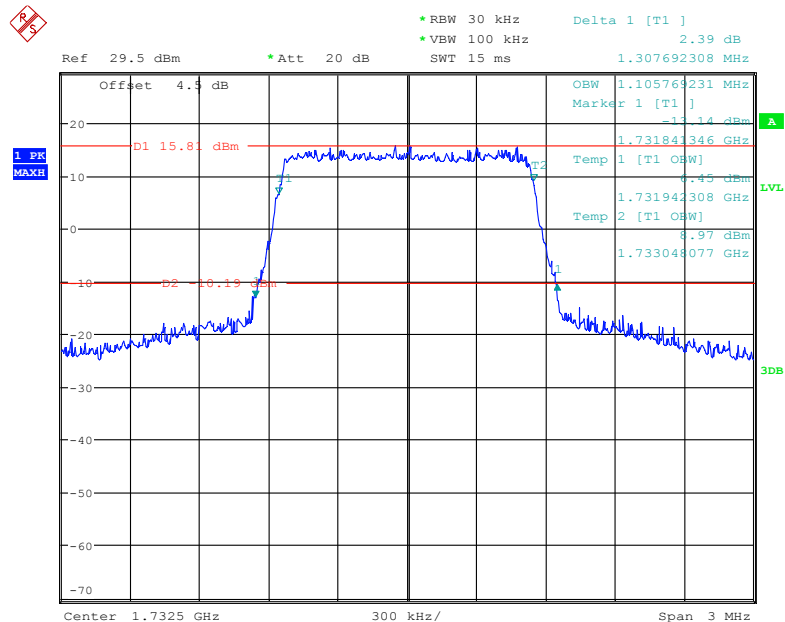
Date: 7.MAR.2018 10:45:28

LTE Band 4: (Middle Channel)

Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.101	1.293
	16QAM	1.106	1.308
3.0	QPSK	2.702	2.966
	16QAM	2.692	2.957
5.0	QPSK	4.535	5.104
	16QAM	4.519	5.072
10.0	QPSK	8.974	9.864
	16QAM	8.974	9.800
15.0	QPSK	13.510	14.896
	16QAM	13.510	14.896
20.0	QPSK	17.949	19.303
	16QAM	18.013	19.431

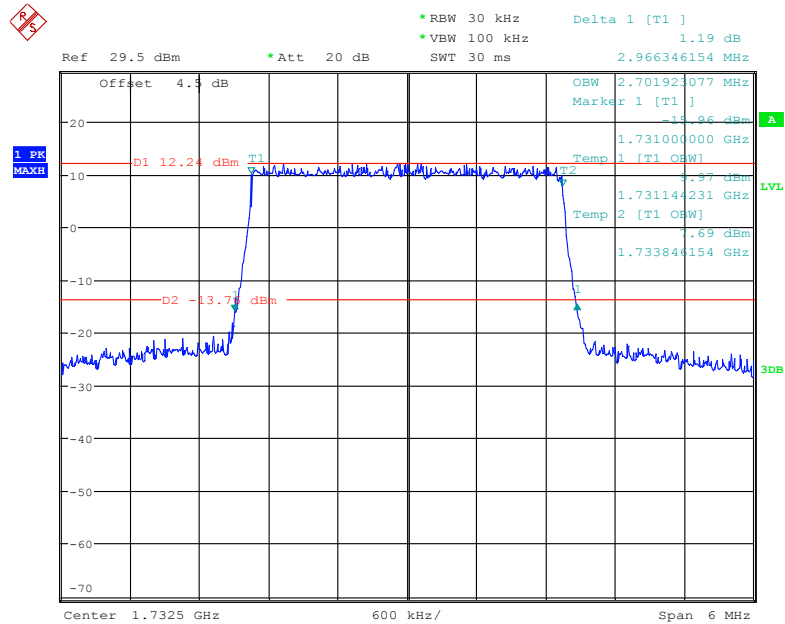
QPSK (1.4 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

Date: 7.MAR.2018 10:49:06

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

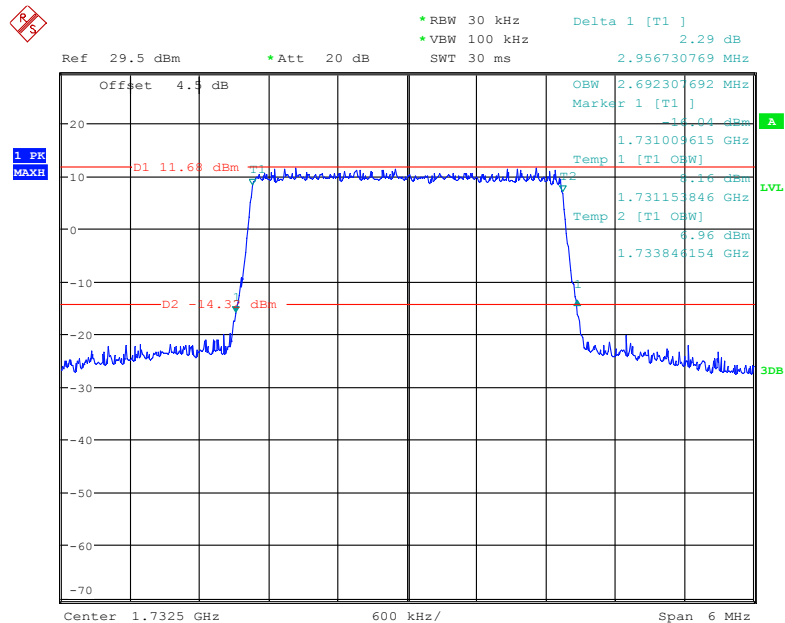
Date: 7.MAR.2018 10:47:40

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



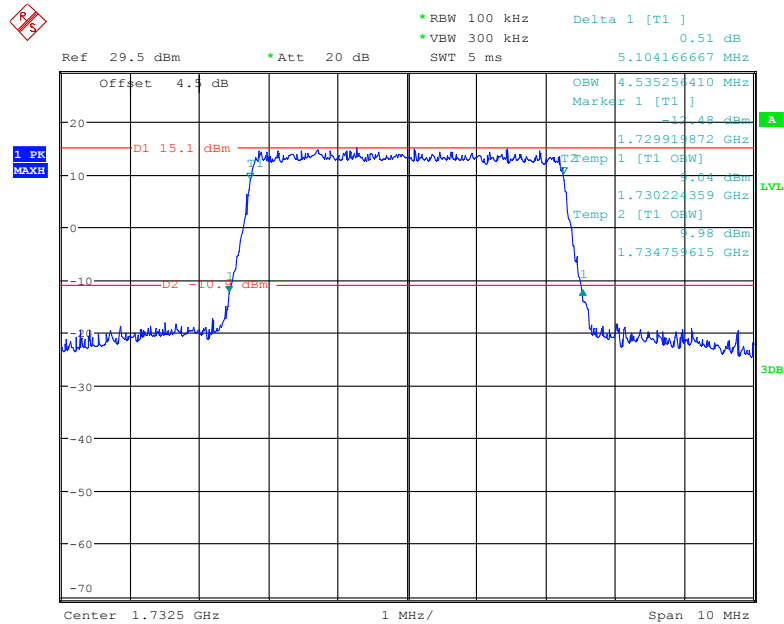
Date: 7.MAR.2018 10:51:32

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



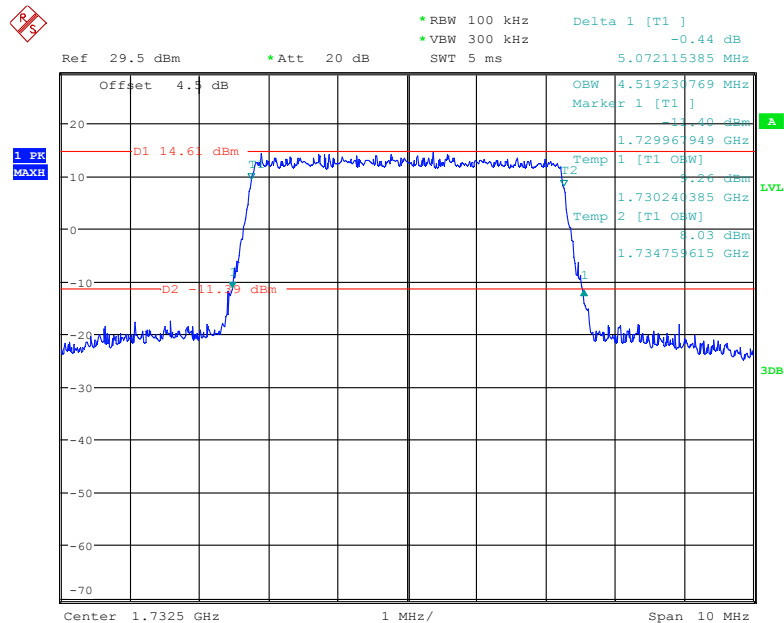
Date: 7.MAR.2018 10:50:26

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



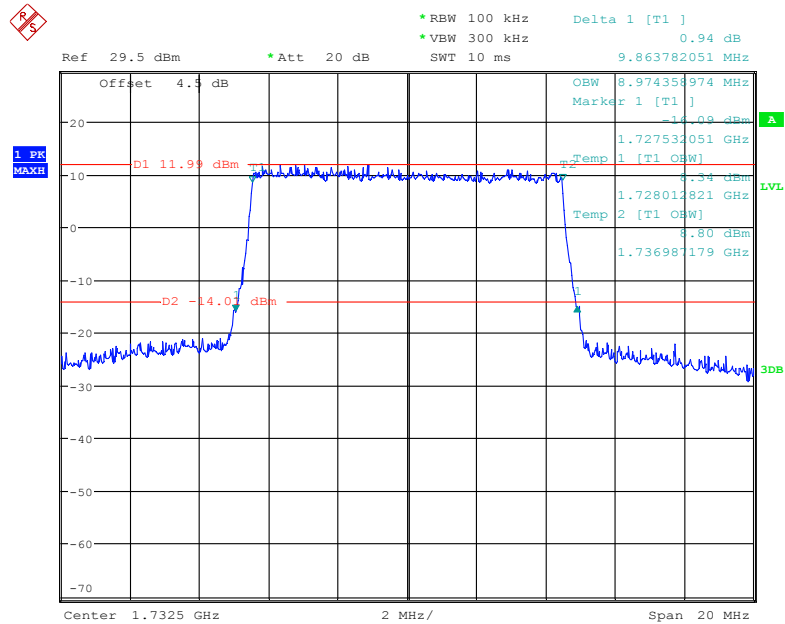
Date: 7.MAR.2018 10:54:20

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



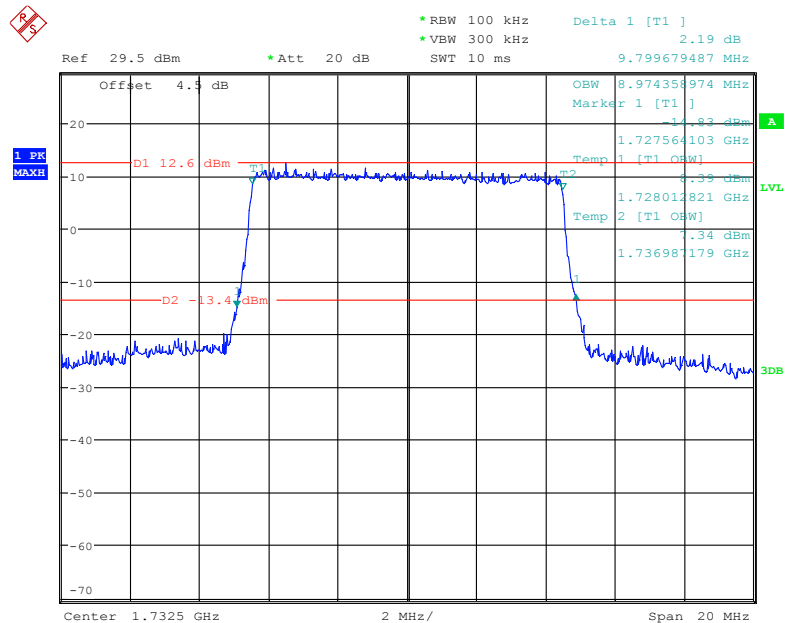
Date: 7.MAR.2018 10:53:02

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



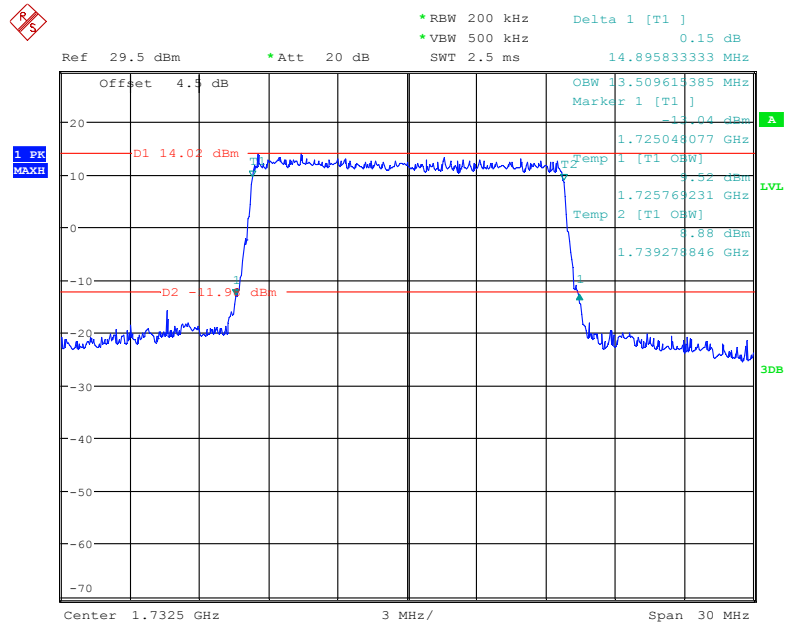
Date: 7.MAR.2018 10:58:58

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



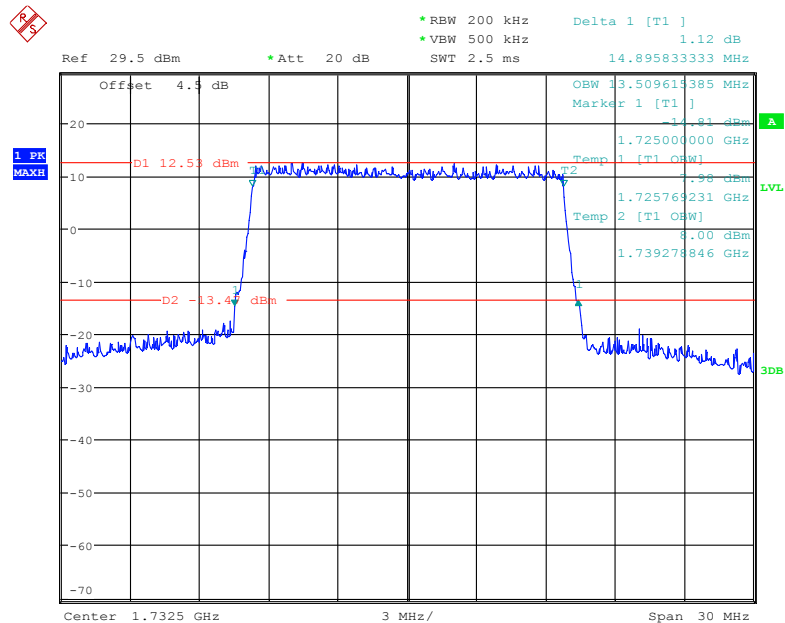
Date: 7.MAR.2018 10:56:07

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

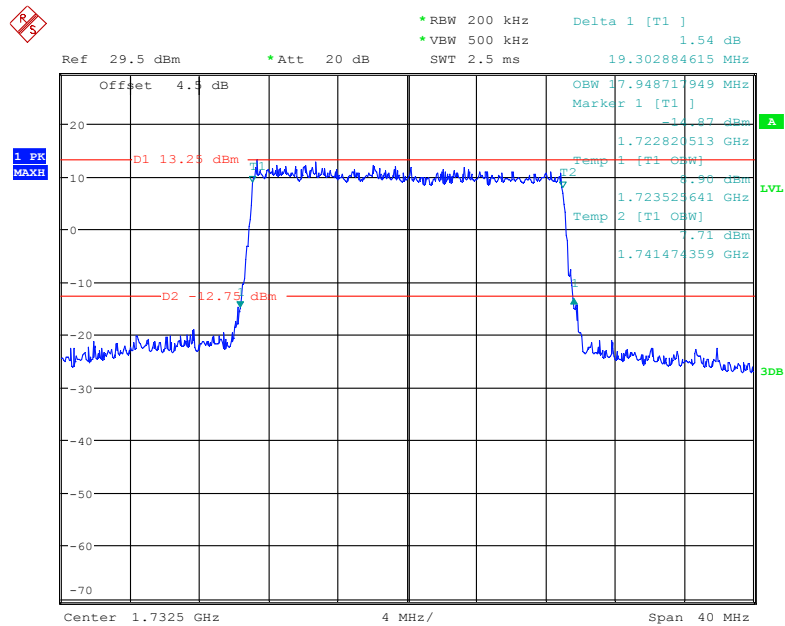


Date: 7.MAR.2018 11:01:33

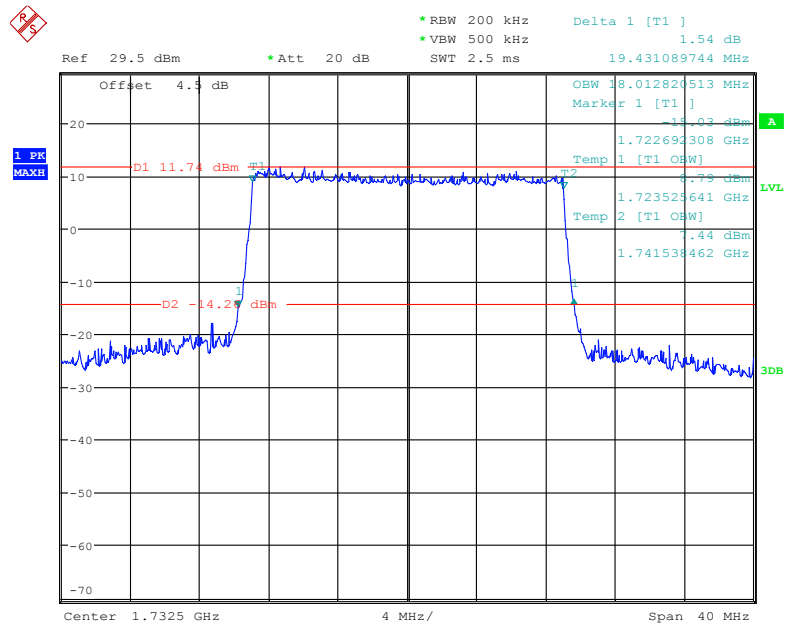
16-QAM (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 7.MAR.2018 11:00:12

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

Date: 7.MAR.2018 11:04:05

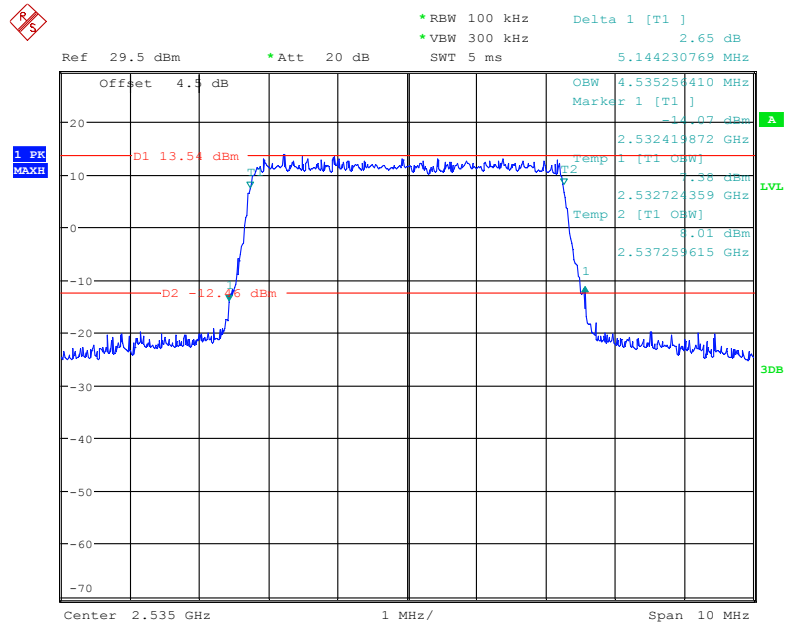
16-QAM (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

Date: 7.MAR.2018 11:02:50

LTE Band 7: (Middle Channel)

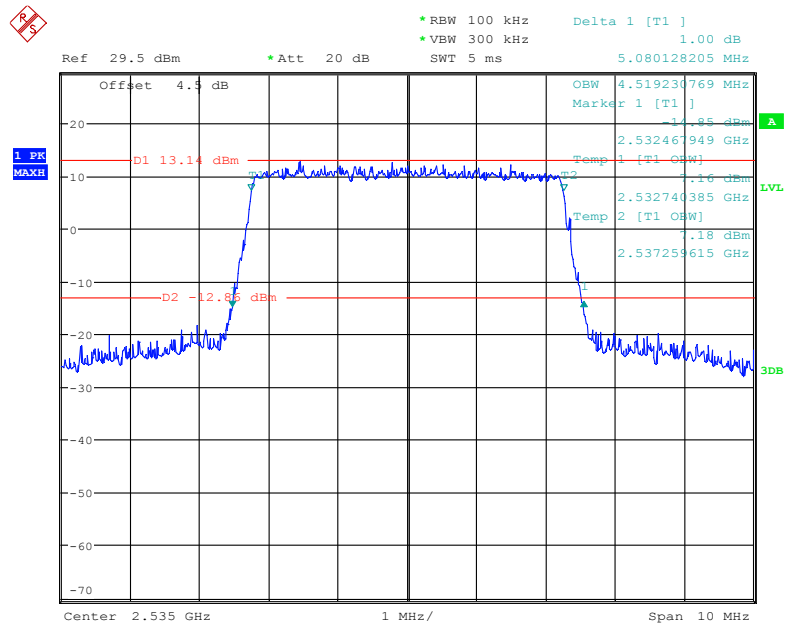
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.535	5.144
	16QAM	4.519	5.080
10.0	QPSK	8.974	9.856
	16QAM	8.974	9.792
15.0	QPSK	13.510	14.776
	16QAM	13.510	14.872
20.0	QPSK	17.949	19.359
	16QAM	17.949	19.423

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



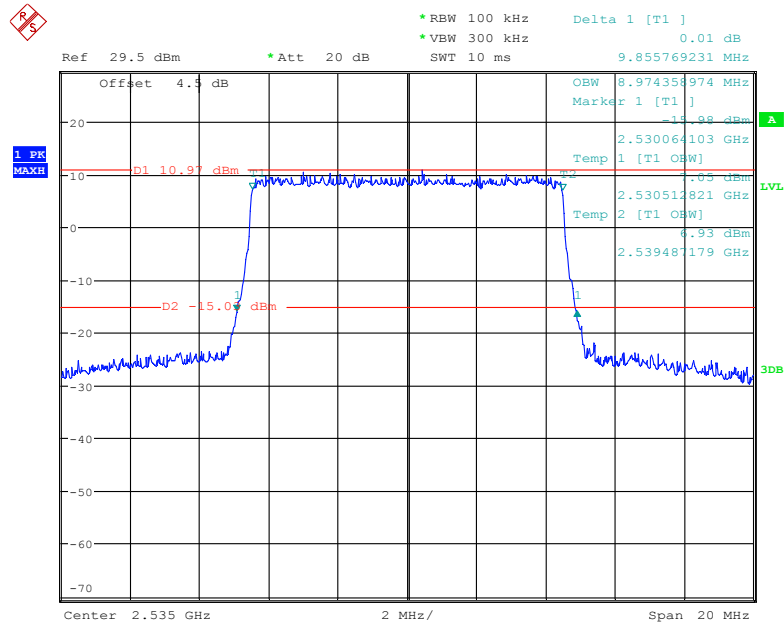
Date: 7.MAR.2018 11:06:04

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



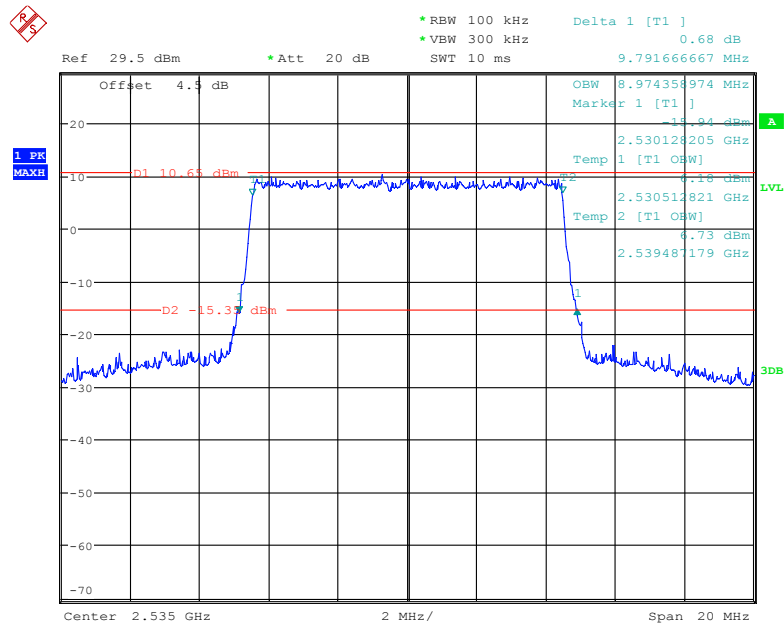
Date: 7.MAR.2018 11:07:19

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



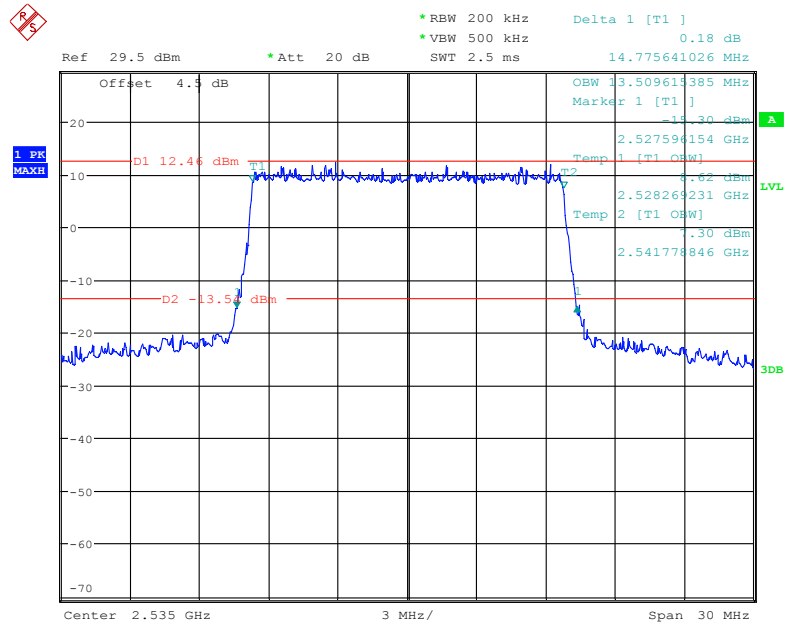
Date: 7.MAR.2018 11:10:32

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



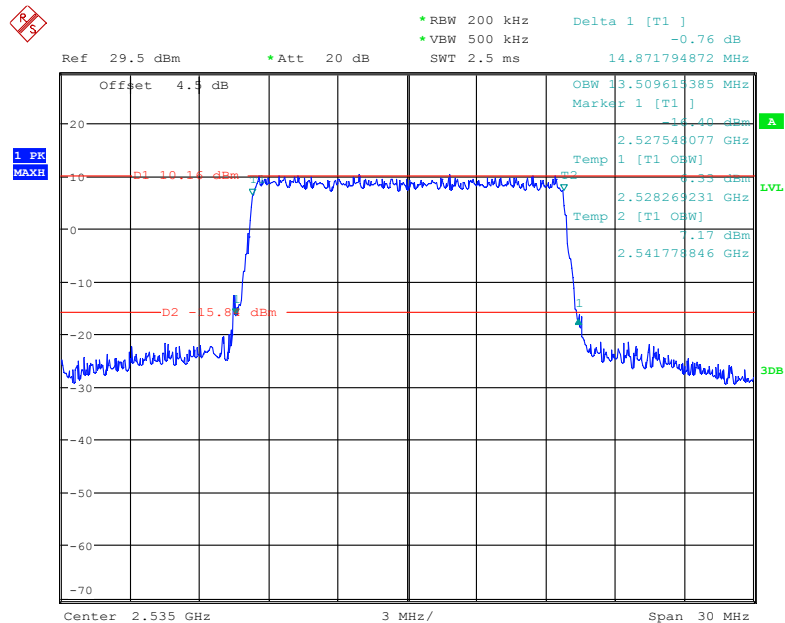
Date: 7.MAR.2018 11:09:39

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

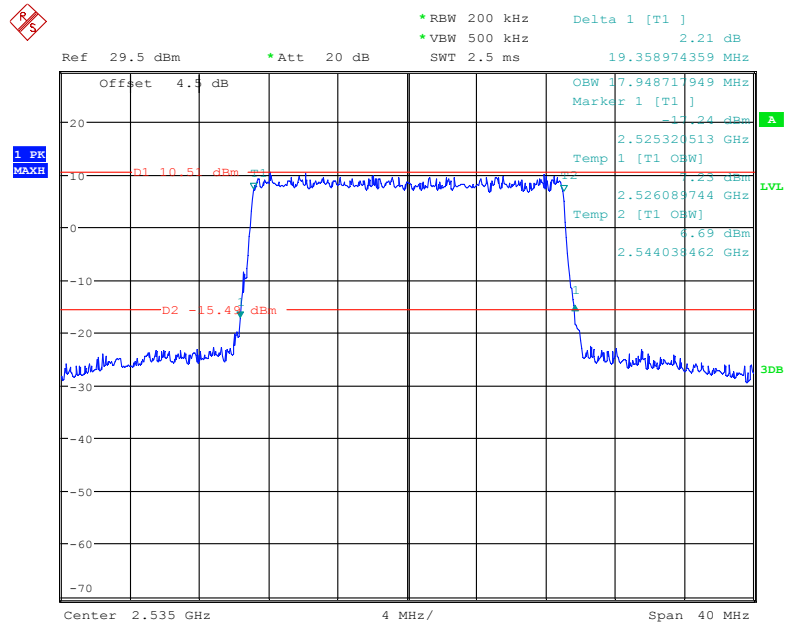


Date: 7.MAR.2018 11:20:07

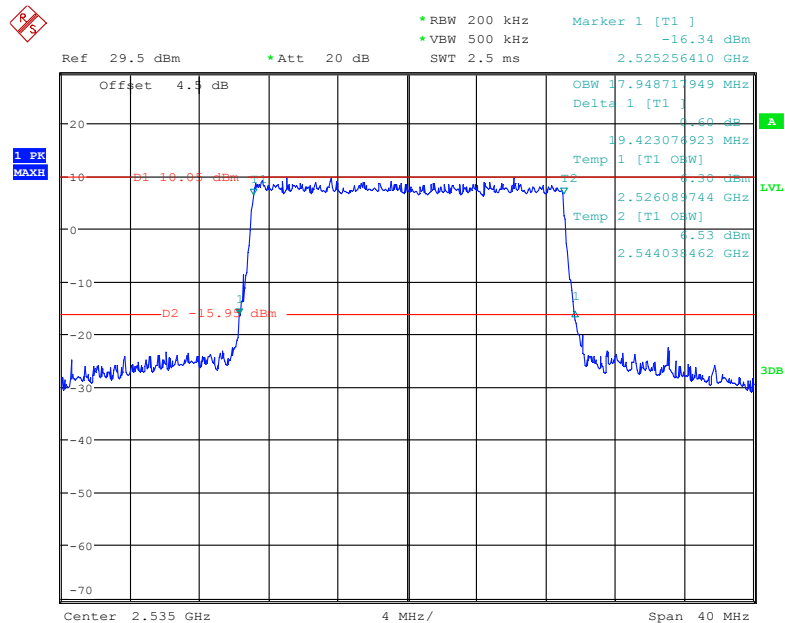
16-QAM (15.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel



Date: 7.MAR.2018 11:19:01

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

Date: 7.MAR.2018 11:21:26

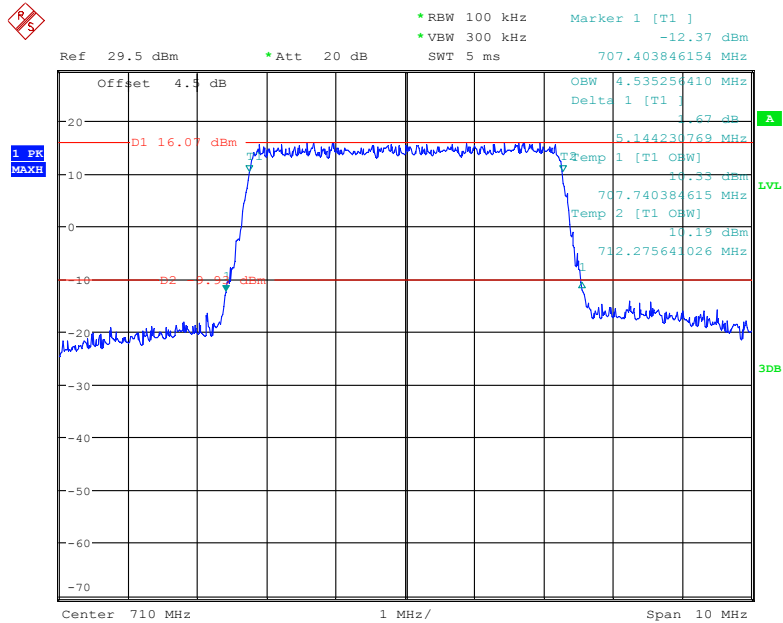
16-QAM (20.0 MHz) - 26 dB Bandwidth & 99% Occupied Bandwidth, Middle channel

Date: 7.MAR.2018 11:23:06

LTE Band 17: (Middle Channel)

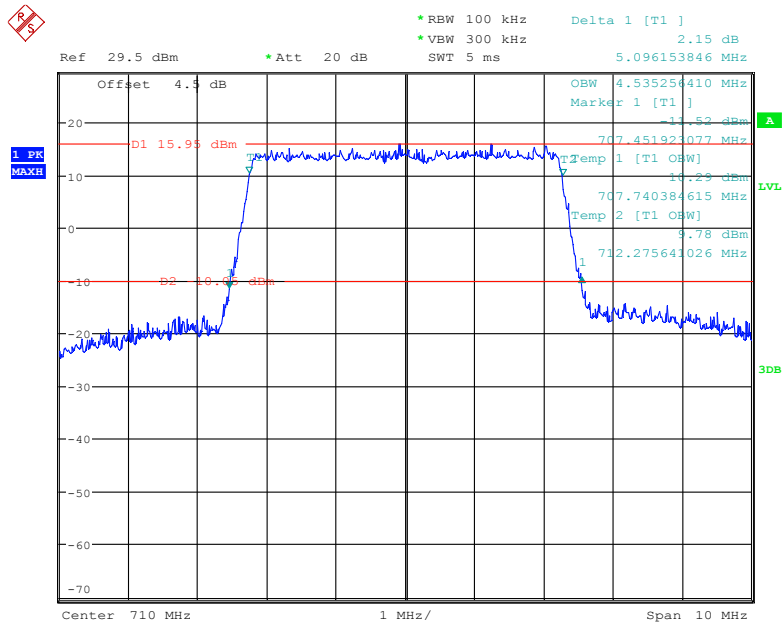
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.535	5.144
	16QAM	4.535	5.096
10.0	QPSK	8.974	9.792
	16QAM	8.974	9.856

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



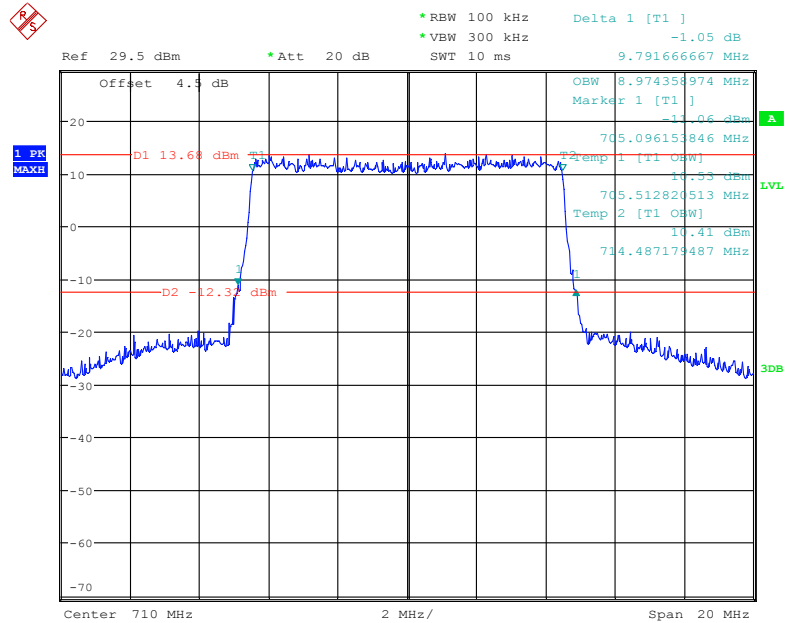
Date: 7.MAR.2018 11:27:23

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



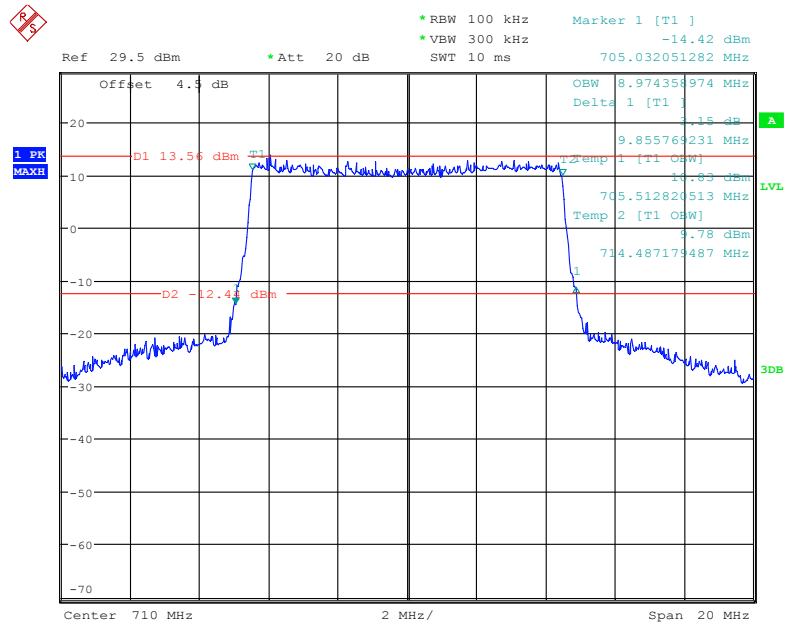
Date: 7.MAR.2018 11:26:07

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



Date: 7.MAR.2018 11:28:44

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



Date: 7.MAR.2018 11:30:21

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

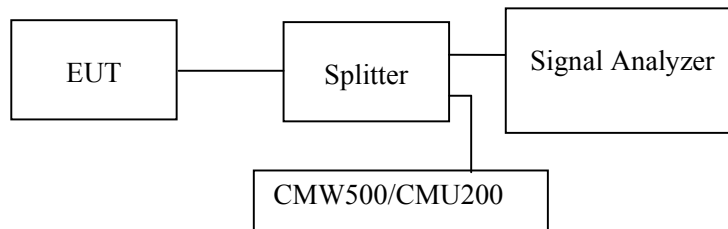
Applicable Standard

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

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:	25~26 °C
Relative Humidity:	52~54 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang from 2018-03-06 to 2018-03-27.

