166 South Carter, Genoa City, WI 53128

Company:	Ubiquiti Networks, Inc.
Model Tested:	AF5
Report Number:	19544 Part 1
DLS Project:	6172

Code of Federal Regulations 47 Part 15 – Radio Frequency Devices

Subpart C – Intentional Radiators
Section 15.247
Operation within the bands 902 - 928 MHz,
2400 - 2483.5 MHz, 5725 - 5875 MHz,
and 24.0 - 24.25 GHz.

Part 1 - 10 & 20 MHz Bandwidth Data

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

Formal Name:	Air Fiber 5 - 5.8GHz Radio
Kind of Equipment:	Point-to-Point Digital Transmission Transceiver
Frequency Range:	**5731 to 5844 MHz**
Test Configuration:	Pole Mounted
Model Number(s):	AF5 (Please see the note on page 6 concerning the similarity to AF5U)
Model(s) Tested:	AF5
Serial Number(s):	RF Conducted Unit: MAC address: 02:27:22:DA:5F:24 Radiated Unit: MAC address: 02:27:22:DA:5F:29
Date of Tests:	October & November, 2013
Test Conducted For:	Ubiquiti Networks, Inc. 12F, No105, Song Ren Rd Taipei, Taiwan

NOTICE: "This test report relates only to the items tested and must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Description of Test Sample" page listed inside of this report.

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SIGNATURE PAGE

Tested By:



Craig Brandt
Senior Test Engineer

Reviewed By:



William Stumpf
OATS Manager

Approved By:



Brian Mattson
General Manager

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

D.L.S. Electronic Systems, Inc.
Wheeling, IL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2013-10-01 through 2014-09-30
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

1.0 Summary of Test Report

It was determined that the Ubiquiti Networks Air Fiber 5 - 5.8GHz Radio, Model: AF5, complies with the requirements of CFR 47 Part 15 Subpart C Section 15.247.

Applicable Technical Requirements Tested:

Section	Description	Procedure	Note	Compliant?
FCC 15.247(a)(2)	6 dB Emission Bandwidth - Conducted	FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 8.1 Option 1	1	Yes
FCC 15.247(b)(3)	Fundamental Emission Output Power – Conducted	FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 9.2.3.1-AVGPM	1	Yes
FCC 15.247(e)	Maximum Power Spectral Density - Conducted	FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 10.3-AVGPSD-1	1	Yes
FCC 15.247(d)	Maximum Unwanted Emission Levels – Radiated	FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Sections 11.0, 11.2, 11.3	2	Yes
FCC 15.247(d)	Band Edge Measurements - Conducted	FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 11.1(b)	1	Yes
FCC 15.247(d), FCC 15.205	Restricted Band Measurements - Radiated	FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 12.0 & 12.1	2	Yes
FCC 15.35(c)	Duty Cycle of Test Unit	FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 6.0(b)	1	NA
FCC 15.207(a)	AC Line Conducted Emissions	ANSI C63.10-2009 Section 6.2	3	Yes

Note 1: RF conducted measurement.
Note 2: Radiated emission measurement.
Note 3: AC line conducted measurement.

2.0 Introduction

In October & November of 2013, Air Fiber 5 - 5.8GHz Radio, Model: AF5, as provided from Ubiquiti Networks, was tested to the requirements of CFR 47 Part 15 Subpart C Section 15.247. To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S Electronic Systems, Inc.

3.0 Test Facilities

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at http://www.dlsemc.com/certificate. Our facilities are registered with the FCC, Industry Canada, and VCCI.

Wisconsin Test Facility:
D.L.S. Electronic Systems, Inc.
166 S. Carter Street
Genoa City, Wisconsin 53128

Wheeling Test Facility:
D.L.S. Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, IL 60090

4.0 Description of Test Sample

Description:

The Ubiquiti Networks model AirFiber 5 is a 5.4Ghz and 5.8GHz Point-to-Point radio that uses OFDM with a 50MHz/40MHz/20MHz/10MHz bandwidth configuration. The EUT would be used outdoors and pole mounted. It is powered from a POE adapter. The integral antenna has a 23 dBi gain. This is an uncorrelated MIMO software defined radio.

The AF5 radio product is based on the AF5U radio with FCC ID: SWX-AF5U. The radios have identical RF filtering. The passband performance is slightly shifted from the AF5U to the AF5, but still provides identical coverage of the 5.8GHz allowable band usage.

Type of Equipment / Frequency Range:

Stand-Alone / **5731 to 5844 MHz (10 MHz bandwidth) (in this report)**
5737 to 5838 MHz (20 MHz bandwidth) (in this report)
5747 to 5828 MHz (40 MHz bandwidth)
5752 to 5823 MHz (50 MHz bandwidth)

(The 5.4 radio data is in a separate report.)

Physical Dimensions of Equipment Under Test:

Length: 93.8 cm. Width: 46.8 cm. Height: 28.1 cm.

Power Source:

50 VDC (Power Over Ethernet to Radio)
120 Vac, 60 Hz using Ubiquiti Networks power supply model: GP-C500-120G or
Ubiquiti Networks power supply model: PSA60M-500(G)-R
(for AC Line Conducted testing)

Internal Frequencies:

150 kHz (Switching Power Supply Frequency)
5.844 GHz (Highest Operating Frequency for the 5.8GHz radio)

Transmit Frequencies Used For Test Purpose:

10 MHz Channel Bandwidth:	Low channel: 5731 MHz, Middle channel: 5785 MHz, High channel: 5844 MHz
20 MHz Channel Bandwidth:	Low channel: 5737 MHz, Middle channel: 5785 MHz, High channel: 5838 MHz
40 MHz Channel Bandwidth:	Low channel: 5747 MHz, Middle channel: 5785 MHz, High channel: 5828 MHz
50 MHz Channel Bandwidth:	Low channel: 5752 MHz, Middle channel: 5785 MHz, High channel: 5823 MHz

Type of Modulations:

OFDM: 1024QAM, 256QAM, 64QAM, 16QAM, QPSK

Description of Circuit Board(s) / Part Number:

Radio PC Board	11-02042-05 Rev 7

5.0 Test Equipment

A list of the equipment used can be found in the table below. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

D.L.S. Wisconsin

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Dates	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	7-23-13	7-23-14
LISN	Solar	9252-50-R-24-BNC	961019	9 kHz – 30 MHz	5-24-13	5-24-14
Filter- High-Pass	SOLAR	7930-120	090702	120 kHz – 30 MHz	1-7-13	1-7-14
Limiter	Electro-Metrics	EM-7600	706	9 kHz – 30 MHz	1-7-13	1-7-14
Preamp	Miteq	AMF-7D-01001800-22-10P	1809602	1GHz-18GHz	5-29-13	5-29-14
Horn Antenna	EMCO	3115	9502-4451	1-18GHz	3-18-13	3-18-15
High Pass Filter	Planar	HP8G-7G8-CD-SFF	PF1226/0728	7.5-18 GHz	8-14-13	8-14-14
Preamp	Miteq	AMF-8B-180265-40-10P-H/S	438727	18GHz-26GHz	8-12-13	8-12-14
Horn Antenna	EMCO	3116	2549	18 – 40GHz	9-6-12	9-6-14
High Pass Filter	Planar	CL22500-9000-CD-SS	PF1229/0728	15-40 GHz	8-14-13	8-14-14
20 dB attenuator	Aeroflex/weinschel	75A-20-12	1071	DC – 40 GHz	8-14-13	8-14-14
20 dB attenuator	MCE/Weinschel	5955A-20	0256	DC – 40 GHz	8-12-13	8-12-14
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	1-3-13	1-3-14
Preamplifier	Rohde & Schwarz	TS-PR10	032001/005	9 kHz – 1 GHz	1-10-13	1-10-14
Antenna	EMCO	3104C	97014785	20 MHz – 200 MHz	8-22-12	8-22-14
Antenna	EMCO	3146	97024895	200 MHz – 1 GHz	9-6-12	9-6-14
Thermal Power Sensor	Anritsu	MA24002A	1204359	10MHz-18GHz	3-3-13	3-3-14
Power Meter	Anritsu	ML2487A	6K00002069	N/A	3-8-13	3-8-14

6.0 Test Arrangements

Radiated Emissions Measurement Arrangement:

All radiated emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to FCC KDB 558074 D01 DTS Meas Guidance v03r01 and ANSI C63.10-2009, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for photos of the test set up.

Unless otherwise noted, the bandwidth of the measuring receiver / analyzer used during testing is shown below.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

RF Conducted Emissions Measurement Arrangement:

All RF conducted emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 and ANSI C63.10-2009, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for photos of the test set up.

7.0 Test Conditions

Normal Test Conditions:

Temperature and Humidity:

70° F at 46 % RH (or noted on the test data)

Supply Voltage:

50 VDC (Power Over Ethernet to Radio)
120 Vac, 60 Hz using Ubiquiti Networks power supply model: GP-C500-120G or
Ubiquiti Networks power supply model: PSA60M-500(G)-R
(for AC Line Conducted testing)

8.0 Modifications Made To EUT for Compliance

No modifications were made to the EUT at the time of test.

9.0 Additional Descriptions

Testing was performed at low, mid, and high channels over 4 modulation bandwidths (10MHz, 20MHz, 40MHz & 50MHz). All 5 OFDM modulations types have been tested (1024QAM, 256QAM, 64QAM, 16QAM, & QPSK). The antenna ports were tested (Channel 0 & 1). AC line conducted tested in transmit mode.

Emission Designators:
10 MHz BW: 10M0x1D
20 MHz BW: 20M0x1D
40 MHz BW: 40M0x1D
50 MHz BW: 50M0x1D

10.0 Results

Measurements were performed in accordance with FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 and ANSI C63.10-2009. Graphical and tabular data can be found in Appendix B at the end of this report.

11.0 Conclusion

The Air Fiber 5 - 5.8GHz Radio, Model: AF5, as provided from Ubiquiti Networks tested in October 2013 **meets** the requirements of CFR 47 Part 15 Subpart C Section 15.247.

166 South Carter, Genoa City, WI 53128

Appendix A – Test Photos

Photo Information and Test Setup:

Item0: Air Fiber 5 - 5.8GHz Radio, Model: AF5
Item1: Shielded Power Over Ethernet Cable, 15 meters long

Radiated - Below 1 GHz - front



Appendix A – Test Photos

Radiated - Below 1 GHz - Back



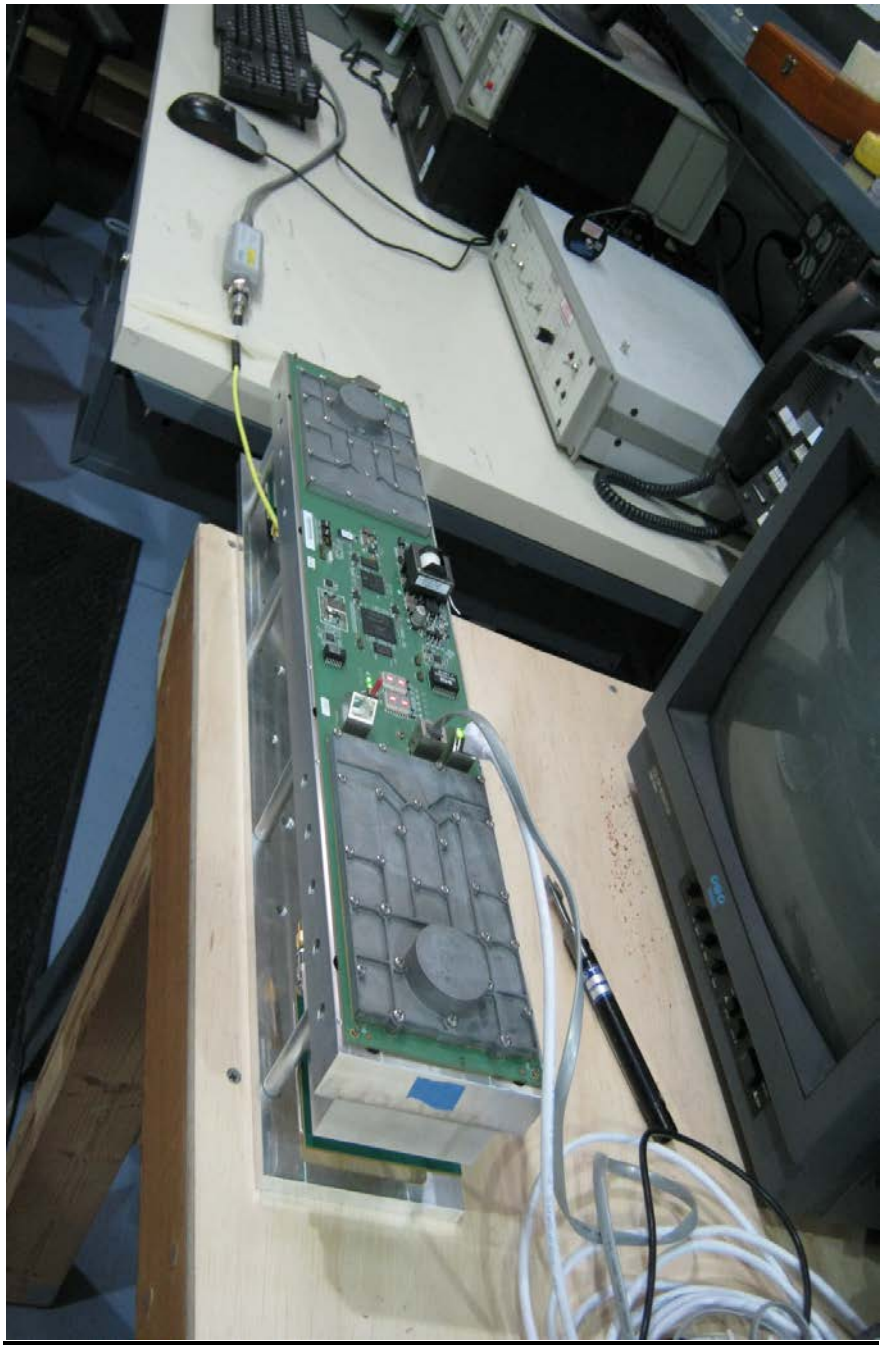
Appendix A – Test Photos

Radiated - above 1 GHz



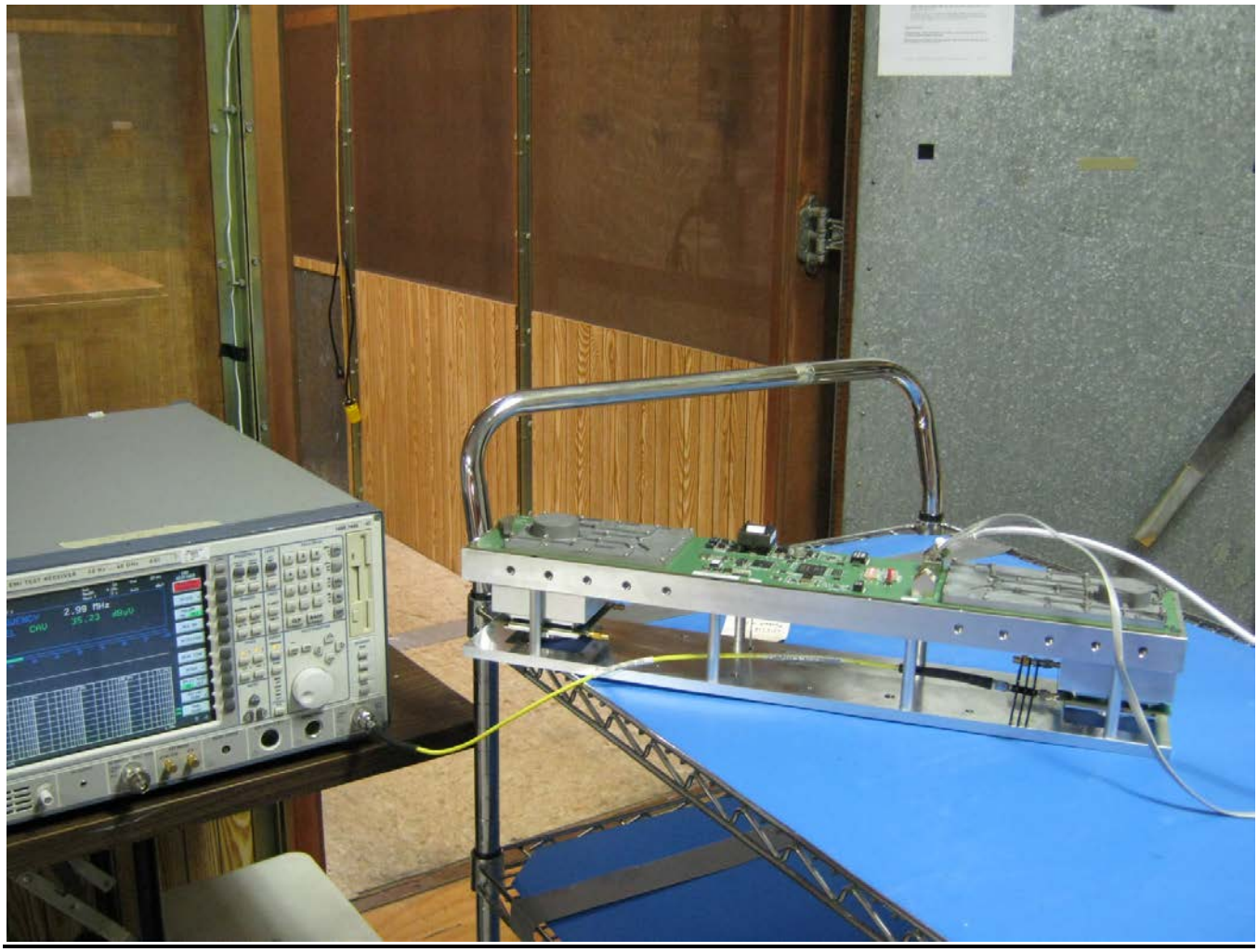
Appendix A – Test Photos

RF Conducted / Output Power



Appendix A – Test Photos

RF Conducted



166 South Carter, Genoa City, WI 53128

Appendix A – Test Photos

AC Line Conducted with Ubiquiti Power Supply GP-C500-120G



Appendix A – Test Photos

AC Line Conducted with Ubiquiti Power Supply PSA60M-500(G)-R



Appendix B – Measurement Data

B1.0 DTS Bandwidth – 6 dB bandwidth - Conducted

Rule Section: FCC 15.247(a)(2)

Test Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

Section 8.0 DTS Bandwidth
8.1 Option 1

Description: RBW = 100kHz
Detector = Peak
Sweep = Auto Couple

VBW ≥ 3 x RBW
Trace mode = Max Hold

Allow the trace to stabilize. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Measure the maximum width of the emission between the lower and upper frequencies that measure 6 dB below the maximum level of the in-band emission.

Measurements were taken for QPSK, 16QAM, 64QAM, 256QAM and 1024 QAM modulations over a 10MHz, 20MHz, 40MHz and 50MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings.

Limit: DTS Bandwidth shall be at least 500 kHz

Results: Passed

Test Date: 11-5&7-2013
Company: Ubiquiti Networks
EUT: Air Fiber 5 - 5.8GHz WiFi Radio
Test: DTS Bandwidth (6dB) - Conducted
Operator: Lillian Li
Test Procedure used: KDB 558074 D01 v01r03 – 8.1) Option 1
Limit: [15.247(a)(2); RSS-210 A8.2]: ≥ 500 kHz

10MHz DTS Bandwidth:

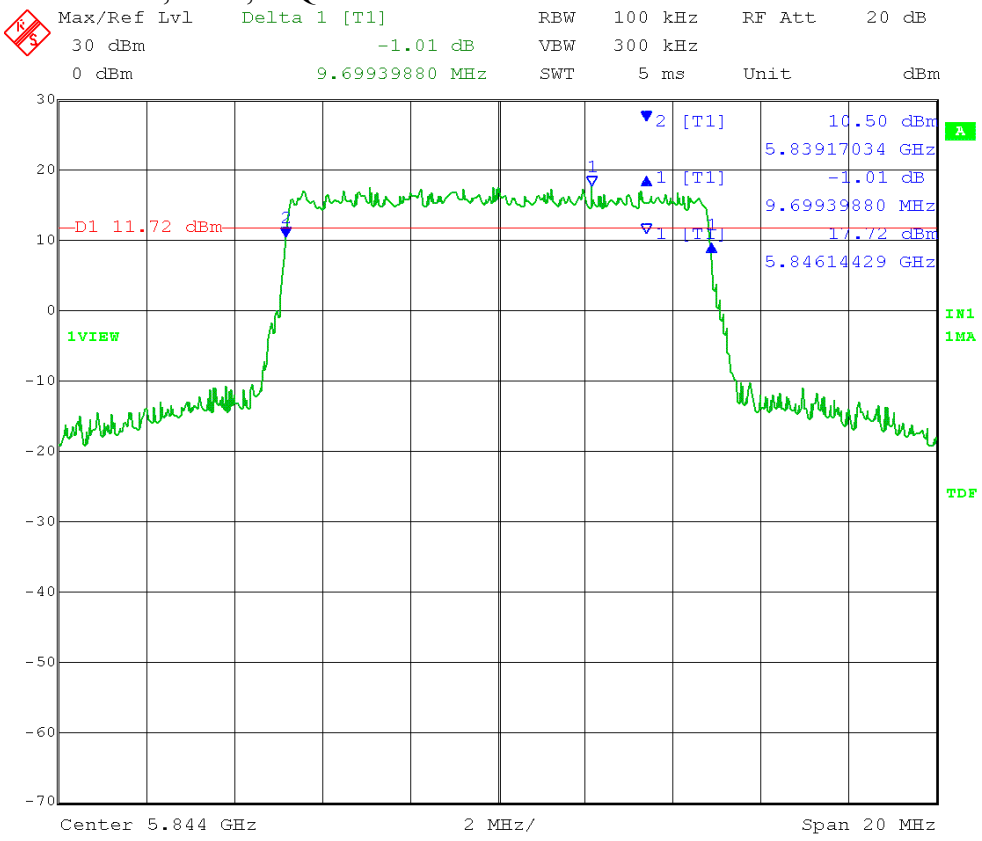
FCC DTS Bandwidth		10M				
FCC limit ≥ 500 kHz	MHz	QPSK	16QAM	64QAM	256QAM	1024Q
	EUT FCC limit:[15.247(a)(2); RSS-210 A8.2]	*Note that units are in MHz, not kHz*				
HCH = 5844 MHz	TX0	9.62	9.7	9.6	9.66	9.62
	TX1	9.62	9.62	9.66	9.62	9.58
MCH = 5785 MHz	TX0	9.62	9.62	9.66	9.62	9.58
	TX1	9.66	9.66	9.66	9.62	9.62
LCH = 5731 MHz	TX0	9.62	9.62	9.62	9.66	9.66
	TX1	9.58	9.62	9.62	9.62	9.62

20MHz DTS Bandwidth:

FCC DTS Bandwidth		20M				
FCC limit ≥ 500 kHz	MHz	QPSK	16QAM	64QAM	256QAM	1024Q
	EUT FCC limit:[15.247(a)(2); RSS-210 A8.2]	*Note that units are in MHz, not kHz*				
HCH = 5838 MHz	TX0	19.32	19.32	19.32	19.4	19.16
	TX1	19.32	19.32	19.32	19.32	19.32
MCH = 5785 MHz	TX0	19.32	19.32	19.32	19.32	19.32
	TX1	19.32	19.24	19.32	19.32	19.32
LCH = 5737 MHz	TX0	19.32	19.16	19.32	19.32	19.32
	TX1	19.32	19.24	19.32	19.32	19.32

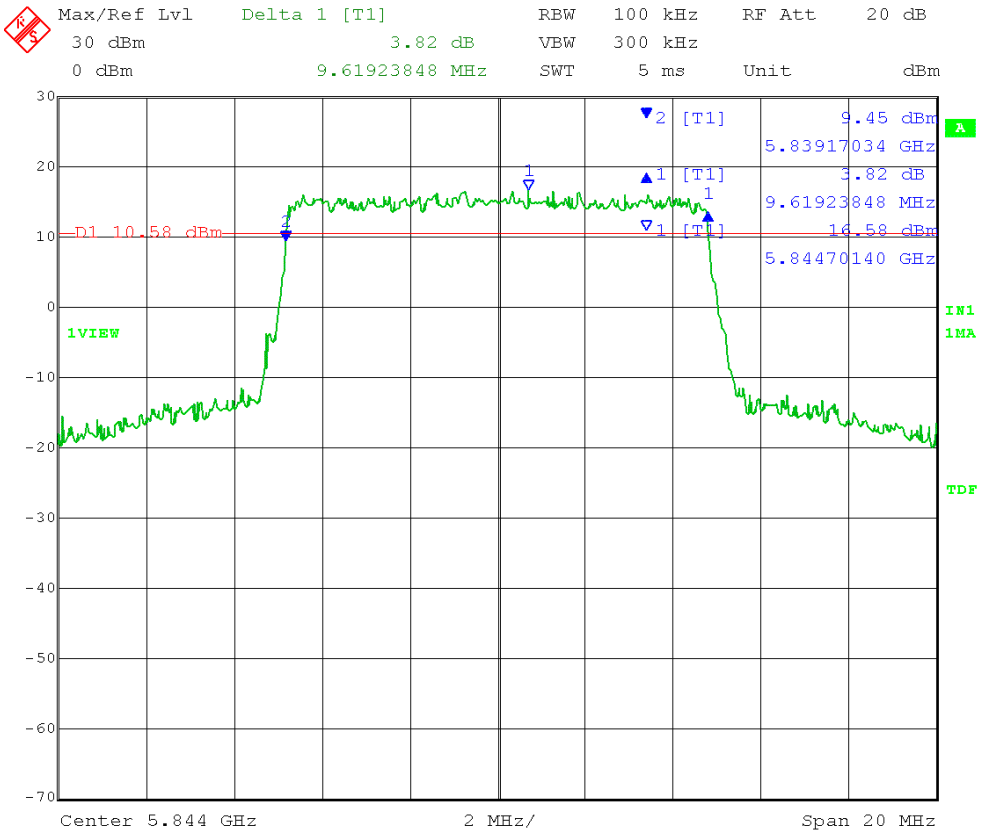
PLOTS: 10MHz Bandwidth & 20MHz Bandwidth

10MHz BW, HCH, 16QAM TX 0:



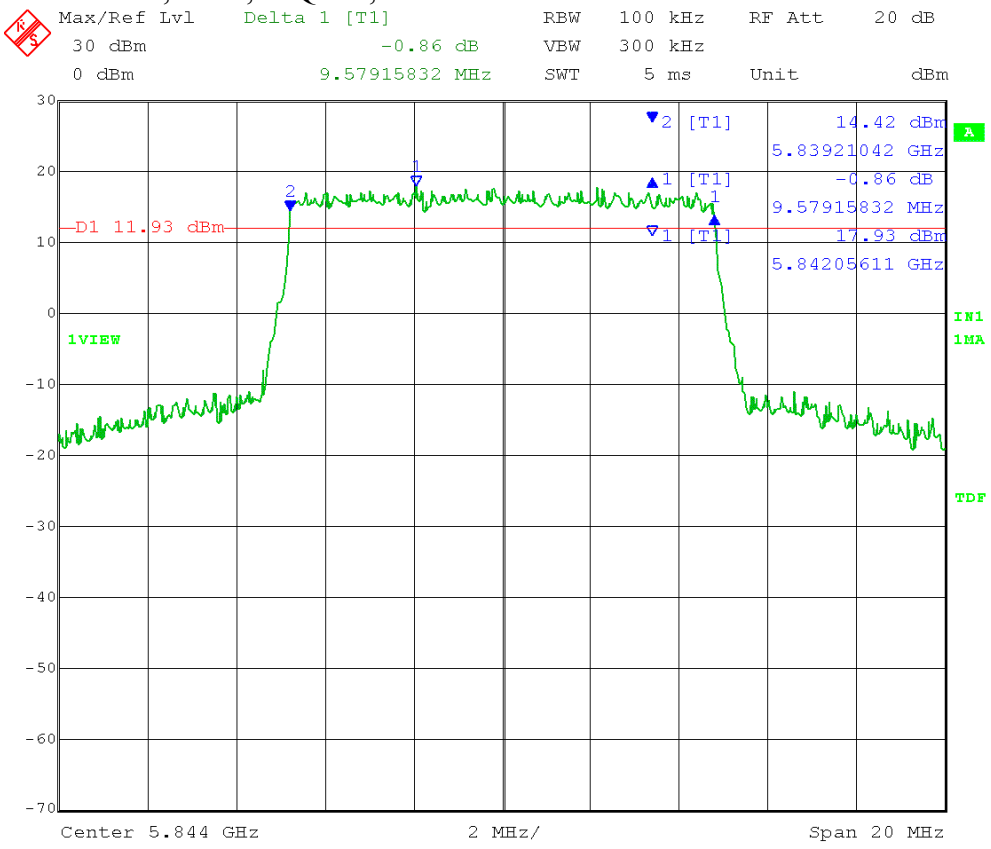
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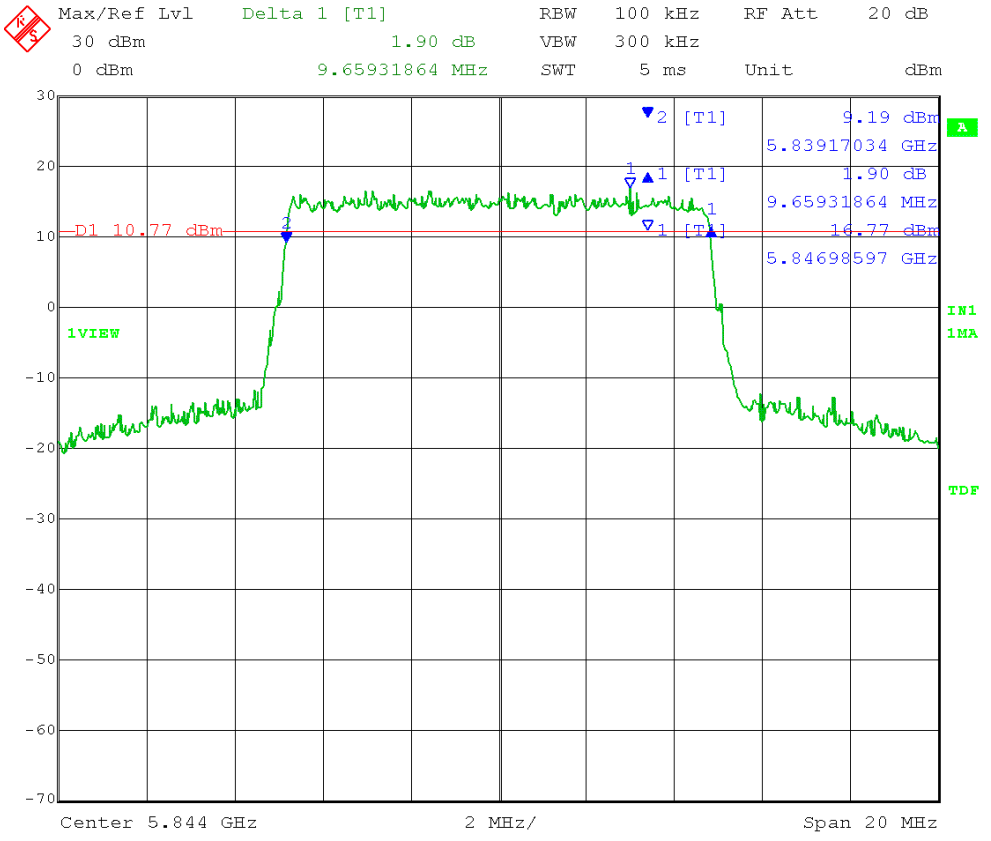
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10MHz BW, HCH, 64QAM, TX 0:



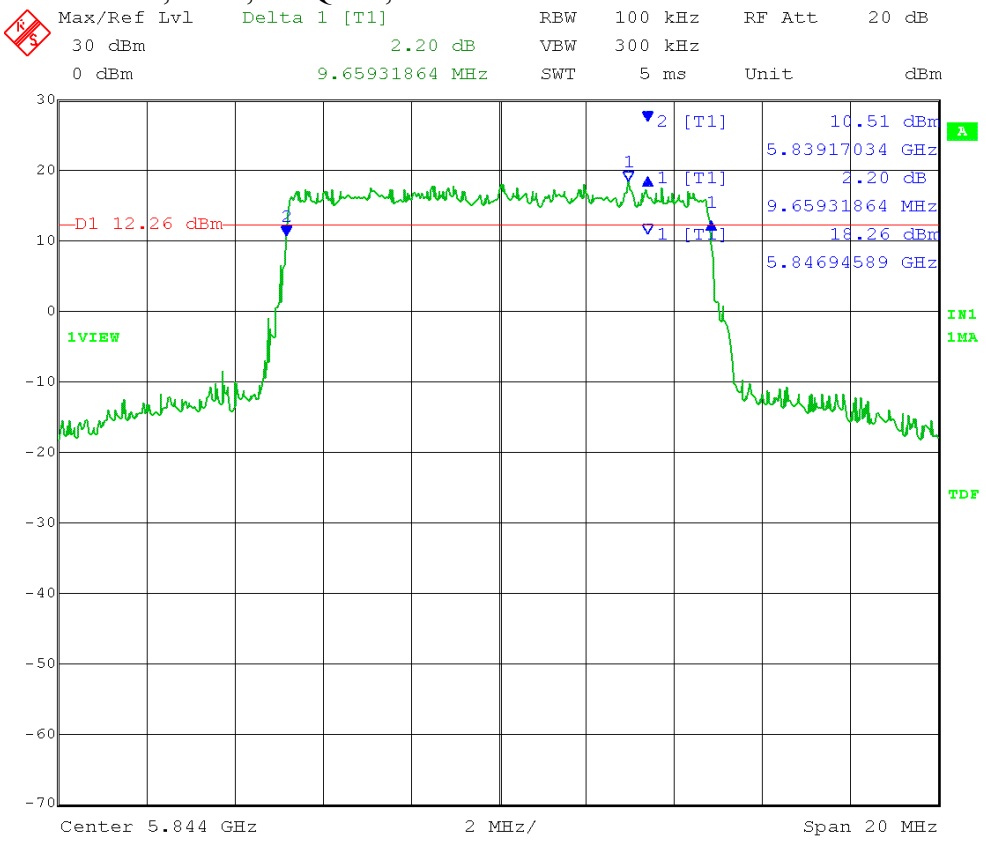
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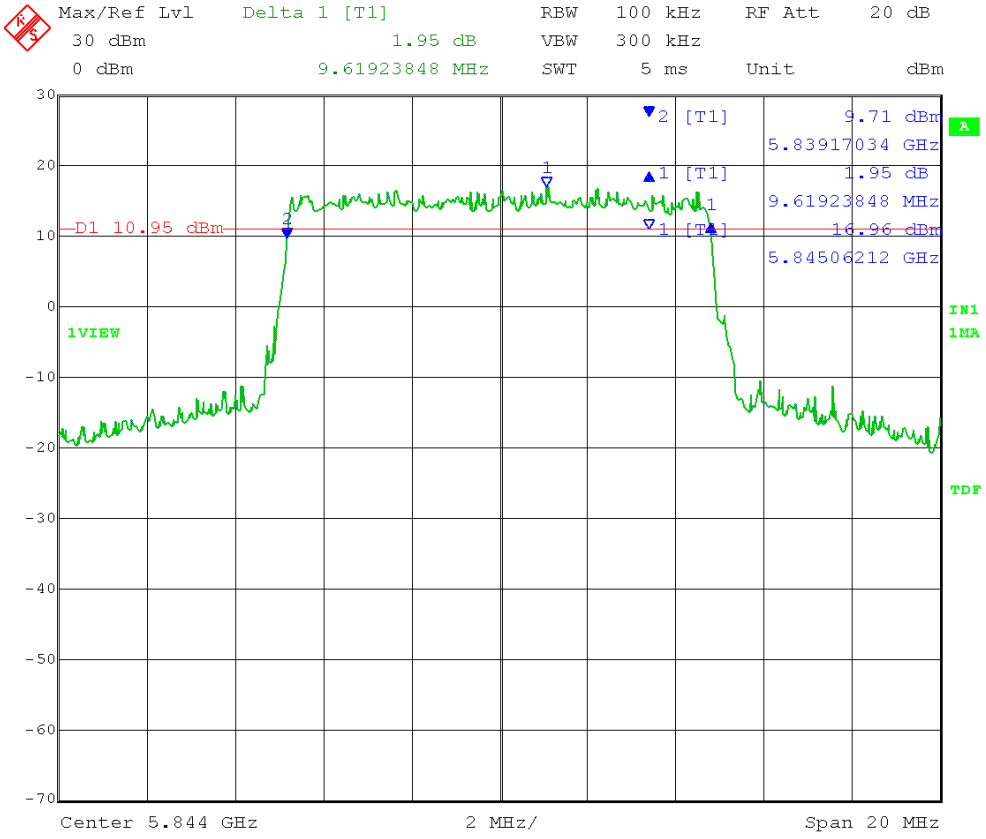
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10MHz BW, HCH, 256QAM, TX 0:



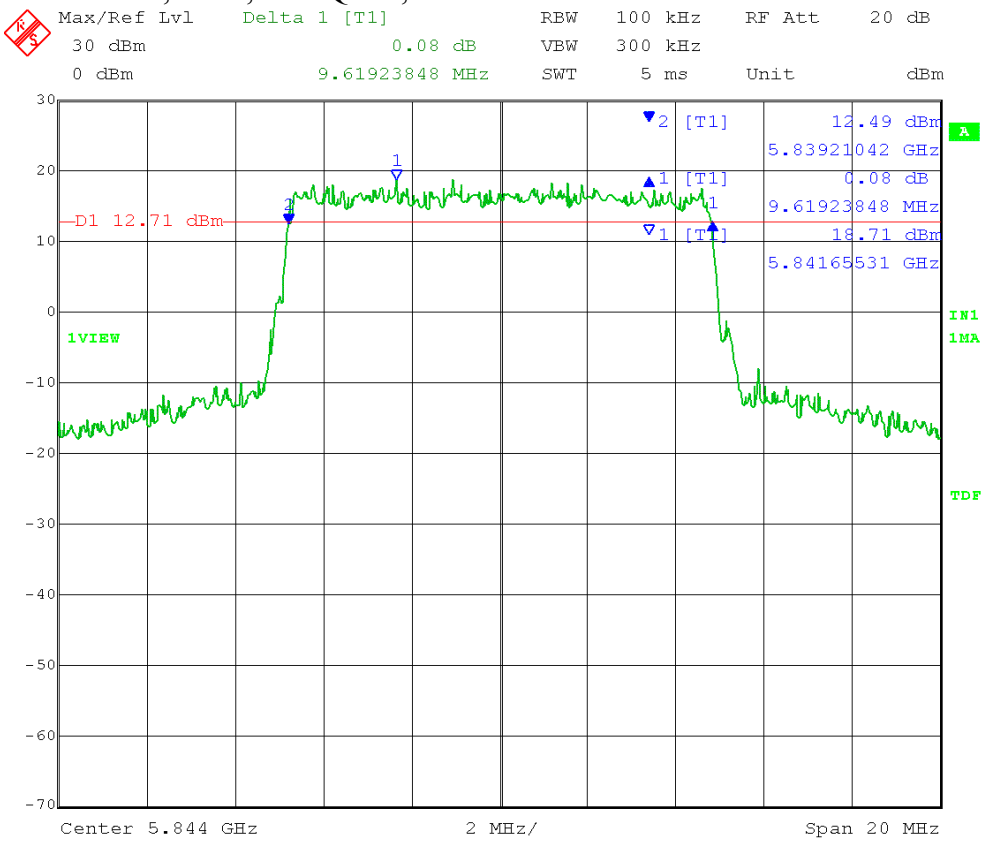
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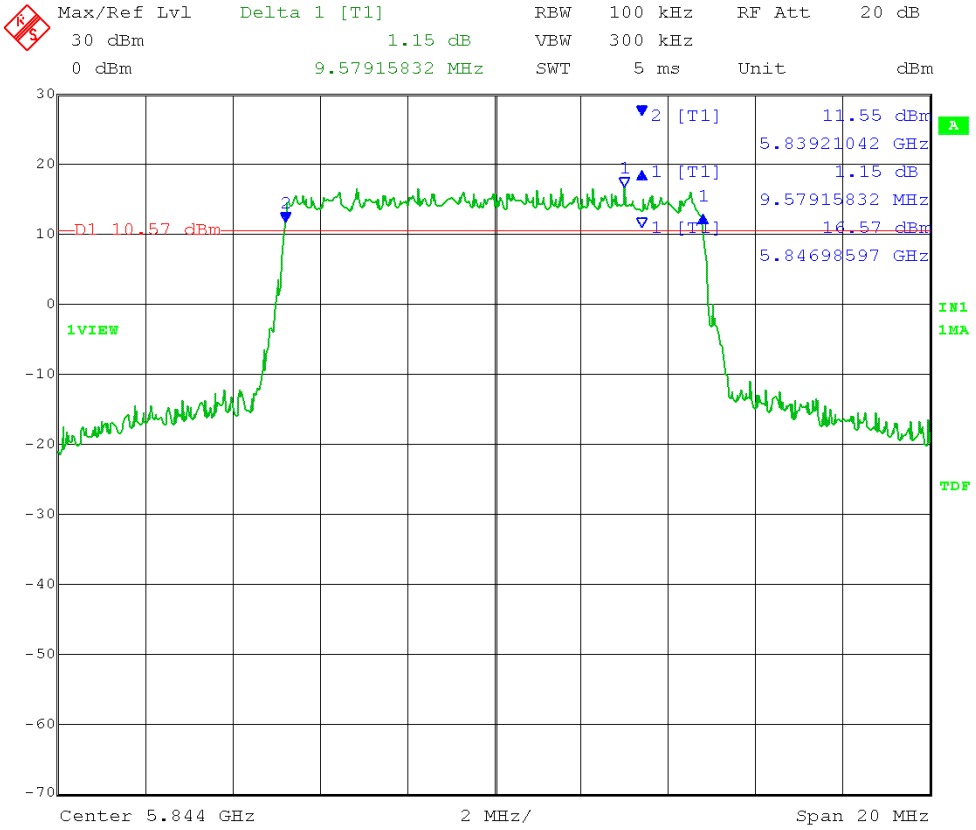
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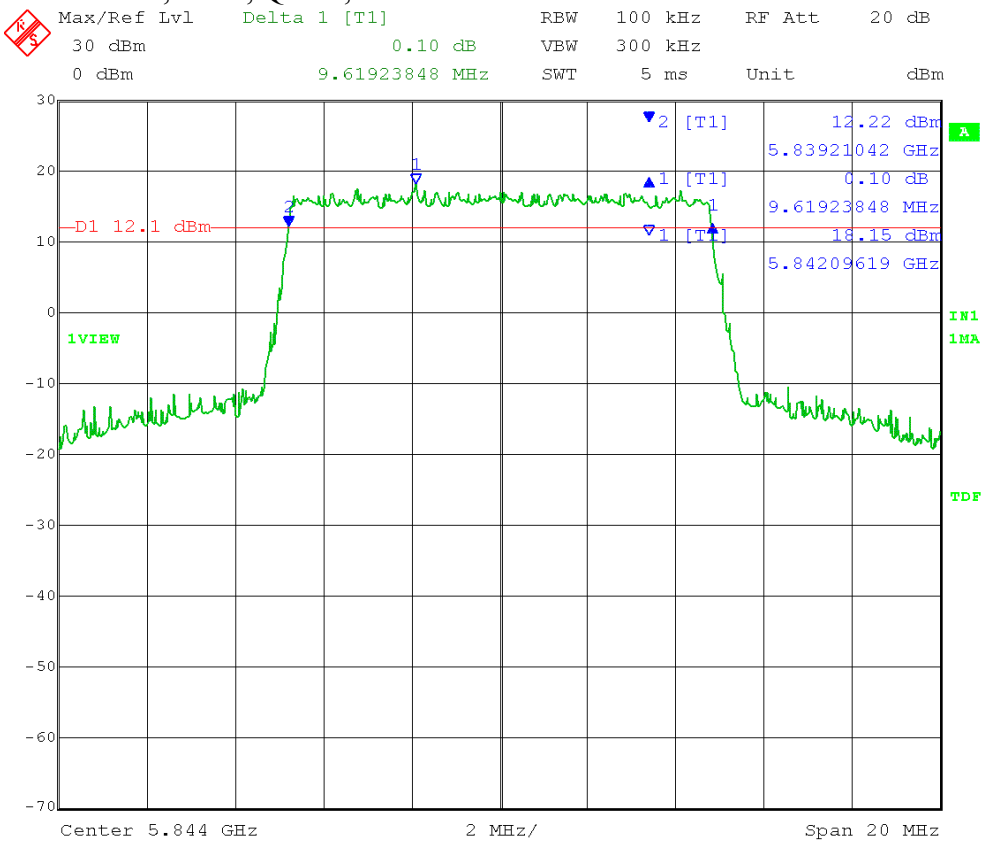
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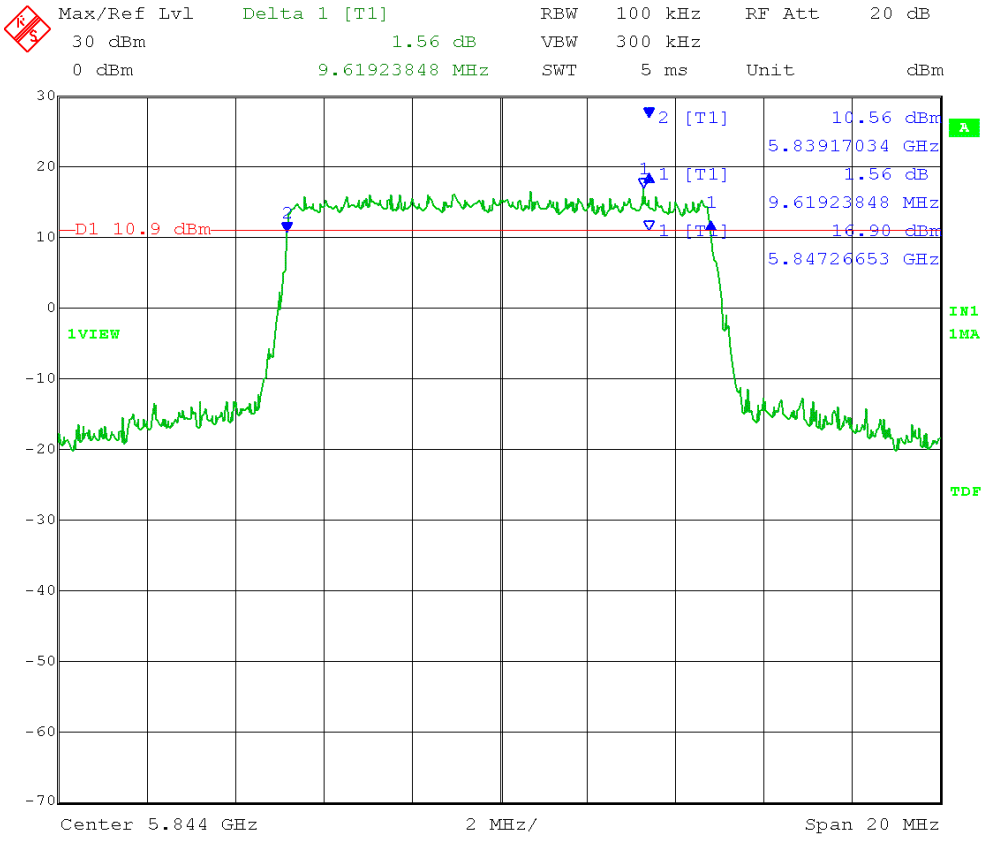
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10MHz BW, HCH, QPSK, TX 0:



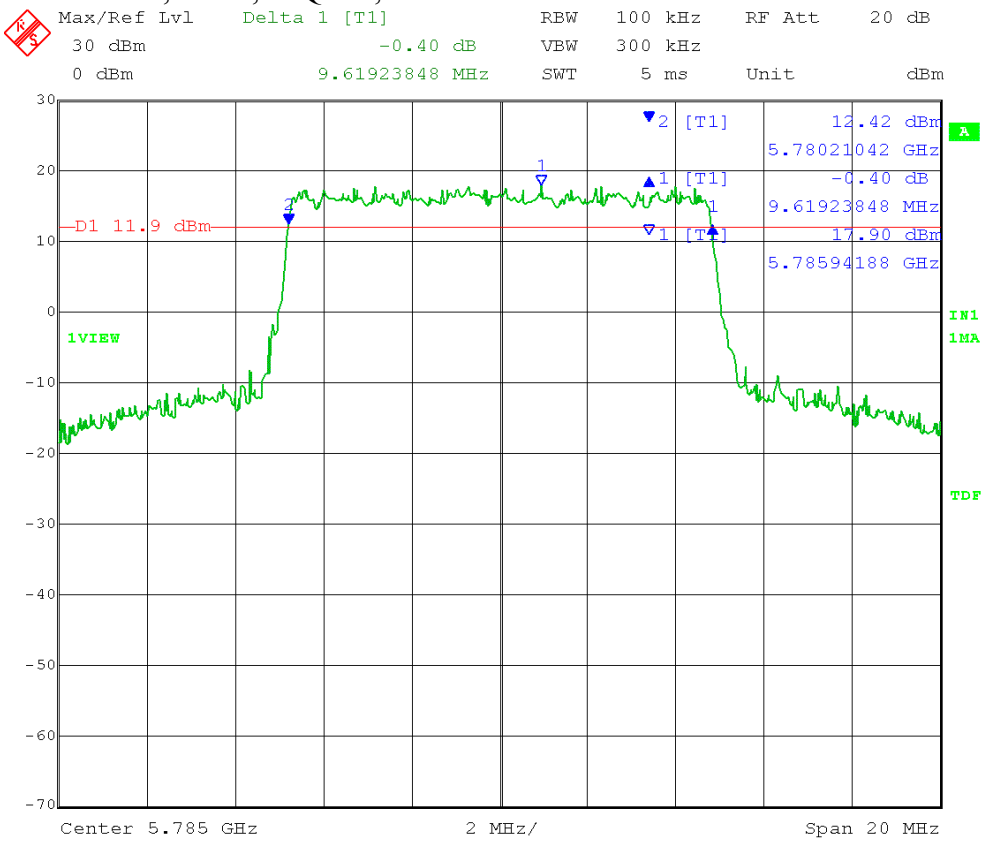
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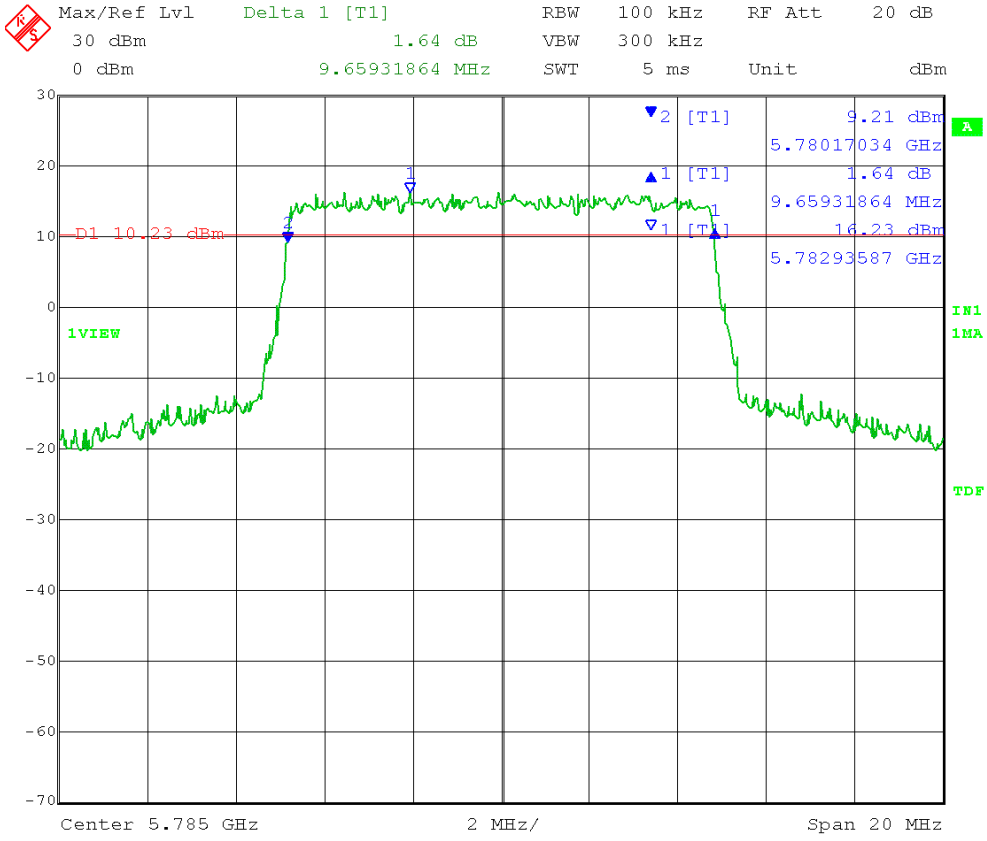
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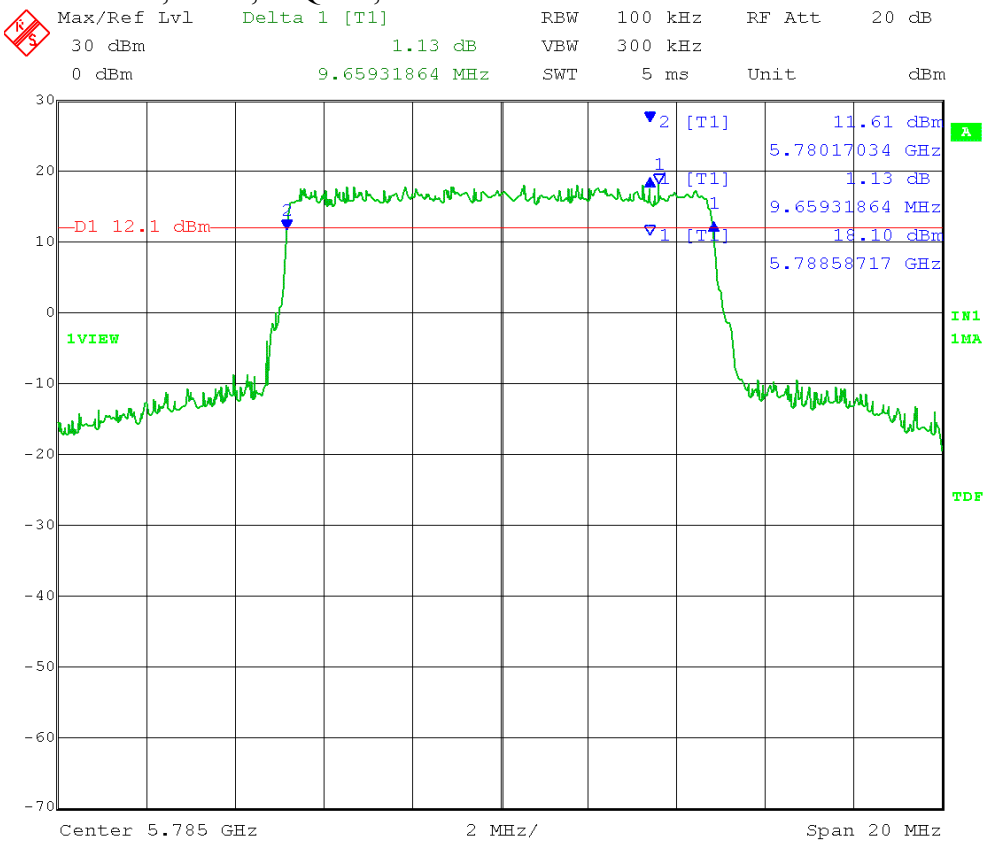
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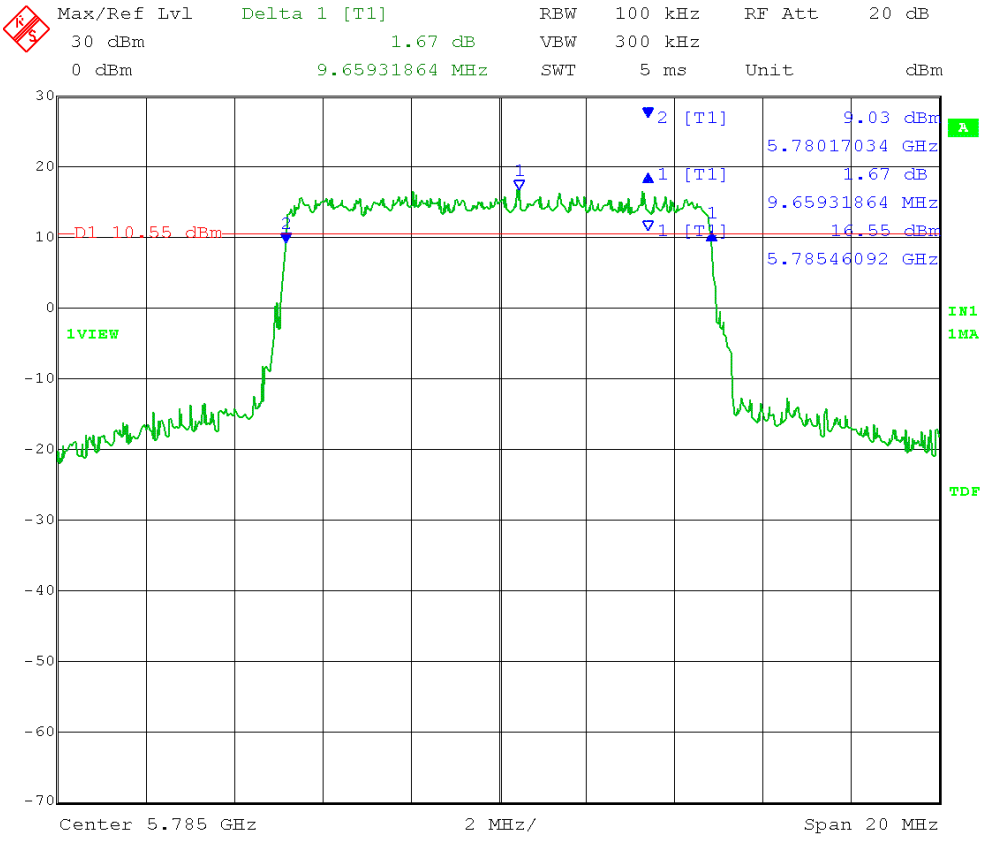
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10MHz BW, MCH, 64QAM, TX 0:



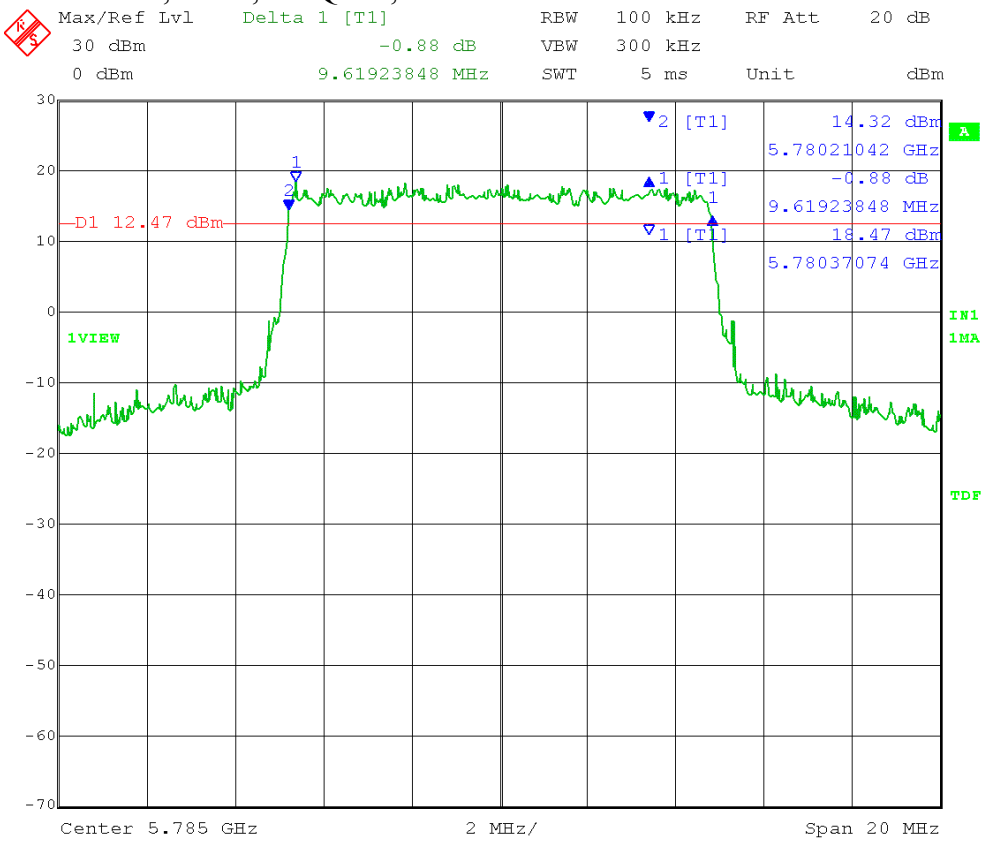
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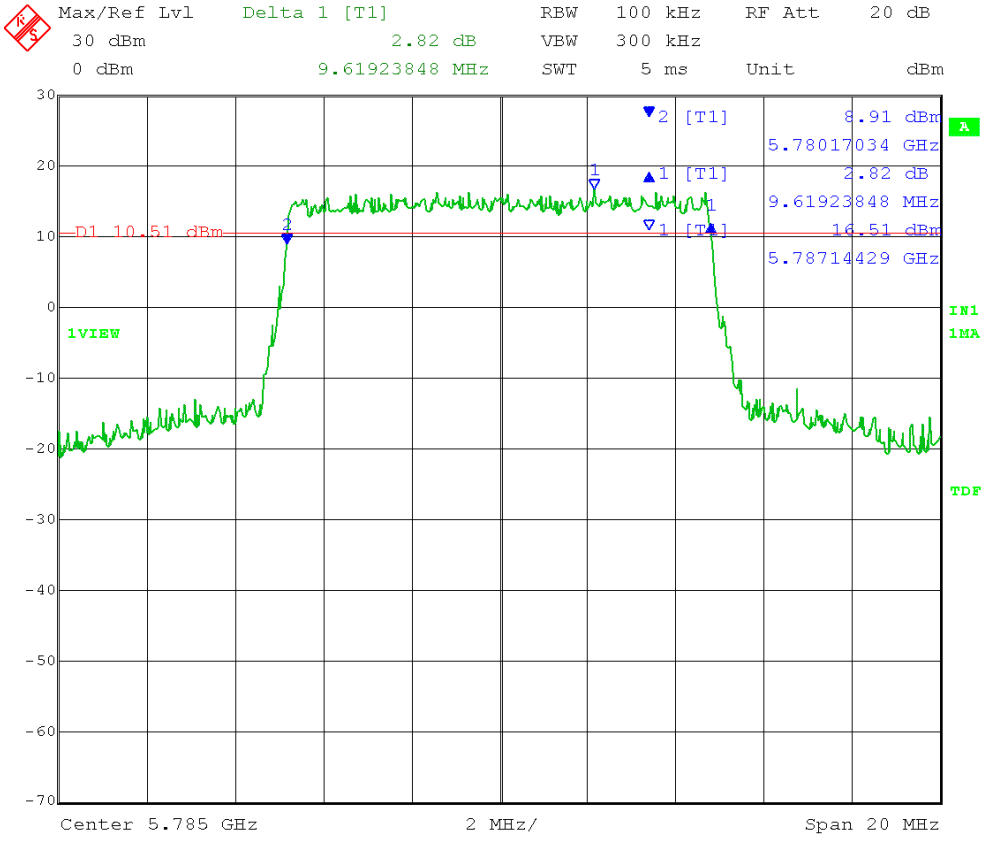
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10MHz BW, MCH, 256QAM, TX 0:



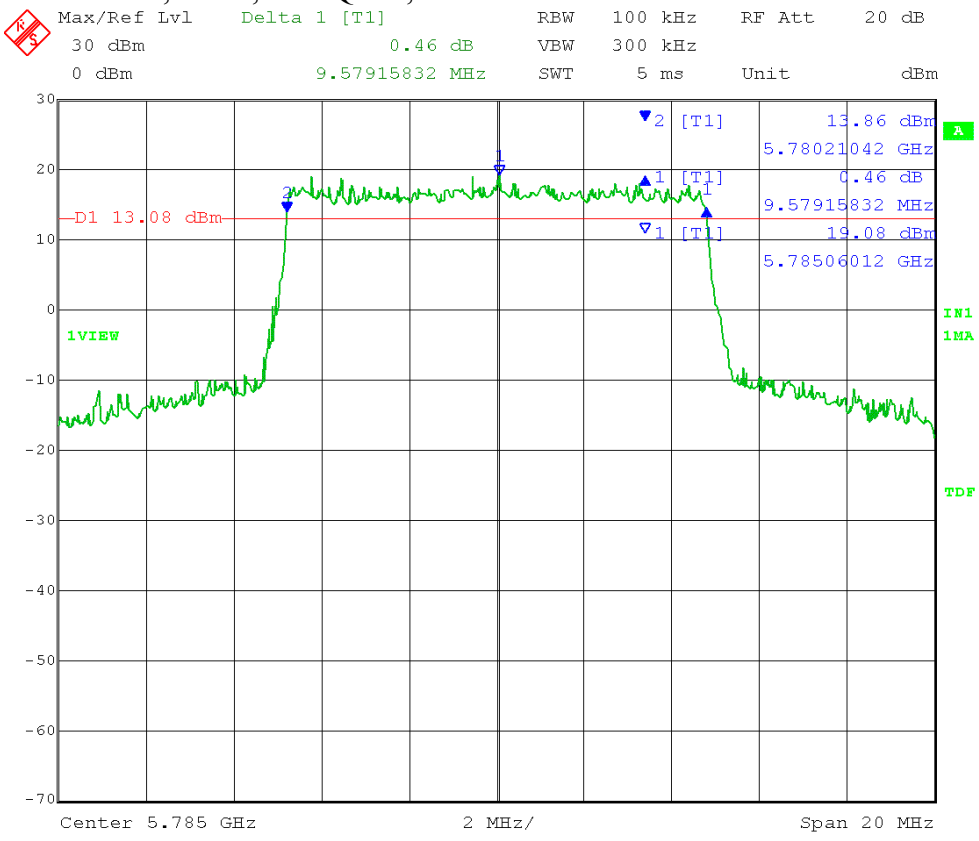
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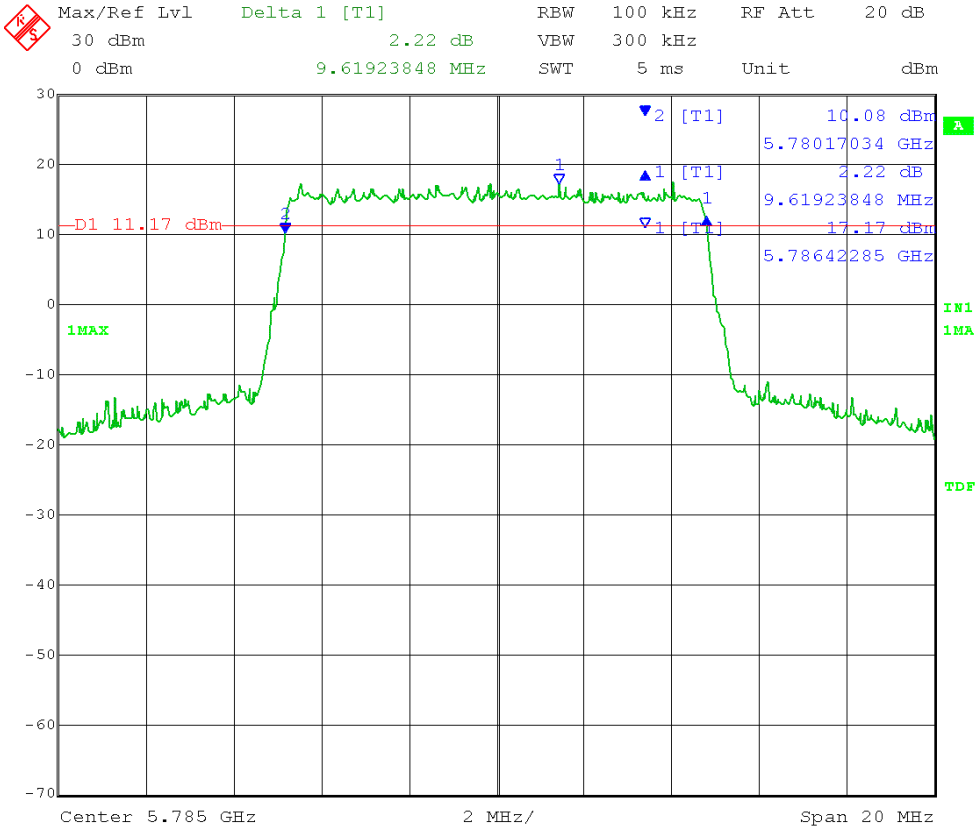
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10MHz BW, MCH, 1024QAM, TX 0:



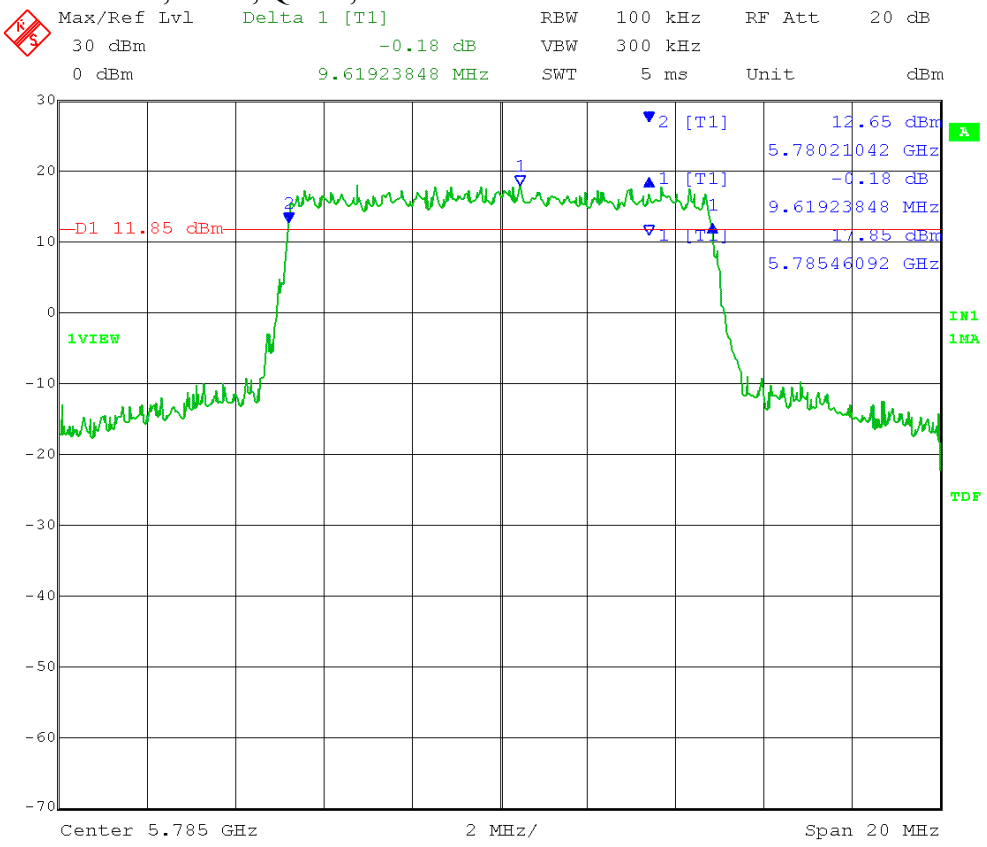
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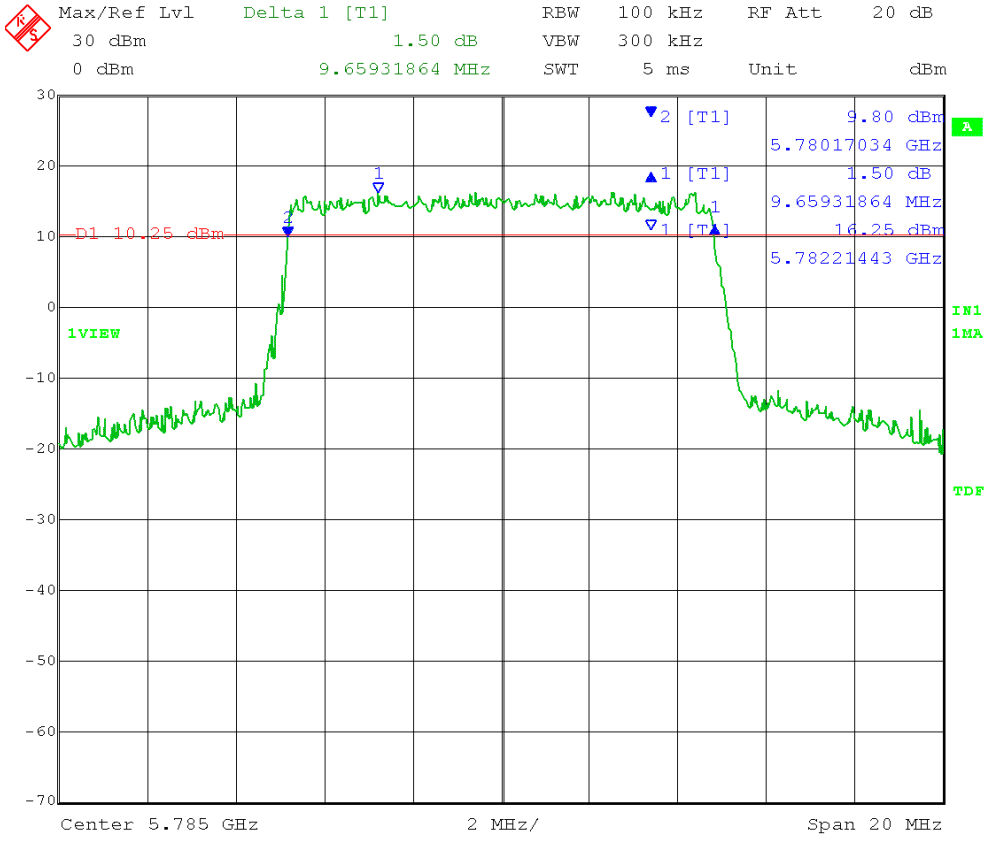
Date: 7.NOV.2013 11:12:09

10MHz BW, MCH, QPSK, TX 0:



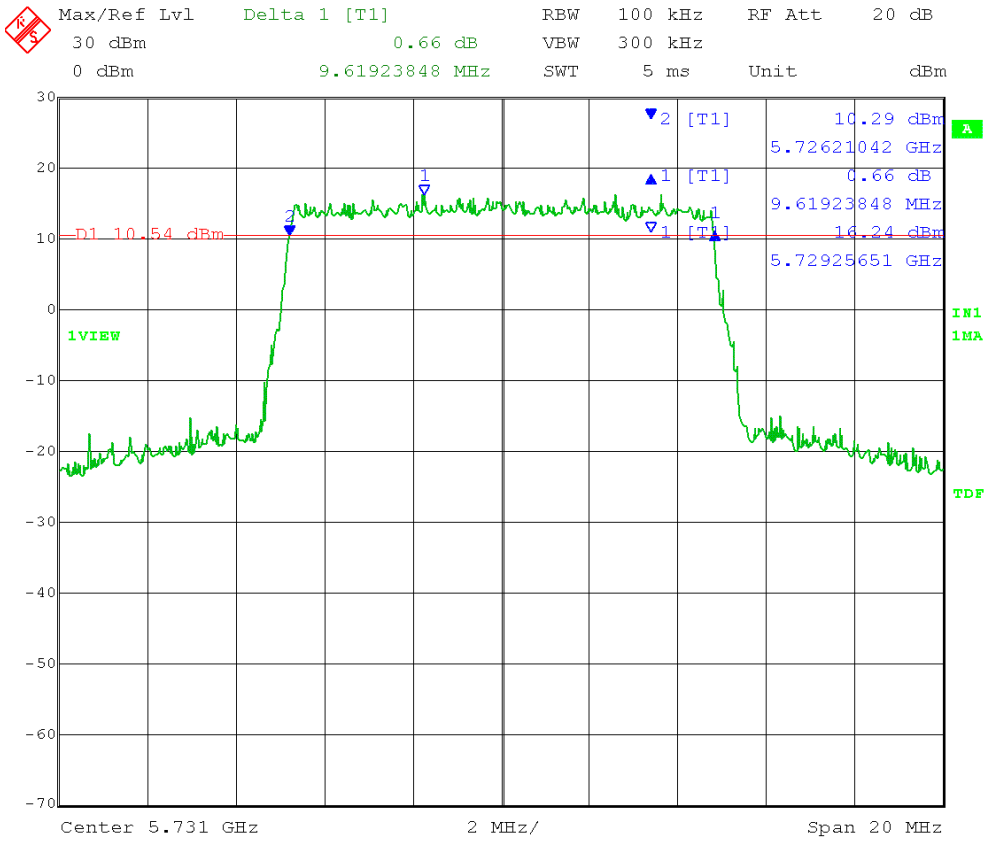
Date: 6.NOV.2013 15:25:21

TX1:



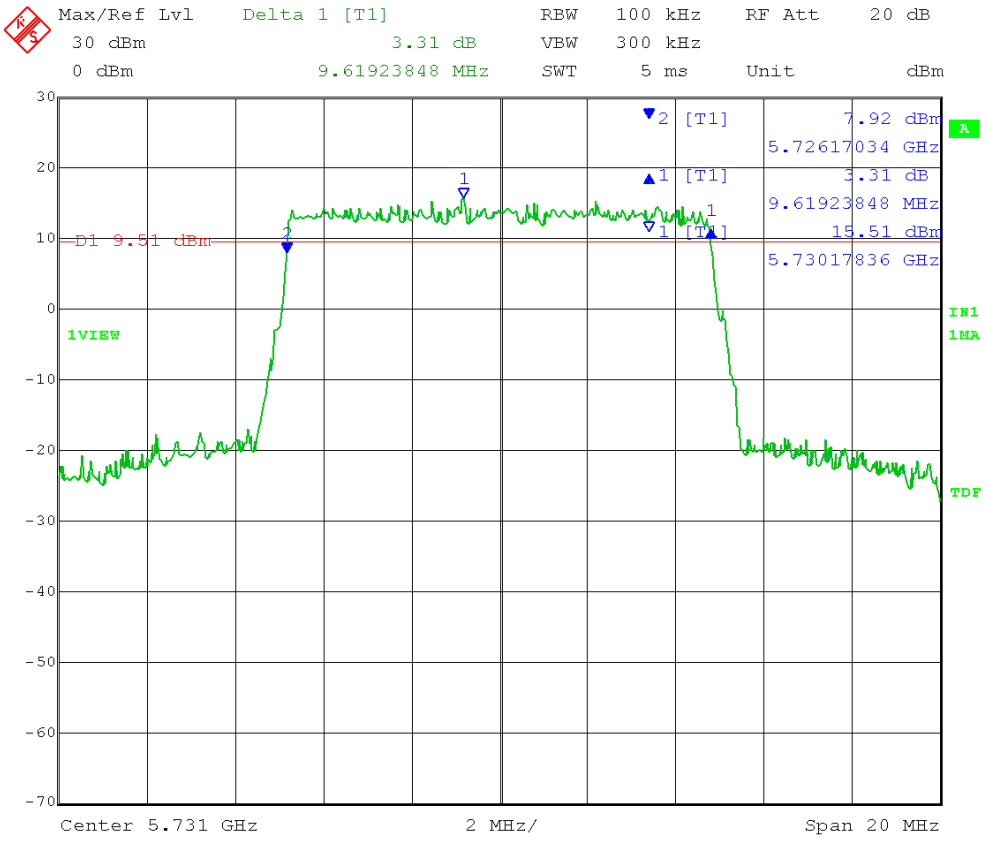
Date: 7.NOV.2013 11:08:31

10MHz BW, LCH, 16QAM,
TX 0: DTS BW = MHz



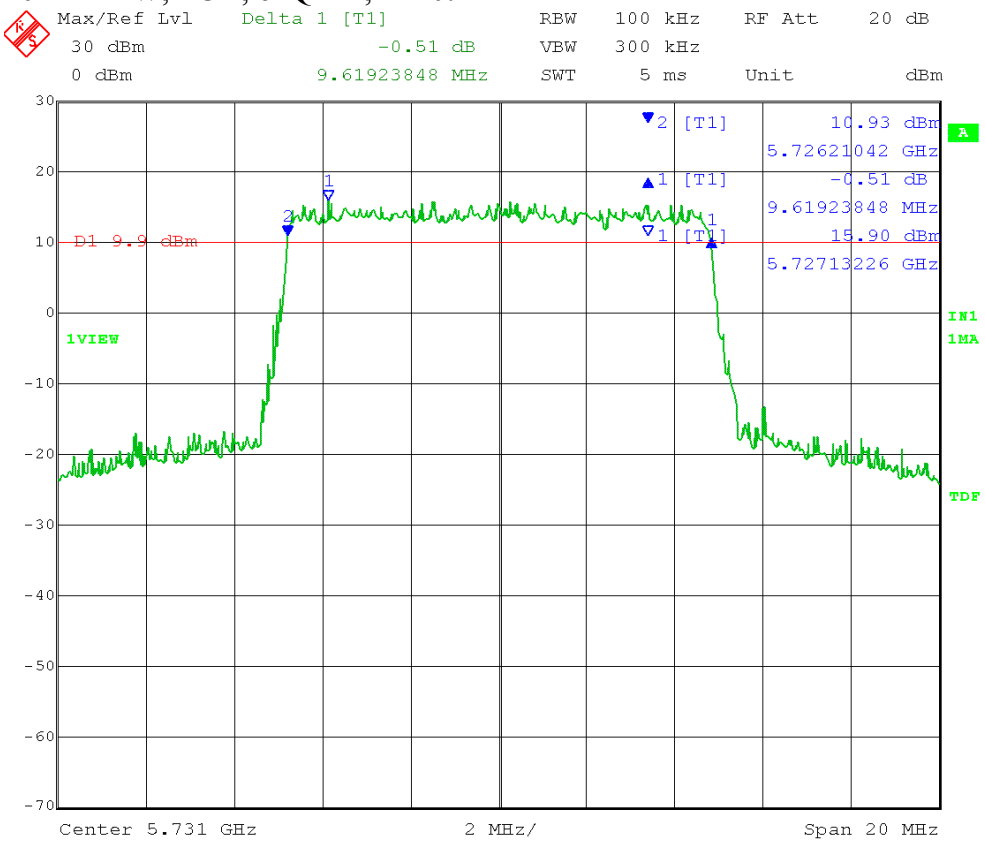
Date: 6.NOV.2013 15:16:47

TX1:



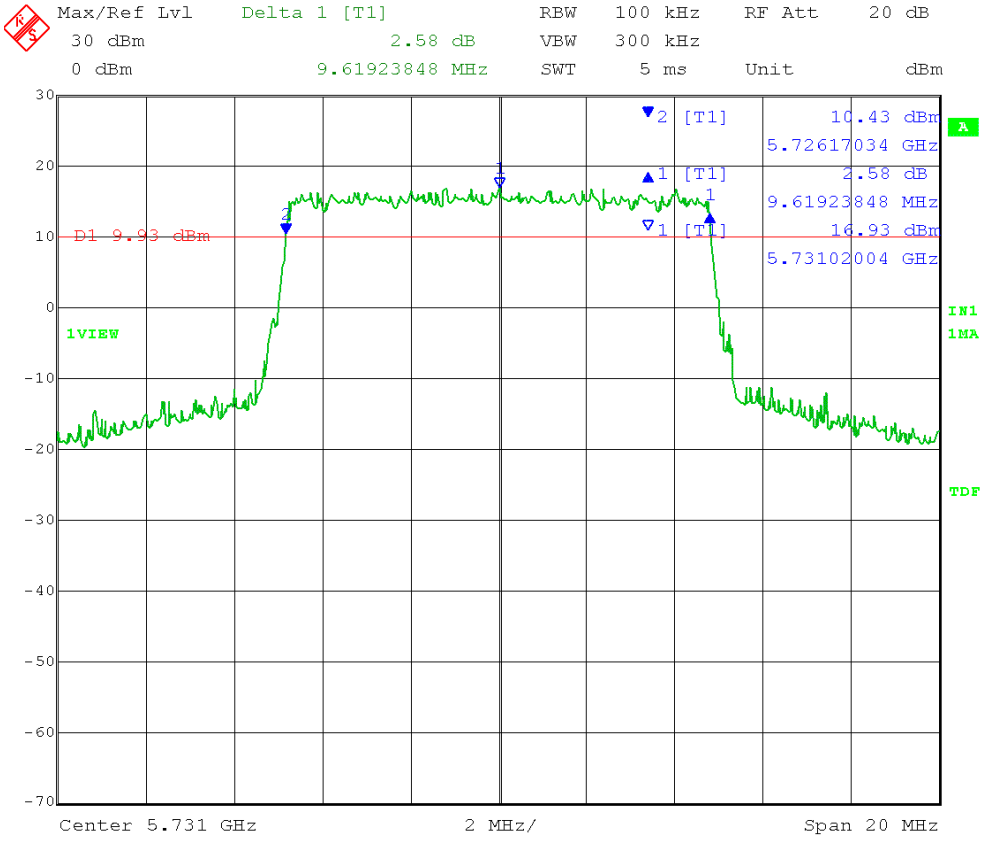
Date: 7.NOV.2013 11:04:26

10MHz BW, LCH, 64QAM, TX 0:



