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TESTING LABORATORY
CERTIFICATE # 4821.01

BACL
Bay Area Compliance Labs Corp.

FCC PART 27

FCC PART 22H, PART 24E

TEST REPORT

For

Power Idea Technology (Shenzhen) Co., Ltd.

4th Floor, A Section ,Languang Science&technology, Xinxi RD, Hi-Tech Industrial Park North, Nanshan, ShenZhen, China

FCC ID: ZLE-RG850

Report Type:	**Product Type:**
Original Report	LTE SMARTPHONE

Report Number:	RSZ180710006-00D
Report Date:	2018-09-20
Reviewed By:	Rocky Kang 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

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Power Idea Technology (Shenzhen) Co., Ltd.'s* product, model number: *RG850 (FCC ID: ZLE-RG850)* or the "EUT" in this report was a *LTE SMARTPHONE*, which was measured approximately: 16.2 cm (L) * 7.9 cm (W) *1.1 cm (H), rated with input voltage: DC 3.83 V battery or DC 5V from adapter.

White Adapter Information:
Model: HKC0115020-2B
Input: AC 100-240V, 50/60Hz, 0.5 A
Output: DC 5V, 2 A

Black Adapter Information:
Model: HKC0115021-2D
Input: AC 100-240V, 50/60Hz, 0.5 A
Output: DC 5V, 2 A

**All measurement and test data in this report was gathered from production sample serial number: 180710006 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2018-07-10.*

Objective

This test report is prepared on behalf of *Power Idea Technology (Shenzhen) 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 15B JBP, Part 15.247 DSS & DTS submissions with FCC ID: ZLE-RG850.

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

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. The device emplys two Antennas, but GSM/GPRS/EDGE 850MHz band only transmit on Antenna 2, GSM/GPRS/EDGE 1900 on antenna 1. 3G and 4G is divided to two antennas, pre-scan that two antenna ports output power, the worst case for other testing item.

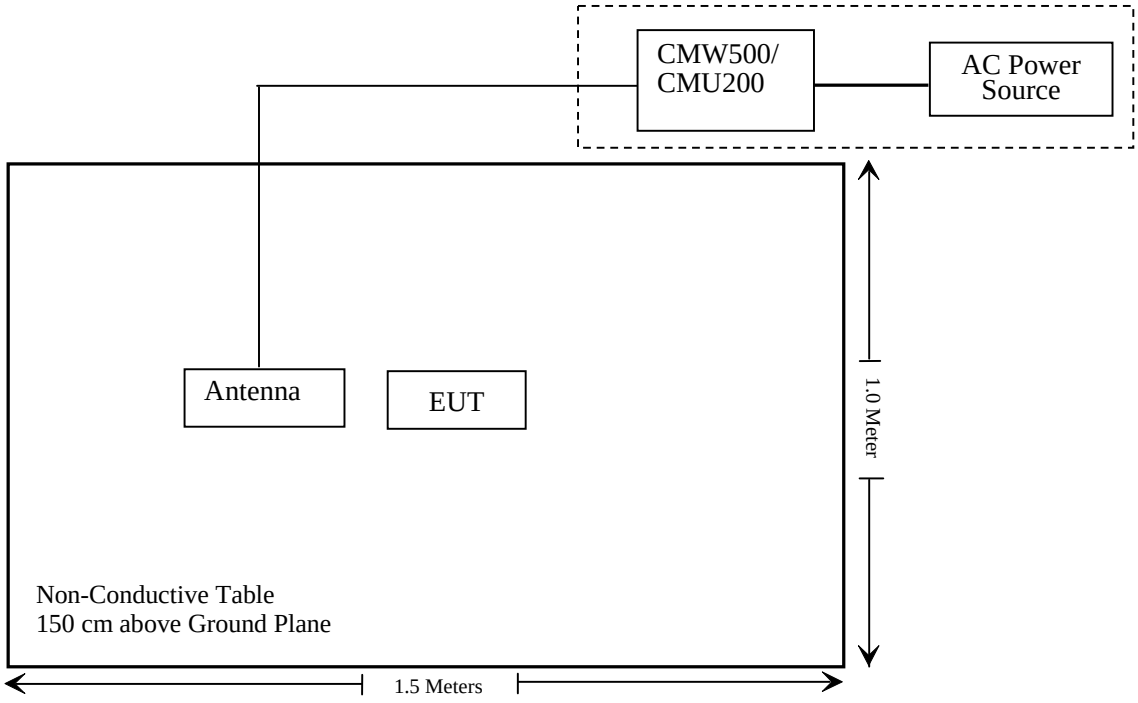
Equipment Modifications

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 (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: RSZ180710006-20A.

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	2018-06-23	2019-06-23
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017-12-22	2020-12-21
COM-POWER	Pre-amplifier	PA-122	181919	2018-05-22	2018-11-22
Sonoma instrument	Amplifier	310N	186238	2018-05-12	2018-11-12
Anritsu	Signal Generator	68369B	004114	2017-12-24	2018-12-24
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2018-08-01	2019-02-01
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2018-09-01	2021-08-31
Ducommun technologies	RF Cable	UFA147A-2362-100100	MFR64639 231029-003	2018-08-01	2019-02-01
Ducommun technologies	RF Cable	104PEA	218124002	2018-05-21	2018-11-21
Ducommun technologies	RF Cable	RG-214	1	2018-05-21	2018-11-21
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
Heatsink Required	Amplifier	QLW-18405536-J0	15964001002	2018-08-01	2019-02-01

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
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	2018-06-23	2019-06-23
Ducommun technologies	RF Cable	RG-214	3	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	Each Time	

* 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: RSZ180710006-20A.

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 (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.

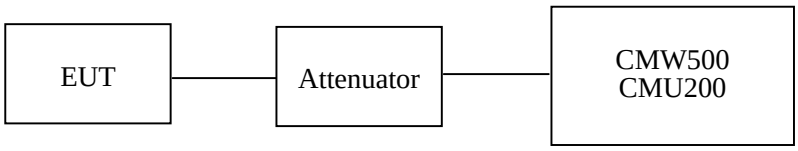
According to §27.50(h), Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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 2018-07-31.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	32.29	38.45
	190	836.6	32.44	38.45
	251	848.8	32.39	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.33	31.73	30.64	28.40	38.45
	190	836.6	32.33	31.70	30.81	29.60	38.45
	251	848.8	32.50	31.48	30.54	29.49	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	26.34	25.22	24.32	23.17	38.45
	190	836.6	26.42	25.36	24.29	22.35	38.45
	251	848.8	26.57	25.48	23.42	22.29	38.45

Antenna 1:

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	RMC12.2k		21.25	21.58	21.42
		HSDPA	1	20.34	20.43	20.38
			2	20.31	20.52	20.46
			3	20.37	20.58	20.43
			4	20.36	20.62	20.47
		HSUPA	1	20.36	20.41	20.37
			2	20.35	20.40	20.39
			3	20.46	20.57	20.52
			4	20.52	20.66	20.63
			5	20.48	20.62	20.53
		HSPA+	1	20.41	20.58	20.46

Antenna 2:

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	RMC12.2k		22.39	22.34	22.38
		HSDPA	1	21.15	21.11	21.13
			2	21.51	21.29	21.40
			3	21.60	21.52	21.57
			4	21.66	21.46	21.53
		HSUPA	1	21.62	21.34	21.49
			2	21.79	21.48	21.54
			3	21.67	21.54	21.65
			4	21.52	21.31	21.43
			5	21.61	21.48	21.54
		HSPA+	1	21.67	21.47	21.56

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	29.24	33
	661	1880.0	29.05	33
	810	1909.8	29.25	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.48	28.70	26.88	25.58	33
	661	1880.0	29.54	28.44	26.43	25.36	33
	810	1909.8	29.68	28.45	26.28	25.25	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	24.31	23.36	22.17	21.24	33
	661	1880.0	24.38	23.44	22.29	21.37	33
	810	1909.8	24.43	23.65	22.42	21.51	33

Antenna 1:

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	RMC12.2k		22.42	21.35	21.41
		HSDPA	1	21.27	20.55	20.72
			2	21.47	20.37	21.40
			3	21.37	20.44	21.46
			4	21.54	20.58	21.67
		HSUPA	1	21.33	20.47	20.84
			2	21.12	20.40	20.71
			3	21.24	20.38	20.62
			4	21.31	20.31	20.48
			5	21.36	20.36	20.52
		HSPA+	1	21.12	20.64	20.77

Antenna 2:

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	RMC12.2k		22.78	22.67	22.45
		HSDPA	1	21.82	21.74	21.47
			2	21.57	21.79	21.72
			3	21.32	21.67	21.23
			4	21.43	21.72	21.50
		HSUPA	1	21.49	21.64	21.51
			2	21.68	21.65	21.57
			3	21.69	21.51	21.47
			4	21.60	21.52	21.39
			5	21.81	21.56	21.46
		HSPA+	1	21.52	21.37	21.93

AWS Band (Part 27)

Antenna 1:

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band IV)	Normal	RMC12.2k		22.14	21.24	21.36
		HSDPA	1	21.53	20.83	21.21
			2	21.57	20.90	21.12
			3	21.66	21.00	21.23
			4	21.73	21.04	21.17
		HSUPA	1	21.23	20.37	20.62
			2	21.30	20.40	20.47
			3	21.37	20.44	20.56
			4	21.45	20.48	20.52
			5	21.50	20.56	20.66
		HSPA+	1	21.42	20.73	20.82

Antenna 2:

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band IV)	Normal	RMC12.2k		22.70	22.34	22.10
		HSDPA	1	21.68	21.65	21.64
			2	21.72	21.60	21.47
			3	21.57	21.54	21.45
			4	21.72	21.63	21.48
		HSUPA	1	21.65	21.48	21.30
			2	21.68	21.52	21.32
			3	21.64	21.56	21.41
			4	21.53	21.44	21.33
			5	21.62	21.57	21.40
		HSPA+	1	21.28	21.14	20.88

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	1.24	13
	Middle	1.43	13
	High	1.37	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	1.18	13
	Middle	1.24	13
	High	1.27	13

Antenna 2:

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.12	13
	Middle	3.35	13
	High	3.29	13
HSDPA (16QAM)	Low	3.22	13
	Middle	3.31	13
	High	3.18	13
HSUPA (BPSK)	Low	3.08	13
	Middle	3.25	13
	High	3.37	13
HSPA+	Low	3.22	13
	Middle	3.18	13
	High	3.43	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	1.34	13
	Middle	1.58	13
	High	1.29	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	1.43	13
	Middle	1.26	13
	High	1.38	13

Antenna 2:

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.25	13
	Middle	3.12	13
	High	3.62	13
HSDPA (16QAM)	Low	3.73	13
	Middle	3.54	13
	High	3.42	13
HSUPA (BPSK)	Low	3.85	13
	Middle	3.67	13
	High	3.48	13
HSPA+	Low	3.25	13
	Middle	3.61	13
	High	3.33	13

AWS Band (Part 27)

Antenna 2:

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.54	13
	Middle	3.29	13
	High	3.31	13
HSDPA (16QAM)	Low	3.46	13
	Middle	3.15	13
	High	3.27	13
HSUPA (BPSK)	Low	3.53	13
	Middle	3.21	13
	High	3.47	13
HSPA+	Low	3.51	13
	Middle	3.37	13
	High	3.84	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	92.31	292	2.0	H	29.9	0.7	0.0	29.20	38.45	9.25
836.6	87.46	332	1.0	V	27.0	0.7	0.0	26.30	38.45	12.15
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	87.97	205	1.2	H	17.9	1.30	9.40	26.00	33	7.00
1880.00	90.61	87	2.3	V	20.3	1.30	9.40	28.40	33	4.60

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	88.34	122	1.7	H	25.9	0.7	0.0	25.20	38.45	13.25
836.6	82.41	121	1.1	V	22.0	0.7	0.0	21.30	38.45	17.15
EIRP, PCS Band (Part 24E), Middle Channel										
1880.00	82.51	118	1.5	H	12.5	1.30	9.40	20.60	33	12.40
1880.00	85.68	326	1.1	V	15.4	1.30	9.40	23.50	33	9.50

WCDMA Mode:

Antenna 1:

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 WCDMA Band V (Part 22H), Middle Channel										
836.6	83.12	97	1.8	H	20.7	0.7	0.0	20.00	38.45	18.45
836.6	77.62	78	2.4	V	17.2	0.7	0.0	16.50	38.45	21.95
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	82.34	338	2.2	H	12.3	1.30	9.40	20.40	33	12.60
1880.00	74.78	46	2.3	V	4.5	1.30	9.40	12.60	33	20.40
EIRP for WCDMA Band IV (Part 27), Middle Channel										
1732.60	84.36	163	1.3	H	11.2	1.30	8.90	18.80	30	11.20
1732.60	76.61	297	2.0	V	4.0	1.30	8.90	11.60	30	18.40

Antenna 2:

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 WCDMA Band V (Part 22H), Middle Channel										
836.6	83.69	280	2.1	H	21.3	0.7	0.0	20.60	38.45	17.85
836.6	77.83	13	1.6	V	17.4	0.7	0.0	16.70	38.45	21.75
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	84.48	319	1.4	H	14.4	1.30	9.40	22.50	33	10.50
1880.00	83.34	240	2.2	V	13.1	1.30	9.40	21.20	33	11.80
EIRP for WCDMA Band IV (Part 27), Middle Channel										
1732.60	80.25	46	1.1	H	7.1	1.30	8.90	14.70	30	15.30
1732.60	82.47	268	2.0	V	9.9	1.30	8.90	17.50	30	12.50

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

LTE Band 2:
Antenna 1:

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	22.14	22.07	21.89
		RB Size=1, RB Offset=2	22.17	22.13	21.94
		RB Size=1, RB Offset=5	22.22	22.20	22.01
		RB Size=3, RB Offset=0	22.15	22.17	21.98
		RB Size=3, RB Offset=1	22.10	22.10	21.92
		RB Size=3, RB Offset=2	22.19	22.10	21.92
		RB Size=6, RB Offset=0	22.25	22.17	21.96
	16QAM	RB Size=1, RB Offset=0	22.22	22.14	21.93
		RB Size=1, RB Offset=2	22.16	22.06	21.89
		RB Size=1, RB Offset=5	22.18	22.10	21.93
		RB Size=3, RB Offset=0	22.20	22.13	21.97
		RB Size=3, RB Offset=1	22.14	22.07	21.95
		RB Size=3, RB Offset=2	22.07	21.99	21.92
		RB Size=6, RB Offset=0	22.15	22.11	21.93
3.0	QPSK	RB Size=1, RB Offset=0	22.05	21.97	21.82
		RB Size=1, RB Offset=7	22.09	22.02	21.88
		RB Size=1, RB Offset=14	22.12	22.08	21.92
		RB Size=8, RB Offset=0	22.09	22.05	21.87
		RB Size=8, RB Offset=4	22.02	22.00	21.83
		RB Size=8, RB Offset=7	22.07	22.04	21.86
		RB Size=15, RB Offset=0	22.10	22.07	21.94
	16QAM	RB Size=1, RB Offset=0	22.08	22.00	21.86
		RB Size=1, RB Offset=7	22.00	21.95	21.79
		RB Size=1, RB Offset=14	22.11	22.02	21.86
		RB Size=8, RB Offset=0	22.17	22.09	21.92
		RB Size=8, RB Offset=4	22.15	22.06	21.84
		RB Size=8, RB Offset=7	22.11	21.99	21.81
		RB Size=15, RB Offset=0	22.09	22.08	21.83

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	21.94	21.86	21.73
		RB Size=1, RB Offset=12	22.01	21.90	21.81
		RB Size=1, RB Offset=24	22.04	21.95	21.86
		RB Size=12, RB Offset=0	21.97	21.90	21.78
		RB Size=12, RB Offset=6	21.91	21.87	21.72
		RB Size=12, RB Offset=11	21.97	21.94	21.76
		RB Size=25, RB Offset=0	22.05	21.96	21.79
	16QAM	RB Size=1, RB Offset=0	21.99	21.91	21.77
		RB Size=1, RB Offset=12	21.93	21.89	21.71
		RB Size=1, RB Offset=24	21.96	21.90	21.81
		RB Size=12, RB Offset=0	22.04	21.95	21.86
		RB Size=12, RB Offset=6	22.00	21.88	21.82
		RB Size=12, RB Offset=11	21.93	21.83	21.75
		RB Size=25, RB Offset=0	21.97	21.86	21.74
10.0	QPSK	RB Size=1, RB Offset=0	21.91	21.83	21.69
		RB Size=1, RB Offset=24	21.93	21.86	21.72
		RB Size=1, RB Offset=49	21.99	21.91	21.75
		RB Size=25, RB Offset=0	21.92	21.87	21.73
		RB Size=25, RB Offset=12	21.90	21.82	21.70
		RB Size=25, RB Offset=24	21.99	21.90	21.75
		RB Size=50, RB Offset=0	22.02	21.94	21.81
	16QAM	RB Size=1, RB Offset=0	21.96	21.86	21.74
		RB Size=1, RB Offset=24	21.91	21.82	21.66
		RB Size=1, RB Offset=49	21.95	21.89	21.72
		RB Size=25, RB Offset=0	21.98	21.97	21.75
		RB Size=25, RB Offset=12	21.90	21.89	21.67
		RB Size=25, RB Offset=24	21.84	21.81	21.62
		RB Size=50, RB Offset=0	21.94	21.85	21.71

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	21.82	21.75	21.61
		RB Size=1, RB Offset=37	21.90	21.78	21.67
		RB Size=1, RB Offset=74	21.97	21.86	21.71
		RB Size=36, RB Offset=0	21.91	21.80	21.67
		RB Size=36, RB Offset=18	21.84	21.72	21.64
		RB Size=36, RB Offset=37	21.85	21.81	21.66
		RB Size=75, RB Offset=0	21.88	21.84	21.74
	16QAM	RB Size=1, RB Offset=0	21.80	21.82	21.68
		RB Size=1, RB Offset=37	21.76	21.76	21.64
		RB Size=1, RB Offset=74	21.90	21.83	21.65
		RB Size=36, RB Offset=0	21.93	21.87	21.73
		RB Size=36, RB Offset=18	21.86	21.80	21.70
		RB Size=36, RB Offset=37	21.82	21.72	21.67
		RB Size=75, RB Offset=0	21.80	21.73	21.61
20.0	QPSK	RB Size=1, RB Offset=0	21.62	21.54	21.42
		RB Size=1, RB Offset=49	21.68	21.61	21.49
		RB Size=1, RB Offset=99	21.75	21.66	21.52
		RB Size=50, RB Offset=0	21.71	21.60	21.45
		RB Size=50, RB Offset=24	21.66	21.53	21.40
		RB Size=50, RB Offset=49	21.65	21.59	21.47
		RB Size=100, RB Offset=0	21.70	21.64	21.55
	16QAM	RB Size=1, RB Offset=0	21.63	21.56	21.47
		RB Size=1, RB Offset=49	21.58	21.50	21.42
		RB Size=1, RB Offset=99	21.63	21.50	21.44
		RB Size=50, RB Offset=0	21.66	21.62	21.49
		RB Size=50, RB Offset=24	21.73	21.65	21.54
		RB Size=50, RB Offset=49	21.70	21.60	21.47
		RB Size=100, RB Offset=0	21.62	21.56	21.44

Antenna 2:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	23.70	23.52	23.14
		RB Size=1, RB Offset=2	23.73	23.60	23.21
		RB Size=1, RB Offset=5	23.80	23.66	23.27
		RB Size=3, RB Offset=0	23.75	23.62	23.21
		RB Size=3, RB Offset=1	23.67	23.57	23.15
		RB Size=3, RB Offset=2	23.64	23.54	23.13
		RB Size=6, RB Offset=0	23.57	23.52	23.05
	16QAM	RB Size=1, RB Offset=0	23.54	23.47	22.99
		RB Size=1, RB Offset=2	23.76	23.55	23.17
		RB Size=1, RB Offset=5	23.84	23.60	23.19
		RB Size=3, RB Offset=0	23.76	23.57	23.14
		RB Size=3, RB Offset=1	23.70	23.50	23.09
		RB Size=3, RB Offset=2	23.63	23.44	23.06
		RB Size=6, RB Offset=0	23.58	23.40	23.00
3.0	QPSK	RB Size=1, RB Offset=0	23.51	23.37	22.98
		RB Size=1, RB Offset=7	23.56	23.43	23.04
		RB Size=1, RB Offset=14	23.62	23.46	23.08
		RB Size=8, RB Offset=0	23.59	23.41	23.02
		RB Size=8, RB Offset=4	23.56	23.33	23.00
		RB Size=8, RB Offset=7	23.49	23.27	22.96
		RB Size=15, RB Offset=0	23.41	23.24	22.88
	16QAM	RB Size=1, RB Offset=0	23.56	23.43	23.02
		RB Size=1, RB Offset=7	23.61	23.47	23.10
		RB Size=1, RB Offset=14	23.55	23.39	23.02
		RB Size=8, RB Offset=0	23.49	23.34	22.98
		RB Size=8, RB Offset=4	23.44	23.31	22.92
		RB Size=8, RB Offset=7	23.38	23.27	22.87
		RB Size=15, RB Offset=0	23.36	23.21	22.81

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	23.27	23.18	22.82
		RB Size=1, RB Offset=12	23.34	23.25	22.86
		RB Size=1, RB Offset=24	23.38	23.28	22.89
		RB Size=12, RB Offset=0	23.34	23.25	22.84
		RB Size=12, RB Offset=6	23.28	23.18	22.81
		RB Size=12, RB Offset=11	23.25	23.11	22.74
		RB Size=25, RB Offset=0	23.21	23.07	22.68
	16QAM	RB Size=1, RB Offset=0	23.33	23.20	22.89
		RB Size=1, RB Offset=12	23.37	23.27	22.92
		RB Size=1, RB Offset=24	23.34	23.19	22.87
		RB Size=12, RB Offset=0	23.28	23.12	22.84
		RB Size=12, RB Offset=6	23.25	23.05	22.77
		RB Size=12, RB Offset=11	23.17	23.02	22.70
		RB Size=25, RB Offset=0	23.14	22.96	22.63
10.0	QPSK	RB Size=1, RB Offset=0	23.12	23.04	22.61
		RB Size=1, RB Offset=24	23.15	23.08	22.69
		RB Size=1, RB Offset=49	23.19	23.14	22.75
		RB Size=25, RB Offset=0	23.15	23.11	22.71
		RB Size=25, RB Offset=12	23.13	23.03	22.65
		RB Size=25, RB Offset=24	23.09	23.01	22.59
		RB Size=50, RB Offset=0	23.05	22.95	22.54
	16QAM	RB Size=1, RB Offset=0	23.00	22.89	22.49
		RB Size=1, RB Offset=24	23.23	23.17	22.70
		RB Size=1, RB Offset=49	23.20	23.14	22.67
		RB Size=25, RB Offset=0	23.15	23.10	22.62
		RB Size=25, RB Offset=12	23.13	23.07	22.55
		RB Size=25, RB Offset=24	23.06	23.03	22.47
		RB Size=50, RB Offset=0	23.00	22.96	22.41

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	22.84	22.81	22.53
		RB Size=1, RB Offset=37	22.92	22.88	22.55
		RB Size=1, RB Offset=74	23.00	22.95	22.61
		RB Size=36, RB Offset=0	22.92	22.93	22.58
		RB Size=36, RB Offset=18	22.86	22.89	22.51
		RB Size=36, RB Offset=37	22.79	22.83	22.46
		RB Size=75, RB Offset=0	22.73	22.76	22.39
	16QAM	RB Size=1, RB Offset=0	22.89	22.87	22.56
		RB Size=1, RB Offset=37	22.93	22.92	22.60
		RB Size=1, RB Offset=74	22.87	22.86	22.52
		RB Size=36, RB Offset=0	22.81	22.79	22.50
		RB Size=36, RB Offset=18	22.77	22.74	22.42
		RB Size=36, RB Offset=37	22.71	22.70	22.35
		RB Size=75, RB Offset=0	22.67	22.67	22.31
20.0	QPSK	RB Size=1, RB Offset=0	22.52	22.63	22.31
		RB Size=1, RB Offset=49	22.57	22.70	22.33
		RB Size=1, RB Offset=99	22.62	22.73	22.36
		RB Size=50, RB Offset=0	22.59	22.67	22.34
		RB Size=50, RB Offset=24	22.54	22.60	22.28
		RB Size=50, RB Offset=49	22.52	22.55	22.20
		RB Size=100, RB Offset=0	22.49	22.49	22.14
	16QAM	RB Size=1, RB Offset=0	22.59	22.68	22.34
		RB Size=1, RB Offset=49	22.64	22.74	22.37
		RB Size=1, RB Offset=99	22.56	22.68	22.31
		RB Size=50, RB Offset=0	22.54	22.65	22.26
		RB Size=50, RB Offset=24	22.47	22.63	22.18
		RB Size=50, RB Offset=49	22.43	22.57	22.13
		RB Size=100, RB Offset=0	22.40	22.52	22.07

Peak-to-average ratio (PAR) (antenna 2)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.86	13	Pass
QPSK (100RB Size)	5.91	13	Pass
16QAM (1RB Size)	6.81	13	Pass
16QAM (100RB Size)	6.86	13	Pass

Antenna 1:
QPSK:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	84.41	228	2.0	H	14.4	1.30	9.40	22.50	33
1880.00	82.34	266	2.0	V	12.1	1.30	9.40	20.20	33
3 MHz Bandwidth									
1880.00	84.32	95	2.3	H	14.3	1.30	9.40	22.40	33
1880.00	82.23	53	1.7	V	12.0	1.30	9.40	20.10	33
5 MHz Bandwidth									
1880.00	84.19	152	2.3	H	14.1	1.30	9.40	22.20	33
1880.00	81.84	117	2.0	V	11.6	1.30	9.40	19.70	33
10 MHz Bandwidth									
1880.00	84.02	255	2.5	H	14.0	1.30	9.40	22.10	33
1880.00	82.32	146	1.1	V	12.1	1.30	9.40	20.20	33
15 MHz Bandwidth									
1880.00	83.84	196	1.7	H	13.8	1.30	9.40	21.90	33
1880.00	82.19	358	1.2	V	11.9	1.30	9.40	20.00	33
20 MHz Bandwidth									
1880.00	83.62	301	2.3	H	13.6	1.30	9.40	21.70	33
1880.00	81.69	206	1.6	V	11.4	1.30	9.40	19.50	33

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	85.03	265	2.4	H	15.0	1.30	9.40	23.10	33
1880.00	83.57	75	1.8	V	13.3	1.30	9.40	21.40	33
3 MHz Bandwidth									
1880.00	84.92	135	2.1	H	14.9	1.30	9.40	23.00	33
1880.00	82.31	252	1.4	V	12.0	1.30	9.40	20.10	33
5 MHz Bandwidth									
1880.00	84.84	38	2.2	H	14.8	1.30	9.40	22.90	33
1880.00	82.13	25	1.8	V	11.9	1.30	9.40	20.00	33
10 MHz Bandwidth									
1880.00	84.62	338	2.4	H	14.6	1.30	9.40	22.70	33
1880.00	81.87	44	1.4	V	11.6	1.30	9.40	19.70	33
15 MHz Bandwidth									
1880.00	84.51	350	1.2	H	14.5	1.30	9.40	22.60	33
1880.00	81.58	16	2.3	V	11.3	1.30	9.40	19.40	33
20 MHz Bandwidth									
1880.00	84.38	3	2.1	H	14.3	1.30	9.40	22.40	33
1880.00	81.62	141	1.2	V	11.4	1.30	9.40	19.50	33

Antenna 2:
QPSK:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	83.56	221	2.1	H	13.5	1.30	9.40	21.60	33
1880.00	81.24	124	1.5	V	11.0	1.30	9.40	19.10	33
3 MHz Bandwidth									
1880.00	83.21	292	1.2	H	13.2	1.30	9.40	21.30	33
1880.00	80.52	335	1.4	V	10.3	1.30	9.40	18.40	33
5 MHz Bandwidth									
1880.00	82.94	45	2.3	H	12.9	1.30	9.40	21.00	33
1880.00	81.17	215	1.0	V	10.9	1.30	9.40	19.00	33
10 MHz Bandwidth									
1880.00	82.83	78	1.1	H	12.8	1.30	9.40	20.90	33
1880.00	81.29	116	2.3	V	11.0	1.30	9.40	19.10	33
15 MHz Bandwidth									
1880.00	82.74	172	2.0	H	12.7	1.30	9.40	20.80	33
1880.00	80.52	309	1.8	V	10.3	1.30	9.40	18.40	33
20 MHz Bandwidth									
1880.00	82.66	61	1.7	H	12.6	1.30	9.40	20.70	33
1880.00	82.01	298	2.1	V	11.7	1.30	9.40	19.80	33

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	82.91	193	1.9	H	12.9	1.30	9.40	21.00	33
1880.00	81.76	18	1.6	V	11.5	1.30	9.40	19.60	33
3 MHz Bandwidth									
1880.00	83.29	227	1.4	H	13.2	1.30	9.40	21.30	33
1880.00	81.95	207	1.2	V	11.7	1.30	9.40	19.80	33
5 MHz Bandwidth									
1880.00	83.64	3	1.2	H	13.6	1.30	9.40	21.70	33
1880.00	82.78	163	2.4	V	12.5	1.30	9.40	20.60	33
10 MHz Bandwidth									
1880.00	83.39	323	1.7	H	13.3	1.30	9.40	21.40	33
1880.00	81.52	347	2.3	V	11.3	1.30	9.40	19.40	33
15 MHz Bandwidth									
1880.00	83.24	42	1.1	H	13.2	1.30	9.40	21.30	33
1880.00	81.76	39	1.1	V	11.5	1.30	9.40	19.60	33
20 MHz Bandwidth									
1880.00	83.05	53	1.1	H	13.0	1.30	9.40	21.10	33
1880.00	82.51	240	1.9	V	12.2	1.30	9.40	20.30	33

LTE Band 4:
Antenna 1:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	21.28	21.34	21.15
		RB Size=1, RB Offset=2	21.30	21.37	21.18
		RB Size=1, RB Offset=5	21.38	21.41	21.23
		RB Size=3, RB Offset=0	21.34	21.33	21.17
		RB Size=3, RB Offset=1	21.29	21.27	21.10
		RB Size=3, RB Offset=2	21.23	21.20	21.04
		RB Size=6, RB Offset=0	21.17	21.16	21.01
	16QAM	RB Size=1, RB Offset=0	21.33	21.40	21.20
		RB Size=1, RB Offset=2	21.38	21.44	21.23
		RB Size=1, RB Offset=5	21.31	21.39	21.15
		RB Size=3, RB Offset=0	21.24	21.34	21.10
		RB Size=3, RB Offset=1	21.18	21.32	21.04
		RB Size=3, RB Offset=2	21.16	21.25	20.96
		RB Size=6, RB Offset=0	21.09	21.20	20.90
3.0	QPSK	RB Size=1, RB Offset=0	21.14	21.32	21.11
		RB Size=1, RB Offset=7	21.20	21.36	21.15
		RB Size=1, RB Offset=14	21.24	21.39	21.20
		RB Size=8, RB Offset=0	21.21	21.35	21.15
		RB Size=8, RB Offset=4	21.14	21.30	21.09
		RB Size=8, RB Offset=7	21.06	21.22	21.02
		RB Size=15, RB Offset=0	20.99	21.16	21.00
	16QAM	RB Size=1, RB Offset=0	21.18	21.38	21.15
		RB Size=1, RB Offset=7	21.26	21.41	21.17
		RB Size=1, RB Offset=14	21.19	21.34	21.12
		RB Size=8, RB Offset=0	21.15	21.29	21.05
		RB Size=8, RB Offset=4	21.09	21.23	20.98
		RB Size=8, RB Offset=7	21.06	21.16	20.94
		RB Size=15, RB Offset=0	20.99	21.11	20.91

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	20.93	21.17	21.02
		RB Size=1, RB Offset=12	20.98	21.20	21.08
		RB Size=1, RB Offset=24	21.04	21.27	21.10
		RB Size=12, RB Offset=0	20.96	21.19	21.02
		RB Size=12, RB Offset=6	20.94	21.16	20.97
		RB Size=12, RB Offset=11	20.91	21.11	20.91
		RB Size=25, RB Offset=0	20.83	21.05	20.88
	16QAM	RB Size=1, RB Offset=0	20.98	21.22	21.09
		RB Size=1, RB Offset=12	21.03	21.26	21.17
		RB Size=1, RB Offset=24	20.97	21.19	21.11
		RB Size=12, RB Offset=0	20.92	21.14	21.05
		RB Size=12, RB Offset=6	20.84	21.10	21.00
		RB Size=12, RB Offset=11	20.81	21.06	20.97
		RB Size=25, RB Offset=0	20.75	20.98	20.92
10.0	QPSK	RB Size=1, RB Offset=0	20.81	20.94	20.92
		RB Size=1, RB Offset=24	20.85	21.01	21.00
		RB Size=1, RB Offset=49	20.90	21.03	21.07
		RB Size=25, RB Offset=0	20.82	20.99	21.03
		RB Size=25, RB Offset=12	20.76	20.92	21.00
		RB Size=25, RB Offset=24	20.71	20.86	20.97
		RB Size=50, RB Offset=0	20.67	20.83	20.92
	16QAM	RB Size=1, RB Offset=0	20.85	21.00	20.99
		RB Size=1, RB Offset=24	20.88	21.02	21.01
		RB Size=1, RB Offset=49	20.85	21.00	20.98
		RB Size=25, RB Offset=0	20.81	20.94	20.92
		RB Size=25, RB Offset=12	20.79	20.91	20.89
		RB Size=25, RB Offset=24	20.75	20.87	20.83
		RB Size=50, RB Offset=0	20.67	20.83	20.77

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	20.62	20.84	20.74
		RB Size=1, RB Offset=37	20.69	20.90	20.81
		RB Size=1, RB Offset=74	20.73	20.94	20.83
		RB Size=36, RB Offset=0	20.65	20.91	20.81
		RB Size=36, RB Offset=18	20.60	20.87	20.77
		RB Size=36, RB Offset=37	20.56	20.81	20.71
		RB Size=75, RB Offset=0	20.50	20.78	20.66
	16QAM	RB Size=1, RB Offset=0	20.67	20.89	20.81
		RB Size=1, RB Offset=37	20.73	20.92	20.84
		RB Size=1, RB Offset=74	20.66	20.87	20.79
		RB Size=36, RB Offset=0	20.60	20.83	20.73
		RB Size=36, RB Offset=18	20.55	20.76	20.67
		RB Size=36, RB Offset=37	20.49	20.70	20.60
		RB Size=75, RB Offset=0	20.44	20.63	20.55
20.0	QPSK	RB Size=1, RB Offset=0	20.55	20.73	20.69
		RB Size=1, RB Offset=49	20.63	20.80	20.76
		RB Size=1, RB Offset=99	20.65	20.84	20.80
		RB Size=50, RB Offset=0	20.60	20.80	20.72
		RB Size=50, RB Offset=24	20.55	20.78	20.69
		RB Size=50, RB Offset=49	20.48	20.74	20.67
		RB Size=100, RB Offset=0	20.44	20.71	20.64
	16QAM	RB Size=1, RB Offset=0	20.62	20.77	20.71
		RB Size=1, RB Offset=49	20.69	20.85	20.74
		RB Size=1, RB Offset=99	20.67	20.77	20.71
		RB Size=50, RB Offset=0	20.60	20.70	20.65
		RB Size=50, RB Offset=24	20.58	20.63	20.61
		RB Size=50, RB Offset=49	20.52	20.59	20.57
		RB Size=100, RB Offset=0	20.50	20.52	20.54

Antenna 2:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	20.69	20.82	20.52
		RB Size=1, RB Offset=2	20.71	20.90	20.57
		RB Size=1, RB Offset=5	20.78	20.98	20.60
		RB Size=3, RB Offset=0	20.76	20.91	20.56
		RB Size=3, RB Offset=1	20.71	20.86	20.54
		RB Size=3, RB Offset=2	20.66	20.82	20.49
		RB Size=6, RB Offset=0	20.62	20.78	20.43
	16QAM	RB Size=1, RB Offset=0	20.75	20.85	20.59
		RB Size=1, RB Offset=2	20.81	20.93	20.63
		RB Size=1, RB Offset=5	20.73	20.87	20.59
		RB Size=3, RB Offset=0	20.70	20.81	20.54
		RB Size=3, RB Offset=1	20.65	20.74	20.51
		RB Size=3, RB Offset=2	20.63	20.68	20.46
		RB Size=6, RB Offset=0	20.58	20.62	20.38
3.0	QPSK	RB Size=1, RB Offset=0	20.62	20.73	20.43
		RB Size=1, RB Offset=7	20.68	20.77	20.47
		RB Size=1, RB Offset=14	20.75	20.80	20.55
		RB Size=8, RB Offset=0	20.71	20.72	20.50
		RB Size=8, RB Offset=4	20.64	20.70	20.43
		RB Size=8, RB Offset=7	20.57	20.63	20.36
		RB Size=15, RB Offset=0	20.51	20.55	20.33
	16QAM	RB Size=1, RB Offset=0	20.67	20.79	20.47
		RB Size=1, RB Offset=7	20.70	20.83	20.53
		RB Size=1, RB Offset=14	20.65	20.81	20.46
		RB Size=8, RB Offset=0	20.58	20.78	20.41
		RB Size=8, RB Offset=4	20.54	20.74	20.37
		RB Size=8, RB Offset=7	20.50	20.71	20.34
		RB Size=15, RB Offset=0	20.46	20.64	20.31

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	20.54	20.63	20.38
		RB Size=1, RB Offset=12	20.60	20.70	20.44
		RB Size=1, RB Offset=24	20.65	20.73	20.51
		RB Size=12, RB Offset=0	20.58	20.68	20.44
		RB Size=12, RB Offset=6	20.50	20.61	20.38
		RB Size=12, RB Offset=11	20.47	20.54	20.31
		RB Size=25, RB Offset=0	20.44	20.47	20.34
	16QAM	RB Size=1, RB Offset=0	20.58	20.67	20.41
		RB Size=1, RB Offset=12	20.63	20.69	20.46
		RB Size=1, RB Offset=24	20.56	20.67	20.39
		RB Size=12, RB Offset=0	20.54	20.63	20.37
		RB Size=12, RB Offset=6	20.51	20.57	20.34
		RB Size=12, RB Offset=11	20.47	20.51	20.31
		RB Size=25, RB Offset=0	20.42	20.48	20.36
10.0	QPSK	RB Size=1, RB Offset=0	20.58	20.61	20.35
		RB Size=1, RB Offset=24	20.65	20.66	20.40
		RB Size=1, RB Offset=49	20.67	20.73	20.44
		RB Size=25, RB Offset=0	20.64	20.66	20.37
		RB Size=25, RB Offset=12	20.61	20.59	20.34
		RB Size=25, RB Offset=24	20.54	20.52	20.38
		RB Size=50, RB Offset=0	20.51	20.44	20.34
	16QAM	RB Size=1, RB Offset=0	20.61	20.66	20.40
		RB Size=1, RB Offset=24	20.65	20.73	20.43
		RB Size=1, RB Offset=49	20.59	20.68	20.39
		RB Size=25, RB Offset=0	20.56	20.64	20.33
		RB Size=25, RB Offset=12	20.50	20.59	20.36
		RB Size=25, RB Offset=24	20.45	20.55	20.34
		RB Size=50, RB Offset=0	20.37	20.51	20.31

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	20.54	20.59	20.36
		RB Size=1, RB Offset=37	20.59	20.63	20.39
		RB Size=1, RB Offset=74	20.61	20.65	20.43
		RB Size=36, RB Offset=0	20.55	20.62	20.35
		RB Size=36, RB Offset=18	20.53	20.55	20.39
		RB Size=36, RB Offset=37	20.47	20.53	20.32
		RB Size=75, RB Offset=0	20.45	20.46	20.35
	16QAM	RB Size=1, RB Offset=0	20.59	20.62	20.43
		RB Size=1, RB Offset=37	20.65	20.69	20.45
		RB Size=1, RB Offset=74	20.60	20.63	20.39
		RB Size=36, RB Offset=0	20.55	20.58	20.31
		RB Size=36, RB Offset=18	20.52	20.53	20.33
		RB Size=36, RB Offset=37	20.46	20.51	20.36
		RB Size=75, RB Offset=0	20.41	20.48	20.33
20.0	QPSK	RB Size=1, RB Offset=0	20.49	20.57	20.35
		RB Size=1, RB Offset=49	20.53	20.61	20.38
		RB Size=1, RB Offset=99	20.58	20.67	20.45
		RB Size=50, RB Offset=0	20.54	20.61	20.38
		RB Size=50, RB Offset=24	20.51	20.55	20.33
		RB Size=50, RB Offset=49	20.49	20.53	20.39
		RB Size=100, RB Offset=0	20.41	20.48	20.32
	16QAM	RB Size=1, RB Offset=0	20.35	20.43	20.34
		RB Size=1, RB Offset=49	20.56	20.63	20.42
		RB Size=1, RB Offset=99	20.60	20.69	20.48
		RB Size=50, RB Offset=0	20.54	20.65	20.40
		RB Size=50, RB Offset=24	20.47	20.61	20.33
		RB Size=50, RB Offset=49	20.43	20.58	20.31
		RB Size=100, RB Offset=0	20.41	20.51	20.32

Peak-to-average ratio (PAR) (antenna 2)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.68	13	Pass
QPSK (100RB Size)	5.78	13	Pass
16QAM (1RB Size)	6.61	13	Pass
16QAM (100RB Size)	6.67	13	Pass

Antenna 1:
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	80.25	177	1.0	H	7.1	1.30	8.90	14.70	30
1732.50	82.92	199	2.3	V	10.4	1.30	8.90	18.00	30
3 MHz Bandwidth									
1732.50	80.92	173	2.5	H	7.8	1.30	8.90	15.40	30
1732.50	82.75	135	1.4	V	10.2	1.30	8.90	17.80	30
5 MHz Bandwidth									
1732.50	80.11	86	1.7	H	6.9	1.30	8.90	14.50	30
1732.50	82.59	18	1.0	V	10.0	1.30	8.90	17.60	30
10 MHz Bandwidth									
1732.50	80.08	130	2.3	H	6.9	1.30	8.90	14.50	30
1732.50	82.43	288	2.3	V	9.9	1.30	8.90	17.50	30
15 MHz Bandwidth									
1732.50	80.42	64	2.3	H	7.3	1.30	8.90	14.90	30
1732.50	82.38	46	1.3	V	9.8	1.30	8.90	17.40	30
20 MHz Bandwidth									
1732.50	81.13	312	1.6	H	8.0	1.30	8.90	15.60	30
1732.50	82.16	121	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	81.24	360	1.8	H	8.1	1.30	8.90	15.70	30
1732.50	83.57	288	2.3	V	11.0	1.30	8.90	18.60	30
3 MHz Bandwidth									
1732.50	81.06	138	2.1	H	7.9	1.30	8.90	15.50	30
1732.50	83.25	168	2.1	V	10.7	1.30	8.90	18.30	30
5 MHz Bandwidth									
1732.50	81.15	243	2.1	H	8.0	1.30	8.90	15.60	30
1732.50	82.78	84	2.0	V	10.2	1.30	8.90	17.80	30
10 MHz Bandwidth									
1732.50	81.72	348	1.9	H	8.6	1.30	8.90	16.20	30
1732.50	82.59	52	2.4	V	10.0	1.30	8.90	17.60	30
15 MHz Bandwidth									
1732.50	81.94	350	1.2	H	8.8	1.30	8.90	16.40	30
1732.50	82.46	355	1.9	V	9.9	1.30	8.90	17.50	30
20 MHz Bandwidth									
1732.50	81.53	130	1.1	H	8.4	1.30	8.90	16.00	30
1732.50	82.34	353	2.4	V	9.8	1.30	8.90	17.40	30

Antenna 2:
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	81.84	259	2.3	H	8.7	1.30	8.90	16.30	30
1732.50	83.62	232	2.5	V	11.1	1.30	8.90	18.70	30
3 MHz Bandwidth									
1732.50	81.62	82	1.9	H	8.5	1.30	8.90	16.10	30
1732.50	83.72	266	1.1	V	11.2	1.30	8.90	18.80	30
5 MHz Bandwidth									
1732.50	82.34	150	1.2	H	9.2	1.30	8.90	16.80	30
1732.50	83.51	124	2.4	V	10.9	1.30	8.90	18.50	30
10 MHz Bandwidth									
1732.50	81.37	207	1.8	H	8.2	1.30	8.90	15.80	30
1732.50	83.29	346	1.5	V	10.7	1.30	8.90	18.30	30
15 MHz Bandwidth									
1732.50	81.26	174	1.9	H	8.1	1.30	8.90	15.70	30
1732.50	83.04	143	1.2	V	10.5	1.30	8.90	18.10	30
20 MHz Bandwidth									
1732.50	81.17	235	1.3	H	8.0	1.30	8.90	15.60	30
1732.50	82.76	338	2.1	V	10.2	1.30	8.90	17.80	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	81.54	226	2.2	H	8.4	1.30	8.90	16.00	30
1732.50	83.72	28	1.4	V	11.2	1.30	8.90	18.80	30
3 MHz Bandwidth									
1732.50	81.34	150	1.3	H	8.2	1.30	8.90	15.80	30
1732.50	83.61	284	2.0	V	11.0	1.30	8.90	18.60	30
5 MHz Bandwidth									
1732.50	80.84	241	1.7	H	7.7	1.30	8.90	15.30	30
1732.50	83.42	292	2.4	V	10.9	1.30	8.90	18.50	30
10 MHz Bandwidth									
1732.50	80.93	185	2.0	H	7.8	1.30	8.90	15.40	30
1732.50	83.37	43	2.2	V	10.8	1.30	8.90	18.40	30
15 MHz Bandwidth									
1732.50	80.69	118	2.1	H	7.5	1.30	8.90	15.10	30
1732.50	83.31	23	1.4	V	10.7	1.30	8.90	18.30	30
20 MHz Bandwidth									
1732.50	80.28	25	1.7	H	7.1	1.30	8.90	14.70	30
1732.50	83.04	143	2.3	V	10.5	1.30	8.90	18.10	30

LTE Band 5:
Antenna 1:

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	23.14	23.08	22.94
		RB Size=1, RB Offset=2	23.22	23.14	22.97
		RB Size=1, RB Offset=5	23.28	23.20	23.05
		RB Size=3, RB Offset=0	23.22	23.17	23.01
		RB Size=3, RB Offset=1	23.17	23.10	22.97
		RB Size=3, RB Offset=2	23.13	23.06	22.91
		RB Size=6, RB Offset=0	23.10	23.04	22.84
	16QAM	RB Size=1, RB Offset=0	23.20	23.12	23.01
		RB Size=1, RB Offset=2	23.25	23.19	23.06
		RB Size=1, RB Offset=5	23.19	23.12	22.99
		RB Size=3, RB Offset=0	23.15	23.09	22.93
		RB Size=3, RB Offset=1	23.10	23.04	22.88
		RB Size=3, RB Offset=2	23.06	22.98	22.80
		RB Size=6, RB Offset=0	23.03	22.93	22.76
3.0	QPSK	RB Size=1, RB Offset=0	23.07	23.04	22.91
		RB Size=1, RB Offset=7	23.13	23.10	22.95
		RB Size=1, RB Offset=14	23.19	23.14	23.00
		RB Size=8, RB Offset=0	23.14	23.11	22.98
		RB Size=8, RB Offset=4	23.08	23.04	22.93
		RB Size=8, RB Offset=7	23.03	23.01	22.90
		RB Size=15, RB Offset=0	22.98	22.96	22.83
	16QAM	RB Size=1, RB Offset=0	23.13	23.09	22.97
		RB Size=1, RB Offset=7	23.20	23.15	23.00
		RB Size=1, RB Offset=14	23.18	23.07	22.94
		RB Size=8, RB Offset=0	23.14	23.01	22.91
		RB Size=8, RB Offset=4	23.12	22.93	22.88
		RB Size=8, RB Offset=7	23.04	22.90	22.83
		RB Size=15, RB Offset=0	23.00	22.85	22.78

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	22.94	22.97	22.83
		RB Size=1, RB Offset=12	23.01	23.04	22.91
		RB Size=1, RB Offset=24	23.04	23.09	22.95
		RB Size=12, RB Offset=0	22.98	23.05	22.89
		RB Size=12, RB Offset=6	22.92	23.01	22.85
		RB Size=12, RB Offset=11	22.86	22.97	22.77
		RB Size=25, RB Offset=0	22.82	22.94	22.73
	16QAM	RB Size=1, RB Offset=0	22.80	22.92	22.69
		RB Size=1, RB Offset=12	23.01	23.04	22.90
		RB Size=1, RB Offset=24	23.08	23.11	22.95
		RB Size=12, RB Offset=0	23.02	23.08	22.89
		RB Size=12, RB Offset=6	22.97	23.03	22.85
		RB Size=12, RB Offset=11	22.95	23.01	22.78
		RB Size=25, RB Offset=0	22.90	22.96	22.72
10.0	QPSK	RB Size=1, RB Offset=0	22.81	22.76	22.72
		RB Size=1, RB Offset=24	22.88	22.83	22.76
		RB Size=1, RB Offset=49	22.95	22.87	22.82
		RB Size=25, RB Offset=0	22.92	22.79	22.79
		RB Size=25, RB Offset=12	22.87	22.71	22.74
		RB Size=25, RB Offset=24	22.83	22.69	22.70
		RB Size=50, RB Offset=0	22.80	22.62	22.64
	16QAM	RB Size=1, RB Offset=0	22.85	22.83	22.75
		RB Size=1, RB Offset=24	22.87	22.86	22.77
		RB Size=1, RB Offset=49	22.85	22.80	22.71
		RB Size=25, RB Offset=0	22.81	22.72	22.67
		RB Size=25, RB Offset=12	22.76	22.65	22.64
		RB Size=25, RB Offset=24	22.72	22.63	22.58
		RB Size=50, RB Offset=0	22.64	22.58	22.55

Antenna 2:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	23.24	23.37	23.51
		RB Size=1, RB Offset=2	23.28	23.41	23.55
		RB Size=1, RB Offset=5	23.33	23.47	23.62
		RB Size=3, RB Offset=0	23.28	23.43	23.54
		RB Size=3, RB Offset=1	23.21	23.35	23.49
		RB Size=3, RB Offset=2	23.18	23.29	23.45
		RB Size=6, RB Offset=0	23.13	23.22	23.40
	16QAM	RB Size=1, RB Offset=0	23.07	23.15	23.34
		RB Size=1, RB Offset=2	23.30	23.43	23.56
		RB Size=1, RB Offset=5	23.35	23.49	23.62
		RB Size=3, RB Offset=0	23.30	23.46	23.59
		RB Size=3, RB Offset=1	23.24	23.40	23.56
		RB Size=3, RB Offset=2	23.17	23.36	23.49
		RB Size=6, RB Offset=0	23.12	23.30	23.42
3.0	QPSK	RB Size=1, RB Offset=0	23.02	23.13	23.22
		RB Size=1, RB Offset=7	23.06	23.16	23.28
		RB Size=1, RB Offset=14	23.11	23.23	23.30
		RB Size=8, RB Offset=0	23.03	23.20	23.27
		RB Size=8, RB Offset=4	22.97	23.12	23.22
		RB Size=8, RB Offset=7	22.95	23.05	23.19
		RB Size=15, RB Offset=0	22.90	23.03	23.17
	16QAM	RB Size=1, RB Offset=0	22.85	22.96	23.09
		RB Size=1, RB Offset=7	23.04	23.15	23.27
		RB Size=1, RB Offset=14	23.10	23.18	23.30
		RB Size=8, RB Offset=0	23.05	23.13	23.25
		RB Size=8, RB Offset=4	22.97	23.07	23.23
		RB Size=8, RB Offset=7	22.94	23.04	23.17
		RB Size=15, RB Offset=0	22.87	23.02	23.09

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	22.91	23.01	23.07
		RB Size=1, RB Offset=12	22.96	23.05	23.12
		RB Size=1, RB Offset=24	23.00	23.10	23.15
		RB Size=12, RB Offset=0	22.94	23.06	23.07
		RB Size=12, RB Offset=6	22.91	23.02	23.02
		RB Size=12, RB Offset=11	22.86	22.96	22.97
		RB Size=25, RB Offset=0	22.79	22.89	22.93
	16QAM	RB Size=1, RB Offset=0	22.95	23.05	23.09
		RB Size=1, RB Offset=12	23.00	23.12	23.15
		RB Size=1, RB Offset=24	22.97	23.04	23.08
		RB Size=12, RB Offset=0	22.92	23.00	23.05
		RB Size=12, RB Offset=6	22.88	22.97	23.03
		RB Size=12, RB Offset=11	22.82	22.92	22.98
		RB Size=25, RB Offset=0	22.76	22.85	22.91
10.0	QPSK	RB Size=1, RB Offset=0	22.74	22.82	22.84
		RB Size=1, RB Offset=24	22.78	22.88	22.91
		RB Size=1, RB Offset=49	22.80	22.94	22.98
		RB Size=25, RB Offset=0	22.77	22.88	22.95
		RB Size=25, RB Offset=12	22.75	22.85	22.88
		RB Size=25, RB Offset=24	22.72	22.79	22.84
		RB Size=50, RB Offset=0	22.66	22.72	22.78
	16QAM	RB Size=1, RB Offset=0	22.63	22.69	22.75
		RB Size=1, RB Offset=24	22.77	22.88	22.88
		RB Size=1, RB Offset=49	22.80	22.90	22.93
		RB Size=25, RB Offset=0	22.72	22.83	22.87
		RB Size=25, RB Offset=12	22.66	22.78	22.79
		RB Size=25, RB Offset=24	22.59	22.73	22.72
		RB Size=50, RB Offset=0	22.55	22.70	22.67

Peak-to-average ratio (PAR) (antenna 2)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	6.17	13	Pass
QPSK (50RB Size)	6.26	13	Pass
16QAM (1RB Size)	7.15	13	Pass
16QAM (50RB Size)	7.23	13	Pass

Antenna 1:
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	84.29	185	1.3	H	21.9	0.7	0.0	21.20	38.45
836.5	79.68	50	1.1	V	19.2	0.7	0.0	18.50	38.45
3 MHz Bandwidth									
836.5	84.13	37	2.3	H	21.7	0.7	0.0	21.00	38.45
836.5	79.53	85	2.5	V	19.1	0.7	0.0	18.40	38.45
5 MHz Bandwidth									
836.5	84.02	45	2.1	H	21.6	0.7	0.0	20.90	38.45
836.5	79.62	333	2.1	V	19.2	0.7	0.0	18.50	38.45
10 MHz Bandwidth									
836.5	83.86	280	2.4	H	21.5	0.7	0.0	20.80	38.45
836.5	79.33	35	1.3	V	18.9	0.7	0.0	18.20	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	84.38	9	1.0	H	22.0	0.7	0.0	21.30	38.45
836.5	80.37	306	2.3	V	19.9	0.7	0.0	19.20	38.45
3 MHz Bandwidth									
836.5	84.24	21	2.5	H	21.8	0.7	0.0	21.10	38.45
836.5	80.16	114	1.9	V	19.7	0.7	0.0	19.00	38.45
5 MHz Bandwidth									
836.5	84.19	217	1.1	H	21.8	0.7	0.0	21.10	38.45
836.5	80.43	222	1.6	V	20.0	0.7	0.0	19.30	38.45
10 MHz Bandwidth									
836.5	83.54	208	2.5	H	21.1	0.7	0.0	20.40	38.45
836.5	79.62	335	2.1	V	19.2	0.7	0.0	18.50	38.45

Antenna 2:
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	83.54	341	1.4	H	21.1	0.7	0.0	20.40	38.45
836.5	78.62	169	1.4	V	18.2	0.7	0.0	17.50	38.45
3 MHz Bandwidth									
836.5	83.36	339	1.4	H	21.0	0.7	0.0	20.30	38.45
836.5	78.12	109	1.2	V	17.7	0.7	0.0	17.00	38.45
5 MHz Bandwidth									
836.5	83.14	316	1.1	H	20.7	0.7	0.0	20.00	38.45
836.5	78.34	260	2.5	V	17.9	0.7	0.0	17.20	38.45
10 MHz Bandwidth									
836.5	82.87	313	2.0	H	20.5	0.7	0.0	19.80	38.45
836.5	78.63	175	2.2	V	18.2	0.7	0.0	17.50	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	83.82	304	2.2	H	21.4	0.7	0.0	20.70	38.45
836.5	79.24	184	2.0	V	18.8	0.7	0.0	18.10	38.45
3 MHz Bandwidth									
836.5	83.71	49	1.7	H	21.3	0.7	0.0	20.60	38.45
836.5	79.51	49	2.0	V	19.1	0.7	0.0	18.40	38.45
5 MHz Bandwidth									
836.5	83.51	331	1.5	H	21.1	0.7	0.0	20.40	38.45
836.5	79.37	189	2.5	V	18.9	0.7	0.0	18.20	38.45
10 MHz Bandwidth									
836.5	83.34	117	2.0	H	20.9	0.7	0.0	20.20	38.45
836.5	78.69	89	1.0	V	18.3	0.7	0.0	17.60	38.45

LTE Band 7:
Antenna 1:

Maximum Output Power

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	20.93	20.84	20.76
		RB Size=1, RB Offset=12	20.98	20.89	20.80
		RB Size=1, RB Offset=24	21.05	20.93	20.85
		RB Size=12, RB Offset=0	21.01	20.85	20.78
		RB Size=12, RB Offset=6	20.97	20.80	20.73
		RB Size=12, RB Offset=11	20.92	20.76	20.69
		RB Size=25, RB Offset=0	20.88	20.73	20.64
	16QAM	RB Size=1, RB Offset=0	21.00	20.90	20.81
		RB Size=1, RB Offset=12	21.03	20.97	20.88
		RB Size=1, RB Offset=24	20.96	20.90	20.86
		RB Size=12, RB Offset=0	20.89	20.84	20.80
		RB Size=12, RB Offset=6	20.85	20.80	20.72
		RB Size=12, RB Offset=11	20.78	20.72	20.65
		RB Size=25, RB Offset=0	20.71	20.69	20.60
10.0	QPSK	RB Size=1, RB Offset=0	20.81	20.75	20.71
		RB Size=1, RB Offset=24	20.86	20.81	20.78
		RB Size=1, RB Offset=49	20.93	20.86	20.84
		RB Size=25, RB Offset=0	20.86	20.82	20.80
		RB Size=25, RB Offset=12	20.79	20.76	20.72
		RB Size=25, RB Offset=24	20.77	20.70	20.67
		RB Size=50, RB Offset=0	20.74	20.66	20.64
	16QAM	RB Size=1, RB Offset=0	20.86	20.81	20.75
		RB Size=1, RB Offset=24	20.89	20.88	20.80
		RB Size=1, RB Offset=49	20.86	20.85	20.73
		RB Size=25, RB Offset=0	20.81	20.83	20.66
		RB Size=25, RB Offset=12	20.74	20.78	20.61
		RB Size=25, RB Offset=24	20.67	20.73	20.58
		RB Size=50, RB Offset=0	20.63	20.71	20.53

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	20.74	20.62	20.58
		RB Size=1, RB Offset=37	20.80	20.68	20.66
		RB Size=1, RB Offset=74	20.82	20.72	20.73
		RB Size=36, RB Offset=0	20.76	20.65	20.65
		RB Size=36, RB Offset=18	20.71	20.61	20.57
		RB Size=36, RB Offset=37	20.65	20.55	20.53
		RB Size=75, RB Offset=0	20.58	20.50	20.45
	16QAM	RB Size=1, RB Offset=0	20.78	20.65	20.65
		RB Size=1, RB Offset=37	20.86	20.69	20.67
		RB Size=1, RB Offset=74	20.81	20.64	20.65
		RB Size=36, RB Offset=0	20.75	20.61	20.61
		RB Size=36, RB Offset=18	20.71	20.59	20.58
		RB Size=36, RB Offset=37	20.66	20.52	20.55
		RB Size=75, RB Offset=0	20.61	20.47	20.52
20.0	QPSK	RB Size=1, RB Offset=0	20.51	20.48	20.43
		RB Size=1, RB Offset=49	20.58	20.53	20.46
		RB Size=1, RB Offset=99	20.62	20.58	20.50
		RB Size=50, RB Offset=0	20.59	20.55	20.45
		RB Size=50, RB Offset=24	20.53	20.51	20.42
		RB Size=50, RB Offset=49	20.50	20.45	20.40
		RB Size=100, RB Offset=0	20.45	20.39	20.34
	16QAM	RB Size=1, RB Offset=0	20.42	20.32	20.39
		RB Size=1, RB Offset=49	20.56	20.51	20.51
		RB Size=1, RB Offset=99	20.61	20.54	20.55
		RB Size=50, RB Offset=0	20.57	20.46	20.50
		RB Size=50, RB Offset=24	20.50	20.41	20.44
		RB Size=50, RB Offset=49	20.43	20.36	20.40
		RB Size=100, RB Offset=0	20.39	20.30	20.36

Antenna 2:

Maximum Output Power

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	21.14	21.26	21.37
		RB Size=1, RB Offset=12	21.20	21.30	21.42
		RB Size=1, RB Offset=24	21.26	21.33	21.46
		RB Size=12, RB Offset=0	21.22	21.30	21.44
		RB Size=12, RB Offset=6	21.18	21.28	21.41
		RB Size=12, RB Offset=11	21.14	21.23	21.39
		RB Size=25, RB Offset=0	21.08	21.15	21.35
	16QAM	RB Size=1, RB Offset=0	21.21	21.28	21.41
		RB Size=1, RB Offset=12	21.26	21.32	21.48
		RB Size=1, RB Offset=24	21.20	21.25	21.41
		RB Size=12, RB Offset=0	21.14	21.22	21.37
		RB Size=12, RB Offset=6	21.08	21.17	21.29
		RB Size=12, RB Offset=11	21.05	21.15	21.24
		RB Size=25, RB Offset=0	21.02	21.10	21.18
10.0	QPSK	RB Size=1, RB Offset=0	21.05	21.13	21.24
		RB Size=1, RB Offset=24	21.11	21.19	21.28
		RB Size=1, RB Offset=49	21.17	21.22	21.34
		RB Size=25, RB Offset=0	21.13	21.16	21.29
		RB Size=25, RB Offset=12	21.06	21.13	21.25
		RB Size=25, RB Offset=24	21.01	21.11	21.23
		RB Size=50, RB Offset=0	20.98	21.04	21.18
	16QAM	RB Size=1, RB Offset=0	21.09	21.15	21.32
		RB Size=1, RB Offset=24	21.17	21.23	21.36
		RB Size=1, RB Offset=49	21.15	21.15	21.30
		RB Size=25, RB Offset=0	21.08	21.13	21.24
		RB Size=25, RB Offset=12	21.04	21.10	21.21
		RB Size=25, RB Offset=24	20.98	21.02	21.14
		RB Size=50, RB Offset=0	20.90	20.96	21.09

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	20.97	21.01	21.14
		RB Size=1, RB Offset=37	21.02	21.04	21.20
		RB Size=1, RB Offset=74	21.07	21.10	21.24
		RB Size=36, RB Offset=0	21.03	21.07	21.17
		RB Size=36, RB Offset=18	21.01	21.04	21.12
		RB Size=36, RB Offset=37	20.95	20.97	21.07
		RB Size=75, RB Offset=0	20.92	20.90	21.03
	16QAM	RB Size=1, RB Offset=0	21.01	21.07	21.21
		RB Size=1, RB Offset=37	21.06	21.09	21.27
		RB Size=1, RB Offset=74	20.99	21.03	21.24
		RB Size=36, RB Offset=0	20.93	20.98	21.17
		RB Size=36, RB Offset=18	20.91	20.95	21.10
		RB Size=36, RB Offset=37	20.88	20.88	21.05
		RB Size=75, RB Offset=0	20.82	20.84	21.00
20.0	QPSK	RB Size=1, RB Offset=0	20.81	20.57	20.92
		RB Size=1, RB Offset=49	20.85	20.59	20.94
		RB Size=1, RB Offset=99	20.89	20.61	20.97
		RB Size=50, RB Offset=0	20.84	20.58	20.95
		RB Size=50, RB Offset=24	20.80	20.51	20.91
		RB Size=50, RB Offset=49	20.73	20.48	20.84
		RB Size=100, RB Offset=0	20.65	20.41	20.80
	16QAM	RB Size=1, RB Offset=0	20.87	20.63	20.94
		RB Size=1, RB Offset=49	20.90	20.70	20.99
		RB Size=1, RB Offset=99	20.86	20.62	20.92
		RB Size=50, RB Offset=0	20.82	20.56	20.89
		RB Size=50, RB Offset=24	20.78	20.51	20.86
		RB Size=50, RB Offset=49	20.74	20.46	20.80
		RB Size=100, RB Offset=0	20.72	20.38	20.74

Peak-to-average ratio (PAR) (antenna 2)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	6.00	13	Pass
QPSK (100RB Size)	6.06	13	Pass
16QAM (1RB Size)	7.11	13	Pass
16QAM (100RB Size)	7.17	13	Pass

Antenna 1:
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	79.11	329	2.4	H	9.6	2.60	10.20	17.20	33
2535.00	79.73	44	1.2	V	10.9	2.60	10.20	18.50	33
10 MHz Bandwidth									
2535.00	78.94	4	2.0	H	9.5	2.60	10.20	17.10	33
2535.00	79.57	345	1.2	V	10.7	2.60	10.20	18.30	33
15 MHz Bandwidth									
2535.00	78.86	308	2.3	H	9.4	2.60	10.20	17.00	33
2535.00	79.35	291	1.2	V	10.5	2.60	10.20	18.10	33
20 MHz Bandwidth									
2535.00	78.72	186	1.5	H	9.2	2.60	10.20	16.80	33
2595.00	79.29	113	1.7	V	10.1	2.20	10.20	18.10	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	79.34	115	1.3	H	9.9	2.60	10.20	17.50	33
2535.00	80.08	163	1.1	V	11.2	2.60	10.20	18.80	33
10 MHz Bandwidth									
2535.00	78.85	219	1.6	H	9.4	2.60	10.20	17.00	33
2535.00	79.96	345	1.1	V	11.1	2.60	10.20	18.70	33
15 MHz Bandwidth									
2535.00	79.52	32	1.3	H	10.0	2.60	10.20	17.60	33
2535.00	79.89	183	2.1	V	11.0	2.60	10.20	18.60	33
20 MHz Bandwidth									
2535.00	78.91	134	1.7	H	9.4	2.60	10.20	17.00	33
2535.00	79.76	25	1.9	V	10.9	2.60	10.20	18.50	33