Test result: Compliance.

EUT operation mode: transmitting

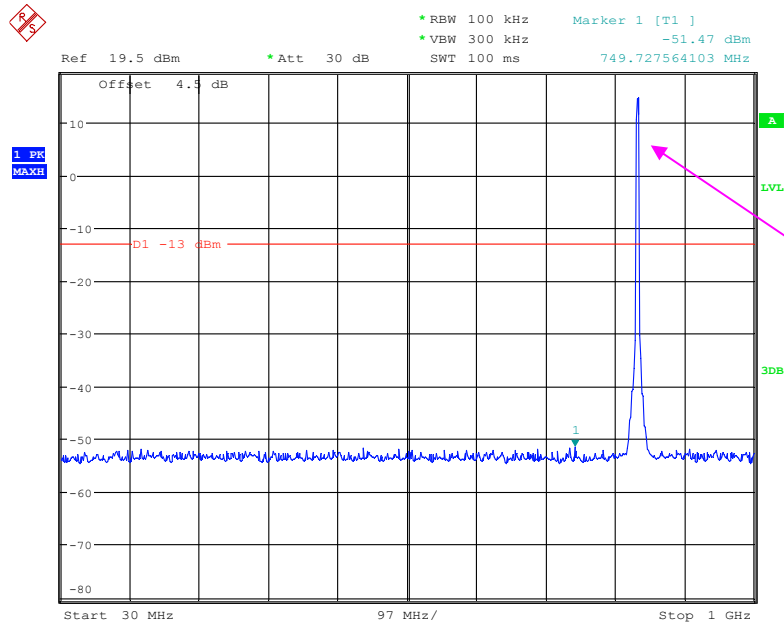
Please refer to the following plots.

30 MHz – 1 GHz (GSM Mode)



1 GHz – 10 GHz (GSM Mode)

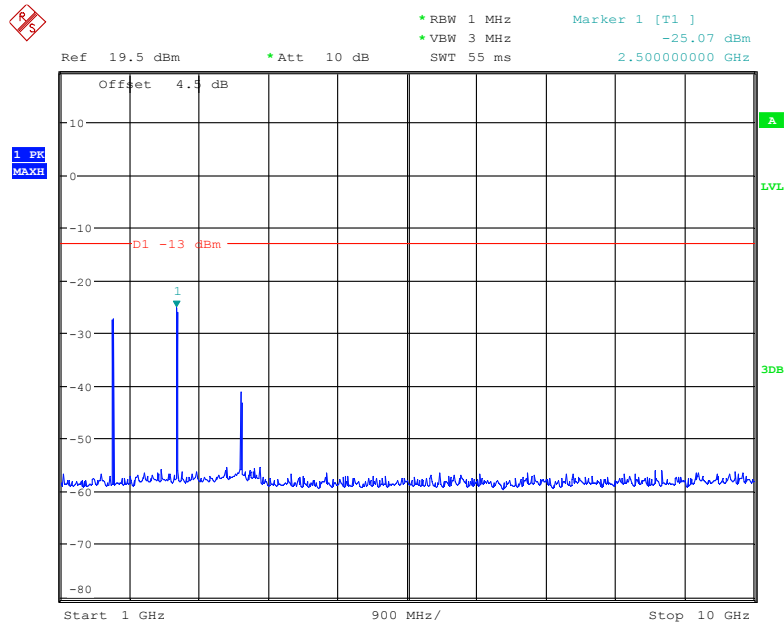
30 MHz – 1 GHz (WCDMA Mode)



Fundamental test

Date: 6.MAR.2018 15:13:23

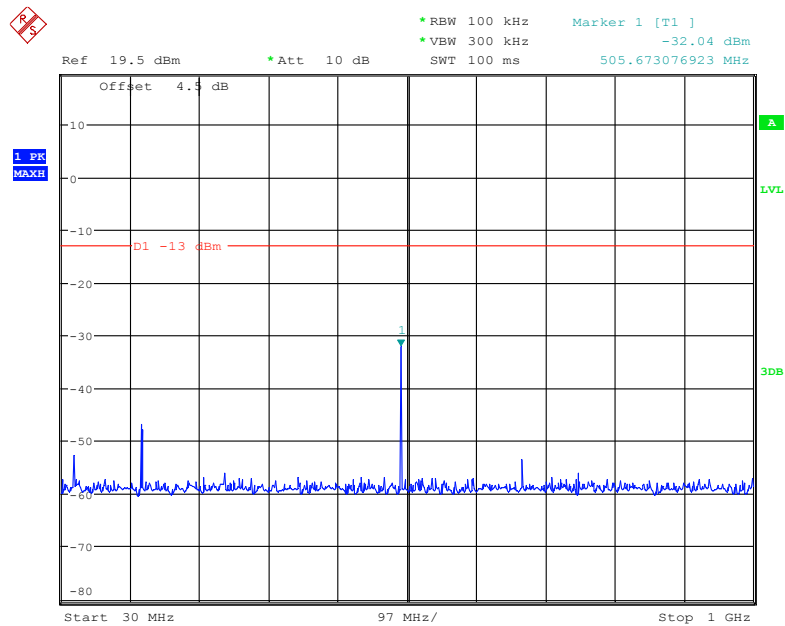
1 GHz – 10 GHz (WCDMA Mode)



Date: 6.MAR.2018 15:12:18

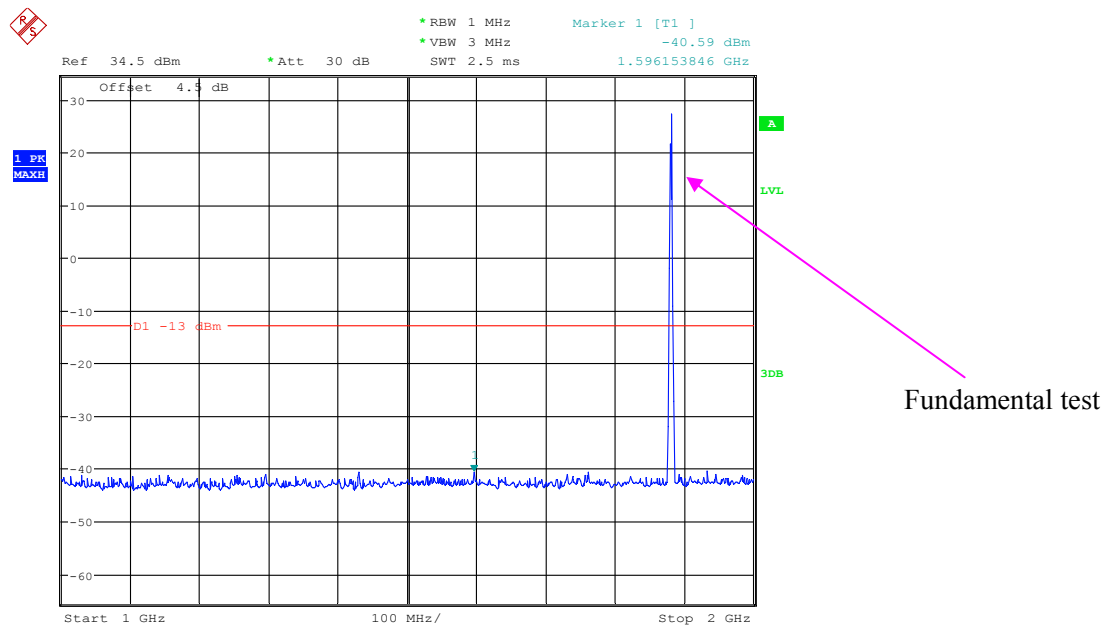
PCS Band (Part 24E)

30 MHz – 1 GHz (GSM Mode)

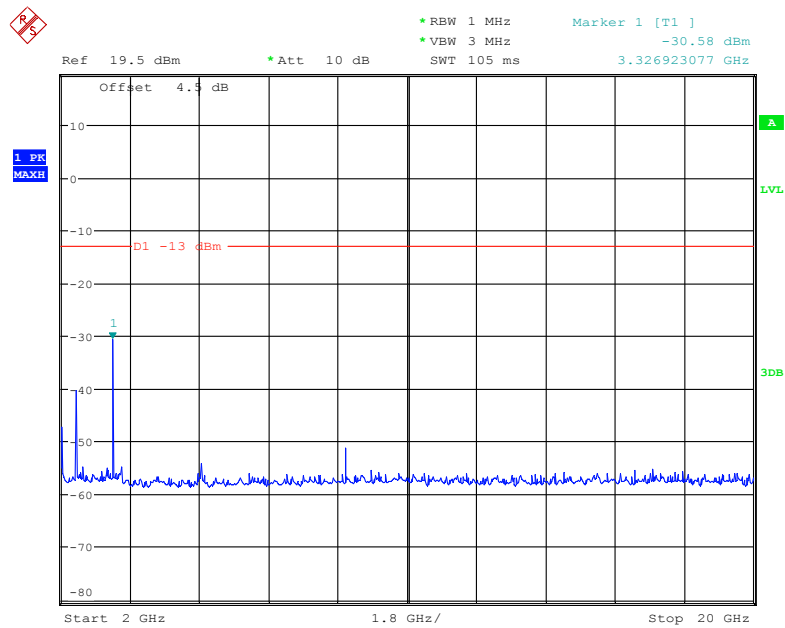


Date: 6.MAR.2018 14:32:13

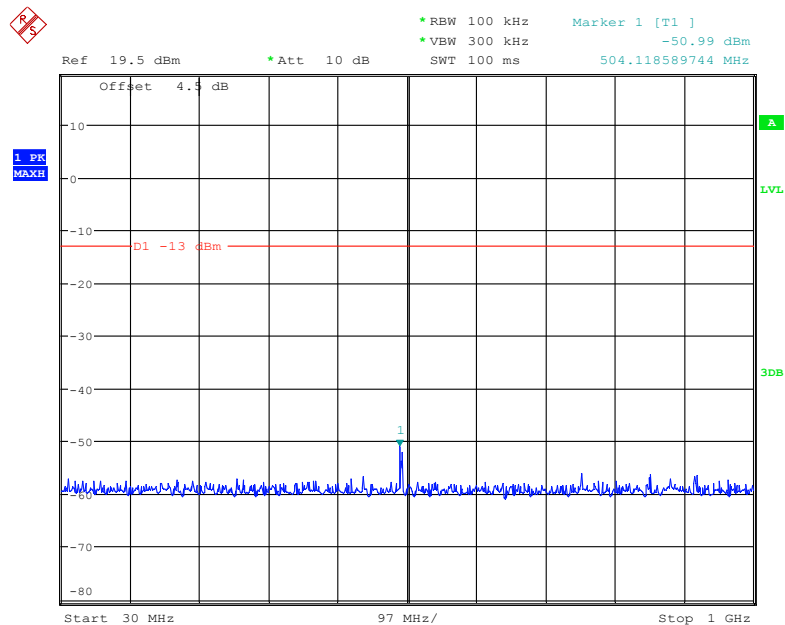
1 GHz – 2 GHz (GSM Mode)



Date: 6.MAR.2018 14:31:01

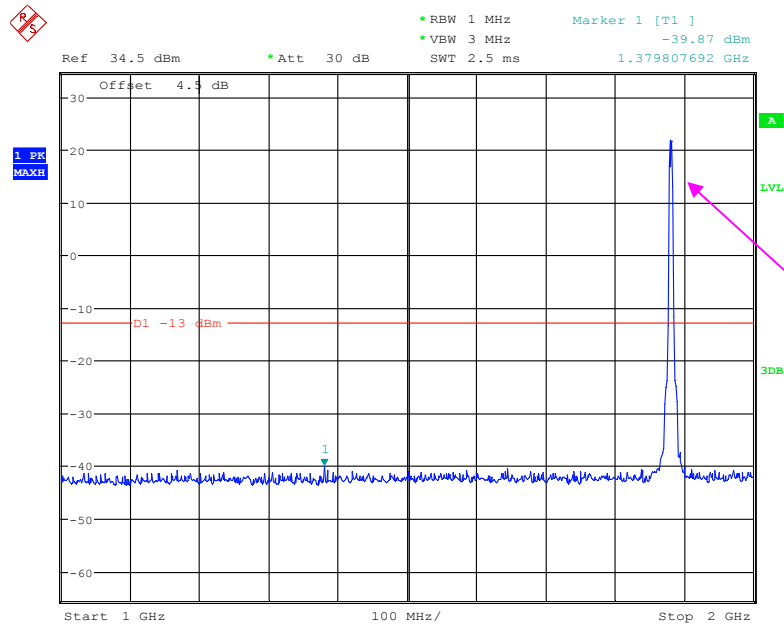
2 GHz – 20 GHz (GSM Mode)

Date: 6.MAR.2018 14:31:43

30 MHz – 1 GHz (WCDMA Mode)

Date: 6.MAR.2018 15:16:19

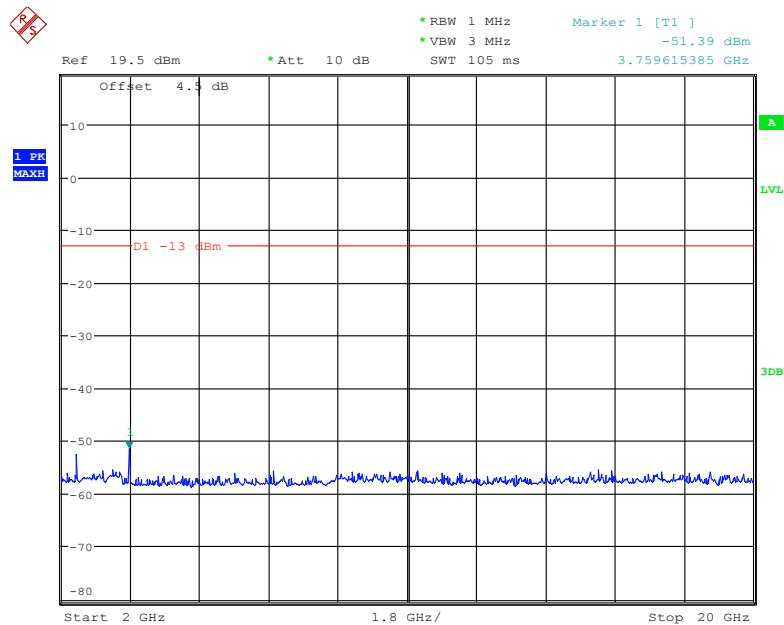
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

Date: 6.MAR.2018 15:15:06

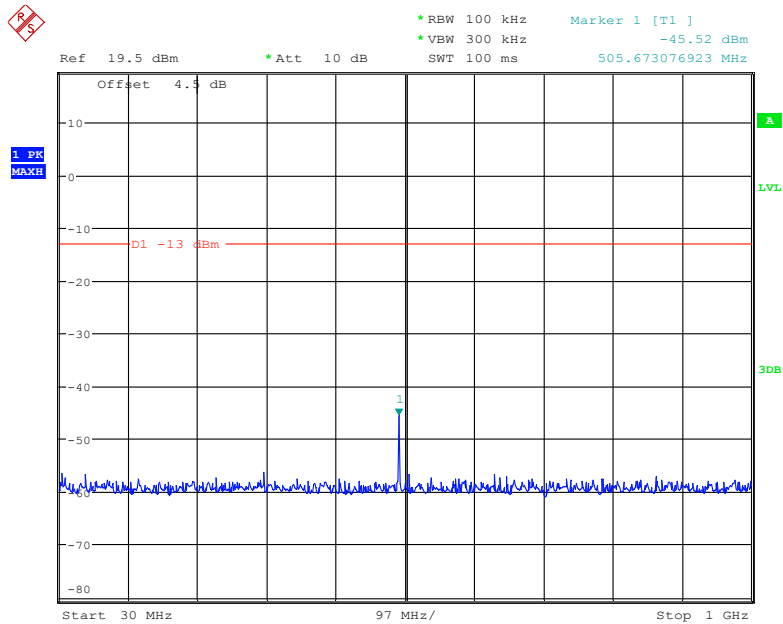
2 GHz – 20 GHz (WCDMA Mode)



Date: 6.MAR.2018 15:15:39

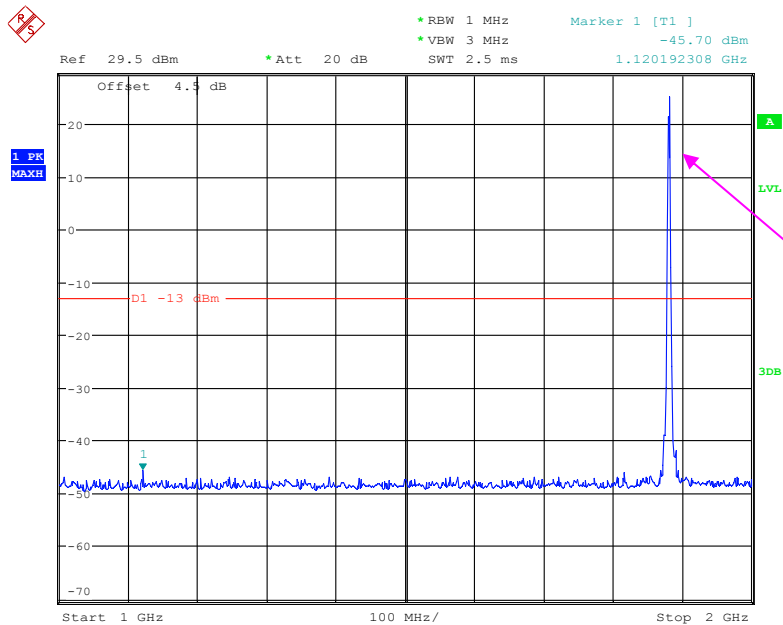
LTE Band 2:

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



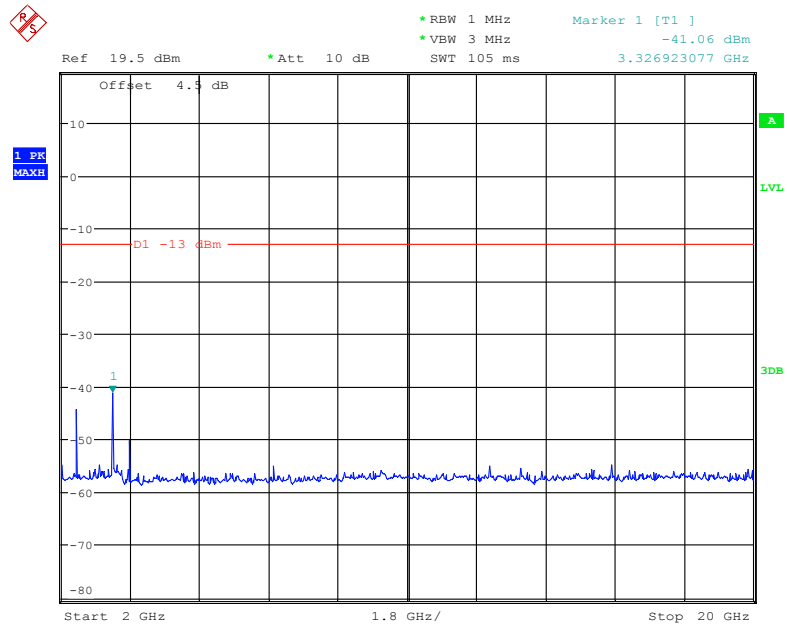
Date: 8.MAR.2018 10:01:39

1 GHz - 2 GHz (1.4 MHz, Middle Channel)



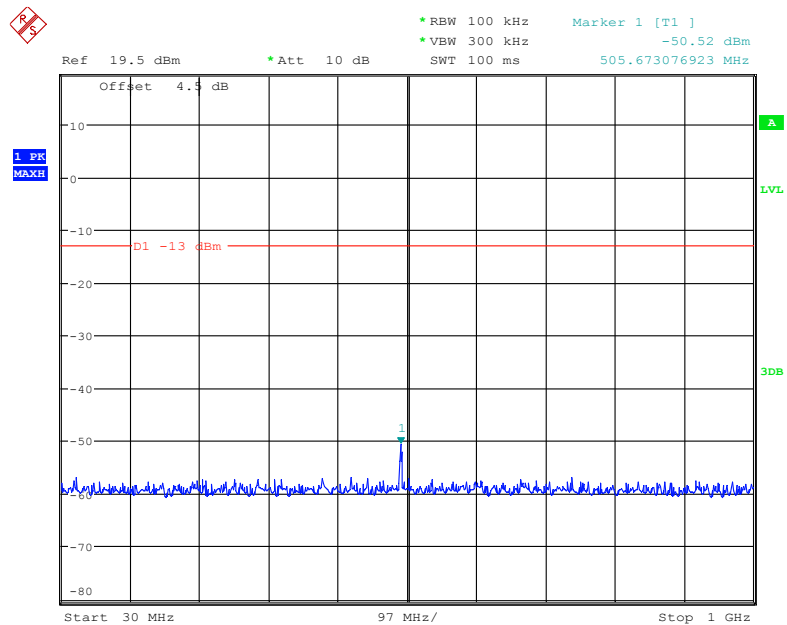
Date: 8.MAR.2018 09:47:04

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



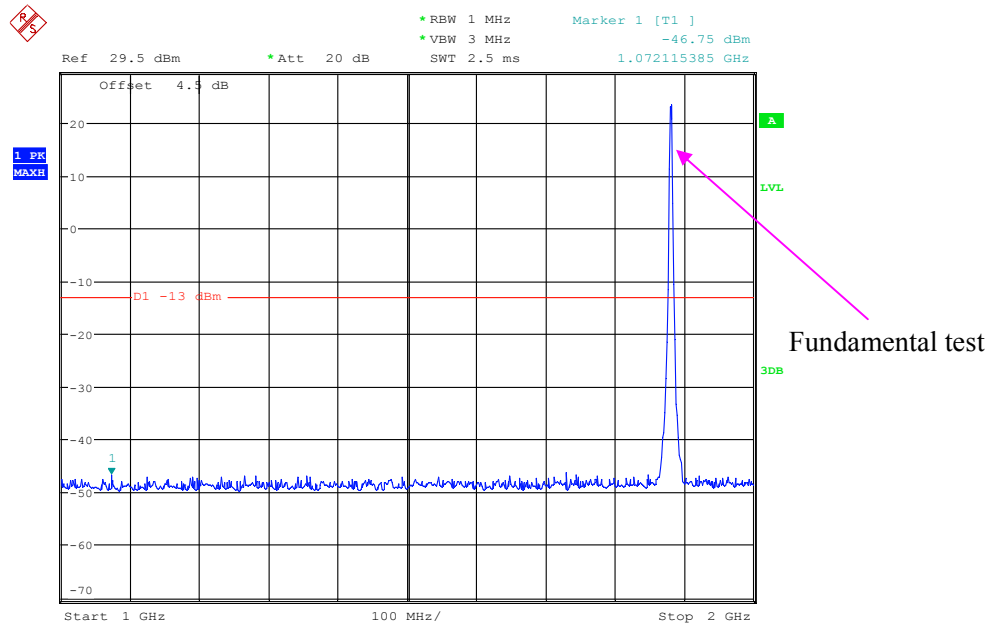
Date: 8.MAR.2018 09:56:48

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



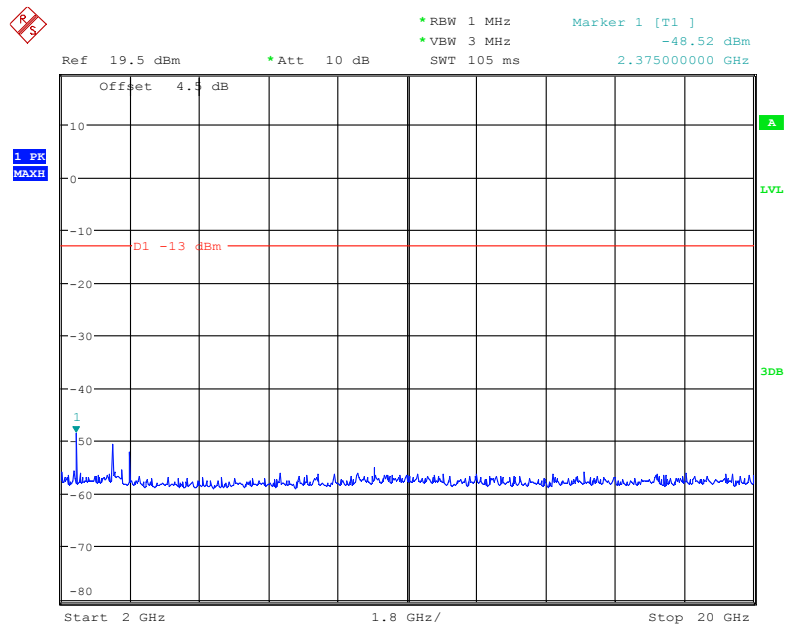
Date: 8.MAR.2018 10:01:57

1 GHz – 2 GHz (3.0 MHz, Middle Channel)



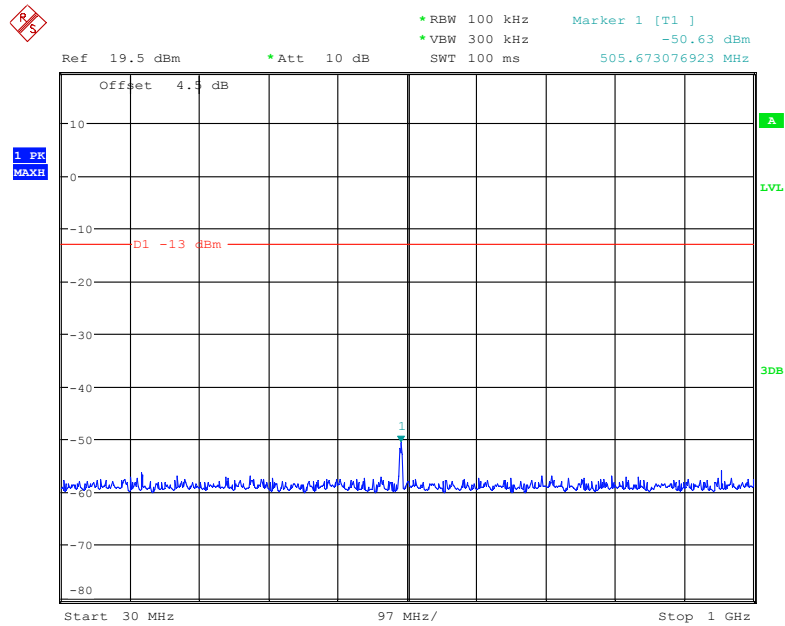
Date: 8.MAR.2018 09:48:02

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



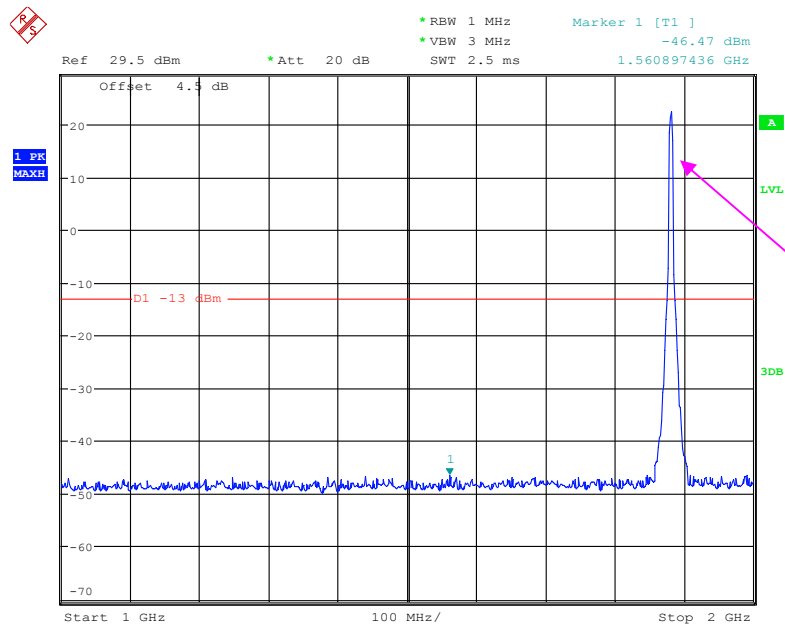
Date: 8.MAR.2018 09:57:11

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



Date: 8.MAR.2018 10:02:17

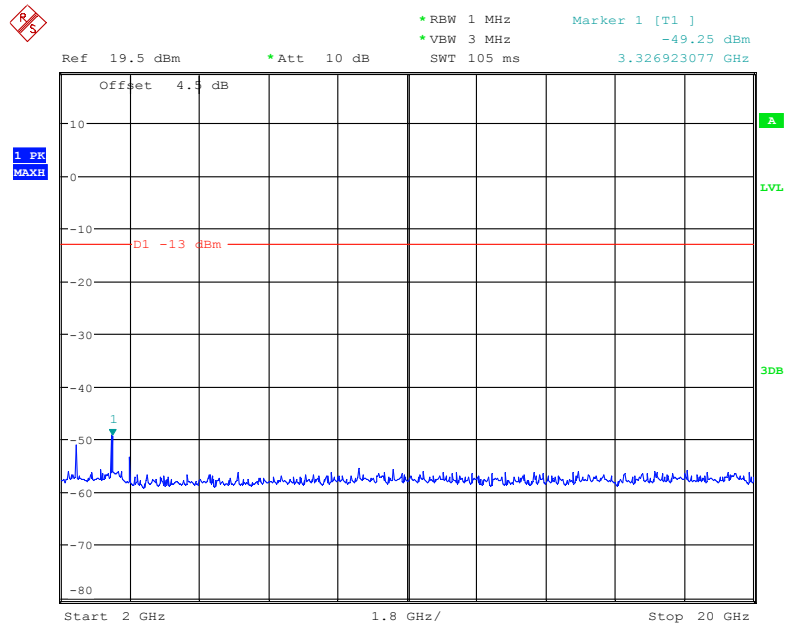
1 GHz - 2 GHz (5.0 MHz, Middle Channel)



