FCC PART 27

FCC PART 22H, PART 24E

TEST REPORT

For

BLU Products, Inc.

10814 NW 33rd St # 100 Doral, FL 33172, United States

FCC ID: YHLBLUVIVOXL3

Report Type:	**Product Type:**
Original Report	Mobile phone

Report Number: RSZ171017001-00D

Report Date: 2017-11-08

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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *BLU Products, Inc.'s* product, model number: VIVO XL3 *(FCC ID: YHLBLUVIVOXL3)* or the "EUT" in this report was a *Mobile phone*, which was measured approximately: 15.7 cm (L) × 7.7 cm (W) × 0.9 cm (H), rated with input voltage: DC 3.85 V battery or DC 5V from adapter.

Adapter Information:
Model: US-BM-1500
Input: AC 100-240V, 50/60Hz, 0.25A
Output: DC 5V, 1550 mA

**All measurement and test data in this report was gathered from production sample serial number: 1702245 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2017-10-17.*

Objective

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

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

Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS & DSS and Part 15B JBP submissions with FCC ID: YHLBLUVIVOXL3.

Test Methodology

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

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

Applicable Standards: TIA/EIA 603-D.

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

Measurement Uncertainty

Parameter		uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±1.5dB
Unwanted Emission, conducted		±1.5dB
Emissions, radiated	Below 1GHz	±4.70dB
	Above 1GHz	±4.80dB
Temperature		±1℃
Supply voltages		±0.4%

Test Facility

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

Bay Area Compliance Laboratories Corp. (Shenzhen) has been accredited to ISO/IEC 17025 by CNAS(Lab code: L2408). And accredited to ISO/IEC 17025 by NVLAP(Lab code: 200707-0), the FCC Designation No. CN5001 under the KDB 974614 D01.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Bay Area Compliance Laboratories Corp. (Shenzhen) was registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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

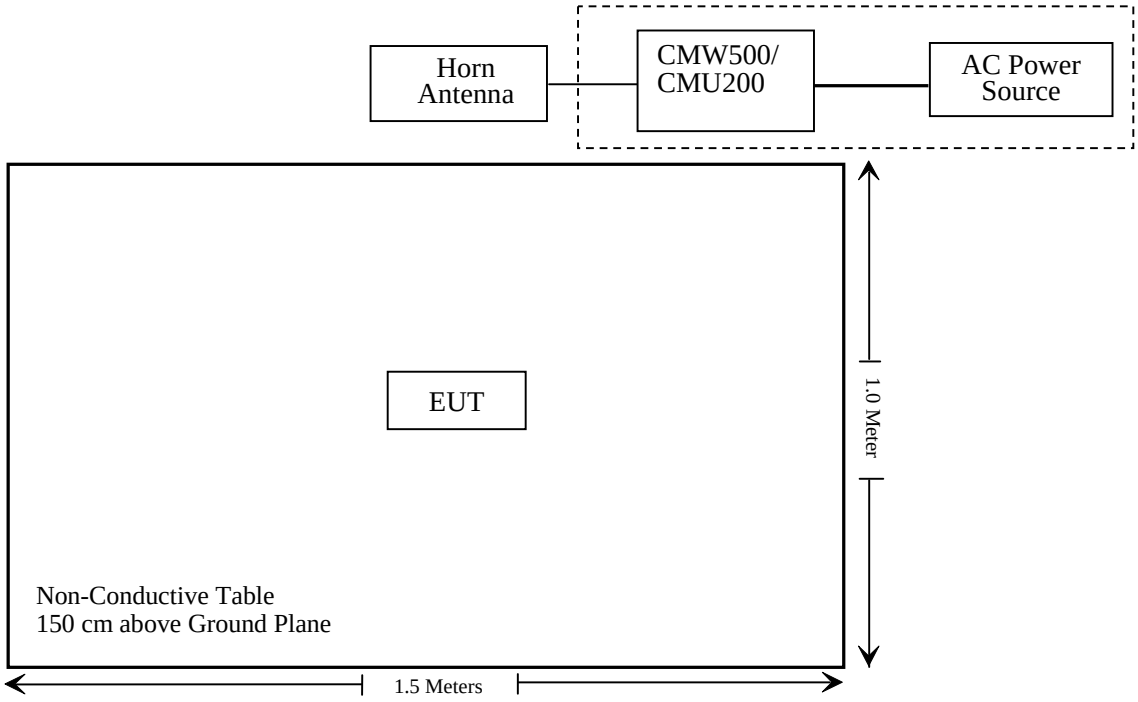
Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

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

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

Note: * Please refer to SAR report released by BACL, report number: RSZ171017001-20A.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Sunol Sciences	Horn Antenna	DRH-118	A052604	2014-12-29	2017-12-28
Rohde & Schwarz	Signal ANALYZER	FSIQ26	8386001028	2017-04-24	2018-04-24
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-17	2017-12-16
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2017-02-14	2018-02-14
HP	Amplifier	HP8447E	1937A01046	2017-05-21	2017-11-19
Anritsu	Signal Generator	68369B	004114	2016-12-05	2017-12-05
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2016-12-07	2017-12-07
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	104PEA	218124002	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	RG-214	1	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	RG-214	2	2017-05-22	2017-11-22
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-04	2014-12-29	2017-12-28
Ducommun technologies	Horn Antenna	ARH-4223-02	1007726-03	2014-12-29	2017-12-28
Ducommun technologies	Pre-amplifier	ALN-22093530-01	991373-01	2017-08-03	2018-08-03

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2016-12-05	2017-12-05
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2016-11-22	2017-11-22
Long Wei	DC Power Supply	TPR-6420D	398363	NCR	NCR
Aglient	ESG Vector Signal Generator	E4438C	MY42080875	2017-05-09	2018-05-09
Rohde & Schwarz	Wideband Radio Communication Tester	CMU200	106891	2017-10-18	2018-10-18
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2017-04-24	2018-04-24
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2017-08-17	2018-08-17
Ducommun technologies	RF Cable	RG-214	3	2017-05-22	2017-11-22
WEINSCHEL	10dB Attenuator	5324	AU 3842	2017-05-23	2017-11-22
WEINSCHEL	3dB Attenuator	N/A	N/A	2017-05-23	2017-11-22
N/A	Power Splitter	N/A	N/A	2017-05-21	2018-05-21

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

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

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ171017001-20A.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

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

Applicable Standard

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

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

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

According to §27.50(c),Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

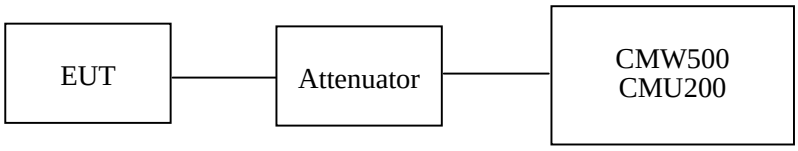
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz.

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

Test Procedure

Conducted method:

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



Radiated method:

TIA 603-D section 2.2.17

Test Data

Environmental Conditions

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

The testing was performed by Kobe Li on 2017-10-17.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	31.36	38.45
	190	836.6	31.44	38.45
	251	848.8	31.40	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	31.45	30.24	28.05	26.16	38.45
	190	836.6	31.47	30.27	28.15	26.24	38.45
	251	848.8	31.42	30.28	28.08	26.11	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	25.32	24.23	23.18	22.06	38.45
	190	836.6	25.32	24.22	23.17	22.07	38.45
	251	848.8	25.30	24.21	23.16	22.06	38.45

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	RMC12.2k		21.80	21.93	21.83
		HSDPA	1	20.57	20.68	20.75
			2	20.51	20.61	20.66
			3	20.63	20.71	20.85
			4	20.48	20.56	20.71
		HSUPA	1	20.14	20.16	19.99
			2	20.01	20.13	19.87
			3	20.20	20.21	20.06
			4	20.07	20.11	19.90
			5	20.23	20.22	20.07
		DC-HSDPA	1	20.73	20.79	20.82
			2	20.64	20.68	20.71
			3	20.70	20.77	20.72
			4	20.63	20.75	20.79
		HSPA+	1	20.91	20.94	20.88

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	29.07	33
	661	1880.0	28.83	33
	810	1909.8	28.60	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.11	28.19	26.85	25.19	33
	661	1880.0	28.77	27.96	26.45	24.91	33
	810	1909.8	28.62	27.69	26.15	24.53	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	24.02	22.94	21.79	20.65	33
	661	1880.0	23.62	22.56	21.38	20.23	33
	810	1909.8	23.27	22.23	21.02	19.91	33

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	RMC12.2k		21.97	21.81	21.68
		HSDPA	1	20.83	20.64	20.48
			2	20.77	20.53	20.44
			3	20.95	20.73	20.56
			4	20.71	20.56	20.38
		HSUPA	1	20.33	20.15	20.03
			2	20.21	20.02	19.95
			3	20.38	20.27	20.10
			4	20.29	20.03	19.92
			5	20.44	20.24	20.08
		DC-HSDPA	1	20.82	20.85	20.90
			2	20.74	20.69	20.83
			3	20.77	20.74	20.78
			4	20.76	20.81	20.85
		HSPA+	1	21.02	21.08	21.01

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	0.21	13
	Middle	0.16	13
	High	0.19	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	0.34	13
	Middle	0.32	13
	High	0.28	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.47	13
	Middle	3.58	13
	High	3.61	13
HSDPA (16QAM)	Low	3.62	13
	Middle	4.23	13
	High	5.66	13
HSUPA (BPSK)	Low	5.19	13
	Middle	5.41	13
	High	4.44	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	0.23	13
	Middle	0.09	13
	High	0.13	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	0.33	13
	Middle	0.25	13
	High	0.41	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.45	13
	Middle	3.58	13
	High	3.23	13
HSDPA (16QAM)	Low	4.35	13
	Middle	4.38	13
	High	4.24	13
HSUPA (BPSK)	Low	5.70	13
	Middle	4.12	13
	High	4.33	13

Radiated Power

GSM Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
ERP for Cellular Band (Part 22H), Middle Channel										
836.6	77.76	64	1.4	H	17.7	0.5	0	17.20	38.45	21.25
836.6	89.20	266	1.4	V	30.1	0.5	0	29.60	38.45	8.85
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	90.44	208	1.1	H	20.4	1.30	8.50	27.60	33	5.40
1880.00	86.60	298	1.2	V	16.3	1.30	8.50	23.50	33	9.50

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	76.14	325	2.5	H	16.1	0.5	0.0	15.60	38.45	22.85
836.6	84.23	174	2.2	V	25.2	0.5	0.0	24.70	38.45	13.75
EIRP, PCS Band (Part 24E), Middle Channel										
1880.00	84.72	68	1.9	H	15.6	1.30	8.50	22.80	33	10.20
1880.00	85.73	203	1.1	V	16.4	1.30	8.50	23.60	33	9.40

WCDMA Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E/27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
ERP for WCDMA Band V (Part 22H), Middle Channel										
836.6	70.65	101	1.7	H	10.6	0.5	0	10.10	38.45	28.35
836.6	80.99	332	2.1	V	21.9	0.5	0	21.40	38.45	17.05
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	84.26	344	1.7	H	14.2	1.30	8.50	21.40	33	11.6
1880.00	80.59	245	1.1	V	10.3	1.30	8.50	17.50	33	15.5

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

LTE Band 2:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	21.79	22.00	21.77
		RB Size=1, RB Offset=2	21.91	21.53	21.45
		RB Size=1, RB Offset=5	21.35	22.53	21.71
		RB Size=3, RB Offset=0	20.58	21.47	21.03
		RB Size=3, RB Offset=1	21.18	21.59	20.67
		RB Size=3, RB Offset=2	21.39	21.10	21.53
		RB Size=6, RB Offset=0	20.14	21.09	20.66
	16QAM	RB Size=1, RB Offset=0	21.43	21.92	21.90
		RB Size=1, RB Offset=2	21.71	22.29	21.82
		RB Size=1, RB Offset=5	21.53	22.05	22.19
		RB Size=3, RB Offset=0	20.86	21.59	21.61
		RB Size=3, RB Offset=1	21.62	21.21	21.59
		RB Size=3, RB Offset=2	21.72	21.20	21.28
		RB Size=6, RB Offset=0	20.23	20.70	20.85
3.0	QPSK	RB Size=1, RB Offset=0	21.30	22.06	21.34
		RB Size=1, RB Offset=7	21.22	21.39	22.04
		RB Size=1, RB Offset=14	21.27	21.97	22.14
		RB Size=8, RB Offset=0	21.08	21.58	21.30
		RB Size=8, RB Offset=4	20.64	21.84	21.35
		RB Size=8, RB Offset=7	21.72	21.19	20.87
		RB Size=15, RB Offset=0	20.52	20.55	20.65
	16QAM	RB Size=1, RB Offset=0	22.07	21.90	21.38
		RB Size=1, RB Offset=7	21.25	21.81	21.20
		RB Size=1, RB Offset=14	21.98	22.18	22.25
		RB Size=8, RB Offset=0	21.60	21.68	21.23
		RB Size=8, RB Offset=4	20.74	21.30	21.45
		RB Size=8, RB Offset=7	21.29	21.64	21.00
		RB Size=15, RB Offset=0	21.03	20.59	20.06

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	21.38	21.95	21.84
		RB Size=1, RB Offset=12	21.74	21.77	21.88
		RB Size=1, RB Offset=24	21.33	21.84	21.74
		RB Size=12, RB Offset=0	20.89	21.48	21.65
		RB Size=12, RB Offset=6	21.51	21.82	21.04
		RB Size=12, RB Offset=11	21.70	21.33	21.64
		RB Size=25, RB Offset=0	20.54	21.21	21.05
	16QAM	RB Size=1, RB Offset=0	21.94	21.98	22.01
		RB Size=1, RB Offset=12	21.25	22.02	21.27
		RB Size=1, RB Offset=24	22.10	22.07	21.76
		RB Size=12, RB Offset=0	21.21	21.50	21.49
		RB Size=12, RB Offset=6	20.77	21.17	20.80
		RB Size=12, RB Offset=11	20.88	21.21	21.03
		RB Size=25, RB Offset=0	20.51	20.62	21.07
10.0	QPSK	RB Size=1, RB Offset=0	22.11	22.37	21.50
		RB Size=1, RB Offset=24	21.51	22.43	21.24
		RB Size=1, RB Offset=49	21.67	21.90	21.71
		RB Size=25, RB Offset=0	20.75	21.24	21.13
		RB Size=25, RB Offset=12	21.15	21.18	21.25
		RB Size=25, RB Offset=24	20.93	21.82	21.78
		RB Size=50, RB Offset=0	20.95	21.13	21.11
	16QAM	RB Size=1, RB Offset=0	21.55	22.12	21.41
		RB Size=1, RB Offset=24	21.43	22.26	21.70
		RB Size=1, RB Offset=49	21.67	21.86	22.08
		RB Size=25, RB Offset=0	20.69	21.41	21.69
		RB Size=25, RB Offset=12	20.83	21.34	21.10
		RB Size=25, RB Offset=24	20.77	21.31	21.72
		RB Size=50, RB Offset=0	20.61	21.34	20.55

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	21.45	21.99	21.62
		RB Size=1, RB Offset=37	21.52	21.73	22.25
		RB Size=1, RB Offset=74	22.06	22.74	22.24
		RB Size=36, RB Offset=0	21.28	21.79	21.10
		RB Size=36, RB Offset=18	21.11	21.80	20.95
		RB Size=36, RB Offset=37	21.27	22.13	21.29
		RB Size=75, RB Offset=0	20.98	21.42	21.36
	16QAM	RB Size=1, RB Offset=0	21.84	21.73	21.99
		RB Size=1, RB Offset=37	21.71	21.79	22.33
		RB Size=1, RB Offset=74	22.34	22.24	22.02
		RB Size=36, RB Offset=0	21.43	21.65	20.82
		RB Size=36, RB Offset=18	21.75	21.49	21.26
		RB Size=36, RB Offset=37	21.20	21.41	21.40
		RB Size=75, RB Offset=0	20.49	21.59	20.77
20.0	QPSK	RB Size=1, RB Offset=0	22.06	22.24	22.41
		RB Size=1, RB Offset=49	21.54	22.63	22.24
		RB Size=1, RB Offset=99	22.38	22.69	22.31
		RB Size=50, RB Offset=0	21.25	21.73	20.89
		RB Size=50, RB Offset=24	21.47	21.29	21.61
		RB Size=50, RB Offset=49	21.11	21.91	21.66
		RB Size=100, RB Offset=0	20.89	21.35	20.40
	16QAM	RB Size=1, RB Offset=0	21.86	21.78	21.67
		RB Size=1, RB Offset=49	22.06	21.75	21.48
		RB Size=1, RB Offset=99	22.02	22.26	22.21
		RB Size=50, RB Offset=0	21.81	21.13	21.23
		RB Size=50, RB Offset=24	21.66	22.00	21.20
		RB Size=50, RB Offset=49	21.56	21.64	21.36
		RB Size=100, RB Offset=0	20.64	21.23	20.56

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	2.67	13	Pass
QPSK (100RB Size)	3.20	13	Pass
16QAM (1RB Size)	2.91	13	Pass
16QAM (100%RB Size)	3.90	13	Pass

QPSK:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	85.99	183	1.8	H	15.9	1.30	8.50	23.10	33
1880.00	81.65	358	2.3	V	11.4	1.30	8.50	18.60	33
3 MHz Bandwidth									
1880.00	85.05	210	1.1	H	15.0	1.30	8.50	22.20	33
1880.00	81.16	228	2.0	V	10.9	1.30	8.50	18.10	33
5 MHz Bandwidth									
1880.00	84.48	66	2.1	H	14.4	1.30	8.50	21.60	33
1880.00	80.58	18	2.1	V	10.3	1.30	8.50	17.50	33
10 MHz Bandwidth									
1880.00	85.30	112	1.4	H	15.3	1.30	8.50	22.50	33
1880.00	81.33	185	1.6	V	11.1	1.30	8.50	18.30	33
15 MHz Bandwidth									
1880.00	85.13	116	2.1	H	15.1	1.30	8.50	22.30	33
1880.00	81.47	121	1.1	V	11.2	1.30	8.50	18.40	33
20 MHz Bandwidth									
1880.00	85.17	147	2.3	H	15.1	1.30	8.50	22.30	33
1880.00	81.23	200	2.3	V	11.0	1.30	8.50	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									
1.4 MHz Bandwidth									
1880.00	84.41	317	2.3	H	14.4	1.30	8.50	21.60	33
1880.00	79.98	84	1.4	V	9.7	1.30	8.50	16.90	33
3 MHz Bandwidth									
1880.00	84.57	28	1.5	H	14.5	1.30	8.50	21.70	33
1880.00	80.02	175	1.1	V	9.8	1.30	8.50	17.00	33
5 MHz Bandwidth									
1880.00	83.45	131	1.1	H	13.4	1.30	8.50	20.60	33
1880.00	80.60	155	1.6	V	10.3	1.30	8.50	17.50	33
10 MHz Bandwidth									
1880.00	84.12	81	1.4	H	14.1	1.30	8.50	21.30	33
1880.00	80.42	310	1.3	V	10.2	1.30	8.50	17.40	33
15 MHz Bandwidth									
1880.00	84.74	292	2.1	H	14.7	1.30	8.50	21.90	33
1880.00	80.45	34	2.1	V	10.2	1.30	8.50	17.40	33
20 MHz Bandwidth									
1880.00	84.96	314	2.4	H	14.9	1.30	8.50	22.10	33
1880.00	81.20	274	2.1	V	10.9	1.30	8.50	18.10	33

LTE Band 4:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	22.16	21.96	21.94
		RB Size=1, RB Offset=2	22.40	22.36	22.48
		RB Size=1, RB Offset=5	21.82	22.93	22.71
		RB Size=3, RB Offset=0	21.07	20.32	20.22
		RB Size=3, RB Offset=1	20.14	20.95	20.05
		RB Size=3, RB Offset=2	21.19	20.42	20.54
		RB Size=6, RB Offset=0	20.47	21.57	20.49
	16QAM	RB Size=1, RB Offset=0	21.96	22.46	21.76
		RB Size=1, RB Offset=2	22.42	22.04	22.37
		RB Size=1, RB Offset=5	22.53	22.45	22.38
		RB Size=3, RB Offset=0	20.65	21.23	20.40
		RB Size=3, RB Offset=1	20.37	20.82	20.84
		RB Size=3, RB Offset=2	21.13	21.38	20.51
		RB Size=6, RB Offset=0	20.75	21.78	21.20
3.0	QPSK	RB Size=1, RB Offset=0	22.36	22.16	22.46
		RB Size=1, RB Offset=7	22.39	22.48	21.46
		RB Size=1, RB Offset=14	22.31	22.30	22.44
		RB Size=8, RB Offset=0	20.71	21.33	20.31
		RB Size=8, RB Offset=4	20.47	21.11	20.85
		RB Size=8, RB Offset=7	20.49	21.37	20.87
		RB Size=15, RB Offset=0	20.84	21.47	21.47
	16QAM	RB Size=1, RB Offset=0	21.96	22.69	21.99
		RB Size=1, RB Offset=7	22.18	22.74	21.56
		RB Size=1, RB Offset=14	22.30	22.09	22.14
		RB Size=8, RB Offset=0	21.16	21.18	20.58
		RB Size=8, RB Offset=4	20.45	21.04	20.45
		RB Size=8, RB Offset=7	20.48	21.33	21.14
		RB Size=15, RB Offset=0	21.52	21.20	20.53

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	22.10	22.42	22.38
		RB Size=1, RB Offset=12	21.35	22.83	21.79
		RB Size=1, RB Offset=24	22.17	22.28	21.78
		RB Size=12, RB Offset=0	20.61	21.12	20.11
		RB Size=12, RB Offset=6	20.78	20.69	20.21
		RB Size=12, RB Offset=11	20.97	20.67	20.21
		RB Size=25, RB Offset=0	21.10	21.11	21.52
	16QAM	RB Size=1, RB Offset=0	21.62	22.32	21.96
		RB Size=1, RB Offset=12	22.18	21.97	22.10
		RB Size=1, RB Offset=24	21.69	22.84	22.34
		RB Size=12, RB Offset=0	20.55	20.46	20.79
		RB Size=12, RB Offset=6	20.52	21.07	20.55
		RB Size=12, RB Offset=11	20.73	20.62	20.46
		RB Size=25, RB Offset=0	21.32	20.89	20.95
10.0	QPSK	RB Size=1, RB Offset=0	21.96	22.54	22.33
		RB Size=1, RB Offset=24	22.06	22.10	22.06
		RB Size=1, RB Offset=49	22.00	22.74	22.37
		RB Size=25, RB Offset=0	20.45	20.99	20.18
		RB Size=25, RB Offset=12	20.15	20.99	20.05
		RB Size=25, RB Offset=24	20.12	20.90	20.35
		RB Size=50, RB Offset=0	21.03	20.97	21.22
	16QAM	RB Size=1, RB Offset=0	21.56	22.50	22.24
		RB Size=1, RB Offset=24	22.36	22.62	21.69
		RB Size=1, RB Offset=49	21.57	22.13	21.65
		RB Size=25, RB Offset=0	20.88	21.25	20.56
		RB Size=25, RB Offset=12	20.95	20.49	20.88
		RB Size=25, RB Offset=24	20.89	20.81	20.95
		RB Size=50, RB Offset=0	21.42	20.92	21.63

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	22.43	22.03	22.06
		RB Size=1, RB Offset=37	21.78	22.74	21.92
		RB Size=1, RB Offset=74	21.56	22.81	21.85
		RB Size=36, RB Offset=0	20.11	20.80	20.74
		RB Size=36, RB Offset=18	20.44	21.28	20.25
		RB Size=36, RB Offset=37	20.78	20.75	20.99
		RB Size=75, RB Offset=0	21.27	21.62	21.21
	16QAM	RB Size=1, RB Offset=0	21.61	22.83	21.62
		RB Size=1, RB Offset=37	22.05	22.37	22.05
		RB Size=1, RB Offset=74	21.97	22.89	22.51
		RB Size=36, RB Offset=0	20.99	21.26	20.65
		RB Size=36, RB Offset=18	20.64	21.13	20.99
		RB Size=36, RB Offset=37	20.80	21.26	21.13
		RB Size=75, RB Offset=0	21.76	21.06	21.63
20.0	QPSK	RB Size=1, RB Offset=0	22.01	22.96	22.49
		RB Size=1, RB Offset=49	21.74	22.45	21.99
		RB Size=1, RB Offset=99	22.46	22.88	22.10
		RB Size=50, RB Offset=0	20.99	21.11	20.92
		RB Size=50, RB Offset=24	20.43	20.62	21.05
		RB Size=50, RB Offset=49	20.81	21.49	21.09
		RB Size=100, RB Offset=0	21.70	21.26	21.50
	16QAM	RB Size=1, RB Offset=0	21.86	22.51	21.92
		RB Size=1, RB Offset=49	22.49	22.08	22.60
		RB Size=1, RB Offset=99	21.98	22.99	21.93
		RB Size=50, RB Offset=0	20.84	20.81	20.36
		RB Size=50, RB Offset=24	20.29	20.77	21.02
		RB Size=50, RB Offset=49	20.24	20.84	20.41
		RB Size=100, RB Offset=0	20.30	21.26	20.54

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.21	13	Pass
QPSK (100RB Size)	4.67	13	Pass
16QAM (1RB Size)	5.39	13	Pass
16QAM (100%RB Size)	4.92	13	Pass

QPSK:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1732.50	85.74	198	1.8	H	12.6	1.30	9.10	20.40	30
1732.50	81.19	260	2.2	V	8.6	1.30	9.10	16.40	30
3 MHz Bandwidth									
1732.50	86.16	48	1.0	H	13.0	1.30	9.10	20.80	30
1732.50	83.30	71	2.3	V	10.7	1.30	9.10	18.50	30
5 MHz Bandwidth									
1732.50	86.30	22	1.0	H	13.1	1.30	9.10	20.90	30
1732.50	83.26	257	1.4	V	10.7	1.30	9.10	18.50	30
10 MHz Bandwidth									
1732.50	85.96	255	2.2	H	12.8	1.30	9.10	20.60	30
1732.50	83.33	120	1.4	V	10.8	1.30	9.10	18.60	30
15 MHz Bandwidth									
1732.50	86.17	26	1.0	H	13.0	1.30	9.10	20.80	30
1732.50	83.58	33	1.2	V	11.0	1.30	9.10	18.80	30
20 MHz Bandwidth									
1732.50	86.04	81	1.1	H	12.9	1.30	9.10	20.70	30
1732.50	82.97	14	2.2	V	10.4	1.30	9.10	18.20	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	85.91	80	1.9	H	12.7	1.30	9.10	20.50	30
1732.50	82.07	96	2.4	V	9.5	1.30	9.10	17.30	30
3 MHz Bandwidth									
1732.50	86.16	354	2.1	H	13.0	1.30	9.10	20.80	30
1732.50	81.79	283	2.5	V	9.2	1.30	9.10	17.00	30
5 MHz Bandwidth									
1732.50	85.84	317	2.2	H	12.7	1.30	9.10	20.50	30
1732.50	82.43	22	1.3	V	9.9	1.30	9.10	17.70	30
10 MHz Bandwidth									
1732.50	85.75	239	2.4	H	12.6	1.30	9.10	20.40	30
1732.50	81.96	239	1.3	V	9.4	1.30	9.10	17.20	30
15 MHz Bandwidth									
1732.50	86.03	261	1.6	H	12.9	1.30	9.10	20.70	30
1732.50	82.16	349	1.5	V	9.6	1.30	9.10	17.40	30
20 MHz Bandwidth									
1732.50	86.14	139	1.3	H	13.0	1.30	9.10	20.80	30
1732.50	82.51	98	2.0	V	9.9	1.30	9.10	17.70	30

LTE Band 5:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4	QPSK	RB Size=1, RB Offset=0	22.14	22.47	22.48
		RB Size=1, RB Offset=2	22.37	22.04	21.63
		RB Size=1, RB Offset=5	22.51	22.57	22.49
		RB Size=3, RB Offset=0	20.41	21.02	20.50
		RB Size=3, RB Offset=1	20.30	20.81	20.05
		RB Size=3, RB Offset=2	20.17	20.66	20.47
		RB Size=6, RB Offset=0	20.81	20.86	21.23
	16QAM	RB Size=1, RB Offset=0	22.45	22.63	21.64
		RB Size=1, RB Offset=2	22.37	22.40	22.33
		RB Size=1, RB Offset=5	21.80	22.26	22.23
		RB Size=3, RB Offset=0	20.09	21.29	20.49
		RB Size=3, RB Offset=1	20.68	21.26	20.00
		RB Size=3, RB Offset=2	20.64	20.98	20.79
		RB Size=6, RB Offset=0	21.37	21.17	21.39
3.0	QPSK	RB Size=1, RB Offset=0	21.69	22.35	22.47
		RB Size=1, RB Offset=7	22.24	22.15	21.54
		RB Size=1, RB Offset=14	21.50	22.62	22.40
		RB Size=8, RB Offset=0	20.59	20.81	20.05
		RB Size=8, RB Offset=4	20.39	21.14	20.32
		RB Size=8, RB Offset=7	20.11	20.68	20.33
		RB Size=15, RB Offset=0	21.19	21.52	21.03
	16QAM	RB Size=1, RB Offset=0	21.54	22.48	21.67
		RB Size=1, RB Offset=7	21.65	21.80	22.18
		RB Size=1, RB Offset=14	22.29	22.60	22.54
		RB Size=8, RB Offset=0	20.51	20.40	21.02
		RB Size=8, RB Offset=4	20.02	20.60	20.70
		RB Size=8, RB Offset=7	20.36	21.12	20.50
		RB Size=15, RB Offset=0	21.01	21.17	20.99

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.01	22.21	21.96
		RB Size=1, RB Offset=12	22.40	22.74	22.52
		RB Size=1, RB Offset=24	22.63	22.60	22.14
		RB Size=12, RB Offset=0	20.08	20.83	20.42
		RB Size=12, RB Offset=6	20.00	20.95	20.12
		RB Size=12, RB Offset=11	21.03	21.28	20.80
		RB Size=25, RB Offset=0	21.18	21.30	21.33
	16QAM	RB Size=1, RB Offset=0	22.46	22.18	22.18
		RB Size=1, RB Offset=12	22.03	22.56	21.88
		RB Size=1, RB Offset=24	22.43	22.23	22.45
		RB Size=12, RB Offset=0	20.85	20.39	20.41
		RB Size=12, RB Offset=6	20.80	20.47	20.28
		RB Size=12, RB Offset=11	21.10	20.93	21.10
		RB Size=25, RB Offset=0	21.43	21.11	20.76
10.0	QPSK	RB Size=1, RB Offset=0	21.95	21.91	22.01
		RB Size=1, RB Offset=24	21.69	22.15	22.40
		RB Size=1, RB Offset=49	22.12	22.61	22.30
		RB Size=25, RB Offset=0	20.64	20.60	20.65
		RB Size=25, RB Offset=12	20.31	20.26	19.92
		RB Size=25, RB Offset=24	20.05	20.83	21.00
		RB Size=50, RB Offset=0	20.63	21.53	20.68
	16QAM	RB Size=1, RB Offset=0	22.05	21.94	21.74
		RB Size=1, RB Offset=24	22.36	22.73	21.74
		RB Size=1, RB Offset=49	22.14	22.81	22.34
		RB Size=25, RB Offset=0	20.76	20.44	20.08
		RB Size=25, RB Offset=12	20.04	20.72	20.23
		RB Size=25, RB Offset=24	20.21	21.24	20.38
		RB Size=50, RB Offset=0	20.92	21.65	20.95

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK(1RB Size)	2.01	13	Pass
QPSK(50RB Size)	2.24	13	Pass
16QAM (1RB Size)	2.62	13	Pass
16QAM (100%RB Size)	1.63	13	Pass

QPSK:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
836.5	83.34	351	2.3	H	16.6	0.8	0.0	15.80	38.45
836.5	85.13	100	1.2	V	20.9	0.8	0.0	20.10	38.45
3 MHz Bandwidth									
836.5	83.31	358	2.1	H	16.6	0.8	0.0	15.80	38.45
836.5	85.09	105	1.0	V	20.9	0.8	0.0	20.10	38.45
5 MHz Bandwidth									
836.5	81.46	183	2.4	H	14.8	0.8	0.0	14.00	38.45
836.5	82.55	310	2.5	V	18.3	0.8	0.0	17.50	38.45
10 MHz Bandwidth									
836.5	81.64	175	1.1	H	15.0	0.8	0.0	14.20	38.45
836.5	82.69	174	1.4	V	18.5	0.8	0.0	17.70	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	81.25	62	2.0	H	21.2	0.6	0.0	20.60	38.45
836.5	80.25	348	1.7	V	21.2	0.6	0.0	20.60	38.45
3 MHz Bandwidth									
836.5	81.65	305	1.5	H	21.6	0.6	0.0	21.00	38.45
836.5	80.47	120	1.4	V	21.4	0.6	0.0	20.80	38.45
5 MHz Bandwidth									
836.5	81.21	7	1.1	H	21.2	0.6	0.0	20.60	38.45
836.5	81.54	133	2.4	V	22.5	0.6	0.0	21.90	38.45
10 MHz Bandwidth									
836.5	80.21	178	2.1	H	20.2	0.6	0.0	19.60	38.45
836.5	81.65	5	1.0	V	22.6	0.6	0.0	22.00	38.45

LTE Band 7:

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5	QPSK	RB Size=1, RB Offset=0	21.16	21.68	21.48
		RB Size=1, RB Offset=12	21.60	21.37	20.97
		RB Size=1, RB Offset=24	20.83	21.79	21.26
		RB Size=12, RB Offset=0	20.68	20.69	21.01
		RB Size=12, RB Offset=6	20.25	20.51	20.15
		RB Size=12, RB Offset=11	21.13	20.71	20.81
		RB Size=25, RB Offset=0	20.31	20.04	20.41
	16QAM	RB Size=1, RB Offset=0	21.01	22.00	21.24
		RB Size=1, RB Offset=12	21.42	21.07	21.36
		RB Size=1, RB Offset=24	21.49	21.68	21.43
		RB Size=12, RB Offset=0	20.77	20.81	21.02
		RB Size=12, RB Offset=6	20.45	20.81	21.01
		RB Size=12, RB Offset=11	21.16	21.06	20.67
		RB Size=25, RB Offset=0	20.74	20.51	20.81
10	QPSK	RB Size=1, RB Offset=0	21.15	21.86	21.80
		RB Size=1, RB Offset=24	21.08	21.79	20.90
		RB Size=1, RB Offset=49	20.89	21.84	21.11
		RB Size=25, RB Offset=0	20.80	20.72	20.35
		RB Size=25, RB Offset=12	20.40	20.40	20.23
		RB Size=25, RB Offset=24	21.28	21.21	20.72
		RB Size=50, RB Offset=0	20.38	20.58	20.69
	16QAM	RB Size=1, RB Offset=0	20.95	21.28	20.86
		RB Size=1, RB Offset=24	21.08	21.50	21.21
		RB Size=1, RB Offset=49	21.08	21.74	21.85
		RB Size=25, RB Offset=0	20.42	20.63	20.71
		RB Size=25, RB Offset=12	20.65	20.51	20.33
		RB Size=25, RB Offset=24	20.40	20.66	20.80
		RB Size=50, RB Offset=0	20.22	20.10	20.63

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15	QPSK	RB Size=1, RB Offset=0	21.00	21.25	21.61
		RB Size=1, RB Offset=37	21.38	21.05	20.99
		RB Size=1, RB Offset=74	21.14	21.97	21.76
		RB Size=36, RB Offset=0	20.58	20.70	20.96
		RB Size=36, RB Offset=18	20.47	21.38	20.83
		RB Size=36, RB Offset=37	20.78	20.92	20.71
		RB Size=75, RB Offset=0	19.97	20.09	20.85
	16QAM	RB Size=1, RB Offset=0	21.66	21.30	20.99
		RB Size=1, RB Offset=37	21.34	21.90	21.42
		RB Size=1, RB Offset=74	21.14	21.83	21.31
		RB Size=36, RB Offset=0	20.34	21.21	21.37
		RB Size=36, RB Offset=18	20.98	20.98	21.20
		RB Size=36, RB Offset=37	21.27	20.76	20.64
		RB Size=75, RB Offset=0	20.68	20.64	20.33
20	QPSK	RB Size=1, RB Offset=0	21.41	21.61	21.61
		RB Size=1, RB Offset=49	21.23	21.75	21.46
		RB Size=1, RB Offset=99	21.23	22.34	21.76
		RB Size=50, RB Offset=0	20.86	21.32	20.41
		RB Size=50, RB Offset=24	21.12	21.34	21.17
		RB Size=50, RB Offset=49	20.40	21.27	21.13
		RB Size=100, RB Offset=0	20.12	20.49	20.80
	16QAM	RB Size=1, RB Offset=0	21.24	21.51	21.59
		RB Size=1, RB Offset=49	21.25	22.17	21.55
		RB Size=1, RB Offset=99	21.63	21.33	21.32
		RB Size=50, RB Offset=0	20.44	21.59	20.71
		RB Size=50, RB Offset=24	20.90	21.36	20.48
		RB Size=50, RB Offset=49	20.63	21.14	21.07
		RB Size=100, RB Offset=0	20.80	20.66	19.93

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.48	13	Pass
QPSK (100RB Size)	3.36	13	Pass
16QAM (1RB Size)	5.24	13	Pass
16QAM (100%RB Size)	3.18	13	Pass

EIRP:

QPSK:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
2535.00	80.61	191	1.5	H	11.1	2.60	9.30	17.80	33
2535.00	84.62	318	1.4	V	15.7	2.60	9.30	22.40	33
10 MHz Bandwidth									
2535.00	79.85	358	2.1	H	10.4	2.60	9.30	17.10	33
2535.00	84.67	249	1.2	V	15.8	2.60	9.30	22.50	33
15 MHz Bandwidth									
2535.00	79.02	115	1.4	H	9.5	2.60	9.30	16.20	33
2535.00	83.78	171	1.4	V	14.9	2.60	9.30	21.60	33
20 MHz Bandwidth									
2535.00	80.02	323	2.1	H	10.5	2.60	9.30	17.20	33
2535.00	84.67	359	1.9	V	15.8	2.60	9.30	22.50	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									
5 MHz Bandwidth									
2535.00	80.21	339	1.2	H	10.7	2.60	9.30	17.40	33
2535.00	85.10	47	1.5	V	16.2	2.60	9.30	22.90	33
10 MHz Bandwidth									
2535.00	79.96	231	1.7	H	10.5	2.60	9.30	17.20	33
2535.00	84.83	192	2.0	V	16.0	2.60	9.30	22.70	33
15 MHz Bandwidth									
2535.00	79.78	132	1.1	H	10.3	2.60	9.30	17.00	33
2535.00	85.08	149	1.1	V	16.2	2.60	9.30	22.90	33
20 MHz Bandwidth									
2535.00	80.02	274	2.1	H	10.5	2.60	9.30	17.20	33
2535.00	84.79	67	1.8	V	15.9	2.60	9.30	22.60	33

LTE Band 12:

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	21.77	21.95	21.63
		RB Size=1, RB Offset=2	22.06	22.31	21.46
		RB Size=1, RB Offset=5	22.03	22.81	22.42
		RB Size=3, RB Offset=0	21.11	22.21	21.49
		RB Size=3, RB Offset=1	21.59	22.11	20.96
		RB Size=3, RB Offset=2	21.38	21.92	21.94
		RB Size=6, RB Offset=0	21.35	20.95	21.21
	16QAM	RB Size=1, RB Offset=0	22.23	21.96	22.64
		RB Size=1, RB Offset=2	22.22	22.64	22.42
		RB Size=1, RB Offset=5	22.52	22.24	22.24
		RB Size=3, RB Offset=0	21.92	21.86	21.03
		RB Size=3, RB Offset=1	21.56	21.88	21.42
		RB Size=3, RB Offset=2	21.94	22.04	21.13
		RB Size=6, RB Offset=0	20.86	21.04	20.67
3	QPSK	RB Size=1, RB Offset=0	22.06	22.53	21.85
		RB Size=1, RB Offset=7	21.83	21.99	22.41
		RB Size=1, RB Offset=14	22.20	22.50	22.02
		RB Size=8, RB Offset=0	21.90	22.08	21.33
		RB Size=8, RB Offset=4	21.05	21.54	20.93
		RB Size=8, RB Offset=7	21.42	22.17	21.98
		RB Size=15, RB Offset=0	21.60	21.93	20.95
	16QAM	RB Size=1, RB Offset=0	22.48	22.13	22.48
		RB Size=1, RB Offset=7	22.11	22.09	21.67
		RB Size=1, RB Offset=14	22.41	22.21	22.78
		RB Size=8, RB Offset=0	21.46	22.09	21.94
		RB Size=8, RB Offset=4	20.83	21.64	21.64
		RB Size=8, RB Offset=7	22.05	22.33	22.06
		RB Size=15, RB Offset=0	21.13	21.83	20.72

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5	QPSK	RB Size=1, RB Offset=0	21.67	22.92	22.52
		RB Size=1, RB Offset=12	22.17	22.38	22.57
		RB Size=1, RB Offset=24	22.13	23.05	22.00
		RB Size=12, RB Offset=0	21.21	21.82	21.57
		RB Size=12, RB Offset=6	21.02	22.06	21.29
		RB Size=12, RB Offset=11	21.24	22.46	21.22
		RB Size=25, RB Offset=0	21.00	21.22	21.08
	16QAM	RB Size=1, RB Offset=0	21.88	22.71	22.14
		RB Size=1, RB Offset=12	21.66	22.00	21.78
		RB Size=1, RB Offset=24	22.25	22.84	22.73
		RB Size=12, RB Offset=0	21.18	22.23	21.28
		RB Size=12, RB Offset=6	21.41	21.49	21.38
		RB Size=12, RB Offset=11	21.51	21.72	22.13
		RB Size=25, RB Offset=0	21.05	21.34	20.79
10	QPSK	RB Size=1, RB Offset=0	22.54	22.06	21.73
		RB Size=1, RB Offset=24	22.58	22.72	22.16
		RB Size=1, RB Offset=49	22.81	22.86	21.92
		RB Size=25, RB Offset=0	21.93	22.35	21.70
		RB Size=25, RB Offset=12	21.54	21.47	21.28
		RB Size=25, RB Offset=24	22.16	22.41	21.77
		RB Size=50, RB Offset=0	20.76	21.37	21.03
	16QAM	RB Size=1, RB Offset=0	22.02	22.42	22.72
		RB Size=1, RB Offset=24	22.66	22.00	22.35
		RB Size=1, RB Offset=49	22.84	22.23	22.37
		RB Size=25, RB Offset=0	21.50	22.18	21.67
		RB Size=25, RB Offset=12	22.08	22.42	21.54
		RB Size=25, RB Offset=24	21.21	22.24	21.80
		RB Size=50, RB Offset=0	21.32	21.80	21.27

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	1.04	13	Pass
QPSK (50RB Size)	1.07	13	Pass
16QAM (1RB Size)	1.68	13	Pass
16QAM (100%RB Size)	1.25	13	Pass

EIRP:

QPSK:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
707.5	80.12	317	1.0	H	20.1	0.6	0.0	19.50	34.77
707.5	81.23	110	2.3	V	22.2	0.6	0.0	21.60	34.77
3 MHz Bandwidth									
707.5	81.12	227	1.1	H	21.1	0.6	0.0	20.50	34.77
707.5	80.13	30	1.8	V	21.1	0.6	0.0	20.50	34.77
5 MHz Bandwidth									
707.5	81.25	320	1.5	H	21.2	0.6	0.0	20.60	34.77
707.5	79.56	162	2.5	V	20.5	0.6	0.0	19.90	34.77
10 MHz Bandwidth									
707.5	81.23	129	2.5	H	21.2	0.6	0.0	20.60	34.77
707.5	80.36	285	1.1	V	21.3	0.6	0.0	20.70	34.77

16QAM:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
707.5	81.24	240	1.5	H	21.2	0.6	0.0	20.60	34.77
707.5	82.14	304	2.1	V	23.1	0.6	0.0	22.50	34.77
3 MHz Bandwidth									
707.5	81.24	124	1.3	H	21.2	0.6	0.0	20.60	34.77
707.5	82.44	97	2.2	V	23.4	0.6	0.0	22.80	34.77
5 MHz Bandwidth									
707.5	81.65	2	2.3	H	21.6	0.6	0.0	21.00	34.77
707.5	82.64	23	2.3	V	23.6	0.6	0.0	23.00	34.77
10 MHz Bandwidth									
707.5	81.65	30	1.6	H	21.6	0.6	0.0	21.00	34.77
707.5	82.78	64	1.5	V	23.7	0.6	0.0	23.10	34.77

LTE Band 17:

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.06	22.52	22.61
		RB Size=1, RB Offset=12	21.86	22.32	22.38
		RB Size=1, RB Offset=24	22.70	22.02	22.18
		RB Size=12, RB Offset=0	21.73	22.40	21.36
		RB Size=12, RB Offset=6	21.24	22.06	21.87
		RB Size=12, RB Offset=11	21.41	22.23	21.53
		RB Size=25, RB Offset=0	21.51	21.40	20.86
	16QAM	RB Size=1, RB Offset=0	22.21	22.40	21.77
		RB Size=1, RB Offset=12	21.67	21.91	21.84
		RB Size=1, RB Offset=24	22.62	21.99	22.60
		RB Size=12, RB Offset=0	22.01	21.80	21.44
		RB Size=12, RB Offset=6	21.97	21.93	22.02
		RB Size=12, RB Offset=11	21.28	22.55	22.06
		RB Size=25, RB Offset=0	21.62	21.57	20.93
10.0	QPSK	RB Size=1, RB Offset=0	22.25	22.83	22.38
		RB Size=1, RB Offset=24	22.13	22.60	21.70
		RB Size=1, RB Offset=49	22.00	22.87	22.51
		RB Size=25, RB Offset=0	22.56	22.39	22.03
		RB Size=25, RB Offset=12	21.53	22.79	22.01
		RB Size=25, RB Offset=24	22.42	22.70	22.60
		RB Size=50, RB Offset=0	20.91	21.49	20.66
	16QAM	RB Size=1, RB Offset=0	22.61	22.51	22.34
		RB Size=1, RB Offset=24	21.83	22.32	22.04
		RB Size=1, RB Offset=49	22.69	22.19	22.53
		RB Size=25, RB Offset=0	21.45	21.57	21.65
		RB Size=25, RB Offset=12	21.83	22.04	21.36
		RB Size=25, RB Offset=24	21.95	21.85	22.42
		RB Size=50, RB Offset=0	21.71	21.12	21.57

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK(1RB Size)	2.23	13	Pass
QPSK(50RB Size)	1.18	13	Pass
16QAM (1RB Size)	1.71	13	Pass
16QAM (100%RB Size)	1.36	13	Pass

ERP:

QPSK:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
710	81.25	178	1.6	H	21.2	0.6	0.0	20.60	34.77
710	82.25	237	2.2	V	23.2	0.6	0.0	22.60	34.77
10 MHz Bandwidth									
710	79.25	121	1.9	H	19.2	0.6	0.0	18.60	34.77
710	81.25	101	1.7	V	22.2	0.6	0.0	21.60	34.77

16QAM:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
710.00	81.54	273	2.0	H	21.5	0.6	0.0	20.90	34.77
710.00	81.96	282	2.3	V	22.9	0.6	0.0	22.30	34.77
10 MHz Bandwidth									
710.00	82.65	54	1.1	H	22.6	0.6	0.0	22.00	34.77
710.00	81.52	16	1.4	V	22.5	0.6	0.0	21.90	34.77

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

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

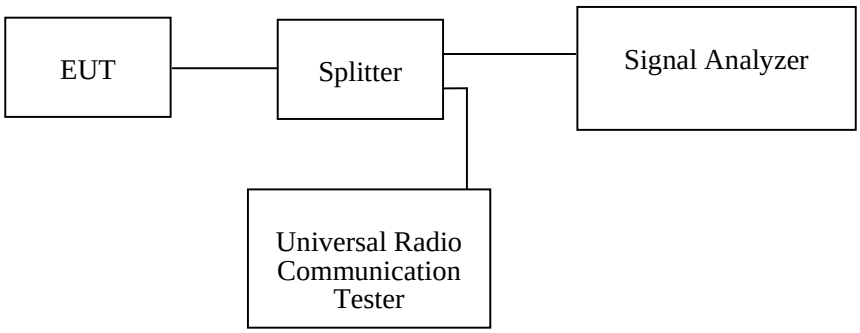
Applicable Standard

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	24~25 ℃
Relative Humidity:	48~50 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Kobe Li from 2017-10-18 to 2017-10-26.