Antenna 2:
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	76.48	109	1.1	H	7.0	2.60	10.20	14.60	33
2535.00	80.05	150	1.2	V	11.2	2.60	10.20	18.80	33
10 MHz Bandwidth									
2535.00	76.53	243	1.6	H	7.0	2.60	10.20	14.60	33
2535.00	79.94	291	2.0	V	11.1	2.60	10.20	18.70	33
15 MHz Bandwidth									
2535.00	76.48	60	2.4	H	7.0	2.60	10.20	14.60	33
2535.00	79.82	244	2.0	V	10.9	2.60	10.20	18.50	33
20 MHz Bandwidth									
2535.00	76.85	38	1.6	H	7.4	2.60	10.20	15.00	33
2535.00	79.52	46	1.1	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	78.21	242	1.7	H	8.7	2.60	10.20	16.30	33
2535.00	80.35	112	1.9	V	11.5	2.60	10.20	19.10	33
10 MHz Bandwidth									
2535.00	77.24	294	1.1	H	7.8	2.60	10.20	15.40	33
2535.00	80.13	60	1.6	V	11.3	2.60	10.20	18.90	33
15 MHz Bandwidth									
2535.00	78.17	179	1.6	H	8.7	2.60	10.20	16.30	33
2535.00	79.82	286	2.2	V	10.9	2.60	10.20	18.50	33
20 MHz Bandwidth									
2535.00	78.32	144	2.3	H	8.8	2.60	10.20	16.40	33
2535.00	79.52	218	1.6	V	10.6	2.60	10.20	18.20	33

LTE Band 38:
Antenna 1:

Maximum Output Power

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	20.72	20.68	20.81
		RB Size=1, RB Offset=12	20.74	20.73	20.83
		RB Size=1, RB Offset=24	20.82	20.77	20.91
		RB Size=12, RB Offset=0	20.74	20.72	20.83
		RB Size=12, RB Offset=6	20.68	20.68	20.80
		RB Size=12, RB Offset=11	20.62	20.60	20.78
		RB Size=25, RB Offset=0	20.59	20.56	20.70
	16QAM	RB Size=1, RB Offset=0	20.75	20.75	20.85
		RB Size=1, RB Offset=12	20.82	20.78	20.90
		RB Size=1, RB Offset=24	20.76	20.75	20.84
		RB Size=12, RB Offset=0	20.72	20.68	20.80
		RB Size=12, RB Offset=6	20.66	20.65	20.78
		RB Size=12, RB Offset=11	20.59	20.57	20.75
		RB Size=25, RB Offset=0	20.56	20.51	20.67
10.0	QPSK	RB Size=1, RB Offset=0	20.63	20.61	20.74
		RB Size=1, RB Offset=24	20.68	20.68	20.77
		RB Size=1, RB Offset=49	20.76	20.71	20.82
		RB Size=25, RB Offset=0	20.73	20.64	20.75
		RB Size=25, RB Offset=12	20.71	20.61	20.72
		RB Size=25, RB Offset=24	20.63	20.57	20.66
		RB Size=50, RB Offset=0	20.59	20.53	20.59
	16QAM	RB Size=1, RB Offset=0	20.70	20.63	20.80
		RB Size=1, RB Offset=24	20.73	20.66	20.83
		RB Size=1, RB Offset=49	20.67	20.60	20.78
		RB Size=25, RB Offset=0	20.61	20.54	20.75
		RB Size=25, RB Offset=12	20.59	20.51	20.67
		RB Size=25, RB Offset=24	20.57	20.43	20.63
		RB Size=50, RB Offset=0	20.49	20.37	20.56

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	20.51	20.49	20.53
		RB Size=1, RB Offset=37	20.59	20.56	20.56
		RB Size=1, RB Offset=74	20.63	20.61	20.64
		RB Size=36, RB Offset=0	20.58	20.54	20.60
		RB Size=36, RB Offset=18	20.51	20.51	20.54
		RB Size=36, RB Offset=37	20.45	20.44	20.52
		RB Size=75, RB Offset=0	20.41	20.39	20.48
	16QAM	RB Size=1, RB Offset=0	20.54	20.57	20.56
		RB Size=1, RB Offset=37	20.58	20.61	20.59
		RB Size=1, RB Offset=74	20.51	20.56	20.52
		RB Size=36, RB Offset=0	20.47	20.52	20.46
		RB Size=36, RB Offset=18	20.42	20.50	20.39
		RB Size=36, RB Offset=37	20.36	20.48	20.33
		RB Size=75, RB Offset=0	20.31	20.43	20.35
20.0	QPSK	RB Size=1, RB Offset=0	20.42	20.38	20.43
		RB Size=1, RB Offset=49	20.49	20.43	20.50
		RB Size=1, RB Offset=99	20.56	20.50	20.55
		RB Size=50, RB Offset=0	20.50	20.47	20.52
		RB Size=50, RB Offset=24	20.44	20.44	20.49
		RB Size=50, RB Offset=49	20.38	20.40	20.42
		RB Size=100, RB Offset=0	20.33	20.36	20.38
	16QAM	RB Size=1, RB Offset=0	20.46	20.45	20.50
		RB Size=1, RB Offset=49	20.53	20.48	20.54
		RB Size=1, RB Offset=99	20.49	20.40	20.47
		RB Size=50, RB Offset=0	20.45	20.36	20.42
		RB Size=50, RB Offset=24	20.39	20.33	20.40
		RB Size=50, RB Offset=49	20.37	20.32	20.32
		RB Size=100, RB Offset=0	20.32	20.37	20.36

Antenna 2:

Maximum Output Power

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	20.94	20.83	20.82
		RB Size=1, RB Offset=12	21.00	20.90	20.89
		RB Size=1, RB Offset=24	21.07	20.93	20.97
		RB Size=12, RB Offset=0	21.05	20.86	20.94
		RB Size=12, RB Offset=6	20.98	20.83	20.91
		RB Size=12, RB Offset=11	20.93	20.79	20.85
		RB Size=25, RB Offset=0	20.90	20.75	20.83
	16QAM	RB Size=1, RB Offset=0	20.86	20.68	20.79
		RB Size=1, RB Offset=12	20.97	20.89	20.87
		RB Size=1, RB Offset=24	21.05	20.93	20.92
		RB Size=12, RB Offset=0	21.00	20.86	20.84
		RB Size=12, RB Offset=6	20.95	20.82	20.79
		RB Size=12, RB Offset=11	20.91	20.76	20.75
		RB Size=25, RB Offset=0	20.86	20.71	20.69
10.0	QPSK	RB Size=1, RB Offset=0	20.74	20.71	20.65
		RB Size=1, RB Offset=24	20.79	20.77	20.71
		RB Size=1, RB Offset=49	20.87	20.81	20.75
		RB Size=25, RB Offset=0	20.83	20.78	20.72
		RB Size=25, RB Offset=12	20.76	20.73	20.64
		RB Size=25, RB Offset=24	20.73	20.70	20.59
		RB Size=50, RB Offset=0	20.69	20.64	20.55
	16QAM	RB Size=1, RB Offset=0	20.76	20.78	20.72
		RB Size=1, RB Offset=24	20.84	20.80	20.76
		RB Size=1, RB Offset=49	20.77	20.72	20.69
		RB Size=25, RB Offset=0	20.70	20.65	20.64
		RB Size=25, RB Offset=12	20.65	20.60	20.57
		RB Size=25, RB Offset=24	20.57	20.53	20.54
		RB Size=50, RB Offset=0	20.54	20.48	20.47

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15.0	QPSK	RB Size=1, RB Offset=0	20.62	20.51	20.53
		RB Size=1, RB Offset=37	20.69	20.55	20.57
		RB Size=1, RB Offset=74	20.74	20.63	20.64
		RB Size=36, RB Offset=0	20.70	20.57	20.57
		RB Size=36, RB Offset=18	20.66	20.54	20.53
		RB Size=36, RB Offset=37	20.61	20.49	20.50
		RB Size=75, RB Offset=0	20.57	20.45	20.46
	16QAM	RB Size=1, RB Offset=0	20.66	20.58	20.55
		RB Size=1, RB Offset=37	20.72	20.64	20.61
		RB Size=1, RB Offset=74	20.67	20.57	20.58
		RB Size=36, RB Offset=0	20.60	20.54	20.55
		RB Size=36, RB Offset=18	20.53	20.52	20.53
		RB Size=36, RB Offset=37	20.47	20.50	20.48
		RB Size=75, RB Offset=0	20.39	20.46	20.42
20.0	QPSK	RB Size=1, RB Offset=0	20.48	20.57	20.36
		RB Size=1, RB Offset=49	20.53	20.64	20.43
		RB Size=1, RB Offset=99	20.58	20.71	20.48
		RB Size=50, RB Offset=0	20.51	20.64	20.42
		RB Size=50, RB Offset=24	20.45	20.61	20.35
		RB Size=50, RB Offset=49	20.42	20.56	20.28
		RB Size=100, RB Offset=0	20.39	20.54	20.22
	16QAM	RB Size=1, RB Offset=0	20.51	20.62	20.42
		RB Size=1, RB Offset=49	20.57	20.68	20.49
		RB Size=1, RB Offset=99	20.49	20.62	20.41
		RB Size=50, RB Offset=0	20.43	20.54	20.34
		RB Size=50, RB Offset=24	20.37	20.51	20.30
		RB Size=50, RB Offset=49	20.30	20.48	20.27
		RB Size=100, RB Offset=0	20.26	20.45	20.20

Peak-to-average ratio (PAR) (antenna 2)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	8.28	13	Pass
QPSK (100RB Size)	8.38	13	Pass
16QAM (1RB Size)	9.17	13	Pass
16QAM (100RB Size)	9.22	13	Pass

Antenna 1:
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									
2595.00	76.22	17	1.0	H	6.7	2.20	10.20	14.70	33
2595.00	79.23	137	2.0	V	10.0	2.20	10.20	18.00	33
10 MHz Bandwidth									
2595.00	76.92	197	2.2	H	7.4	2.20	10.20	15.40	33
2595.00	79.12	286	1.8	V	9.9	2.20	10.20	17.90	33
15 MHz Bandwidth									
2595.00	77.11	221	1.8	H	7.5	2.20	10.20	15.50	33
2595.00	78.85	303	2.3	V	9.6	2.20	10.20	17.60	33
20 MHz Bandwidth									
2595.00	77.02	164	1.7	H	7.5	2.20	10.20	15.50	33
2595.00	78.64	261	1.5	V	9.4	2.20	10.20	17.40	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									
2595.00	78.12	337	1.9	H	8.6	2.20	10.20	16.60	33
2595.00	79.64	155	2.0	V	10.4	2.20	10.20	18.40	33
10 MHz Bandwidth									
2595.00	76.58	60	2.4	H	7.0	2.20	10.20	15.00	33
2595.00	79.54	348	2.1	V	10.3	2.20	10.20	18.30	33
15 MHz Bandwidth									
2595.00	77.64	44	1.5	H	8.1	2.20	10.20	16.10	33
2595.00	79.33	52	1.4	V	10.1	2.20	10.20	18.10	33
20 MHz Bandwidth									
2595.00	78.05	180	2.0	H	8.5	2.20	10.20	16.50	33
2595.00	79.24	302	2.3	V	10.0	2.20	10.20	18.00	33

Antenna 2:
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									
2595.00	78.11	197	2.2	H	8.5	2.20	10.20	16.50	33
2595.00	79.82	290	1.7	V	10.6	2.20	10.20	18.60	33
10 MHz Bandwidth									
2595.00	77.96	332	2.2	H	8.4	2.20	10.20	16.40	33
2595.00	79.54	10	1.3	V	10.3	2.20	10.20	18.30	33
15 MHz Bandwidth									
2595.00	77.39	276	2.2	H	7.8	2.20	10.20	15.80	33
2595.00	79.37	20	1.2	V	10.2	2.20	10.20	18.20	33
20 MHz Bandwidth									
2595.00	77.53	24	1.7	H	8.0	2.20	10.20	16.00	33
2595.00	79.16	76	1.4	V	10.0	2.20	10.20	18.00	33

16QAM:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
2595.00	77.77	304	1.1	H	8.2	2.20	10.20	16.20	33
2595.00	79.34	179	2.0	V	10.1	2.20	10.20	18.10	33
10 MHz Bandwidth									
2595.00	78.01	51	1.5	H	8.4	2.20	10.20	16.40	33
2595.00	79.21	232	1.2	V	10.0	2.20	10.20	18.00	33
15 MHz Bandwidth									
2595.00	77.83	58	1.4	H	8.3	2.20	10.20	16.30	33
2595.00	79.06	221	1.3	V	9.9	2.20	10.20	17.90	33
20 MHz Bandwidth									
2595.00	78.12	2	1.4	H	8.6	2.20	10.20	16.60	33
2595.00	78.96	193	1.2	V	9.8	2.20	10.20	17.80	33

Note:
All above data were tested with no amplifier
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

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

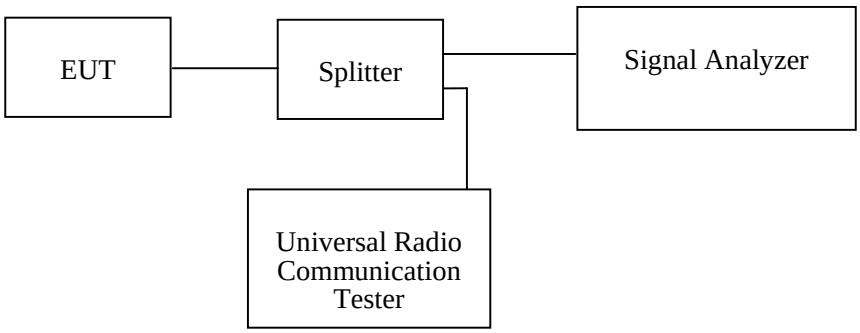
Applicable Standard

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	24~25 ℃
Relative Humidity:	52~53 %
ATM Pressure:	101.0~101.2 kPa

The testing was performed by Nancy Wang from 2018-07-27 to 2018-09-20.

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	245.192	309.295
EGPRS(8PSK)	836.6	243.590	309.295

(Antenna 2)

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	836.6	4.135	4.728
HSUPA (BPSK)	836.6	4.151	4.776
HSDPA (16QAM)	836.6	4.135	4.728

PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1880.0	243.590	312.500
EGPRS(8PSK)	1880.0	246.795	309.295

(Antenna 2)

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1880.0	4.119	4.712
HSUPA (BPSK)	1880.0	4.135	4.712
HSDPA (16QAM)	1880.0	4.135	4.696

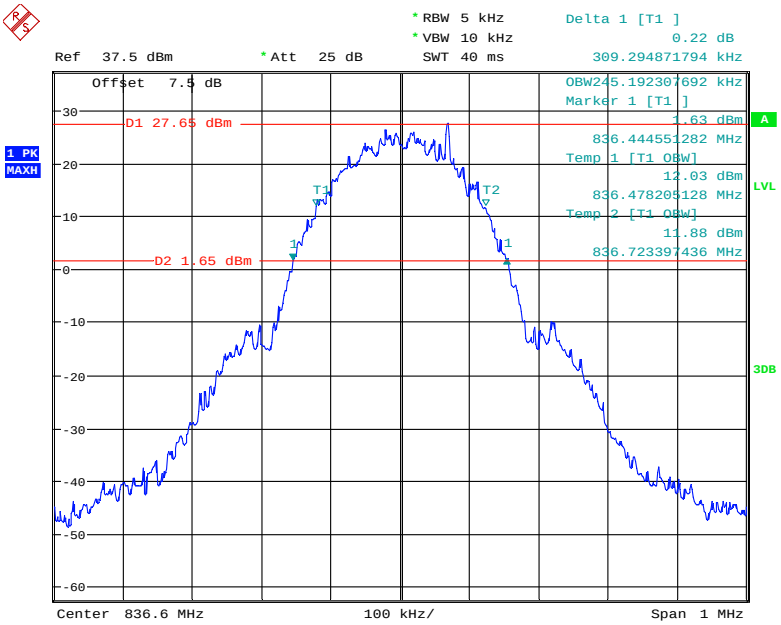
AWS Band (Part27)

(Antenna 2)

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1732.6	4.135	4.728
HSUPA (BPSK)	1732.6	4.231	5.529
HSDPA (16QAM)	1732.6	4.215	5.545

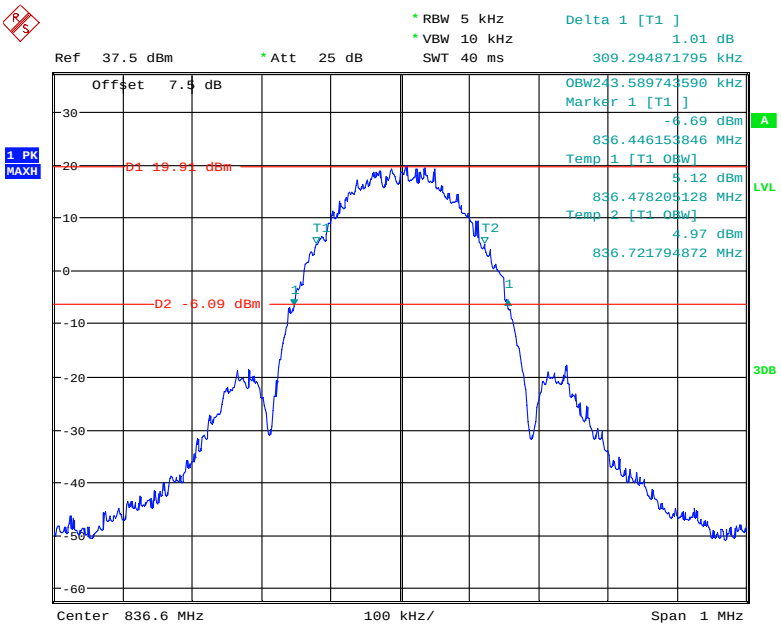
Cellular Band (Part 22H)

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



Date: 27.JUL.2018 14:35:36

26 dB Emissions &99% Occupied Bandwidth for EDGE Mode



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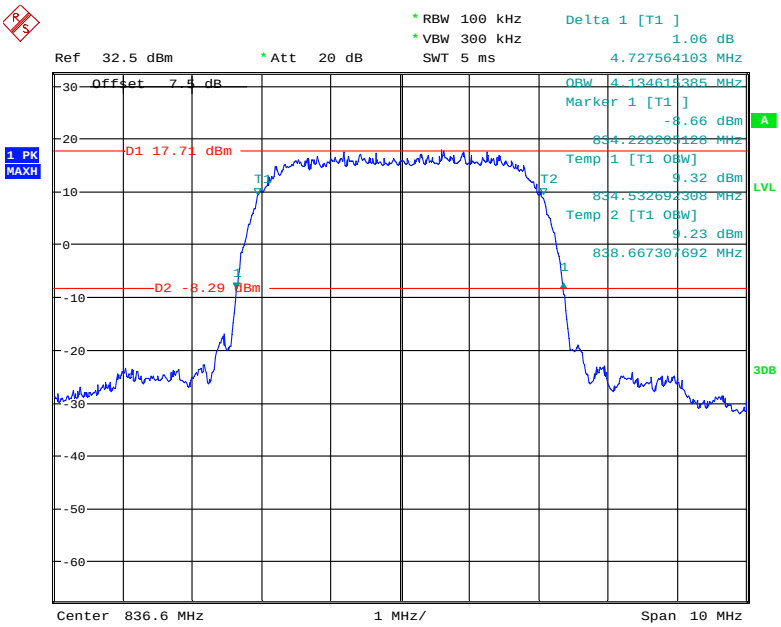
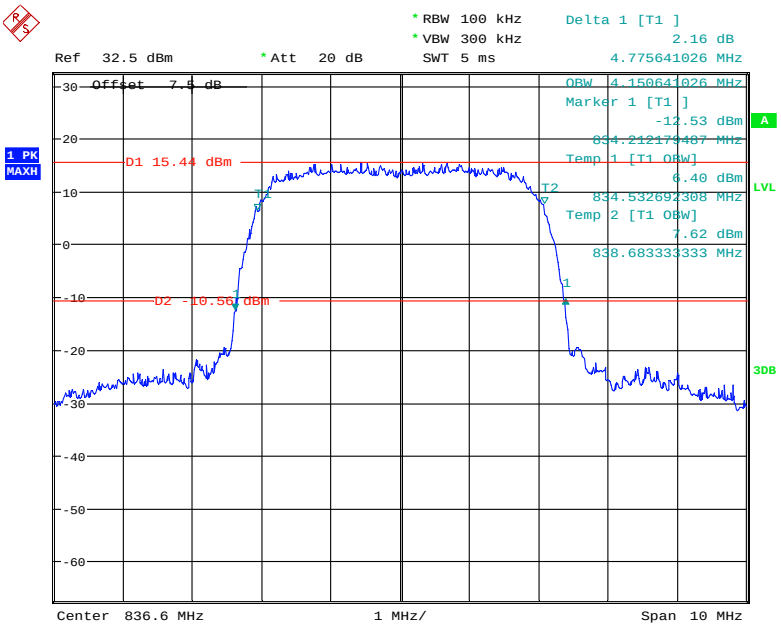
26 dB Emissions &99% Occupied Bandwidth for RMC (BPSK) Mode



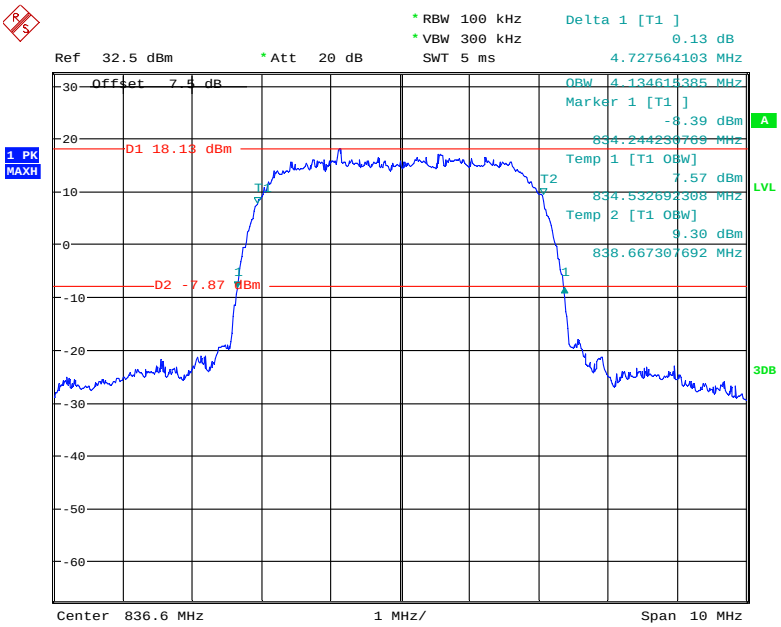
Date: 27.JUL.2018 15:29:35

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



Date: 27.JUL.2018 15:33:42

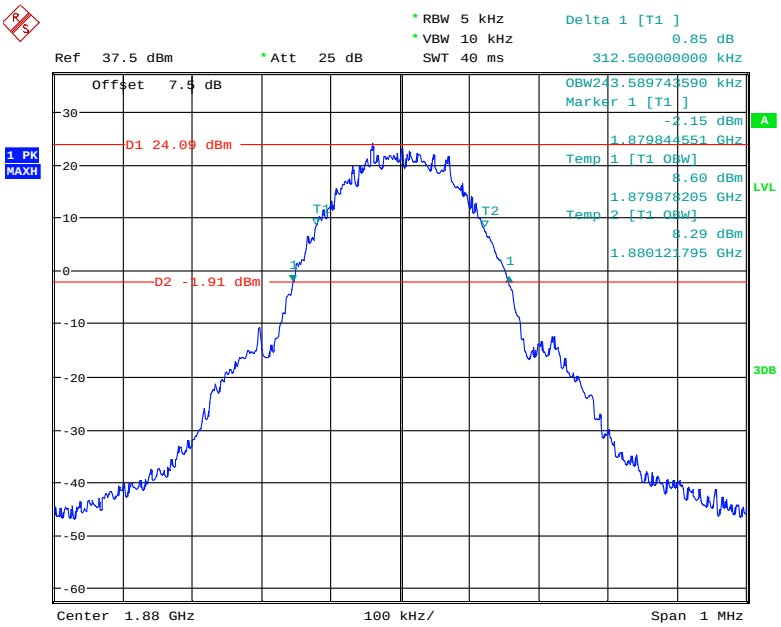
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode



Date: 27.JUL.2018 15:32:42

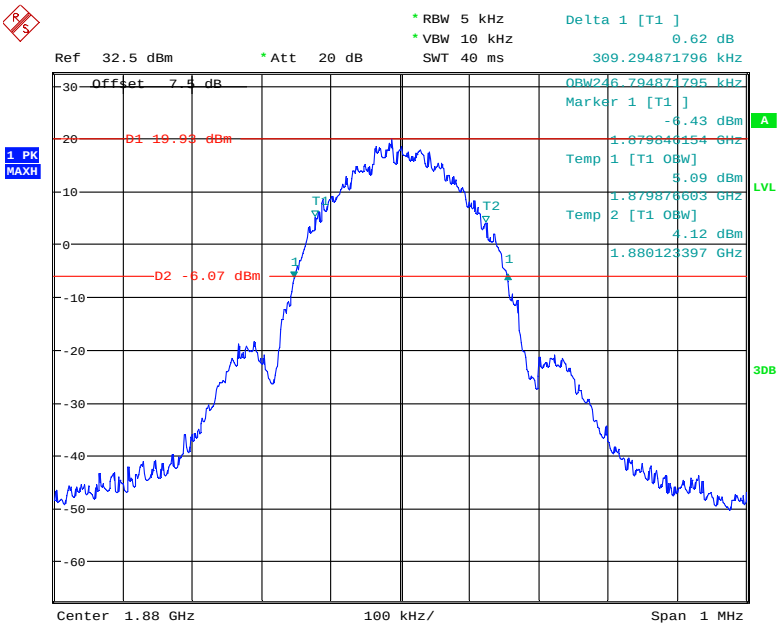
PCS Band (Part 24E)

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



Date: 27.JUL.2018 14:39:58

26 dB Emissions &99% Occupied Bandwidth for EDGE Mode



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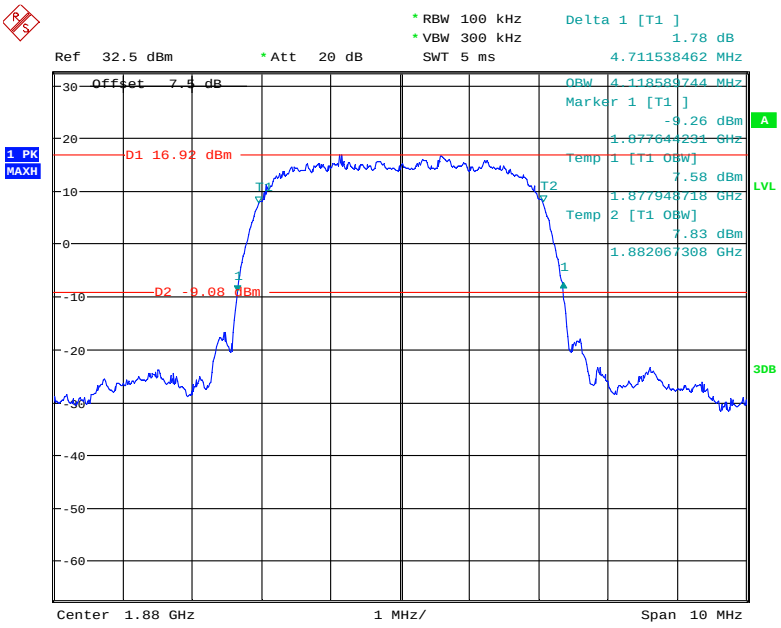
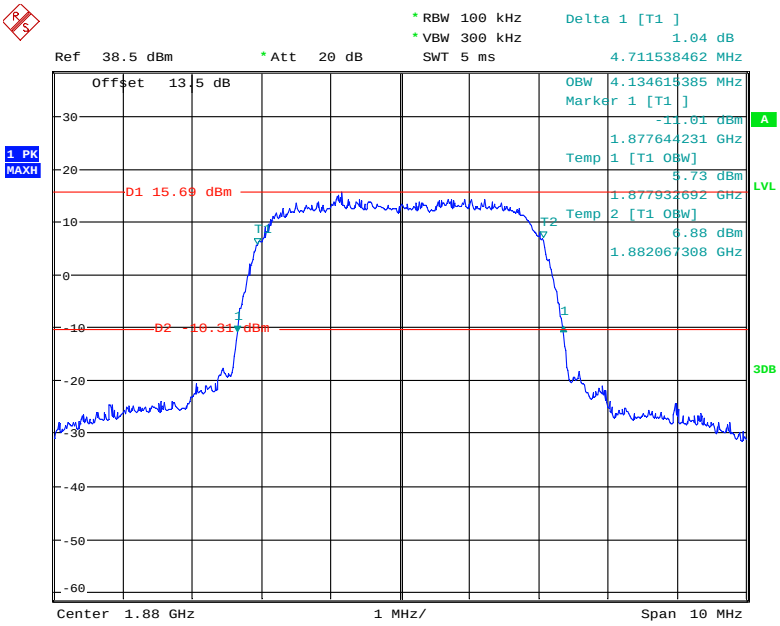
26 dB Emissions &99% Occupied Bandwidth for RMC (BPSK) Mode



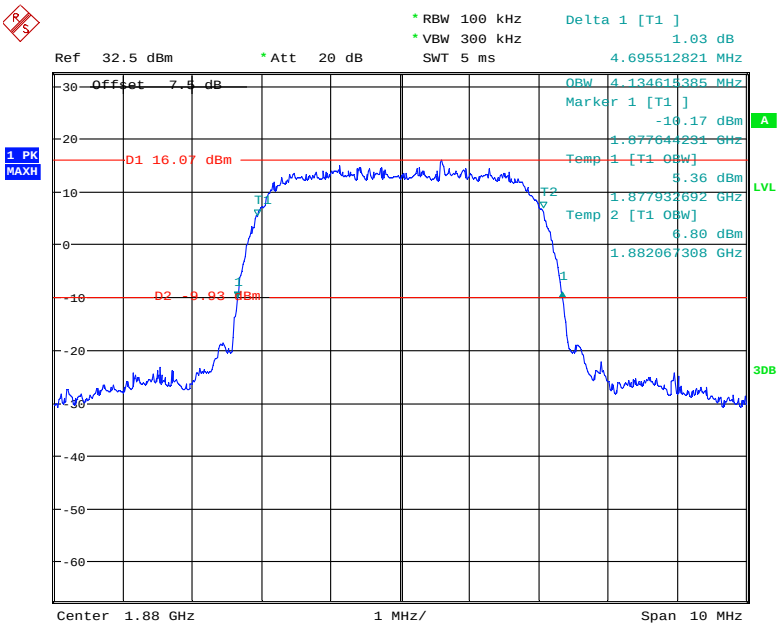
Date: 27.JUL.2018 15:06:04

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



Date: 10.SEP.2018 11:02:01

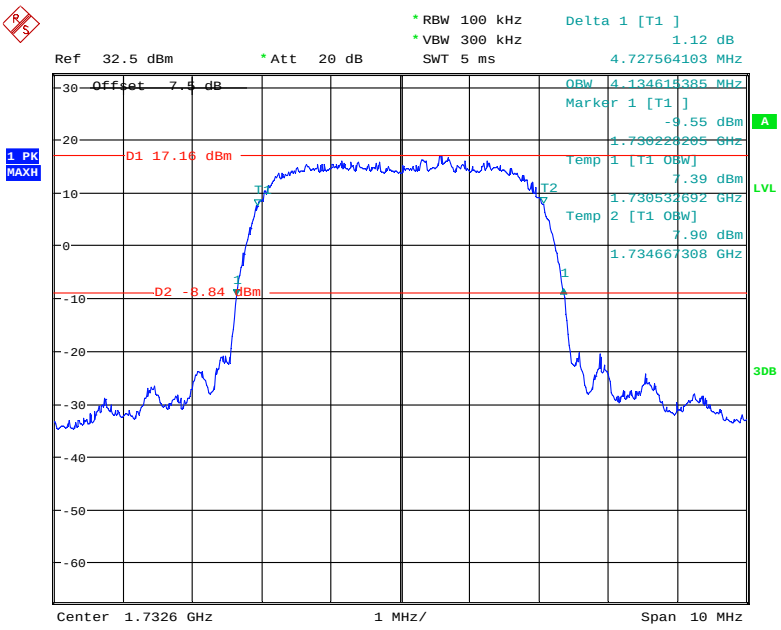
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode



Date: 27.JUL.2018 15:08:11

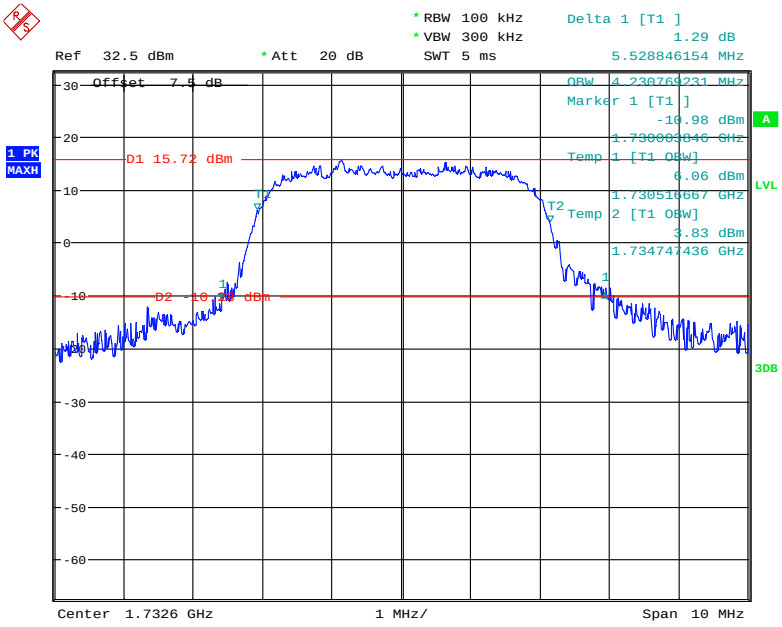
AWS Band (Part 27)

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



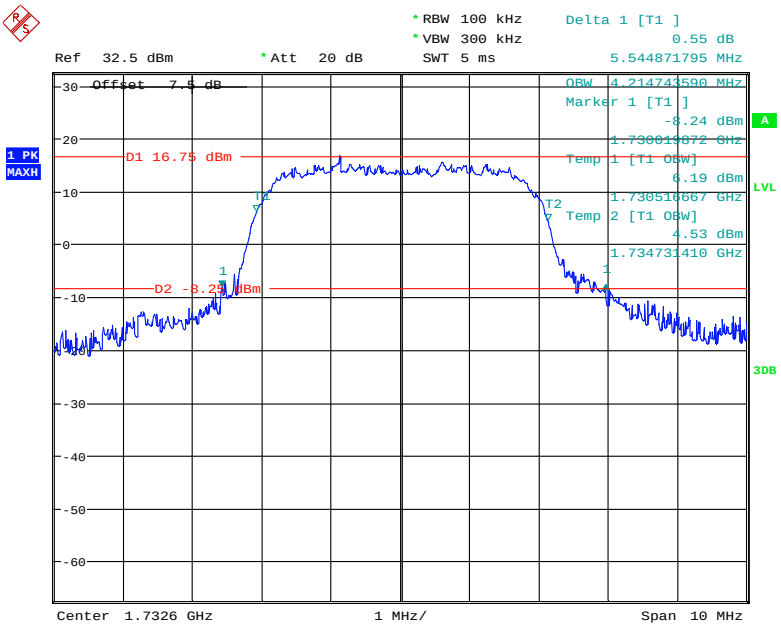
Date: 27.JUL.2018 15:15:03

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



Date: 27.JUL.2018 15:16:47

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

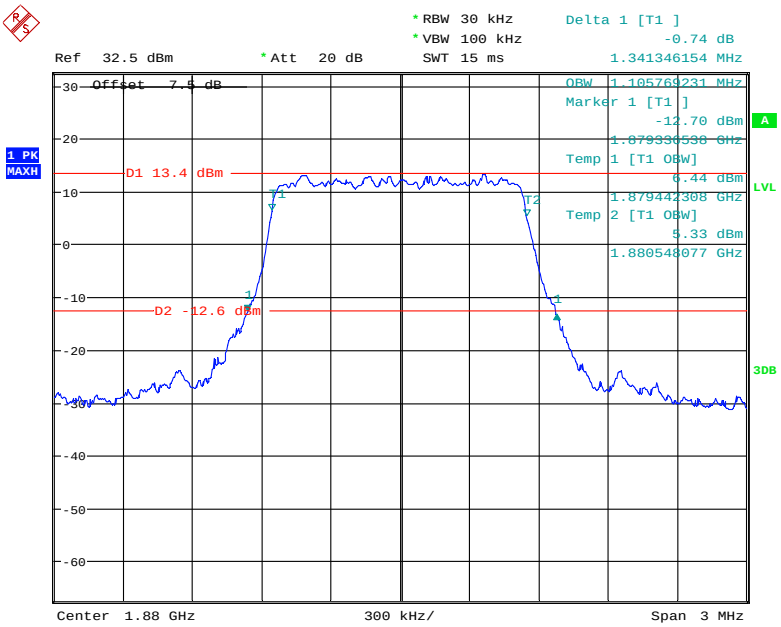


Date: 27.JUL.2018 15:25:20

LTE Band 2: (Middle Channel antenna 2)

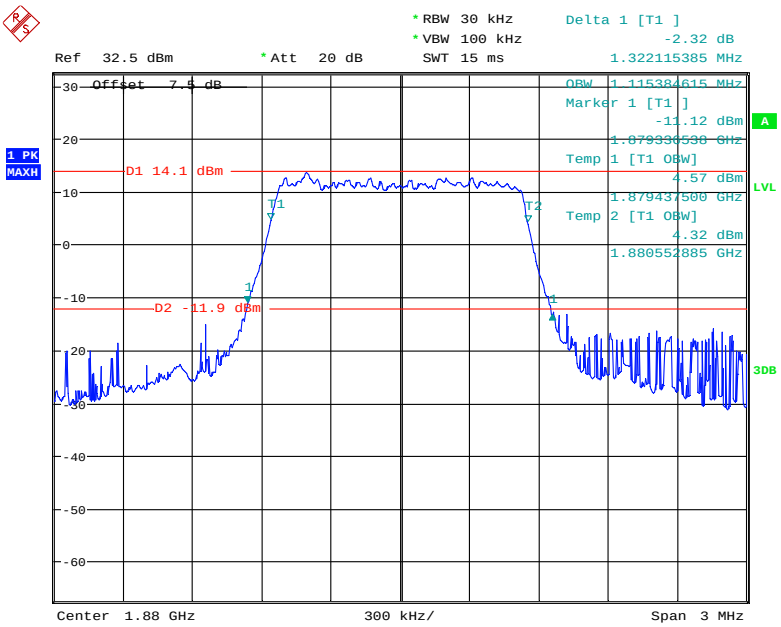
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.106	1.341
	16QAM	1.115	1.322
3.0	QPSK	2.692	2.957
	16QAM	2.702	2.986
5.0	QPSK	4.535	5.048
	16QAM	4.519	5.032
10.0	QPSK	8.974	9.824
	16QAM	8.974	9.728
15.0	QPSK	13.462	14.696
	16QAM	13.462	14.647
20.0	QPSK	17.885	19.199
	16QAM	17.949	19.327

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



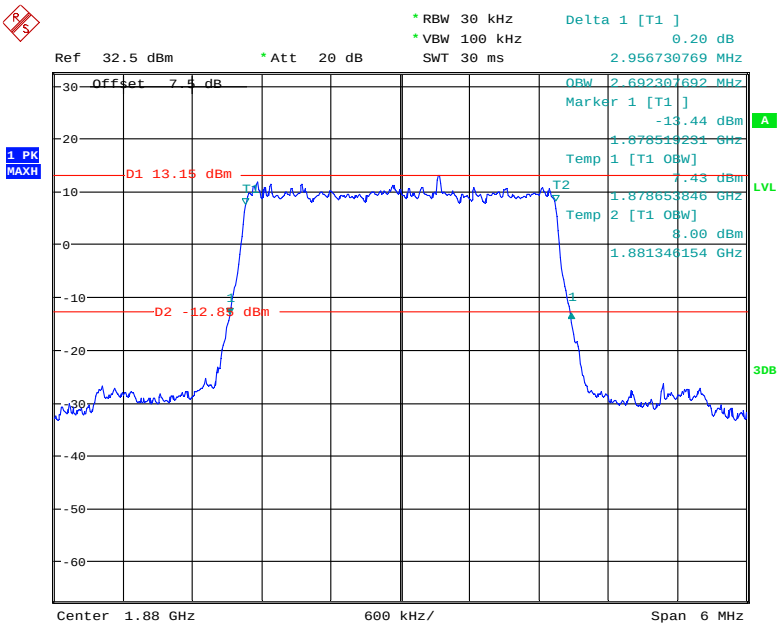
Date: 2.AUG.2018 20:07:23

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



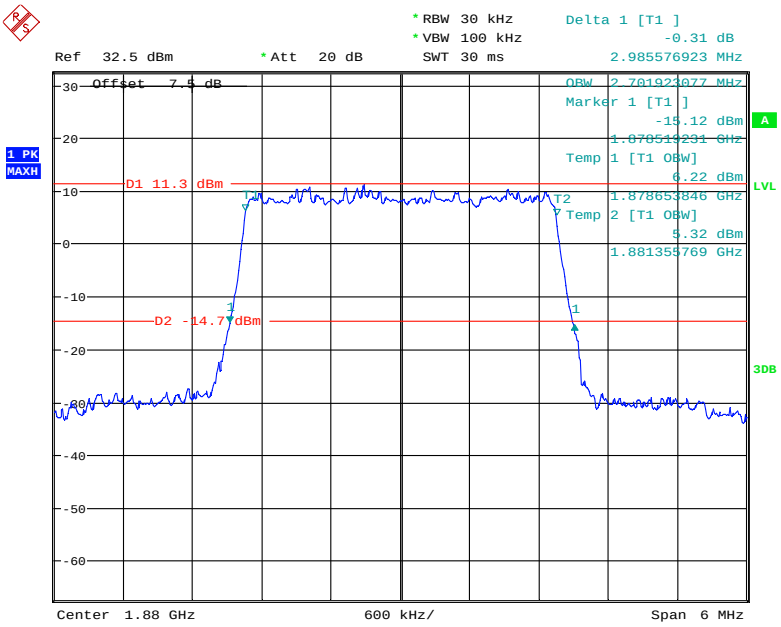
Date: 2.AUG.2018 20:11:47

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



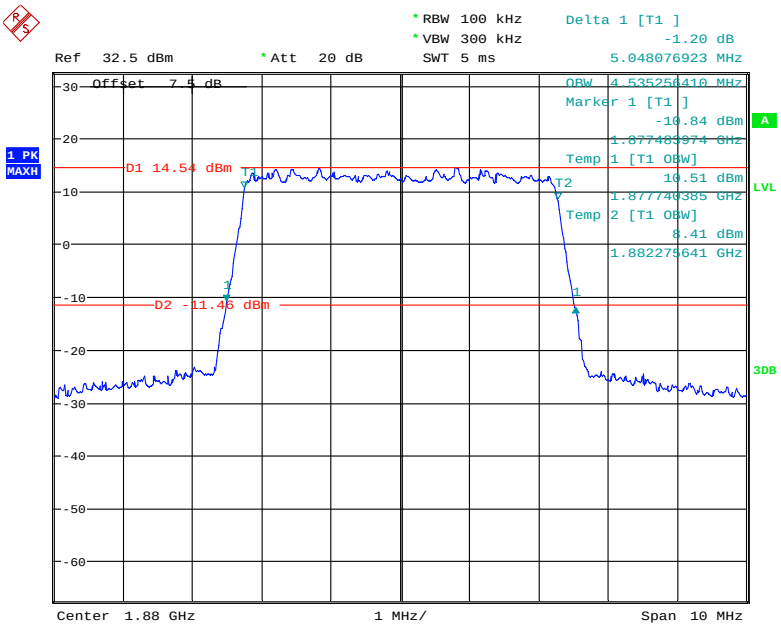
Date: 2.AUG.2018 20:14:41

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



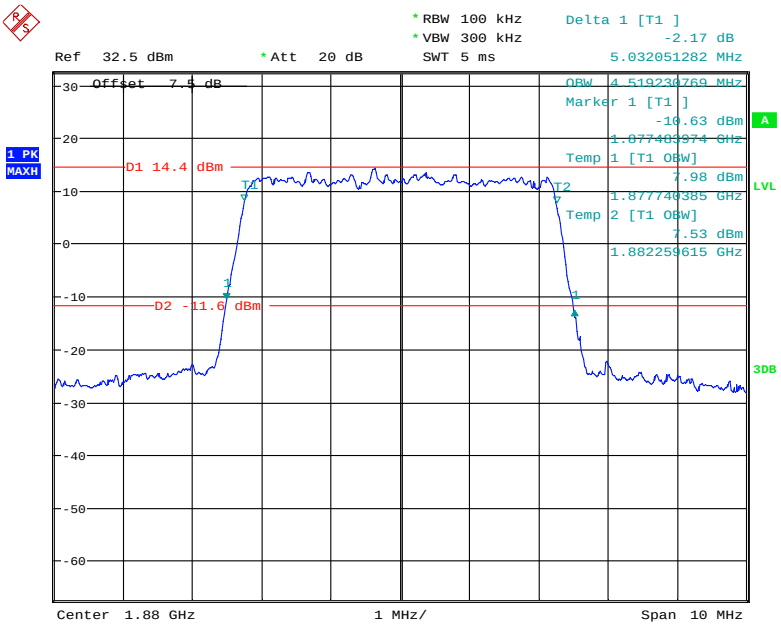
Date: 2.AUG.2018 20:16:00

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



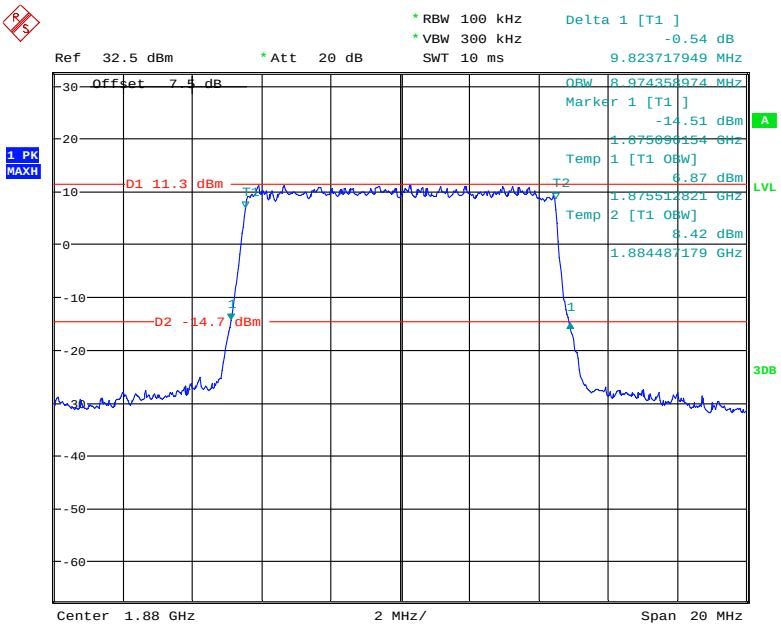
Date: 2.AUG.2018 20:17:29

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



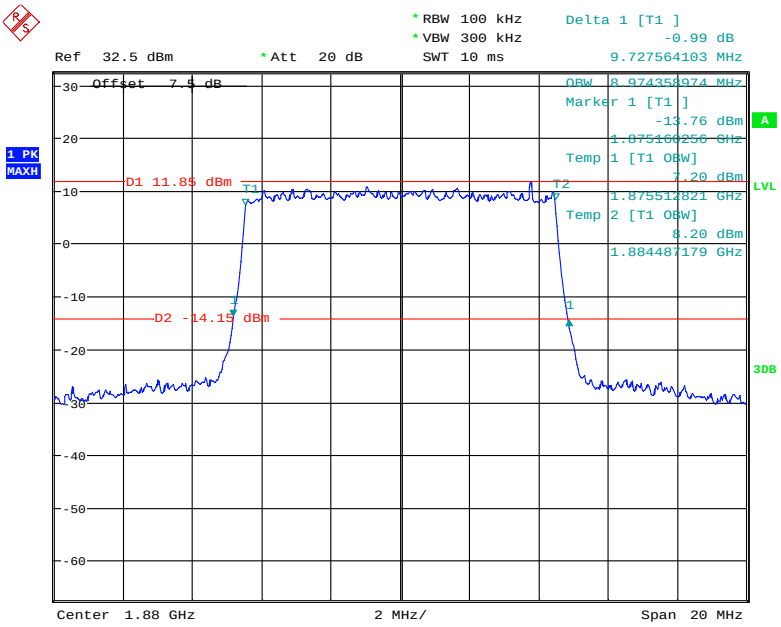
Date: 2.AUG.2018 20:18:41

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



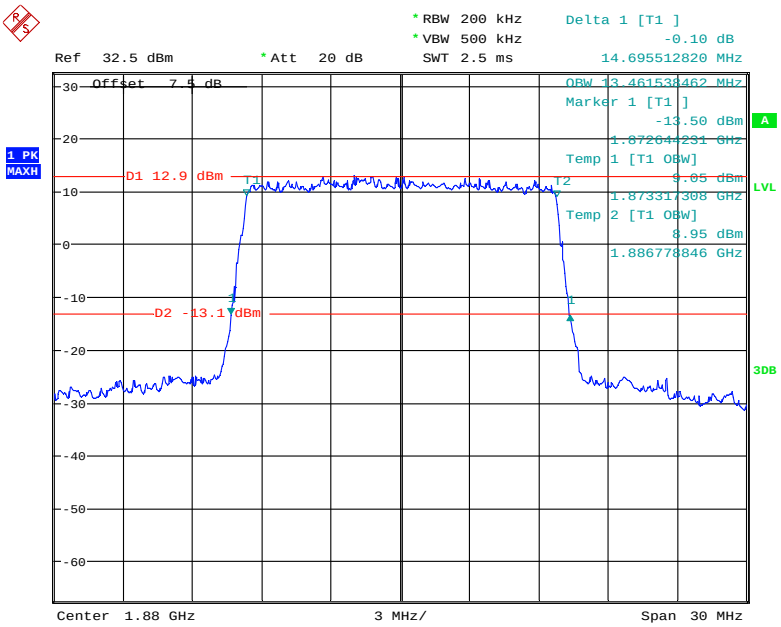
Date: 2.AUG.2018 20:20:00

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



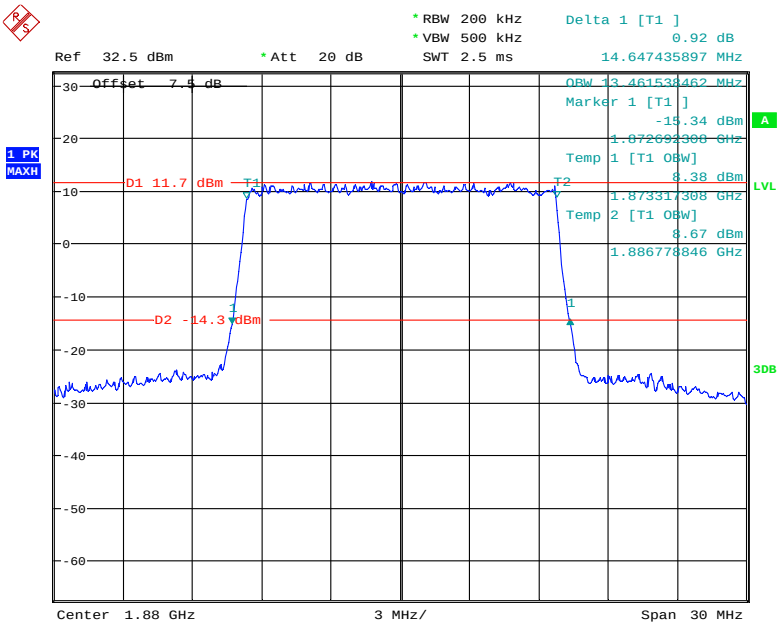
Date: 2.AUG.2018 20:24:06

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



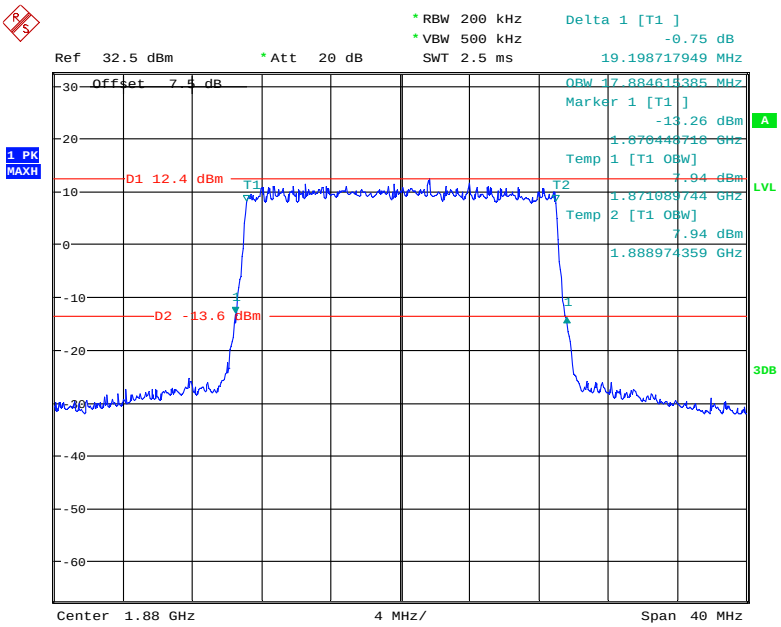
Date: 2.AUG.2018 20:25:49

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



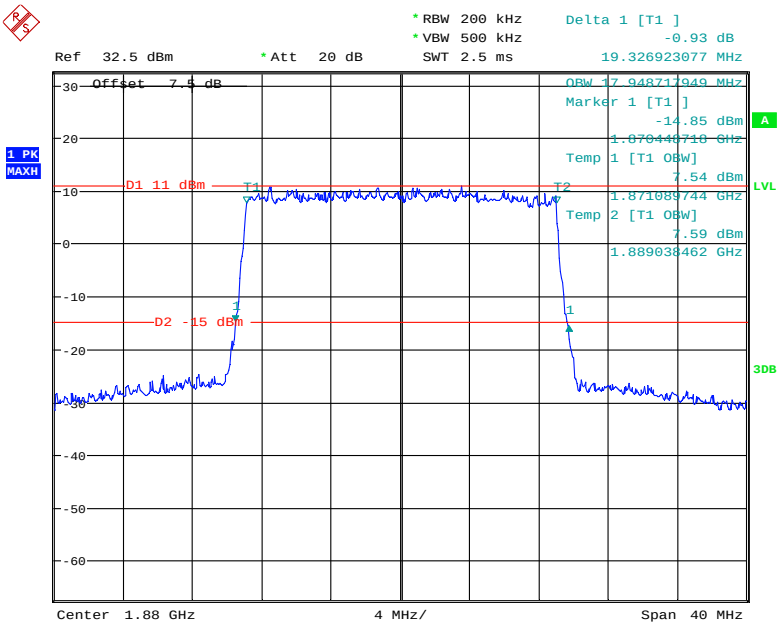
Date: 2.AUG.2018 20:27:09

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



Date: 2.AUG.2018 20:28:12

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

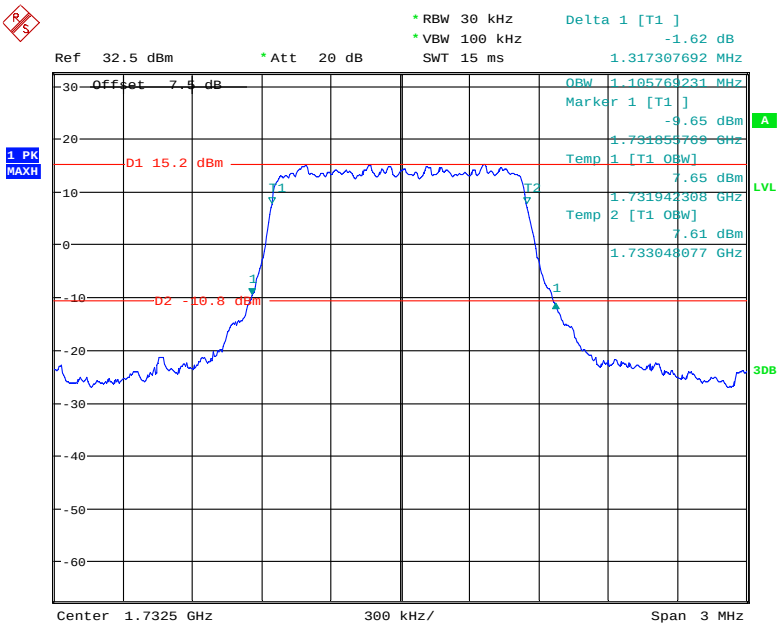


Date: 2.AUG.2018 20:29:21

LTE Band 4: (Middle Channel antenna 2)

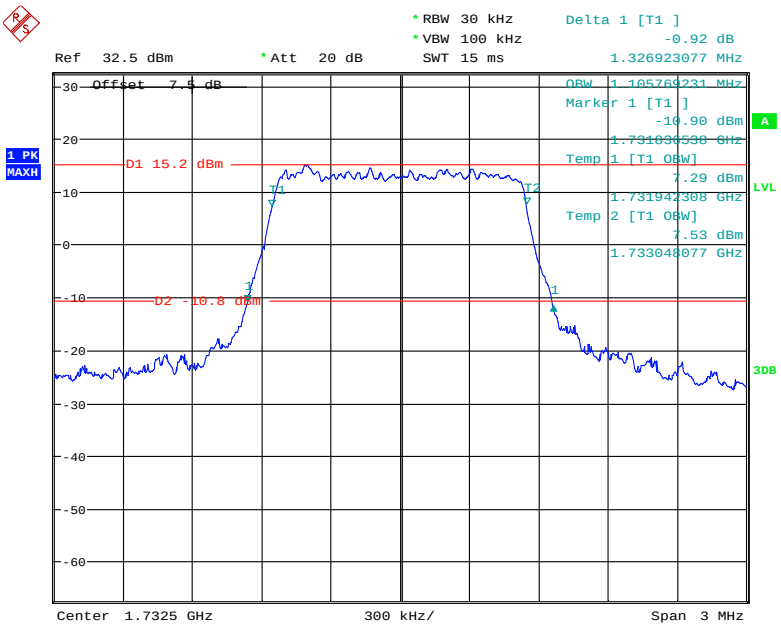
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.106	1.317
	16QAM	1.106	1.327
3.0	QPSK	2.692	2.962
	16QAM	2.692	2.981
5.0	QPSK	4.535	5.026
	16QAM	4.519	5.026
10.0	QPSK	8.974	9.849
	16QAM	8.942	9.721
15.0	QPSK	13.462	14.641
	16QAM	13.413	14.593
20.0	QPSK	17.885	19.192
	16QAM	17.885	19.256

