ACCREDITED
TESTING LABORATORY
CERTIFICATE # 4821.01

BACL
Bay Area Compliance Labs Corp.

FCC PART 27

FCC PART 22H, PART 24E

TEST REPORT

For

Amgoo Telecom Co., Ltd.

3/F, Block R2-A(North), Gaoxin S. Ave. 4th, Hi-Tech Industrial Park,
Nanshan District, Shenzhen, China

FCC ID: UOSAM537

Report Type:	Product Type:
Original Report	Smartphone

Report Number:	RSZ180709003-00D
Report Date:	2018-08-08
Reviewed By:	Simon Wang RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Amgoo Telecom Co., Ltd.'s* product, model number: AM537 *(FCC ID: UOSAM537)* or the "EUT" in this report was a *Smartphone,* which was measured approximately: 156.0 mm (L) * 72.0 mm (W) * 9.0 mm (H), rated with input voltage: DC 3.8V from battery or DC 5V from adapter.

Adapter Information:
Model: CH5
Input: AC 100-240V, 50/60Hz, 0.2A
Output: DC 5V, 1000mA

**All measurement and test data in this report was gathered from production sample serial number: 1801042. (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2018-07-09.*

Objective

This test report is prepared on behalf of *Amgoo Telecom Co., Ltd.* 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:UOSAM537.

Test Methodology

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

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

Applicable Standards: TIA/EIA 603-D.

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

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±1.5dB
Unwanted Emission, conducted		±1.5dB
Emissions, radiated	Below 1GHz	±4.70dB
	Above 1GHz	±4.80dB
Temperature		±1℃
Supply voltages		±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.: 342867, the FCC Designation No.: CN1221.

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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

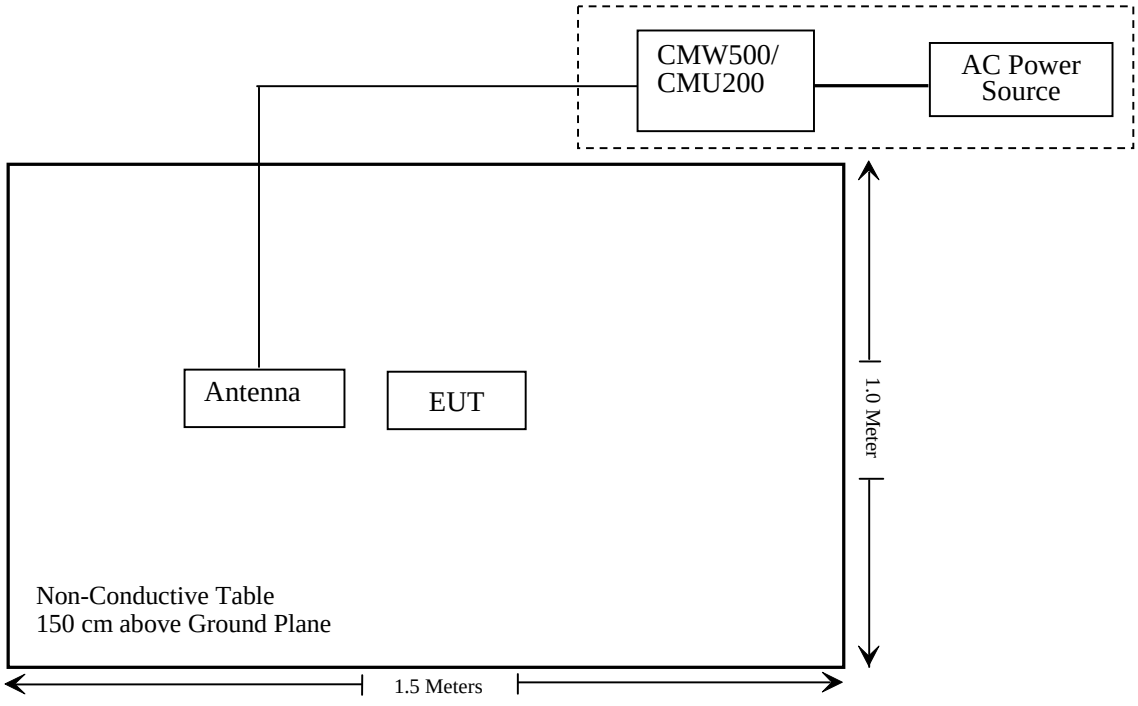
Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

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

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 , §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (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: RSZ180709003-20A

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	FSEM	845987/005	2018-04-24	2019-04-24
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017-12-22	2020-12-21
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2018-05-21	2019-05-21
HP	Amplifier	HP8447E	1937A01046	2018-05-21	2018-11-19
Anritsu	Signal Generator	68369B	004114	2017-12-24	2018-12-24
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	2018-05-21	2018-11-19
Ducommun technologies	RF Cable	104PEA	218124002	2018-05-21	2018-11-19
Ducommun technologies	RF Cable	RG-214	1	2018-05-21	2018-11-19
Ducommun technologies	RF Cable	RG-214	2	2018-05-22	2018-11-22
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	2018-05-09	2019-05-09
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	2018-04-24	2019-04-24
Ducommun technologies	RF Cable	RG-214	3	Each Time	
Ducommun technologies	RF Cable	RG-214	4	Each Time	
WEINSCHEL	10dB Attenuator	5324	AU 3842	Each Time	
WEINSCHEL	3dB Attenuator	N/A	N/A	Each Time	
N/A	Power Splitter	N/A	N/A	2018-05-21	2019-05-21

* 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: RSZ180709003-20A.

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.

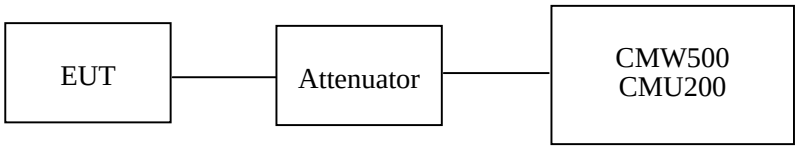
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz.

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 ℃
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang on 2018-07-18.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	32.12	38.45
	190	836.6	32.21	38.45
	251	848.8	32.24	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.24	31.35	30.32	28.24	38.45
	190	836.6	32.21	32.45	30.25	29.36	38.45
	251	848.8	32.20	32.21	30.42	29.34	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	27.14	25.24	23.88	22.14	38.45
	190	836.6	27.26	25.37	23.91	22.26	38.45
	251	848.8	27.28	25.30	2394	22.11	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		22.19	22.09	22.11
		HSDPA	1	21.12	20.82	20.91
			2	21.42	21.25	21.54
			3	21.52	21.42	21.45
			4	21.45	21.45	21.12
		HSUPA	1	21.02	20.67	20.84
			2	21.07	20.63	20.76
			3	21.14	20.77	20.88
			4	20.96	20.64	20.76
			5	21.10	20.77	20.88
		HSPA+	1	21.57	21.41	21.34

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	29.32	33
	661	1880.0	29.13	33
	810	1909.8	29.15	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.02	28.24	26.35	25.42	33
	661	1880.0	29.10	28.25	26.10	25.44	33
	810	1909.8	29.01	28.53	26.24	25.42	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	26.32	24.87	23.12	22.31	33
	661	1880.0	26.19	24.82	23.07	22.52	33
	810	1909.8	26.28	24.91	23.24	22.46	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		21.48	21.07	20.66
		HSDPA	1	20.60	20.56	20.45
			2	21.54	21.78	21.45
			3	21.12	21.01	21.21
			4	21.21	21.20	21.47
		HSUPA	1	20.35	20.36	20.63
			2	20.54	20.65	20.36
			3	20.45	20.44	20.75
			4	20.36	20.42	20.48
			5	20.70	20.75	20.39
		HSPA+	1	21.44	21.32	21.39

AWS Band (Part 27)

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
			Low Frequency	Middle Frequency	High Frequency
WCDMA (Band IV)	RMC		22.48	22.09	21.97
	HSDPA	1	21.52	21.39	21.47
		2	20.72	20.55	20.37
		3	20.32	20.41	20.54
		4	20.71	20.47	20.38
	HSUPA	1	21.29	21.13	20.65
		2	20.42	20.45	20.47
		3	20.78	20.75	20.56
		4	20.48	20.77	20.54
		5	20.77	20.45	20.31
	HSPA+	1	21.41	21.23	21.35

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	1.03	13
	Middle	1.28	13
	High	1.17	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	1.29	13
	Middle	1.21	13
	High	1.34	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.40	13
	Middle	3.41	13
	High	3.24	13
HSDPA (16QAM)	Low	3.42	13
	Middle	3.36	13
	High	3.42	13
HSUPA (BPSK)	Low	3.60	13
	Middle	3.12	13
	High	3.24	13
HSPA+	Low	3.20	13
	Middle	3.55	13
	High	3.43	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	1.11	13
	Middle	1.32	13
	High	1.53	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	1.60	13
	Middle	1.37	13
	High	1.49	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.52	13
	Middle	2.25	13
	High	3.45	13
HSDPA (16QAM)	Low	3.52	13
	Middle	3.35	13
	High	3.52	13
HSUPA (BPSK)	Low	3.36	13
	Middle	3.86	13
	High	3.75	13
HSPA+	Low	3.17	13
	Middle	3.29	13
	High	3.38	13

AWS Band (Part 27)

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.24	13
	Middle	3.16	13
	High	3.36	13
HSDPA (16QAM)	Low	3.08	13
	Middle	3.16	13
	High	3.42	13
HSUPA (BPSK)	Low	3.18	13
	Middle	3.33	13
	High	3.51	13
HSPA+	Low	3.63	13
	Middle	3.48	13
	High	3.27	13

Radiated Power
GSM Mode:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
ERP for Cellular Band (Part 22H), Middle Channel										
836.6	87.69	129	1.3	H	25.3	0.7	0.0	24.60	38.45	13.85
836.6	91.51	108	1.4	V	31.1	0.7	0.0	30.40	38.45	8.05
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	90.63	275	1.7	H	20.6	1.30	9.40	28.70	33	4.30
1880.00	87.01	343	1.6	V	16.7	1.30	9.40	24.80	33	8.20

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	82.14	348	1.7	H	19.7	0.7	0.0	19.00	38.45	19.45
836.6	84.37	70	1.9	V	23.9	0.7	0.0	23.20	38.45	15.25
EIRP, PCS Band (Part 24E), Middle Channel										
1880.00	84.13	186	1.7	H	14.1	1.30	9.40	22.20	33	10.80
1880.00	80.43	33	1.0	V	10.2	1.30	9.40	18.30	33	14.70

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 (dBi)		Limit (dBm)	Margin (dB)
WCDMA Band V (Part 22H), Middle Channel										
836.6	79.61	194	1.6	H	17.2	0.7	0.0	16.50	38.45	21.95
836.6	82.39	172	2.1	V	22.0	0.7	0.0	21.30	38.45	17.15
WCDMA Band II (Part 24E), Middle Channel										
1880.00	81.92	50	2.4	H	11.9	1.30	9.40	20.00	33.00	13.00
1880.00	78.83	8	2.1	V	8.6	1.30	9.40	16.70	33.00	16.30
WCDMA Band IV (Part 24E), Middle Channel										
1732.60	85.62	294	1.5	H	12.5	1.30	8.90	20.10	30.00	9.9
1732.60	83.24	114	2.0	V	10.7	1.30	8.90	18.30	30.00	11.7

Note:
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

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	21.92	22.26	22.07
		RB Size=1, RB Offset=2	22.62	22.67	22.85
		RB Size=1, RB Offset=5	22.61	22.85	22.97
		RB Size=3, RB Offset=0	22.39	22.84	23.46
		RB Size=3, RB Offset=1	22.91	23.25	22.85
		RB Size=3, RB Offset=2	22.86	22.90	23.32
		RB Size=6, RB Offset=0	21.50	21.97	22.00
	16QAM	RB Size=1, RB Offset=0	21.13	20.76	21.24
		RB Size=1, RB Offset=2	21.95	22.21	22.00
		RB Size=1, RB Offset=5	21.69	22.36	22.32
		RB Size=3, RB Offset=0	22.74	22.26	21.19
		RB Size=3, RB Offset=1	23.31	21.70	21.88
		RB Size=3, RB Offset=2	22.10	22.06	21.66
		RB Size=6, RB Offset=0	21.16	20.69	20.94
3.0	QPSK	RB Size=1, RB Offset=0	21.82	22.07	22.01
		RB Size=1, RB Offset=7	22.77	22.85	22.85
		RB Size=1, RB Offset=14	23.25	22.88	22.88
		RB Size=8, RB Offset=0	21.53	21.97	21.96
		RB Size=8, RB Offset=4	22.32	21.93	21.85
		RB Size=8, RB Offset=7	21.77	22.04	21.44
		RB Size=15, RB Offset=0	21.60	21.80	21.78
	16QAM	RB Size=1, RB Offset=0	21.19	20.97	21.18
		RB Size=1, RB Offset=7	22.24	21.65	21.85
		RB Size=1, RB Offset=14	22.21	21.86	21.62
		RB Size=8, RB Offset=0	20.78	21.24	21.34
		RB Size=8, RB Offset=4	20.85	21.05	20.81
		RB Size=8, RB Offset=7	20.87	20.68	21.47
		RB Size=15, RB Offset=0	21.13	21.19	21.10

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	21.82	22.11	21.79
		RB Size=1, RB Offset=12	22.81	22.96	23.36
		RB Size=1, RB Offset=24	22.83	22.61	22.79
		RB Size=12, RB Offset=0	21.63	22.16	22.00
		RB Size=12, RB Offset=6	21.82	21.85	22.05
		RB Size=12, RB Offset=11	21.89	21.58	21.81
		RB Size=25, RB Offset=0	21.96	21.91	22.17
	16QAM	RB Size=1, RB Offset=0	21.34	21.77	20.96
		RB Size=1, RB Offset=12	21.36	21.92	21.80
		RB Size=1, RB Offset=24	21.15	21.96	22.22
		RB Size=12, RB Offset=0	20.83	21.07	21.17
		RB Size=12, RB Offset=6	21.16	21.07	21.40
		RB Size=12, RB Offset=11	21.02	21.03	20.72
		RB Size=25, RB Offset=0	20.75	21.09	20.82
10.0	QPSK	RB Size=1, RB Offset=0	21.75	21.92	22.32
		RB Size=1, RB Offset=24	23.03	23.16	22.72
		RB Size=1, RB Offset=49	22.76	23.00	22.44
		RB Size=25, RB Offset=0	21.86	21.85	21.89
		RB Size=25, RB Offset=12	22.01	21.84	21.64
		RB Size=25, RB Offset=24	21.38	21.96	21.97
		RB Size=50, RB Offset=0	22.05	21.55	22.19
	16QAM	RB Size=1, RB Offset=0	20.64	21.96	21.06
		RB Size=1, RB Offset=24	22.73	22.78	22.78
		RB Size=1, RB Offset=49	22.43	22.58	23.13
		RB Size=25, RB Offset=0	20.99	21.37	20.63
		RB Size=25, RB Offset=12	21.16	20.85	20.59
		RB Size=25, RB Offset=24	20.84	20.98	20.84
		RB Size=50, RB Offset=0	21.31	21.07	21.07

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	21.49	22.08
		RB Size=1, RB Offset=37	22.62	22.70	23.27
		RB Size=1, RB Offset=74	23.28	23.15	22.86
		RB Size=36, RB Offset=0	21.53	21.74	21.41
		RB Size=36, RB Offset=18	21.99	22.07	22.04
		RB Size=36, RB Offset=37	22.43	22.23	21.52
		RB Size=75, RB Offset=0	21.80	22.24	21.42
	16QAM	RB Size=1, RB Offset=0	20.59	21.37	21.46
		RB Size=1, RB Offset=37	21.89	21.95	21.71
		RB Size=1, RB Offset=74	22.15	21.50	22.07
		RB Size=36, RB Offset=0	21.20	21.01	21.08
		RB Size=36, RB Offset=18	21.29	20.90	21.54
		RB Size=36, RB Offset=37	20.88	20.97	20.93
		RB Size=75, RB Offset=0	20.81	20.93	22.92
20.0	QPSK	RB Size=1, RB Offset=0	22.23	22.04	22.20
		RB Size=1, RB Offset=49	22.78	22.56	22.93
		RB Size=1, RB Offset=99	22.60	22.81	23.04
		RB Size=50, RB Offset=0	22.29	21.68	21.51
		RB Size=50, RB Offset=24	21.55	21.64	22.25
		RB Size=50, RB Offset=49	22.01	22.28	21.61
		RB Size=100, RB Offset=0	21.50	22.15	21.72
	16QAM	RB Size=1, RB Offset=0	21.10	26.32	21.13
		RB Size=1, RB Offset=49	22.67	22.38	23.09
		RB Size=1, RB Offset=99	21.77	22.92	23.01
		RB Size=50, RB Offset=0	21.32	21.36	22.29
		RB Size=50, RB Offset=24	20.96	20.63	20.92
		RB Size=50, RB Offset=49	21.18	21.58	21.20
		RB Size=100, RB Offset=0	20.95	20.62	20.99

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	6.25	13	Pass
QPSK (100RB Size)	6.42	13	Pass
16QAM (1RB Size)	5.17	13	Pass
16QAM (100RB Size)	5.14	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	86.03	152	1.4	H	12.9	1.30	8.90	20.50	30
1732.50	83.74	296	2.3	V	11.2	1.30	8.90	18.80	30
3 MHz Bandwidth									
1732.50	85.92	248	1.6	H	12.8	1.30	8.90	20.40	30
1732.50	83.51	161	2.1	V	10.9	1.30	8.90	18.50	30
5 MHz Bandwidth									
1732.50	85.71	19	2.3	H	12.5	1.30	8.90	20.10	30
1732.50	83.62	132	1.8	V	11.1	1.30	8.90	18.70	30
10 MHz Bandwidth									
1732.50	85.51	9	2.2	H	12.3	1.30	8.90	19.90	30
1732.50	82.24	98	1.5	V	9.7	1.30	8.90	17.30	30
15 MHz Bandwidth									
1732.50	85.37	219	2.3	H	12.2	1.30	8.90	19.80	30
1732.50	82.58	181	1.3	V	10.0	1.30	8.90	17.60	30
20 MHz Bandwidth									
1732.50	85.14	321	1.7	H	12.0	1.30	8.90	19.60	30
1732.50	82.16	44	1.2	V	9.6	1.30	8.90	17.20	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	86.14	24	1.6	H	13.0	1.30	8.90	20.60	30
1732.50	81.62	163	1.0	V	9.1	1.30	8.90	16.70	30
3 MHz Bandwidth									
1732.50	85.91	356	2.3	H	12.7	1.30	8.90	20.30	30
1732.50	82.67	163	2.1	V	10.1	1.30	8.90	17.70	30
5 MHz Bandwidth									
1732.50	87.95	250	2.4	H	14.8	1.30	8.90	20.30	30
1732.50	83.64	43	1.6	V	11.1	1.30	8.90	18.70	30
10 MHz Bandwidth									
1732.50	88.24	347	2.2	H	15.1	1.30	8.90	19.90	30
1732.50	83.55	46	1.2	V	11.0	1.30	8.90	16.30	30
15 MHz Bandwidth									
1732.50	88.51	253	2.2	H	15.3	1.30	8.90	19.90	30
1732.50	83.73	4	1.4	V	11.2	1.30	8.90	17.40	30
20 MHz Bandwidth									
1732.50	89.02	333	1.1	H	15.9	1.30	8.90	19.70	30
1732.50	83.27	77	1.9	V	10.7	1.30	8.90	17.60	30

LTE Band 5:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	22.68	22.46	22.29
		RB Size=1, RB Offset=2	22.47	23.02	22.67
		RB Size=1, RB Offset=5	22.56	22.56	22.76
		RB Size=3, RB Offset=0	22.69	22.79	23.31
		RB Size=3, RB Offset=1	22.84	23.16	22.80
		RB Size=3, RB Offset=2	22.50	23.02	23.44
		RB Size=6, RB Offset=0	21.64	22.19	22.20
	16QAM	RB Size=1, RB Offset=0	21.88	21.76	21.76
		RB Size=1, RB Offset=2	21.94	22.21	22.17
		RB Size=1, RB Offset=5	21.85	22.25	21.81
		RB Size=3, RB Offset=0	22.98	22.10	21.46
		RB Size=3, RB Offset=1	22.57	21.43	21.93
		RB Size=3, RB Offset=2	21.77	22.22	22.02
		RB Size=6, RB Offset=0	20.59	21.09	20.79
3.0	QPSK	RB Size=1, RB Offset=0	22.41	21.61	21.65
		RB Size=1, RB Offset=7	22.93	22.72	22.67
		RB Size=1, RB Offset=14	22.78	22.78	22.64
		RB Size=8, RB Offset=0	21.40	21.99	22.18
		RB Size=8, RB Offset=4	21.87	22.01	21.72
		RB Size=8, RB Offset=7	21.79	22.34	21.54
		RB Size=15, RB Offset=0	21.95	22.10	21.55
	16QAM	RB Size=1, RB Offset=0	21.47	21.51	21.97
		RB Size=1, RB Offset=7	22.13	21.80	21.67
		RB Size=1, RB Offset=14	21.77	21.58	22.01
		RB Size=8, RB Offset=0	20.88	21.20	21.16
		RB Size=8, RB Offset=4	20.82	21.24	21.43
		RB Size=8, RB Offset=7	21.21	20.96	21.30
		RB Size=15, RB Offset=0	21.37	20.71	20.80

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.46	22.43	22.81
		RB Size=1, RB Offset=12	22.12	22.74	22.26
		RB Size=1, RB Offset=24	22.88	22.79	22.63
		RB Size=12, RB Offset=0	21.85	21.87	22.08
		RB Size=12, RB Offset=6	21.85	21.71	21.55
		RB Size=12, RB Offset=11	22.27	21.93	21.65
		RB Size=25, RB Offset=0	21.89	21.89	22.24
	16QAM	RB Size=1, RB Offset=0	21.72	21.92	21.91
		RB Size=1, RB Offset=12	21.54	21.94	21.80
		RB Size=1, RB Offset=24	21.52	22.12	22.15
		RB Size=12, RB Offset=0	20.80	21.11	21.07
		RB Size=12, RB Offset=6	20.90	20.99	21.22
		RB Size=12, RB Offset=11	21.34	20.76	21.15
		RB Size=25, RB Offset=0	21.03	20.97	20.84
10.0	QPSK	RB Size=1, RB Offset=0	22.53	22.70	22.66
		RB Size=1, RB Offset=24	22.00	22.10	22.79
		RB Size=1, RB Offset=49	22.88	22.85	22.61
		RB Size=25, RB Offset=0	22.07	21.89	22.18
		RB Size=25, RB Offset=12	21.64	21.87	21.50
		RB Size=25, RB Offset=24	21.78	21.88	21.61
		RB Size=50, RB Offset=0	21.47	21.82	21.80
	16QAM	RB Size=1, RB Offset=0	21.76	21.61	22.02
		RB Size=1, RB Offset=24	22.09	22.73	22.75
		RB Size=1, RB Offset=49	22.43	22.77	22.68
		RB Size=25, RB Offset=0	20.81	21.20	20.48
		RB Size=25, RB Offset=12	21.22	20.94	20.82
		RB Size=25, RB Offset=24	20.78	21.04	21.08
		RB Size=50, RB Offset=0	21.02	21.36	20.74

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	6.38	13	Pass
QPSK (50RB Size)	6.42	13	Pass
16QAM (1RB Size)	6.36	13	Pass
16QAM(50RB Size)	6.36	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									
836.5	79.38	358	2.2	H	17.0	0.7	0.0	16.30	38.45
836.5	81.74	163	1.4	V	21.3	0.7	0.0	20.60	38.45
3 MHz Bandwidth									
836.5	78.64	55	1.4	H	16.2	0.7	0.0	15.50	38.45
836.5	81.52	170	1.8	V	21.1	0.7	0.0	20.40	38.45
5 MHz Bandwidth									
836.5	78.53	6	1.7	H	16.1	0.7	0.0	15.40	38.45
836.5	81.41	292	1.4	V	21.0	0.7	0.0	20.30	38.45
10 MHz Bandwidth									
836.5	78.83	144	1.4	H	16.4	0.7	0.0	15.70	38.45
836.5	81.17	109	1.7	V	20.7	0.7	0.0	20.00	38.45

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
836.5	78.12	199	1.8	H	15.7	0.7	0.0	15.00	38.45
836.5	81.67	350	2.3	V	21.2	0.7	0.0	20.50	38.45
3 MHz Bandwidth									
836.5	78.61	203	1.7	H	16.2	0.7	0.0	15.50	38.45
836.5	81.27	16	2.1	V	20.8	0.7	0.0	20.10	38.45
5 MHz Bandwidth									
836.5	77.68	41	1.1	H	15.3	0.7	0.0	14.60	38.45
836.5	81.04	310	1.4	V	20.6	0.7	0.0	19.90	38.45
10 MHz Bandwidth									
836.5	78.43	353	2.3	H	16.0	0.7	0.0	15.30	38.45
836.5	80.64	224	1.2	V	20.2	0.7	0.0	19.50	38.45

LTE Band 7:

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.19	22.29	22.56
		RB Size=1, RB Offset=12	22.89	22.63	23.03
		RB Size=1, RB Offset=24	22.98	23.35	23.40
		RB Size=12, RB Offset=0	21.94	22.21	22.26
		RB Size=12, RB Offset=6	22.36	22.19	21.96
		RB Size=12, RB Offset=11	22.11	22.33	21.74
		RB Size=25, RB Offset=0	21.90	21.86	22.10
	16QAM	RB Size=1, RB Offset=0	21.41	22.13	21.45
		RB Size=1, RB Offset=12	22.83	22.07	23.22
		RB Size=1, RB Offset=24	23.49	22.02	23.09
		RB Size=12, RB Offset=0	21.92	20.75	22.10
		RB Size=12, RB Offset=6	21.92	22.25	22.24
		RB Size=12, RB Offset=11	21.86	21.16	21.93
		RB Size=25, RB Offset=0	21.19	21.04	21.02
10.0	QPSK	RB Size=1, RB Offset=0	22.15	22.29	22.60
		RB Size=1, RB Offset=24	23.04	22.57	23.07
		RB Size=1, RB Offset=49	23.24	22.88	23.26
		RB Size=25, RB Offset=0	22.38	22.11	22.50
		RB Size=25, RB Offset=12	22.21	22.00	22.43
		RB Size=25, RB Offset=24	22.12	22.22	22.61
		RB Size=50, RB Offset=0	22.69	21.93	21.86
	16QAM	RB Size=1, RB Offset=0	21.50	22.67	21.64
		RB Size=1, RB Offset=24	22.36	22.57	22.57
		RB Size=1, RB Offset=49	21.90	22.66	22.49
		RB Size=25, RB Offset=0	21.42	21.64	21.68
		RB Size=25, RB Offset=12	21.92	21.38	21.48
		RB Size=25, RB Offset=24	21.49	21.57	21.74
		RB Size=50, RB Offset=0	21.67	20.94	21.22

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15.0	QPSK	RB Size=1, RB Offset=0	22.41	22.37	22.45
		RB Size=1, RB Offset=37	22.47	22.64	22.67
		RB Size=1, RB Offset=74	22.67	22.88	22.67
		RB Size=36, RB Offset=0	22.09	21.94	21.92
		RB Size=36, RB Offset=18	22.32	22.54	22.24
		RB Size=36, RB Offset=37	22.71	22.82	22.59
		RB Size=75, RB Offset=0	22.64	22.70	23.00
	16QAM	RB Size=1, RB Offset=0	21.74	21.99	21.74
		RB Size=1, RB Offset=37	22.24	22.17	22.26
		RB Size=1, RB Offset=74	21.69	21.61	21.51
		RB Size=36, RB Offset=0	21.66	22.00	22.40
		RB Size=36, RB Offset=18	21.53	21.68	22.09
		RB Size=36, RB Offset=37	22.34	21.63	21.96
		RB Size=75, RB Offset=0	20.82	21.49	21.95
20.0	QPSK	RB Size=1, RB Offset=0	22.67	22.44	22.52
		RB Size=1, RB Offset=49	22.98	23.22	23.34
		RB Size=1, RB Offset=99	22.63	22.71	22.65
		RB Size=50, RB Offset=0	21.49	22.70	23.22
		RB Size=50, RB Offset=24	22.42	23.05	22.75
		RB Size=50, RB Offset=49	21.66	22.56	22.63
		RB Size=100, RB Offset=0	22.74	22.42	22.91
	16QAM	RB Size=1, RB Offset=0	21.71	23.24	21.68
		RB Size=1, RB Offset=49	22.34	22.98	22.88
		RB Size=1, RB Offset=99	23.06	23.47	23.09
		RB Size=50, RB Offset=0	21.62	21.78	23.02
		RB Size=50, RB Offset=24	21.81	21.85	22.87
		RB Size=50, RB Offset=49	21.67	21.90	22.36
		RB Size=100, RB Offset=0	22.02	21.08	22.33

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	6.75	13	Pass
QPSK (100RB Size)	6.14	13	Pass
16QAM (1RB Size)	7.36	13	Pass
16QAM (100RB Size)	7.31	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									
5 MHz Bandwidth									
2535.00	81.98	80	2.3	H	12.5	2.60	10.20	20.10	33
2535.00	80.81	197	1.6	V	11.9	2.60	10.20	19.50	33
10 MHz Bandwidth									
2535.00	81.76	64	1.3	H	12.3	2.60	10.20	19.90	33
2535.00	80.34	262	1.9	V	11.5	2.60	10.20	19.10	33
15 MHz Bandwidth									
2535.00	81.47	82	1.3	H	12.0	2.60	10.20	19.60	33
2535.00	79.81	120	2.3	V	10.9	2.60	10.20	18.50	33
20 MHz Bandwidth									
2535.00	81.14	279	2.4	H	11.7	2.60	10.20	19.30	33
2535.00	79.52	181	1.5	V	10.6	2.60	10.20	18.20	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	82.69	328	2.4	H	13.2	2.60	10.20	20.80	33
2535.00	80.83	216	1.6	V	12.0	2.60	10.20	19.60	33
10 MHz Bandwidth									
2535.00	82.50	247	1.5	H	13.0	2.60	10.20	20.60	33
2535.00	80.37	3	2.1	V	11.5	2.60	10.20	19.10	33
15 MHz Bandwidth									
2535.00	82.44	307	1.9	H	13.0	2.60	10.20	20.60	33
2535.00	80.69	141	1.1	V	11.8	2.60	10.20	19.40	33
20 MHz Bandwidth									
2535.00	82.17	25	1.1	H	12.7	2.60	10.20	20.30	33
2535.00	80.58	321	2.3	V	11.7	2.60	10.20	19.30	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	22.89	22.79	22.93
		RB Size=1, RB Offset=12	23.32	22.75	23.67
		RB Size=1, RB Offset=24	23.22	23.09	22.81
		RB Size=12, RB Offset=0	22.01	22.38	22.30
		RB Size=12, RB Offset=6	21.74	22.09	21.95
		RB Size=12, RB Offset=11	22.21	22.11	21.84
		RB Size=25, RB Offset=0	21.74	21.76	22.06
	16QAM	RB Size=1, RB Offset=0	21.68	21.76	21.59
		RB Size=1, RB Offset=12	21.66	22.37	22.06
		RB Size=1, RB Offset=24	21.74	22.42	22.57
		RB Size=12, RB Offset=0	20.82	21.20	21.25
		RB Size=12, RB Offset=6	21.05	20.88	21.11
		RB Size=12, RB Offset=11	21.43	21.25	21.12
		RB Size=25, RB Offset=0	20.92	21.14	20.71
10.0	QPSK	RB Size=1, RB Offset=0	22.75	22.70	22.62
		RB Size=1, RB Offset=24	23.39	23.18	23.10
		RB Size=1, RB Offset=49	22.92	22.85	22.44
		RB Size=25, RB Offset=0	21.99	22.34	21.98
		RB Size=25, RB Offset=12	22.23	22.19	21.72
		RB Size=25, RB Offset=24	21.84	22.11	21.84
		RB Size=50, RB Offset=0	21.97	21.90	21.91
	16QAM	RB Size=1, RB Offset=0	21.91	21.72	21.84
		RB Size=1, RB Offset=24	23.28	22.86	23.20
		RB Size=1, RB Offset=49	22.86	22.57	23.46
		RB Size=25, RB Offset=0	21.16	21.57	20.62
		RB Size=25, RB Offset=12	21.14	21.05	21.00
		RB Size=25, RB Offset=24	21.30	21.17	21.26
		RB Size=50, RB Offset=0	21.17	21.56	21.32

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	6.58	13	Pass
QPSK (50RB Size)	6.74	13	Pass
16QAM (1RB Size)	7.57	13	Pass
16QAM (50RB Size)	7.41	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	79.35	34	1.9	H	17.0	0.7	0.0	16.30	34.77
710	81.67	210	1.1	V	21.2	0.7	0.0	20.50	34.77
10 MHz Bandwidth									
710	78.62	253	2.5	H	16.2	0.7	0.0	15.50	34.77
710	81.53	26	2.0	V	21.1	0.7	0.0	20.40	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	76.92	35	1.7	H	14.5	0.7	0.0	13.80	34.77
710	81.38	300	1.8	V	20.9	0.7	0.0	20.20	34.77
10 MHz Bandwidth									
710	77.59	360	1.0	H	15.2	0.7	0.0	14.50	34.77
710	81.11	251	2.0	V	20.7	0.7	0.0	20.00	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

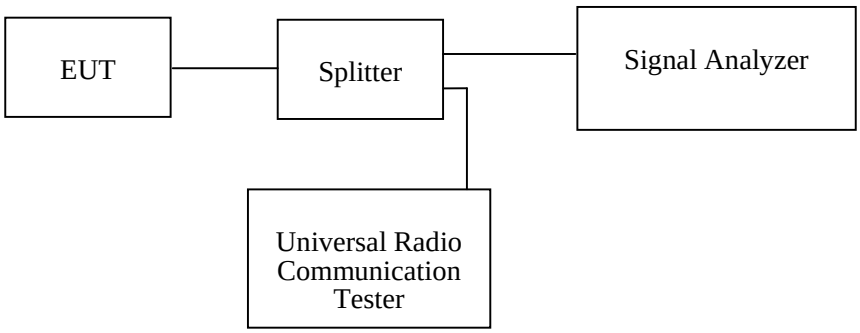
Applicable Standard

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:	23~25 ℃
Relative Humidity:	50~52 %
ATM Pressure:	100.5~101.0 kPa

The testing was performed by Nancy Wang from 2018-07-16 to 2018-07-24.

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	248.40	318.91
EGPRS(8PSK)	836.6	251.60	328.53

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	836.6	4.167	4.744
HSUPA (BPSK)	836.6	4.215	5.112
HSDPA (16QAM)	836.6	4.199	4.984

PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1880.0	248.40	318.91
EGPRS(8PSK)	1880.0	258.01	330.13

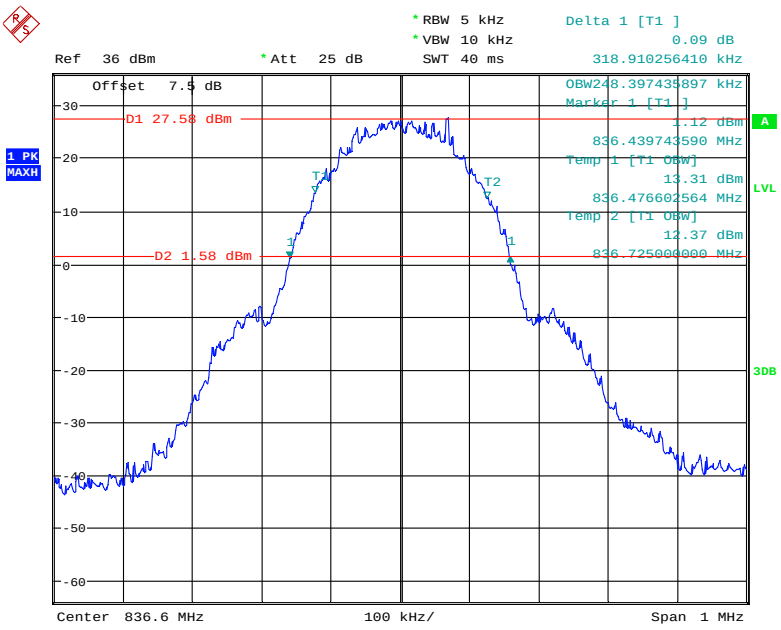
Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1880.0	4.215	4.792
HSUPA (BPSK)	1880.0	4.199	4.728
HSDPA (16QAM)	1880.0	4.215	5.256

AWS Band (Part27)

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1732.6	4.199	4.728
HSUPA (BPSK)	1732.6	4.183	4.744
HSDPA (16QAM)	1732.6	4.199	4.984

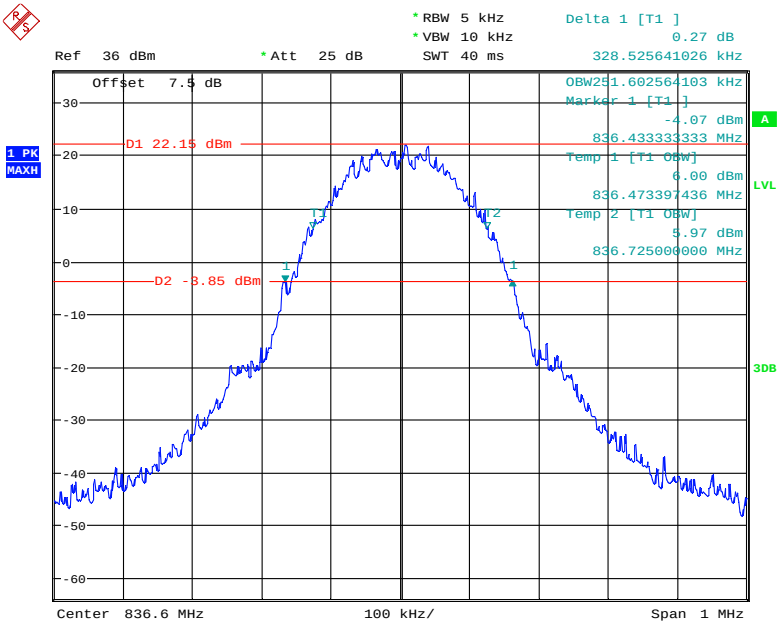
Cellular Band (Part 22H)

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



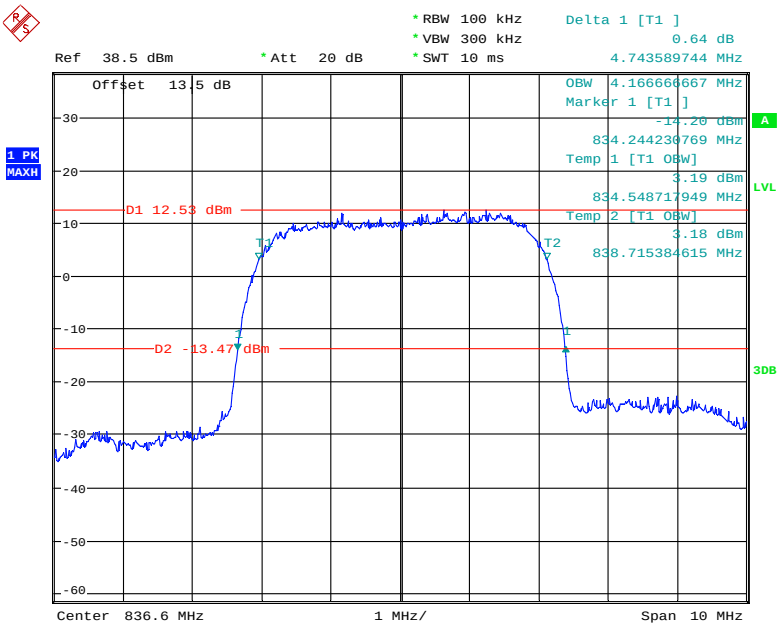
Date: 27.JUL.2018 14:02:43

26 dB Emissions &99% Occupied Bandwidth for EDGE Mode



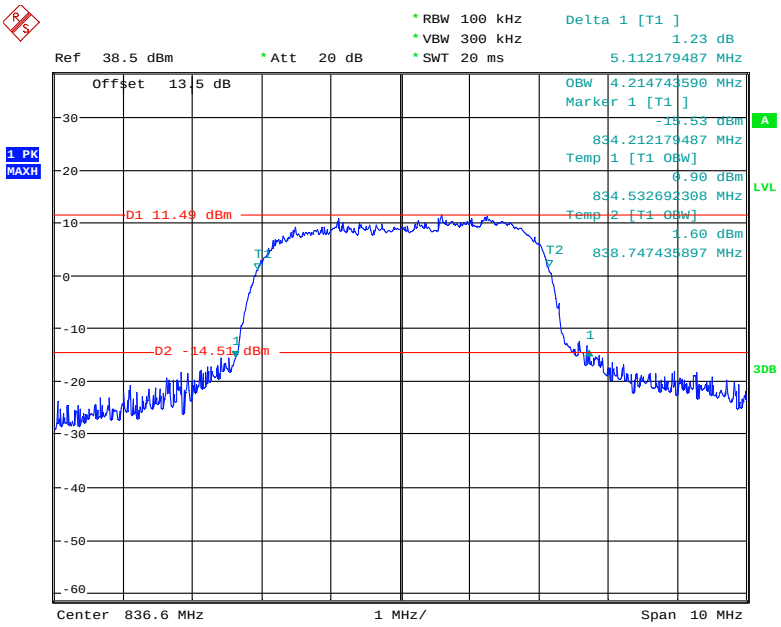
Date: 23.JUL.2018 11:56:10

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



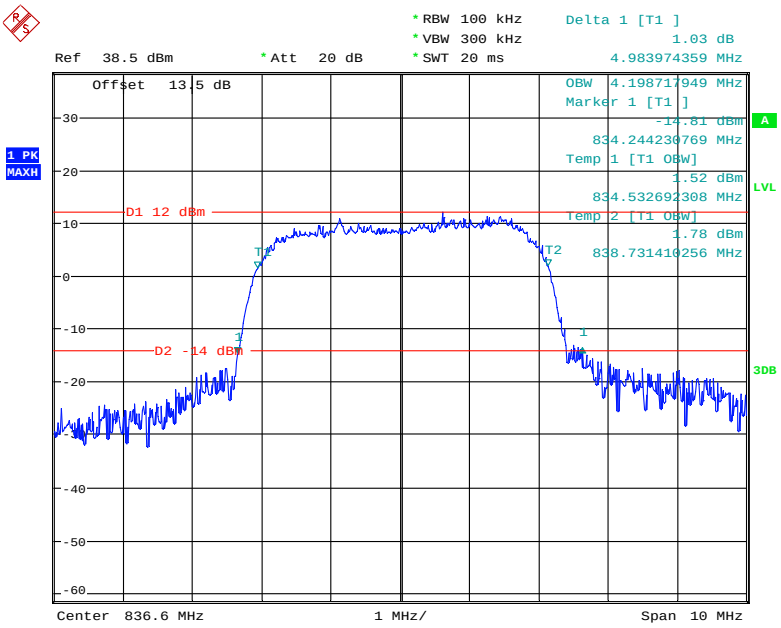
Date: 16.JUL.2018 15:56:12

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



Date: 16.JUL.2018 15:58:36

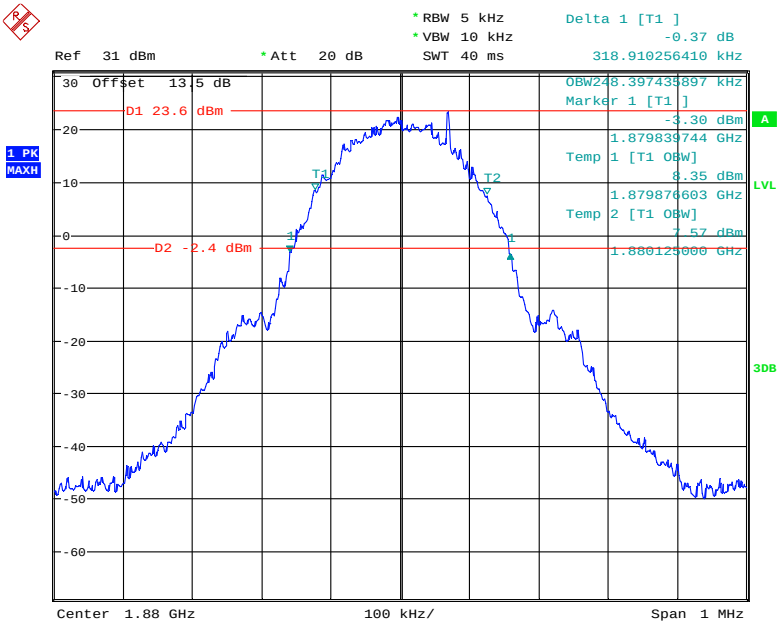
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode



Date: 16.JUL.2018 16:00:18

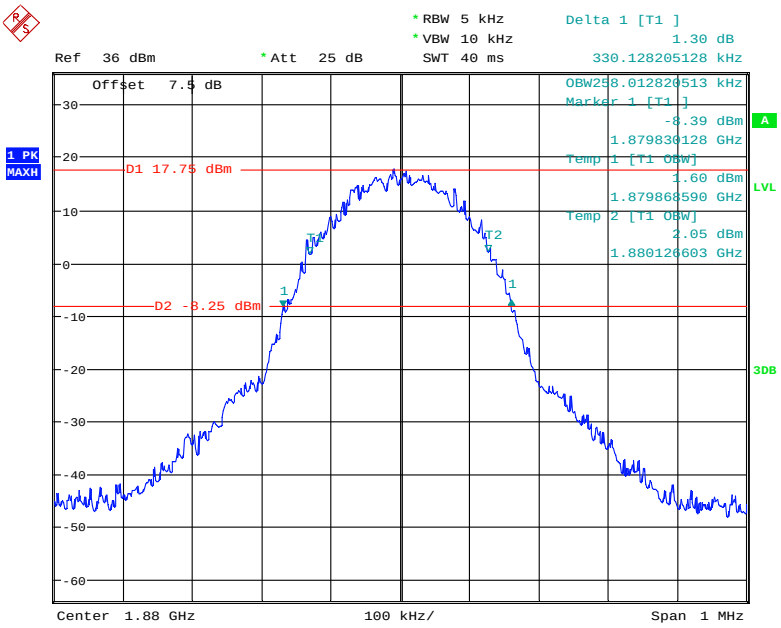
PCS Band (Part 24E)

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



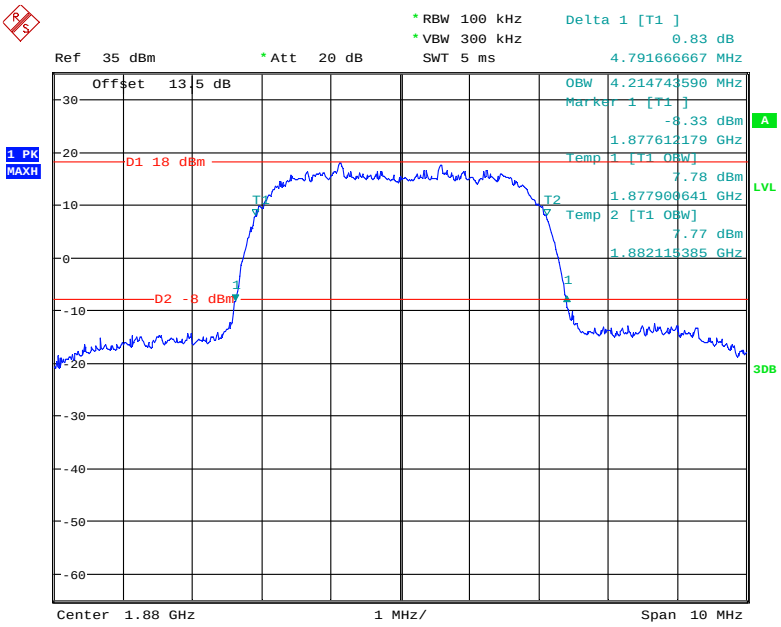
Date: 16.JUL.2018 14:34:32

26 dB Emissions &99% Occupied Bandwidth for EDGE Mode



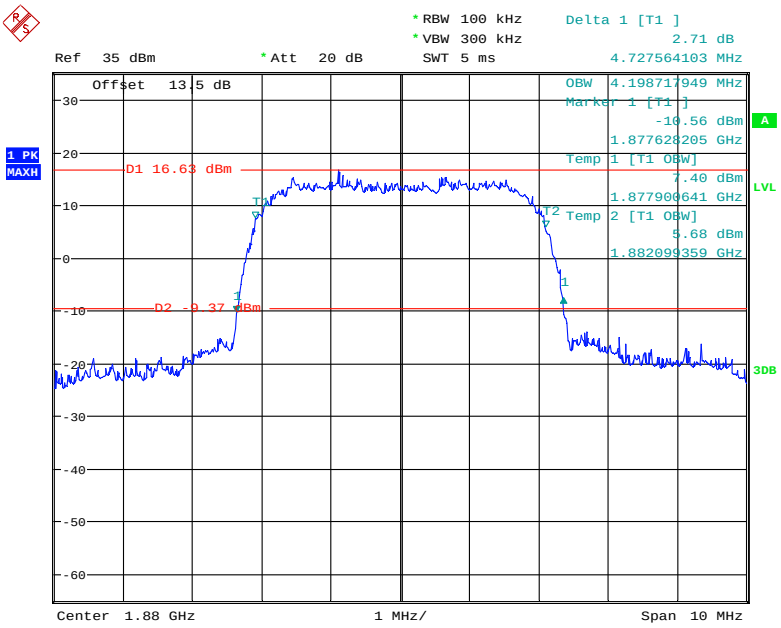
Date: 23.JUL.2018 11:58:24

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



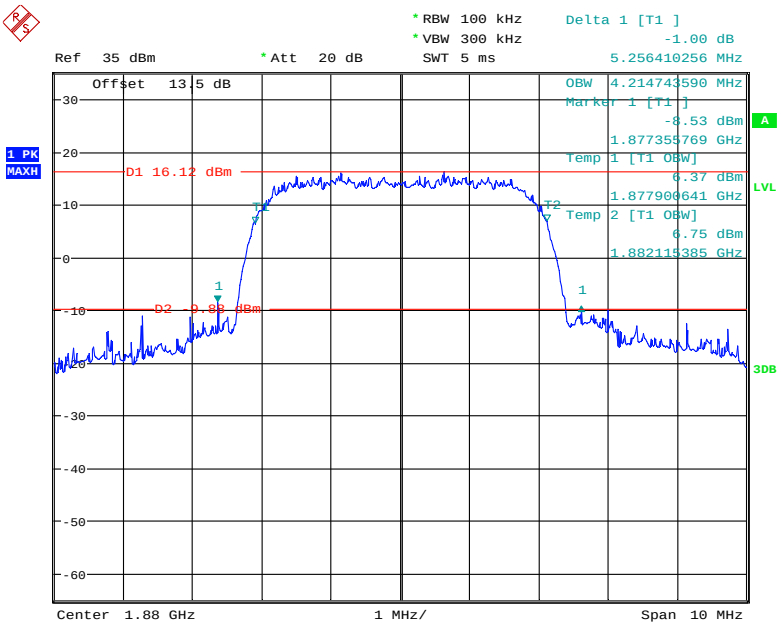
Date: 16.JUL.2018 15:35:24

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



Date: 16.JUL.2018 15:36:33

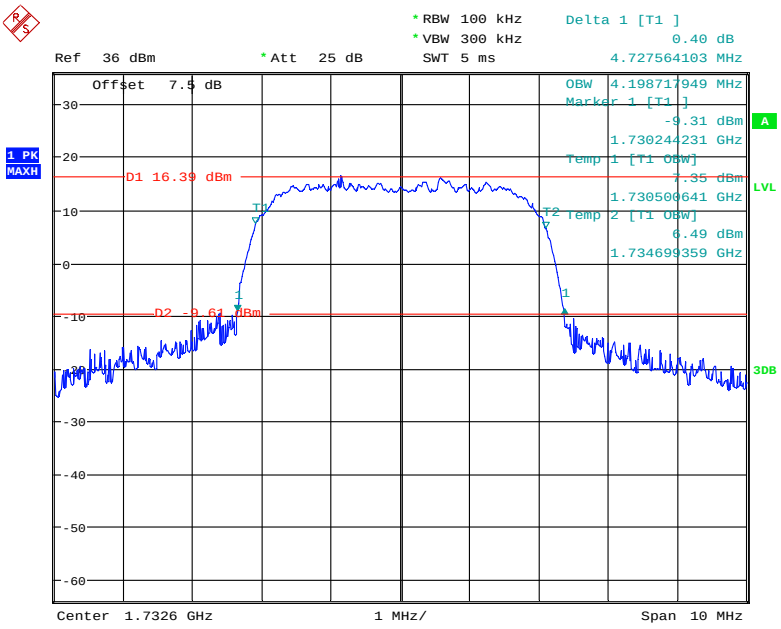
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode



Date: 16.JUL.2018 15:37:42

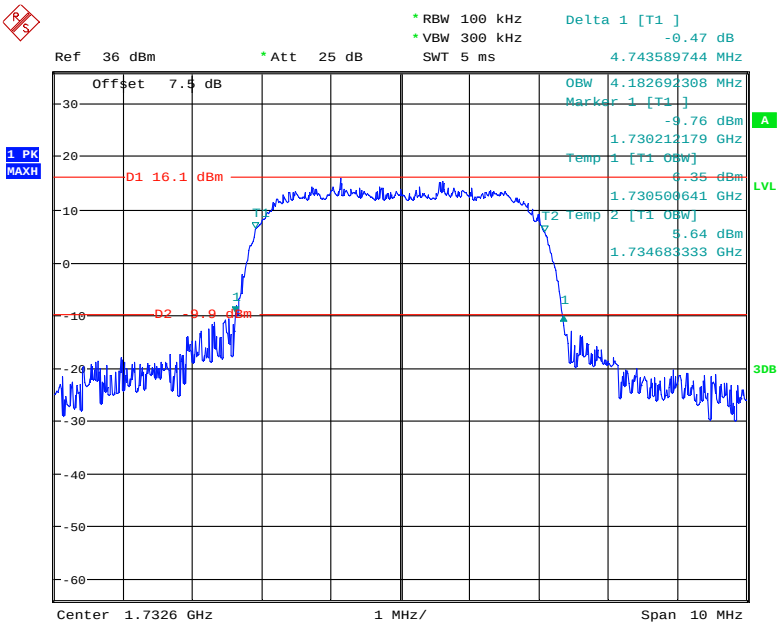
AWS Band (Part27)

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



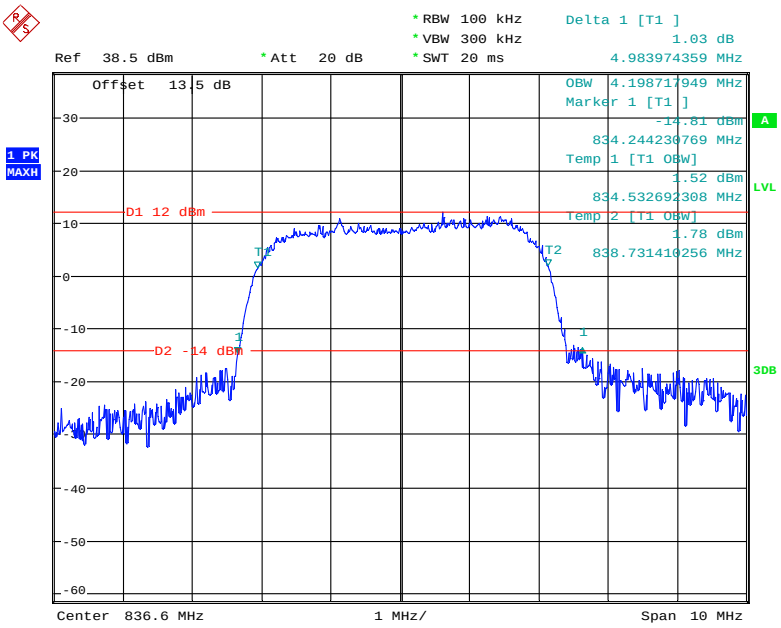
Date: 23.JUL.2018 13:09:40

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



Date: 23.JUL.2018 13:11:07

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

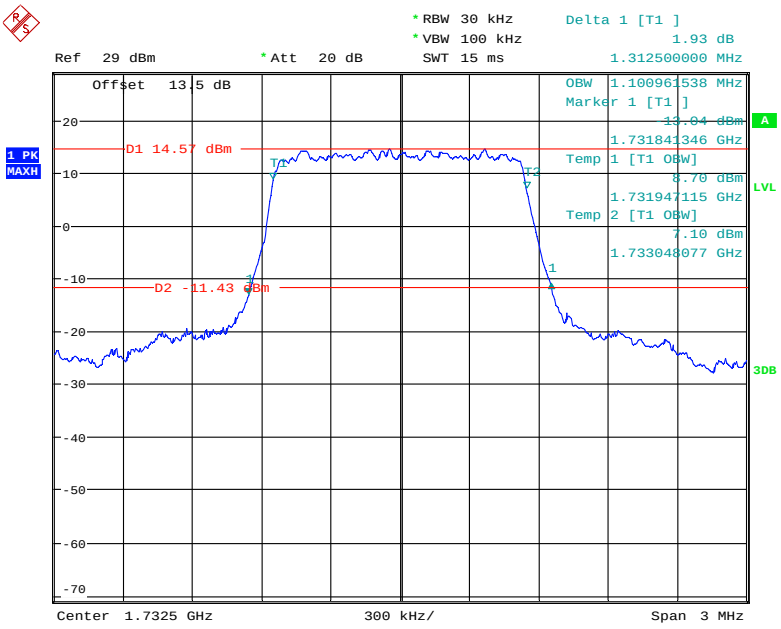


Date: 16.JUL.2018 16:00:18

LTE Band 4: (Middle Channel)

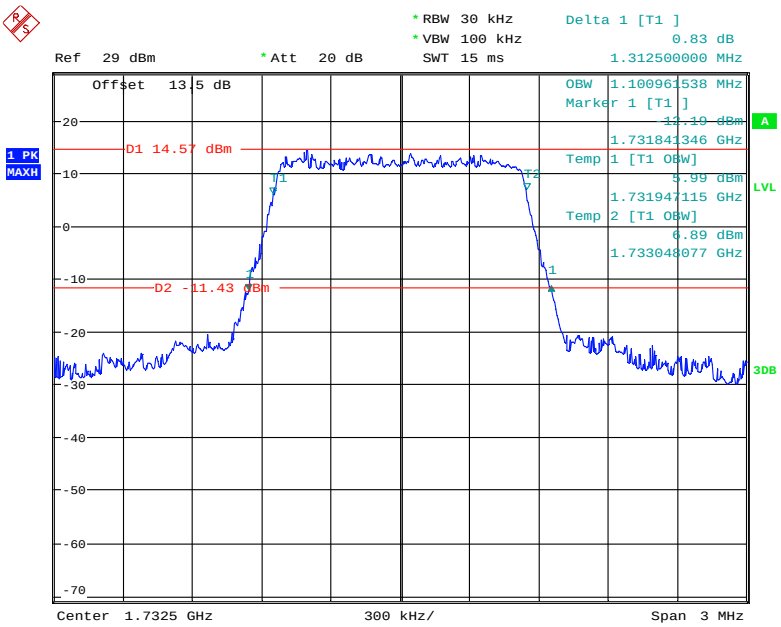
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.101	1.313
	16QAM	1.101	1.313
3.0	QPSK	2.683	2.885
	16QAM	2.683	2.885
5.0	QPSK	4.487	4.968
	16QAM	4.487	4.968
10.0	QPSK	8.974	10.032
	16QAM	8.974	9.776
15.0	QPSK	13.510	15.048
	16QAM	13.510	14.952
20.0	QPSK	18.013	19.423
	16QAM	18.013	19.487

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



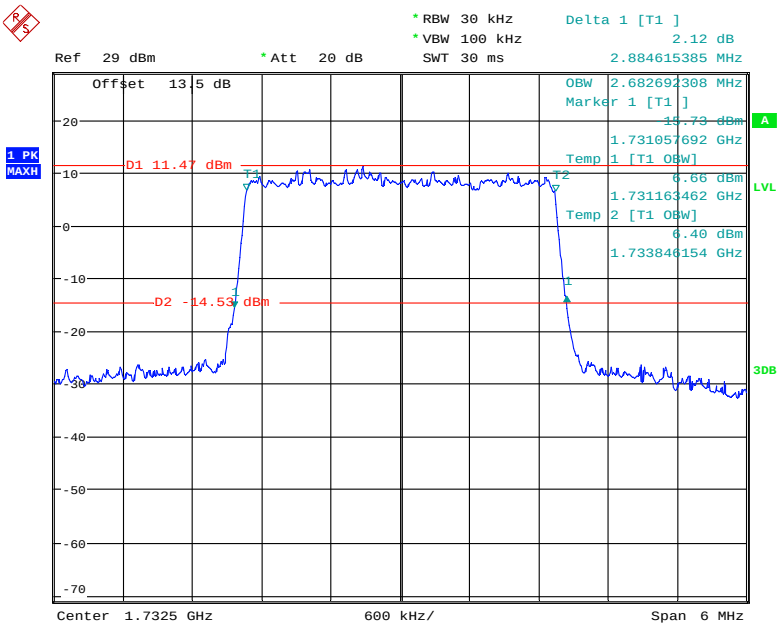
Date: 16.JUL.2018 10:34:16

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



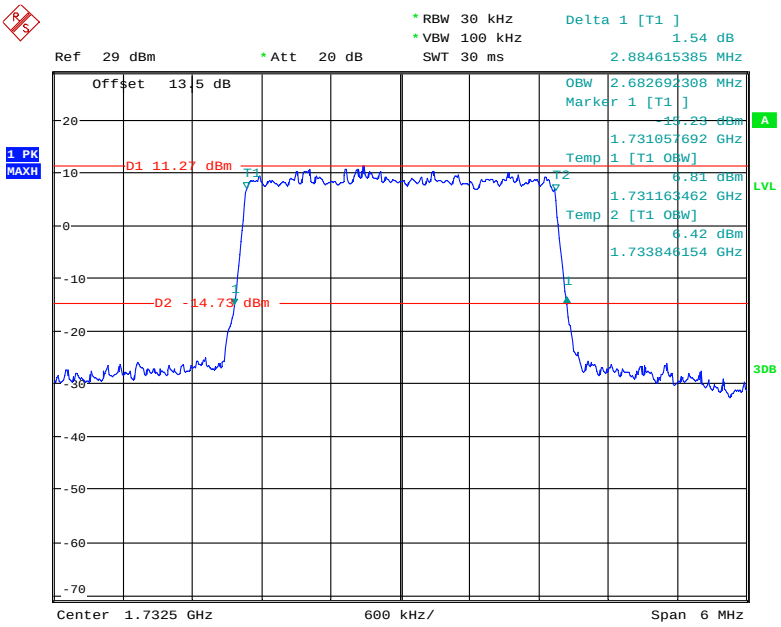
Date: 16.JUL.2018 10:35:08

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



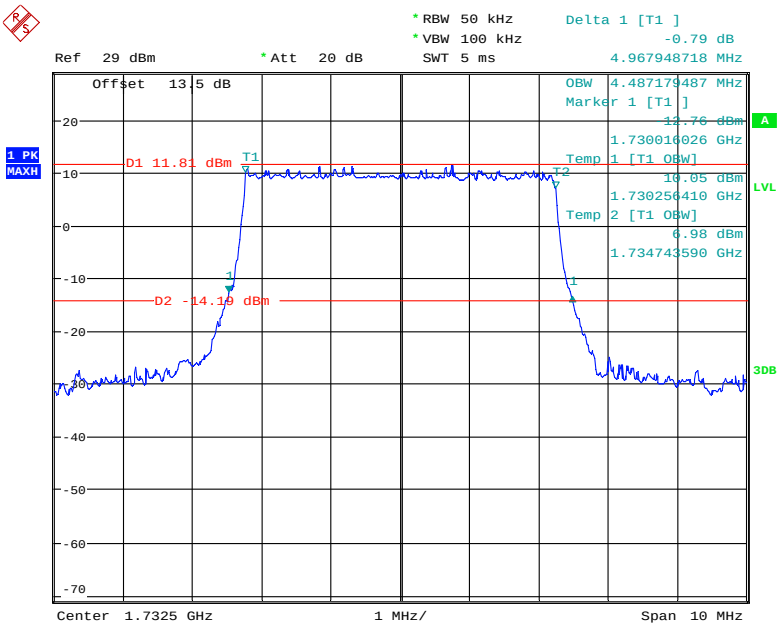
Date: 16.JUL.2018 10:39:12

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



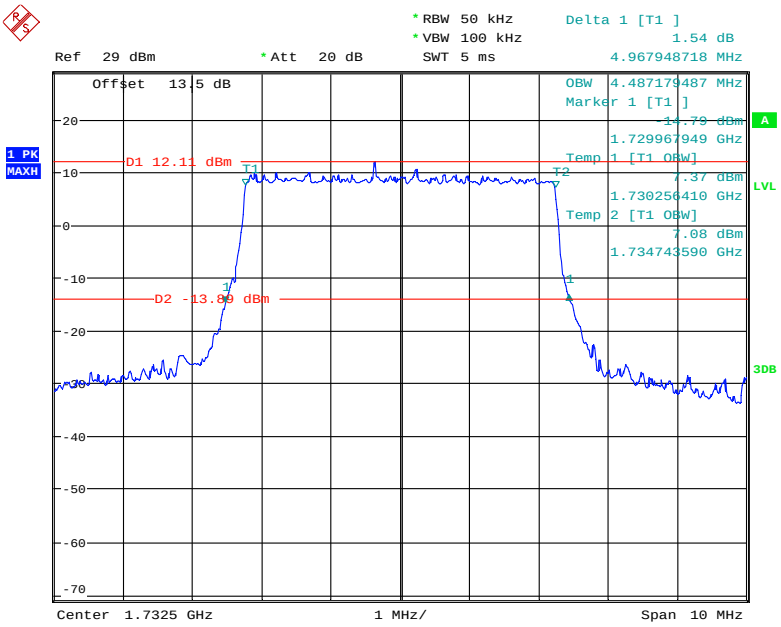
Date: 16.JUL.2018 10:38:00

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



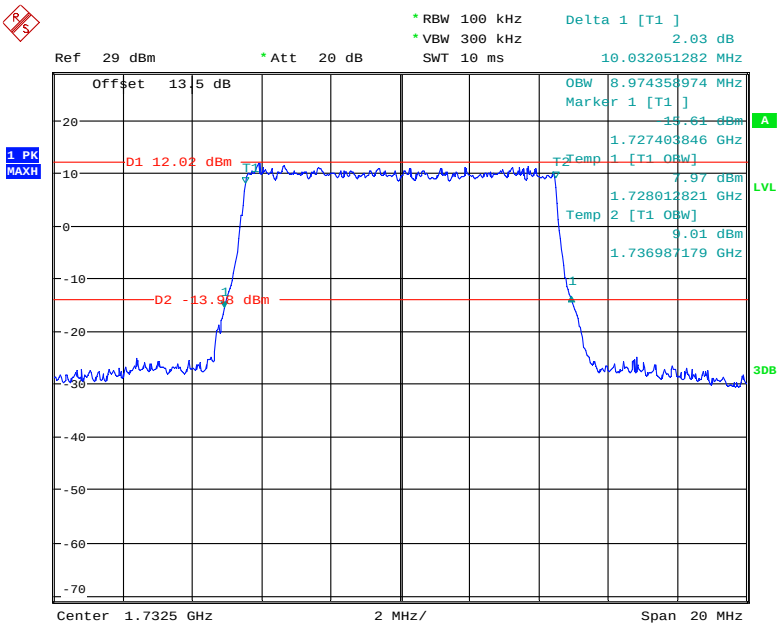
Date: 16.JUL.2018 10:42:02

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



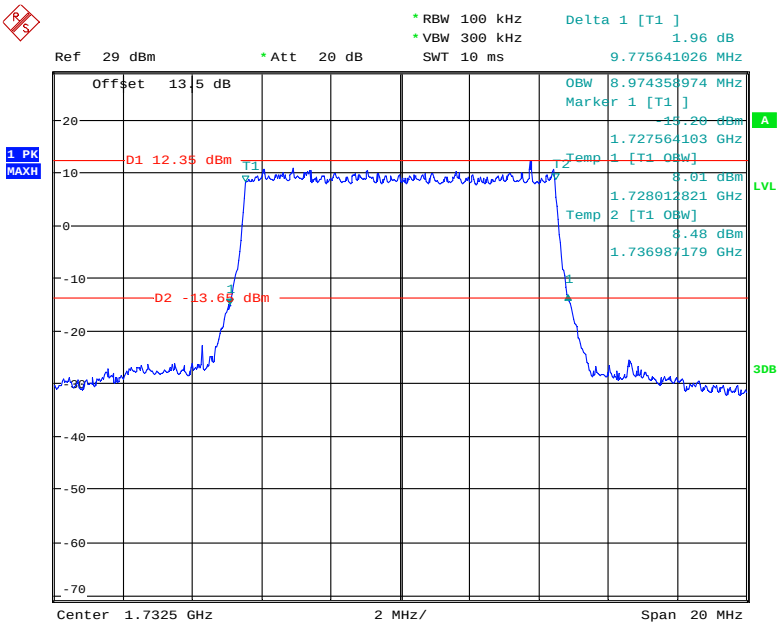
Date: 16.JUL.2018 10:40:55

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



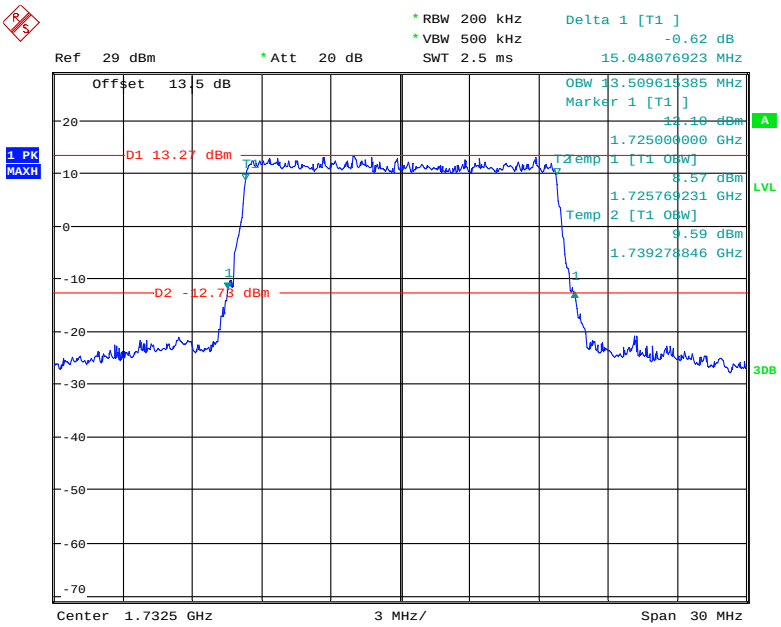
Date: 16.JUL.2018 10:43:43

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



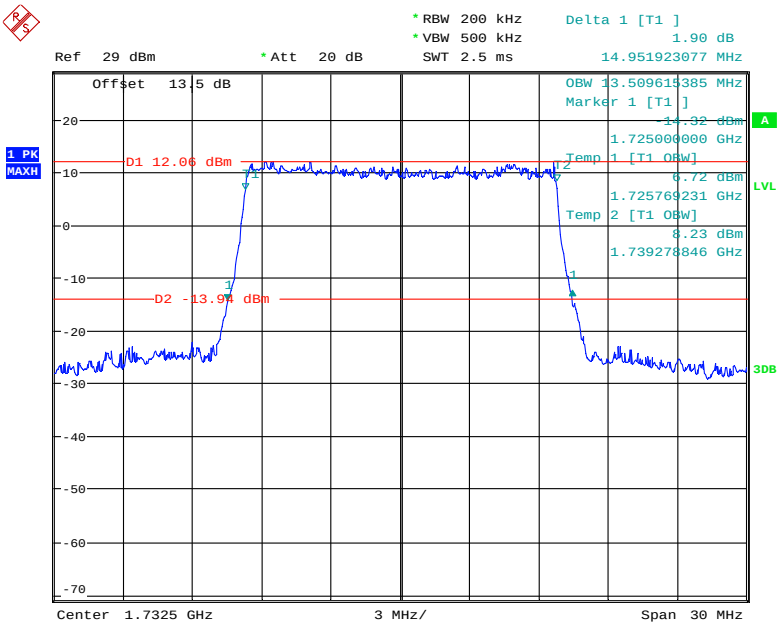
Date: 16.JUL.2018 10:45:04

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



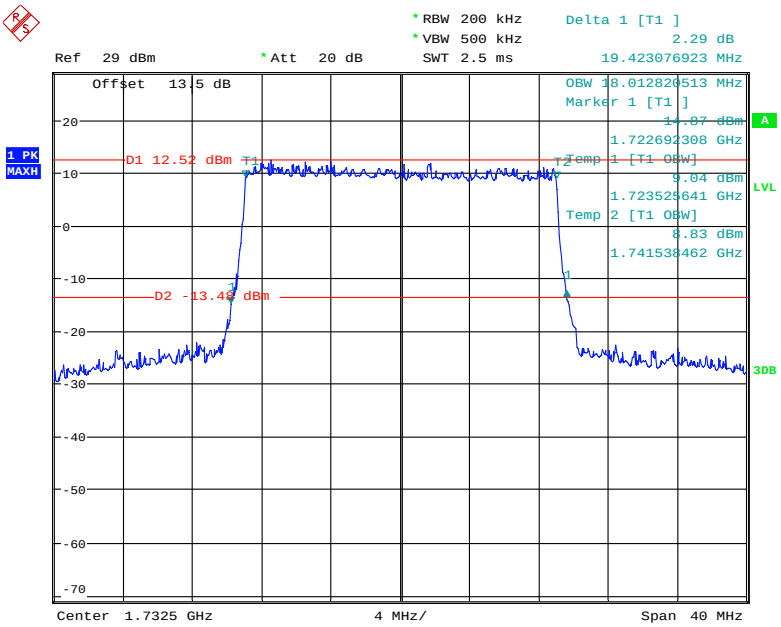
Date: 16.JUL.2018 10:48:53

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



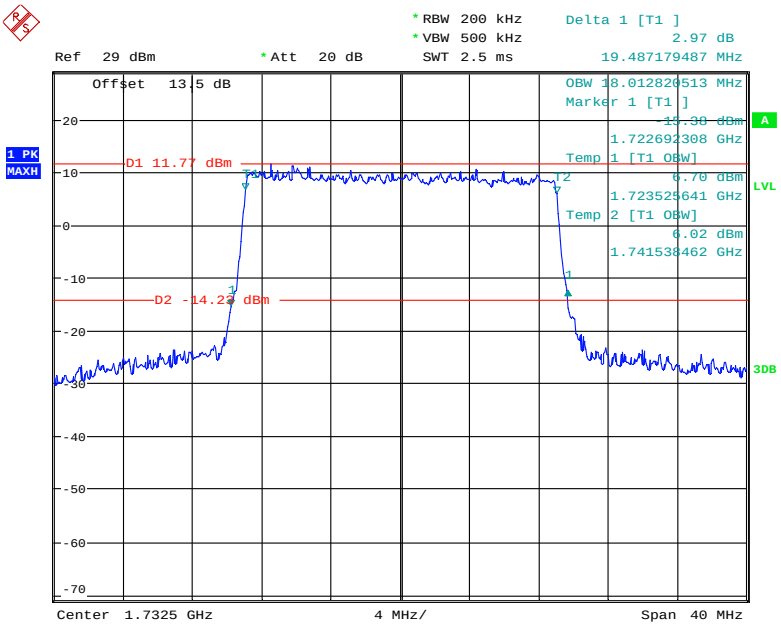
Date: 16.JUL.2018 10:46:31

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



Date: 16.JUL.2018 10:50:11

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

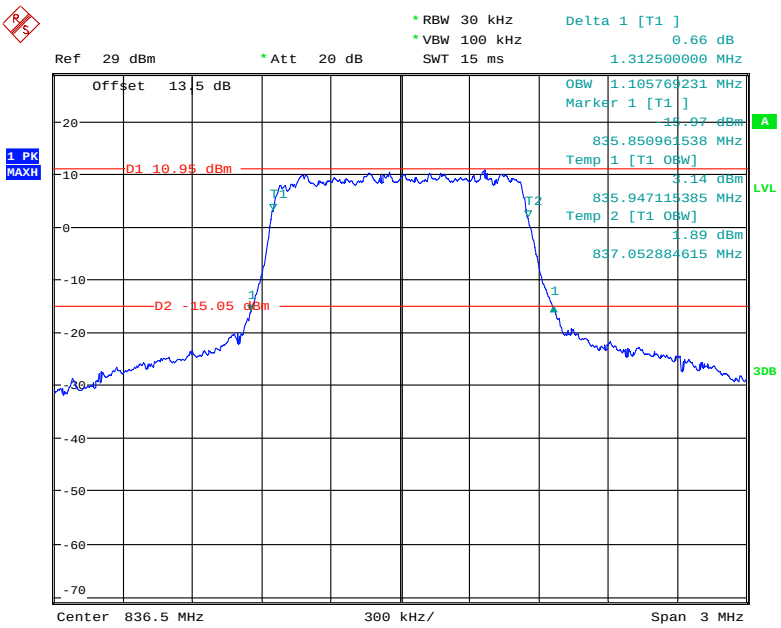


Date: 16.JUL.2018 10:51:37

LTE Band 5: (Middle Channel)

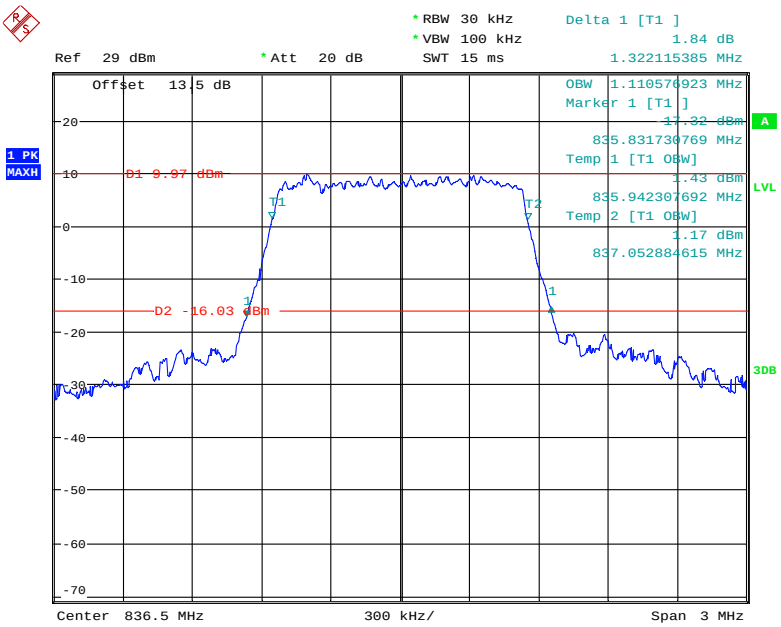
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.106	1.313
	16QAM	1.111	1.322
3.0	QPSK	2.692	2.875
	16QAM	2.683	2.894
5.0	QPSK	4.503	5.080
	16QAM	4.487	5.016
10.0	QPSK	8.942	9.776
	16QAM	8.910	9.744

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



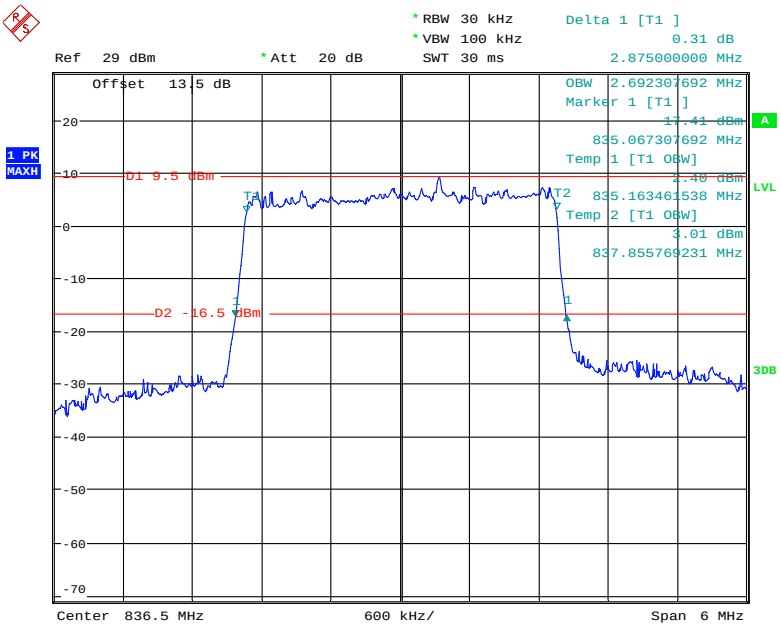
Date: 16.JUL.2018 10:54:00

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



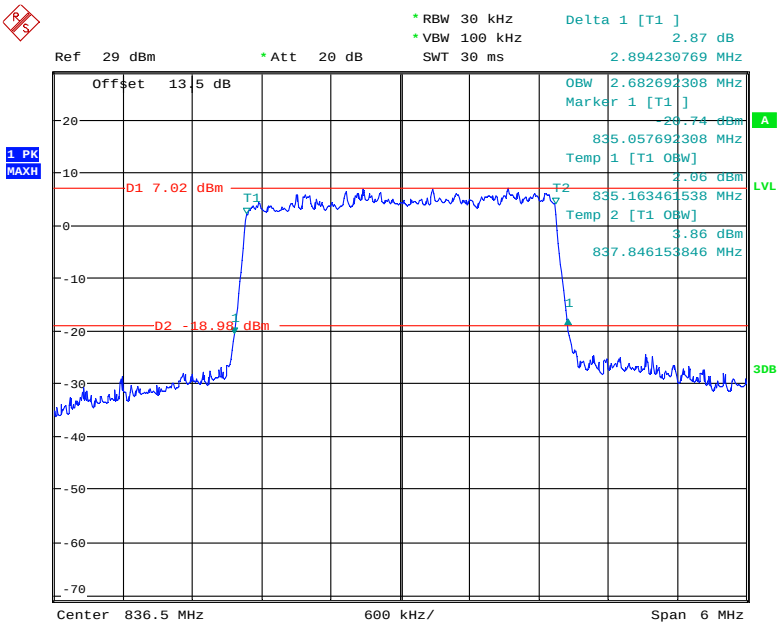
Date: 16.JUL.2018 10:55:13

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



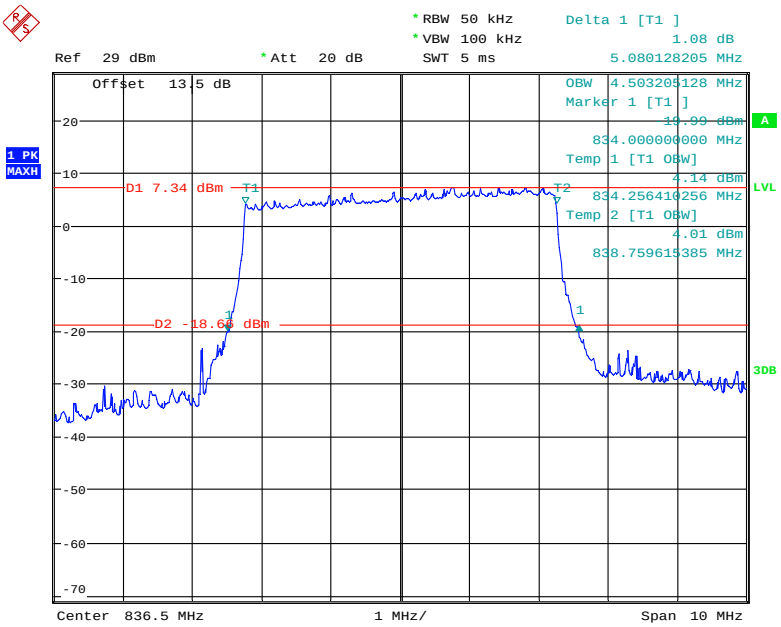
Date: 16.JUL.2018 11:00:08

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



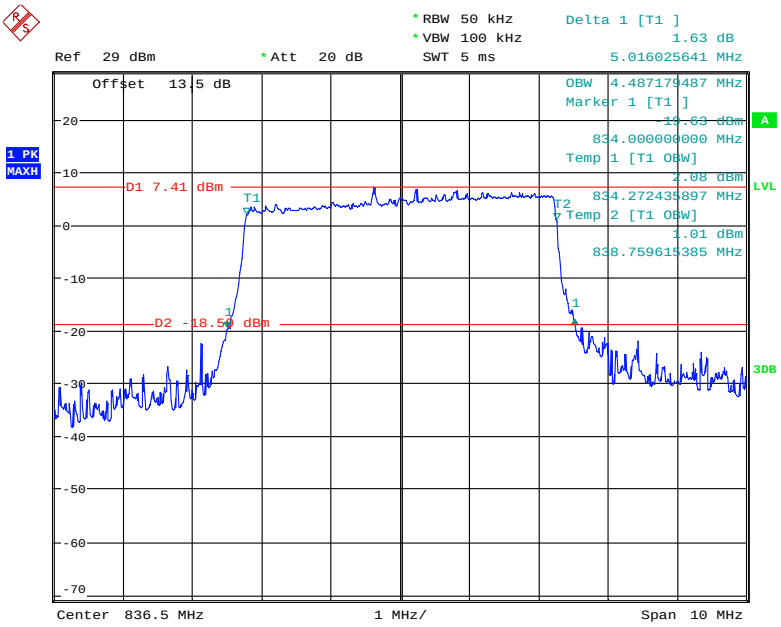
Date: 16.JUL.2018 10:58:10

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



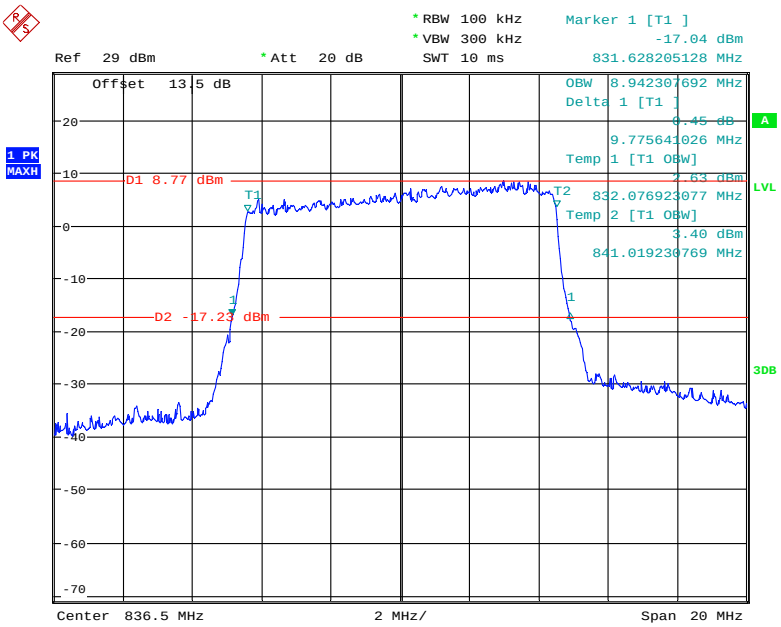
Date: 16.JUL.2018 11:02:15

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



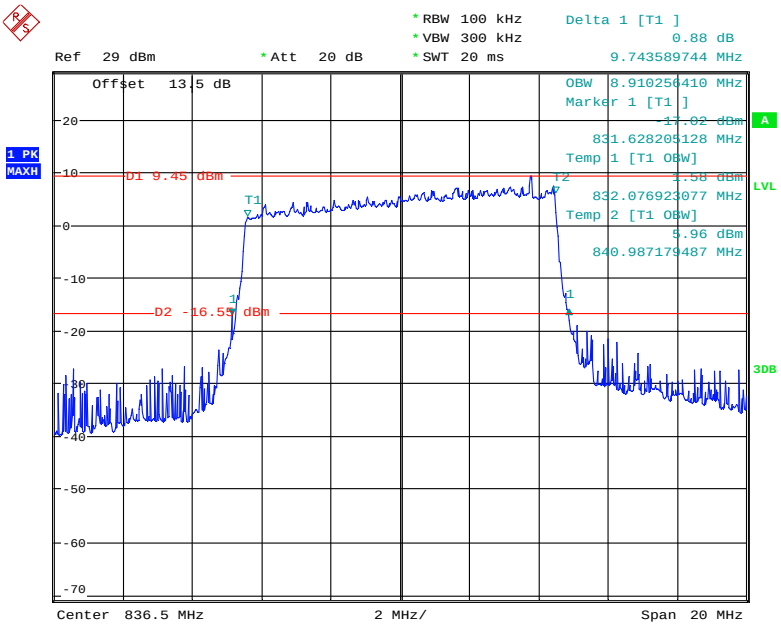
Date: 16.JUL.2018 11:04:06

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



Date: 16.JUL.2018 11:08:24

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

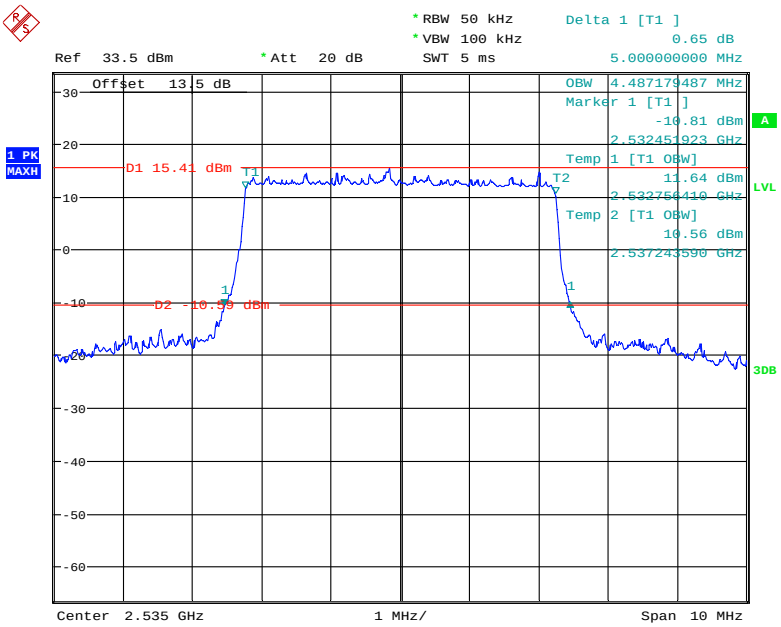


Date: 16.JUL.2018 11:06:44

LTE Band 7: (Middle Channel)

