



166 South Carter, Genoa City, WI 53128

Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
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 2 - 40 & 50 MHz Bandwidth Data**

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

Formal Name: Air Fiber 5 - 5.8GHz Radio  
Model Number(s): AF5  
(Please see the note on page 6 concerning the similarity to AF5U)

Kind of Equipment: Point-to-Point Digital Transmission Transceiver

Test Conducted For: Ubiquiti Networks, Inc.  
12F, No105, Song Ren Rd  
Taipei, Taiwan

**This part of the report includes the 40 MHz & 50 MHz Bandwidth Data Only**

Further descriptions of the equipment under test  
and the test setup photos will be found in Part 1 of test report # 19544.

**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:

A handwritten signature in black ink that reads "Craig Brandt". The signature is written in a cursive style with a long horizontal stroke at the end.

Craig Brandt  
Senior Test Engineer

Reviewed By:

A handwritten signature in black ink that reads "William Stumpf". The signature is written in a cursive style with a long horizontal stroke at the end.

William Stumpf  
OATS Manager

Approved By:

A handwritten signature in black ink that reads "Brian J. Mattson". The signature is written in a cursive style with a long horizontal stroke at the end.

Brian Mattson  
General Manager



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Ubiquiti Networks, Inc.  
AF5  
19544 Part 2  
6172

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United States Department of Commerce  
National Institute of Standards and Technology



# 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).*



*Michael R. M. L. D.*

*For the National Institute of Standards and Technology*

2013-10-01 through 2014-09-30

Effective dates

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



Company:  
 Model Tested:  
 Report Number:  
 DLS Project:

Ubiquiti Networks, Inc.  
 AF5  
 19544 Part 2  
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### 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 measurements - reported in Part 1 of Report #19544.



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## Description of Test Sample

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.

## Frequency Ranges of the 5.8GHz radio

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

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

## Type of Modulations Tested

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

## Emission Designators

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

## Conclusion

The Air Fiber 5 - 5.8GHz Radio with 40MHz & 50MHz Channel Bandwidths, Model: AF5, as provided from Ubiquiti Networks tested in October 2013 meets the requirements of CFR 47 Part 15 Subpart C Section 15.247.



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## Appendix – Measurement Data

### 1.0 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  $\geq 3 \times$  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]:  $\geq 500$  kHz

40MHz DTS Bandwidth:

FCC DTS Bandwidth		40M				
		QPSK	16QAM	64QAM	256QAM	1024Q
FCC limit $\geq 500$ kHz	MHz					
	<i>EUT FCC limit:[15.247(a)(2); RSS-210 A8.2]</i>	<i>Note that units are in MHz, not kHz</i>				
HCH = 5838 MHz	TX0	38.43	38.69	38.69	38.43	38.3
	TX1	38.56	38.43	38.43	38.56	38.56
MCH = 5785 MHz	TX0	38.69	38.43	38.69	38.56	38.43
	TX1	38.43	38.56	38.43	38.43	38.56
LCH = 5747 MHz	TX0	38.56	38.56	38.56	38.56	38.43
	TX1	38.56	38.43	38.56	38.56	38.56

50MHz DTS Bandwidth:

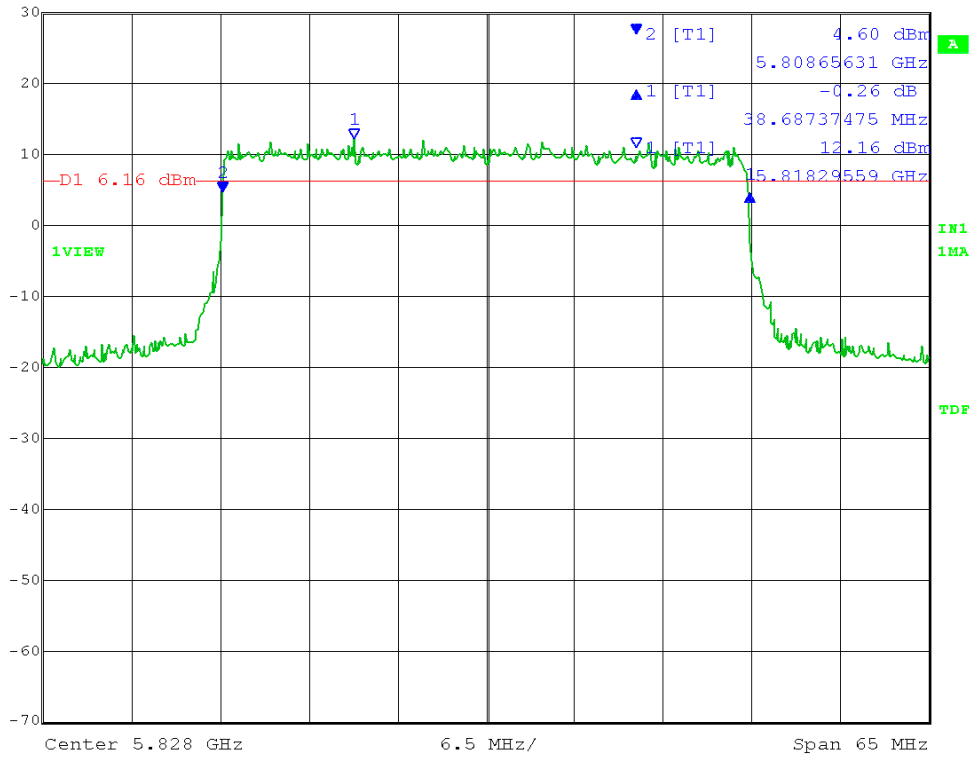
FCC DTS Bandwidth		50MHz				
		QPSK	16QAM	64QAM	256QAM	1024Q
FCC limit $\geq 500$ kHz	MHz					
	<i>EUT FCC limit:[15.247(a)(2); RSS-210 A8.2]</i>	<i>Note that units are in MHz, not kHz</i>				
HCH = 5823 MHz	TX0	48.26	48.26	48.1	48.94	47.94
	TX1	48.26	48.26	48.26	48.1	48.42
MCH = 5785 MHz	TX0	48.26	48.26	48.26	48.26	48.26
	TX1	48.26	48.1	48.26	48.42	48.26
LCH = 5752 MHz	TX0	48.26	48.26	48.1	48.26	48.26
	TX1	48.1	48.26	48.26	48.26	48.1

PLOTS: 40MHz Bandwidth & 50MHz Bandwidth



40MHz BW, HCH, 16QAM, TX 0:

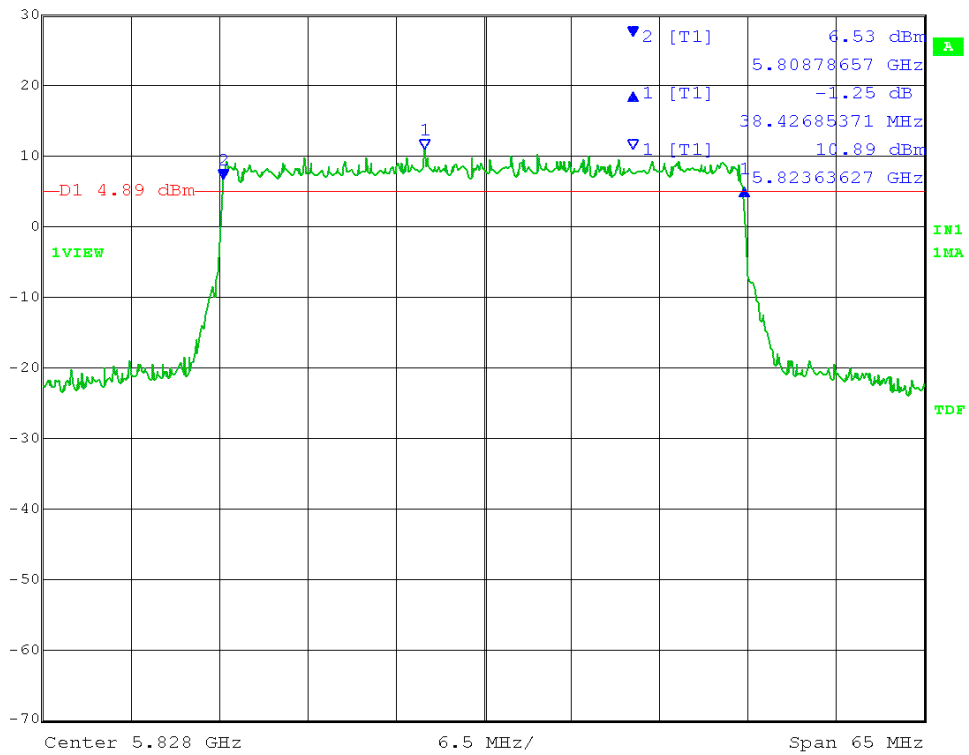
Max/Ref Lvl Delta 1 [T1] REW 100 kHz RF Att 20 dB  
 30 dBm -0.26 dB VBW 300 kHz  
 0 dBm 38.68737475 MHz SWT 16.5 ms Unit dBm



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

TX1:

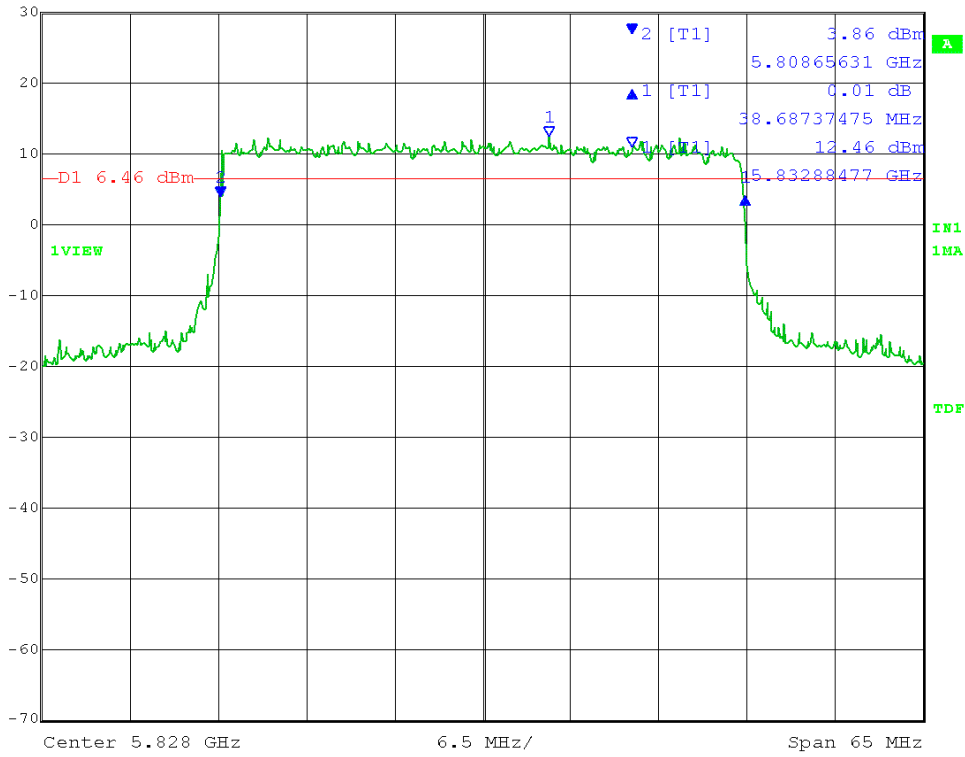
Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 20 dB  
 30 dBm -1.25 dB VBW 300 kHz  
 0 dBm 38.42685371 MHz SWT 16.5 ms Unit dBm



Date: 7.NOV.2013 10:35:19

### 40MHz BW, HCH, 64QAM, TX 0:

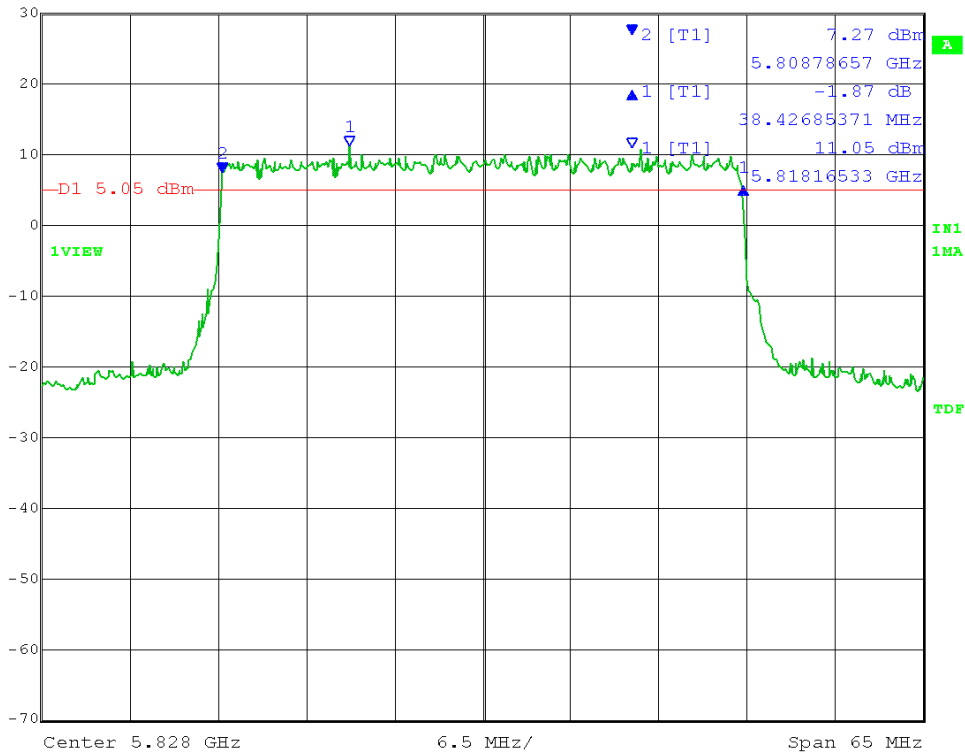
K Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 20 dB  
 30 dBm                    0.01 dB    VBW 300 kHz  
 0 dBm                    38.68737475 MHz    SWT 16.5 ms    Unit dBm



Date: 6.NOV.2013 15:56:03

### TX1:

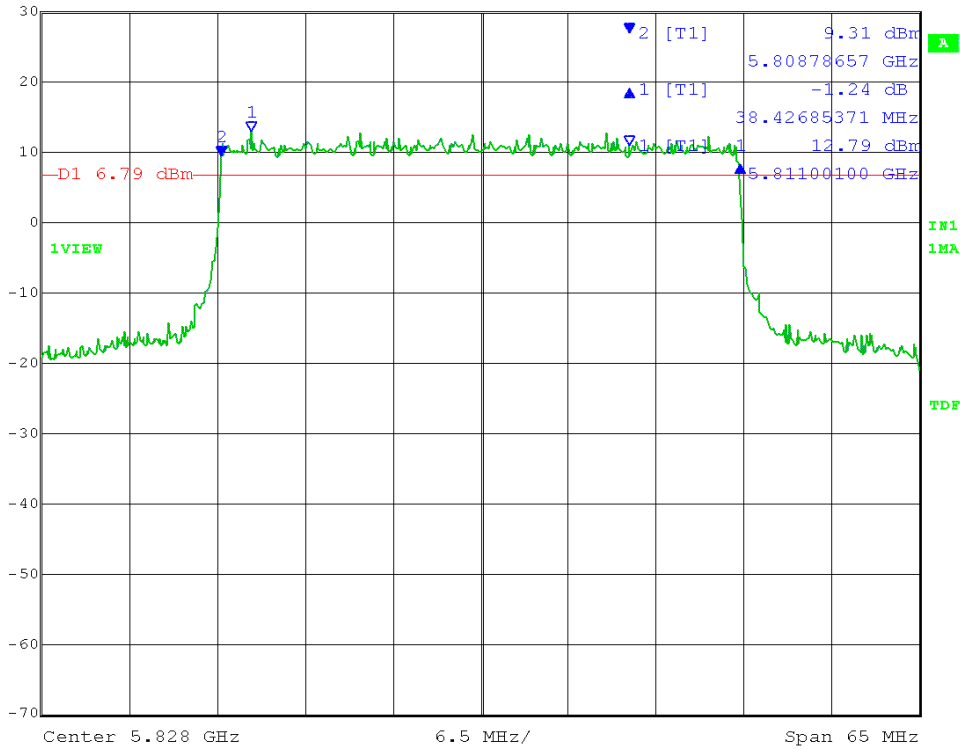
K Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 20 dB  
 30 dBm                    -1.87 dB    VBW 300 kHz  
 0 dBm                    38.42685371 MHz    SWT 16.5 ms    Unit dBm



Date: 7.NOV.2013 10:36:18

### 40MHz BW, HCH, 256QAM, TX 0:

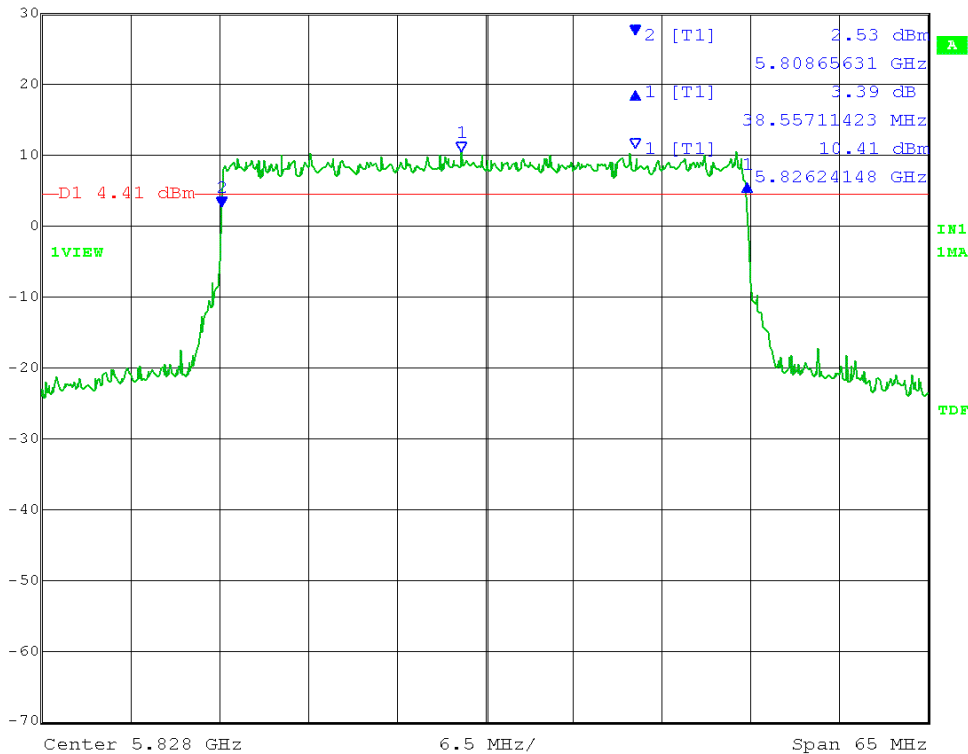
K/S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 20 dB  
 30 dBm -1.24 dB VBW 300 kHz  
 0 dBm 38.42685371 MHz SWT 16.5 ms Unit dBm



Date: 6.NOV.2013 15:56:58


### TX1:

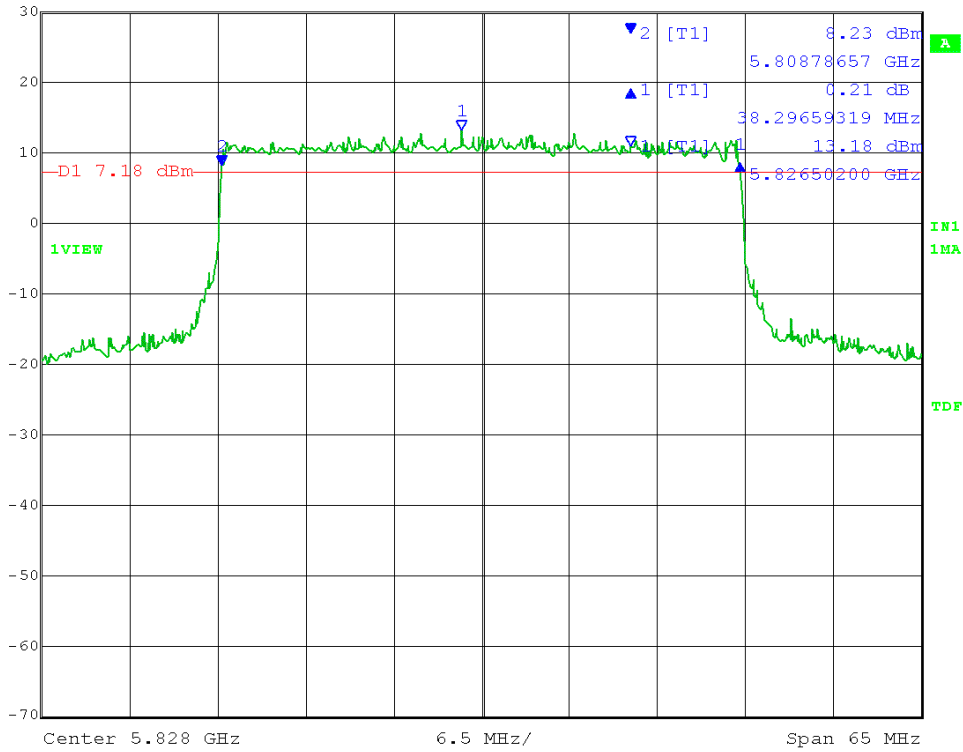
K/S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 20 dB  
 30 dBm 3.39 dB VEW 300 kHz  
 0 dBm 38.55711423 MHz SWT 16.5 ms Unit dBm



Date: 7.NOV.2013 10:37:14


40MHz BW, HCH, 1024QAM, TX 0:

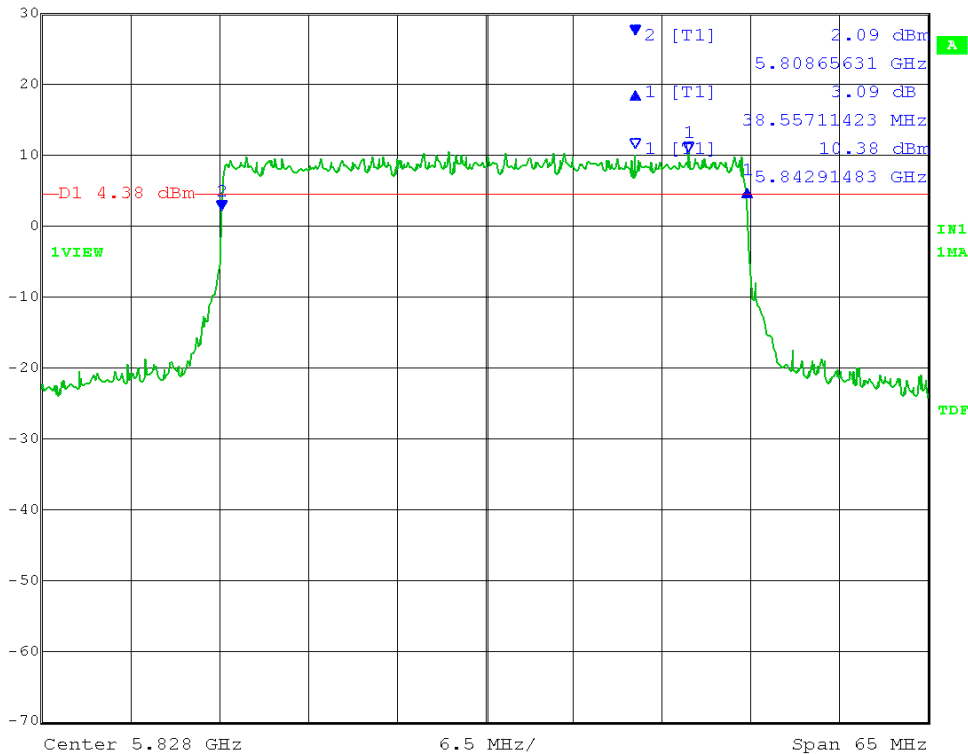
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	0.21 dB	VBW	300 kHz		
	0 dBm	38.29659319 MHz	SWT	16.5 ms	Unit	dBm



Date: 6.NOV.2013 15:57:59

TX1:

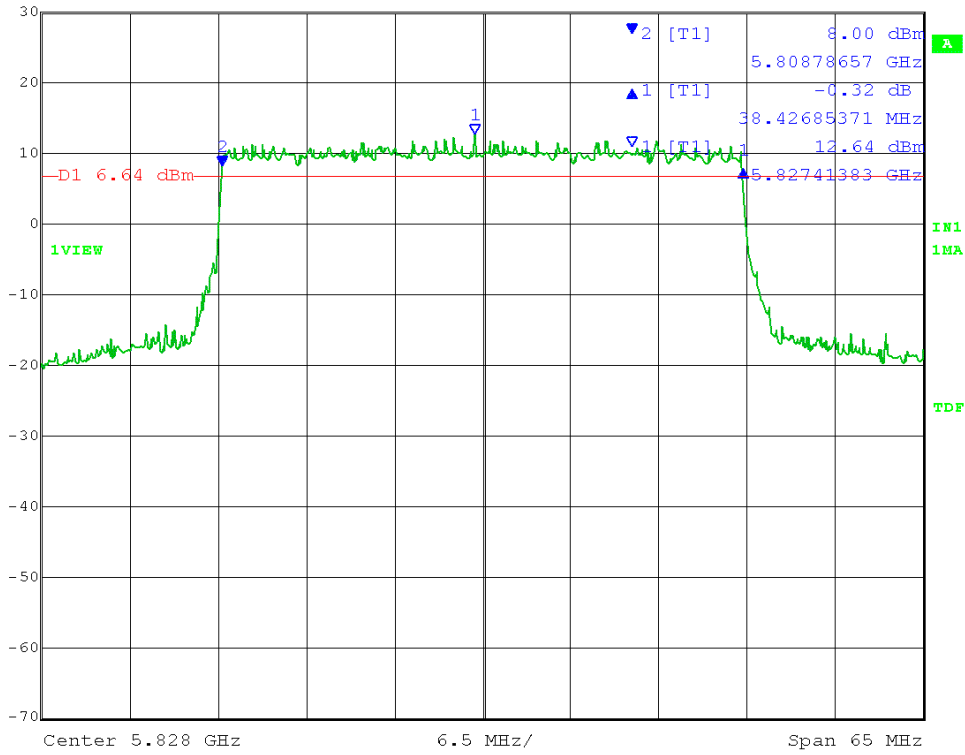
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	3.09 dB	VBW	300 kHz		
	0 dBm	38.55711423 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 10:38:11

### 40MHz BW, HCH, QPSK, TX 0:

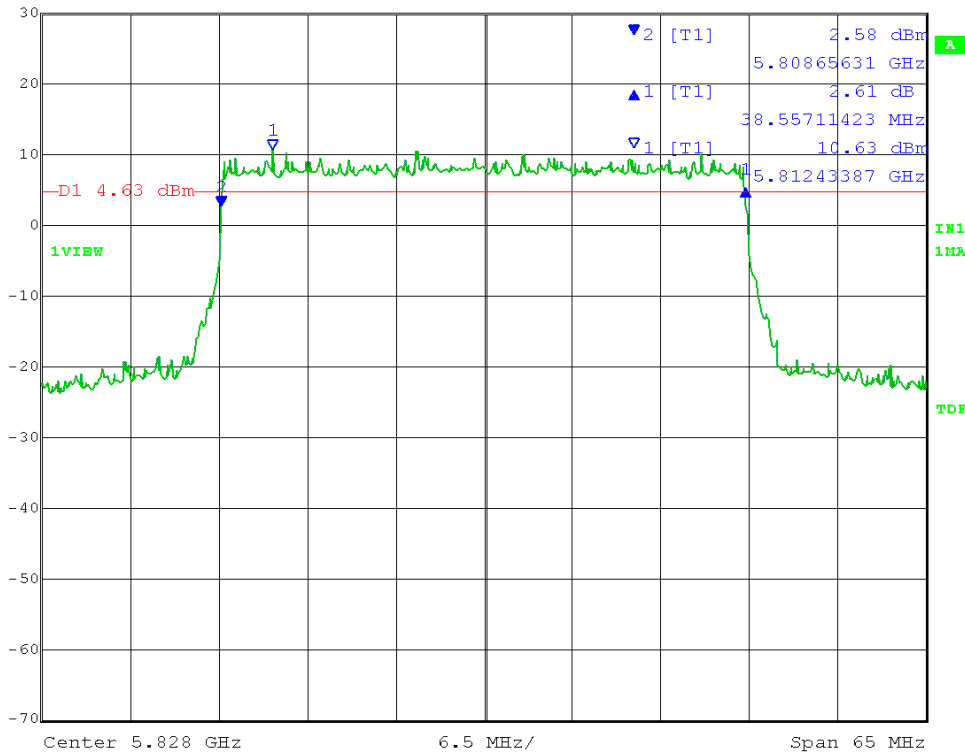
K Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 30 dBm                            -0.32 dB    VBW    300 kHz  
 0 dBm                            38.42685371 MHz    SWT    16.5 ms    Unit    dBm



Date: 6.NOV.2013 15:54:12


### TX1:

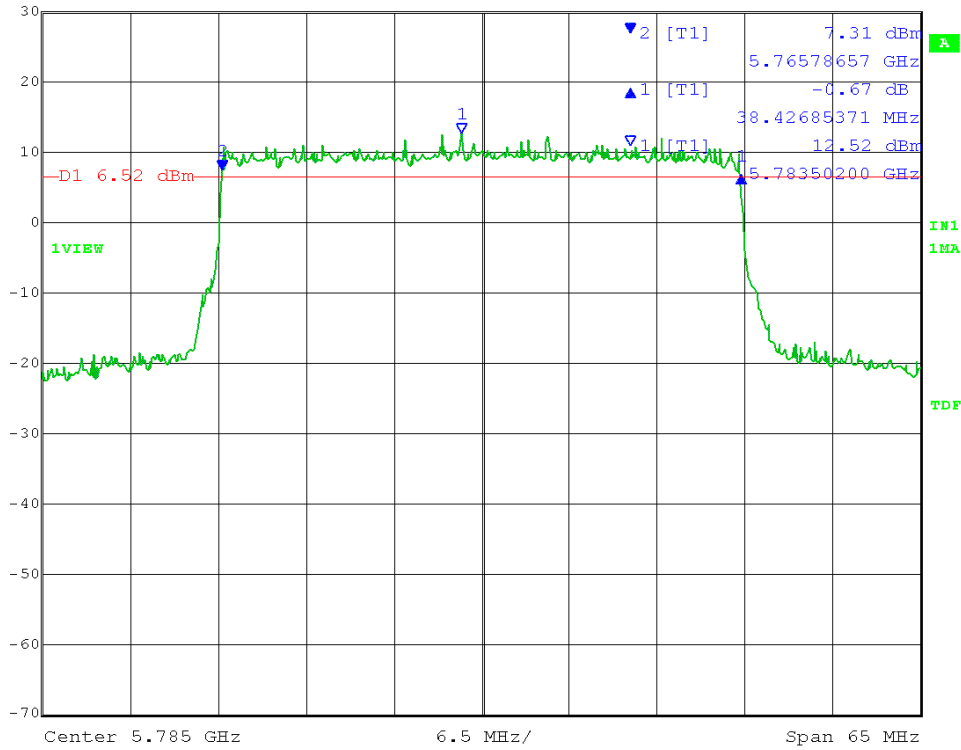
K Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 30 dBm                            2.61 dB    VBW    300 kHz  
 0 dBm                            38.55711423 MHz    SWT    16.5 ms    Unit    dBm



Date: 7.NOV.2013 10:33:39


40MHz BW, MCH, 16QAM, TX 0:

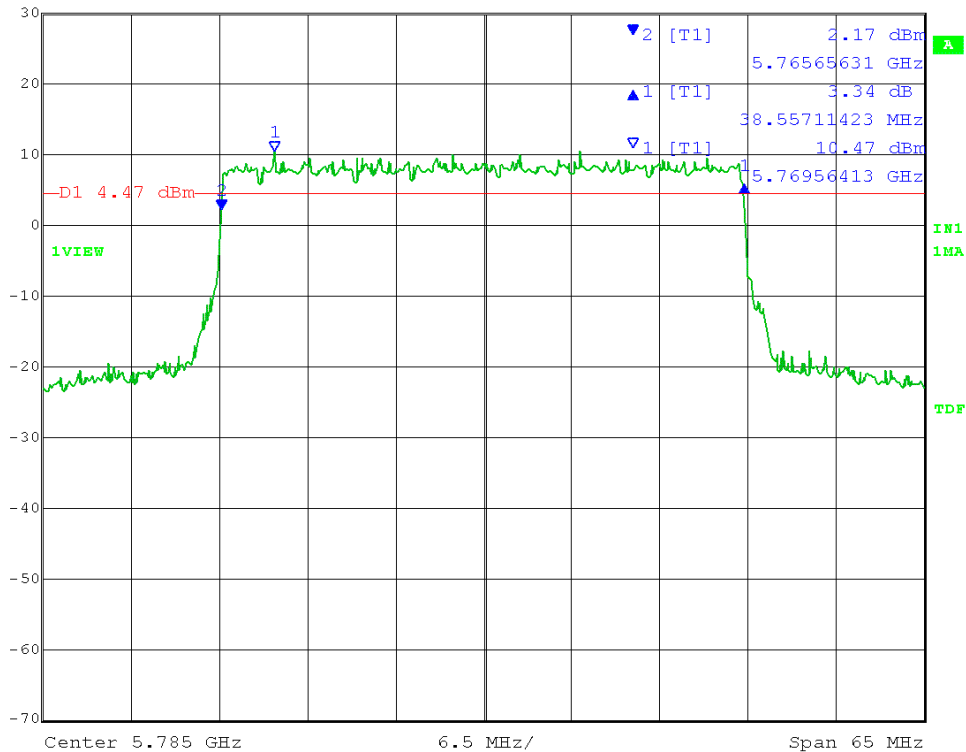
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	-0.67 dB	VBW	300 kHz		
	0 dBm	38.42685371 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 09:47:54

TX1:

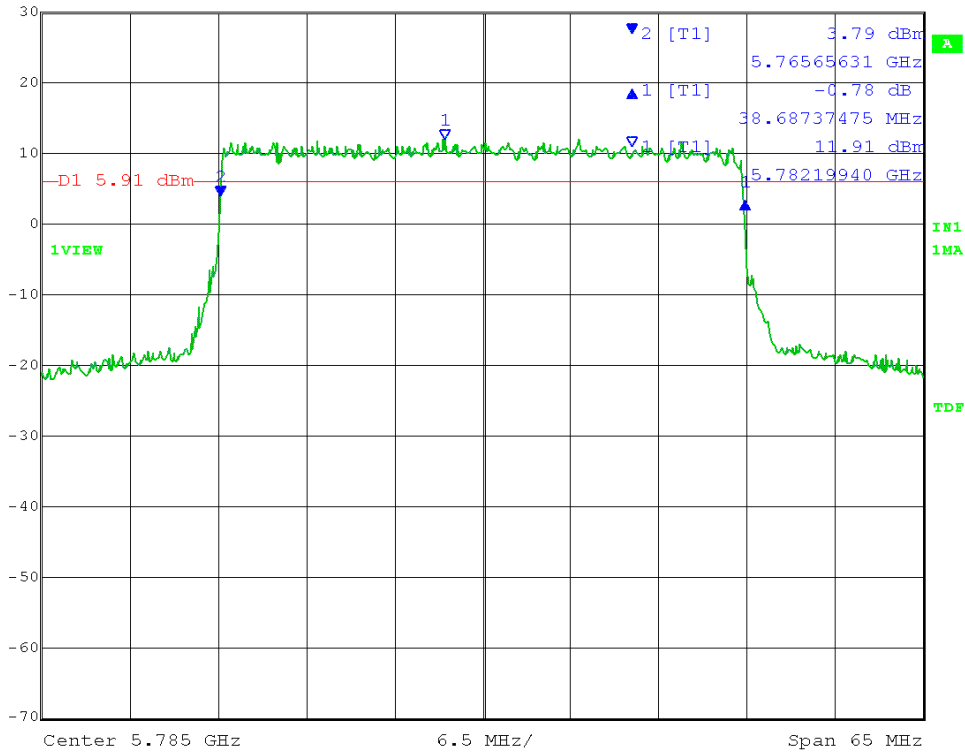
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	3.34 dB	VBW	300 kHz		
	0 dBm	38.55711423 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 10:28:38

40MHz BW, MCH, 64QAM, TX 0:

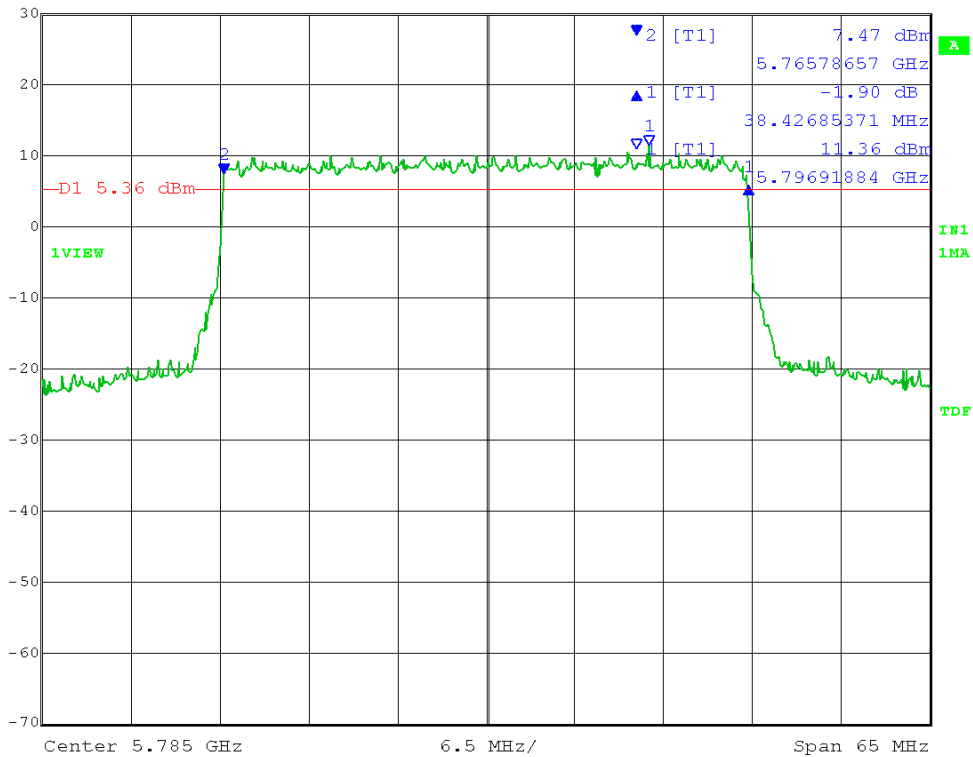
Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 20 dB  
 30 dBm -0.78 dB VBW 300 kHz  
 0 dBm 38.68737475 MHz SWT 16.5 ms Unit dBm



Date: 7.NOV.2013 09:49:05


TX1:

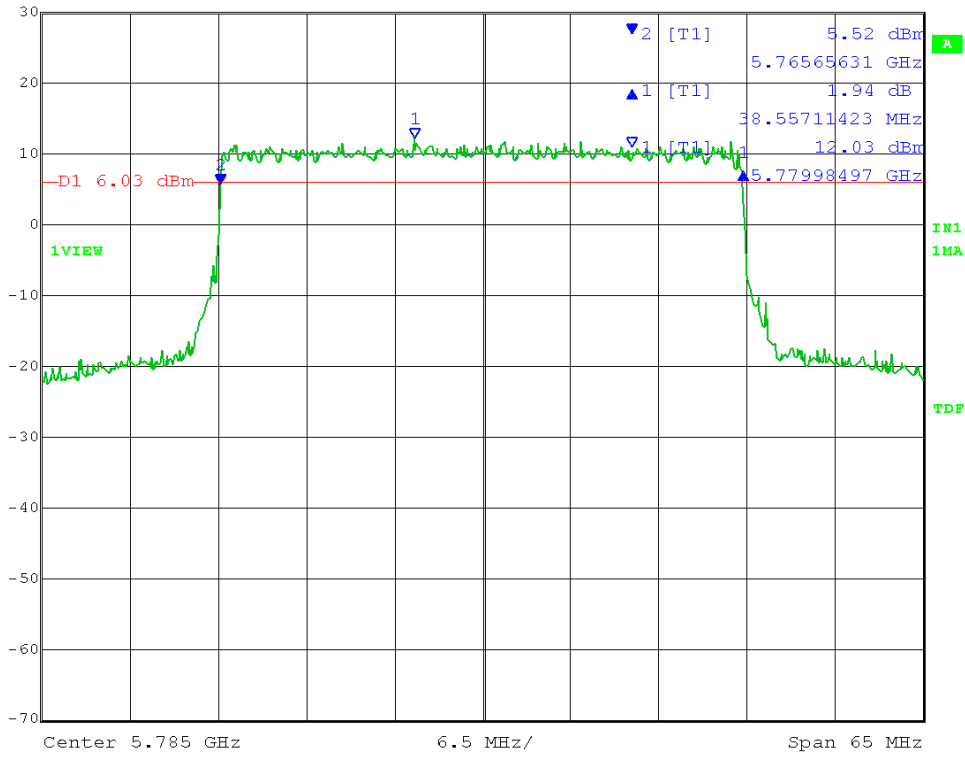
Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 20 dB  
 30 dBm -1.90 dB VBW 300 kHz  
 0 dBm 38.42685371 MHz SWT 16.5 ms Unit dBm



Date: 7.NOV.2013 10:29:41


40MHz BW, MCH, 256QAM, TX 0:

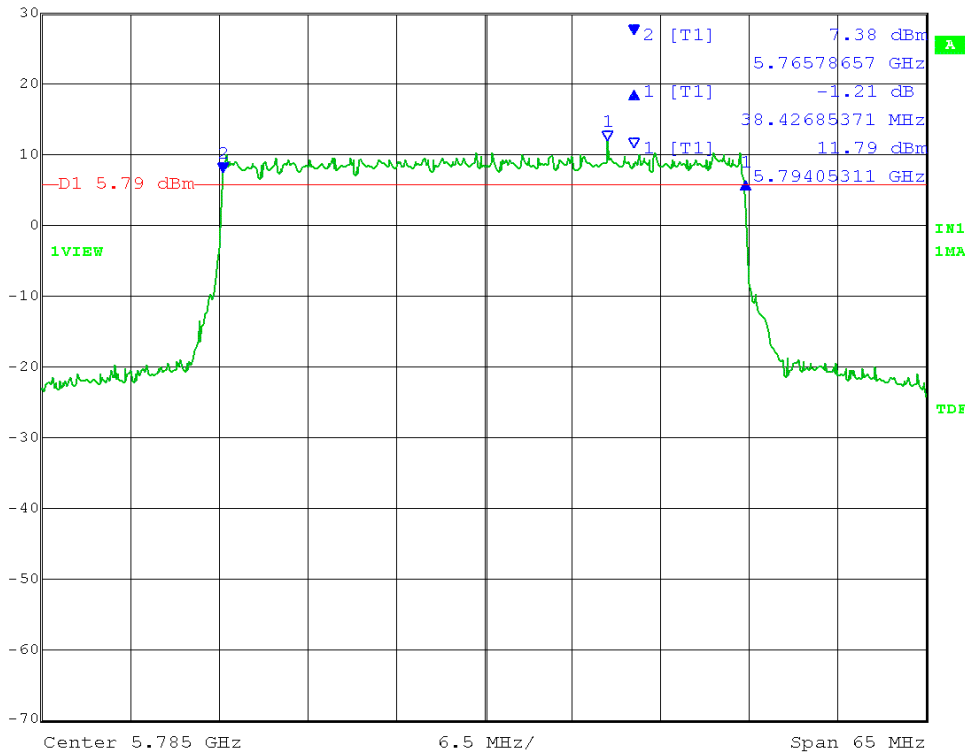
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	1.94 dB	VBW	300 kHz		
	0 dBm	38.55711423 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 09:50:09

TX1:

	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	-1.21 dB	VBW	300 kHz		
	0 dBm	38.42685371 MHz	SWT	16.5 ms	Unit	dBm

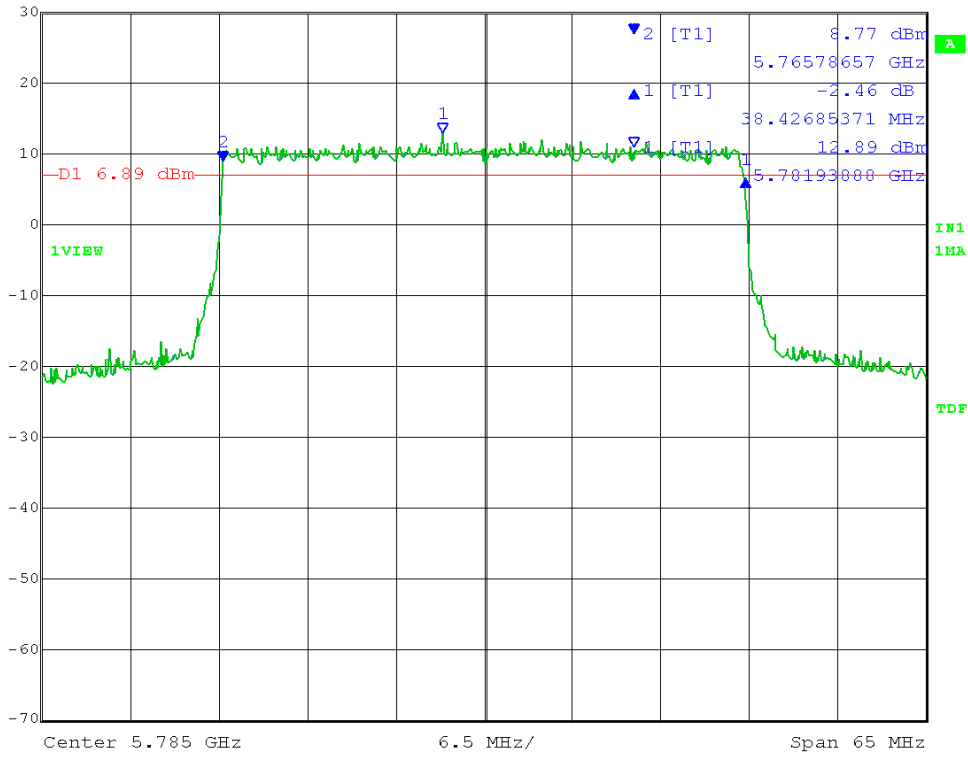


Date: 7.NOV.2013 10:30:39



### 40MHz BW, MCH, 1024QAM, TX 0:

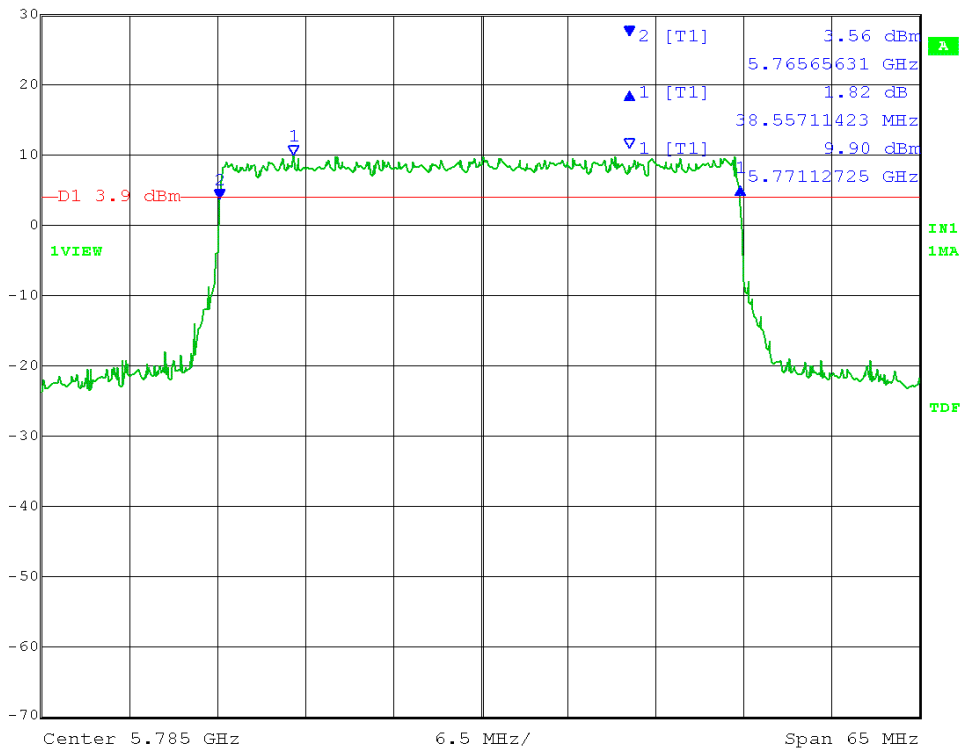
FS Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 20 dB  
 30 dBm                    -2.46 dB    VBW 300 kHz  
 0 dBm                    38.42685371 MHz    SWT 16.5 ms    Unit dBm



Date: 7.NOV.2013 09:51:21


### TX1:

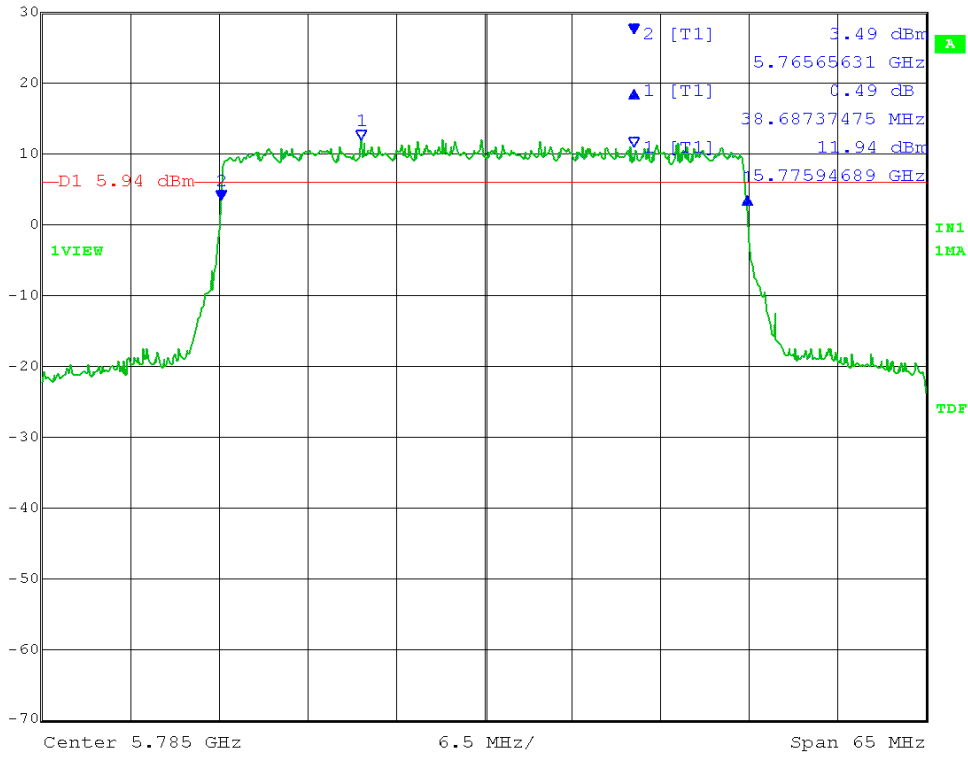
FS Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 20 dB  
 30 dBm                    1.82 dB    VBW 300 kHz  
 0 dBm                    38.55711423 MHz    SWT 16.5 ms    Unit dBm



Date: 7.NOV.2013 10:31:52


40MHz BW, MCH, QPSK, TX 0:

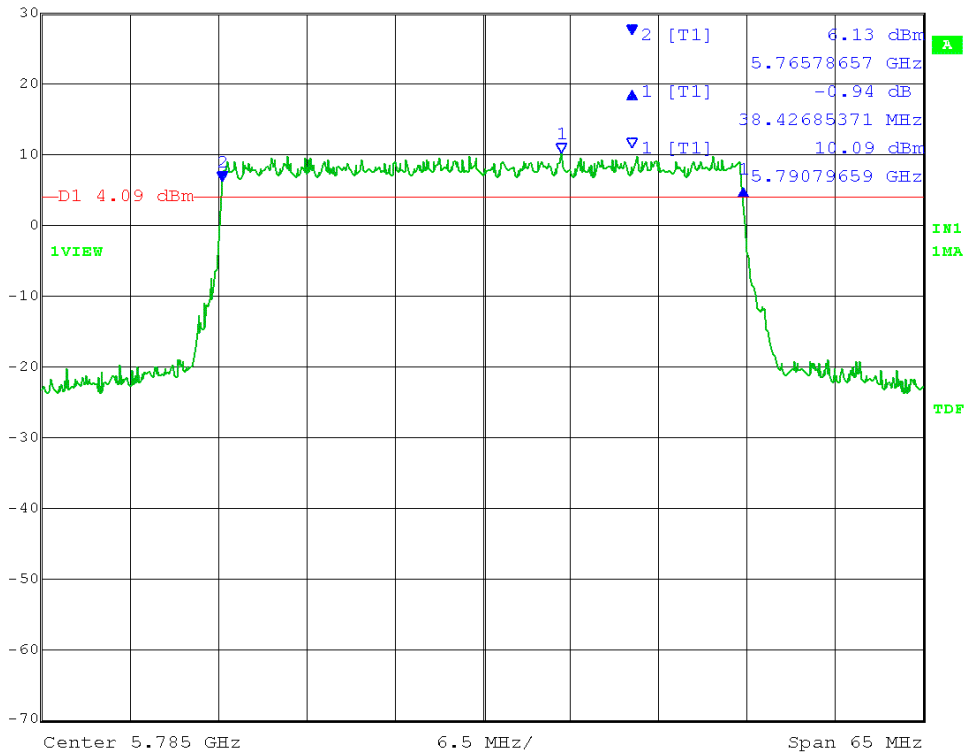
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	0.49 dB	VBW	300 kHz		
	0 dBm	38.68737475 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 09:46:47

TX1:

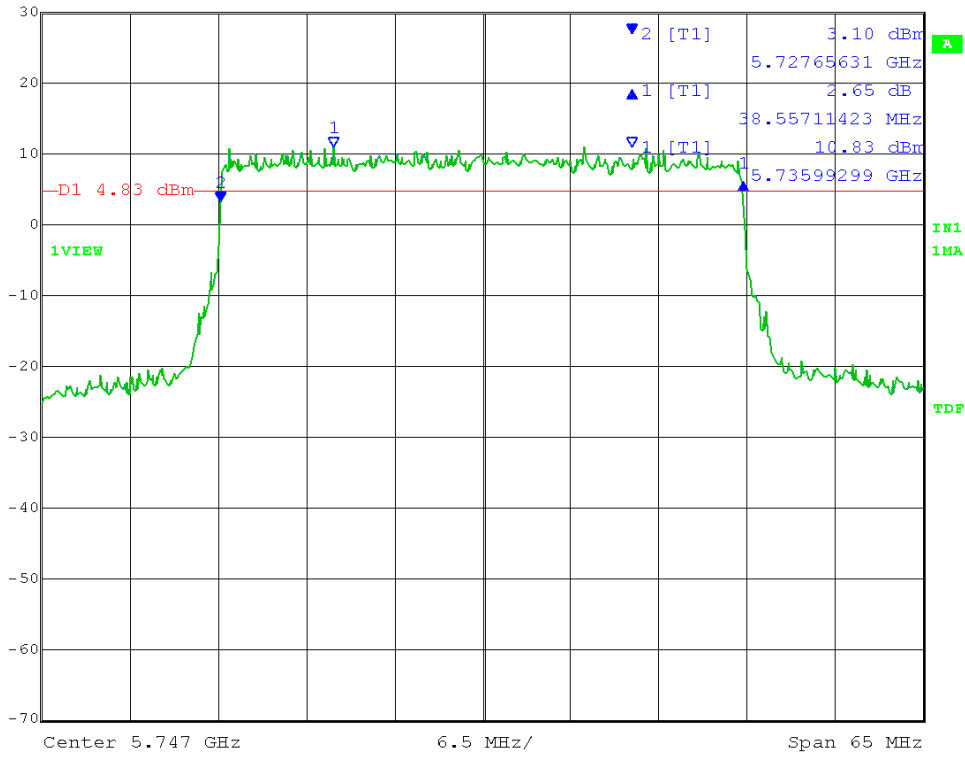
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	-0.94 dB	VBW	300 kHz		
	0 dBm	38.42685371 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 10:27:38

### 40MHz BW, LCH, 16QAM, TX 0:

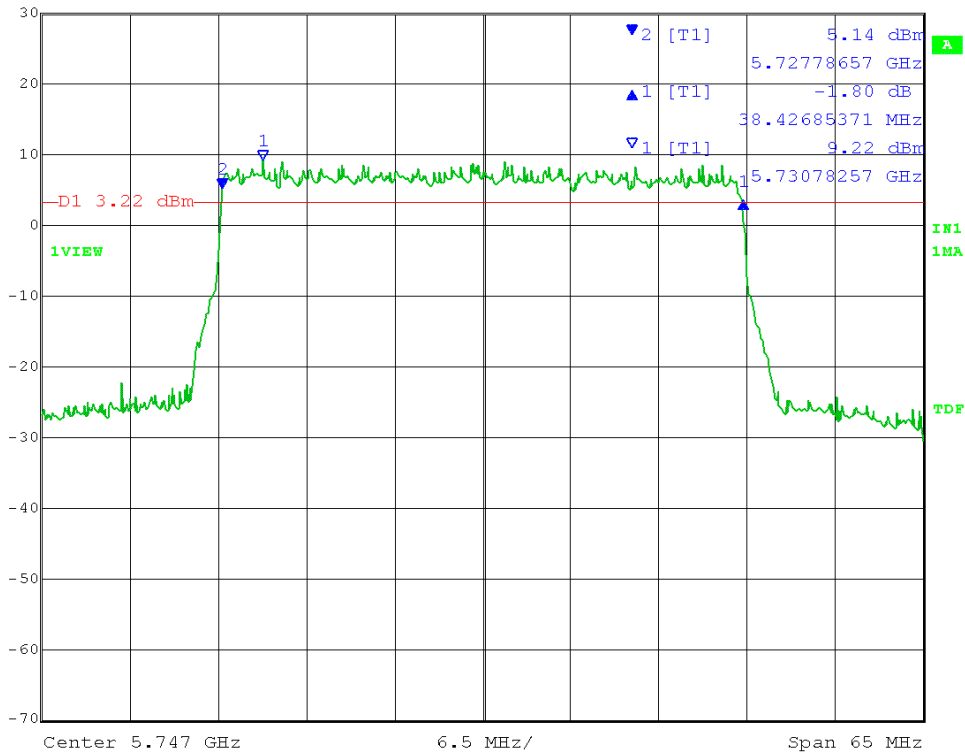
FS Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 20 dB  
 30 dBm                            2.65 dB            VBW 300 kHz  
 0 dBm                            38.55711423 MHz    SWT 16.5 ms    Unit dBm