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



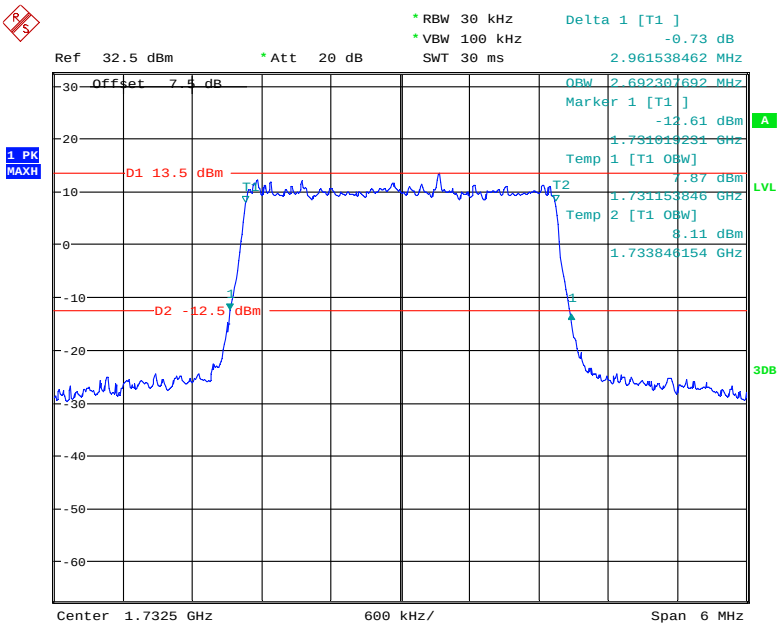
Date: 2.AUG.2018 20:32:41

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



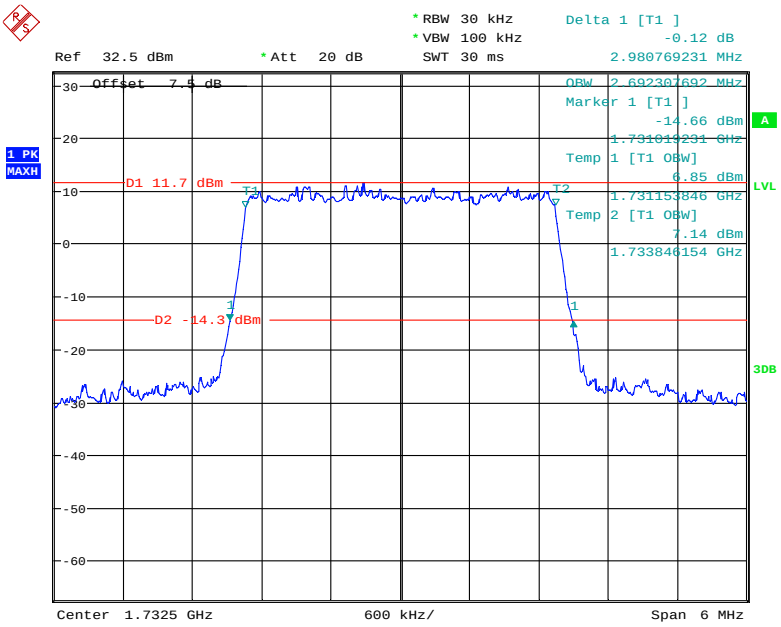
Date: 2.AUG.2018 20:33:48

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



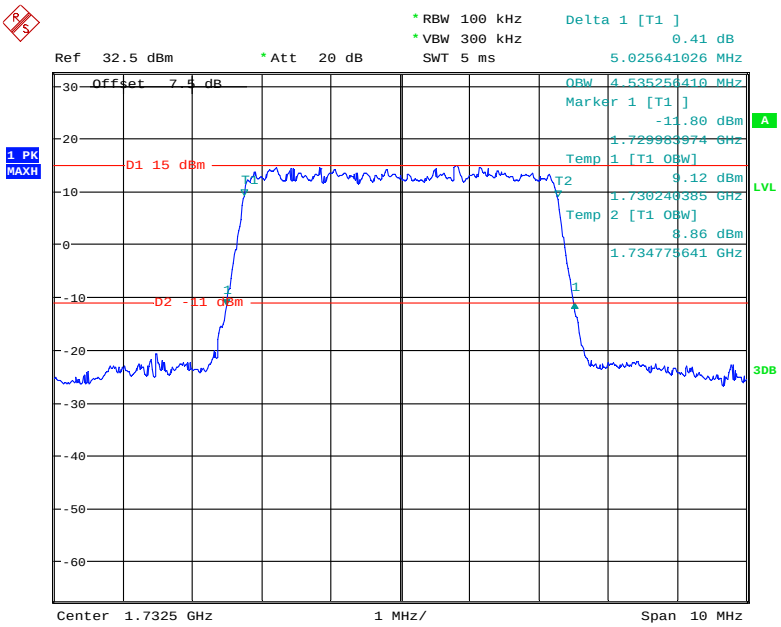
Date: 2.AUG.2018 20:35:12

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



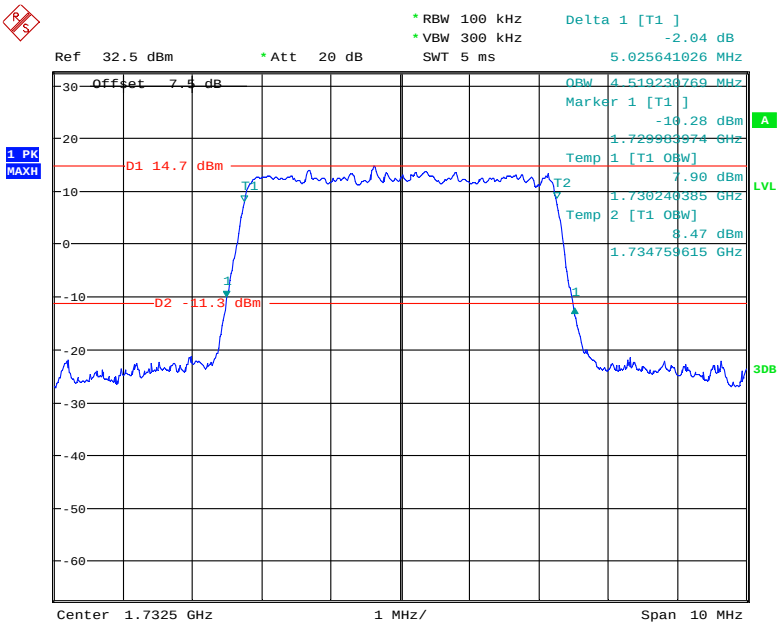
Date: 2.AUG.2018 20:36:13

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



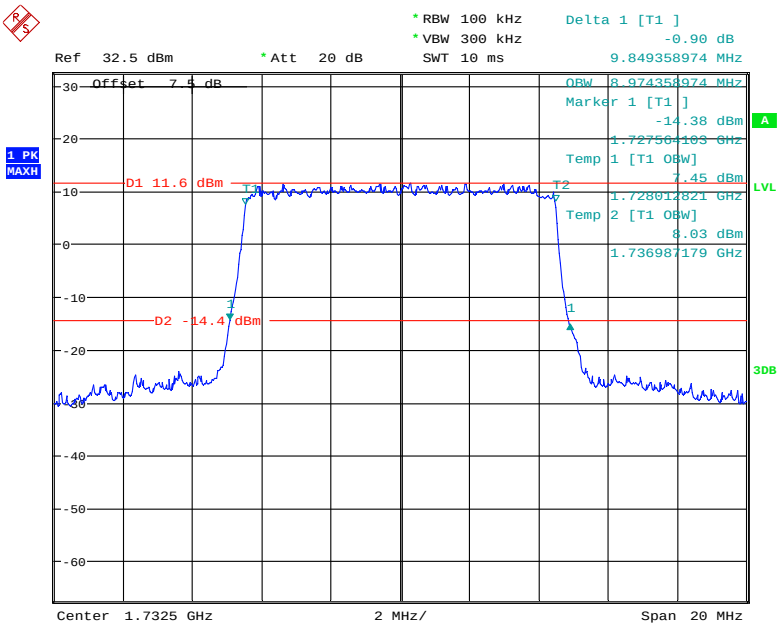
Date: 2.AUG.2018 20:37:48

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



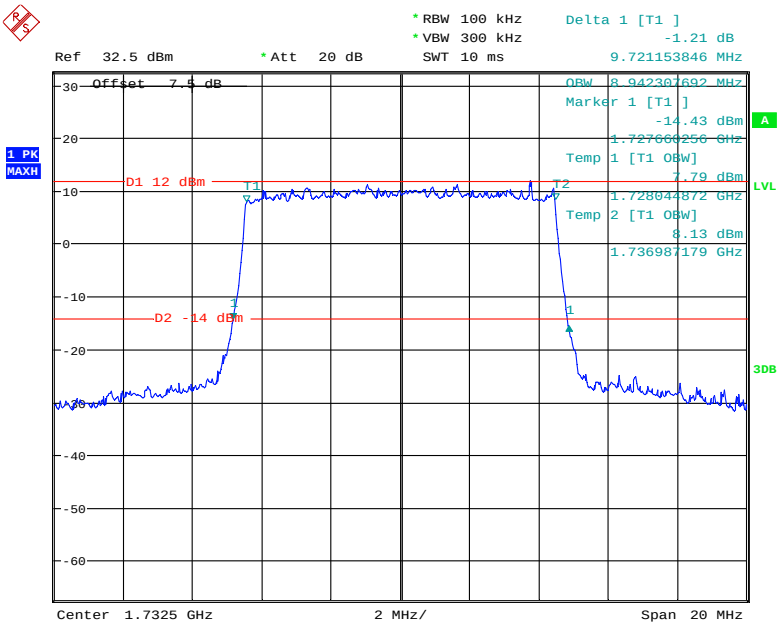
Date: 2.AUG.2018 20:39:47

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



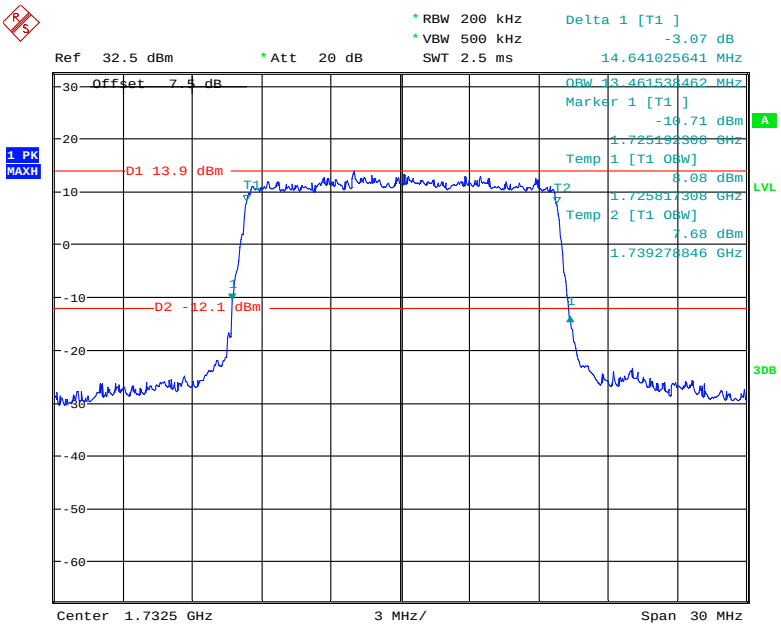
Date: 2.AUG.2018 20:41:27

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



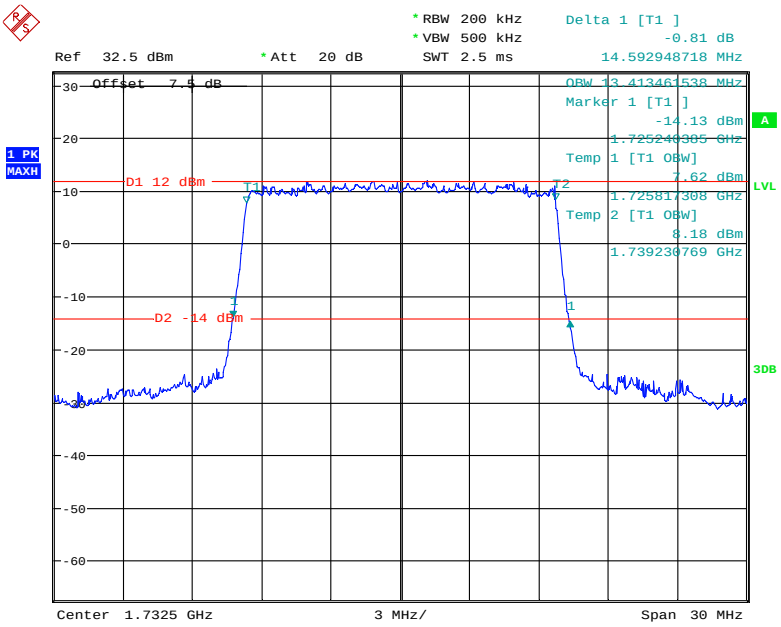
Date: 2.AUG.2018 20:43:08

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



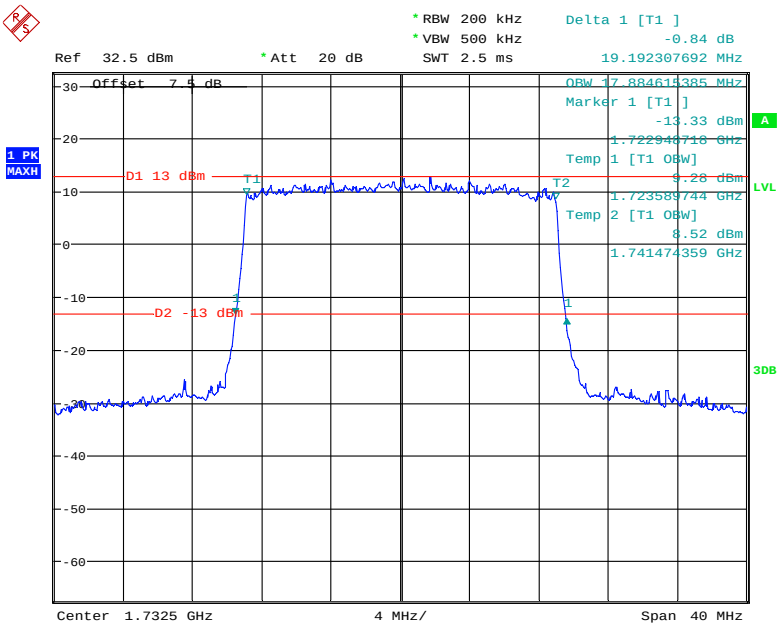
Date: 2.AUG.2018 20:48:53

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



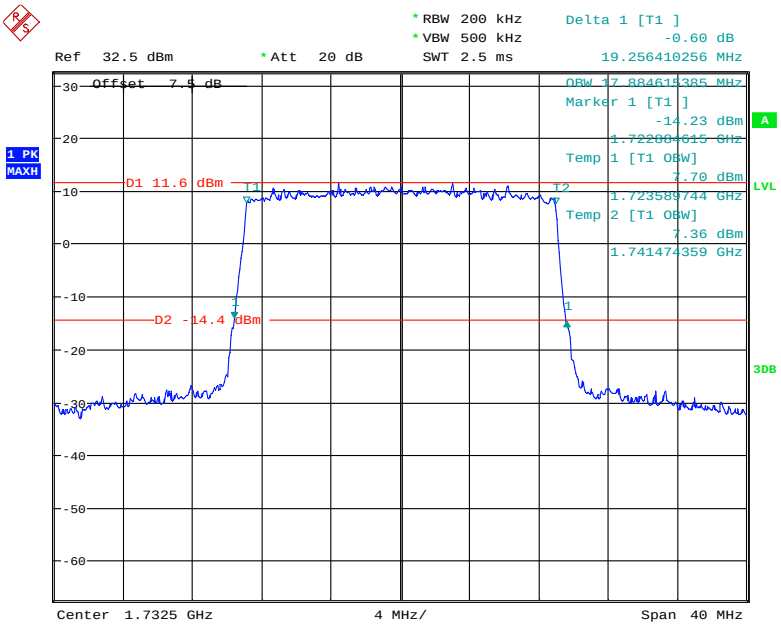
Date: 2.AUG.2018 20:50:13

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



Date: 2.AUG.2018 20:53:14

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

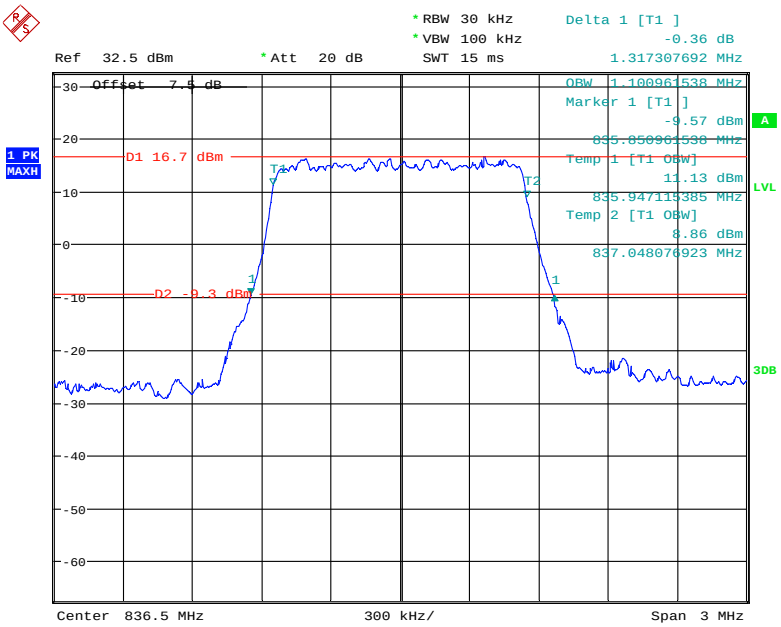


Date: 2.AUG.2018 20:57:08

LTE Band 5: (Middle Channel antenna 2)

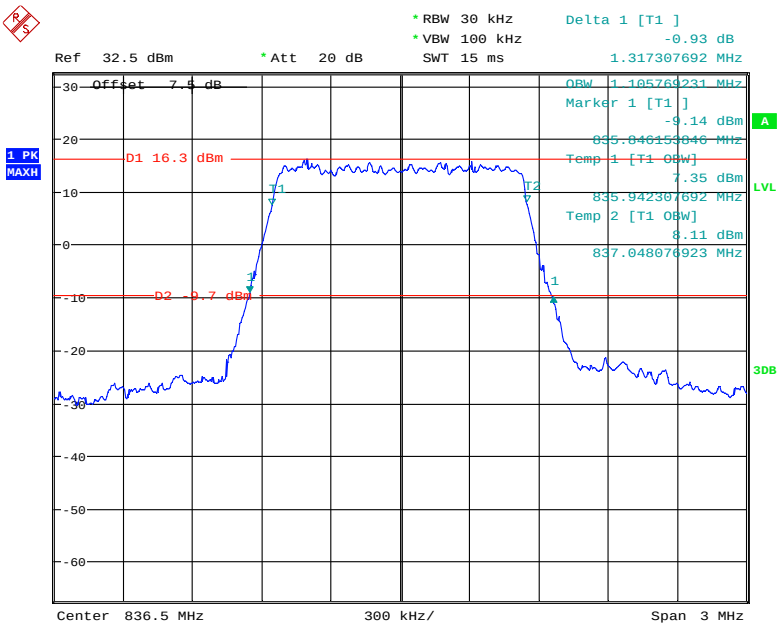
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.101	1.317
	16QAM	1.106	1.317
3.0	QPSK	2.702	2.933
	16QAM	2.702	2.981
5.0	QPSK	4.519	5.035
	16QAM	4.503	5.019
10.0	QPSK	8.942	9.875
	16QAM	8.942	9.619

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



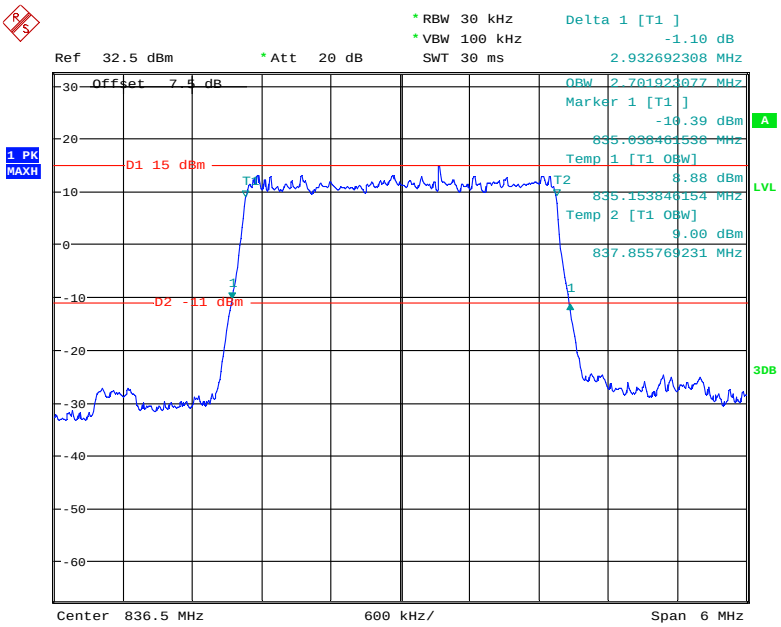
Date: 2.AUG.2018 21:08:48

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



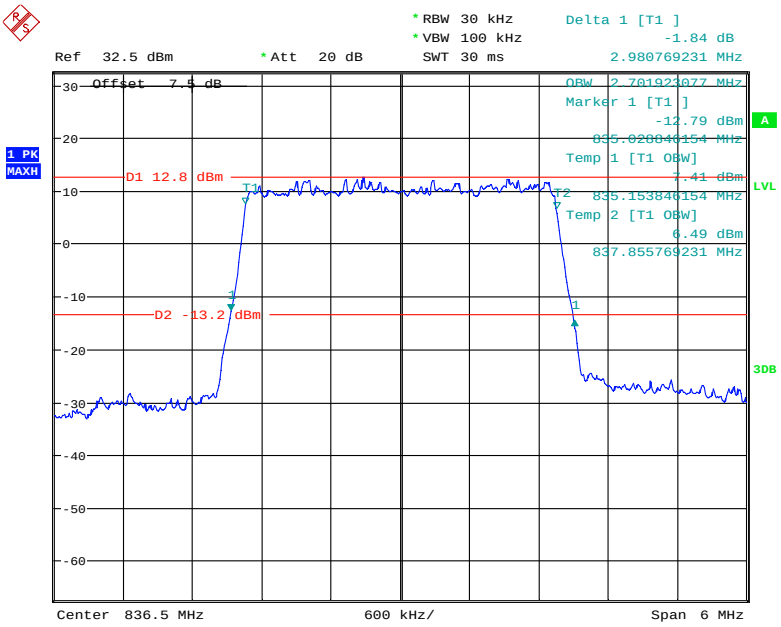
Date: 2.AUG.2018 21:11:19

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



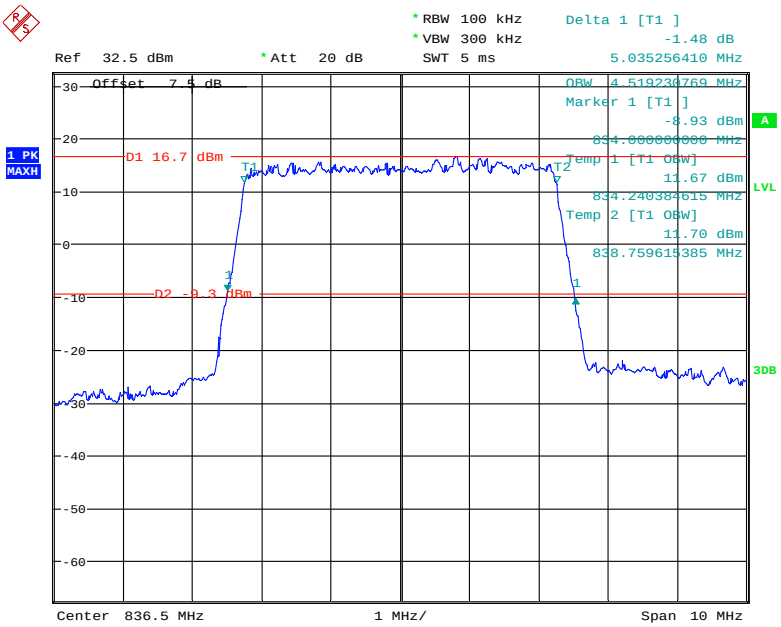
Date: 2.AUG.2018 21:12:53

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



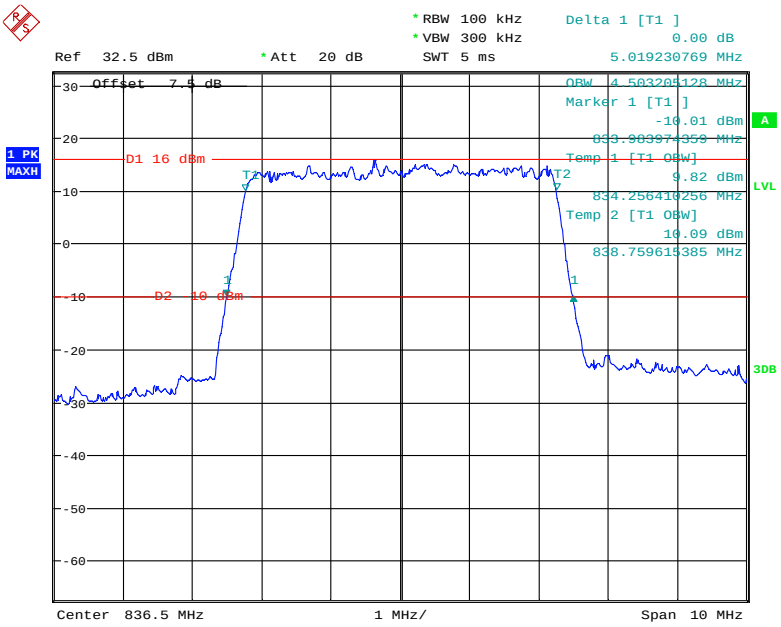
Date: 2.AUG.2018 21:15:35

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



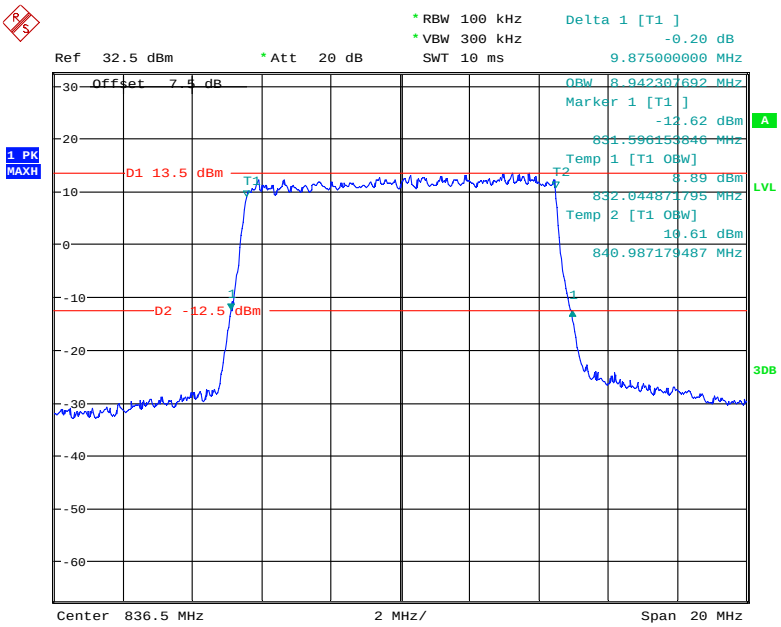
Date: 2.AUG.2018 21:20:00

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



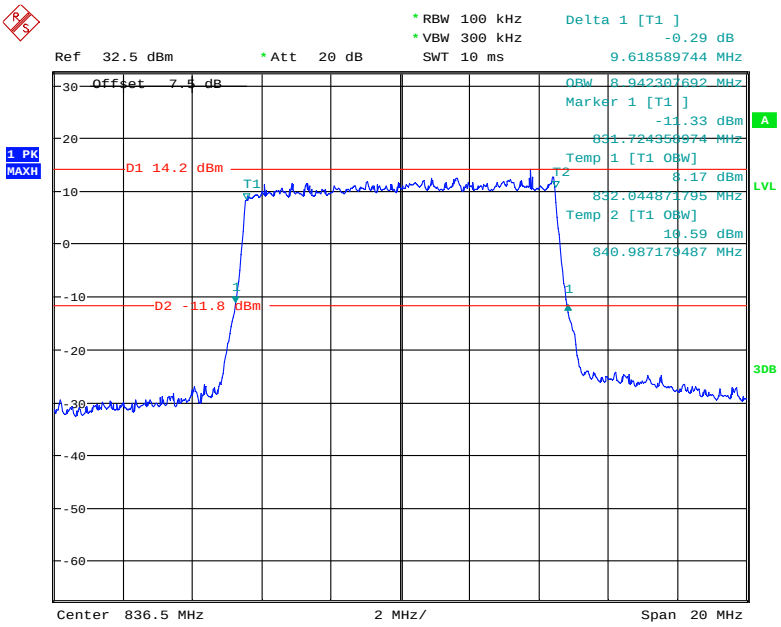
Date: 2.AUG.2018 21:18:08

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



Date: 2.AUG.2018 21:25:23

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

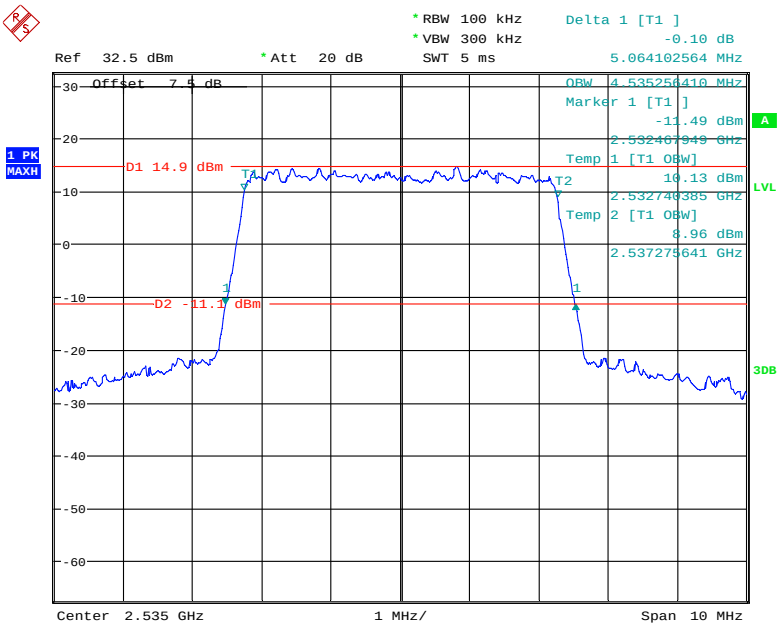


Date: 2.AUG.2018 21:22:58

LTE Band 7: (Middle Channel antenna 2)

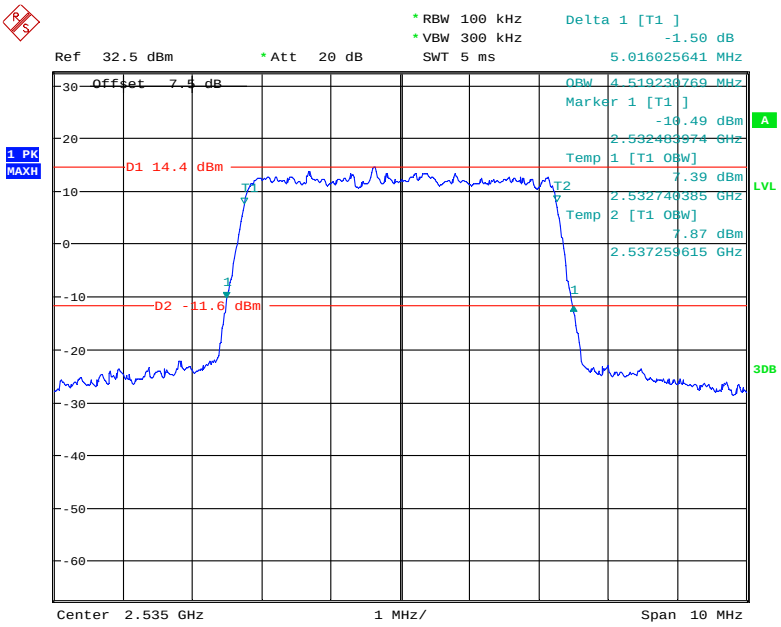
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.535	5.064
	16QAM	4.519	5.016
10.0	QPSK	8.974	9.840
	16QAM	8.942	9.679
15.0	QPSK	13.462	14.728
	16QAM	13.462	14.728
20.0	QPSK	17.885	19.231
	16QAM	17.949	19.215

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



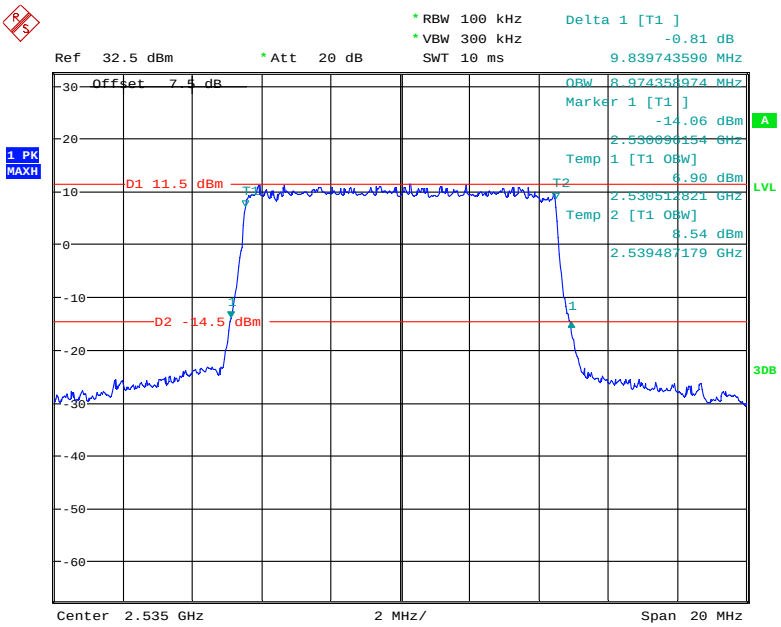
Date: 2.AUG.2018 21:29:24

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



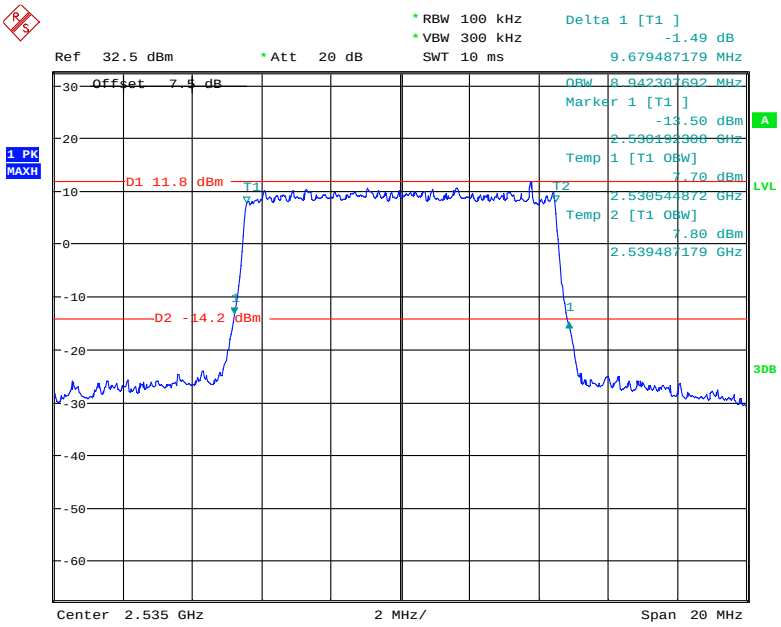
Date: 2.AUG.2018 21:31:35

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



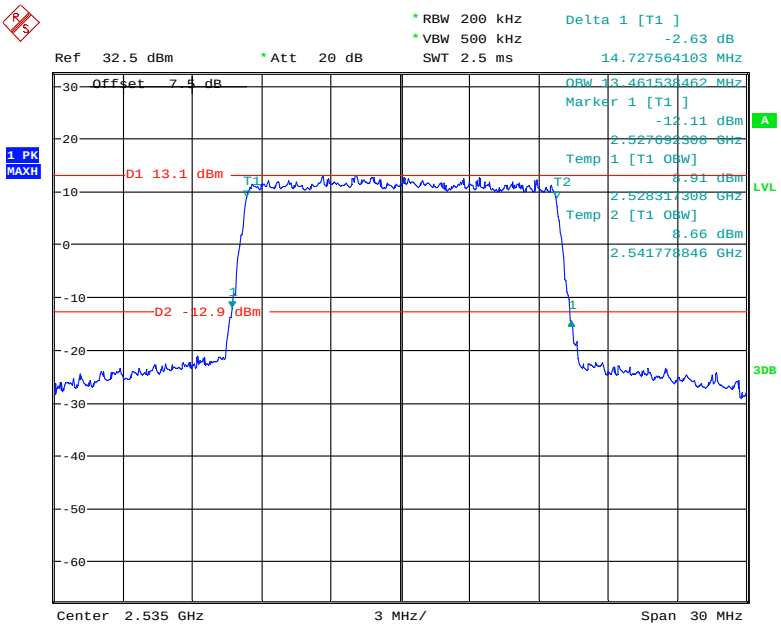
Date: 2.AUG.2018 21:33:19

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



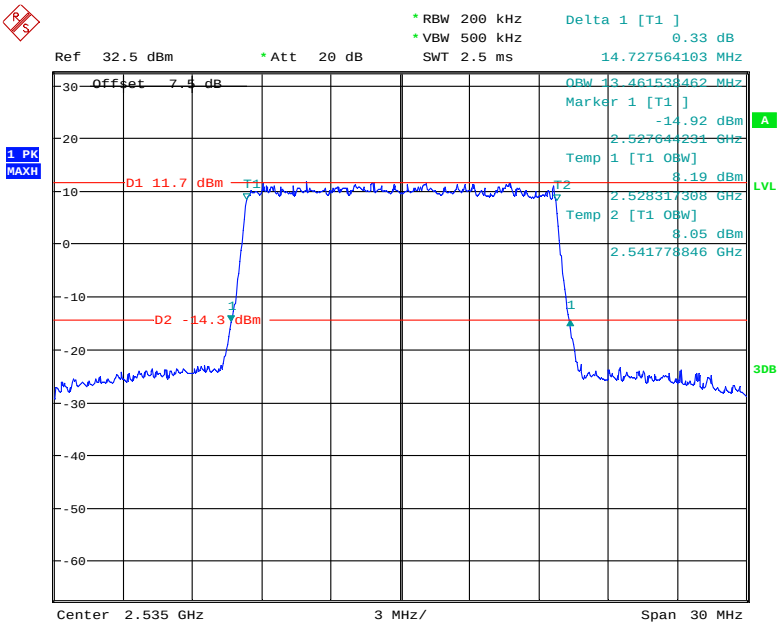
Date: 2.AUG.2018 21:35:45

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



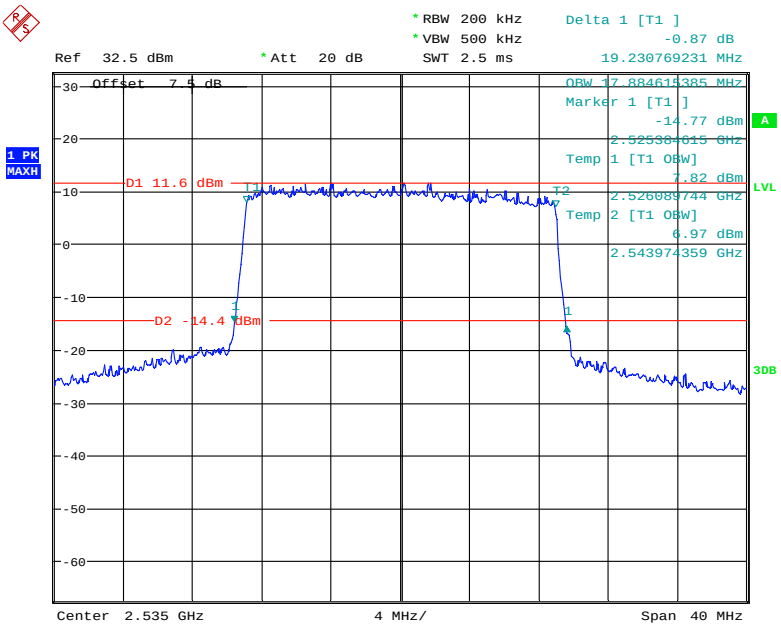
Date: 2.AUG.2018 21:40:02

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



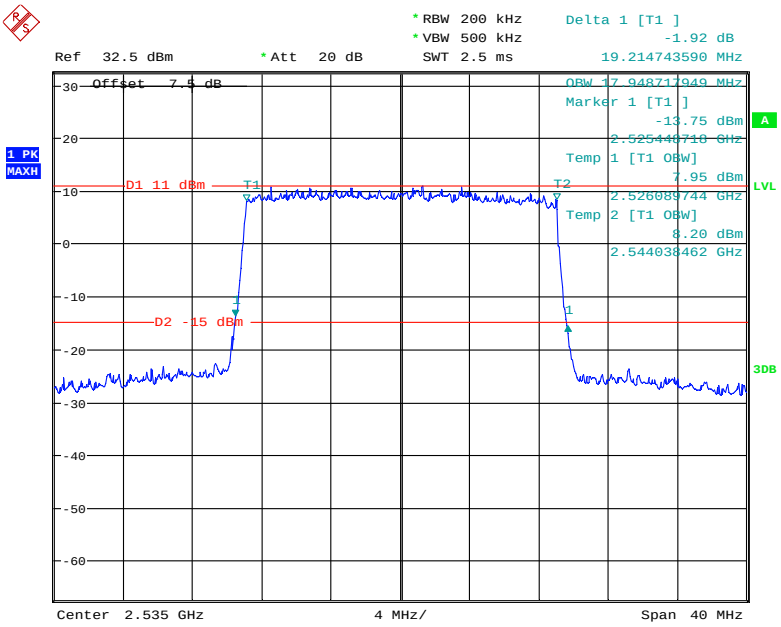
Date: 2.AUG.2018 21:37:39

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



Date: 20.SEP.2018 09:07:17

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

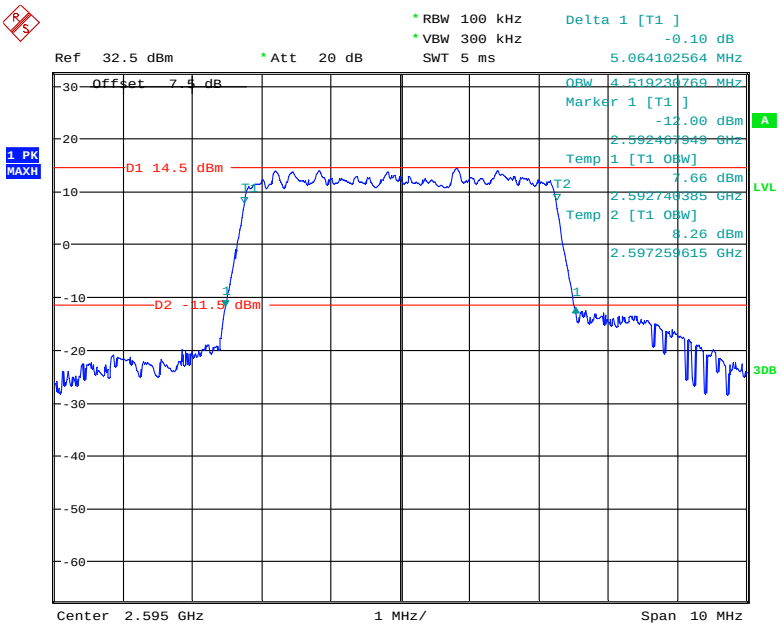


Date: 2.AUG.2018 21:42:25

LTE Band 38: (Middle Channel antenna 2)

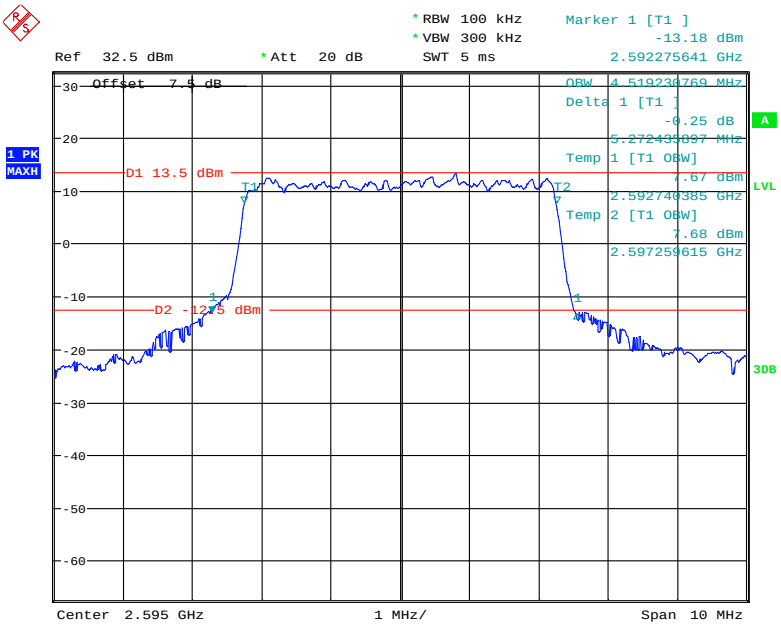
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.519	5.064
	16QAM	4.519	5.272
10.0	QPSK	9.006	10.561
	16QAM	8.974	9.792
15.0	QPSK	13.462	16.667
	16QAM	13.510	16.859
20.0	QPSK	17.885	19.103
	16QAM	17.949	19.103

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



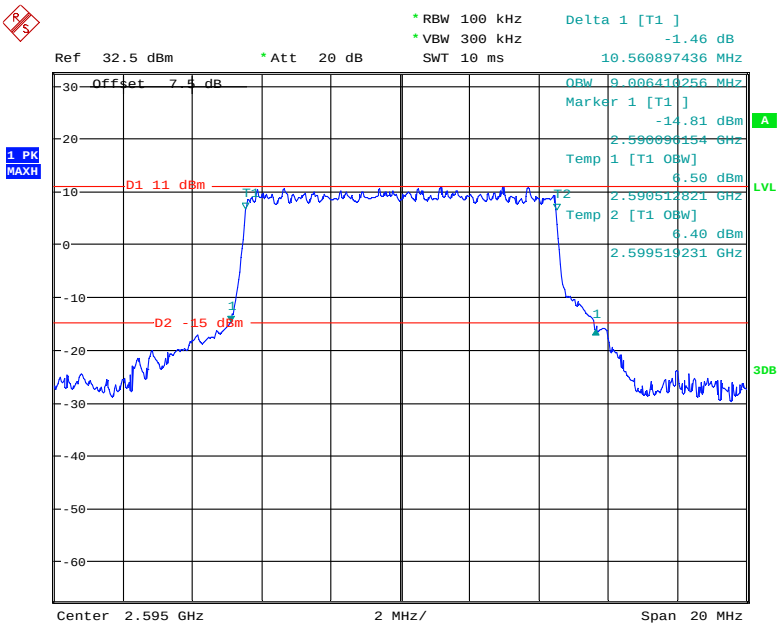
Date: 2.AUG.2018 21:48:28

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



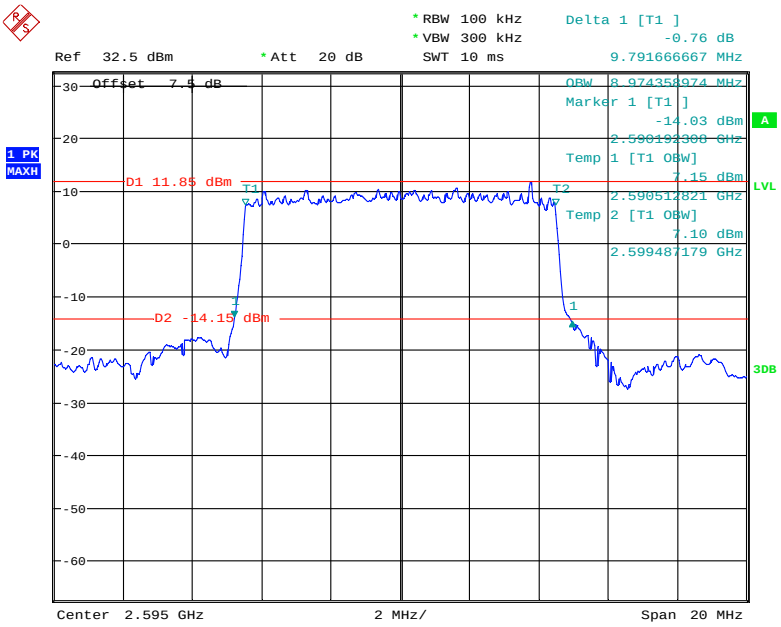
Date: 2.AUG.2018 21:52:26

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



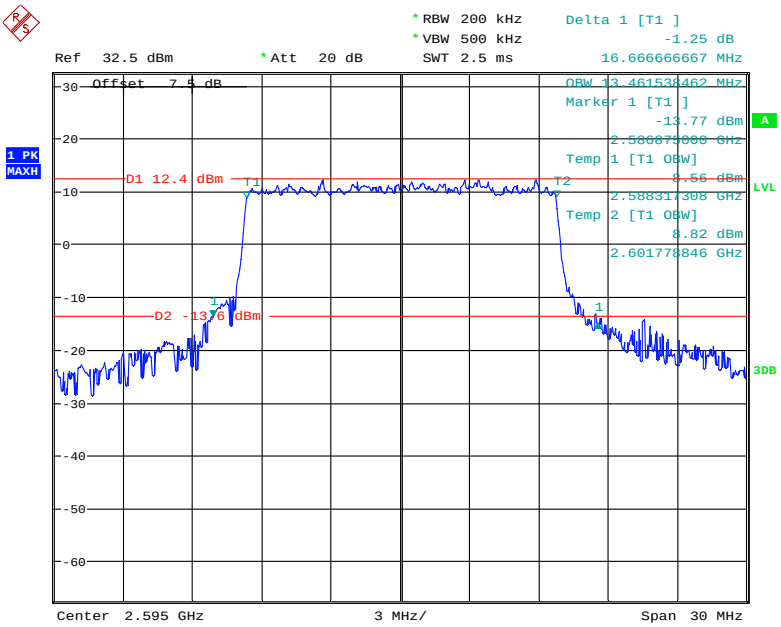
Date: 2.AUG.2018 22:03:34

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



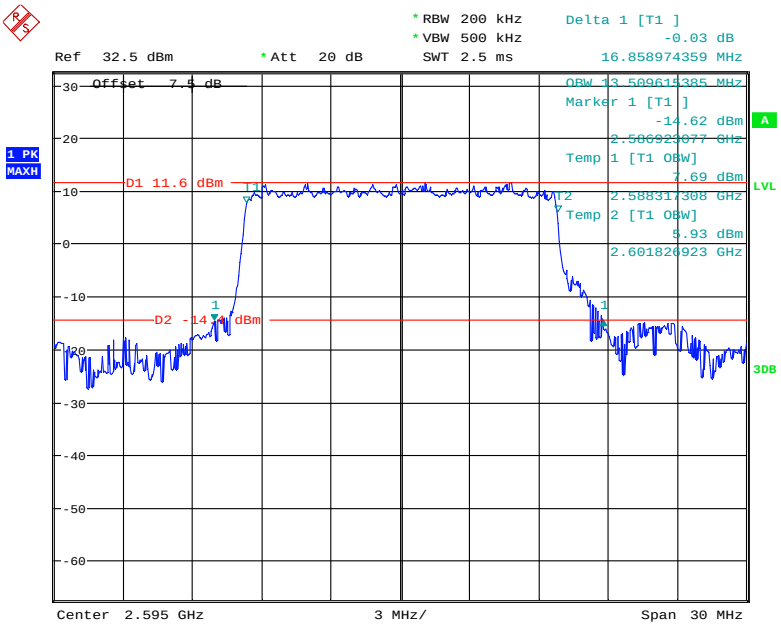
Date: 2.AUG.2018 22:01:15

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



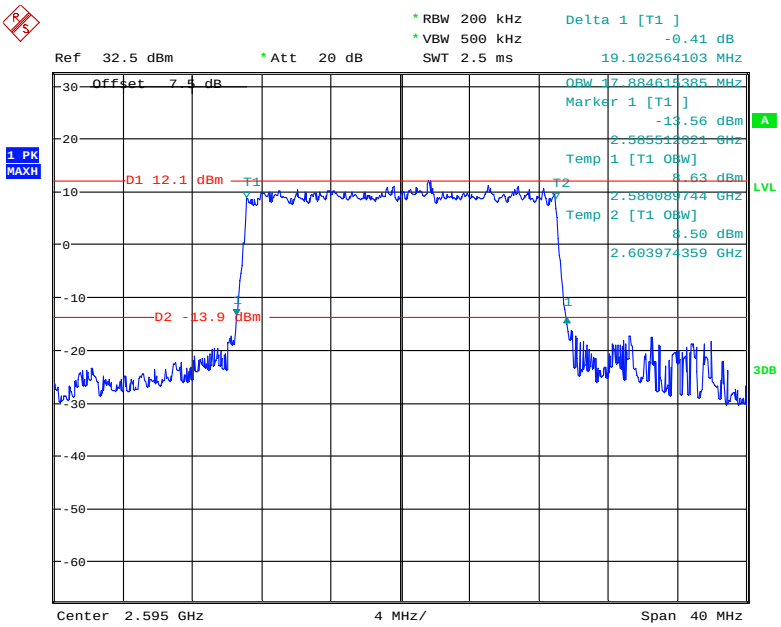
Date: 2.AUG.2018 22:07:54

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



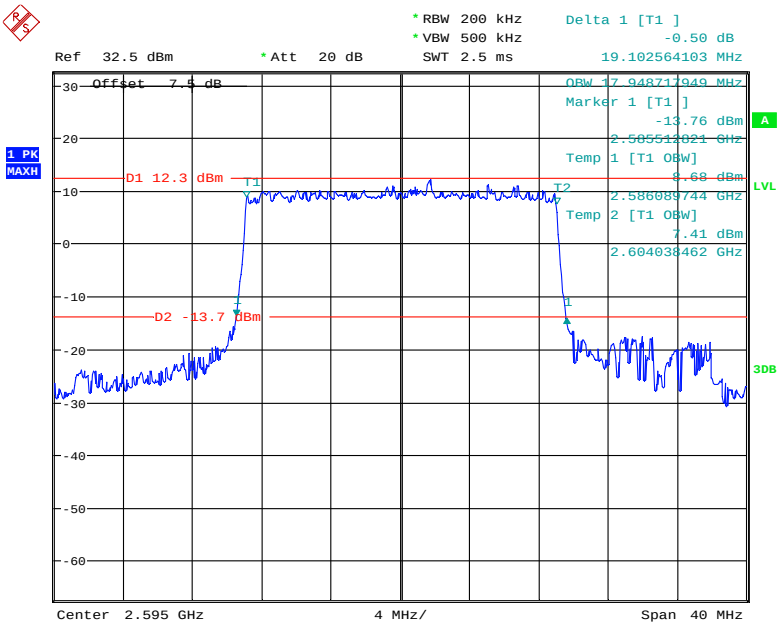
Date: 2.AUG.2018 22:10:35

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



Date: 2.AUG.2018 22:12:24

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



Date: 2.AUG.2018 22:15:38

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

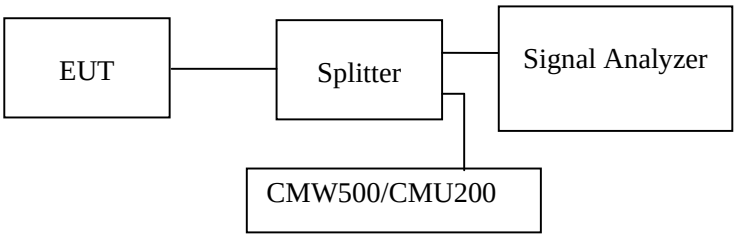
Applicable Standard

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

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

Test Procedure

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



Test Data

Environmental Conditions

Temperature:	25~26 ℃
Relative Humidity:	52~54 %
ATM Pressure:	101.0~101.5 kPa

The testing was performed by Nancy Wang from 2018-07-27 to 2018-09-19.

Test result: Compliance.

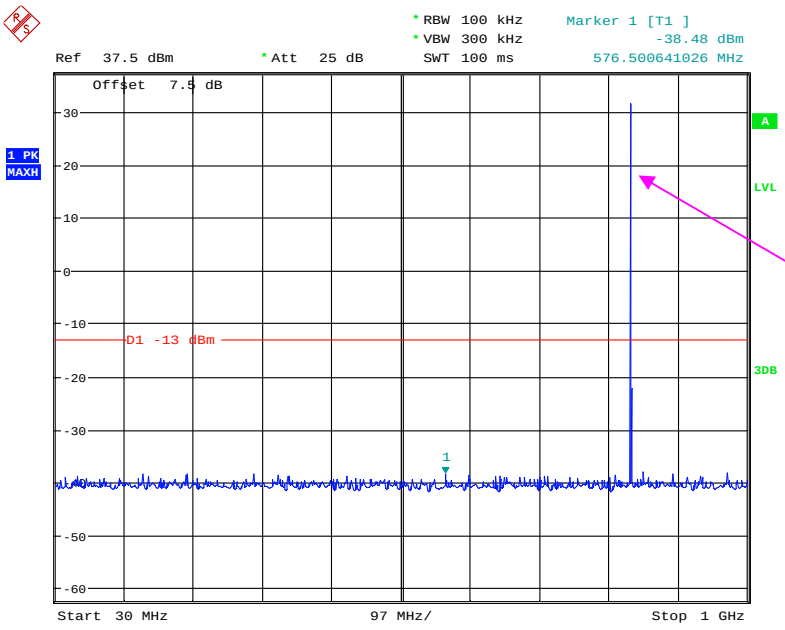
EUT operation mode: transmitting

Please refer to the following plots.

Note: for 3G & 4G, testing performance at antenna 2 port.

Cellular Band (Part 22H)

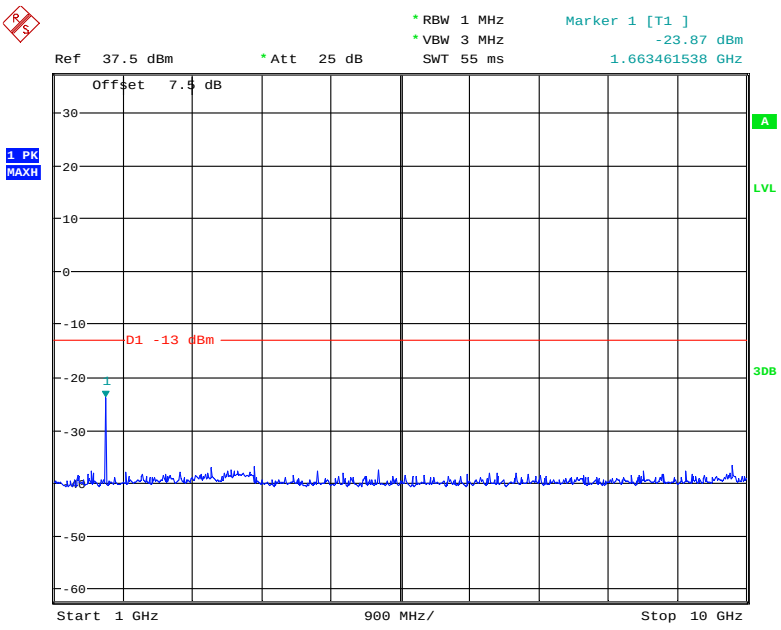
30 MHz – 1 GHz (GSM Mode)



Fundamental test

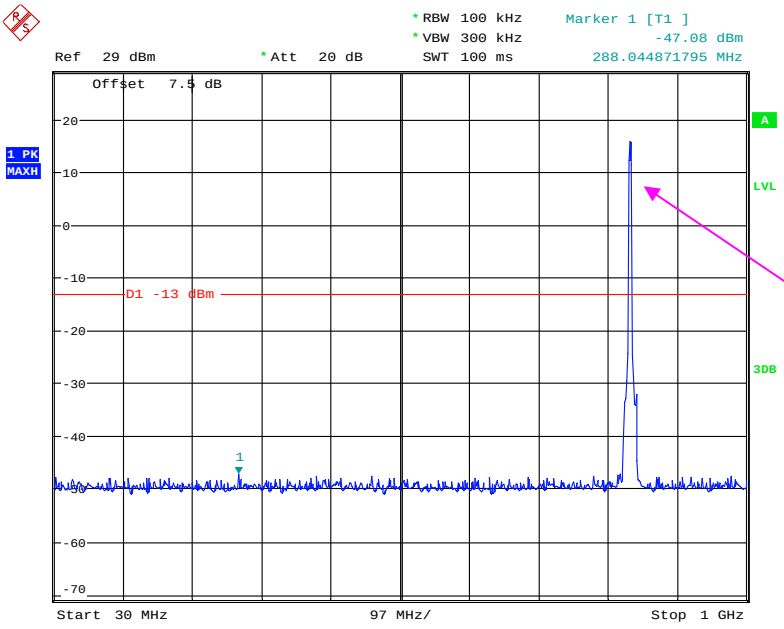
Date: 27.JUL.2018 14:24:17

1 GHz – 10 GHz (GSM Mode)



Date: 27.JUL.2018 14:24:47

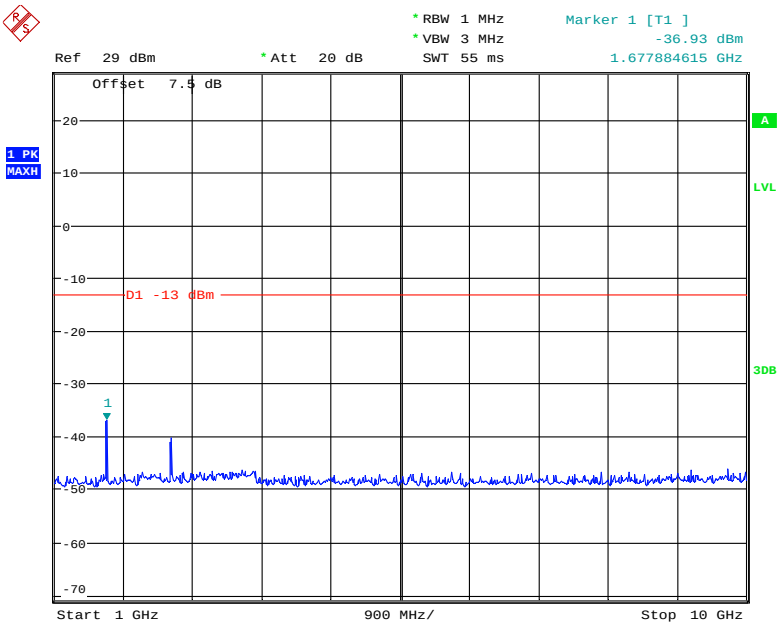
30 MHz – 1 GHz (WCDMA Mode)



Fundamental test

Date: 27.JUL.2018 16:12:59

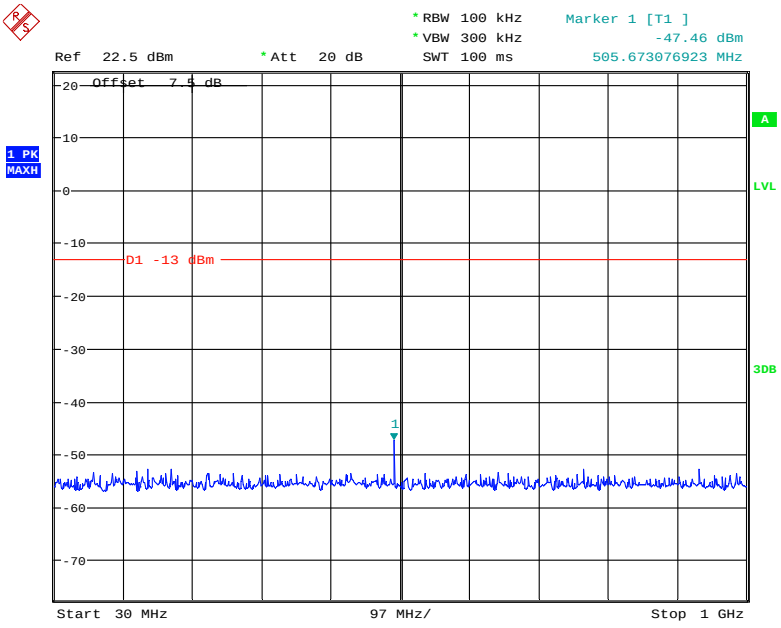
1 GHz – 10 GHz (WCDMA Mode)



Date: 27.JUL.2018 16:12:35

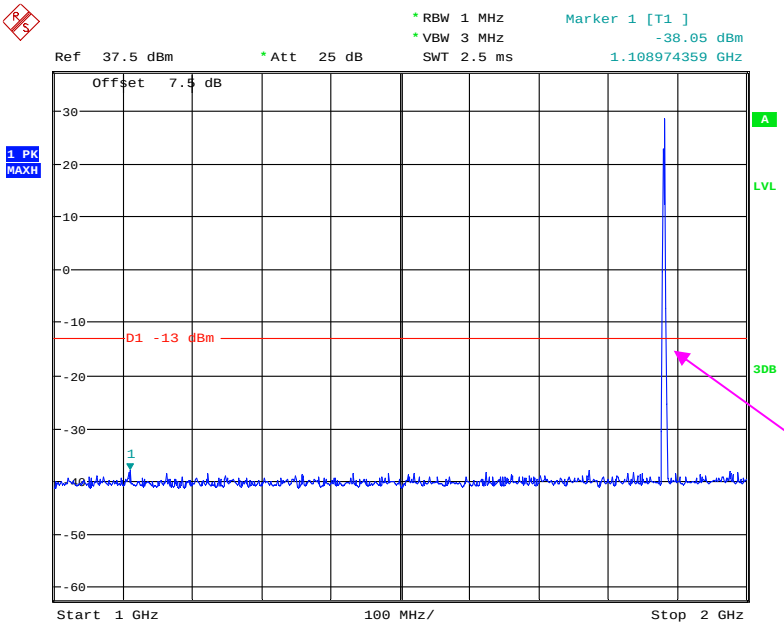
PCS Band (Part 24E)

30 MHz – 1 GHz (GSM Mode)



Date: 27.JUL.2018 14:43:30

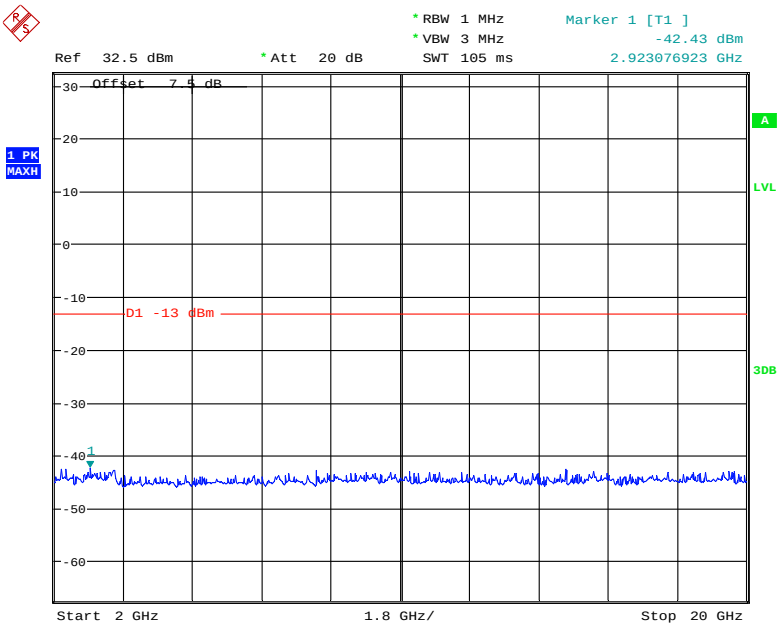
1 GHz – 2 GHz (GSM Mode)



Fundamental test

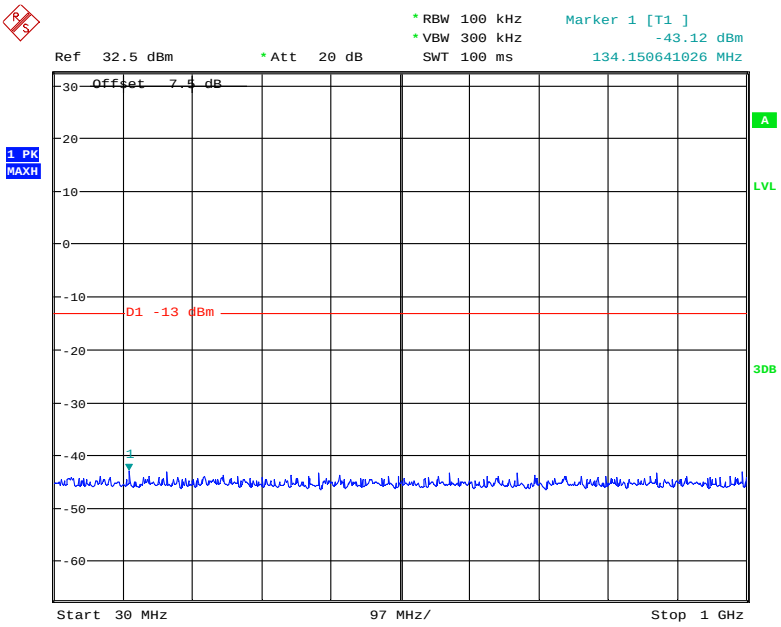
Date: 27.JUL.2018 14:44:36

2 GHz – 20 GHz (GSM Mode)



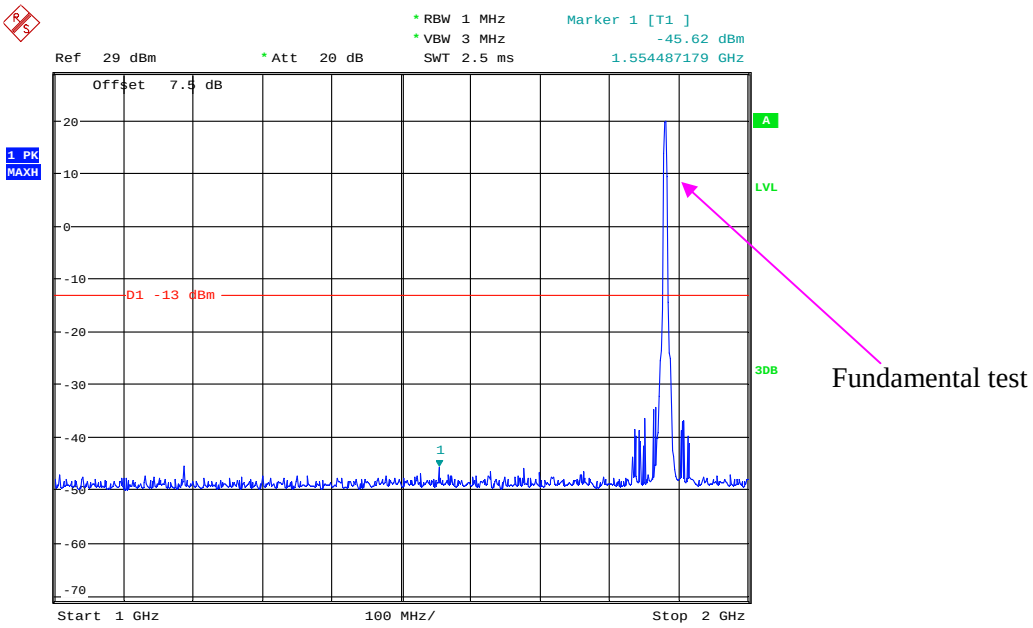
Date: 27.JUL.2018 14:45:04

30 MHz – 1 GHz (WCDMA Mode)



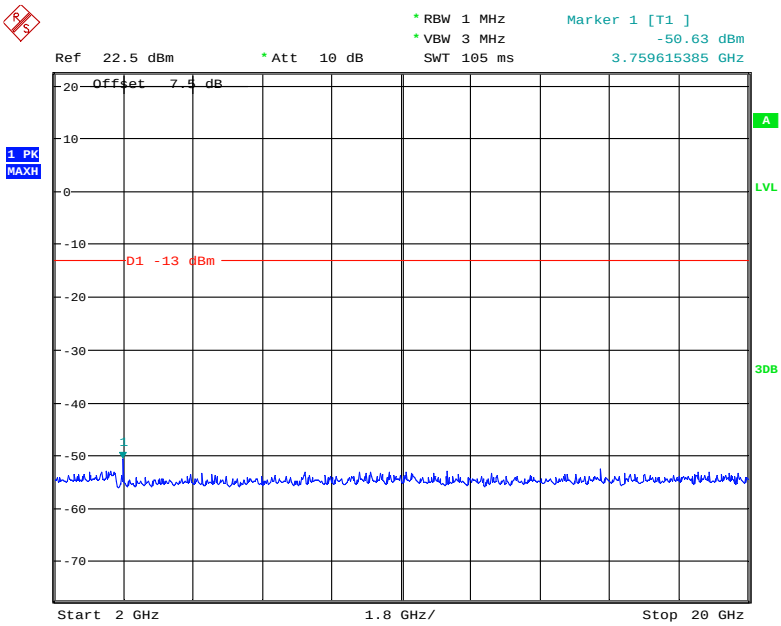
Date: 27.JUL.2018 16:07:12

1 GHz – 2 GHz (WCDMA Mode)



Date: 27.JUL.2018 16:08:51

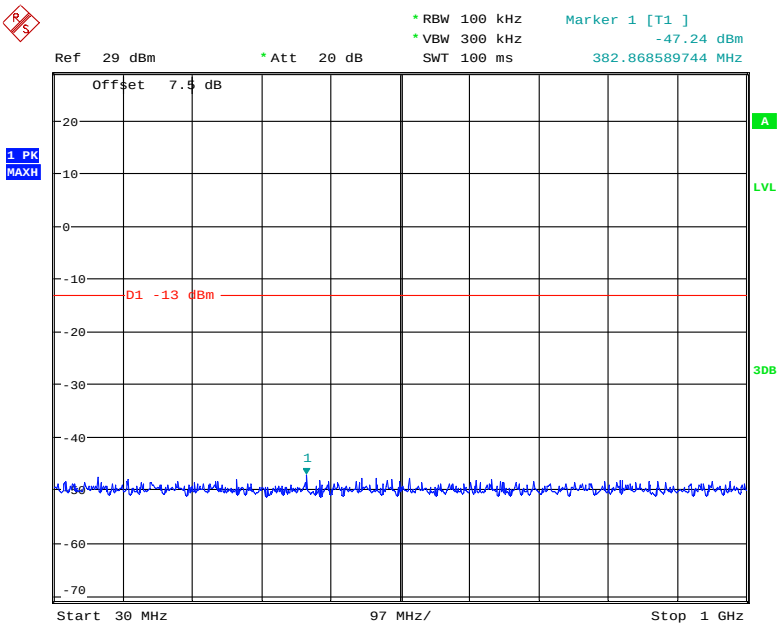
2 GHz – 20 GHz (WCDMA Mode)



