

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

For

Sky Phone LLC

1348 Washington Av., Suite 350 Miami Beach FL United States

FCC ID:2ABOSGCPHOTOPRO

Report Type: Original Report	Product Type: 4G Smart Phone
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Note: This test report is prepared for the customer shown above and for the equipment 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 Sky Phone LLC's product, model number: Elite Photopro (FCC ID: 2ABOSGCPHOTOPRO) or the "EUT" in this report was a 4G Smart Phone, which was measured approximately: 71mm (L) × 143.1 mm (W) × 8.3 mm (H), rated with input voltage: DC 3.8V rechargeable Li-ion battery or DC 5.0V from adapter.

Adapter Information:

Model No.: TL6D-0501000

Input: AC 100-240V, 50/60Hz, 0.15A

Output: DC 5.0V, 1A

**All measurement and test data in this report was gathered from production sample serial number: 1602445 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2016-06-03.*

Objective

This test report is prepared on behalf of Sky Phone LLC in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15B JBP, Part 15.247 DSS & DTS submissions with FCC ID: 2ABOSGCPHOTOPRO.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-Part 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 radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement uncertainty with radiated emission is 5.81 dB for 30MHz-1GHz and 4.88 dB for above 1GHz, 1.95dB for conducted measurement.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on October 31, 2103. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

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.

SYSTEM TEST CONFIGURATION

Justification

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.

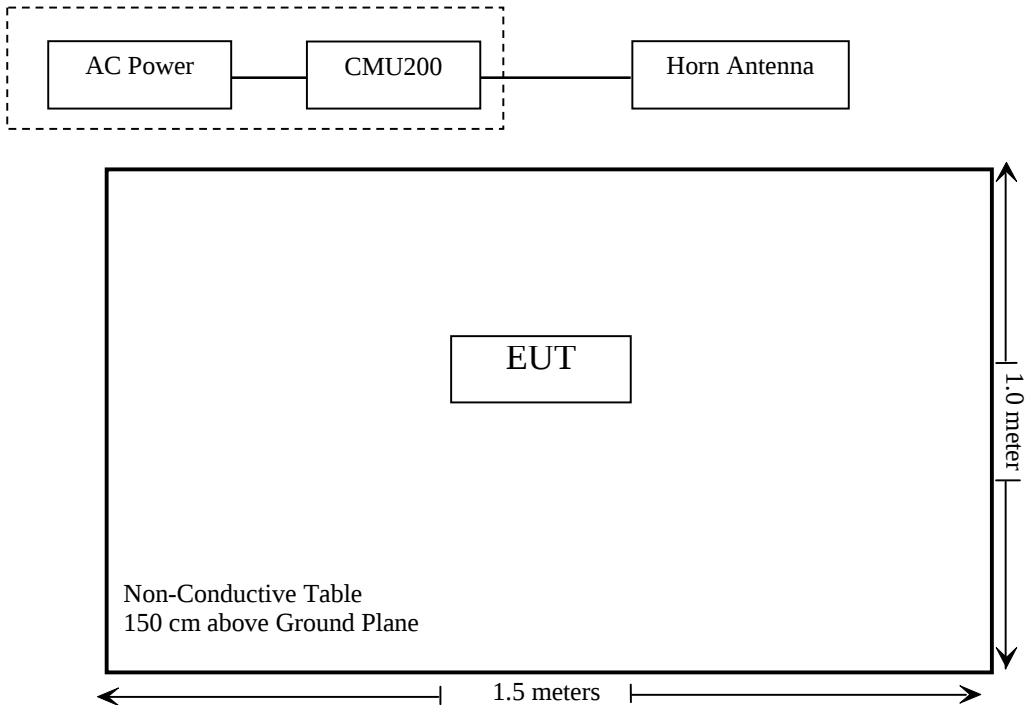
Equipment Modifications

No modifications were made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b)(1), §2.1093	RF Exposure Information	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (d) (i)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53 (c)	Occupied Bandwidth	Compliance
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53(c) (g)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 (c) (g)	Spurious Radiated Emissions	Compliance
§ 22.917 (a); § 24.238 (a); §27.53 (c) (g);	Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliance

Compliance*: Please refer to SAR report released by BACL, report number: RSZ160603014-20.

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

Applicable Standard

FCC§1.1307(b), §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ160603014-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d) , Part 22H & 24E, Part 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 - RF OUTPUT POWER**Applicable Standards**

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

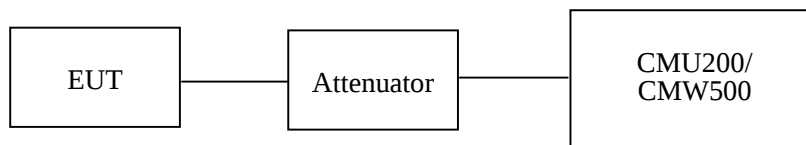
According to FCC §2.1046 and §24.232 (c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications..

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

Test Procedure*Conducted method:*

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

*Radiated method:*

TIA603-D section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2015-12-15	2016-12-14
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-07	2017-12-06
HP	Synthesized Sweeper	HP 8341B	2624A00116	2015-07-02	2016-07-01
COM POWER	Dipole Antenna	AD-100	041000	2015-08-18	2016-08-18
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2015-12-11	2016-12-11
Sunol Sciences	Horn Antenna	DRH-118	A052604	2014-12-29	2017-12-28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2015-11-23	2016-11-23
R&S	Wideband Radio Communication tester	CMW500	1201.002K50-146520-wh	2015-11-23	2016-11-23
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2015-06-15	2016-06-15
Ducommun technologies	RF Cable	104PEA	218124002	2015-06-15	2016-06-15
Ducommun technologies	RF Cable	RG-214	1	2015-06-15	2016-06-15
Ducommun technologies	RF Cable	RG-214	2	2015-06-15	2016-06-15
Ducommun technologies	RF Cable	RG-214	3	2015-06-15	2016-06-15
WEINSCHL	10dB Attenuator	5324	AU0709	2015-06-18	2016-06-18

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

Test Data**Environmental Conditions**

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.0kPa

The testing was performed by Haiguo Li on 2016-06-13.

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

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	31.62	38.45
	190	836.6	31.66	38.45
	251	848.8	31.68	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	31.77	30.73	29.21	27.68	38.45
	190	836.6	31.67	30.63	29.00	27.44	38.45
	251	848.8	31.67	30.57	28.91	27.28	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	26.78	25.80	23.76	22.80	38.45
	190	836.6	26.68	25.60	23.58	22.59	38.45
	251	848.8	26.42	25.41	23.38	22.36	38.45

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	RMC12.2k		22.46	22.13	22.44
		HSDPA	1	20.91	21.01	21.27
			2	20.86	20.91	21.19
			3	20.99	21.13	21.37
			4	20.88	20.97	21.19
		HSUPA	1	21.33	20.96	21.25
			2	21.30	20.90	21.17
			3	21.39	20.99	21.29
			4	21.22	20.89	21.19
			5	21.44	21.03	21.32
		HSPA+	1	21.46	21.02	21.38

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	28.86	33
	661	1880.0	28.61	33
	810	1909.8	28.46	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	28.92	27.60	25.68	24.54	33
	661	1880.0	28.60	27.54	25.93	24.93	33
	810	1909.8	28.47	27.60	26.44	25.63	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	25.98	24.95	22.96	21.76	33
	661	1880.0	25.94	25.02	22.98	21.69	33
	810	1909.8	26.19	25.21	23.28	22.17	33

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	RMC12.2k		22.22	22.35	21.85
		HSDPA	1	21.16	21.13	20.68
			2	21.09	21.03	20.62
			3	21.28	21.17	20.72
			4	21.06	21.07	20.64
		HSUPA	1	21.23	21.11	20.69
			2	21.12	21.03	20.59
			3	21.30	21.22	20.82
			4	21.14	21.02	20.57
			5	21.32	21.20	20.78
		HSPA+	1	21.24	21.26	20.67

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	0.35	13
	Middle	0.31	13
	High	0.38	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	2.58	13
	Middle	2.46	13
	High	2.57	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.35	13
	Middle	4.26	13
	High	4.38	13
HSDPA (16QAM)	Low	4.38	13
	Middle	4.21	13
	High	4.33	13
HSUPA (BPSK)	Low	4.31	13
	Middle	4.22	13
	High	4.34	13
HSPA+ (BPSK)	Low	3.42	13
	Middle	3.40	13
	High	3.37	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	0.35	13
	Middle	0.22	13
	High	0.37	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	2.45	13
	Middle	2.32	13
	High	2.43	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	2.95	13
	Middle	2.81	13
	High	2.93	13
HSDPA (16QAM)	Low	2.97	13
	Middle	2.83	13
	High	2.91	13
HSUPA (BPSK)	Low	2.93	13
	Middle	2.85	13
	High	2.98	13
HSPA+ (BPSK)	Low	3.51	13
	Middle	3.47	13
	High	3.48	13

Radiated Power**ERP & EIRP****GSM Mode:**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	S.G. Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
ERP for Cellular Band (Part 22H), High Channel										
848.80	100.58	178	1.7	H	30.1	0.69	0	29.41	38.45	9.04
848.80	100.46	306	1.6	V	30.0	0.69	0	29.31	38.45	9.14
EIRP for PCS Band (Part 24E), Low Channel										
1850.20	90.35	288	1.4	H	21.7	1.4	7.3	27.6	33	5.4
1850.20	89.68	67	1.1	V	20.4	1.4	7.3	26.3	33	6.7

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)	S.G. Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
ERP for Cellular Band (Part 22H), Low Channel										
824.20	97.45	234	1.5	H	26.3	0.66	0	25.64	38.45	12.81
824.20	97.35	114	1.5	V	26.2	0.66	0	25.55	38.45	12.9
EIRP for PCS Band (Part 24E), High Channel										
1909.80	86.74	94	1.7	H	18.1	1.40	7.30	24.00	33	9
1909.80	86.46	53	1.3	V	17.2	1.40	7.30	23.10	33	9.9

WCDMA Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	S.G. Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
ERP for WCDMA Band V (Part 22H), Low Channel										
826.40	91.56	201	1.5	H	21.1	0.69	0	20.41	38.45	18.04
826.40	91.37	76	1.7	V	20.9	0.69	0	20.21	38.45	18.24
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	84.72	233	2.0	H	16.0	1.40	7.30	21.90	33	11.1
1880.00	83.68	171	1.4	V	14.4	1.40	7.30	20.30	33	12.7

Note:

All above data were tested with no amplifier.

Absolute Level = SG 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	22.16	22.36	22.29
		RB Size=1, RB Offset=2	22.35	22.55	22.39
		RB Size=1, RB Offset=5	22.19	22.42	22.23
		RB Size=3, RB Offset=0	22.31	22.50	22.46
		RB Size=3, RB Offset=1	22.24	22.40	22.39
		RB Size=3, RB Offset=2	22.39	22.66	22.49
		RB Size=6, RB Offset=0	22.31	22.55	22.30
	16QAM	RB Size=1, RB Offset=0	22.15	22.39	22.24
		RB Size=1, RB Offset=2	22.37	22.50	22.38
		RB Size=1, RB Offset=5	22.21	22.34	22.23
		RB Size=3, RB Offset=0	22.34	22.53	22.44
		RB Size=3, RB Offset=1	22.20	22.48	22.35
		RB Size=3, RB Offset=2	22.42	22.53	22.49
		RB Size=6, RB Offset=0	22.30	22.42	22.36
3.0	QPSK	RB Size=1, RB Offset=0	22.33	22.50	22.44
		RB Size=1, RB Offset=7	22.21	22.37	22.31
		RB Size=1, RB Offset=14	22.29	22.56	22.44
		RB Size=8, RB Offset=0	22.28	22.44	22.36
		RB Size=8, RB Offset=4	22.43	22.60	22.56
		RB Size=8, RB Offset=7	22.29	22.40	22.37
		RB Size=15, RB Offset=0	22.33	22.63	22.53
	16QAM	RB Size=1, RB Offset=0	22.35	22.58	22.45
		RB Size=1, RB Offset=7	22.12	22.37	22.21
		RB Size=1, RB Offset=14	22.34	22.54	22.43
		RB Size=8, RB Offset=0	22.28	22.40	22.39
		RB Size=8, RB Offset=4	22.39	22.69	22.56
		RB Size=8, RB Offset=7	22.22	22.45	22.27
		RB Size=15, RB Offset=0	22.43	22.65	22.49

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	22.32	22.56	22.47
		RB Size=1, RB Offset=12	22.13	22.36	22.24
		RB Size=1, RB Offset=24	22.32	22.57	22.40
		RB Size=12, RB Offset=0	22.25	22.50	22.32
		RB Size=12, RB Offset=6	22.38	22.66	22.50
		RB Size=12, RB Offset=11	22.16	22.48	22.36
		RB Size=25, RB Offset=0	22.45	22.69	22.52
	16QAM	RB Size=1, RB Offset=0	22.36	22.54	22.43
		RB Size=1, RB Offset=12	22.21	22.40	22.28
		RB Size=1, RB Offset=24	22.31	22.51	22.41
		RB Size=12, RB Offset=0	22.31	22.46	22.34
		RB Size=12, RB Offset=6	22.47	22.65	22.52
		RB Size=12, RB Offset=11	22.24	22.48	22.41
		RB Size=25, RB Offset=0	22.44	22.61	22.52
10.0	QPSK	RB Size=1, RB Offset=0	22.36	22.49	22.42
		RB Size=1, RB Offset=24	22.15	22.37	22.24
		RB Size=1, RB Offset=49	22.30	22.52	22.44
		RB Size=25, RB Offset=0	22.28	22.44	22.27
		RB Size=25, RB Offset=12	22.40	22.57	22.48
		RB Size=25, RB Offset=24	22.23	22.49	22.28
		RB Size=50, RB Offset=0	22.43	22.57	22.49
	16QAM	RB Size=1, RB Offset=0	22.29	22.51	22.10
		RB Size=1, RB Offset=24	22.40	22.68	22.27
		RB Size=1, RB Offset=49	22.25	22.43	22.16
		RB Size=25, RB Offset=0	22.39	22.61	22.27
		RB Size=25, RB Offset=12	22.35	22.57	22.22
		RB Size=25, RB Offset=24	22.48	22.80	22.37
		RB Size=50, RB Offset=0	22.29	22.50	22.28

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	22.22	22.51	22.12
		RB Size=1, RB Offset=37	22.38	22.62	22.35
		RB Size=1, RB Offset=74	22.28	22.50	22.19
		RB Size=36, RB Offset=0	22.40	22.62	22.32
		RB Size=36, RB Offset=18	22.28	22.57	22.25
		RB Size=36, RB Offset=37	22.47	22.67	22.41
		RB Size=75, RB Offset=0	22.32	22.58	22.30
	16QAM	RB Size=1, RB Offset=0	22.26	22.51	22.12
		RB Size=1, RB Offset=37	22.40	22.63	22.32
		RB Size=1, RB Offset=74	22.27	22.50	22.14
		RB Size=36, RB Offset=0	22.43	22.61	22.29
		RB Size=36, RB Offset=18	22.38	22.61	22.18
		RB Size=36, RB Offset=37	22.47	22.76	22.36
		RB Size=75, RB Offset=0	22.39	22.58	22.19
20.0	QPSK	RB Size=1, RB Offset=0	22.26	22.52	22.13
		RB Size=1, RB Offset=49	22.46	22.66	22.27
		RB Size=1, RB Offset=99	22.30	22.46	22.20
		RB Size=50, RB Offset=0	22.39	22.62	22.33
		RB Size=50, RB Offset=24	22.32	22.57	22.17
		RB Size=50, RB Offset=49	22.57	22.78	22.36
		RB Size=100, RB Offset=0	22.38	22.59	22.31
	16QAM	RB Size=1, RB Offset=0	22.26	22.45	22.14
		RB Size=1, RB Offset=49	22.38	22.62	22.33
		RB Size=1, RB Offset=99	22.31	22.43	22.12
		RB Size=50, RB Offset=0	22.45	22.69	22.33
		RB Size=50, RB Offset=24	22.29	22.50	22.18
		RB Size=50, RB Offset=49	22.49	22.67	22.45
		RB Size=100, RB Offset=0	22.36	22.48	22.19

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.41	13	Pass
QPSK (100%RB Size)	3.12	13	Pass
16QAM (1RB Size)	3.90	13	Pass
16QAM (100%RB Size)	4.30	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)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	83.56	274	1.8	H	14.9	1.40	7.30	20.80	33
1880.00	83.21	52	1.7	V	14.0	1.40	7.30	19.90	33
3 MHz Bandwidth									
1880.00	83.53	148	1.5	H	14.9	1.40	7.30	20.80	33
1880.00	83.27	28	2.1	V	14.0	1.40	7.30	19.90	33
5 MHz Bandwidth									
1880.00	83.48	318	1.9	H	14.8	1.40	7.30	20.70	33
1880.00	83.36	189	2.4	V	14.1	1.40	7.30	20.00	33
10MHz Bandwidth									
1880.00	83.54	91	2.5	H	14.9	1.40	7.30	20.80	33
1880.00	83.32	35	2.0	V	14.1	1.40	7.30	20.00	33
15 MHz Bandwidth									
1880.00	83.57	180	2.1	H	14.9	1.40	7.30	20.80	33
1880.00	83.27	184	2.3	V	14.0	1.40	7.30	19.90	33
20 MHz Bandwidth									
1880.00	83.73	267	2.2	H	15.1	1.40	7.30	21.00	33
1880.00	83.46	195	1.1	V	14.2	1.40	7.30	20.10	33

16-QAM

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1880.00	83.65	72	2.0	H	15.0	1.40	7.30	20.90	33
1880.00	83.36	217	1.1	V	14.1	1.40	7.30	20.00	33
3 MHz Bandwidth									
1880.00	83.69	298	1.9	H	15.0	1.40	7.30	20.90	33
1880.00	83.45	322	1.7	V	14.2	1.40	7.30	20.10	33
5 MHz Bandwidth									
1880.00	83.73	177	1.5	H	15.1	1.40	7.30	21.00	33
1880.00	83.42	286	1.1	V	14.2	1.40	7.30	20.10	33
10MHz Bandwidth									
1880.00	83.78	79	1.5	H	15.1	1.40	7.30	21.00	33
1880.00	83.46	289	1.7	V	14.2	1.40	7.30	20.10	33
15 MHz Bandwidth									
1880.00	83.75	160	2.1	H	15.1	1.40	7.30	21.00	33
1880.00	83.35	150	1.1	V	14.1	1.40	7.30	20.00	33
20 MHz Bandwidth									
1880.00	83.54	222	1	H	14.9	1.4	7.3	20.8	33
1880.00	83.25	340	1.8	V	14	1.4	7.3	19.9	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	22.24	22.46	22.18
		RB Size=1, RB Offset=2	22.39	22.66	22.36
		RB Size=1, RB Offset=5	22.27	22.49	22.16
		RB Size=3, RB Offset=0	22.42	22.65	22.32
		RB Size=3, RB Offset=1	22.28	22.51	22.25
		RB Size=3, RB Offset=2	22.46	22.74	22.43
		RB Size=6, RB Offset=0	22.38	22.54	22.29
	16QAM	RB Size=1, RB Offset=0	22.21	22.40	22.37
		RB Size=1, RB Offset=2	22.35	22.55	22.56
		RB Size=1, RB Offset=5	22.18	22.46	22.42
		RB Size=3, RB Offset=0	22.32	22.58	22.51
		RB Size=3, RB Offset=1	22.28	22.51	22.44
		RB Size=3, RB Offset=2	22.39	22.62	22.62
		RB Size=6, RB Offset=0	22.30	22.53	22.48
3.0	QPSK	RB Size=1, RB Offset=0	22.19	22.46	22.37
		RB Size=1, RB Offset=7	22.38	22.62	22.52
		RB Size=1, RB Offset=14	22.17	22.46	22.41
		RB Size=8, RB Offset=0	22.38	22.56	22.53
		RB Size=8, RB Offset=4	22.29	22.50	22.42
		RB Size=8, RB Offset=7	22.47	22.69	22.57
		RB Size=15, RB Offset=0	22.26	22.53	22.52
	16QAM	RB Size=1, RB Offset=0	22.14	22.39	22.42
		RB Size=1, RB Offset=7	22.33	22.63	22.51
		RB Size=1, RB Offset=14	22.16	22.39	22.42
		RB Size=8, RB Offset=0	22.39	22.57	22.53
		RB Size=8, RB Offset=4	22.17	22.51	22.52
		RB Size=8, RB Offset=7	22.38	22.69	22.61
		RB Size=15, RB Offset=0	22.21	22.43	22.55

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	22.16	22.40	22.40
		RB Size=1, RB Offset=12	22.33	22.57	22.50
		RB Size=1, RB Offset=24	22.17	22.42	22.34
		RB Size=12, RB Offset=0	22.36	22.59	22.50
		RB Size=12, RB Offset=6	22.25	22.44	22.50
		RB Size=12, RB Offset=11	22.44	22.65	22.60
		RB Size=25, RB Offset=0	22.22	22.48	22.40
	16QAM	RB Size=1, RB Offset=0	22.19	22.46	22.33
		RB Size=1, RB Offset=12	22.27	22.61	22.50
		RB Size=1, RB Offset=24	22.20	22.43	22.35
		RB Size=12, RB Offset=0	22.34	22.57	22.59
		RB Size=12, RB Offset=6	22.25	22.49	22.44
		RB Size=12, RB Offset=11	22.35	22.72	22.54
		RB Size=25, RB Offset=0	22.26	22.49	22.45
10.0	QPSK	RB Size=1, RB Offset=0	22.17	22.41	22.39
		RB Size=1, RB Offset=24	22.31	22.57	22.52
		RB Size=1, RB Offset=49	22.19	22.43	22.36
		RB Size=25, RB Offset=0	22.28	22.57	22.53
		RB Size=25, RB Offset=12	22.25	22.45	22.49
		RB Size=25, RB Offset=24	22.40	22.70	22.64
		RB Size=50, RB Offset=0	22.24	22.56	22.41
	16QAM	RB Size=1, RB Offset=0	22.13	22.46	22.34
		RB Size=1, RB Offset=24	22.35	22.62	22.54
		RB Size=1, RB Offset=49	22.12	22.47	22.33
		RB Size=25, RB Offset=0	22.35	22.61	22.56
		RB Size=25, RB Offset=12	22.23	22.54	22.43
		RB Size=25, RB Offset=24	22.40	22.71	22.61
		RB Size=50, RB Offset=0	22.19	22.55	22.37

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	22.10	22.41	22.35
		RB Size=1, RB Offset=37	22.33	22.63	22.55
		RB Size=1, RB Offset=74	22.15	22.43	22.41
		RB Size=36, RB Offset=0	22.30	22.57	22.59
		RB Size=36, RB Offset=18	22.16	22.45	22.41
		RB Size=36, RB Offset=37	22.46	22.73	22.61
		RB Size=75, RB Offset=0	22.28	22.48	22.51
	16QAM	RB Size=1, RB Offset=0	22.14	22.45	22.39
		RB Size=1, RB Offset=37	22.36	22.59	22.52
		RB Size=1, RB Offset=74	22.20	22.40	22.41
		RB Size=36, RB Offset=0	22.30	22.63	22.58
		RB Size=36, RB Offset=18	22.22	22.56	22.43
		RB Size=36, RB Offset=37	22.46	22.66	22.56
		RB Size=75, RB Offset=0	22.29	22.46	22.45
20.0	QPSK	RB Size=1, RB Offset=0	22.16	22.47	22.41
		RB Size=1, RB Offset=49	22.35	22.55	22.58
		RB Size=1, RB Offset=99	22.19	22.48	22.33
		RB Size=50, RB Offset=0	22.27	22.56	22.54
		RB Size=50, RB Offset=24	22.23	22.59	22.44
		RB Size=50, RB Offset=49	22.44	22.63	22.64
		RB Size=100, RB Offset=0	22.26	22.53	22.39
	16QAM	RB Size=1, RB Offset=0	22.16	22.41	22.38
		RB Size=1, RB Offset=49	22.35	22.56	22.59
		RB Size=1, RB Offset=99	22.19	22.42	22.34
		RB Size=50, RB Offset=0	22.31	22.56	22.51
		RB Size=50, RB Offset=24	22.26	22.54	22.49
		RB Size=50, RB Offset=49	22.39	22.66	22.68
		RB Size=100, RB Offset=0	22.30	22.49	22.40

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK(1RB Size)	3.25	13	Pass
QPSK(100%RB Size)	3.85	13	Pass
16QAM (1RB Size)	3.70	13	Pass
16QAM (100%RB Size)	3.25	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)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1732.50	84.57	179	1.9	H	15.8	1.60	6.90	21.10	30
1732.50	83.68	15	1.8	V	14.5	1.60	6.90	19.80	30
3 MHz Bandwidth									
1732.50	84.52	312	2.4	H	15.7	1.60	6.90	21.00	30
1732.50	83.61	246	1.1	V	14.4	1.60	6.90	19.70	30
5 MHz Bandwidth									
1732.50	84.46	84	1.2	H	15.7	1.60	6.90	21.00	30
1732.50	83.57	82	1.5	V	14.4	1.60	6.90	19.70	30
10MHz Bandwidth									
1732.50	84.43	214	2.2	H	15.6	1.60	6.90	20.90	30
1732.50	83.36	79	2.5	V	14.1	1.60	6.90	19.40	30
15 MHz Bandwidth									
1732.50	84.47	32	1.6	H	15.7	1.60	6.90	21.00	30
1732.50	83.33	304	1.7	V	14.1	1.60	6.90	19.40	30
20 MHz Bandwidth									
1732.50	84.53	79	1.3	H	15.7	1.60	6.90	21.0	30
1732.50	83.47	192	1.3	V	14.3	1.60	6.90	19.6	30

16-QAM

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
1732.50	84.48	306	2.4	H	15.7	1.60	6.90	21.0	30
1732.50	83.26	116	2.2	V	14.0	1.60	6.90	19.3	30
3 MHz Bandwidth									
1732.50	84.43	266	1.4	H	15.6	1.60	6.90	20.90	30
1732.50	83.36	277	2.5	V	14.1	1.60	6.90	19.40	30
5 MHz Bandwidth									
1732.50	84.58	250	1.3	H	15.8	1.60	6.90	21.10	30
1732.50	83.34	190	1.2	V	14.1	1.60	6.90	19.40	30
10MHz Bandwidth									
1732.50	84.55	348	2.0	H	15.8	1.60	6.90	21.10	30
1732.50	83.53	227	1.4	V	14.3	1.60	6.90	19.60	30
15 MHz Bandwidth									
1732.50	84.52	147	1.6	H	15.7	1.60	6.90	21.00	30
1732.50	83.37	239	2.4	V	14.2	1.60	6.90	19.50	30
20 MHz Bandwidth									
1732.50	84.56	313	2.1	H	15.8	1.6	6.9	21.1	30
1732.50	83.34	323	2.3	V	14.1	1.6	6.9	19.4	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	22.39	22.56	22.34
		RB Size=1, RB Offset=2	22.49	22.72	22.47
		RB Size=1, RB Offset=5	22.39	22.60	22.34
		RB Size=3, RB Offset=0	22.52	22.76	22.48
		RB Size=3, RB Offset=1	22.48	22.64	22.46
		RB Size=3, RB Offset=2	22.57	22.84	22.55
		RB Size=6, RB Offset=0	22.50	22.70	22.46
	16QAM	RB Size=1, RB Offset=0	22.43	22.67	22.42
		RB Size=1, RB Offset=2	22.38	22.60	22.37
		RB Size=1, RB Offset=5	22.52	22.77	22.46
		RB Size=3, RB Offset=0	22.38	22.58	22.31
		RB Size=3, RB Offset=1	22.49	22.77	22.50
		RB Size=3, RB Offset=2	22.50	22.63	22.45
		RB Size=6, RB Offset=0	22.64	22.81	22.55
3.0	QPSK	RB Size=1, RB Offset=0	22.43	22.67	22.42
		RB Size=1, RB Offset=7	22.34	22.58	22.36
		RB Size=1, RB Offset=14	22.55	22.72	22.51
		RB Size=8, RB Offset=0	22.32	22.55	22.32
		RB Size=8, RB Offset=4	22.48	22.71	22.51
		RB Size=8, RB Offset=7	22.40	22.69	22.48
		RB Size=15, RB Offset=0	22.62	22.81	22.62
	16QAM	RB Size=1, RB Offset=0	22.36	22.62	22.30
		RB Size=1, RB Offset=7	22.55	22.74	22.46
		RB Size=1, RB Offset=14	22.30	22.58	22.31
		RB Size=8, RB Offset=0	22.47	22.80	22.49
		RB Size=8, RB Offset=4	22.45	22.69	22.40
		RB Size=8, RB Offset=7	22.63	22.81	22.53
		RB Size=15, RB Offset=0	22.36	22.65	22.41

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	22.36	22.60	22.39
		RB Size=1, RB Offset=12	22.48	22.74	22.49
		RB Size=1, RB Offset=24	22.39	22.60	22.36
		RB Size=12, RB Offset=0	22.53	22.75	22.52
		RB Size=12, RB Offset=6	22.43	22.66	22.43
		RB Size=12, RB Offset=11	22.58	22.83	22.56
		RB Size=25, RB Offset=0	22.49	22.64	22.44
	16QAM	RB Size=1, RB Offset=0	22.31	22.64	22.37
		RB Size=1, RB Offset=12	22.53	22.80	22.55
		RB Size=1, RB Offset=24	22.38	22.60	22.32
		RB Size=12, RB Offset=0	22.53	22.73	22.53
		RB Size=12, RB Offset=6	22.42	22.68	22.45
		RB Size=12, RB Offset=11	22.63	22.84	22.58
		RB Size=25, RB Offset=0	22.41	22.66	22.39
10.0	QPSK	RB Size=1, RB Offset=0	22.30	22.59	22.38
		RB Size=1, RB Offset=24	22.50	22.73	22.46
		RB Size=1, RB Offset=49	22.31	22.54	22.39
		RB Size=25, RB Offset=0	22.53	22.70	22.50
		RB Size=25, RB Offset=12	22.39	22.71	22.51
		RB Size=25, RB Offset=24	22.55	22.77	22.49
		RB Size=50, RB Offset=0	22.34	22.63	22.50
	16QAM	RB Size=1, RB Offset=0	22.35	22.62	22.33
		RB Size=1, RB Offset=24	22.54	22.73	22.54
		RB Size=1, RB Offset=49	22.39	22.55	22.38
		RB Size=25, RB Offset=0	22.52	22.76	22.51
		RB Size=25, RB Offset=12	22.41	22.66	22.40
		RB Size=25, RB Offset=24	22.66	22.84	22.66
		RB Size=50, RB Offset=0	22.45	22.62	22.51

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK(1RB Size)	3.35	13	Pass
QPSK(100%RB Size)	4.30	13	Pass
16QAM (1RB Size)	4.72	13	Pass
16QAM (100%RB Size)	5.30	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)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
836.50	91.78	198	1.9	H	21.3	0.69	0	20.61	34.8
836.50	90.85	102	1.6	V	20.4	0.69	0	19.71	34.8
3 MHz Bandwidth									
836.50	91.72	124	1.7	H	21.2	0.69	0	20.51	34.8
836.50	90.89	209	1.5	V	20.4	0.69	0	19.71	34.8
5 MHz Bandwidth									
836.50	91.84	209	1.7	H	21.3	0.69	0	20.61	34.8
836.50	90.94	218	1.5	V	20.4	0.69	0	19.71	34.8
10 MHz Bandwidth									
836.50	91.87	125	1.7	H	21.4	0.69	0	20.71	34.8
836.50	90.84	89	1.5	V	20.3	0.69	0	19.61	34.8

16-QAM

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
1.4 MHz Bandwidth									
836.50	91.88	187	1.7	H	21.4	0.69	0	20.71	34.8
836.50	90.86	145	1.9	V	20.4	0.69	0	19.71	34.8
3 MHz middle channel									
836.50	91.96	114	1.7	H	21.5	0.69	0	20.81	34.8
836.50	90.84	202	1.5	V	20.3	0.69	0	19.61	34.8
5 MHz middle channel									
836.50	91.93	201	1.5	H	21.4	0.69	0	20.71	34.8
836.50	90.79	256	1.5	V	20.3	0.69	0	19.61	34.8
10 MHz middle channel									
836.50	91.97	124	1.7	H	21.5	0.69	0	20.81	34.8
836.50	90.73	156	1.5	V	20.2	0.69	0	19.51	34.8

LTE Band 7:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.50	22.67	22.35
		RB Size=1, RB Offset=12	22.69	22.86	22.51
		RB Size=1, RB Offset=24	22.52	22.67	22.42
		RB Size=12, RB Offset=0	22.61	22.84	22.59
		RB Size=12, RB Offset=6	22.59	22.70	22.40
		RB Size=12, RB Offset=11	22.79	22.97	22.57
		RB Size=25, RB Offset=0	22.61	22.71	22.52
	16QAM	RB Size=1, RB Offset=0	22.44	22.74	22.36
		RB Size=1, RB Offset=12	22.69	22.84	22.53
		RB Size=1, RB Offset=24	22.48	22.67	22.39
		RB Size=12, RB Offset=0	22.67	22.88	22.58
		RB Size=12, RB Offset=6	22.50	22.80	22.44
		RB Size=12, RB Offset=11	22.80	22.93	22.60
		RB Size=25, RB Offset=0	22.57	22.75	22.46
10.0	QPSK	RB Size=1, RB Offset=0	22.50	22.72	22.34
		RB Size=1, RB Offset=24	22.66	22.89	22.54
		RB Size=1, RB Offset=49	22.49	22.75	22.40
		RB Size=25, RB Offset=0	22.60	22.86	22.59
		RB Size=25, RB Offset=12	22.60	22.85	22.40
		RB Size=25, RB Offset=24	22.77	22.99	22.60
		RB Size=50, RB Offset=0	22.60	22.85	22.43
	16QAM	RB Size=1, RB Offset=0	22.48	22.71	22.38
		RB Size=1, RB Offset=24	22.61	22.82	22.54
		RB Size=1, RB Offset=49	22.50	22.65	22.41
		RB Size=25, RB Offset=0	22.63	22.85	22.53
		RB Size=25, RB Offset=12	22.52	22.74	22.50
		RB Size=25, RB Offset=24	22.74	22.95	22.60
		RB Size=50, RB Offset=0	22.61	22.68	22.49

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	22.51	22.67	22.40
		RB Size=1, RB Offset=37	22.65	22.82	22.56
		RB Size=1, RB Offset=74	22.50	22.68	22.37
		RB Size=36, RB Offset=0	22.68	22.83	22.54
		RB Size=36, RB Offset=18	22.62	22.70	22.47
		RB Size=36, RB Offset=37	22.69	22.90	22.66
		RB Size=75, RB Offset=0	22.59	22.81	22.45
	16QAM	RB Size=1, RB Offset=0	22.53	22.66	22.37
		RB Size=1, RB Offset=37	22.61	22.87	22.51
		RB Size=1, RB Offset=74	22.45	22.75	22.42
		RB Size=36, RB Offset=0	22.67	22.83	22.60
		RB Size=36, RB Offset=18	22.65	22.78	22.41
		RB Size=36, RB Offset=37	22.67	22.93	22.55
		RB Size=75, RB Offset=0	22.51	22.83	22.50
20.0	QPSK	RB Size=1, RB Offset=0	22.50	22.69	22.42
		RB Size=1, RB Offset=49	22.69	22.88	22.56
		RB Size=1, RB Offset=99	22.53	22.72	22.34
		RB Size=50, RB Offset=0	22.63	22.83	22.59
		RB Size=50, RB Offset=24	22.53	22.78	22.46
		RB Size=50, RB Offset=49	22.77	22.99	22.60
		RB Size=100, RB Offset=0	22.62	22.80	22.46
	16QAM	RB Size=1, RB Offset=0	22.53	22.70	22.37
		RB Size=1, RB Offset=49	22.67	22.87	22.56
		RB Size=1, RB Offset=99	22.45	22.72	22.41
		RB Size=50, RB Offset=0	22.66	22.83	22.59
		RB Size=50, RB Offset=24	22.64	22.79	22.43
		RB Size=50, RB Offset=49	22.73	22.94	22.63
		RB Size=100, RB Offset=0	22.50	22.76	22.51

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK(1RB Size)	3.33	13	Pass
QPSK(100%RB Size)	4.72	13	Pass
16QAM (1RB Size)	2.67	13	Pass
16QAM (100%RB Size)	3.65	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)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
2535.00	80.71	279	1.6	H	14.3	1.70	8.60	21.20	33
2535.00	80.42	64	1.4	V	13.7	1.70	8.60	20.60	33
10 MHz Bandwidth									
2535.00	80.79	126	1.2	H	14.4	1.70	8.60	21.30	33
2535.00	80.57	264	1.9	V	13.9	1.70	8.60	20.80	33
15 MHz Bandwidth									
2535.00	80.67	177	1.5	H	14.3	1.70	8.60	21.20	33
2535.00	80.48	81	2.3	V	13.8	1.70	8.60	20.70	33
20 MHz Bandwidth									
2535.00	80.63	0	2.3	H	14.2	1.70	8.60	21.10	33
2535.00	80.42	22	2.3	V	13.7	1.70	8.60	20.60	33

16-QAM

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
2535.00	80.69	278	2.1	H	14.3	1.70	8.60	21.20	33
2535.00	80.48	13	2.2	V	13.8	1.70	8.60	20.70	33
10 MHz middle channel									
2535.00	80.64	14	1.4	H	14.3	1.70	8.60	21.20	33
2535.00	80.37	117	1.3	V	13.7	1.70	8.60	20.60	33
15 MHz middle channel									
2535.00	80.57	162	1.3	H	14.2	1.70	8.60	21.10	33
2535.00	80.33	217	1.4	V	13.6	1.70	8.60	20.50	33
20 MHz middle channel									
2535.00	80.53	95	2.3	H	14.1	1.70	8.60	21.00	33
2535.00	80.43	94	1.6	V	13.7	1.70	8.60	20.60	33

LTE Band 17:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/RB Offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5.0	QPSK	RB Size=1, RB Offset=0	22.29	22.53	22.35
		RB Size=1, RB Offset=12	22.42	22.68	22.54
		RB Size=1, RB Offset=24	22.30	22.53	22.35
		RB Size=12, RB Offset=0	22.47	22.71	22.51
		RB Size=12, RB Offset=6	22.34	22.62	22.46
		RB Size=12, RB Offset=11	22.47	22.73	22.66
		RB Size=25, RB Offset=0	22.34	22.64	22.44
	16QAM	RB Size=1, RB Offset=0	22.27	22.59	22.36
		RB Size=1, RB Offset=12	22.40	22.72	22.49
		RB Size=1, RB Offset=24	22.23	22.58	22.29
		RB Size=12, RB Offset=0	22.39	22.68	22.44
		RB Size=12, RB Offset=6	22.31	22.67	22.39
		RB Size=12, RB Offset=11	22.48	22.75	22.56
		RB Size=25, RB Offset=0	22.27	22.61	22.41
10.0	QPSK	RB Size=1, RB Offset=0	22.28	22.57	22.34
		RB Size=1, RB Offset=24	22.44	22.74	22.46
		RB Size=1, RB Offset=49	22.29	22.53	22.29
		RB Size=25, RB Offset=0	22.40	22.71	22.46
		RB Size=25, RB Offset=12	22.39	22.60	22.41
		RB Size=25, RB Offset=24	22.53	22.85	22.51
		RB Size=50, RB Offset=0	22.35	22.56	22.32
	16QAM	RB Size=1, RB Offset=0	22.26	22.53	22.28
		RB Size=1, RB Offset=24	22.45	22.70	22.46
		RB Size=1, RB Offset=49	22.27	22.54	22.38
		RB Size=25, RB Offset=0	22.42	22.73	22.52
		RB Size=25, RB Offset=12	22.30	22.62	22.38
		RB Size=25, RB Offset=24	22.53	22.81	22.52
		RB Size=50, RB Offset=0	22.37	22.64	22.41

Peak-to-average ratio (PAR)

Modulation	Middle Channel (dB)	PAR Limit (dB)	Result
QPSK(1RB Size)	3.24	13	Pass
QPSK(100%RB Size)	4.12	13	Pass
16QAM (1RB Size)	3.25	13	Pass
16QAM (100%RB Size)	5.44	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)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
710.00	91.64	178	1.6	H	21.1	0.62	0	20.48	34.8
710.00	90.87	109	1.5	V	20.4	0.62	0	19.78	34.8
10 MHz Bandwidth									
710.00	90.75	173	1.7	H	21.1	0.62	0	20.48	34.8
710.00	93.45	234	1.5	V	20.3	0.62	0	19.68	34.8

16-QAM

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
Middle Channel									
5 MHz Bandwidth									
710.00	91.53	188	1.7	H	21.0	0.62	0	20.38	34.8
710.00	90.45	87	1.5	V	20.0	0.62	0	19.38	34.8
10 MHz middle channel									
710.00	91.48	105	1.7	H	21.0	0.62	0	20.38	34.8
710.00	90.36	237	1.5	V	19.9	0.62	0	19.28	34.8

Note:

All above data were tested with no amplifier

Absolute Level = SG Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

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

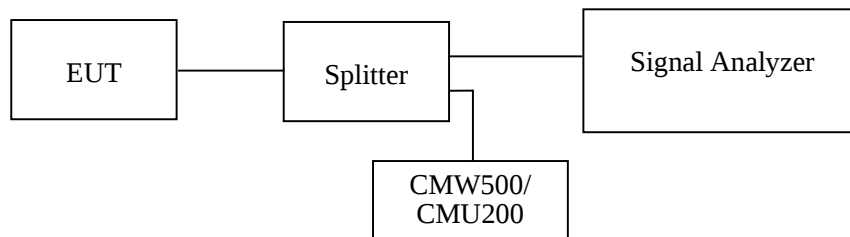
Applicable Standards

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 5 kHz (Cellular /PCS) & 100 kHz (WCDMA) and the 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2015-12-11	2016-12-11
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2015-11-23	2016-11-23
R&S	Wideband Radio Communication tester	CMW500	1201.002K50-146520-wh	2015-11-23	2016-11-23
Ducommun technologies	RF Cable	RG-214	4	2016-06-15	2017-06-15
WEINSCHTEL	10dB Attenuator	5321	AU0709	2016-06-18	2017-06-18
HONOVA	Power Splitter	HPDL-2W-B-NF	N/A	2016-06-12	2017-06-12

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

Test Data**Environmental Conditions**

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.0kPa

The testing was performed by Haiguo Li on 2016-06-13.

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	244.49	320.64
EGPRS(8PSK)	836.6	248.50	316.63

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	836.6	4.208	4.850
HSDPA (16QAM)	836.6	4.228	4.890
HSUPA (BPSK)	836.6	4.228	4.870

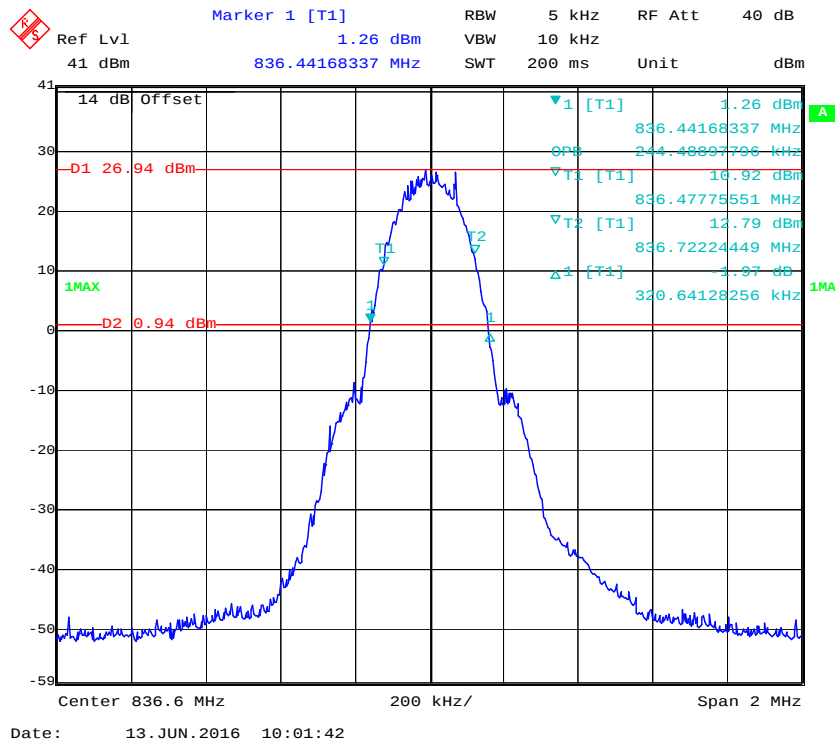
PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1880.0	244.49	316.63
EGPRS(8PSK)	1880.0	244.49	320.64

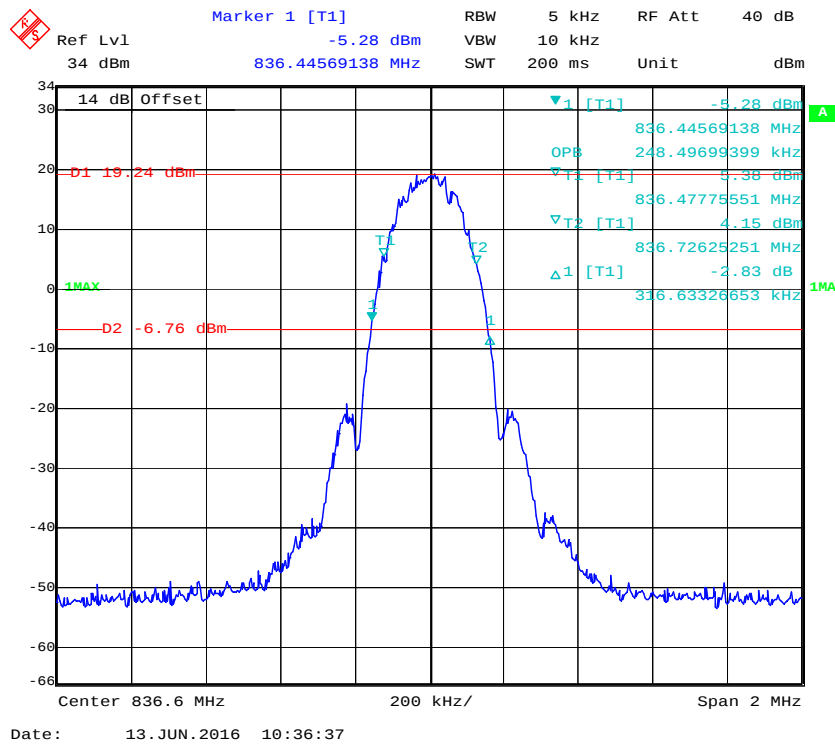
Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1880.0	4.208	4.889
HSDPA (16QAM)	1880.0	4.208	4.870
HSUPA (BPSK)	1880.0	4.208	4.890

Cellular Band (Part 22H)

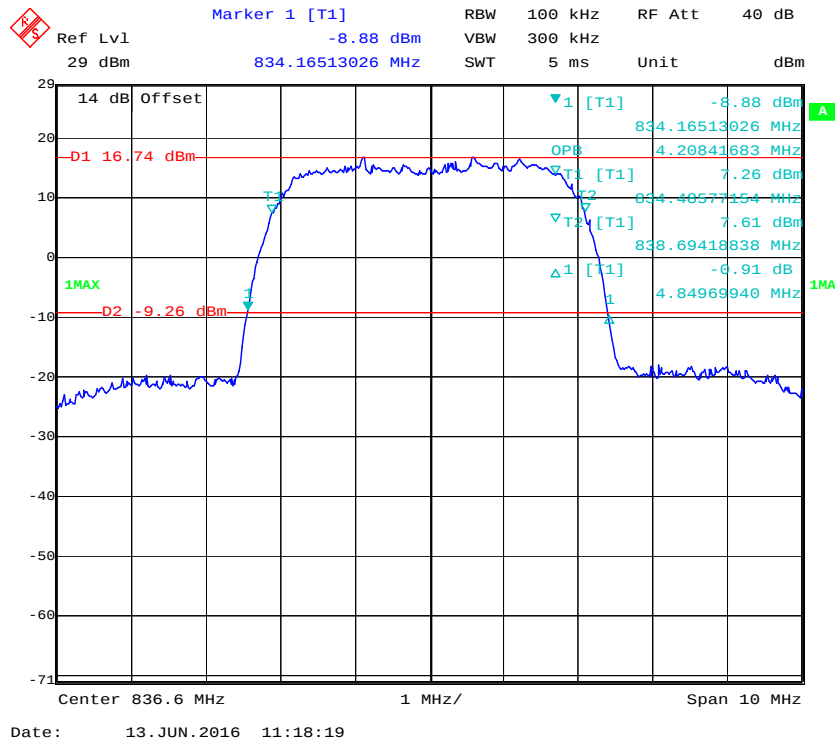
99%&26 dB Occupied Bandwidth for GSM (GMSK) Mode



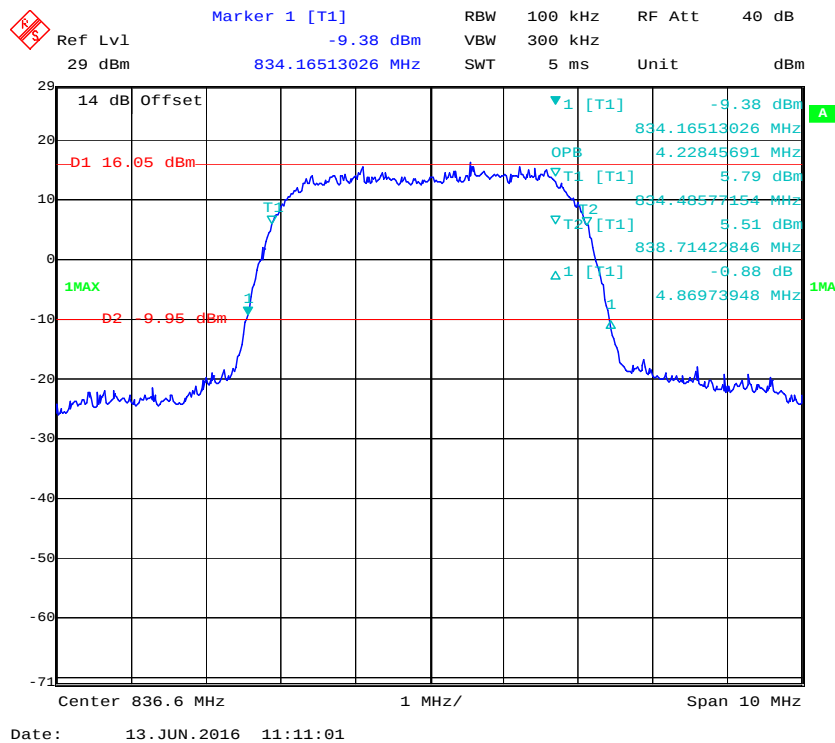
99%&26 dB Occupied Bandwidth for EDGE Mode

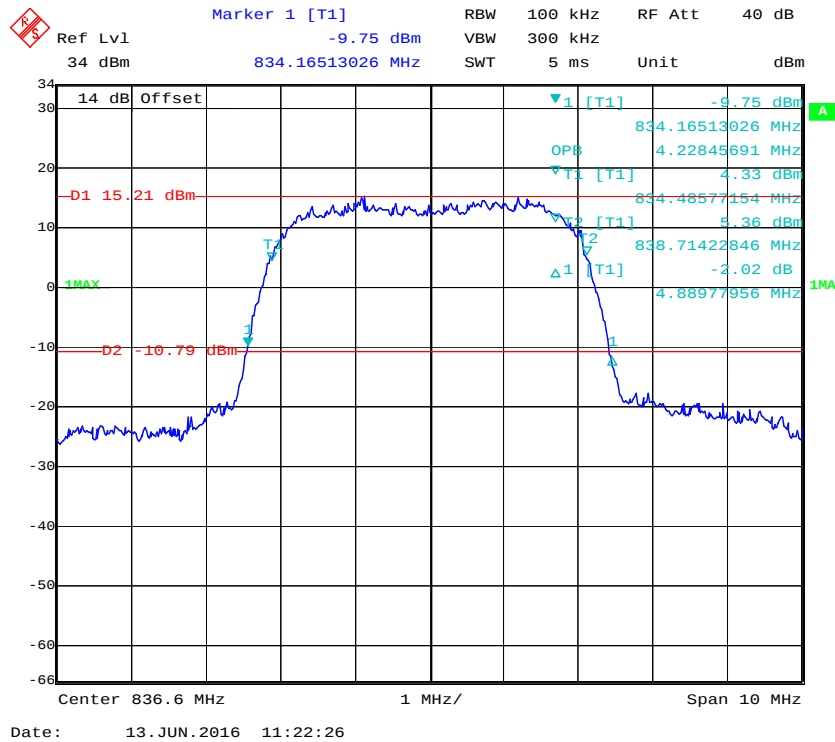
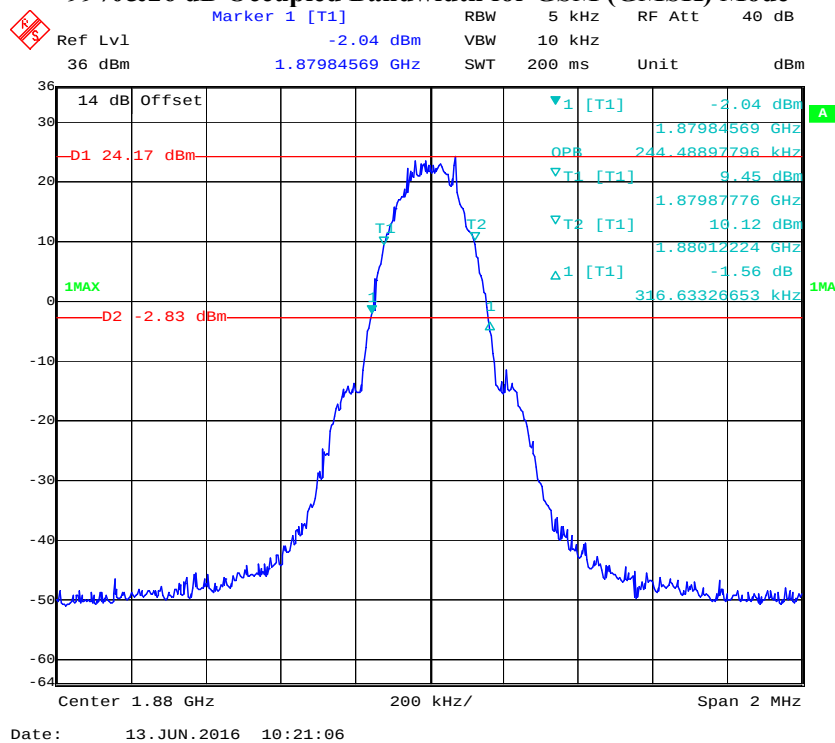


99%&26 dB Occupied Bandwidth for RMC (BPSK) Mode

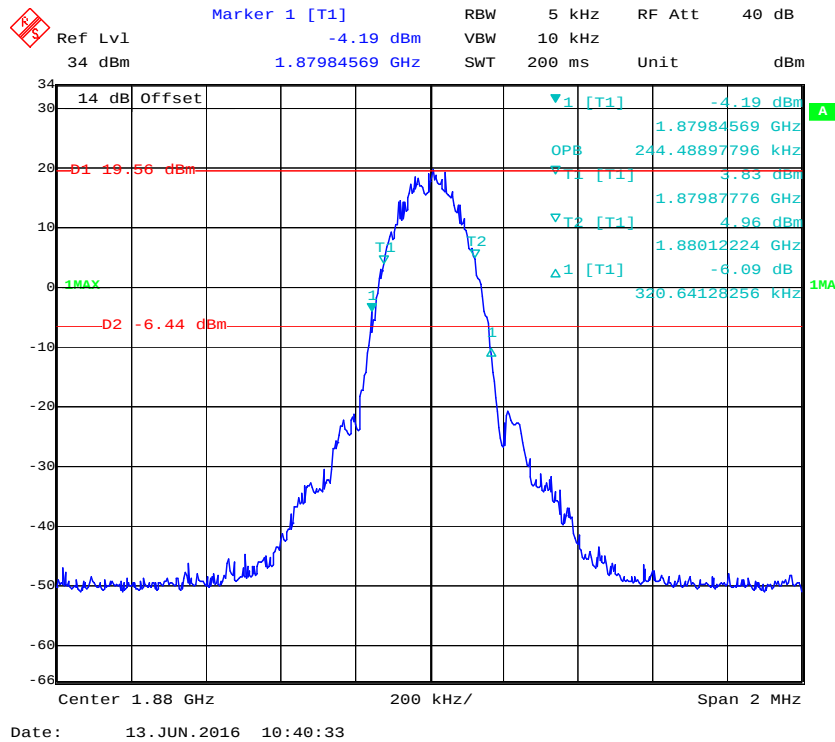


99%&26 dB Occupied Bandwidth for HSUPA (BPSK) Mode

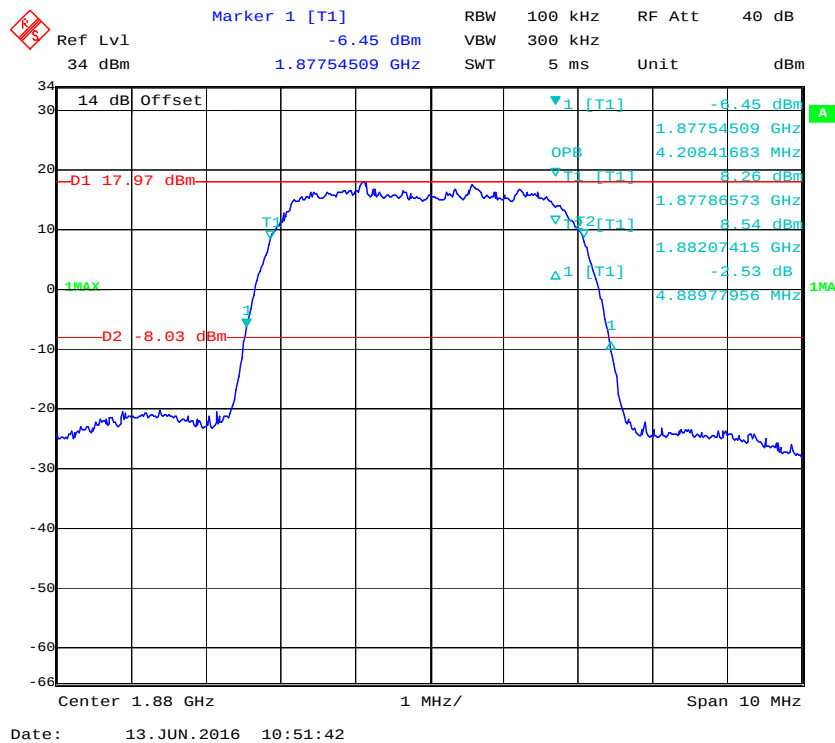


99%&26 dB Occupied Bandwidth for HSDPA (16QAM) Mode**PCS Band (Part 24E)****99%&26 dB Occupied Bandwidth for GSM (GMSK) Mode**

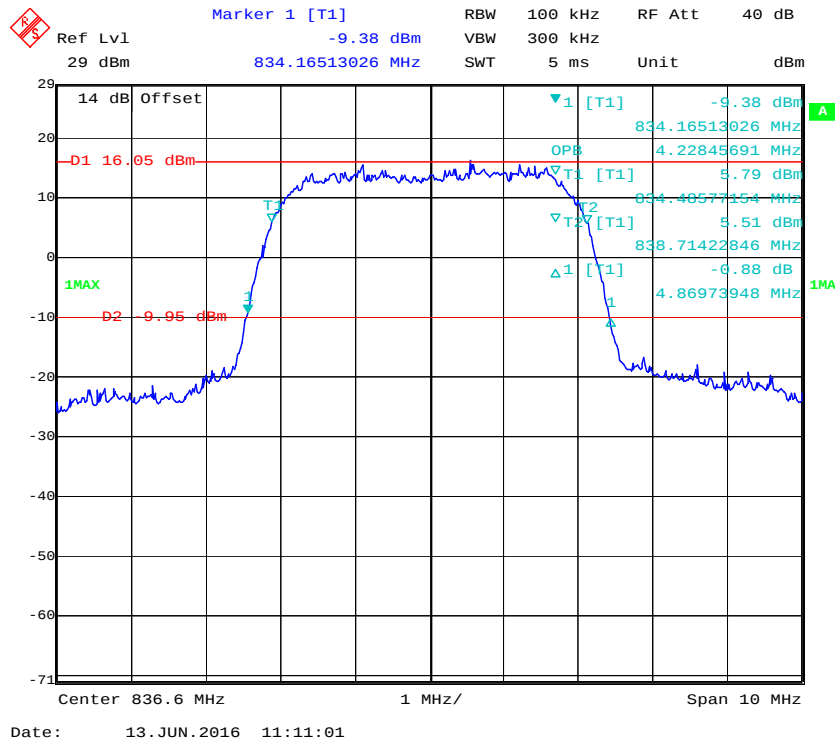
99%&26 dB Occupied Bandwidth for EGPRS Mode



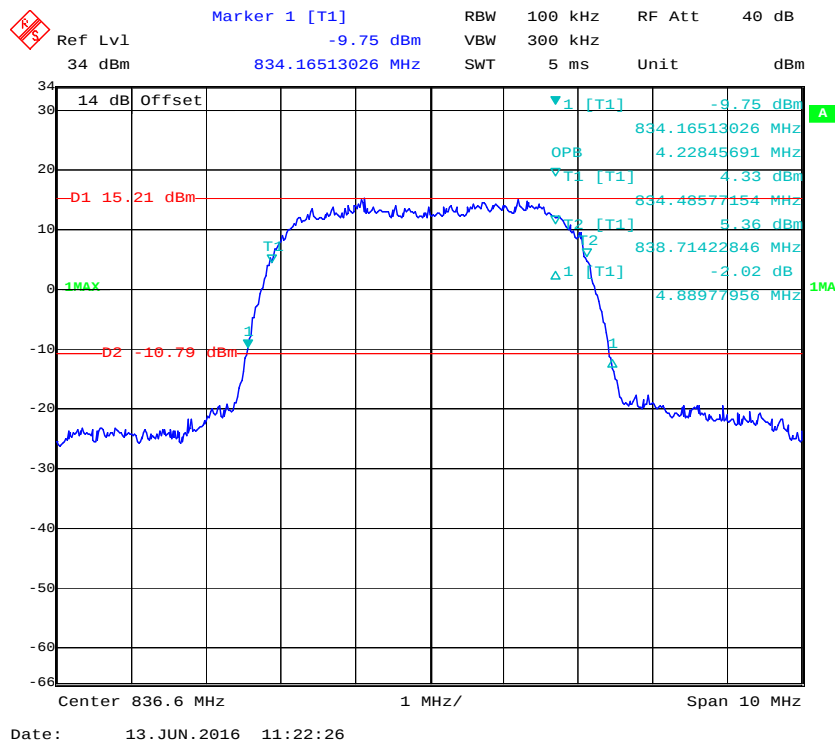
99%&26 dB Occupied Bandwidth for RMC (BPSK) Mode



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



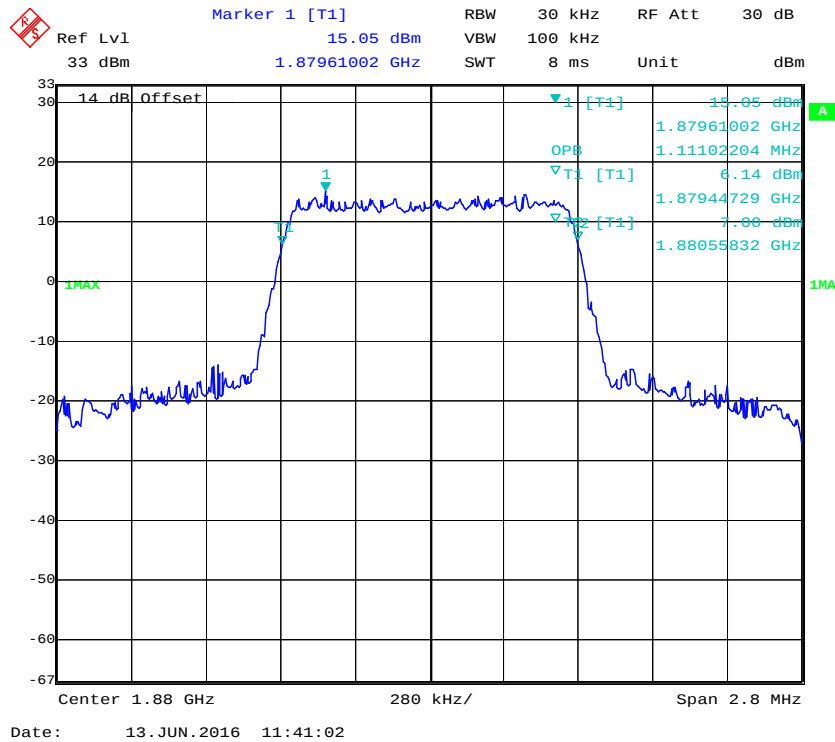
99%&26 dB Occupied Bandwidth for HSDPA (16QAM) Mode



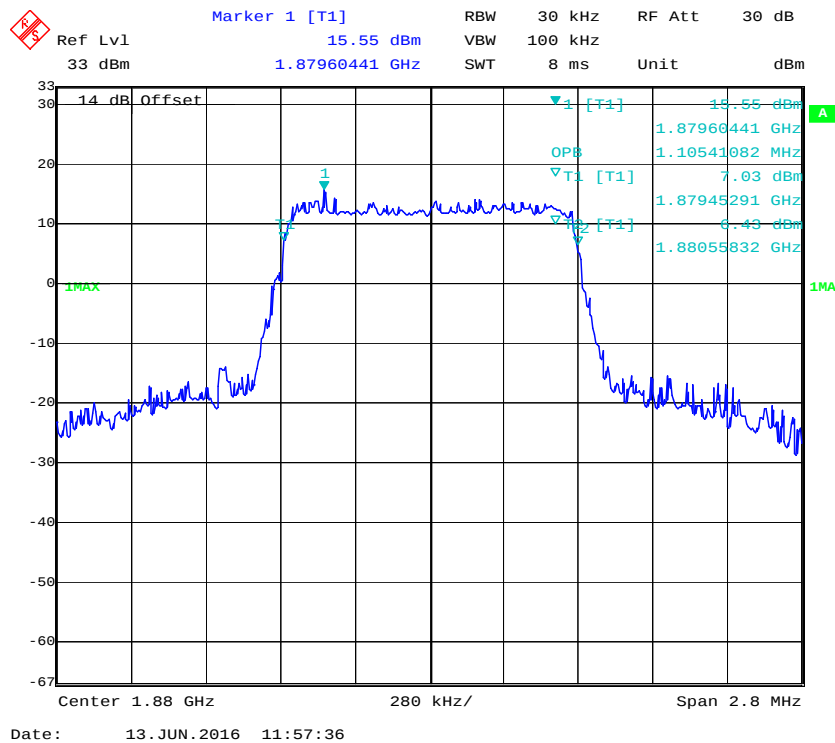
LTE Band 2: (Middle Channel):

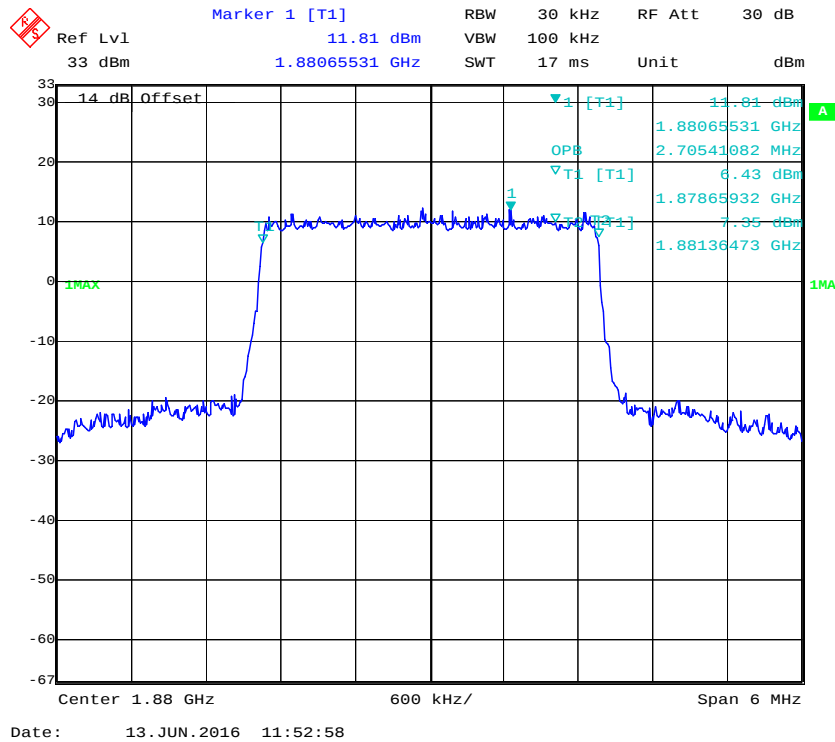
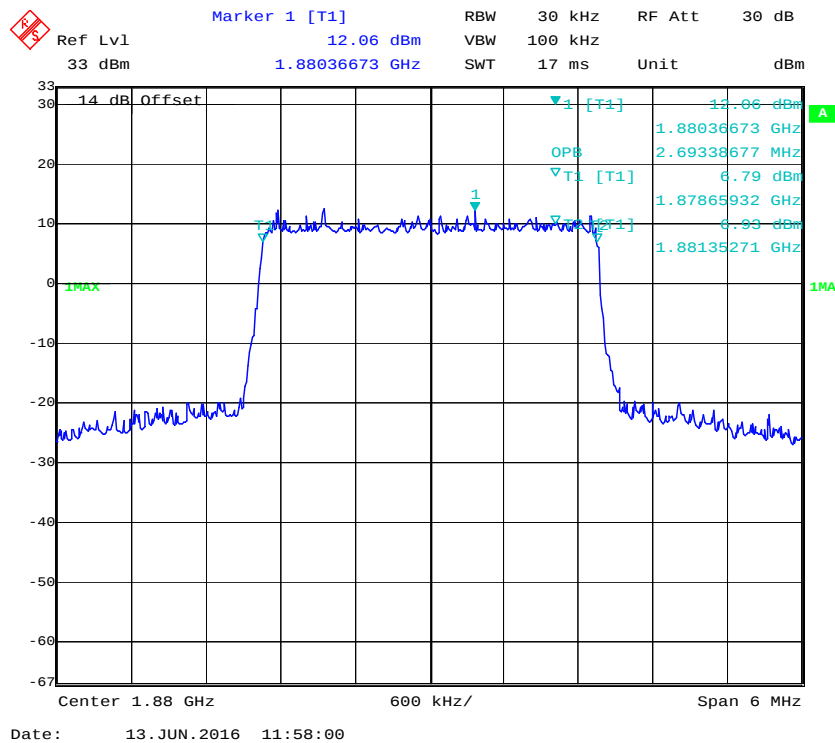
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.111	1.291
	16QAM	1.105	1.279
3.0	QPSK	2.705	2.934
	16QAM	2.693	2.898
5.0	QPSK	4.529	5.050
	16QAM	4.549	5.110
10.0	QPSK	8.938	9.890
	16QAM	8.938	9.739
15.0	QPSK	13.527	15.030
	16QAM	13.527	14.970
20.0	QPSK	17.956	19.479
	16QAM	17.956	19.319