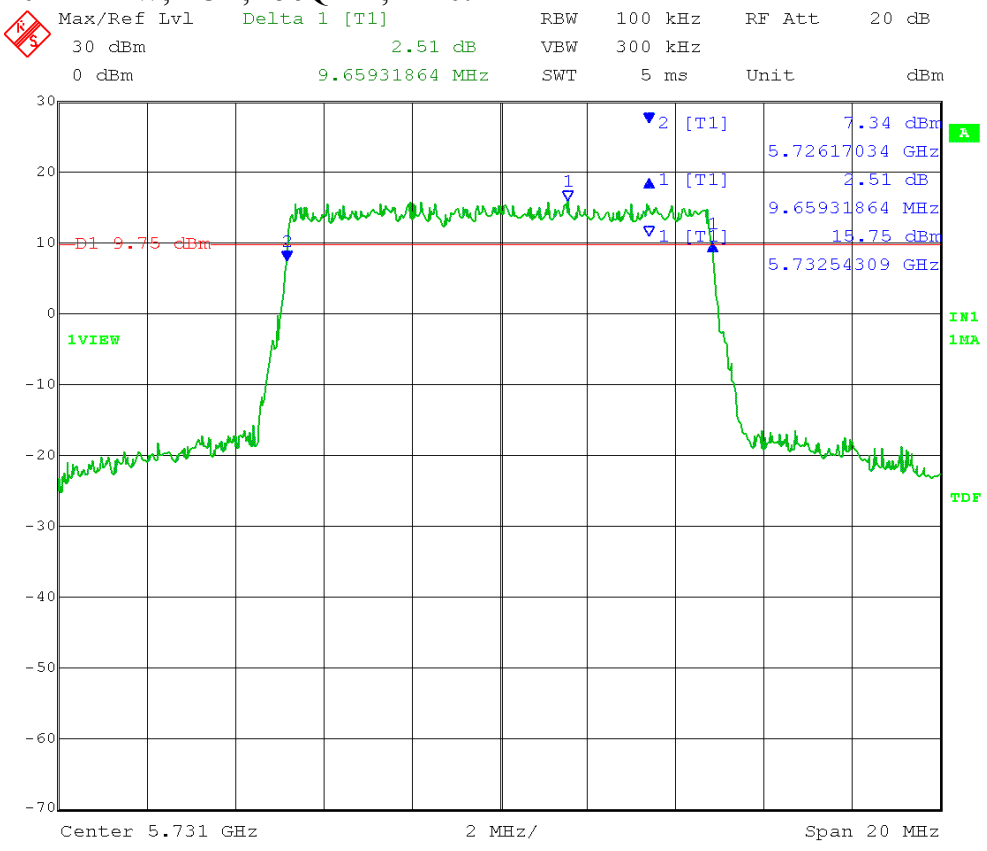
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TX1:



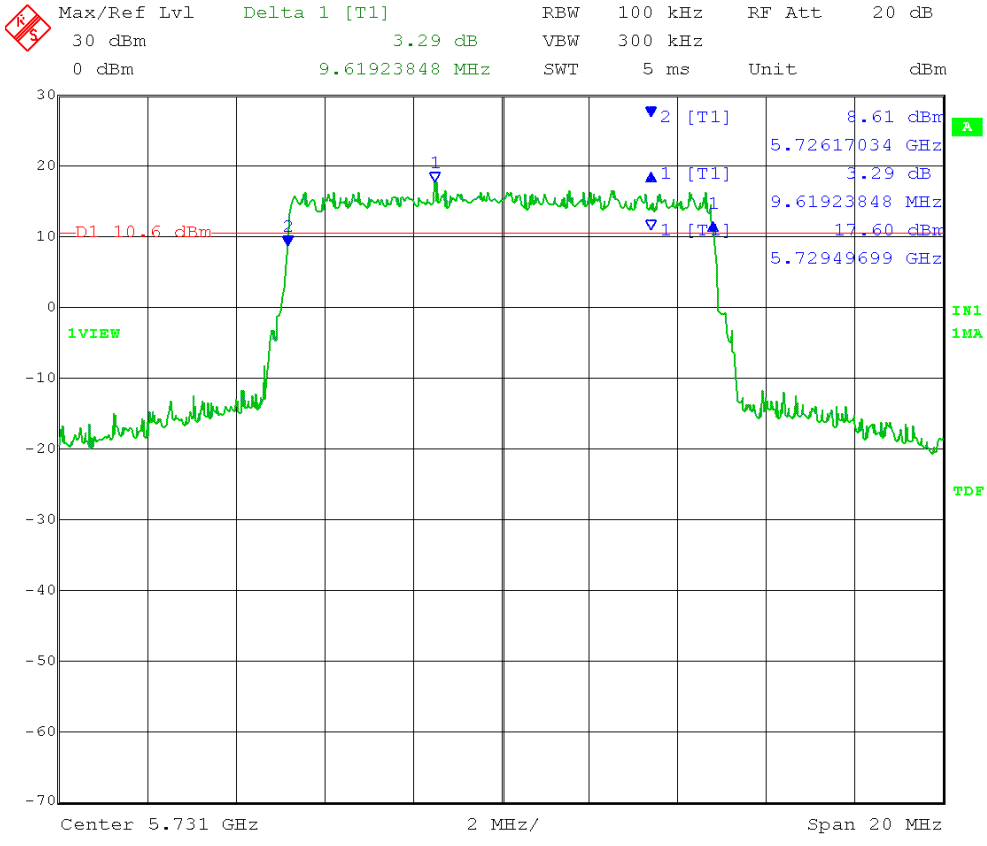
Date: 7.NOV.2013 11:05:28

10MHz BW, LCH, 256QAM, TX 0:



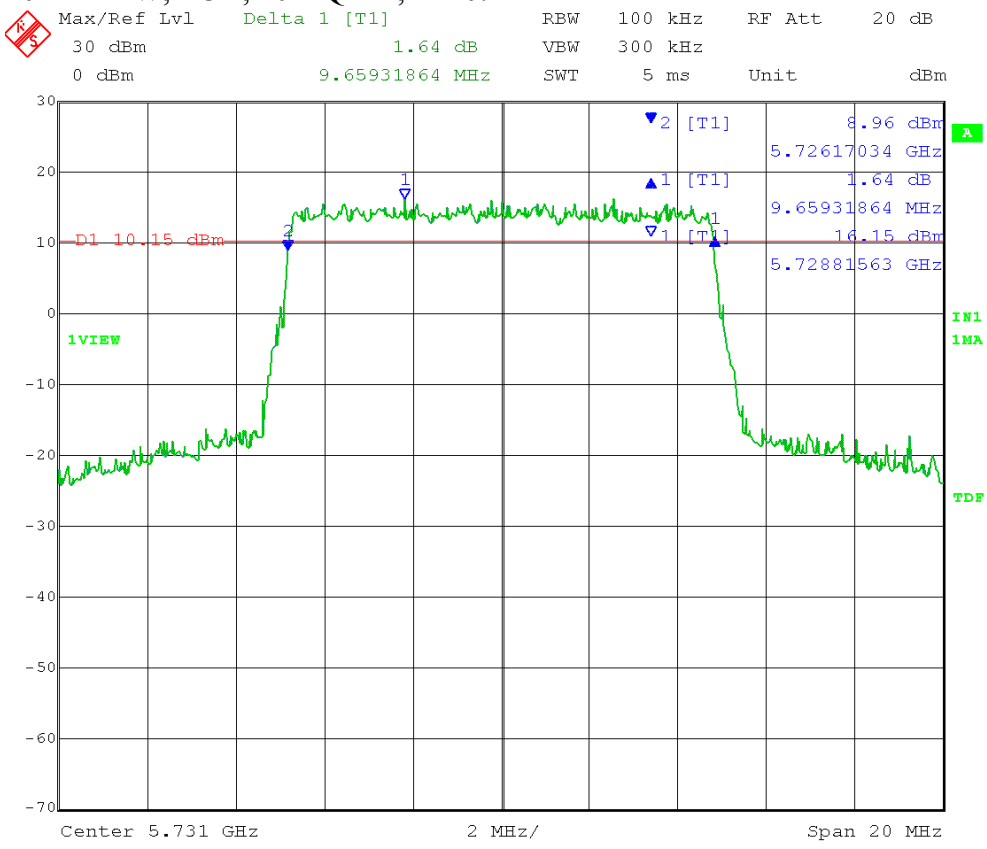
Date: 6.NOV.2013 15:19:01

TX1:



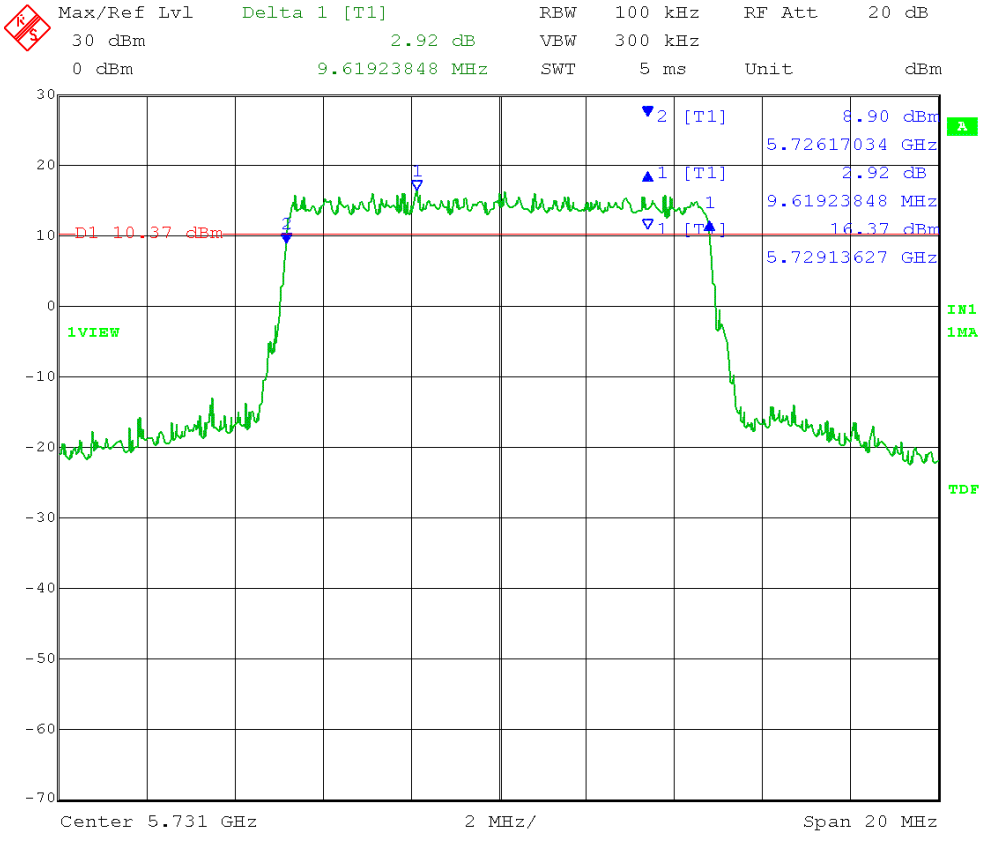
Date: 7.NOV.2013 11:06:18

10MHz BW, LCH, 1024QAM, TX 0:



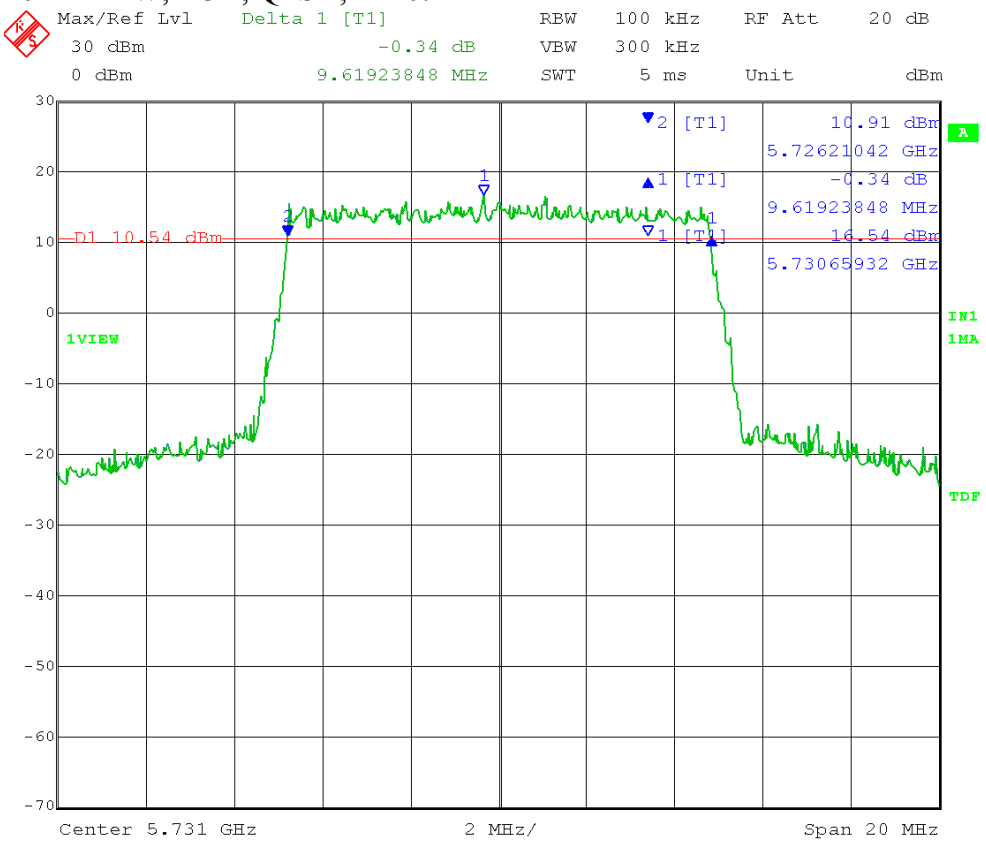
Date: 6.NOV.2013 15:19:58

TX1:



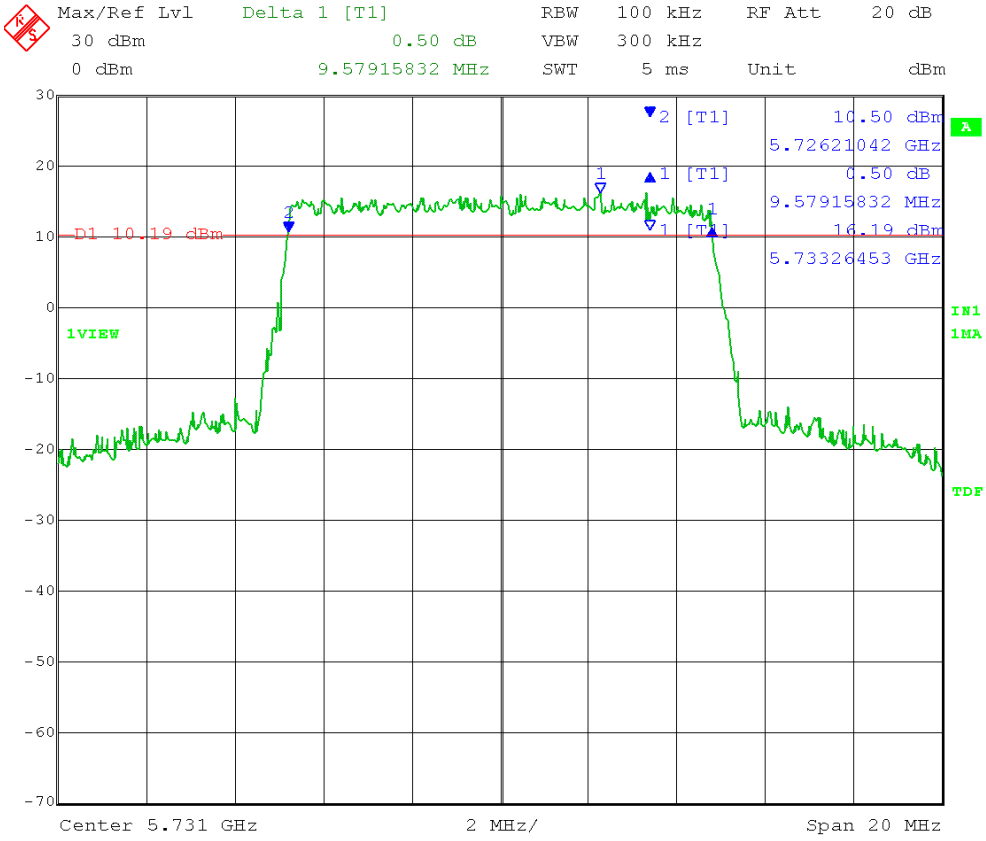
Date: 7.NOV.2013 11:07:07

10MHz BW, LCH, QPSK, TX 0:



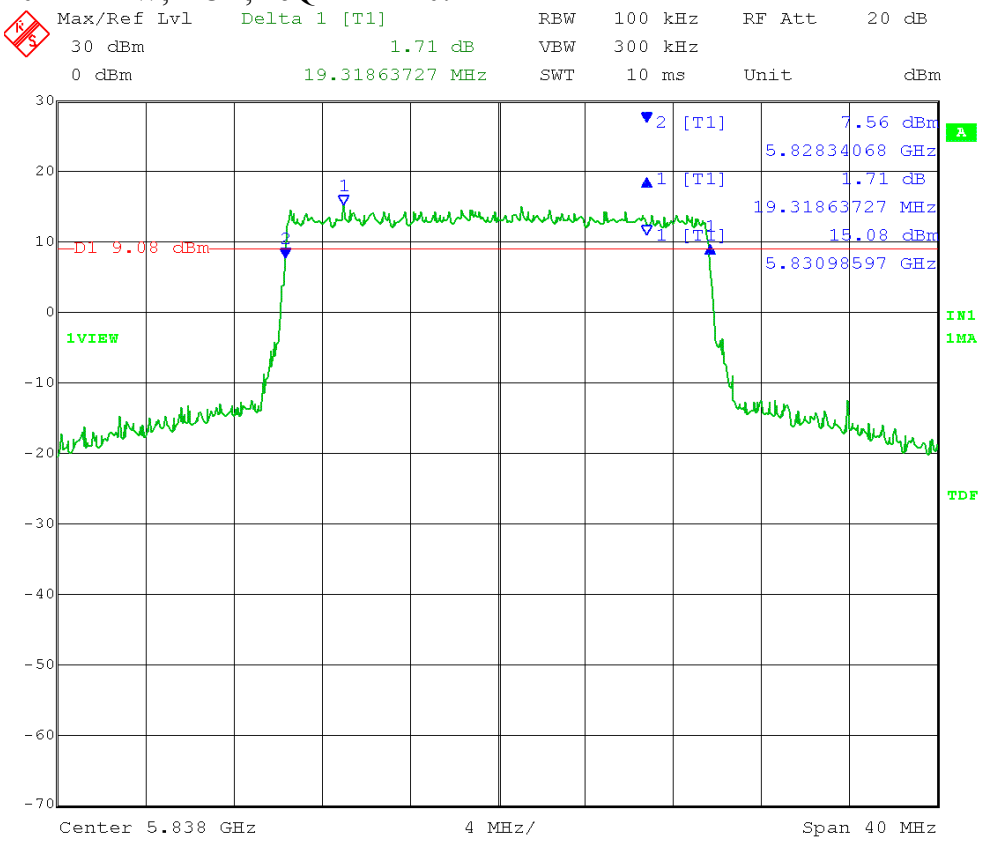
Date: 6.NOV.2013 15:14:13

TX1:



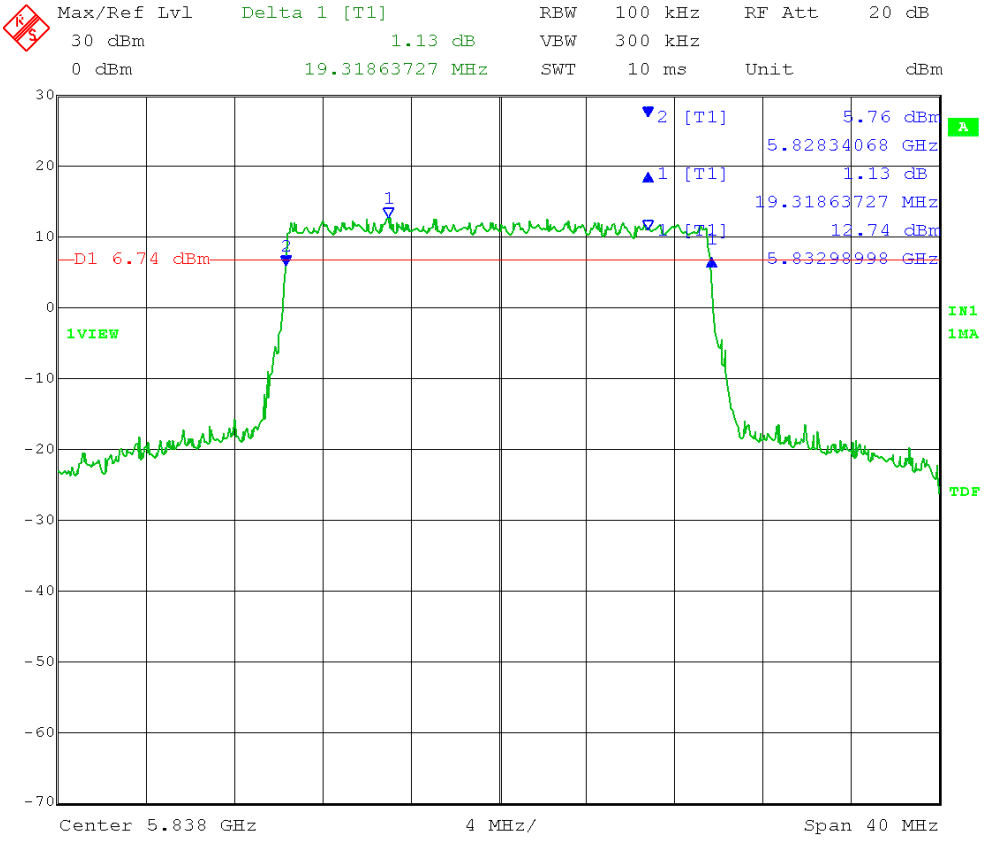
Date: 7.NOV.2013 11:03:15

20MHz BW, HCH, 16QAM TX 0:



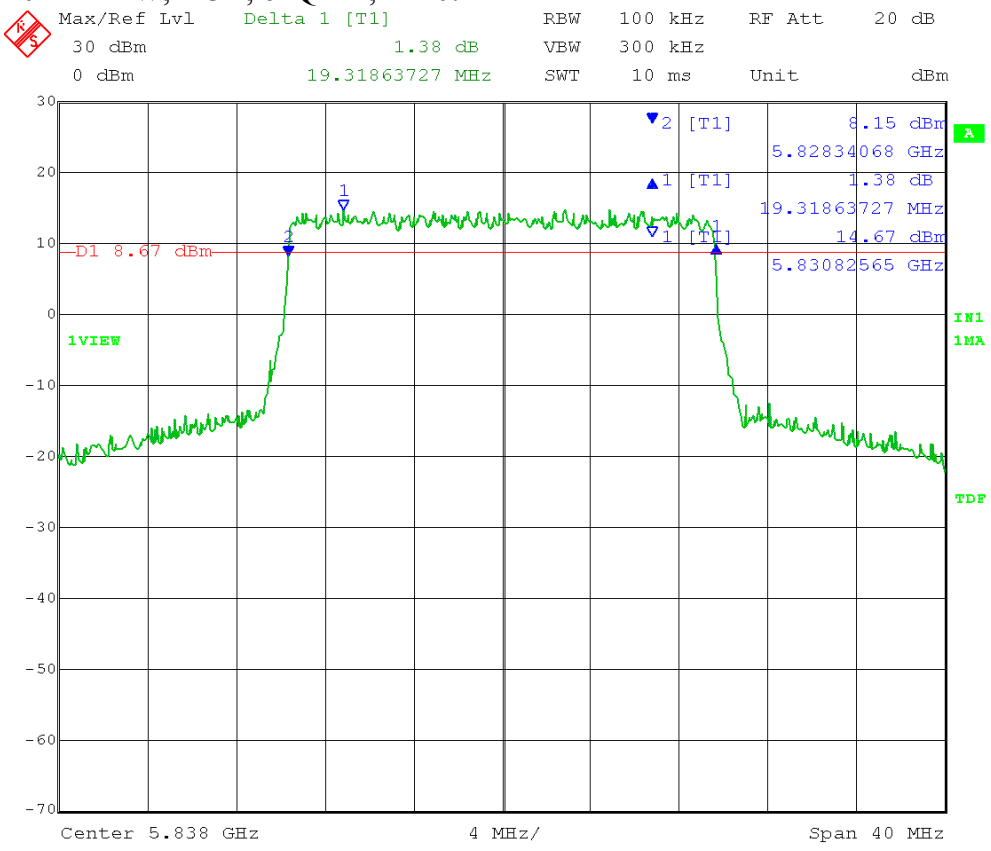
Date: 6.NOV.2013 15:40:03

TX1:



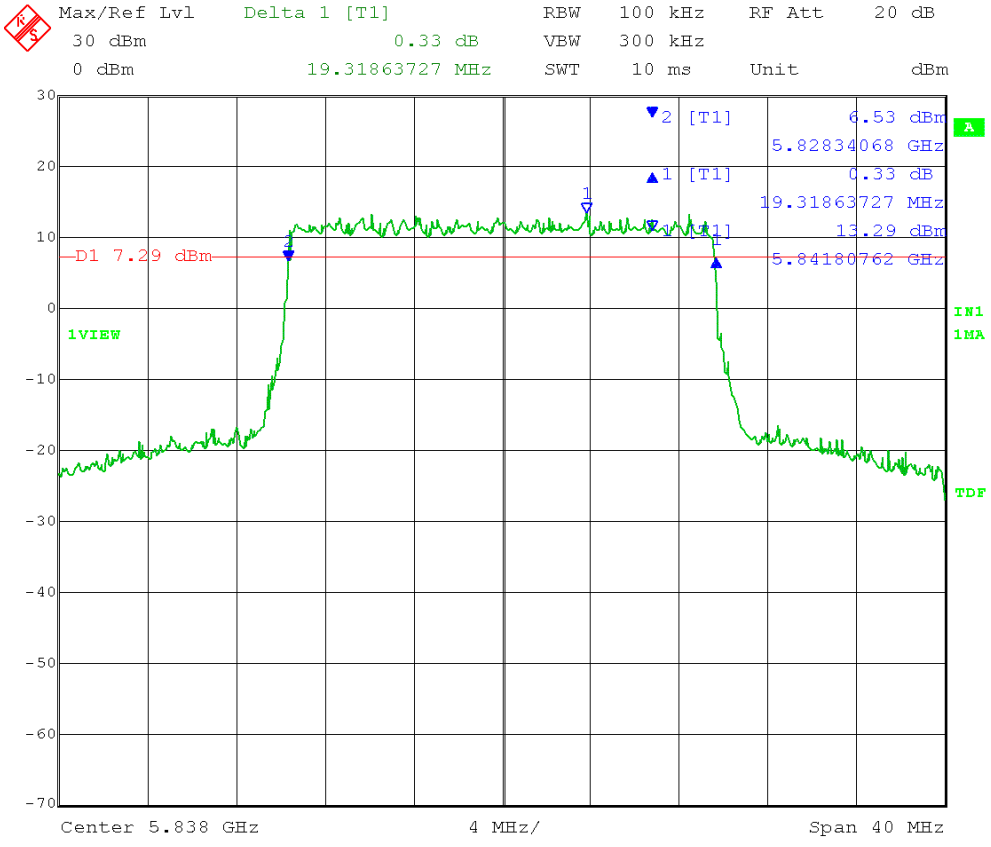
Date: 7.NOV.2013 10:52:44

20MHz BW, HCH, 64QAM, TX 0:



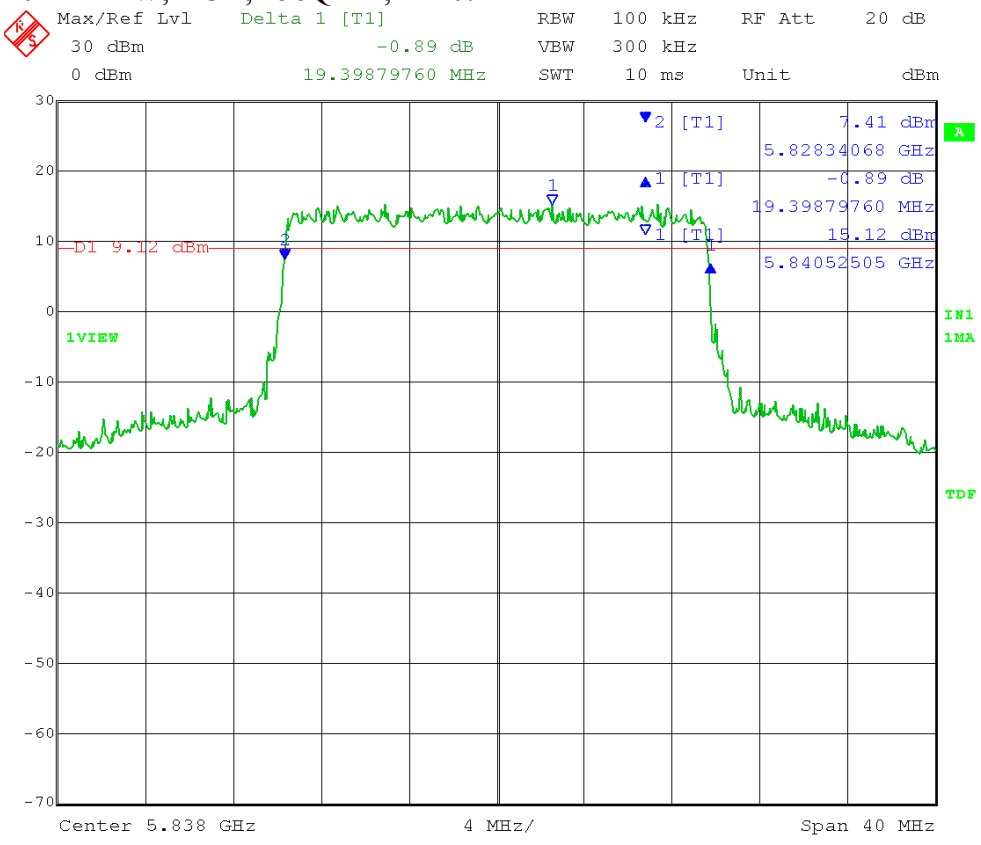
Date: 6.NOV.2013 15:40:51

TX1:



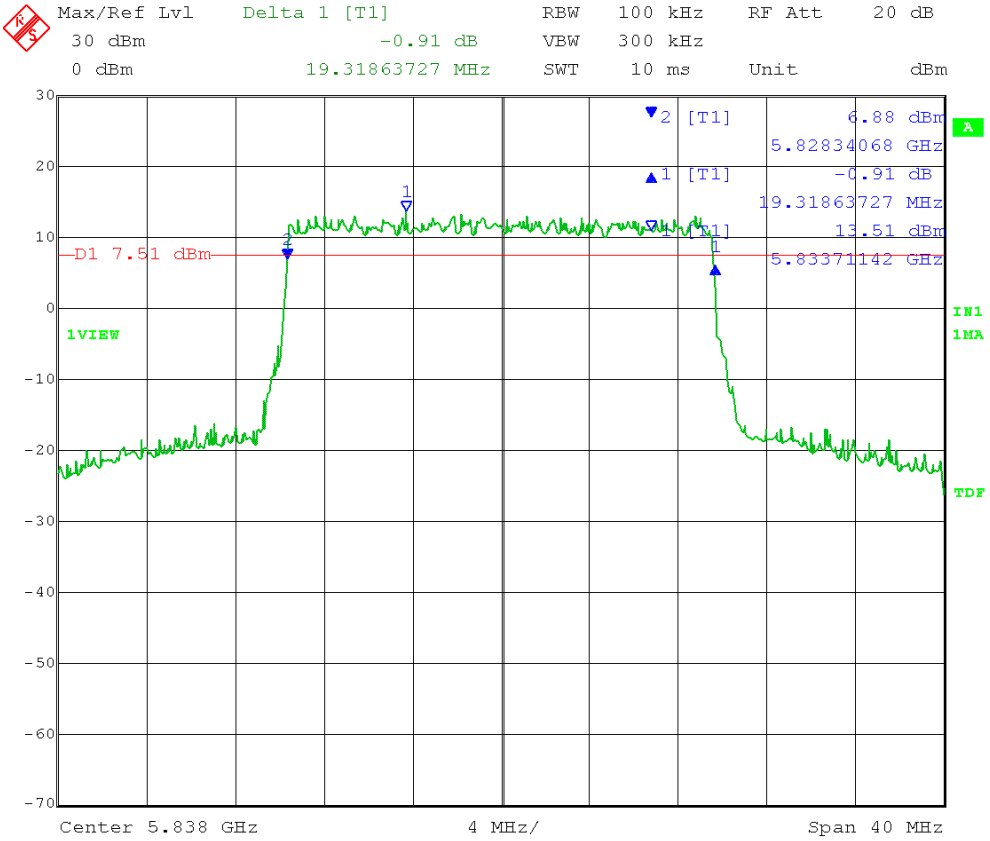
Date: 7.NOV.2013 10:53:31

20MHz BW, HCH, 256QAM, TX 0:



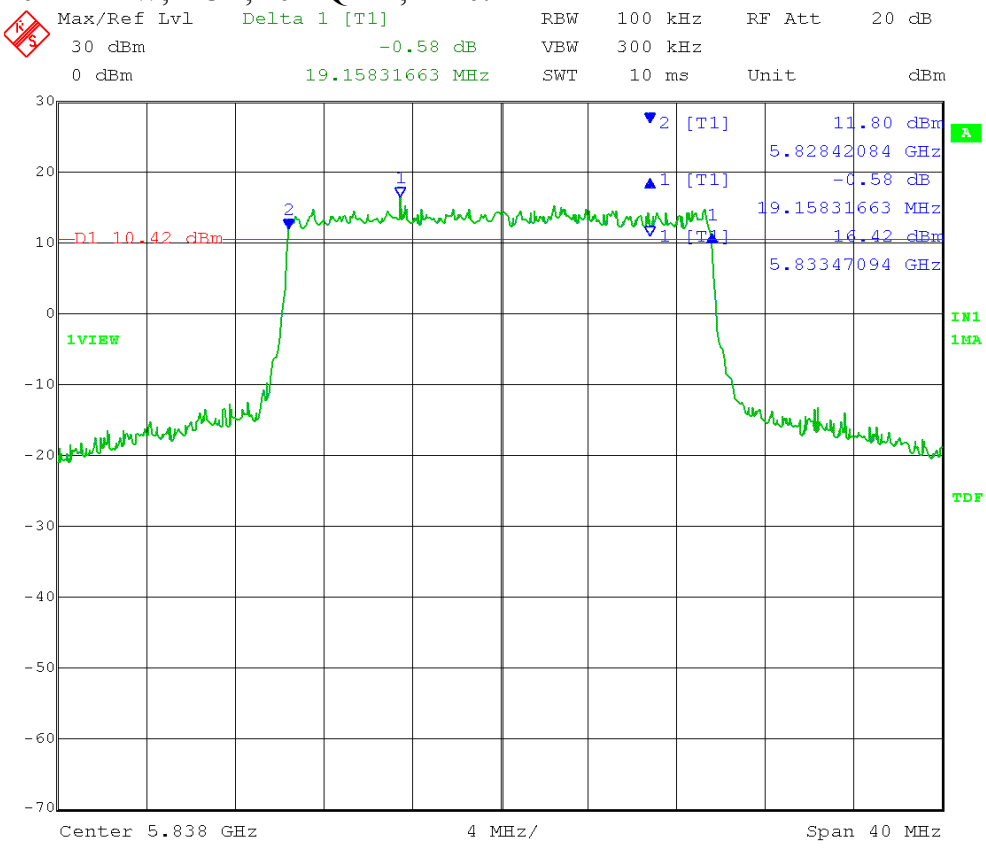
Date: 6.NOV.2013 15:41:54

TX1:



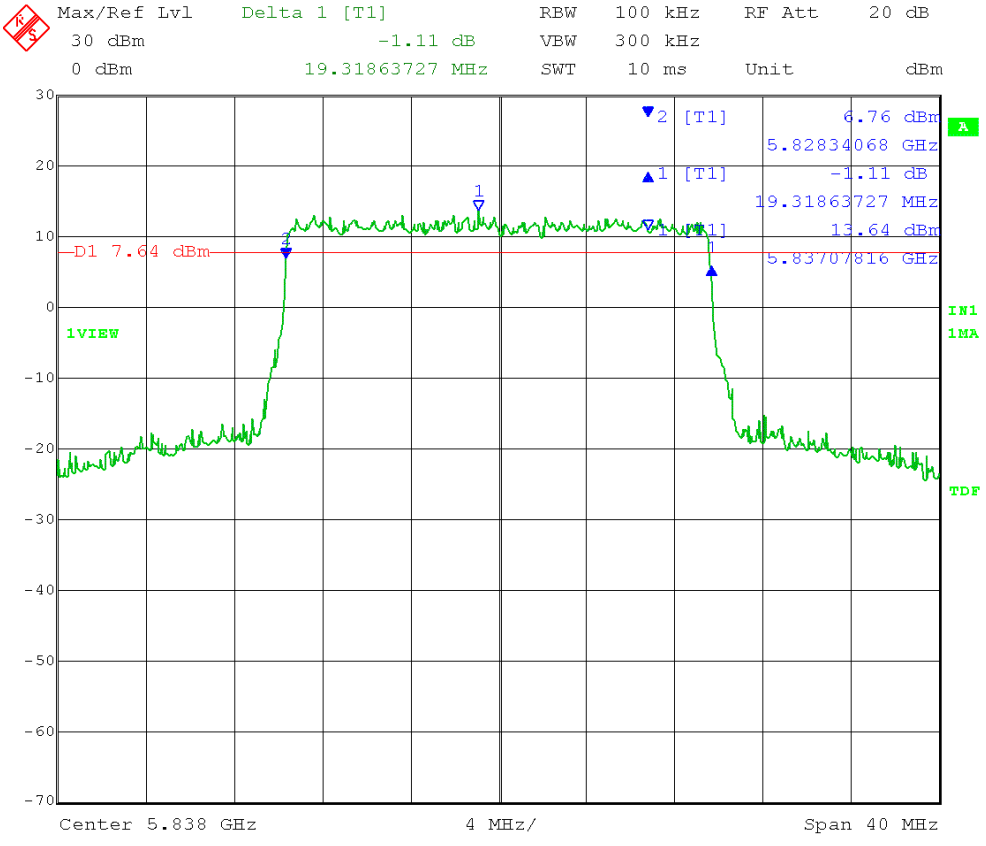
Date: 7.NOV.2013 10:54:25

20MHz BW, HCH, 1024QAM, TX 0:



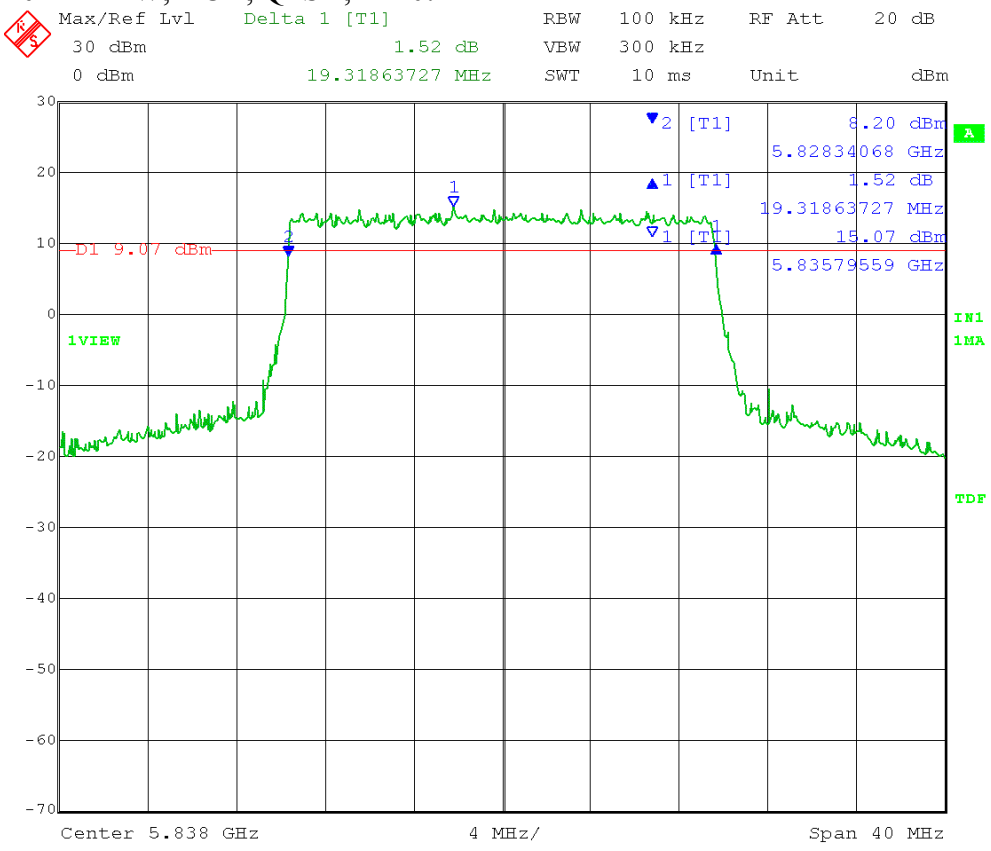
Date: 6.NOV.2013 15:42:58

TX1:



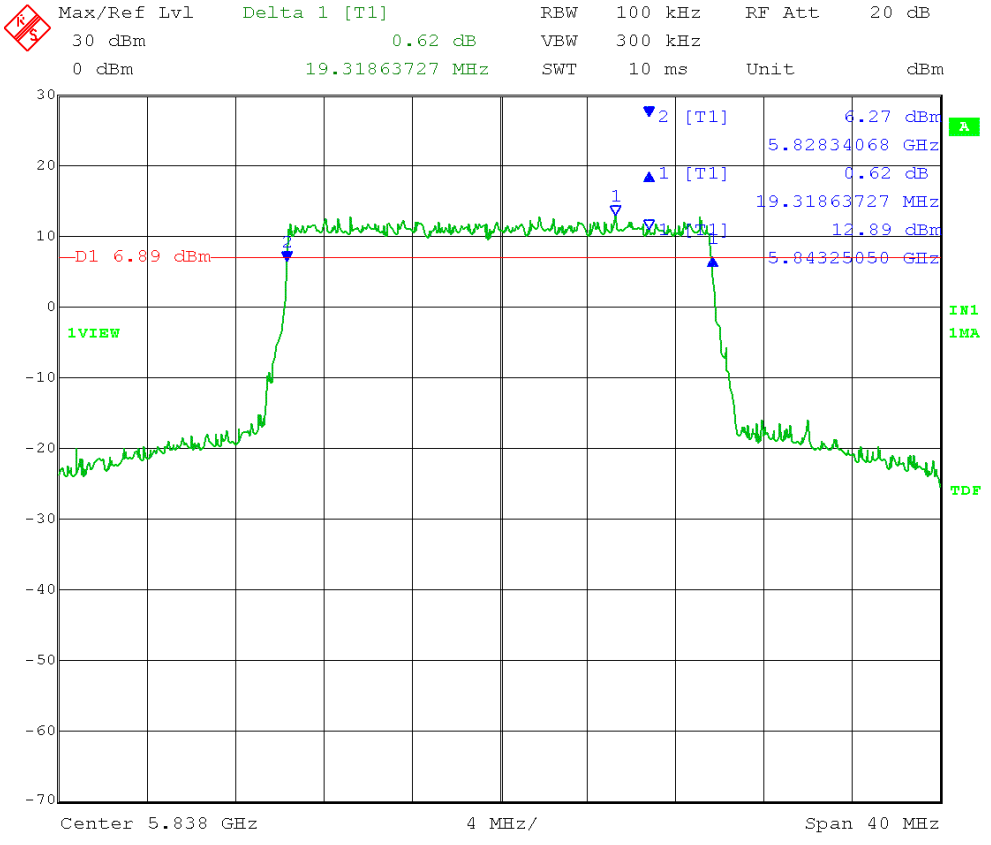
Date: 7.NOV.2013 10:55:19

20MHz BW, HCH, QPSK, TX 0:



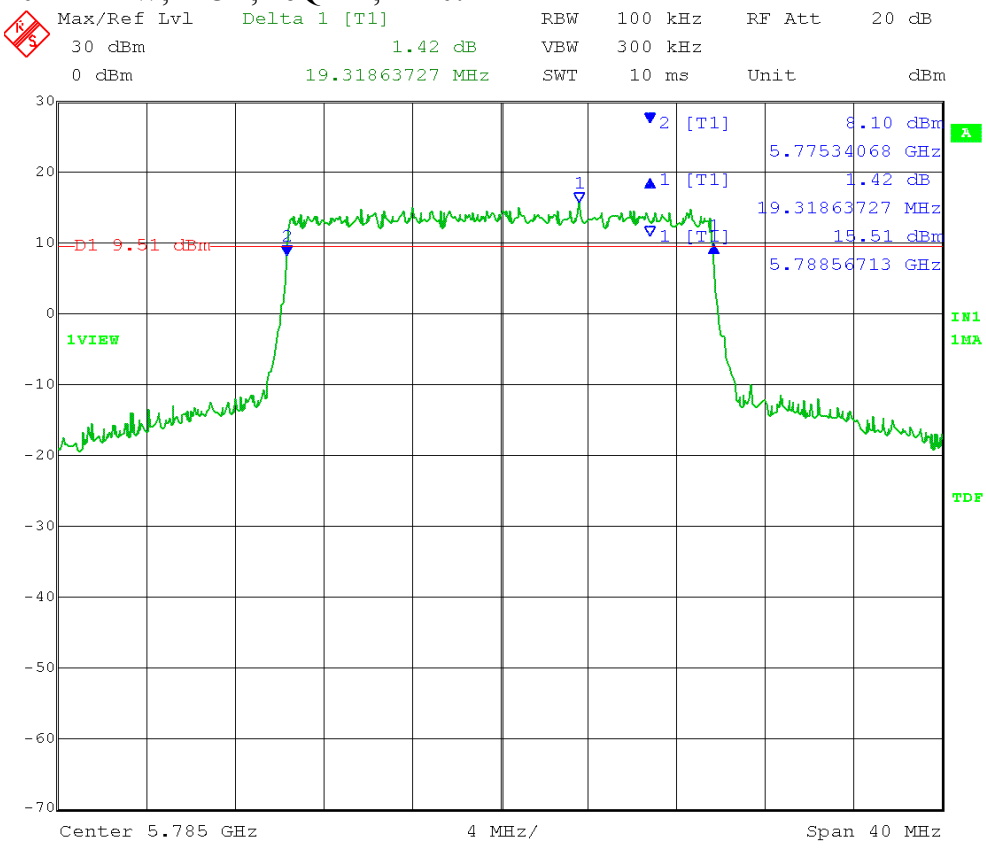
Date: 6.NOV.2013 15:39:10

TX1:



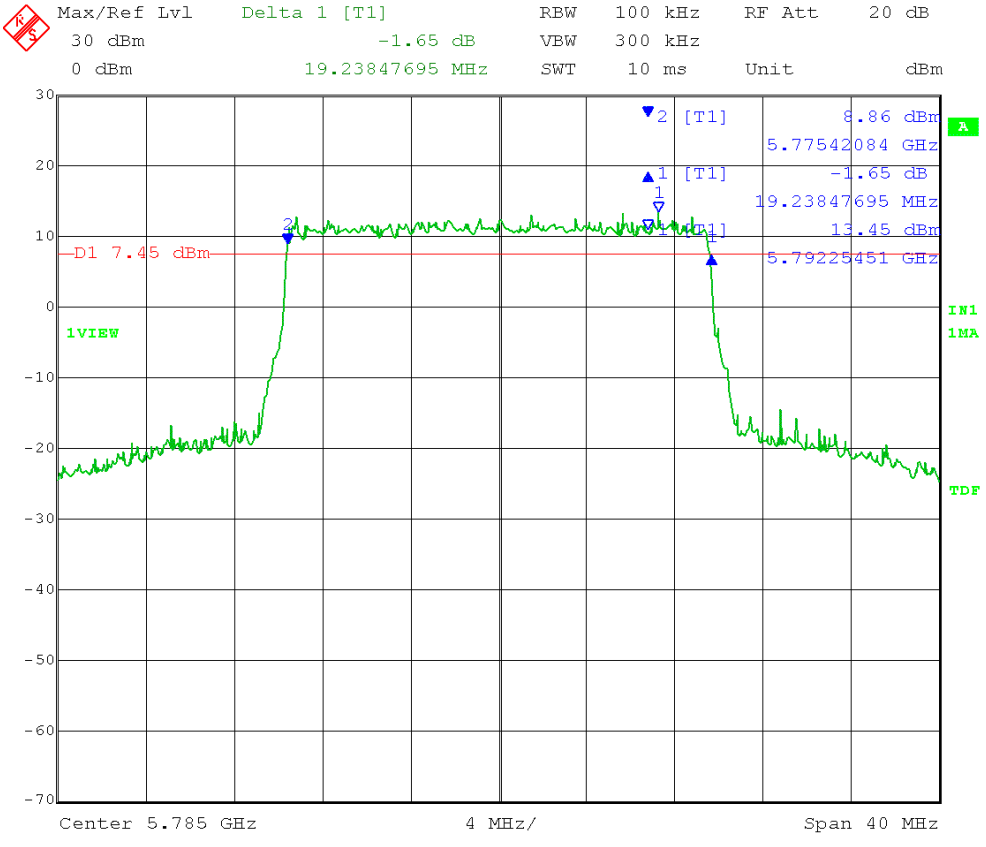
Date: 7.NOV.2013 10:51:26

20MHz BW, MCH, 16QAM, TX 0:



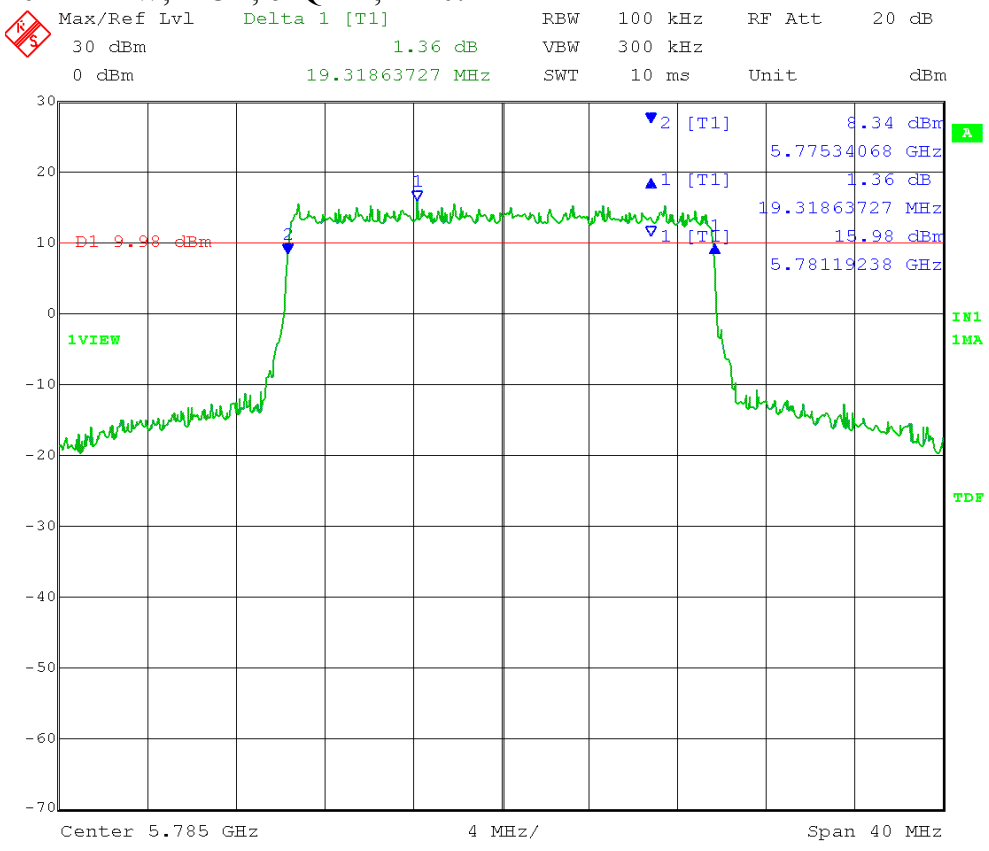
Date: 6.NOV.2013 15:45:23

TX1:



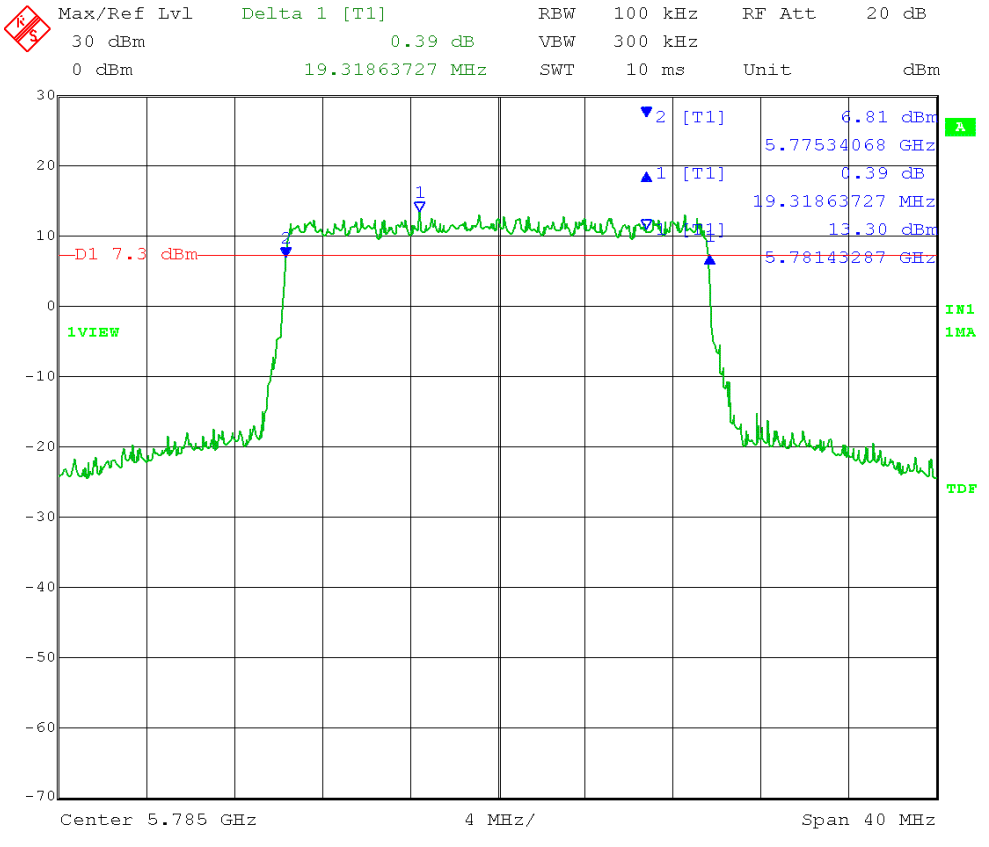
Date: 7.NOV.2013 10:47:08

20MHz BW, MCH, 64QAM, TX 0:



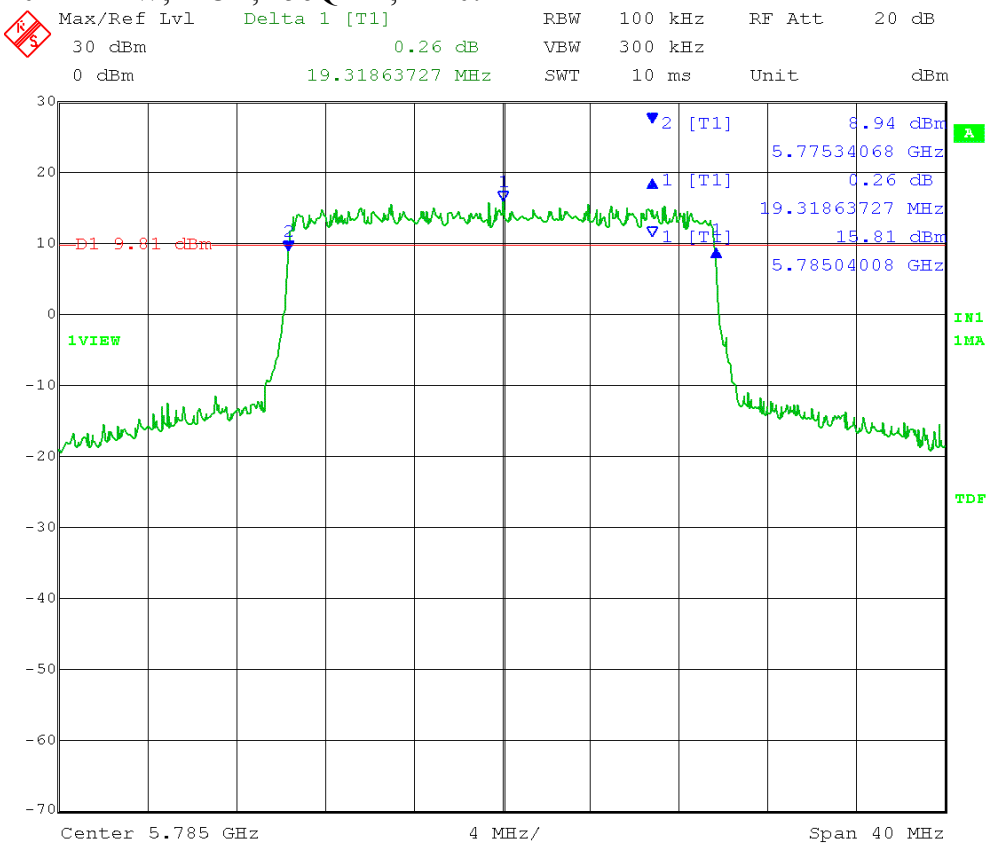
Date: 6.NOV.2013 15:46:11

TX1:



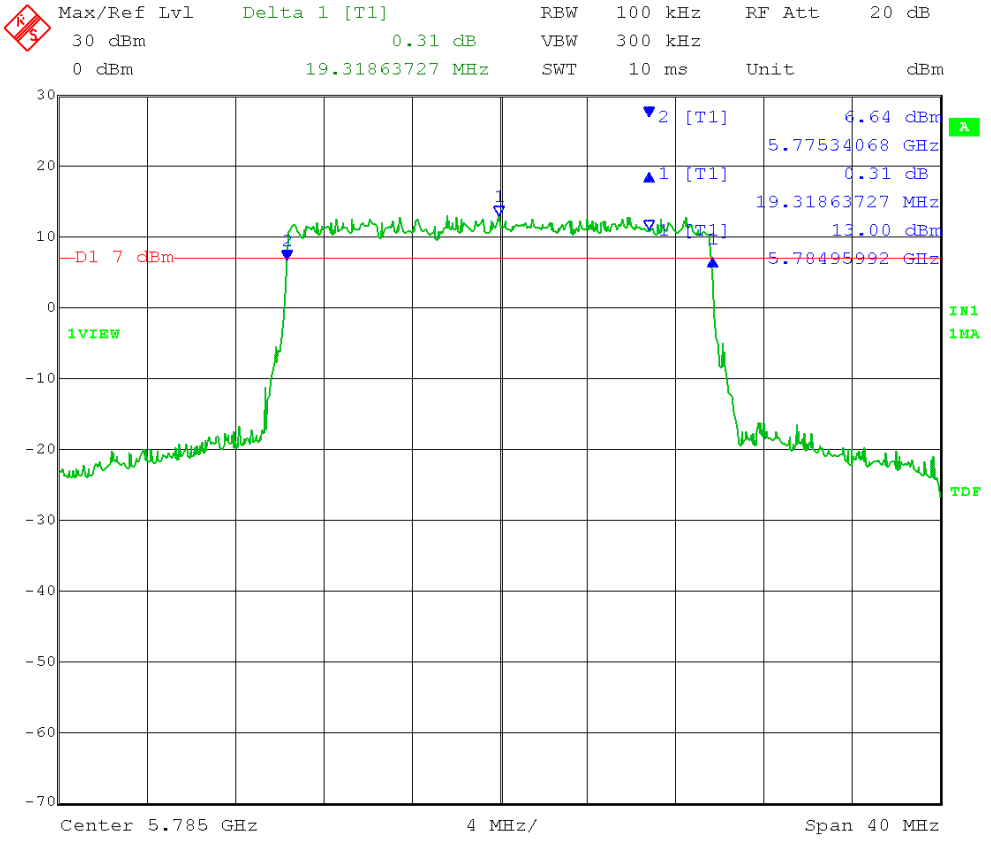
Date: 7.NOV.2013 10:47:59

20MHz BW, MCH, 256QAM, TX 0:



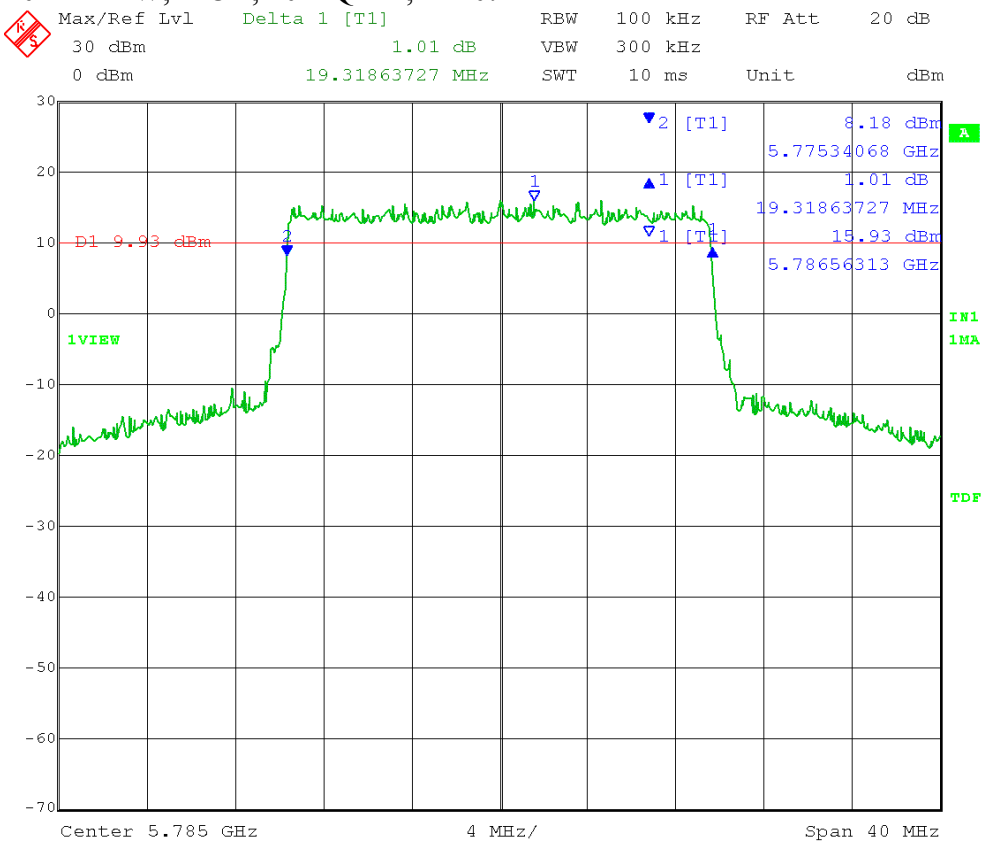
Date: 6.NOV.2013 15:46:55

TX1:



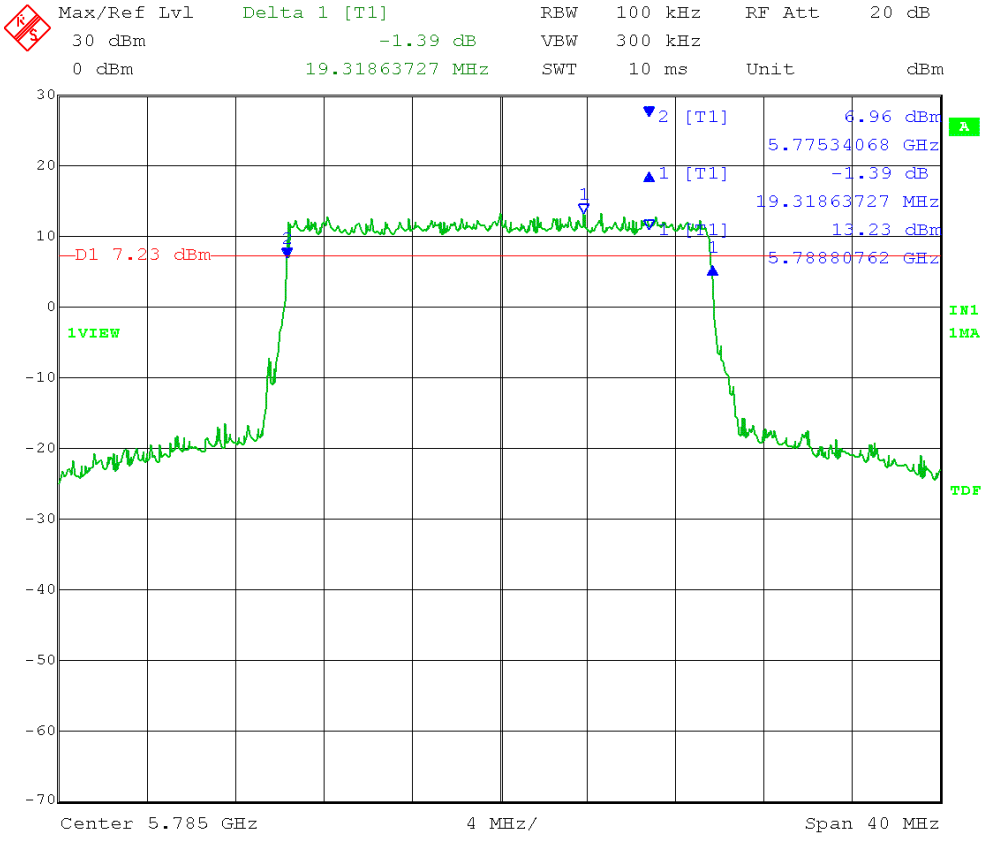
Date: 7.NOV.2013 10:48:45

20MHz BW, MCH, 1024QAM, TX 0:



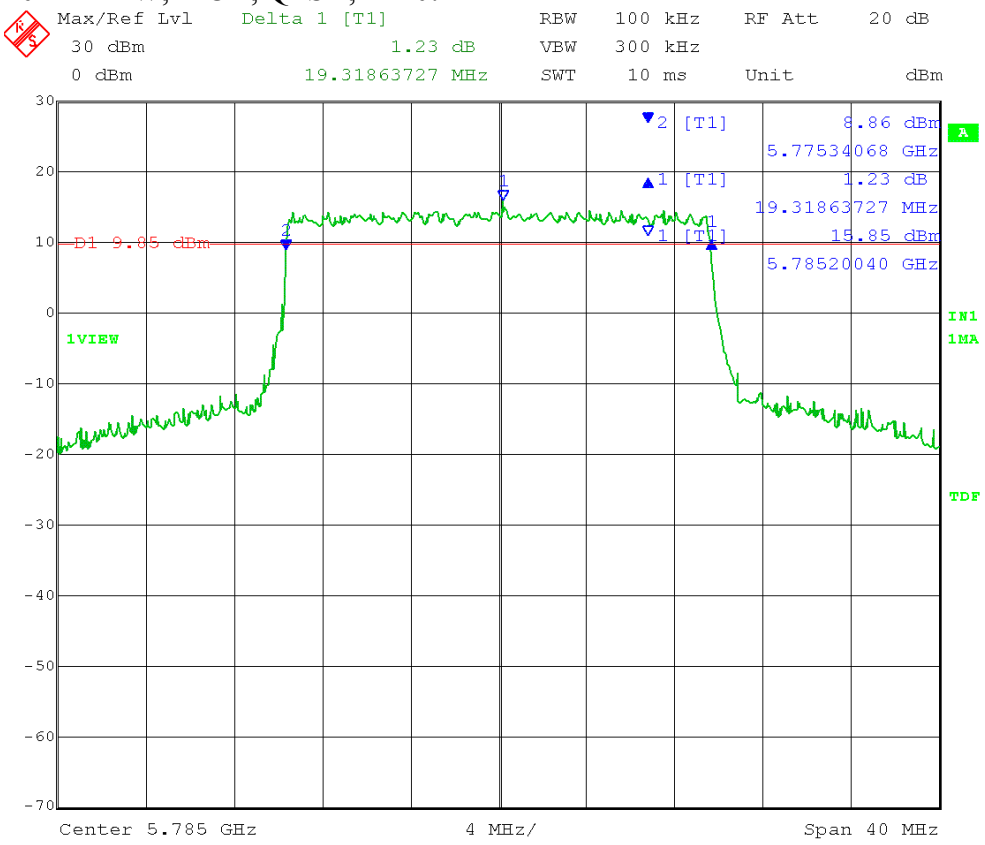
Date: 6.NOV.2013 15:47:47

TX1:



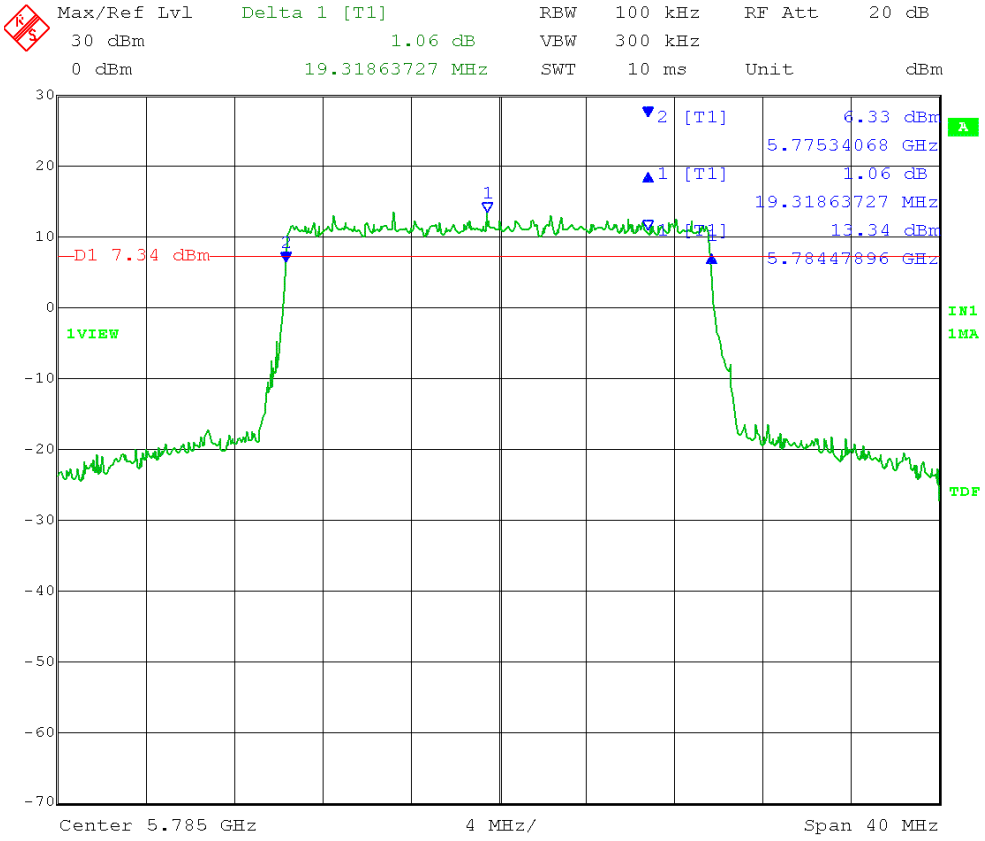
Date: 7.NOV.2013 10:49:32

20MHz BW, MCH, QPSK, TX 0:



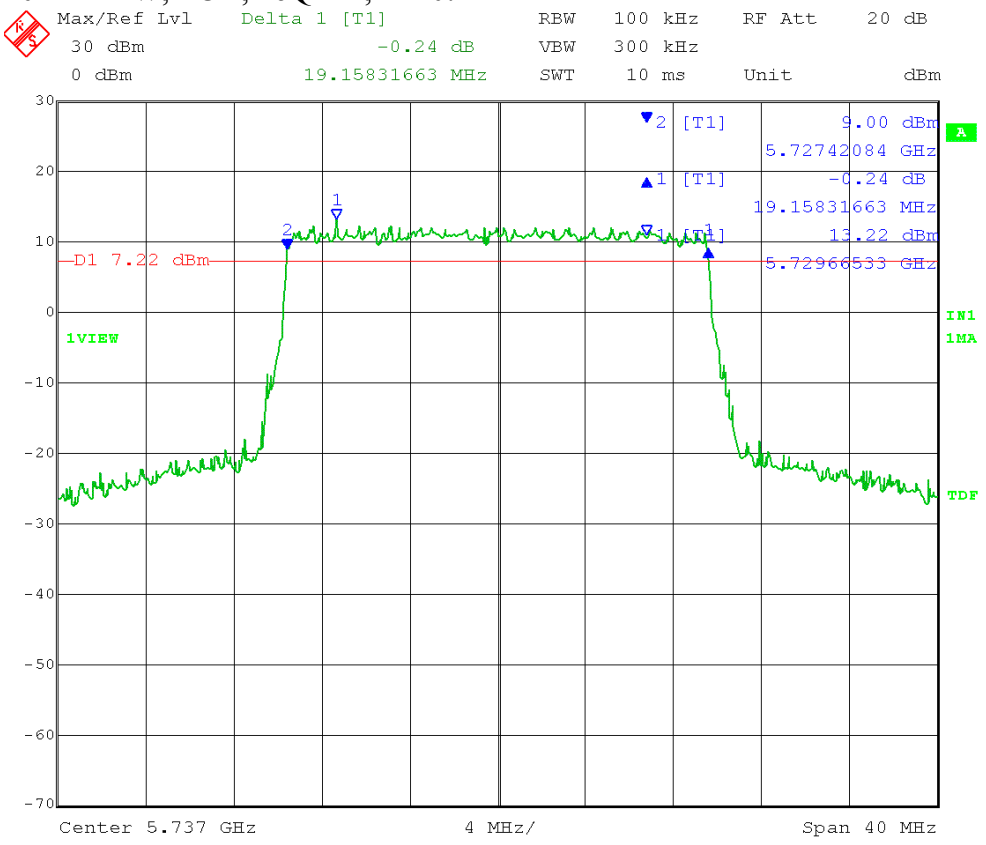
Date: 6.NOV.2013 15:44:35

TX1:



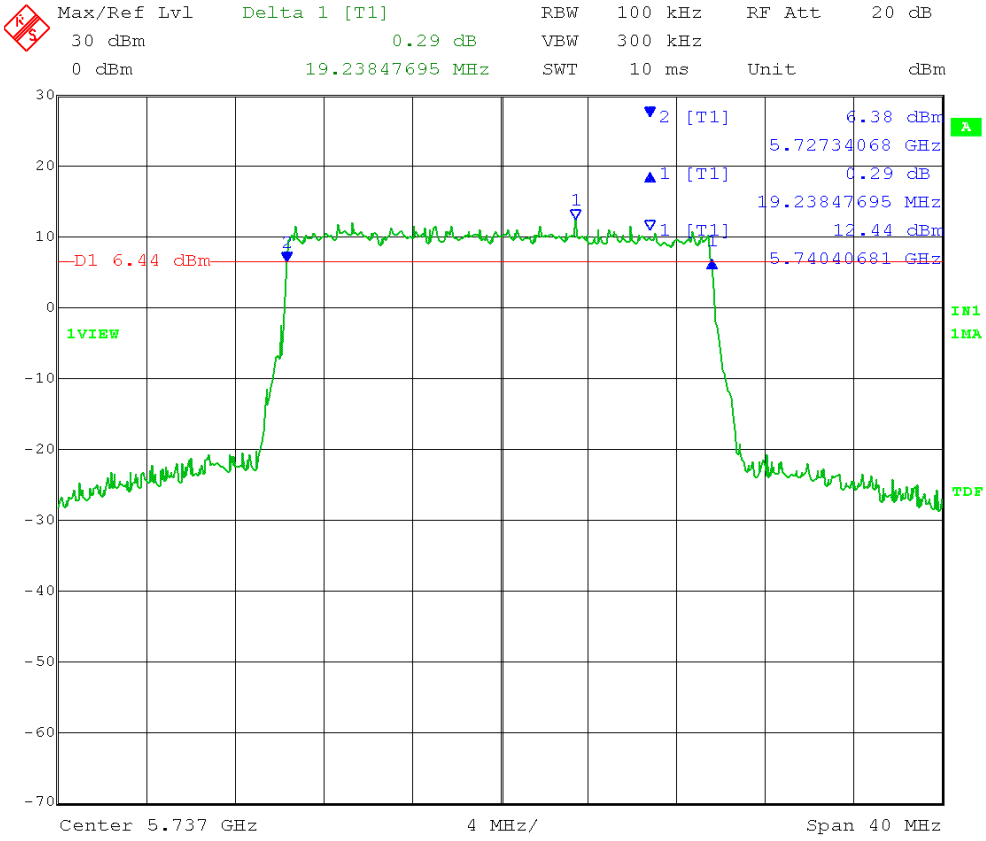
Date: 7.NOV.2013 10:45:59

20MHz BW, LCH, 16QAM, TX 0:



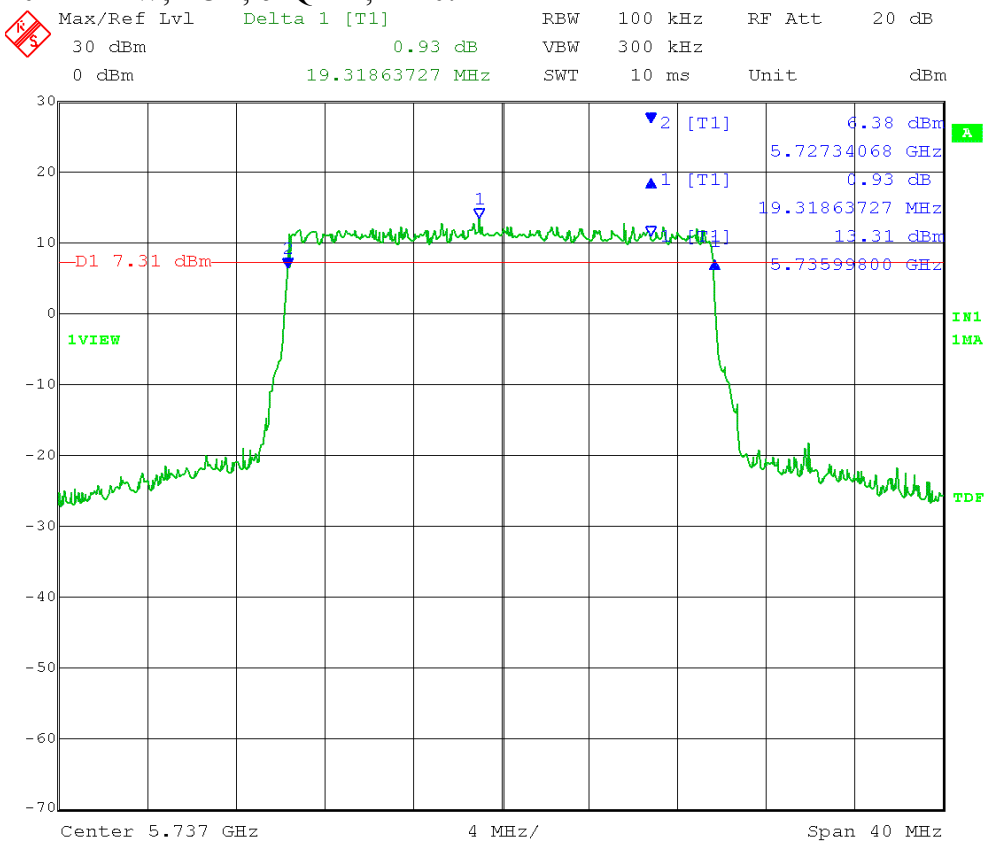
Date: 6.NOV.2013 15:50:17

TX1:



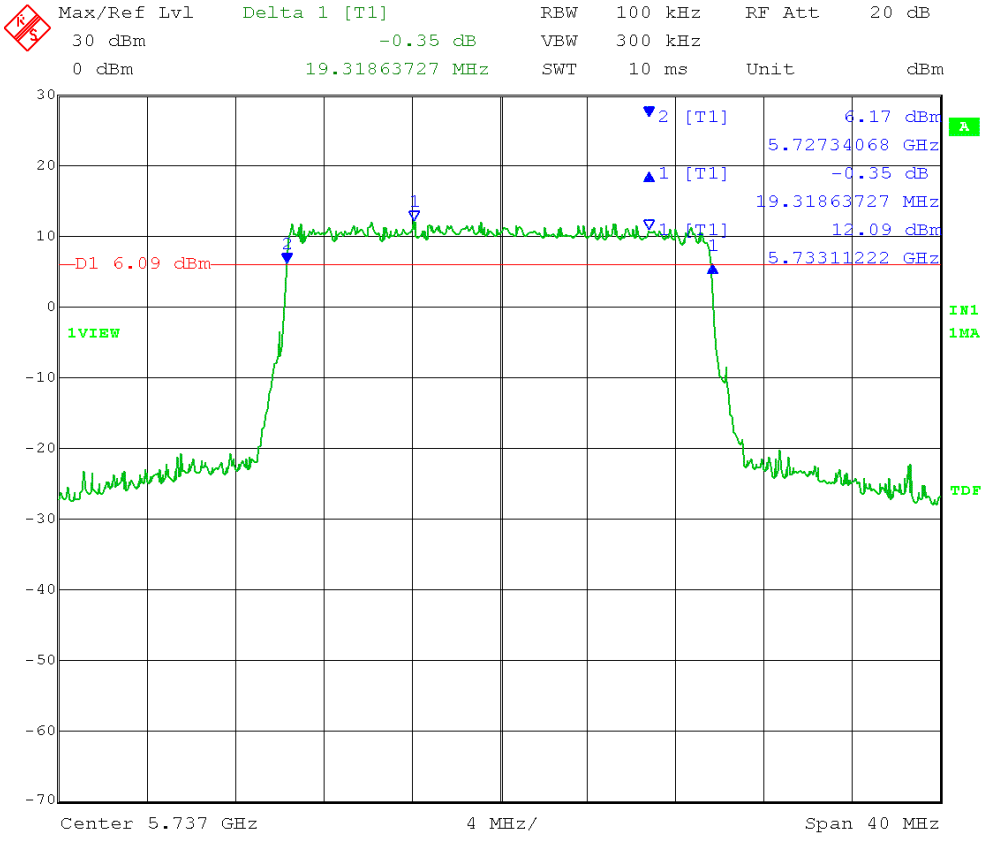
Date: 7.NOV.2013 10:41:54

20MHz BW, LCH, 64QAM, TX 0:



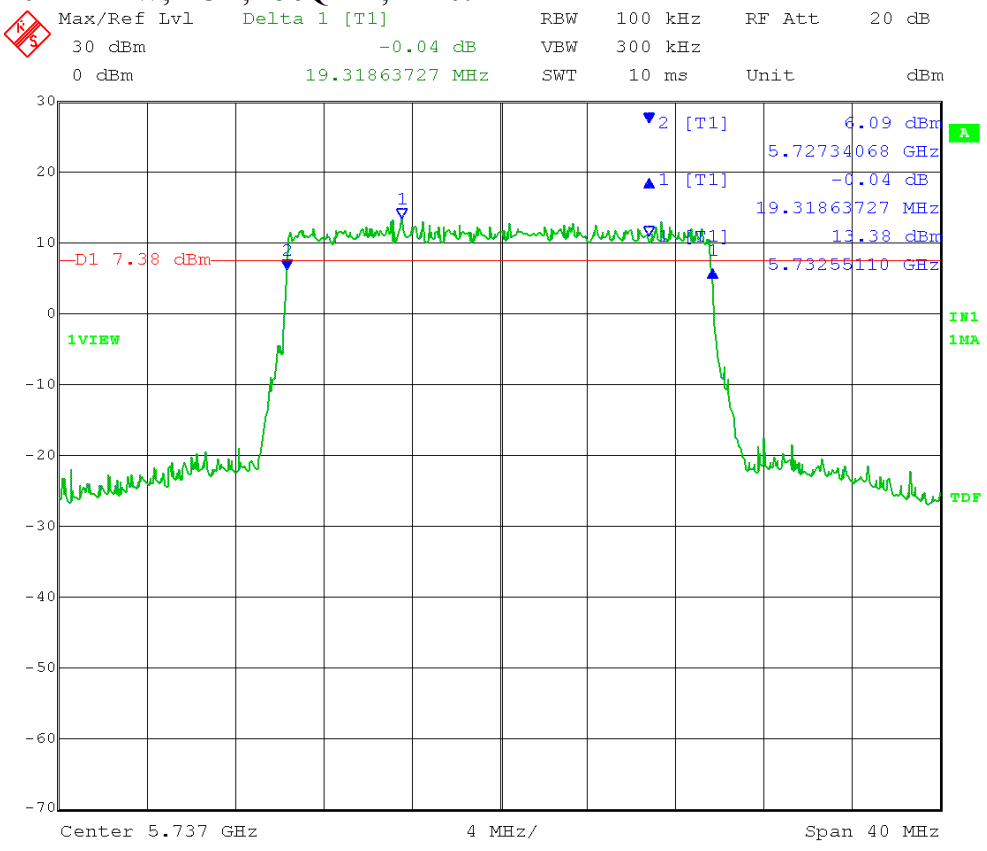
Date: 6.NOV.2013 15:51:03

TX1:



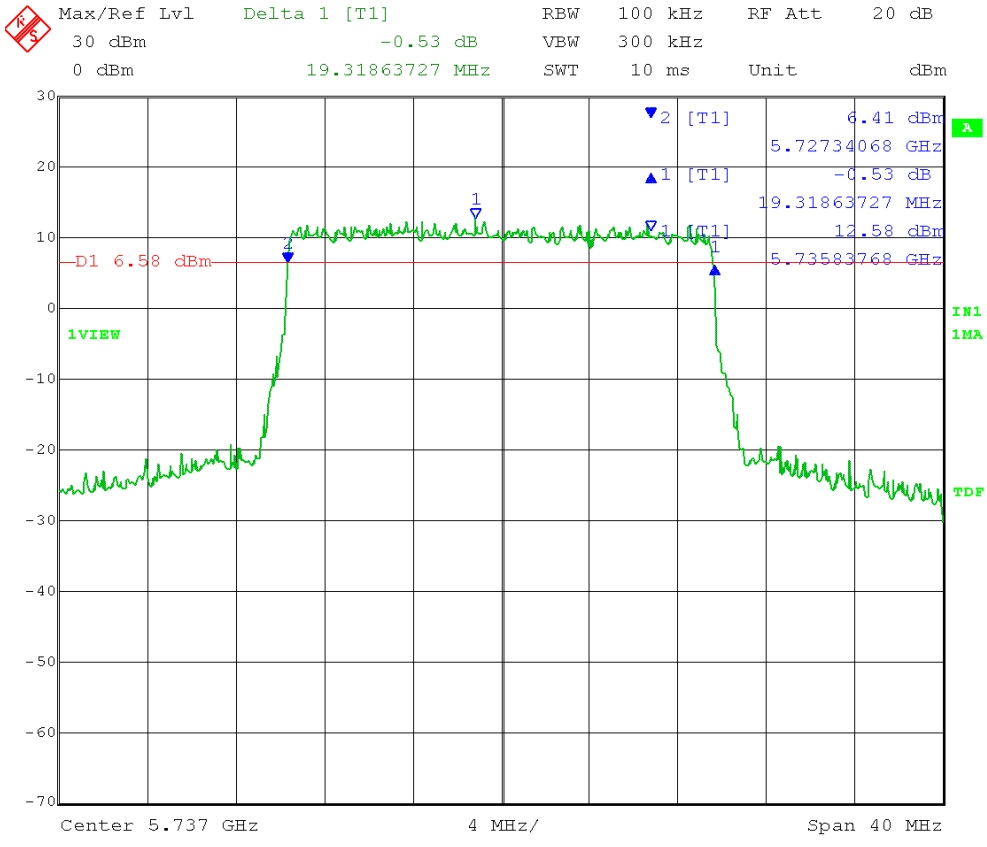
Date: 7.NOV.2013 10:42:44

20MHz BW, LCH, 256QAM, TX 0:



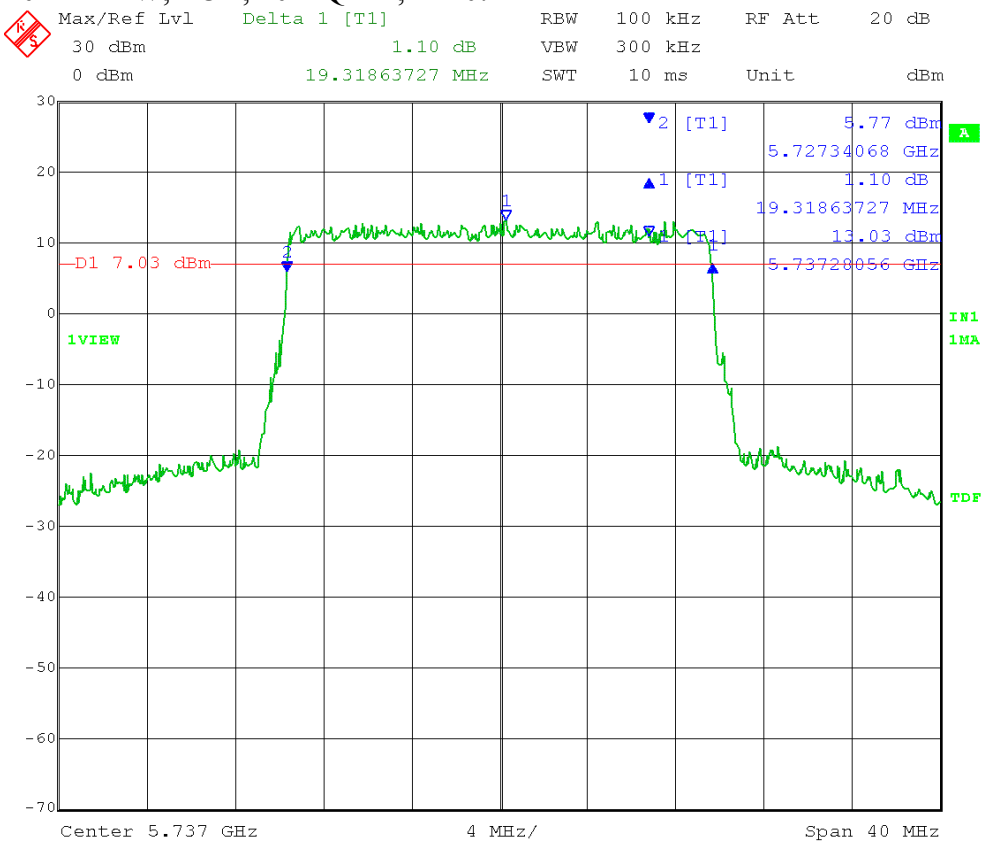
Date: 6.NOV.2013 15:51:53

TX1:



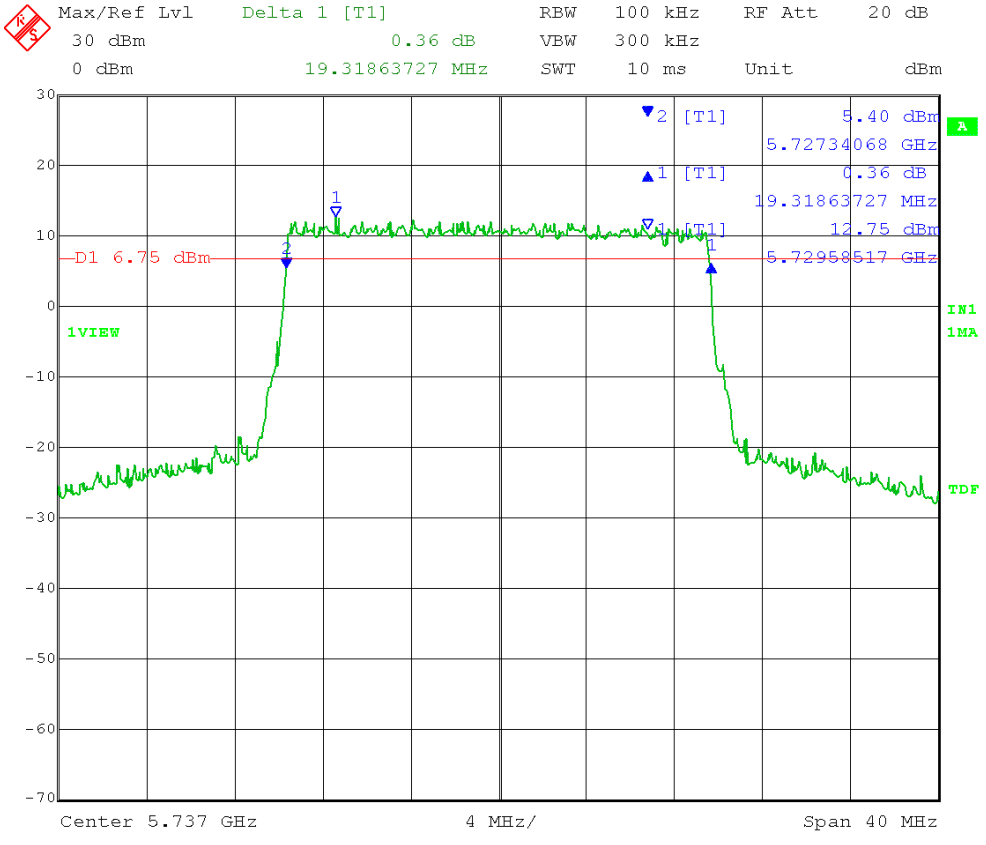
Date: 7.NOV.2013 10:43:37

20MHz BW, LCH, 1024QAM, TX 0:



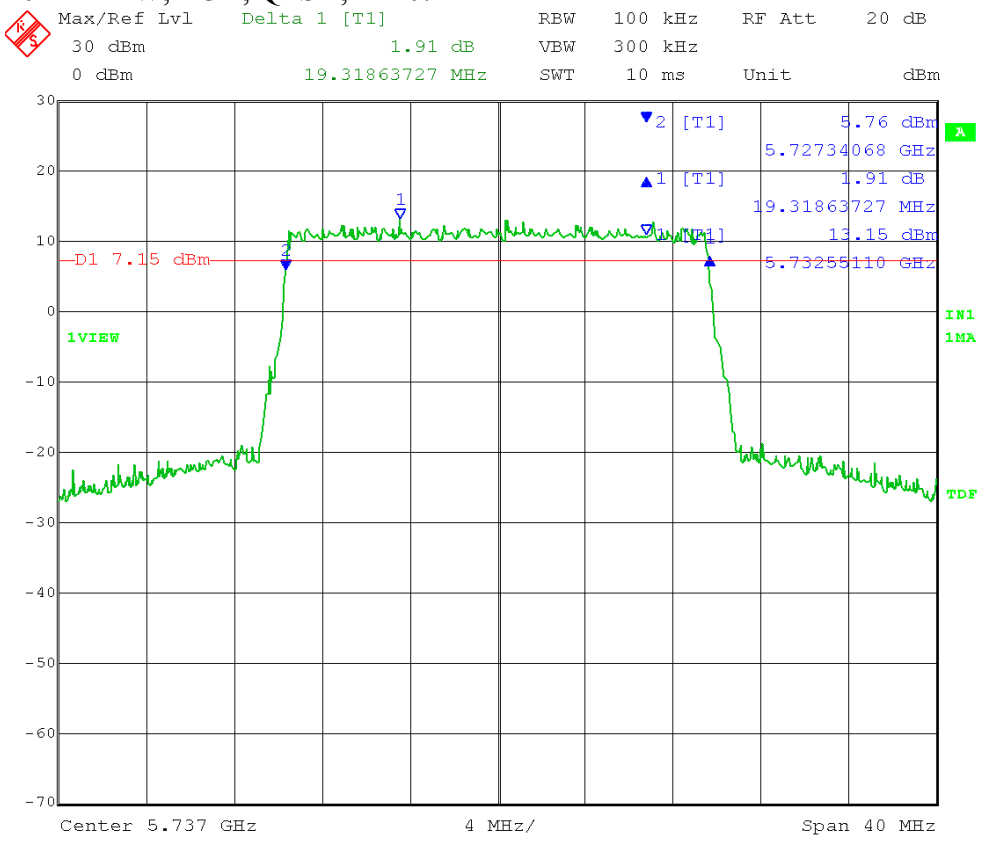
Date: 6.NOV.2013 15:52:42

TX1:



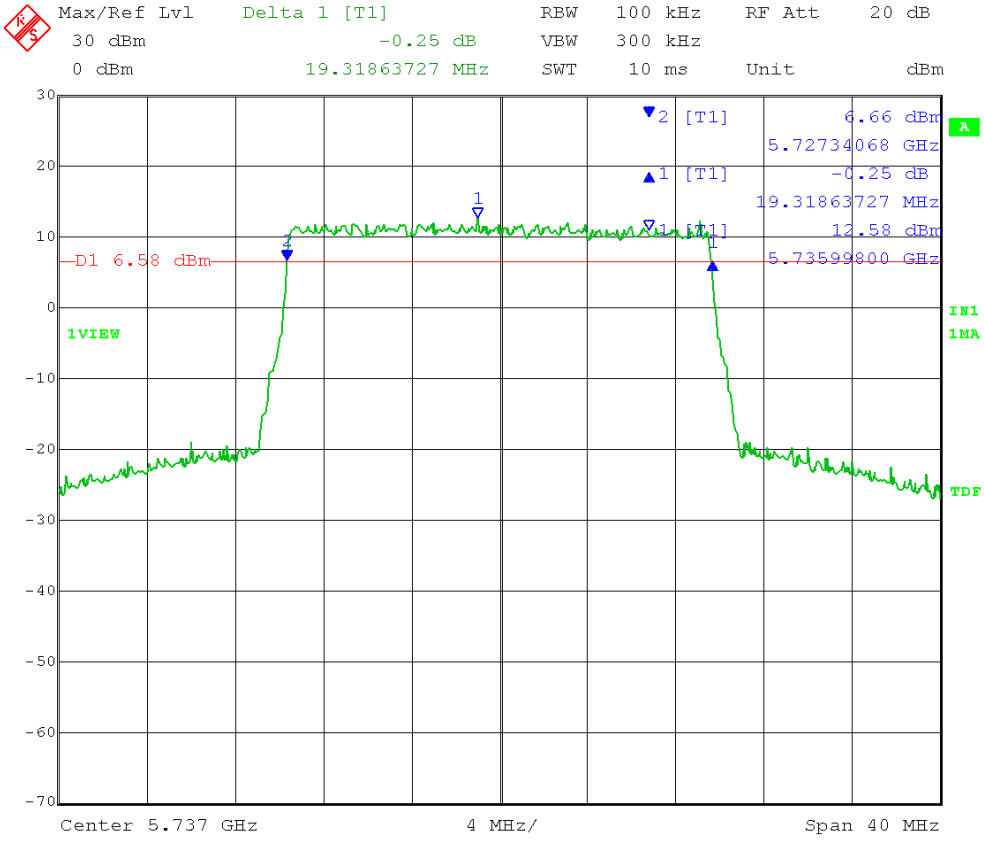
Date: 7.NOV.2013 10:44:33

20MHz BW, LCH, QPSK, TX 0:



Date: 6.NOV.2013 15:49:21

TX1:



Date: 7.NOV.2013 10:40:50

Appendix B – Measurement Data

B2.0 Fundamental Emission Output Power - Conducted

Rule Section: Section 15.247(b)(3)

Test Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)

Description: As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent.

Measurements were taken for QPSK, 16QAM, 64QAM, 256QAM and 1024 QAM modulations over a 10MHz, 20MHz, 40MHz and 50MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings. A duty cycle measurement of greater than 98% was confirmed.

Limit: 1 Watt (30dBm) for Point-to-Point mode

Results: Passed

Test Date: 11-05-2013
Company: Ubiquiti Networks
EUT: Air Fiber 5 - 5.8GHz WiFi Radio
Test: Maximum peak conducted output power - Conducted
Operator: Lillian Li
Test Procedure used: KDB 558074 D01 v01r03 – 9.2.3.1) – Method AVGPM
Limit: [15.247(b)(3); RSS-210 A8.4(4)]: < 1 Watt (30 dBm)
Operating Mode: Point-to-Point; Antenna Gain = 23 dBi
EUT Limit[15.247(c)(1)(ii) PTP]: ≤ 30dBm

10MHz Operating Bandwidth:

FCC Maximum Conducted Output Power		10M				
	mW	QPSK	16QAM	64QAM	256QAM	1024Q
FCC limit =1W(30dBm)	*EUT FCC limit:[15.247(b)(4)]*	*1,000.00*	*1,000.00*	*1,000.00*	*1,000.00*	*1,000.00*
	TX0 (mW)	486.29	484.32	483.93	484.56	495.02
	TX1 (mW)	495.84	494.52	493.38	495.56	495.24
	total(mW)	**982.13**	**978.84**	**977.31**	**980.12**	**990.26**
HCH = 5844 MHz	Margin(mW)	17.87	21.16	22.69	19.88	9.74
	TX0	497.52	497.53	495.68	496.12	496.81
	TX1	496.31	496.35	496.58	496.21	497.45
	total(mW)	**993.83**	**993.88**	**992.26**	**992.33**	**994.26**
MCH = 5785 MHz	Margin(mW)	6.17	6.12	7.74	7.67	5.74
	TX0	470.12	467.85	466.89	467.87	467.32
	TX1	490.56	490.36	489.56	491.56	490.62
	total(mW)	**960.68**	**958.21**	**956.45**	**959.43**	**957.94**
LCH = 5731 MHz	Margin(mW)	39.32	41.79	43.55	40.57	42.06

20MHz Operating Bandwidth:

FCC Maximum Conducted Output Power		20M				
	mW	QPSK	16QAM	64QAM	256QAM	1024Q
FCC limit =1W(30dBm)	*EUT FCC limit:[15.247(b)(4)]*	*1,000.00*	*1,000.00*	*1,000.00*	*1,000.00*	*1,000.00*
	TX0 (mW)	483.12	471.96	471.56	472.56	483.31
	TX1 (mW)	492.22	491.87	491.45	491.06	491.97
	total(mW)	**975.34**	**963.83**	**963.01**	**963.62**	**975.28**
HCH = 5838 MHz	Margin(mW)	24.66	36.17	36.99	36.38	24.72
	TX0	487.82	486.39	485.32	485.92	498.12
	TX1	497.85	497.62	497.56	497.34	497.33
	total(mW)	**985.67**	**984.01**	**982.88**	**983.26**	**995.45**
MCH = 5785 MHz	Margin(mW)	14.33	15.99	17.12	16.74	4.55
	TX0	495.23	493.72	492.41	492.15	492.37
	TX1	499.82	499.24	498.56	499.32	499.32
	total(mW)	**995.05**	**992.96**	**990.97**	**991.47**	**991.69**
LCH = 5737 MHz	Margin(mW)	4.95	7.04	9.03	8.53	8.31

166 South Carter, Genoa City, WI 53128

Appendix B – Measurement Data

B3.0 Maximum Power Spectral Density – Conducted

Rule Section: FCC 15.247(e)

Test Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

10.3 Method AVGPSD-1 (trace averaging with EUT transmitting at full power throughout each sweep)

Description:
Set instrument center frequency to DTS channel center frequency.
Set span to at least 1.5 times the OBW.
Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
Set VBW ≥3 x RBW.
Detector = power averaging (RMS) or sample detector (when RMS not available).
Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
Sweep time = auto couple.
Employ trace averaging (RMS) mode over a minimum of 100 traces.
Use the peak marker function to determine the maximum amplitude level.

Measurements were taken for an QPSK, 16QAM, 64QAM, 256QAM and 1024 QAM modulations over a 10MHz, 20MHz, 40MHz and 50MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings. A duty cycle measurement of greater than 98% was confirmed.

Limit: 8 dBm in any 3 kHz band segment within the fundamental EBW during any time interval of continuous transmission.

Results: Passed

Test Date: 11-06-2013
Company: Ubiquiti Networks
EUT: Air Fiber 5 - 5.8GHz WiFi Radio
Test: Maximum power spectral density- Conducted
Operator: Lillian Li
Test Procedure used: KDB 558074 D01 v01r03 – 10.3) – Method AVGPSD-1
Limit: [15.247(e); RSS-210 A8.2(b)]: < 8dBm/3kHz Band
Operating Mode: Point-to-Point; Antenna Gain = 23 dBi

10MHz Operating Bandwidth:

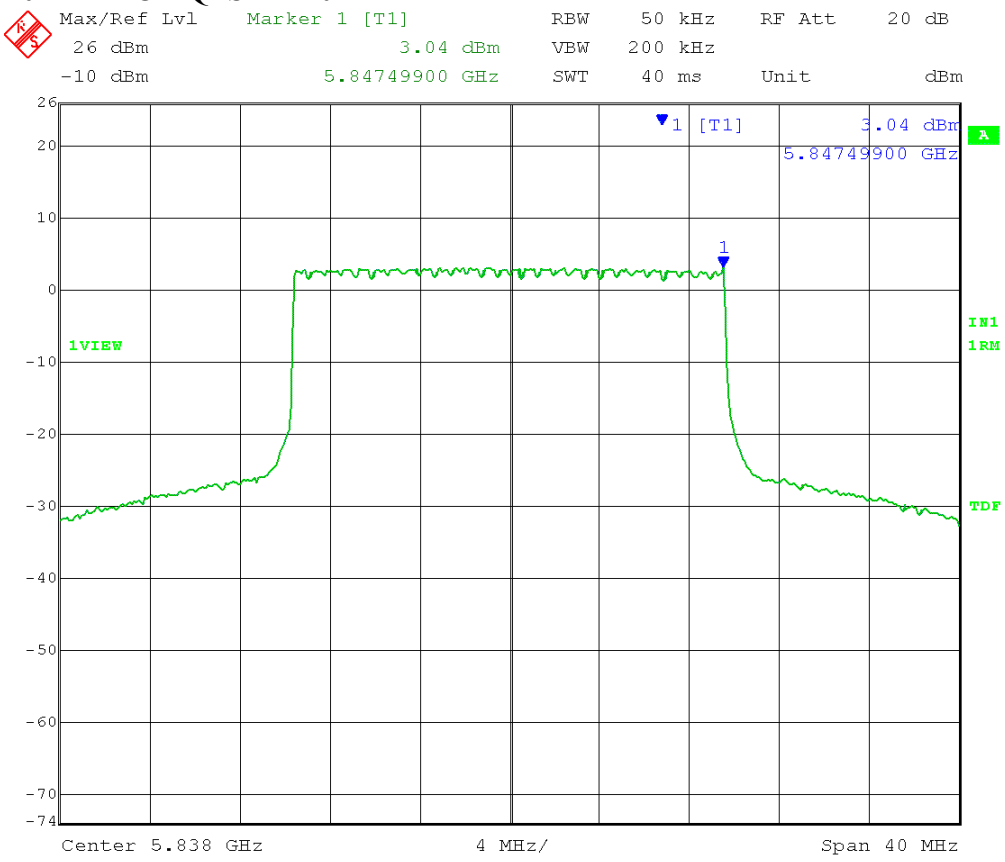
Power Spectral Density (PSD)		10M				
FCC	dBm	QPSK	16QAM	64QAM	256QAM	1024Q
limit=8dBm/3kHz	EUT FCC Limit	8	8	8	8	8
	TX0	5.07	5.05	4.93	5.01	4.97
	TX1	3.9	3.83	3.76	3.95	3.99
	total(mW)	5.67	4.69	4.68	4.80	4.78
	Total(dBm)	**7.53**	**6.71**	**6.70**	**6.81**	**6.79**
HCH = 5844 MHz	Margin(dB)	0.47	1.29	1.30	1.19	1.21
	TX0	4.29	4.13	4.4	4.11	4.45
	TX1	4.3	4.43	4.32	4.26	4
	total(mW)	5.38	5.36	5.46	5.24	5.30
	Total(dBm)	**7.31**	**7.29**	**7.37**	**7.20**	**7.24**
MCH = 5785 MHz	Margin(dB)	0.69	0.71	0.63	0.80	0.76
	TX0	2.87	2.93	3.16	3.26	3.16
	TX1	3.18	3.56	3.62	3.65	3.56
	total(mW)	4.02	4.23	4.37	4.44	4.34
	Total(dBm)	**6.04**	**6.27**	**6.41**	**6.47**	**6.37**
LCH = 5731 MHz	Margin(dB)	1.96	1.73	1.59	1.53	1.63

20MHz Operating Bandwidth:

Power Spectral Density (PSD)		20M				
FCC	dBm	QPSK	16QAM	64QAM	256QAM	1024Q
limit=8dBm/3kHz	EUT FCC Limit	8	8	8	8	8
	TX0	3.04	2.91	2.96	2.87	3.32
	TX1	1.57	1.28	1.58	1.63	2.03
	total(mW)	3.45	3.30	3.42	3.39	3.74
	Total(dBm)	**5.38**	**5.18**	**5.33**	**5.30**	**5.73**
HCH = 5838 MHz	Margin(dB)	2.62	2.82	2.67	2.70	2.27
	TX0	3.39	3.24	3.2	3.19	3.89
	TX1	1.59	1.39	1.45	1.38	2.29
	total(mW)	3.62	3.49	3.49	3.46	4.14
	Total(dBm)	**5.59**	**5.42**	**5.42**	**5.39**	**6.17**
MCH = 5785 MHz	Margin(dB)	2.41	2.58	2.58	2.61	1.83
	TX0	0.83	0.76	0.76	0.74	1.35
	TX1	1.58	1.53	1.32	1.48	1.6
	total(mW)	2.65	2.61	2.55	2.59	2.81
	Total(dBm)	**4.23**	**4.17**	**4.06**	**4.14**	**4.49**
LCH = 5737 MHz	Margin(dB)	3.77	3.83	3.94	3.86	3.51

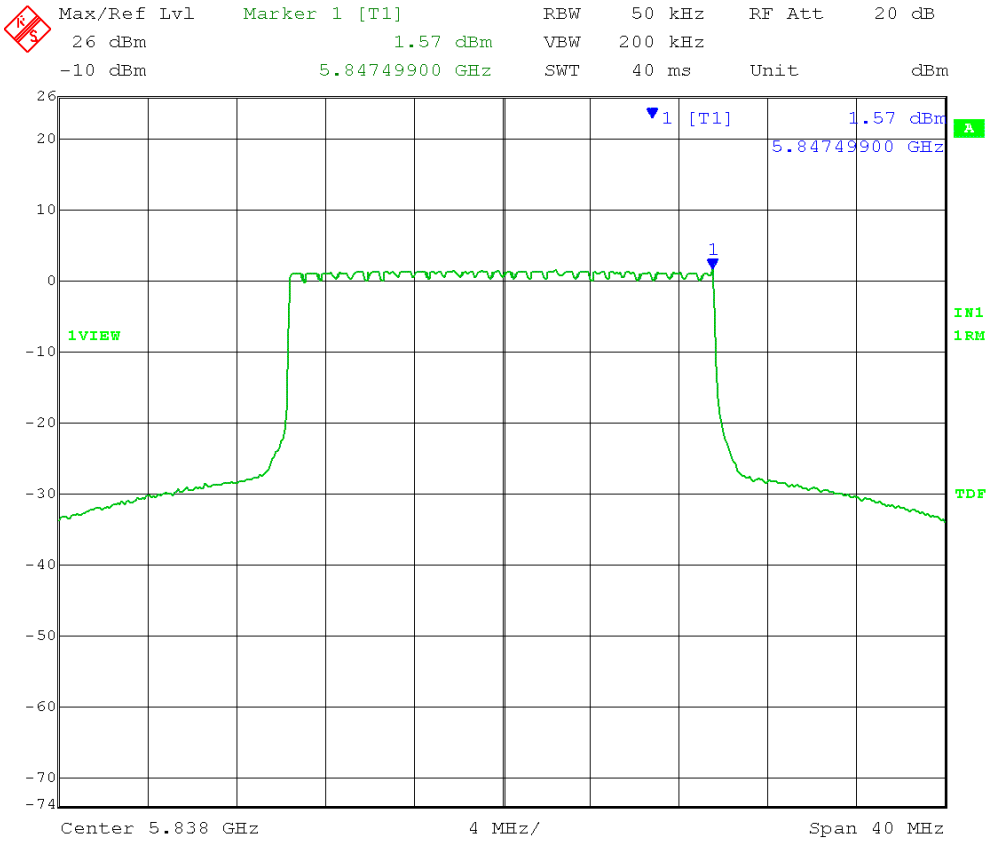
PLOTS: For 20MHz Bandwidth & 10MHz Bandwidth

20MHz HCH QPSK TX0



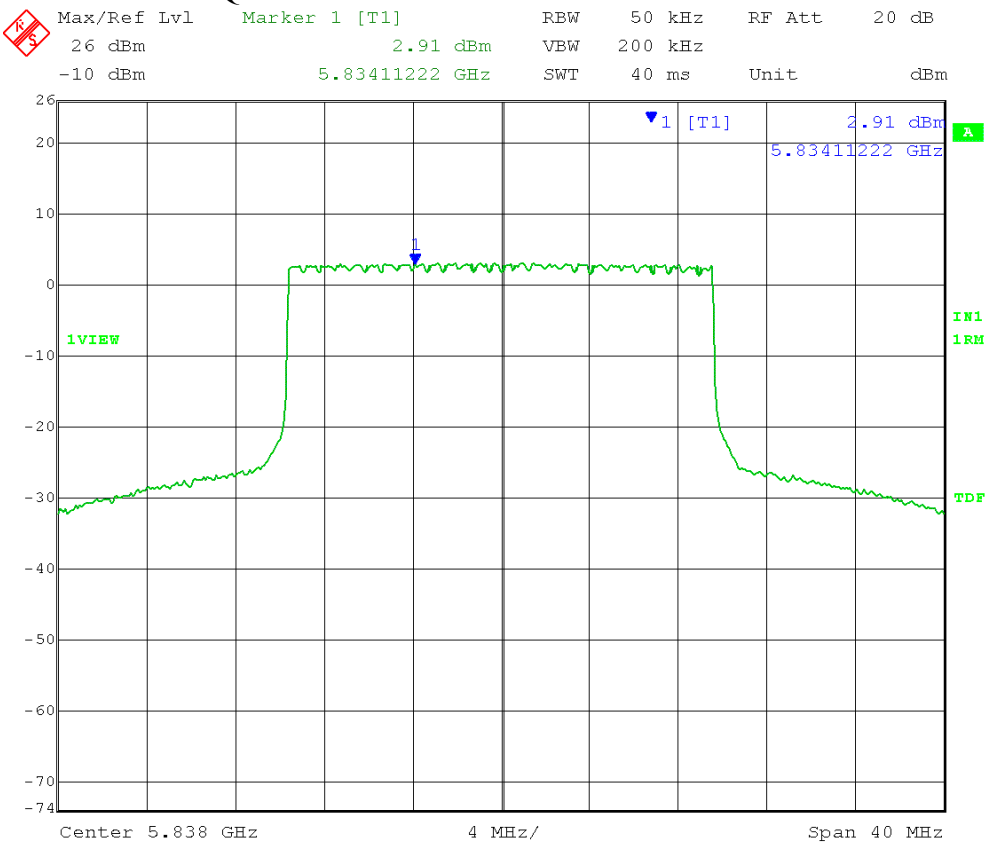
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TX1



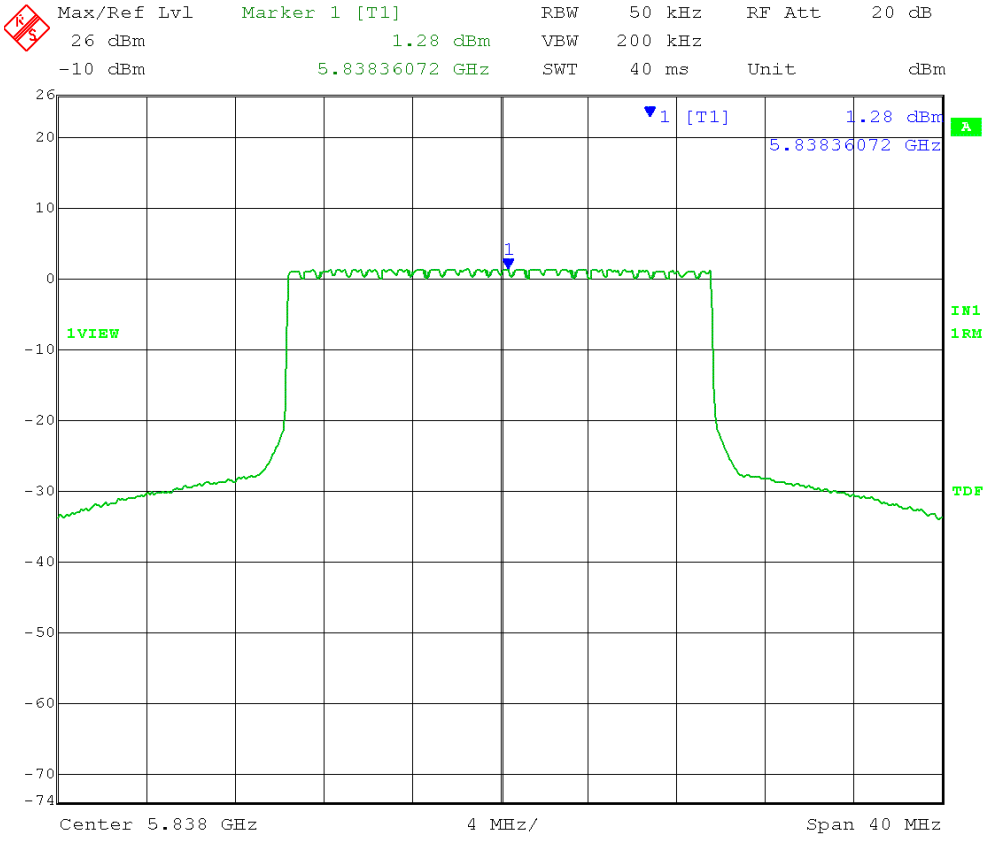
Date: 6.NOV.2013 13:50:27

20MHz HCH 16QAM TX0



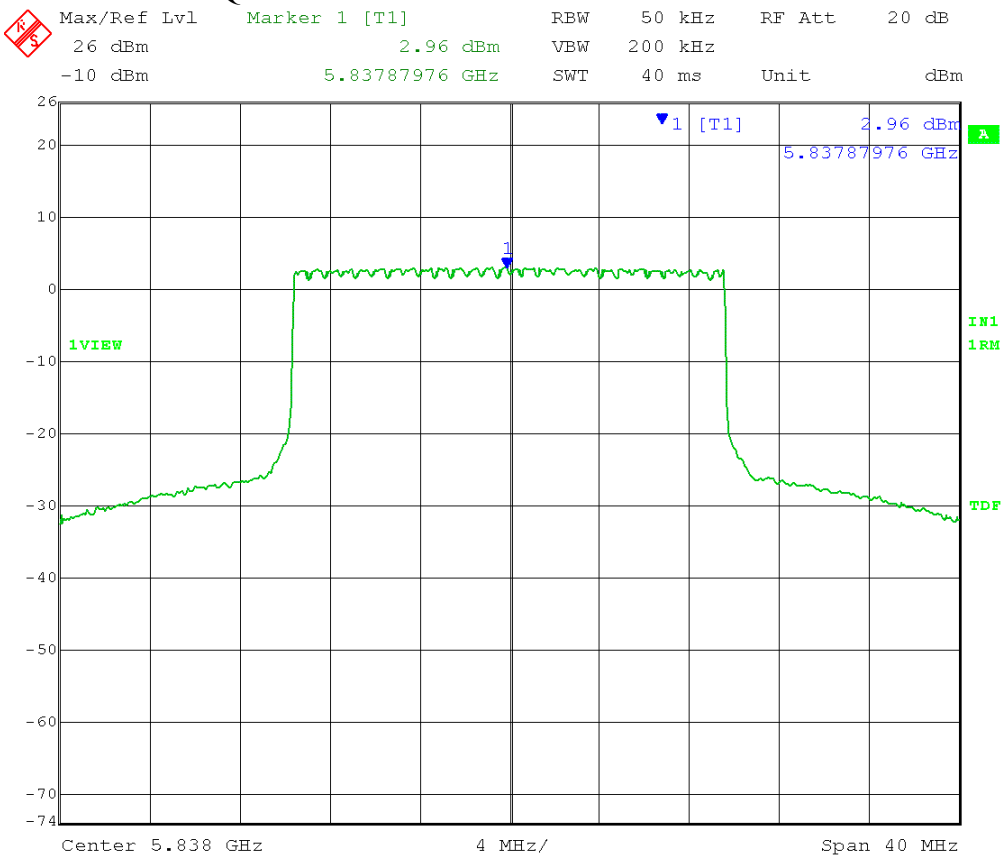
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TX1



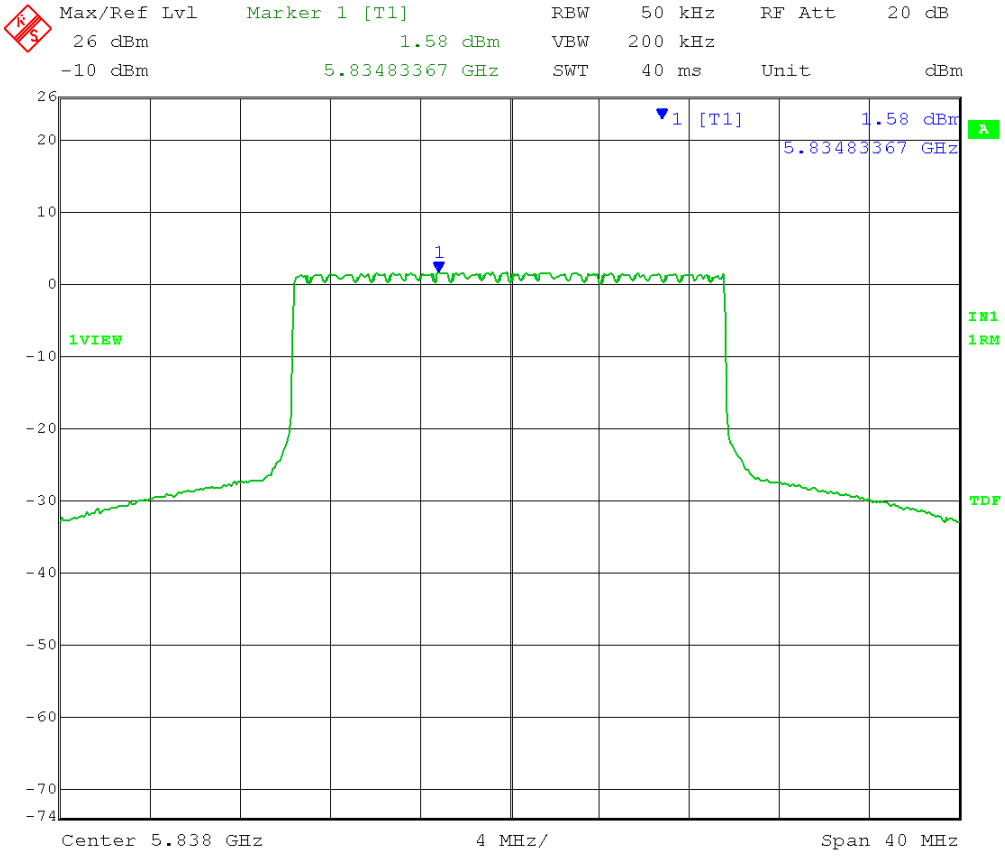
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20MHz HCH 64QAM TX0



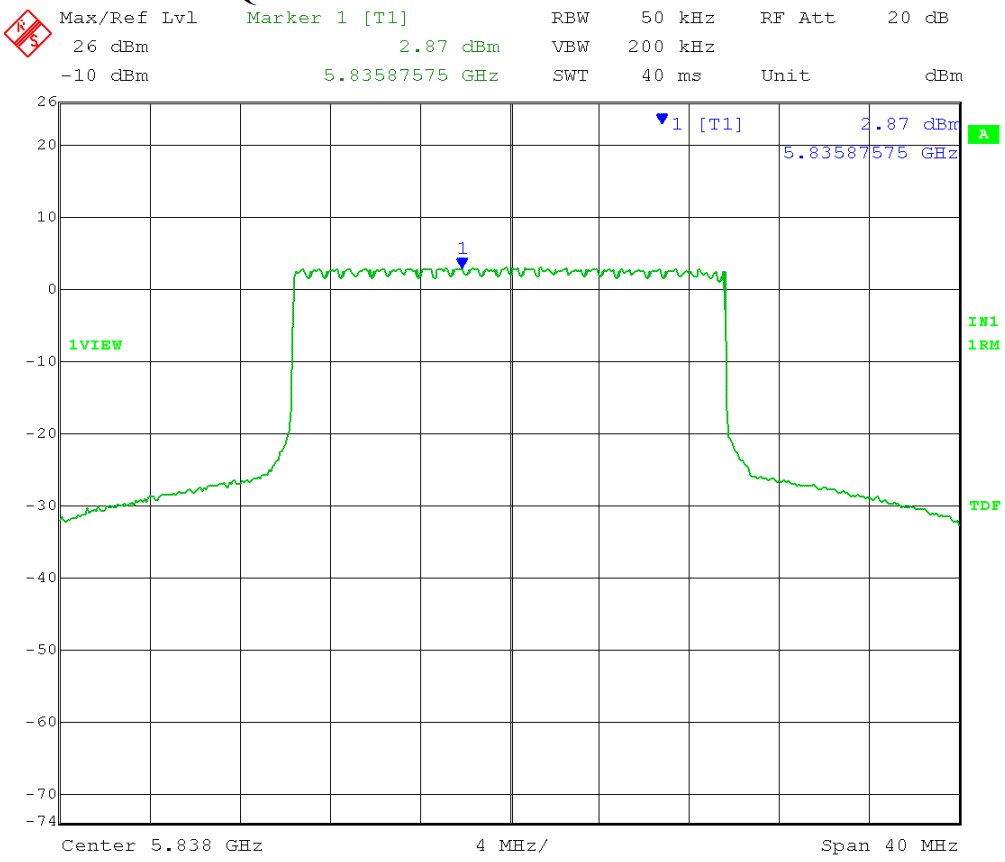
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TX1



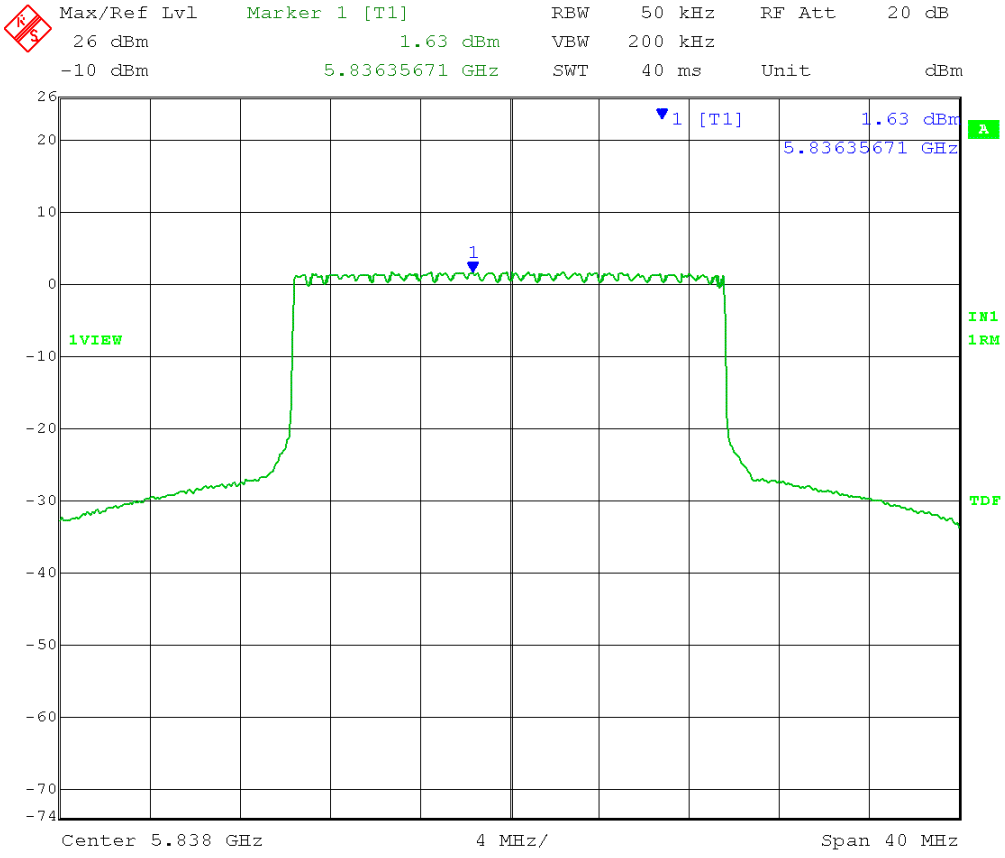
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20MHz HCH 256QAM TX0



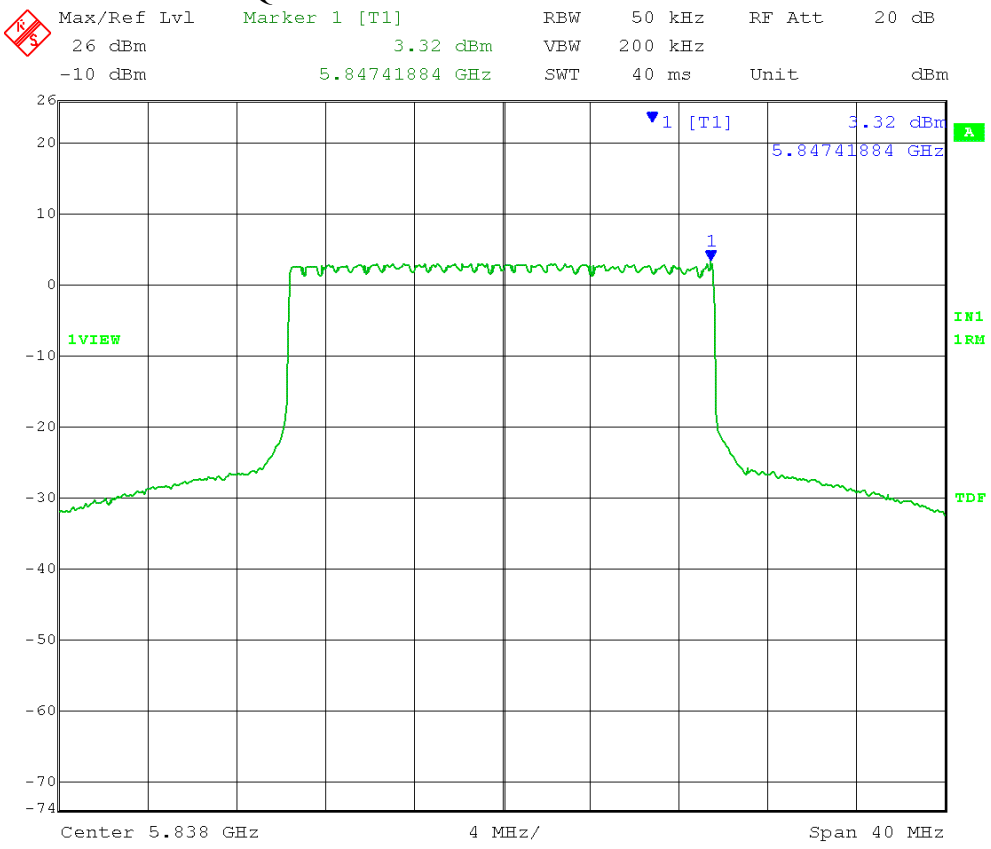
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TX1



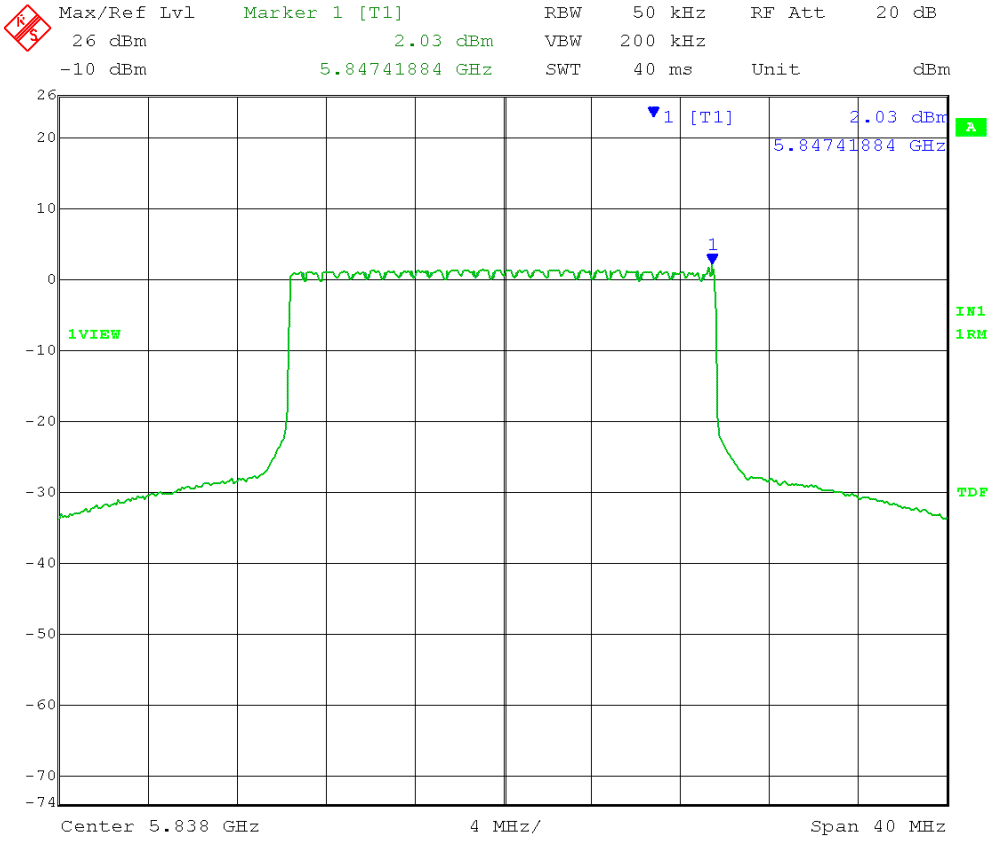
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20MHz HCH 1024QAM TX0



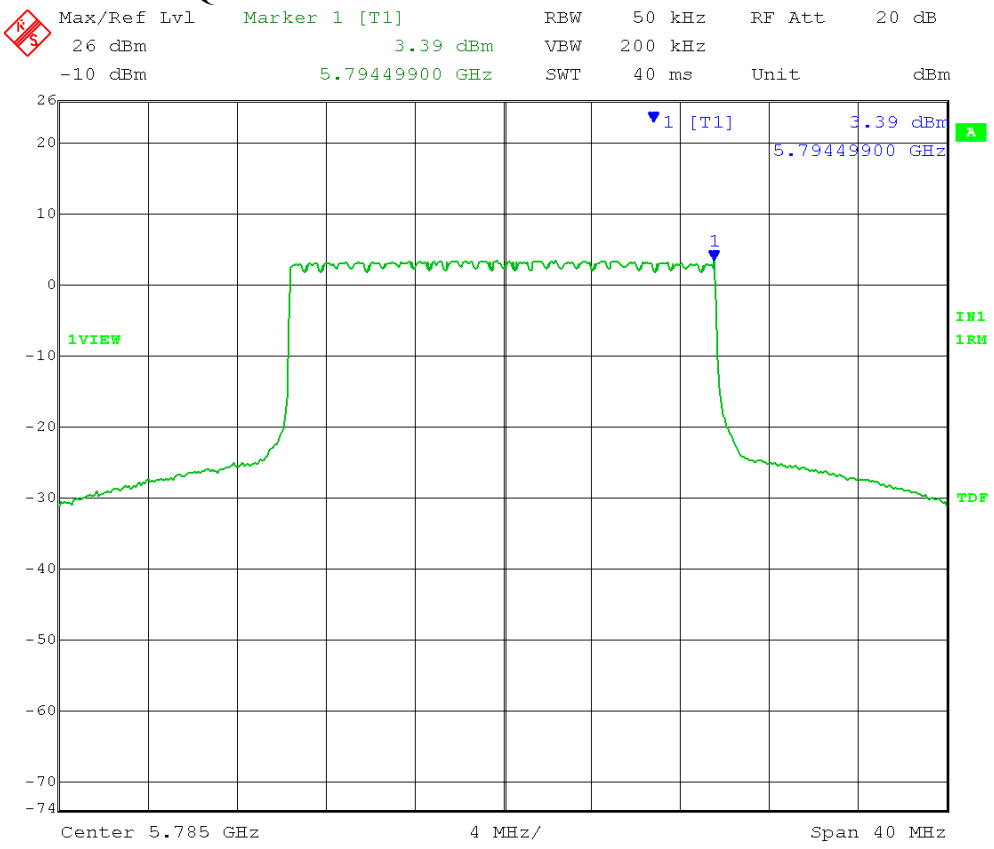
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TX1



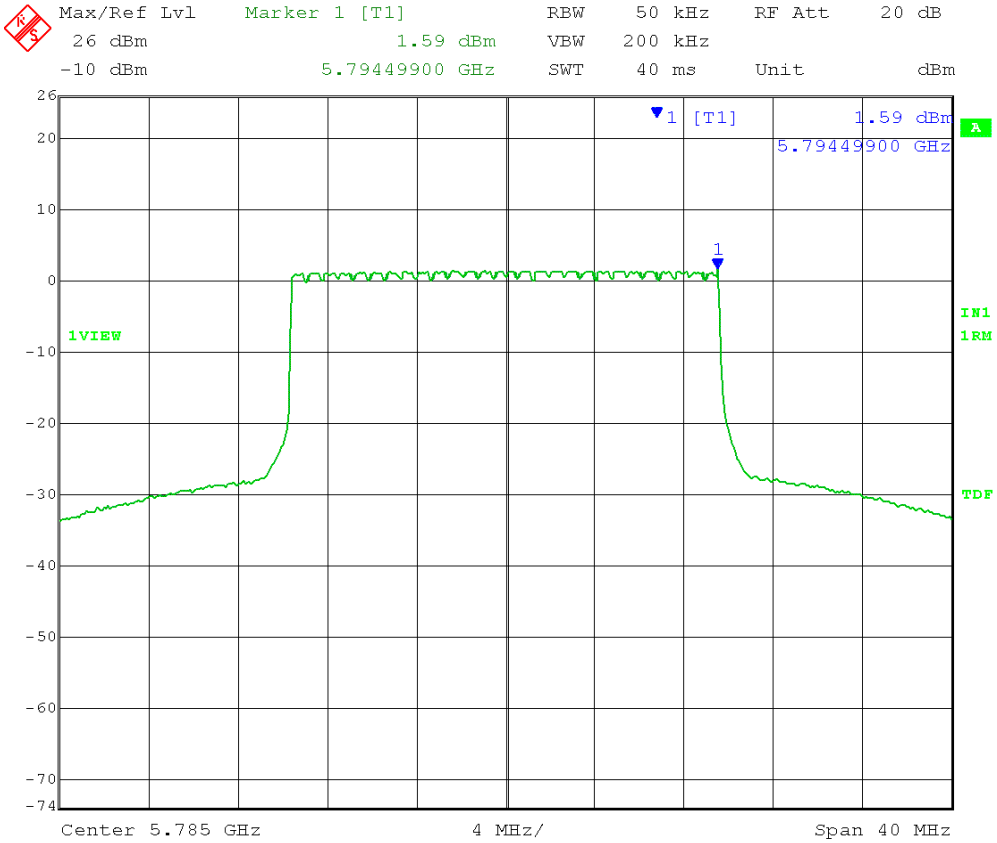
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20MHz MCH QPSK TX0



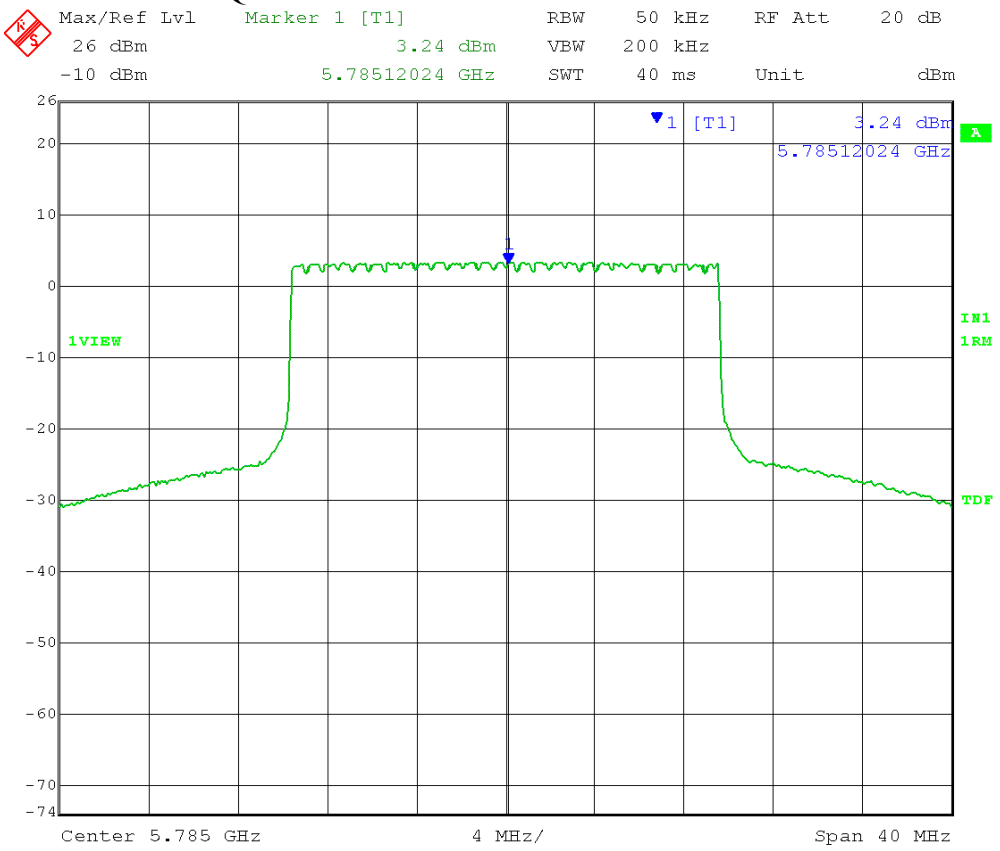
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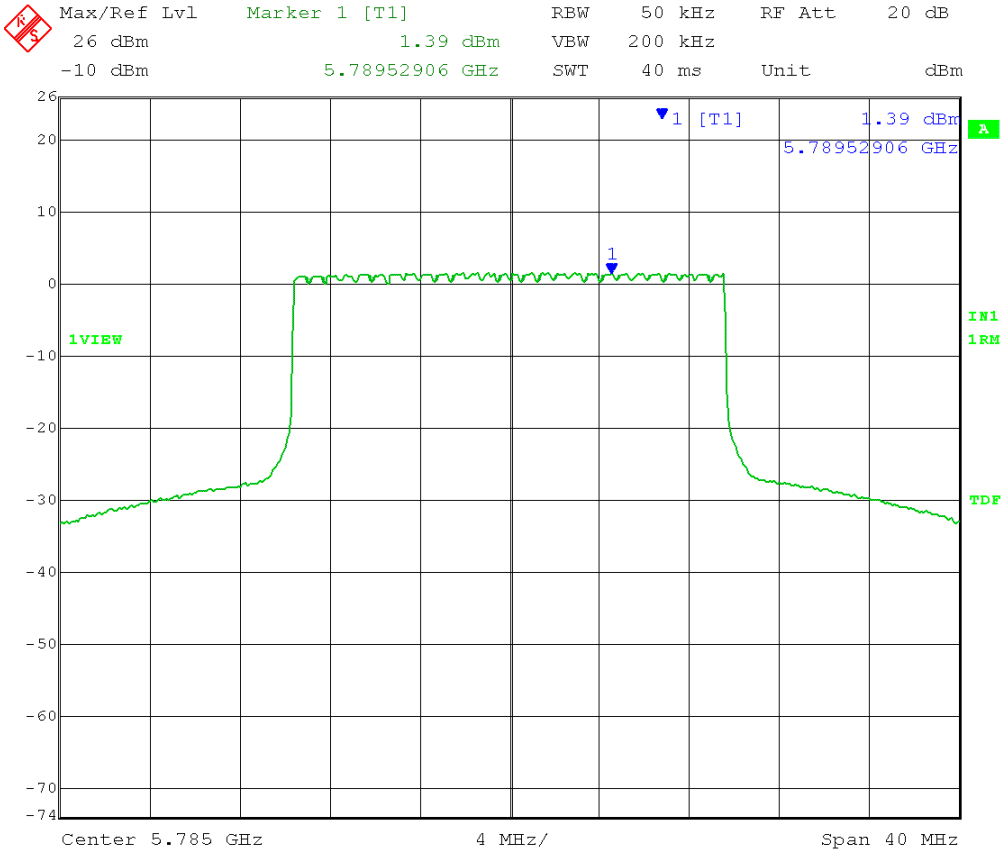
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20MHz MCH 16QAM TX0



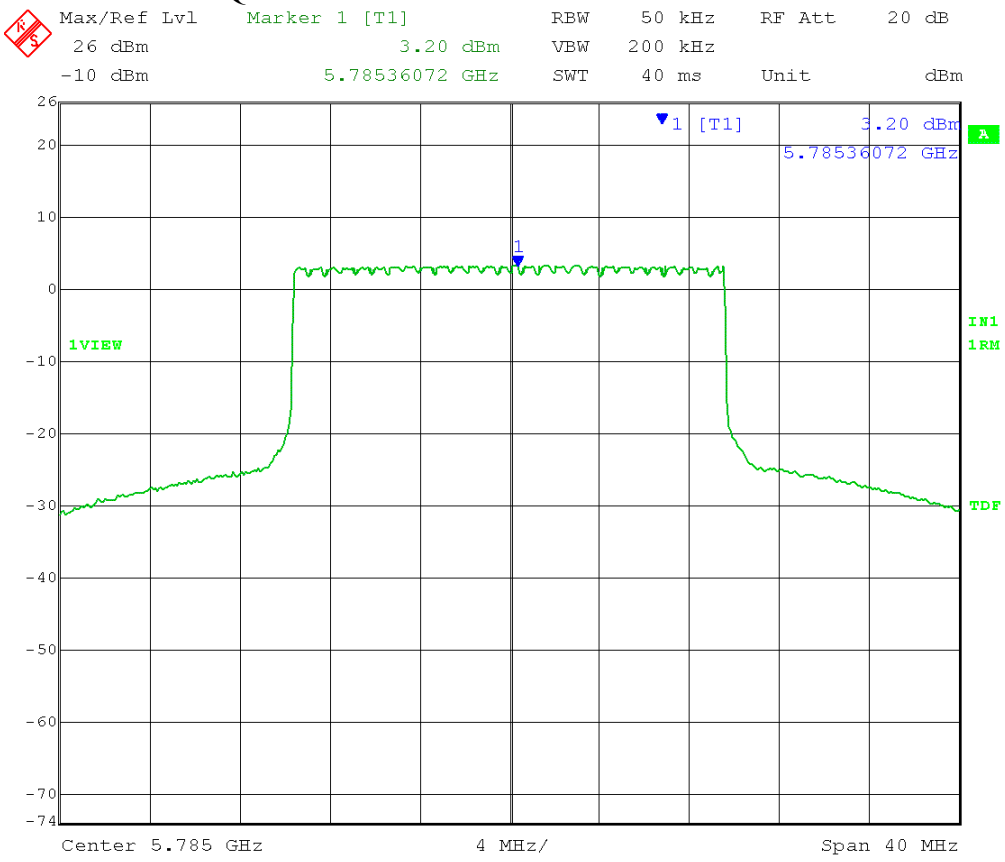
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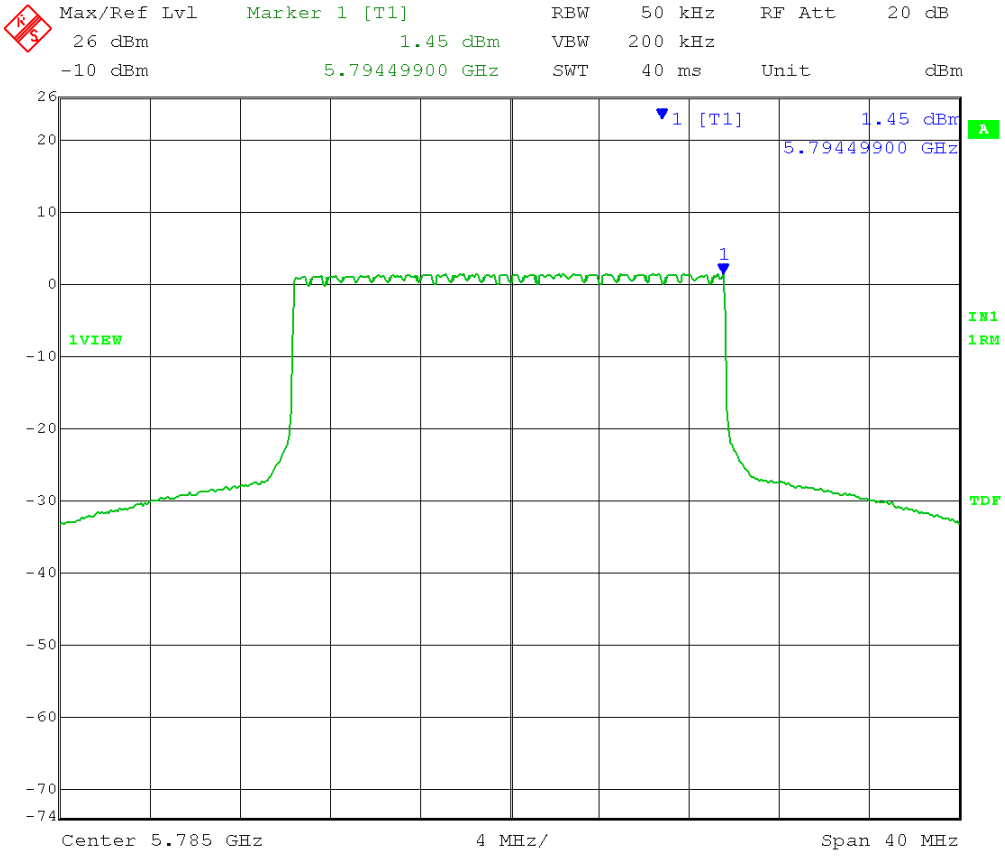
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20MHz MCH 64QAM TX0



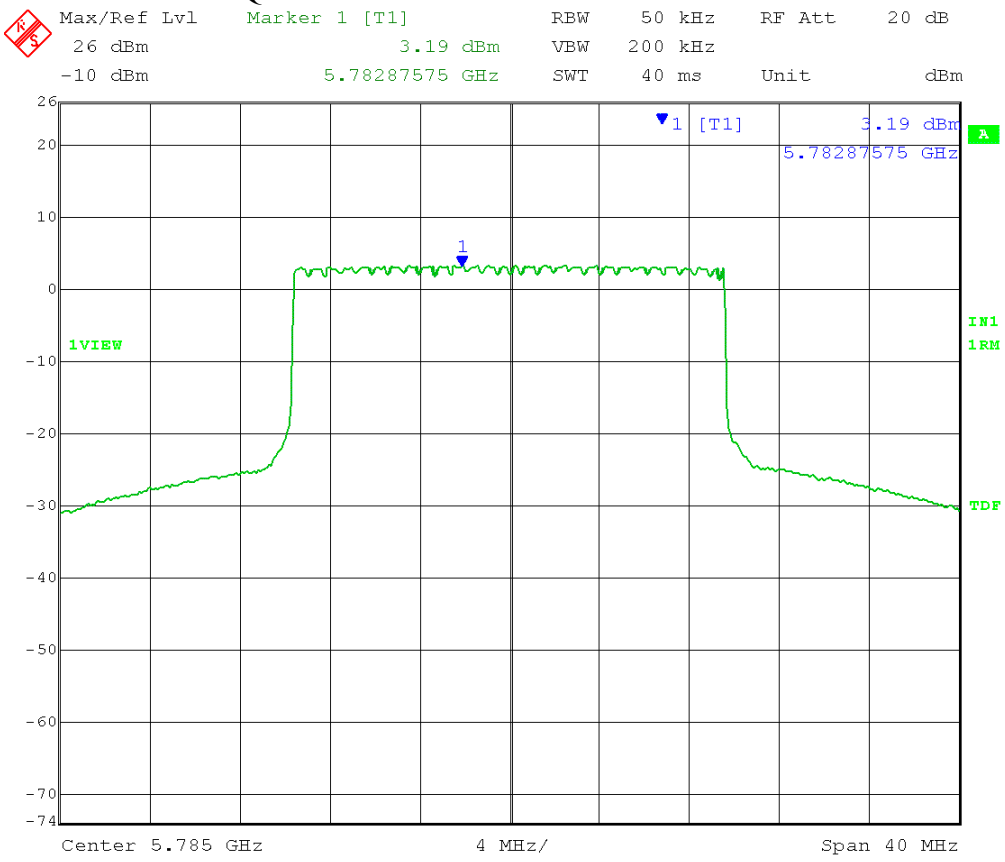
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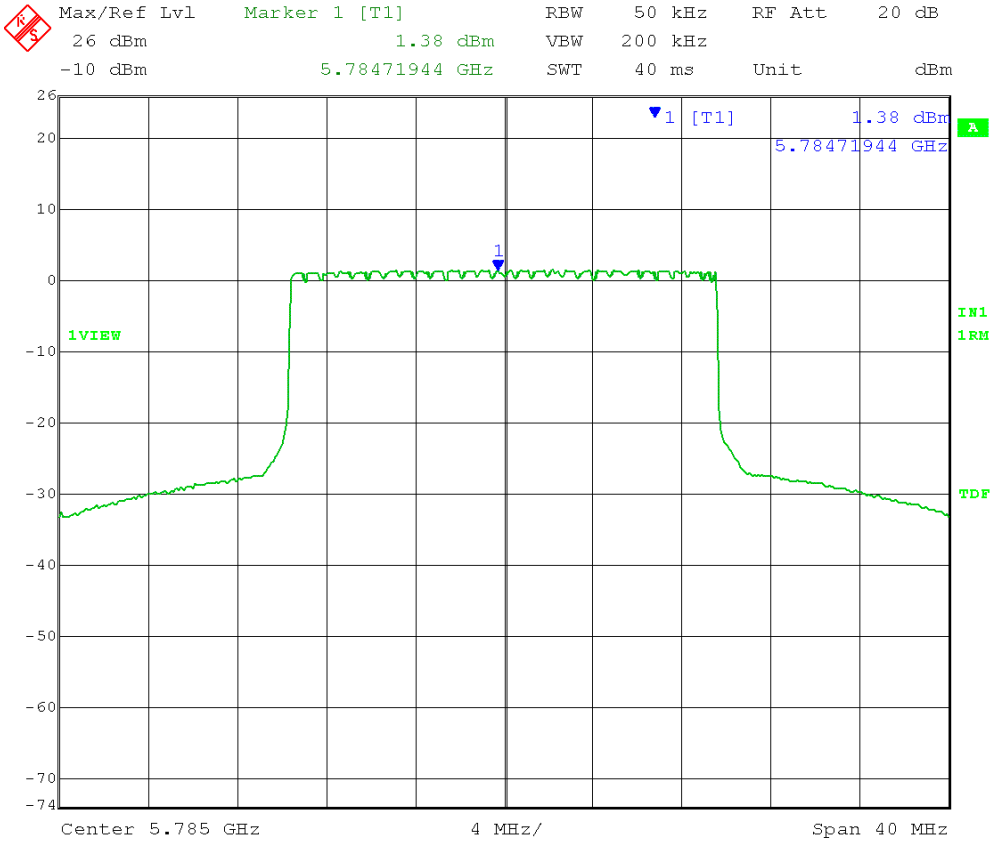
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20MHz MCH 256QAM TX0



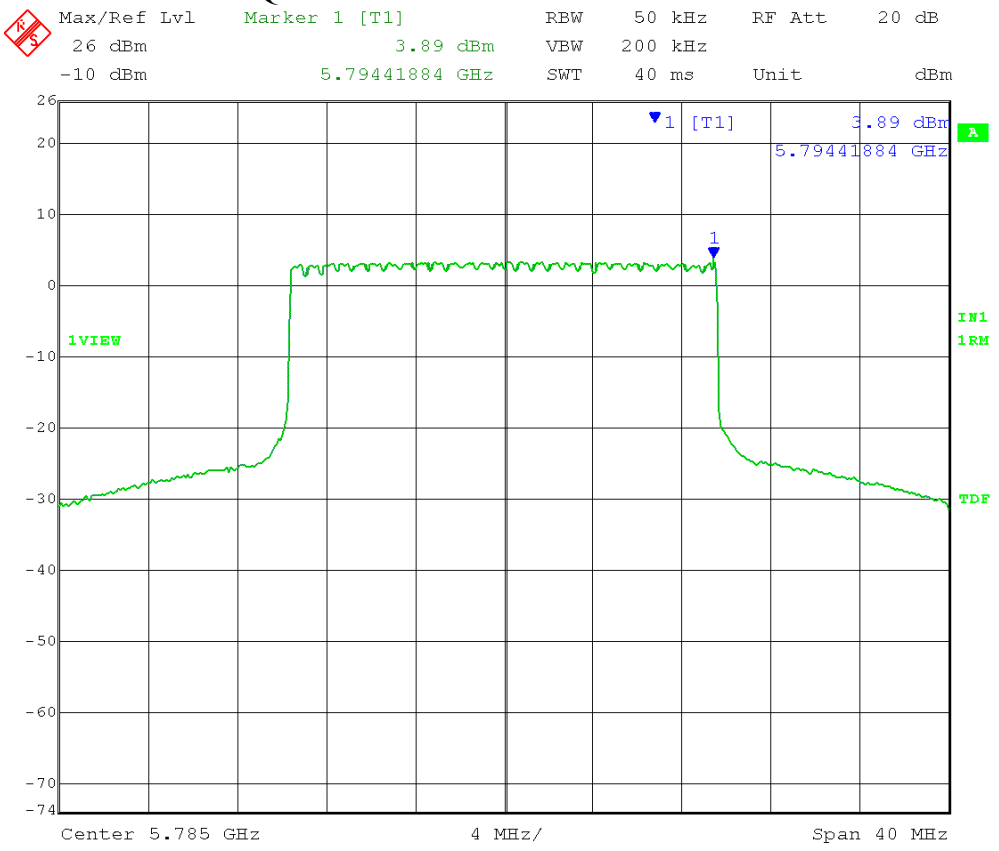
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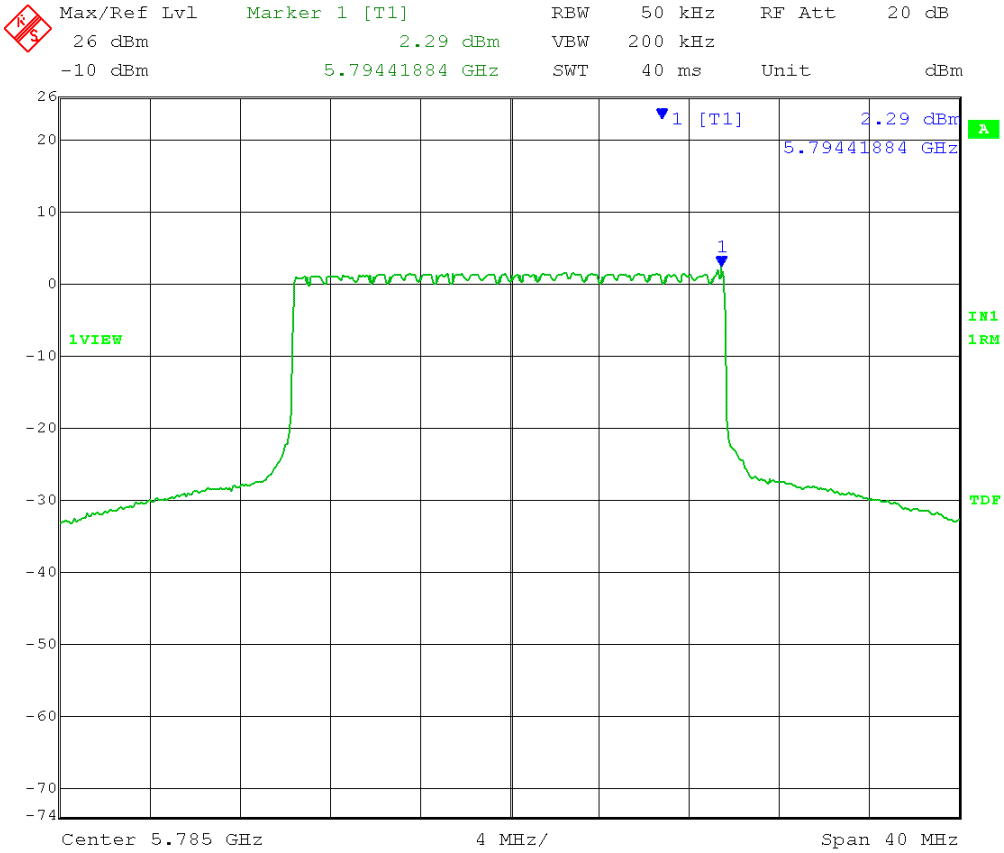
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20MHz MCH 1024QAM TX0



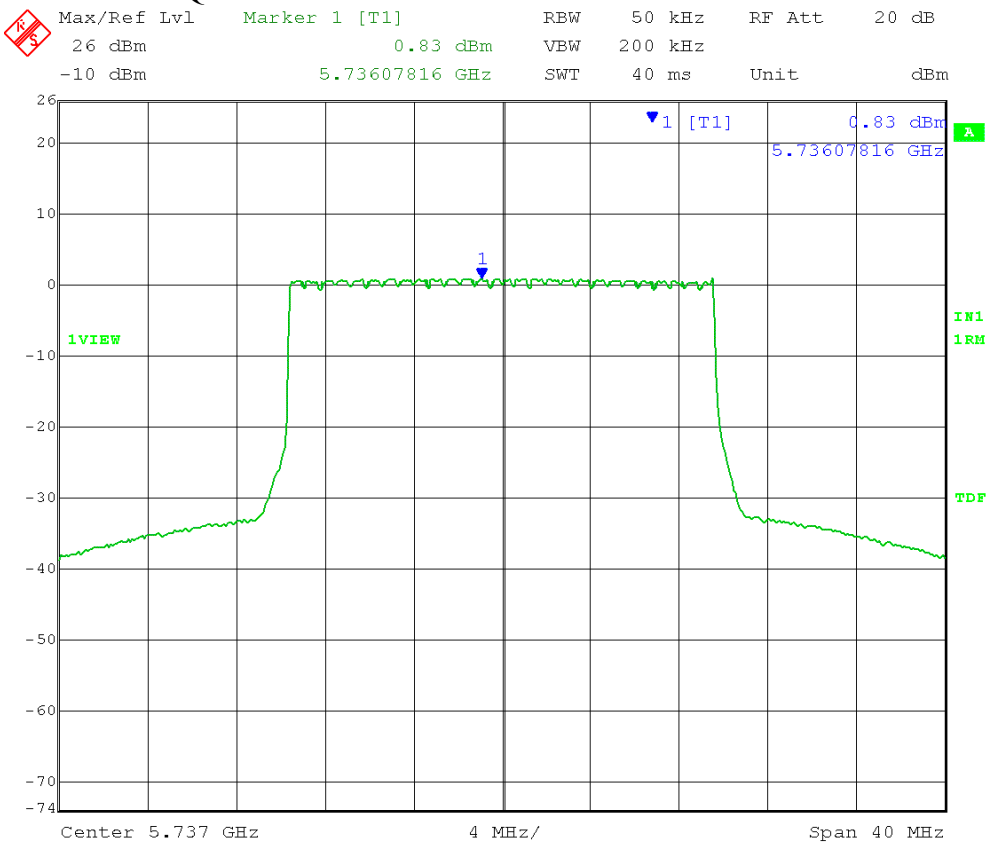
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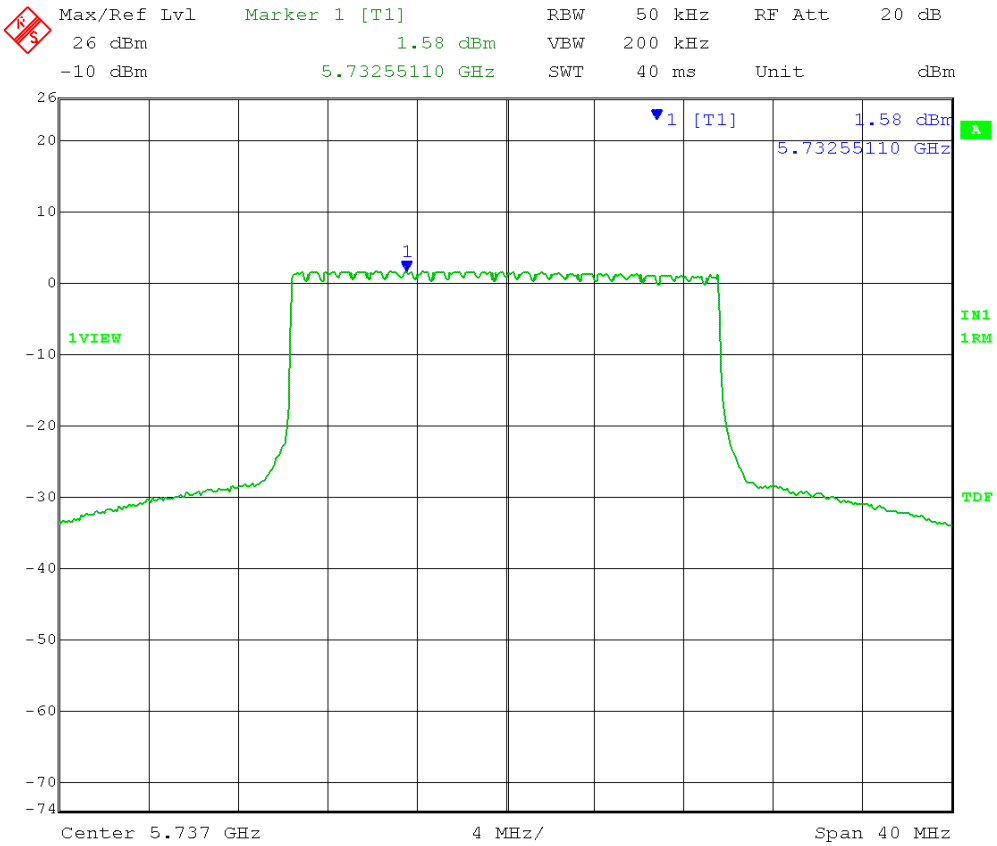
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20MHz LCH QPSK TX0



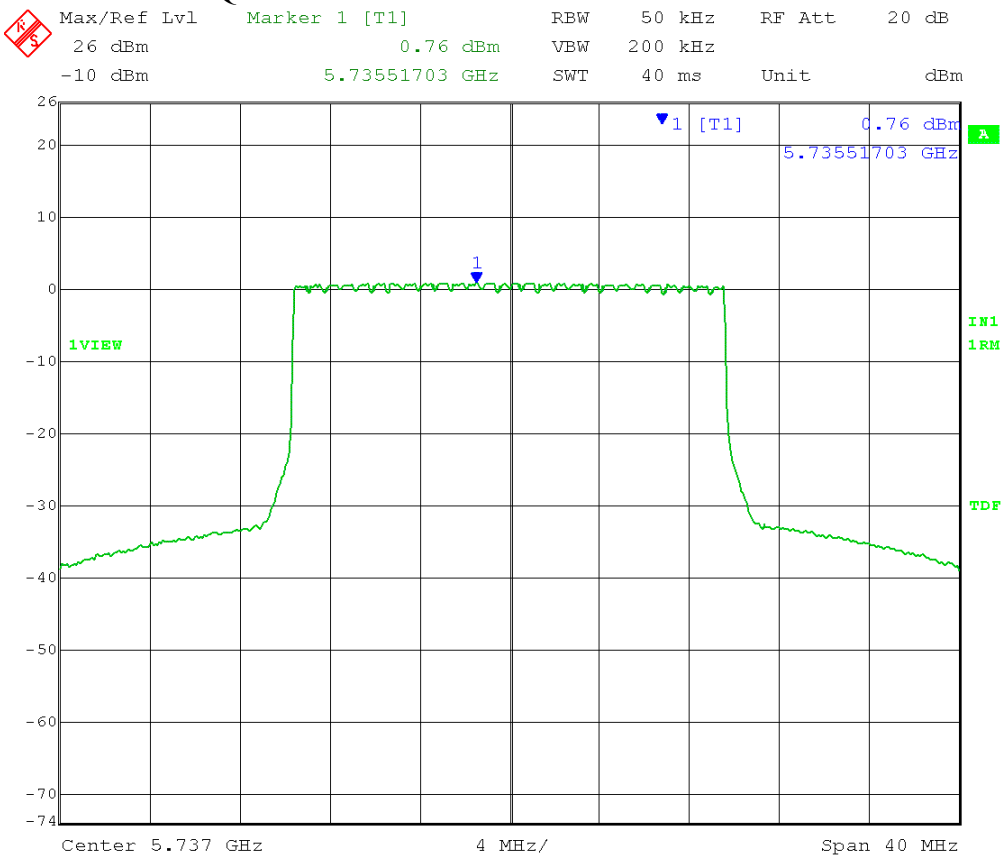
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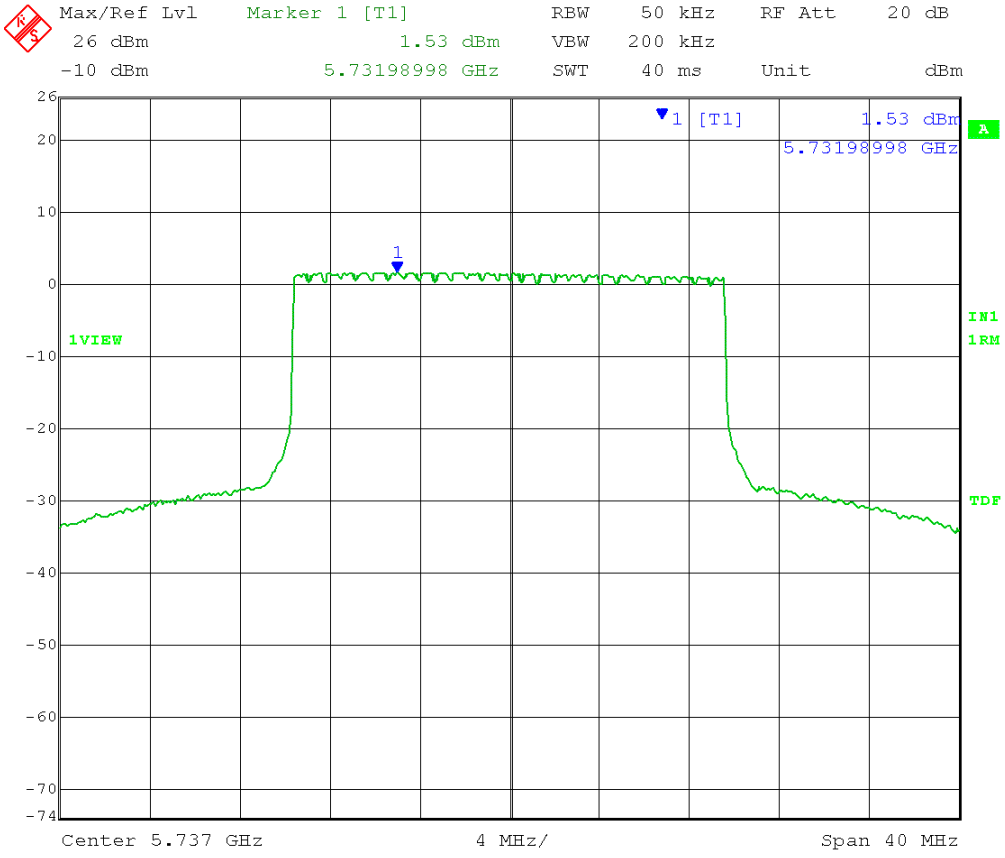
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20MHz LCH 16QAM TX0