Fundamental test

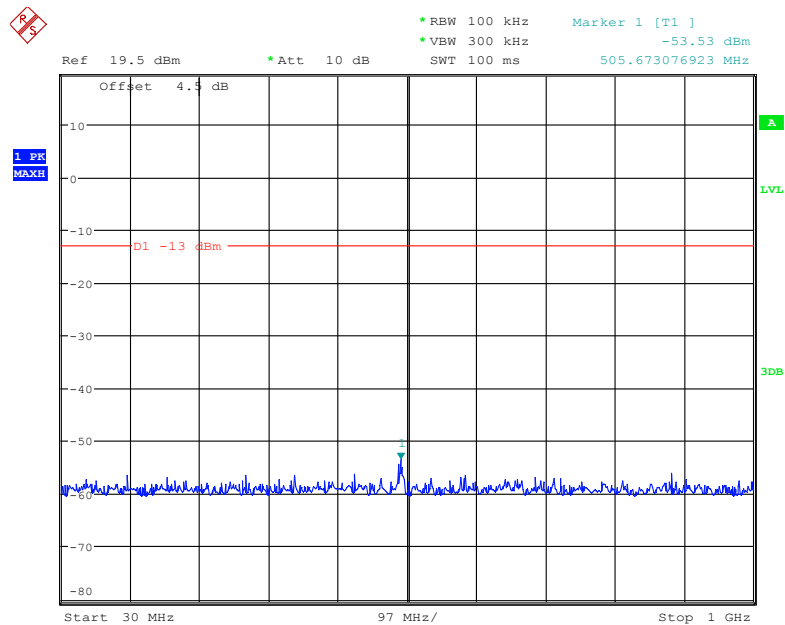
Date: 8.MAR.2018 09:54:41

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



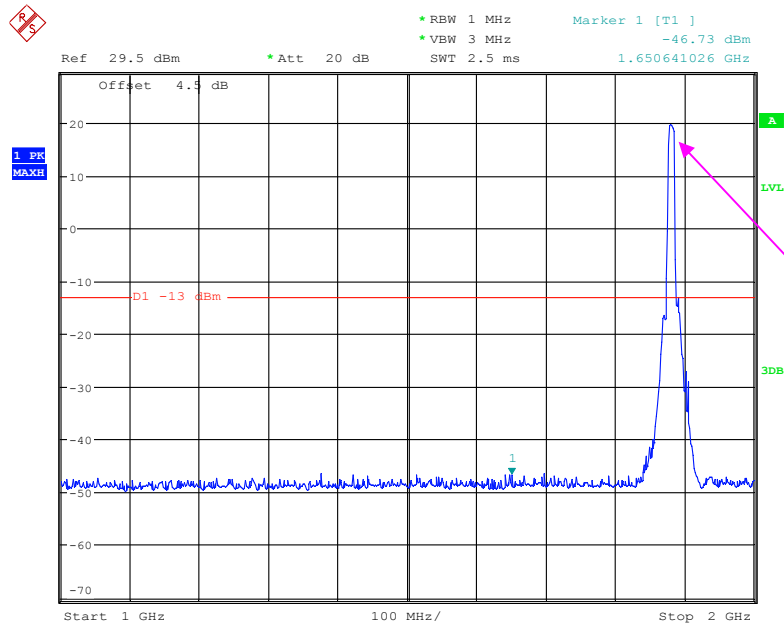
Date: 8.MAR.2018 09:57:27

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



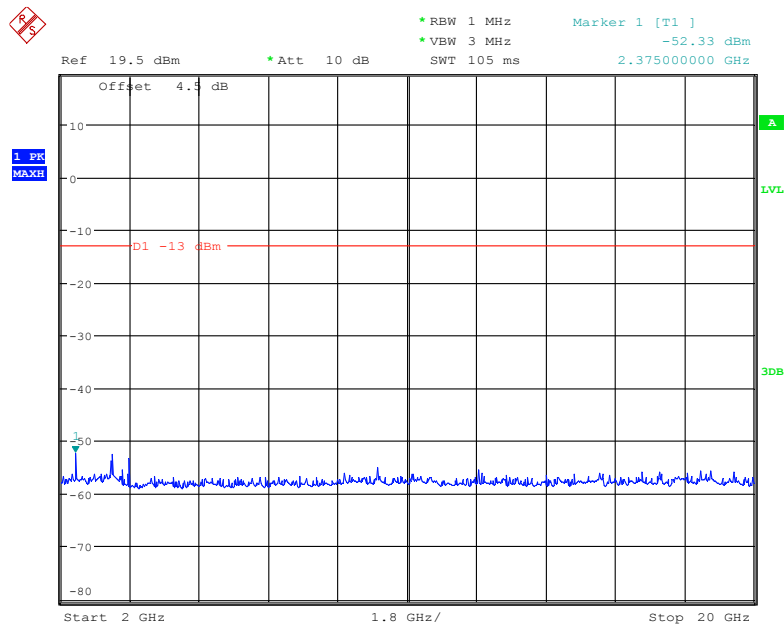
Date: 8.MAR.2018 10:02:33

1 GHz – 2 GHz (10.0 MHz, Middle Channel)



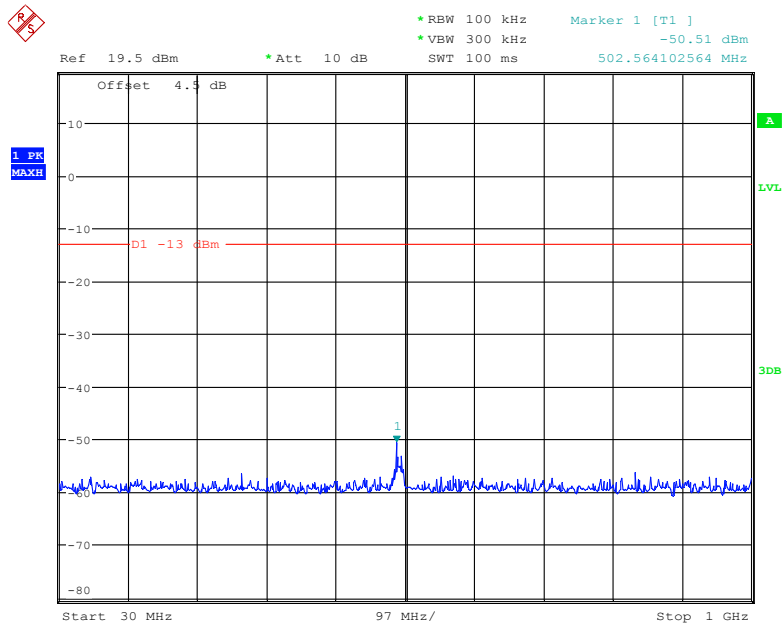
Date: 8.MAR.2018 09:55:06

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



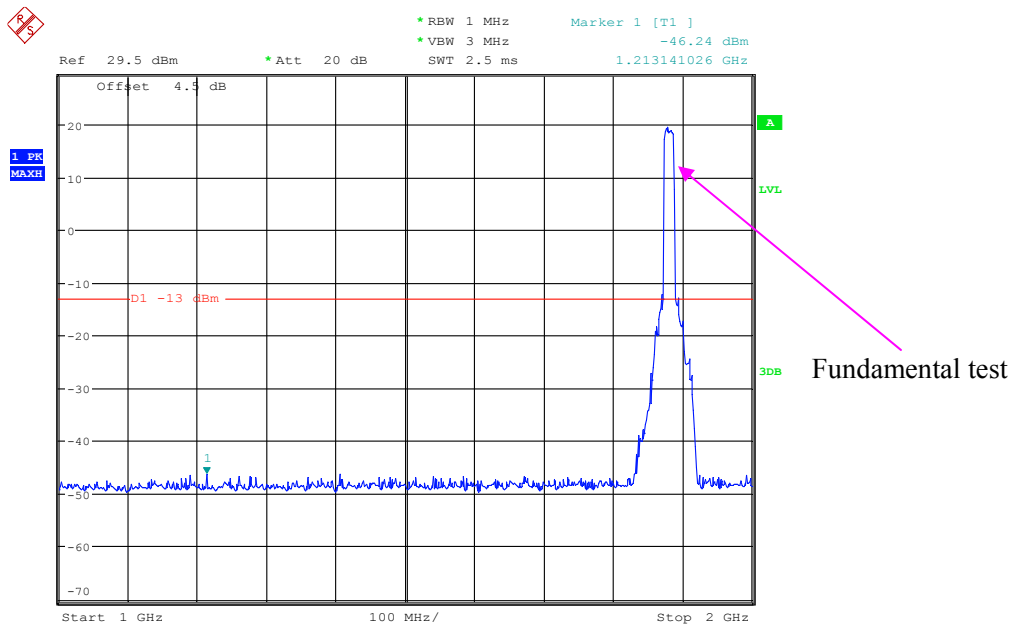
Date: 8.MAR.2018 09:57:42

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



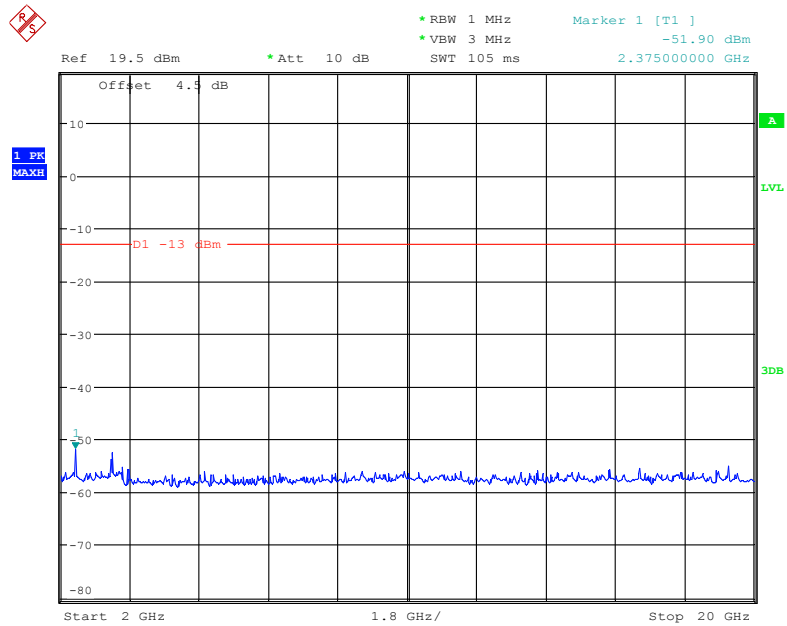
Date: 8.MAR.2018 10:02:52

1 GHz - 2 GHz (15.0 MHz, Middle Channel)



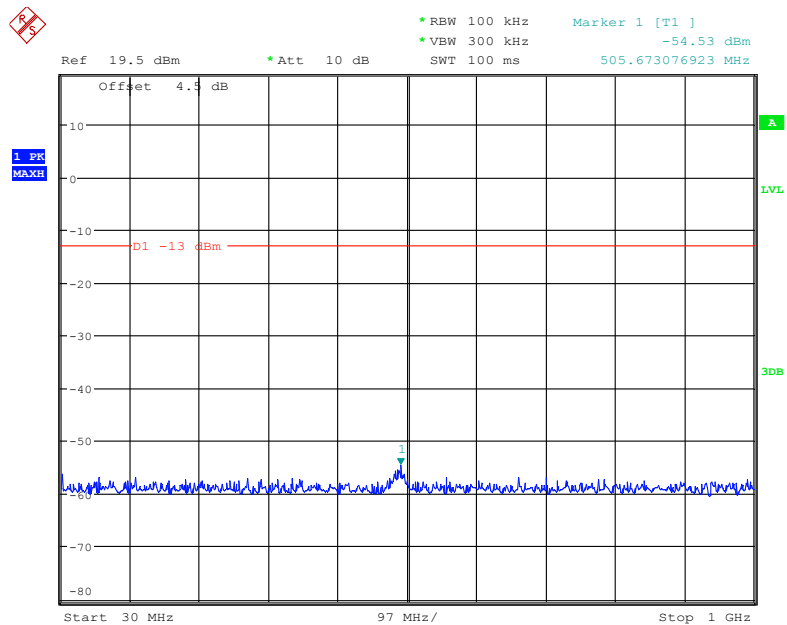
Date: 8.MAR.2018 09:55:37

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



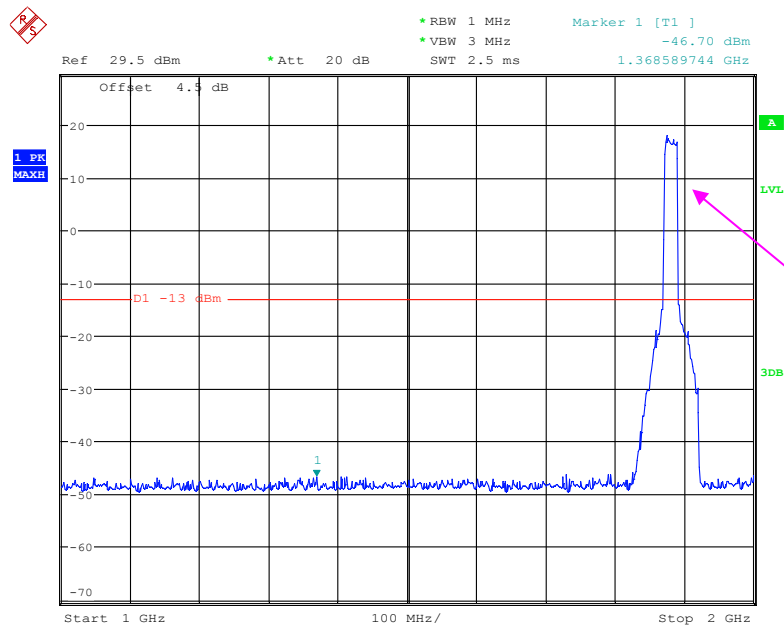
Date: 8.MAR.2018 09:58:03

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



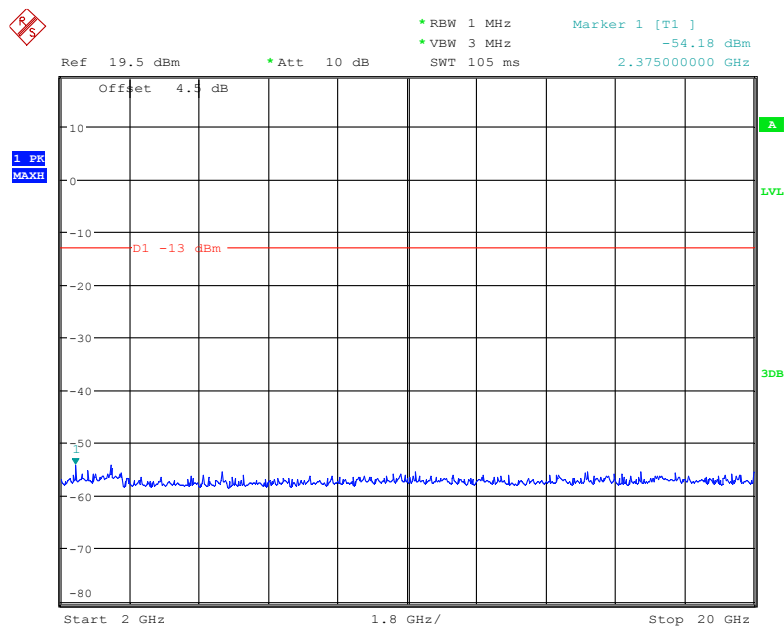
Date: 8.MAR.2018 10:03:08

1 GHz – 2 GHz (20.0 MHz, Middle Channel)



Date: 8.MAR.2018 09:56:05

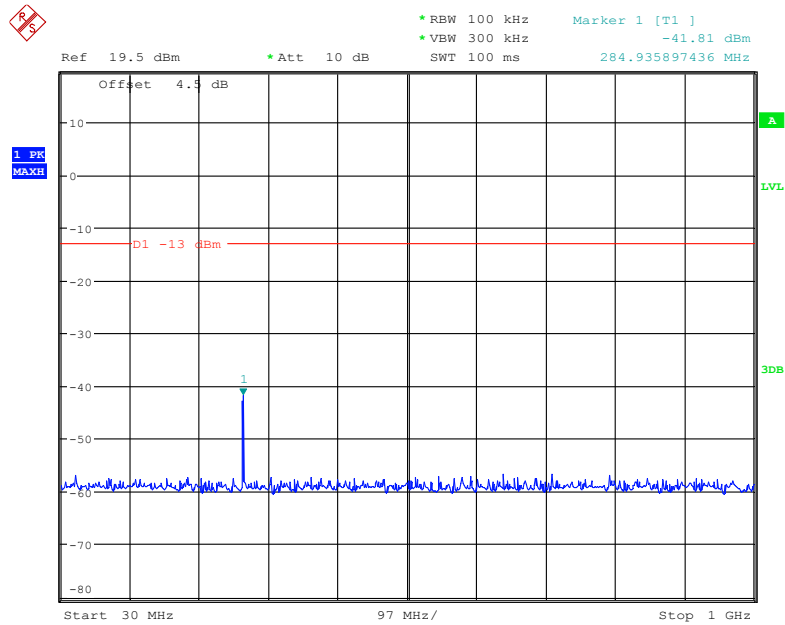
2 GHz –20 GHz (20.0 MHz, Middle Channel)



Date: 8.MAR.2018 10:00:48

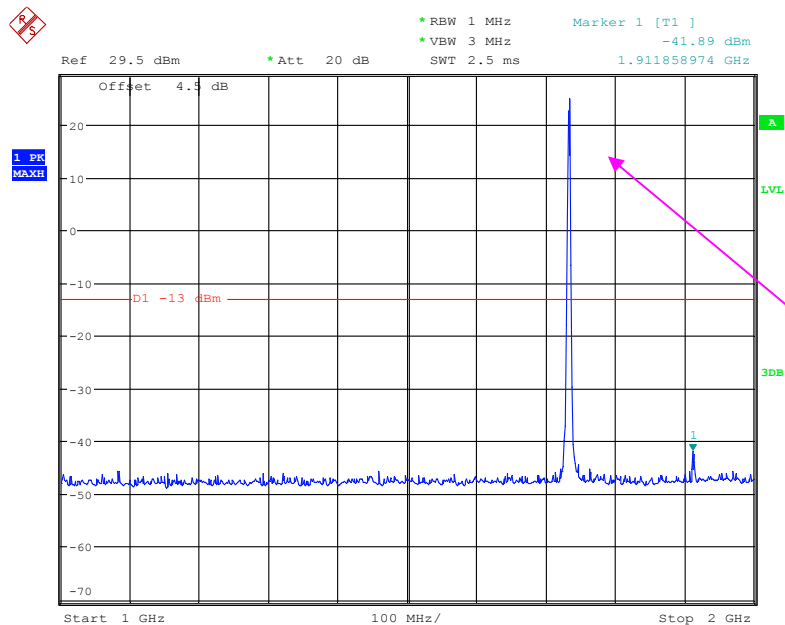
LTE Band 4:

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



Date: 8.MAR.2018 10:20:49

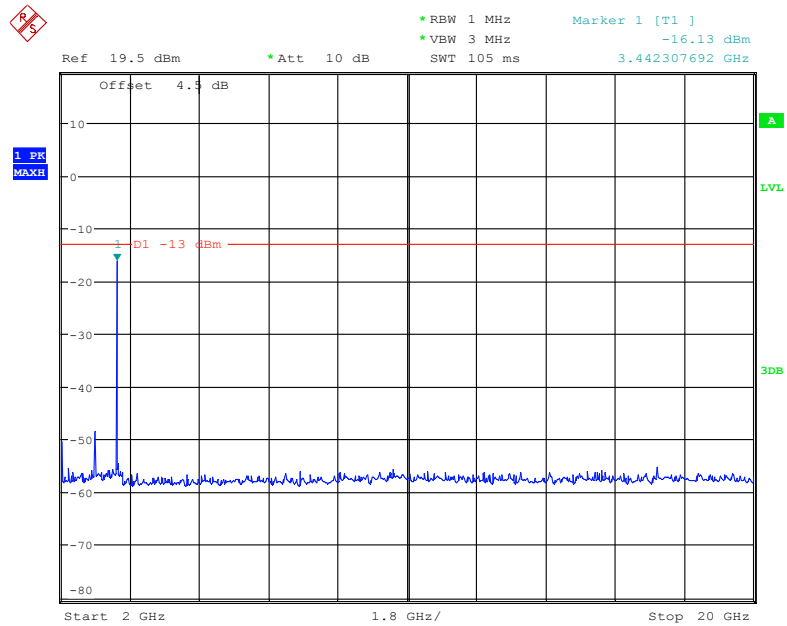
1 GHz - 2 GHz (1.4 MHz, Middle Channel)



Fundamental test

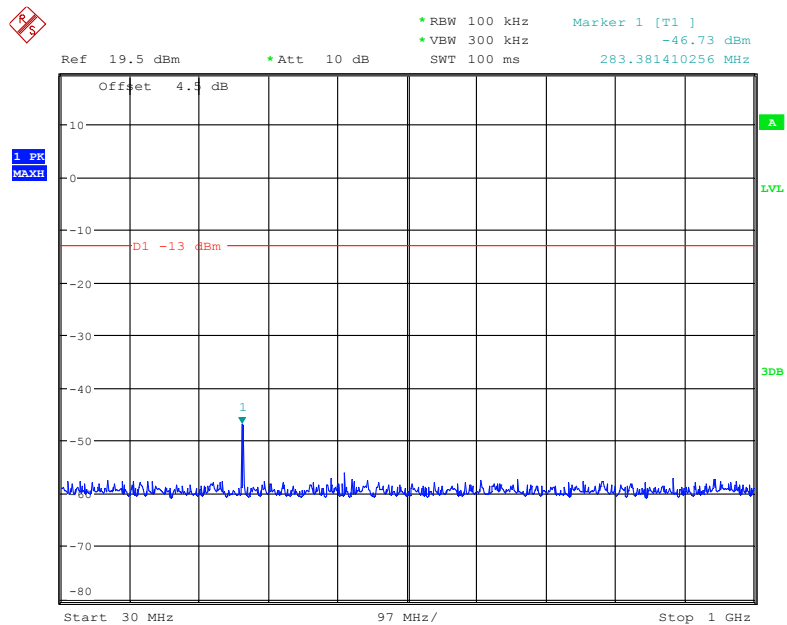
Date: 8.MAR.2018 10:07:28

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



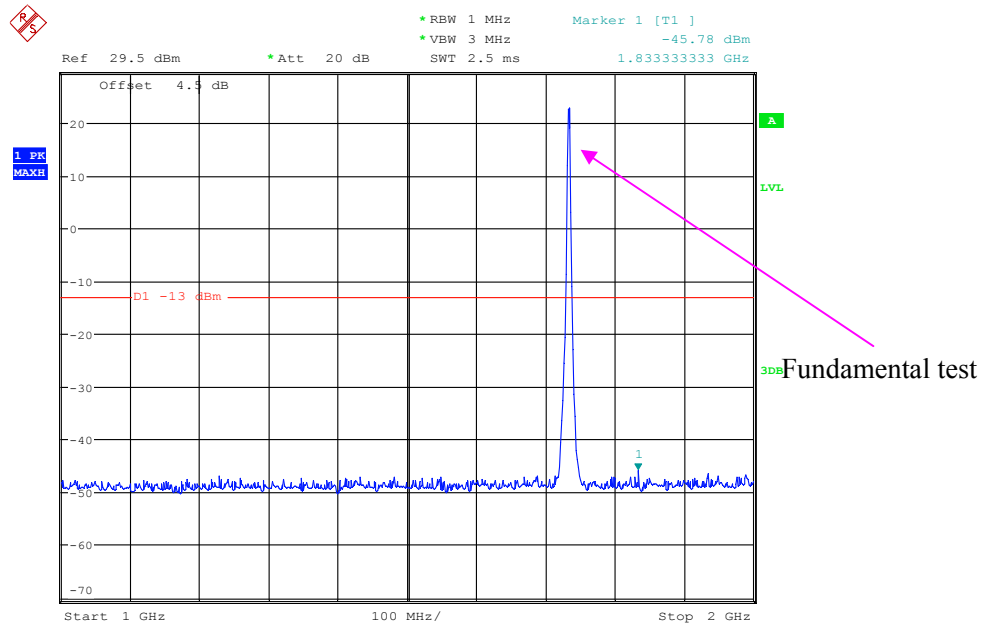
Date: 8.MAR.2018 10:10:41

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



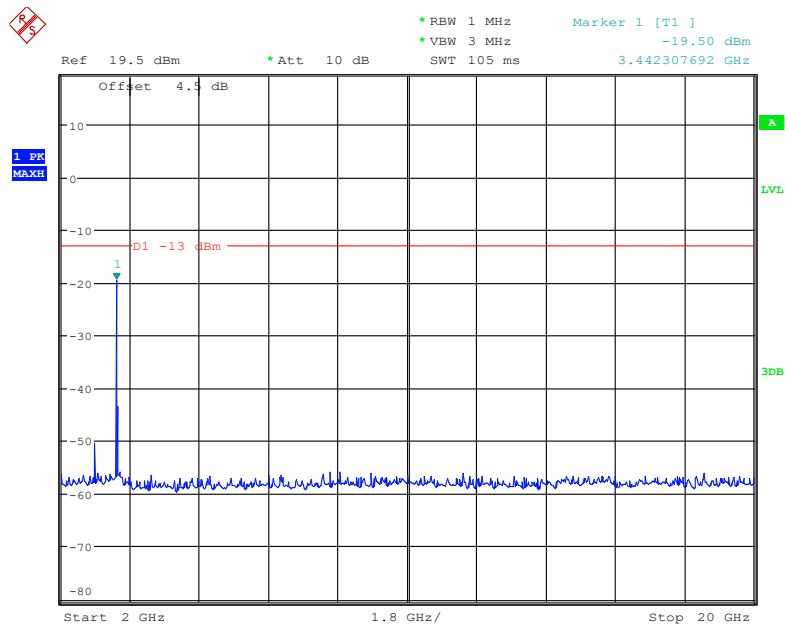
Date: 8.MAR.2018 10:13:54

1 GHz – 2 GHz (3.0 MHz, Middle Channel)



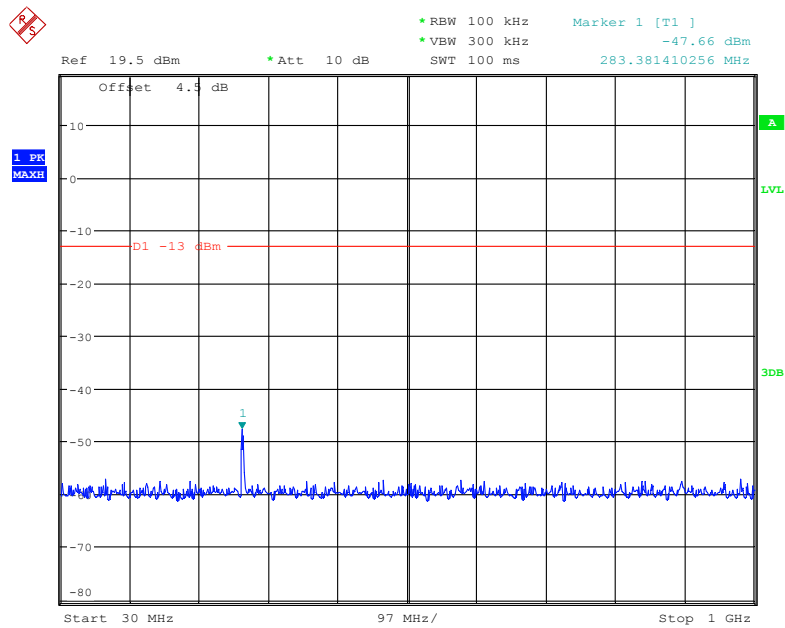
Date: 8.MAR.2018 10:07:59

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



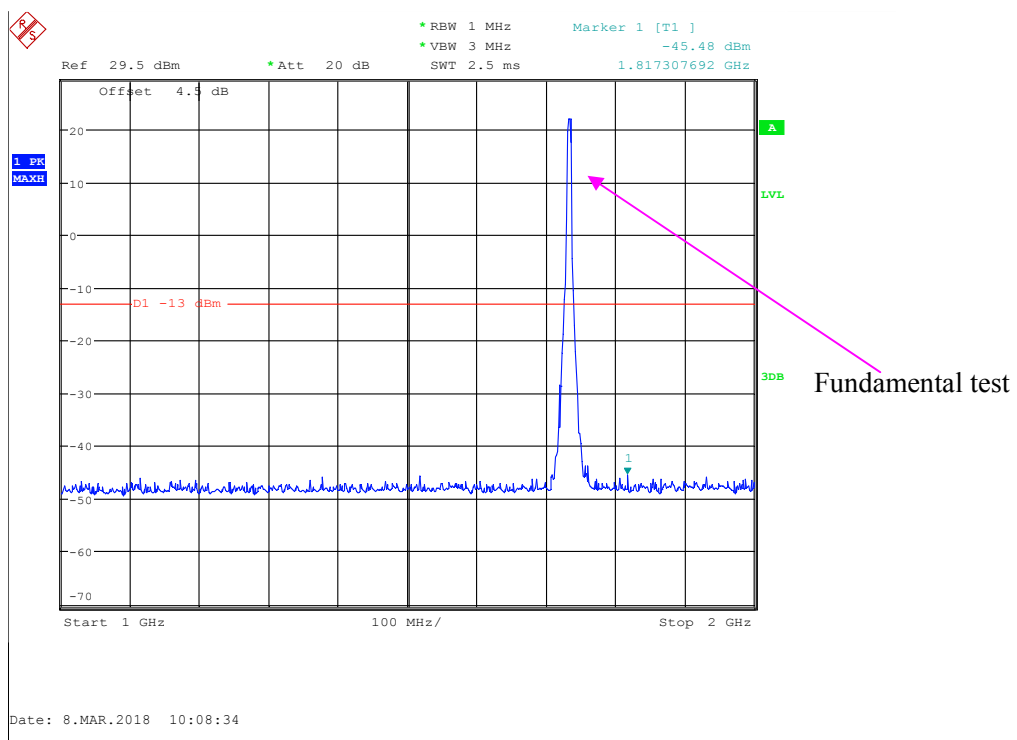
Date: 8.MAR.2018 10:11:10

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



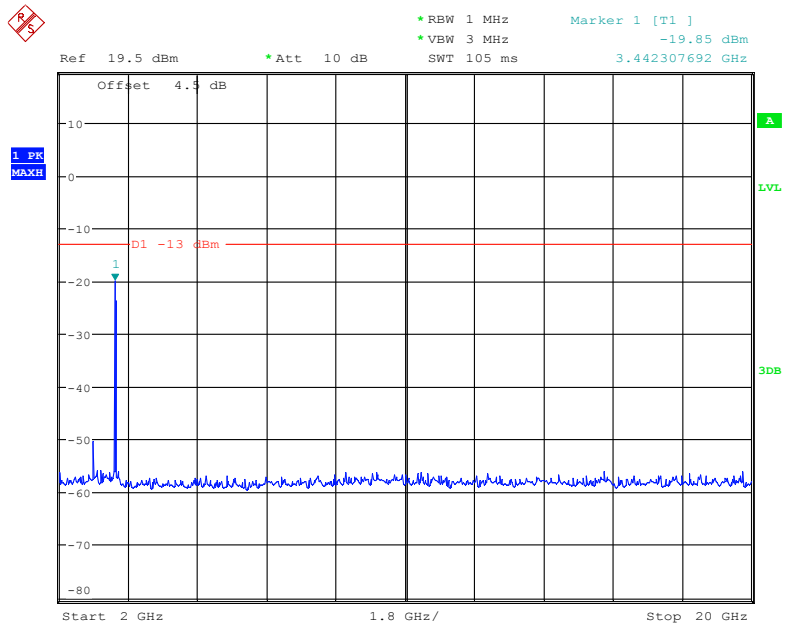
Date: 8.MAR.2018 10:14:06

1 GHz - 2 GHz (5.0 MHz, Middle Channel)



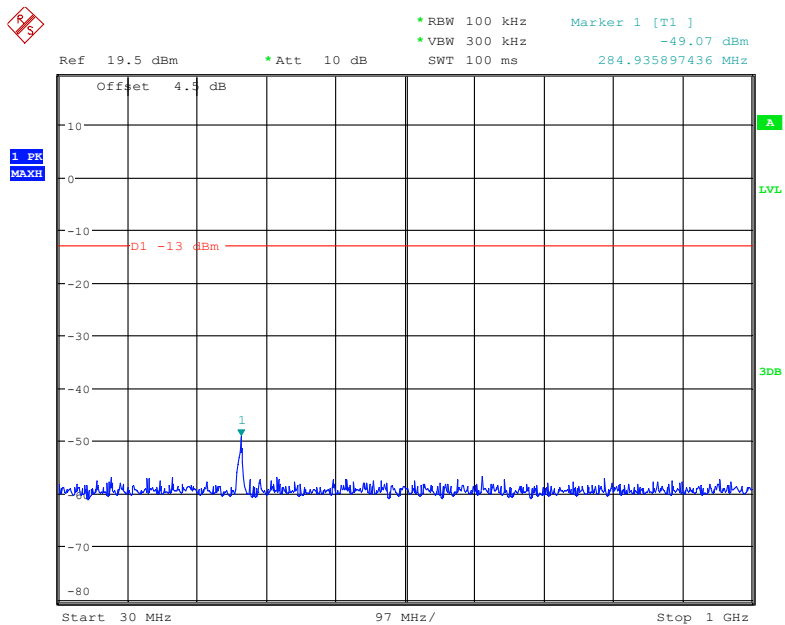
Date: 8.MAR.2018 10:08:34

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



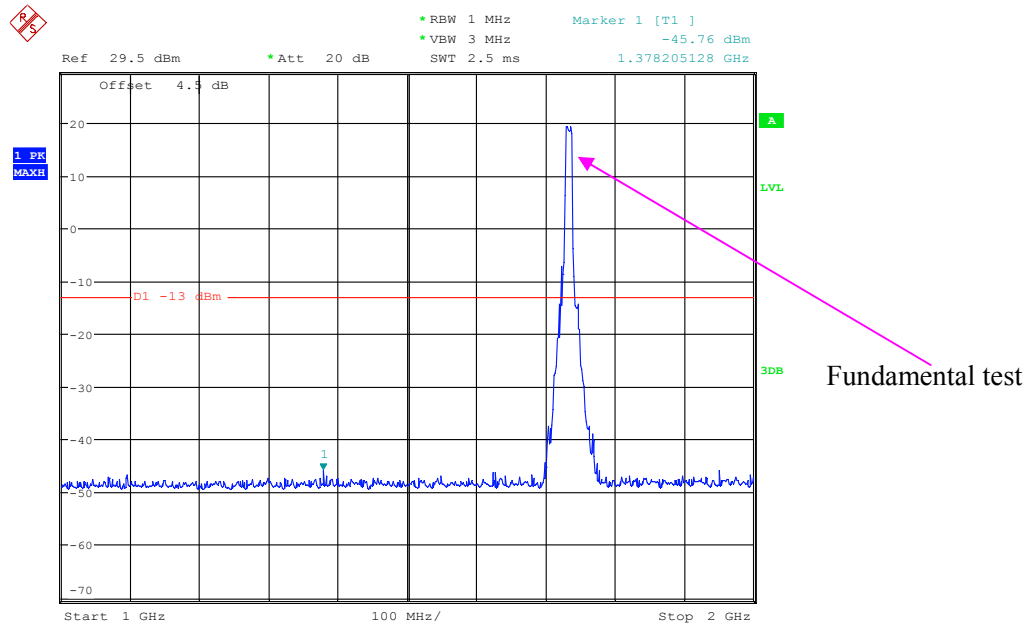
Date: 8.MAR.2018 10:11:24

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



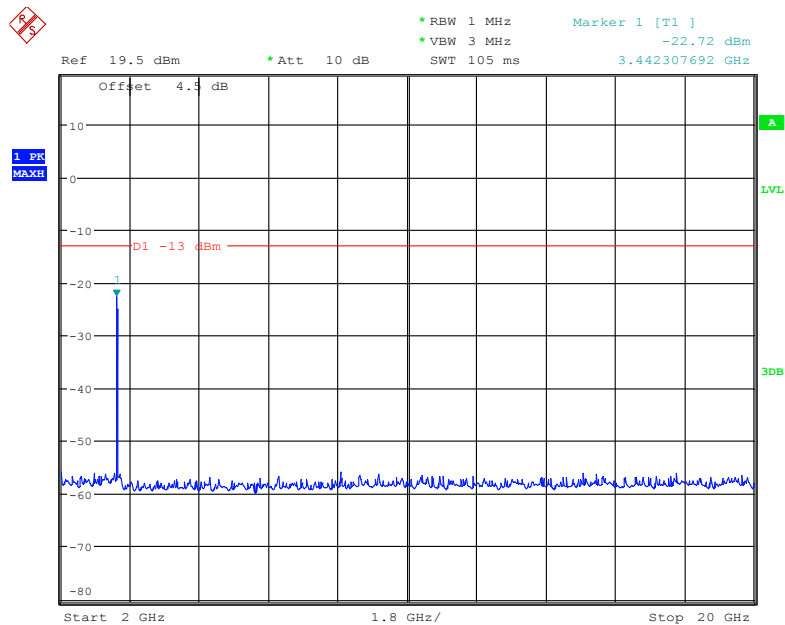
Date: 8.MAR.2018 10:14:20

1 GHz – 2 GHz (10.0 MHz, Middle Channel)



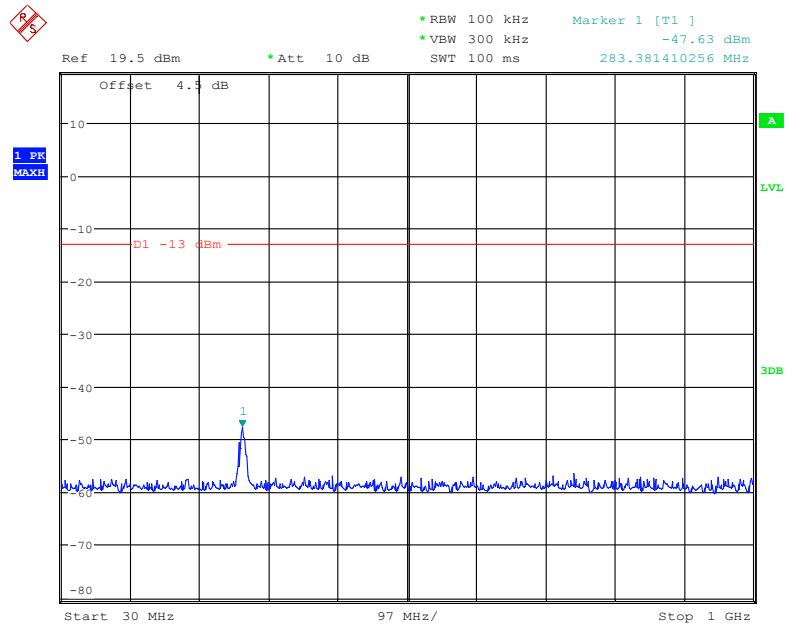
Date: 8.MAR.2018 10:08:56

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



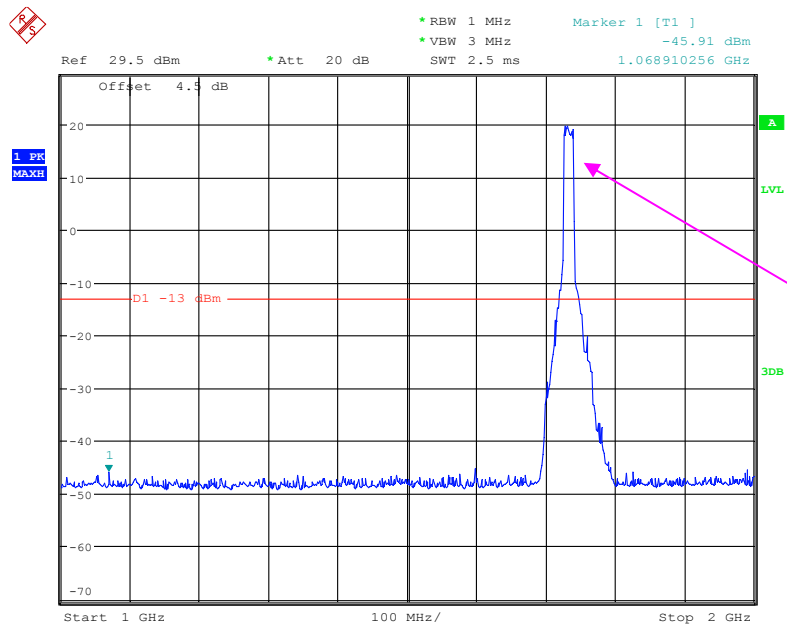
Date: 8.MAR.2018 10:12:36

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



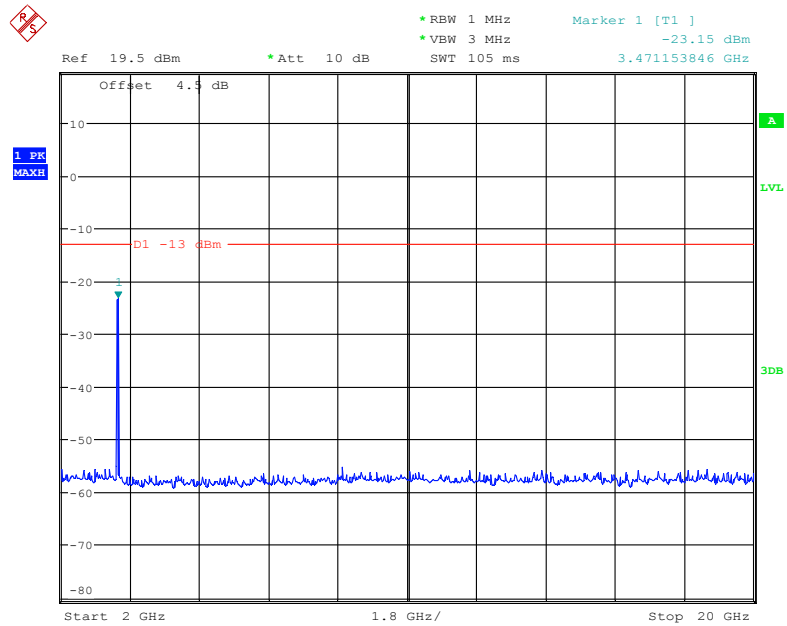
Date: 8.MAR.2018 10:14:37

1 GHz - 2 GHz (15.0 MHz, Middle Channel)



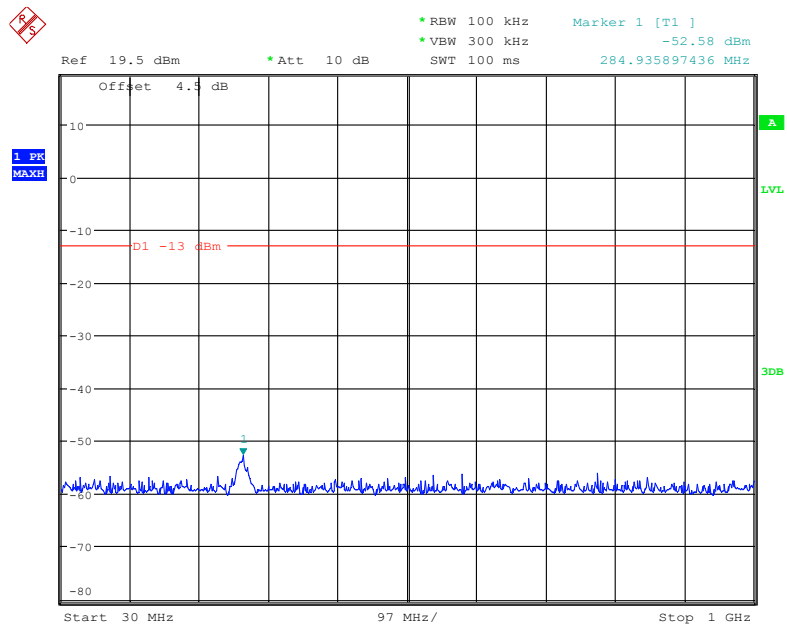
Date: 8.MAR.2018 10:09:29

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



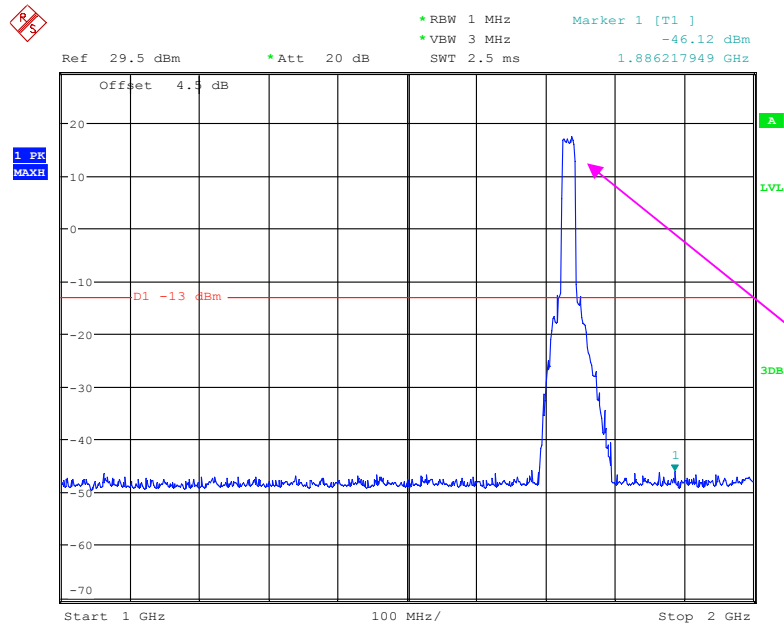
Date: 8.MAR.2018 10:12:50

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



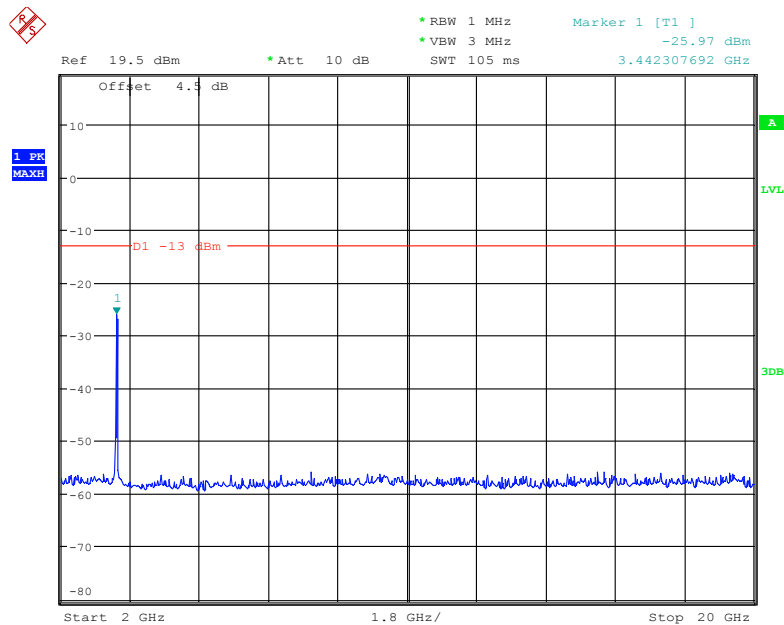
Date: 8.MAR.2018 10:14:52

1 GHz – 2 GHz (20.0 MHz, Middle Channel)



Date: 8.MAR.2018 10:09:56

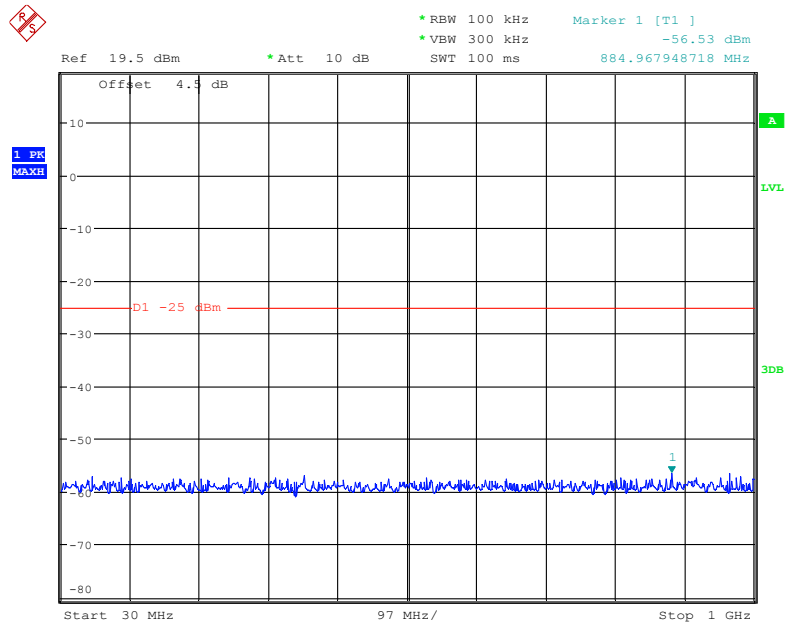
2 GHz – 20 GHz (20.0 MHz, Middle Channel)



