FCC PART 27

MEASUREMENT AND TEST REPORT

For

ITALCOM GROUP

1728 Coral Way, Coral Gables, Miami, Florida, United States

FCC ID: YPVMIFIAMR510

Report Type:	Product Type:
Original Report	Mobile LTE WiFi Router

Test Engineer:	Gardon Zhang
Report Number:	RSZ130204002-00C
Report Date:	2013-03-28
Reviewed By:	Alvin Huang RF Leader
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *ITALCOM GROUP*'s product, model number: *MiFi LTE (FCC ID:YPVMIFIAMR510*) or the "EUT" as referred to in this report is a *Mobile LTE WiFi Router,* which measures approximately: 99.0 mm (L) x 55.3 mm (W) x 11.2 mm (H), rated input voltage: DC 3.7 V battery

Frequency Range: 1710-1755 MHz (Uplink)
2110-2155 MHz (Downlink)

Modulation Type: QPSK, 16-QAM

**All measurement and test data in this report was gathered from production sample serial number: 099323 (Assigned by applicant). The EUT supplied by applicant was received on 2013-02-04.*

Objective

This type approval report is prepared on behalf of *ITALCOM GROUP* in accordance with Part 2, Part 27 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 22H&24E PCT and 15.247 DTS submissions with FCC ID: YPVMIFIAMR510.

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 27 – Miscellaneous wireless communications services

Applicable Standards: TIA-1037, 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.

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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

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.

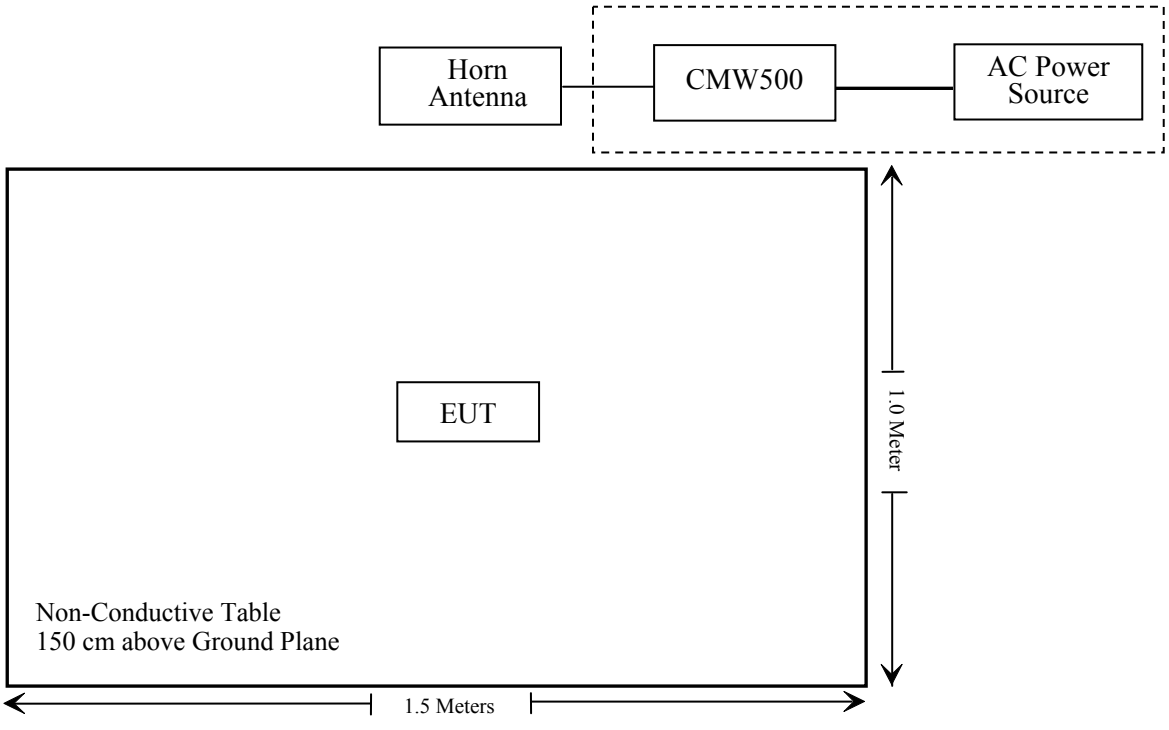
Equipment Modifications

No modifications were made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.0002K50

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b)(1), §2.1093, §27.52	RF Exposure Information	Compliance
§2.1046; §27.50 (d) (i)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	N/A
§ 2.1049; §27.53 (c)	Occupied Bandwidth	Compliance
§ 2.1051; §27.53(c) (g)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; §27.53 (c) (g)	Spurious Radiated Emissions	Compliance
§27.53 (c) (g)	Band Edge	Compliance
§ 2.1055; §27.54	Frequency stability	Compliance

FCC §1.1307(b) & §27.52 & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ130204002-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

FCC § 2.1046 & § 27.50 - RF OUTPUT POWER

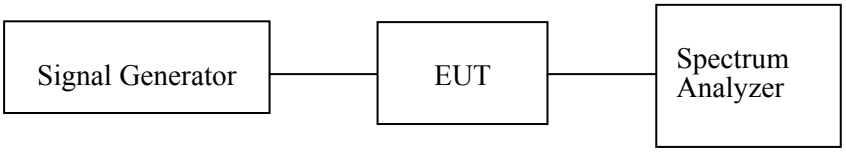
Applicable Standards

According to §27.50, the maximum EIRP must not exceed 1 Watt (30 dBm).

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the Signal Generator and the spectrum analyzer 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	101122	2012-08-08	2013-08-07
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2012-11-28	2013-11-27
HP	Synthesized Sweeper	8341B	2624A00116	2012-04-11	2013-04-10
COM POWER	Dipole Antenna	AD-100	041000	2012-06-06	2013-06-05
A.H. System	Horn Antenna	SAS-200/571	135	2013-02-11	2014-02-10

*** 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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	100.0 kPa

The testing was performed by Gardon Zhang on 2013-03-25.

Conducted Power

Maximum Output Power

Bandwidth (MHz)	Frequency (MHz)	Resource Block & RB offset	Average Output Power (dBm) QPSK	Peak to Average Ratio (dB)	Average Output Power (dBm) 16-QAM	Peak to Average Ratio (dB)
1.4	1710.7	1/0	22.65	4.32	22.15	5.12
		1/3	22.68	4.24	22.21	5.08
		1/5	22.71	4.30	22.20	5.15
		3/0	22.80	4.81	/	/
		3/3	22.87	4.78	/	/
		6/0	21.81	4.96	20.78	6.42
	1732.5	1/0	22.87	3.51	22.06	5.03
		1/3	22.84	3.47	22.06	5.02
		1/5	22.89	3.51	22.03	5.10
		3/0	22.78	3.79	/	/
		3/3	22.76	3.81	/	/
		6/0	21.86	5.59	22.00	5.97
	1754.3	1/0	22.91	3.79	22.04	5.17
		1/3	22.79	3.71	22.05	5.11
		1/5	22.80	3.74	22.00	5.21
		3/0	22.78	4.07	/	/
		3/3	22.69	4.08	/	/
		6/0	21.77	5.13	20.79	6.62
3.0	1711.5	1/0	23.00	4.24	22.17	5.17
		1/8	23.05	4.13	22.22	5.03
		1/14	23.07	4.14	22.18	5.18
		6/0	21.90	5.24	/	/
		6/9	21.87	5.25	/	/
		15/0	21.73	5.06	20.92	6.92
	1732.5	1/0	22.95	3.26	22.09	5.07
		1/8	22.81	3.42	22.04	4.98
		1/14	22.70	3.42	21.88	5.15
		6/0	21.80	4.54	/	/
		6/9	21.65	4.61	/	/
		15/0	21.86	5.76	21.09	7.35
	1753.5	1/0	22.92	3.82	22.08	5.20
		1/8	22.92	3.61	22.11	5.05
		1/14	22.86	3.63	21.98	5.18
		6/0	21.79	4.93	/	/
		6/9	21.75	4.83	/	/
		15/0	21.80	5.34	20.94	7.23

Bandwidth (MHz)	Frequency (MHz)	Resource Block & RB offset	Average Output Power (dBm) QPSK	Peak to Average Ratio (dB)	Average Output Power (dBm) 16-QAM	Peak to Average Ratio (dB)
5.0	1712.5	1/0	22.96	3.84	22.10	6.49
		1/13	22.98	3.71	22.15	6.31
		1/24	22.92	3.82	22.07	6.45
		15/0	21.91	6.41	/	/
		15/10	21.88	6.40	/	/
		25/0	21.68	6.33	20.95	7.53
	1732.5	1/0	22.92	4.75	22.08	6.27
		1/13	22.86	4.69	22.03	6.17
		1/24	22.76	4.89	21.82	6.45
		15/0	21.84	6.65	/	/
		15/10	21.70	6.75	/	/
		25/0	21.89	6.23	21.15	7.67
	1752.5	1/0	22.81	4.59	22.04	6.54
		1/13	22.90	4.55	22.01	6.33
		1/24	22.80	4.82	21.90	6.50
		15/0	21.82	6.75	/	/
		15/10	21.79	6.61	/	/
		25/0	21.73	6.39	21.01	7.62
10.0	1715.0	1/0	23.03	4.97	22.22	5.21
		1/25	23.09	4.89	22.25	5.06
		1/49	23.12	5.45	22.32	5.12
		25/0	21.92	6.33	/	/
		25/25	22.08	6.24	/	/
		50/0	21.76	6.33	21.06	7.09
	1732.5	1/0	23.08	5.21	22.23	5.01
		1/25	22.90	5.25	22.10	5.04
		1/49	22.80	5.62	22.02	5.24
		25/0	21.87	6.14	/	/
		25/25	21.74	6.28	/	/
		50/0	21.92	6.50	21.36	7.15
	1750.0	1/0	22.86	5.71	22.02	5.30
		1/25	22.90	5.42	22.12	5.15
		1/49	22.85	5.50	22.06	5.20
		25/0	21.83	6.47	/	/
		25/25	21.86	6.34	/	/
		50/0	21.77	6.53	20.99	7.17

Bandwidth (MHz)	Frequency (MHz)	Resource Block & RB offset	Average Output Power (dBm) QPSK	Peak to Average Ratio (dB)	Average Output Power (dBm) 16-QAM	Peak to Average Ratio (dB)
15.0	1717.5	1/0	23.05	5.52	22.22	5.24
		1/38	23.06	5.51	22.24	5.03
		1/74	23.05	5.27	22.20	5.00
		36/0	22.08	6.61	/	/
		36/39	22.15	6.32	/	/
		75/0	22.01	6.72	21.23	7.37
	1732.5	1/0	23.01	5.29	22.21	5.03
		1/38	22.81	5.44	22.10	5.02
		1/74	22.66	5.71	21.89	5.26
		36/0	22.00	6.35	/	/
		36/39	21.81	6.53	/	/
		75/0	21.88	6.81	20.97	7.61
	1747.5	1/0	22.87	5.61	22.04	5.20
		1/38	22.87	5.63	22.10	5.18
		1/74	22.82	5.54	22.14	5.21
		36/0	21.82	6.76	/	/
		36/39	21.92	6.55	/	/
		75/0	21.81	6.69	21.00	7.40
20.0	1732.5	1/0	23.08	5.30	22.29	5.02
		1/50	22.83	5.26	22.12	5.00
		1/99	22.85	5.68	22.07	5.29
		50/0	22.02	6.08	/	/
		50/50	21.79	6.41	/	/
		100/0	21.99	6.43	22.04	6.27

Radiated Power:

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)
QPSK: Middle Channel (1.4 MHz Bandwidth)									
1732.5	95.19	65	1.5	H	18.7	0.97	9.40	27.13	30
1732.5	85.51	113	1.6	V	11.6	0.97	9.40	20.03	30
16-QAM: Middle Channel (1.4 MHz Bandwidth)									
1732.5	95.26	68	1.8	H	18.7	0.97	9.40	27.13	30
1732.5	86.62	113	1.6	V	12.7	0.97	9.40	21.13	30
QPSK: Middle Channel (3.0 MHz Bandwidth)									
1732.5	94.76	35	1.5	H	18.3	0.97	9.40	26.83	30
1732.5	84.36	153	1.5	V	10.4	0.97	9.40	18.83	30
16-QAM: Middle Channel (3.0 MHz Bandwidth)									
1732.5	94.82	73	1.6	H	18.4	0.97	9.40	26.93	30
1732.5	84.21	163	1.5	V	10.3	0.97	9.40	18.73	30
QPSK: Middle Channel (5.0 MHz Bandwidth)									
1732.5	94.36	89	1.6	H	17.8	0.97	9.40	26.23	30
1732.5	83.46	91	1.7	V	9.5	0.97	9.40	17.93	30
16-QAM: Middle Channel (5.0 MHz Bandwidth)									
1732.5	94.45	130	1.5	H	17.9	0.97	9.40	26.33	30
1732.5	84.10	156	1.5	V	10.1	0.97	9.40	18.53	30
QPSK: Middle Channel (10 MHz Bandwidth)									
1732.5	93.76	85	1.5	H	17.3	0.97	9.40	25.83	30
1732.5	83.64	164	1.5	V	9.7	0.97	9.40	18.13	30
16-QAM: Middle Channel (10 MHz Bandwidth)									
1732.5	93.68	92	1.6	H	17.2	0.97	9.40	25.73	30
1732.5	83.71	156	1.5	V	9.8	0.97	9.40	18.23	30
QPSK: Middle Channel (15 MHz Bandwidth)									
1732.5	93.56	69	1.5	H	17.1	0.97	9.40	25.63	30
1732.5	83.24	132	1.5	V	9.3	0.97	9.40	17.73	30
16-QAM: Middle Channel (15 MHz Bandwidth)									
1732.5	93.64	71	1.5	H	17.2	0.97	9.40	25.73	30
1732.5	83.59	155	1.5	V	9.7	0.97	9.40	18.13	30
QPSK: Middle Channel (20 MHz Bandwidth)									
1732.5	93.02	76	1.5	H	16.6	0.97	9.40	25.13	30
1732.5	82.97	155	1.5	V	9.0	0.97	9.40	17.43	30
16-QAM: Middle Channel (20 MHz Bandwidth)									
1732.5	93.16	97	1.6	H	16.7	0.97	9.40	25.23	30
1732.5	83.24	163	1.5	V	9.3	0.97	9.40	17.73	30

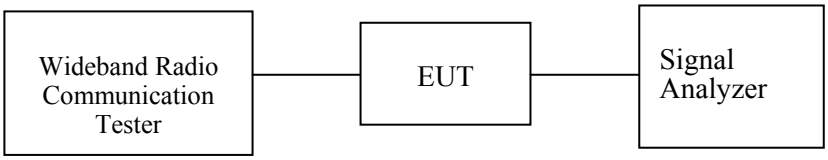
FCC §2.1049 & §27.53 - OCCUPIED BANDWIDTH

Applicable Standards

FCC 47 §2.1049 and §27.53.

Test Procedure

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23

*** 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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	100.0 kPa

The testing was performed by Gardon Zhang on 2013-03-23 and 2013-03-25.