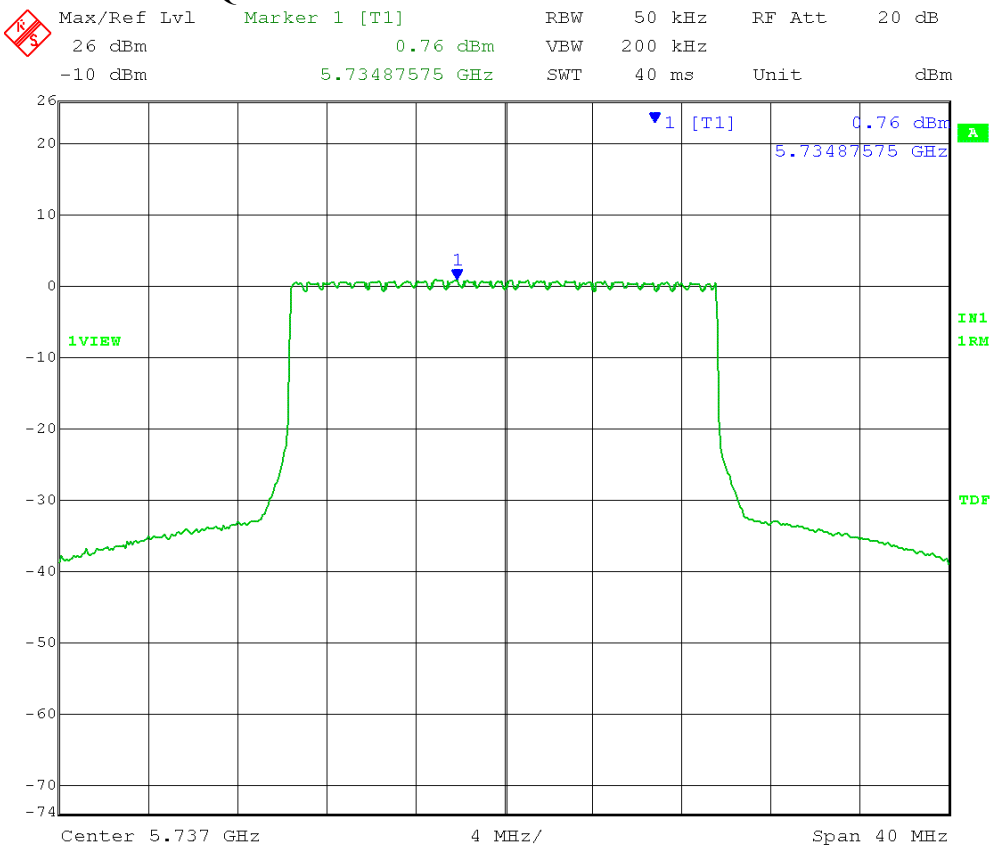
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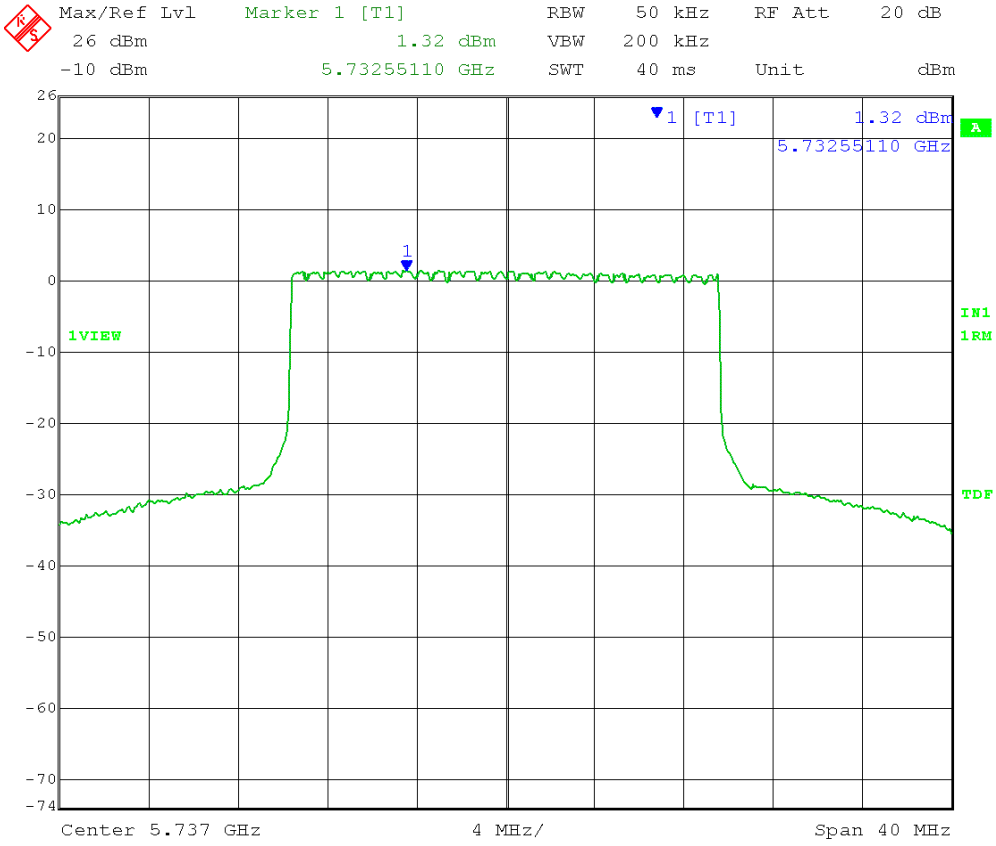
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20MHz LCH 64QAM TX0



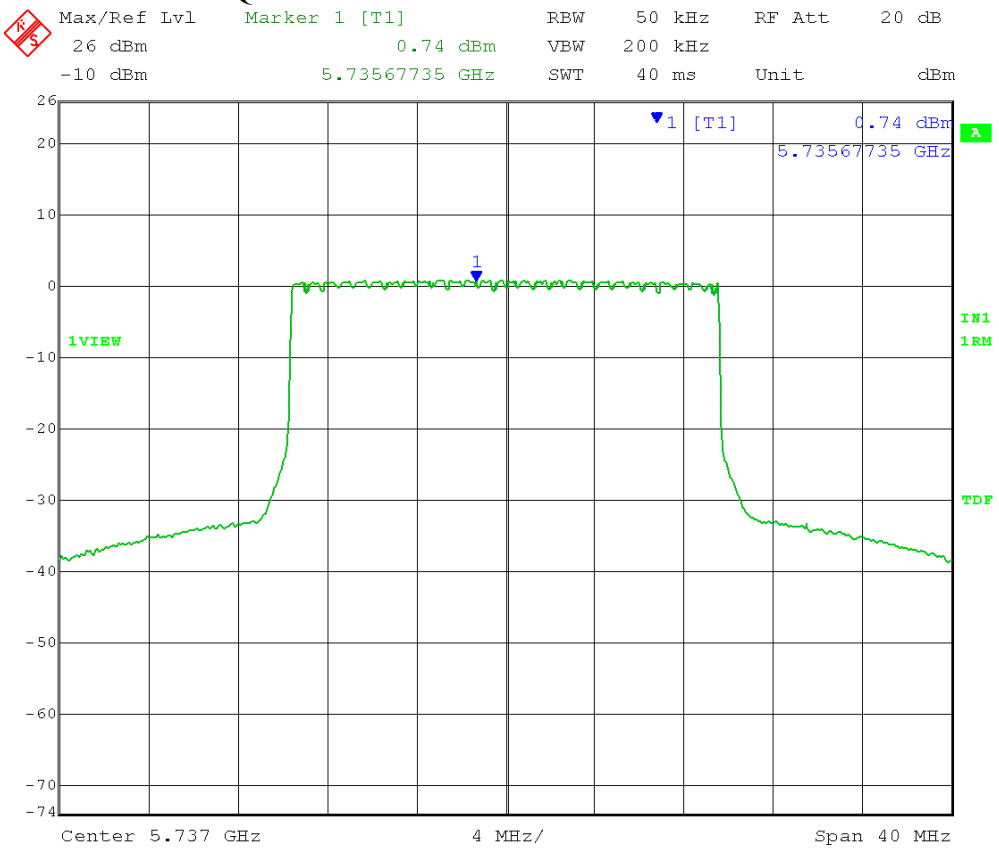
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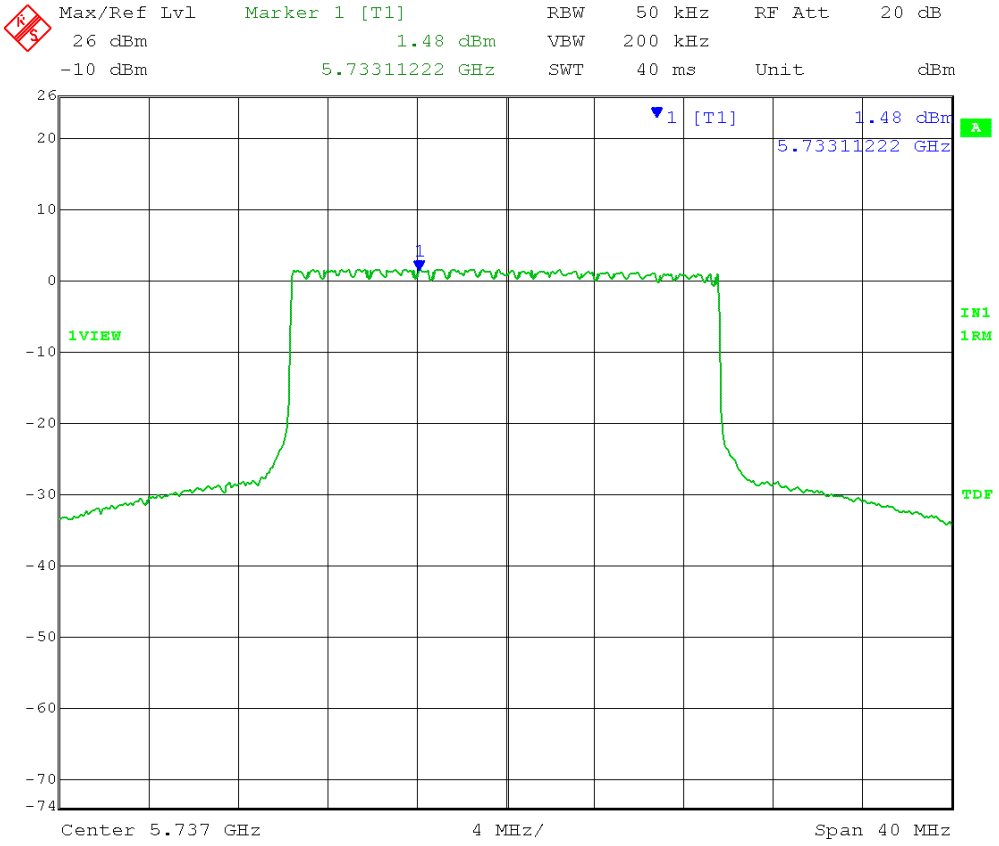
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20MHz LCH 256QAM TX0



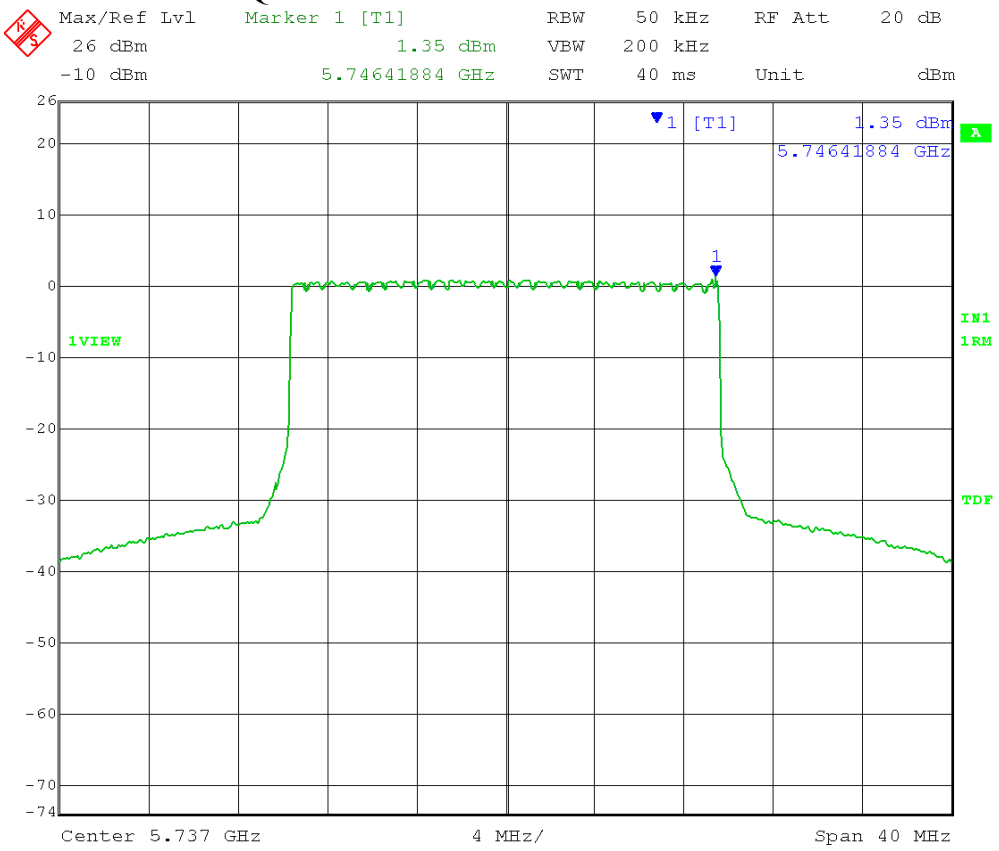
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TX1



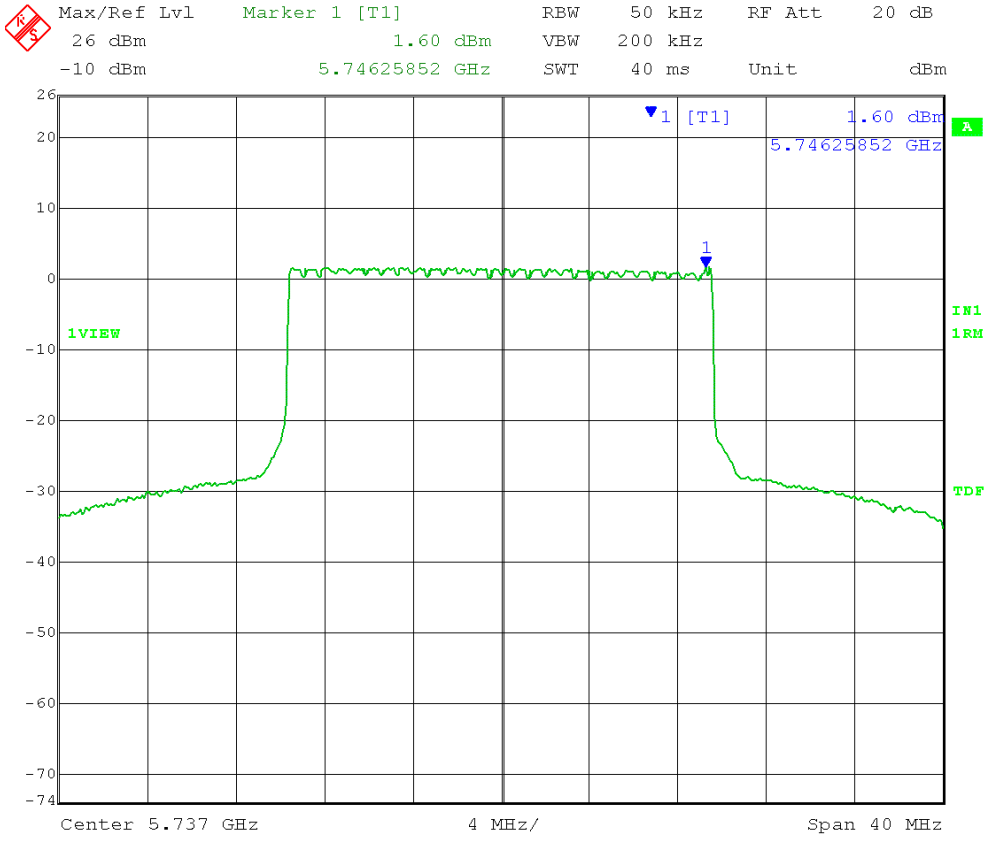
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20MHz LCH 1024QAM TX0



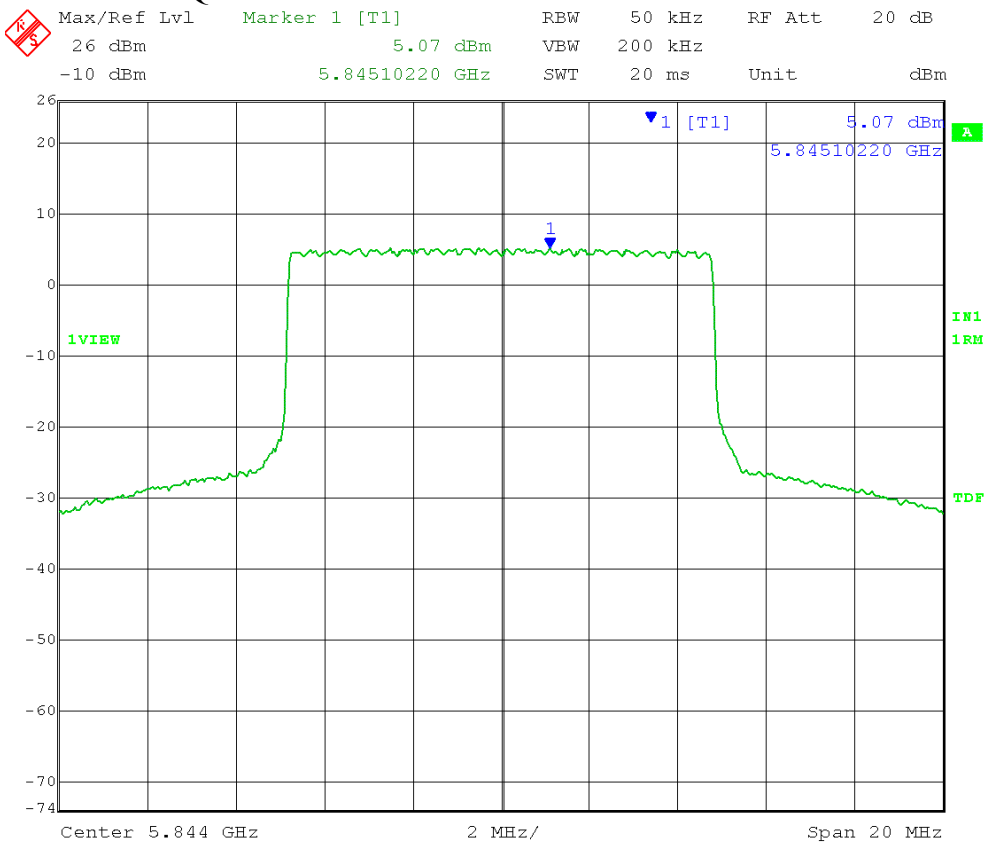
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TX1



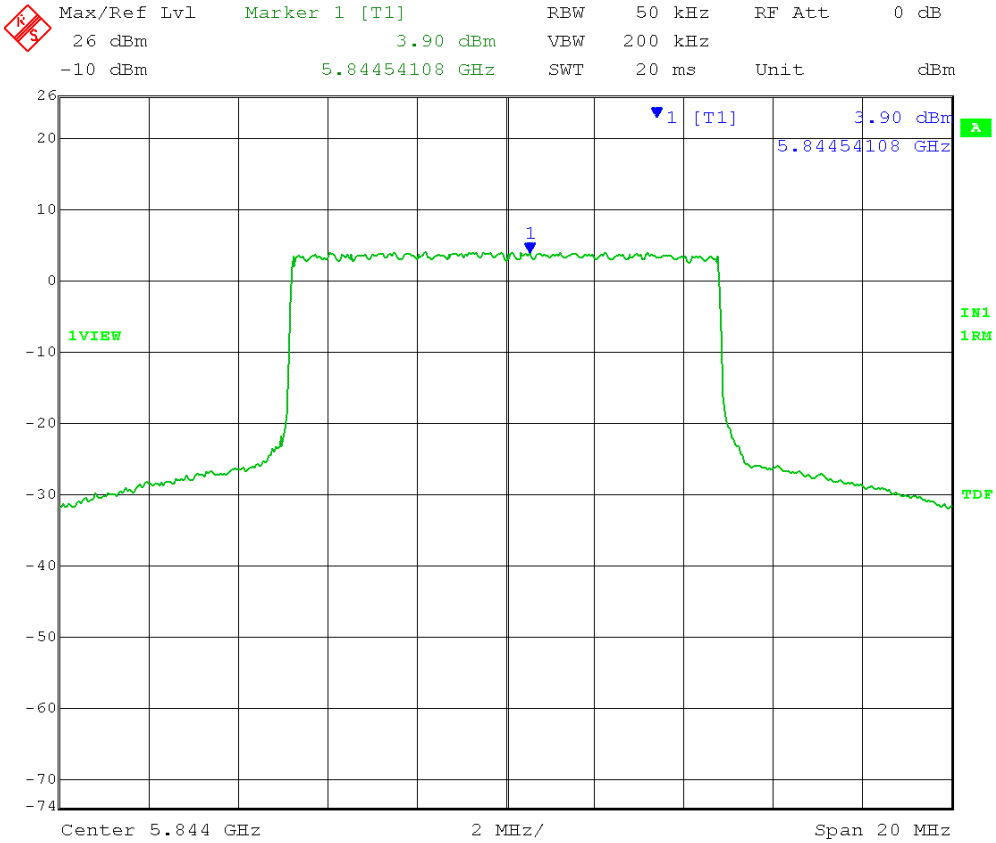
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10MHz HCH QPSK TX0



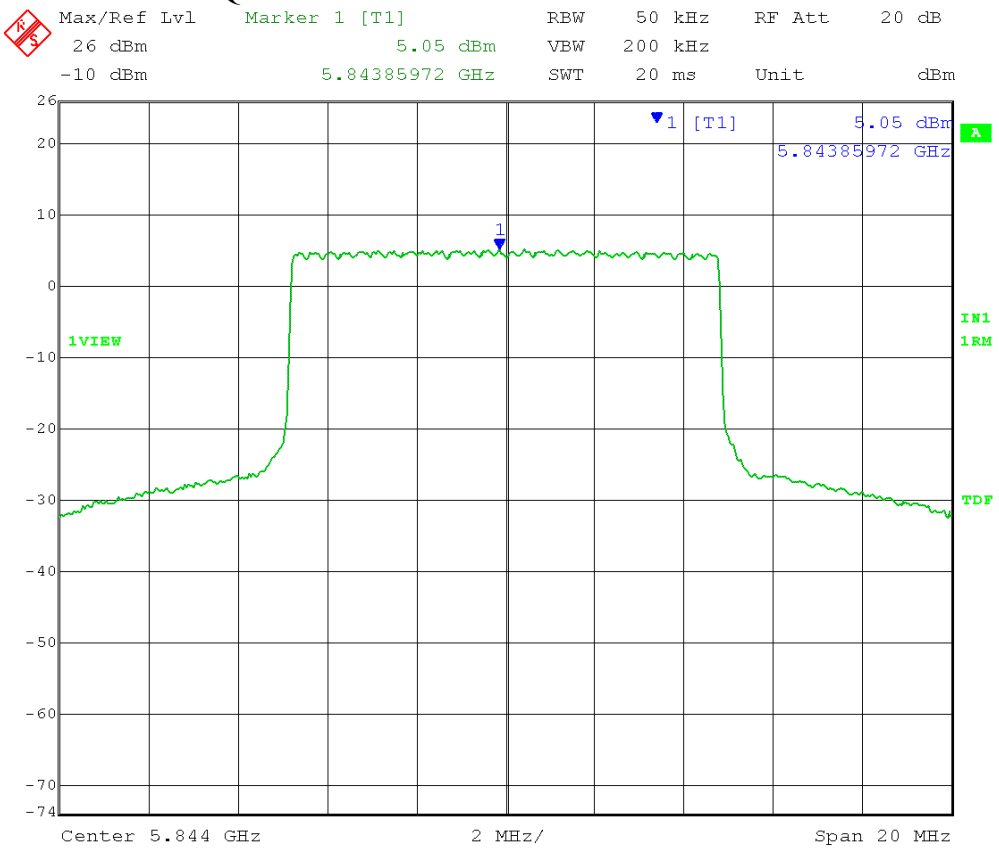
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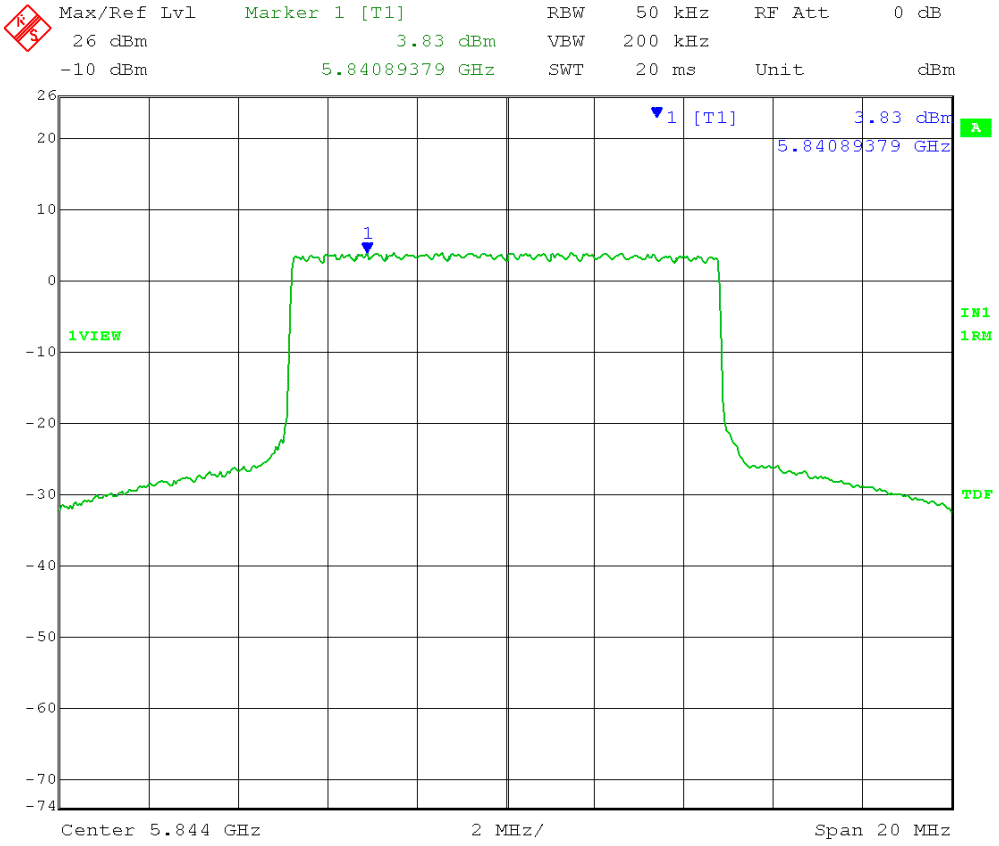
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10MHz HCH 16QAM TX0



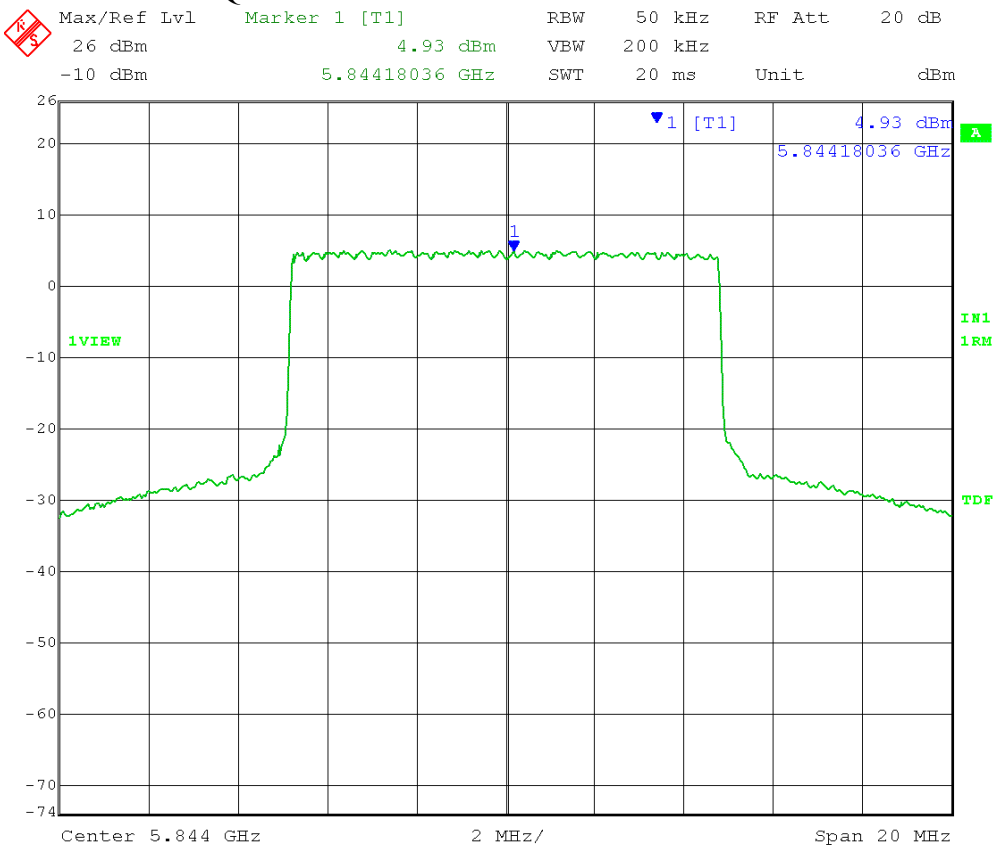
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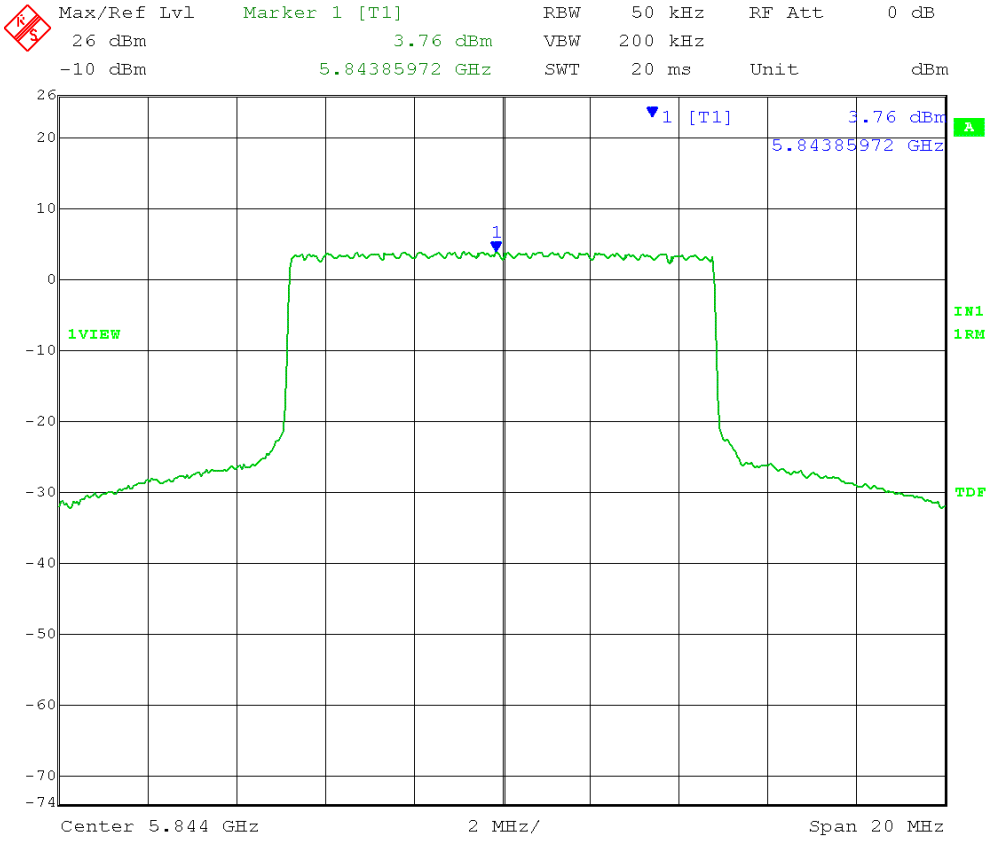
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10MHz HCH 64QAM TX0



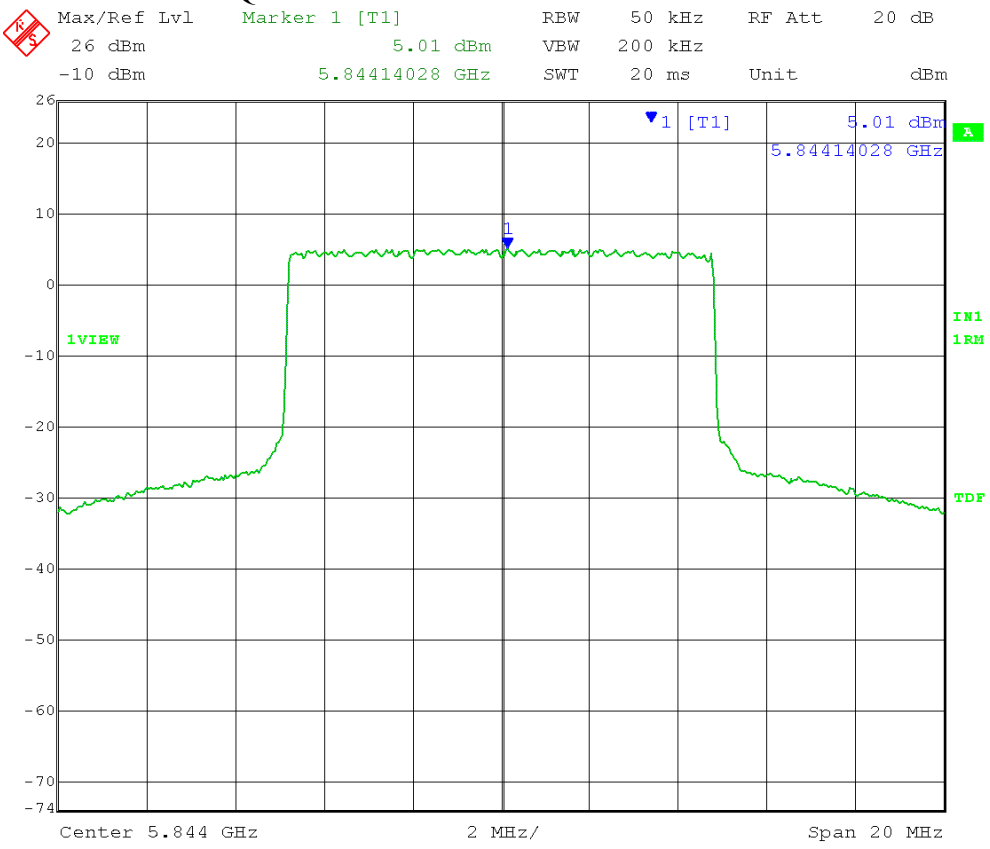
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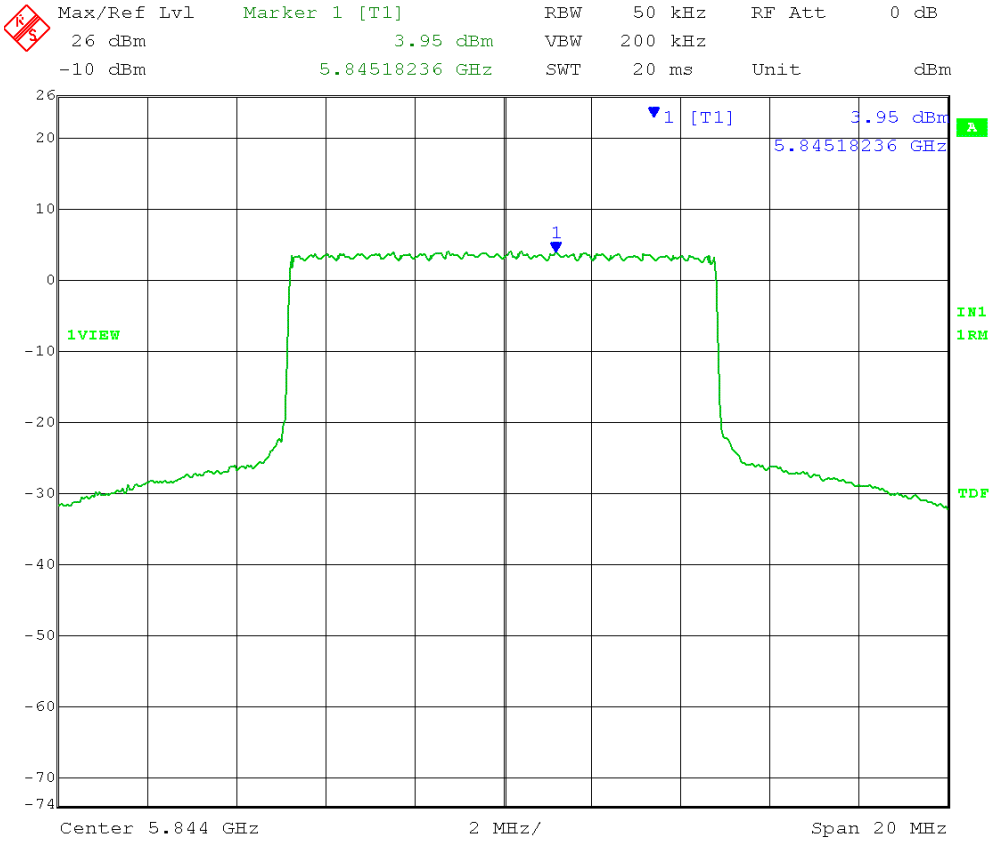
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10MHz HCH 256QAM TX0



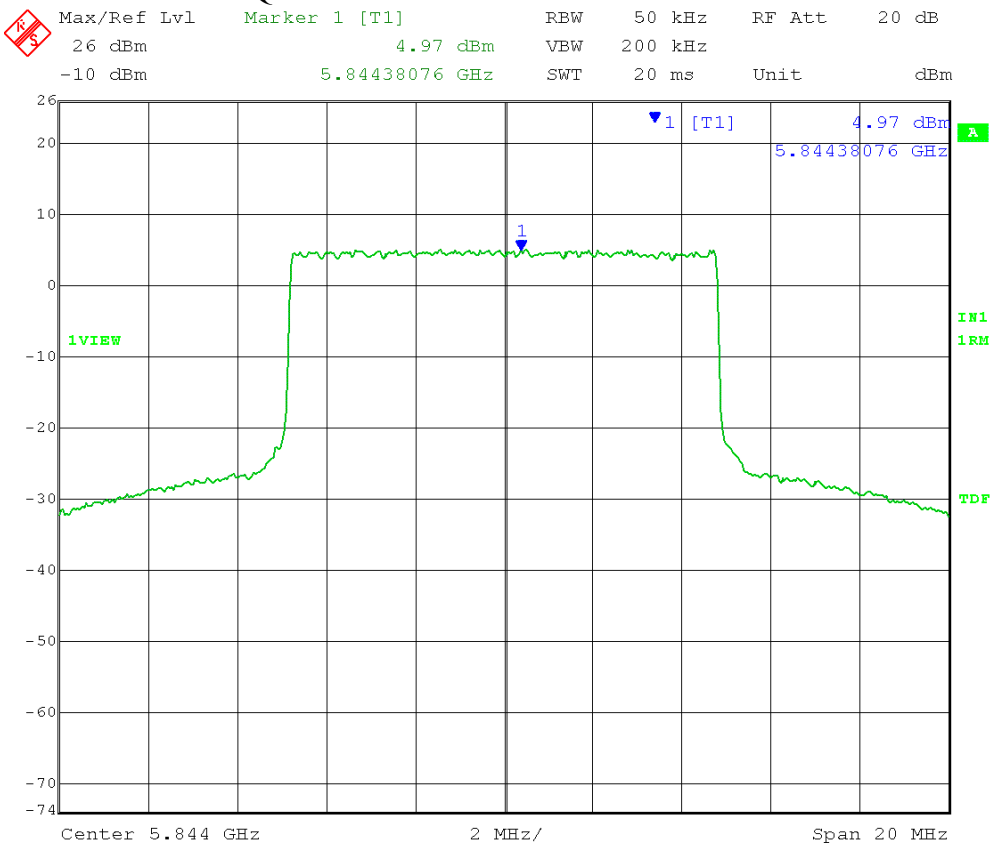
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TX1



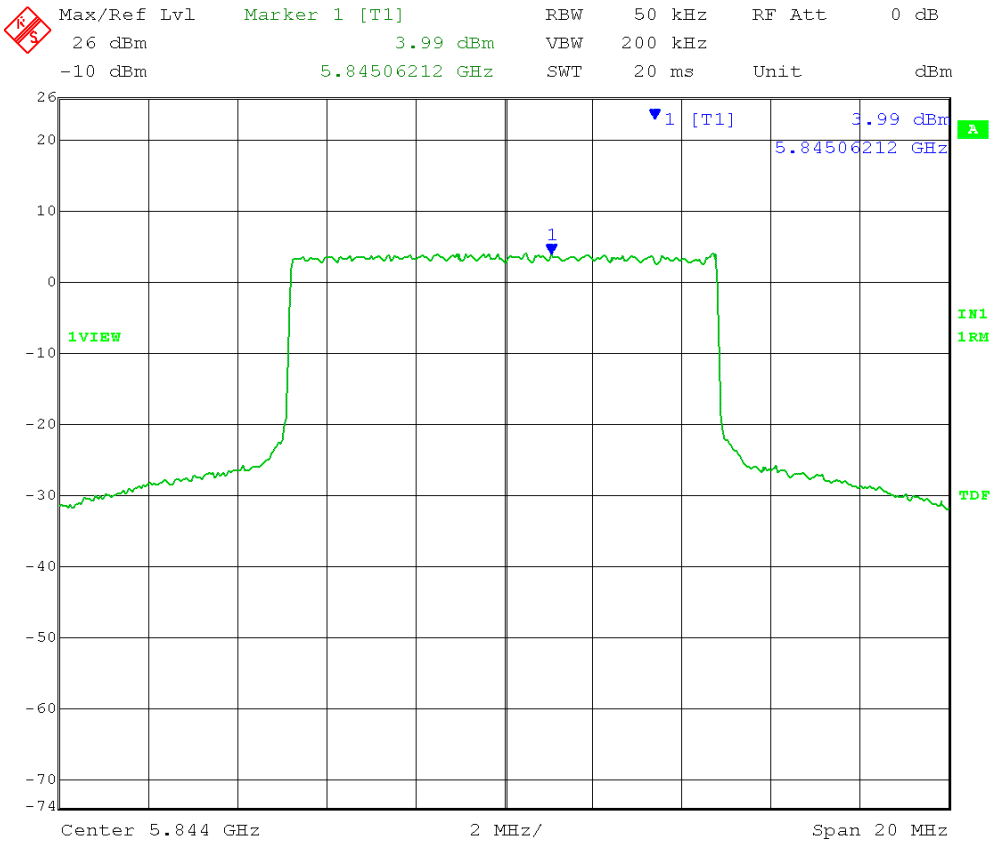
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10MHz HCH 1024QAM TX0



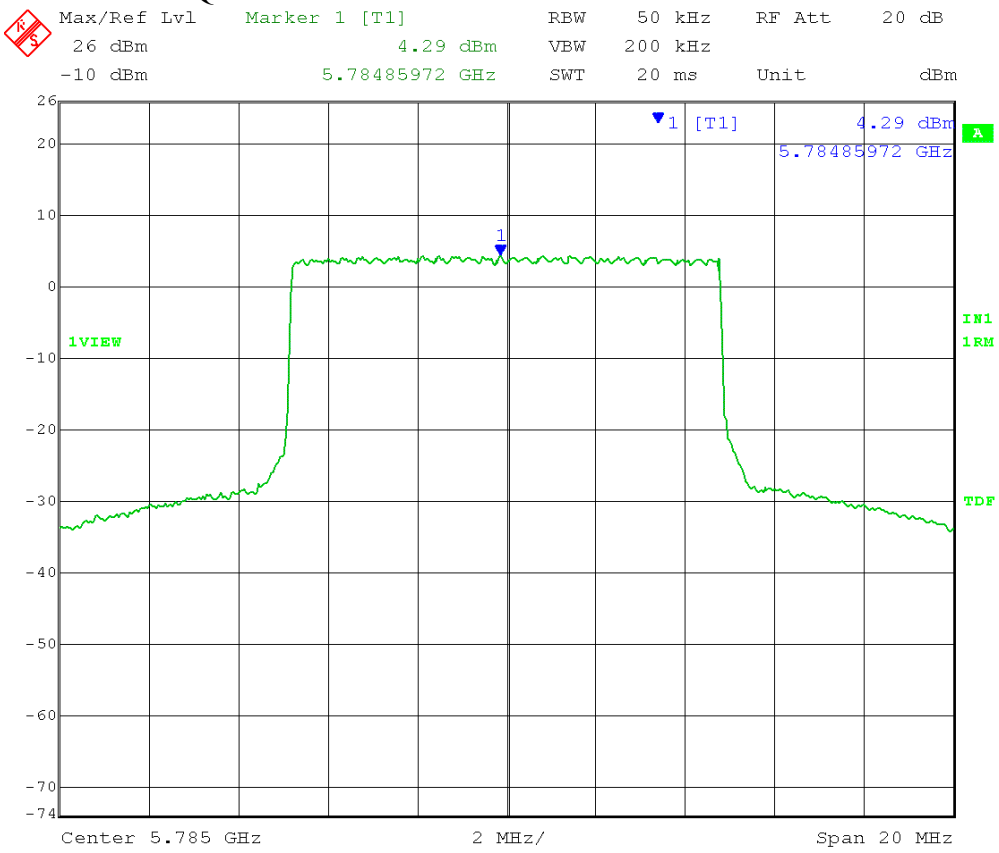
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TX1



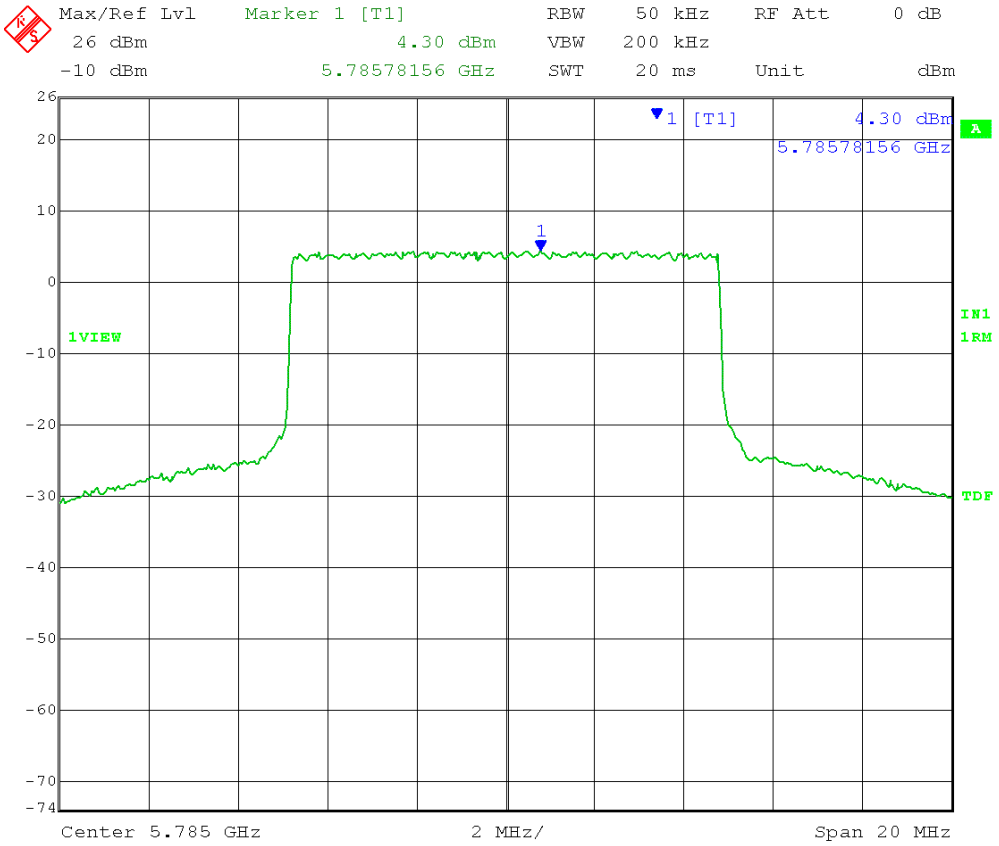
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10MHz MCH QPSK TX0



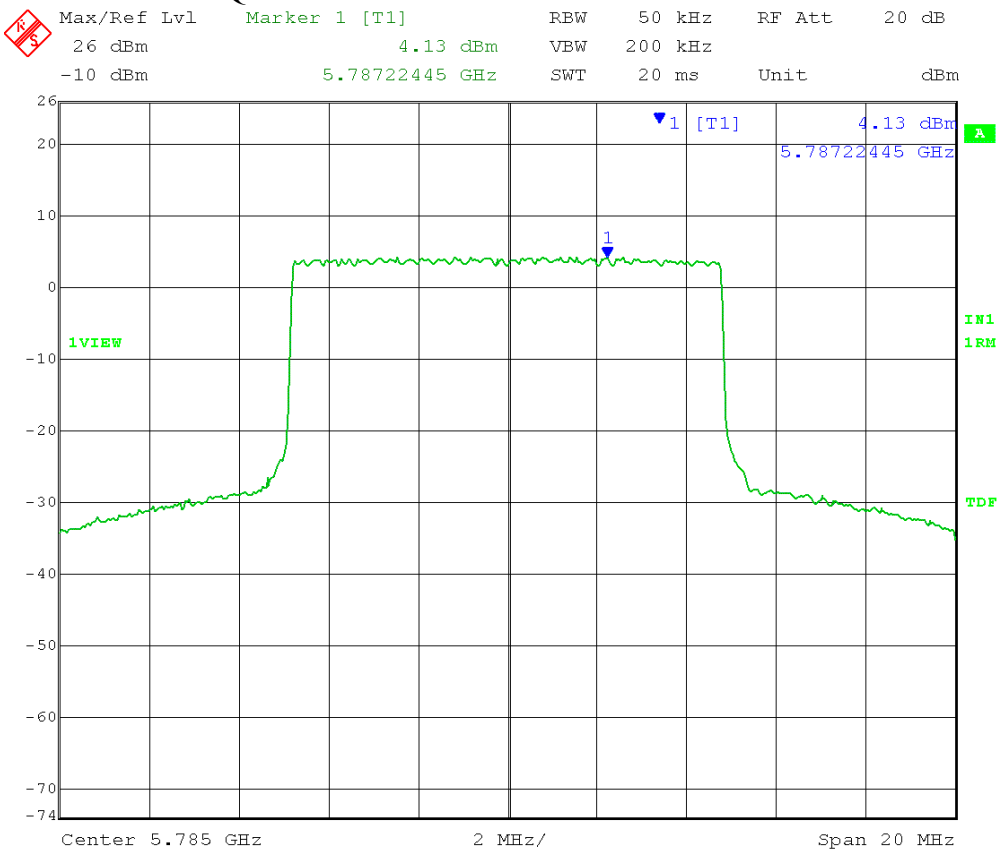
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TX1



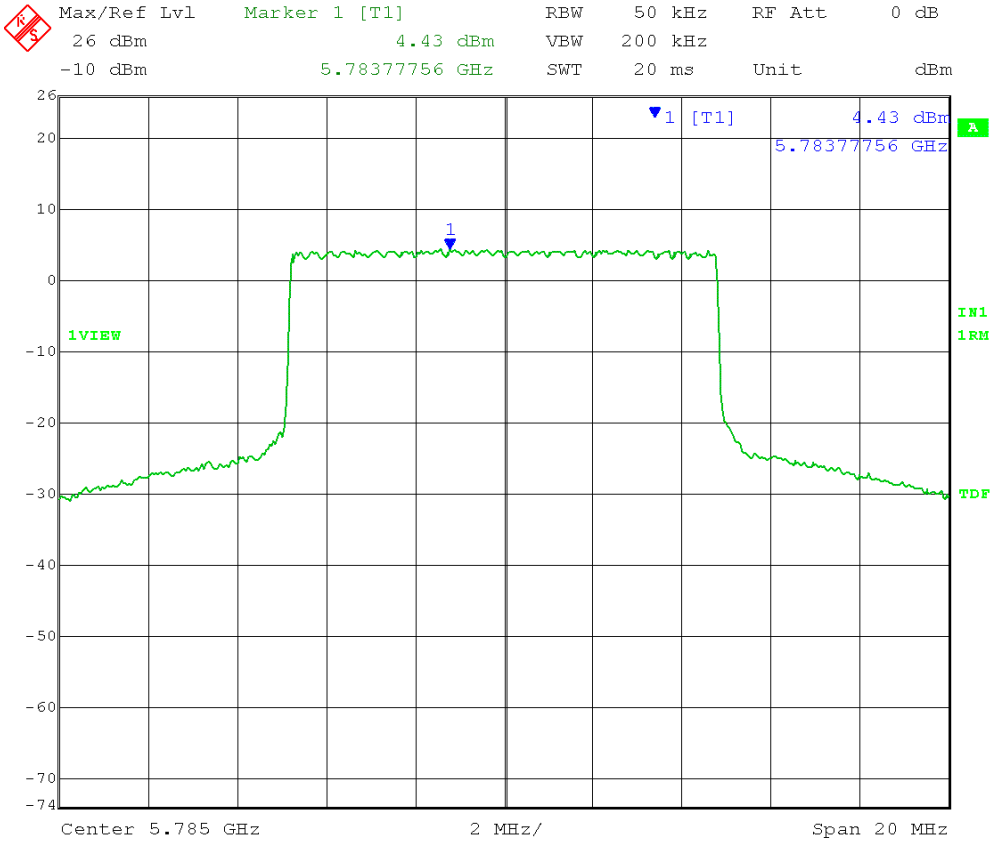
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10MHz MCH 16QAM TX0



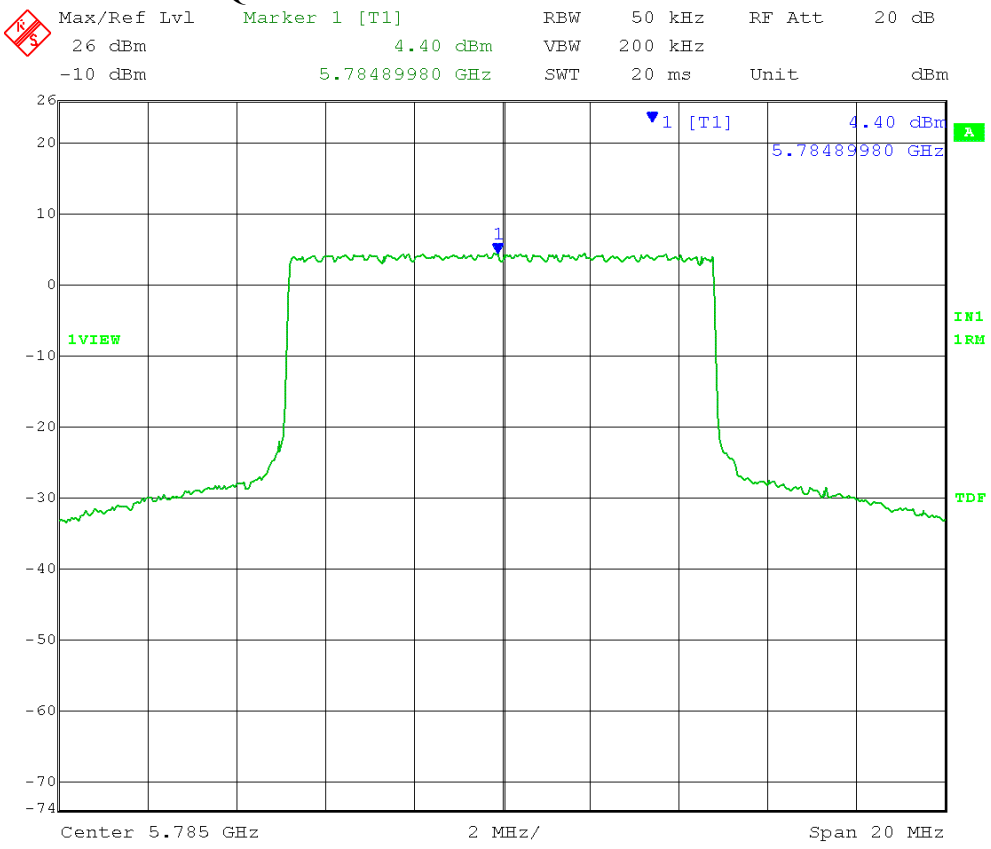
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TX1