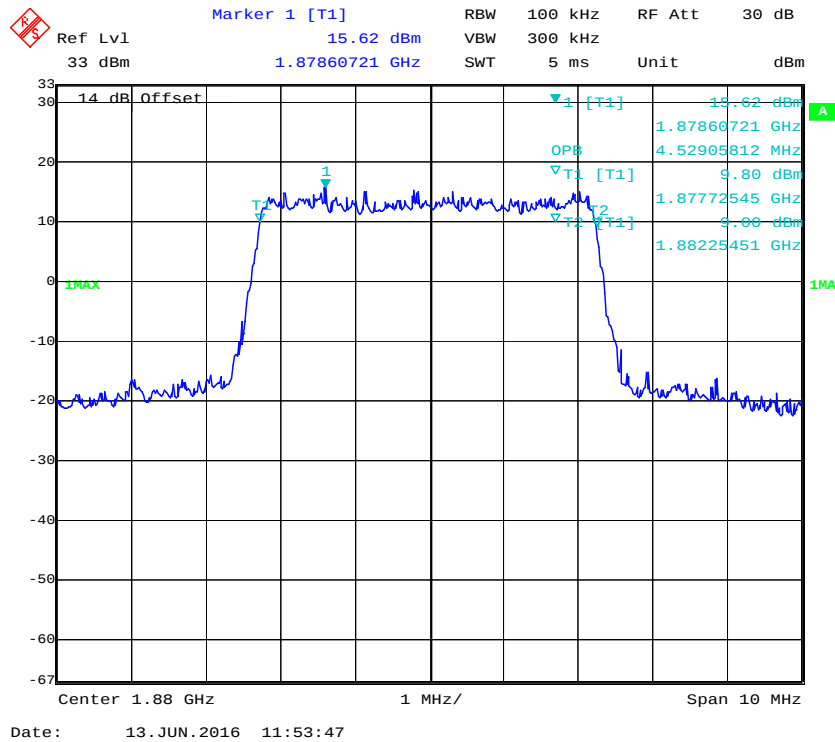
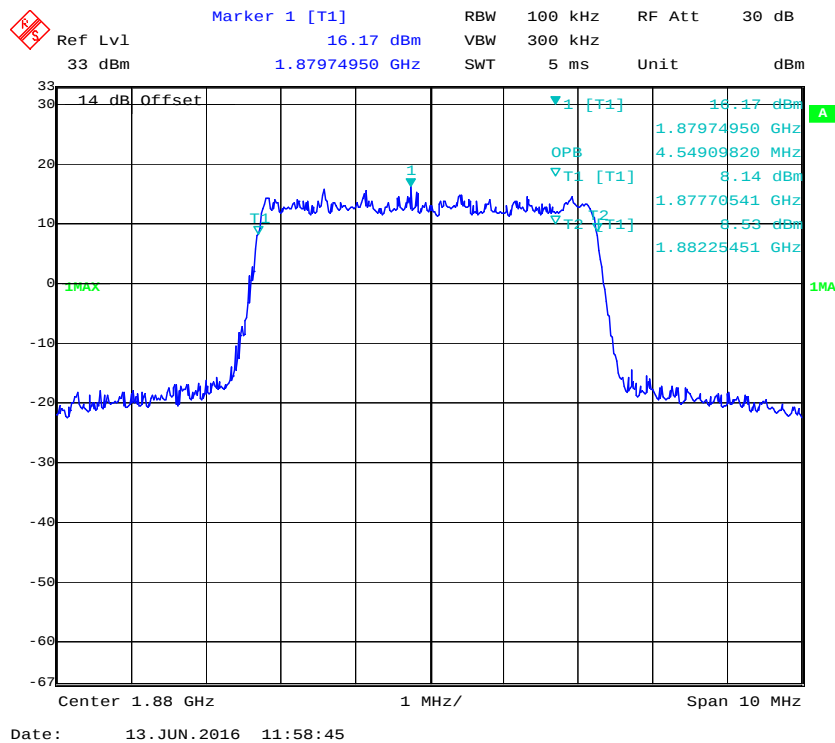
QPSK (1.4 MHz) Occupied Bandwidth Middle channel

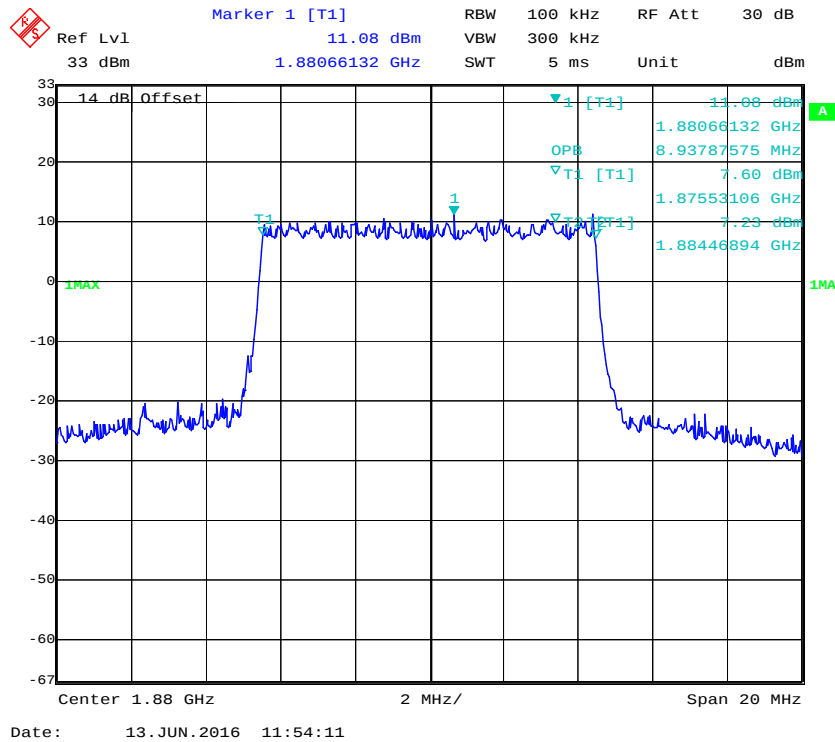
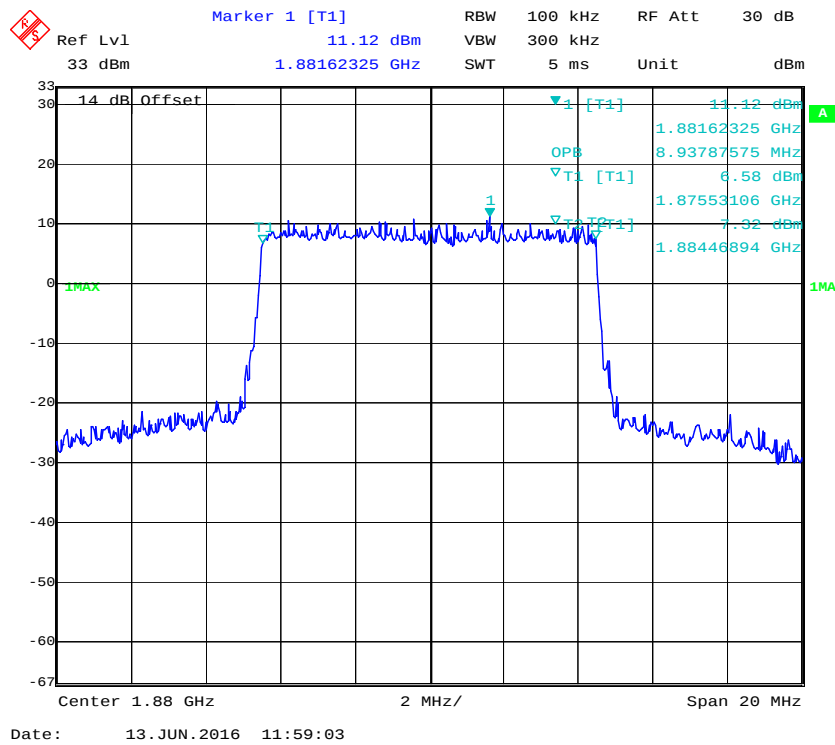


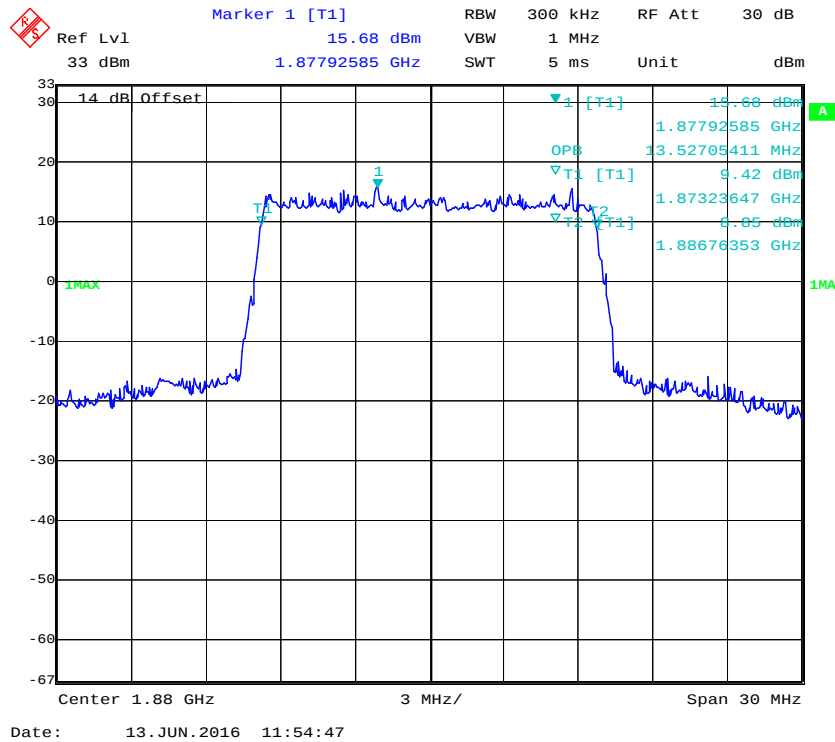
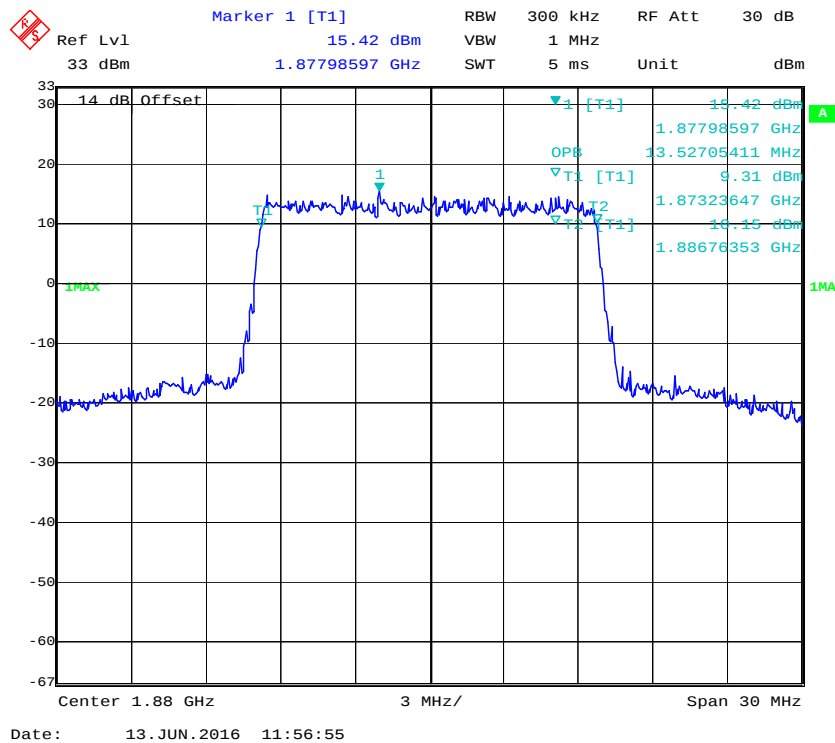
16-QAM (1.4 MHz) Occupied Bandwidth Middle channel



QPSK (3.0 MHz) Occupied Bandwidth, Middle channel**16-QAM (3.0 MHz) Occupied Bandwidth, Middle channel**

QPSK (5.0 MHz) Occupied Bandwidth, Middle channel**16-QAM (5.0 MHz) Occupied Bandwidth, Middle channel**

QPSK (10.0 MHz) Occupied Bandwidth, Middle channel**16-QAM (10.0 MHz) Bandwidth, Middle channel**

QPSK (15.0 MHz) Occupied Bandwidth, Middle channel**16-QAM (15.0 MHz) Bandwidth, Middle channel**

Ref Lvl 33 dBm

Marker 1 [T1] 14.55 dBm

RBW 300 kHz RF Att 30 dB

VBW 1 MHz

SWT 5 ms Unit dBm

14 dB Offset

1.88156313 GHz

1

14.55 dBm

1.88156313 GHz

17.95591182 MHz

16.02 dBm

1.87106212 GHz

1.88901804 GHz

Center 1.88 GHz

4 MHz/

Span 40 MHz

Date: 13 JUN 2016 11:55:18

Ref Lvl 33 dBm

Marker 1 [T1] 14.79 dBm

RBW 300 kHz

VBW 1 MHz

SWT 5 ms

RF Att 30 dB

Unit dBm

14 dB Offset

OP8

1 [T1] 14.79 dBm

1.87595190 GHz

17.95591182 MHz

9.05 dBm

1.87098196 GHz

10.30 dBm

1.88893788 GHz

1WAX

Center 1.88 GHz

4 MHz/

Span 40 MHz

Date: 13.JUN.2016 11:56:29

[illegible]

Ref Lvl 34 dBm

Marker 1 [T1 ndB] 26.00 dB

RBW 30 kHz

VBW 100 kHz

RF Att 30 dB

SWT 8 ms

Unit dBm

14 dB Offset

13.63 dBm

1.88038437 GHz

26.00 dB

1.27935872 MHz

-11.46 dBm

1.87937435 GHz

-13.60 dBm

1.88065371 GHz

Center 1.88 GHz

280 kHz/

Span 2.8 MHz

Date: 14. JUN. 2016 15:16:29

Ref Lvl 34 dBm Marker 1 [T1 ndB] 26.00 dB RBW 30 kHz RF Att 30 dB
 34 dBm BW 2.93386774 MHz SWT 17 ms Unit dBm

Parameter	Value
11.07 dBm	11.07 dBm
1.88033066 GHz	1.88033066 GHz
ndB	26.00 dB
BW	2.93386774 MHz
T1 [T1]	-13.84 dBm
T2 [T1]	-15.00 dBm
1.88147295 GHz	1.88147295 GHz

Center 1.88 GHz 600 kHz/ Span 6 MHz

Date: 14. JUN. 2016 15:10:02

Ref Lvl 34 dBm

Marker 1 [T1 ndB] 26.00 dB

RBW 30 kHz

VBW 100 kHz

RF Att 30 dB

Unit dBm

34 dBm

BW 2.89779559 MHz

SWT 17 ms

Unit dBm

14 dB Offset

1 [T1] 12.40 dBm

1.88034269 GHz

ndB 26.00 dB

BW 2.89779559 MHz

T1 [T1] -14.57 dBm

1.87855110 GHz

T2 [T1] -13.66 dBm

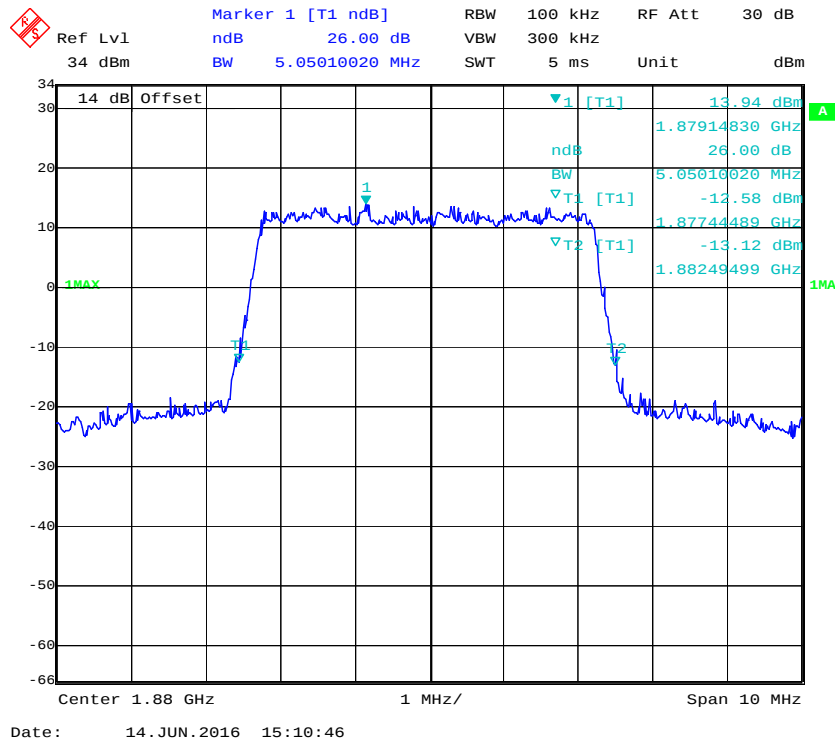
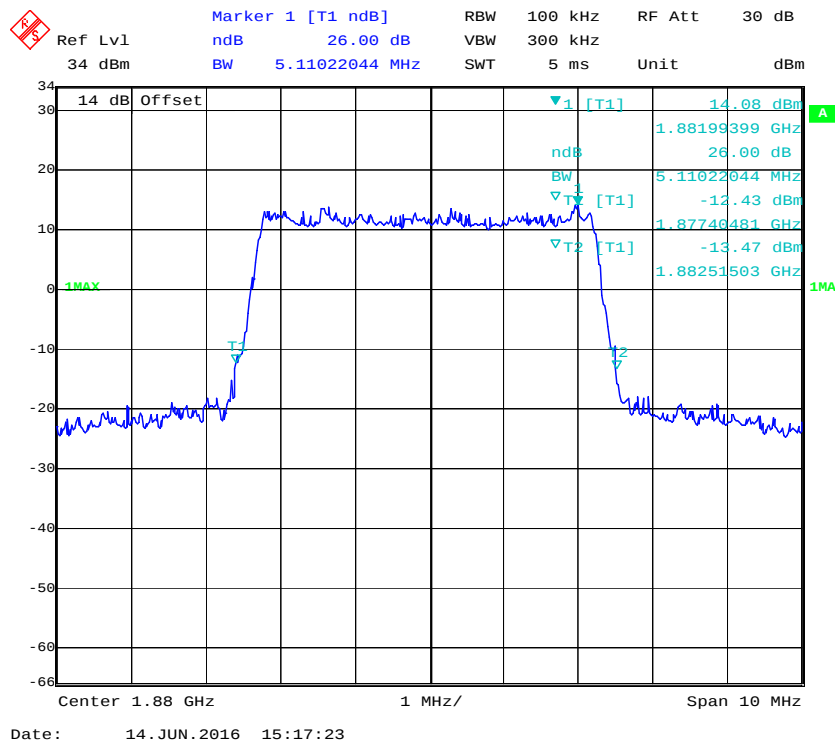
1.88144890 GHz

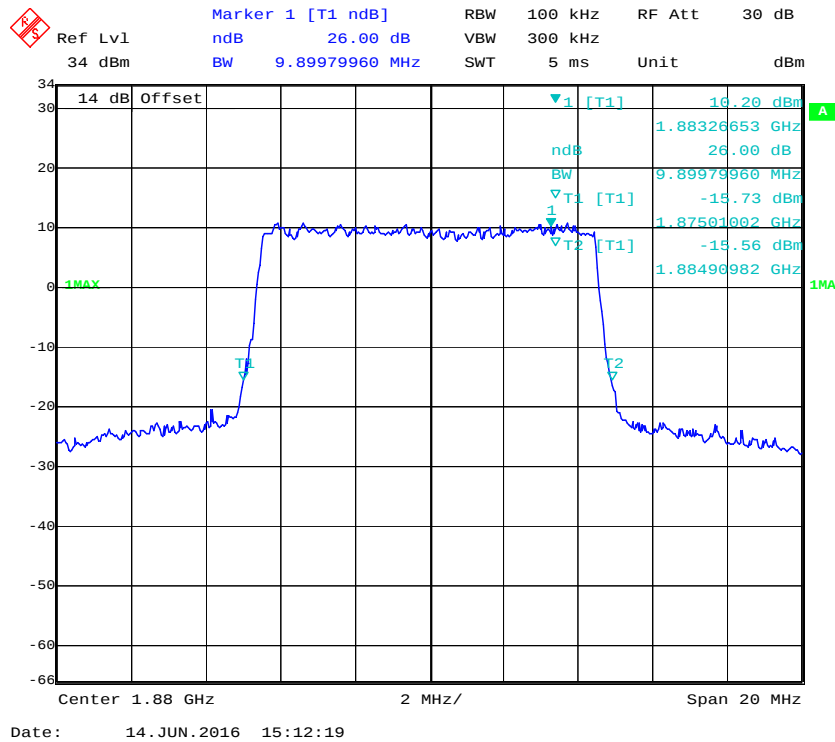
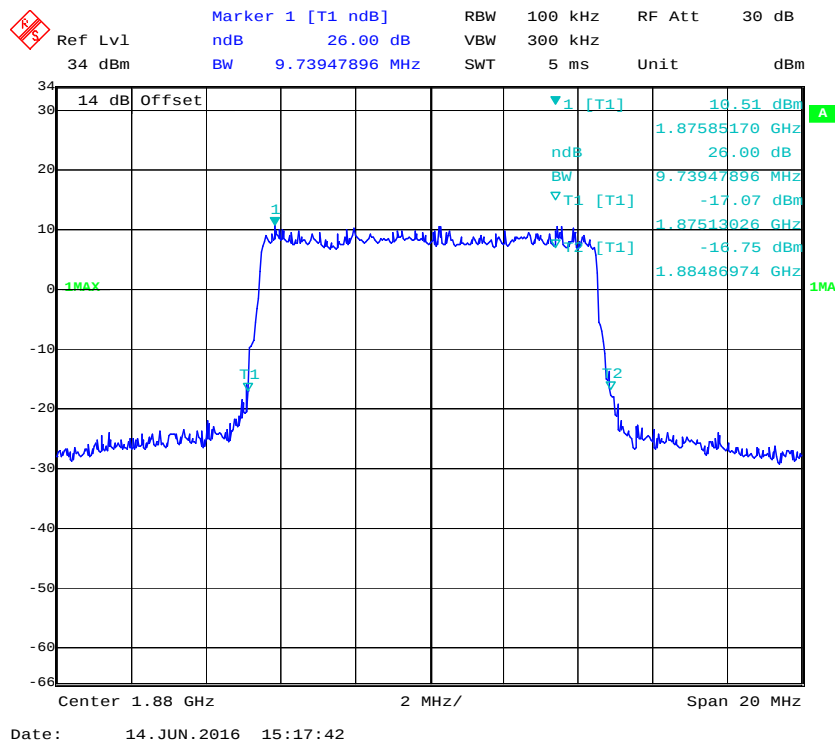
Center 1.88 GHz

600 kHz/

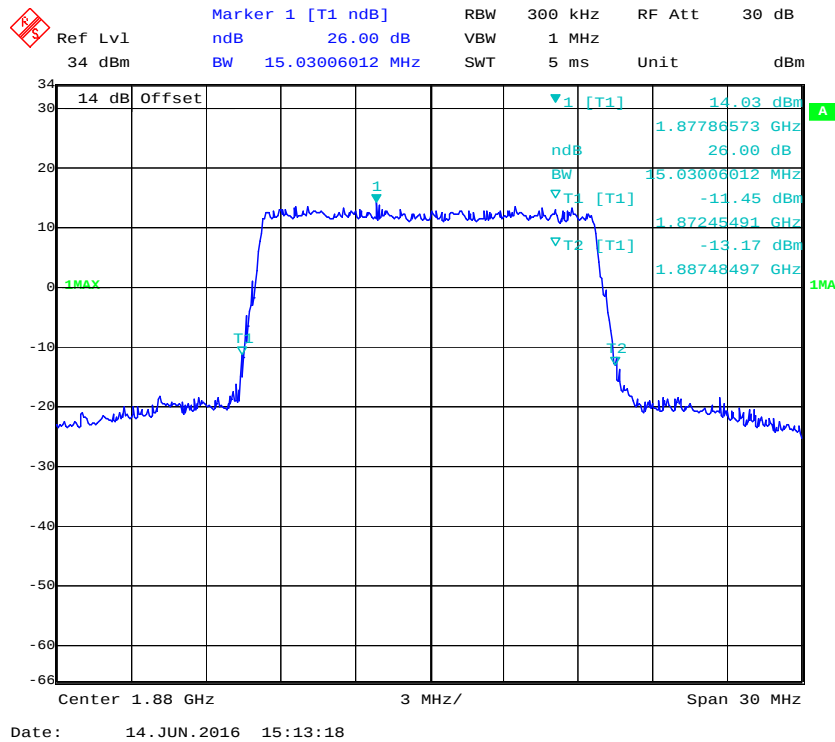
Span 6 MHz

Date: 14. JUN. 2016 15:16:55

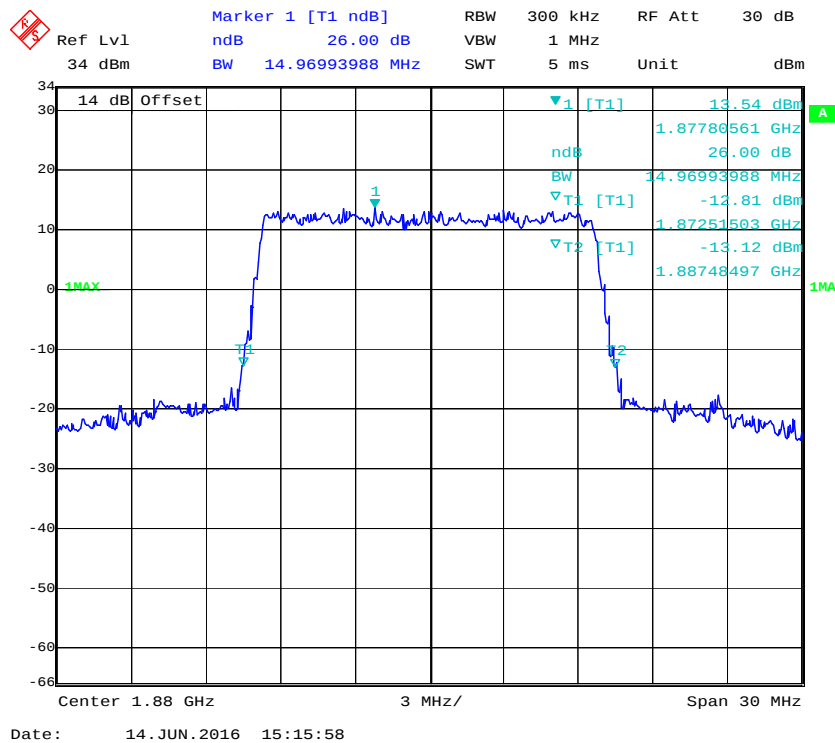
QPSK (5.0 MHz) 26dB Bandwidth, Middle channel**16-QAM (5.0 MHz) Bandwidth, Middle channel**

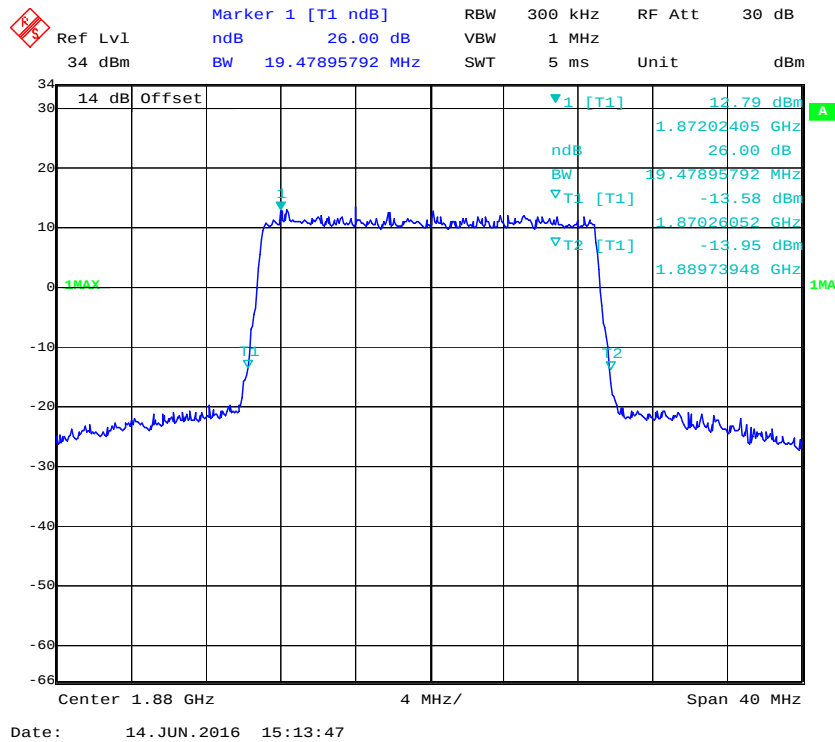
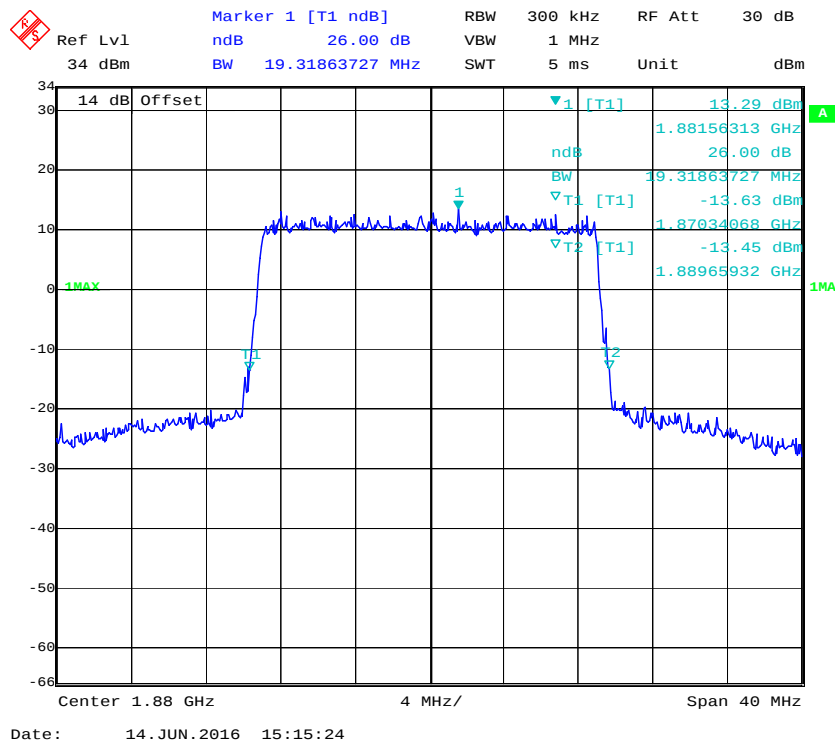
QPSK (10.0 MHz) 26dB Bandwidth, Middle channel**16-QAM (10.0 MHz) Bandwidth, Middle channel**

QPSK (15.0 MHz) 26dB Bandwidth, Middle channel



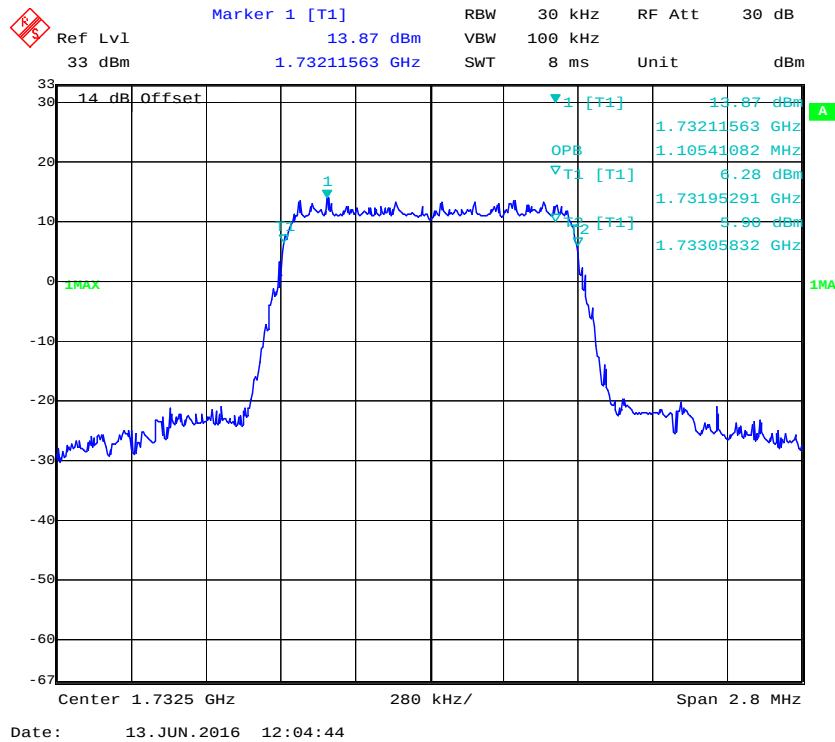
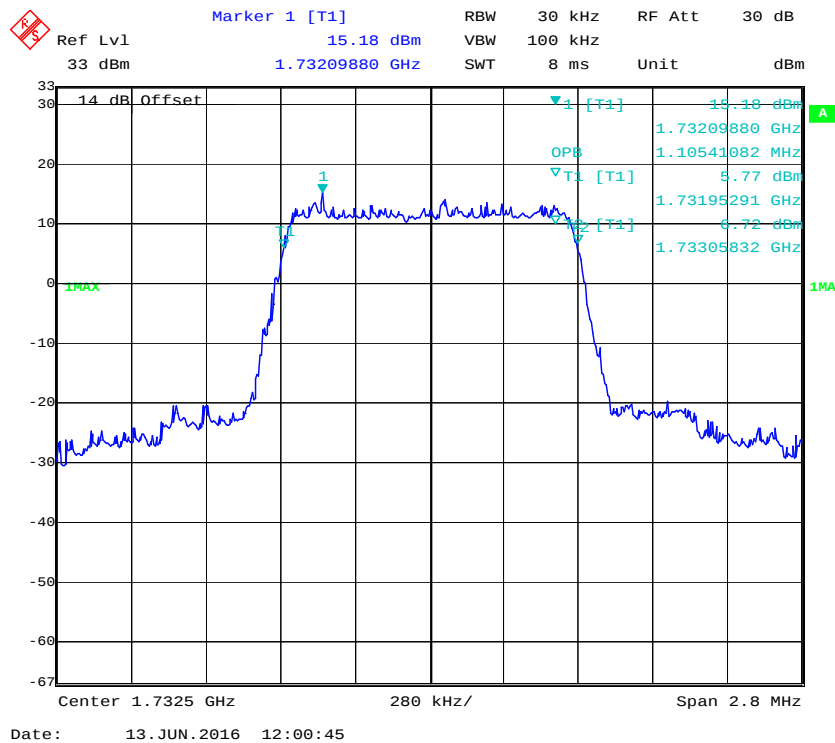
16-QAM (15.0 MHz) Bandwidth, Middle channel

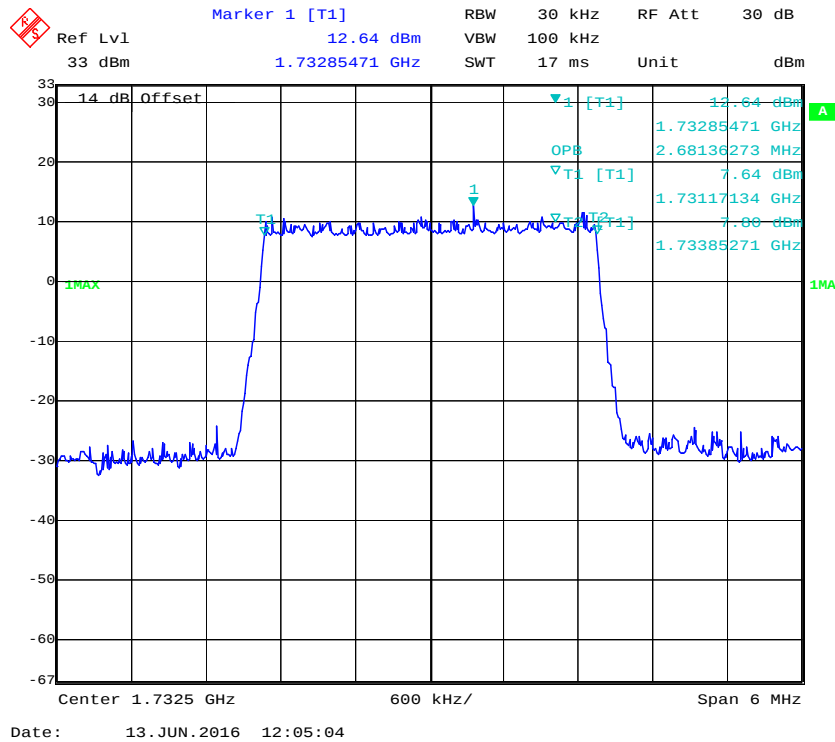
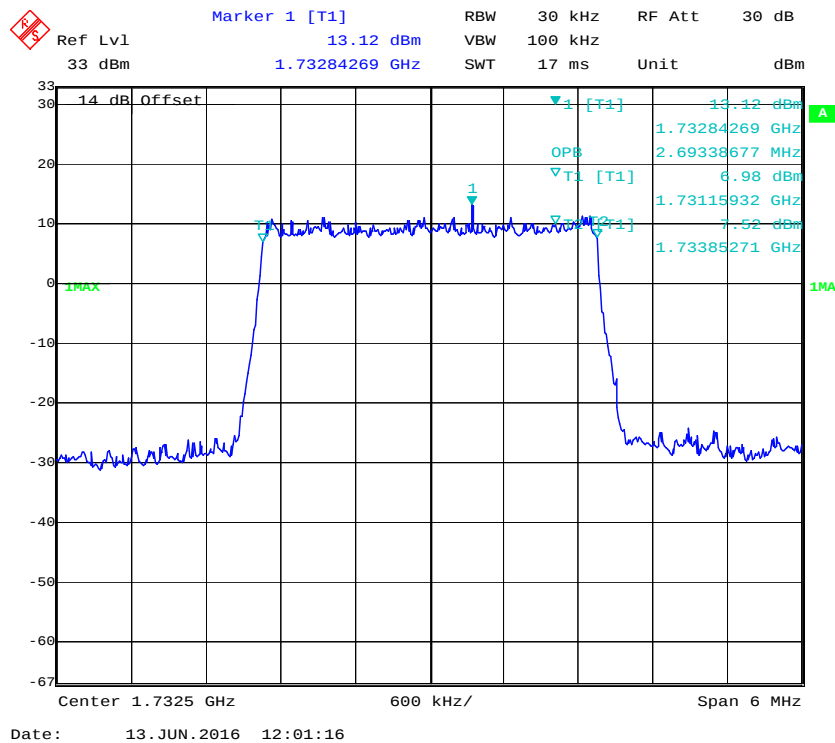


QPSK (20.0 MHz) 26dB Bandwidth, Middle channel**16-QAM (20.0 MHz) Bandwidth, Middle channel**

LTE Band 4: (Middle Channel)

Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.105	1.274
	16QAM	1.105	1.285
3.0	QPSK	2.681	2.922
	16QAM	2.693	2.934
5.0	QPSK	4.549	5.030
	16QAM	4.529	5.030
10.0	QPSK	8.978	9.659
	16QAM	8.978	9.699
15.0	QPSK	13.527	14.850
	16QAM	13.527	14.790
20.0	QPSK	17.956	19.238
	16QAM	17.956	19.399

QPSK (1.4 MHz) Occupied Bandwidth Middle channel**16-QAM (1.4 MHz) Bandwidth Middle channel**

QPSK (3.0 MHz) Occupied Bandwidth, Middle channel**16-QAM (3.0 MHz) Bandwidth, Middle channel**

Ref Lvl 33 dBm
 Marker 1 [T1] 13.64 dBm
 1.73142786 GHz
 RBW 100 kHz
 VBW 300 kHz
 RF Att 30 dB
 SWT 5 ms
 Unit dBm

14 dB Offset

13.64 dBm
 1.73142786 GHz
 4.54909820 MHz
 7.36 dBm
 1.73020541 GHz
 0.07 dBm
 1.73475451 GHz

1MAX

Center 1.7325 GHz
 1 MHz/
 Span 10 MHz

Date: 13 JUN 2016 12:05:34

Ref Lvl 33 dBm
 Marker 1 [T1] 15.40 dBm
 RBW 100 kHz
 VBW 300 kHz
 SWT 5 ms
 RF Att 30 dB
 Unit dBm

14 dB Offset
 1.73447395 GHz
 4.52905812 MHz
 8.45 dBm
 1.73022545 GHz
 1.73475451 GHz

Center 1.7325 GHz
 1 MHz/
 Span 10 MHz

Date: 13. JUN. 2016 12:01:49

Ref Lvl 33 dBm

Marker 1 [T1] 11.52 dBm

RBW 100 kHz

VBW 300 kHz

SWT 5 ms

RF Att 30 dB

Unit dBm

14 dB Offset

11.52 dBm

1.73692886 GHz

1.73692886 GHz

8.97795591 MHz

5.64 dBm

1.72803106 GHz

5.02 dBm

1.73700902 GHz

Center 1.7325 GHz

2 MHz/

Span 20 MHz

Date: 13 JUN 2016 12:05:54

Ref Lvl 33 dBm

Marker 1 [T1] 10.33 dBm

RBW 100 kHz

VBW 300 kHz

SWT 5 ms

Unit dBm

RF Att 30 dB

14 dB Offset

1MAX

1MA

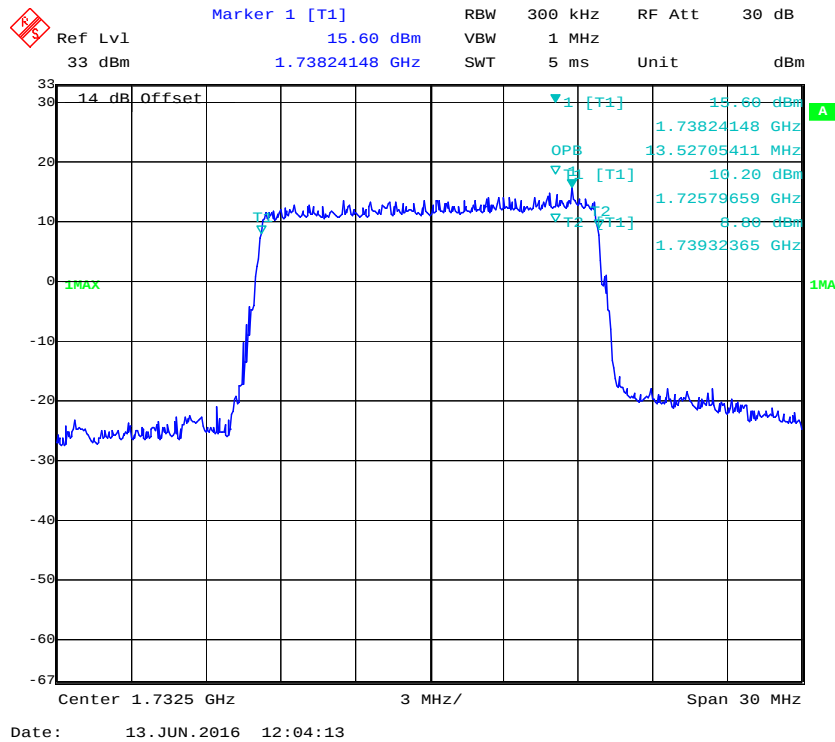
Center 1.7325 GHz

2 MHz/

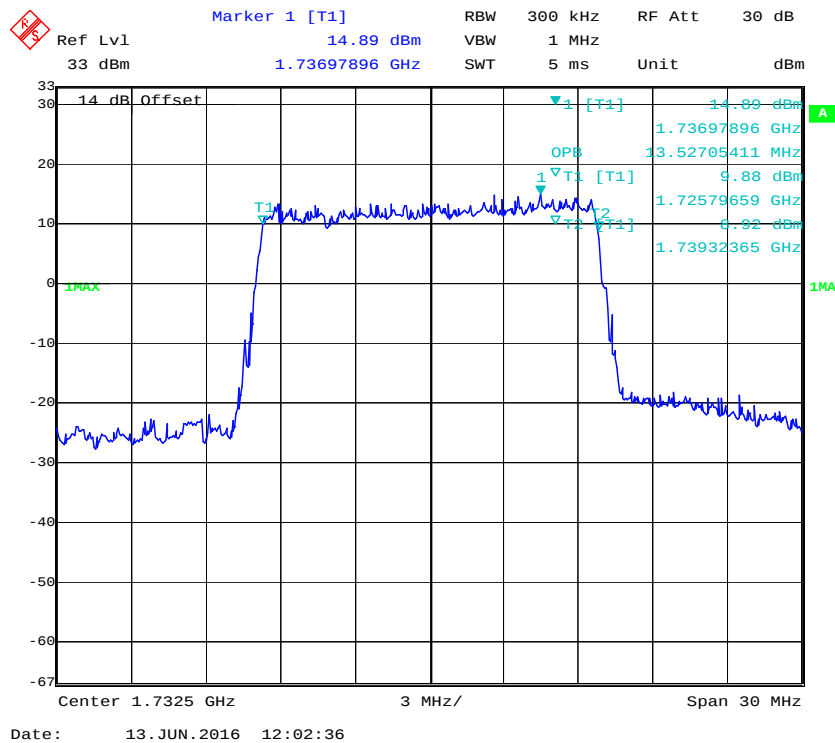
Span 20 MHz

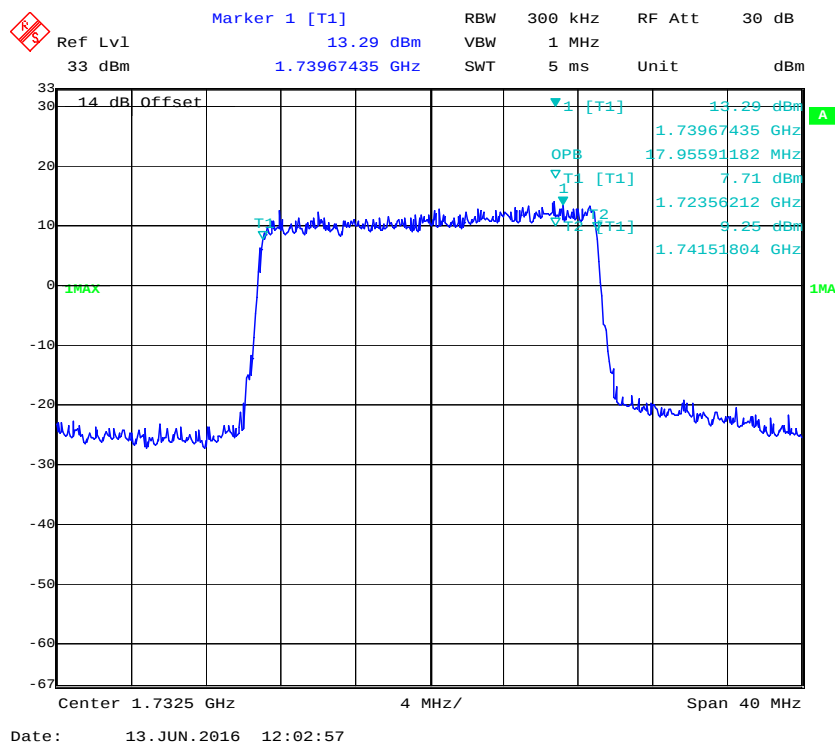
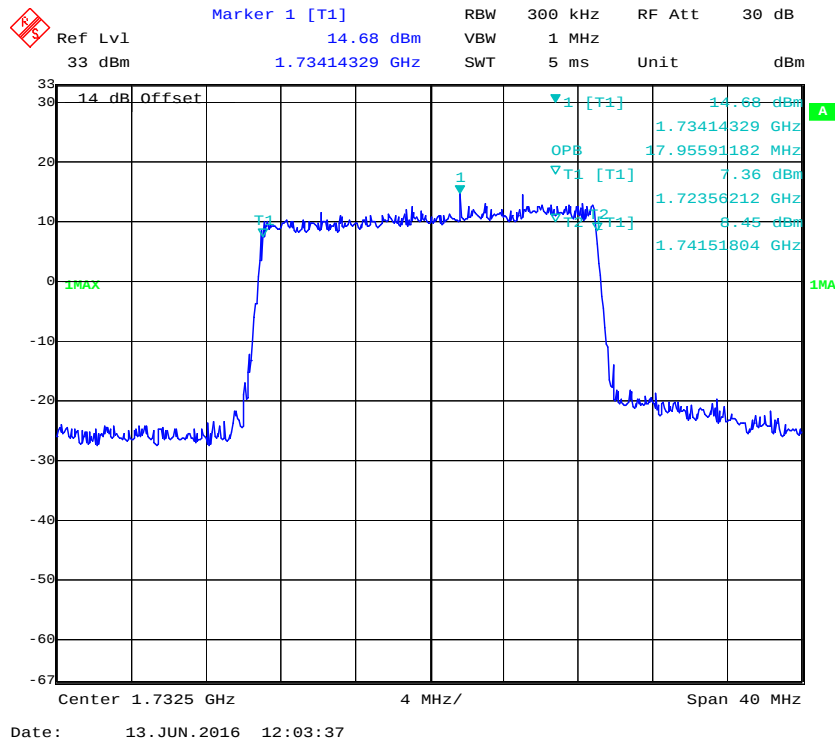
Date: 13. JUN. 2016 12:02:08

QPSK (15.0 MHz) Occupied Bandwidth, Middle channel



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





Ref Lvl 34 dBm Marker 1 [T1 ndB] RBW 30 kHz RF Att 30 dB
 BW 1.27374749 MHz SWT 8 ms Unit dBm

14 dB	Offset						
					▽1 [T1]		13.68 dBm
					ndB	1.73287876 GHz	
					BW	26.00 dB	
					1	1.27374749 MHz	
					▽T1 [T1]	-12.46 dBm	
						1.73186874 GHz	
					▽T2 [T1]	-12.11 dBm	
						1.73314248 GHz	

Center 1.7325 GHz 280 kHz/ Span 2.8 MHz

Date: 14 JUN 2016 15:26:31

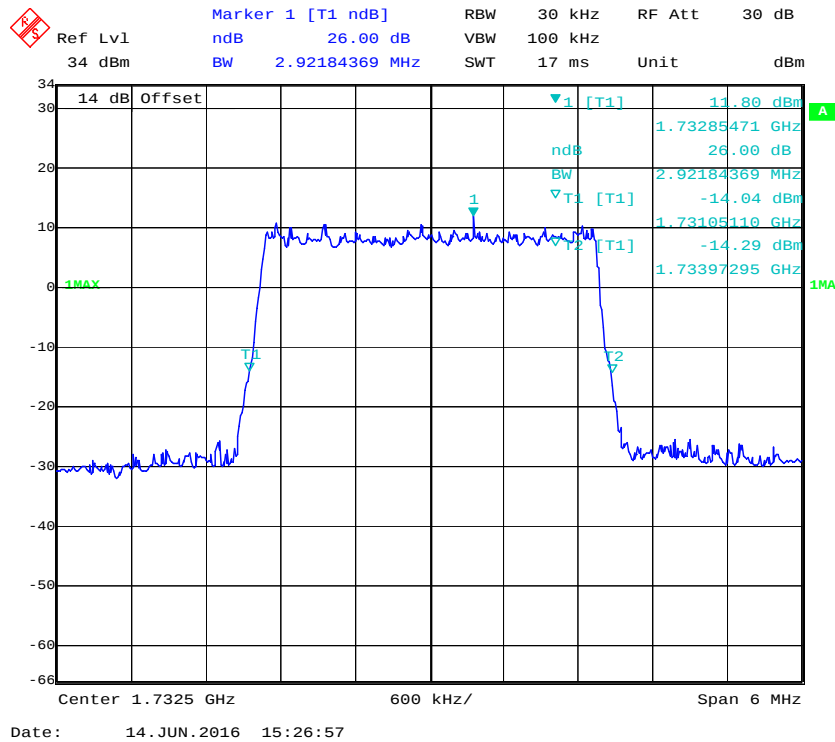
Marker 1 [T1 ndB] RBW 30 kHz RF Att 30 dB
 Ref Lvl ndB 26.00 dB VBW 100 kHz
 34 dBm BW 1.28496994 MHz SWT 8 ms Unit dBm

14 dB Offset
 12.93 dBm
 1.73246914 GHz
 ndB 26.00 dB
 1.28496994 MHz
 -13.72 dBm
 1.73186874 GHz
 -12.94 dBm
 1.73315371 GHz

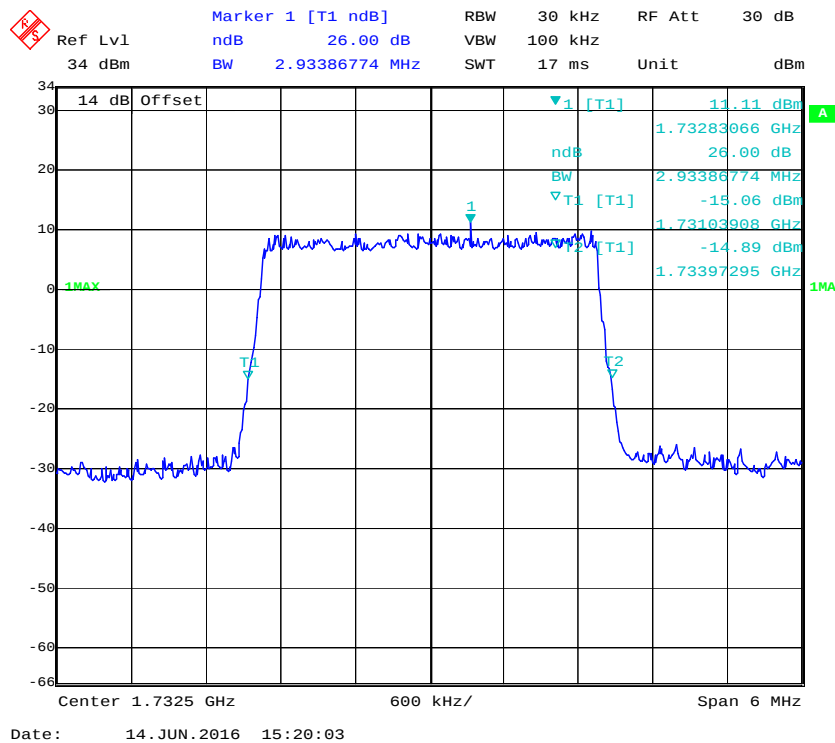
Center 1.7325 GHz 280 kHz/ Span 2.8 MHz

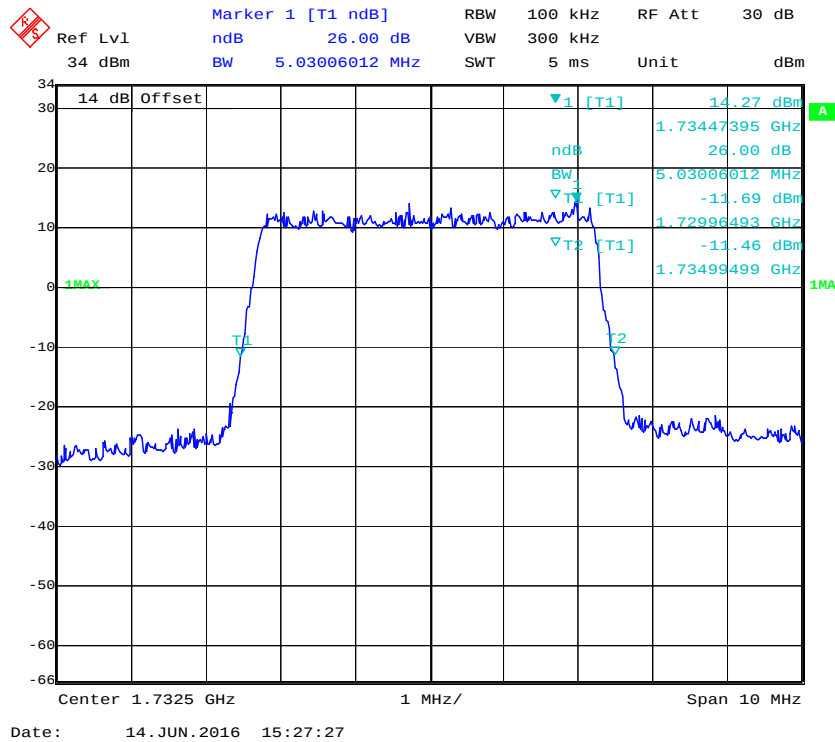
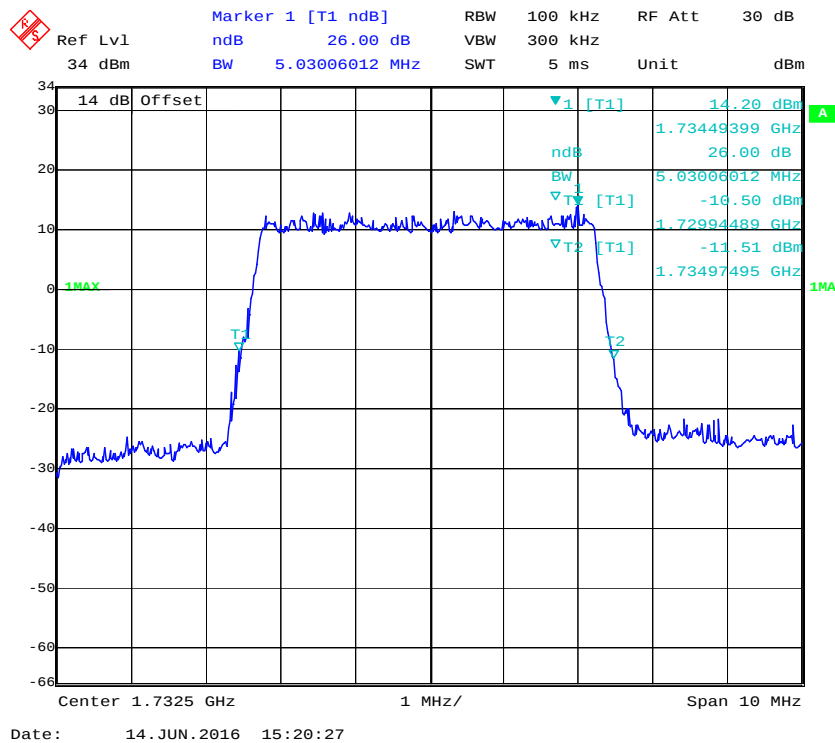
Date: 14. JUN. 2016 15:19:29

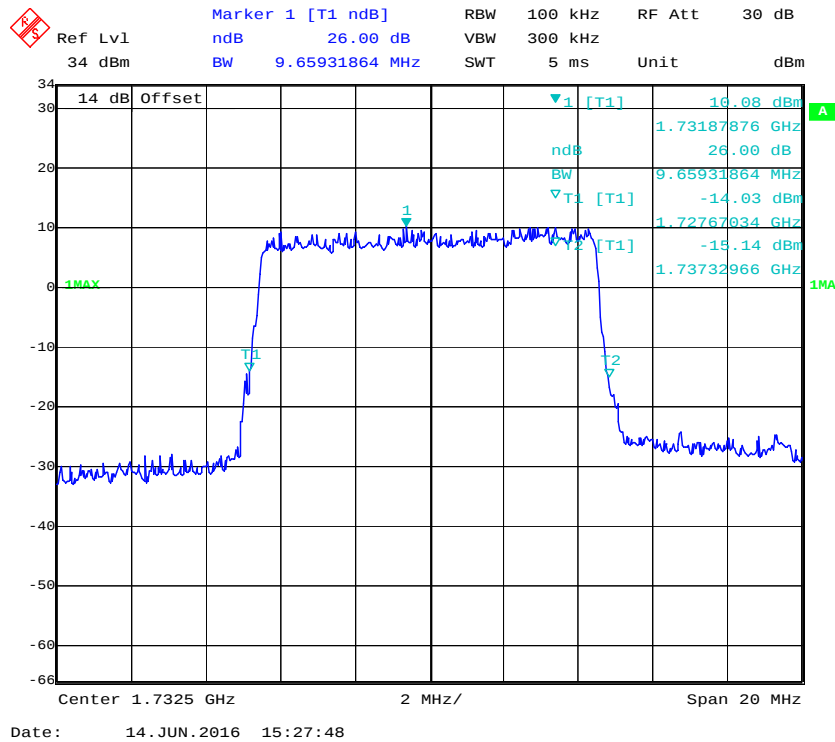
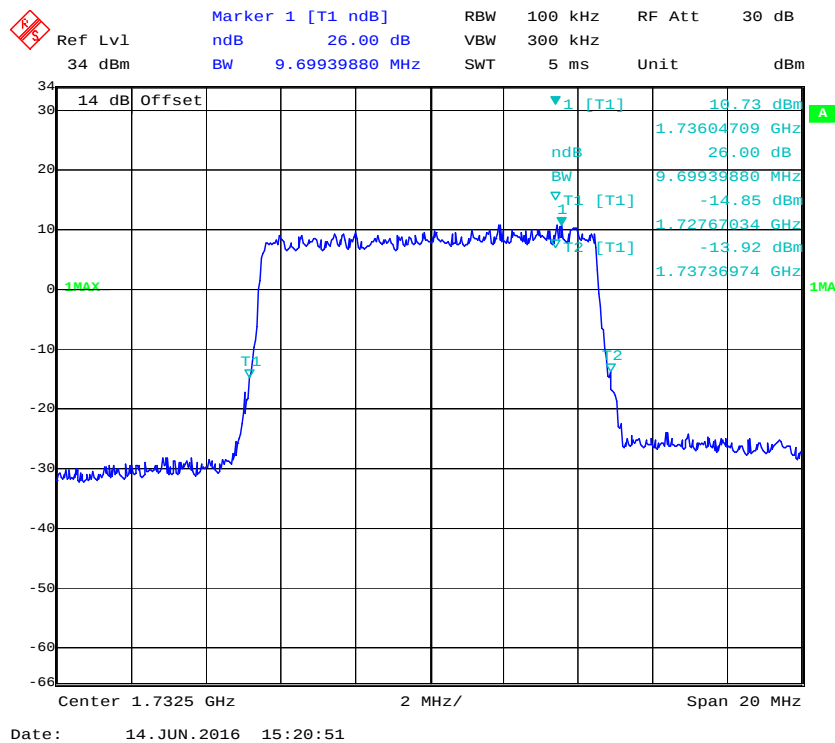
QPSK (3.0 MHz) 26dB Bandwidth, Middle channel



16-QAM (3.0 MHz) Bandwidth, Middle channel



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

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

Ref Lvl 34 dBm
 Marker 1 [T1 ndB] 26.00 dB
 BW 14.84969940 MHz
 RBW 300 kHz
 RF Att 30 dB
 Unit dBm
 13.88 dBm
 1.73529559 GHz
 ndB 26.00 dB
 BW 14.84969940 MHz
 T1 [T1] -11.77 dBm
 T2 [T1] -11.15 dBm
 1.72513527 GHz
 1.73998497 GHz
 1MAX
 1MA
 Center 1.7325 GHz 3 MHz/ Span 30 MHz
 Date: 14. JUN. 2016 15:22:31

Ref Lvl 34 dBm

Marker 1 [T1 ndB] 26.00 dB

RBW 300 kHz

VBW 1 MHz

RF Att 30 dB

SWT 5 ms

Unit dBm

14 dB	Offset								
14.61 dBm									
1.73836172 GHz									
26.00 dB									
14.78957916 MHz									
-9.94 dBm									
1.72507515 GHz									
-11.60 dBm									
1.73986473 GHz									

Center 1.7325 GHz

3 MHz/

Span 30 MHz

Date: 14. JUN. 2016 15:21:16

Ref Lvl 34 dBm
 Marker 1 [T1 ndB] 26.00 dB
 BW 19.23847695 MHz
 RBW 300 kHz
 SWT 5 ms
 RF Att 30 dB
 Unit dBm

Parameter	Value
14 dB Offset	
13.49 dBm	
1.73414329 GHz	
ndB	26.00 dB
BW	19.23847695 MHz
T1 [T1]	-11.66 dBm
1.72292084 GHz	
T2 [T1]	-11.07 dBm
1.74215932 GHz	

Center 1.7325 GHz
 4 MHz/
 Span 40 MHz

Date: 14. JUN. 2016 15:22:02

Ref Lvl 34 dBm
 Marker 1 [T1 ndB] 14 dB
 ndB 26.00 dB
 BW 19.39879760 MHz
 RBW 300 kHz
 VBW 1 MHz
 SWT 5 ms
 RF Att 30 dB
 Unit dBm

14 dB Offset
 1 [T1] 12.46 dBm
 1.73759018 GHz
 ndB 26.00 dB
 BW 19.39879760 MHz
 1 [T1] -12.69 dBm
 1.72292084 GHz
 [T1] -14.35 dBm
 1.74231964 GHz

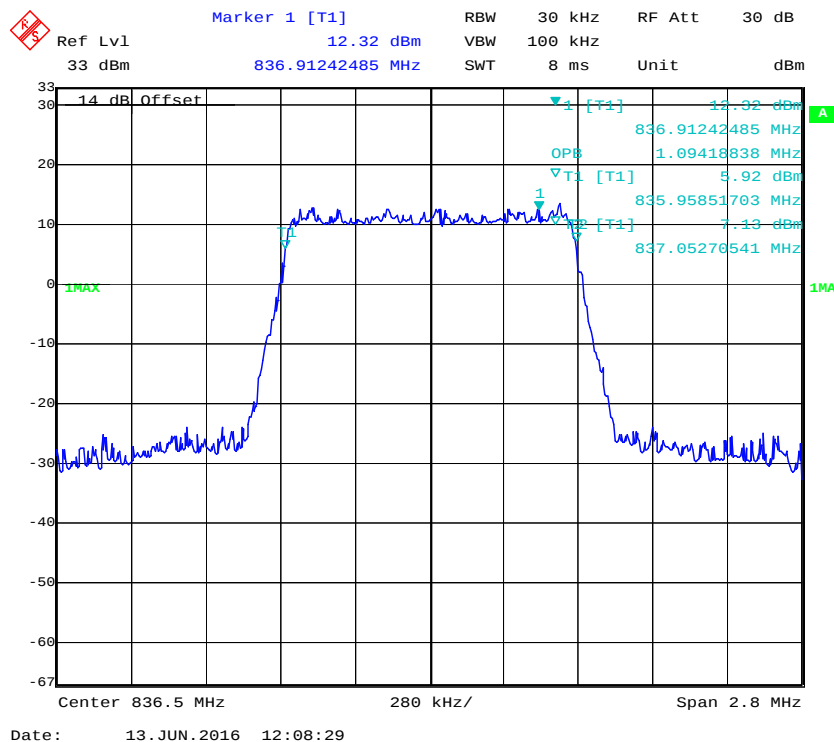
Center 1.7325 GHz
 4 MHz/
 Span 40 MHz

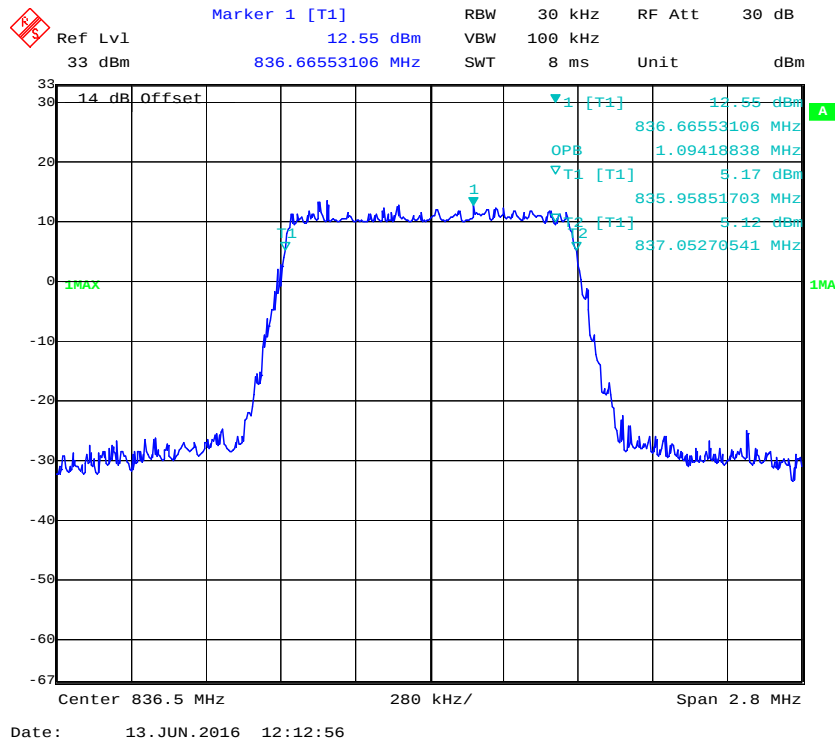
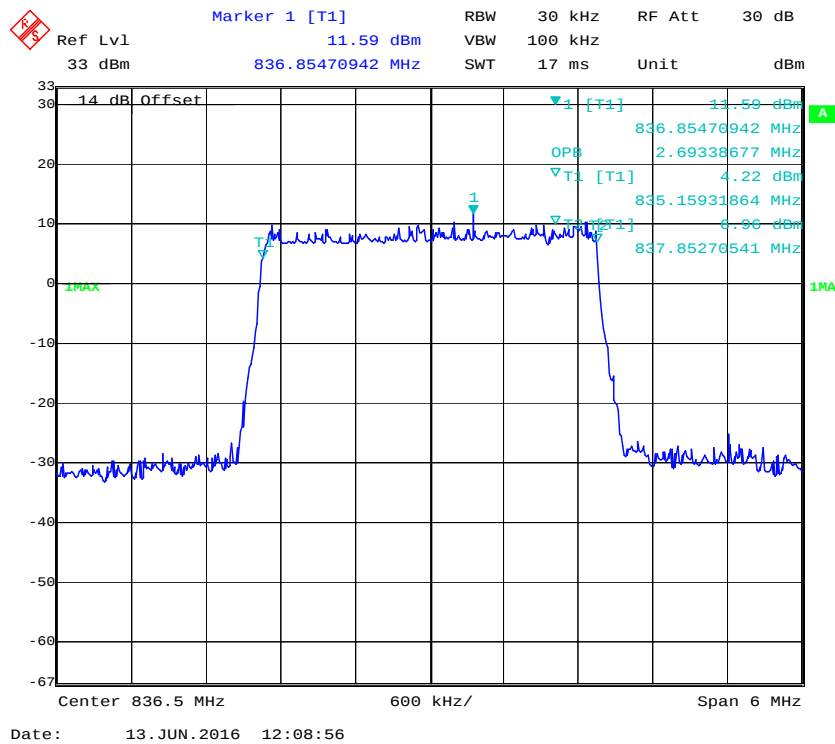
Date: 14. JUN. 2016 15:21:33

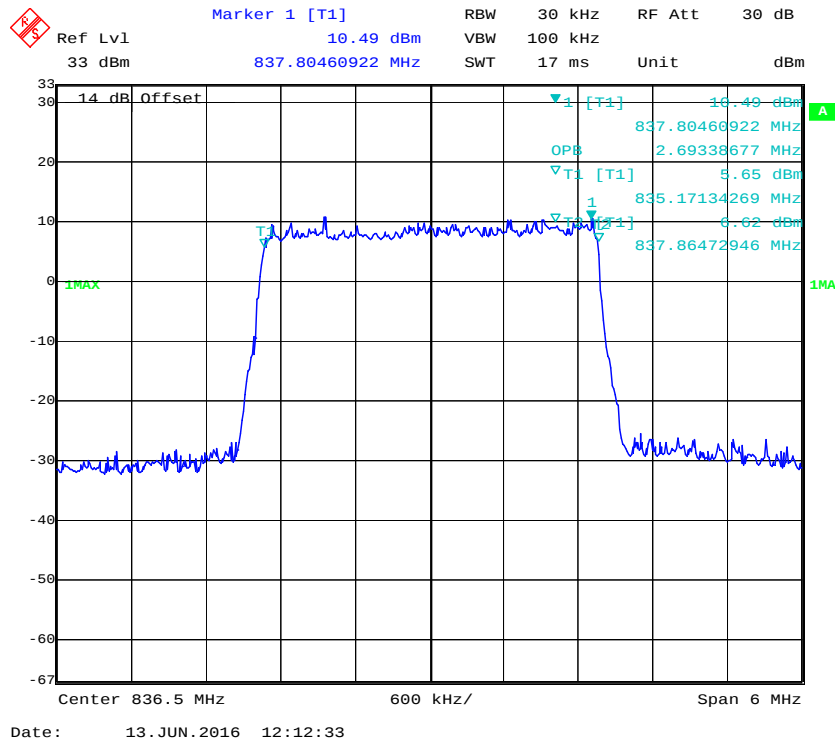
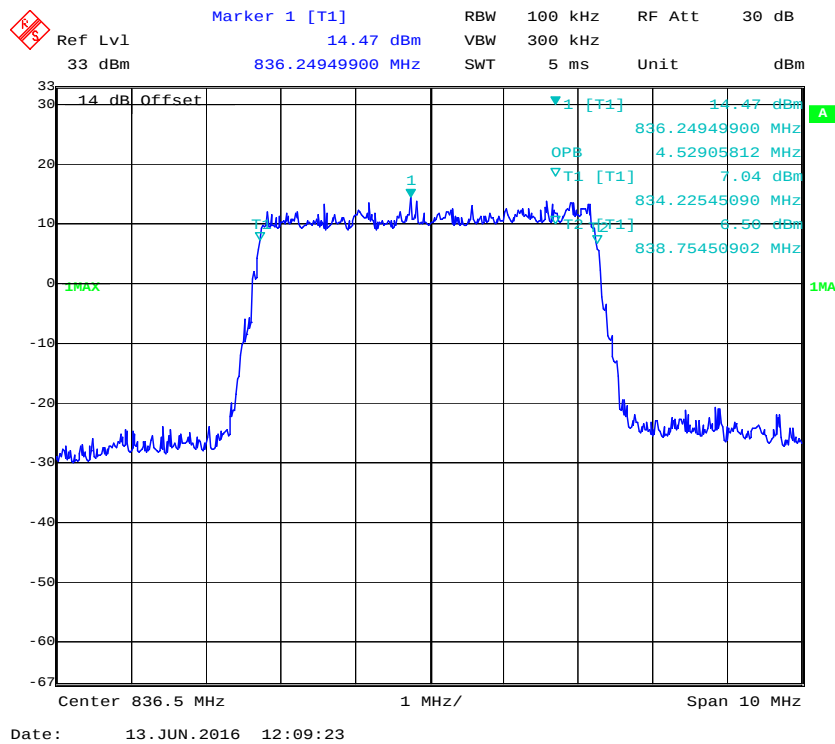
LTE Band 5: (Middle Channel)