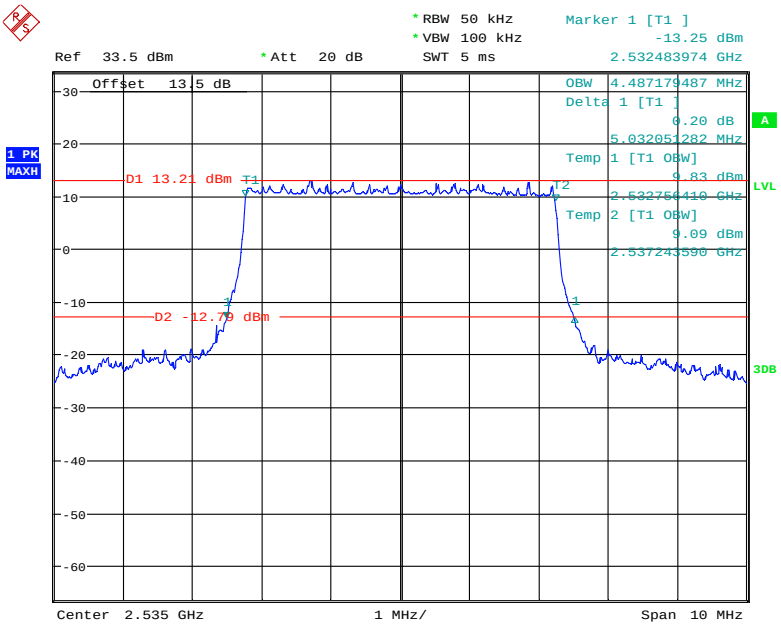
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.487	5.000
	16QAM	4.487	5.032
10.0	QPSK	9.071	10.321
	16QAM	9.071	10.096
15.0	QPSK	13.654	15.593
	16QAM	13.606	15.160
20.0	QPSK	17.949	19.858
	16QAM	18.013	19.679

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



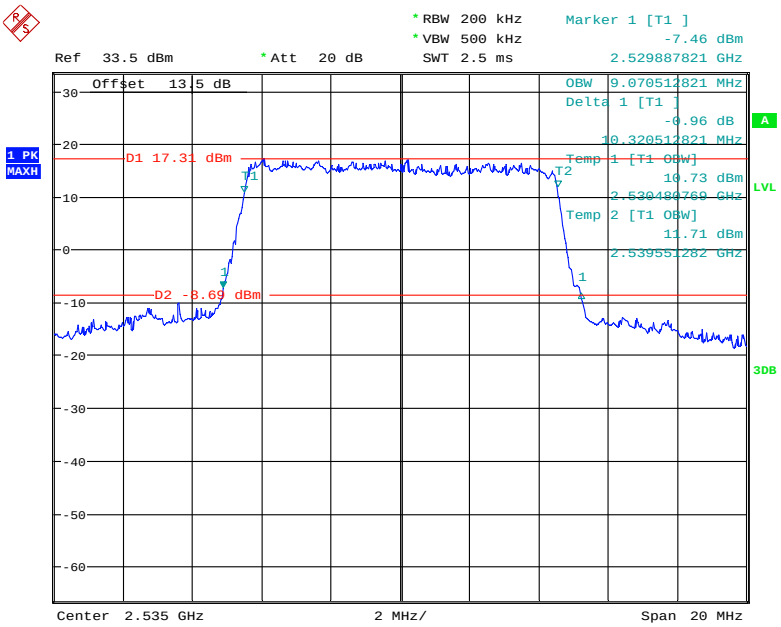
Date: 24.JUL.2018 10:51:24

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



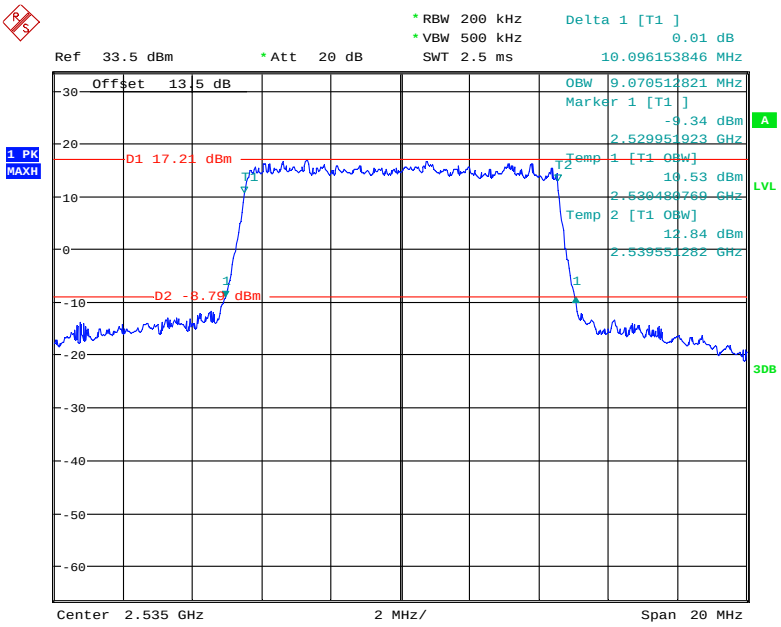
Date: 24.JUL.2018 10:54:54

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



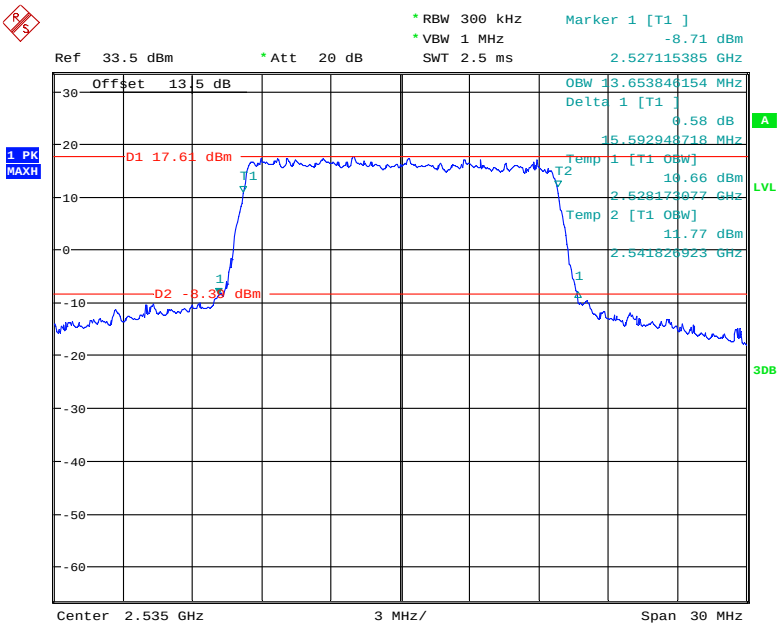
Date: 24.JUL.2018 10:46:54

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



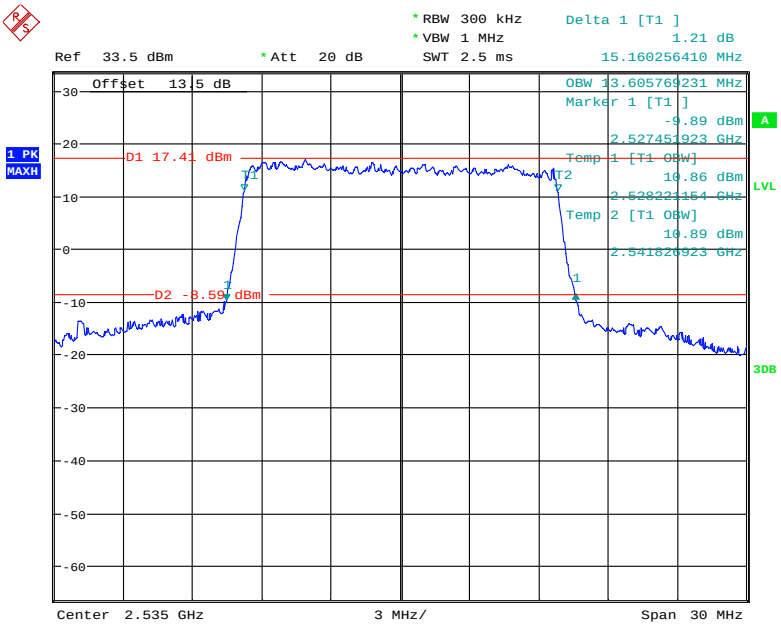
Date: 24.JUL.2018 10:45:20

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



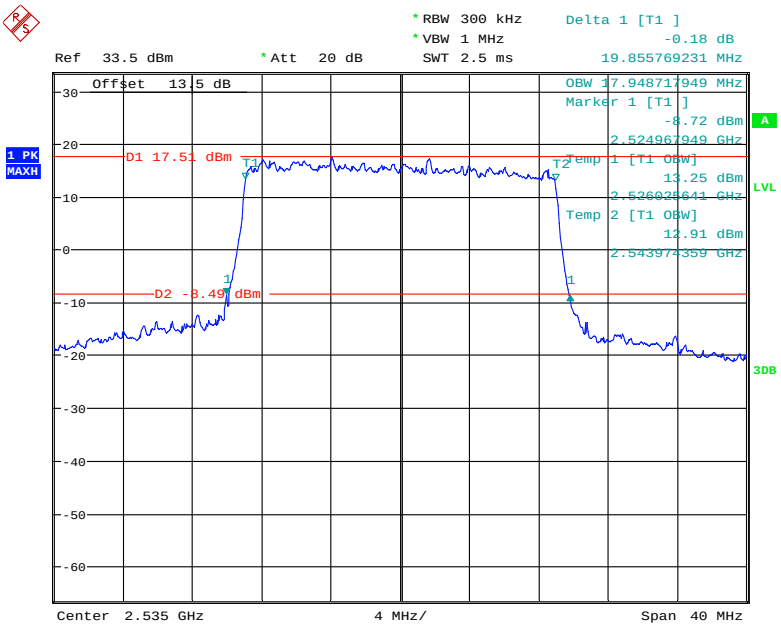
Date: 24.JUL.2018 10:41:35

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



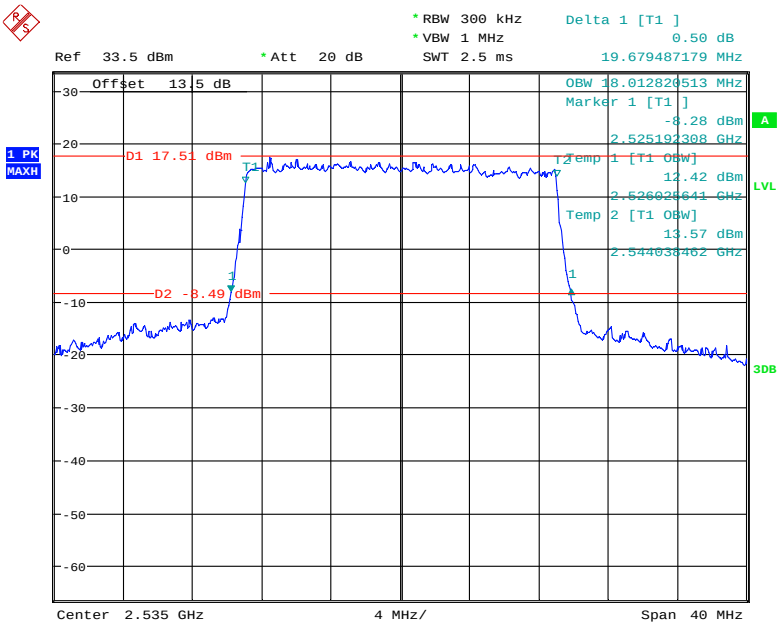
Date: 24.JUL.2018 10:42:32

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



Date: 24.JUL.2018 11:00:03

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

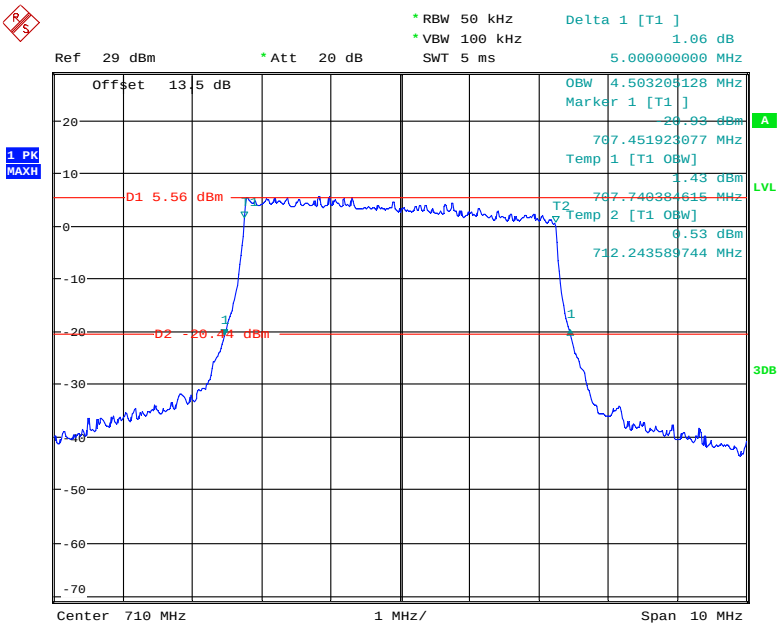


Date: 24.JUL.2018 10:35:38

LTE Band 17: (Middle Channel)

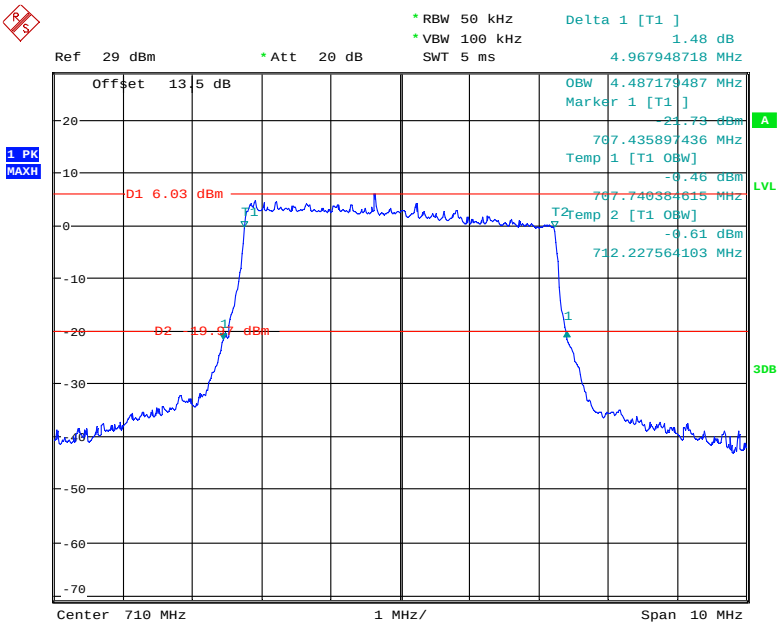
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.503	5.000
	16QAM	4.487	4.968
10.0	QPSK	8.942	9.840
	16QAM	8.942	9.776

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



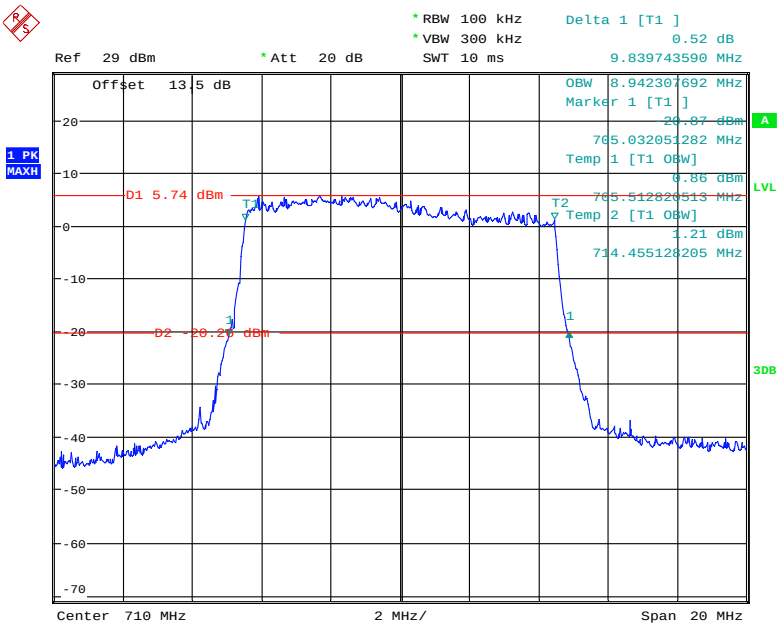
Date: 16.JUL.2018 11:41:12

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



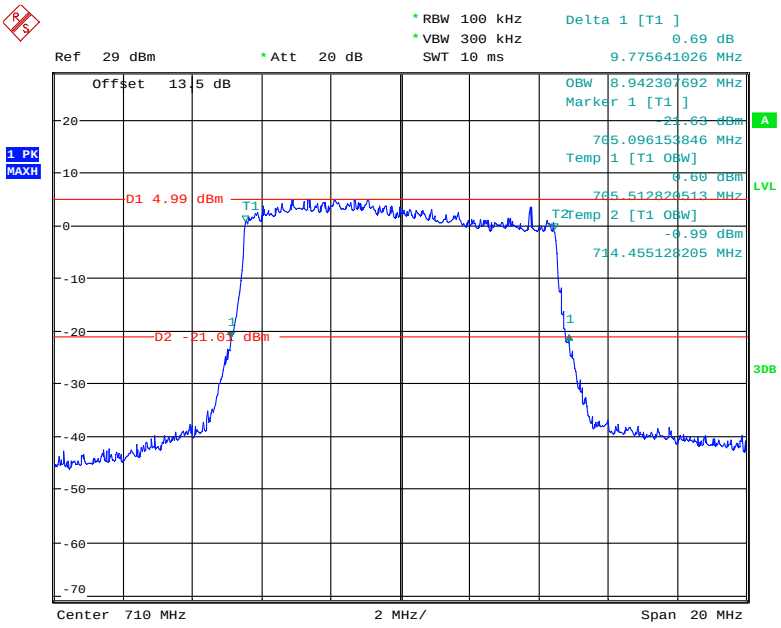
Date: 16.JUL.2018 11:38:07

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



Date: 16.JUL.2018 11:43:46

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



Date: 16.JUL.2018 11:42:15

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

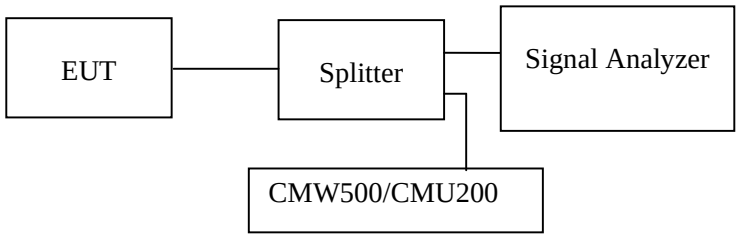
Applicable Standard

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:	26 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang on 2018-07-16.

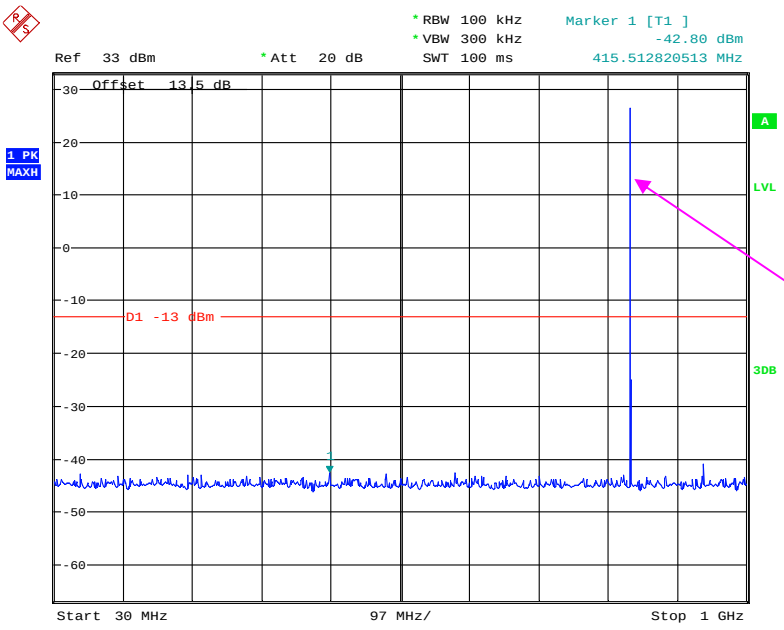
Test result: Compliance.

EUT operation mode: transmitting

Please refer to the following plots.

Cellular Band (Part 22H)

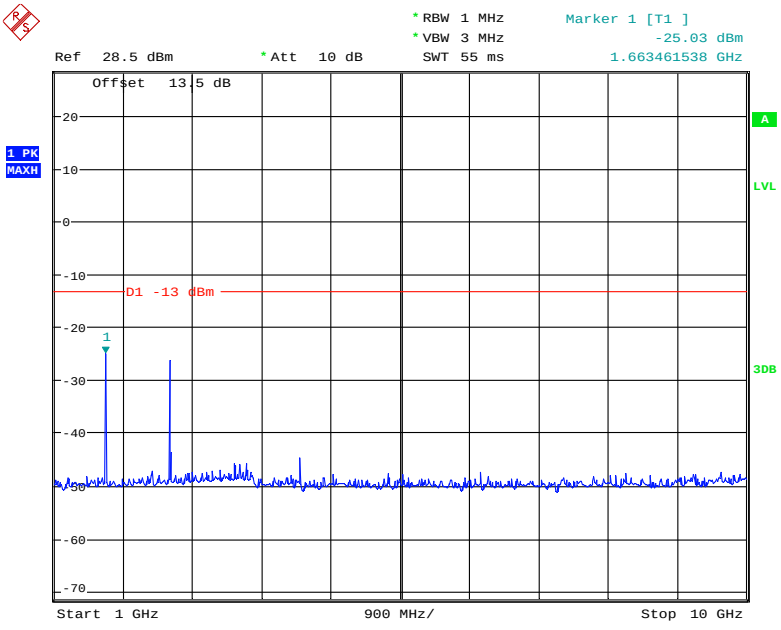
30 MHz – 1 GHz (GSM Mode)



Fundamental test

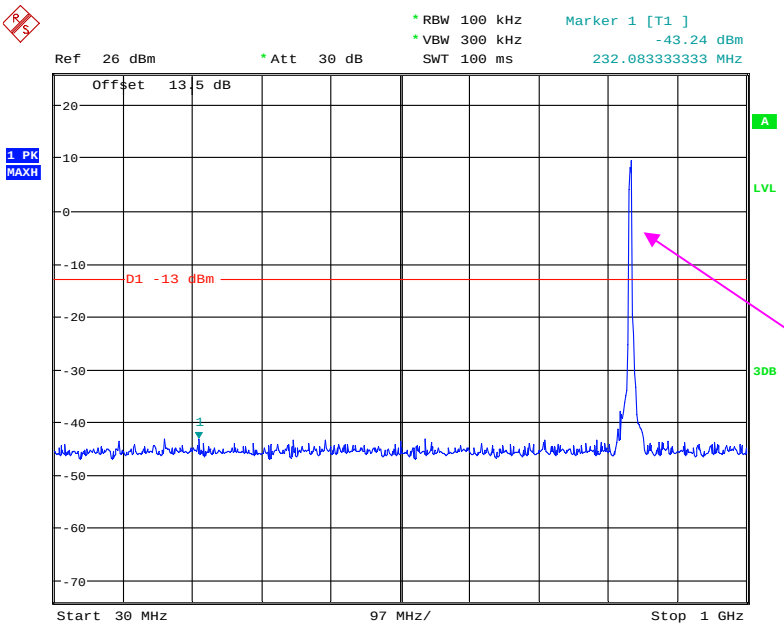
Date: 16.JUL.2018 14:26:40

1 GHz – 10 GHz (GSM Mode)



Date: 16.JUL.2018 14:27:10

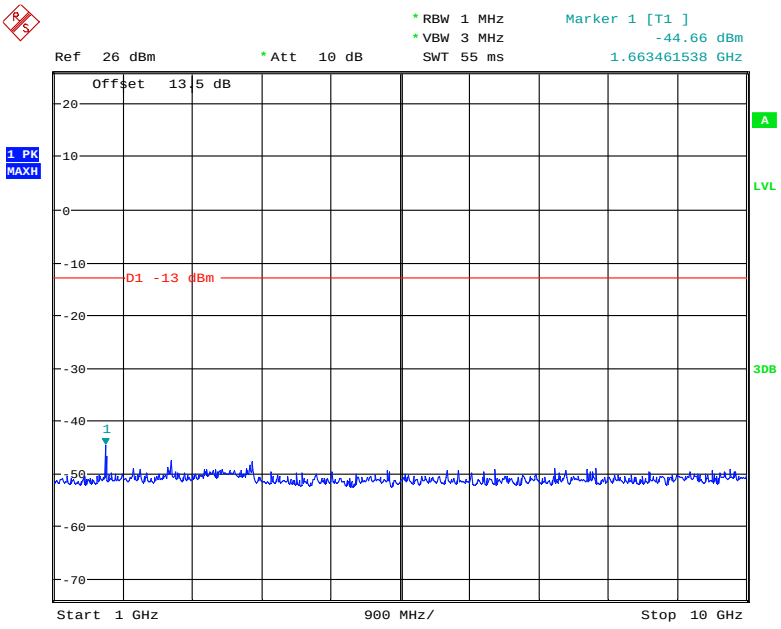
30 MHz – 1 GHz (WCDMA Mode)



Fundamental test

Date: 16.JUL.2018 16:02:11

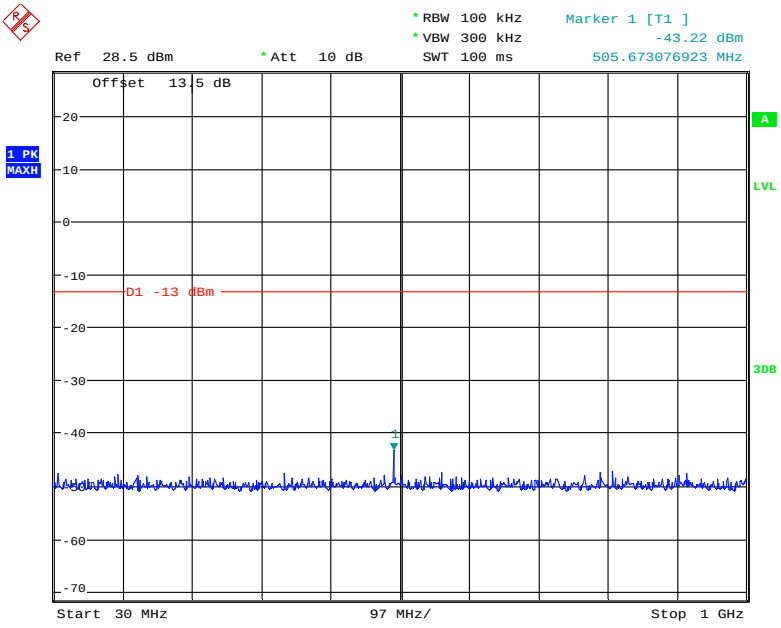
1 GHz – 10 GHz (WCDMA Mode)



Date: 16.JUL.2018 16:02:47

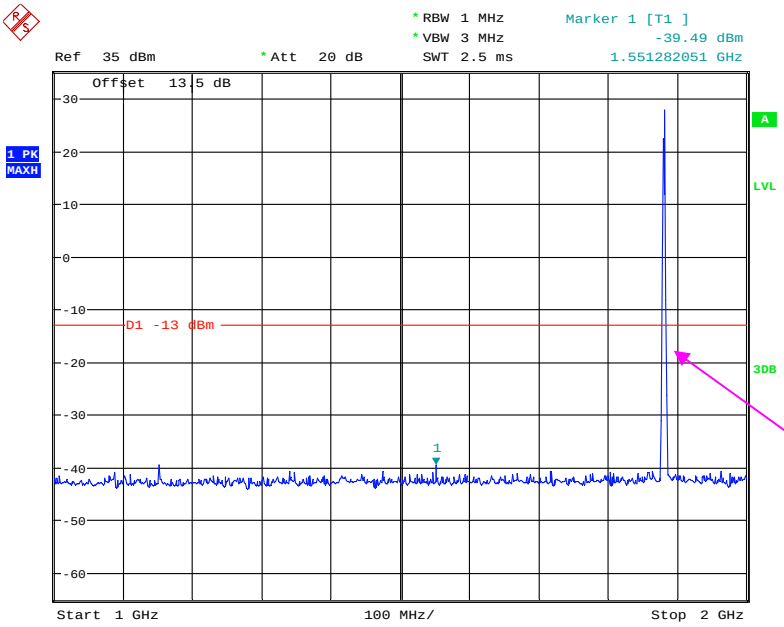
PCS Band (Part 24E)

30 MHz – 1 GHz (GSM Mode)



Date: 16.JUL.2018 14:30:23

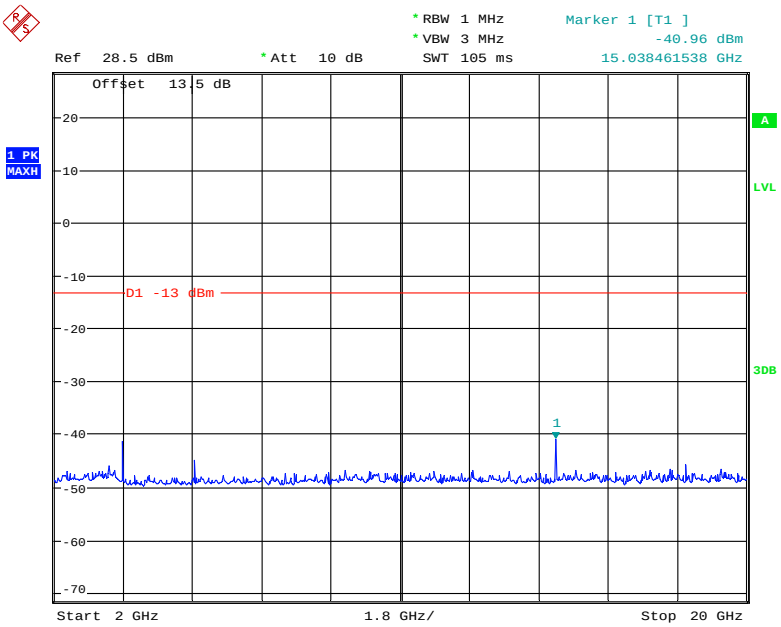
1 GHz – 2 GHz (GSM Mode)



Fundamental test

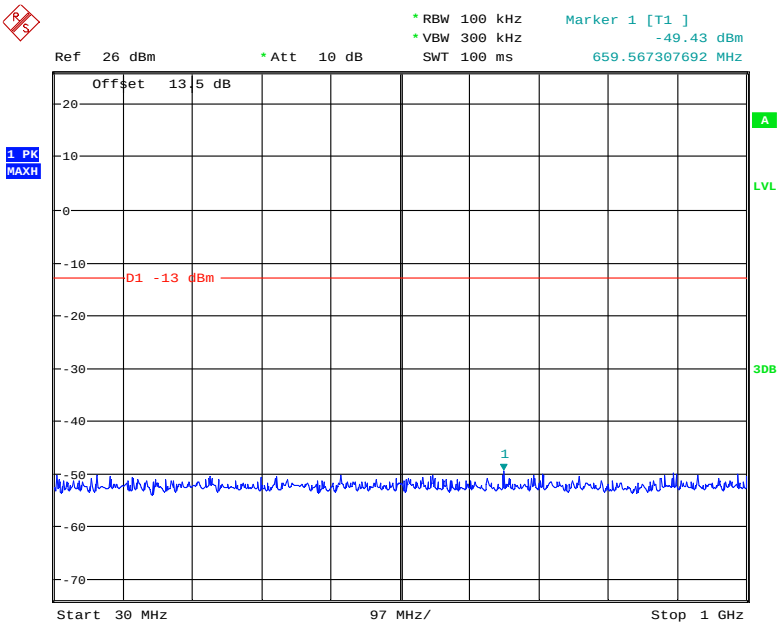
Date: 16.JUL.2018 14:29:24

2 GHz – 20 GHz (GSM Mode)



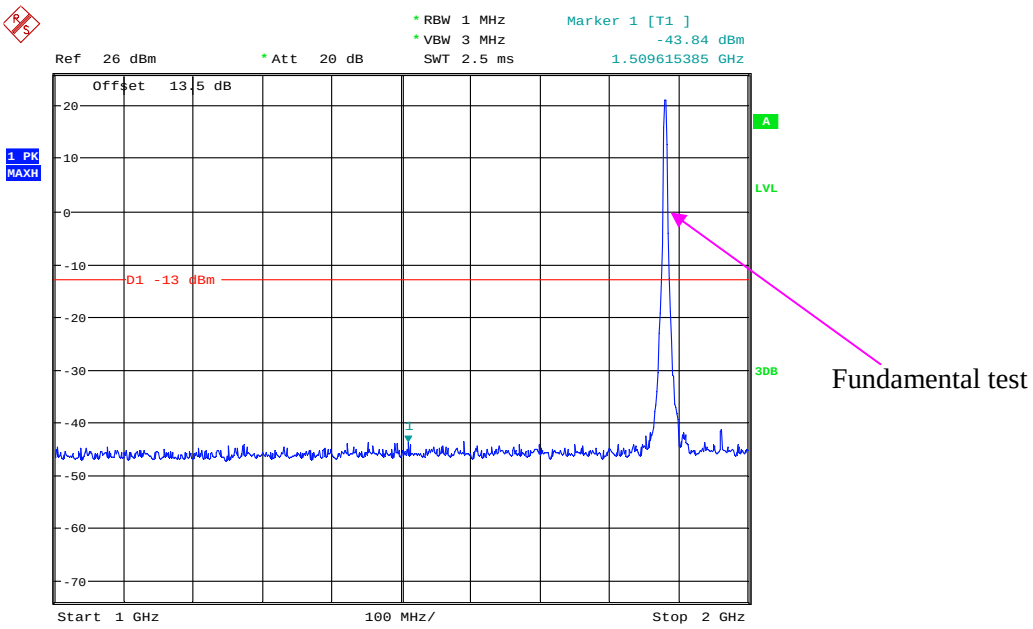
Date: 16.JUL.2018 14:30:00

30 MHz – 1 GHz (WCDMA Mode)



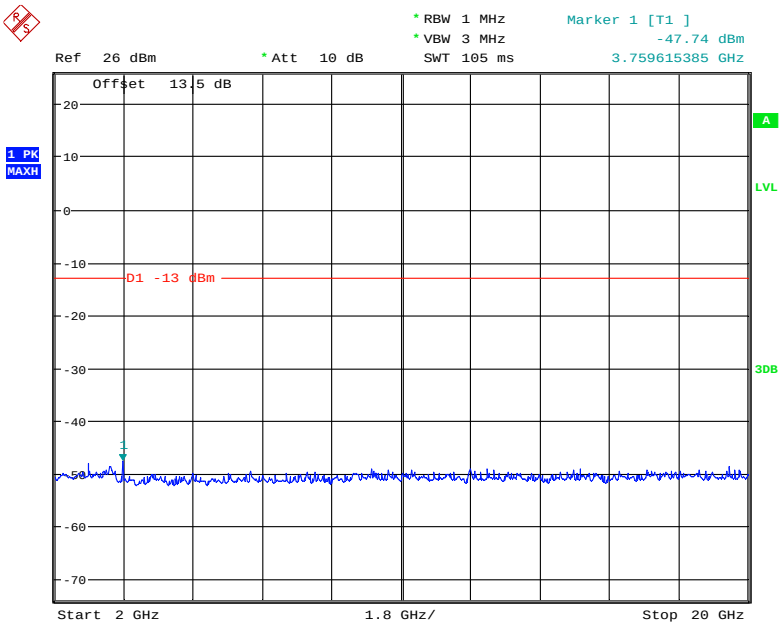
Date: 16.JUL.2018 16:05:08

1 GHz – 2 GHz (WCDMA Mode)



Date: 16.JUL.2018 16:04:19

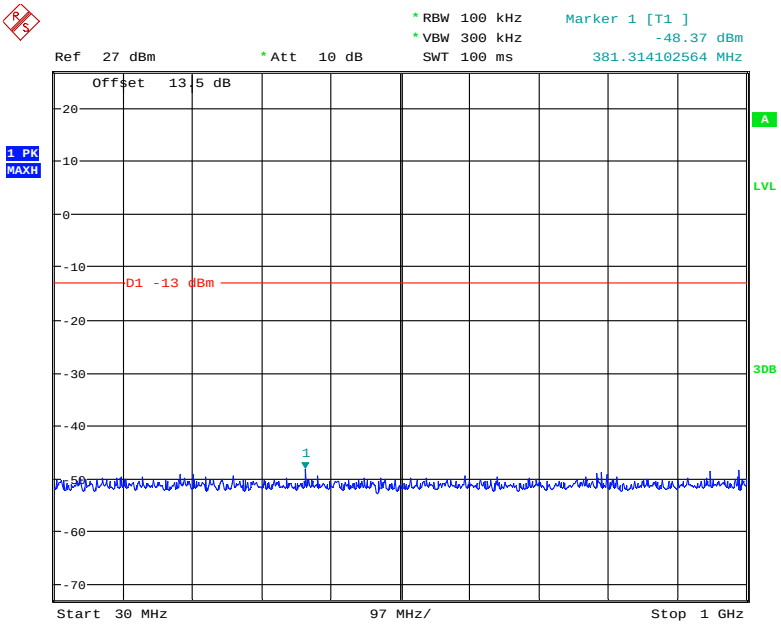
2 GHz – 20 GHz (WCDMA Mode)



Date: 16.JUL.2018 16:04:43

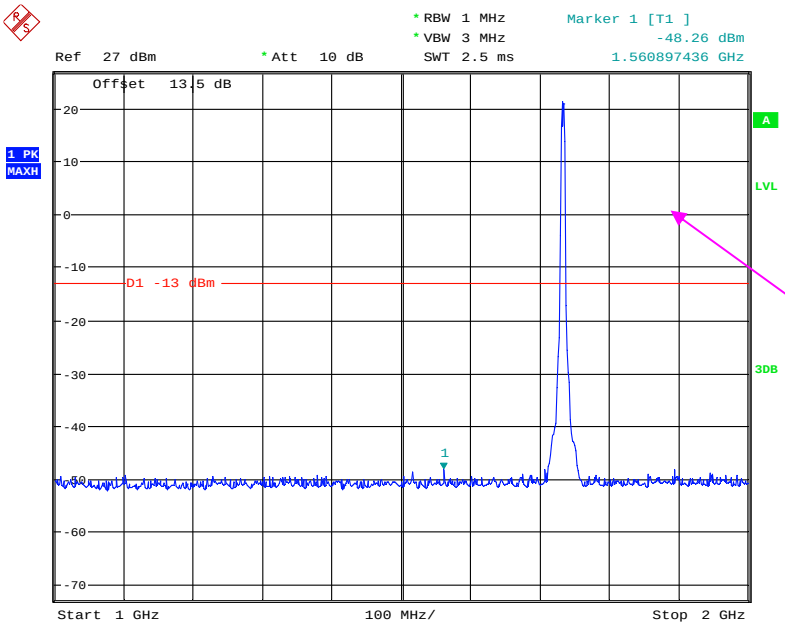
AWS Band (Part27)

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JUL.2018 16:12:06

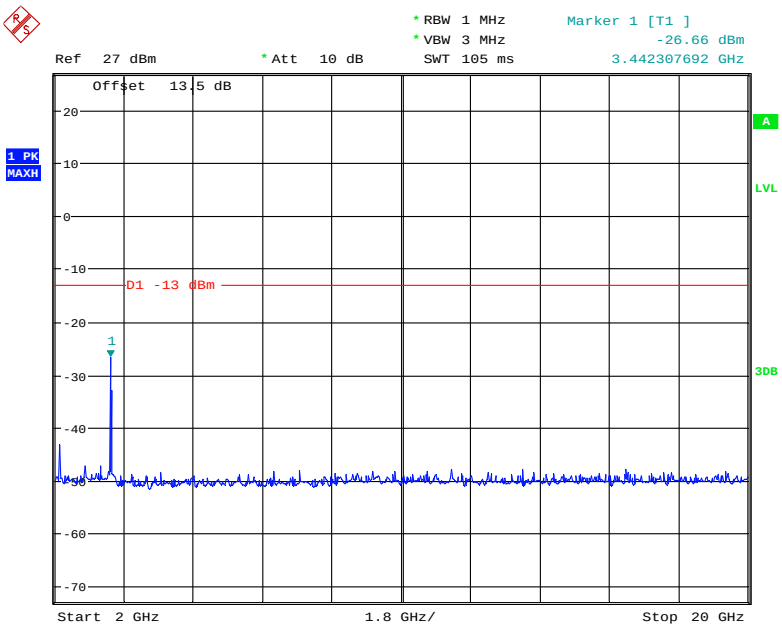
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

Date: 16.JUL.2018 16:12:49

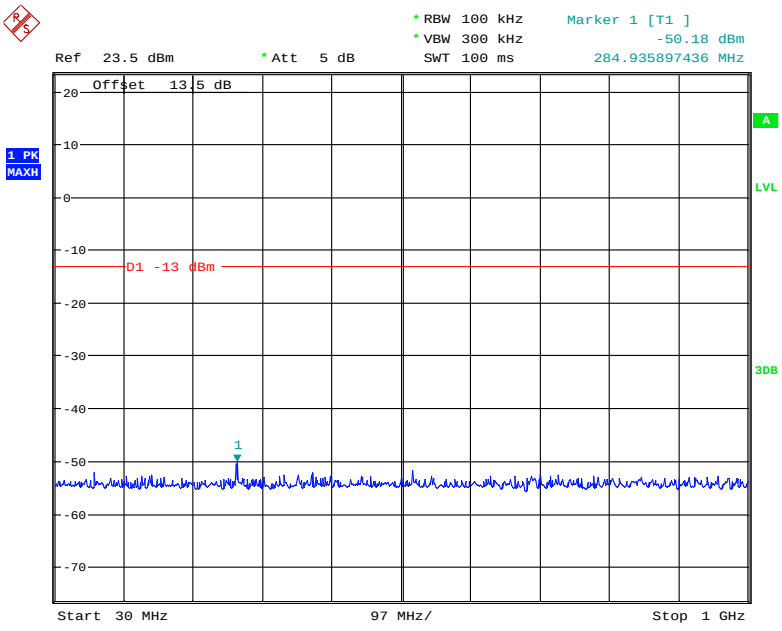
2 GHz – 20 GHz (WCDMA Mode)



Date: 16.JUL.2018 16:13:07

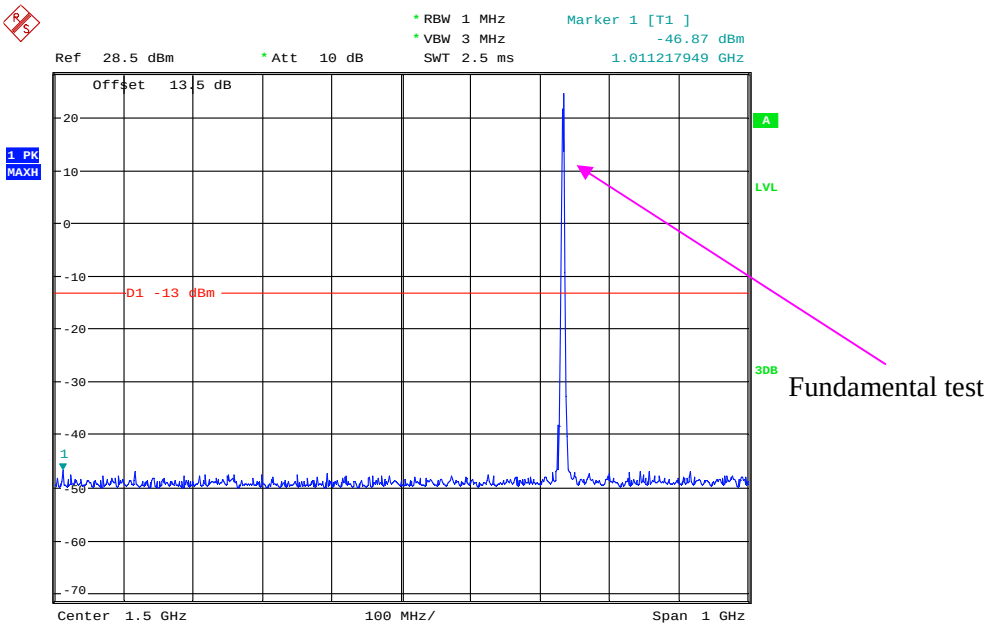
LTE Band 4:

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



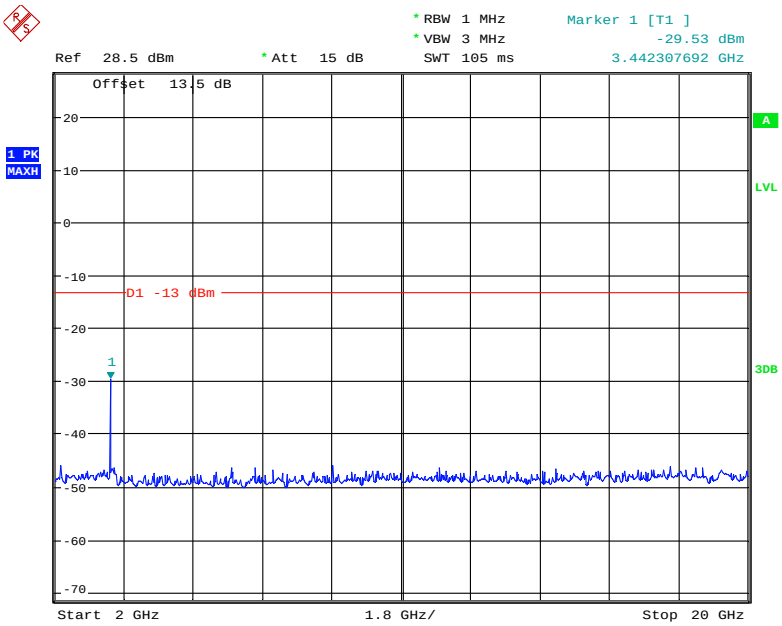
Date: 16.JUL.2018 11:52:51

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



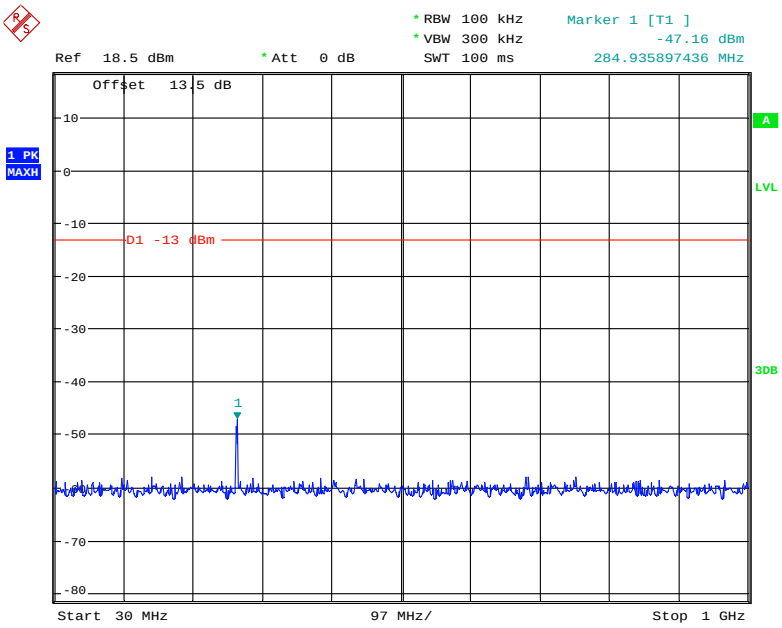
Date: 16.JUL.2018 11:54:01

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



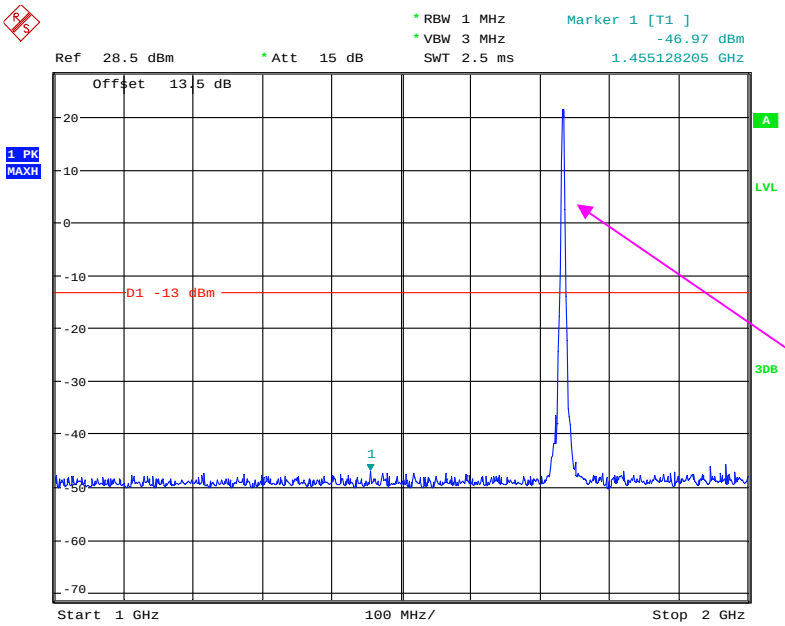
Date: 16.JUL.2018 11:54:28

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



Date: 16.JUL.2018 11:56:10

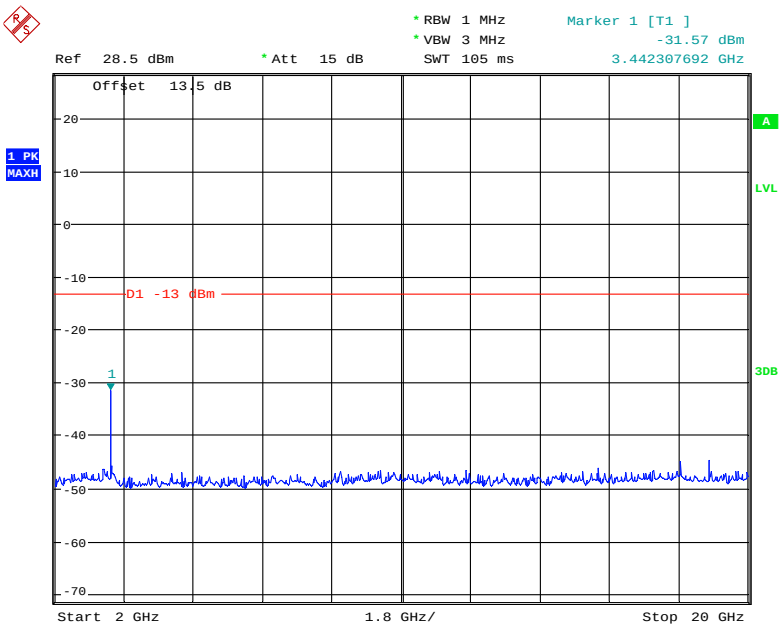
1 GHz – 2 GHz (3.0 MHz, Middle Channel)



Fundamental test

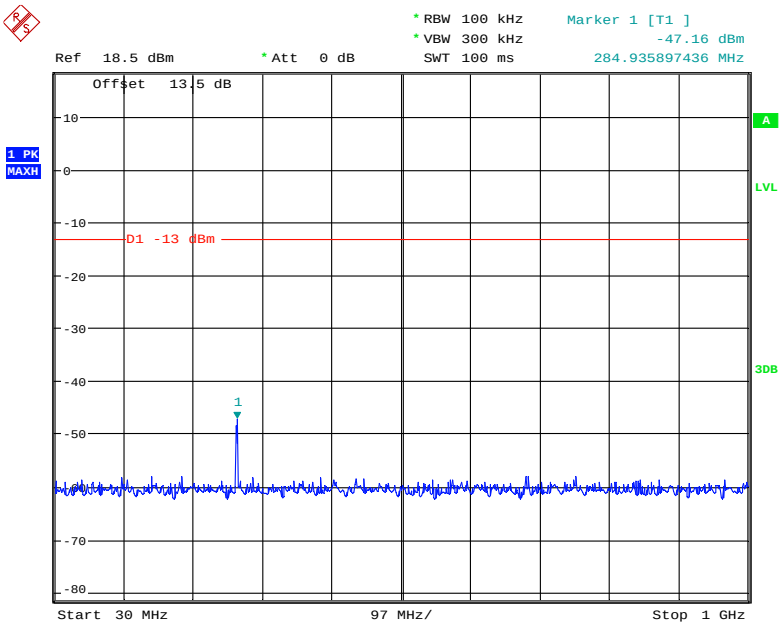
Date: 16.JUL.2018 11:55:24

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



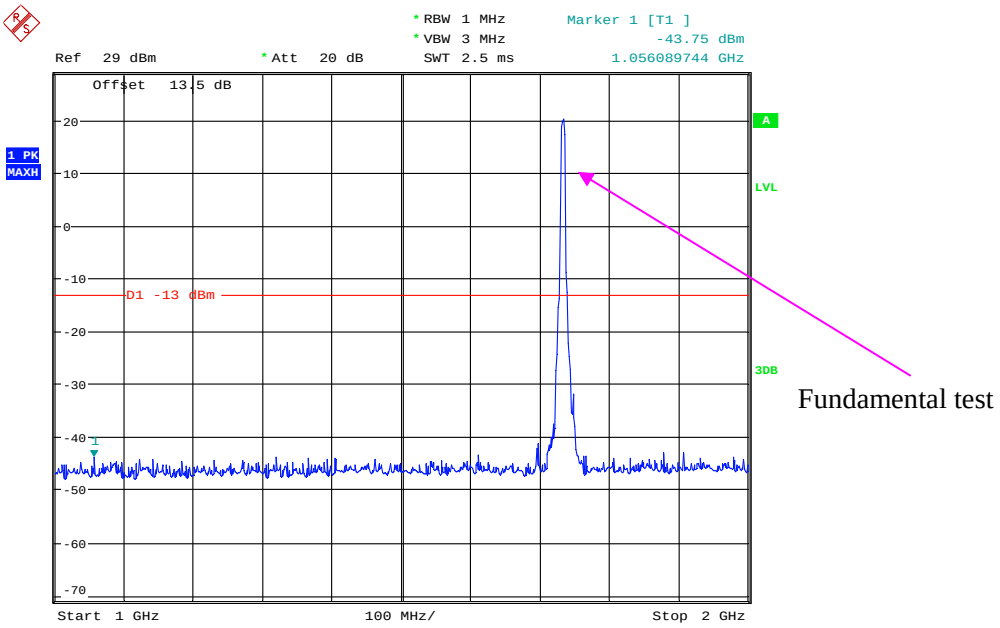
Date: 16.JUL.2018 11:54:53

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



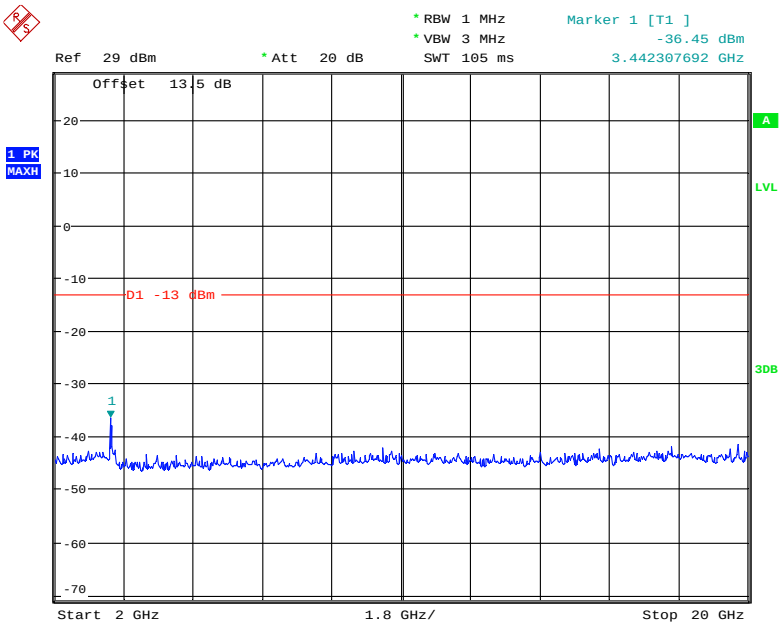
Date: 16.JUL.2018 11:56:10

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



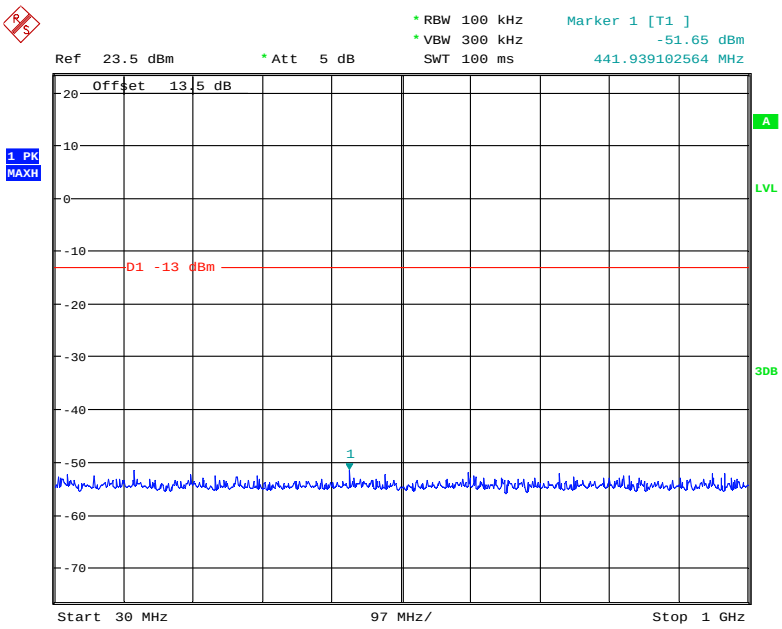
Date: 16.JUL.2018 13:10:42

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



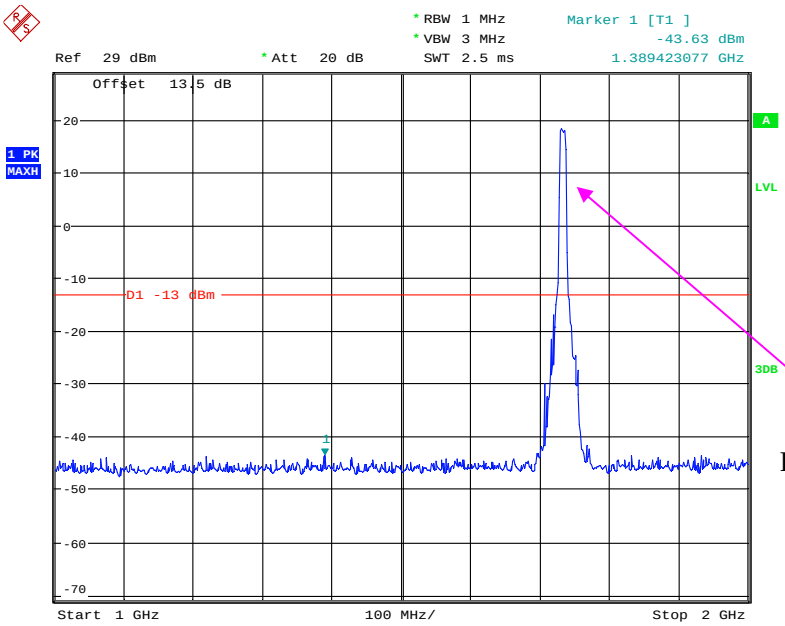
Date: 16.JUL.2018 13:11:07

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



Date: 16.JUL.2018 13:13:45

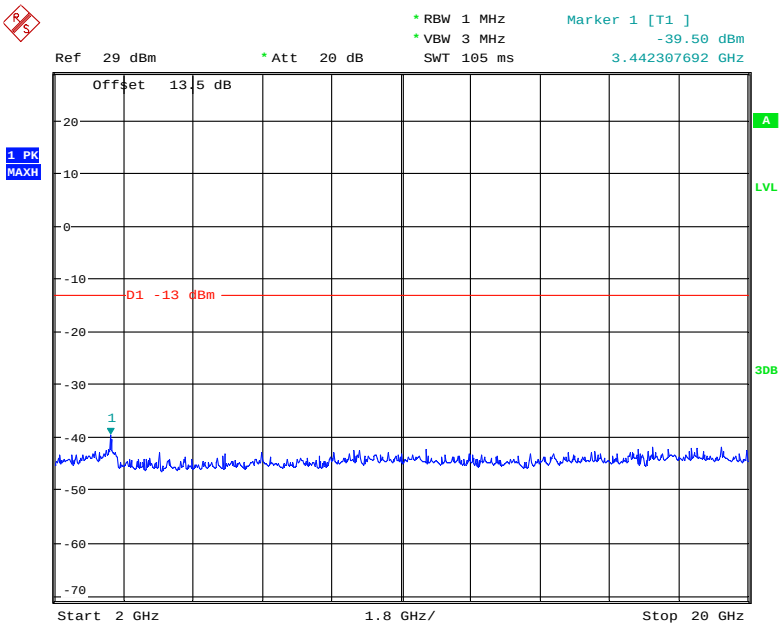
1 GHz – 2 GHz (10.0 MHz, Middle Channel)



Fundamental test

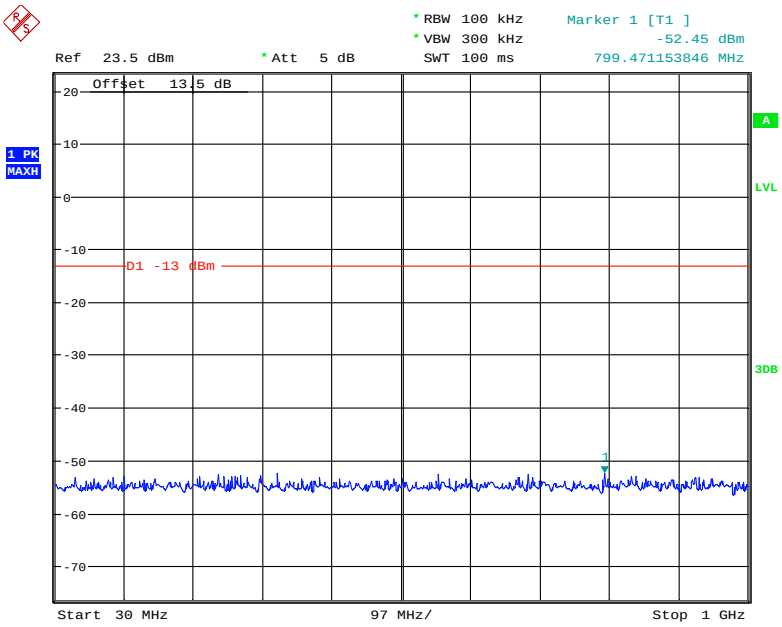
Date: 16.JUL.2018 13:13:00

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



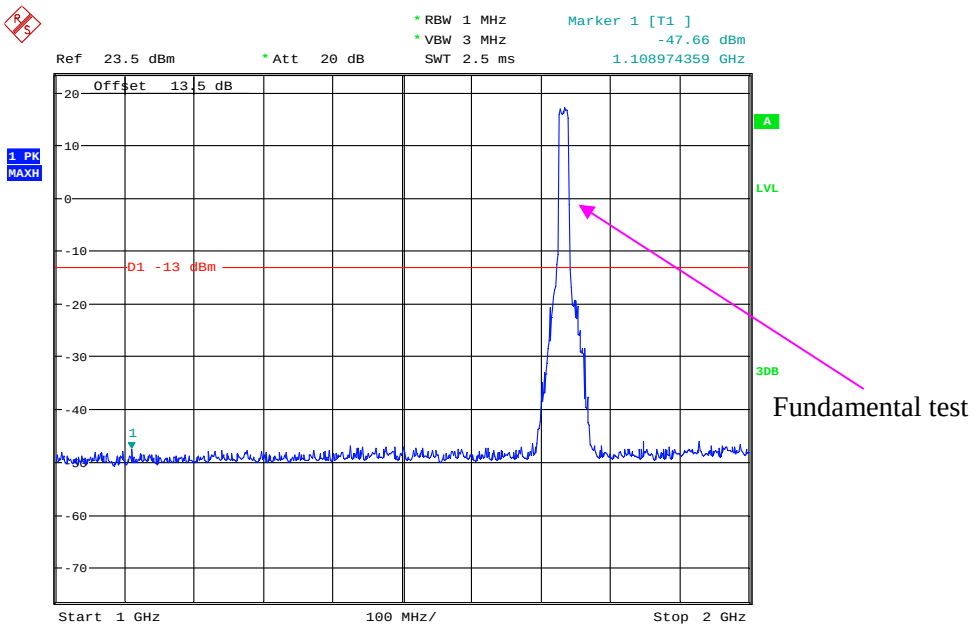
Date: 16.JUL.2018 13:12:31

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



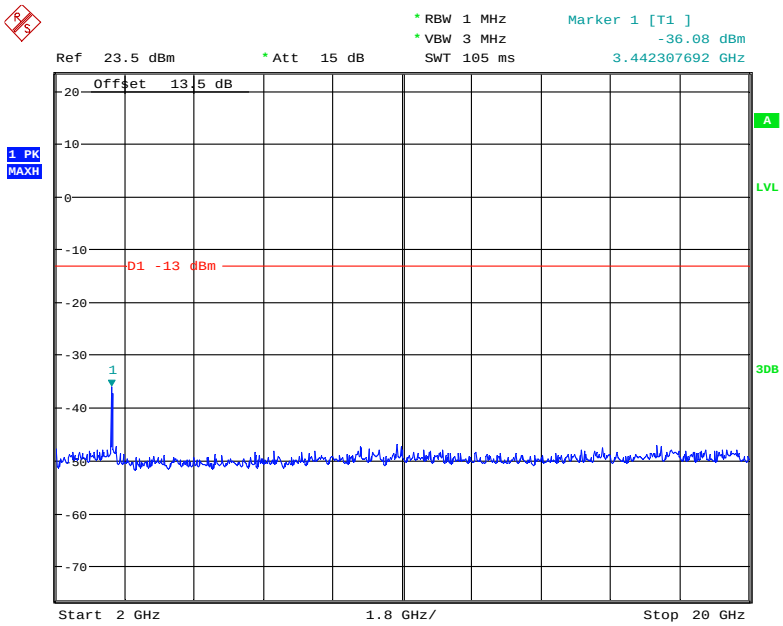
Date: 16.JUL.2018 13:15:22

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



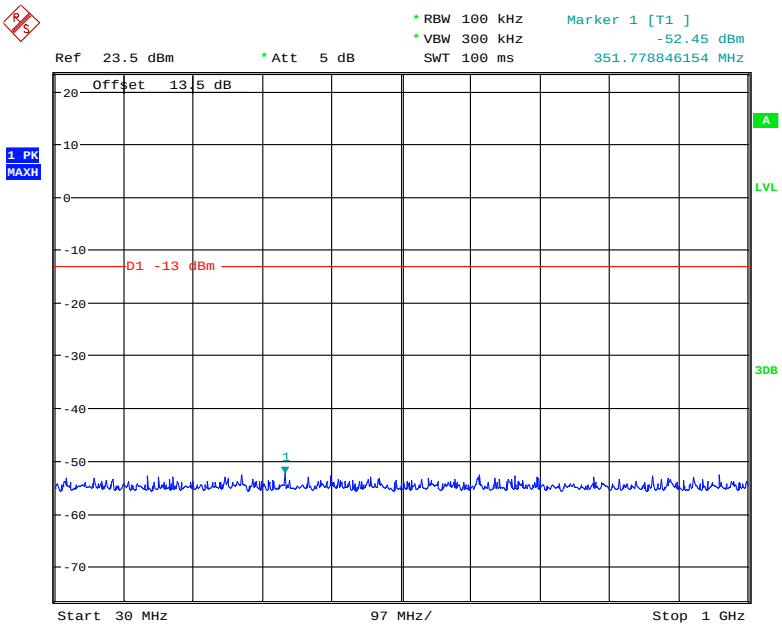
Date: 16.JUL.2018 13:15:56

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



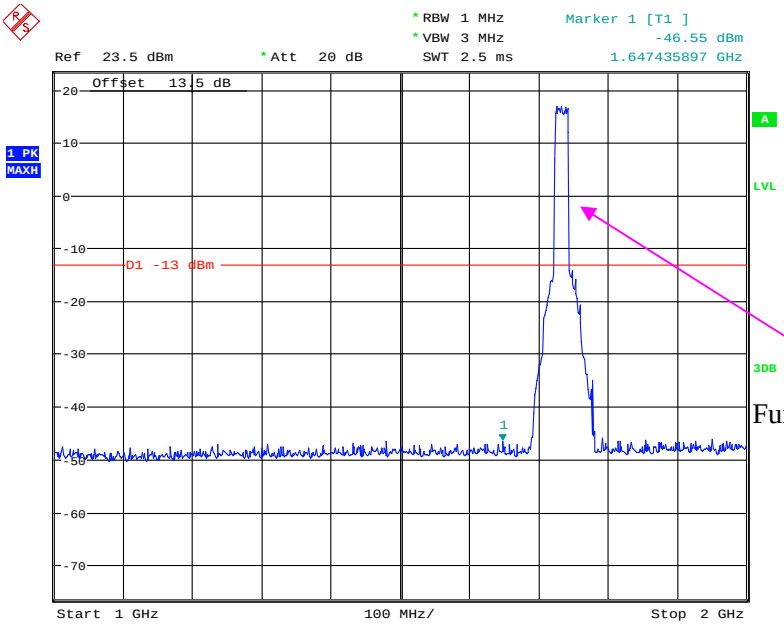
Date: 16.JUL.2018 13:16:32

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



Date: 16.JUL.2018 13:18:21

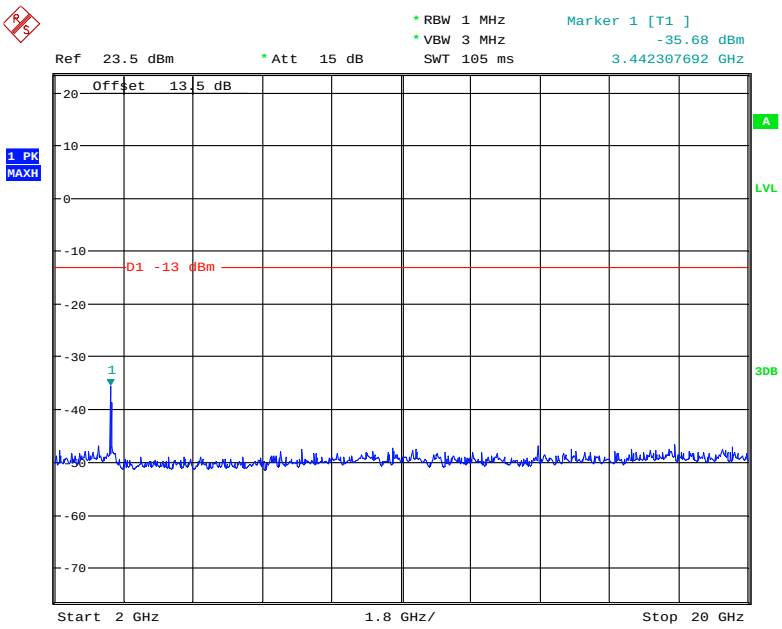
1 GHz – 2 GHz (20.0 MHz, Middle Channel)



Fundamental test

Date: 16.JUL.2018 13:17:46

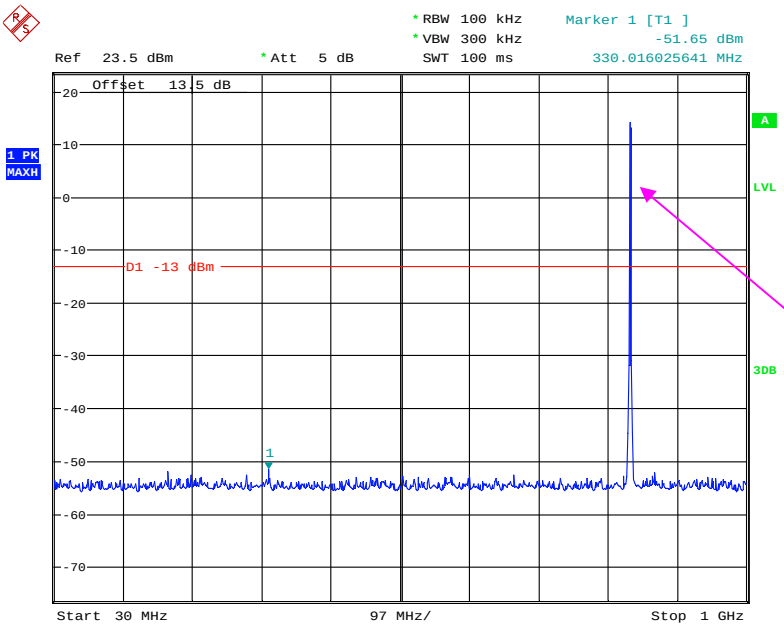
2 GHz –20 GHz (20.0 MHz, Middle Channel)



Date: 16.JUL.2018 13:16:55

LTE Band 5:

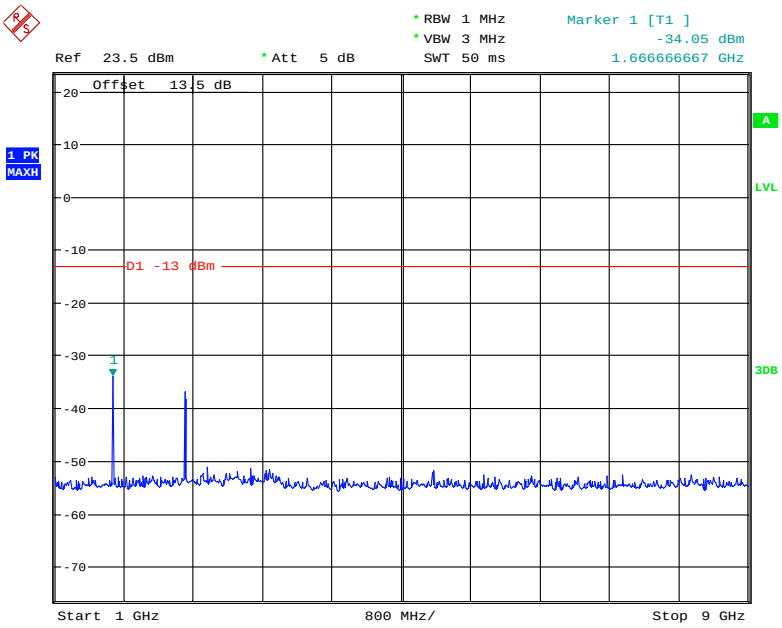
30 MHz - 1 GHz (1.4 MHz, Middle Channel)



Fundamental test

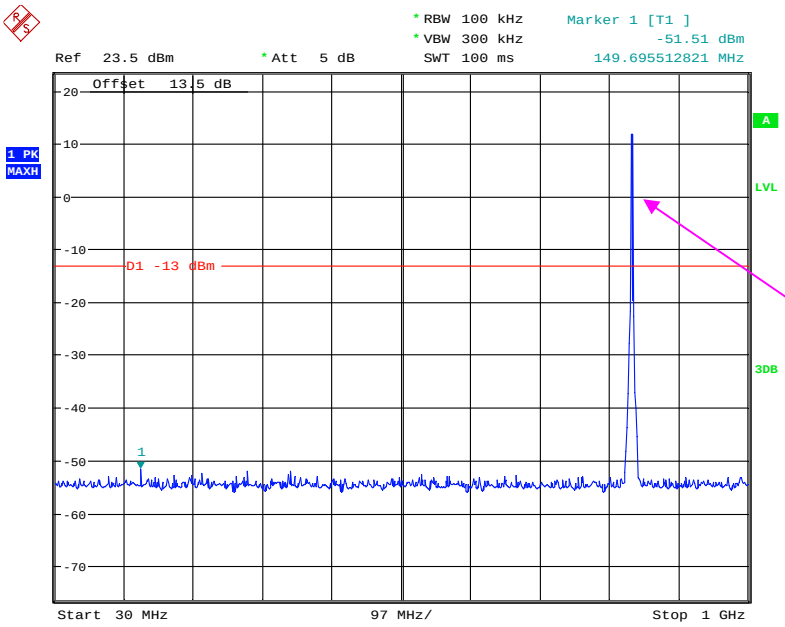
Date: 16.JUL.2018 13:25:27

1 GHz – 9 GHz (1.4 MHz, Middle Channel)



Date: 16.JUL.2018 13:26:07

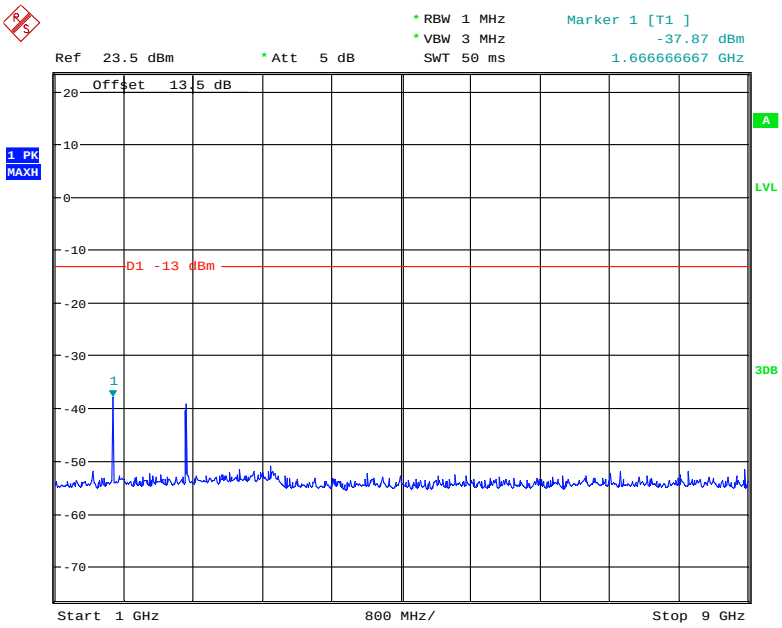
30 MHz - 1 GHz (3.0 MHz, Middle Channel)



Fundamental test

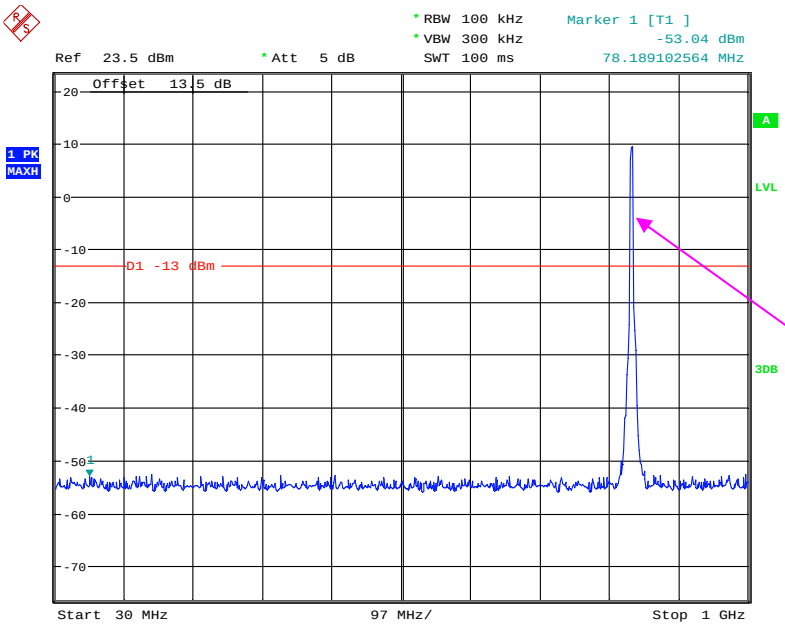
Date: 16.JUL.2018 13:27:36

1 GHz – 9GHz (3.0 MHz, Middle Channel)



Date: 16.JUL.2018 13:26:53

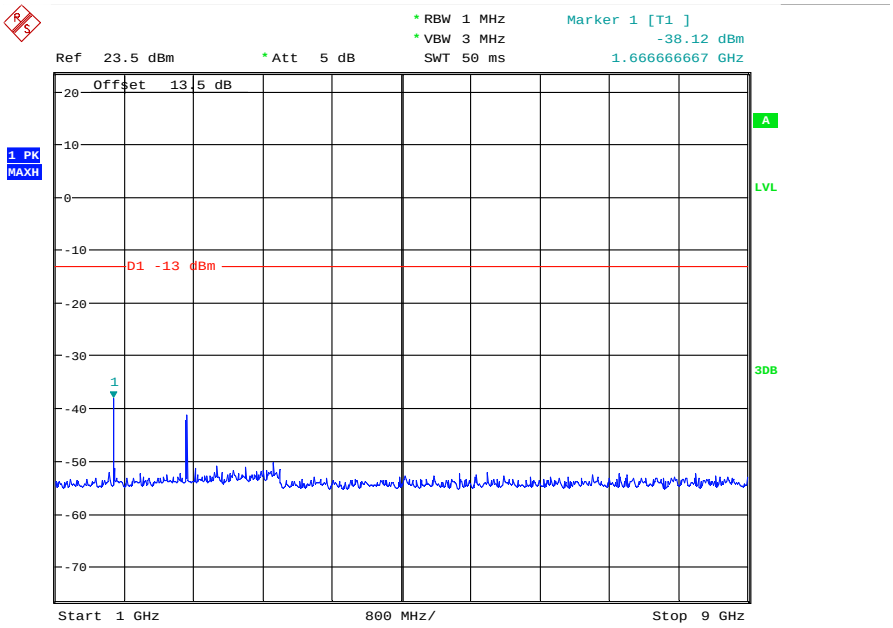
30 MHz - 1 GHz (5.0 MHz, Middle Channel)



Fundamental test

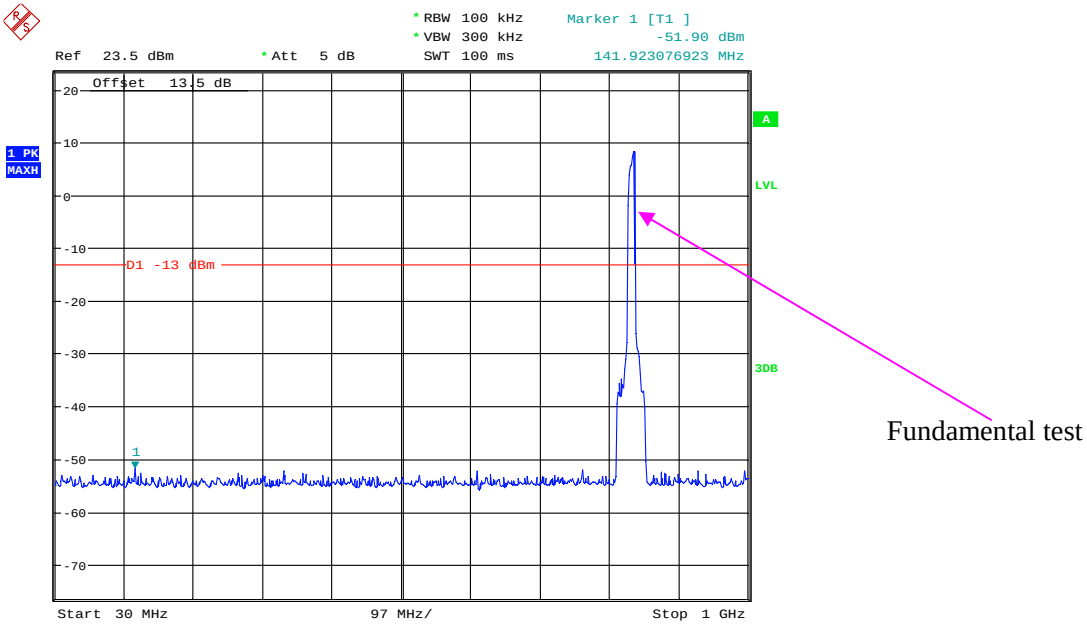
Date: 16.JUL.2018 13:28:13

1 GHz – 9 GHz (5.0 MHz, Middle Channel)



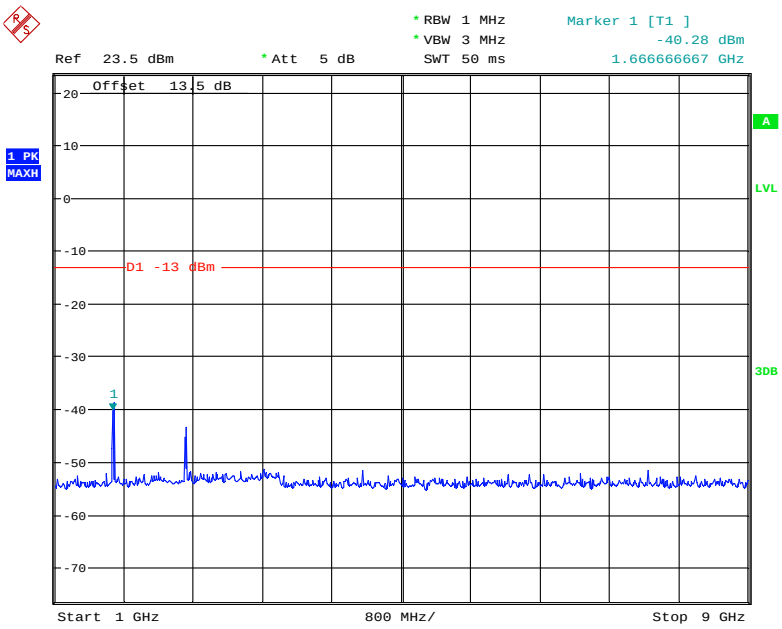
Date: 16.JUL.2018 13:28:45

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



Date: 16.JUL.2018 13:30:17

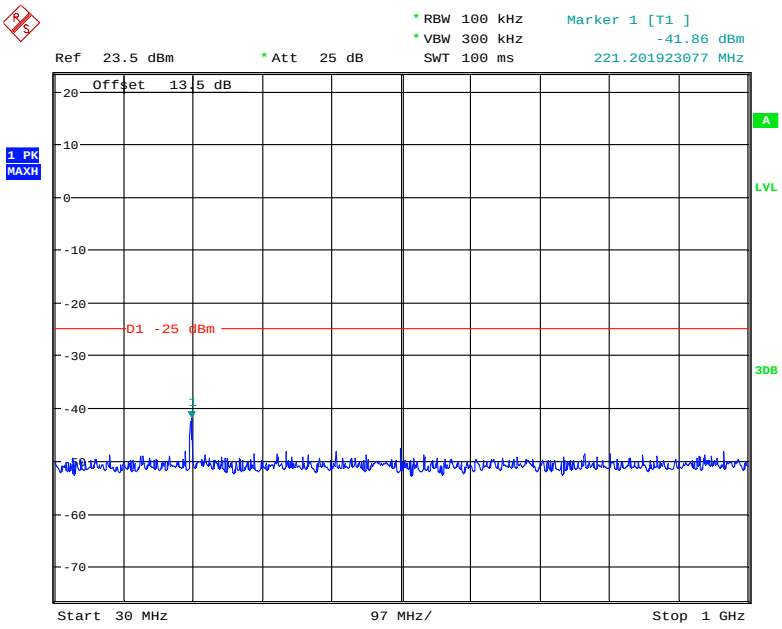
1 GHz – 9 GHz (10.0 MHz, Middle Channel)



Date: 16.JUL.2018 13:29:43

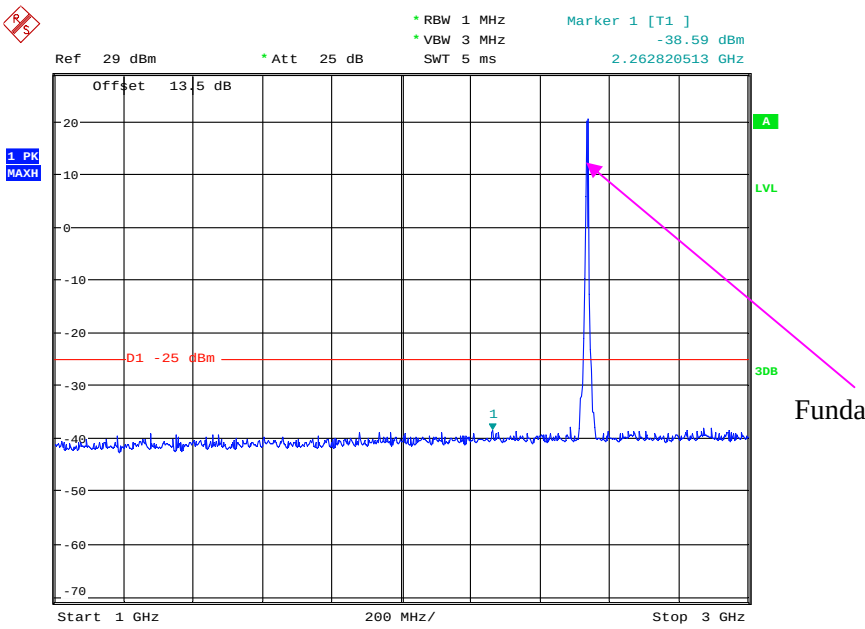
LTE Band 7:

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



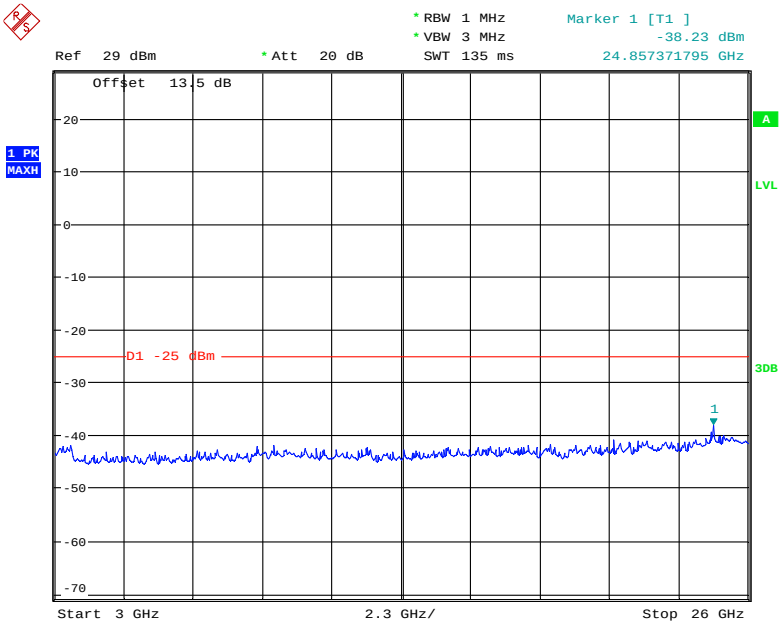
Date: 16.JUL.2018 13:31:49

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



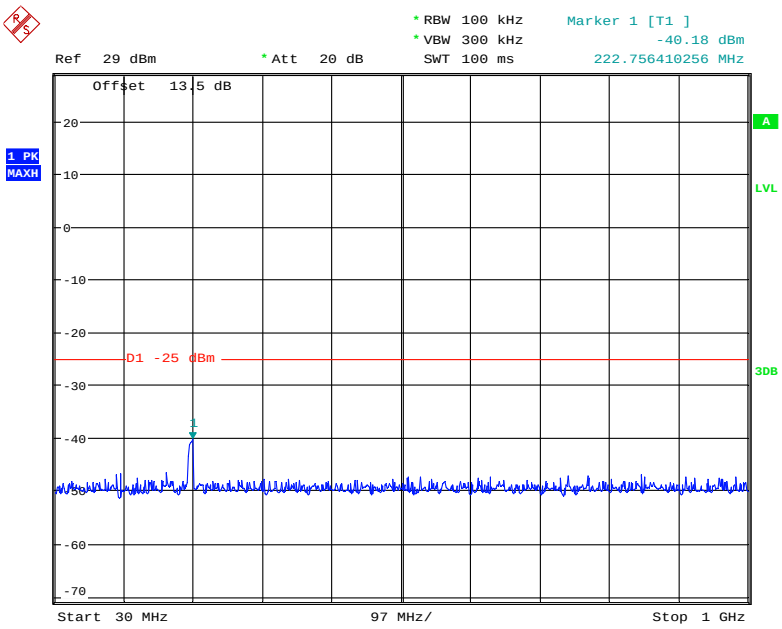
Date: 16.JUL.2018 13:32:30

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



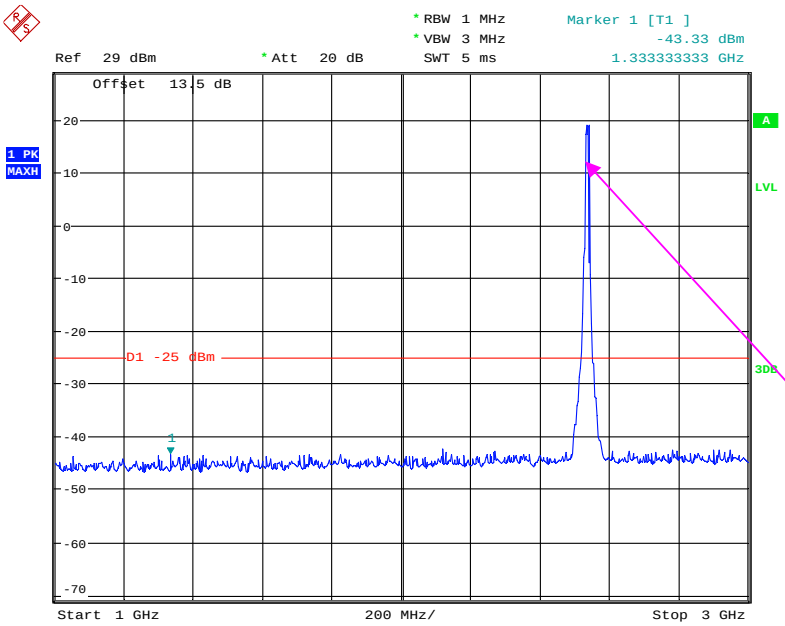
Date: 16.JUL.2018 13:33:03

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



Date: 16.JUL.2018 13:34:46

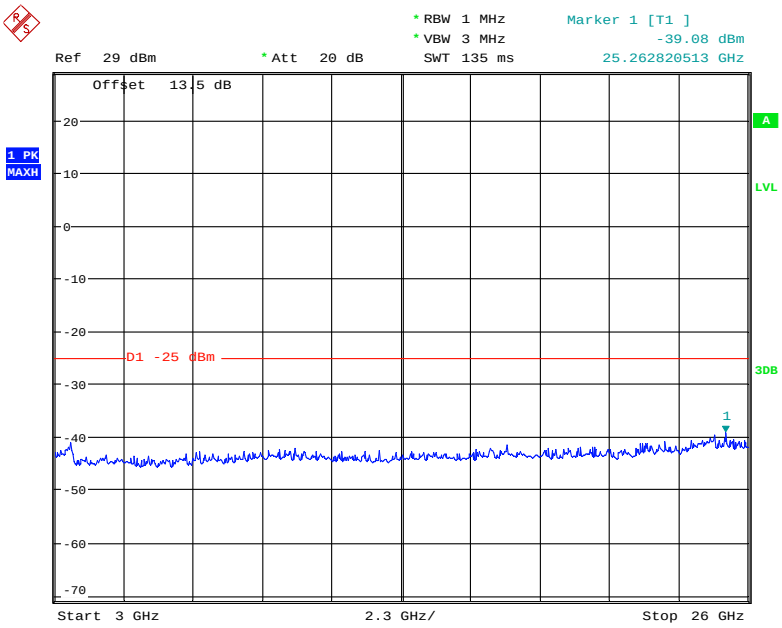
1 GHz – 3 GHz (10.0 MHz, Middle Channel)



Fundamental test

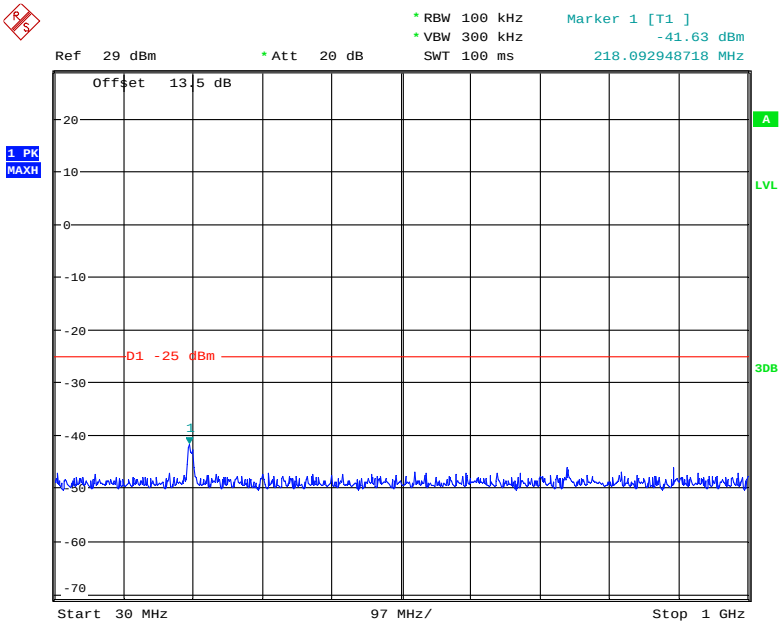
Date: 16.JUL.2018 13:34:16

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



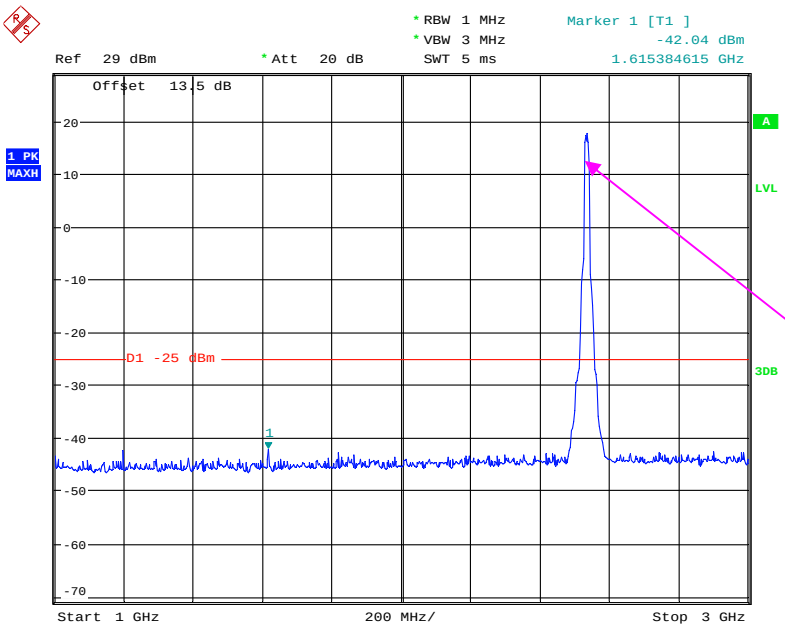
Date: 16.JUL.2018 13:33:37

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



Date: 16.JUL.2018 13:35:13

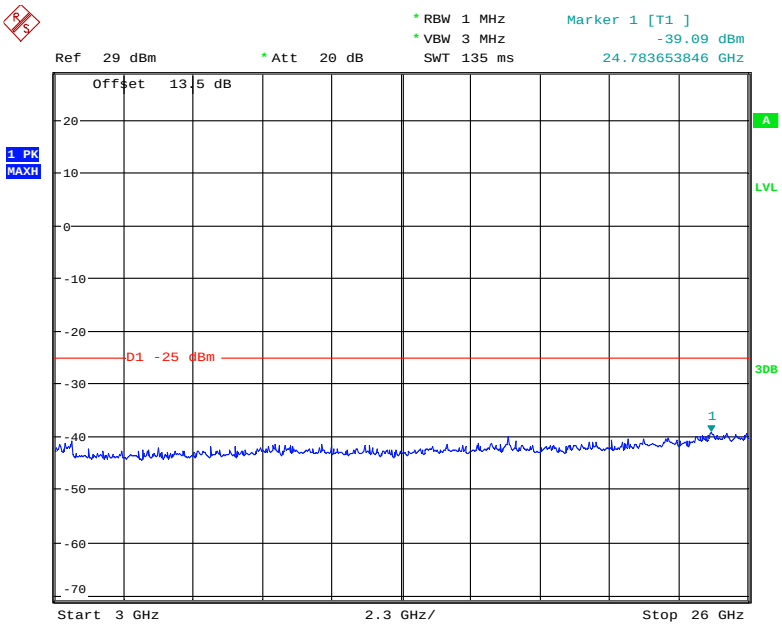
1 GHz – 3 GHz (15.0 MHz, Middle Channel)



Fundamental test

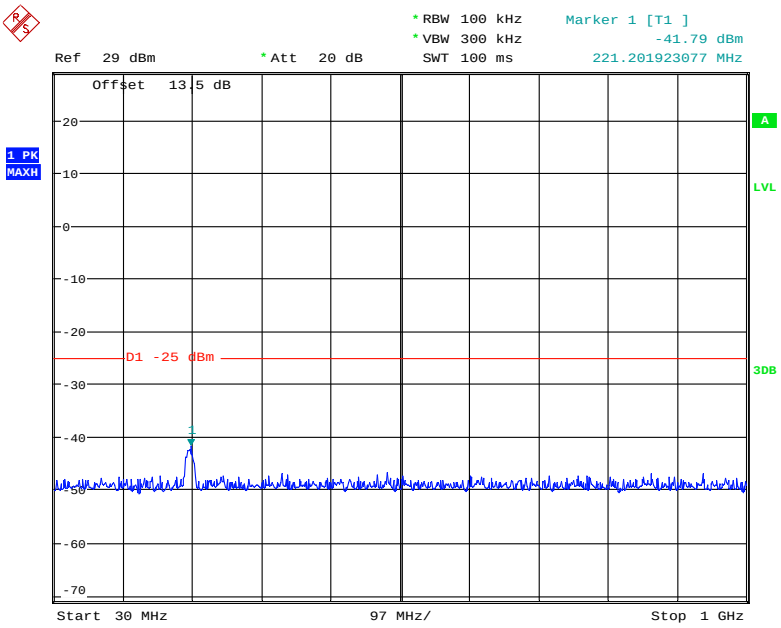
Date: 16.JUL.2018 13:38:38

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



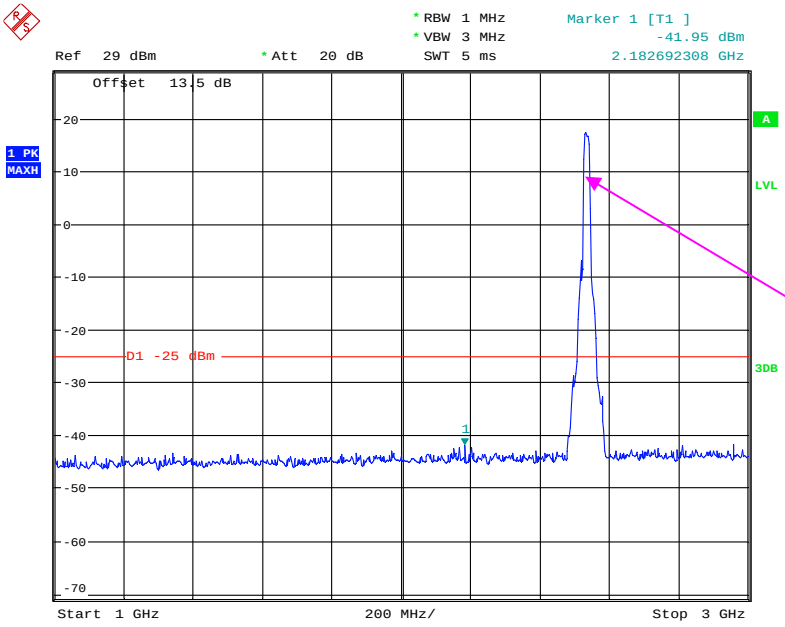
Date: 16.JUL.2018 13:38:01

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



Date: 16.JUL.2018 13:40:06

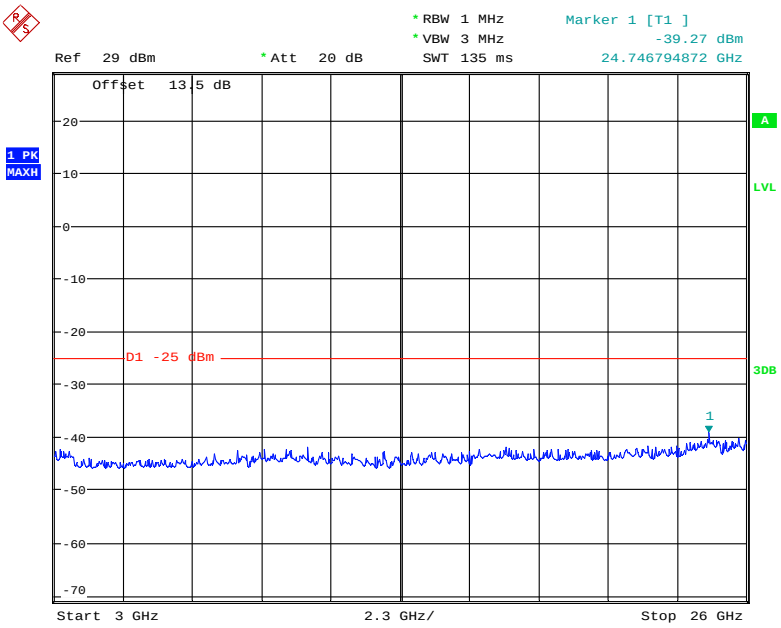
1 GHz – 3 GHz (20.0 MHz, Middle Channel)



Fundamental test

Date: 16.JUL.2018 13:39:18

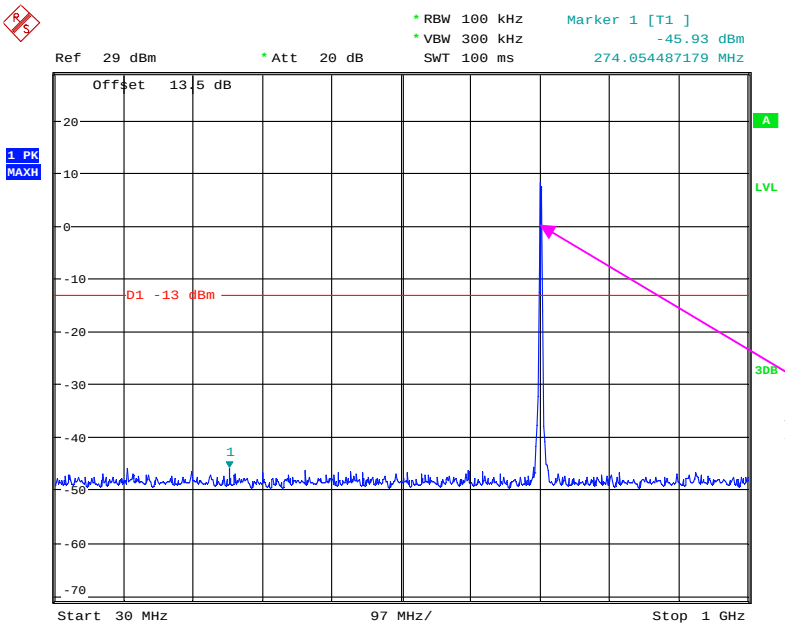
3 GHz – 26 GHz (20.0 MHz, Middle Channel)



Date: 16.JUL.2018 13:39:40

LTE Band 17:

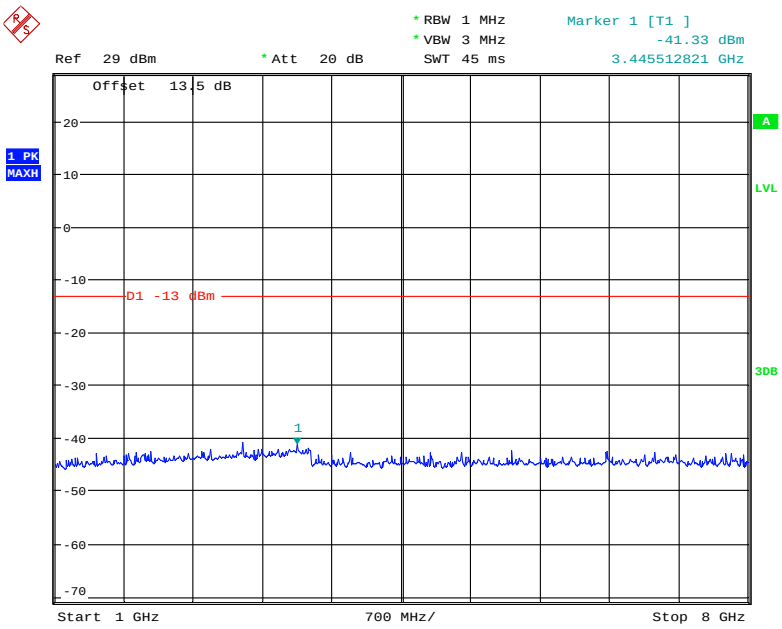
30 MHz - 1 GHz (5.0 MHz, Middle Channel)



Fundamental test

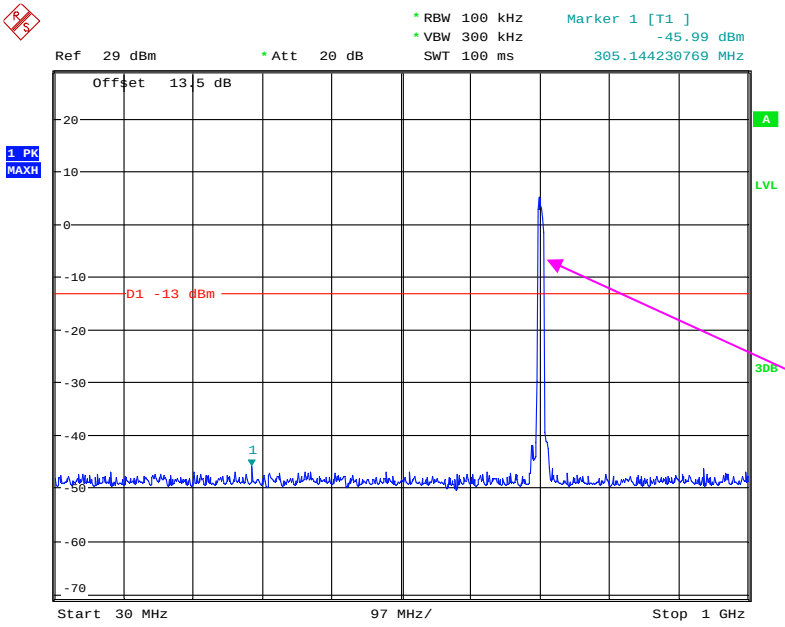
Date: 16.JUL.2018 13:41:29

1 GHz – 8 GHz (5.0 MHz, Middle Channel)



Date: 16.JUL.2018 13:42:22

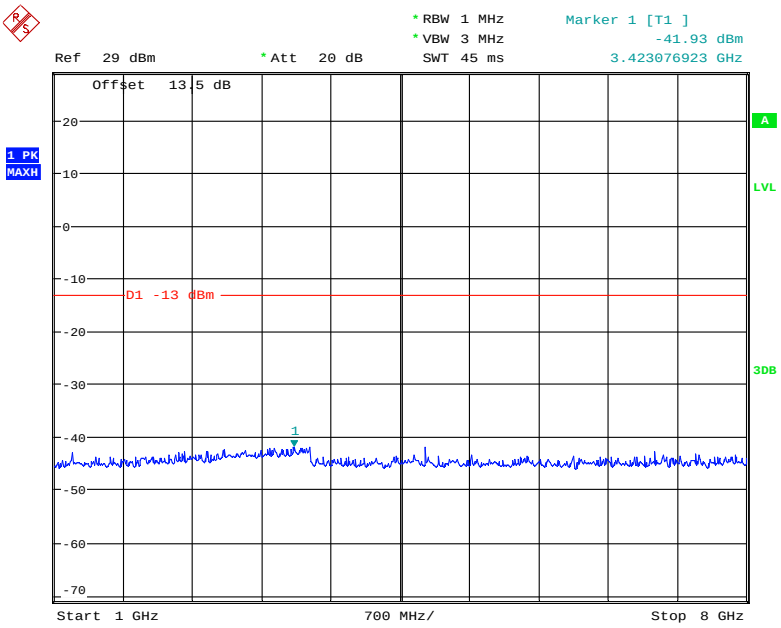
30 MHz - 1 GHz (10.0 MHz, Middle Channel)



Fundamental test

Date: 16.JUL.2018 13:43:20

1 GHz –8 GHz (10.0 MHz, Middle Channel)



Date: 16.JUL.2018 13:42:46

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 ℃
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang on 2018-07-11.

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										
234.57	31.85	148	1.4	H	-65.2	0.31	0	-65.51	-13	52.51
234.57	31.78	135	2.4	V	-65.2	0.31	0	-65.51	-13	52.51
2509.80	66.67	348	1.8	H	-36.9	2.60	10.20	-29.30	-13	16.30
2509.80	63.82	291	2.1	V	-39.1	2.60	10.20	-31.50	-13	18.50
WCDMA Mode, Middle channel										
234.57	31.44	105	1.8	H	-65.6	0.31	0	-65.91	-13	52.91
234.57	31.68	307	2.3	V	-65.3	0.31	0	-65.61	-13	52.61
1673.20	43.56	118	2.1	H	-63.5	1.30	8.90	-55.90	-13	42.90
1673.20	43.17	131	1.4	V	-63.3	1.30	8.90	-55.70	-13	42.70
2509.80	51.91	29	2.1	H	-51.6	2.60	10.20	-44.00	-13	31.00
2509.80	46.89	3	2.2	V	-56.0	2.60	10.20	-48.40	-13	35.40

30 MHz ~ 20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
GSM Mode, middle channel										
234.57	32.16	100	2.2	H	-64.8	0.31	0	-65.11	-13	52.11
234.57	31.77	27	2.3	V	-65.2	0.31	0	-65.51	-13	52.51
5640.00	45.72	327	1.0	H	-51.9	1.70	12.40	-41.20	-13	28.20
5640.00	44.06	163	1.1	V	-53.2	1.70	12.40	-42.50	-13	29.50
WCDMA Mode Band II, Middle channel										
234.57	31.23	304	2.4	H	-65.8	0.31	0	-66.11	-13	53.11
234.57	32.83	215	2.2	V	-64.2	0.31	0	-64.51	-13	51.51
3760.00	43.35	125	1.1	H	-57.9	1.50	11.80	-47.60	-13	34.60
3760.00	43.14	87	2.1	V	-57.6	1.50	11.80	-47.30	-13	34.30

AWS Band (Part 27)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
WCDMA Mode Band IV, Middle channel										
234.57	32.53	356	2.5	H	-64.5	0.31	0	-64.81	-13	51.81
234.57	31.62	95	2.4	V	-65.4	0.31	0	-65.71	-13	52.71
3465.20	43.65	68	2.4	H	-56.7	1.50	12.00	-46.20	-13	33.20
3465.20	43.37	147	2.3	V	-57.8	1.50	12.00	-47.30	-13	34.30

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 4										
Test frequency range:30 MHz ~ 18 GHz										
234.57	31.84	281	1.5	H	-65.2	0.31	0	-65.51	-13	52.51
234.57	31.79	263	1.9	V	-65.2	0.31	0	-65.51	-13	52.51
3465.00	43.26	308	1.9	H	-57.1	1.50	12.00	-46.60	-13	33.60
3465.00	42.57	112	1.1	V	-58.6	1.50	12.00	-48.10	-13	35.10
Band 5										
Test frequency range:30 MHz ~ 10GHz										
234.57	31.36	255	1.3	H	-65.6	0.31	0	-65.91	-13	52.91
234.57	32.55	49	1.3	V	-64.5	0.31	0	-64.81	-13	51.81
1673.00	44.77	181	1.2	H	-62.3	1.30	8.90	-54.70	-13	41.70
1673.00	43.85	355	2.3	V	-62.6	1.30	8.90	-55.00	-13	42.00
Band 7										
Test frequency range:30 MHz ~ 26GHz										
234.57	31.12	176	2.1	H	-65.9	0.31	0	-66.21	-25	41.21
234.57	32.16	349	1.7	V	-64.8	0.31	0	-65.11	-25	40.11
5070.00	43.43	258	1.8	H	-54.4	1.60	12.10	-43.90	-25	18.90
5070.00	42.87	137	1.1	V	-55.0	1.60	12.10	-44.50	-25	19.50
Band 17										
Test frequency range: 30 MHz ~ 10GHz										
234.57	31.48	125	2.2	H	-65.5	0.31	0	-65.81	-13	52.81
234.57	31.45	173	2.1	V	-65.5	0.31	0	-65.81	-13	52.81
1420.00	51.86	142	2.5	H	-56.0	1.60	7.90	-49.70	-13	36.70
1420.00	48.95	87	1.4	V	-59.1	1.60	7.90	-52.80	-13	39.80
2130.00	59.04	201	1.4	H	-43.0	1.30	9.70	-34.60	-13	21.60
2130.00	58.76	159	1.7	V	-44.2	1.30	9.70	-35.80	-13	22.80

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.

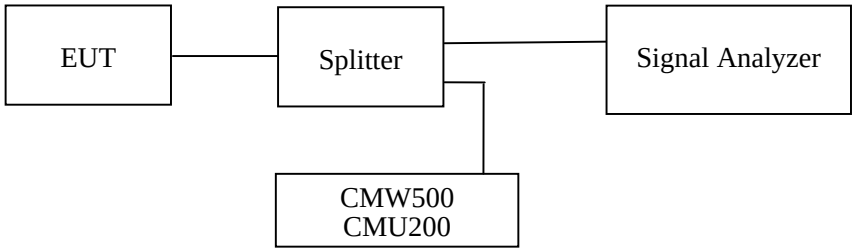
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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

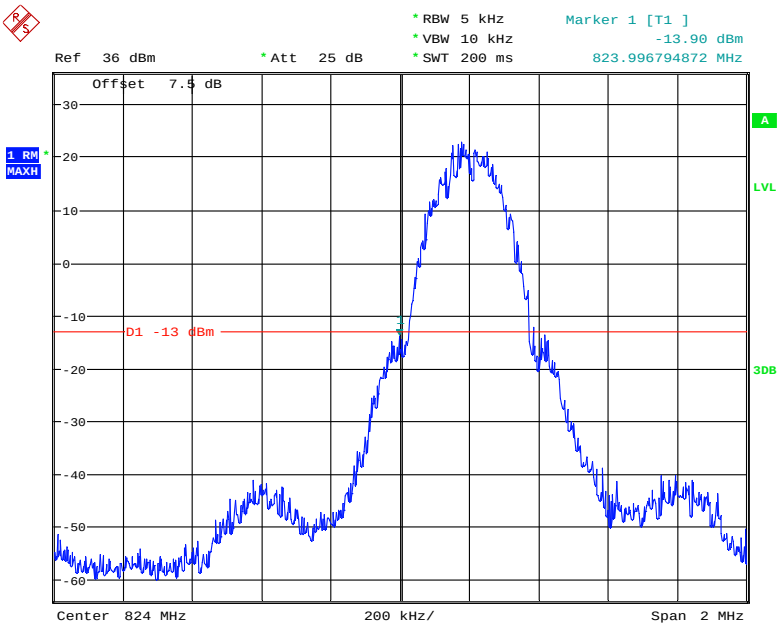
Temperature:	21~25 ℃
Relative Humidity:	50~52 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang from 2018-07-16 to 2018-07-27..

EUT operation mode: Transmitting

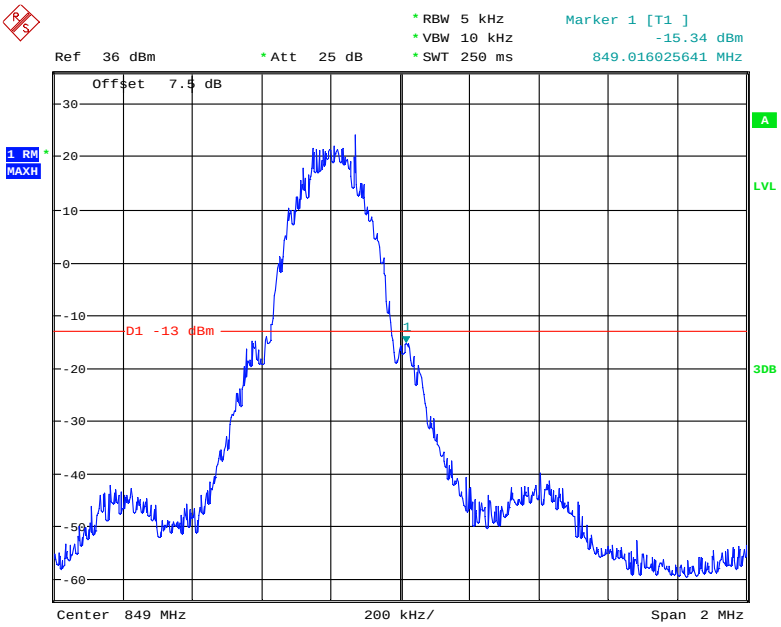
Test Result: Compliance. Please refer to the following plots.