Date: 27.JUL.2018 16:08:23

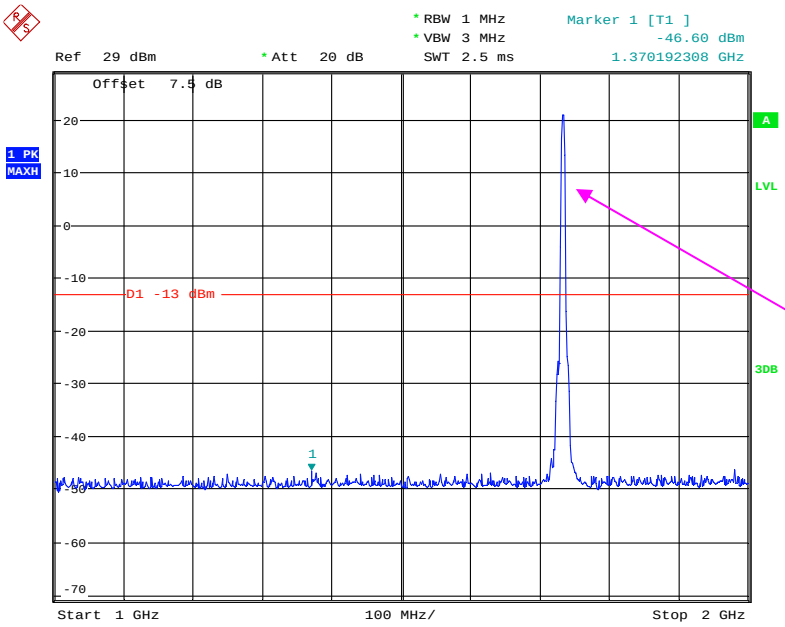
AWS Band (Part 27)

30 MHz – 1 GHz (WCDMA Mode)



Date: 27.JUL.2018 16:14:00

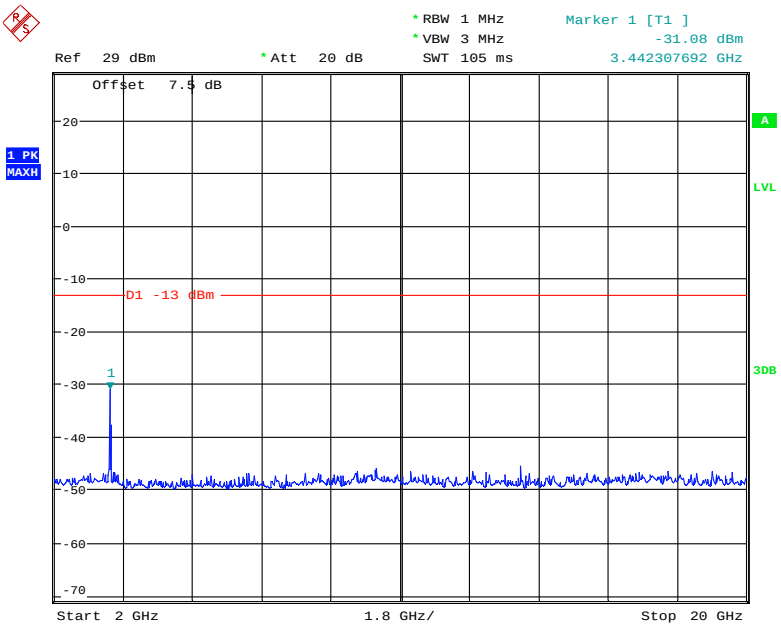
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

Date: 27.JUL.2018 16:14:29

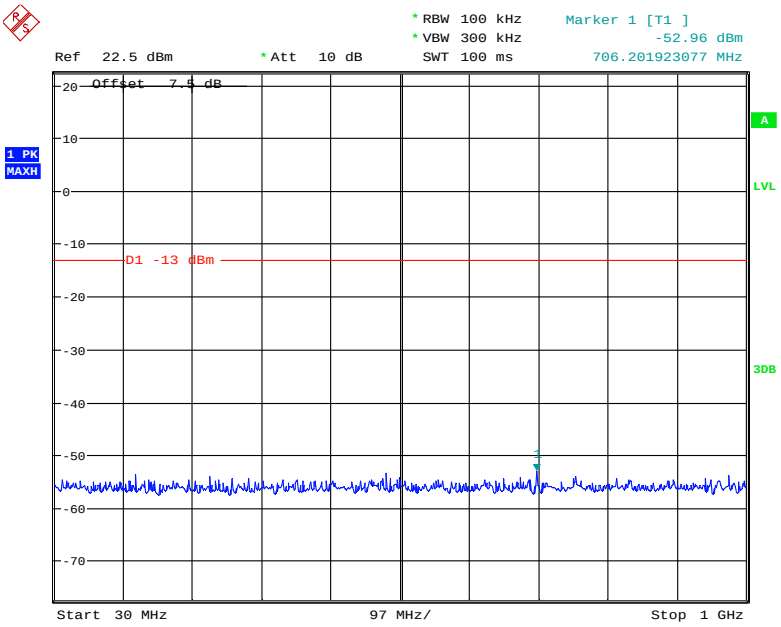
2 GHz – 20 GHz (WCDMA Mode)



Date: 27.JUL.2018 16:14:46

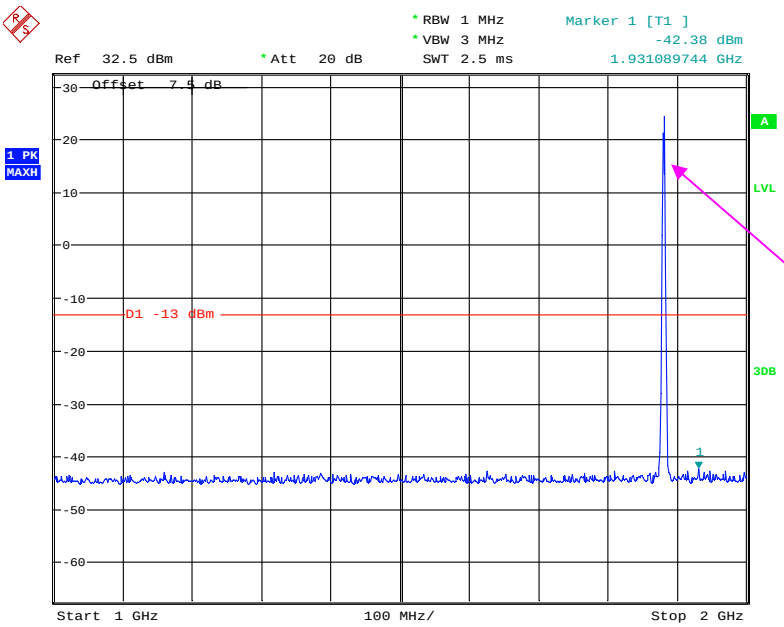
LTE Band 2: (QPSK)

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



Date: 2.AUG.2018 23:28:48

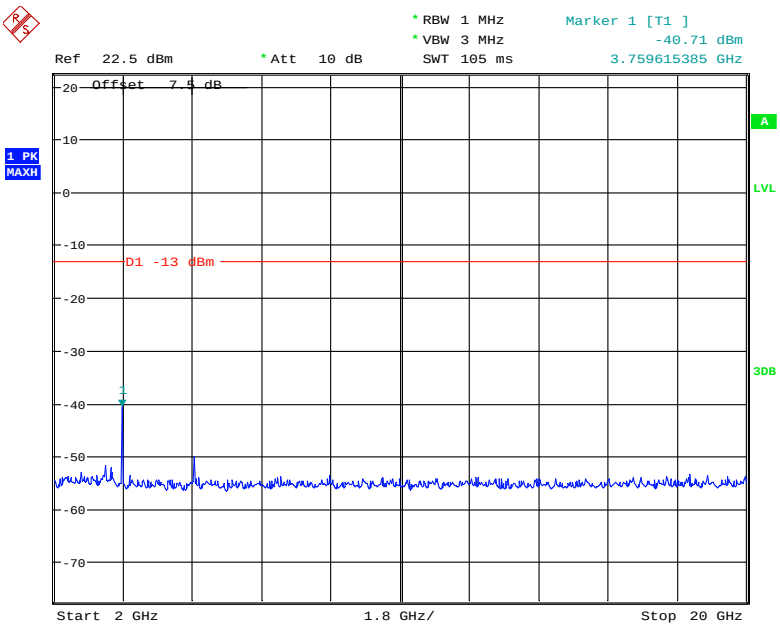
1 GHz – 2 GHz (1.4 MHz, Middle Channel)



Fundamental test

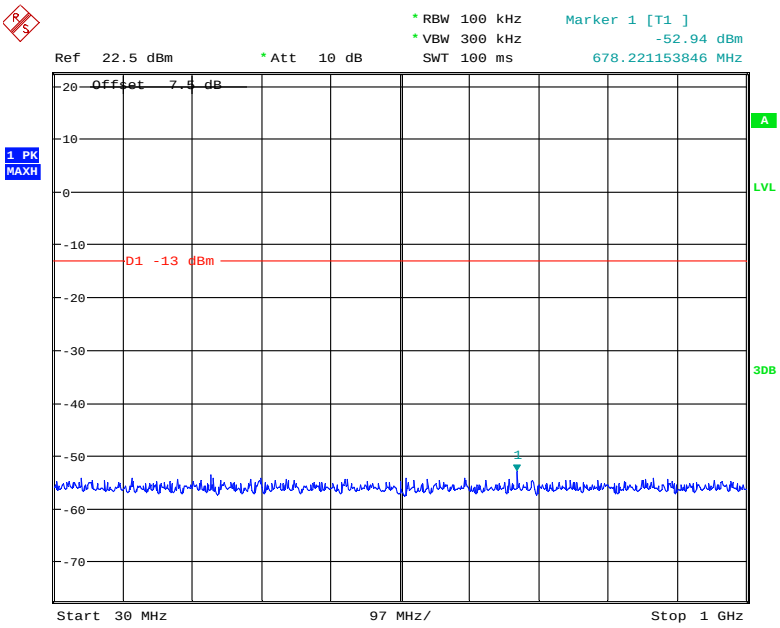
Date: 2.AUG.2018 23:21:49

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



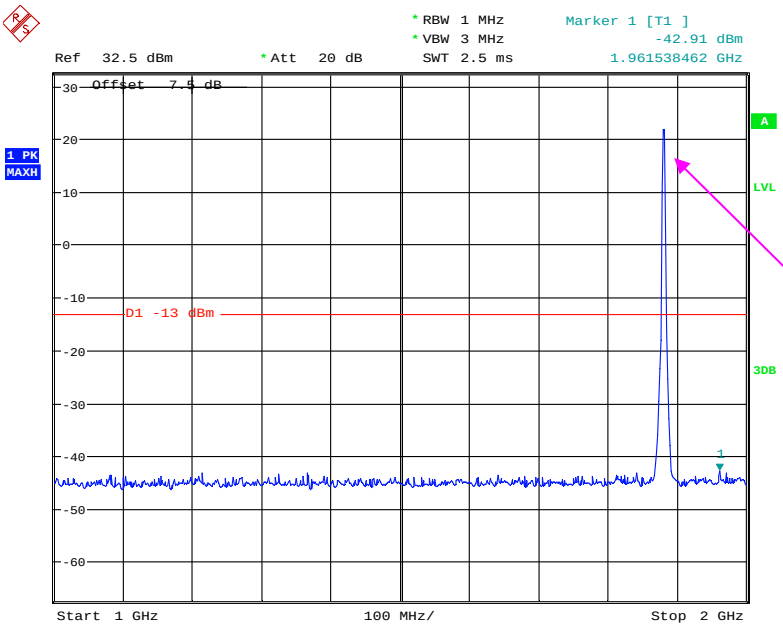
Date: 2.AUG.2018 23:20:24

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



Date: 2.AUG.2018 23:28:32

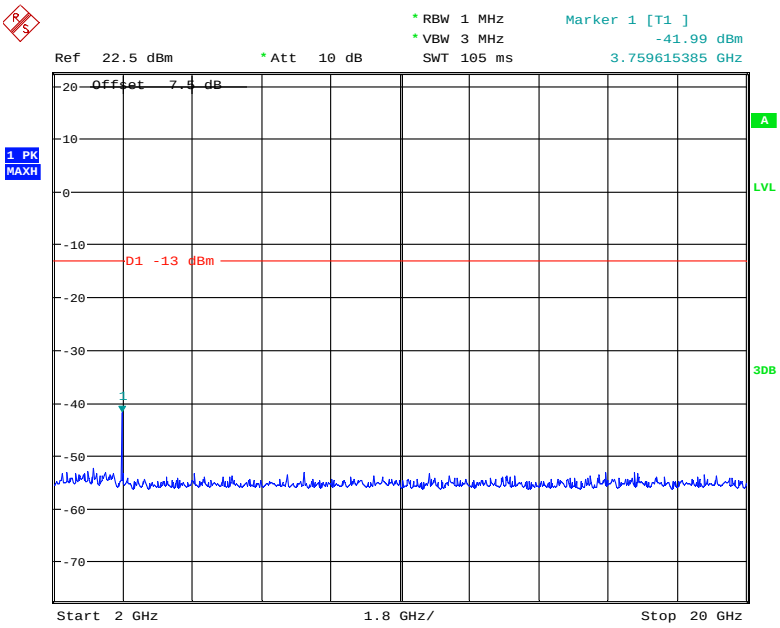
1 GHz – 2 GHz (3.0 MHz, Middle Channel)



Fundamental test

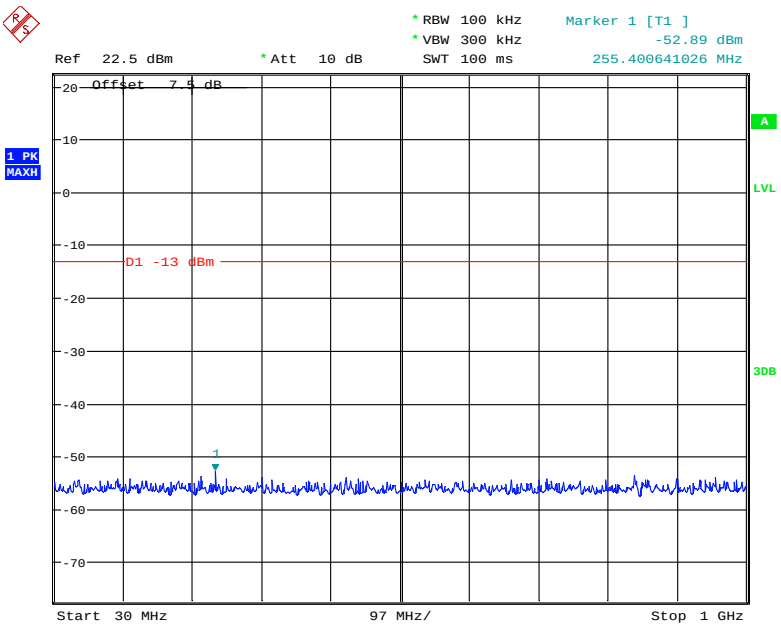
Date: 2.AUG.2018 23:22:35

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



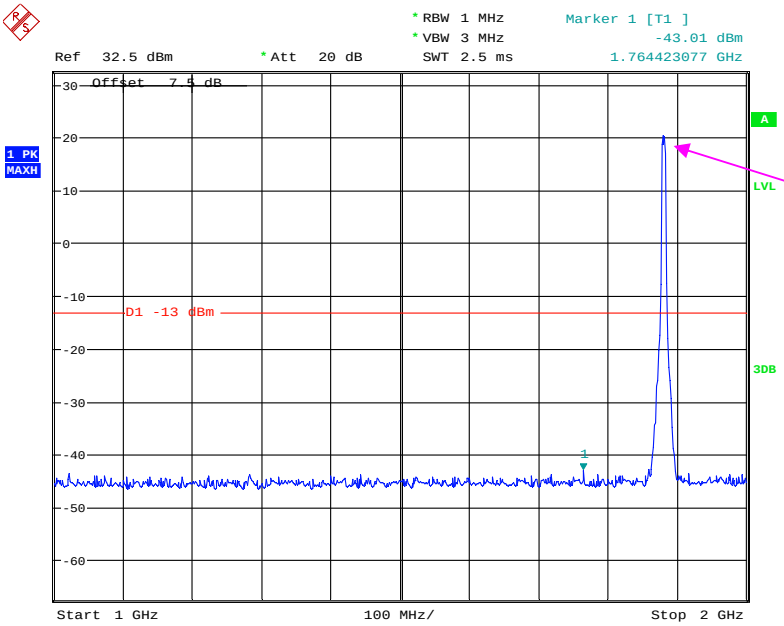
Date: 2.AUG.2018 23:19:08

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



Date: 2.AUG.2018 23:28:12

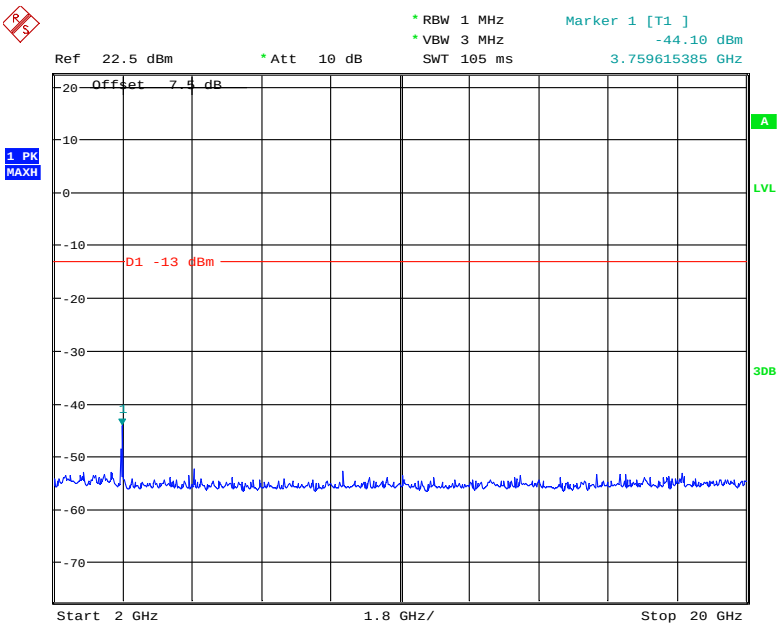
1 GHz – 2 GHz (5.0 MHz, Middle Channel)



Fundamental test

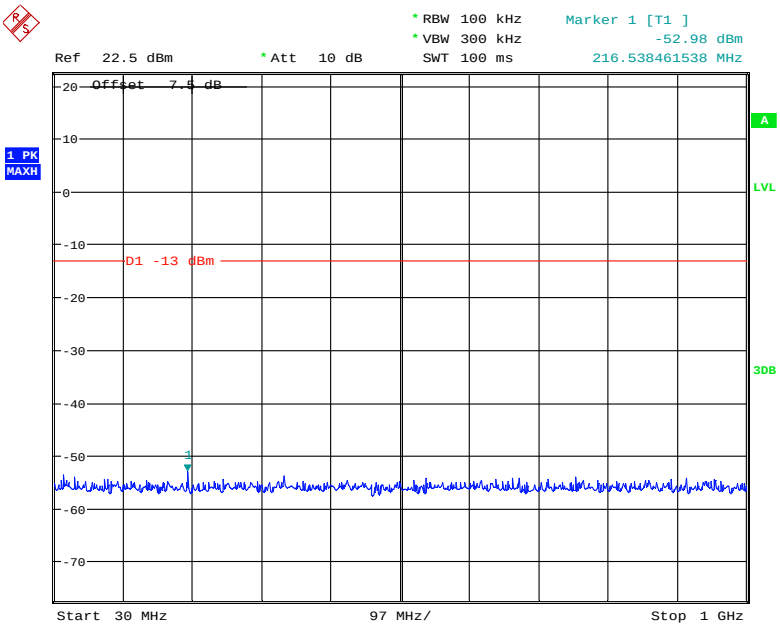
Date: 2.AUG.2018 23:24:46

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



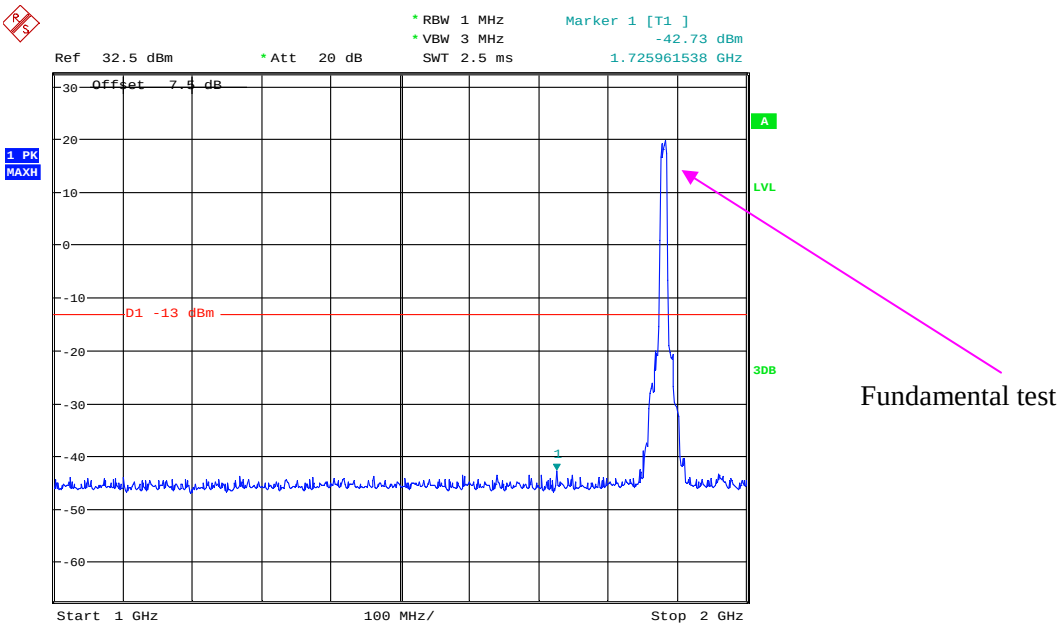
Date: 2.AUG.2018 23:18:54

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



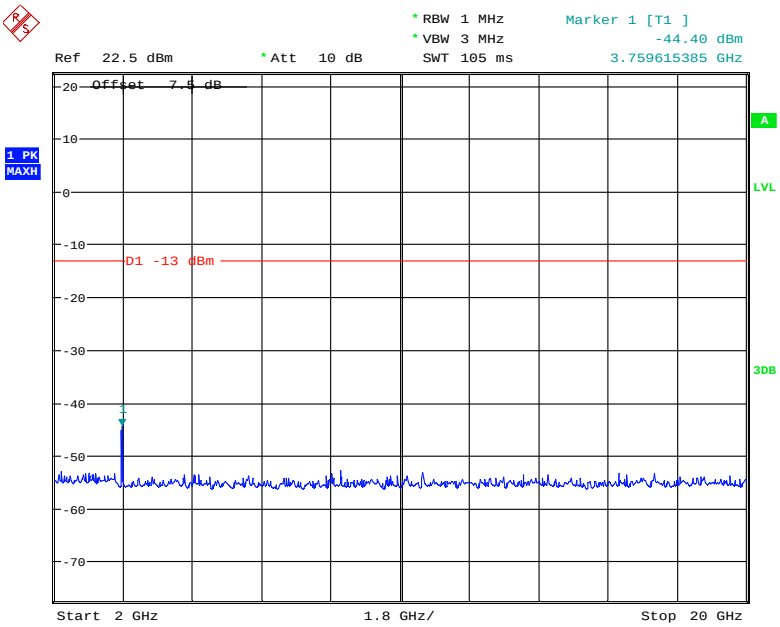
Date: 2.AUG.2018 23:27:55

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



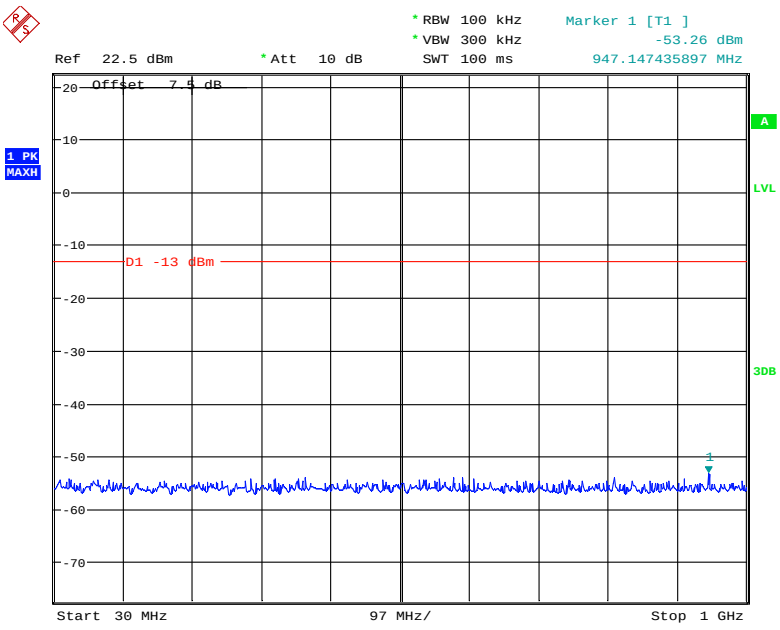
Date: 2.AUG.2018 23:25:15

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



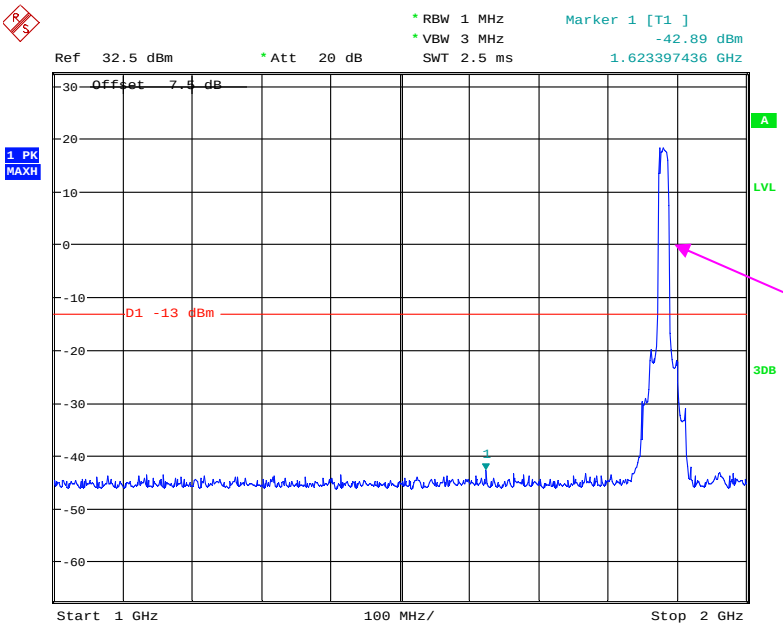
Date: 2.AUG.2018 23:18:40

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



Date: 2.AUG.2018 23:27:33

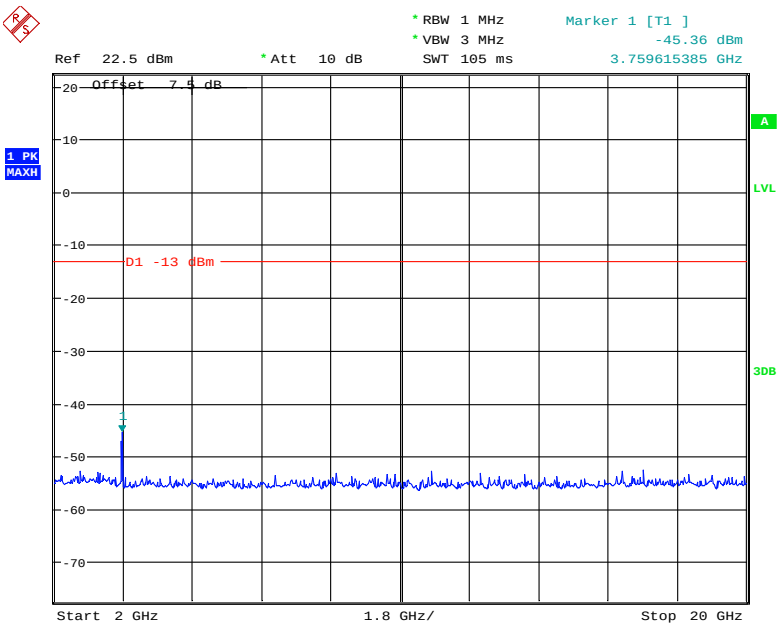
1 GHz – 2 GHz (15.0 MHz, Middle Channel)



Fundamental test

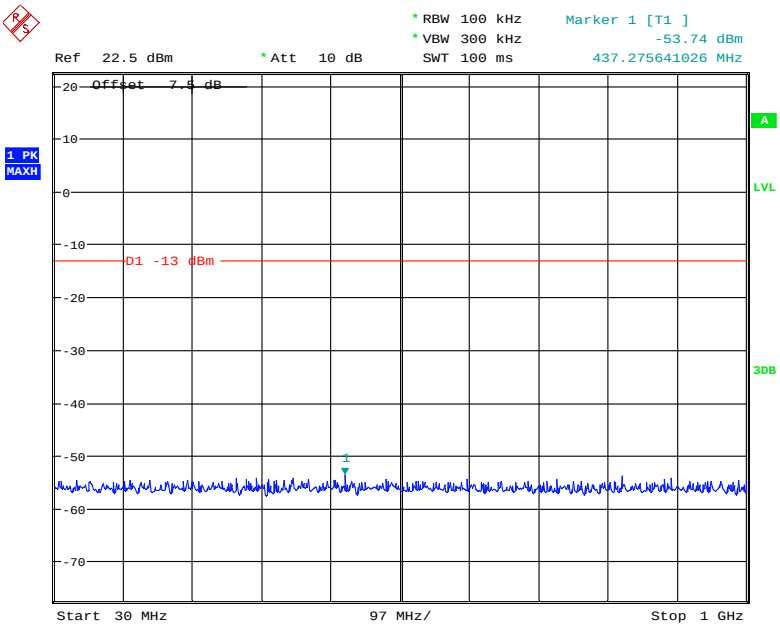
Date: 2.AUG.2018 23:25:39

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



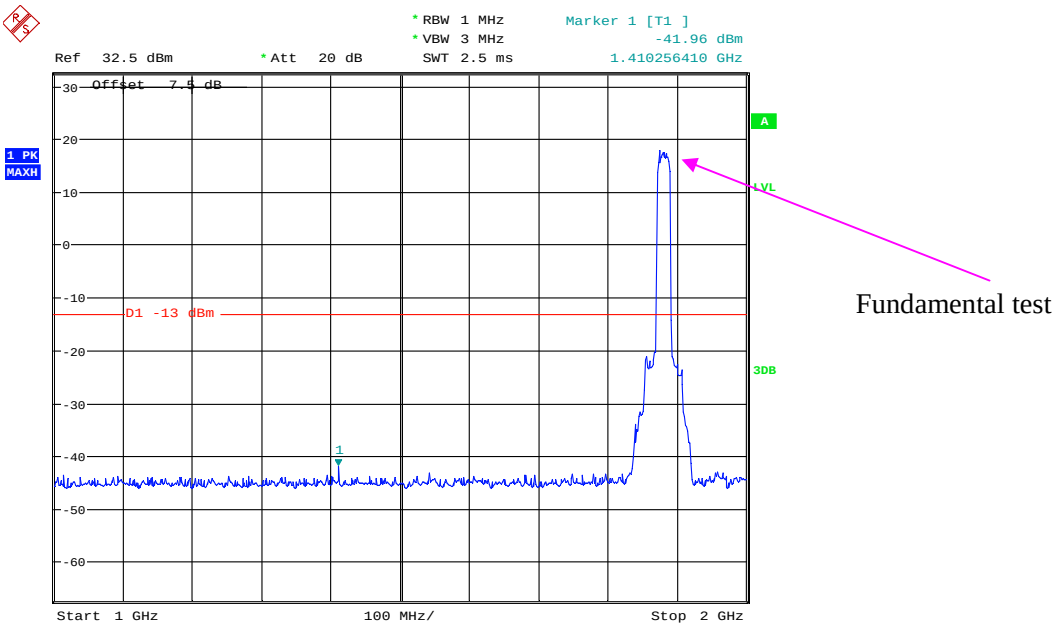
Date: 2.AUG.2018 23:18:22

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



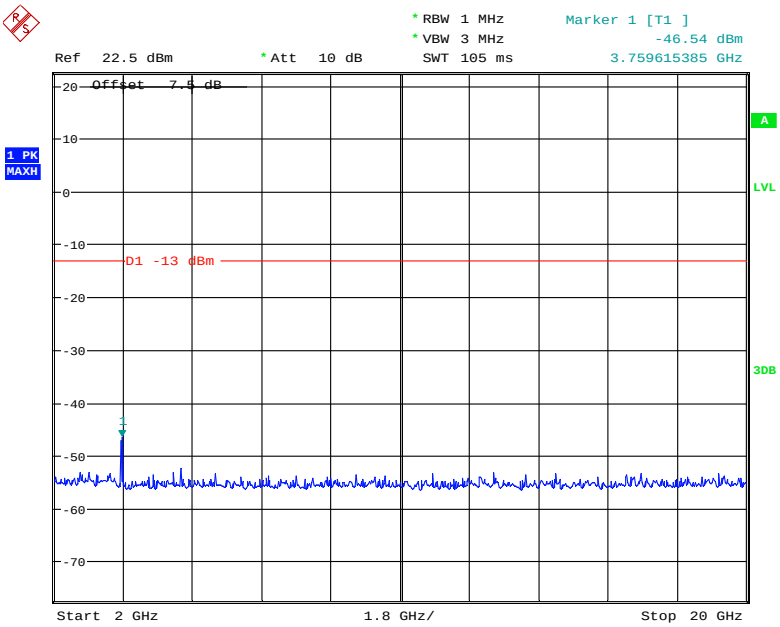
Date: 2.AUG.2018 23:27:07

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



Date: 2.AUG.2018 23:26:29

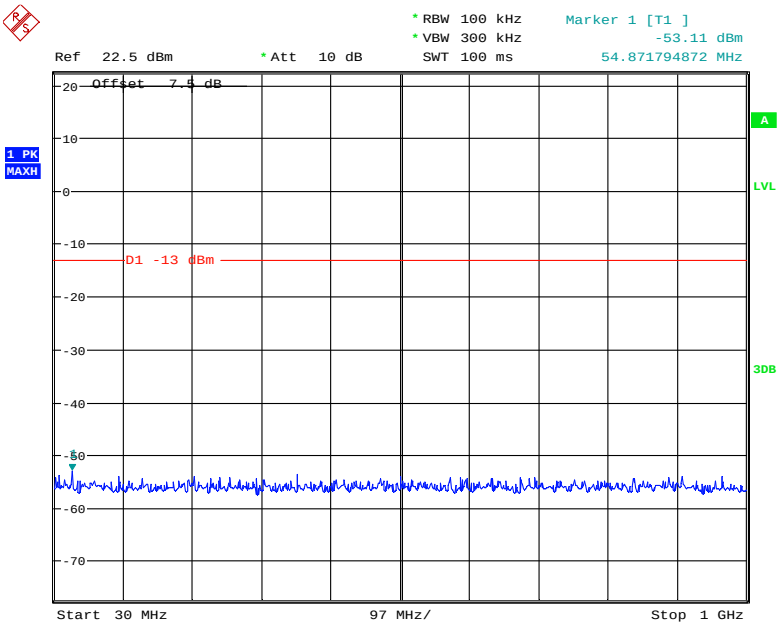
2 GHz – 20 GHz (20.0 MHz, Middle Channel)



Date: 2.AUG.2018 23:18:02

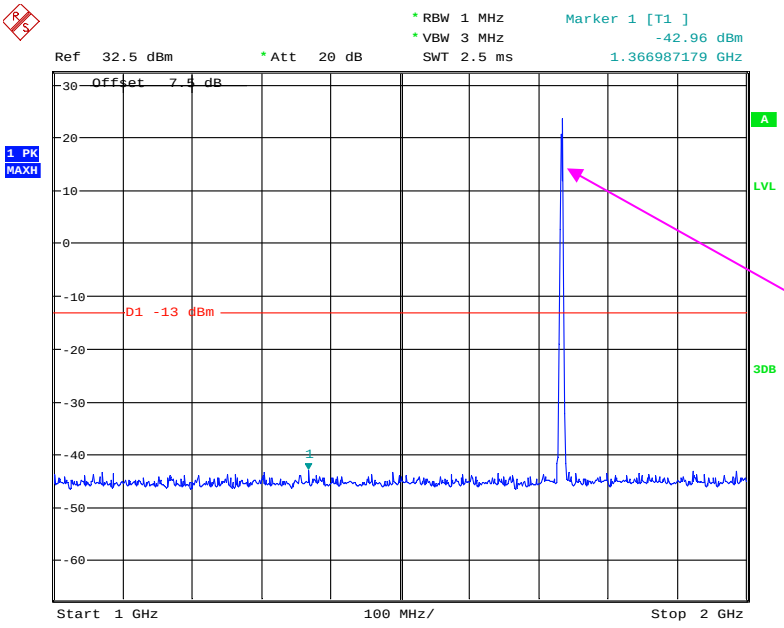
LTE Band 4: (QPSK)

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



Date: 2.AUG.2018 23:07:30

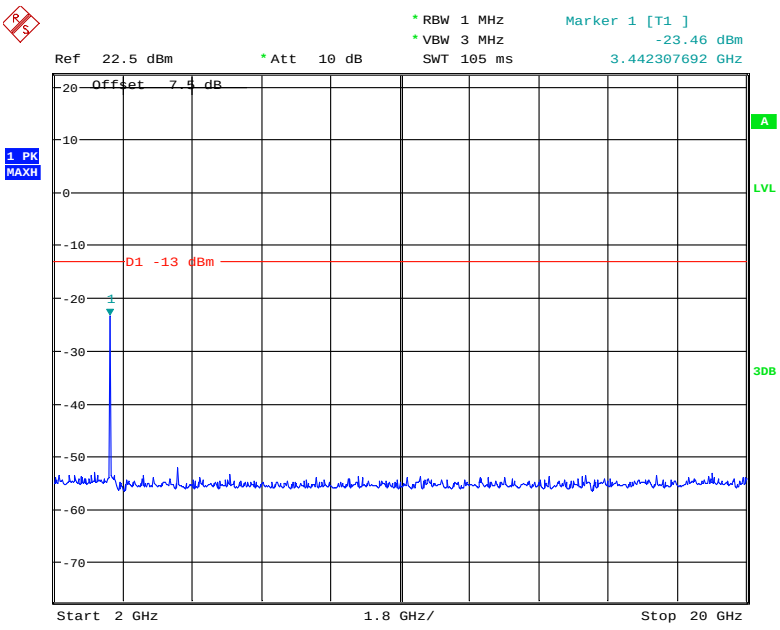
1 GHz – 2 GHz (1.4 MHz, Middle Channel)



Fundamental test

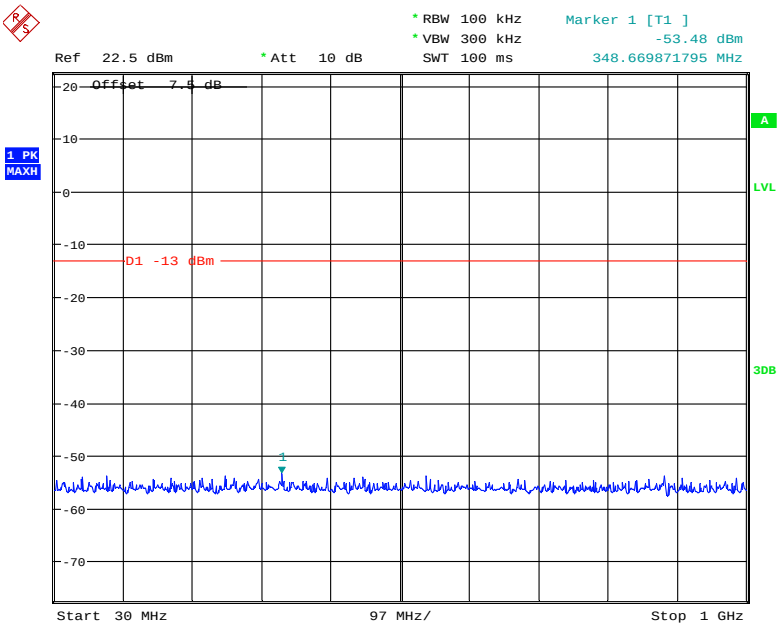
Date: 2.AUG.2018 23:13:41

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



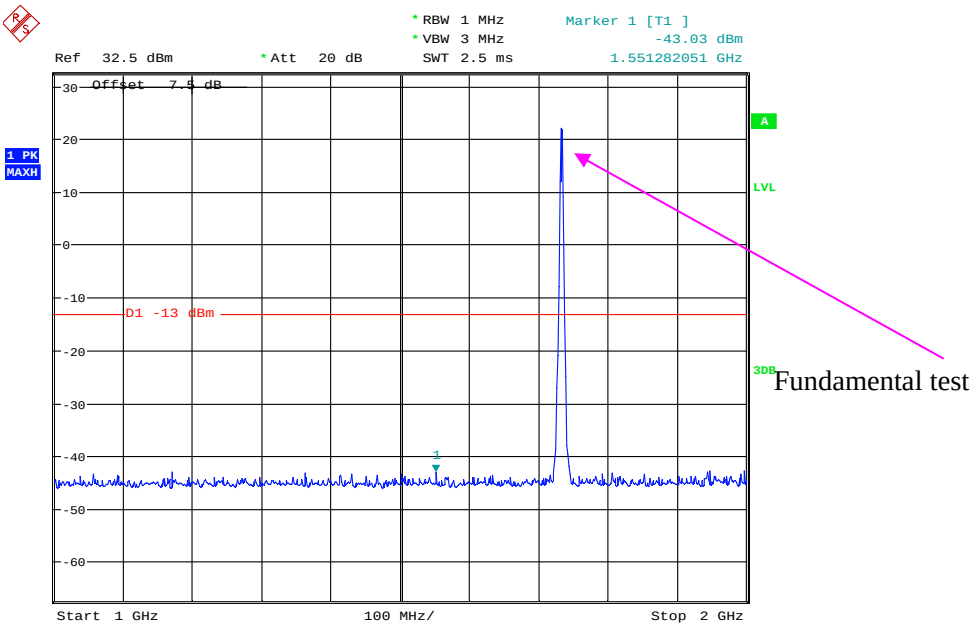
Date: 2.AUG.2018 23:14:25

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



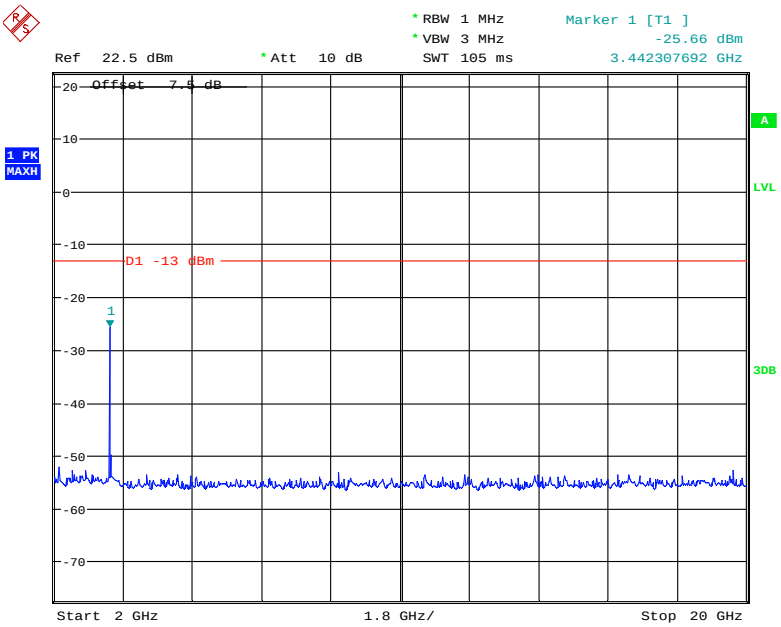
Date: 2.AUG.2018 23:08:18

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



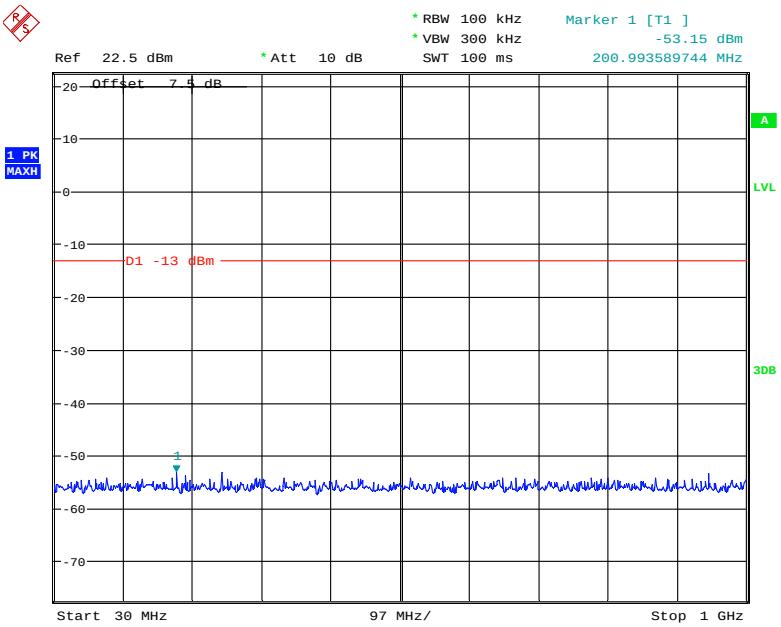
Date: 2.AUG.2018 23:13:09

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



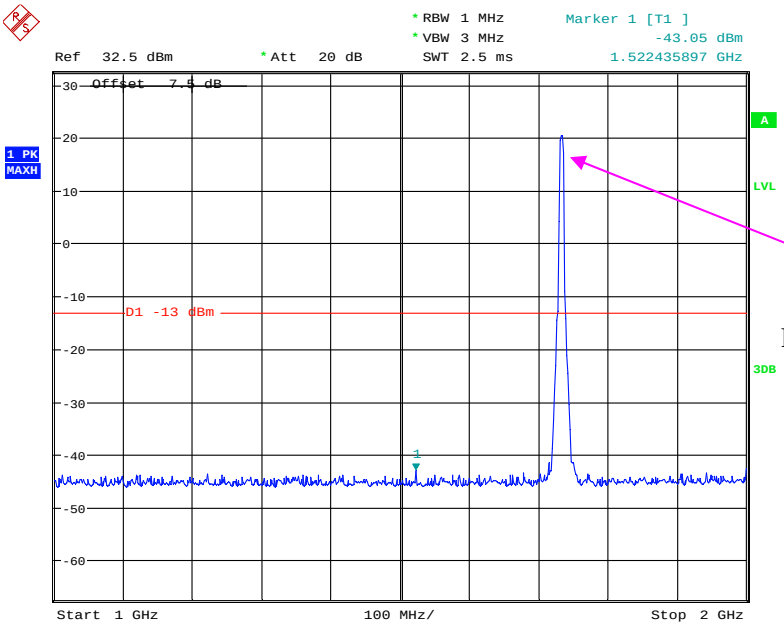
Date: 2.AUG.2018 23:14:57

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



Date: 2.AUG.2018 23:08:39

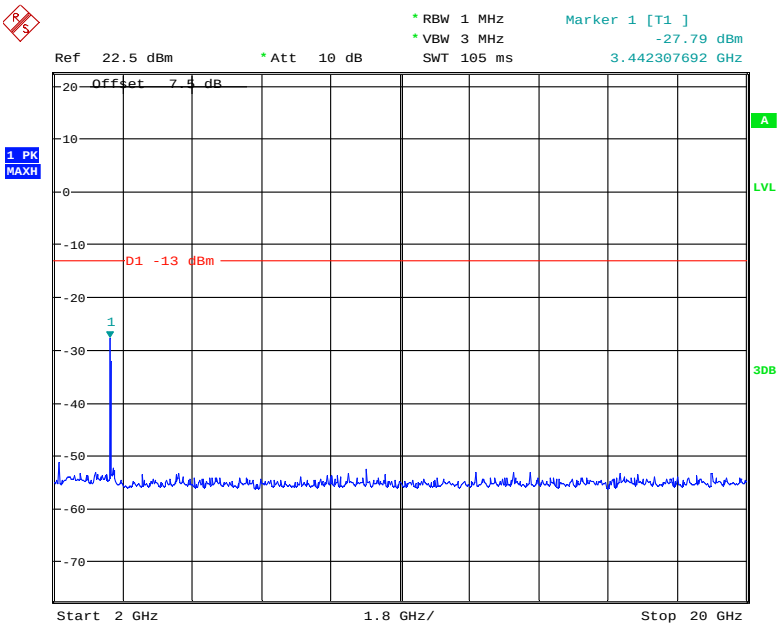
1 GHz – 2 GHz (5.0 MHz, Middle Channel)



Fundamental test

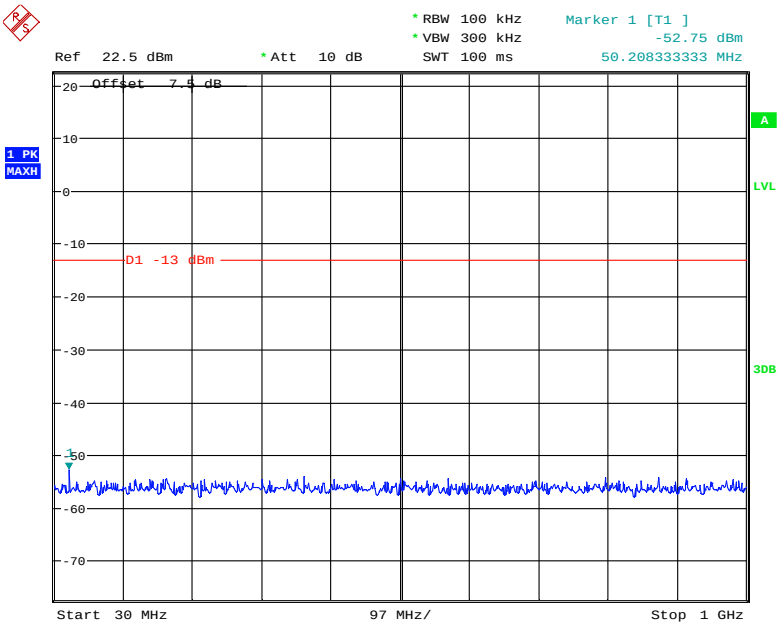
Date: 2.AUG.2018 23:12:30

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



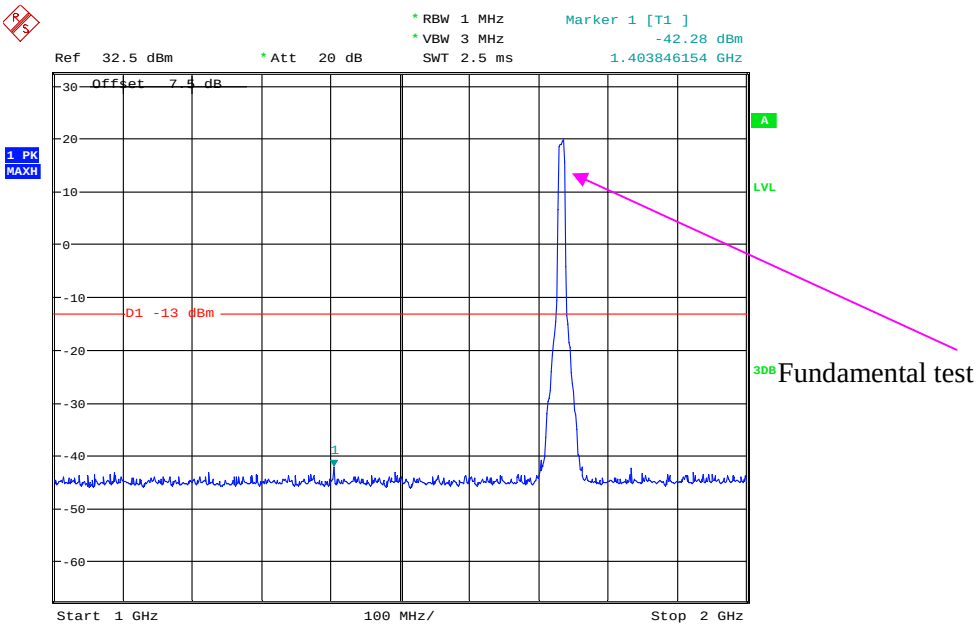
Date: 2.AUG.2018 23:15:18

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



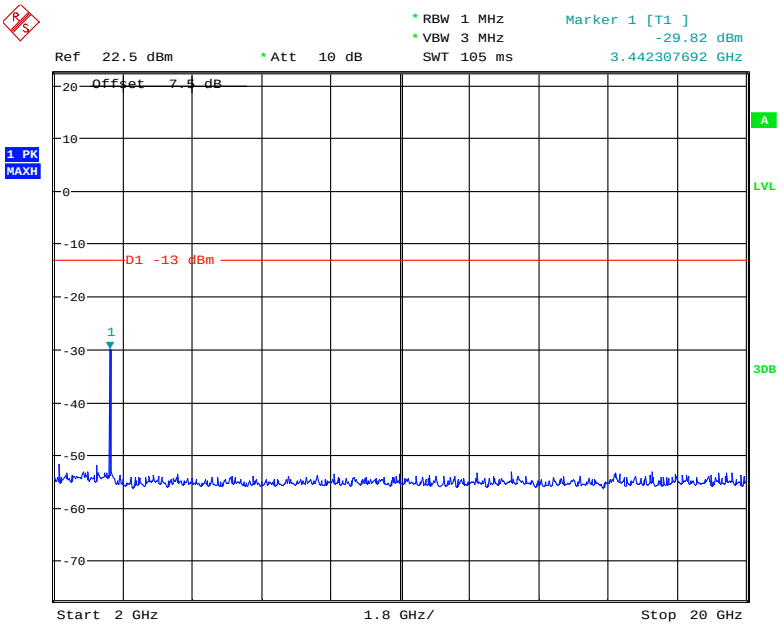
Date: 2.AUG.2018 23:08:56

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



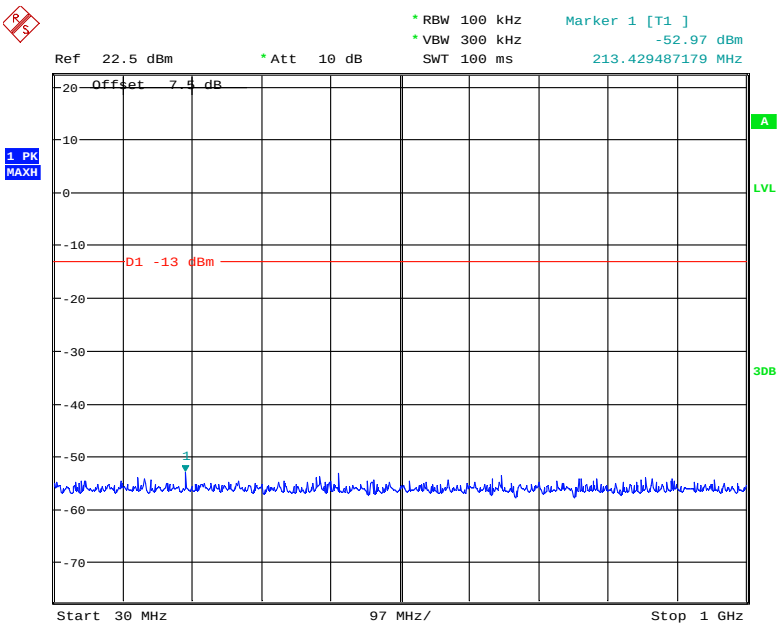
Date: 2.AUG.2018 23:12:01

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



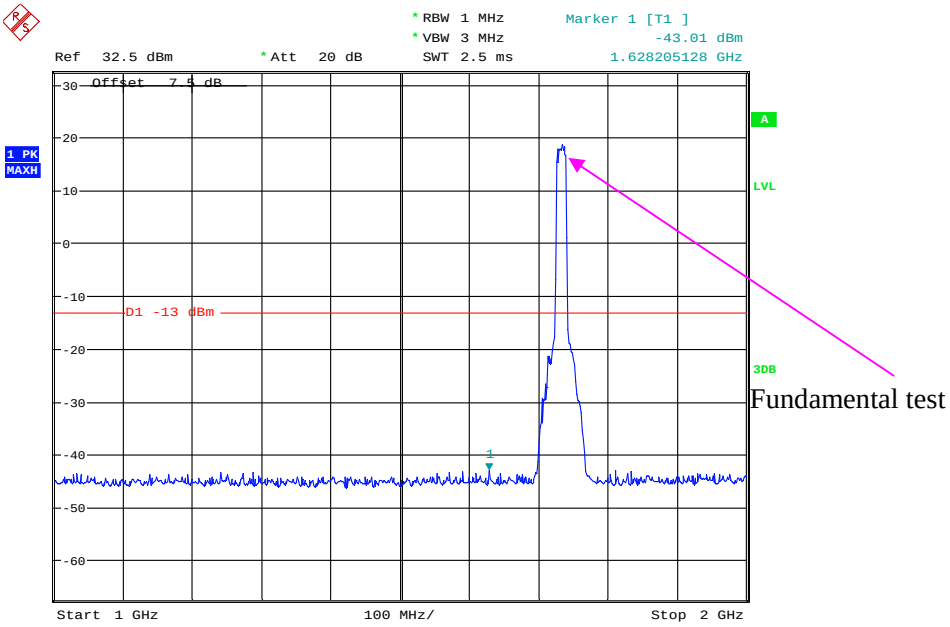
Date: 2.AUG.2018 23:15:36

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



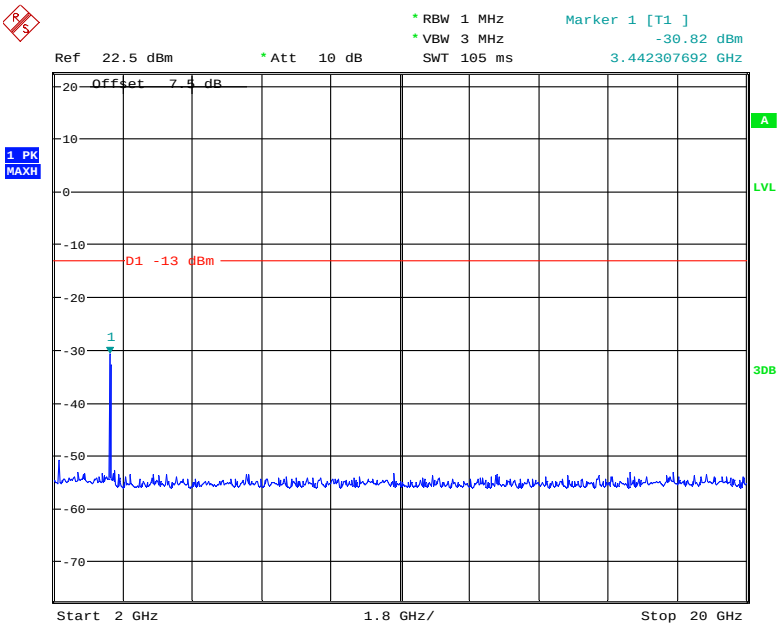
Date: 2.AUG.2018 23:09:21

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



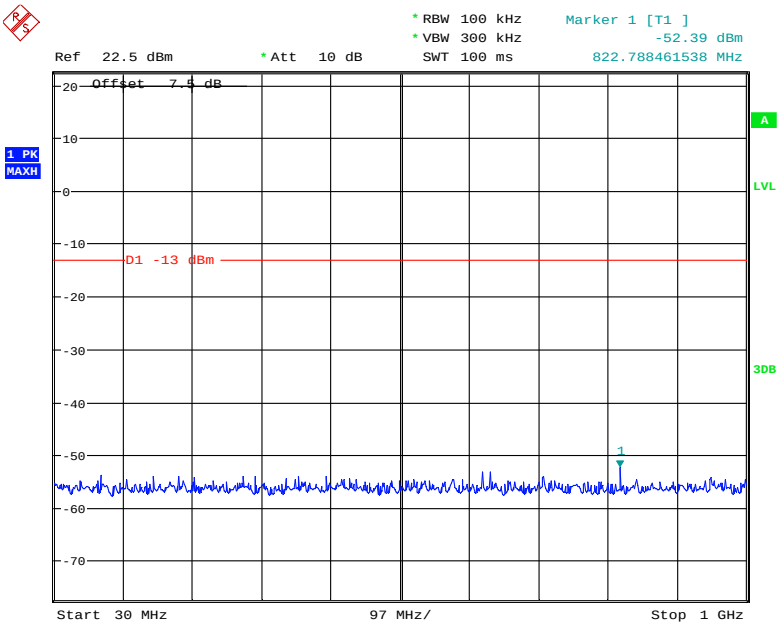
Date: 2.AUG.2018 23:11:19

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



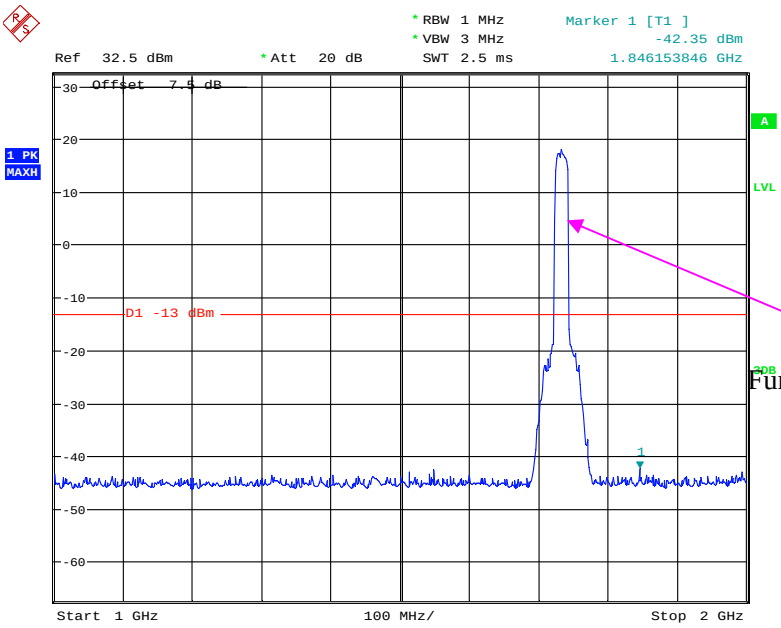
Date: 2.AUG.2018 23:16:00

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



Date: 2.AUG.2018 23:09:57

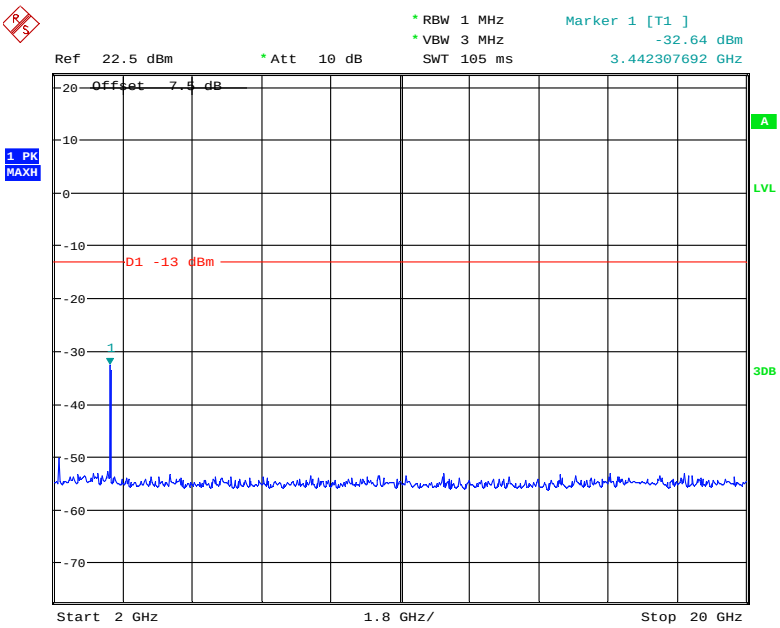
1 GHz – 2 GHz (20.0 MHz, Middle Channel)