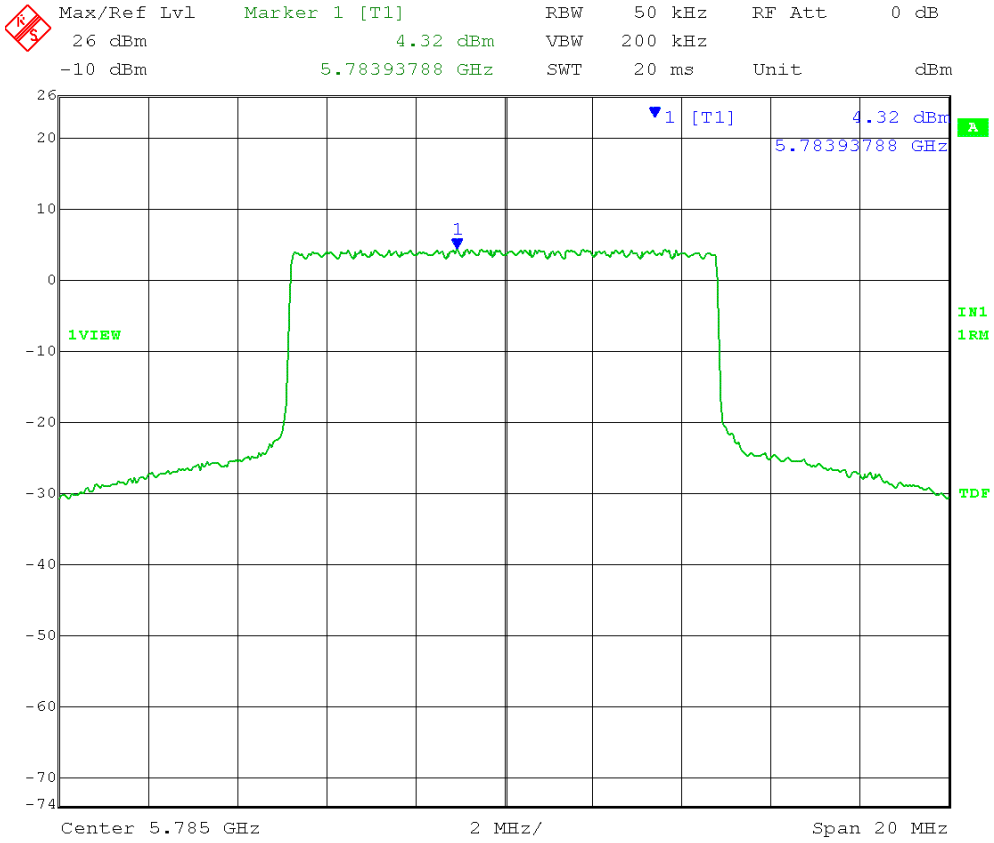
Date: 6.NOV.2013 13:20:38

10MHz MCH 64QAM TX0



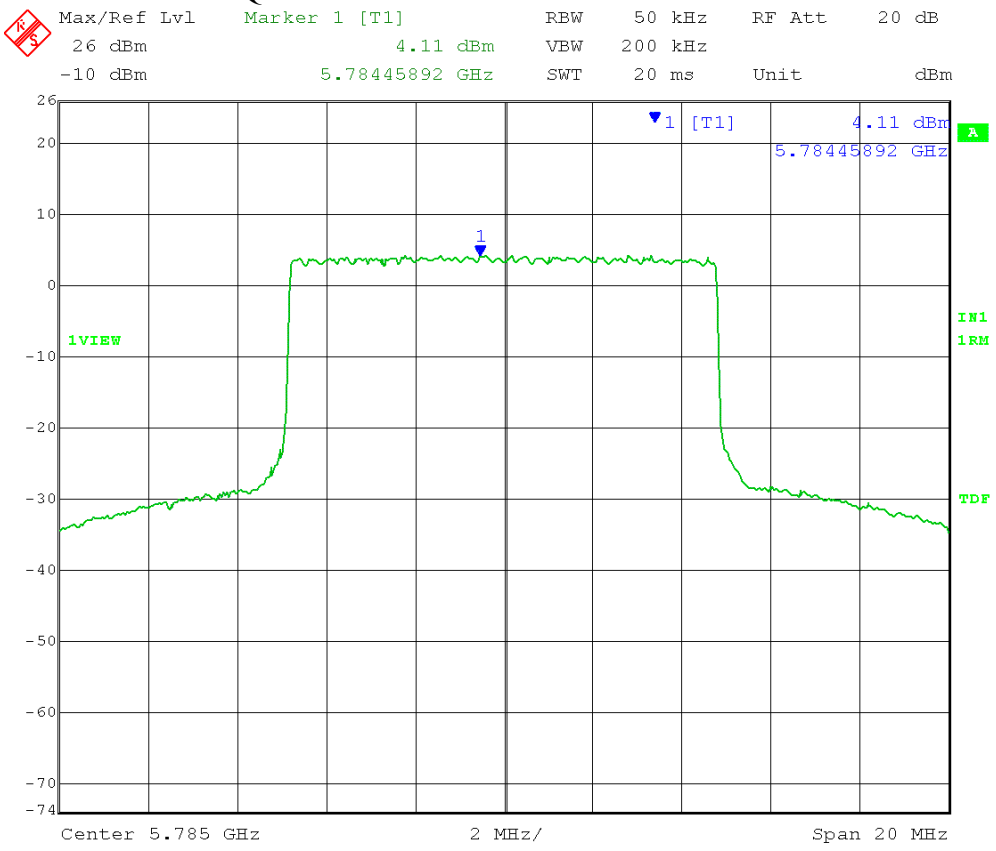
Date: 7.NOV.2013 09:35:05

TX1



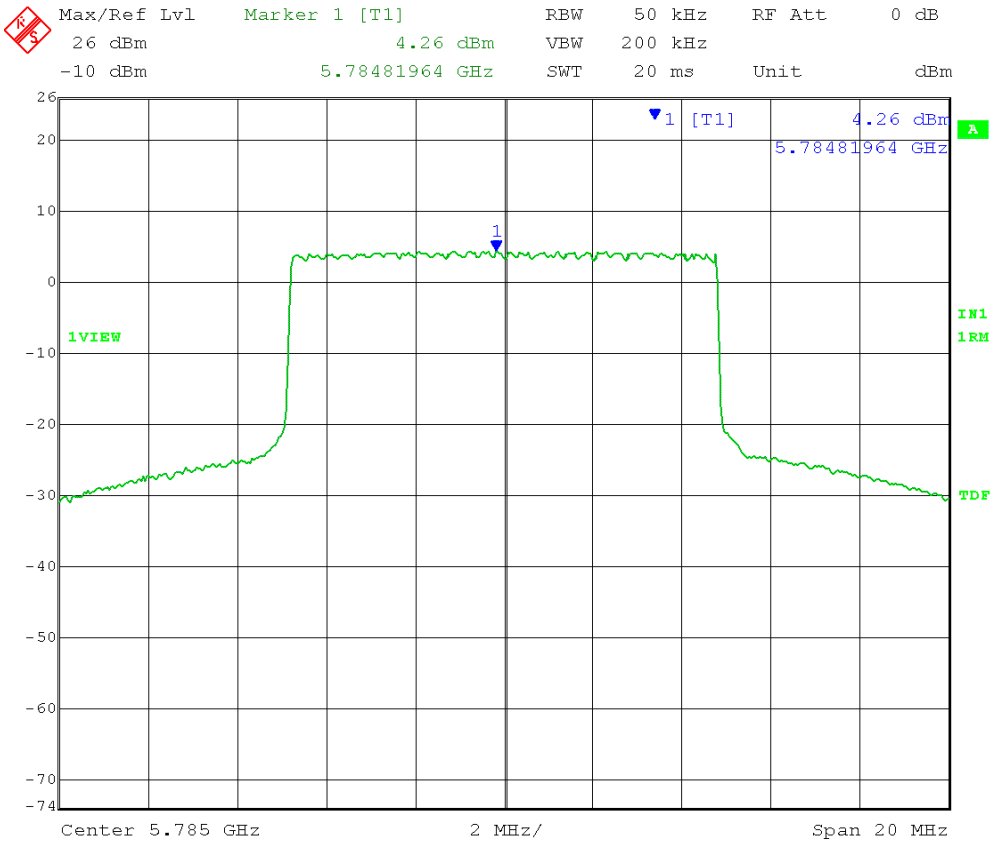
Date: 6.NOV.2013 13:21:03

10MHz MCH 256QAM TX0



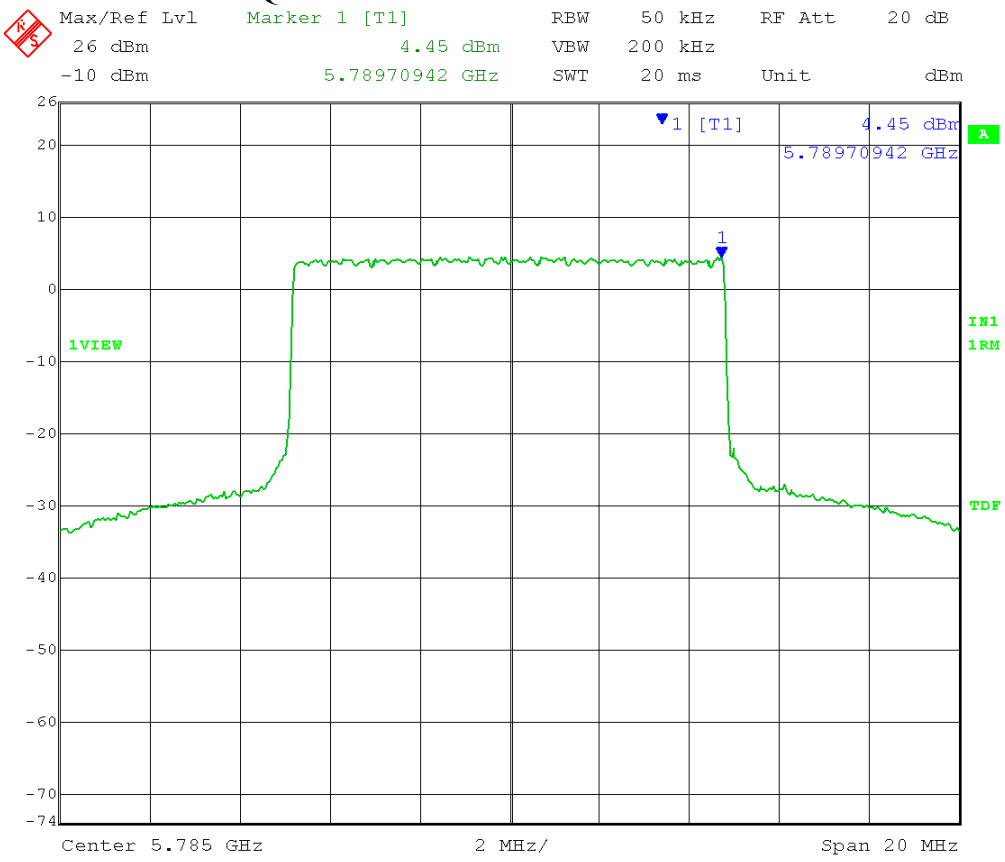
Date: 7.NOV.2013 09:34:26

TX1



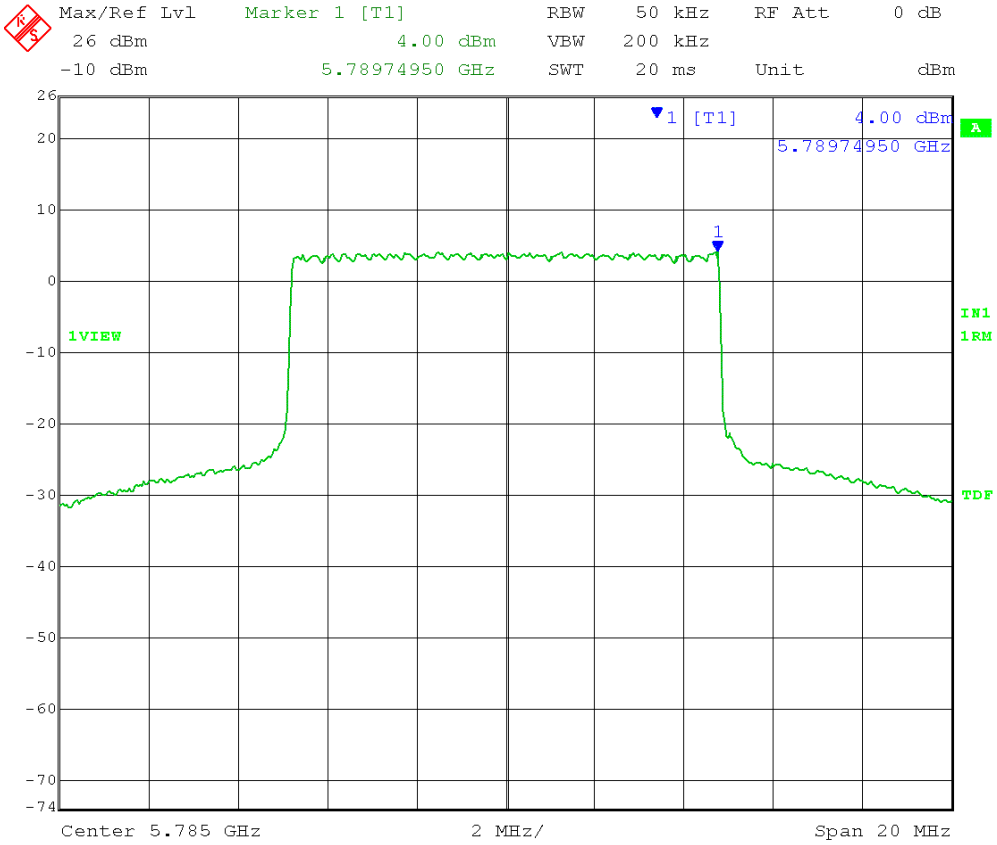
Date: 6.NOV.2013 13:21:59

10MHz MCH 1024QAM TX0



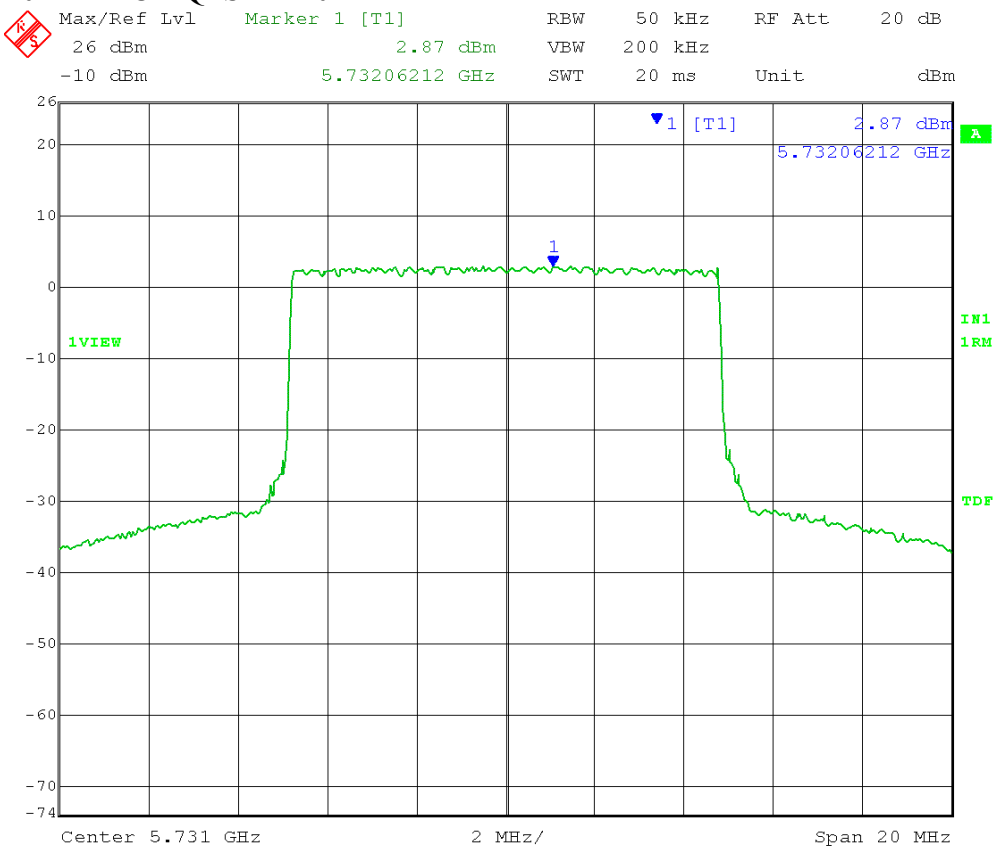
Date: 7.NOV.2013 09:36:33

TX1



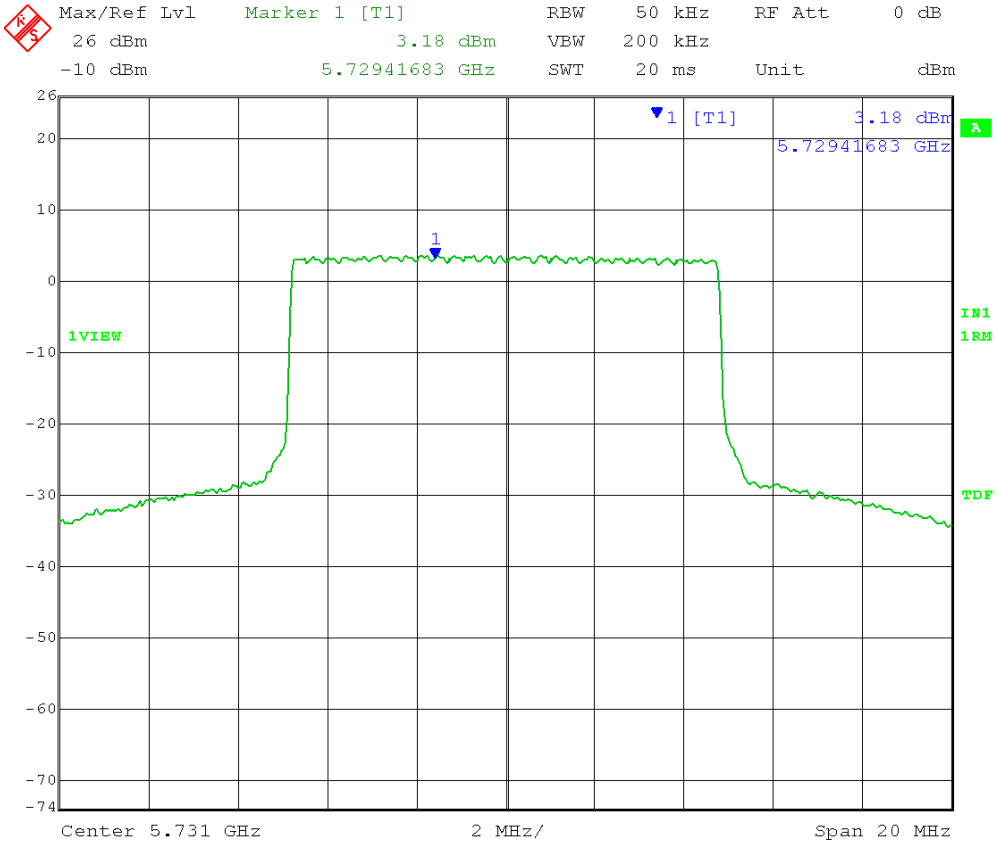
Date: 6.NOV.2013 13:23:52

10MHz LCH QPSK TX0



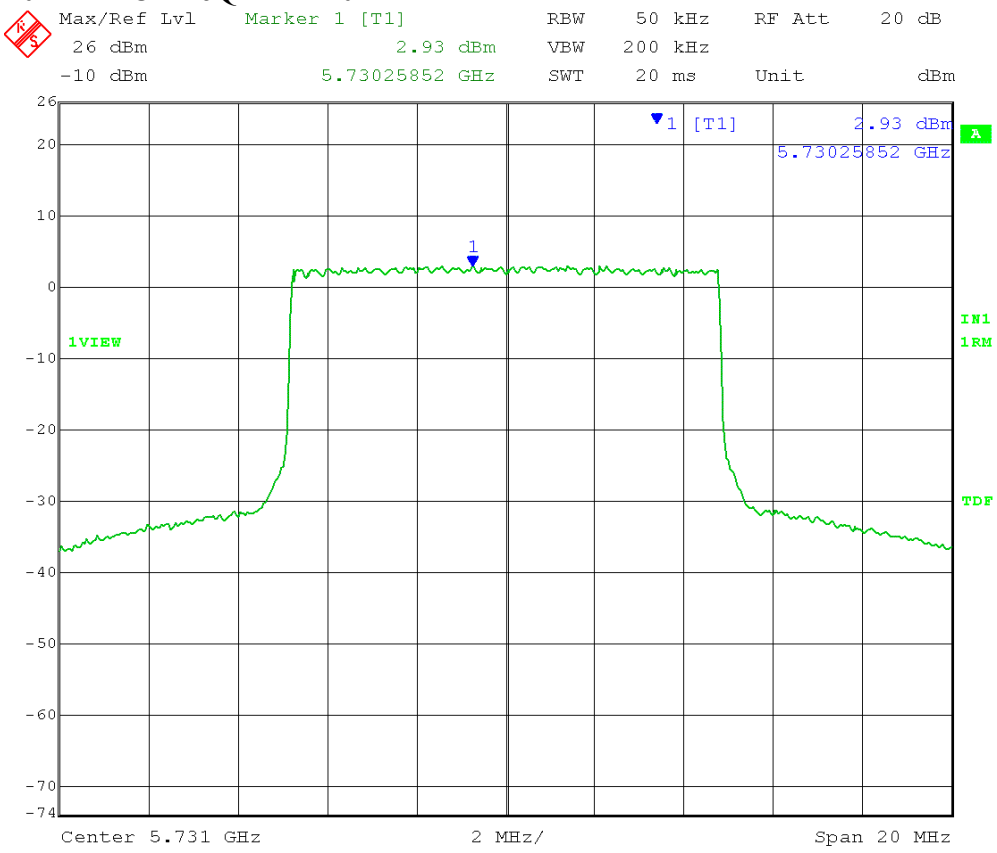
Date: 6.NOV.2013 15:02:24

TX1



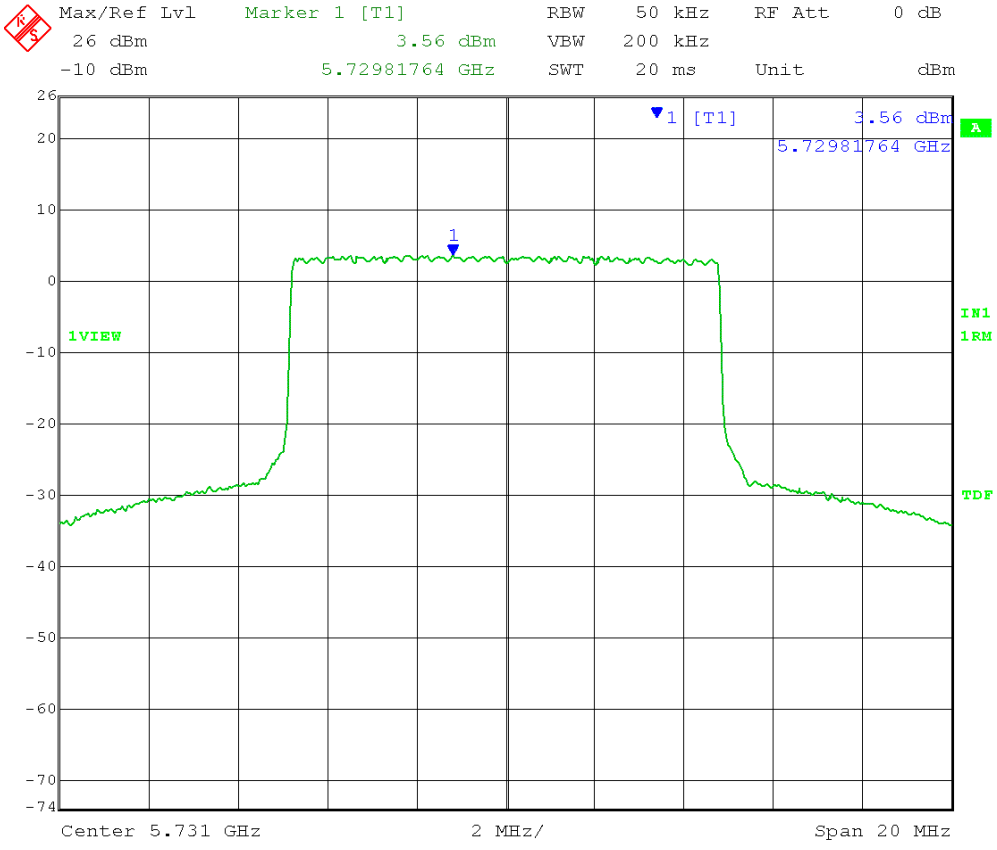
Date: 6.NOV.2013 13:10:19

10MHz LCH 16QAM TX0



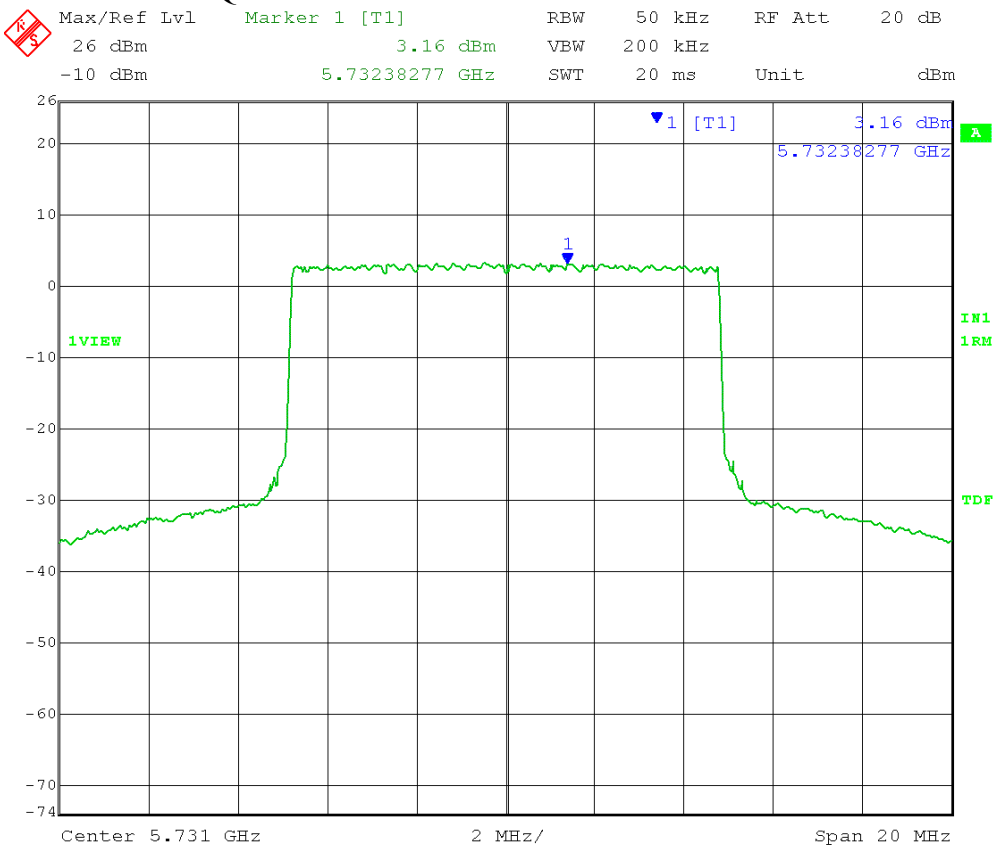
Date: 6.NOV.2013 15:02:51

TX1



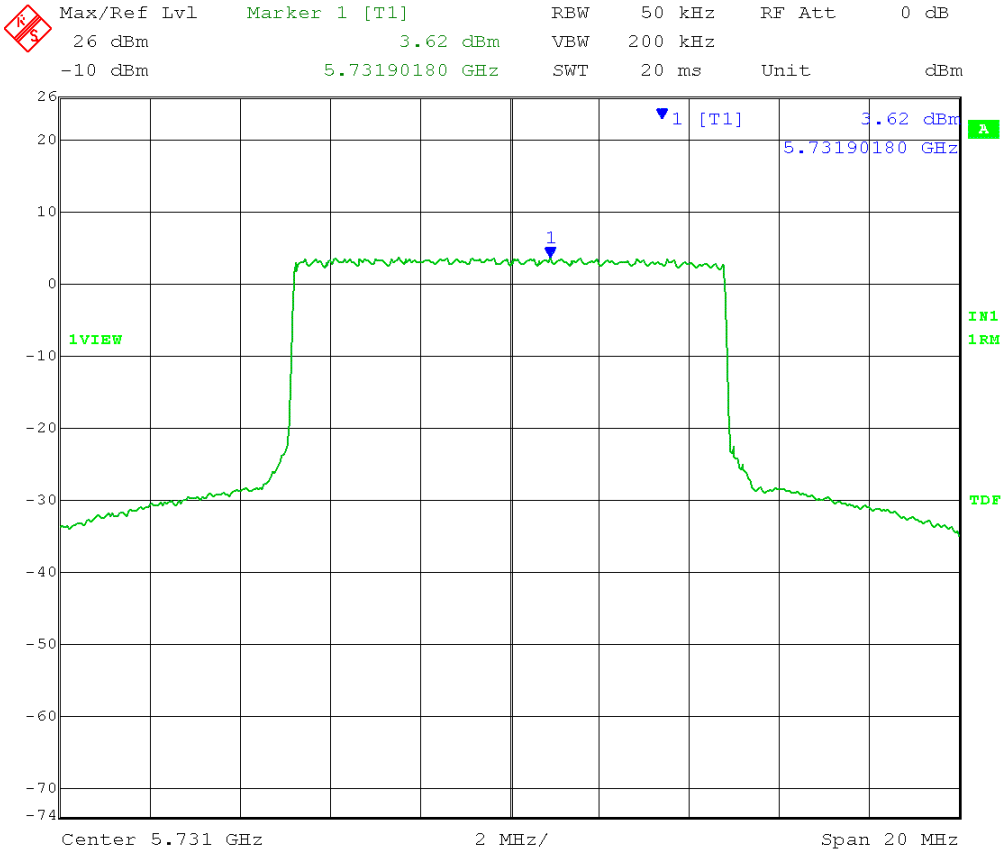
Date: 6.NOV.2013 13:12:34

10MHz LCH 64QAM TX0



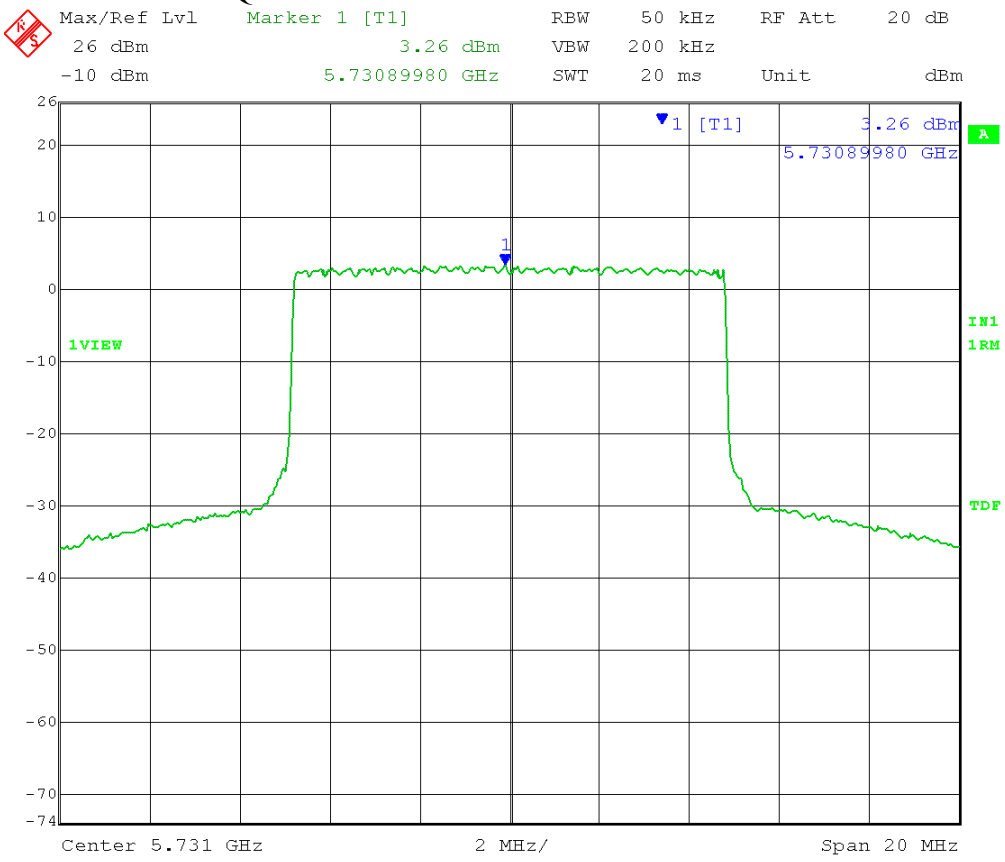
Date: 6.NOV.2013 15:03:24

TX1



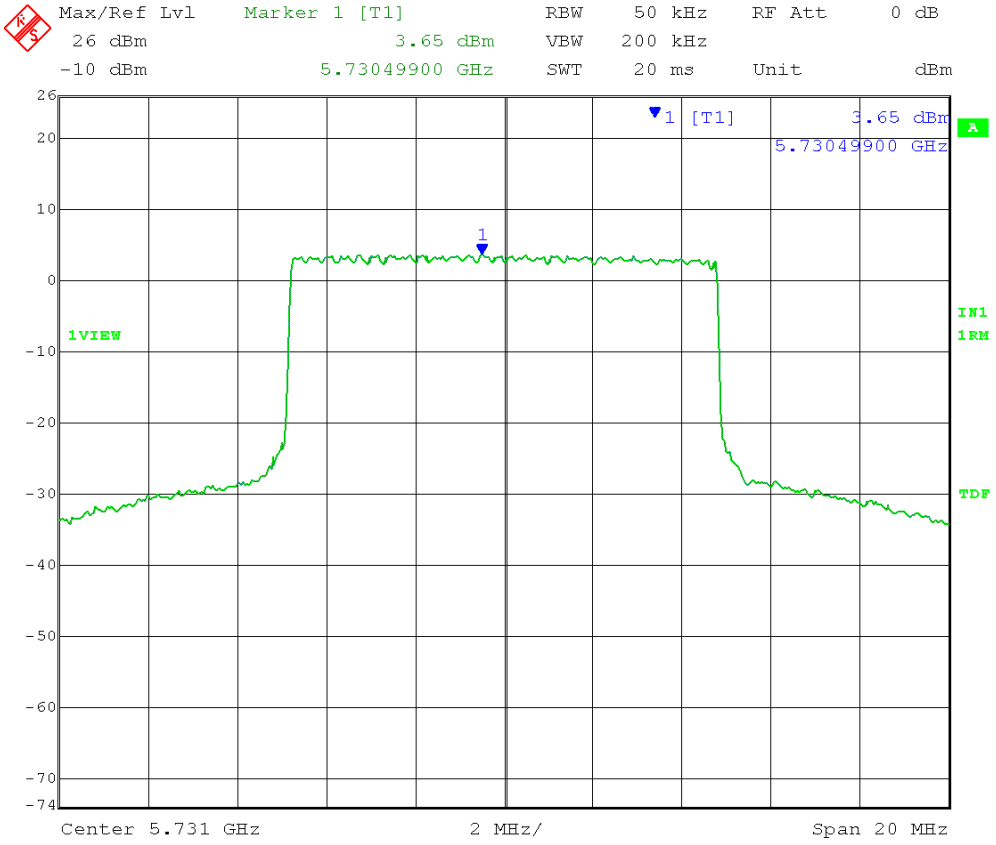
Date: 6.NOV.2013 13:13:02

10MHz LCH 256QAM TX0



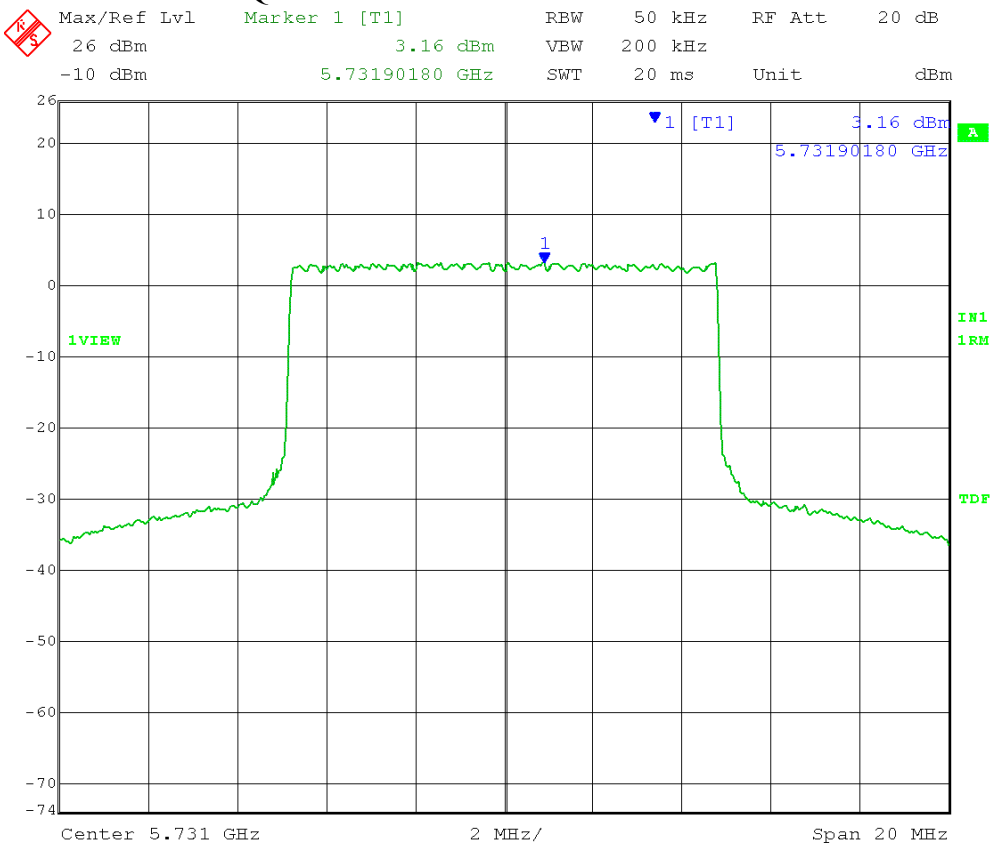
Date: 6.NOV.2013 15:03:54

TX1



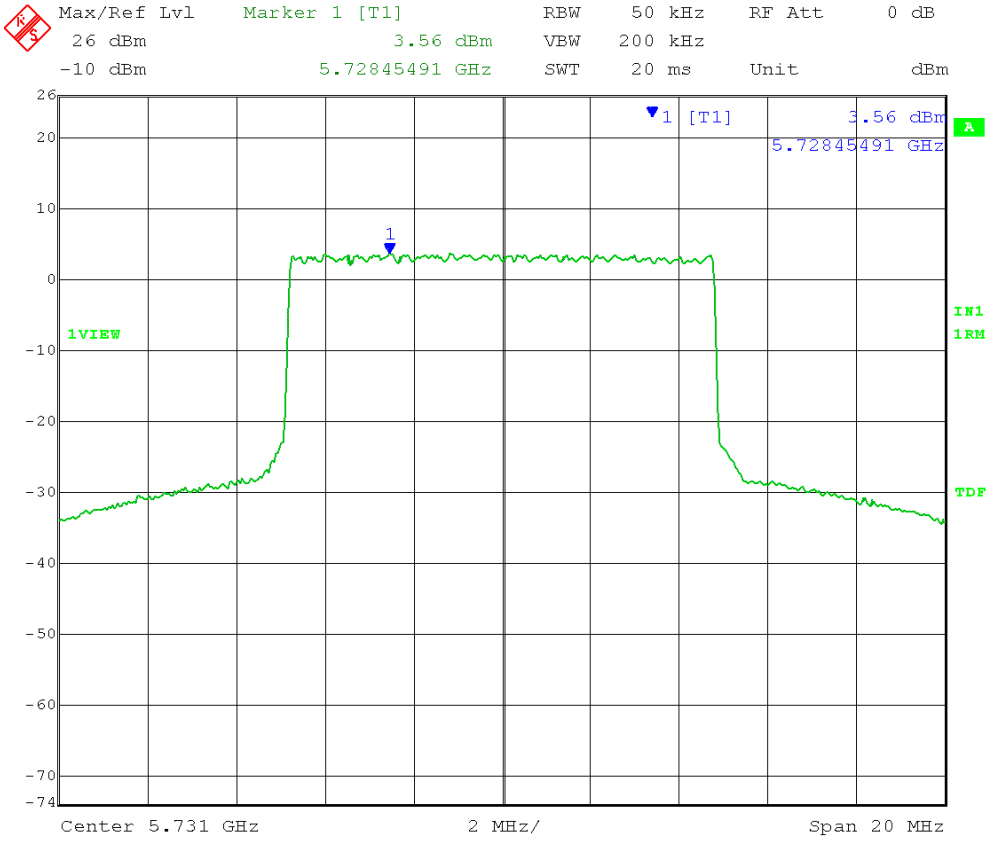
Date: 6.NOV.2013 13:13:47

10MHz LCH 1024QAM TX0



Date: 6.NOV.2013 15:04:25

TX1



Date: 6.NOV.2013 13:14:30

Appendix B – Measurement Data

B4.0 Maximum Unwanted Emission Levels – Radiated

Rule Section: FCC 15.247(d)

Test Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

11.0 -Emissions in non-restricted frequency bands
11.2 - Reference level measurement
11.3 - Emission level measurement

Description: RBW = 100 kHz
VBW ≥ 300 kHz
Span to ≥ 1.5 times the *DTS bandwidth* (Reference Level)
Set the center frequency and span to encompass frequency range to be measured. (Emission Level)
Detector = peak
Sweep = auto couple
Trace mode = max hold

Measurements were taken for QPSK, 16QAM, 64QAM, 256QAM and 1024 QAM modulations over a 10MHz, 20MHz, 40MHz and 50MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings.

Limit: 30 dB below maximum in-band average PSD level (maximum level in any 100 kHz band). Average output power procedure was used to measure the fundamental emission power

Results: Passed

All non-restricted band emissions

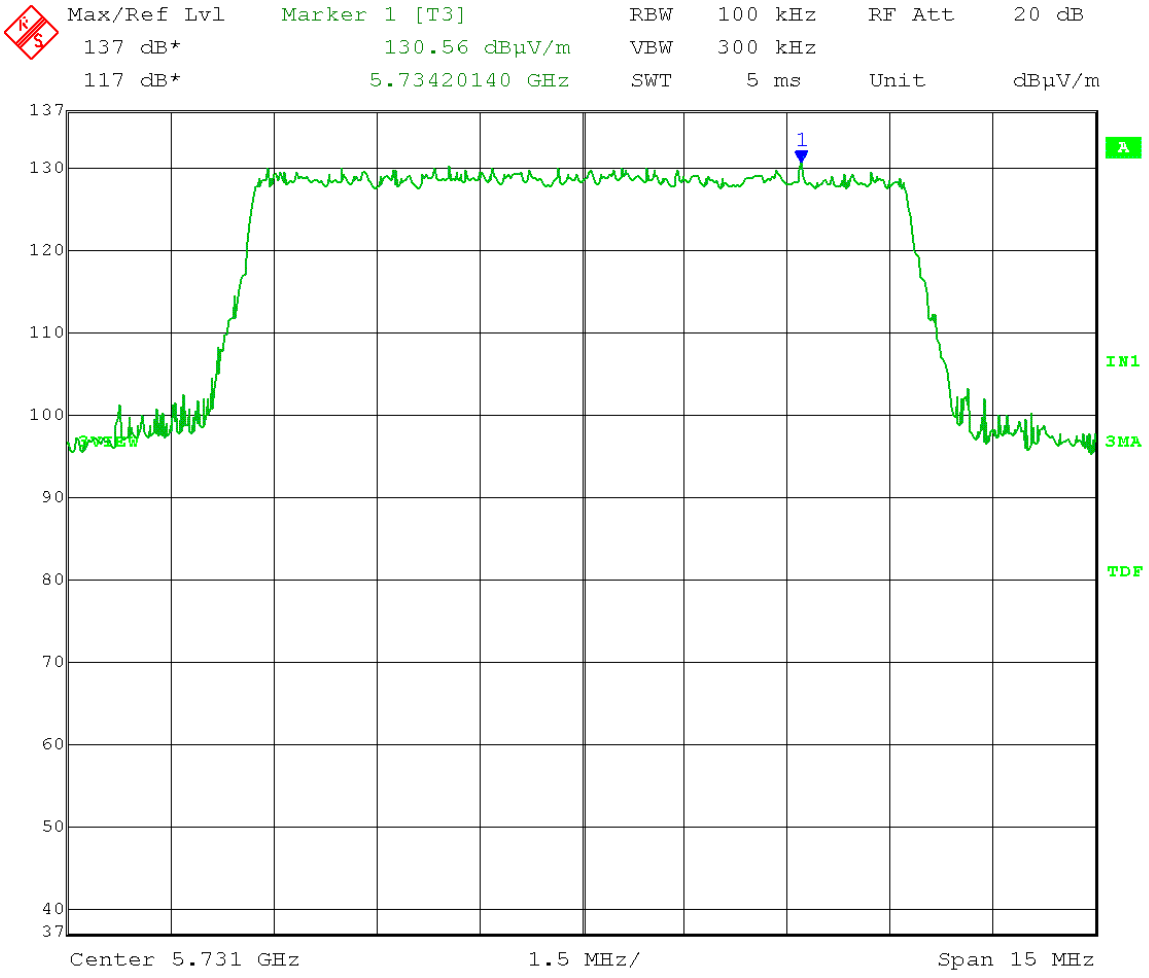
30-1000 MHz

are more than 40 dB under the limit

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Low Channel Transmit = 5.731 GHz
HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 130.56 dBµV/m – 30 dB = 100.56 dBµV/m



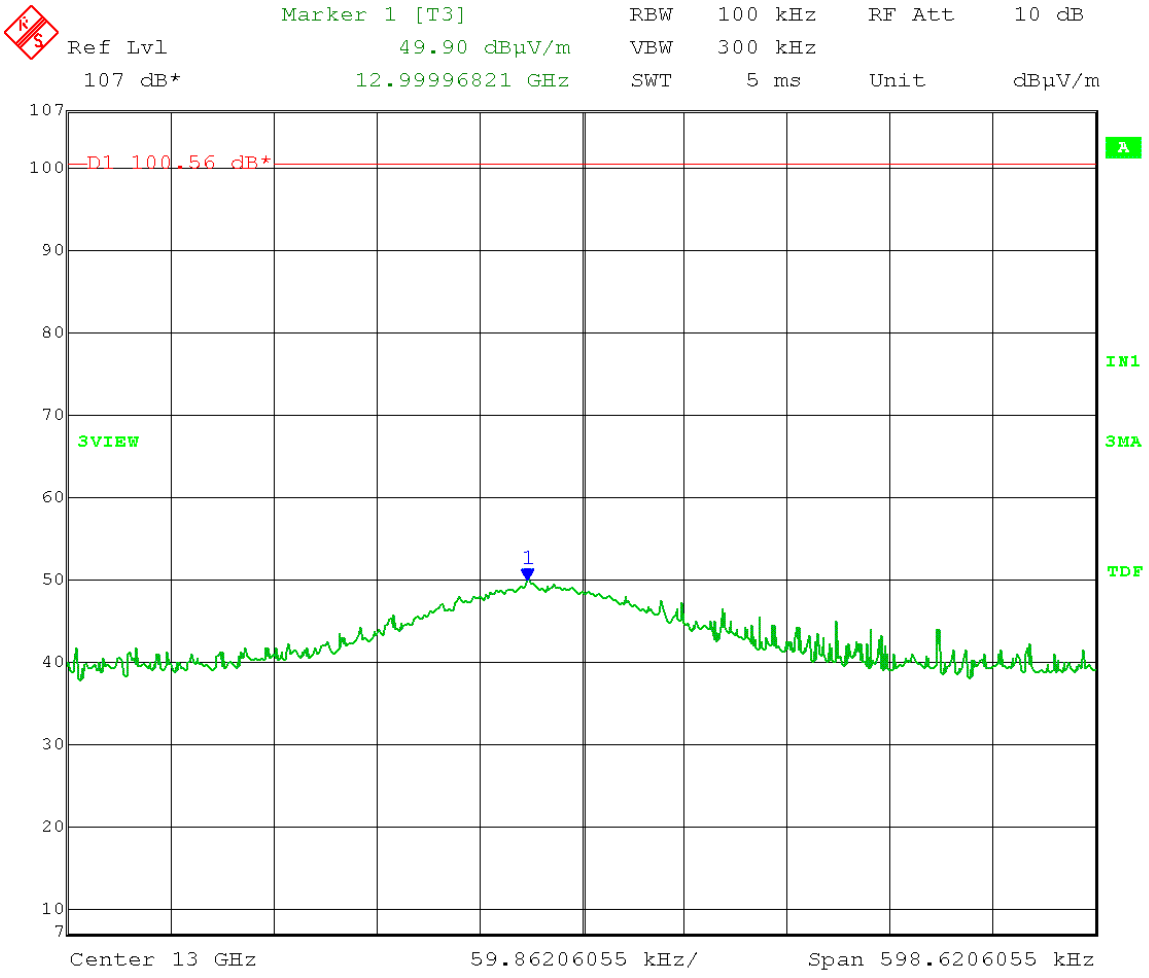
Date: 7.NOV.2013 09:07:13

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 130.56 dBµV/m – 30 dB = 100.56 dBµV/m

Same frequency and level on all channels (Low, Mid, and High)



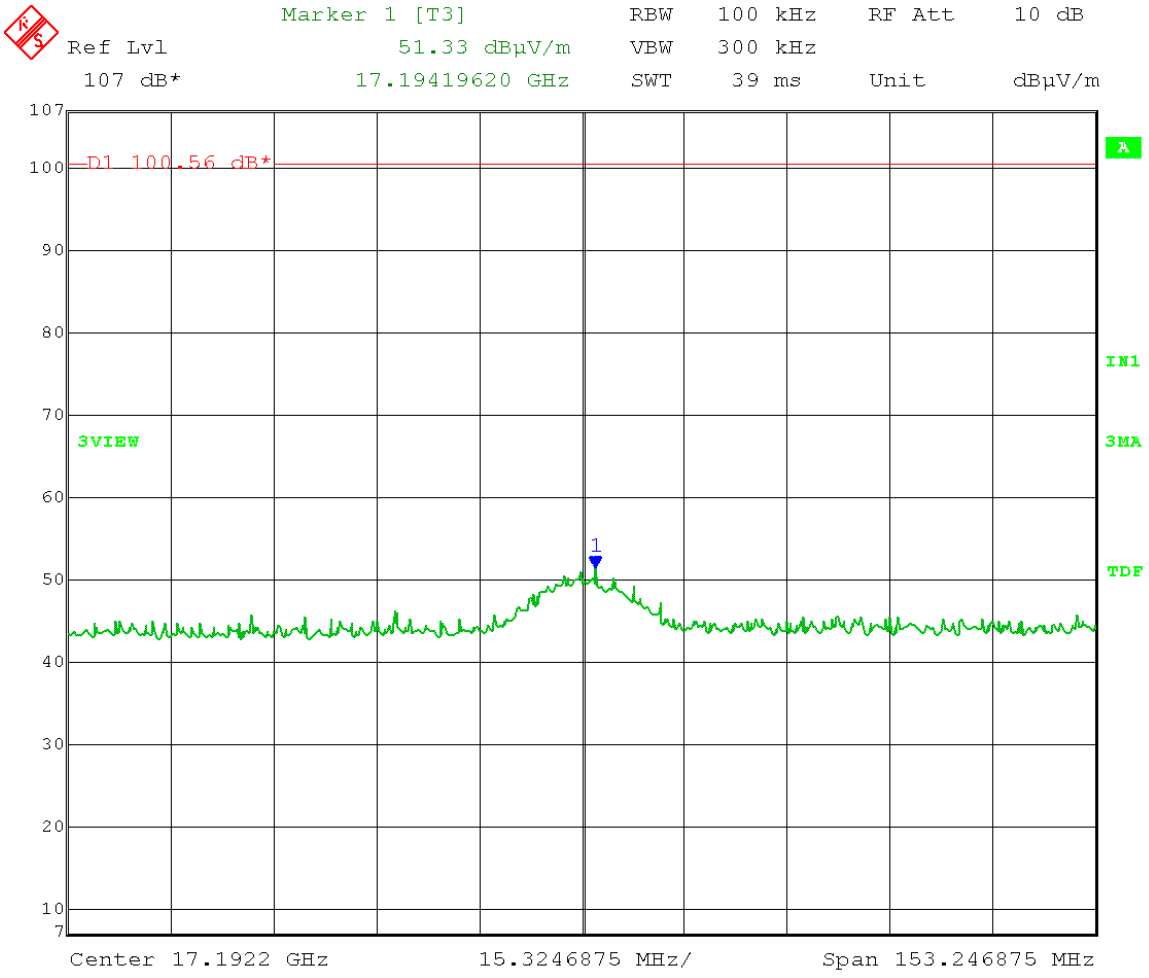
Date: 7.NOV.2013 12:22:59

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 130.56 dBµV/m – 30 dB = 100.56 dBµV/m

Low channel: 5731 MHz

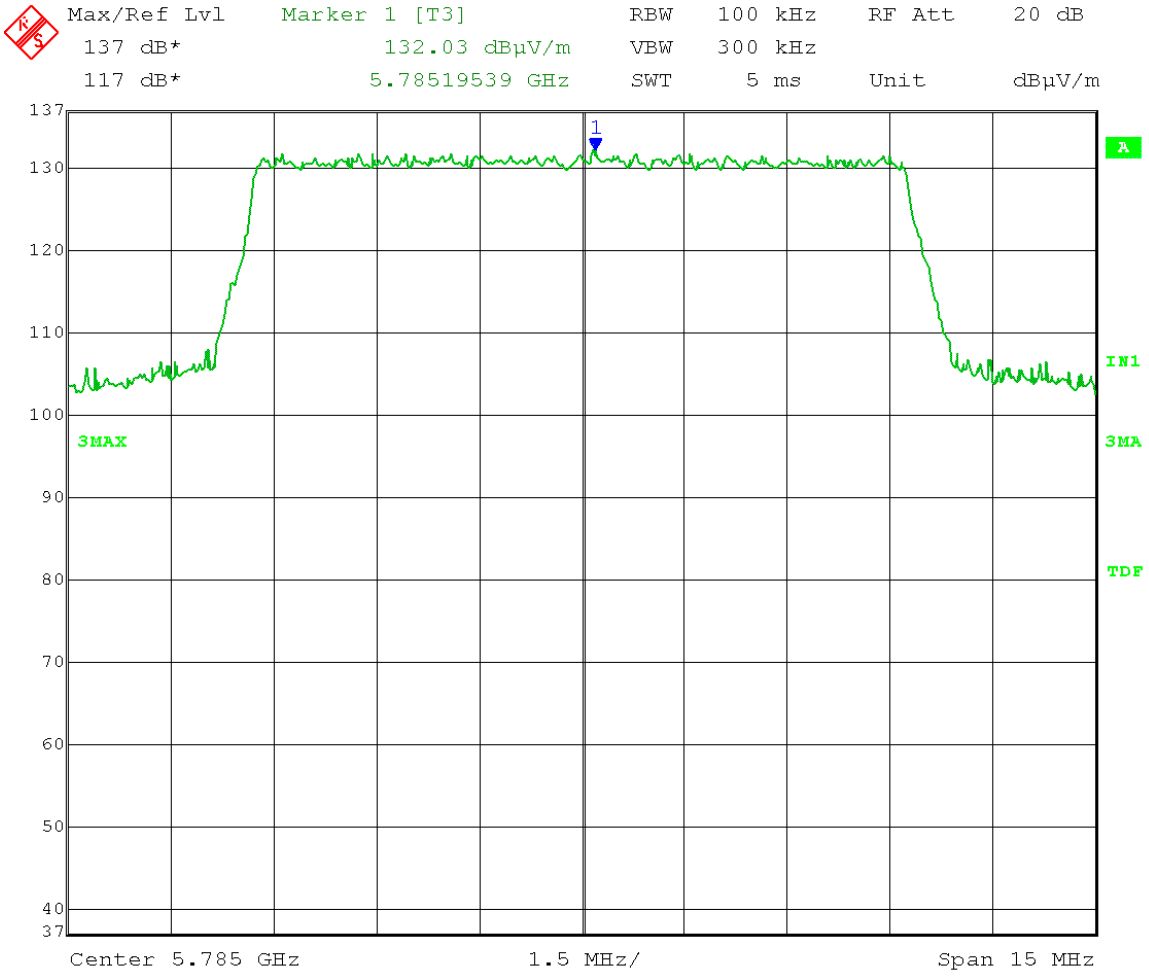


Date: 7.NOV.2013 11:41:27

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Mid Channel Transmit = 5.785 GHz
HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 132.03 dBµV/m – 30 dB = 102.03 dBµV/m



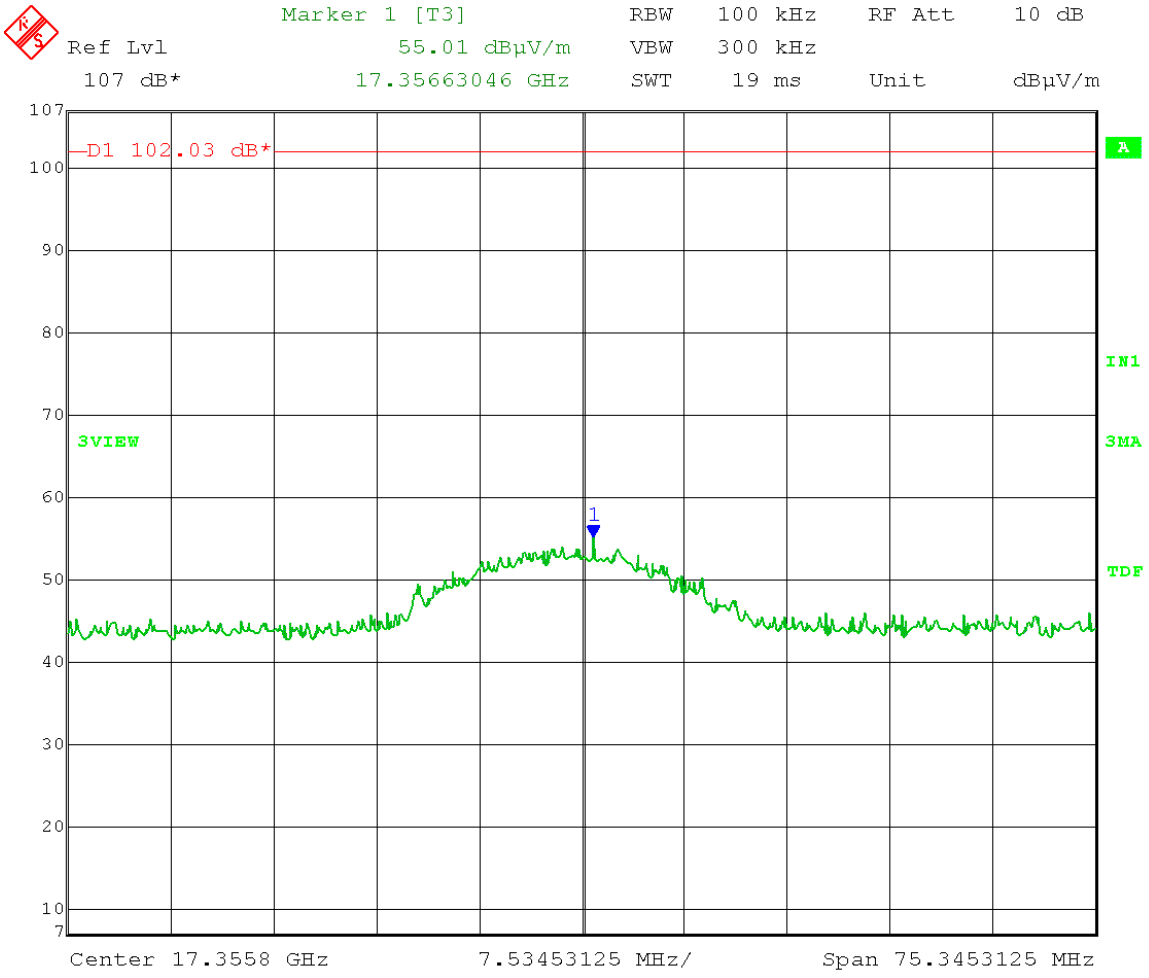
Date: 7.NOV.2013 09:15:53

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 132.03 dBµV/m – 30 dB = 102.03 dBµV/m

Mid channel: 5785 MHz

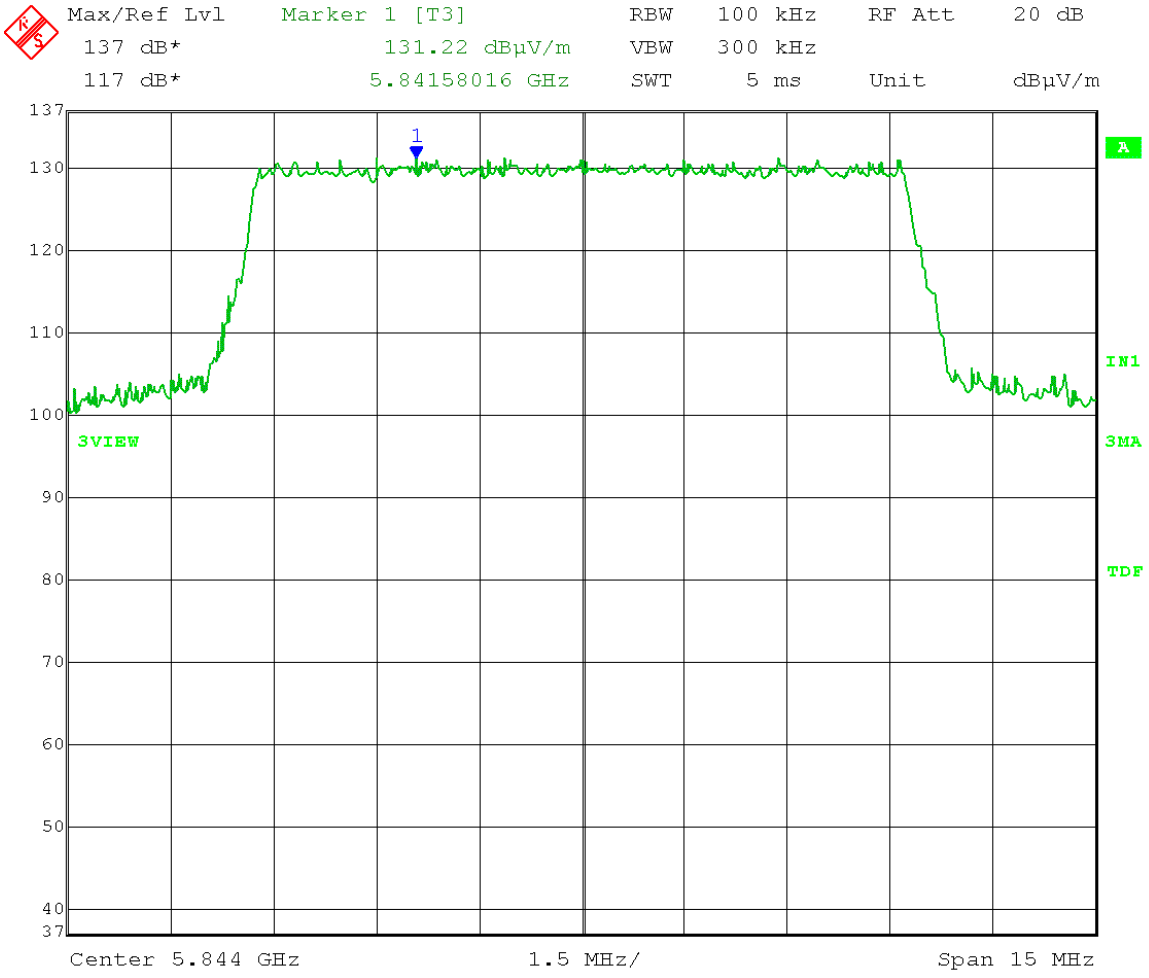


Date: 7.NOV.2013 13:37:27

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

High Channel Transmit = 5.844 GHz
HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 131.22 dBµV/m – 30 dB = 101.22 dBµV/m



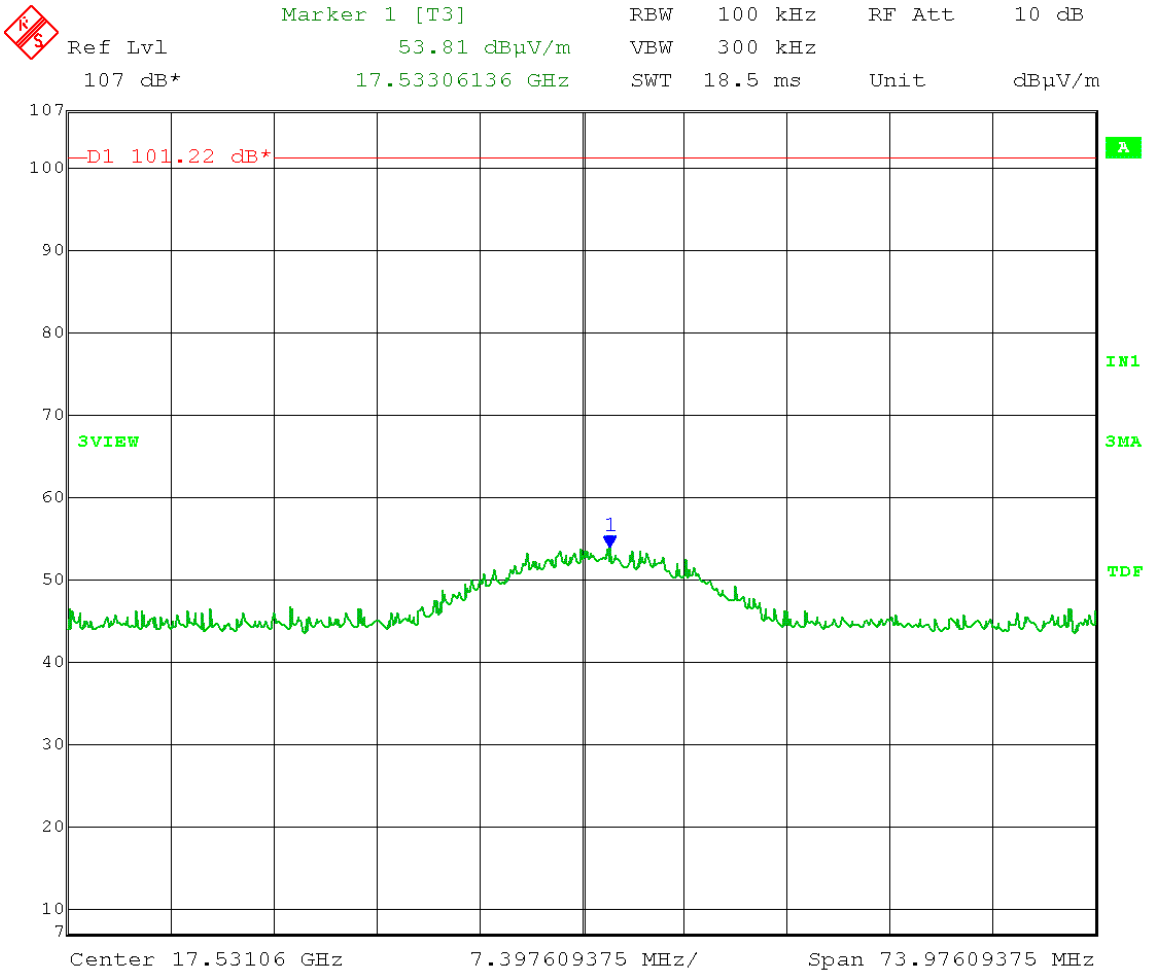
Date: 7.NOV.2013 09:32:51

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 131.22 dBµV/m – 30 dB = 101.22 dBµV/m

High channel: 5844 MHz

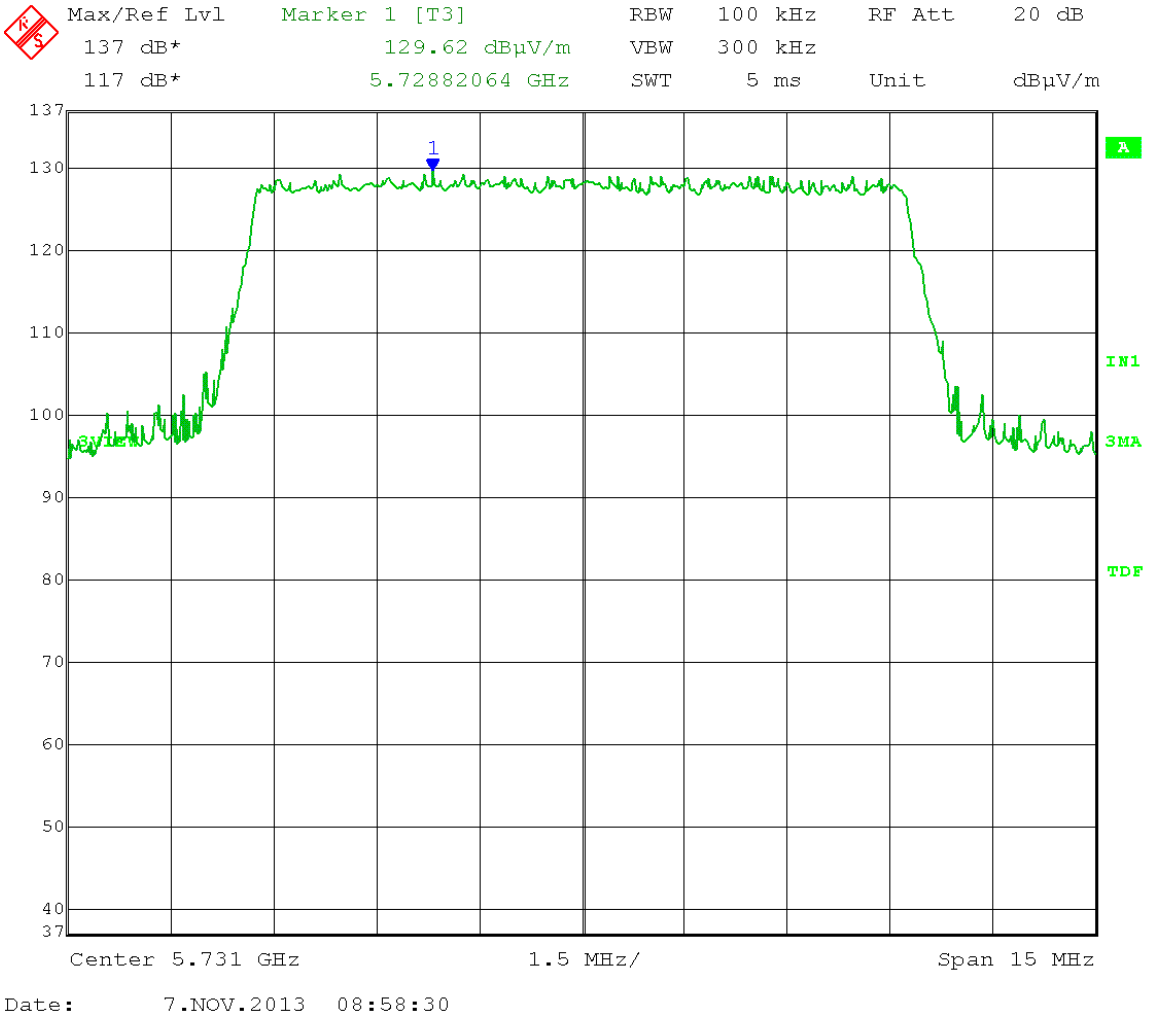


Date: 7.NOV.2013 14:03:07

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Low Channel Transmit = 5.731 GHz
VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 129.62 dBµV/m – 30 dB = 99.62 dBµV/m



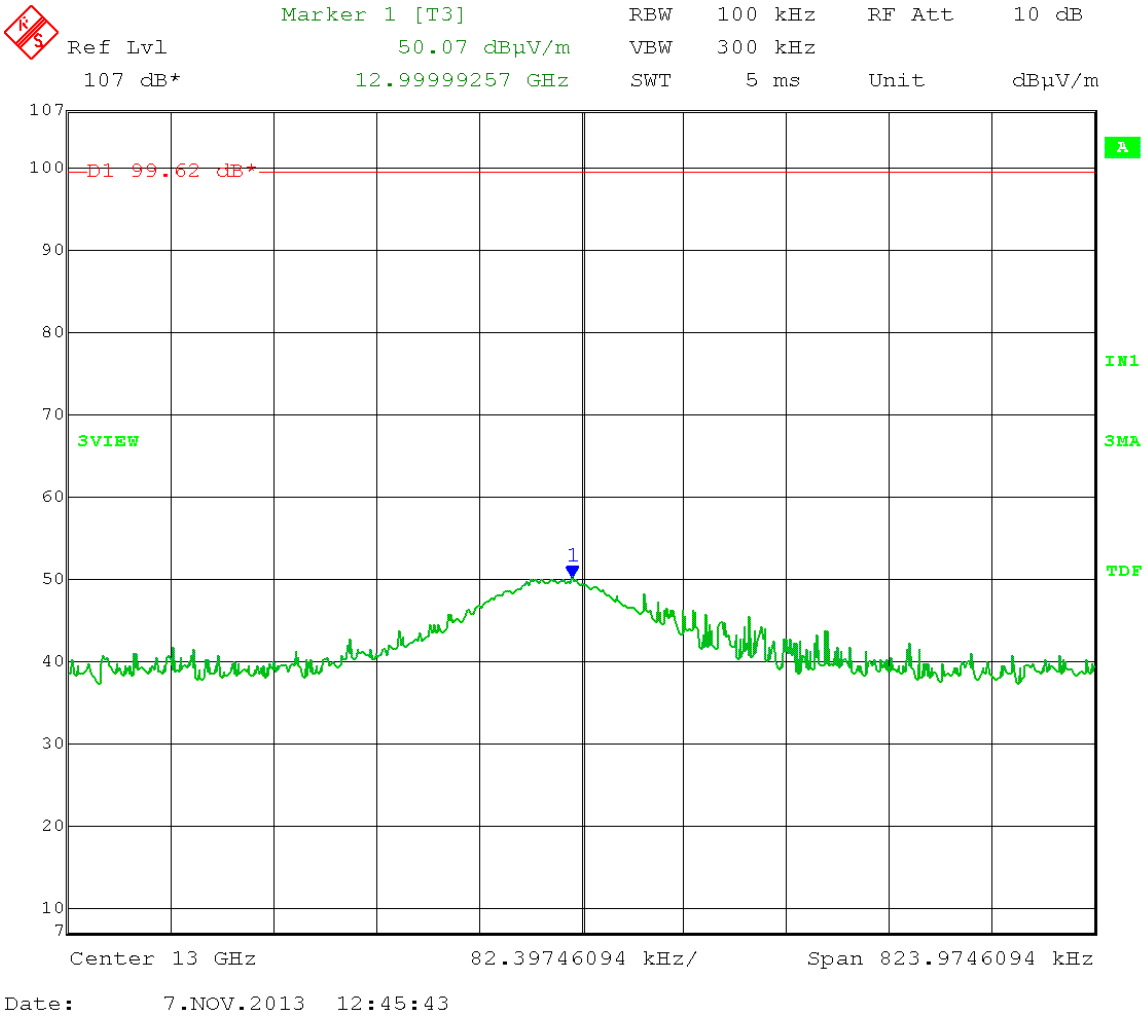
Date: 7.NOV.2013 08:58:30

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 129.62 dBµV/m – 30 dB = 99.62 dBµV/m

Note: emission is at same level and same frequency for Low, Mid, and High channels.

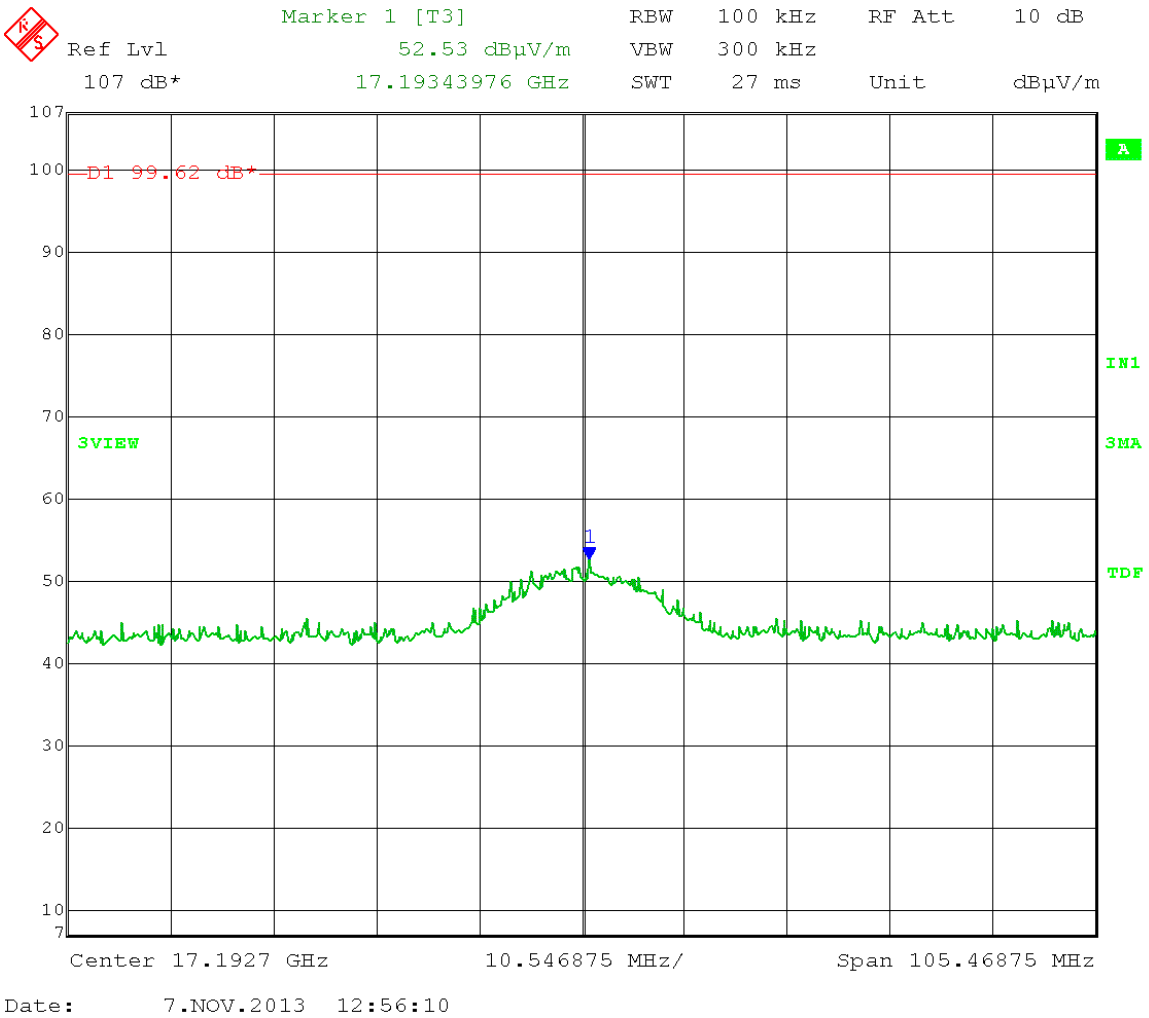


Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 129.62 dBµV/m – 30 dB = 99.62 dBµV/m

Low channel: 5731 MHz

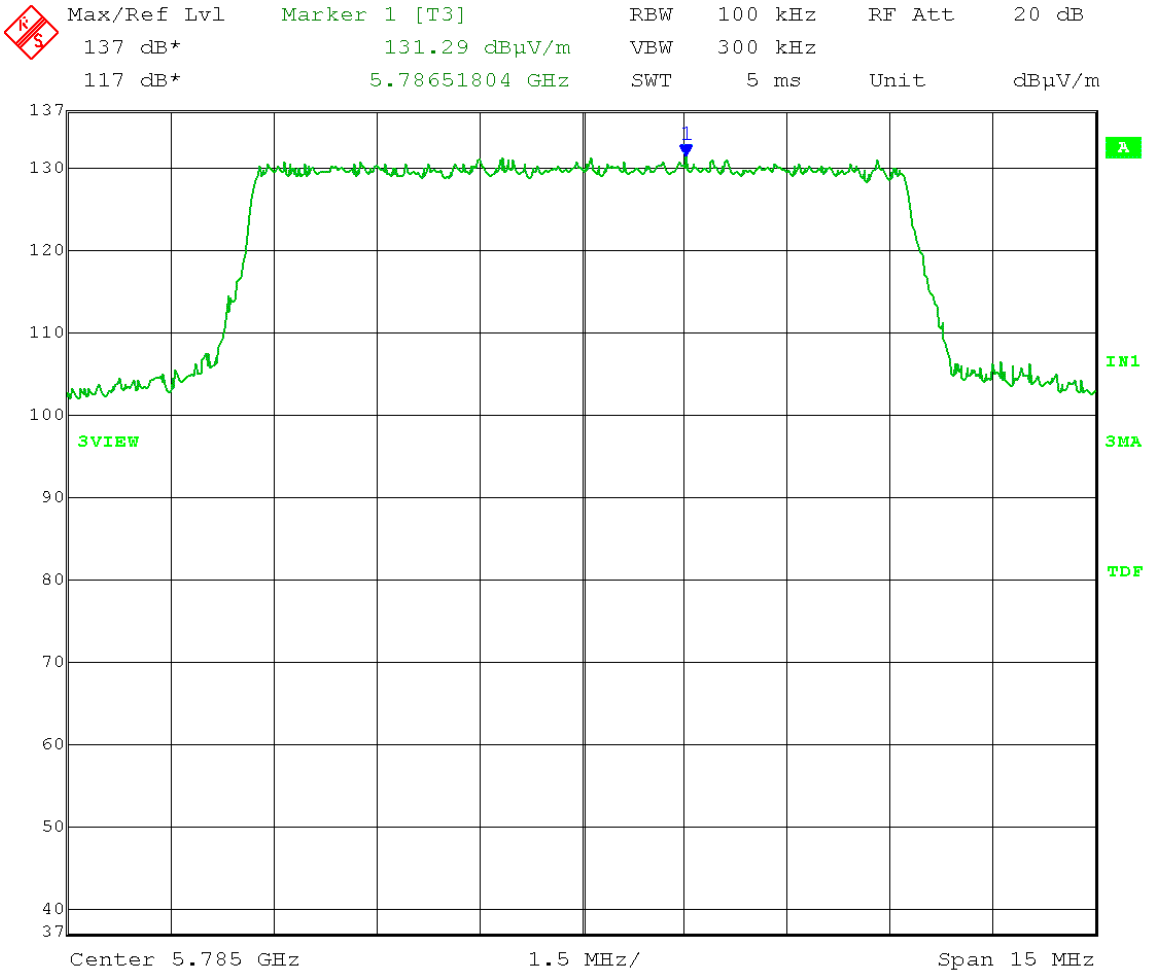


Date: 7.NOV.2013 12:56:10

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Mid Channel Transmit = 5.785 GHz
VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 131.29 dBµV/m – 30 dB = 101.29 dBµV/m



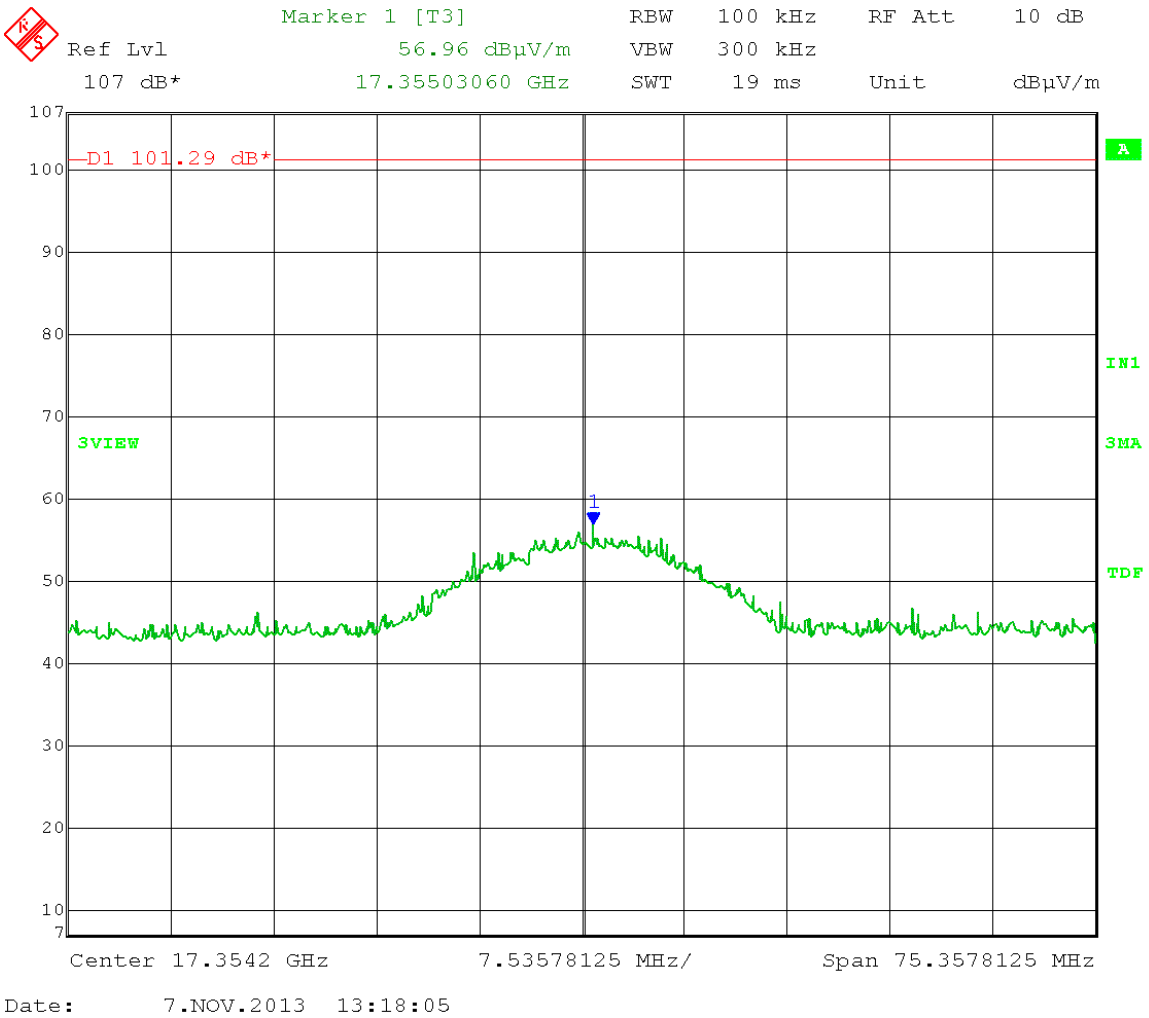
Date: 7.NOV.2013 09:25:00

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 131.29 dBµV/m – 30 dB = 101.29 dBµV/m

Mid channel: 5785 MHz

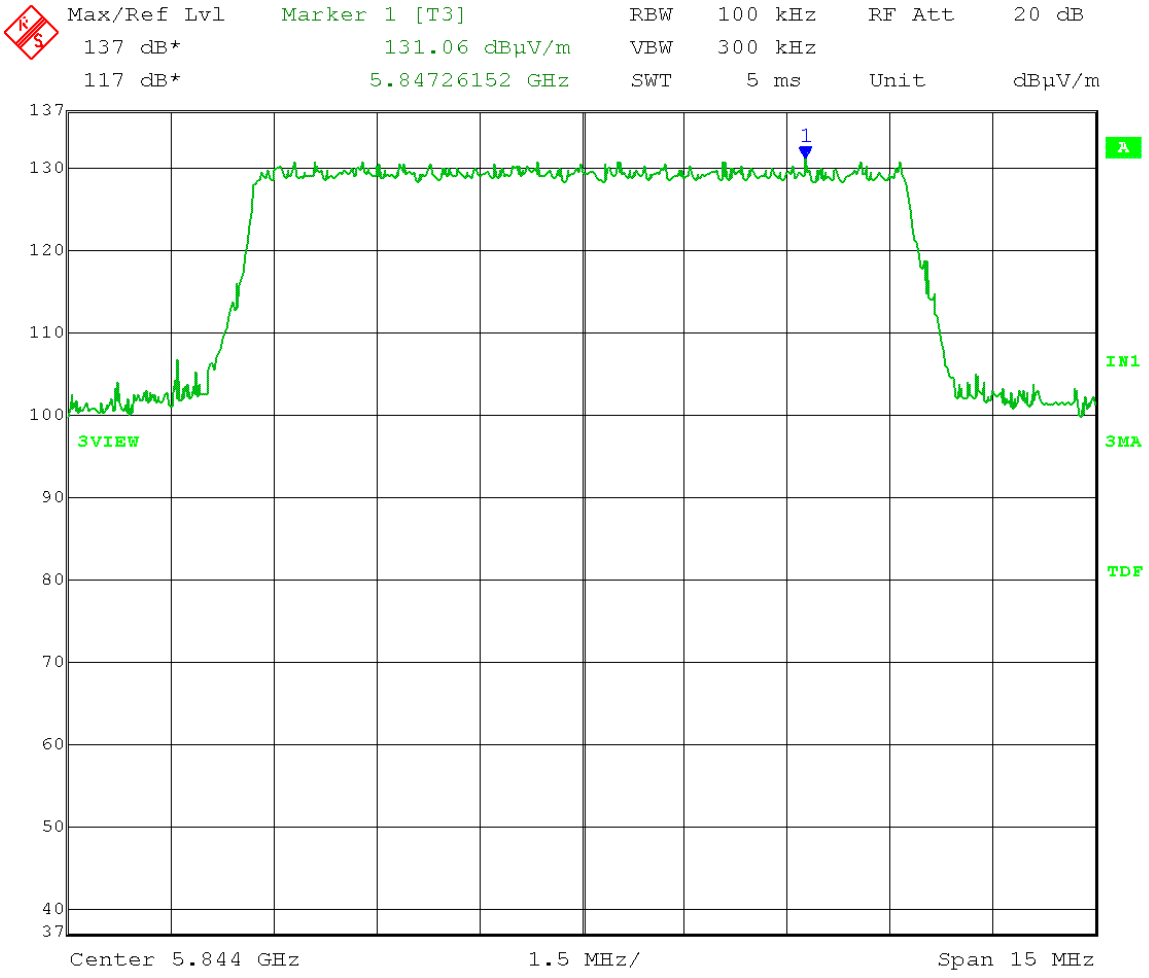


Date: 7.NOV.2013 13:18:05

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

High Channel Transmit = 5.844 GHz
VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 131.06 dBµV/m – 30 dB = 101.06 dBµV/m



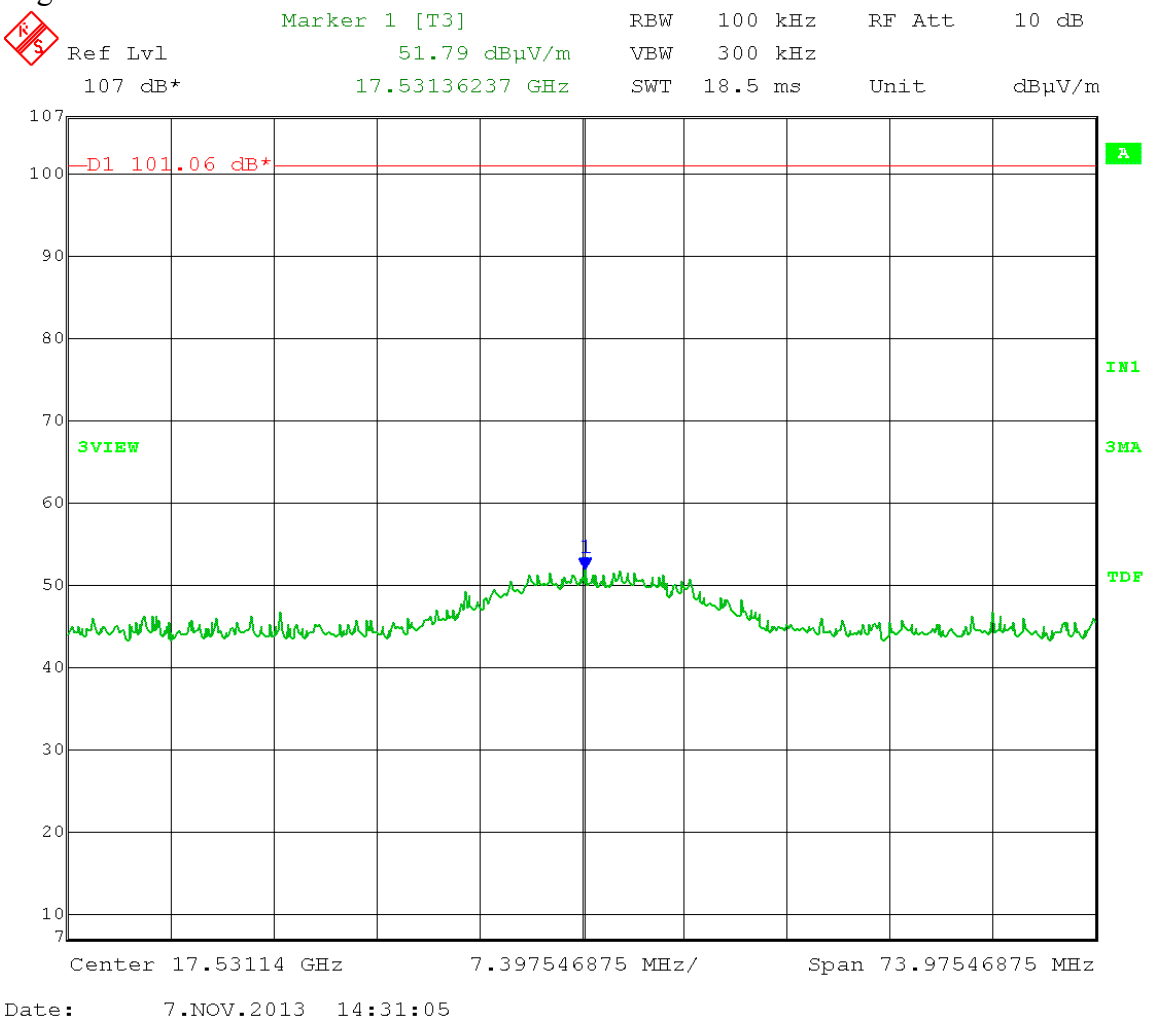
Date: 7.NOV.2013 09:28:49

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 10MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 131.06 dBµV/m – 30 dB = 101.06 dBµV/m

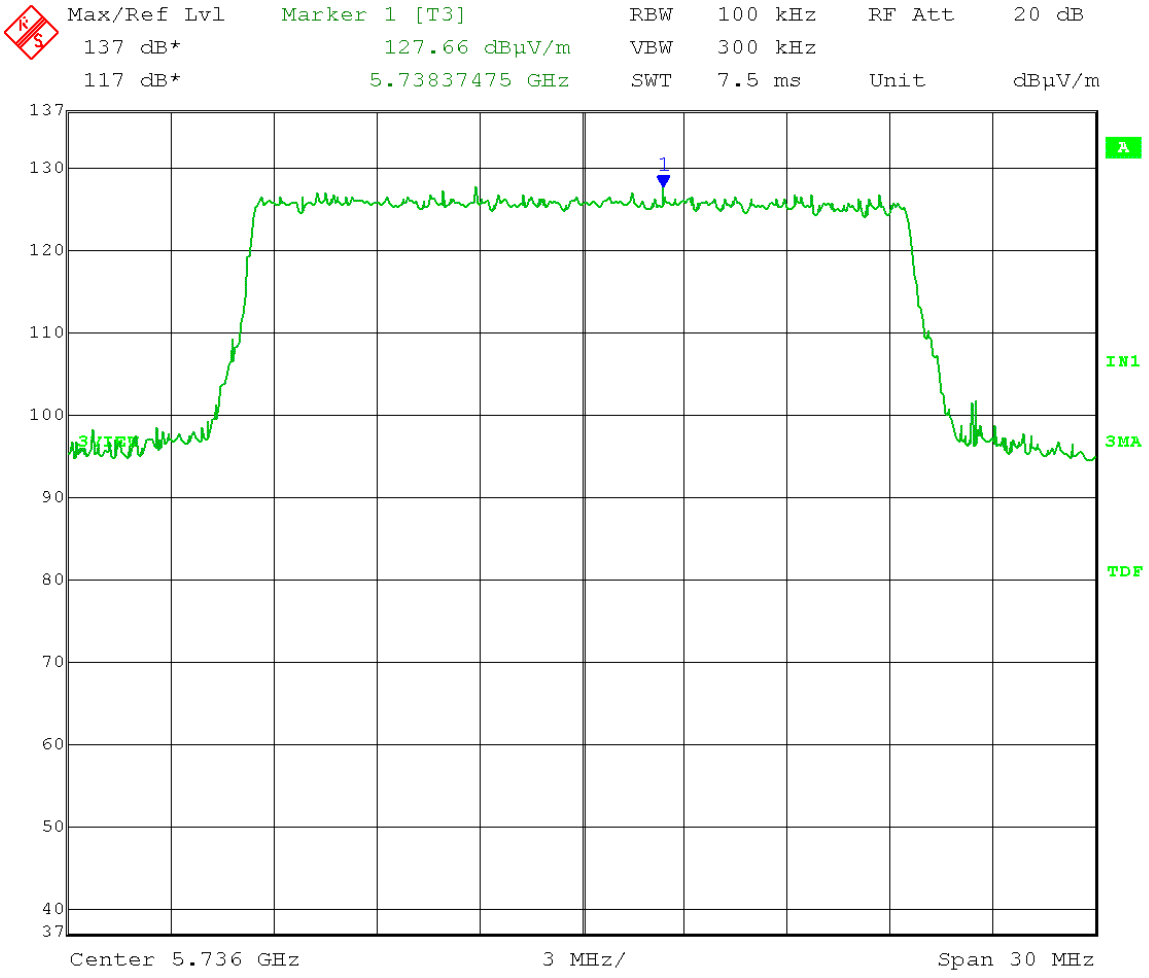
High channel: 5844 MHz



Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Low Channel Transmit = 5.736 GHz
HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 127.66 dBµV/m – 30 dB = 97.66 dBµV/m



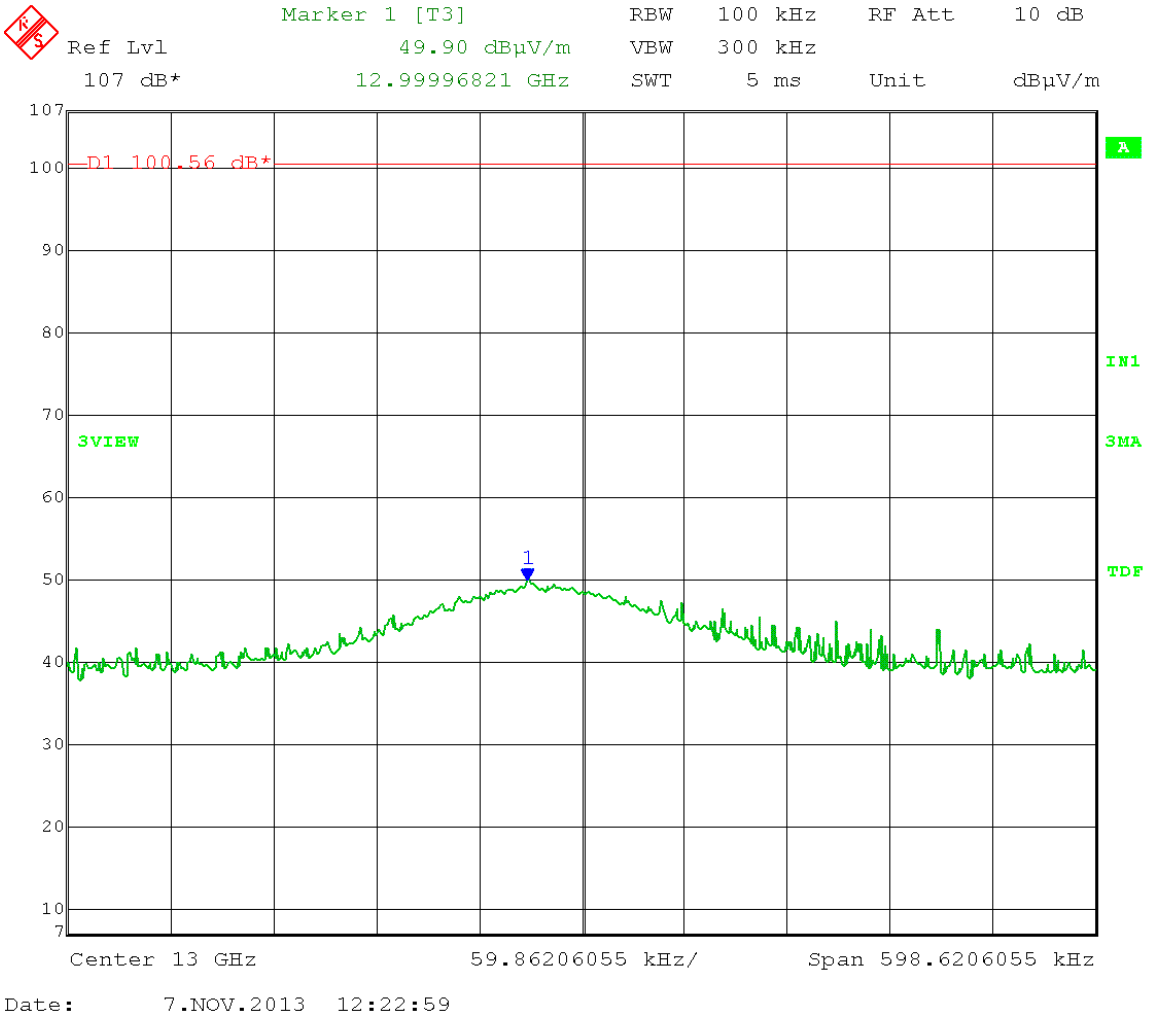
Date: 7.NOV.2013 09:55:00

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 127.66 dBµV/m – 30 dB = 97.66 dBµV/m

Same frequency and level on all channels (Low, Mid, and High)



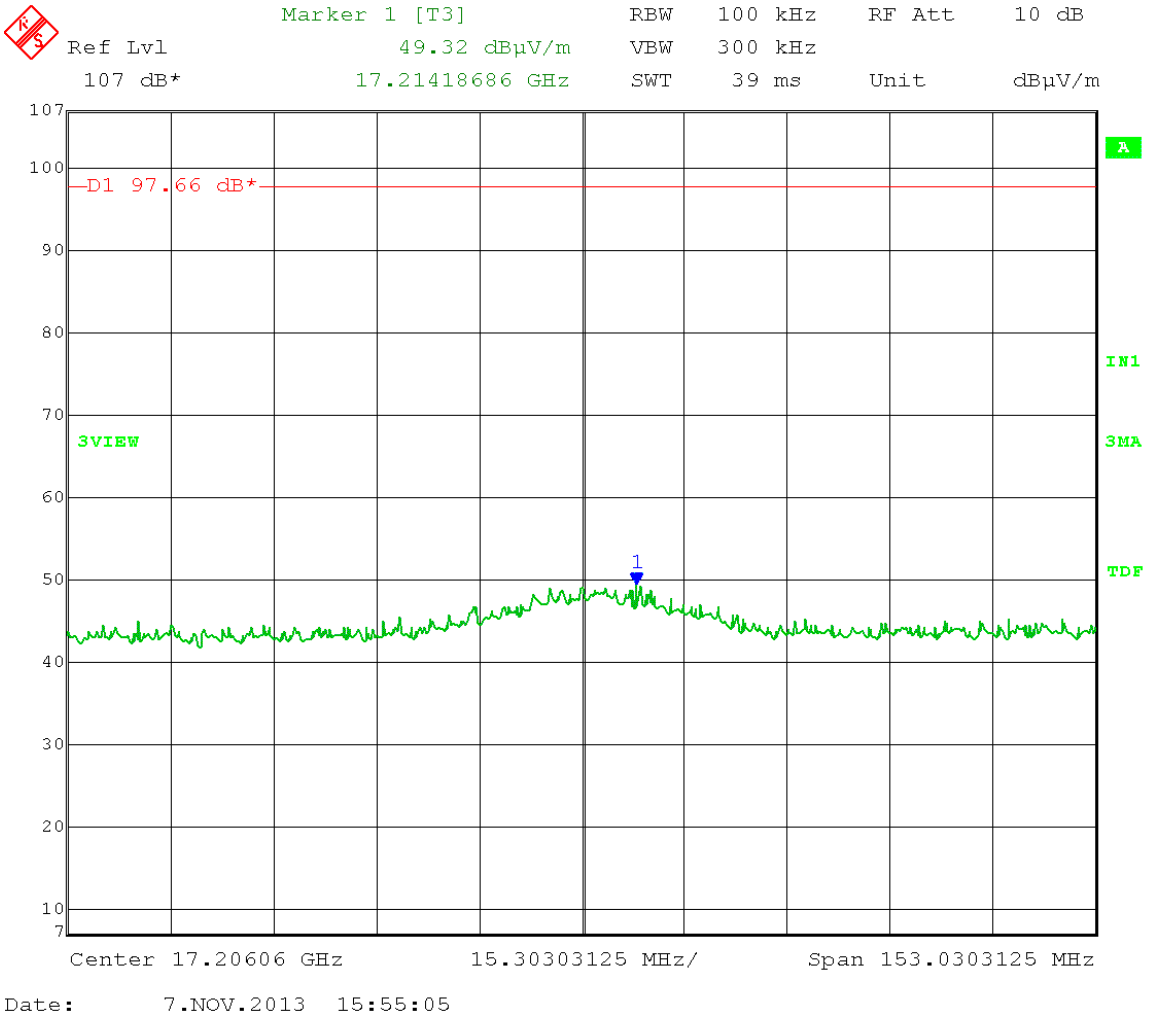
Date: 7.NOV.2013 12:22:59

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 127.66 dBµV/m – 30 dB = 97.66 dBµV/m

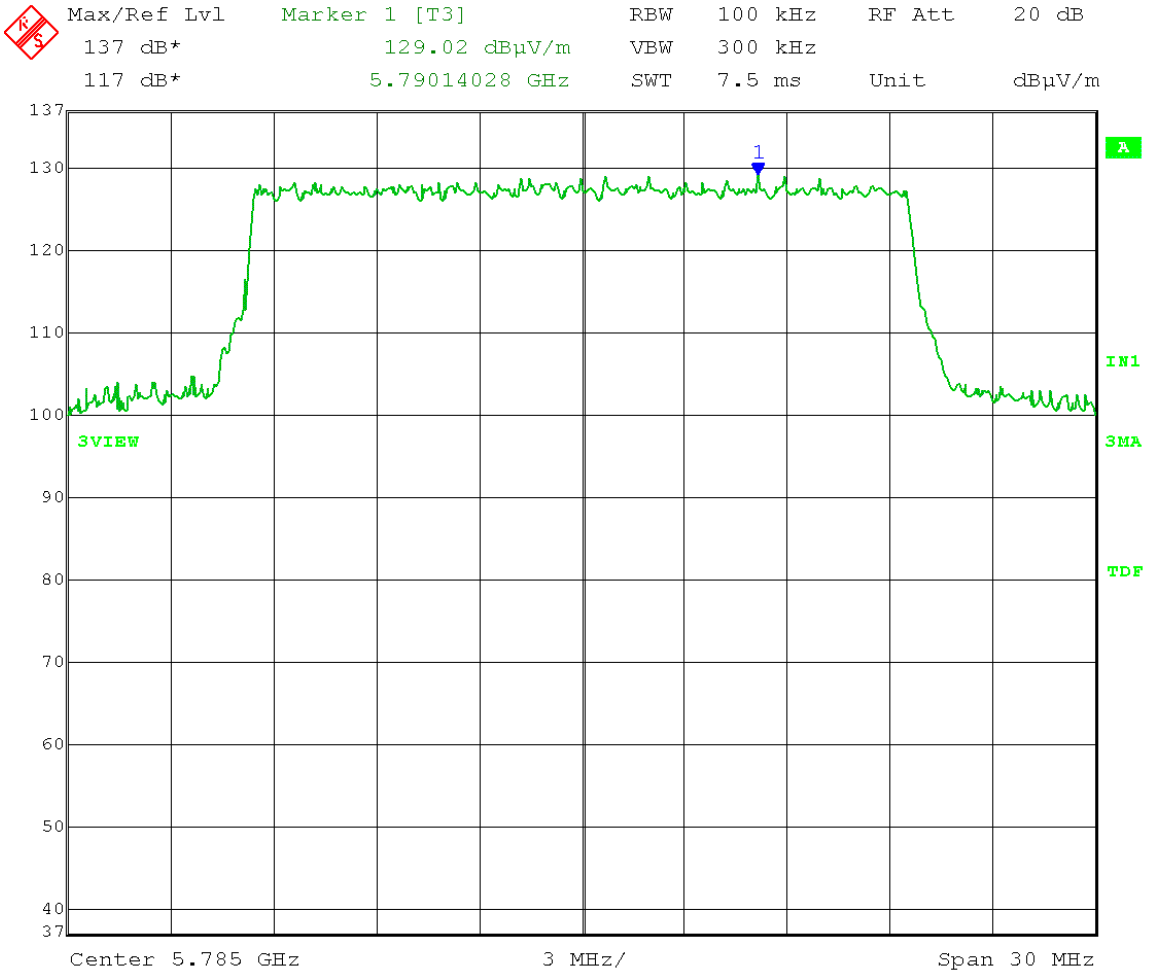
Low channel: 5736 MHz



Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Mid Channel Transmit = 5.785 GHz
HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 129.02 dBµV/m – 30 dB = 99.02 dBµV/m



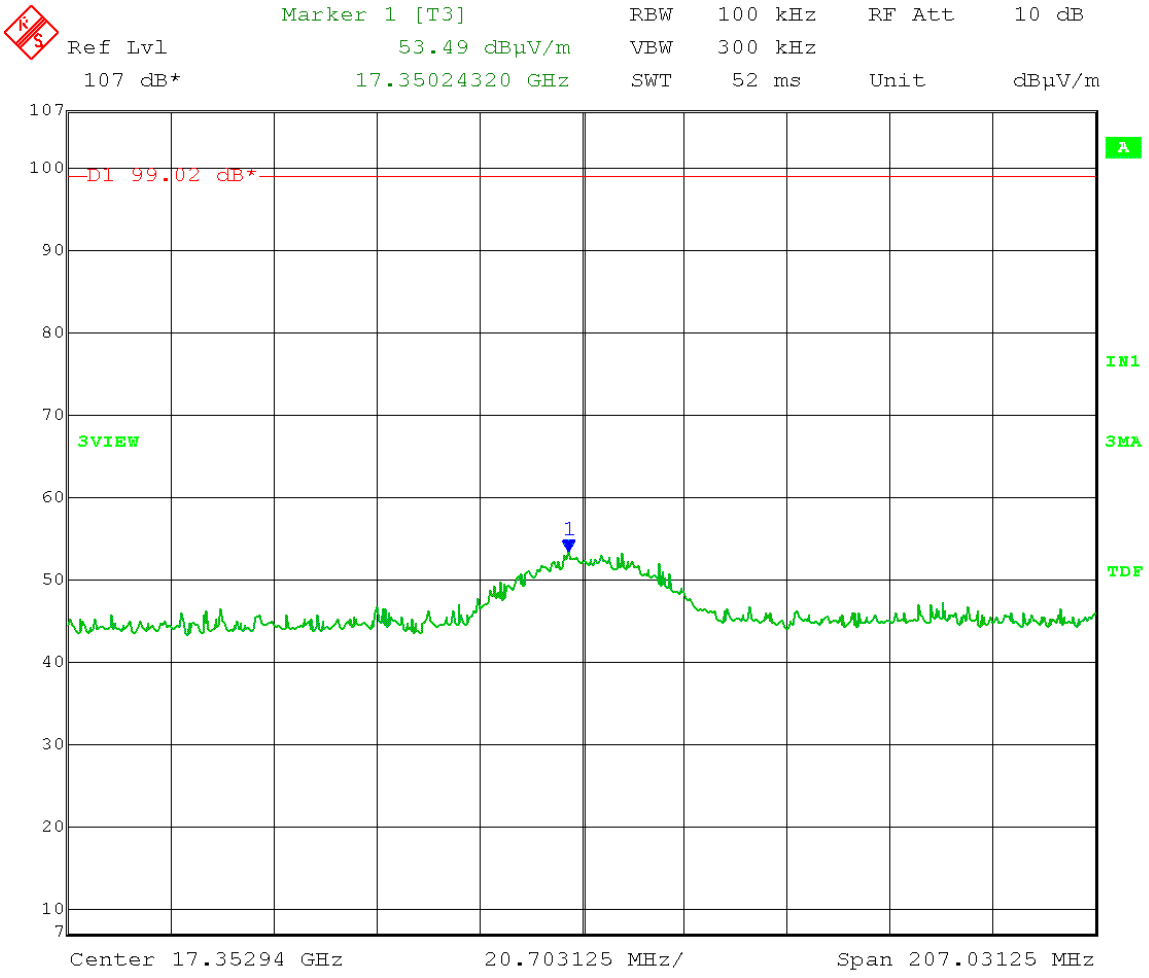
Date: 7.NOV.2013 09:51:32

Test Date: 11-08-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 129.02 dBµV/m – 30 dB = 99.02 dBµV/m