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	243.1	319.8
EGPRS(8PSK)	836.6	246.0	312.6

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	836.6	4.124	4.718
HSUPA (BPSK)	836.6	4.124	4.732
HSDPA (16QAM)	836.6	4.124	4.718

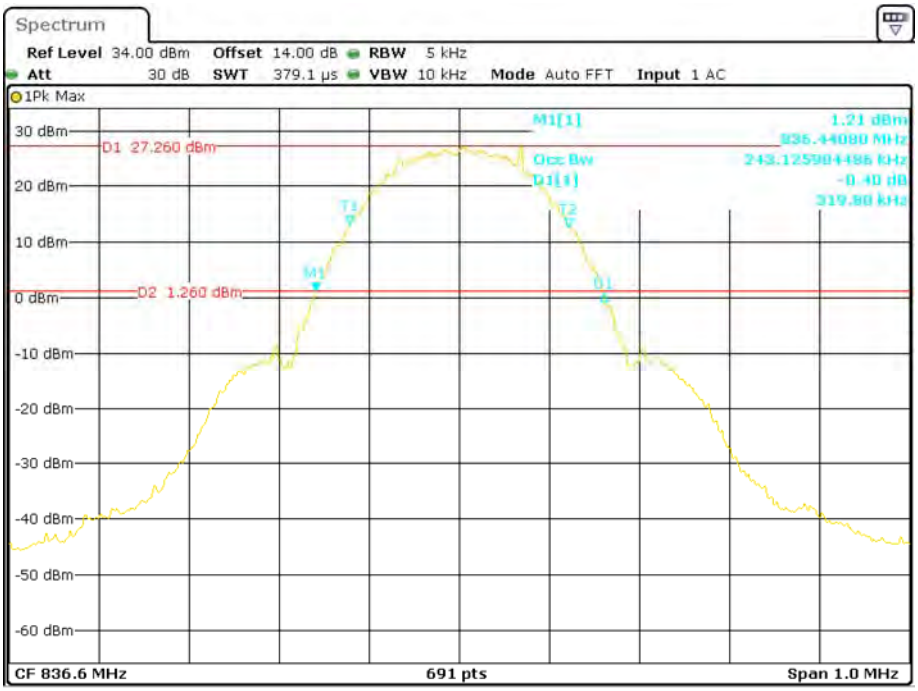
PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1880.0	243.1	316.9
EGPRS(8PSK)	1880.0	246.0	315.5

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1880.0	4.124	4.718
HSUPA (BPSK)	1880.0	4.124	4.732
HSDPA (16QAM)	1880.0	4.139	4.732

Cellular Band (Part 22H)

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



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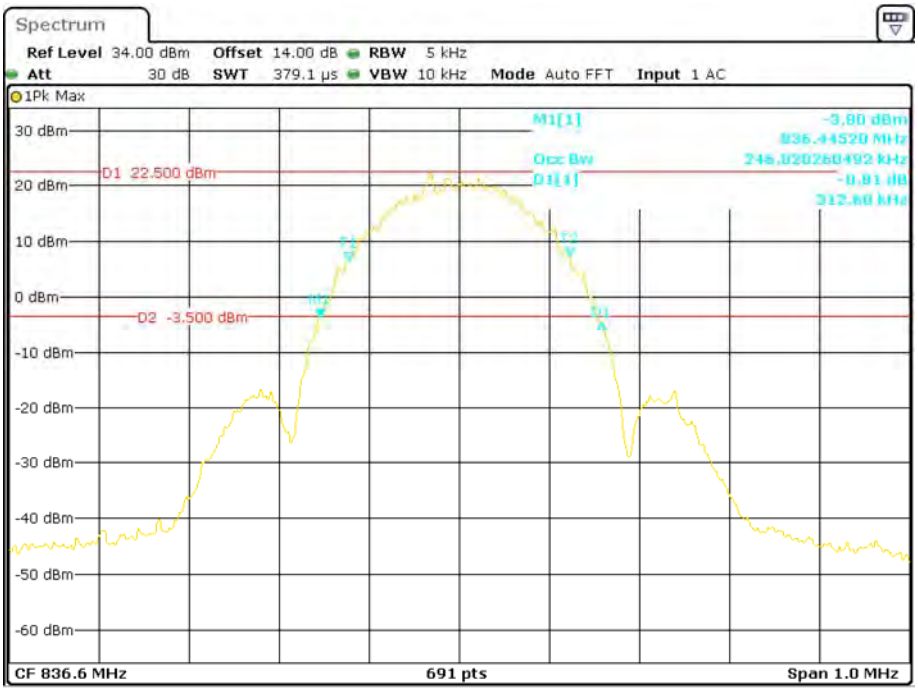
26 dB Emissions &99% Occupied Bandwidth for EDGE Mode



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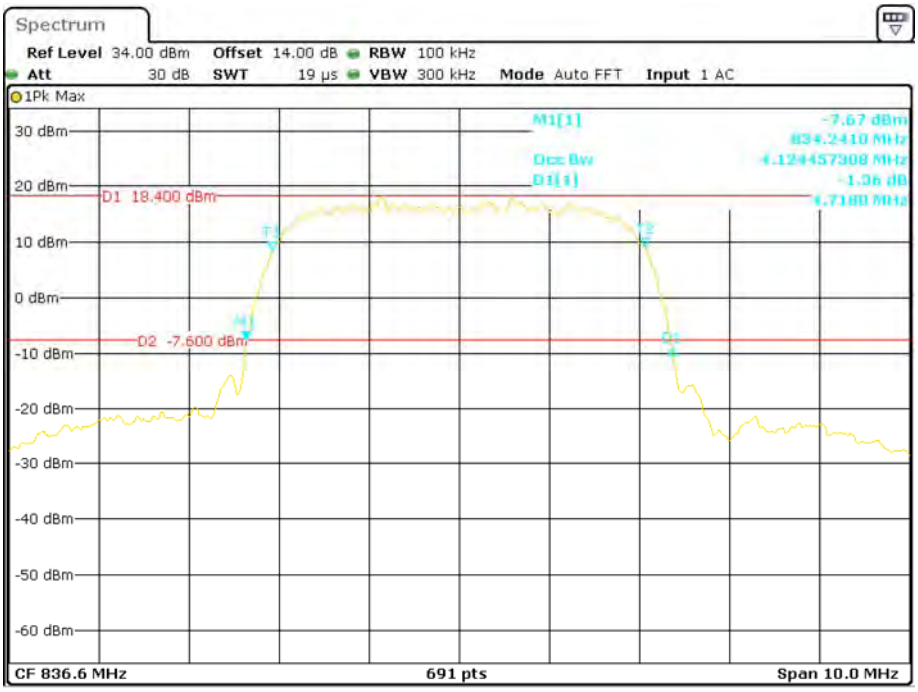
26 dB Emissions &99% Occupied Bandwidth for RMC (BPSK) Mode



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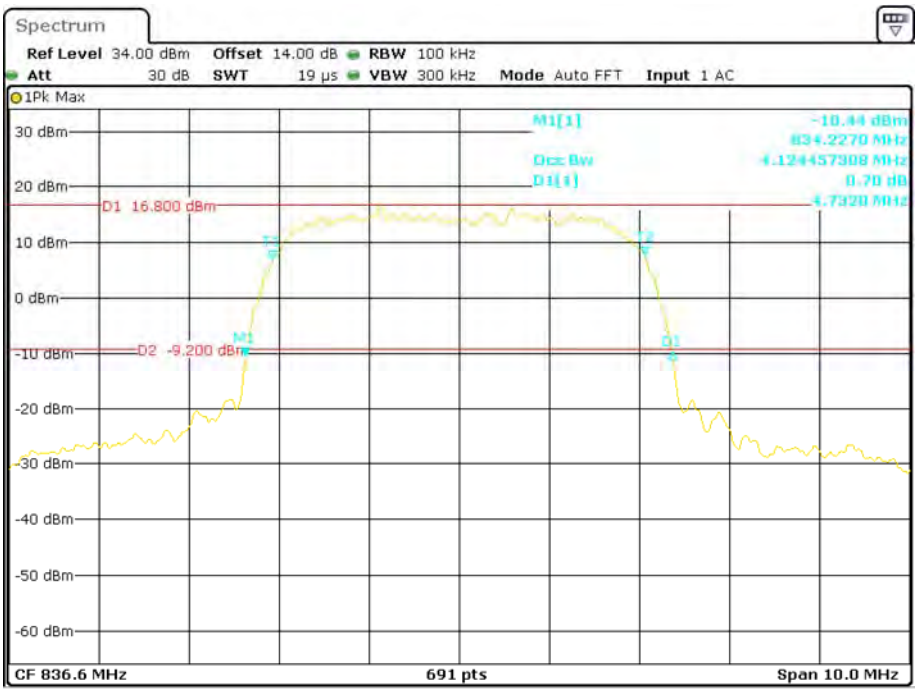
26 dB Emissions &99% Occupied Bandwidth for HSUPA (BPSK) Mode



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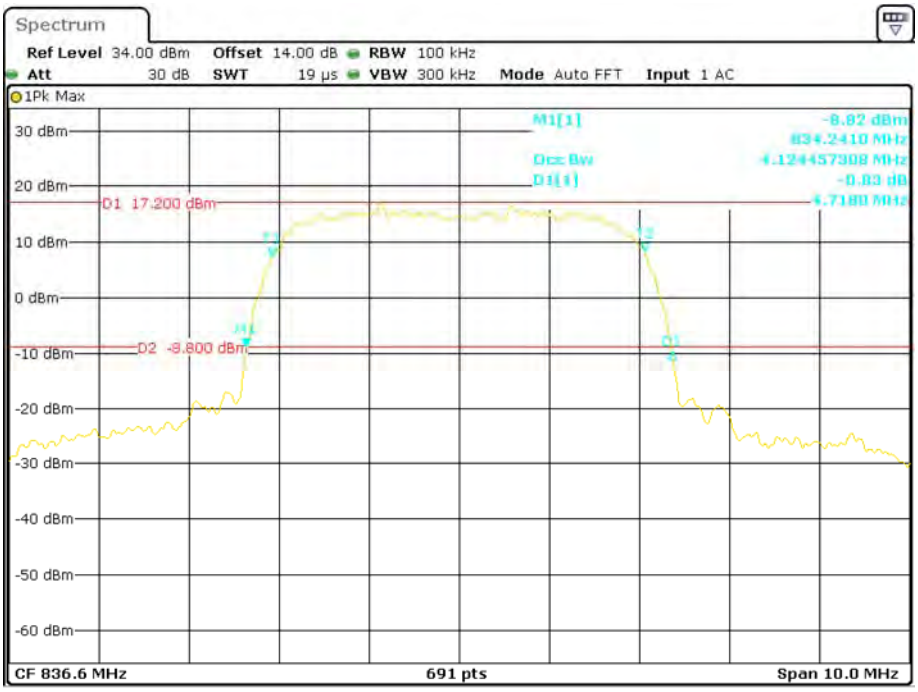
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode



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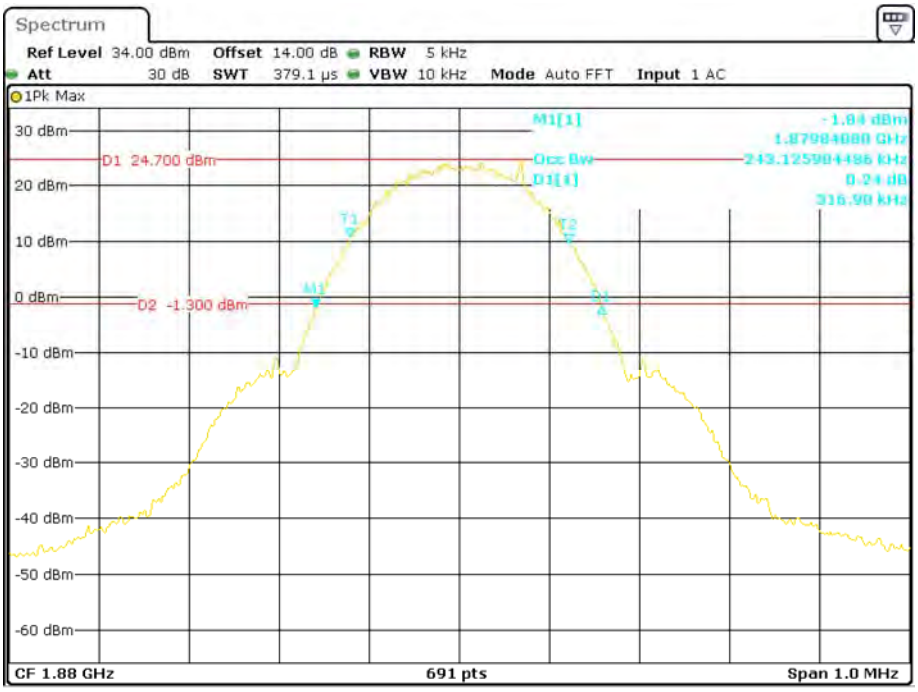
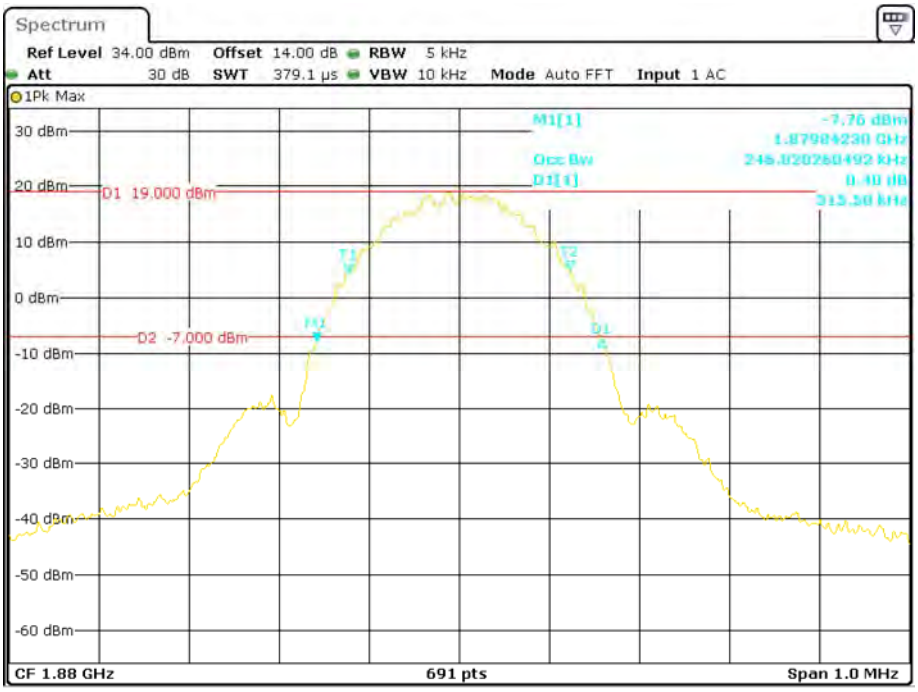
PCS Band (Part 24E)

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



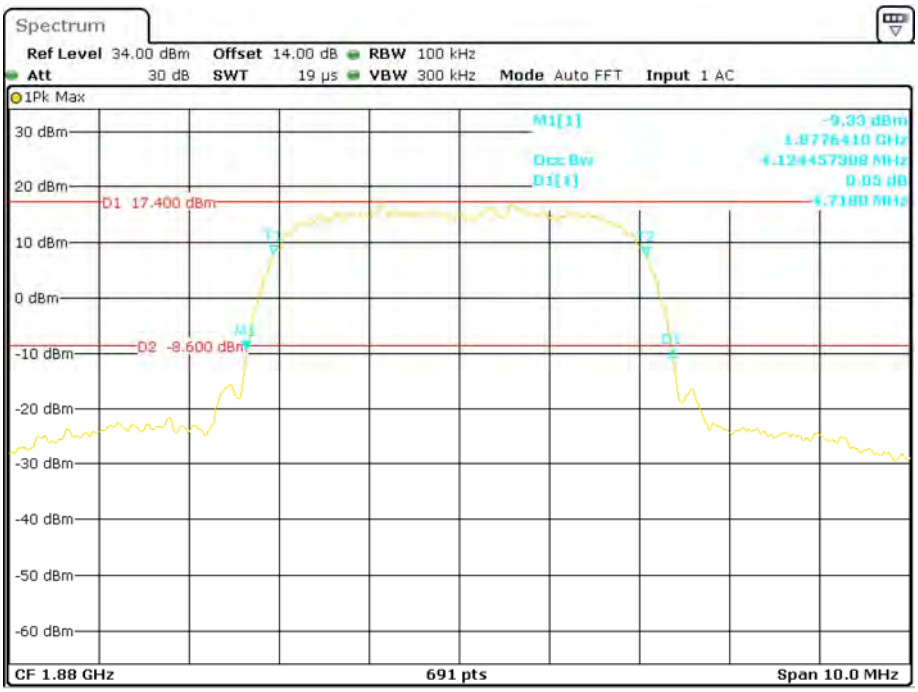
Date: 18.OCT.2017 19:38:42

26 dB Emissions &99% Occupied Bandwidth for EDGE Mode



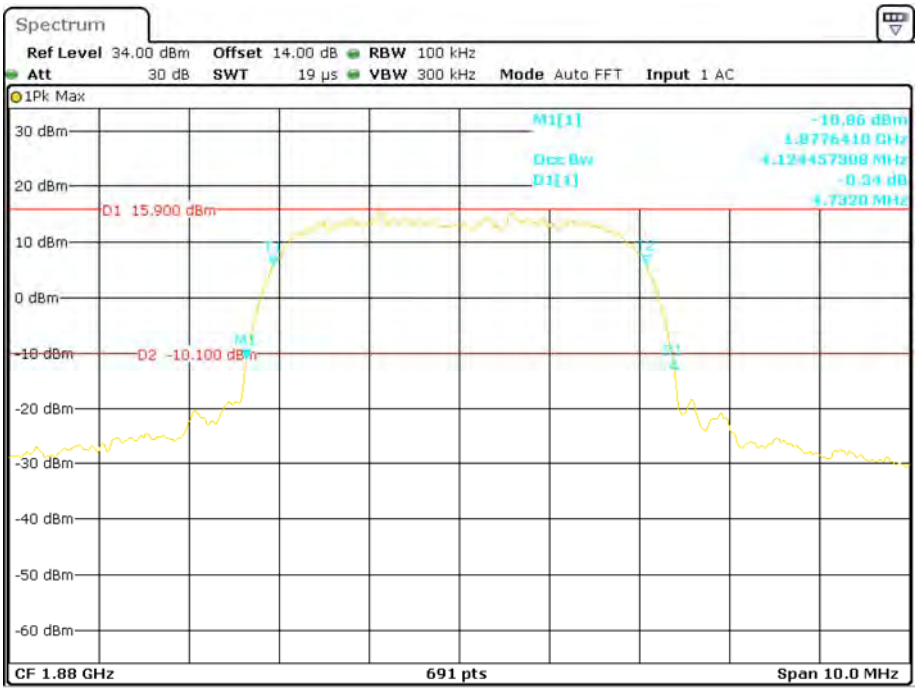
Date: 18.OCT.2017 19:47:10

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



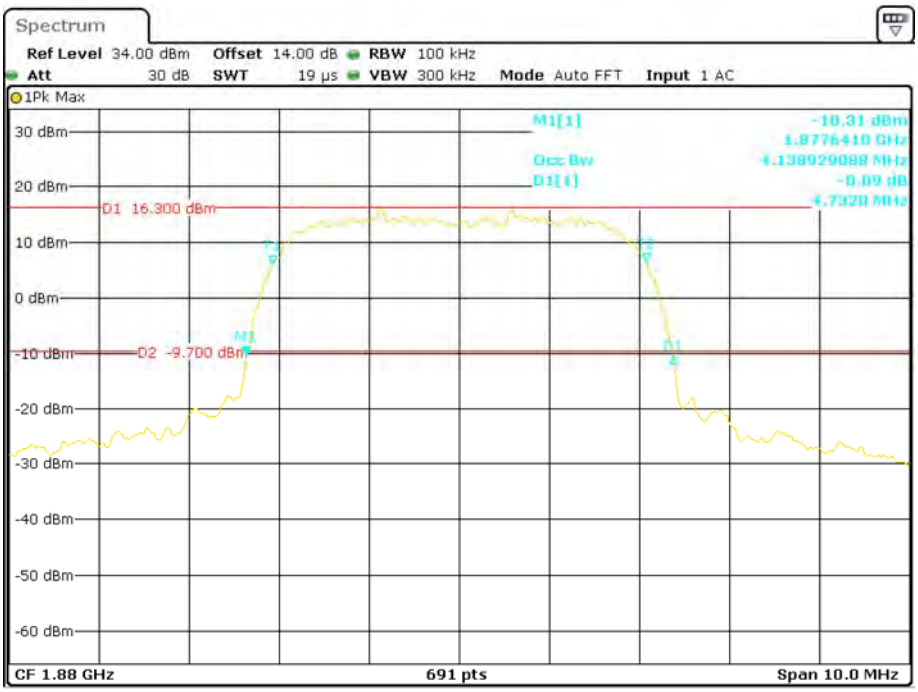
Date: 18.OCT.2017 20:13:20

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



Date: 18.OCT.2017 20:28:05

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

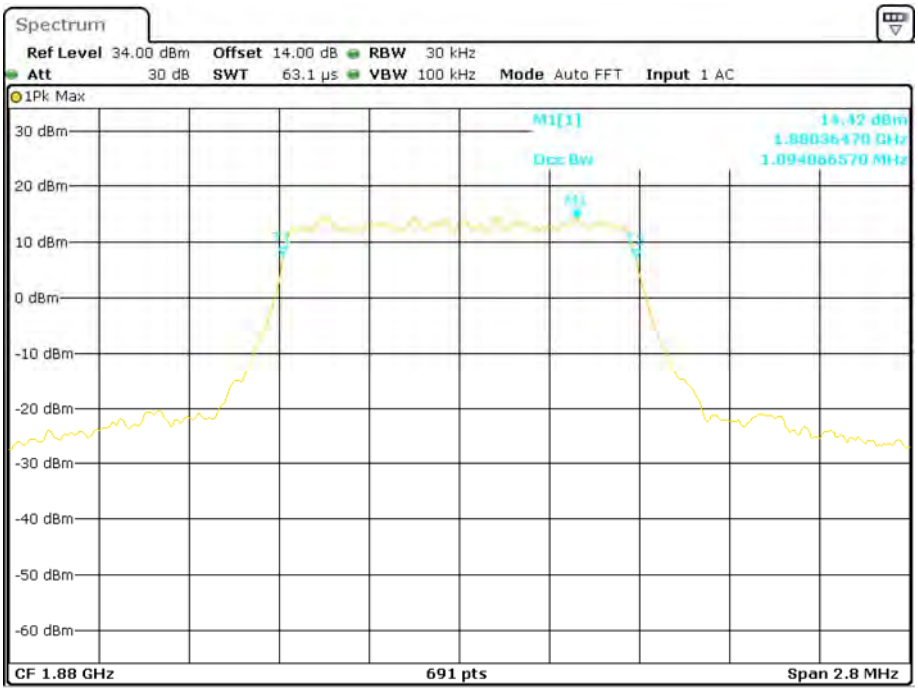


Date: 18.OCT.2017 20:23:24

LTE Band 2: (Middle Channel)

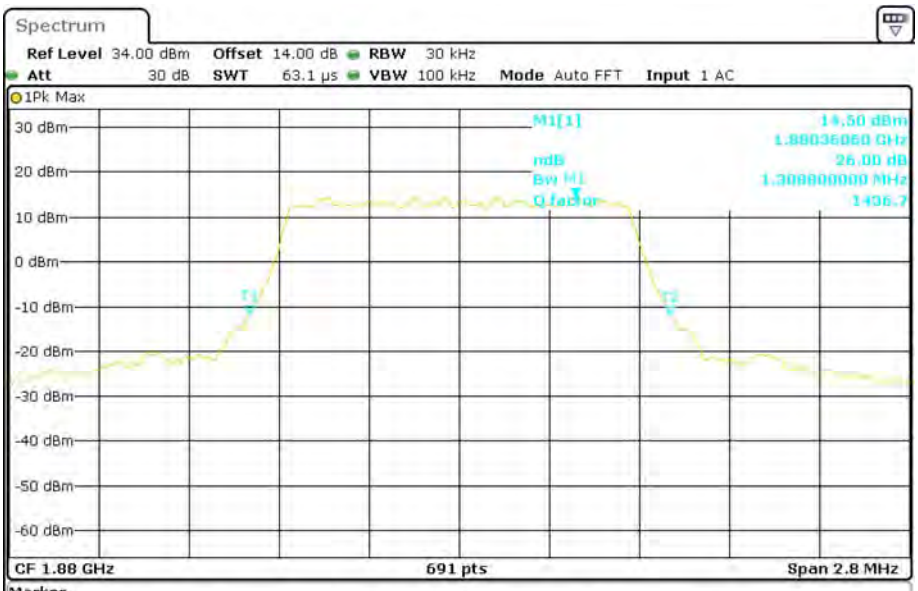
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.094	1.309
	16QAM	1.102	1.317
3.0	QPSK	2.692	2.944
	16QAM	2.683	2.952
5.0	QPSK	4.530	5.036
	16QAM	4.501	5.007
10.0	QPSK	8.944	9.783
	16QAM	8.915	9.667
15.0	QPSK	13.459	14.891
	16QAM	13.502	14.674
20.0	QPSK	17.887	19.276
	16QAM	17.887	19.450

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



Date: 19.OCT.2017 19:14:38

QPSK (1.4 MHz) - 26 dB Bandwidth, Middle channel

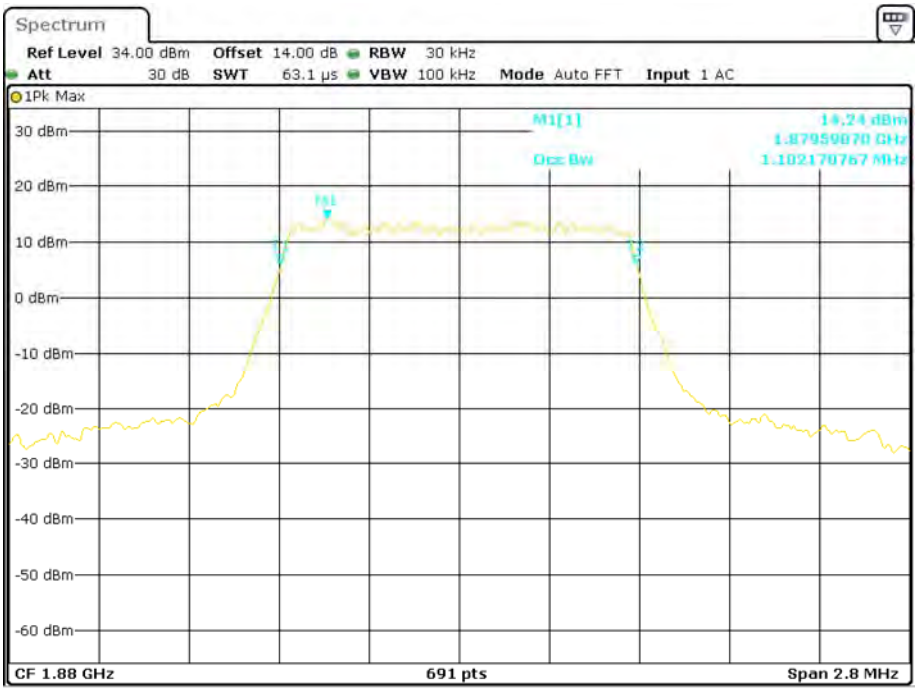


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.8803606 GHz	14.50 dBm	ndB down	1.3088 MHz
T1		1	1.8793476 GHz	-11.57 dBm	ndB	26.00 dB
T2		1	1.8806564 GHz	-11.77 dBm	Q factor	1436.7

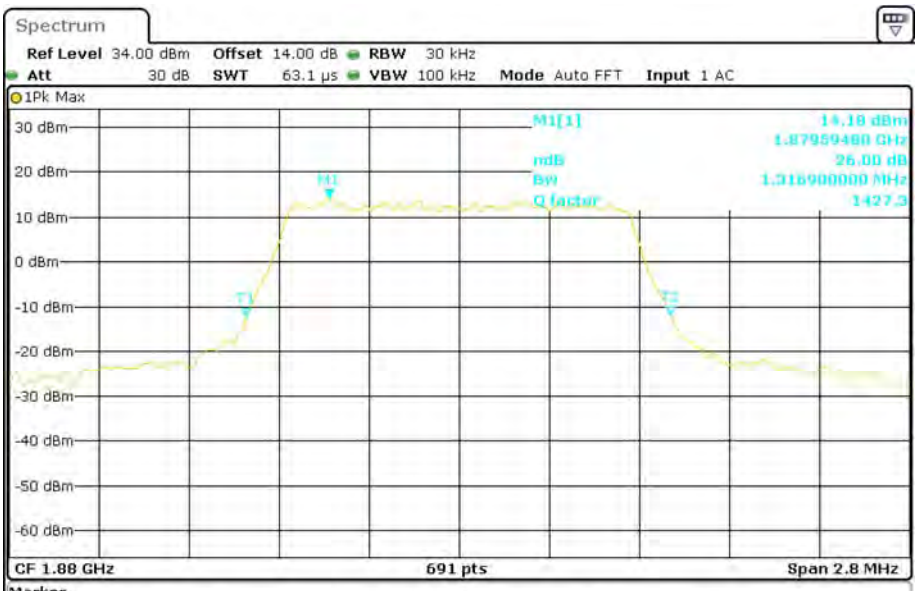
Date: 19.OCT.2017 19:16:53

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



Date: 19.OCT.2017 19:15:23

16-QAM (1.4 MHz) - 26 dB Bandwidth, Middle channel

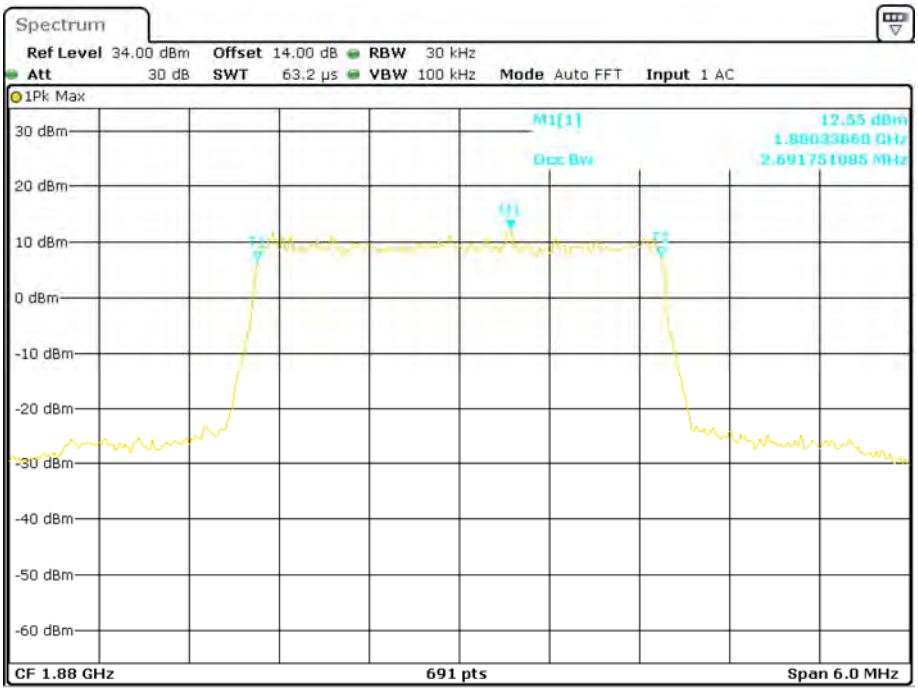


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.8795948 GHz	14.18 dBm	ndB down	1.3169 MHz
T1		1	1.8793395 GHz	-12.04 dBm	ndB	26.00 dB
T2		1	1.8806564 GHz	-11.79 dBm	Q factor	1427.3

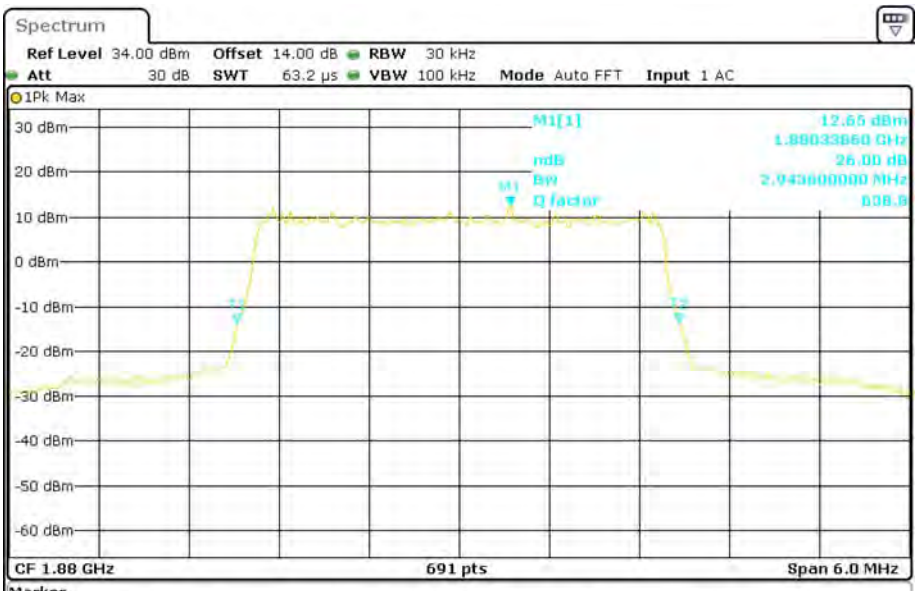
Date: 19.OCT.2017 19:16:16

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



Date: 19.OCT.2017 19:20:41

QPSK (3.0 MHz) - 26 dB Bandwidth, Middle channel

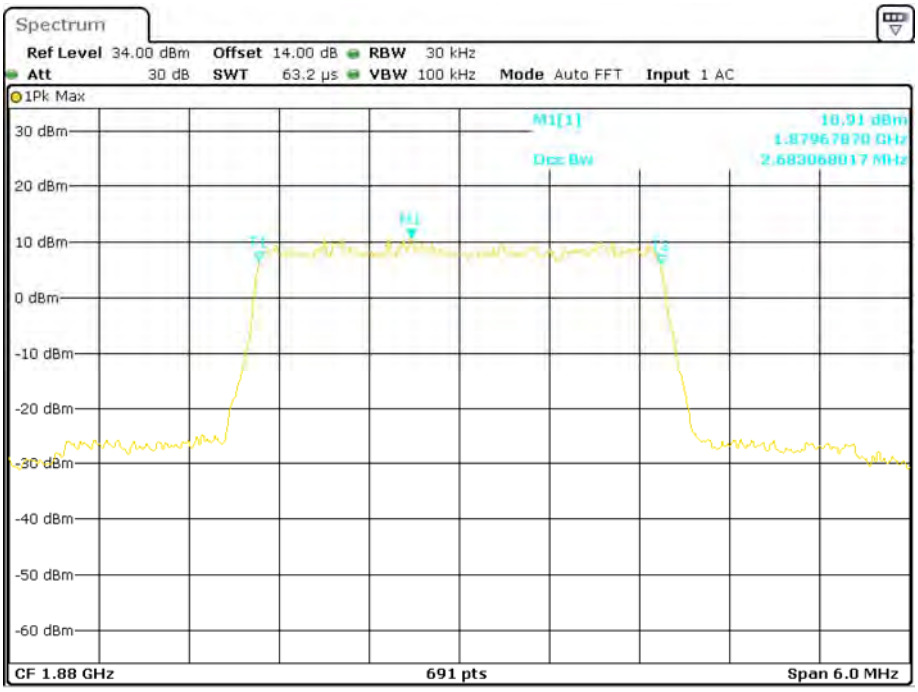


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.8803386 GHz	12.65 dBm	ndB down	2.9436 MHz
T1		1	1.8785239 GHz	-13.68 dBm	ndB	26.00 dB
T2		1	1.8814674 GHz	-13.26 dBm	Q factor	638.8

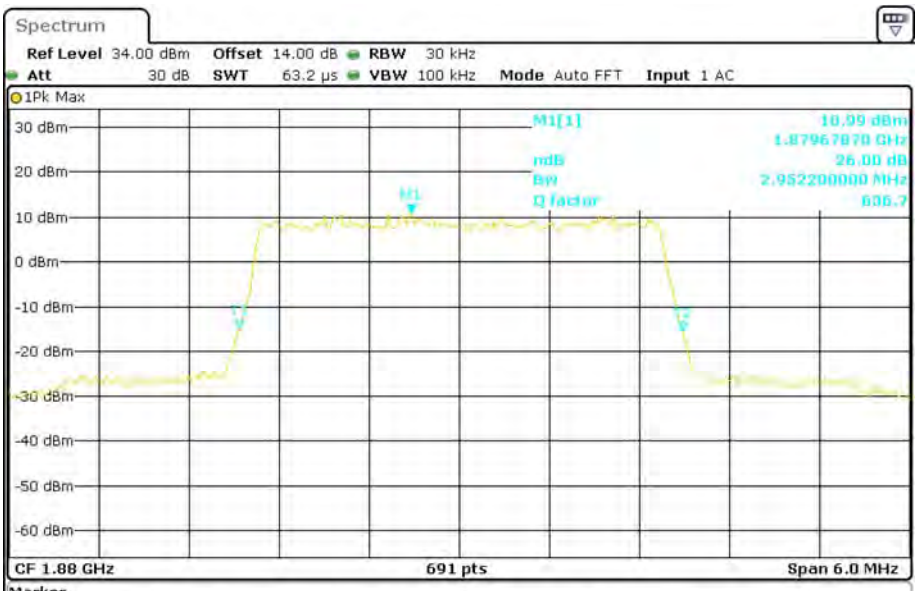
Date: 19.OCT.2017 19:18:05

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



Date: 19.OCT.2017 19:20:05

16-QAM (3.0 MHz) - 26 dB Bandwidth, Middle channel

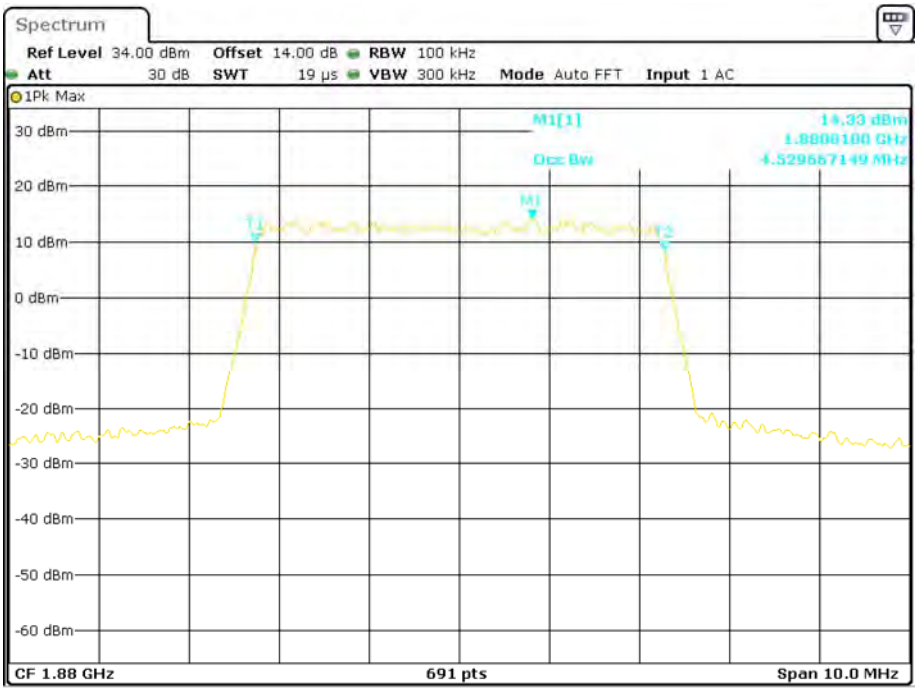


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.8796787 GHz	10.99 dBm	ndB down	2.9522 MHz
T1		1	1.8785326 GHz	-14.75 dBm	ndB	26.00 dB
T2		1	1.8814848 GHz	-15.47 dBm	Q factor	636.7

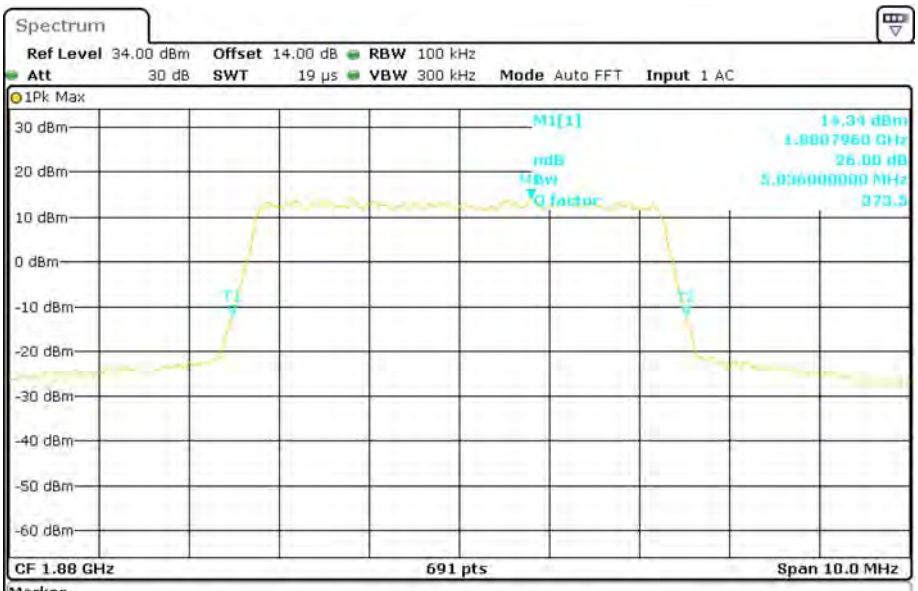
Date: 19.OCT.2017 19:19:38

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



Date: 19.OCT.2017 19:21:50

QPSK (5.0 MHz) - 26 dB Bandwidth, Middle channel



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.880796 GHz	14.34 dBm	ndB down	5.036 MHz
T1		1	1.877482 GHz	-11.66 dBm	ndB	26.00 dB
T2		1	1.882518 GHz	-11.86 dBm	Q factor	373.5

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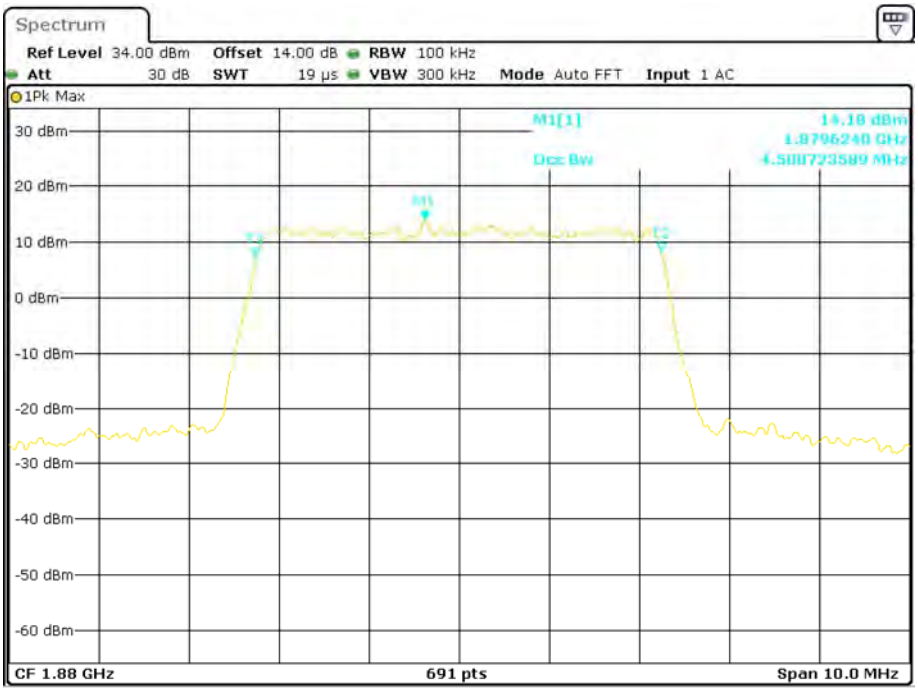
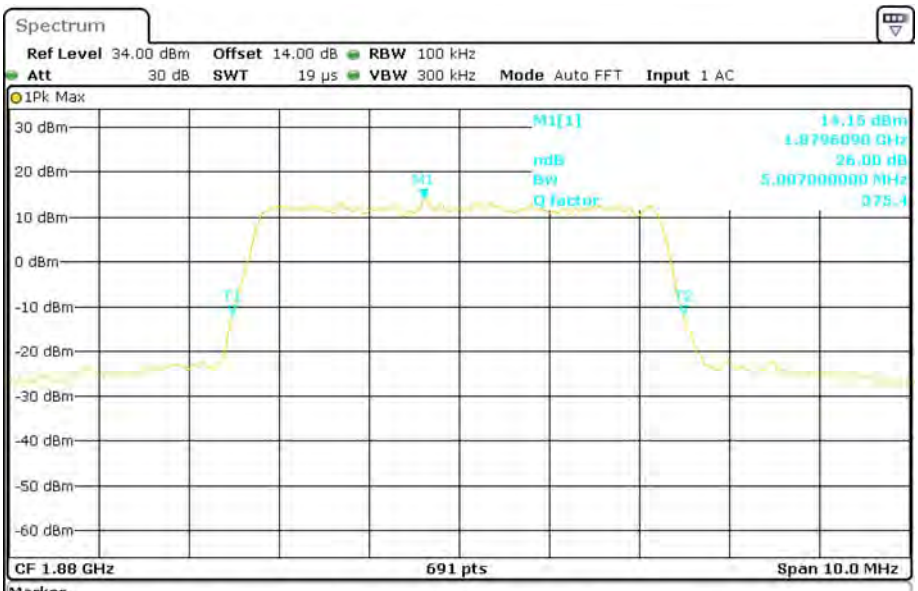
16-QAM (5.0 MHz) - 99% Occupied Bandwidth, Middle channel



Date: 19.OCT.2017 19:22:34

16-QAM (5.0 MHz) - 26 dB Bandwidth, Middle channel

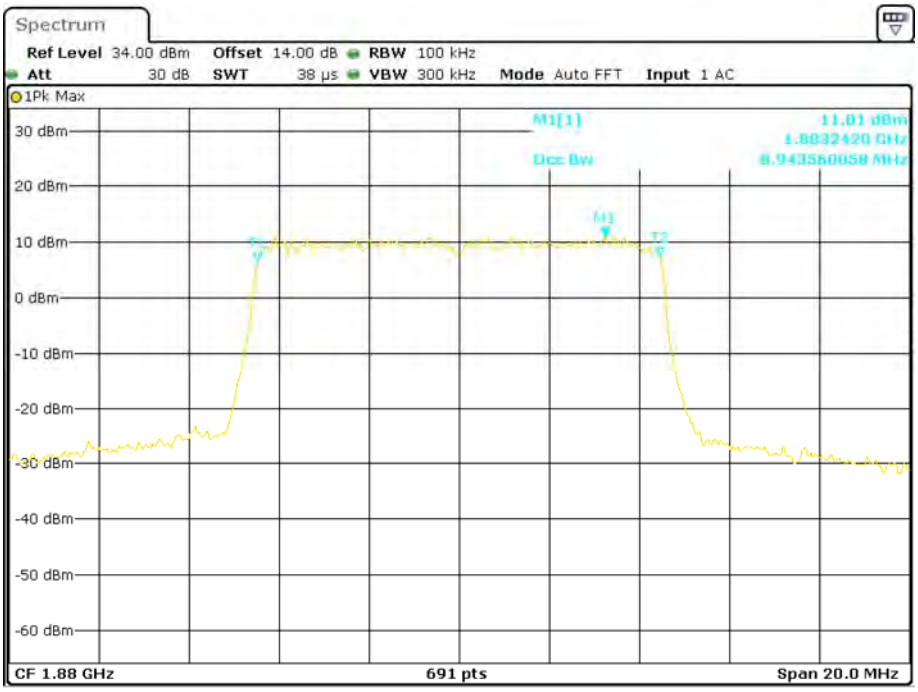


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.879609 GHz	14.15 dBm	ndB down	5.007 MHz
T1		1	1.877482 GHz	-11.45 dBm	ndB	26.00 dB
T2		1	1.882489 GHz	-11.64 dBm	Q factor	375.4

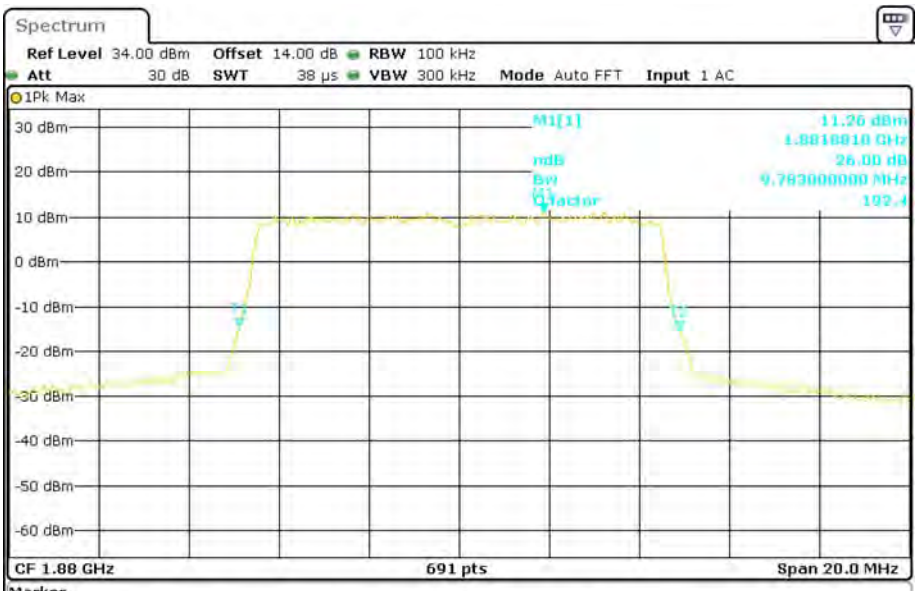
Date: 19.OCT.2017 19:23:05

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



Date: 19.OCT.2017 19:26:49

QPSK (10.0 MHz) - 26 dB Bandwidth, Middle channel

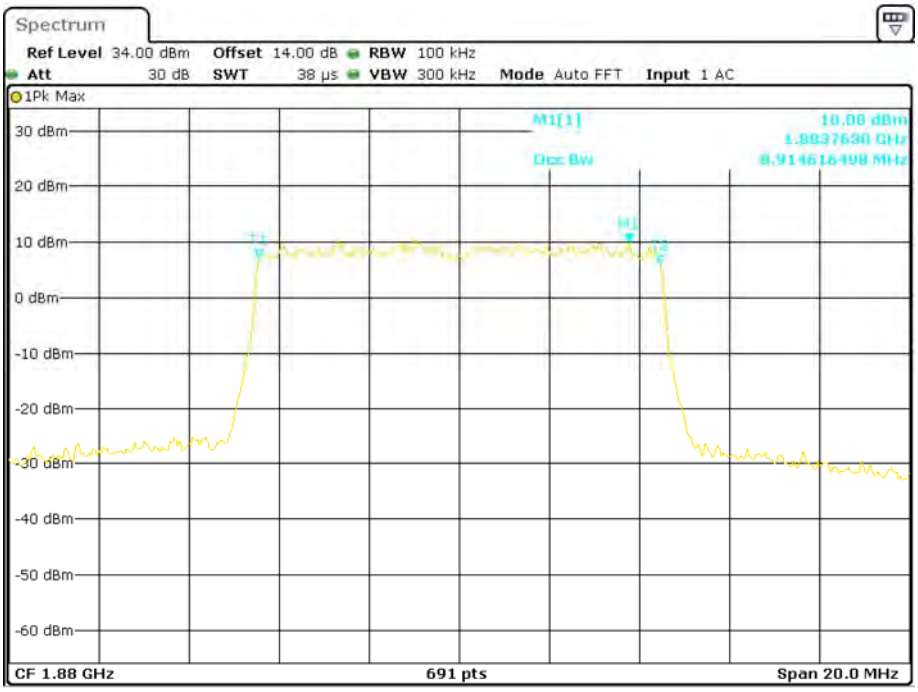


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.881881 GHz	11.26 dBm	ndB down	9.783 MHz
T1		1	1.875109 GHz	-14.30 dBm	ndB	26.00 dB
T2		1	1.884891 GHz	-15.11 dBm	Q factor	192.4