Fundamental test

Date: 2.AUG.2018 23:10:43

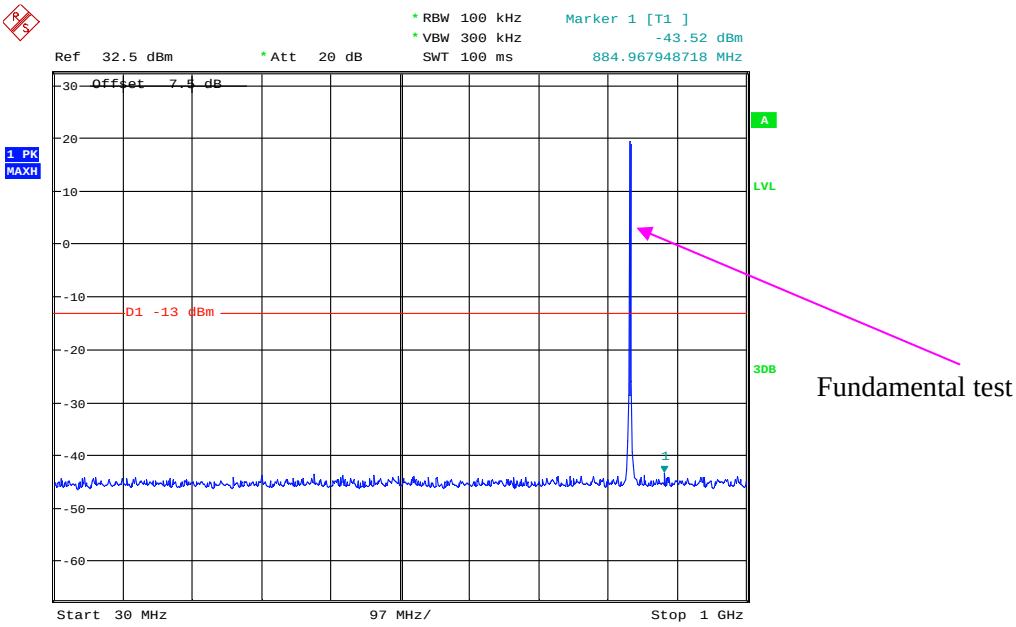
2 GHz – 20 GHz (20.0 MHz, Middle Channel)



Date: 2.AUG.2018 23:16:18

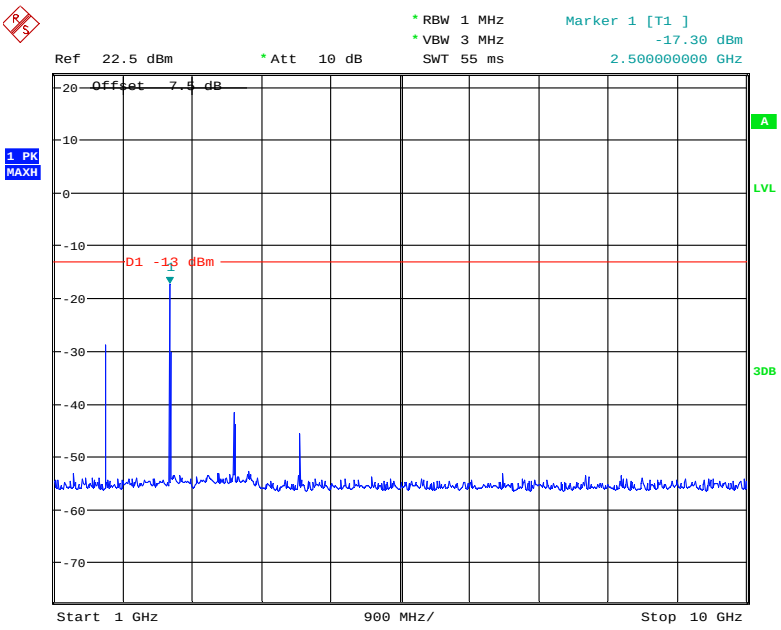
LTE Band 5:

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



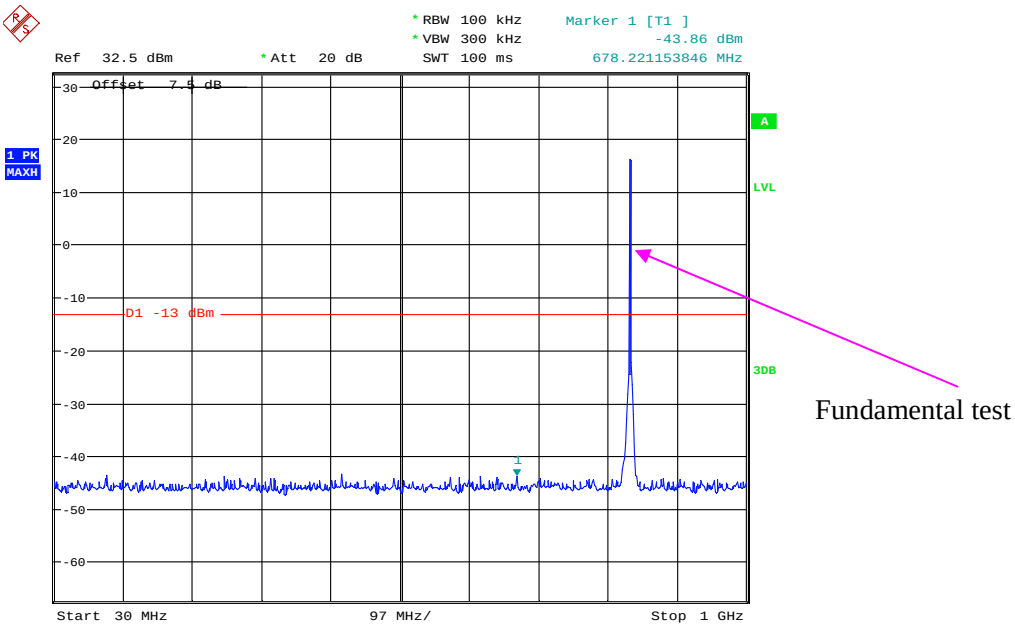
Date: 2.AUG.2018 22:59:25

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



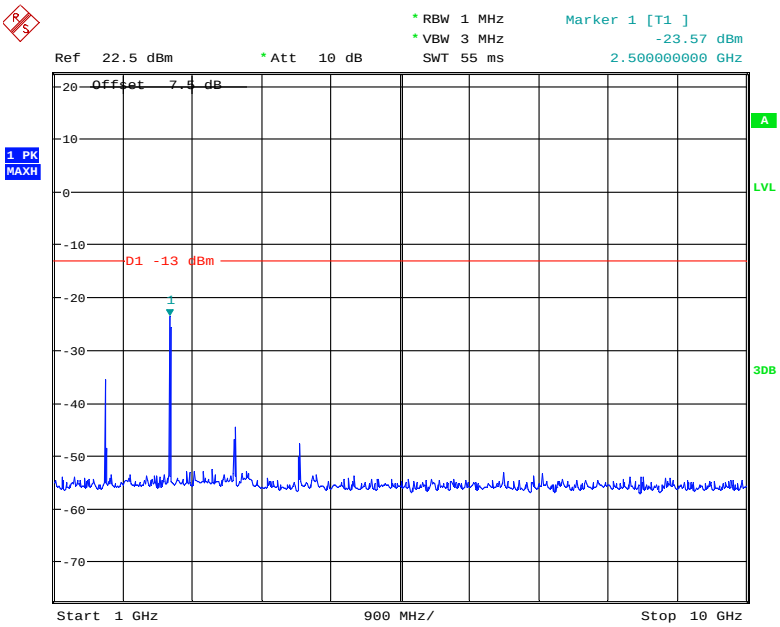
Date: 2.AUG.2018 23:00:06

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



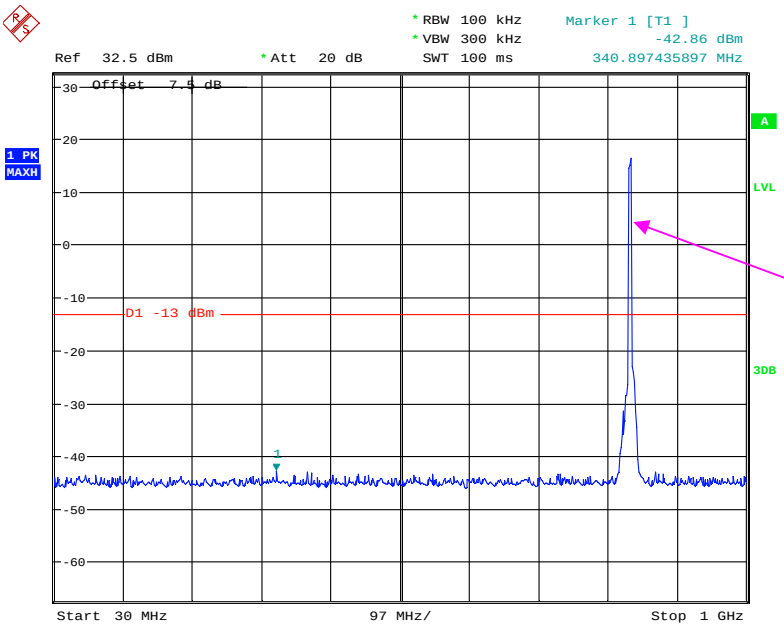
Date: 2.AUG.2018 23:01:50

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



Date: 2.AUG.2018 23:00:53

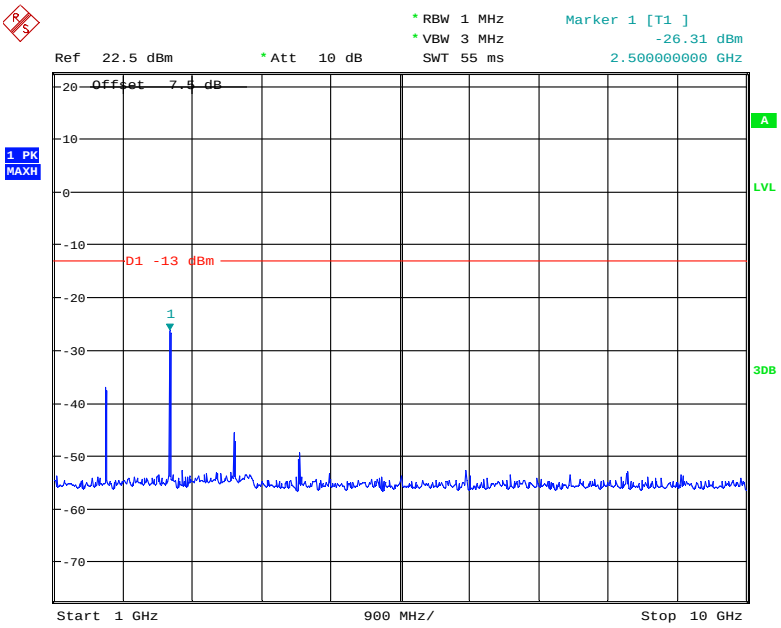
30 MHz - 1 GHz (5.0 MHz, Middle Channel)



Fundamental test

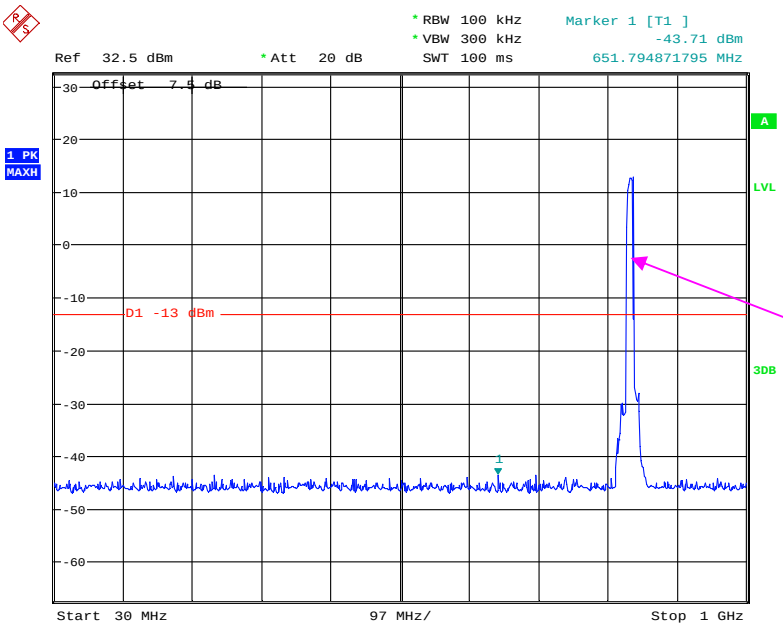
Date: 2.AUG.2018 23:03:16

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



Date: 2.AUG.2018 23:03:48

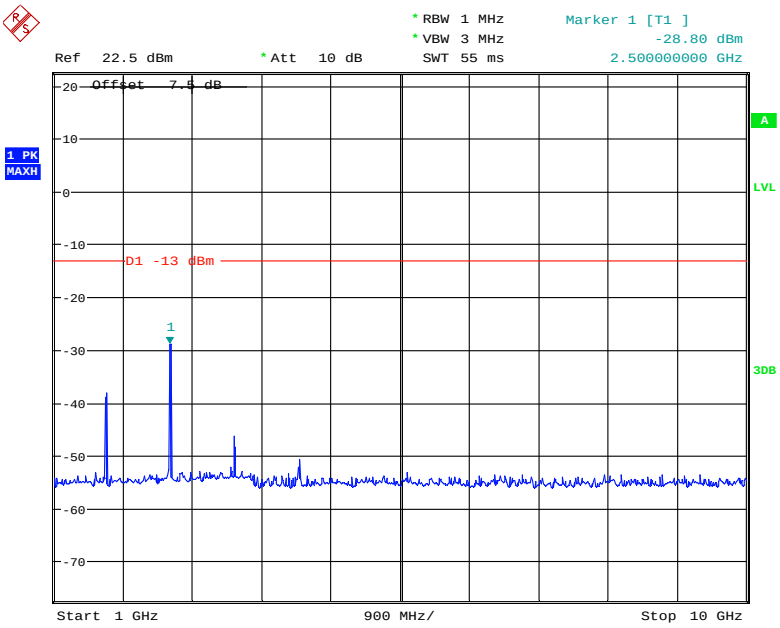
30 MHz - 1 GHz (10.0 MHz, Middle Channel)



Fundamental test

Date: 2.AUG.2018 23:05:25

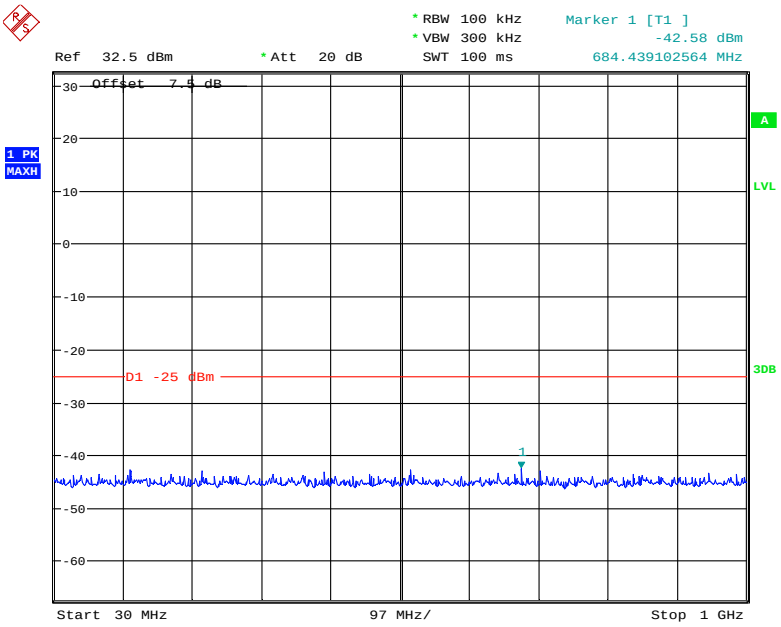
1 GHz – 10 GHz (10.0 MHz, Middle Channel)



Date: 2.AUG.2018 23:04:43

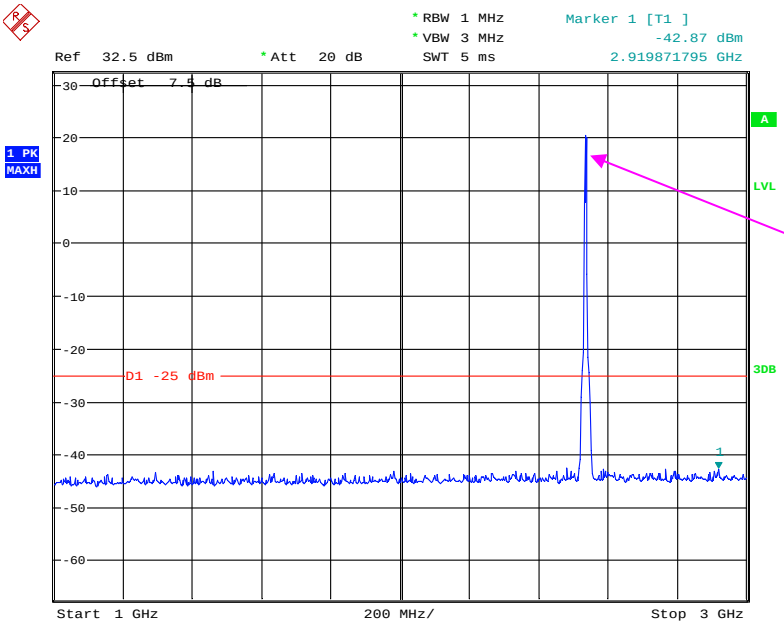
LTE Band 7:

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



Date: 19.SEP.2018 18:33:36

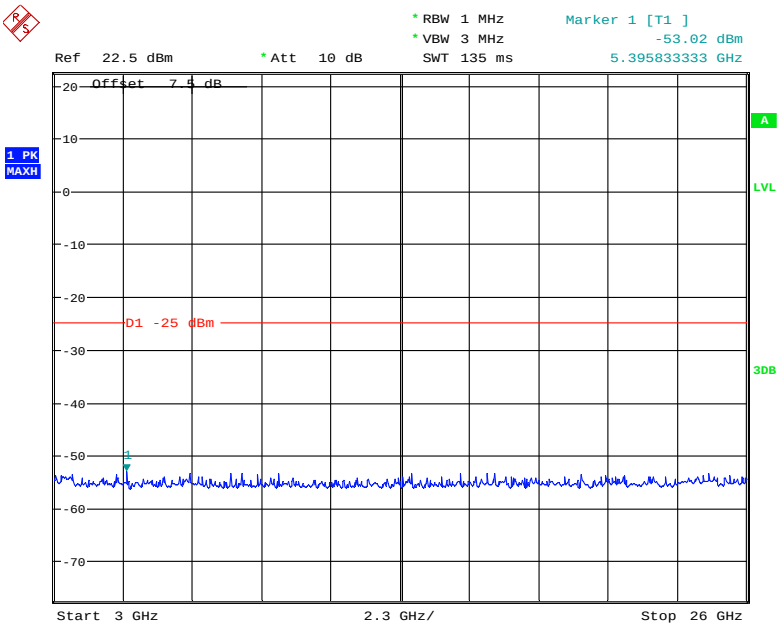
1 GHz – 3 GHz (5.0 MHz, Middle Channel)



Fundamental test

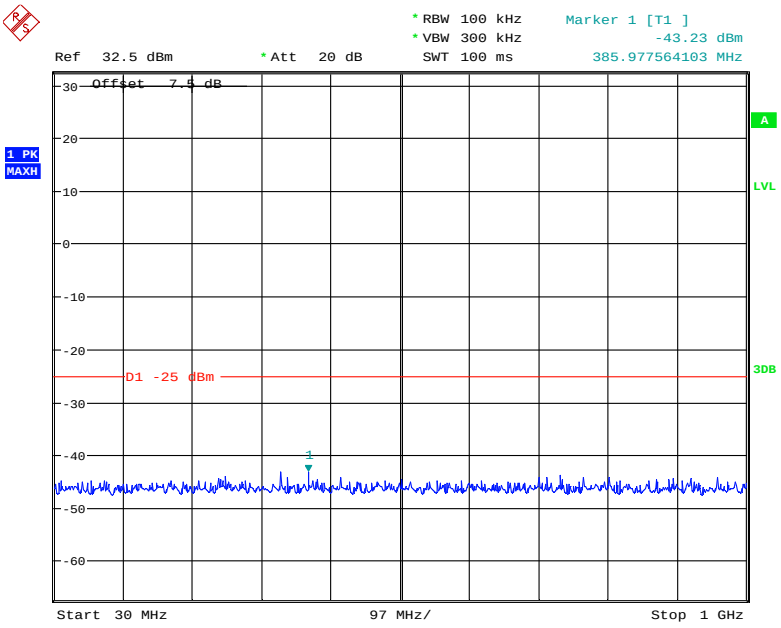
Date: 2.AUG.2018 22:36:29

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



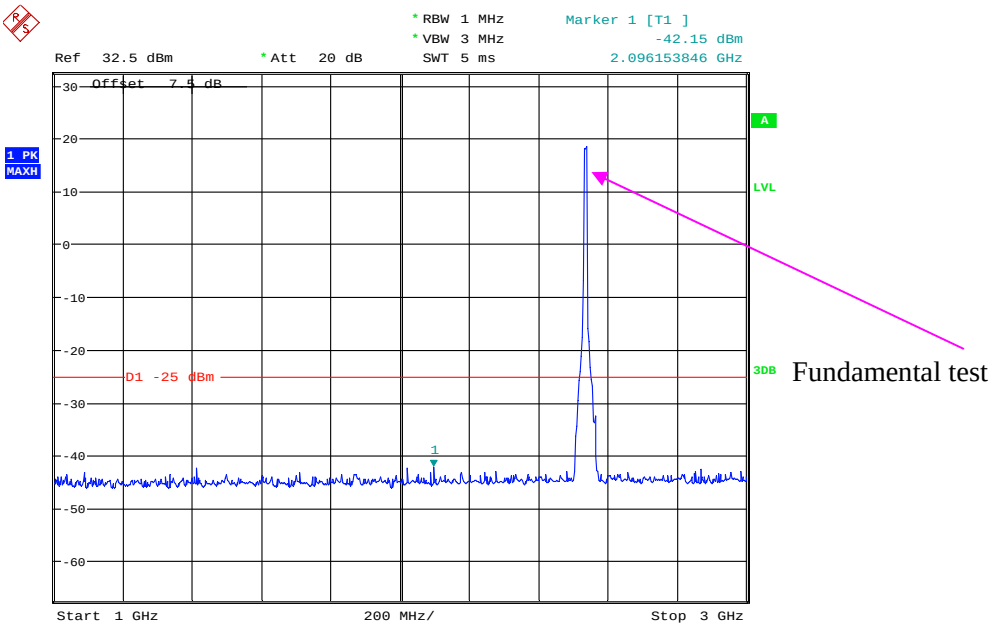
Date: 2.AUG.2018 22:37:10

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



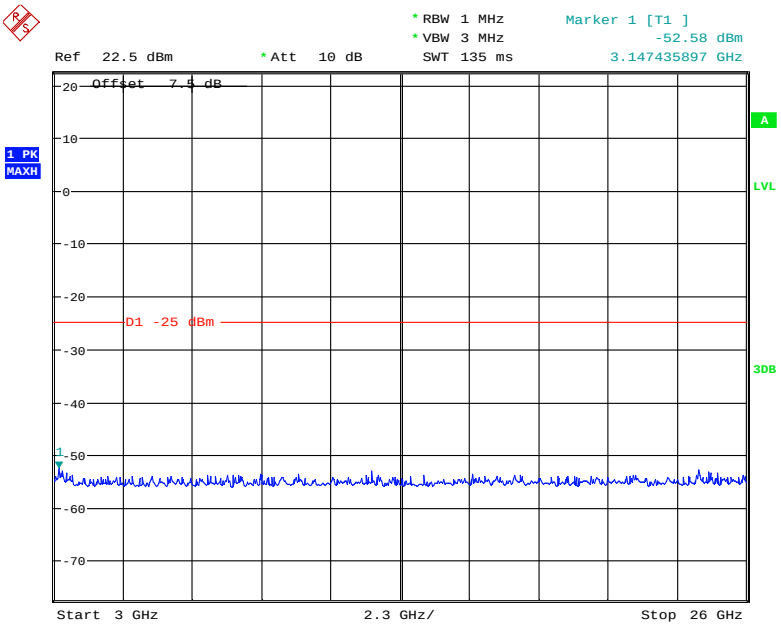
Date: 19.SEP.2018 18:34:26

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



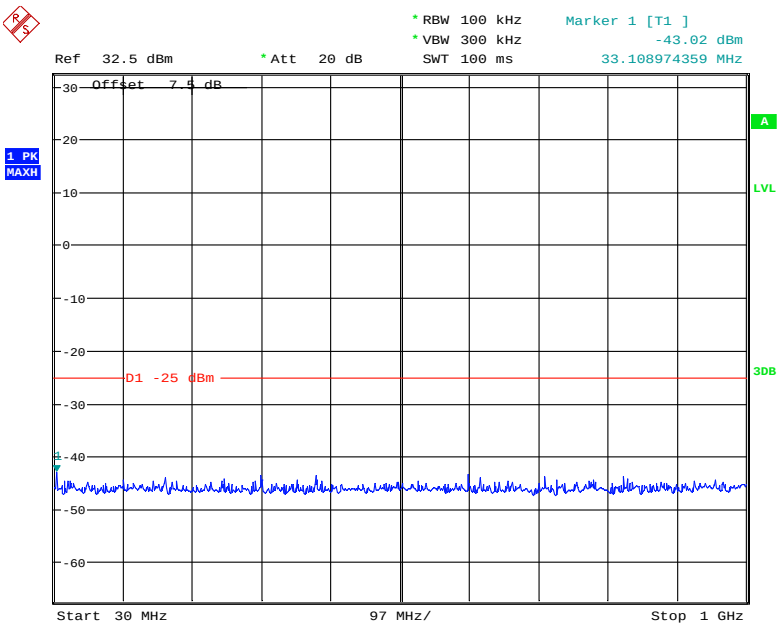
Date: 2.AUG.2018 22:39:51

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



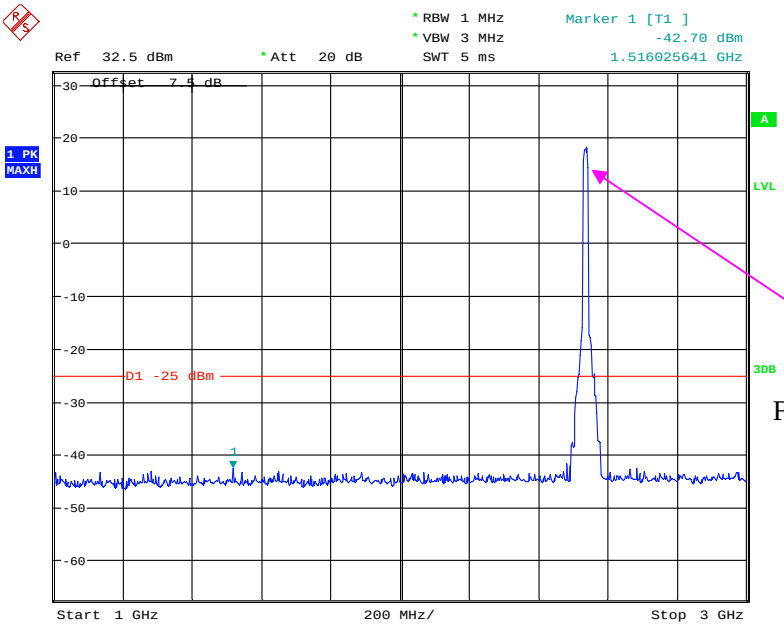
Date: 2.AUG.2018 22:39:16

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



Date: 19.SEP.2018 18:34:44

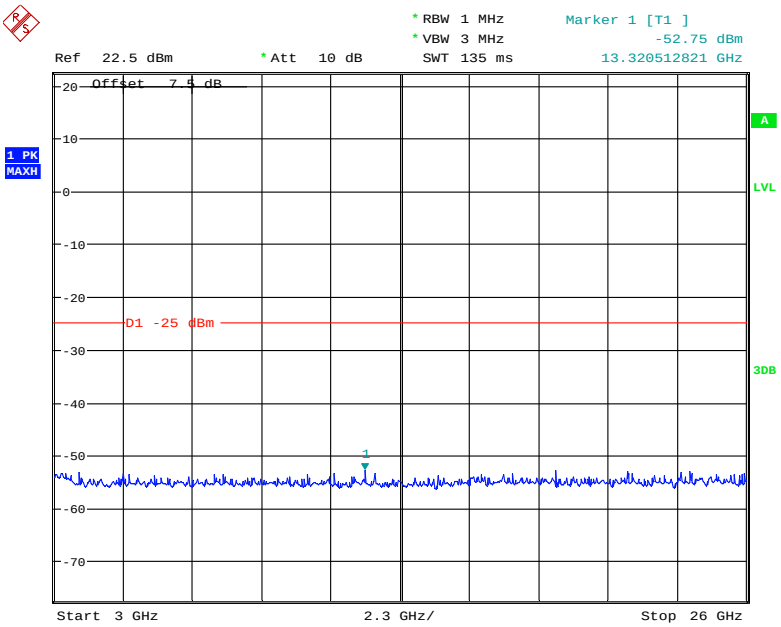
1 GHz – 3 GHz (15.0 MHz, Middle Channel)



Fundamental test

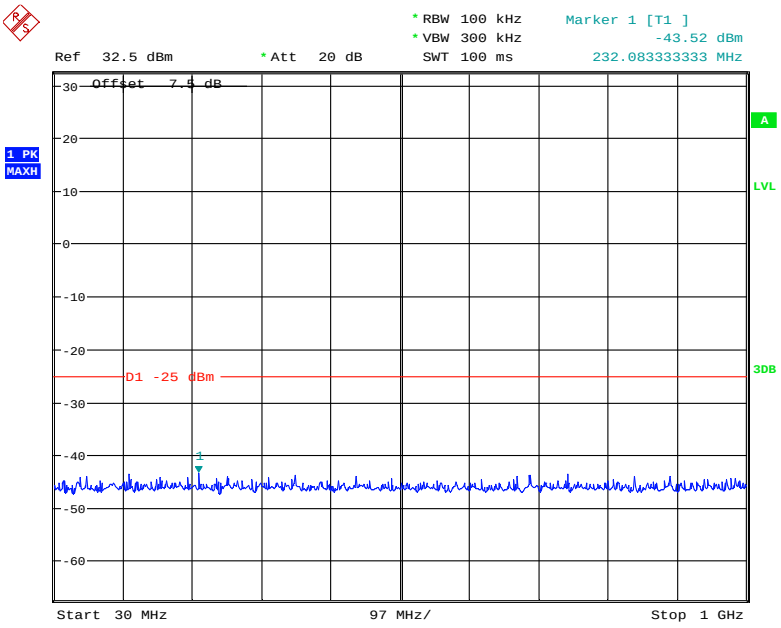
Date: 2.AUG.2018 22:41:32

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



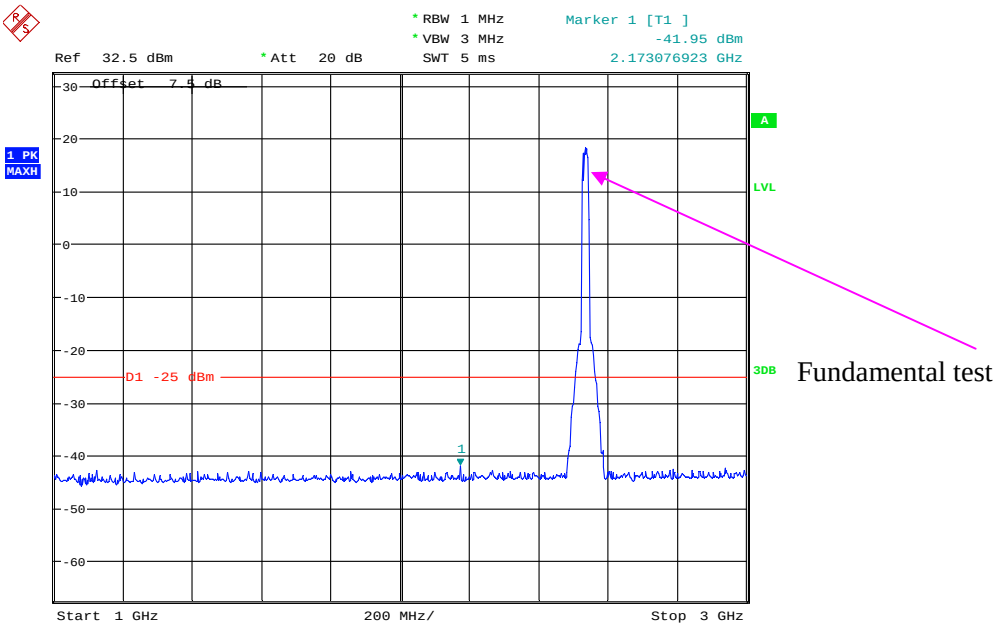
Date: 2.AUG.2018 22:41:56

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



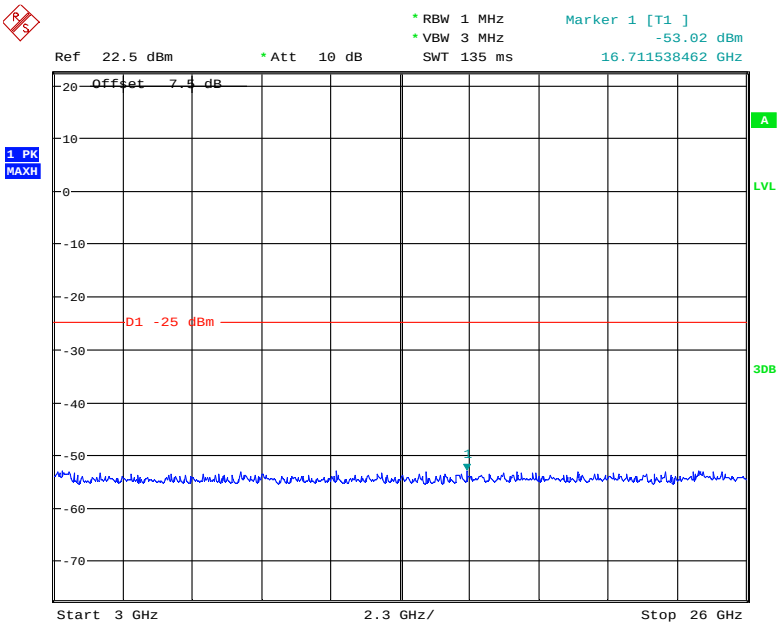
Date: 19.SEP.2018 18:35:01

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



Date: 2.AUG.2018 22:45:37

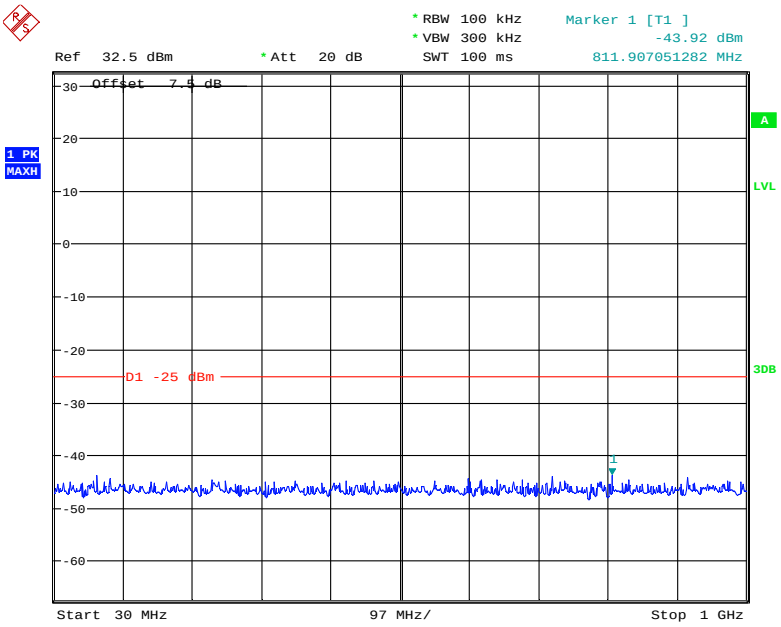
3 GHz – 26 GHz (20.0 MHz, Middle Channel)



Date: 2.AUG.2018 22:44:30

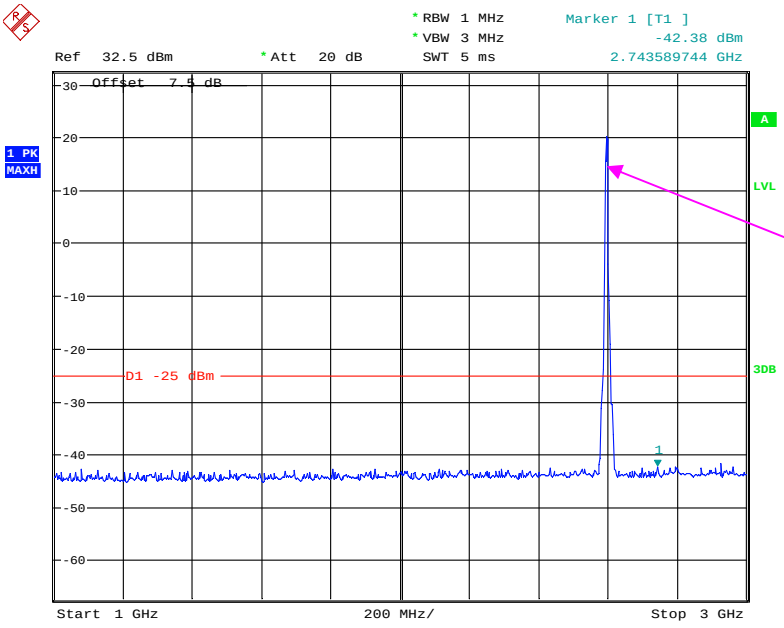
LTE Band 38:

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



Date: 19.SEP.2018 18:35:18

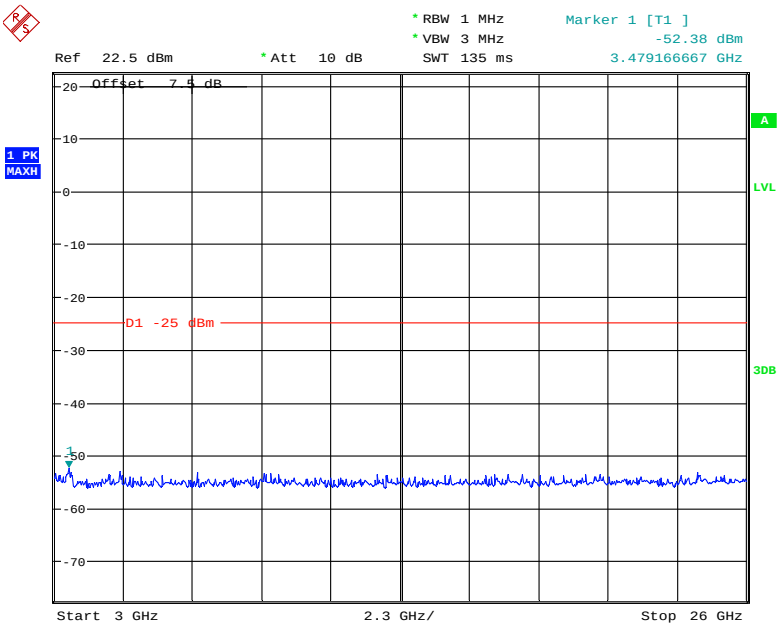
1 GHz – 3 GHz (5.0 MHz, Middle Channel)



Fundamental test

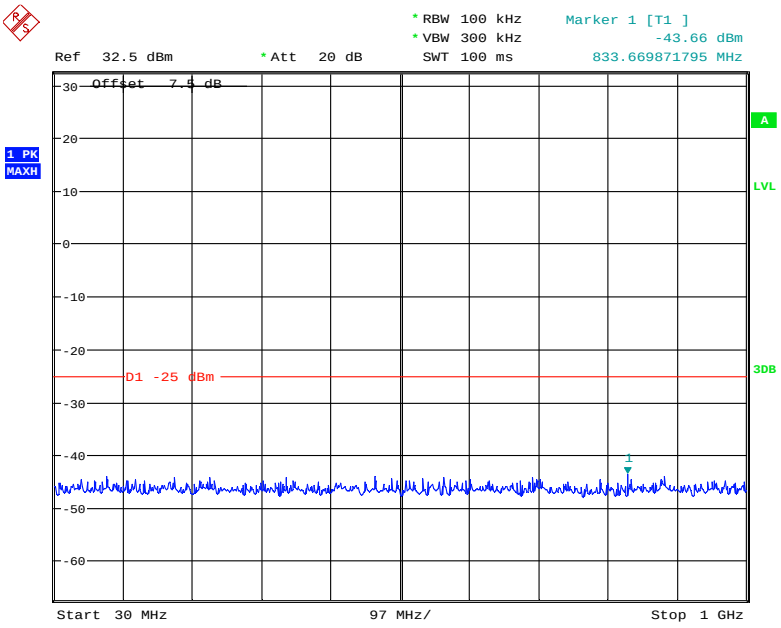
Date: 2.AUG.2018 22:33:32

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



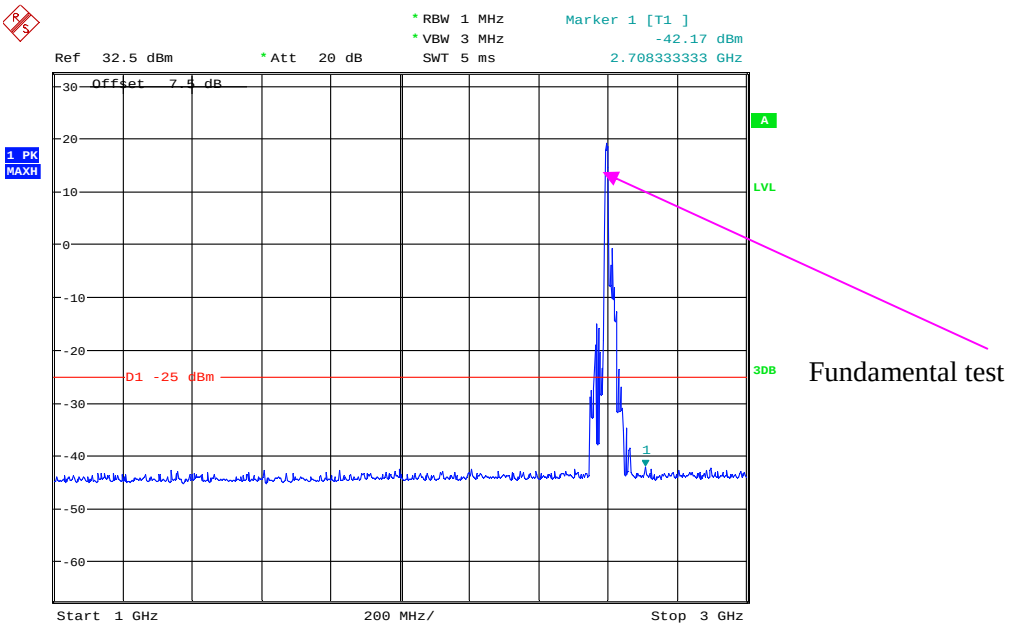
Date: 2.AUG.2018 22:32:07

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



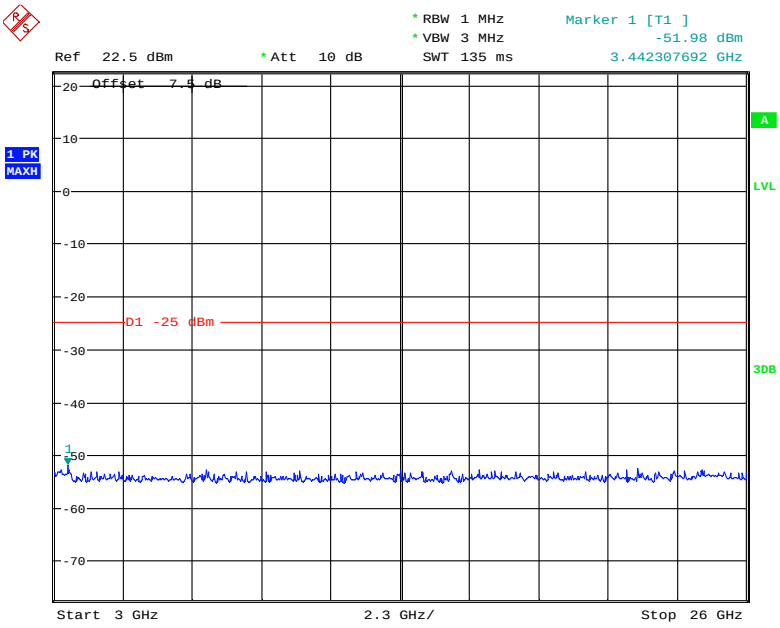
Date: 19.SEP.2018 18:35:34

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



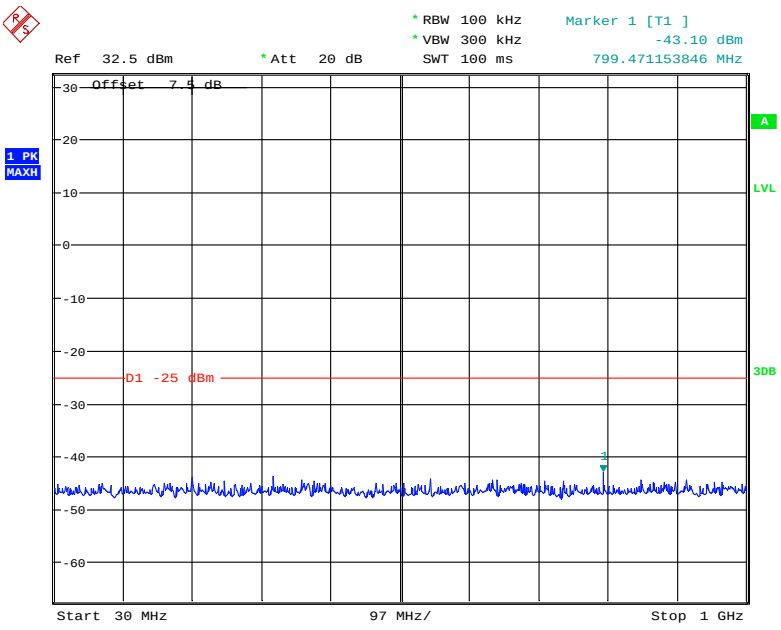
Date: 2.AUG.2018 22:30:38

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



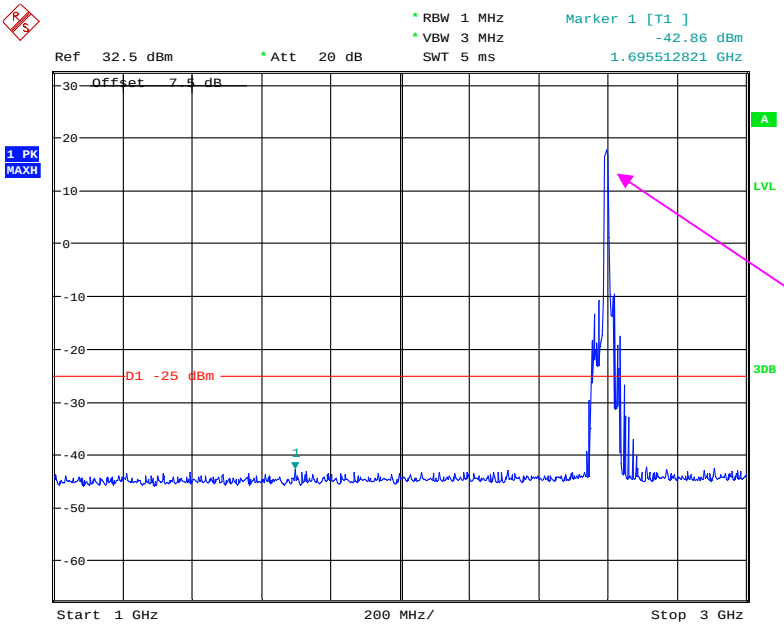
Date: 2.AUG.2018 22:31:33

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



Date: 19.SEP.2018 18:35:47

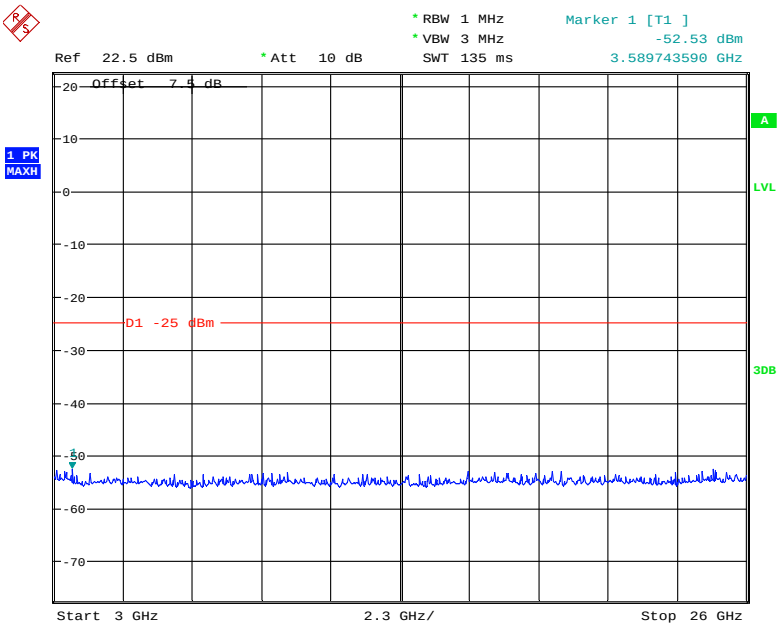
1 GHz – 3 GHz (15.0 MHz, Middle Channel)



Fundamental test

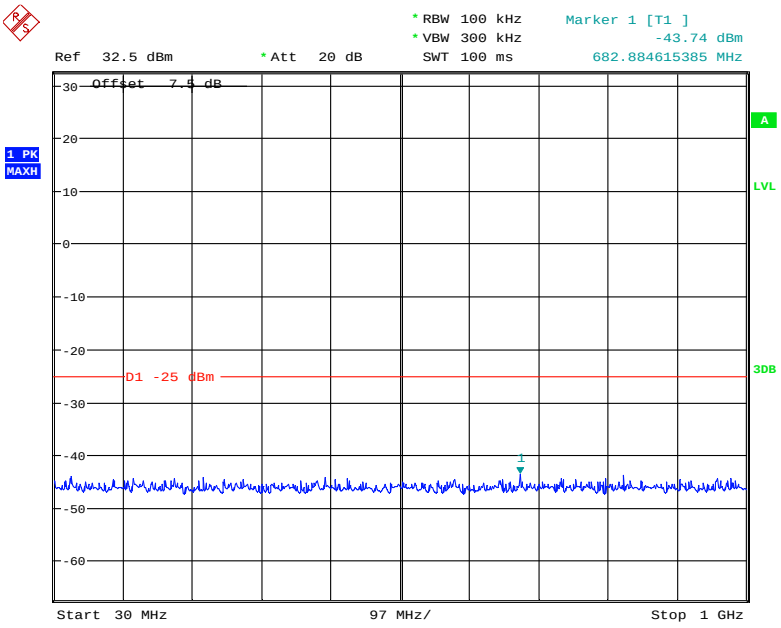
Date: 2.AUG.2018 22:27:22

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



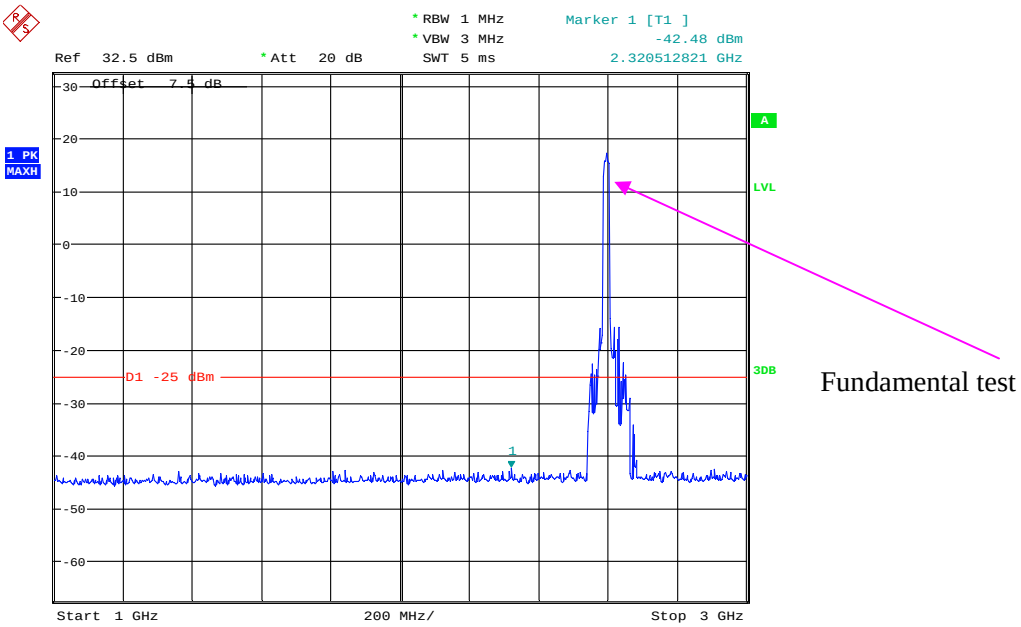
Date: 2.AUG.2018 22:26:39

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



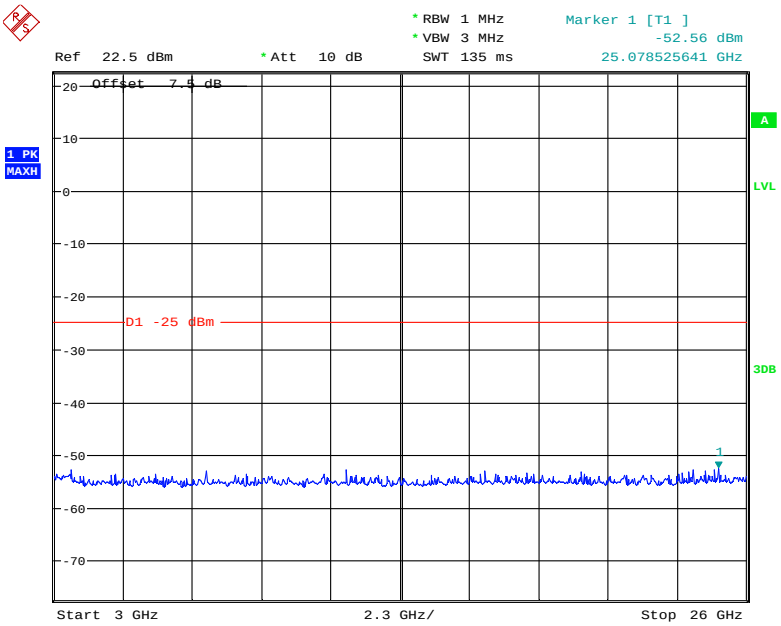
Date: 19.SEP.2018 18:36:01

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



Date: 2.AUG.2018 22:25:33

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



Date: 2.AUG.2018 22:26:07

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 2018-09-20.

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										
218.92	30.87	275	1.7	H	-66.1	0.30	0	-66.40	-13	53.40
218.92	31.68	328	2.0	V	-65.3	0.30	0	-65.60	-13	52.60
1673.20	50.29	108	2.2	H	-56.8	1.30	8.90	-49.20	-13	36.20
1673.20	55.61	276	1.6	V	-50.9	1.30	8.90	-43.30	-13	30.30
WCDMA Mode, Middle channel antenna 2										
218.92	30.79	336	2.1	H	-66.2	0.30	0	-66.50	-13	53.50
218.92	31.74	204	1.7	V	-65.3	0.30	0	-65.60	-13	52.60
1673.20	43.22	18	1.1	H	-63.9	1.30	8.90	-56.30	-13	43.30
1673.20	42.25	17	1.2	V	-64.2	1.30	8.90	-56.60	-13	43.60

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										
218.92	30.87	137	1.0	H	-66.1	0.30	0	-66.40	-13	53.40
218.92	31.99	247	2.2	V	-65.0	0.30	0	-65.30	-13	52.30
3760.00	42.89	130	2.2	H	-58.3	1.50	11.80	-48.00	-13	35.00
3760.00	43.12	91	1.1	V	-57.6	1.50	11.80	-47.30	-13	34.30
WCDMA Mode Band II, Middle channel antenna 2										
218.92	30.96	174	2.2	H	-66.0	0.30	0	-66.30	-13	53.30
218.92	30.57	228	2.4	V	-66.4	0.30	0	-66.70	-13	53.70
3760.00	42.53	222	1.1	H	-58.7	1.50	11.80	-48.40	-13	35.40
3760.00	42.15	96	1.1	V	-58.6	1.50	11.80	-48.30	-13	35.30

30 MHz ~ 20 GHz:

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 antenna 2										
218.92	31.00	62	1.9	H	-66.0	0.30	0	-66.30	-13	53.30
218.92	31.69	10	1.9	V	-65.3	0.30	0	-65.60	-13	52.60
3465.20	43.16	191	2.5	H	-57.2	1.50	12.00	-46.70	-13	33.70
3465.20	43.52	23	1.7	V	-57.6	1.50	12.00	-47.10	-13	34.10

LTE Band(antenna 2): *(Pre-scan with all the bandwidth, and worse case as below)*

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Band 2, Middle channel										
Test frequency range: 30 MHz ~ 20 GHz										
218.92	31.15	260	1.9	H	-65.8	0.30	0	-66.10	-13	53.10
218.92	31.87	214	1.6	V	-65.1	0.30	0	-65.40	-13	52.40
3760.00	42.63	118	1.4	H	-58.6	1.50	11.80	-48.30	-13	35.30
3760.00	42.77	285	2.5	V	-58.0	1.50	11.80	-47.70	-13	34.70
Band 4, Middle channel										
Test frequency range: 30 MHz ~ 18 GHz										
218.92	31.68	157	2.4	H	-65.3	0.30	0	-65.60	-13	52.60
218.92	31.57	223	2.4	V	-65.4	0.30	0	-65.70	-13	52.70
3465.00	43.15	96	2.1	H	-57.2	1.50	12.00	-46.70	-13	33.70
3465.00	42.96	335	1.8	V	-58.2	1.50	12.00	-47.70	-13	34.70
Band 5, Middle channel										
Test frequency range:30 MHz ~ 10 GHz										
218.92	31.74	72	1.6	H	-65.3	0.30	0	-65.60	-13	52.60
218.92	31.25	196	1.9	V	-65.7	0.30	0	-66.00	-13	53.00
1673.00	42.41	38	1.0	H	-64.7	1.30	8.90	-57.10	-13	44.10
1673.00	42.58	182	1.1	V	-63.9	1.30	8.90	-56.30	-13	43.30
Band 7, Middle channel										
Test frequency range:30 MHz ~ 26 GHz										
218.92	30.44	31	2.2	H	-66.6	0.30	0	-66.90	-25	41.90
218.92	31.99	213	1.0	V	-65.0	0.30	0	-65.30	-25	40.30
5070.00	42.57	224	1.1	H	-55.3	1.60	12.10	-44.80	-25	19.80
5070.00	42.75	299	2.4	V	-55.1	1.60	12.10	-44.60	-25	19.60
Band 38, Middle channel										
Test frequency range: 30 MHz ~ 26GHz										
218.92	31.68	59	1.5	H	-65.3	0.30	0	-65.60	-25	40.60
218.92	31.87	344	1.7	V	-65.1	0.30	0	-65.40	-25	40.40
5190.00	42.71	198	1.6	H	-55.9	1.60	12.10	-45.40	-25	20.40
5190.00	42.95	24	1.1	V	-55.2	1.60	12.10	-44.70	-25	19.70

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

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

Applicable Standard

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

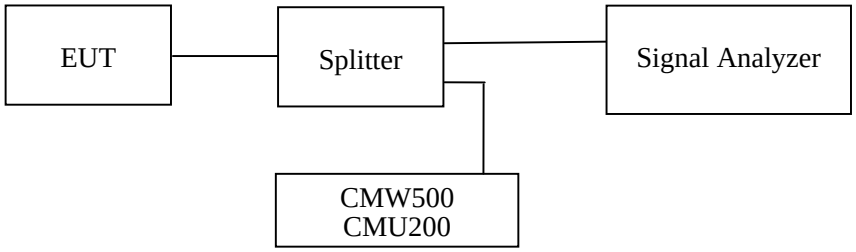
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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

Test Procedure

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

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



Test Data

Environmental Conditions

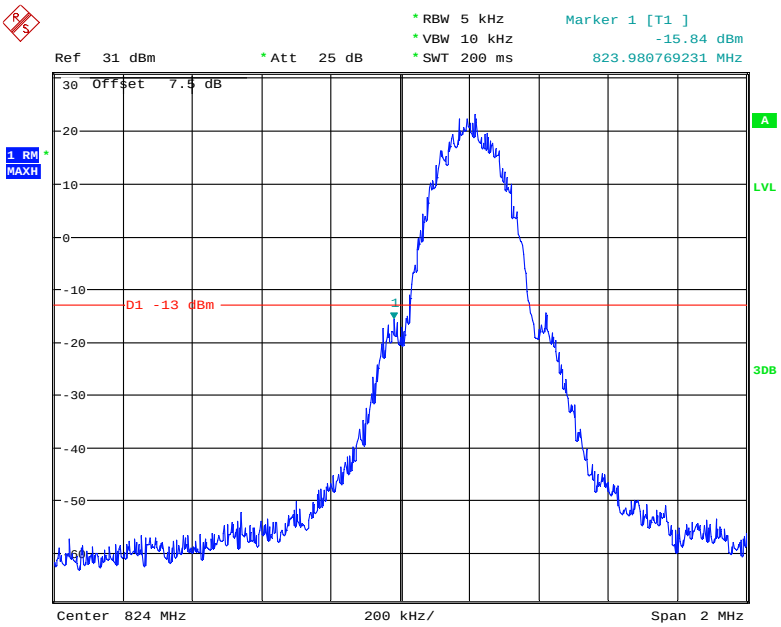
Temperature:	21~25 ℃
Relative Humidity:	51~52 %
ATM Pressure:	100.5~101.0 kPa

The testing was performed by Nancy Wang from 2018-07-27 to 2018-08-04.

EUT operation mode: Transmitting

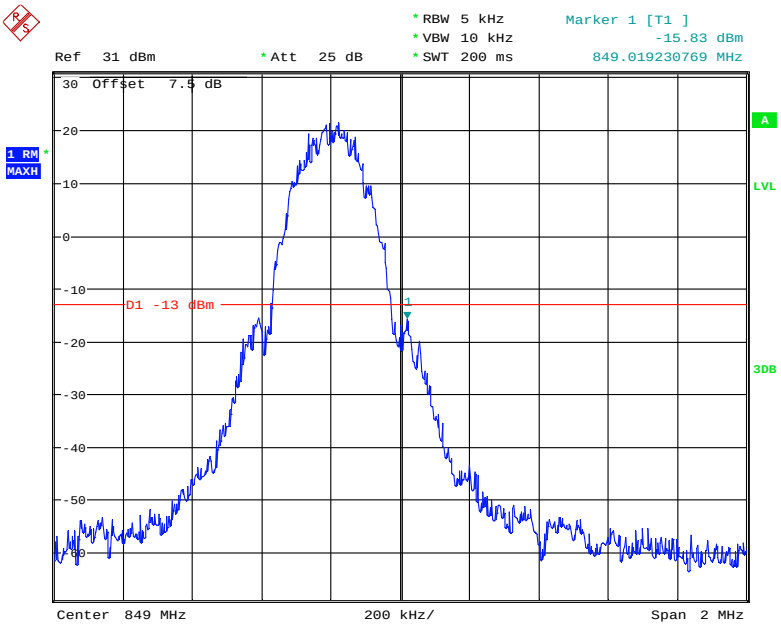
Test Result: Compliance. Please refer to the following plots.
Note: for 3G & 4G, testing performance at antenna 2 port.