Mid channel: 5785 MHz

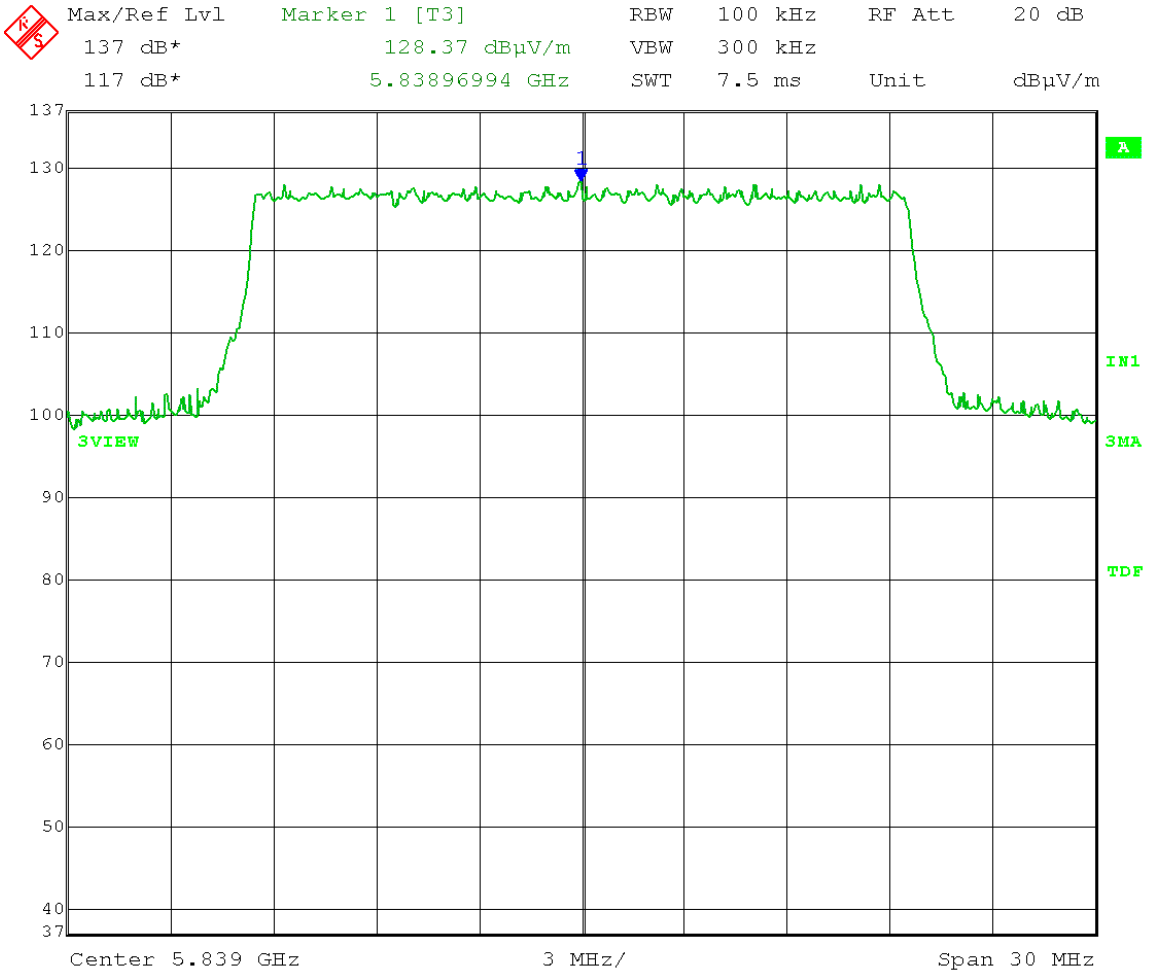


Date: 8.NOV.2013 08:48:54

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

High Channel Transmit = 5.839 GHz
HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 128.37 dBµV/m – 30 dB = 98.37 dBµV/m



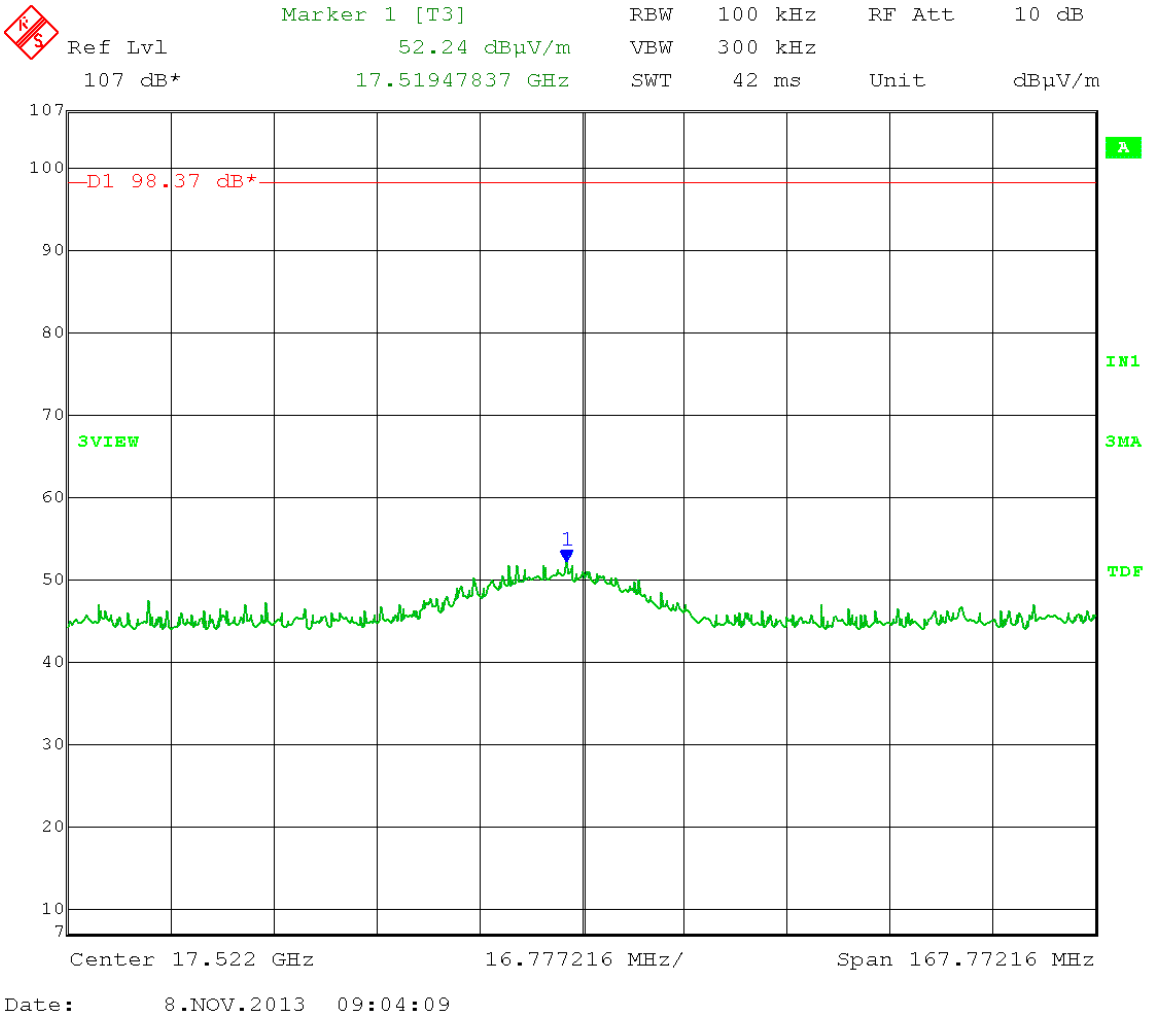
Date: 7.NOV.2013 09:48:00

Test Date: 11-08-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

HORIZONTAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 128.37 dBµV/m – 30 dB = 98.37 dBµV/m

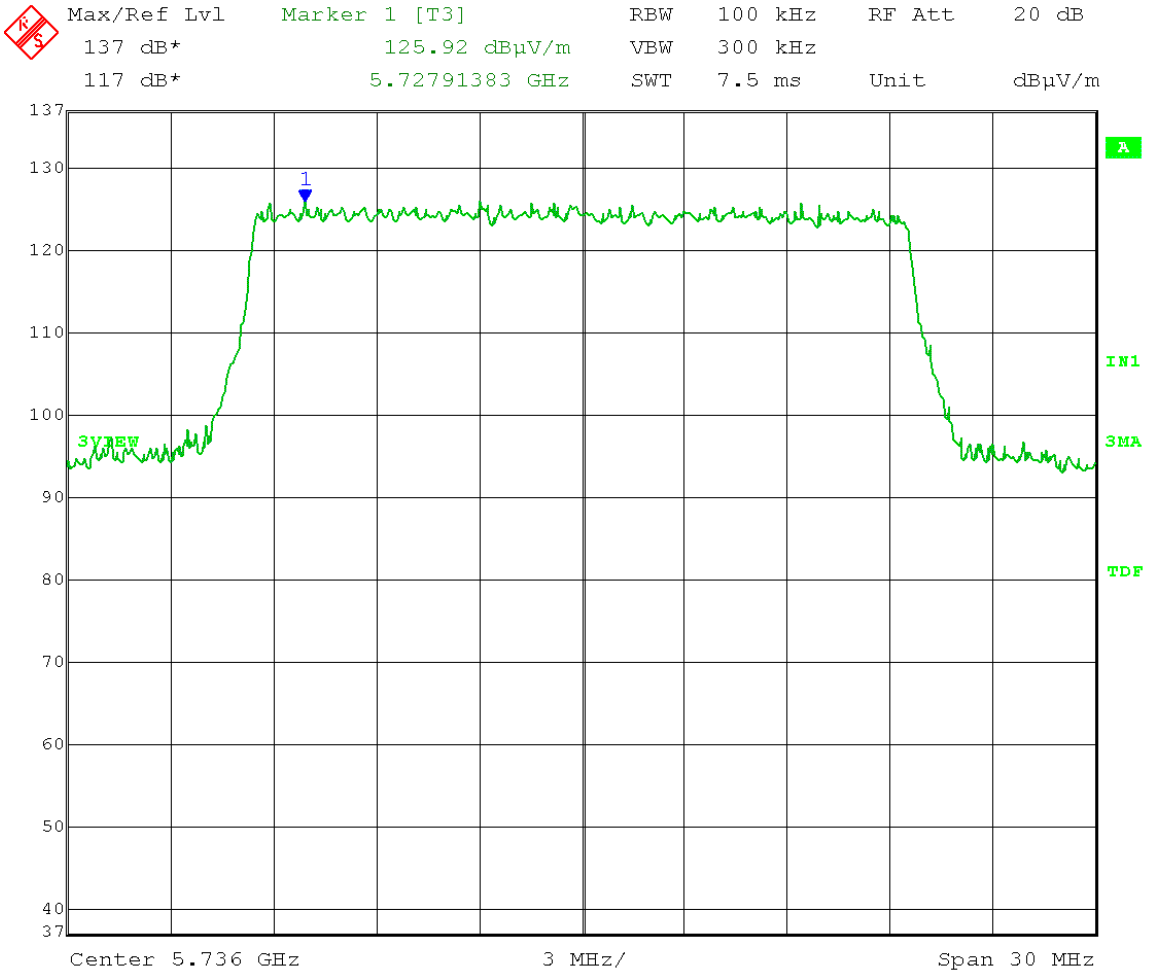
High channel: 5839 MHz



Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Low Channel Transmit = 5.736 GHz
VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 125.92 dBµV/m – 30 dB = 95.92 dBµV/m



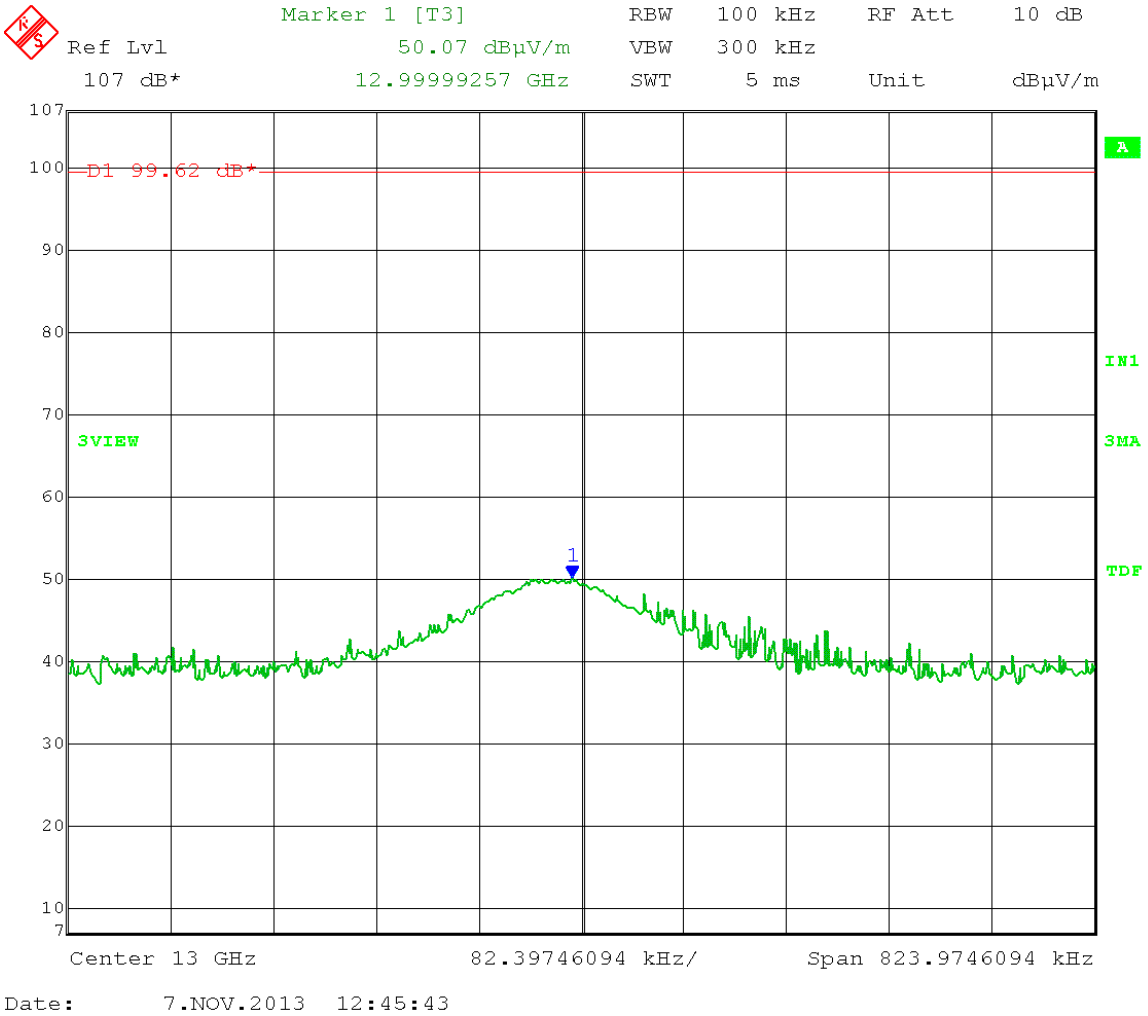
Date: 7.NOV.2013 09:59:04

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 125.92 dBµV/m – 30 dB = 95.92 dBµV/m

Note: emission is at same level and same frequency for Low, Mid, and High channels.

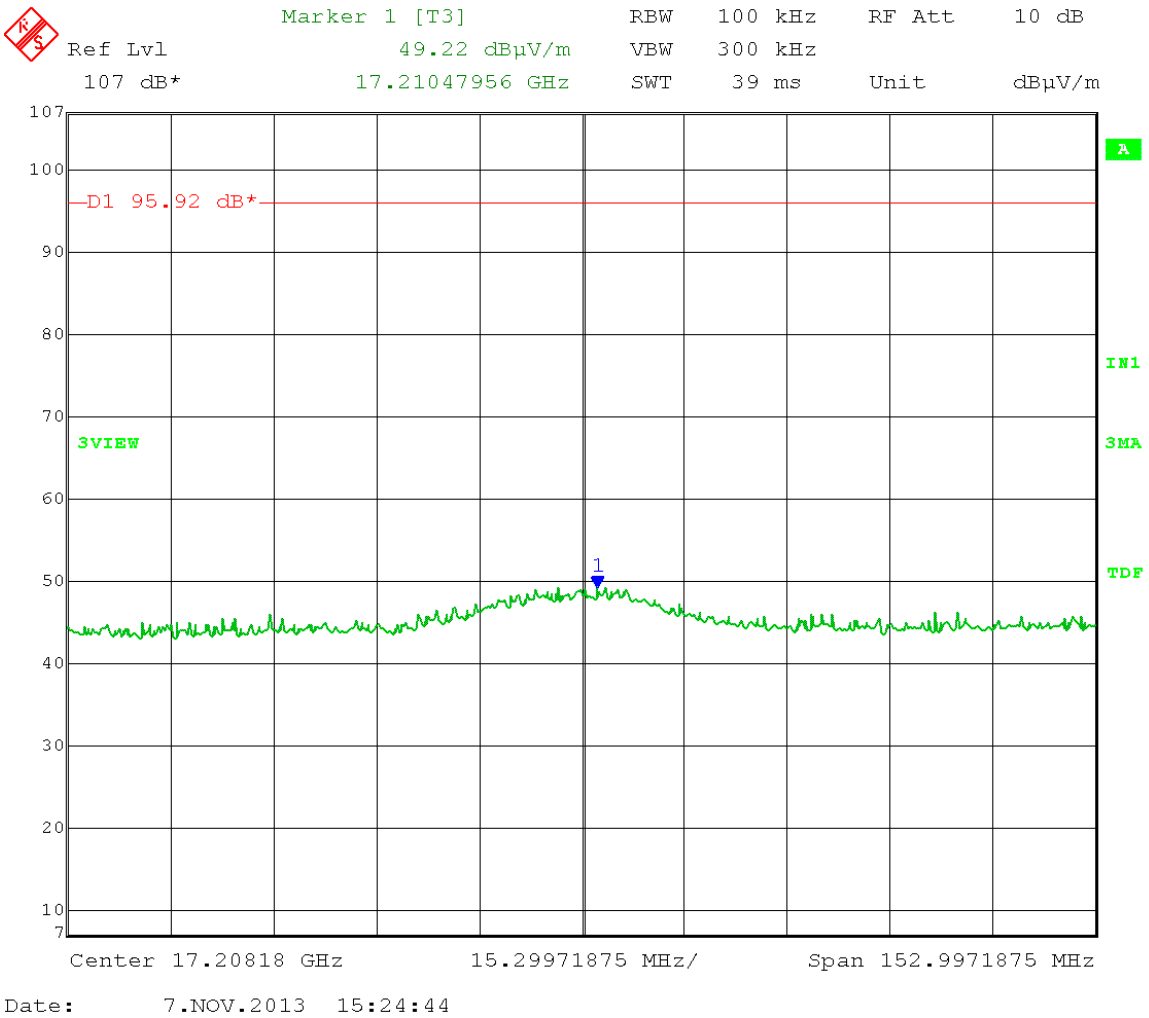


Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 125.92 dBµV/m – 30 dB = 95.92 dBµV/m

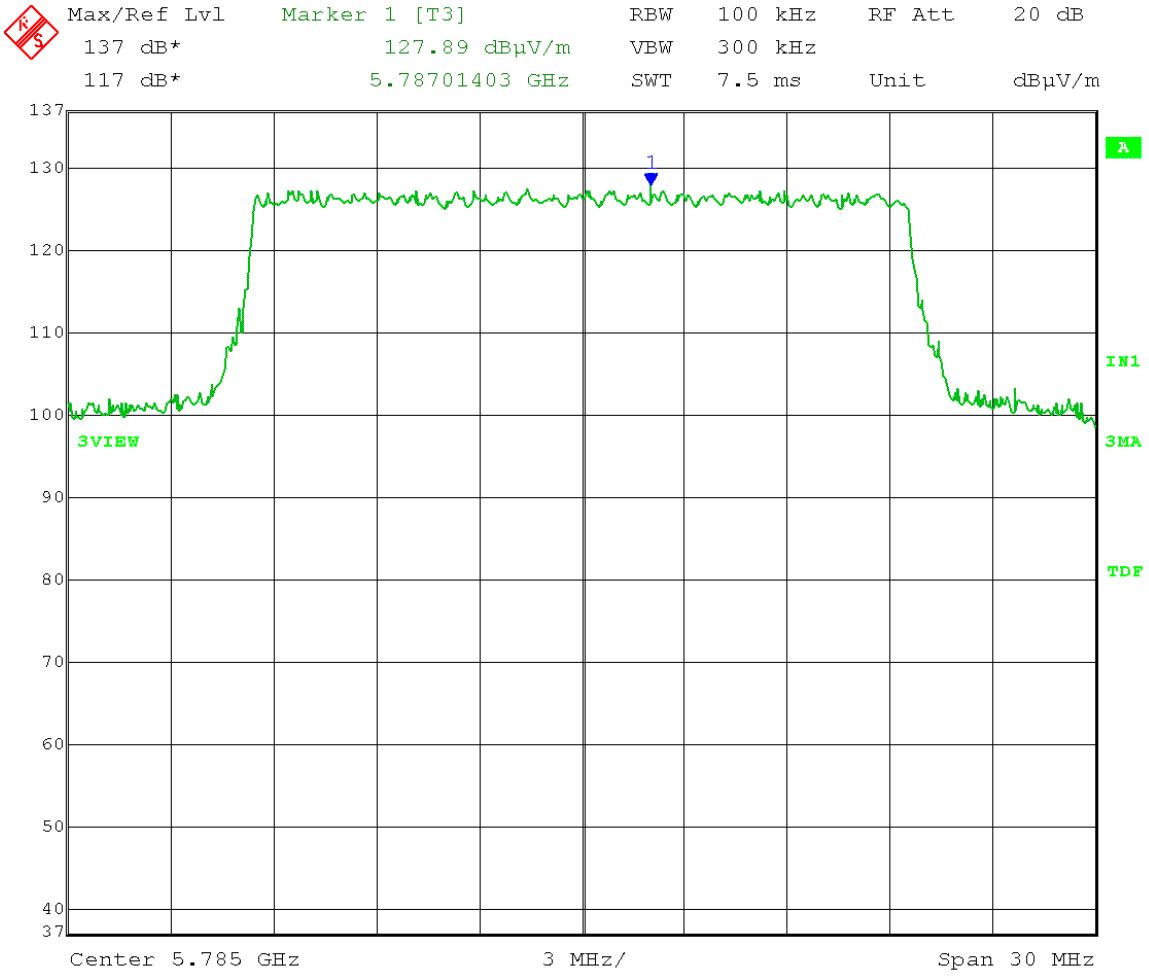
Low channel: 5736 MHz



Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

Mid Channel Transmit = 5.785 GHz
VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 127.89 dBµV/m – 30 dB = 97.89 dBµV/m



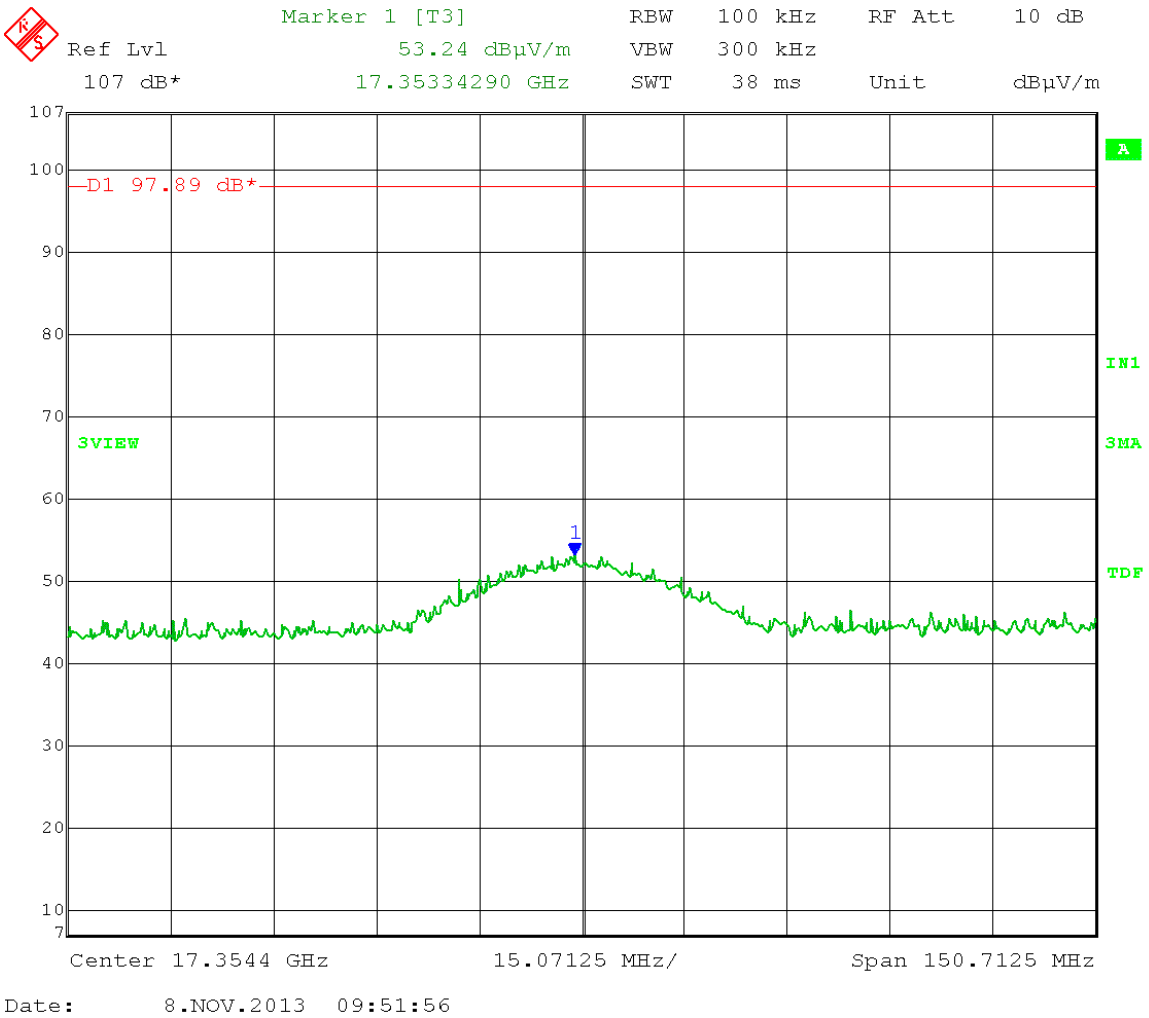
Date: 7.NOV.2013 10:01:52

Test Date: 11-08-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 127.89 dBµV/m – 30 dB = 97.89 dBµV/m

Mid channel: 5785 MHz

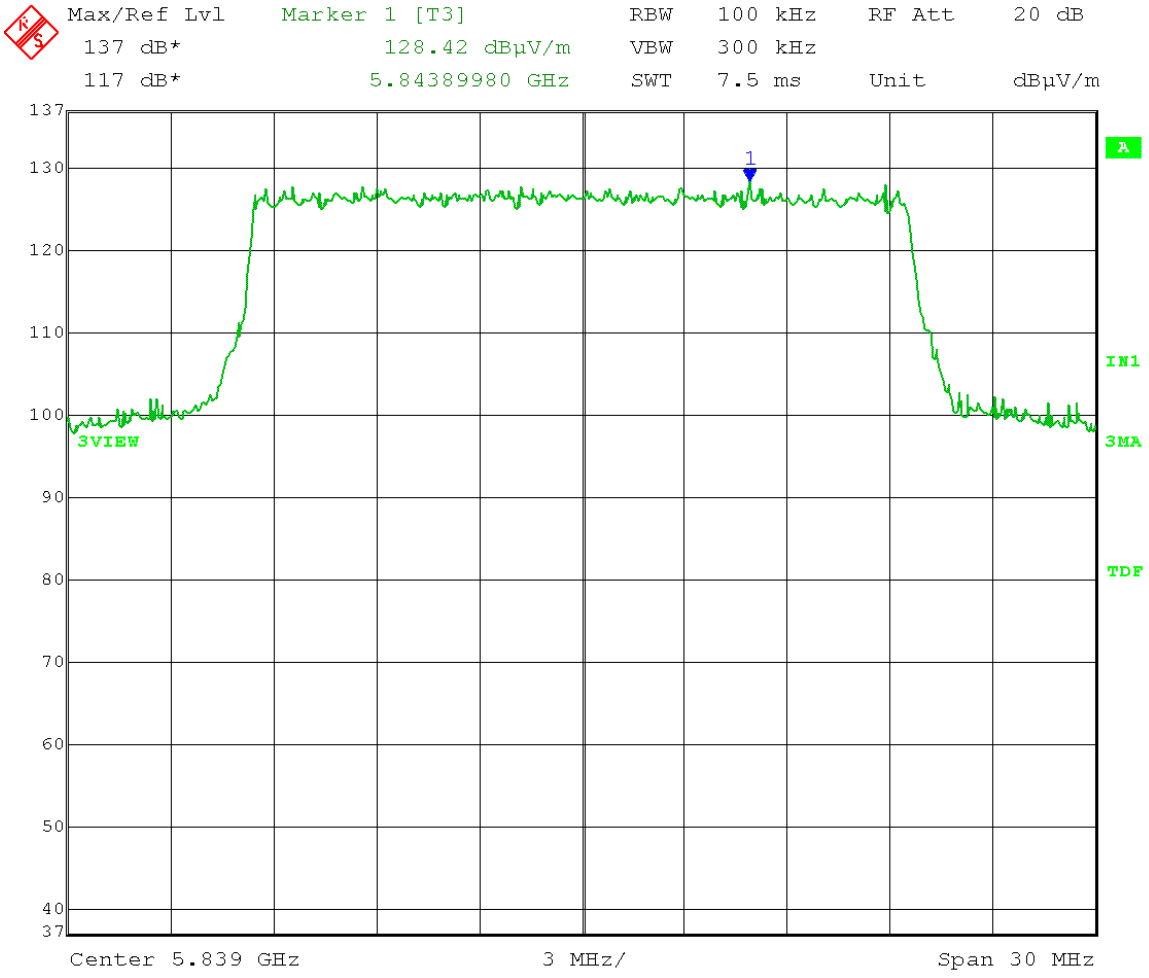


Date: 8.NOV.2013 09:51:56

Test Date: 11-07-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Span ≥ 1.5 the DTS bandwidth
Detector = Peak
Sweep = auto couple
Trace = max hold

High Channel Transmit = 5.839 GHz
VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Reference Level measurement
Limit = 128.42 dBµV/m – 30 dB = 98.42 dBµV/m



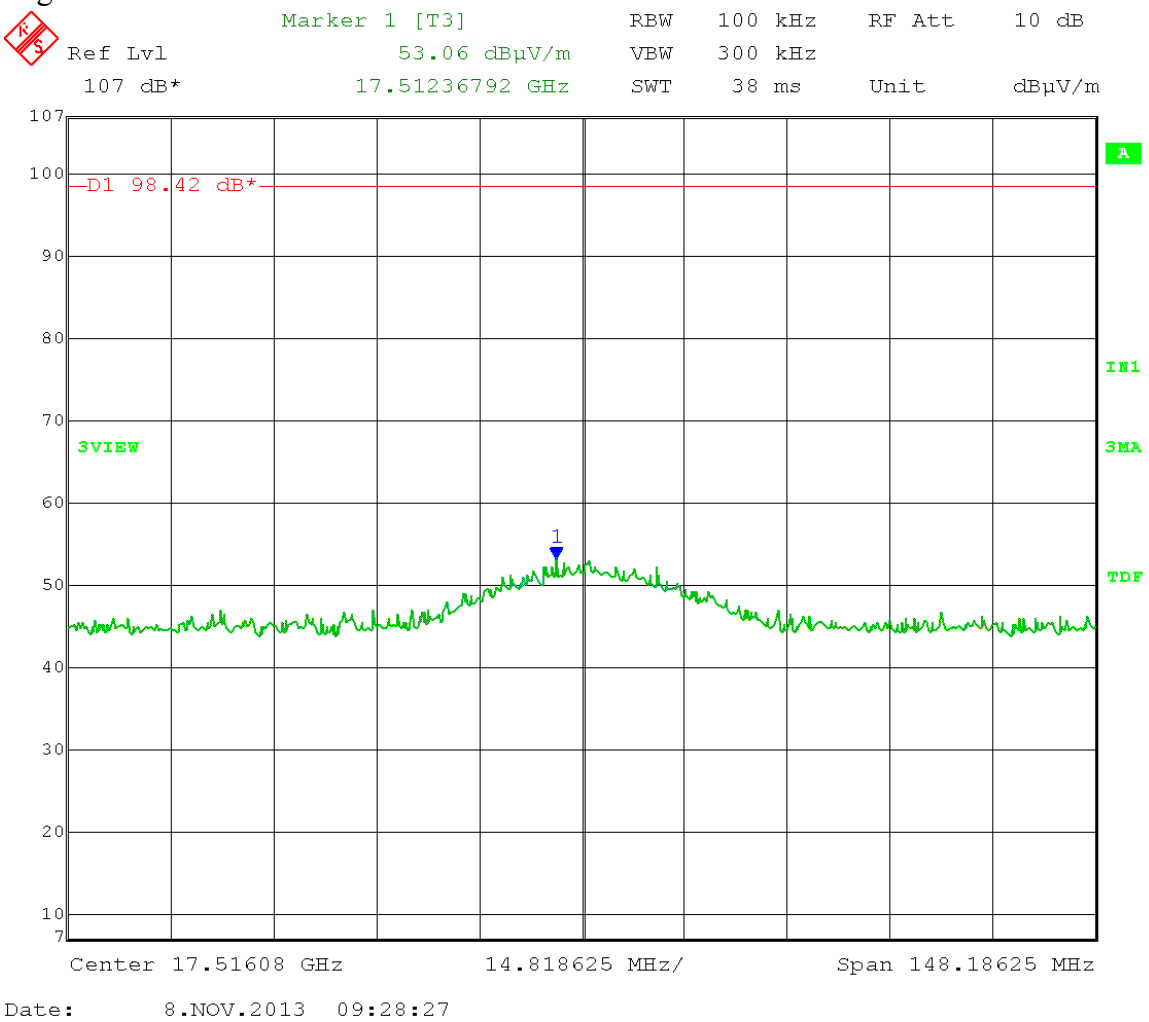
Date: 7.NOV.2013 10:05:41

Test Date: 11-08-2013
Company: Ubiquiti Networks
EUT: Model AF5 - 20MHz BW
Test: Maximum Unwanted Emission Levels - Radiated
Operator: Craig B

Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Sweep = auto couple
Trace = max hold

VERTICAL; 3 meter
Output power setting: 50 dBm eirp (Point-to-Point system)
Emission Level measurement
Limit = 128.42 dBµV/m – 30 dB = 98.42 dBµV/m

High channel: 5839 MHz



166 South Carter, Genoa City, WI 53128

Appendix B – Measurement Data

B5.0 Band-Edge Measurements - Conducted

Rule Section: FCC 15.247(d)

FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

11.1(b) Emissions in non-restricted frequency bands

Test Procedure:
RBW = 100 kHz
VBW ≥ 300 kHz
Span = spectrum to be examined
Detector = peak
Sweep = auto couple
Trace mode = max hold

Measurements were taken for QPSK, 16QAM, 64QAM, 256QAM and 1024 QAM modulations over a 10MHz, 20MHz, 40MHz and 50MHz modulation bandwidth at the low and high channels and on outputs of CH0 and CH1 of operation. EUT was set to transmit continuously over various low and high channel frequencies and maximum power settings.

Limit: 30 dB below maximum in-band average PSD level (maximum level in any 100 kHz band). Average output power procedure was used to measure the fundamental emission power.

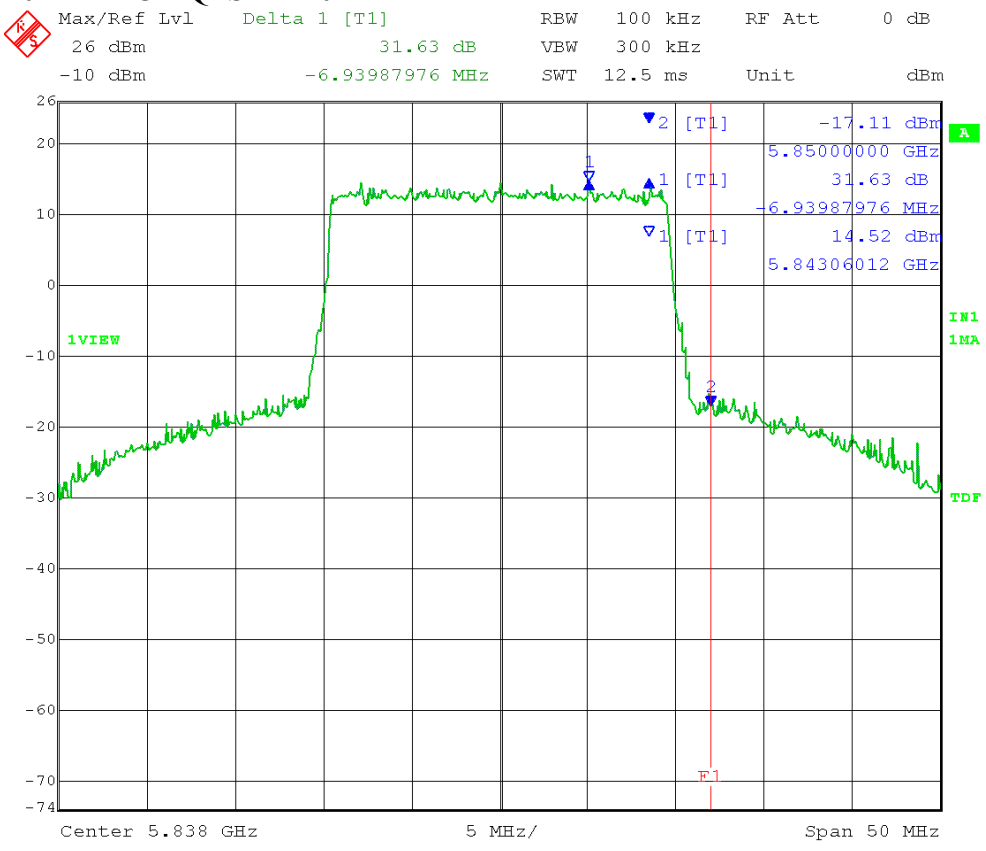
Results: Passed

Test Date: 11-06-2013
Company: Ubiquiti Networks
EUT: Air Fiber 5 - 5.8GHz WiFi Radio
Test: Band Edge/Out-of-band Emissions - Conducted
Operator: Lillian Li
Test Procedure used: KDB 558074 D01 v01r03 – 11.1(b)
Limit: [15.247(d); RSS-210 A8.5]: ≥ 30dBc

Upper Band-edge (**F1**) = 5.850GHz
Lower Band-edge (**F2**) = 5.725GHz

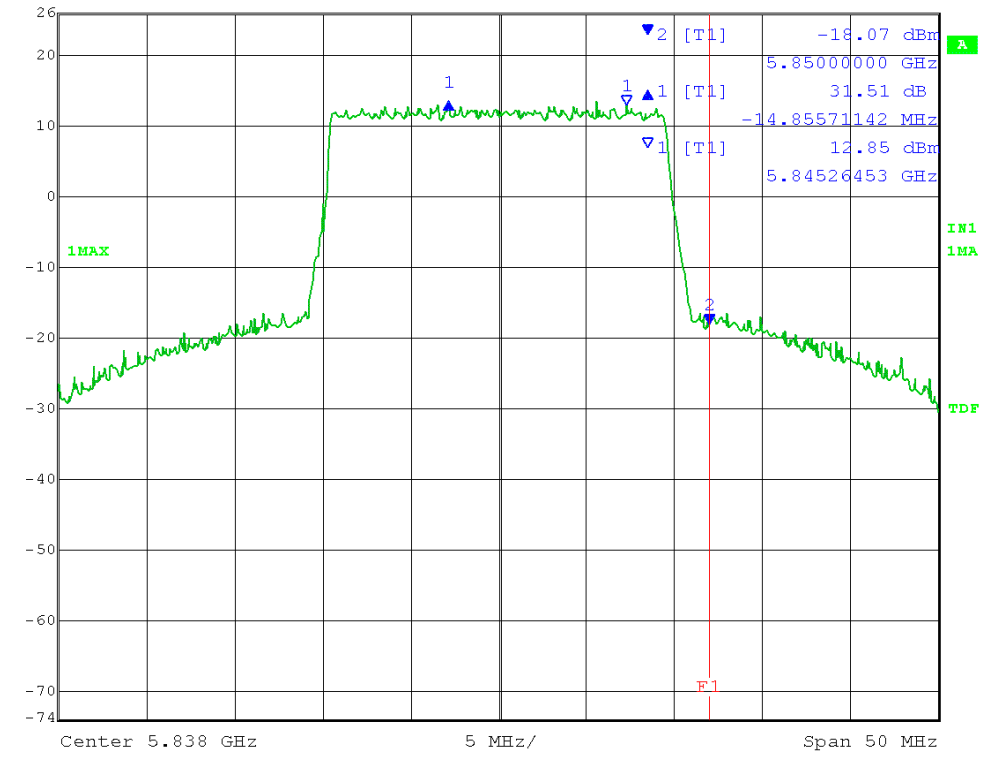
PLOTS: 20MHz Bandwidth & 10MHz Bandwidth

20MHz HCH QPSK TX0



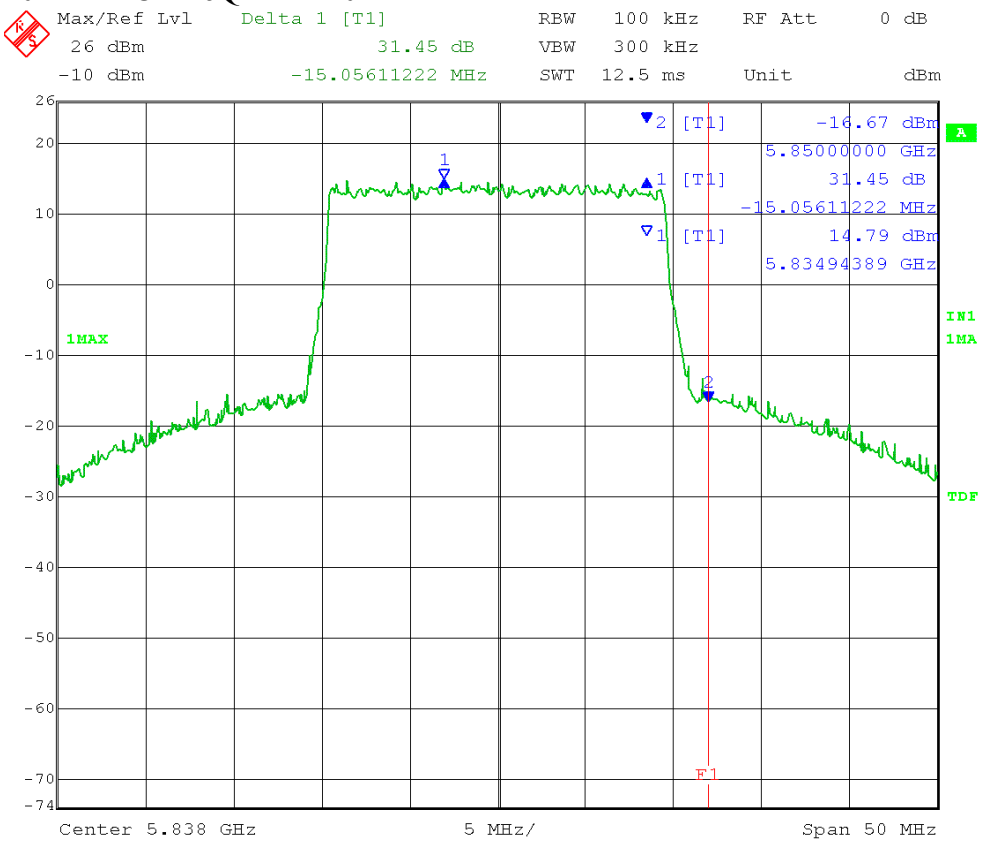
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TX1



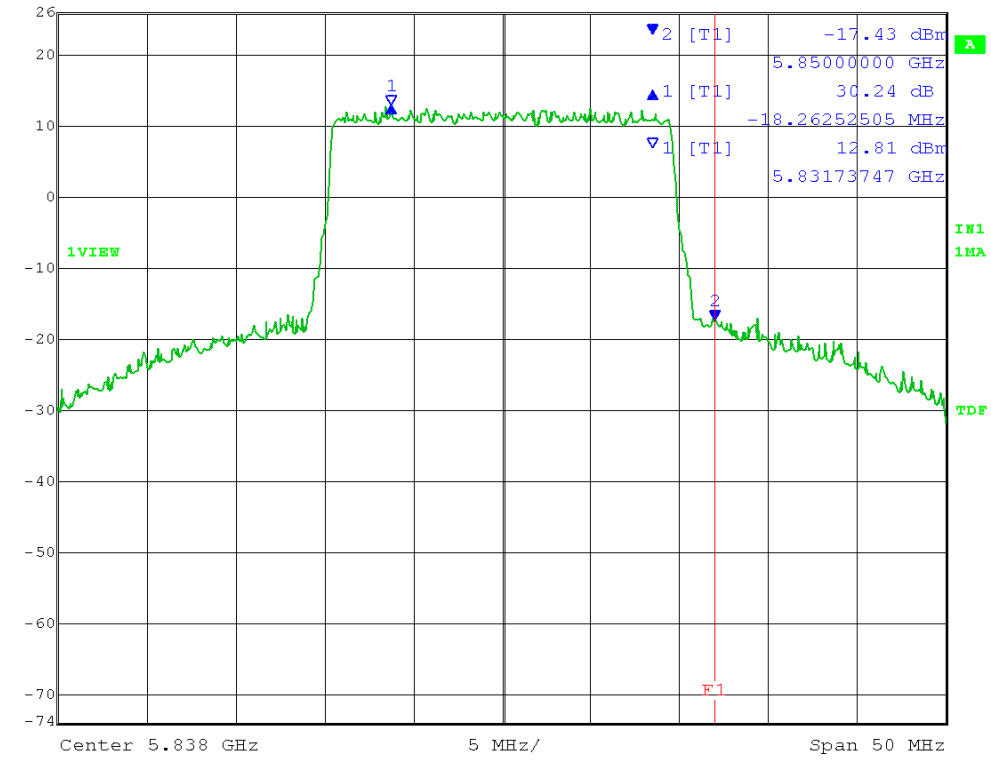
Date: 6.NOV.2013 10:56:05

20MHz HCH 16QAM TX0



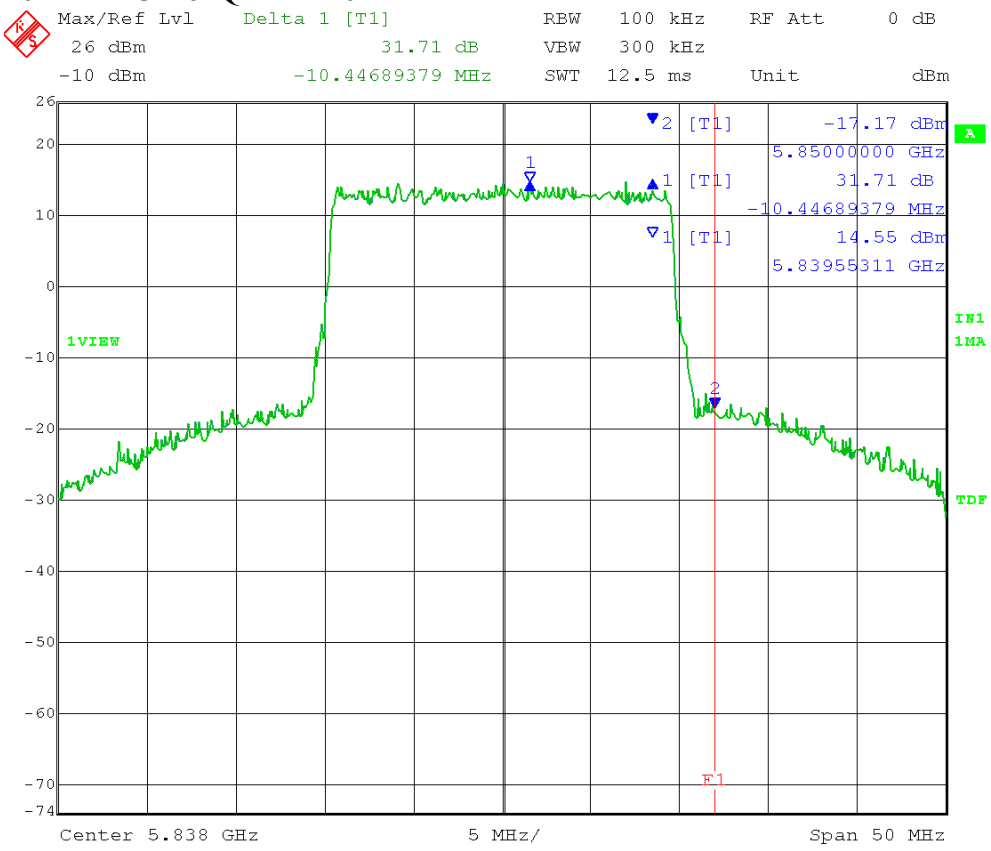
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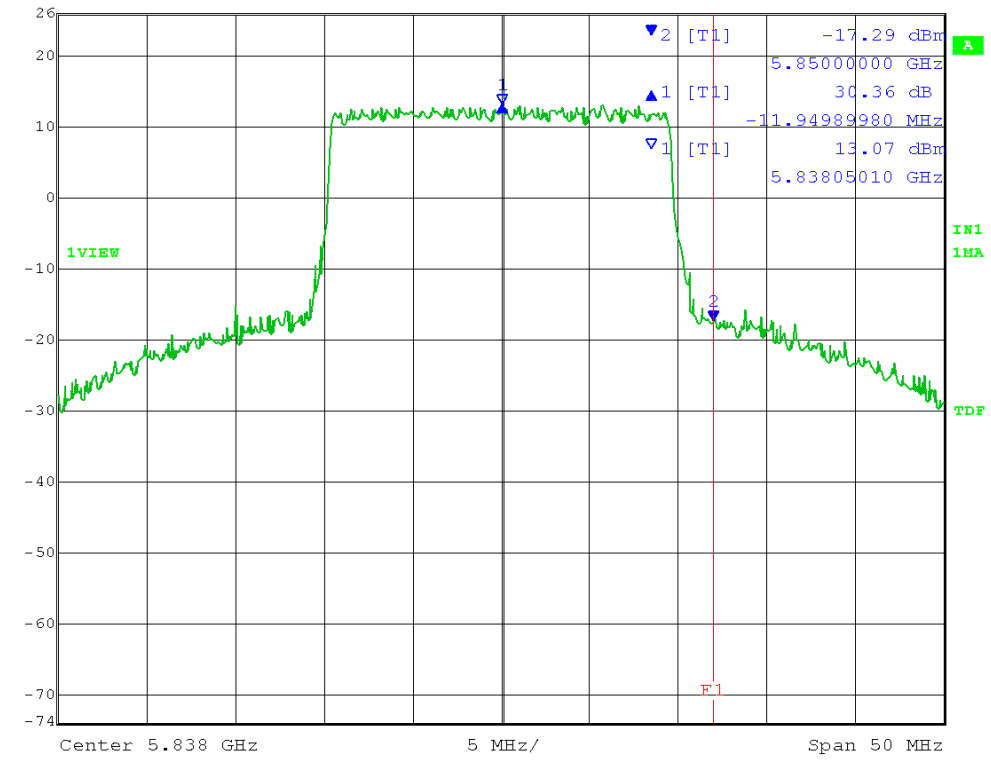
Date: 6.NOV.2013 10:56:51

20MHz HCH 64QAM TX0



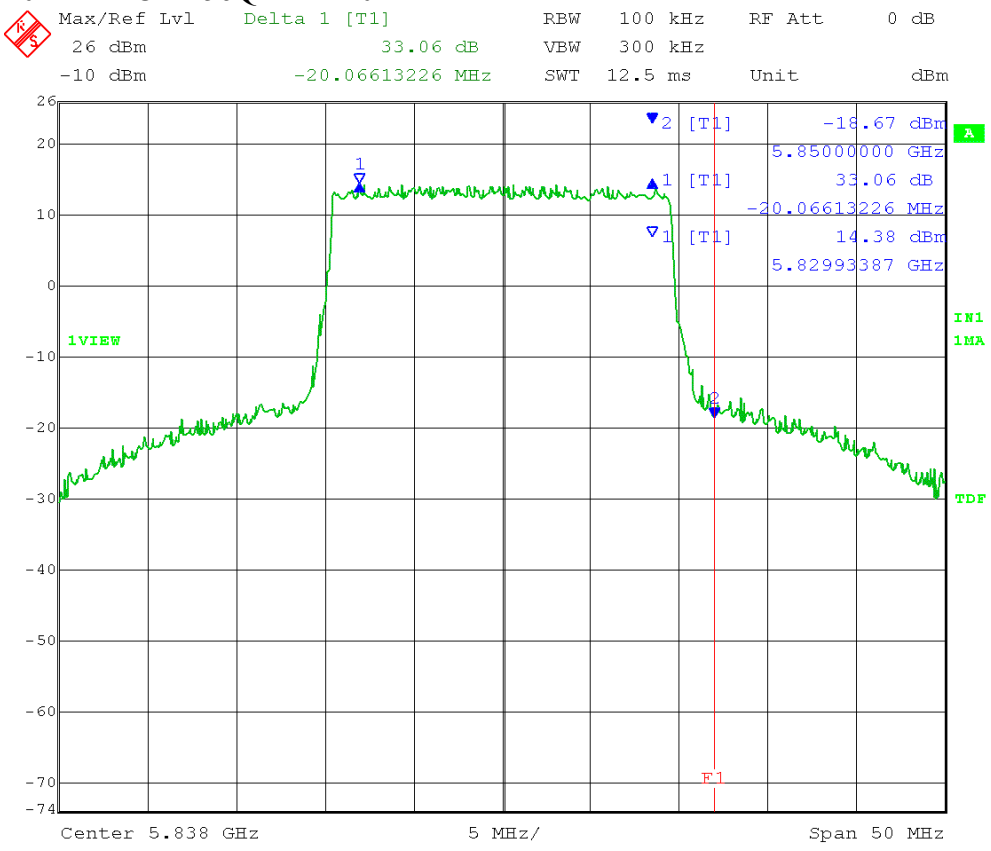
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TX1



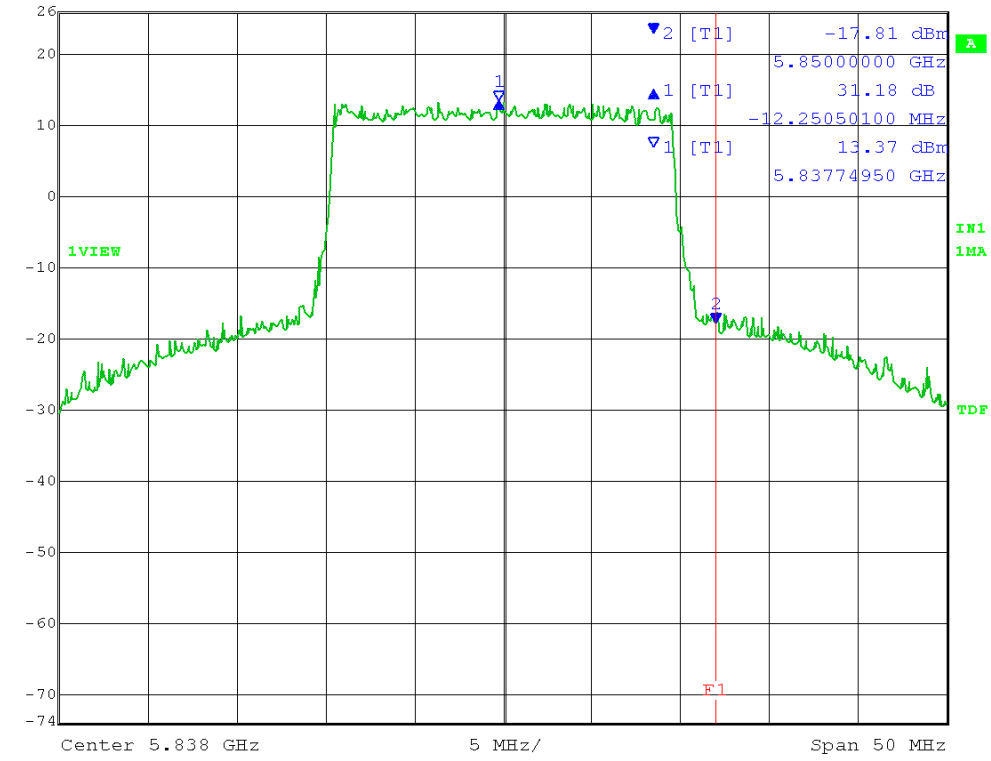
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20MHz HCH 256QAM TX0



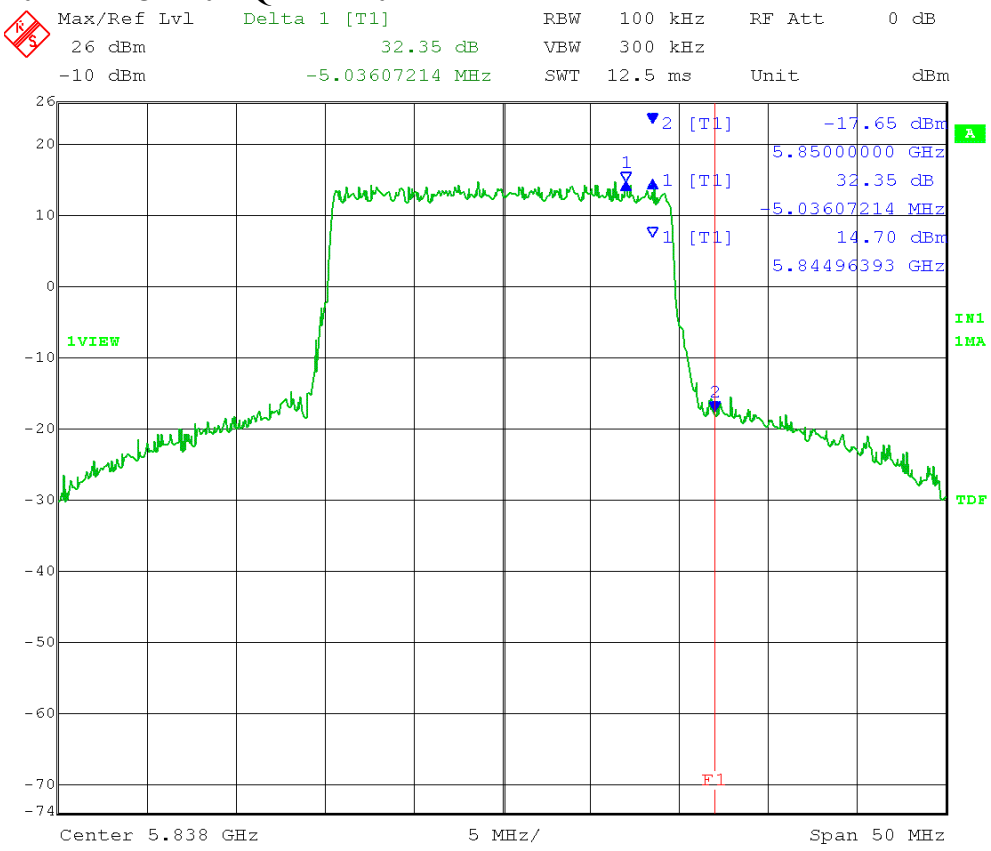
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TX1



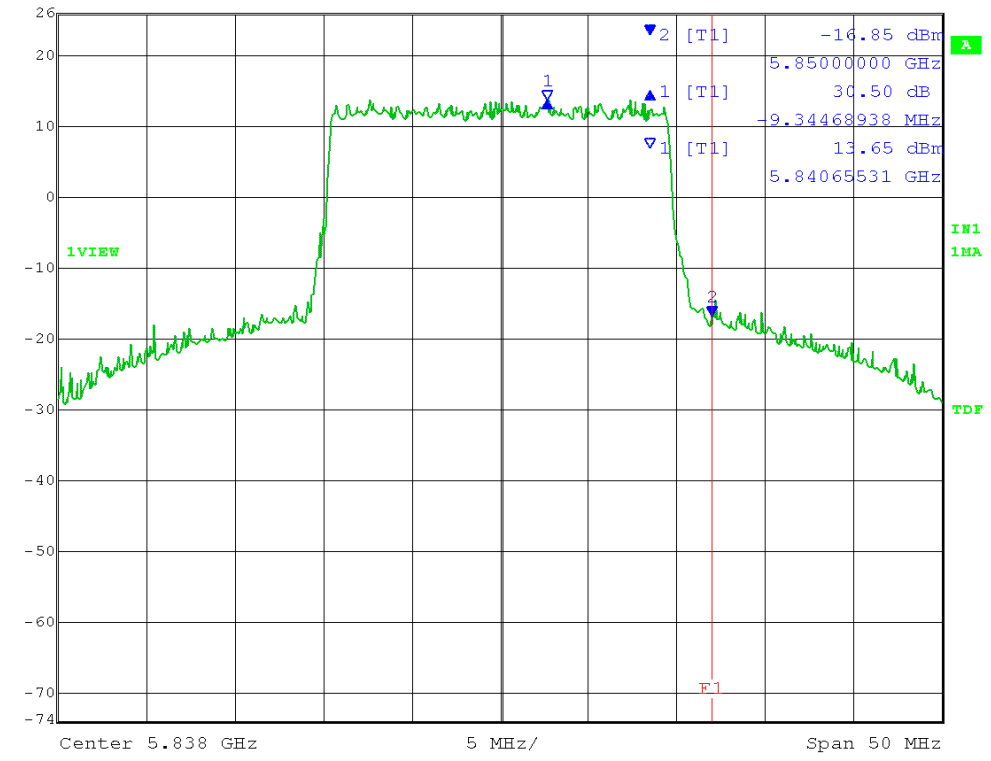
Date: 6.NOV.2013 10:57:56

20MHz HCH 1024QAM TX0



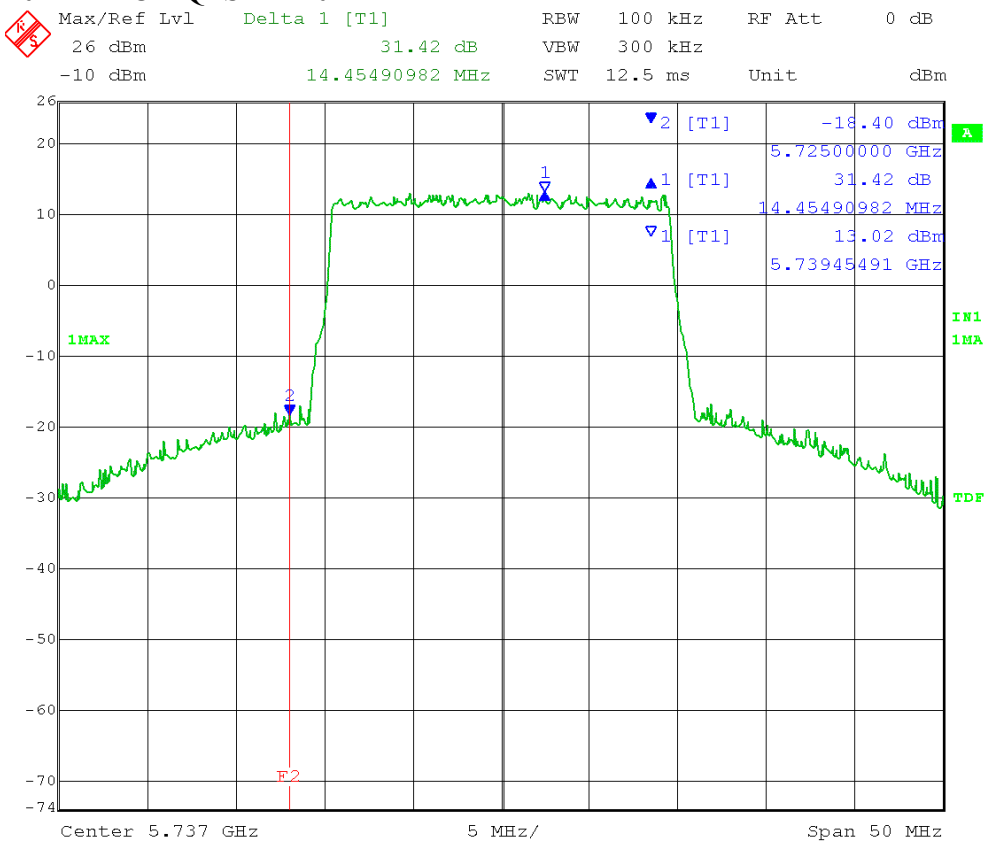
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TX1



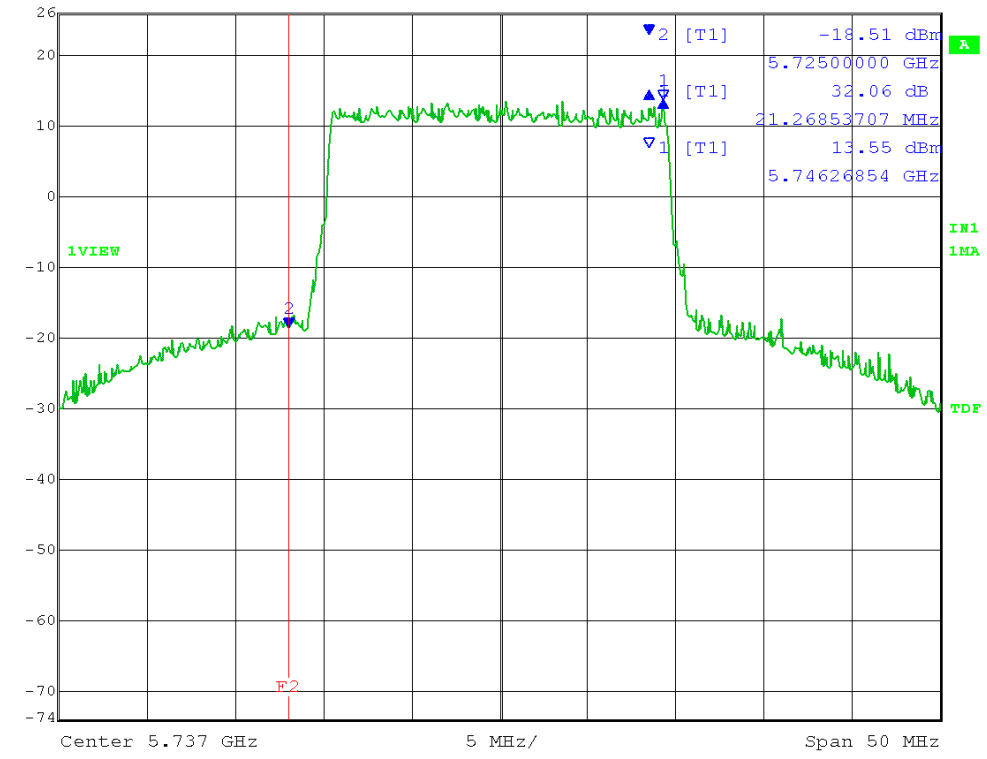
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20MHz LCH QPSK TX0



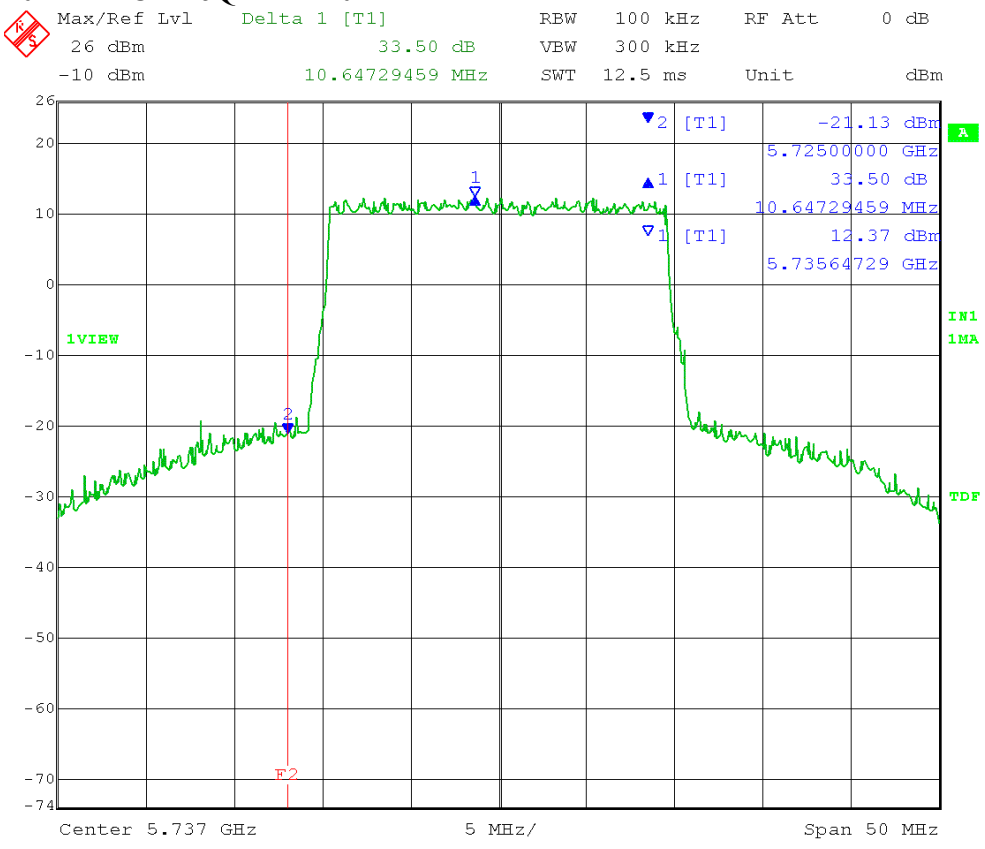
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TX1



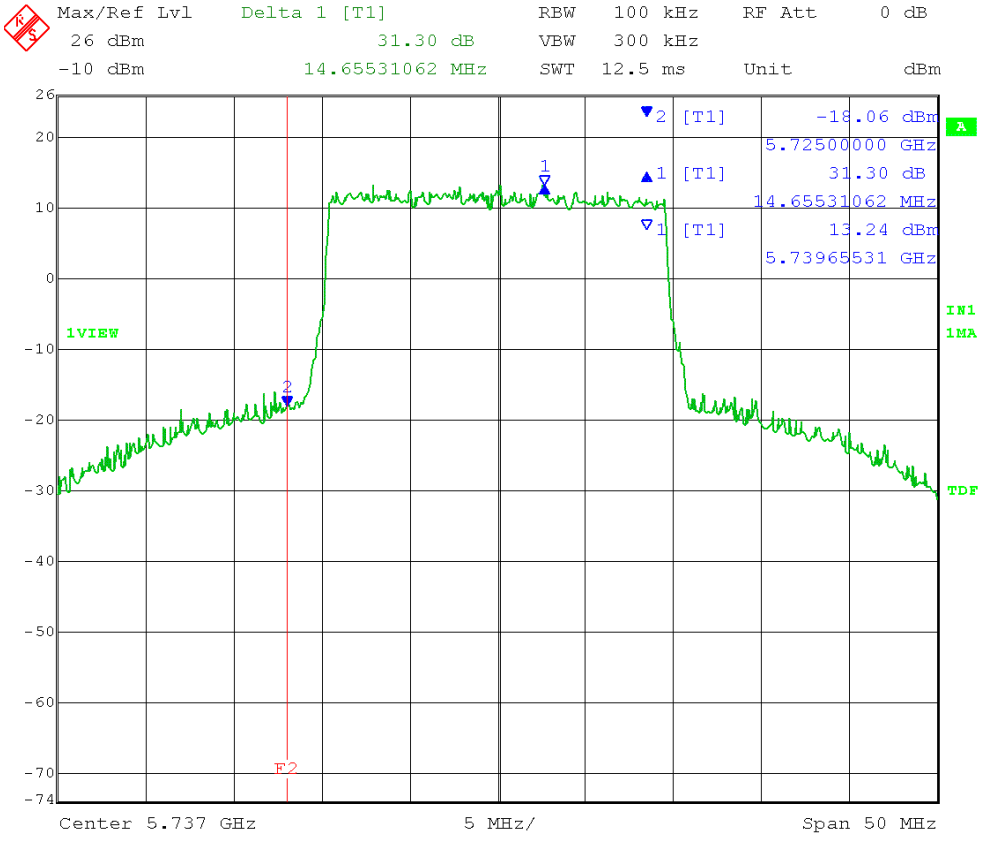
Date: 6.NOV.2013 12:38:18

20MHz LCH 16QAM TX0



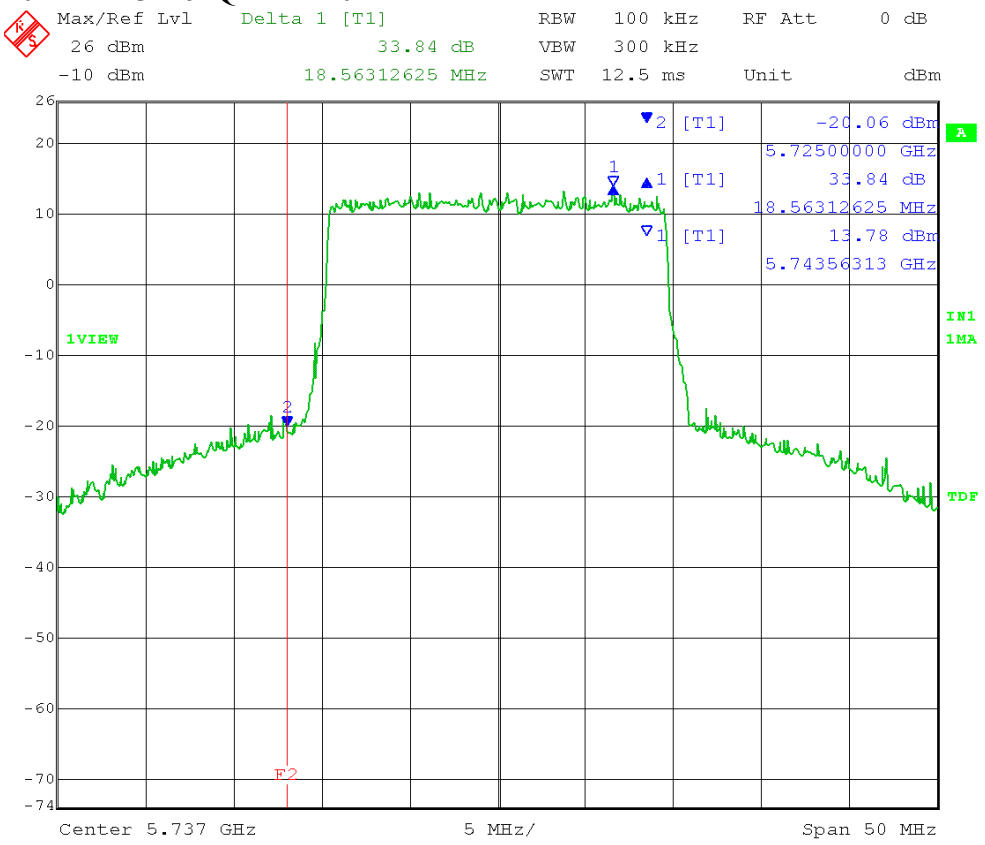
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TX1



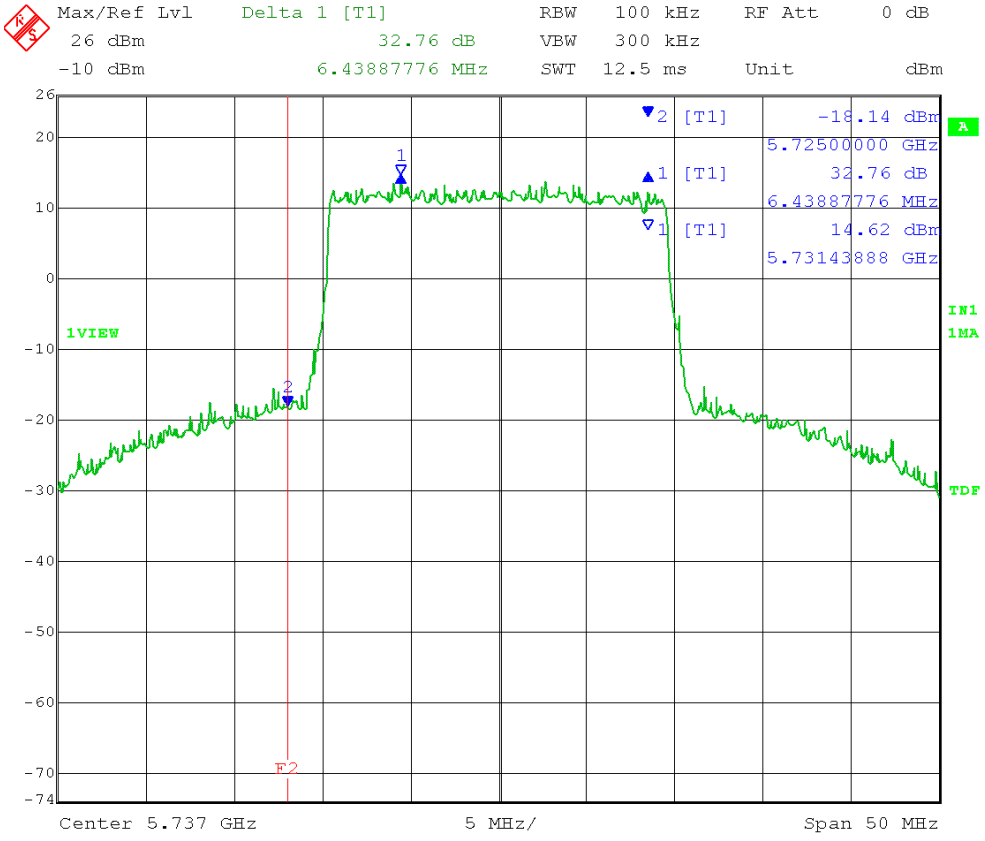
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20MHz LCH 64QAM TX0



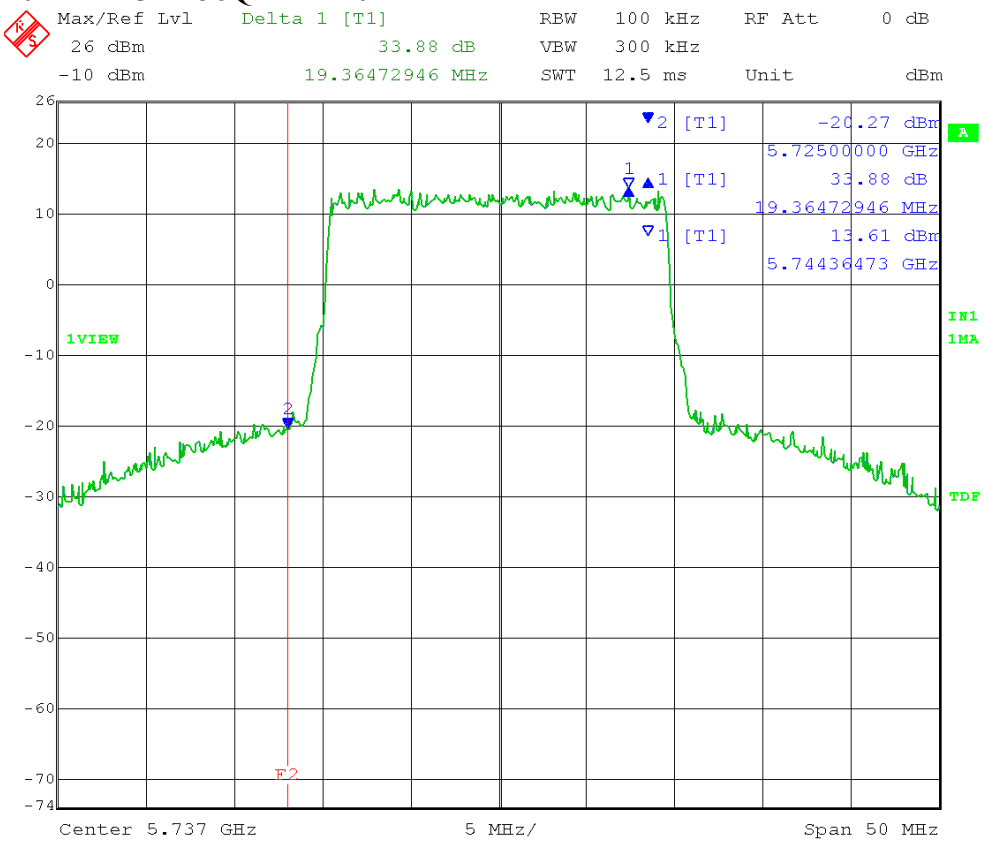
Date: 6.NOV.2013 11:38:43

TX1



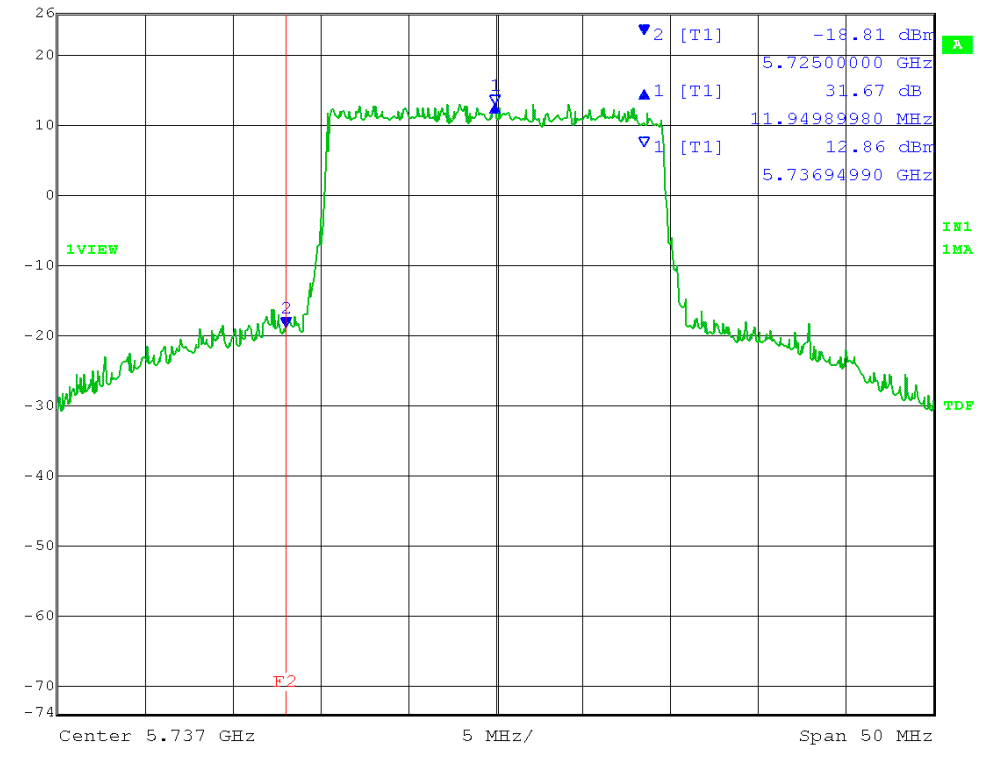
Date: 6.NOV.2013 12:39:16

20MHz LCH 256QAM TX0



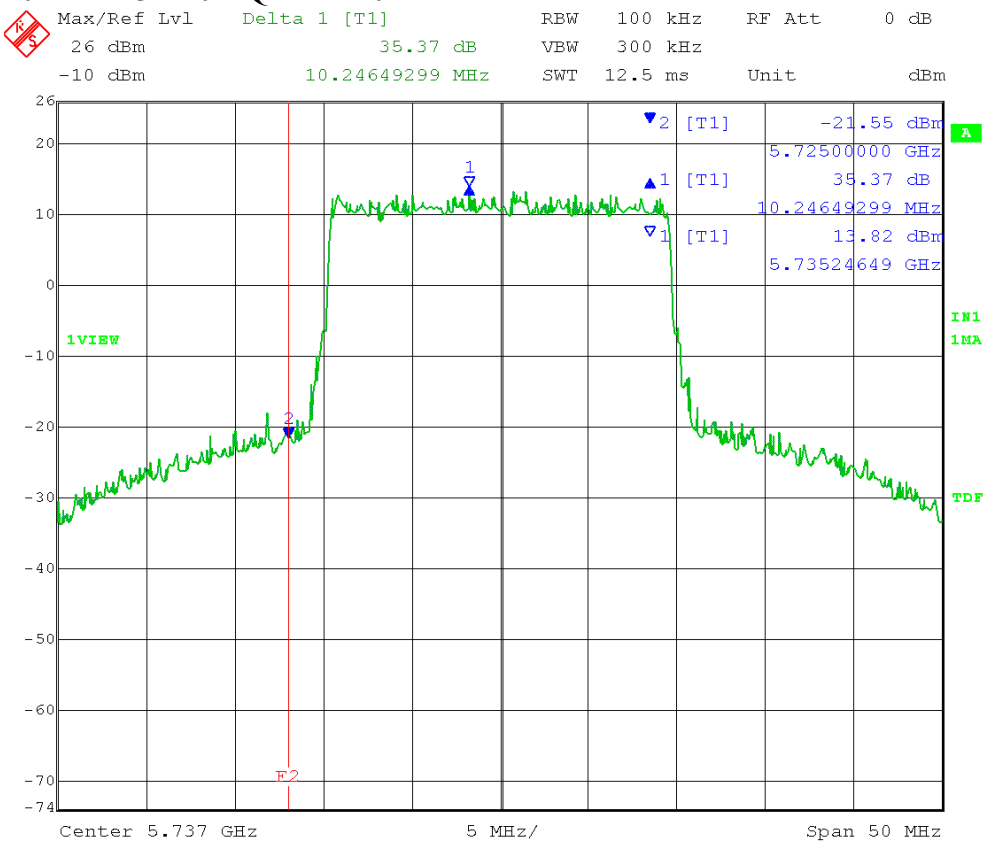
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TX1