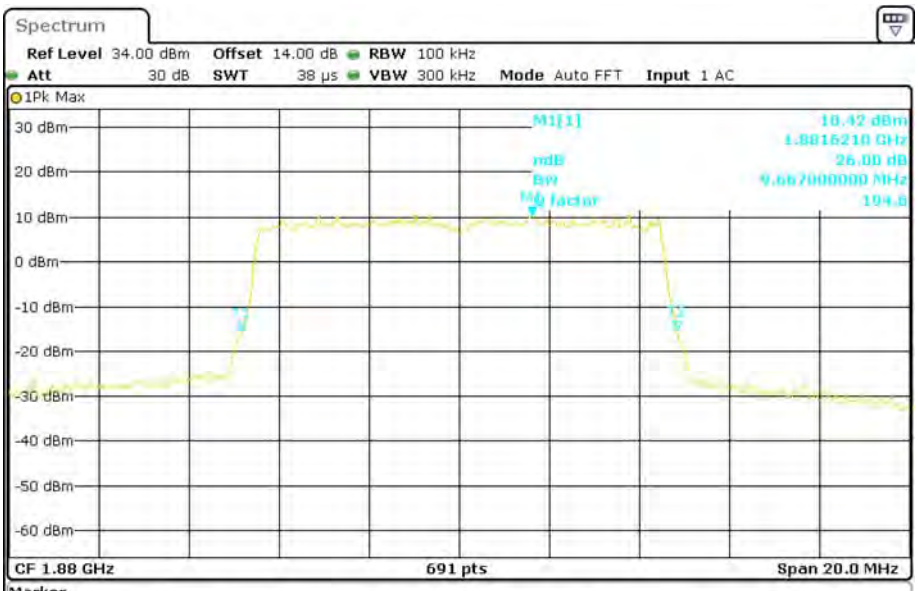
Date: 19.OCT.2017 19:24:01

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



Date: 19.OCT.2017 19:26:00

16-QAM (10.0 MHz) - 26 dB Bandwidth, Middle channel

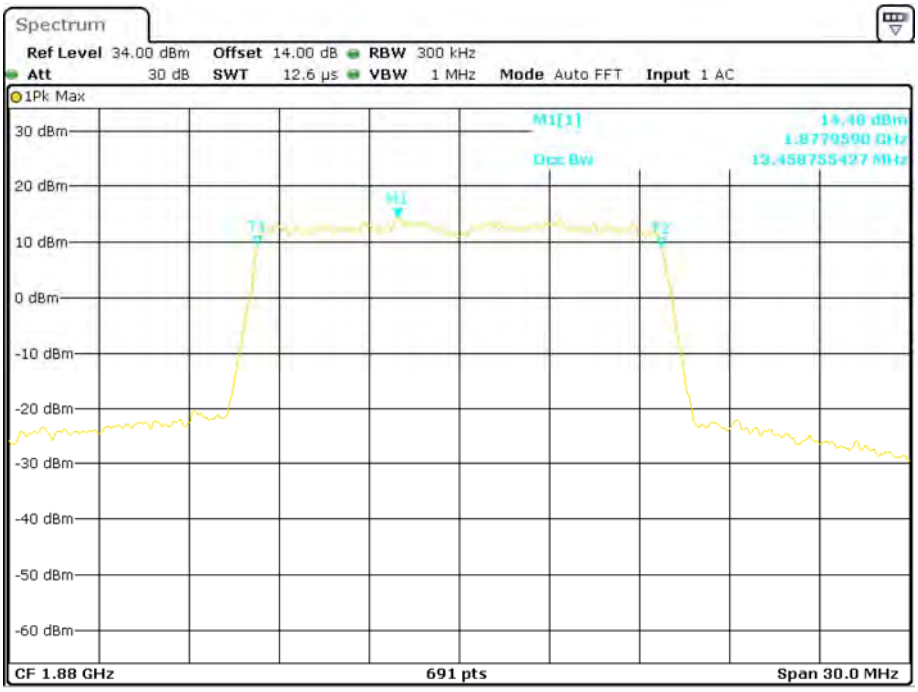


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.881621 GHz	10.42 dBm	ndB down	9.667 MHz
T1		1	1.875166 GHz	-15.27 dBm	ndB	26.00 dB
T2		1	1.884834 GHz	-15.14 dBm	Q factor	194.6

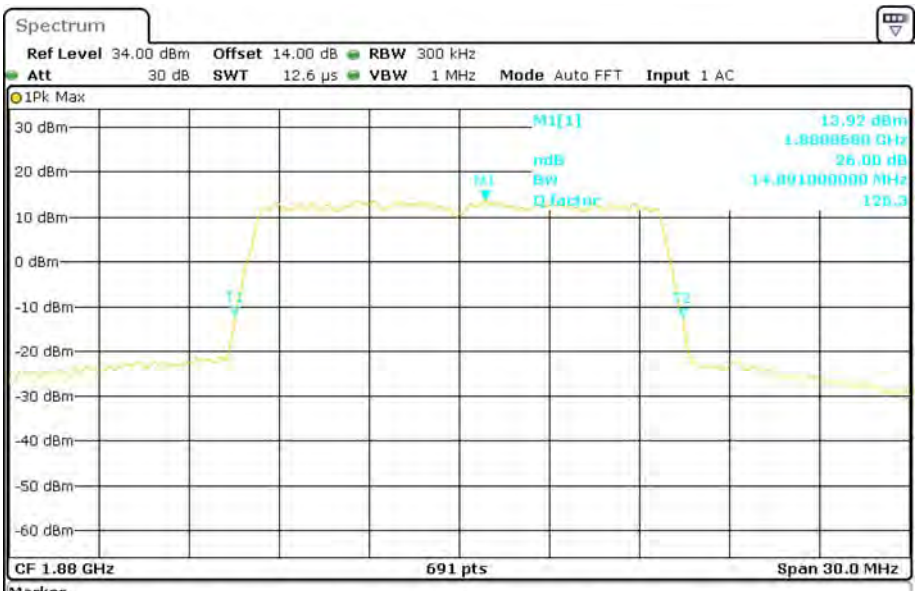
Date: 19.OCT.2017 19:25:26

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



Date: 19.OCT.2017 19:30:24

QPSK (15.0 MHz) - 26 dB Bandwidth, Middle channel

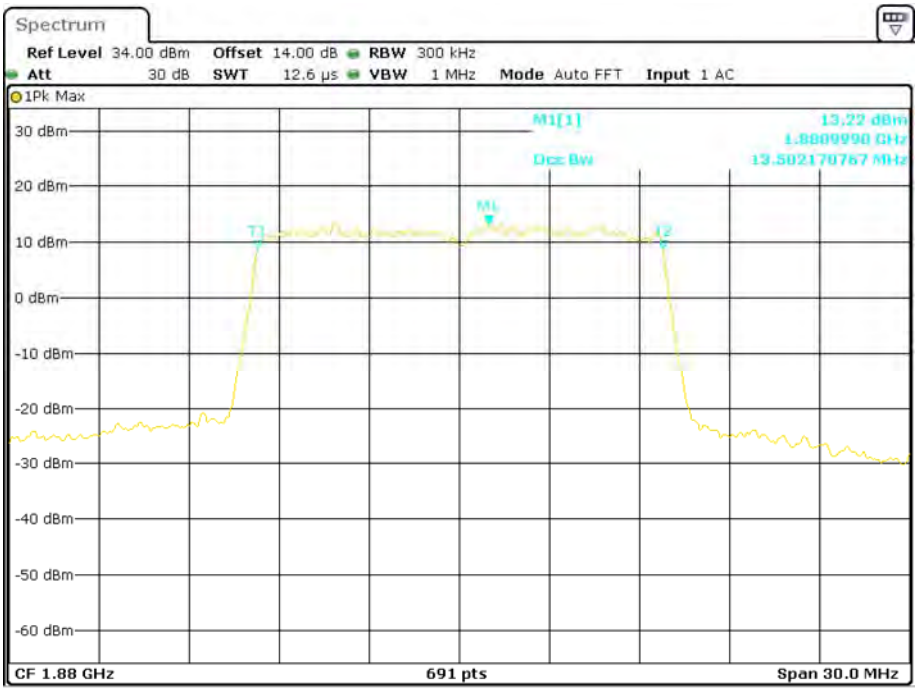


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.880868 GHz	13.92 dBm	ndB down	14.891 MHz
T1		1	1.872533 GHz	-11.92 dBm	ndB	26.00 dB
T2		1	1.887424 GHz	-11.99 dBm	Q factor	126.3

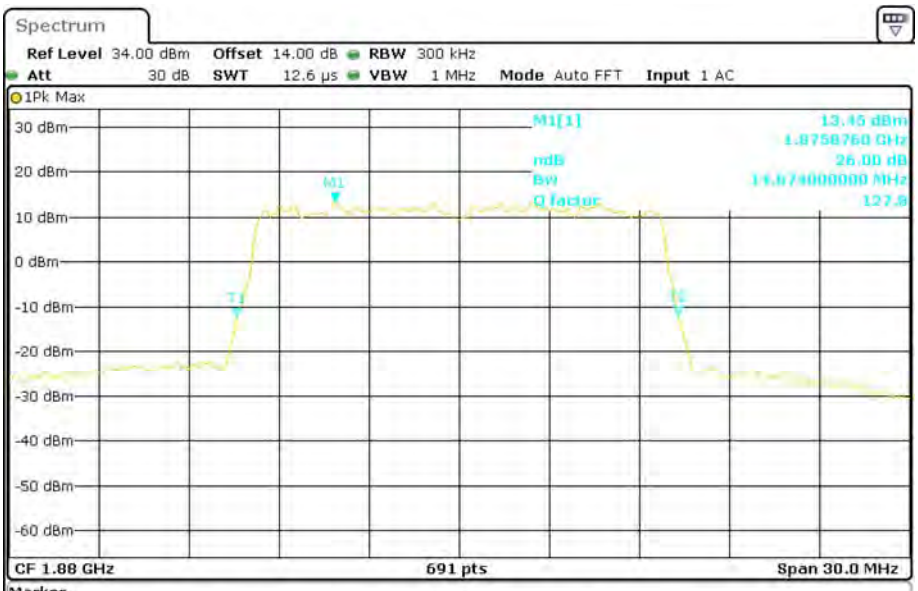
Date: 19.OCT.2017 19:32:05

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



Date: 19.OCT.2017 19:31:07

16-QAM (15.0 MHz) - 26 dB Bandwidth, Middle channel

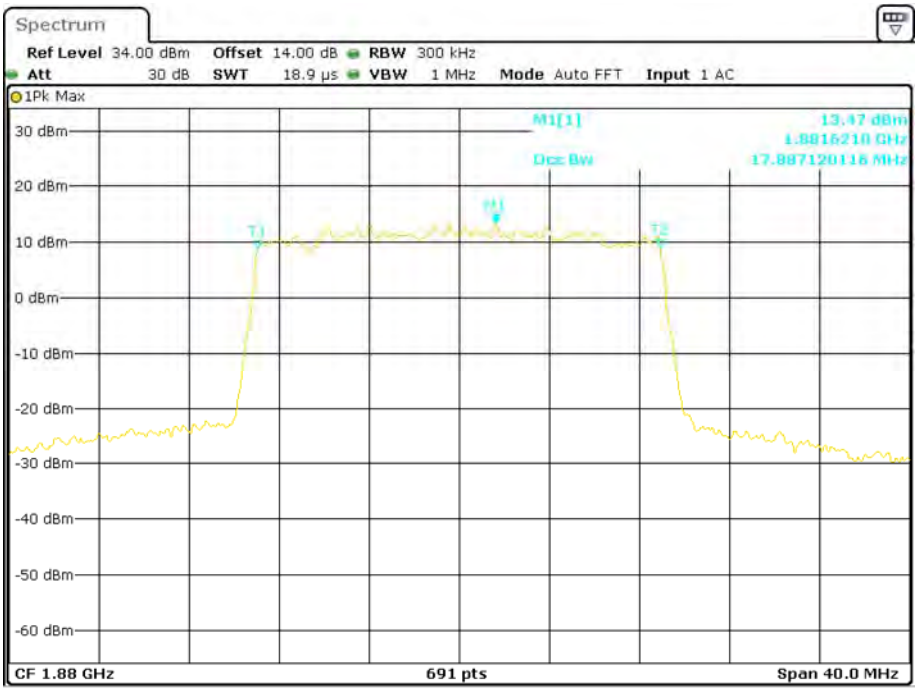


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.875876 GHz	13.45 dBm	ndB down	14.674 MHz
T1		1	1.872619 GHz	-12.11 dBm	ndB	26.00 dB
T2		1	1.887294 GHz	-11.94 dBm	Q factor	127.8

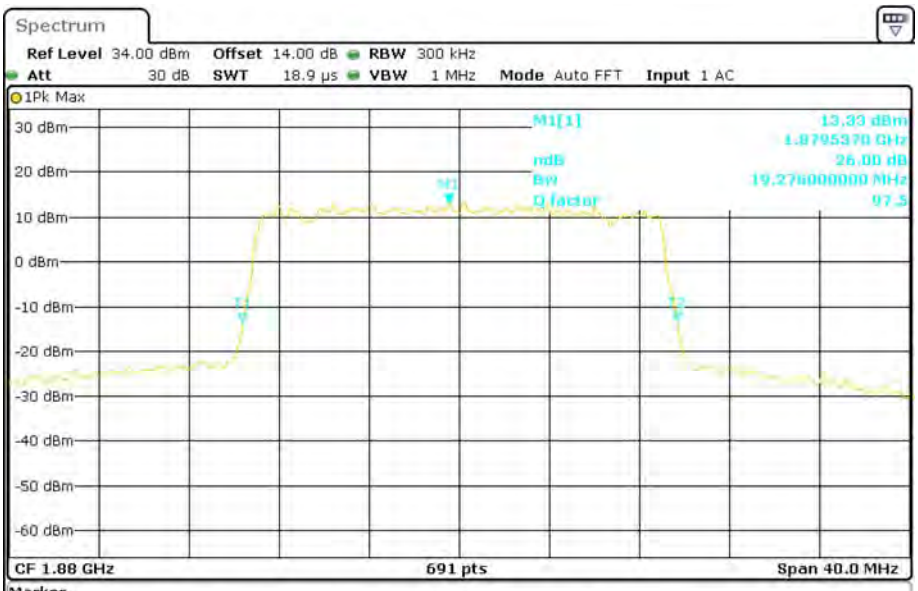
Date: 19.OCT.2017 19:32:06

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



Date: 19.OCT.2017 19:46:27

QPSK (20.0 MHz) - 26 dB Bandwidth, Middle channel

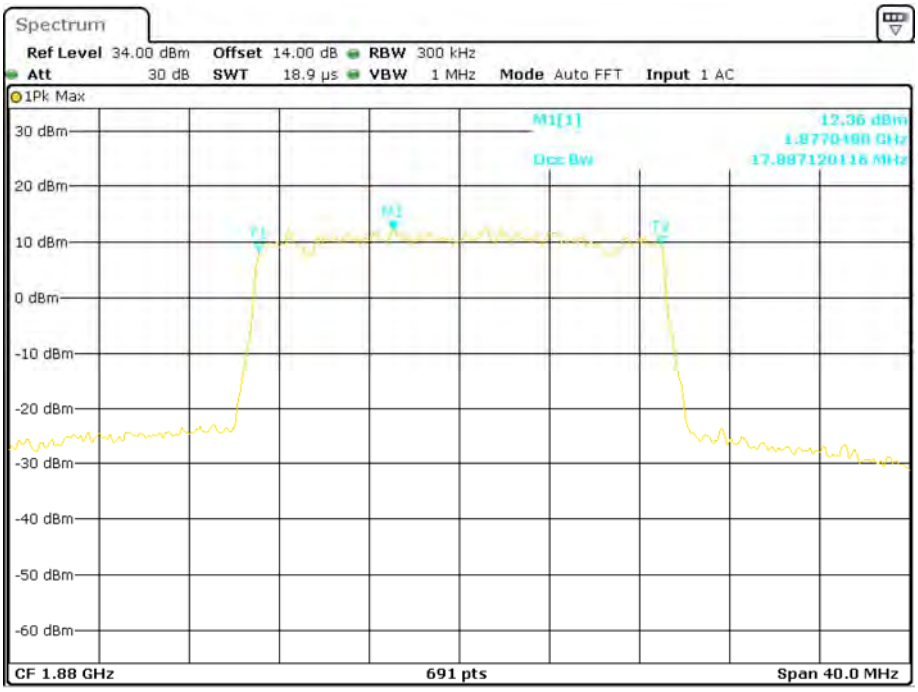


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.879537 GHz	13.33 dBm	ndB down	19.276 MHz
T1		1	1.870391 GHz	-13.30 dBm	ndB	26.00 dB
T2		1	1.889667 GHz	-13.12 dBm	Q factor	97.5

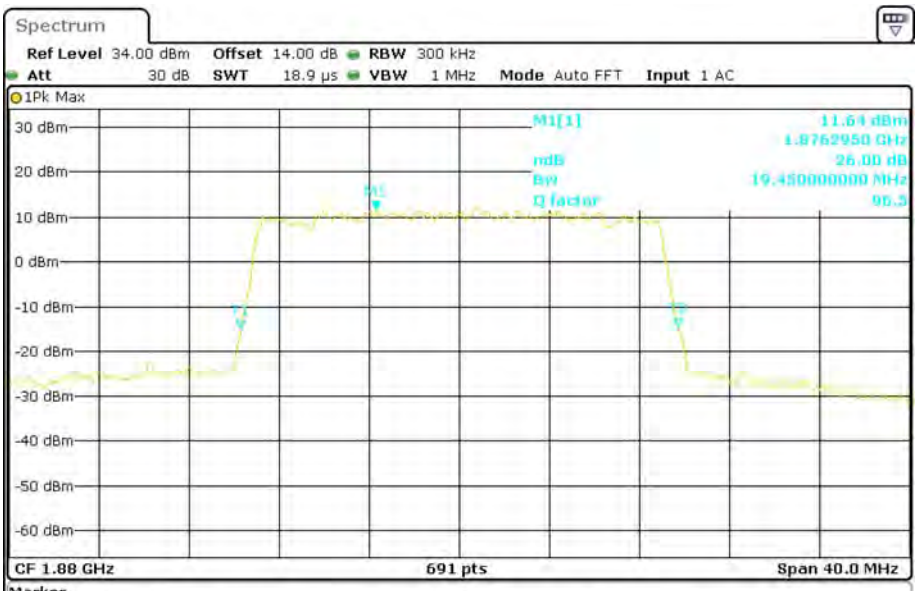
Date: 19.OCT.2017 19:34:38

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



Date: 19.OCT.2017 19:45:47

16-QAM (20.0 MHz) - 26 dB Bandwidth, Middle channel



Marker

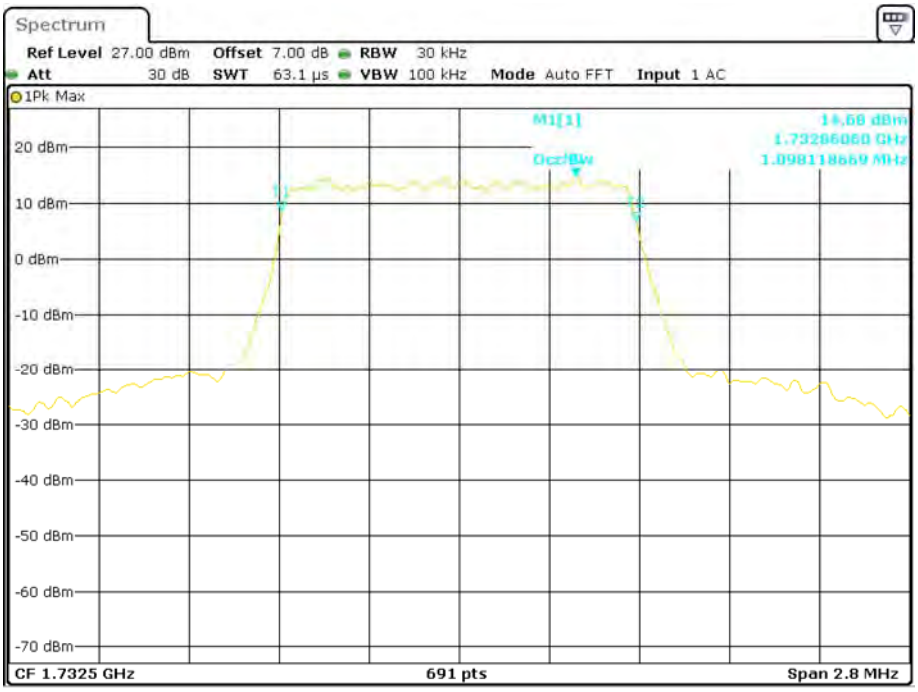
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.876295 GHz	11.64 dBm	ndB down	19.45 MHz
T1		1	1.870275 GHz	-14.95 dBm	ndB	26.00 dB
T2		1	1.889725 GHz	-14.38 dBm	Q factor	96.5

Date: 19.OCT.2017 19:35:19

LTE Band 4: (Middle Channel)

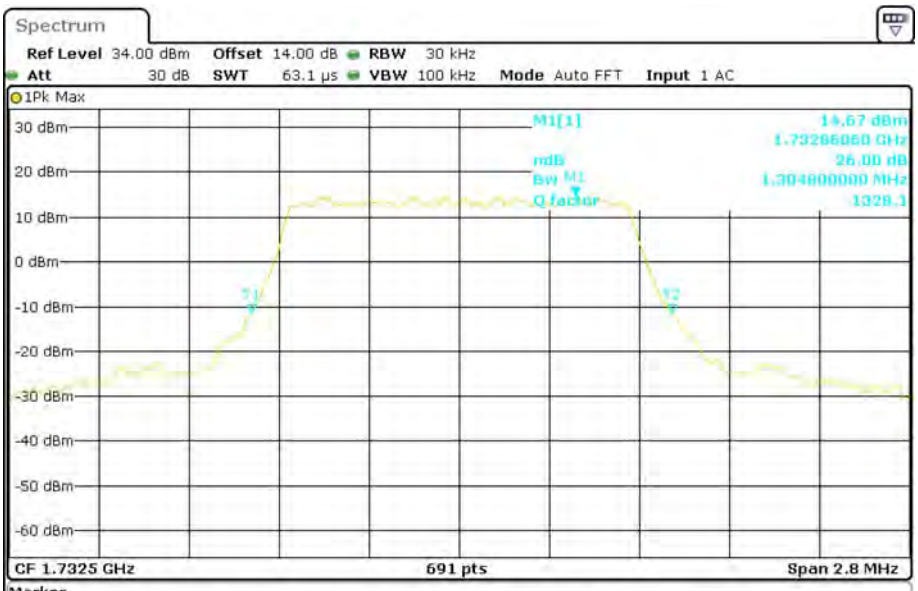
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.098	1.305
	16QAM	1.102	1.317
3.0	QPSK	2.692	2.944
	16QAM	2.683	2.952
5.0	QPSK	4.515	5.036
	16QAM	4.501	5.007
10.0	QPSK	8.915	9.812
	16QAM	8.915	9.609
15.0	QPSK	13.459	14.718
	16QAM	13.415	14.761
20.0	QPSK	17.945	19.219
	16QAM	17.887	19.334

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



Date: 19.OCT.2017 14:24:53

QPSK (1.4 MHz) - 26 dB Bandwidth, Middle channel

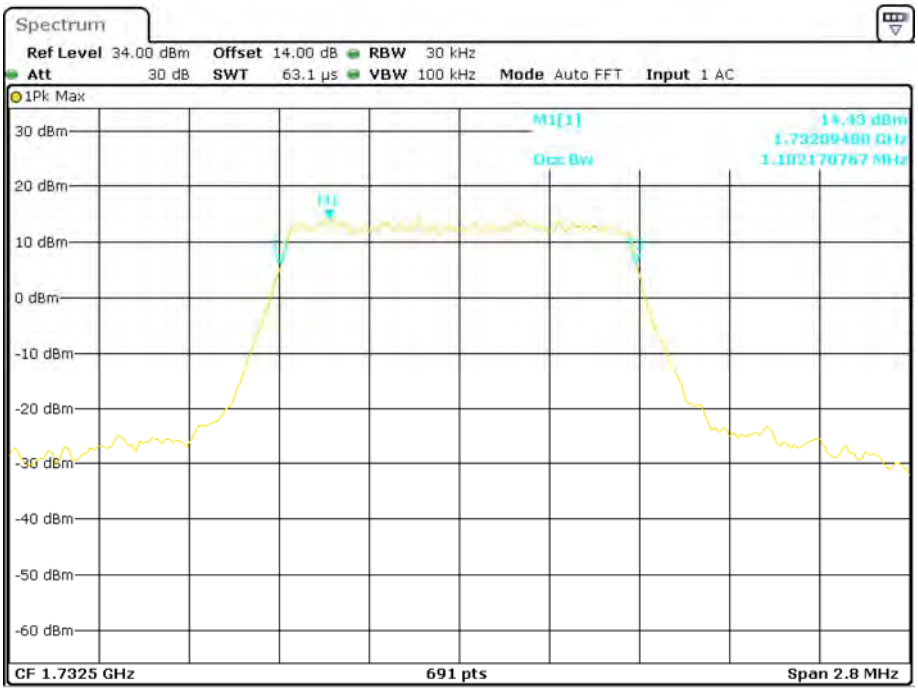


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.7328606 GHz	14.67 dBm	ndB down	1.3048 MHz
T1		1	1.7318557 GHz	-11.22 dBm	ndB	26.00 dB
T2		1	1.7331605 GHz	-11.39 dBm	Q factor	1328.1

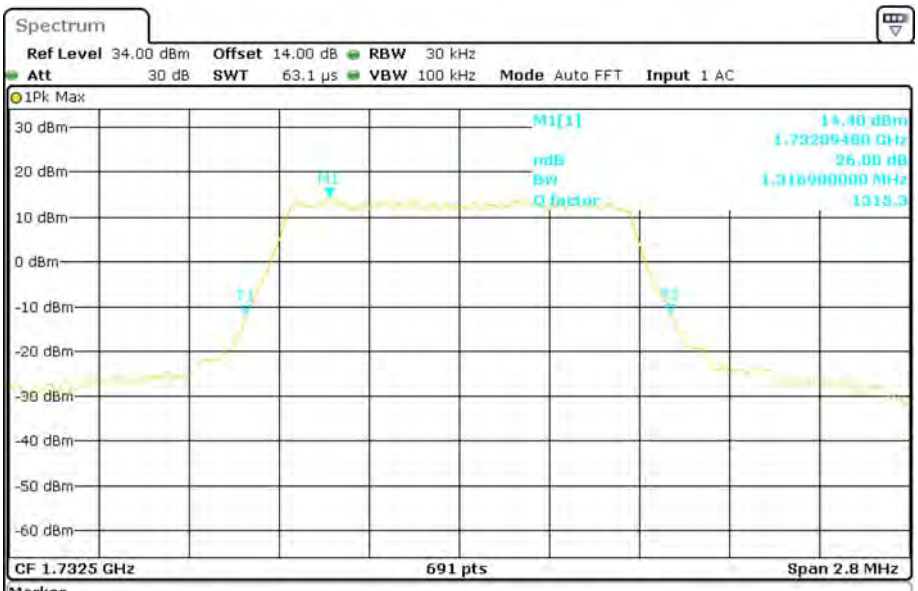
Date: 19.OCT.2017 19:57:35

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



Date: 19.OCT.2017 19:54:12

16-QAM (1.4 MHz) - 26 dB Bandwidth, Middle channel

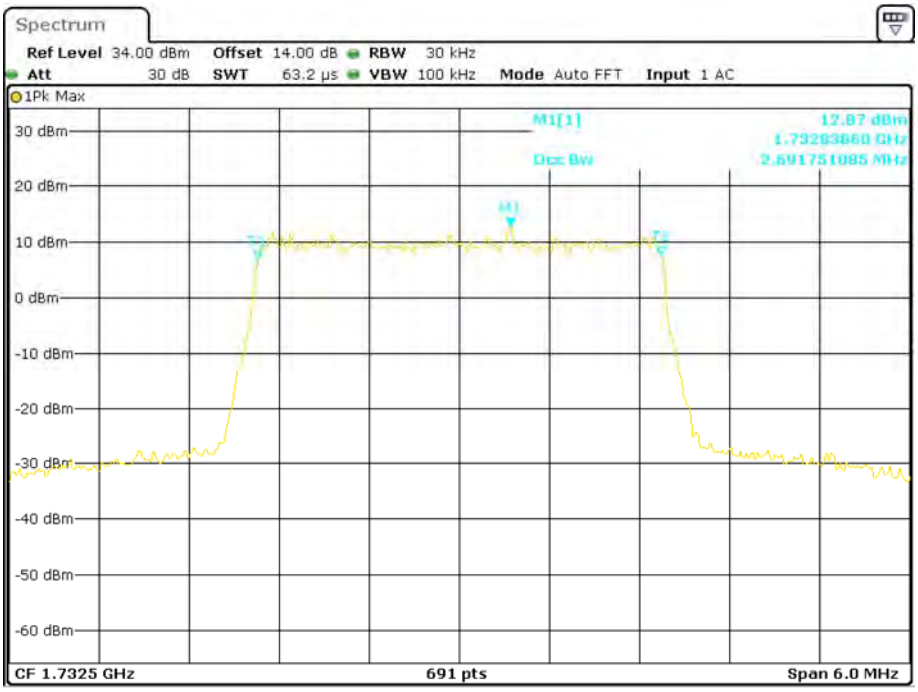


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.7320948 GHz	14.40 dBm	ndB down	1.3169 MHz
T1		1	1.7318395 GHz	-11.52 dBm	ndB	26.00 dB
T2		1	1.7331564 GHz	-11.44 dBm	Q factor	1315.3

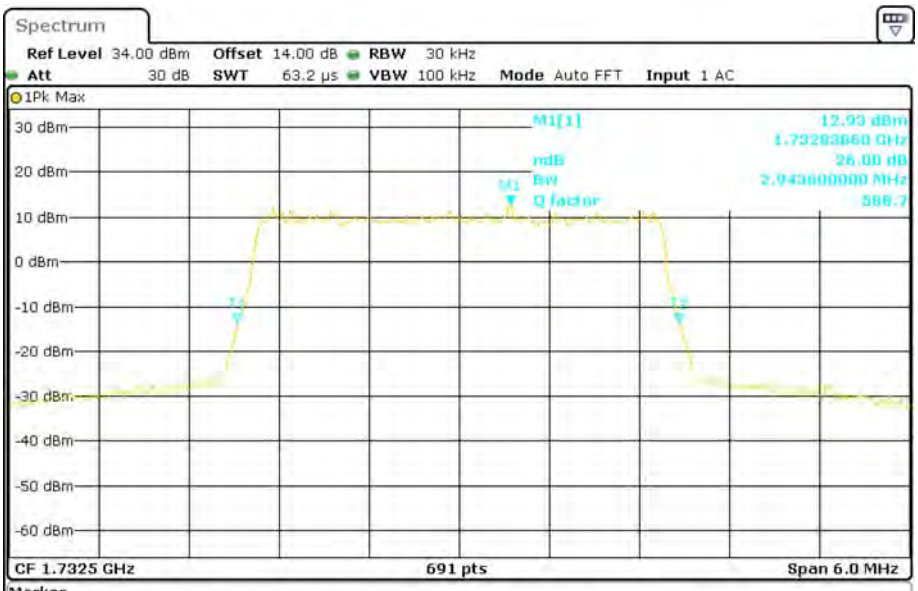
Date: 19.OCT.2017 19:54:48

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



Date: 19.OCT.2017 20:00:59

QPSK (3.0 MHz) - 26 dB Bandwidth, Middle channel

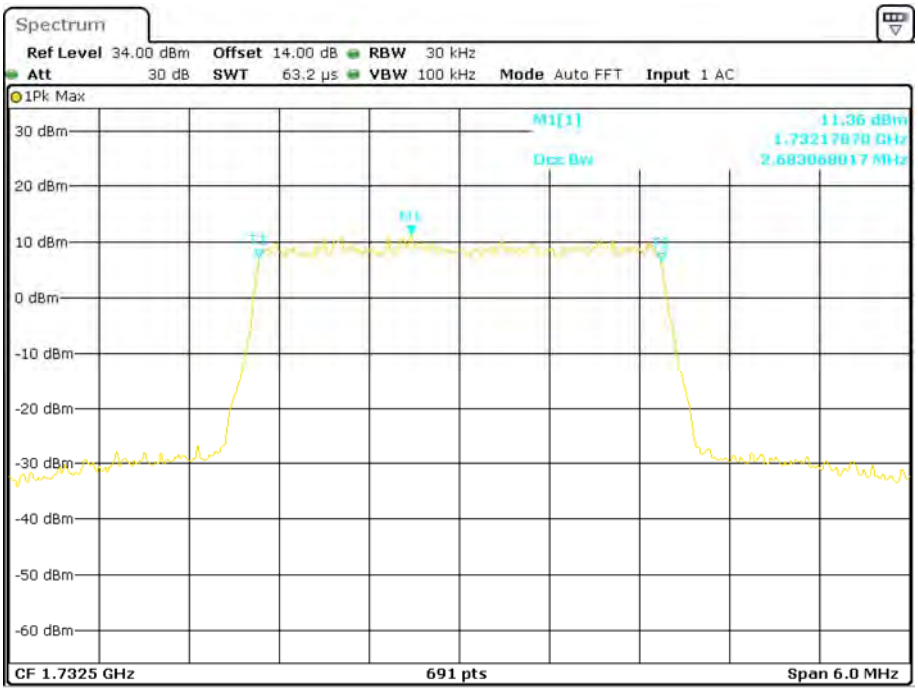


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.7328386 GHz	12.93 dBm	ndB down	2.9436 MHz
T1		1	1.7310239 GHz	-13.32 dBm	ndB	26.00 dB
T2		1	1.7339674 GHz	-13.30 dBm	Q factor	588.7

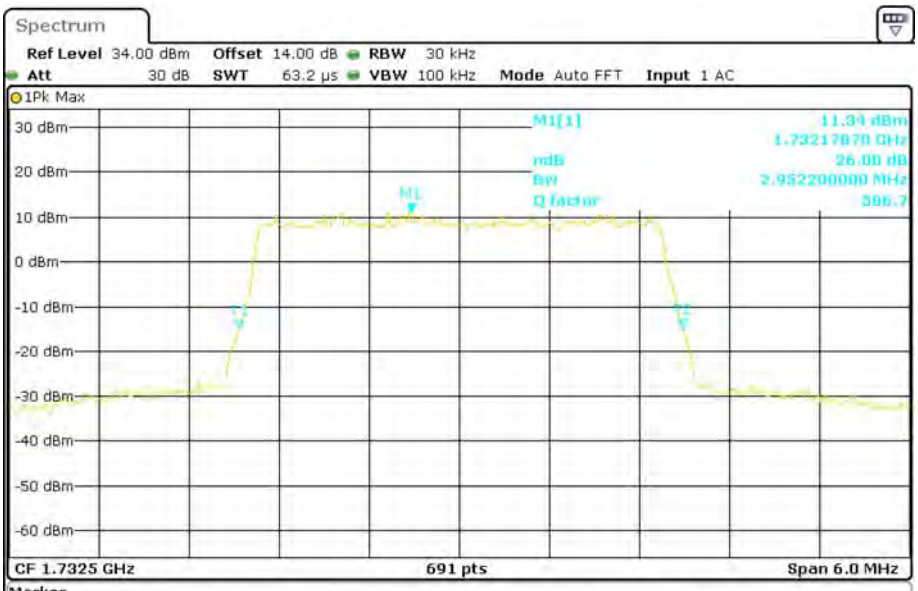
Date: 19.OCT.2017 19:59:08

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



Date: 19.OCT.2017 20:00:29

16-QAM (3.0 MHz) - 26 dB Bandwidth, Middle channel

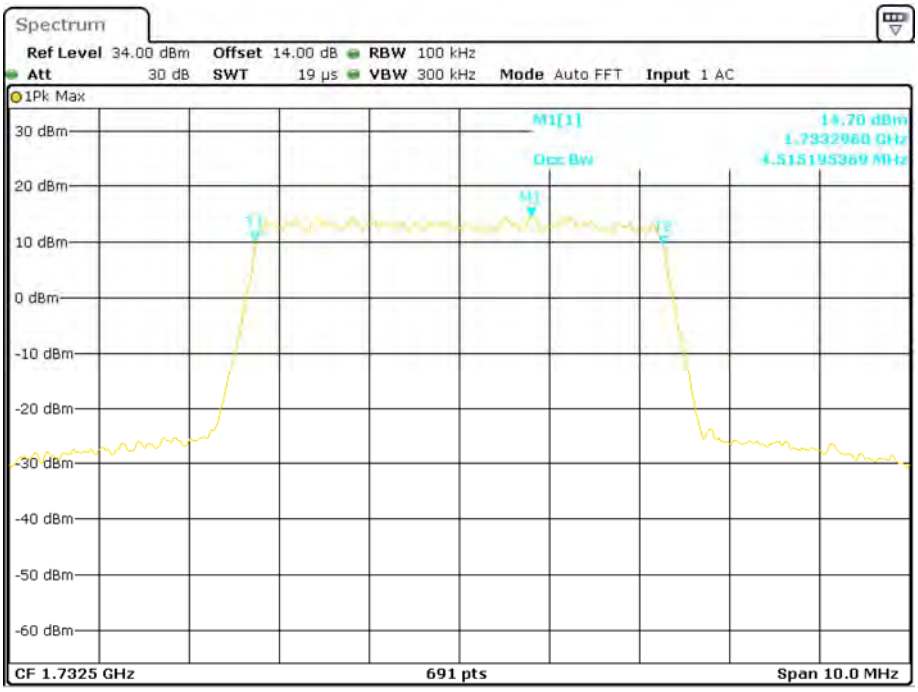


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.7321787 GHz	11.34 dBm	ndB down	2.9522 MHz
T1		1	1.7310326 GHz	-14.75 dBm	ndB	26.00 dB
T2		1	1.7339848 GHz	-14.50 dBm	Q factor	586.7

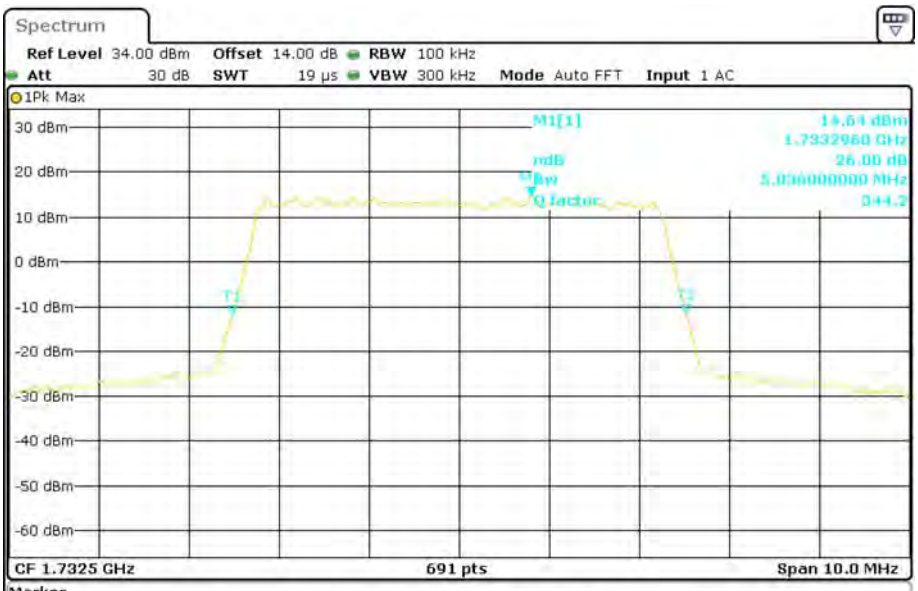
Date: 19.OCT.2017 18:59:56

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



Date: 19.OCT.2017 20:02:15

QPSK (5.0 MHz) - 26 dB Bandwidth, Middle channel

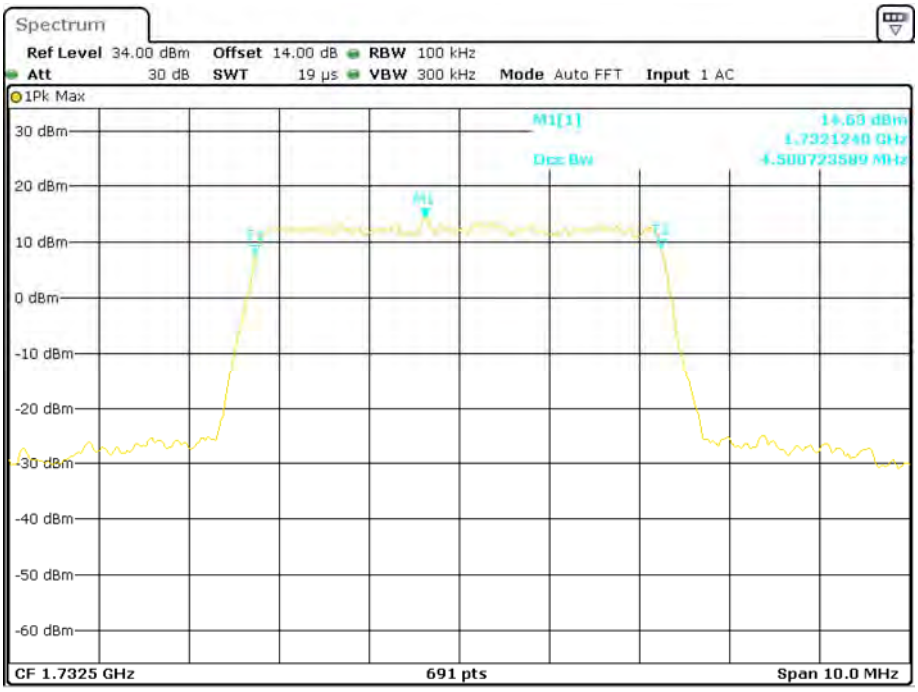


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.733296 GHz	14.64 dBm	ndB down	5.036 MHz
T1		1	1.729982 GHz	-11.49 dBm	ndB	26.00 dB
T2		1	1.735018 GHz	-11.34 dBm	Q factor	344.2

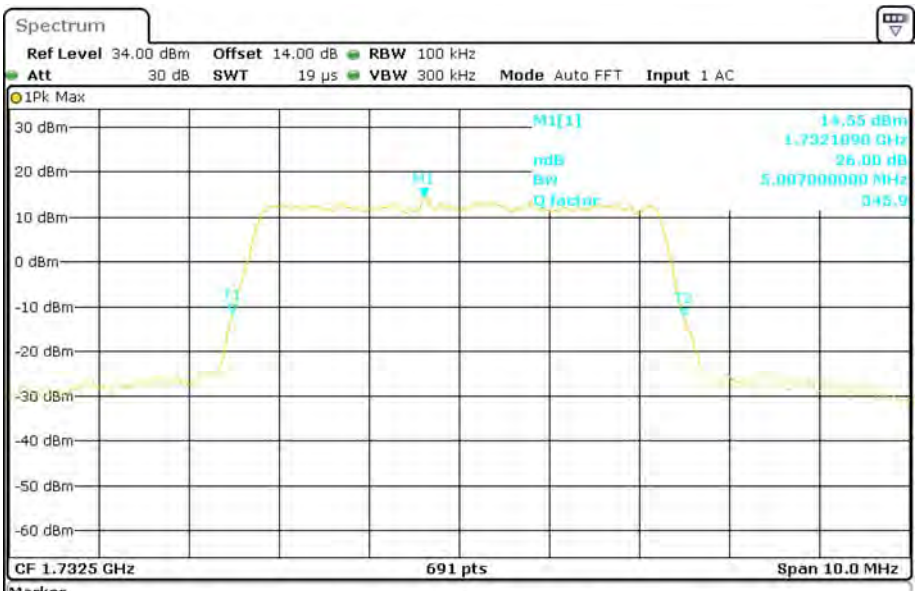
Date: 19.OCT.2017 20:04:38

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



Date: 19.OCT.2017 20:03:08

16-QAM (5.0 MHz) - 26 dB Bandwidth, Middle channel

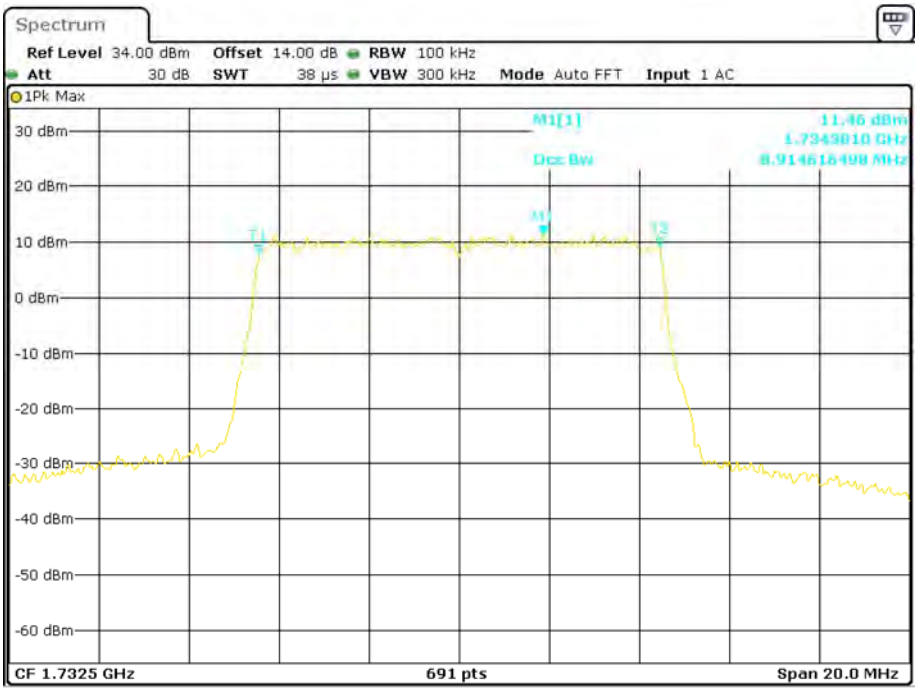


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.732109 GHz	14.55 dBm	ndB down	5.007 MHz
T1		1	1.729982 GHz	-11.37 dBm	ndB	26.00 dB
T2		1	1.734989 GHz	-11.95 dBm	Q factor	345.9

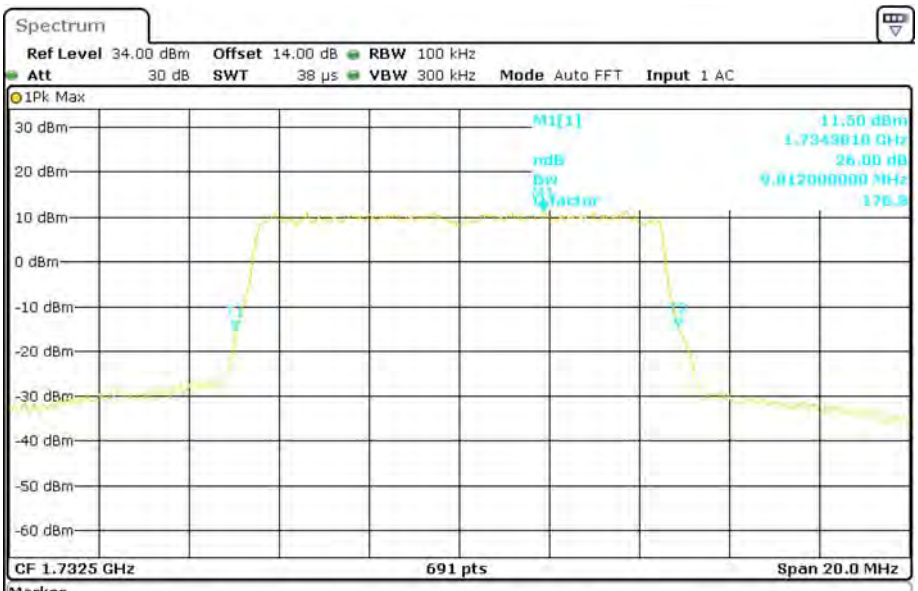
Date: 19.OCT.2017 20:04:04

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



Date: 19.OCT.2017 20:08:05

QPSK (10.0 MHz) - 26 dB Bandwidth, Middle channel



Marker

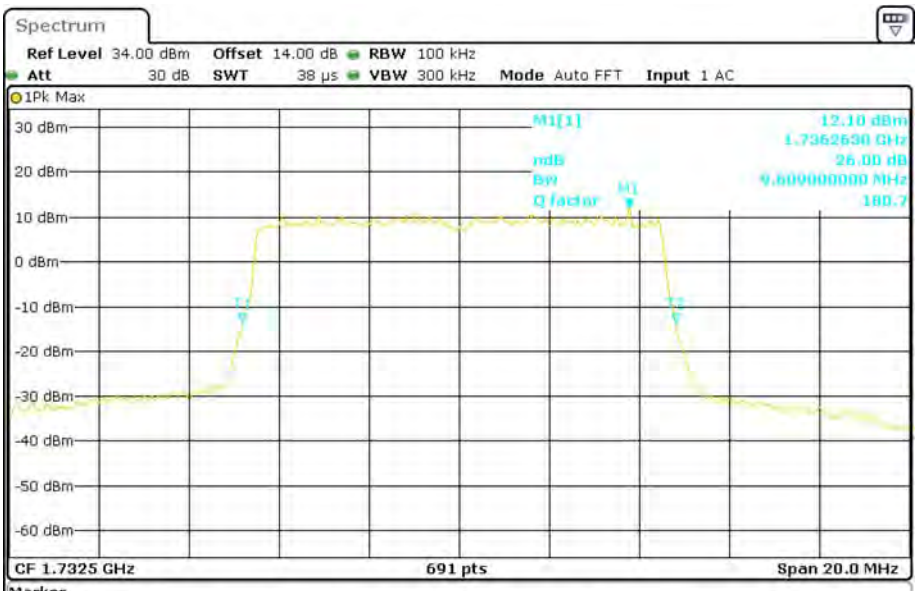
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.734381 GHz	11.50 dBm	ndB down	9.812 MHz
T1		1	1.727551 GHz	-15.20 dBm	ndB	26.00 dB
T2		1	1.737363 GHz	-14.32 dBm	Q factor	176.8