Date: 7.NOV.2013 09:54:24

### TX1:

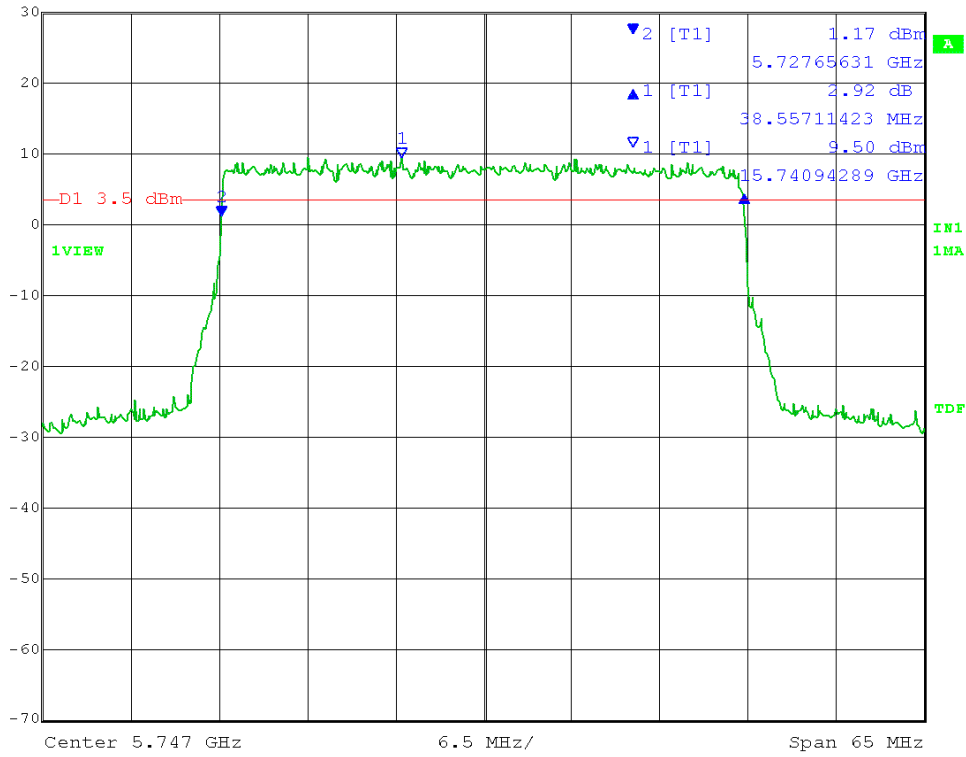
FS Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 20 dB  
 30 dBm                            -1.80 dB            VBW 300 kHz  
 0 dBm                            38.42685371 MHz    SWT 16.5 ms    Unit dBm



Date: 7.NOV.2013 10:21:22

# 40MHz BW, LCH, 64QAM, TX 0:

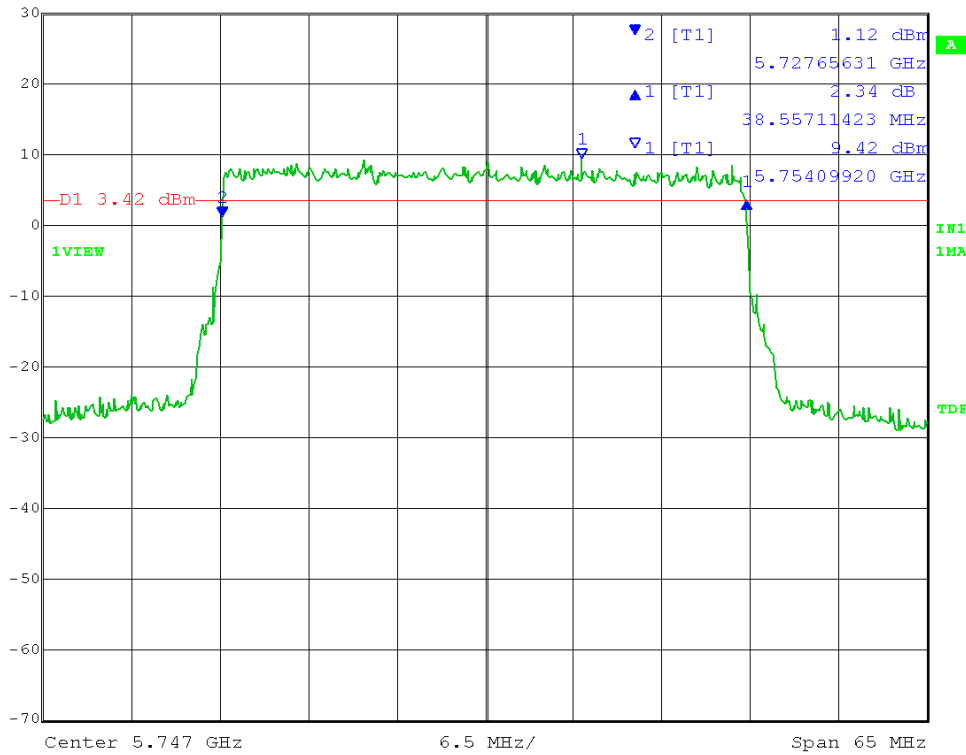
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	2.92 dB	VBW	300 kHz		
	0 dBm	38.55711423 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 09:55:40

## TX1:

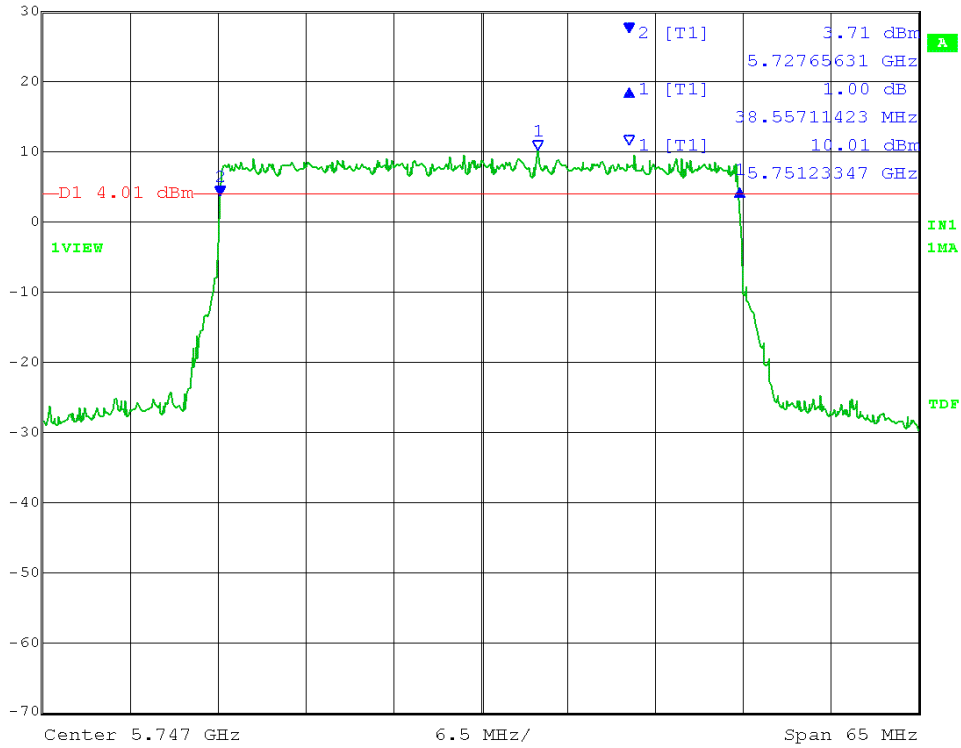
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	2.34 dB	VBW	300 kHz		
	0 dBm	38.55711423 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 10:22:19

40MHz BW, LCH, 256QAM, TX 0:

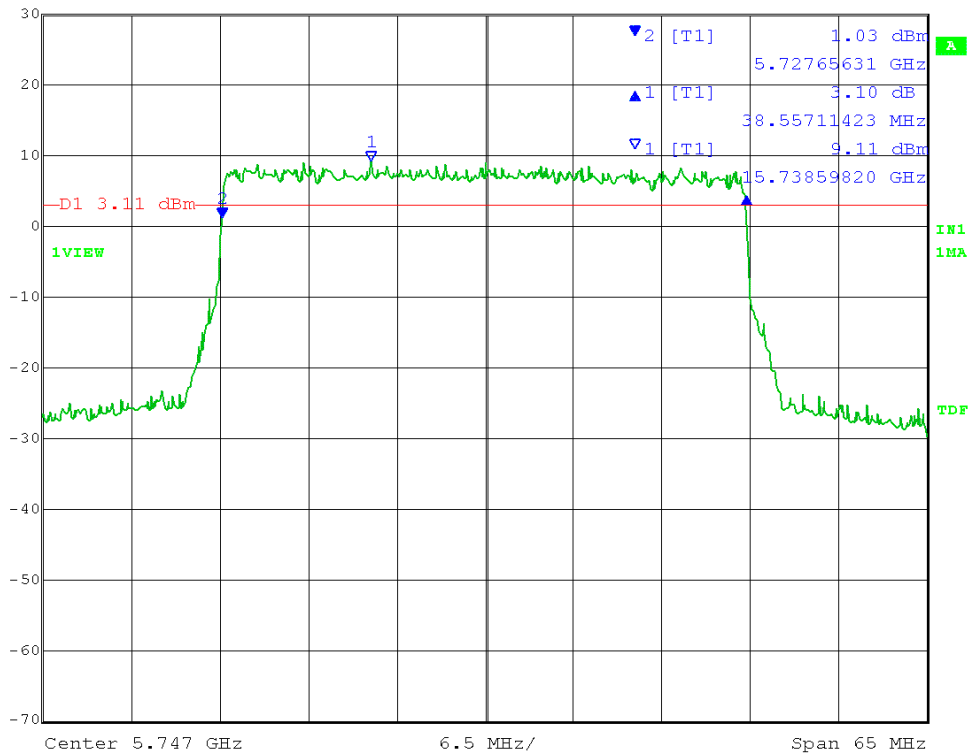
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	1.00 dB	VBW	300 kHz		
	0 dBm	38.55711423 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 09:56:40

TX1:

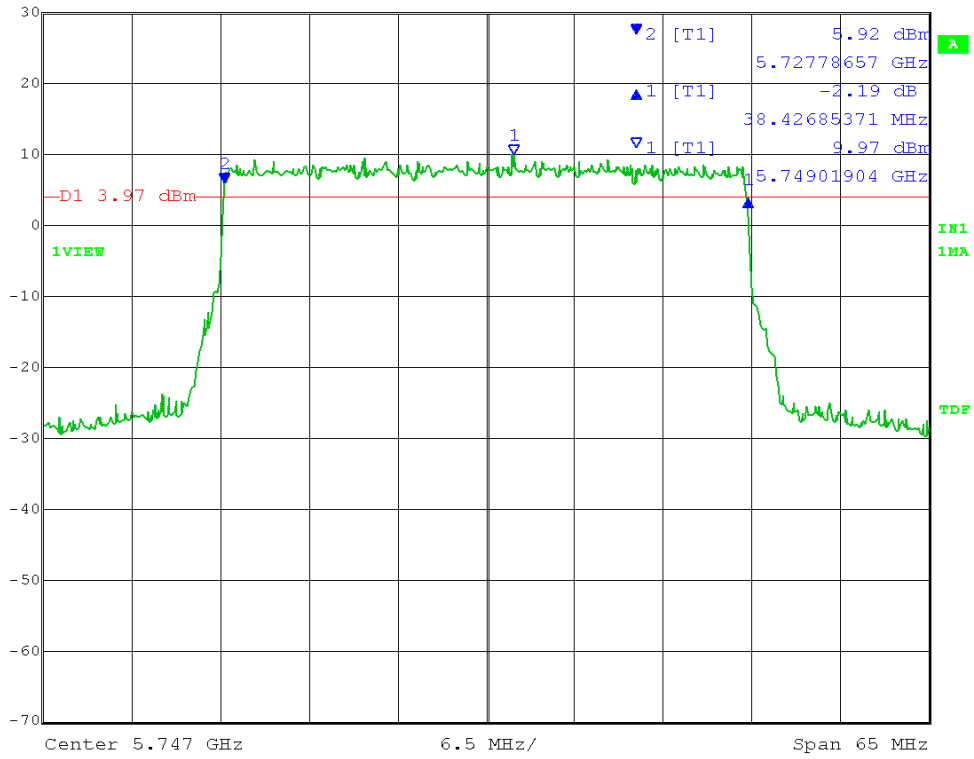
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	30 dBm	3.10 dB	VBW	300 kHz		
	0 dBm	38.55711423 MHz	SWT	16.5 ms	Unit	dBm



Date: 7.NOV.2013 10:23:25

### 40MHz BW, LCH, 1024QAM, TX 0:

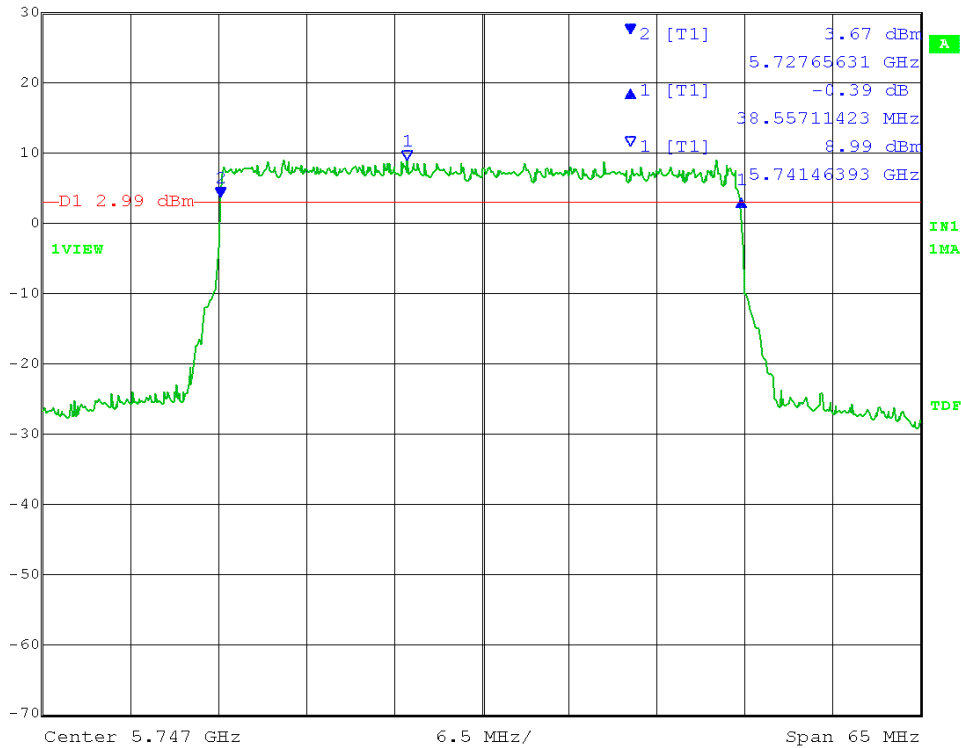
E Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 30 dBm                            -2.19 dB    VBW    300 kHz  
 0 dBm                              38.42685371 MHz    SWT    16.5 ms    Unit            dBm



Date: 7.NOV.2013 09:57:41

### TX1:

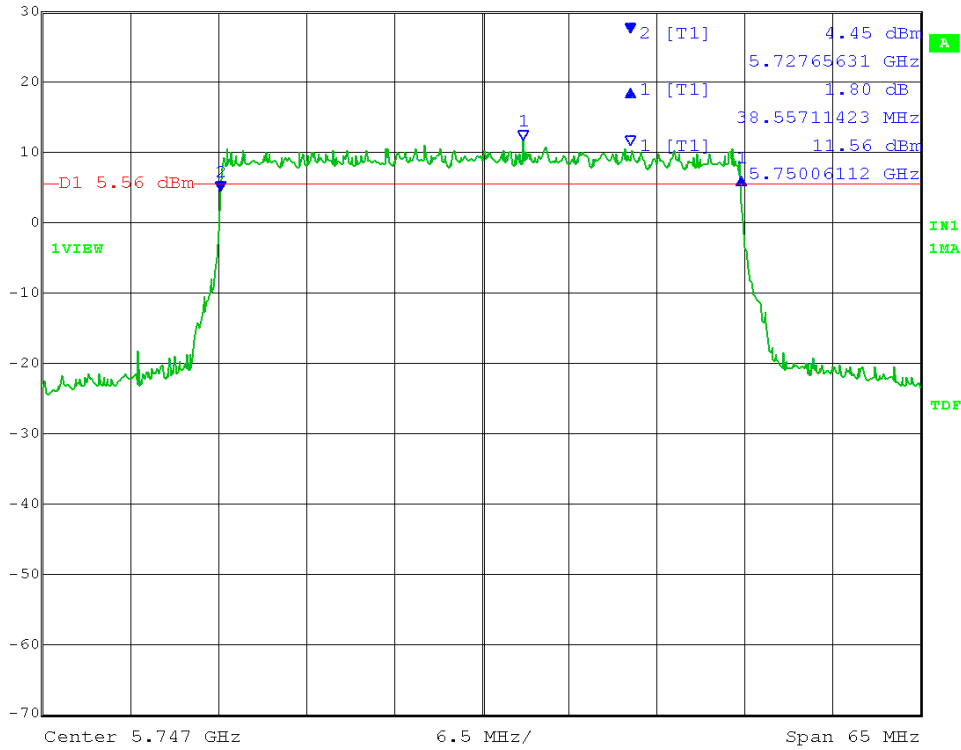
E Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 30 dBm                            -0.39 dB    VBW    300 kHz  
 0 dBm                              38.55711423 MHz    SWT    16.5 ms    Unit            dBm



Date: 7.NOV.2013 10:24:33

# 40MHz BW, LCH, QPSK, TX 0:

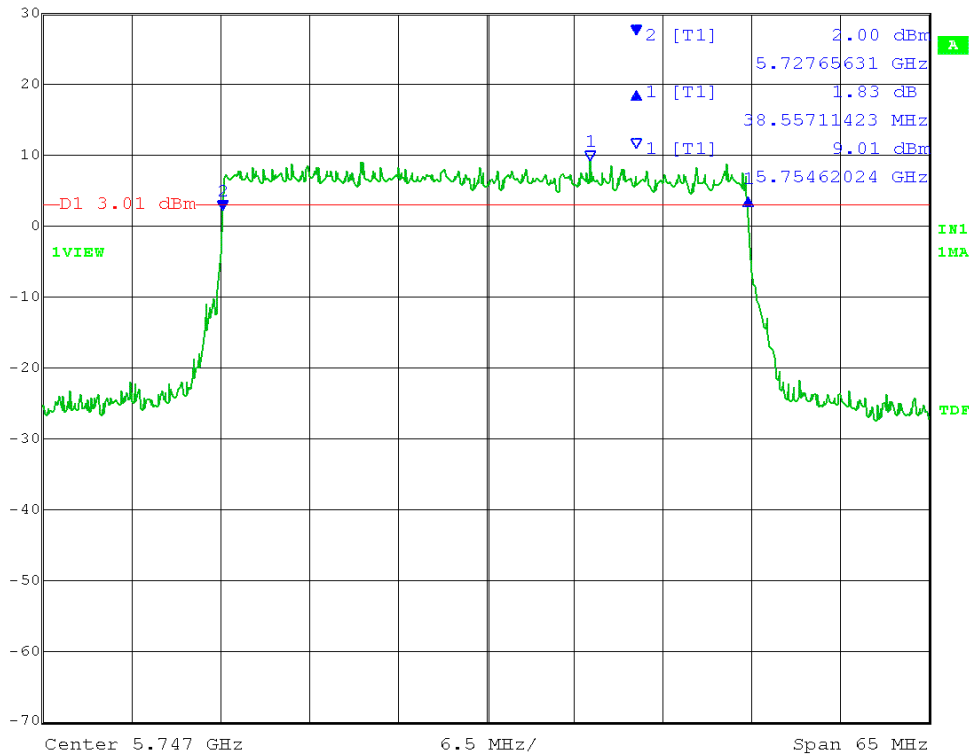
KS Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 20 dB  
 30 dBm 1.80 dB VBW 300 kHz  
 0 dBm 38.55711423 MHz SWT 16.5 ms Unit dBm



Date: 7.NOV.2013 09:53:13

## TX1:

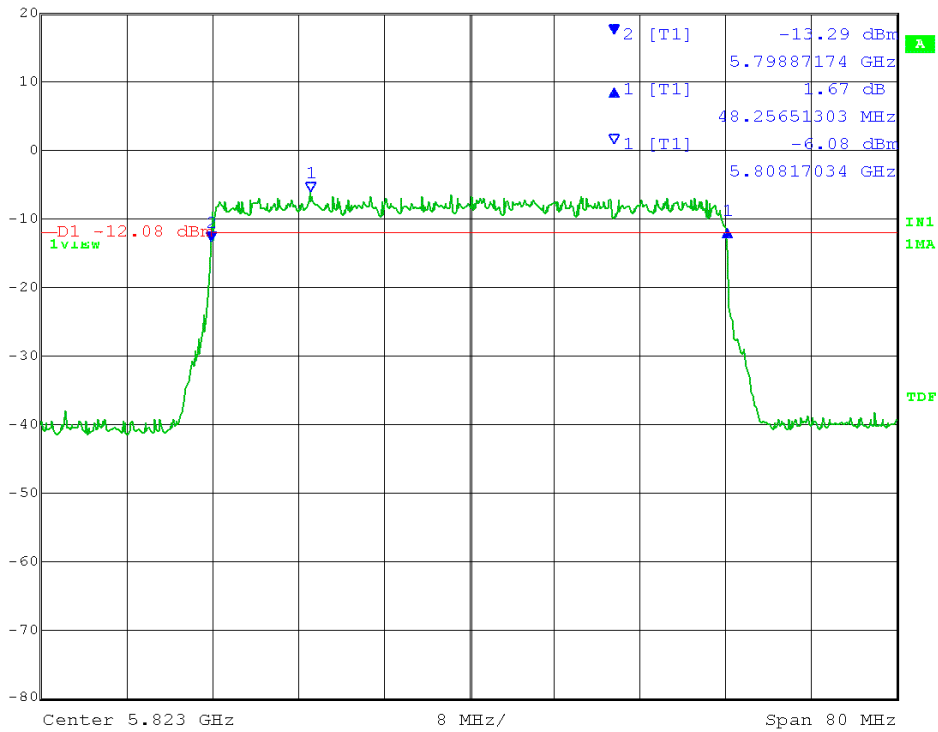
KS Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 20 dB  
 30 dBm 1.83 dB VEW 300 kHz  
 0 dBm 38.55711423 MHz SWT 16.5 ms Unit dBm



Date: 7.NOV.2013 10:19:50

### 50MHz BW, HCH, 16QAM, TX 0:

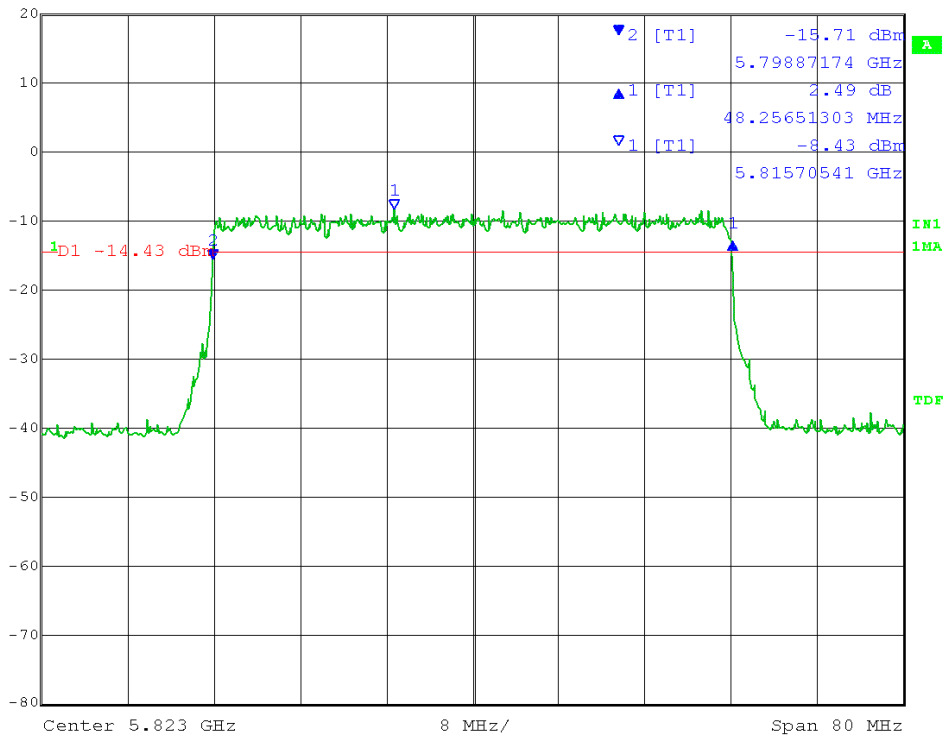
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	20 dBm	1.67 dB	VBW	300 kHz		
	0 dBm	48.25651303 MHz	SWT	20 ms	Unit	dBm



Date: 5.NOV.2013 13:43:39

### TX1:

	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	20 dBm	2.49 dB	VBW	300 kHz		
	0 dBm	48.25651303 MHz	SWT	20 ms	Unit	dBm

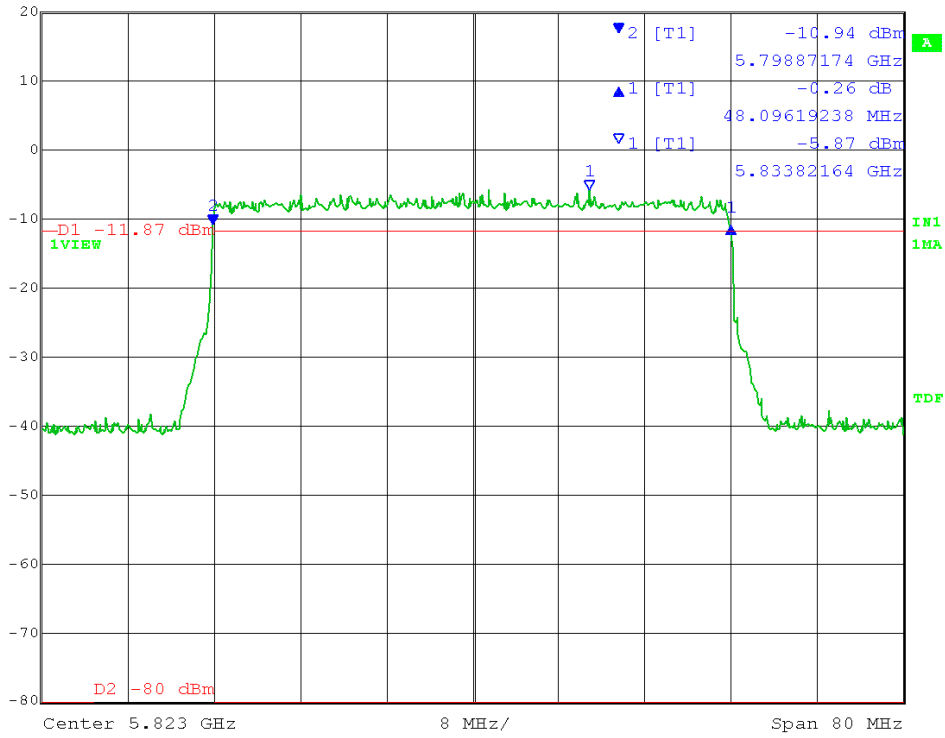


Date: 5.NOV.2013 14:46:27



50MHz BW, HCH, 64QAM, TX 0:

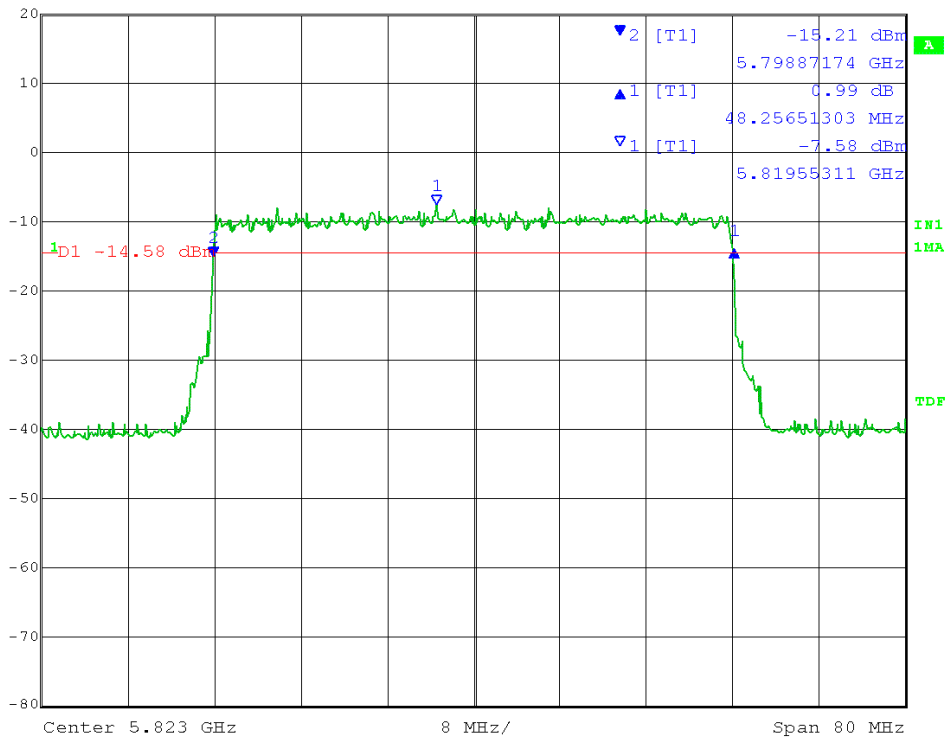
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	20 dBm	-0.26 dB	VBW	300 kHz		
	0 dBm	48.09619238 MHz	SWT	20 ms	Unit	dBm



Date: 5.NOV.2013 13:45:06

TX1:

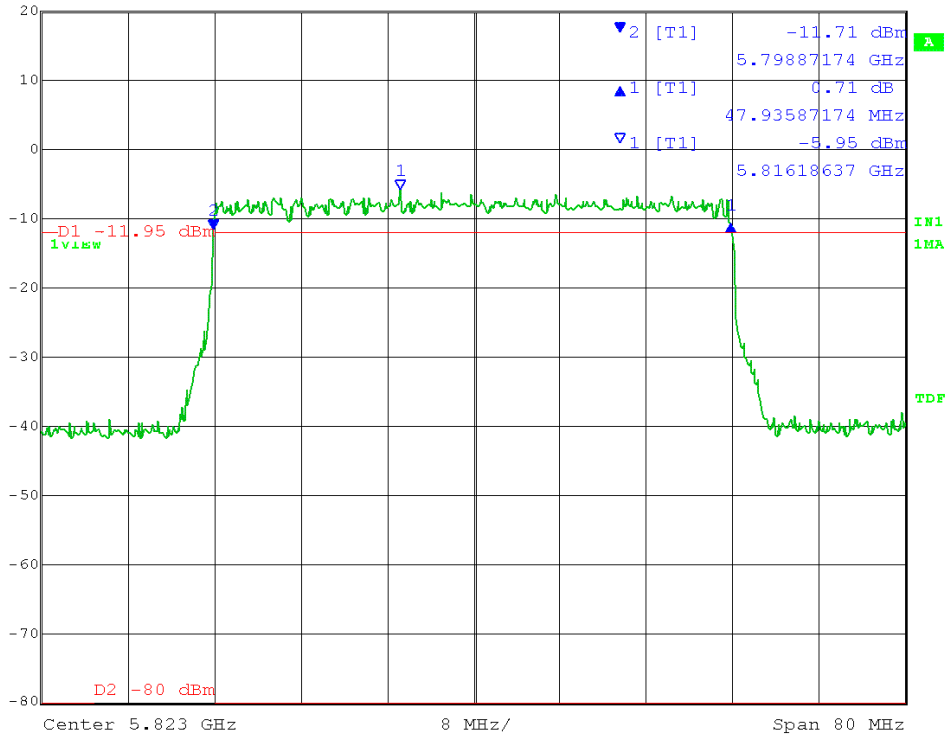
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	20 dB
	20 dBm	0.99 dB	VBW	300 kHz		
	0 dBm	48.25651303 MHz	SWT	20 ms	Unit	dBm



Date: 5.NOV.2013 14:47:35

# 50MHz BW, HCH, 256QAM, TX 0:

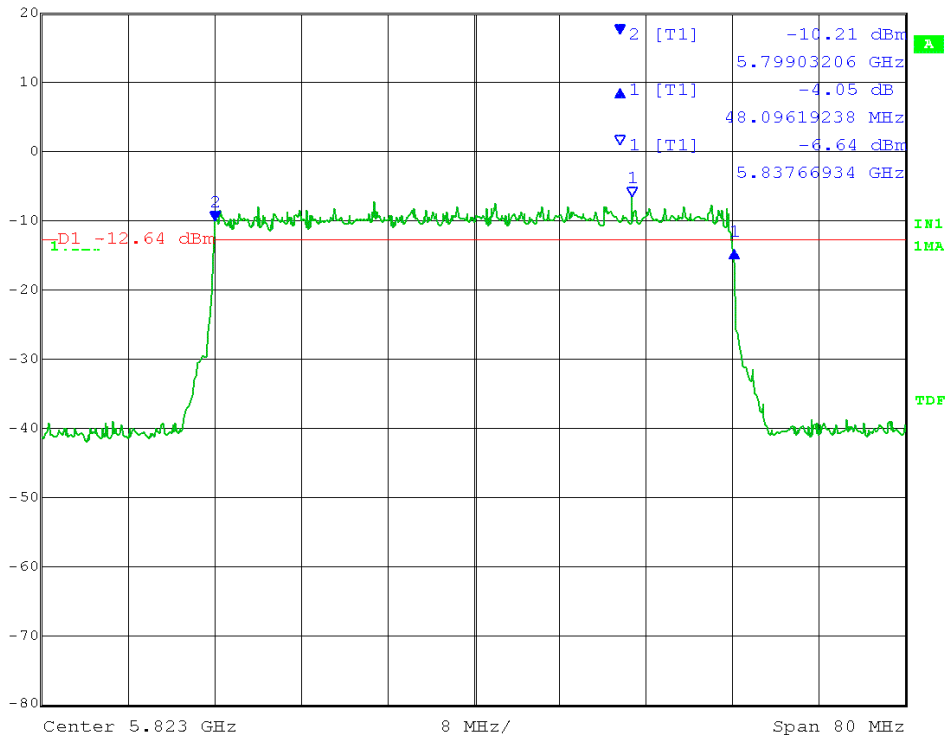
KS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    0.71 dB    VBW    300 kHz  
 0 dBm                    47.93587174 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 13:46:11

# TX1:

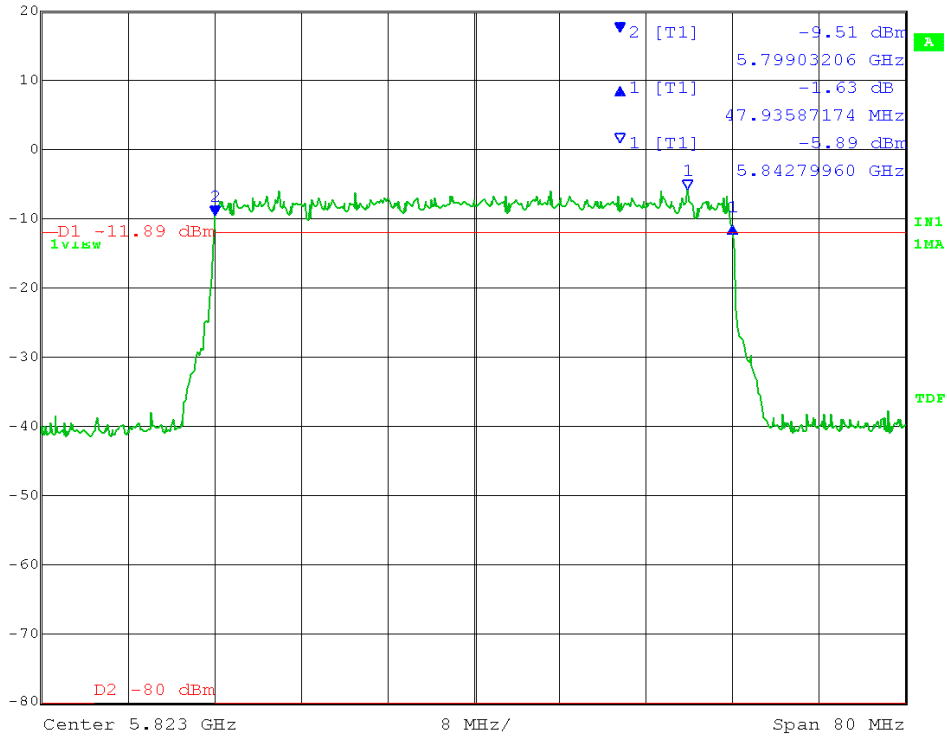
KS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    -4.05 dB    VBW    300 kHz  
 0 dBm                    48.09619238 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:48:53

### 50MHz BW, HCH, 1024QAM, TX 0:

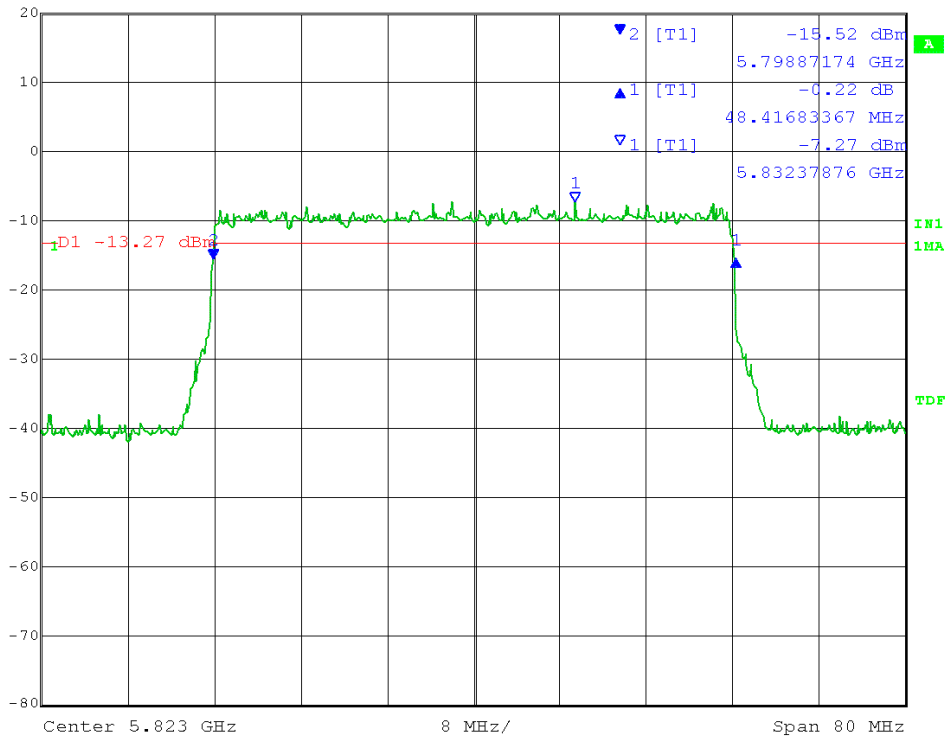
XS Max/Ref Lvl Delta 1 [T1] REW 100 kHz RF Att 20 dB  
 20 dBm -1.63 dB VBW 300 kHz  
 0 dBm 47.93587174 MHz SWT 20 ms Unit dBm



Date: 5.NOV.2013 13:47:48


### TX1:

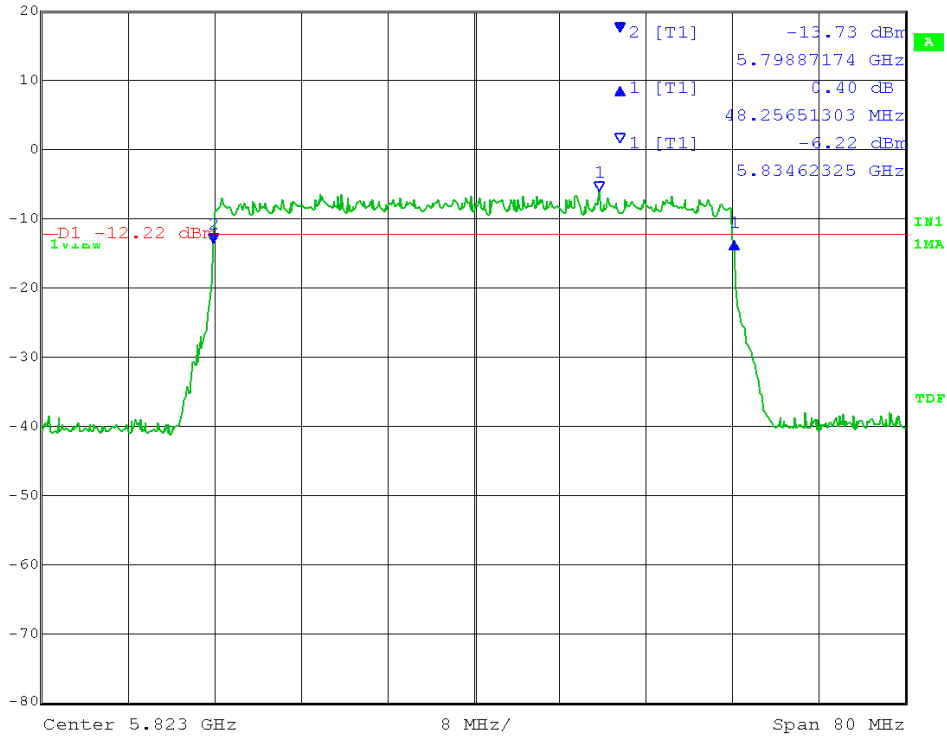
XS Max/Ref Lvl Delta 1 [T1] REW 100 kHz RF Att 20 dB  
 20 dBm -0.22 dB VBW 300 kHz  
 0 dBm 48.41683367 MHz SWT 20 ms Unit dBm



Date: 5.NOV.2013 14:50:26


### 50MHz BW, HCH, QPSK, TX 0:

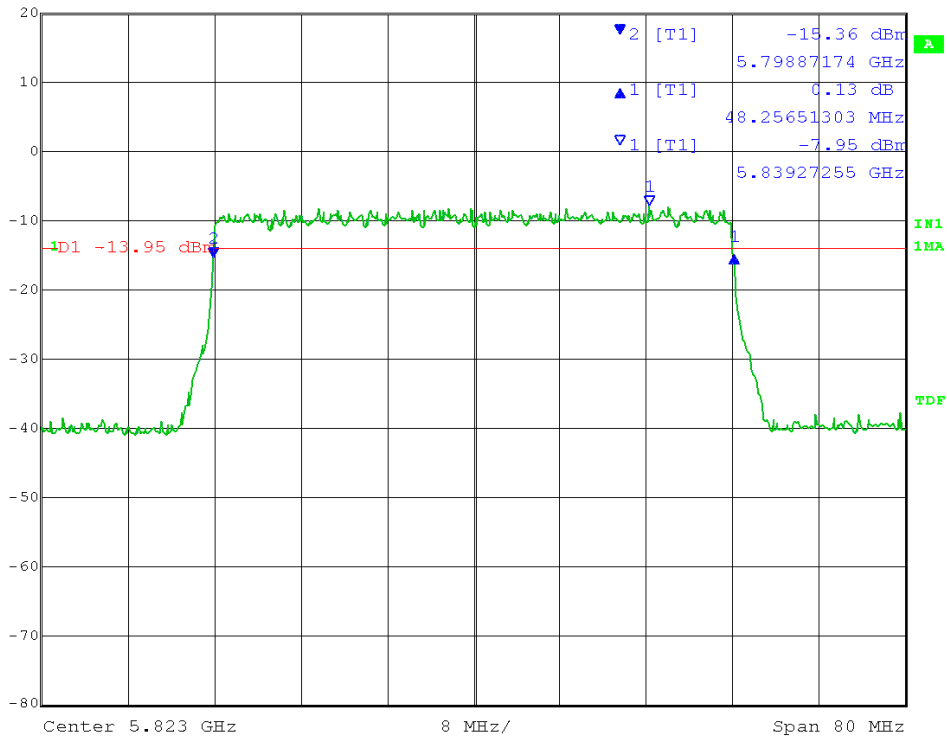

 Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    0.40 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 13:41:39


### TX1:

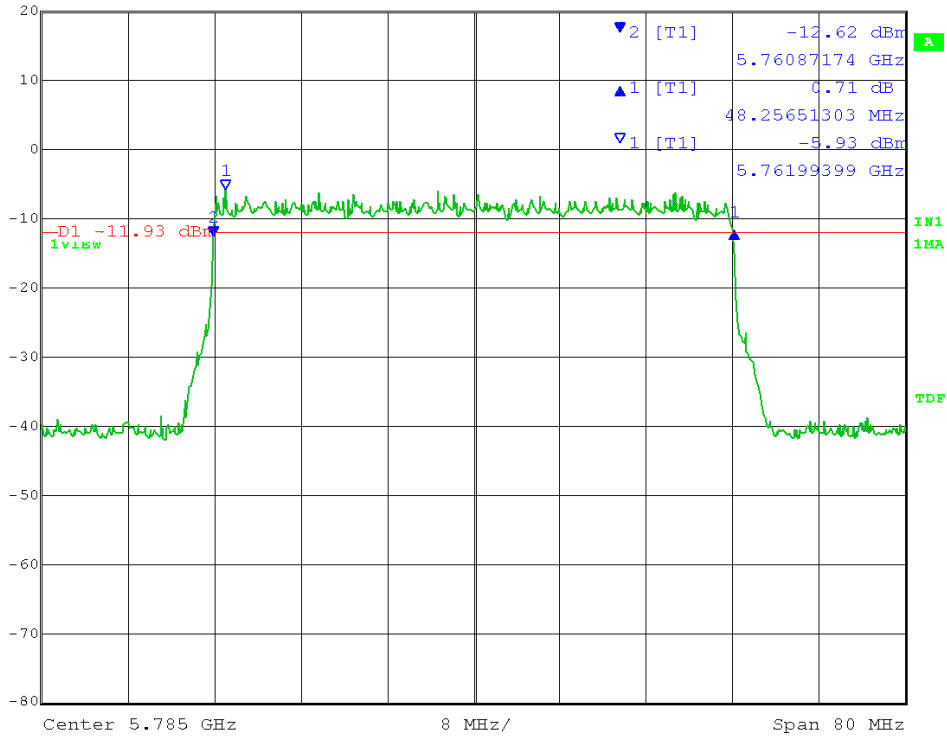

 Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    0.13 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:40:14


### 50MHz BW, MCH, 16QAM, TX 0:

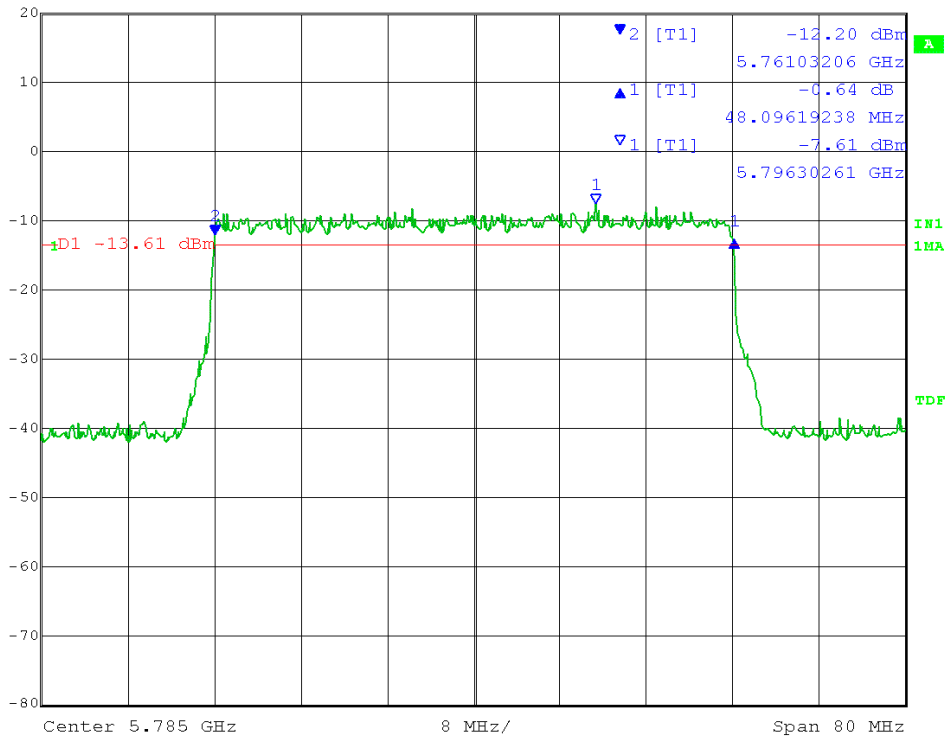

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                      0.71 dB    VBW    300 kHz  
 0 dBm                      48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 13:54:10


### TX1:

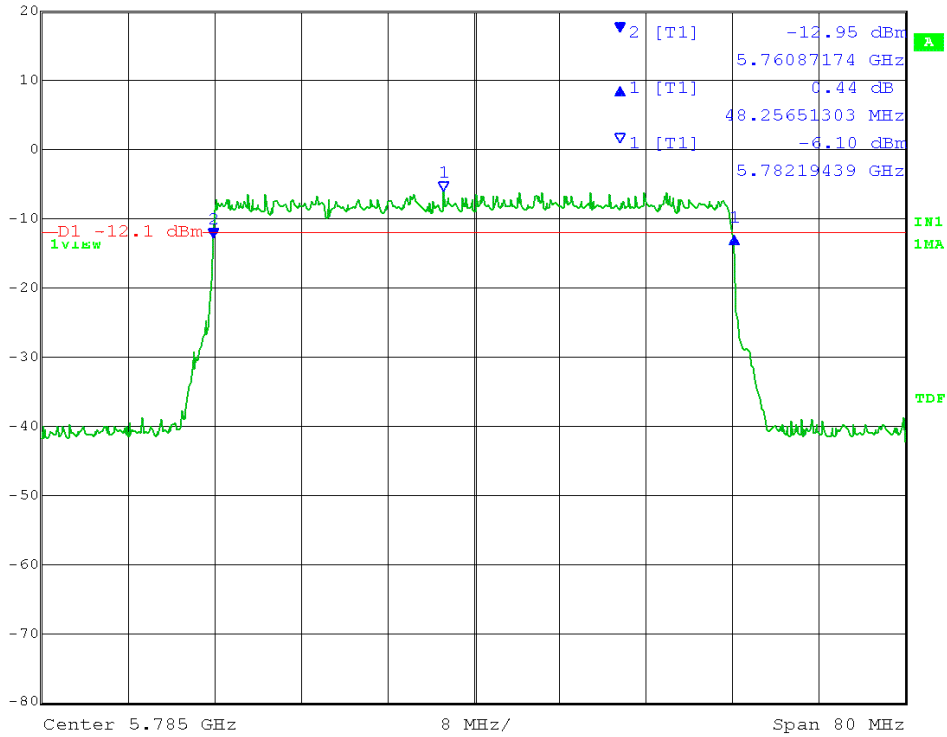

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                      -0.64 dB    VBW    300 kHz  
 0 dBm                      48.09619238 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:34:45


### 50MHz BW, MCH, 64QAM, TX 0:

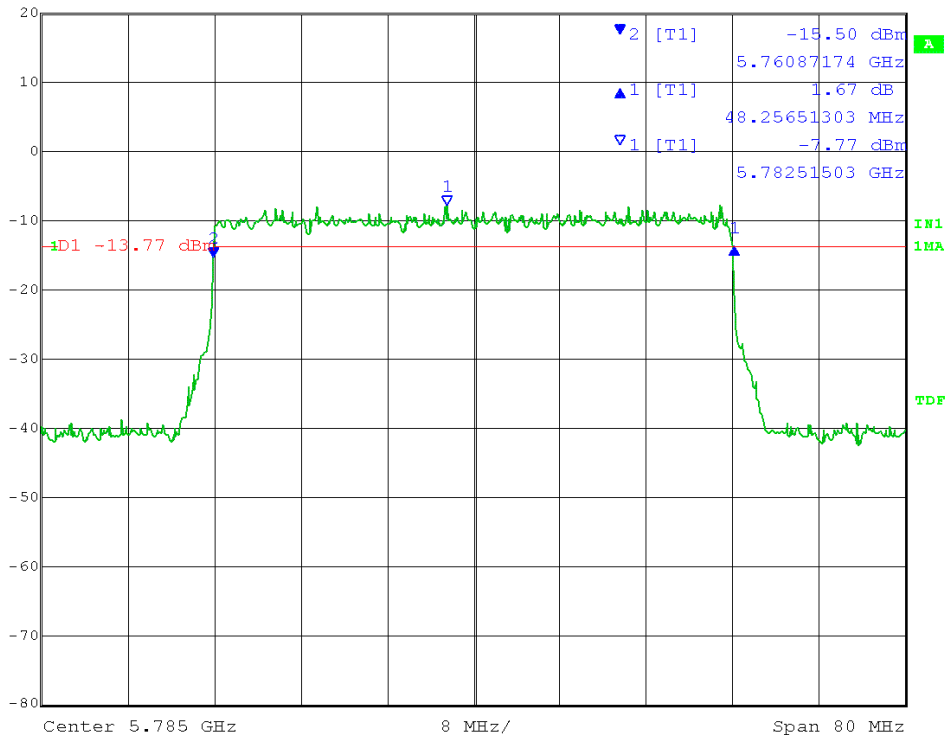

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                    0.44 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 13:55:43

### TX1:

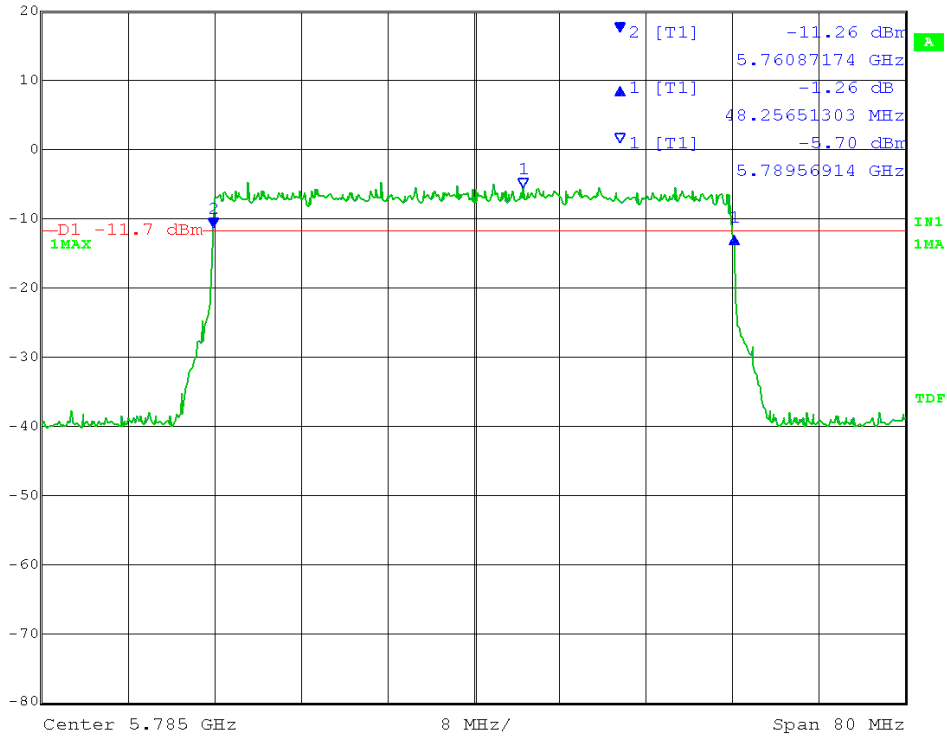

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                    1.67 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:35:34

# 50MHz BW, MCH, 256QAM, TX 0:

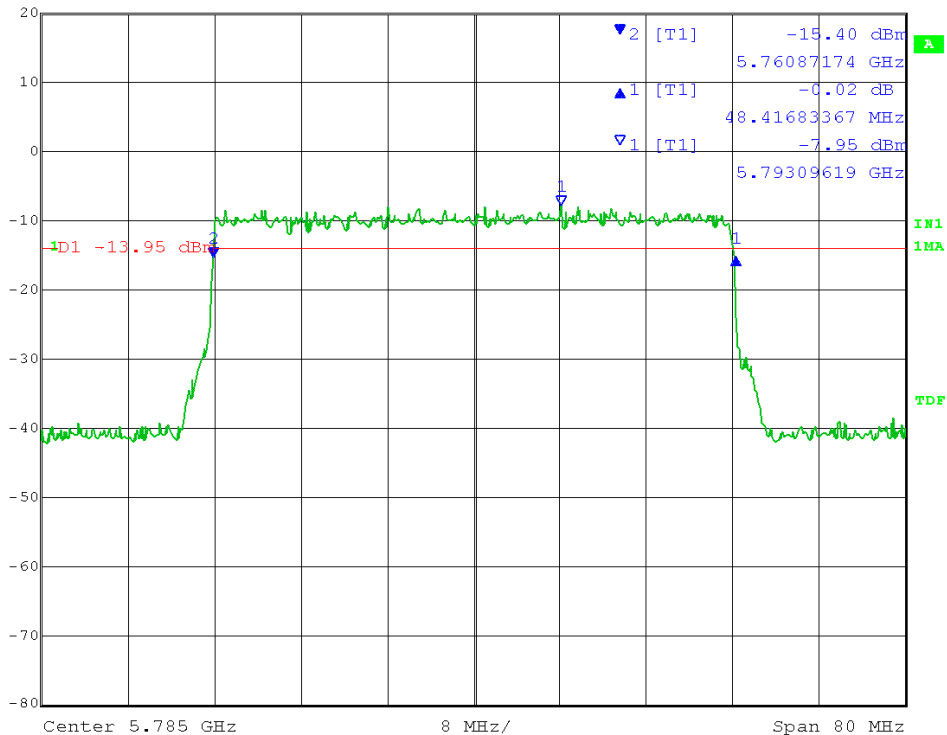
Max/Ref Lvl Delta 1 [T1] REW 100 kHz RF Att 20 dB  
 20 dBm -1.26 dB VEW 300 kHz  
 0 dBm 48.25651303 MHz SWT 20 ms Unit dBm



Date: 5.NOV.2013 13:57:12

# TX1:

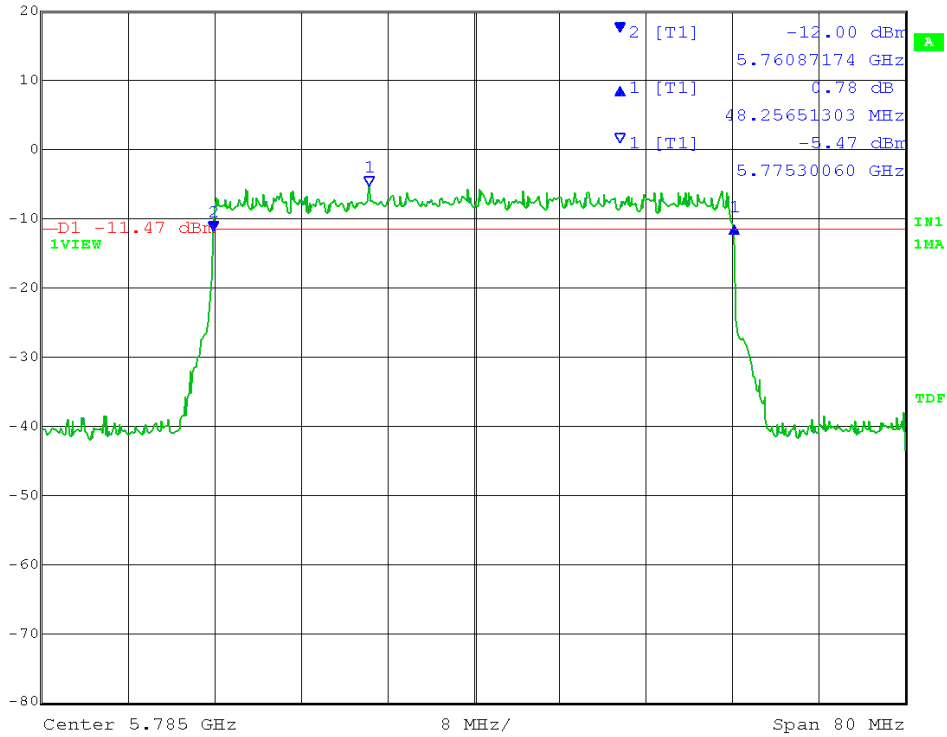
Max/Ref Lvl Delta 1 [T1] REW 100 kHz RF Att 20 dB  
 20 dBm -0.02 dB VEW 300 kHz  
 0 dBm 48.41683367 MHz SWT 20 ms Unit dBm