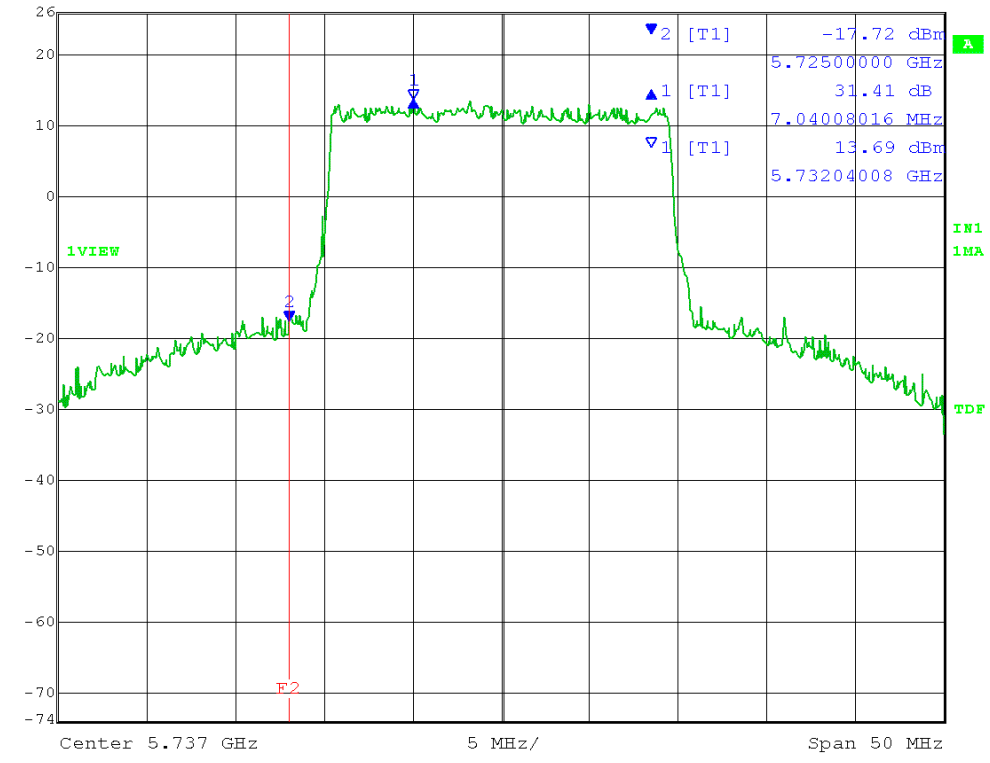
Date: 6.NOV.2013 12:39:43

20MHz LCH 1024QAM TX0



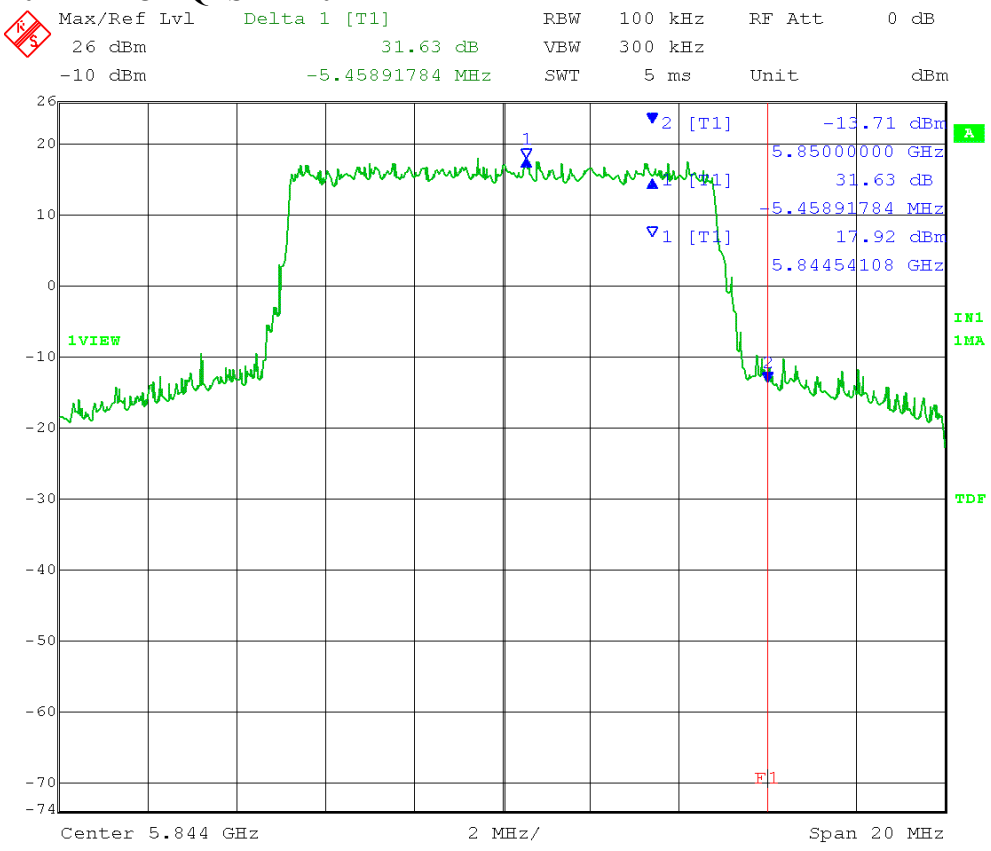
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TX1



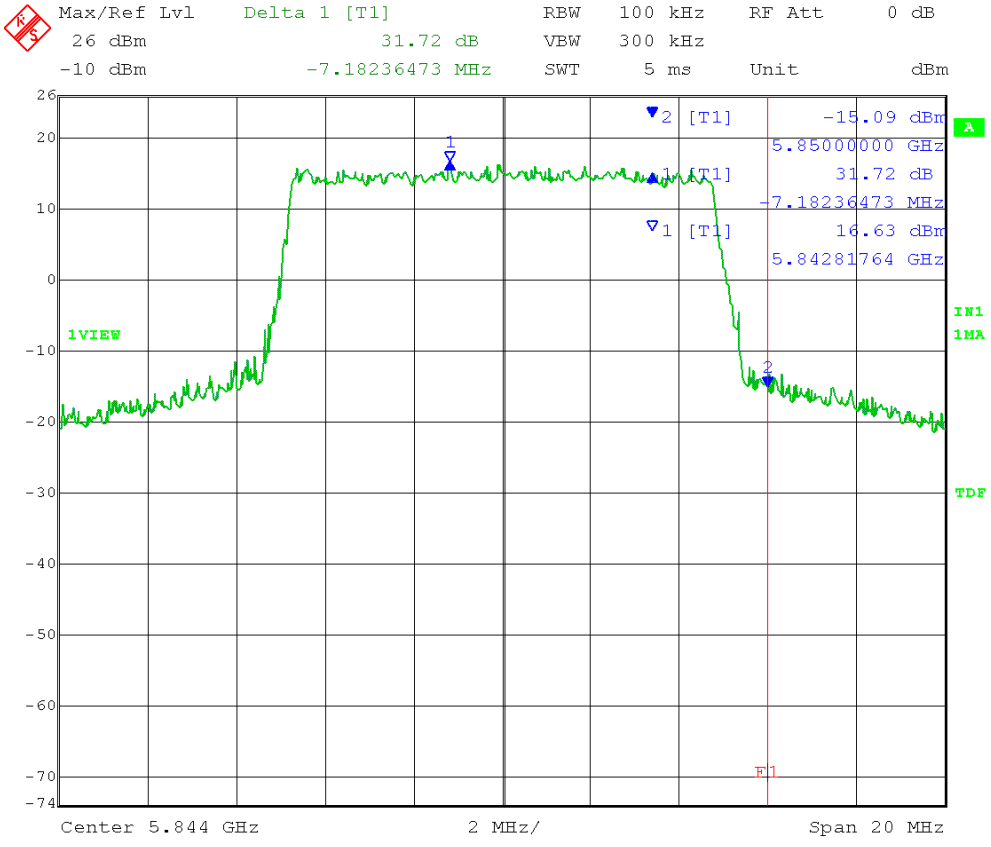
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10MHz HCH QPSK TX0



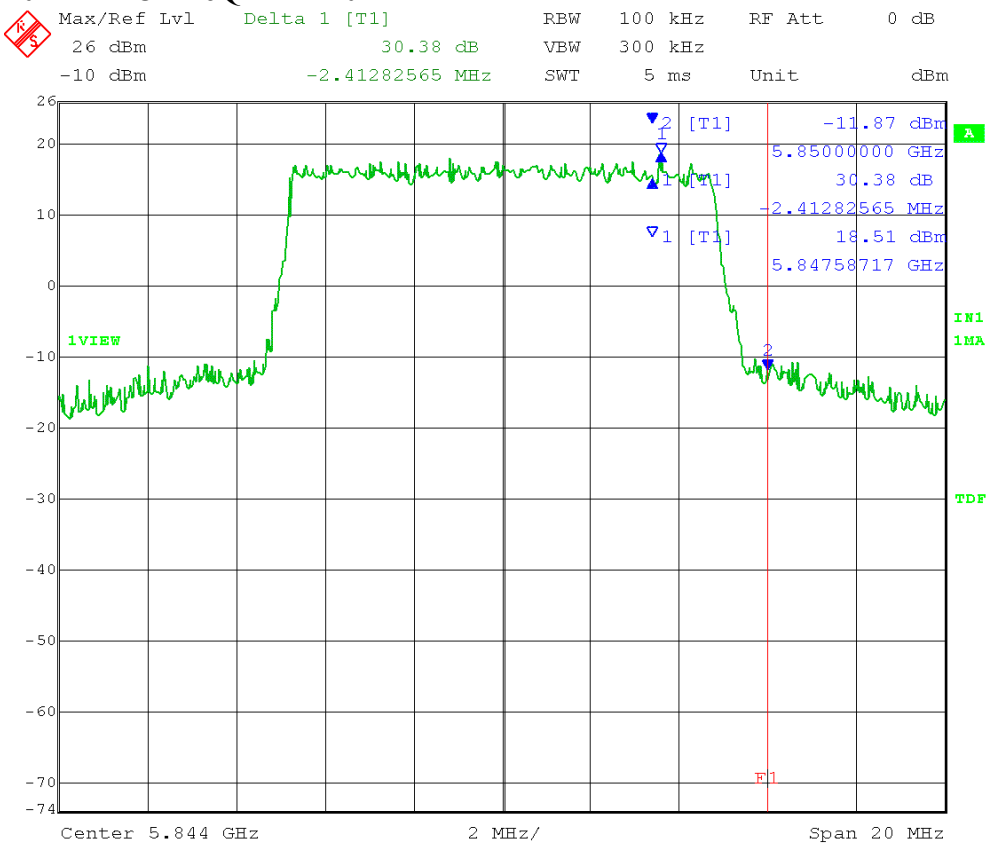
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TX1



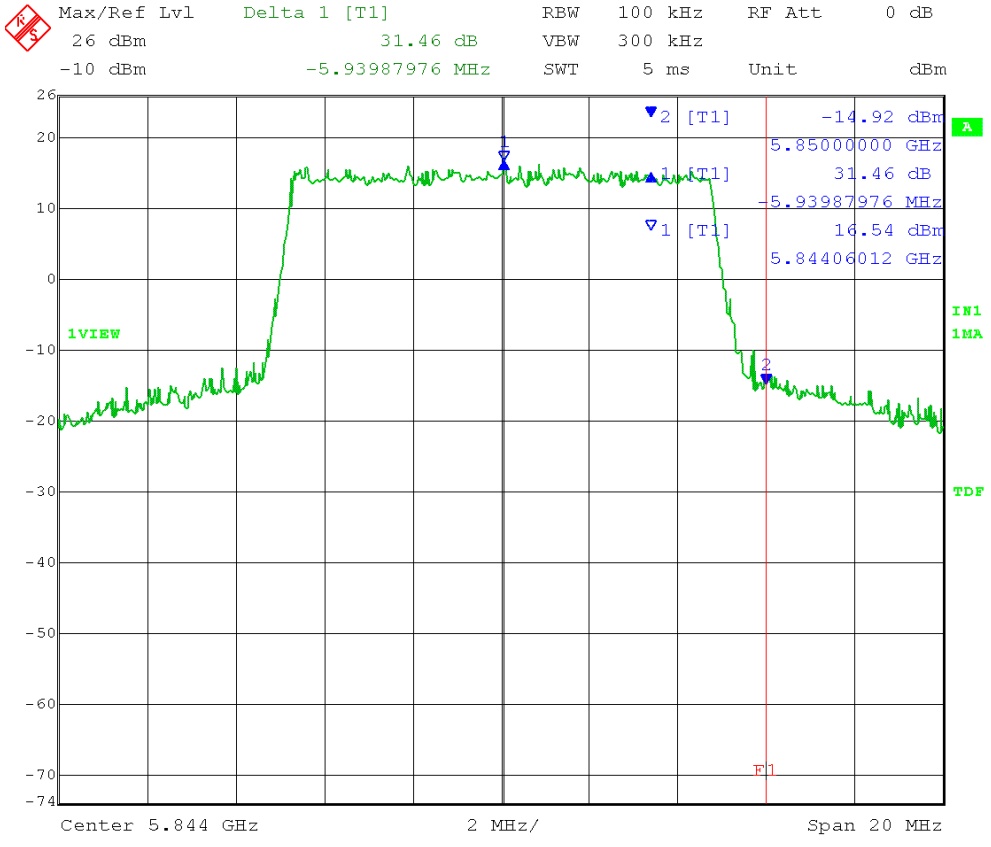
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10MHz HCH 16QAM TX0



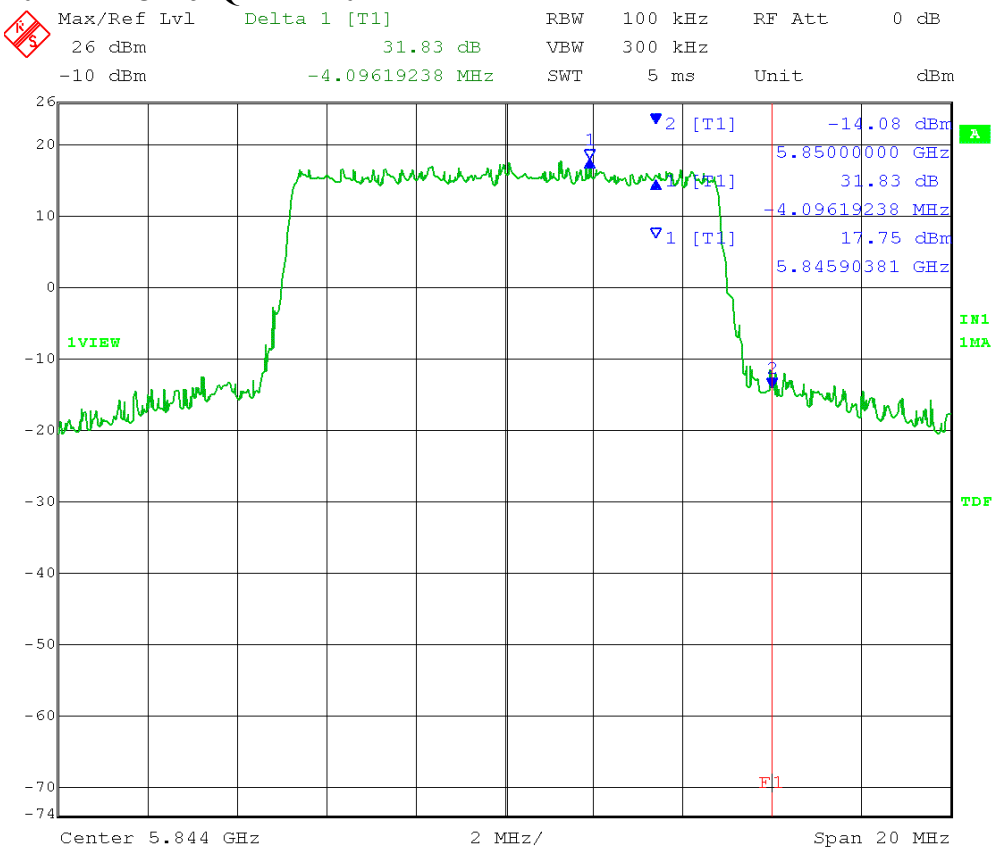
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TX1



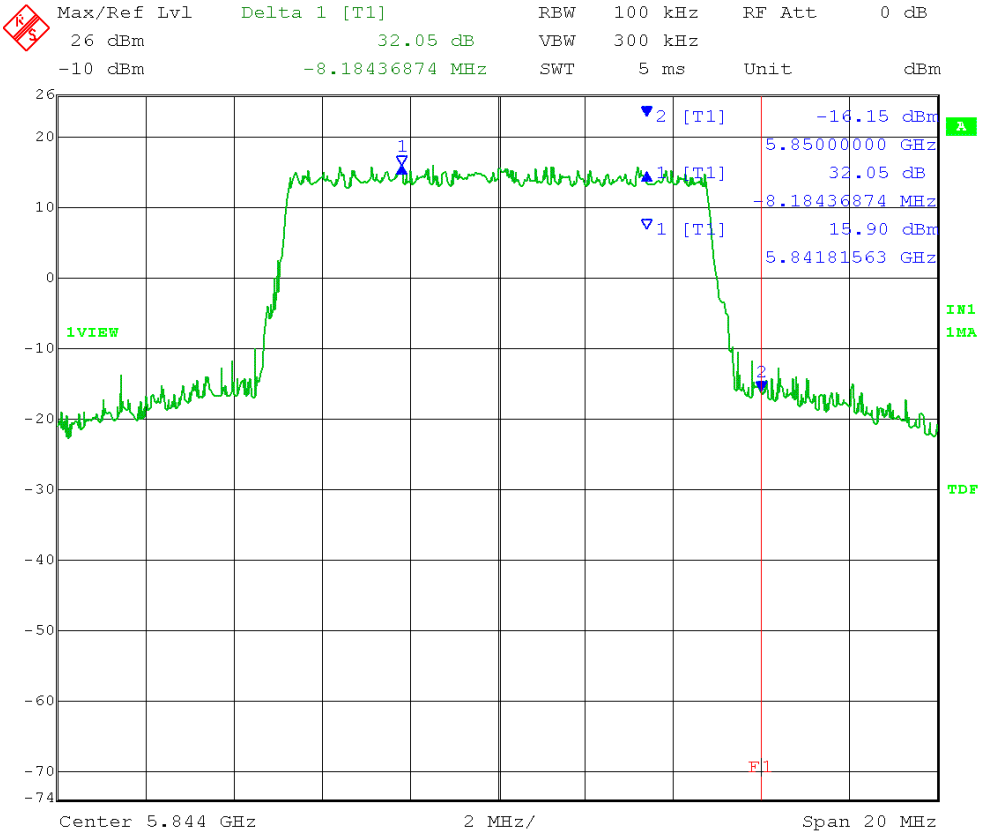
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10MHz HCH 64QAM TX0



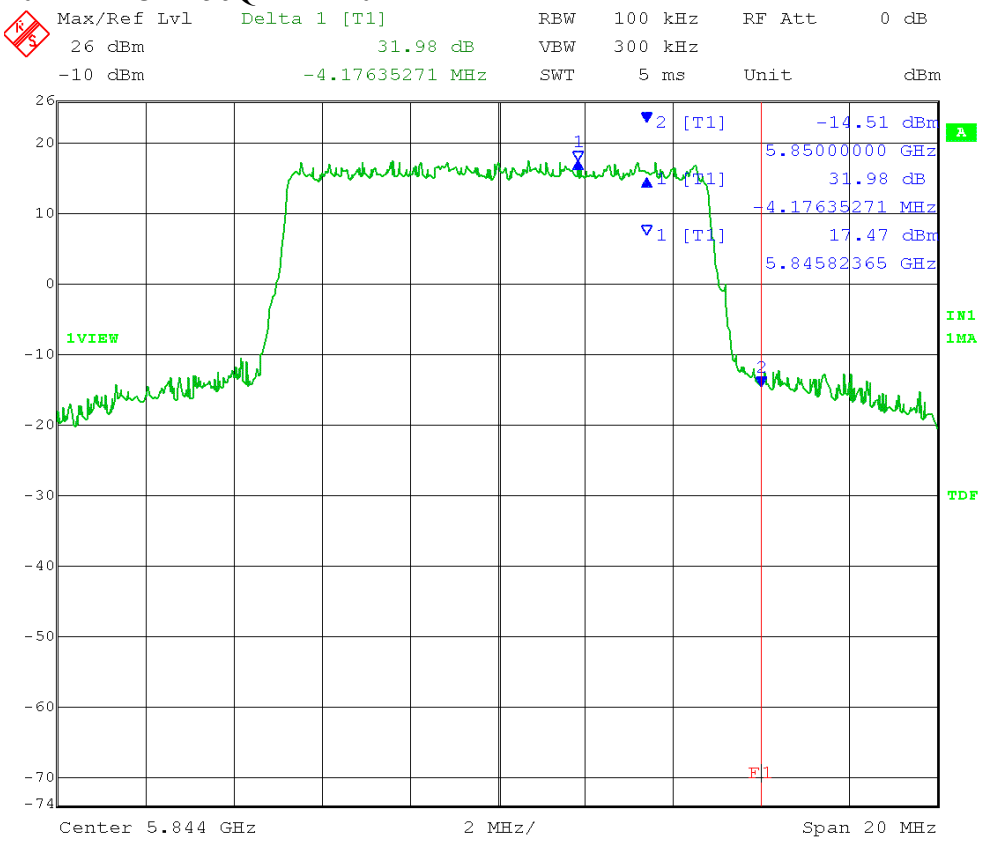
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TX1



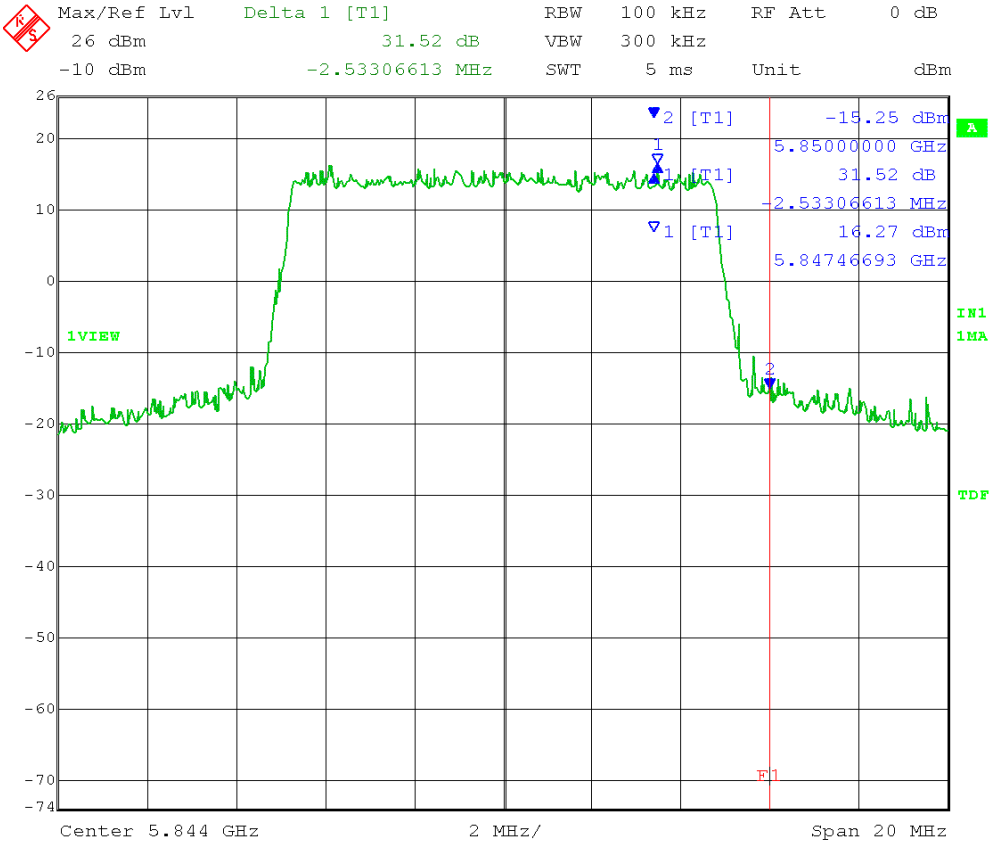
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10MHz HCH 256QAM TX0



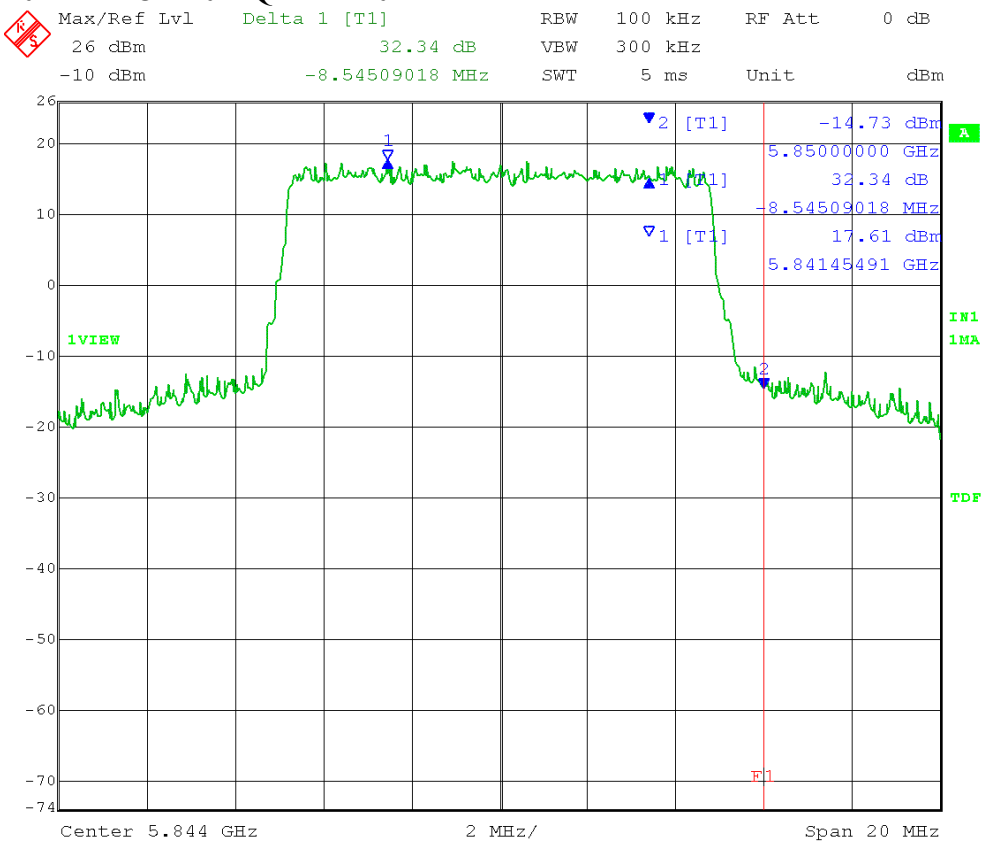
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TX1



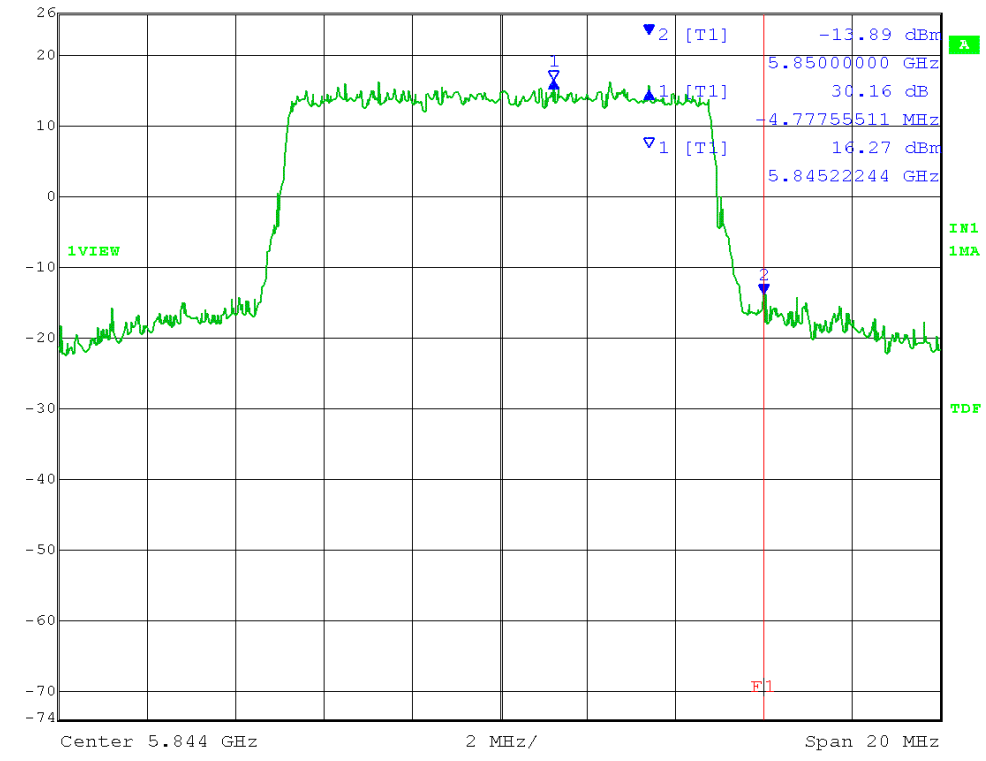
Date: 6.NOV.2013 10:51:18

10MHz HCH 1024QAM TX0



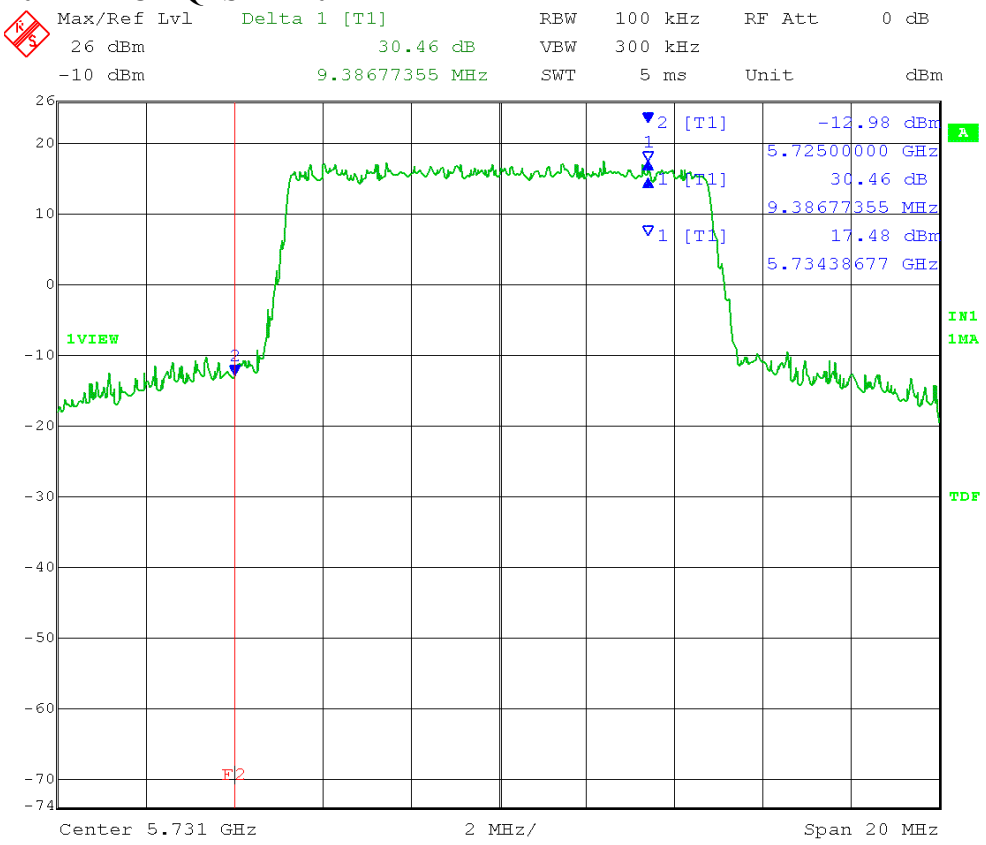
Date: 6.NOV.2013 11:26:04

TX1



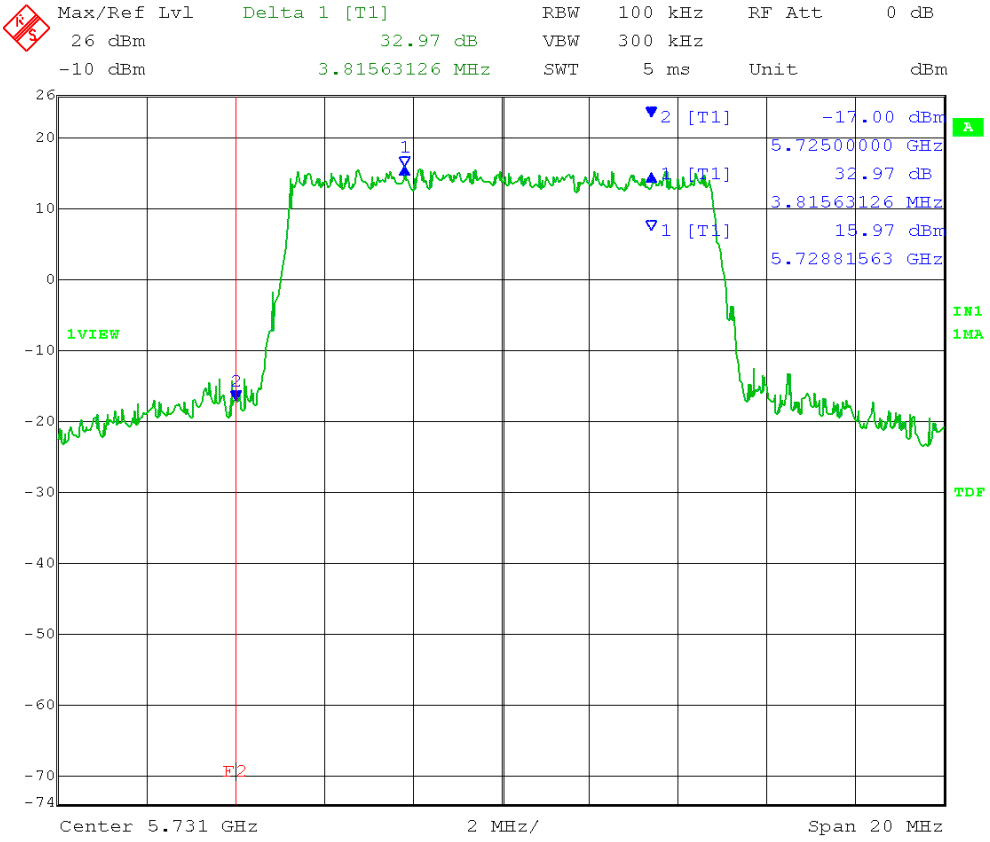
Date: 6.NOV.2013 10:53:23

10MHz LCH QPSK TX0



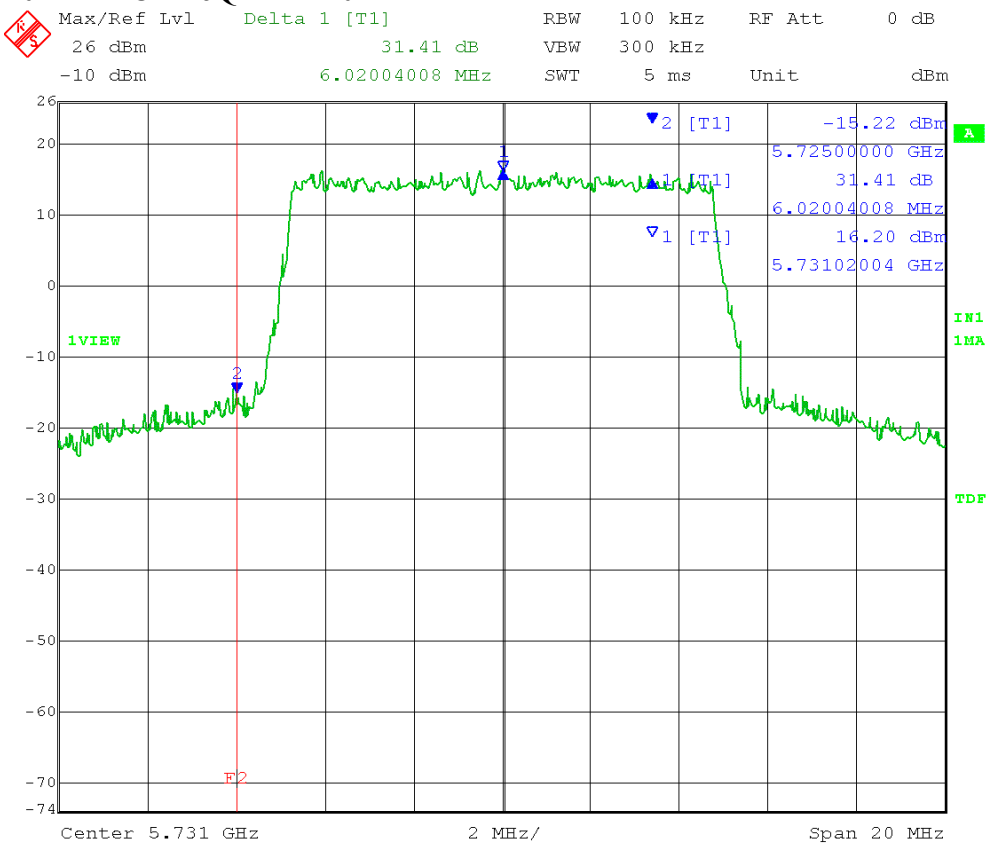
Date: 6.NOV.2013 11:31:41

TX1



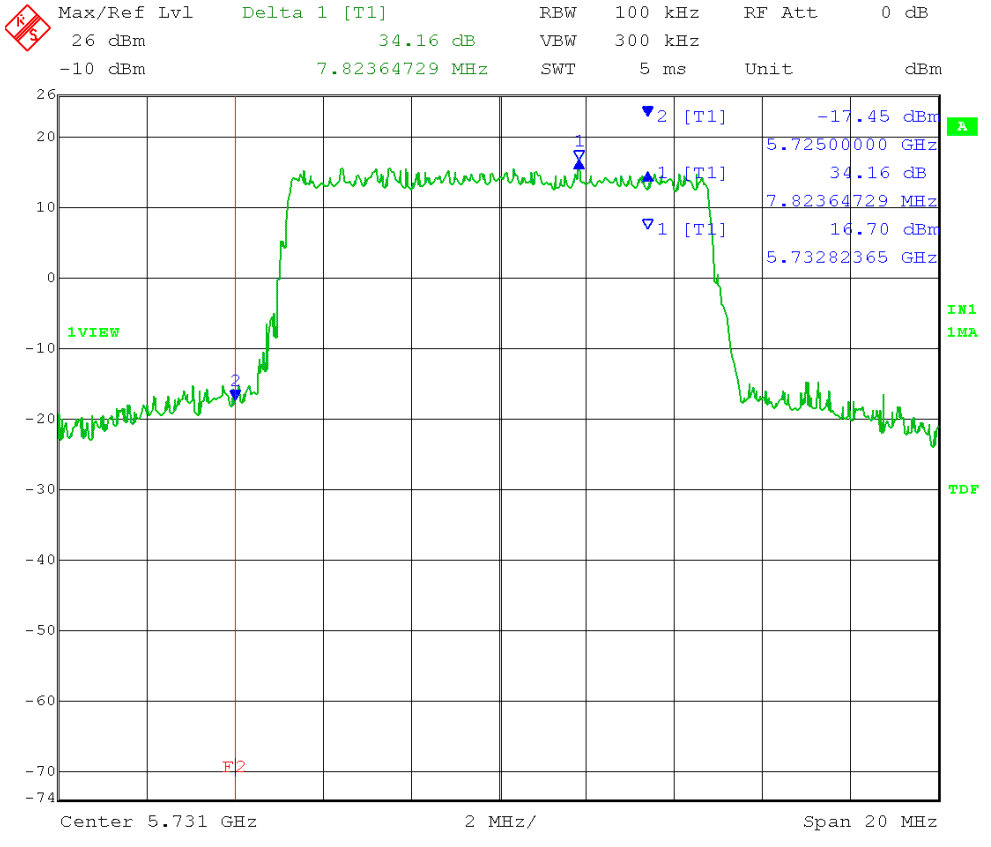
Date: 6.NOV.2013 12:41:28

10MHz LCH 16QAM TX0



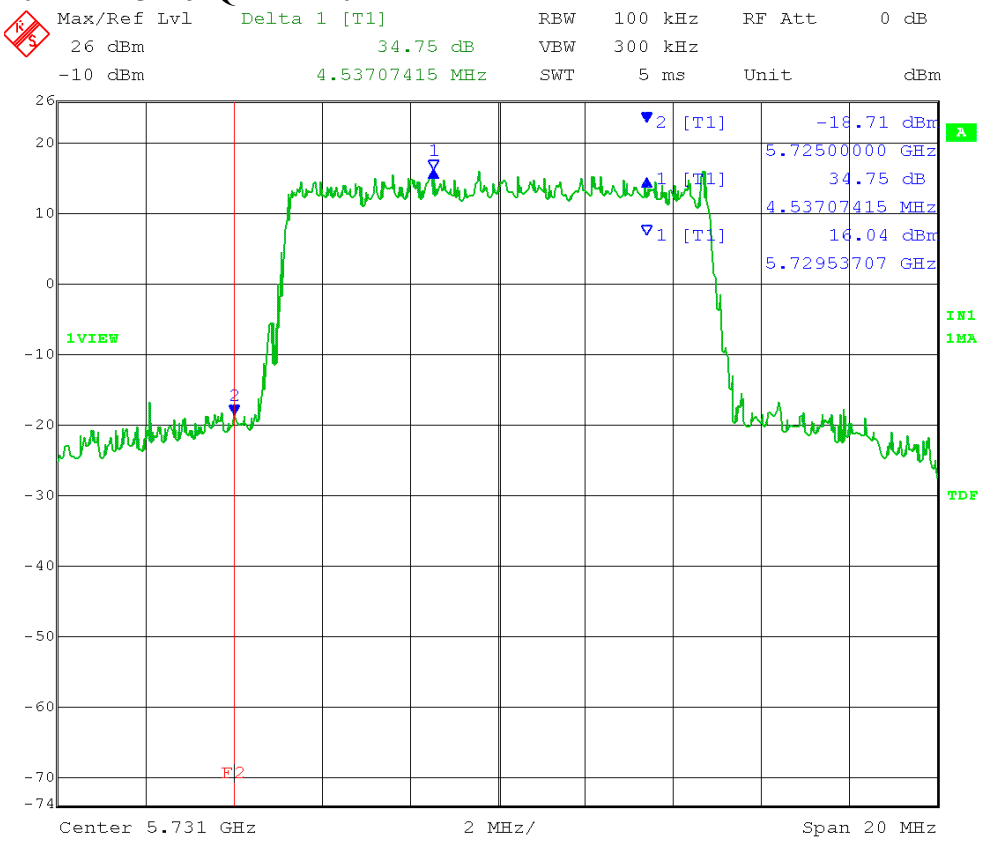
Date: 6.NOV.2013 11:32:26

TX1



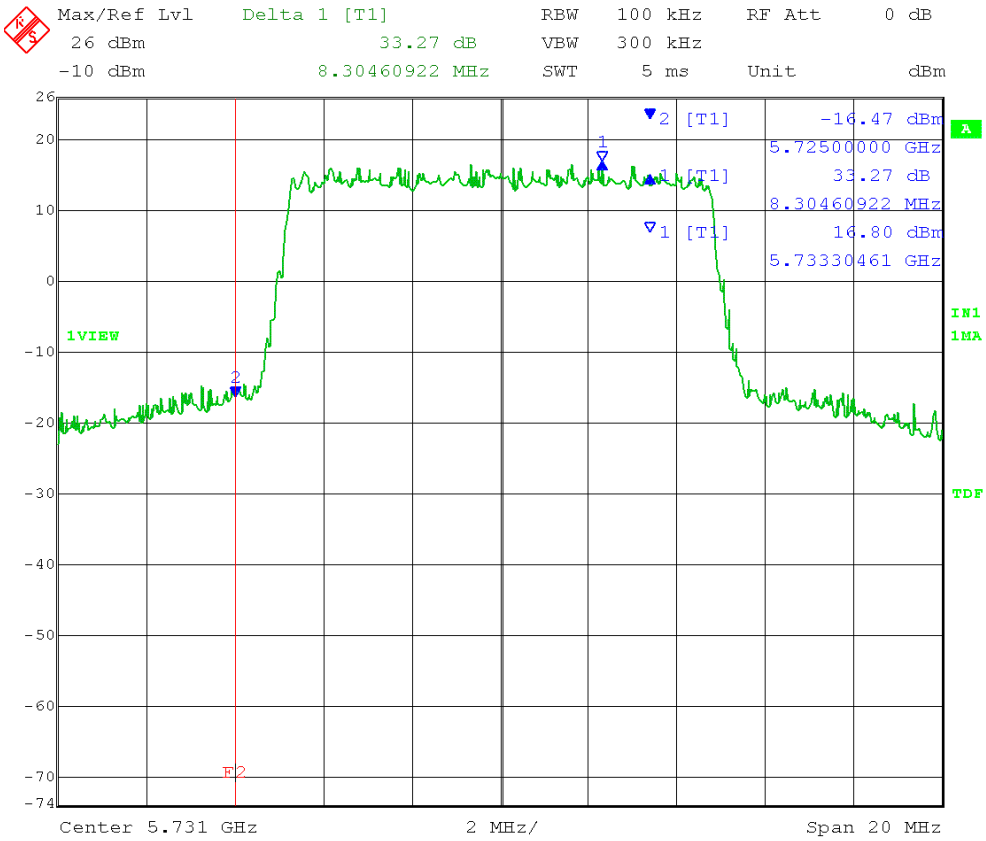
Date: 6.NOV.2013 12:41:57

10MHz LCH 64QAM TX0



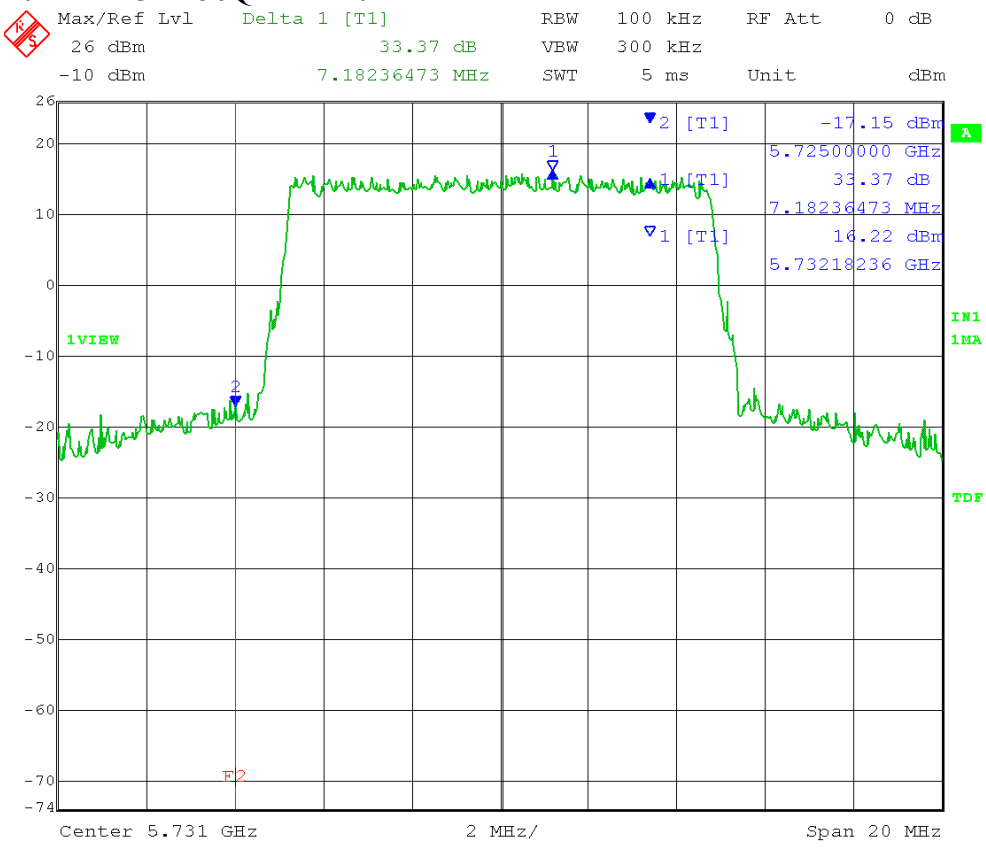
Date: 6.NOV.2013 11:33:15

TX1



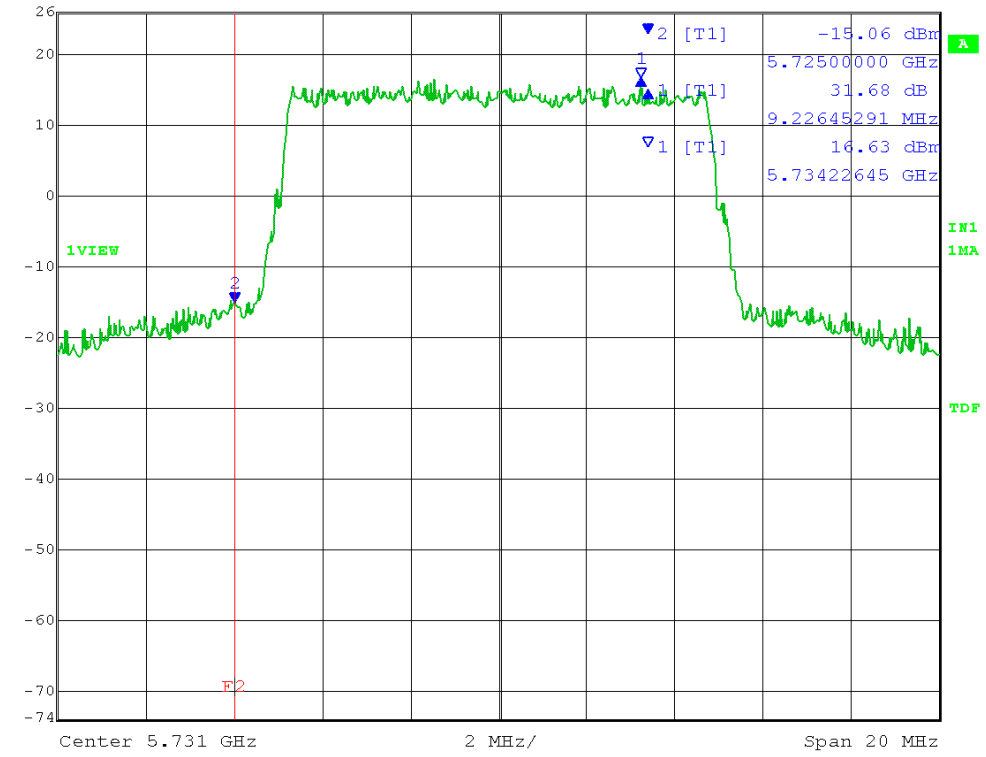
Date: 6.NOV.2013 12:42:28

10MHz LCH 256QAM TX0



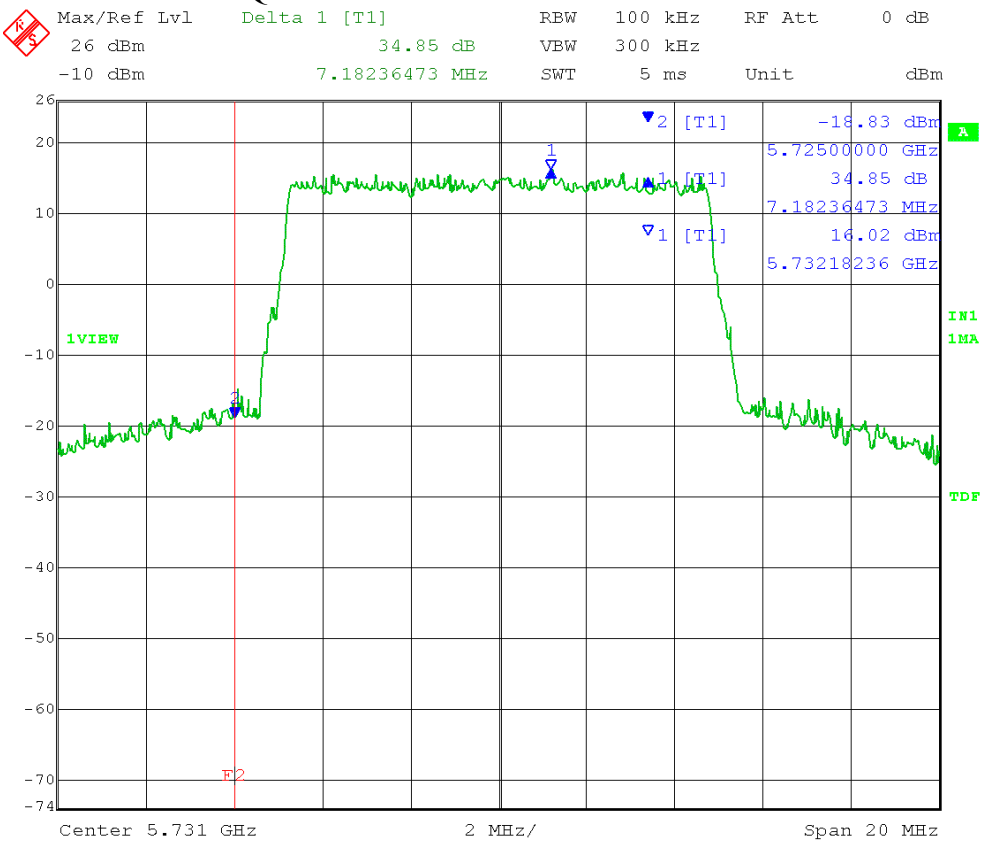
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TX1



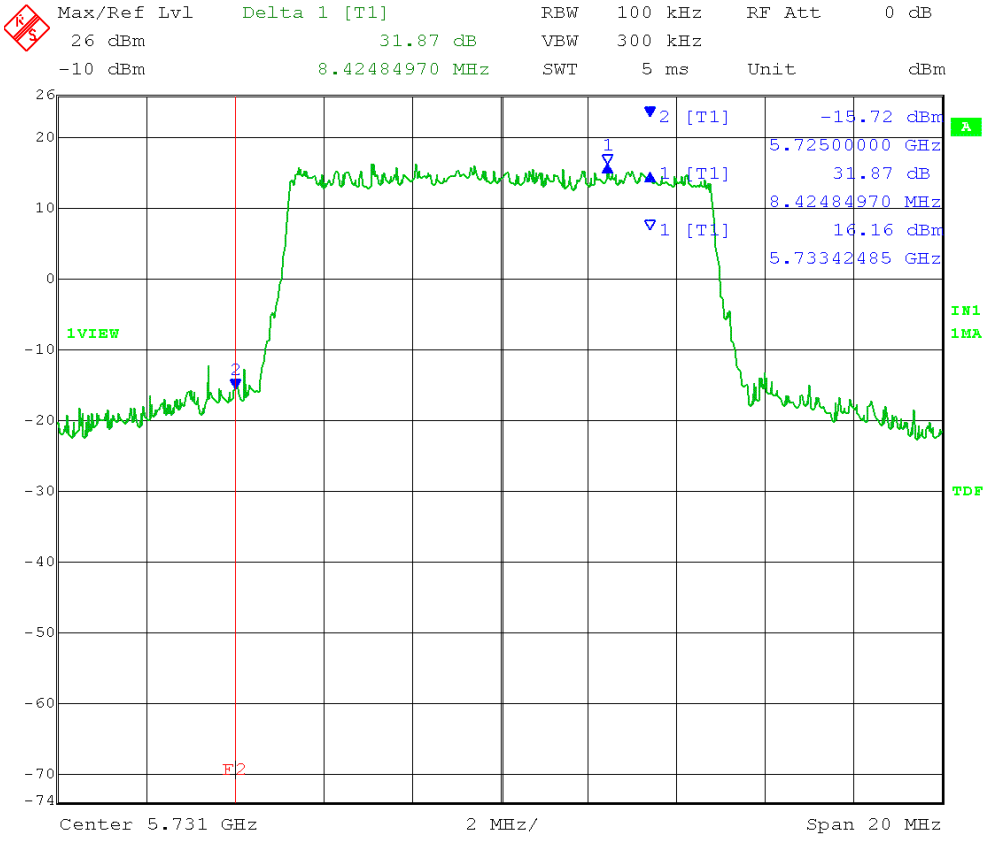
Date: 6.NOV.2013 12:43:01

10MHz LCH 1024QAM TX0



Date: 6.NOV.2013 11:34:18

TX1



Date: 6.NOV.2013 12:43:34

166 South Carter, Genoa City, WI 53128

Appendix B – Measurement Data

B6.0 Max Unwanted Emission Levels into Restricted Frequency Bands - Radiated

Rule Section: FCC 15.247(d) & FCC 15.205

Test Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

12.0 Emissions in restricted frequency bands
12.1 Radiated emission measurements

Description: This test applies to harmonics/spurs that fall in the restricted bands listed in FCC 15.205. These are radiated emission measurements.

Both transmit chains active. Output power was set to 50 dBm eirp using special test software. Measurements were taken for QPSK modulation (worst case) at the lowest, middle, and highest channels of operation. Test data taken between 30 & 1000MHz at a 50MHz channel bandwidth is representative of the 10MHz, 20MHz, and 40MHz bandwidths as well. Testing above 1GHz is documented for all bandwidths. EUT was set to transmit continuously. Radiated measurements were taken both vertically and horizontally. All other restricted band emissions were at least 20 dB under the limit.

Limit: FCC Part 15.209

Results: Passed

FCC Part 15.209

Electric Field Strength

EUT: Model: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 70 deg. F; 46% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: 50 MHz channel BW; L, M, and H channels
Comment: Power set to 50 dBm eirp; QPSK
Date: 10-02-2013; 10-17-2013; 10-18-13

TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

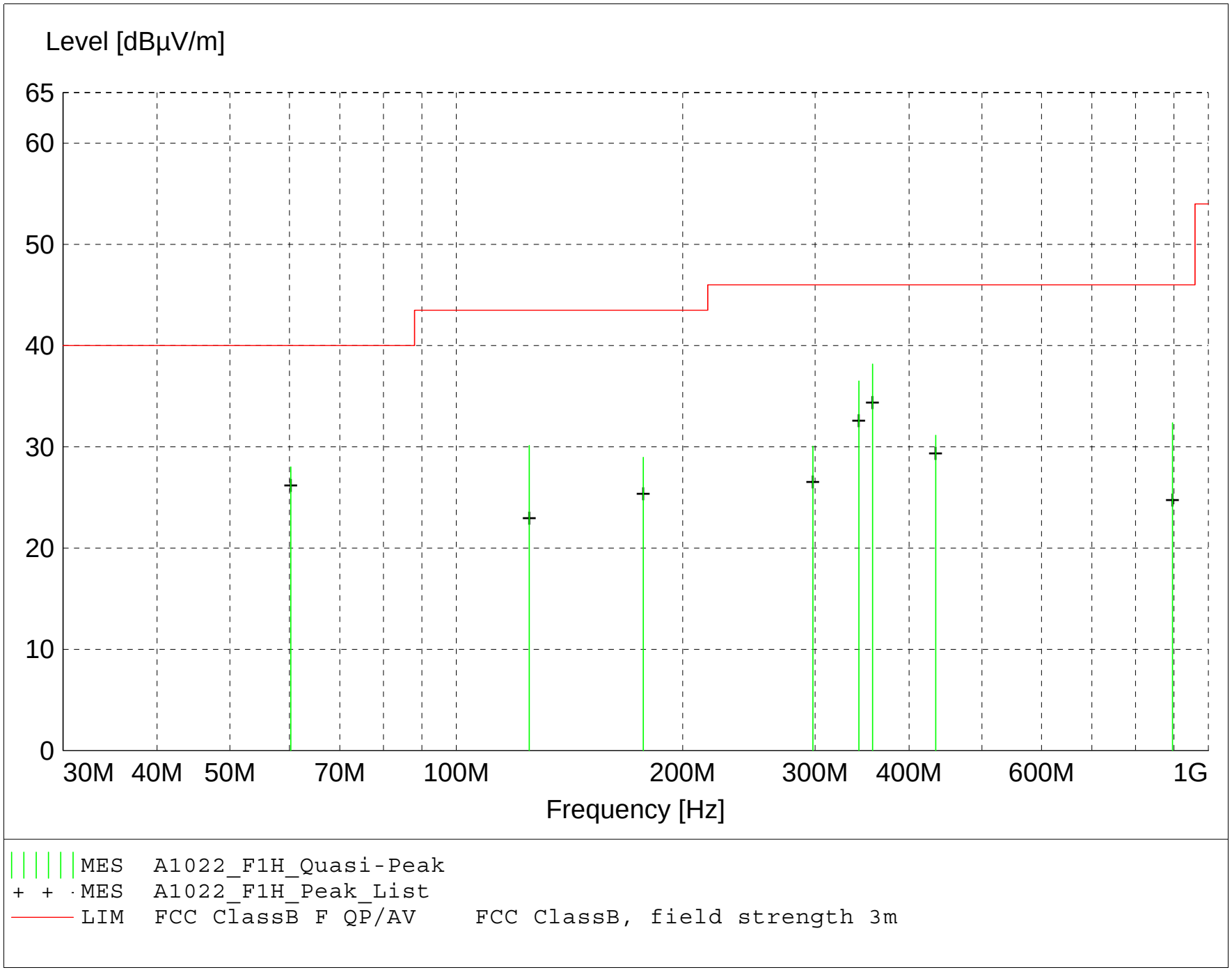
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES A1022_F1H_Quasi-Peak
MES A1022_F1H_Peak_List
LIM FCC ClassB F QP/AV FCC ClassB, field strength 3m

MEASUREMENT RESULT: "A1022_F1H_Final"

10/17/2013 11:53AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
357.640000	44.19	14.90	-20.9	38.2	46.0	7.8	2.00	290	QUASI-PEAK	broadband
342.990000	42.57	14.90	-21.0	36.5	46.0	9.5	2.00	270	QUASI-PEAK	broadband
60.245000	41.69	10.15	-23.8	28.0	40.0	12.0	1.90	270	QUASI-PEAK	broadband
125.000000	39.72	13.10	-22.7	30.1	43.5	13.4	1.60	260	QUASI-PEAK	None
896.000000	26.63	23.44	-17.7	32.4	46.0	13.6	1.20	135	QUASI-PEAK	None
177.260000	35.09	15.95	-22.1	29.0	43.5	14.5	1.00	340	QUASI-PEAK	broadband
433.960000	34.96	16.70	-20.5	31.2	46.0	14.9	2.00	290	QUASI-PEAK	None
297.900000	36.98	14.27	-21.2	30.1	46.0	15.9	2.20	260	QUASI-PEAK	broadband

FCC Part 15.209

Electric Field Strength

```
EUT:                  Model: AF5
Manufacturer:         Ubiquiti Networks
Operating Condition:  70 deg. F; 46% R.H.
Test Site:            DLS O.F. Site 3
Operator:             Craig B
Test Specification:   50 MHz channel BW; L, M, and H channels
Comment:              Power set to 50 dBm eirp; QPSK
                      Date: 10-02-2013; 10-17-2013; 10-18-13
```