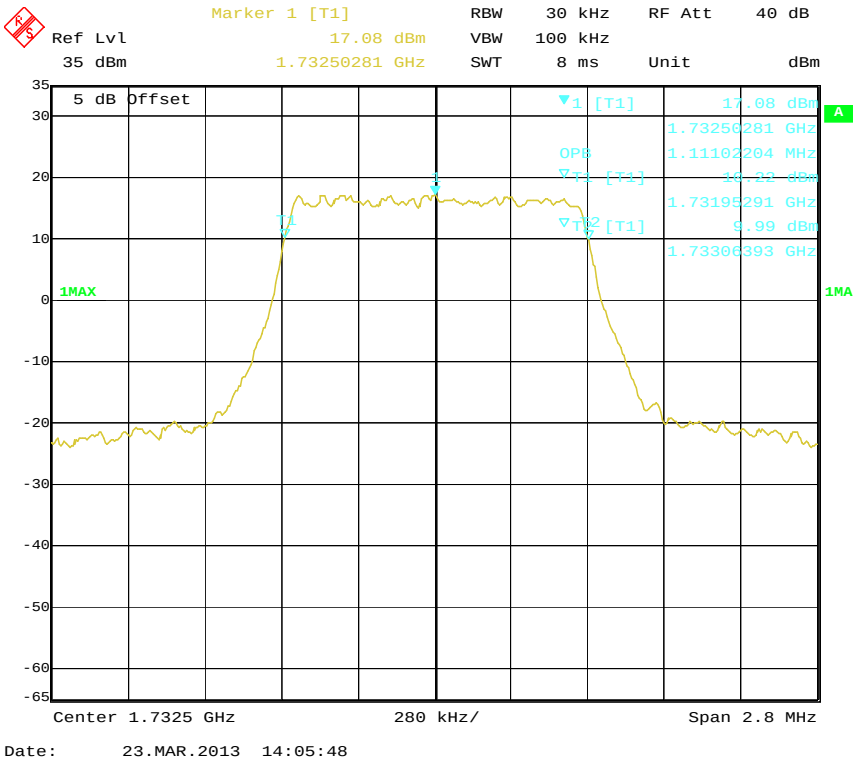
Modulation: QPSK

Mode	Modulation	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
Uplink 1710-1755 MHz	QPSK (1.4 MHz)	1732.5	1.111	1.352
	QPSK (3.0 MHz)	1732.5	2.729	3.054
	QPSK (5.0 MHz)	1732.5	4.529	5.190
	QPSK (10.0 MHz)	1732.5	9.018	10.140
	QPSK (15.0 MHz)	1732.5	13.470	14.850
	QPSK (20.0 MHz)	1732.5	17.956	19.478

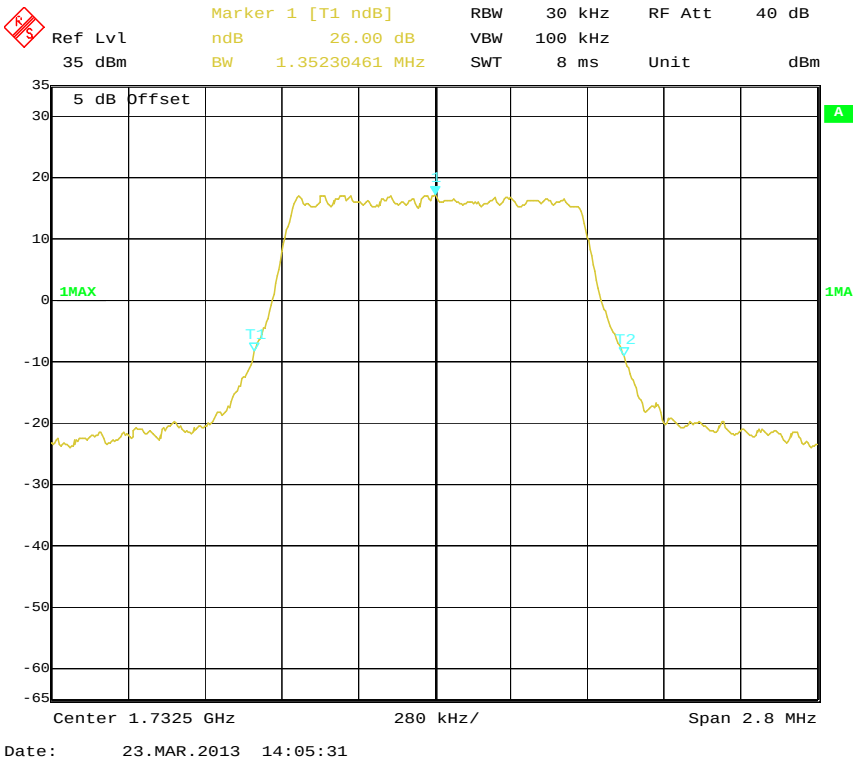
Modulation: 16-QAM

Mode	Modulation	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
Uplink 1710-1755 MHz	16-QAM (1.4 MHz)	1732.5	1.111	1.364
	16-QAM (3.0 MHz)	1732.5	2.705	3.066
	16-QAM (5.0 MHz)	1732.5	4.549	5.210
	16-QAM (10.0 MHz)	1732.5	9.018	10.100
	16-QAM (15.0 MHz)	1732.5	13.467	14.850
	16-QAM (20.0 MHz)	1732.5	17.876	19.319

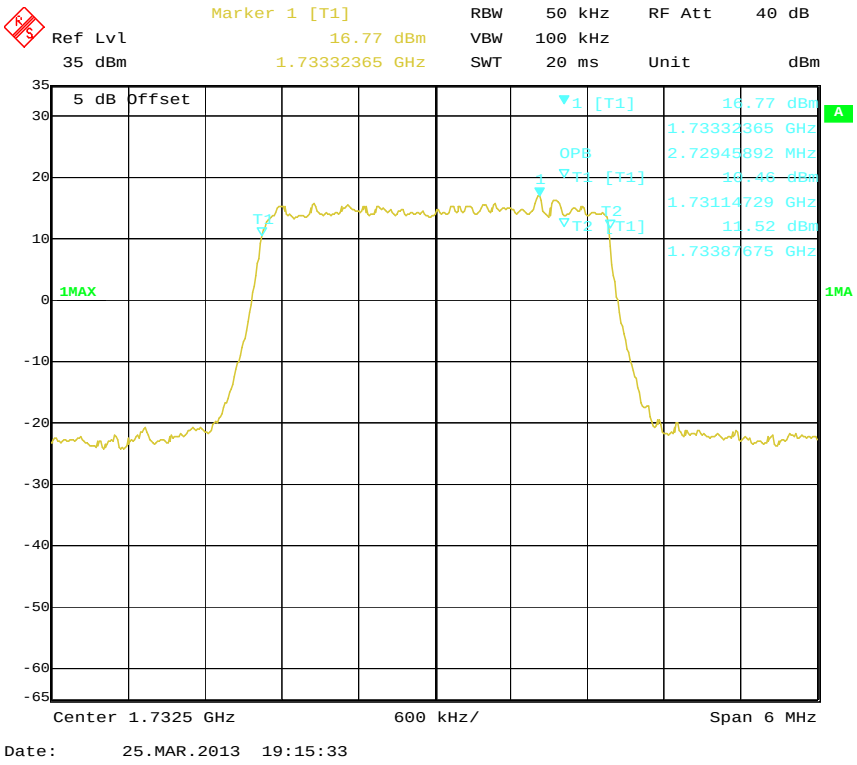
QPSK (1.4 MHz) - 99% Occupied Bandwidth



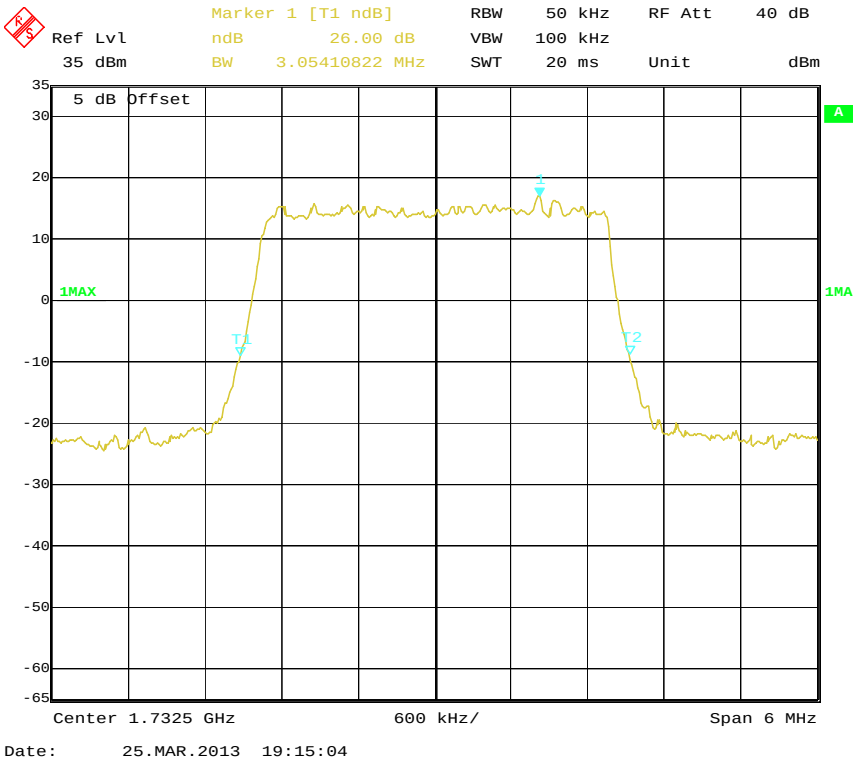
QPSK (1.4 MHz) - 26 dB Bandwidth



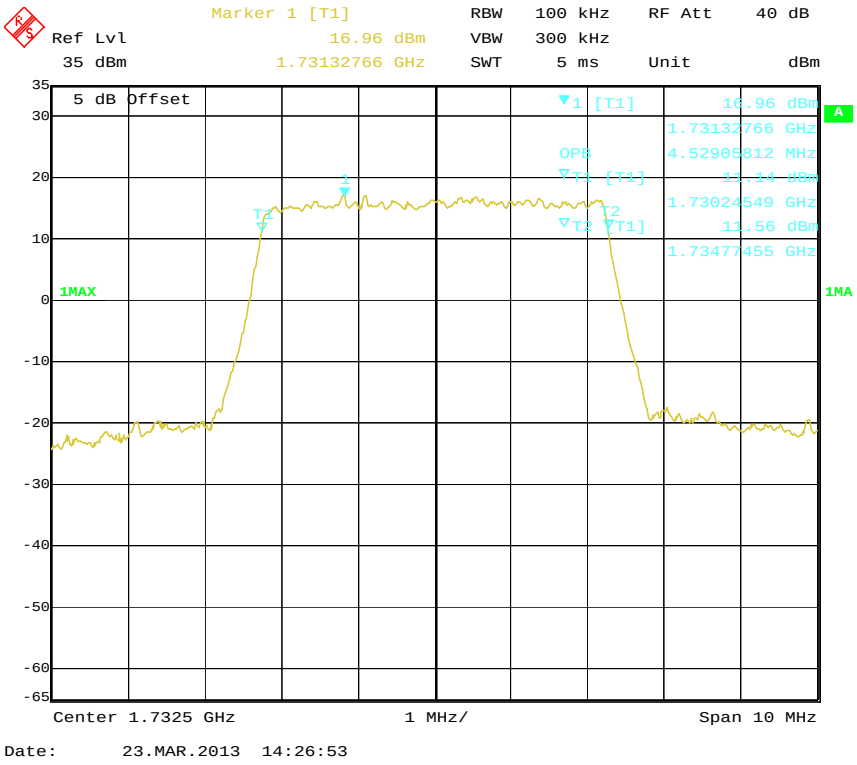
QPSK (3.0 MHz) - 99% Occupied Bandwidth



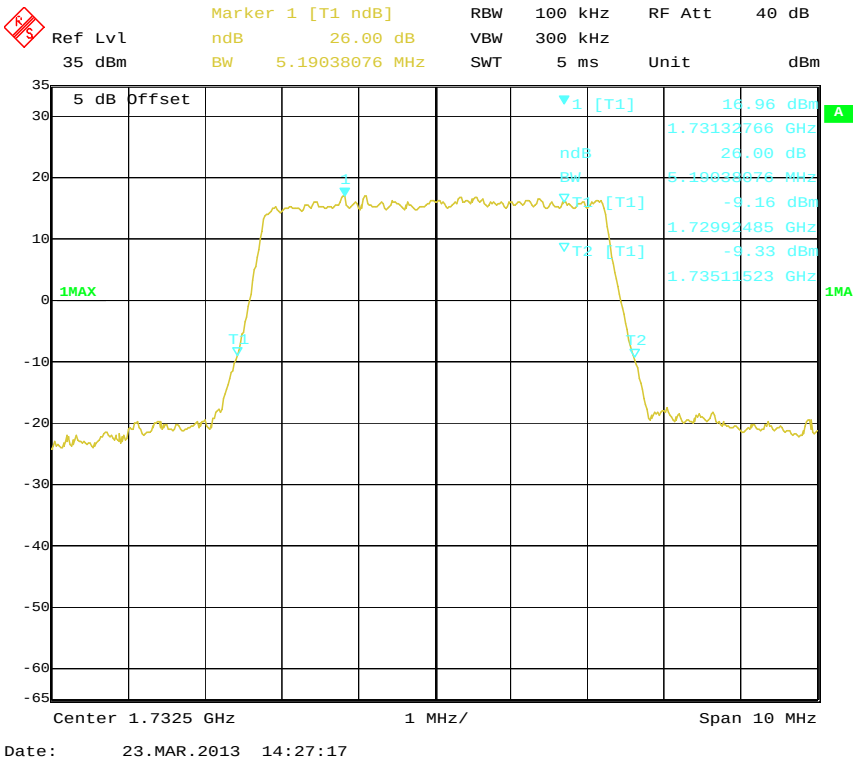
QPSK (3.0 MHz) - 26 dB Bandwidth



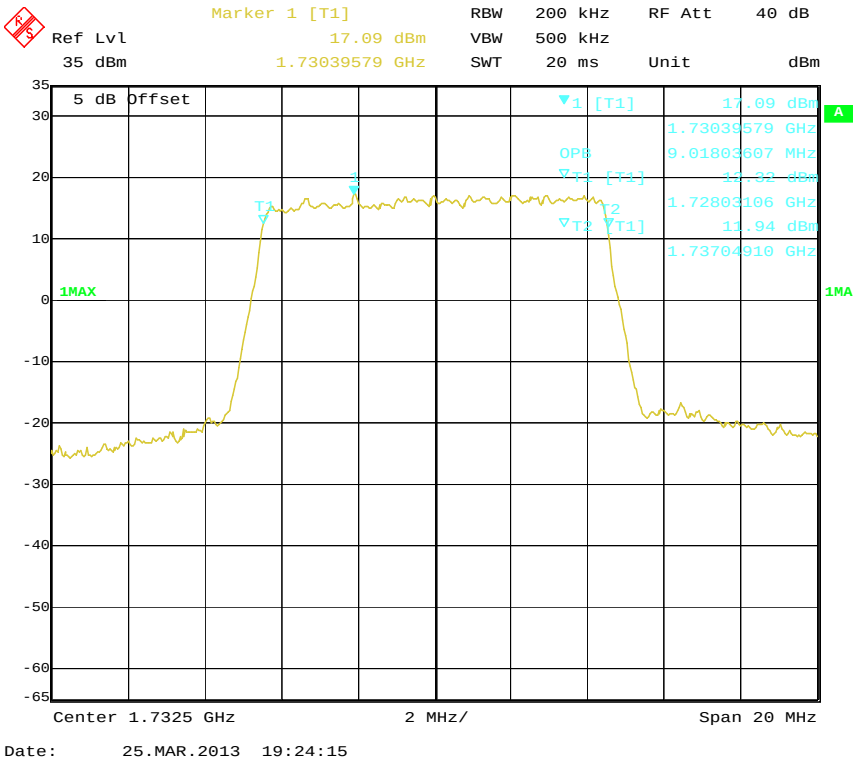
QPSK (5.0 MHz) - 99% Occupied Bandwidth



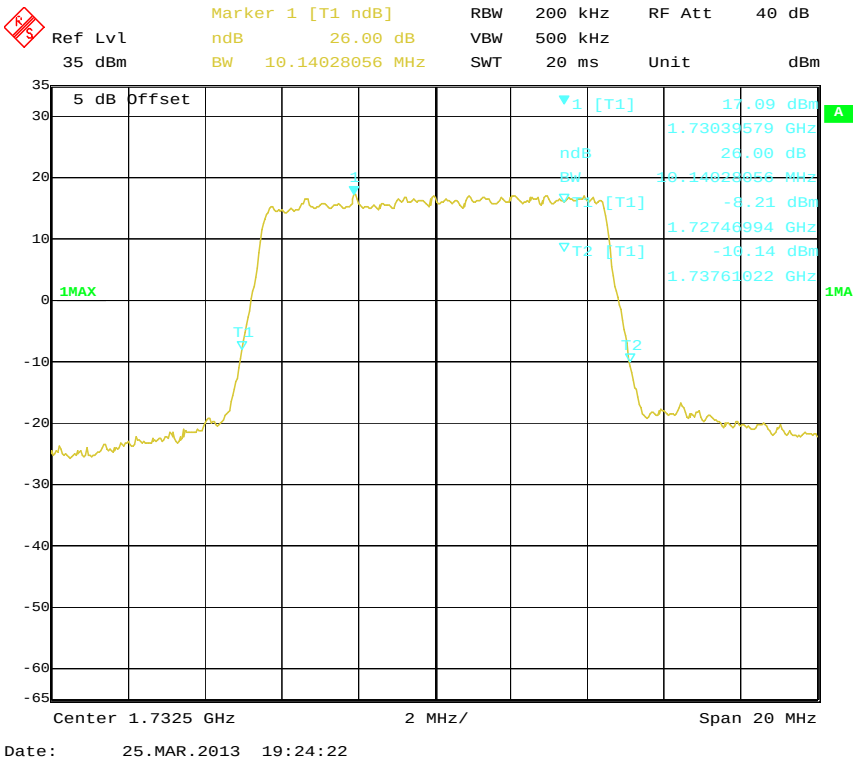
QPSK (5.0 MHz) - 26 dB Bandwidth



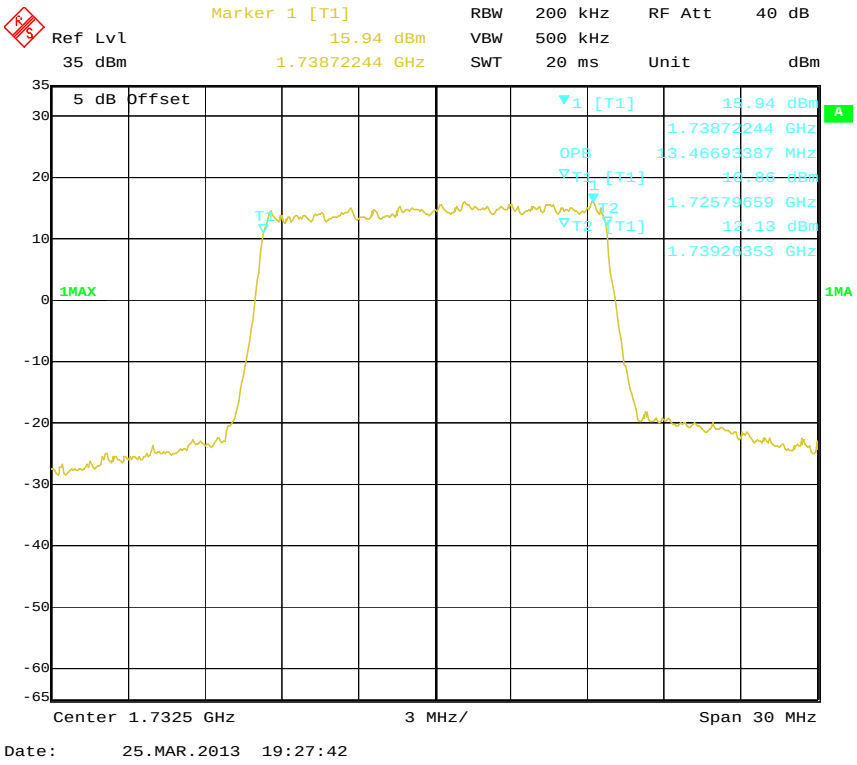
QPSK (10.0 MHz) - 99% Occupied Bandwidth