Date: 5.NOV.2013 14:36:34

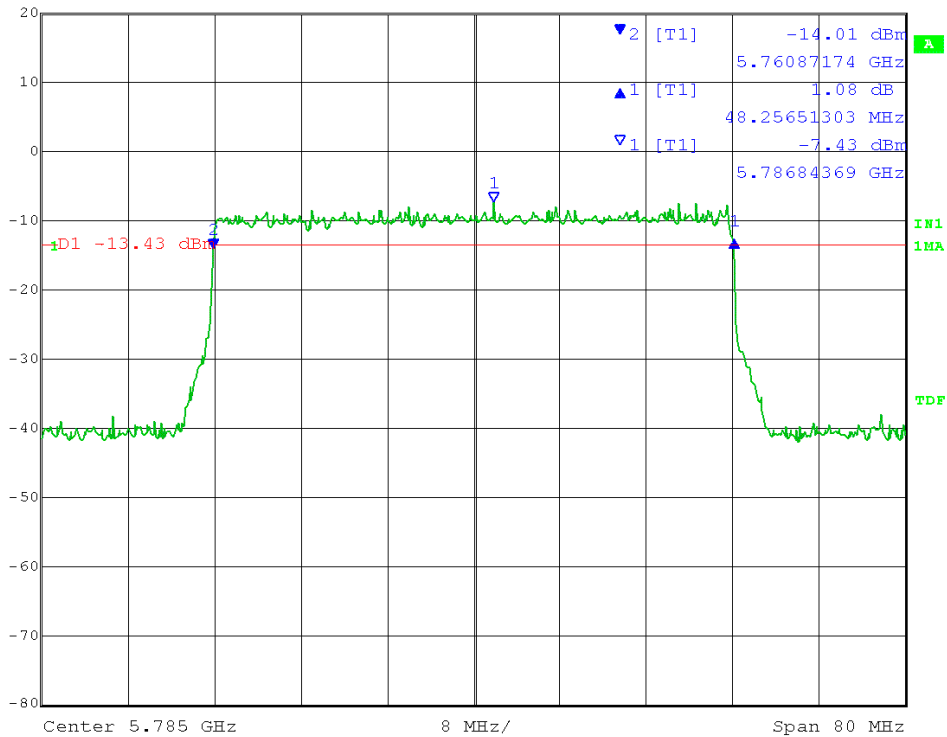
# 50MHz BW, MCH, 1024QAM, TX 0:

FS Max/Ref Lvl Delta 1 [T1] REW 100 kHz RF Att 20 dB  
 20 dBm 0.78 dB VEW 300 kHz  
 0 dBm 48.25651303 MHz SWT 20 ms Unit dBm



# TX1:

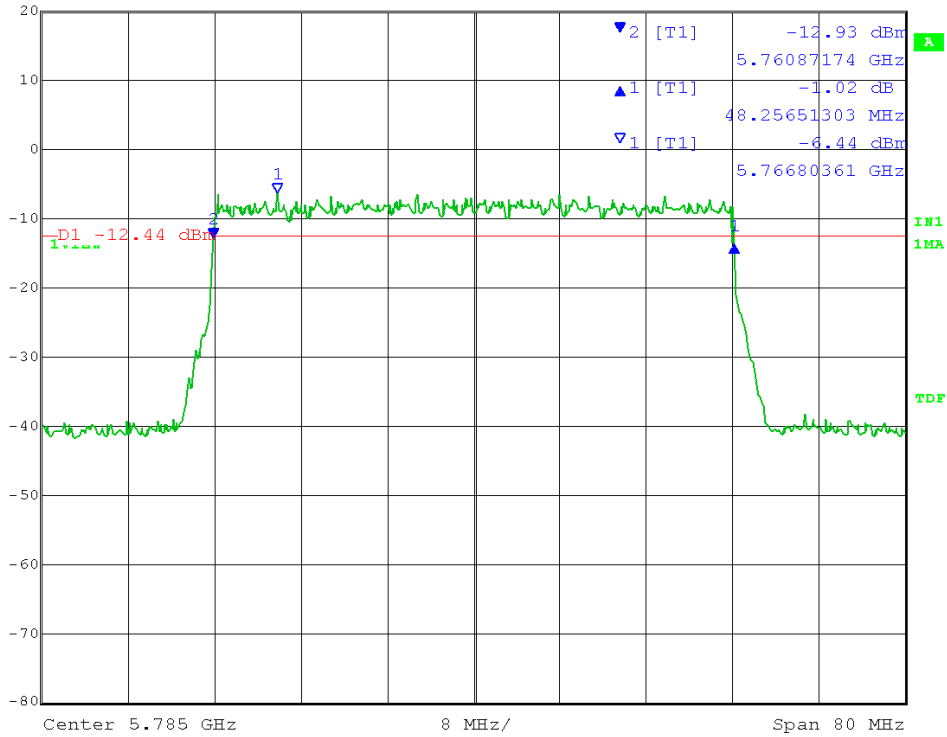
FS Max/Ref Lvl Delta 1 [T1] REW 100 kHz RF Att 20 dB  
 20 dBm 1.08 dB VEW 300 kHz  
 0 dBm 48.25651303 MHz SWT 20 ms Unit dBm





### 50MHz BW, MCH, QPSK, TX 0:

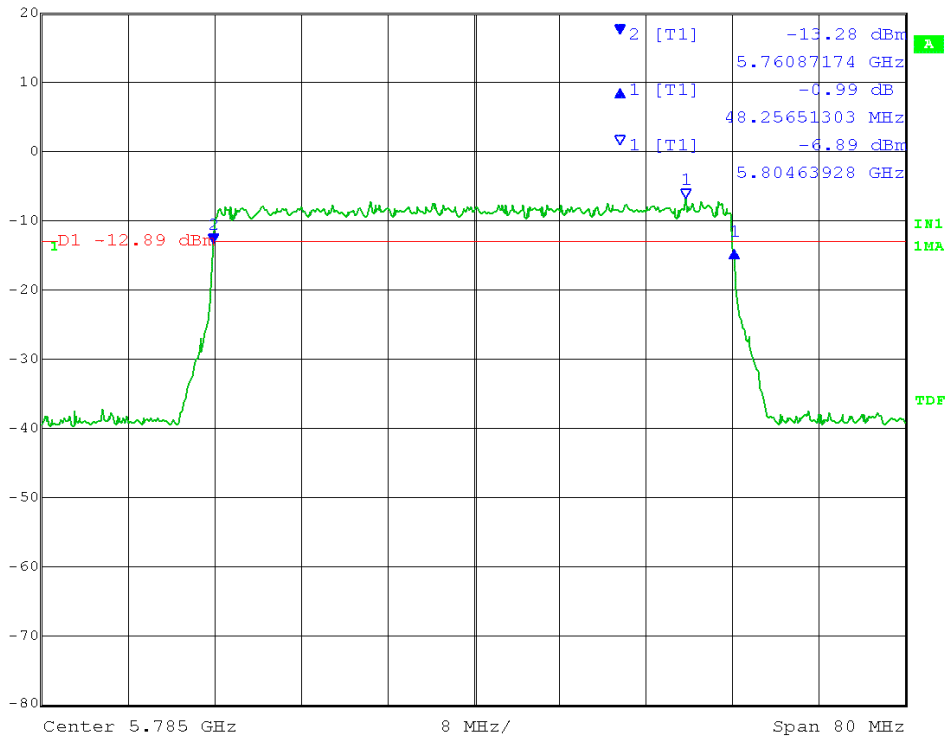
KS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                            -1.02 dB    VBW    300 kHz  
 0 dBm                            48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 13:52:51

### TX1:

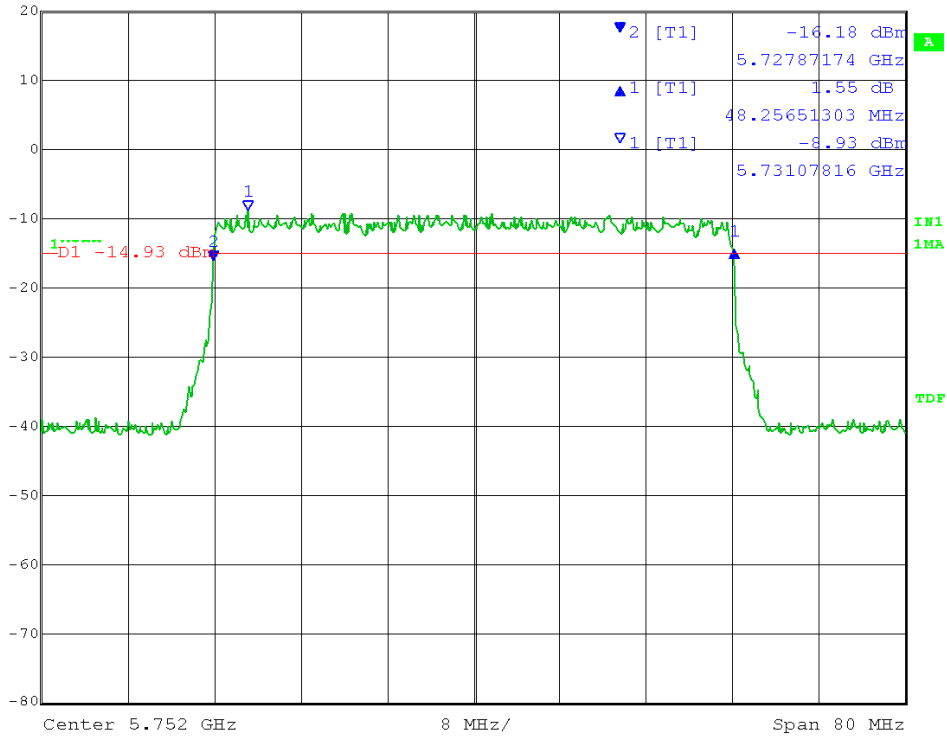
KS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                            -0.99 dB    VBW    300 kHz  
 0 dBm                            48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:33:37

### 50MHz BW, LCH, 16QAM, TX 0:

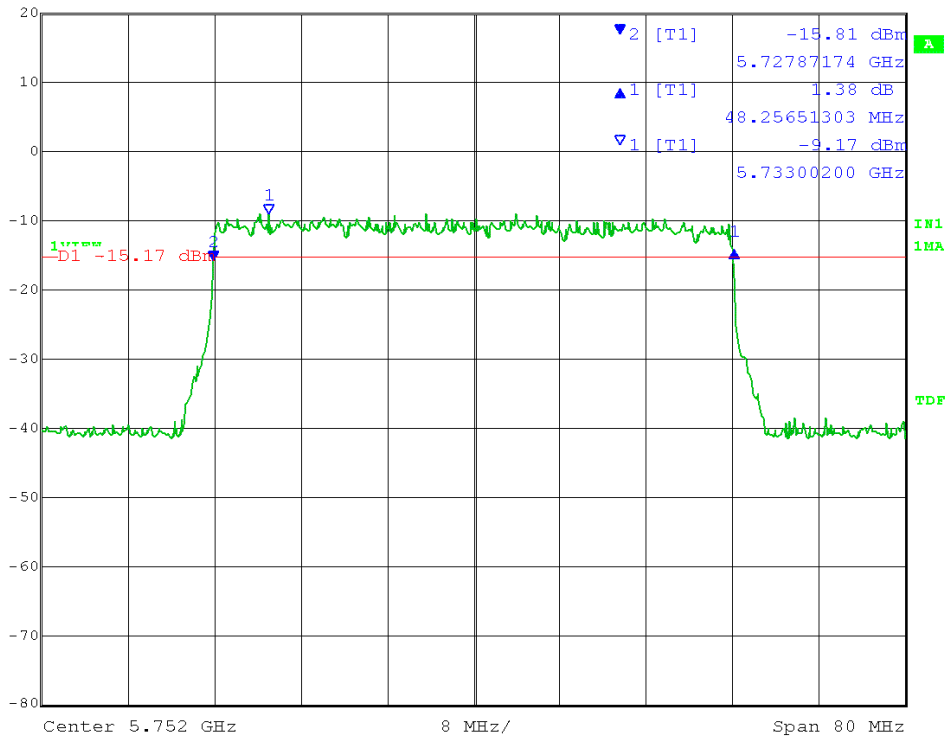
KS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    1.55 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:04:56


### TX1:

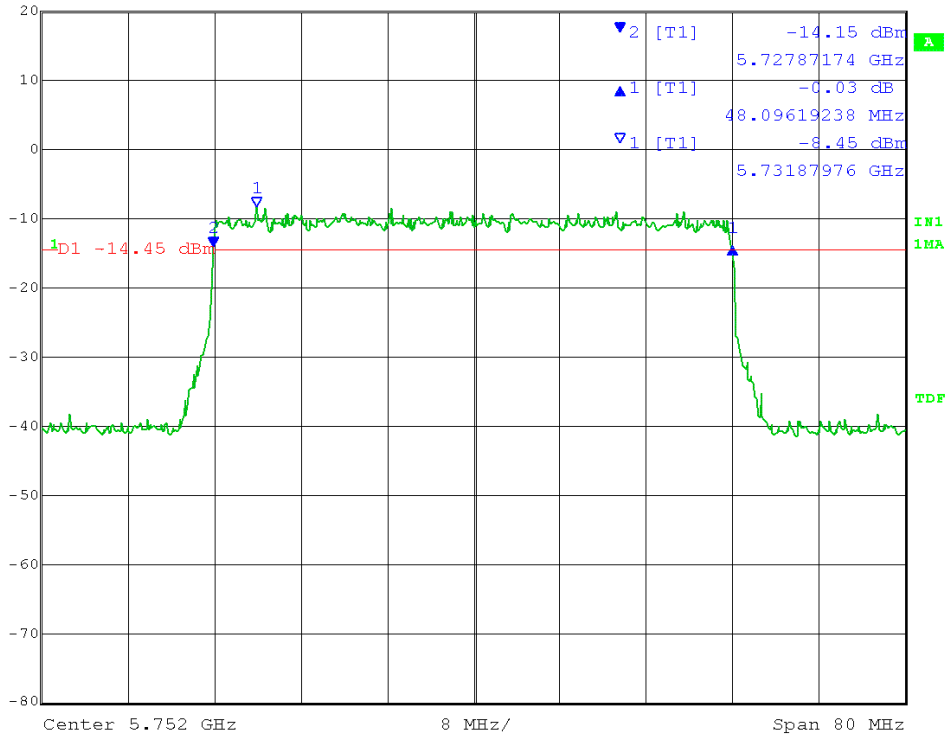
KS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    1.38 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:24:39


### 50MHz BW, LCH, 64QAM, TX 0:

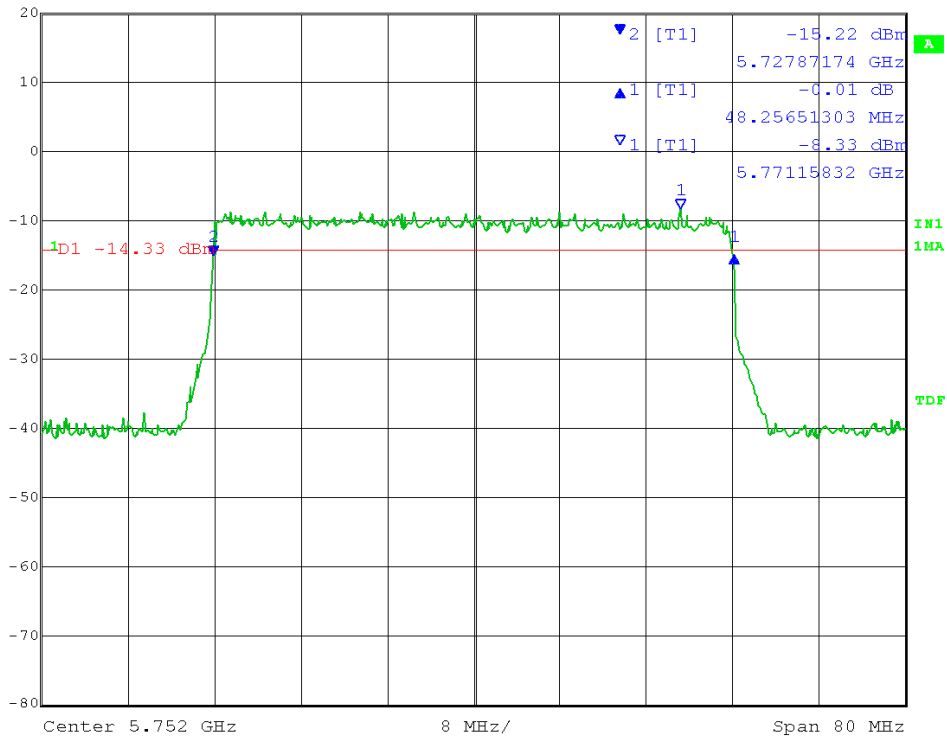

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                    -0.03 dB    VBW    300 kHz  
 0 dBm                    48.09619238 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:06:27


### TX1:

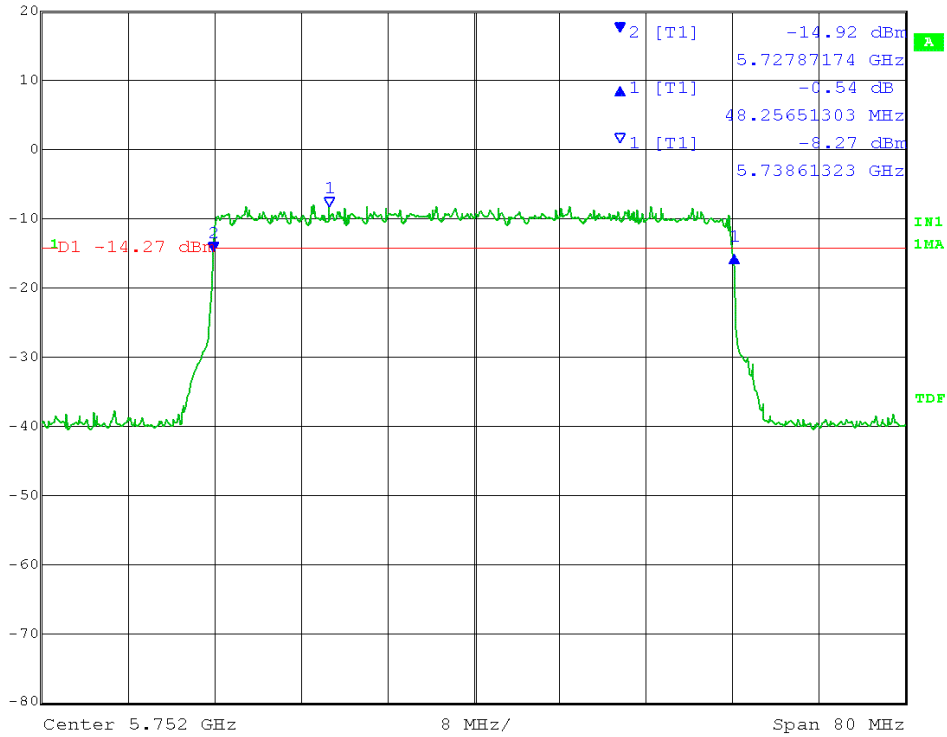

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                    -0.01 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:25:45


# 50MHz BW, LCH, 256QAM, TX 0:

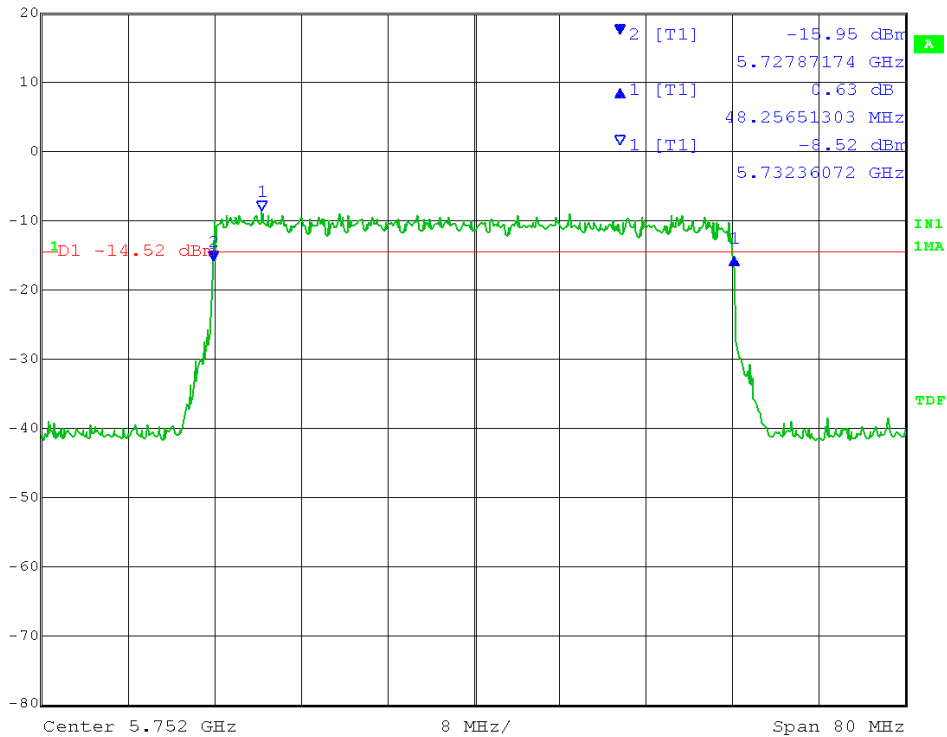

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                    -0.54 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:08:10

# TX1:

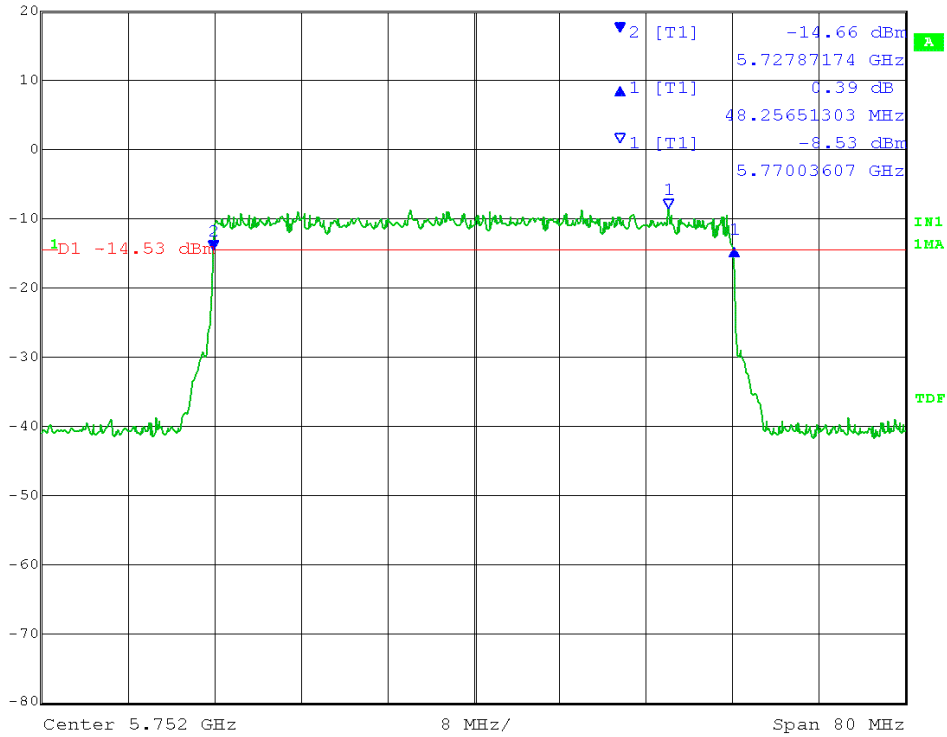

 Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    20 dB  
 20 dBm                    0.63 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:26:40

### 50MHz BW, LCH, 1024QAM, TX 0:

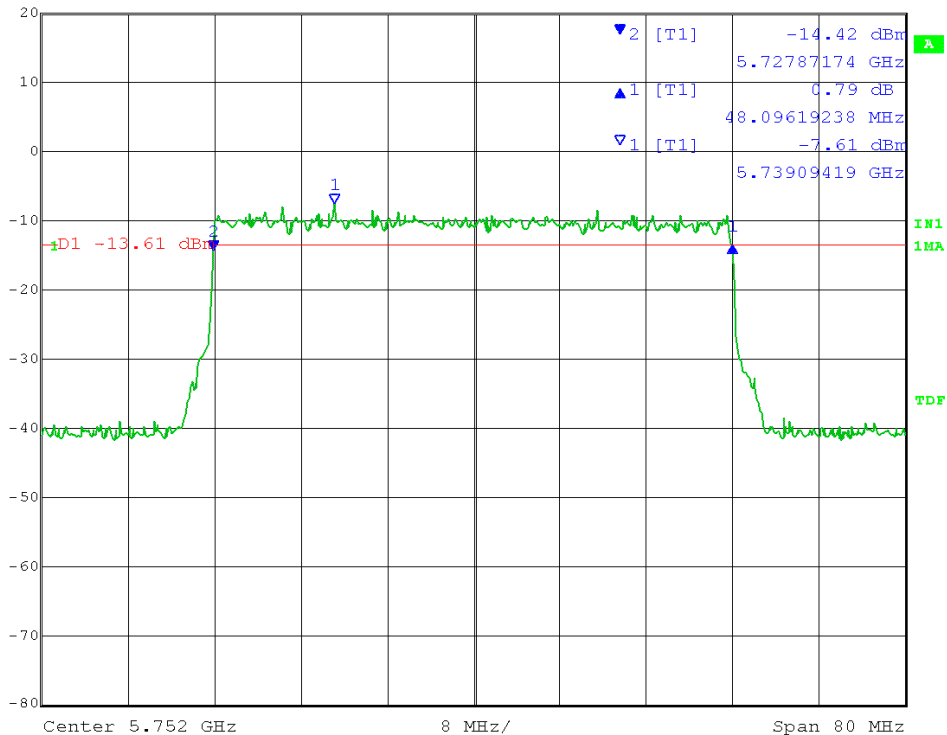
RS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    0.39 dB    VEW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit            dBm



Date: 5.NOV.2013 14:09:55

### TX1:

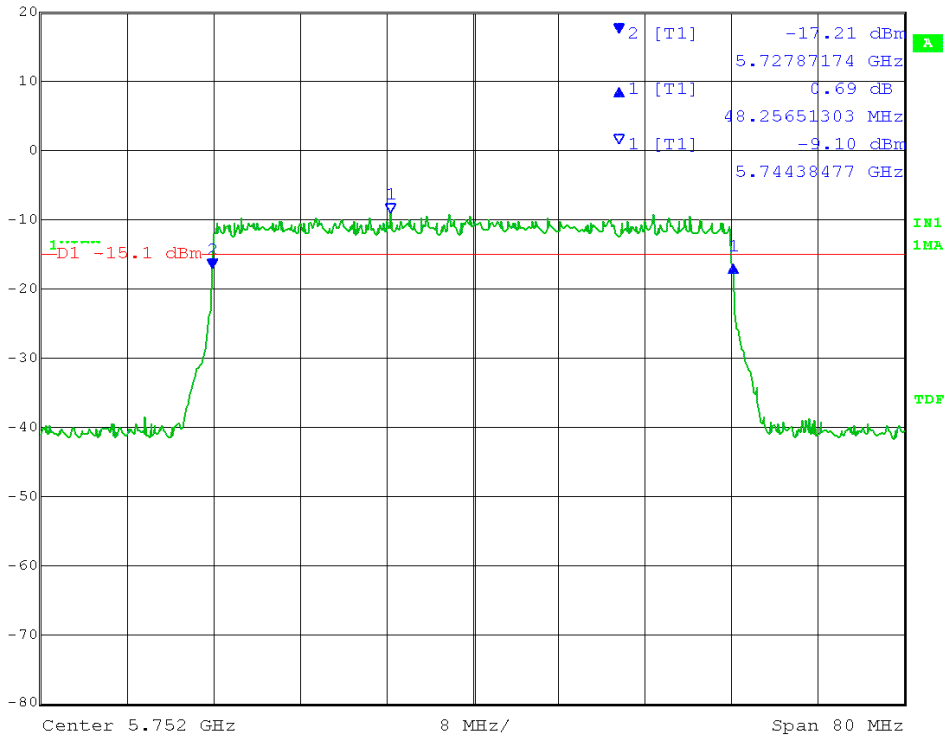
RS Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    0.79 dB    VEW    300 kHz  
 0 dBm                    48.09619238 MHz    SWT    20 ms    Unit            dBm



Date: 5.NOV.2013 14:27:44

### 50MHz BW, LCH, QPSK, TX 0:

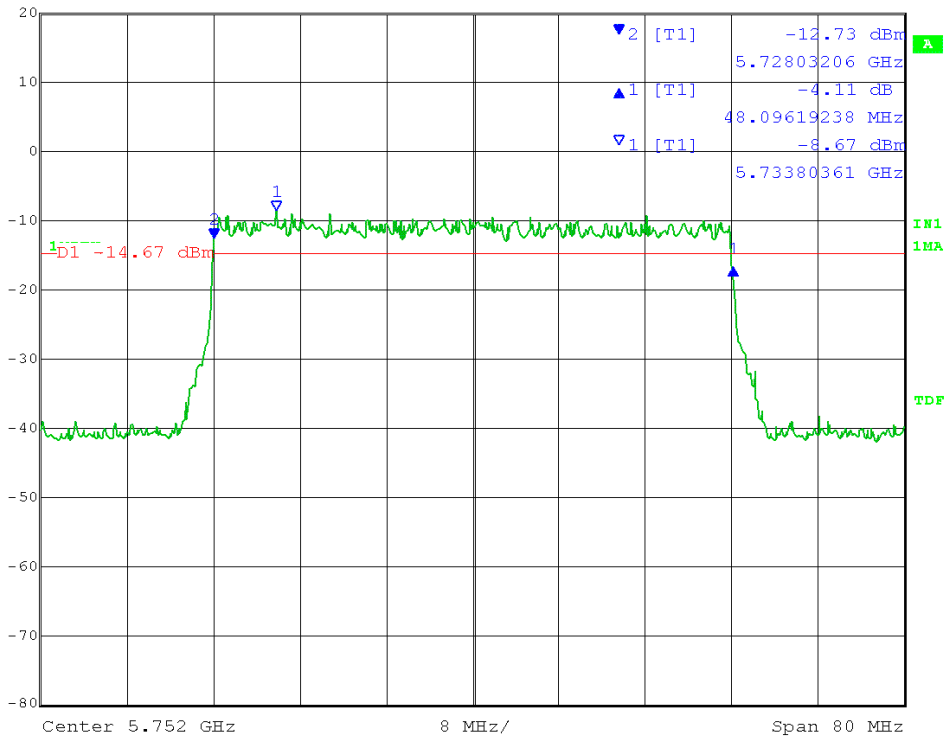
E Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    0.69 dB    VBW    300 kHz  
 0 dBm                    48.25651303 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:01:30

### TX1:

E Max/Ref Lvl    Delta 1 [T1]    REW    100 kHz    RF Att    20 dB  
 20 dBm                    -4.11 dB    VBW    300 kHz  
 0 dBm                    48.09619238 MHz    SWT    20 ms    Unit    dBm



Date: 5.NOV.2013 14:22:50



Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
DLS Project: 6172

166 South Carter, Genoa City, WI 53128

## Appendix – Measurement Data

### 2.0 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

40MHz Operating Bandwidth:

FCC Maximum Conducted Output Power	mW	40M				
		QPSK	16QAM	64QAM	256QAM	1024Q
FCC limit =1W(30dBm)	<i>EUT FCC limit:[15.247(b)(4)]</i>	<i>1,000.00</i>	<i>1,000.00</i>	<i>1,000.00</i>	<i>1,000.00</i>	<i>1,000.00</i>
HCH = 5828 MHz	TX0 (mW)	476.54	478.68	476.68	475.51	476.39
	TX1 (mW)	494.16	489.78	487.92	487.95	487.36
	total(mW)	<b>970.70</b>	<b>968.46</b>	<b>964.60</b>	<b>963.46</b>	<b>963.75</b>
	Margin(mW)	29.30	31.54	35.40	36.54	36.25
MCH = 5785 MHz	TX0	471.56	470.78	469.82	472.56	470.18
	TX1	487.66	488.56	488.42	488.78	488.92
	total(mW)	<b>959.22</b>	<b>959.34</b>	<b>958.24</b>	<b>961.34</b>	<b>959.10</b>
	Margin(mW)	40.78	40.66	41.76	38.66	40.90
LCH = 5727 MHz	TX0	485.78	483.12	483.21	482.98	495.23
	TX1	493.13	491.56	491.85	492.39	491.78
	total(mW)	<b>978.91</b>	<b>974.68</b>	<b>975.06</b>	<b>975.37</b>	<b>987.01</b>
	Margin(mW)	21.09	25.32	24.94	24.63	12.99

50MHz Operating Bandwidth:

FCC Maximum Conducted Output Power	mW	50MHz				
		QPSK	16QAM	64QAM	256QAM	1024Q
FCC limit =1W(30dBm)	<i>EUT FCC limit:[15.247(b)(4)]</i>	<i>1,000.00</i>	<i>1,000.00</i>	<i>1,000.00</i>	<i>1,000.00</i>	<i>1,000.00</i>
HCH = 5823 MHz	TX0 (mW)	500.12	499.85	499.87	499.89	499.72
	TX1 (mW)	495.23	498.22	497.23	498.55	498.75
	total(mW)	<b>995.35</b>	<b>998.07</b>	<b>997.10</b>	<b>998.44</b>	<b>998.47</b>
	Margin(mW)	4.65	1.93	2.90	1.56	1.53
MCH = 5785 MHz	TX0	474.48	475.25	474.98	475.34	487.52
	TX1	495.23	491.75	490.25	490.23	490.34
	total(mW)	<b>969.71</b>	<b>967.00</b>	<b>965.23</b>	<b>965.57</b>	<b>977.86</b>
	Margin(mW)	30.29	33.00	34.77	34.43	22.14
LCH = 5752 MHz	TX0	485.24	484.03	484.13	483.53	483.24
	TX1	489.78	488.79	487.92	488.92	491.34
	total(mW)	<b>975.02</b>	<b>972.82</b>	<b>972.05</b>	<b>972.45</b>	<b>974.58</b>
	Margin(mW)	24.98	27.18	27.95	27.55	25.42





Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
DLS Project: 6172

166 South Carter, Genoa City, WI 53128

## Appendix – Measurement Data

### 3.0 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:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .  
Set VBW  $\geq 3 \times \text{RBW}$ .  
Detector = power averaging (RMS) or sample detector (when RMS not available).  
Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span/RBW}$ .  
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

40MHz Operating Bandwidth:

Power Spectral Density (PSD)		40M				
		QPSK	16QAM	64QAM	256QAM	1024Q
FCC	dBm					
limit=8dBm/3kHz	EUT FCC Limit	8	8	8	8	8
HCH = 5828 MHz	TX0	0.51	0.28	0.19	0.27	0.69
	TX1	-0.65	-1.2	-1.28	-0.88	-0.12
	total(mW)	1.99	1.83	1.79	1.88	2.14
	Total(dBm)	<b>2.98</b>	<b>2.61</b>	<b>2.53</b>	<b>2.74</b>	<b>3.31</b>
	Margin(dB)	5.02	5.39	5.47	5.26	4.69
MCH = 5785 MHz	TX0	0.88	0.41	0.4	0.49	1.12
	TX1	-0.63	-1.34	-1.37	-0.94	-0.42
	total(mW)	2.09	1.83	1.83	1.92	2.20
	Total(dBm)	<b>3.20</b>	<b>2.63</b>	<b>2.61</b>	<b>2.84</b>	<b>3.43</b>
	Margin(dB)	4.80	5.37	5.39	5.16	4.57
LCH = 5727 MHz	TX0	-1.9	-2.17	-2.16	-2.14	-1.52
	TX1	-1.72	-1.85	-1.91	-1.88	-1.28
	total(mW)	1.32	1.26	1.25	1.26	1.45
	Total(dBm)	<b>1.20</b>	<b>1.00</b>	<b>0.98</b>	<b>1.00</b>	<b>1.61</b>
	Margin(dB)	6.80	7.00	7.02	7.00	6.39

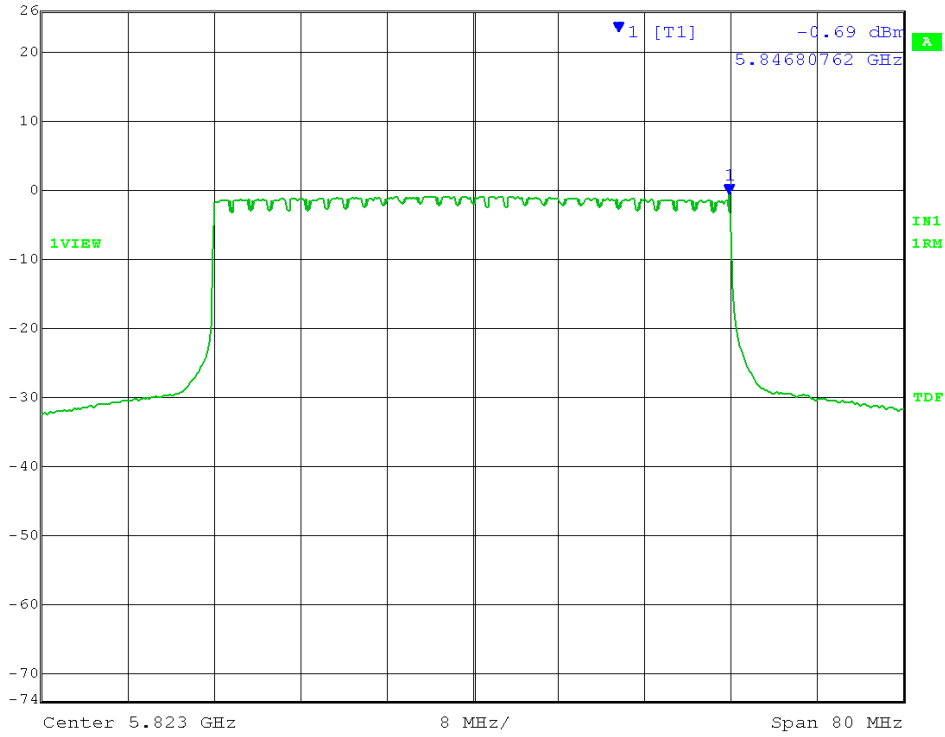
50MHz Operating Bandwidth:

Power Spectral Density (PSD)	dBm	50MHz				
		QPSK	16QAM	64QAM	256QAM	1024Q
FCC limit=8dBm/3kHz	EUT FCC Limit	8	8	8	8	8
HCH = 5823 MHz	TX0	-0.69	-0.44	-0.58	-0.52	0.33
	TX1	-1.3	-1.98	-1.93	-1.61	-0.74
	total(mW)	1.59	1.54	1.52	1.58	1.92
	Total(dBm)	<b>2.03</b>	<b>1.87</b>	<b>1.81</b>	<b>1.98</b>	<b>2.84</b>
	Margin(dB)	5.97	6.13	6.19	6.02	5.16
MCH = 5785 MHz	TX0	-0.01	-0.36	-0.38	-0.31	0.83
	TX1	-1.25	-2.01	-1.92	-1.51	-0.63
	total(mW)	1.75	1.55	1.56	1.64	2.08
	Total(dBm)	<b>2.42</b>	<b>1.90</b>	<b>1.93</b>	<b>2.14</b>	<b>3.17</b>
	Margin(dB)	5.58	6.10	6.07	5.86	4.83
LCH = 5752 MHz	TX0	-2.9	-2.89	-2.89	-2.81	-2.03
	TX1	-2.28	-2.65	-2.64	-2.59	-1.44
	total(mW)	1.10	1.06	1.06	1.07	1.34
	Total(dBm)	<b>0.43</b>	<b>0.24</b>	<b>0.25</b>	<b>0.31</b>	<b>1.29</b>
	Margin(dB)	7.57	7.76	7.75	7.69	6.71

PLOTS: For 50MHz Bandwidth & 40MHz Bandwidth

# 50MHz HCH QPSK TX0

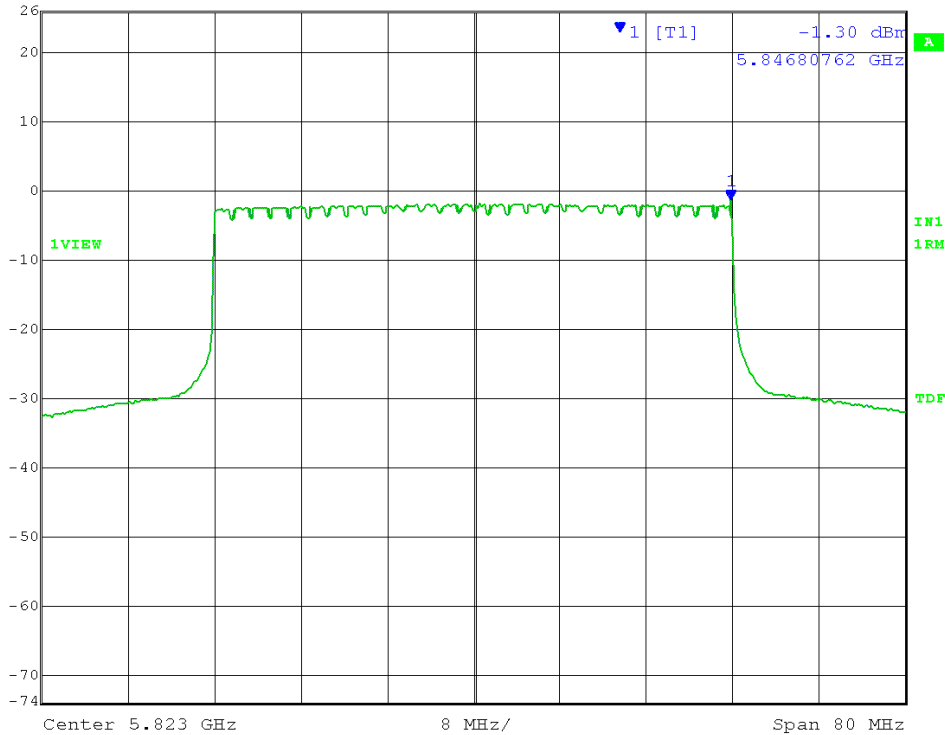
Max/Ref Lvl Marker 1 [T1] RBW 50 kHz RF Att 20 dB  
26 dBm -0.69 dBm VBW 200 kHz  
-10 dBm 5.84680762 GHz SWT 80 ms Unit dBm



Date: 6.NOV.2013 14:22:54

# TX1

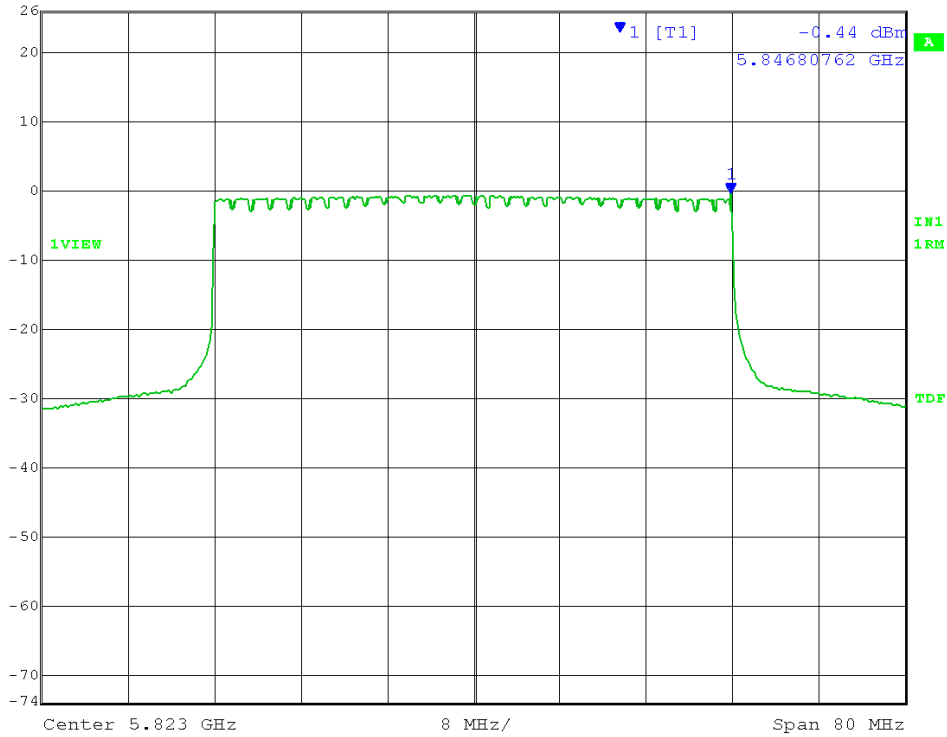
Max/Ref Lvl Marker 1 [T1] RBW 50 kHz RF Att 20 dB  
26 dBm -1.30 dBm VBW 200 kHz  
-10 dBm 5.84680762 GHz SWT 80 ms Unit dBm



Date: 6.NOV.2013 14:16:15

# 50MHz HCH 16QAM TX0

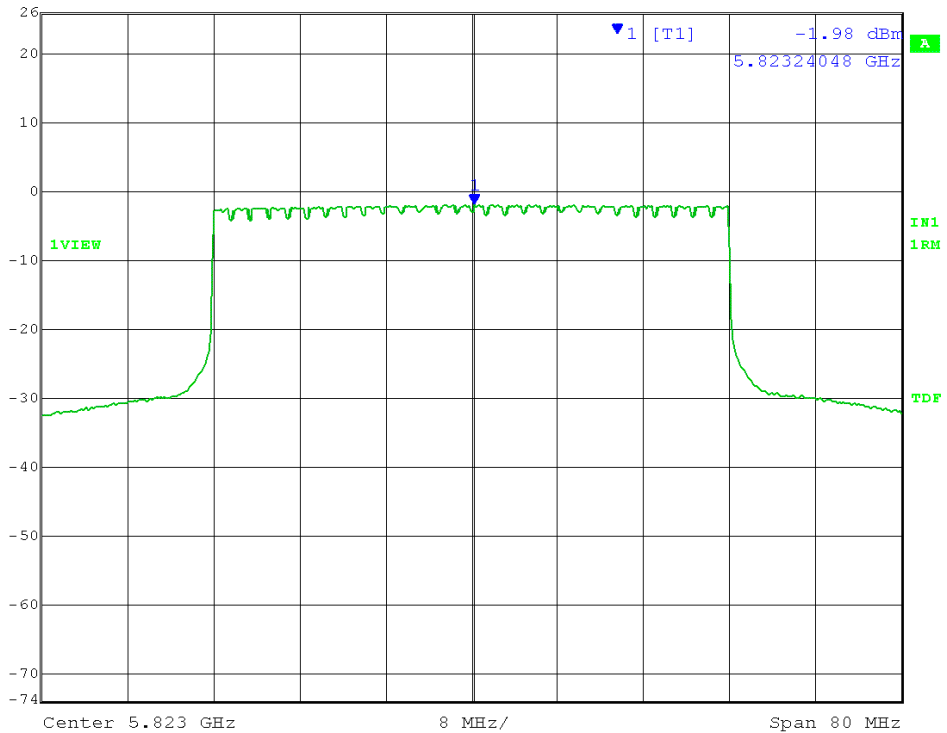
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -0.44 dBm  
5.84680762 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:23:34

# TX1

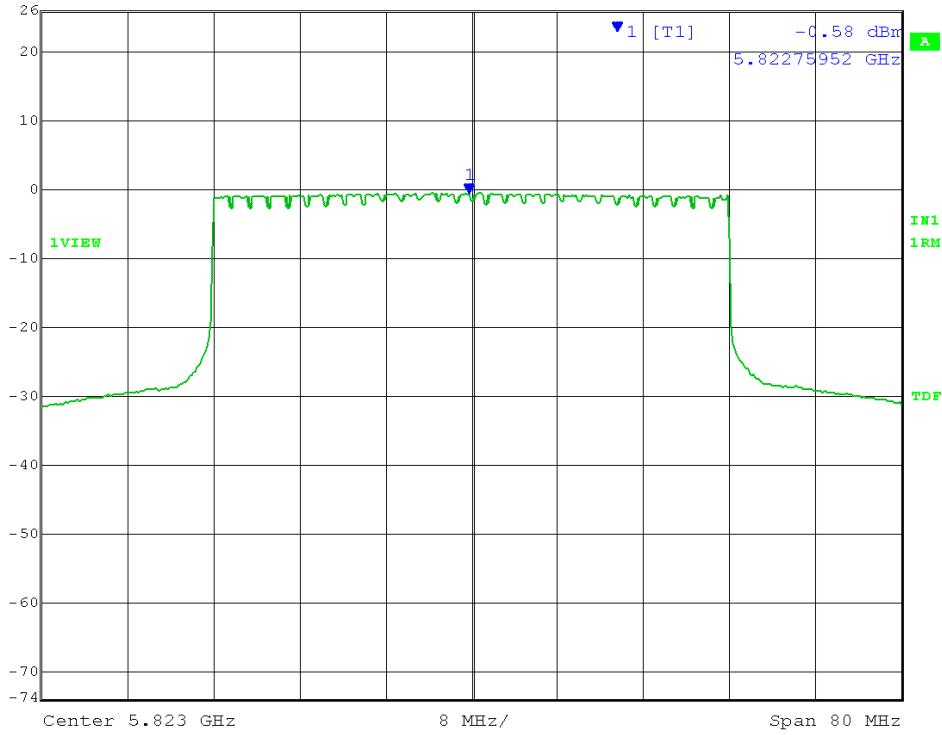
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -1.98 dBm  
5.82324048 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:16:45

# 50MHz HCH 64QAM TX0

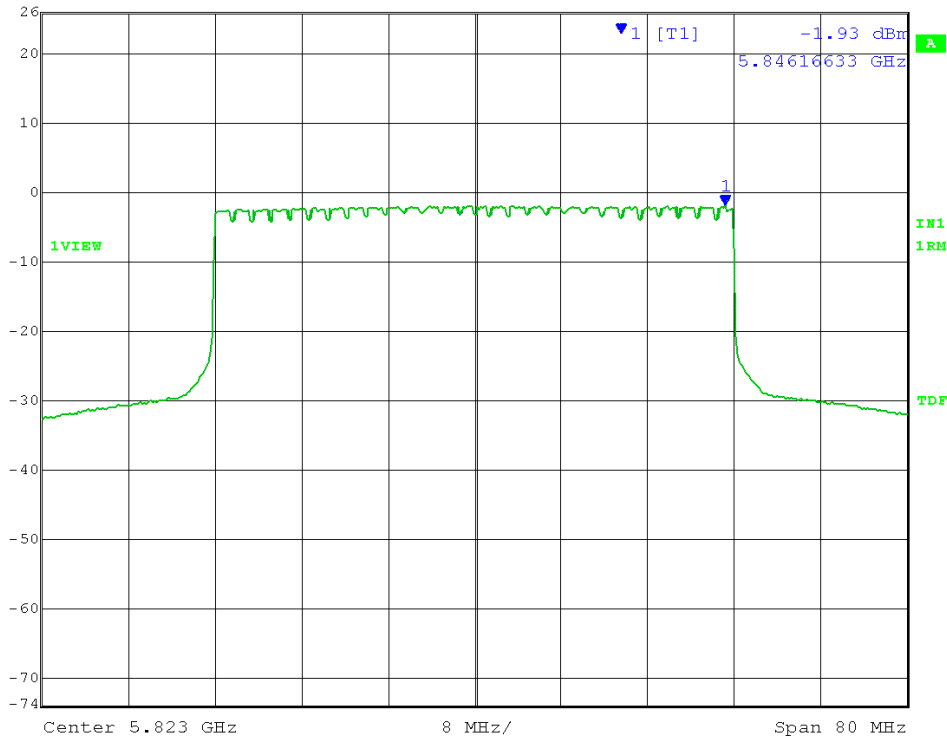
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -0.58 dBm  
5.82275952 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:24:31

# TX1

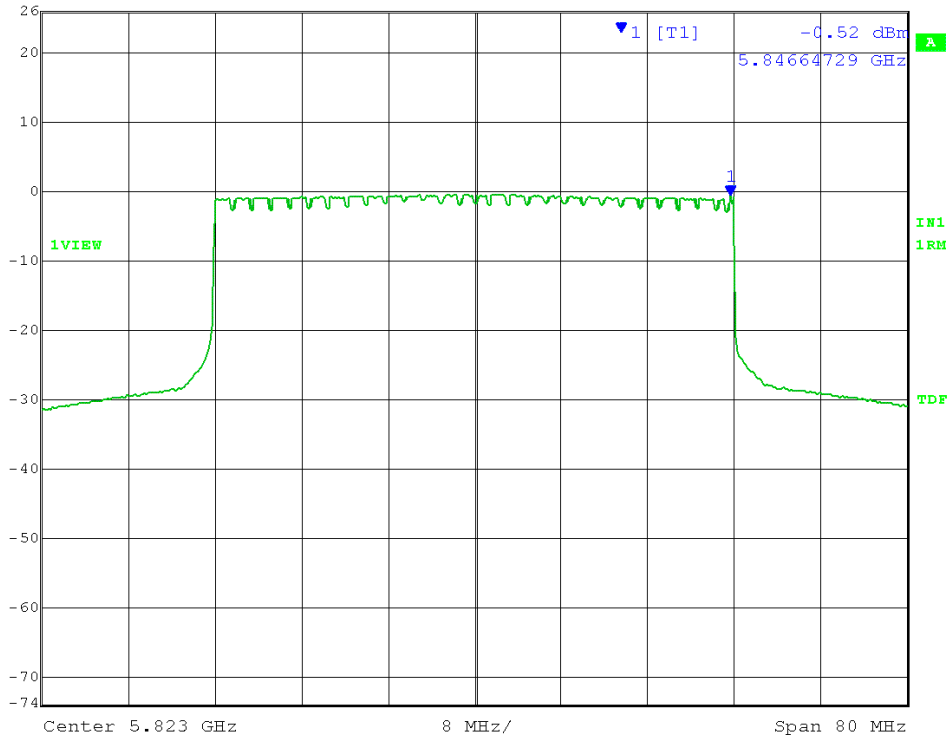
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -1.93 dBm  
5.84616633 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:17:18

# 50MHz HCH 256QAM TX0

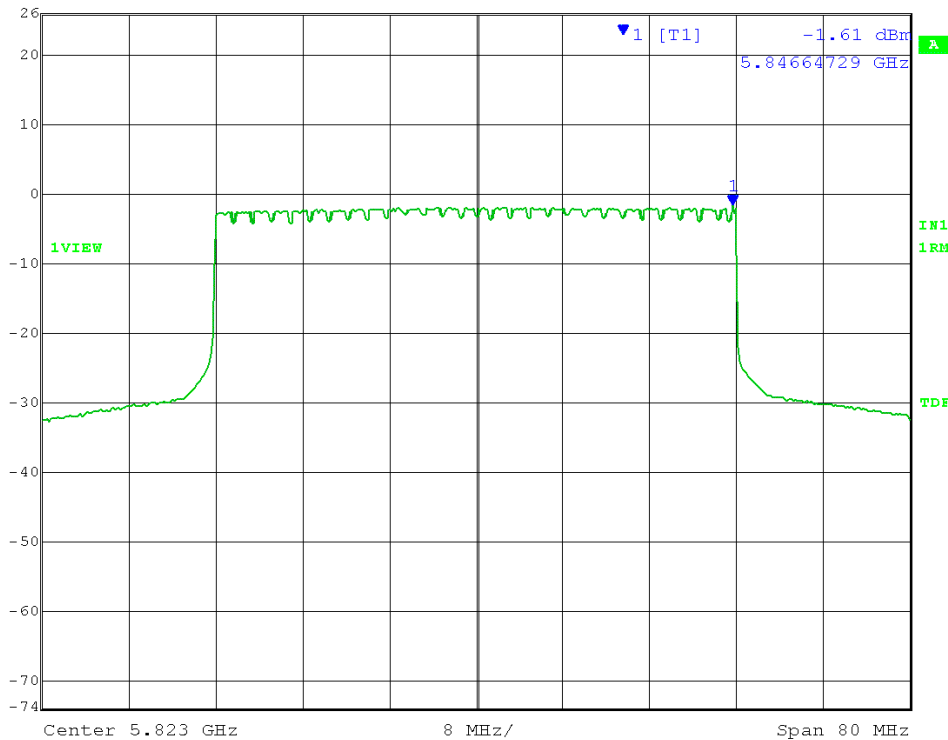
Max/Ref Lvl Marker 1 [T1] RBW 50 kHz RF Att 20 dB  
26 dBm -0.52 dBm VEW 200 kHz  
-10 dBm 5.84664729 GHz SWT 80 ms Unit dBm



Date: 6.NOV.2013 14:25:02

# TX1

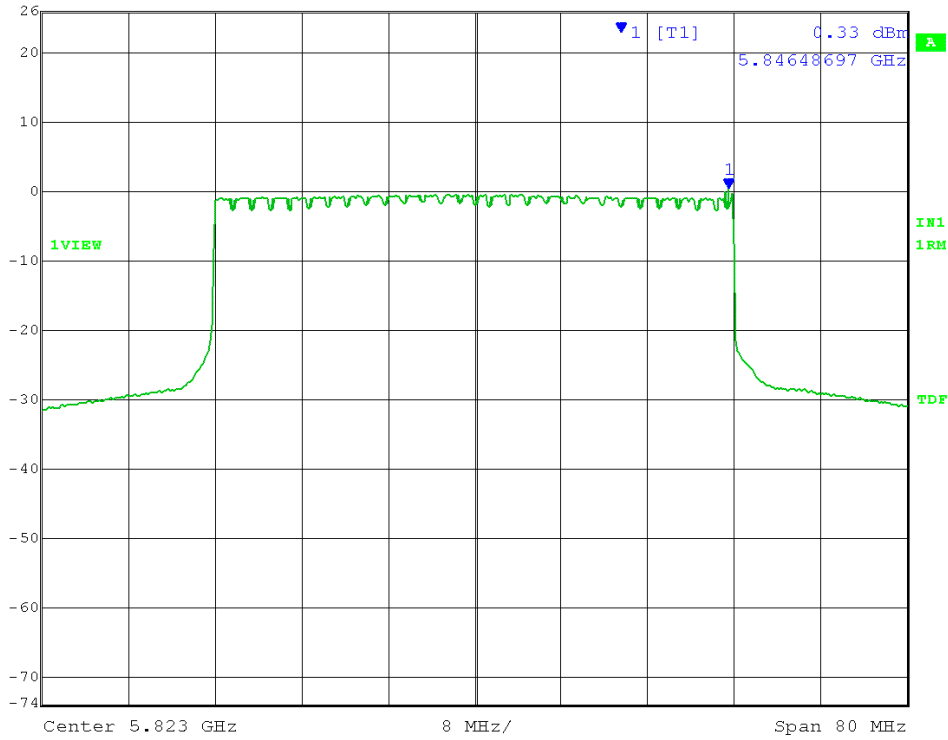
Max/Ref Lvl Marker 1 [T1] RBW 50 kHz RF Att 20 dB  
26 dBm -1.61 dBm VEW 200 kHz  
-10 dBm 5.84664729 GHz SWT 80 ms Unit dBm



Date: 6.NOV.2013 14:17:47

# 50MHz HCH 1024QAM TX0

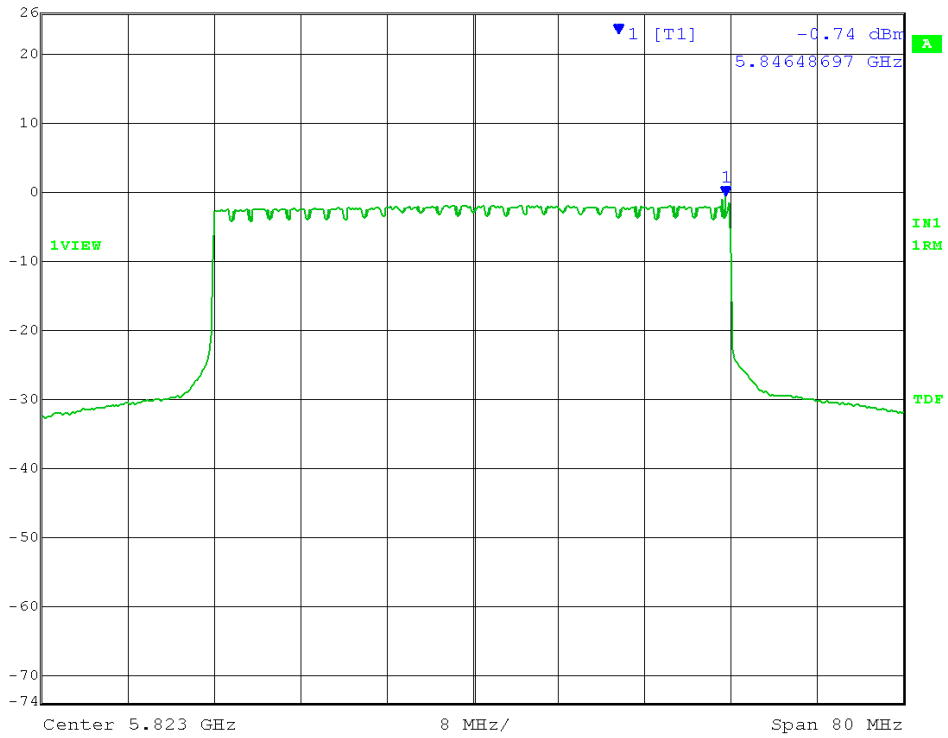
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] 0.33 dBm  
5.84648697 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:25:35