Date: 19.OCT.2017 20:06:01

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

Date: 19.OCT.2017 20:07:31

16-QAM (10.0 MHz) - 26 dB Bandwidth, Middle channel

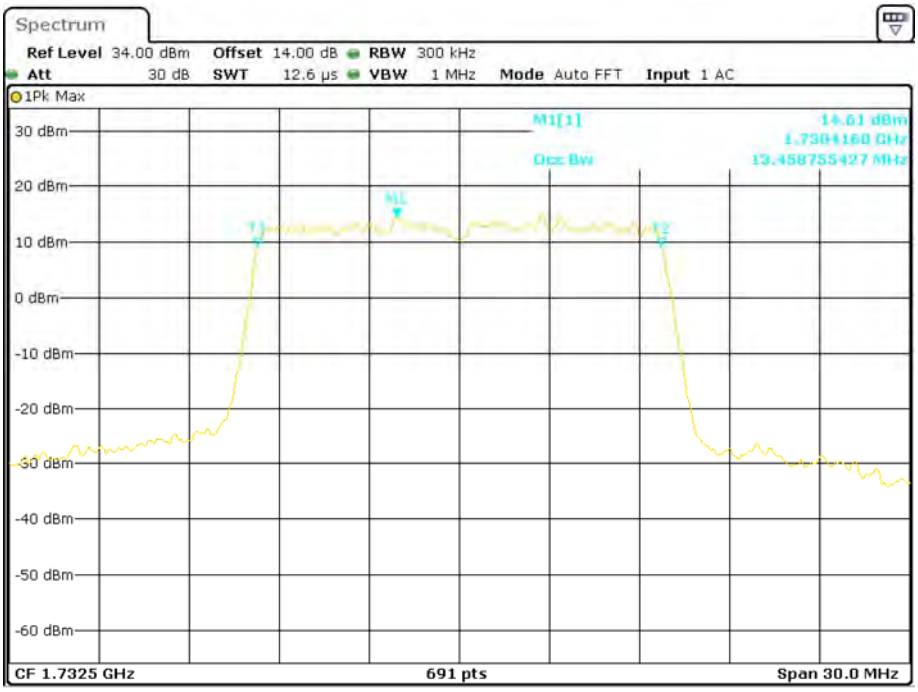


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.736263 GHz	12.10 dBm	ndB down	9.609 MHz
T1		1	1.727695 GHz	-13.39 dBm	ndB	26.00 dB
T2		1	1.737305 GHz	-13.26 dBm	Q factor	180.7

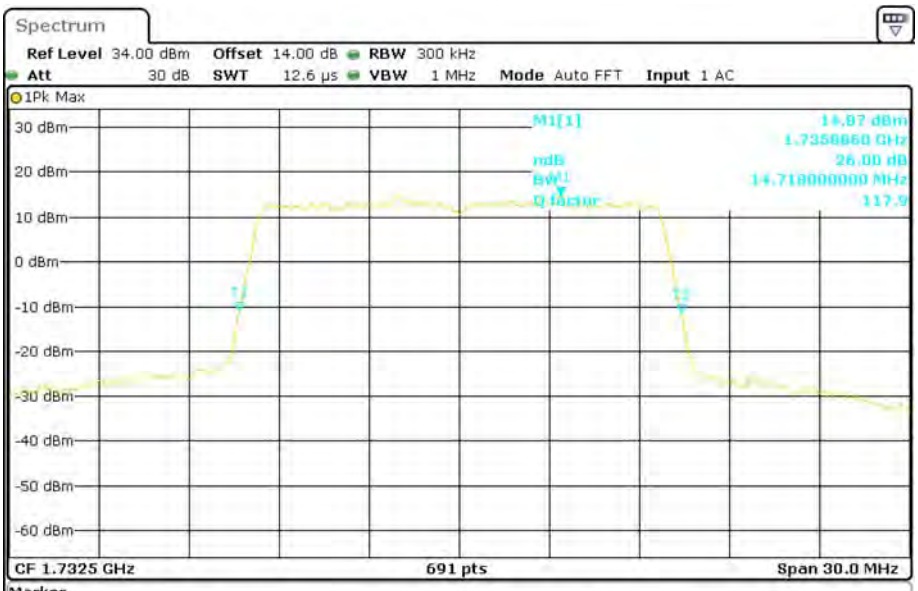
Date: 19.OCT.2017 20:07:01

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



Date: 19.OCT.2017 20:10:16

QPSK (15.0 MHz) - 26 dB Bandwidth, Middle channel

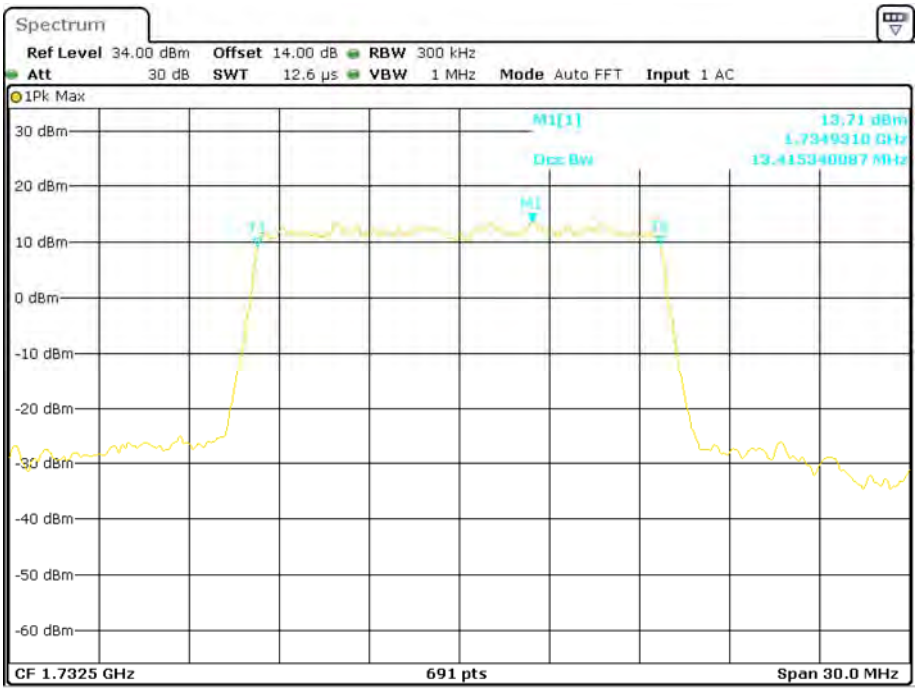


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.735886 GHz	14.87 dBm	ndB down	14.718 MHz
T1		1	1.725163 GHz	-10.78 dBm	ndB	26.00 dB
T2		1	1.739881 GHz	-11.22 dBm	Q factor	117.9

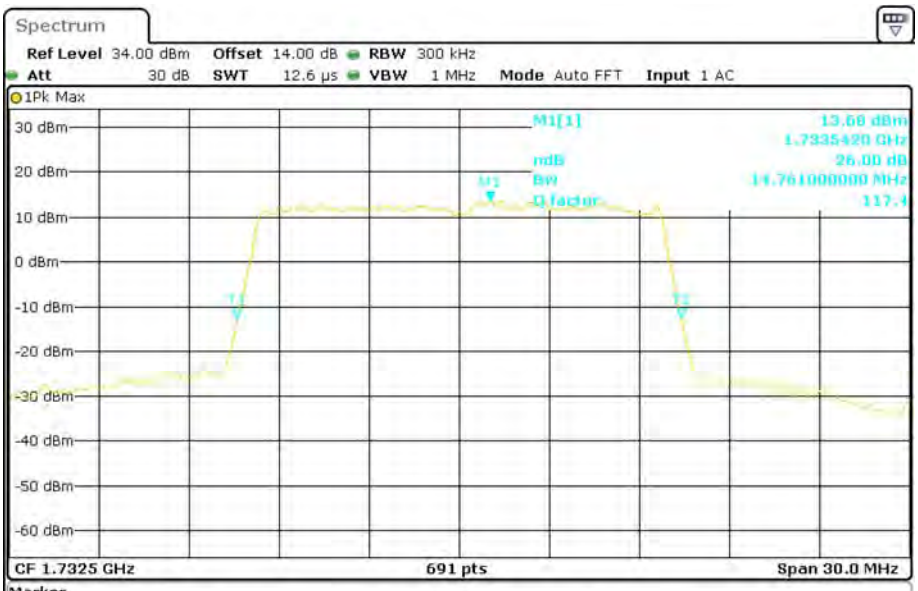
Date: 19.OCT.2017 20:12:16

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



Date: 19.OCT.2017 20:11:00

16-QAM (15.0 MHz) - 26 dB Bandwidth, Middle channel

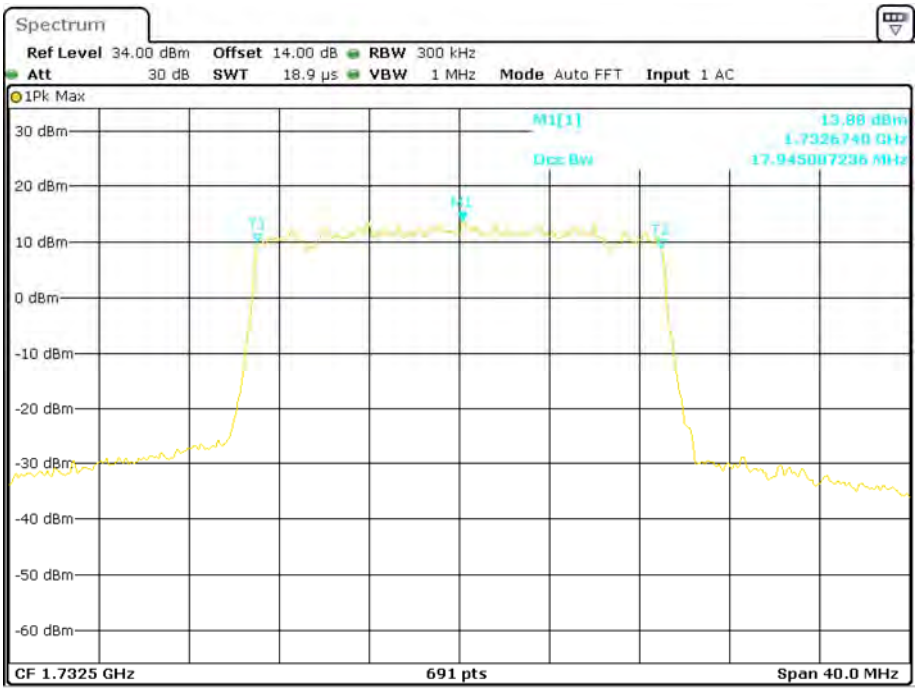


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.733542 GHz	13.68 dBm	ndB down	14.761 MHz
T1		1	1.725119 GHz	-12.55 dBm	ndB	26.00 dB
T2		1	1.739881 GHz	-12.30 dBm	Q factor	117.4

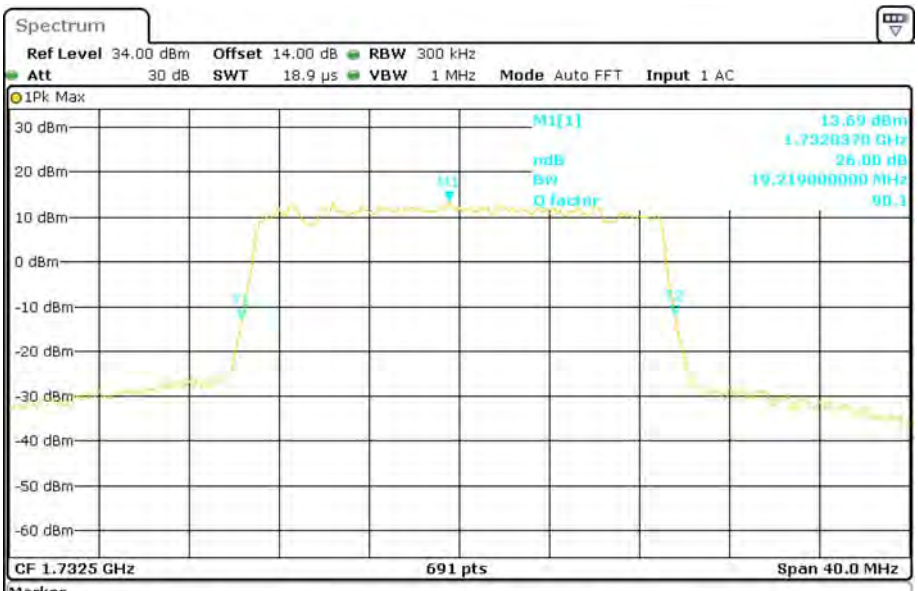
Date: 19.OCT.2017 20:11:48

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



Date: 19.OCT.2017 20:15:12

QPSK (20.0 MHz) - 26 dB Bandwidth, Middle channel

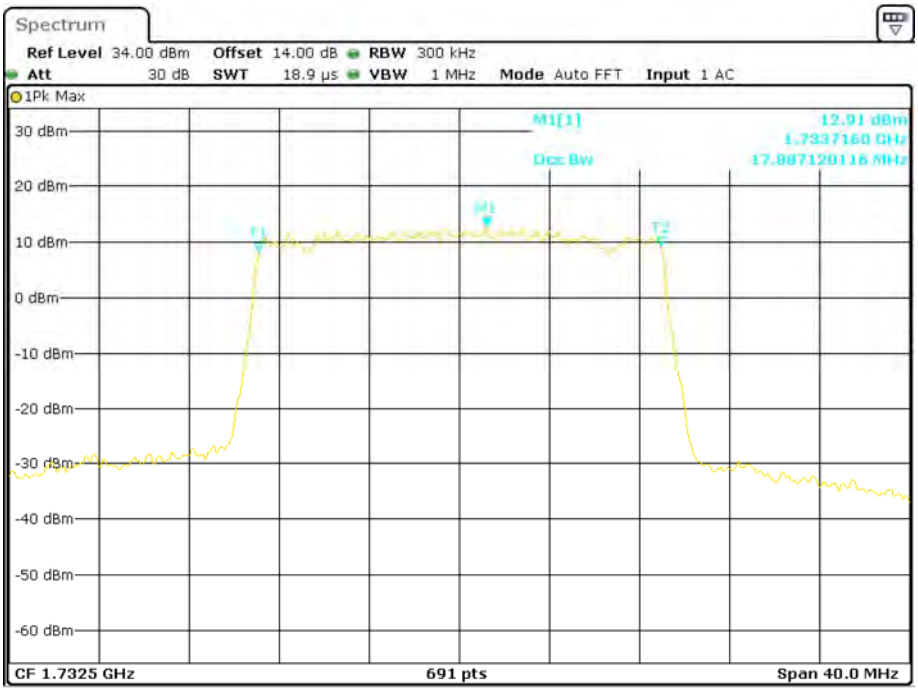


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.732037 GHz	13.69 dBm	ndB down	19.219 MHz
T1		1	1.722833 GHz	-12.62 dBm	ndB	26.00 dB
T2		1	1.742051 GHz	-11.66 dBm	Q factor	90.1

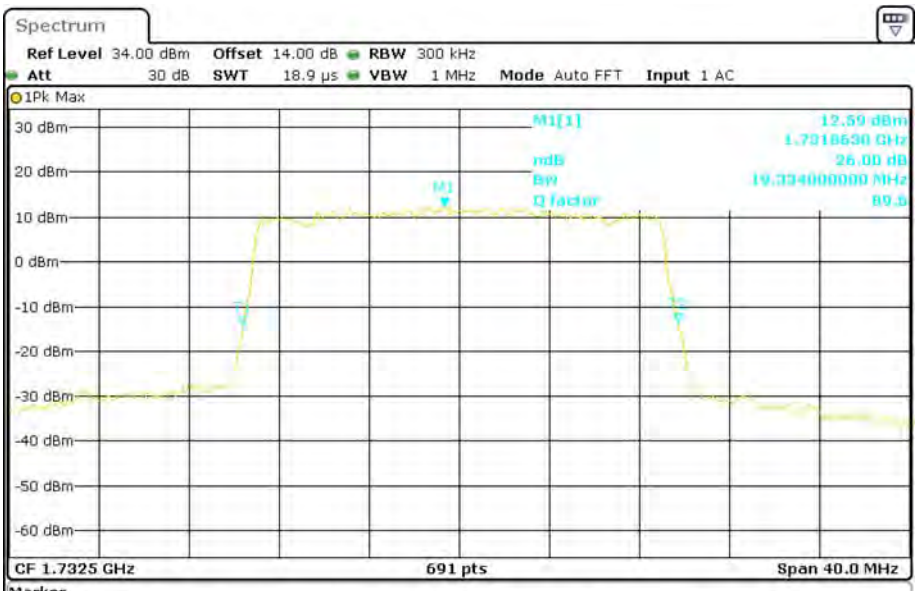
Date: 19.OCT.2017 20:13:08

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



Date: 19.OCT.2017 20:14:28

16-QAM (20.0 MHz) - 26 dB Bandwidth, Middle channel



Marker

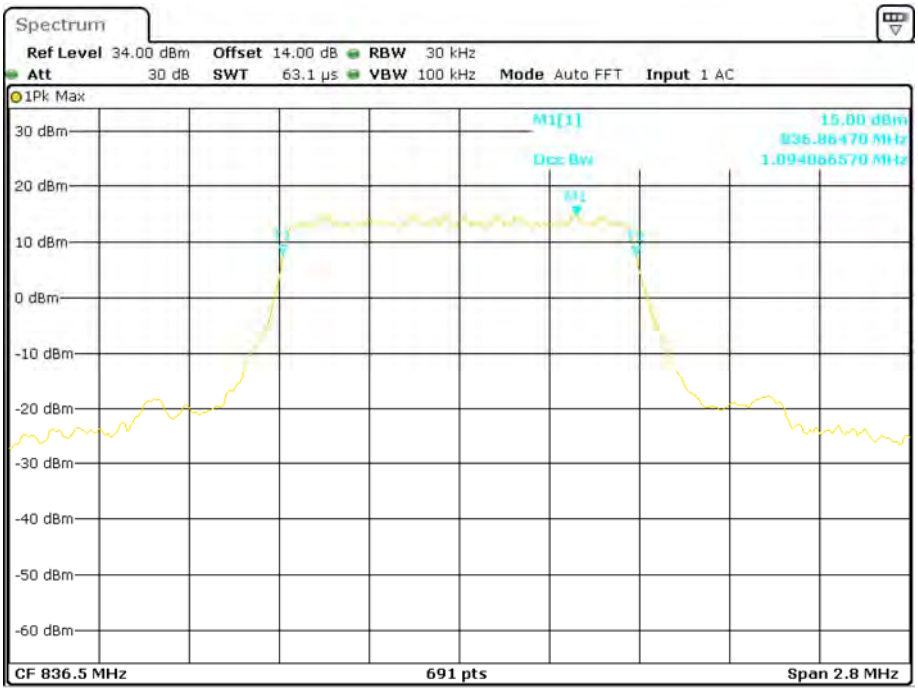
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.731863 GHz	12.59 dBm	ndB down	19.334 MHz
T1		1	1.722891 GHz	-14.02 dBm	ndB	26.00 dB
T2		1	1.742225 GHz	-13.41 dBm	Q factor	89.6

Date: 19.OCT.2017 20:13:46

LTE Band 5: (Middle Channel)

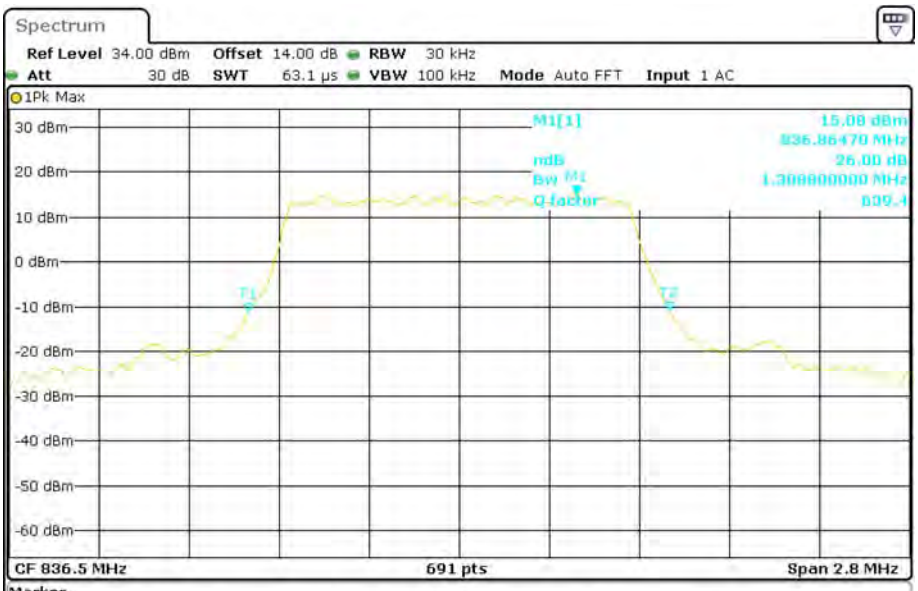
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.094	1.309
	16QAM	1.102	1.313
3.0	QPSK	2.692	2.944
	16QAM	2.683	2.952
5.0	QPSK	4.530	5.065
	16QAM	4.501	5.022
10.0	QPSK	9.001	9.783
	16QAM	8.973	9.696

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



Date: 19.OCT.2017 20:17:53

QPSK (1.4 MHz) - 26 dB Bandwidth, Middle channel

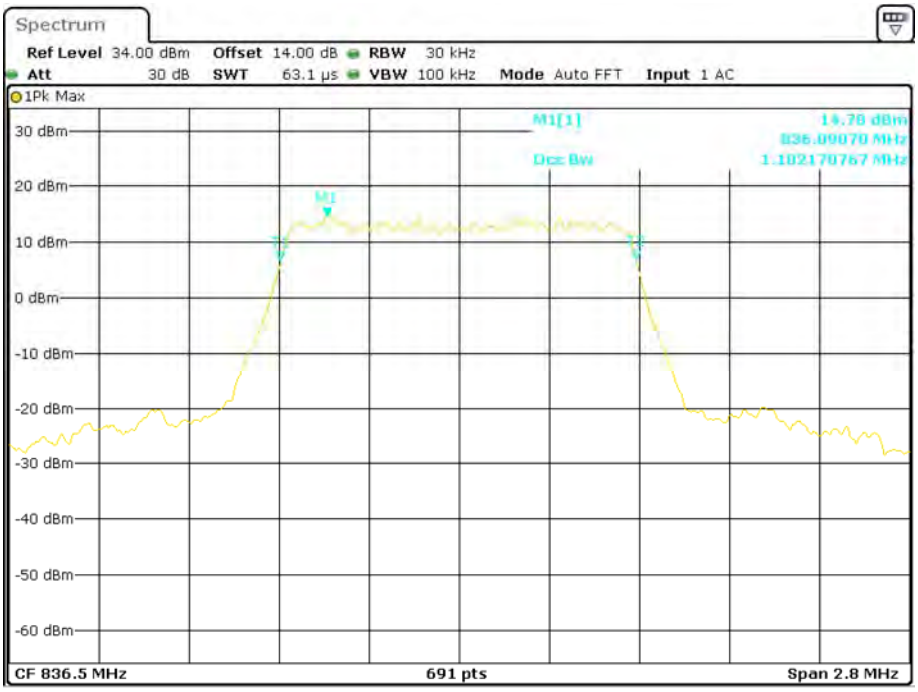


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	836.8647 MHz	15.08 dBm	ndB down	1.3088 MHz
T1		1	835.8436 MHz	-11.02 dBm	ndB	26.00 dB
T2		1	837.1524 MHz	-10.72 dBm	Q factor	639.4

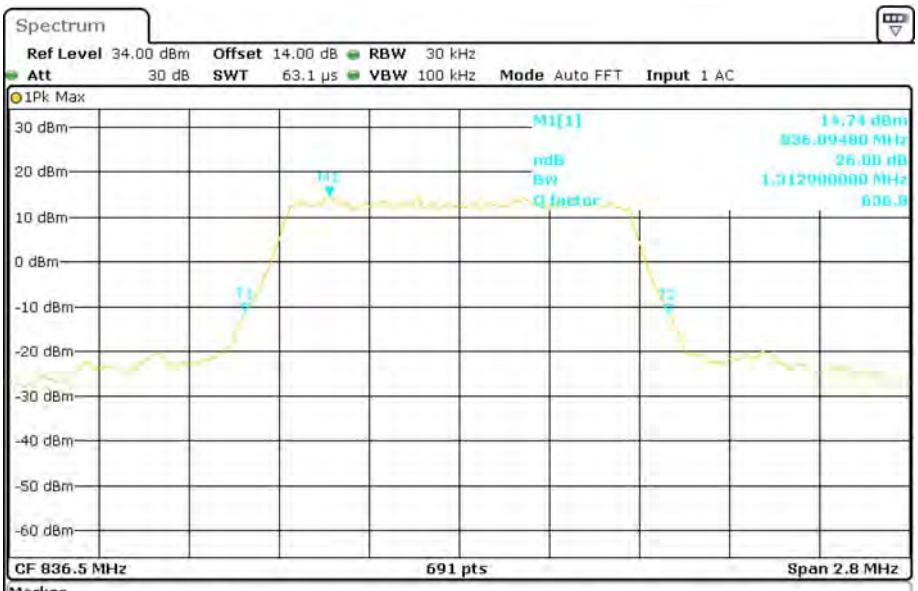
Date: 19.OCT.2017 20:20:07

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



Date: 19.OCT.2017 20:18:44

16-QAM (1.4 MHz) - 26 dB Bandwidth, Middle channel

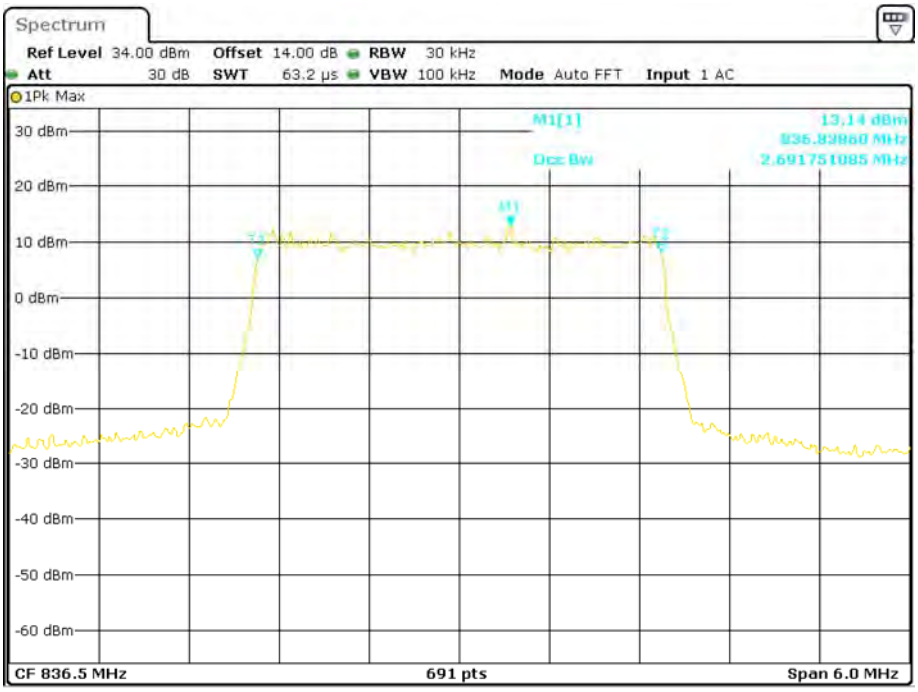


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	836.0948 MHz	14.74 dBm	ndB down	1.3129 MHz
T1		1	835.8355 MHz	-11.01 dBm	ndB	26.00 dB
T2		1	837.1483 MHz	-11.24 dBm	Q factor	636.8

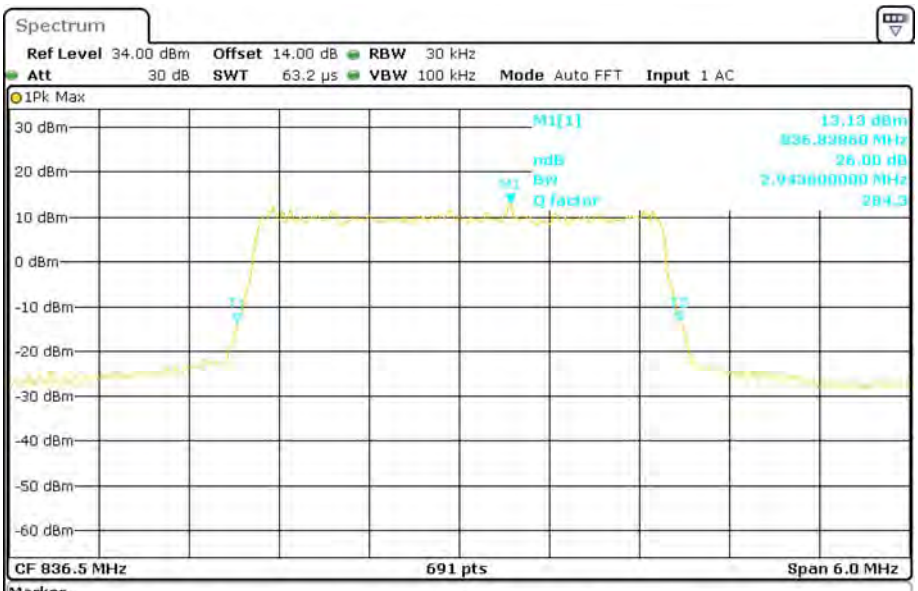
Date: 19.OCT.2017 20:18:38

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



Date: 19.OCT.2017 20:24:44

QPSK (3.0 MHz) - 26 dB Bandwidth, Middle channel

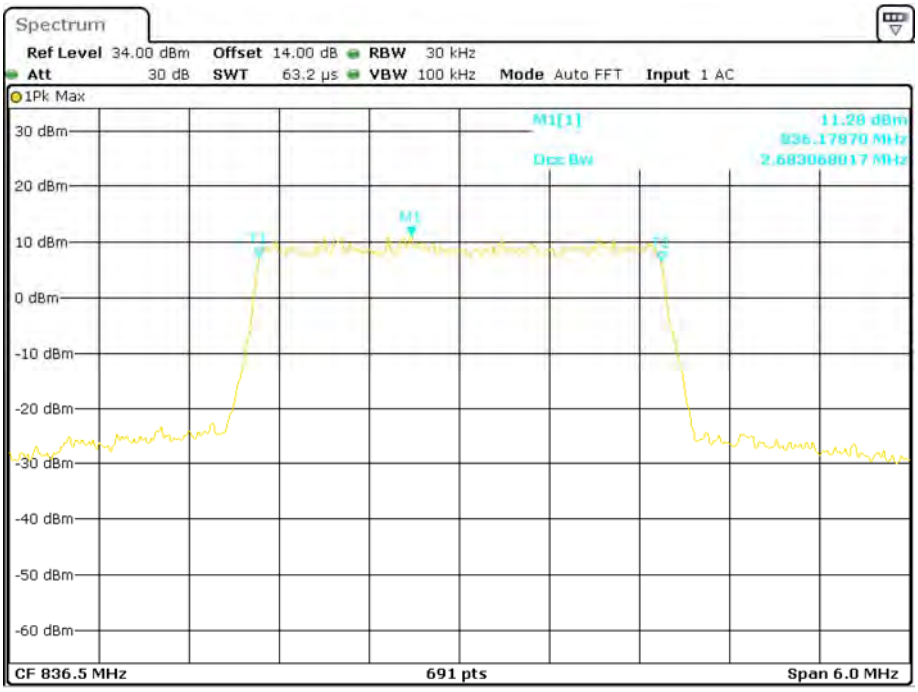


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	836.8386 MHz	13.13 dBm	ndB down	2.9436 MHz
T1		1	835.0239 MHz	-13.22 dBm	ndB	26.00 dB
T2		1	837.9674 MHz	-13.10 dBm	Q factor	284.3

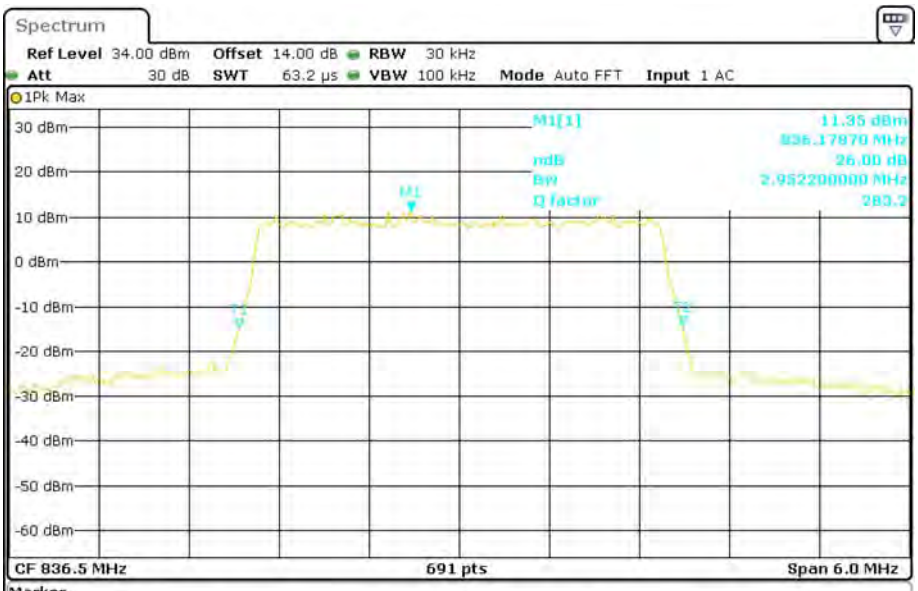
Date: 19.OCT.2017 20:21:11

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



Date: 19.OCT.2017 20:23:56

16-QAM (3.0 MHz) - 26 dB Bandwidth, Middle channel

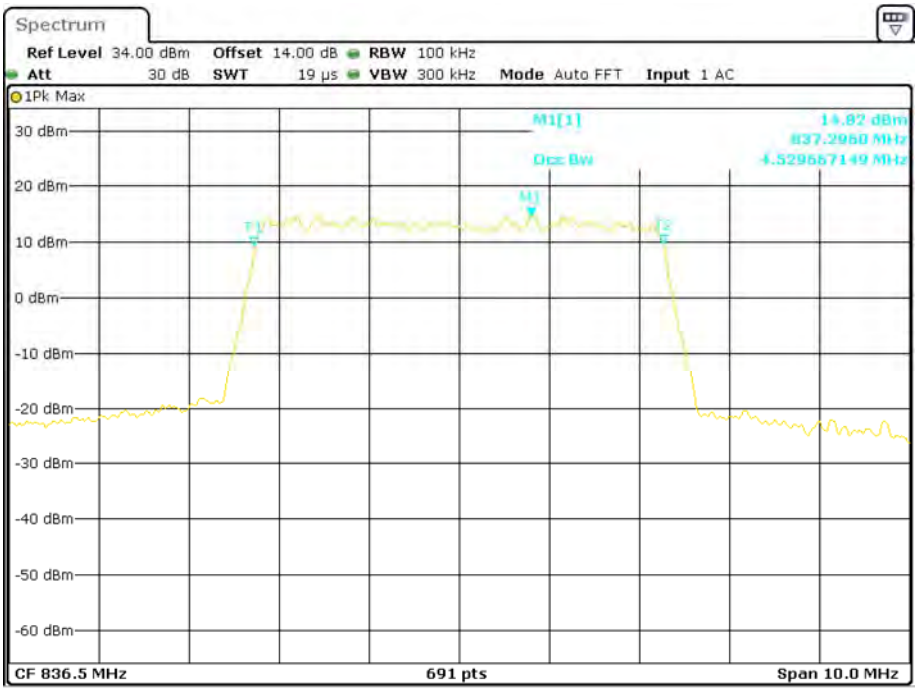


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	836.1787 MHz	11.35 dBm	ndB down	2.9522 MHz
T1		1	835.0326 MHz	-14.57 dBm	ndB	26.00 dB
T2		1	837.9848 MHz	-14.09 dBm	Q factor	283.2

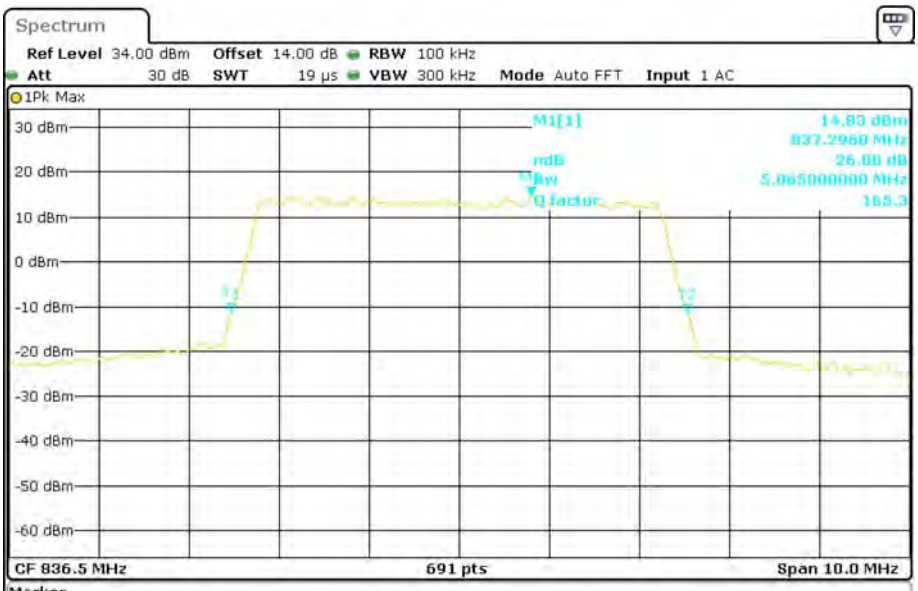
Date: 19.OCT.2017 20:21:59

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



Date: 19.OCT.2017 20:26:21

QPSK (5.0 MHz) - 26 dB Bandwidth, Middle channel

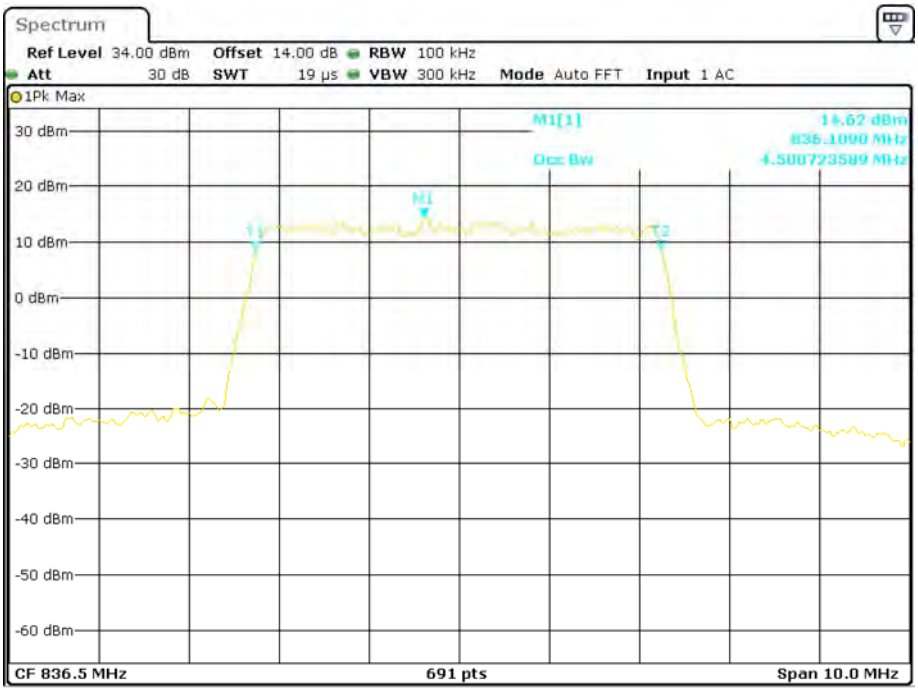


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	837.296 MHz	14.83 dBm	ndB down	5.065 MHz
T1		1	833.967 MHz	-11.18 dBm	ndB	26.00 dB
T2		1	839.033 MHz	-11.41 dBm	Q factor	165.3

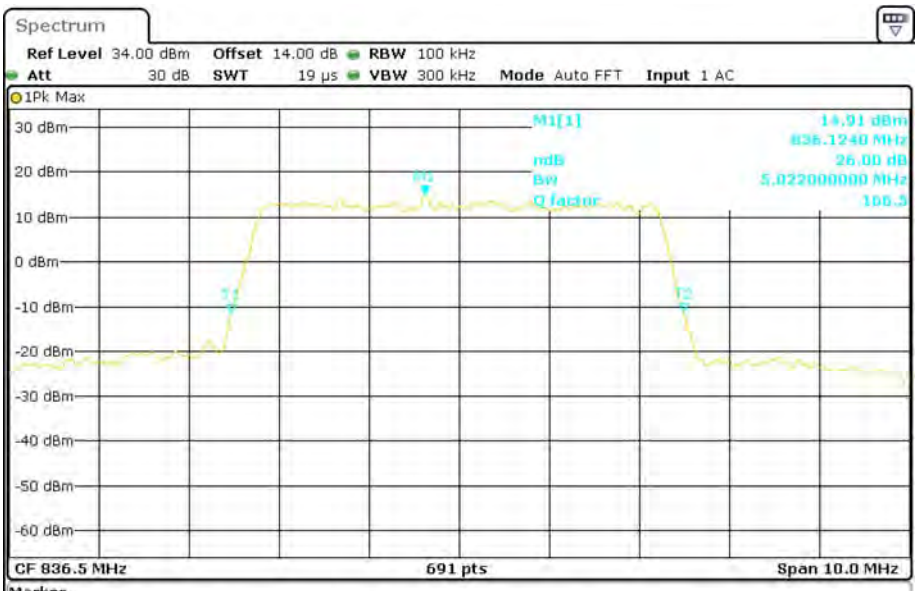
Date: 19.OCT.2017 20:28:27

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



Date: 19.OCT.2017 20:26:57

16-QAM (5.0 MHz) - 26 dB Bandwidth, Middle channel

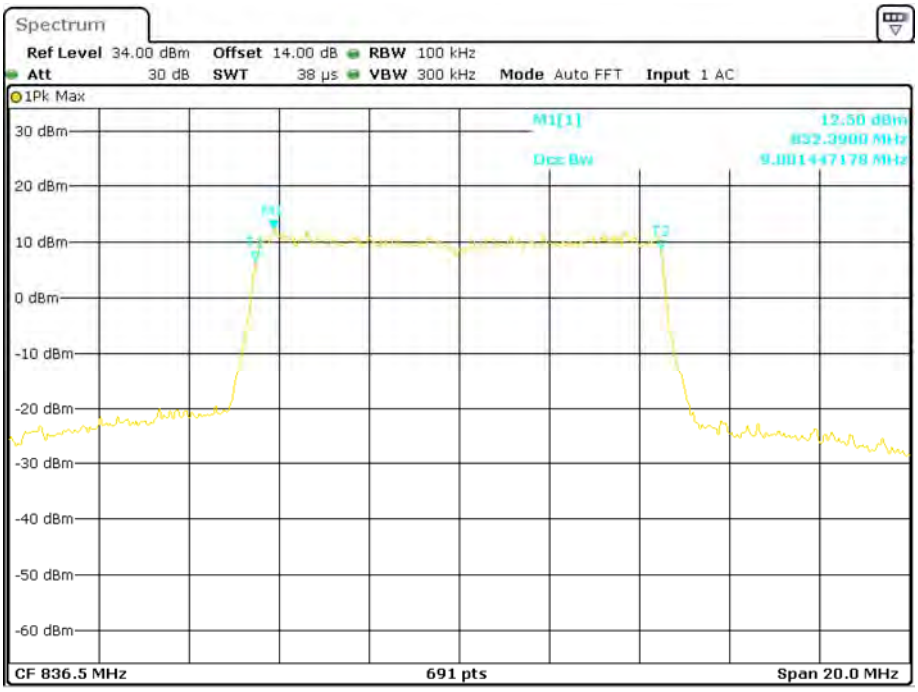


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	836.124 MHz	14.91 dBm	ndB down	5.022 MHz
T1		1	833.967 MHz	-11.27 dBm	ndB	26.00 dB
T2		1	838.989 MHz	-11.15 dBm	Q factor	166.5

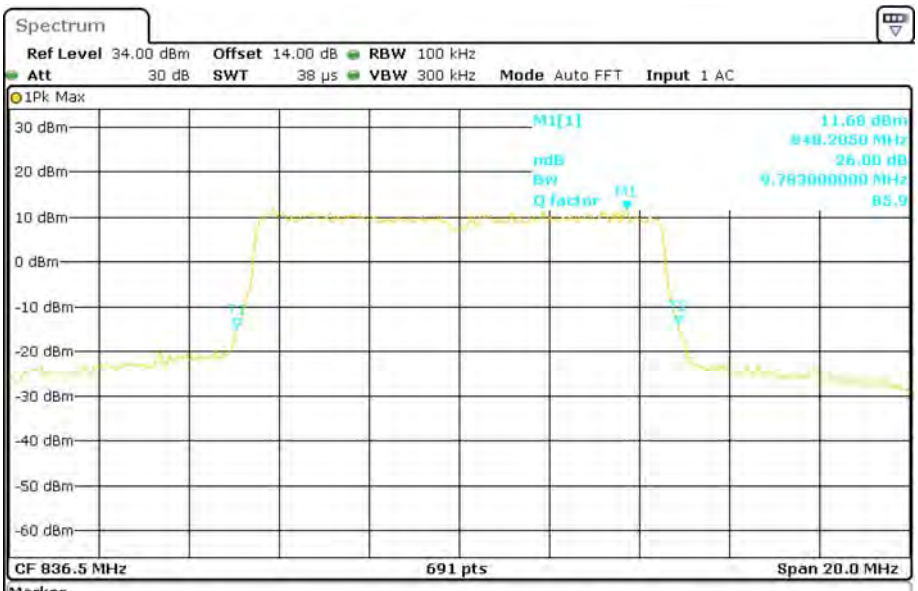
Date: 19.OCT.2017 20:27:37

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



Date: 19.OCT.2017 20:32:11

QPSK (10.0 MHz) - 26 dB Bandwidth, Middle channel

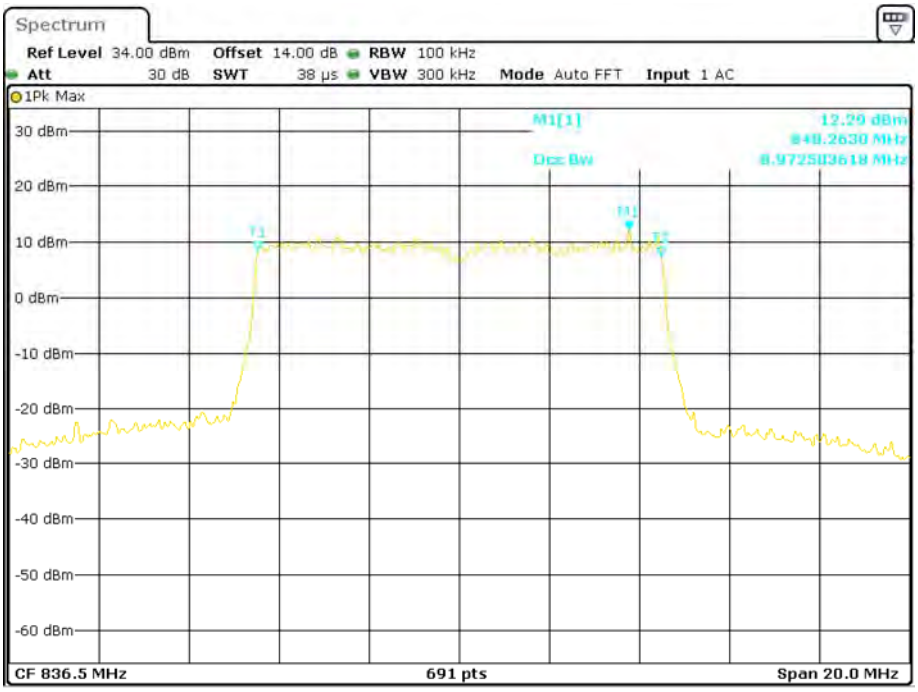


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	840.205 MHz	11.68 dBm	ndB down	9.783 MHz
T1		1	831.58 MHz	-14.54 dBm	ndB	26.00 dB
T2		1	841.363 MHz	-13.81 dBm	Q factor	85.9