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



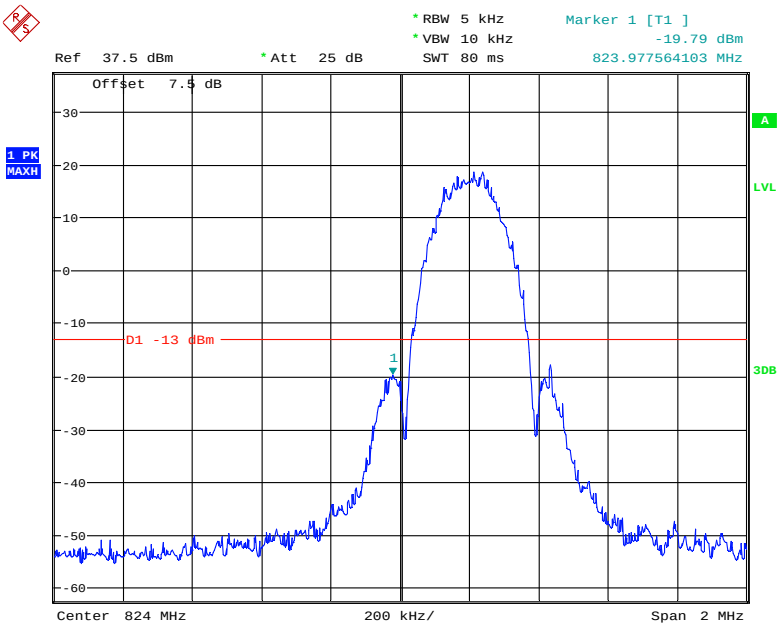
Date: 27.JUL.2018 14:15:23

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



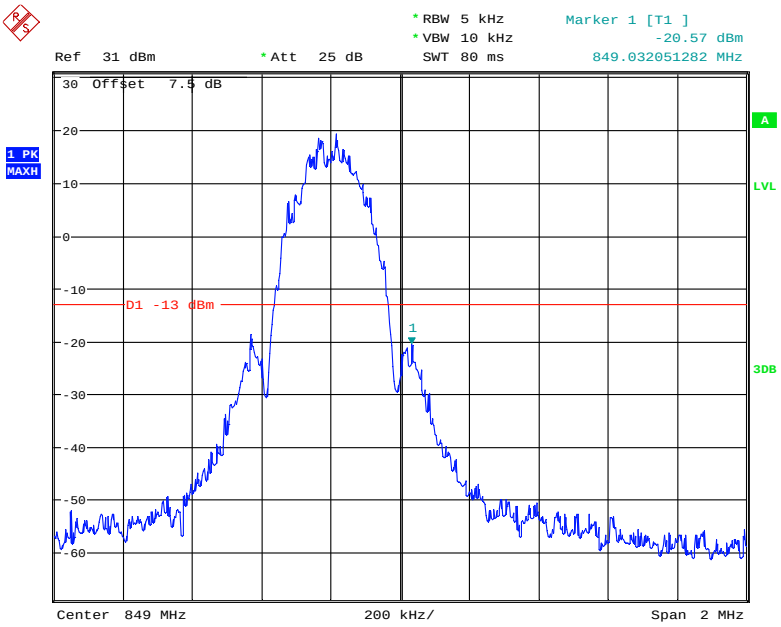
Date: 27.JUL.2018 14:16:39

Cellular Band, Left Band Edge for EDGE Mode



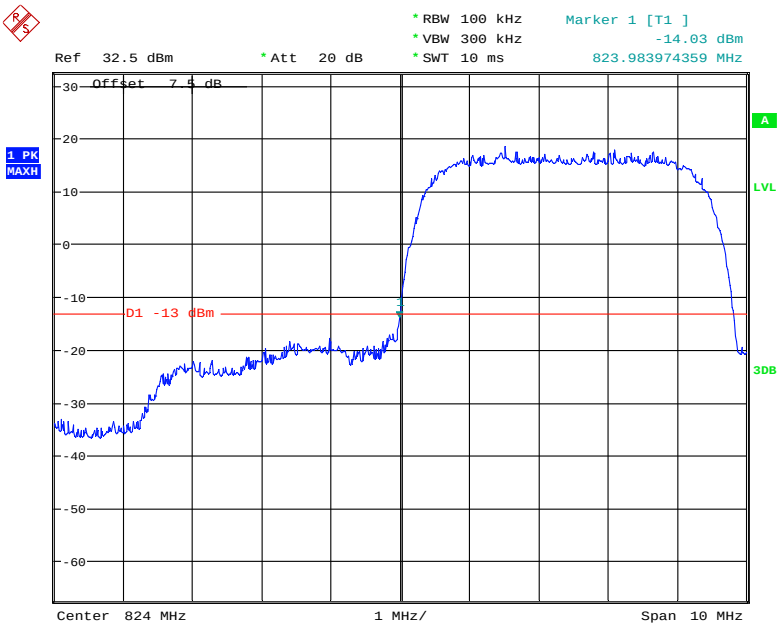
Date: 27.JUL.2018 14:31:38

Cellular Band, Right Band Edge for EDGE Mode



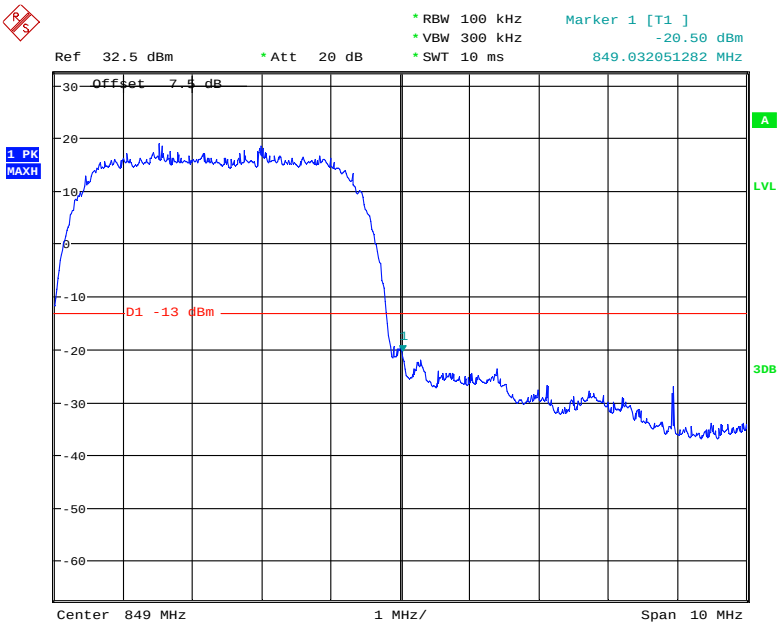
Date: 27.JUL.2018 14:32:17

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



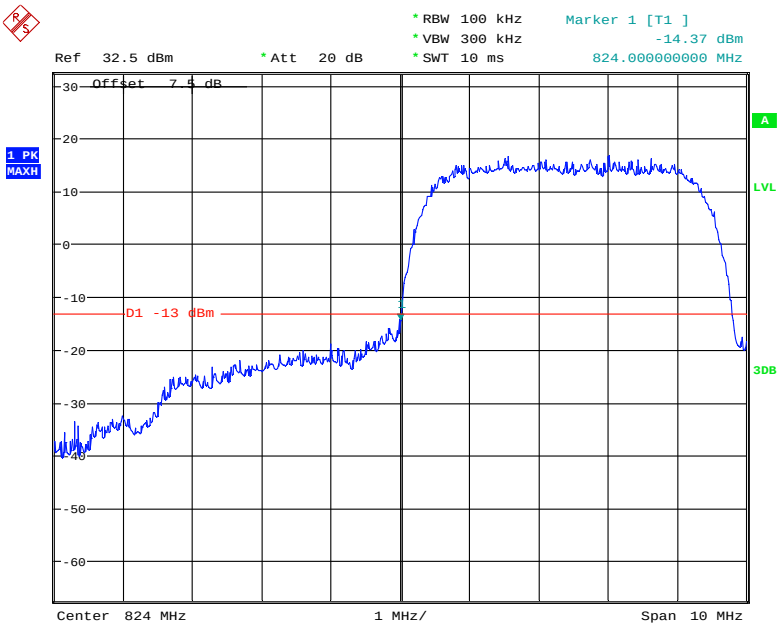
Date: 27.JUL.2018 15:40:27

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



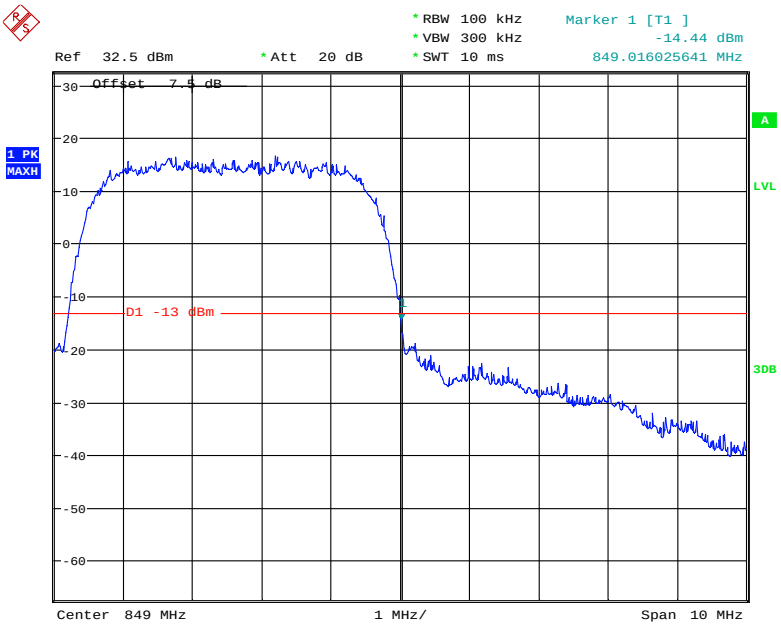
Date: 27.JUL.2018 15:41:26

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



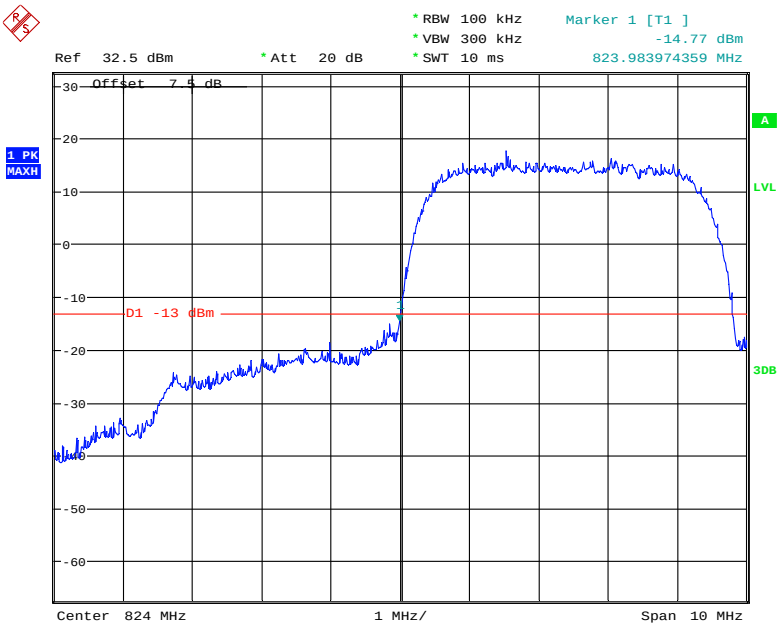
Date: 27.JUL.2018 15:44:27

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



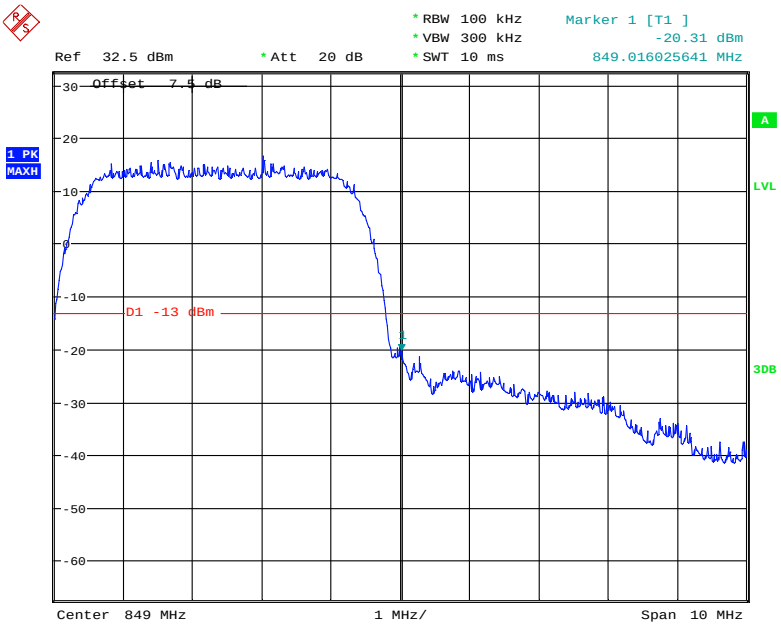
Date: 27.JUL.2018 15:45:08

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



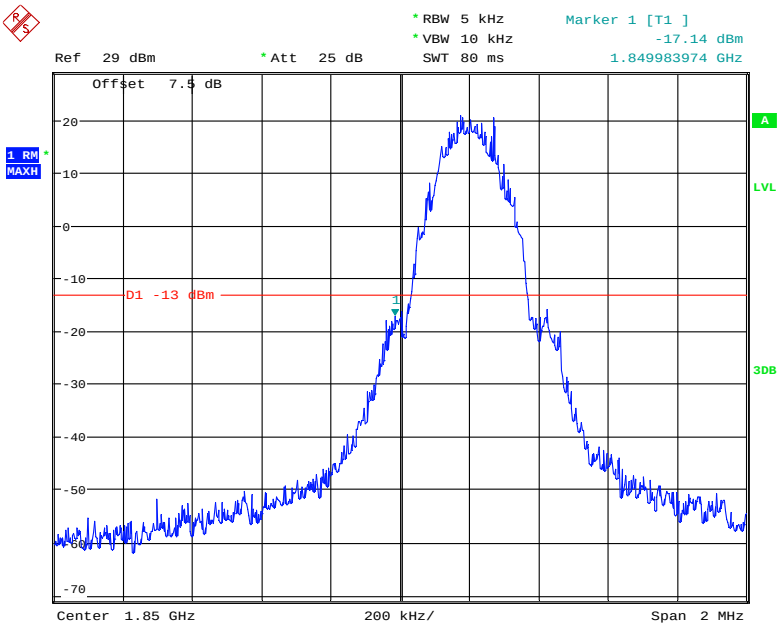
Date: 27.JUL.2018 15:43:52

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



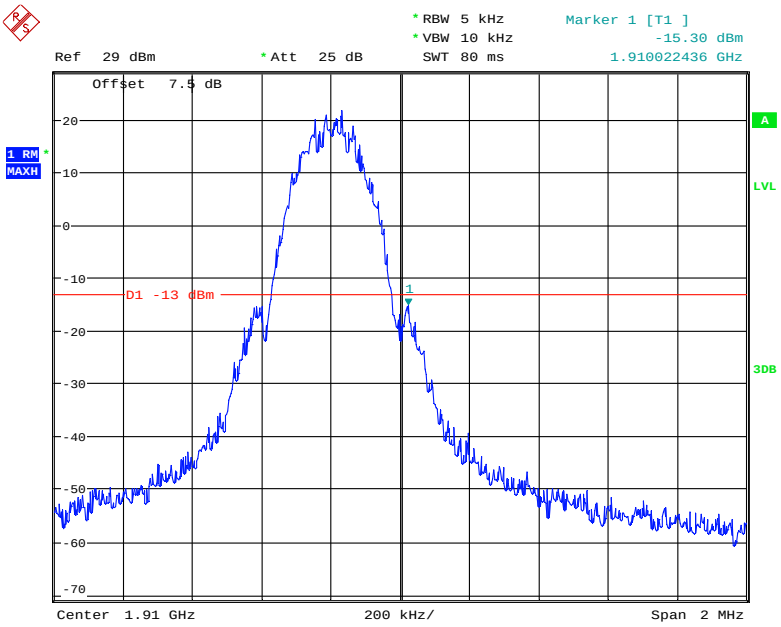
Date: 27.JUL.2018 15:42:59

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



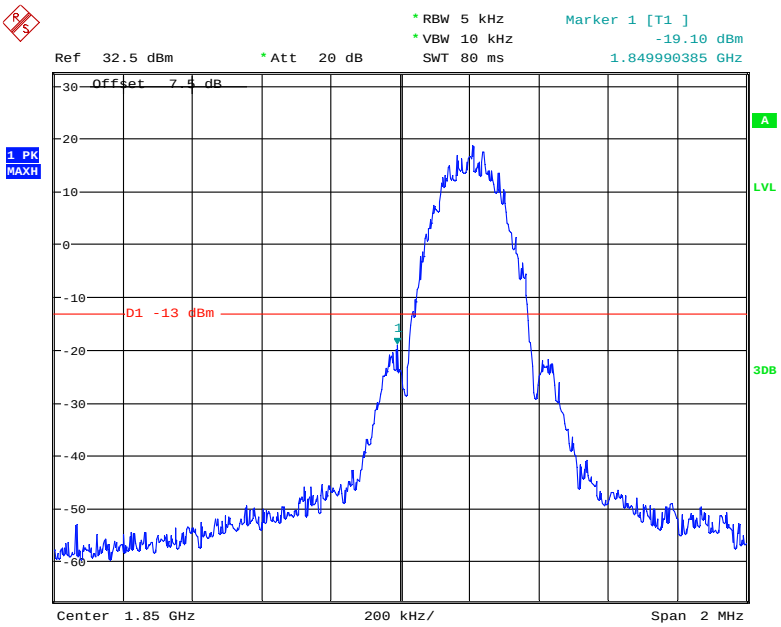
Date: 27.JUL.2018 14:41:35

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



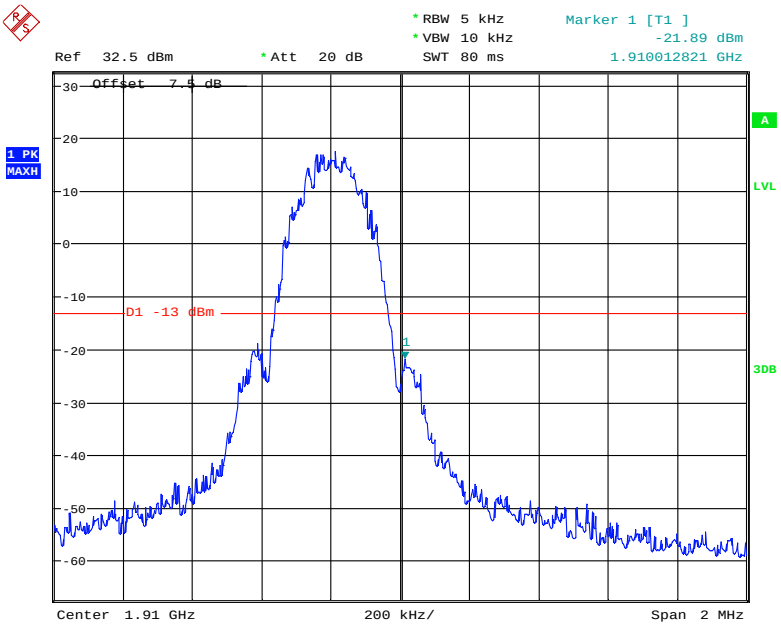
Date: 27.JUL.2018 14:42:23

PCS Band, Left Band Edge for EDGE Mode



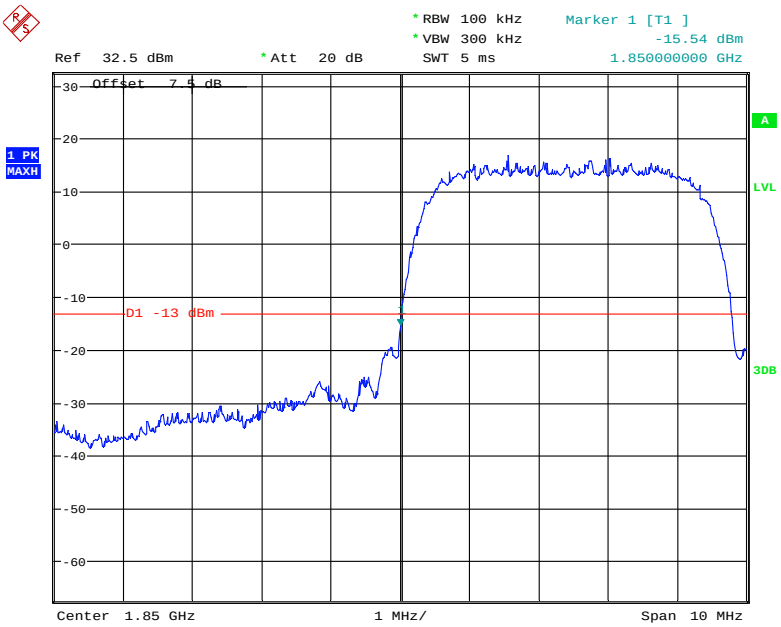
Date: 27.JUL.2018 14:52:12

PCS Band, Right Band Edge for EDGE Mode



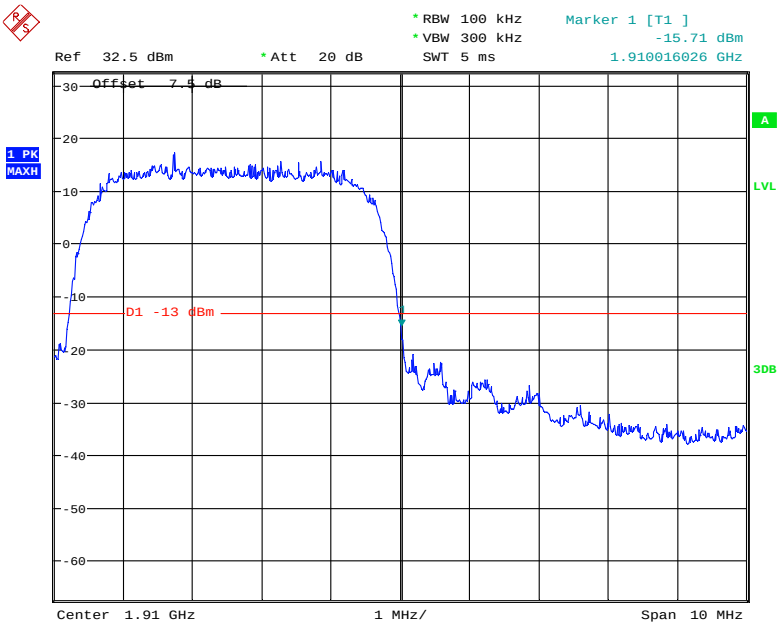
Date: 27.JUL.2018 14:53:09

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



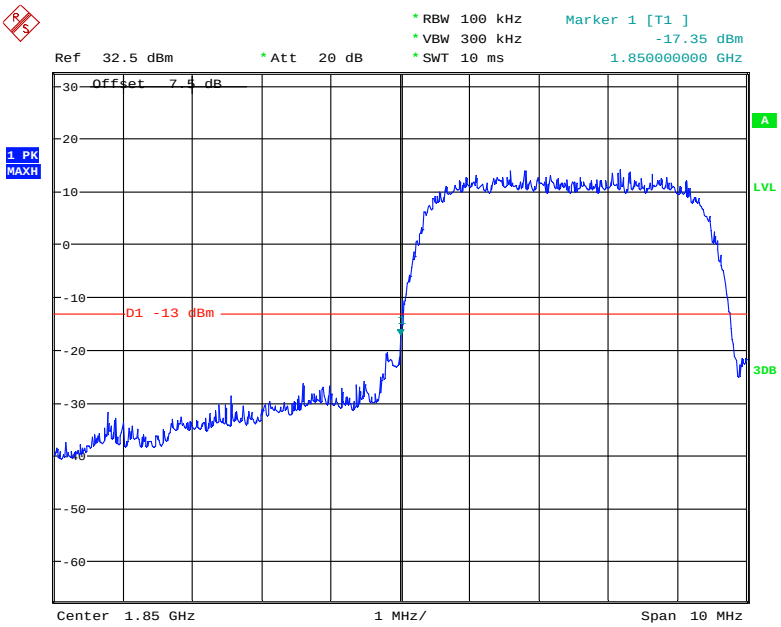
Date: 27.JUL.2018 16:01:34

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



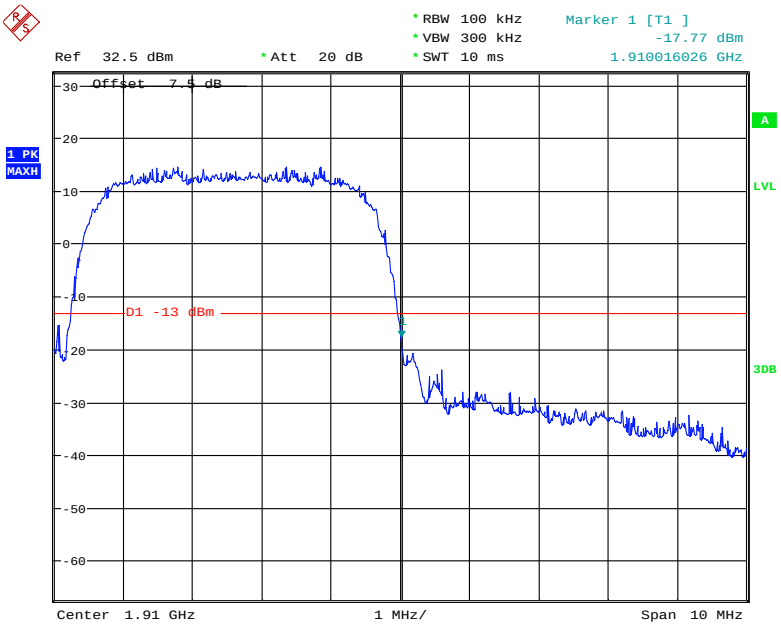
Date: 27.JUL.2018 16:02:11

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



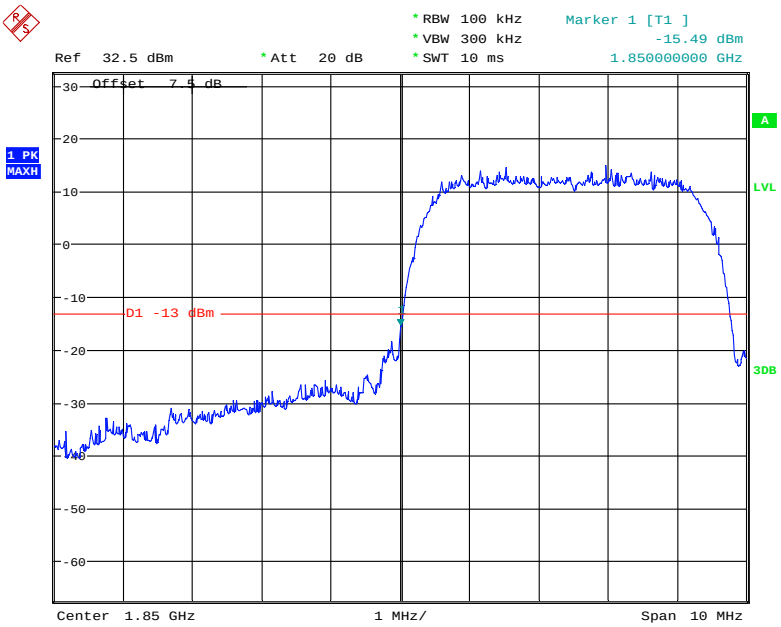
Date: 27.JUL.2018 16:04:09

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



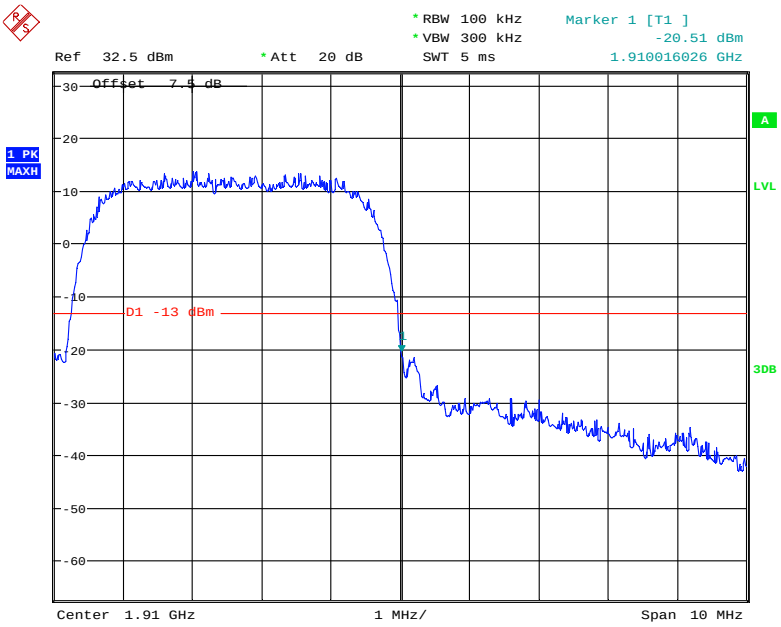
Date: 27.JUL.2018 16:04:45

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



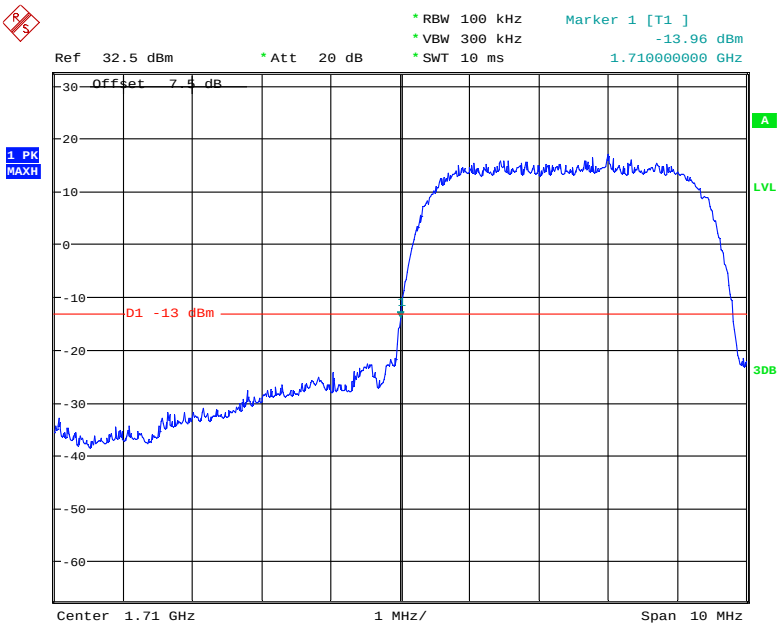
Date: 27.JUL.2018 16:03:40

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



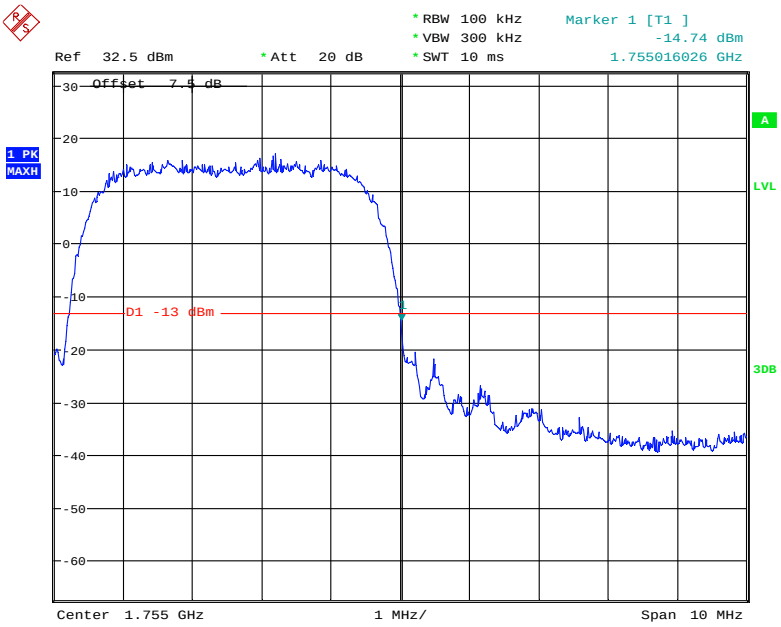
Date: 27.JUL.2018 16:02:40

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



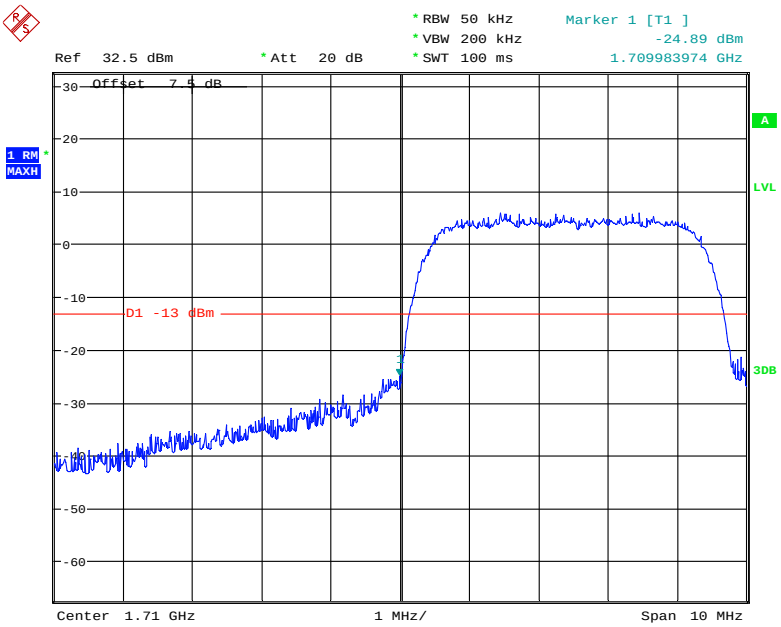
Date: 27.JUL.2018 15:49:21

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



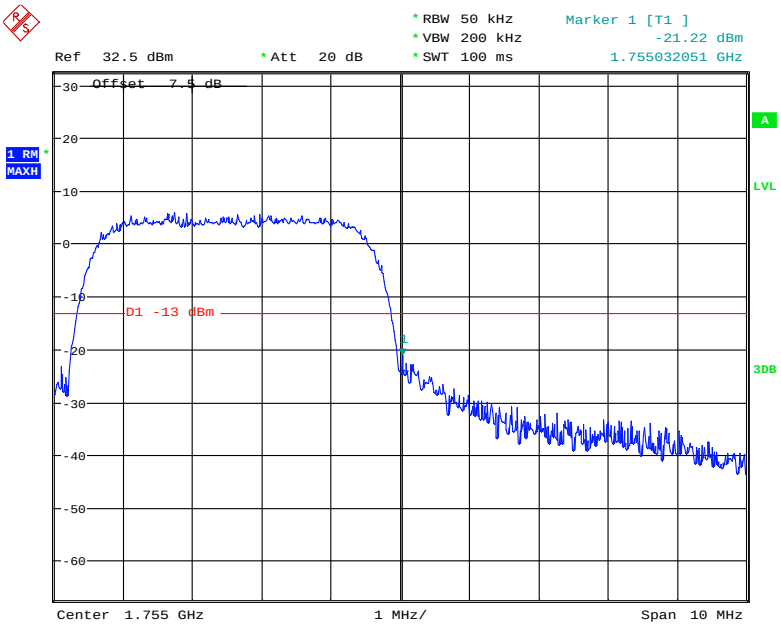
Date: 27.JUL.2018 15:50:09

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



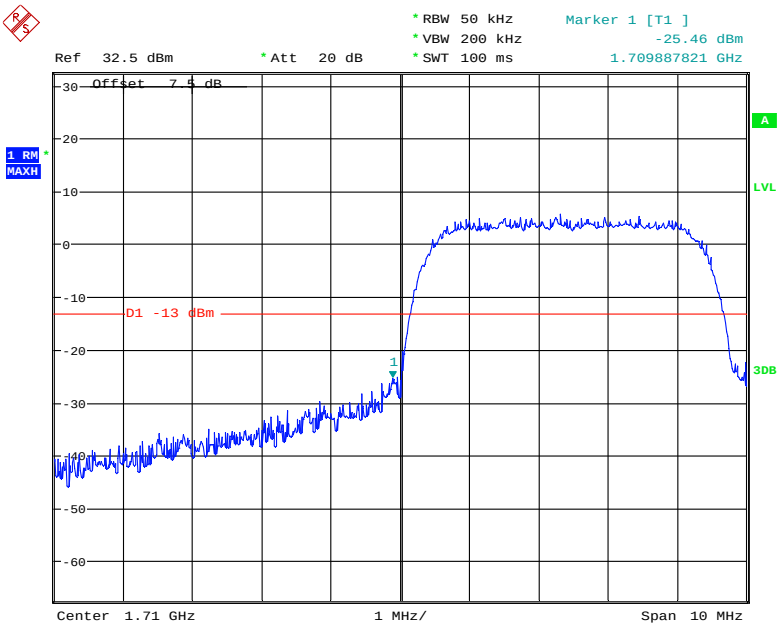
Date: 27.JUL.2018 15:54:14

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



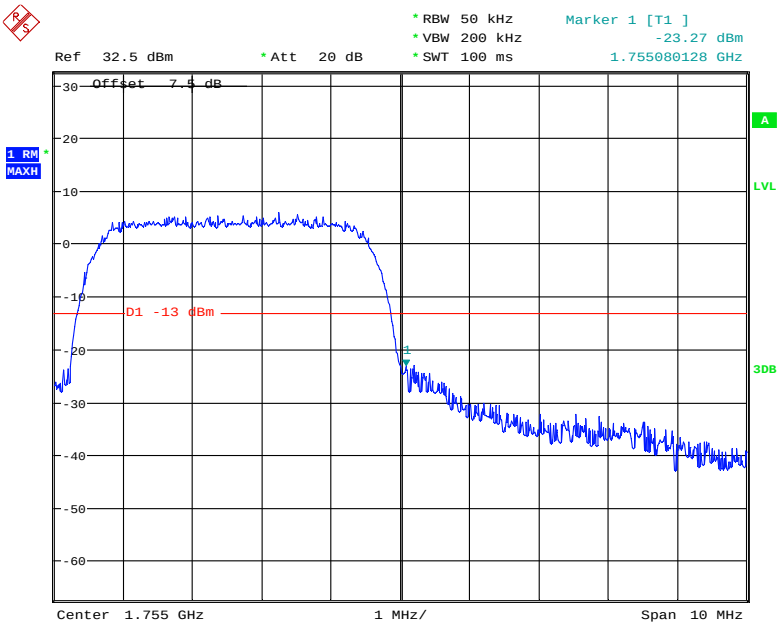
Date: 27.JUL.2018 15:53:32

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



Date: 27.JUL.2018 15:55:03

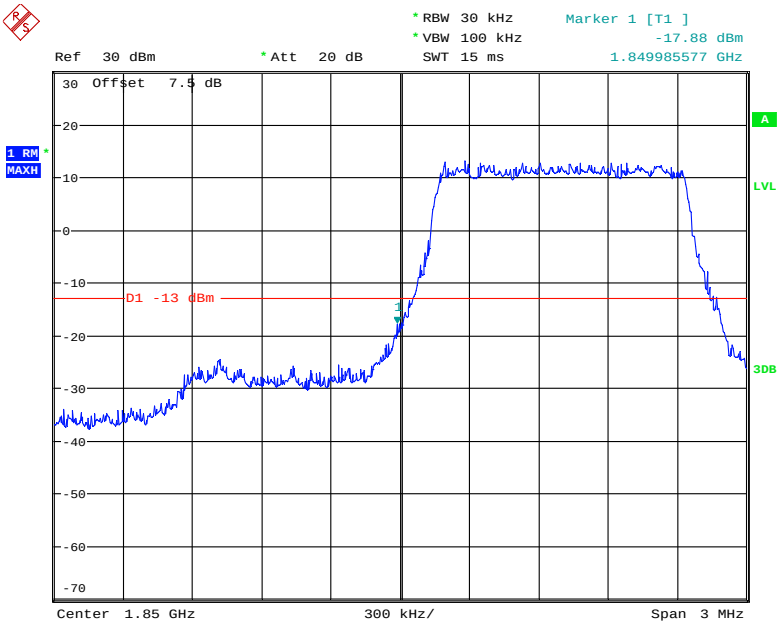
AWS Band, Right Band Edge for HSUPA (BPSK) Mode



Date: 27.JUL.2018 15:55:46

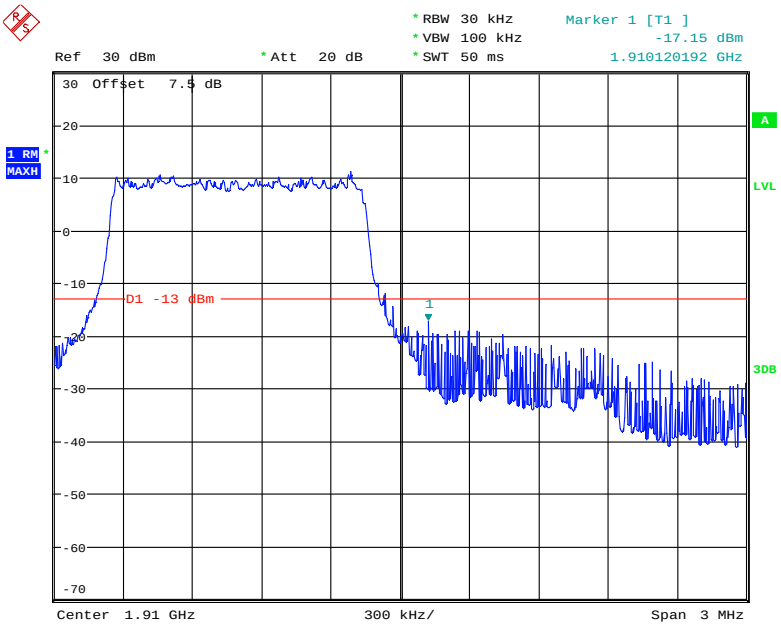
Band 2:

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



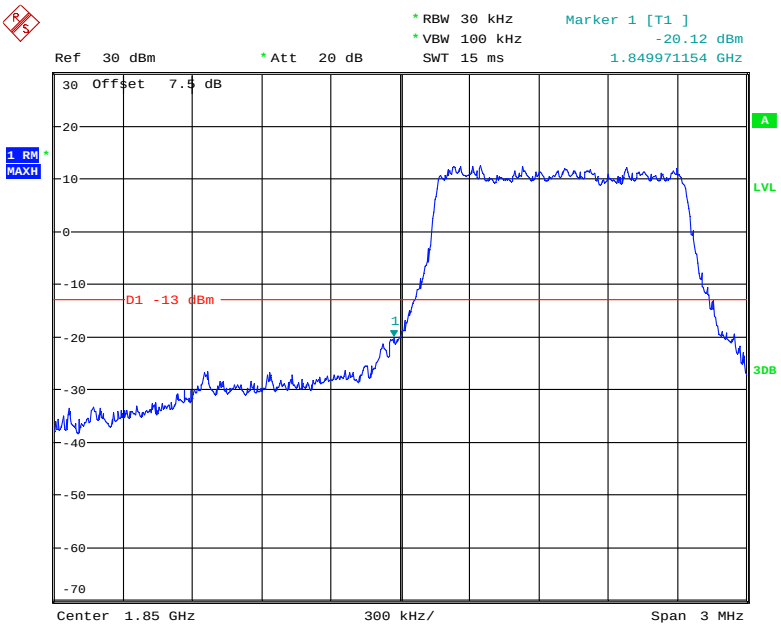
Date: 2.AUG.2018 23:45:32

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



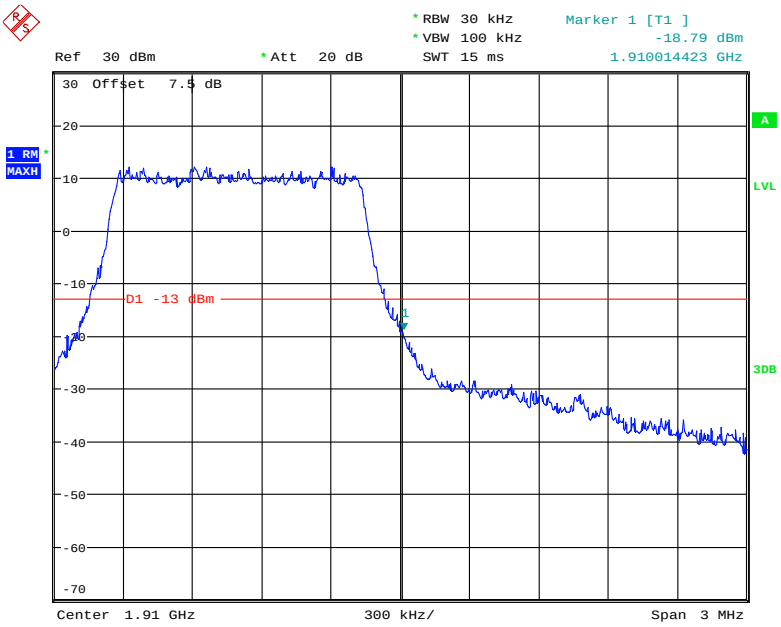
Date: 2.AUG.2018 23:47:35

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



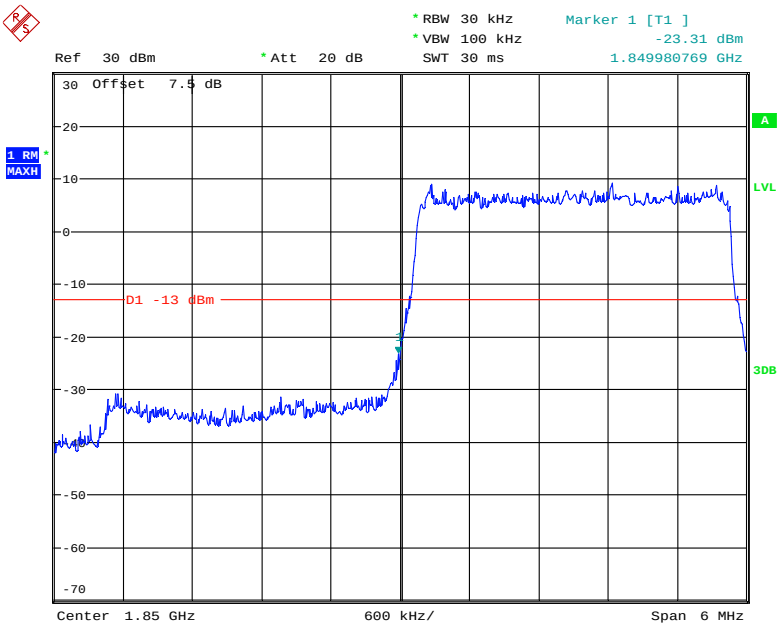
Date: 2.AUG.2018 23:44:55

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

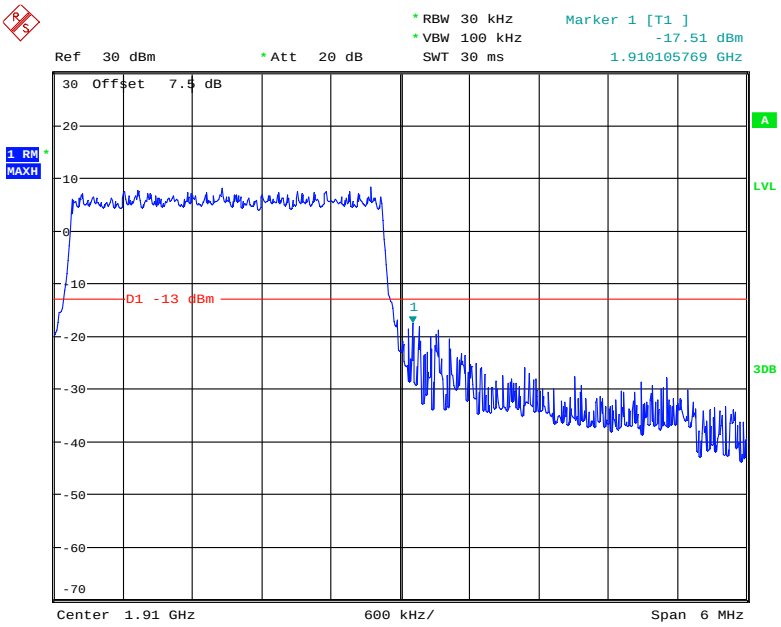


Date: 2.AUG.2018 23:48:44

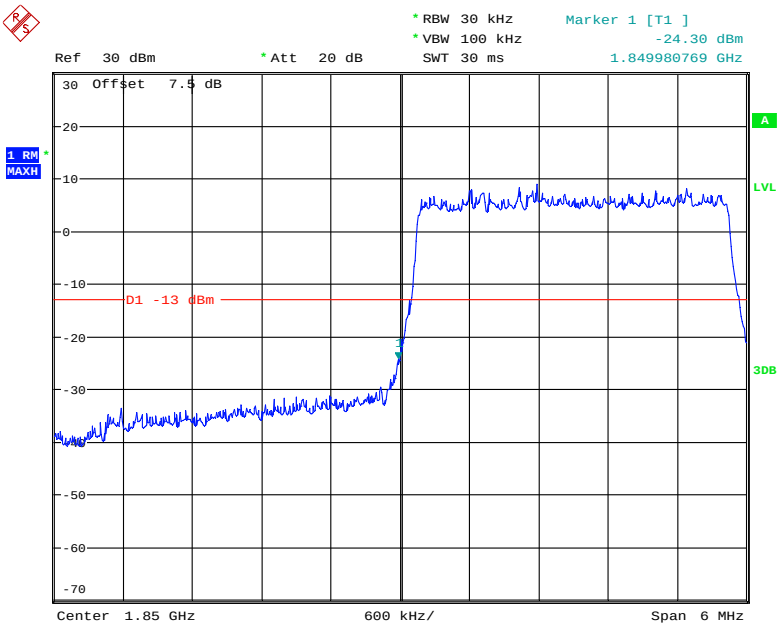
QPSK (3.0 MHz, FULL RB) - Left Band Edge



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

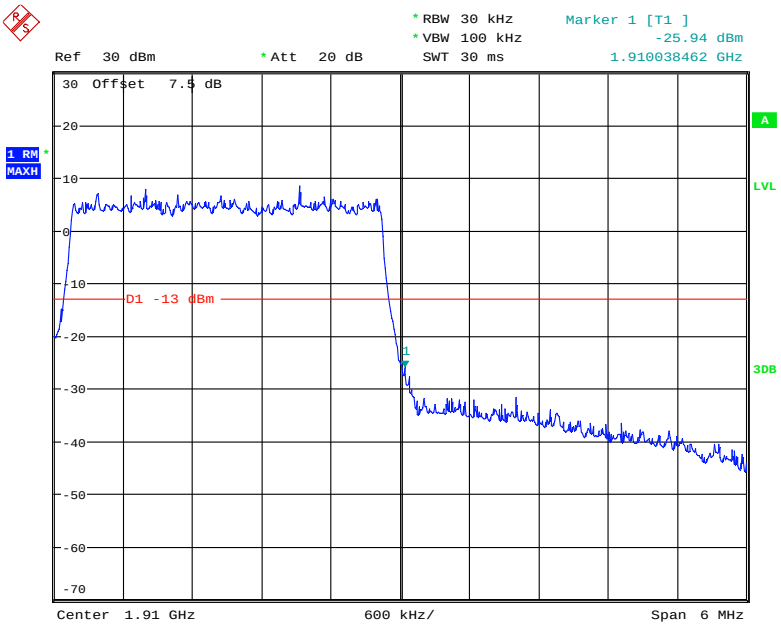


16-QAM (3.0 MHz, FULL RB) - Left Band Edge



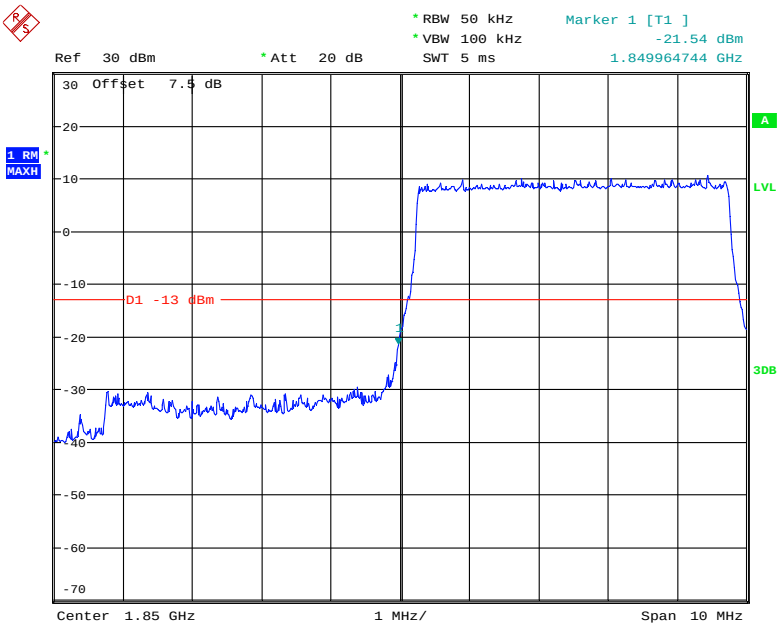
Date: 2.AUG.2018 23:54:07

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



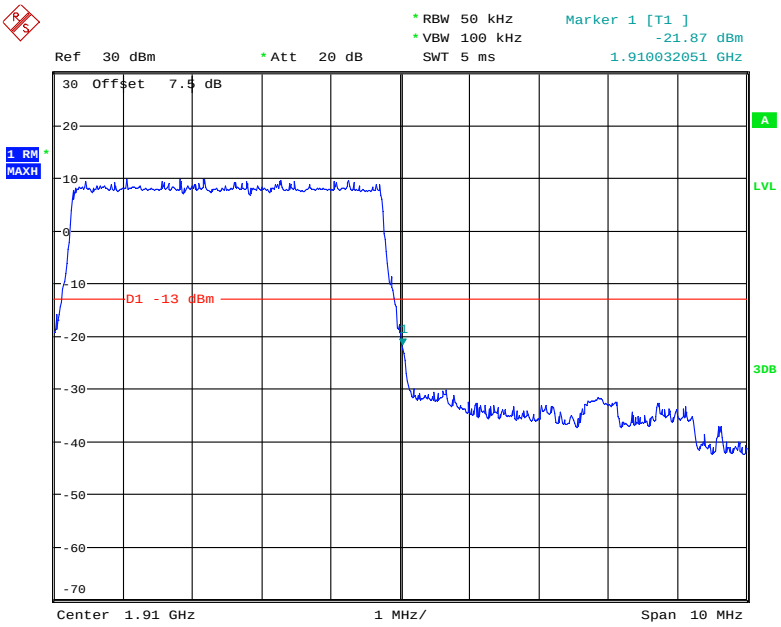
Date: 2.AUG.2018 23:50:54

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



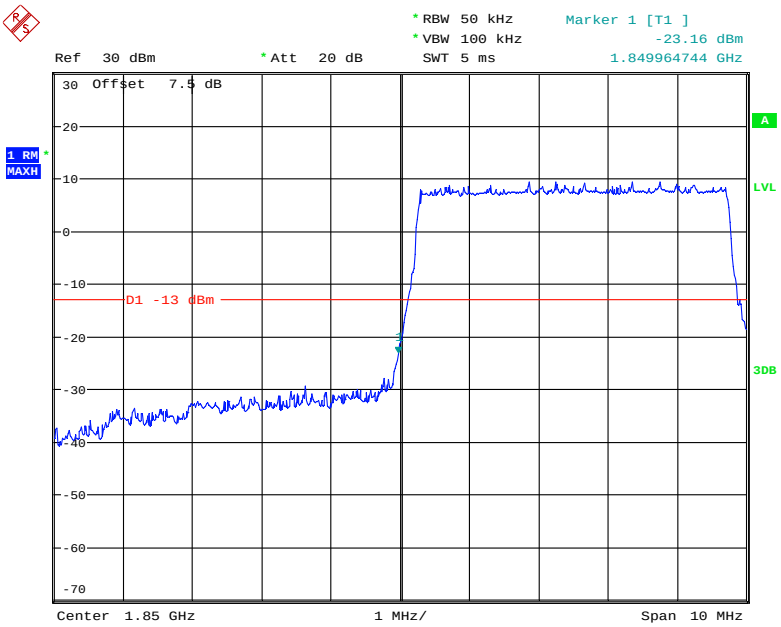
Date: 2.AUG.2018 23:55:22

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



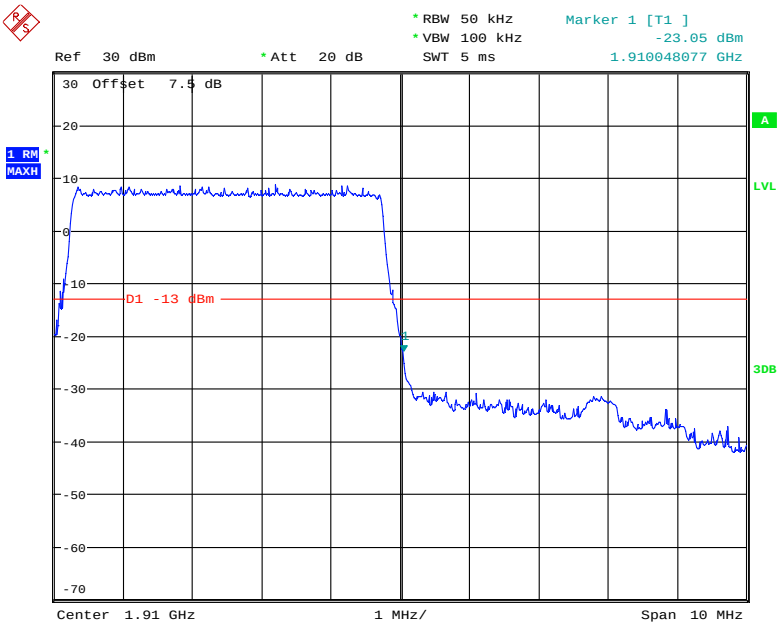
Date: 2.AUG.2018 23:57:42

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



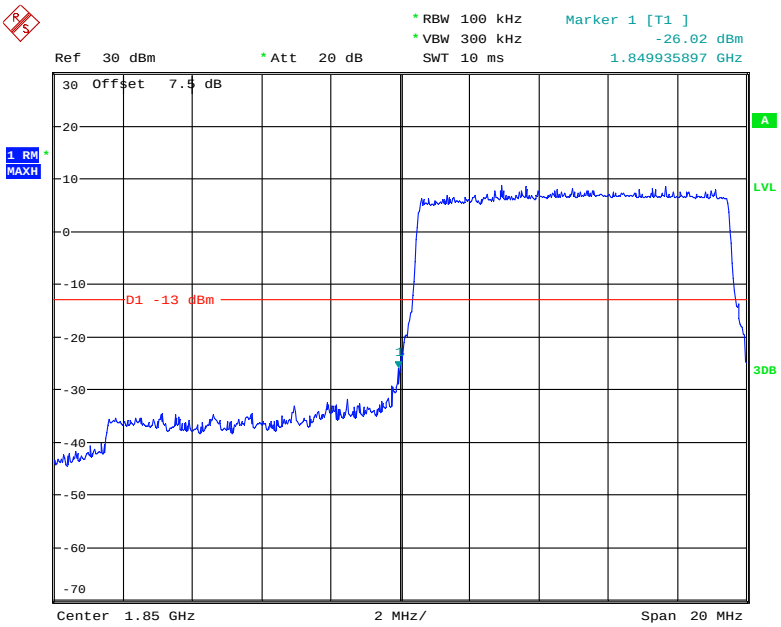
Date: 2.AUG.2018 23:55:58

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



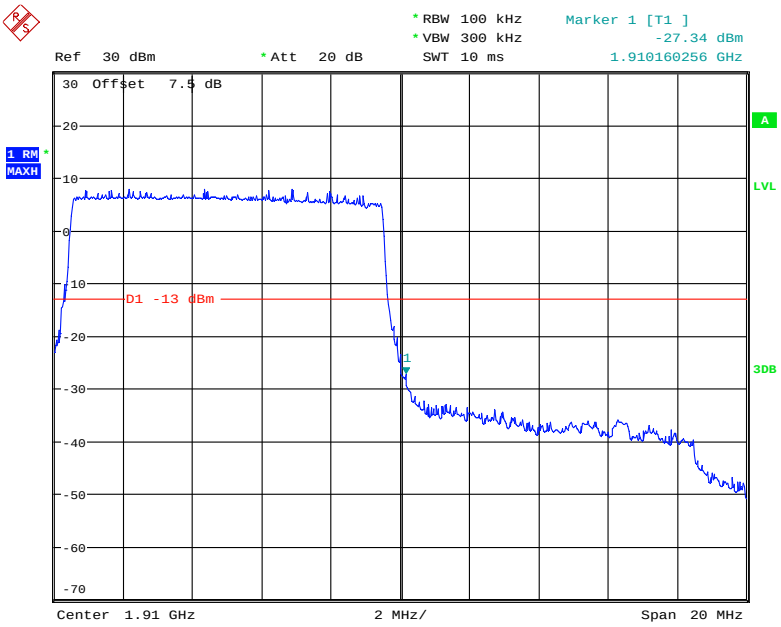
Date: 2.AUG.2018 23:57:07

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



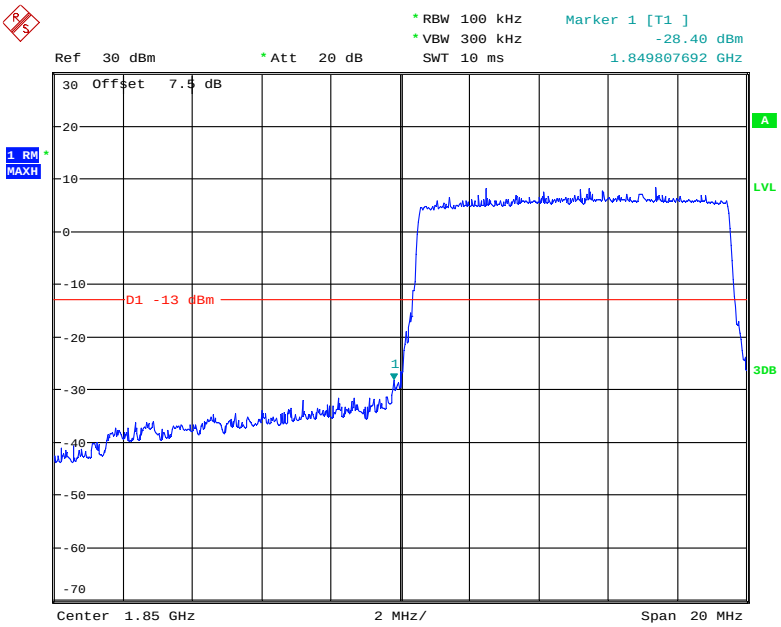
Date: 3.AUG.2018 00:05:04

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



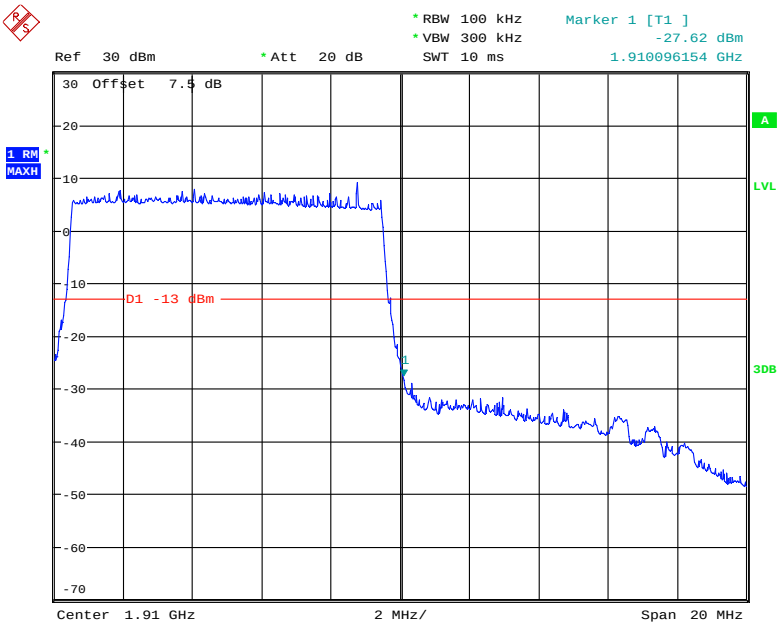
Date: 2.AUG.2018 23:59:40

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



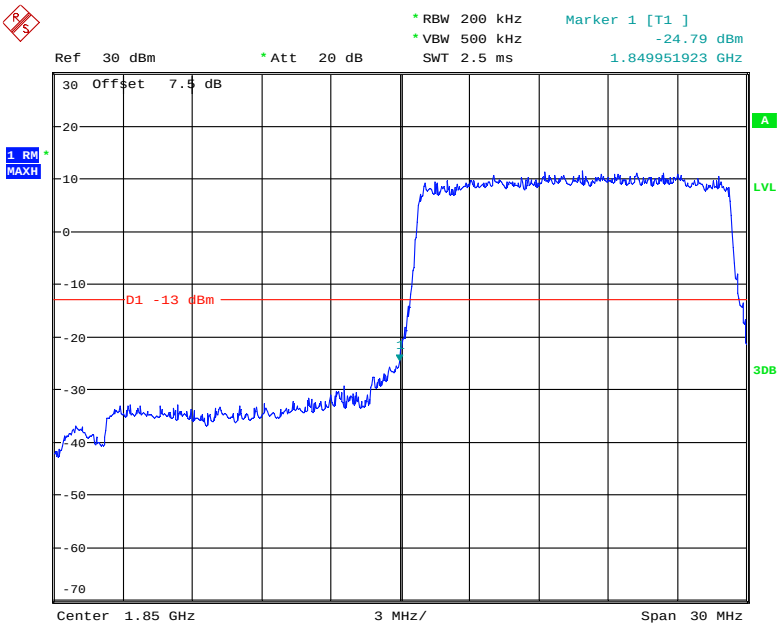
Date: 3.AUG.2018 00:04:08

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



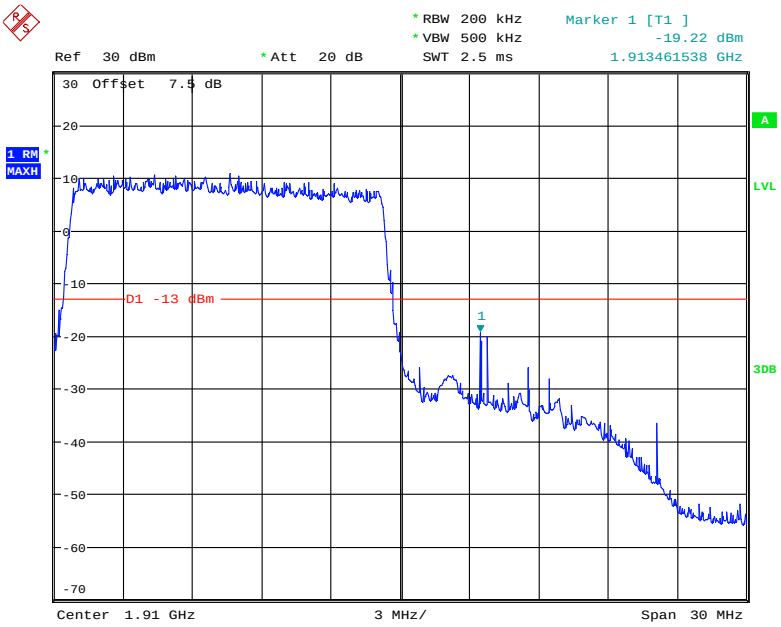
Date: 3.AUG.2018 00:01:59

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



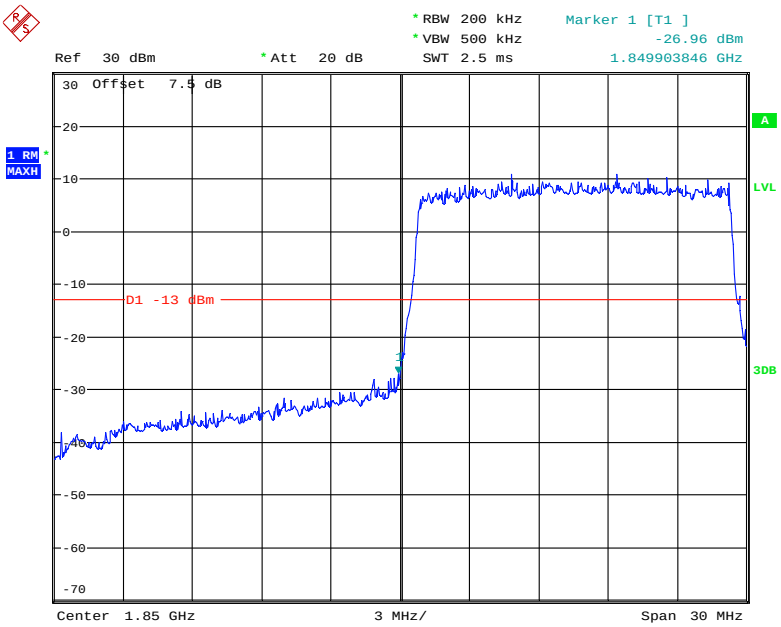
Date: 3.AUG.2018 00:08:14

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



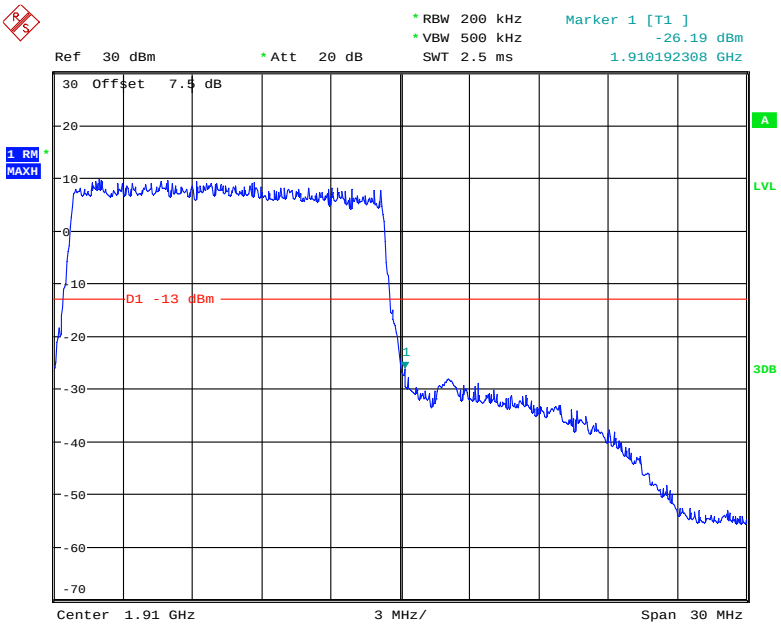
Date: 3.AUG.2018 00:12:16

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



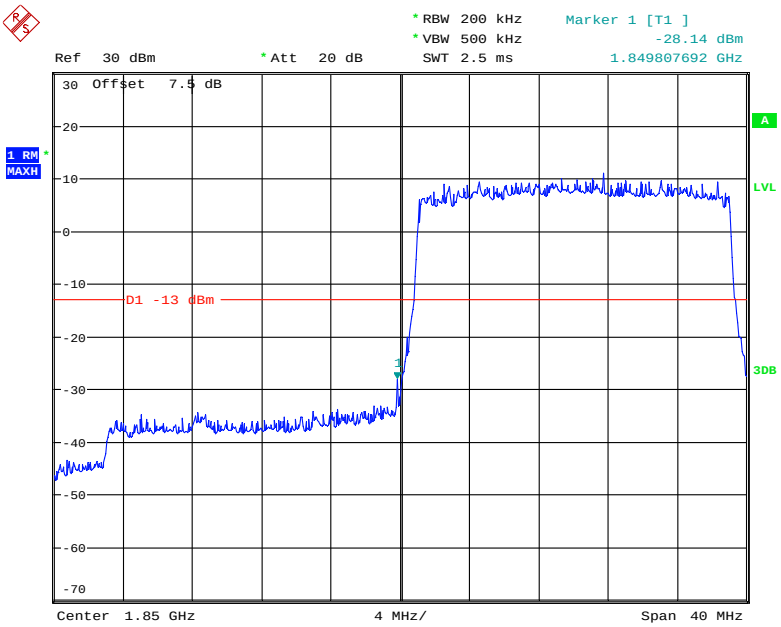
Date: 3.AUG.2018 00:08:58

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



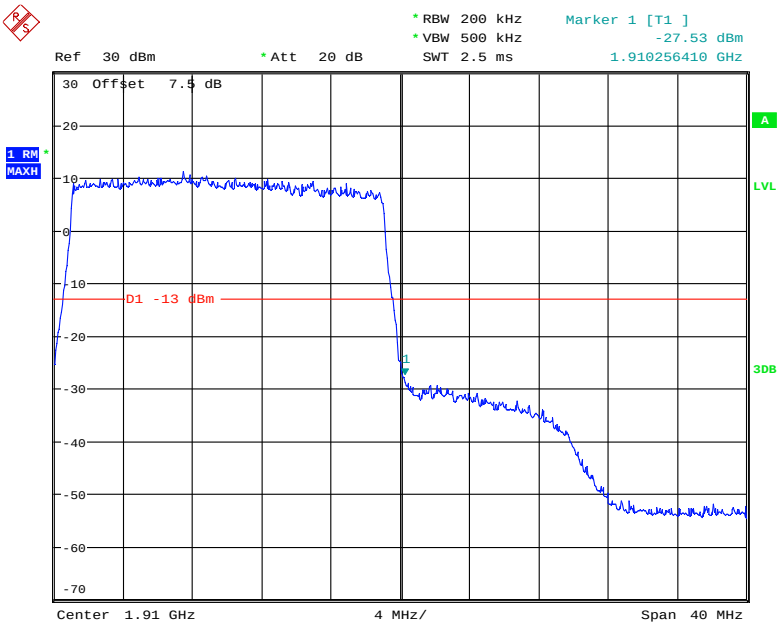
Date: 3.AUG.2018 00:11:43

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



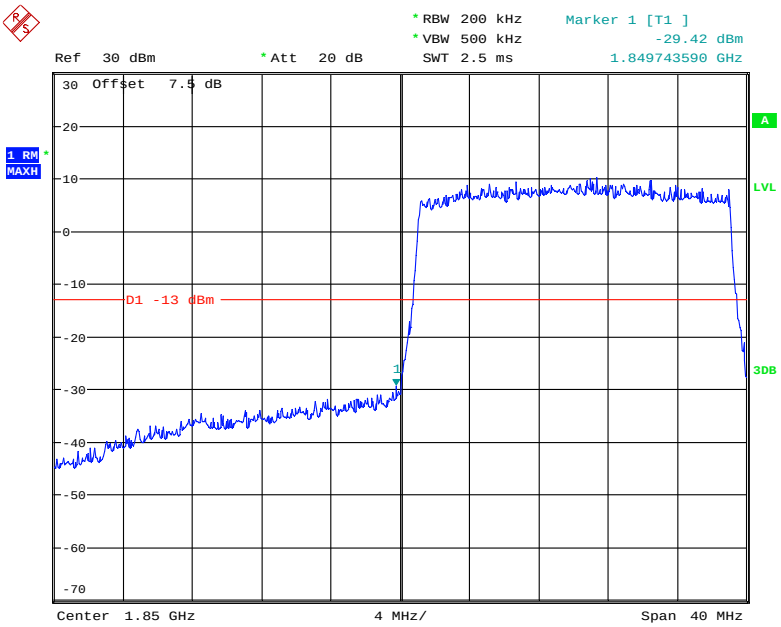
Date: 3.AUG.2018 00:29:00

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



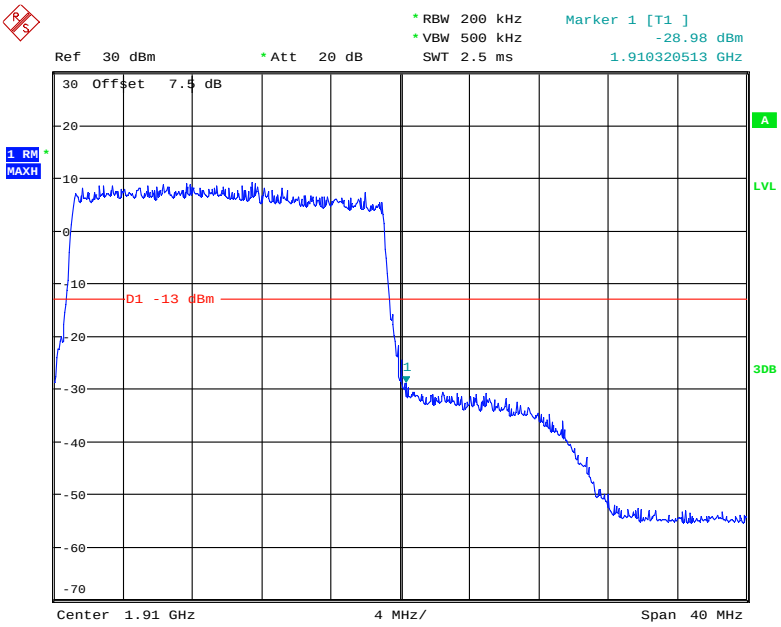
Date: 3.AUG.2018 00:25:31

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



Date: 3.AUG.2018 00:28:17

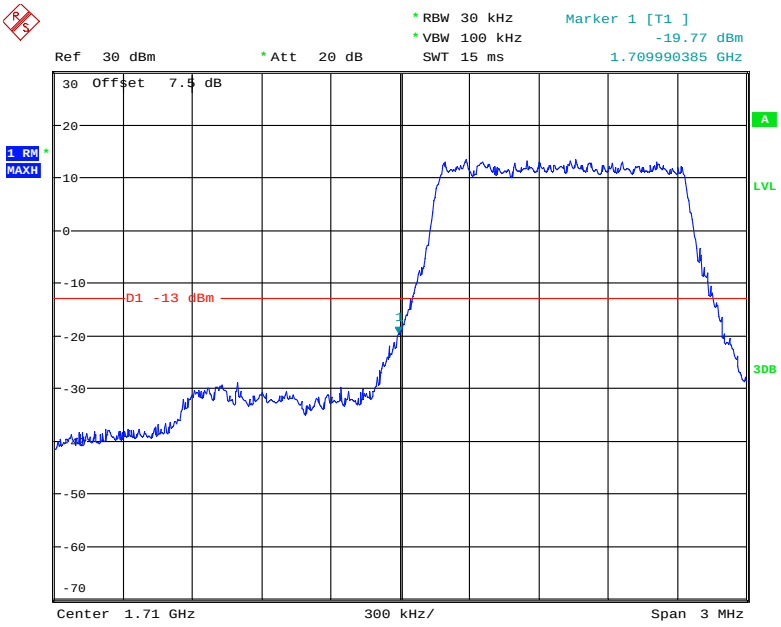
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 3.AUG.2018 00:26:20