# TX1

Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -0.74 dBm  
5.84648697 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm

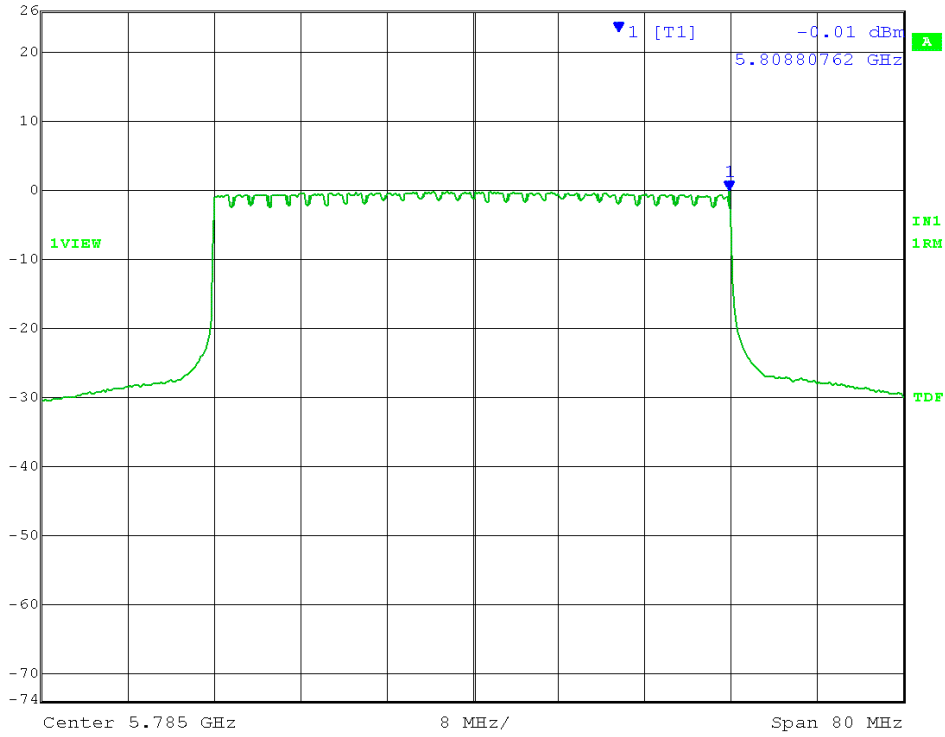


Date: 6.NOV.2013 14:18:24



# 50MHz MCH QPSK TX0

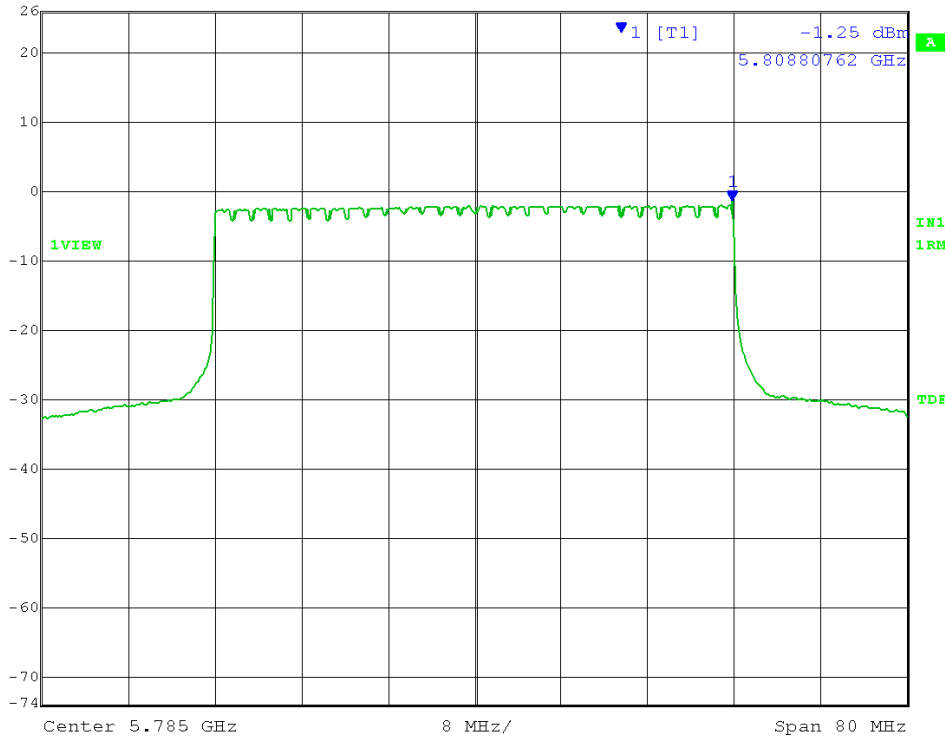
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -0.01 dBm  
5.80880762 GHz  
REW 50 kHz  
VBW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:26:23

# TX1

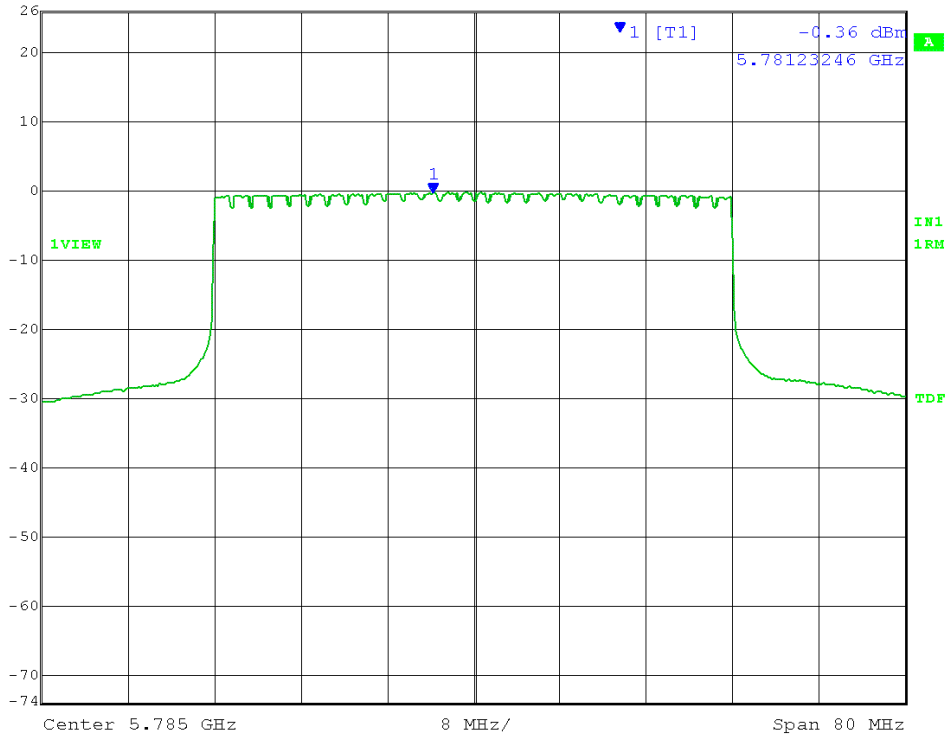
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -1.25 dBm  
5.80880762 GHz  
REW 50 kHz  
VBW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



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

# 50MHz MCH 16QAM TX0

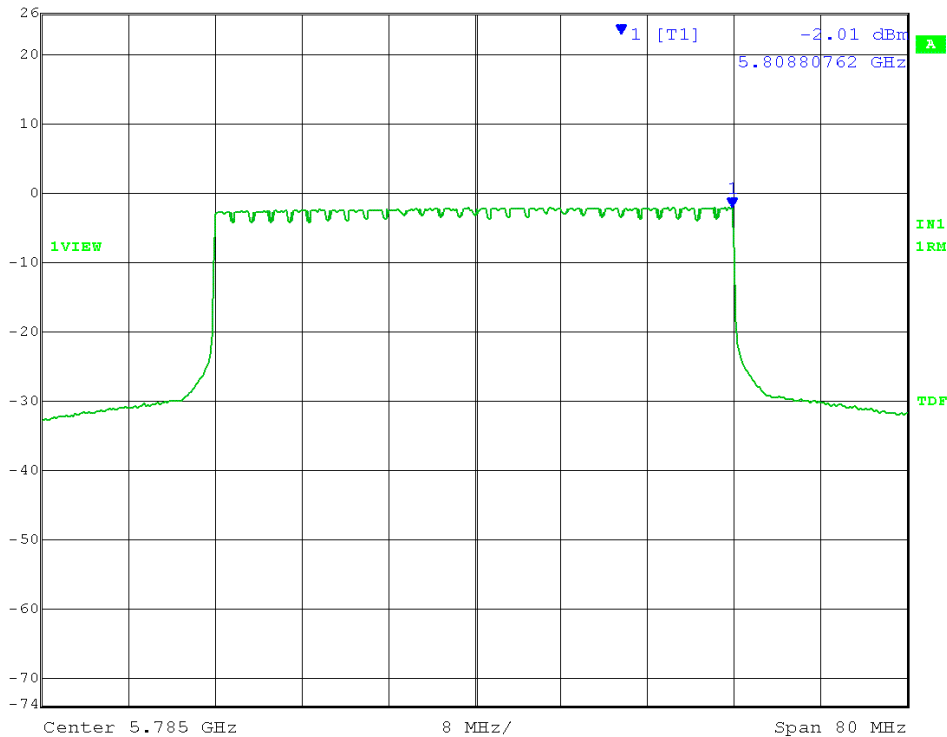
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -0.36 dBm  
5.78123246 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:27:03

# TX1

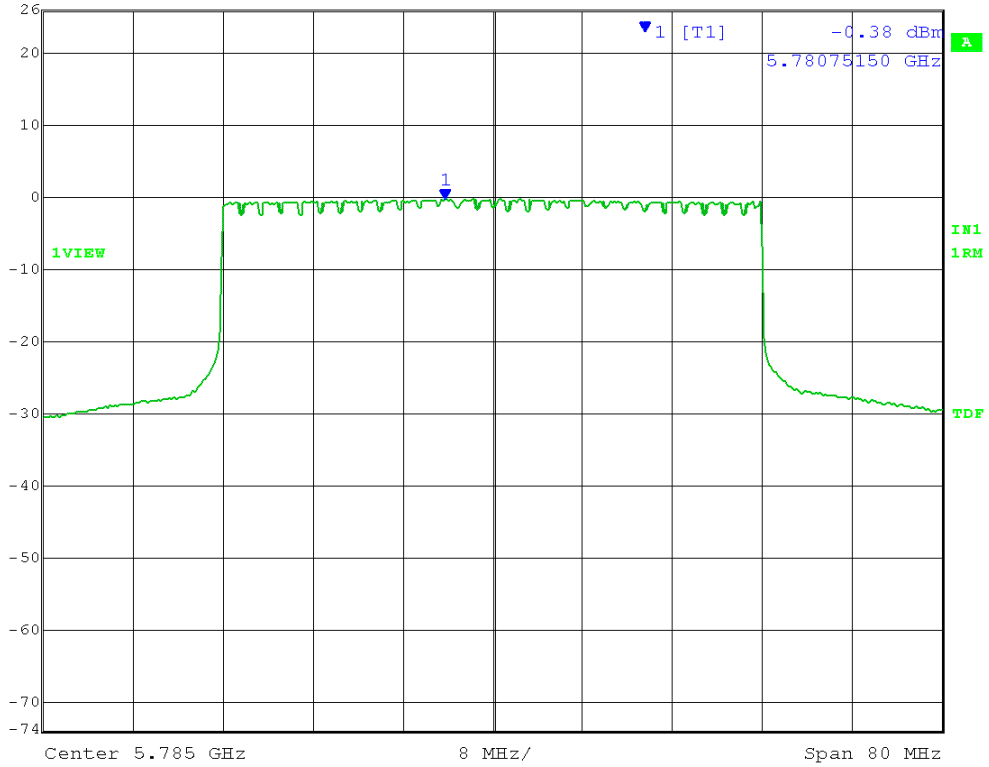
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -2.01 dBm  
5.80880762 GHz  
RBW 50 kHz  
VEW 200 kHz  
RF Att 20 dB  
SWT 80 ms  
Unit dBm



Date: 6.NOV.2013 14:13:49

# 50MHz MCH 64QAM TX0

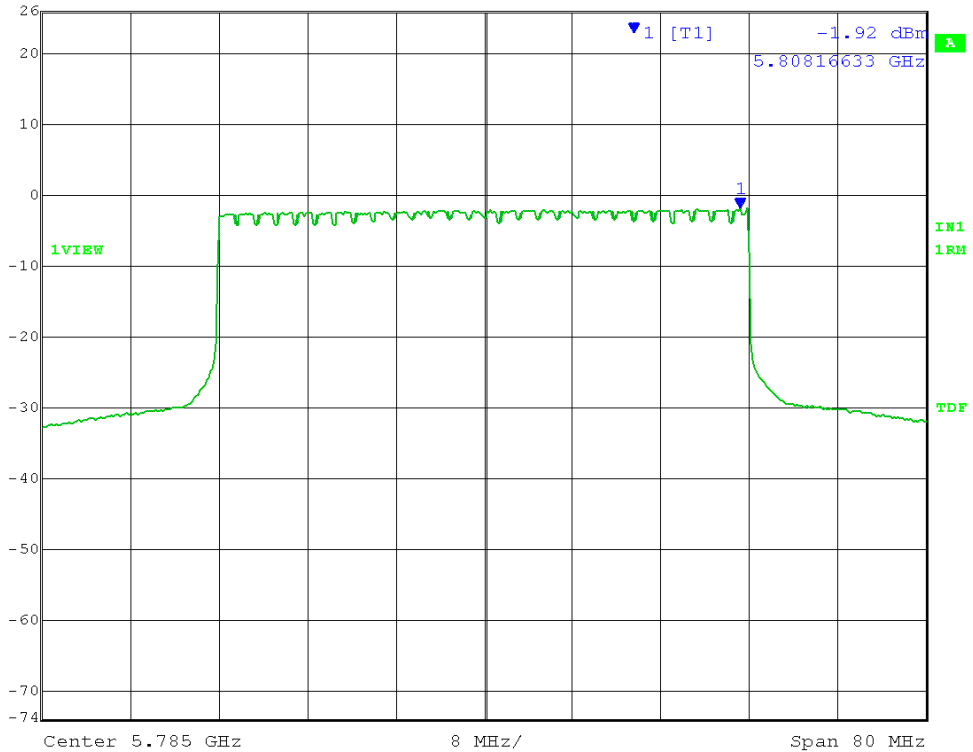
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -0.38 dBm    VBW    200 kHz  
-10 dBm                            5.78075150 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:27:40

# TX1

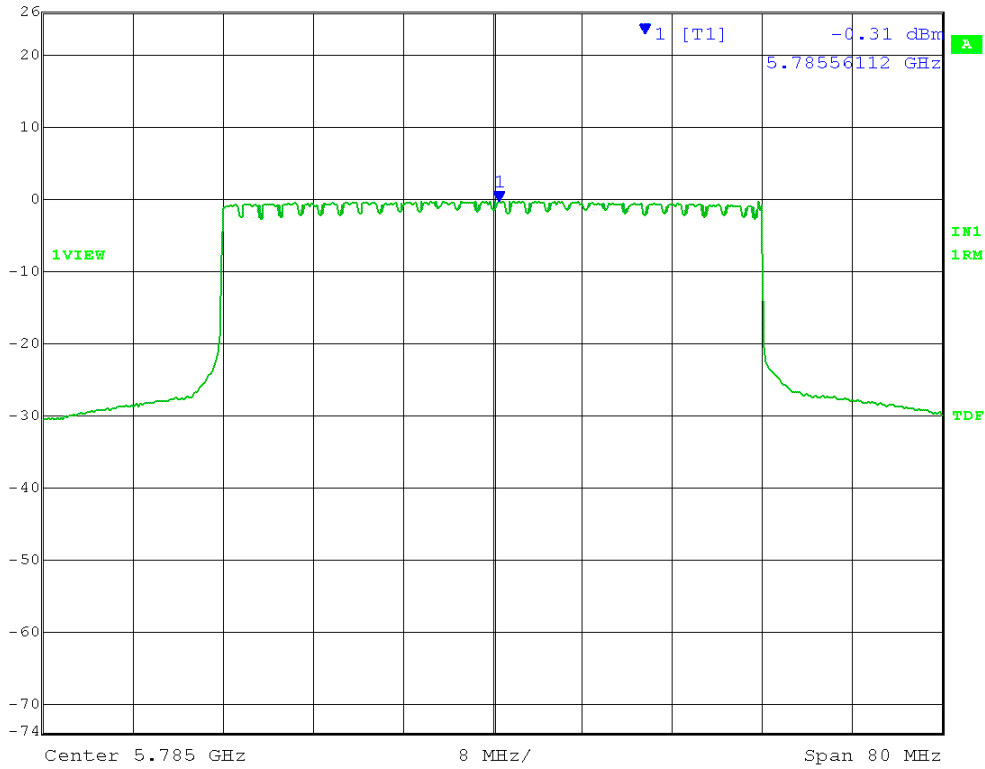
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.92 dBm    VBW    200 kHz  
-10 dBm                            5.80816633 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:14:19

# 50MHz MCH 256QAM TX0

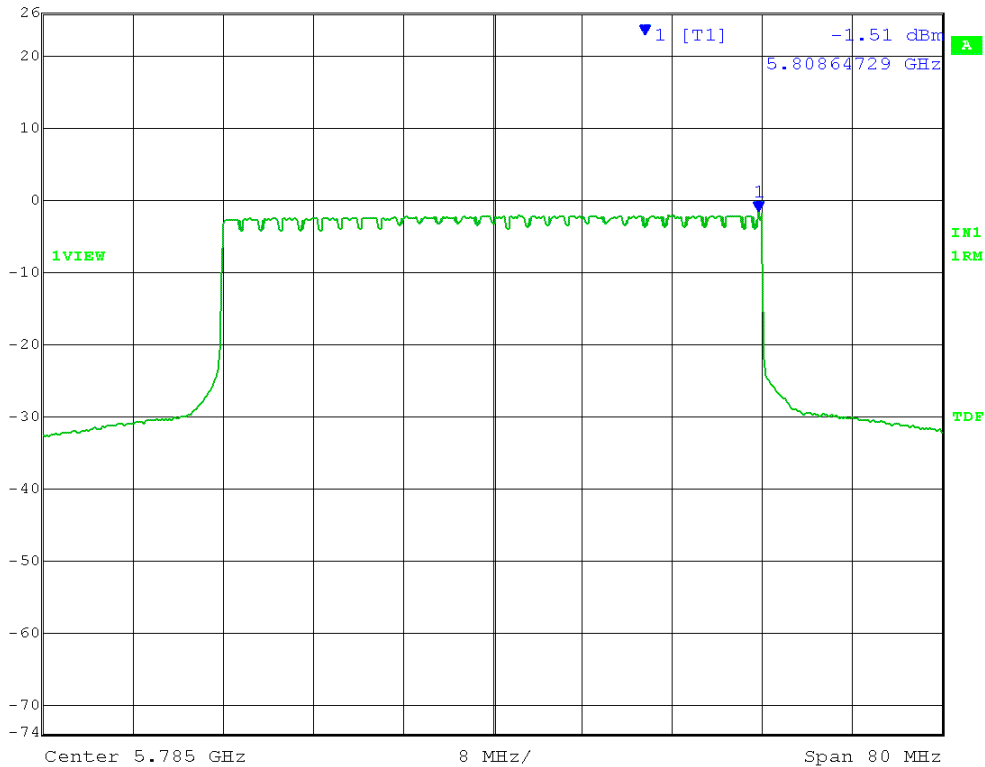
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -0.31 dBm    VBW    200 kHz  
-10 dBm                            5.78556112 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:28:16

# TX1

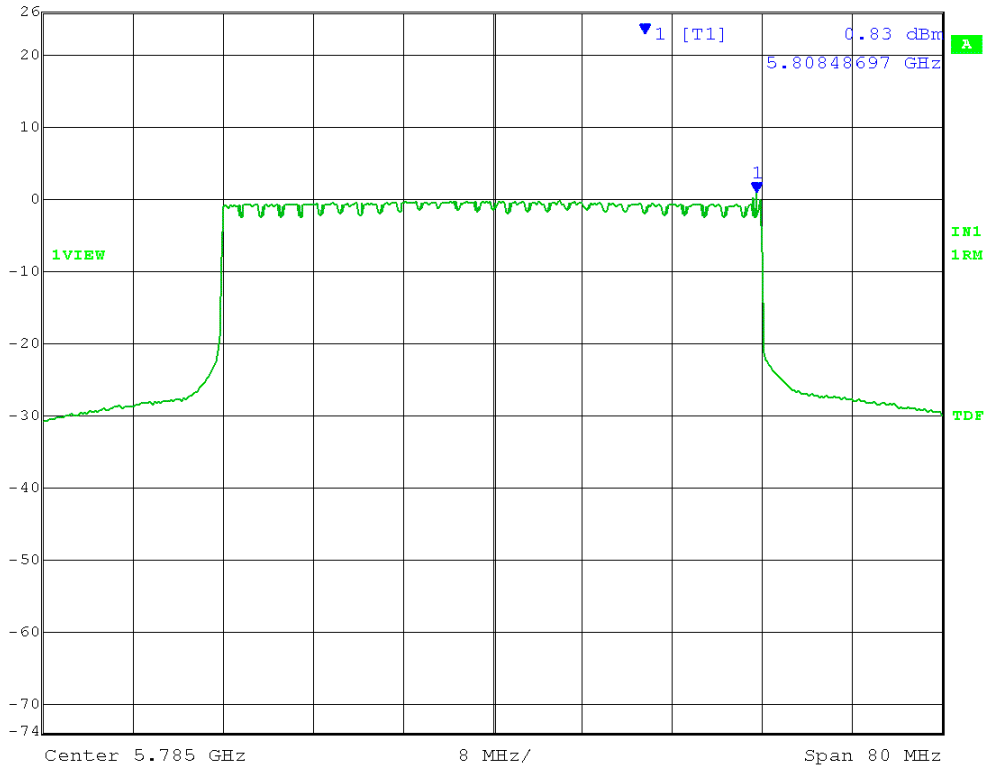
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.51 dBm    VBW    200 kHz  
-10 dBm                            5.80864729 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:14:51

# 50MHz MCH 1024QAM TX0

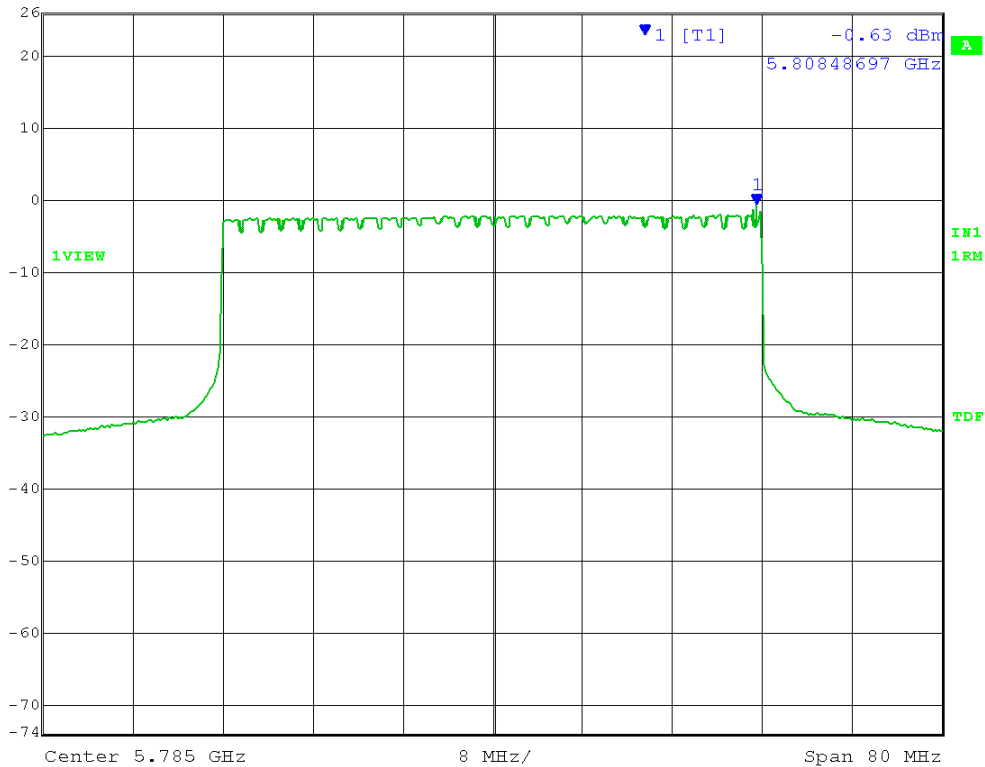
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.83 dBm    VBW    200 kHz  
-10 dBm                            5.80848697 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:28:48

# TX1

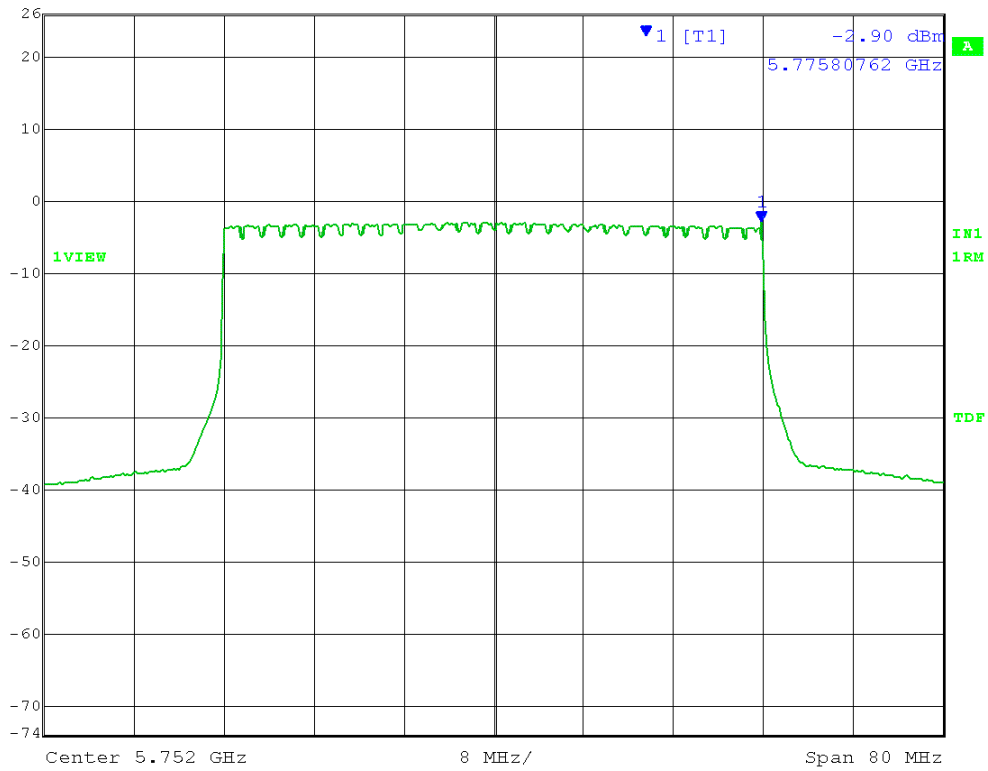
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -0.63 dBm    VBW    200 kHz  
-10 dBm                            5.80848697 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:15:23

# 50MHz LCH QPSK TX0

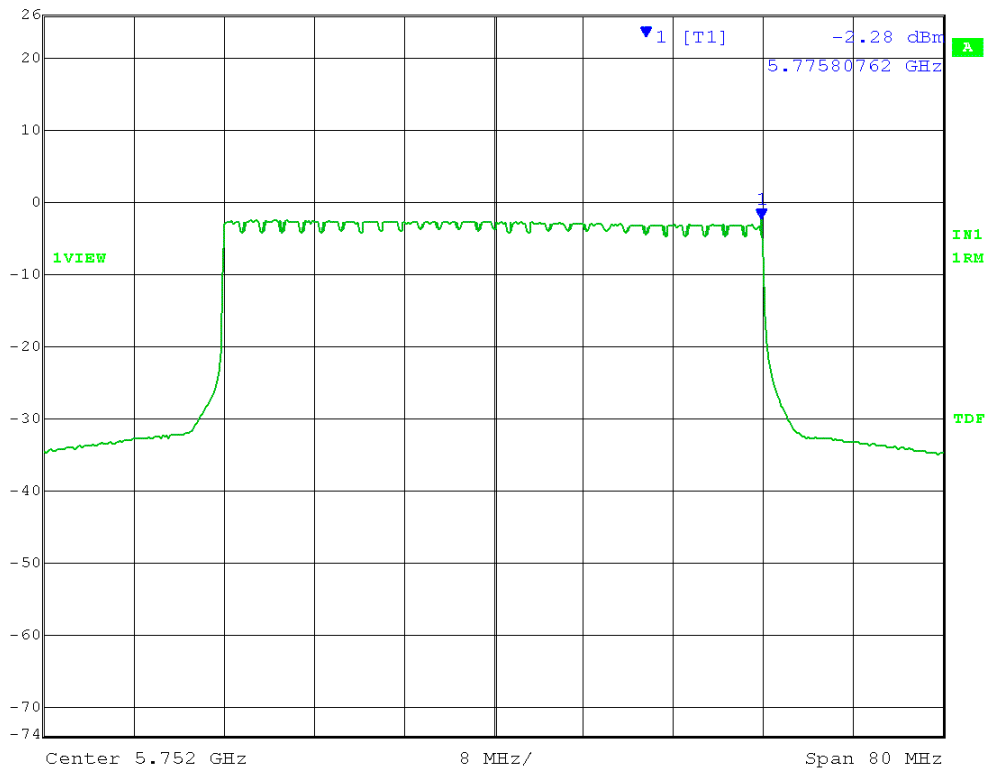
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.90 dBm    VBW    200 kHz  
-10 dBm                            5.77580762 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:29:30

# TX1

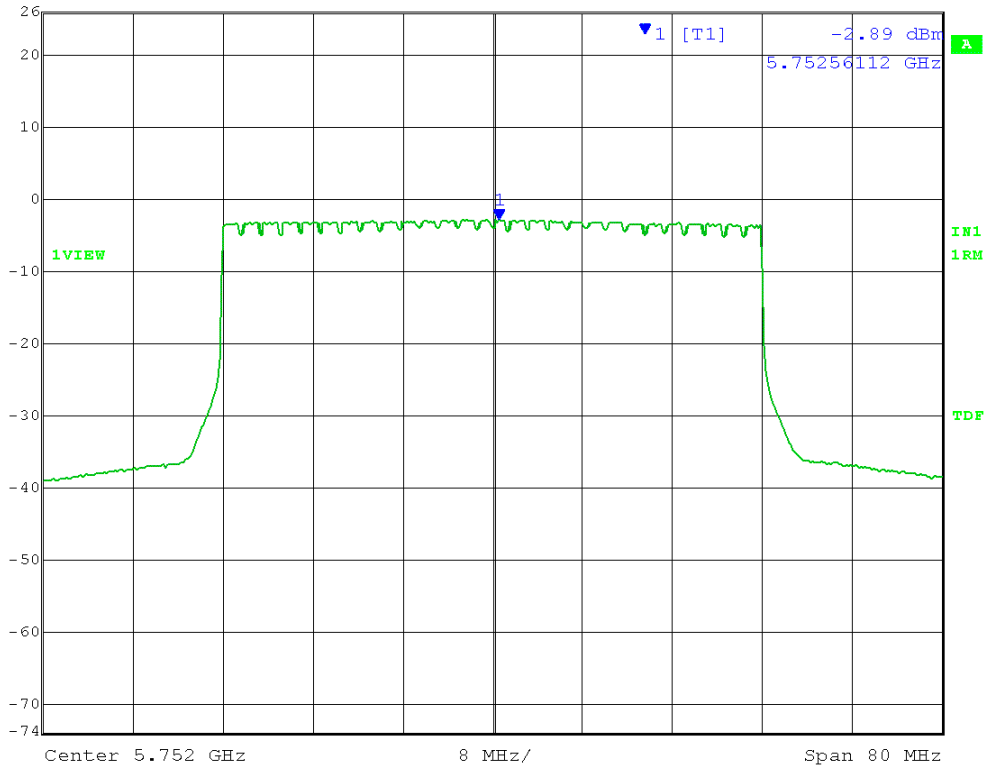
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.28 dBm    VBW    200 kHz  
-10 dBm                            5.77580762 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:10:24

# 50MHz LCH 16QAM TX0

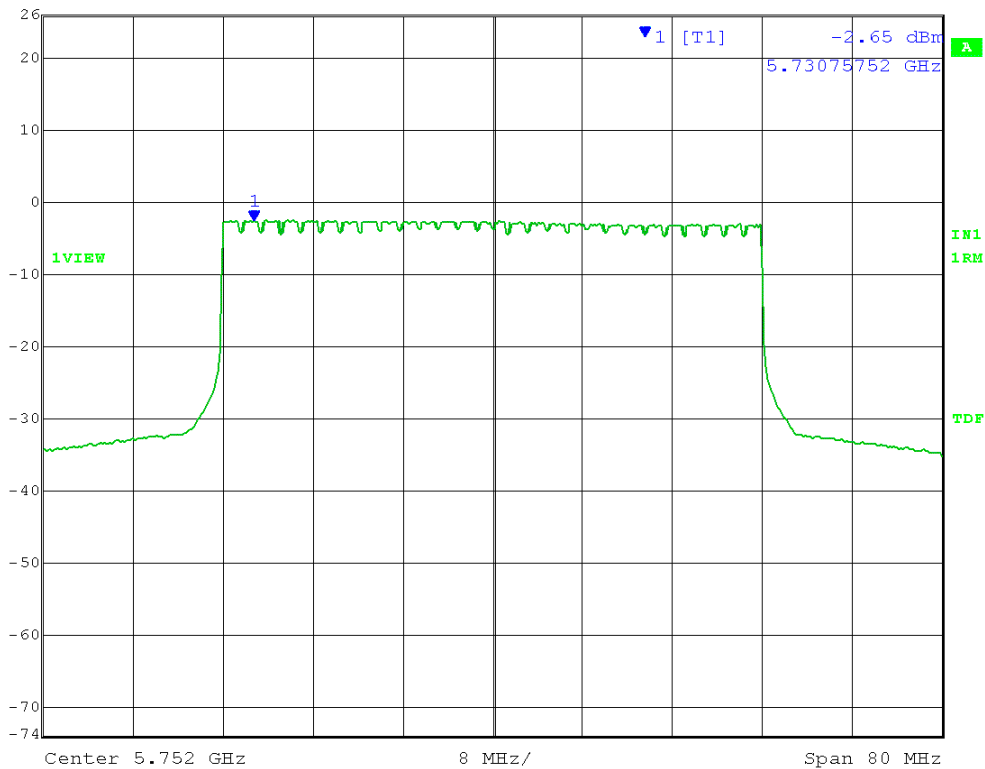
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.89 dBm    VBW    200 kHz  
-10 dBm                            5.75256112 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:30:11

# TX1

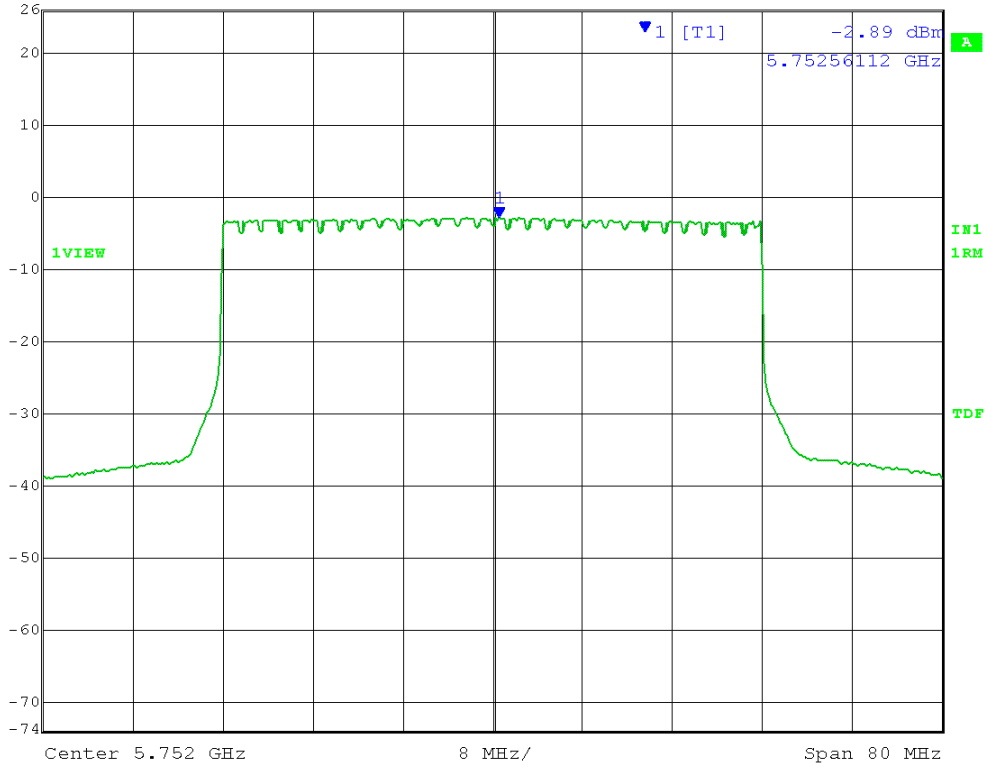
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.65 dBm    VBW    200 kHz  
-10 dBm                            5.73075752 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:10:53

# 50MHz LCH 64QAM TX0

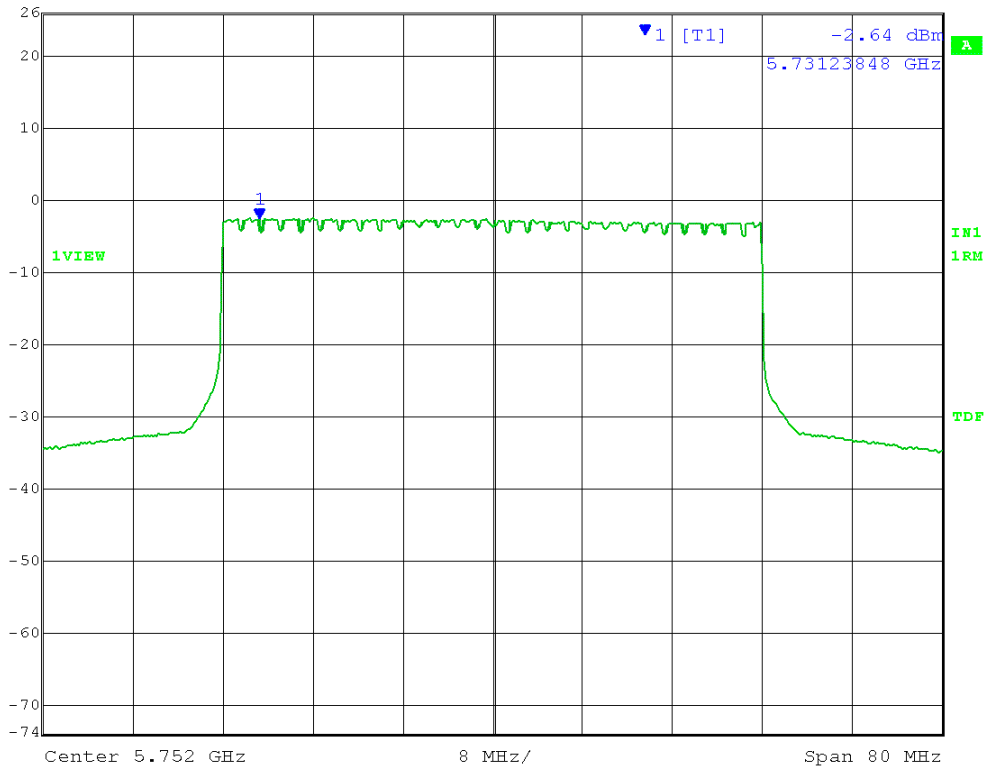
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.89 dBm    VBW    200 kHz  
-10 dBm                            5.75256112 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:30:42

# TX1

Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.64 dBm    VBW    200 kHz  
-10 dBm                            5.73123848 GHz    SWT    80 ms    Unit    dBm

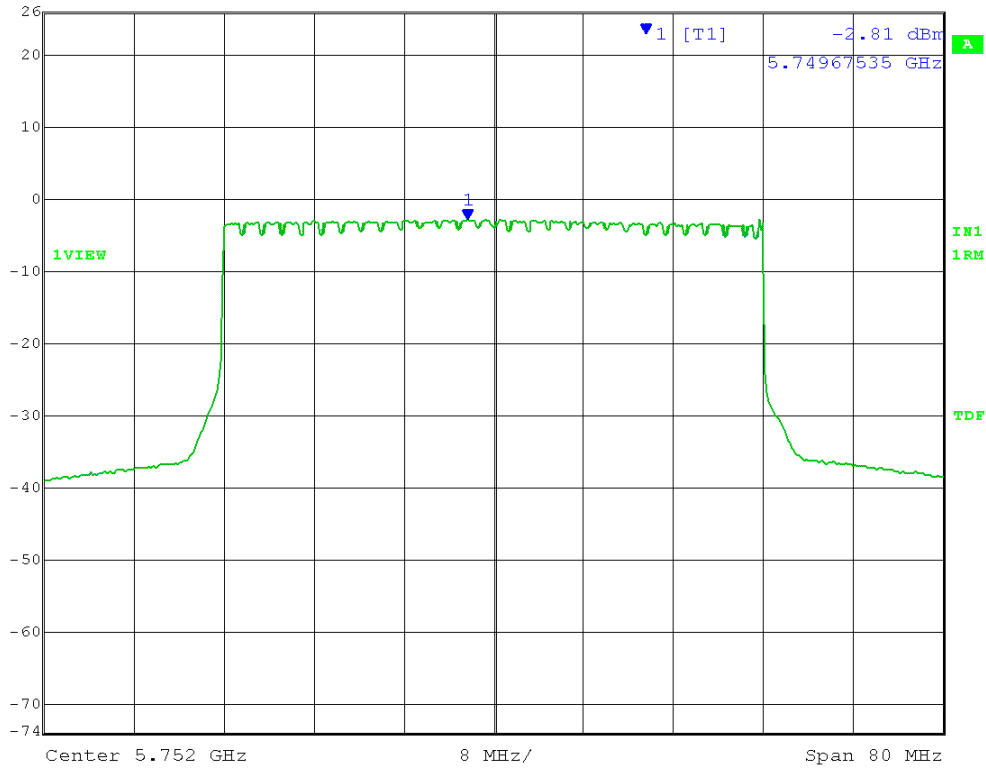


Date: 6.NOV.2013 14:11:23



# 50MHz LCH 256QAM TX0

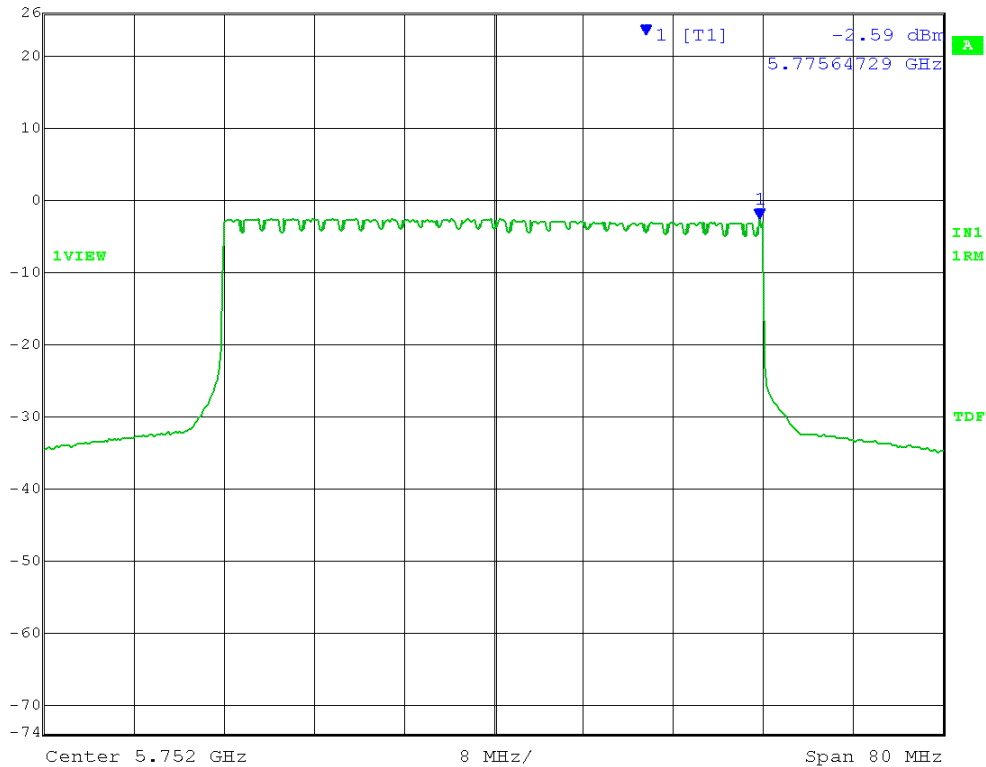
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.81 dBm    VBW    200 kHz  
-10 dBm                            5.74967535 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:31:14

# TX1

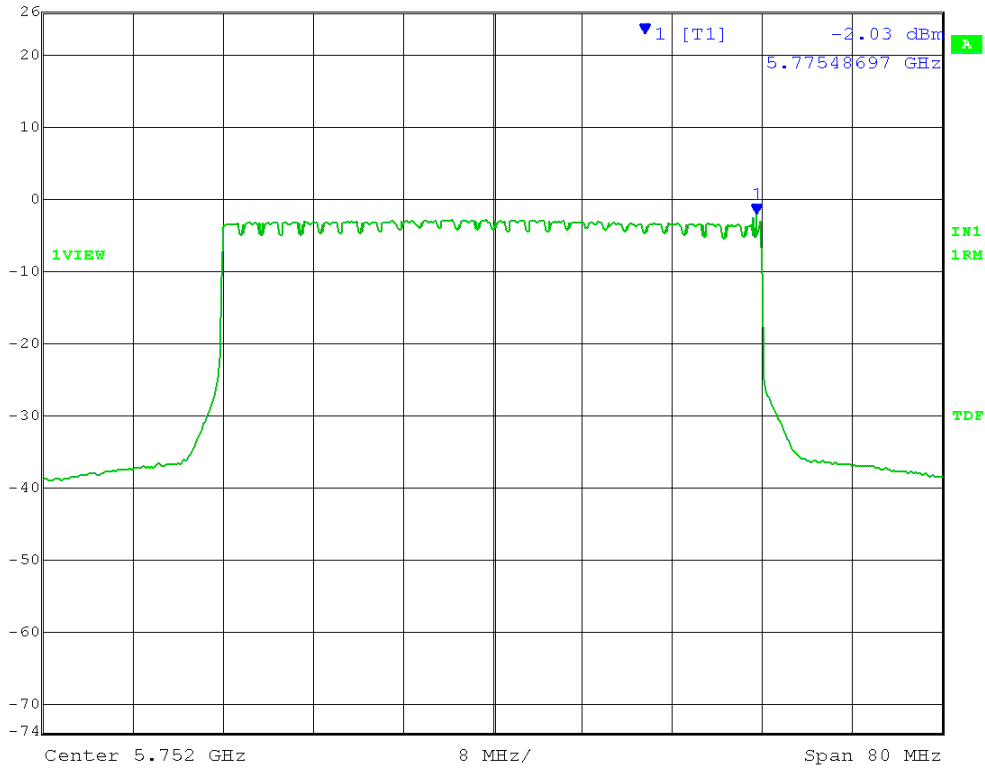
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.59 dBm    VBW    200 kHz  
-10 dBm                            5.77564729 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:11:57

# 50MHz LCH 1024QAM TX0

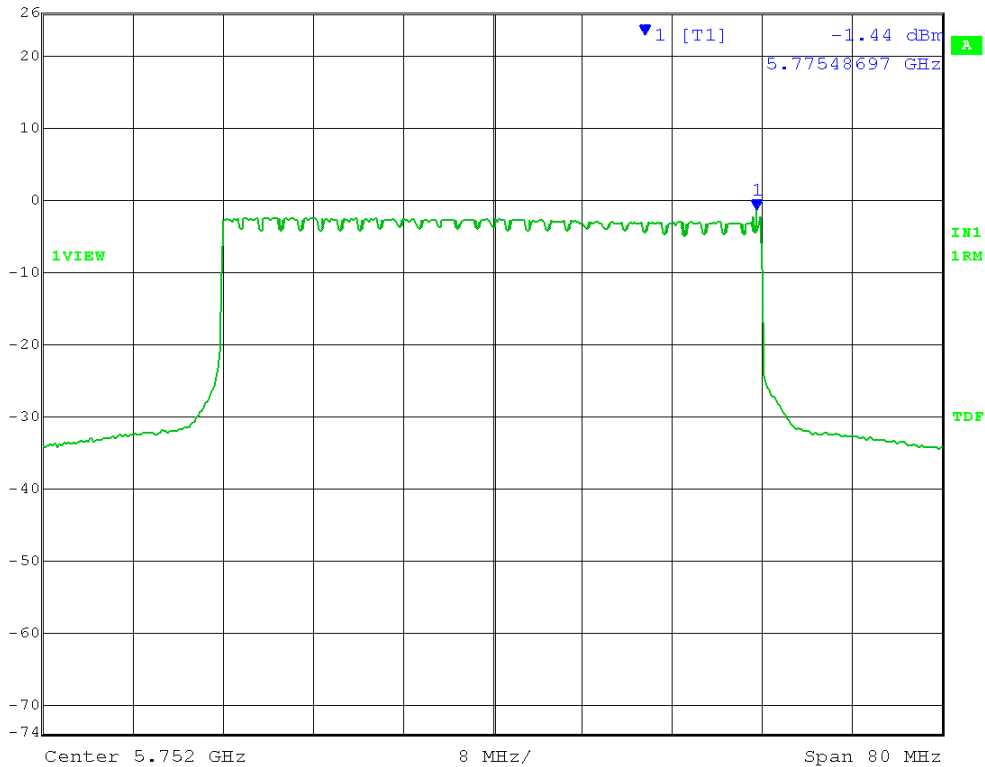
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.03 dBm    VBW    200 kHz  
-10 dBm                            5.77548697 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:31:49

# TX1

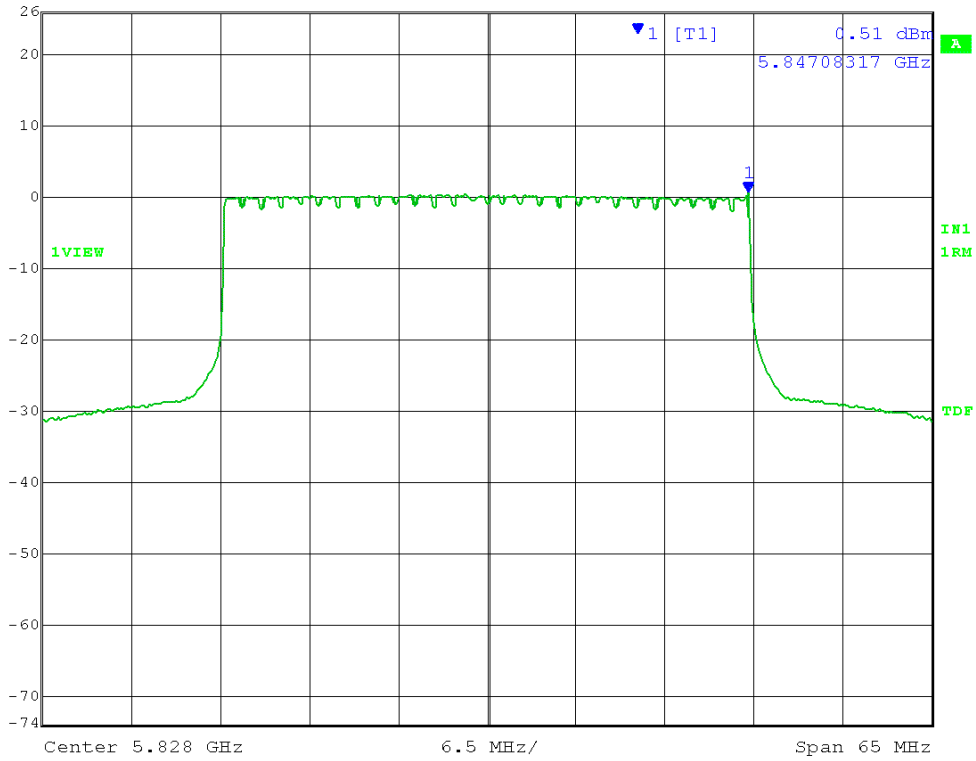
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.44 dBm    VBW    200 kHz  
-10 dBm                            5.77548697 GHz    SWT    80 ms    Unit    dBm



Date: 6.NOV.2013 14:12:26

# 40MHz HCH QPSK TX0

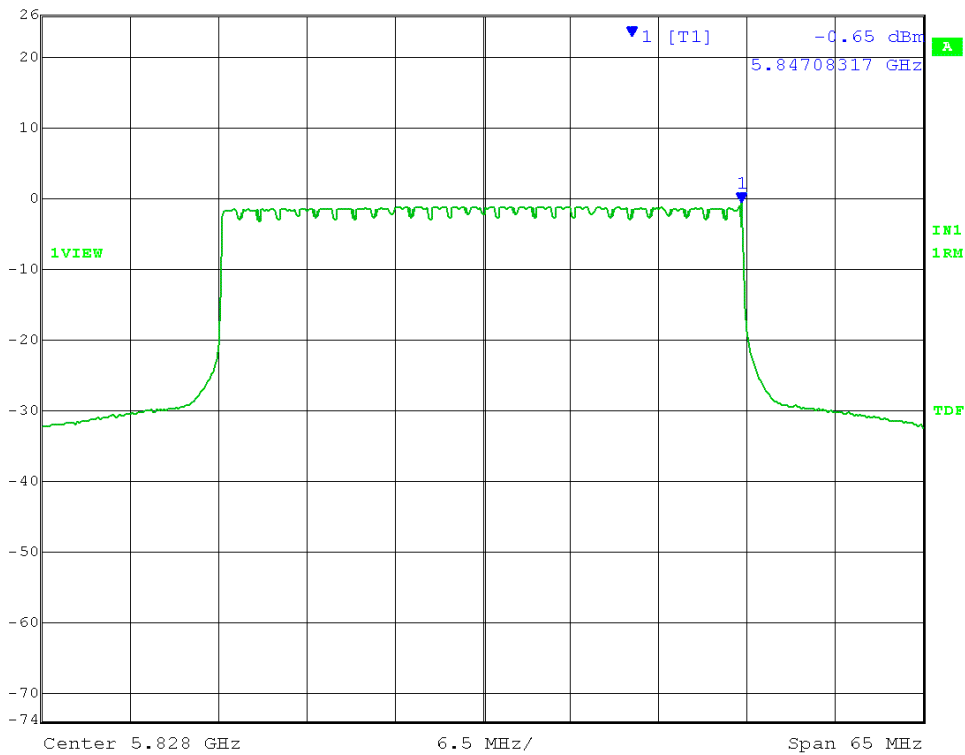
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] 0.51 dBm  
5.84708317 GHz  
RBW 50 kHz  
VBW 200 kHz  
RF Att 20 dB  
SWT 66 ms  
Unit dBm



Date: 6.NOV.2013 14:33:07

# TX1

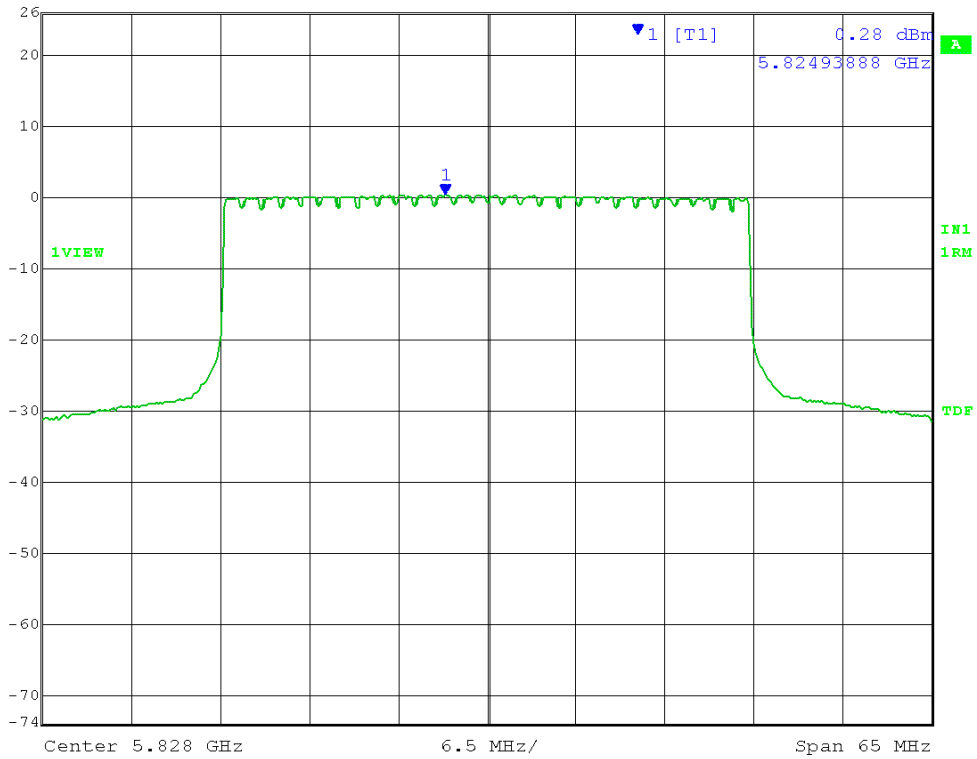
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -0.65 dBm  
5.84708317 GHz  
RBW 50 kHz  
VBW 200 kHz  
RF Att 20 dB  
SWT 66 ms  
Unit dBm



Date: 6.NOV.2013 13:56:57

# 40MHz HCH 16QAM TX0

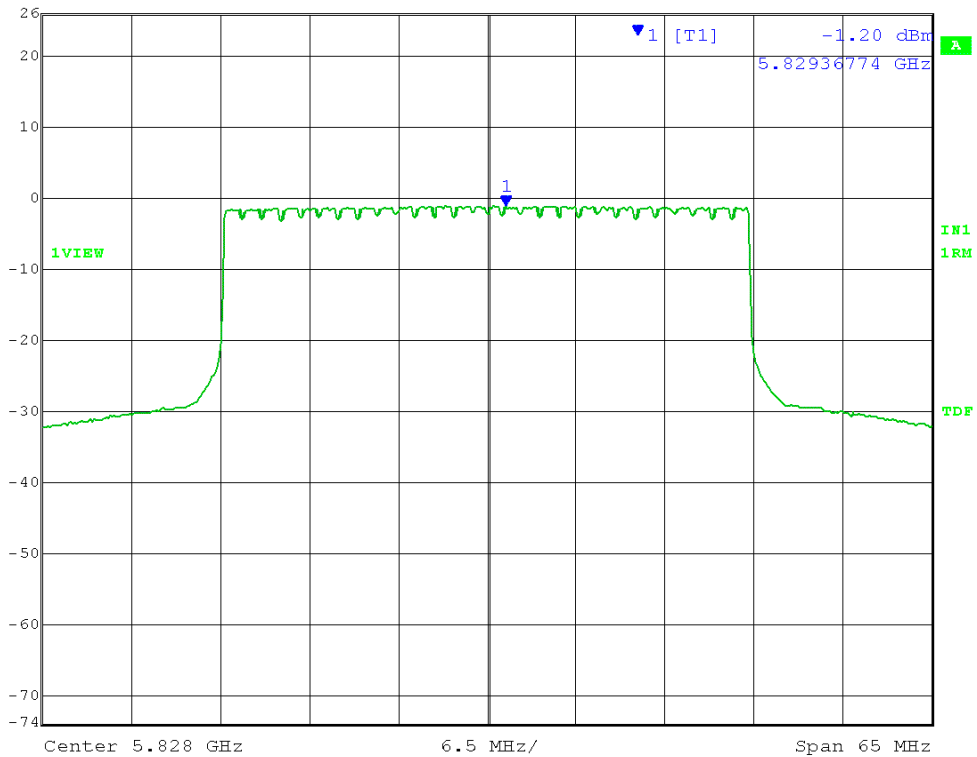
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.28 dBm    VBW    200 kHz  
-10 dBm                            5.82493888 GHz    SWT    66 ms    Unit            dBm