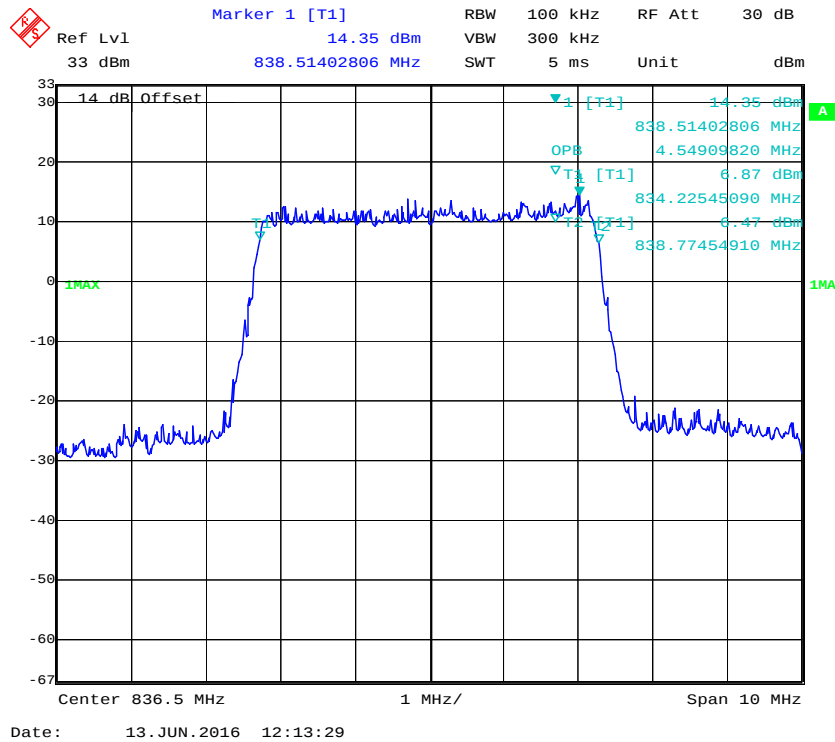
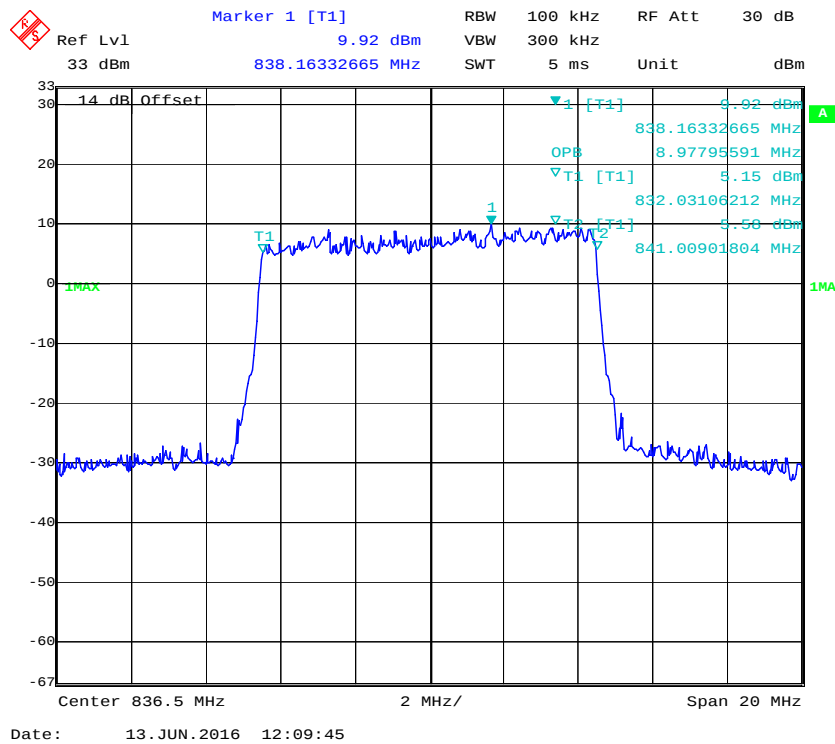
Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	1.094	1.263
	16QAM	1.094	1.274
3.0	QPSK	2.693	2.910
	16QAM	2.693	2.886
5.0	QPSK	4.529	5.010
	16QAM	4.549	5.030
10.0	QPSK	8.978	9.820
	16QAM	8.978	9.659

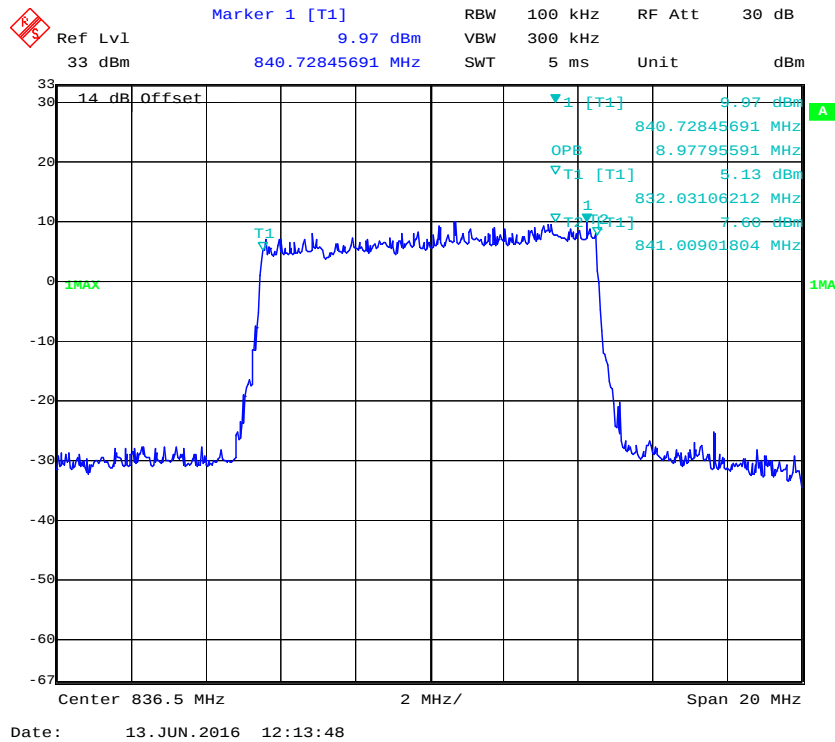
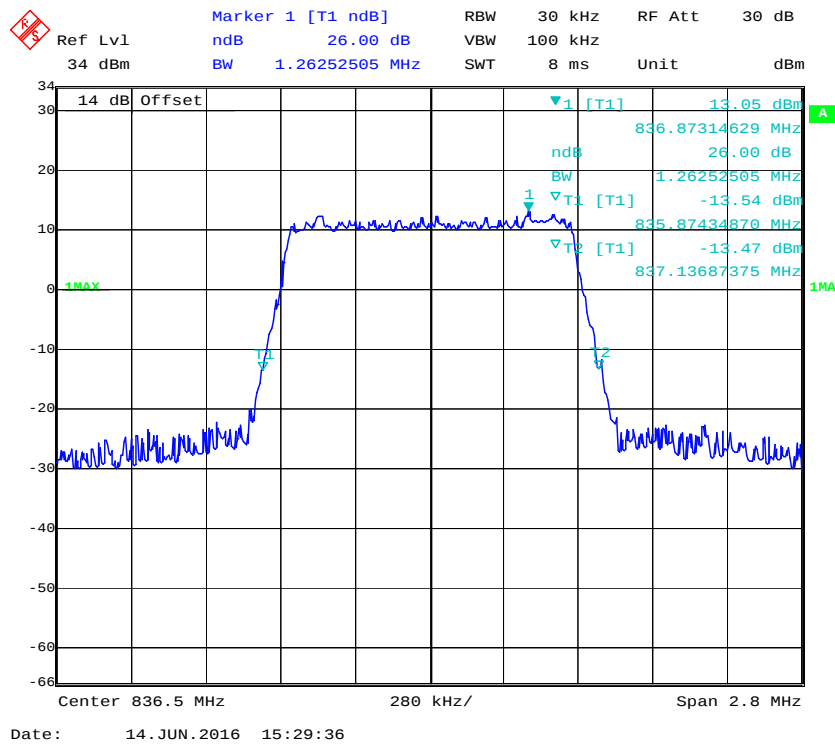
QPSK (1.4 MHz) Occupied Bandwidth Middle channel

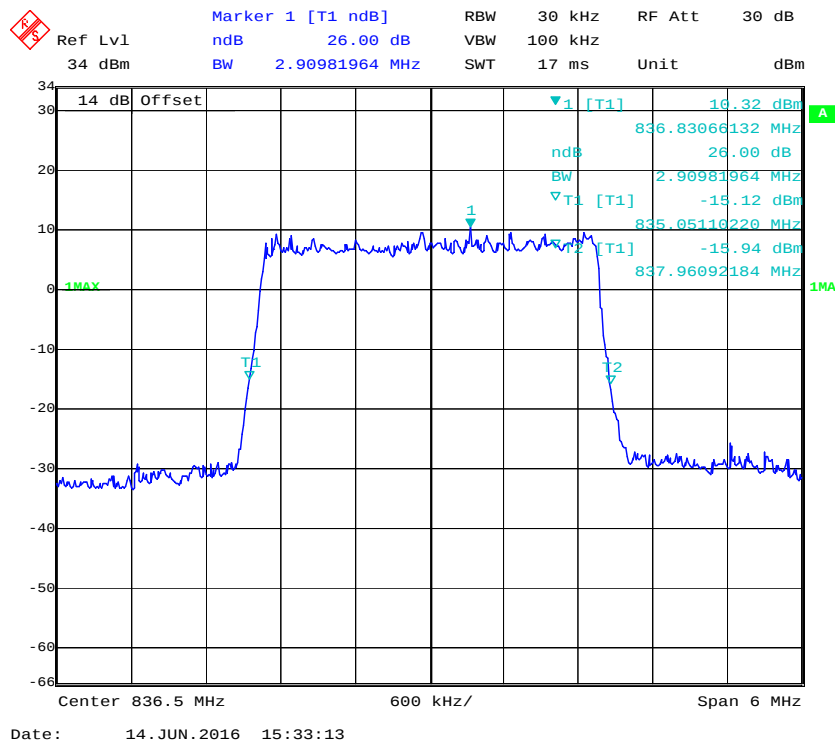
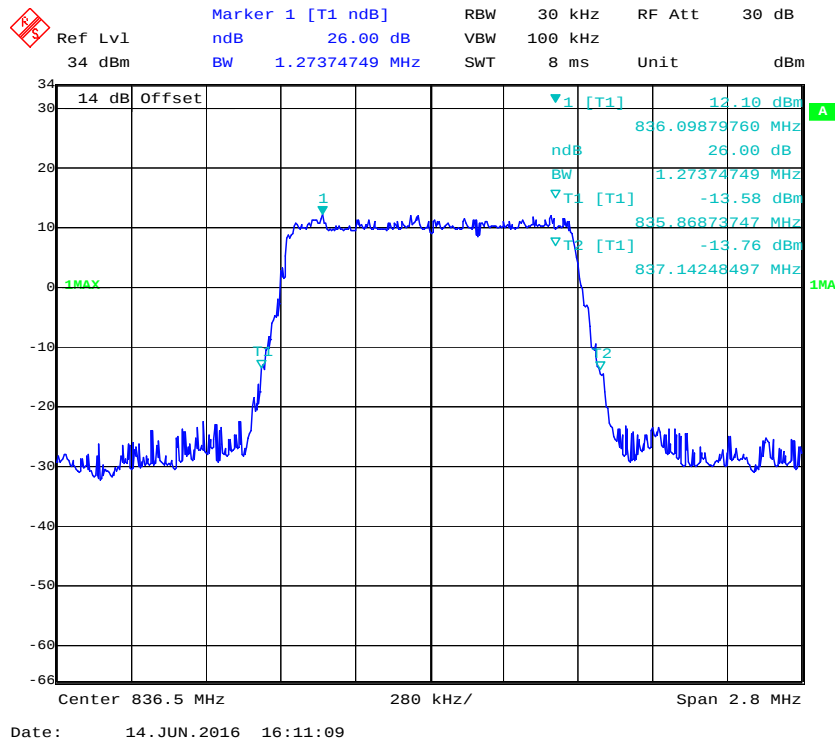


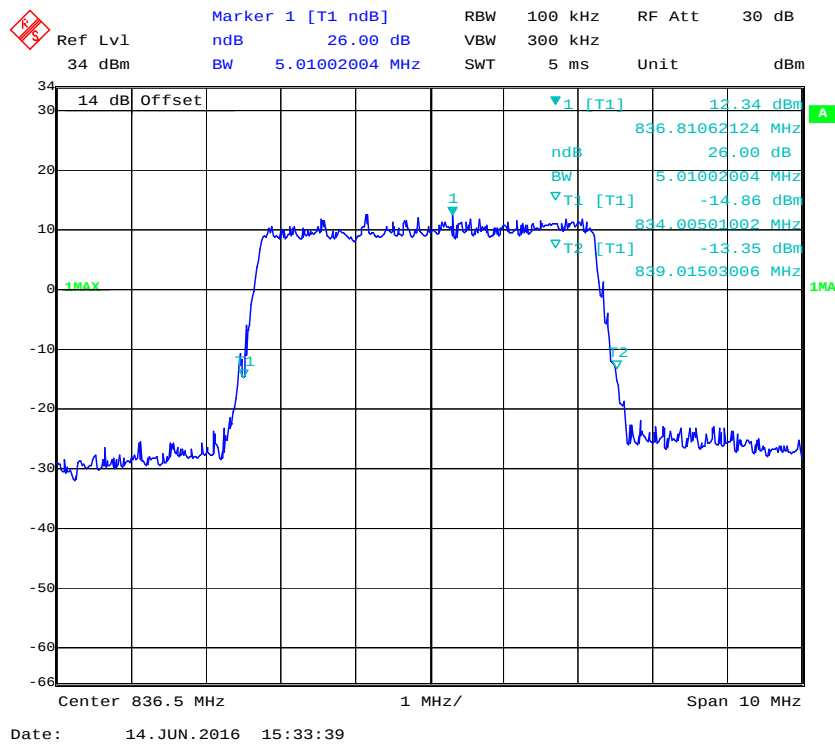
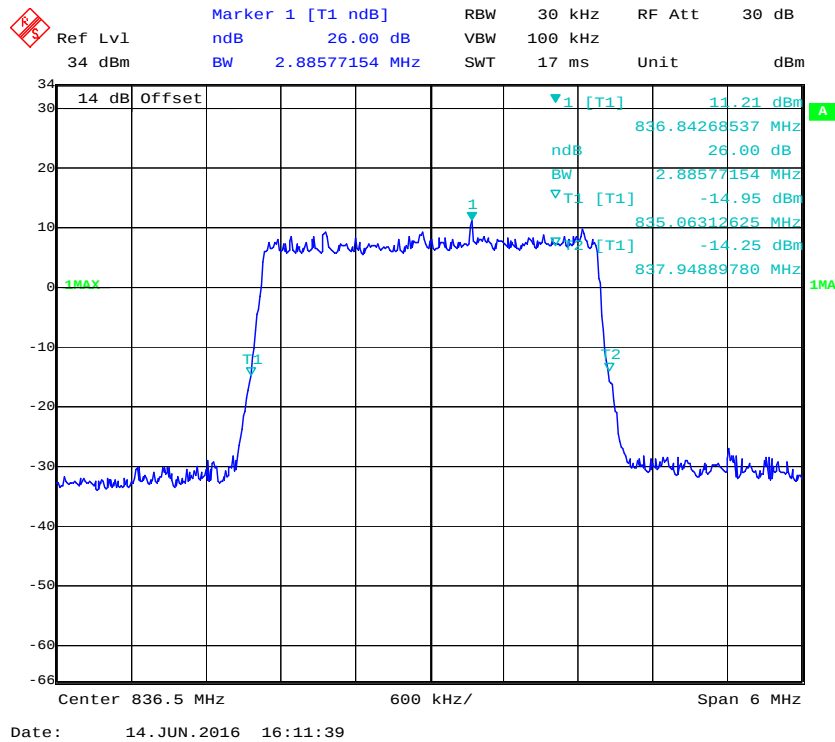
16-QAM (1.4 MHz) Bandwidth Middle channel**QPSK (3.0 MHz) Occupied Bandwidth, Middle channel**

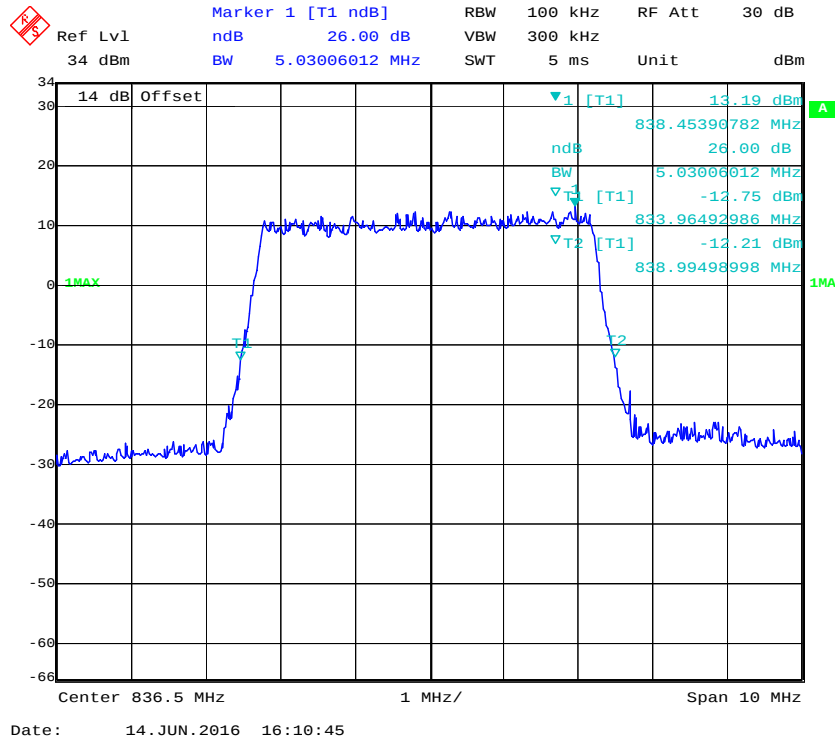
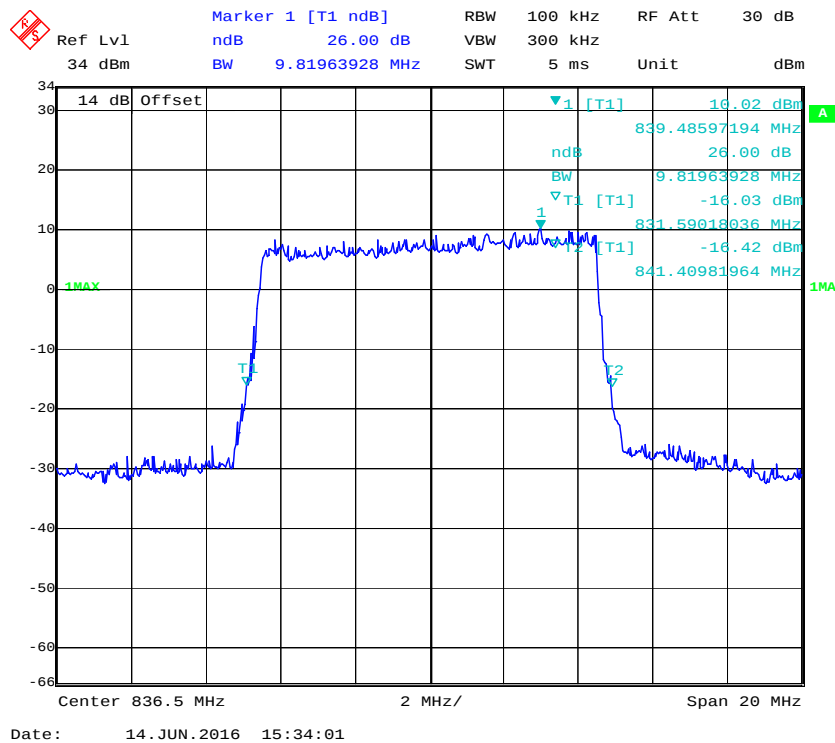
16-QAM (3.0 MHz) Bandwidth, Middle channel**QPSK (5.0 MHz) Occupied Bandwidth, Middle channel**

16-QAM (5.0 MHz) Occupied Bandwidth, Middle channel**QPSK (10.0 MHz) Occupied Bandwidth, Middle channel**

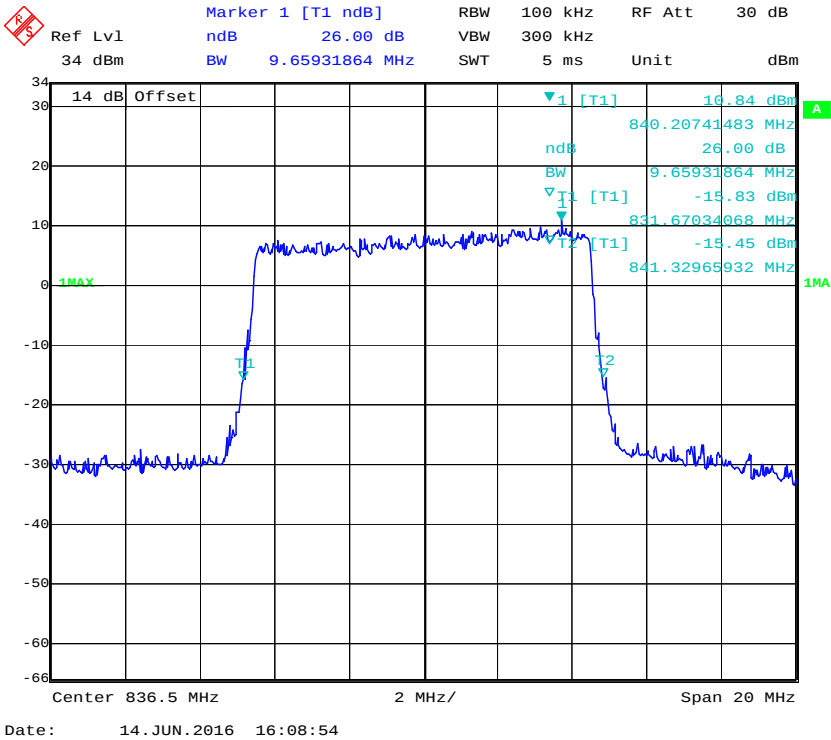
16-QAM (10.0 MHz) Bandwidth, Middle channel**QPSK (1.4 MHz) 26dB Bandwidth Middle channel**





16-QAM (5.0 MHz) 26dB Bandwidth, Middle channel**QPSK (10.0 MHz) 26dB Bandwidth, Middle channel**

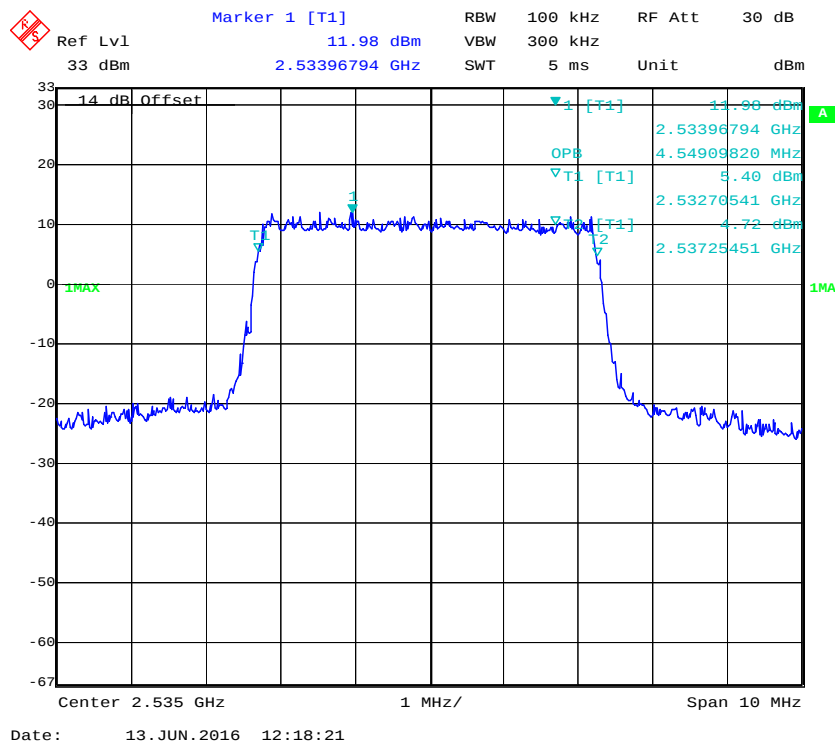
16-QAM (10.0 MHz) 26dB Bandwidth, Middle channel

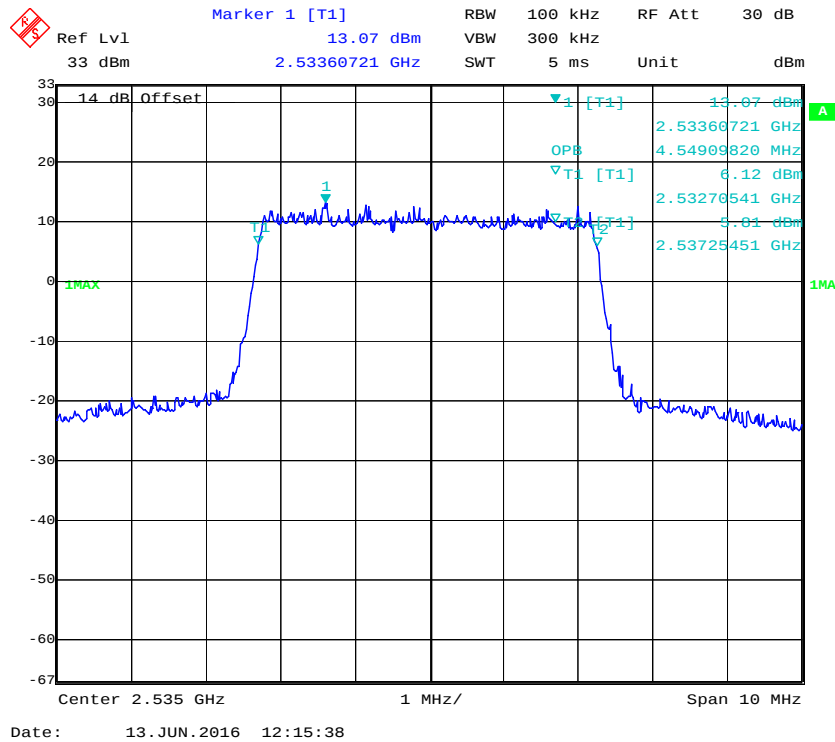
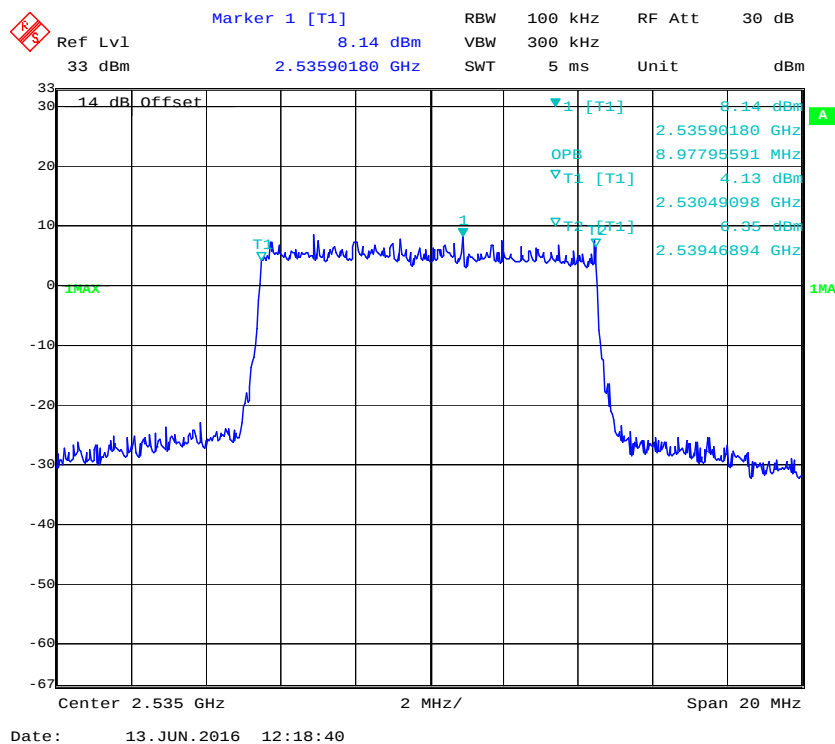


LTE Band 7: (Middle Channel)

Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.549	5.030
	16QAM	4.549	5.050
10.0	QPSK	8.978	9.900
	16QAM	8.978	9.739
15.0	QPSK	13.527	14.910
	16QAM	13.527	14.970
20.0	QPSK	17.956	19.399
	16QAM	17.956	19.399

QPSK (5.0 MHz) Occupied Bandwidth, Middle channel



16-QAM (5.0 MHz) Occupied Bandwidth, Middle channel**QPSK (10.0 MHz) Occupied Bandwidth, Middle channel**

Ref Lvl 33 dBm

Marker 1 [T1] 7.48 dBm

2.53185371 GHz

RBW 100 kHz RF Att 30 dB

VBW 300 kHz

SWT 5 ms Unit dBm

14 dB Offset

OPB

T1 [T1] 7.48 dBm

2.53185371 GHz

8.97795591 MHz

T2 [T1] 3.08 dBm

2.53049098 GHz

T2 [T1] 2.93 dBm

2.53946894 GHz

1MAX

1MAX

Center 2.535 GHz

2 MHz/

Span 20 MHz

Date: 13 JUN 2016 12:16:07

Ref Lvl 33 dBm

Marker 1 [T1] 11.98 dBm 2.53262525 GHz

RBW 300 kHz RF Att 30 dB

VBW 1 MHz

SWT 5 ms Unit dBm

14 dB Offset

13.52705411 MHz 13.52823647 GHz

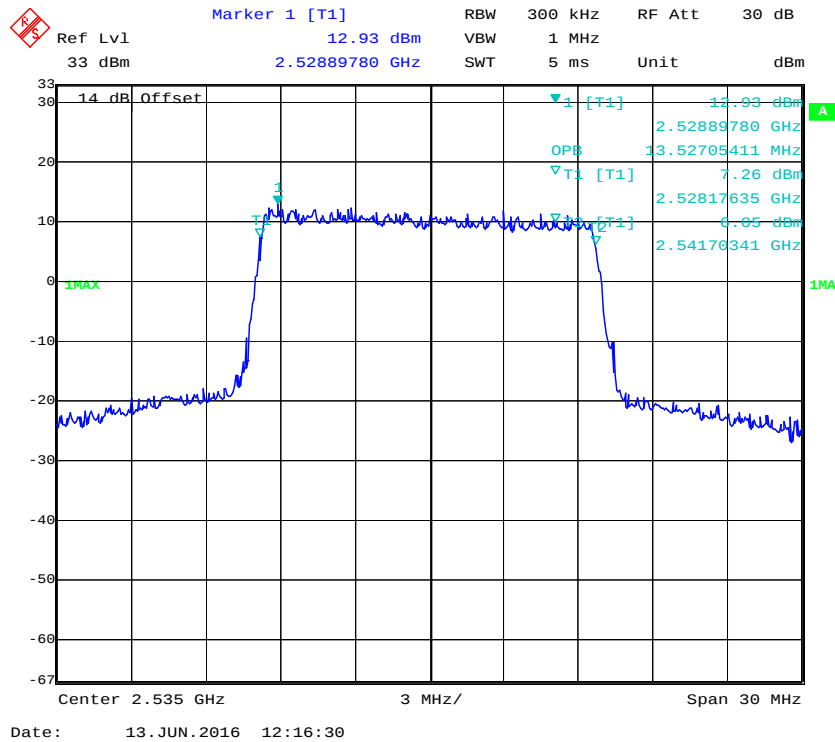
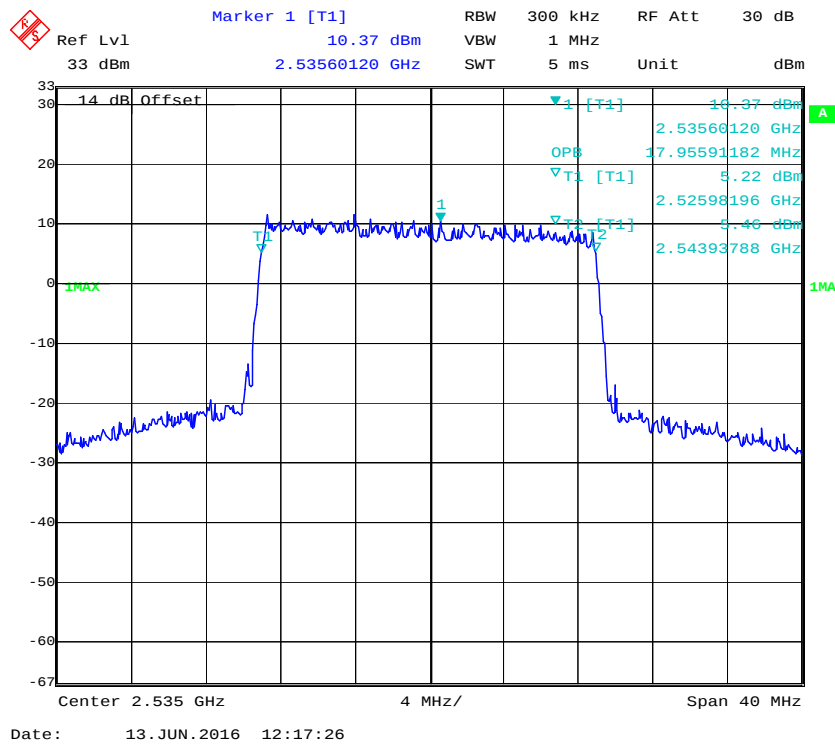
13.5262525 GHz 13.52705411 MHz

11.98 dBm 7.95 dBm

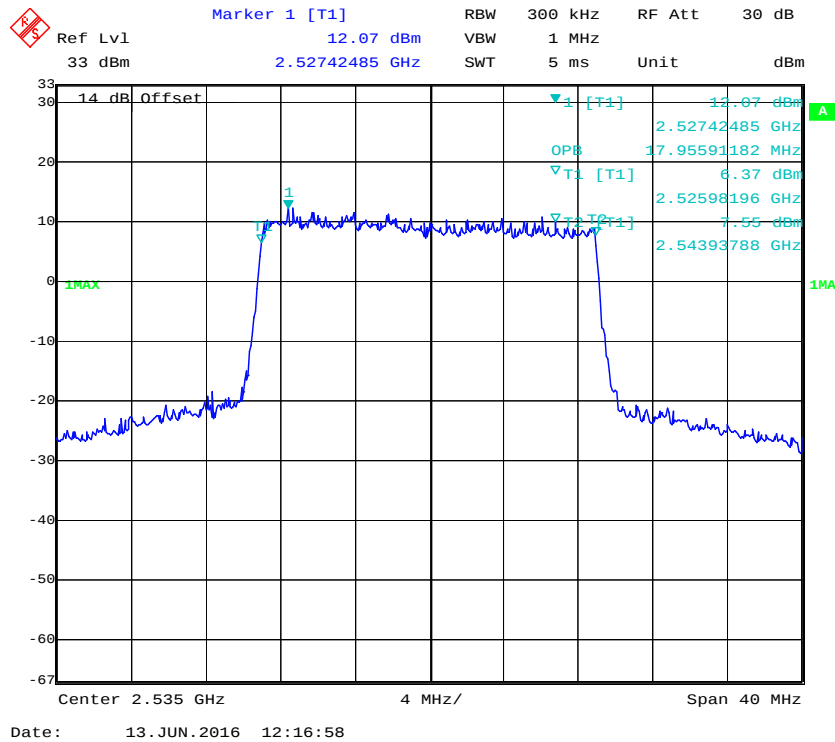
7.53 dBm 2.54176353 GHz

Center 2.535 GHz 3 MHz/ Span 30 MHz

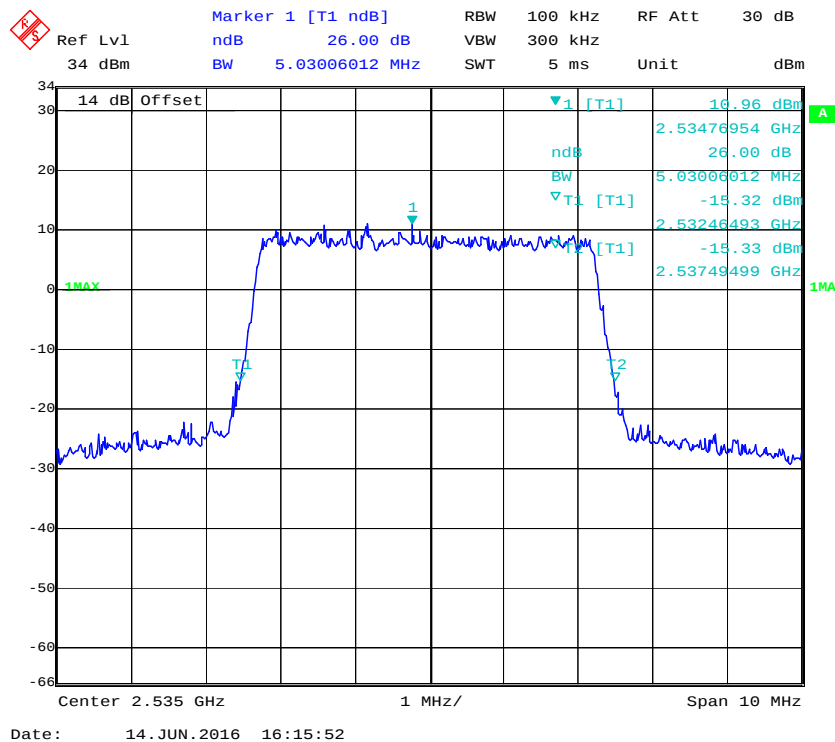
Date: 13.JUN.2016 12:17:51

16-QAM (15.0 MHz) Bandwidth, Middle channel**QPSK (20.0 MHz) Occupied Bandwidth, Middle channel**

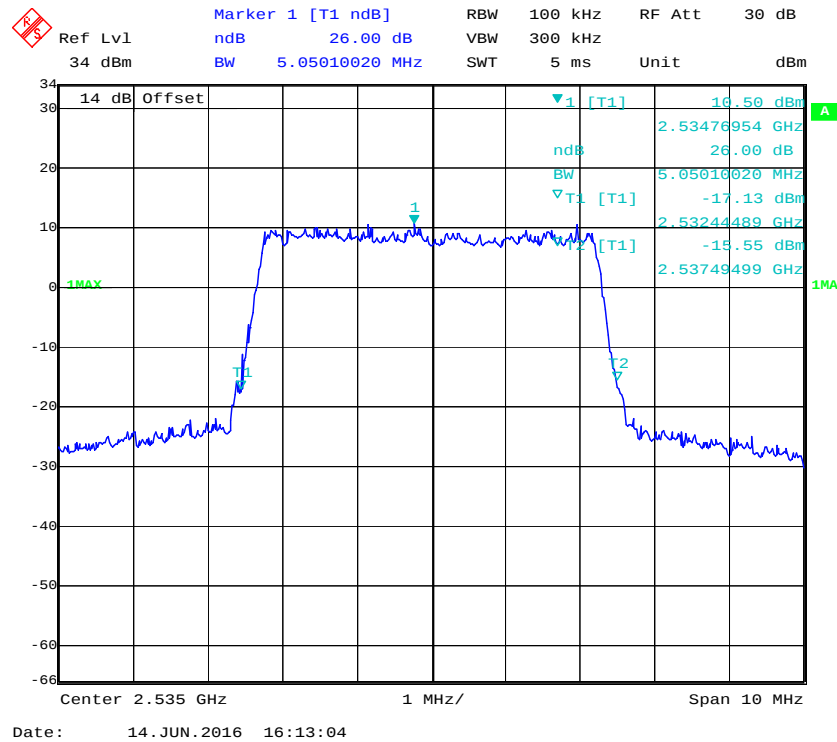
16-QAM (20.0 MHz) Bandwidth, Middle channel



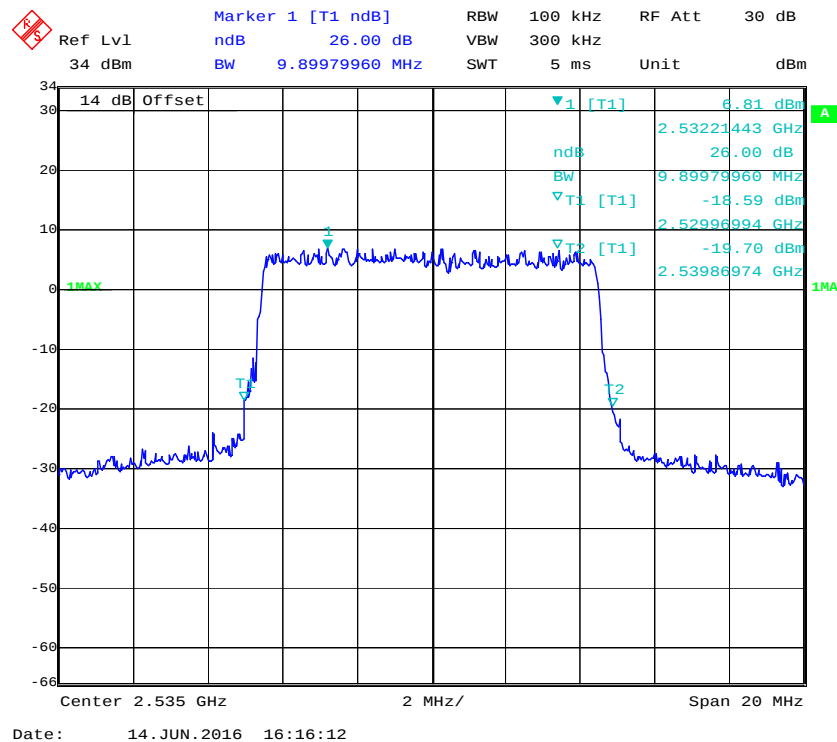
QPSK (5.0 MHz) 26dB Bandwidth, Middle channel



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



QPSK (10.0 MHz) 26dB Bandwidth, Middle channel



Ref Lvl 34 dBm ndB 26.00 dB VBW 1 MHz RBW 300 kHz RF Att 30 dB

34 dBm BW 14.96993988 MHz SWT 5 ms Unit dBm

Marker	Type	Frequency (GHz)	Power (dBm)
1	T1	2.54086172	10.85
2	T1	2.52751503	-15.81
3	T1	2.54248497	-15.74

Center 2.535 GHz 3 MHz/ Span 30 MHz

Date: 14. JUN. 2016 16:14:15

Marker 1 [T1 ndB]

Ref Lvl	ndB	26.00 dB	VBW	1 MHz	RBW	300 kHz	RF Att	30 dB
34 dBm	BW	19.39879760 MHz	SWT	5 ms	Unit		dBm	

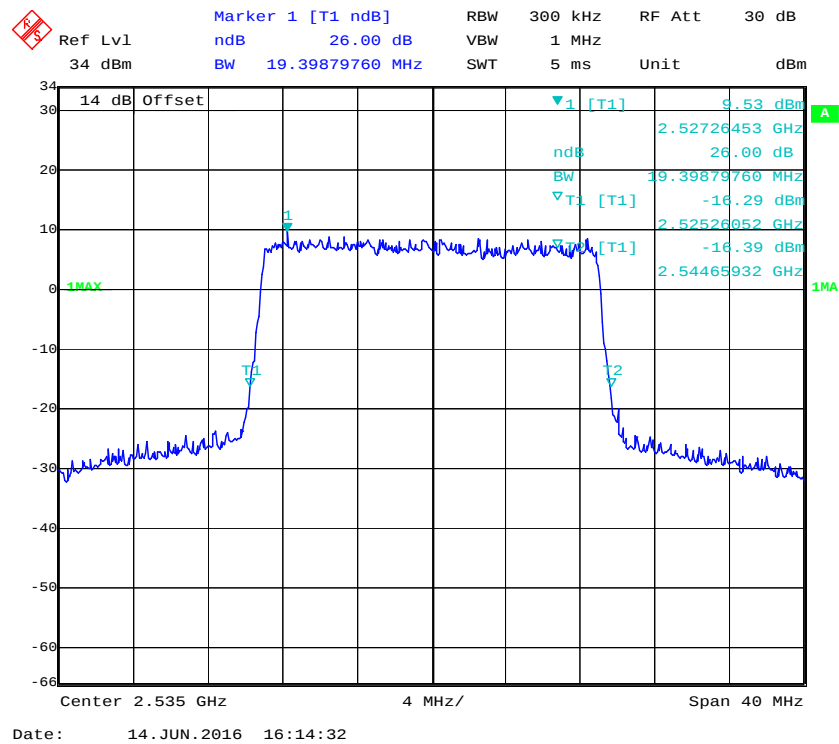
Trace Data:

Marker	Freq [GHz]	Power [dBm]
T1	2.52934870	-15.86
T2	2.54465932	-16.05

Plot Settings:

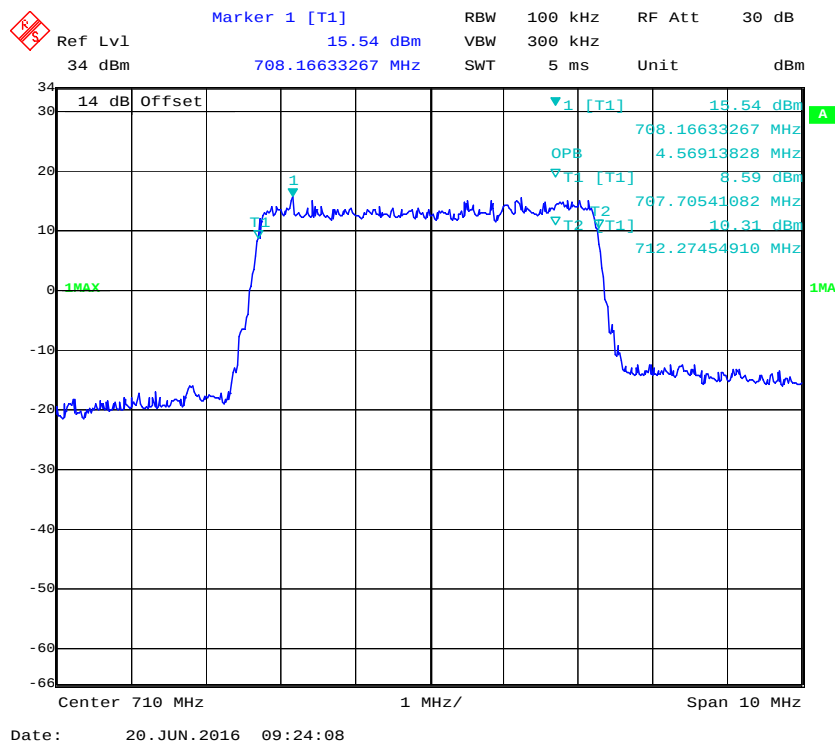
- Center: 2.535 GHz
- Span: 40 MHz
- Resolution Bandwidth (RBW): 300 kHz
- Video Bandwidth (VBW): 1 MHz
- Sweep Time (SWT): 5 ms
- Reference Level (Ref Lvl): 34 dBm
- Attenuation (RF Att): 30 dB

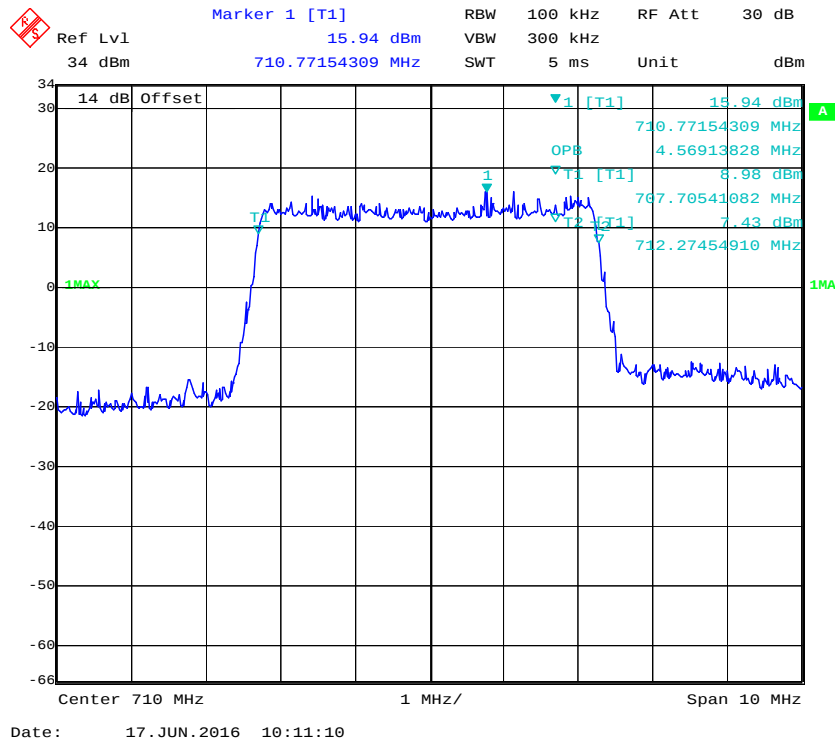
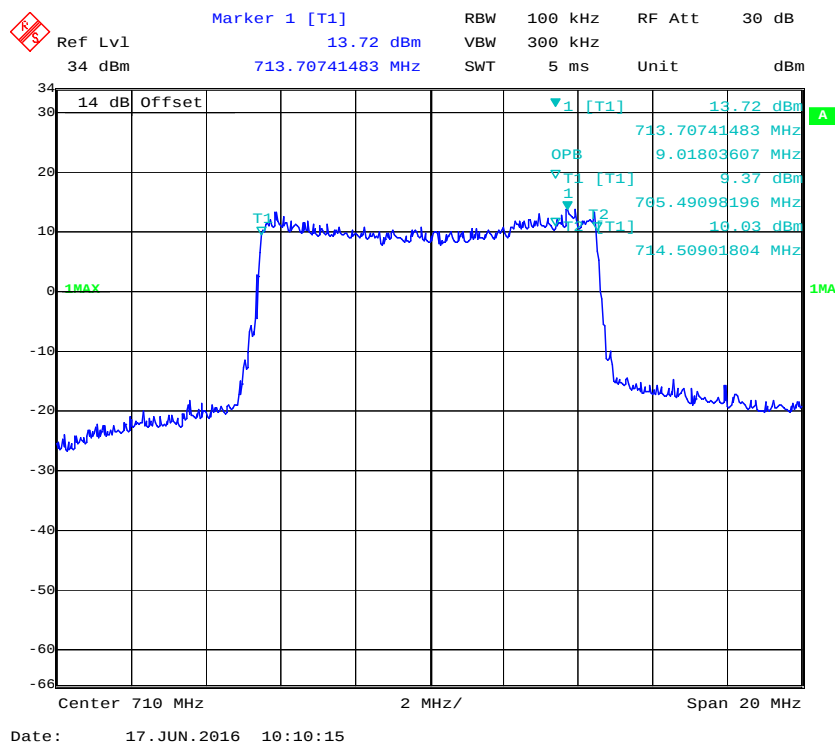
16-QAM (20.0 MHz) Bandwidth, Middle channel



LTE Band 17: (Middle Channel)

Bandwidth (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5.0	QPSK	4.569	5.030
	16QAM	4.569	5.150
10.0	QPSK	9.018	9.820
	16QAM	9.058	9.940

QPSK (5.0 MHz) Occupied Bandwidth, Middle channel

16-QAM (5.0 MHz) Occupied Bandwidth, Middle channel**QPSK (10.0 MHz) Occupied Bandwidth, Middle channel**

Marker 1 [T1] 13.50 dBm

Ref Lvl 34 dBm

713.74749499 MHz

RBW 100 kHz

VBW 300 kHz

SWT 5 ms

RF Att 30 dB

Unit dBm

14 dB Offset

13.50 dBm

713.74749499 MHz

9.05811623 MHz

8.43 dBm

765.49098196 MHz

7.03 dBm

714.54909820 MHz

1MAX

1MA

Center 710 MHz

2 MHz/

Span 20 MHz

Date: 17. JUN. 2016 10:10:40

Ref Lvl 34 dBm

Marker 1 [T1 ndB] 26.00 dB

RBW 100 kHz

VBW 300 kHz

RF Att 30 dB

BW 5.03006012 MHz

SWT 5 ms

Unit dBm

14 dB Offset

16.09 dBm

710.51102204 MHz

26.00 dB

5.03006012 MHz

-16.10 dBm

707.46492986 MHz

-8.79 dBm

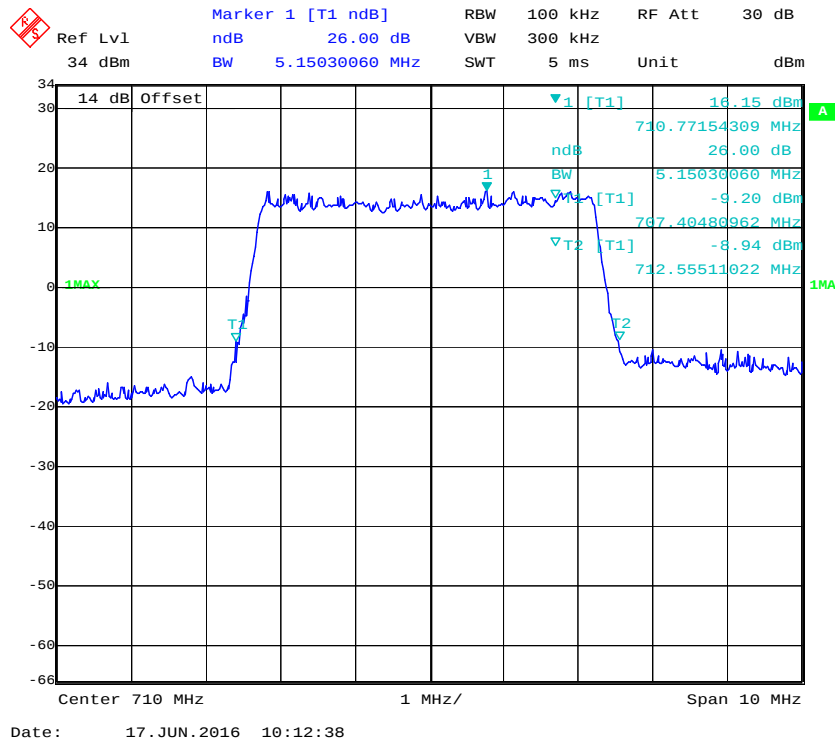
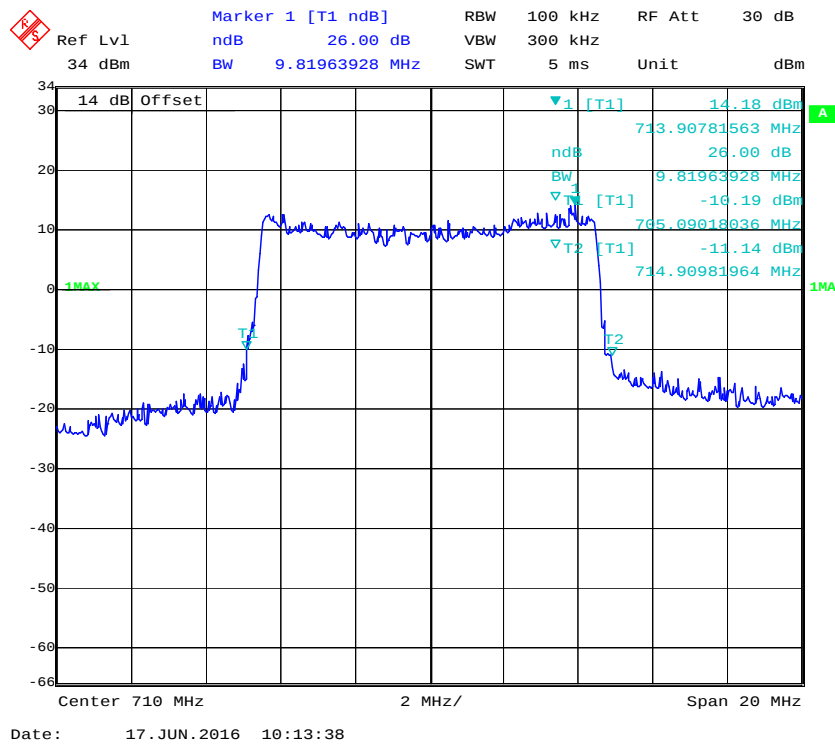
712.49498998 MHz

Center 710 MHz

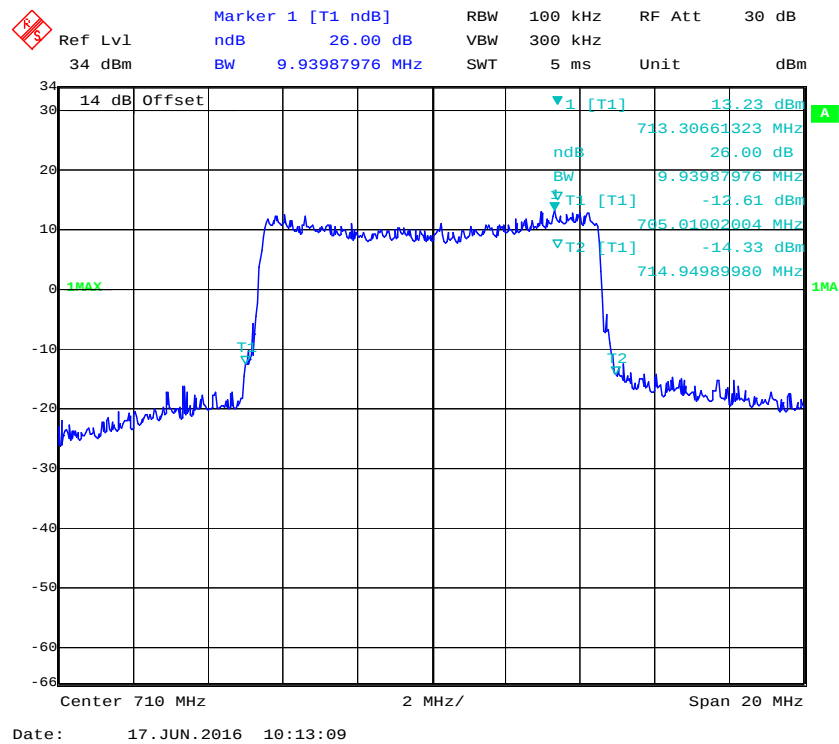
1 MHz/

Span 10 MHz

Date: 17. JUN. 2016 10:14:04

16-QAM (5.0 MHz) 26dB Bandwidth, Middle channel**QPSK (10.0 MHz) 26dB Bandwidth, Middle channel**

16-QAM (10.0 MHz) Bandwidth, Middle channel



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

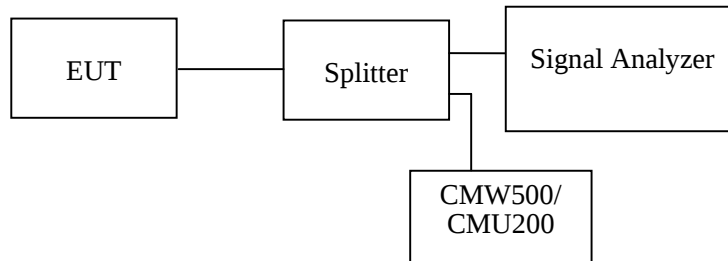
Applicable Standards

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

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

Test Procedure

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2015-12-11	2016-12-11
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2015-11-23	2016-11-23
R&S	Wideband Radio Communication tester	CMW500	1201.002K50-146520-wh	2015-11-23	2016-11-23
Ducommun technologies	RF Cable	RG-214	4	2016-06-15	2017-06-15
WEINSCHTEL	10dB Attenuator	5321	AU0709	2016-06-18	2017-06-18
HONOVA	Power Splitter	HPDL-2W-B-NF	N/A	2016-06-12	2017-06-12

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

Test Data**Environmental Conditions**

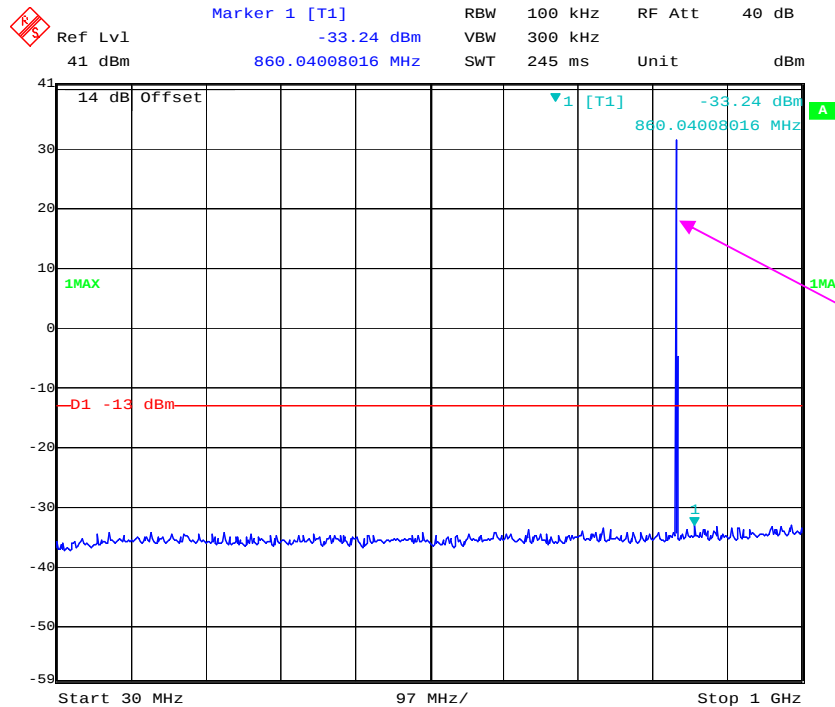
Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.0kPa

The testing was performed by Haiguo Li on 2016-06-13.

Please refer to the following plots.