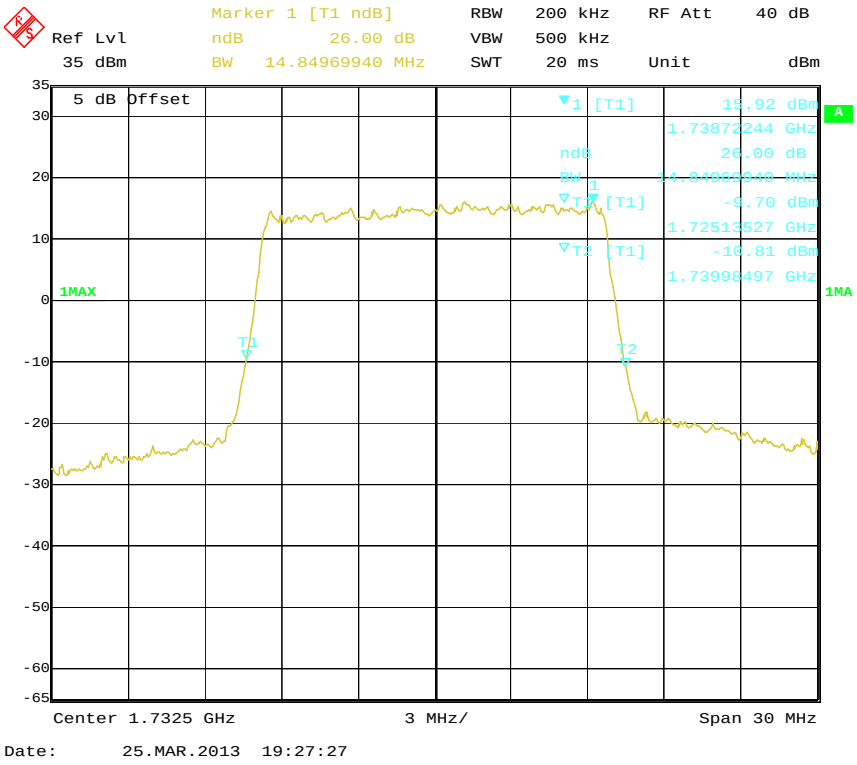
QPSK (10.0 MHz) - 26 dB Bandwidth



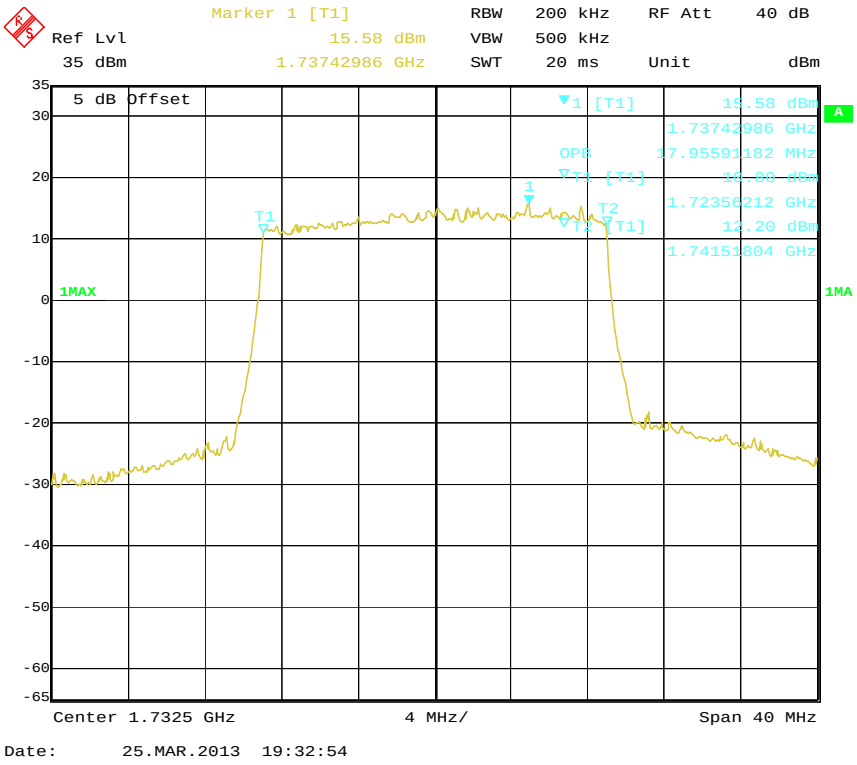
QPSK (15.0 MHz) - 99% Occupied Bandwidth



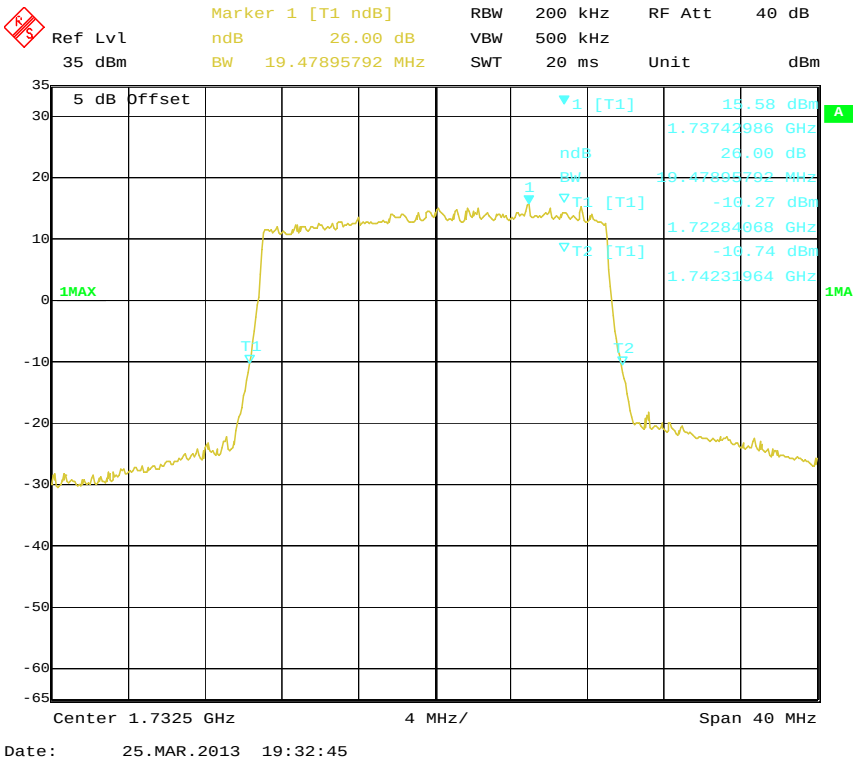
QPSK (15.0 MHz) - 26 dB Bandwidth



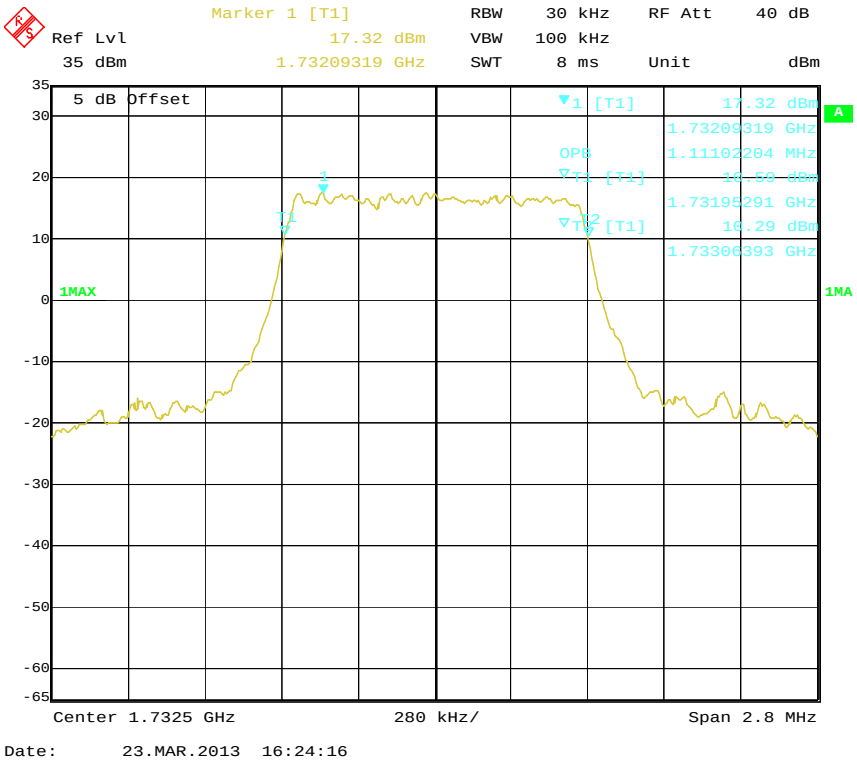
QPSK (20.0 MHz) - 99% Occupied Bandwidth



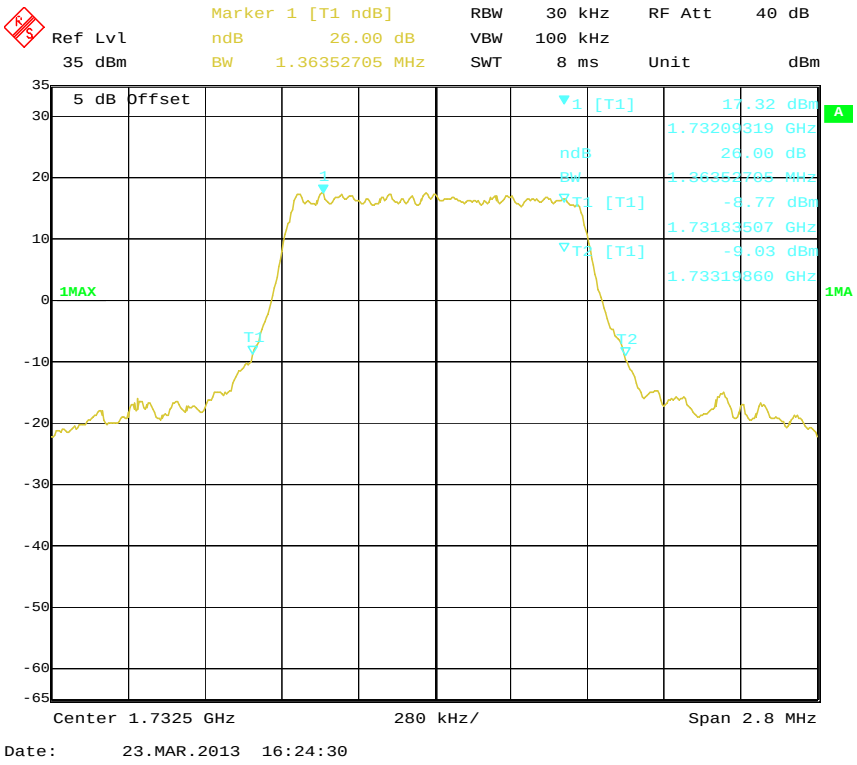
QPSK (20.0 MHz) - 26 dB Bandwidth



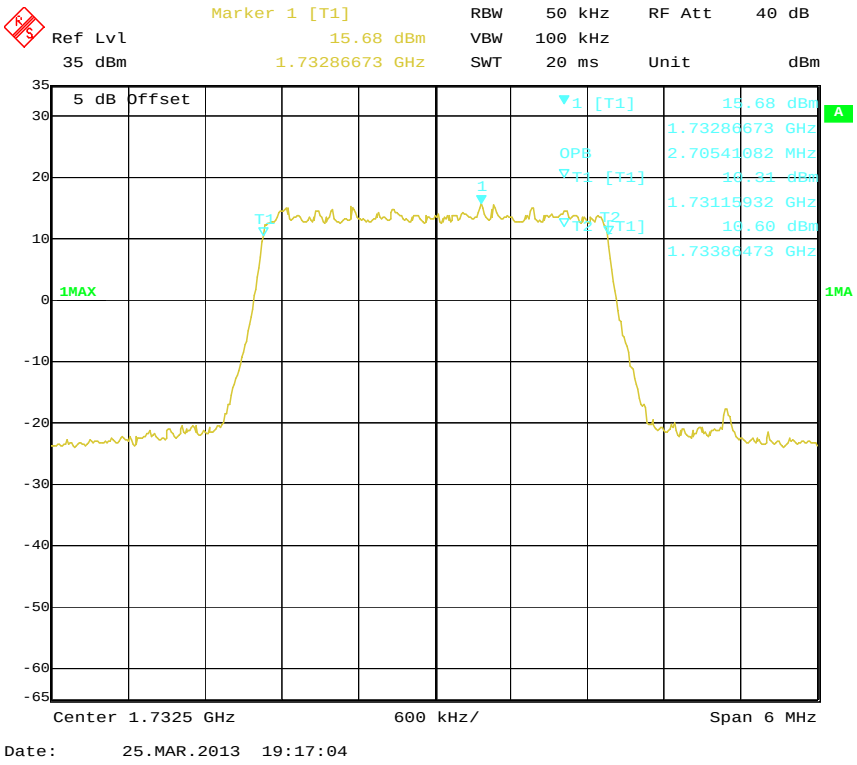
16-QAM (1.4 MHz) - 99% Occupied Bandwidth