Date: 8.MAR.2018 10:13:03

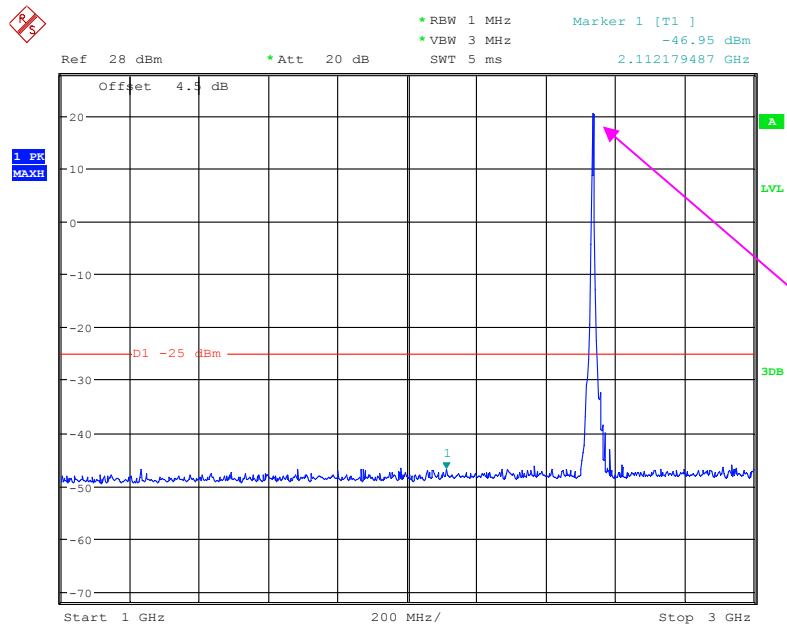
LTE Band 7:

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



Date: 27.MAR.2018 11:07:41

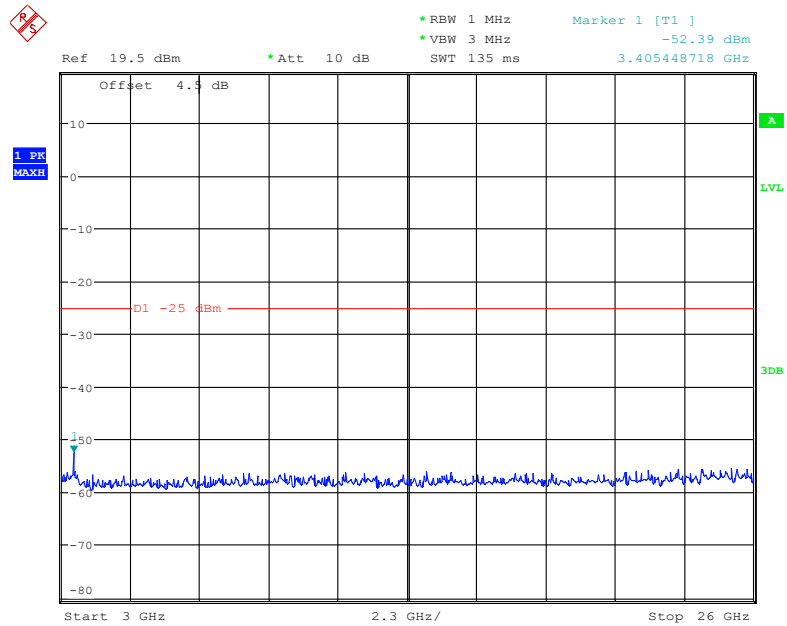
1 GHz – 3.0 GHz (5.0 MHz, Middle Channel)



Fundamental test

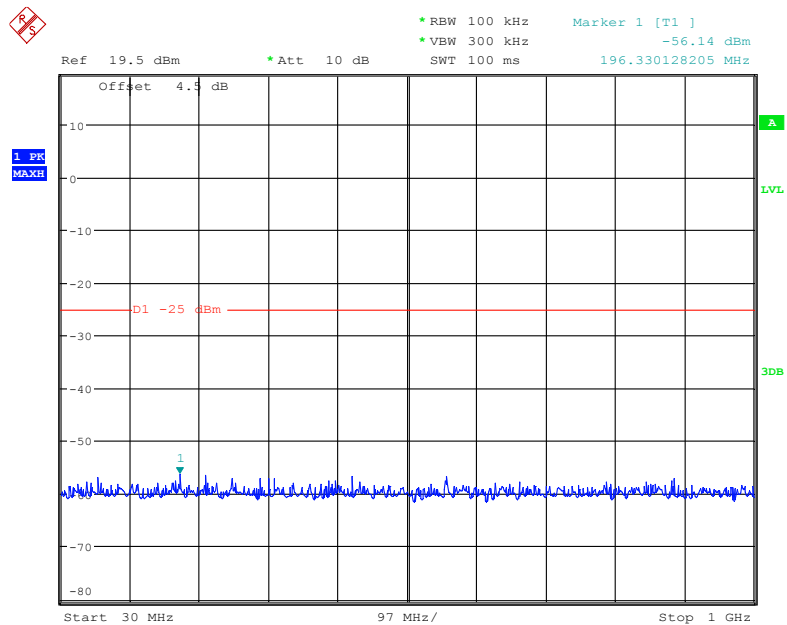
Date: 27.MAR.2018 11:00:31

3.0 GHz – 26 GHz (5.0 MHz, Middle Channel)



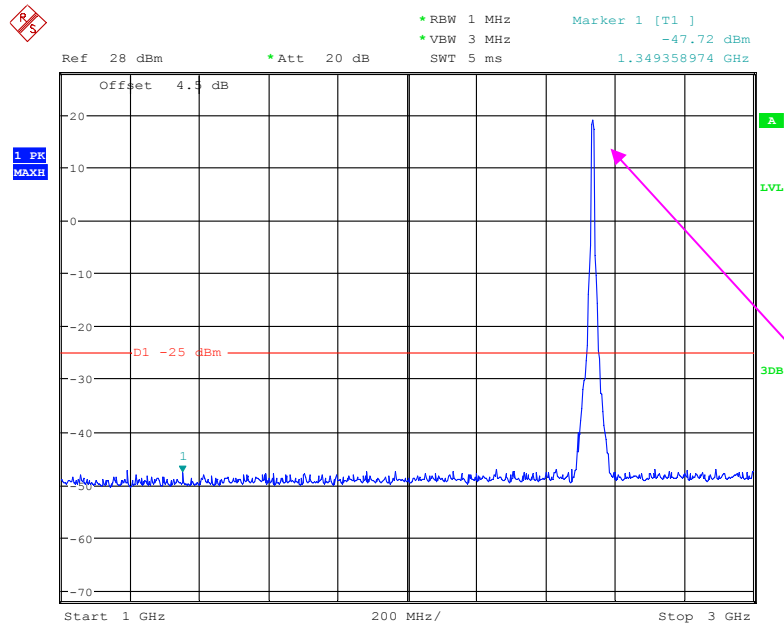
Date: 27.MAR.2018 11:05:36

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



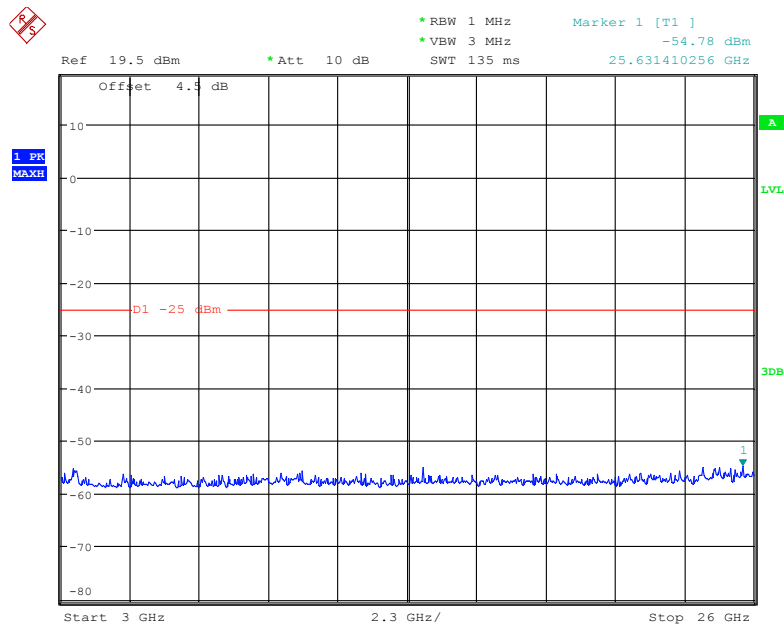
Date: 27.MAR.2018 11:07:54

1 GHz – 3 GHz (10.0 MHz, Middle Channel)



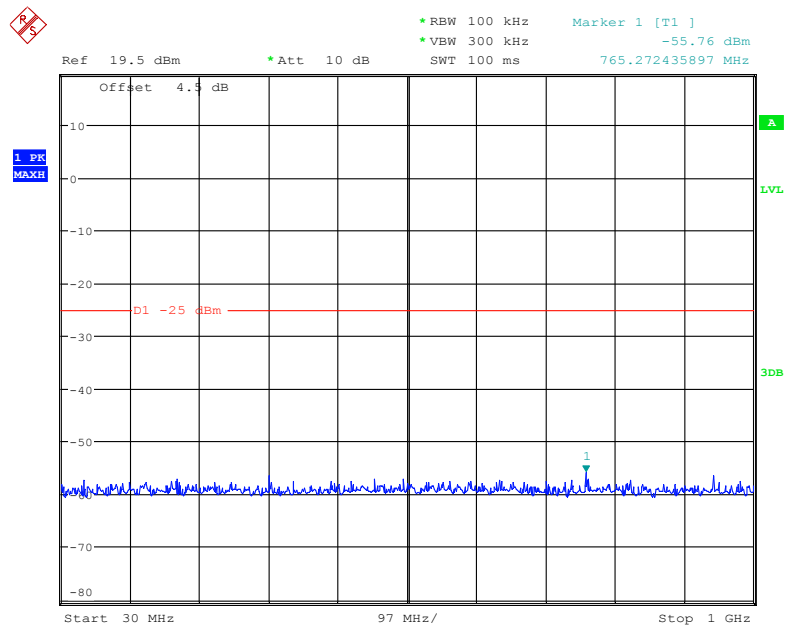
Date: 27.MAR.2018 11:02:05

3 GHz – 26 GHz (10.0 MHz, Middle Channel)



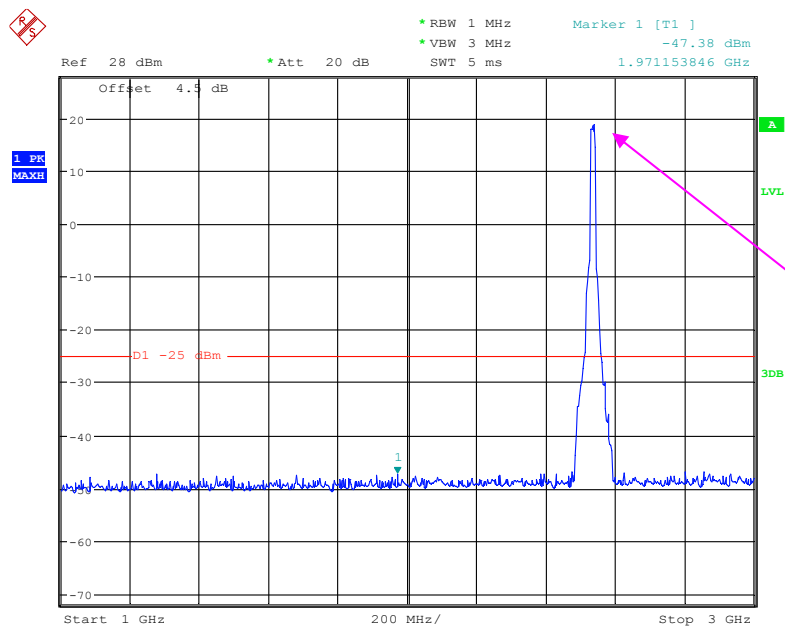
Date: 27.MAR.2018 11:05:16

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



Date: 27.MAR.2018 11:08:13

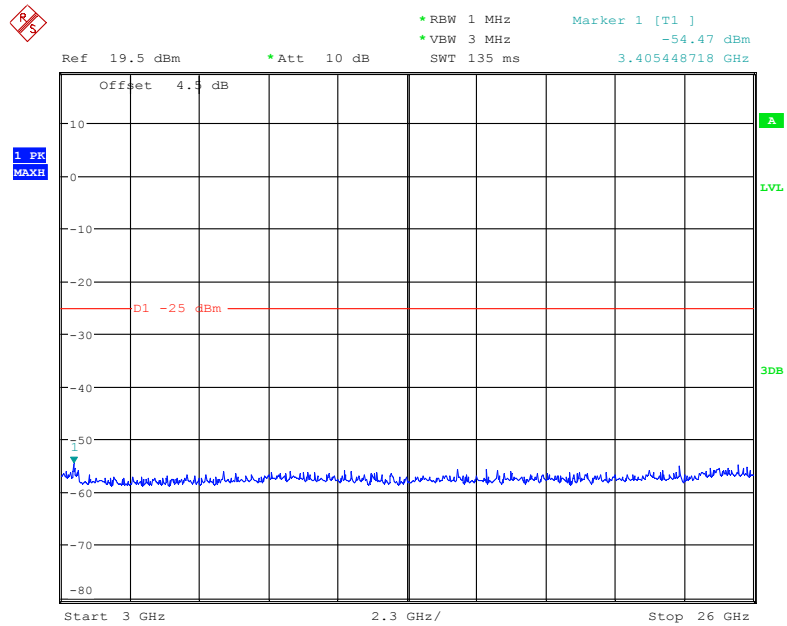
1 GHz – 3 GHz (15.0 MHz, Middle Channel)



Fundamental test

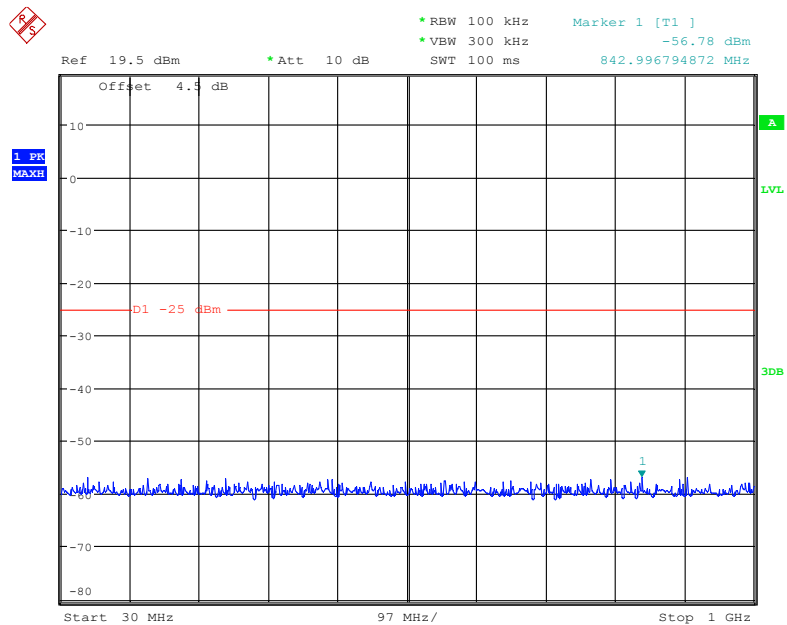
Date: 27.MAR.2018 11:02:30

3 GHz – 26 GHz (15.0 MHz, Middle Channel)



Date: 27.MAR.2018 11:04:57

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



Date: 27.MAR.2018 11:08:34

Ref 28 dBm * Att 20 dB

* RBW 1 MHz * VBW 3 MHz * SWT 5 ms

Marker 1 [T1] -46.27 dBm 2.294871795 GHz

Offset 4.5 dB

1 PK MAXH

D1 -25 dBm

1

Start 1 GHz 200 MHz/ Stop 3 GHz

Fundamental test

Ref 19.5 dBm * Att 10 dB * RBW 1 MHz * VBW 3 MHz * SWT 135 ms Marker 1 [T1] -53.93 dBm 24.783653846 GHz

Offset 4.5 dB

1 PK MAX

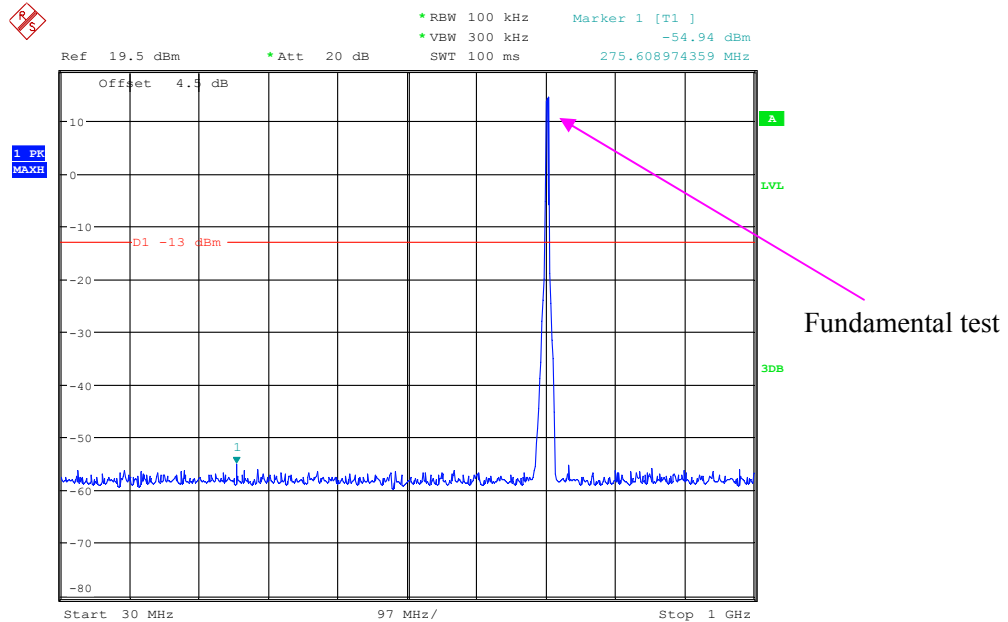
D1 -25 dBm

Start 3 GHz 2.3 GHz/ Stop 26 GHz

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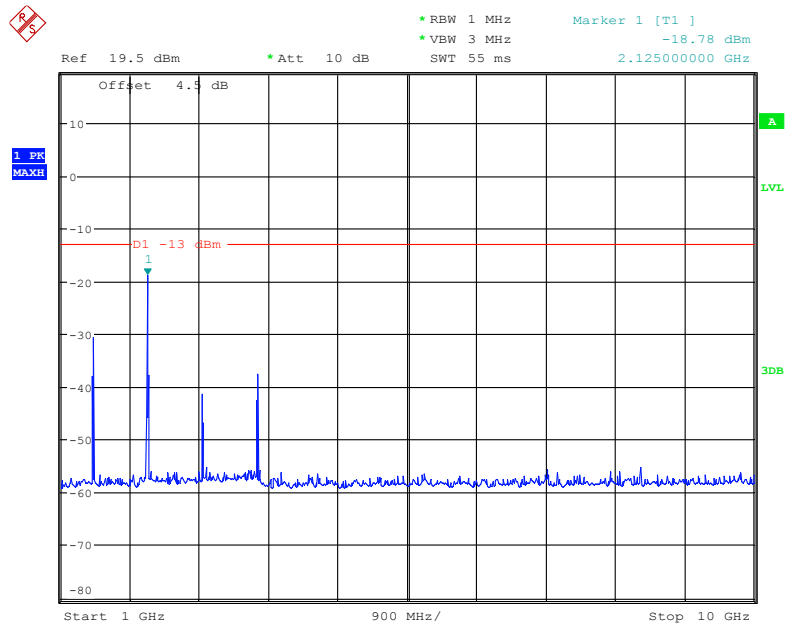
LTE Band 17:

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



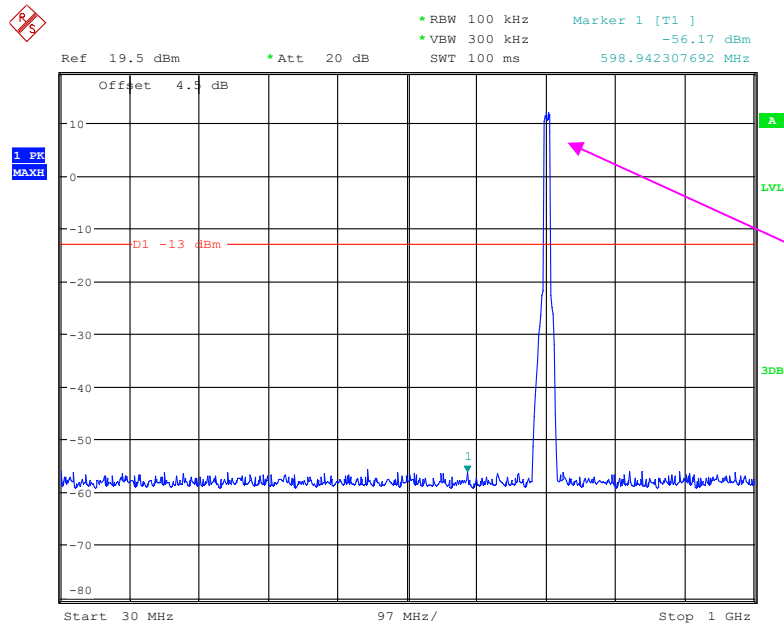
Date: 8.MAR.2018 10:32:40

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



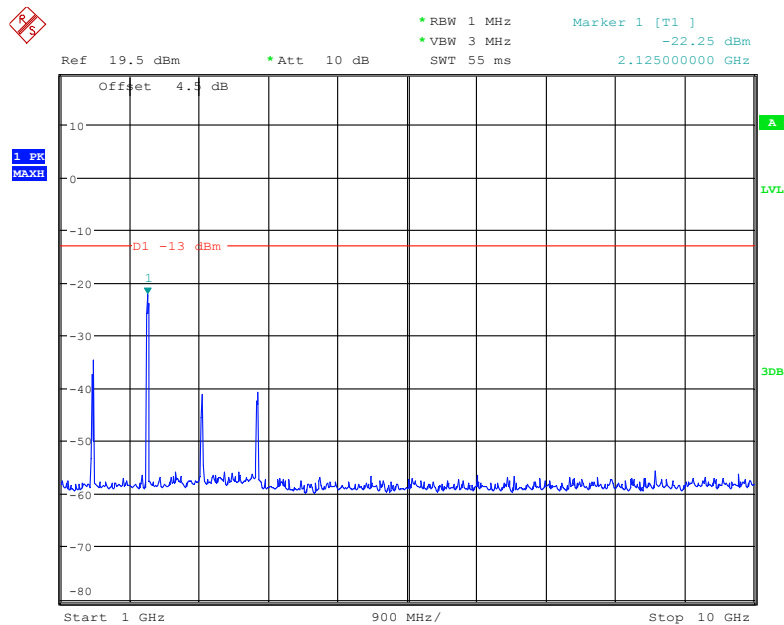
Date: 8.MAR.2018 10:33:50

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



Date: 8.MAR.2018 10:33:12

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



Date: 8.MAR.2018 10:33:35

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

Applicable Standard

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

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 Nancy Wang on 2018-03-08.

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 (dB)		Limit (dBm)	Margin (dB)
GSM Mode, middle channel										
257.37	34.68	325	2.3	H	-62.3	0.32	0	-62.62	-13	49.62
257.37	34.29	55	1.7	V	-62.7	0.32	0	-63.02	-13	50.02
1673.20	53.52	109	2.0	H	-53.6	1.30	8.90	-46.00	-13	33.00
1673.20	53.34	323	1.4	V	-53.1	1.30	8.90	-45.50	-13	32.50
2509.80	54.58	305	2.0	H	-48.9	2.60	10.20	-41.30	-13	28.30
2509.80	52.56	173	1.1	V	-50.4	2.60	10.20	-42.80	-13	29.80
3346.40	45.18	67	1.6	H	-55.2	1.50	11.70	-45.00	-13	32.00
3346.40	43.81	183	1.2	V	-56.6	1.50	11.70	-46.40	-13	33.40
WCDMA Mode, Middle channel										
221.67	33.84	230	2.0	H	-63.2	0.30	0	-63.50	-13	50.50
221.67	34.29	35	1.8	V	-62.7	0.30	0	-63.00	-13	50.00
1673.20	44.18	340	1.4	H	-62.9	1.30	8.90	-55.30	-13	42.30
1673.20	49.02	120	2.5	V	-57.5	1.30	8.90	-49.90	-13	36.90
2509.80	44.5	43	1.5	H	-59.0	2.60	10.20	-51.40	-13	38.40
2509.80	47.44	51	1.7	V	-55.5	2.60	10.20	-47.90	-13	34.90
3346.40	43.01	6	2.2	H	-57.3	1.50	11.70	-47.10	-13	34.10
3346.40	42.51	304	1.3	V	-57.9	1.50	11.70	-47.70	-13	34.70

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 (dB)		Limit (dBm)	Margin (dB)
GSM Mode, middle channel										
257.37	34.18	249	2.0	H	-62.8	0.32	0	-63.12	-13	50.12
257.37	33.54	117	1.8	V	-63.5	0.32	0	-63.82	-13	50.82
3760.00	48.47	32	1.1	H	-52.8	1.50	11.80	-42.50	-13	29.50
3760.00	51.09	89	1.2	V	-49.7	1.50	11.80	-39.40	-13	26.40
5640.00	54.29	220	1.1	H	-43.3	1.70	12.40	-32.60	-13	19.60
5640.00	54.42	246	1.6	V	-42.8	1.70	12.40	-32.10	-13	19.10
7520.00	42.66	148	1.6	H	-51.3	1.90	10.70	-42.50	-13	29.50
7520.00	43.18	173	2.0	V	-50.3	1.90	10.70	-41.50	-13	28.50
WCDMA Mode Band II, Middle channel										
221.67	34.57	291	2.2	H	-62.4	0.30	0	-62.70	-13	49.70
221.67	34.02	47	1.7	V	-63.0	0.30	0	-63.30	-13	50.30
3760.00	44.77	76	1.3	H	-56.5	1.50	11.80	-46.20	-13	33.20
3760.00	43.33	225	2.4	V	-57.4	1.50	11.80	-47.10	-13	34.10
5640.00	45.3	271	1.8	H	-52.3	1.70	12.40	-41.60	-13	28.60
5640.00	43.75	156	1.1	V	-53.5	1.70	12.40	-42.80	-13	29.80

LTE Band: (Pre-scan with all the bandwidth, and worse case 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 (dB)			
Band 2										
Test frequency range:30 MHz ~ 20 GHz										
237.82	33.29	147	1.4	H	-63.7	0.31	0	-64.01	-13	51.01
237.82	33.64	41	1.2	V	-63.4	0.31	0	-63.71	-13	50.71
3760.00	43.46	141	1.9	H	-57.8	1.50	11.80	-47.50	-13	34.50
3760.00	43.11	169	2.0	V	-57.6	1.50	11.80	-47.30	-13	34.30
5640.00	43.23	74	1.4	H	-54.4	1.70	12.40	-43.70	-13	30.70
5640.00	44.62	23	1.7	V	-52.6	1.70	12.40	-41.90	-13	28.90
Band 4										
Test frequency range:30 MHz ~ 18 GHz										
237.82	34.13	17	1.7	H	-62.9	0.31	0	-63.21	-13	50.21
237.82	33.57	93	1.7	V	-63.4	0.31	0	-63.71	-13	50.71
3465.00	44.03	110	2.4	H	-56.4	1.50	12.00	-45.90	-13	32.90
3465.00	43.11	232	2.4	V	-58.0	1.50	12.00	-47.50	-13	34.50
5197.50	44.41	345	1.2	H	-54.2	1.60	12.10	-43.70	-13	30.70
5197.50	43.52	133	2.2	V	-54.6	1.60	12.10	-44.10	-13	31.10
Band 7										
Test frequency range:30 MHz ~ 26 GHz										
237.82	34.39	305	2.3	H	-62.6	0.31	0	-62.91	-25	37.91
237.82	34.81	351	1.1	V	-62.2	0.31	0	-62.51	-25	37.51
5070.00	44.26	221	1.7	H	-53.6	1.60	12.10	-43.10	-25	18.10
5070.00	43.9	328	1.5	V	-54.0	1.60	12.10	-43.50	-25	18.50
7605.00	44.41	283	1.4	H	-50.8	2.10	10.50	-42.40	-25	17.40
7605.00	43.35	340	1.7	V	-51.6	2.10	10.50	-43.20	-25	18.20
Band 17										
Test frequency range: 30 MHz ~ 10GHz										
237.82	33.27	162	1.8	H	-63.7	0.31	0	-64.01	-13	51.01
237.82	33.61	77	1.6	V	-63.4	0.31	0	-63.71	-13	50.71
1420.00	49.14	132	2.3	H	-58.7	1.60	7.90	-52.40	-13	39.40
1420.00	49.68	165	1.2	V	-58.4	1.60	7.90	-52.10	-13	39.10
2130.00	46.78	344	1.9	H	-55.3	1.30	9.70	-46.90	-13	33.90
2130.00	45.58	242	2.0	V	-57.3	1.30	9.70	-48.90	-13	35.90
2840.00	49.17	146	1.1	H	-54.6	1.80	10.50	-45.90	-13	32.90
2840.00	44.05	4	1.4	V	-59.4	1.80	10.50	-50.70	-13	37.70

Note:

- 1) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 2) Margin = Limit- Absolute Level

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.

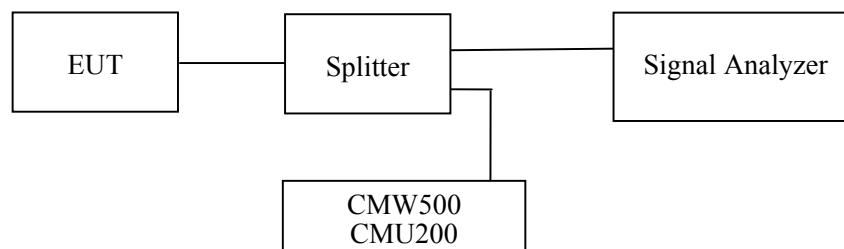
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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**

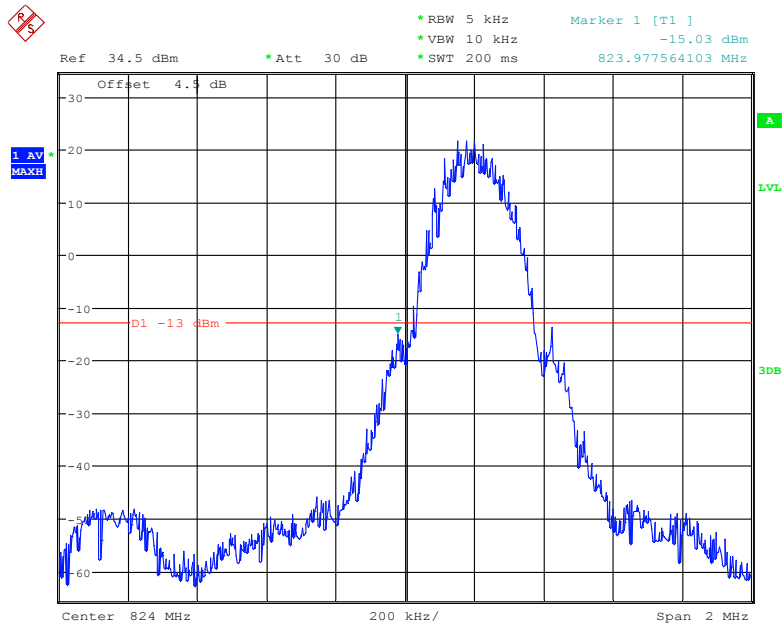
Temperature:	25 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang on 2018-03-06 and 2018-03-07.

EUT operation mode: Transmitting

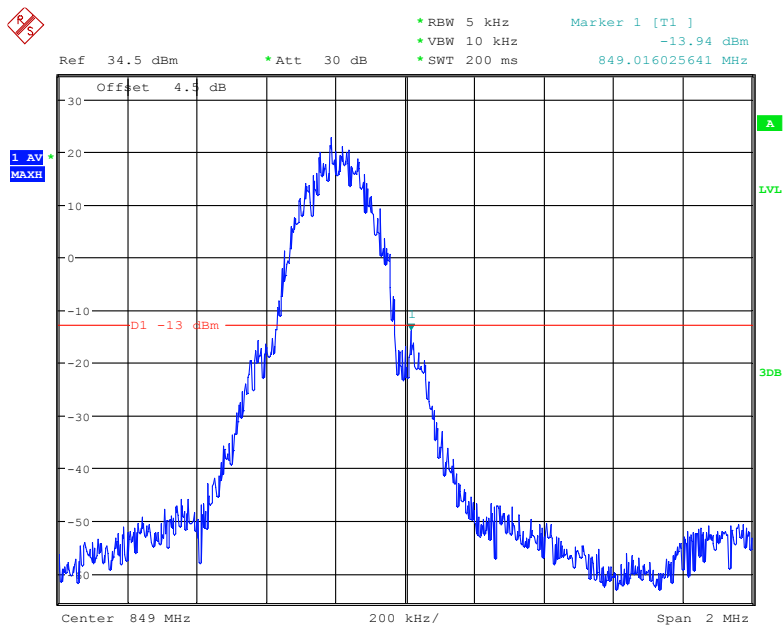
Test Result: Compliance. Please refer to the following plots.