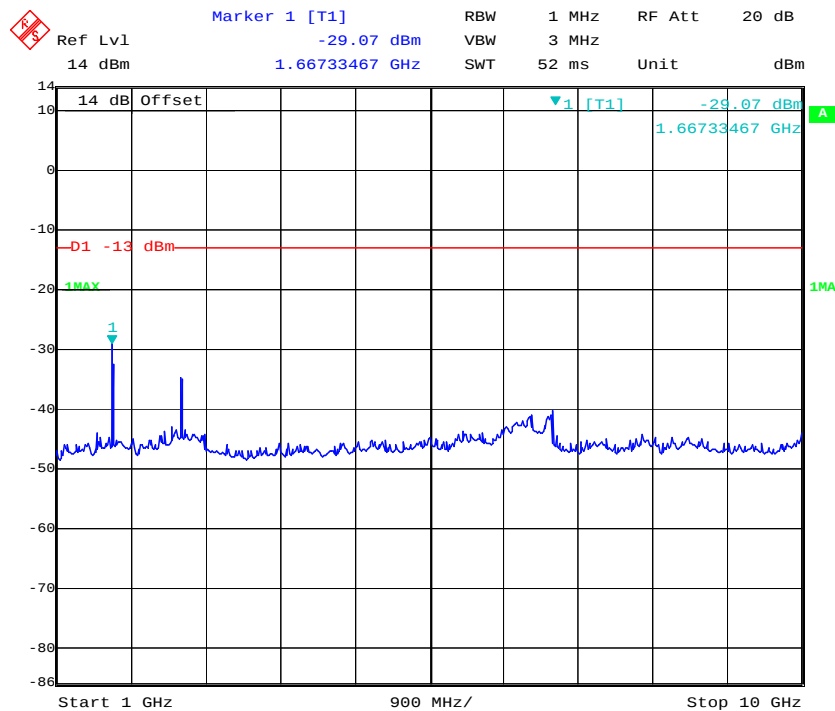
Cellular Band (Part 22H)

30 MHz – 1 GHz (GSM Mode)



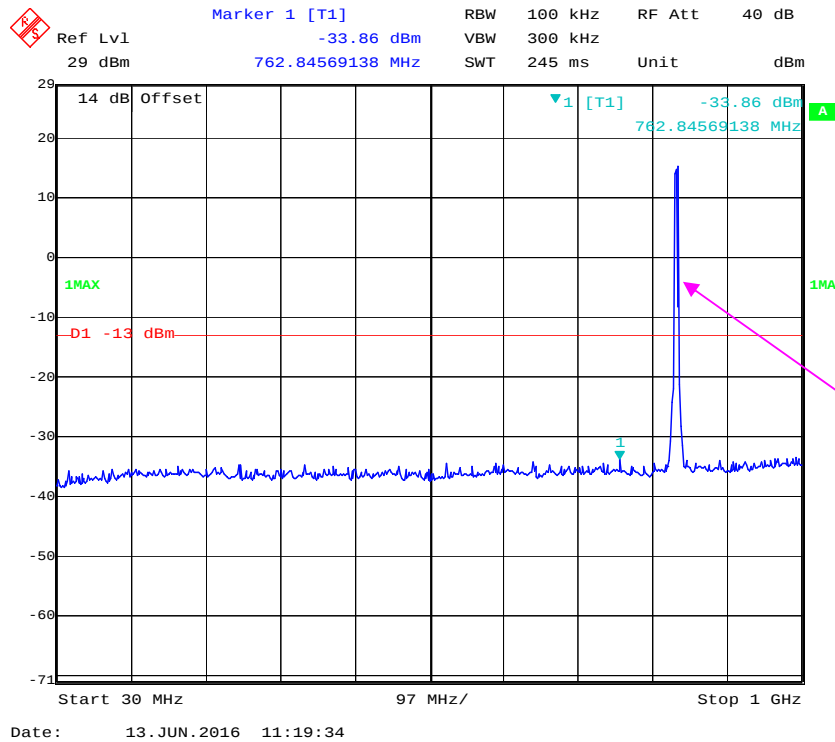
Date: 13.JUN.2016 10:04:22

1 GHz – 10 GHz (GSM Mode)

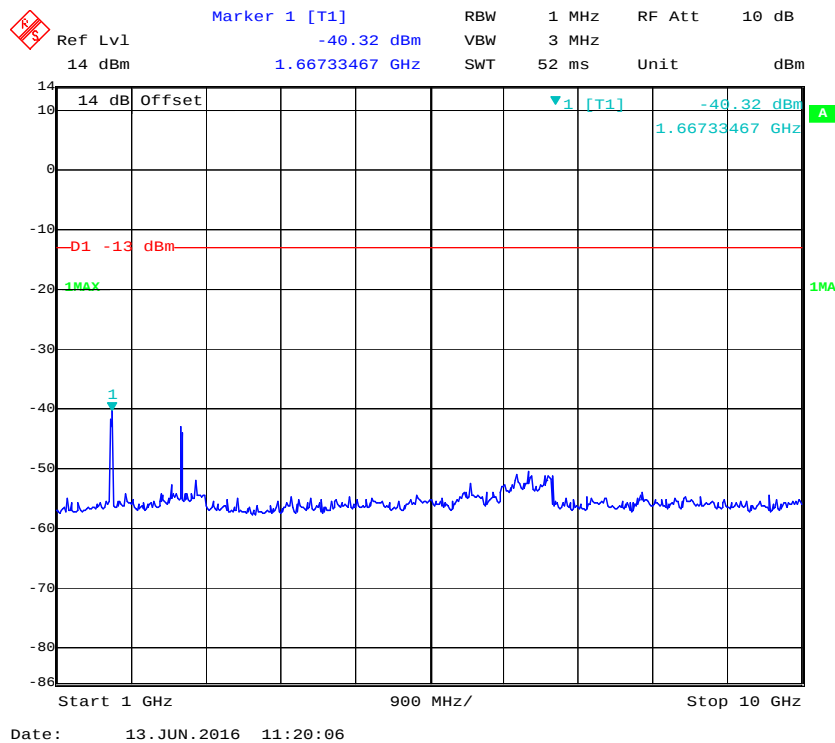


Date: 13.JUN.2016 10:05:28

30 MHz – 1 GHz (WCDMA Mode)

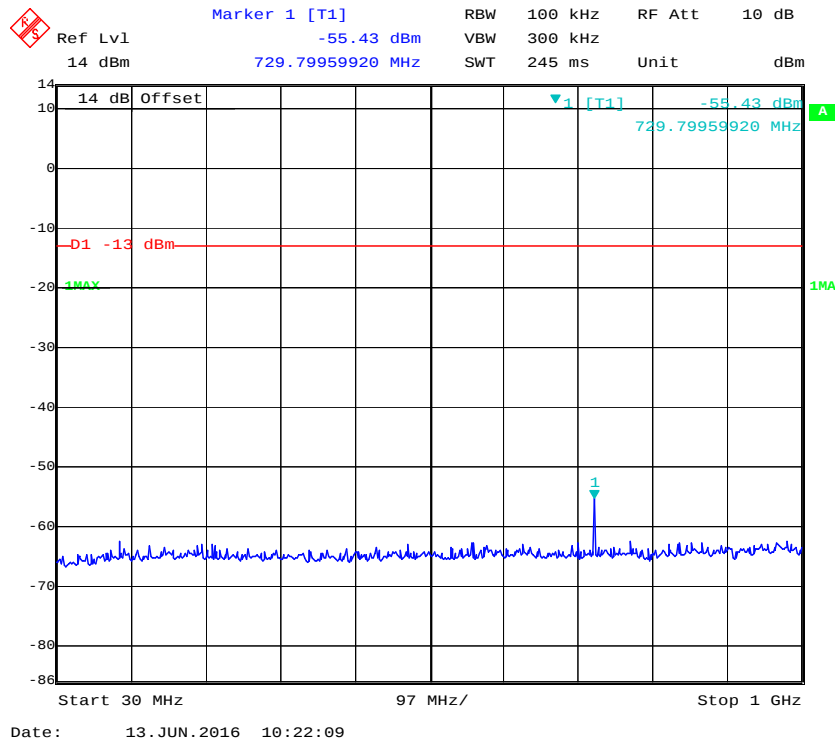


1 GHz – 10 GHz (WCDMA Mode)

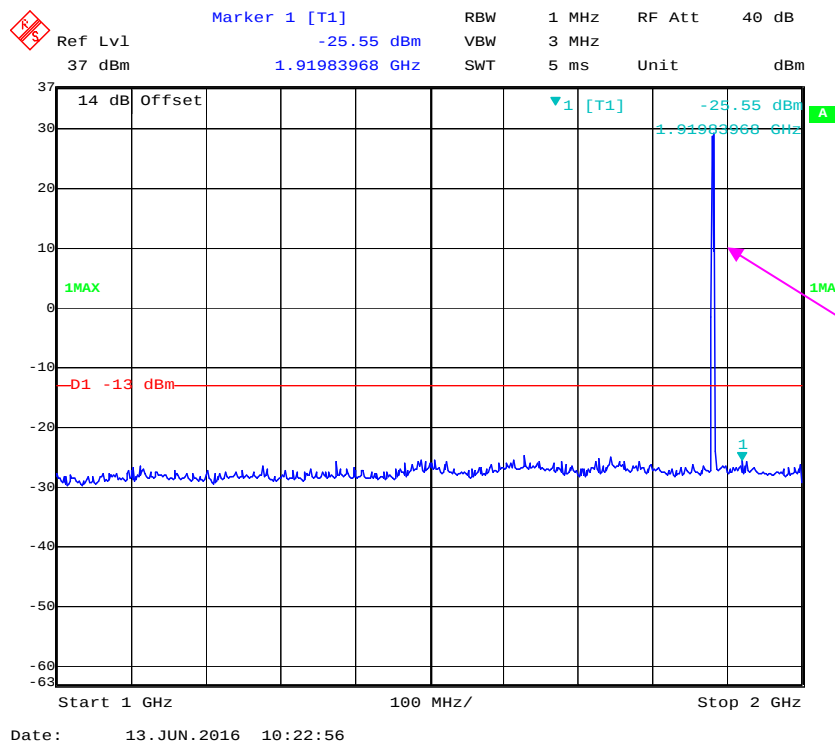


PCS Band (Part 24E)

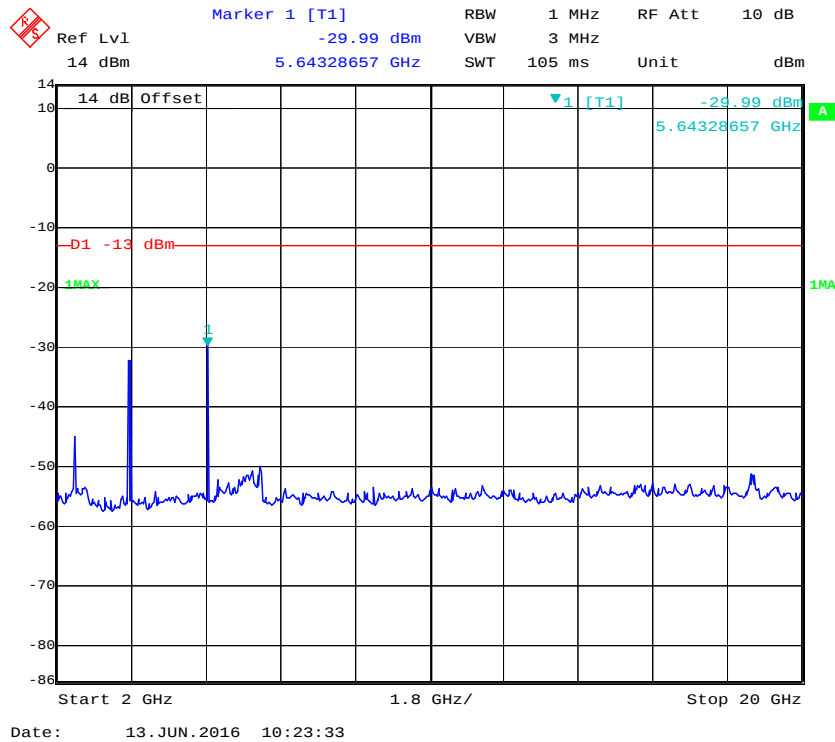
30 MHz – 1 GHz (GSM Mode)



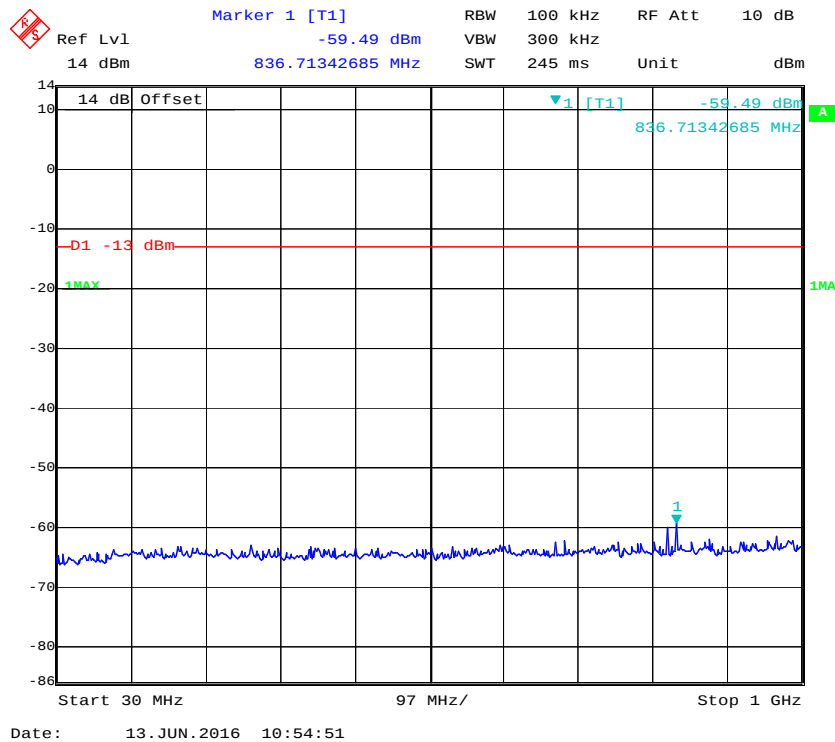
1 GHz – 2 GHz (GSM Mode)



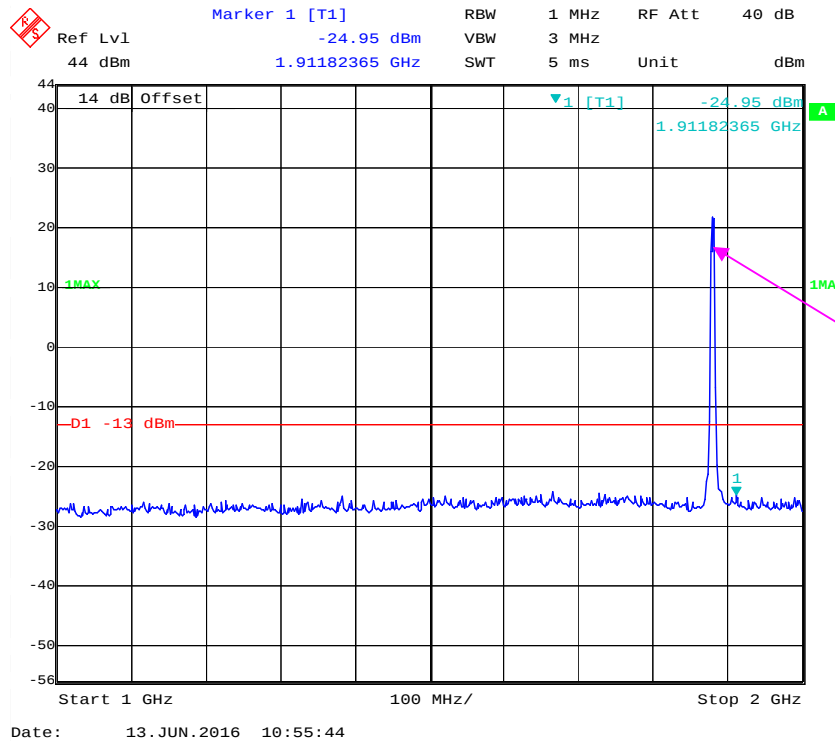
2 GHz – 20 GHz (GSM Mode)



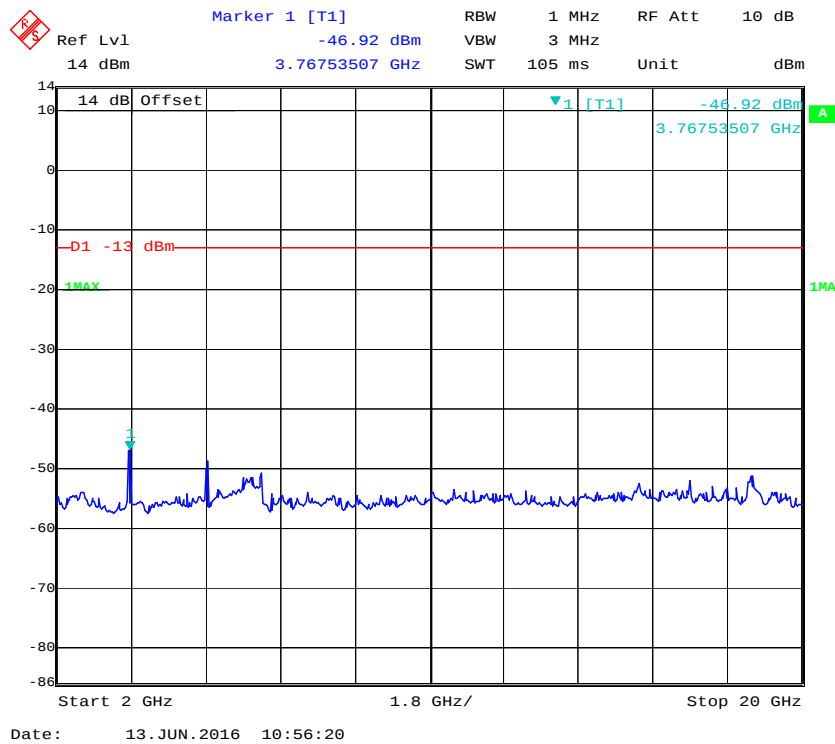
30 MHz – 1 GHz (WCDMA Mode)



1 GHz – 2 GHz (WCDMA Mode)

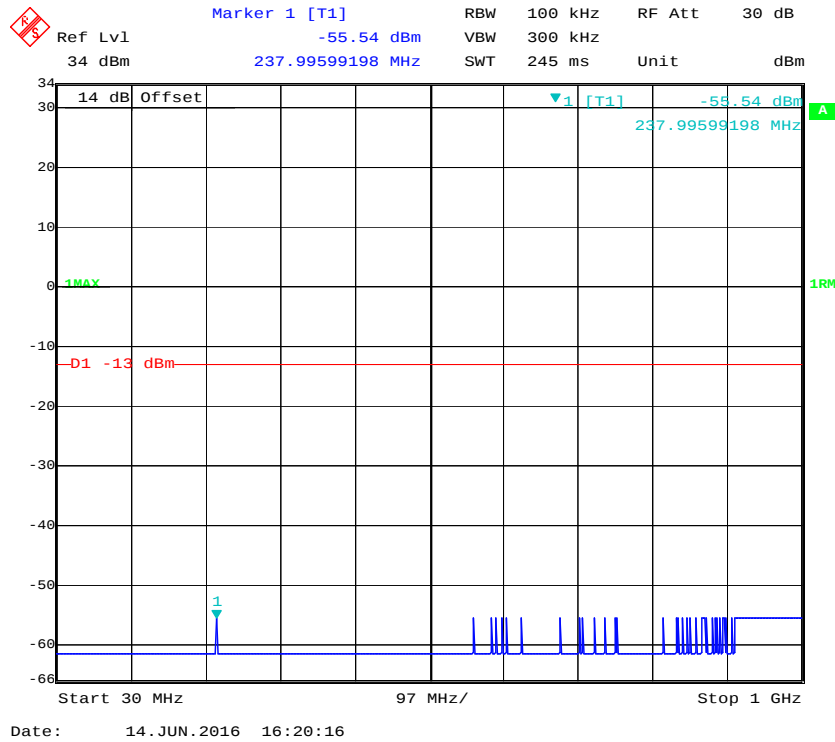


2 GHz – 20 GHz (WCDMA Mode)

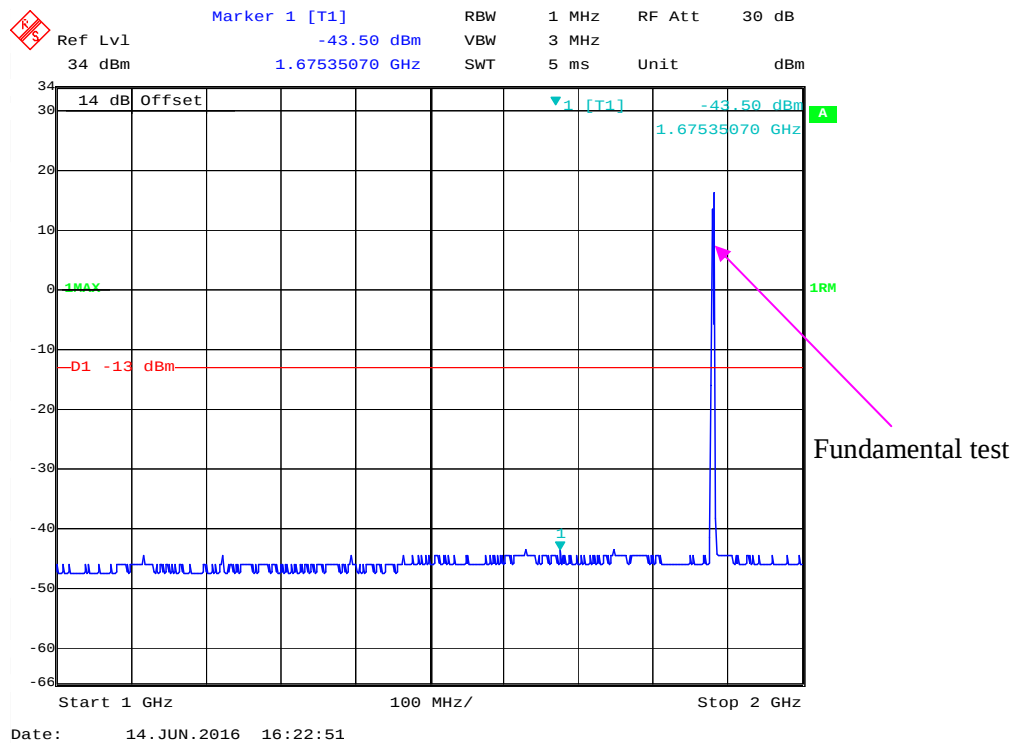


LTE Band 2:

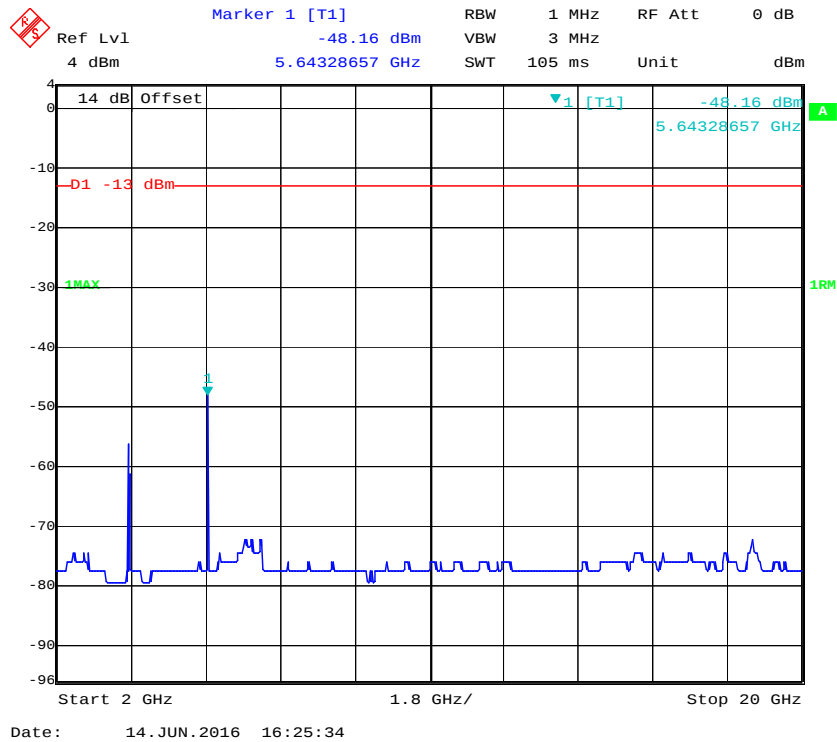
30 MHz - 1 GHz (1.4 MHz, Middle Channel)



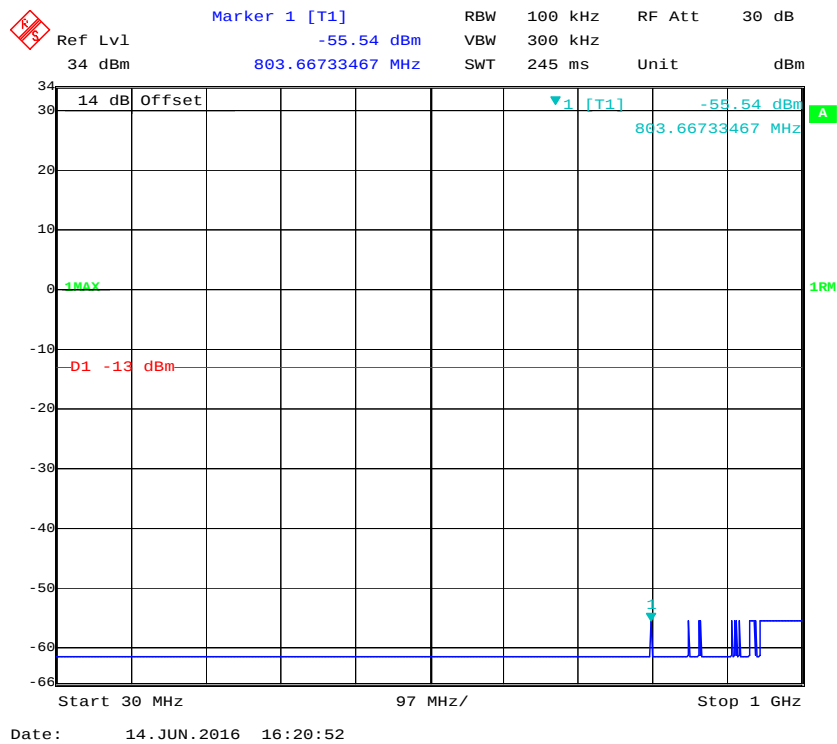
1 GHz - 2 GHz (1.4 MHz, Middle Channel)



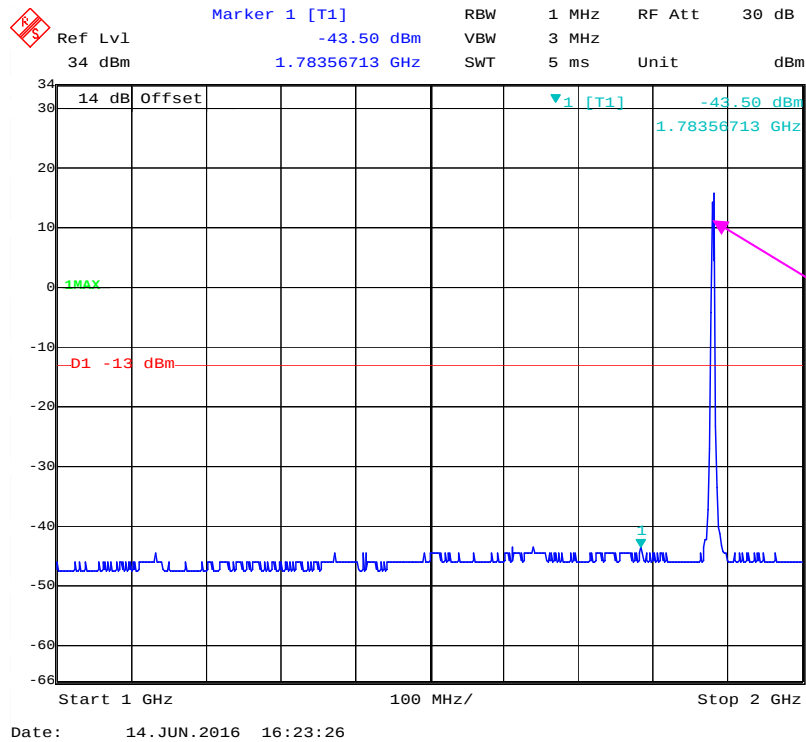
2 GHz – 20 GHz (1.4 MHz, Middle Channel)



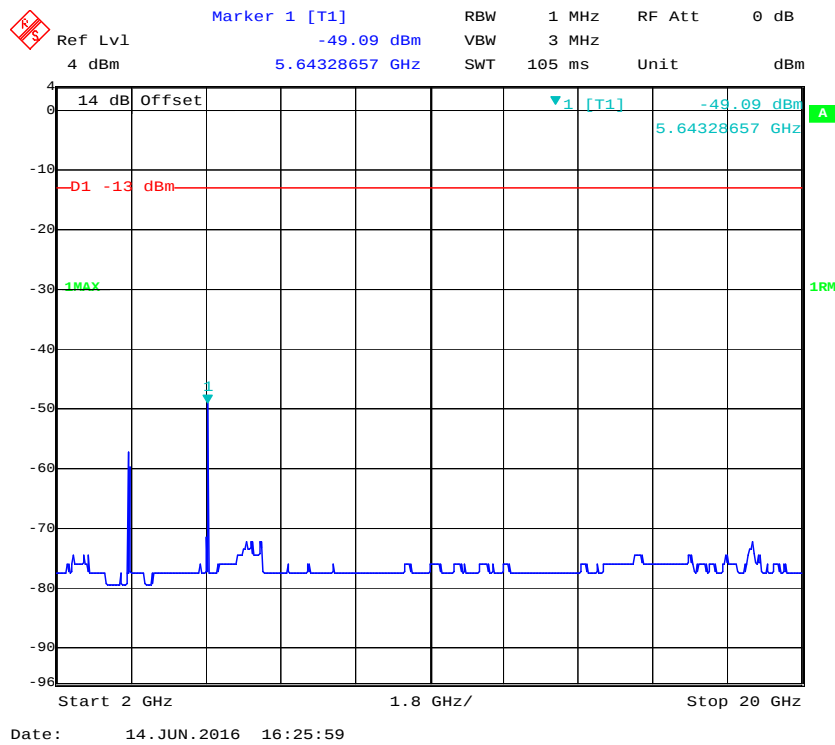
30 MHz - 1 GHz (3.0 MHz, Middle Channel)



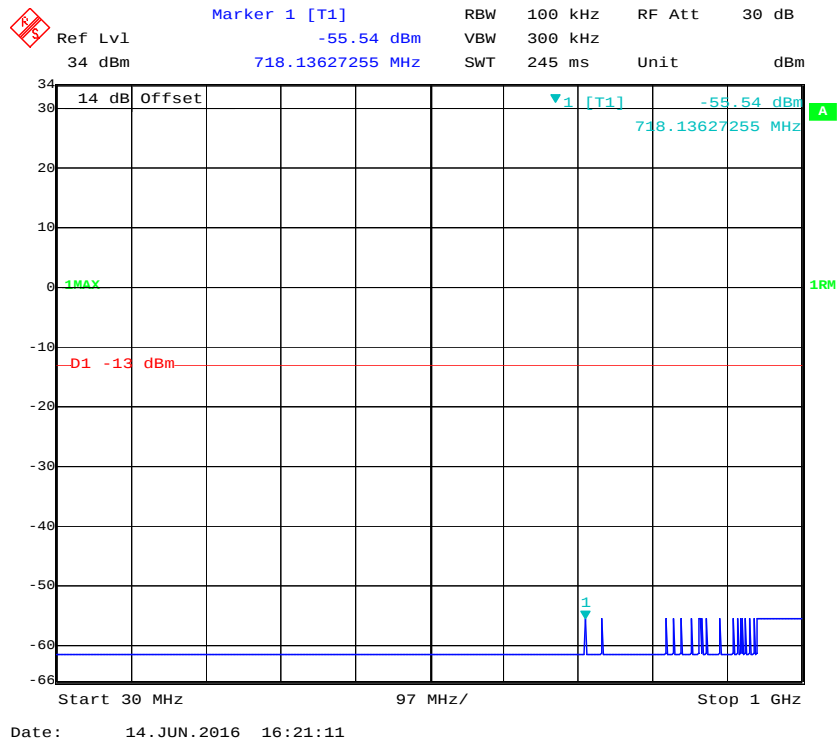
1 GHz – 2 GHz (3.0 MHz, Middle Channel)



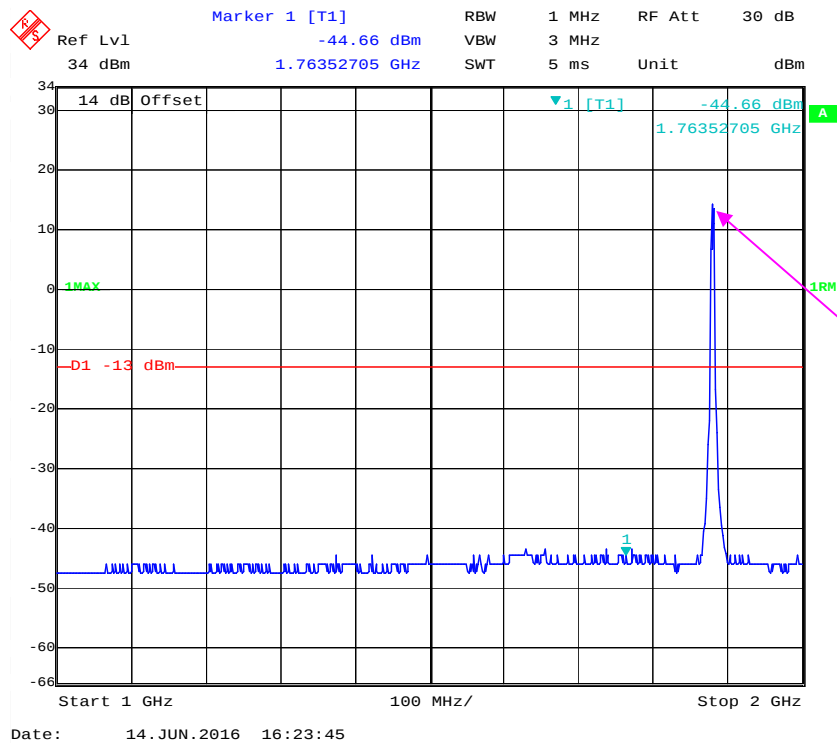
2 GHz – 20 GHz (3.0 MHz, Middle Channel)

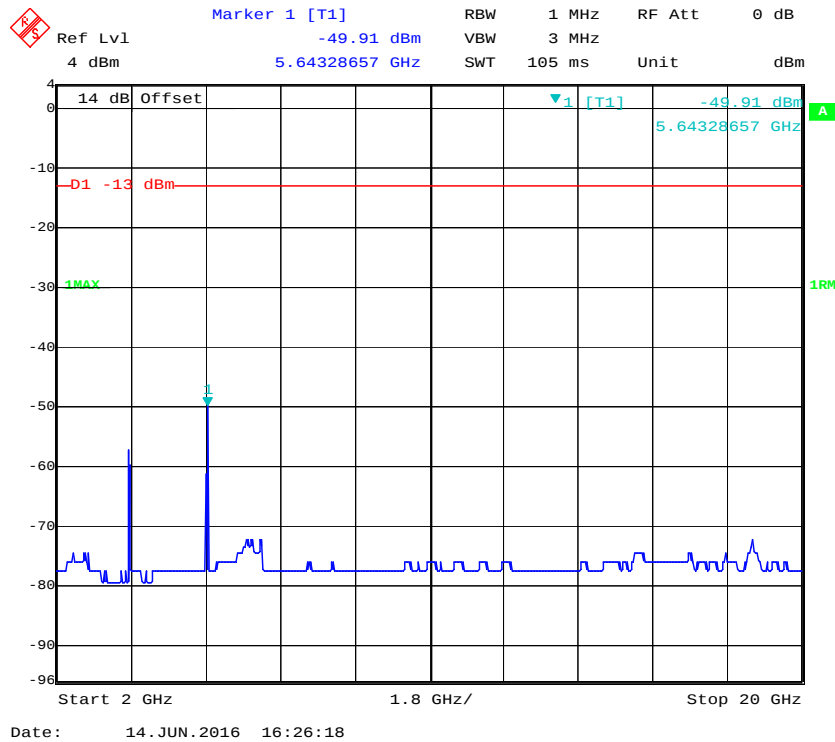
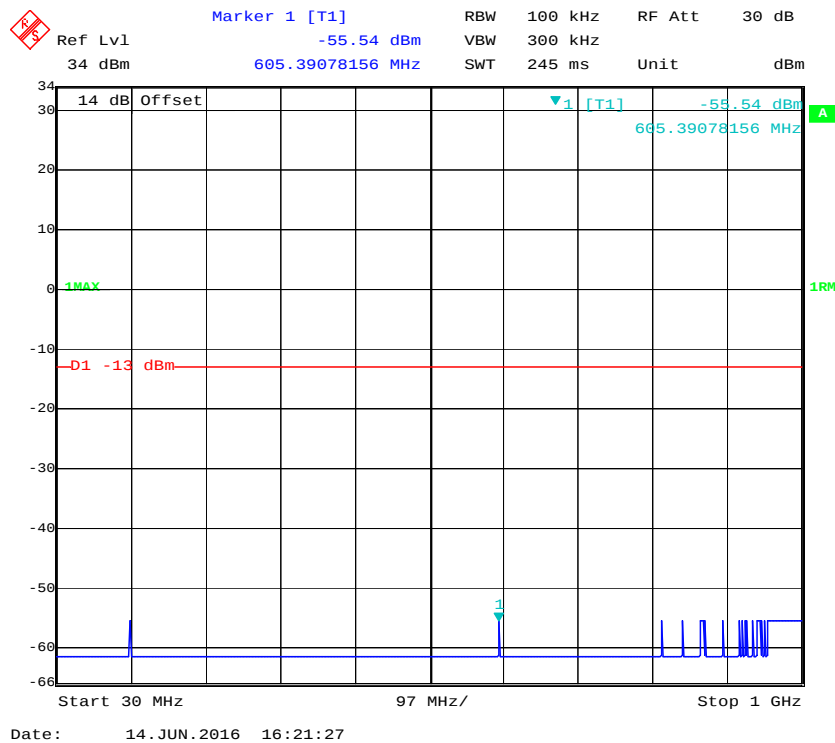


30 MHz - 1 GHz (5.0 MHz, Middle Channel)

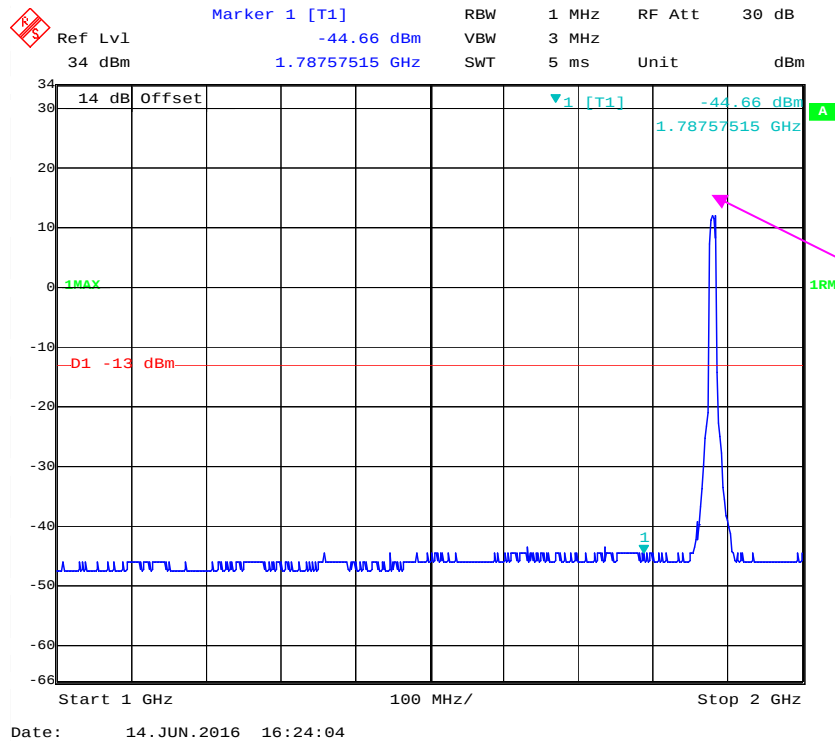


1 GHz - 2 GHz (5.0 MHz, Middle Channel)

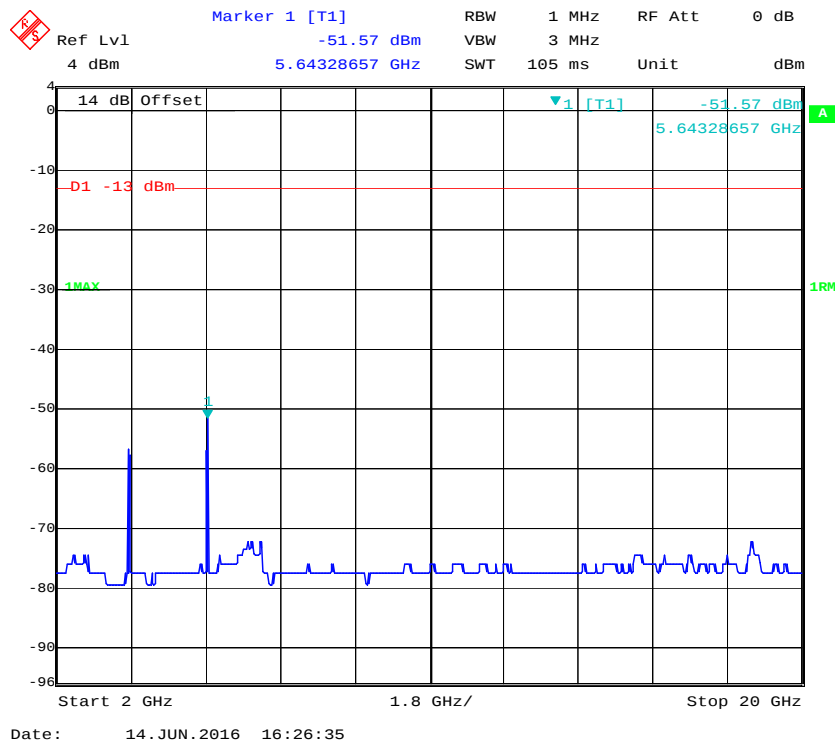


2 GHz – 20 GHz (5.0 MHz, Middle Channel)**30 MHz - 1 GHz (10.0 MHz, Middle Channel)**

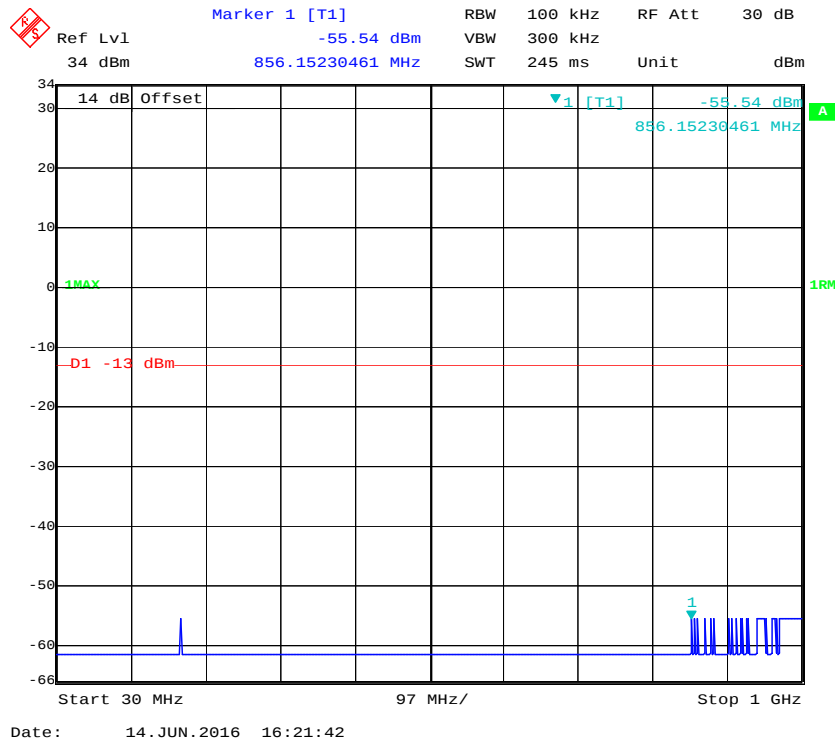
1 GHz – 2 GHz (10.0 MHz, Middle Channel)



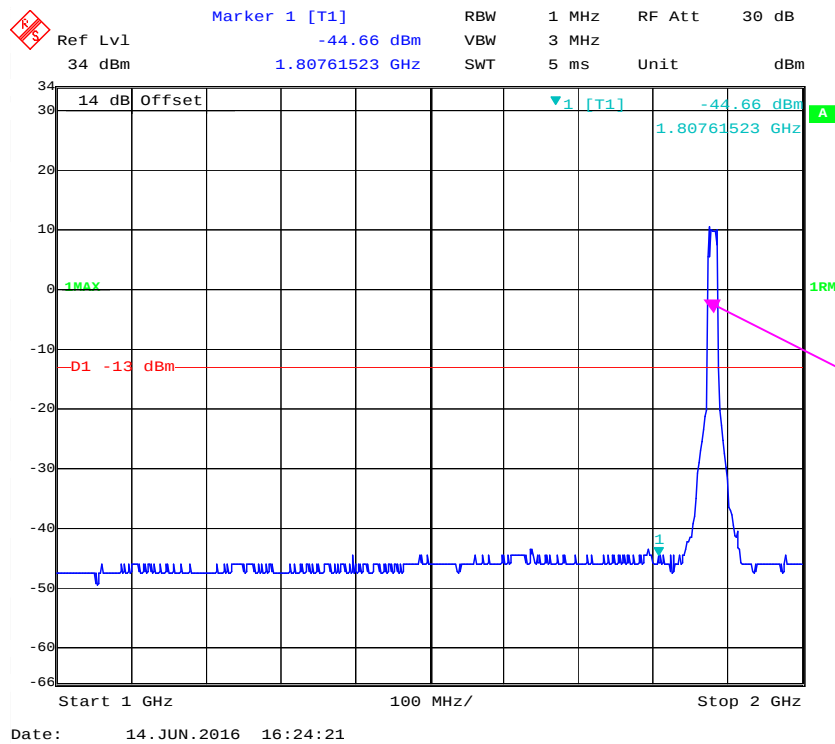
2 GHz – 20 GHz (10.0 MHz, Middle Channel)



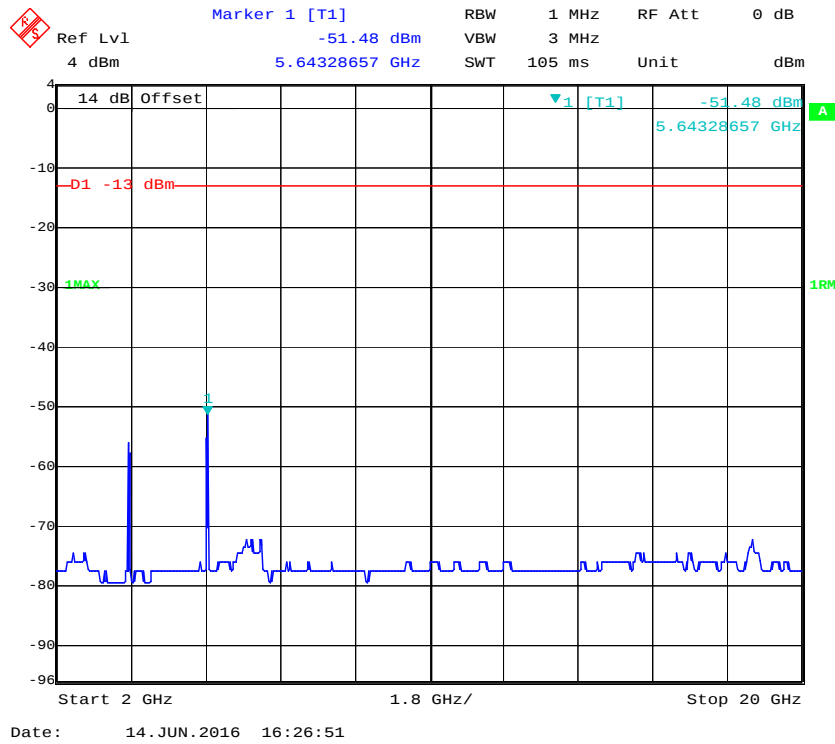
30 MHz - 1 GHz (15.0 MHz, Middle Channel)



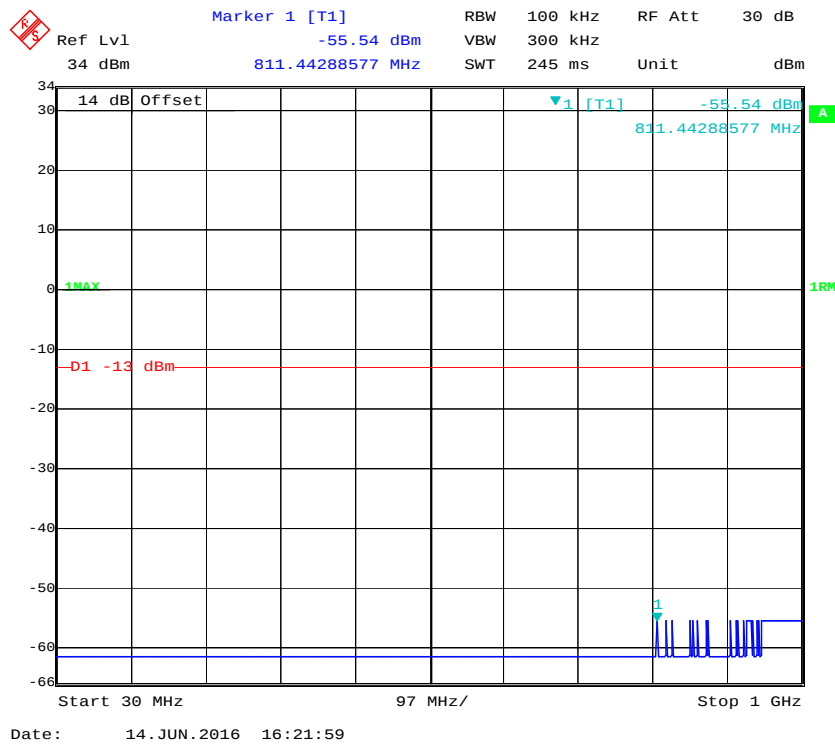
1 GHz – 2 GHz (15.0 MHz, Middle Channel)



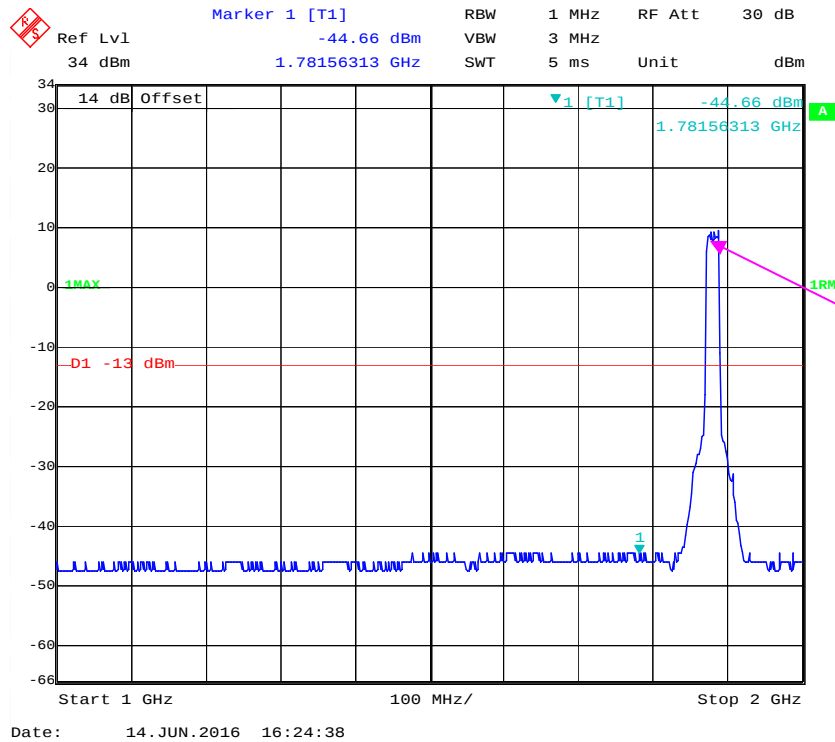
2 GHz – 20GHz (15.0 MHz, Middle Channel)



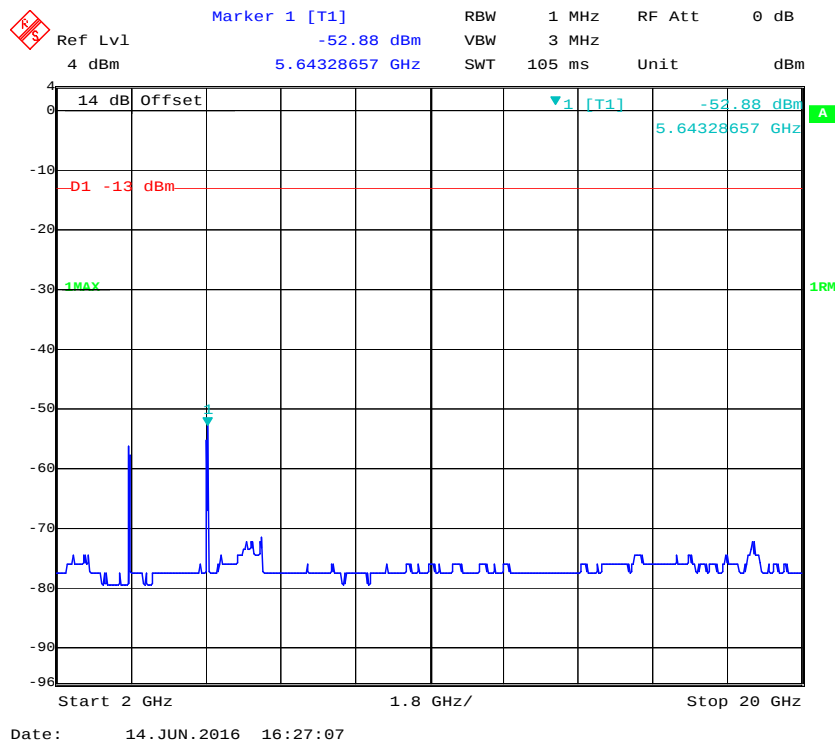
30 MHz - 1 GHz (20.0 MHz, Middle Channel)



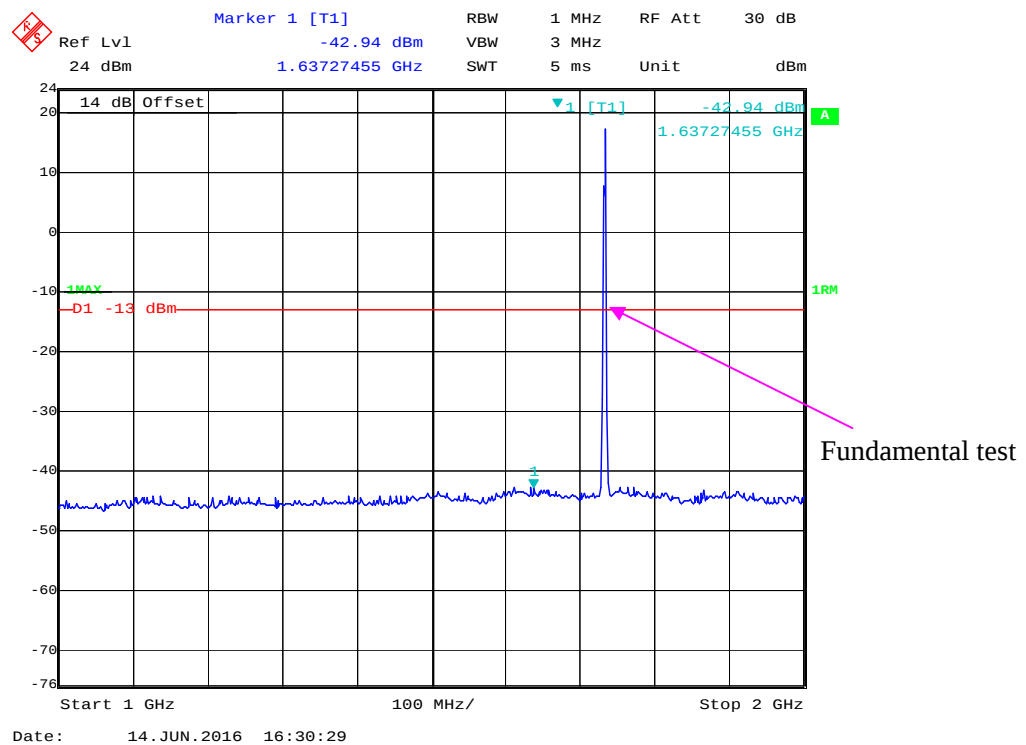
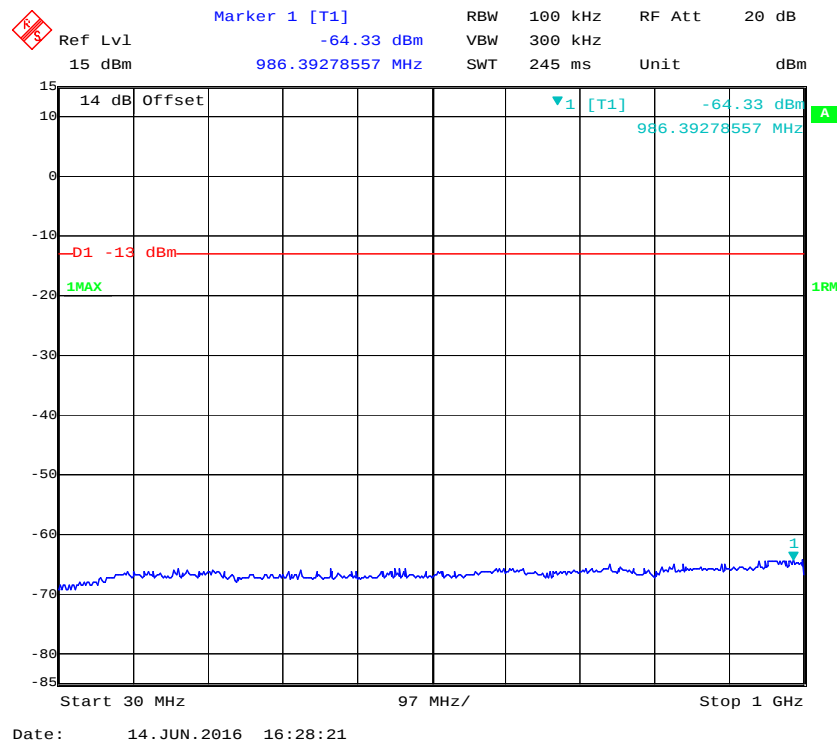
1 GHz – 2 GHz (20.0 MHz, Middle Channel)



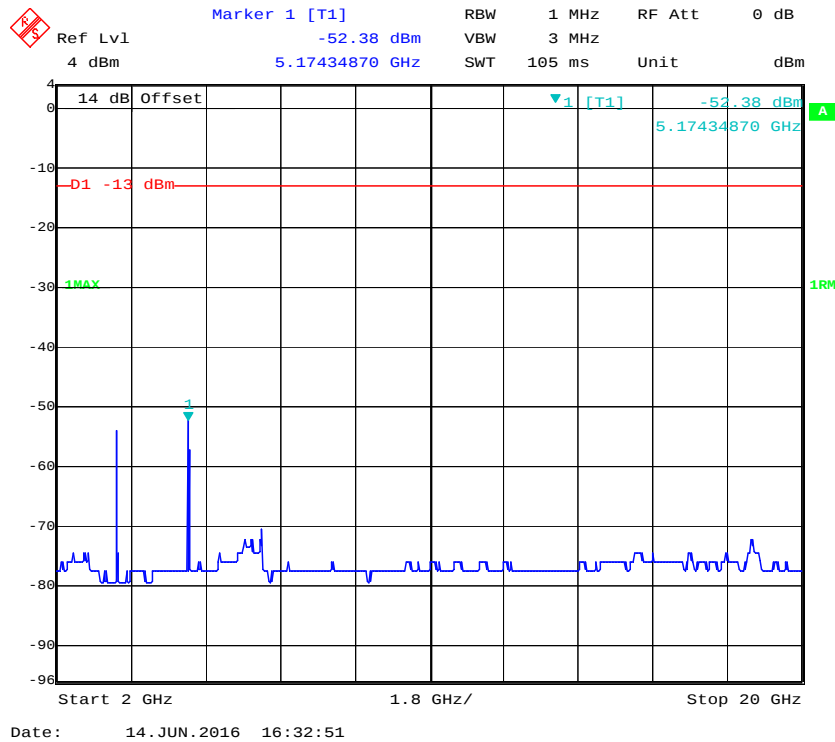
2 GHz – 20 GHz (20.0 MHz, Middle Channel)



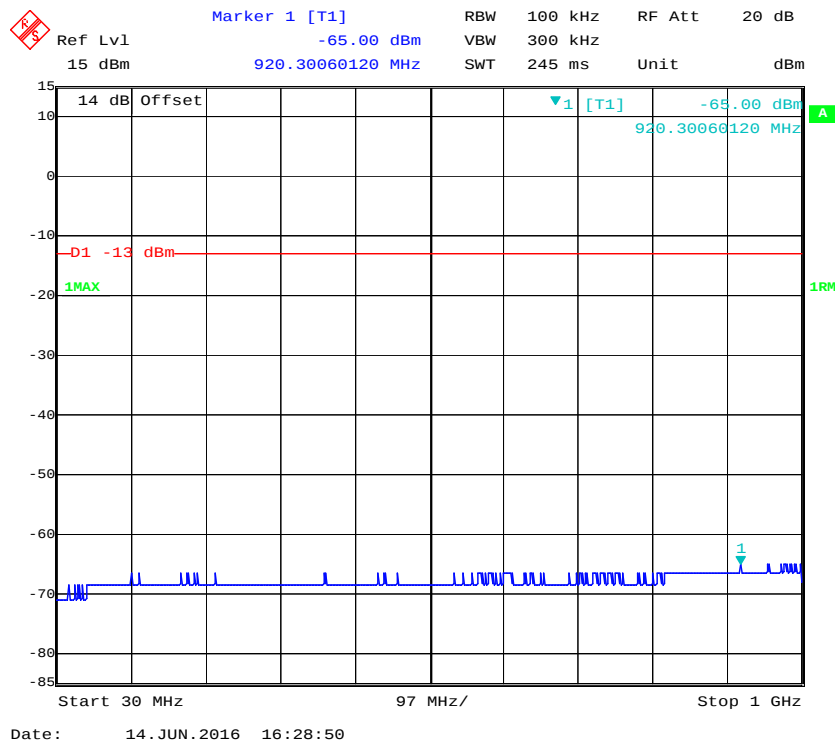
30 MHz - 1 GHz (1.4 MHz, Middle Channel)



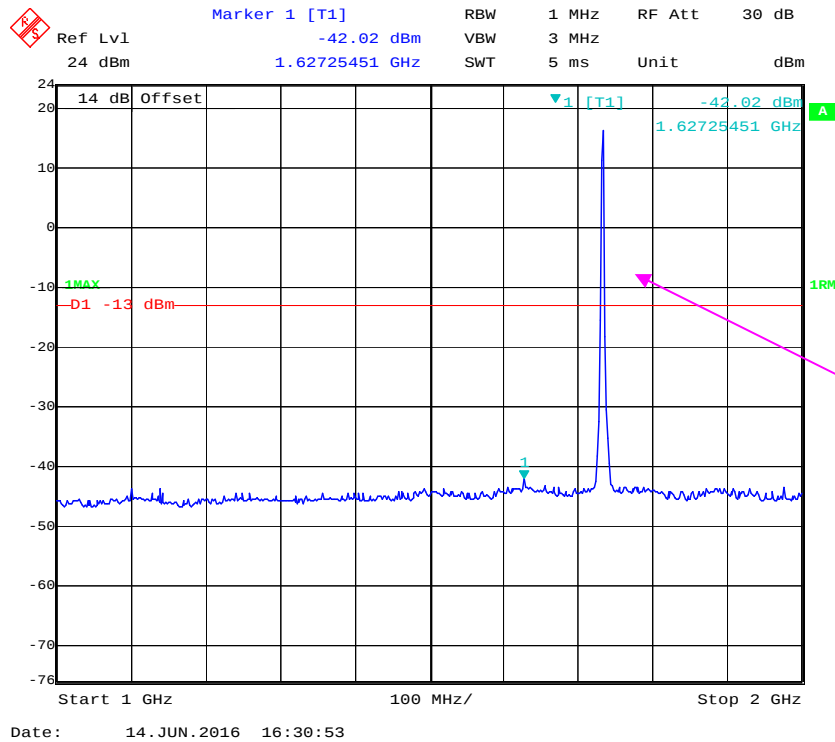
2 GHz – 20 GHz (1.4 MHz, Middle Channel)



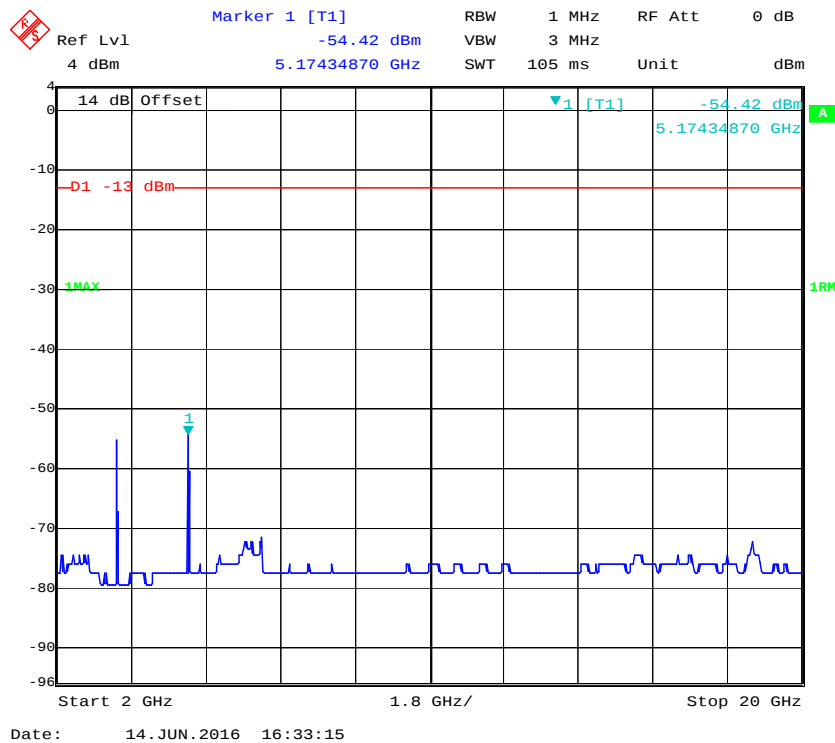
30 MHz - 1 GHz (3.0 MHz, Middle Channel)



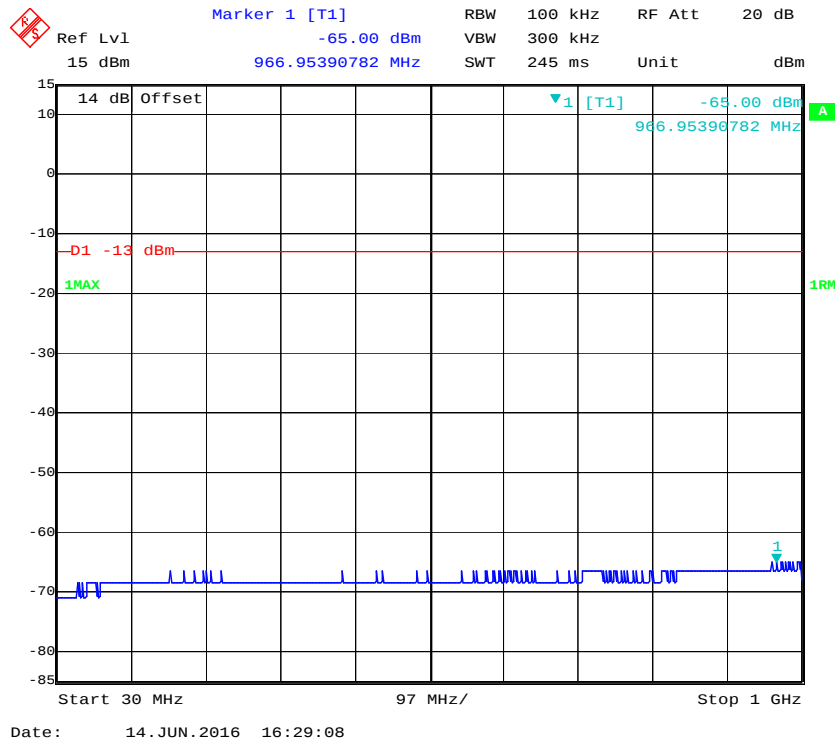
1 GHz – 2 GHz (3.0 MHz, Middle Channel)



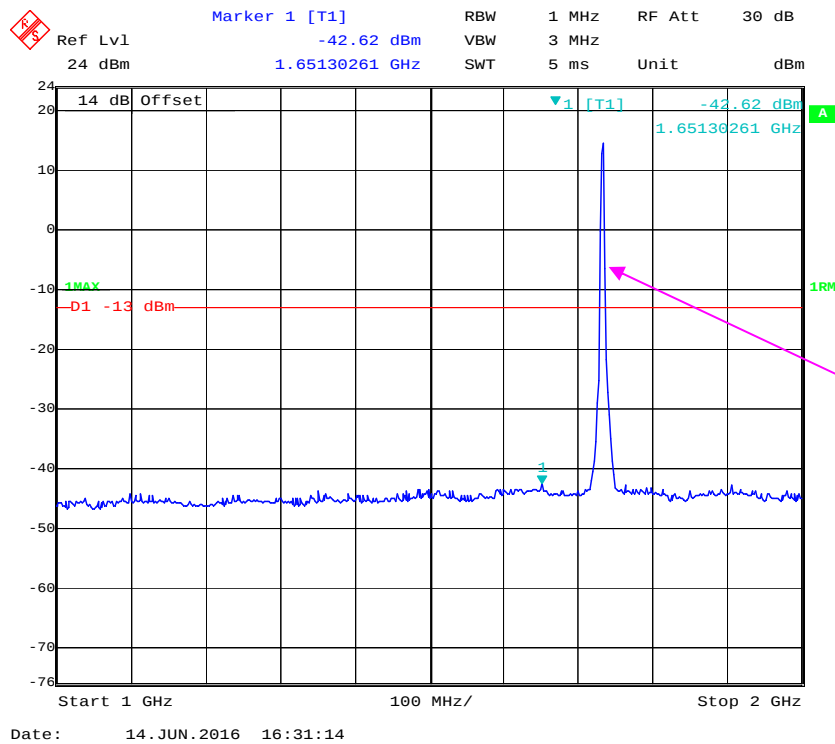
2 GHz – 20 GHz (3.0 MHz, Middle Channel)



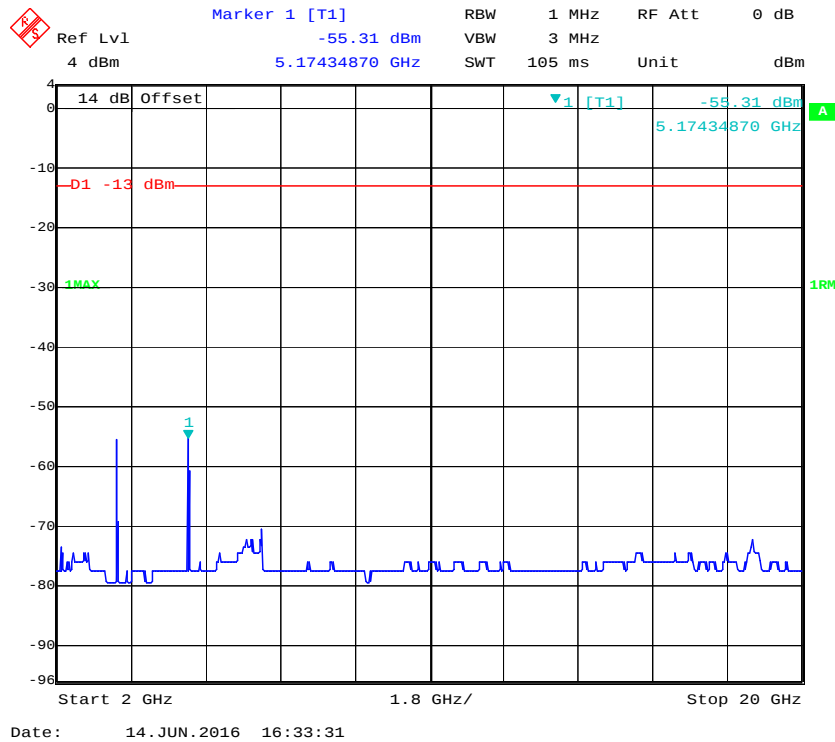
30 MHz - 1 GHz (5.0 MHz, Middle Channel)



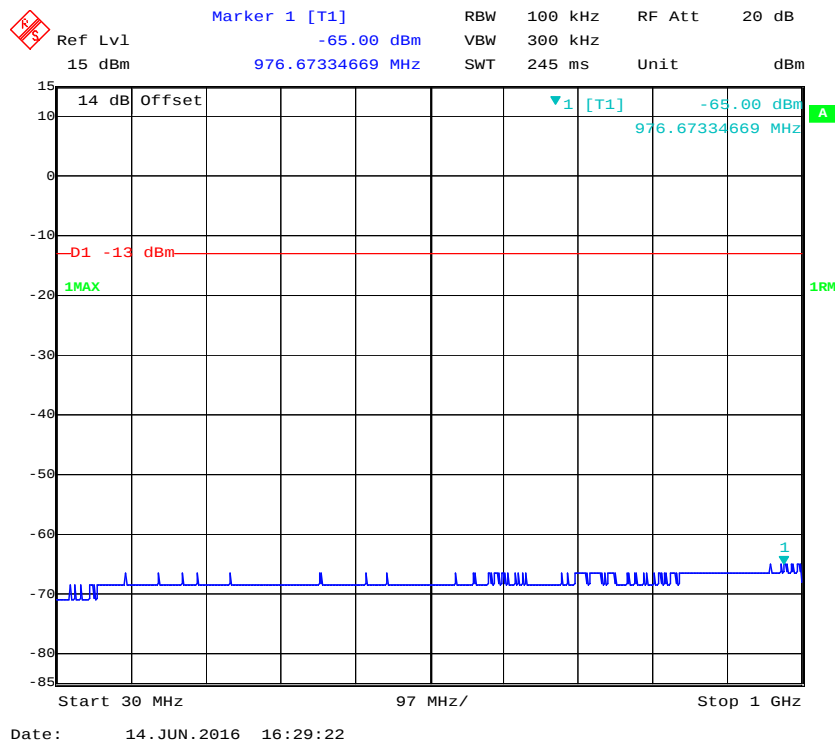
1 GHz – 2 GHz (5.0 MHz, Middle Channel)



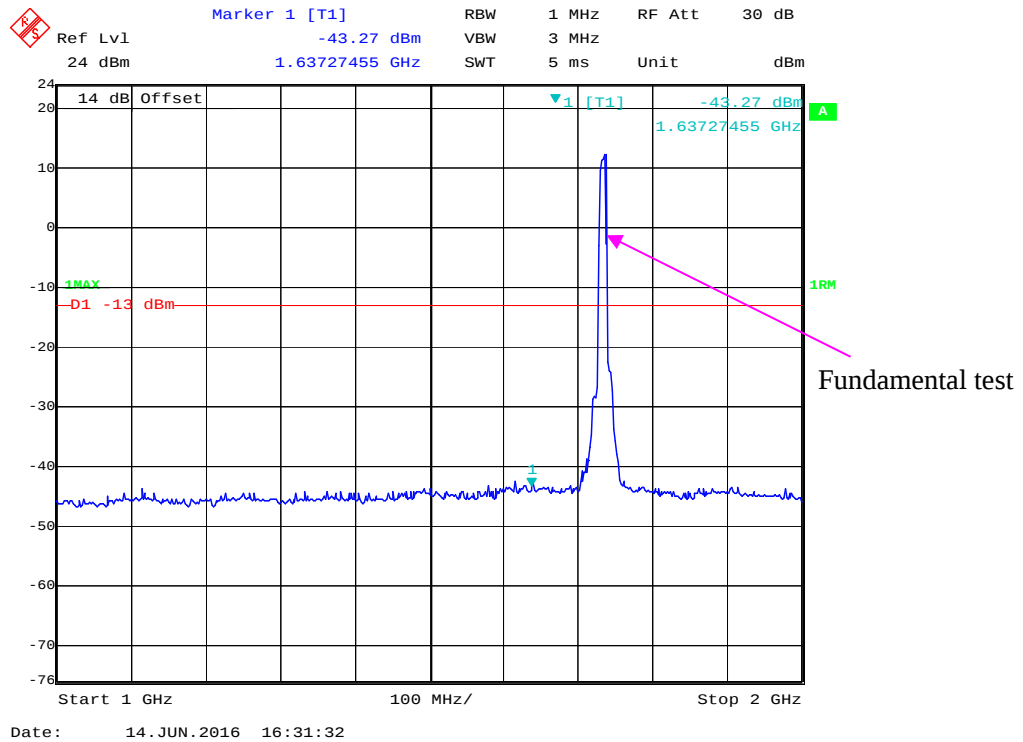
2 GHz – 20 GHz (5.0 MHz, Middle Channel)



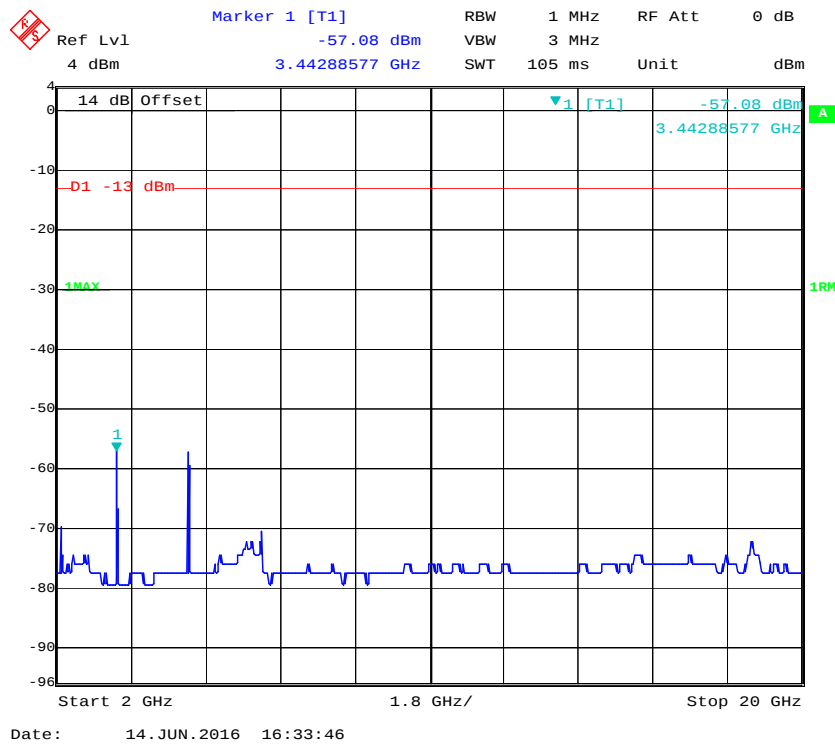
30 MHz - 1 GHz (10.0 MHz, Middle Channel)



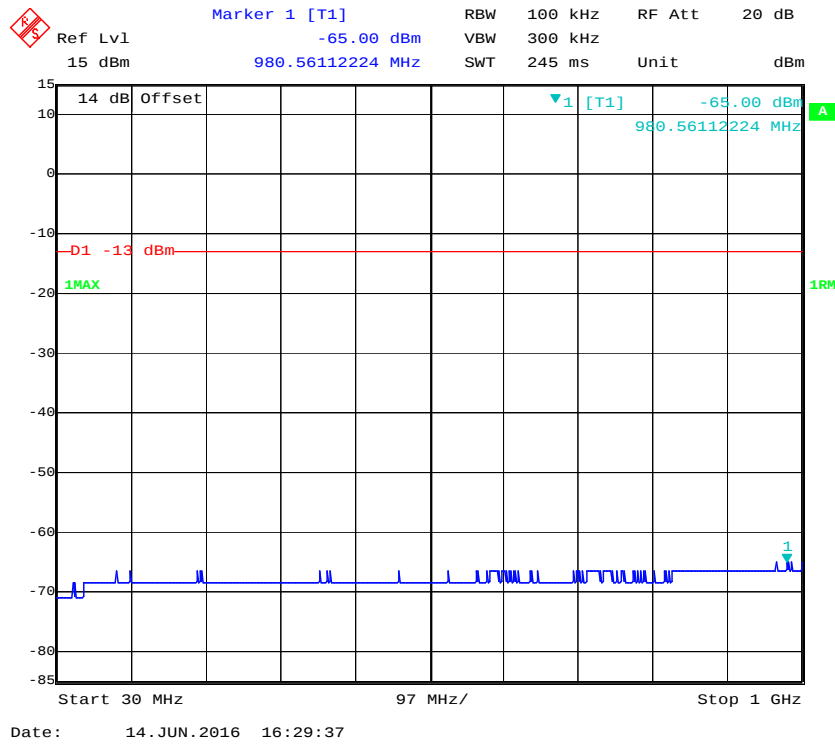
1 GHz – 2 GHz (10.0 MHz, Middle Channel)