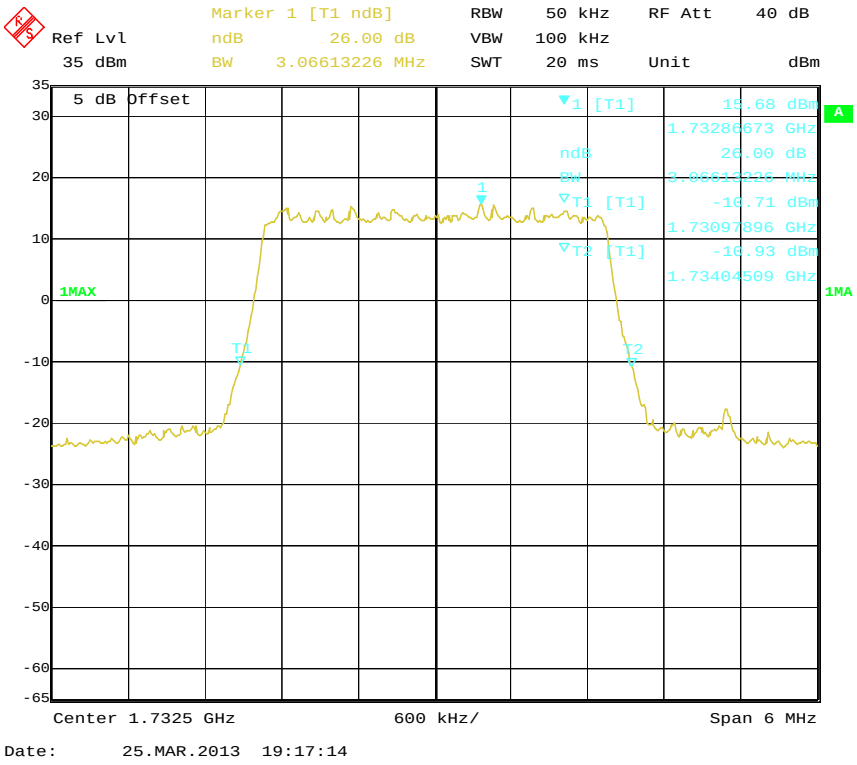
16-QAM (1.4 MHz) - 26 dB Bandwidth



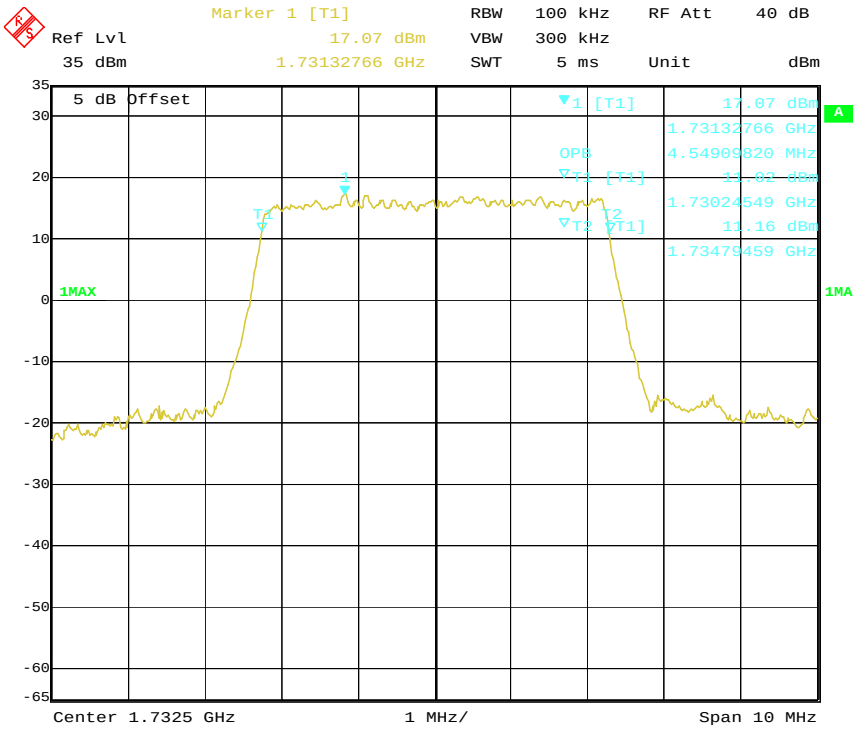
16-QAM (3.0 MHz) - 99% Occupied Bandwidth



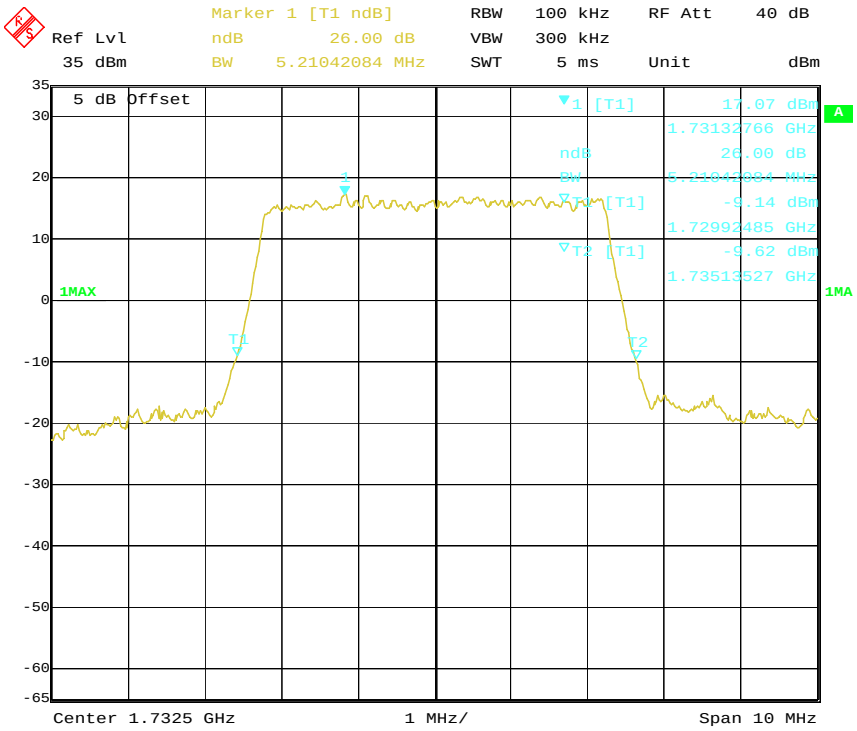
16-QAM (3.0 MHz) - 26 dB Bandwidth



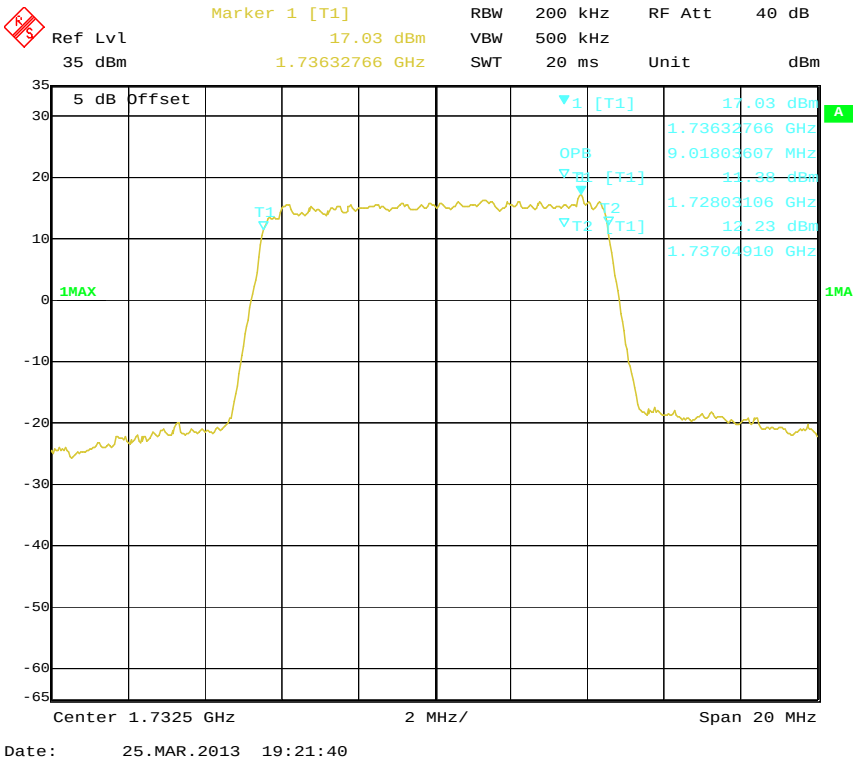
16-QAM (5.0 MHz) - 99% Occupied Bandwidth



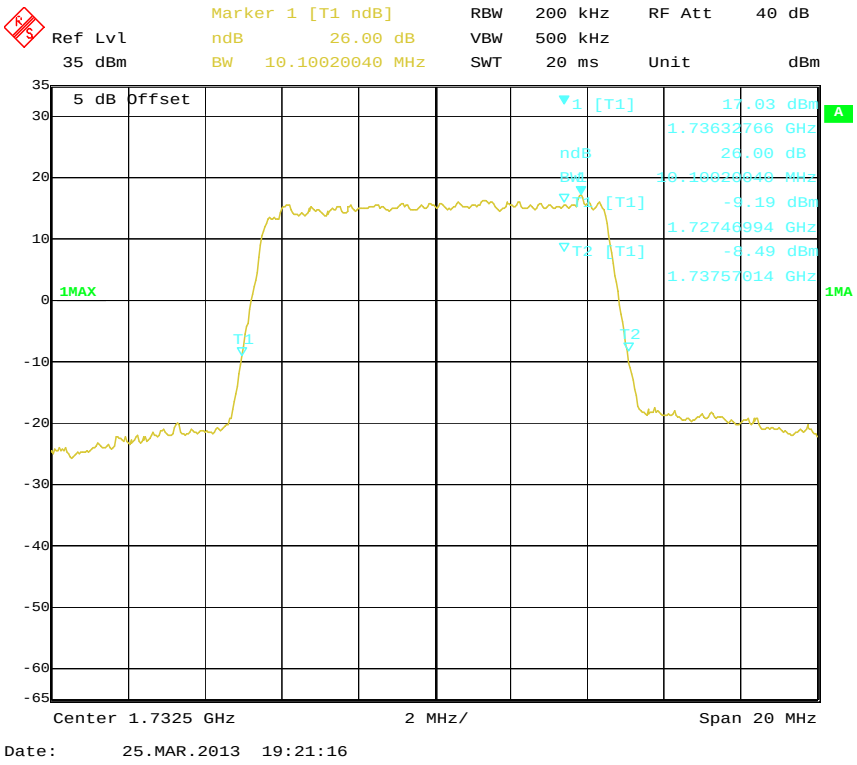
16-QAM (5.0 MHz) - 26 dB Bandwidth



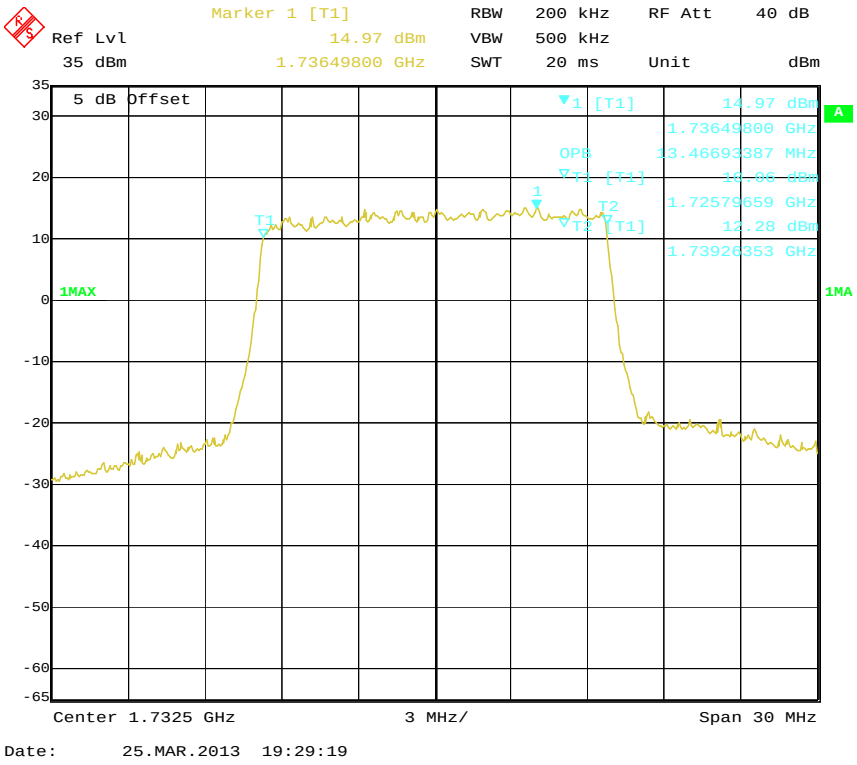
16-QAM (10.0 MHz) - 99% Occupied Bandwidth



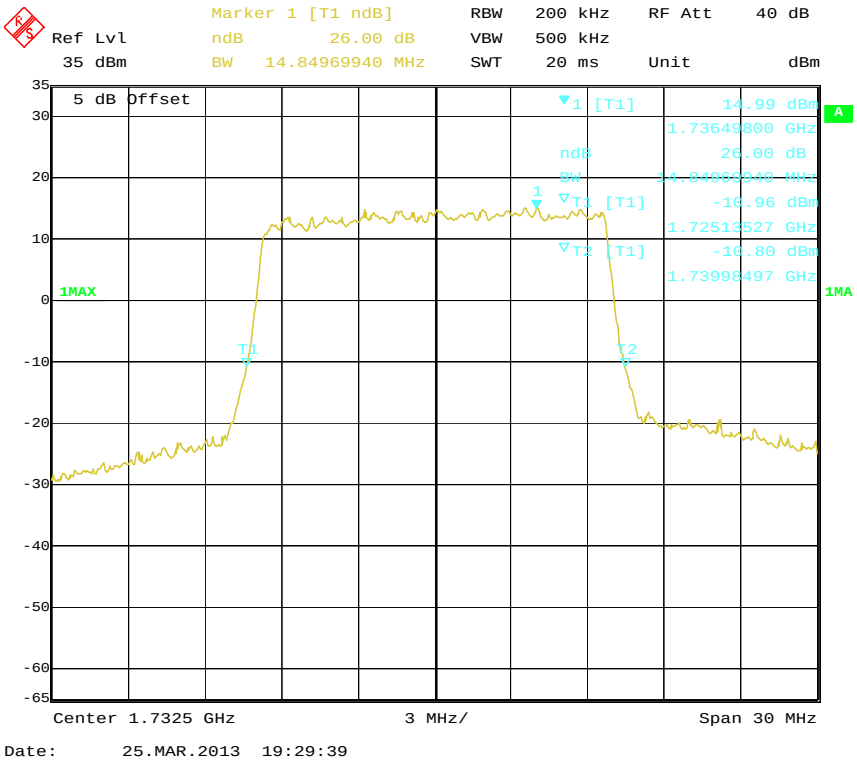
16-QAM (10.0 MHz) - 26 dB Bandwidth



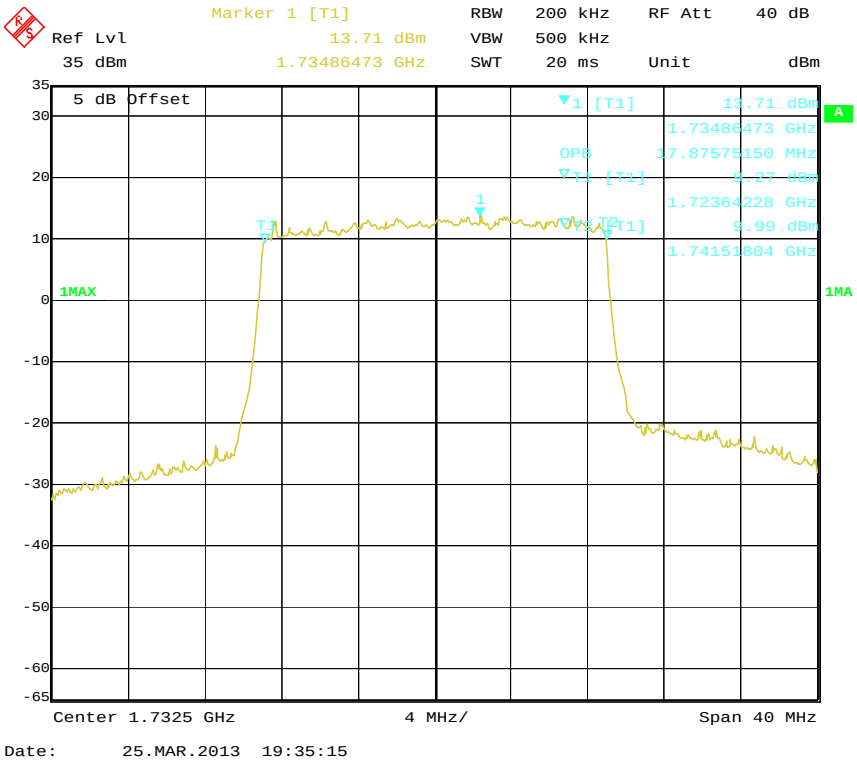
16-QAM (15.0 MHz) - 99% Occupied Bandwidth