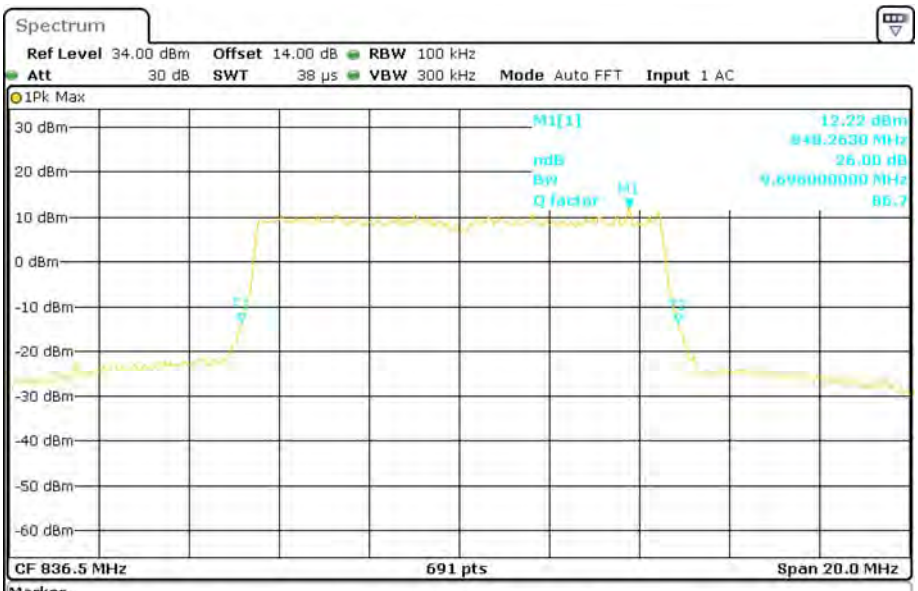
Date: 19.OCT.2017 20:33:30

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



Date: 19.OCT.2017 20:31:12

16-QAM (10.0 MHz) - 26 dB Bandwidth, Middle channel



Marker

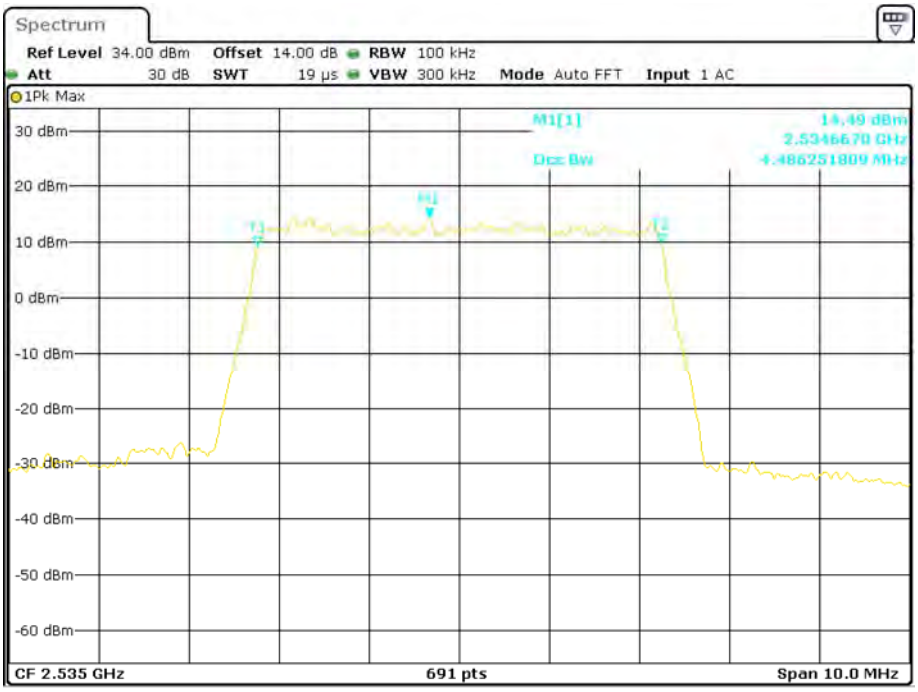
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	840.263 MHz	12.22 dBm	ndB down	9.696 MHz
T1		1	831.666 MHz	-13.25 dBm	ndB	26.00 dB
T2		1	841.363 MHz	-13.54 dBm	Q factor	86.7

Date: 19.OCT.2017 20:30:12

LTE Band 7: (Middle Channel)

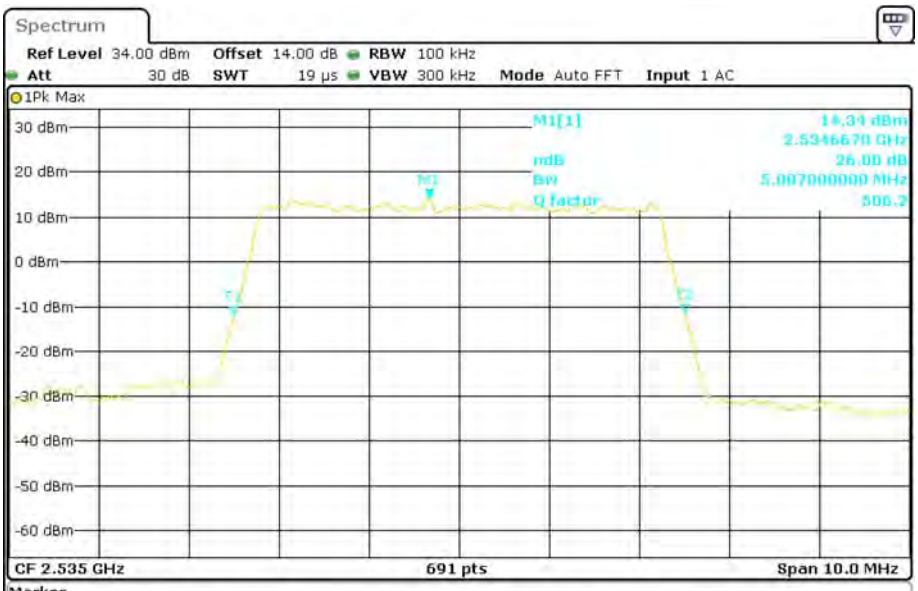
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.486	5.007
	16QAM	4.515	5.051
10.0	QPSK	8.944	9.783
	16QAM	8.915	9.609
15.0	QPSK	13.459	14.805
	16QAM	13.459	14.718
20.0	QPSK	17.887	19.276
	16QAM	17.945	19.334

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



Date: 19.OCT.2017 20:34:01

QPSK (5.0 MHz) - 26 dB Bandwidth, Middle channel

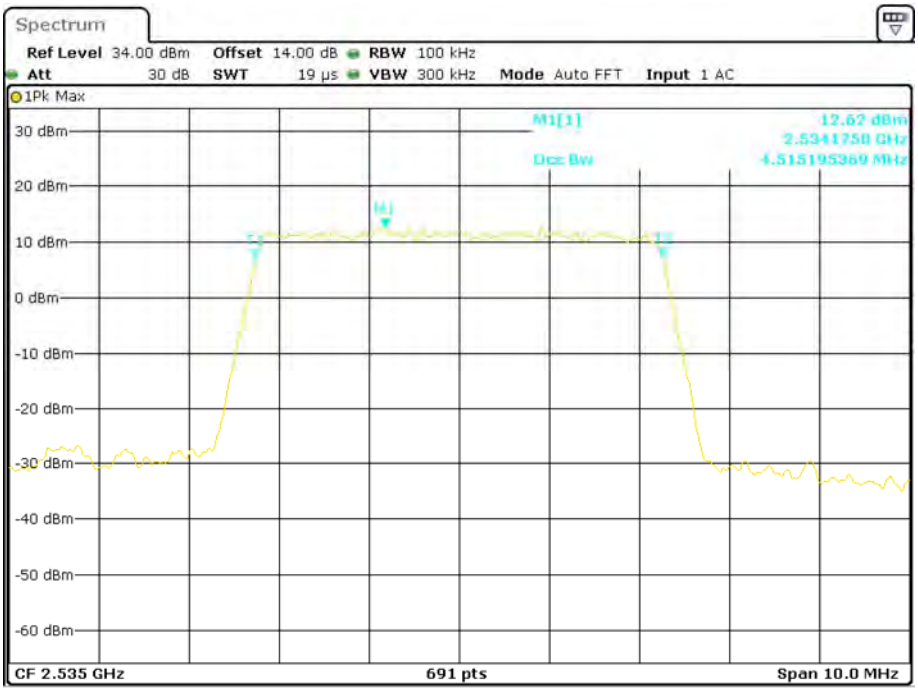


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.534667 GHz	14.34 dBm	ndB down	5.007 MHz
T1		1	2.532496 GHz	-11.88 dBm	ndB	26.00 dB
T2		1	2.537504 GHz	-11.36 dBm	Q factor	506.2

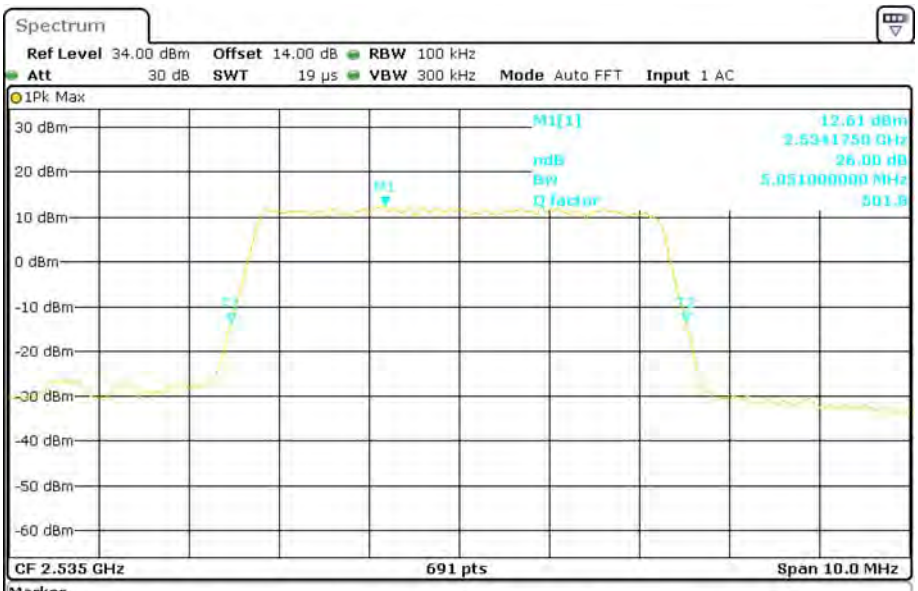
Date: 19.OCT.2017 20:37:20

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



Date: 19.OCT.2017 20:34:37

16-QAM (5.0 MHz) - 26 dB Bandwidth, Middle channel

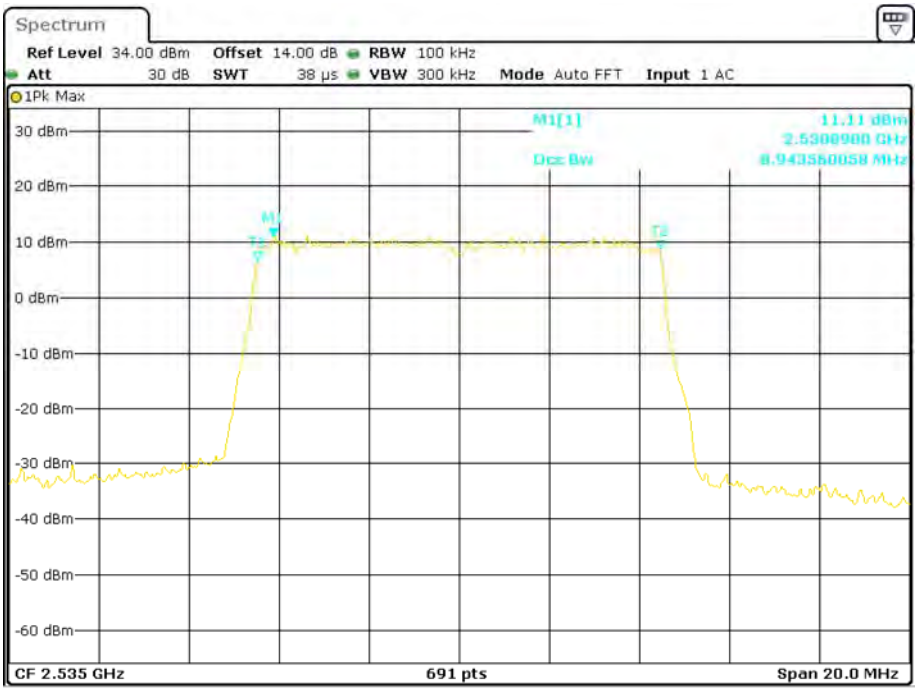


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.534175 GHz	12.61 dBm	ndB down	5.051 MHz
T1		1	2.532467 GHz	-13.45 dBm	ndB	26.00 dB
T2		1	2.537518 GHz	-13.19 dBm	Q factor	501.8

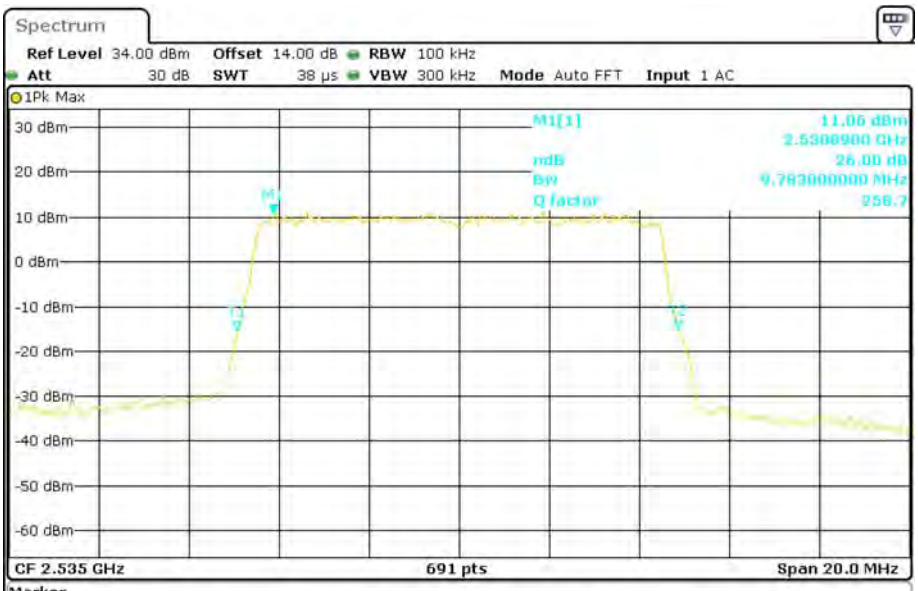
Date: 19.OCT.2017 20:36:12

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



Date: 19.OCT.2017 20:40:44

QPSK (10.0 MHz) - 26 dB Bandwidth, Middle channel

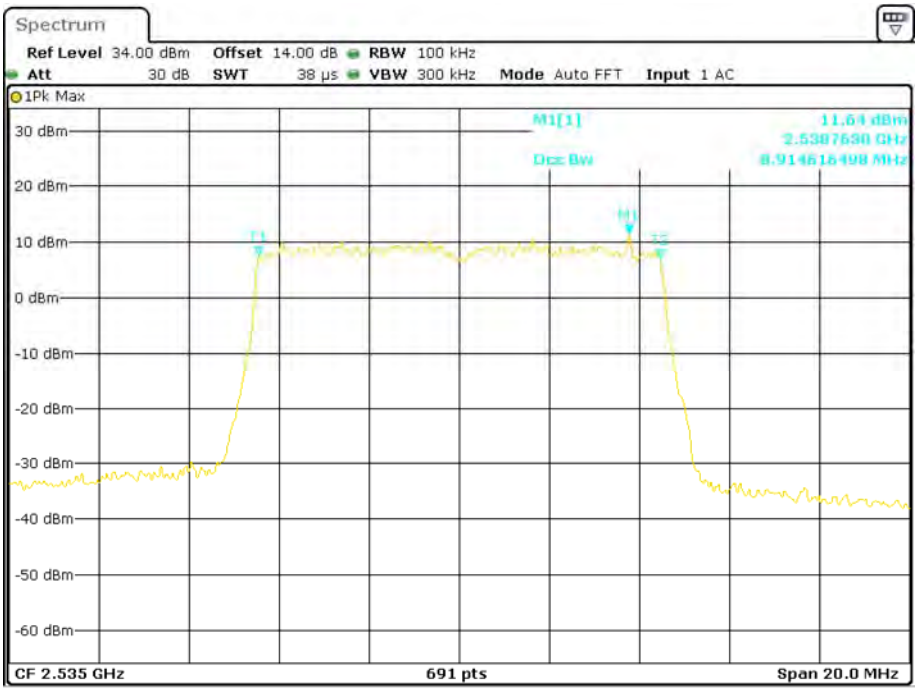


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.53089 GHz	11.06 dBm	ndB down	9.783 MHz
T1		1	2.53008 GHz	-15.04 dBm	ndB	26.00 dB
T2		1	2.539863 GHz	-14.74 dBm	Q factor	258.7

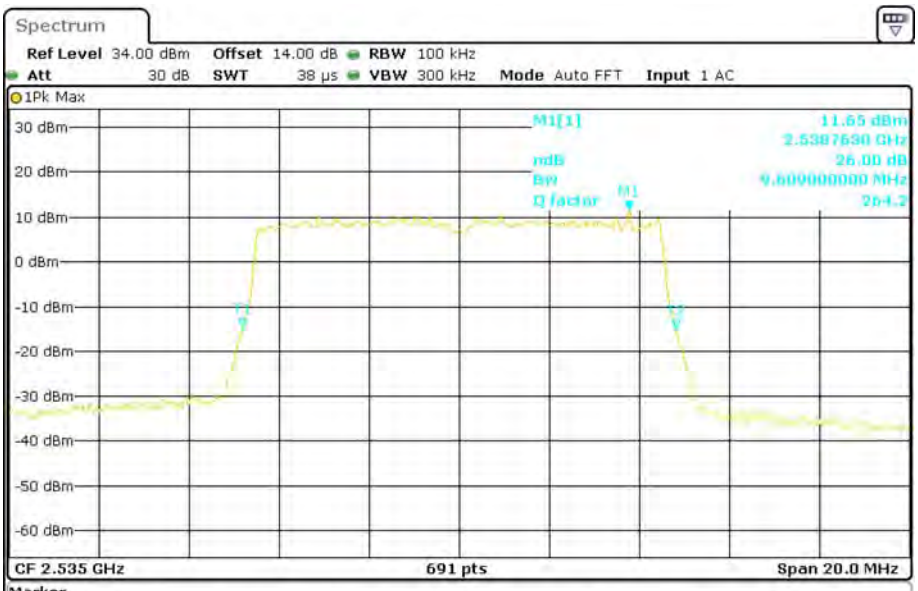
Date: 19.OCT.2017 20:38:40

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



Date: 19.OCT.2017 20:39:56

16-QAM (10.0 MHz) - 26 dB Bandwidth, Middle channel

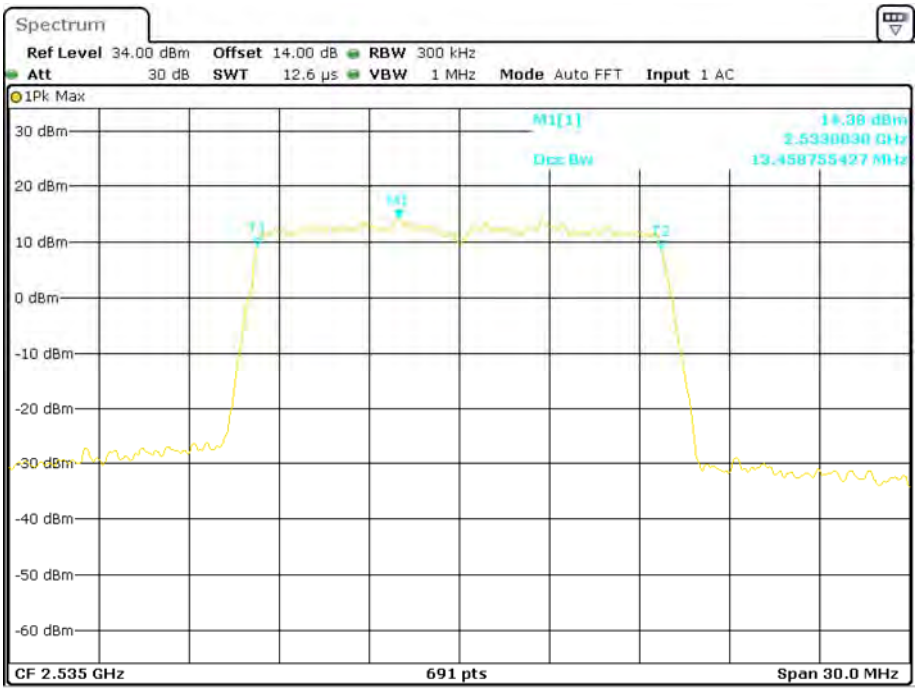


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.538763 GHz	11.65 dBm	ndB down	9.609 MHz
T1		1	2.530195 GHz	-14.35 dBm	ndB	26.00 dB
T2		1	2.539805 GHz	-14.76 dBm	Q factor	264.2

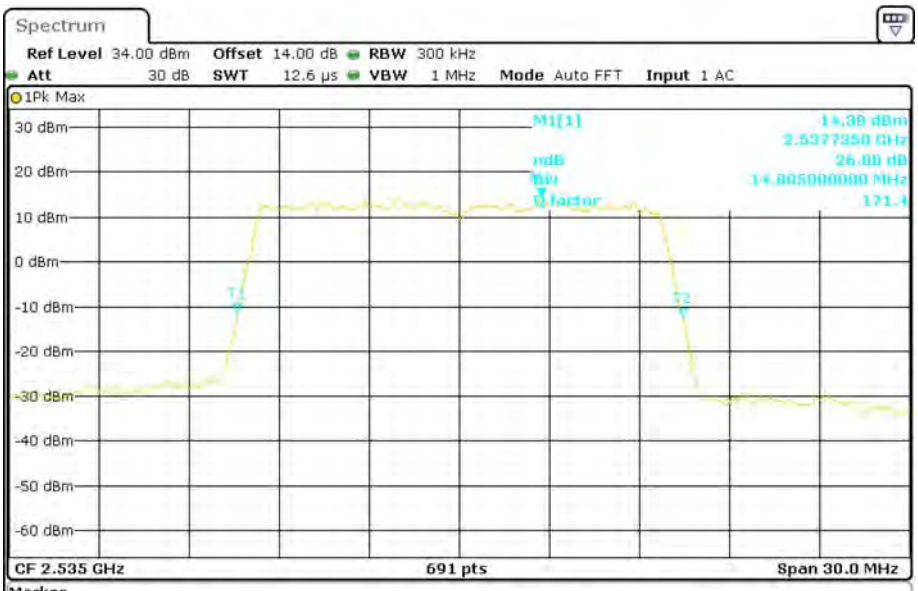
Date: 19.OCT.2017 20:38:16

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



Date: 19.OCT.2017 20:42:05

QPSK (15.0 MHz) - 26 dB Bandwidth, Middle channel

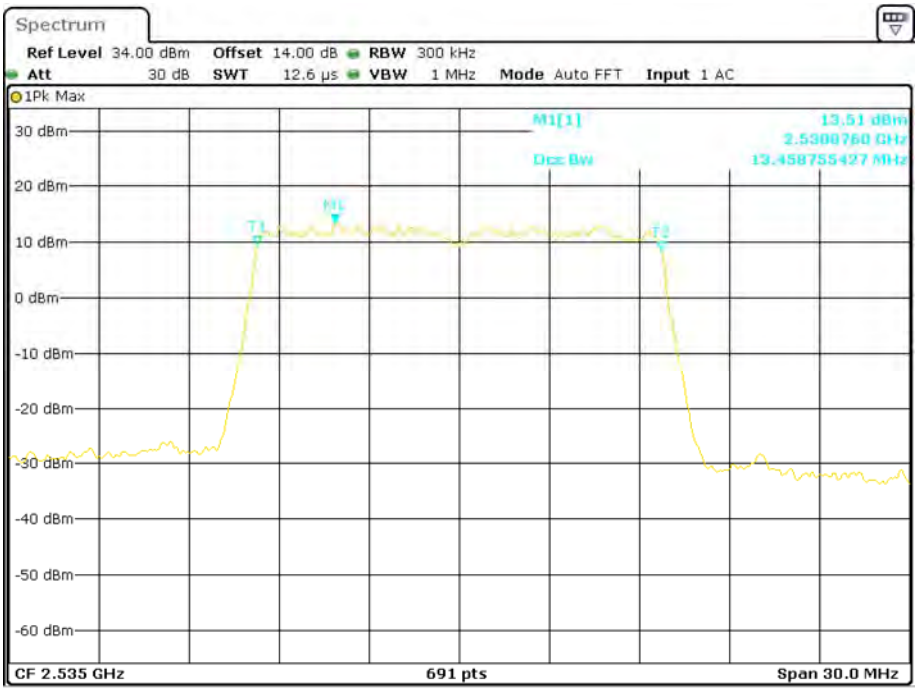


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.537735 GHz	14.38 dBm	ndB down	14.805 MHz
T1		1	2.527619 GHz	-11.17 dBm	ndB	26.00 dB
T2		1	2.542424 GHz	-12.03 dBm	Q factor	171.4

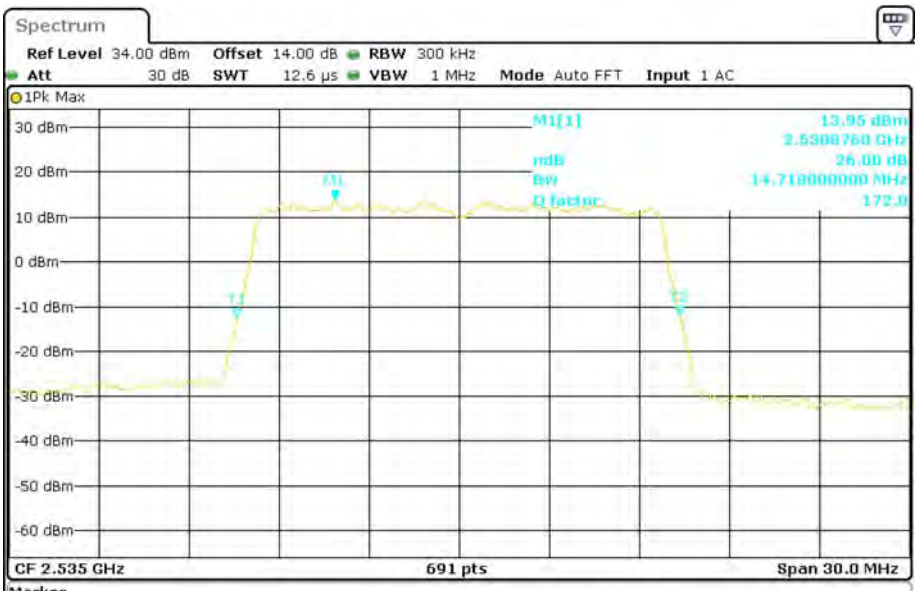
Date: 19.OCT.2017 20:44:51

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



Date: 19.OCT.2017 20:42:45

16-QAM (15.0 MHz) - 26 dB Bandwidth, Middle channel

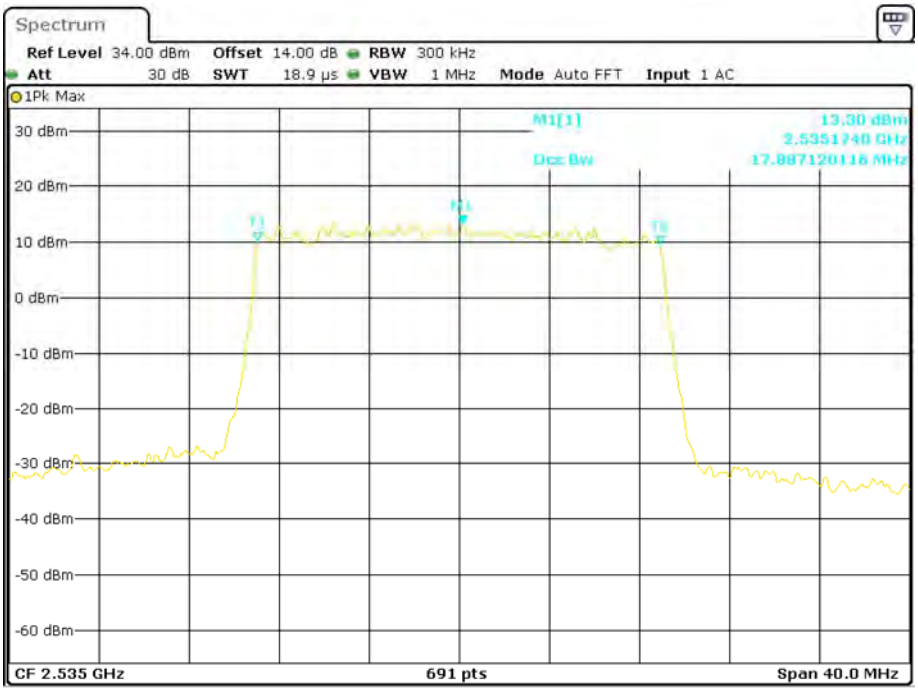


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.530876 GHz	13.95 dBm	ndB down	14.718 MHz
T1		1	2.527619 GHz	-12.43 dBm	ndB	26.00 dB
T2		1	2.542337 GHz	-11.71 dBm	Q factor	172.0

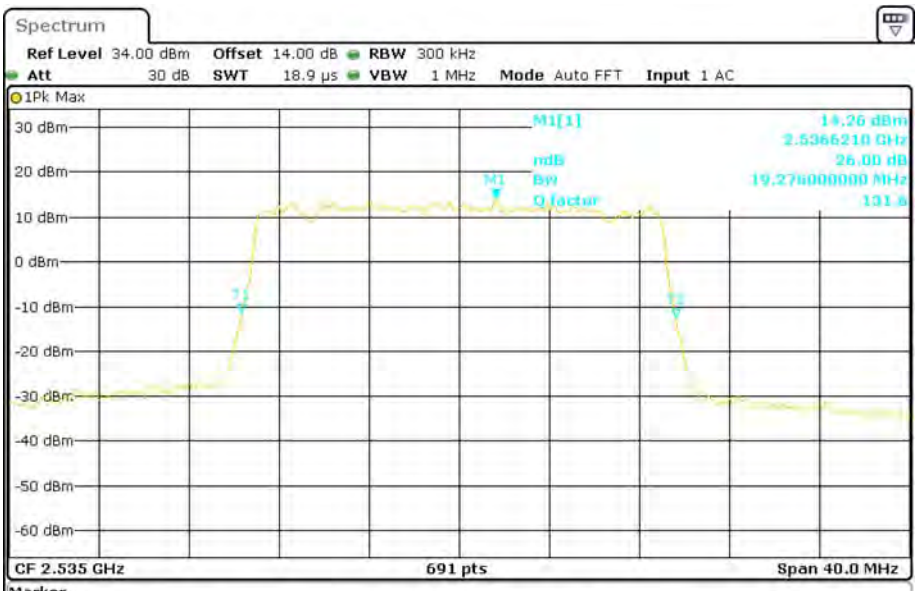
Date: 19.OCT.2017 20:43:09

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



Date: 19.OCT.2017 20:51:05

QPSK (20.0 MHz) - 26 dB Bandwidth, Middle channel

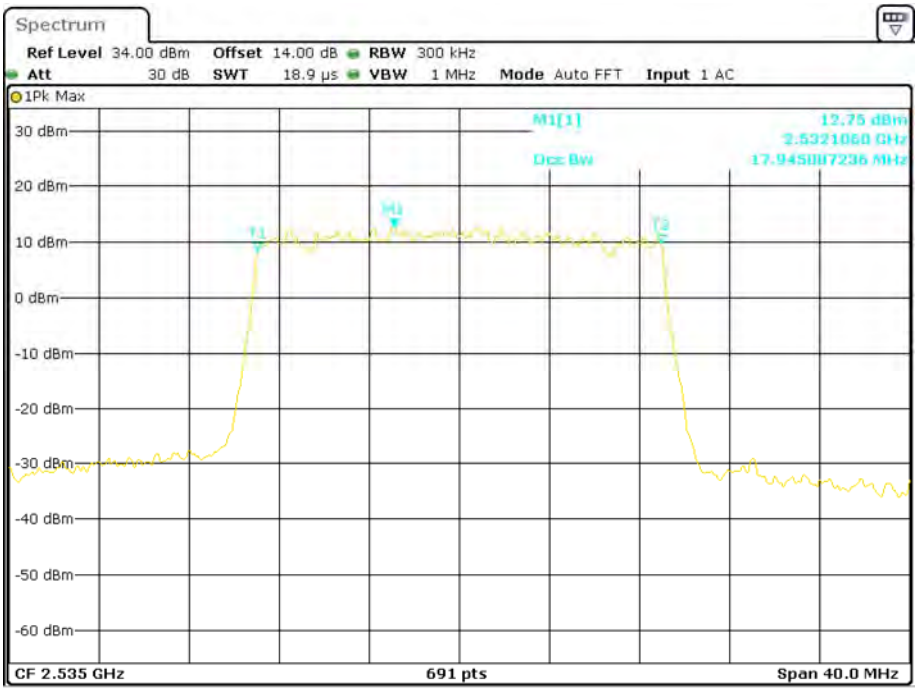


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.536621 GHz	14.26 dBm	ndB down	19.276 MHz
T1		1	2.525333 GHz	-11.31 dBm	ndB	26.00 dB
T2		1	2.544609 GHz	-12.32 dBm	Q factor	131.6

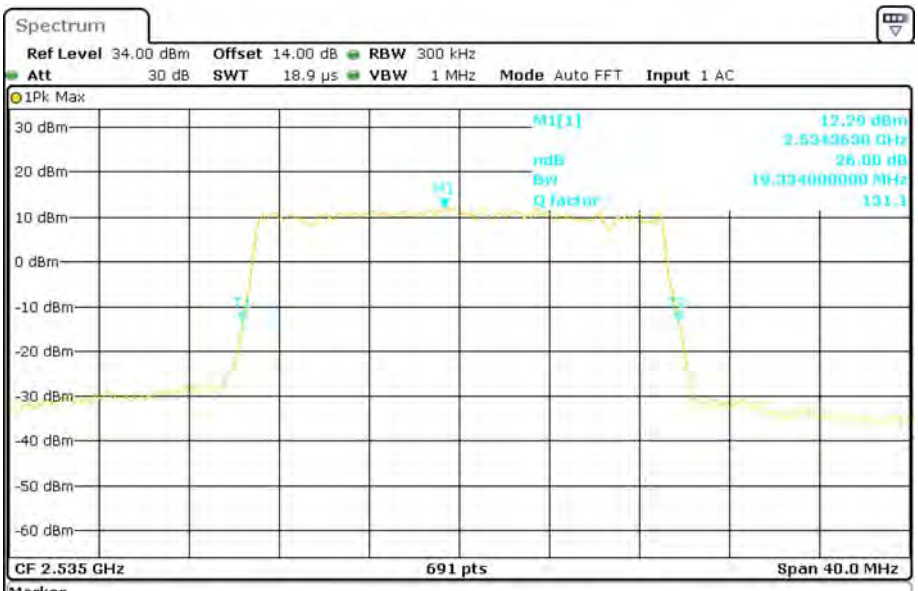
Date: 19.OCT.2017 20:48:06

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



Date: 19.OCT.2017 20:50:10

16-QAM (20.0 MHz) - 26 dB Bandwidth, Middle channel



Marker

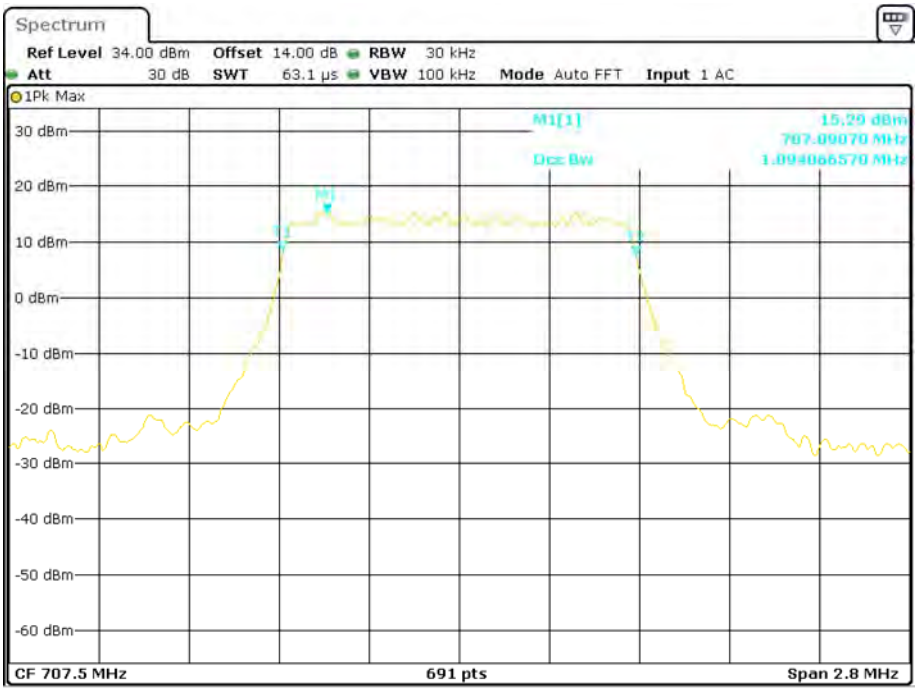
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.534363 GHz	12.29 dBm	ndB down	19.334 MHz
T1		1	2.525391 GHz	-13.20 dBm	ndB	26.00 dB
T2		1	2.544725 GHz	-13.14 dBm	Q factor	131.1

Date: 19.OCT.2017 20:49:02

BAND 12:

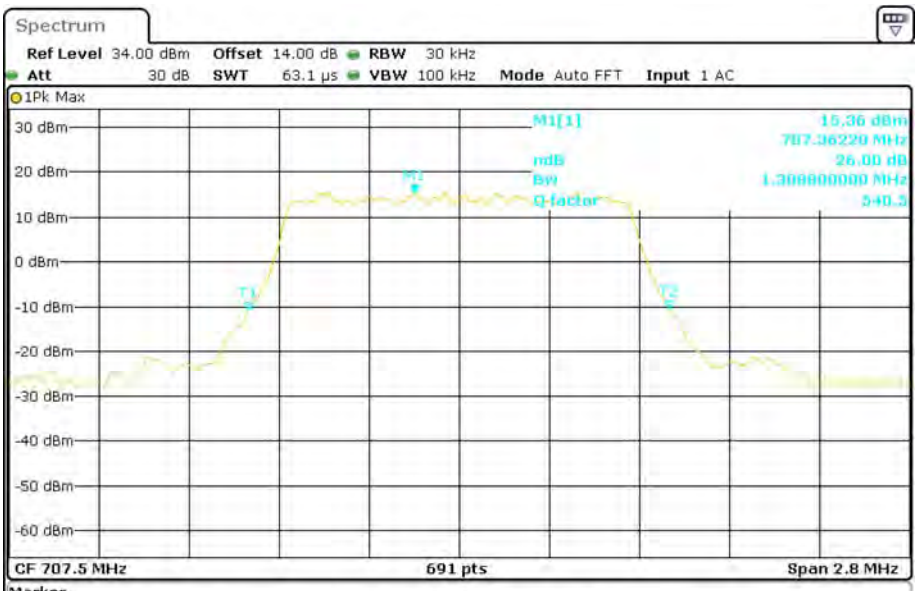
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.094	1.309
	16QAM	1.102	1.309
3.0	QPSK	2.692	2.926
	16QAM	2.692	2.952
5.0	QPSK	4.530	5.036
	16QAM	4.501	4.993
10.0	QPSK	8.944	9.725
	16QAM	8.944	9.638

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



Date: 19.OCT.2017 21:16:21

QPSK (1.4 MHz) -26 dB Bandwidth, Middle channel

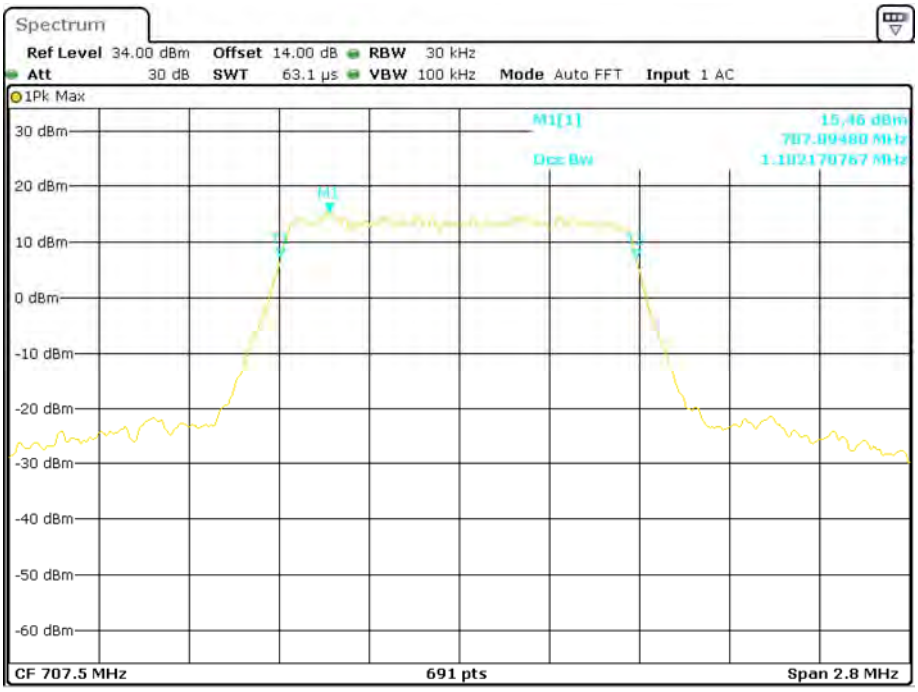


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	707.3622 MHz	15.36 dBm	ndB down	1.3088 MHz
T1		1	706.8436 MHz	-10.87 dBm	ndB	26.00 dB
T2		1	708.1524 MHz	-10.43 dBm	Q factor	540.5

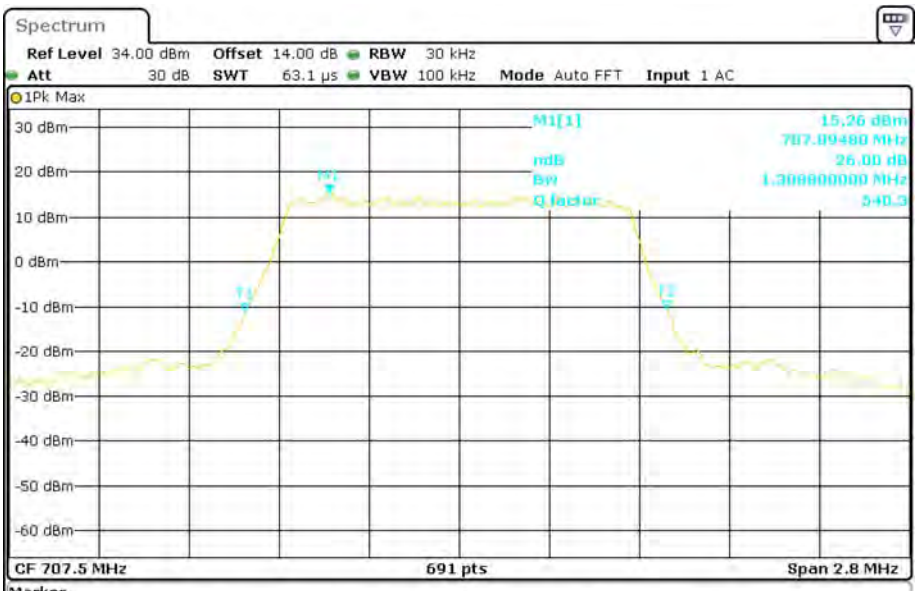
Date: 19.OCT.2017 21:21:38

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



Date: 19.OCT.2017 21:18:58

16-QAM (1.4 MHz) - 26 dB Bandwidth, Middle channel

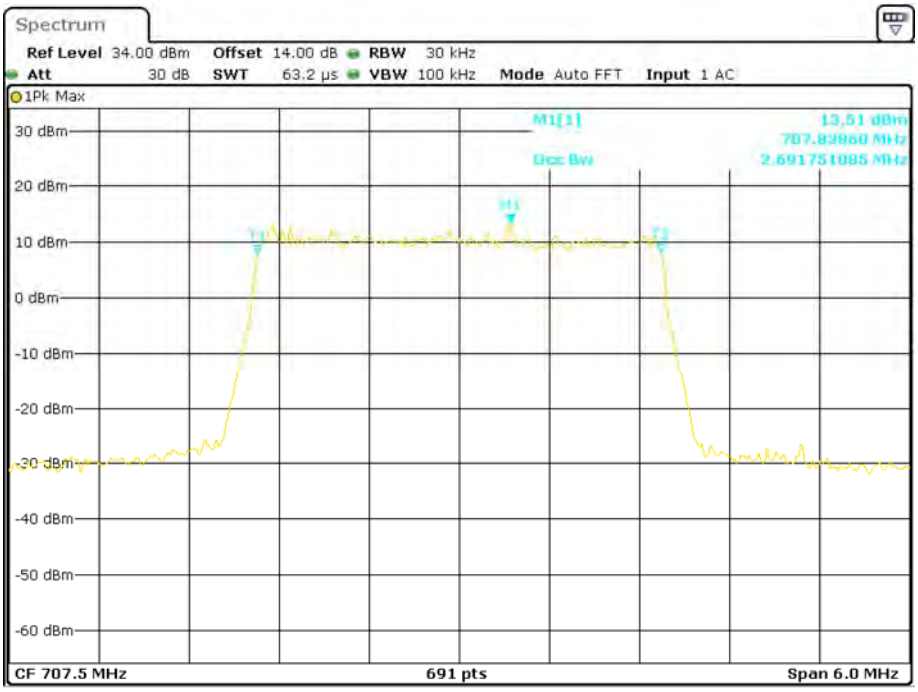


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	707.0948 MHz	15.26 dBm	ndB down	1.3088 MHz
T1		1	706.8355 MHz	-11.00 dBm	ndB	26.00 dB
T2		1	708.1443 MHz	-10.48 dBm	Q factor	540.3

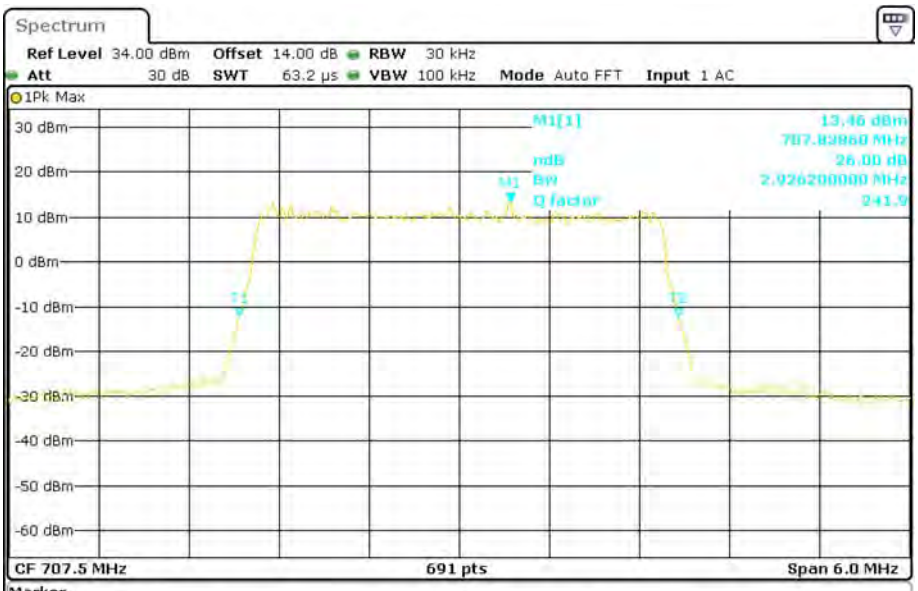
Date: 19.OCT.2017 21:08:16

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



Date: 19.OCT.2017 21:41:16

QPSK (3.0 MHz) - 26 dB Bandwidth, Middle channel

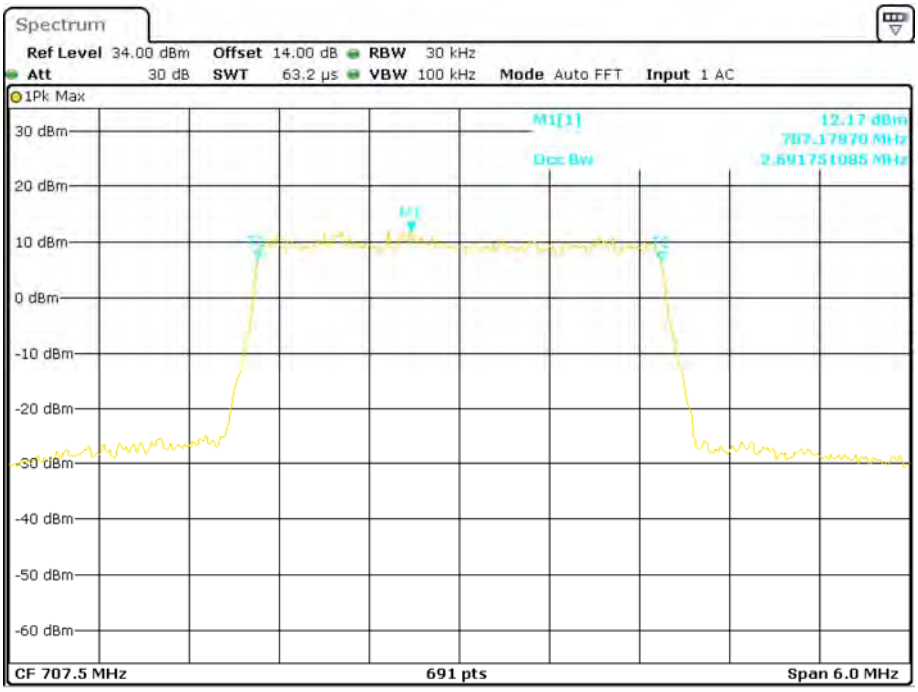


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	707.8386 MHz	13.46 dBm	ndB down	2.9262 MHz
T1		1	706.0326 MHz	-12.17 dBm	ndB	26.00 dB
T2		1	708.9588 MHz	-12.15 dBm	Q factor	241.9