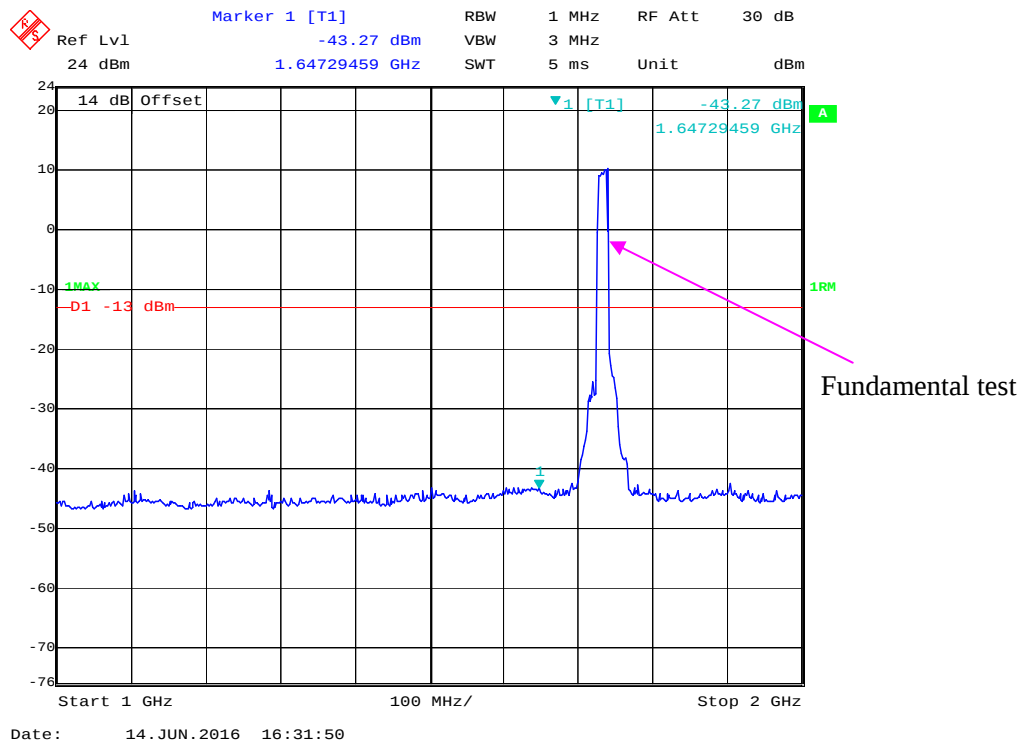
2 GHz – 20 GHz (10.0 MHz, Middle Channel)

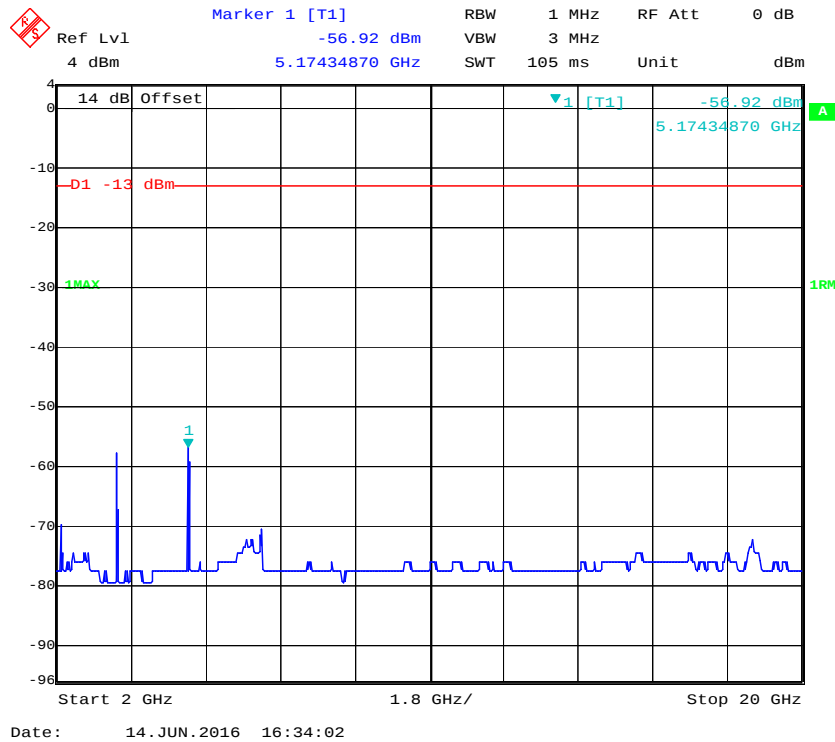
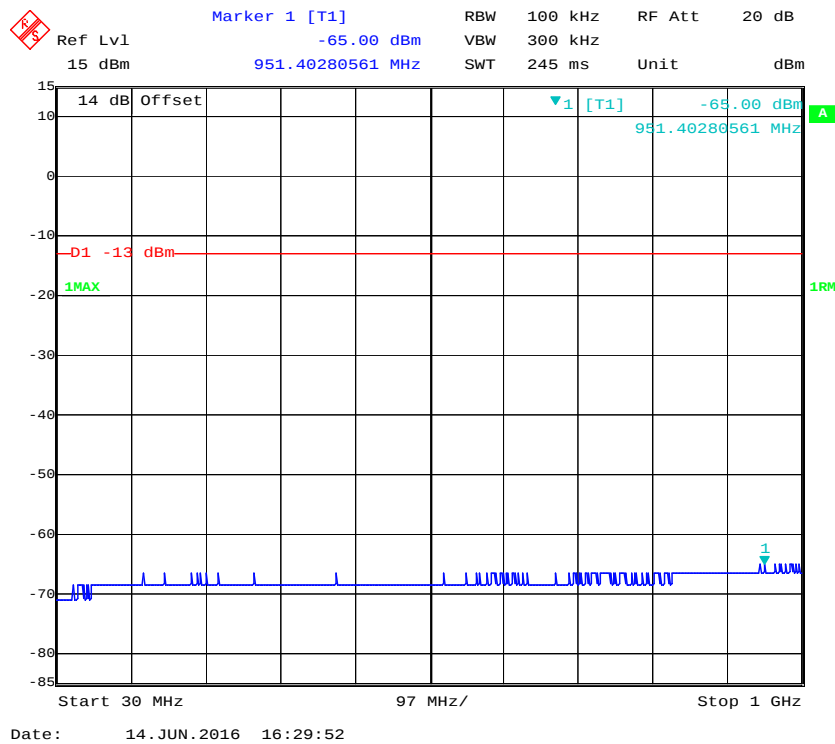


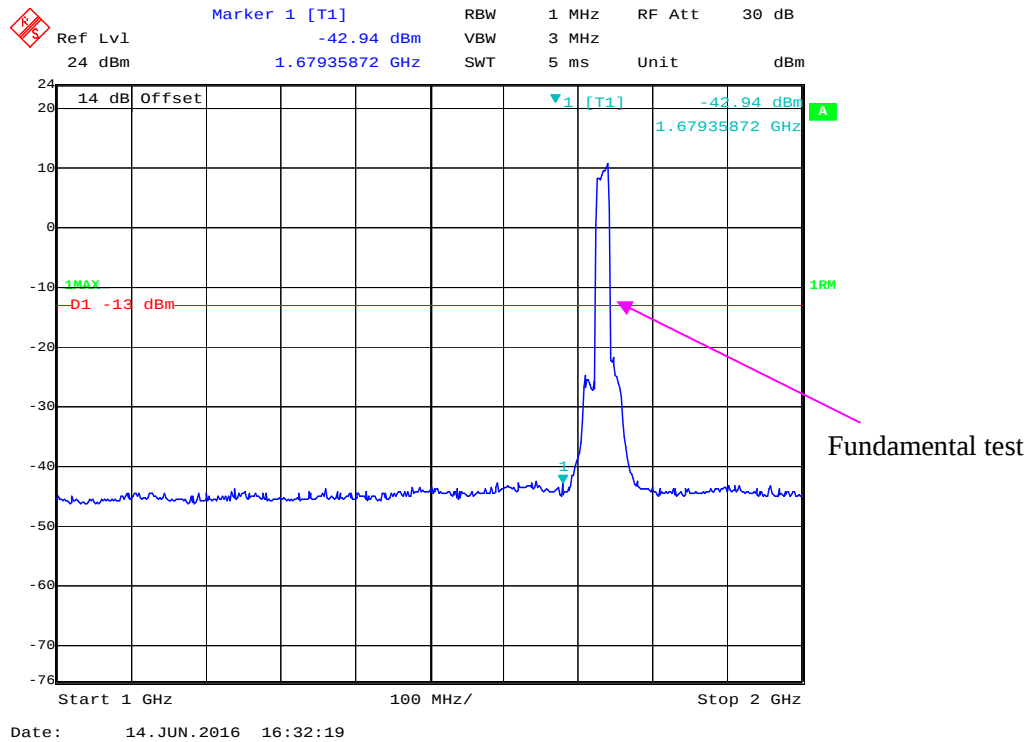
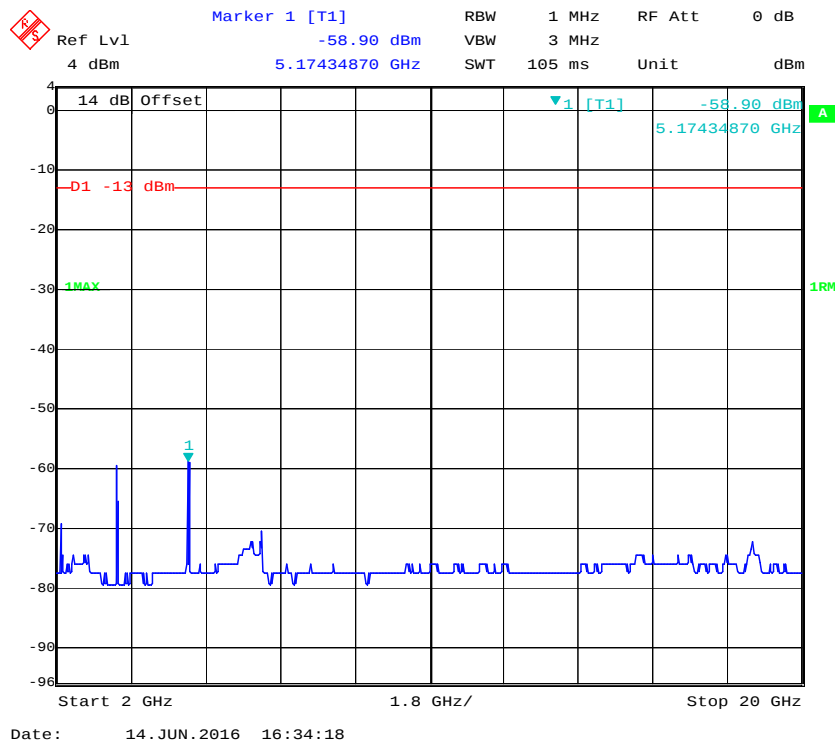
30 MHz - 1 GHz (15.0 MHz, Middle Channel)



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

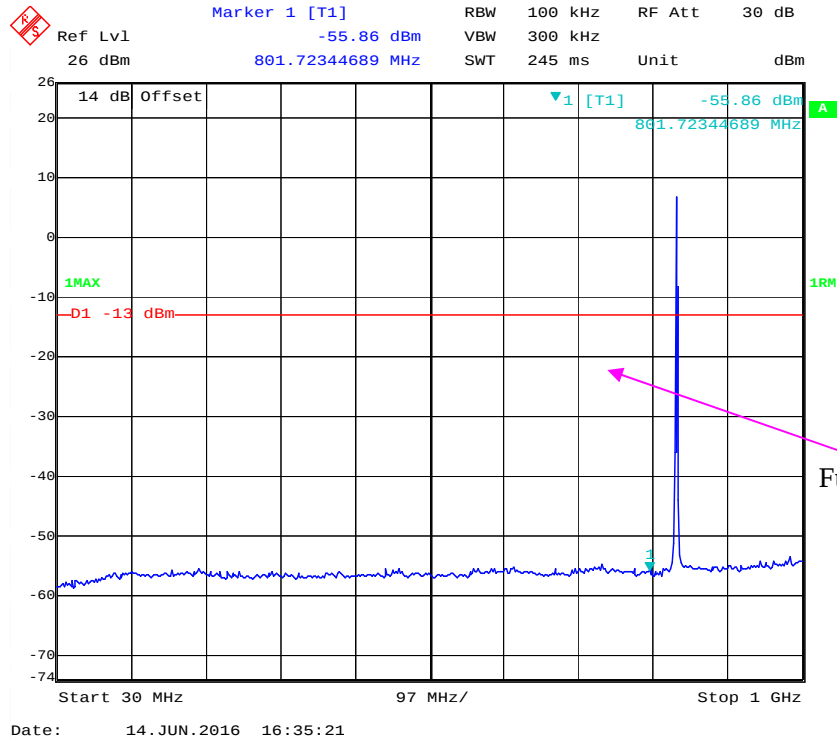


2 GHz – 20GHz (15.0 MHz, Middle Channel)**30 MHz - 1 GHz (20.0 MHz, Middle Channel)**

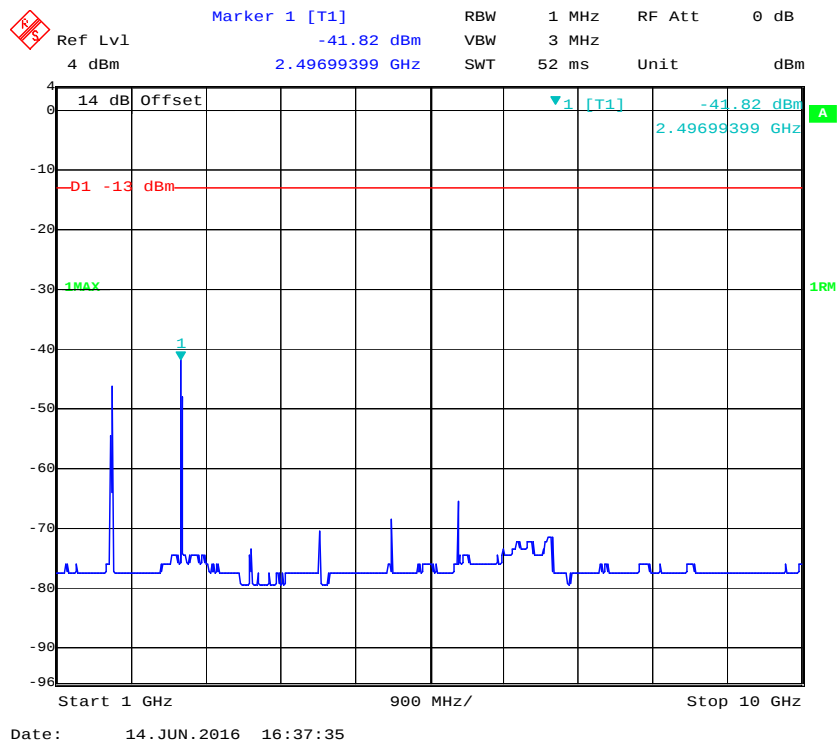
1 GHz – 2 GHz (20.0 MHz, Middle Channel)**2 GHz – 20 GHz (20.0 MHz, Middle Channel)**

LTE Band 5:

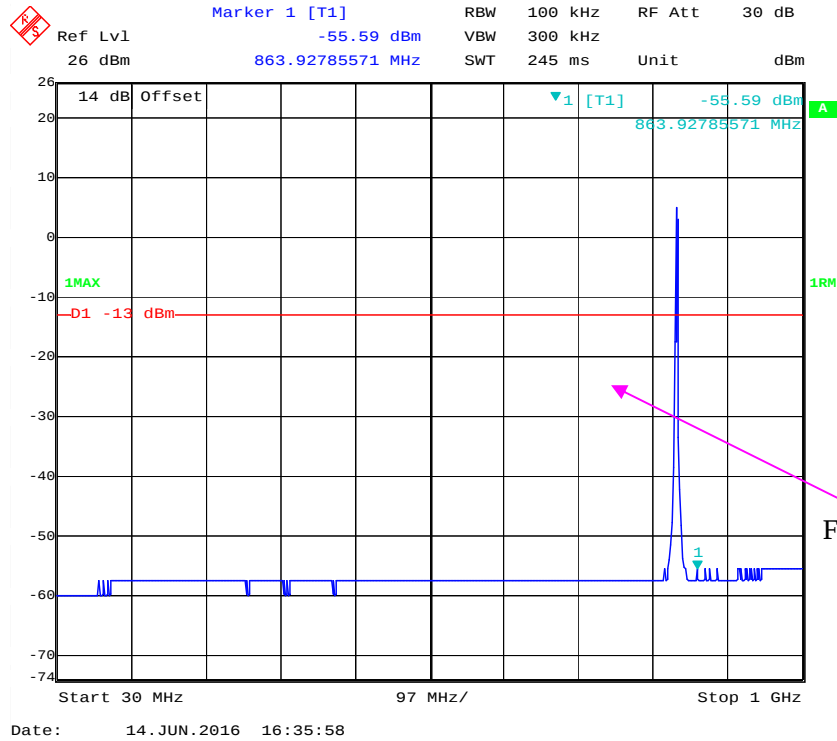
30 MHz - 1 GHz (1.4 MHz, Middle Channel)



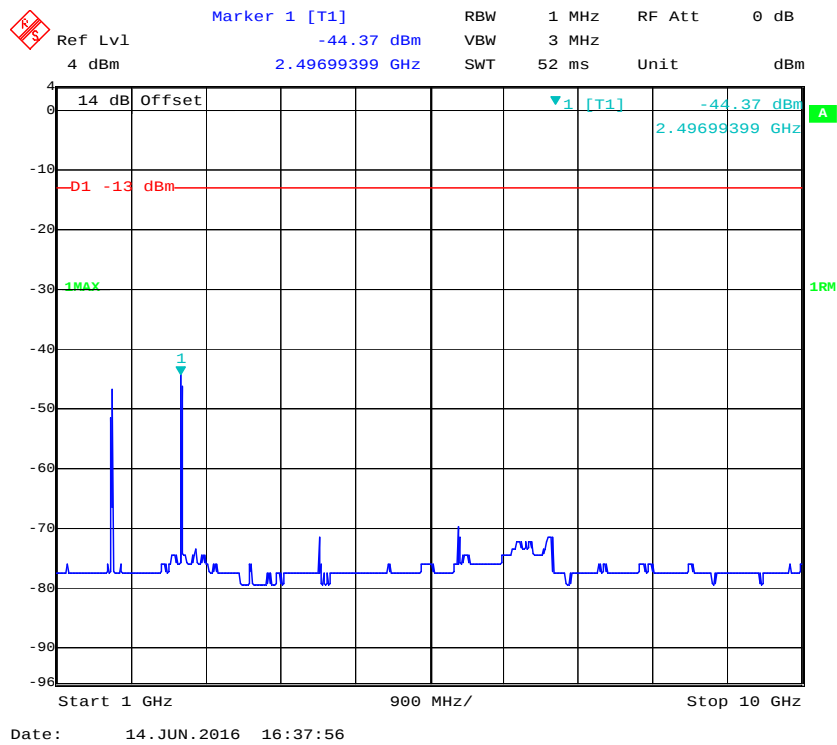
1 GHz - 10 GHz (1.4 MHz, Middle Channel)



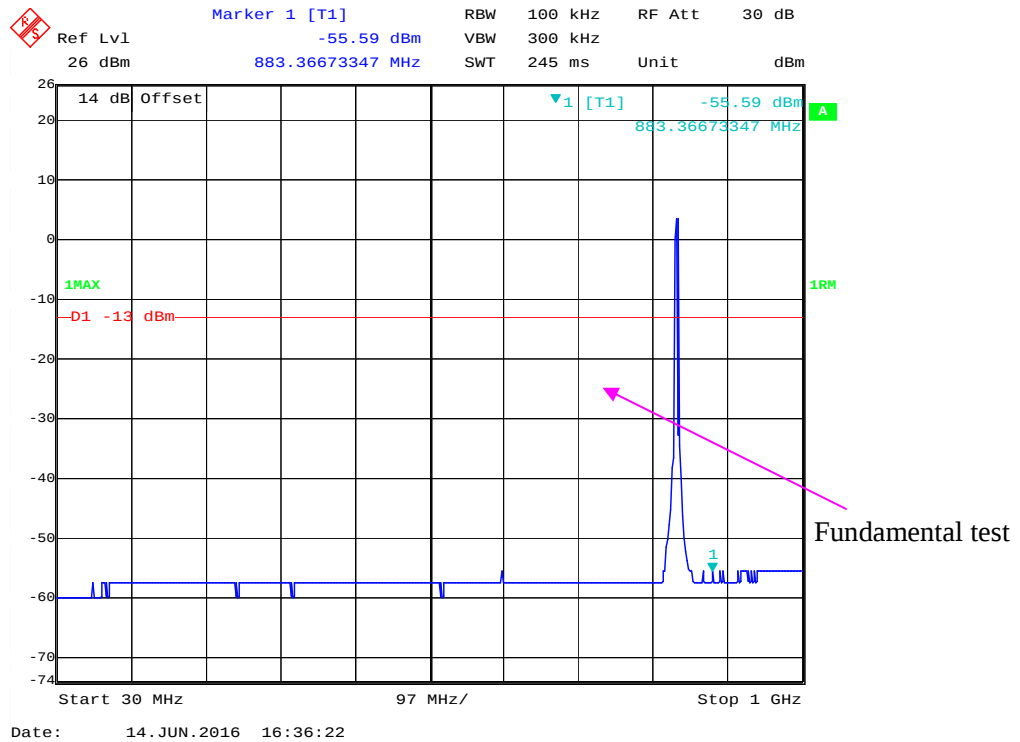
30 MHz - 1 GHz (3.0 MHz, Middle Channel)



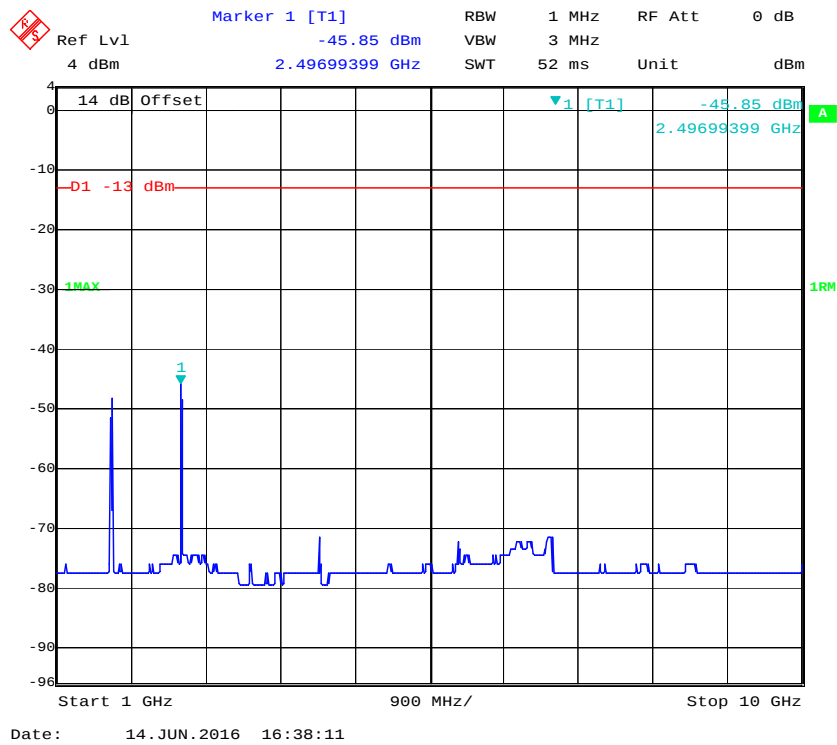
1 GHz - 10 GHz (3.0 MHz, Middle Channel)



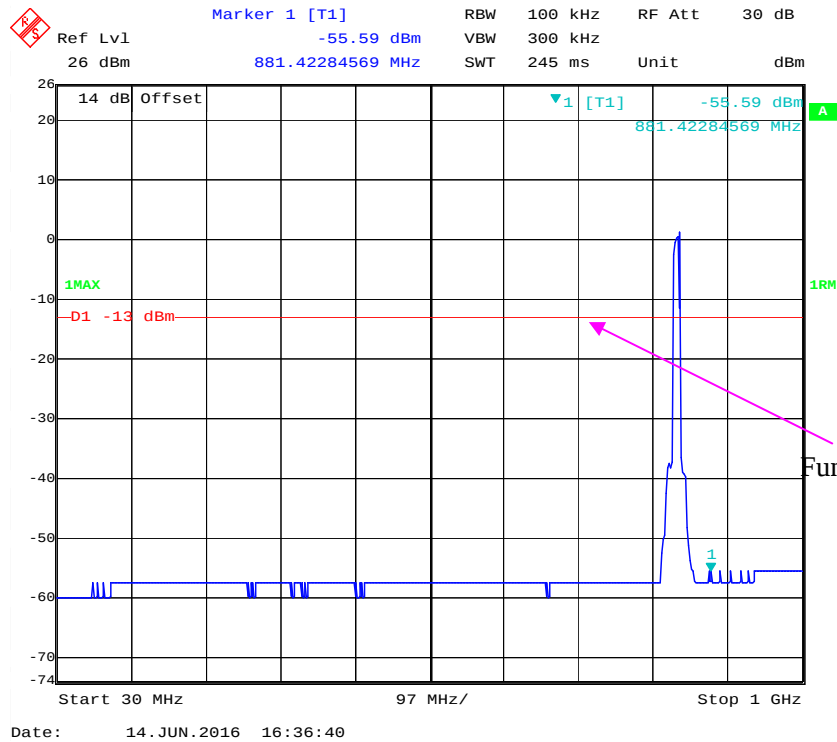
30 MHz - 1 GHz (5.0 MHz, Middle Channel)



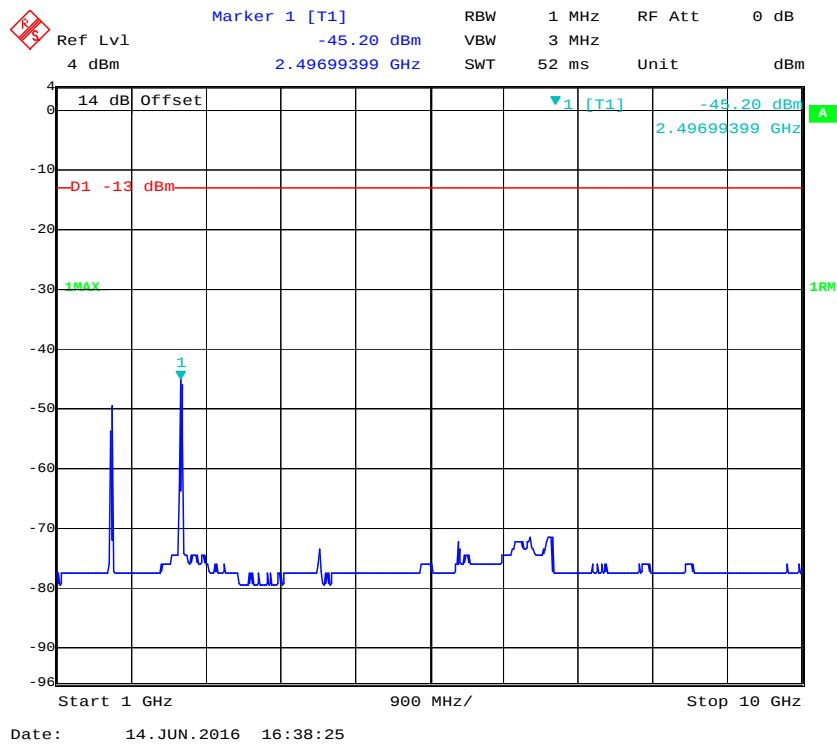
1 GHz - 10 GHz (5.0 MHz, Middle Channel)



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

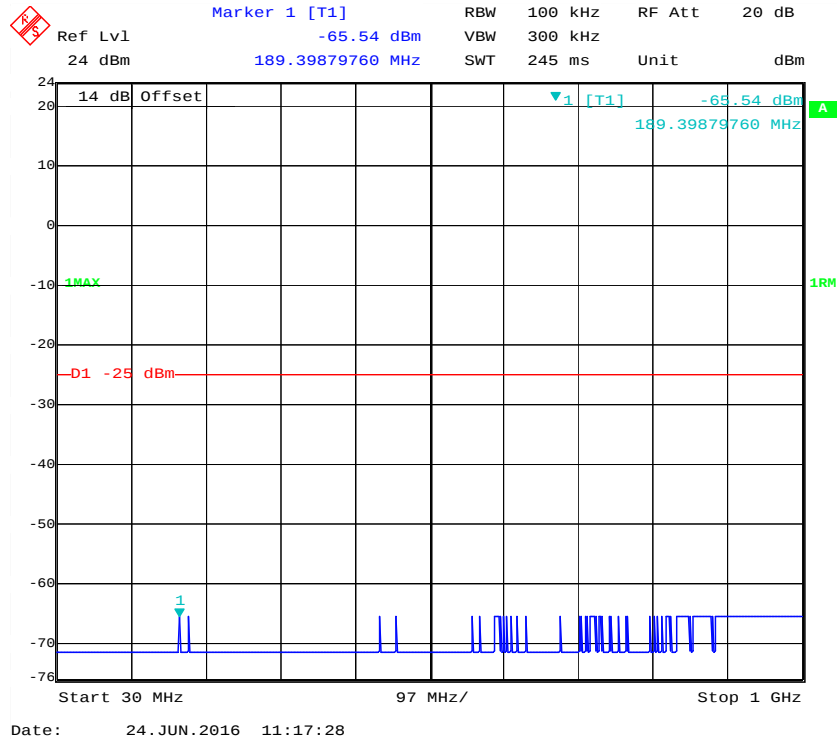


1 GHz – 10 GHz (10.0 MHz, Middle Channel)

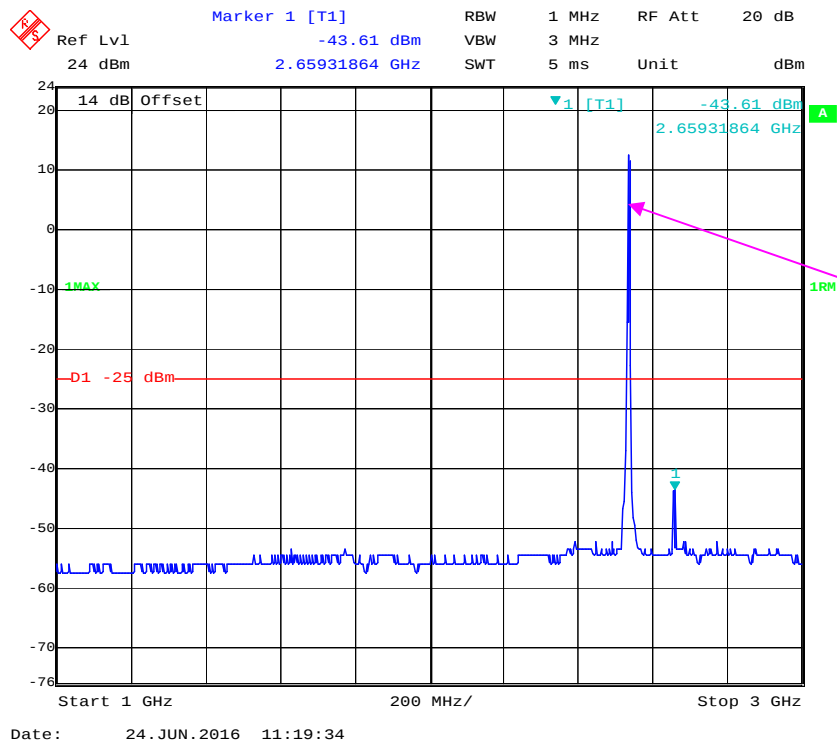


LTE Band 7:

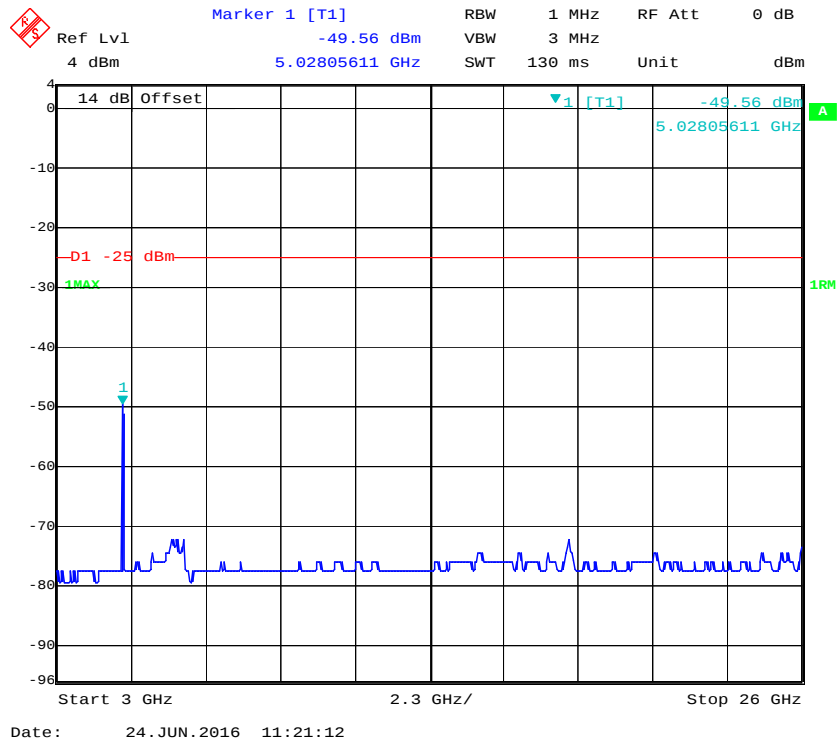
30 MHz - 1 GHz (5 MHz, Middle Channel)



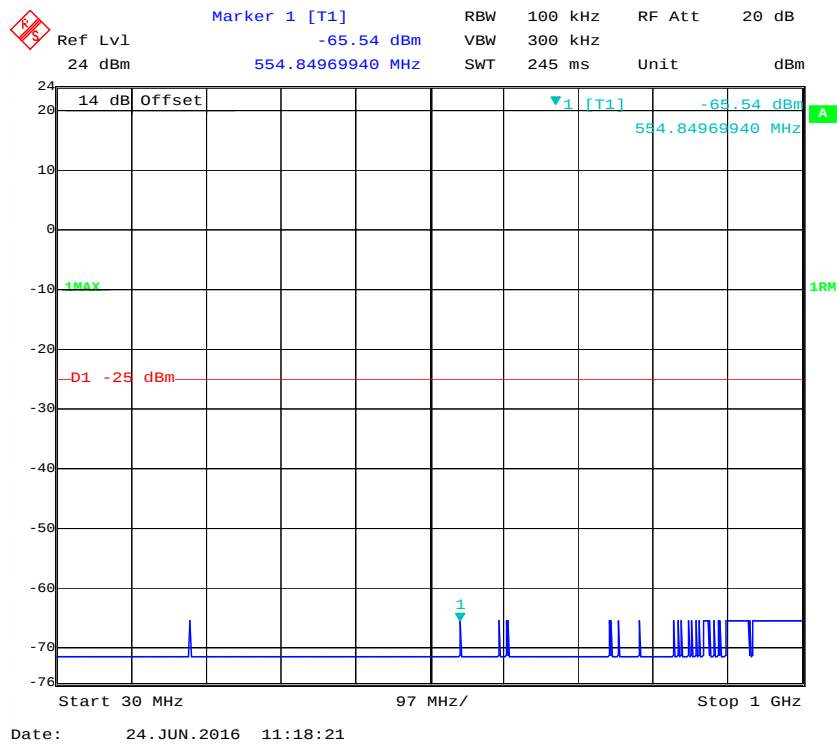
1 GHz -3 GHz (5 MHz, Middle Channel)



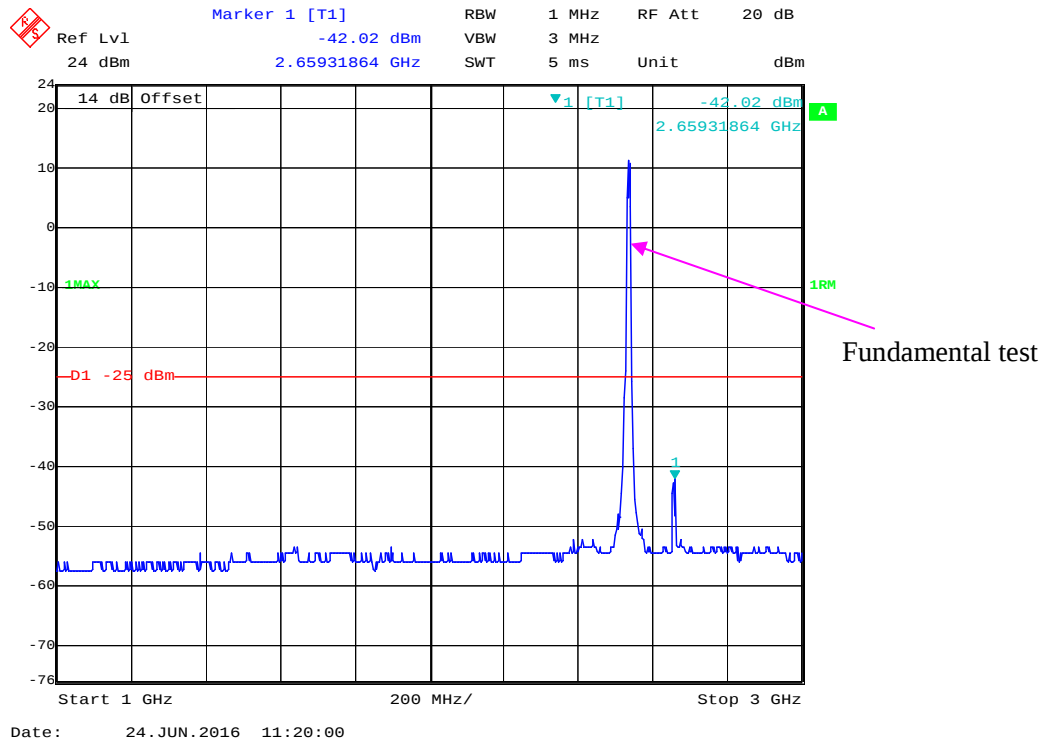
3 GHz –26 GHz (5 MHz, Middle Channel)



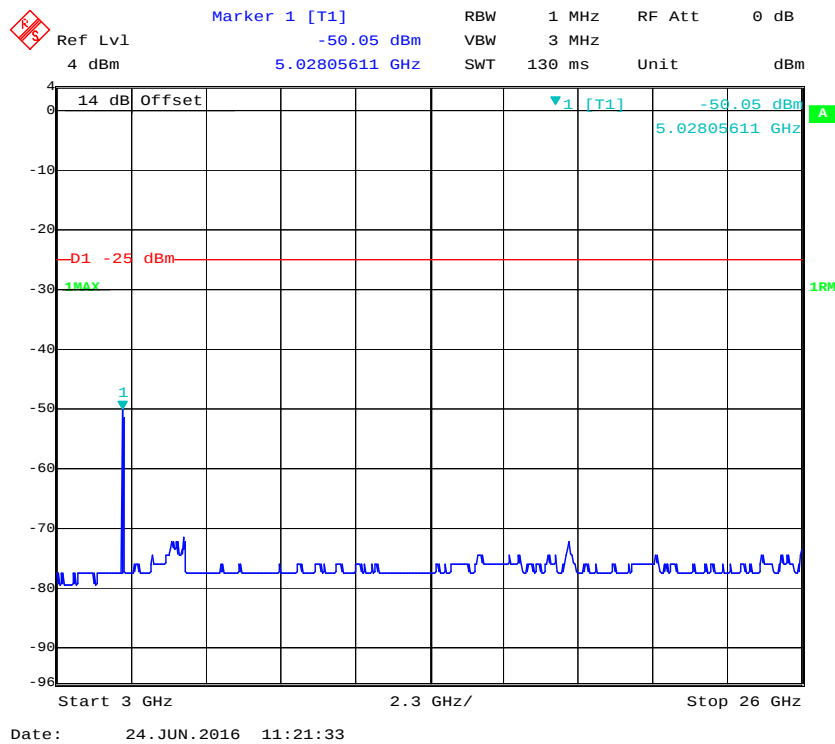
30 MHz - 1 GHz (10 MHz, Middle Channel)



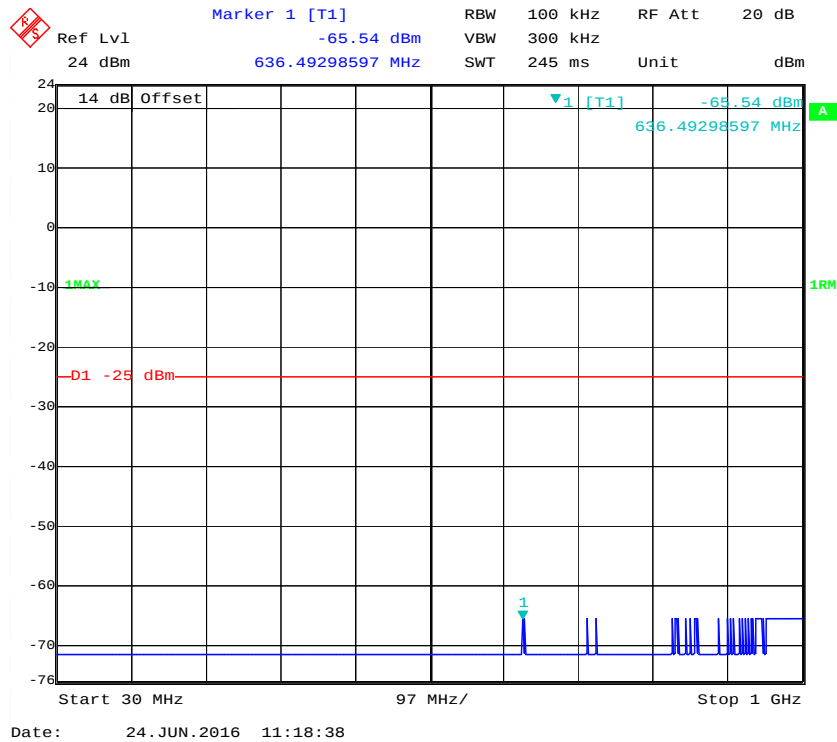
1 GHz –3 GHz (10 MHz, Middle Channel)



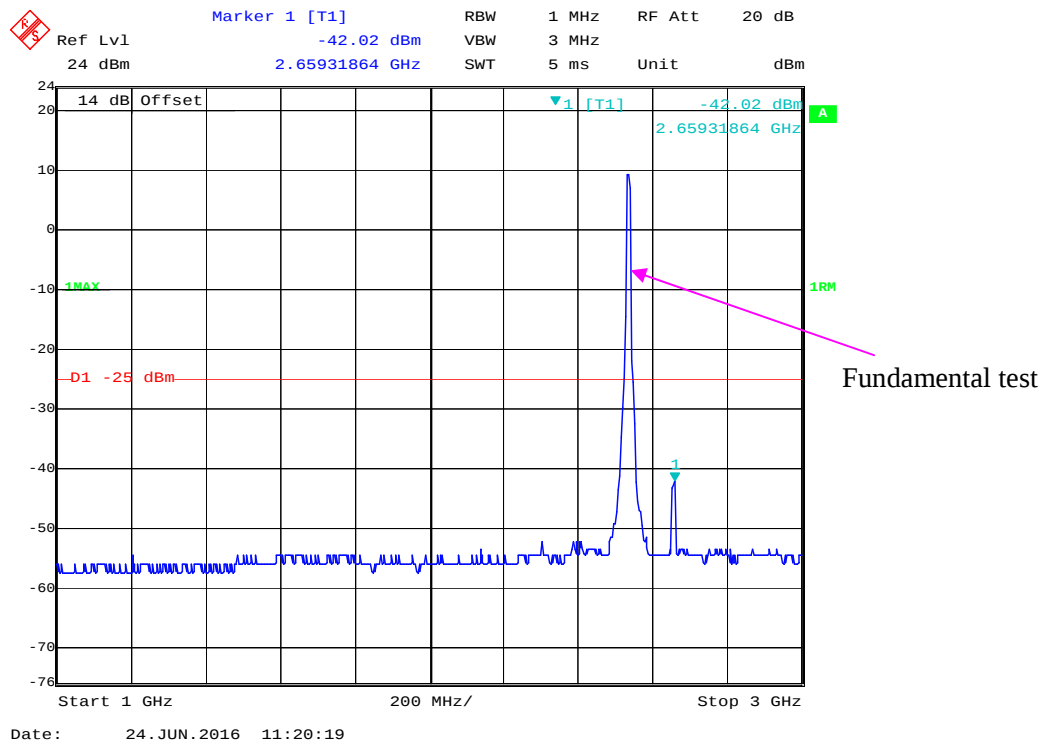
3 GHz –26 GHz (10 MHz, Middle Channel)



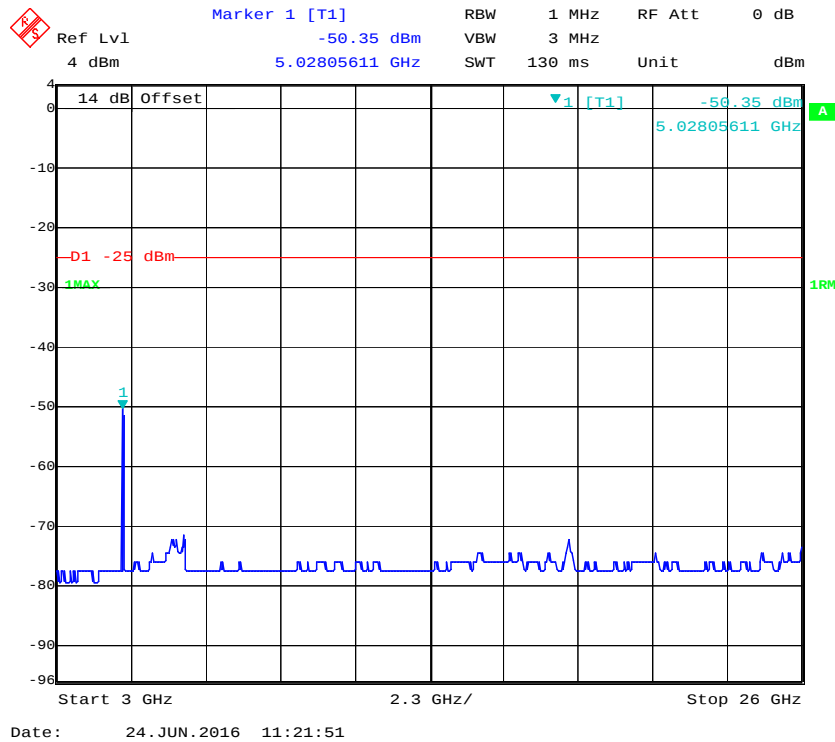
30 MHz - 1 GHz (15 MHz, Middle Channel)



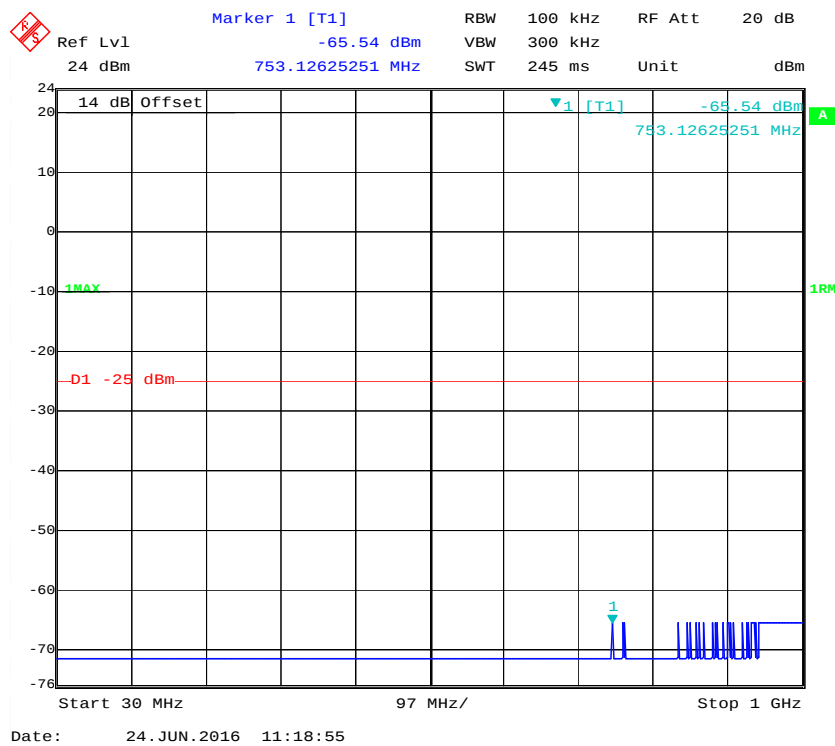
1 GHz - 3 GHz (15 MHz, Middle Channel)



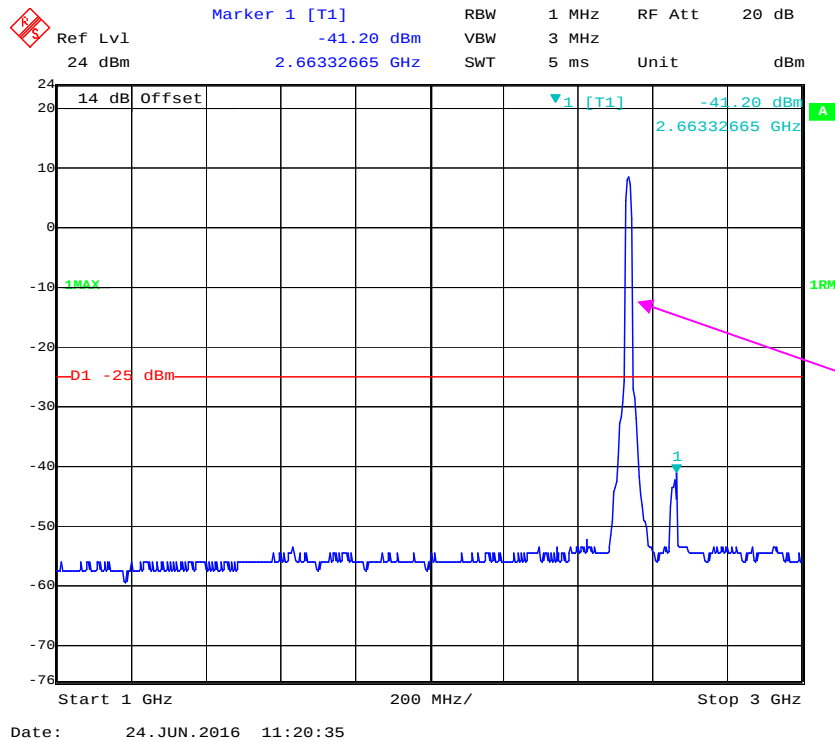
3 GHz –26 GHz (15 MHz, Middle Channel)



30 MHz - 1 GHz (20 MHz, Middle Channel)

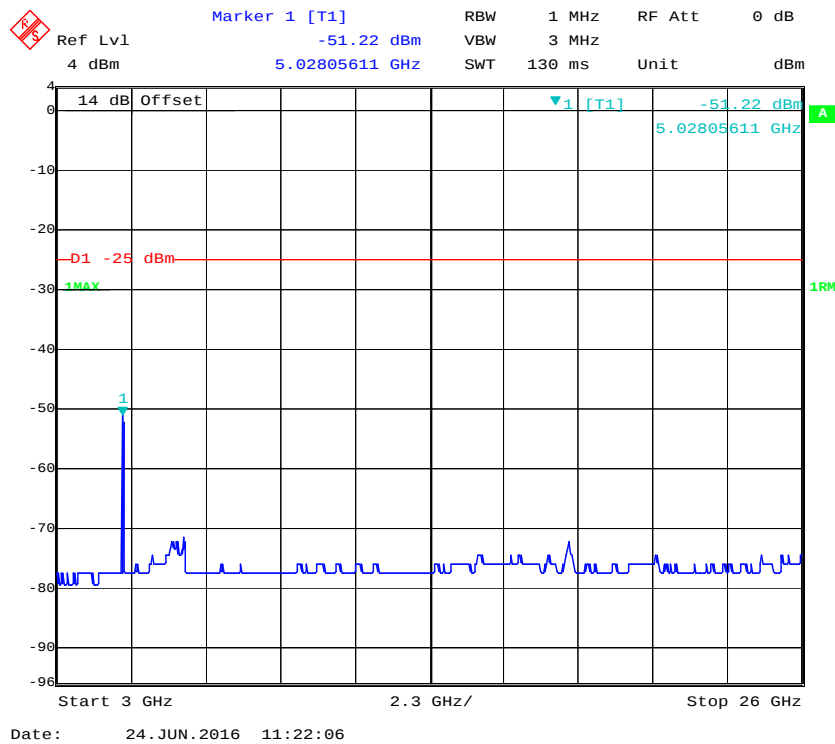


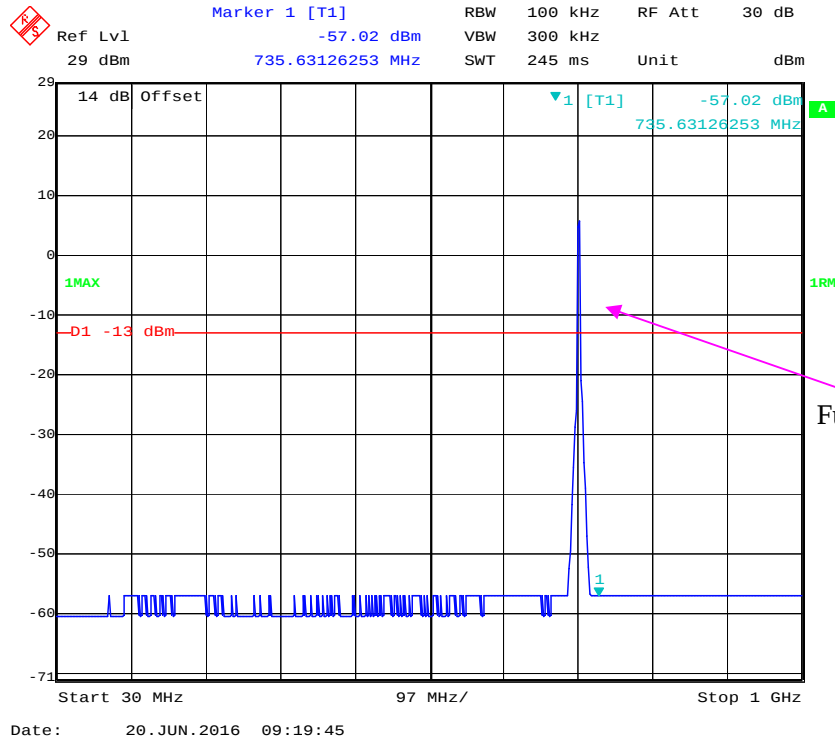
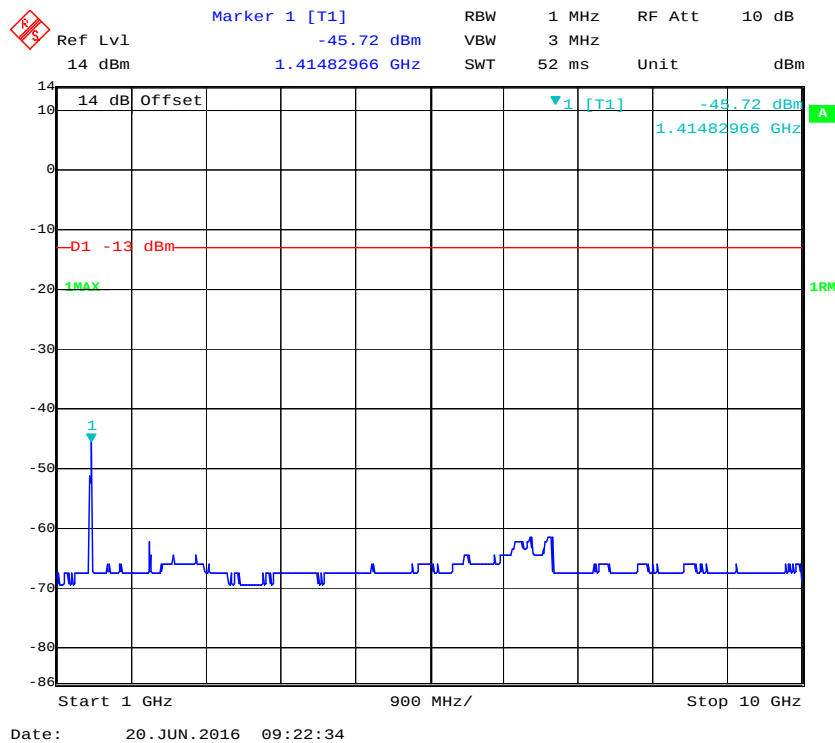
1 GHz –3 GHz (20 MHz, Middle Channel)



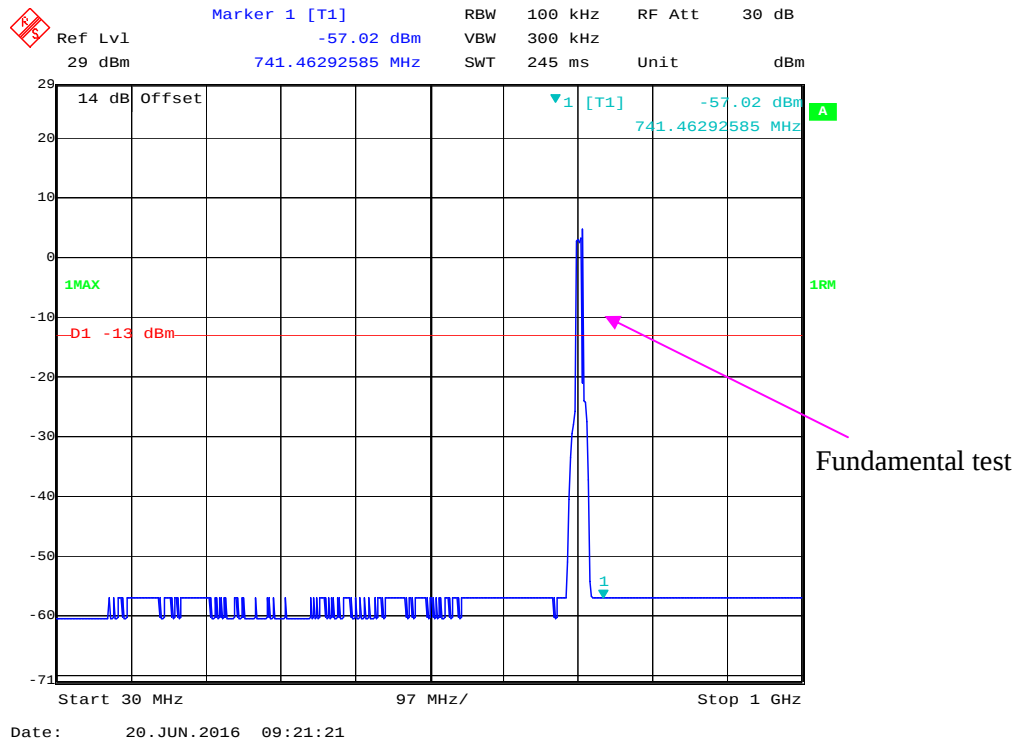
Fundamental test

3 GHz –26 GHz (20 MHz, Middle Channel)



LTE Band 17:**30 MHz - 1 GHz (5.0 MHz, Middle Channel)****1 GHz – 10 GHz (5.0 MHz, Middle Channel)**

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



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



FCC §2.1053, §22.917 & §24.238 & §27.53 - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053, §22.917 and § 24.238 and § 27.53.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TX pwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \text{Log}_{10} (\text{power out in Watts})$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2014-12-29	2017-12-28
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-07	2017-12-06
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2015-12-11	2016-12-11
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2016-04-23	2017-04-23
HP	Amplifier	HP8447E	1937A01046	2016-05-06	2017-05-06
HP	Signal Generator	HP 8341B	2624A00116	2015-07-02	2016-07-01
COM POWER	Dipole Antenna	AD-100	041000	2015-08-18	2016-08-18
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2015-12-15	2016-12-14
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2013-10-14	2016-10-13
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2015-11-23	2016-11-23
R&S	Wideband Radio Communication tester	CMW500	1201.002K50-146520-wh	2015-11-23	2016-11-23
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2016-06-15	2017-06-15
Ducommun technologies	RF Cable	104PEA	218124002	2016-06-15	2017-06-15
Ducommun technologies	RF Cable	RG-214	1	2016-06-15	2017-06-15
Ducommun technologies	RF Cable	RG-214	2	2016-06-15	2017-06-15

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

Test Data**Environmental Conditions**

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.0kPa

The testing was performed by Haiguo Li from 2016-05-18 to 2016-06-13.

Test mode: Transmitting (Pre-scan with Low, Middle, High channel, and the worse case data as below)

30 MHz ~ 10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
GSM Mode, High channel										
237.04	38.34	96	1.8	H	-58.7	0.31	0	-59.01	-13	46.01
237.04	37.87	91	1.2	V	-59.1	0.31	0	-59.41	-13	46.41
1697.60	81.25	93	1.6	H	-26.2	1.60	6.90	-20.90	-13	7.90
1697.60	79.03	348	1.8	V	-28.8	1.60	6.90	-23.50	-13	10.50
2546.40	71.84	309	1.5	H	-32.7	1.70	8.60	-25.80	-13	12.80
2546.40	70.61	247	1.4	V	-34.3	1.70	8.60	-27.40	-13	14.40
WCDMA Mode, Low channel										
237.78	38.85	253	2.5	H	-58.1	0.31	0	-58.41	-13	45.41
237.78	37.62	14	1.2	V	-59.4	0.31	0	-59.71	-13	46.71
1652.80	64.27	11	2.0	H	-43.1	1.60	6.90	-37.80	-13	24.80
1652.80	64.29	179	1.0	V	-43.5	1.60	6.90	-38.20	-13	25.20
2479.20	60.14	180	1.3	H	-44.4	1.70	8.60	-37.50	-13	24.50
2479.20	61.75	70	2.4	V	-43.2	1.70	8.60	-36.30	-13	23.30

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

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
GSM Mode, Middle channel										
237.04	38.25	353	1.4	H	-58.7	0.31	0	-59.01	-13	46.01
237.04	37.26	320	2.0	V	-59.7	0.31	0	-60.01	-13	47.01
3700.40	54.35	51	2.5	H	-40.5	1.80	10.00	-32.30	-13	19.30
3700.40	53.67	25	2.1	V	-41.4	1.80	10.00	-33.20	-13	20.20
5550.60	45.45	153	2.3	H	-51.0	2.10	10.30	-42.80	-13	29.80
5550.60	45.21	24	1.8	V	-50.6	2.10	10.30	-42.40	-13	29.40
WCDMA Mode, Low channel										
237.78	38.98	199	1.2	H	-58.0	0.31	0	-58.31	-13	45.31
237.78	37.67	304	2.4	V	-59.3	0.31	0	-59.61	-13	46.61
3704.80	57.21	15	1.6	H	-37.6	1.80	10.00	-29.40	-13	16.40
3704.80	58.55	19	2.4	V	-36.6	1.80	10.00	-28.40	-13	15.40
5557.20	45.58	221	2.3	H	-50.9	2.10	10.30	-42.70	-13	29.70
5557.20	43.45	5	1.4	V	-52.4	2.10	10.30	-44.20	-13	31.20

Test mode: Transmitting (Pre-scan with all the bandwidth, and worse case as below)

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Band 2										
176.56	38.33	178	1.1	H	-58.7	0.28	0	-58.98	-13	45.98
176.56	37.23	265	1.9	V	-59.8	0.28	0	-60.08	-13	47.08
3760.00	53.81	67	1.7	H	-45.7	1.90	9.90	-37.70	-13	24.70
3760.00	52.79	76	1.4	V	-46.3	1.90	9.90	-38.30	-13	25.30
Band 4										
176.56	38.56	342	1.8	H	-58.4	0.28	0	-58.68	-13	45.68
176.56	37.45	177	1.2	V	-59.5	0.28	0	-59.78	-13	46.78
3465.00	52.79	161	1.6	H	-44.7	1.90	10.00	-36.60	-13	23.60
3465.00	51.54	153	2.3	V	-46.7	1.90	10.00	-38.60	-13	25.60
Band 5										
176.56	38.53	339	1.2	H	-58.5	0.28	0	-58.78	-13	45.78
176.56	37.32	193	1.8	V	-59.7	0.28	0	-59.98	-13	46.98
1673.00	45.48	137	1.6	H	-61.9	1.60	6.90	-56.60	-13	43.60
1673.00	51.66	324	2.1	V	-56.2	1.60	6.90	-50.90	-13	37.90
Band 7										
176.56	38.50	235	1.4	H	-58.5	0.28	0	-58.78	-25	33.78
176.56	37.35	337	1.1	V	-59.6	0.28	0	-59.88	-25	34.78
5070.00	48.41	189	2.5	H	-47.9	2.30	10.10	-40.10	-25	15.10
5070.00	42.22	187	1.8	V	-53.3	2.30	10.10	-45.50	-25	20.50
Band 17										
176.56	38.85	281	2.0	H	-58.1	0.28	0	-58.38	-13	45.38
176.56	37.26	82	2.0	V	-59.7	0.28	0	-59.98	-13	46.98
1420.00	64.65	122	1.4	H	-43.8	1.20	6.40	-38.60	-13	25.60
1420.00	62.45	319	2.3	V	-46.0	1.20	6.40	-40.80	-13	27.80

Note:

1) Absolute Level = SG Level - Cable loss + Antenna Gain

2) Margin = Limit- Absolute Level

FCC §22.917(a) & §24.238(a) & §27.53 - BAND EDGES

Applicable Standards

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

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

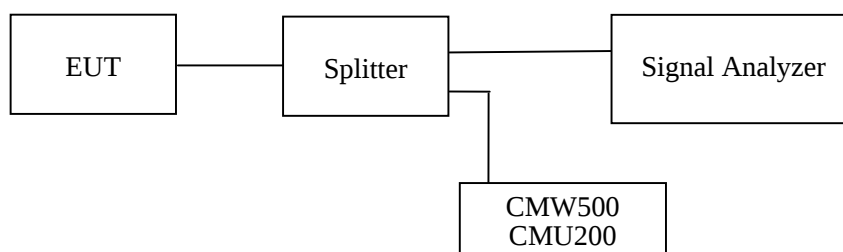
According to FCC §27.53, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Test Procedure

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

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2015-12-11	2016-12-11
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2015-11-23	2016-11-23
R&S	Wideband Radio Communication tester	CMW500	1201.002K50-146520-wh	2015-11-23	2016-11-23
Ducommun technologies	RF Cable	RG-214	4	2016-06-15	2017-06-15
WEINSCHL	10dB Attenuator	5321	AU0709	2016-06-18	2017-06-18
HONOVA	Power Splitter	HPDL-2W-B-NF	N/A	2016-06-12	2017-06-12

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

Test Data**Environmental Conditions**

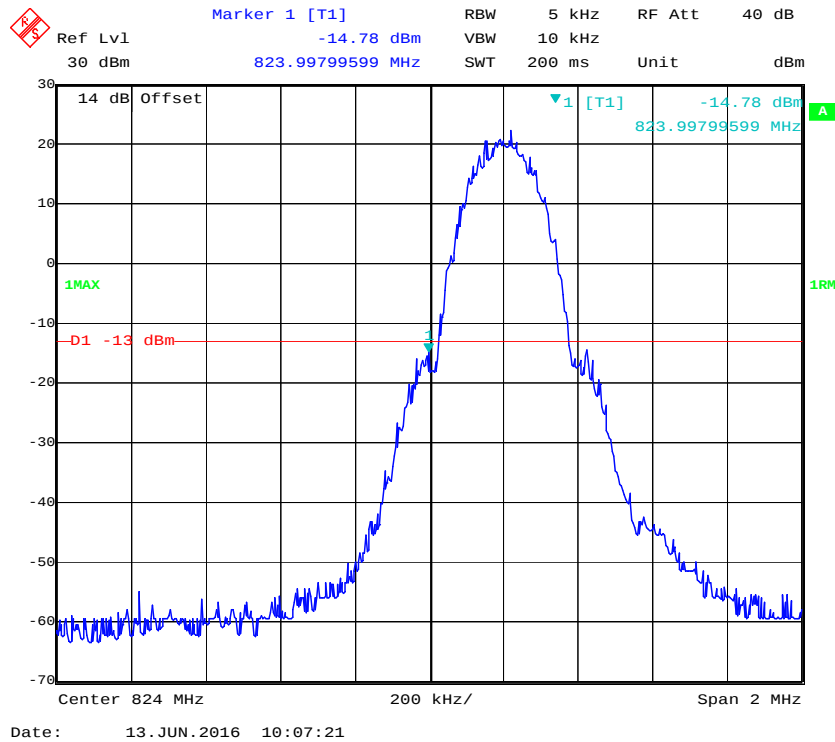
Temperature:	23~25.5 °C
Relative Humidity:	55 ~57%
ATM Pressure:	101.0kPa

The testing was performed by Haiguo Li from 2016-06-13 to 2016-06-17.