Date:            6.NOV.2013    14:33:38

# TX1

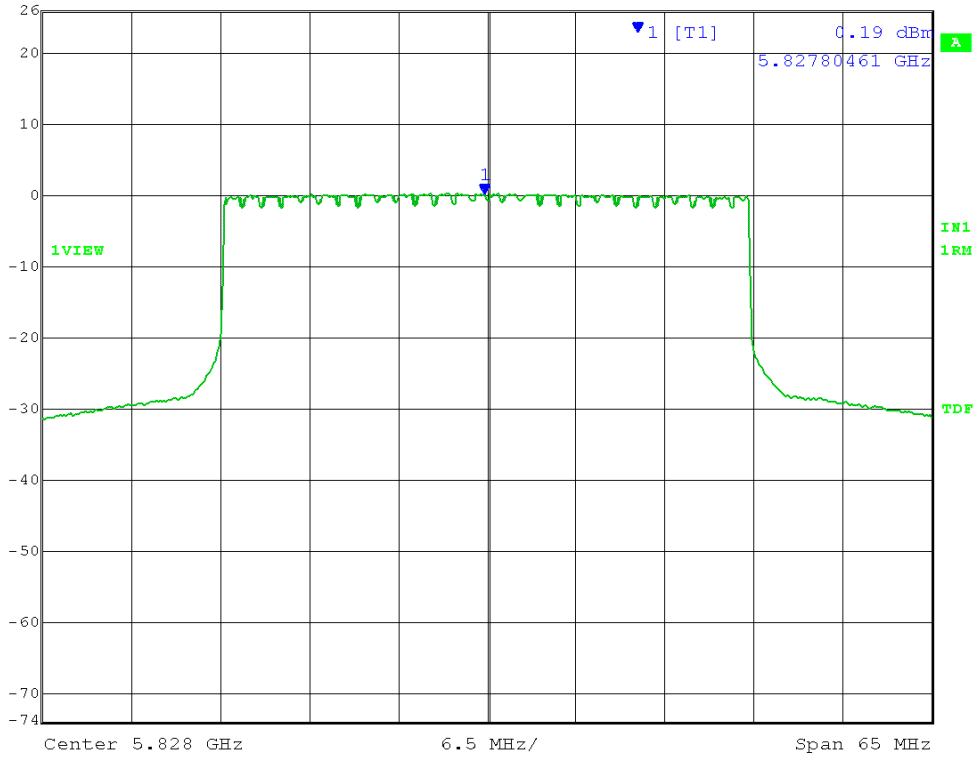
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.20 dBm    VBW    200 kHz  
-10 dBm                            5.82936774 GHz    SWT    66 ms    Unit            dBm



Date:            6.NOV.2013    13:57:26

# 40MHz HCH 64QAM TX0

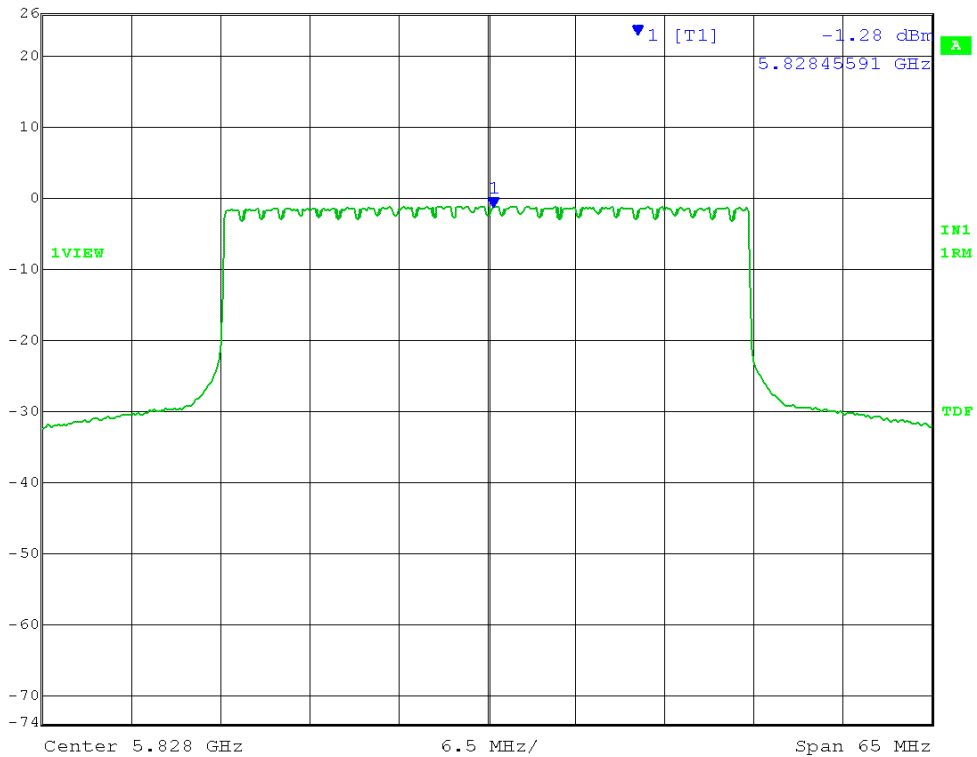
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.19 dBm    VBW    200 kHz  
-10 dBm                            5.82780461 GHz    SWT    66 ms    Unit            dBm



Date: 6.NOV.2013 14:34:08

# TX1

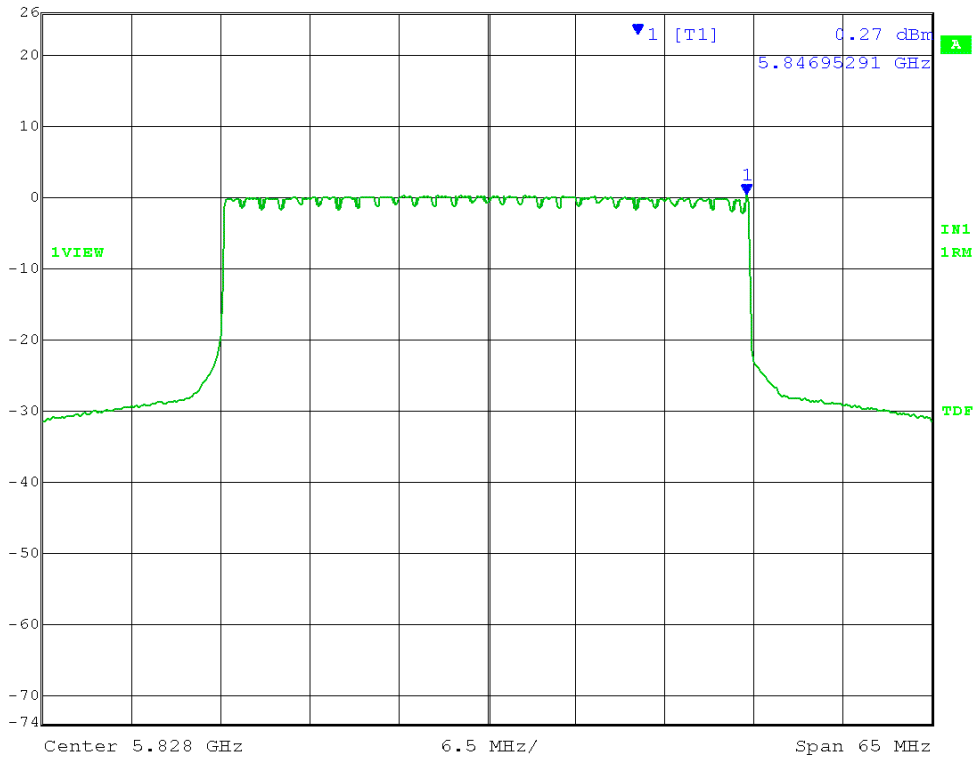
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.28 dBm    VBW    200 kHz  
-10 dBm                            5.82845591 GHz    SWT    66 ms    Unit            dBm



Date: 6.NOV.2013 13:57:55

# 40MHz HCH 256QAM TX0

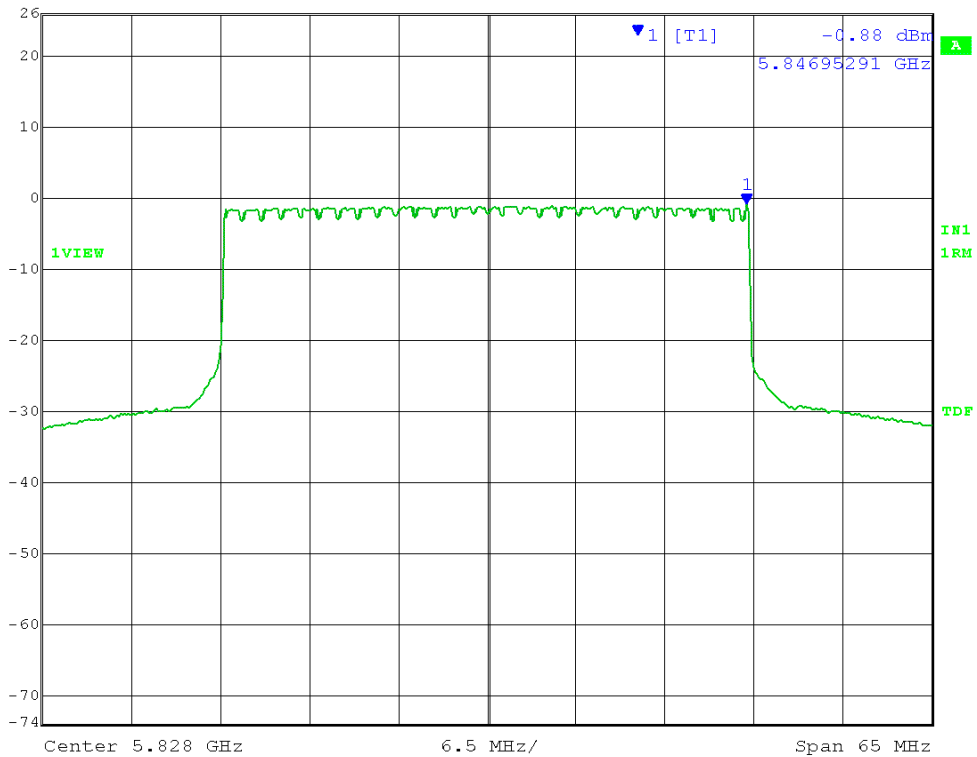
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] 0.27 dBm  
5.84695291 GHz  
RBW 50 kHz  
VBW 200 kHz  
RF Att 20 dB  
SWT 66 ms  
Unit dBm



Date: 6.NOV.2013 14:34:40

# TX1

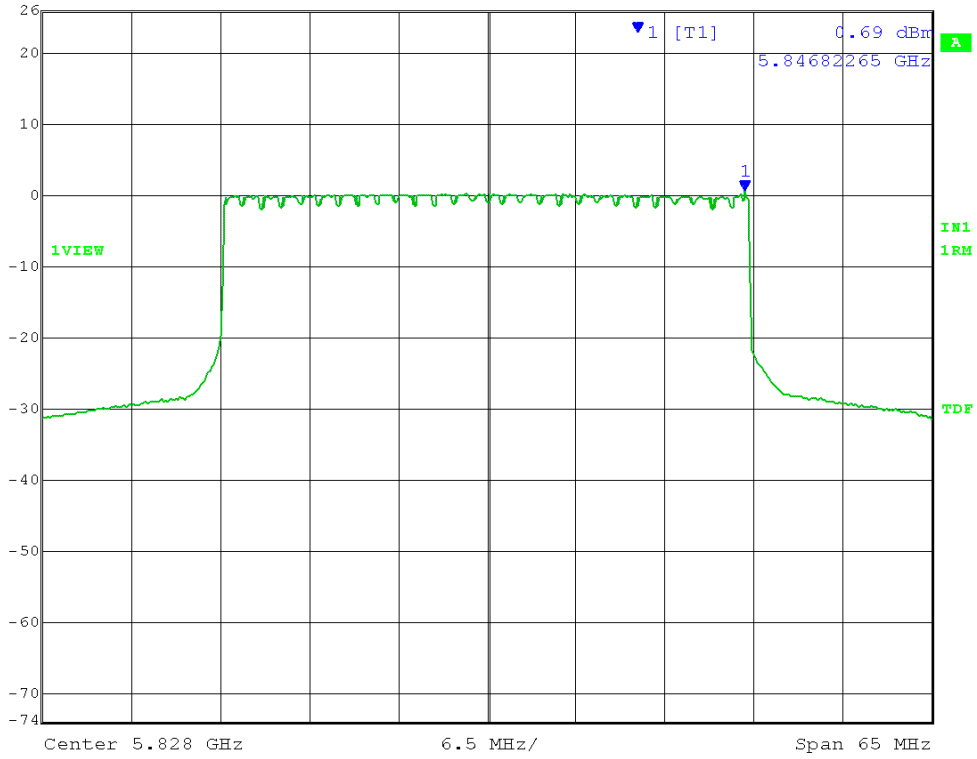
Max/Ref Lvl 26 dBm  
-10 dBm  
Marker 1 [T1] -0.88 dBm  
5.84695291 GHz  
RBW 50 kHz  
VBW 200 kHz  
RF Att 20 dB  
SWT 66 ms  
Unit dBm



Date: 6.NOV.2013 13:58:24

# 40MHz HCH 1024QAM TX0

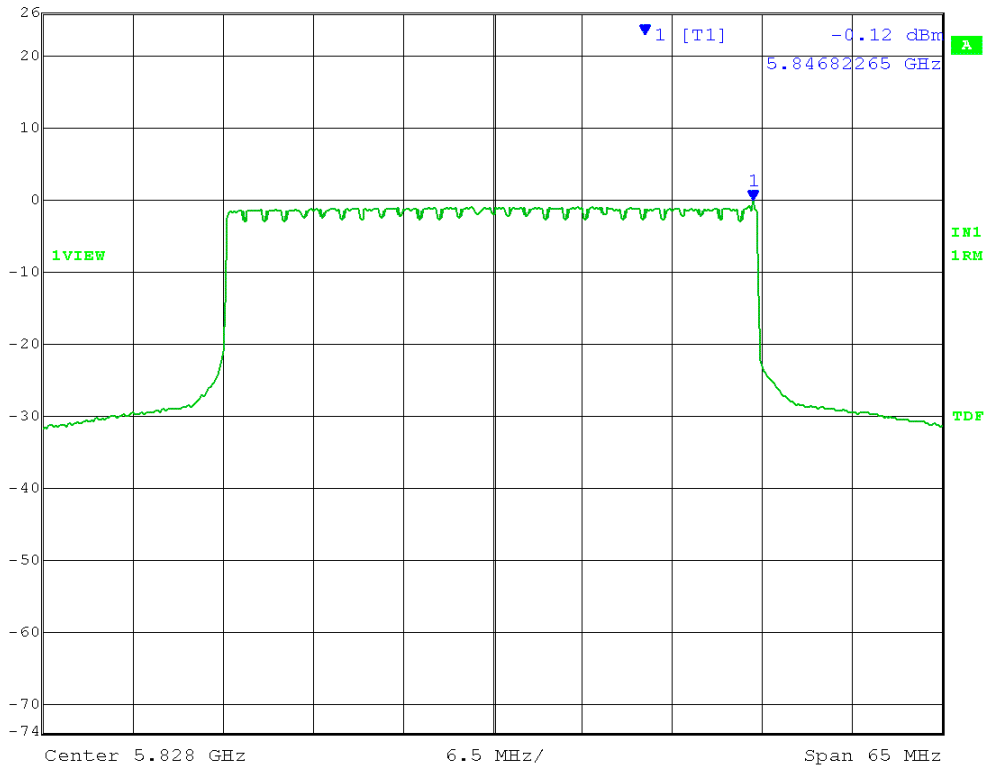
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.69 dBm    VBW    200 kHz  
-10 dBm                            5.84682265 GHz    SWT    66 ms    Unit            dBm



Date:            6.NOV.2013    14:35:09

# TX1

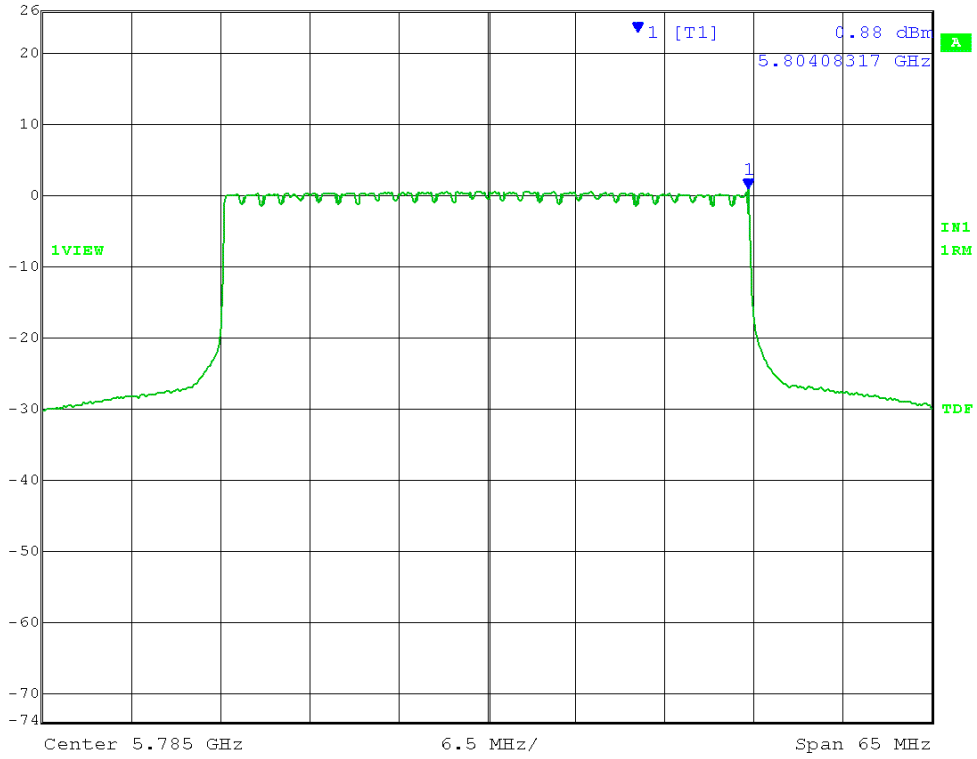
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -0.12 dBm    VBW    200 kHz  
-10 dBm                            5.84682265 GHz    SWT    66 ms    Unit            dBm



Date:            6.NOV.2013    14:00:24

# 40MHz MCH QPSK TX0

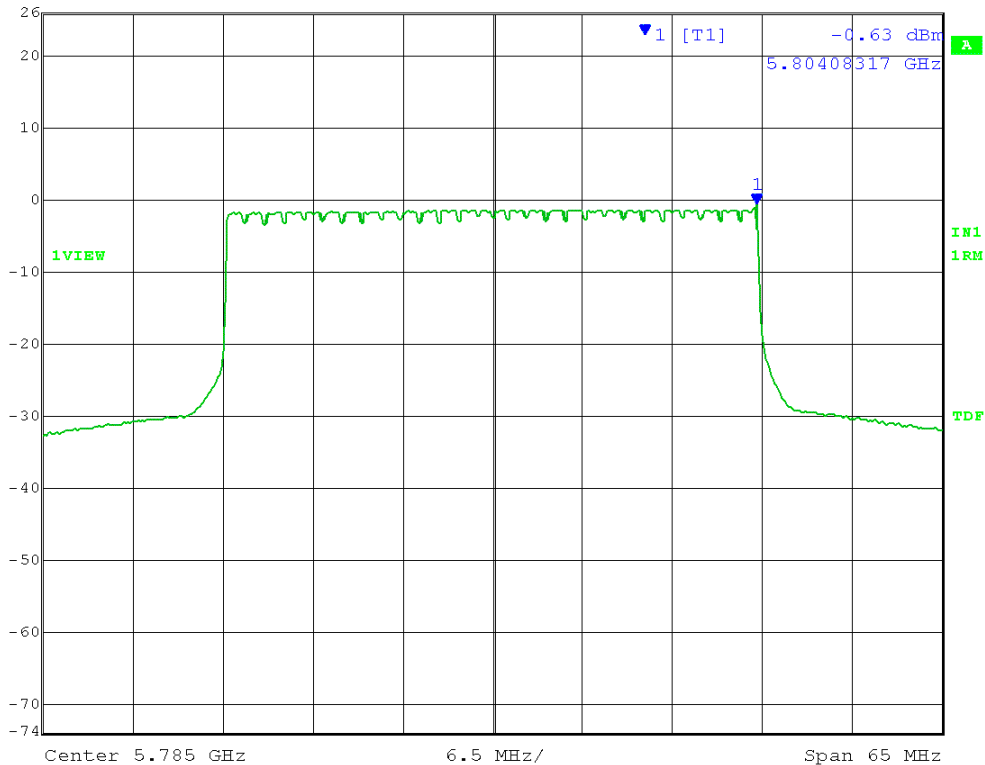
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.88 dBm    VBW    200 kHz  
-10 dBm                            5.80408317 GHz    SWT    66 ms    Unit            dBm



Date:            6.NOV.2013    14:35:49

# TX1

Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -0.63 dBm    VBW    200 kHz  
-10 dBm                            5.80408317 GHz    SWT    66 ms    Unit            dBm

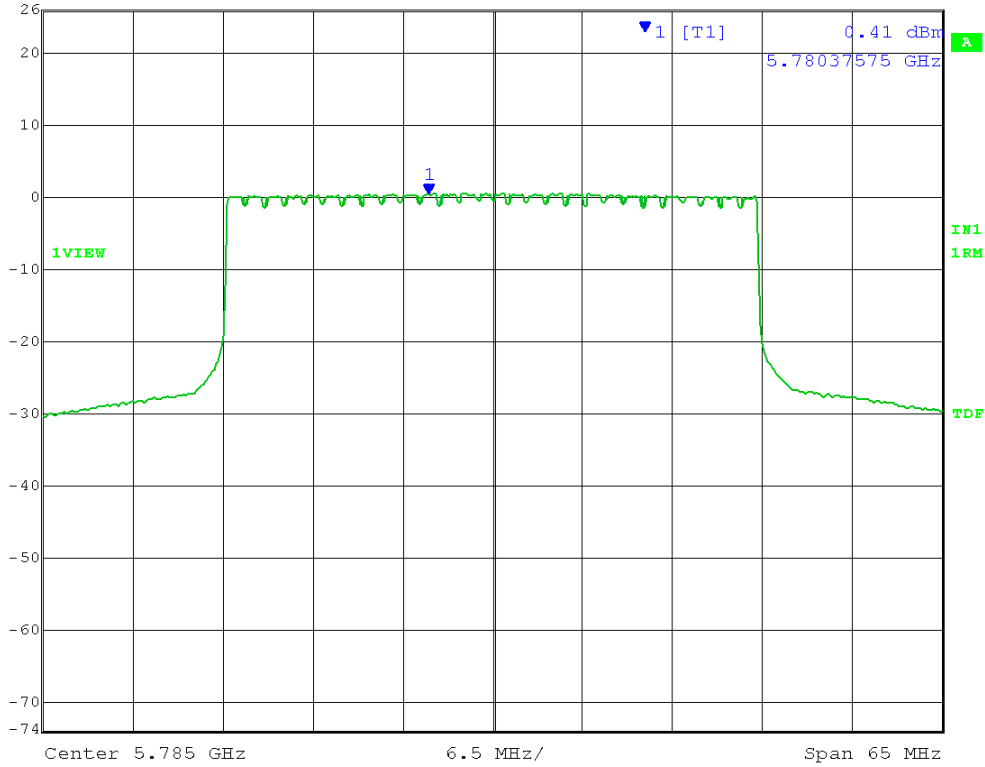


Date:            6.NOV.2013    14:01:41



# 40MHz MCH 16QAM TX0

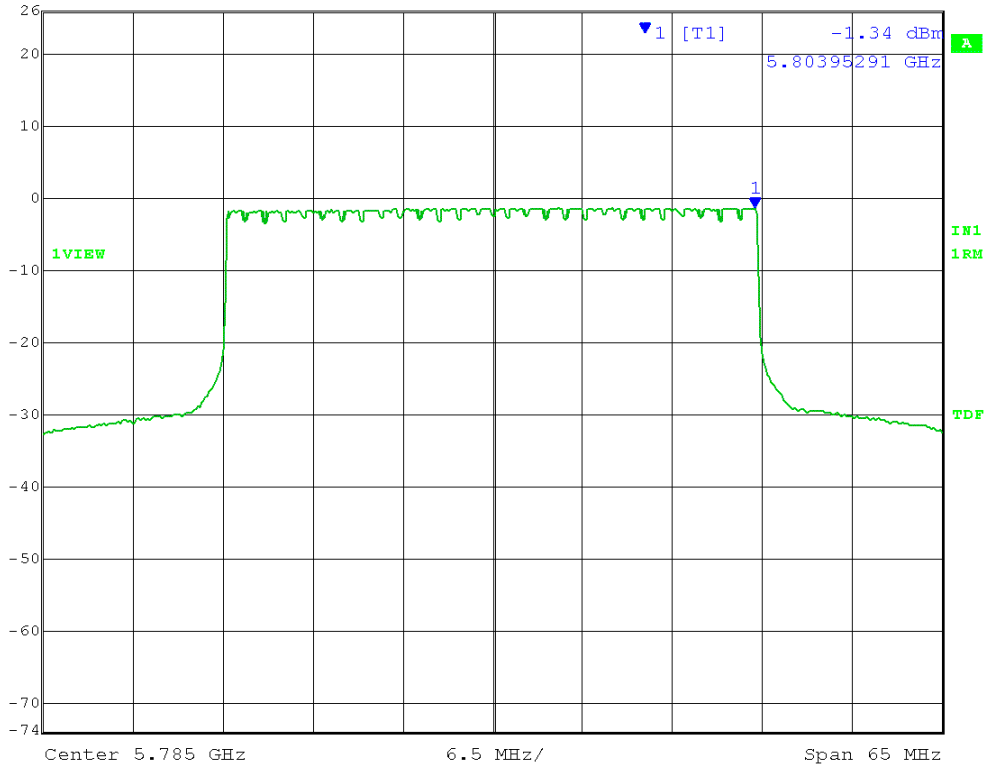
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.41 dBm    VBW    200 kHz  
-10 dBm                            5.78037575 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:36:20

# TX1

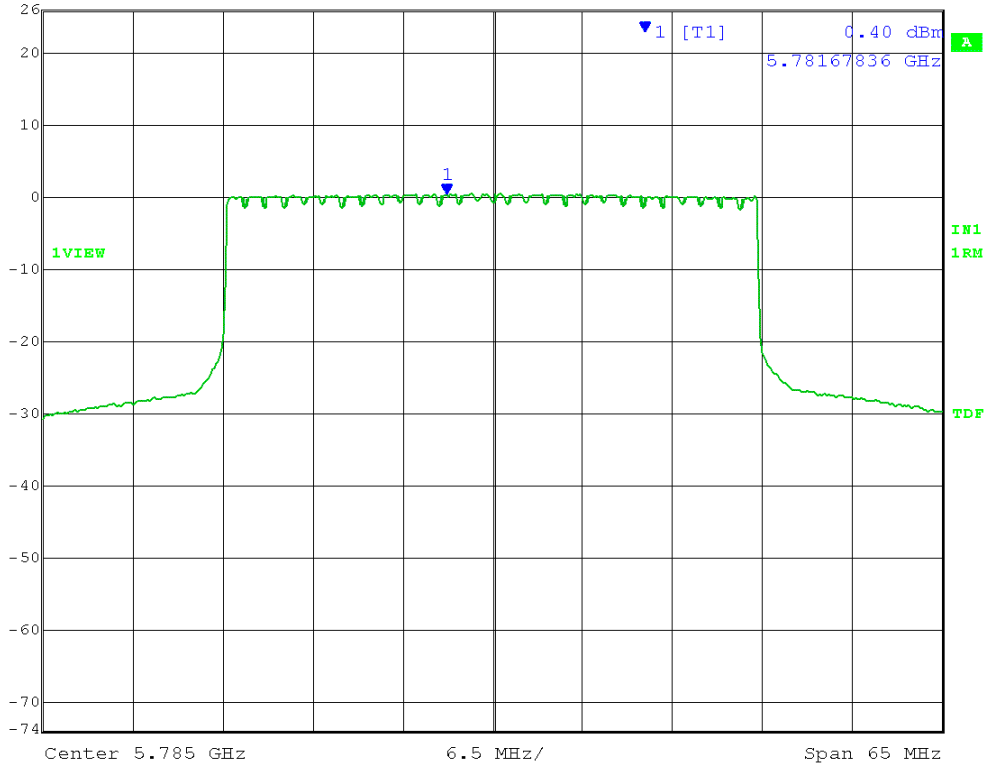
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.34 dBm    VBW    200 kHz  
-10 dBm                            5.80395291 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:02:09

# 40MHz MCH 64QAM TX0

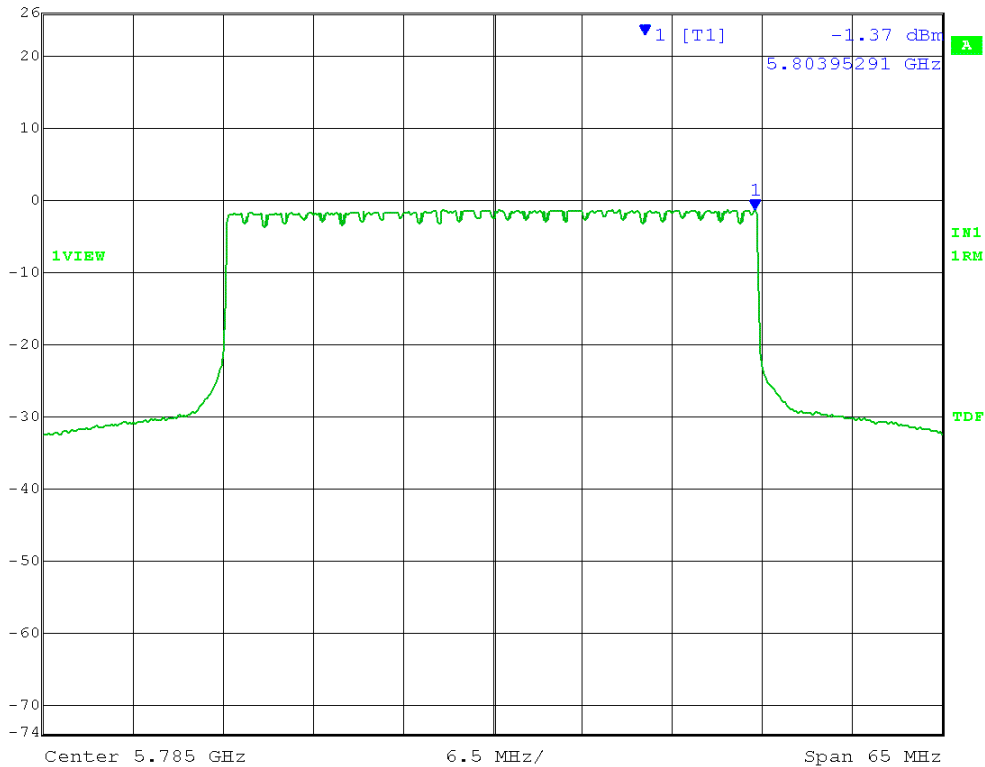
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.40 dBm    VBW    200 kHz  
-10 dBm                            5.78167836 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:36:50

# TX1

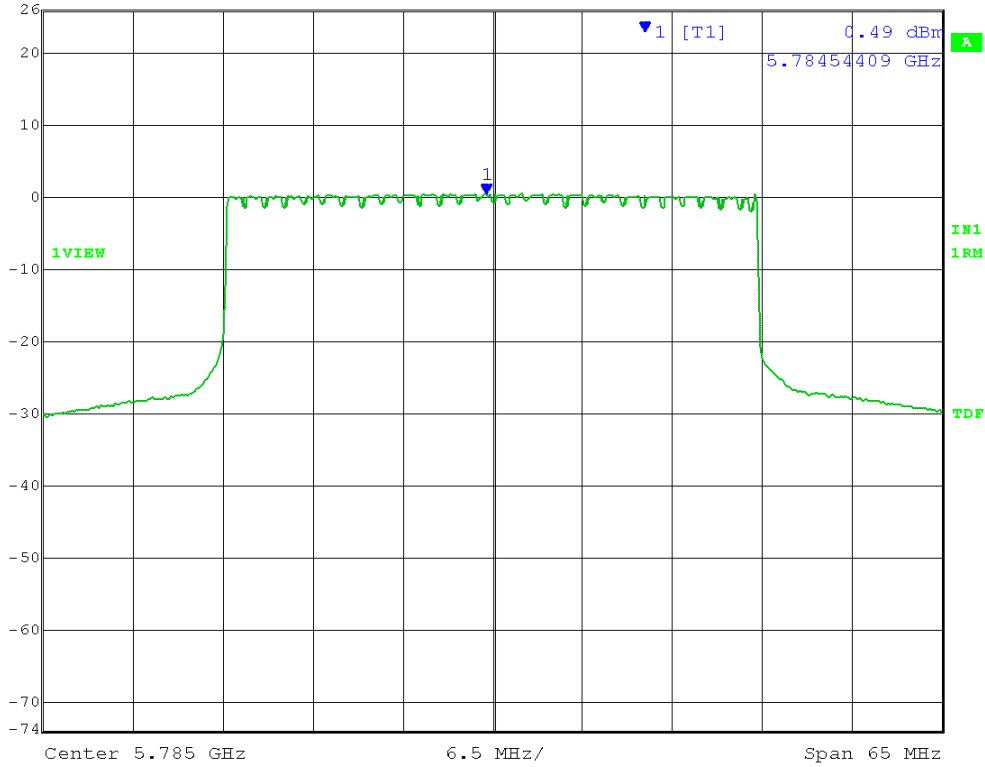
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.37 dBm    VBW    200 kHz  
-10 dBm                            5.80395291 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:02:46

# 40MHz MCH 256QAM TX0

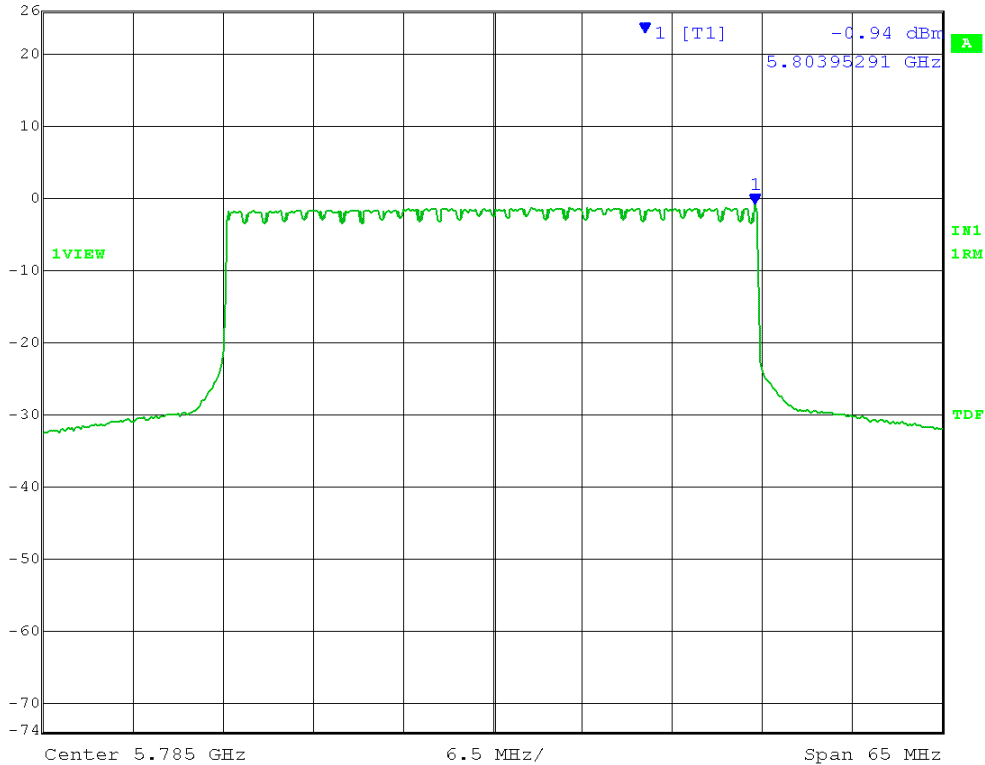
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            0.49 dBm    VBW    200 kHz  
-10 dBm                            5.78454409 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:37:20

# TX1

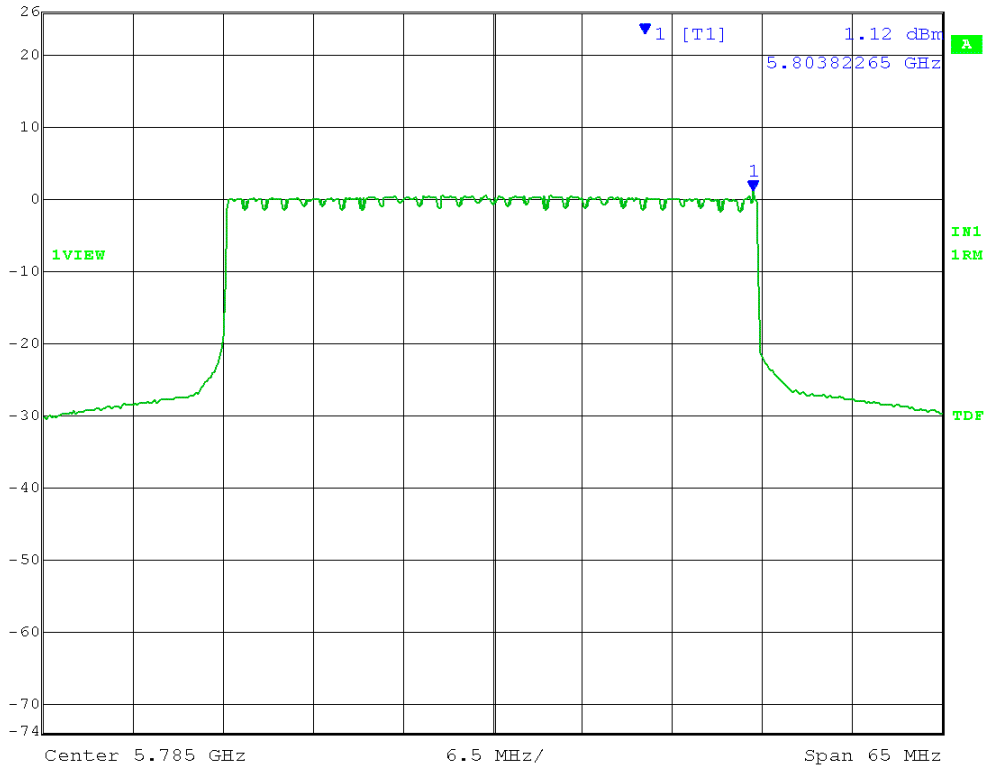
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -0.94 dBm    VBW    200 kHz  
-10 dBm                            5.80395291 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:03:18

# 40MHz MCH 1024QAM TX0

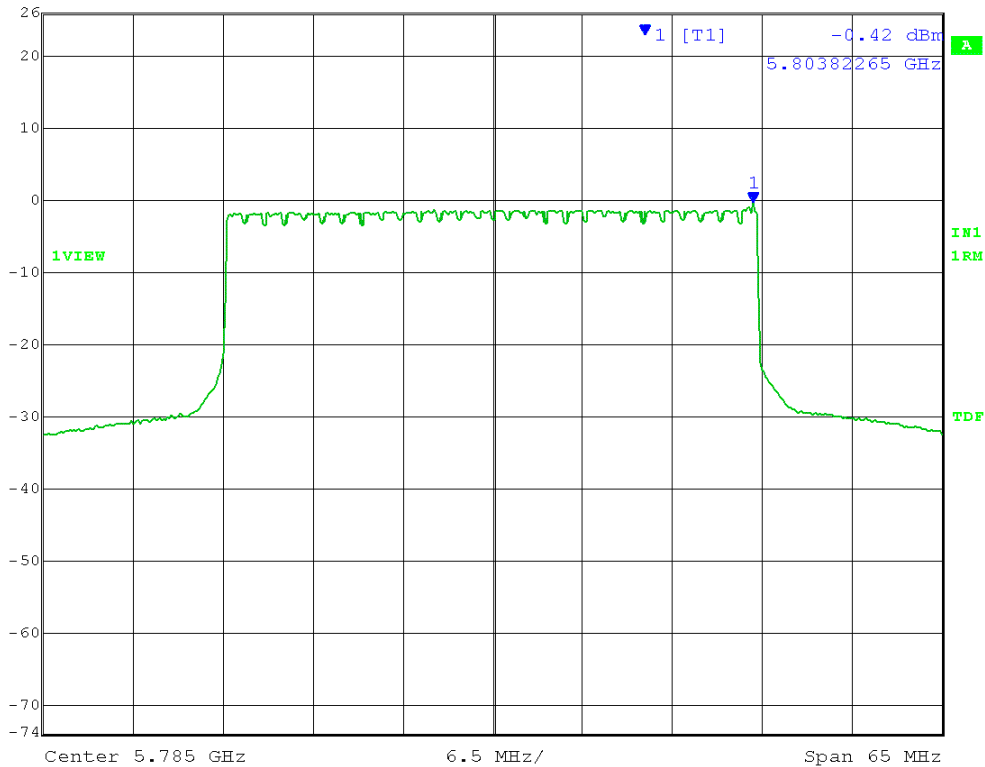
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            1.12 dBm    VBW    200 kHz  
-10 dBm                            5.80382265 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:37:54

# TX1

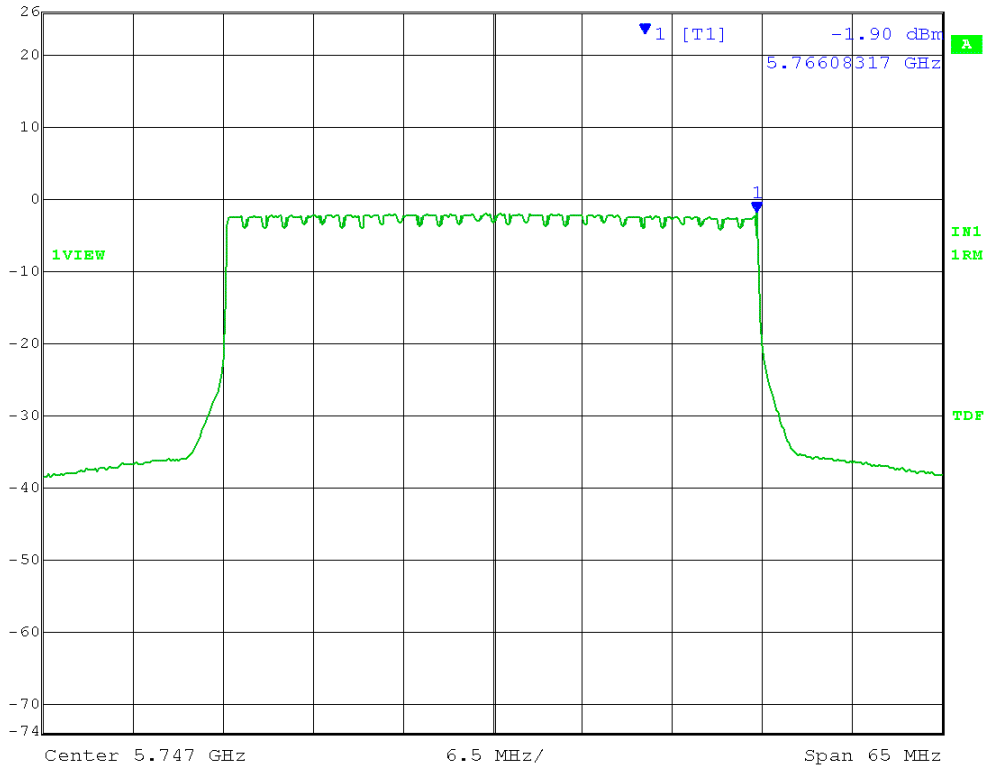
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -0.42 dBm    VBW    200 kHz  
-10 dBm                            5.80382265 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:03:46

# 40MHz LCH QPSK TX0

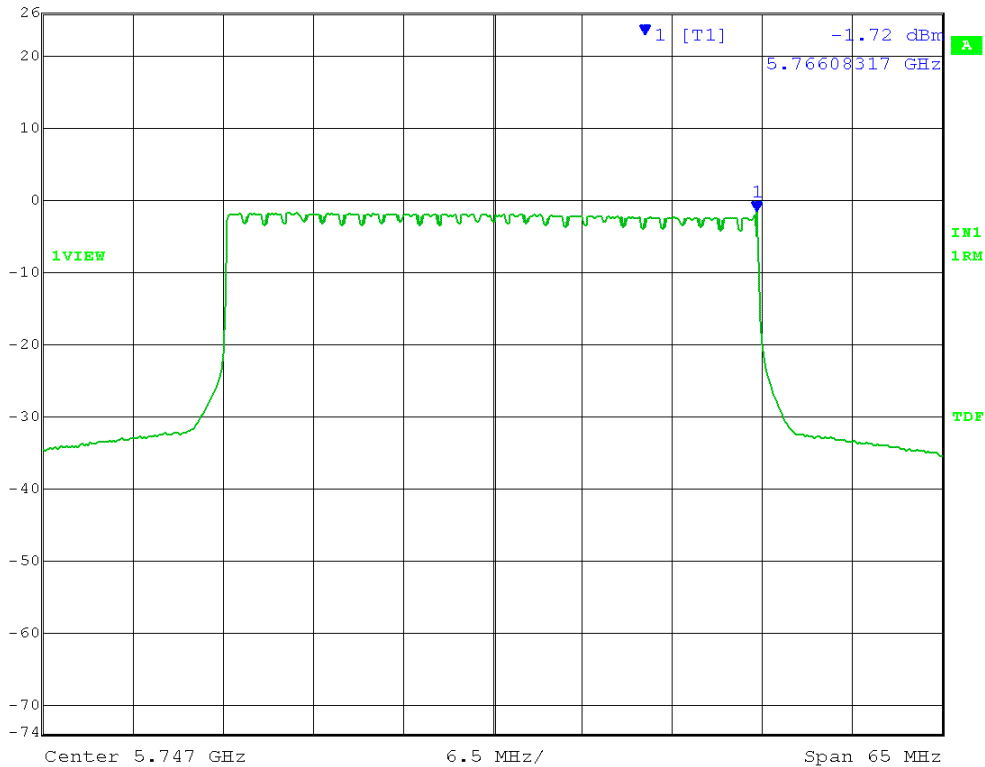
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.90 dBm    VBW    200 kHz  
-10 dBm                            5.76608317 GHz    SWT    66 ms    Unit    dBm



Date:            6.NOV.2013    14:38:41

# TX1

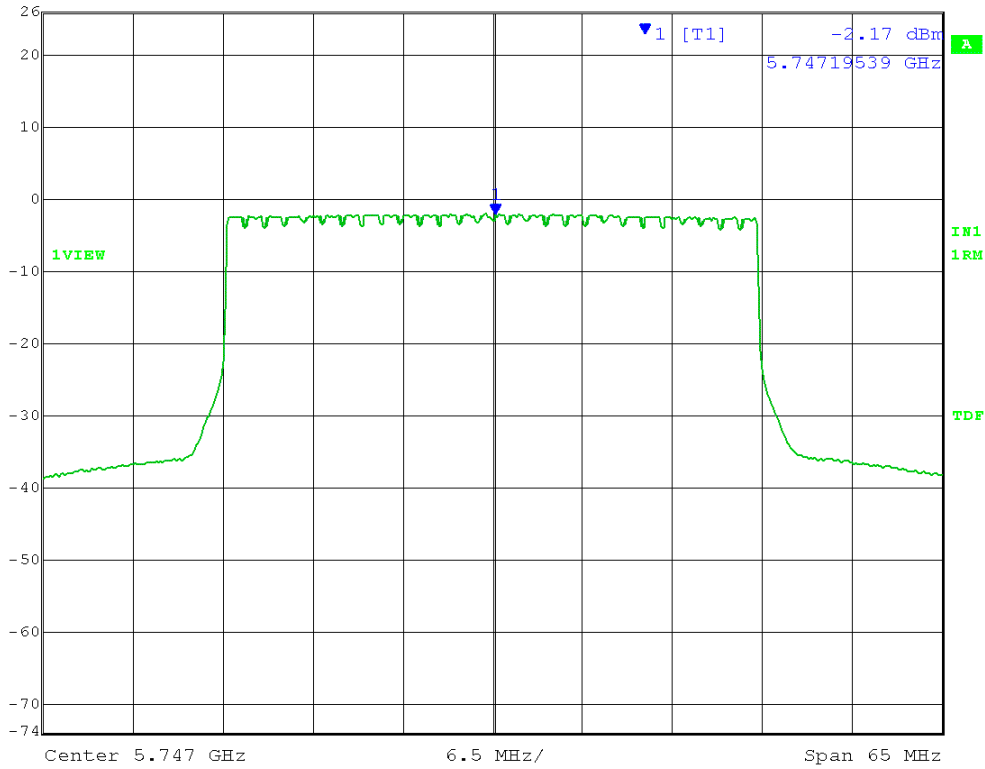
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.72 dBm    VBW    200 kHz  
-10 dBm                            5.76608317 GHz    SWT    66 ms    Unit    dBm



Date:            6.NOV.2013    14:05:06

# 40MHz LCH 16QAM TX0

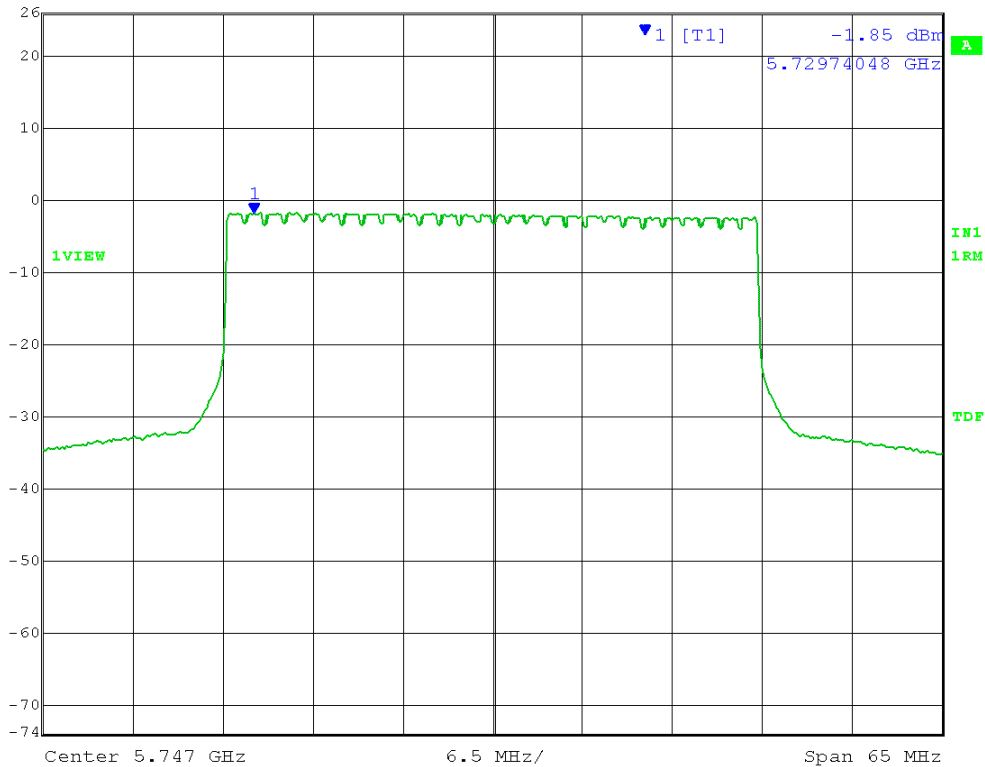
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.17 dBm    VBW    200 kHz  
-10 dBm                            5.74719539 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:39:17

# TX1

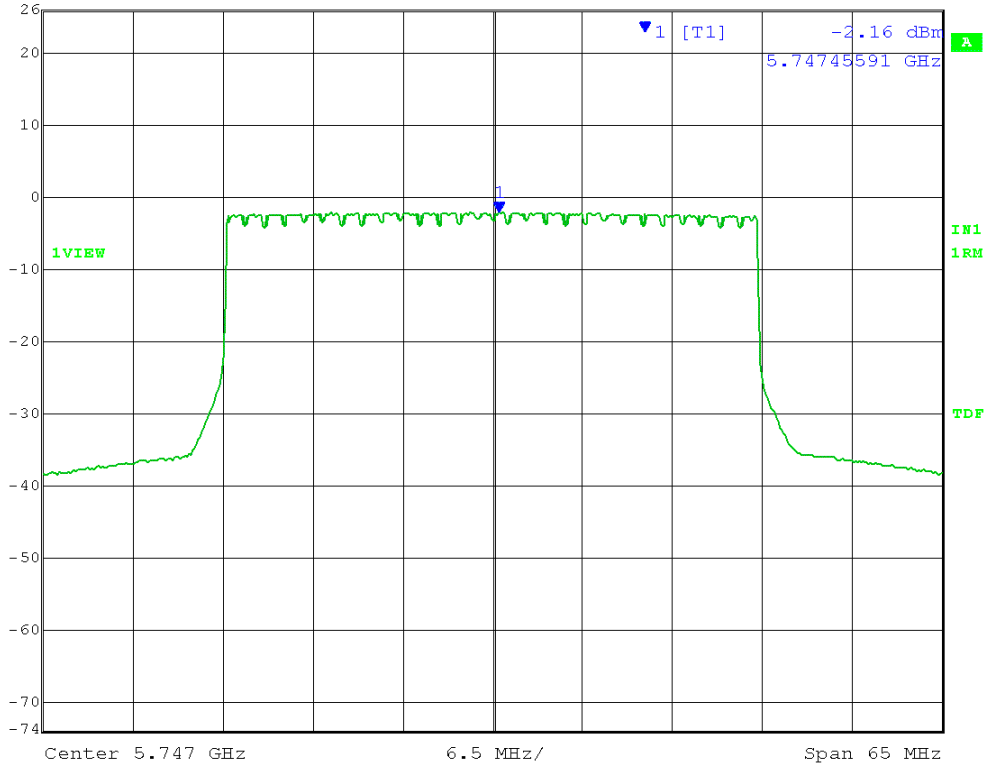
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.85 dBm    VBW    200 kHz  
-10 dBm                            5.72974048 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:05:35

# 40MHz LCH 64QAM TX0

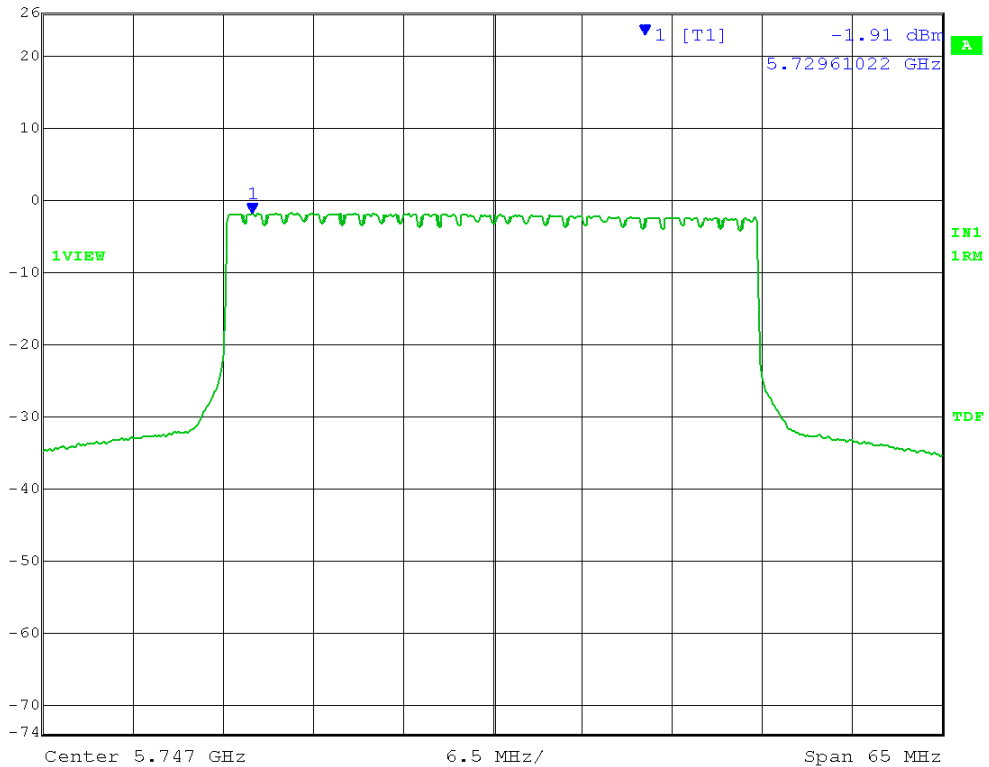
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.16 dBm    VBW    200 kHz  
-10 dBm                            5.74745591 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:39:51

# TX1

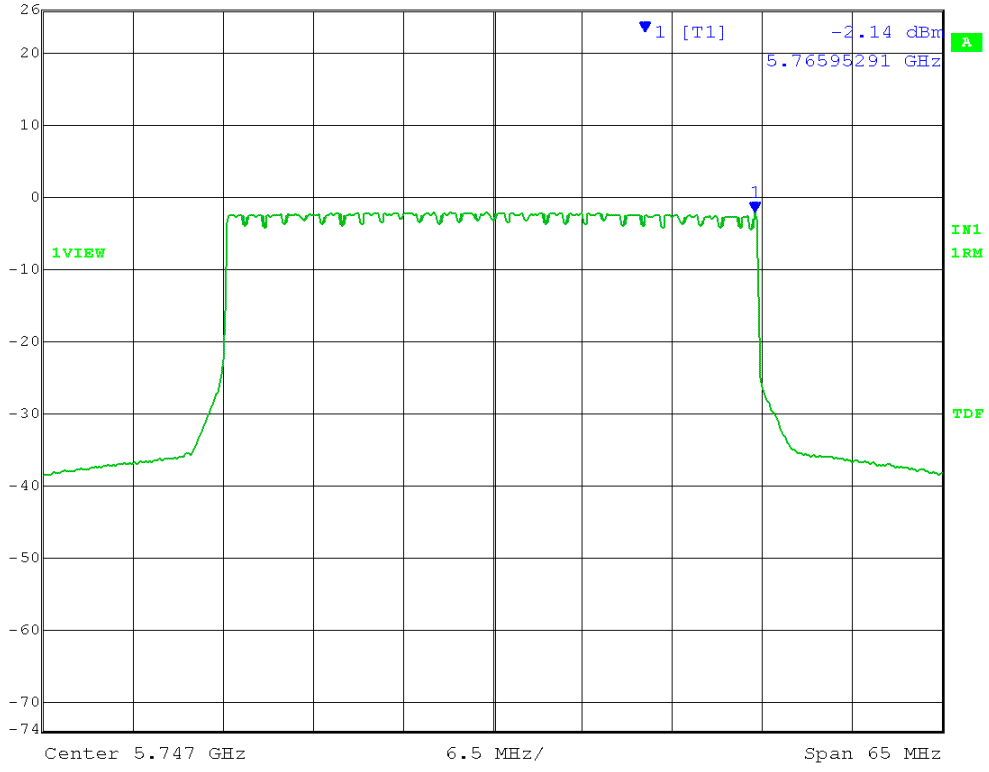
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.91 dBm    VBW    200 kHz  
-10 dBm                            5.72961022 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:06:04