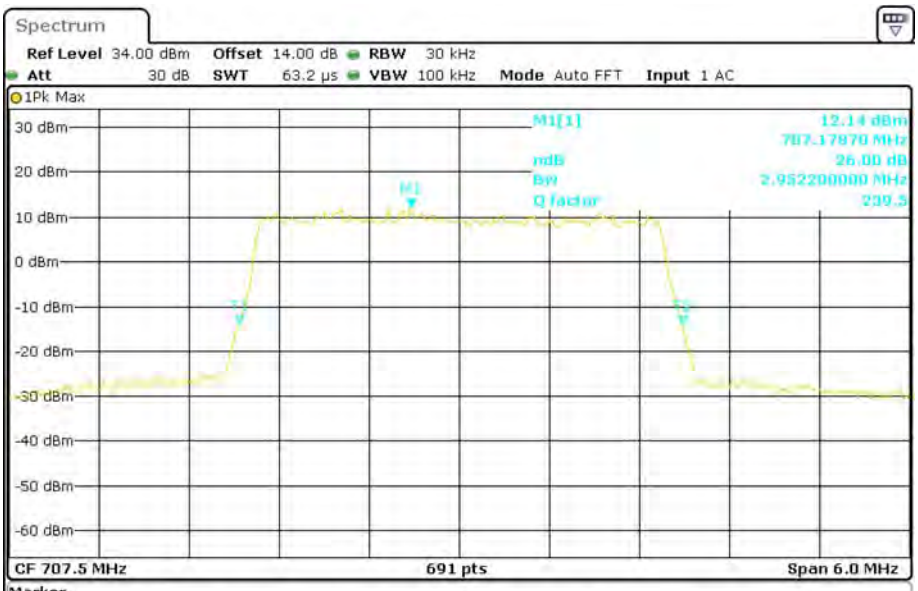
Date: 19.OCT.2017 21:24:52

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



Date: 19.OCT.2017 21:27:21

16-QAM (3.0 MHz) - 26 dB Bandwidth, Middle channel

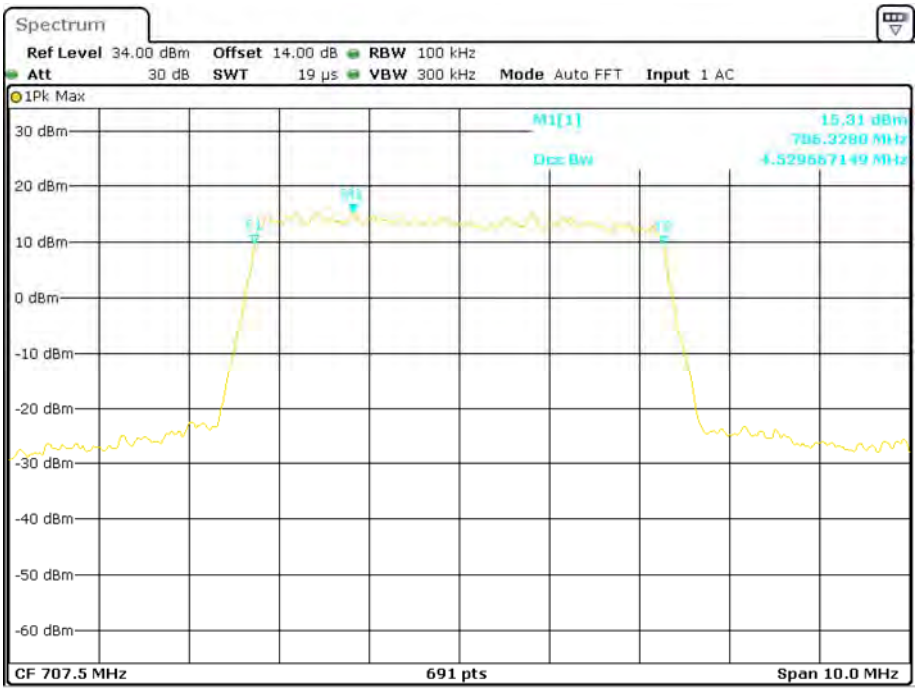


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	707.1787 MHz	12.14 dBm	ndB down	2.9522 MHz
T1		1	706.0326 MHz	-13.86 dBm	ndB	26.00 dB
T2		1	708.9848 MHz	-13.89 dBm	Q factor	239.5

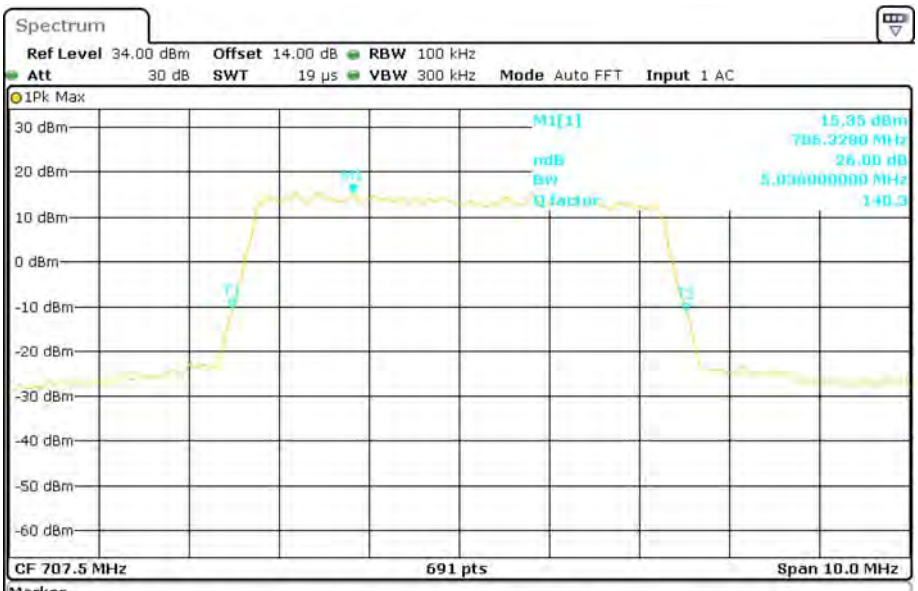
Date: 19.OCT.2017 21:25:53

QPSK (5 MHz) - 99% Occupied Bandwidth, Middle channel



Date: 19.OCT.2017 21:35:00

QPSK (5 MHz) - 26 dB Bandwidth, Middle channel

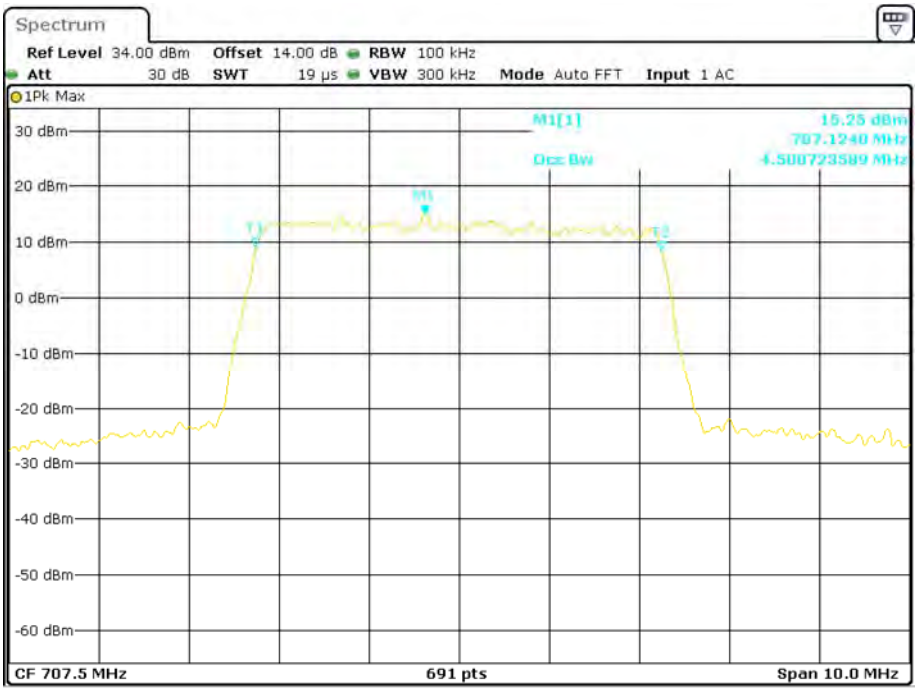


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	706.328 MHz	15.35 dBm	ndB down	5.036 MHz
T1		1	704.982 MHz	-10.27 dBm	ndB	26.00 dB
T2		1	710.018 MHz	-10.95 dBm	Q factor	140.3

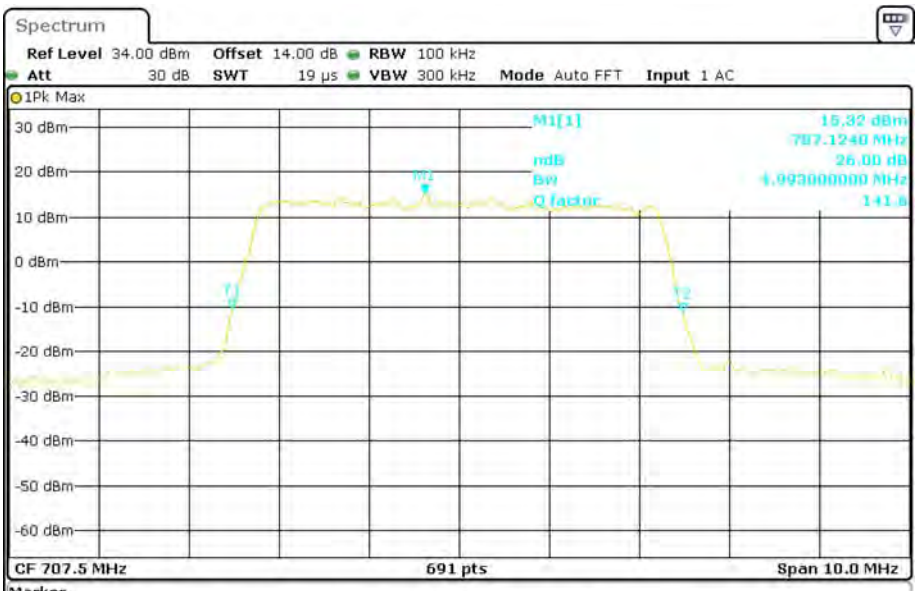
Date: 19.OCT.2017 21:43:08

16-QAM (5 MHz) - 99% Occupied Bandwidth, Middle channel



Date: 19.OCT.2017 21:39:08

16-QAM (5MHz) - 26 dB Bandwidth, Middle channel

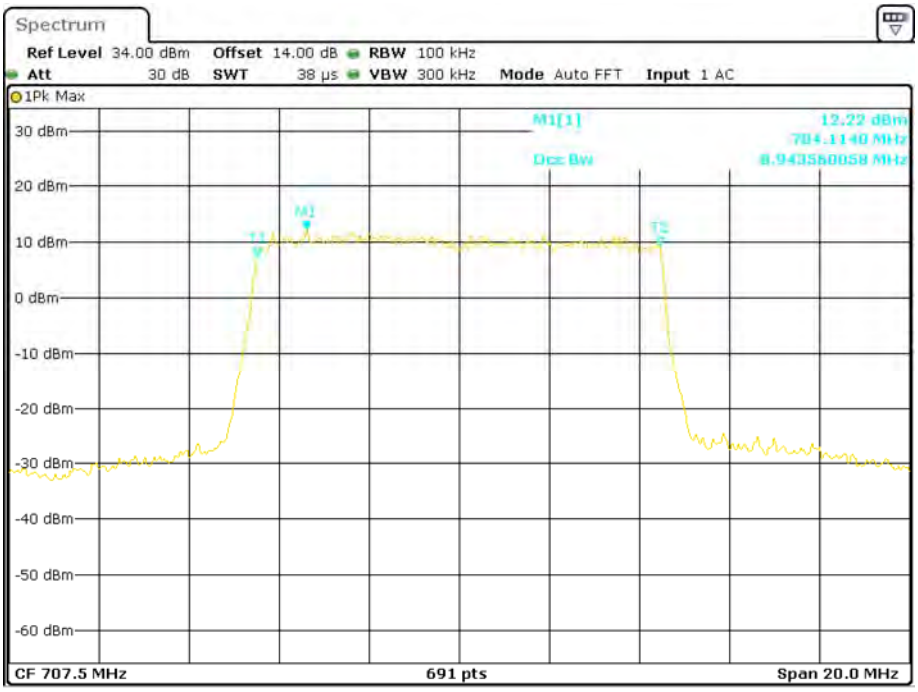


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	707.124 MHz	15.32 dBm	ndB down	4.993 MHz
T1		1	704.982 MHz	-10.25 dBm	ndB	26.00 dB
T2		1	709.975 MHz	-11.03 dBm	Q factor	141.6

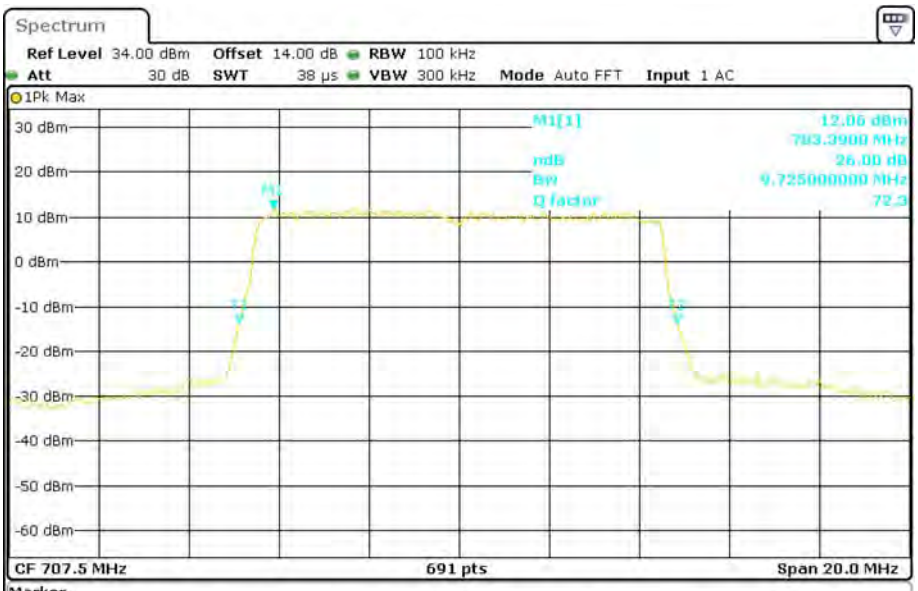
Date: 19.OCT.2017 21:42:19

QPSK (10 MHz) - 99% Occupied Bandwidth, Middle channel



Date: 19.OCT.2017 21:47:30

QPSK (10 MHz) - 26 dB Bandwidth, Middle channel

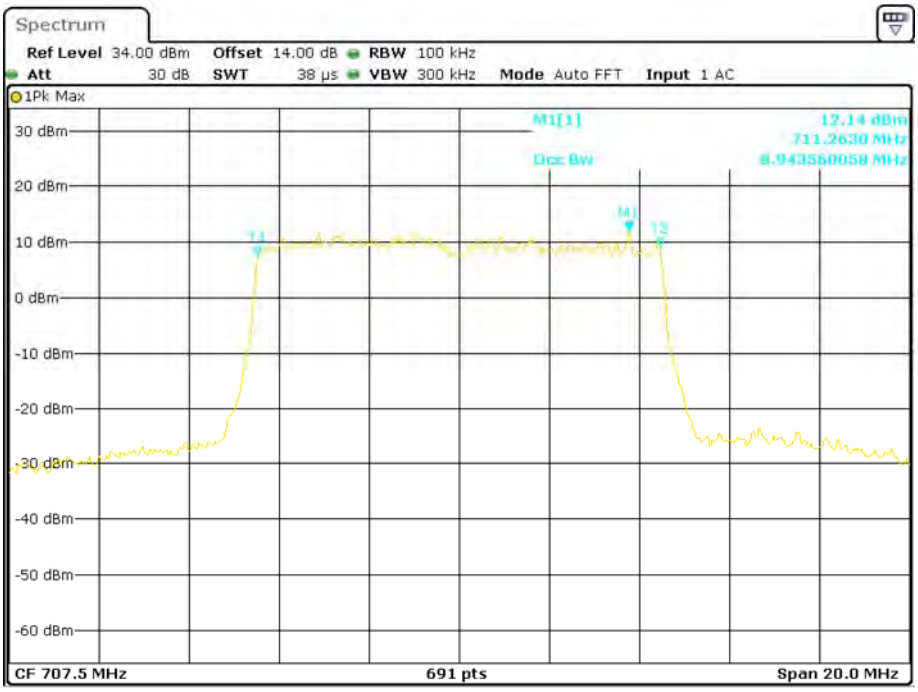


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	703.39 MHz	12.06 dBm	ndB down	9.725 MHz
T1		1	702.609 MHz	-13.56 dBm	ndB	26.00 dB
T2		1	712.334 MHz	-13.55 dBm	Q factor	72.3

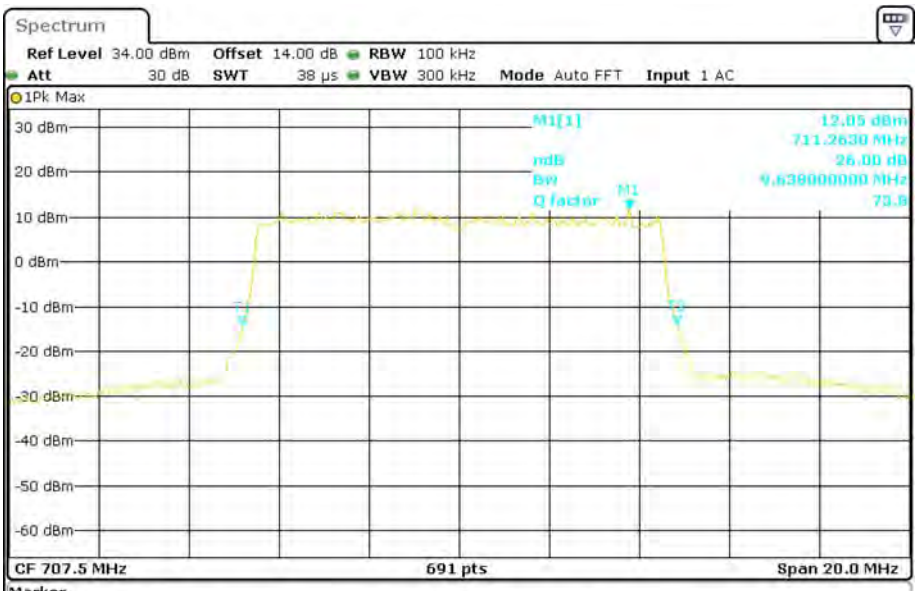
Date: 19.OCT.2017 21:45:48

16-QAM (10MHz) - 99% Occupied Bandwidth, Middle channel



Date: 19.OCT.2017 21:47:03

16-QAM (10MHz) - 26 dB Bandwidth, Middle channel



Marker

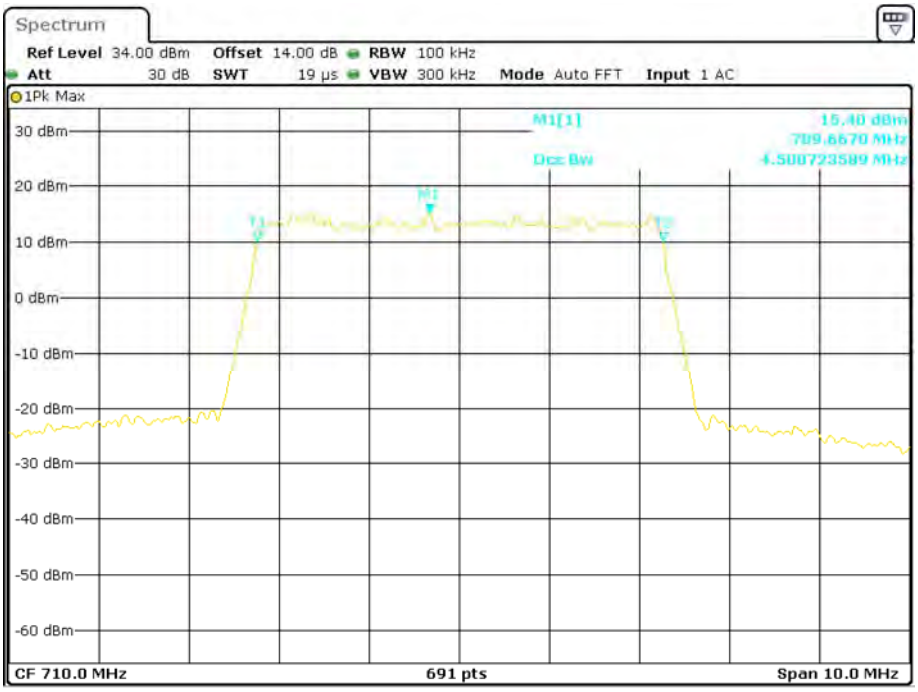
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	711.263 MHz	12.05 dBm	ndB down	9.638 MHz
T1		1	702.695 MHz	-14.20 dBm	ndB	26.00 dB
T2		1	712.334 MHz	-13.93 dBm	Q factor	73.8

Date: 19.OCT.2017 21:46:38

LTE Band 17: (Middle Channel)

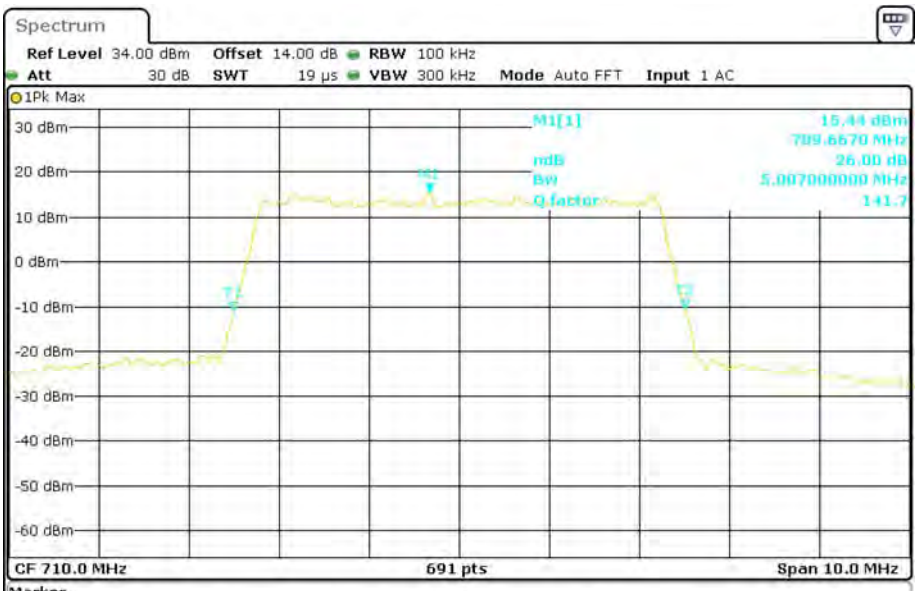
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.501	5.007
	16QAM	4.554	5.080
10.0	QPSK	8.973	9.783
	16QAM	8.972	9.667

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



Date: 19.OCT.2017 21:52:26

QPSK (5.0 MHz) - 26 dB Bandwidth, Middle channel

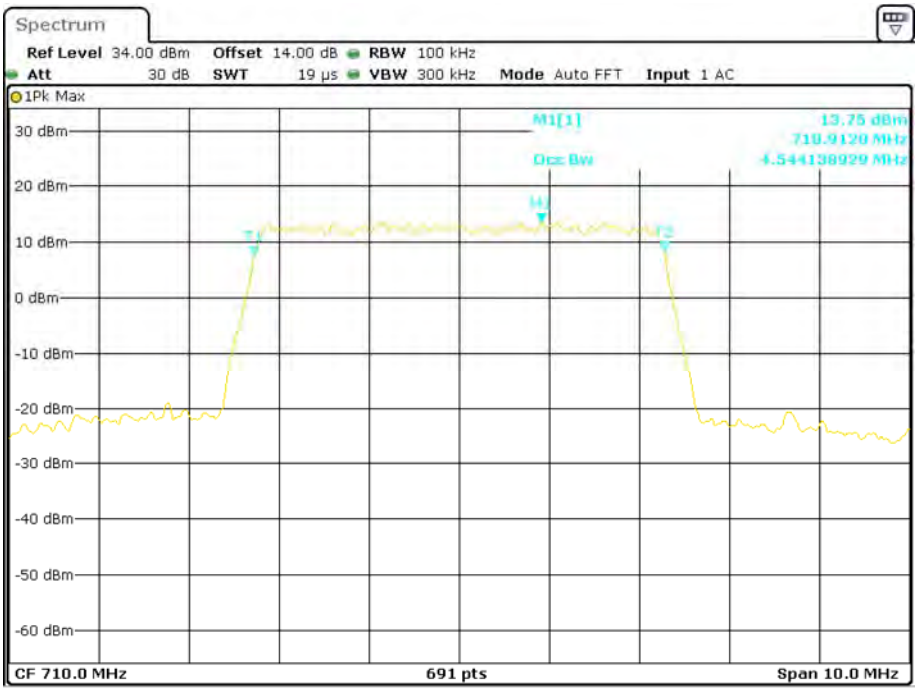


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	709.667 MHz	15.44 dBm	ndB down	5.007 MHz
T1		1	707.496 MHz	-10.82 dBm	ndB	26.00 dB
T2		1	712.504 MHz	-10.35 dBm	Q factor	141.7

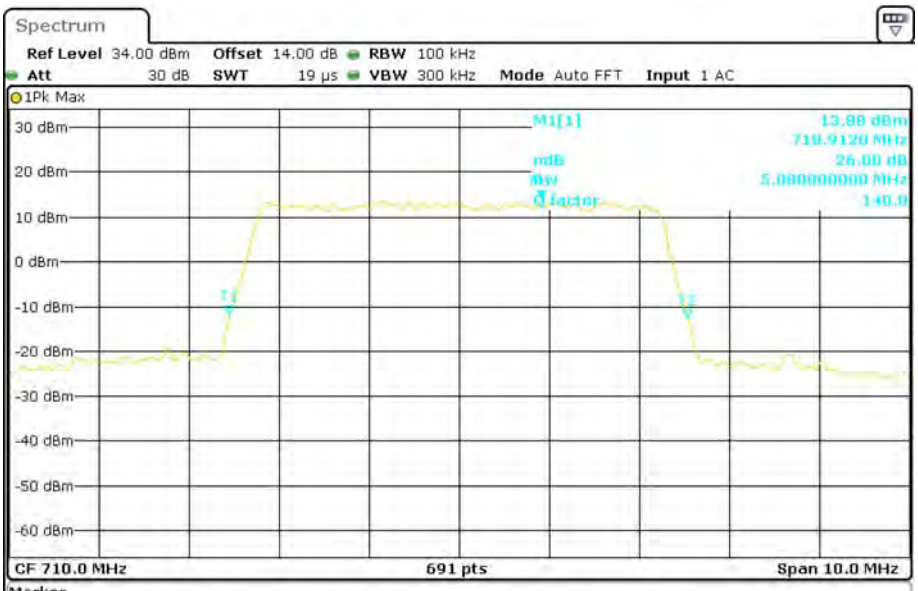
Date: 19.OCT.2017 21:54:25

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



Date: 19.OCT.2017 21:53:15

16-QAM (5.0 MHz) - 26 dB Bandwidth, Middle channel

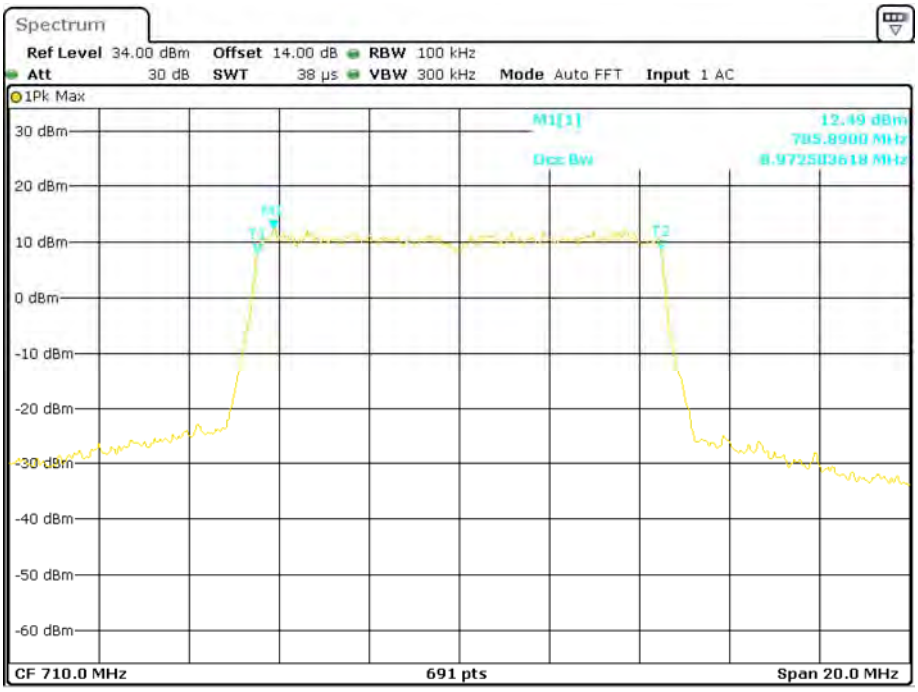


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	710.912 MHz	13.88 dBm	ndB down	5.08 MHz
T1		1	707.453 MHz	-11.66 dBm	ndB	26.00 dB
T2		1	712.533 MHz	-12.51 dBm	Q factor	140.0

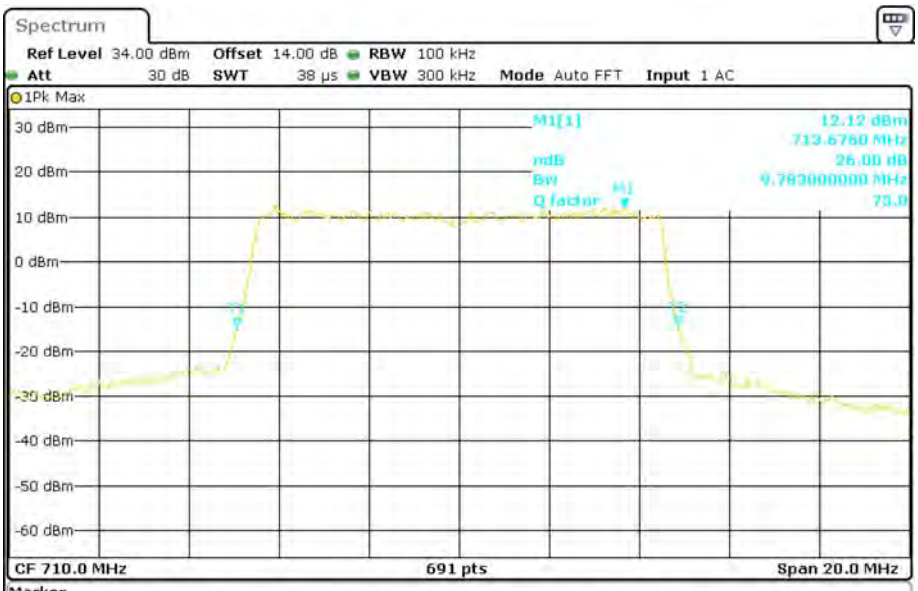
Date: 19.OCT.2017 21:53:52

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



Date: 19.OCT.2017 21:58:50

QPSK (10.0 MHz) - 26 dB Bandwidth, Middle channel

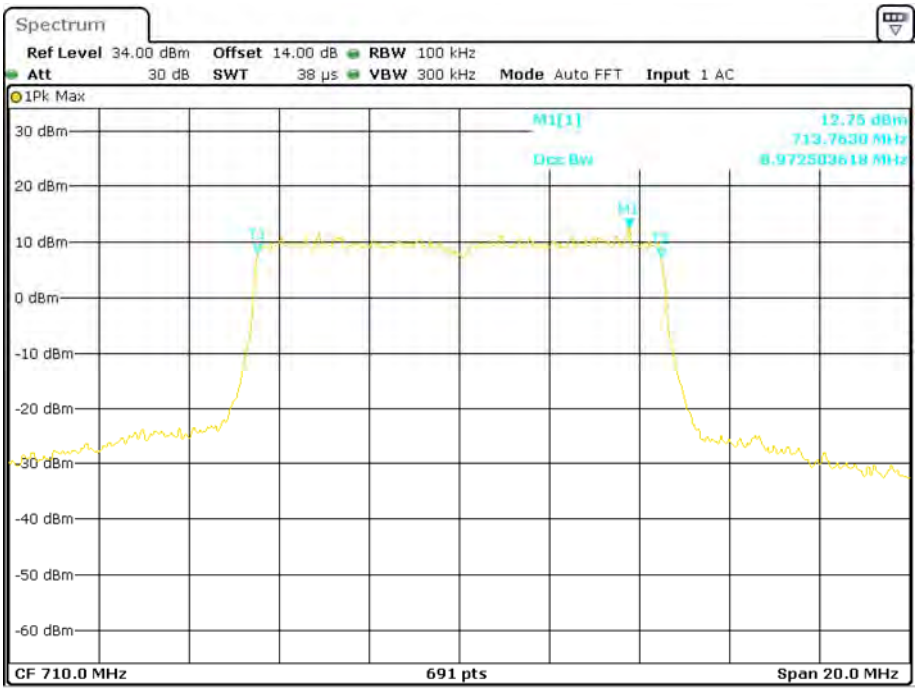


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	713.676 MHz	12.12 dBm	ndB down	9.783 MHz
T1		1	705.08 MHz	-14.31 dBm	ndB	26.00 dB
T2		1	714.863 MHz	-14.15 dBm	Q factor	73.0

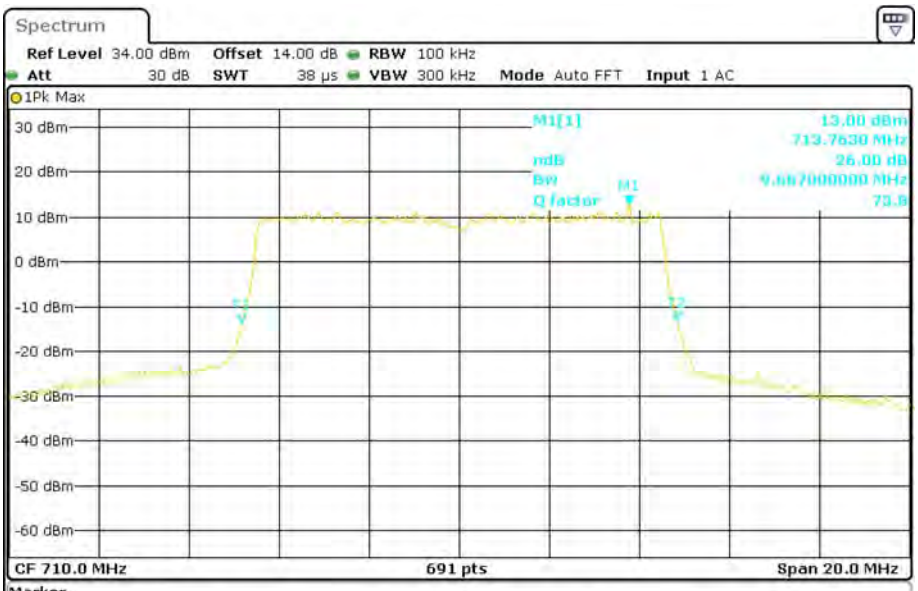
Date: 19.OCT.2017 21:56:09

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



Date: 19.OCT.2017 21:57:57

16-QAM (10.0 MHz) - 26 dB Bandwidth, Middle channel



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	713.763 MHz	13.00 dBm	ndB down	9.667 MHz
T1		1	705.166 MHz	-13.51 dBm	ndB	26.00 dB
T2		1	714.834 MHz	-13.18 dBm	Q factor	73.8

Date: 19.OCT.2017 21:57:14

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

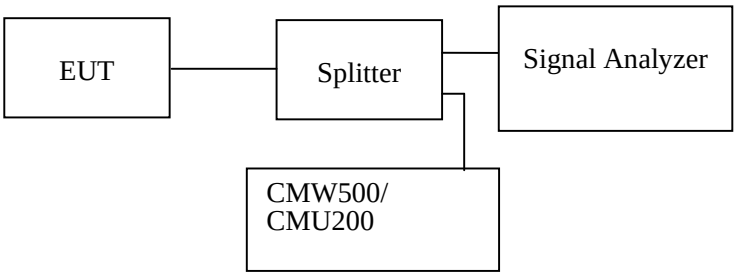
Applicable Standard

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:	21~24 ℃
Relative Humidity:	49~50 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Kobe Li from 2017-10-18 to 2017-10-26.

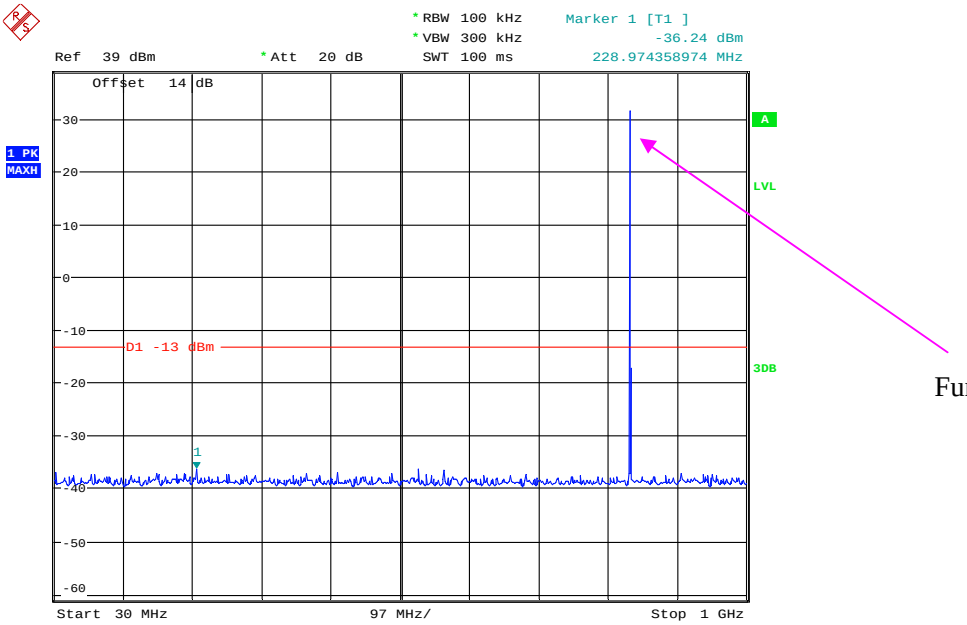
Test result: Compliance,

EUT operation mode: transmitting

Please refer to the following plots.

Cellular Band (Part 22H)

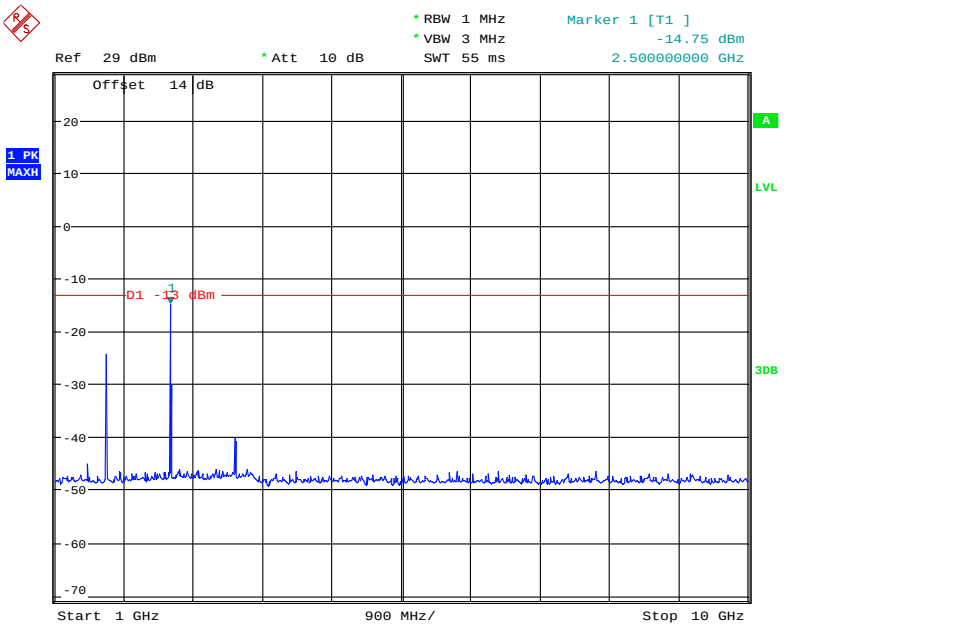
30 MHz – 1 GHz (GSM Mode)



Fundamental test

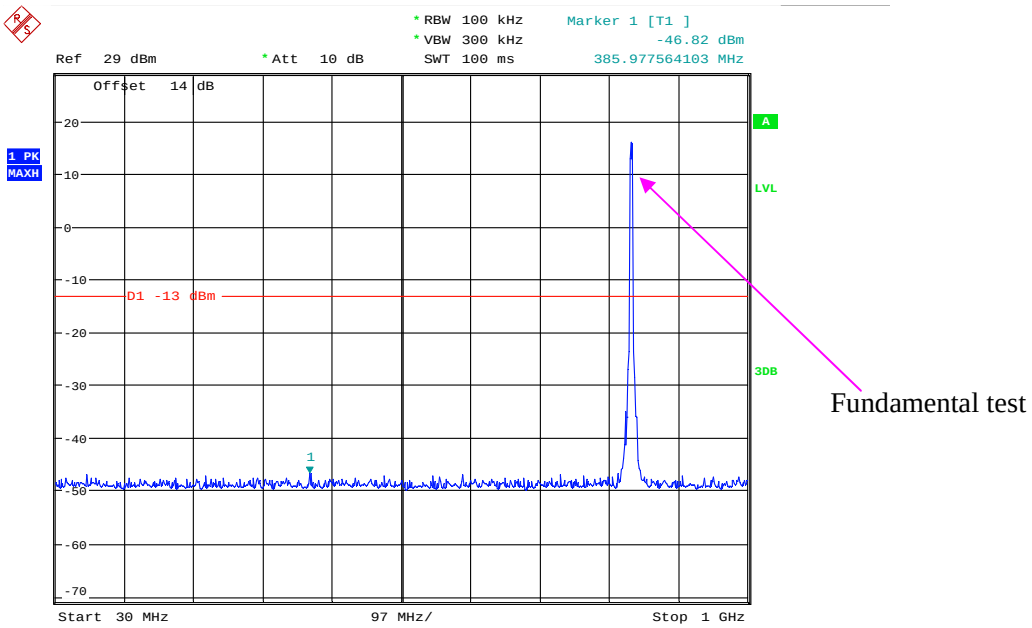
Date: 18.OCT.2017 21:19:37

1 GHz – 10 GHz (GSM Mode)



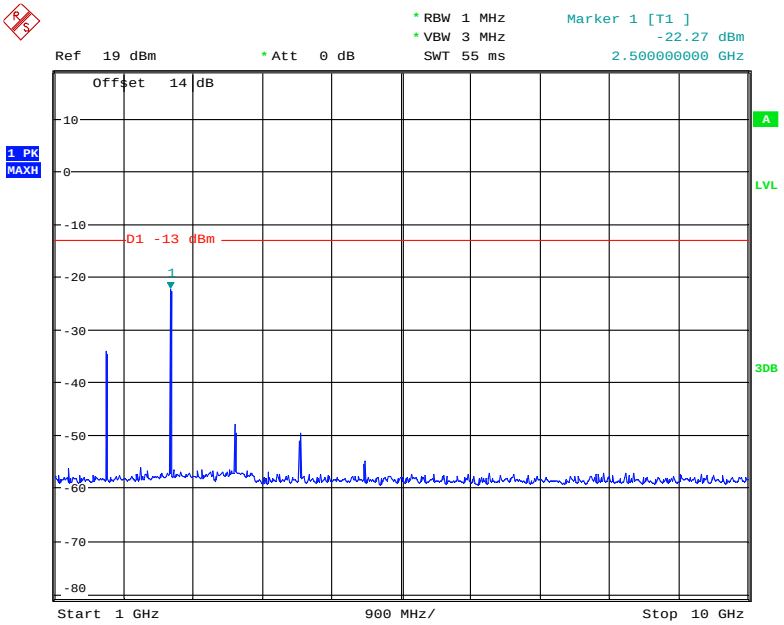
Date: 18.OCT.2017 21:17:55

30 MHz – 1 GHz (WCDMA Mode)



Date: 18.OCT.2017 21:29:19

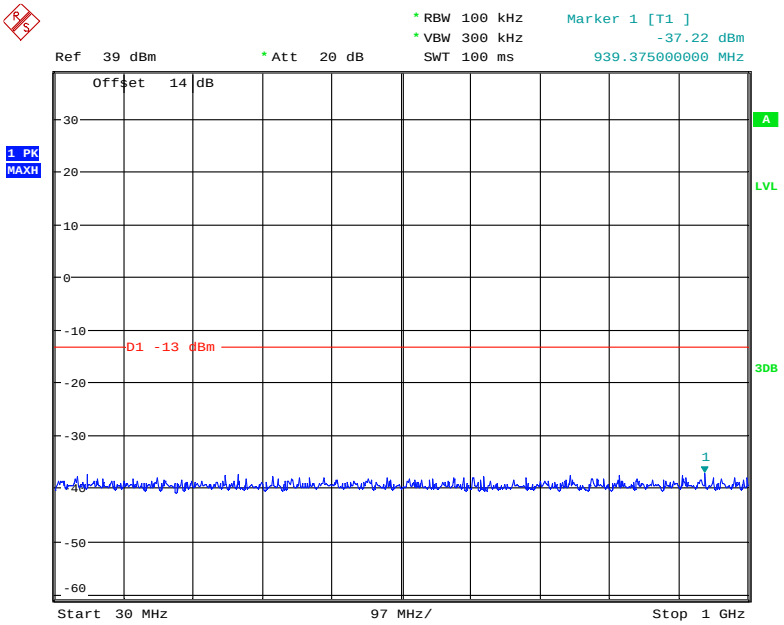
1 GHz – 10 GHz (WCDMA Mode)



Date: 18.OCT.2017 21:29:53

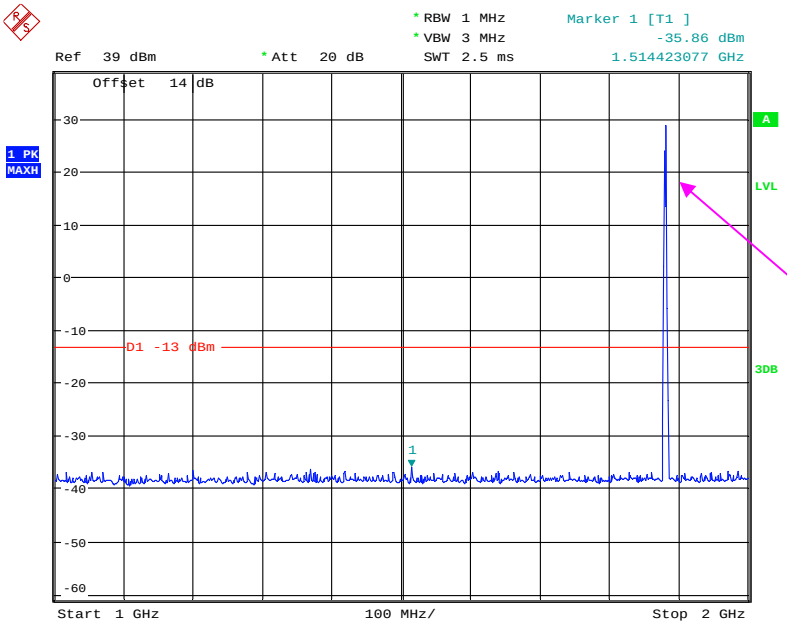
PCS Band (Part 24E)

30 MHz – 1 GHz (GSM Mode)



Date: 18.OCT.2017 21:20:45

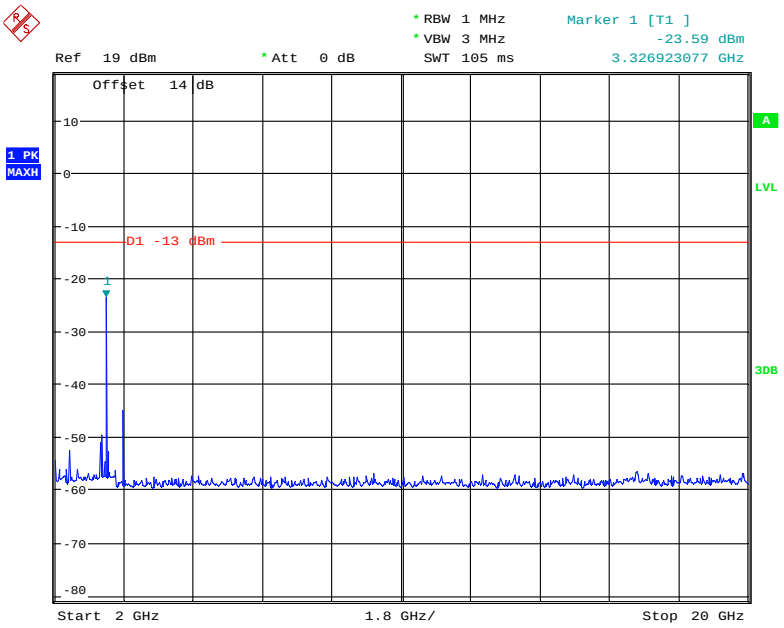
1 GHz – 2 GHz (GSM Mode)