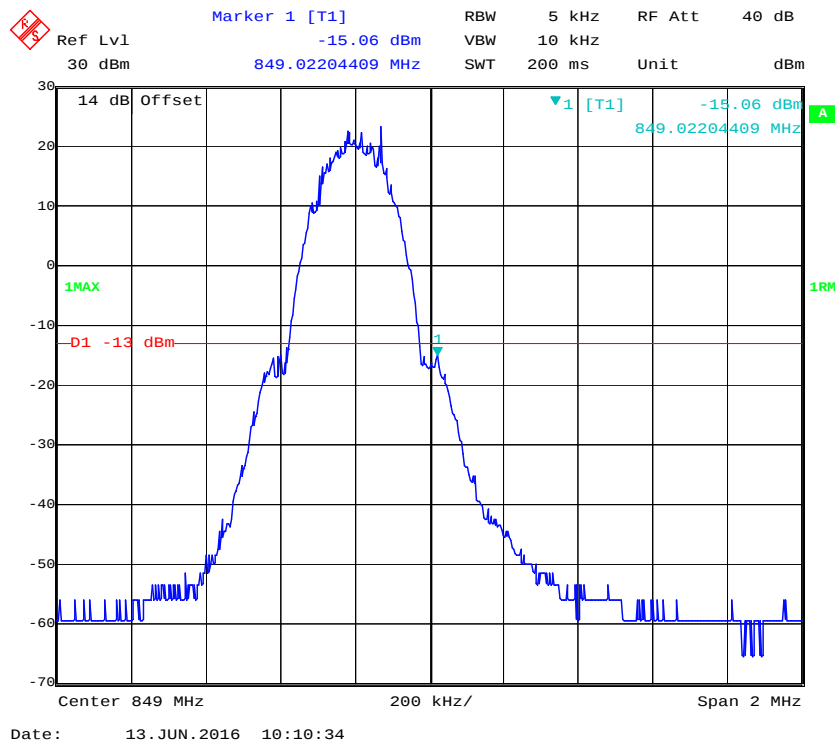
EUT operation mode: Transmitting

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

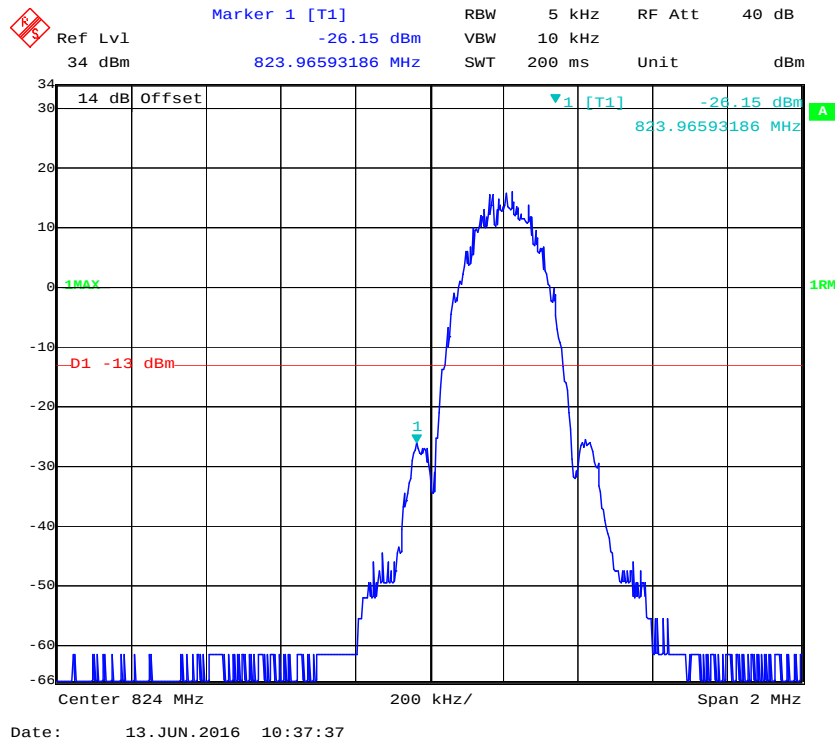
Cellular Band, Left Band Edge for GSM (GMSK) Mode



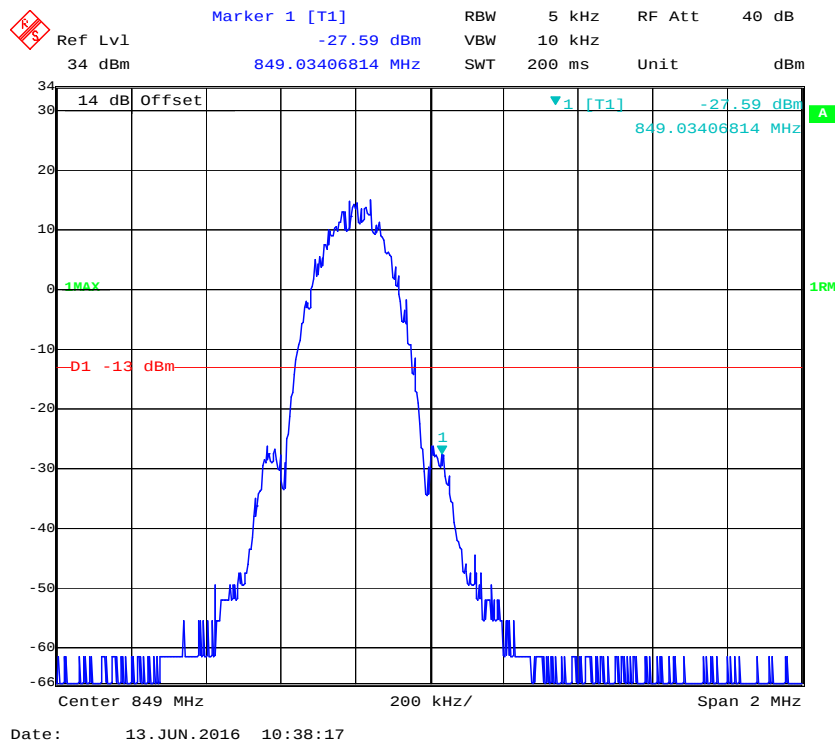
Cellular Band, Right Band Edge for GSM (GMSK) Mode



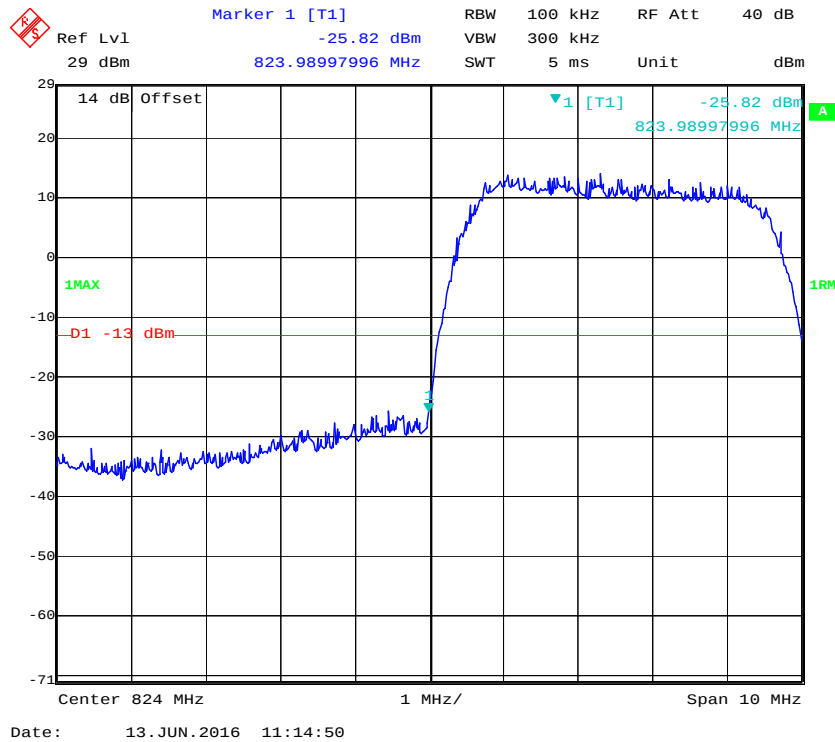
Cellular Band, Left Band Edge for EGPRS Mode



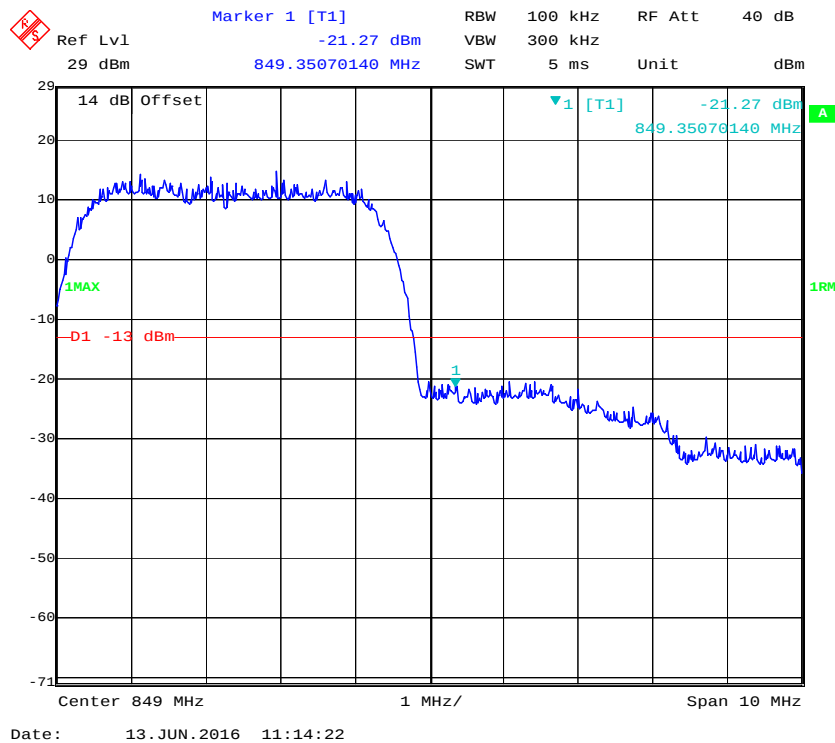
Cellular Band, Right Band Edge for EGPRS Mode



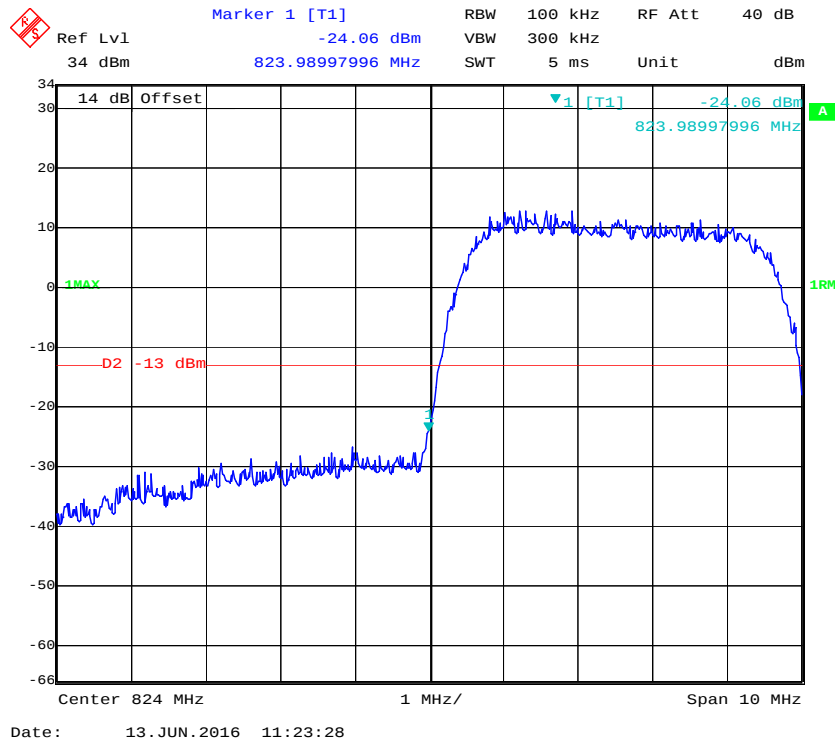
Cellular Band, Left Band Edge for RMC (BPSK) Mode



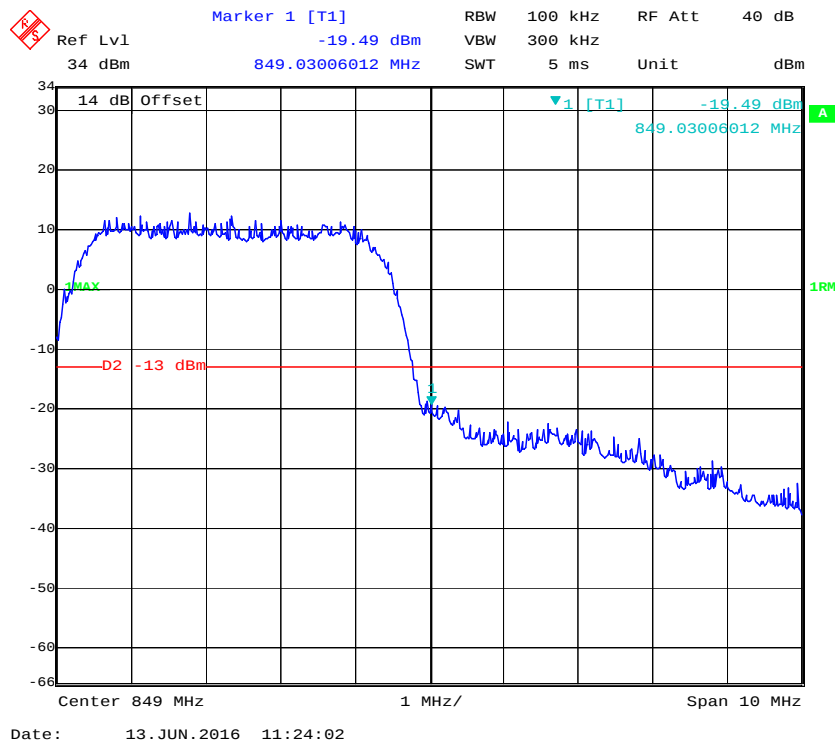
Cellular Band, Right Band Edge for RMC (BPSK) Mode



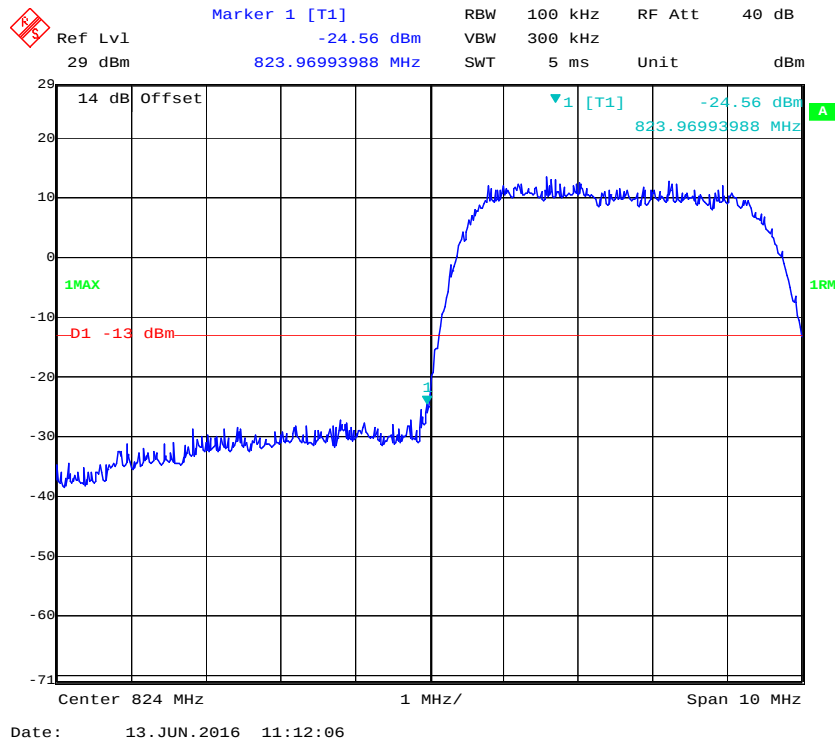
Cellular Band, Left Band Edge for HSDPA (16QAM) Mode



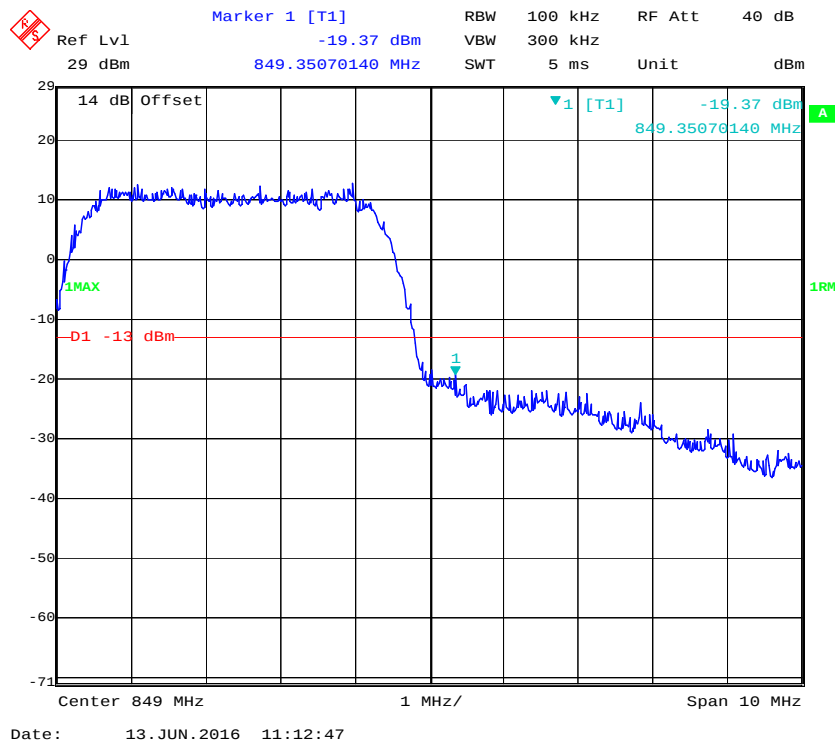
Cellular Band, Right Band Edge for HSDPA (16QAM) Mode



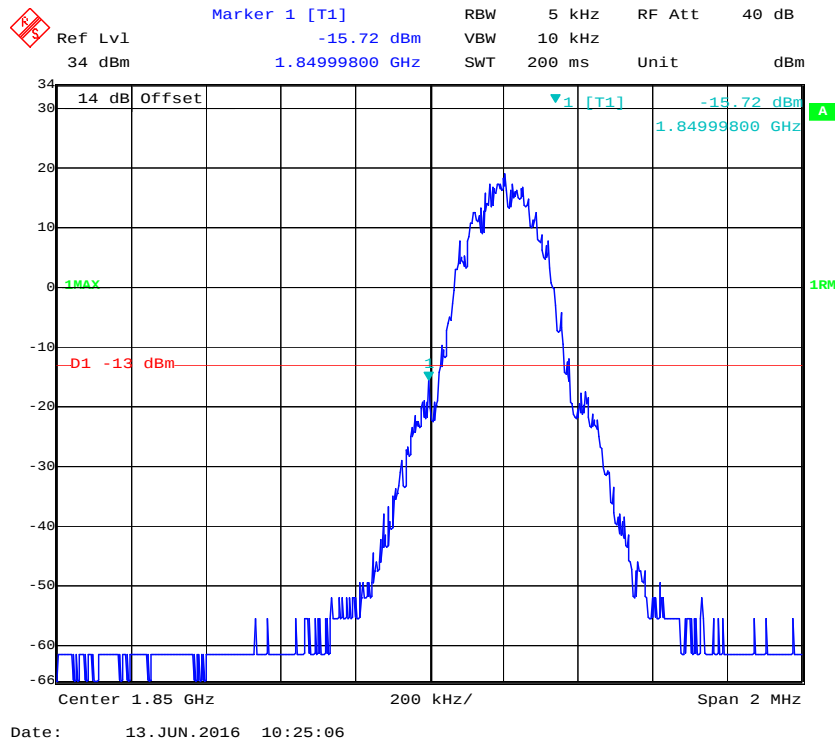
Cellular Band, Left Band Edge for HSUPA (BPSK) Mode



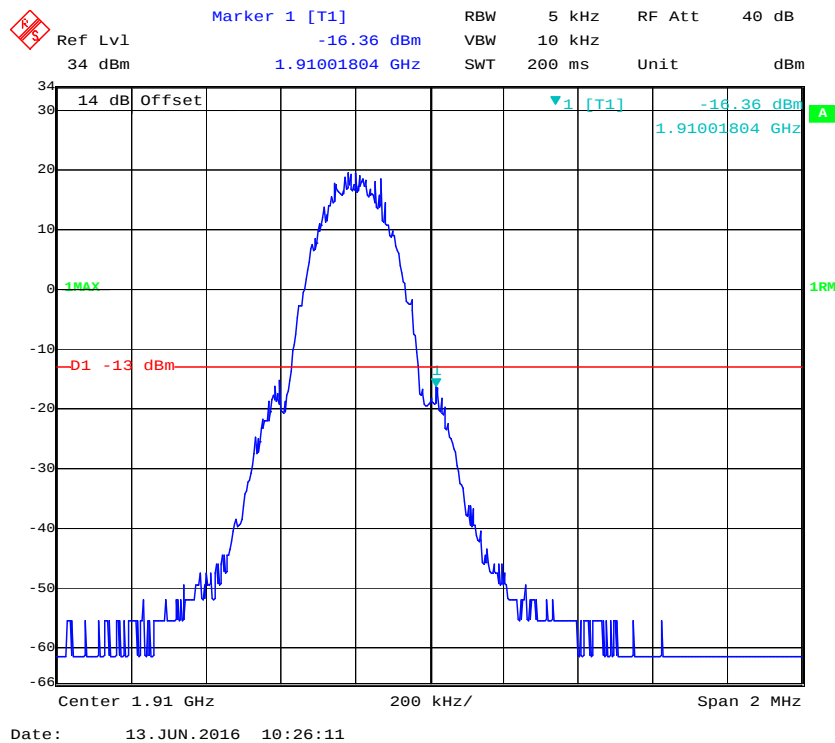
Cellular Band, Right Band Edge for HSUPA (BPSK) Mode



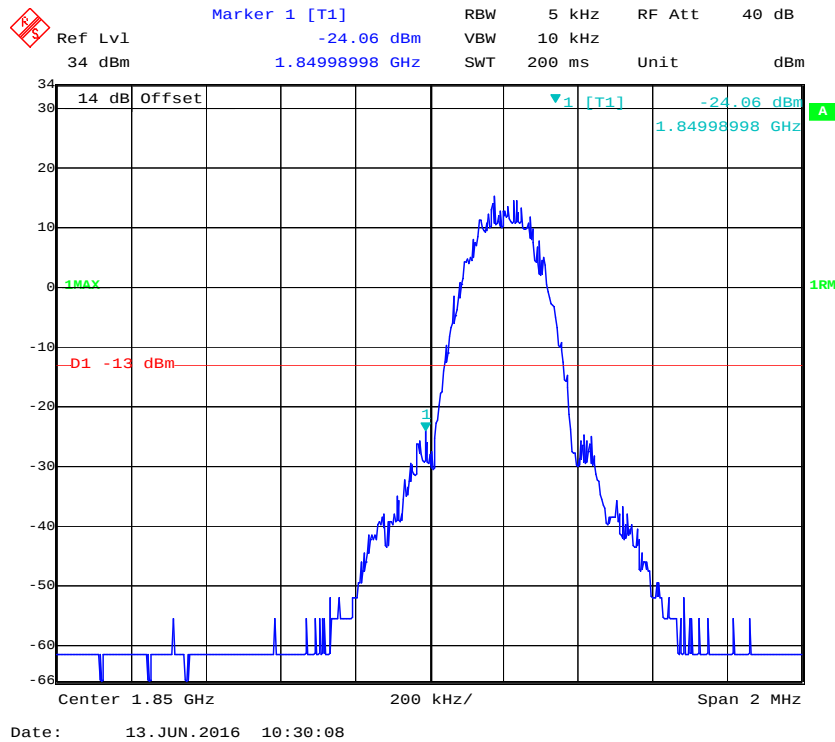
PCS Band, Left Band Edge for GSM (GMSK) Mode



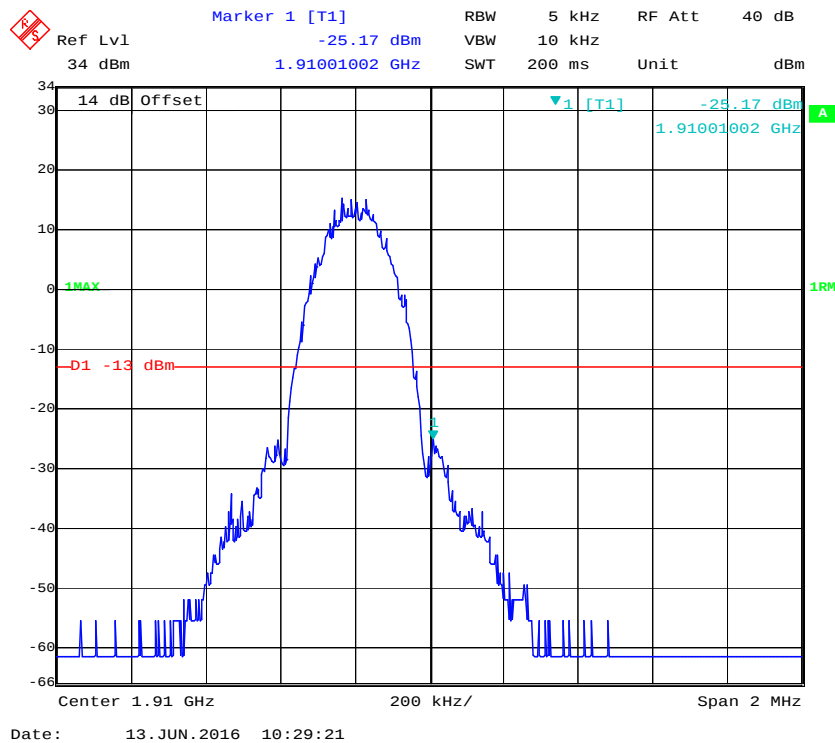
PCS Band, Right Band Edge for GSM (GMSK) Mode



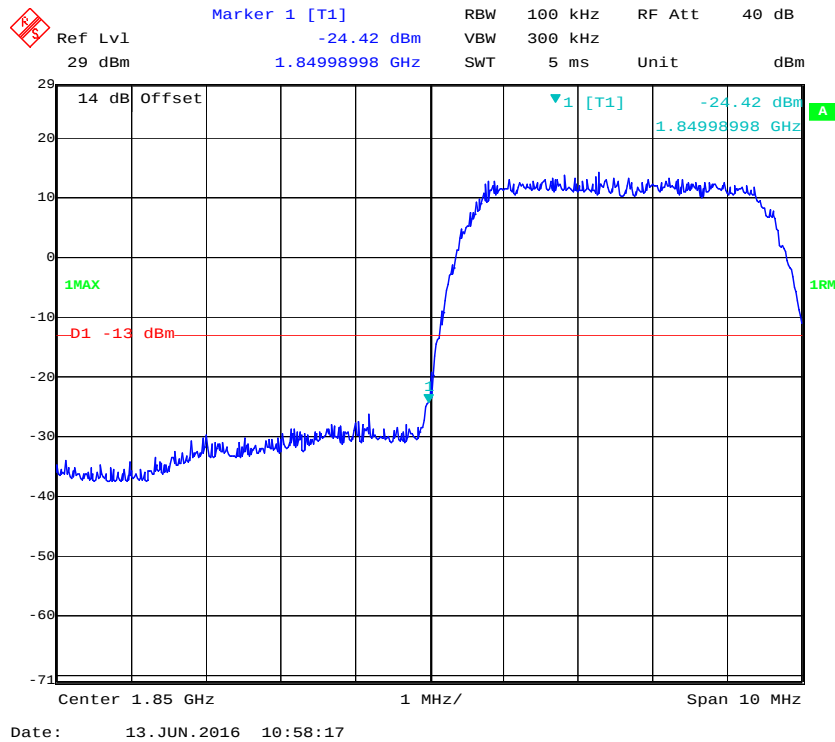
PCS Band, Left Band Edge for EGPRS Mode



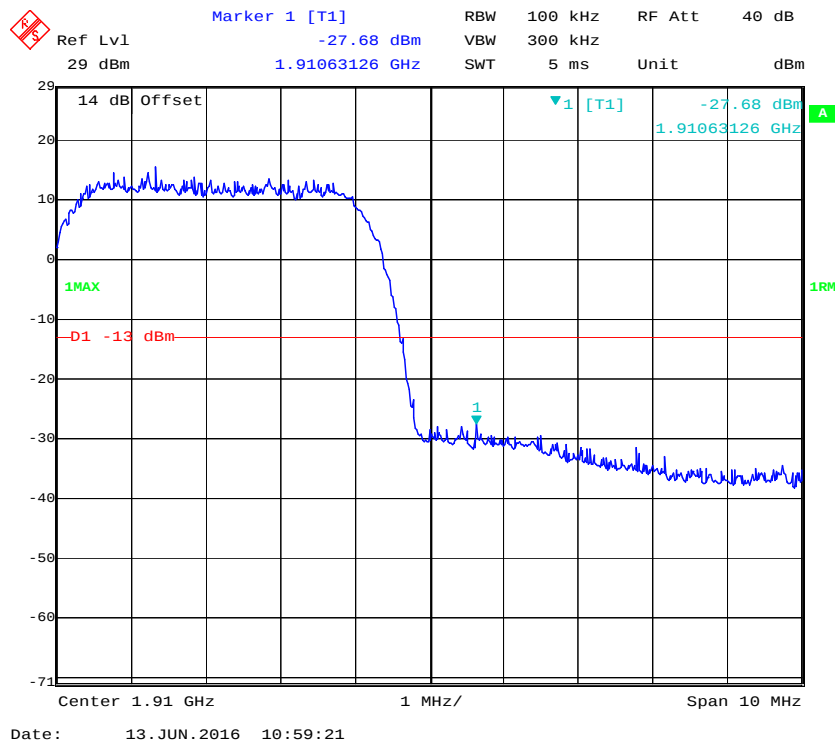
PCS Band, Right Band Edge for EGPRS Mode



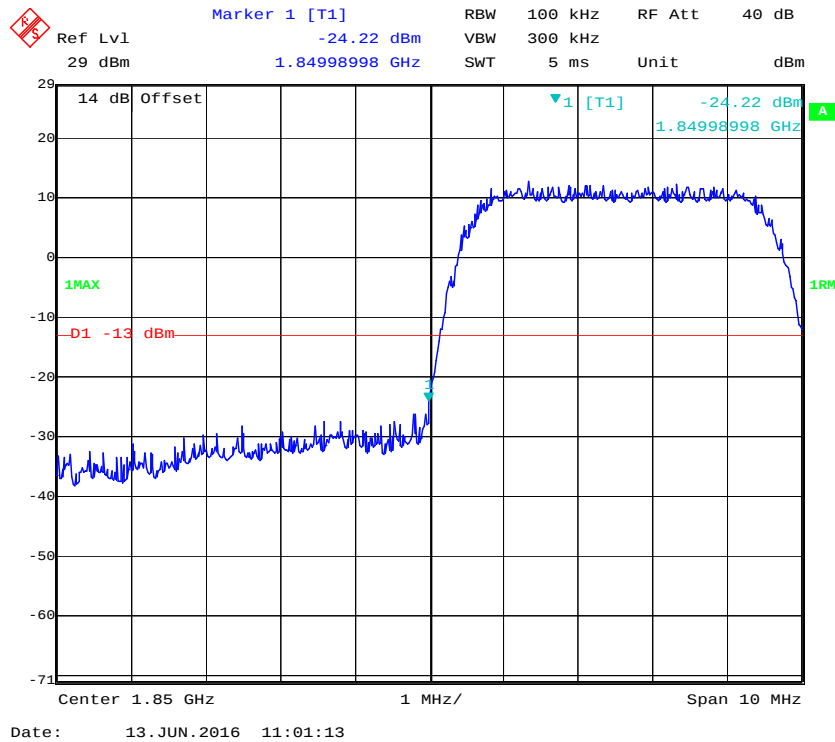
PCS Band, Left Band Edge for RMC (BPSK) Mode



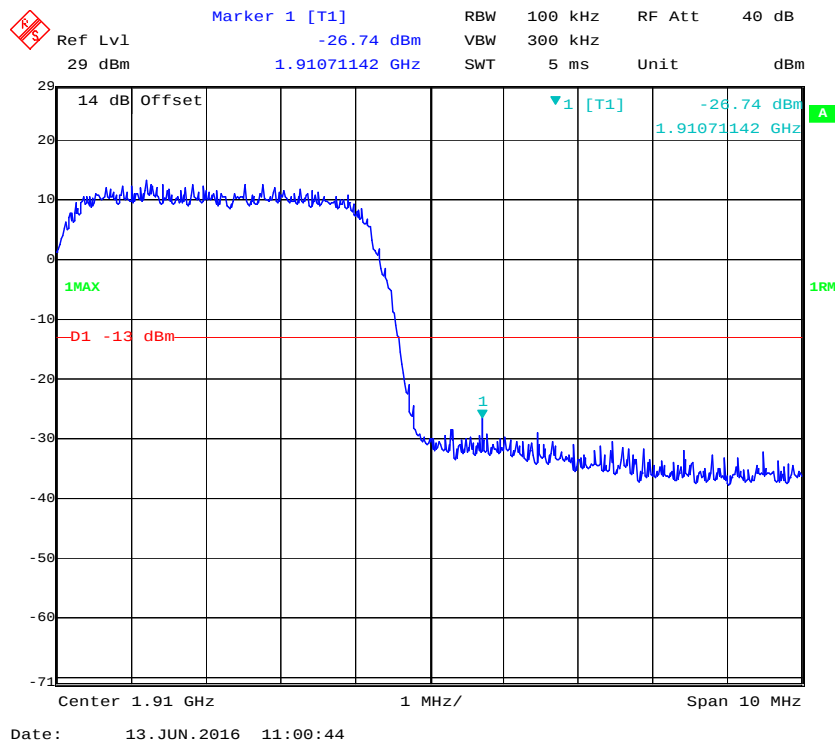
PCS Band, Right Band Edge for RMC (BPSK) Mode



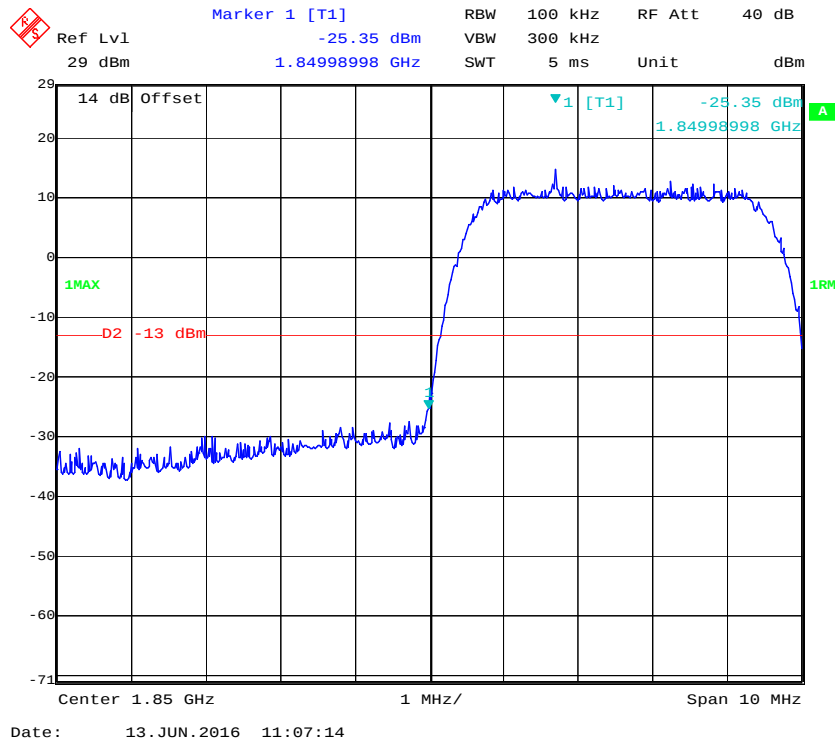
PCS Band, Left Band Edge for HSDPA (16QAM) Mode



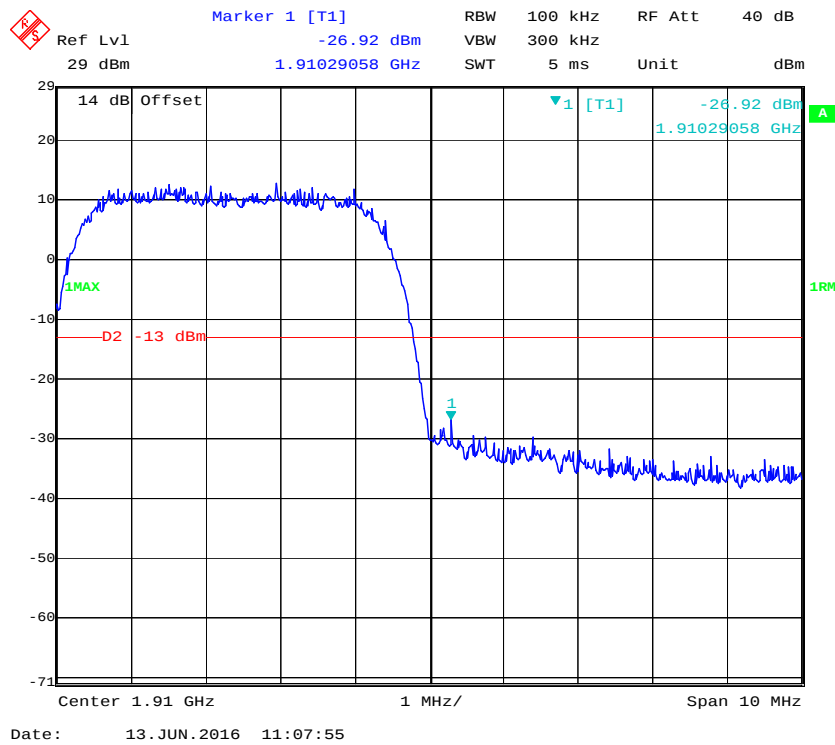
PCS Band, Right Band Edge for HSDPA (16QAM) Mode



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

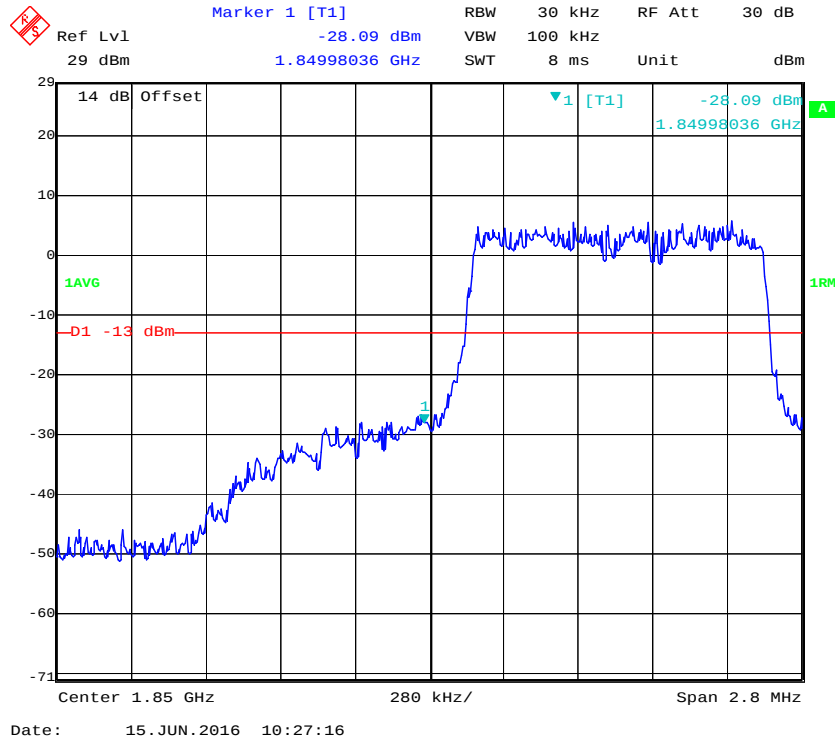


PCS Band, Right Band Edge for HSUPA (BPSK) Mode

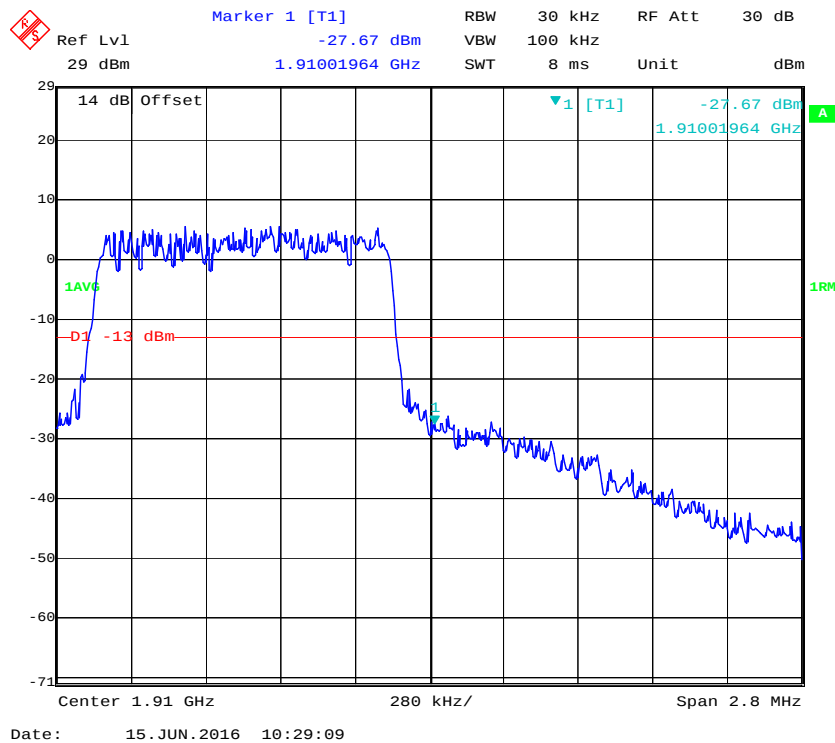


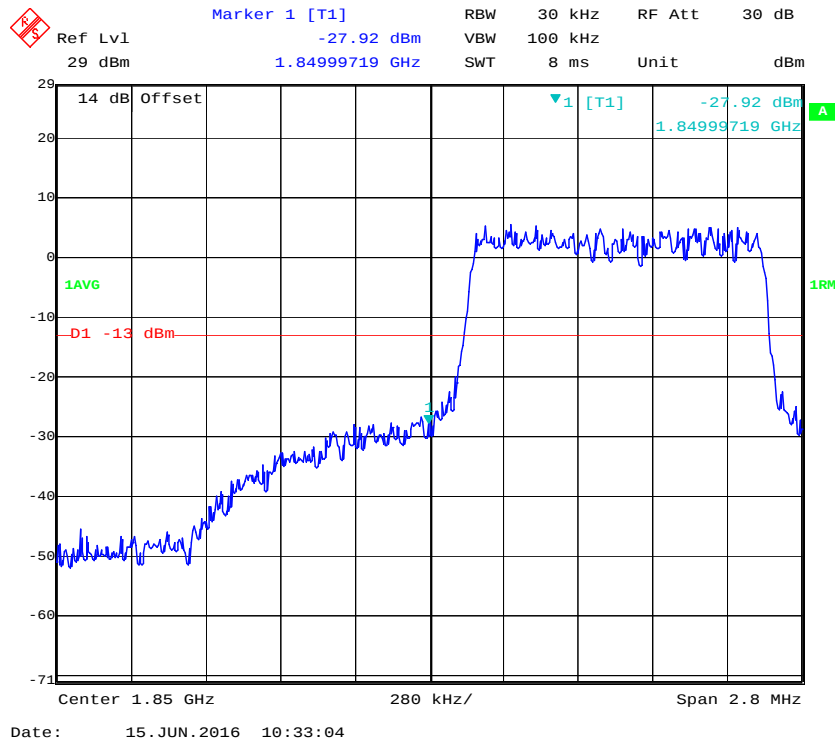
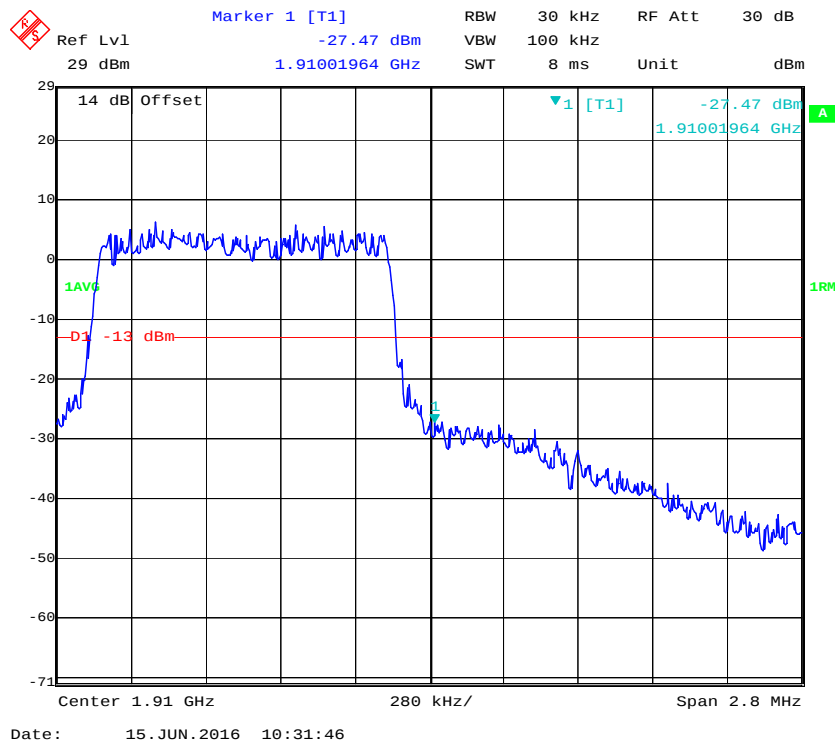
Band 2:

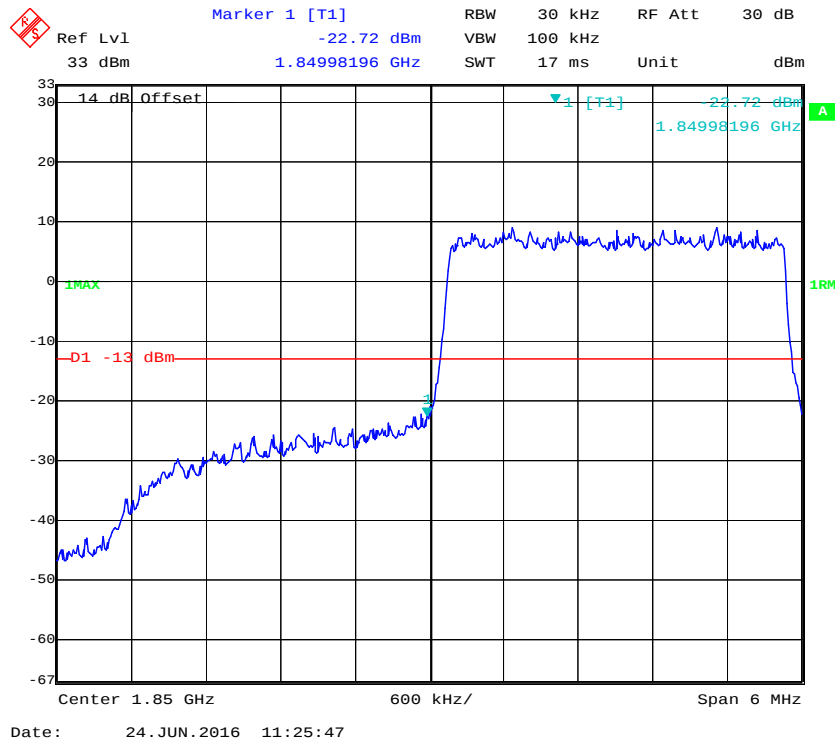
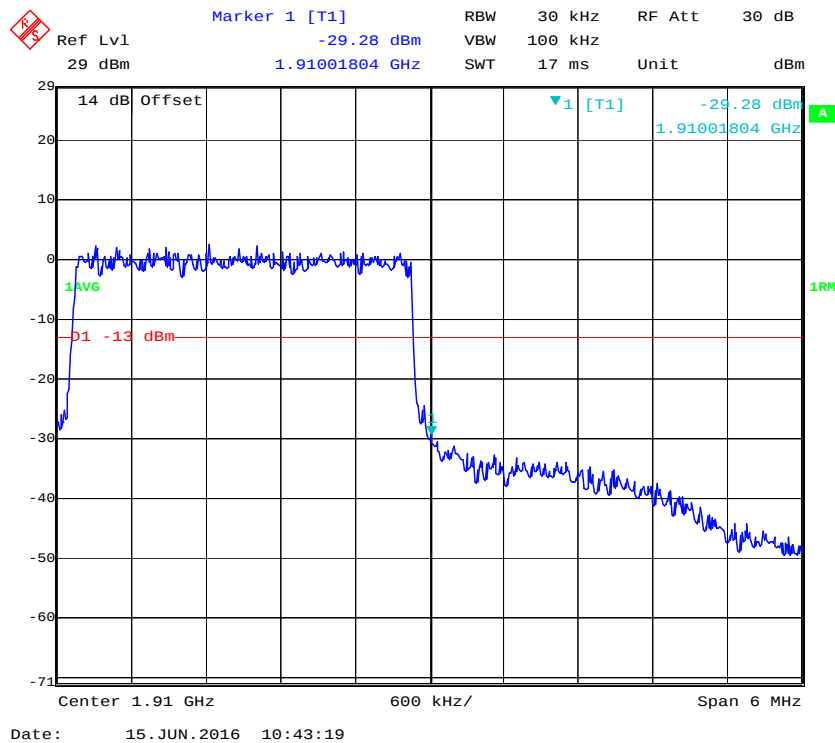
QPSK (1.4 MHz, FULL RB) - Left Band Edge



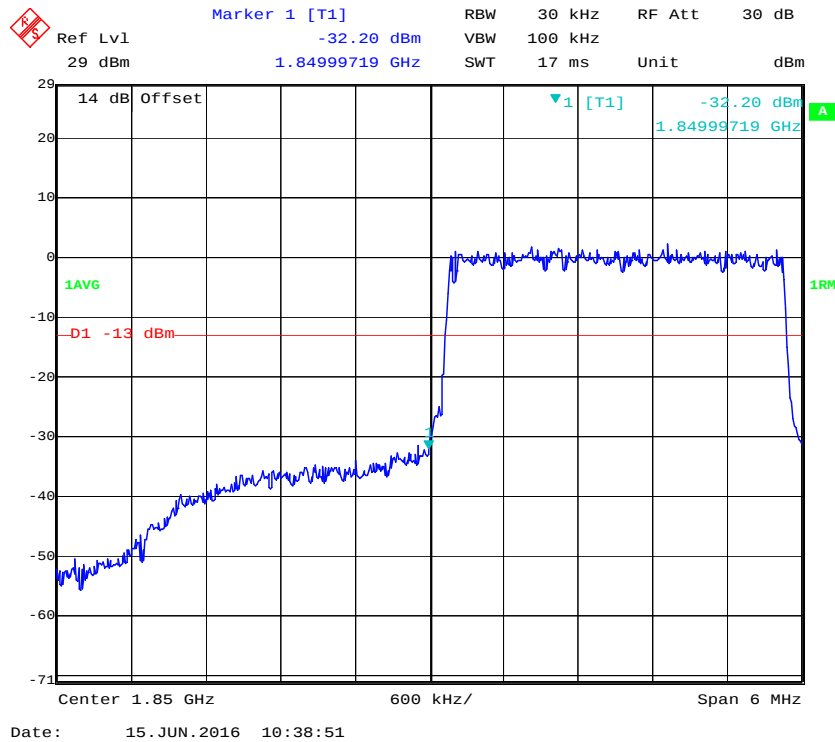
QPSK (1.4 MHz, FULL RB) - Right Band Edge



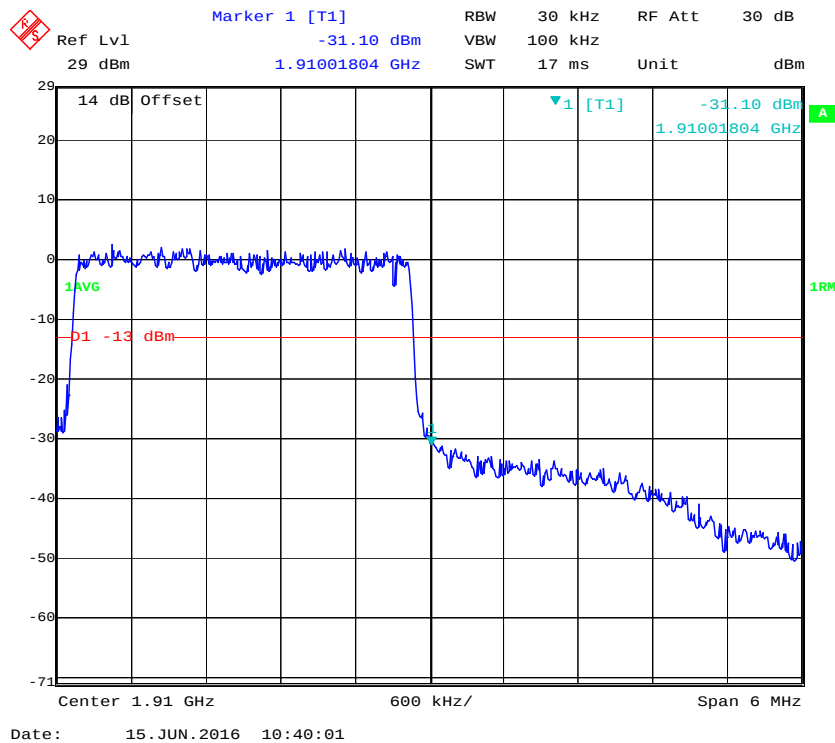
16-QAM (1.4 MHz, FULL RB) - Left Band Edge**16-QAM (1.4 MHz, FULL RB) - Right Band Edge**

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

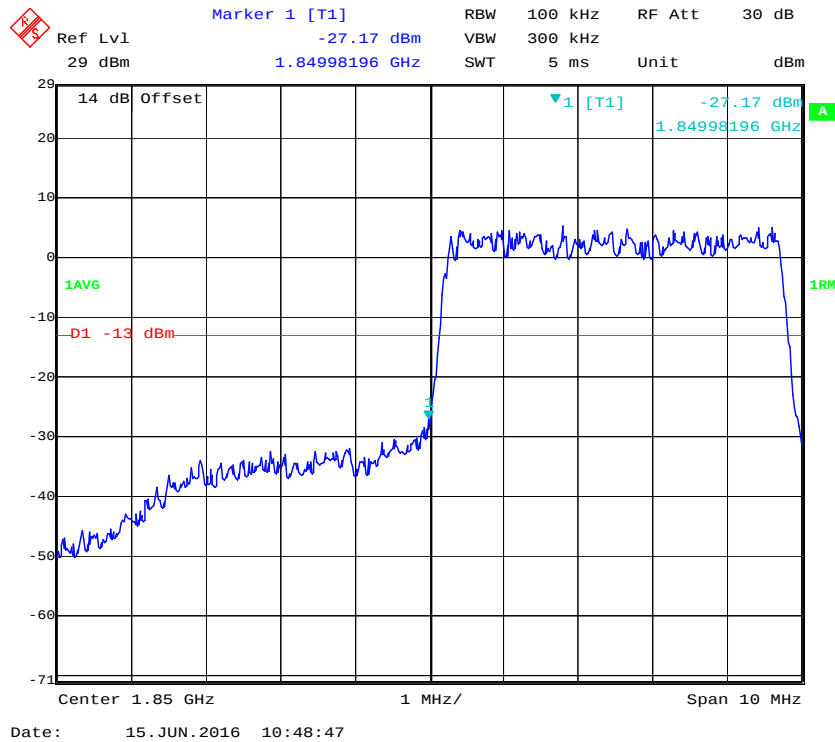
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



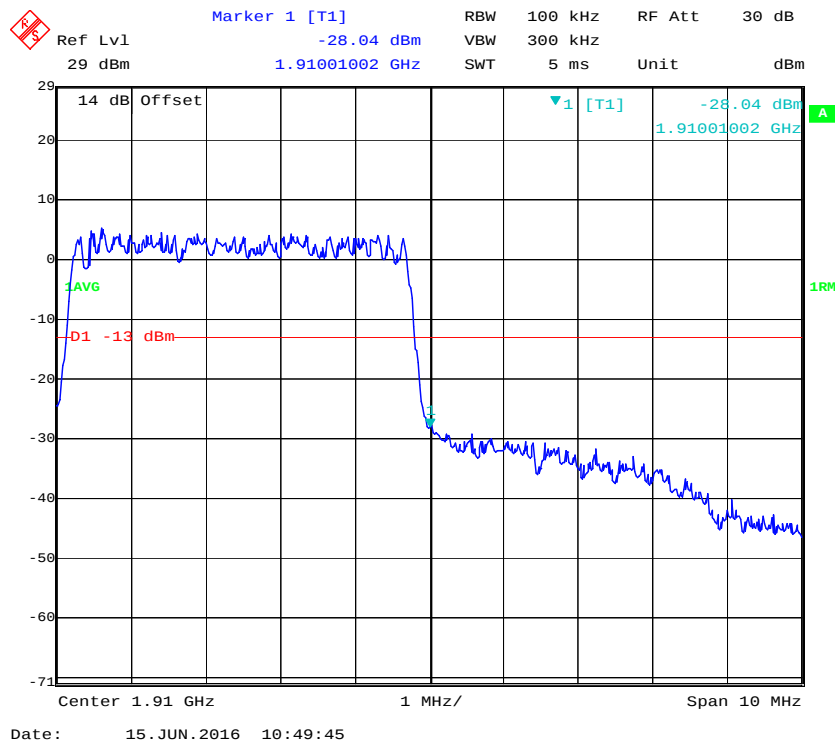
16-QAM (3.0 MHz, FULL RB) - Right Band Edge



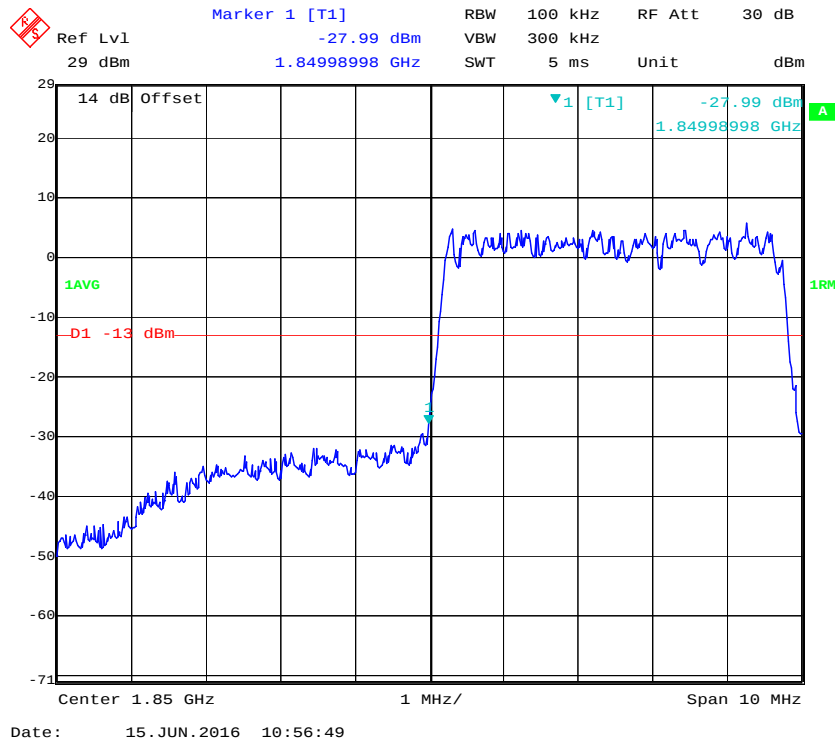
QPSK (5.0 MHz, FULL RB) - Left Band Edge



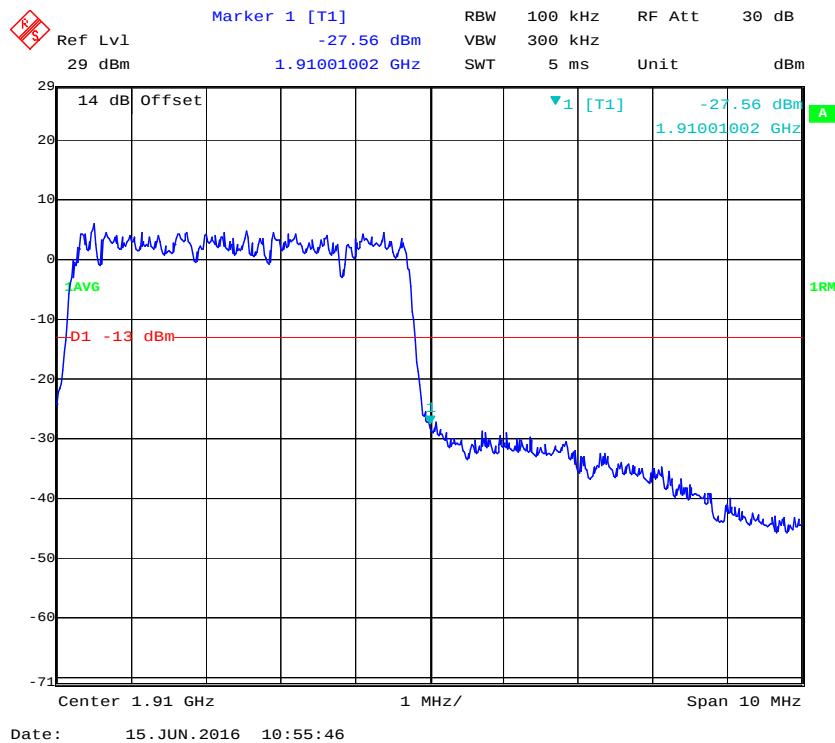
QPSK (5.0 MHz, FULL RB) - Right Band Edge



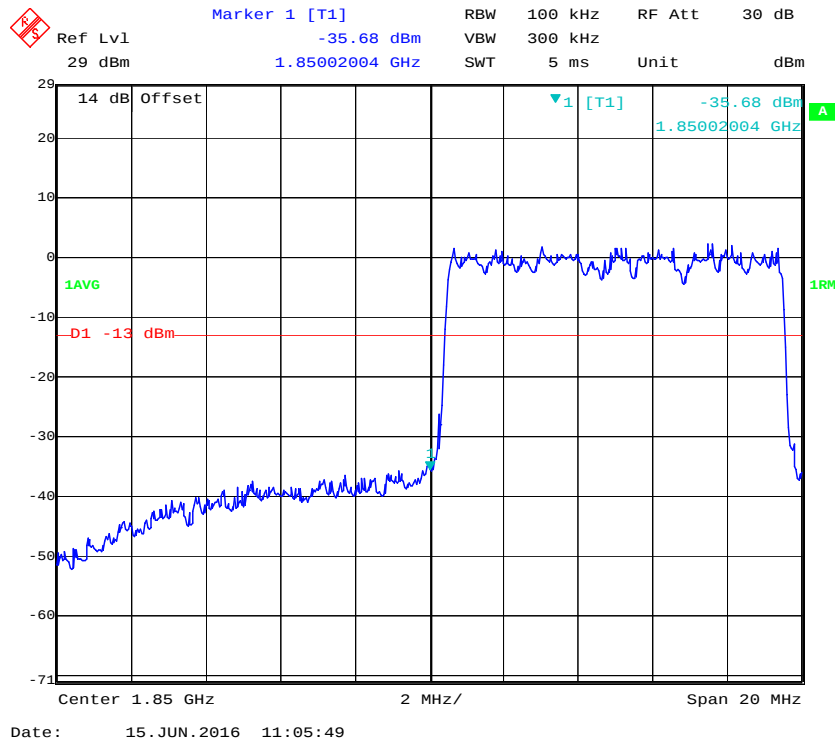
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



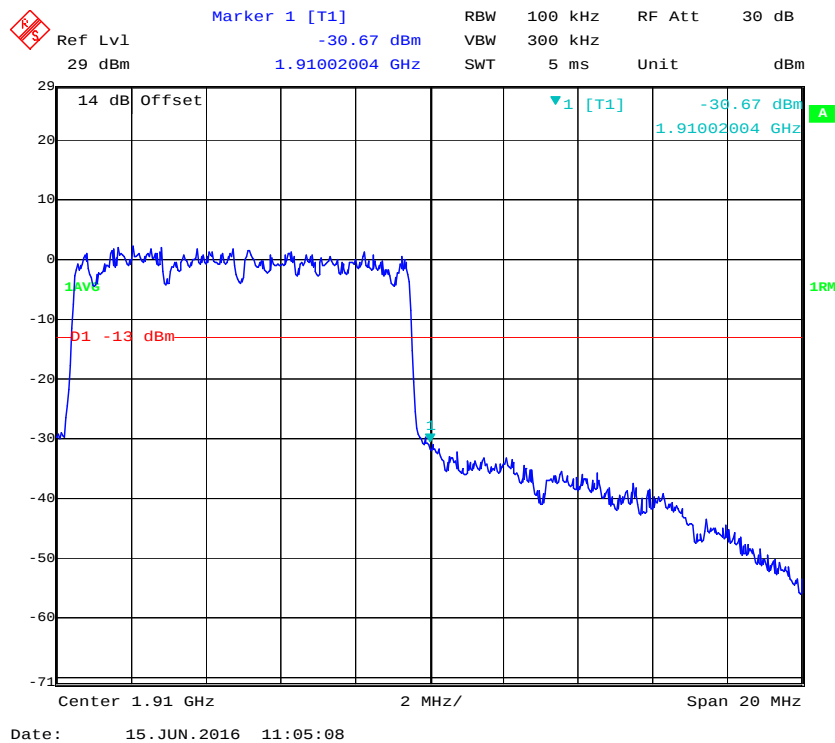
16-QAM (5.0 MHz, FULL RB) - Right Band Edge

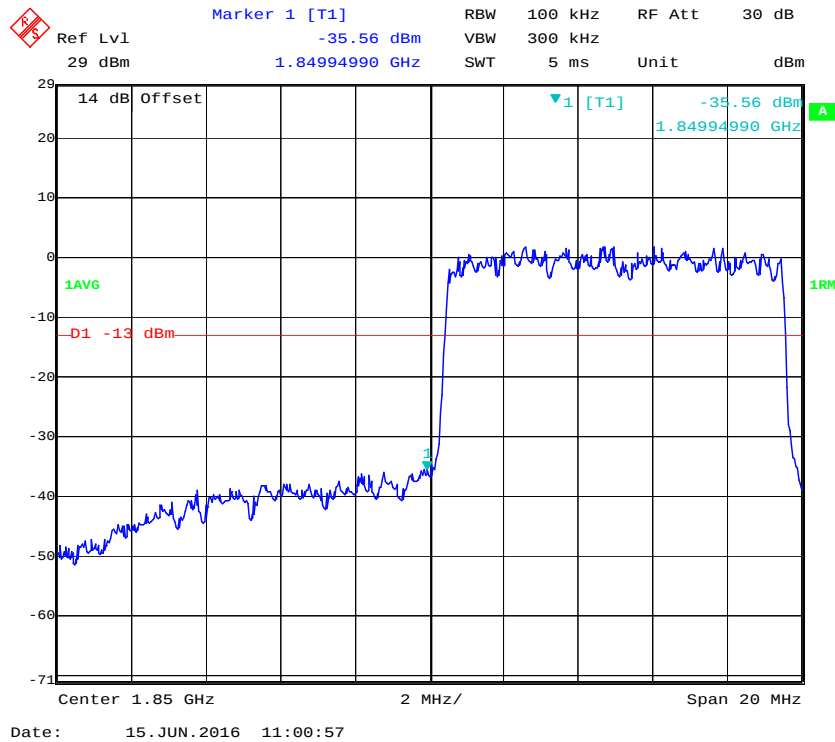
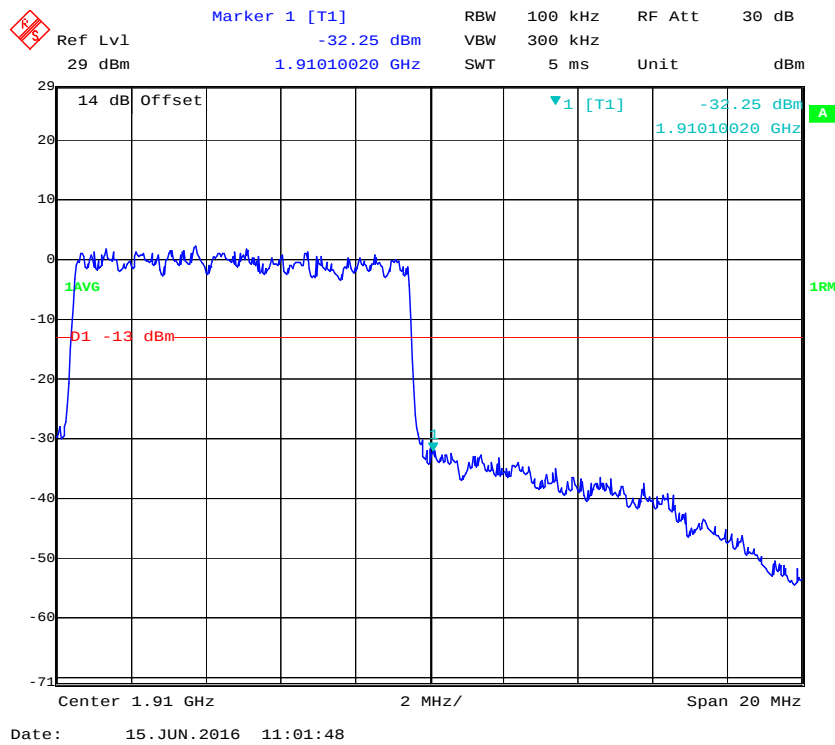


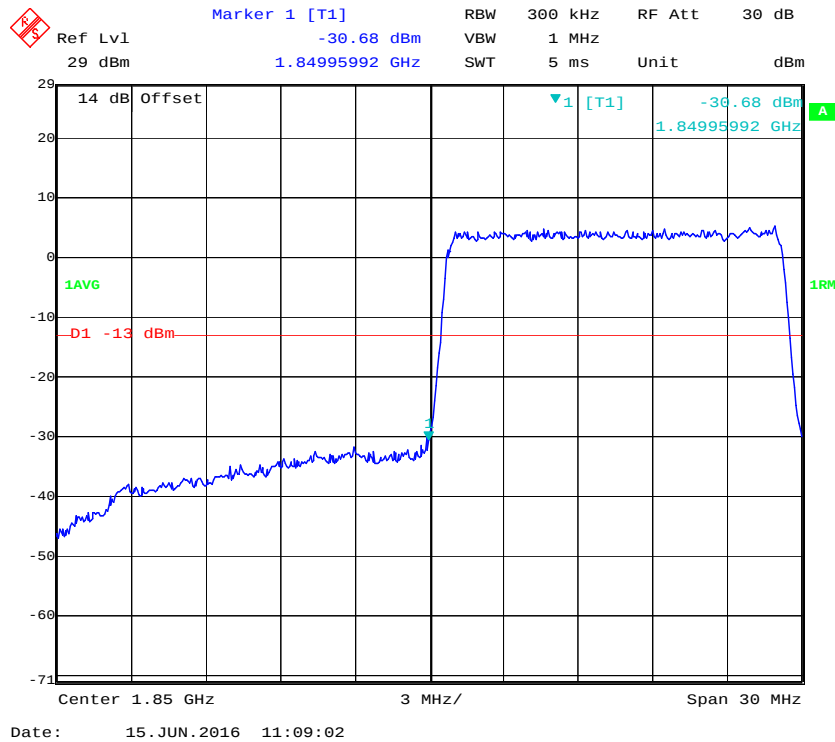
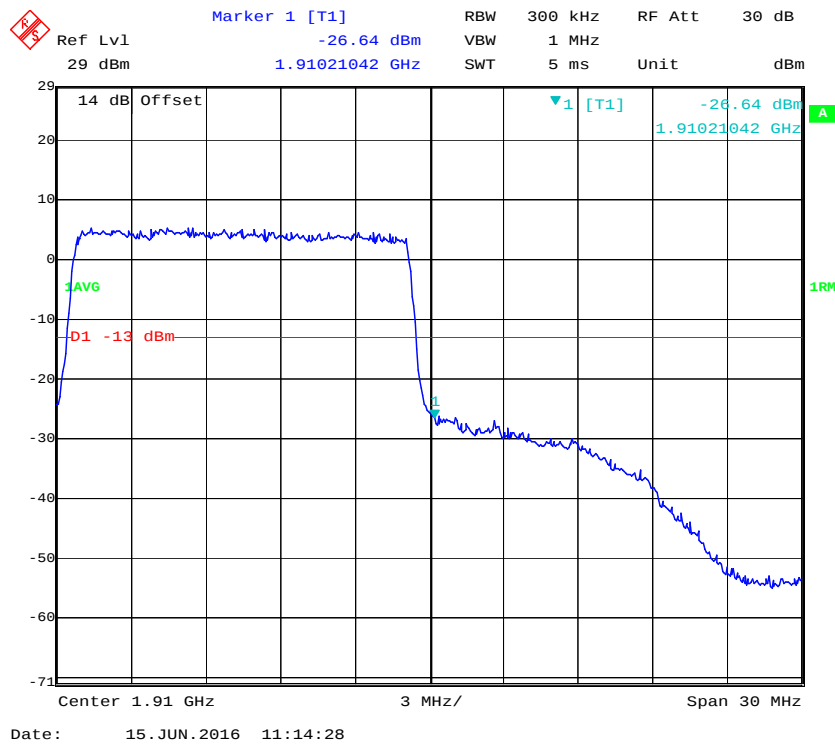
QPSK (10.0 MHz, FULL RB) - Left Band Edge