# 40MHz LCH 256QAM TX0

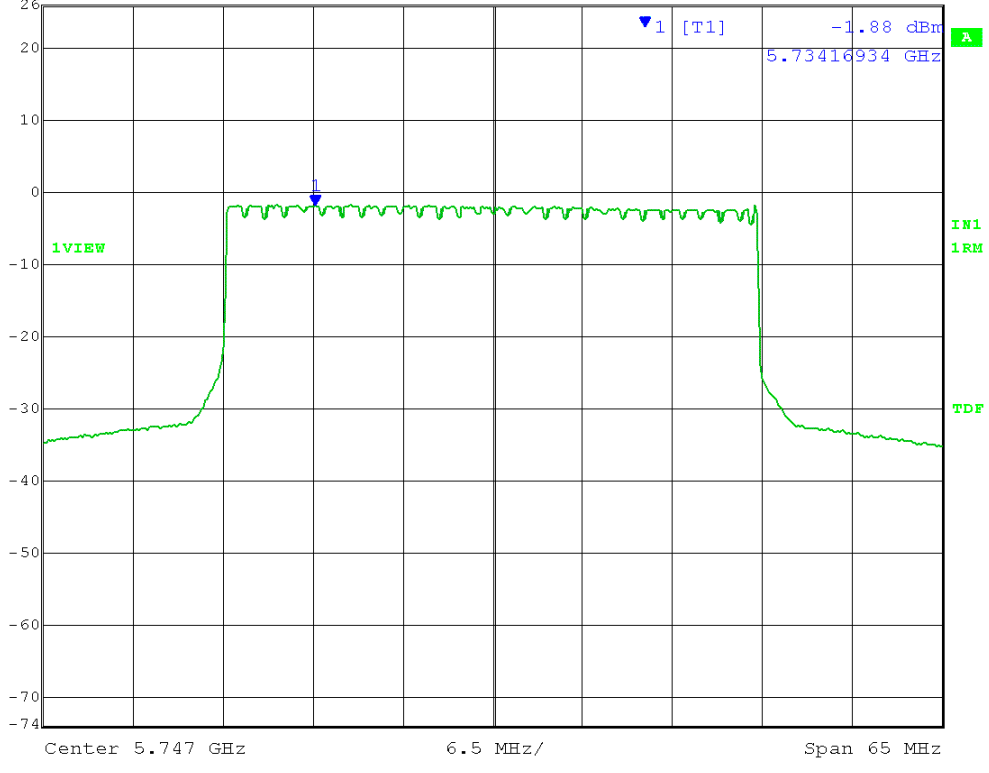
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -2.14 dBm    VBW    200 kHz  
-10 dBm                            5.76595291 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:40:22

# TX1

Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.88 dBm    VBW    200 kHz  
-10 dBm                            5.73416934 GHz    SWT    66 ms    Unit    dBm

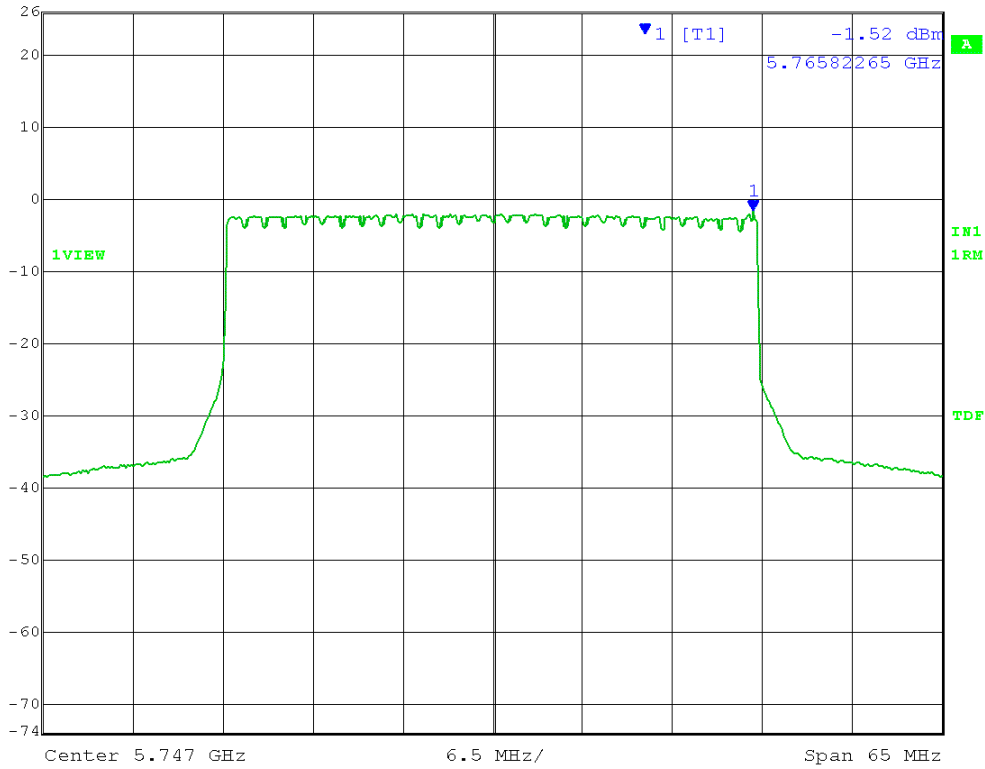


Date: 6.NOV.2013 14:06:33



# 40MHz LCH 1024QAM TX0

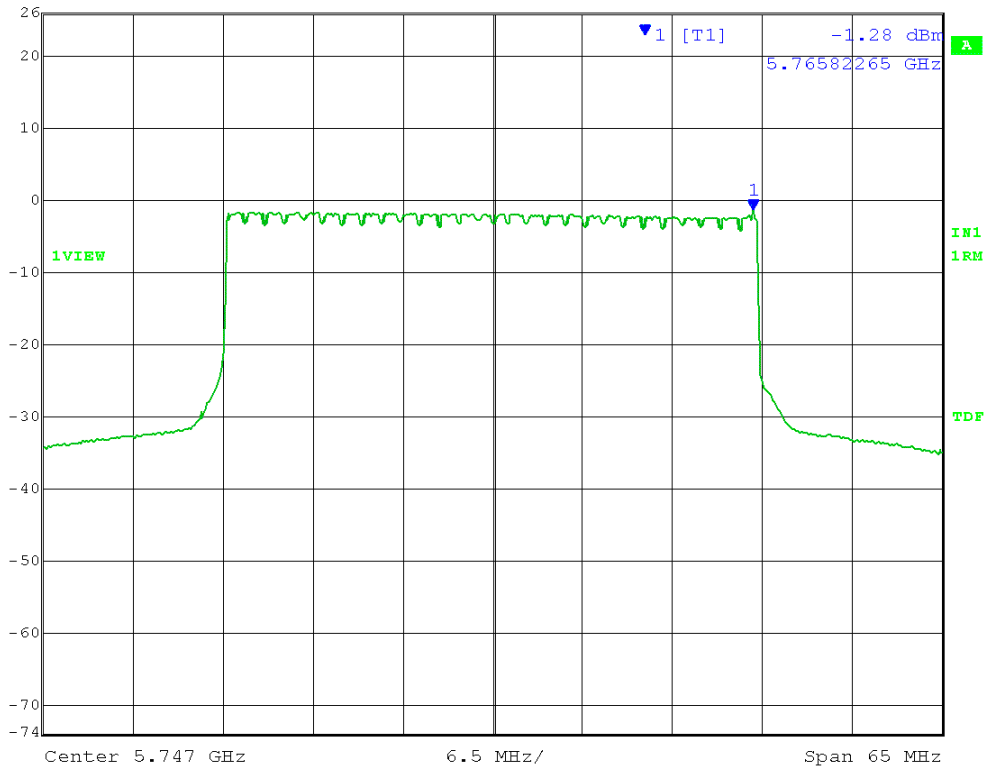
Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.52 dBm    VBW    200 kHz  
-10 dBm                            5.76582265 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:40:56

# TX1

Max/Ref Lvl    Marker 1 [T1]    RBW    50 kHz    RF Att    20 dB  
26 dBm                            -1.28 dBm    VBW    200 kHz  
-10 dBm                            5.76582265 GHz    SWT    66 ms    Unit    dBm



Date: 6.NOV.2013 14:07:01



Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
DLS Project: 6172

166 South Carter, Genoa City, WI 53128

## Appendix – Measurement Data

### 4.0 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  $\geq$  300 kHz  
Span to  $\geq$  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 - 40MHz BW  
Test: Maximum Unwanted Emission Levels - Radiated  
Operator: Craig B

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


**Low Channel Transmit = 5.747 GHz**

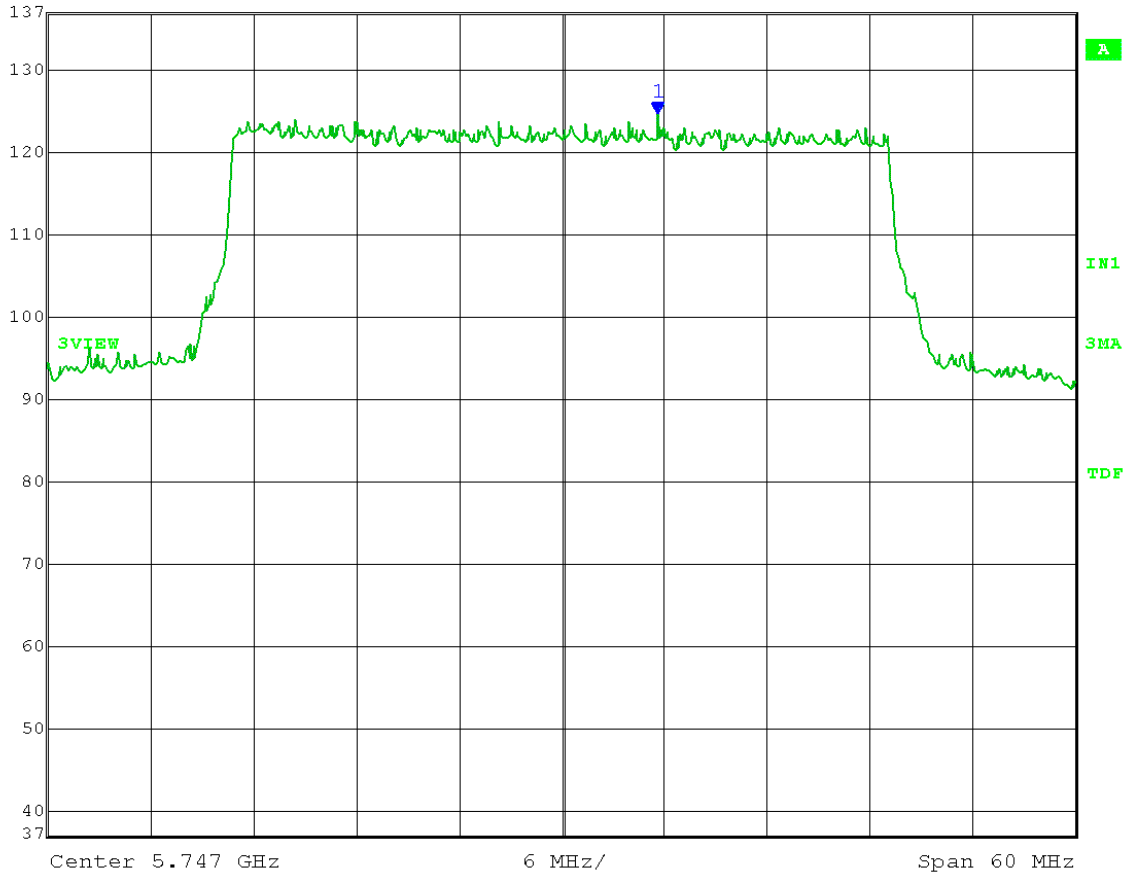
HORIZONTAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level measurement**

Limit = 124.69 dB $\mu$ V/m - 30 dB = 94.69 dB $\mu$ V/m

	Max/Ref Lvl	Marker 1 [T3]	RBW	100 kHz	RF Att	20 dB
	137 dB*	124.69 dB $\mu$ V/m	VBW	300 kHz		
	117 dB*	5.75259118 GHz	SWT	15 ms	Unit	dB $\mu$ V/m



Date: 7.NOV.2013 10:41:35

Test Date: 11-07-2013  
Company: Ubiquiti Networks  
EUT: Model AF5 - 40MHz BW  
Test: Maximum Unwanted Emission Levels - Radiated  
Operator: Craig B

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

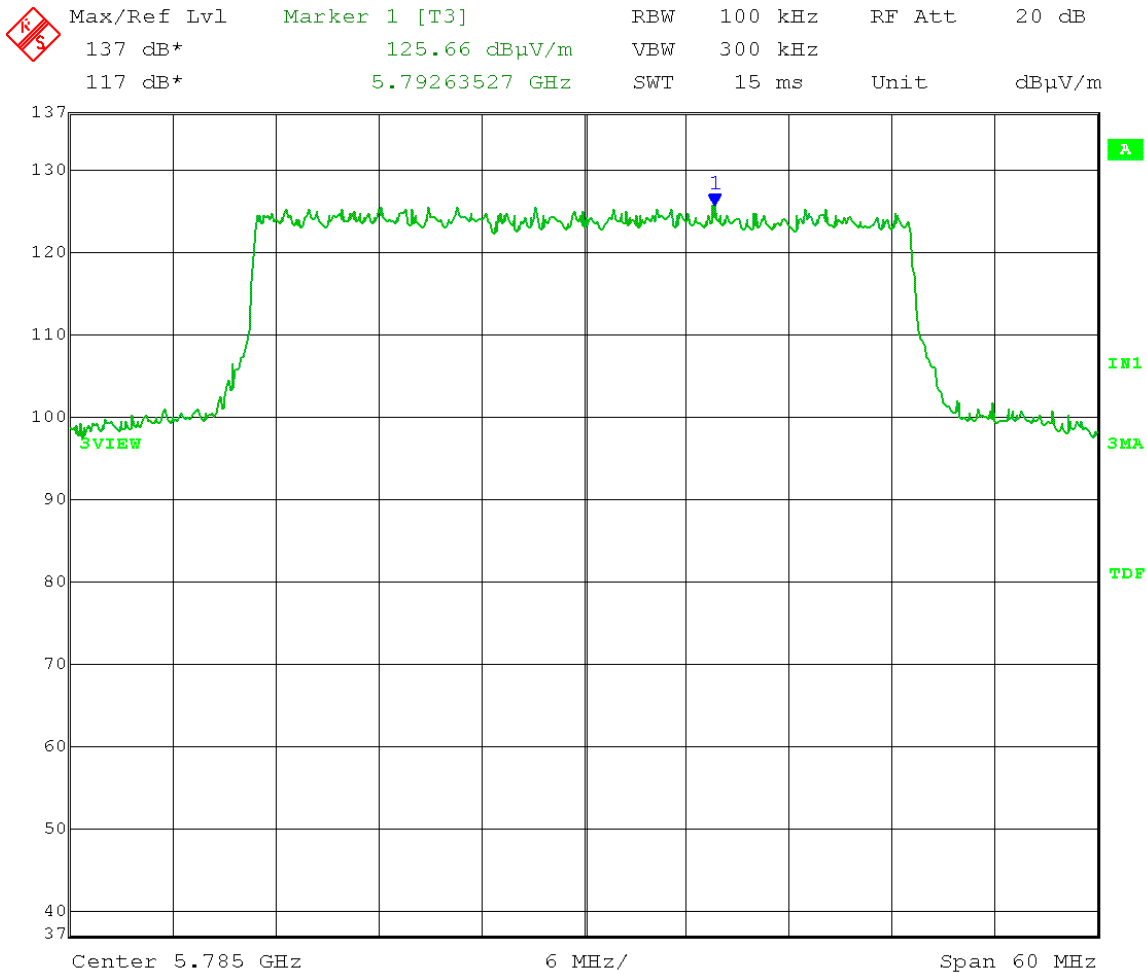
**Mid Channel Transmit = 5.785 GHz**

HORIZONTAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level measurement**

Limit = 125.66 dB $\mu$ V/m - 30 dB = 95.66 dB $\mu$ V/m

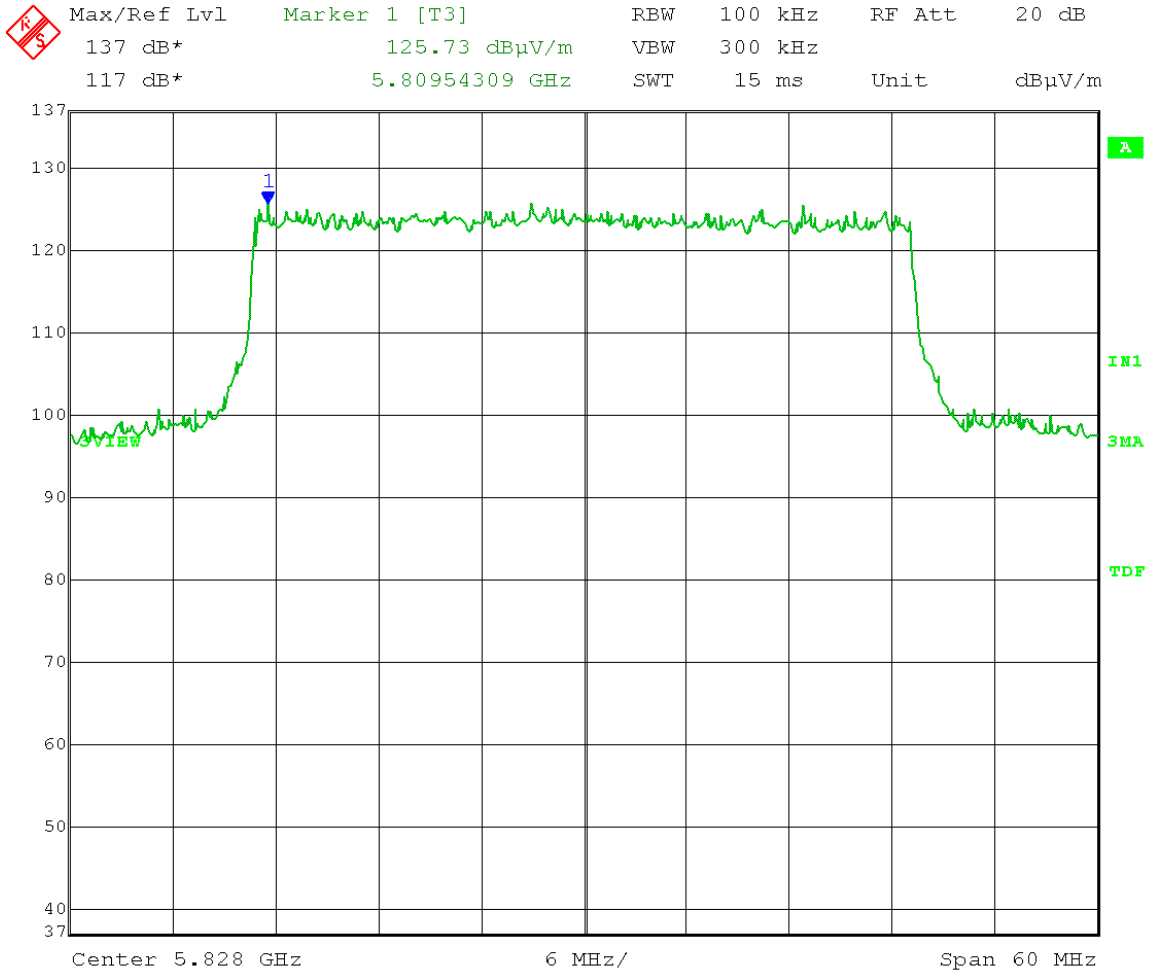


Date: 7.NOV.2013 10:38:40

Test Date: 11-07-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 40MHz 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 = 5.828 GHz**  
 HORIZONTAL; 3 meter  
 Output power setting: 50 dBm eirp (Point-to-Point system)  
**Reference Level measurement**  
 Limit = 125.73 dBμV/m - 30 dB = 95.73 dBμV/m



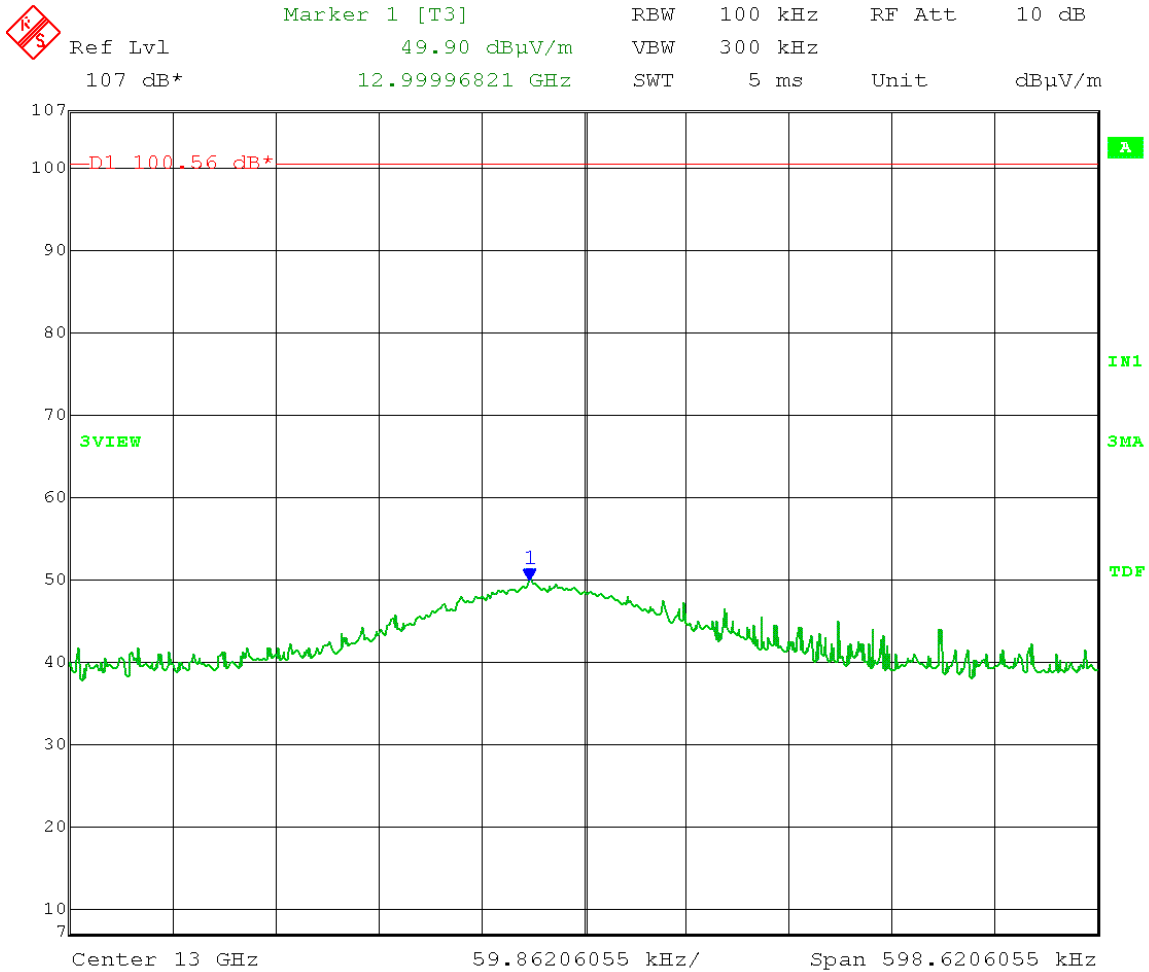
Date: 7.NOV.2013 10:34:33

Test Date: 11-07-2013 / 11-08-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 40MHz 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 = 124.69 dBμV/m - 30 dB = 94.69 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 - 40MHz 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

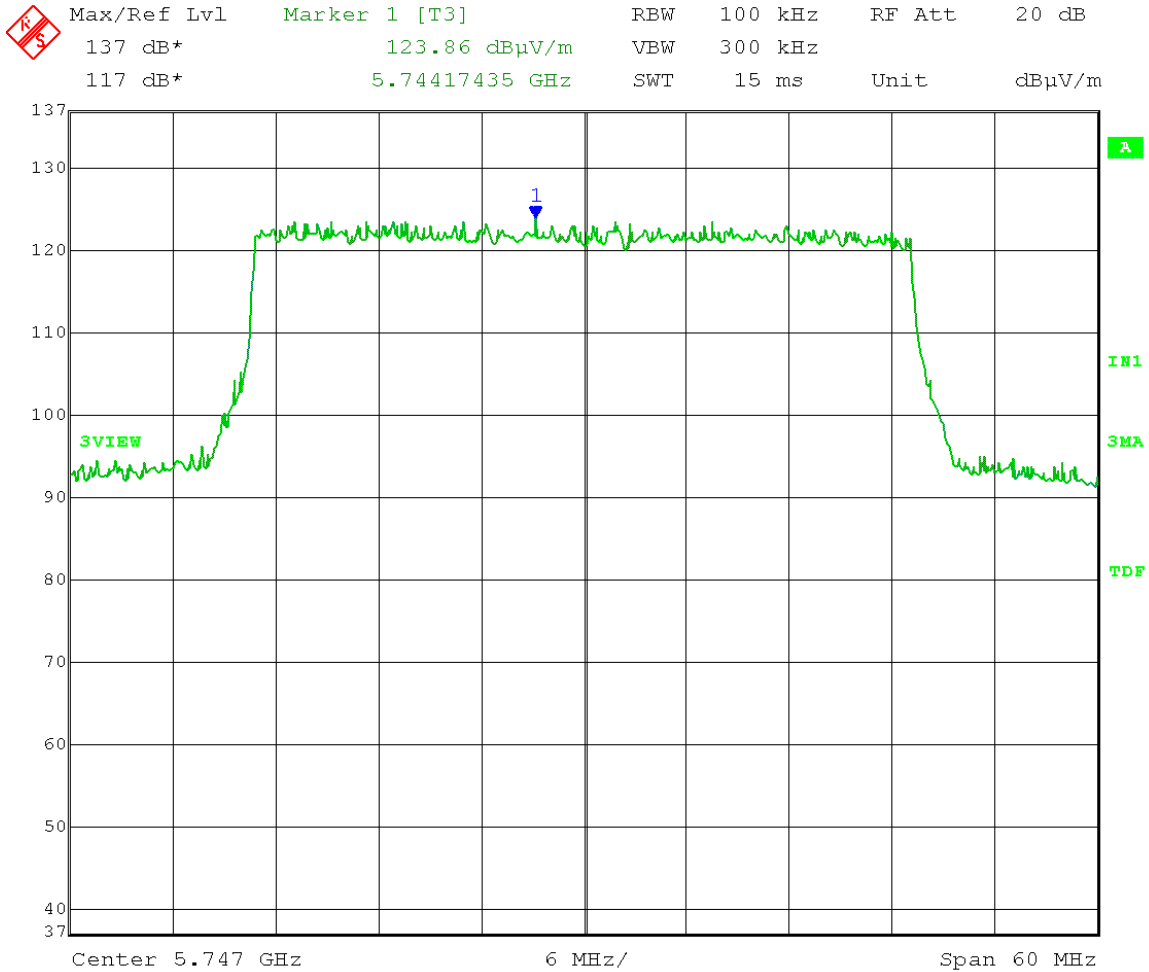
**Low Channel Transmit = 5.747 GHz**

VERTICAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level** measurement

Limit = 123.86 dBμV/m - 30 dB = 93.86 dBμV/m



Date: 7.NOV.2013 10:14:16



Test Date: 11-07-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 40MHz 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

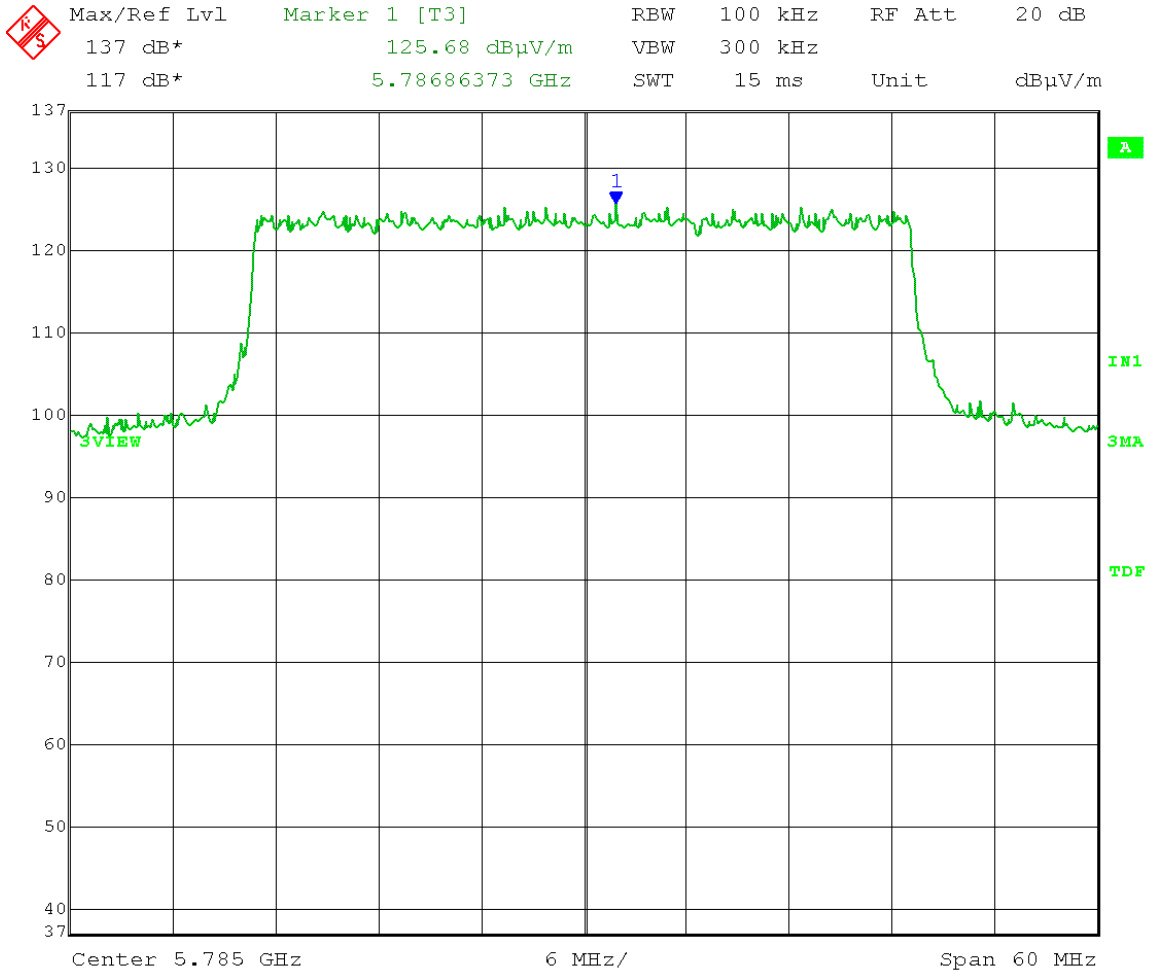
**Mid Channel Transmit = 5.785 GHz**

VERTICAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level** measurement

Limit = 125.68 dBμV/m - 30 dB = 95.68 dBμV/m



Date: 7.NOV.2013 10:17:40

Test Date: 11-07-2013  
Company: Ubiquiti Networks  
EUT: Model AF5 - 40MHz BW  
Test: Maximum Unwanted Emission Levels - Radiated  
Operator: Craig B

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

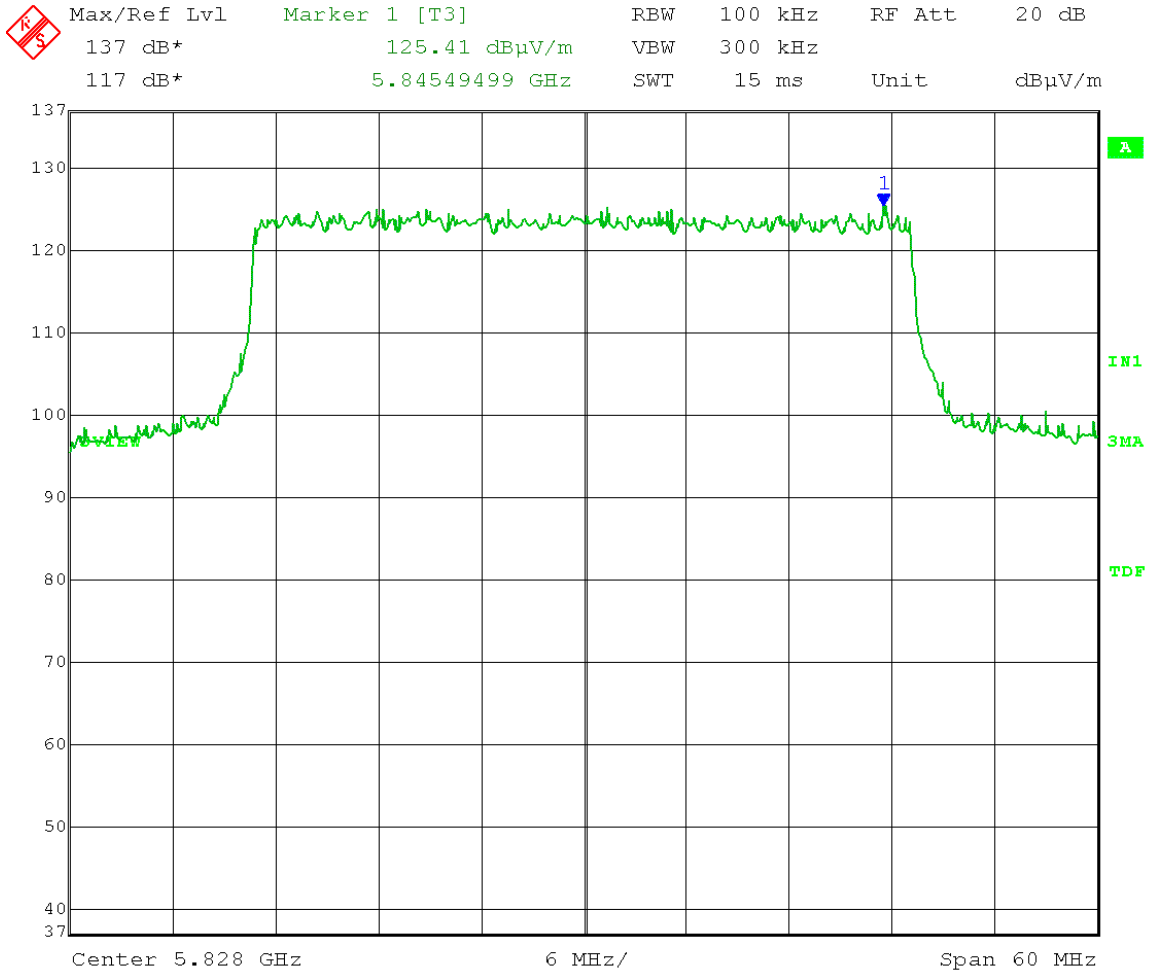
High Channel Transmit = 5.828 GHz

VERTICAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

Reference Level measurement

Limit = 125.41 dB $\mu$ V/m - 30 dB = 95.41 dB $\mu$ V/m



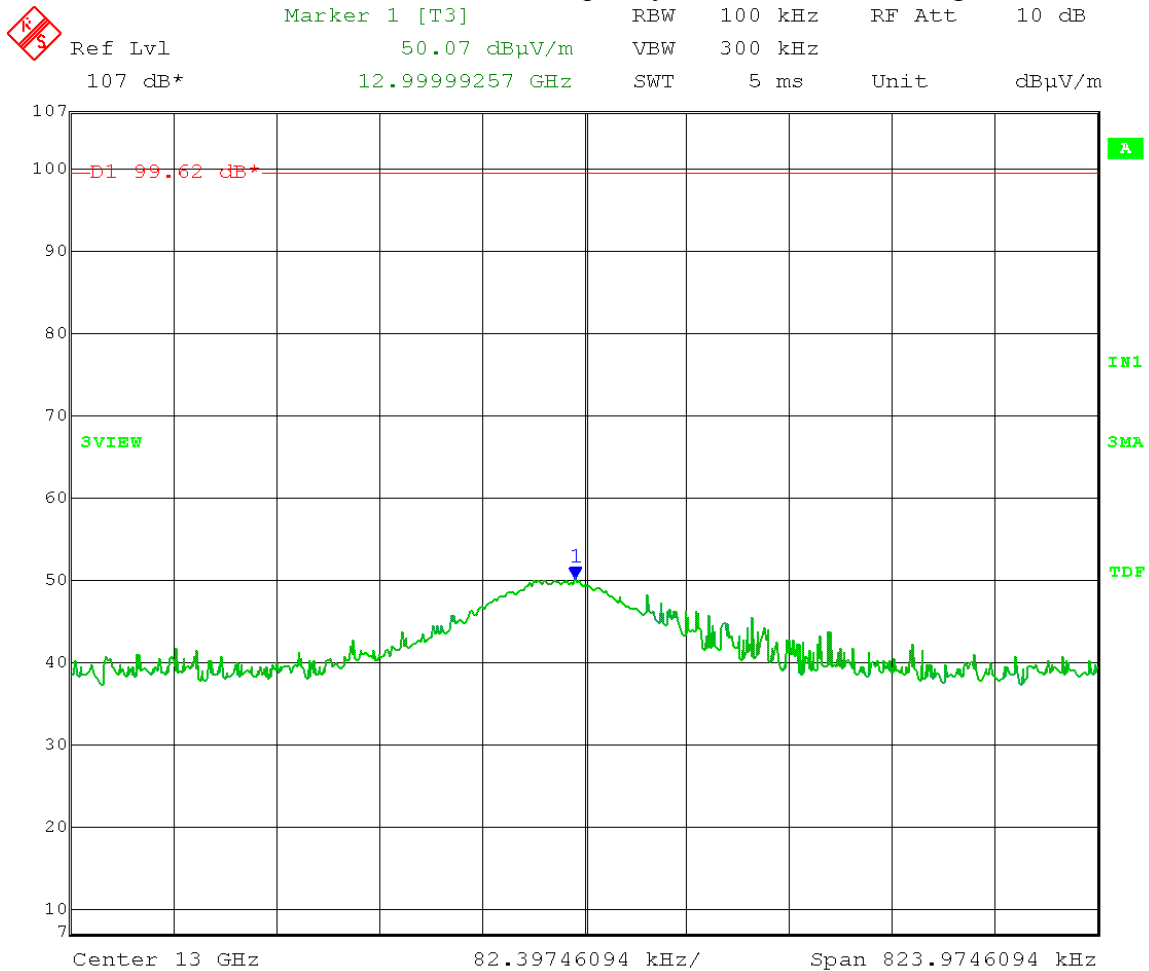
Date: 7.NOV.2013 10:28:51

Test Date: 11-07-2013 / 11-08-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 40MHz 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 = 123.86 dBμV/m - 30 dB = 93.86 dBμV/m

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



Date: 7.NOV.2013 12:45:43

Test Date: 10-17-2013  
Company: Ubiquiti Networks  
EUT: Model AF5 - 50MHz BW  
Test: Maximum Unwanted Emission Levels - Radiated  
Operator: Craig B

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


**Low Channel Transmit = 5.750 GHz**

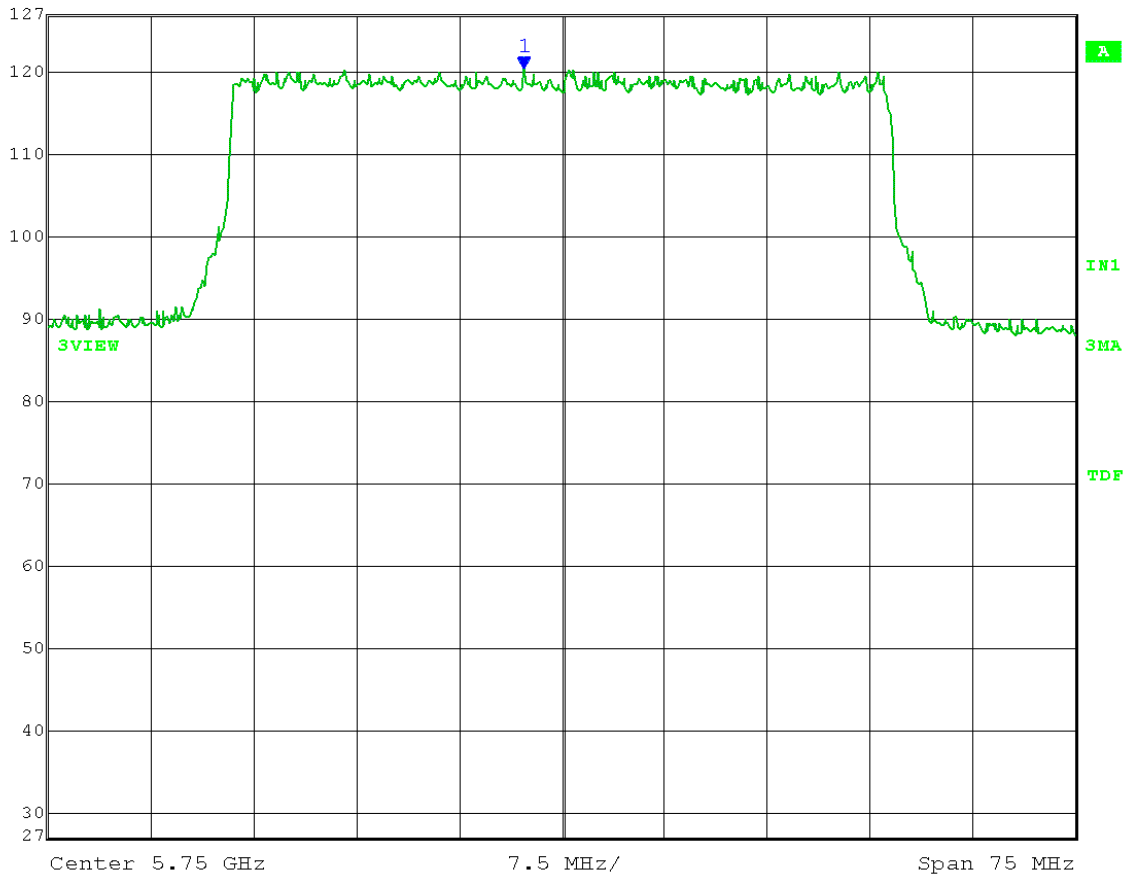
HORIZONTAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level measurement**

Limit = 120.27 dB $\mu$ V/m - 30 dB = 90.27 dB $\mu$ V/m

	Max/Ref Lvl	Marker 1 [T3]	RBW	100 kHz	RF Att	30 dB
	127 dB*	120.27 dB $\mu$ V/m	VBW	300 kHz		
	117 dB*	5.74721944 GHz	SWT	19 ms	Unit	dB $\mu$ V/m



Date: 17.OCT.2013 13:32:40

Test Date: 10-17-2013  
Company: Ubiquiti Networks  
EUT: Model AF5 - 50MHz BW  
Test: Maximum Unwanted Emission Levels - Radiated  
Operator: Craig B

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


**Mid Channel Transmit = 5.785 GHz**

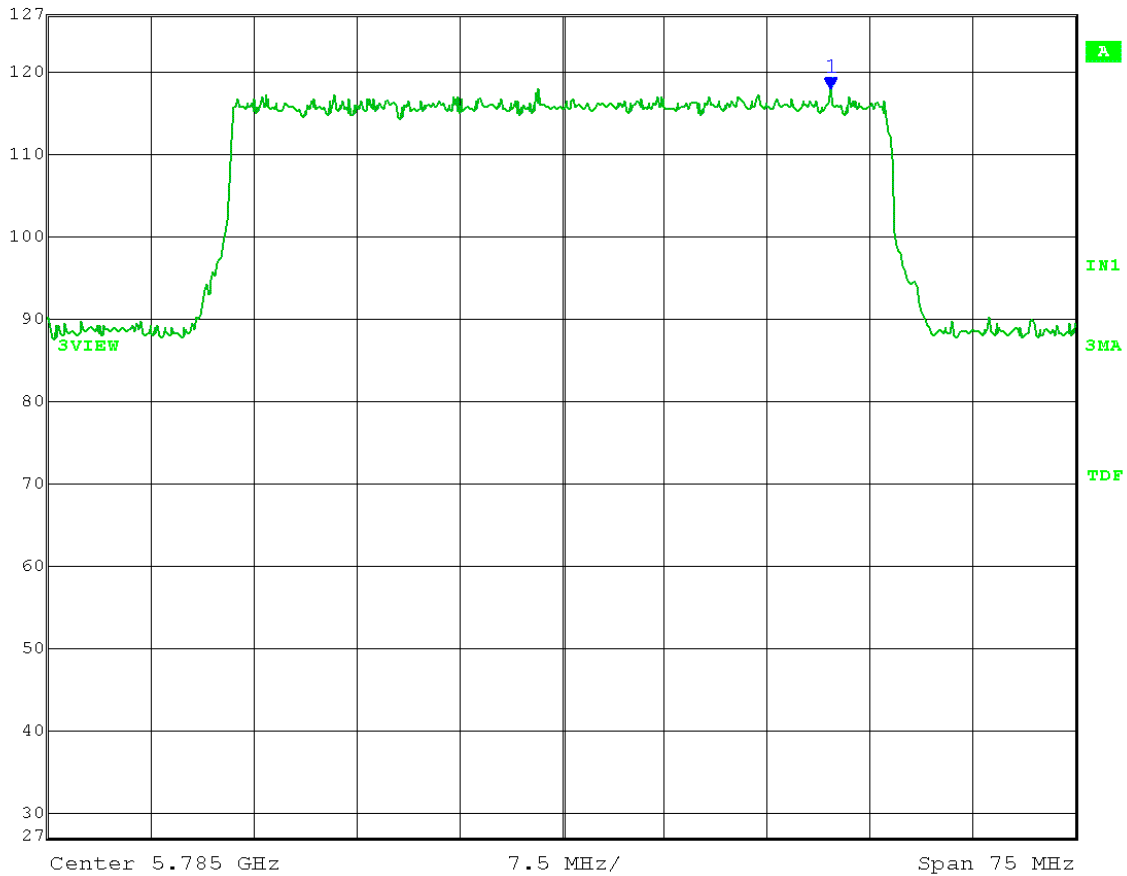
HORIZONTAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level measurement**

Limit = 117.79 dB $\mu$ V/m - 30 dB = 87.79 dB $\mu$ V/m

	Max/Ref Lvl	Marker 1 [T3]	RBW	100 kHz	RF Att	30 dB
	127 dB*	117.79 dB $\mu$ V/m	VBW	300 kHz		
	117 dB*	5.80461423 GHz	SWT	19 ms	Unit	dB $\mu$ V/m

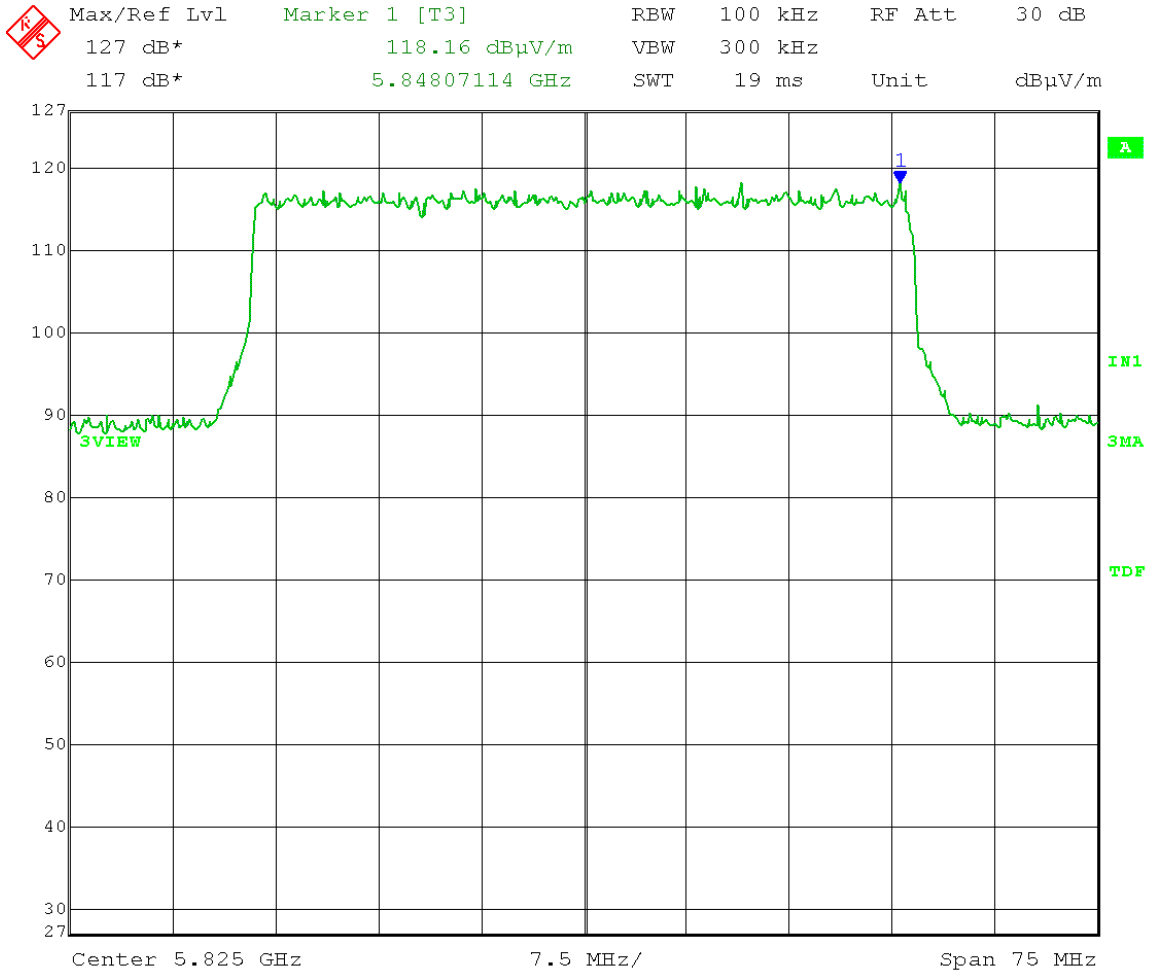


Date: 17.OCT.2013 13:43:04

Test Date: 10-17-2013  
Company: Ubiquiti Networks  
EUT: Model AF5 - 50MHz BW  
Test: Maximum Unwanted Emission Levels - Radiated  
Operator: Craig B

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

High Channel Transmit = 5.825 GHz  
HORIZONTAL; 3 meter  
Output power setting: 50 dBm eirp (Point-to-Point system)  
Reference Level measurement  
Limit = 118.16 dB $\mu$ V/m - 30 dB = 88.16 dB $\mu$ V/m



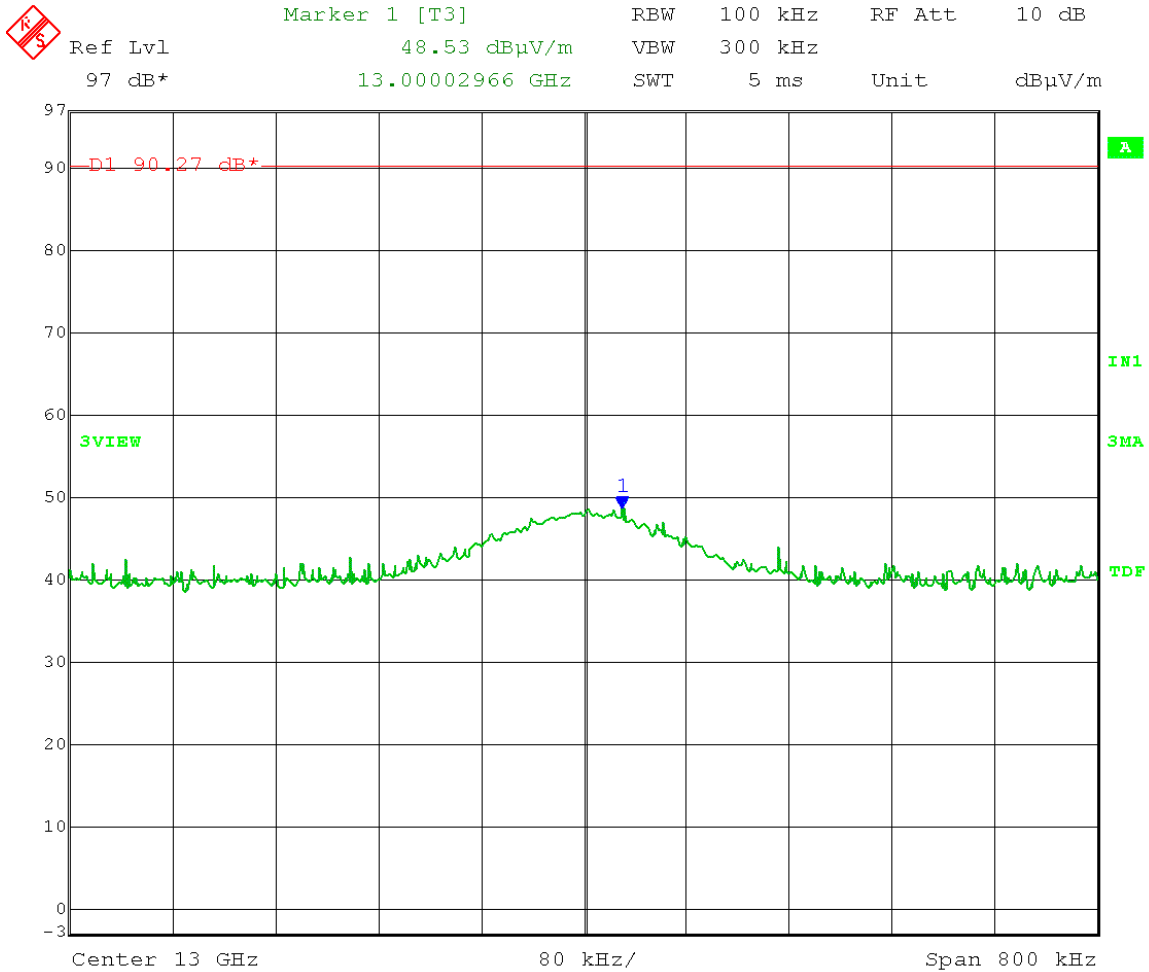
Date: 17.OCT.2013 13:48:02

Test Date: 10-17-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 50MHz BW  
 Test: Maximum Unwanted Emission Levels - Radiated  
 Operator: Craig B

Comment: RBW = 100 kHz  
 VBW  $\geq$  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 = 120.27 dB $\mu$ V/m - 30 dB = 90.27 dB $\mu$ V/m

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



Date: 17.OCT.2013 15:08:40

Test Date: 10-17-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 50MHz 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 = 5.750 GHz**

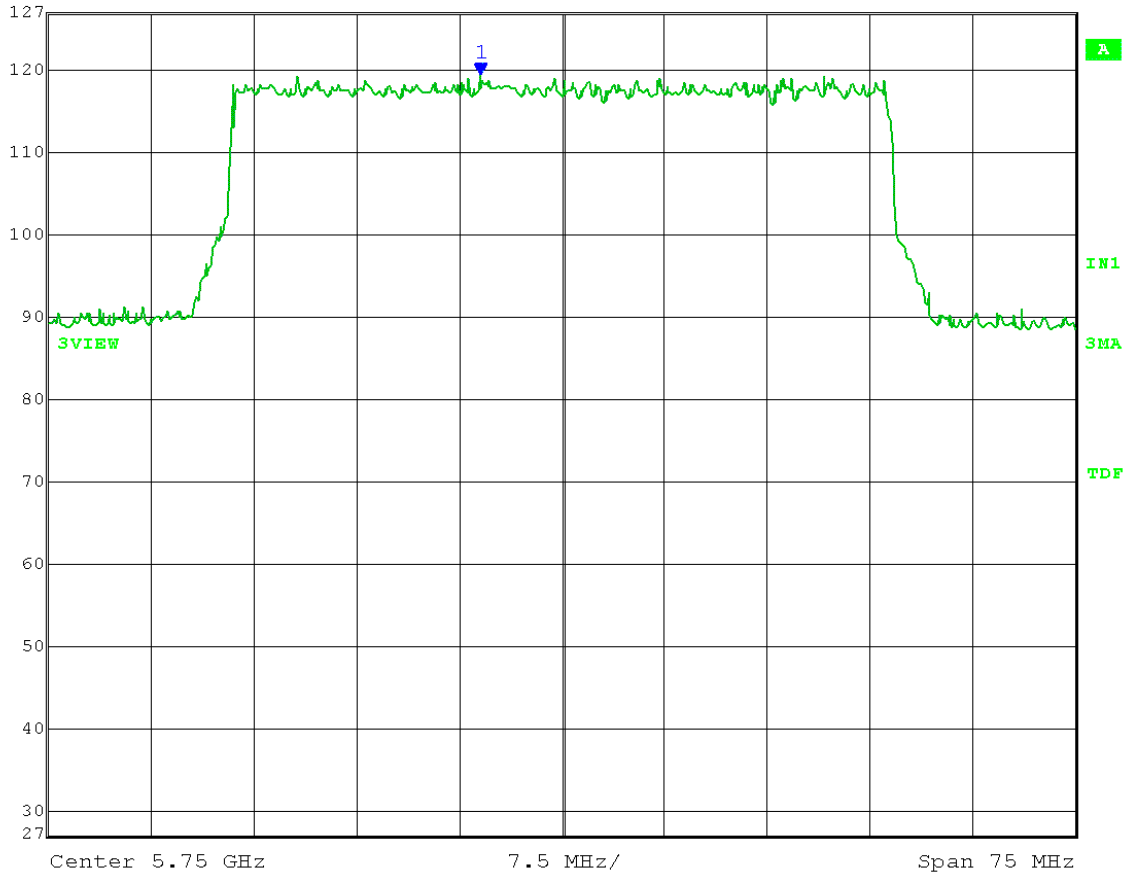
VERTICAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level measurement**

Limit = 119.30 dBμV/m - 30 dB = 89.30 dBμV/m

	Max/Ref Lvl	Marker 1 [T3]	RBW	100 kHz	RF Att	30 dB
	127 dB*	119.30 dBμV/m	VBW	300 kHz		
	117 dB*	5.74406313 GHz	SWT	19 ms	Unit	dBμV/m



Date: 17.OCT.2013 14:02:31



Test Date: 10-17-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 50MHz 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