TEXT: "Vert 3 meters"

```
  Short Description:            Test Set-up


Test Set-up:    EUT Measured at 3 Meters with VERTICAL Antenna Polarization


Sample Equations:   Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
                    24.6                = 35.51       + (-22.1)         + 11.20

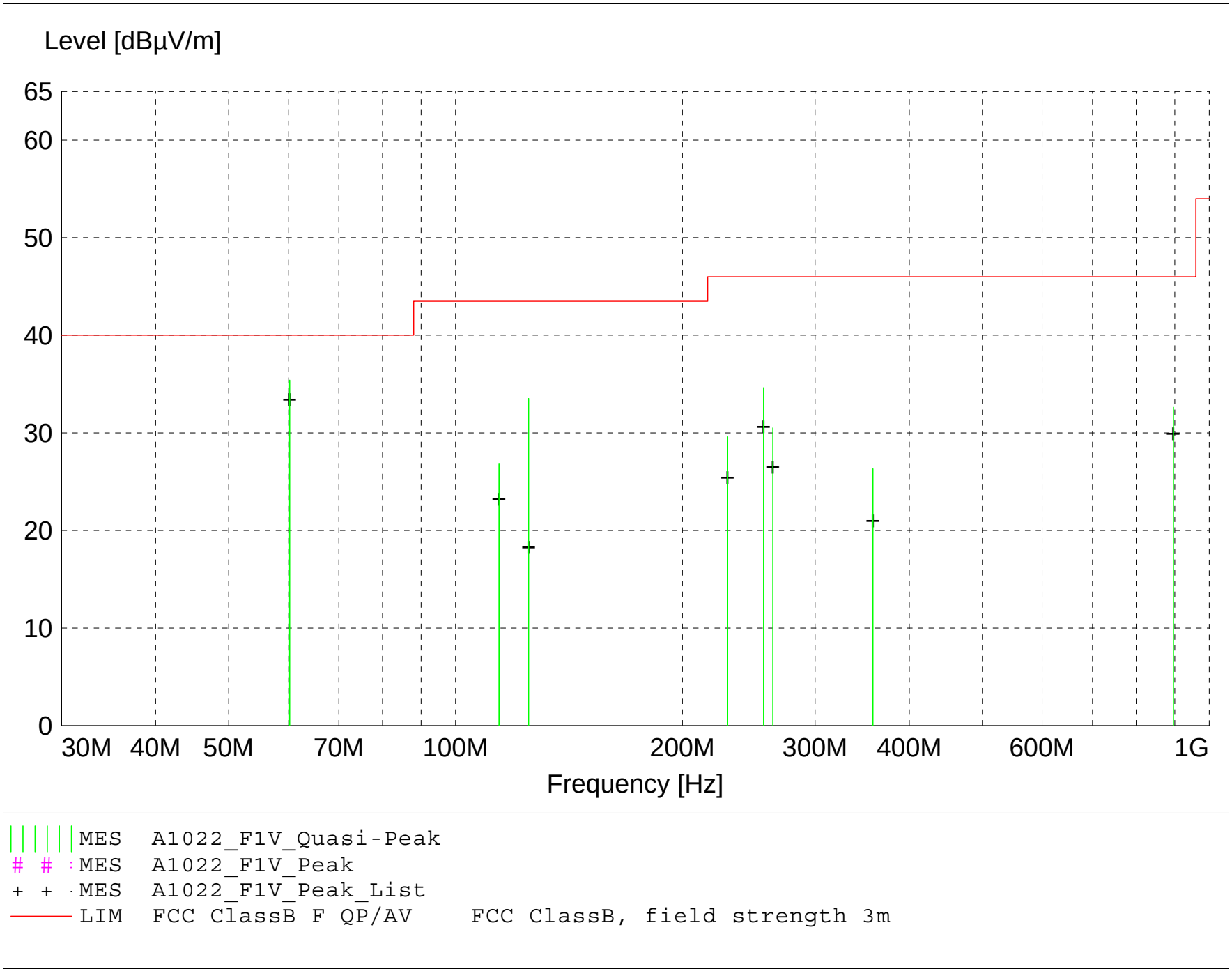
                    Margin(dB)  = Limit(dBµV/m) - Total Level(dBµV/m)
                    15.4        = 40            - 24.6


Graph Markers:  +       Frequency marker (Level of marker not related to final level)

                |       Final maximized level using Quasi-Peak detector

                X       Final maximized level using Average dector

                #       Final maximized level using Peak detector
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES A1022_F1V_Quasi-Peak
MES A1022_F1V_Peak
MES A1022_F1V_Peak_List
LIM FCC ClassB F QP/AV FCC ClassB, field strength 3m

MEASUREMENT RESULT: "A1022_F1V_Final"

10/17/2013 11:50AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
60.260000	49.07	10.15	-23.8	35.4	40.0	4.6	1.00	200	QUASI-PEAK	broadband
125.000000	43.12	13.10	-22.7	33.5	43.5	10.0	1.00	180	QUASI-PEAK	None
256.300000	43.39	12.78	-21.5	34.6	46.0	11.4	1.80	180	QUASI-PEAK	broadband
896.000000	26.87	23.44	-17.7	32.6	46.0	13.4	1.10	110	QUASI-PEAK	None
263.630000	38.83	13.15	-21.5	30.5	46.0	15.5	2.00	180	QUASI-PEAK	broadband
229.630000	39.75	11.49	-21.6	29.6	46.0	16.4	1.70	130	QUASI-PEAK	broadband
114.215000	36.99	12.68	-22.8	26.9	43.5	16.6	1.00	180	QUASI-PEAK	broadband
357.860000	32.32	14.90	-20.9	26.3	46.0	19.7	2.00	260	QUASI-PEAK	broadband

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 70 deg. F; 33% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 10 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-07-2013

TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

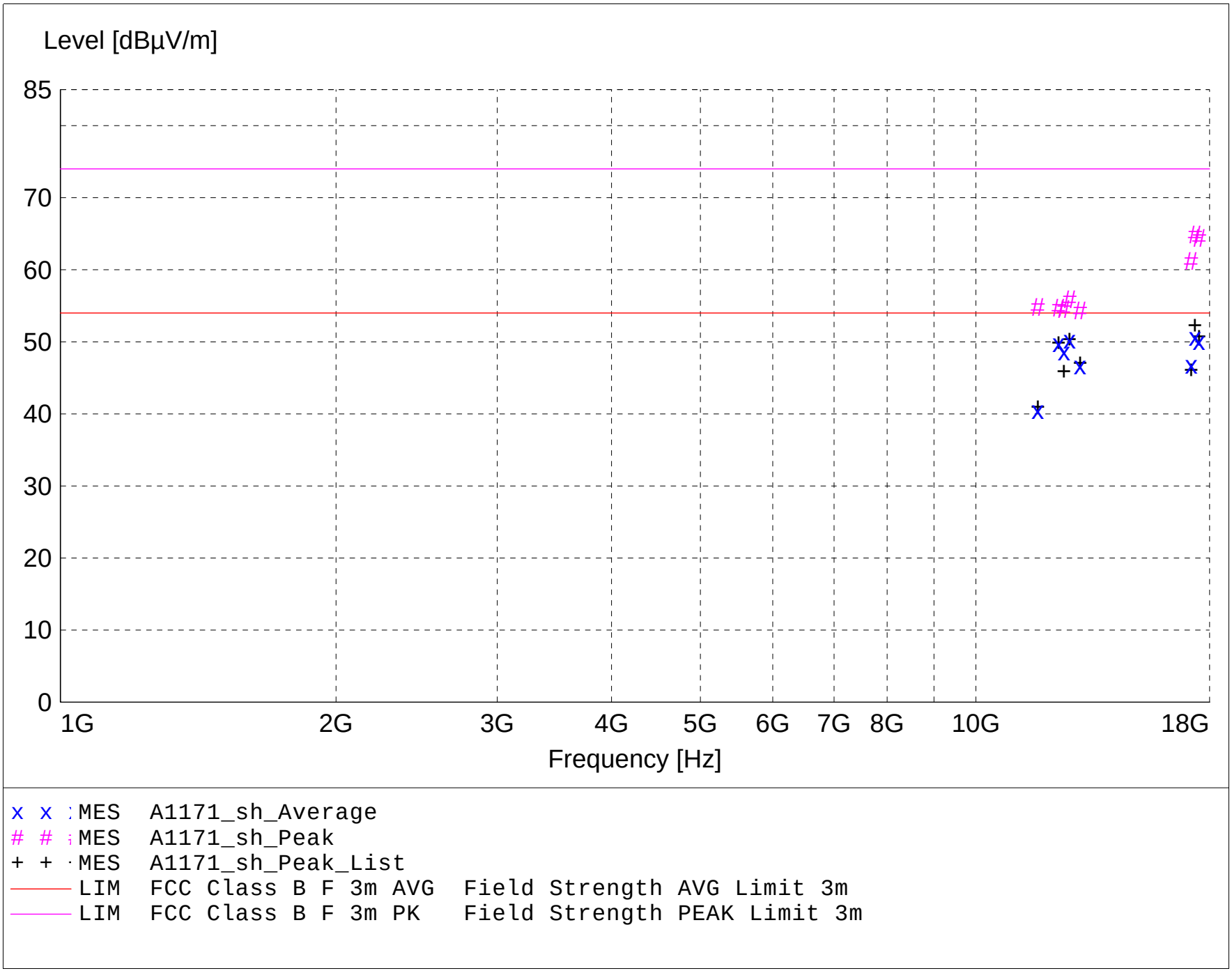
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
85
70
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
18G
Frequency [Hz]
x x x MES A1171_sh_Average
MES A1171_sh_Peak
+ + + MES A1171_sh_Peak_List
LIM FCC Class B F 3m AVG Field Strength AVG Limit 3m
LIM FCC Class B F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A1171_sh_Final"

11/7/2013 2:12PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
17354.100000	57.83	41.76	-48.9	50.7	54.0	3.3	1.00	0	AVERAGE	Mid ch
12657.000000	62.57	38.73	-51.0	50.3	54.0	3.7	1.20	190	AVERAGE	High ch
17531.500000	56.71	42.61	-49.2	50.1	54.0	3.9	1.10	0	AVERAGE	High ch
12317.980000	62.37	38.91	-51.5	49.8	54.0	4.2	1.00	0	AVERAGE	Low ch
12479.980000	61.15	38.75	-51.2	48.7	54.0	5.3	1.00	190	AVERAGE	Mid ch
17192.200000	54.33	41.38	-48.9	46.8	54.0	7.2	1.20	0	AVERAGE	Low ch
13000.000000	58.28	39.50	-51.1	46.7	54.0	7.3	1.10	0	AVERAGE	all channels
17354.100000	72.01	41.76	-48.9	64.9	74.0	9.1	1.00	0	MAX PEAK	Mid ch
17531.500000	70.98	42.61	-49.2	64.4	74.0	9.6	1.10	0	MAX PEAK	High ch
17192.200000	68.82	41.38	-48.9	61.3	74.0	12.7	1.20	0	MAX PEAK	Low ch
11688.060000	53.55	38.94	-52.0	40.5	54.0	13.5	1.30	0	AVERAGE	High ch
12657.000000	68.19	38.73	-51.0	55.9	74.0	18.1	1.20	190	MAX PEAK	High ch
11688.060000	67.94	38.94	-52.0	54.9	74.0	19.1	1.30	0	MAX PEAK	High ch
12317.980000	67.33	38.91	-51.5	54.7	74.0	19.3	1.00	0	MAX PEAK	Low ch
12479.980000	67.08	38.75	-51.2	54.6	74.0	19.4	1.00	190	MAX PEAK	Mid ch
13000.000000	66.00	39.50	-51.1	54.4	74.0	19.6	1.10	0	MAX PEAK	all channels

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 70 deg. F; 33% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 10 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-07-2013

TEXT: "Vert 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20

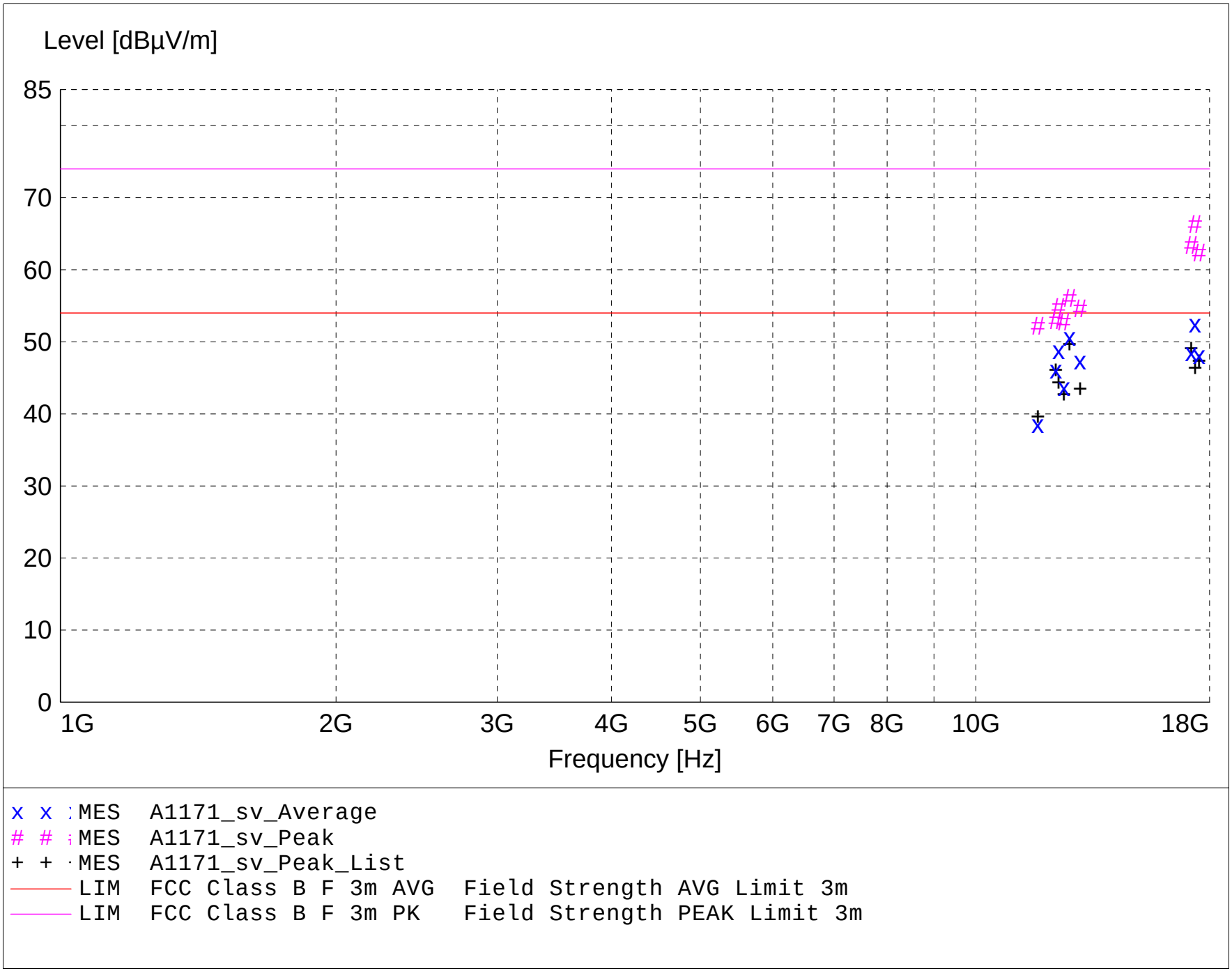
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
85
70
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
18G
Frequency [Hz]
x x x MES A1171_sv_Average
MES A1171_sv_Peak
+ + + MES A1171_sv_Peak_List
LIM FCC Class B F 3m AVG Field Strength AVG Limit 3m
LIM FCC Class B F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A1171_sv_Final"

11/7/2013 2:34PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
17354.200000	59.66	41.76	-48.9	52.5	54.0	1.5	1.10	0	AVERAGE	Mid ch
12657.000000	62.97	38.73	-51.0	50.7	54.0	3.3	1.10	0	AVERAGE	high ch
12318.000000	61.40	38.91	-51.5	48.8	54.0	5.2	1.10	0	AVERAGE	Low ch
17192.700000	56.05	41.38	-48.9	48.5	54.0	5.5	1.10	0	AVERAGE	Low ch
17531.140000	54.73	42.61	-49.2	48.1	54.0	5.9	1.00	0	AVERAGE	High ch
13000.000000	59.01	39.50	-51.1	47.4	54.0	6.6	1.00	0	AVERAGE	all channels
17354.200000	73.45	41.76	-48.9	66.3	74.0	7.7	1.10	0	MAX PEAK	Mid ch
12225.000000	58.58	38.95	-51.5	46.1	54.0	7.9	1.20	0	AVERAGE	all channels
12479.980000	56.23	38.75	-51.2	43.7	54.0	10.3	1.20	0	AVERAGE	Mid ch
17192.700000	70.98	41.38	-48.9	63.4	74.0	10.6	1.10	0	MAX PEAK	Low ch
17531.140000	68.94	42.61	-49.2	62.3	74.0	11.7	1.00	0	MAX PEAK	High ch
11688.420000	51.63	38.94	-52.0	38.5	54.0	15.5	1.00	0	AVERAGE	High ch
12657.000000	68.32	38.73	-51.0	56.0	74.0	18.0	1.10	0	MAX PEAK	high ch
12318.000000	67.45	38.91	-51.5	54.9	74.0	19.1	1.10	0	MAX PEAK	Low ch
13000.000000	66.27	39.50	-51.1	54.7	74.0	19.3	1.00	0	MAX PEAK	all channels
12225.000000	65.47	38.95	-51.5	53.0	74.0	21.0	1.20	0	MAX PEAK	all channels
12479.980000	65.34	38.75	-51.2	52.8	74.0	21.2	1.20	0	MAX PEAK	Mid ch
11688.420000	65.34	38.94	-52.0	52.3	74.0	21.7	1.00	0	MAX PEAK	High ch

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 72 deg. F; 31% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 10 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-08-2013

TEXT: "Horz 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

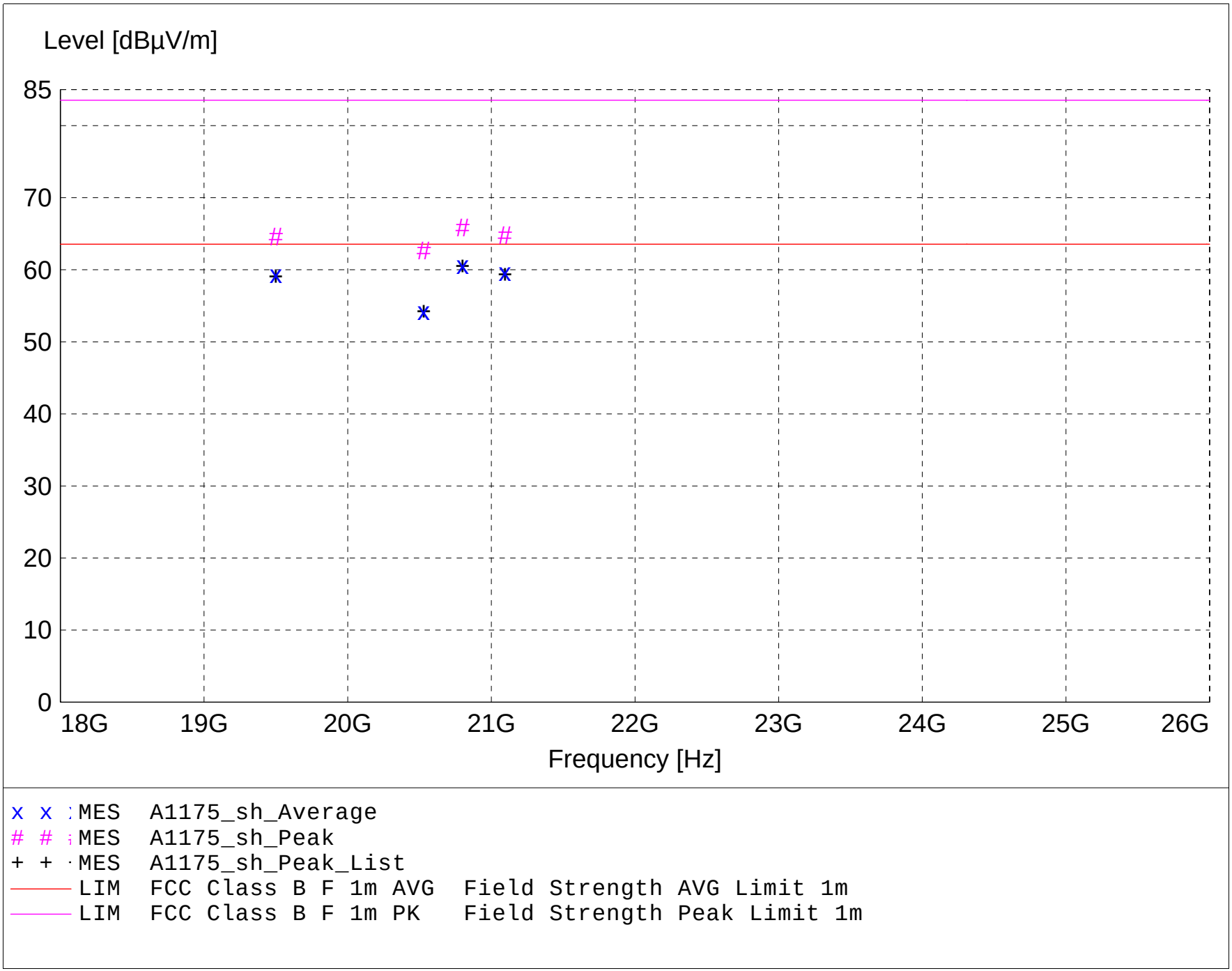
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
85
70
60
50
40
30
20
10
0
18G
19G
20G
21G
22G
23G
24G
25G
26G
Frequency [Hz]
x x x MES A1175_sh_Average
MES A1175_sh_Peak
+ + + MES A1175_sh_Peak_List
LIM FCC Class B F 1m AVG Field Strength AVG Limit 1m
LIM FCC Class B F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A1175_sh_Final"

11/8/2013 2:54PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
20800.020000	50.28	46.66	-36.3	60.7	63.5	2.9	1.40	225	AVERAGE	Mid ch
21095.020000	49.55	46.88	-36.7	59.7	63.5	3.8	1.20	260	AVERAGE	High ch
19500.000000	51.76	45.94	-38.3	59.4	63.5	4.1	1.50	150	AVERAGE	all channels
20530.020000	44.43	46.35	-36.6	54.2	63.5	9.3	1.40	225	AVERAGE	Low ch
20800.020000	55.41	46.66	-36.3	65.8	83.5	17.7	1.40	225	MAX PEAK	Mid ch
21095.020000	54.64	46.88	-36.7	64.8	83.5	18.8	1.20	260	MAX PEAK	High ch
19500.000000	56.98	45.94	-38.3	64.6	83.5	18.9	1.50	150	MAX PEAK	all channels
20530.020000	52.88	46.35	-36.6	62.7	83.5	20.9	1.40	225	MAX PEAK	Low ch

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 72 deg. F; 31% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 10 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-08-2013

TEXT: "Vert 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with VERTICAL Antenna Polarization

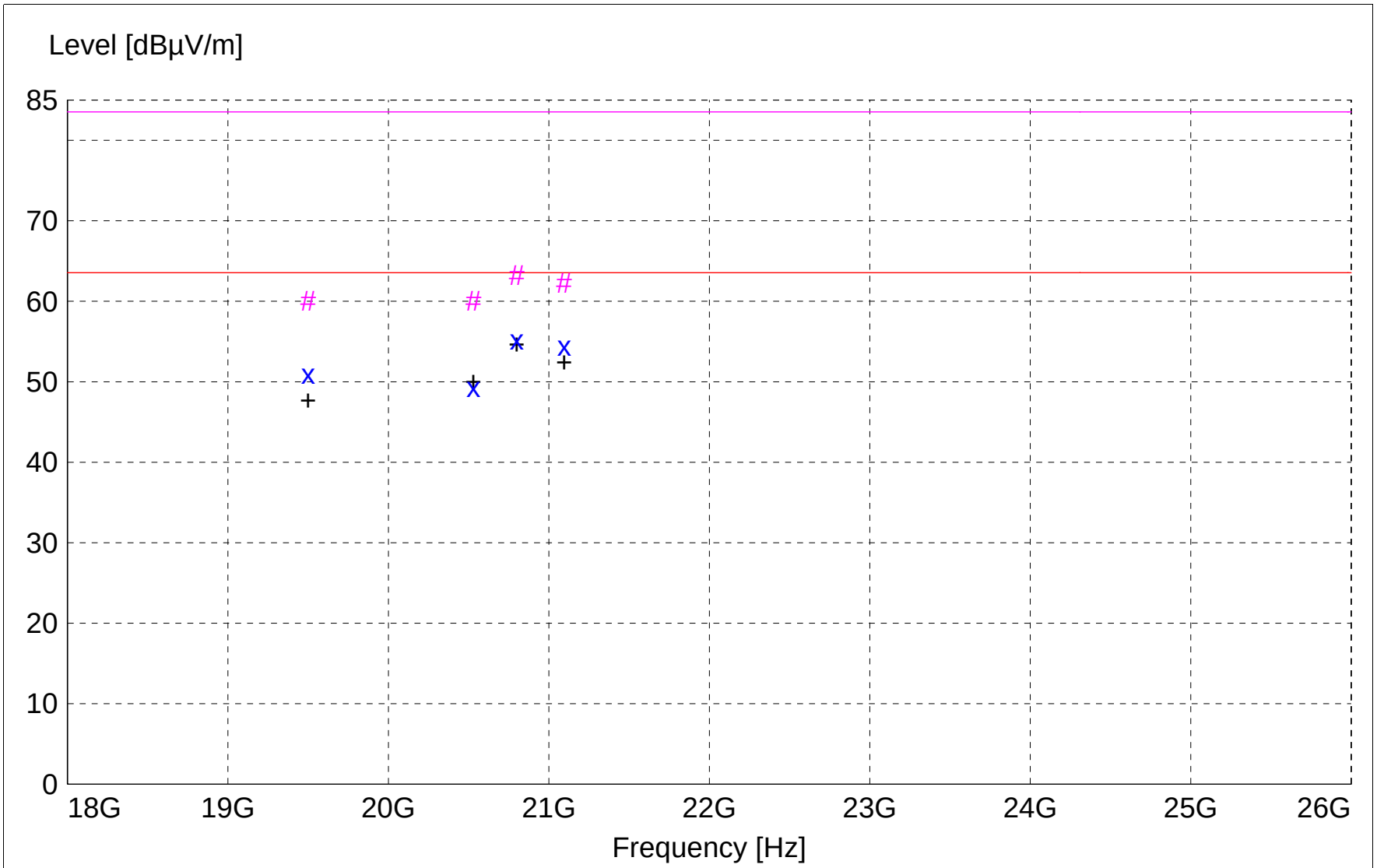
Sample Equations:

Total Level(dBµV/m)	= Level(dBµV)	+ System Loss(dB)	+ Antenna Factor(dBµV/m)	
24.6	= 35.51	+ (-22.1)	+ 11.20	

Margin(dB)	= Limit(dBµV/m)	- Total Level(dBµV/m)
15.4	= 40	- 24.6

Graph Markers:

+	Frequency marker (Level of marker not related to final level)
|	Final maximized level using Quasi-Peak detector
X	Final maximized level using Average dector
#	Final maximized level using Peak detector



x x x MES A1175_sv_Average
MES A1175_sv_Peak
+ + + MES A1175_sv_Peak_List
——— LIM FCC Class B F 1m AVG Field Strength AVG Limit 1m
——— LIM FCC Class B F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A1175_sv_Final"

11/8/2013 3:11PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
20800.000000	44.86	46.66	-36.3	55.3	63.5	8.3	1.60	225	AVERAGE	Mid ch
21095.000000	44.32	46.88	-36.7	54.5	63.5	9.1	1.50	190	AVERAGE	High ch
19500.000000	43.32	45.94	-38.3	51.0	63.5	12.6	1.60	190	AVERAGE	all channels
20530.200000	39.54	46.35	-36.6	49.3	63.5	14.2	1.60	180	AVERAGE	Low ch
20800.000000	52.88	46.66	-36.3	63.3	83.5	20.3	1.60	225	MAX PEAK	Mid ch
21095.000000	52.18	46.88	-36.7	62.3	83.5	21.2	1.50	190	MAX PEAK	High ch
19500.000000	52.46	45.94	-38.3	60.1	83.5	23.4	1.60	190	MAX PEAK	all channels
20530.200000	50.22	46.35	-36.6	60.0	83.5	23.5	1.60	180	MAX PEAK	Low ch

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 70 deg. F; 33% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 20 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-07-2013

TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

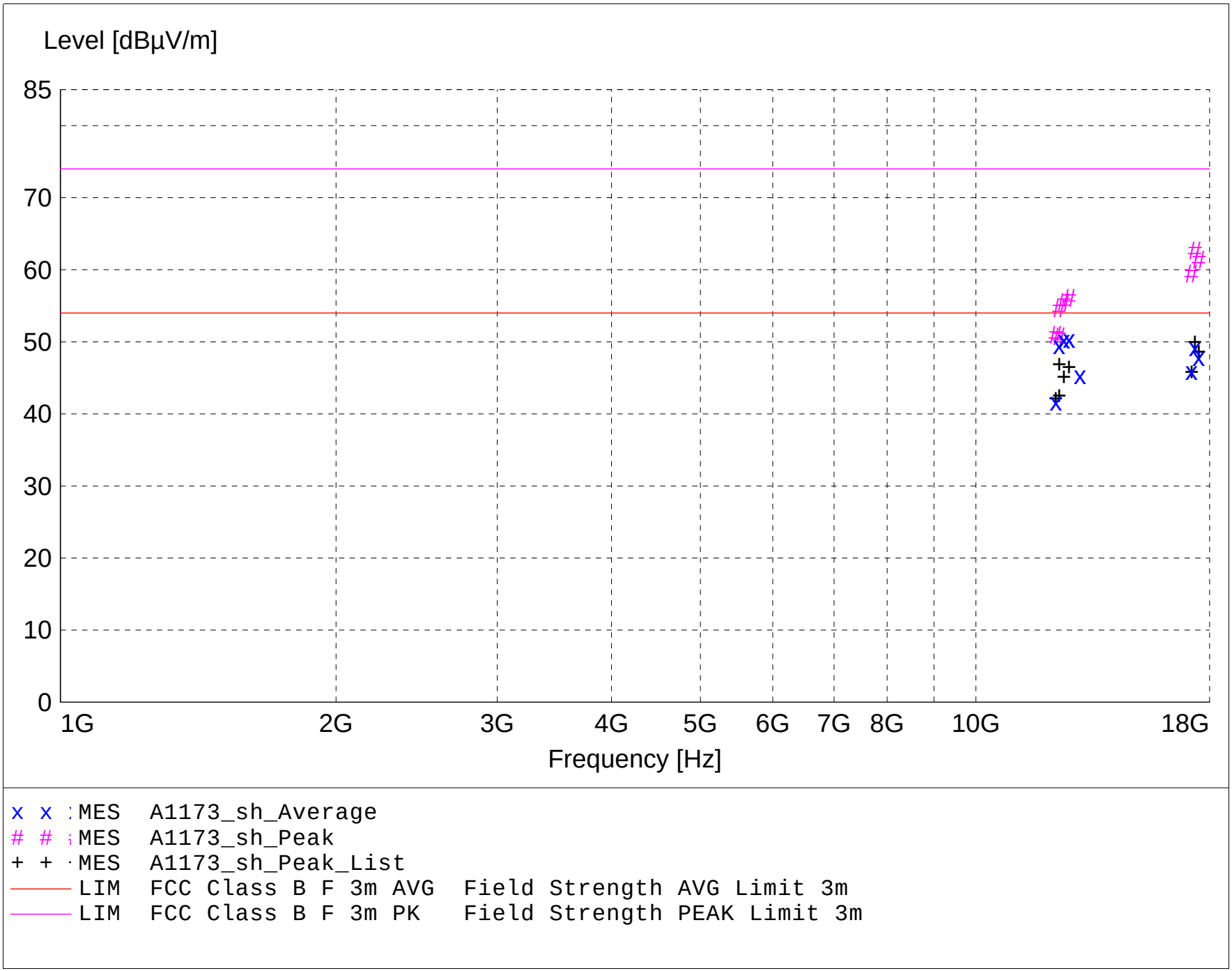
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
85
70
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
18G
Frequency [Hz]
x x x MES A1173_sh_Average
MES A1173_sh_Peak
+ + + MES A1173_sh_Peak_List
LIM FCC Class B F 3m AVG Field Strength AVG Limit 3m
LIM FCC Class B F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A1173_sh_Final"

11/8/2013 9:08AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
12642.000000	62.71	38.72	-51.0	50.4	54.0	3.6	1.00	180	AVERAGE	High ch
12480.000000	62.82	38.75	-51.2	50.3	54.0	3.7	1.00	190	AVERAGE	Mid ch
12332.980000	62.03	38.89	-51.4	49.5	54.0	4.5	1.30	0	AVERAGE	Low ch
17352.940000	56.32	41.76	-48.9	49.2	54.0	4.8	1.10	0	AVERAGE	Mid ch
17517.940000	54.59	42.53	-49.2	47.9	54.0	6.1	1.30	0	AVERAGE	High ch
17206.060000	53.44	41.42	-48.9	45.9	54.0	8.1	1.00	0	AVERAGE	Low ch
17352.940000	69.78	41.76	-48.9	62.7	74.0	11.3	1.10	0	MAX PEAK	Mid ch
12225.000000	54.21	38.95	-51.5	41.7	54.0	12.3	1.10	0	AVERAGE	all channels
17517.940000	68.17	42.53	-49.2	61.5	74.0	12.5	1.30	0	MAX PEAK	High ch
12333.000000	53.91	38.89	-51.4	41.4	54.0	12.6	1.10	0	AVERAGE	all channels
17206.060000	66.95	41.42	-48.9	59.4	74.0	14.6	1.00	0	MAX PEAK	Low ch
12642.000000	68.42	38.72	-51.0	56.1	74.0	17.9	1.00	180	MAX PEAK	High ch
12480.000000	68.04	38.75	-51.2	55.5	74.0	18.5	1.00	190	MAX PEAK	Mid ch
12332.980000	67.20	38.89	-51.4	54.7	74.0	19.3	1.30	0	MAX PEAK	Low ch
12225.000000	63.44	38.95	-51.5	50.9	74.0	23.1	1.10	0	MAX PEAK	all channels
12333.000000	63.29	38.89	-51.4	50.7	74.0	23.3	1.10	0	MAX PEAK	all channels

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 70 deg. F; 33% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 20 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-07-2013

TEXT: "Vert 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20

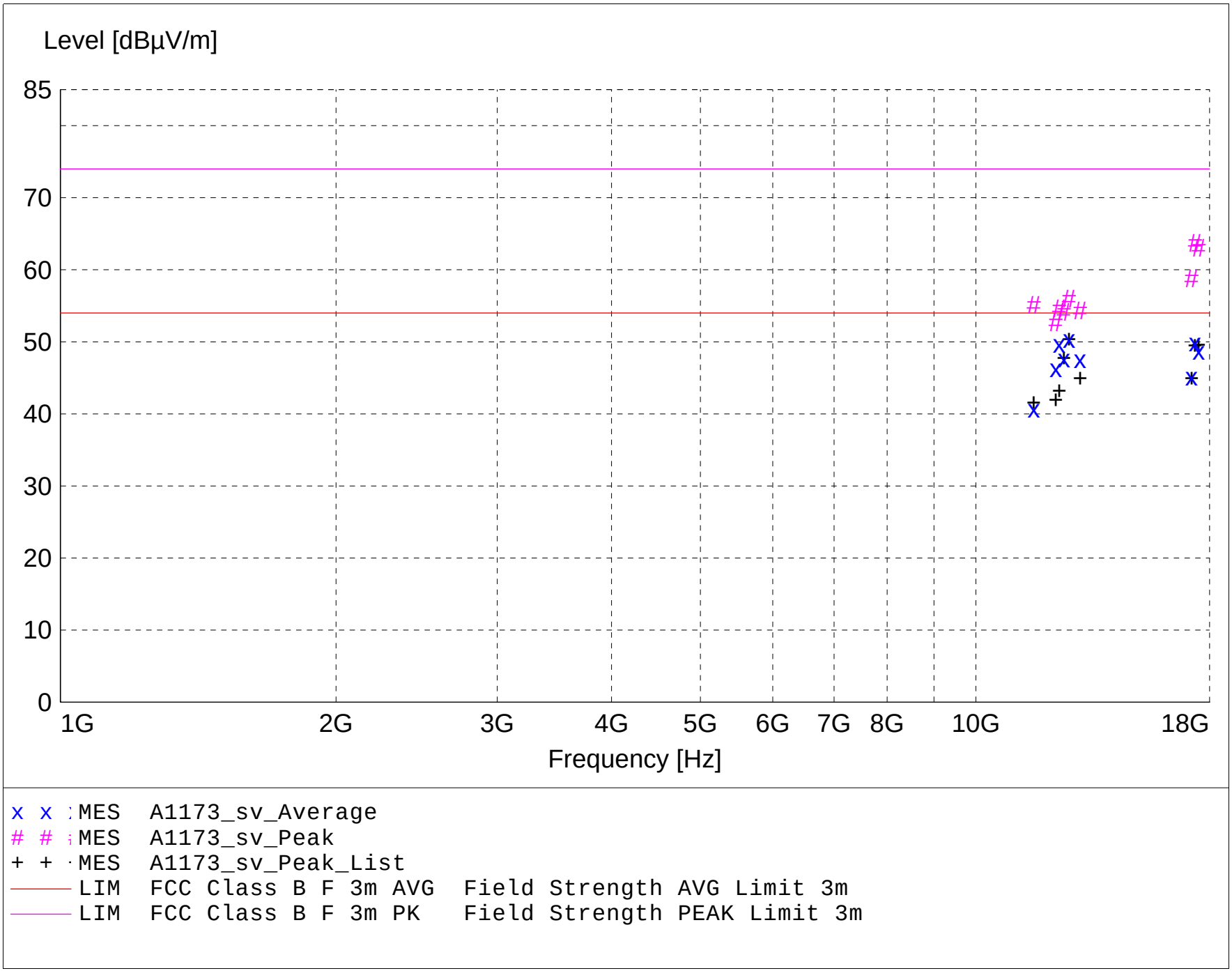
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
85
70
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
18G
Frequency [Hz]
x x x MES A1173_sv_Average
MES A1173_sv_Peak
+ + + MES A1173_sv_Peak_List
LIM FCC Class B F 3m AVG Field Strength AVG Limit 3m
LIM FCC Class B F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A1173_sv_Final"

11/8/2013 9:57AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
12642.000000	62.72	38.72	-51.0	50.4	54.0	3.6	1.30	0	AVERAGE	High ch
17354.400000	57.03	41.76	-48.9	49.9	54.0	4.1	1.10	0	AVERAGE	Mid ch
12332.980000	62.24	38.89	-51.4	49.7	54.0	4.3	1.10	0	AVERAGE	Low ch
17516.080000	55.53	42.52	-49.2	48.8	54.0	5.2	1.10	0	AVERAGE	High ch
12480.000000	60.18	38.75	-51.2	47.7	54.0	6.3	1.50	0	AVERAGE	Mid ch
13000.000000	59.22	39.50	-51.1	47.6	54.0	6.4	1.00	0	AVERAGE	all channels
12225.000000	58.81	38.95	-51.5	46.3	54.0	7.7	1.20	0	AVERAGE	all channels
17208.180000	52.72	41.42	-48.9	45.2	54.0	8.8	1.20	0	AVERAGE	Low ch
17354.400000	70.83	41.76	-48.9	63.7	74.0	10.3	1.10	0	MAX PEAK	Mid ch
17516.080000	69.78	42.52	-49.2	63.0	74.0	11.0	1.10	0	MAX PEAK	High ch
11570.480000	53.77	38.80	-51.9	40.7	54.0	13.3	1.40	0	AVERAGE	Mid ch
17208.180000	66.27	41.42	-48.9	58.8	74.0	15.2	1.20	0	MAX PEAK	Low ch
12642.000000	68.29	38.72	-51.0	56.0	74.0	18.0	1.30	0	MAX PEAK	High ch
11570.480000	68.17	38.80	-51.9	55.1	74.0	18.9	1.40	0	MAX PEAK	Mid ch
12332.980000	67.20	38.89	-51.4	54.7	74.0	19.3	1.10	0	MAX PEAK	Low ch
13000.000000	66.00	39.50	-51.1	54.4	74.0	19.6	1.00	0	MAX PEAK	all channels
12480.000000	66.65	38.75	-51.2	54.2	74.0	19.8	1.50	0	MAX PEAK	Mid ch
12225.000000	65.20	38.95	-51.5	52.7	74.0	21.3	1.20	0	MAX PEAK	all channels

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 72 deg. F; 31% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 20 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-08-2013

TEXT: "Horz 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

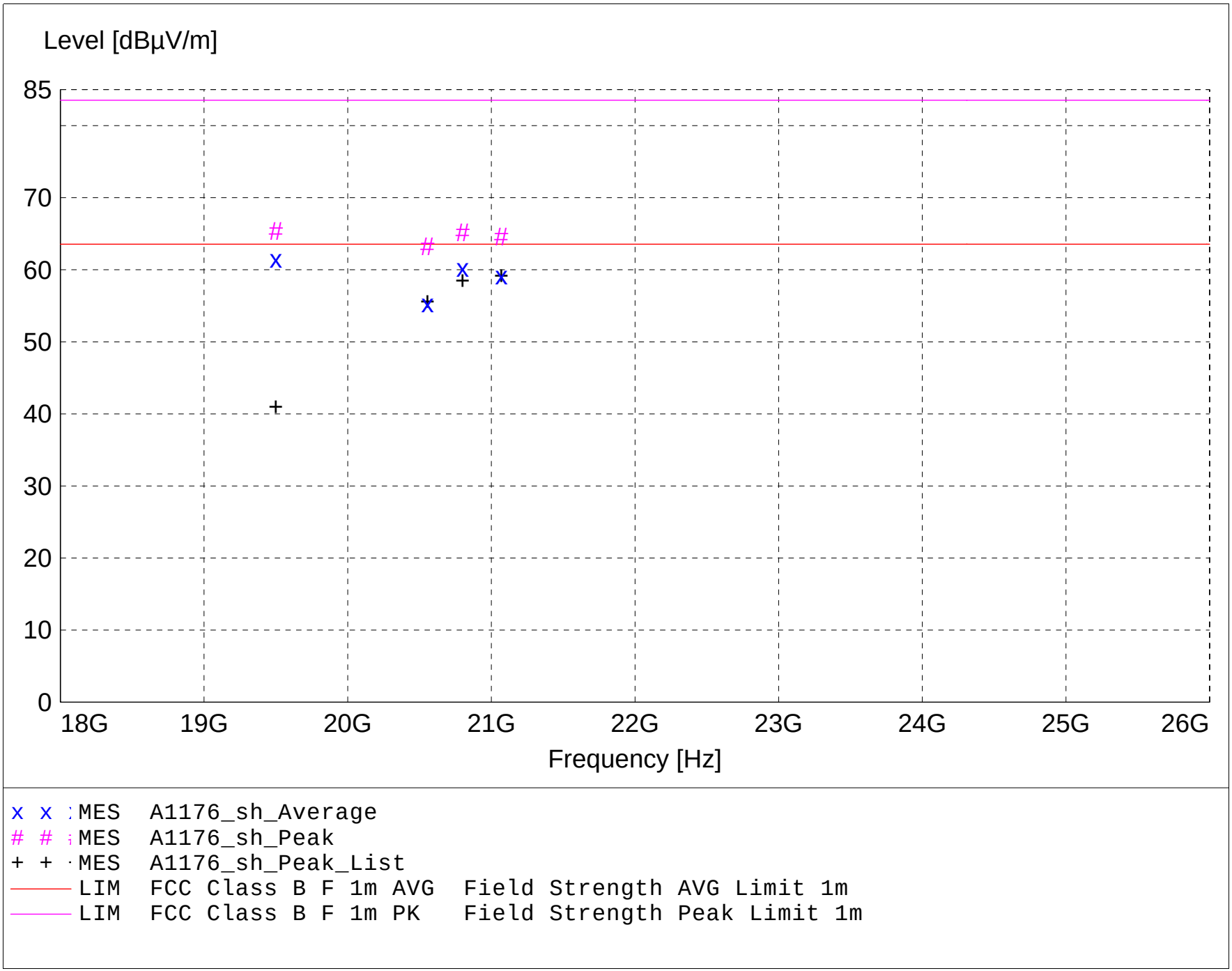
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
85
70
60
50
40
30
20
10
0
18G
19G
20G
21G
22G
23G
24G
25G
26G
Frequency [Hz]
x x x MES A1176_sh_Average
MES A1176_sh_Peak
+ + + MES A1176_sh_Peak_List
LIM FCC Class B F 1m AVG Field Strength AVG Limit 1m
LIM FCC Class B F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A1176_sh_Final"

11/8/2013 3:40PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
19500.000000	53.89	45.94	-38.3	61.5	63.5	2.0	1.50	225	AVERAGE	all channels
20800.020000	49.85	46.66	-36.3	60.2	63.5	3.3	1.40	250	AVERAGE	Mid ch
21070.020000	49.00	46.87	-36.7	59.2	63.5	4.3	1.40	230	AVERAGE	High ch
20555.000000	45.46	46.38	-36.6	55.3	63.5	8.3	1.50	225	AVERAGE	Low ch
19500.000000	57.73	45.94	-38.3	65.4	83.5	18.2	1.50	225	MAX PEAK	all channels
20800.020000	54.77	46.66	-36.3	65.2	83.5	18.4	1.40	250	MAX PEAK	Mid ch
21070.020000	54.37	46.87	-36.7	64.6	83.5	19.0	1.40	230	MAX PEAK	High ch
20555.000000	53.43	46.38	-36.6	63.2	83.5	20.3	1.50	225	MAX PEAK	Low ch

FCC 15.209 Class B

Electric Field Strength

EUT: AF5
Manufacturer: Ubiquiti Networks
Operating Condition: 72 deg. F; 31% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: Radiated emissions with integral antenna
Comment: 20 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels
Date: 11-08-2013

TEXT: "Vert 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with VERTICAL Antenna Polarization

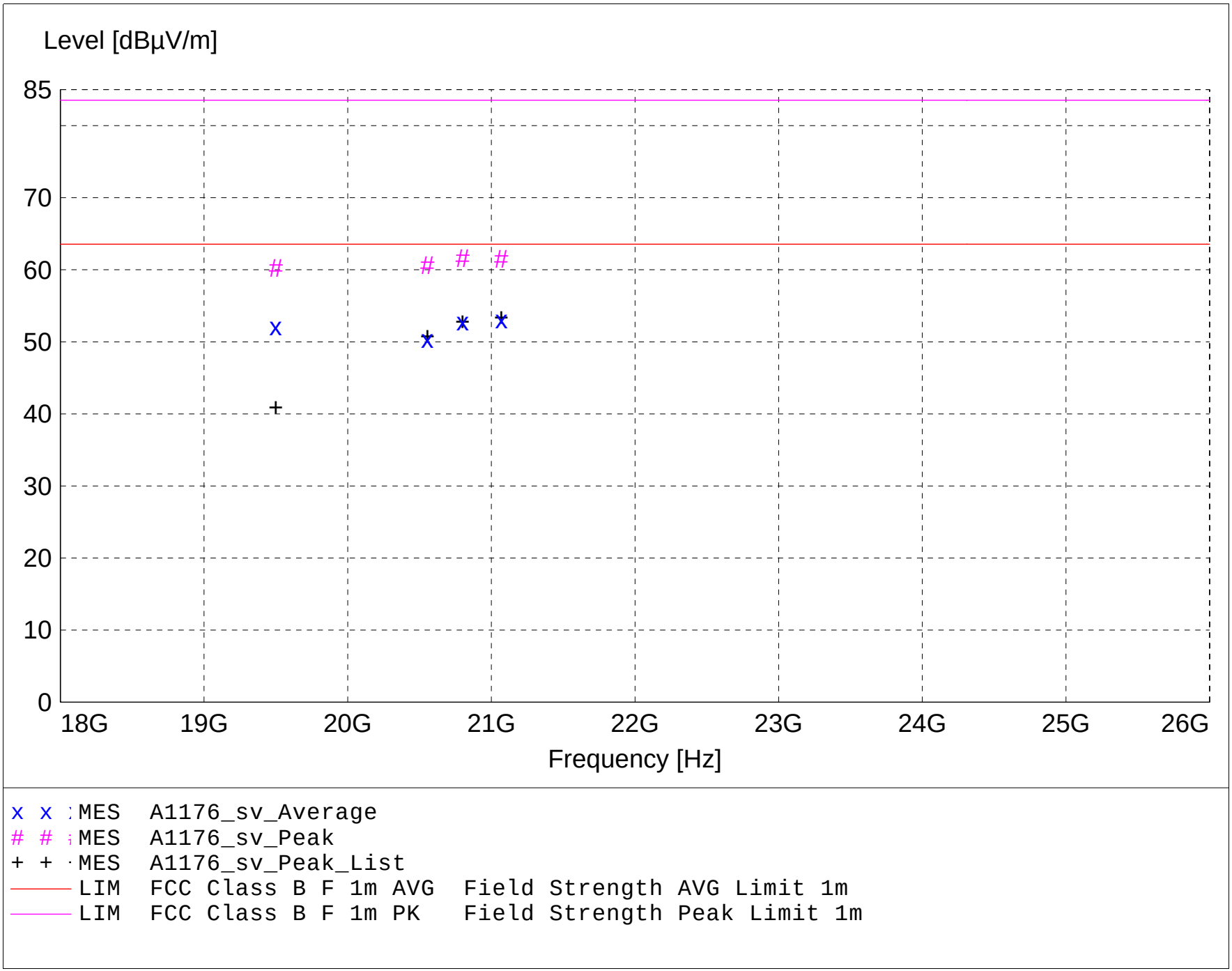
Sample Equations:

Total Level(dBµV/m)	= Level(dBµV)	+ System Loss(dB)	+ Antenna Factor(dBµV/m)	
24.6	= 35.51	+ (-22.1)	+ 11.20	

Margin(dB)	= Limit(dBµV/m)	- Total Level(dBµV/m)
15.4	= 40	- 24.6

Graph Markers:

+	Frequency marker (Level of marker not related to final level)
|	Final maximized level using Quasi-Peak detector
X	Final maximized level using Average dector
#	Final maximized level using Peak detector


Level [dBµV/m]
85
70
60
50
40
30
20
10
0
18G
19G
20G
21G
22G
23G
24G
25G
26G
Frequency [Hz]
x x x MES A1176_sv_Average
MES A1176_sv_Peak
+ + + MES A1176_sv_Peak_List
LIM FCC Class B F 1m AVG Field Strength AVG Limit 1m
LIM FCC Class B F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A1176_sv_Final"

11/8/2013 3:27PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
21070.000000	42.87	46.87	-36.7	53.1	63.5	10.5	1.50	170	AVERAGE	High ch
20800.020000	42.43	46.66	-36.3	52.8	63.5	10.7	1.60	225	AVERAGE	Mid ch
19500.000000	44.51	45.94	-38.3	52.1	63.5	11.4	1.50	215	AVERAGE	all channels
20555.000000	40.58	46.38	-36.6	50.4	63.5	13.1	1.60	250	AVERAGE	Low ch
20800.020000	51.25	46.66	-36.3	61.6	83.5	21.9	1.60	225	MAX PEAK	Mid ch
21070.000000	51.25	46.87	-36.7	61.5	83.5	22.1	1.50	170	MAX PEAK	High ch
20555.000000	50.86	46.38	-36.6	60.7	83.5	22.9	1.60	250	MAX PEAK	Low ch
19500.000000	52.60	45.94	-38.3	60.2	83.5	23.3	1.50	215	MAX PEAK	all channels

No measurable emissions were detected from the EUT from 26 to 40 GHz.

Appendix B – Measurement Data

B7.0 Duty Cycle of Test Unit

Rule Part: FCC Section 15.35(c)

FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

6.0 Duty cycle, transmission duration

Test Procedure: The zero-span mode on a spectrum analyzer.
Set the center frequency of the instrument to the center frequency of the transmission.
RBW ≥ OBW if possible; otherwise, **set RBW to the largest available value**
VBW ≥ RBW
Detector = peak

Limits: Informative

Results: EUT is continuously transmitting (duty cycle > 98%).

Sample Equations: None

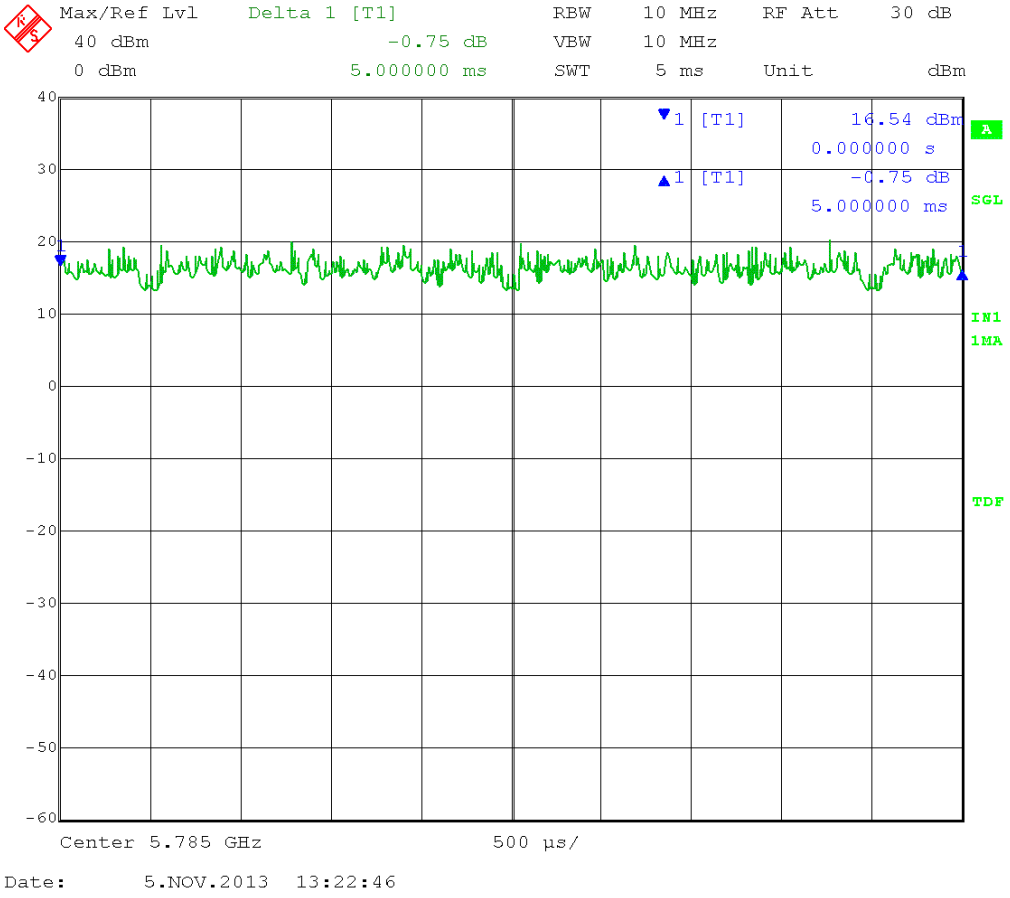
Notes: No Duty cycle correction factor was applied to measurements for this device.

The EUT was transmitting above the minimum duty cycle of 98%.

Test Date: 11-05-2013
Company: Ubiquiti Networks
EUT: Air Fiber 5 - 5.8GHz WiFi Radio
Test: Duty Cycle during testing
Operator: Lillian L
Test Procedure used: KDB 558074 D01 v01r03 – 6.0)

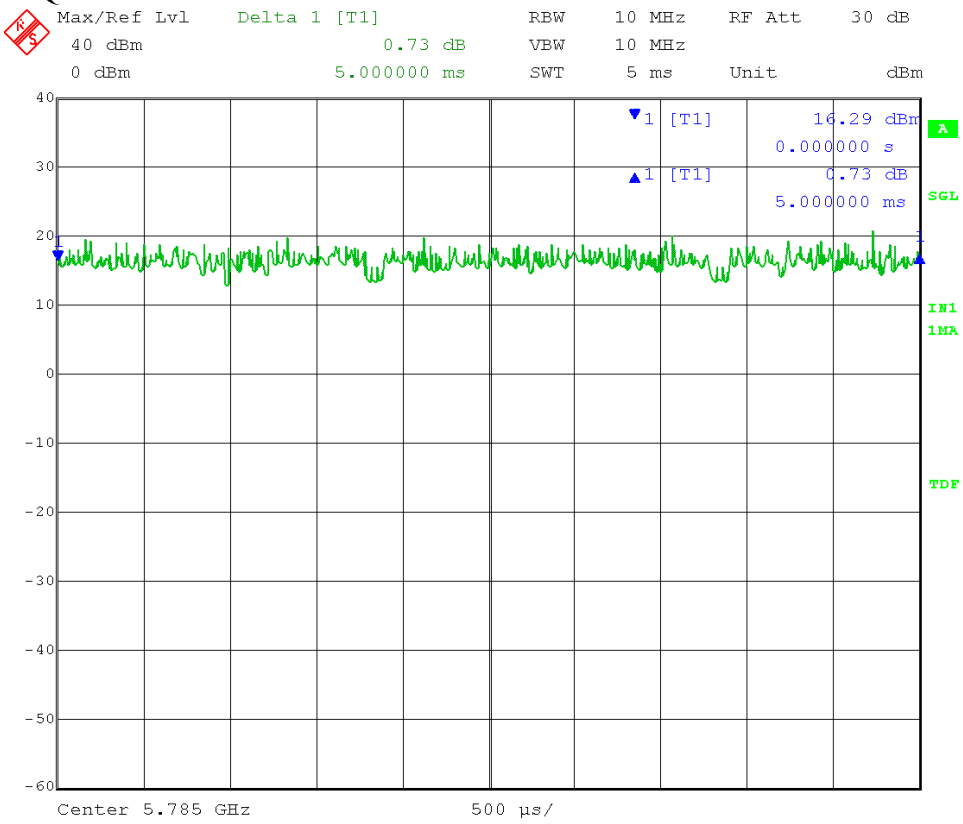
Total Cycle time = 5 ms
Total on Time = 5 ms
Duty cycle factor x = 1
Adjustment for duty cycle =10log1/x = 0

10MHz BW
QPSK



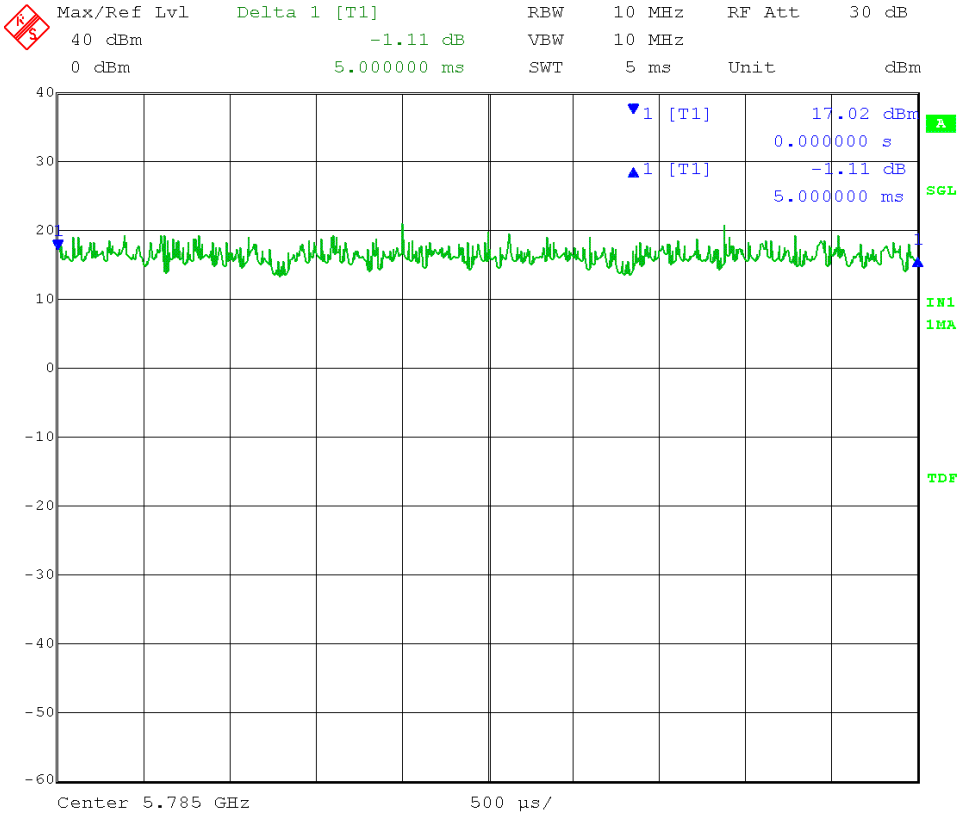
Date: 5.NOV.2013 13:22:46

16QAM



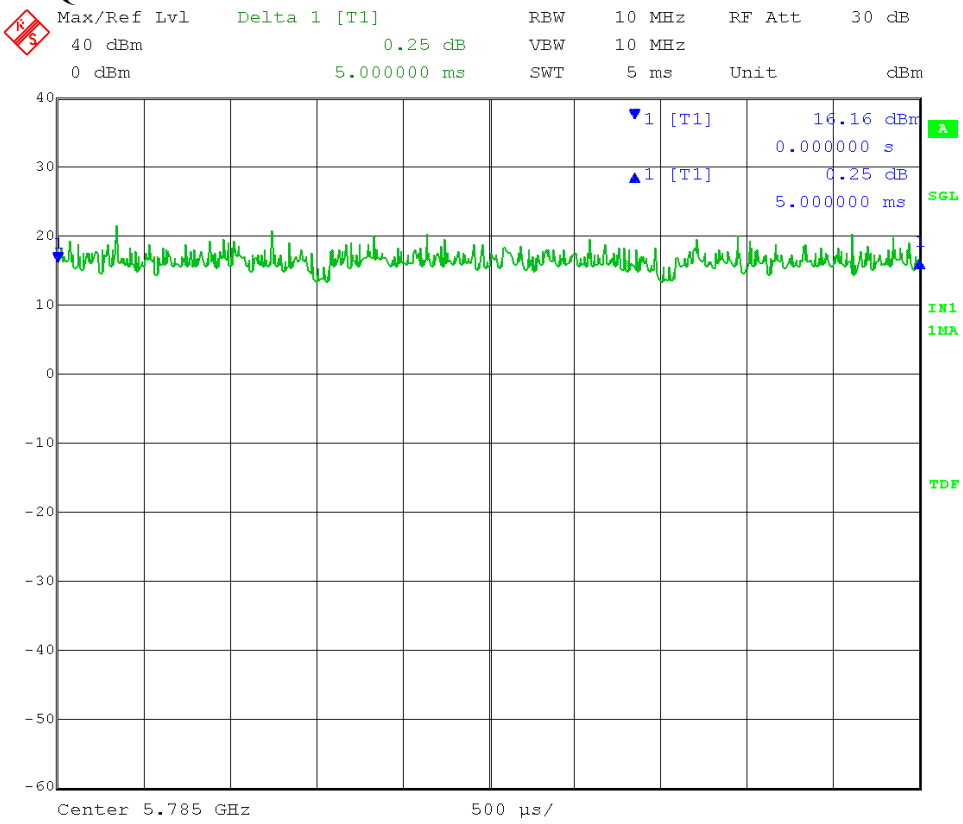
Date: 5.NOV.2013 13:23:01

64QAM



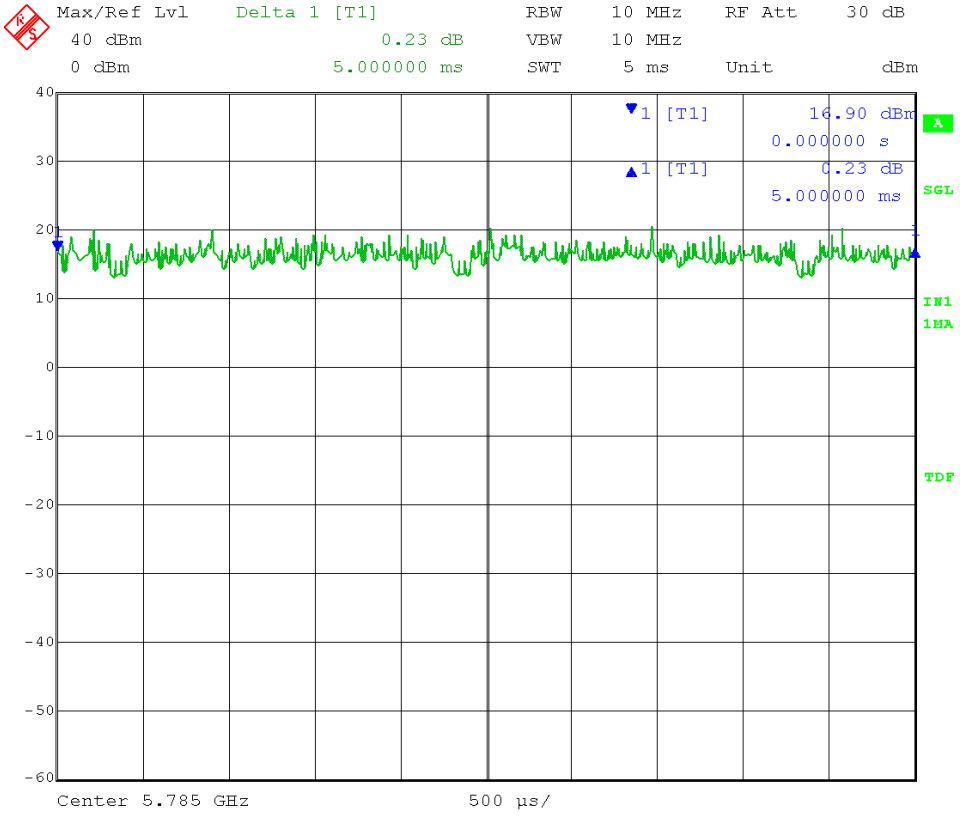
Date: 5.NOV.2013 13:23:18

256QAM



Date: 5.NOV.2013 13:23:33

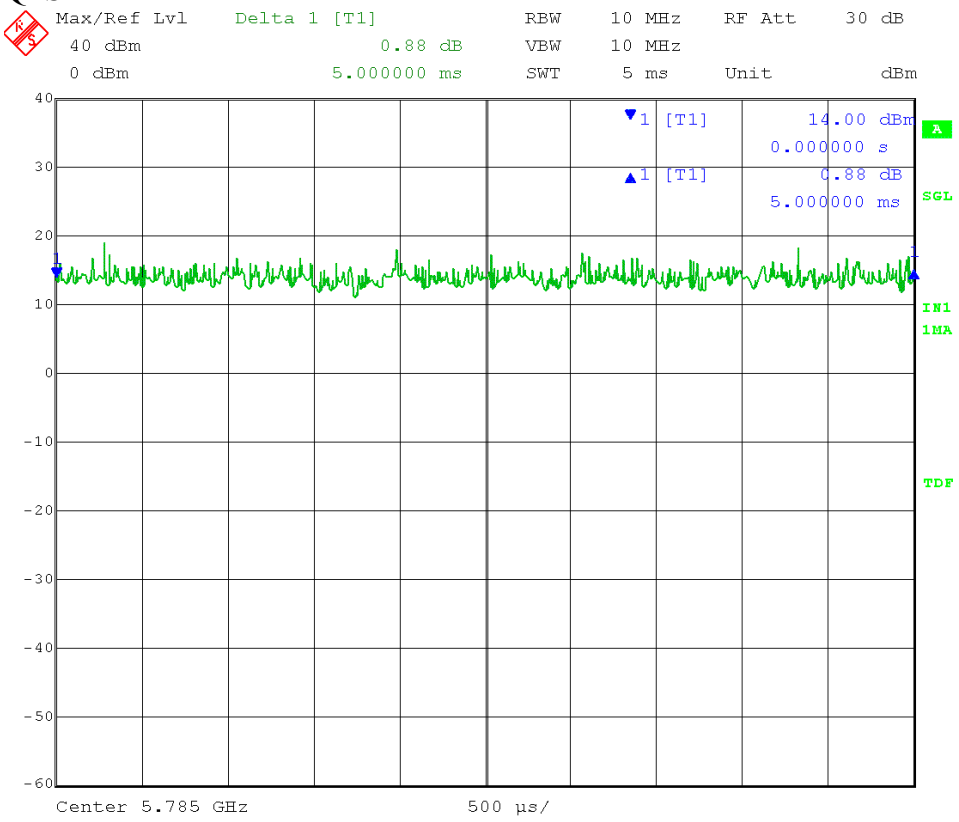
1024QAM



Date: 5.NOV.2013 13:24:01

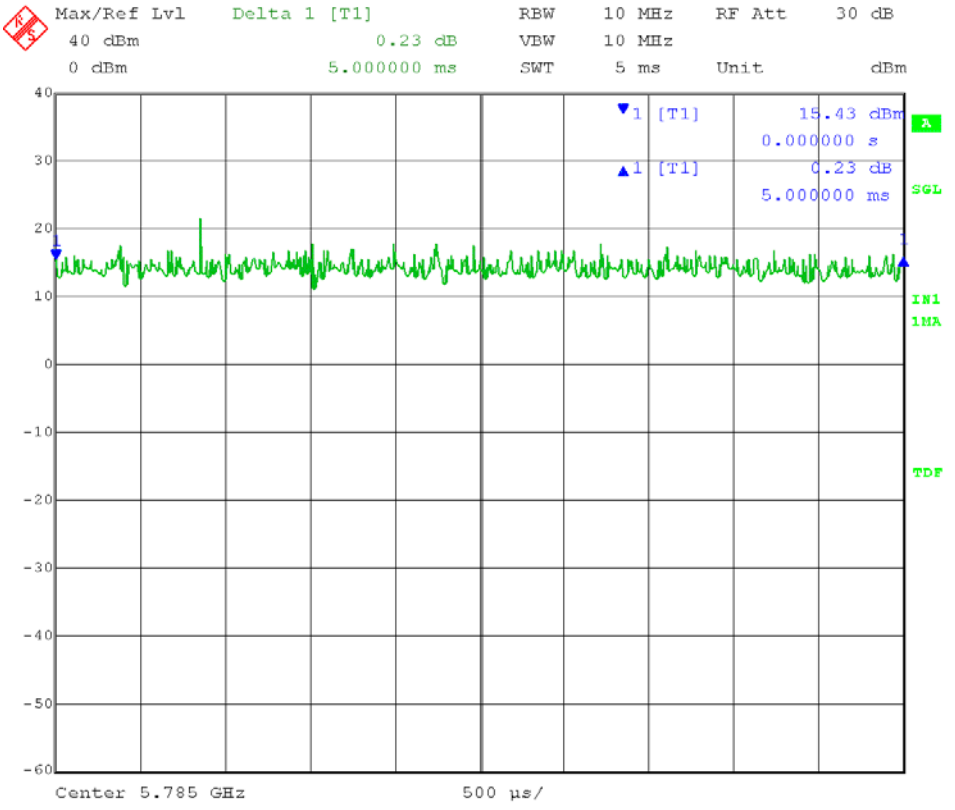
20MHz BW

QPSK



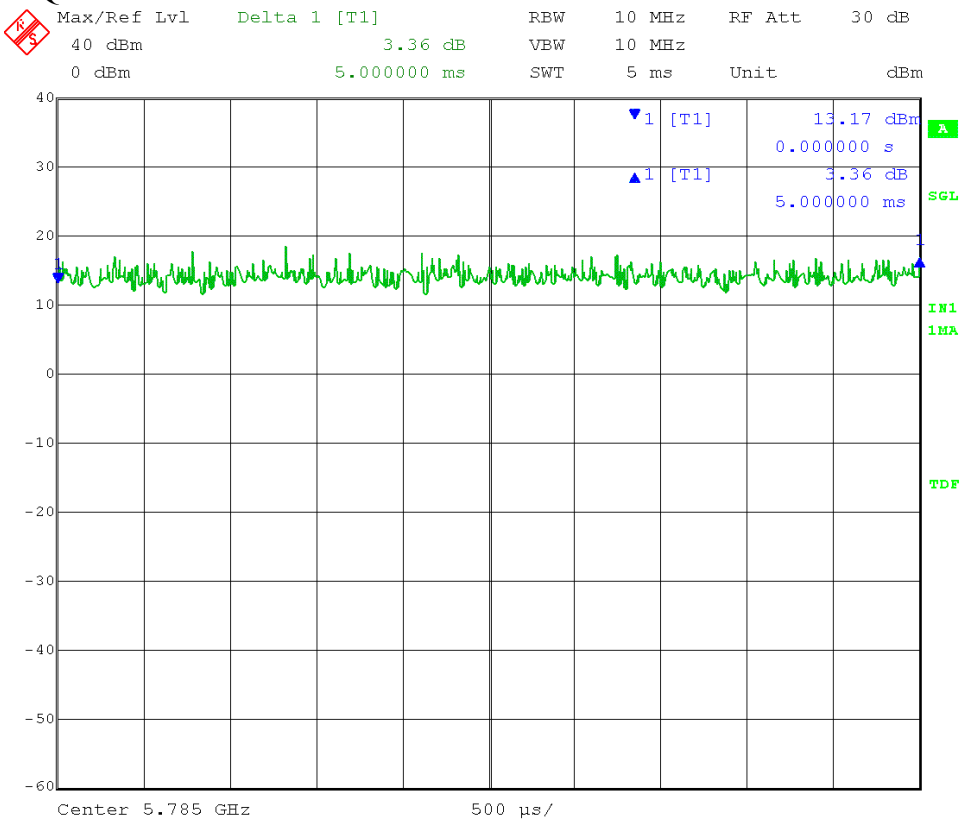
Date: 5.NOV.2013 13:19:58

16QAM



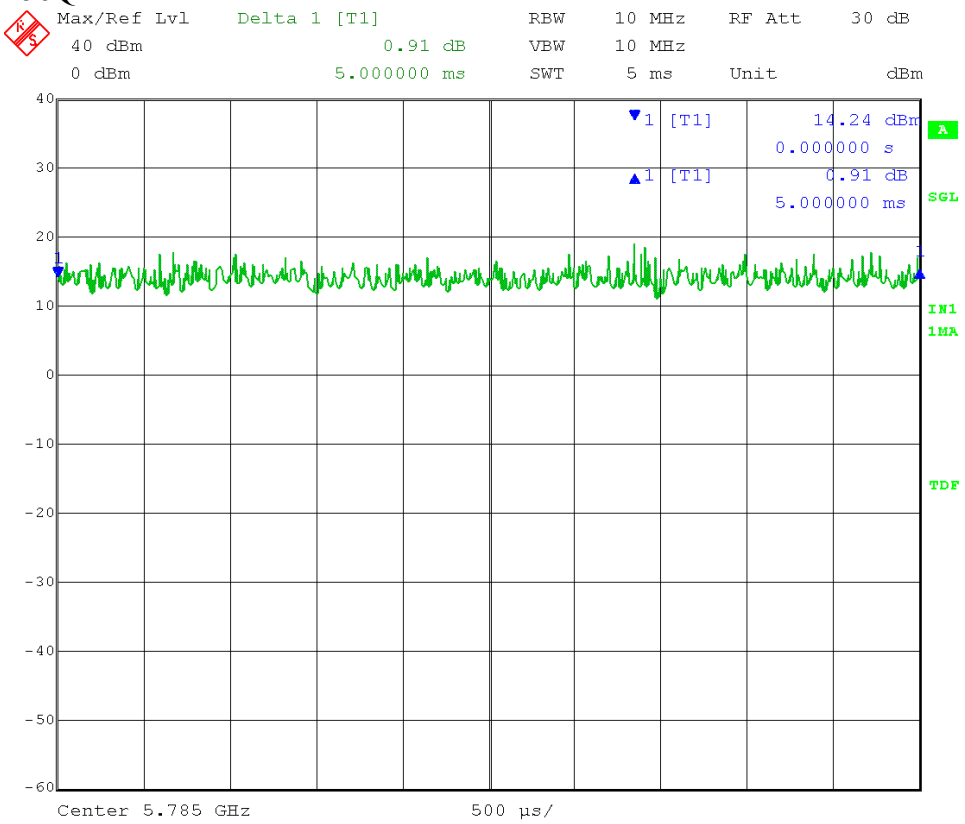
Date: 5.NOV.2013 13:20:35

64QAM



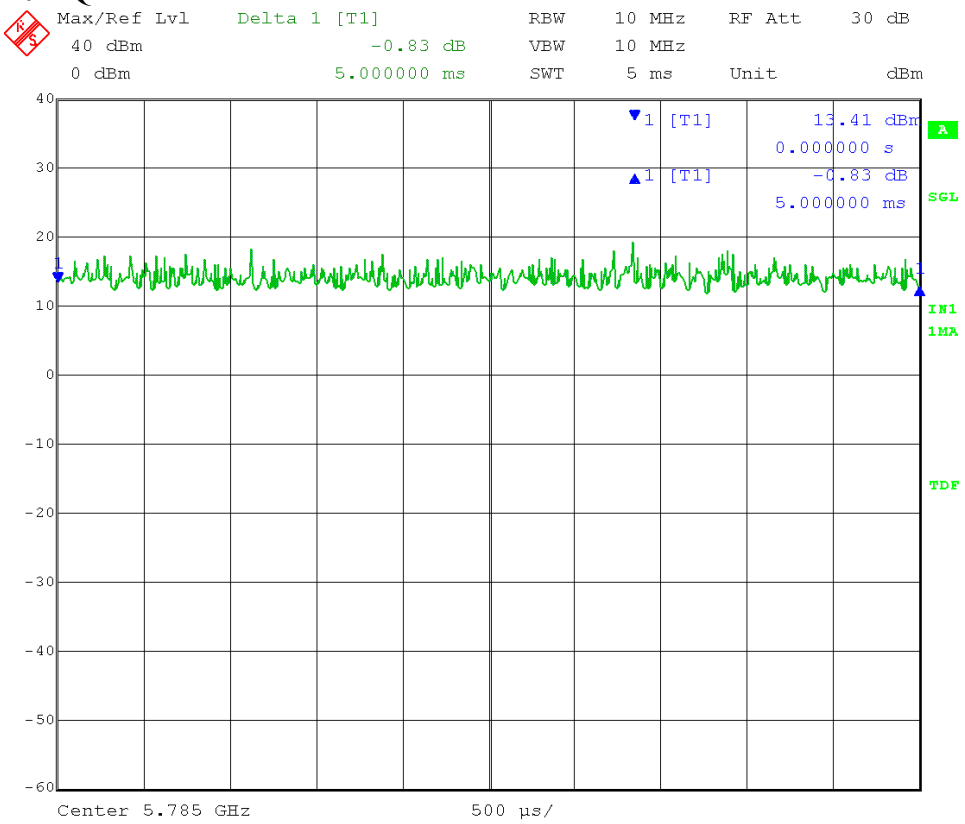
Date: 5.NOV.2013 13:20:57

256QAM



Date: 5.NOV.2013 13:21:33

1024QAM



Date: 5.NOV.2013 13:21:58

Appendix B – Measurement Data

B8.0 AC Line Conducted Emissions

Rule Part: FCC Part 15.207

Test Procedure: ANSI C63.4-2009

Limit: FCC Part 15.207(a)

Results: Compliant

Notes: This was an AC Conducted emissions measurement.
The EUT was powered from a representative AC Adapter with an input of 120 VAC 60 Hz.

FCC Part 15.207

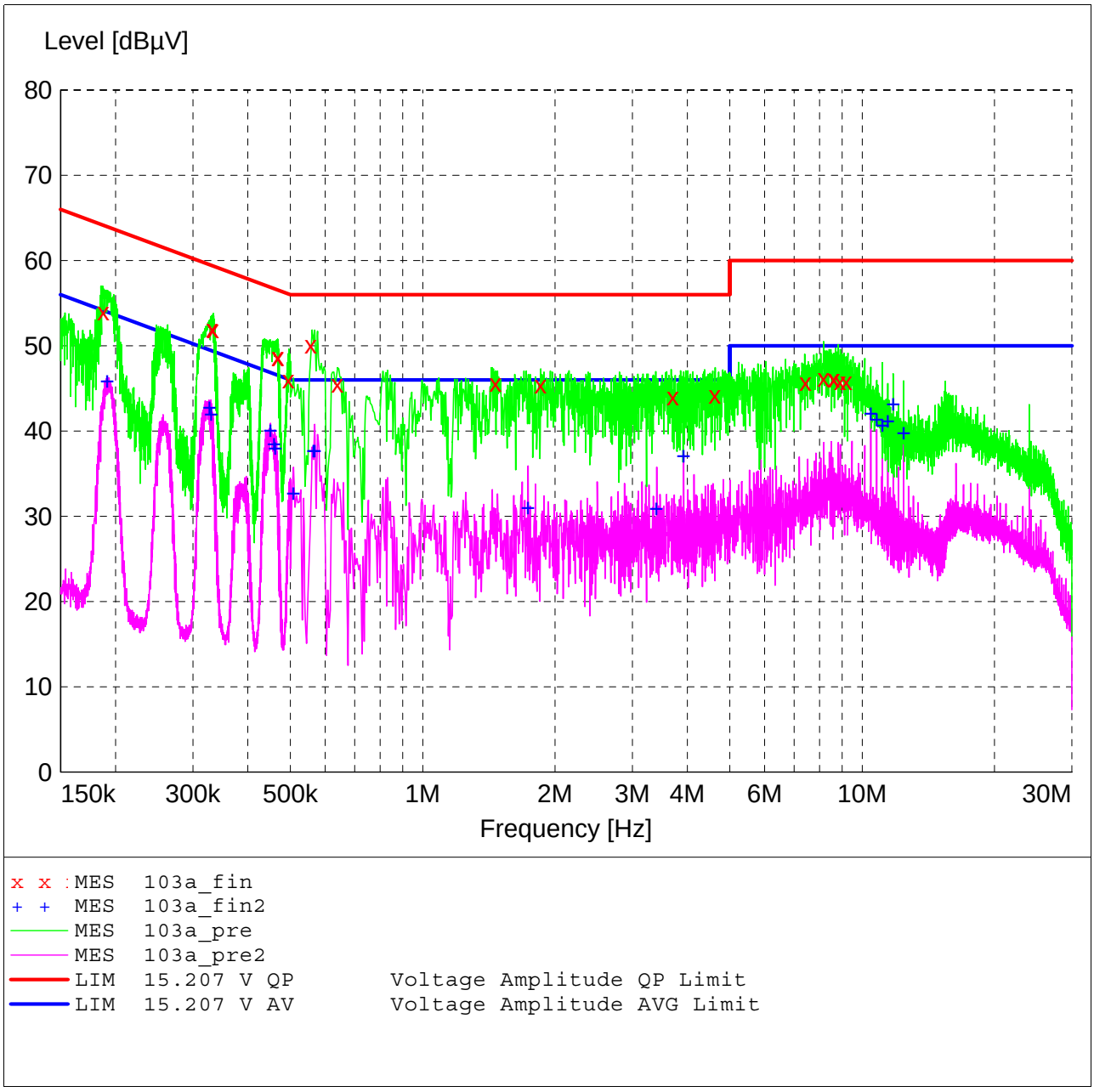
Voltage Mains Test

EUT:	Airfiber 5 - 5.4 & 5.8 GHz radio
Manufacturer:	Ubiquiti Networks, Inc.
Operating Condition:	70 deg. F, 45% R.H.
Test Site:	DLS O.F. Screen Room
Operator:	Craig B
Test Specification:	120 V 60 Hz; Adpt1 Model: GP-C500-120G
Comment:	continuous TX Line 1
	10-03-2013

SCAN TABLE: "Line Cond SR Final"

Short Description: Line Conducted Emissions

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak CISPR AV	2.0 s	9 kHz	LISN DLS#128



MEASUREMENT RESULT: "103a_fin"

10/3/2013 8:46AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.187600	54.00	12.9	64	10.1	QP
0.332000	52.00	11.7	59	7.4	QP
0.333200	51.90	11.7	59	7.5	QP
0.468000	48.70	11.3	57	7.8	QP
0.468200	48.60	11.3	57	7.9	QP
0.494800	46.00	11.2	56	10.1	QP
0.556000	50.10	11.1	56	5.9	QP
0.640000	45.50	10.9	56	10.5	QP
1.464000	45.60	10.6	56	10.4	QP
1.856000	45.40	10.6	56	10.6	QP
3.712000	44.00	10.7	56	12.0	QP
4.620000	44.20	10.6	56	11.8	QP
7.430000	45.70	10.8	60	14.3	QP
8.168000	46.20	10.9	60	13.8	QP
8.609000	46.10	10.9	60	13.9	QP
8.627000	46.10	10.9	60	13.9	QP
8.906000	45.80	10.9	60	14.2	QP
9.203000	45.80	10.9	60	14.2	QP

MEASUREMENT RESULT: "103a_fin2"

10/3/2013 8:46AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.191600	45.80	12.8	54	8.2	CAV
0.327400	42.70	11.7	50	6.8	CAV
0.330200	41.90	11.7	49	7.5	CAV
0.450400	40.00	11.3	47	6.9	CAV
0.459200	38.50	11.3	47	8.2	CAV
0.461400	38.00	11.3	47	8.7	CAV
0.508000	32.70	11.2	46	13.3	CAV
0.564000	37.70	11.0	46	8.3	CAV
0.568000	37.70	11.0	46	8.3	CAV
1.736000	31.00	10.6	46	15.0	CAV
3.404000	30.90	10.7	46	15.1	CAV
3.924000	37.10	10.7	46	8.9	CAV
10.463000	42.00	10.9	50	8.0	CAV
10.787000	41.30	10.9	50	8.7	CAV
11.120000	40.60	11.0	50	9.4	CAV
11.444000	41.10	11.0	50	8.9	CAV
11.768000	43.10	11.0	50	6.9	CAV
12.425000	39.80	11.0	50	10.2	CAV

FCC Part 15.207

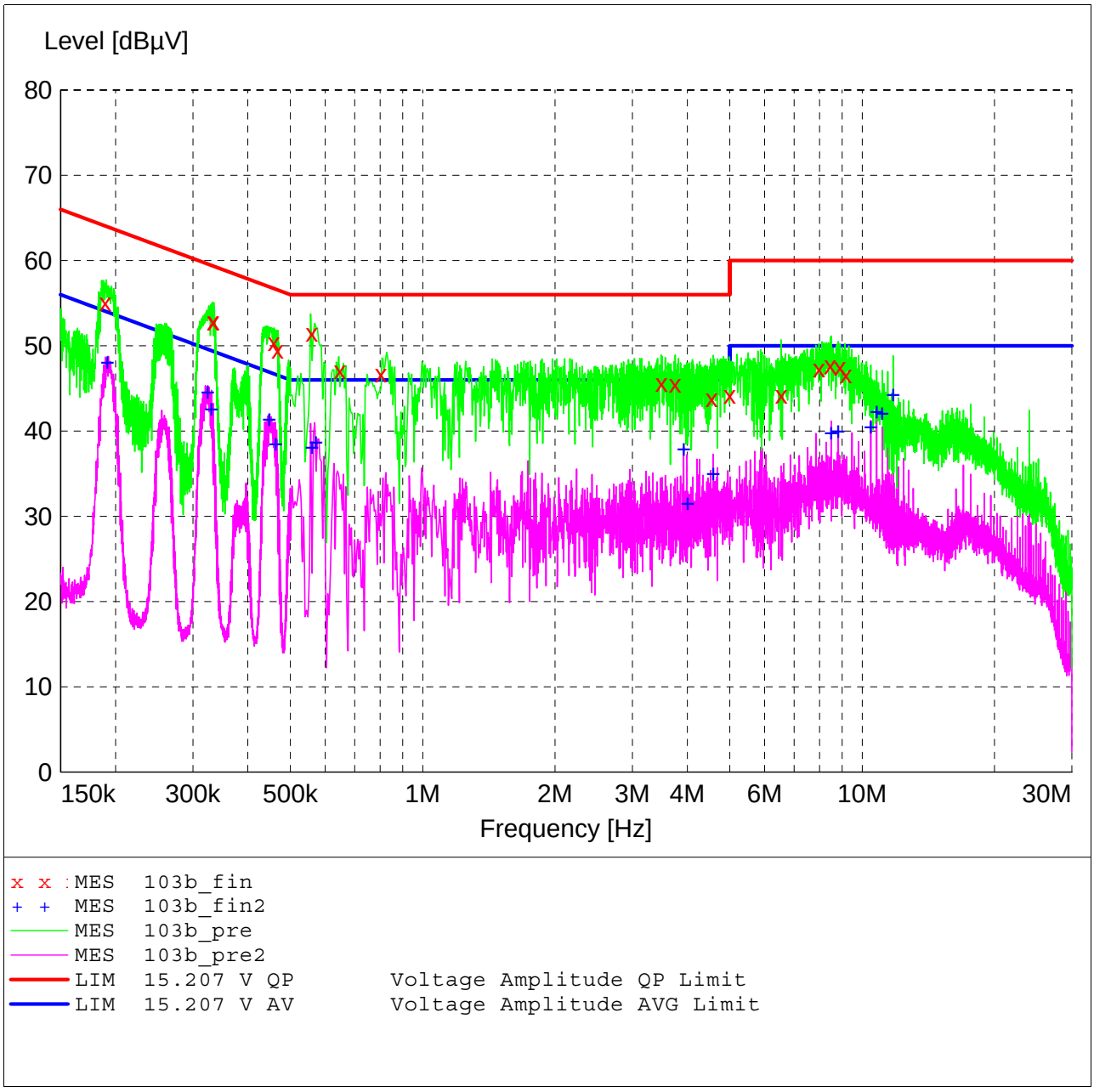
Voltage Mains Test

EUT:	Airfiber 5 - 5.4 & 5.8 GHz radio
Manufacturer:	Ubiquiti Networks, Inc.
Operating Condition:	70 deg. F, 45% R.H.
Test Site:	DLS O.F. Screen Room
Operator:	Craig B
Test Specification:	120 V 60 Hz; Adpt1 Model: GP-C500-120G
Comment:	continuous TX Line 2
	10-03-2013

SCAN TABLE: "Line Cond SR Final"

Short Description: Line Conducted Emissions

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak CISPR AV	2.0 s	9 kHz	LISN DLS#128



MEASUREMENT RESULT: "103b_fin"

10/3/2013 8:54AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.189600	55.10	12.9	64	9.0	QP
0.334000	52.90	11.7	59	6.5	QP
0.334200	52.80	11.7	59	6.5	QP
0.459000	50.40	11.3	57	6.3	QP
0.468000	49.50	11.3	57	7.0	QP
0.560000	51.50	11.1	56	4.5	QP
0.648000	47.10	10.9	56	8.9	QP
0.804000	46.70	10.7	56	9.3	QP
3.500000	45.60	10.7	56	10.4	QP
3.756000	45.50	10.7	56	10.5	QP
4.548000	43.80	10.6	56	12.2	QP
5.000000	44.20	10.6	56	11.8	QP
6.548000	44.20	10.7	60	15.8	QP
7.979000	47.30	10.8	60	12.7	QP
8.474000	47.70	10.9	60	12.3	QP
8.906000	47.50	10.9	60	12.5	QP
9.194000	46.60	10.9	60	13.4	QP

MEASUREMENT RESULT: "103b_fin2"

10/3/2013 8:54AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.191800	48.00	12.8	54	6.0	CAV
0.324000	44.50	11.7	50	5.1	CAV
0.330600	42.50	11.7	49	6.9	CAV
0.448000	41.30	11.3	47	5.6	CAV
0.462600	38.50	11.3	47	8.1	CAV
0.560000	38.10	11.1	46	7.9	CAV
0.572000	38.70	11.0	46	7.3	CAV
3.924000	37.90	10.7	46	8.1	CAV
4.012000	31.50	10.7	46	14.5	CAV
4.580000	35.00	10.6	46	11.0	CAV
8.501000	39.80	10.9	50	10.2	CAV
8.825000	39.90	10.9	50	10.1	CAV
10.463000	40.50	10.9	50	9.5	CAV
10.787000	42.20	10.9	50	7.8	CAV
11.111000	42.00	11.0	50	8.0	CAV
11.768000	44.20	11.0	50	5.8	CAV

FCC Part 15.207

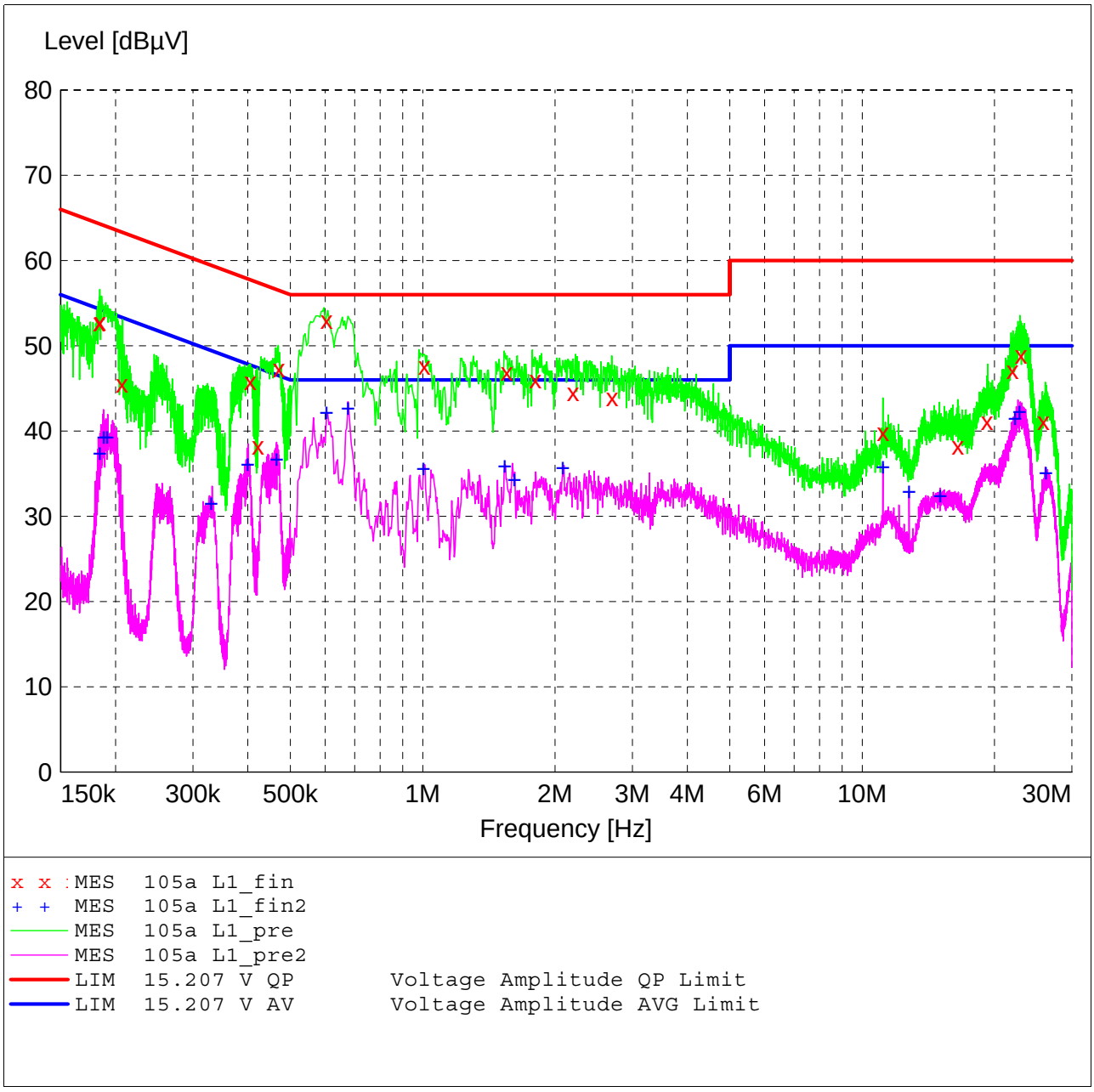
Voltage Mains Test

EUT:	Airfiber 5 - 5.4 & 5.8 GHz radio
Manufacturer:	Ubiquiti Networks, Inc.
Operating Condition:	70 deg. F, 45% R.H.
Test Site:	DLS O.F. Screen Room
Operator:	Craig B
Test Specification:	120 V 60 Hz; Line 1
Comment:	TX ON; Adpt2 Model: PSA60M-500(G)-R 10-15-2013

SCAN TABLE: "Line Cond SR Final"

Short Description: Line Conducted Emissions

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak CISPR AV	2.0 s	9 kHz	LISN DLS#128



MEASUREMENT RESULT: "105a L1_fin"

10/15/2013 3:13PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.183800	52.70	13.0	64	11.6	QP
0.184200	52.80	12.9	64	11.5	QP
0.206800	45.50	12.7	63	17.8	QP
0.405200	45.80	11.4	58	11.9	QP
0.421600	38.20	11.4	57	19.2	QP
0.470600	47.30	11.3	57	9.2	QP
0.604000	53.00	10.9	56	3.0	QP
1.008000	47.60	10.7	56	8.4	QP
1.552000	46.90	10.6	56	9.1	QP
1.804000	46.00	10.6	56	10.0	QP
2.200000	44.50	10.7	56	11.5	QP
2.696000	43.90	10.6	56	12.1	QP
11.147000	39.80	11.0	60	20.2	QP
16.520000	38.20	11.2	60	21.8	QP
19.238000	41.10	11.3	60	18.9	QP
21.983000	47.10	11.3	60	12.9	QP
23.018000	48.90	11.4	60	11.1	QP
25.844000	41.10	11.5	60	18.9	QP

MEASUREMENT RESULT: "105a L1_fin2"

10/15/2013 3:13PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.184200	37.40	12.9	54	16.9	CAV
0.188200	39.30	12.9	54	14.8	CAV
0.191600	39.20	12.8	54	14.8	CAV
0.330200	31.50	11.7	49	17.9	CAV
0.400000	36.10	11.4	48	11.8	CAV
0.465000	36.70	11.3	47	9.9	CAV
0.604000	42.10	10.9	46	3.9	CAV
0.676000	42.60	10.8	46	3.4	CAV
1.004000	35.60	10.7	46	10.4	CAV
1.536000	35.90	10.6	46	10.1	CAV
1.616000	34.30	10.6	46	11.7	CAV
2.084000	35.70	10.6	46	10.3	CAV
11.147000	35.80	11.0	50	14.2	CAV
12.785000	32.90	11.0	50	17.1	CAV
15.053000	32.40	11.1	50	17.6	CAV
22.280000	41.40	11.3	50	8.6	CAV
22.793000	42.20	11.4	50	7.8	CAV
26.213000	35.10	11.5	50	14.9	CAV

FCC Part 15.207

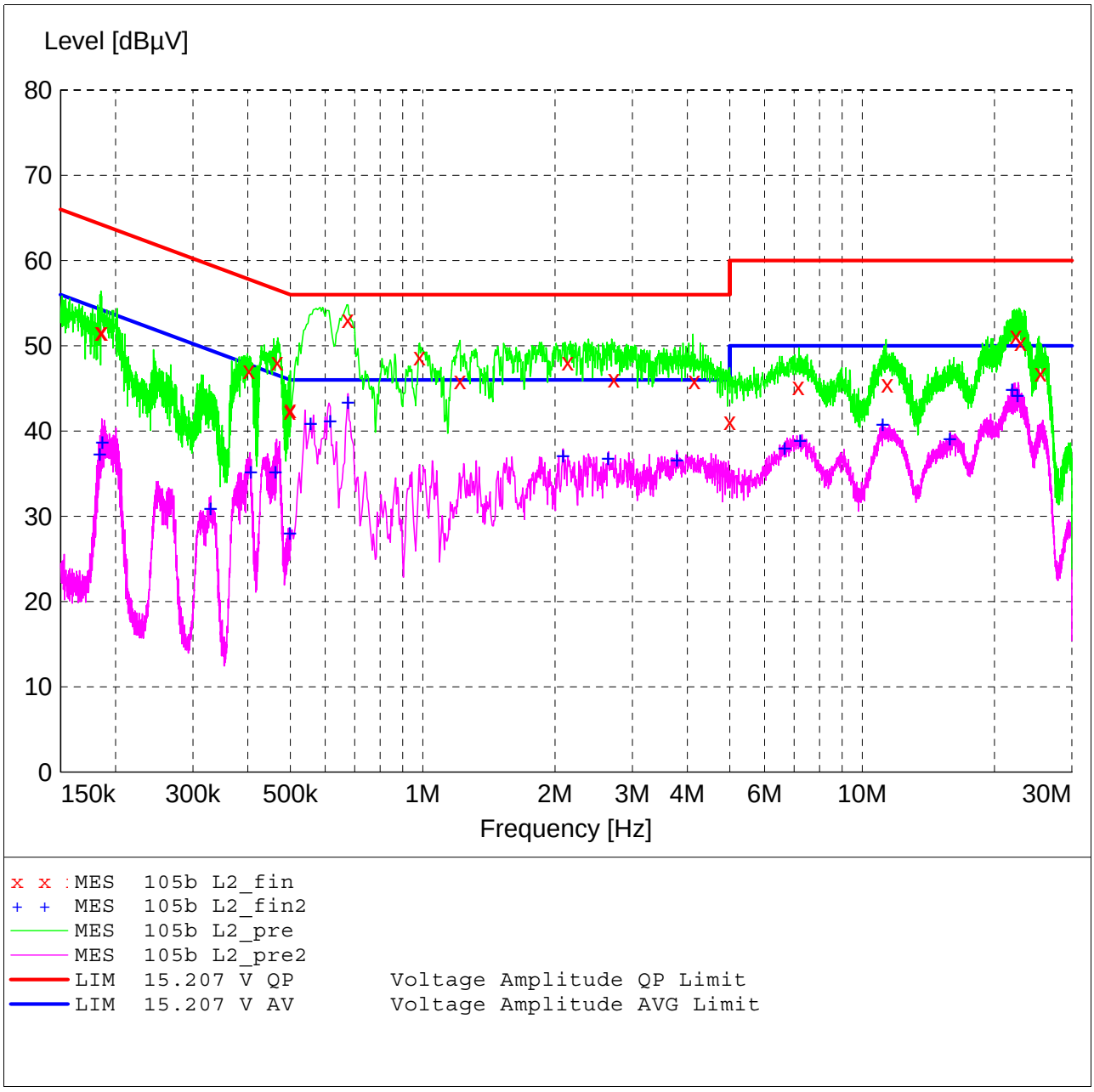
Voltage Mains Test

EUT:	Airfiber 5 - 5.4 & 5.8 GHz radio
Manufacturer:	Ubiquiti Networks, Inc.
Operating Condition:	70 deg. F, 45% R.H.
Test Site:	DLS O.F. Screen Room
Operator:	Craig B
Test Specification:	120 V 60 Hz; Line 2
Comment:	TX ON; Adpt2 Model: PSA60M-500(G)-R 10-15-2013

SCAN TABLE: "Line Cond SR Final"

Short Description: Line Conducted Emissions

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak CISPR AV	2.0 s	9 kHz	LISN DLS#128



MEASUREMENT RESULT: "105b L2_fin"

10/15/2013 3:21PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.185200	51.60	12.9	64	12.6	QP
0.186200	51.60	12.9	64	12.6	QP
0.402600	47.10	11.4	58	10.7	QP
0.466600	48.10	11.3	57	8.5	QP
0.498400	42.30	11.2	56	13.7	QP
0.500000	42.50	11.2	56	13.5	QP
0.676000	53.10	10.8	56	2.9	QP
0.984000	48.70	10.7	56	7.3	QP
1.216000	45.90	10.6	56	10.1	QP
2.140000	48.10	10.6	56	7.9	QP
2.724000	46.10	10.6	56	9.9	QP
4.156000	45.90	10.7	56	10.1	QP
5.000000	41.10	10.6	56	14.9	QP
7.160000	45.20	10.8	60	14.8	QP
11.408000	45.50	11.0	60	14.5	QP
22.397000	51.20	11.3	60	8.8	QP
22.937000	50.40	11.4	60	9.6	QP
25.466000	46.80	11.5	60	13.2	QP

MEASUREMENT RESULT: "105b L2_fin2"

10/15/2013 3:21PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.184200	37.20	12.9	54	17.1	CAV
0.186600	38.70	12.9	54	15.5	CAV
0.329000	30.90	11.7	50	18.6	CAV
0.406200	35.20	11.4	48	12.5	CAV
0.462400	35.20	11.3	47	11.4	CAV
0.498800	28.00	11.2	46	18.0	CAV
0.556000	40.80	11.1	46	5.2	CAV
0.616000	41.10	10.9	46	4.9	CAV
0.676000	43.30	10.8	46	2.7	CAV
2.088000	37.10	10.6	46	8.9	CAV
2.640000	36.80	10.6	46	9.2	CAV
3.788000	36.60	10.7	46	9.4	CAV
6.665000	38.00	10.7	50	12.0	CAV
7.232000	38.80	10.8	50	11.2	CAV
11.138000	40.70	11.0	50	9.3	CAV
15.836000	39.00	11.1	50	11.0	CAV
21.947000	44.80	11.3	50	5.2	CAV
22.595000	44.10	11.4	50	5.9	CAV

END OF REPORT

Revision #	Date	Comments	By
1.0	11-12-2013	Preliminary Release	JS
1.1	11-19-2013	Final Edits	JS
1.2	12-2-2013	Added page 6 notes	JS