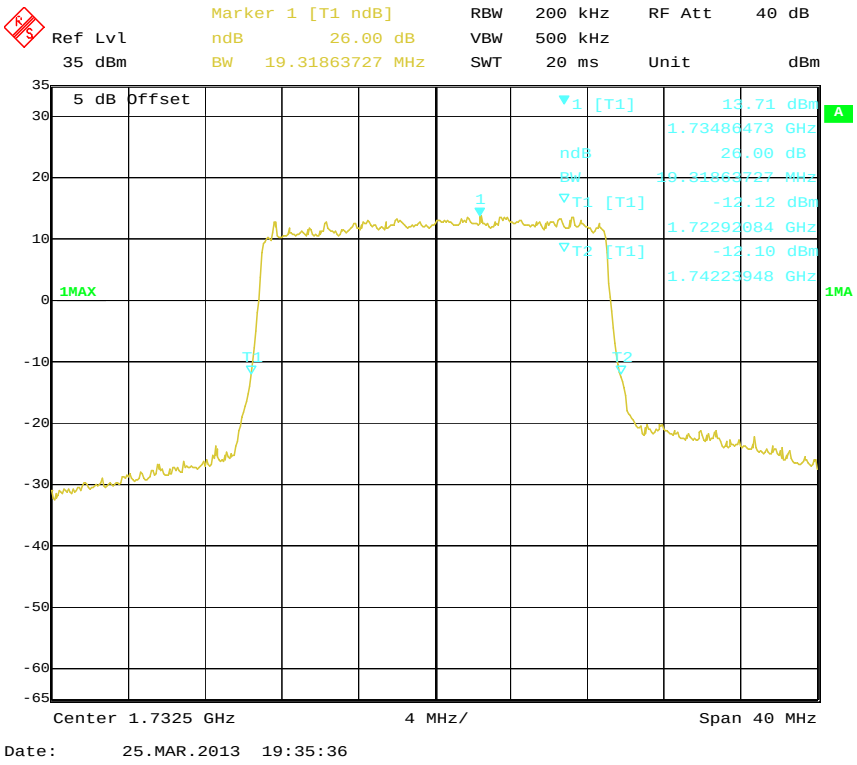
16-QAM (15.0 MHz) - 26 dB Bandwidth



16-QAM (20.0 MHz) - 99% Occupied Bandwidth



16-QAM (20.0 MHz) - 26 dB Bandwidth



FCC §2.1051 & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

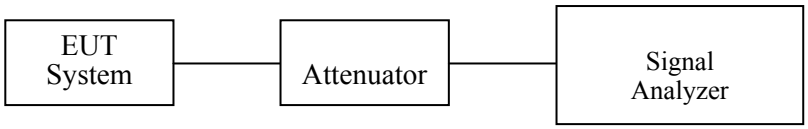
Applicable Standards

FCC §2.1051 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 bandwidths of the spectrum analyzer were set at 100 kHz @ below 1GHz,1MHz @above 1GHz. 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	2012-11-24	2013-11-23

*** 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

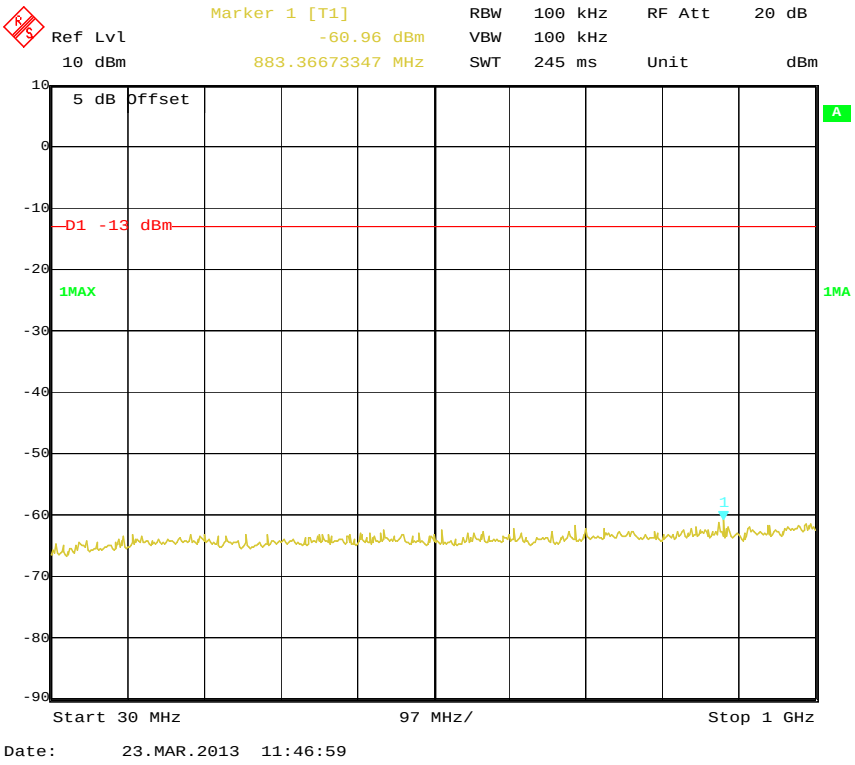
Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	100.0 kPa

The testing was performed by Gardon Zhang on 2013-03-23 and 2013-03-25.

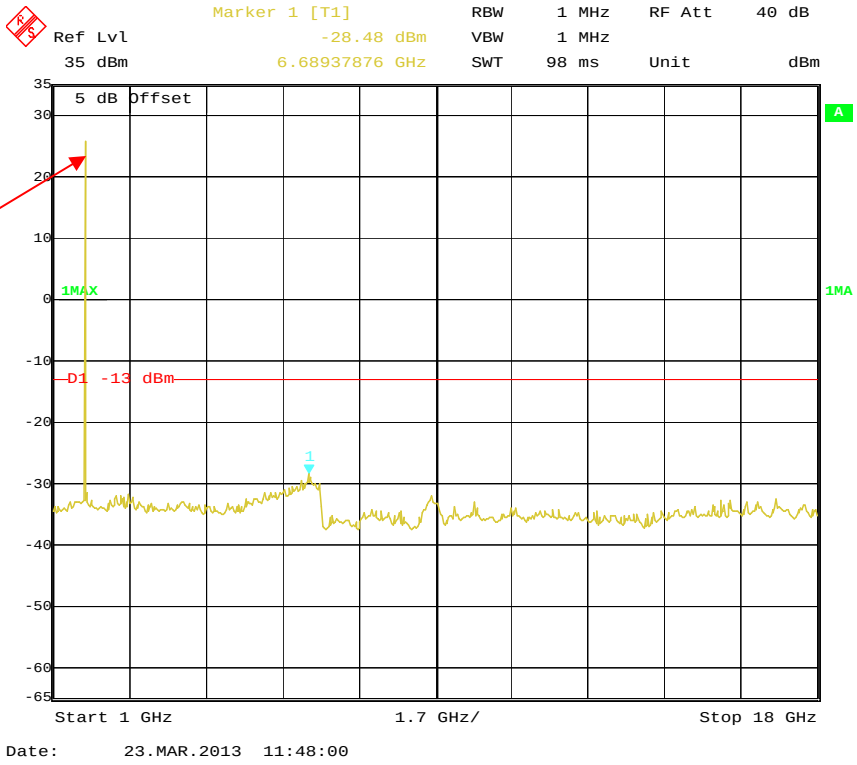
Please refer to the following plots.

Modulation: QPSK (Middle Channel)

30 MHz - 1 GHz



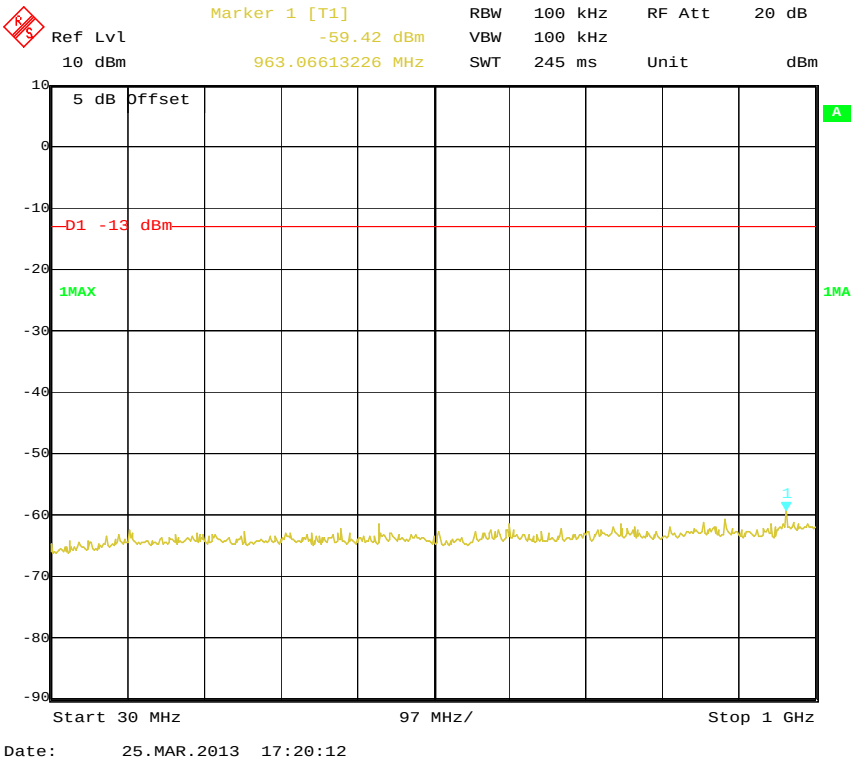
1 GHz - 18 GHz



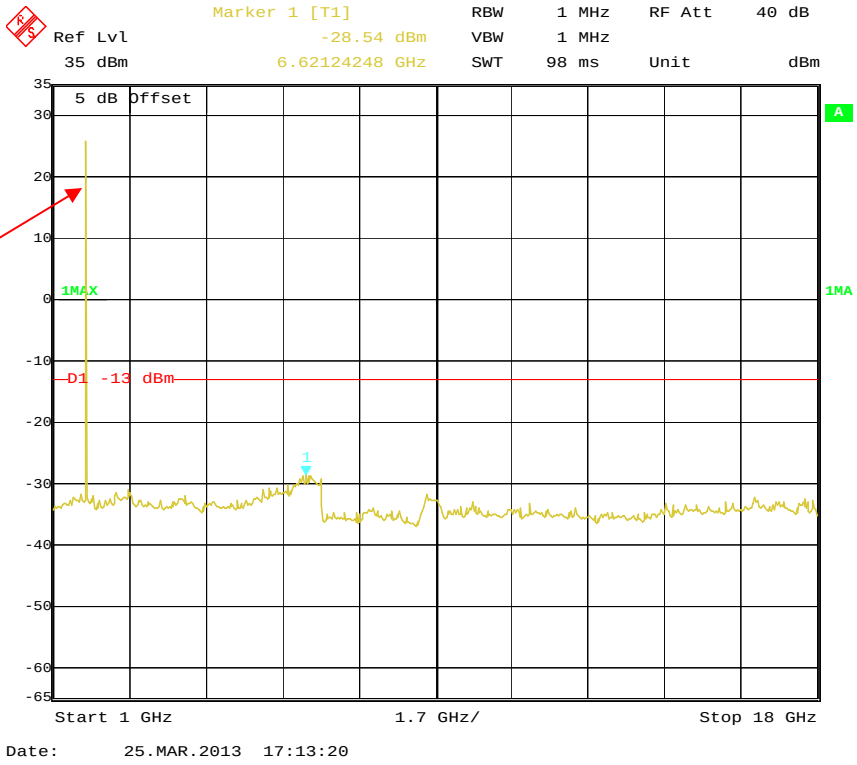
Fundamental

Modulation: 16-QAM (Middle Channel)

30 MHz - 1 GHz



1 GHz - 18 GHz



Fundamental

FCC §2.1053 & §27.53 - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053 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 (TX pwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (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	A052304	2011-12-01	2014-11-30
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
Mini-Circuits	Amplifier	ZVA-213+	N/A	2012-11-24	2013-11-23
HP	Amplifier	HP8447E	1937A01046	2012-08-09	2013-08-08
HP	Signal Generator	8341B	2624A00116	2012-05-17	2013-05-16
COM POWER	Dipole Antenna	AD-100	041000	2012-06-06	2013-06-05
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10

*** 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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Gardon Zhang on 2013-03-27.

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

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
QPSK: Middle Channel (1732.5 MHz)										
3465.0	36.59	85	1.7	H	-61.1	2.23	10.70	-52.63	-13	39.63
3465.0	36.26	69	1.6	V	-59.3	2.23	10.70	-50.83	-13	37.83
5197.5	46.12	116	1.8	H	-45.6	2.21	11.60	-36.21	-13	23.21
5197.5	38.93	68	1.7	V	-51.9	2.21	11.60	-42.51	-13	29.51
6930.0	34.02	54	1.6	H	-54.1	2.96	12.20	-44.86	-13	31.86
6930.0	34.66	69	1.5	V	-54.0	2.96	12.20	-44.76	-13	31.76
16-QAM: Middle Channel (1732.5 MHz)										
3465.0	37.87	85	1.6	H	-59.8	2.23	10.70	-51.33	-13	38.33
3465.0	36.53	26	1.8	V	-59.0	2.23	10.70	-50.53	-13	37.53
5197.5	43.81	74	1.7	H	-47.9	2.21	11.60	-38.51	-13	25.51
5197.5	37.86	103	1.8	V	-53.0	2.21	11.60	-43.61	-13	30.61
6930.0	34.24	85	1.6	H	-53.9	2.96	12.20	-44.66	-13	31.66
6930.0	34.36	13	1.8	V	-54.3	2.96	12.20	-45.06	-13	32.06

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

FCC §27.53 - BAND EDGES

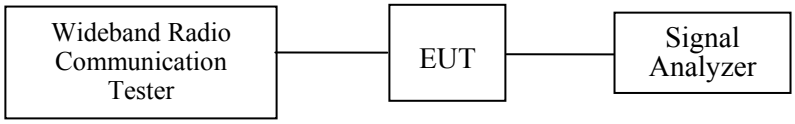
Applicable Standards

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.

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, RBW set to 1% approximately of bandwidth.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23

*** 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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	100.0 kPa

The testing was performed by Gardon Zhang on 2013-03-25.

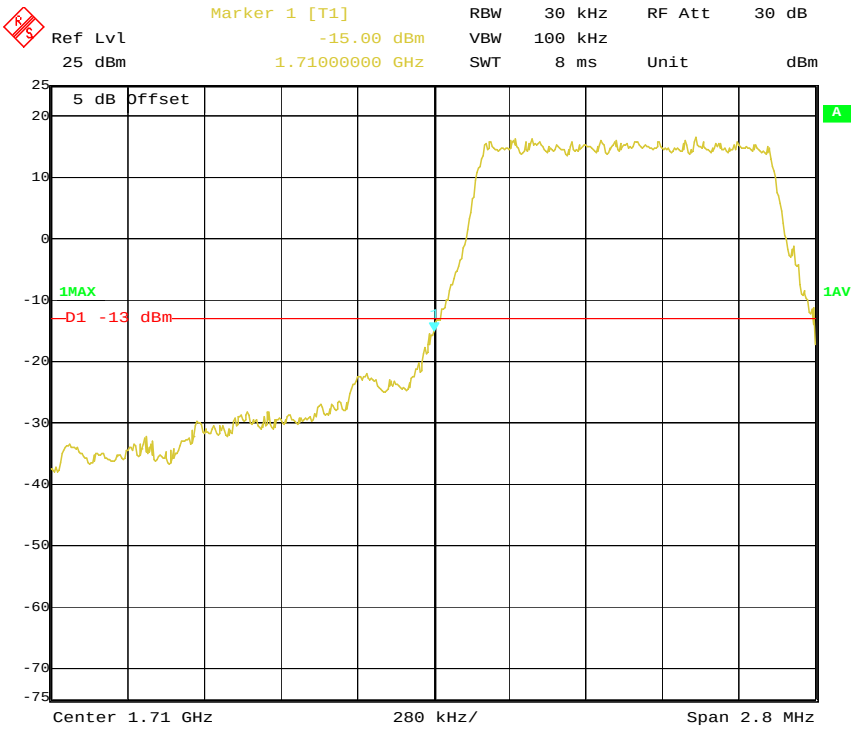
Modulation: QPSK

Bandwidth (MHz)	Frequency Band	Emission (dBm)	Limit (dBm)
1.4	Left Band	-15.00	-13
	Right Band	-14.99	-13
3.0	Left Band	-17.18	-13
	Right Band	-17.48	-13
5.0	Left Band	-18.92	-13
	Right Band	-18.99	-13
10.0	Left Band	-19.20	-13
	Right Band	-17.72	-13
15.0	Left Band	-22.23	-13
	Right Band	-21.84	-13
20.0	Left Band	-21.11	-13
	Right Band	-20.25	-13