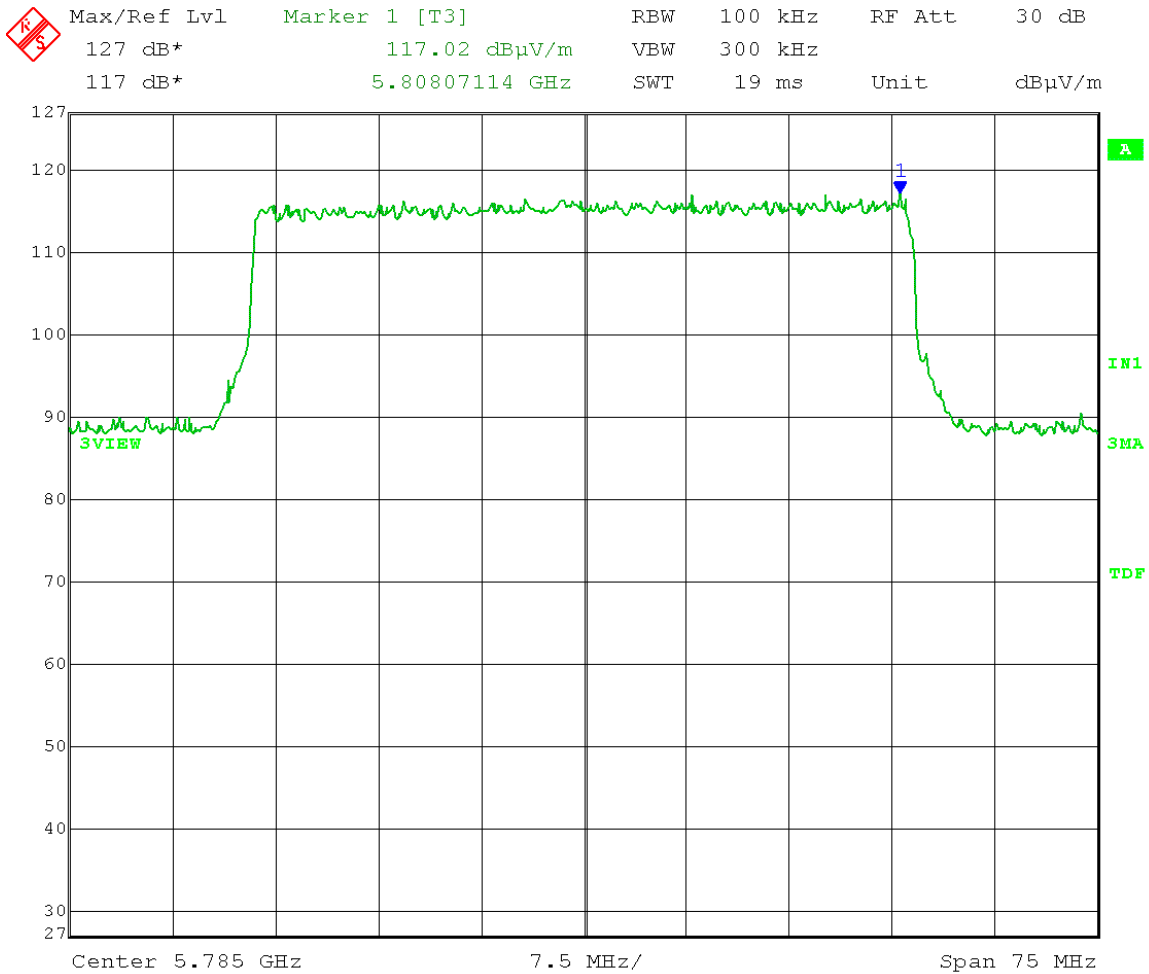
**Mid Channel Transmit = 5.785 GHz**

VERTICAL; 3 meter

Output power setting: 50 dBm eirp (Point-to-Point system)

**Reference Level measurement**

Limit = 117.02 dBμV/m - 30 dB = 87.02 dBμV/m

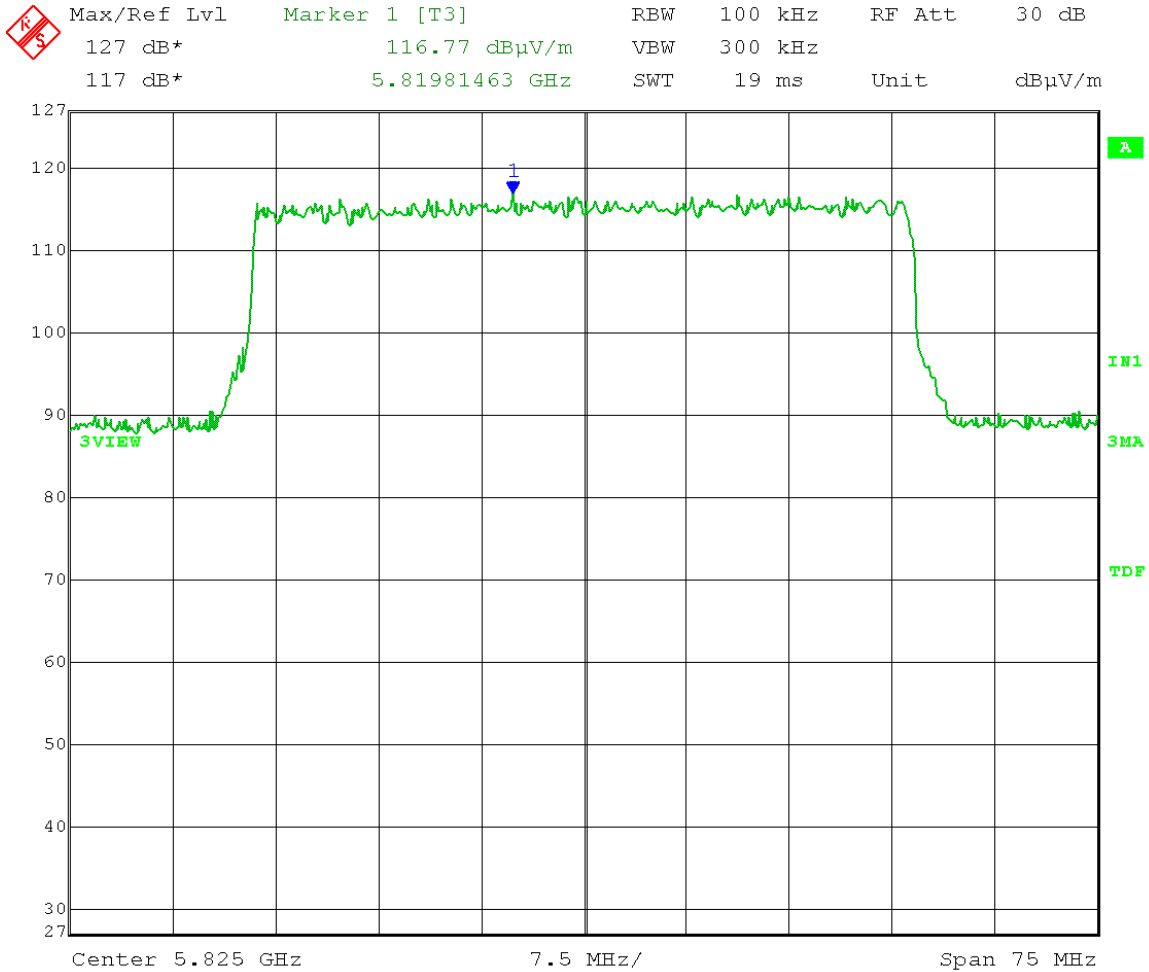


Date: 17.OCT.2013 13:57:38

Test Date: 10-17-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 50MHz 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 = 5.825 GHz**  
 VERTICAL; 3 meter  
 Output power setting: 50 dBm eirp (Point-to-Point system)  
**Reference Level measurement**  
 Limit = 116.77 dBμV/m - 30 dB = 86.77 dBμV/m



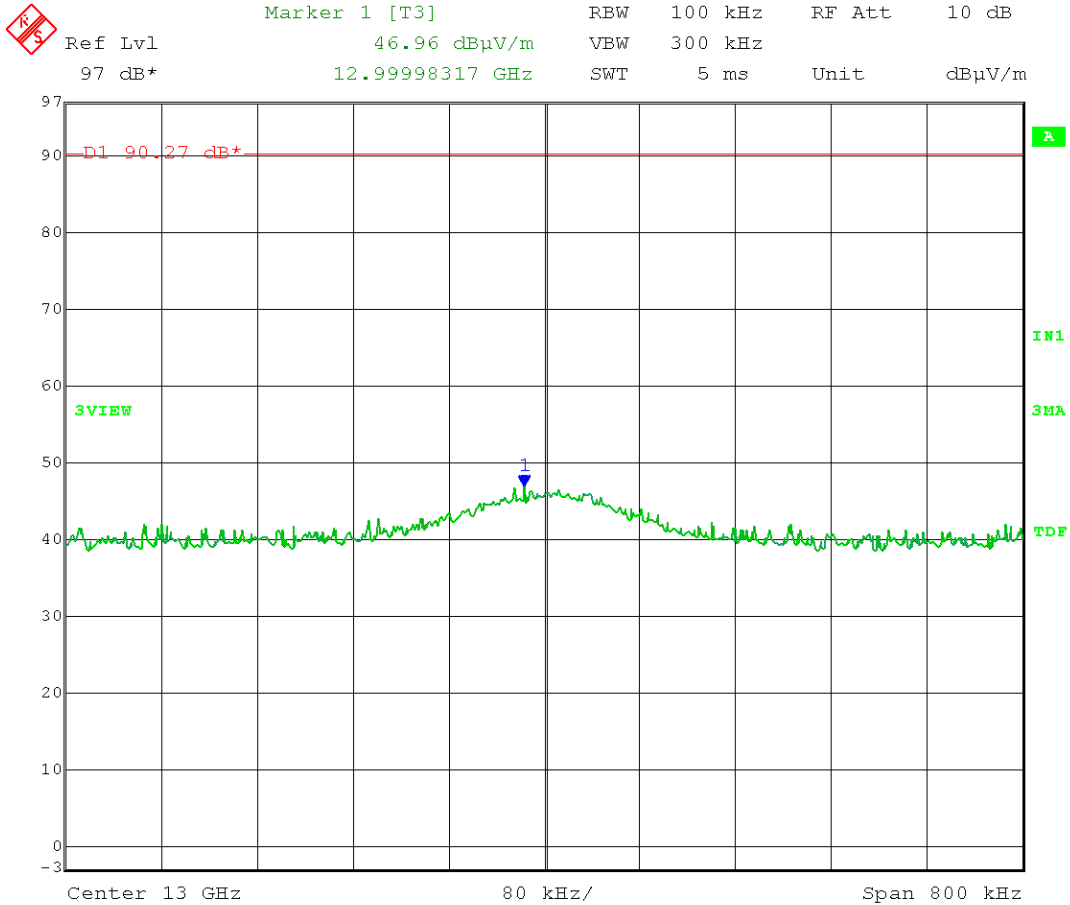
Date: 17.OCT.2013 13:52:38

Test Date: 10-17-2013  
 Company: Ubiquiti Networks  
 EUT: Model AF5 - 50MHz 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 = 119.30 dBμV/m - 30 dB = 89.30 dBμV/m

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



Date: 17.OCT.2013 15:17:08



Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
DLS Project: 6172

166 South Carter, Genoa City, WI 53128

## Appendix – Measurement Data

### 5.0 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  $\geq$  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

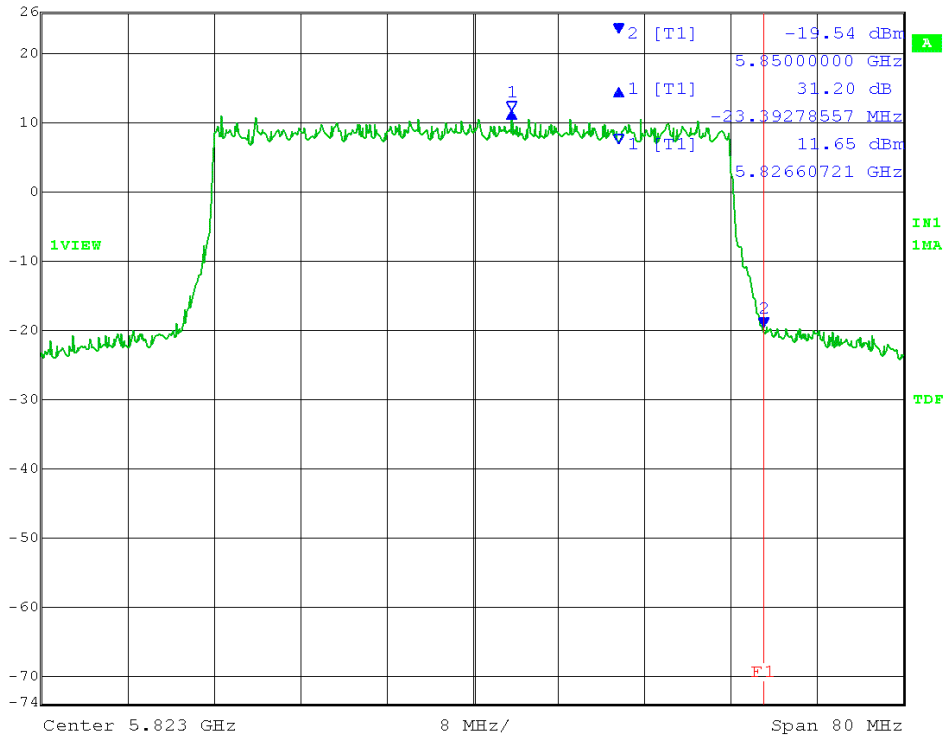
Test Date: 11-06-2013  
Company: Ubiquiti Networks  
EUT: Air Fiber 5 - 5.8GHz WiFi Radio  
Test: Band Edge/Out-of-band Emissions - Conducted  
Operator: Lillian Li  
Test Procedure used: KDB 558074 D01 v01r03 – 1308\*d+  
Limit: [15.247(d); RSS-210 A8.5]:  $\geq 30\text{dBc}$

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

**PLOTS: 50MHz Bandwidth & 40MHz Bandwidth**

# 50MHz HCH QPSK TX0,

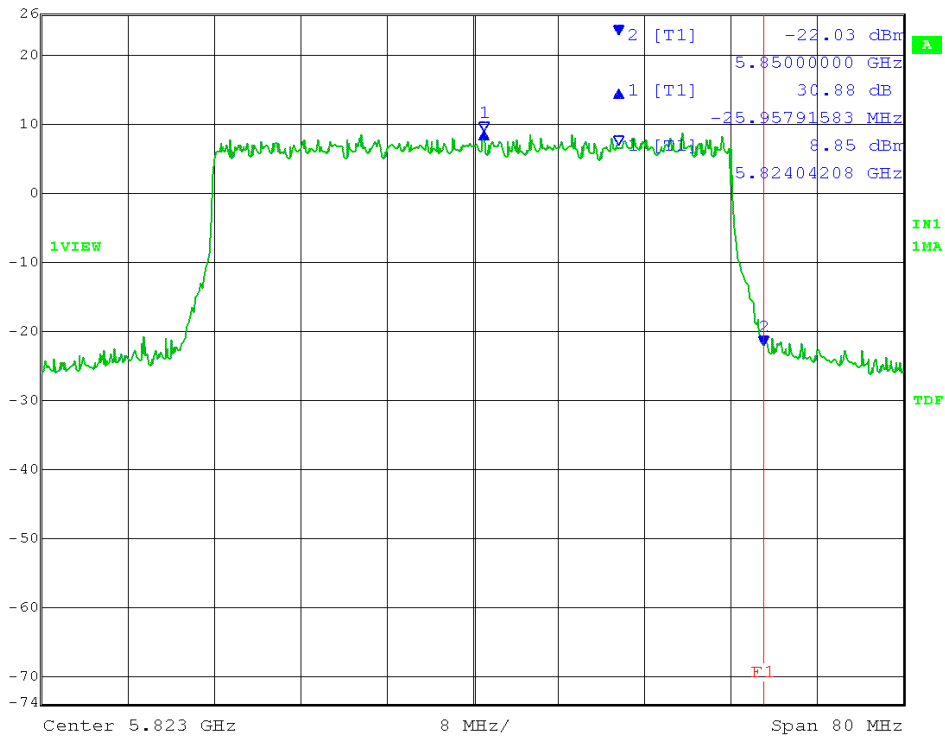
K  
S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 10 dB  
 26 dBm 31.20 dB VBW 300 kHz  
 -10 dBm -23.39278557 MHz SWT 20 ms Unit dBm



Date: 6.NOV.2013 09:11:34

# TX1

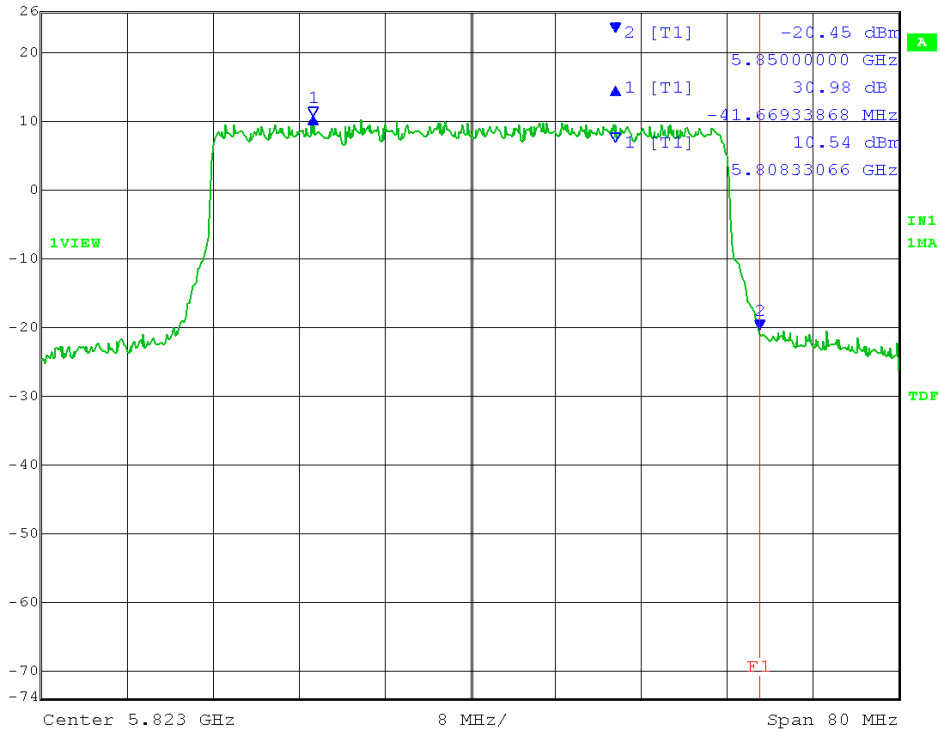
K  
S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 0 dB  
 26 dBm 30.88 dB VBW 300 kHz  
 -10 dBm -25.95791583 MHz SWT 20 ms Unit dBm



Date: 6.NOV.2013 11:10:42

# 50MHz HCH 16QAM TX0

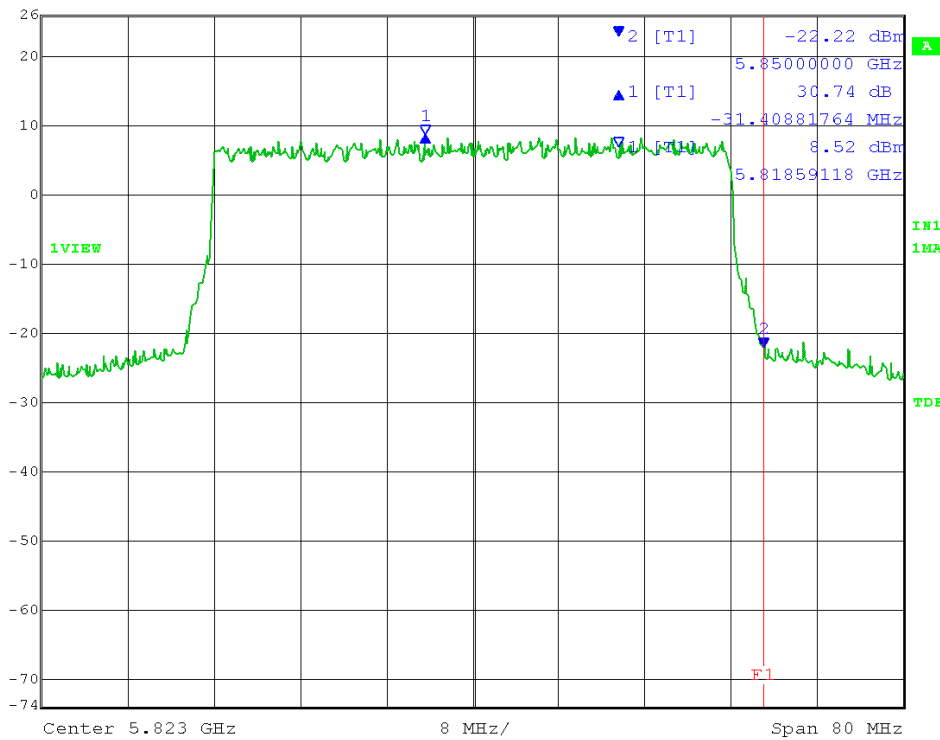
K/S Max/Ref Lvl    Delta 1 [T1]                    RBW    100 kHz    RF Att    10 dB  
 26 dBm                                    30.98 dB                    VBW    300 kHz  
 -10 dBm                                   -41.66933868 MHz            SWT    20 ms            Unit            dBm



Date: 6.NOV.2013 09:13:18

# TX1

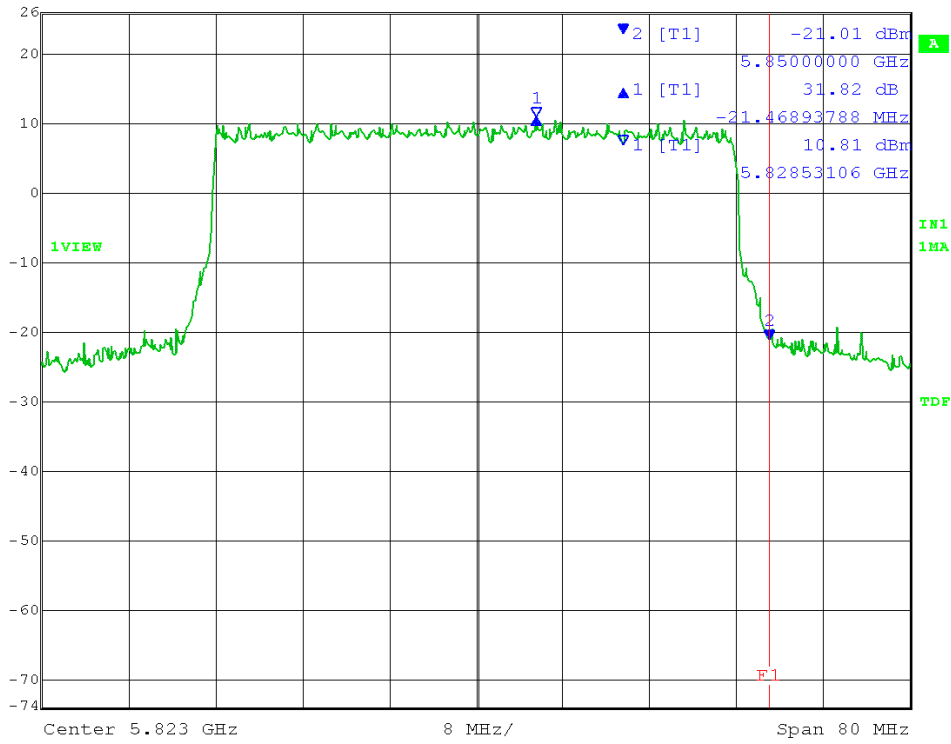
K/S Max/Ref Lvl    Delta 1 [T1]                    RBW    100 kHz    RF Att    0 dB  
 26 dBm                                    30.74 dB                    VBW    300 kHz  
 -10 dBm                                   -31.40881764 MHz            SWT    20 ms            Unit            dBm



Date: 6.NOV.2013 11:11:54

# 50MHz HCH 64QAM TX0

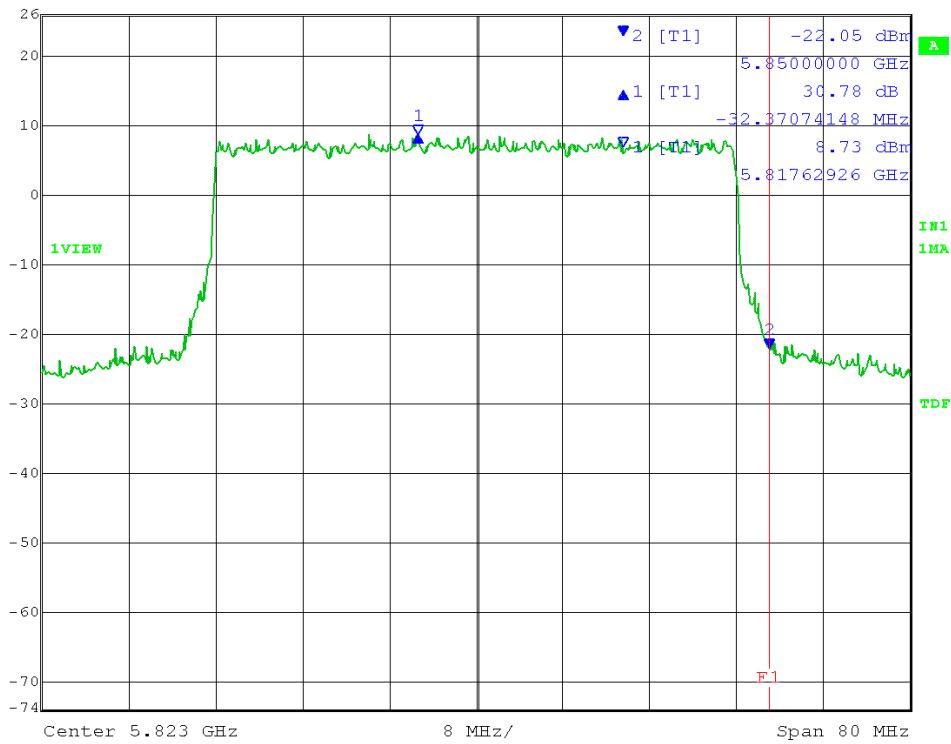
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	10 dB
	26 dBm	31.82 dB	VBW	300 kHz		
	-10 dBm	-21.46893788 MHz	SWT	20 ms	Unit	dBm



Date: 6.NOV.2013 09:15:23

# TX1

	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	26 dBm	30.78 dB	VBW	300 kHz		
	-10 dBm	-32.37074148 MHz	SWT	20 ms	Unit	dBm

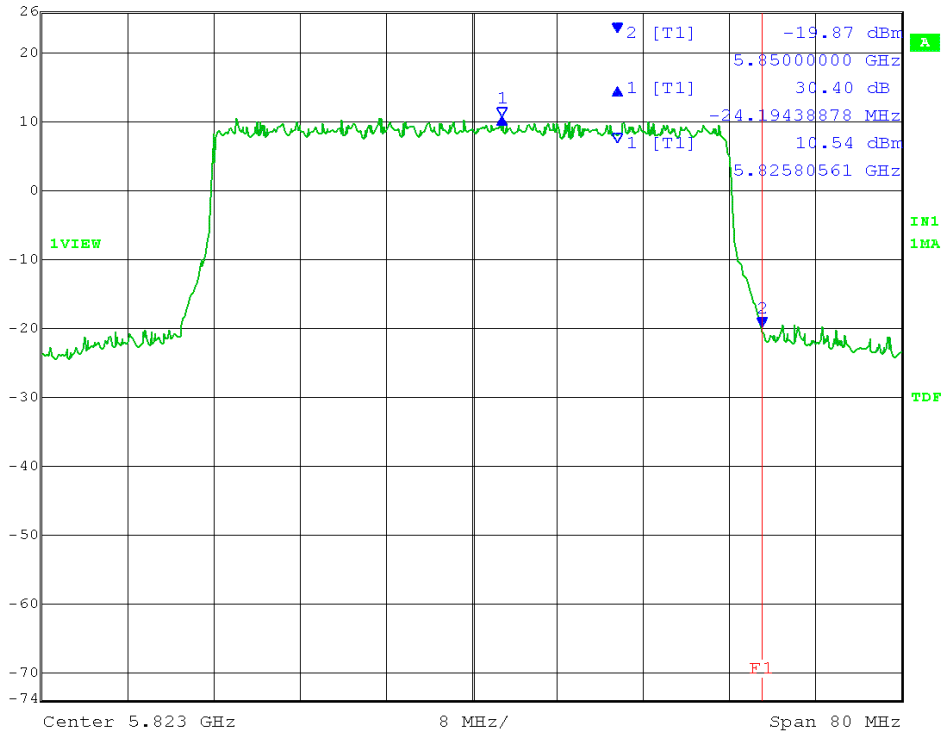


Date: 6.NOV.2013 11:12:34



# 50MHz HCH 256QAM TX0

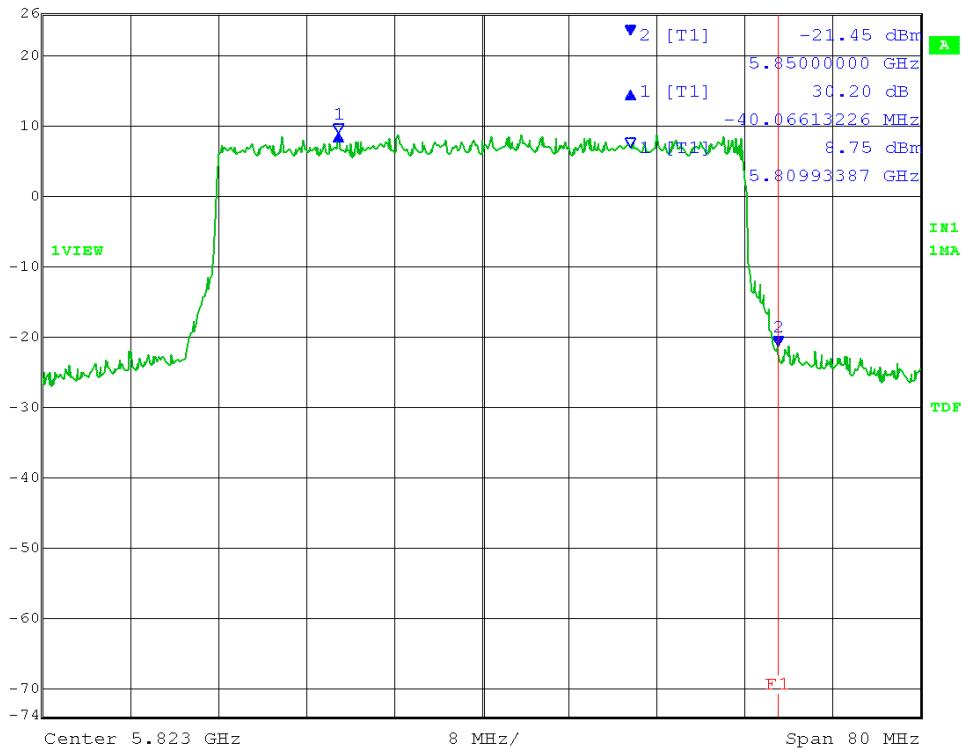
K
S
 Max/Ref Lvl    Delta 1 [T1]            RBW    100 kHz    RF Att    10 dB  
 26 dBm                            30.40 dB            VBW    300 kHz  
 -10 dBm                           -24.19438878 MHz    SWT    20 ms            Unit            dBm



Date: 6.NOV.2013 09:16:28

# TX1

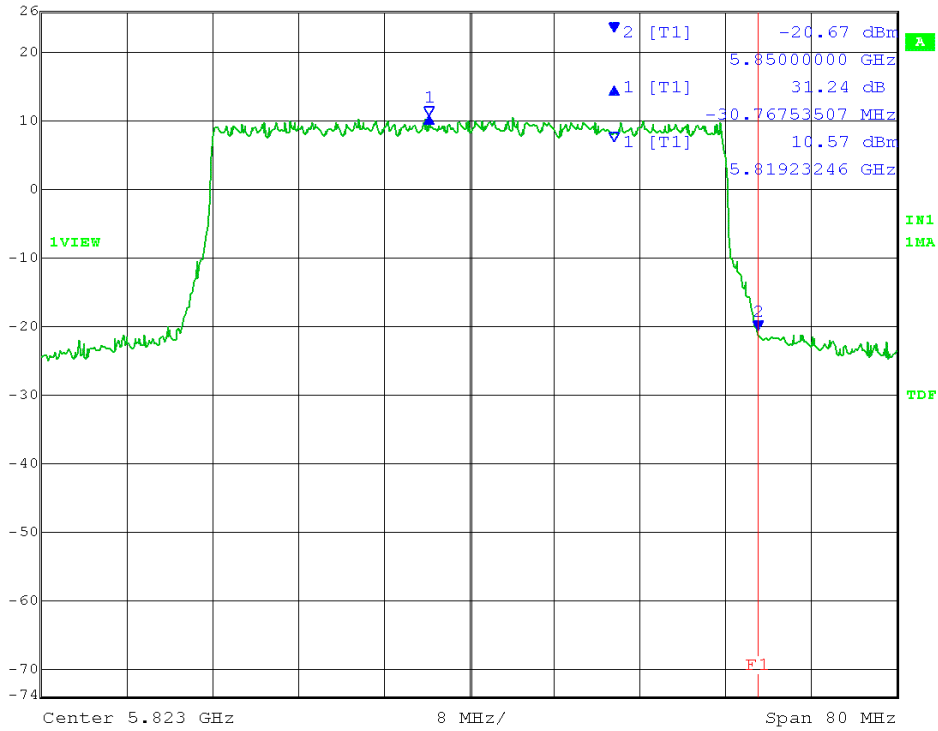
K
S
 Max/Ref Lvl    Delta 1 [T1]            RBW    100 kHz    RF Att    0 dB  
 26 dBm                            30.20 dB            VBW    300 kHz  
 -10 dBm                           -40.06613226 MHz    SWT    20 ms            Unit            dBm



Date: 6.NOV.2013 11:13:49

# 50MHz HCH 1024QAM TX0

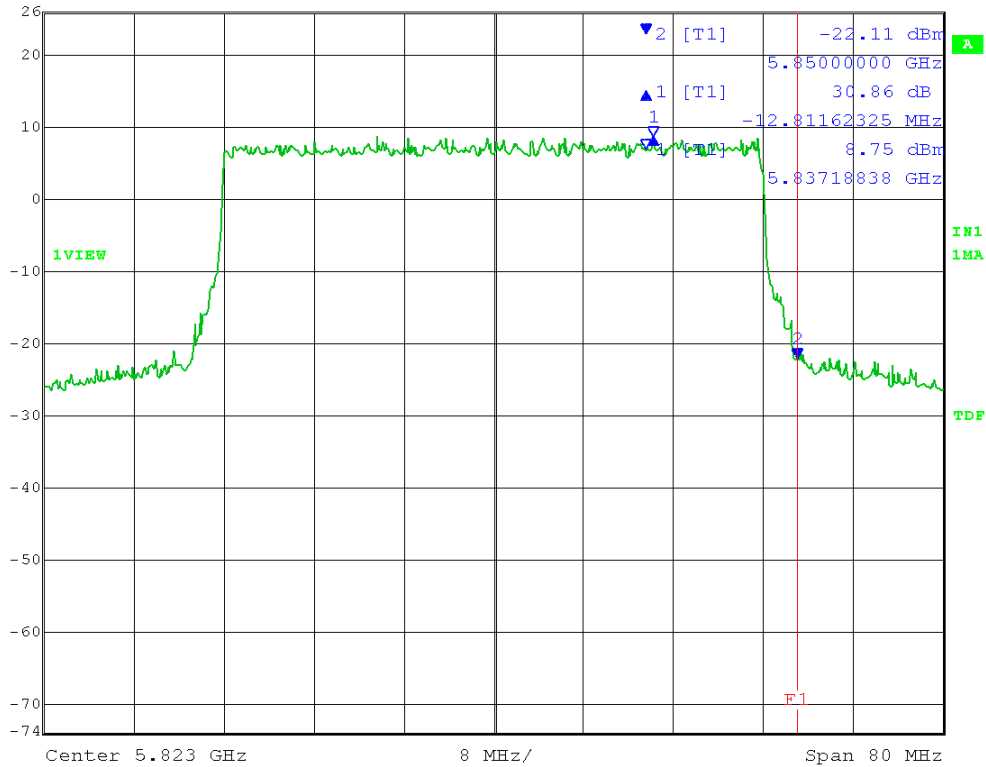
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	10 dB
	26 dBm	31.24 dB	VBW	300 kHz		
	-10 dBm	-30.76753507 MHz	SWT	20 ms	Unit	dBm



Date: 6.NOV.2013 09:17:18

# TX1

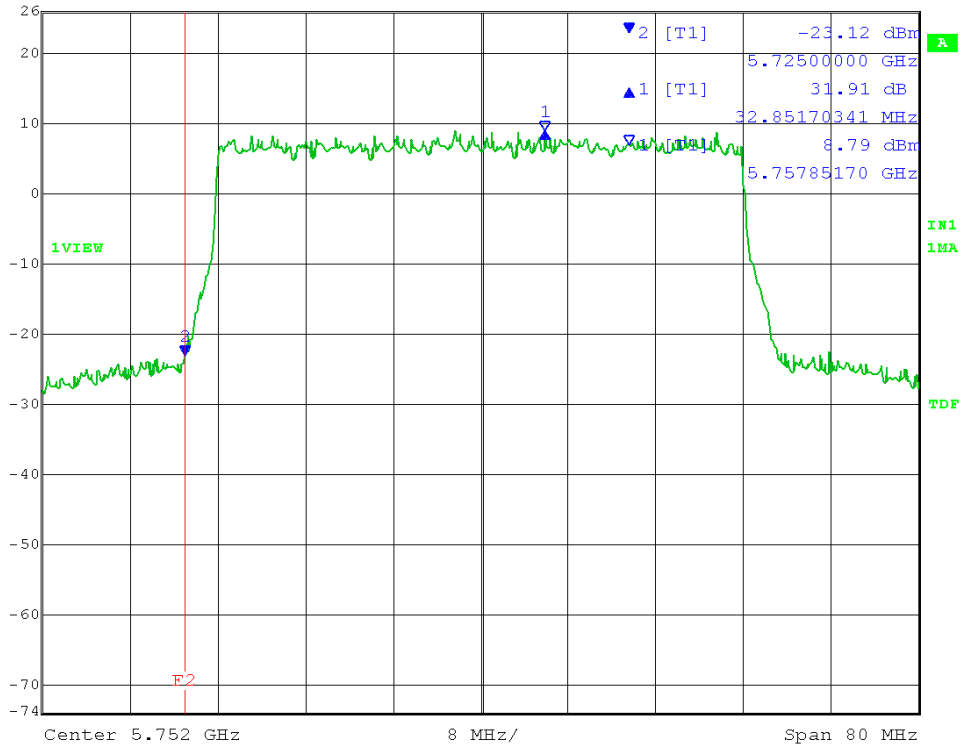
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	26 dBm	30.86 dB	VBW	300 kHz		
	-10 dBm	-12.81162325 MHz	SWT	20 ms	Unit	dBm



Date: 6.NOV.2013 11:14:52

# 50MHz LCH QPSK TX0

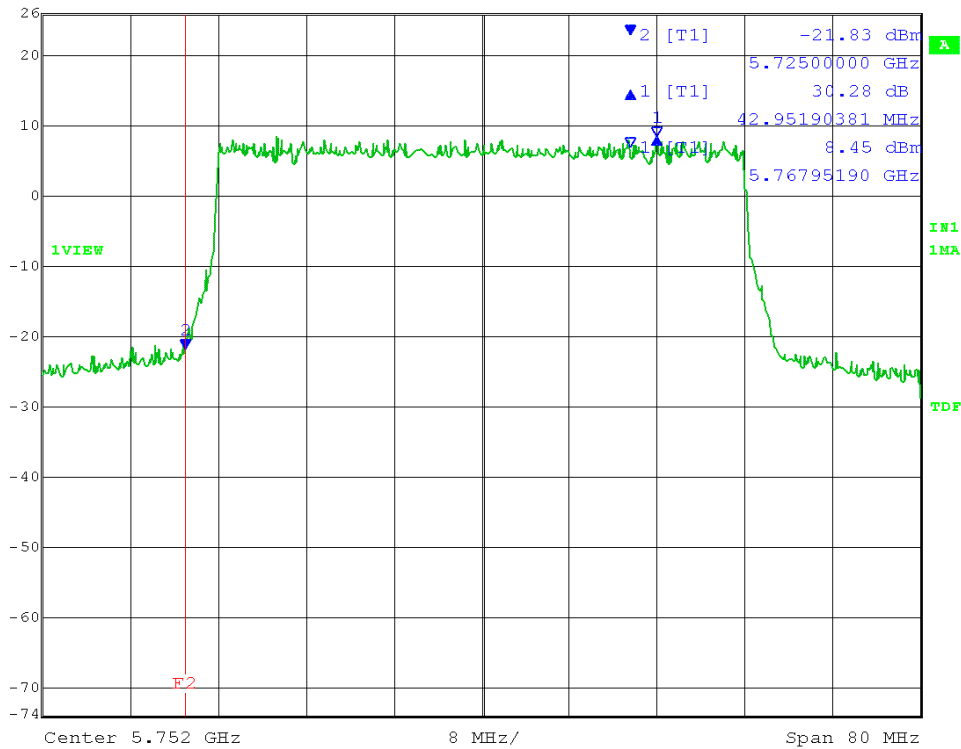
K  
S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 0 dB  
 26 dBm 31.91 dB VBW 300 kHz  
 -10 dBm 32.85170341 MHz SWT 20 ms Unit dBm



Date: 6.NOV.2013 12:23:15

# TX1

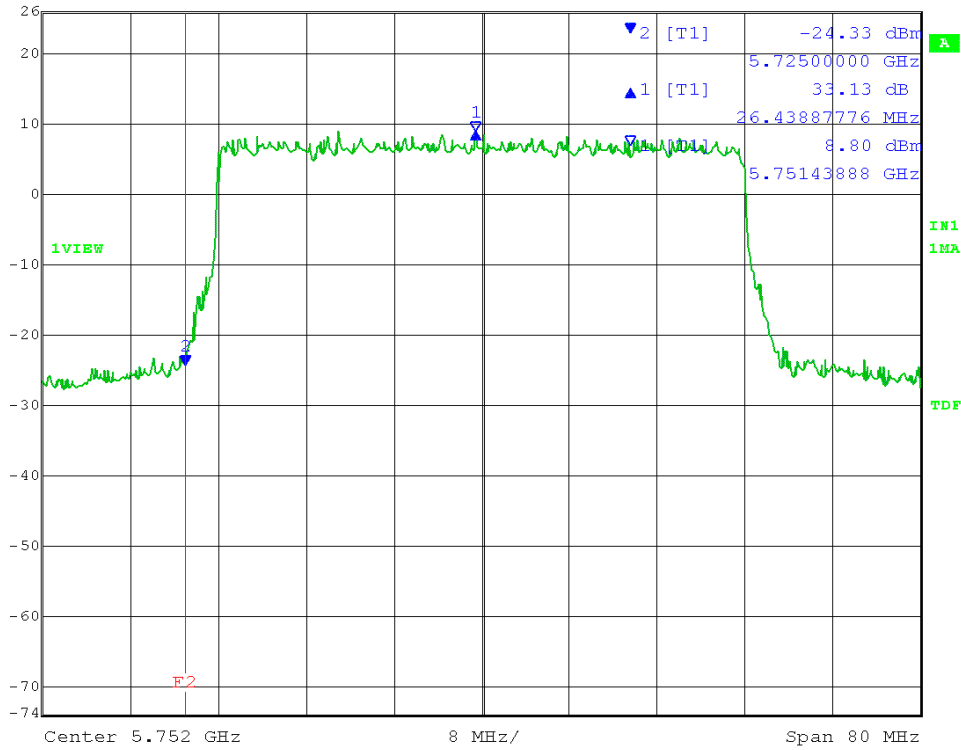
K  
S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 0 dB  
 26 dBm 30.28 dB VBW 300 kHz  
 -10 dBm 42.95190381 MHz SWT 20 ms Unit dBm



Date: 6.NOV.2013 12:28:53

# 50MHz LCH 16QAM TX0

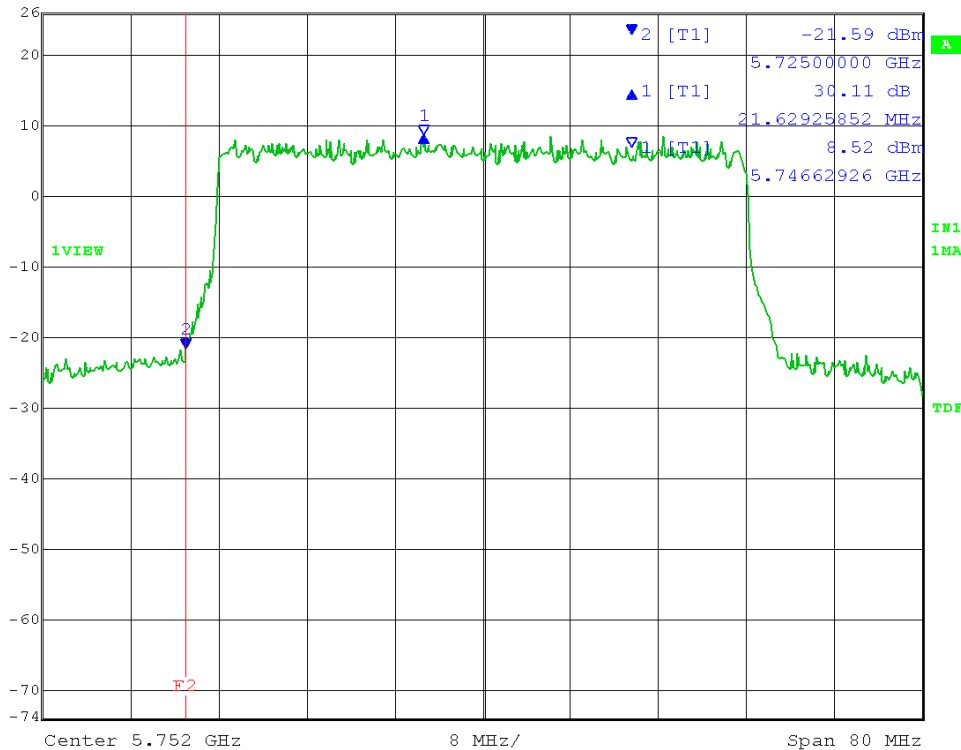
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	26 dBm	33.13 dB	VBW	300 kHz		
	-10 dBm	26.43887776 MHz	SWT	20 ms	Unit	dBm



Date: 6.NOV.2013 12:23:41

# TX1

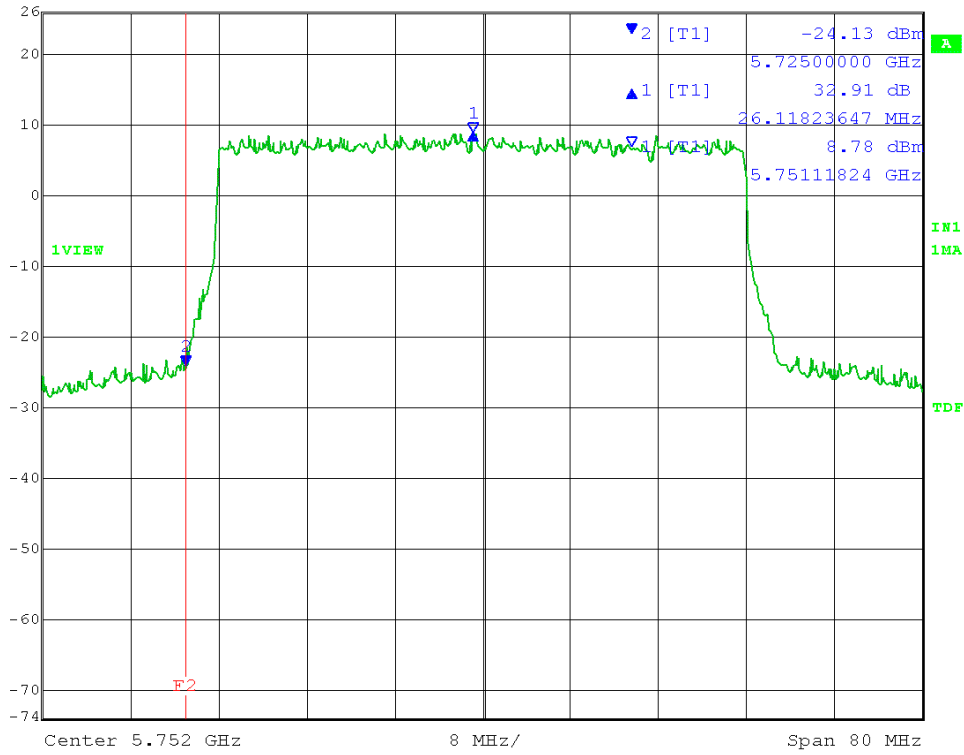
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	26 dBm	30.11 dB	VBW	300 kHz		
	-10 dBm	21.62925852 MHz	SWT	20 ms	Unit	dBm



Date: 6.NOV.2013 12:29:25

# 50MHz LCH 64QAM TX0

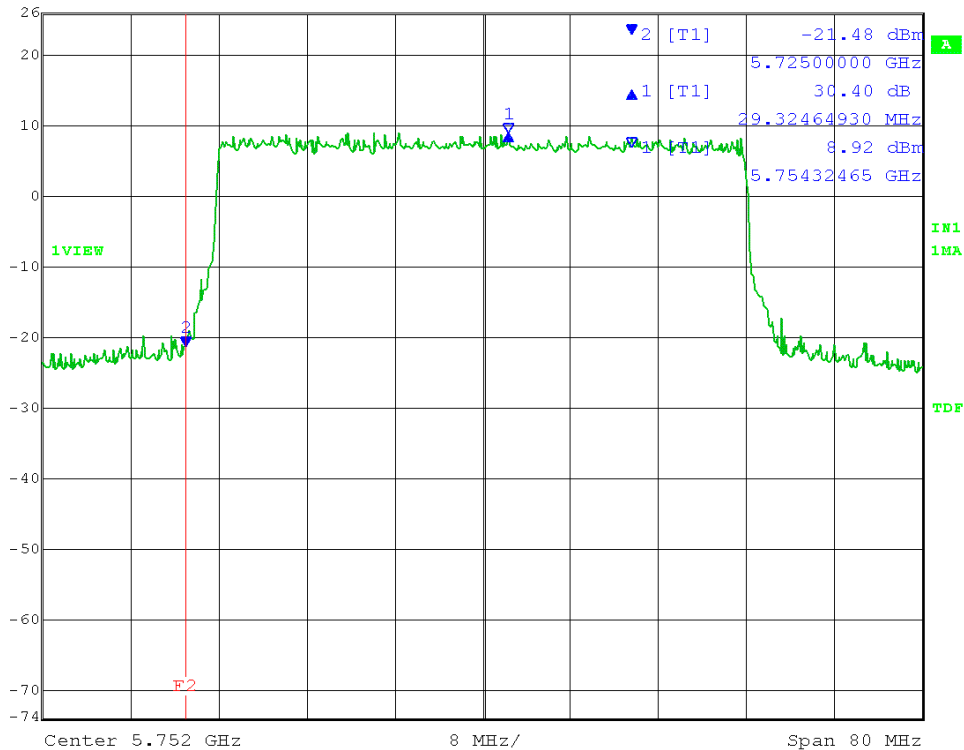
K Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 0 dB  
 26 dBm                    32.91 dB    VBW 300 kHz  
 -10 dBm                    26.11823647 MHz    SWT 20 ms    Unit dBm



Date: 6.NOV.2013 12:24:07

# TX1

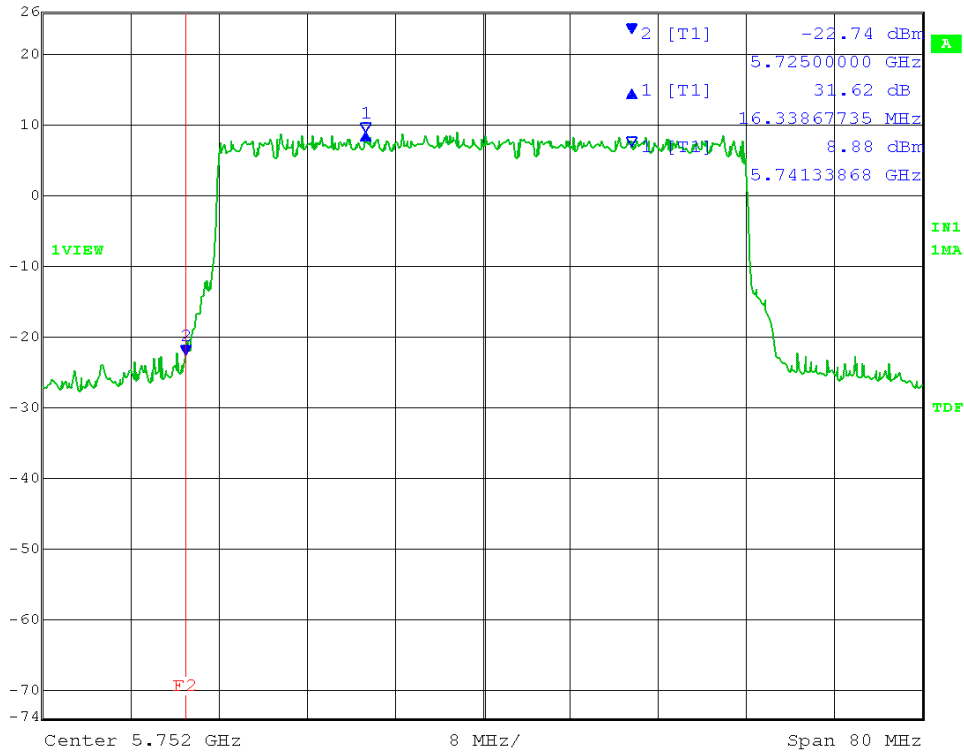
K Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 0 dB  
 26 dBm                    30.40 dB    VBW 300 kHz  
 -10 dBm                    29.32464930 MHz    SWT 20 ms    Unit dBm



Date: 6.NOV.2013 12:30:04

# 50MHz LCH 256QAM TX0

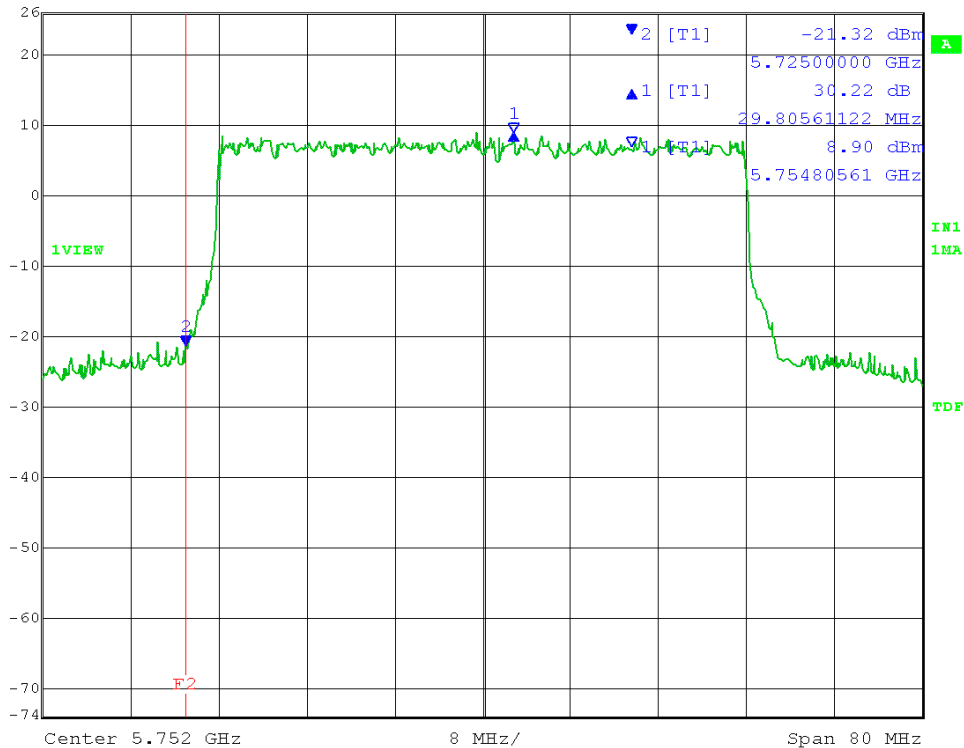
K/S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 0 dB  
 26 dBm 31.62 dB VBW 300 kHz  
 -10 dBm 16.33867735 MHz SWT 20 ms Unit dBm



Date: 6.NOV.2013 12:24:29

# TX1

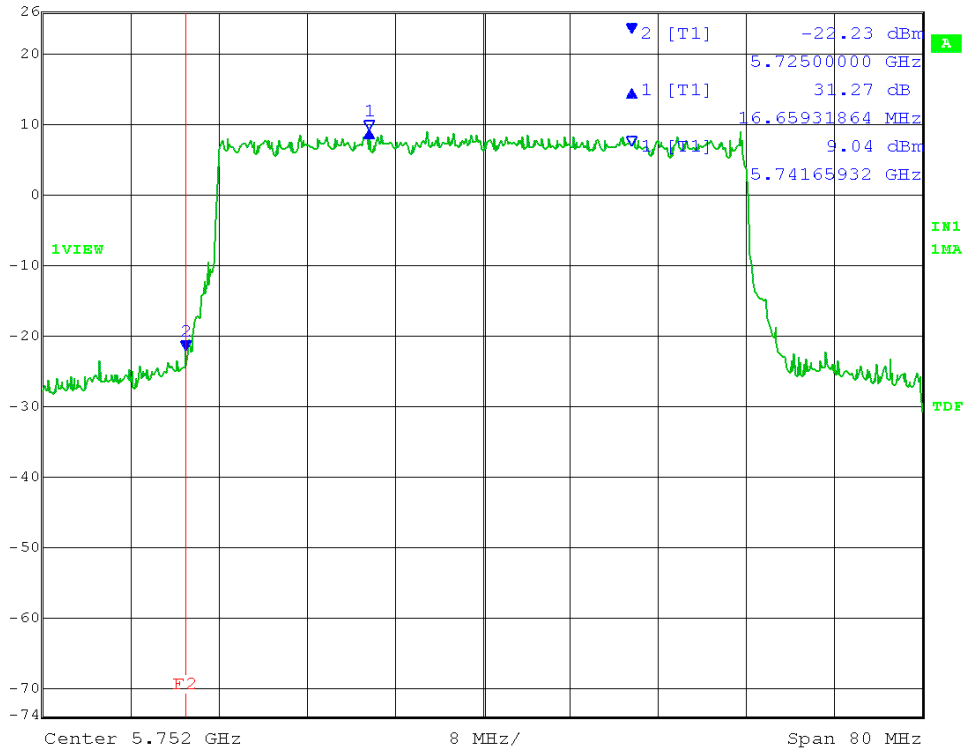
K/S Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 0 dB  
 26 dBm 30.22 dB VBW 300 kHz  
 -10 dBm 29.80561122 MHz SWT 20 ms Unit dBm



Date: 6.NOV.2013 12:31:26

# 50MHz LCH 1024QAM TX0

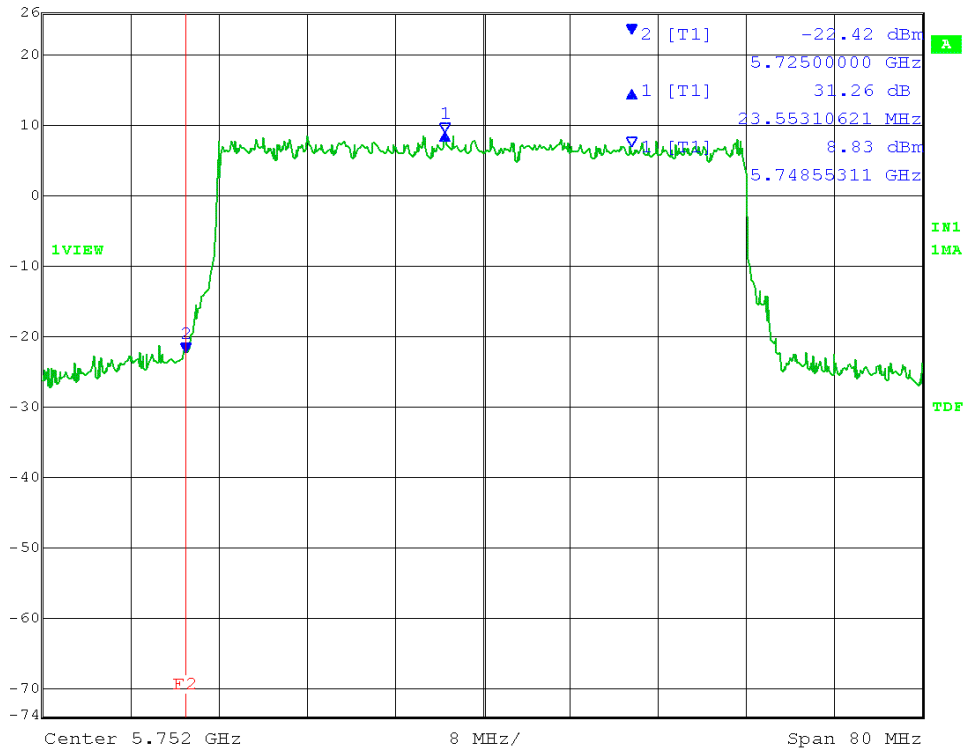
K/S Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    31.27 dB    VBW    300 kHz  
 -10 dBm                    16.65931864 MHz    SWT    20 ms    Unit    dBm