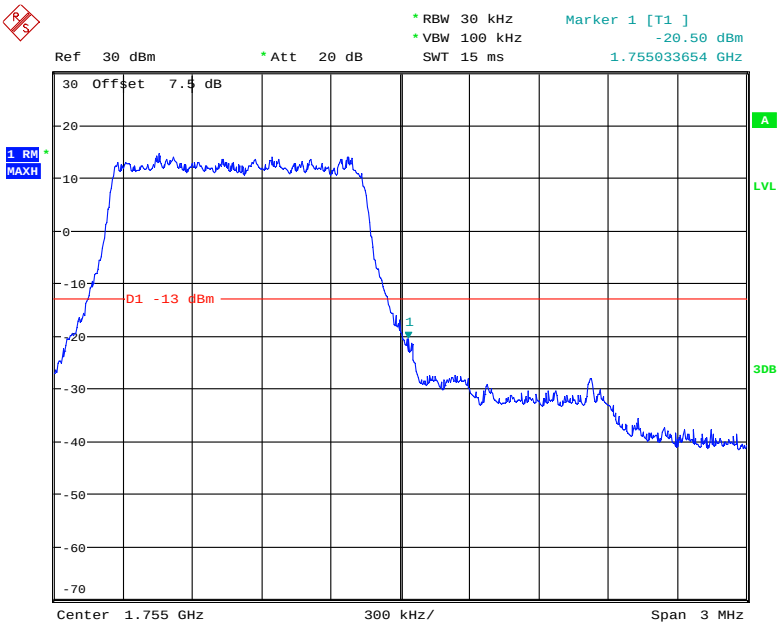
Band 4:

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



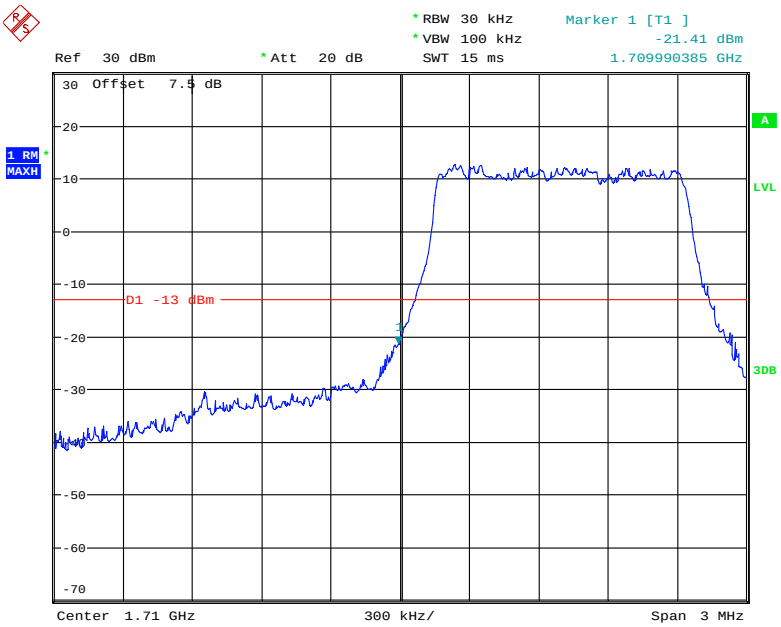
Date: 3.AUG.2018 00:33:21

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



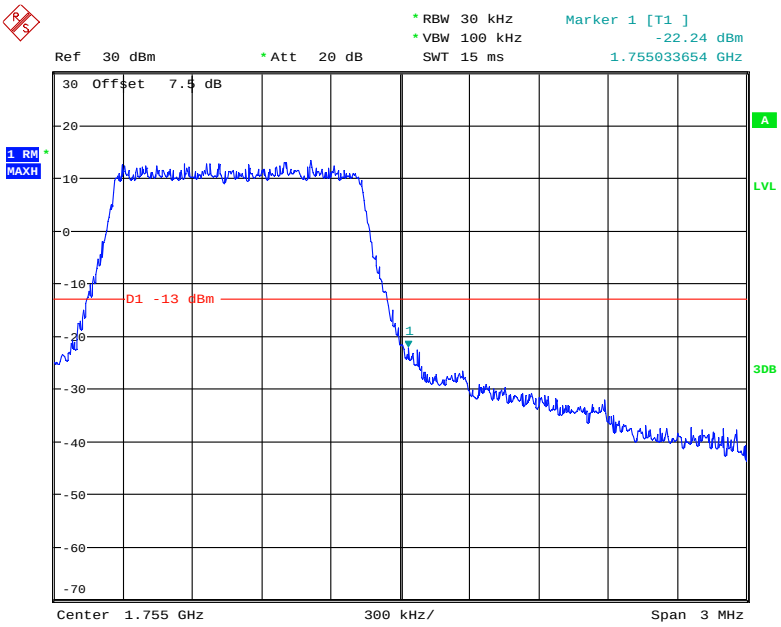
Date: 3.AUG.2018 00:38:51

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



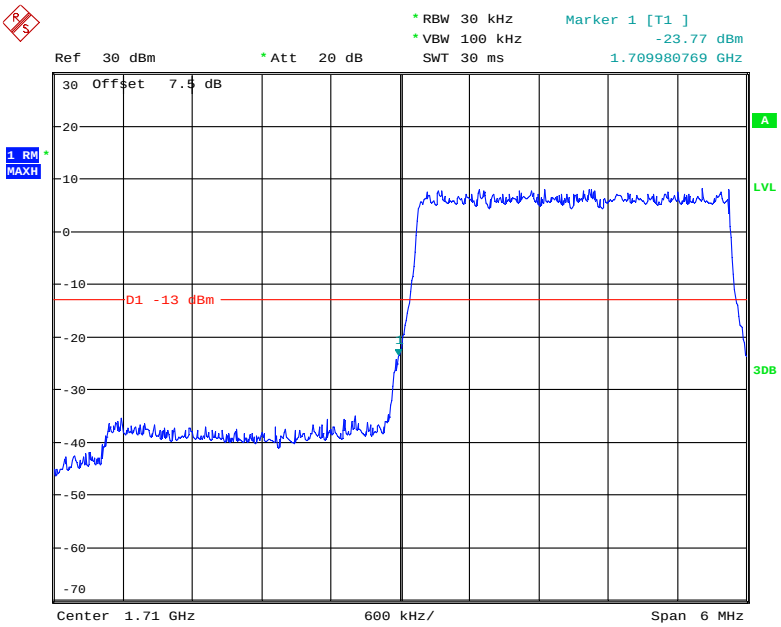
Date: 3.AUG.2018 00:32:14

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



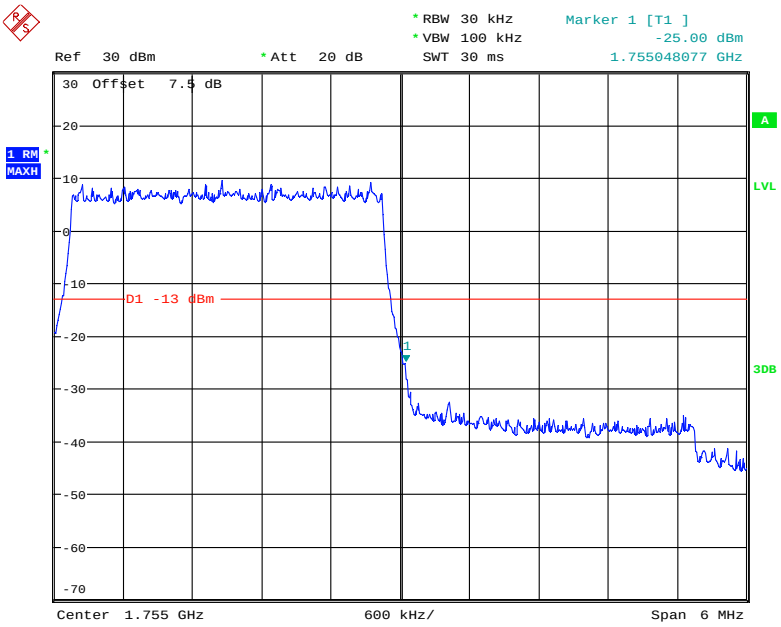
Date: 3.AUG.2018 00:40:49

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



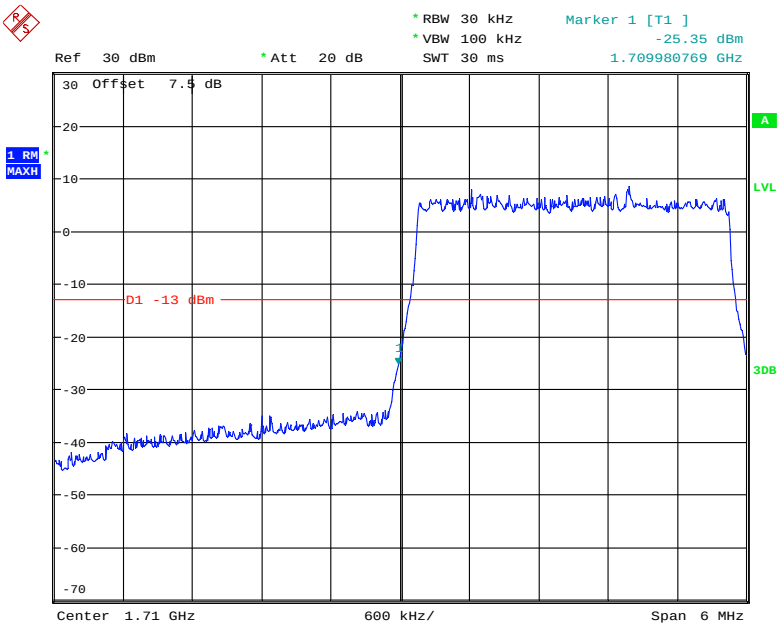
Date: 3.AUG.2018 00:43:49

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



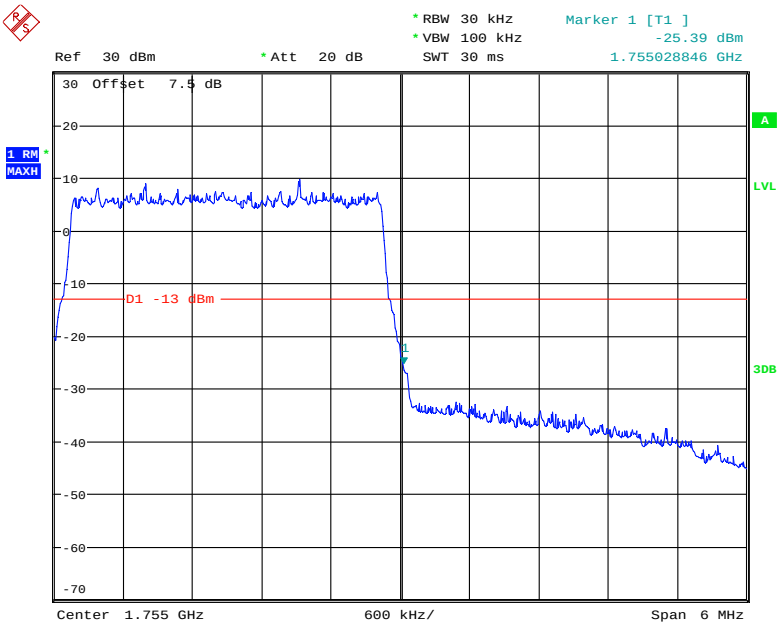
Date: 3.AUG.2018 00:44:51

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



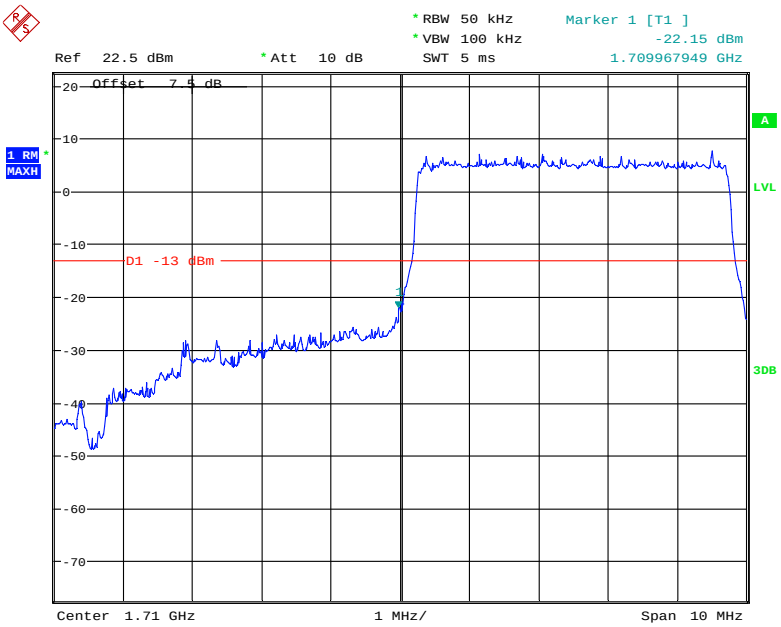
Date: 3.AUG.2018 00:43:01

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



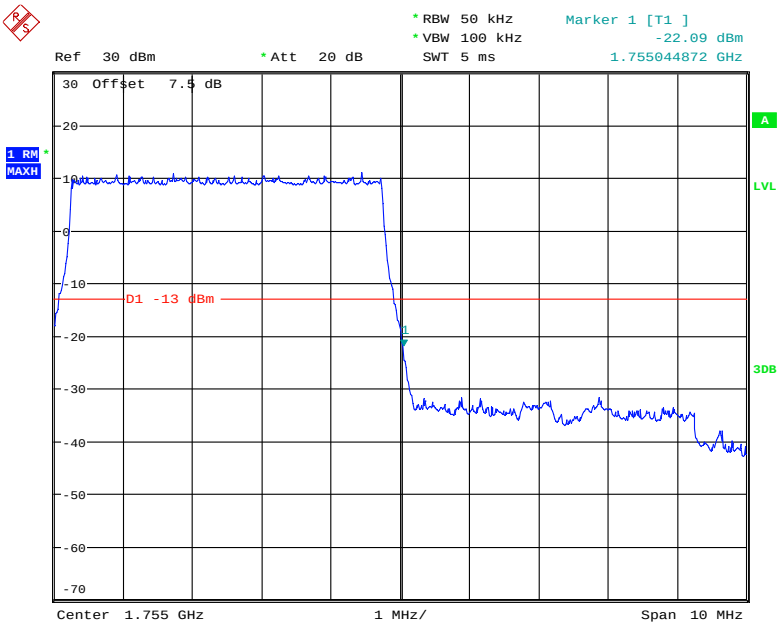
Date: 3.AUG.2018 00:45:47

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



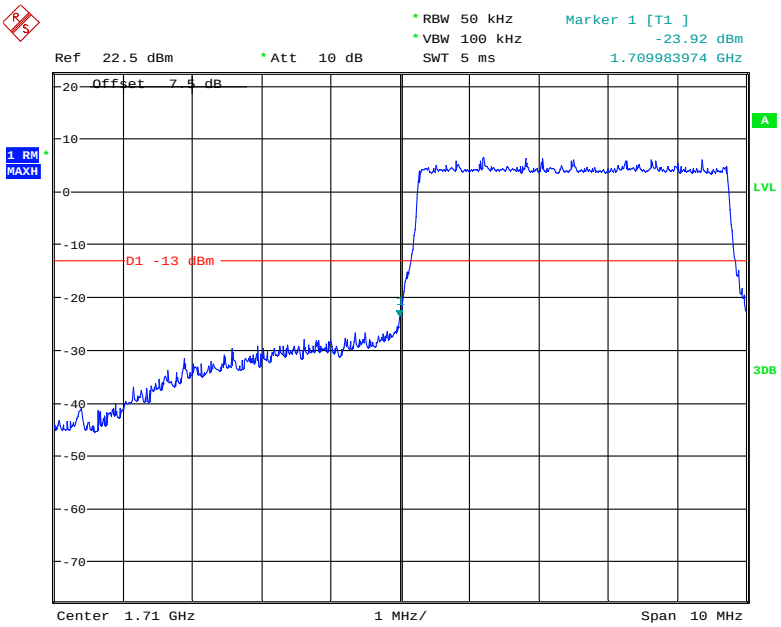
Date: 4.AUG.2018 15:37:31

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



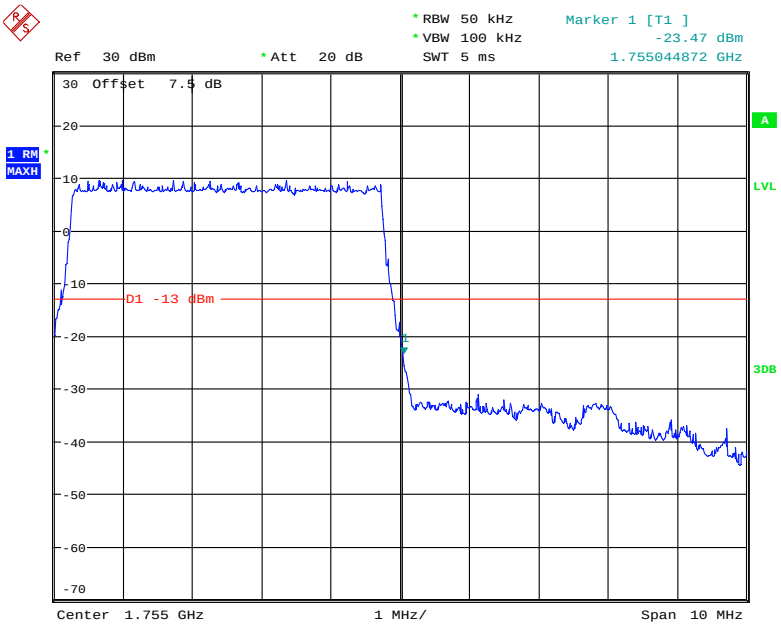
Date: 3.AUG.2018 00:48:32

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



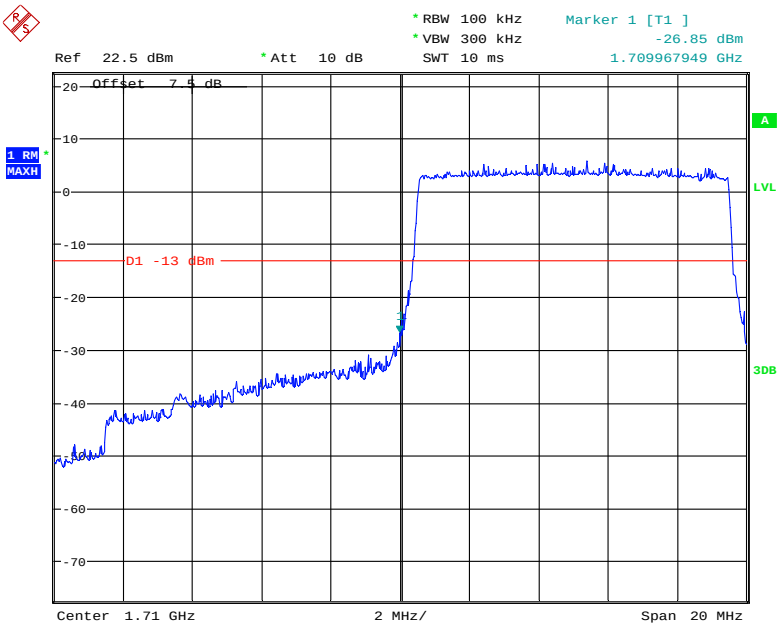
Date: 4.AUG.2018 15:38:45

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



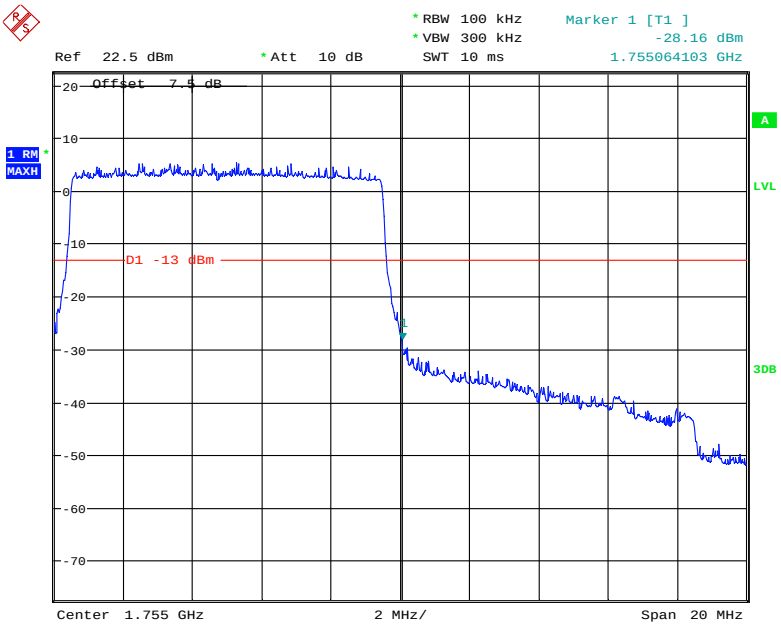
Date: 3.AUG.2018 00:51:53

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



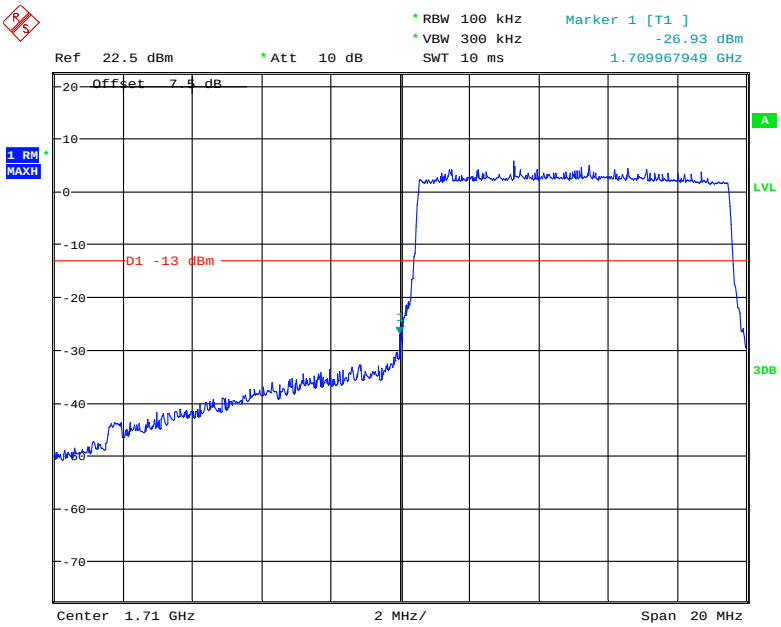
Date: 4.AUG.2018 15:40:09

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



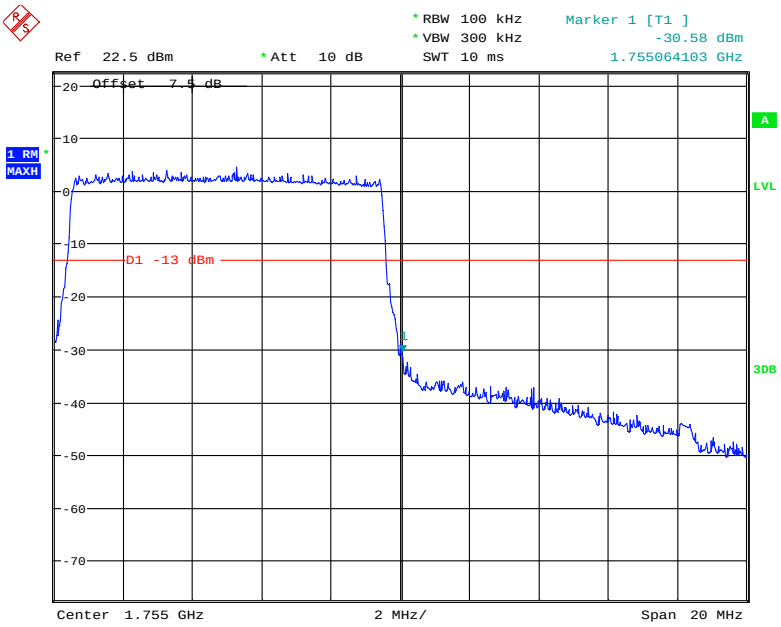
Date: 4.AUG.2018 15:42:41

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



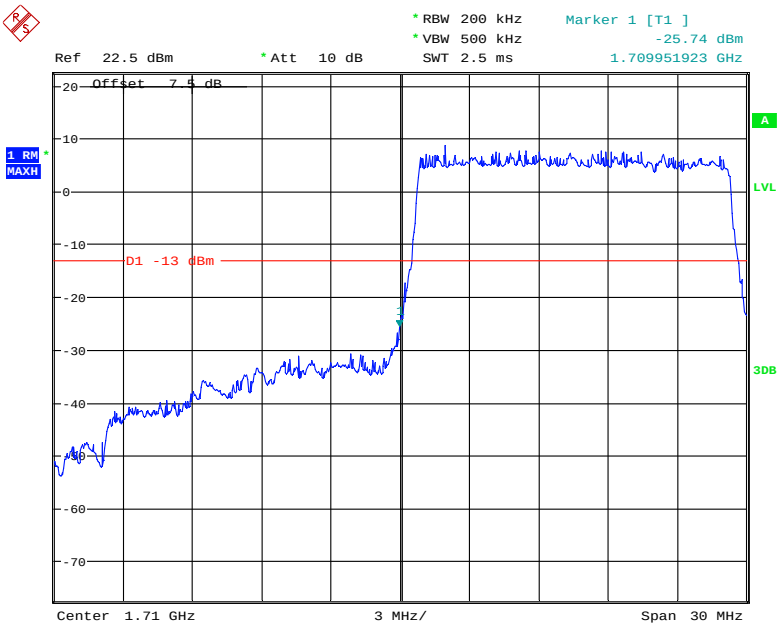
Date: 4.AUG.2018 15:41:09

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



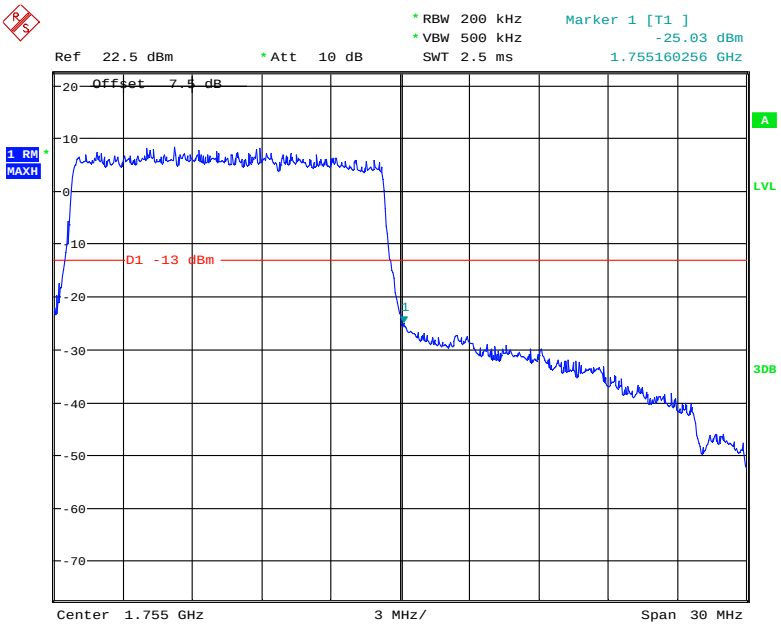
Date: 4.AUG.2018 15:42:06

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



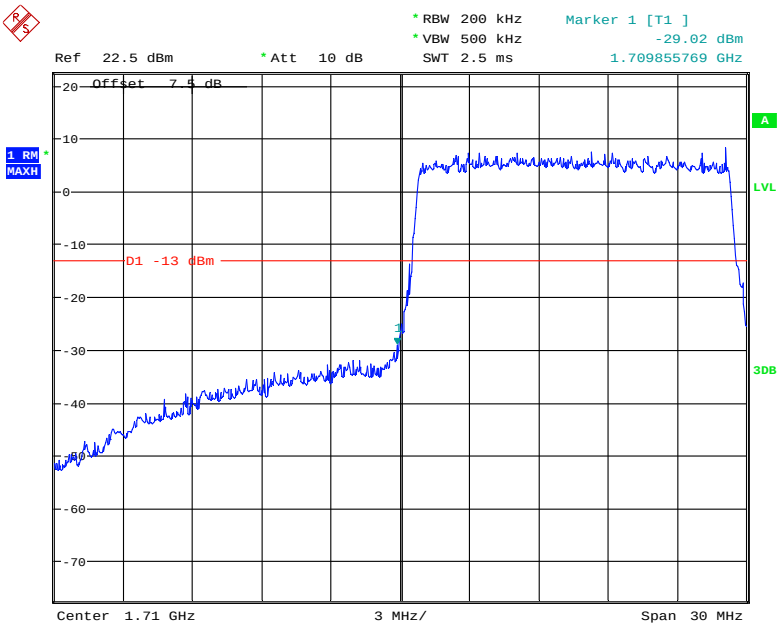
Date: 4.AUG.2018 15:46:59

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



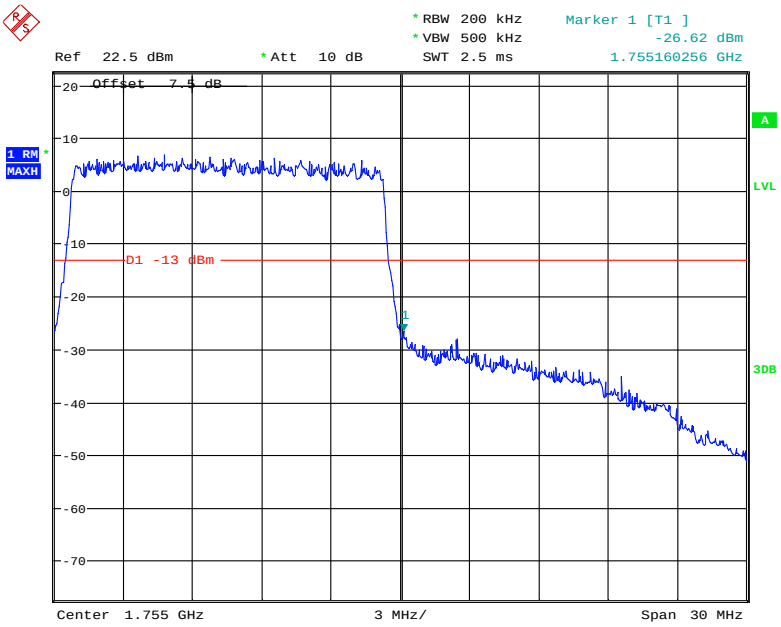
Date: 4.AUG.2018 15:44:21

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



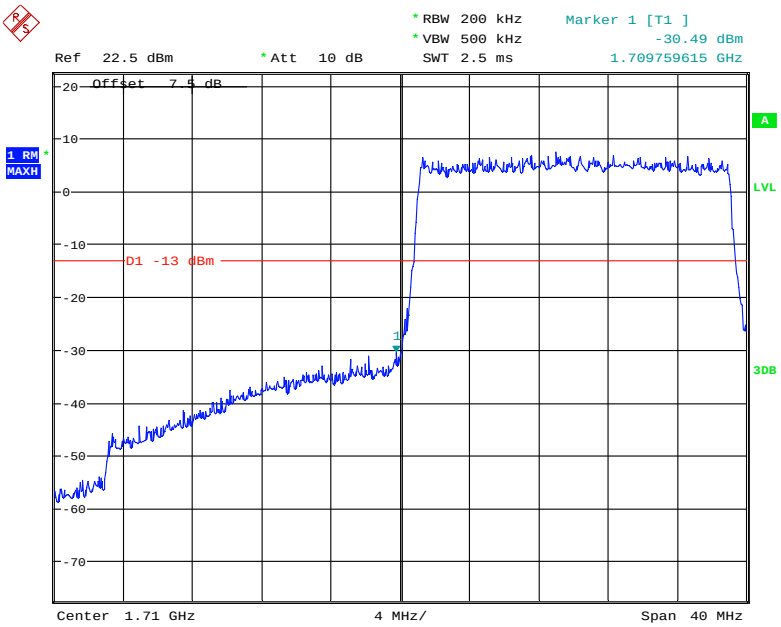
Date: 4.AUG.2018 15:46:19

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



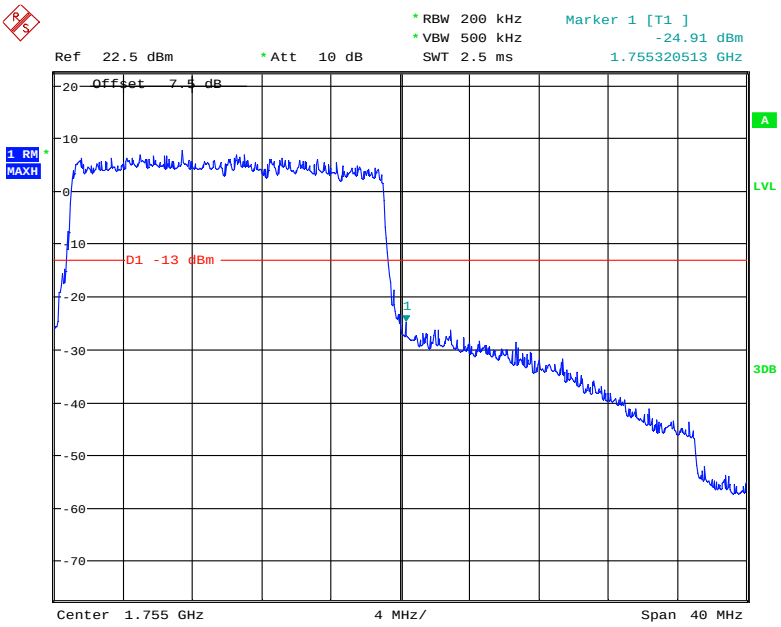
Date: 4.AUG.2018 15:45:08

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



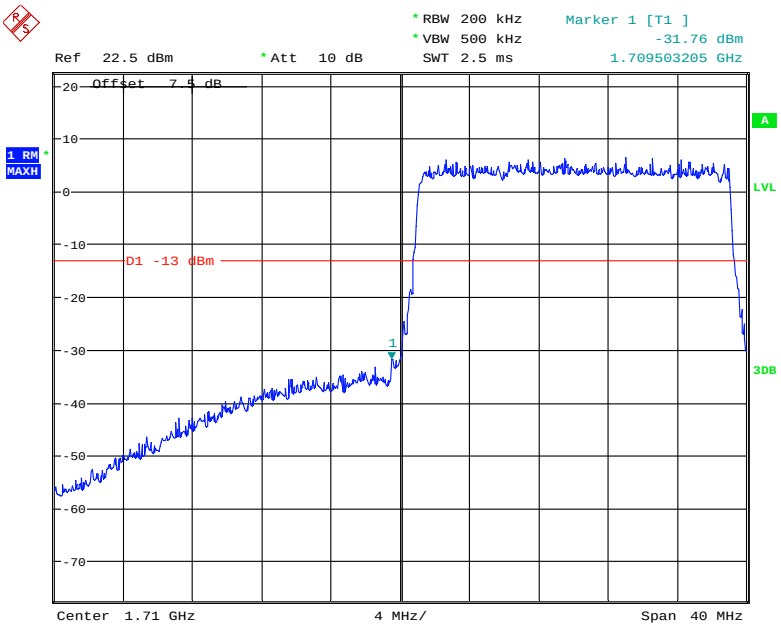
Date: 4.AUG.2018 15:48:20

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



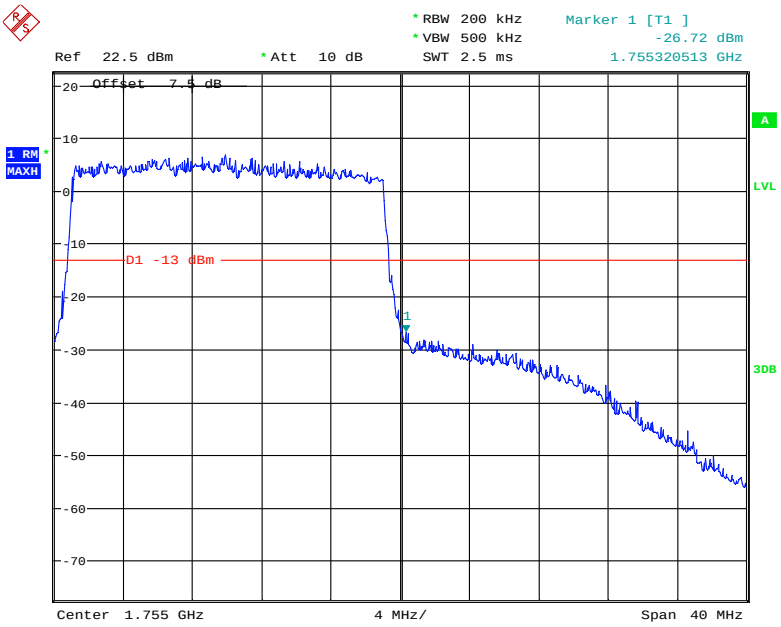
Date: 4.AUG.2018 15:52:11

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



Date: 4.AUG.2018 15:49:14

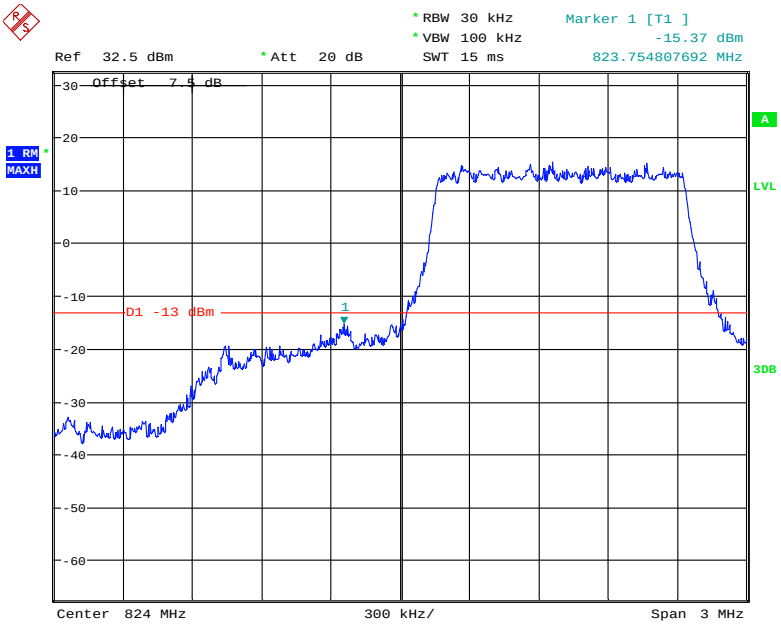
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 4.AUG.2018 15:51:24

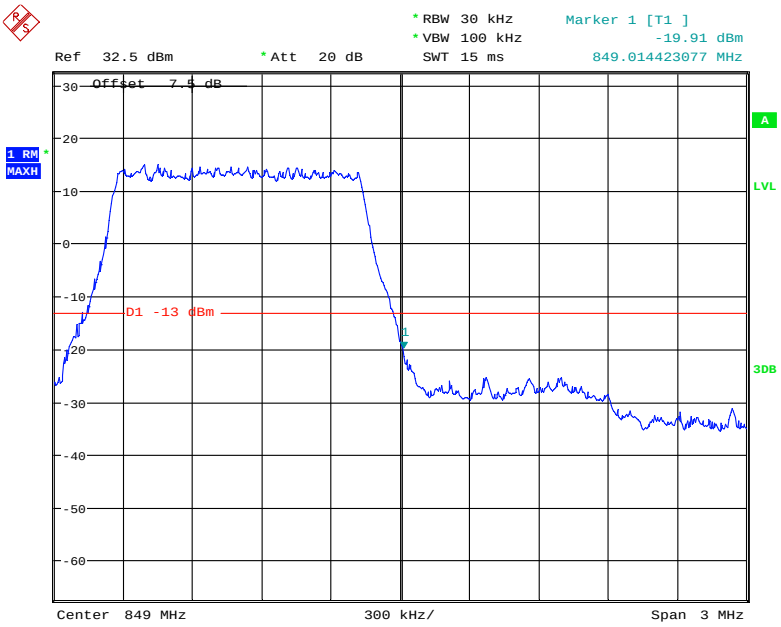
Band 5:

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



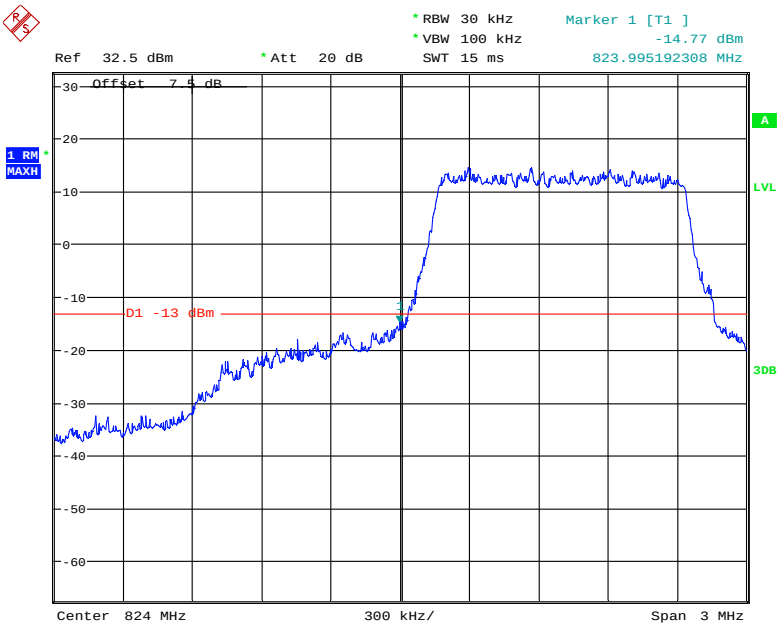
Date: 4.AUG.2018 15:54:31

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



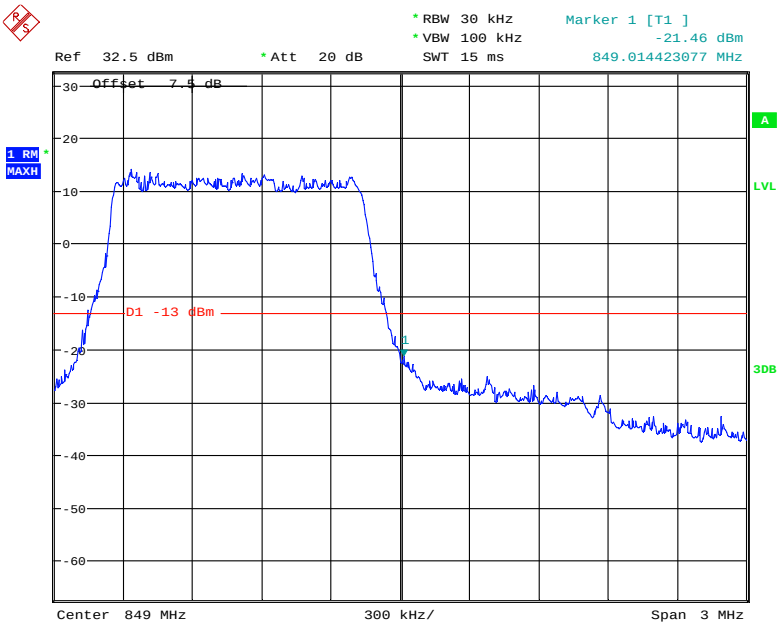
Date: 4.AUG.2018 15:57:45

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



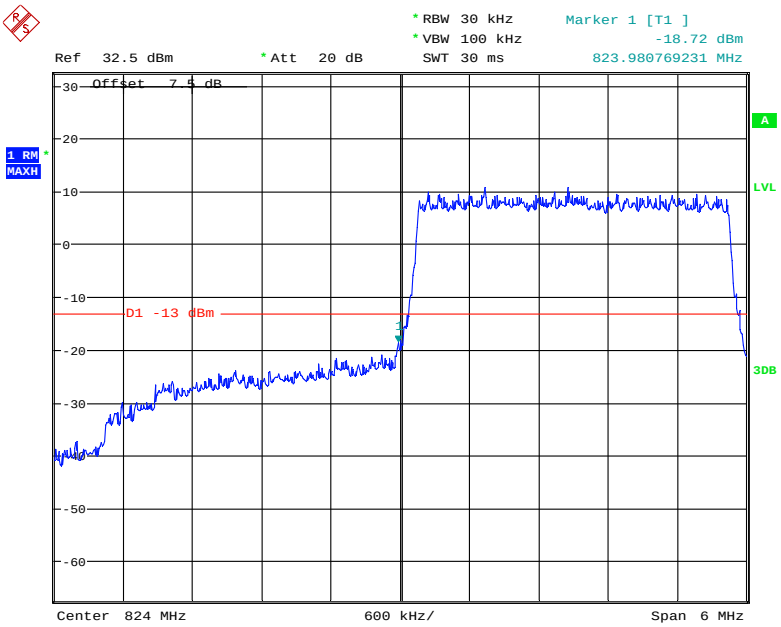
Date: 4.AUG.2018 15:55:30

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



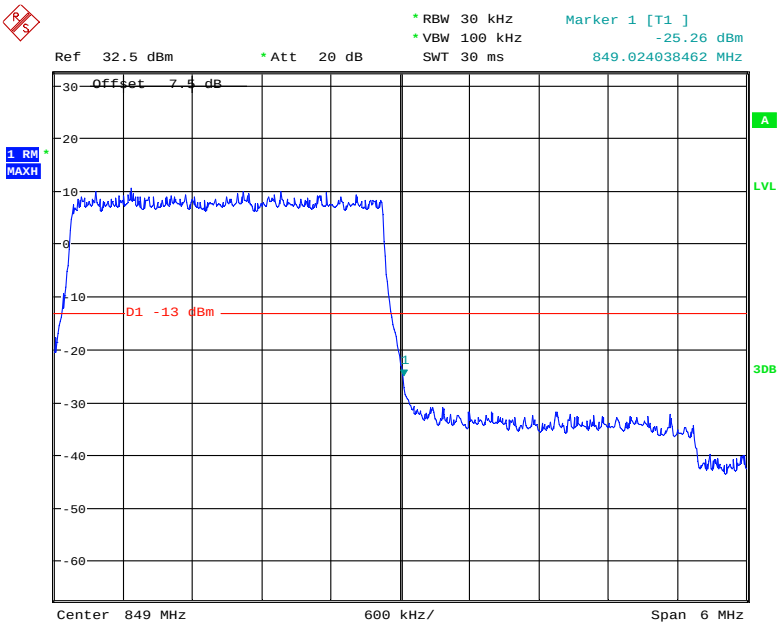
Date: 4.AUG.2018 15:56:33

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



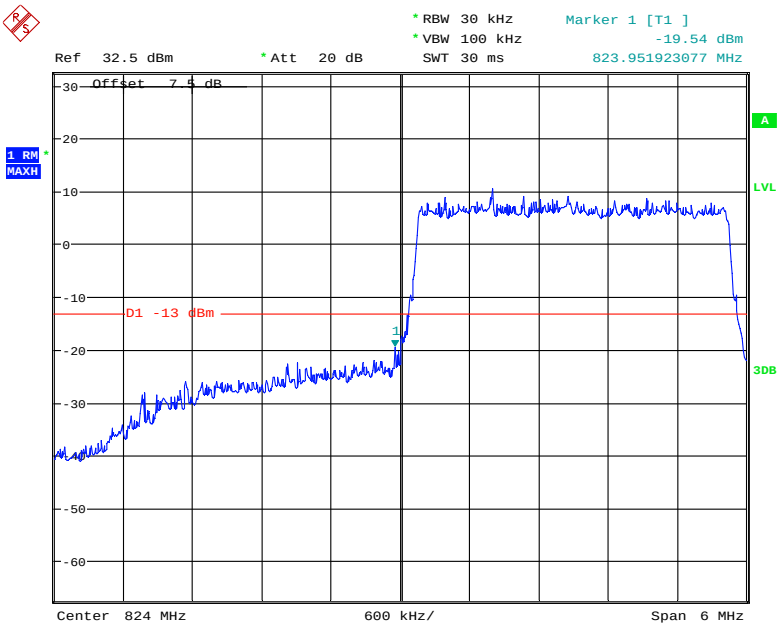
Date: 4.AUG.2018 16:01:29

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



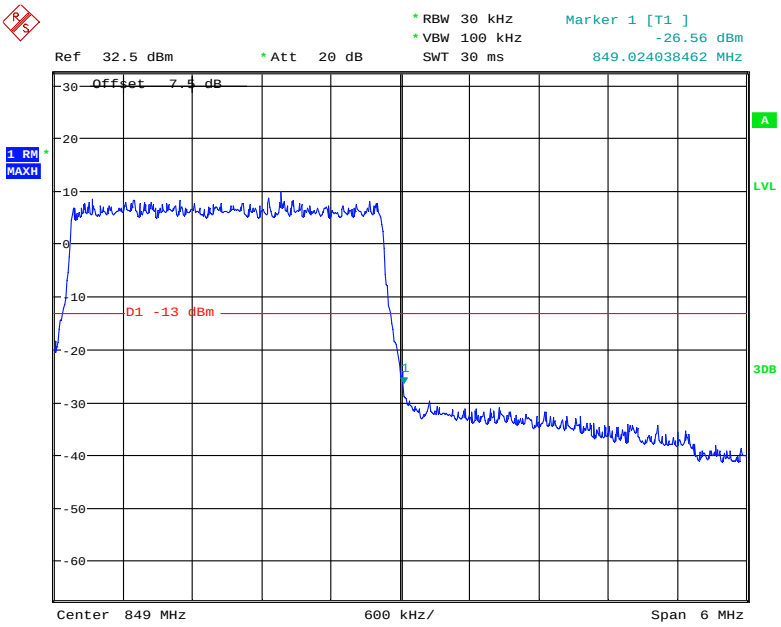
Date: 4.AUG.2018 15:59:19

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



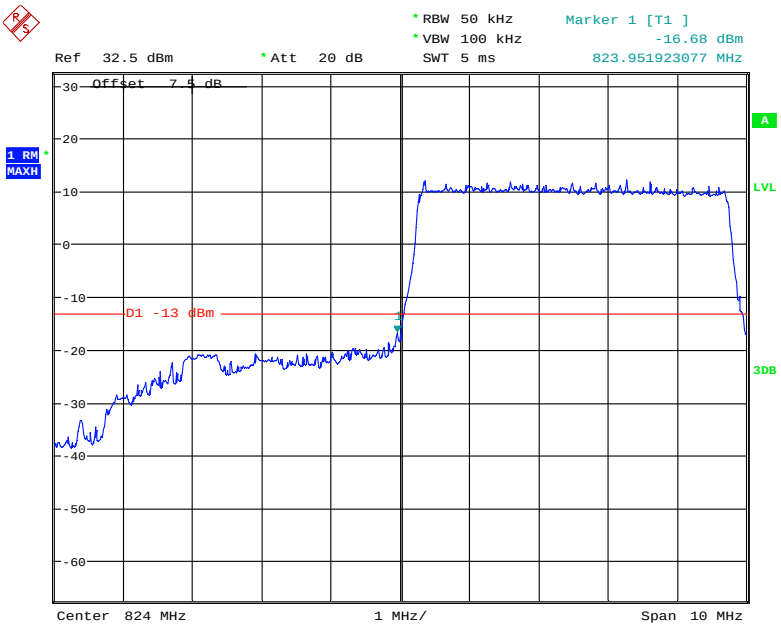
Date: 4.AUG.2018 16:00:52

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



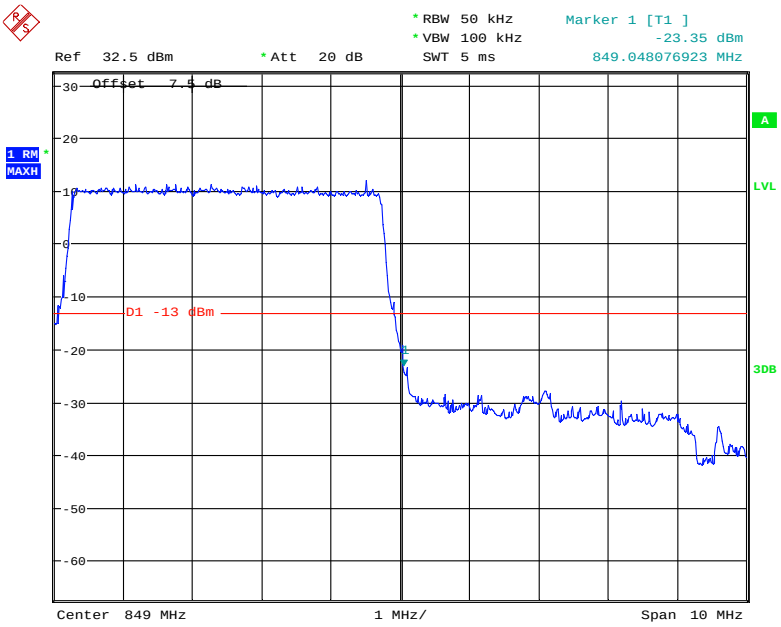
Date: 4.AUG.2018 16:00:06

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



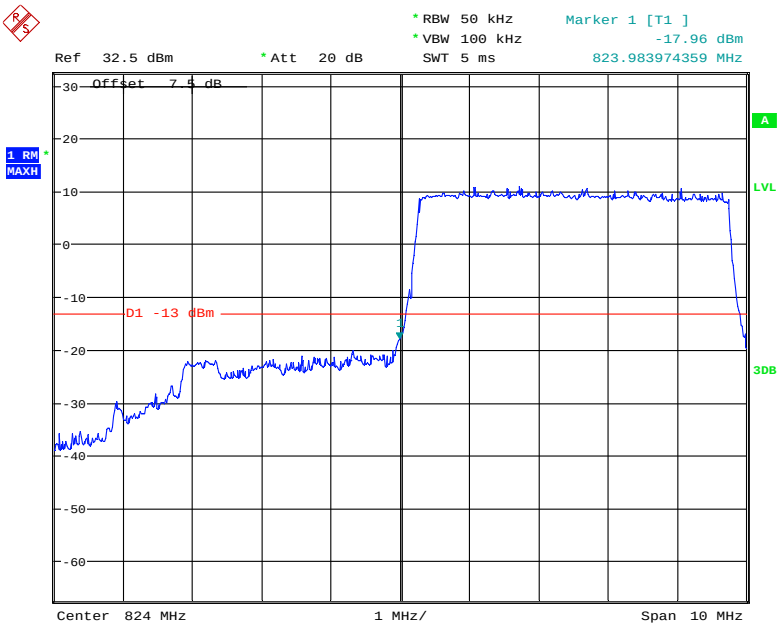
Date: 4.AUG.2018 16:04:02

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



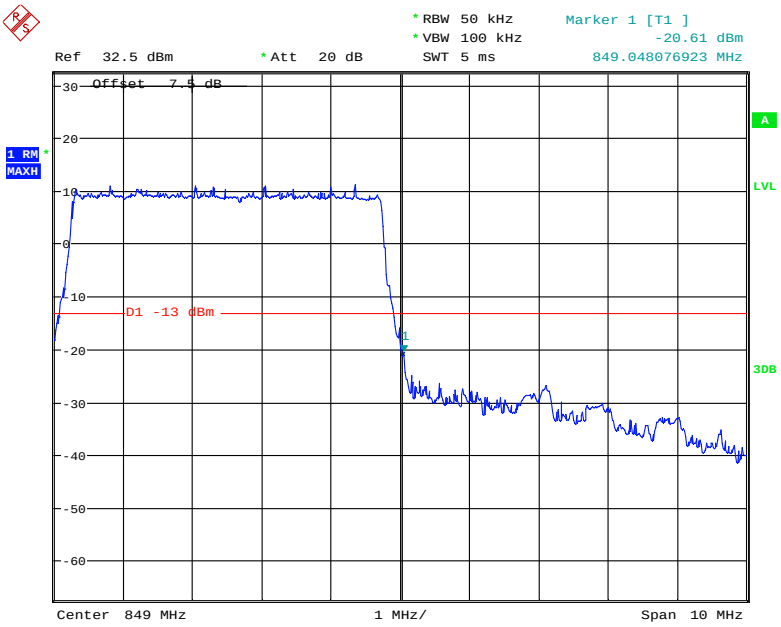
Date: 4.AUG.2018 16:05:21

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



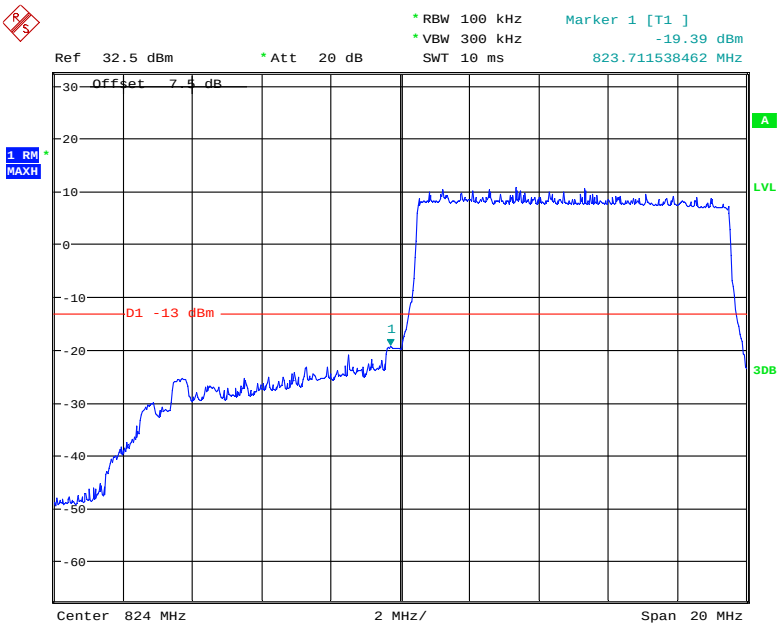
Date: 4.AUG.2018 16:03:05

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



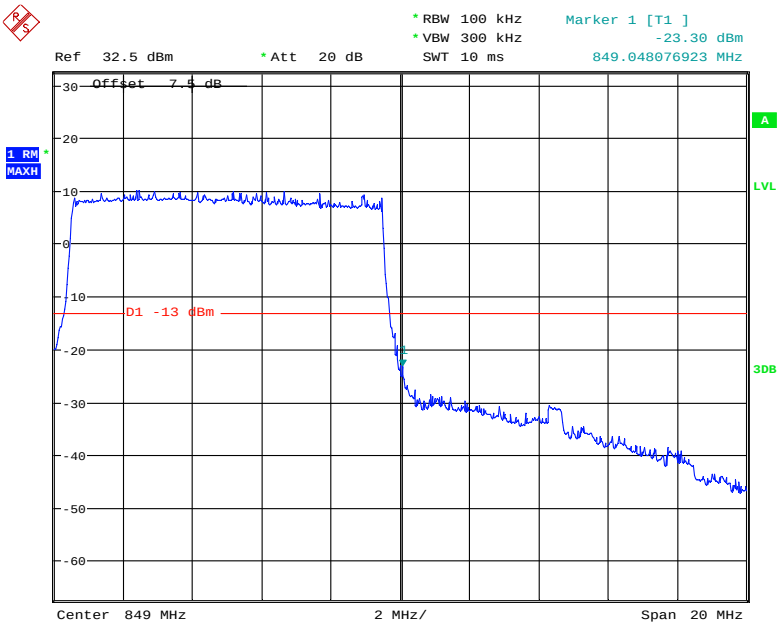
Date: 4.AUG.2018 16:06:02

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



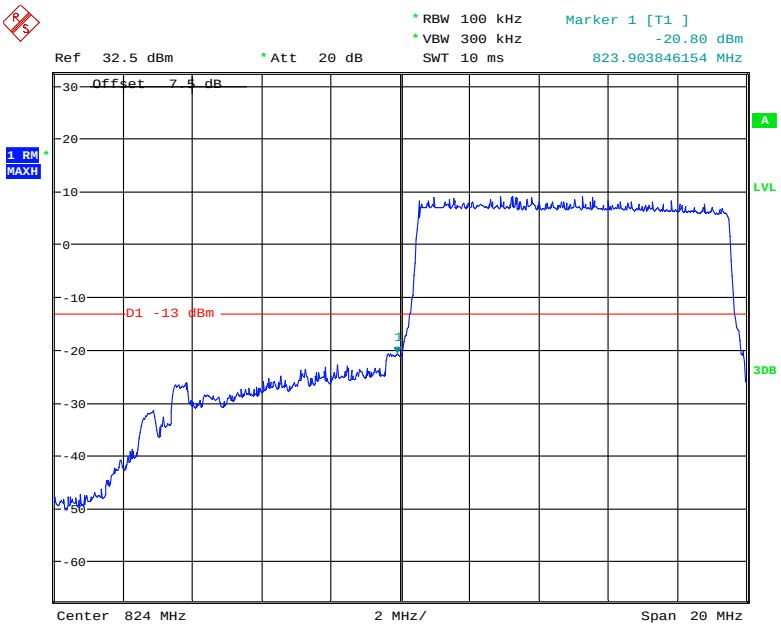
Date: 4.AUG.2018 16:12:02

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



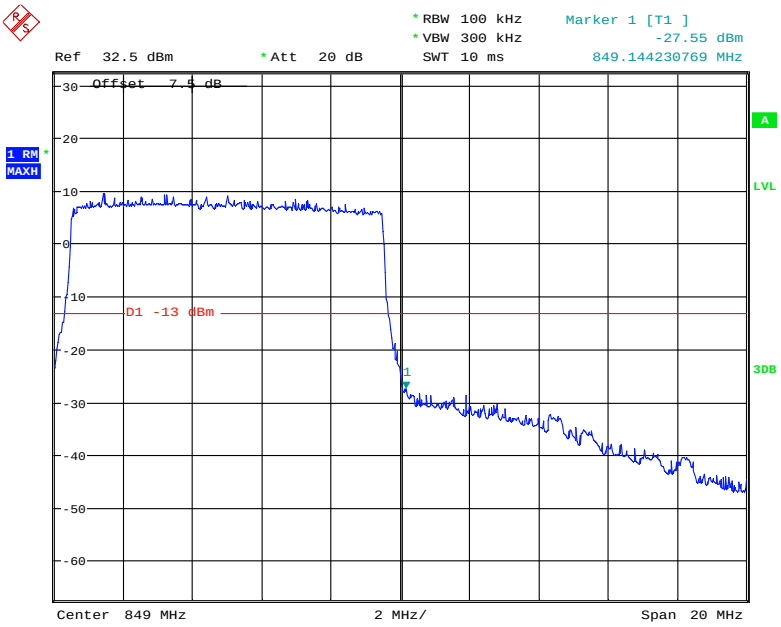
Date: 4.AUG.2018 16:08:04

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



Date: 4.AUG.2018 16:10:54

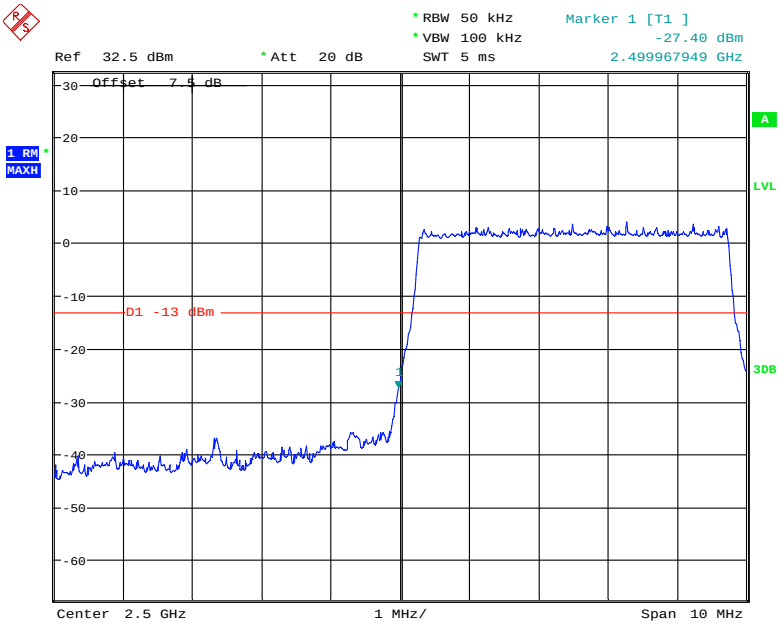
16-QAM (10.0 MHz, FULL RB) - Right Band Edge