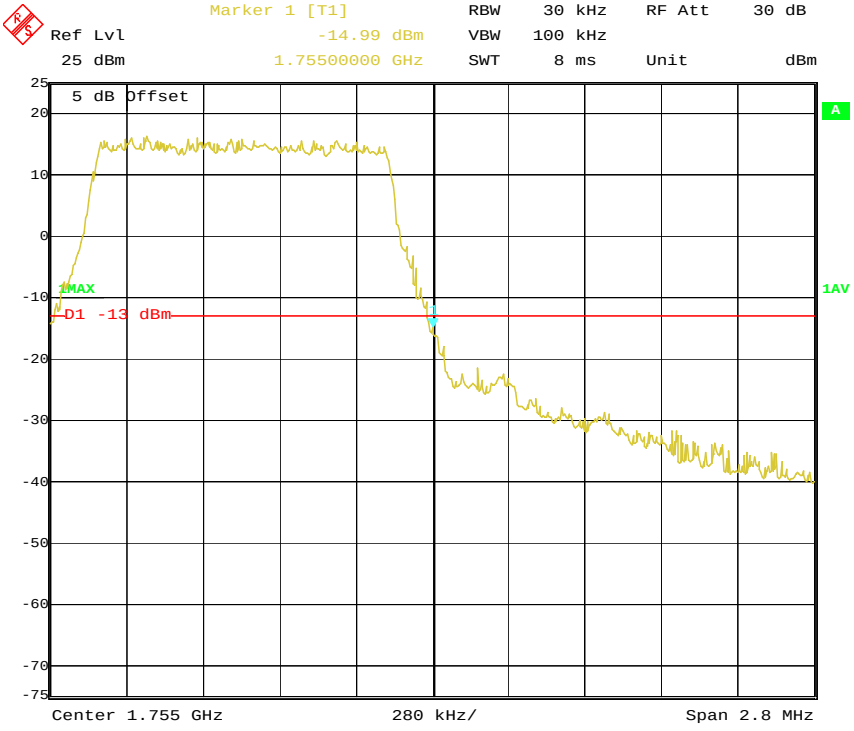
Modulation: 16-QAM

Bandwidth (MHz)	Frequency Band	Emission (dBm)	Limit (dBm)
1.4	Left Band	-17.14	-13
	Right Band	-16.28	-13
3.0	Left Band	-18.83	-13
	Right Band	-17.27	-13
5.0	Left Band	-19.86	-13
	Right Band	-20.27	-13
10.0	Left Band	-19.49	-13
	Right Band	-20.25	-13
15.0	Left Band	-22.75	-13
	Right Band	-22.50	-13
20.0	Left Band	-22.40	-13
	Right Band	-21.59	-13

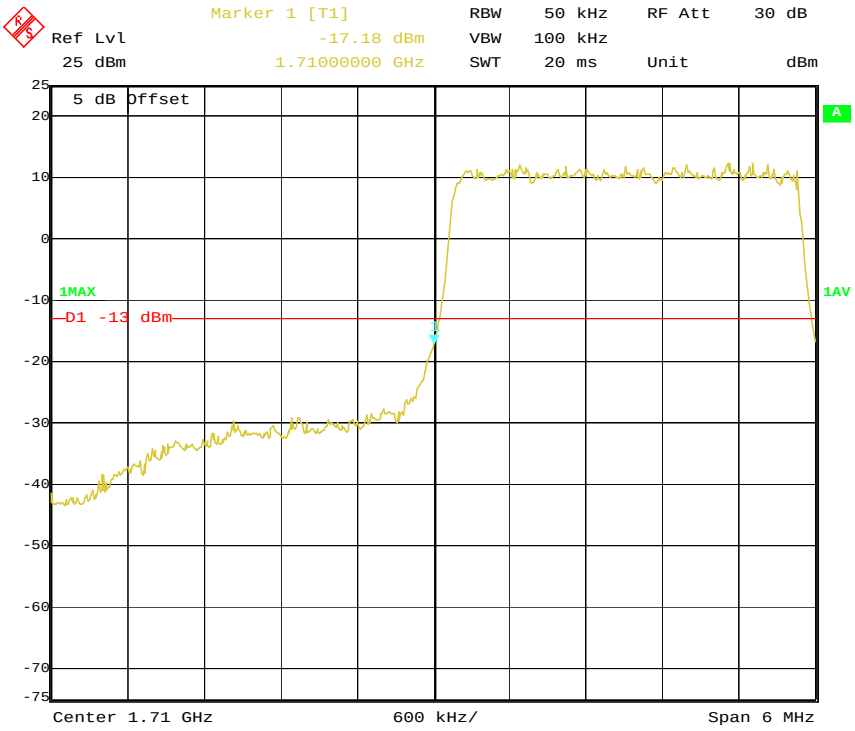
QPSK (1.4 MHz) - Lowest Channel



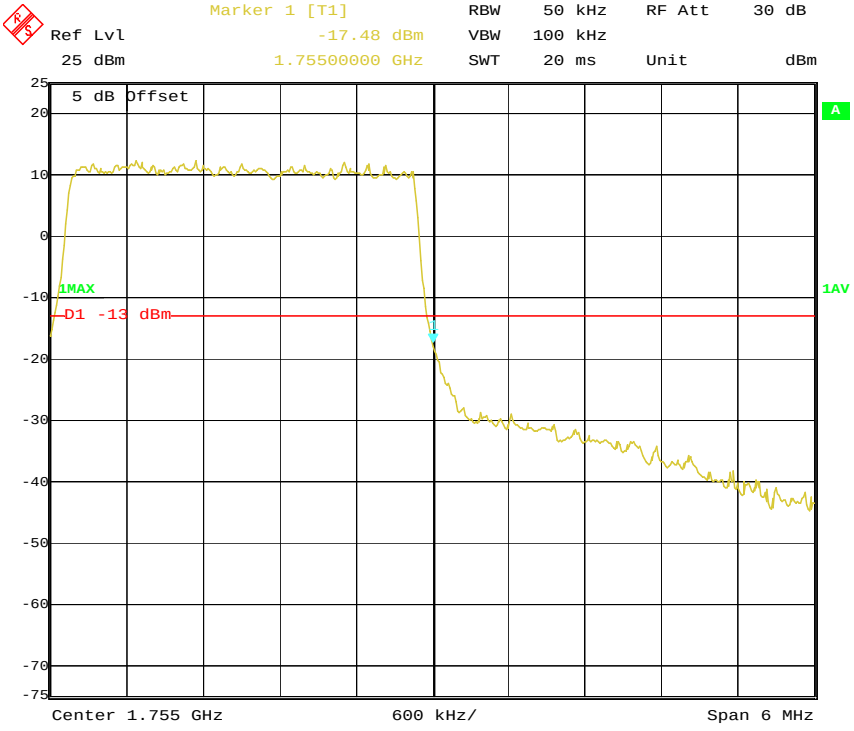
QPSK (1.4 MHz) - Highest Channel



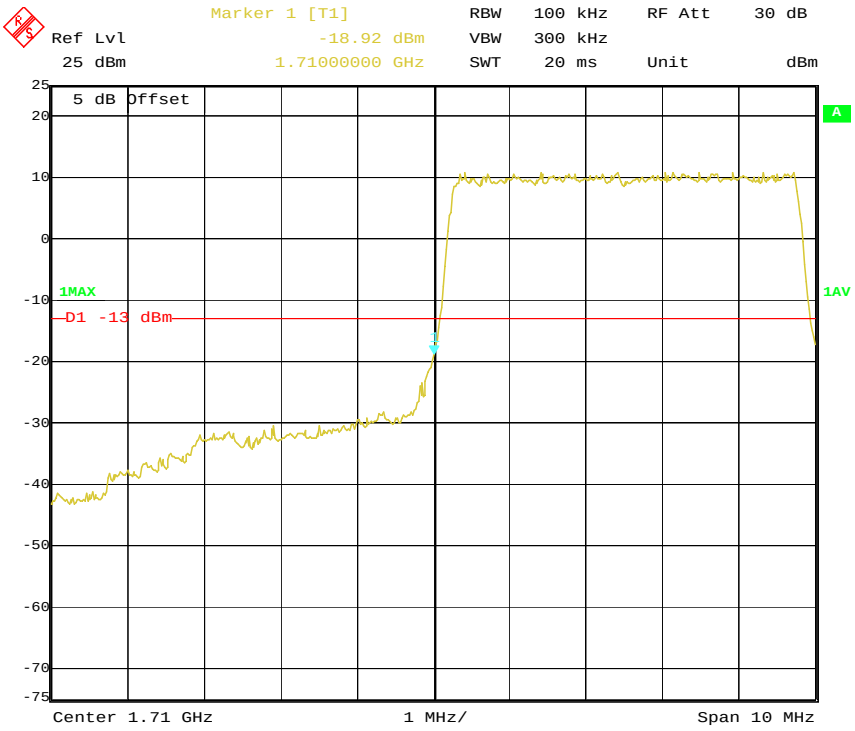
QPSK (3.0 MHz) - Lowest Channel



QPSK (3.0 MHz) - Highest Channel

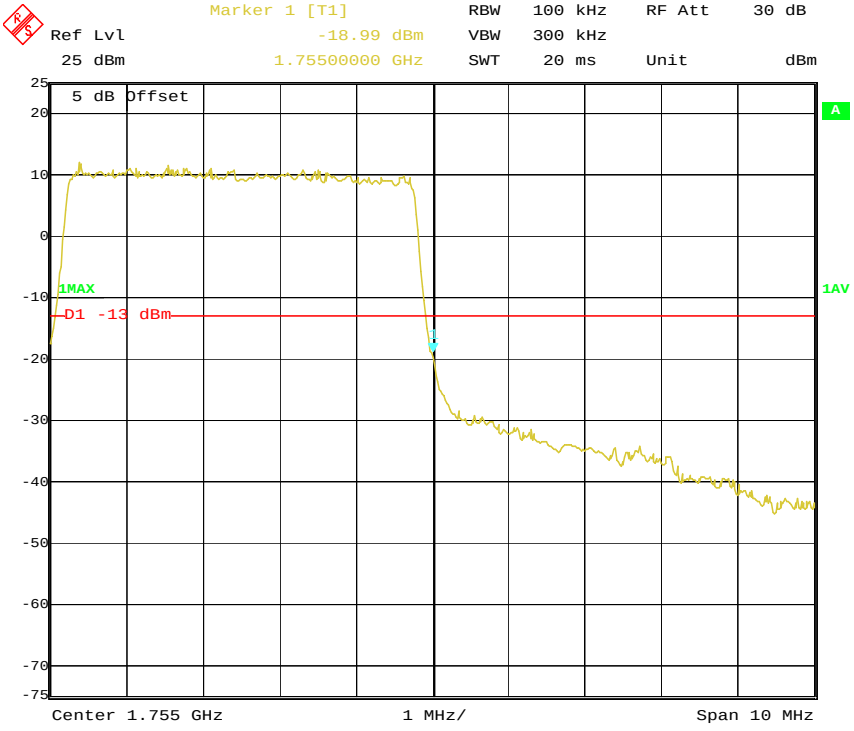


QPSK (5.0 MHz) - Lowest Channel



Date: 25.MAR.2013 19:09:00

QPSK (5.0 MHz) - Highest Channel



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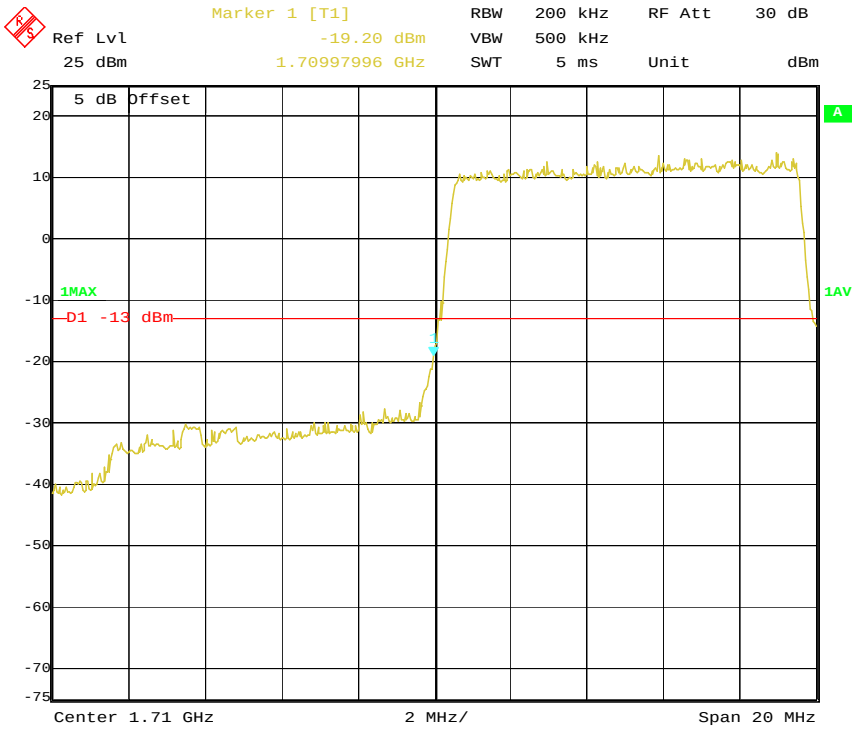
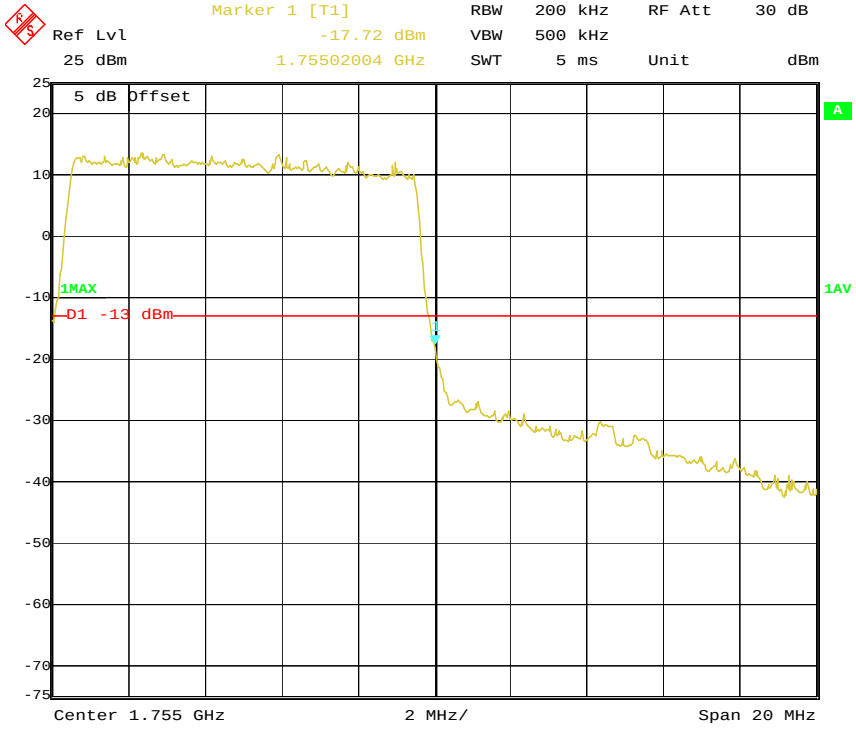
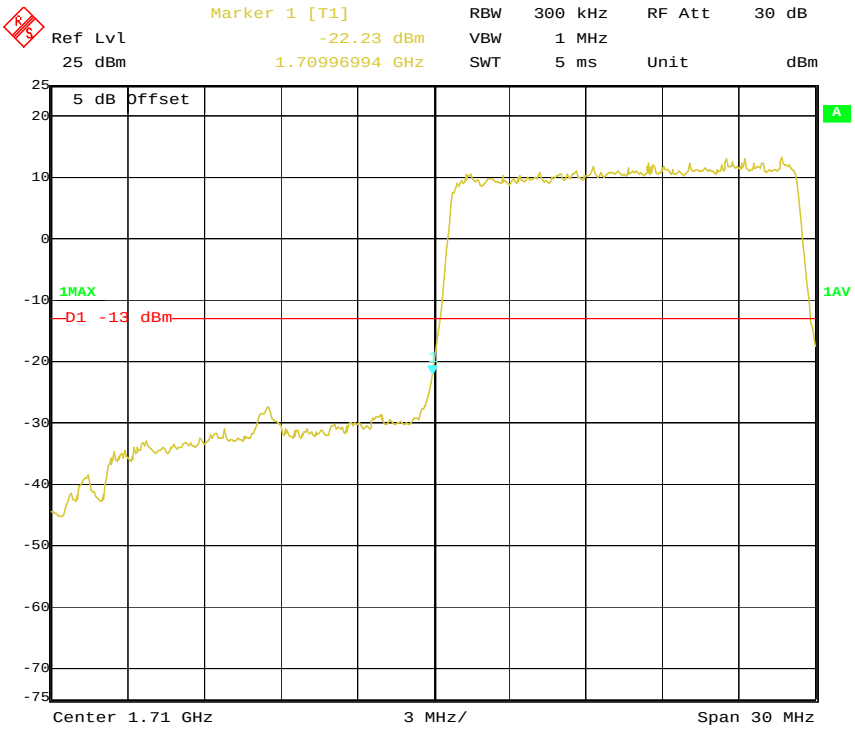
QPSK (10.0 MHz) - Lowest Channel