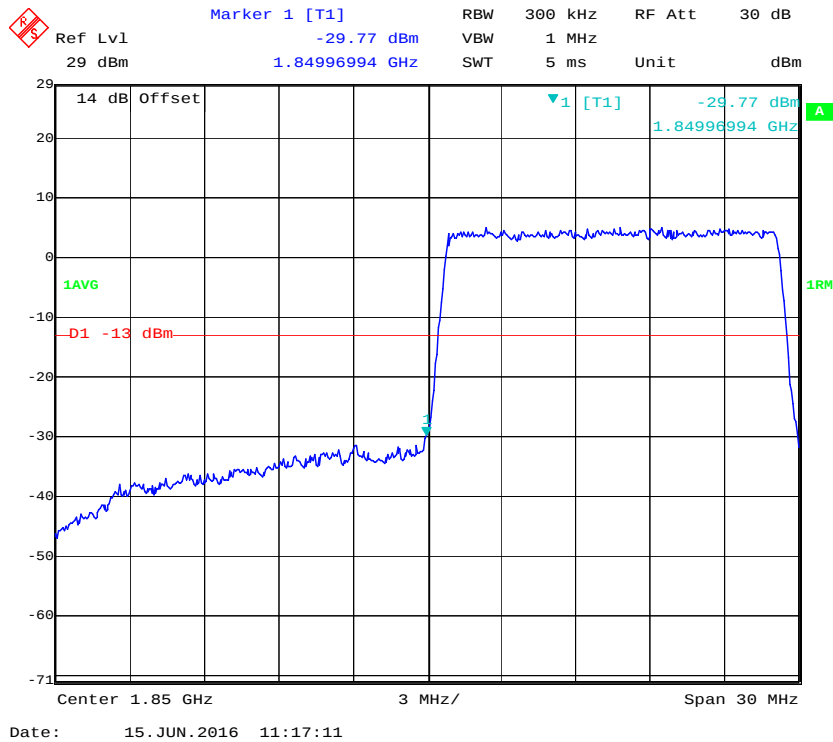
QPSK (10.0 MHz, FULL RB) - Right Band Edge



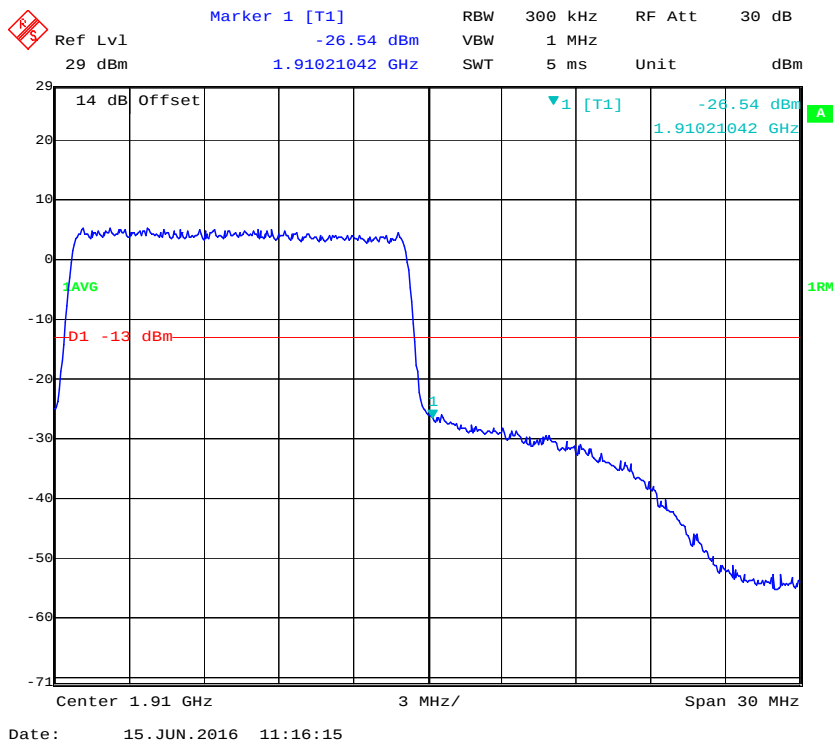
16-QAM (10.0 MHz, FULL RB) - Left Band Edge**16-QAM (10.0 MHz, FULL RB) - Right Band Edge**

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

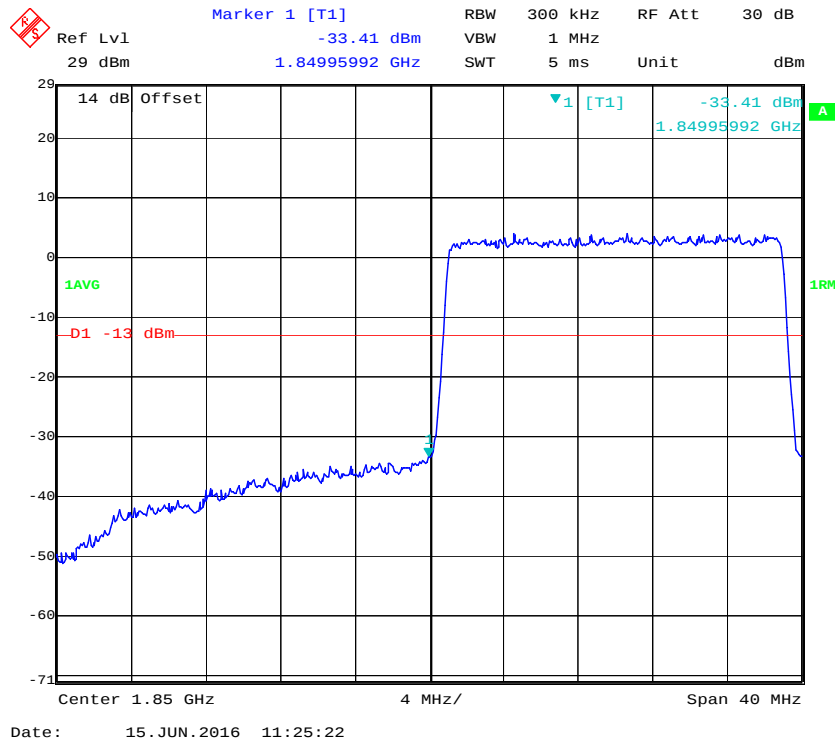
16-QAM (15.0 MHz, FULL RB) - Left Band Edge



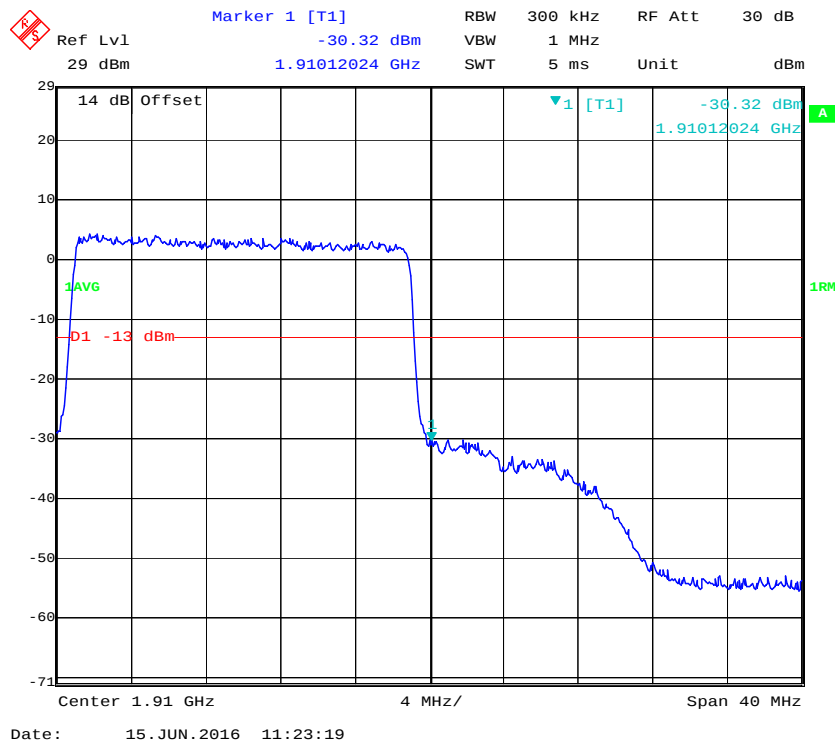
16-QAM (15.0 MHz, FULL RB) - Right Band Edge



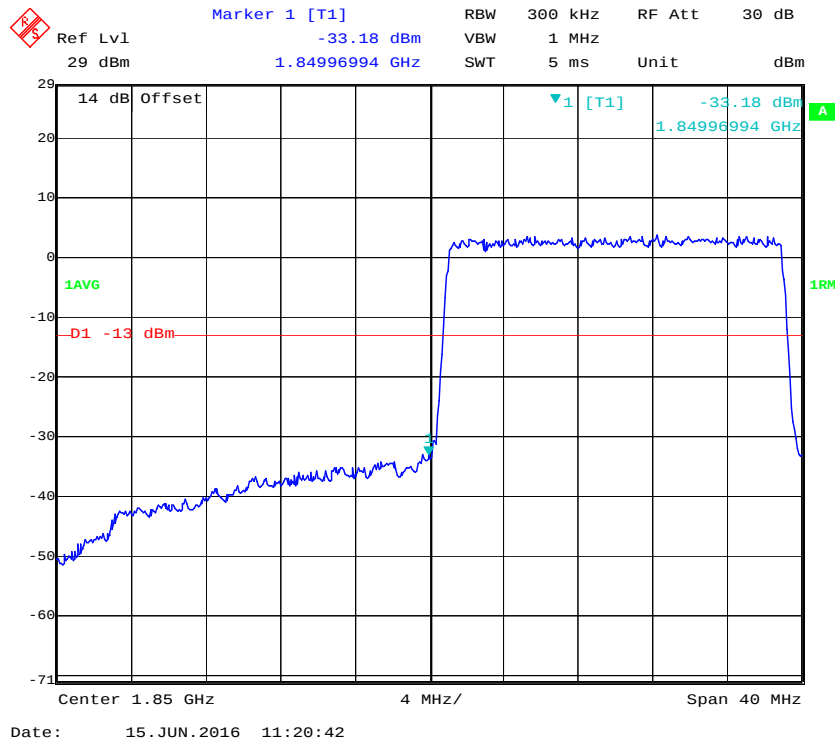
QPSK (20.0 MHz, FULL RB) - Left Band Edge



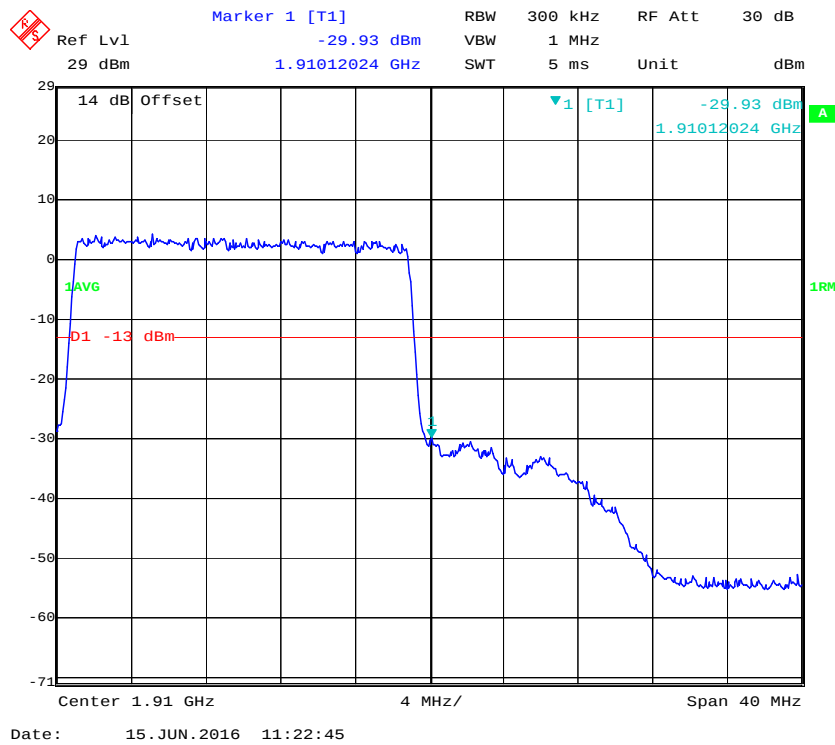
QPSK (20.0 MHz, FULL RB) - Right Band Edge



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

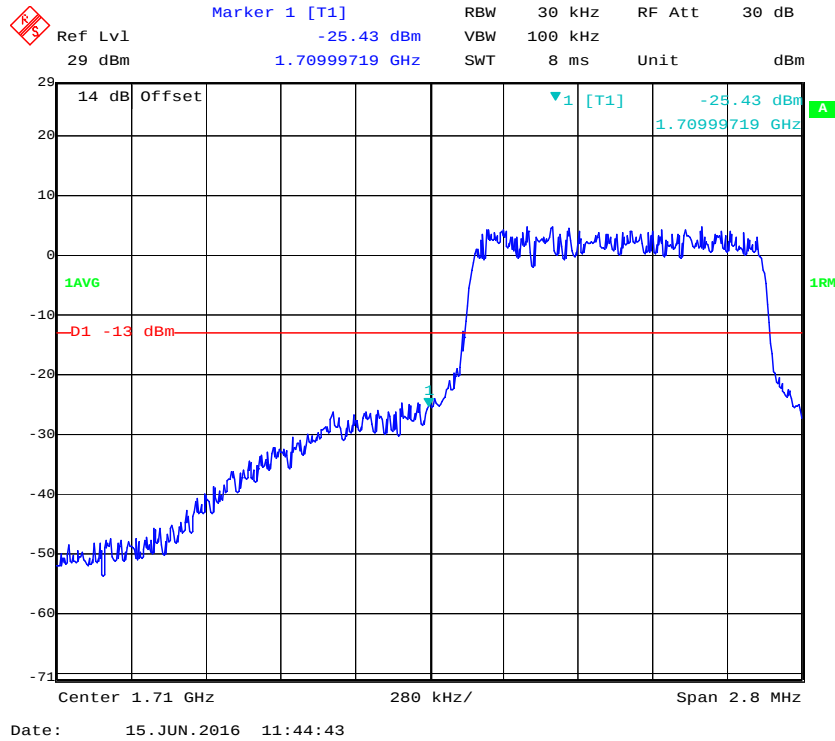


16-QAM (20.0 MHz, FULL RB) - Right Band Edge

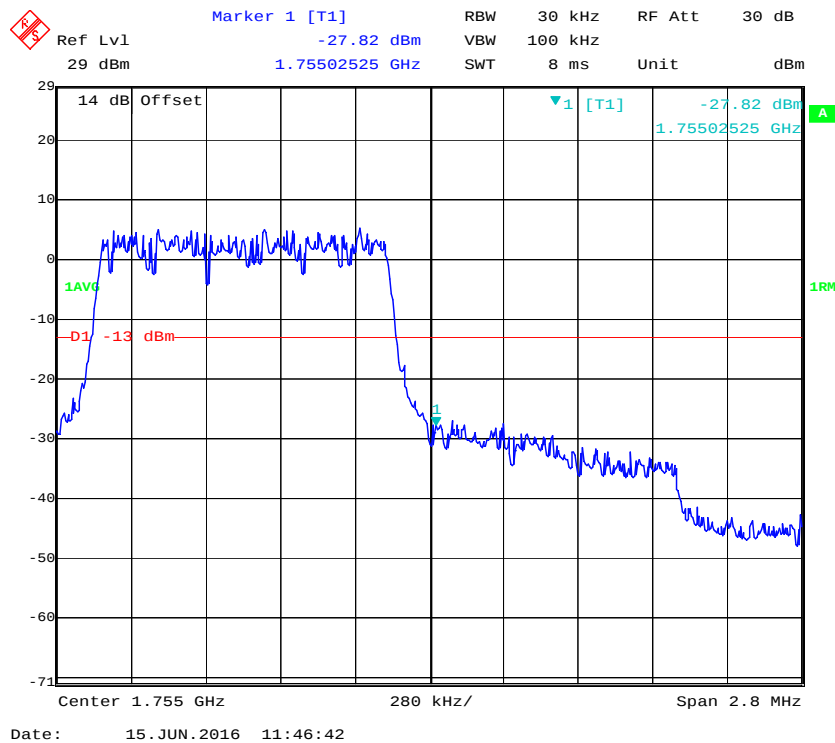


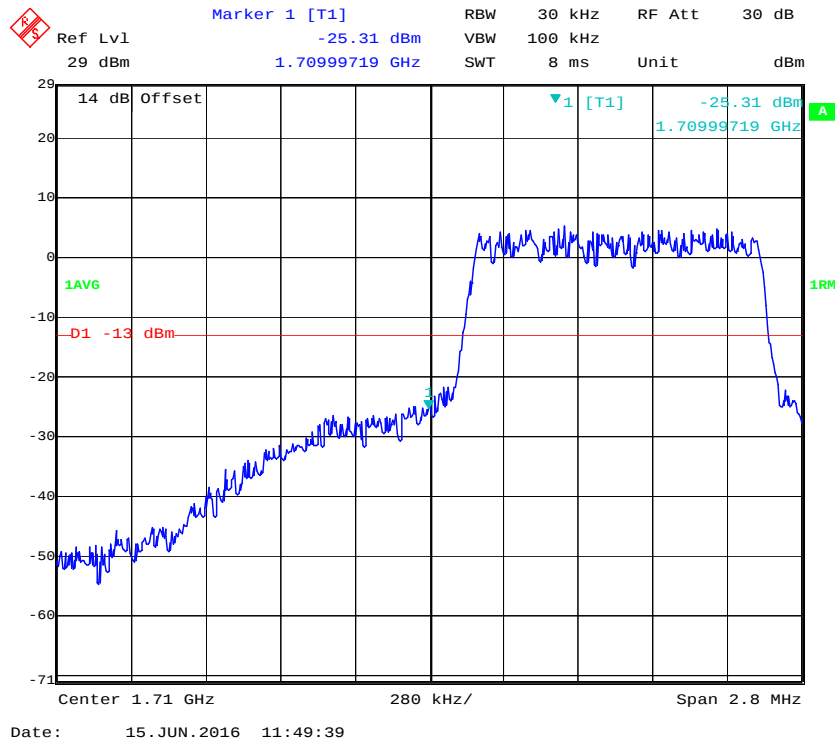
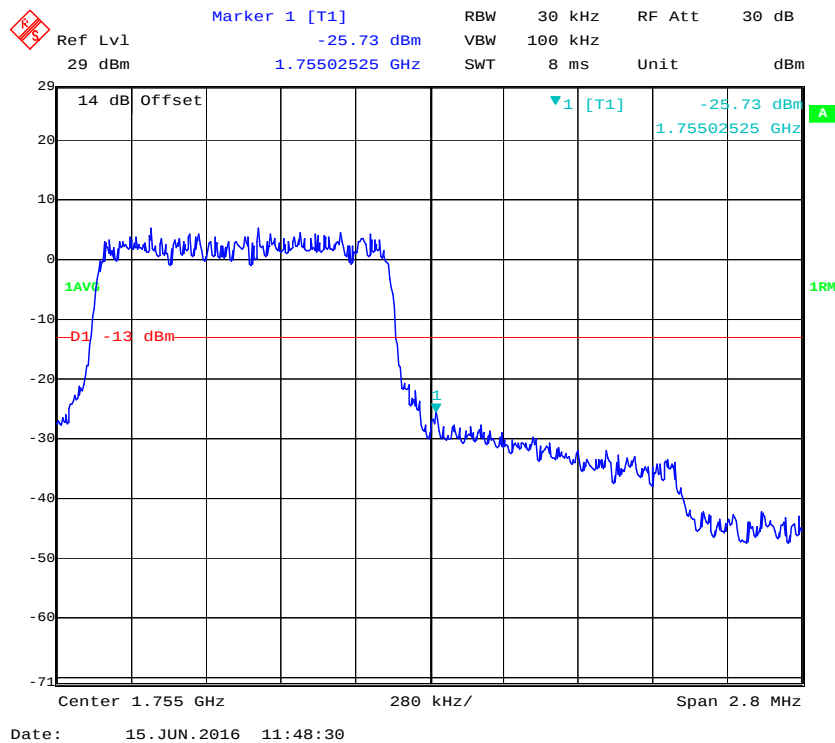
Band 4:

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

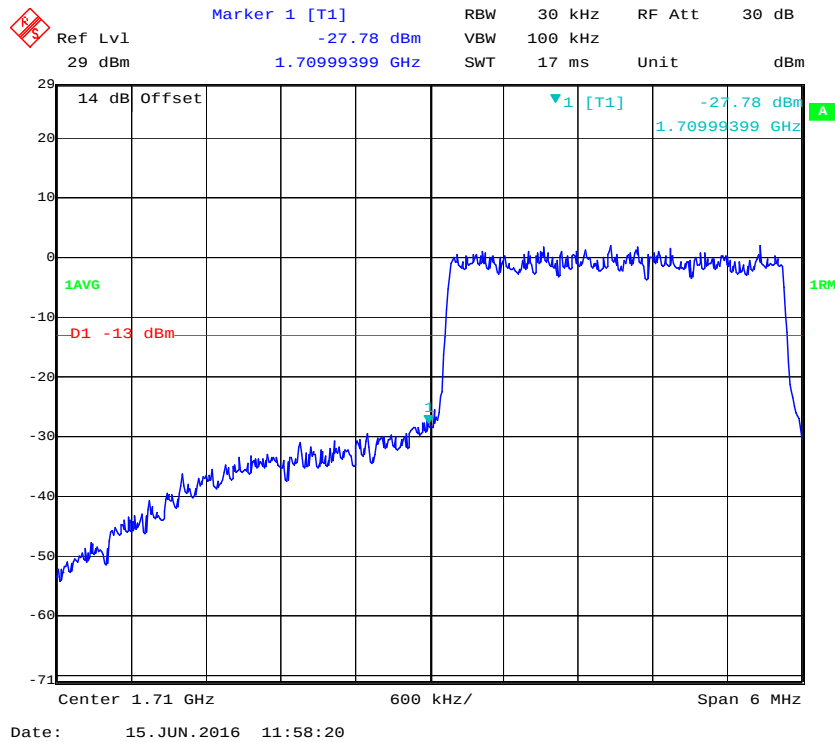


QPSK (1.4 MHz, FULL RB) - Right Band Edge

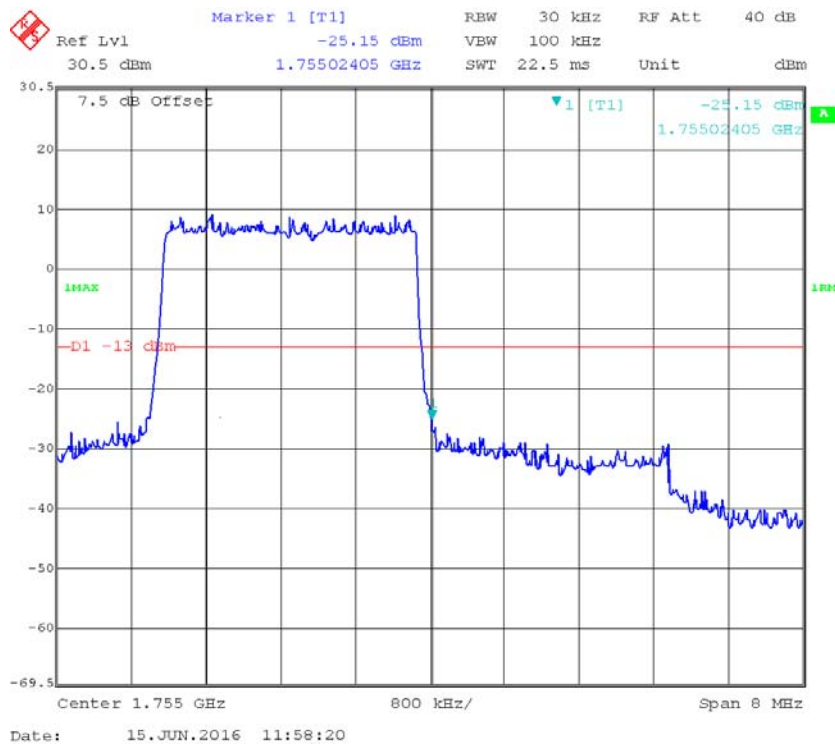


16-QAM (1.4 MHz, FULL RB) - Left Band Edge**16-QAM (1.4 MHz, FULL RB) - Right Band Edge**

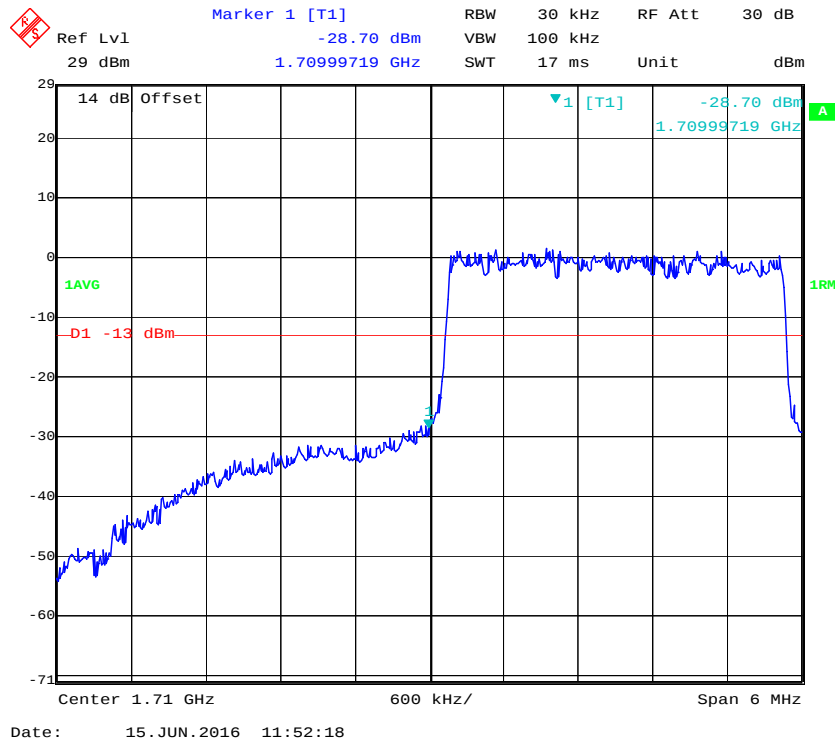
QPSK (3.0 MHz, FULL RB) - Left Band Edge



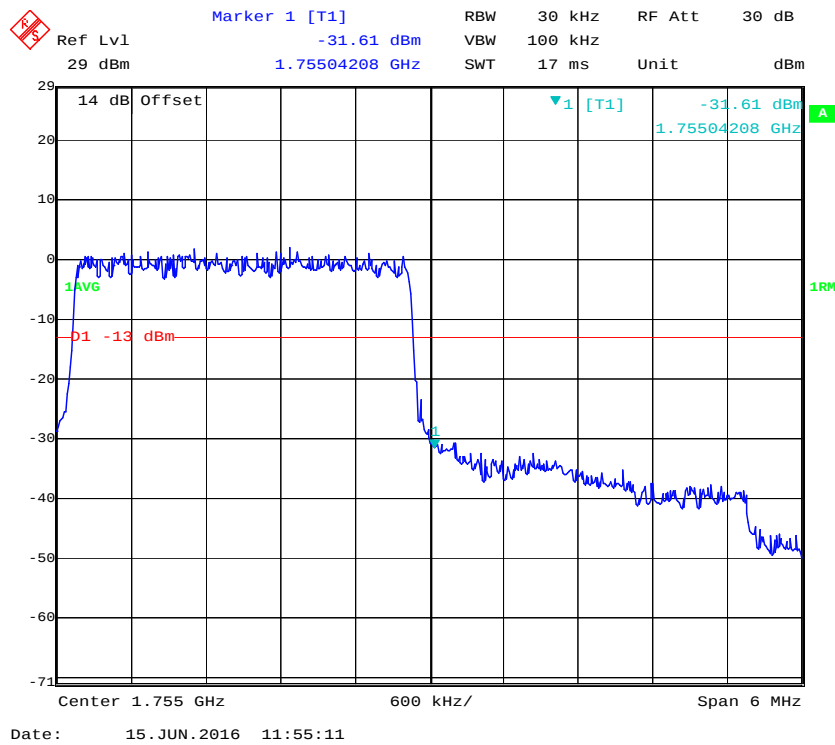
QPSK (3.0 MHz, FULL RB) - Right Band Edge



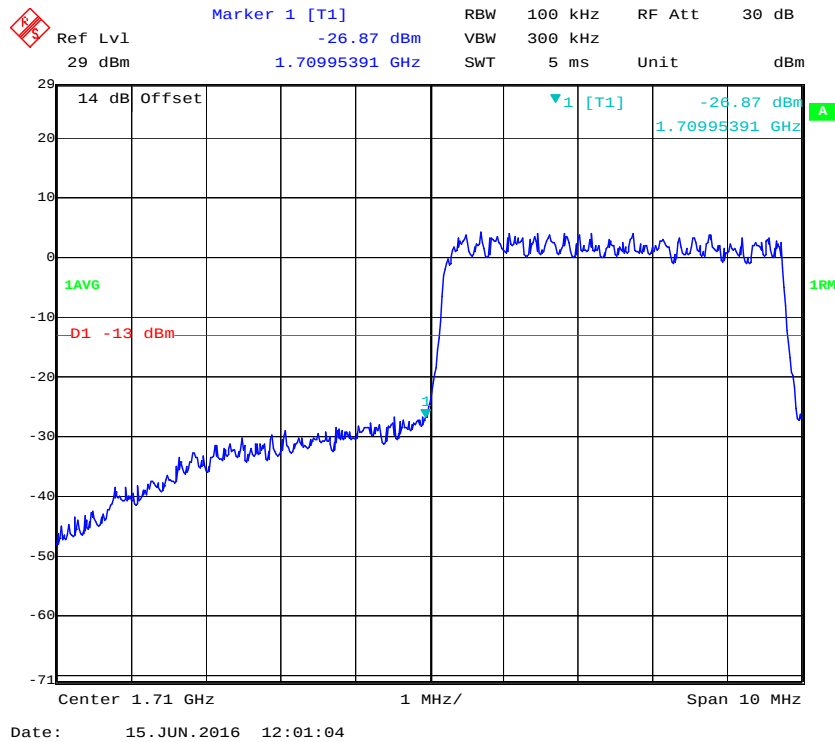
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



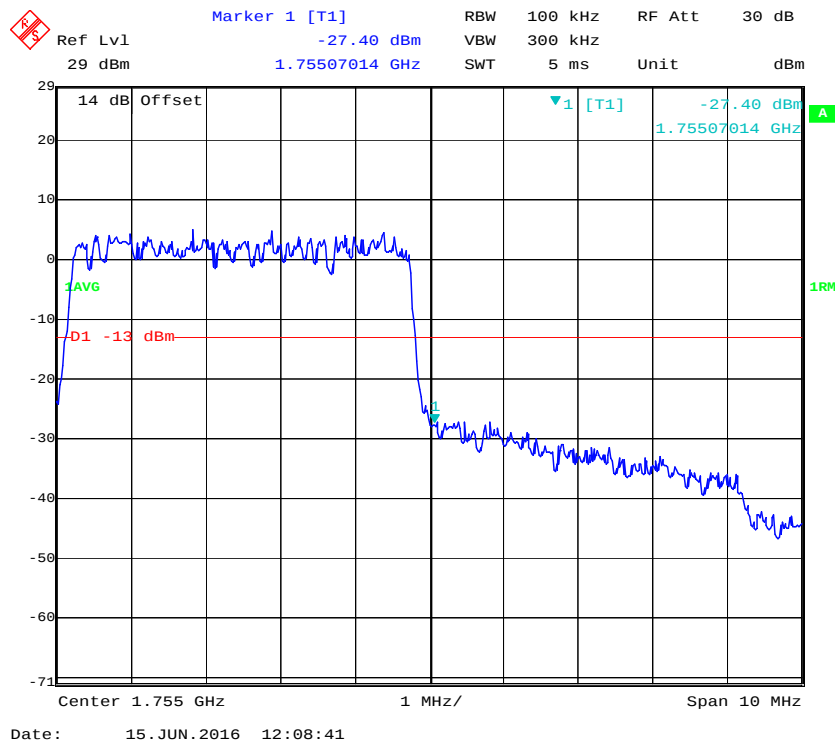
16-QAM (3.0 MHz, FULL RB) - Right Band Edge



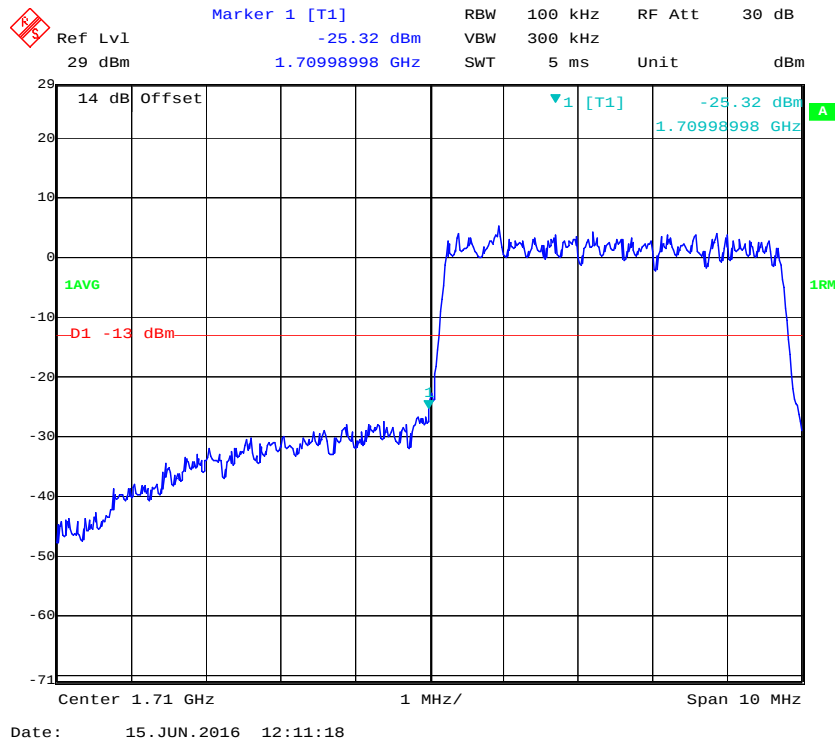
QPSK (5.0 MHz, FULL RB) - Left Band Edge



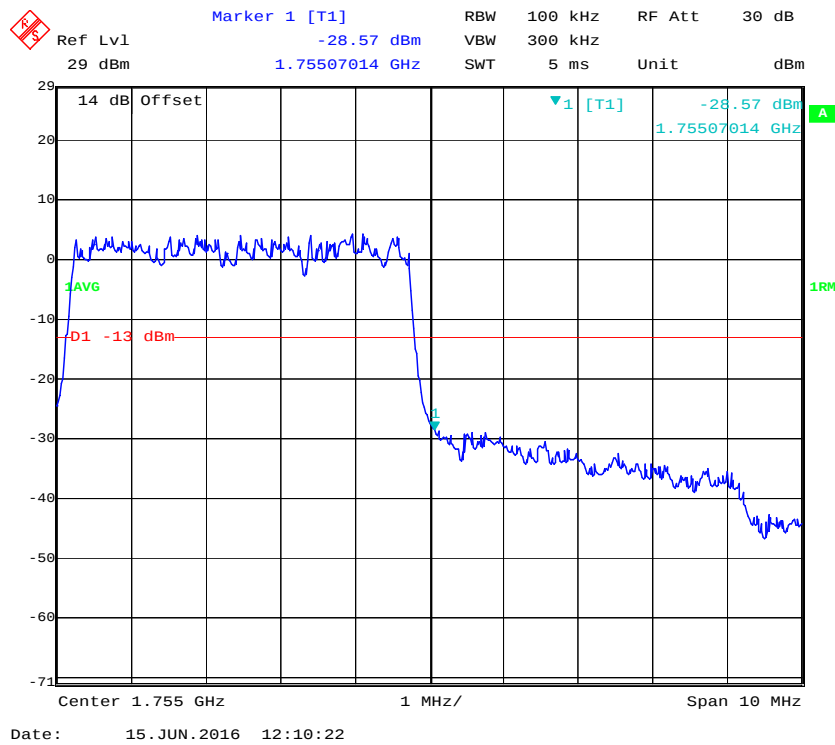
QPSK (5.0 MHz, FULL RB) - Right Band Edge



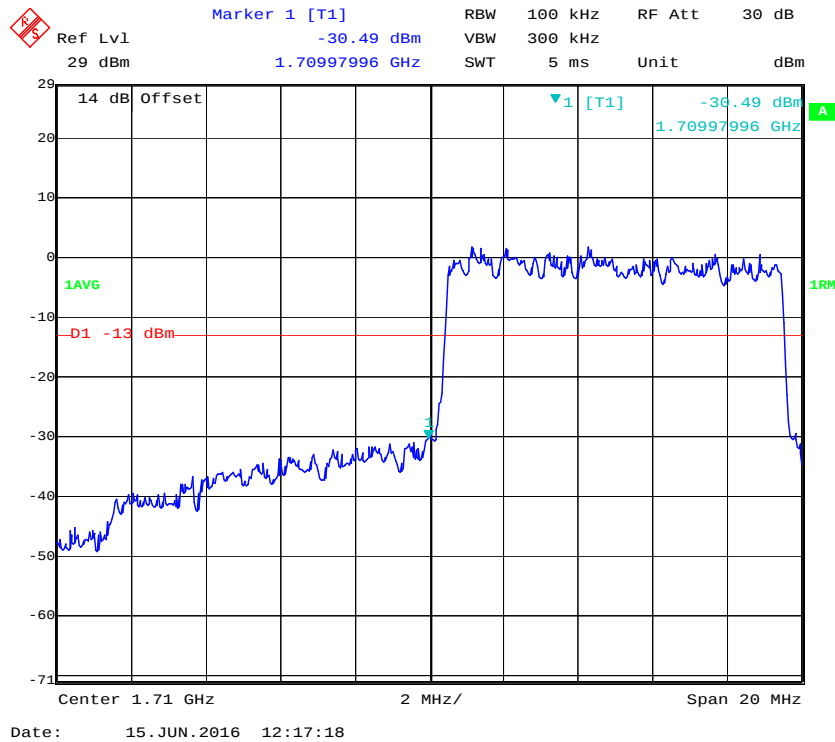
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



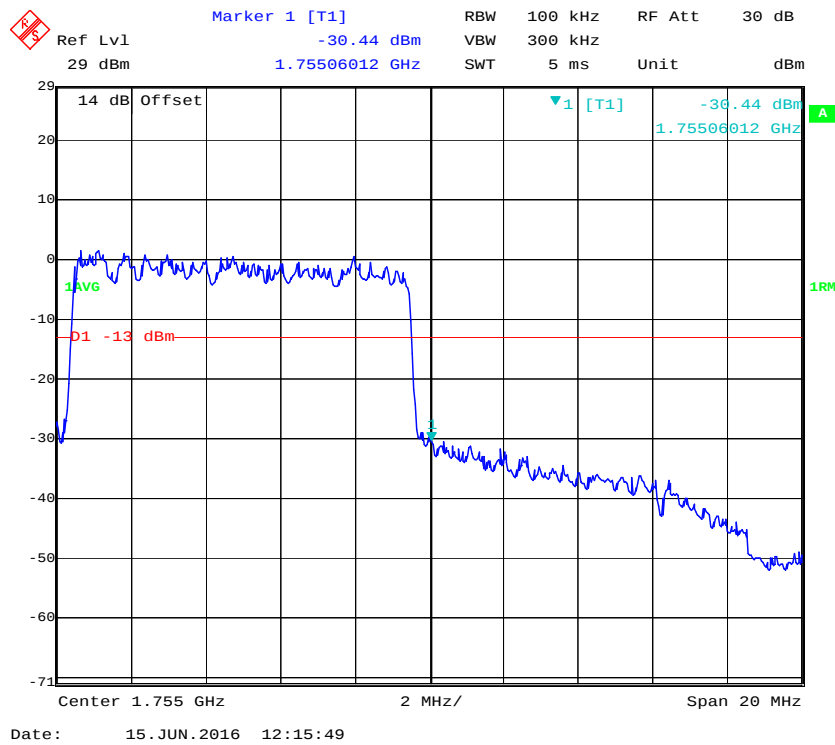
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



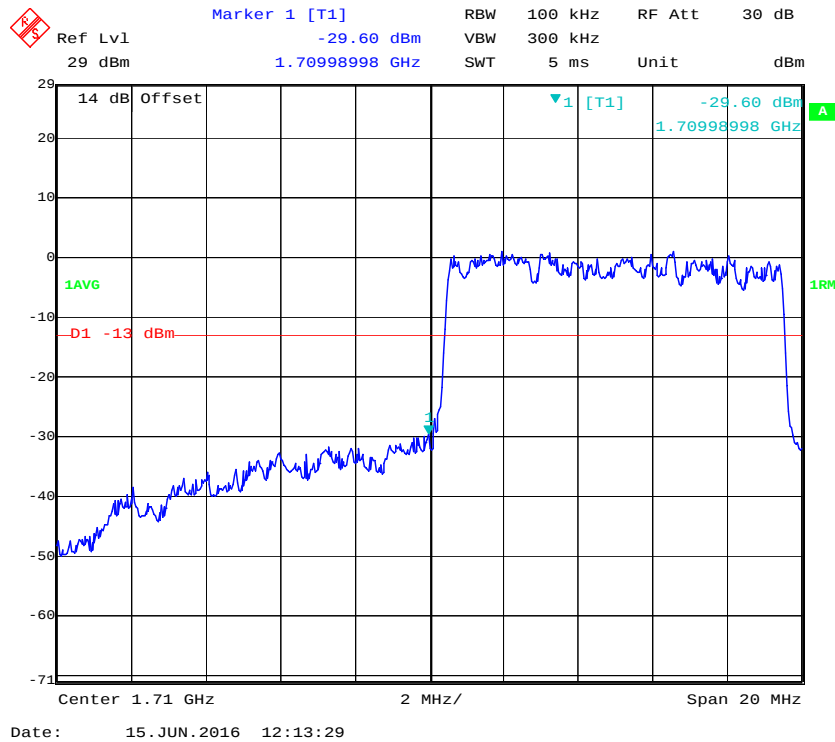
QPSK (10.0 MHz, FULL RB) - Left Band Edge



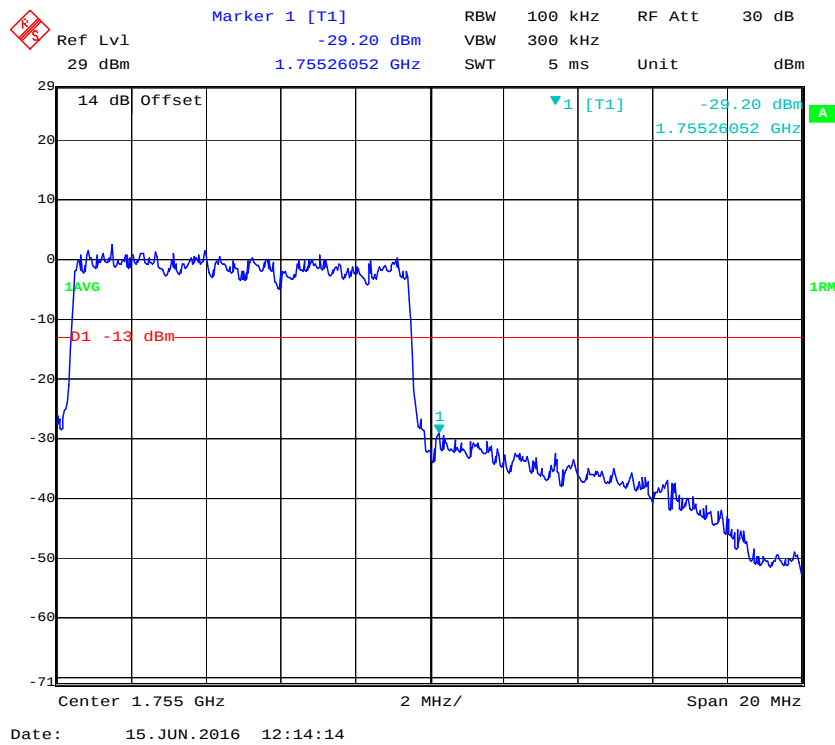
QPSK (10.0 MHz, FULL RB) - Right Band Edge



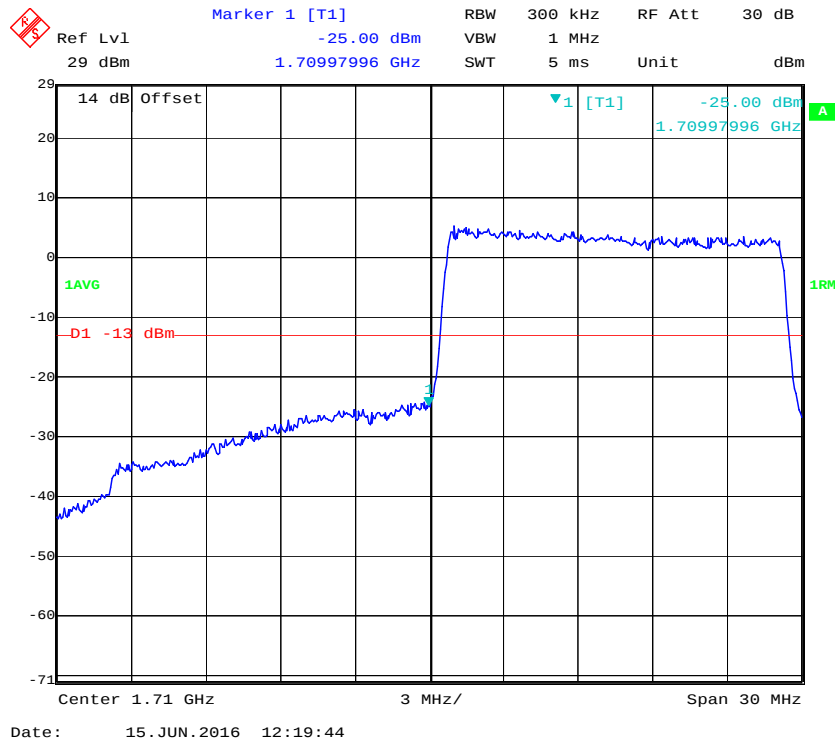
16-QAM (10.0 MHz, FULL RB) - Left Band Edge



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

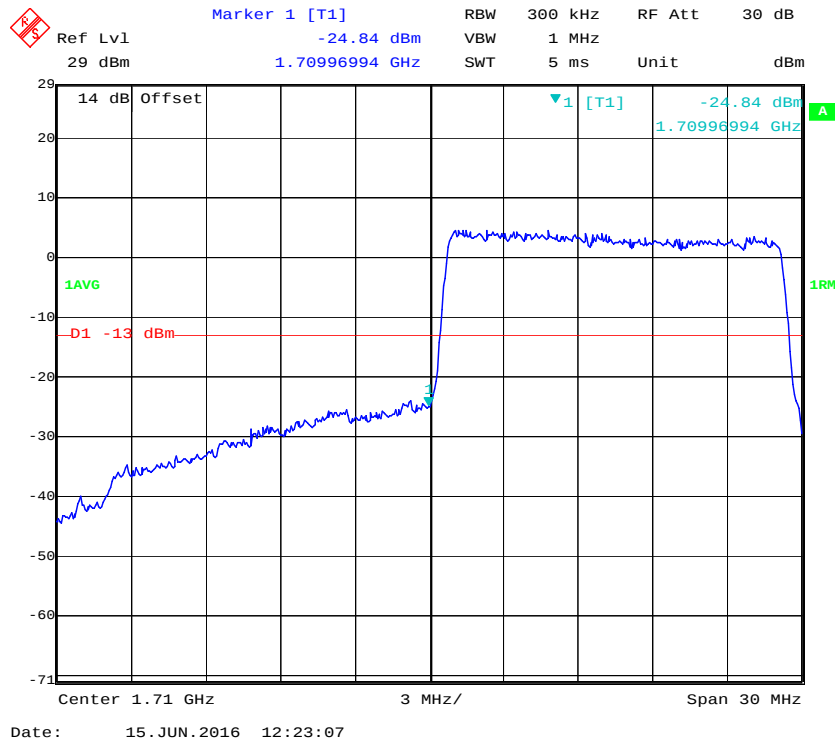
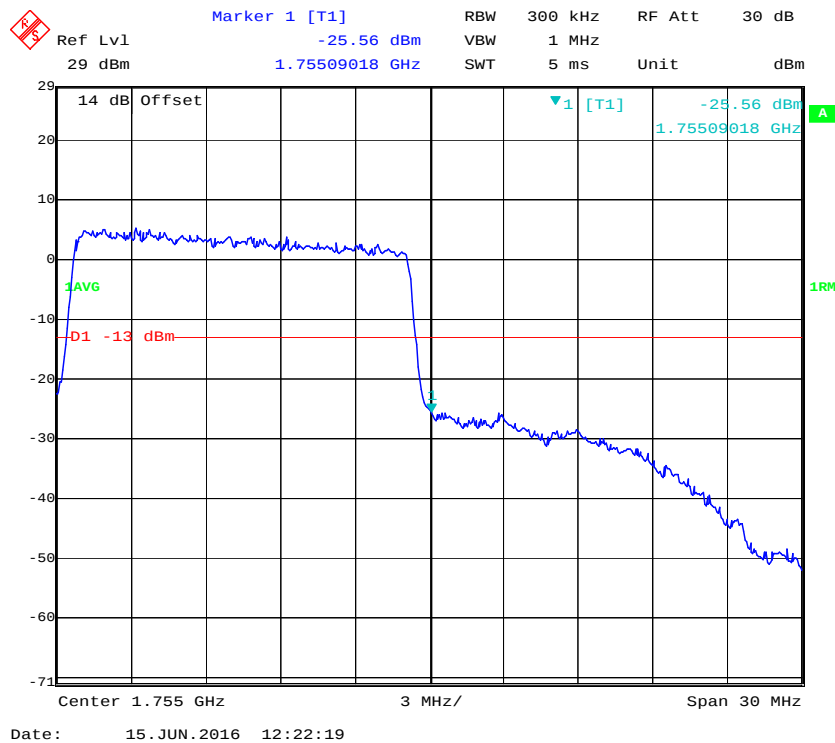


QPSK (15.0 MHz, FULL RB) - Left Band Edge

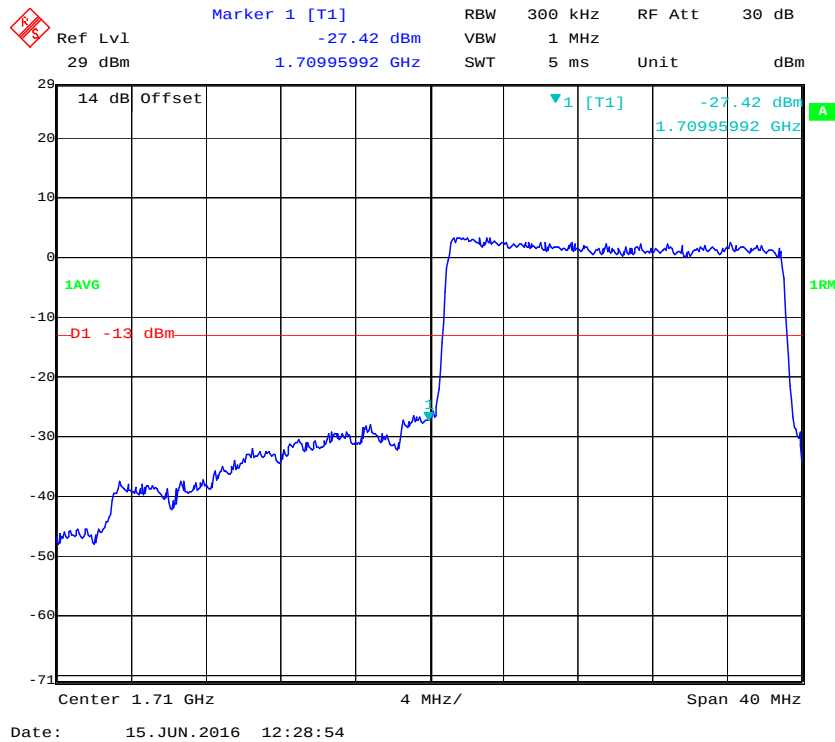


QPSK (15.0 MHz, FULL RB) - Right Band Edge

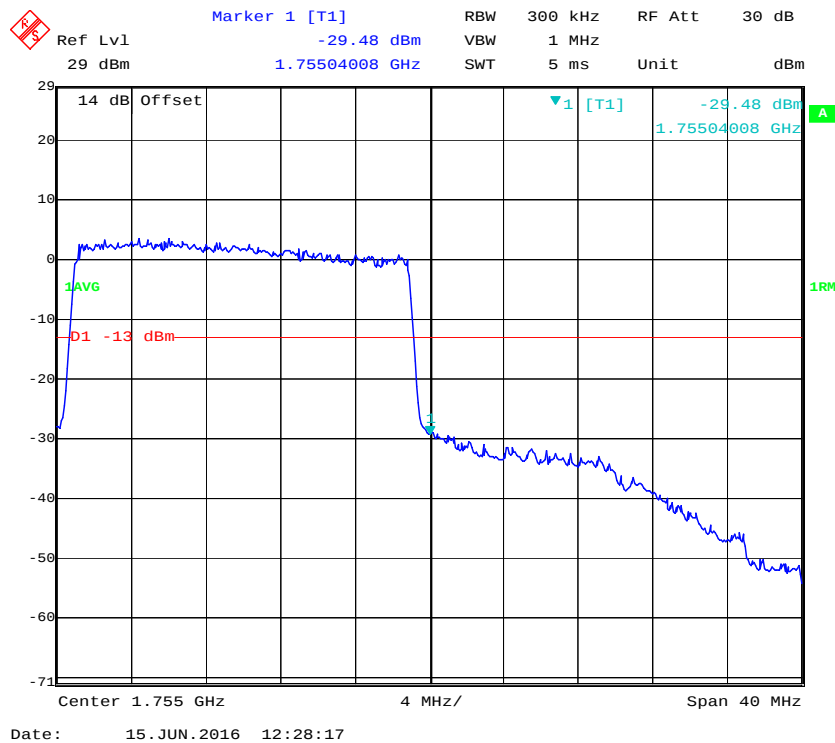


16-QAM (15.0 MHz, FULL RB) - Left Band Edge**16-QAM (15.0 MHz, FULL RB) - Right Band Edge**

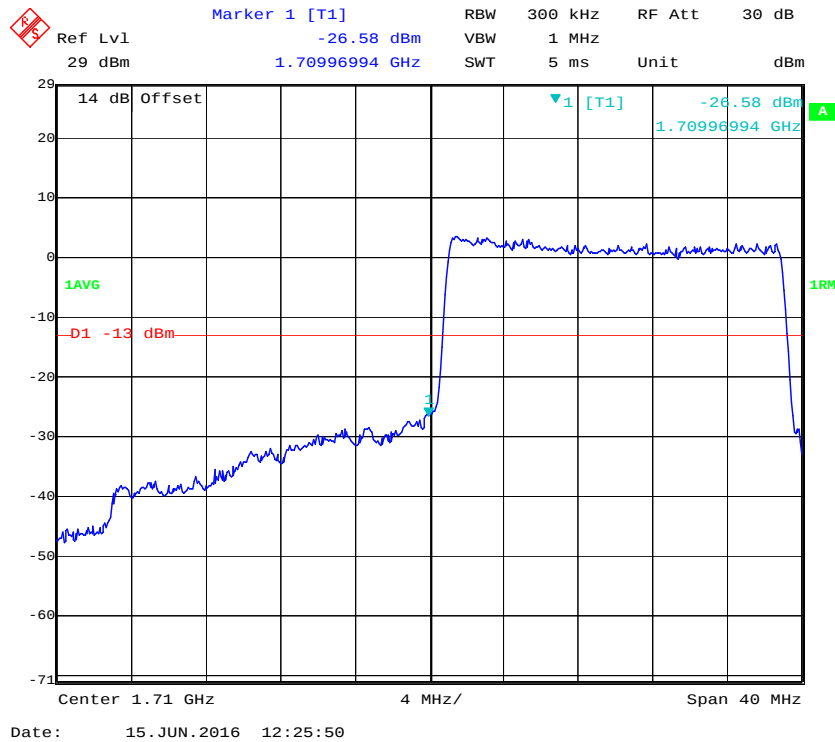
QPSK (20.0 MHz, FULL RB) - Left Band Edge



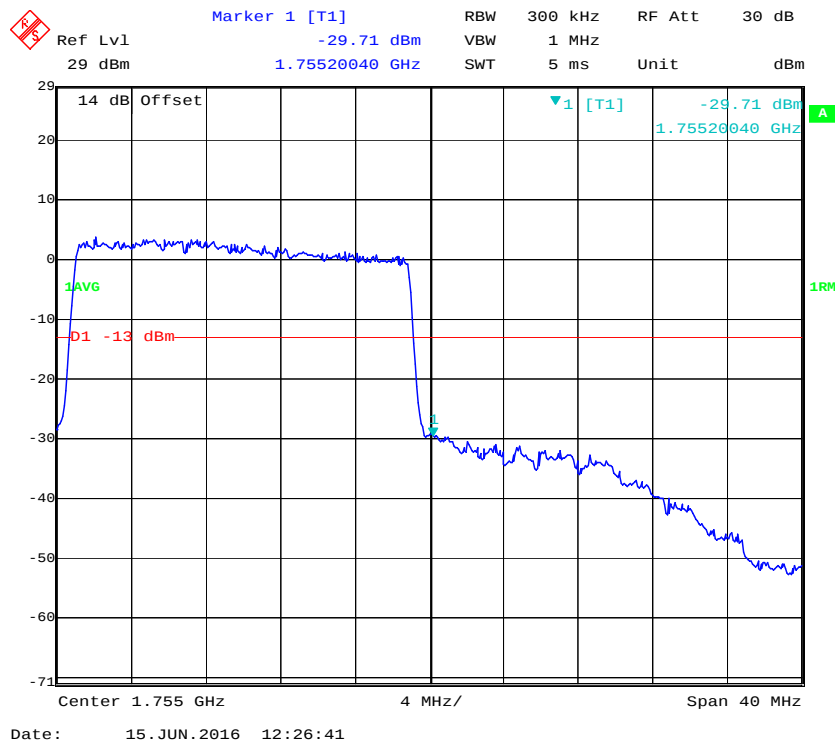
QPSK (20.0 MHz, FULL RB) - Right Band Edge

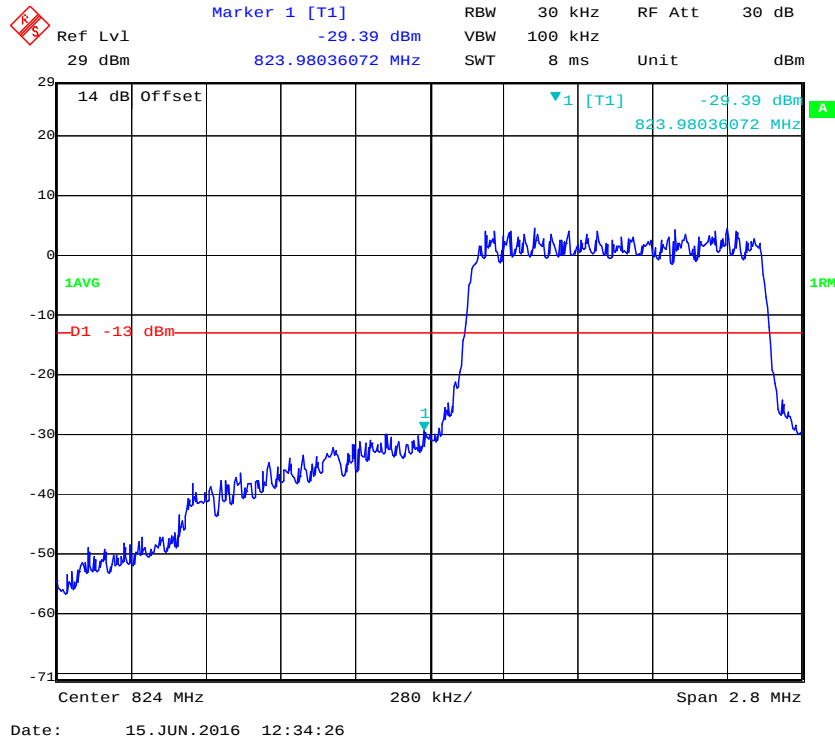
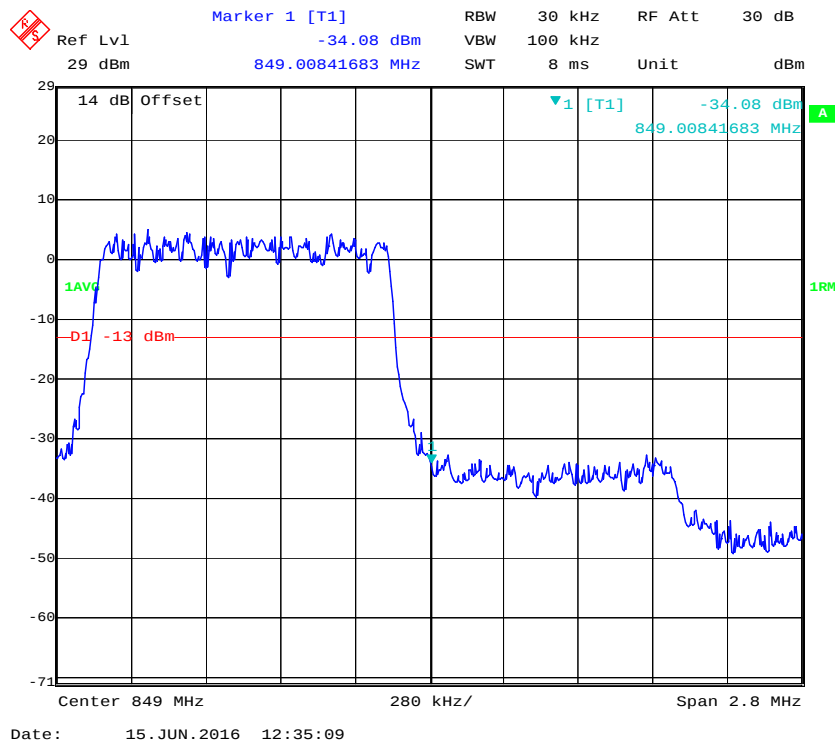


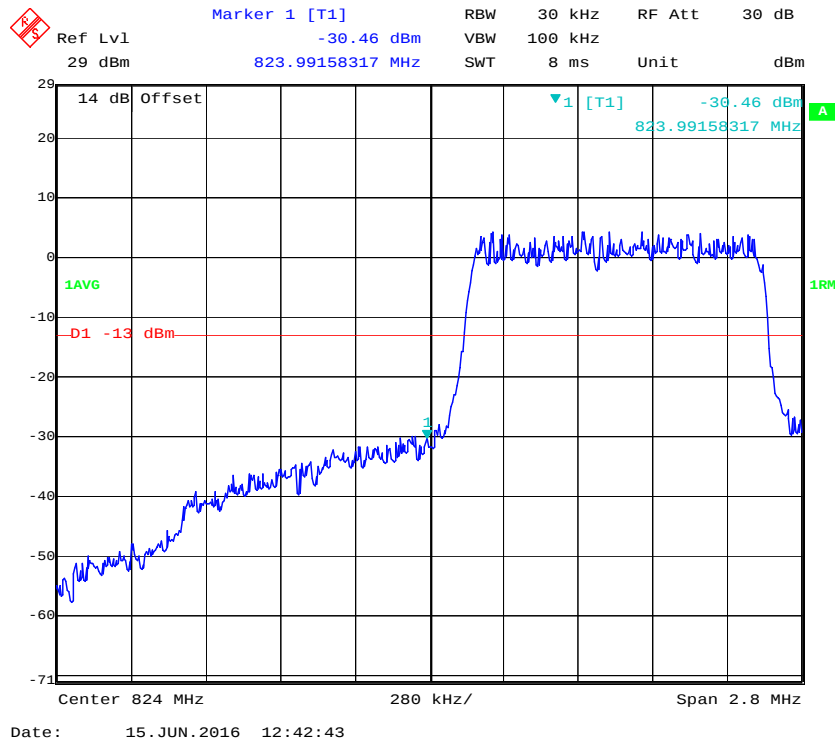
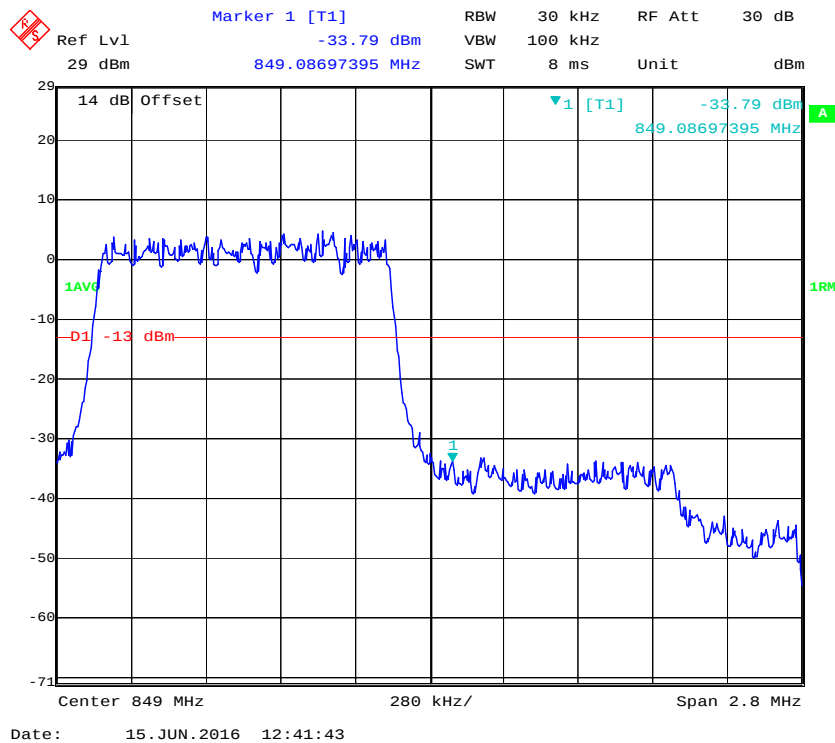
16-QAM (20.0 MHz, FULL RB) - Left Band Edge



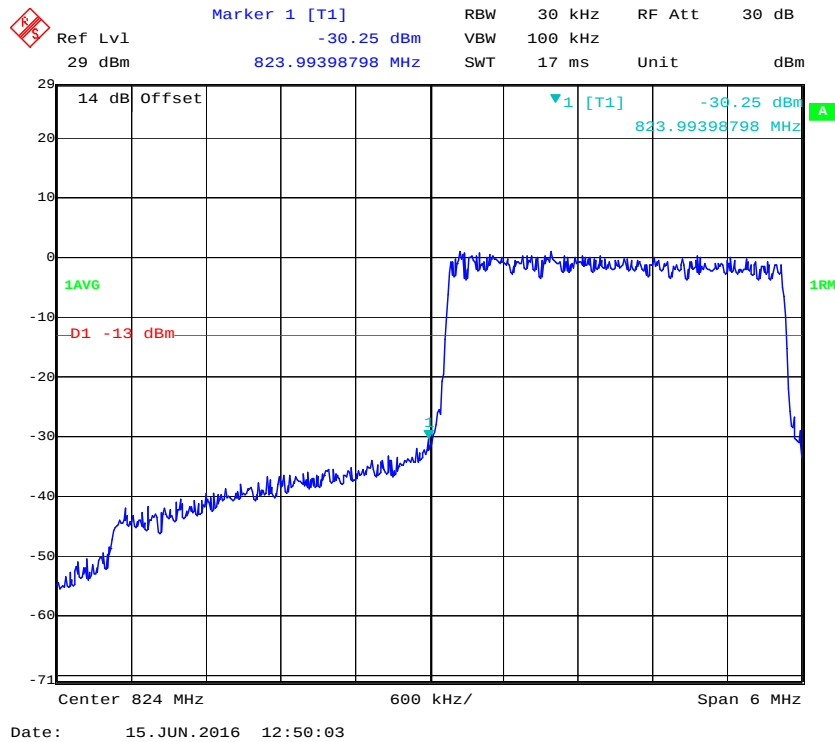
16-QAM (20.0 MHz, FULL RB) - Right Band Edge



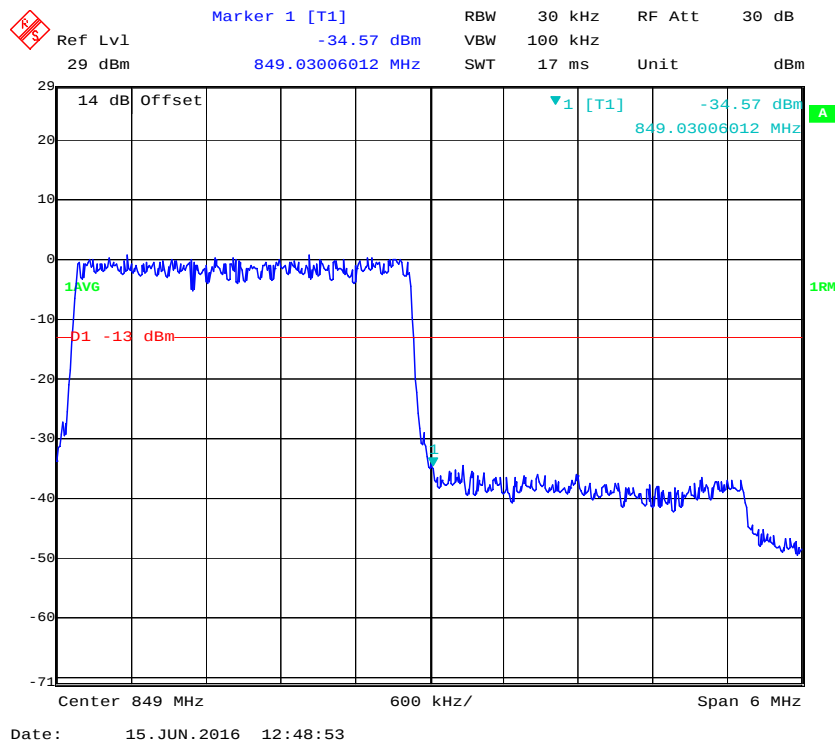
Band 5:**QPSK (1.4 MHz, FULL RB) - Left Band Edge****QPSK (1.4 MHz, FULL RB) - Right Band Edge**

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

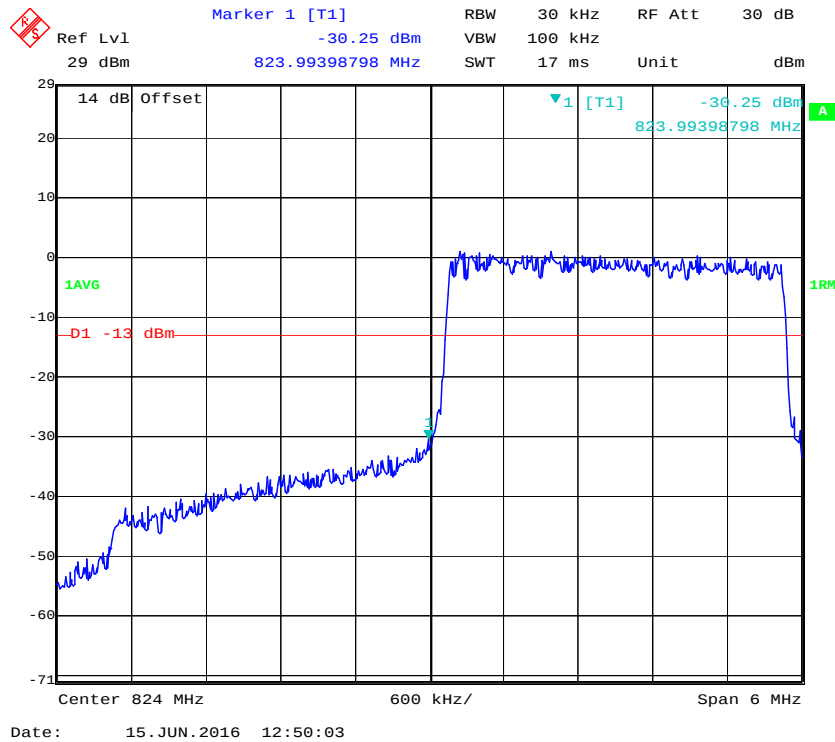
QPSK (3.0 MHz, FULL RB) - Left Band Edge