Fundamental test

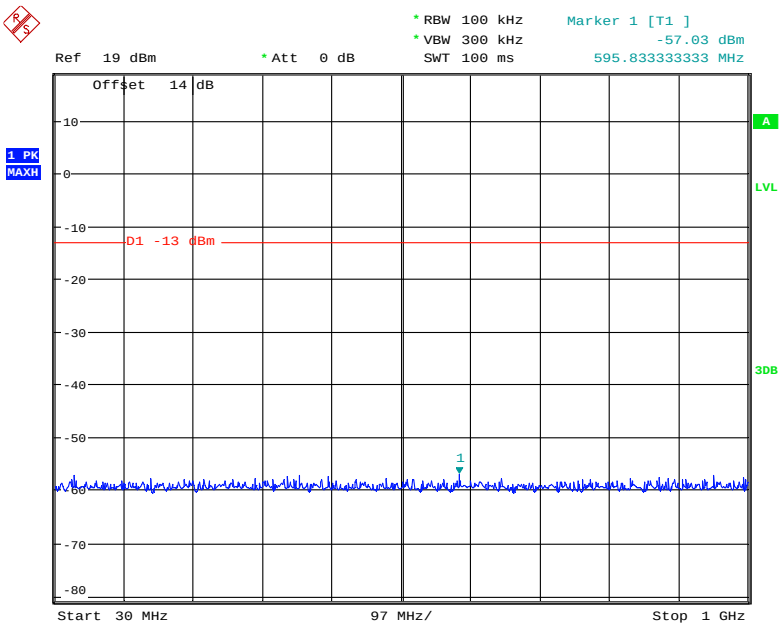
Date: 18.OCT.2017 21:23:07

2 GHz – 20 GHz (GSM Mode)



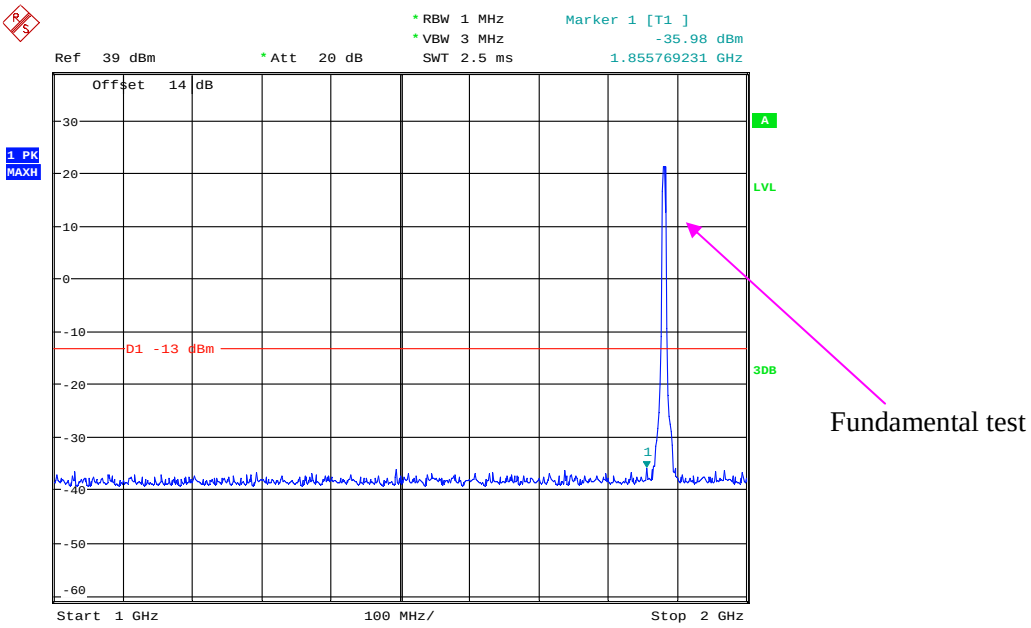
Date: 18.OCT.2017 21:21:54

30 MHz – 1 GHz (WCDMA Mode)



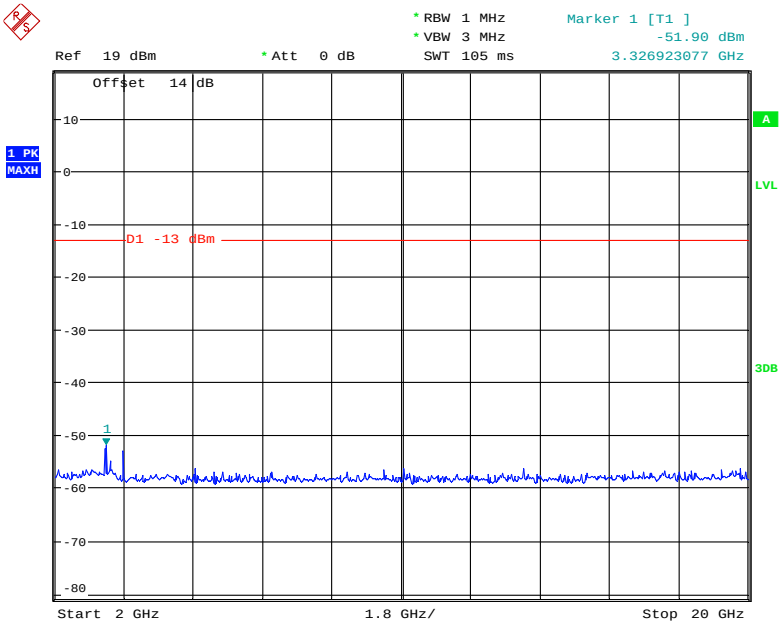
Date: 18.OCT.2017 21:27:52

1 GHz – 2 GHz (WCDMA Mode)



Date: 18.OCT.2017 21:26:11

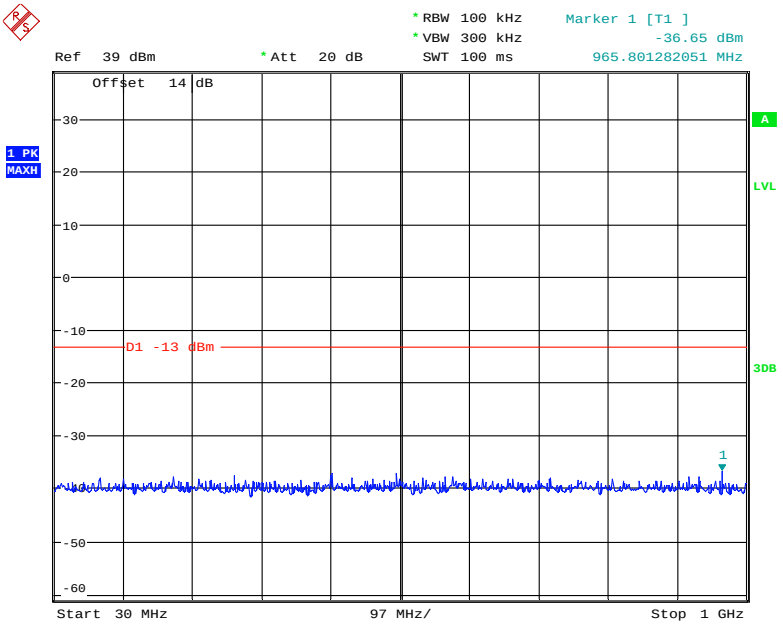
2 GHz – 20 GHz (WCDMA Mode)



Date: 18.OCT.2017 21:27:20

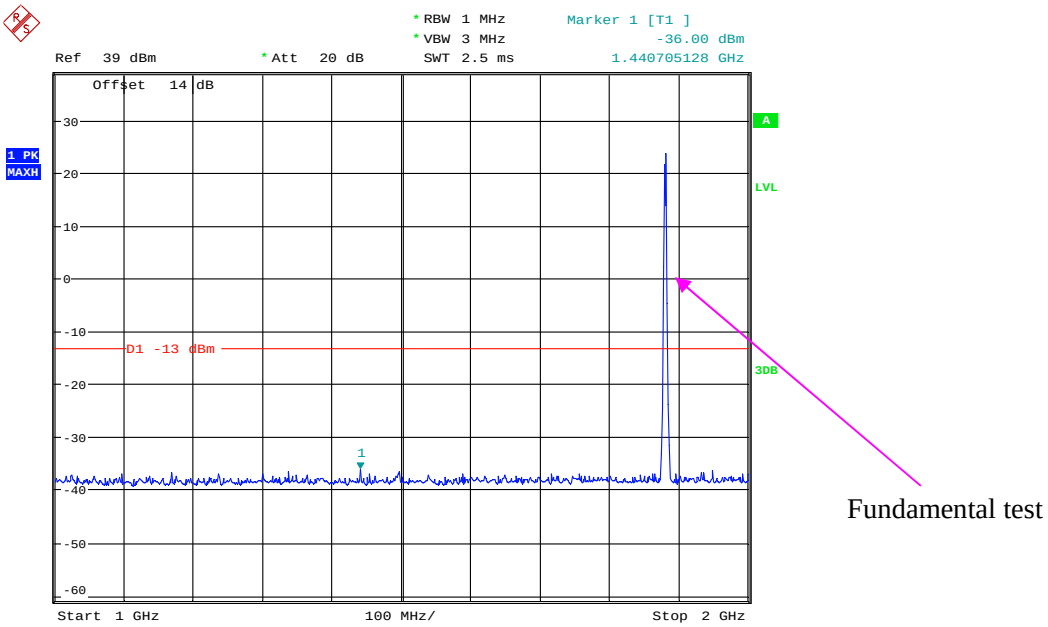
LTE Band 2:

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



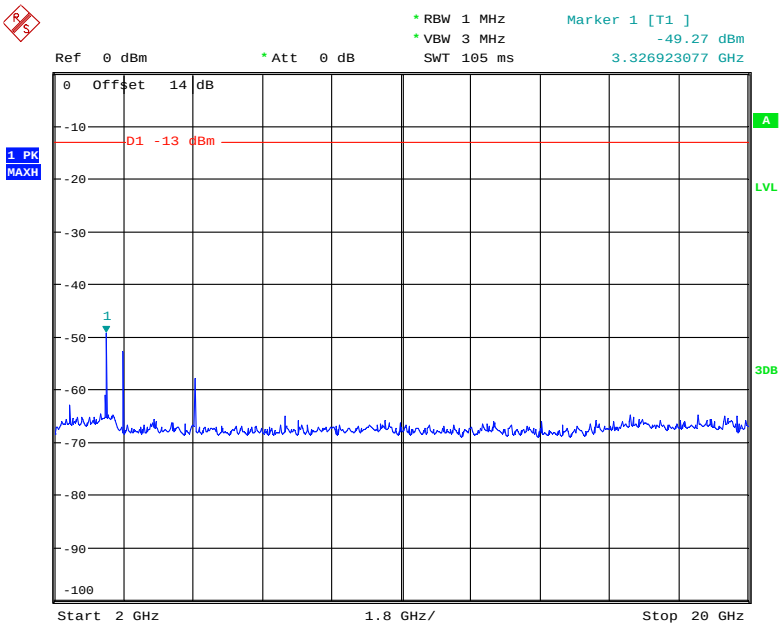
Date: 18.OCT.2017 22:11:00

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



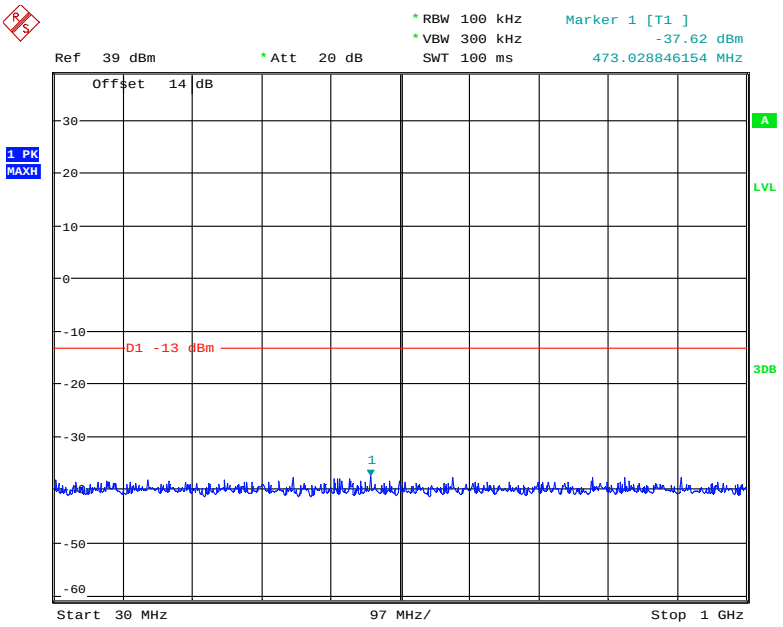
Date: 18.OCT.2017 22:12:46

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



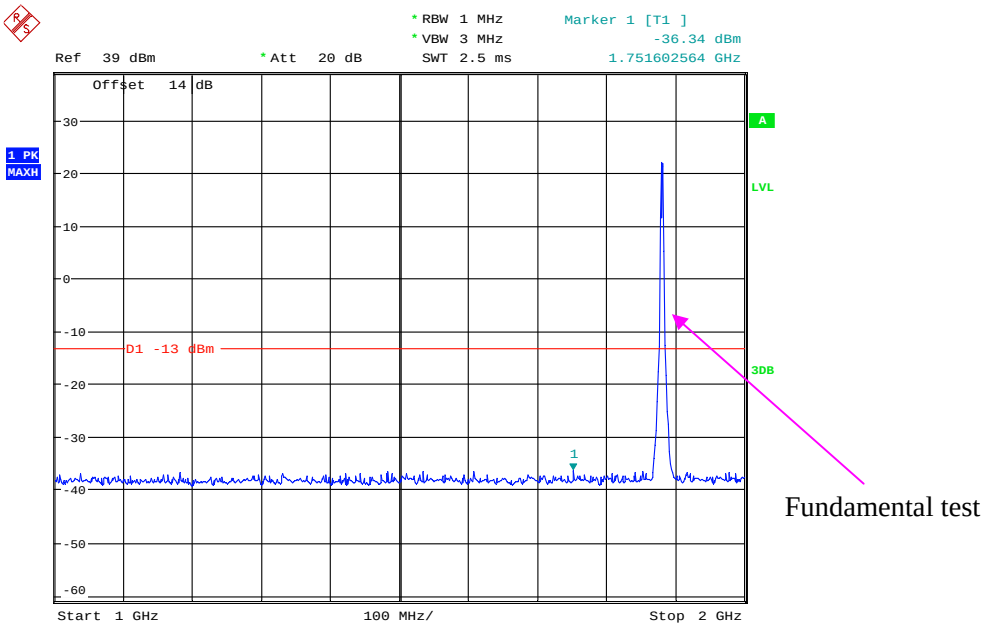
Date: 18.OCT.2017 22:05:24

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



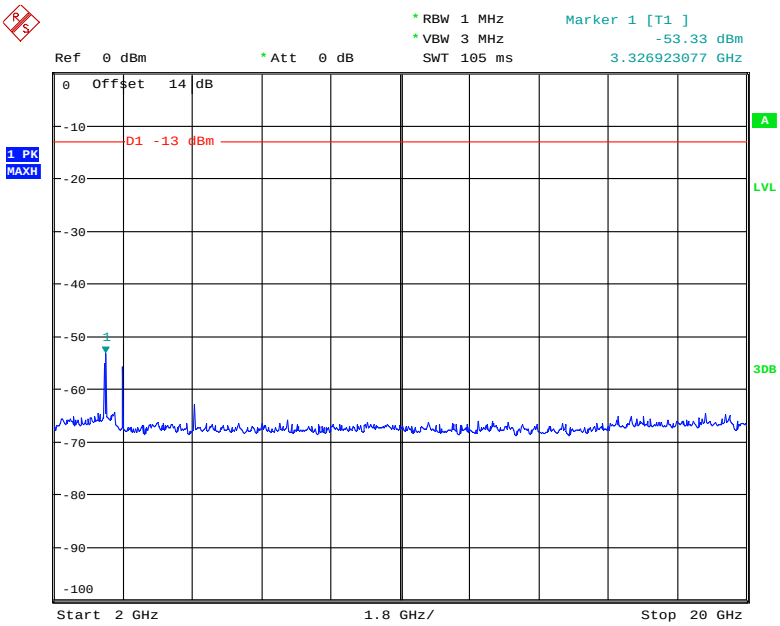
Date: 18.OCT.2017 22:10:47

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



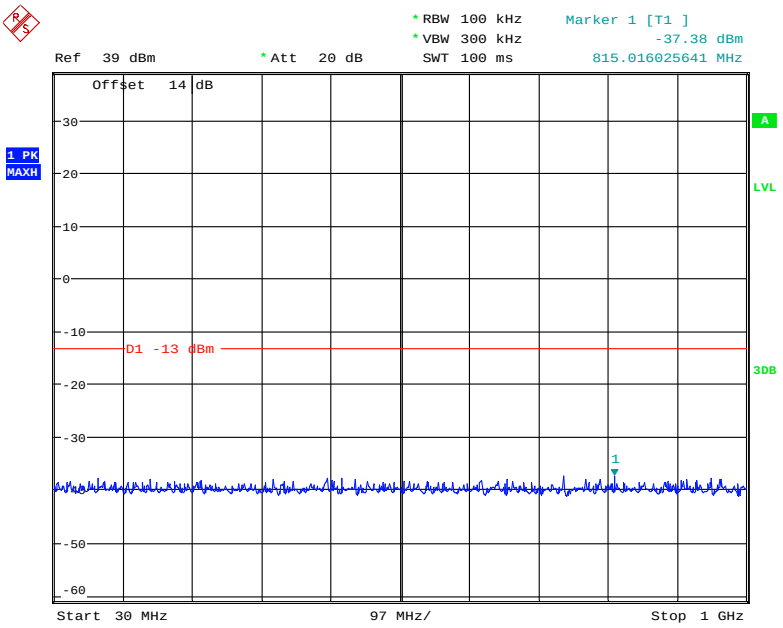
Date: 18.OCT.2017 22:14:08

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



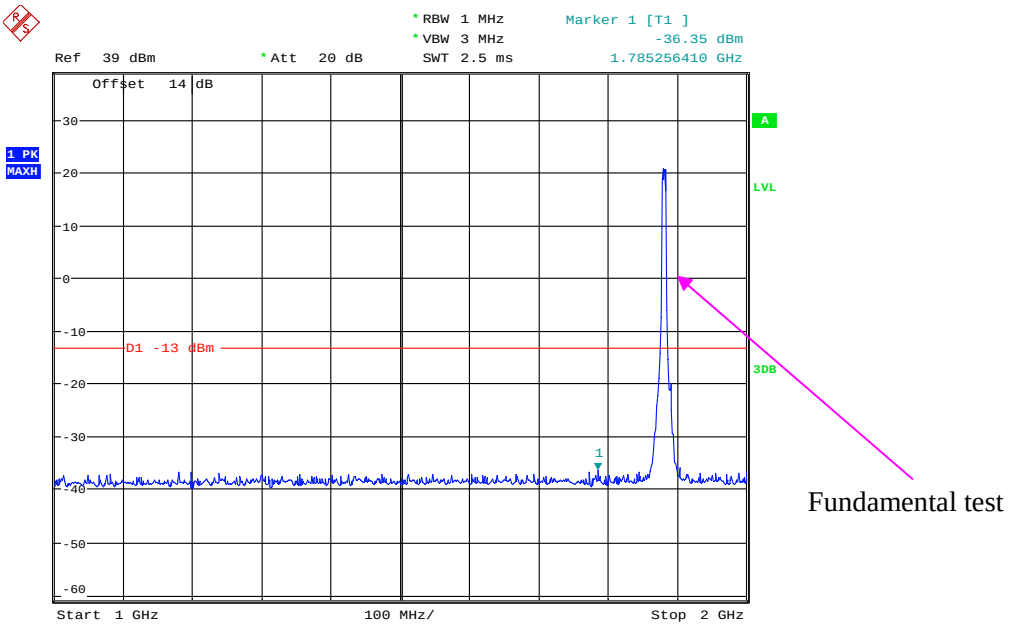
Date: 18.OCT.2017 22:06:15

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



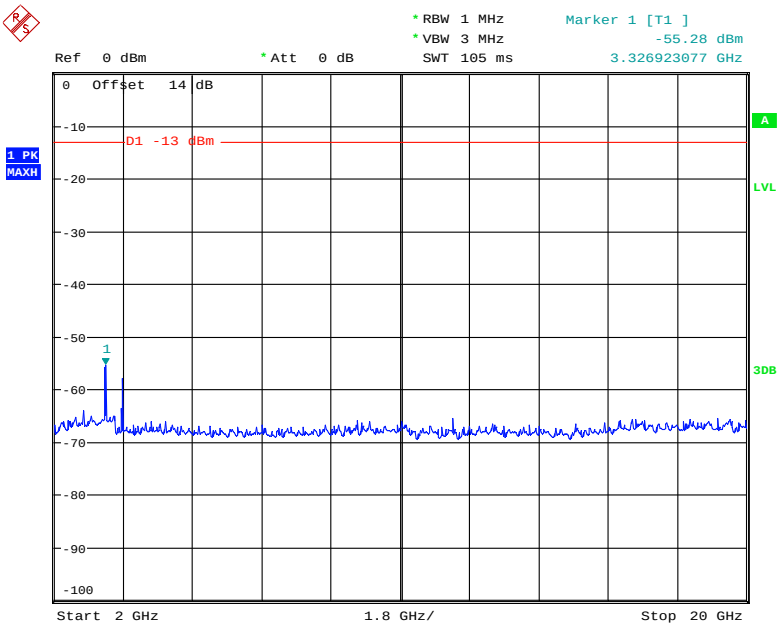
Date: 18.OCT.2017 22:10:34

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



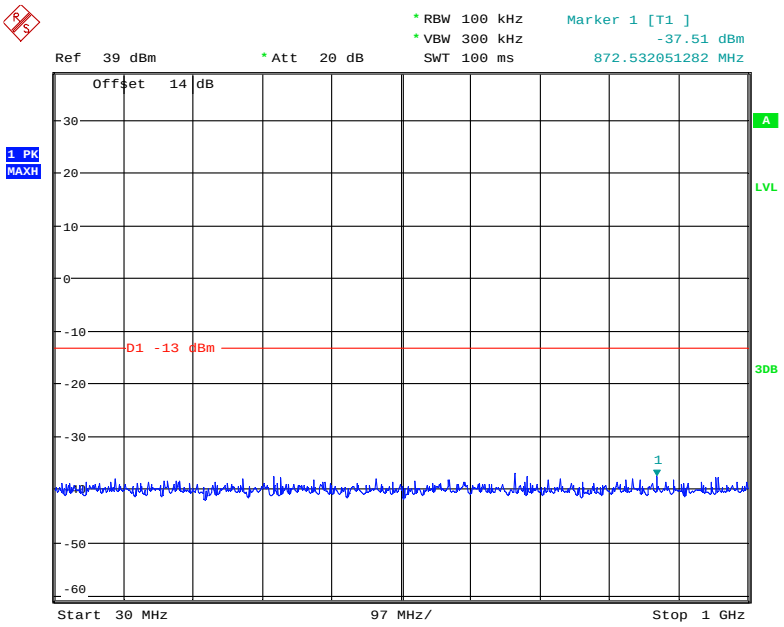
Date: 18.OCT.2017 22:14:51

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



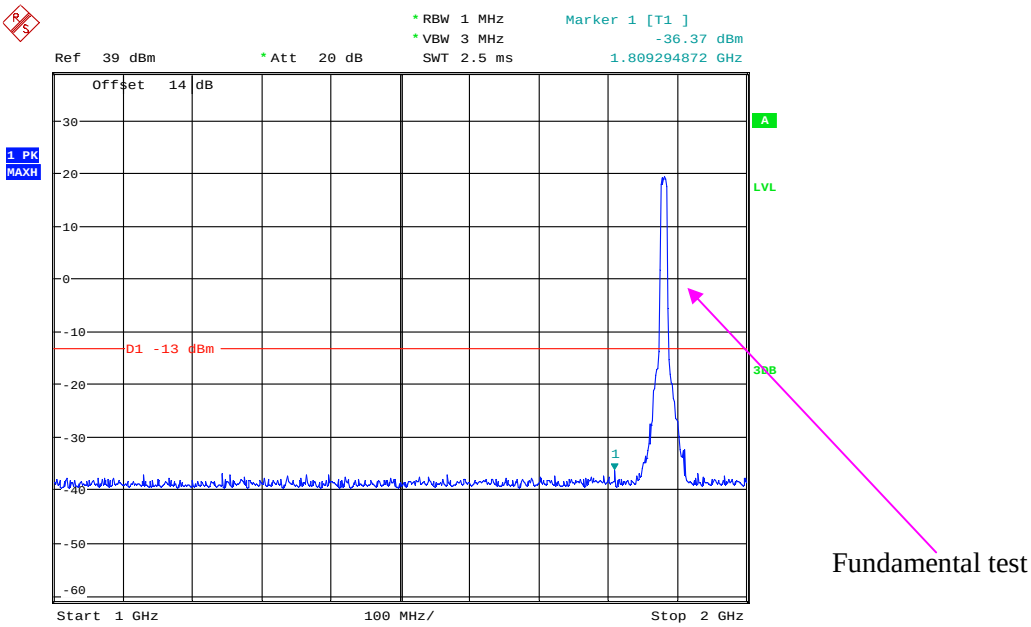
Date: 18.OCT.2017 22:07:46

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



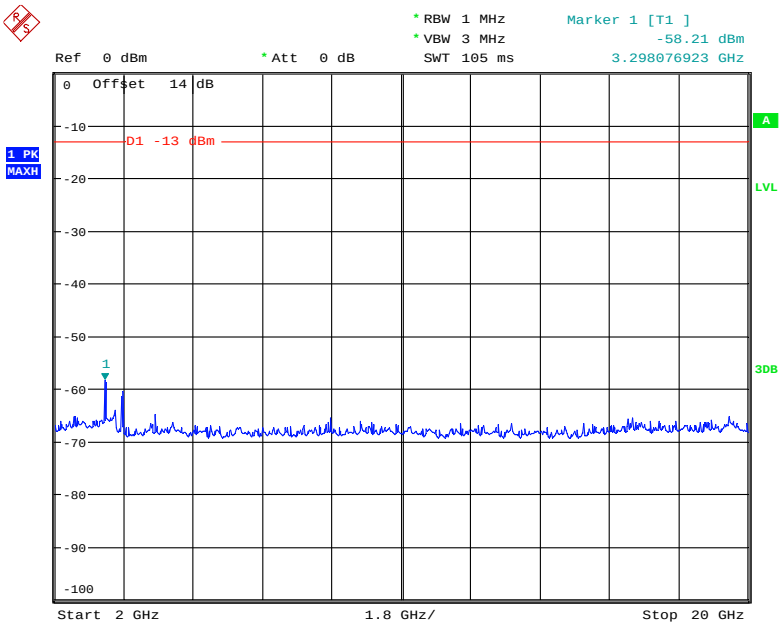
Date: 18.OCT.2017 22:10:19

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



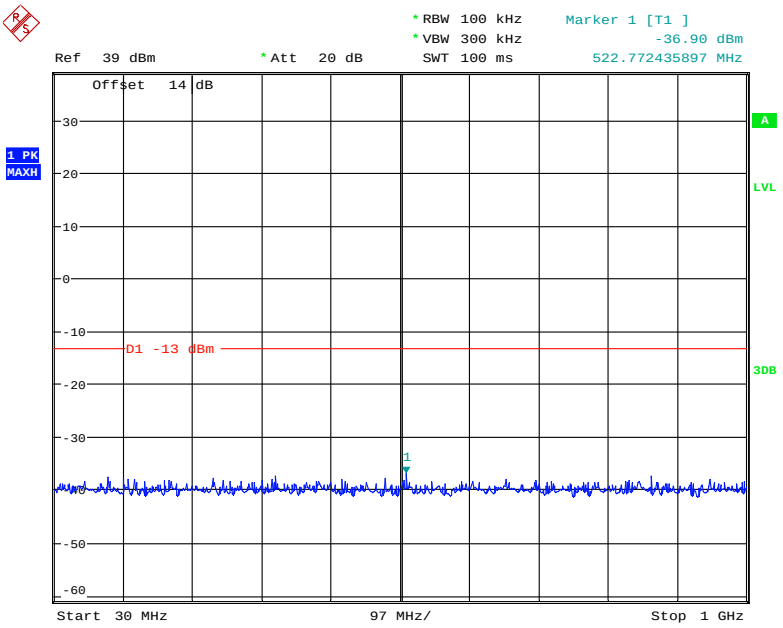
Date: 18.OCT.2017 22:15:19

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



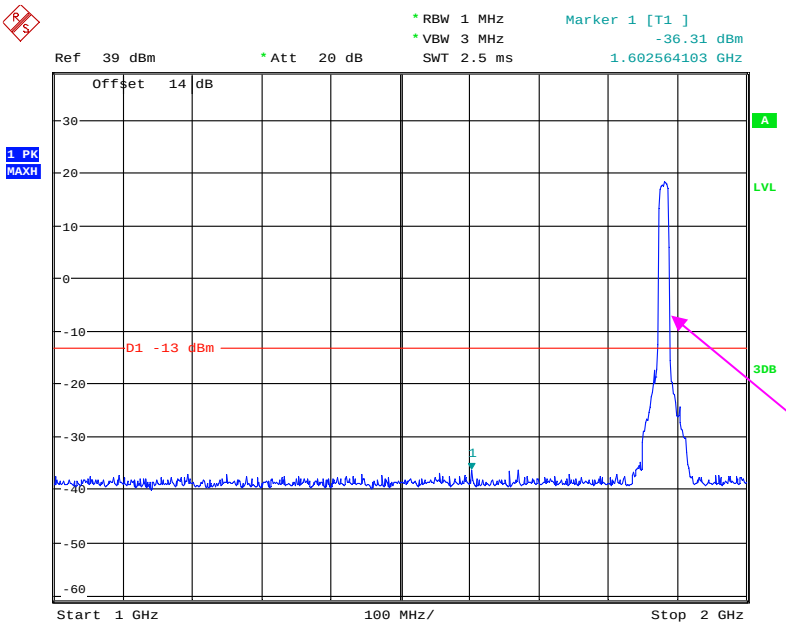
Date: 18.OCT.2017 22:08:17

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



Date: 18.OCT.2017 22:10:04

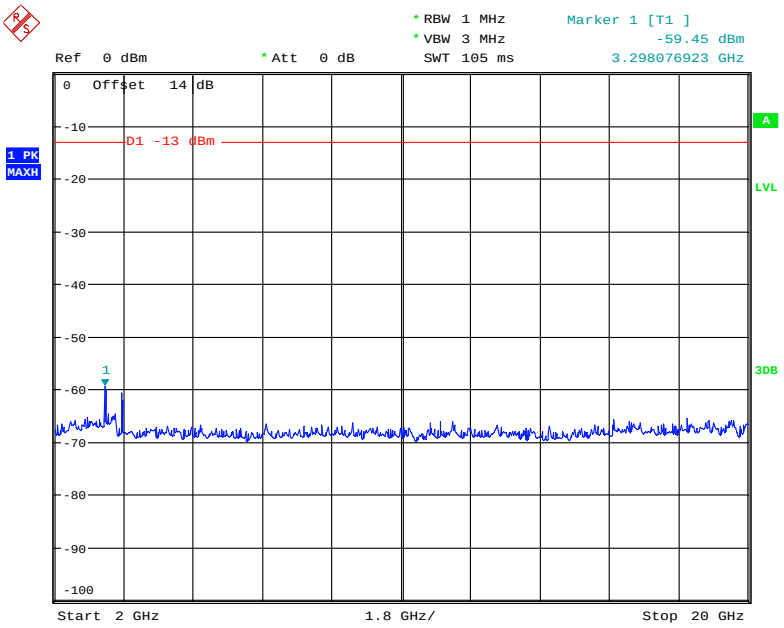
1 GHz – 2 GHz (15.0 MHz, Middle Channel)



Fundamental test

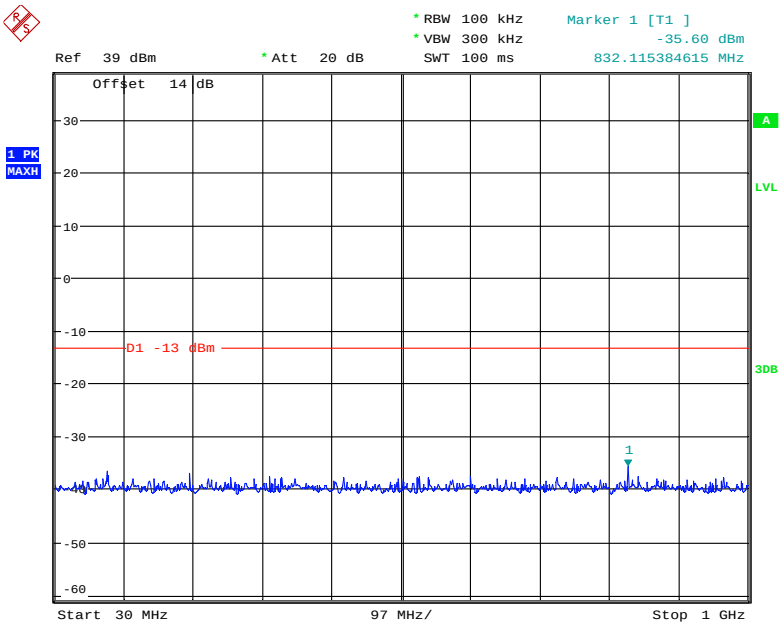
Date: 18.OCT.2017 22:15:47

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



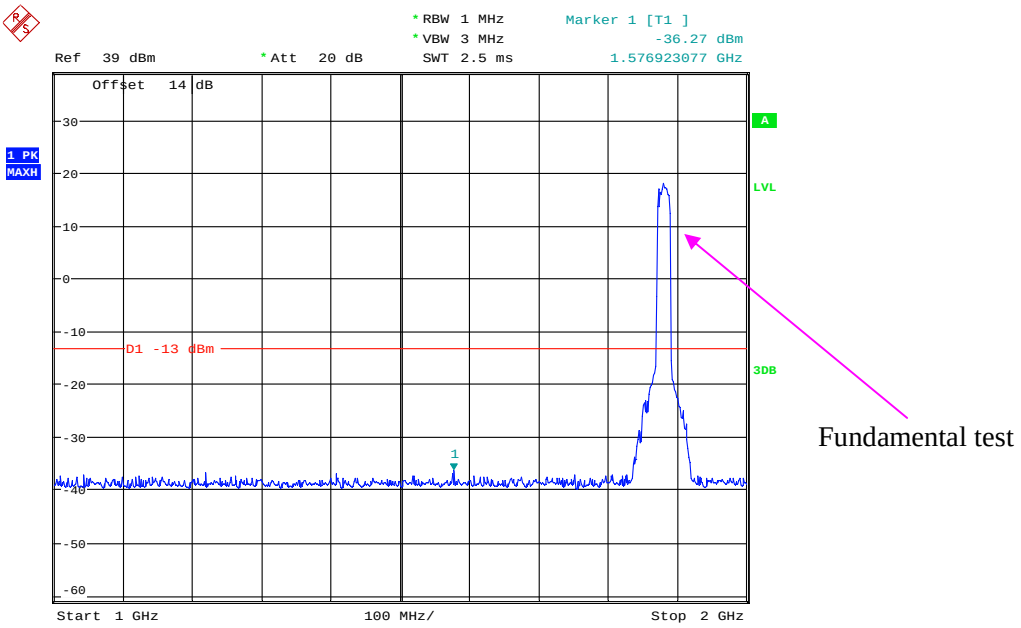
Date: 18.OCT.2017 22:08:32

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



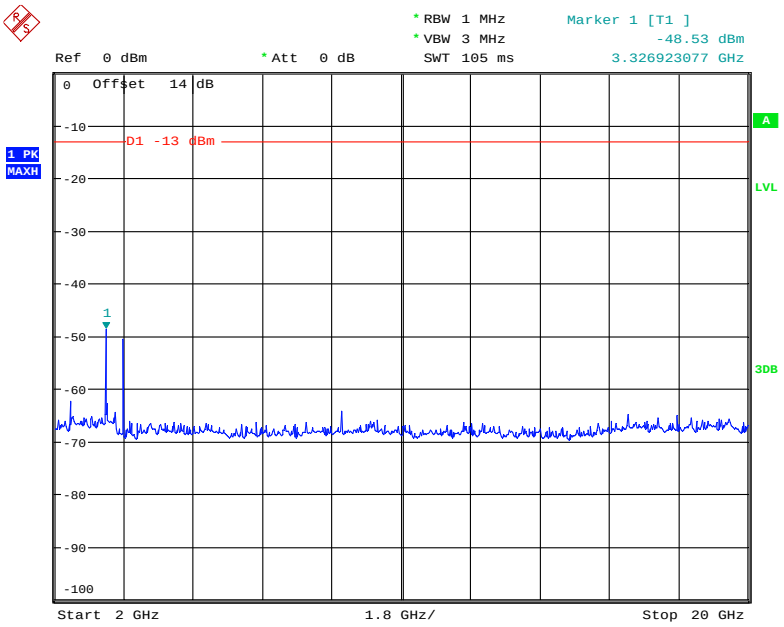
Date: 18.OCT.2017 22:09:37

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



Date: 18.OCT.2017 22:17:31

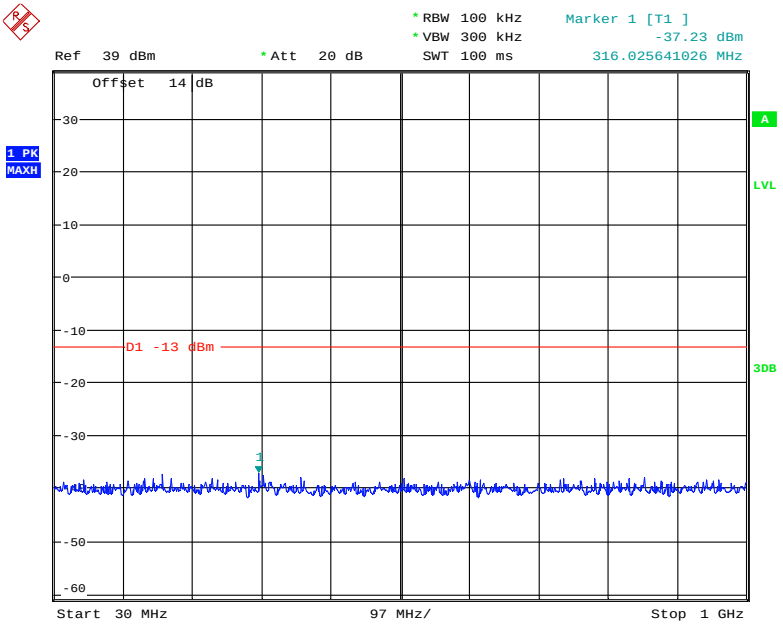
2 GHz –20 GHz (20.0 MHz, Middle Channel)



Date: 18.OCT.2017 22:08:46

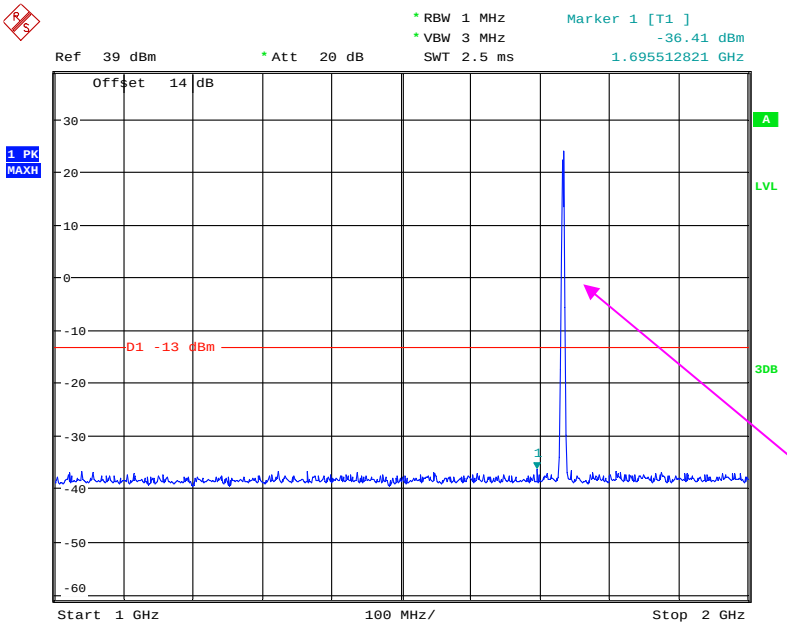
LTE Band 4:

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



Date: 18.OCT.2017 22:23:36

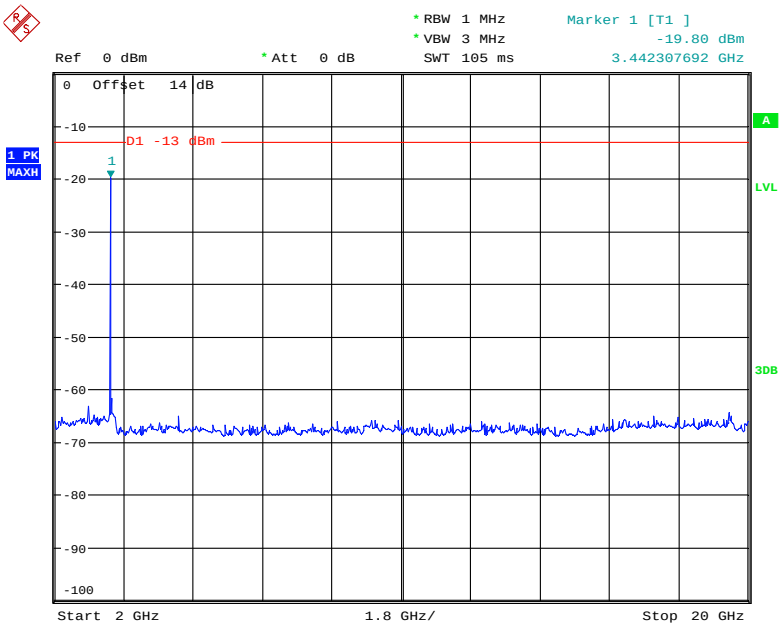
1 GHz – 2 GHz (1.4 MHz, Middle Channel)



Fundamental test

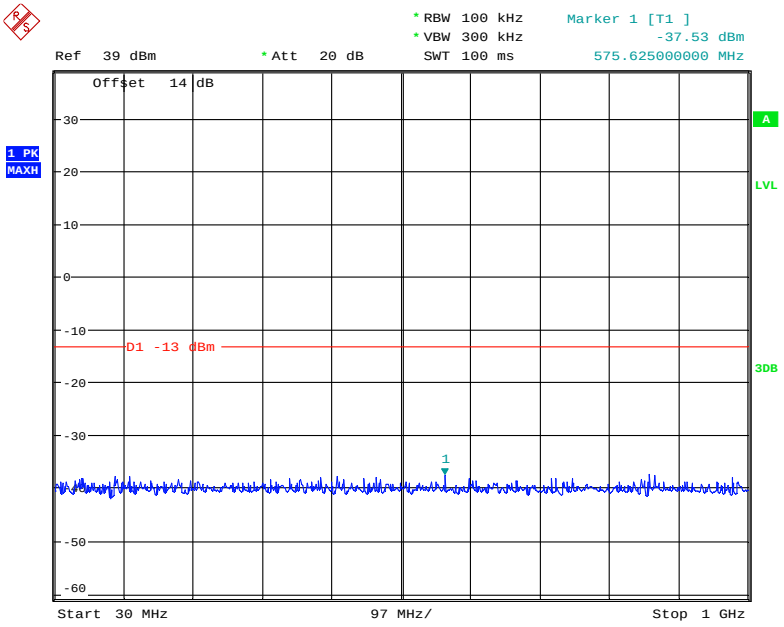
Date: 18.OCT.2017 22:24:42

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



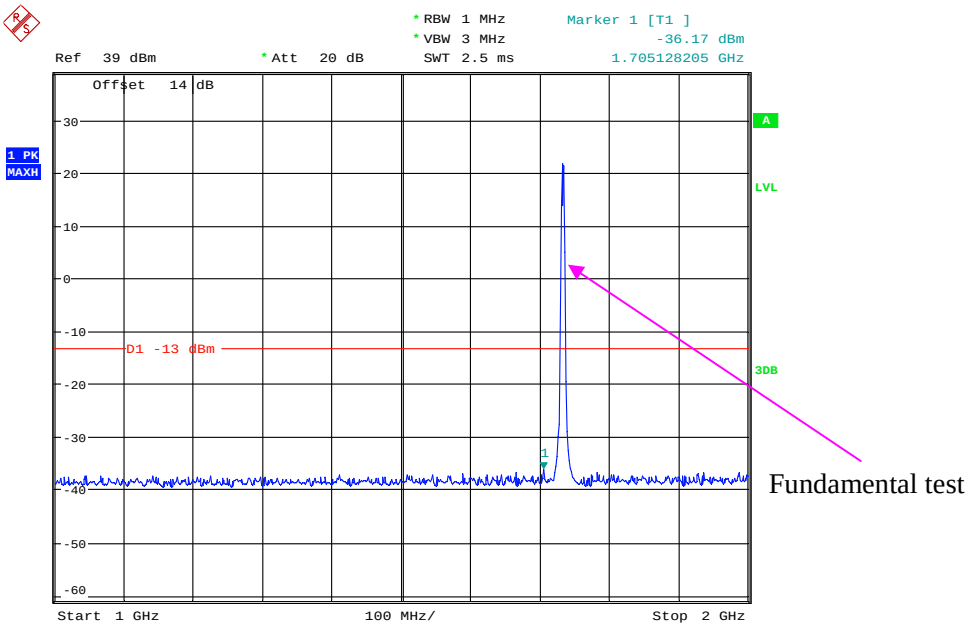
Date: 18.OCT.2017 22:19:48

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



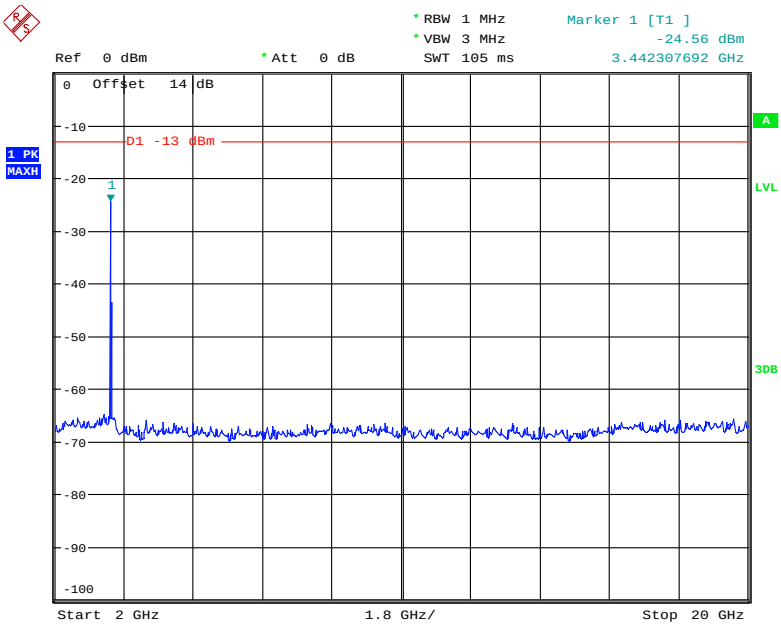
Date: 18.OCT.2017 22:23:22

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



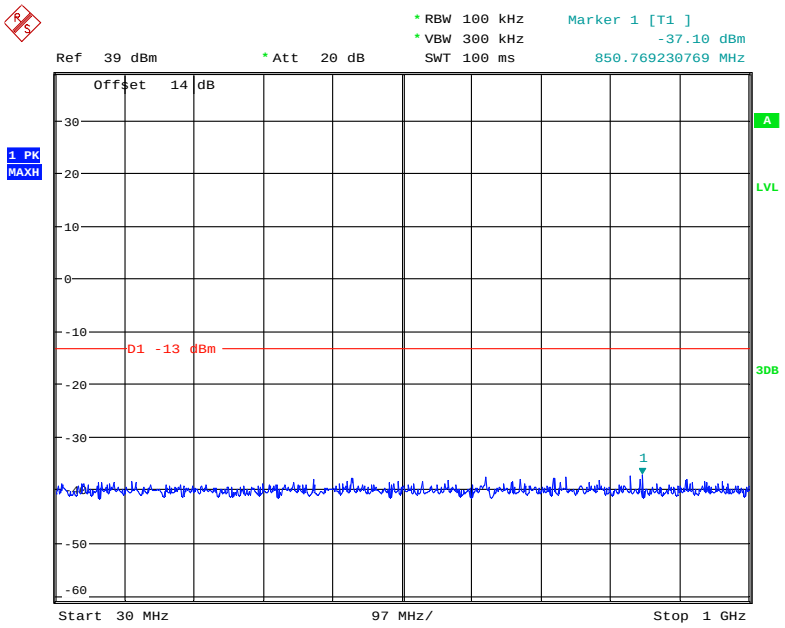
Date: 18.OCT.2017 22:25:35

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



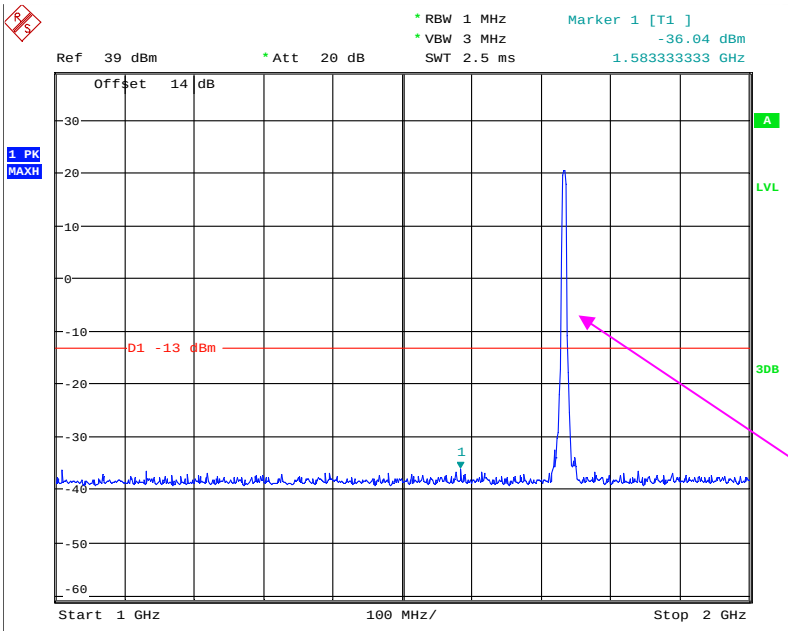
Date: 18.OCT.2017 22:20:18

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



Date: 18.OCT.2017 22:23:11

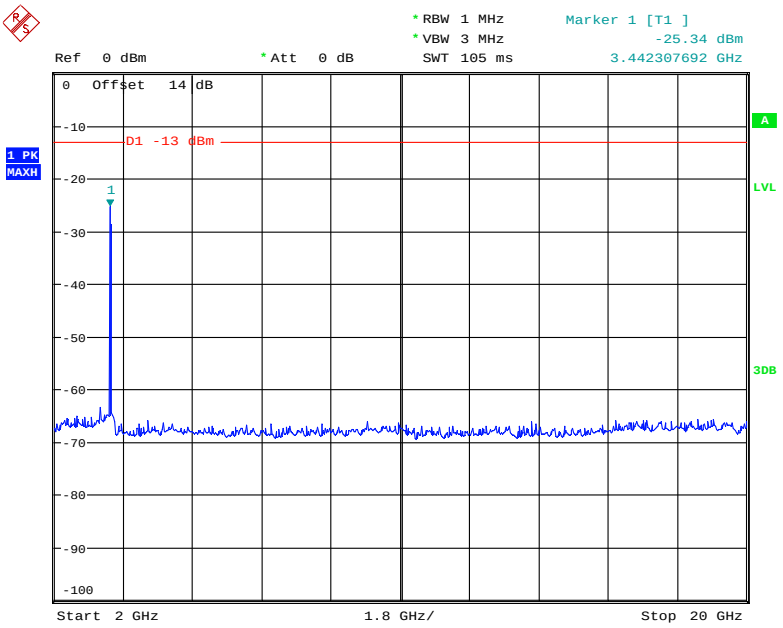
1 GHz – 2 GHz (5.0 MHz, Middle Channel)