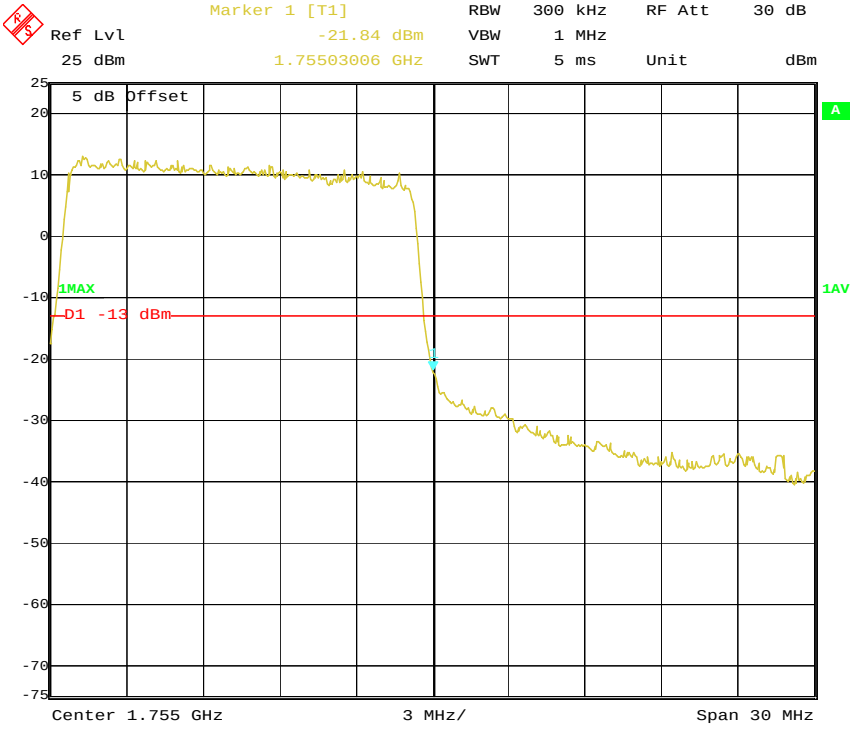
QPSK (10.0 MHz) - Highest Channel



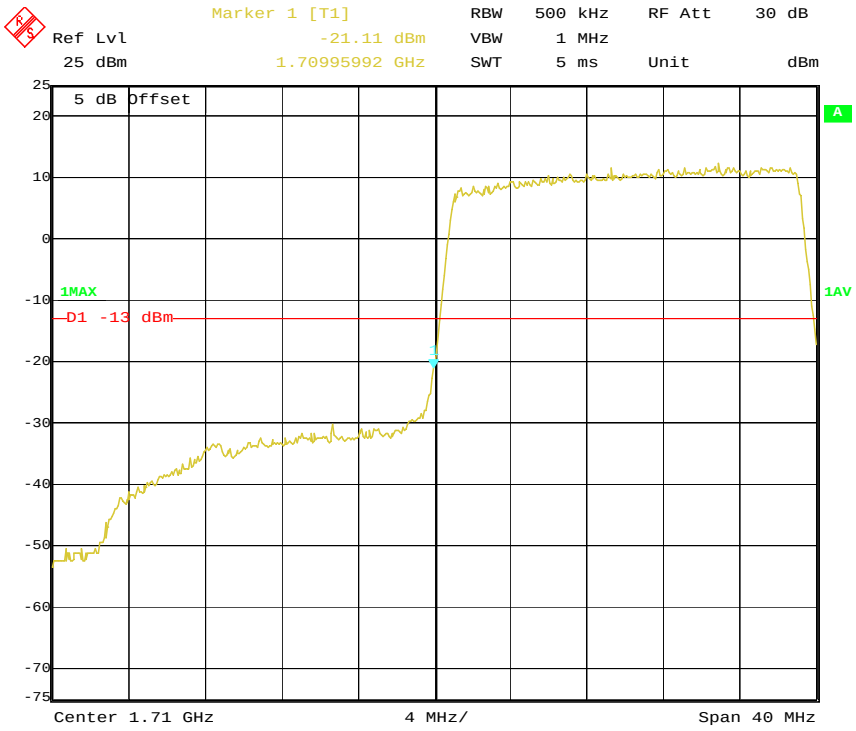
QPSK (15.0 MHz) - Lowest Channel



QPSK (15.0 MHz) - Highest Channel

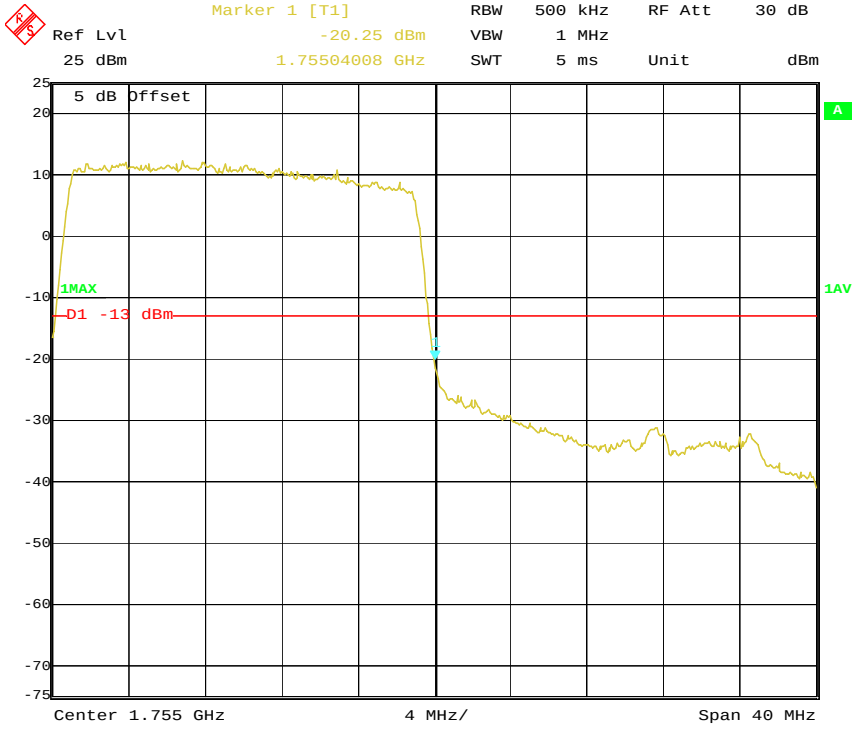


QPSK (20.0 MHz) - Lowest Channel



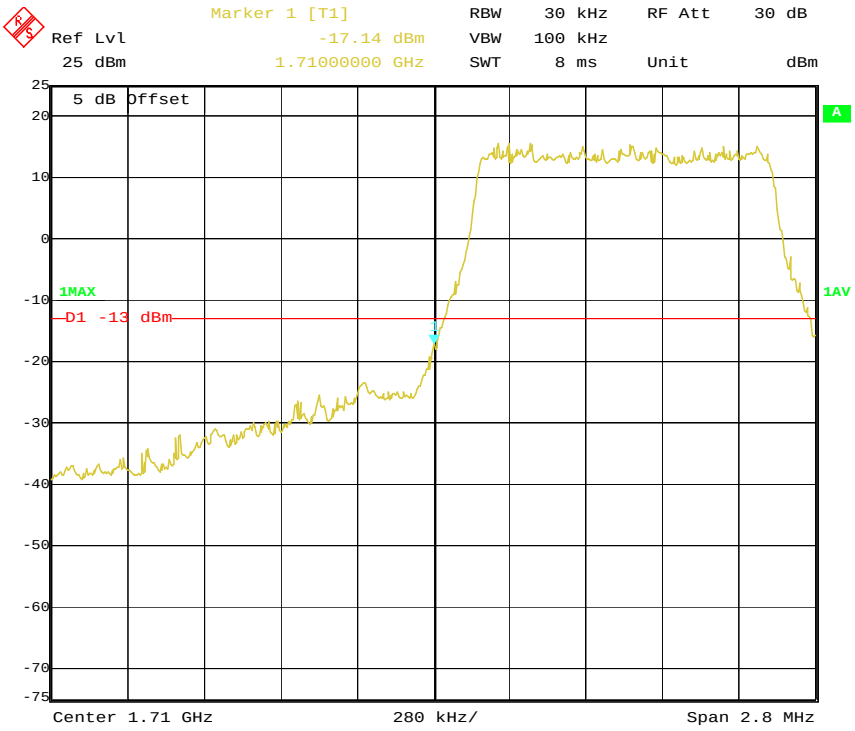
Date: 25.MAR.2013 17:45:02

QPSK (20.0 MHz) - Highest Channel

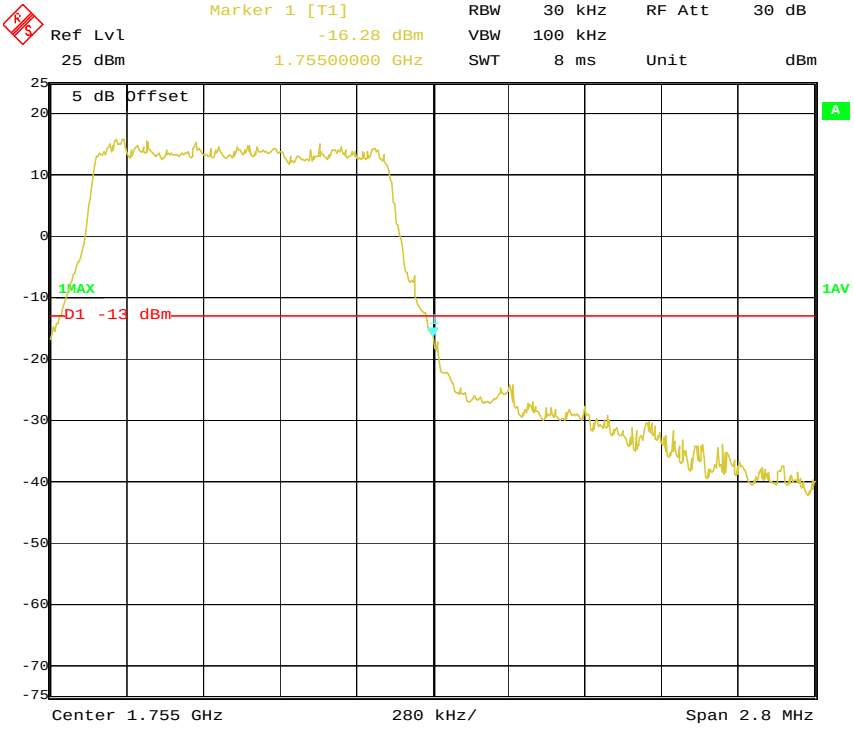


Date: 25.MAR.2013 17:48:21

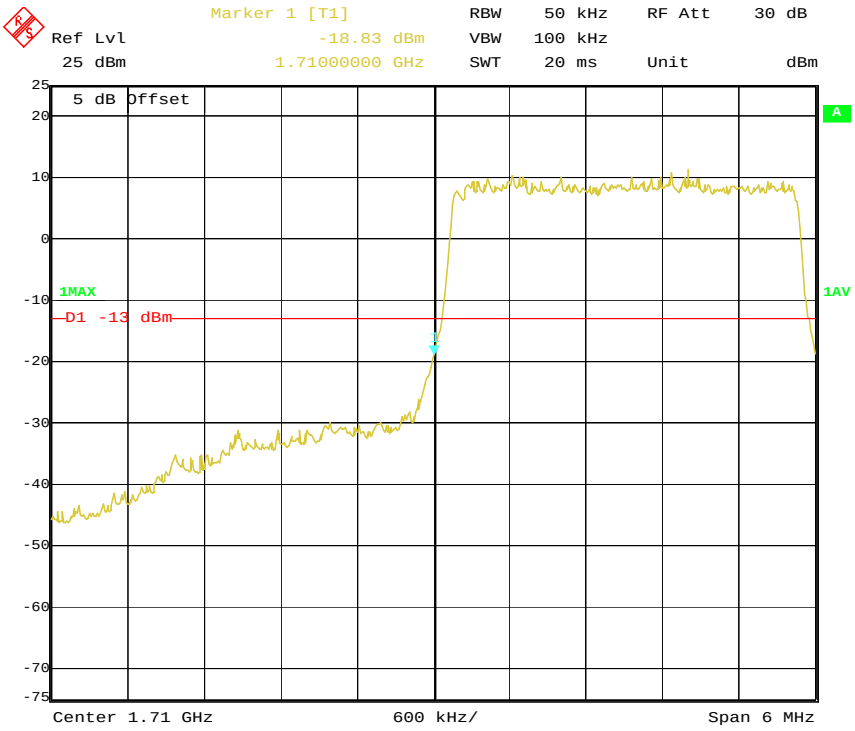
16-QAM (1.4 MHz) - Lowest Channel



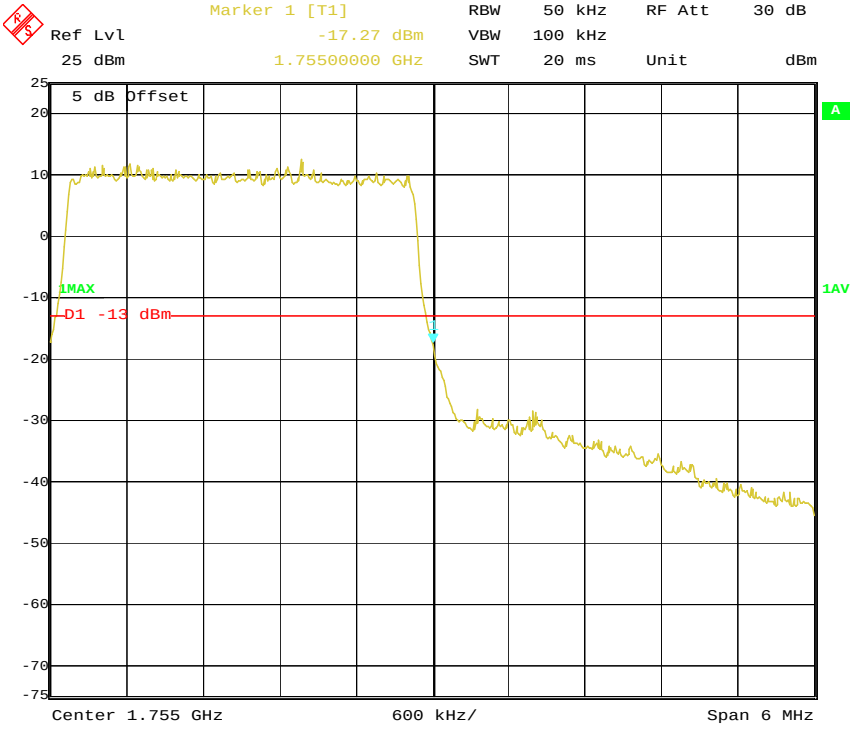
16-QAM (1.4 MHz) - Highest Channel



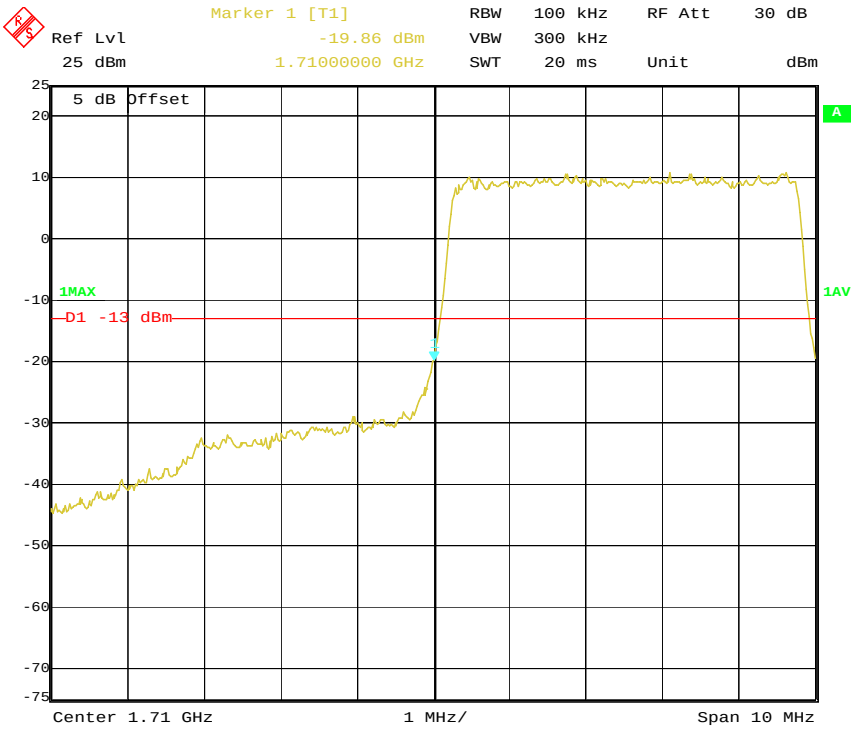
16-QAM (3.0 MHz) - Lowest Channel



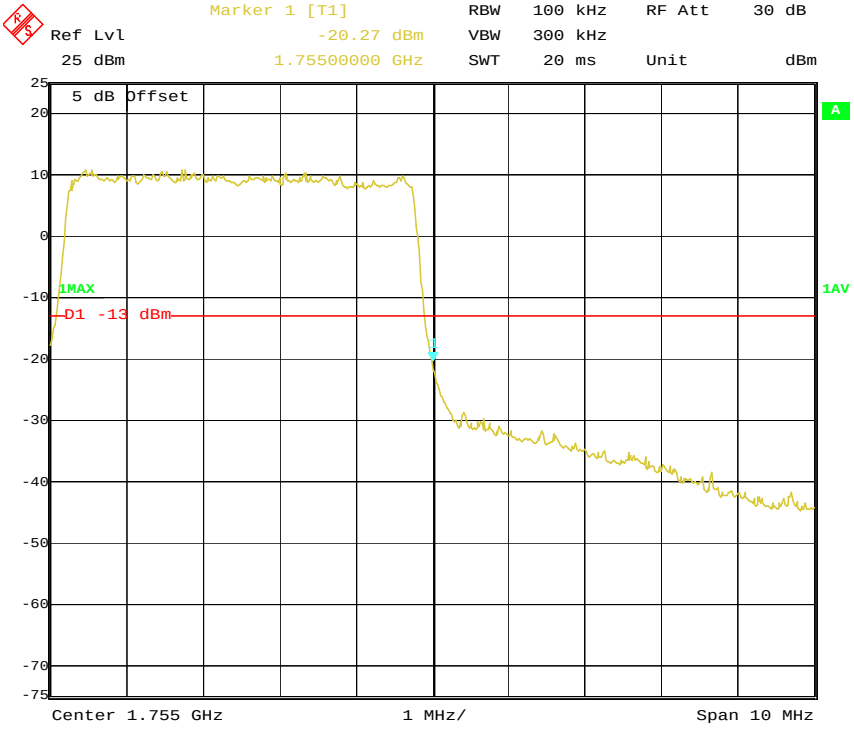
16-QAM (3.0 MHz) - Highest Channel



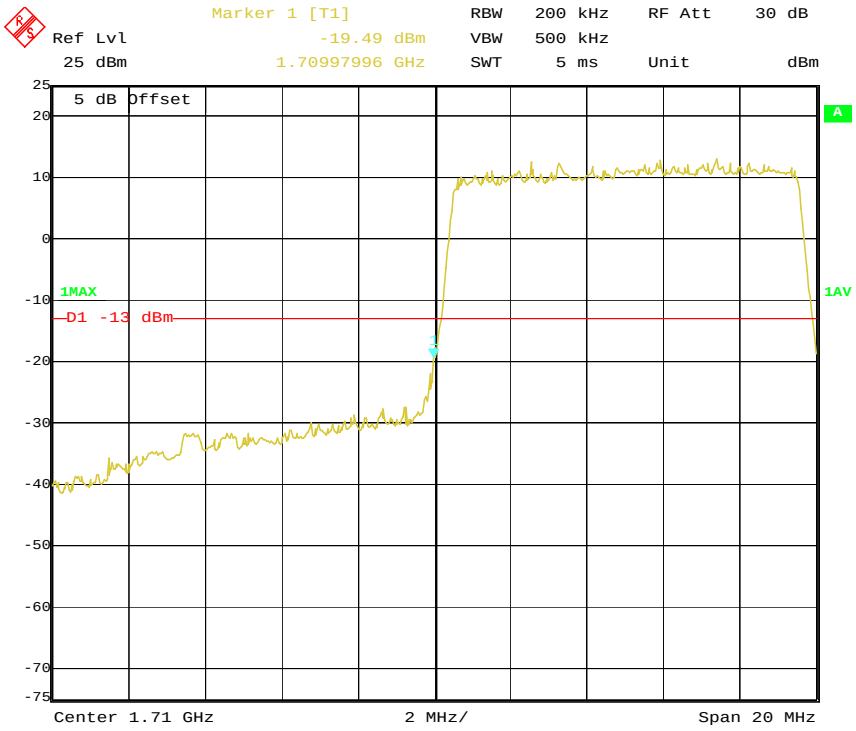
16-QAM (5.0 MHz) - Lowest Channel



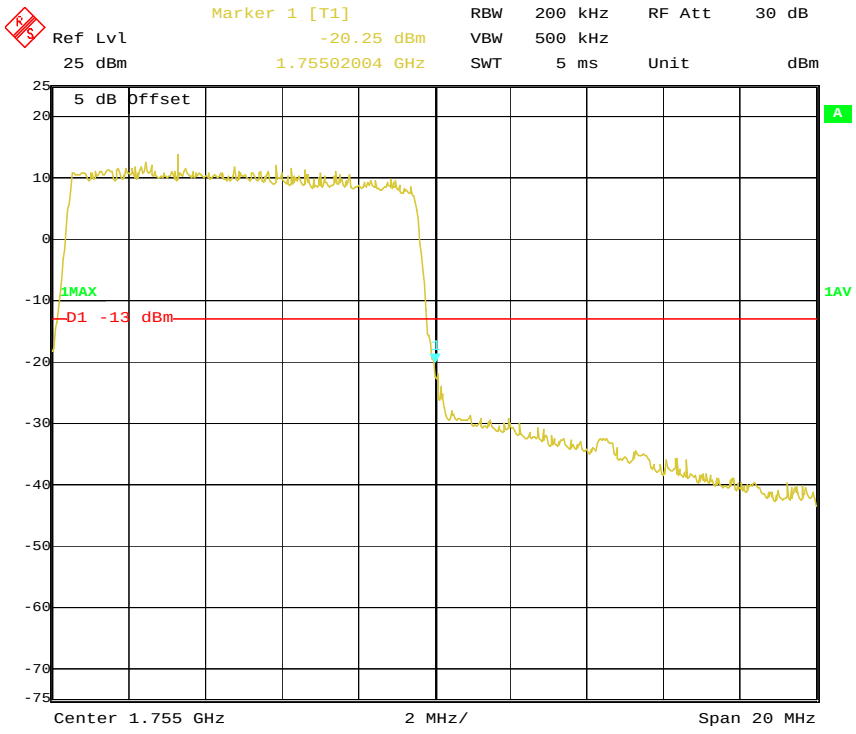
16-QAM (5.0 MHz) - Highest Channel



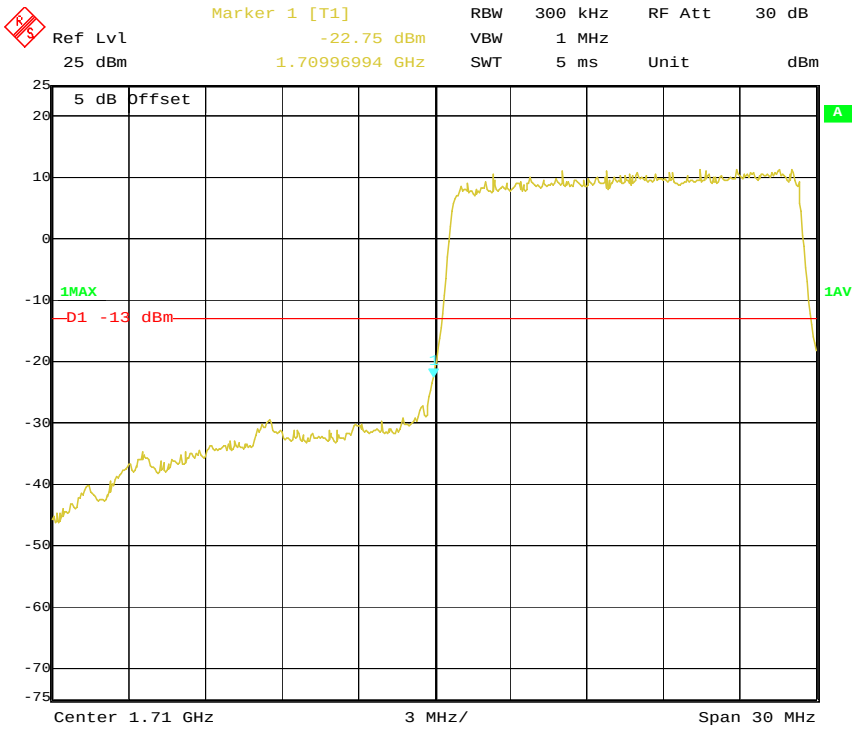
16-QAM (10.0 MHz) - Lowest Channel



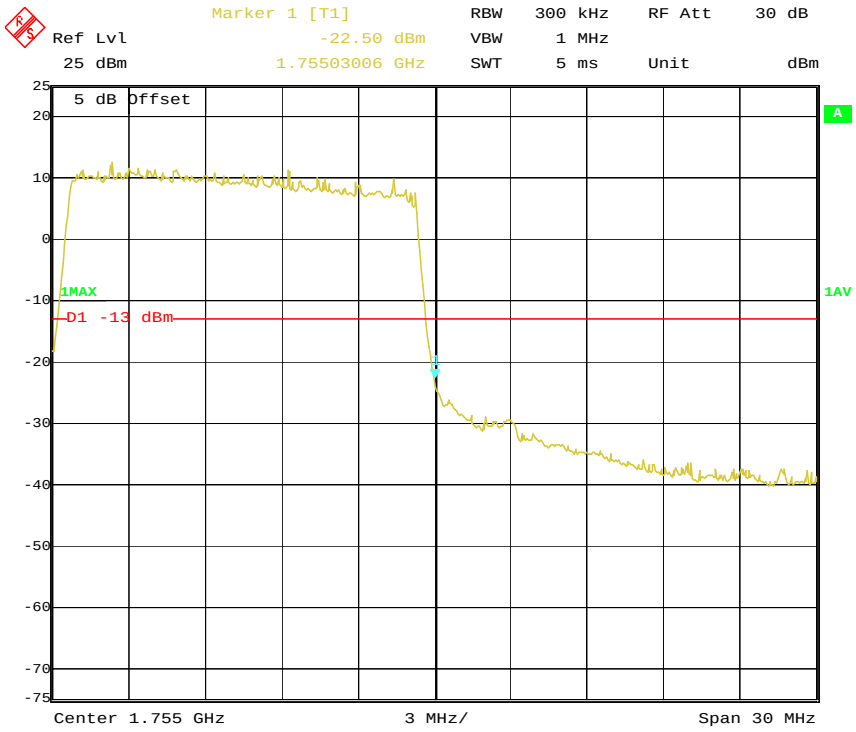
16-QAM (10.0 MHz) - Highest Channel