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



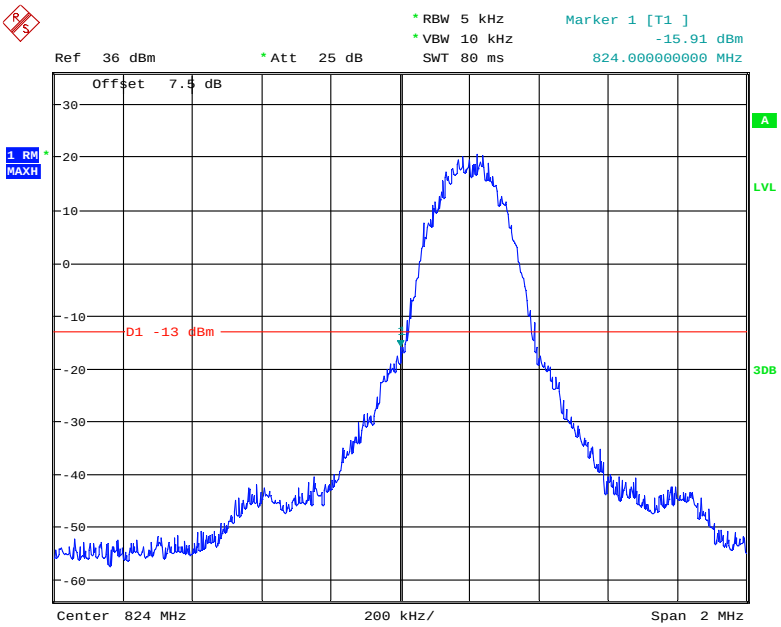
Date: 23.JUL.2018 10:52:03

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



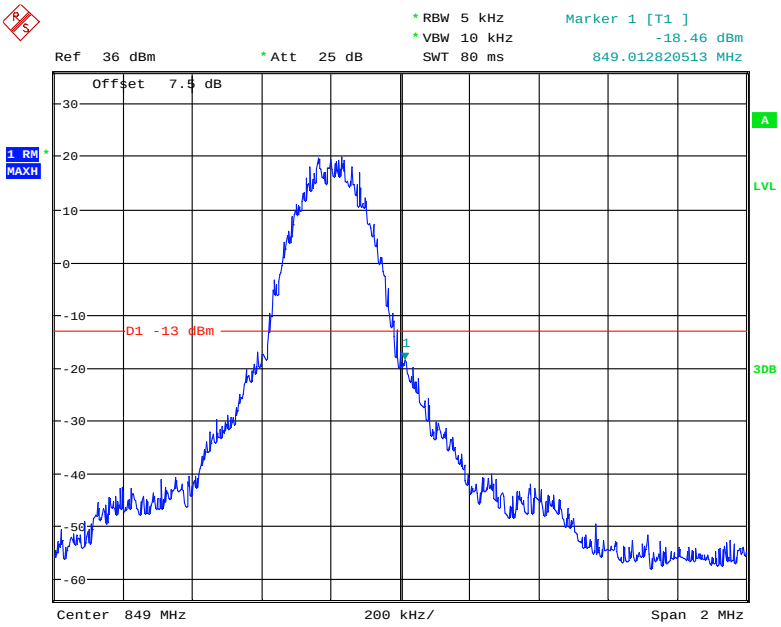
Date: 23.JUL.2018 10:54:13

Cellular Band, Left Band Edge for EDGE Mode



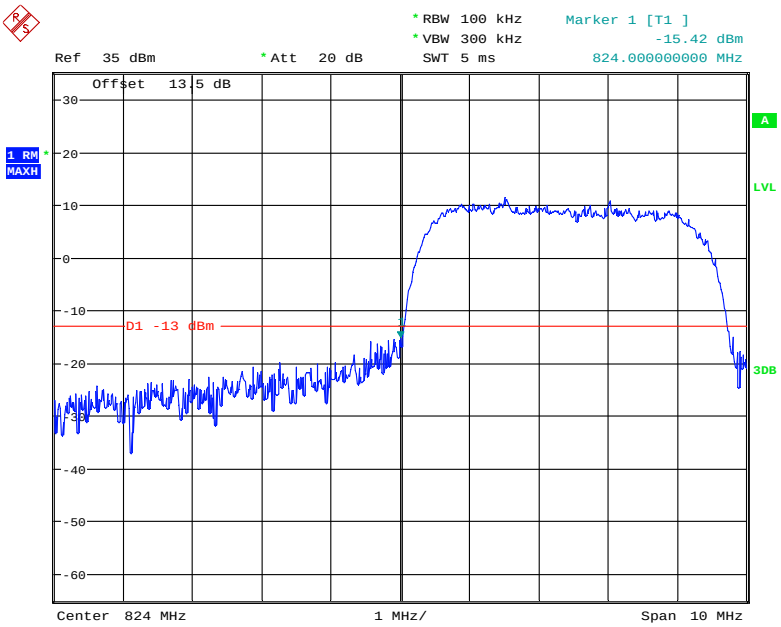
Date: 27.JUL.2018 14:06:35

Cellular Band, Right Band Edge for EDGE Mode



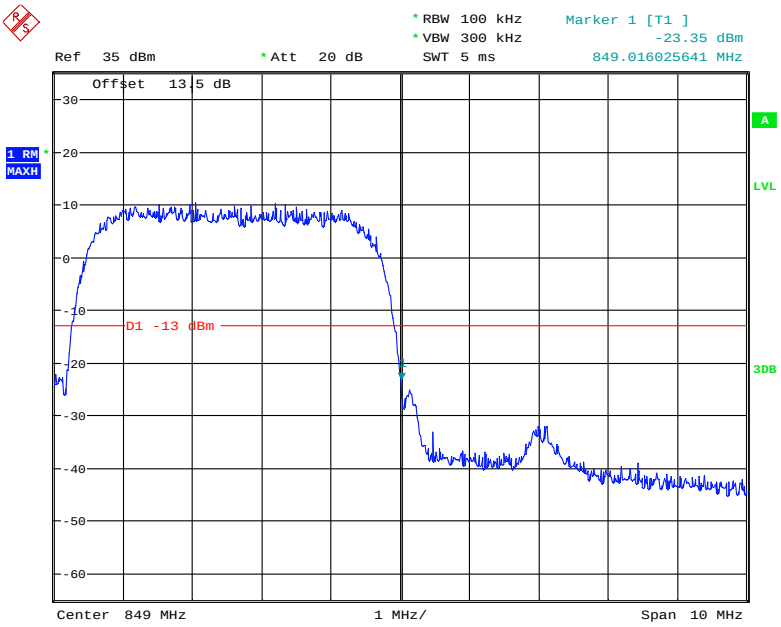
Date: 27.JUL.2018 14:07:18

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



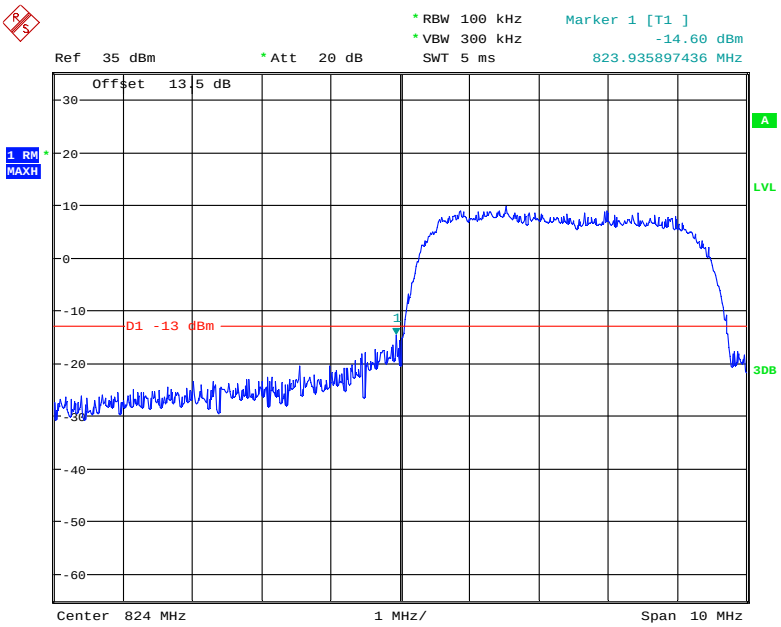
Date: 16.JUL.2018 15:24:38

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



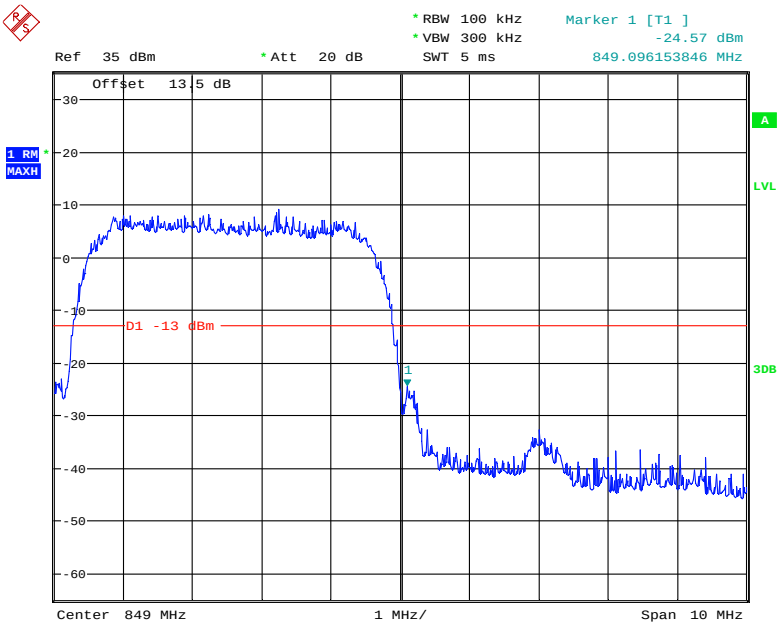
Date: 16.JUL.2018 15:25:34

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



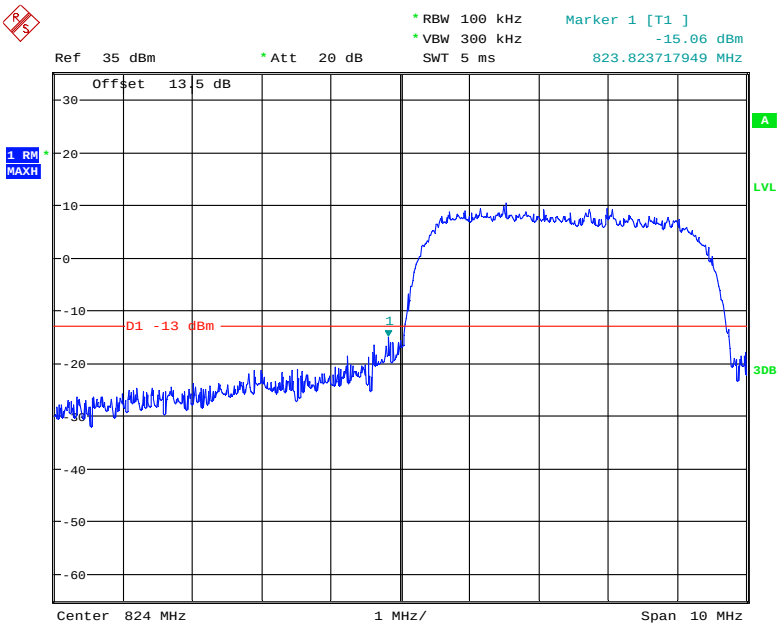
Date: 16.JUL.2018 15:27:37

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



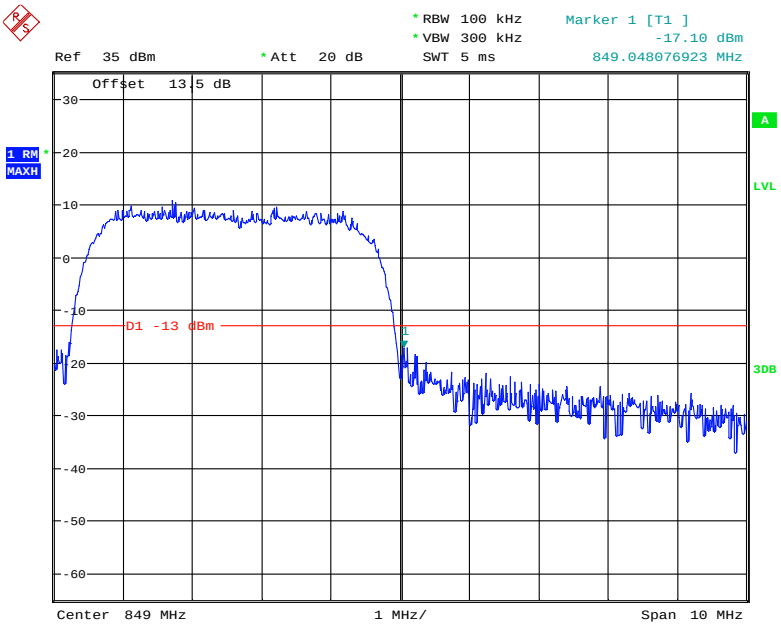
Date: 16.JUL.2018 15:26:15

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



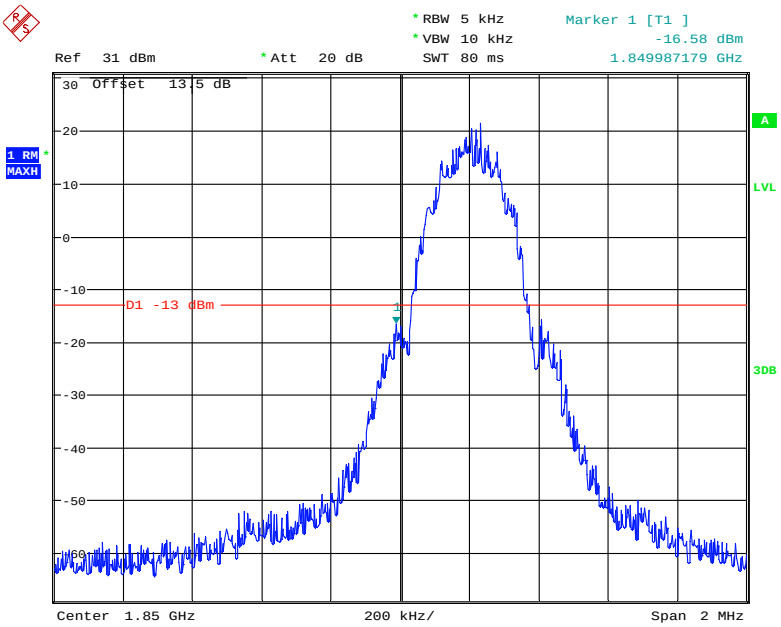
Date: 16.JUL.2018 15:29:22

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



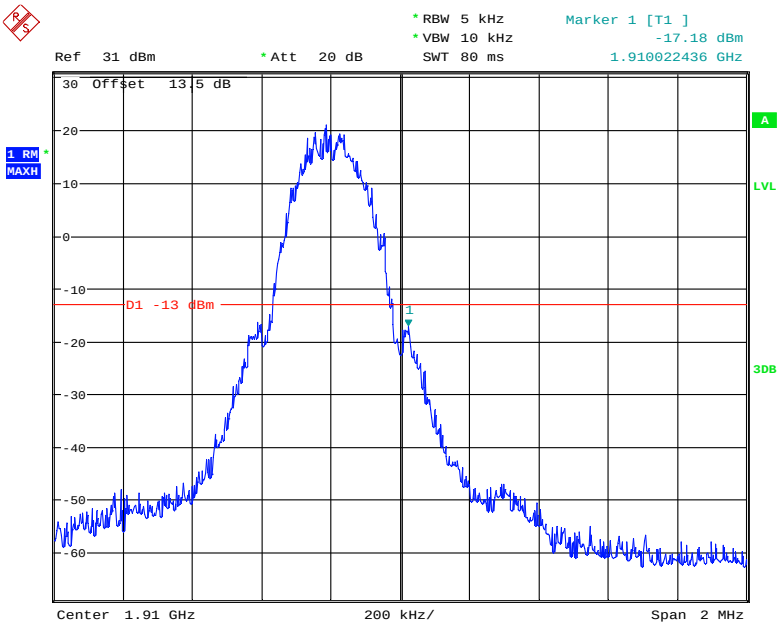
Date: 16.JUL.2018 15:31:22

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



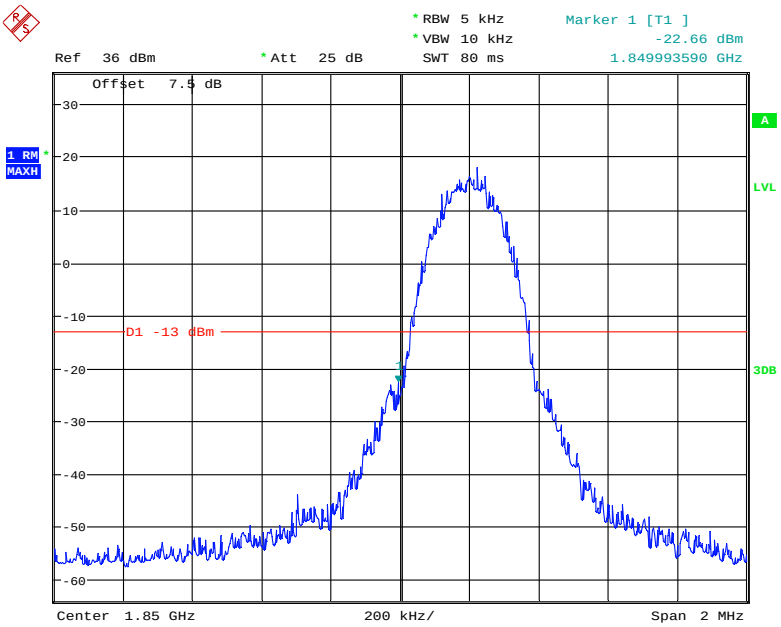
Date: 16.JUL.2018 14:36:09

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



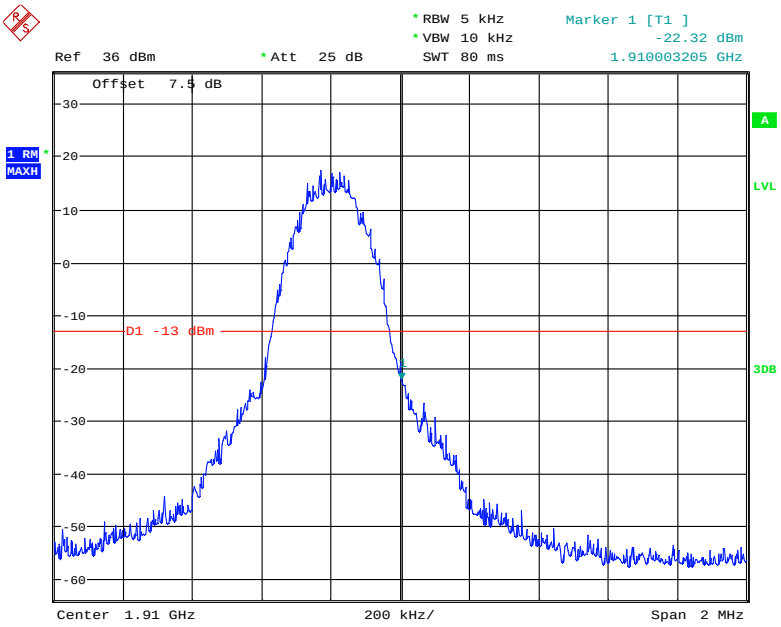
Date: 16.JUL.2018 14:36:43

PCS Band, Left Band Edge for EDGE Mode



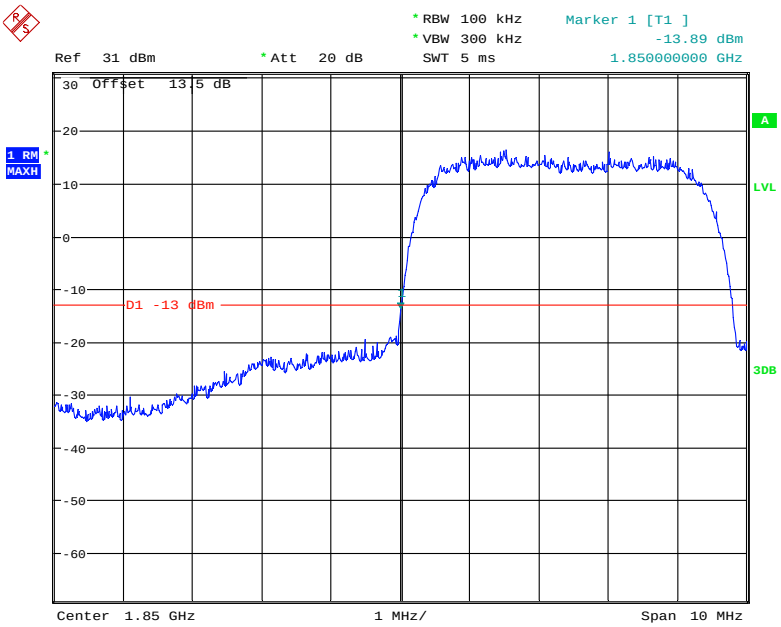
Date: 23.JUL.2018 11:04:33

PCS Band, Right Band Edge for EDGE Mode



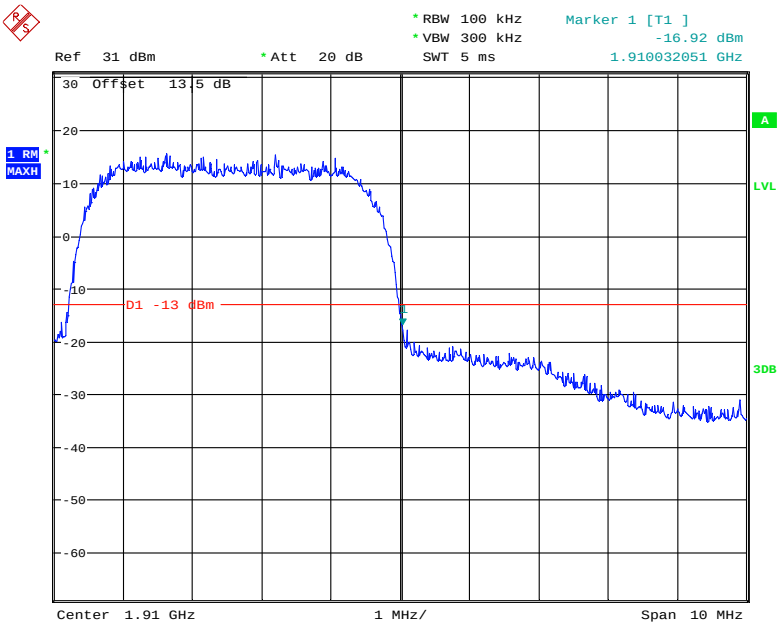
Date: 23.JUL.2018 11:03:11

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



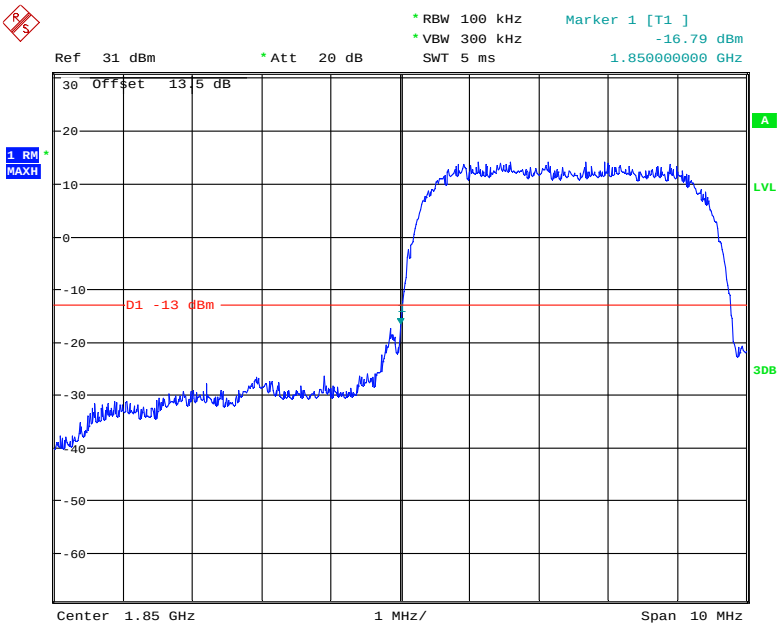
Date: 16.JUL.2018 14:57:28

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



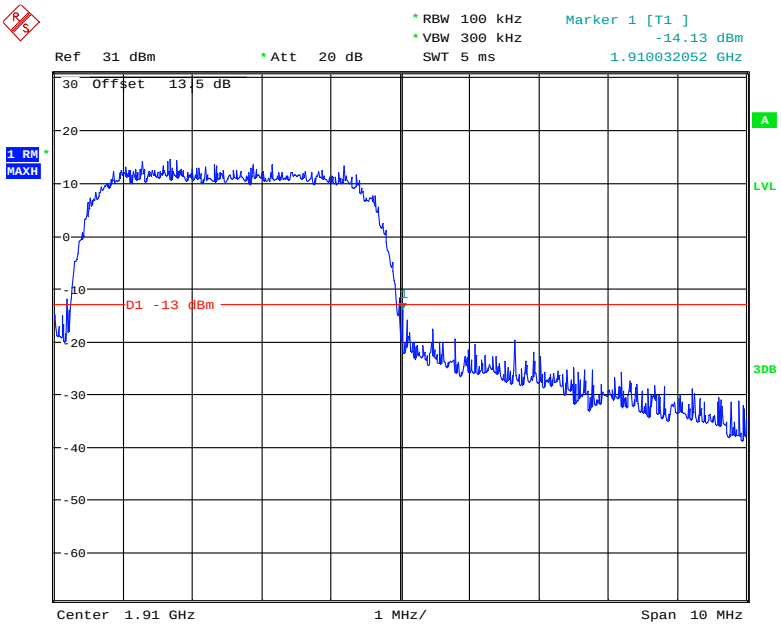
Date: 16.JUL.2018 15:00:52

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



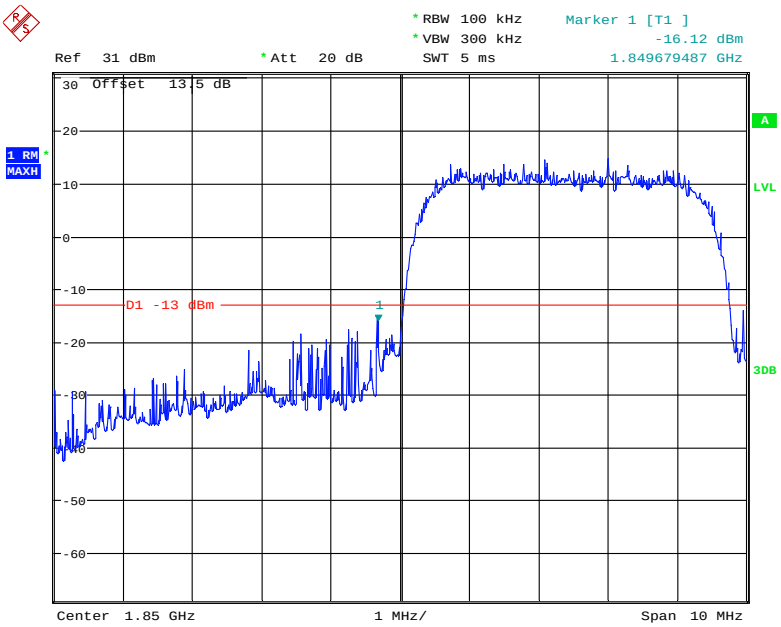
Date: 16.JUL.2018 15:03:27

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



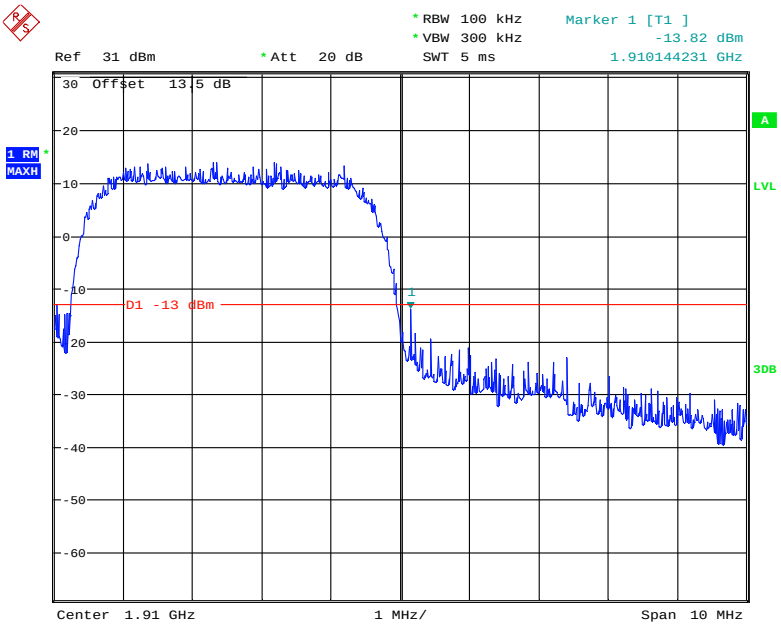
Date: 16.JUL.2018 15:01:54

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



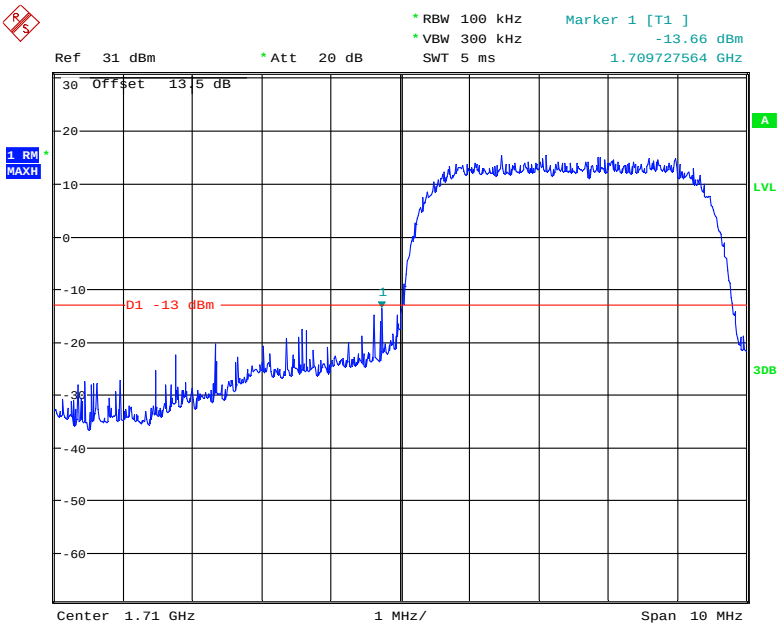
Date: 16.JUL.2018 15:04:49

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



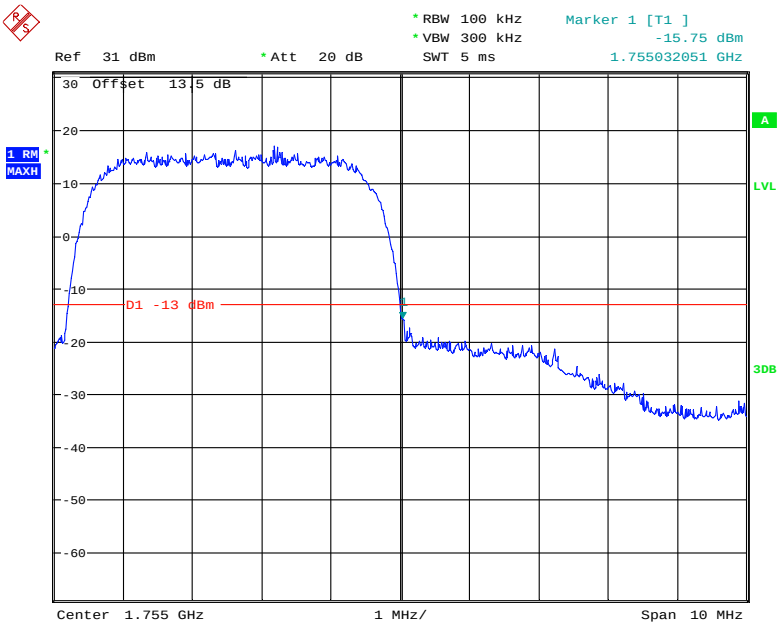
Date: 16.JUL.2018 15:05:36

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



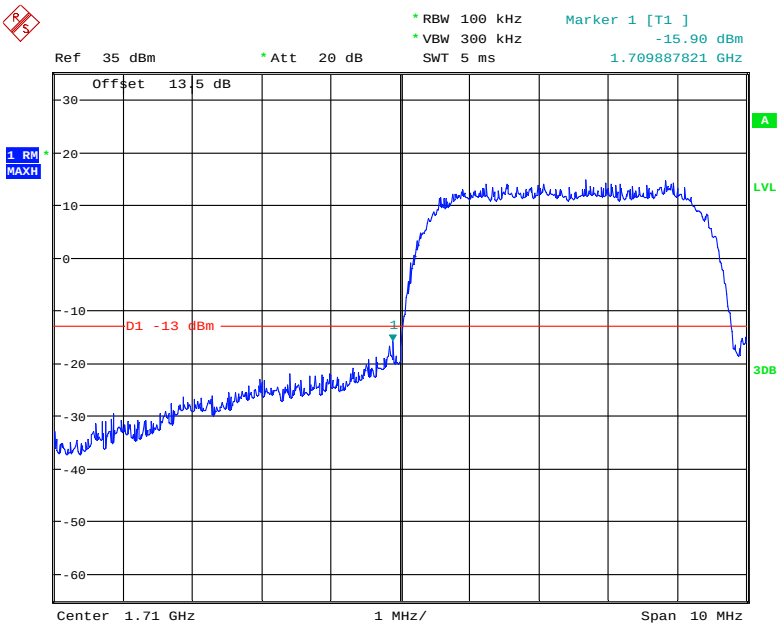
Date: 16.JUL.2018 15:08:01

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



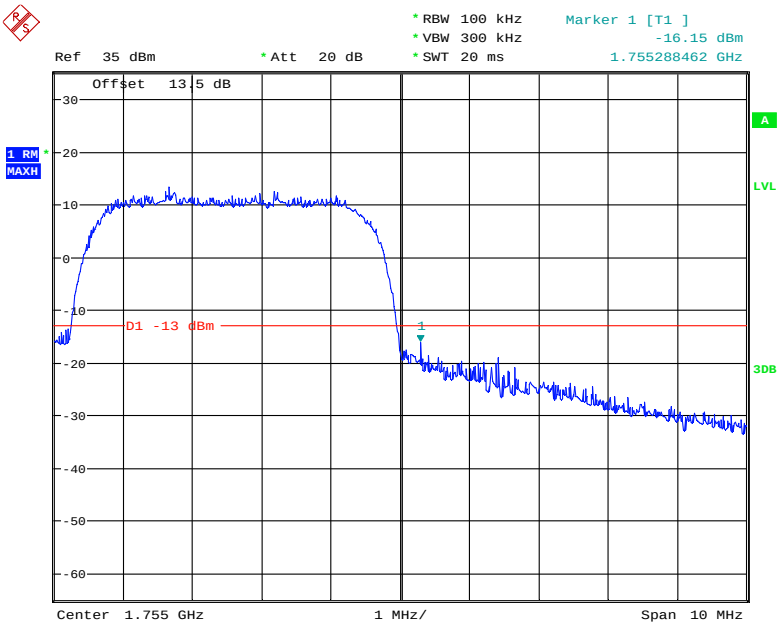
Date: 16.JUL.2018 15:10:30

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



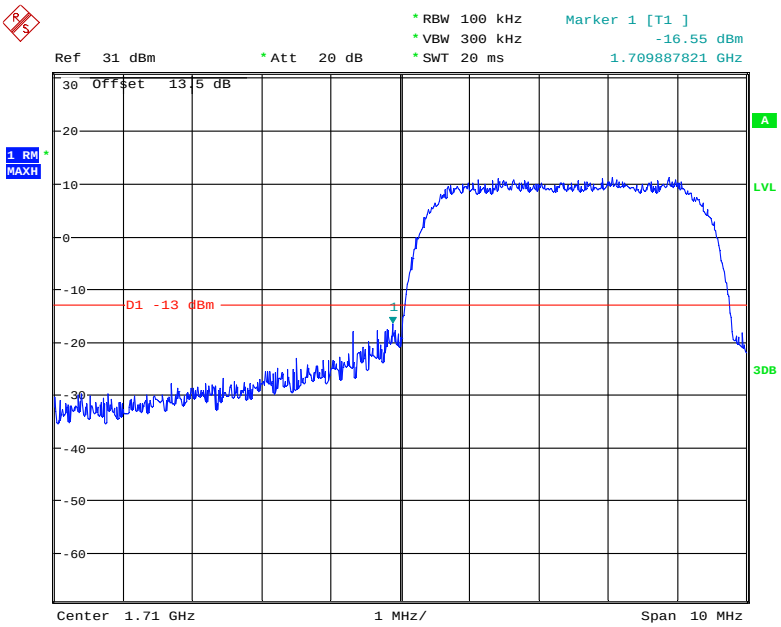
Date: 16.JUL.2018 15:18:17

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



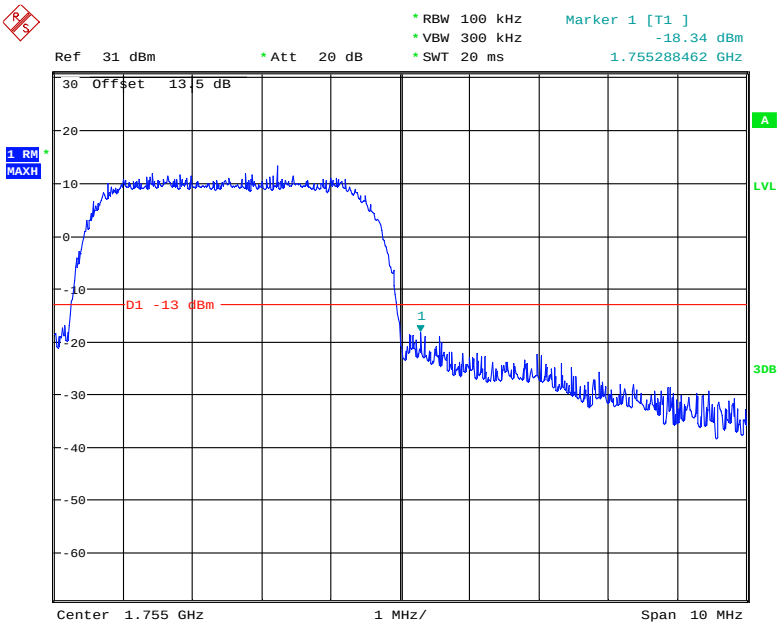
Date: 16.JUL.2018 15:21:05

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



Date: 16.JUL.2018 15:12:32

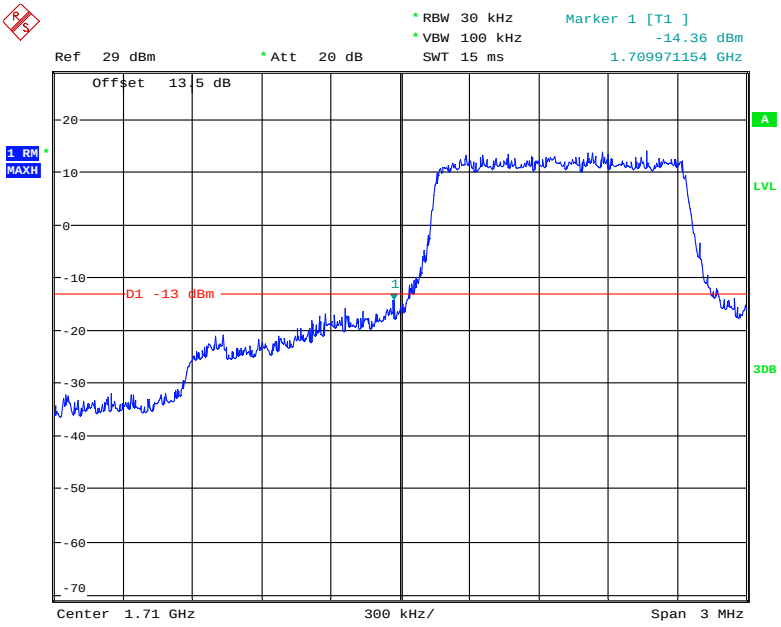
AWS Band, Right Band Edge for HSUPA (BPSK) Mode



Date: 16.JUL.2018 15:11:34

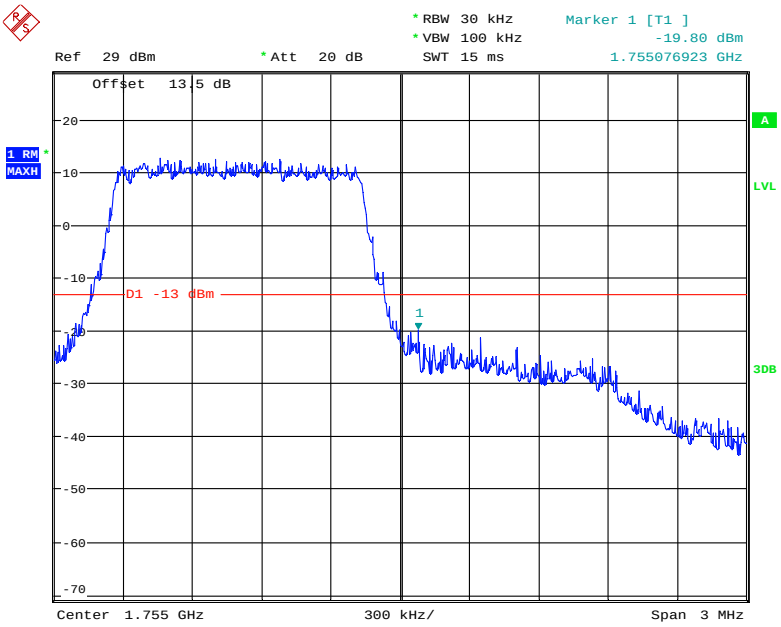
Band 4:

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



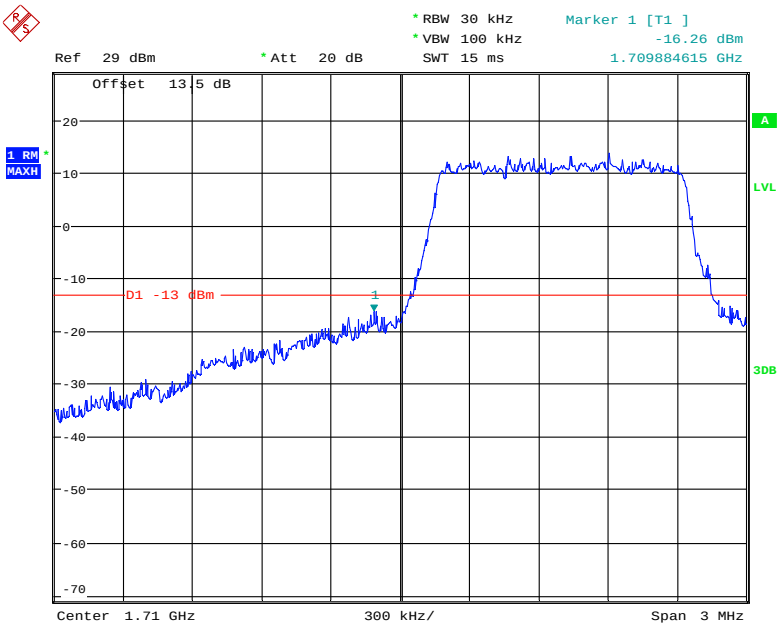
Date: 16.JUL.2018 09:06:09

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



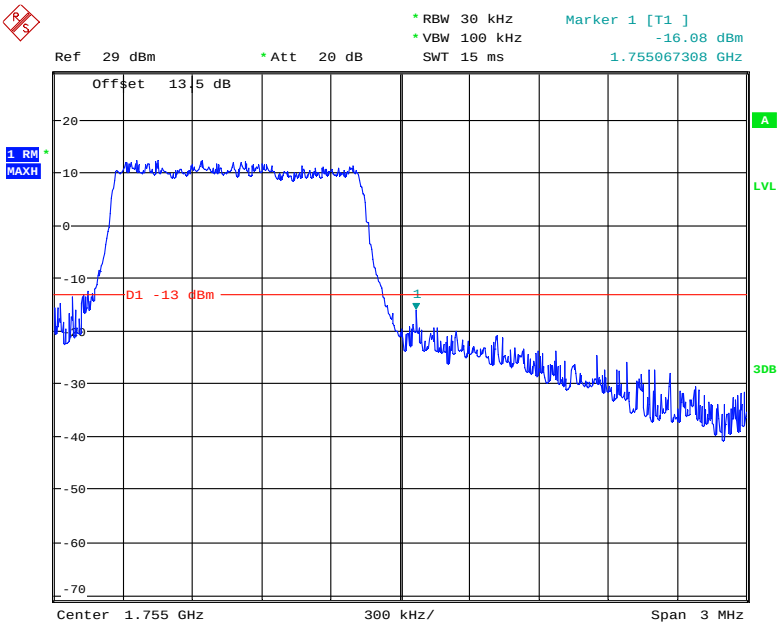
Date: 16.JUL.2018 09:23:28

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



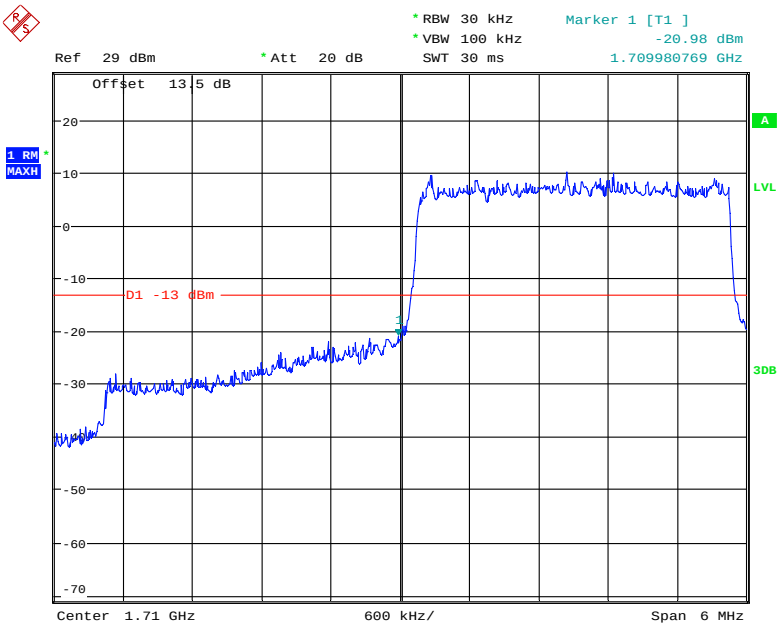
Date: 16.JUL.2018 09:07:41

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



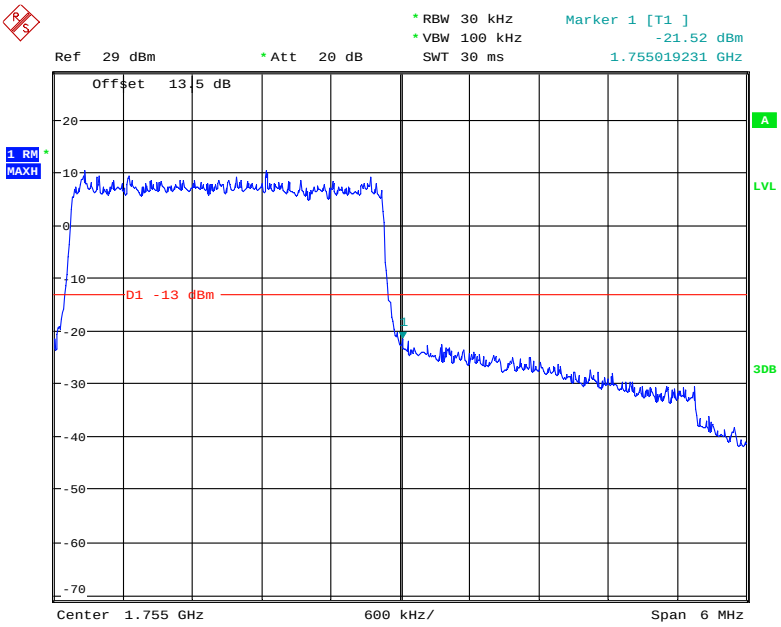
Date: 16.JUL.2018 09:20:58

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



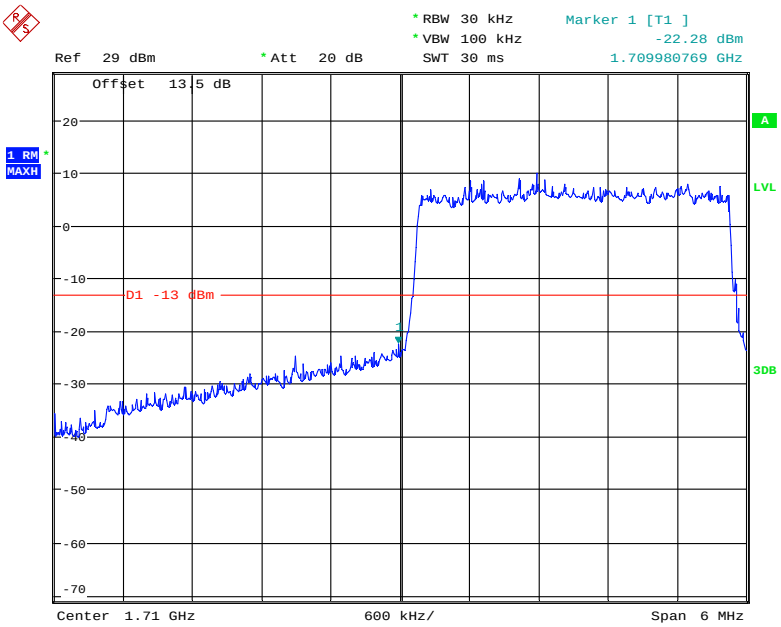
Date: 16.JUL.2018 09:10:58

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



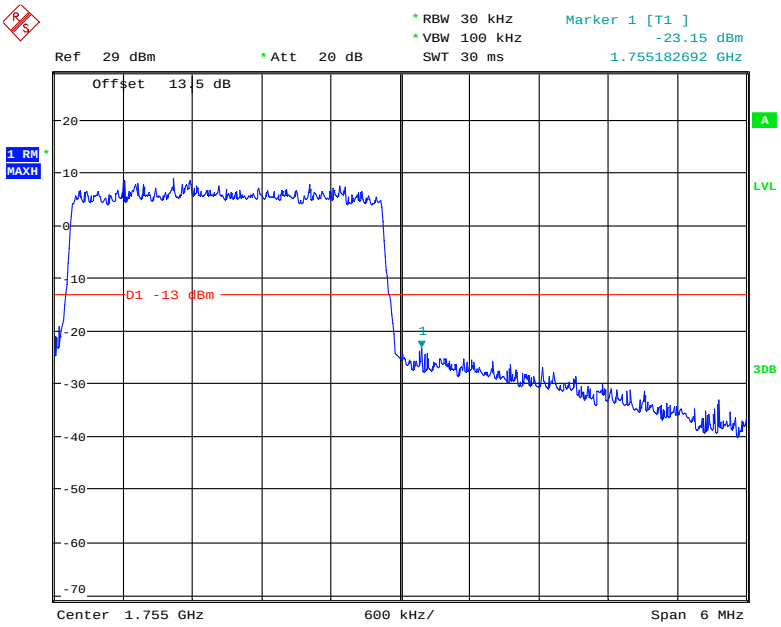
Date: 16.JUL.2018 09:25:14

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



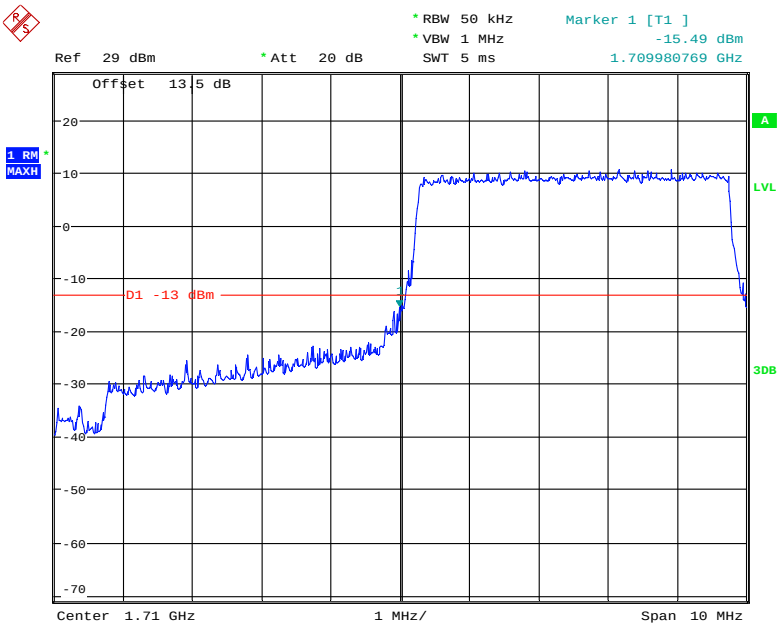
Date: 16.JUL.2018 09:10:12

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



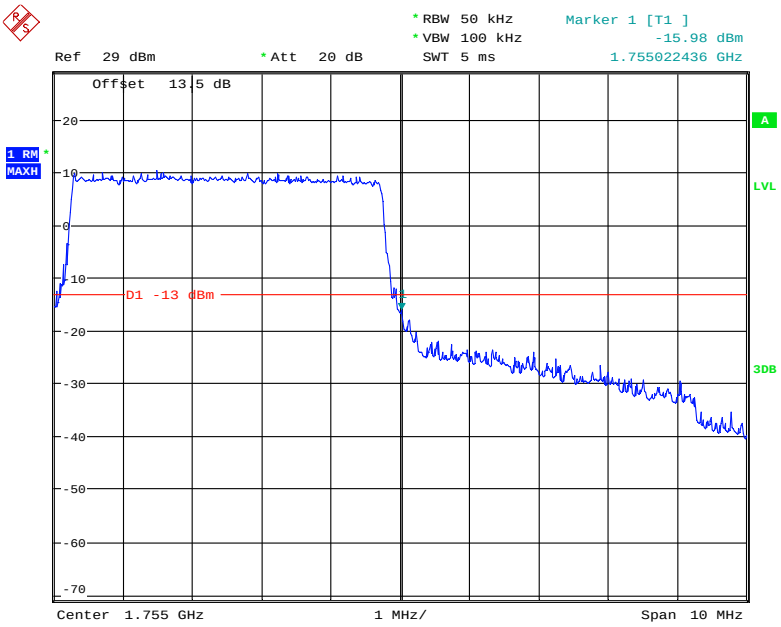
Date: 16.JUL.2018 09:25:54

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



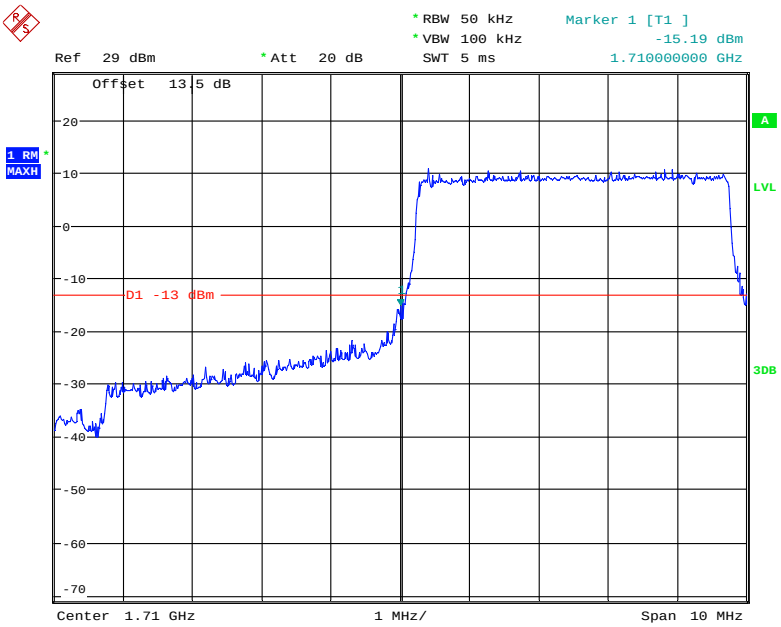
Date: 16.JUL.2018 09:12:14

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



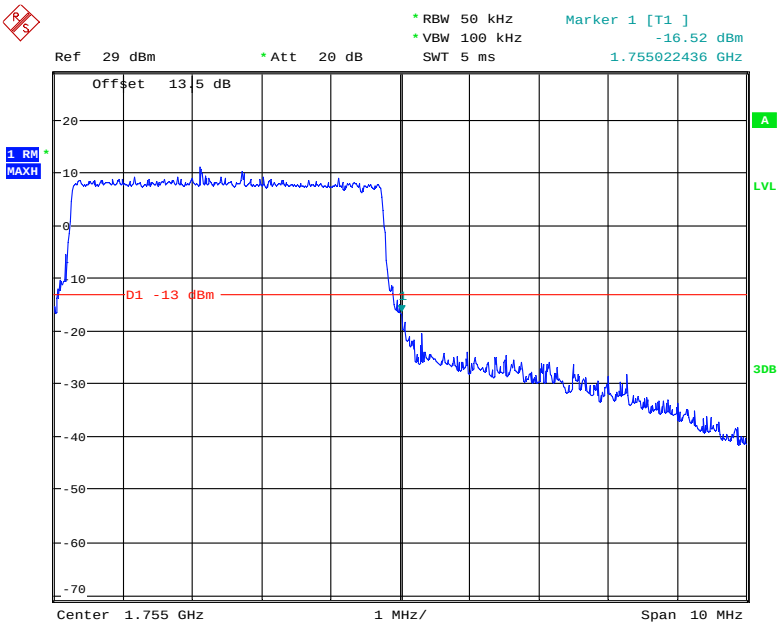
Date: 16.JUL.2018 09:27:47

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



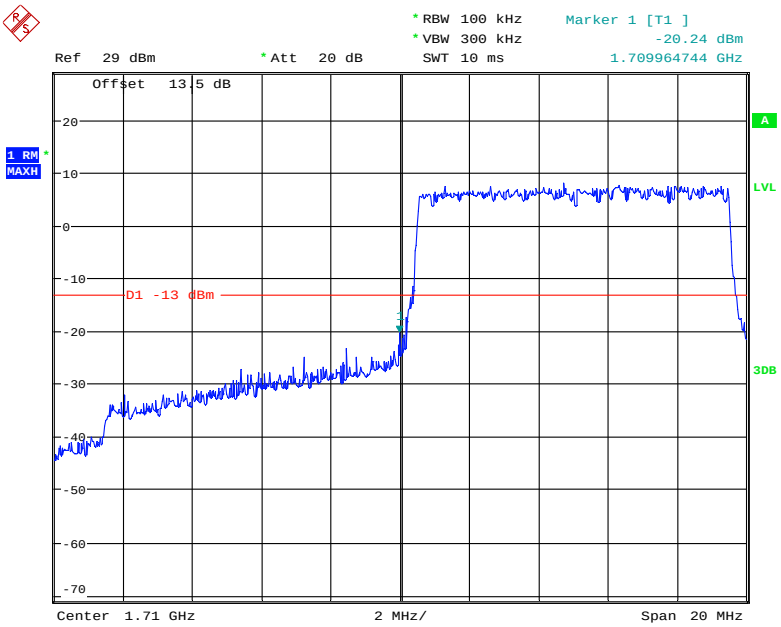
Date: 16.JUL.2018 09:35:50

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



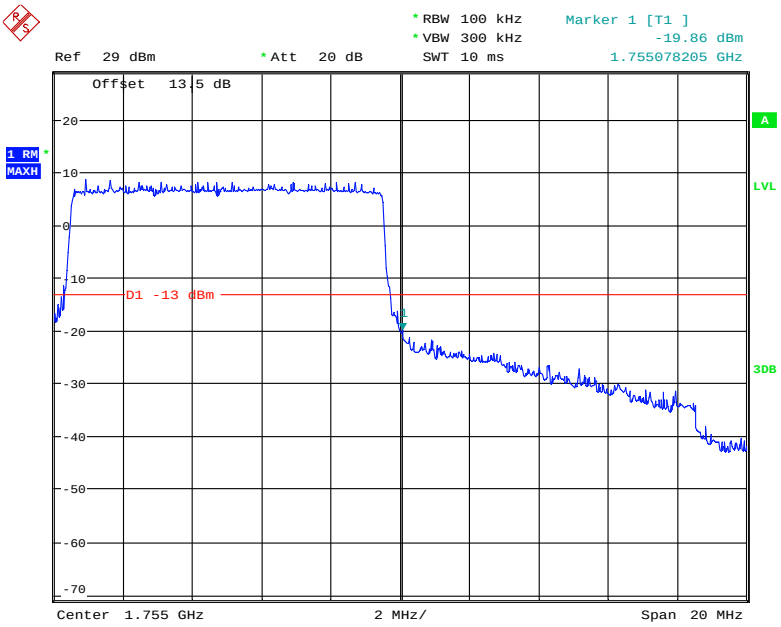
Date: 16.JUL.2018 09:27:02

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



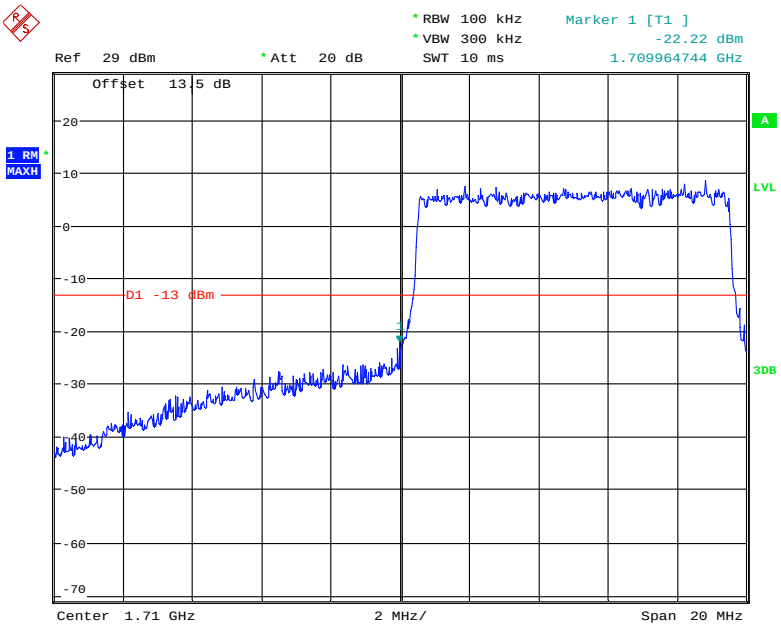
Date: 16.JUL.2018 09:15:04

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



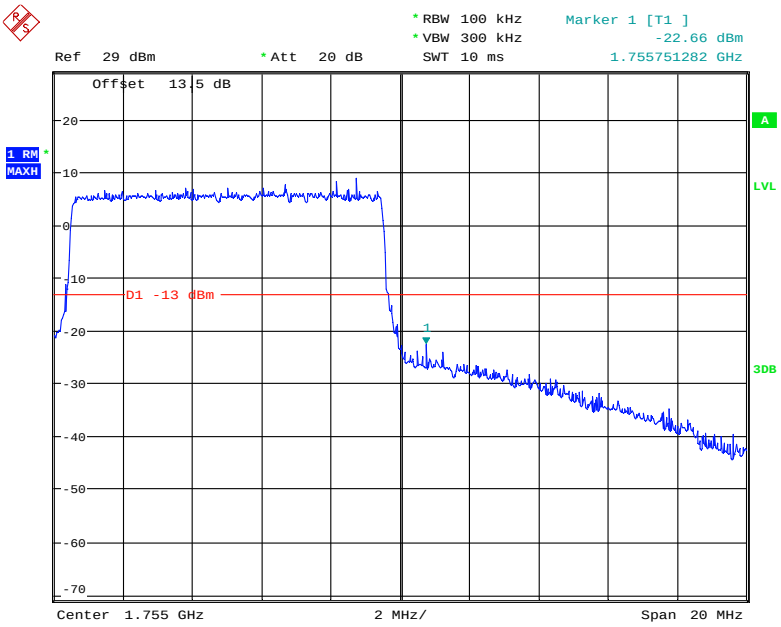
Date: 16.JUL.2018 09:38:53

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



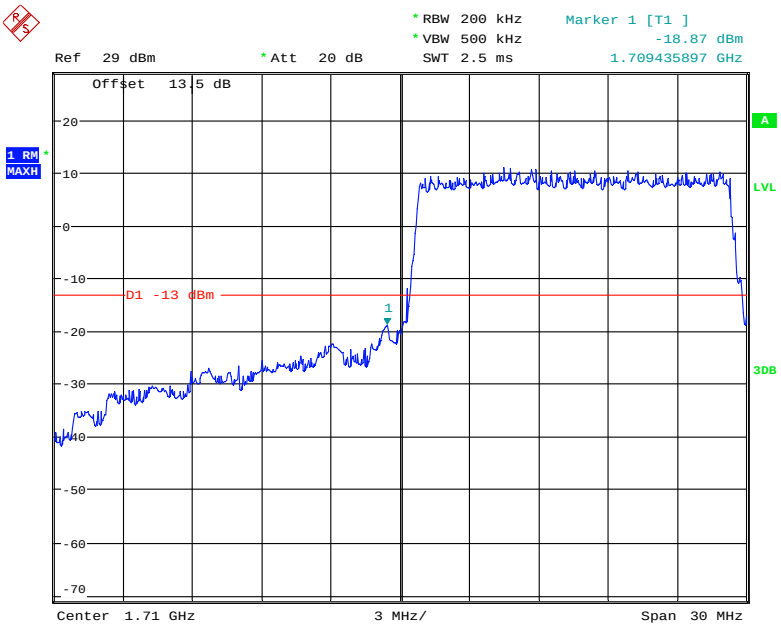
Date: 16.JUL.2018 09:14:32

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



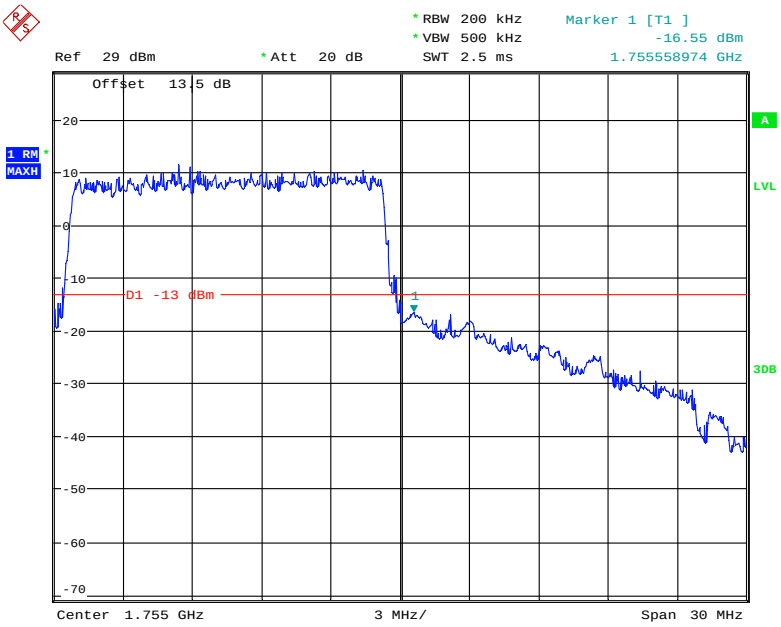
Date: 16.JUL.2018 09:37:52

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



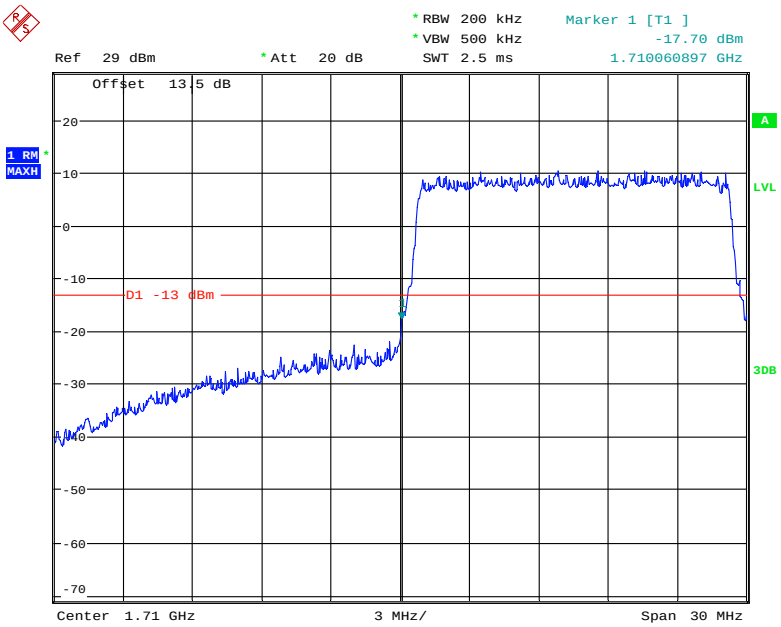
Date: 16.JUL.2018 09:17:52

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



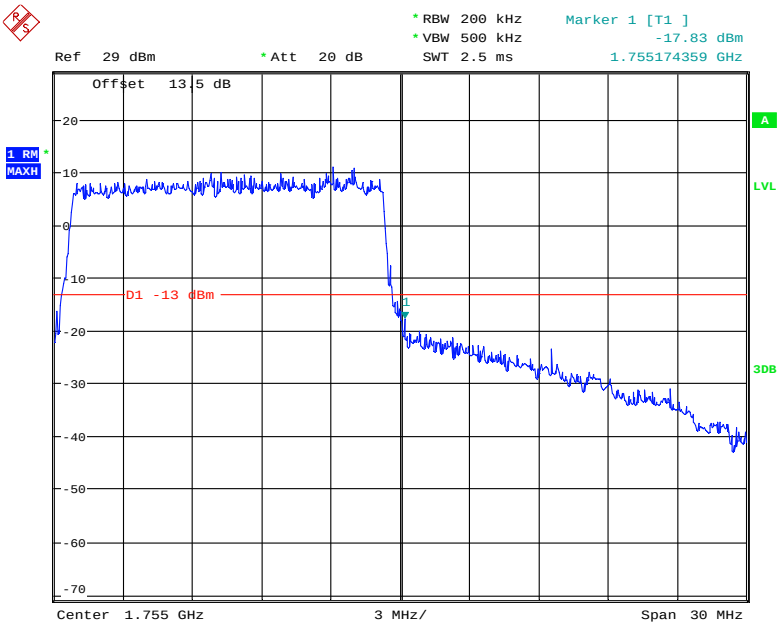
Date: 16.JUL.2018 09:41:24

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



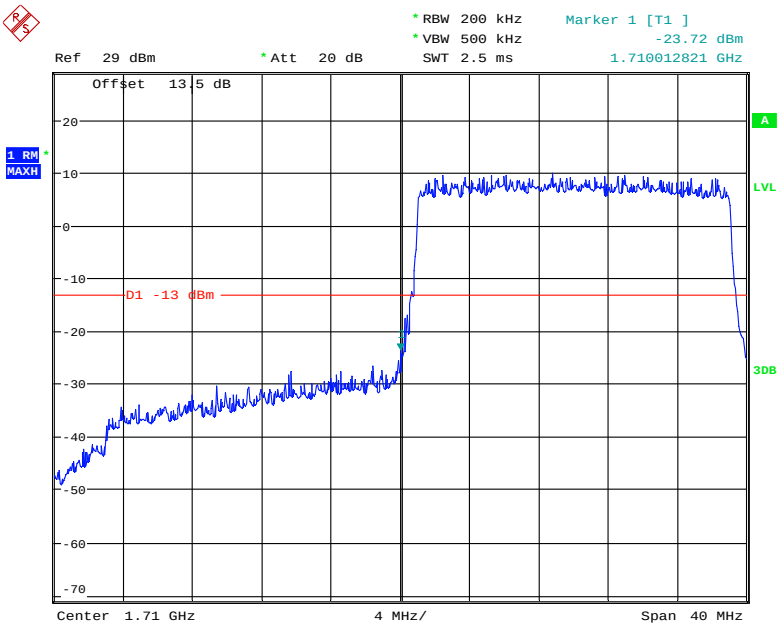
Date: 16.JUL.2018 09:17:13

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



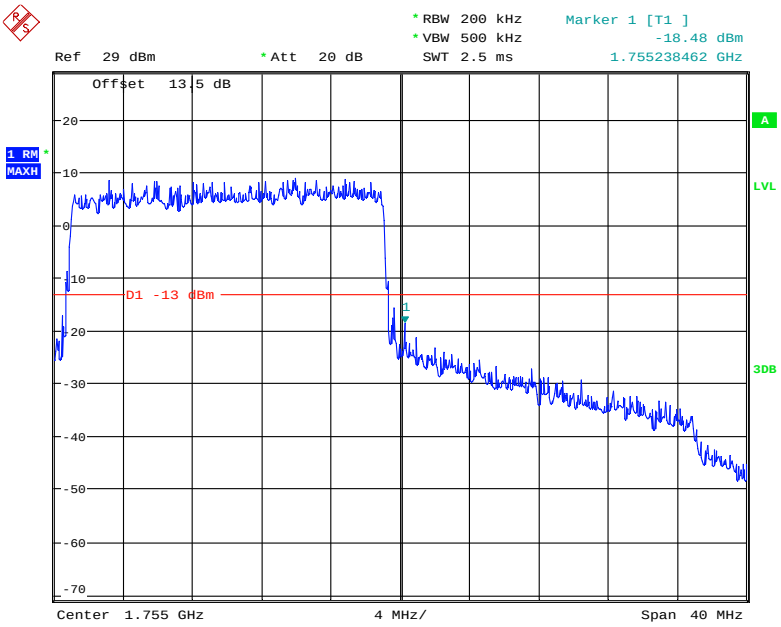
Date: 16.JUL.2018 09:42:02

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



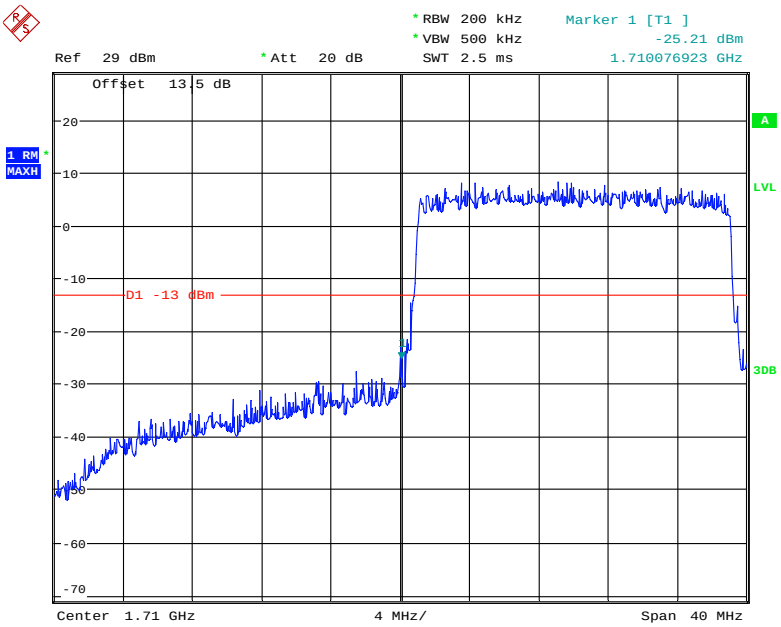
Date: 16.JUL.2018 09:18:49

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



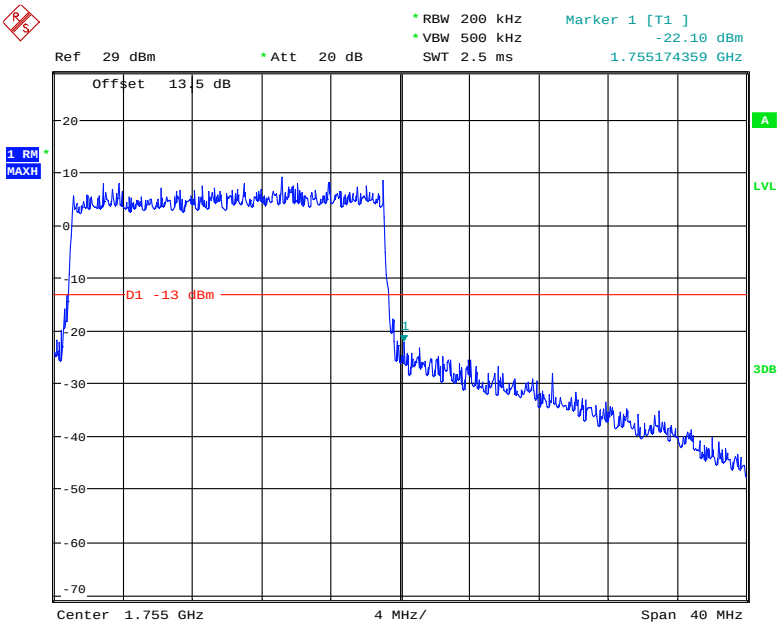
Date: 16.JUL.2018 09:43:37

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



Date: 16.JUL.2018 09:19:20

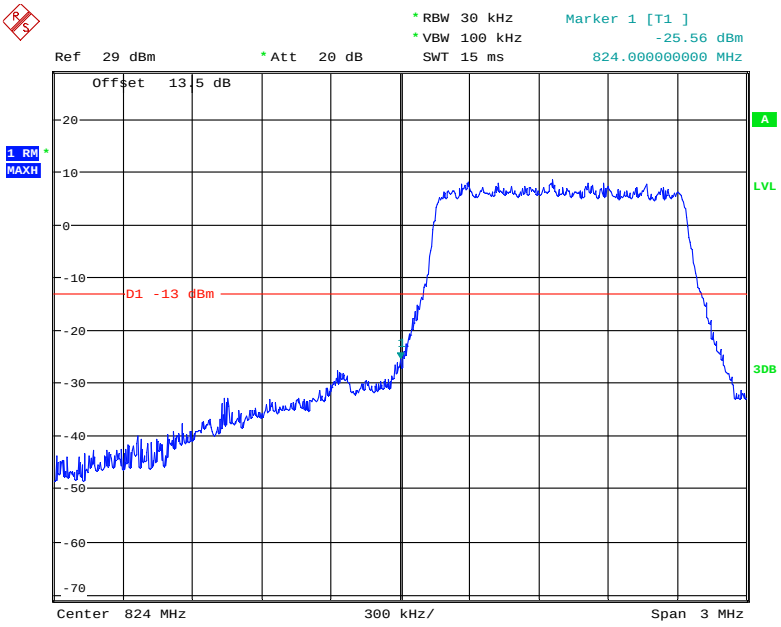
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 16.JUL.2018 09:43:13

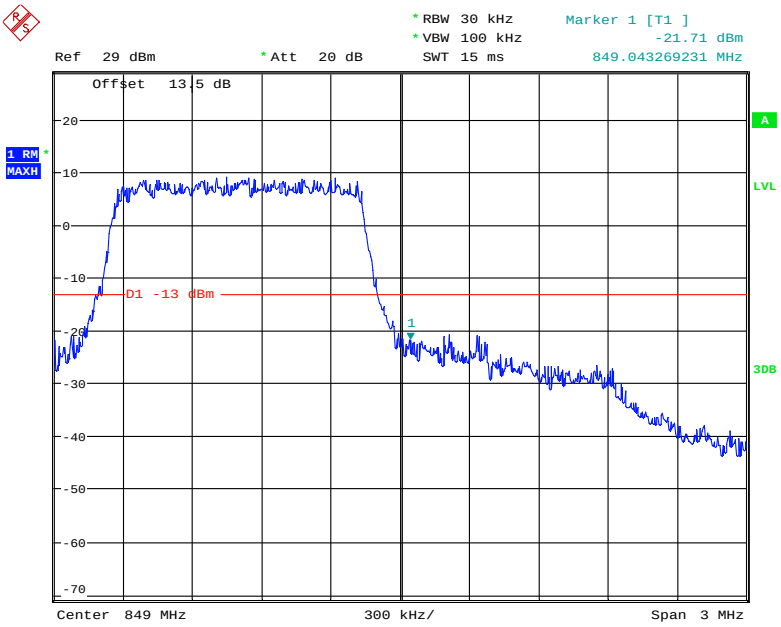
Band 5

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



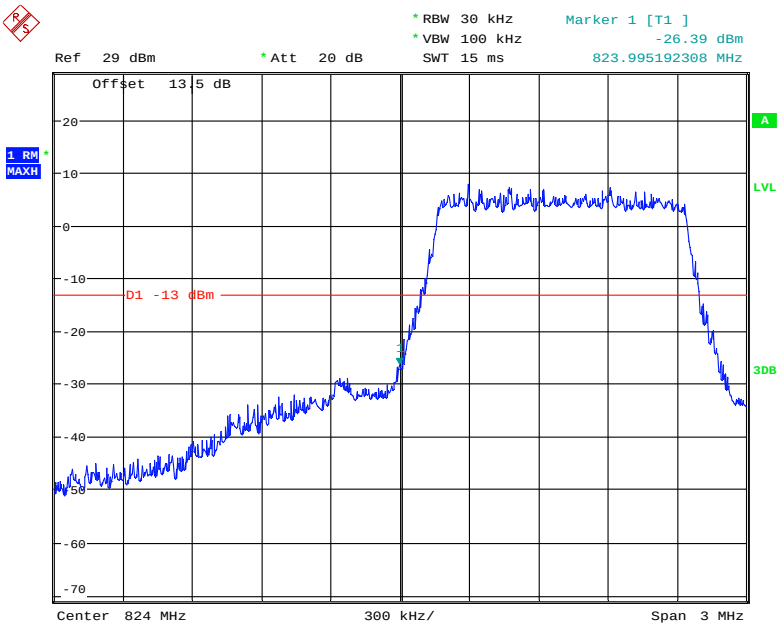
Date: 16.JUL.2018 09:46:37

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



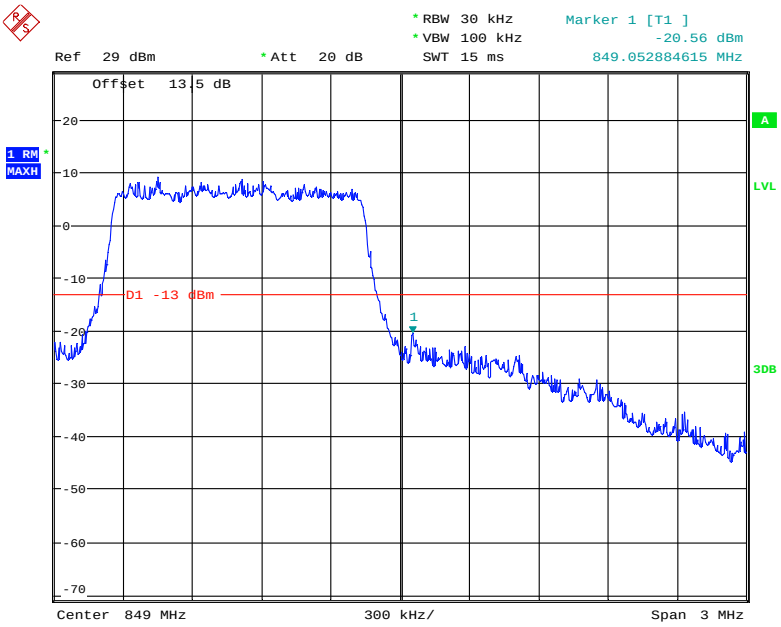
Date: 16.JUL.2018 09:56:10

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



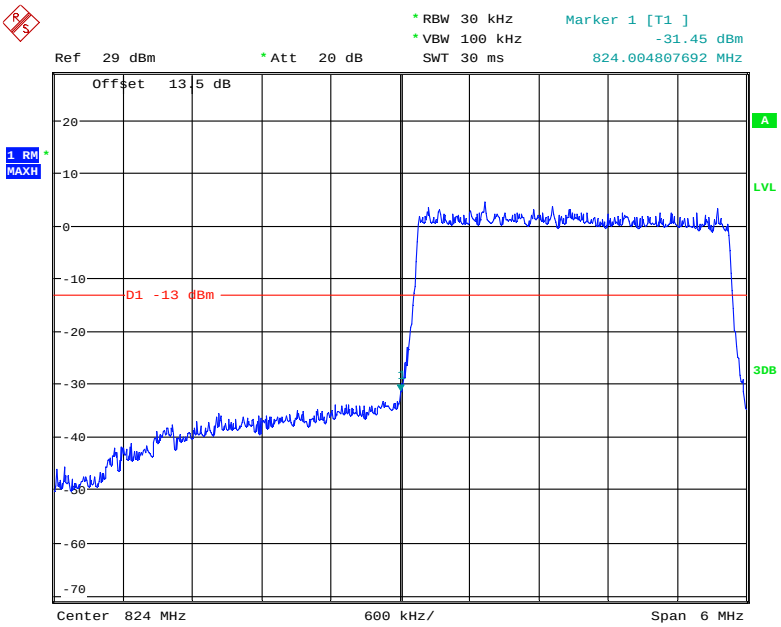
Date: 16.JUL.2018 09:47:23

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



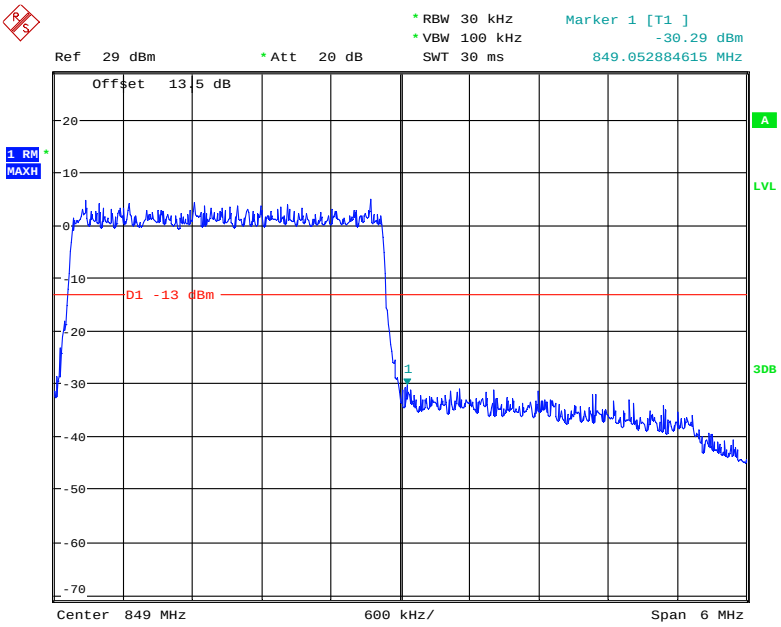
Date: 16.JUL.2018 09:55:44

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



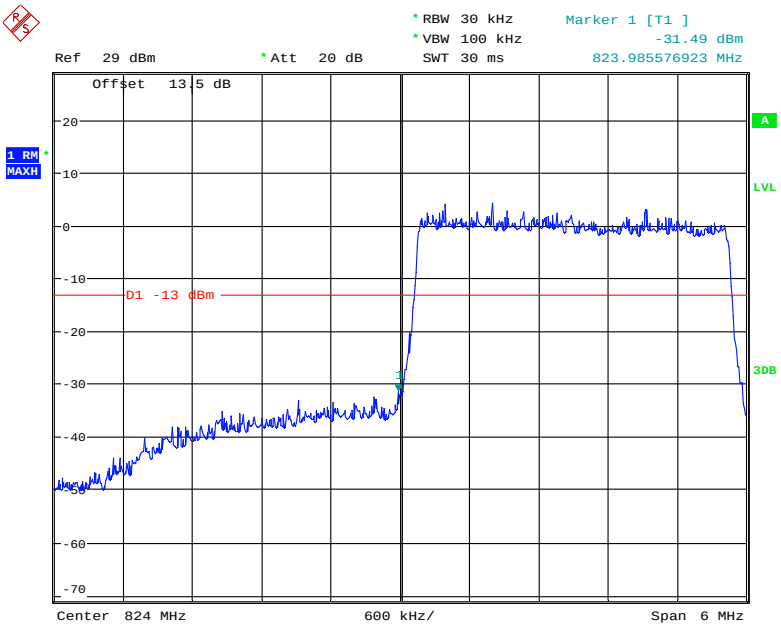
Date: 16.JUL.2018 09:49:41

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



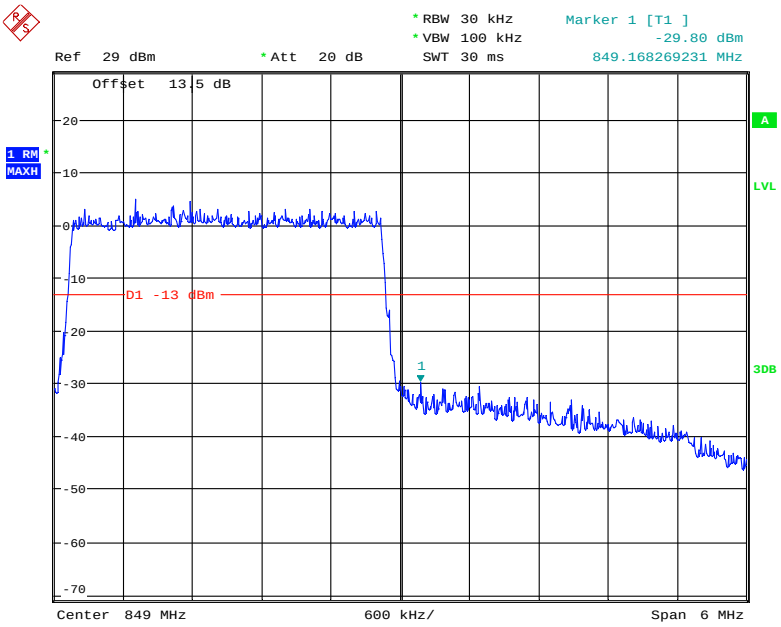
Date: 16.JUL.2018 09:57:02

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



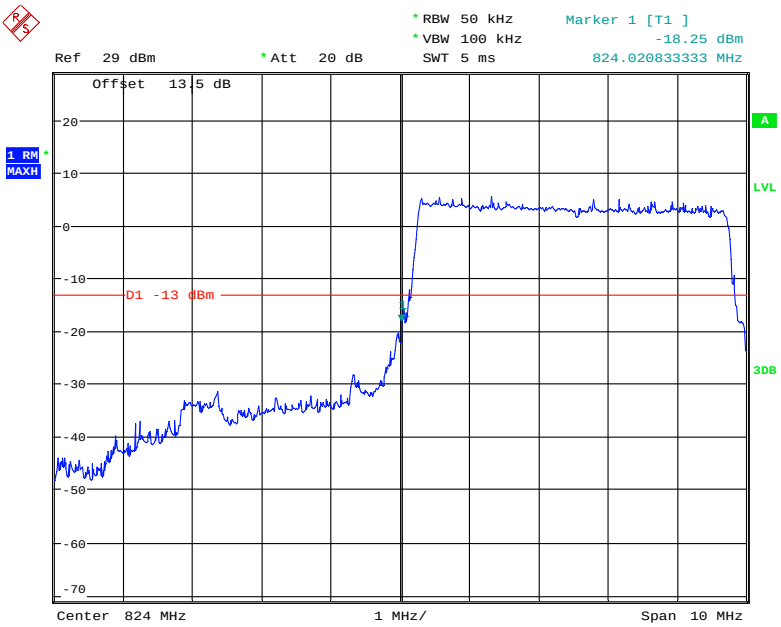
Date: 16.JUL.2018 09:48:53

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



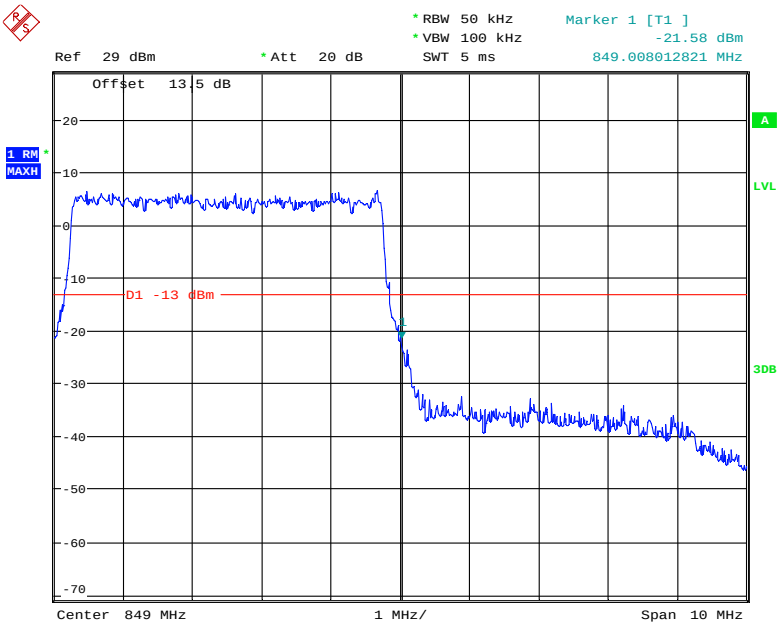
Date: 16.JUL.2018 09:58:27

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



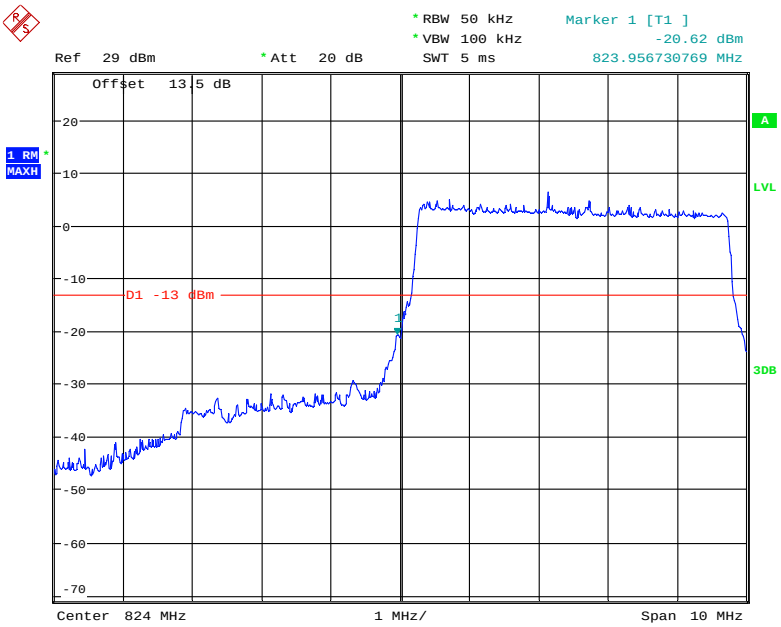
Date: 16.JUL.2018 09:51:03

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



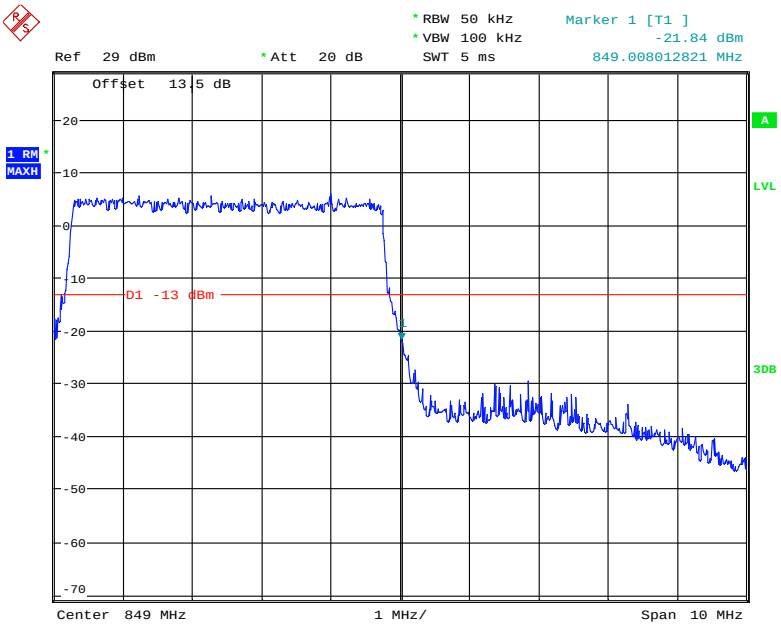
Date: 16.JUL.2018 10:00:36

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



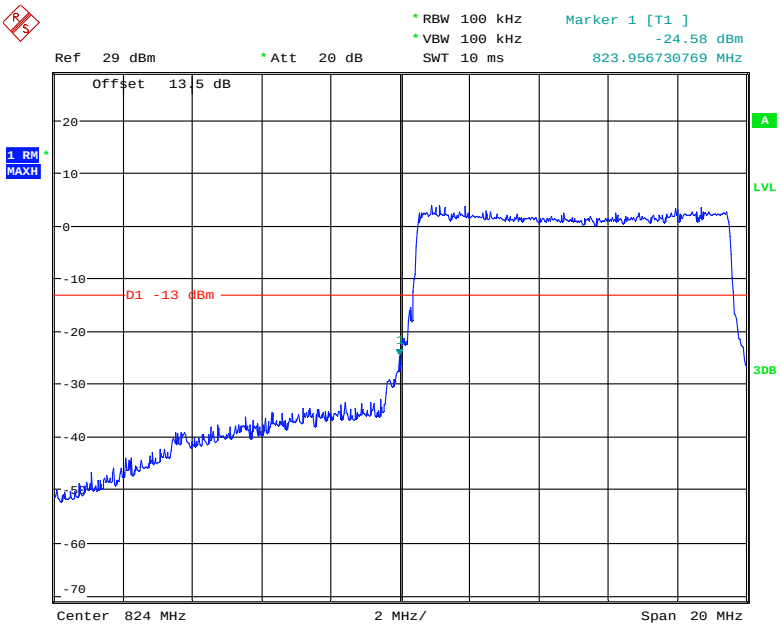
Date: 16.JUL.2018 09:52:01

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



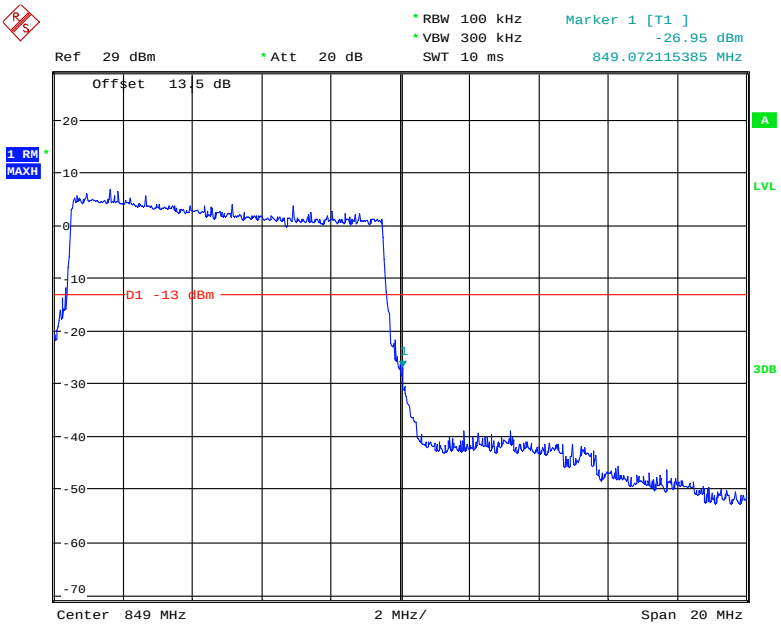
Date: 16.JUL.2018 10:00:06

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



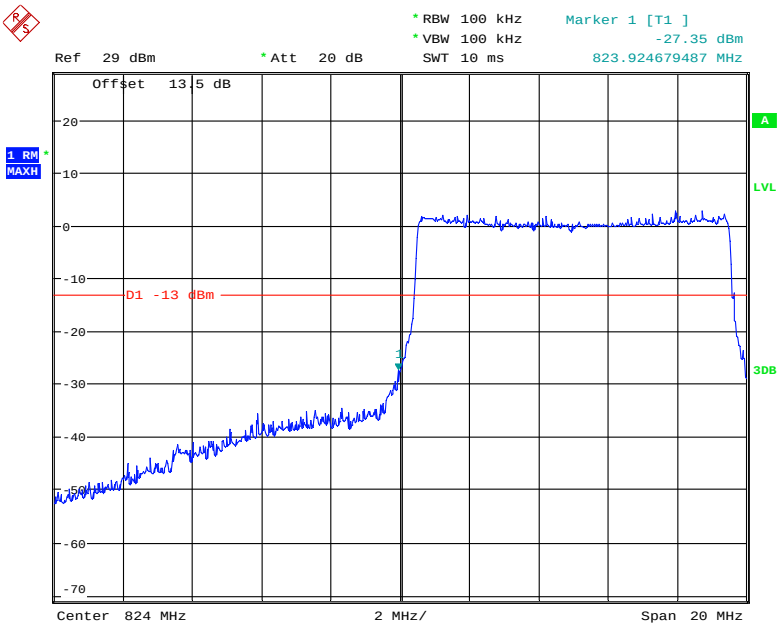
Date: 16.JUL.2018 09:53:22

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



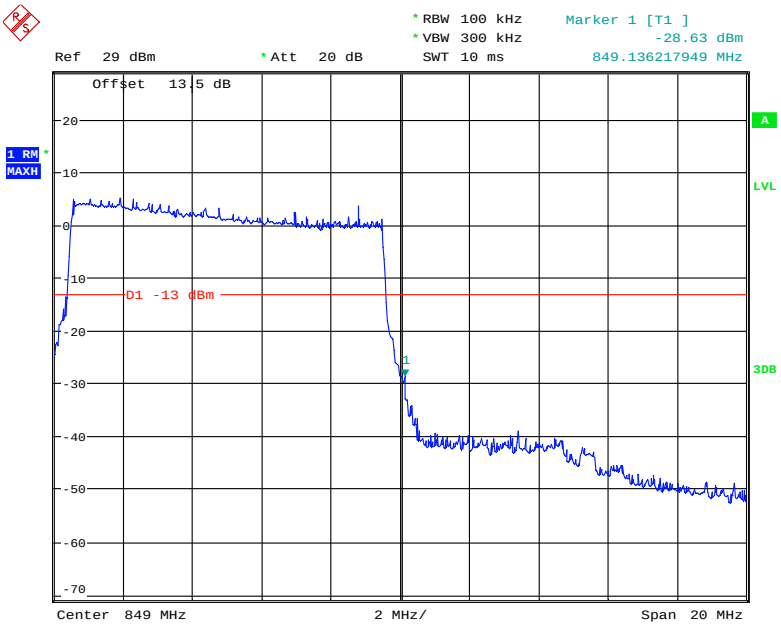
Date: 16.JUL.2018 10:02:29

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



Date: 16.JUL.2018 09:53:54

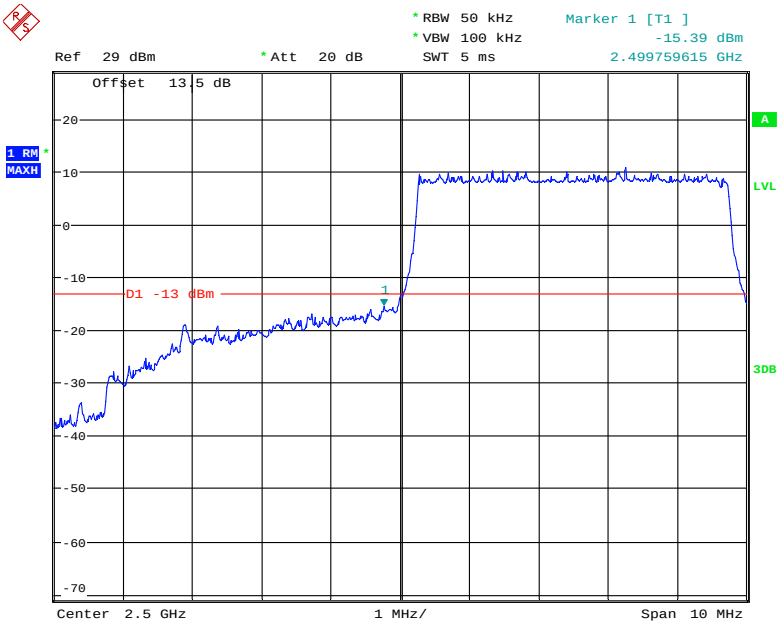
16-QAM (10.0 MHz, FULL RB) - Right Band Edge