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



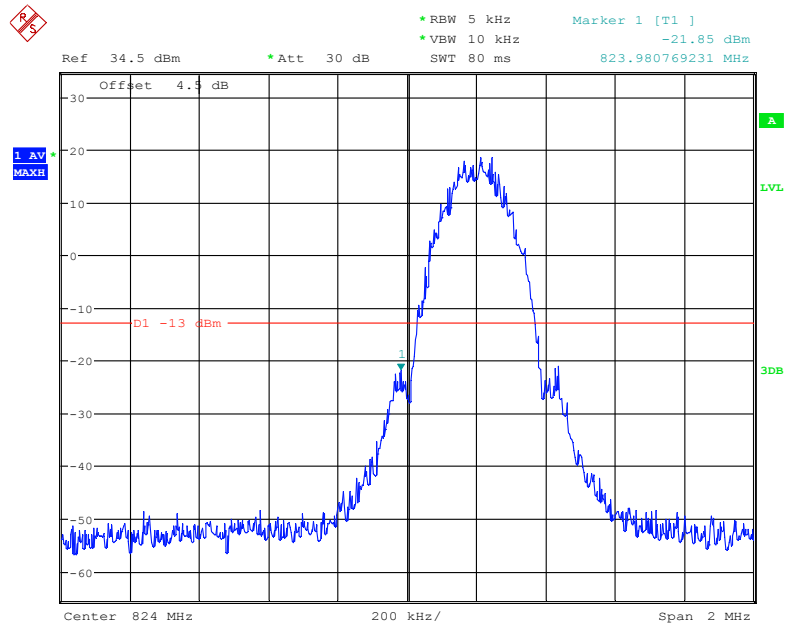
Date: 6.MAR.2018 14:22:55

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



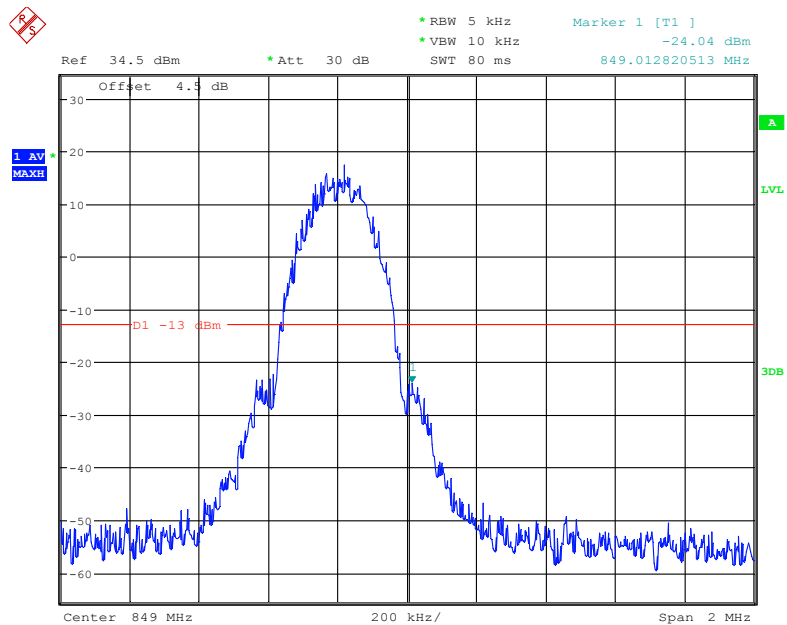
Date: 6.MAR.2018 14:23:49

Cellular Band, Left Band Edge for EDGE Mode



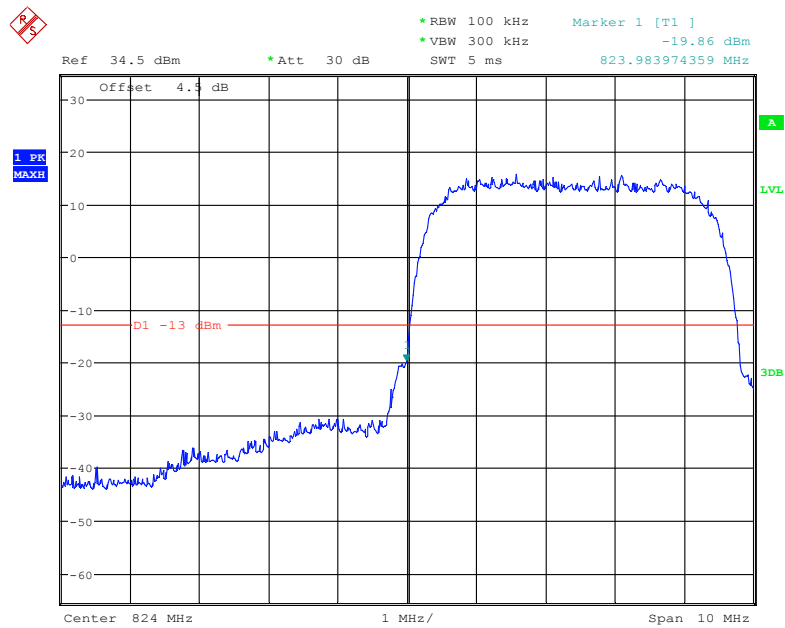
Date: 6.MAR.2018 14:51:39

Cellular Band, Right Band Edge for EDGE Mode



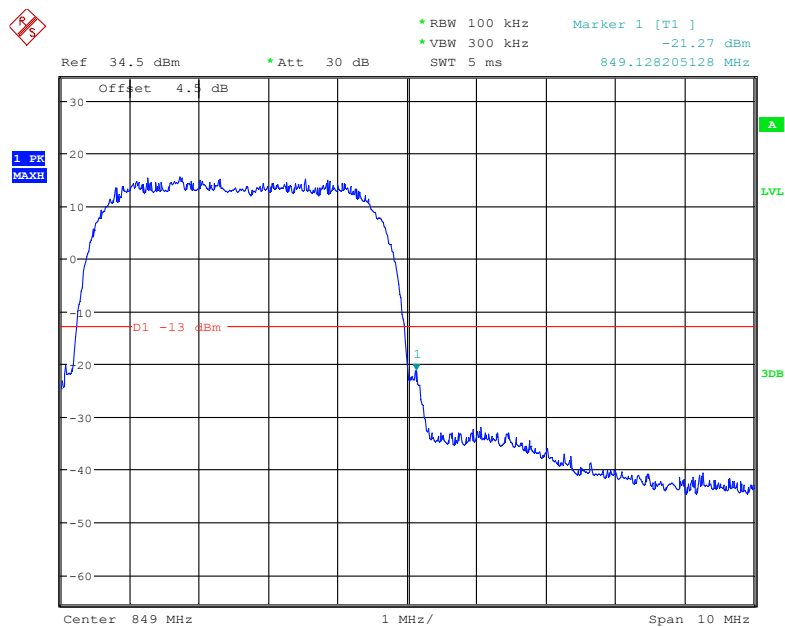
Date: 6.MAR.2018 14:52:22

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



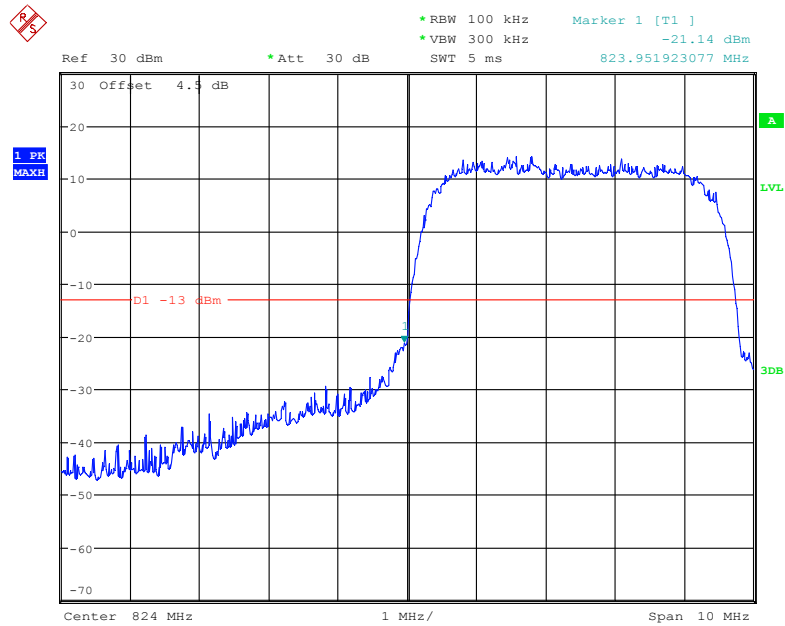
Date: 6.MAR.2018 15:09:27

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



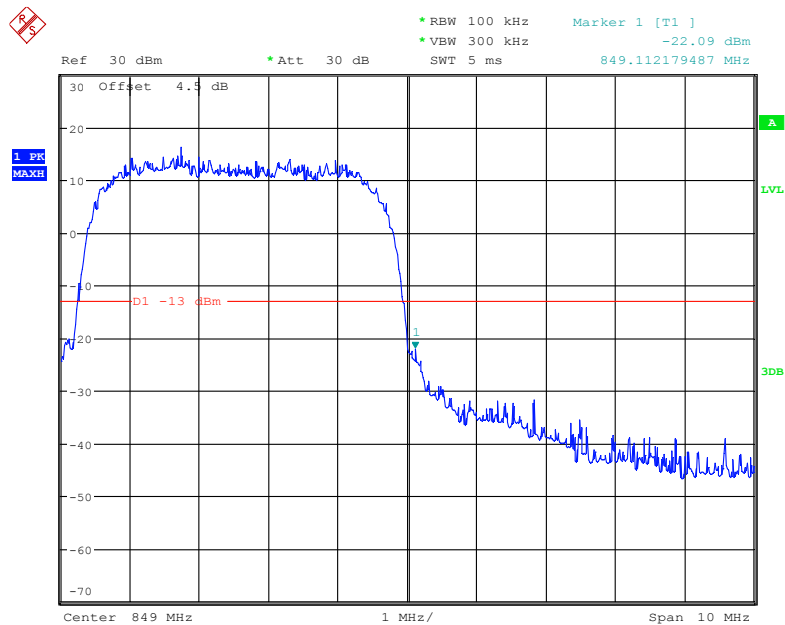
Date: 6.MAR.2018 15:10:27

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



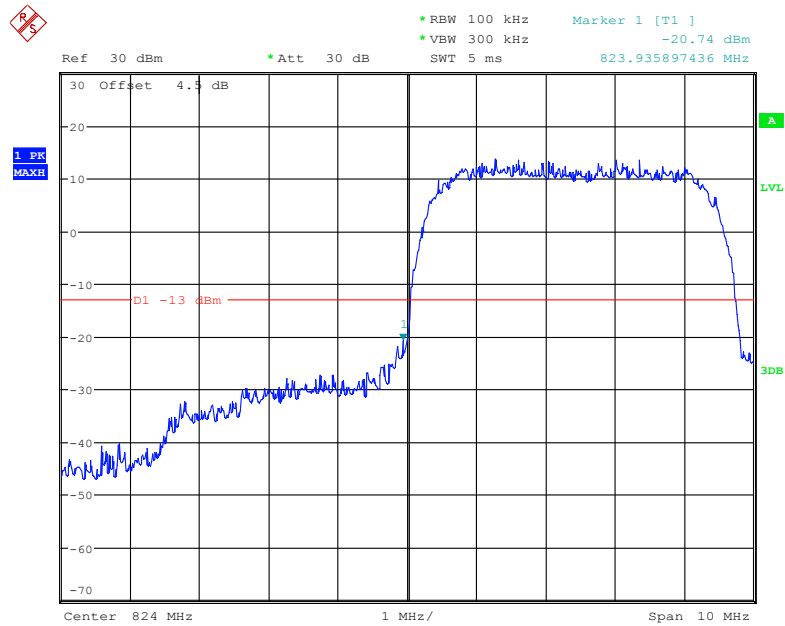
Date: 6.MAR.2018 15:27:29

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



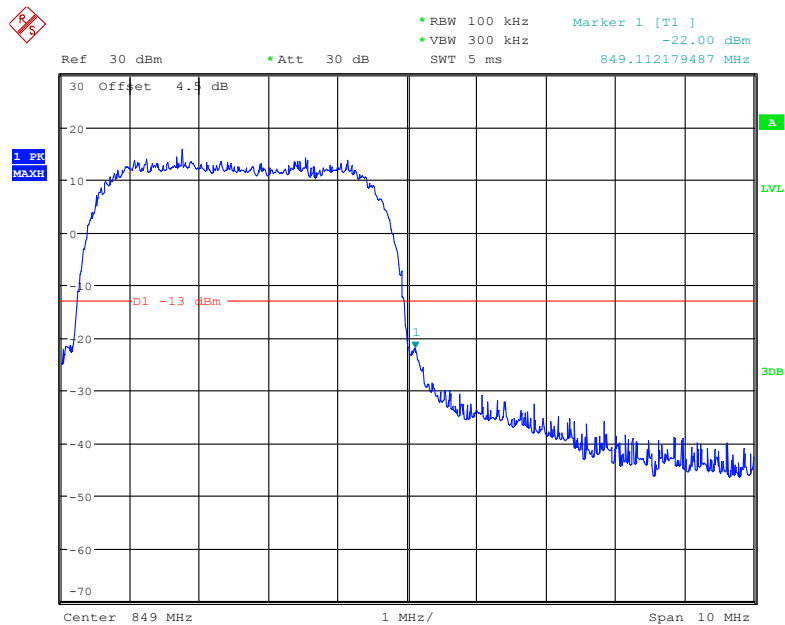
Date: 6.MAR.2018 15:26:59

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



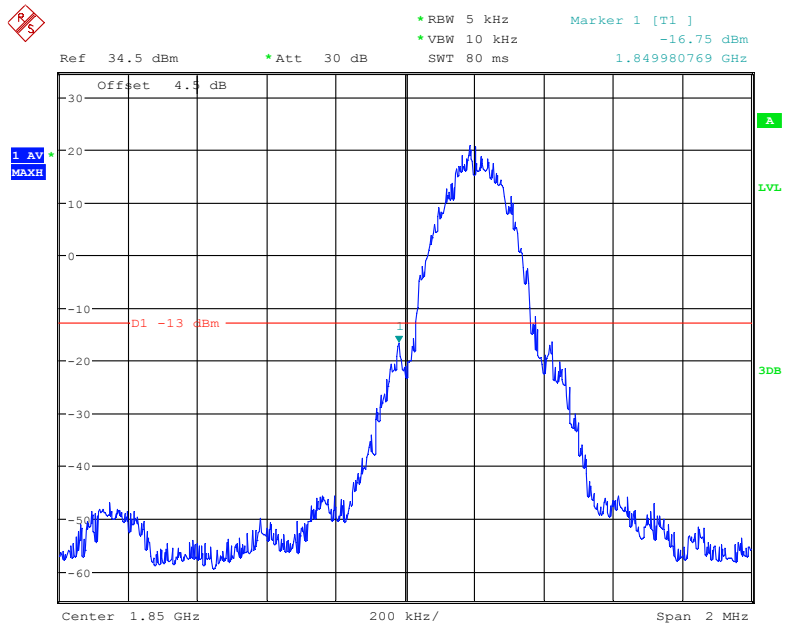
Date: 6.MAR.2018 15:24:26

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



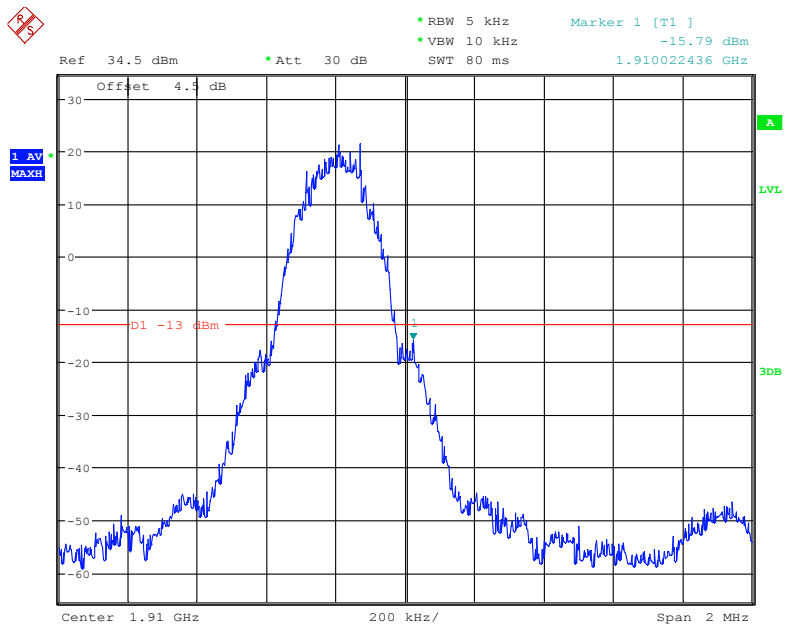
Date: 6.MAR.2018 15:25:41

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



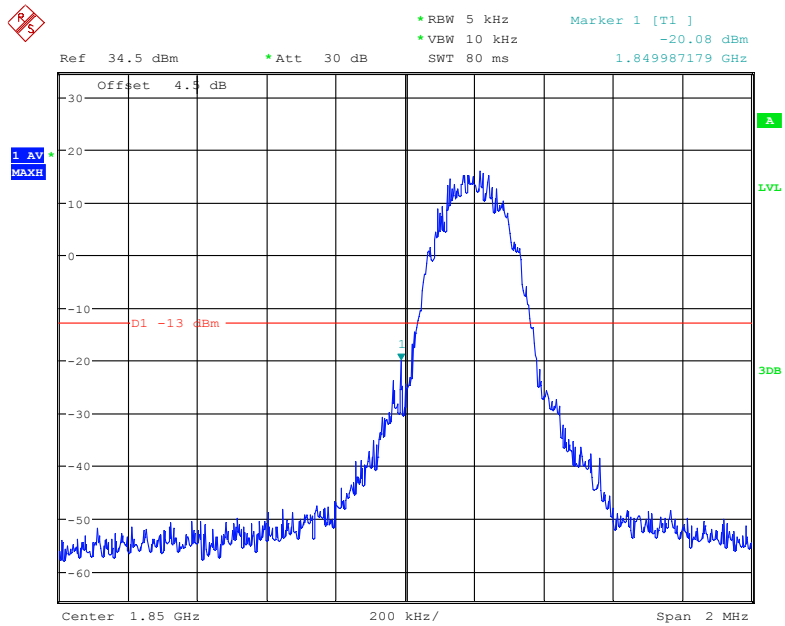
Date: 6.MAR.2018 14:36:03

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



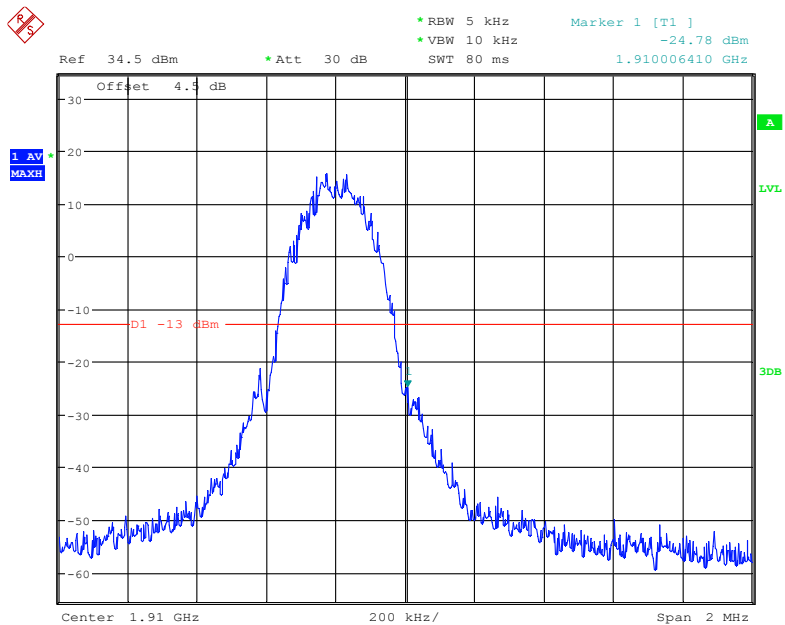
Date: 6.MAR.2018 14:36:58

PCS Band, Left Band Edge for EDGE Mode



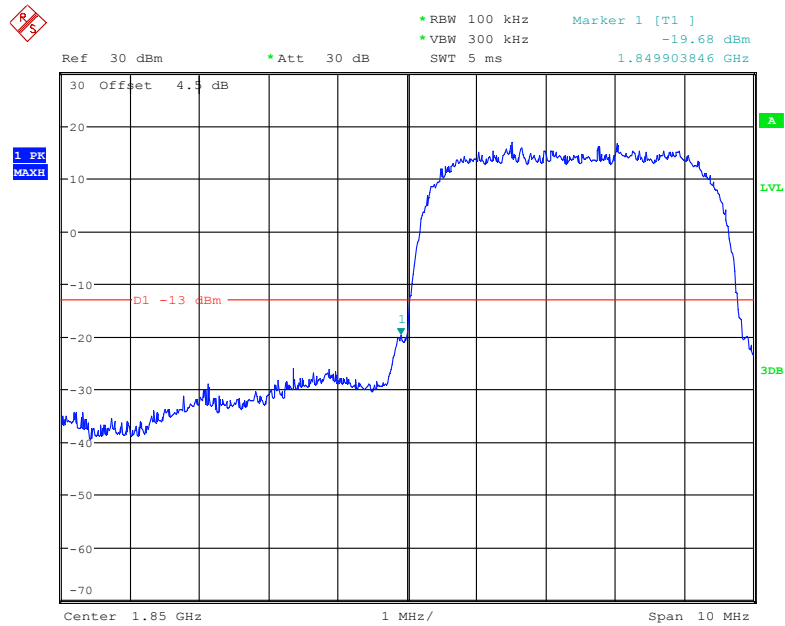
Date: 6.MAR.2018 14:43:01

PCS Band, Right Band Edge for EDGE Mode



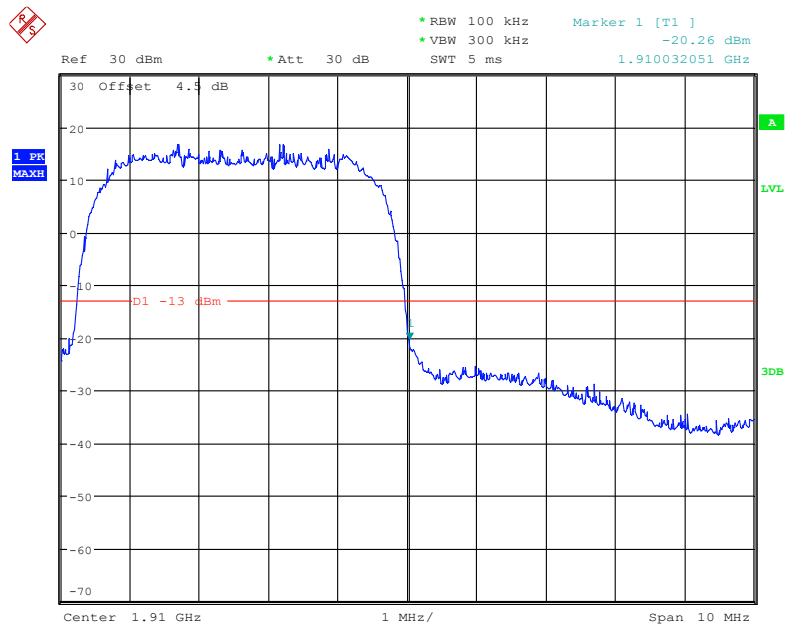
Date: 6.MAR.2018 14:43:48

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



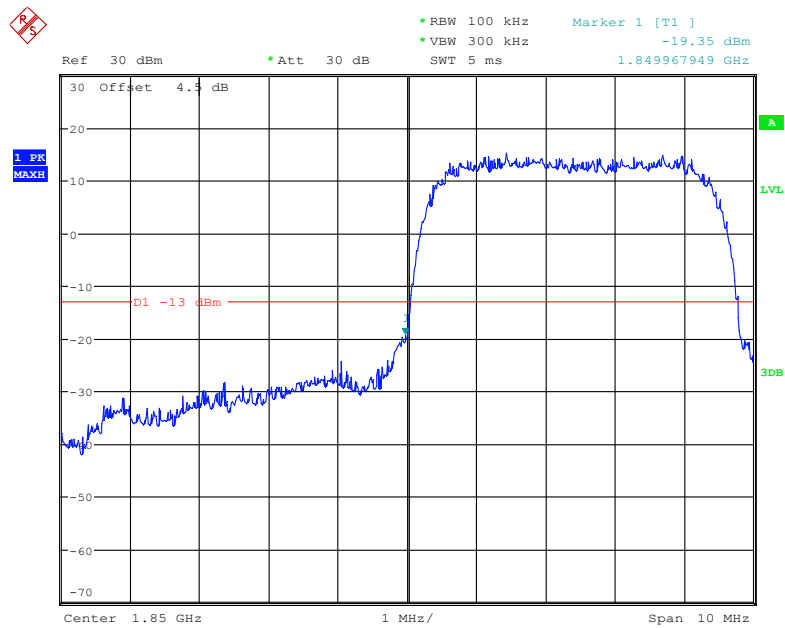
Date: 6.MAR.2018 15:19:22

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



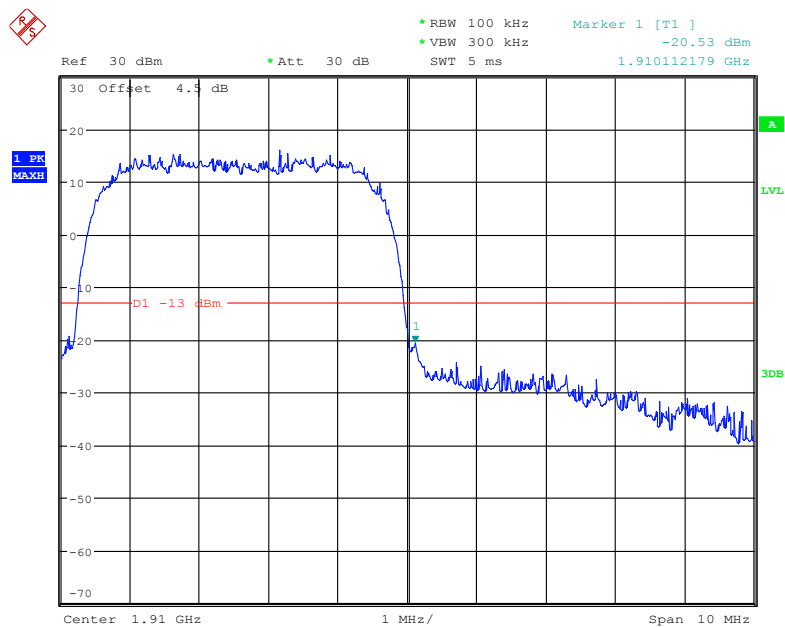
Date: 6.MAR.2018 15:19:52

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



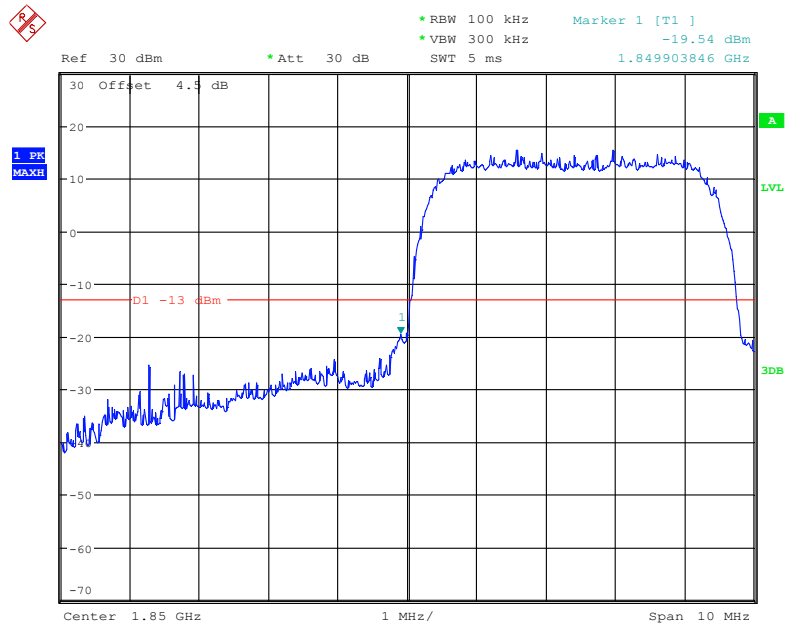
Date: 6.MAR.2018 15:30:32

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



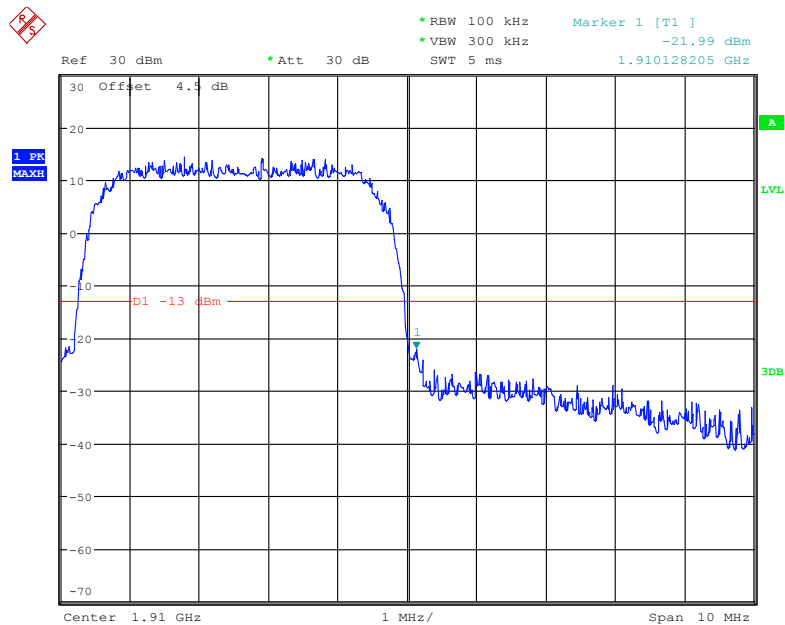
Date: 6.MAR.2018 15:31:06

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



Date: 6.MAR.2018 15:21:20

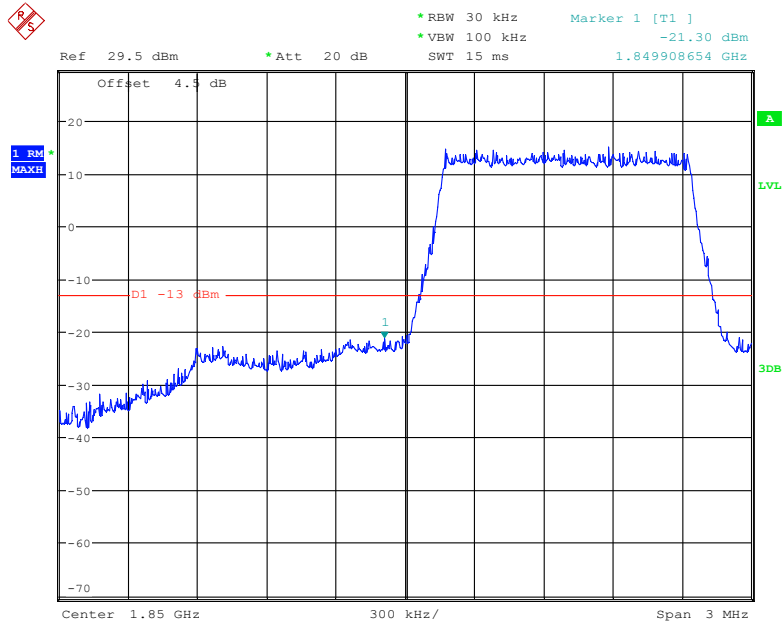
PCS Band, Right Band Edge for HSUPA (BPSK) Mode



Date: 6.MAR.2018 15:20:48

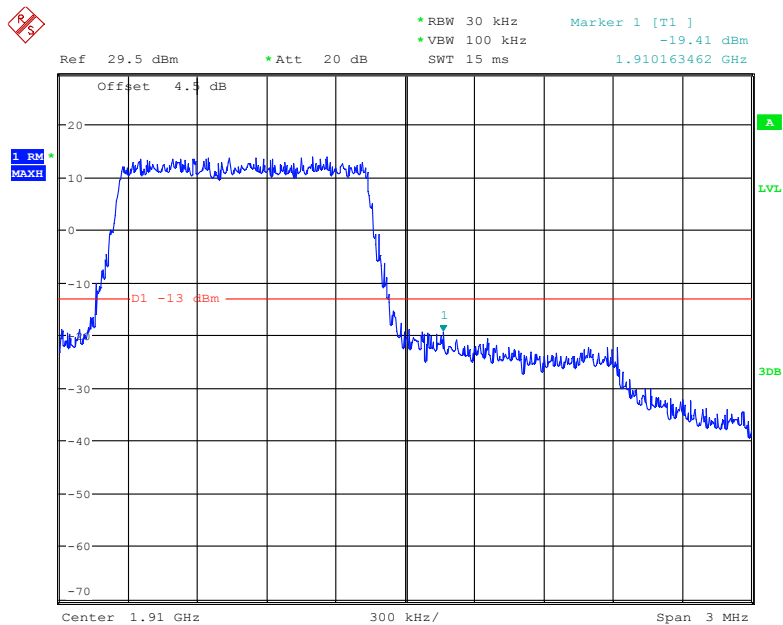
Band 2:

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



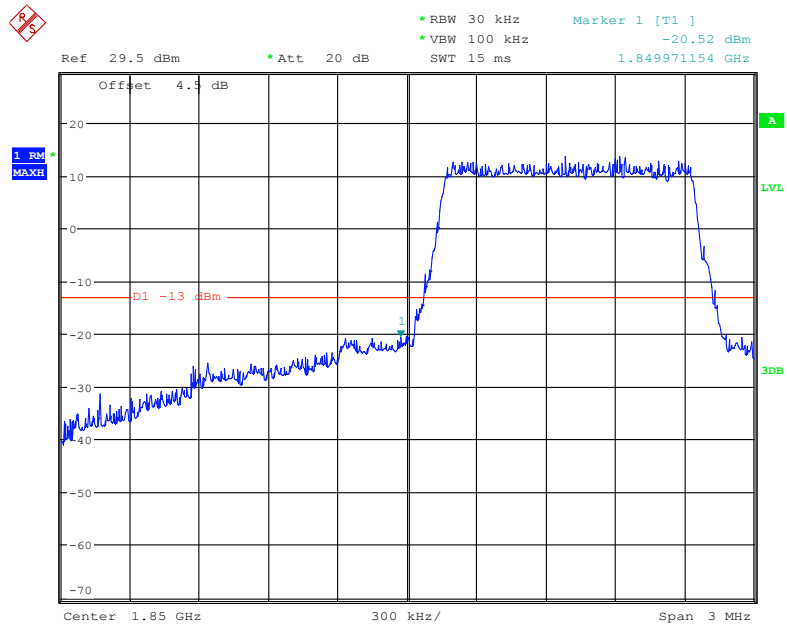
Date: 7.MAR.2018 11:50:06

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



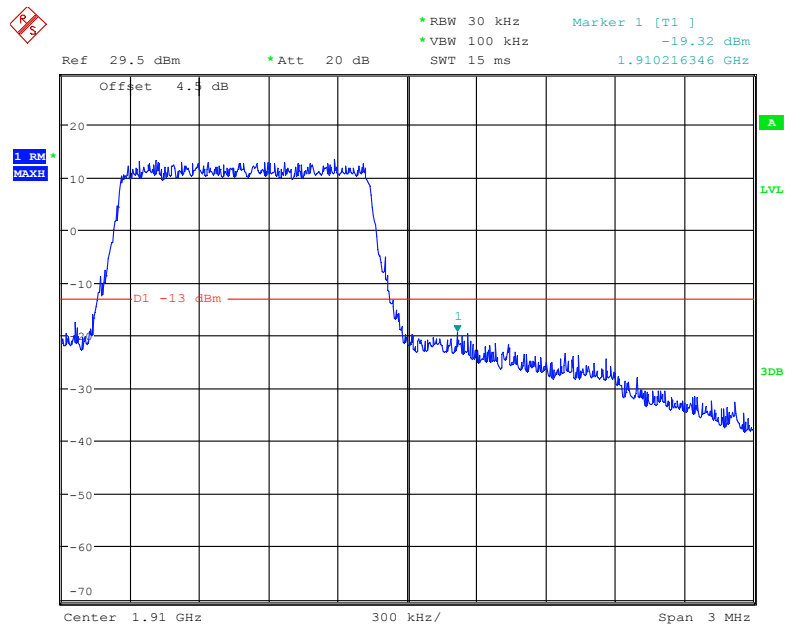
Date: 7.MAR.2018 11:51:31

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



Date: 7.MAR.2018 11:50:31

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



Date: 7.MAR.2018 11:51:11

Ref 29.5 dBm * Att 20 dB

* RBW 30 kHz * VBW 100 kHz * SWT 30 ms

Marker 1 [T1] -24.28 dBm

1.849980769 GHz

Offset 4.5 dB

1 RBW * MAXH

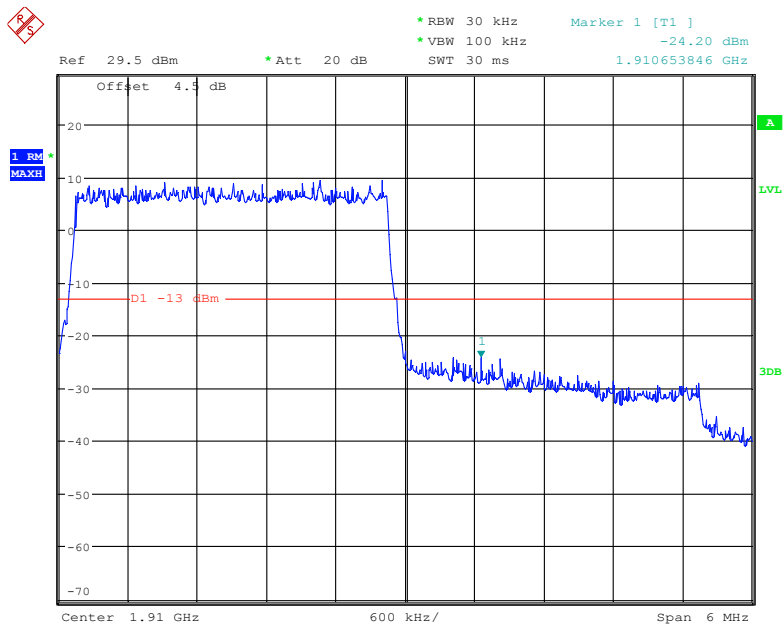
D1 -13 dBm

LVL

3DB

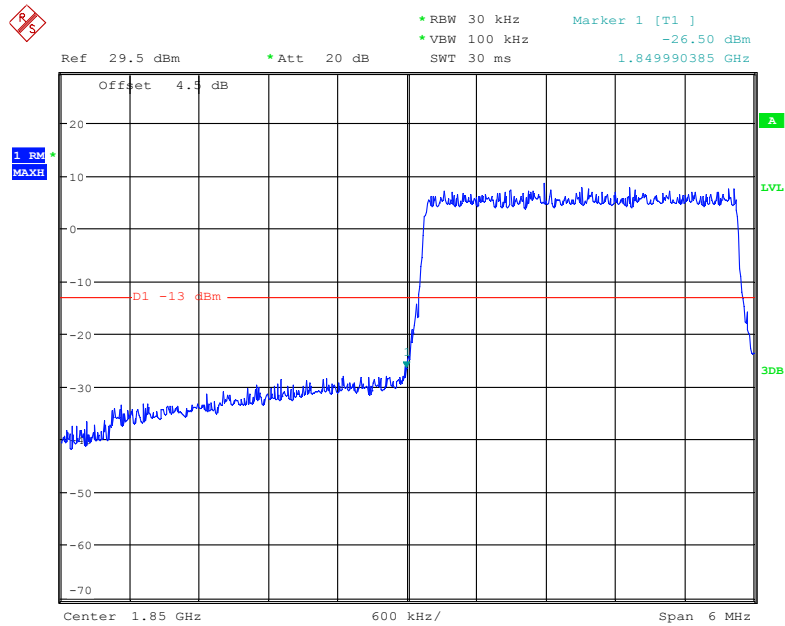
Center 1.85 GHz 600 kHz/ Span 6 MHz

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



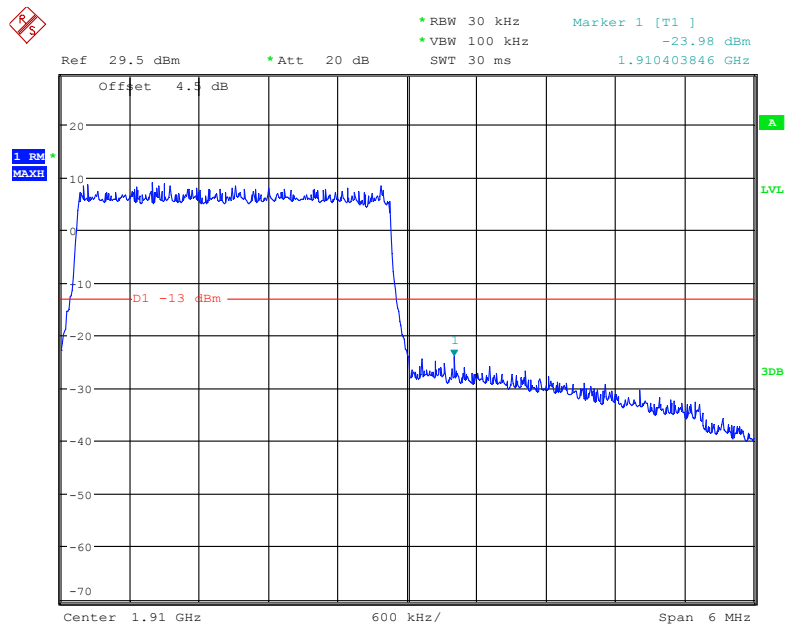
Page 111 of 153

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



Date: 7.MAR.2018 11:53:12

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



Date: 7.MAR.2018 11:53:54

Ref 29.5 dBm * Att 20 dB

* RBW 50 kHz Marker 1 [T1] -16.79 dBm
 * VBW 100 kHz
 SWT 5 ms 1.849987179 GHz

Offset 4.5 dB

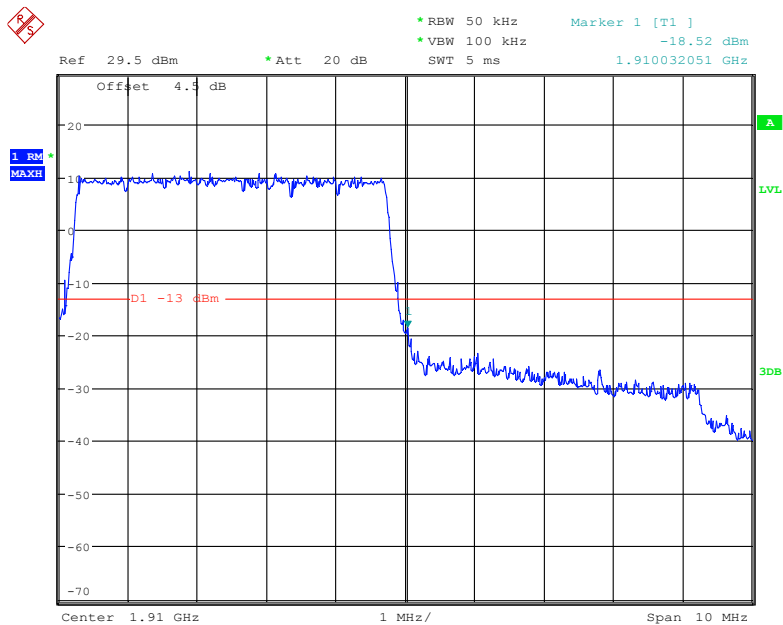
1 RM *
 MAXH

D1 -13 dBm

LVL
 3DB

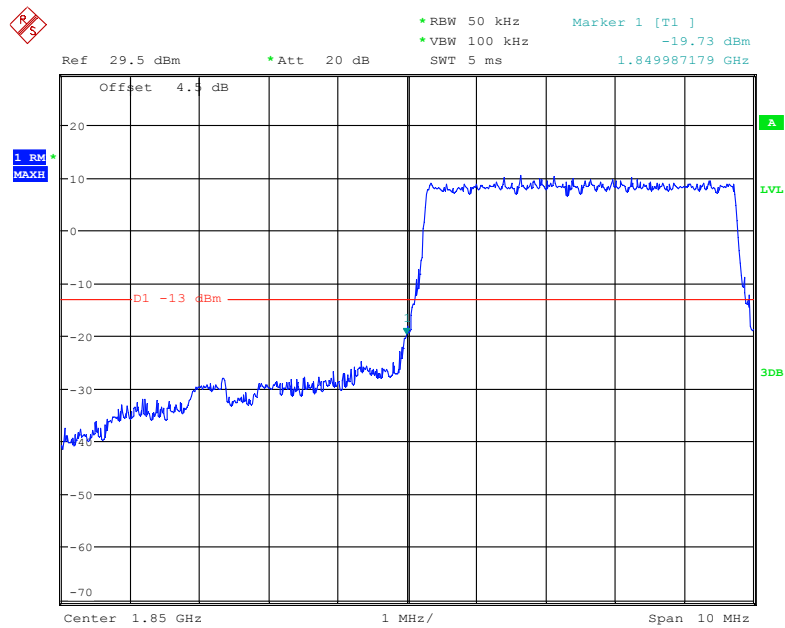
Center 1.85 GHz 1 MHz/ Span 10 MHz

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



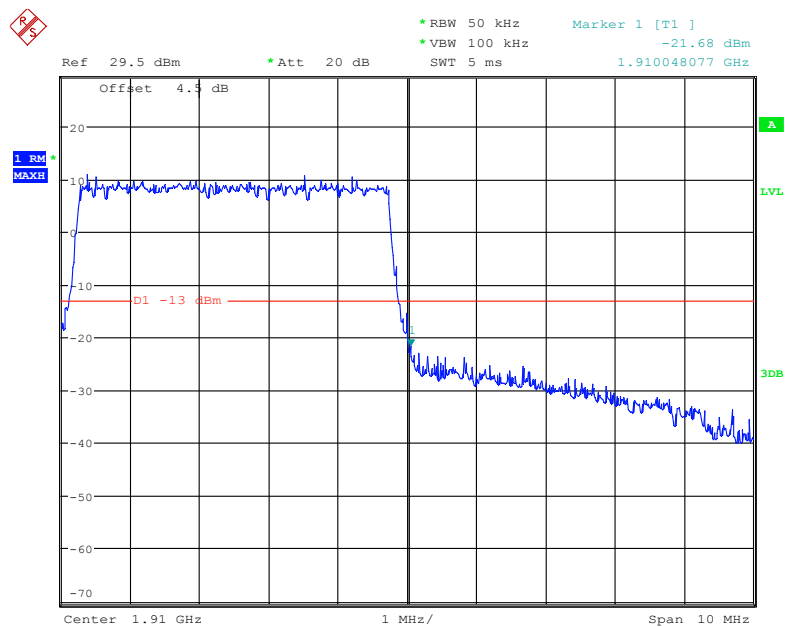
Page 113 of 153

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



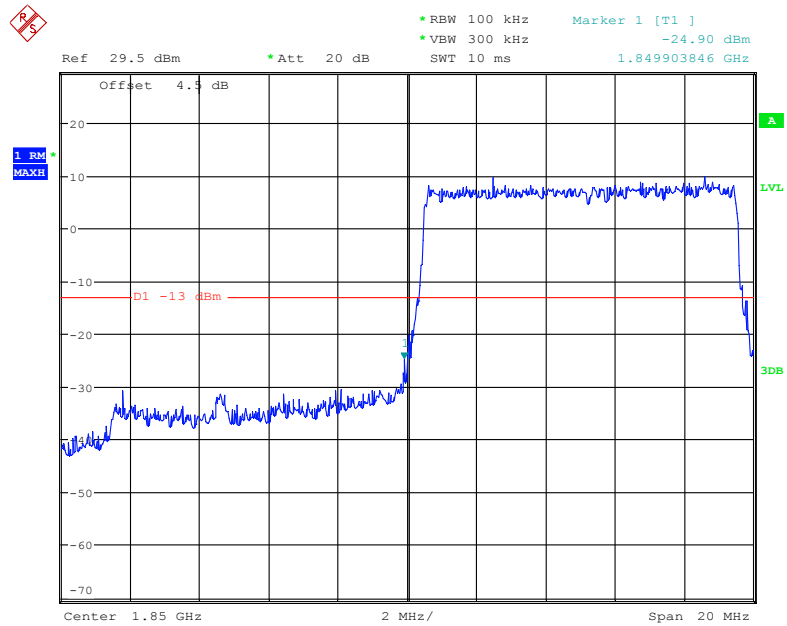
Date: 7.MAR.2018 11:56:45

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



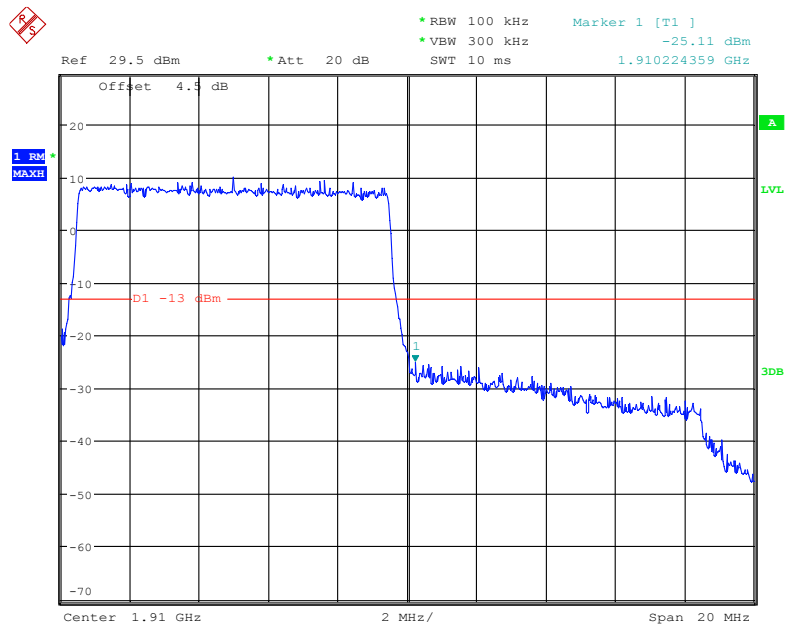
Date: 7.MAR.2018 11:57:20

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



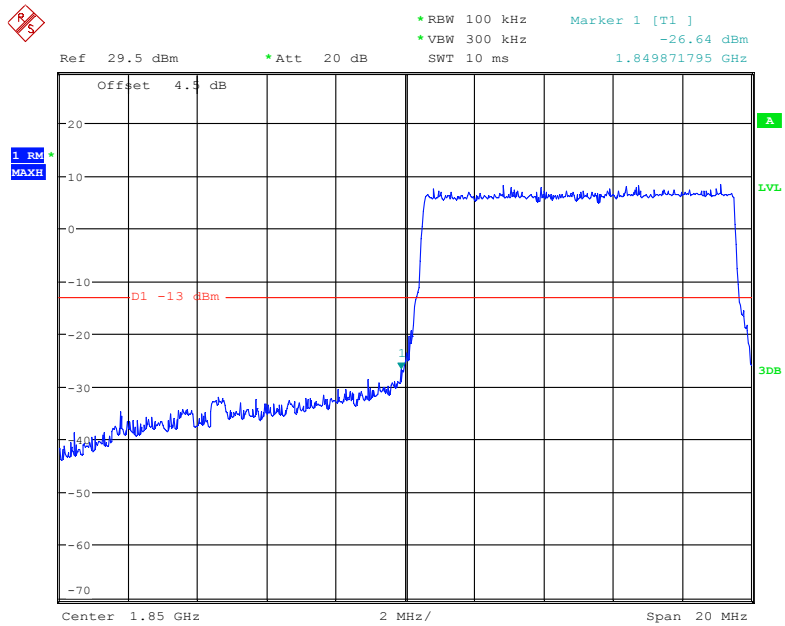
Date: 7.MAR.2018 12:00:06

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



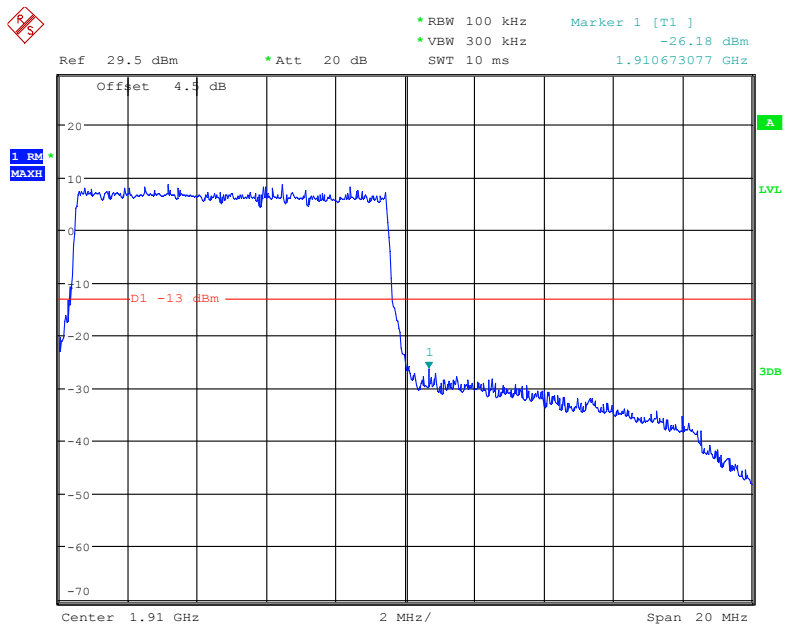
Date: 7.MAR.2018 12:00:39

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



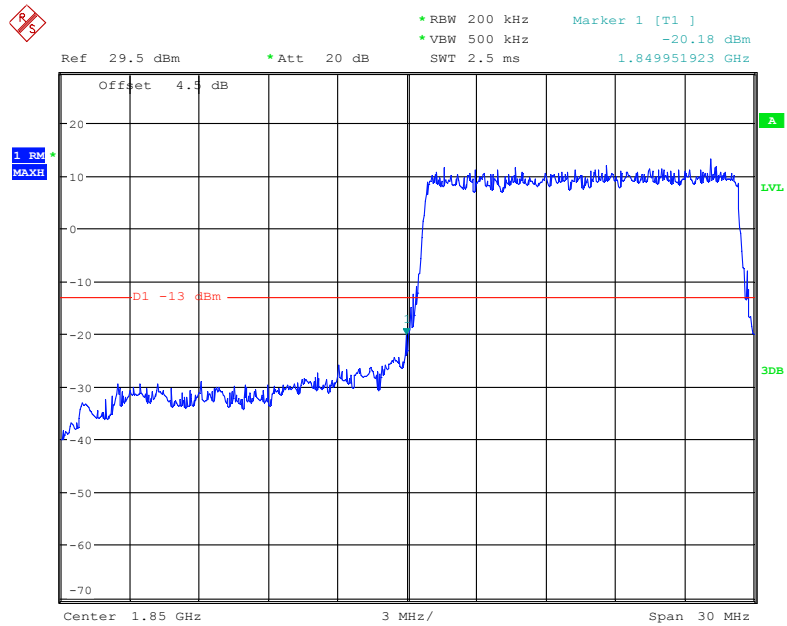
Date: 7.MAR.2018 11:59:37

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



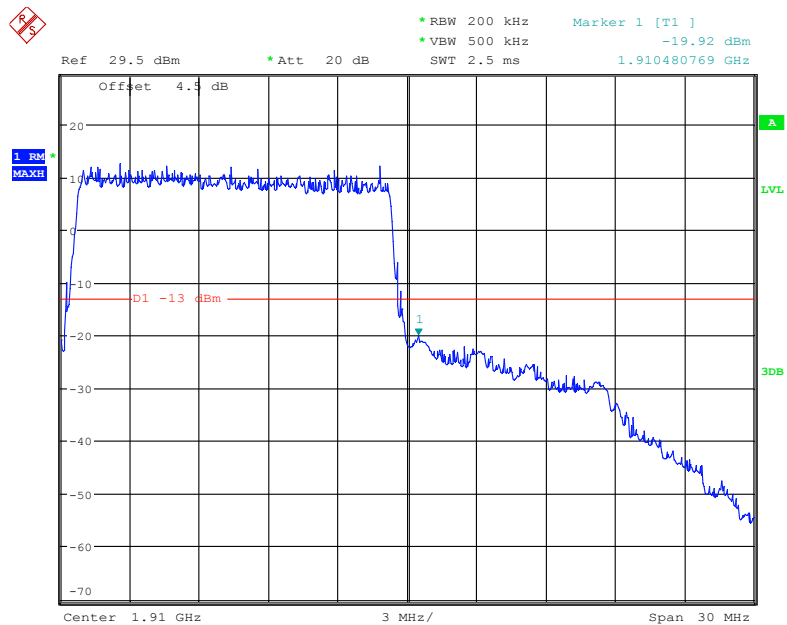
Date: 7.MAR.2018 12:01:12

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



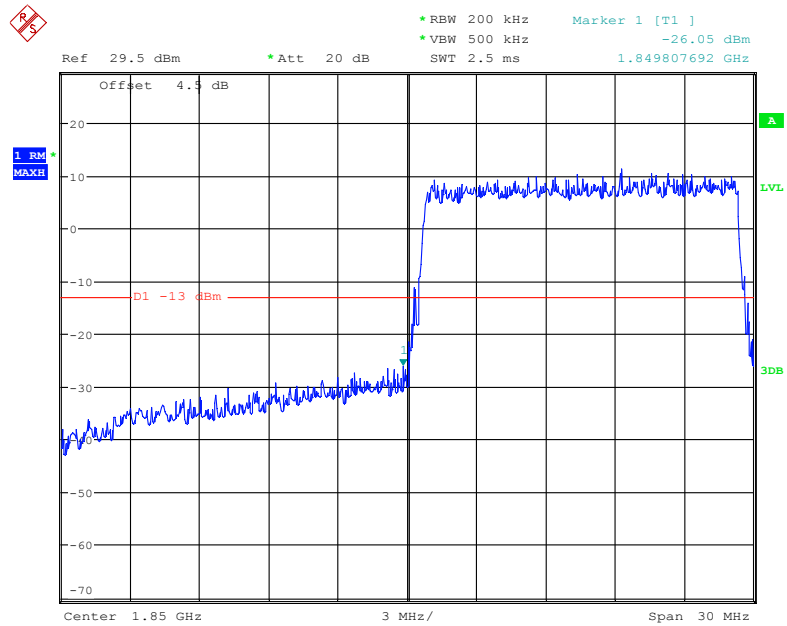
Date: 7.MAR.2018 12:49:41

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



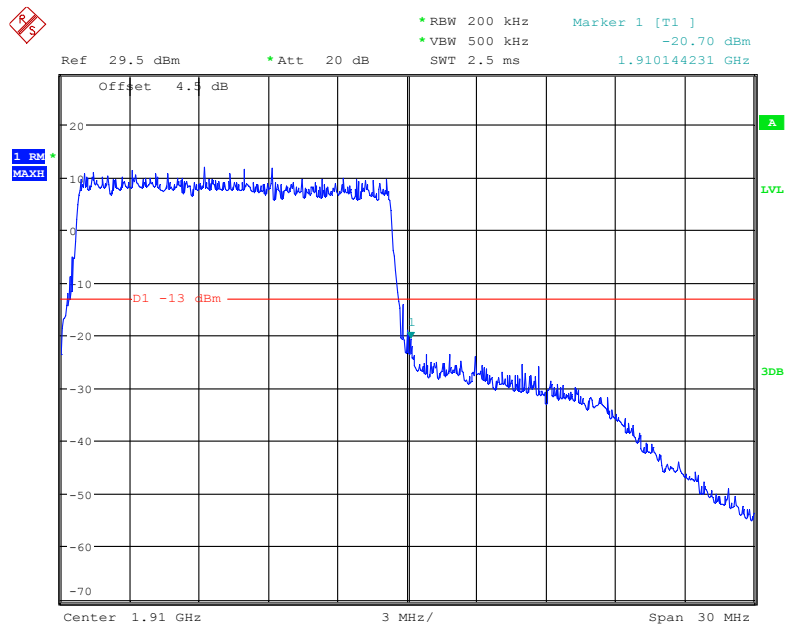
Date: 7.MAR.2018 12:51:24

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



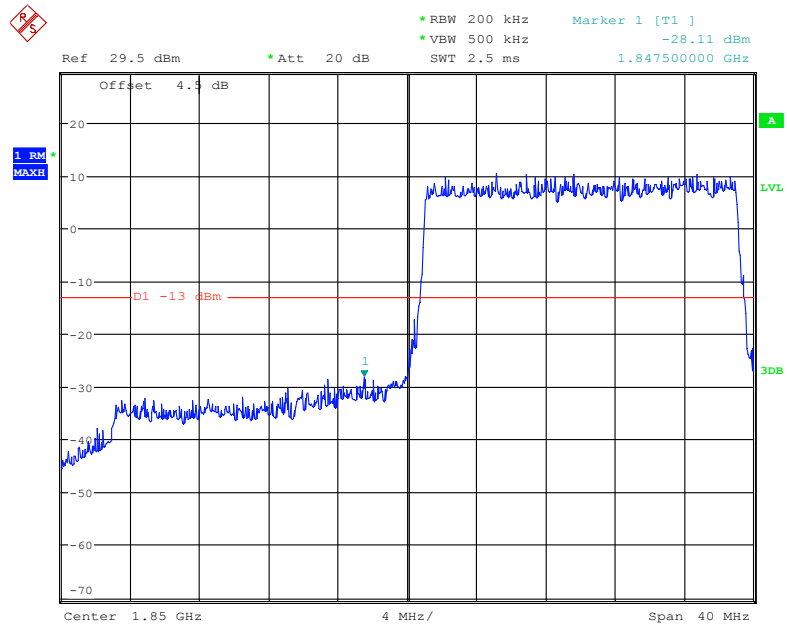
Date: 7.MAR.2018 12:50:15

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



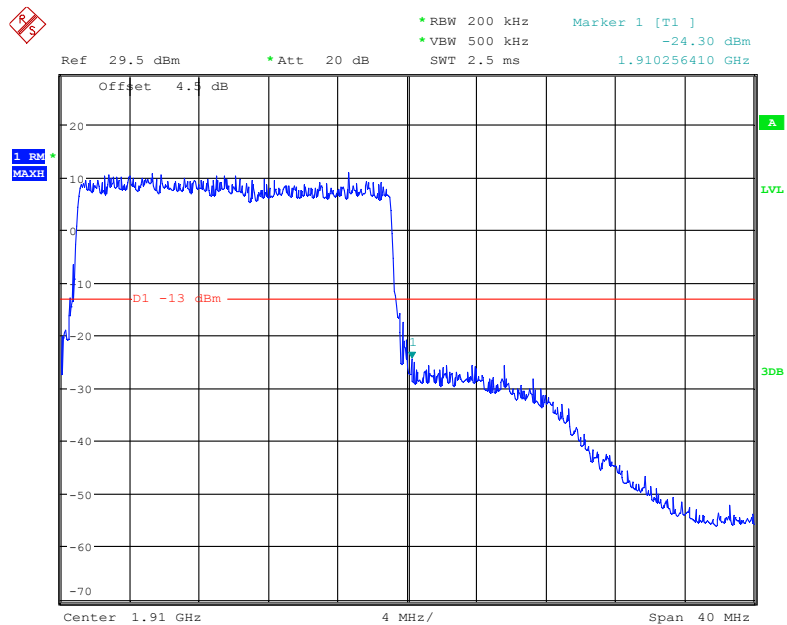
Date: 7.MAR.2018 12:50:51

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



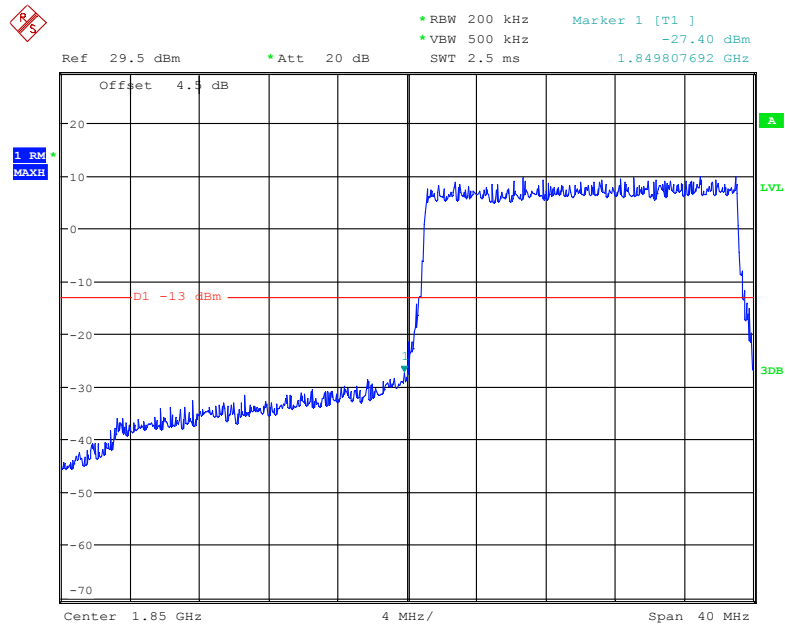
Date: 7.MAR.2018 12:53:17

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



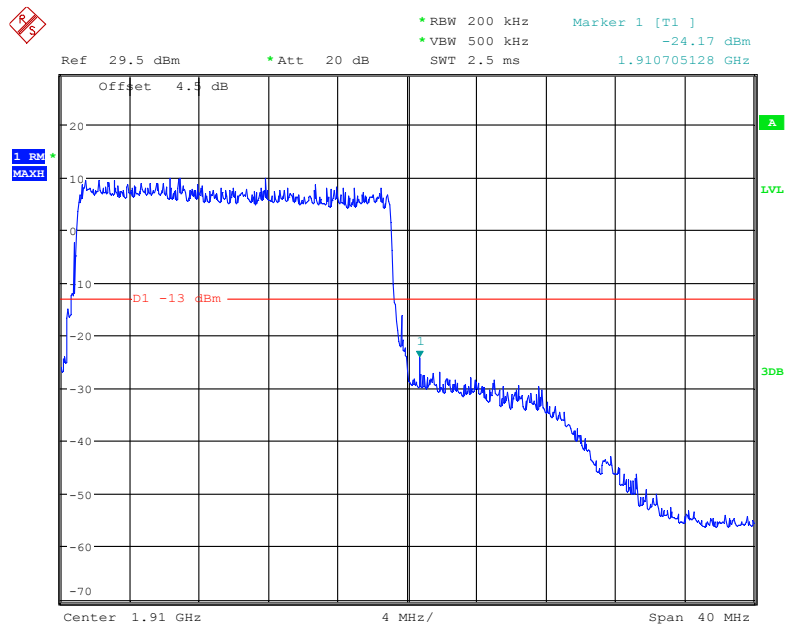
Date: 7.MAR.2018 12:53:52

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



Date: 7.MAR.2018 12:52:49

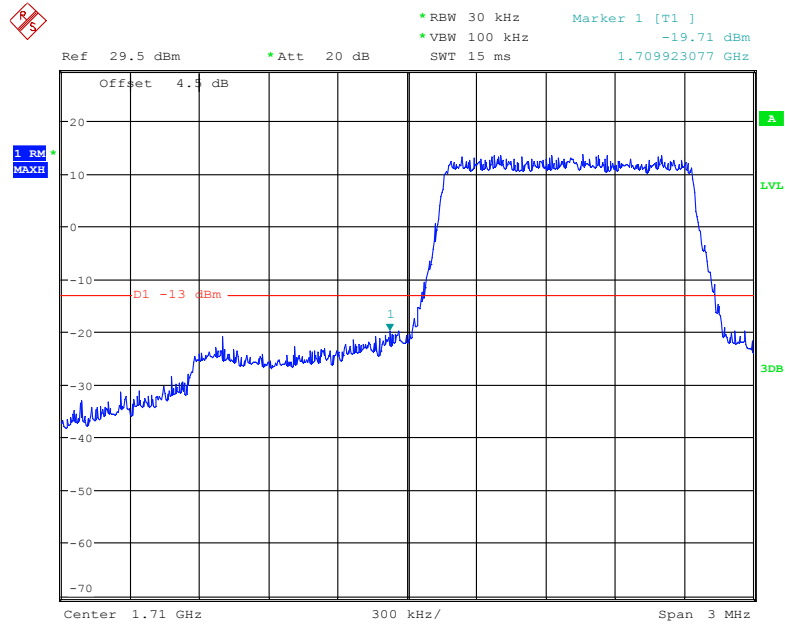
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 7.MAR.2018 12:54:19

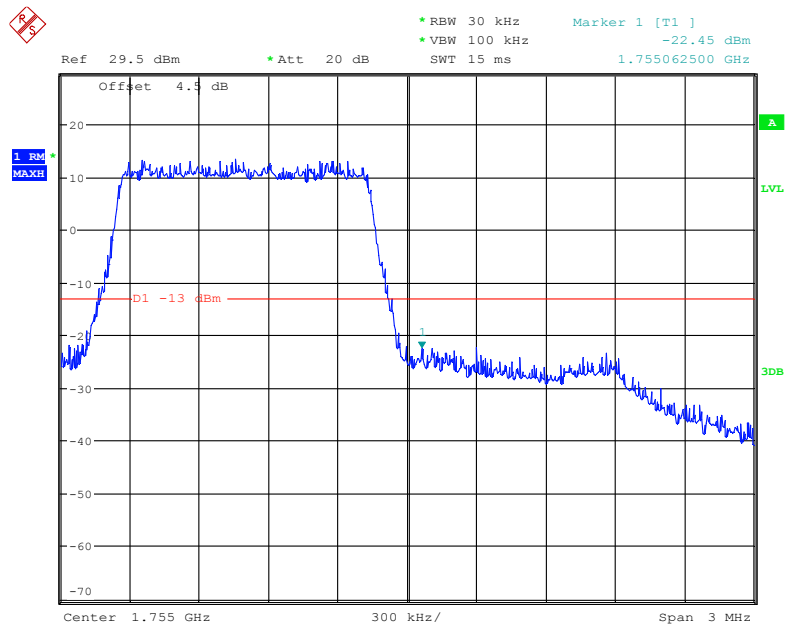
Band 4:

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



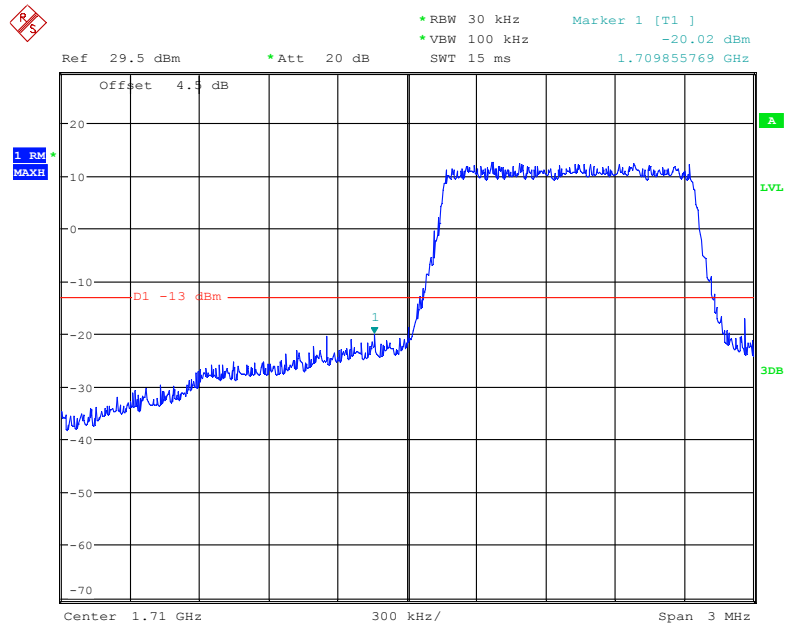
Date: 7.MAR.2018 14:11:01

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



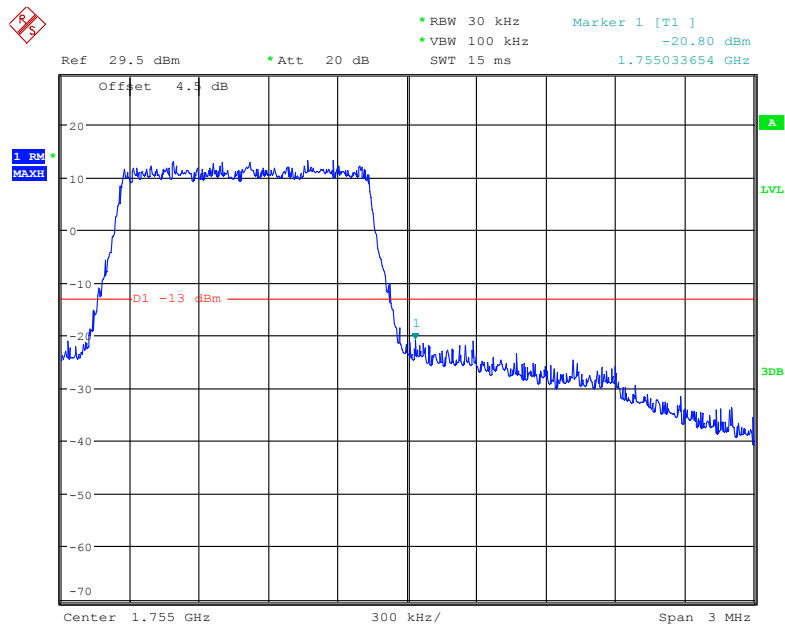
Date: 7.MAR.2018 14:12:54

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



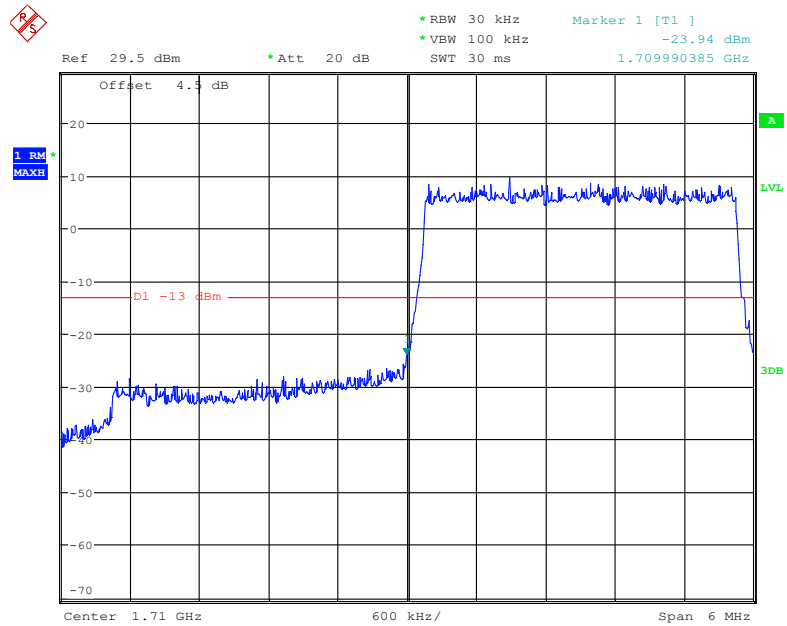
Date: 7.MAR.2018 14:11:42

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



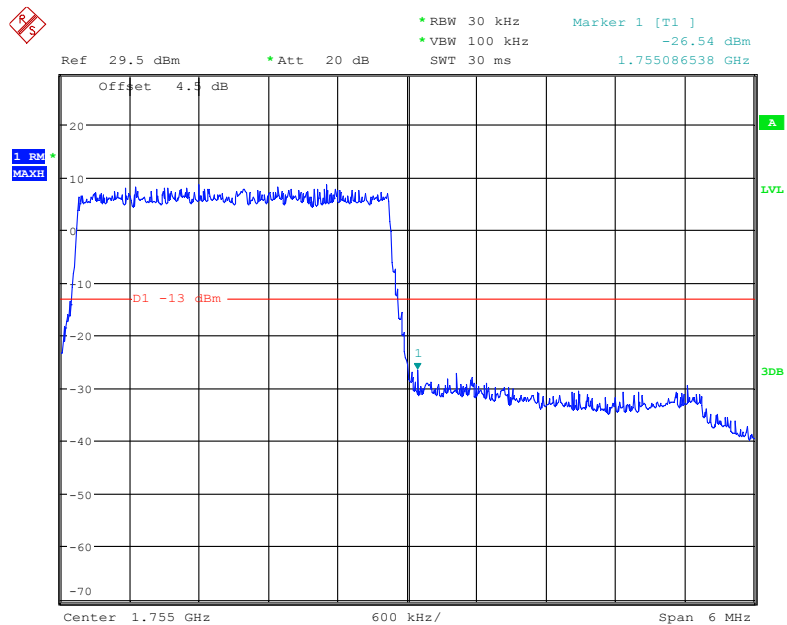
Date: 7.MAR.2018 14:12:36

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



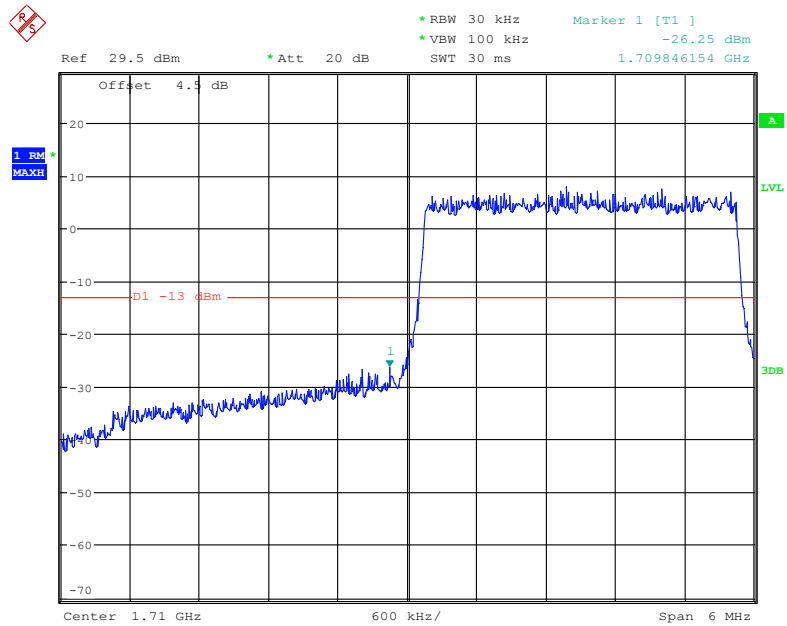
Date: 7.MAR.2018 14:13:50

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



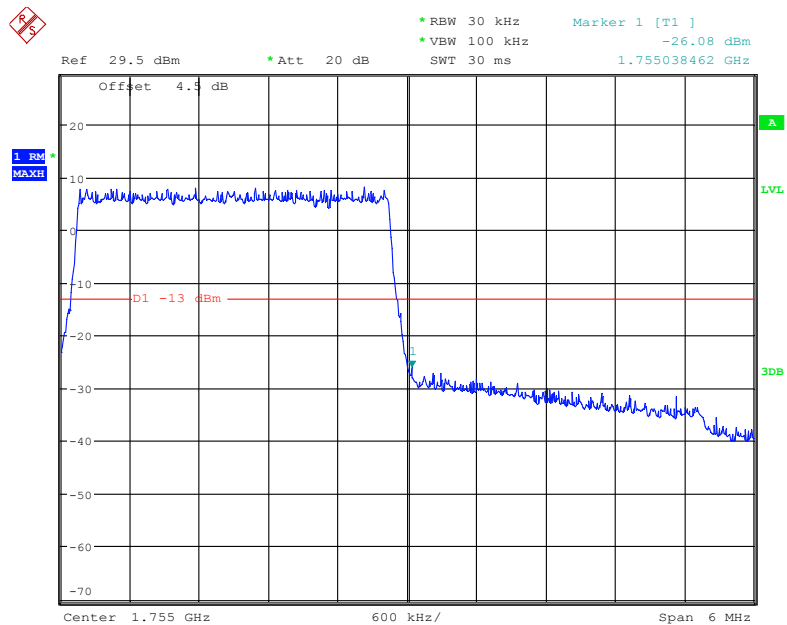
Date: 7.MAR.2018 14:15:21

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



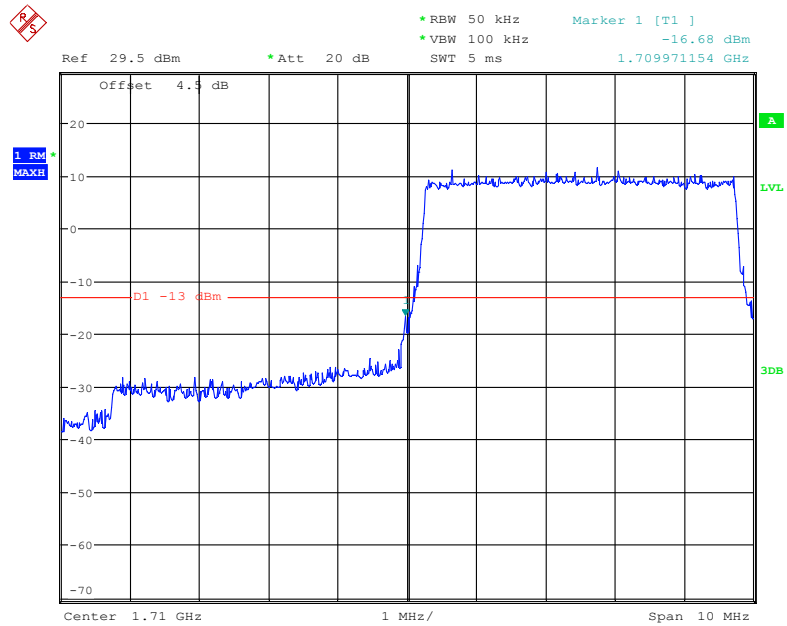
Date: 7.MAR.2018 14:14:10

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



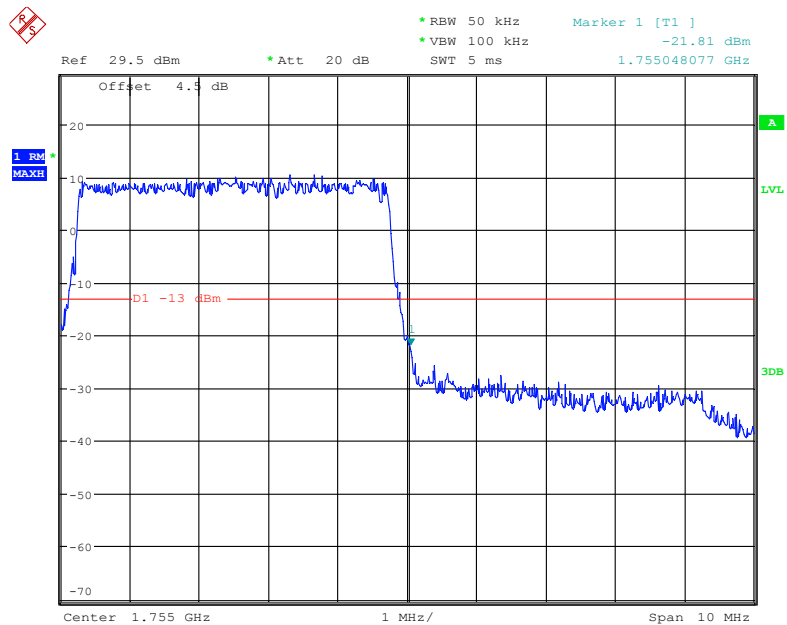
Date: 7.MAR.2018 14:15:01

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



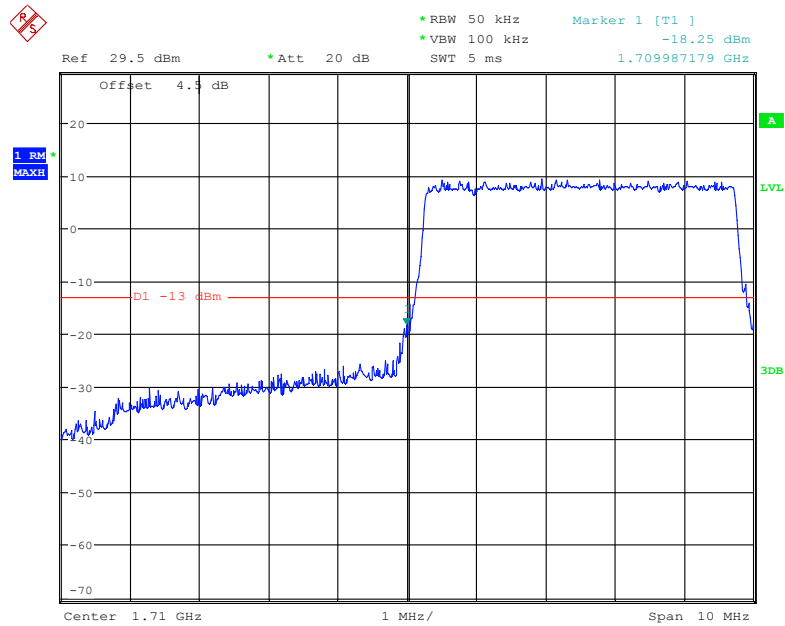
Date: 7.MAR.2018 14:16:58

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



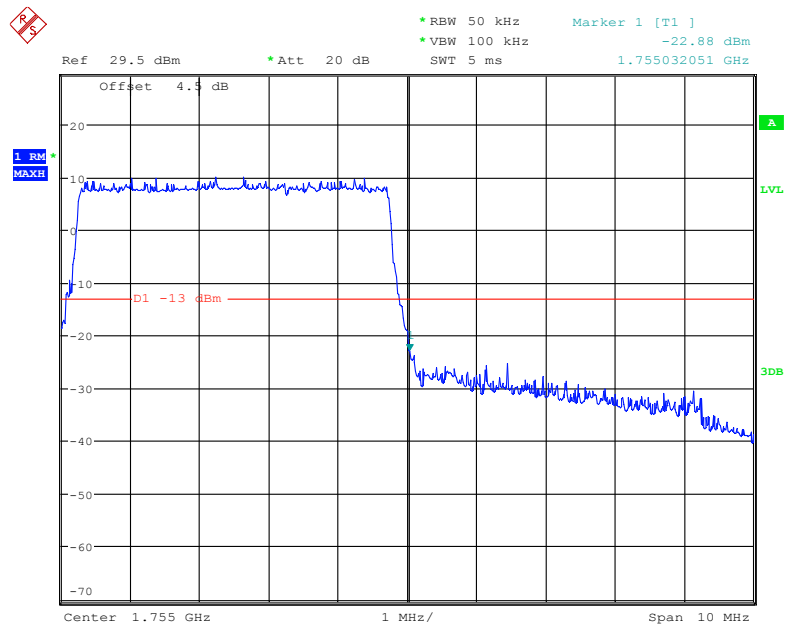
Date: 7.MAR.2018 14:19:36

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



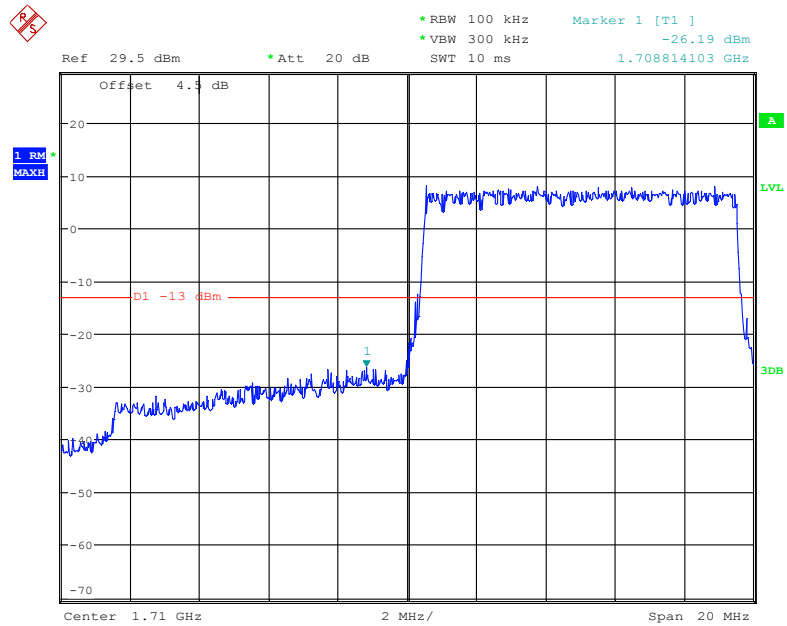
Date: 7.MAR.2018 14:17:40

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



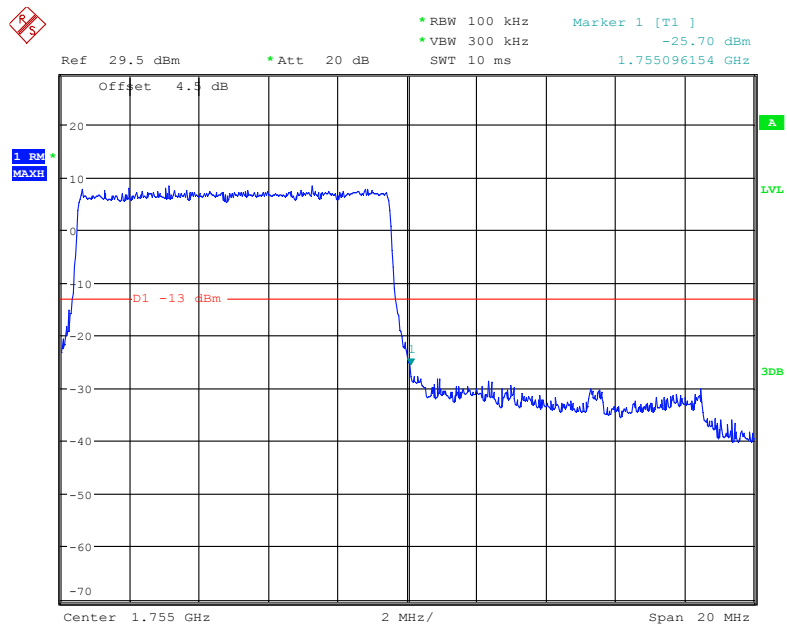
Date: 7.MAR.2018 14:18:34

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



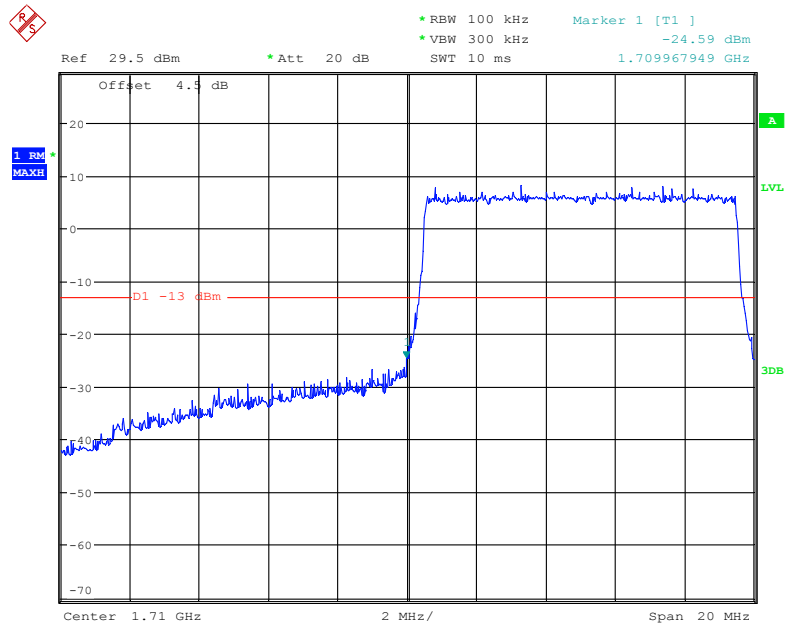
Date: 7.MAR.2018 14:21:26

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



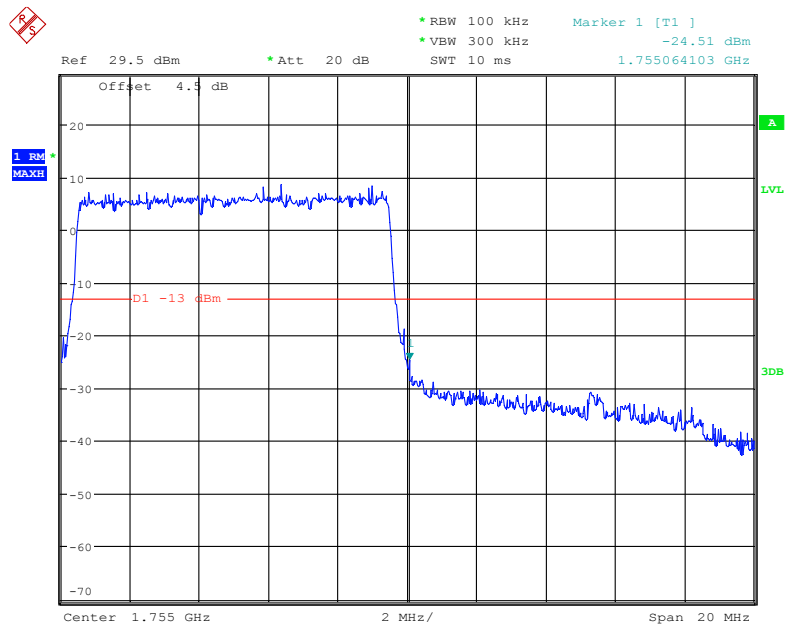
Date: 7.MAR.2018 14:21:56

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



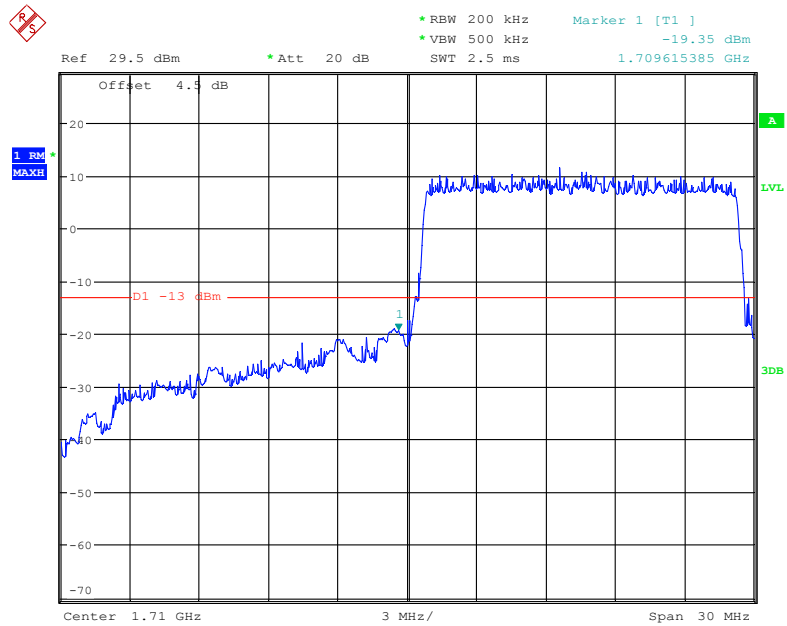
Date: 7.MAR.2018 14:20:59

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



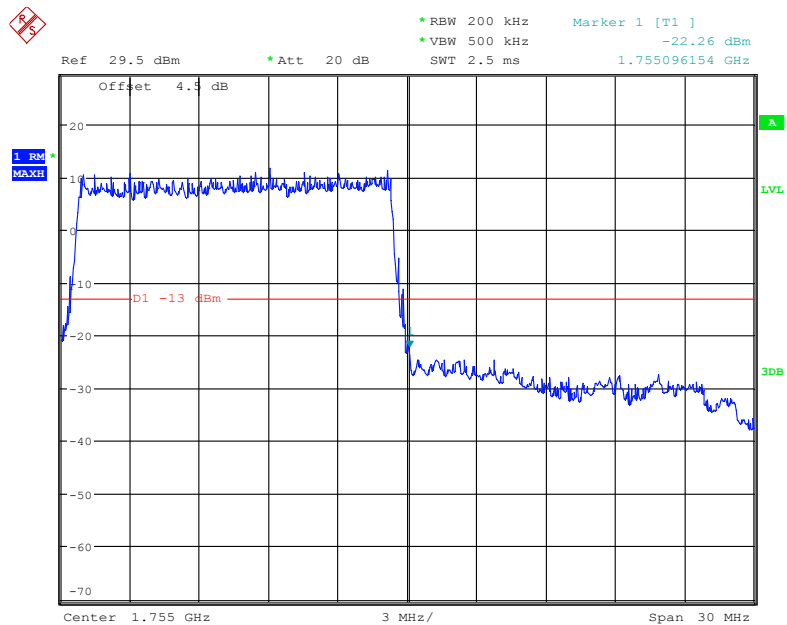
Date: 7.MAR.2018 14:22:17

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



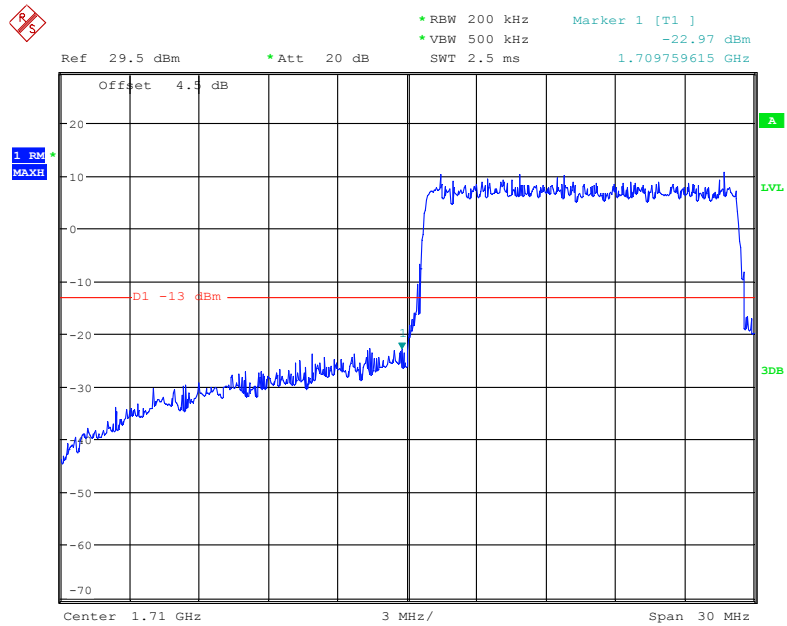
Date: 7.MAR.2018 14:23:34

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



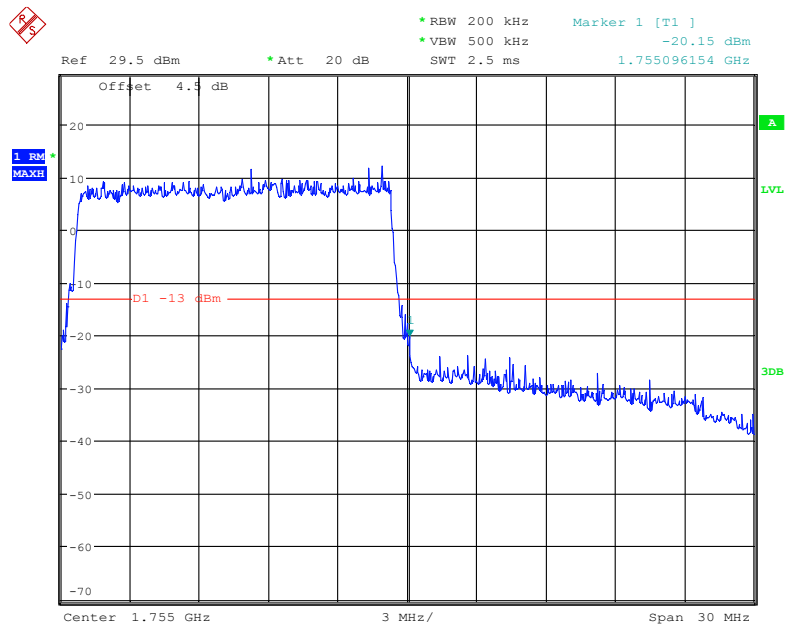
Date: 7.MAR.2018 14:25:30

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



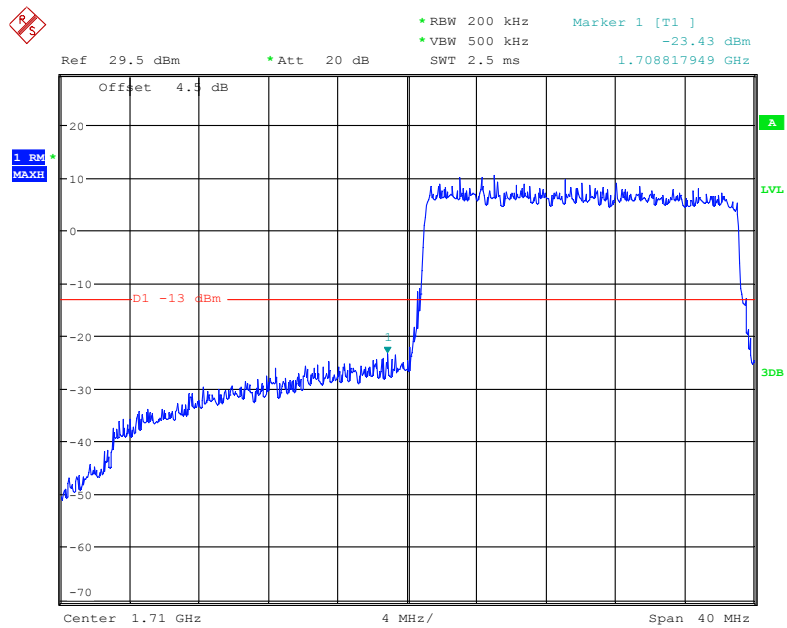
Date: 7.MAR.2018 14:24:02

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



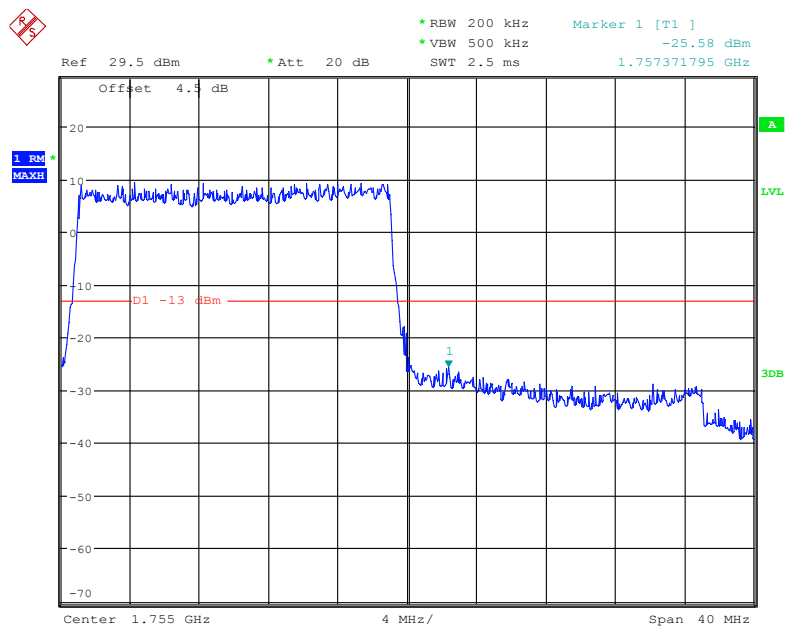
Date: 7.MAR.2018 14:25:09

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



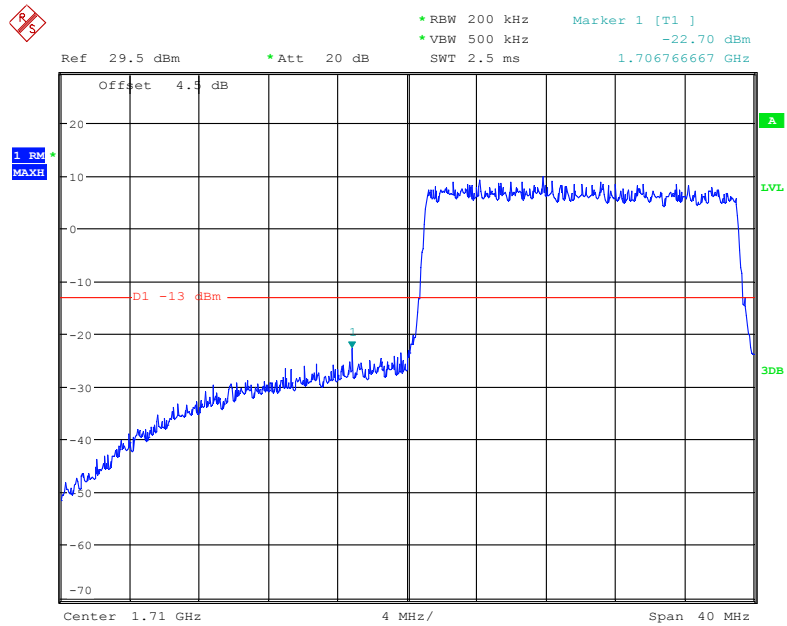
Date: 7.MAR.2018 15:27:06

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



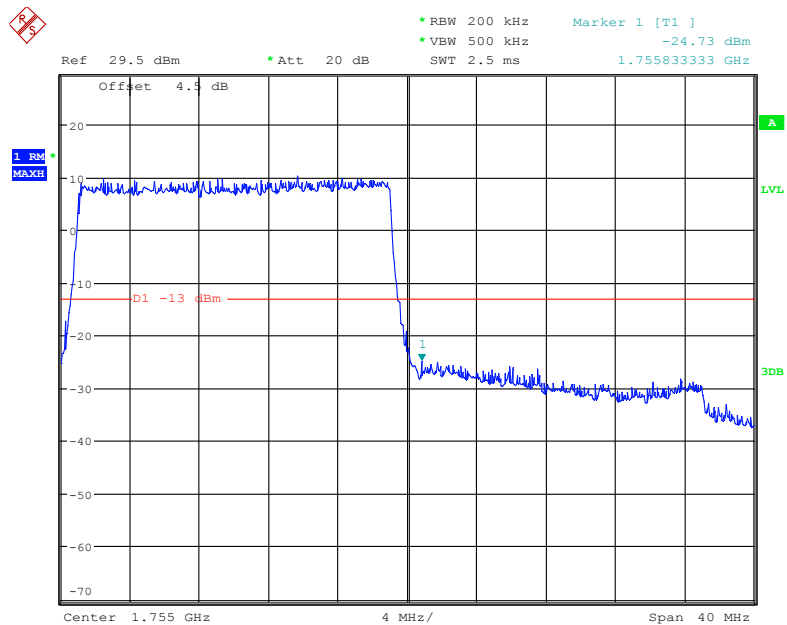
Date: 7.MAR.2018 15:27:47

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



Date: 7.MAR.2018 15:26:18

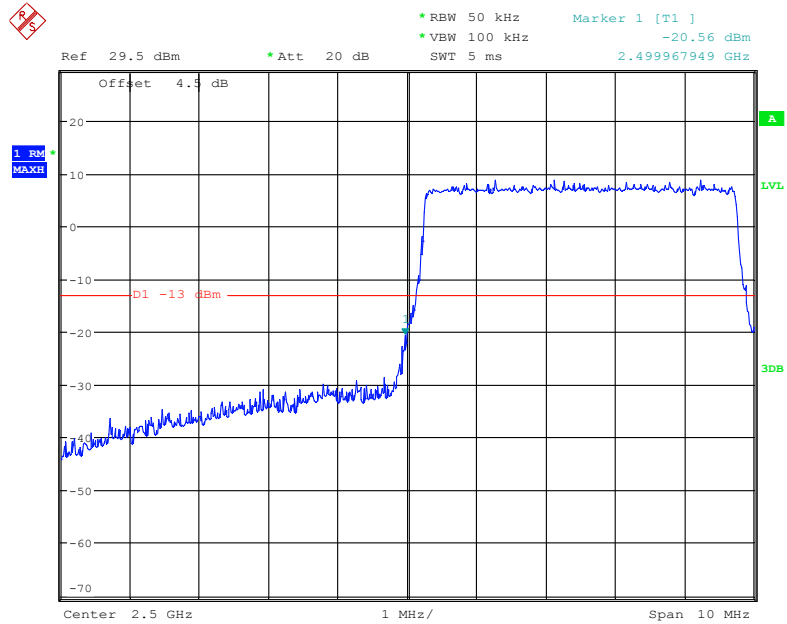
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 7.MAR.2018 15:28:30

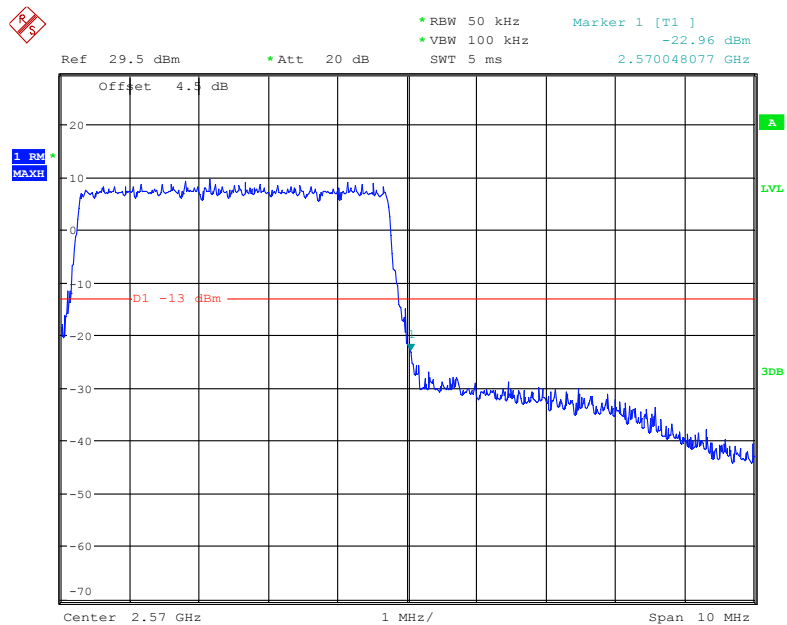
Band 7:

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



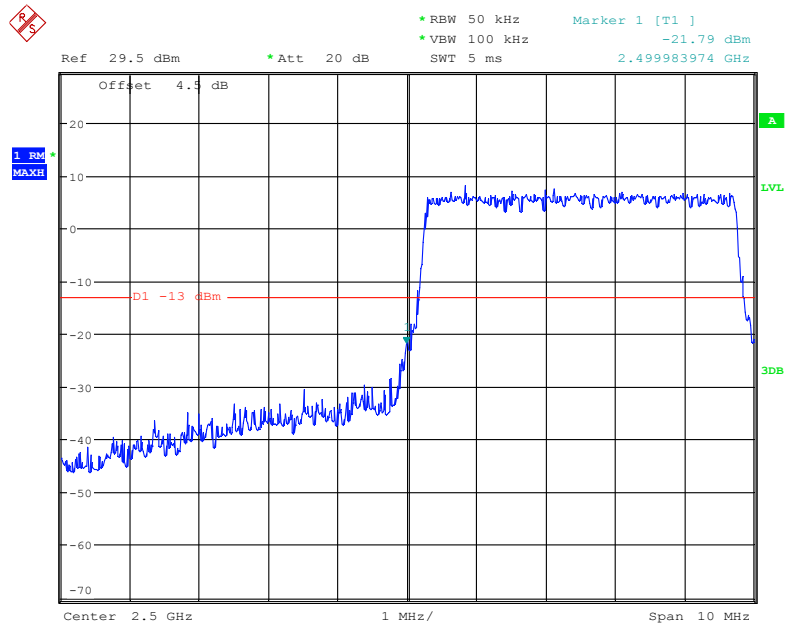
Date: 7.MAR.2018 15:30:12

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



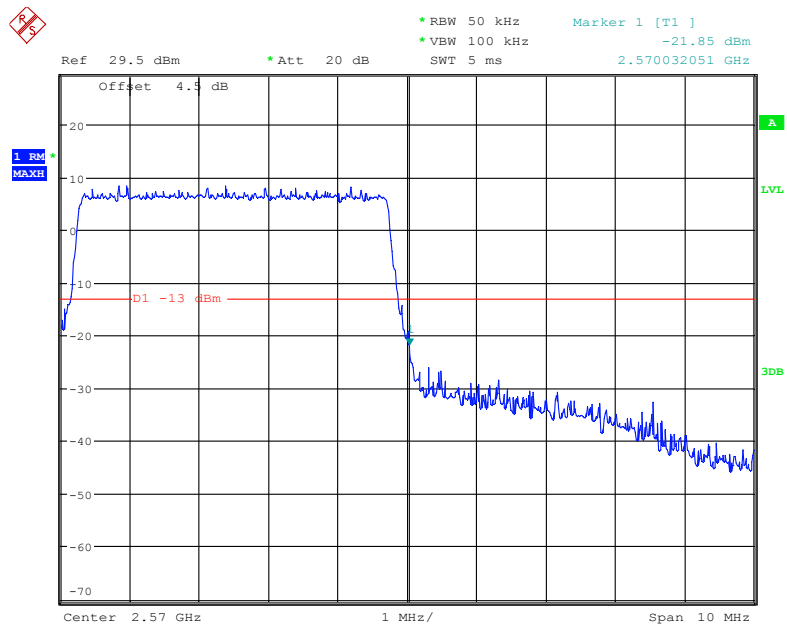
Date: 7.MAR.2018 15:32:40

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



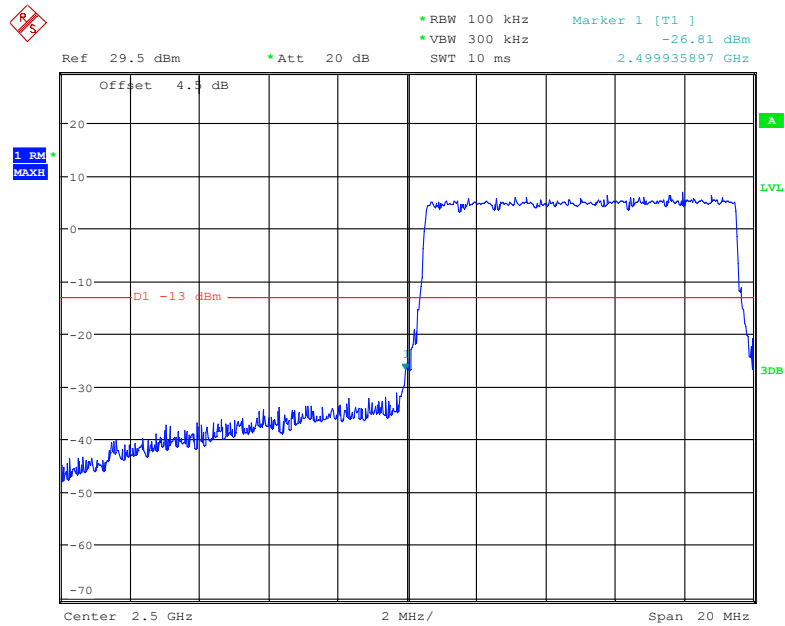
Date: 7.MAR.2018 15:30:57

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



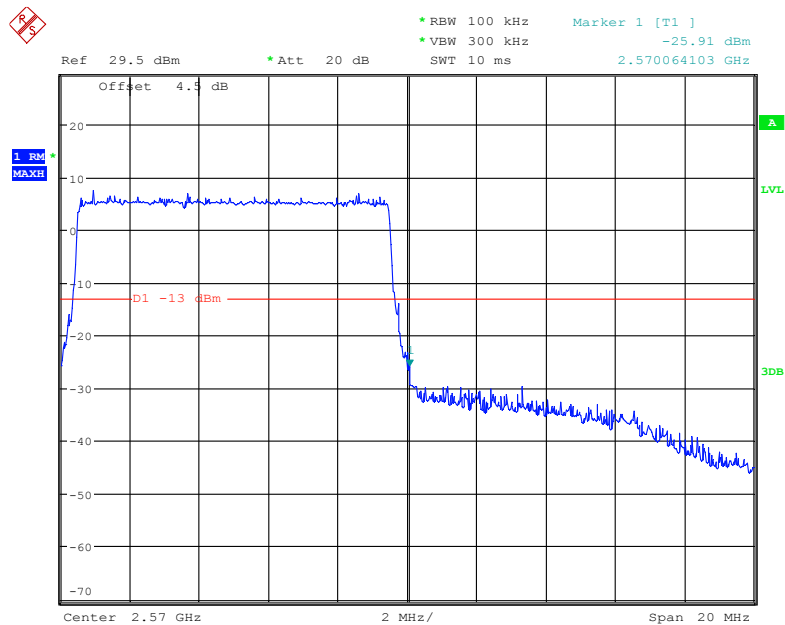
Date: 7.MAR.2018 15:32:06

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



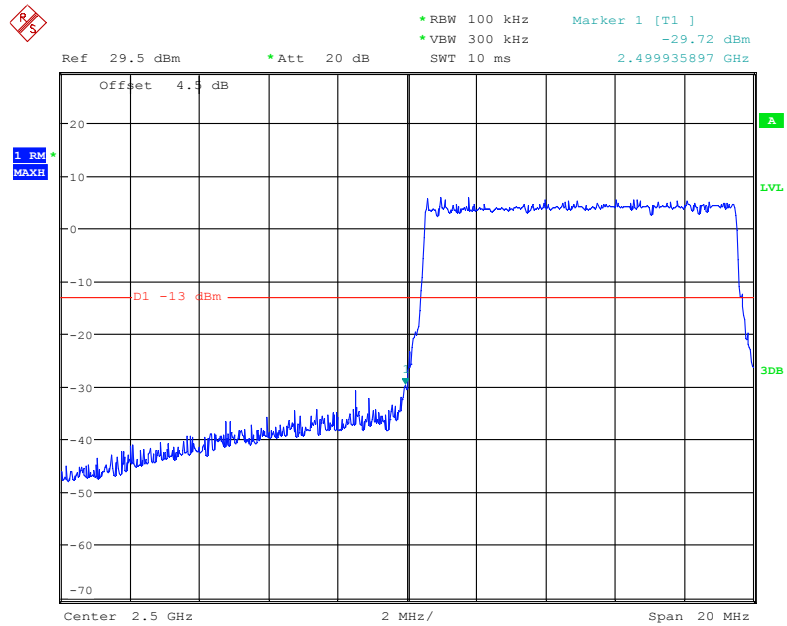
Date: 7.MAR.2018 15:34:31

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



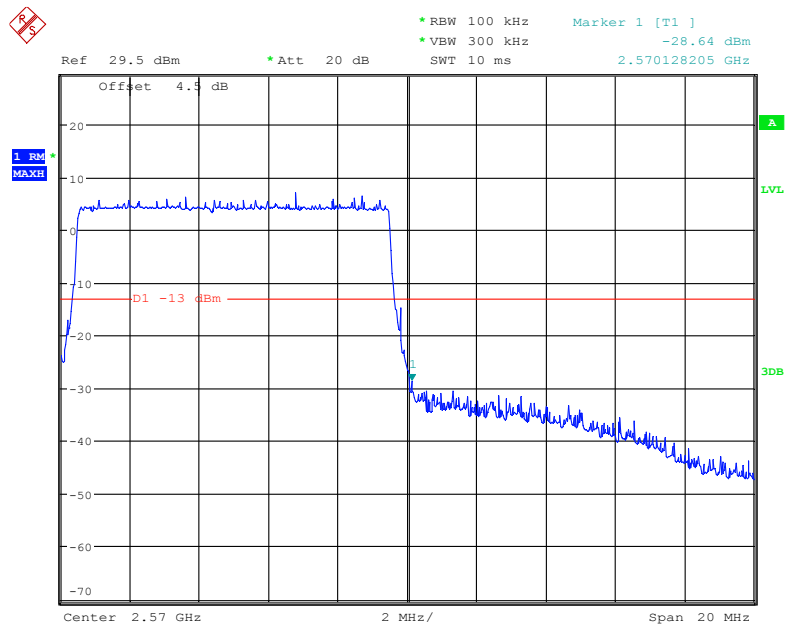
Date: 7.MAR.2018 15:35:10

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



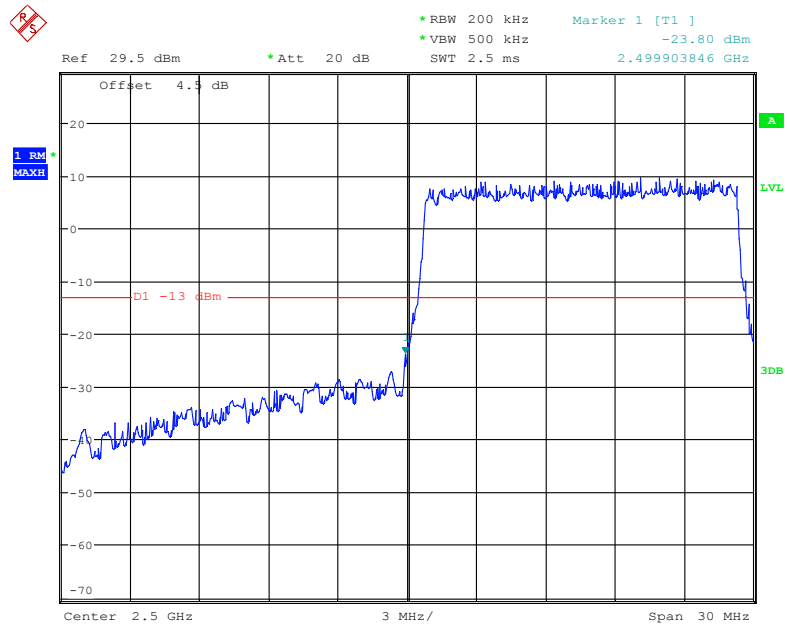
Date: 7.MAR.2018 15:33:59

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



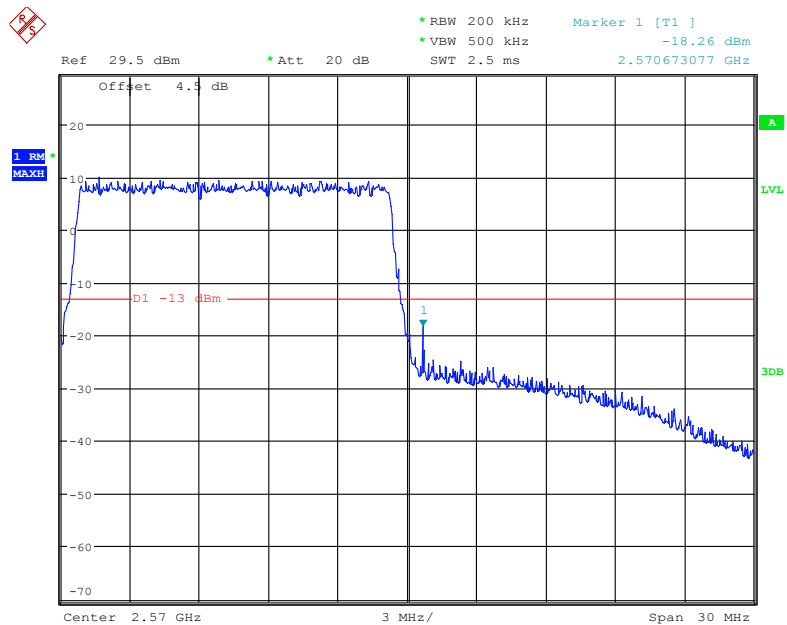
Date: 7.MAR.2018 15:35:43

QPSK (15 MHz, FULL RB) - Left Band Edge



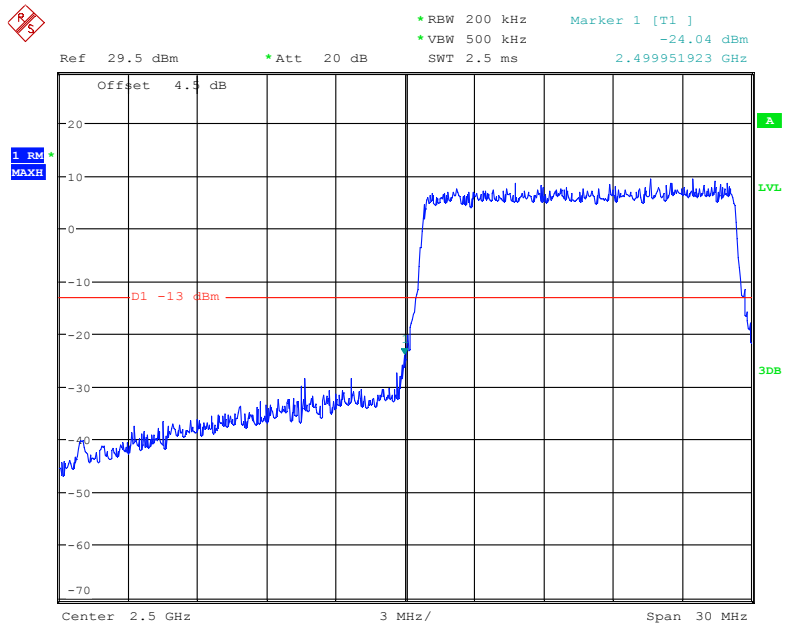
Date: 7.MAR.2018 15:37:07

QPSK (15 MHz, FULL RB) - Right Band Edge



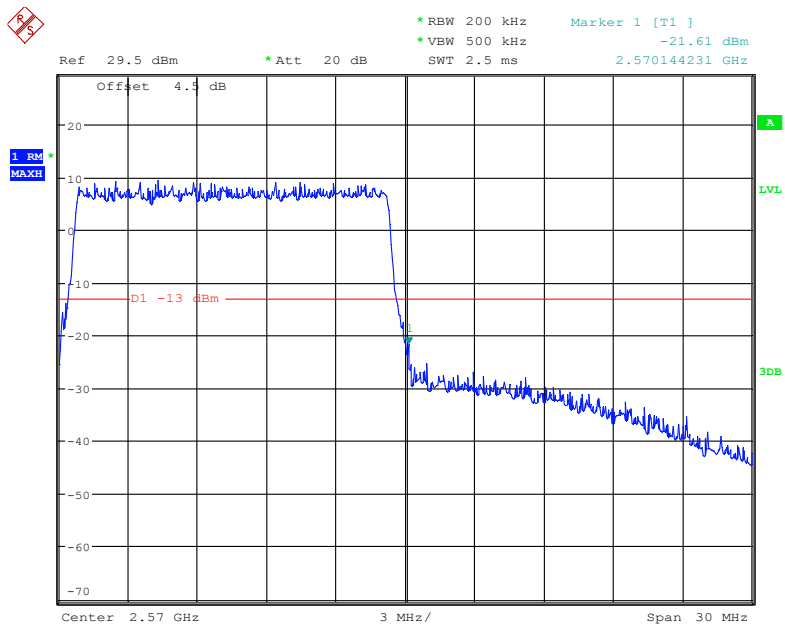
Date: 7.MAR.2018 15:41:29

16-QAM (15 MHz, FULL RB) - Left Band Edge



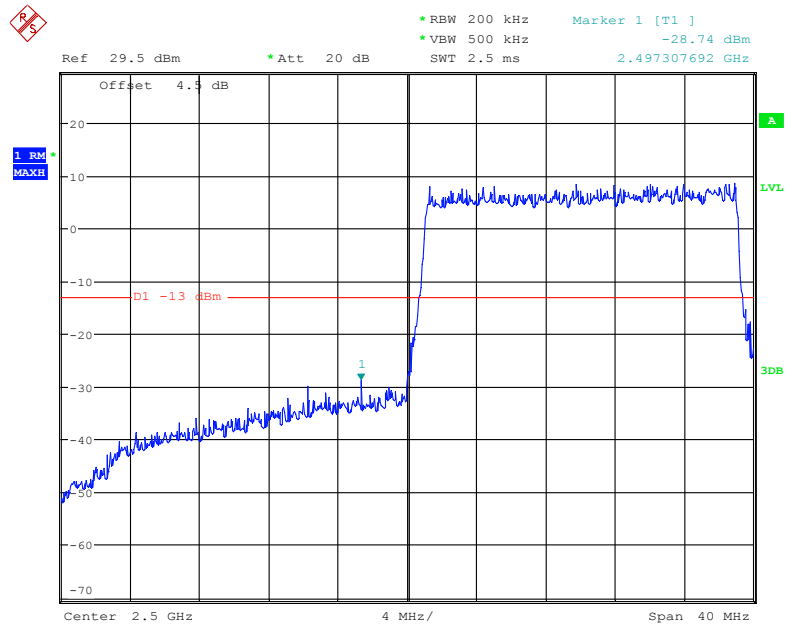
Date: 7.MAR.2018 15:37:53

16-QAM (15 MHz, FULL RB) - Right Band Edge



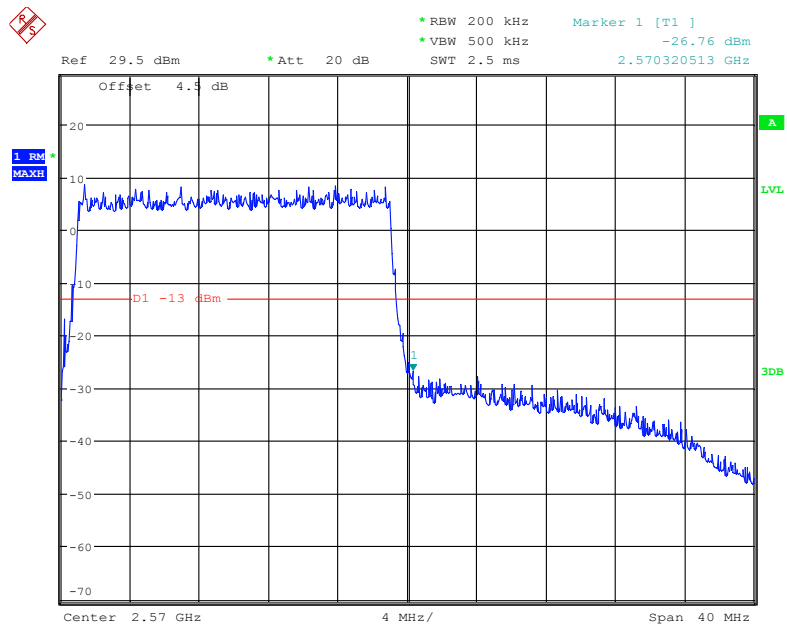
Date: 7.MAR.2018 15:38:53

QPSK (20 MHz, FULL RB) - Left Band Edge



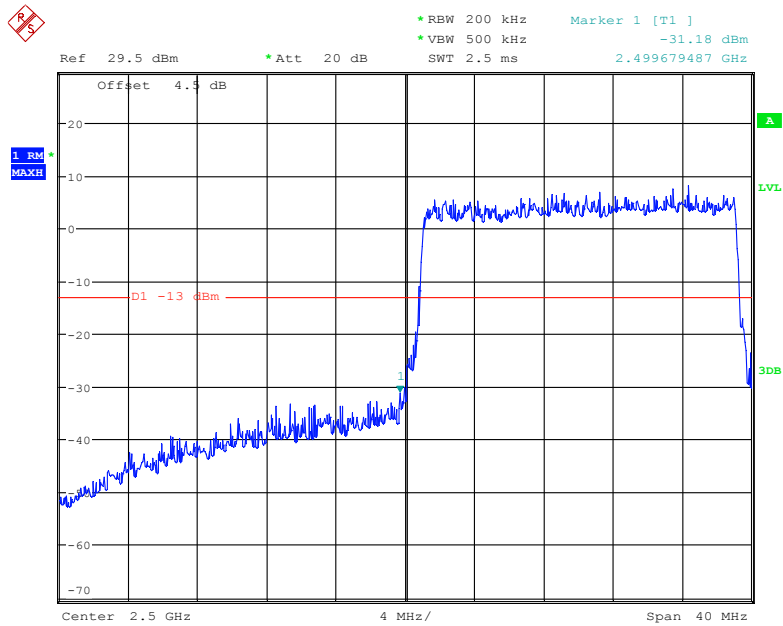
Date: 7.MAR.2018 15:42:54

QPSK (20 MHz, FULL RB) - Right Band Edge



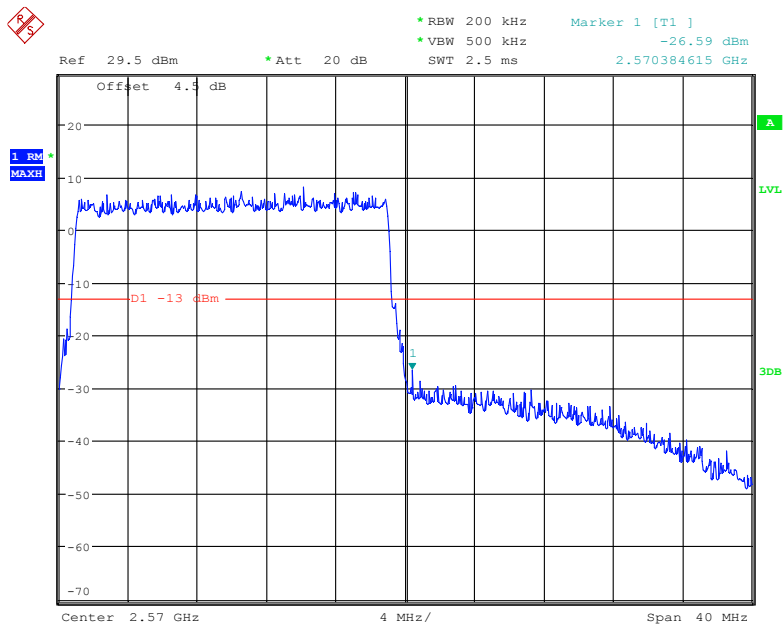
Date: 7.MAR.2018 15:44:43

16-QAM (20 MHz, FULL RB) - Left Band Edge



Date: 7.MAR.2018 15:43:39

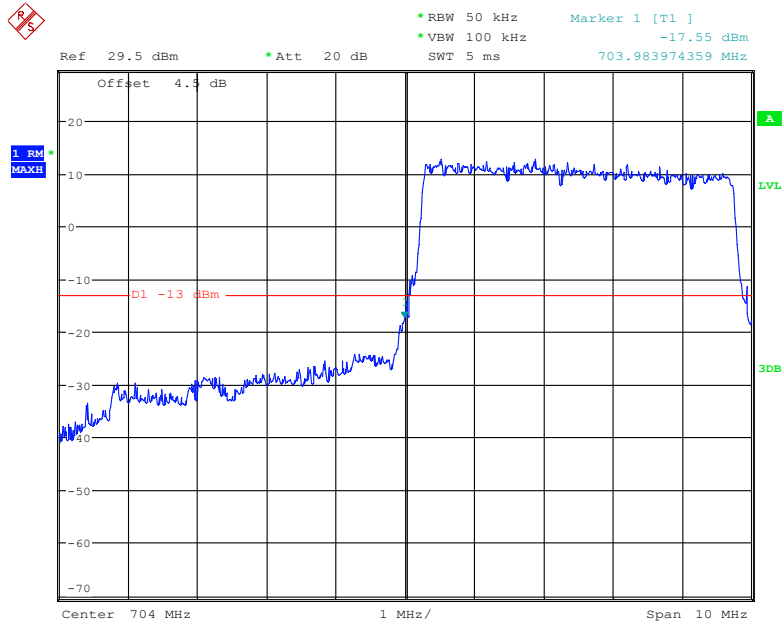
16-QAM (20 MHz, FULL RB) - Right Band Edge



Date: 7.MAR.2018 15:44:20

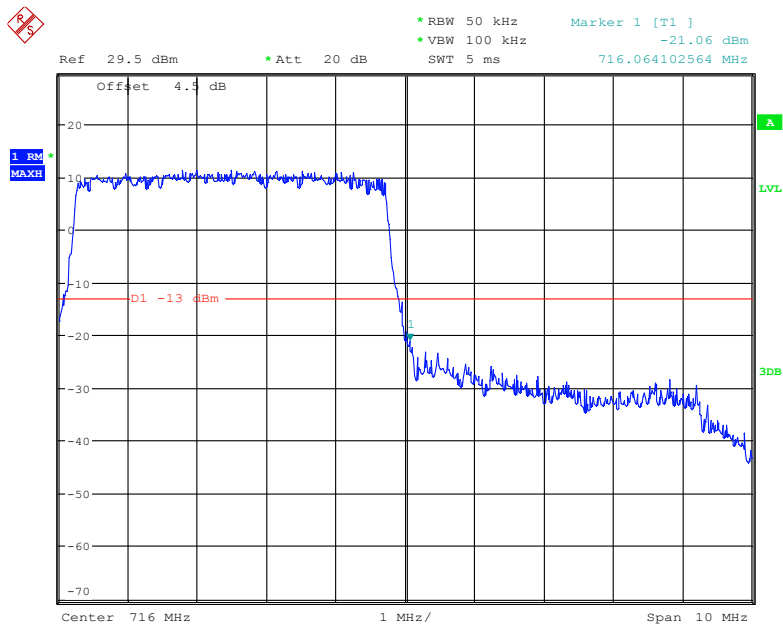
Band 17:

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



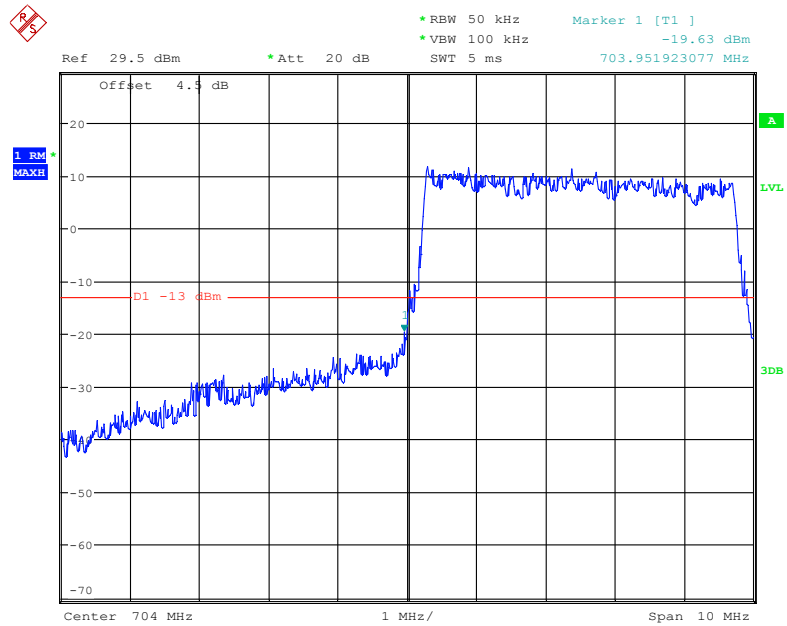
Date: 7.MAR.2018 15:56:52

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



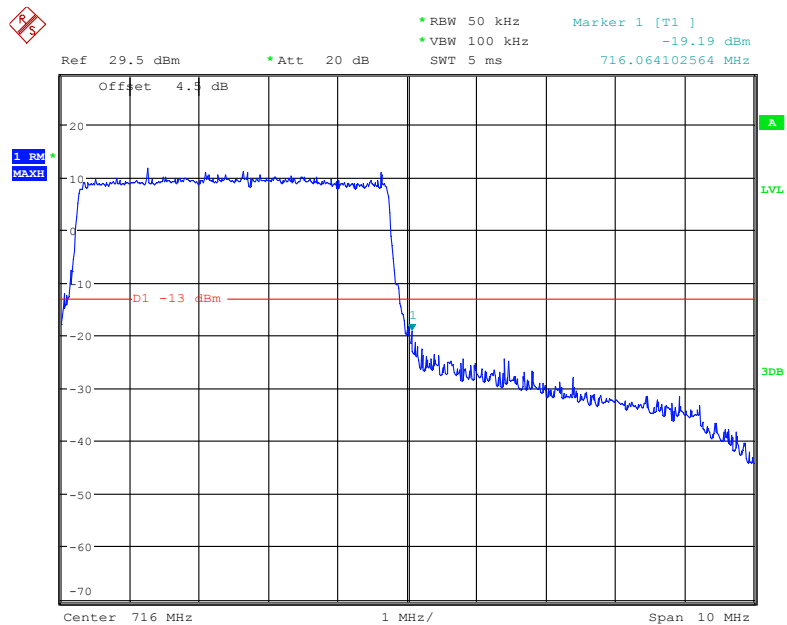
Date: 7.MAR.2018 15:59:52

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



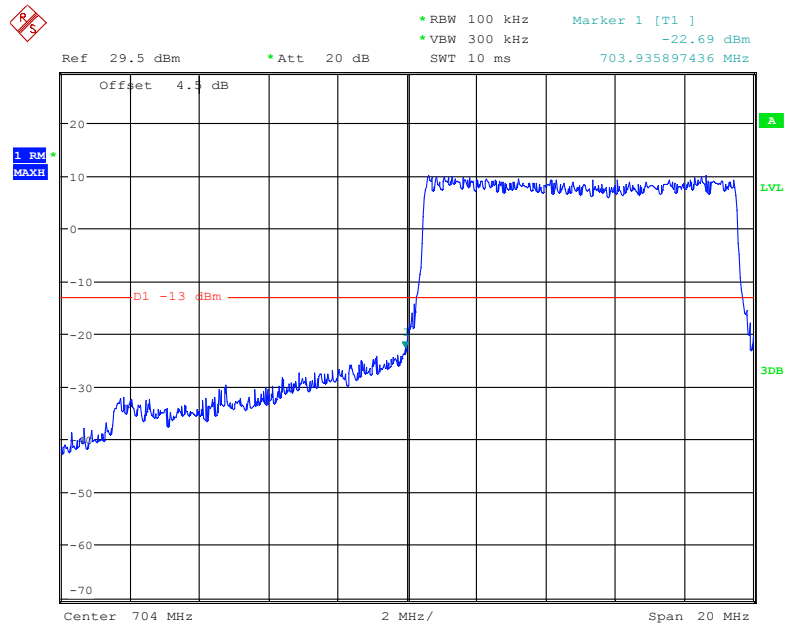
Date: 7.MAR.2018 15:57:36

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



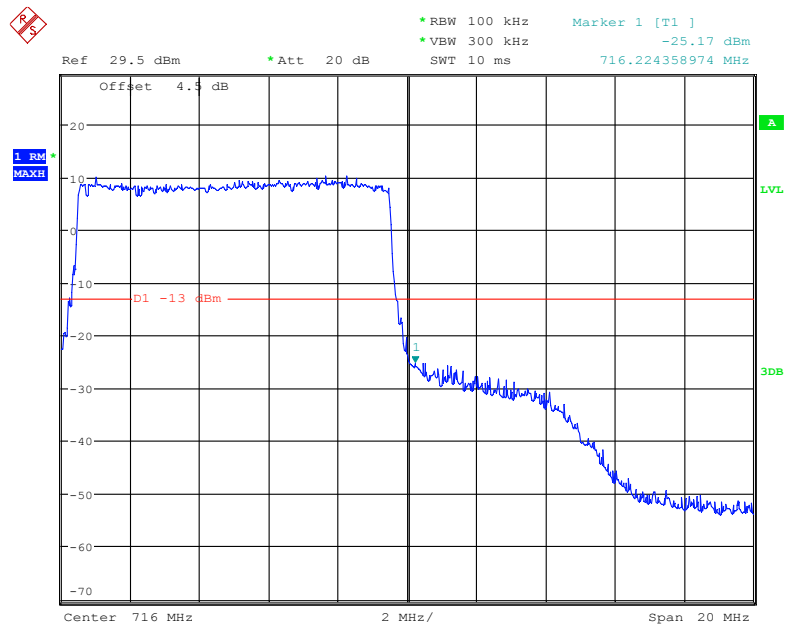
Date: 7.MAR.2018 15:59:32

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



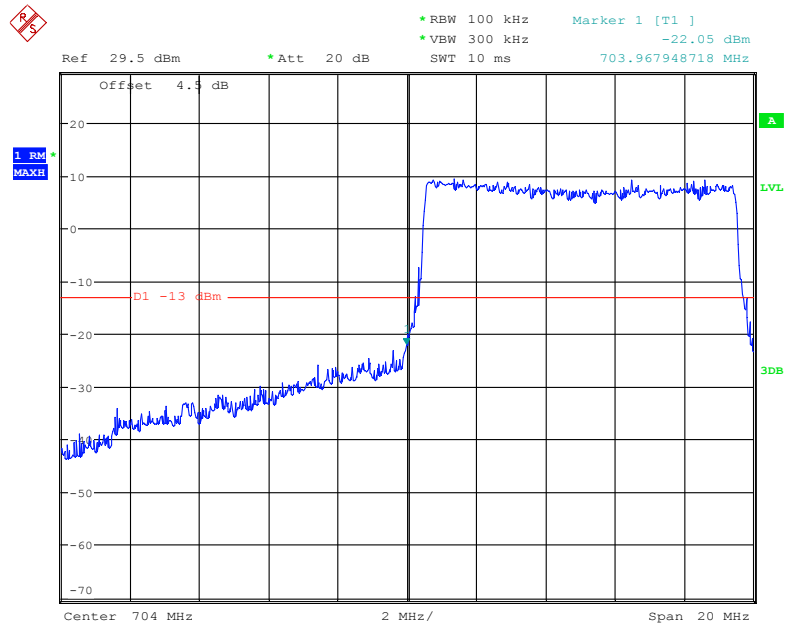
Date: 7.MAR.2018 16:01:28

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



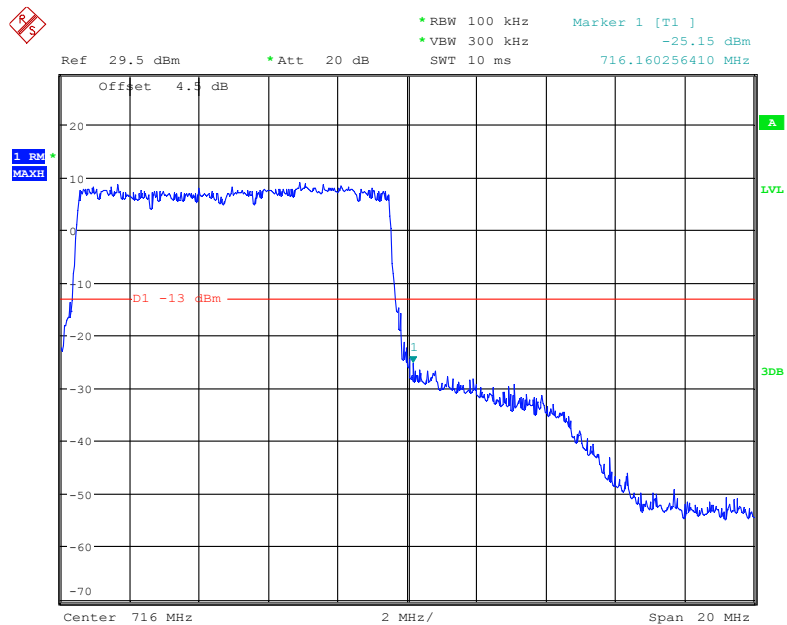
Date: 7.MAR.2018 16:02:01

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



Date: 7.MAR.2018 16:00:56

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



Date: 7.MAR.2018 16:02:20

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

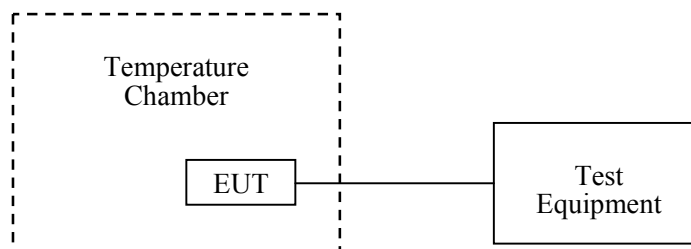
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.

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

The testing was performed by Nancy Wang on 2018-03-08.

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 (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	10	0.0120	2.5
-20		7	0.0084	2.5
-10		11	0.0131	2.5
0		9	0.0108	2.5
10		8	0.0096	2.5
20		10	0.0120	2.5
30		8	0.0096	2.5
40		10	0.0120	2.5
50		12	0.0143	2.5
25	V min.= 3.6	9	0.0108	2.5
	V max.= 4.3	8	0.0096	2.5

EDGE Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	11	0.0131	2.5
-20		7	0.0084	2.5
-10		4	0.0048	2.5
0		6	0.0072	2.5
10		8	0.0096	2.5
20		11	0.0131	2.5
30		5	0.0060	2.5
40		8	0.0096	2.5
50		9	0.0108	2.5
25	V min.= 3.6	10	0.0120	2.5
	V max.= 4.3	8	0.0096	2.5

WCDMA Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	6	0.0072	2.5
-20		8	0.0096	2.5
-10		-1	-0.0012	2.5
0		6	0.0072	2.5
10		8	0.0096	2.5
20		-2	-0.0024	2.5
30		7	0.0084	2.5
40		4	0.0048	2.5
50		5	0.0060	2.5
25	V min.= 3.6	3	0.0036	2.5
	V max.= 4.3	5	0.0060	2.5

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

Middle Channel, $f_0=1880.0\text{ MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	28	0.0149	pass
-20		18	0.0096	pass
-10		21	0.0112	pass
0		10	0.0053	pass
10		20	0.0106	pass
20		37	0.0197	pass
30		28	0.0149	pass
40		21	0.0112	pass
50		18	0.0096	pass
25	V min.= 3.6	30	0.0160	pass
	V max.= 4.3	27	0.0144	pass

EDGE Mode

Middle Channel, $f_o = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	12	0.0064	pass
-20		17	0.0090	pass
-10		25	0.0133	pass
0		18	0.0096	pass
10		20	0.0106	pass
20		33	0.0176	pass
30		12	0.0064	pass
40		17	0.0090	pass
50		26	0.0138	pass
25	V min.= 3.6	20	0.0106	pass
	V max.= 4.3	24	0.0128	pass

WCDMA Mode

Middle Channel, $f_o = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	8	0.0043	pass
-20		6	0.0032	pass
-10		4	0.0021	pass
0		7	0.0037	pass
10		-2	-0.0011	pass
20		-3	-0.0016	pass
30		1	0.0005	pass
40		3	0.0016	pass
50		4	0.0021	pass
25	V min.= 3.6	6	0.0032	pass
	V max.= 4.3	1	0.0005	pass

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	-3.36	-0.00179	pass
-20		-7.00	-0.00372	pass
-10		-4.80	-0.00255	pass
0		-7.00	-0.00372	pass
10		-5.00	-0.00266	pass
20		-6.74	-0.00359	pass
30		-5.00	-0.00266	pass
40		-2.90	-0.00154	pass
50		-3.60	-0.00191	pass
20	V min.= 3.6	-5.00	-0.00266	pass
	V max.= 4.3	8.00	0.004255	pass

Band 4:

10.0 MHz Middle Channel, $f_0=1732.5\text{ MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	-5.42	-0.00313	pass
-20		-4.42	-0.00255	pass
-10		-4.00	-0.00231	pass
0		-3.52	-0.00203	pass
10		-3.00	-0.00173	pass
20		-3.26	-0.00188	pass
30		-1.78	-0.00103	pass
40		-1.57	-0.00091	pass
50		-2.68	-0.00155	pass
20	V min.= 3.6	3.00	0.001732	pass
	V max.= 4.3	-4.00	-0.00231	pass

Band 7:

10.0 MHz Middle Channel, $f_o = 2535$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	-4.44	-0.00175	pass
-20		-6.00	-0.00237	pass
-10		-3.80	-0.00150	pass
0		-3.90	-0.00154	pass
10		-4.48	-0.00177	pass
20		-1.53	-0.00060	pass
30		-7.80	-0.00308	pass
40		-3.90	-0.00154	pass
50		-2.46	-0.00097	pass
20	V min.= 3.6	-8.00	-0.00316	pass
	V max.= 4.3	1.00	0.000394	pass

Band 17:

10.0 MHz Middle Channel, $f_o = 710$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	-4.28	-0.00603	pass
-20		4.00	0.005634	pass
-10		-4.9	-0.0069	pass
0		-7.00	-0.00986	pass
10		3.00	0.004225	pass
20		-4.36	-0.00614	pass
30		-5.00	-0.00704	pass
40		-2.70	-0.0038	pass
50		-3.90	-0.00549	pass
25	V min.= 3.6	-3.00	-0.00423	pass
	V max.= 4.3	4.00	0.005634	pass

16QAM:**Band 2:**

10.0 MHz Middle Channel, $f_o = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	-8.62	-0.00459	pass
-20		-5.74	-0.00305	pass
-10		-7.00	-0.00372	pass
0		-4.57	-0.00243	pass
10		-5.41	-0.00288	pass
20		-6.52	-0.00347	pass
30		-3.32	-0.00177	pass
40		-5.00	-0.00266	pass
50		-2.92	-0.00155	pass
20	V min.= 3.6	-3.00	-0.00160	pass
	V max.= 4.3	7.00	0.00372	pass

Band 4:

10.0 MHz Middle Channel, $f_o = 1732.5\text{ MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	-4.54	-0.00262	pass
-20		-8.36	-0.00483	pass
-10		-7.32	-0.00423	pass
0		-5.24	-0.00302	pass
10		-3.32	-0.00192	pass
20		-1.45	-0.00084	pass
30		2.44	0.001408	pass
40		1.38	0.000797	pass
50		1.85	0.001068	pass
20	V min.= 3.6	-6	-0.00346	pass
	V max.= 4.3	-4	-0.00231	pass

Band 7:

10.0 MHz Middle Channel, $f_o = 2535$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	5.45	0.00215	pass
-20		4.32	0.001704	pass
-10		6.46	0.002548	pass
0		8.51	0.003357	pass
10		1.62	0.000639	pass
20		2.44	0.000963	pass
30		5.00	0.001972	pass
40		8.00	0.003156	pass
50		8.00	0.003156	pass
20	V min.= 3.6	6.00	0.002367	pass
	V max.= 4.3	-4.00	-0.00158	pass

Band 17:

10.0 MHz Middle Channel, $f_o = 710$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	5.36	0.007549	pass
-20		4.76	0.006704	pass
-10		5.43	0.007648	pass
0		5.59	0.007873	pass
10		1.86	0.00262	pass
20		3.49	0.004915	pass
30		4.00	0.005634	pass
40		7.00	0.009859	pass
50		6.00	0.008451	pass
25	V min.= 3.6	7.00	0.009859	pass
25	V max.= 4.3	-8.00	-0.01127	pass

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