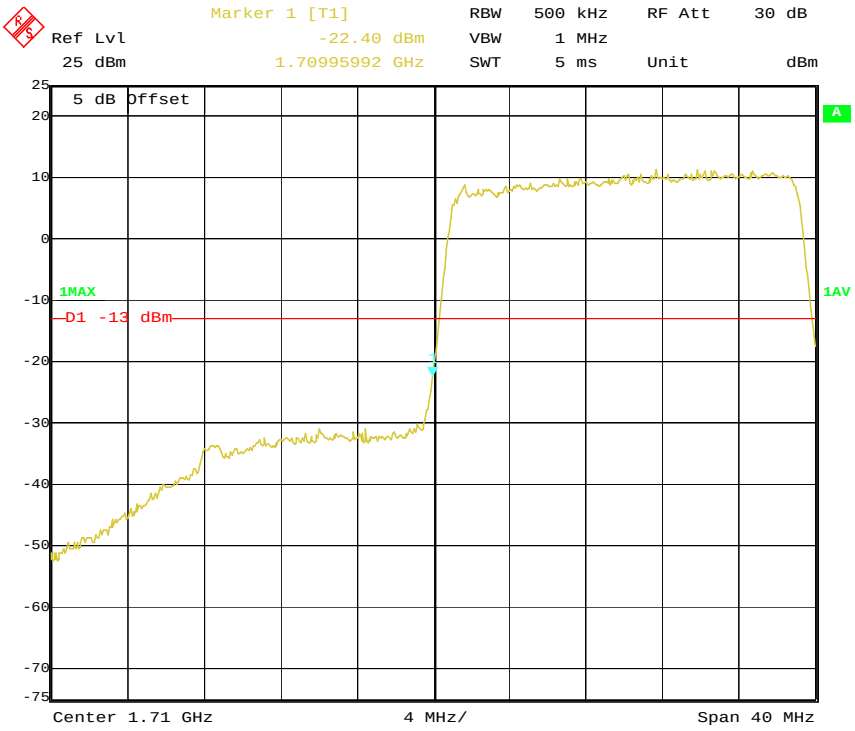
16-QAM (15.0 MHz) - Lowest Channel



16-QAM (15.0 MHz) - Highest Channel

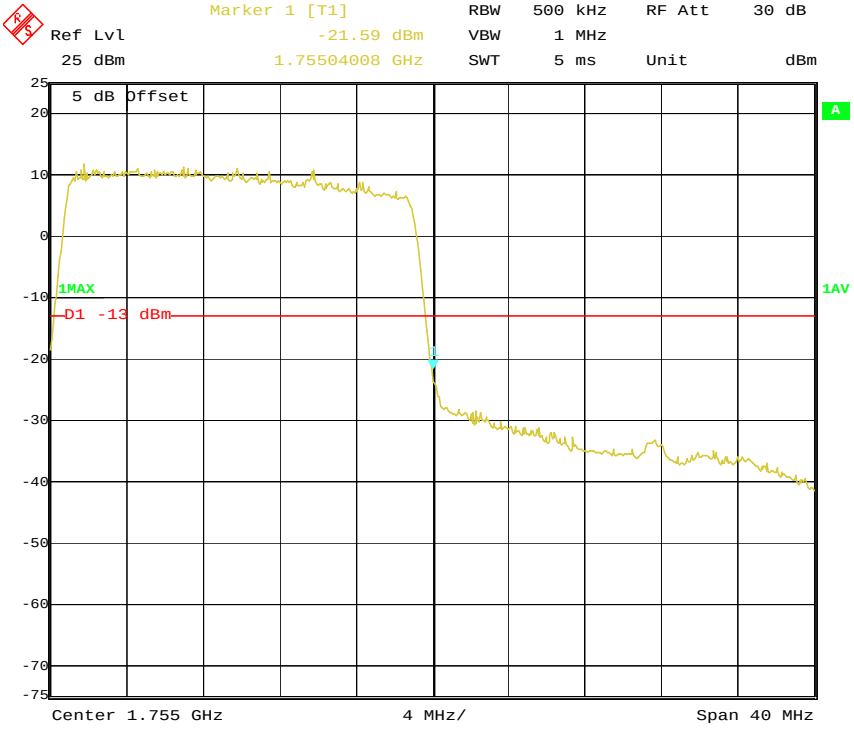


16-QAM (20.0 MHz) - Lowest Channel



Date: 25.MAR.2013 17:51:18

16-QAM (20.0 MHz) - Highest Channel



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FCC §2.1055 & §27.54 - FREQUENCY STABILITY

Applicable Standards

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

Test Procedure

The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.
b.) **Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2012-11-02	2013-11-01

*** 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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	100.0 kPa

The testing was performed by Gardon Zhang on 2013-03-25.

Middle Channel, f_o =1732.5MHz			
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**
50	3.7	3	0.0017
40		-3	-0.0017
30		2	0.0012
20		-1	-0.0006
10		1	0.0006
0		1	0.0006
-10		2	0.0012
-20		-2	-0.0012
-30		4	0.0023
20	$V_{min.}$= 3.5	3	0.0017
20	$V_{max.}$= 4.2	3	0.0017

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