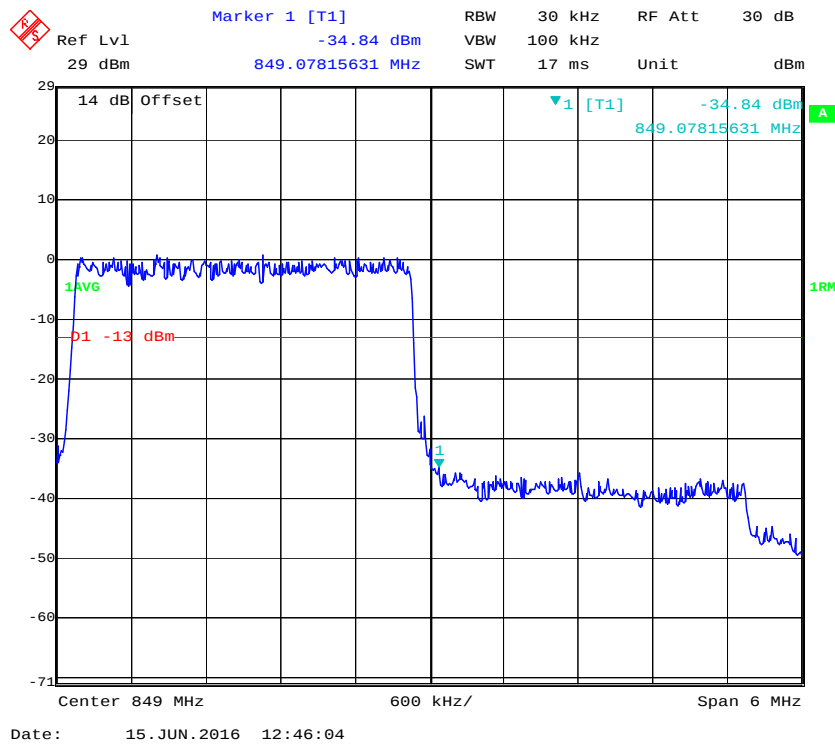
QPSK (3.0 MHz, FULL RB) - Right Band Edge



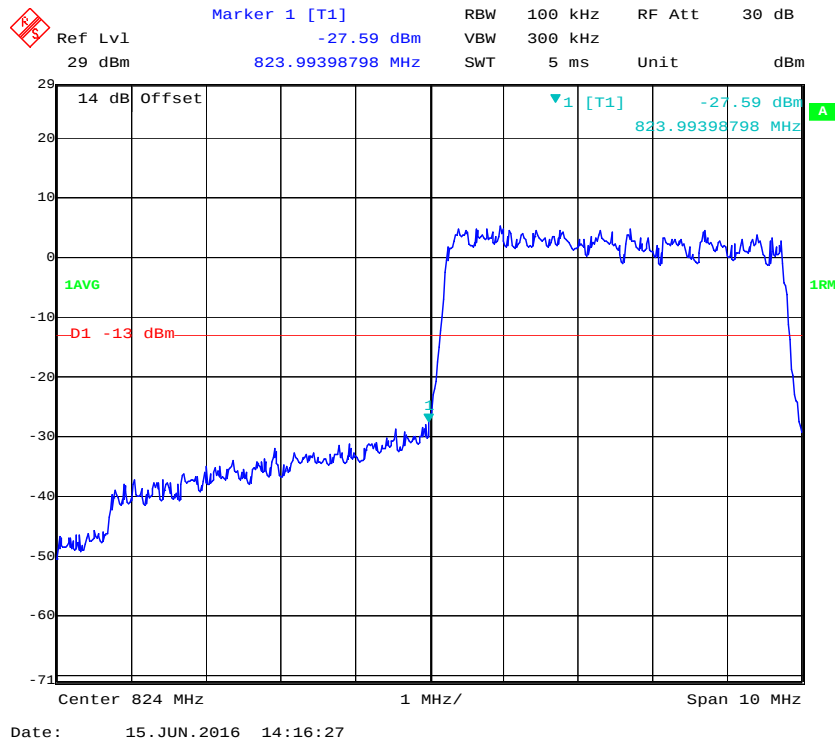
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



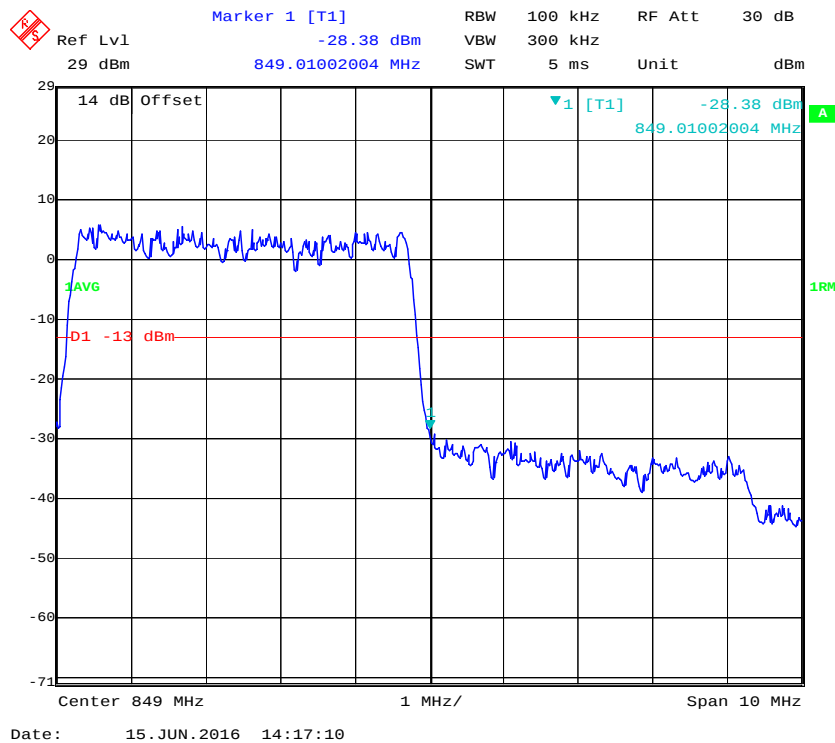
16-QAM (3.0 MHz, FULL RB) - Right Band Edge



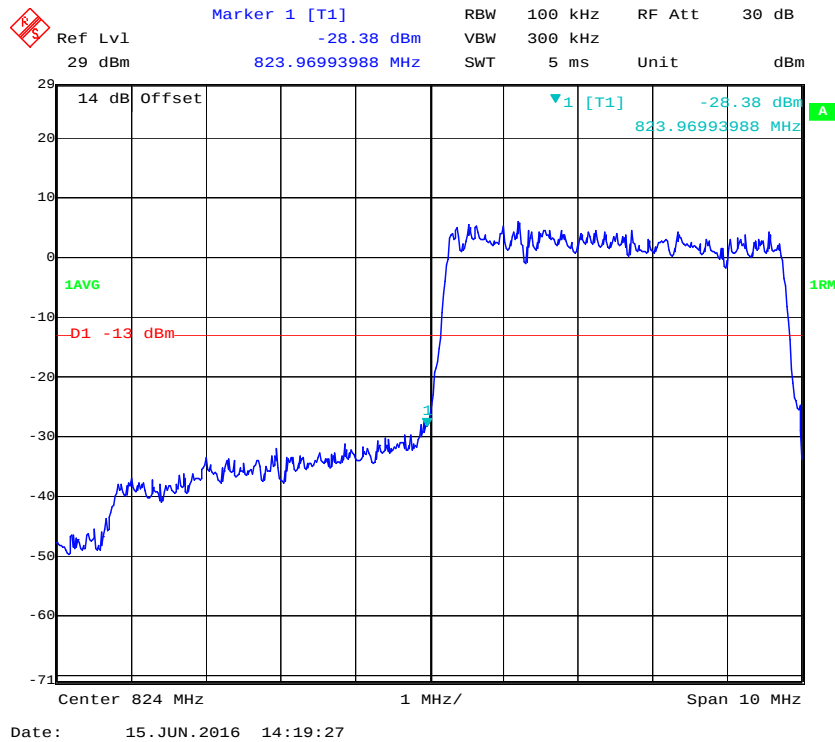
QPSK (5 MHz, FULL RB) - Left Band Edge



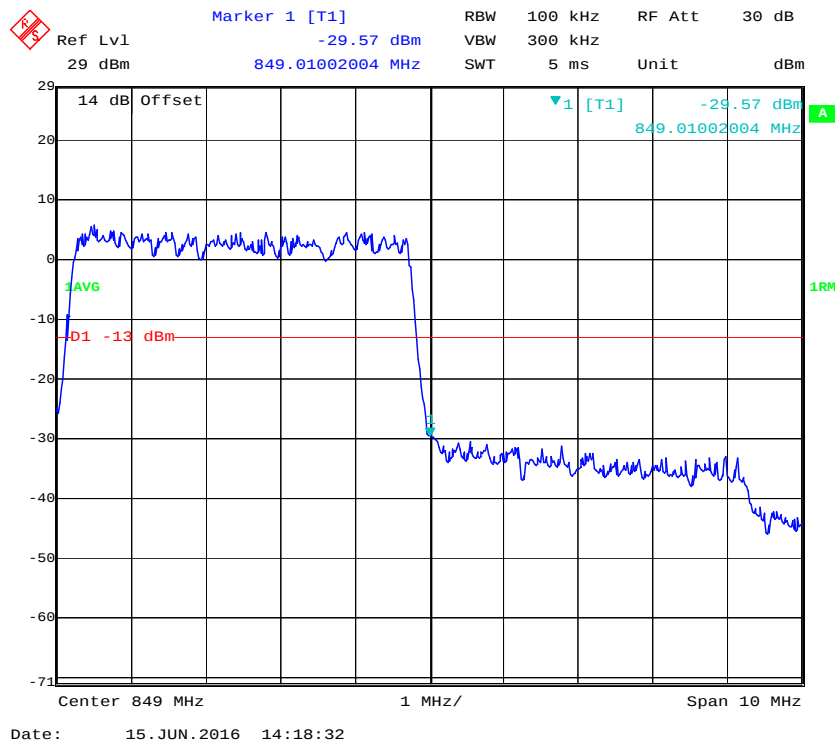
QPSK (5 MHz, FULL RB) - Right Band Edge



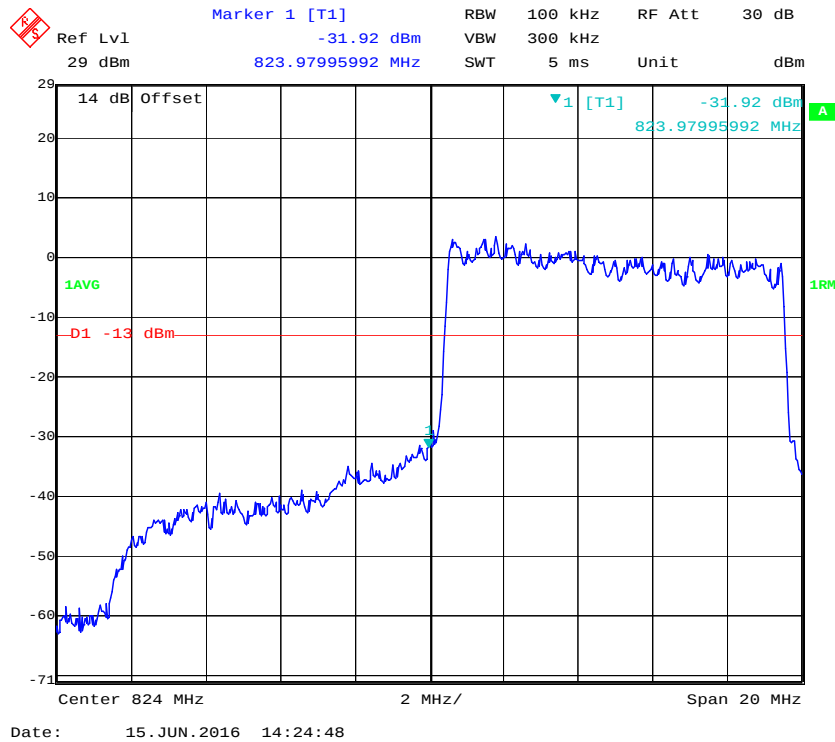
16-QAM (5 MHz, FULL RB) - Left Band Edge



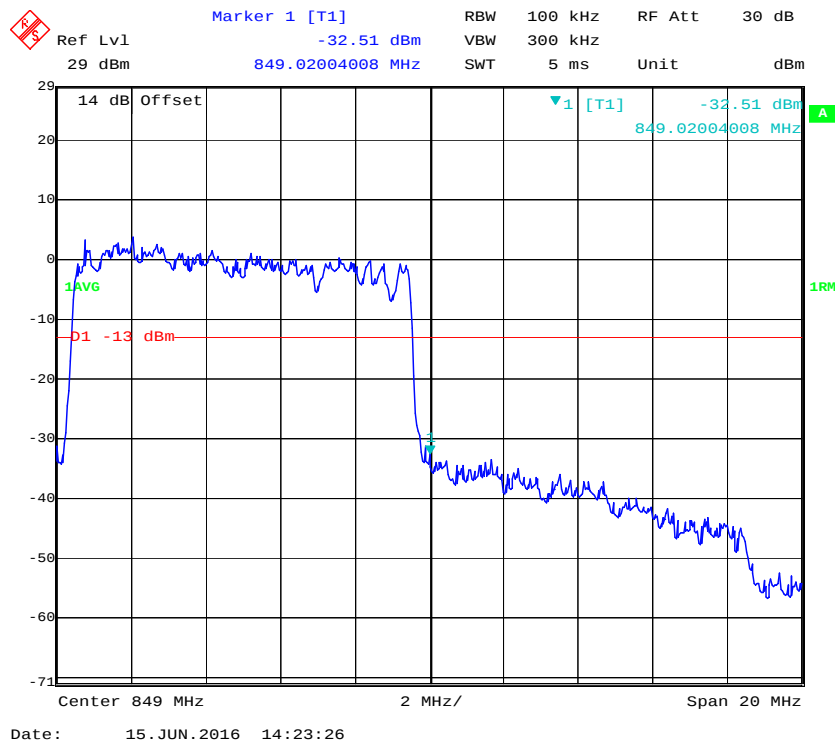
16-QAM (5 MHz, FULL RB) - Right Band Edge



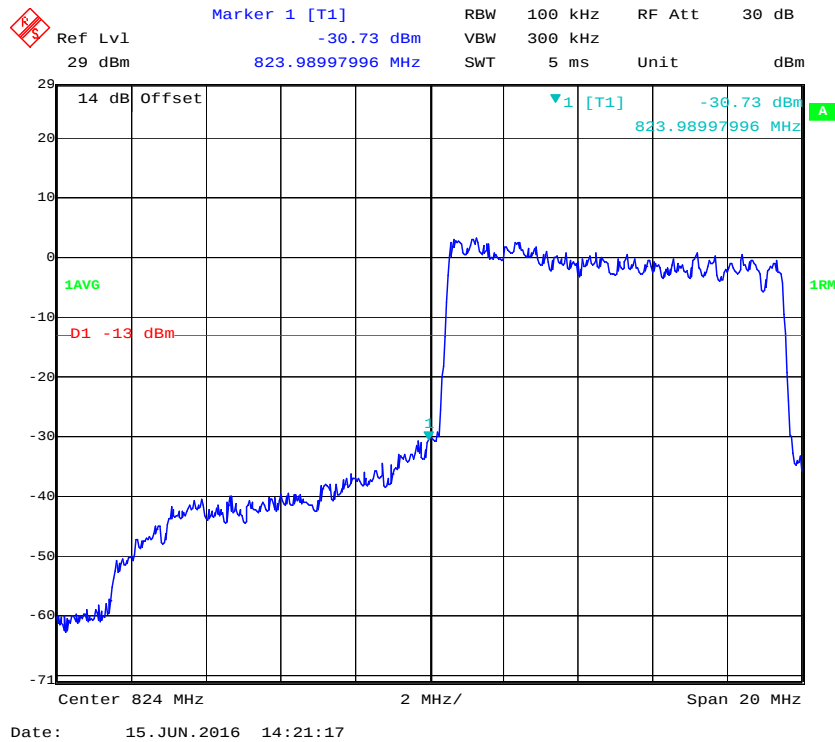
QPSK (10 MHz, FULL RB) - Left Band Edge



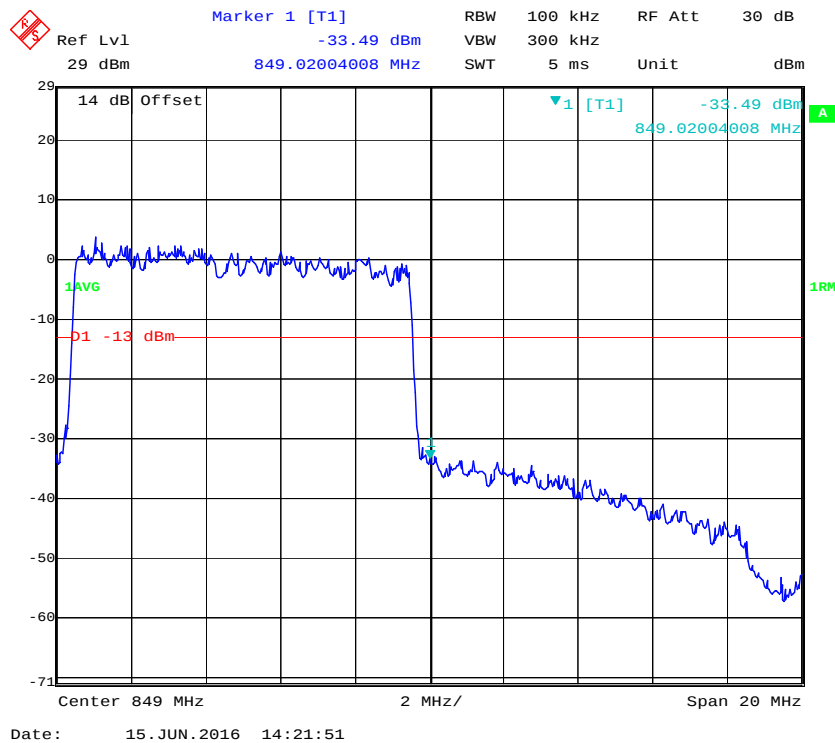
QPSK (10 MHz, FULL RB) - Right Band Edge



16-QAM (10 MHz, FULL RB) - Left Band Edge

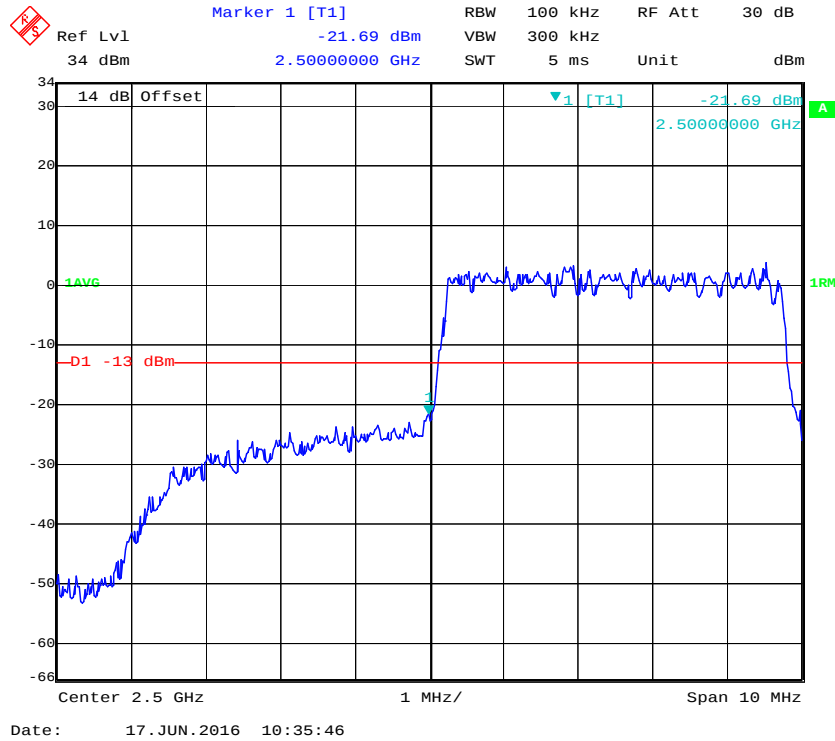


16-QAM (10 MHz, FULL RB) - Right Band Edge

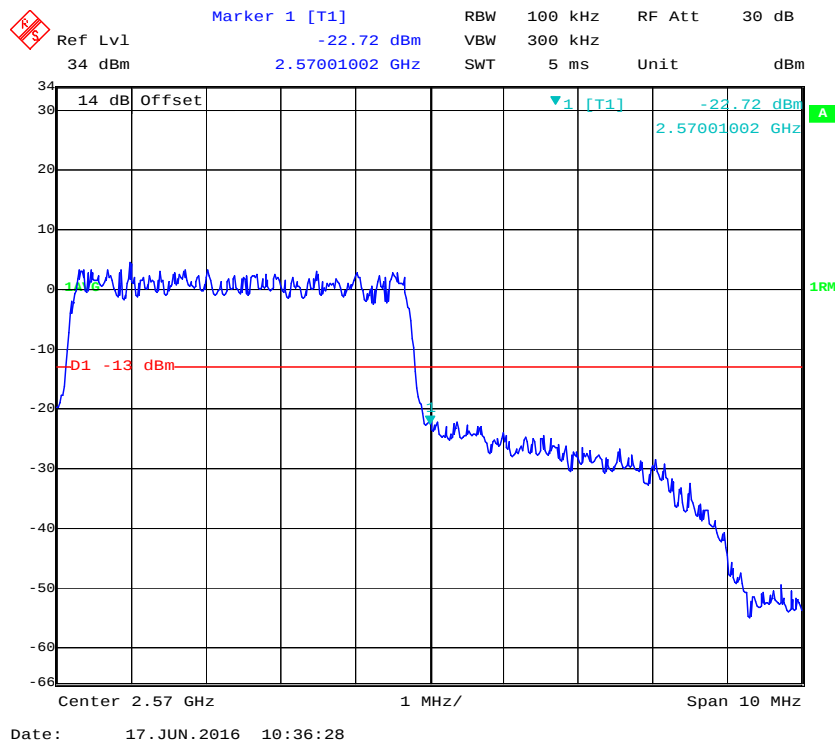


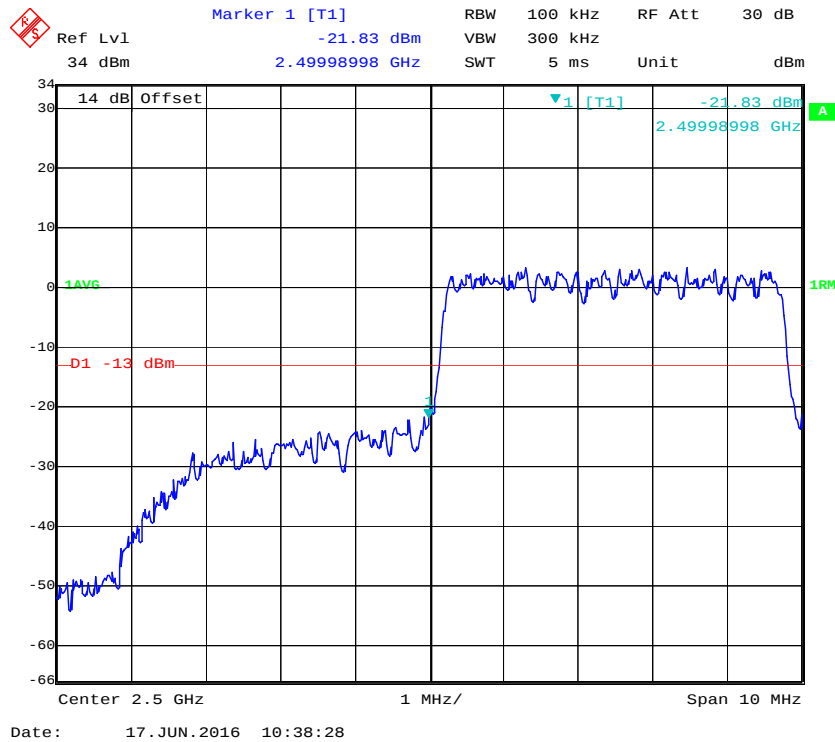
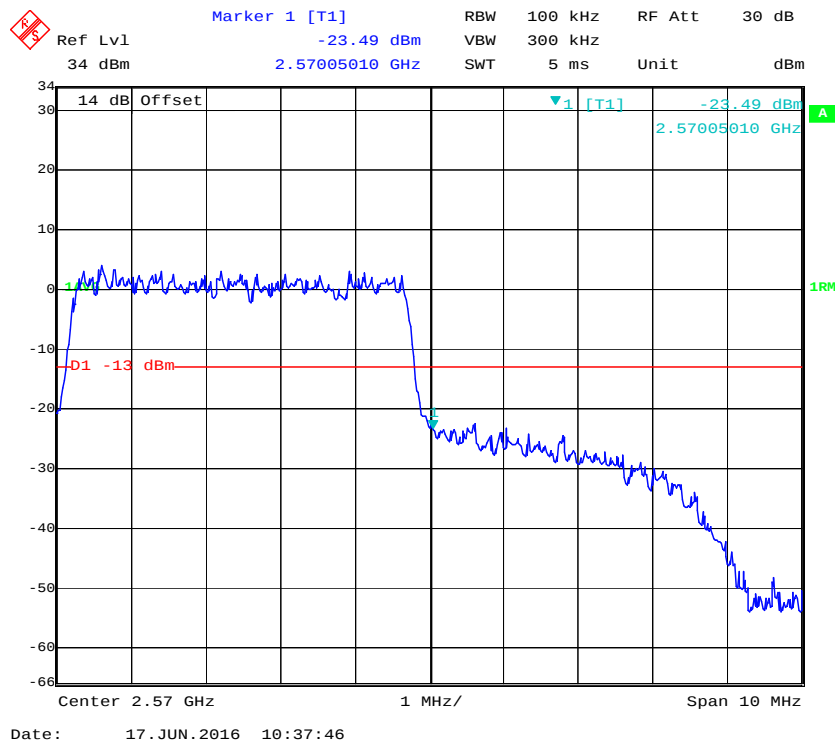
Band 7:

QPSK (5 MHz, FULL RB) - Left Band Edge

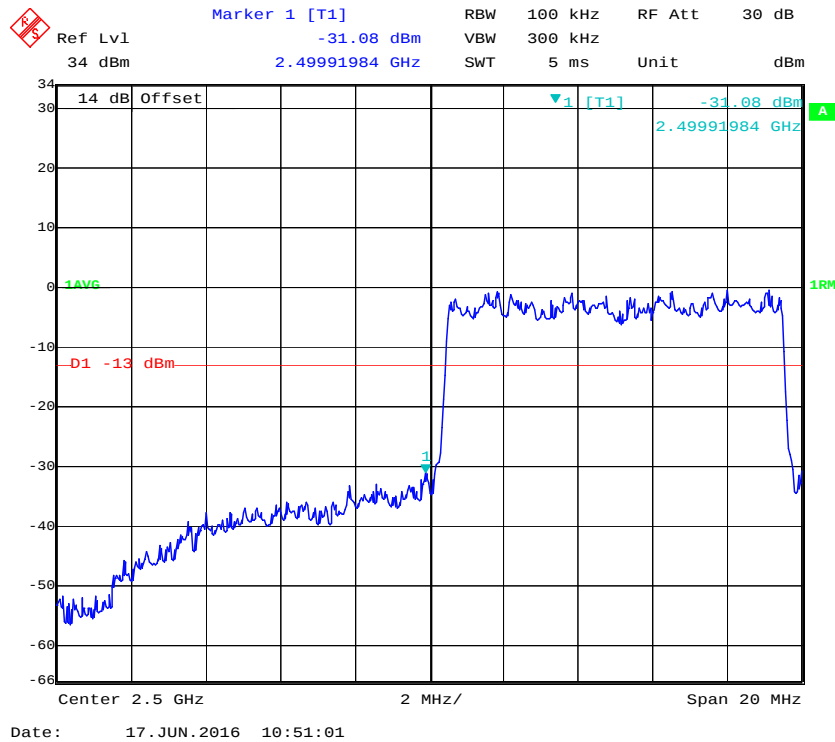


QPSK (5 MHz, FULL RB) - Right Band Edge

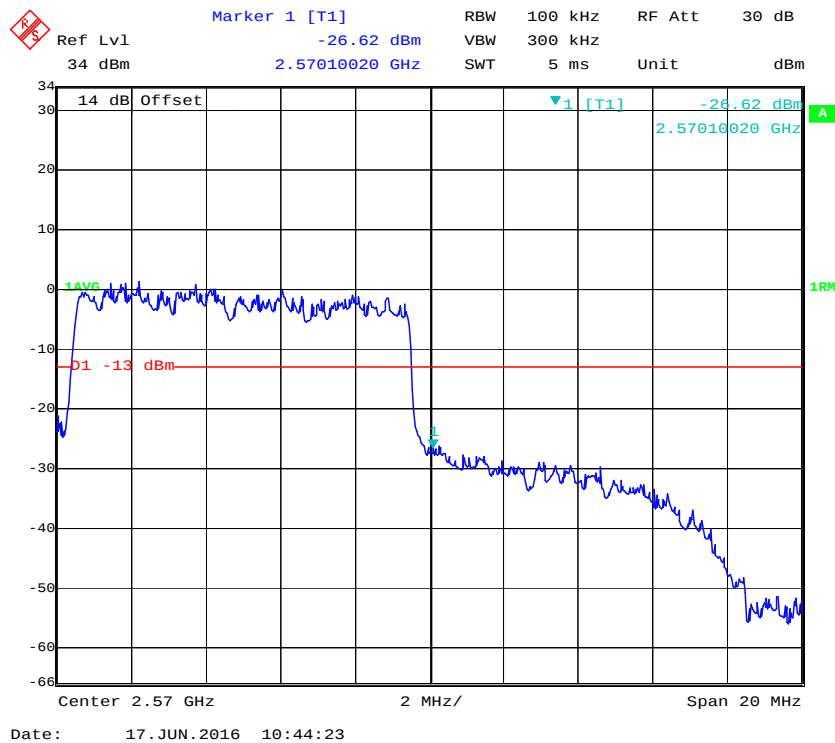


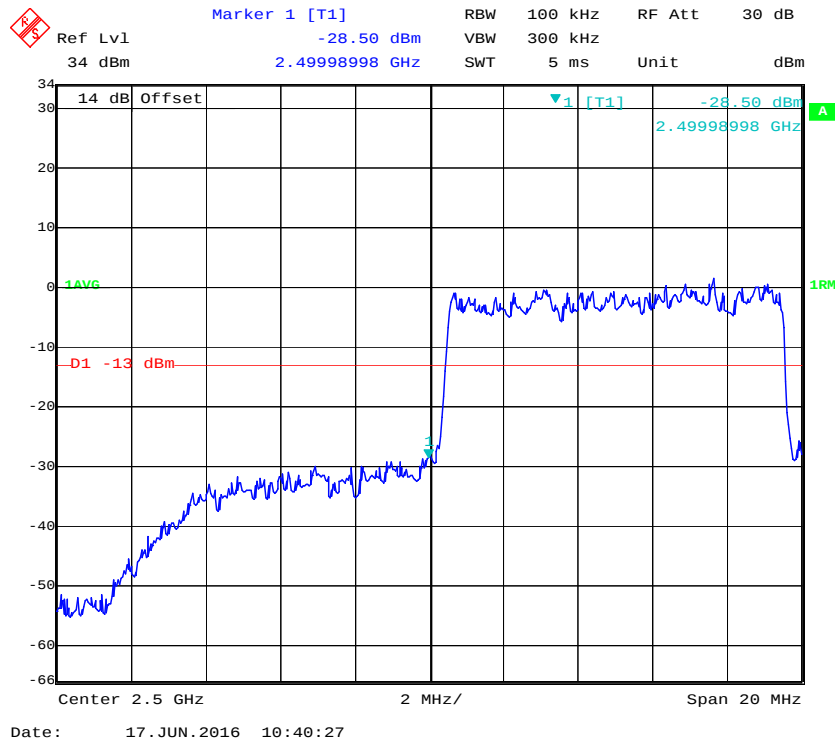
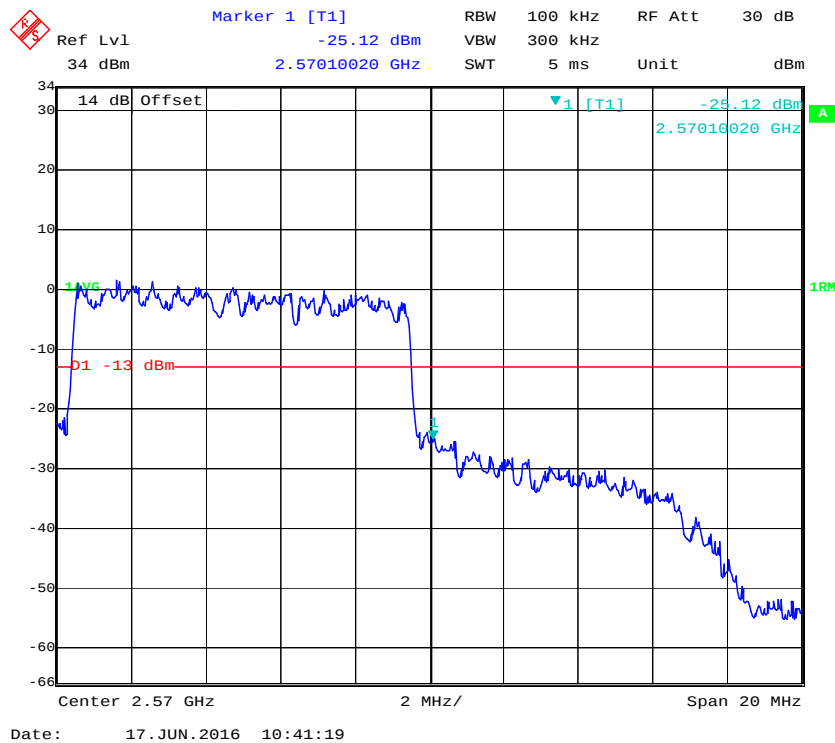
16-QAM (5 MHz, FULL RB) - Left Band Edge**16-QAM (5 MHz, FULL RB) - Right Band Edge**

QPSK (10 MHz, FULL RB) - Left Band Edge

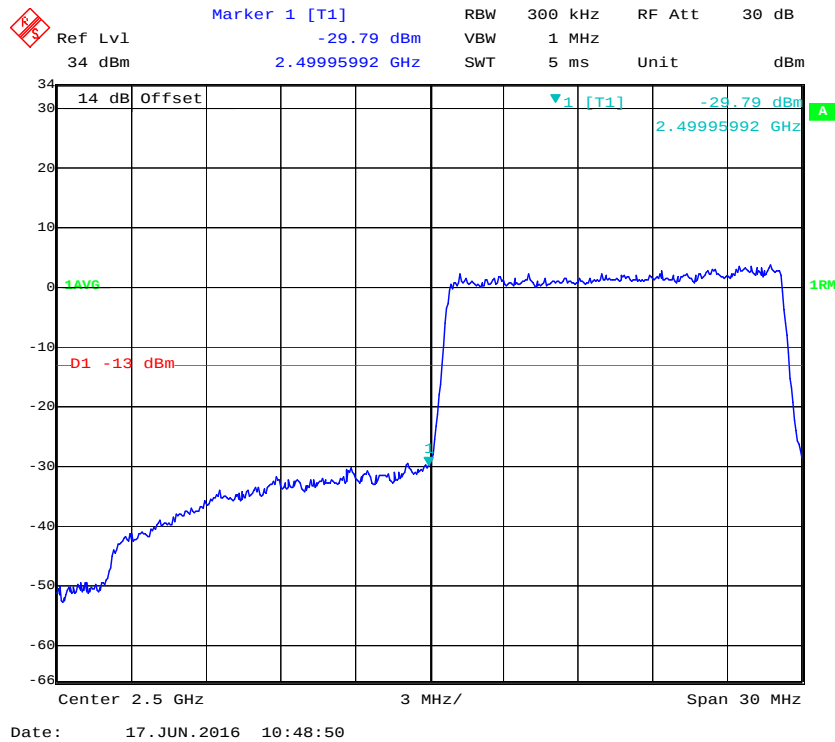


QPSK (10 MHz, FULL RB) - Right Band Edge

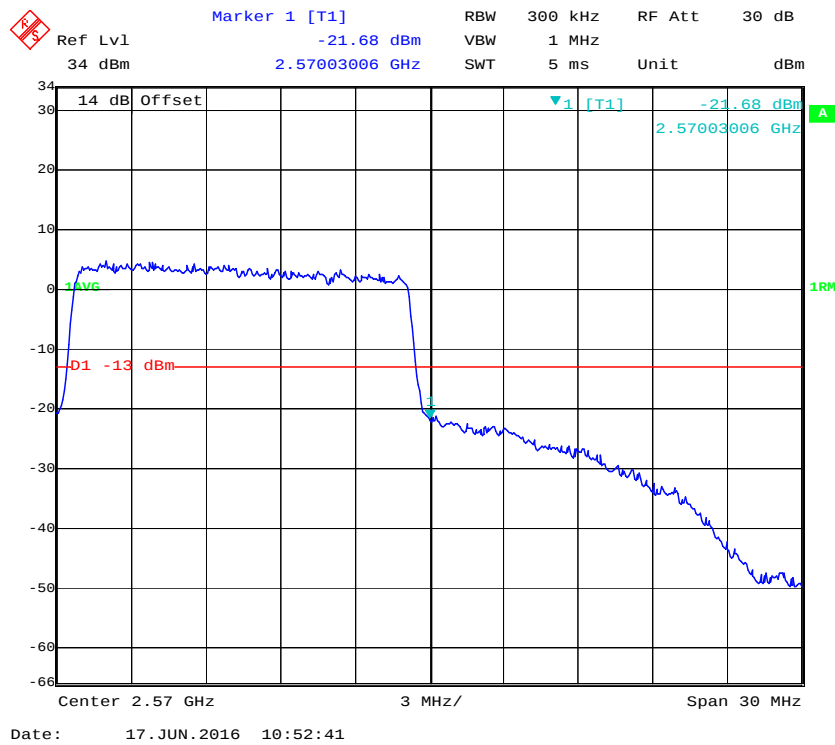


16-QAM (10 MHz, FULL RB) - Left Band Edge**16-QAM (10 MHz, FULL RB) - Right Band Edge**

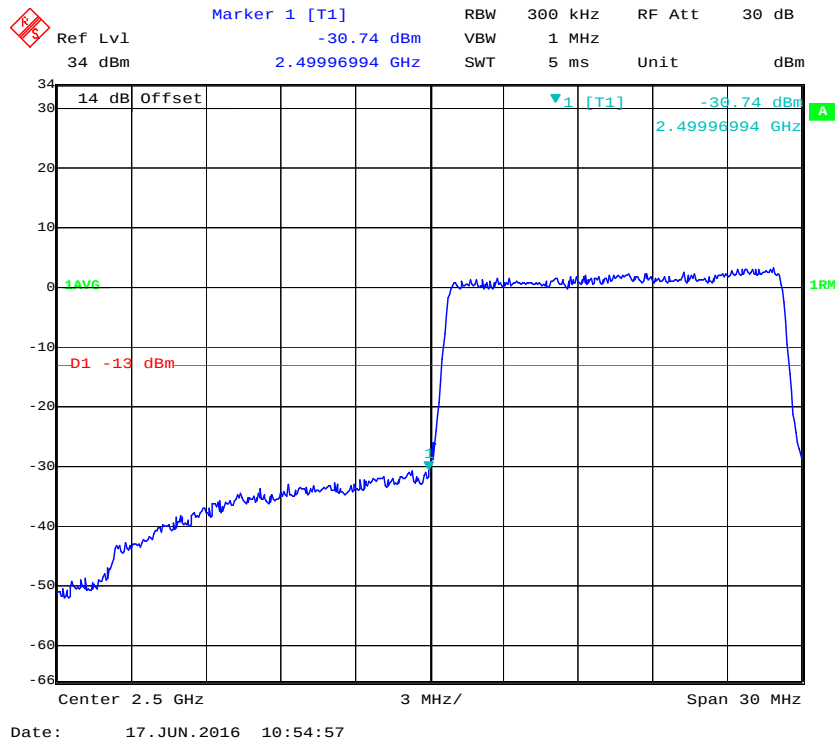
QPSK (15 MHz, FULL RB) - Left Band Edge



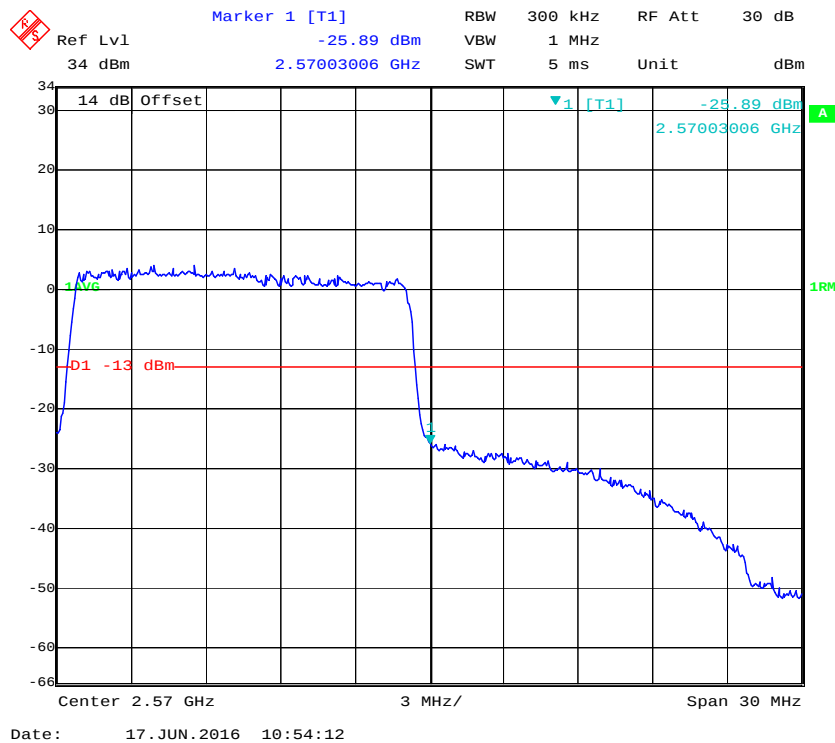
QPSK (15 MHz, FULL RB) - Right Band Edge



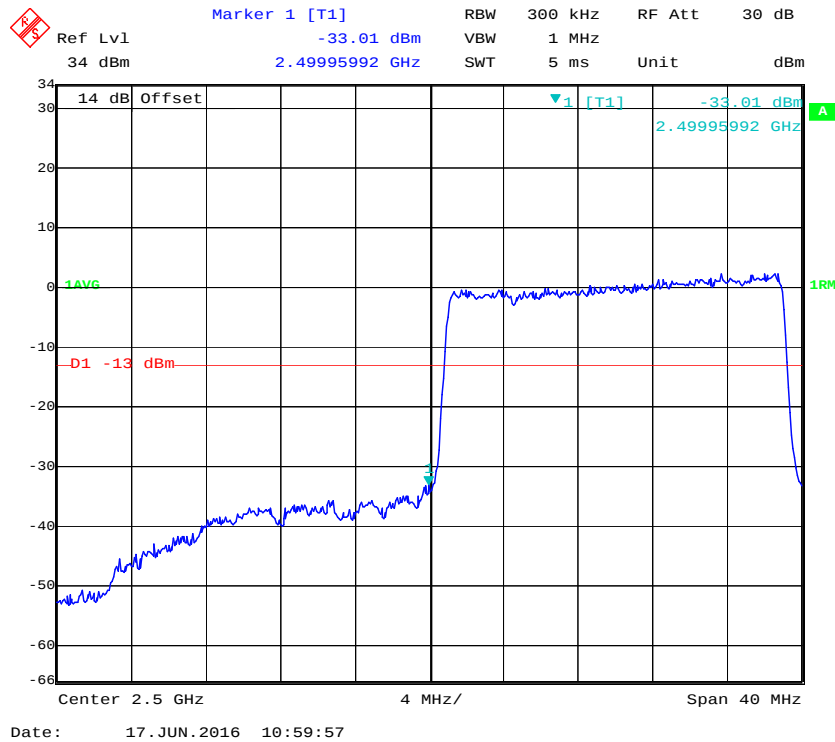
16-QAM (15 MHz, FULL RB) - Left Band Edge



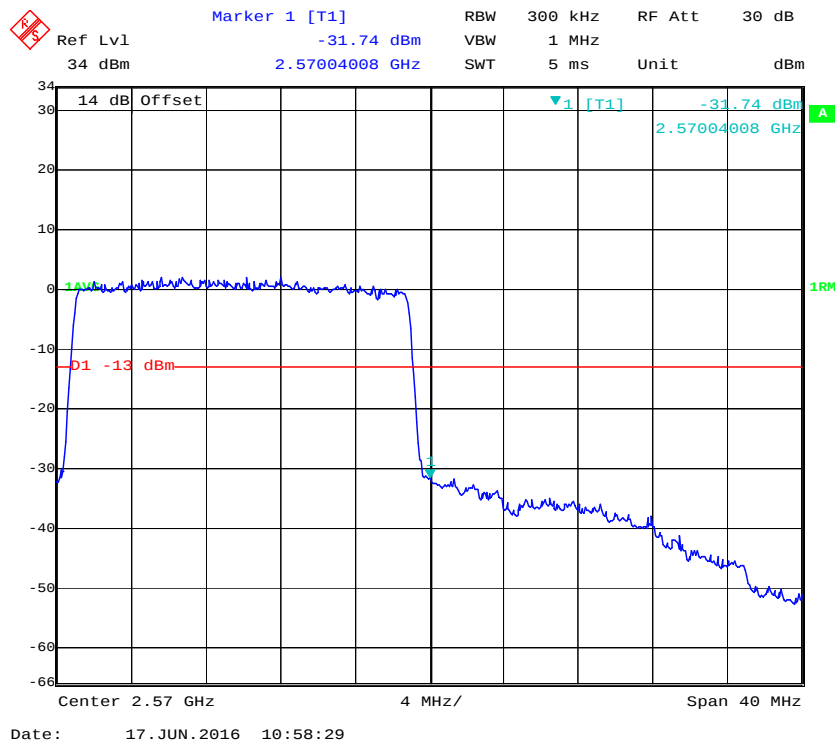
16-QAM (15 MHz, FULL RB) - Right Band Edge



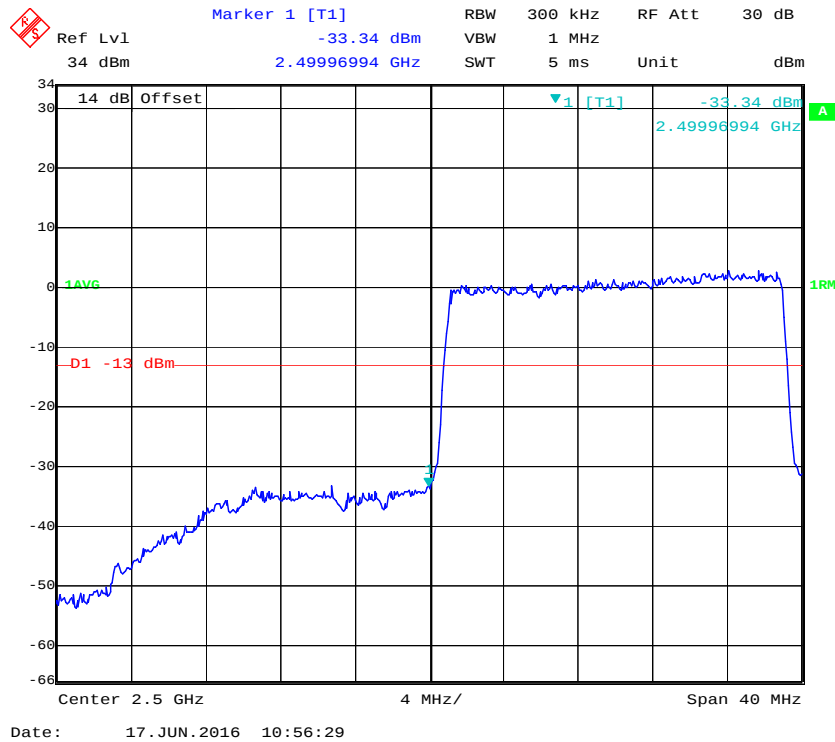
QPSK (20 MHz, FULL RB) - Left Band Edge



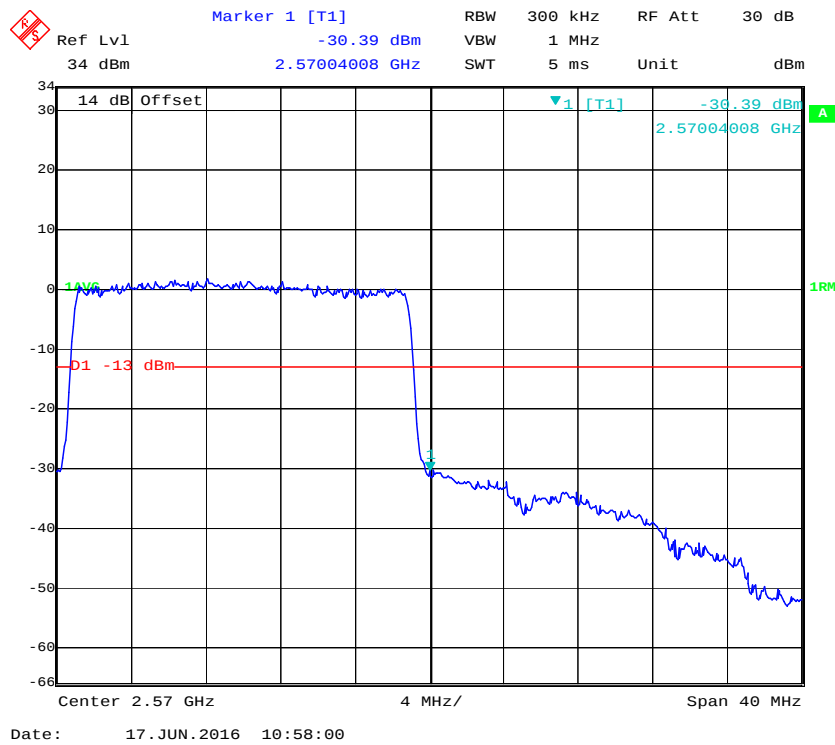
QPSK (20 MHz, FULL RB) - Right Band Edge



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

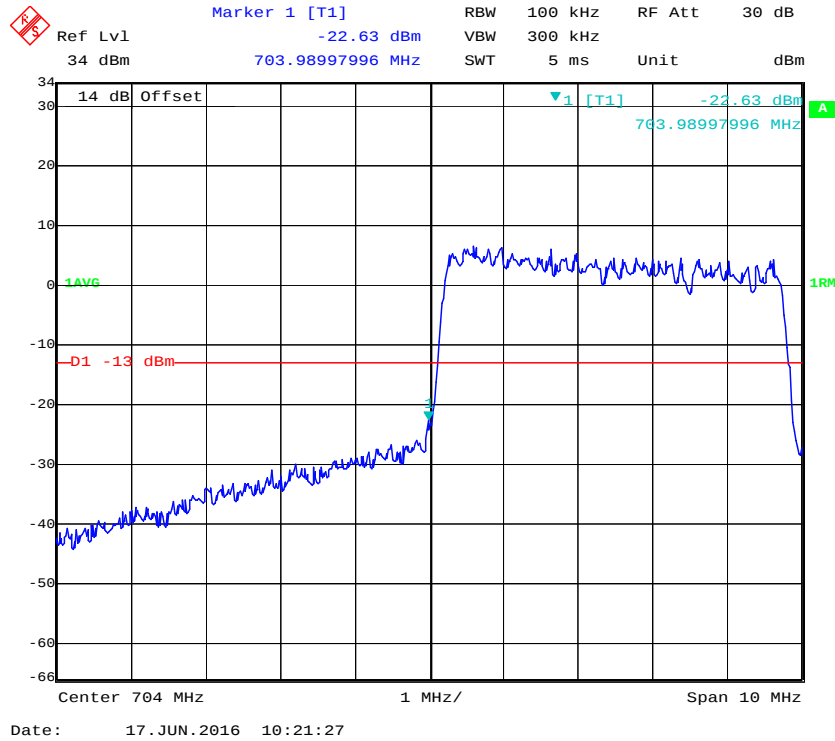


16-QAM (20 MHz, FULL RB) - Right Band Edge

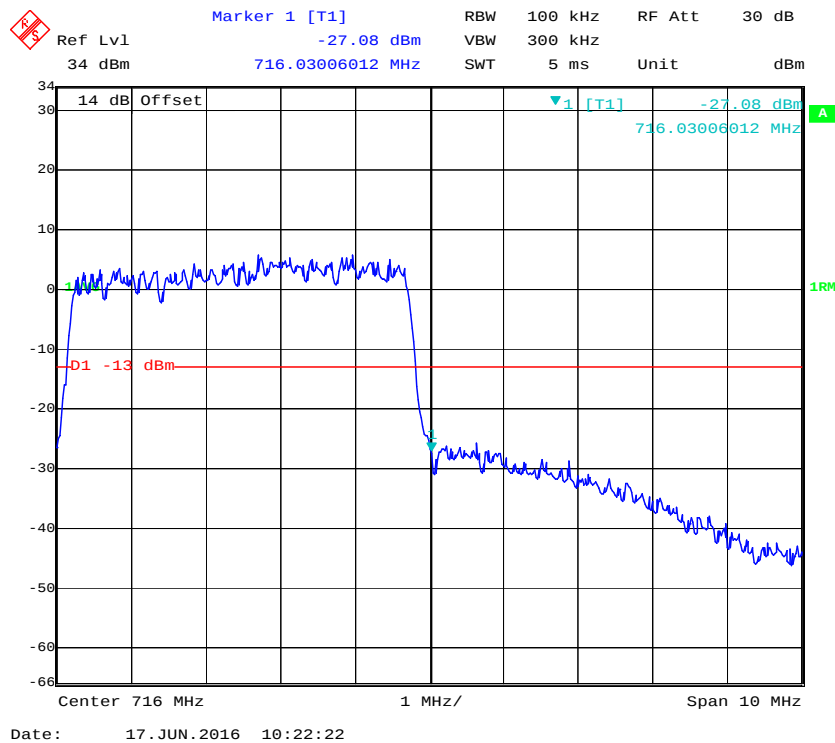


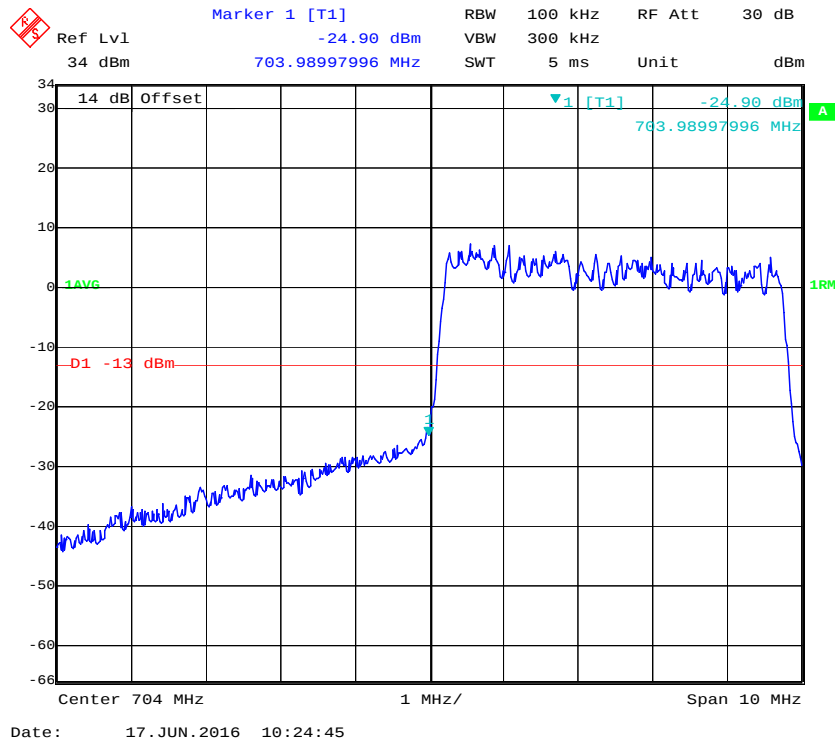
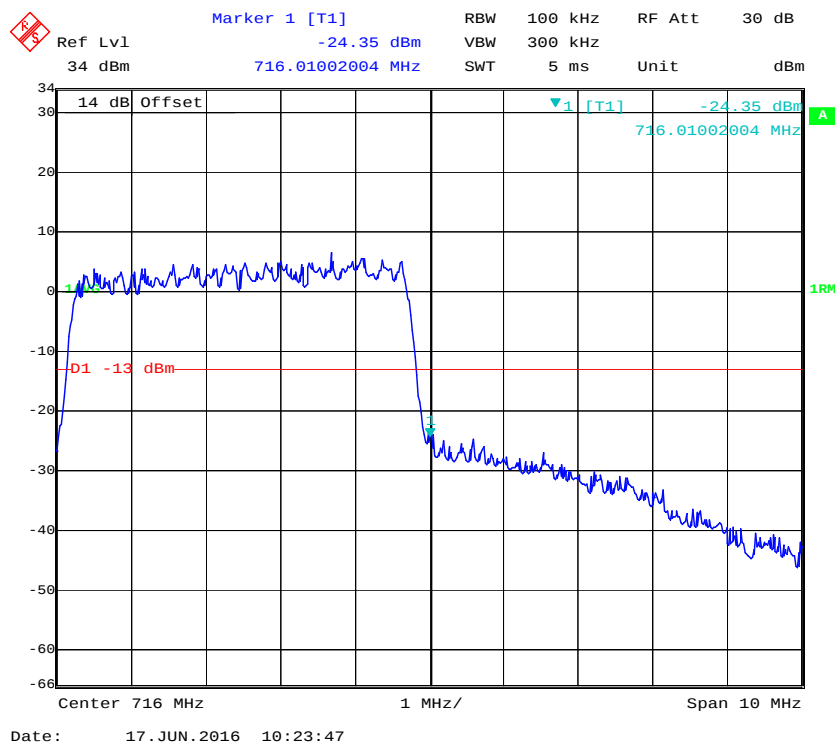
Band 17:

QPSK (5 MHz, FULL RB) - Left Band Edge

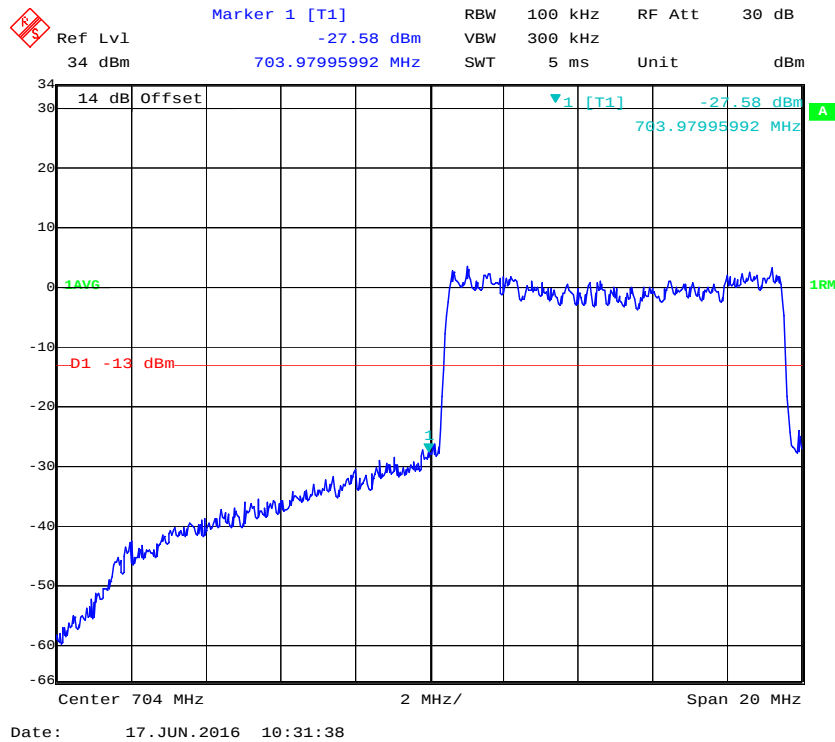


QPSK (5 MHz, FULL RB) - Right Band Edge

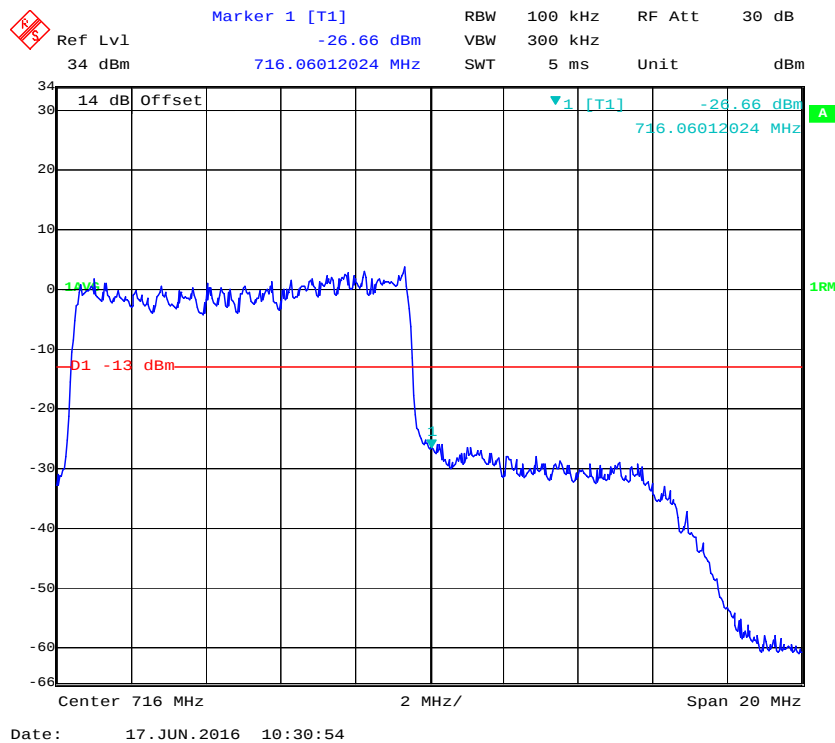


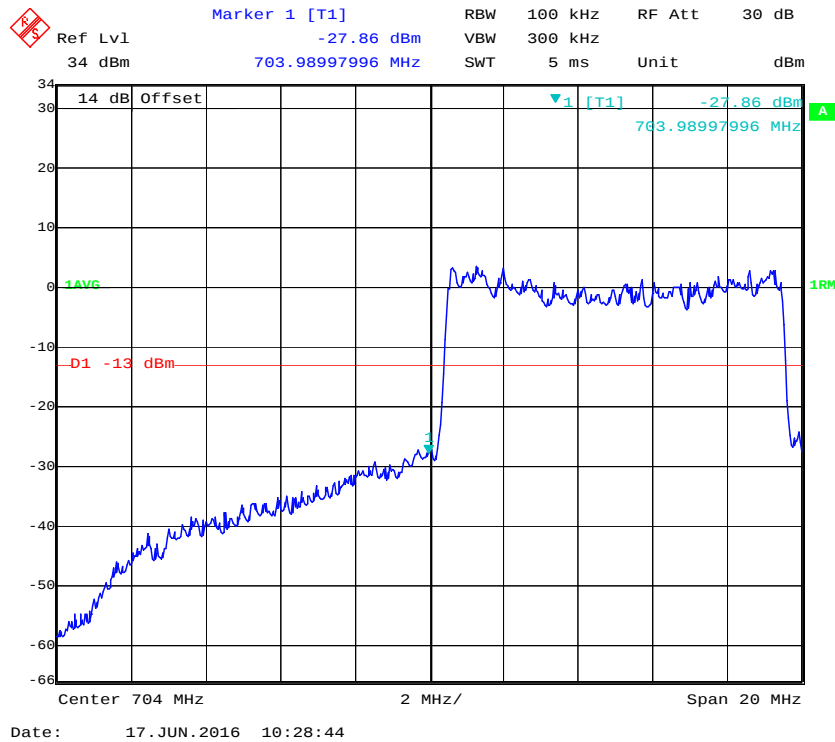
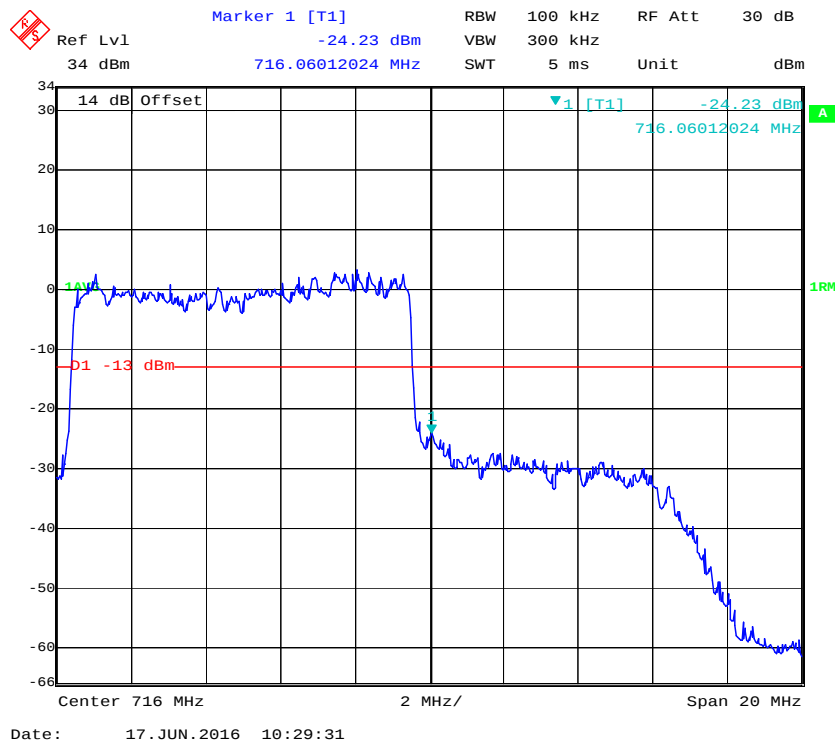
16-QAM (5 MHz, FULL RB) - Left Band Edge**16-QAM (5 MHz, FULL RB) - Right Band Edge**

QPSK (10 MHz, FULL RB) - Left Band Edge



QPSK (10 MHz, FULL RB) - Right Band Edge



16-QAM (10 MHz, FULL RB) - Left Band Edge**16-QAM (10 MHz, FULL RB) - Right Band Edge**

FCC §2.1055, §22.355 & §24.235 & §27.54 - FREQUENCY STABILITY**Applicable Standards**

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

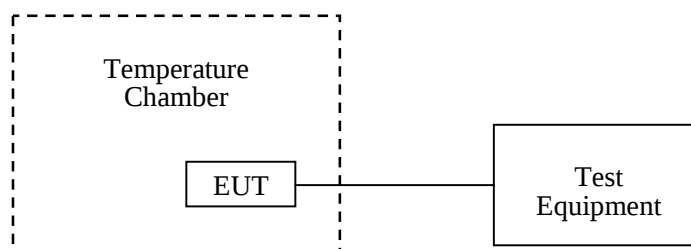
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2015-11-01	2016-10-31
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2015-11-23	2016-11-23
R&S	Wideband Radio Communication tester	CMW500	1201.002K50-146520-wh	2015-11-23	2016-11-23
Ducommun technologies	RF Cable	RG-214	4	2015-06-15	2016-06-15
WEINSCHTEL	10dB Attenuator	5324	AU0709	2015-06-18	2016-06-18

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

Test Data**Environmental Conditions**

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.0kPa

The testing was performed by Haiguo Li on 2016-06-13.

EUT operation mode: Transmitting

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

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

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	22	0.02630	2.5
-20		22	0.02630	2.5
-10		22	0.02630	2.5
0		15	0.01793	2.5
10		15	0.01793	2.5
20		18	0.02152	2.5
30		18	0.02152	2.5
40		18	0.02152	2.5
50		22	0.02630	2.5
25	V min.= 3.5	22	0.02630	2.5
25	V max.= 4.35	22	0.02630	2.5

EDGE Mode

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	17	0.02032	2.5
-20		17	0.02032	2.5
-10		16	0.01913	2.5
0		15	0.01793	2.5
10		15	0.01793	2.5
20		16	0.01913	2.5
30		16	0.01913	2.5
40		16	0.01913	2.5
50		16	0.01913	2.5
25	V min.= 3.5	17	0.02032	2.5
25	V max.= 4.35	17	0.02032	2.5

WCDMA Mode

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.8	22	0.02630	pass
-20		22	0.02630	pass
-10		22	0.02630	pass
0		15	0.01793	pass
10		15	0.01793	pass
20		15	0.01793	pass
30		15	0.01793	pass
40		18	0.02152	pass
50		18	0.02152	pass
25	V min.= 3.5	20	0.02391	pass
25	V max.= 4.35	20	0.02391	pass

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

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	30	0.01596	pass
-20		30	0.01596	pass
-10		30	0.01596	pass
0		25	0.01330	pass
10		22	0.01170	pass
20		22	0.01170	pass
30		25	0.01330	pass
40		25	0.01330	pass
50		30	0.01596	pass
25	V min.= 3.5	30	0.01506	pass
25	V max.= 4.35	30	0.01596	pass

EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	30	0.01596	pass
-20		30	0.01596	pass
-10		28	0.01383	pass
0		28	0.01383	pass
10		28	0.01383	pass
20		22	0.01170	pass
30		28	0.01383	pass
40		28	0.01383	pass
50		28	0.01383	pass
25	V min. = 3.5	30	0.01596	pass
25	V max. = 4.35	30	0.01596	pass

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.8	30	0.01596	pass
-20		30	0.01596	pass
-10		25	0.01330	pass
0		25	0.01330	pass
10		25	0.01330	pass
20		20	0.01064	pass
30		20	0.01064	pass
40		25	0.01330	pass
50		25	0.01330	pass
25	V min. = 3.5	30	0.01596	pass
25	V max. = 4.35	30	0.01596	pass

Band 2:

Bandwidth	Temperature (°C)	Voltage (V _{DC})	QPSK (Hz)	QPSK (ppm)	Result
10.0 MHz, Middle Channel	-30	3.8	32	0.01702	Pass
	-20		30	0.01596	Pass
	-10		30	0.01596	Pass
	0		25	0.01330	Pass
	10		25	0.01330	Pass
	20		25	0.01330	Pass
	30		25	0.01330	Pass
	40		30	0.01596	Pass
	50		30	0.01596	Pass
	25	3.8	32	0.01702	Pass
	25	3.5	32	0.01702	Pass
	25	4.35	32	0.01702	Pass

Band 4:

Bandwidth	Temperature (°C)	Voltage (V _{DC})	QPSK (Hz)	QPSK (ppm)	Result
10.0 MHz, Middle Channel	-30	3.8	28	0.01616	Pass
	-20		28	0.01616	Pass
	-10		25	0.01443	Pass
	0		25	0.01443	Pass
	10		25	0.01443	Pass
	20		22	0.01270	Pass
	30		22	0.01270	Pass
	40		28	0.01616	Pass
	50		28	0.01616	Pass
	25	3.8	25	0.01443	Pass
	25	3.5	28	0.01616	Pass
	25	4.35	28	0.01616	Pass

Band 5:

Bandwidth	Temperature (°C)	Voltage (V _{DC})	QPSK (Hz)	QPSK (ppm)	Result
10.0 MHz, Middle Channel	-30	3.8	22	0.02630	Pass
	-20		22	0.02630	Pass
	-10		20	0.02391	Pass
	0		15	0.01793	Pass
	10		15	0.01793	Pass
	20		15	0.01793	Pass
	30		15	0.01793	Pass
	40		20	0.02391	Pass
	50		20	0.02391	Pass
	25	3.8	15	0.01793	Pass
	25	3.5	22	0.02630	Pass
	25	4.35	22	0.02630	Pass

Band 7:

Bandwidth	Temperature (°C)	Voltage (V _{DC})	QPSK (Hz)	QPSK (ppm)	Result
10.0 MHz, Middle Channel	-30	3.8	32	0.01262	Pass
	-20		32	0.01262	Pass
	-10		15	0.00592	Pass
	0		15	0.00592	Pass
	10		15	0.00592	Pass
	20		15	0.00592	Pass
	30		15	0.00592	Pass
	40		20	0.00789	Pass
	50		20	0.00789	Pass
	25	3.8	15	0.00592	Pass
	25	3.5	32	0.01262	Pass
	25	4.35	32	0.01262	Pass

Band 17:

Bandwidth	Temperature (°C)	Voltage (V _{DC})	QPSK (Hz)	QPSK (ppm)	Result
10.0 MHz, Middle Channel	-30	3.8	22	0.03099	Pass
	-20		22	0.03099	Pass
	-10		15	0.02113	Pass
	0		15	0.02113	Pass
	10		15	0.02113	Pass
	20		15	0.02113	Pass
	30		15	0.02113	Pass
	40		20	0.02817	Pass
	50		20	0.02817	Pass
	25	3.8	15	0.02113	Pass
	25	3.5	22	0.03099	Pass
	25	4.35	22	0.03099	Pass

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