Date: 4.AUG.2018 16:09:08

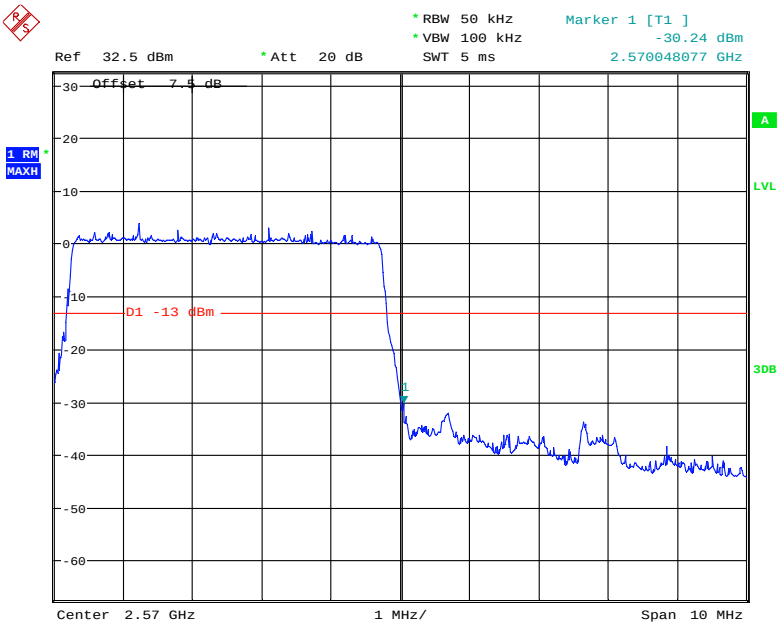
Band 7:

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



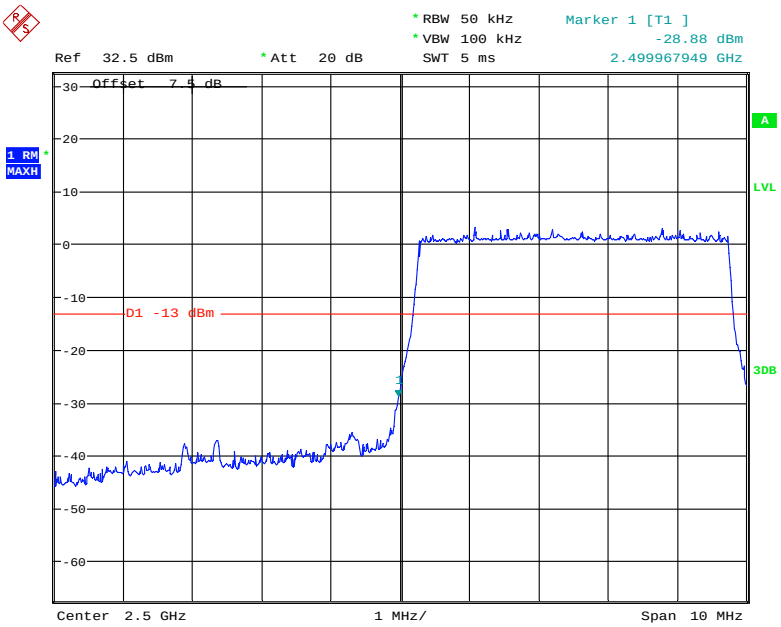
Date: 4.AUG.2018 16:15:46

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



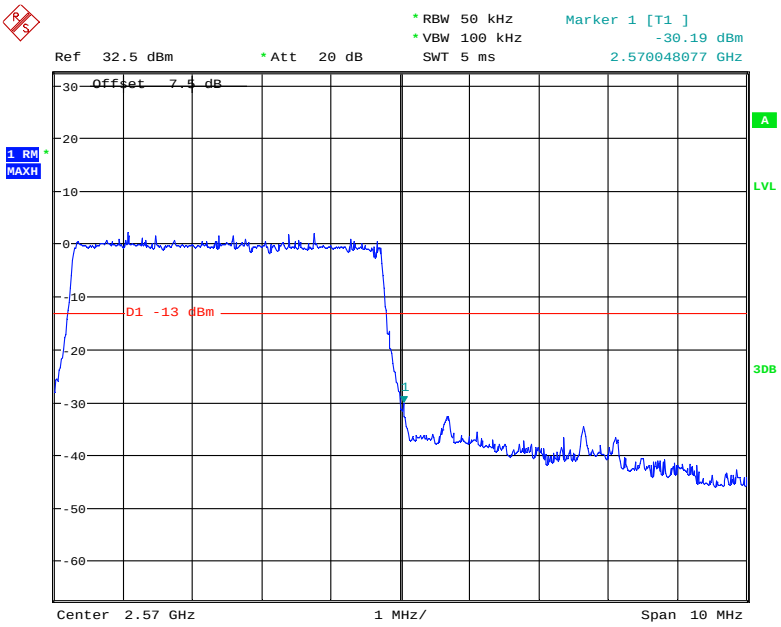
Date: 4.AUG.2018 16:17:09

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



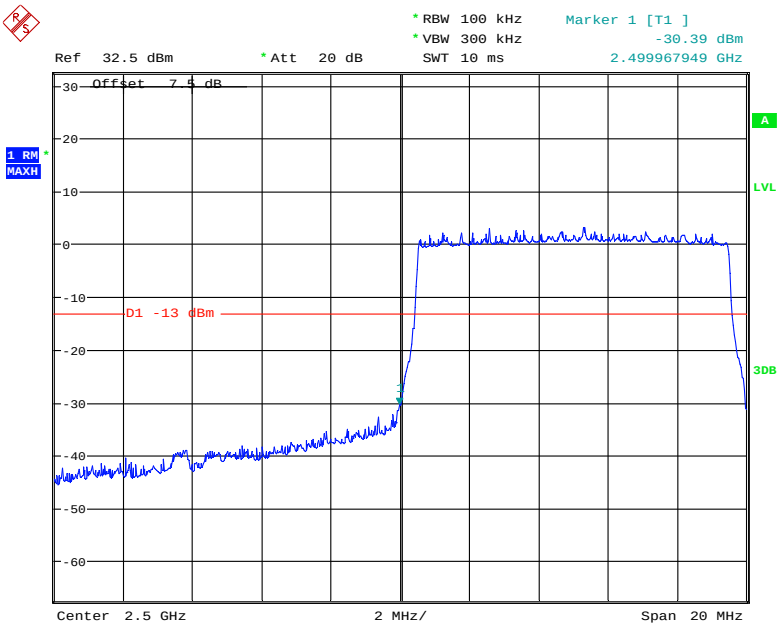
Date: 4.AUG.2018 16:14:12

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



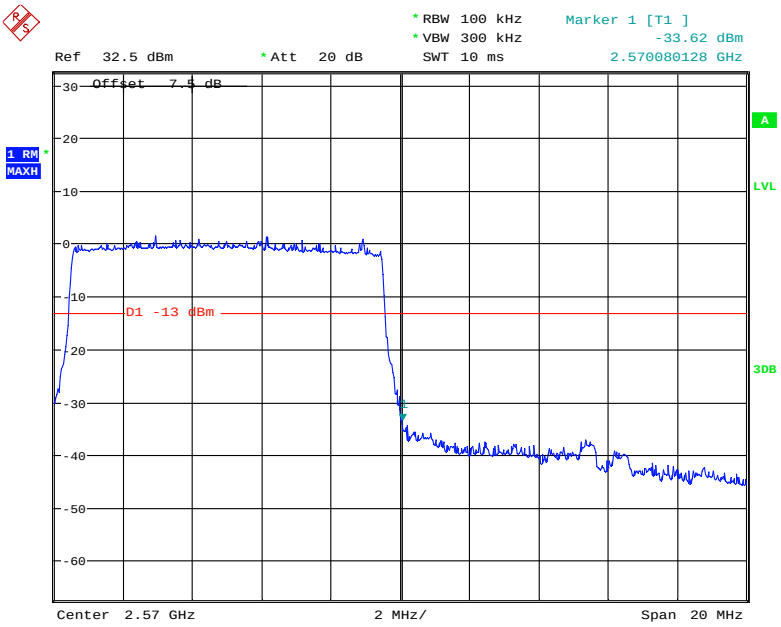
Date: 4.AUG.2018 16:18:00

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



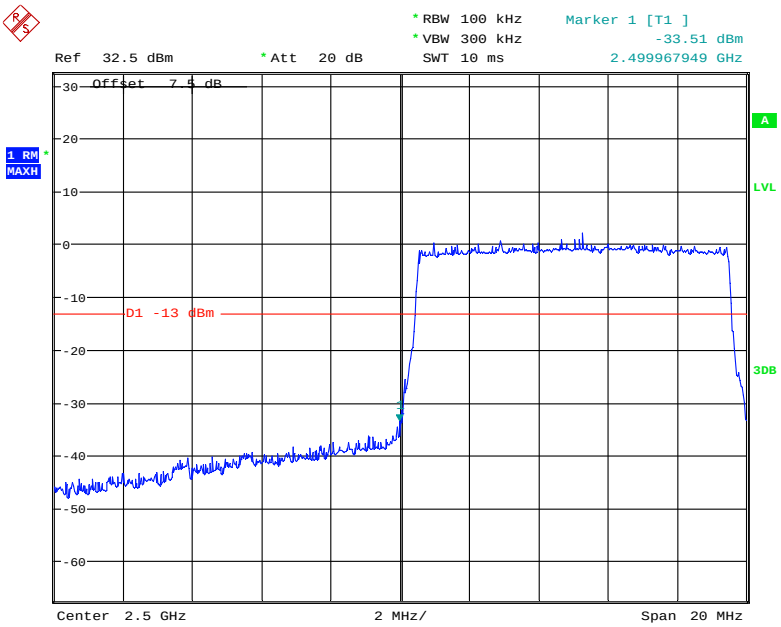
Date: 4.AUG.2018 16:32:00

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



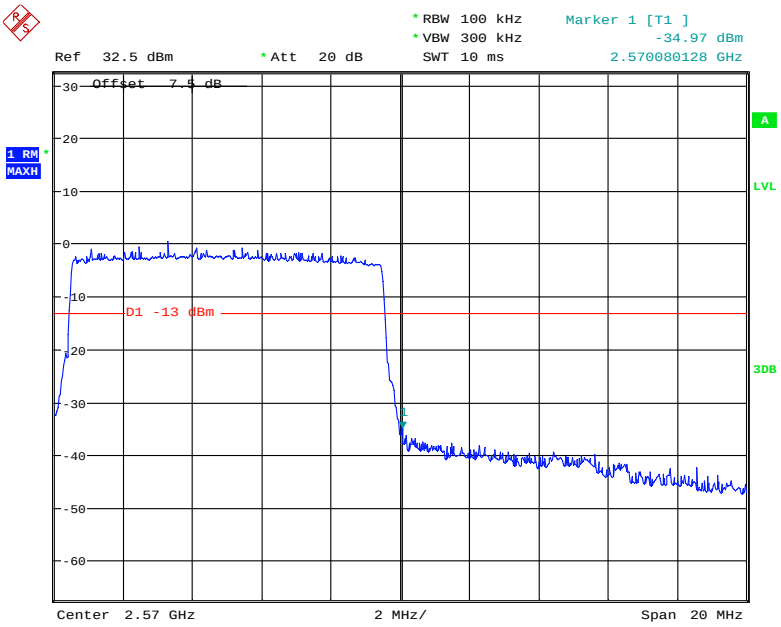
Date: 4.AUG.2018 16:20:19

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



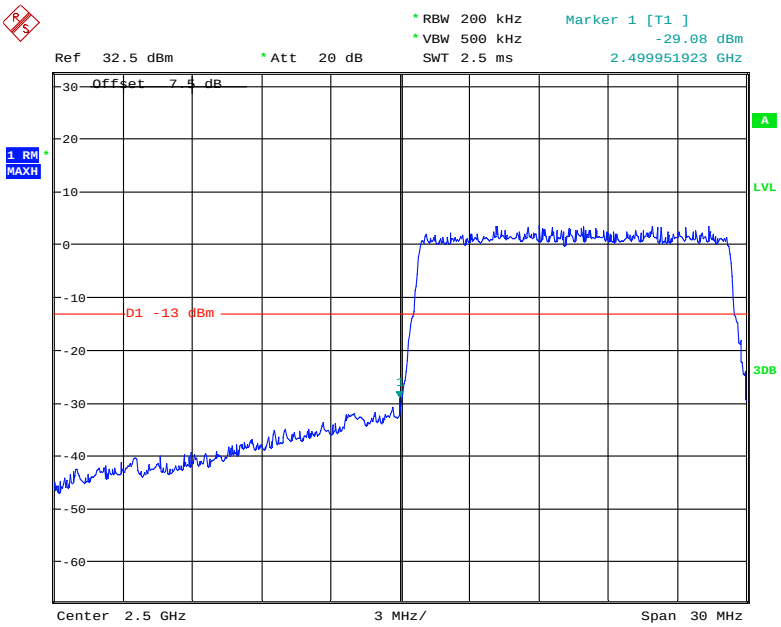
Date: 4.AUG.2018 16:30:14

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



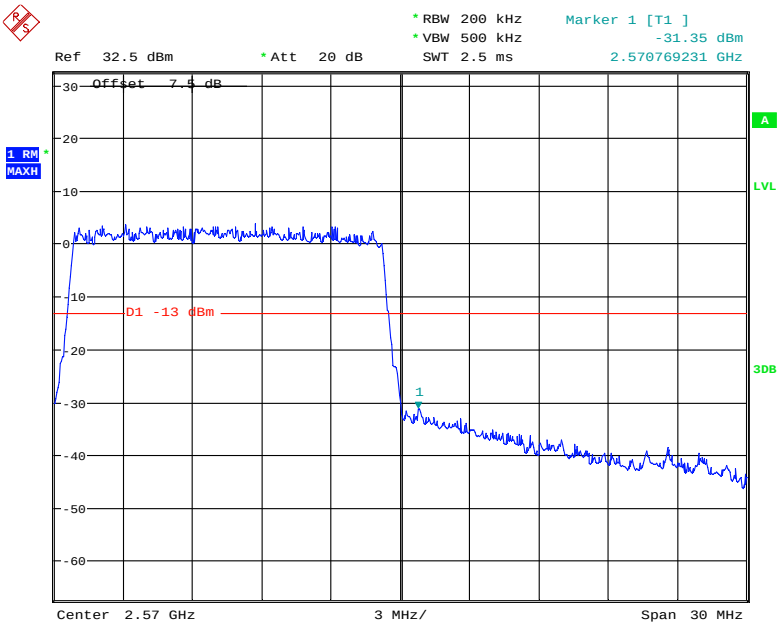
Date: 4.AUG.2018 16:21:20

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



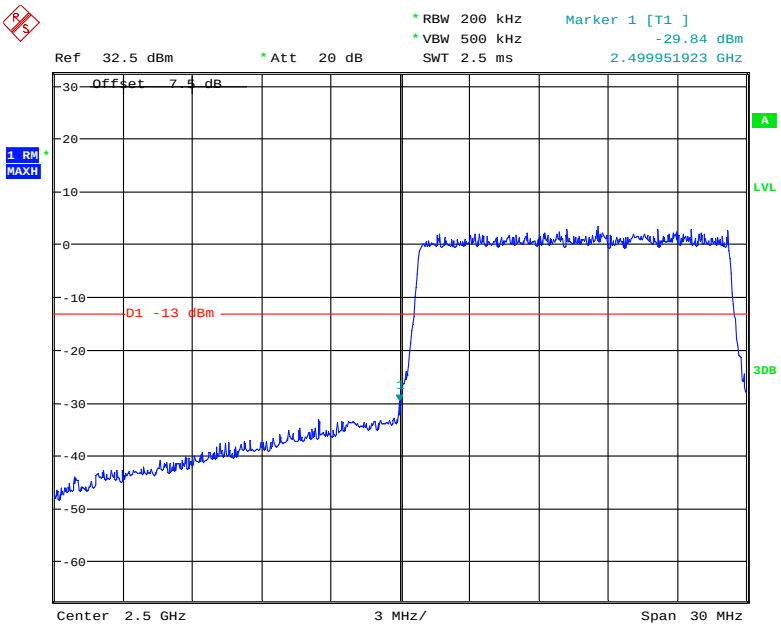
Date: 4.AUG.2018 16:33:48

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



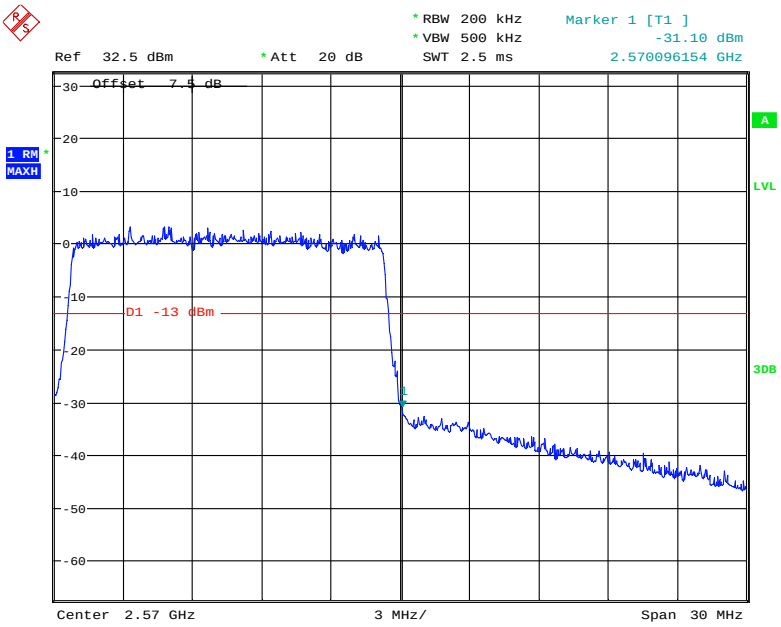
Date: 4.AUG.2018 16:36:38

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



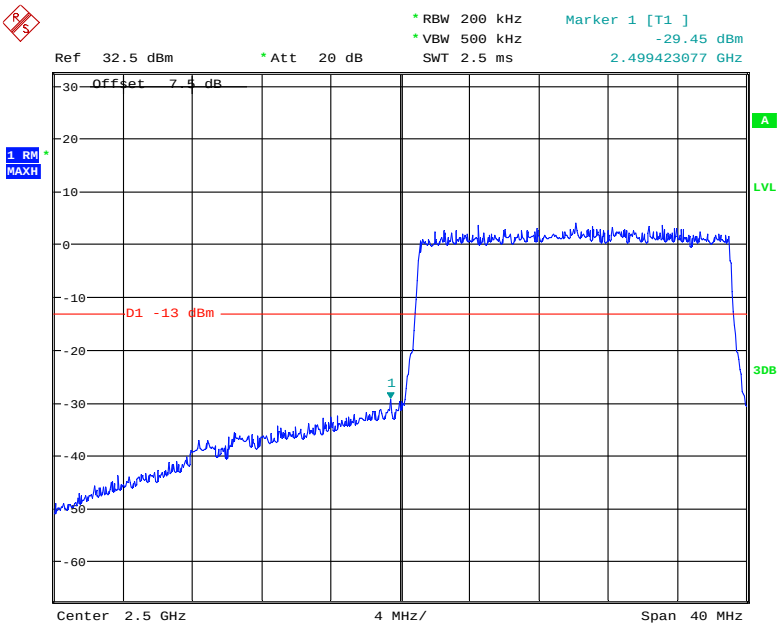
Date: 4.AUG.2018 16:34:40

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



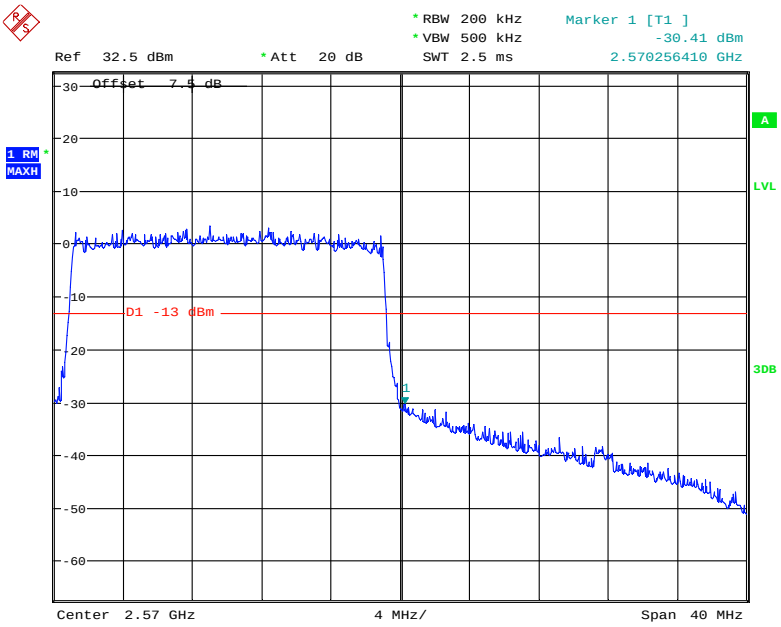
Date: 4.AUG.2018 16:35:51

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



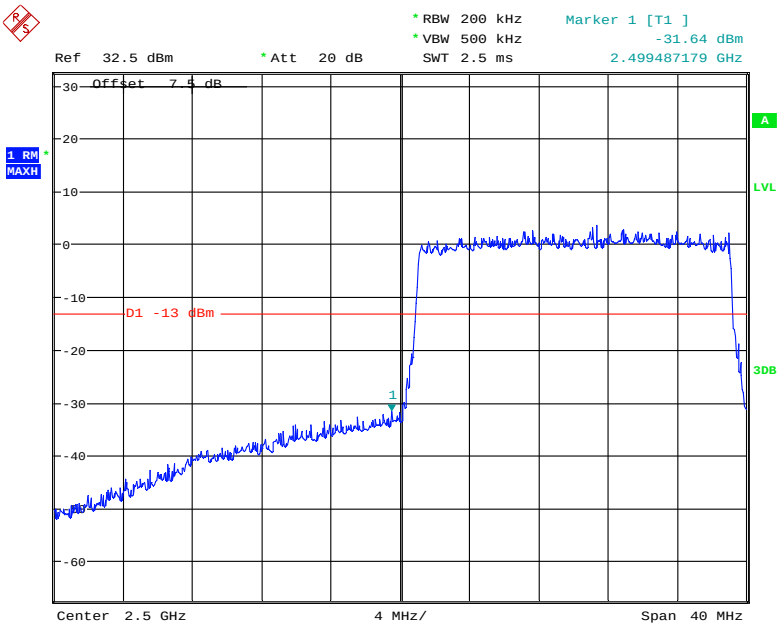
Date: 4.AUG.2018 16:41:04

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



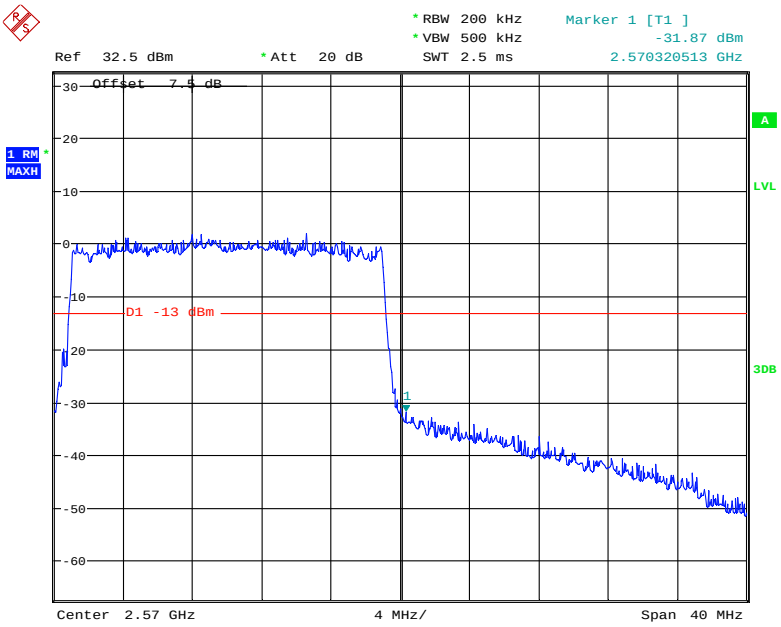
Date: 4.AUG.2018 16:38:08

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



Date: 4.AUG.2018 16:40:13

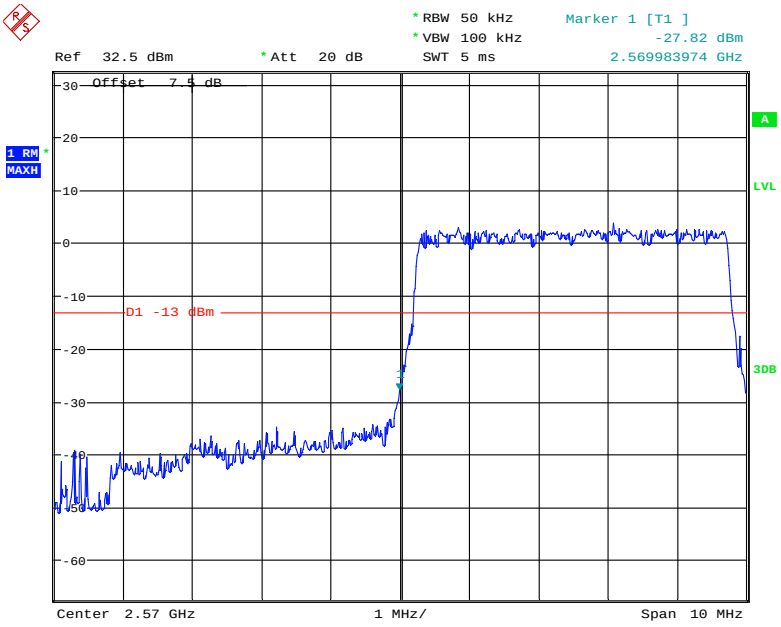
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



Date: 4.AUG.2018 16:38:50

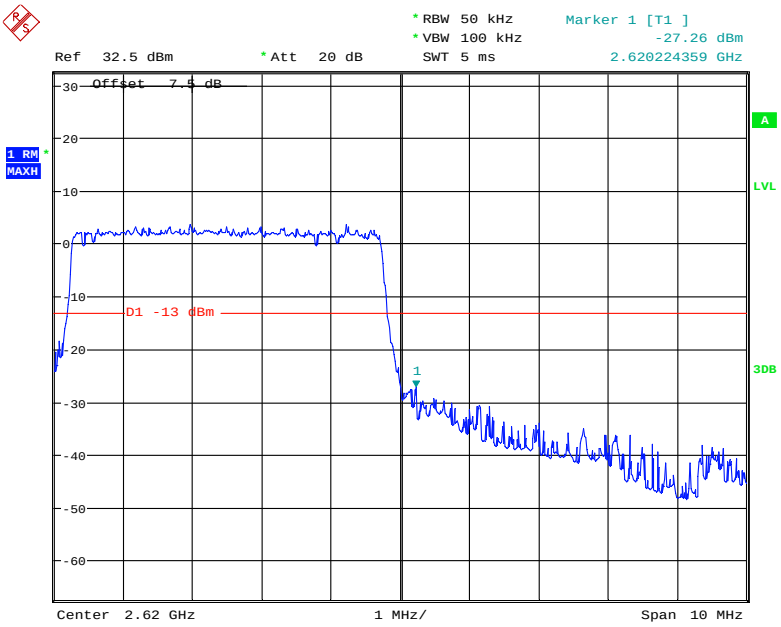
Band 38:

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



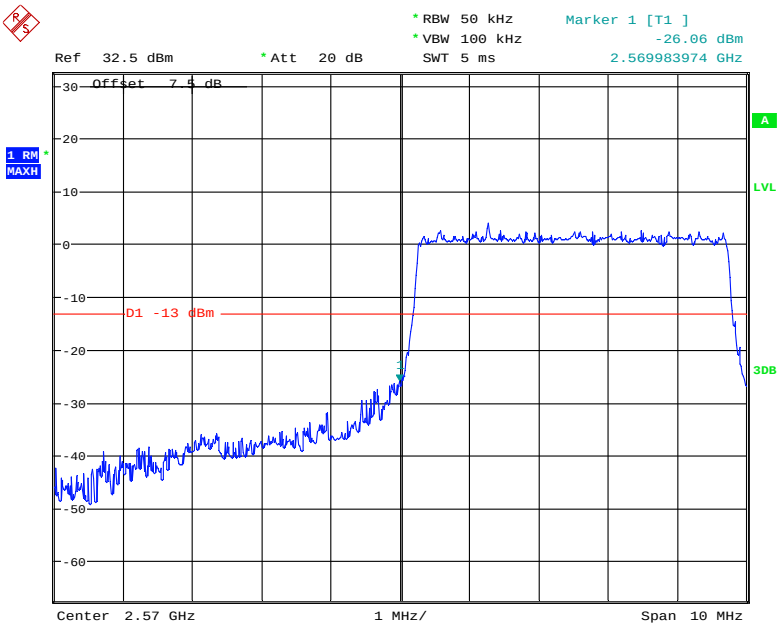
Date: 4.AUG.2018 17:05:55

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



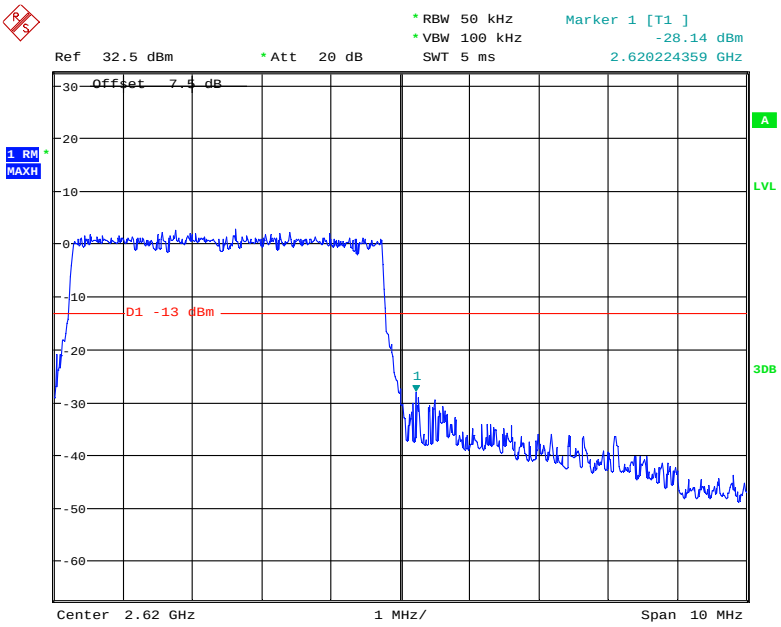
Date: 4.AUG.2018 17:05:08

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



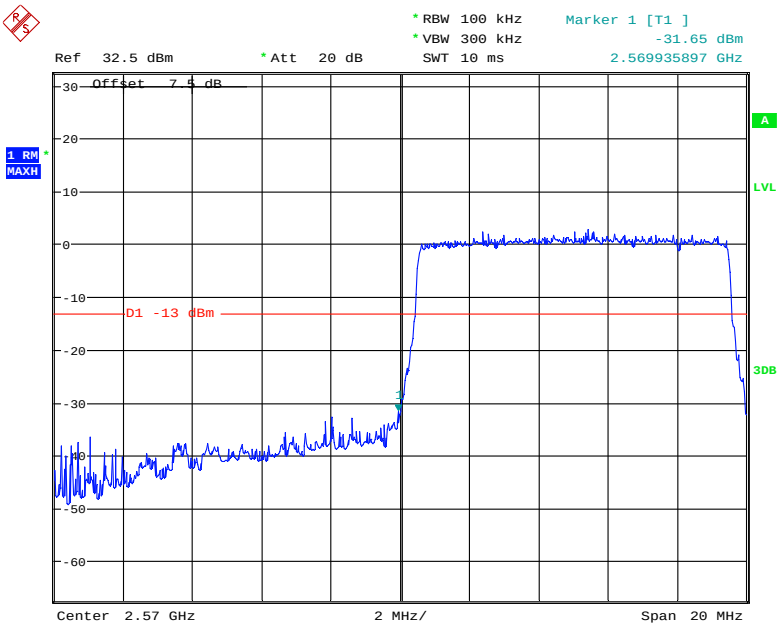
Date: 4.AUG.2018 17:06:46

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



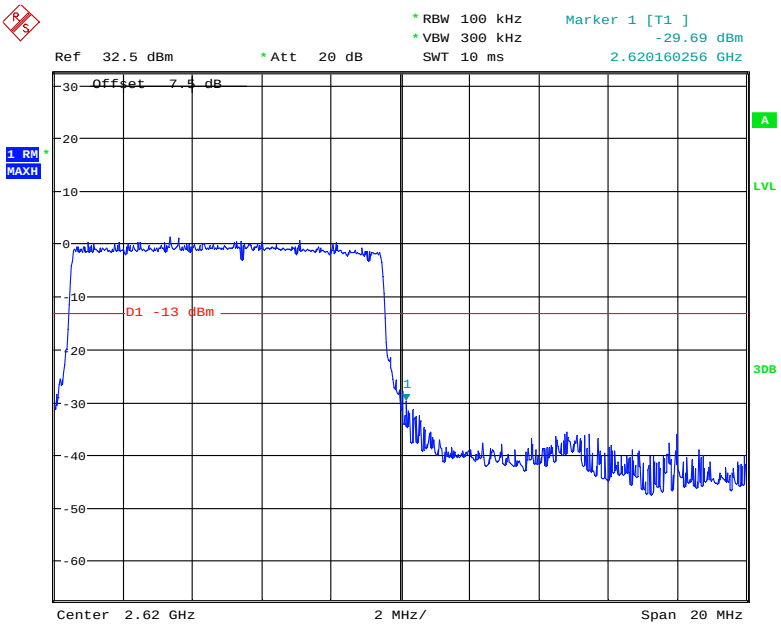
Date: 4.AUG.2018 17:04:28

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



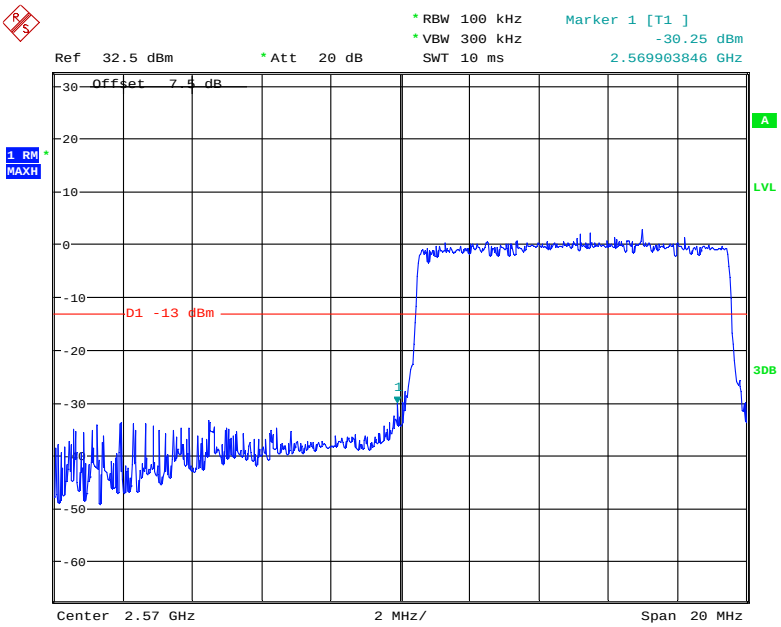
Date: 4.AUG.2018 17:00:14

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



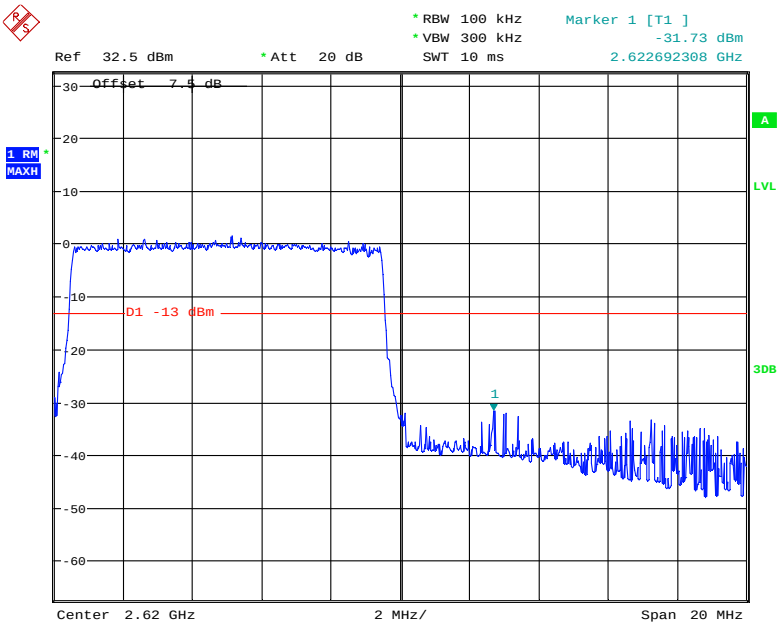
Date: 4.AUG.2018 17:02:57

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



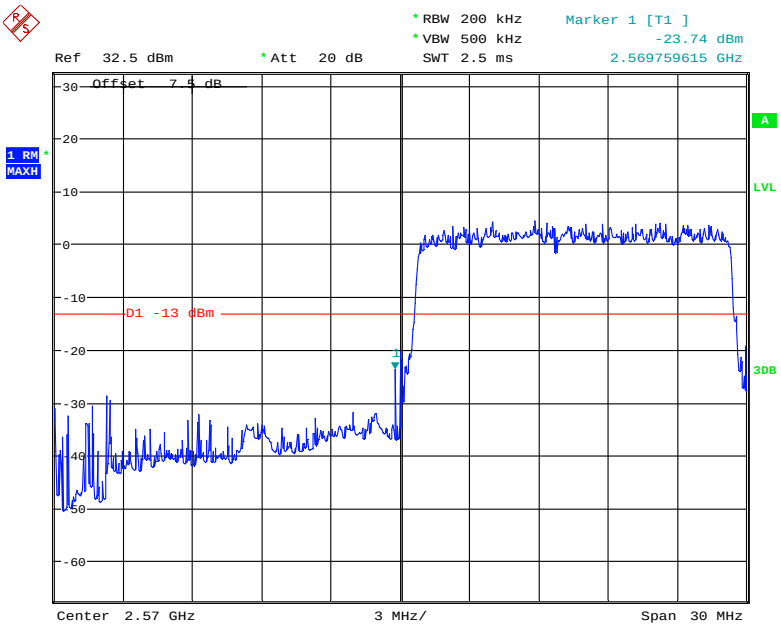
Date: 4.AUG.2018 17:00:52

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



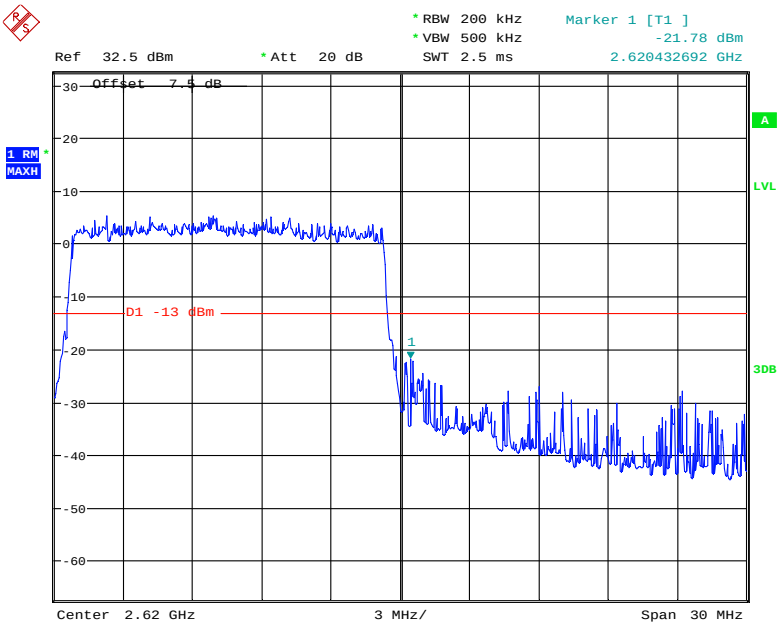
Date: 4.AUG.2018 17:01:45

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



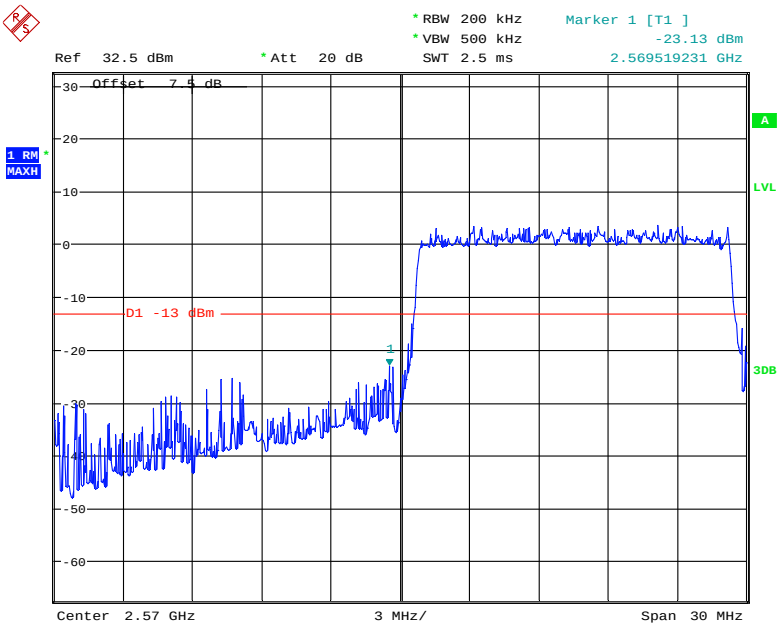
Date: 4.AUG.2018 16:59:03

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



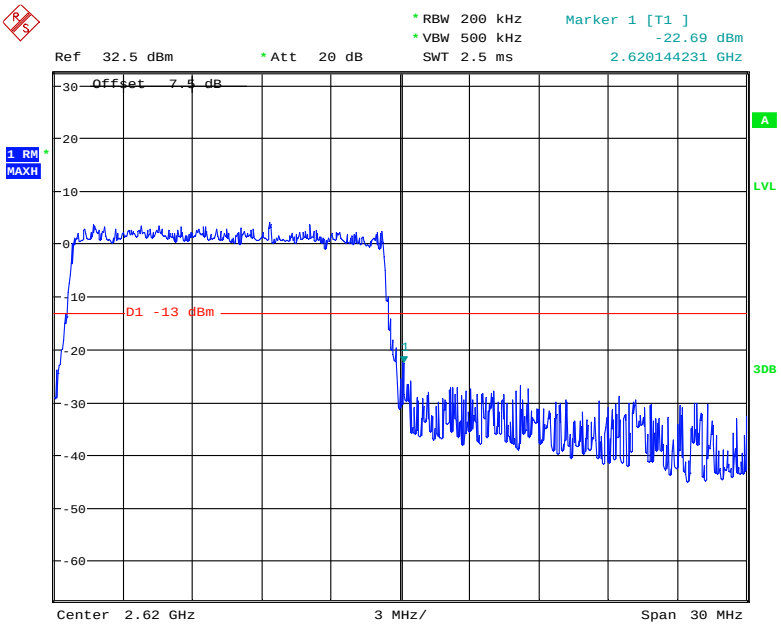
Date: 4.AUG.2018 16:54:26

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



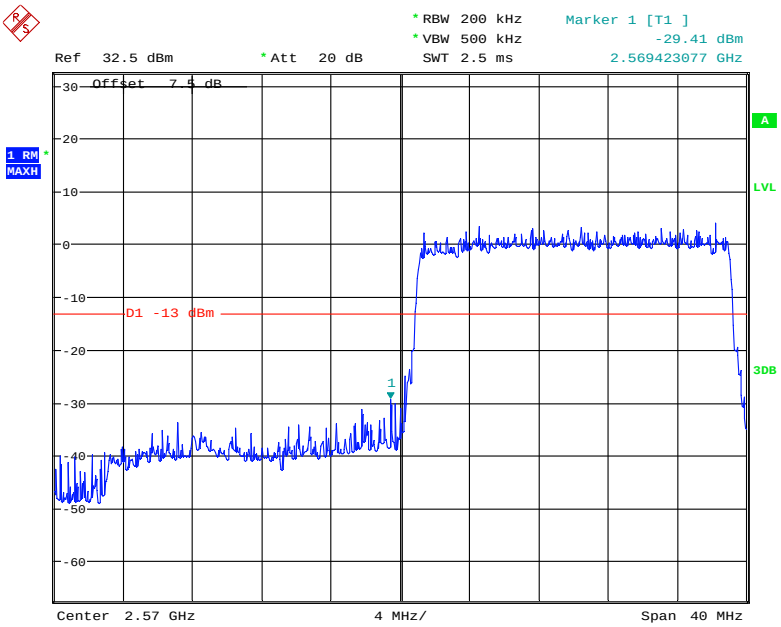
Date: 4.AUG.2018 16:58:14

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



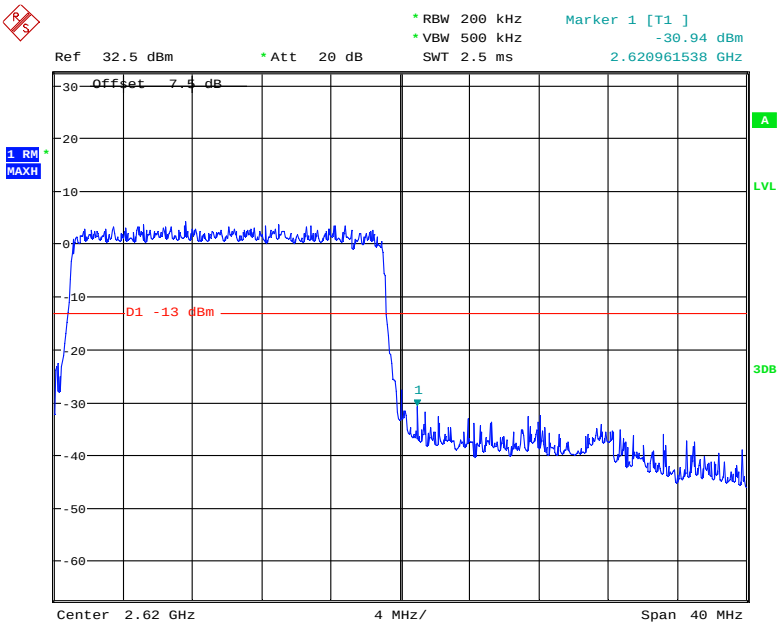
Date: 4.AUG.2018 16:56:36

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



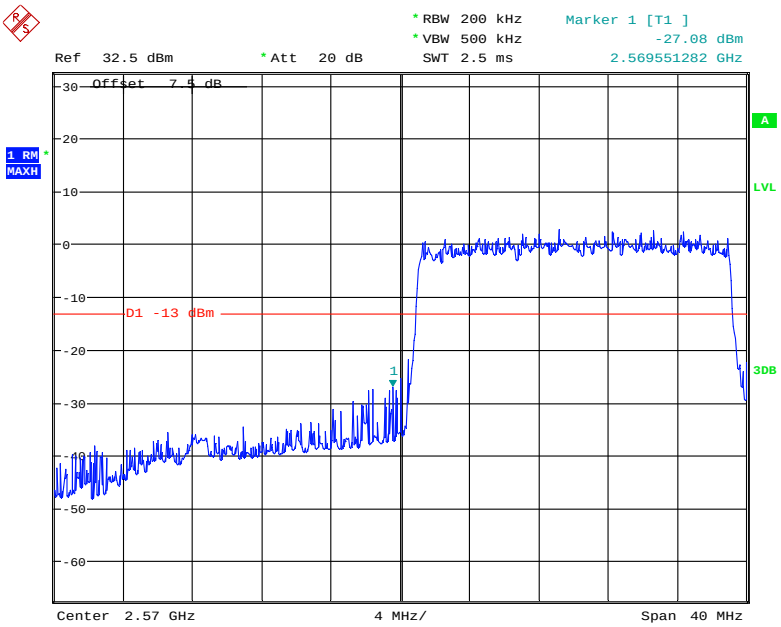
Date: 4.AUG.2018 16:49:33

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



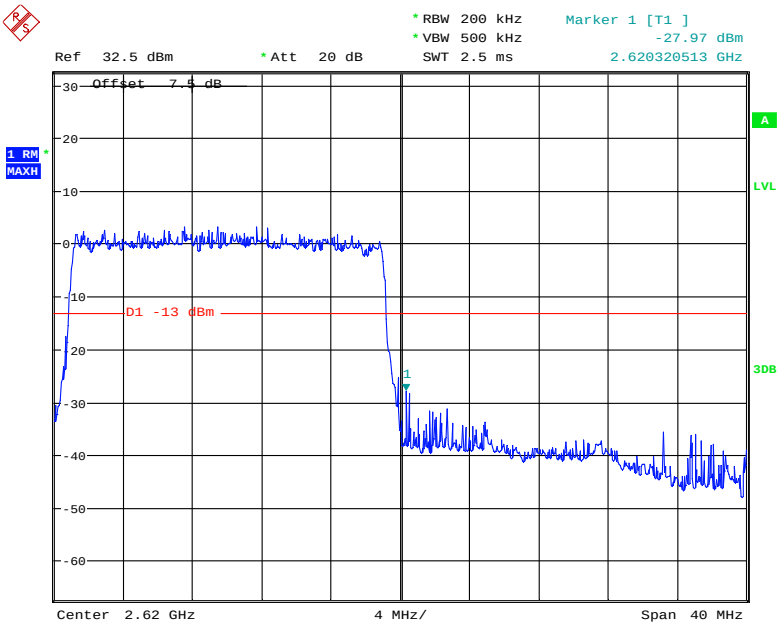
Date: 4.AUG.2018 16:53:02

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



Date: 4.AUG.2018 16:50:17

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



Date: 4.AUG.2018 16:52:04

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

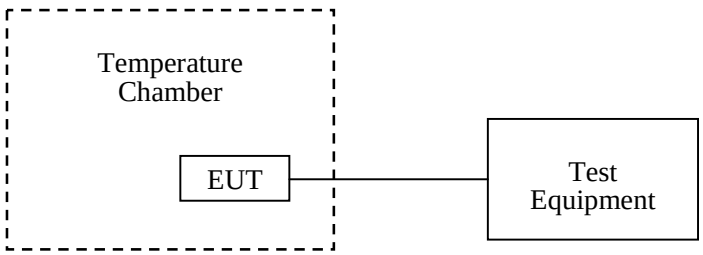
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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 2018-09-20.

EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the following tables.
Note: for 3G & 4G, testing performance at antenna 2 port.

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	3.83	4	0.0048	2.5
-20		2	0.0024	2.5
-10		8	0.0096	2.5
0		5	0.0060	2.5
10		6	0.0072	2.5
20		7	0.0084	2.5
30		3	0.0036	2.5
40		4	0.0048	2.5
50		5	0.0060	2.5
20	V min.= 3.5	8	0.0096	2.5
	V max.= 4.35	10	0.0120	2.5

EDGE Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.83	3	0.0036	2.5
-20		6	0.0072	2.5
-10		9	0.0108	2.5
0		7	0.0084	2.5
10		4	0.0048	2.5
20		5	0.0060	2.5
30		3	0.0036	2.5
40		2	0.0024	2.5
50		6	0.0072	2.5
20	V min.= 3.5	7	0.0084	2.5
	V max.= 4.35	9	0.0108	2.5

WCDMA Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.83	9	0.0108	2.5
-20		7	0.0084	2.5
-10		5	0.0060	2.5
0		6	0.0072	2.5
10		3	0.0036	2.5
20		4	0.0048	2.5
30		2	0.0024	2.5
40		5	0.0060	2.5
50		3	0.0036	2.5
20	V min.= 3.5	7	0.0084	2.5
	V max.= 4.35	4	0.0048	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	3.83	13	0.0069	pass
-20		17	0.0090	pass
-10		12	0.0064	pass
0		10	0.0053	pass
10		6	0.0032	pass
20		10	0.0053	pass
30		18	0.0096	pass
40		12	0.0064	pass
50		9	0.0048	pass
20	V min.= 3.5	10	0.0053	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)**	**Result**
-30	3.83	3	0.0016	pass
-20		5	0.0027	pass
-10		6	0.0032	pass
0		9	0.0048	pass
10		7	0.0037	pass
20		8	0.0043	pass
30		5	0.0027	pass
40		3	0.0016	pass
50		1	0.0005	pass
20	V min.= 3.5	5	0.0027	pass
	V max.= 4.35	8	0.0043	pass

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.83	1	0.0005	pass
-20		3	0.0016	pass
-10		4	0.0021	pass
0		7	0.0037	pass
10		5	0.0027	pass
20		2	0.0011	pass
30		-2	-0.0011	pass
40		1	0.0005	pass
50		-3	-0.0016	pass
20	V min.= 3.5	3	0.0016	pass
	V max.= 4.35	7	0.0037	pass

AWS Band (Part 27)

WCDMA Mode

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.83	1710.0053	1754.9948	1710	1755
-20		1710.0036	1754.9962	1710	1755
-10		1710.0050	1754.9949	1710	1755
0		1710.0024	1754.9968	1710	1755
10		1710.0028	1754.9972	1710	1755
20		1710.0018	1754.9973	1710	1755
30		1710.0073	1754.9997	1710	1755
40		1710.0005	1754.9992	1710	1755
50		1710.0010	1754.9964	1710	1755
20	V min.= 3.5	1710.0024	1754.9946	1710	1755
	V max.= 4.35	1710.0052	1754.9946	1710	1755

LTE:
QPSK:

Band 2:

20.0 MHz Middle Channel, f_o =1880 MHz				
Temperature (℃)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.83	-8	-0.0043	pass
-20		-7	-0.0037	pass
-10		-4	-0.0021	pass
0		-5	-0.0027	pass
10		-2	-0.0011	pass
20		-5	-0.0027	pass
30		-1	-0.0005	pass
40		1	0.0005	pass
50		3	0.0016	pass
20	V min.= 3.5	5	0.0027	pass
	V max.= 4.35	7	0.0037	pass

Band 4:

20 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.83	1710.4532	1754.4899	1710	1755
-20		1710.4473	1754.4915	1710	1755
-10		1710.4475	1754.4871	1710	1755
0		1710.4497	1754.4916	1710	1755
10		1710.4487	1754.4872	1710	1755
20		1710.4537	1754.4869	1710	1755
30		1710.4482	1754.4904	1710	1755
40		1710.4486	1754.4915	1710	1755
50		1710.4527	1754.4891	1710	1755
20	V min.= 3.5	1710.4528	1754.4871	1710	1755
	V max.= 4.35	1710.4527	1754.4853	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	3.83	-11	-0.0132	2.5
-20		-9	-0.0108	2.5
-10		-7	-0.0084	2.5
0		-5	-0.0060	2.5
10		-4	-0.0048	2.5
20		-9	-0.0108	2.5
30		-2	-0.0024	2.5
40		1	0.0012	2.5
50		3	0.0036	2.5
20	V min.= 3.5	5	0.0060	2.5
	V max.= 4.35	4	0.0048	2.5

Band 7:

20 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.83	2500.3258	2569.7855	2500	2570
-20		2500.3288	2569.7873	2500	2570
-10		2500.3309	2569.7856	2500	2570
0		2500.3245	2569.7853	2500	2570
10		2500.3269	2569.7882	2500	2570
20		2500.3283	2569.7864	2500	2570
30		2500.3313	2569.7862	2500	2570
40		2500.3241	2569.7916	2500	2570
50		2500.3301	2569.7872	2500	2570
20	V min.= 3.5	2500.3309	2569.7905	2500	2570
	V max.= 4.35	2500.3248	2569.7853	2500	2570

Band 38:

20 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.83	2570.3260	2619.7847	2570	2620
-20		2570.3246	2619.7860	2570	2620
-10		2570.3307	2619.7853	2570	2620
0		2570.3251	2619.7871	2570	2620
10		2570.3265	2619.7821	2570	2620
20		2570.3260	2619.7795	2570	2620
30		2570.3286	2619.7844	2570	2620
40		2570.3244	2619.7865	2570	2620
50		2570.3288	2619.7842	2570	2620
20	V min.= 3.5	2570.3300	2619.7833	2570	2620
	V max.= 4.35	2570.3273	2619.7725	2570	2620

16QAM:

Band 2:

20.0 MHz Middle Channel, f_o=1880 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.83	-10	-0.0053	pass
-20		-9	-0.0048	pass
-10		-7	-0.0037	pass
0		-6	-0.0032	pass
10		-4	-0.0021	pass
20		-6	-0.0032	pass
30		-1	-0.0005	pass
40		2	0.0011	pass
50		1	0.0005	pass
20	V min.= 3.5	3	0.0016	pass
	V max.= 4.35	4	0.0021	pass

Band 4:

20 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.83	1710.4464	1754.4854	1710	1755
-20		1710.4520	1754.4863	1710	1755
-10		1710.4530	1754.4892	1710	1755
0		1710.4480	1754.4865	1710	1755
10		1710.4482	1754.4879	1710	1755
20		1710.4478	1754.4871	1710	1755
30		1710.4529	1754.4876	1710	1755
40		1710.4525	1754.4857	1710	1755
50		1710.4482	1754.4909	1710	1755
20	V min.= 3.5	1710.4458	1754.4891	1710	1755
	V max.= 4.35	1710.4437	1754.4862	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	3.83	-9	-0.0108	2.5
-20		-7	-0.0084	2.5
-10		-4	-0.0048	2.5
0		-6	-0.0072	2.5
10		-5	-0.0060	2.5
20		-6	-0.0072	2.5
30		-2	-0.0024	2.5
40		-1	-0.0012	2.5
50		1	0.0012	2.5
20	V min.= 3.5	3	0.0036	2.5
	V max.= 4.35	5	0.0060	2.5

Band 7:

20 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.83	2500.3236	2569.7872	2500	2570
-20		2500.3288	2569.7895	2500	2570
-10		2500.3237	2569.7878	2500	2570
0		2500.3270	2569.7865	2500	2570
10		2500.3245	2569.7853	2500	2570
20		2500.3222	2569.7882	2500	2570
30		2500.3220	2569.7865	2500	2570
40		2500.3221	2569.7886	2500	2570
50		2500.3253	2569.7879	2500	2570
20	V min.= 3.5	2500.3265	2569.7868	2500	2570
	V max.= 4.35	2500.3237	2569.7866	2500	2570

Band 38:

20 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.83	2570.3275	2619.7776	2570	2620
-20		2570.3318	2619.7798	2570	2620
-10		2570.3312	2619.7821	2570	2620
0		2570.3345	2619.7807	2570	2620
10		2570.3302	2619.7796	2570	2620
20		2570.3312	2619.7790	2570	2620
30		2570.3313	2619.7818	2570	2620
40		2570.3294	2619.7777	2570	2620
50		2570.3337	2619.7820	2570	2620
20	V min.= 3.5	2570.3304	2619.7788	2570	2620
	V max.= 4.35	2570.3318	2619.7782	2570	2620

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