Date: 16.JUL.2018 10:01:59

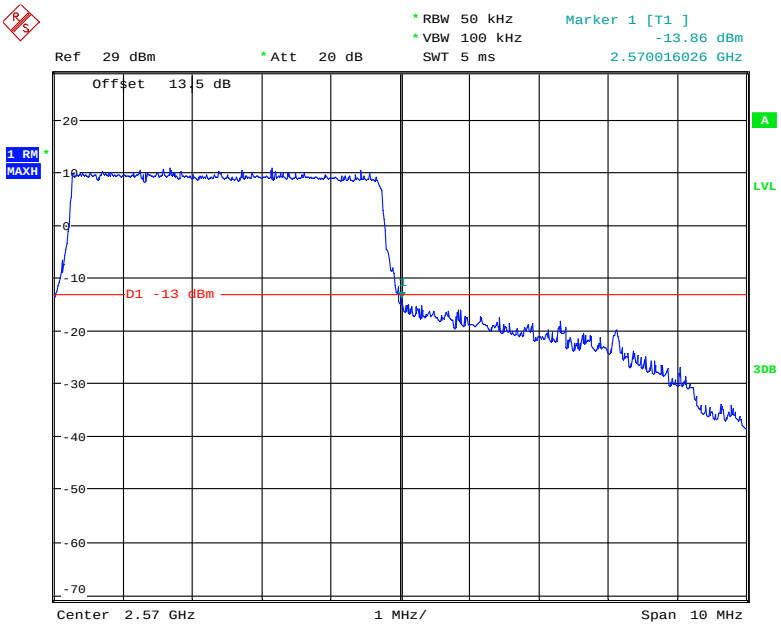
Band 7:

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



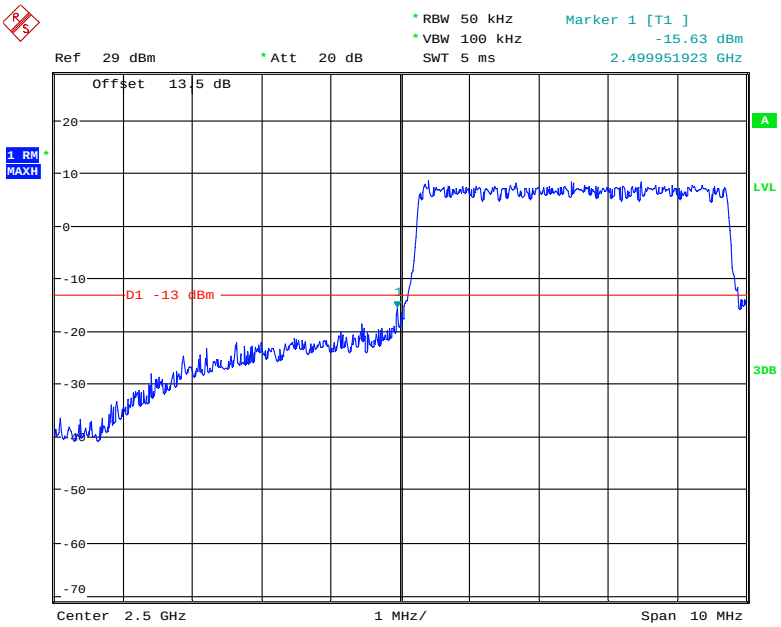
Date: 16.JUL.2018 10:05:53

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



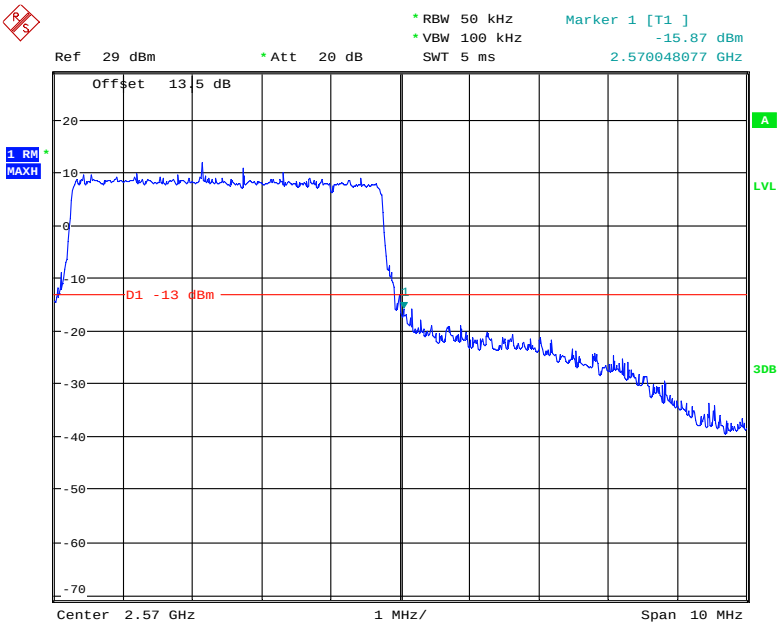
Date: 16.JUL.2018 10:16:33

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



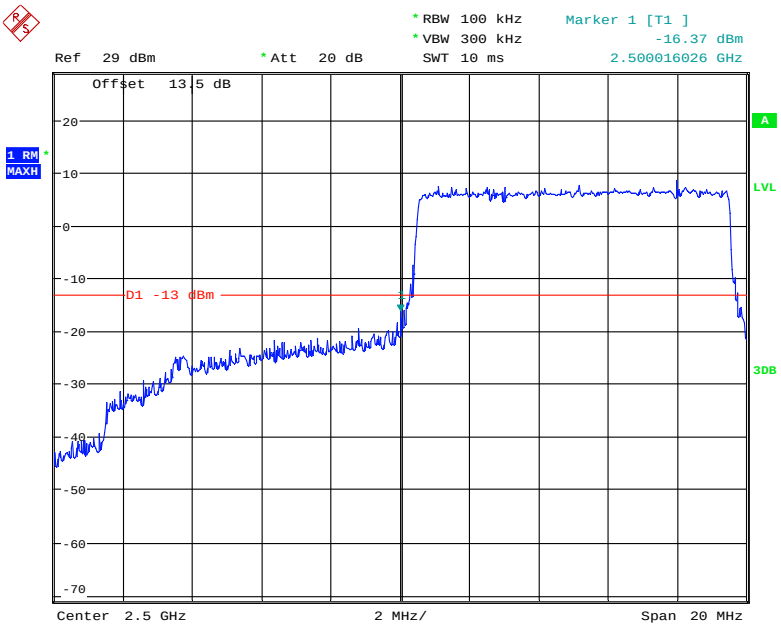
Date: 16.JUL.2018 10:06:22

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



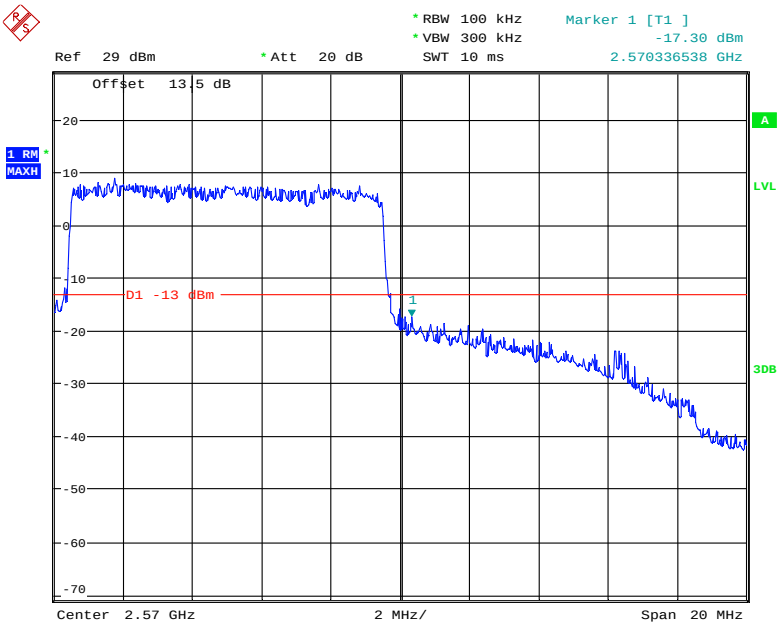
Date: 16.JUL.2018 10:17:11

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



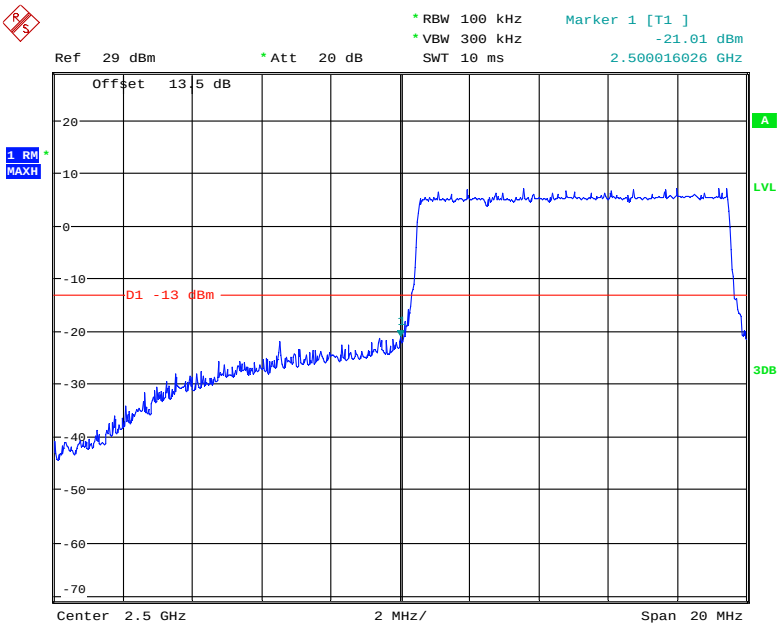
Date: 16.JUL.2018 10:07:18

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



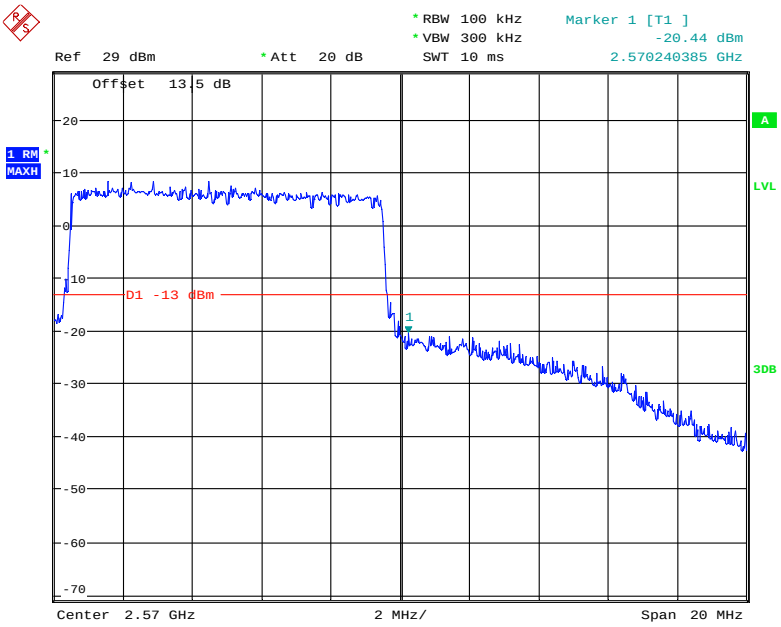
Date: 16.JUL.2018 10:19:32

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



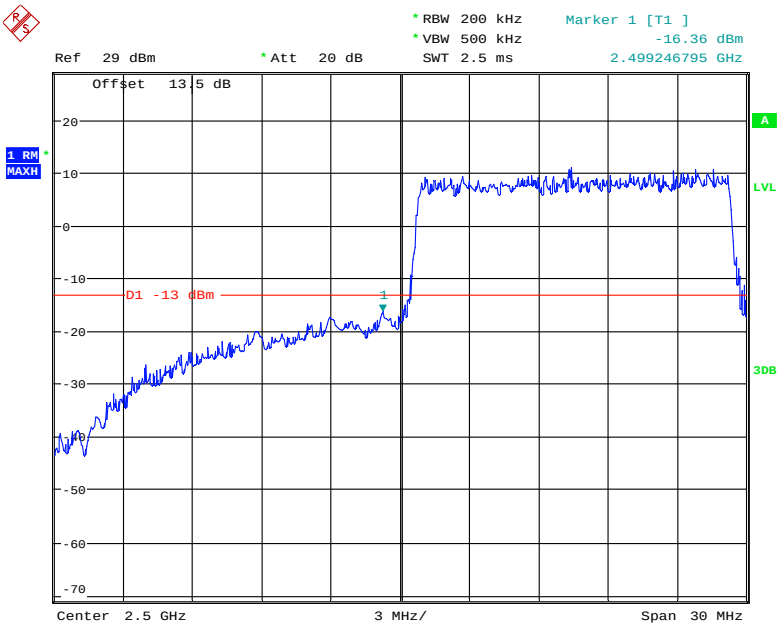
Date: 16.JUL.2018 10:07:53

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



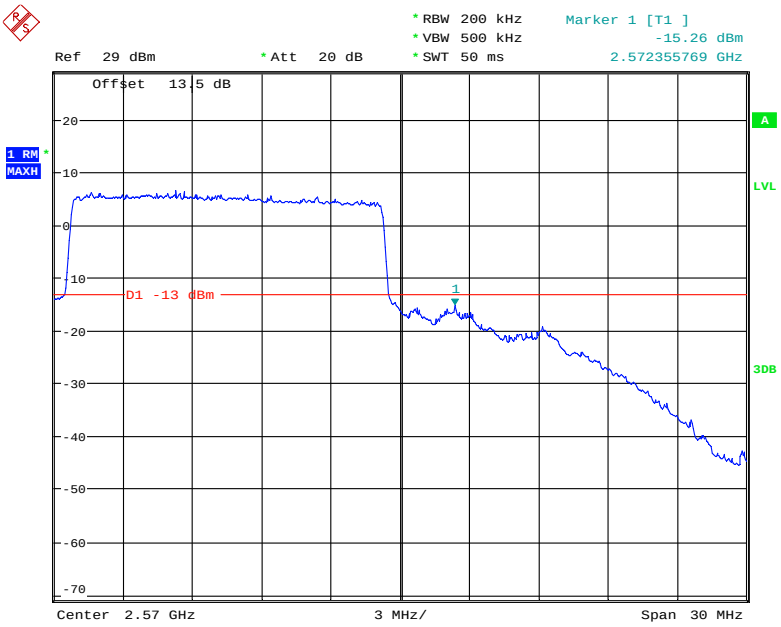
Date: 16.JUL.2018 10:19:08

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



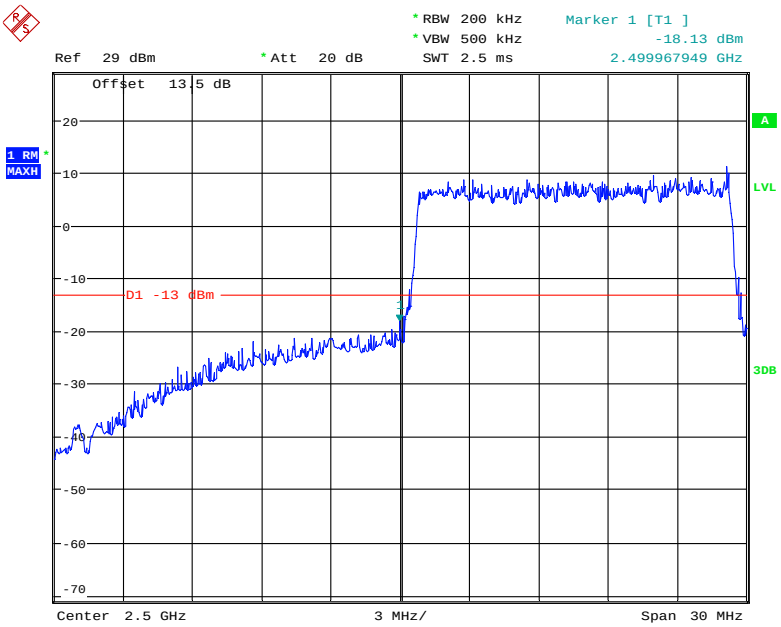
Date: 16.JUL.2018 10:10:37

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



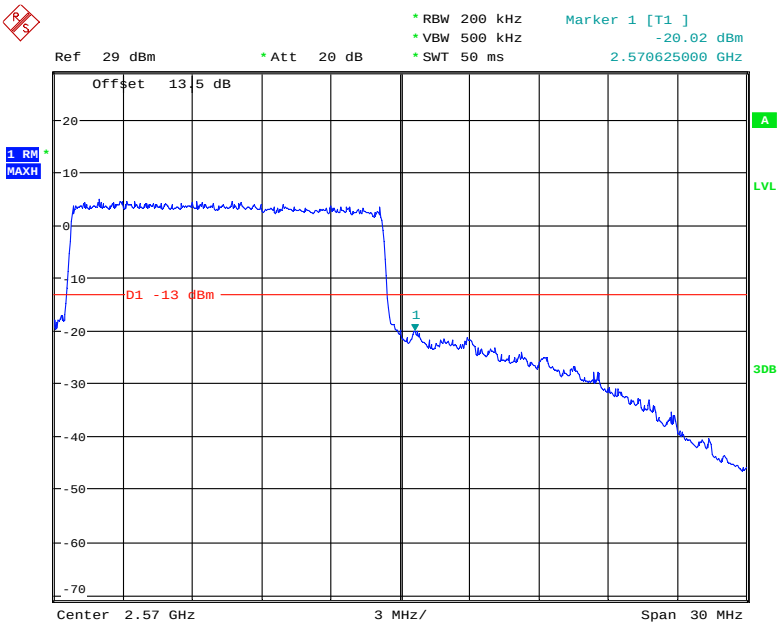
Date: 16.JUL.2018 10:21:56

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



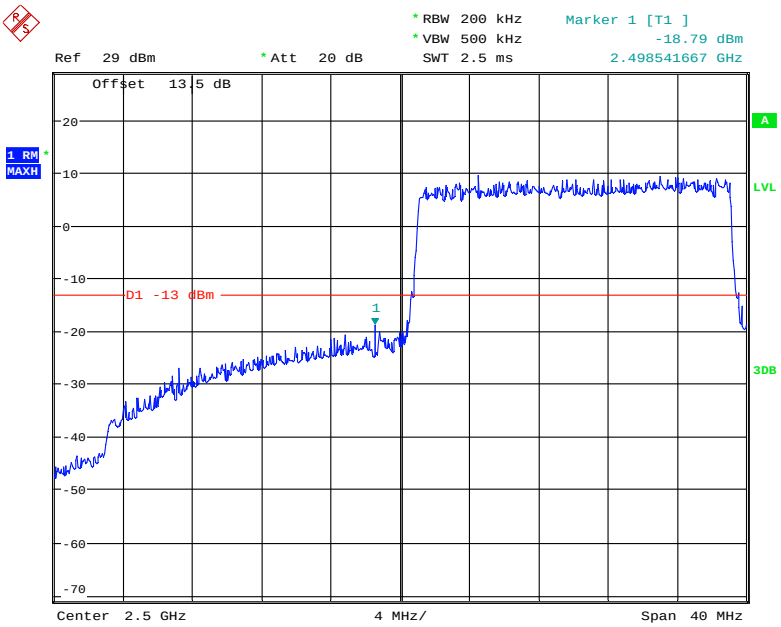
Date: 16.JUL.2018 10:08:43

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



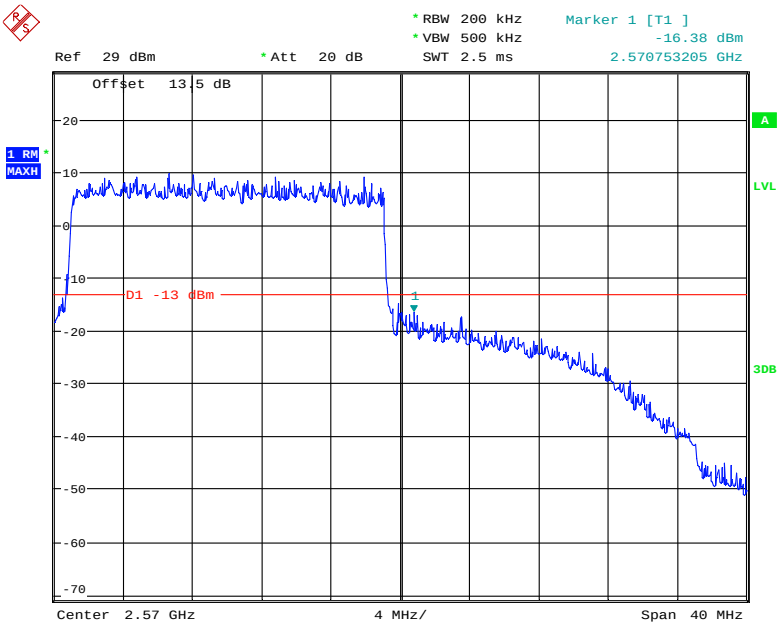
Date: 16.JUL.2018 10:22:21

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



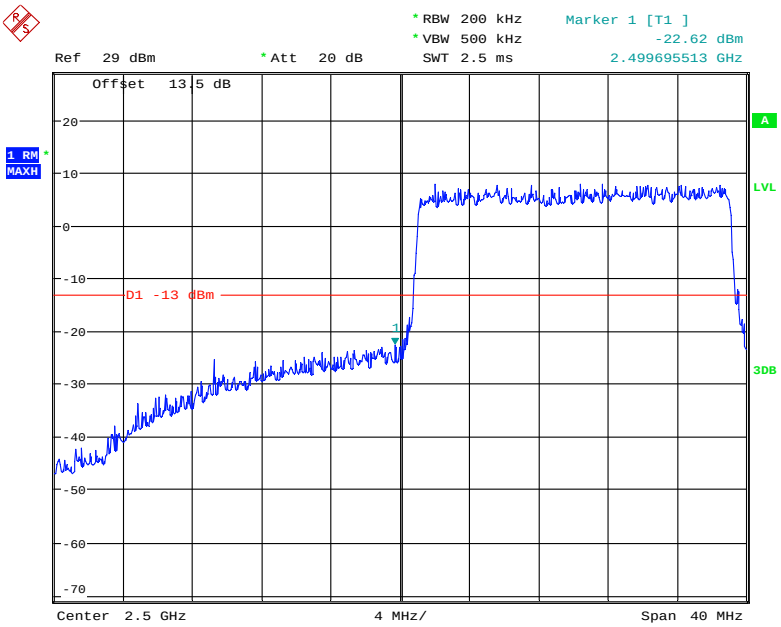
Date: 16.JUL.2018 10:11:49

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



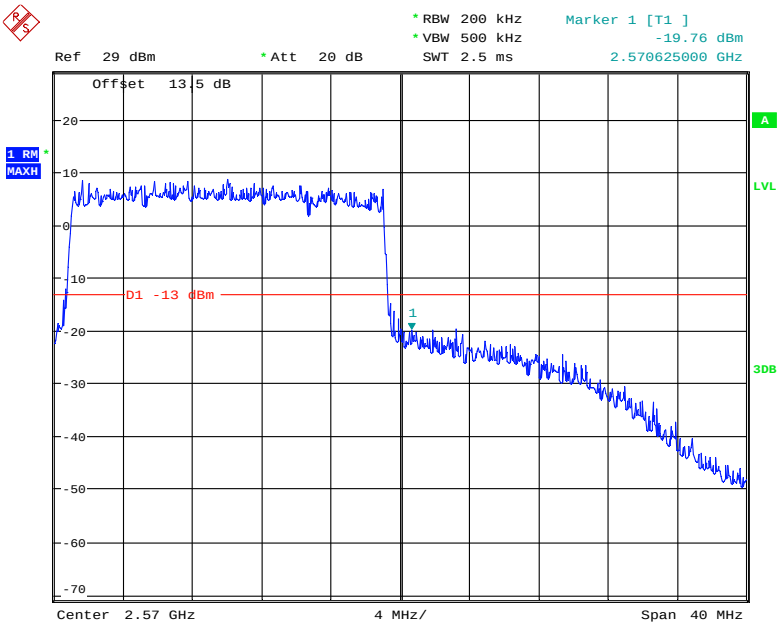
Date: 16.JUL.2018 10:23:30

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



Date: 16.JUL.2018 10:12:20

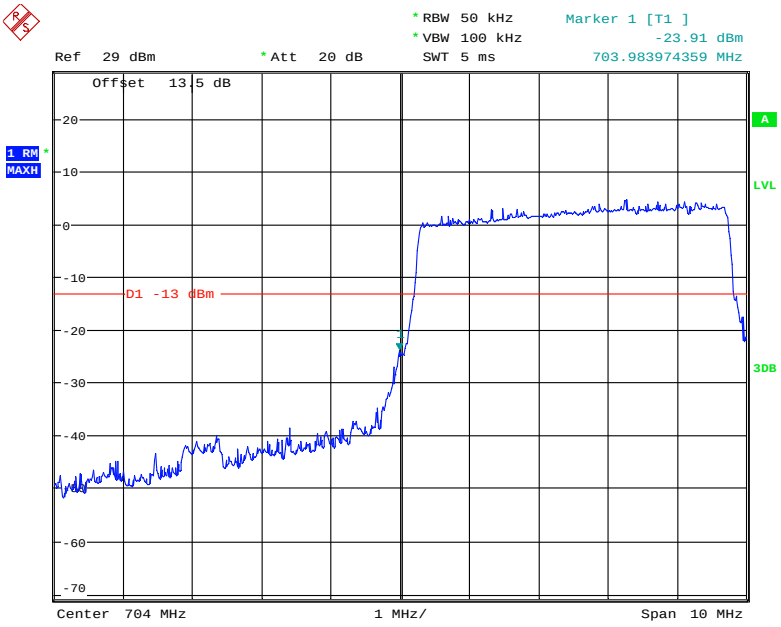
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 16.JUL.2018 10:22:59

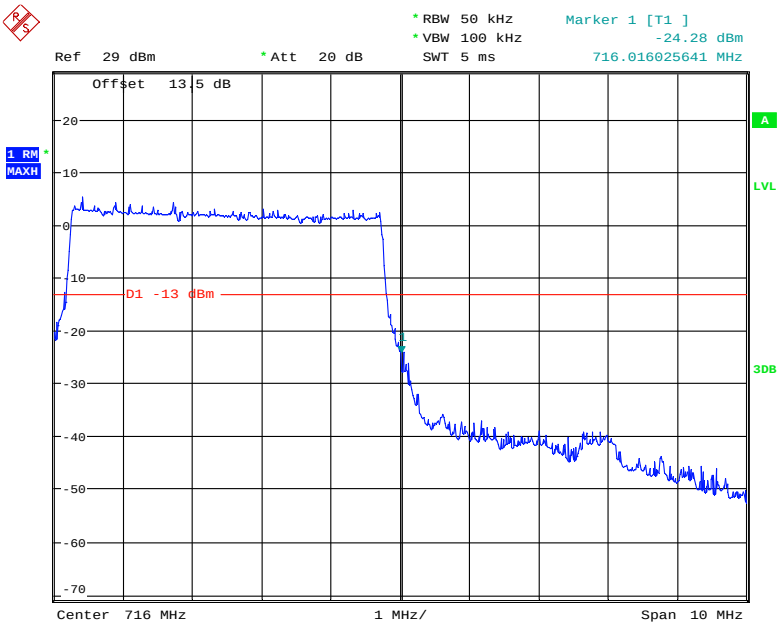
Band 17:

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



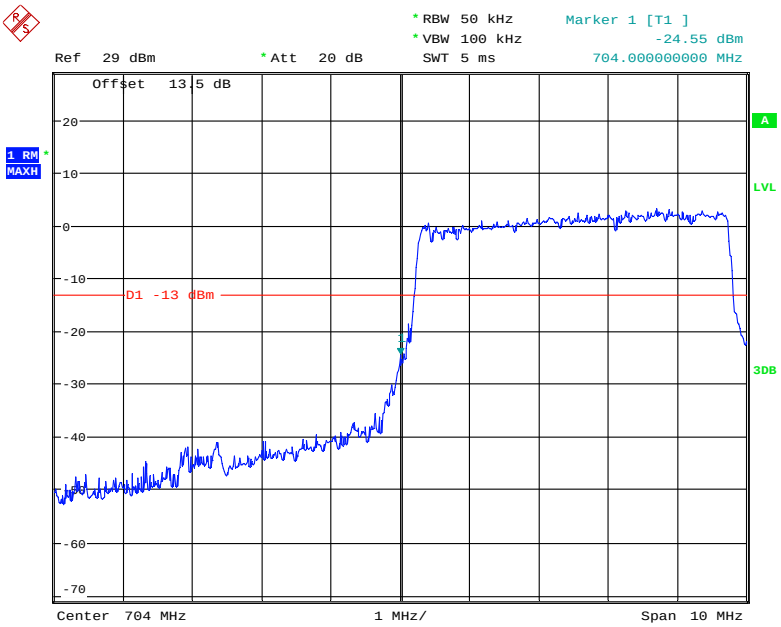
Date: 16.JUL.2018 10:26:11

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



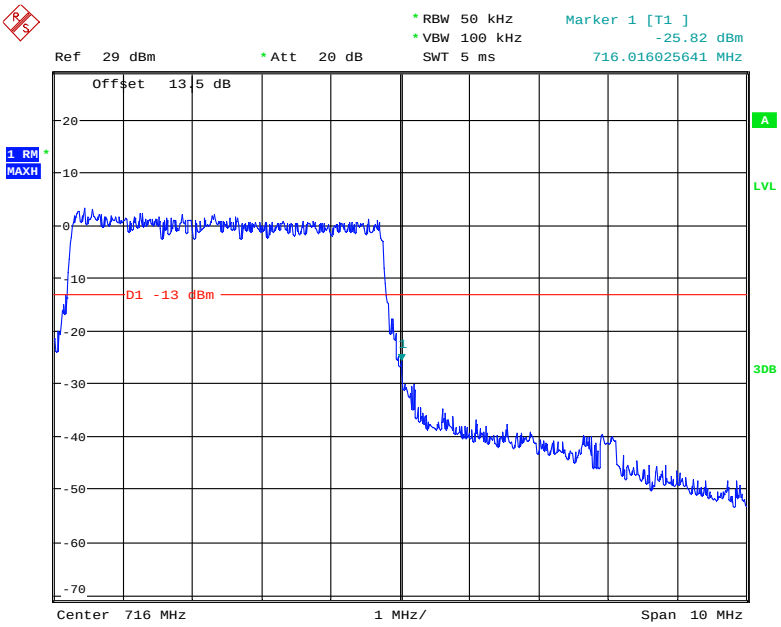
Date: 16.JUL.2018 10:28:52

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



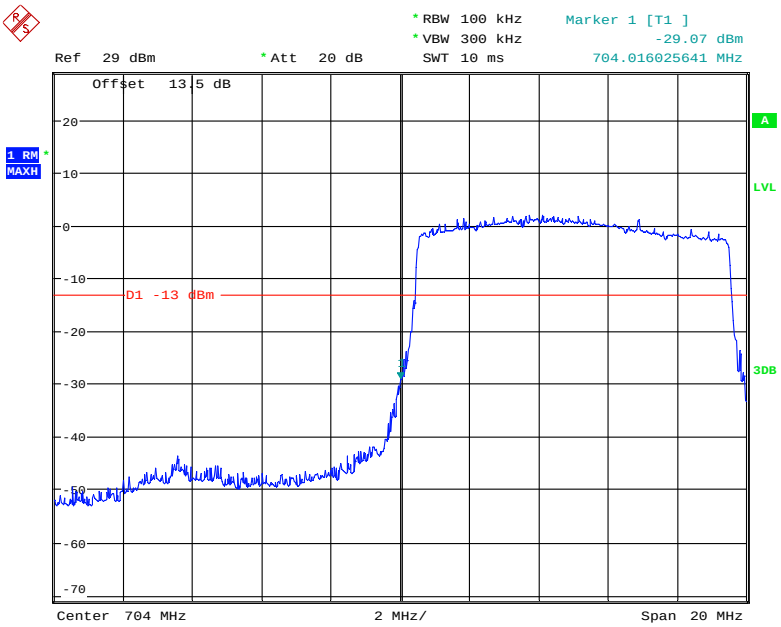
Date: 16.JUL.2018 10:25:20

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



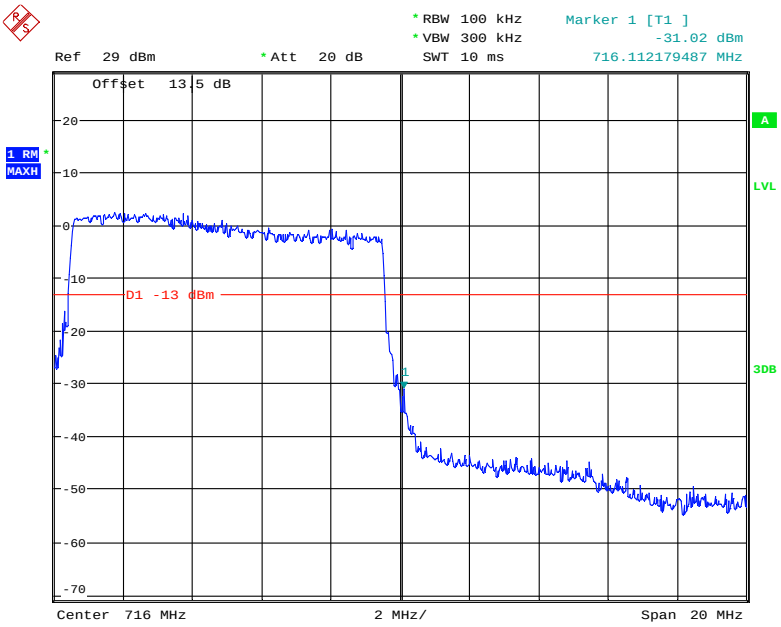
Date: 16.JUL.2018 10:29:17

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



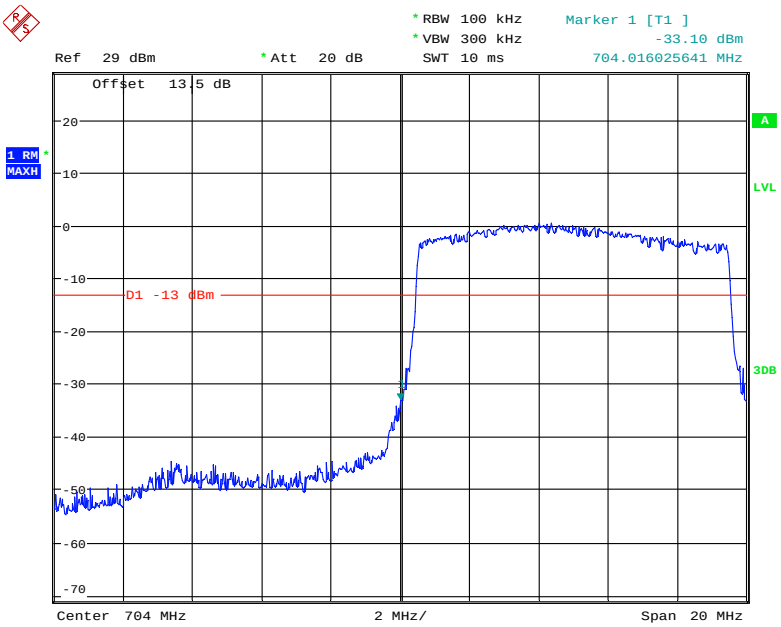
Date: 16.JUL.2018 10:27:13

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



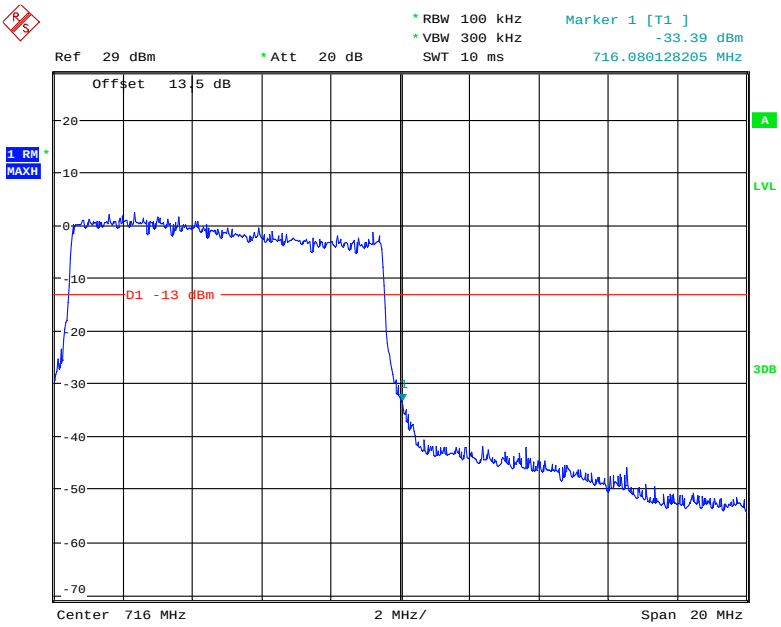
Date: 16.JUL.2018 10:30:34

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



Date: 16.JUL.2018 10:27:38

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



Date: 16.JUL.2018 10:30:05

FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY

Applicable Standard

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

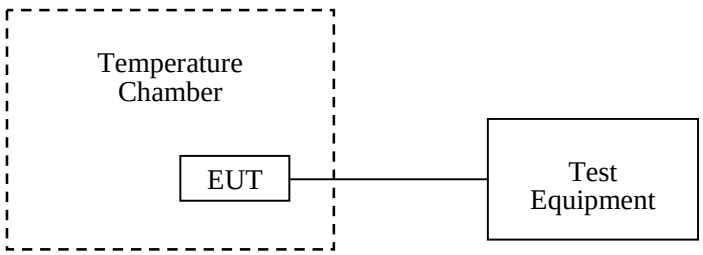
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang on 2018-08-07.

EUT operation mode: Transmitting

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

Cellular Band (Part 22H)

GSM Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**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		14	0.0167	2.5
0		7	0.0084	2.5
10		8	0.0096	2.5
20		10	0.0120	2.5
30		8	0.0096	2.5
40		11	0.0131	2.5
50		13	0.0155	2.5
25	V min.= 3.5	17	0.0203	2.5
	V max.= 4.35	12	0.0143	2.5

EDGE Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	-2	-0.0024	2.5
-20		0	0.0000	2.5
-10		1	0.0012	2.5
0		3	0.0036	2.5
10		2	0.0024	2.5
20		4	0.0048	2.5
30		3	0.0036	2.5
40		6	0.0072	2.5
50		5	0.0060	2.5
25	V min.= 3.5	1	0.0012	2.5
	V max.= 4.35	3	0.0036	2.5

WCDMA Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	8	0.0096	2.5
-20		6	0.0072	2.5
-10		-5	-0.0060	2.5
0		6	0.0072	2.5
10		4	0.0048	2.5
20		-2	-0.0024	2.5
30		6	0.0072	2.5
40		-4	-0.0048	2.5
50		8	0.0096	2.5
25	V min.= 3.5	7	0.0084	2.5
	V max.= 4.35	9	0.0108	2.5

PCS Band (Part 24E)

GSM Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.8	14	0.0074	pass
-20		12	0.0064	pass
-10		15	0.0080	pass
0		9	0.0048	pass
10		11	0.0059	pass
20		14	0.0074	pass
30		10	0.0053	pass
40		8	0.0043	pass
50		12	0.0064	pass
25	V min.= 3.5	9	0.0048	pass
	V max.= 4.35	11	0.0059	pass

EDGE Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	-1	-0.0005	pass
-20		2	0.0011	pass
-10		4	0.0021	pass
0		1	0.0005	pass
10		-3	-0.0016	pass
20		2	0.0011	pass
30		3	0.0016	pass
40		1	0.0005	pass
50		4	0.0021	pass
25	V min.= 3.5	2	0.0011	pass
	V max.= 4.35	5	0.0027	pass

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.8	7	0.0037	pass
-20		6	0.0032	pass
-10		4	0.0021	pass
0		6	0.0032	pass
10		-2	-0.0011	pass
20		6	0.0032	pass
30		4	0.0021	pass
40		2	0.0011	pass
50		4	0.0021	pass
25	V min.= 3.5	6	0.0032	pass
	V max.= 4.35	2	0.0011	pass

AWS Band (Part 27)

Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.8	1710.4297	1754.7832	1710	1755
-20		1710.4267	1754.7816	1710	1755
-10		1710.4295	1754.7861	1710	1755
0		1710.4240	1754.7830	1710	1755
10		1710.425	1754.7816	1710	1755
20		1710.4226	1754.7839	1710	1755
30		1710.4234	1754.7834	1710	1755
40		1710.4258	1754.7817	1710	1755
50		1710.4296	1754.7833	1710	1755
25	V min.= 3.5	1710.4297	1754.7830	1710	1755
	V max.= 4.35	1710.4291	1754.7845	1710	1755

LTE:
QPSK:

Band4

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.8	1710.5226	1754.4808	1710	1755
-20		1710.5230	1754.4826	1710	1755
-10		1710.5215	1754.4761	1710	1755
0		1710.5197	1754.4809	1710	1755
10		1710.5210	1754.4790	1710	1755
20		1710.5209	1754.4809	1710	1755
30		1710.5192	1754.4785	1710	1755
40		1710.5183	1754.4780	1710	1755
50		1710.5240	1754.4768	1710	1755
25	V min.= 3.5	1710.5194	1754.4784	1710	1755
	V max.= 4.35	1710.5246	1754.4764	1710	1755

Band 5

10.0 MHz Middle Channel, f_o = 836.5MHz				
Temperature (℃)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	4	0.0048	2.5
-20		2	0.0024	2.5
-10		0	0.0000	2.5
0		-3	-0.0036	2.5
10		-4	-0.0048	2.5
20		-2	-0.0024	2.5
30		1	0.0012	2.5
40		3	0.0036	2.5
50		-5	-0.0060	2.5
25	V min.= 3.5	6	0.0072	2.5
	V max.= 4.35	8	0.0096	2.5

Band 7

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.8	2500.5143	2569.4875	2500	2570
-20		2500.5163	2569.4818	2500	2570
-10		2500.5150	2569.4823	2500	2570
0		2500.5204	2569.4835	2500	2570
10		2500.5170	2569.4830	2500	2570
20		2500.5175	2569.4839	2500	2570
30		2500.5207	2569.4843	2500	2570
40		2500.5157	2569.4803	2500	2570
50		2500.5216	2569.4833	2500	2570
25	V min.= 3.5	2500.5189	2569.4808	2500	2570
	V max.= 4.35	2500.5188	2569.4836	2500	2570

Band 17

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.8	704.4768	715.5230	704	716
-20		704.4765	715.5213	704	716
-10		704.4811	715.5231	704	716
0		704.4761	715.5216	704	716
10		704.4770	715.5230	704	716
20		704.4742	715.5267	704	716
30		704.4750	715.5276	704	716
40		704.4742	715.5274	704	716
50		704.4797	715.5237	704	716
25	V min.= 3.5	704.4765	715.5217	704	716
	V max.= 4.35	704.4749	715.5264	704	716

16QAM:

Band4

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.8	1710.4822	1754.5142	1710	1755
-20		1710.4825	1754.5185	1710	1755
-10		1710.4821	1754.5175	1710	1755
0		1710.4832	1754.5183	1710	1755
10		1710.4830	1754.5170	1710	1755
20		1710.4816	1754.5214	1710	1755
30		1710.4867	1754.5204	1710	1755
40		1710.4880	1754.5163	1710	1755
50		1710.4845	1754.5202	1710	1755
25	V min.= 3.5	1710.4812	1754.5203	1710	1755
	V max.= 4.35	1710.4855	1754.5151	1710	1755

Band 5

10.0 MHz Middle Channel, f_o = 836.5MHz				
Temperature (℃)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	5	0.0060	2.5
-20		4	0.0048	2.5
-10		-4	-0.0048	2.5
0		-2	-0.0024	2.5
10		6	0.0072	2.5
20		3	0.0036	2.5
30		2	0.0024	2.5
40		0	0.0000	2.5
50		-1	-0.0012	2.5
25	V min.= 3.5	4	0.0048	2.5
	V max.= 4.35	7	0.0084	2.5

Band 7

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.8	2500.5730	2569.4237	2500	2570
-20		2500.5713	2569.4258	2500	2570
-10		2500.5741	2569.4233	2500	2570
0		2500.5781	2569.4261	2500	2570
10		2500.5740	2569.4260	2500	2570
20		2500.5788	2569.4280	2500	2570
30		2500.5785	2569.4283	2500	2570
40		2500.5741	2569.4244	2500	2570
50		2500.5757	2569.4286	2500	2570
25	V min.= 3.5	2500.5729	2569.4248	2500	2570
	V max.= 4.35	2500.5726	2569.4291	2500	2570

Band 17:

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.8	704.5376	715.4642	704	716
-20		704.5356	715.4613	704	716
-10		704.5390	715.4639	704	716
0		704.5407	715.4641	704	716
10		704.5380	715.4620	704	716
20		704.5430	715.4666	704	716
30		704.5400	715.4599	704	716
40		704.5381	715.4651	704	716
50		704.5378	715.4640	704	716
25	V min.= 3.5	704.5354	715.4635	704	716
	V max.= 4.35	704.5396	715.4604	704	716

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