Fundamental test

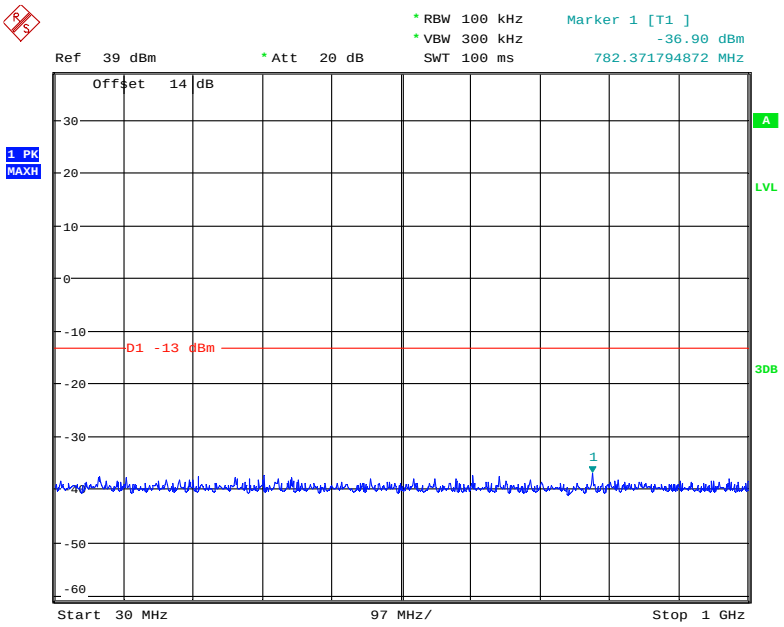
Date: 18.OCT.2017 22:26:27

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



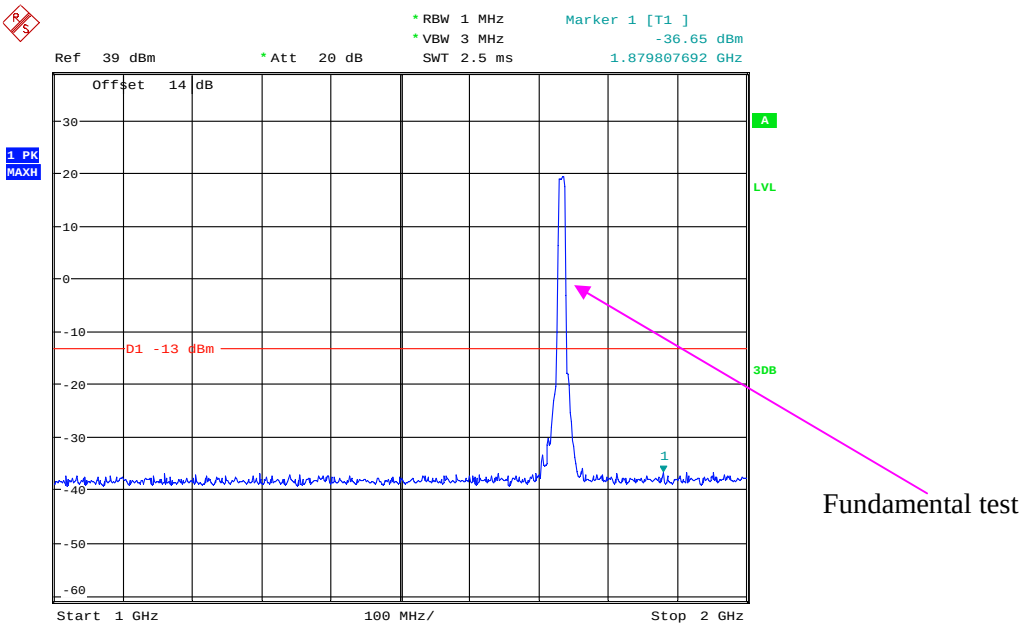
Date: 18.OCT.2017 22:20:34

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



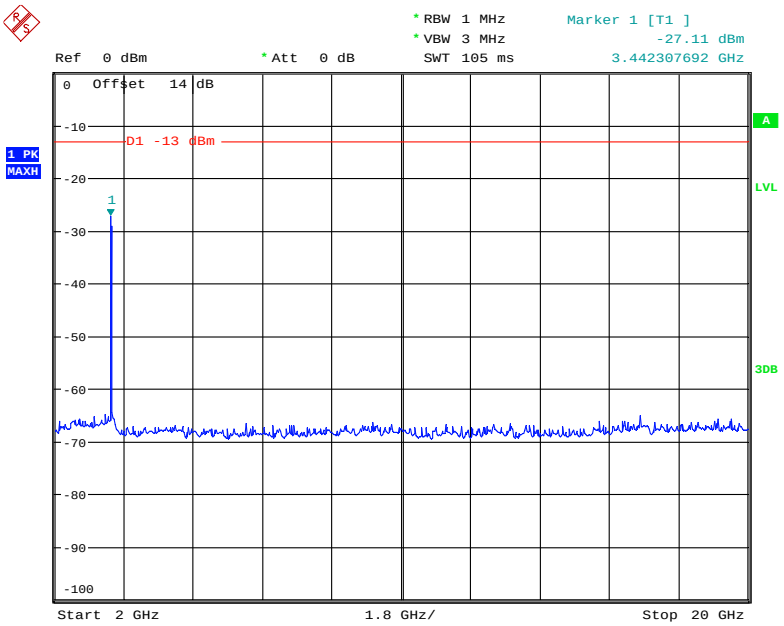
Date: 18.OCT.2017 22:22:48

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



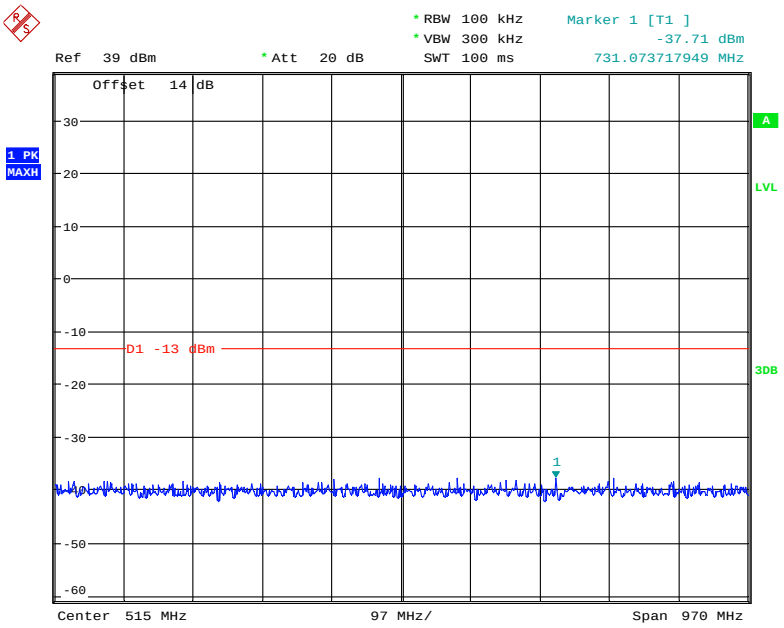
Date: 18.OCT.2017 22:27:40

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



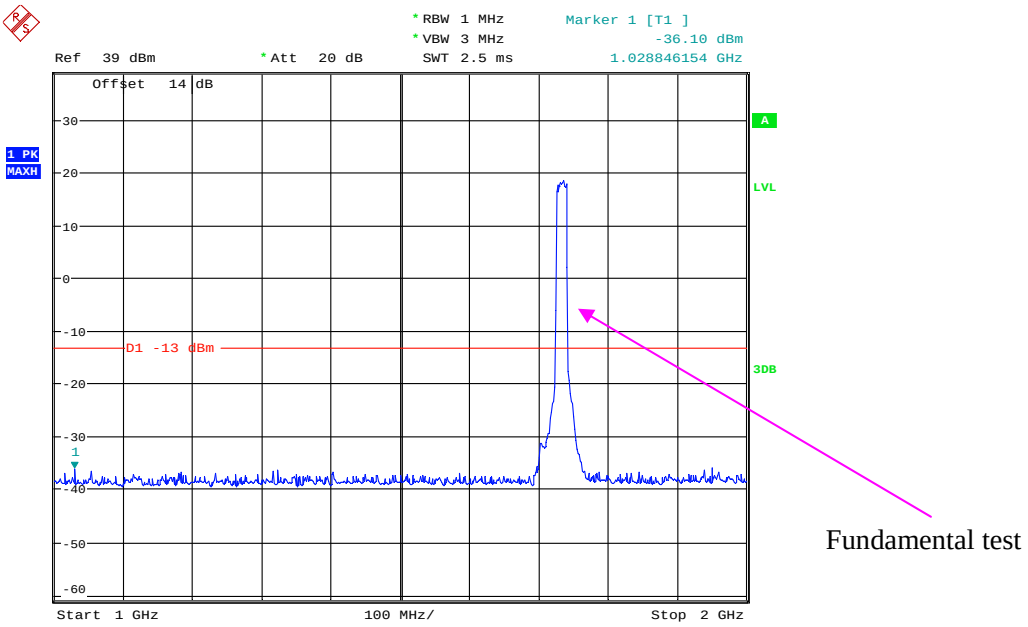
Date: 18.OCT.2017 22:20:48

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



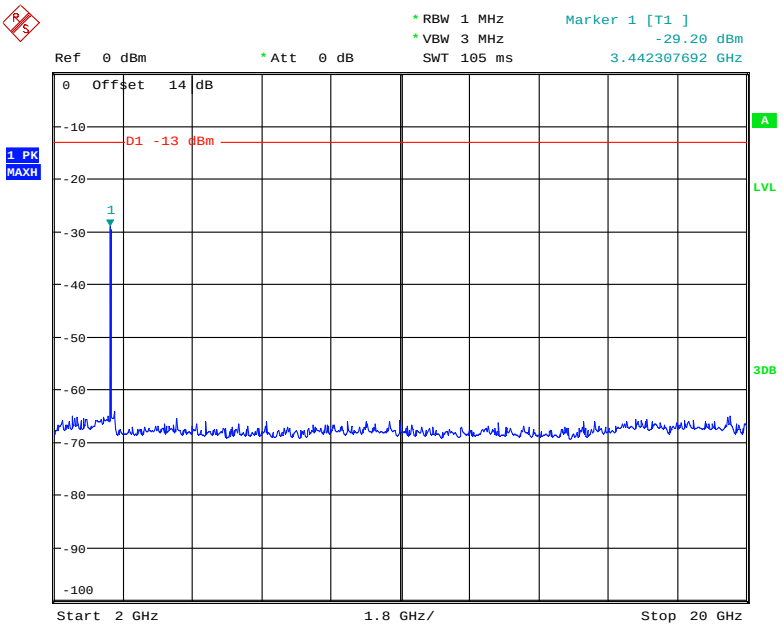
Date: 18.OCT.2017 22:22:33

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



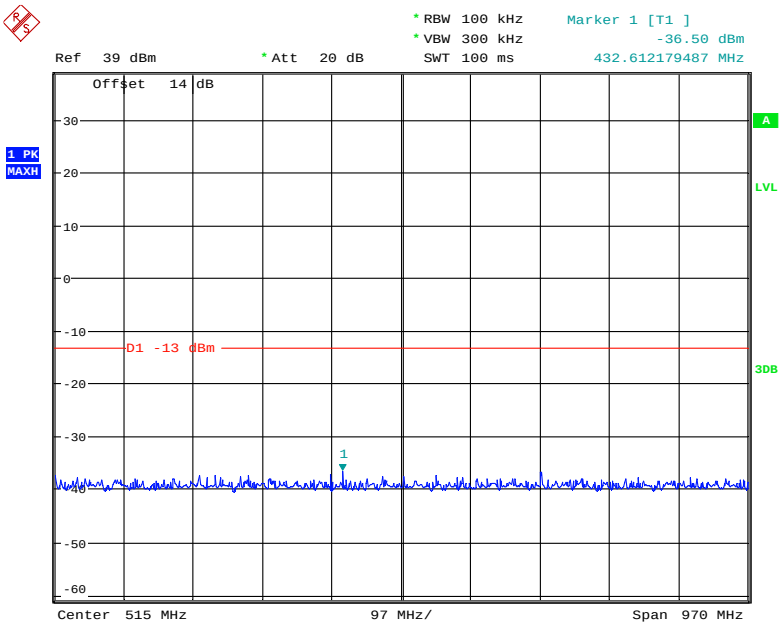
Date: 18.OCT.2017 22:28:28

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



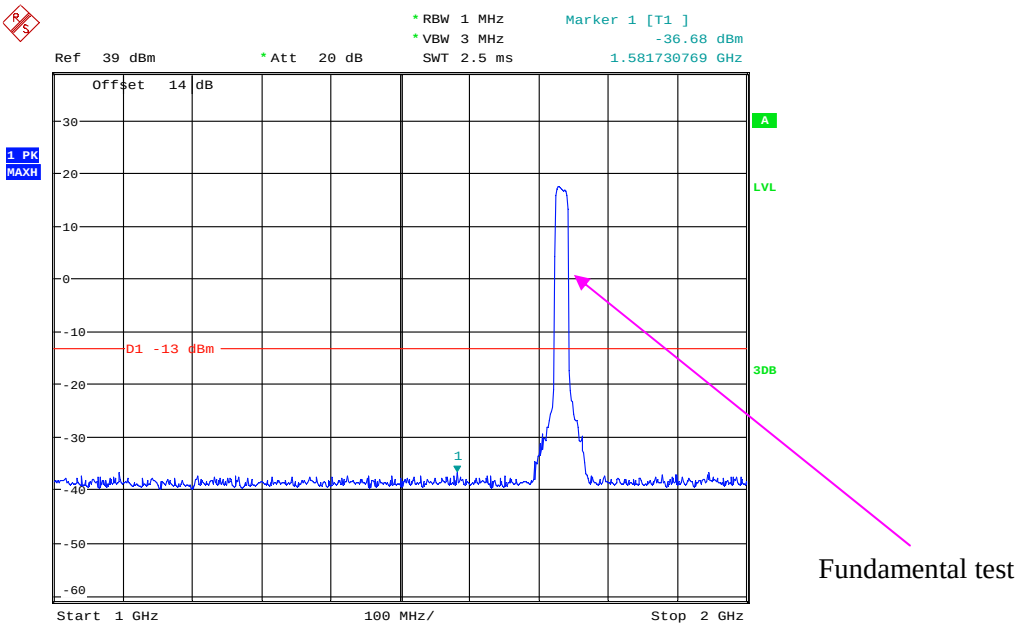
Date: 18.OCT.2017 22:21:02

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



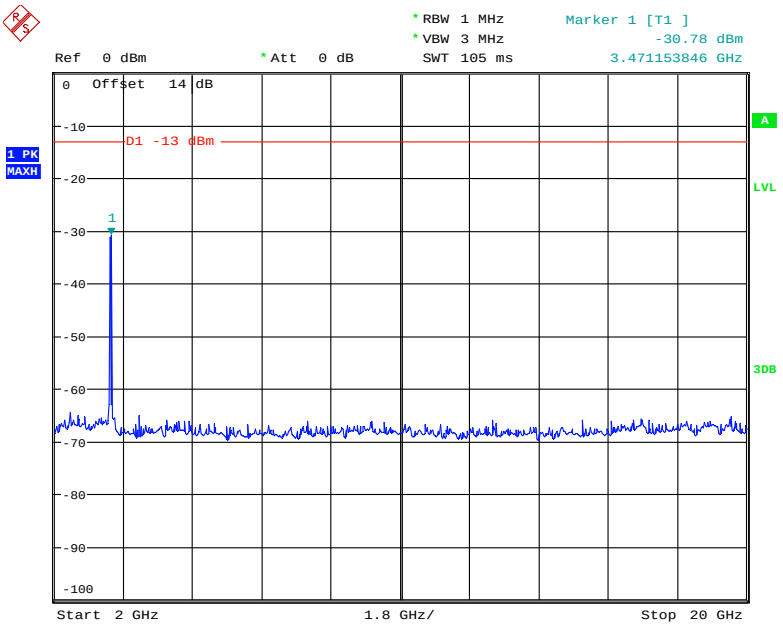
Date: 18.OCT.2017 22:22:13

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



Date: 18.OCT.2017 22:29:05

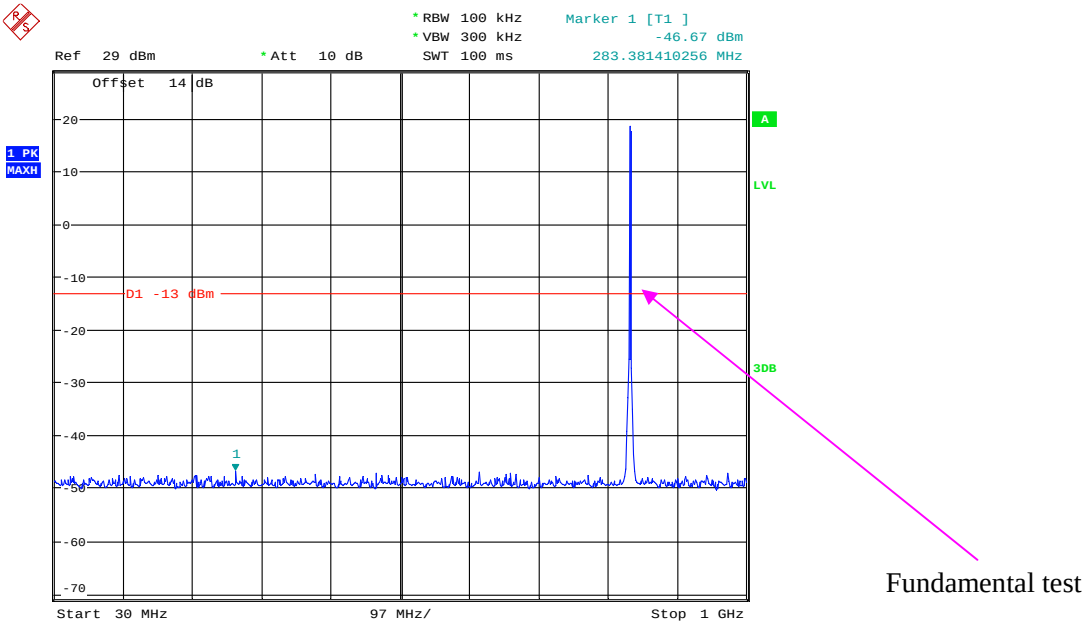
2 GHz – 20 GHz (20.0 MHz, Middle Channel)



Date: 18.OCT.2017 22:21:13

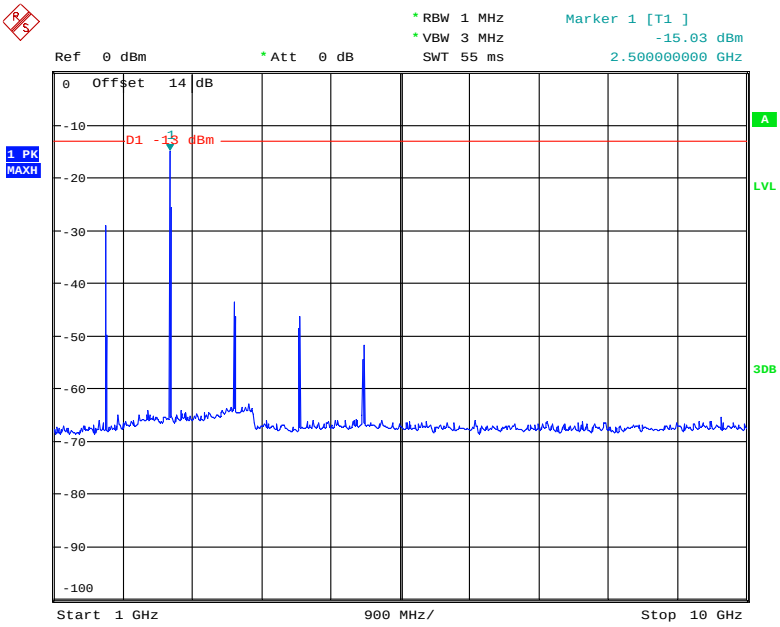
LTE Band 5:

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



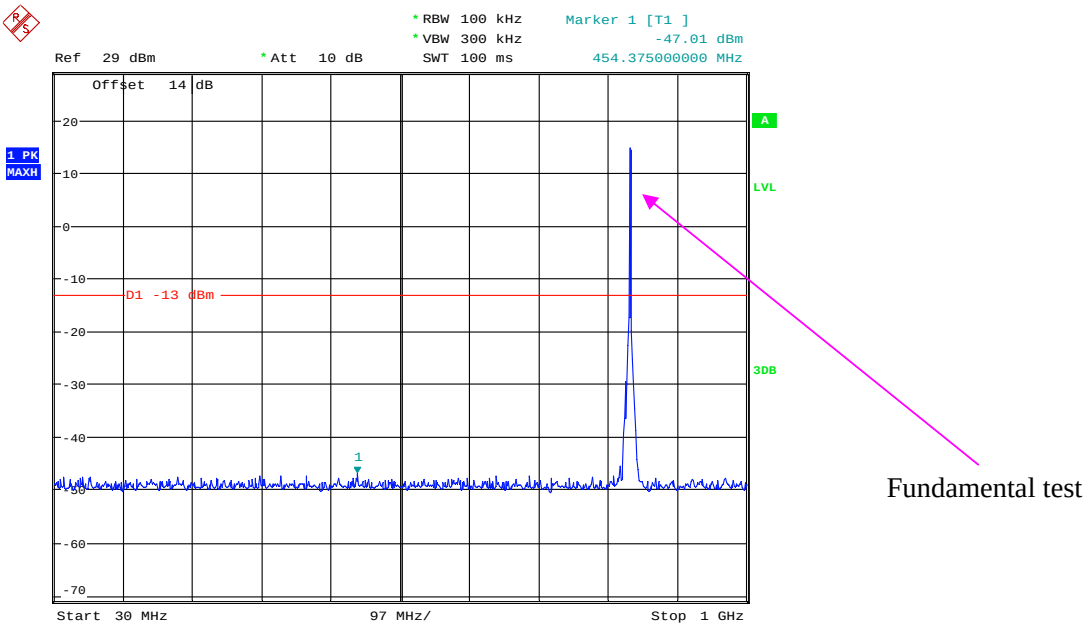
Date: 18.OCT.2017 22:37:54

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



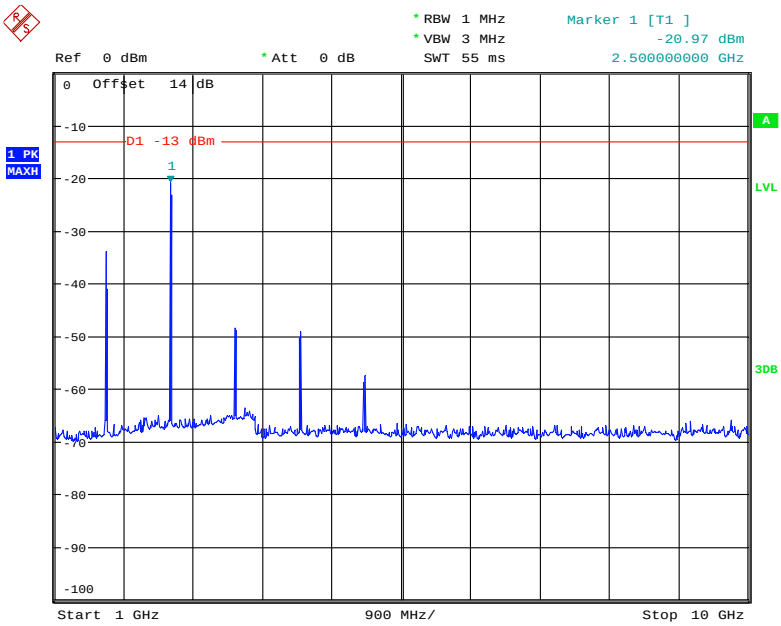
Date: 18.OCT.2017 22:33:09

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



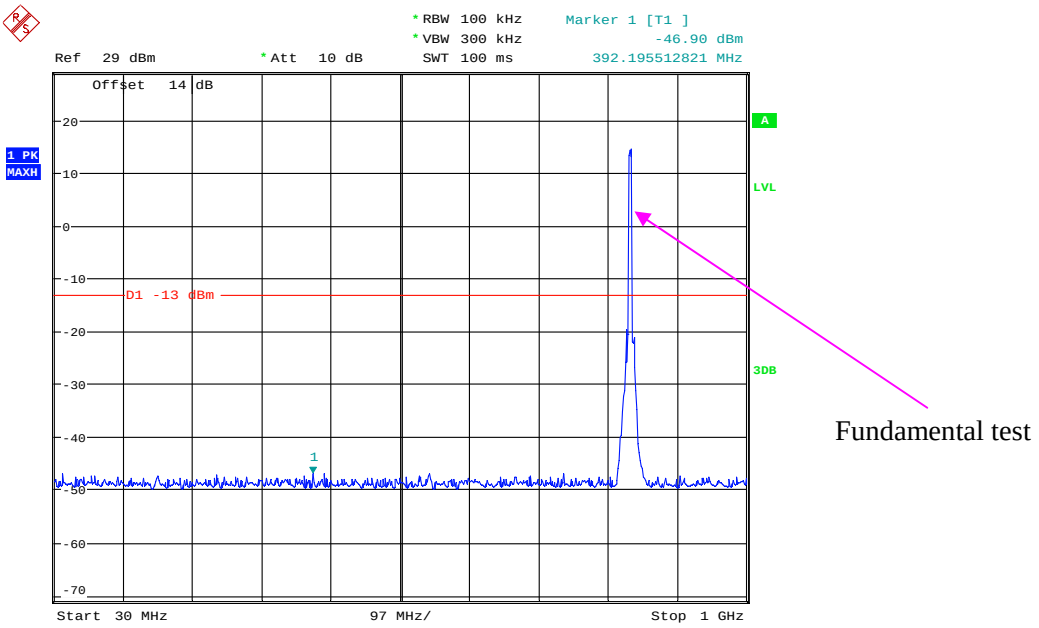
Date: 18.OCT.2017 22:37:21

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



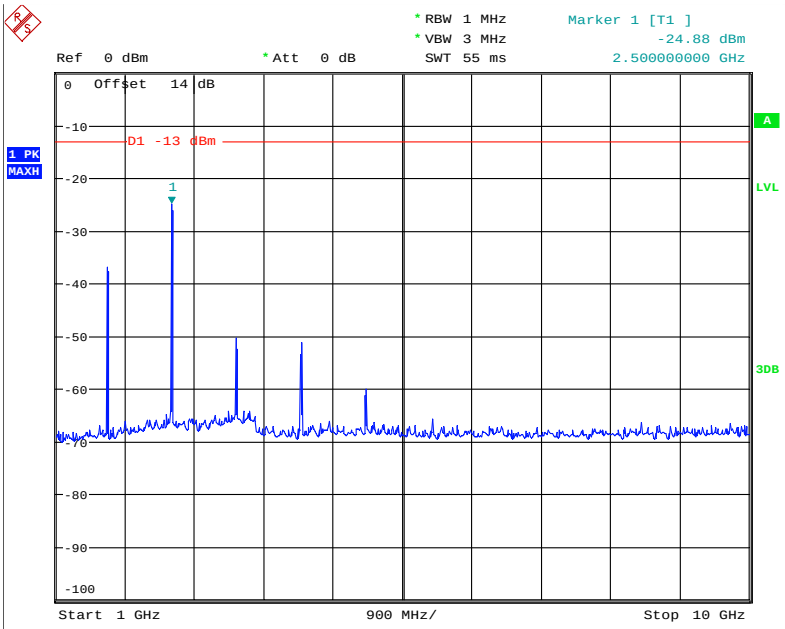
Date: 18.OCT.2017 22:33:43

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



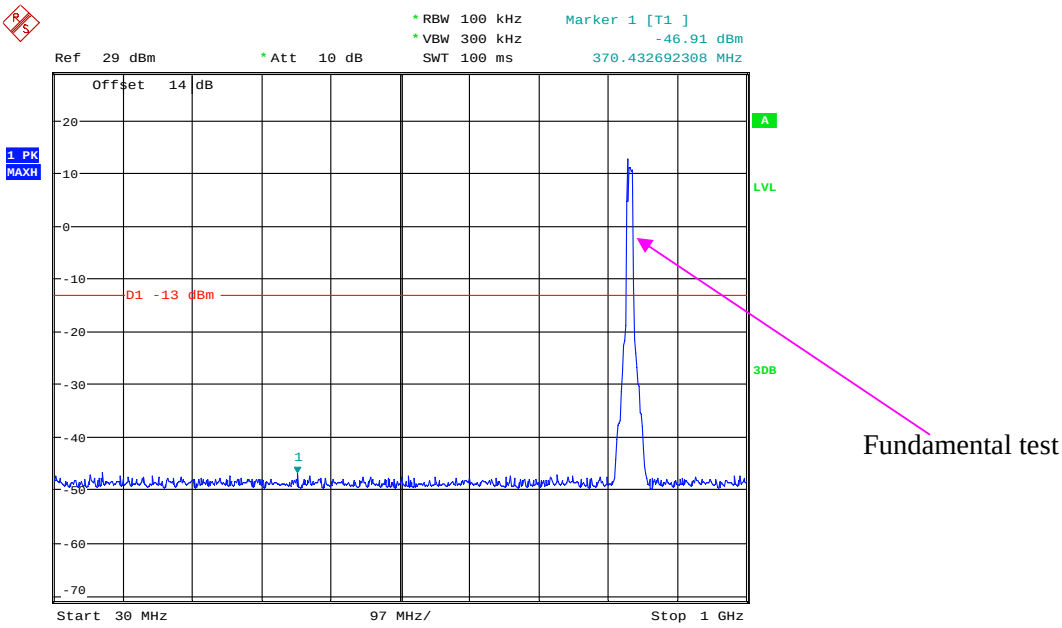
Date: 18.OCT.2017 22:36:33

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



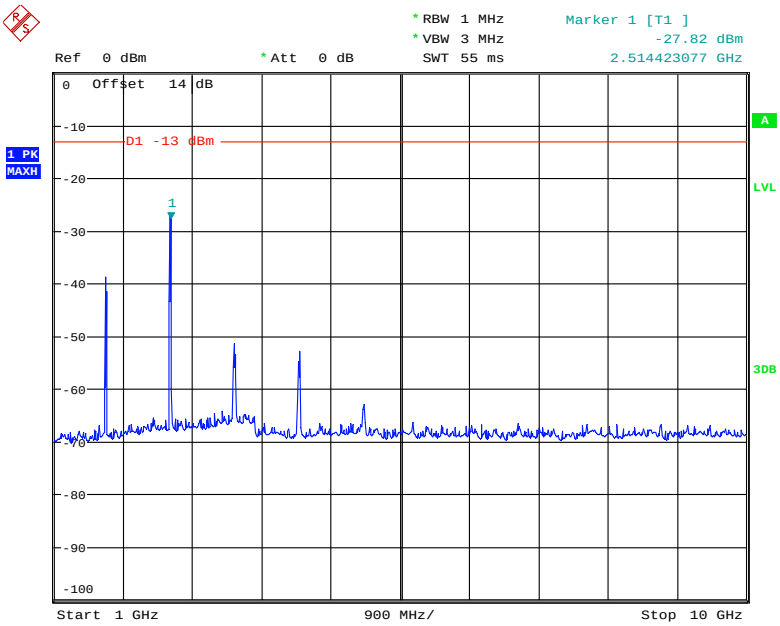
Date: 18.OCT.2017 22:33:57

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



Date: 18.OCT.2017 22:35:38

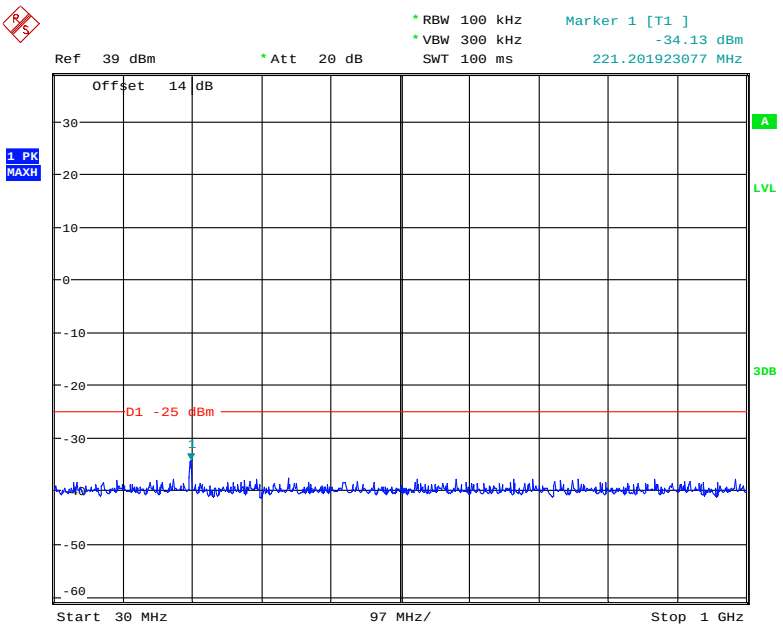
1 GHz – 10 GHz (10.0 MHz, Middle Channel)



Date: 18.OCT.2017 22:34:09

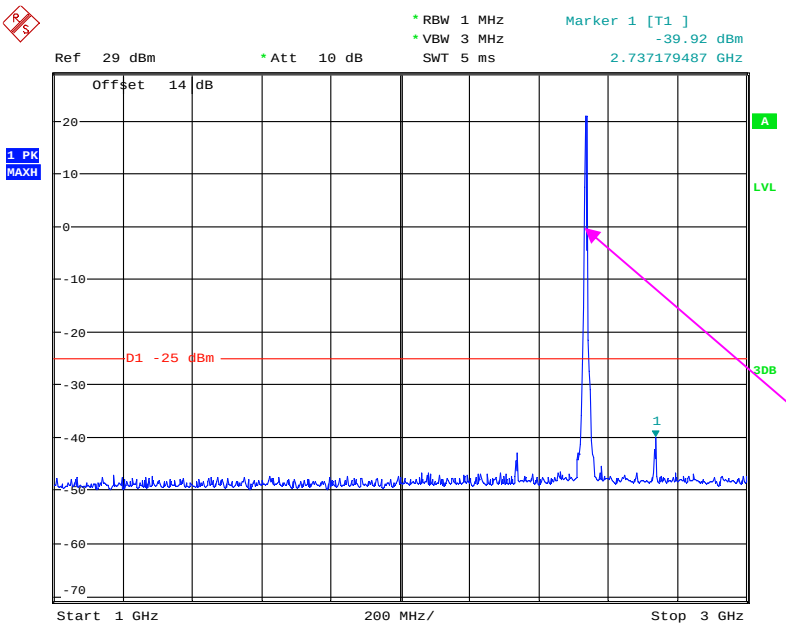
LTE Band 7:

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



Date: 18.OCT.2017 22:43:06

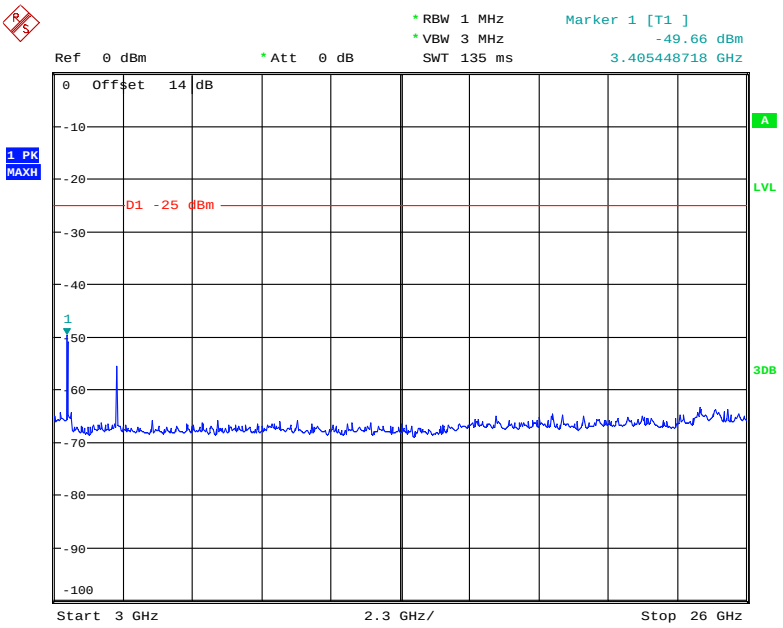
1 GHz – 3.0 GHz (5.0 MHz, Middle Channel)



Fundamental test

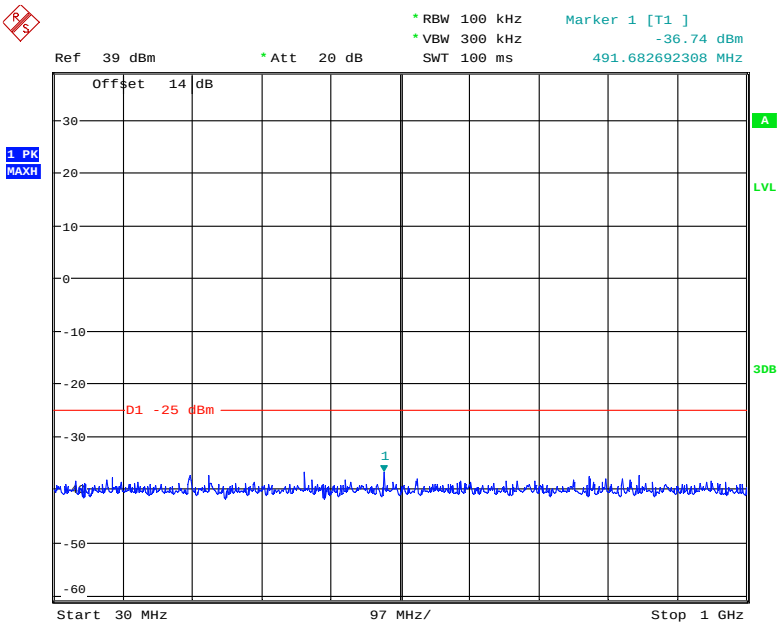
Date: 18.OCT.2017 22:43:44

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



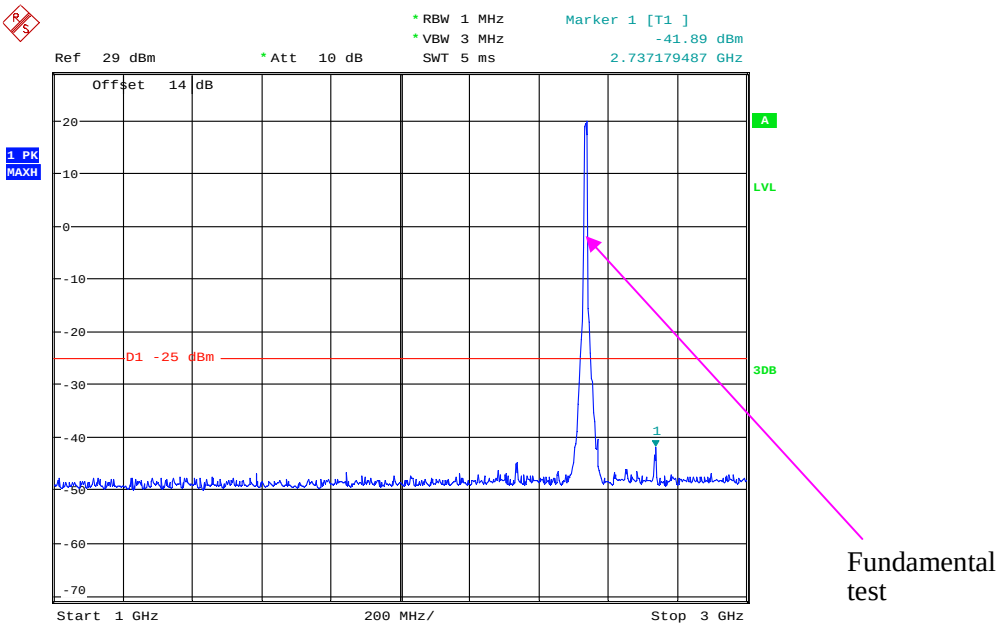
Date: 18.OCT.2017 22:40:36

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



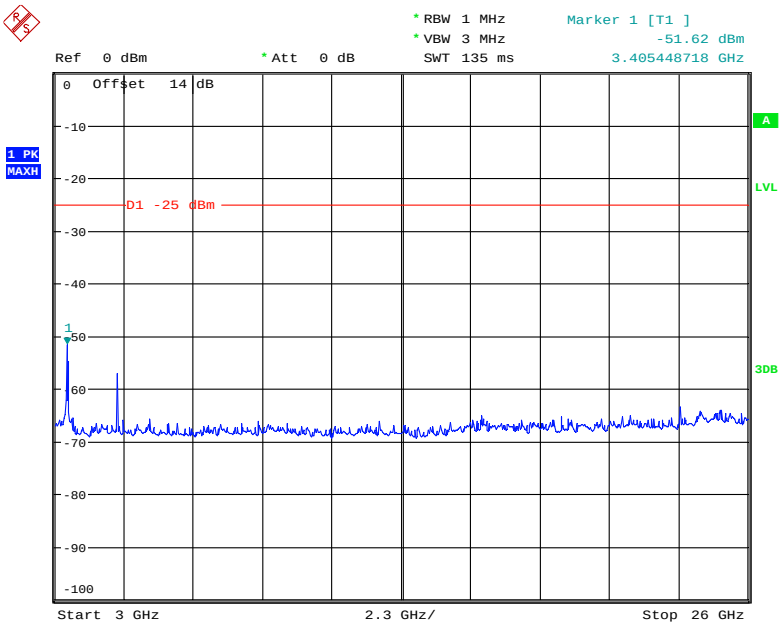
Date: 18.OCT.2017 22:42:52

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



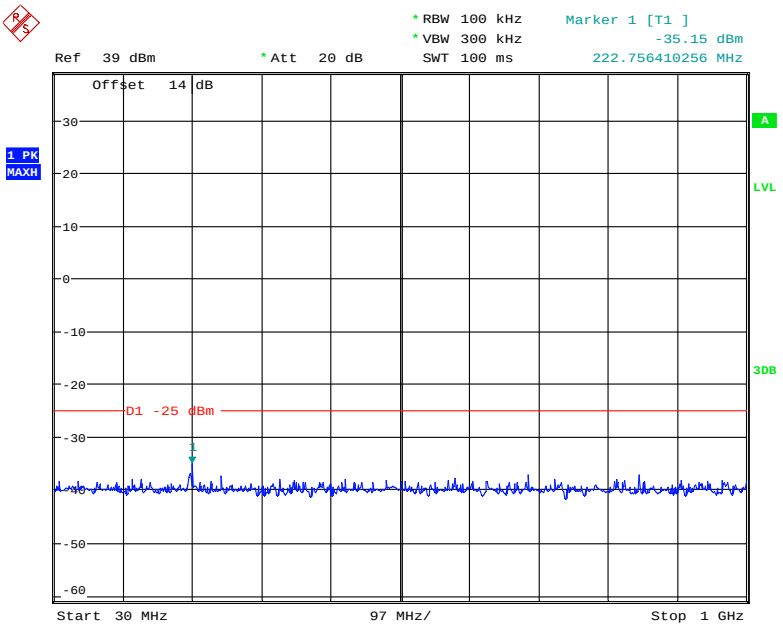
Date: 18.OCT.2017 22:44:03

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



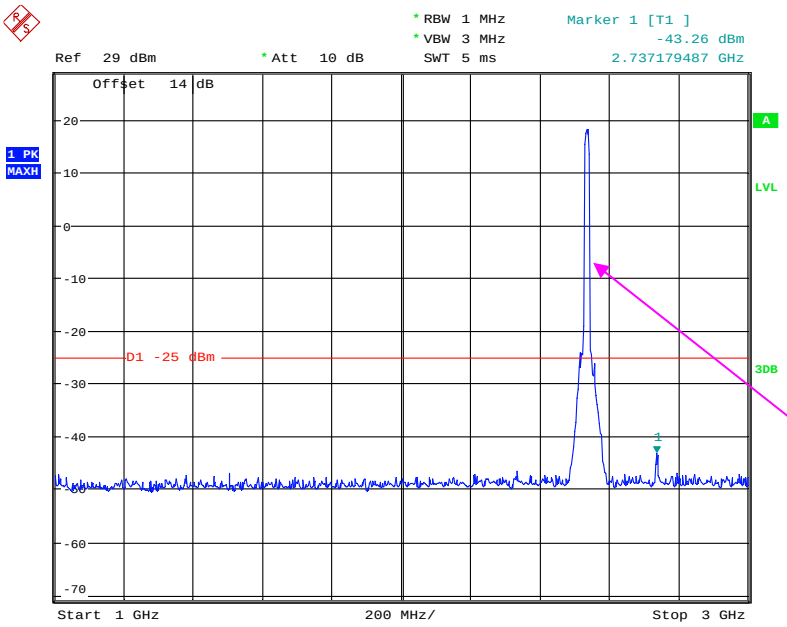
Date: 18.OCT.2017 22:40:58

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



Date: 18.OCT.2017 22:42:38

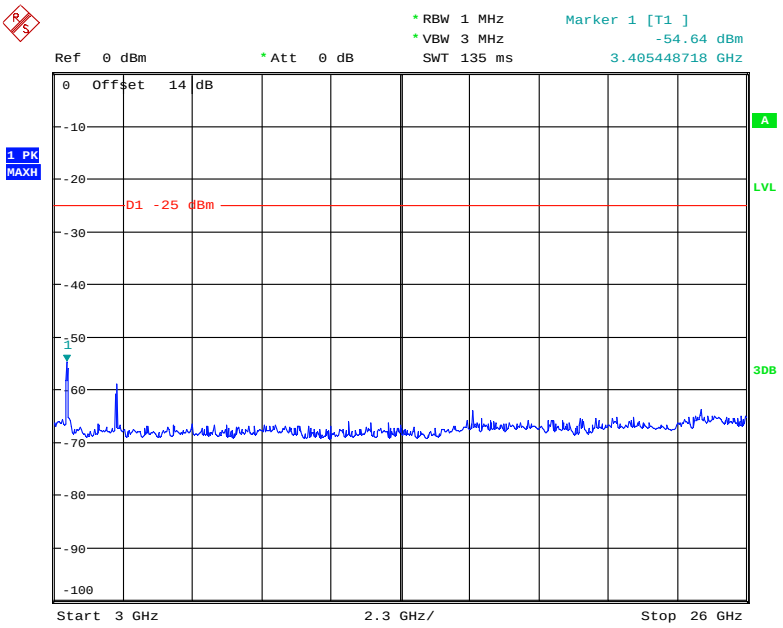
1 GHz – 3 GHz (15.0 MHz, Middle Channel)



Fundamental test

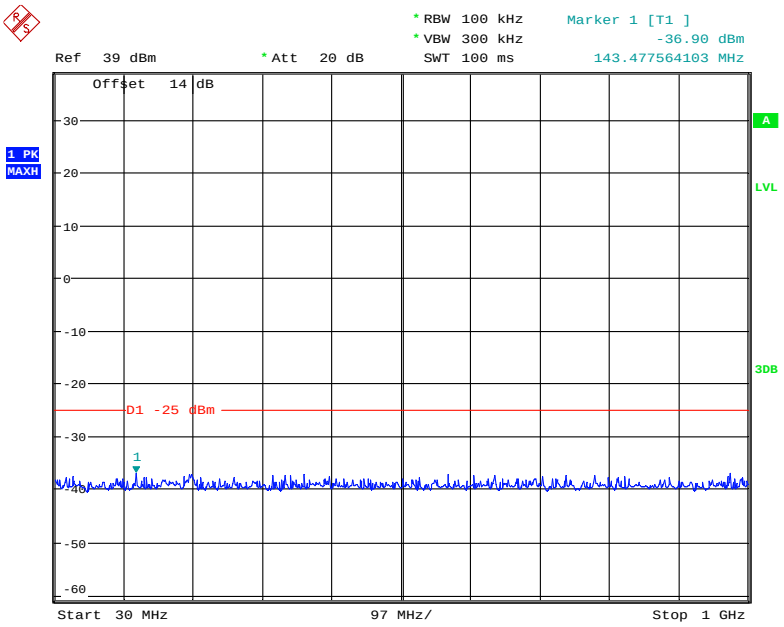
Date: 18.OCT.2017 22:44:16

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



Date: 18.OCT.2017 22:41:13

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



Date: 18.OCT.2017 22:42:16