Date: 6.NOV.2013 12:25:01


# TX1

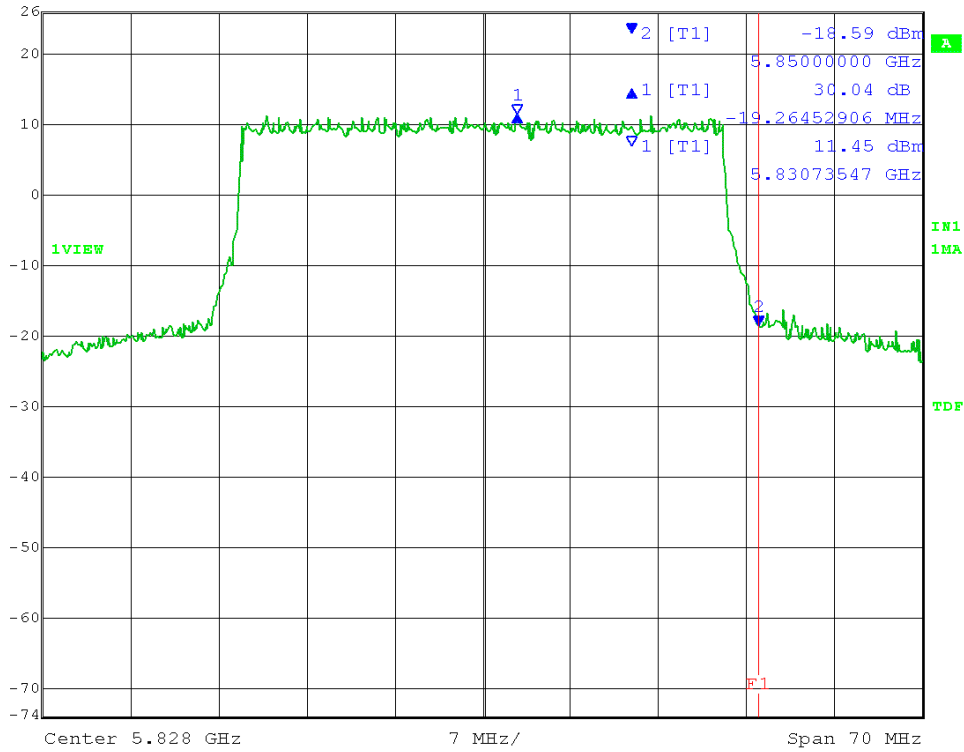
K/S Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    31.26 dB    VBW    300 kHz  
 -10 dBm                    23.55310621 MHz    SWT    20 ms    Unit    dBm



Date: 6.NOV.2013 12:32:26


# 40MHz HCH QPSK TX0

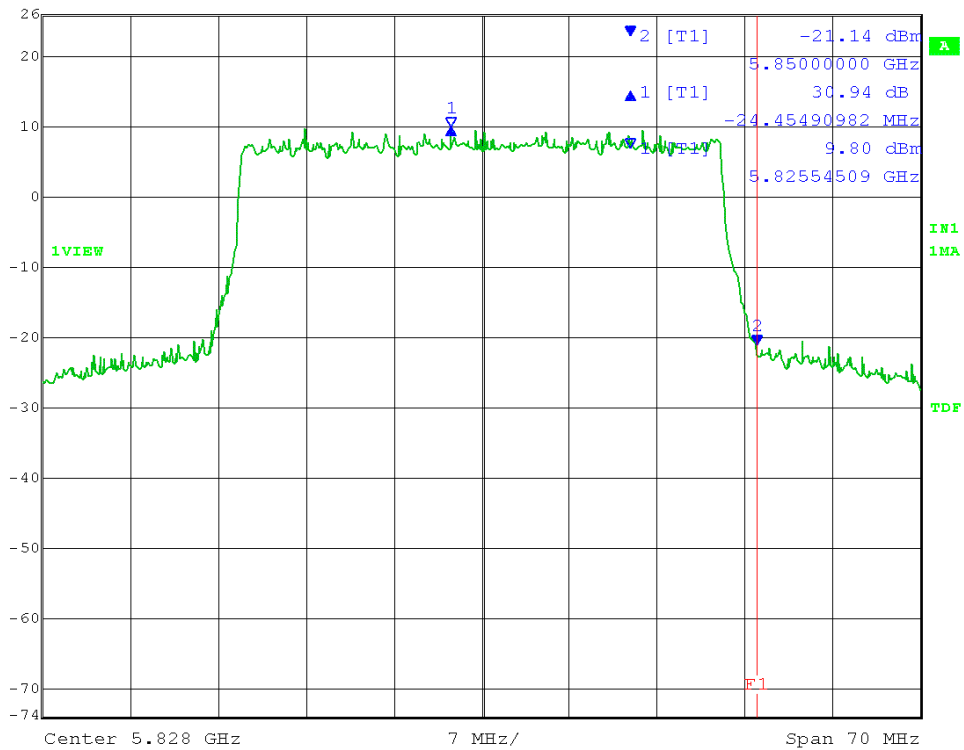
	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	26 dBm	30.04 dB	VBW	300 kHz		
	-10 dBm	-19.26452906 MHz	SWT	17.5 ms	Unit	dBm



Date: 6.NOV.2013 10:16:49

# TX1

	Max/Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
	26 dBm	30.94 dB	VBW	300 kHz		
	-10 dBm	-24.45490982 MHz	SWT	17.5 ms	Unit	dBm

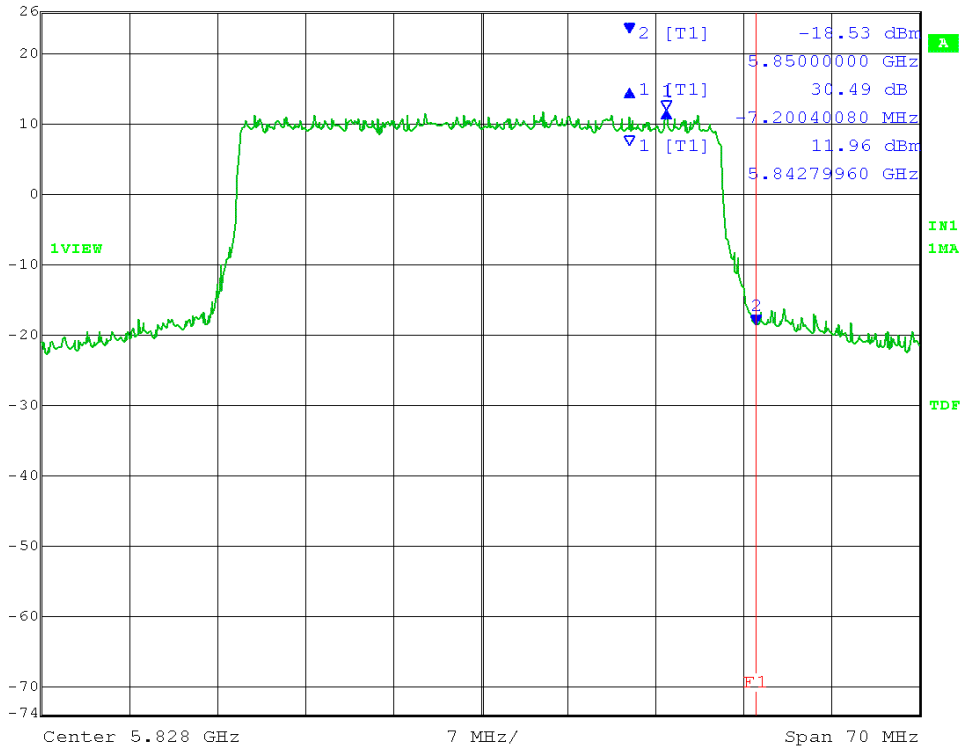


Date: 6.NOV.2013 11:04:59



# 40MHz HCH 16QAM TX0

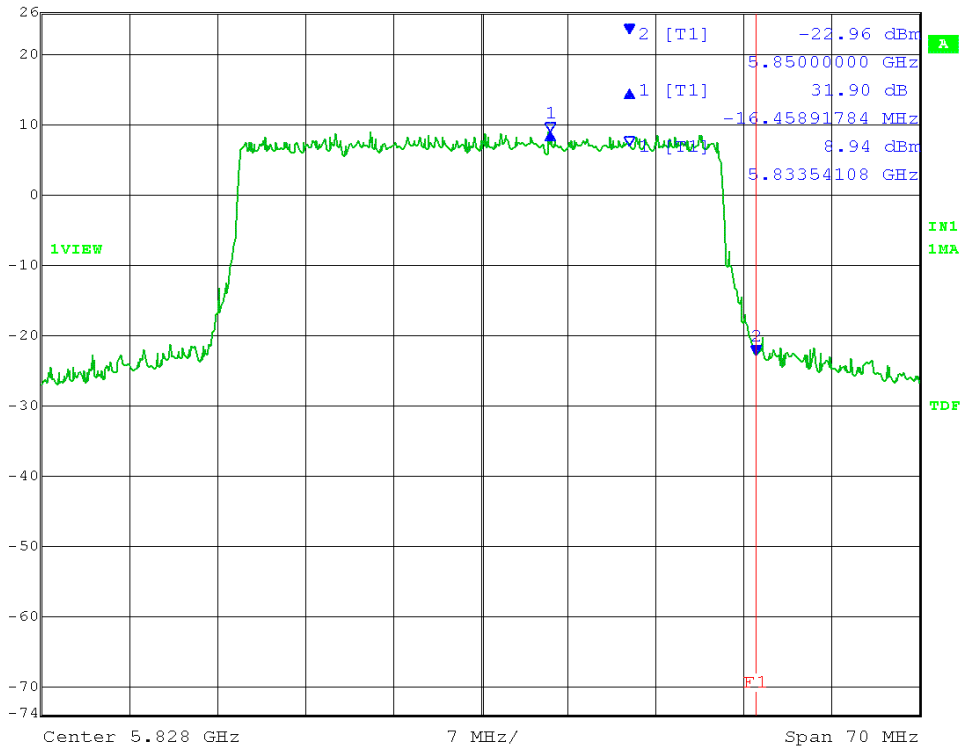
KS Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    30.49 dB    VBW    300 kHz  
 -10 dBm                   -7.20040080 MHz    SWT    17.5 ms    Unit            dBm



Date: 6.NOV.2013 10:17:25

# TX1

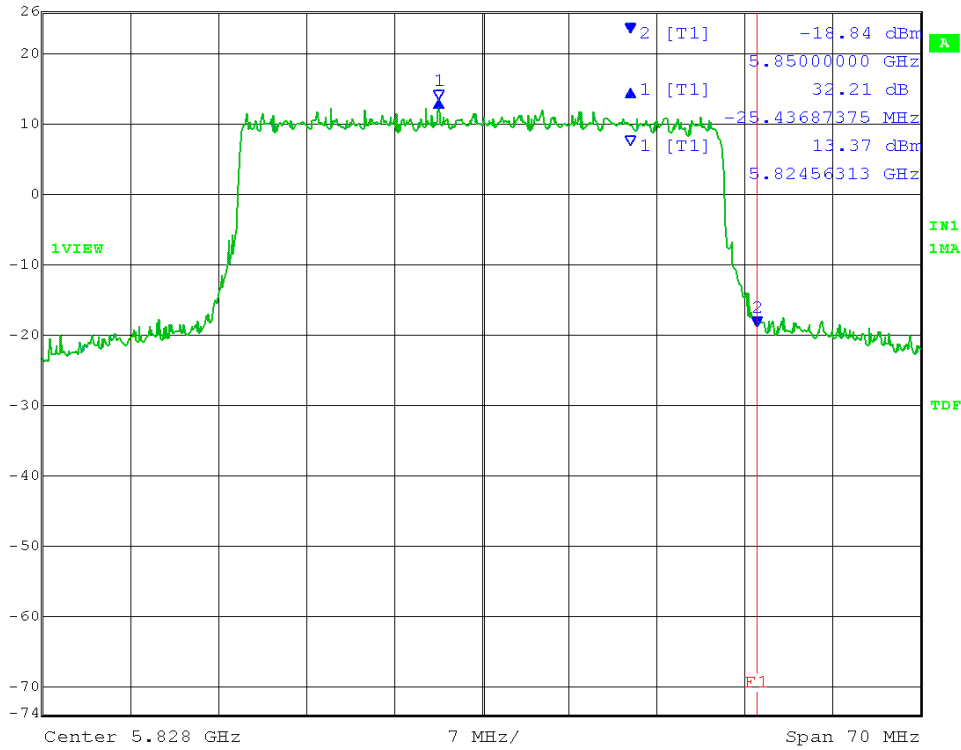
KS Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    31.90 dB    VBW    300 kHz  
 -10 dBm                   -16.45891784 MHz    SWT    17.5 ms    Unit            dBm



Date: 6.NOV.2013 11:05:33

# 40MHz HCH 64QAM TX0

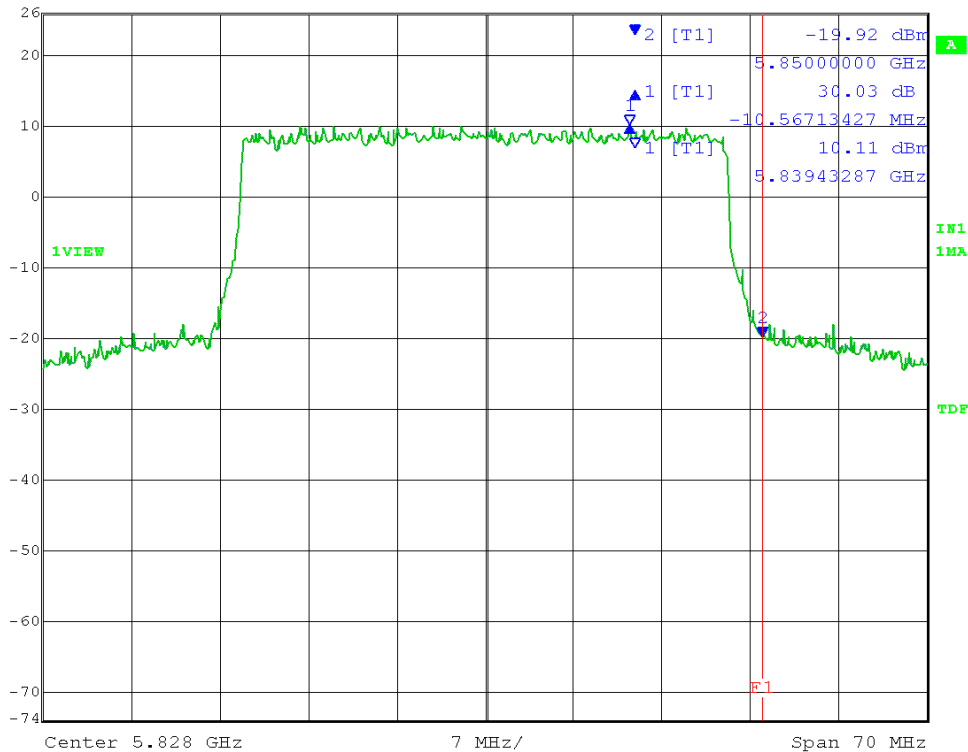
K/S Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    32.21 dB    VBW    300 kHz  
 -10 dBm                   -25.43687375 MHz    SWT    17.5 ms    Unit            dBm



Date: 6.NOV.2013 10:19:25

# TX1

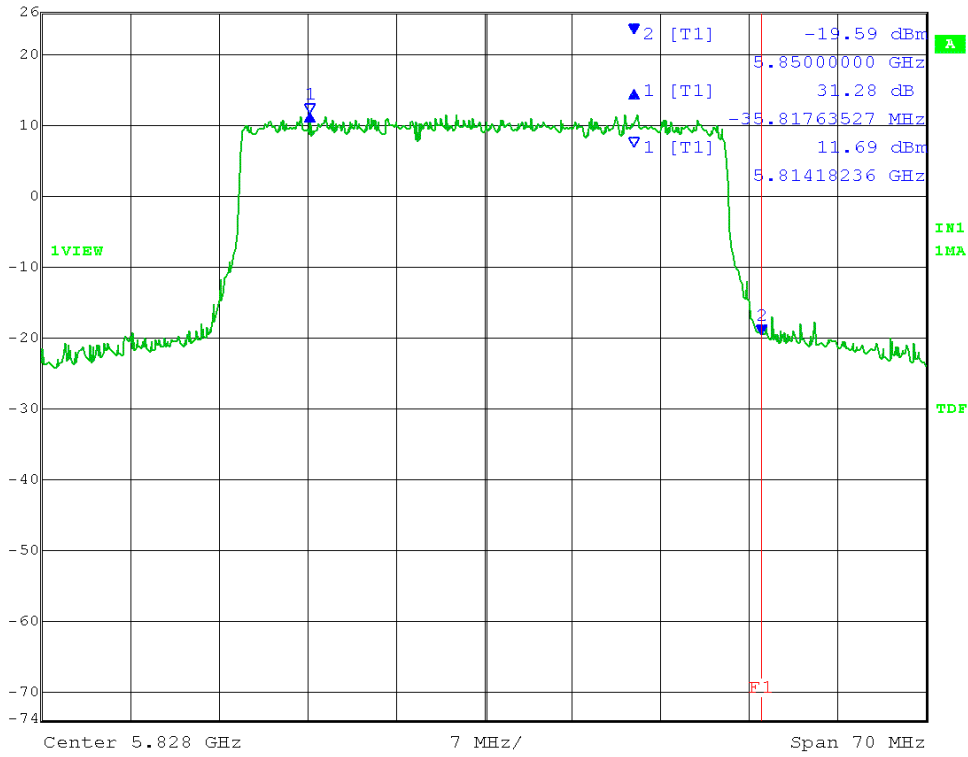
K/S Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    30.03 dB    VBW    300 kHz  
 -10 dBm                   -10.56713427 MHz    SWT    17.5 ms    Unit            dBm



Date: 6.NOV.2013 11:06:07

# 40MHz HCH 256QAM TX0

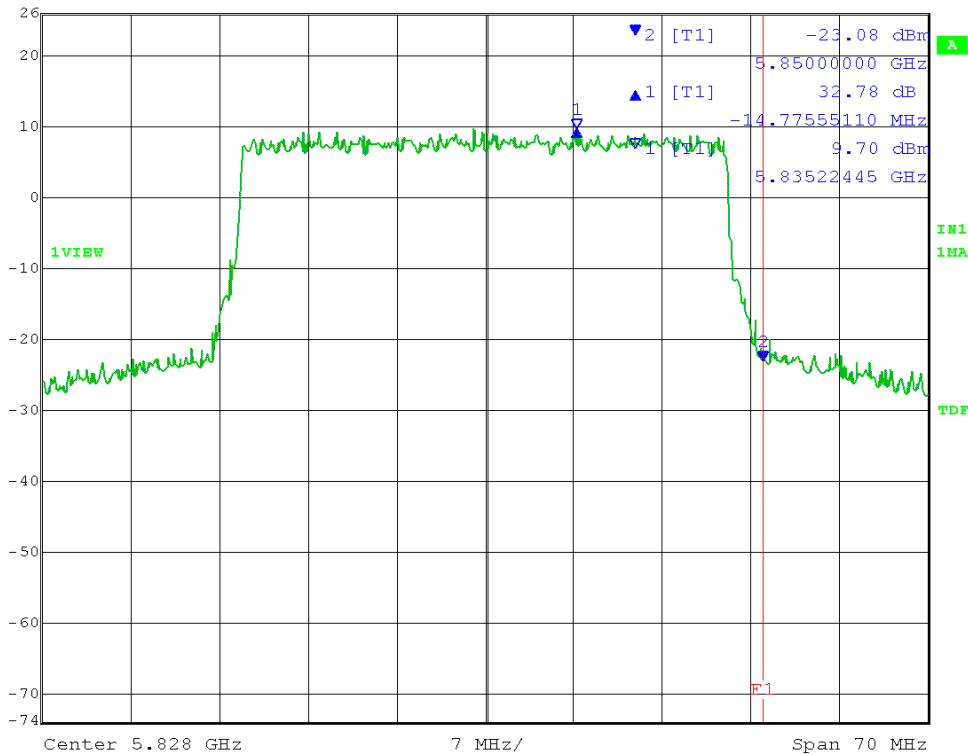
FS Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    31.28 dB    VBW    300 kHz  
 -10 dBm                    -35.81763527 MHz    SWT    17.5 ms    Unit    dBm



Date: 6.NOV.2013 10:20:01


# TX1

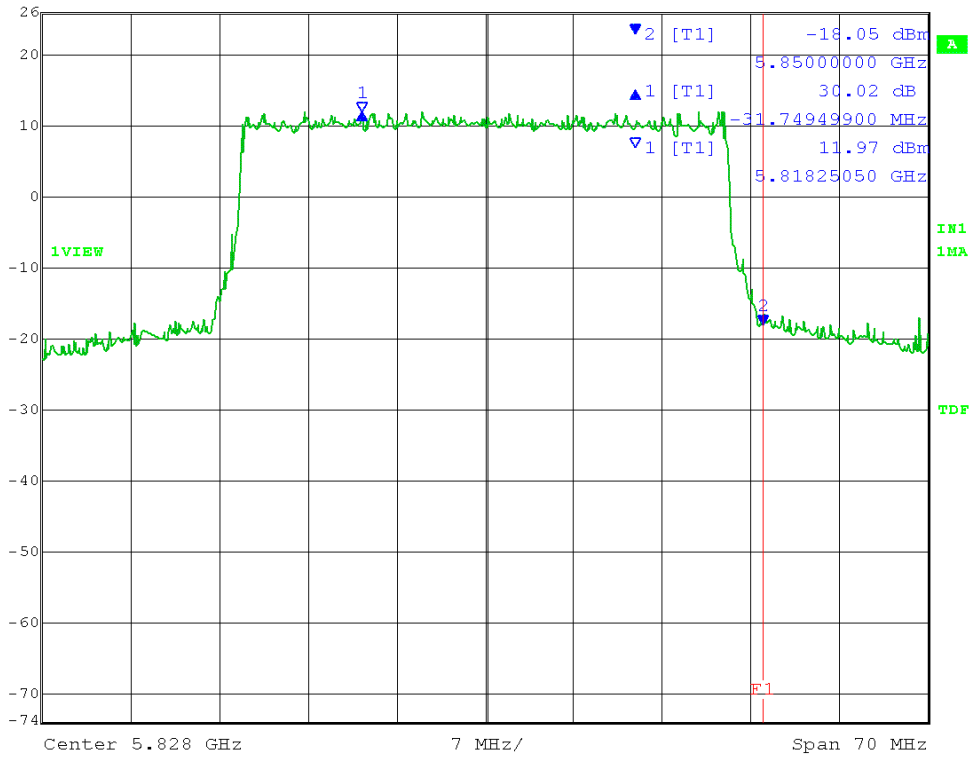
FS Max/Ref Lvl    Delta 1 [T1]    RBW    100 kHz    RF Att    0 dB  
 26 dBm                    32.78 dB    VBW    300 kHz  
 -10 dBm                    -14.77555110 MHz    SWT    17.5 ms    Unit    dBm



Date: 6.NOV.2013 11:06:42


# 40MHz HCH 1024QAM TX0

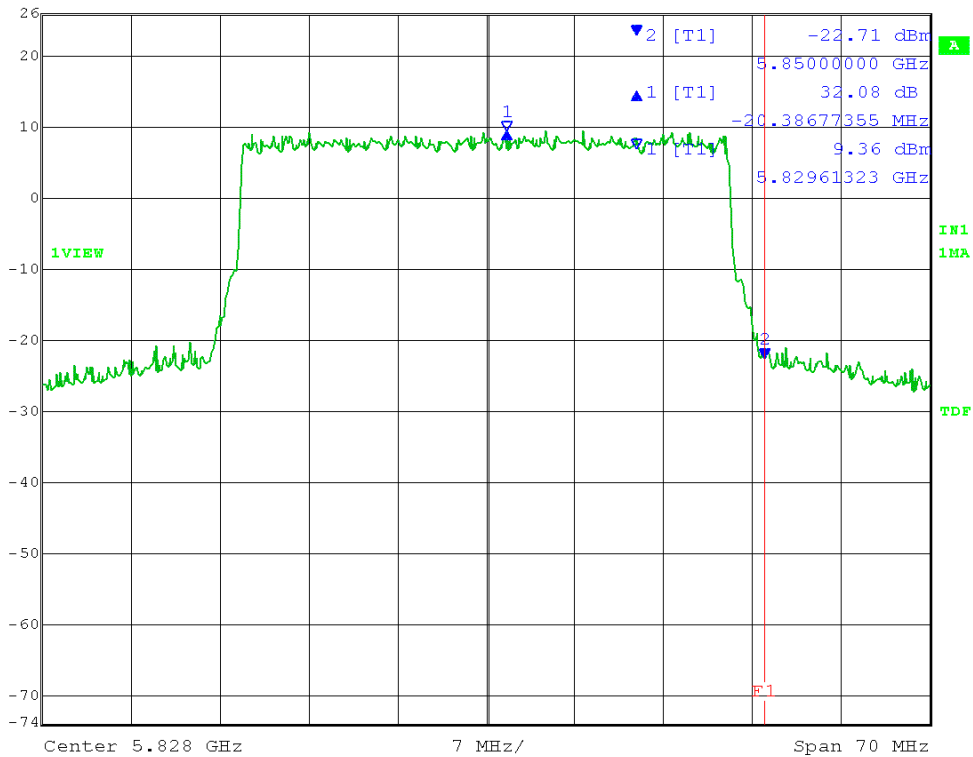
	Max/Ref Lvl	Delta 1 [T1]	REW	100 kHz	RF Att	0 dB
	26 dBm	30.02 dB	VBW	300 kHz		
	-10 dBm	-31.74949900 MHz	SWT	17.5 ms	Unit	dBm



Date: 6.NOV.2013 10:20:47


# TX1

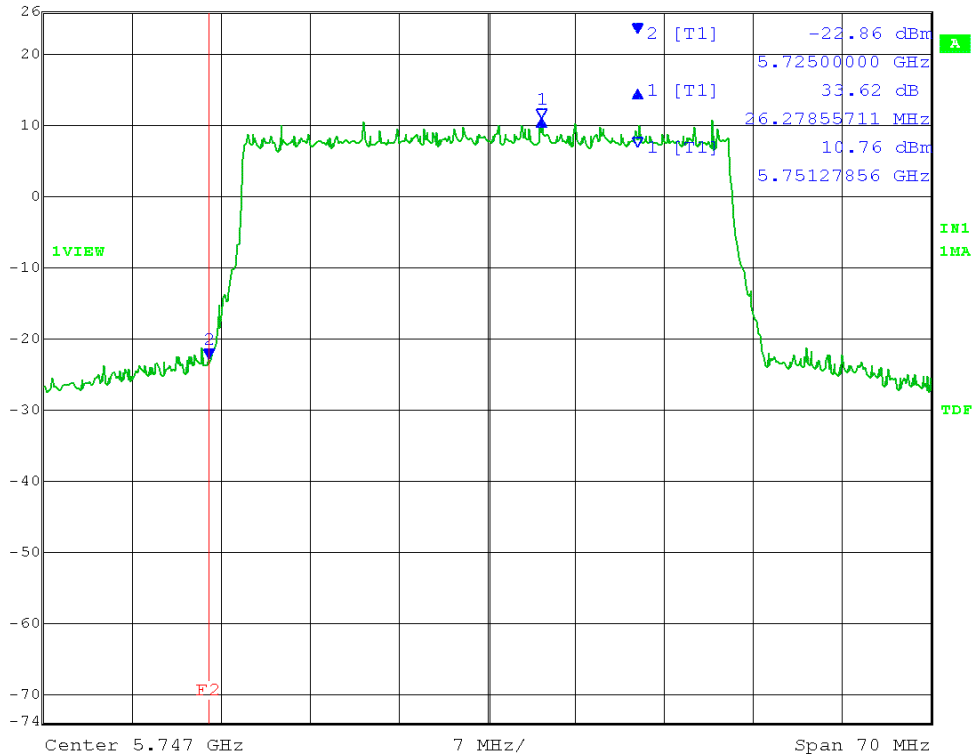
	Max/Ref Lvl	Delta 1 [T1]	REW	100 kHz	RF Att	0 dB
	26 dBm	32.08 dB	VBW	300 kHz		
	-10 dBm	-20.38677355 MHz	SWT	17.5 ms	Unit	dBm



Date: 6.NOV.2013 11:07:18


# 40MHz LCH QPSK TX0

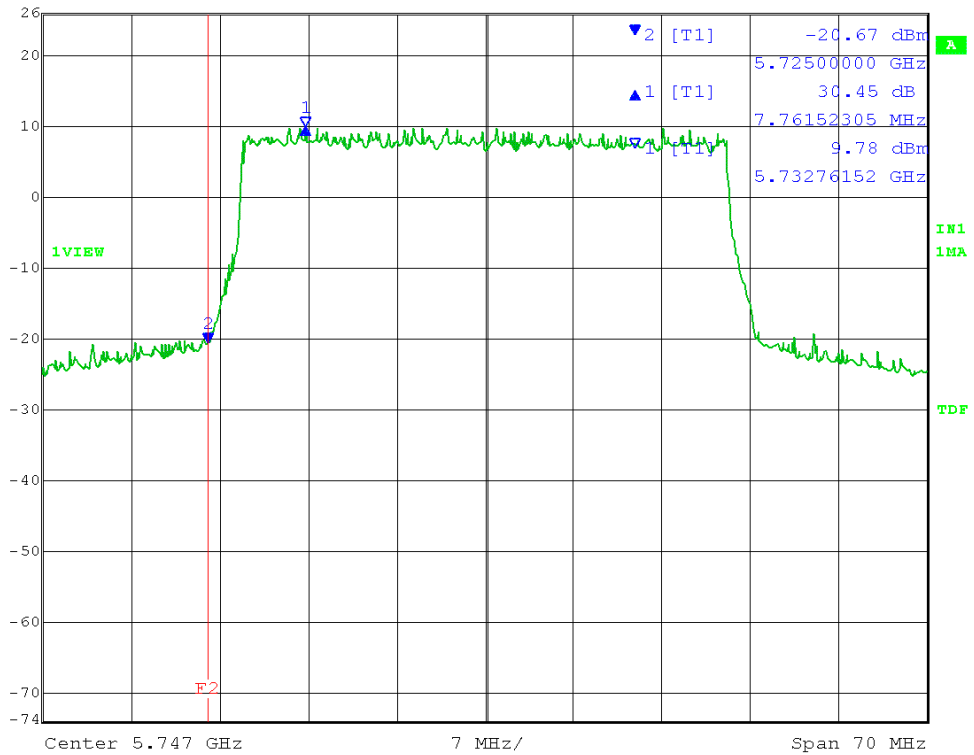

 Max/Ref Lvl    Delta 1 [T1]                      RBW    100 kHz    RF Att    0 dB  
 26 dBm                      33.62 dB                      VBW    300 kHz  
 -10 dBm                      26.27855711 MHz                      SWT    17.5 ms                      Unit                      dBm



Date: 6.NOV.2013 11:41:24

# TX1

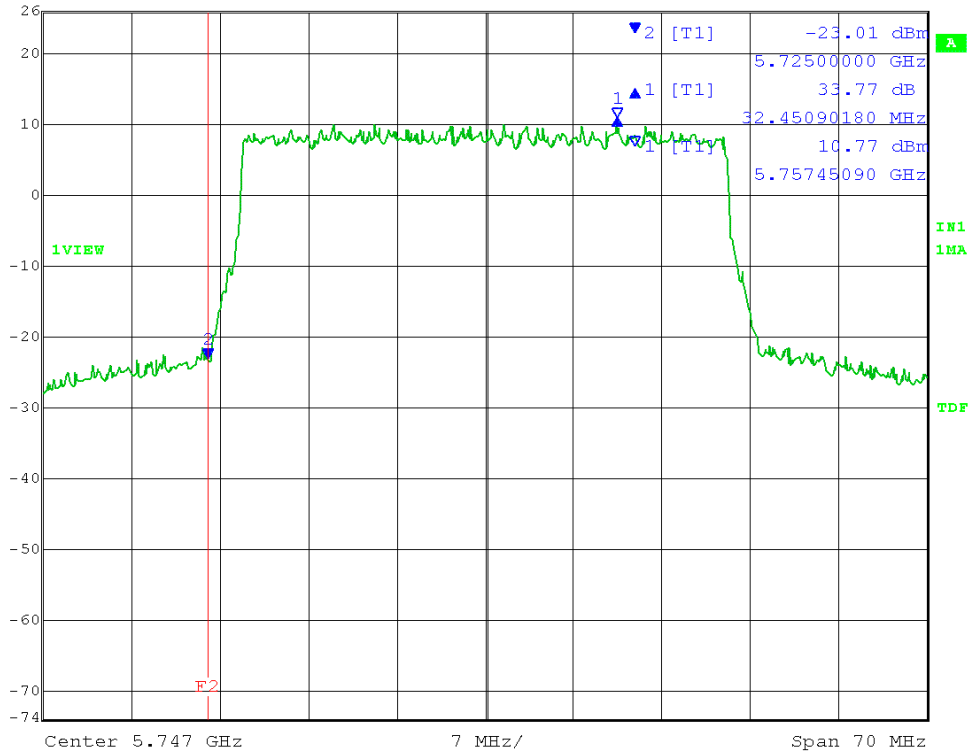

 Max/Ref Lvl    Delta 1 [T1]                      RBW    100 kHz    RF Att    0 dB  
 26 dBm                      30.45 dB                      VBW    300 kHz  
 -10 dBm                      7.76152305 MHz                      SWT    17.5 ms                      Unit                      dBm



Date: 6.NOV.2013 12:34:56

# 40MHz LCH 16QAM TX0

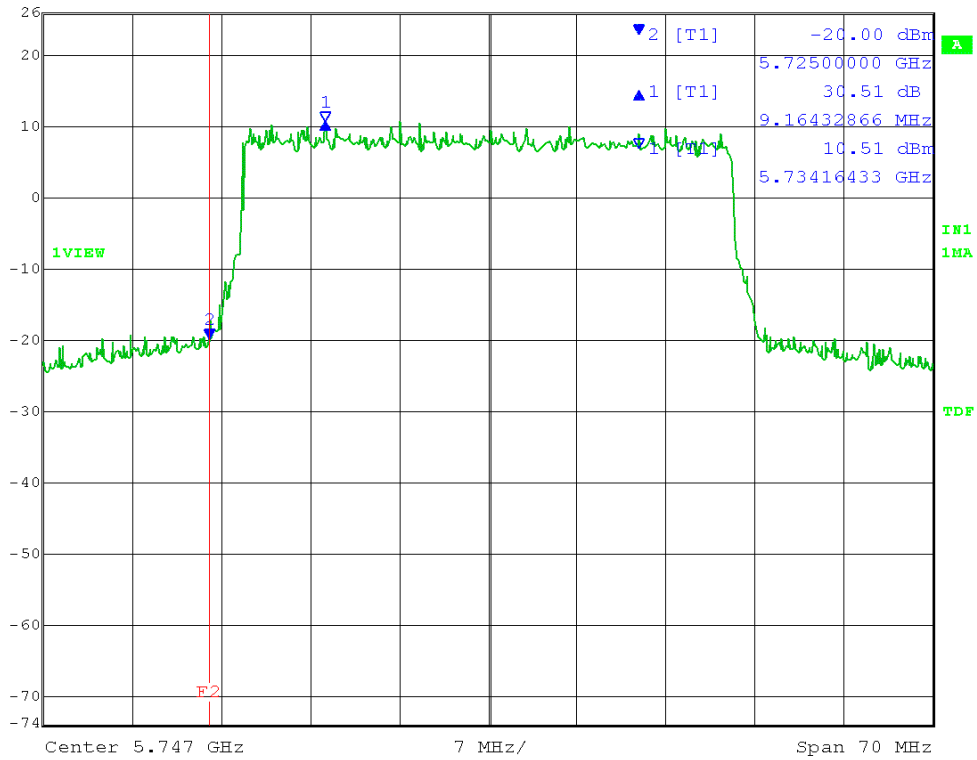
KS Max/Ref Lvl    Delta 1 [T1]            RBW    100 kHz    RF Att    0 dB  
 26 dBm                            33.77 dB            VBW    300 kHz  
 -10 dBm                            32.45090180 MHz    SWT    17.5 ms    Unit            dBm



Date: 6.NOV.2013 11:42:12

# TX1

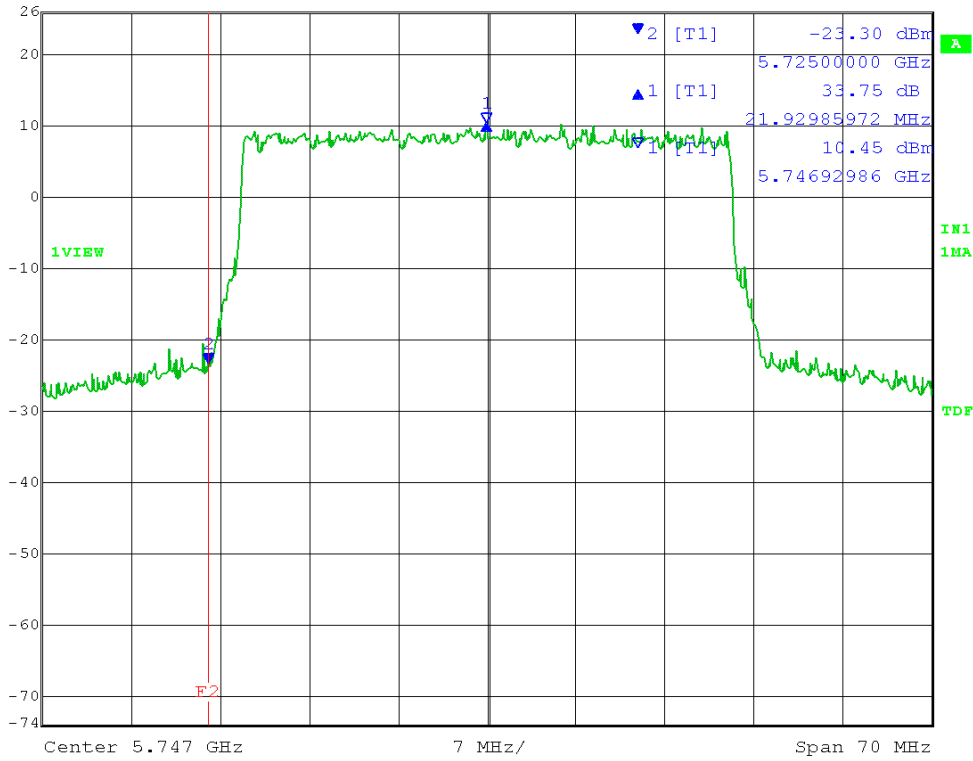
KS Max/Ref Lvl    Delta 1 [T1]            RBW    100 kHz    RF Att    0 dB  
 26 dBm                            30.51 dB            VEW    300 kHz  
 -10 dBm                            9.16432866 MHz    SWT    17.5 ms    Unit            dBm



Date: 6.NOV.2013 12:35:27

# 40MHz LCH 64QAM TX0

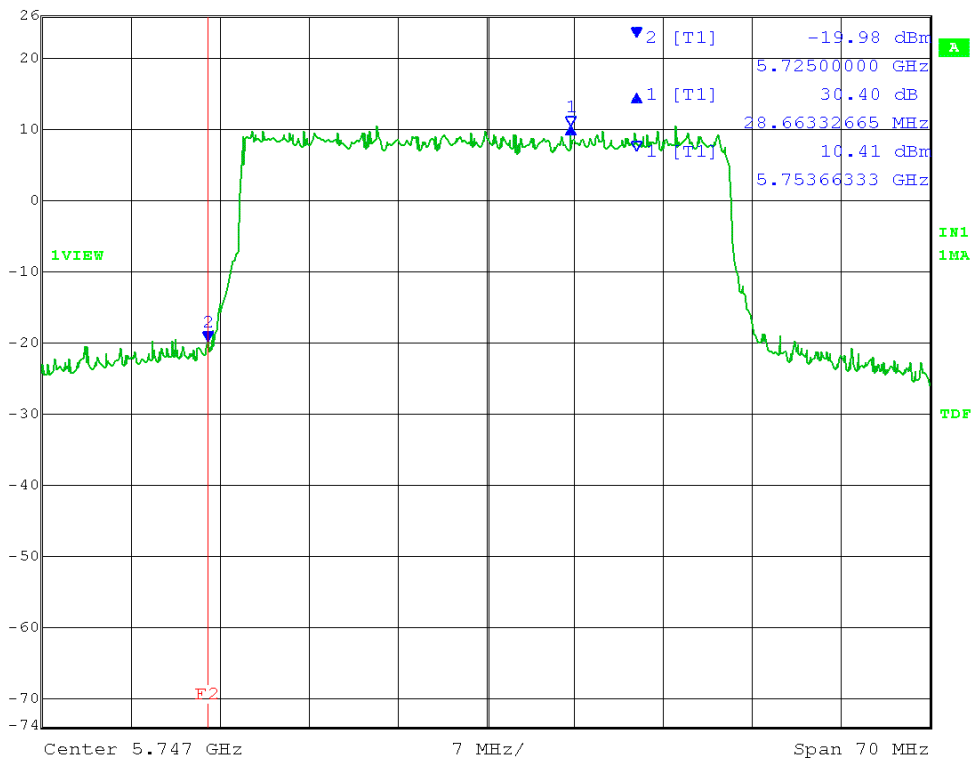
Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 0 dB  
 26 dBm 33.75 dB VBW 300 kHz  
 -10 dBm 21.92985972 MHz SWT 17.5 ms Unit dBm



Date: 6.NOV.2013 12:20:23

# TX1

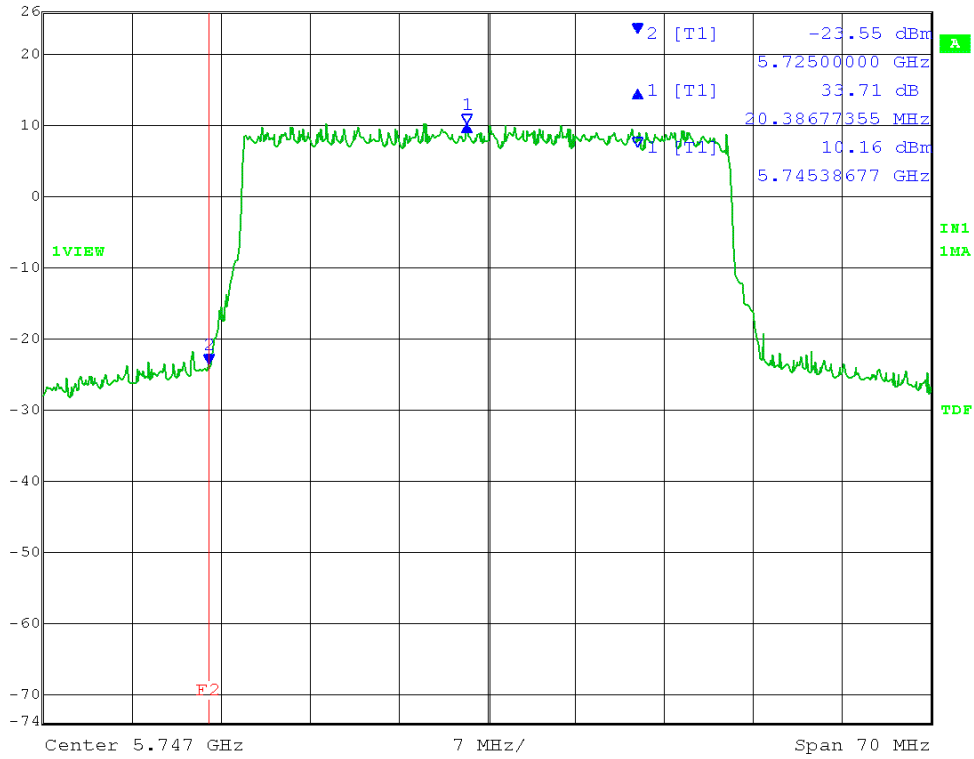
Max/Ref Lvl Delta 1 [T1] RBW 100 kHz RF Att 0 dB  
 26 dBm 30.40 dB VBW 300 kHz  
 -10 dBm 28.66332665 MHz SWT 17.5 ms Unit dBm



Date: 6.NOV.2013 12:35:58

# 40MHz LCH 256QAM TX0

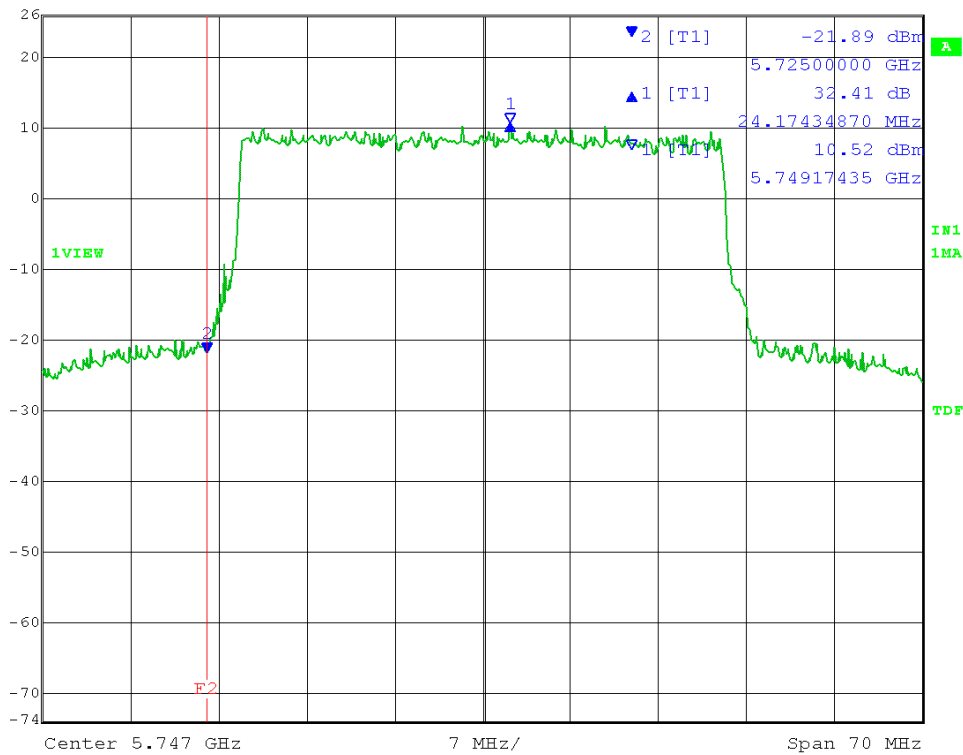
K/S Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 0 dB  
 26 dBm    33.71 dB    VBW 300 kHz  
 -10 dBm    20.38677355 MHz    SWT 17.5 ms    Unit dBm



Date: 6.NOV.2013 12:20:52

## TX1

K/S Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 0 dB  
 26 dBm    32.41 dB    VBW 300 kHz  
 -10 dBm    24.17434870 MHz    SWT 17.5 ms    Unit dBm

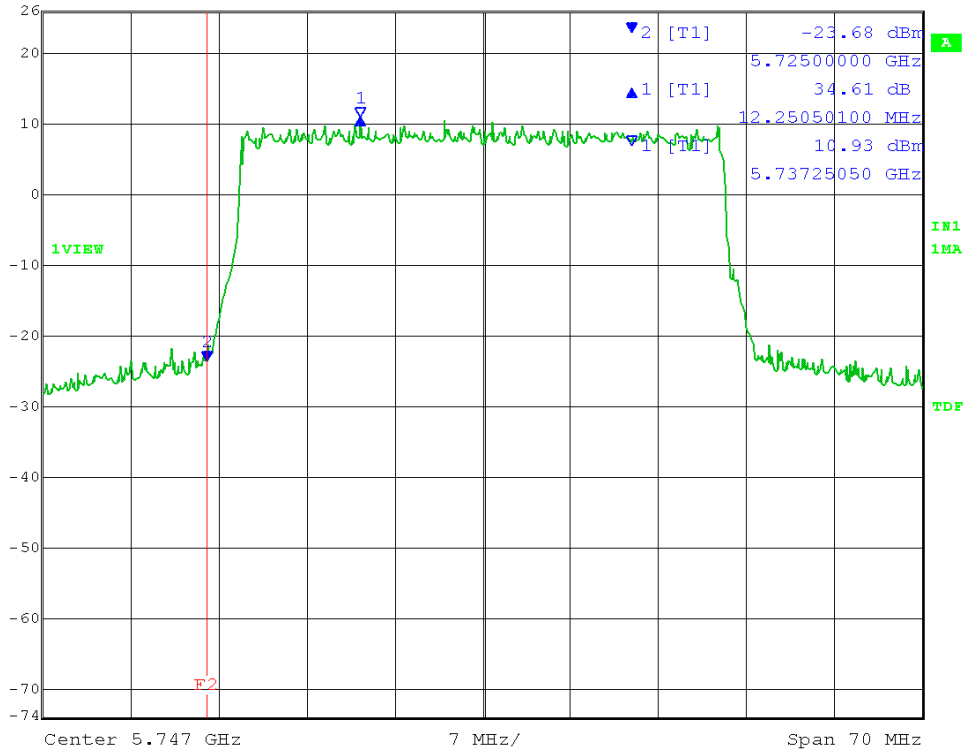


Date: 6.NOV.2013 12:36:30



# 40MHz LCH 1024QAM TX0

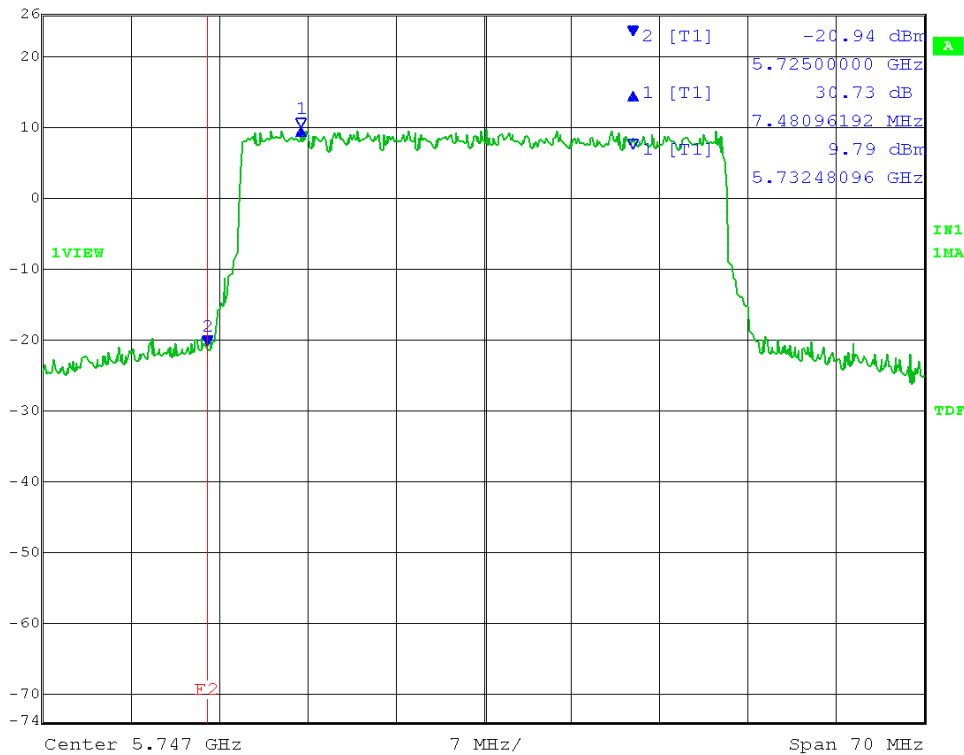
K Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 0 dB  
 26 dBm    34.61 dB    VBW 300 kHz  
 -10 dBm    12.25050100 MHz    SWT 17.5 ms    Unit dBm



Date: 6.NOV.2013 12:21:19

# TX1

K Max/Ref Lvl    Delta 1 [T1]    RBW 100 kHz    RF Att 0 dB  
 26 dBm    30.73 dB    VBW 300 kHz  
 -10 dBm    7.48096192 MHz    SWT 17.5 ms    Unit dBm



Date: 6.NOV.2013 12:36:56



Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
DLS Project: 6172

166 South Carter, Genoa City, WI 53128

## Appendix – Measurement Data

### 6.0 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

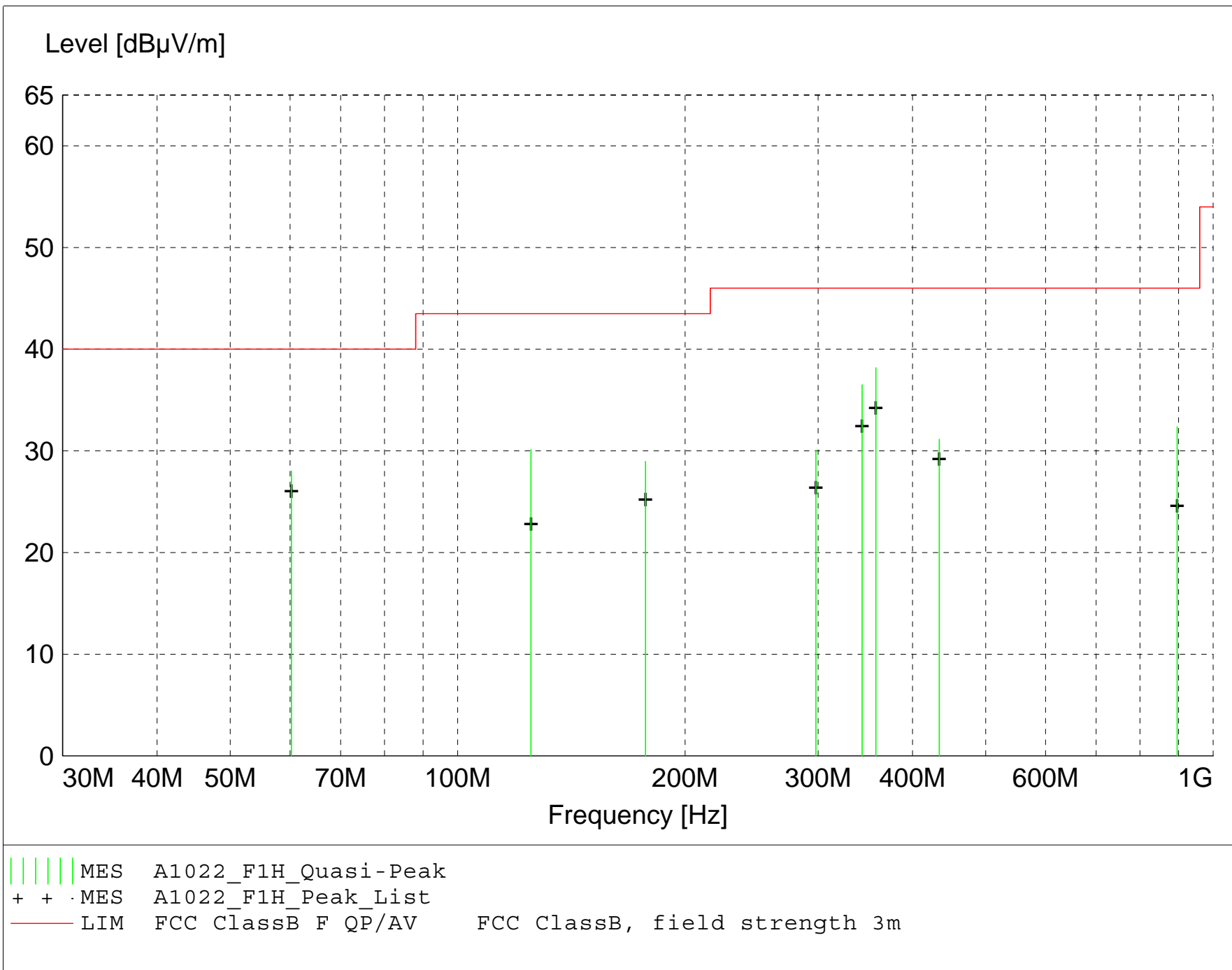
**TEXT: "Horz 3 meters"**

Short Description: Test Set-up

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

Equations: 
$$\text{Total Level (dB}\mu\text{V/m)} = \text{Level (dB}\mu\text{V)} + \text{System Loss (dB)} + \text{Antenna Factor (dB}\mu\text{V/m)}$$
$$\text{Margin (dB)} = \text{Limit (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

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 detector  
# Final maximized level using Peak detector



**MEASUREMENT RESULT: "A1022\_F1H\_Final"**

10/17/2013 11:53AM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		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

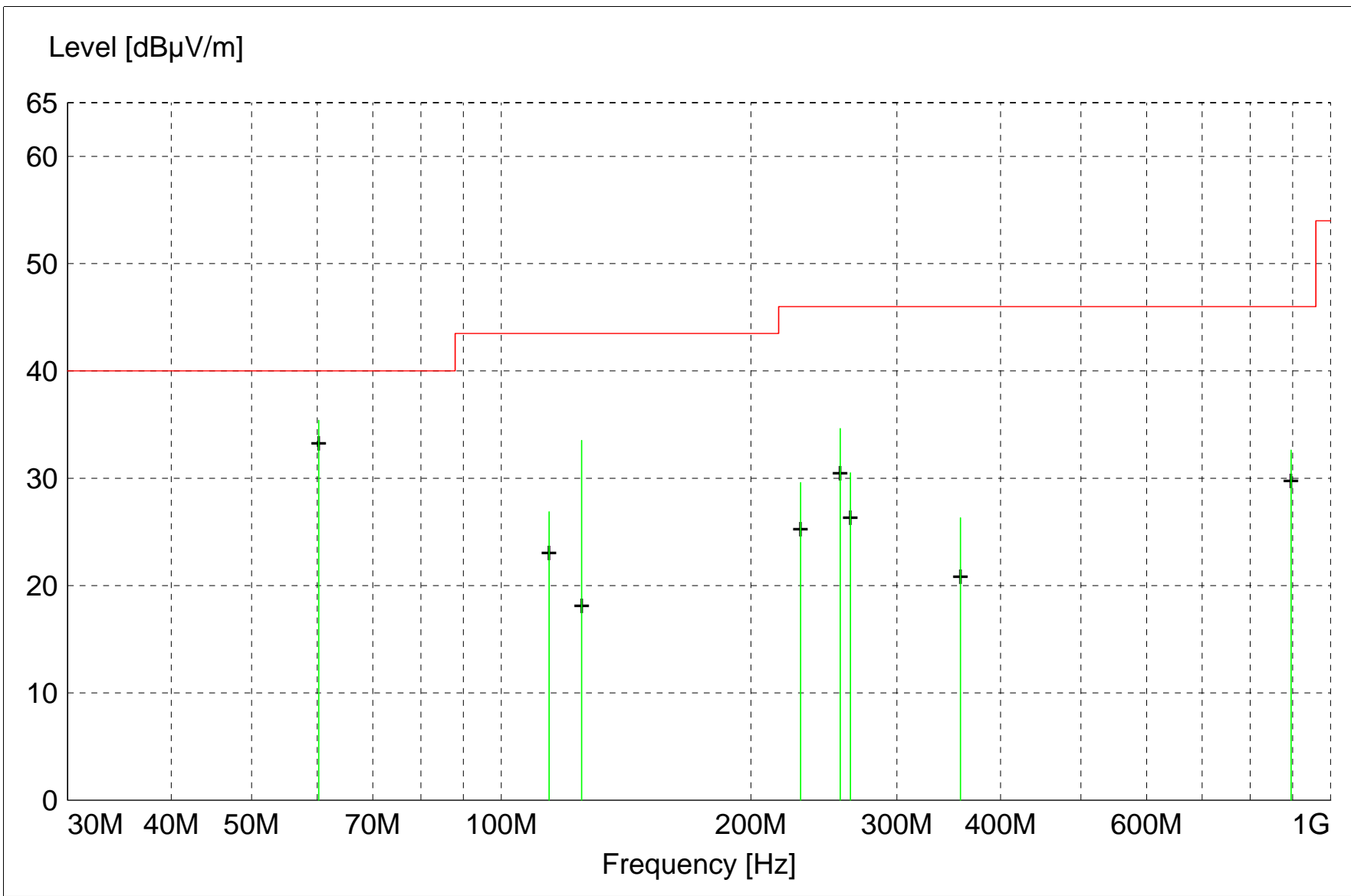
**TEXT: "Vert 3 meters"**

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 detector  
# Final maximized level using Peak detector



||||| 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	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dB $\mu$ V	Factor	Loss	Level	dB $\mu$ V/m	dB	Ant.	Angle	Detector	
		dB $\mu$ V/m	dB	dB $\mu$ V/m	dB $\mu$ V/m		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: 72 deg. F; 31% R.H.  
Test Site: DLS O.F. Site 3  
Operator: Craig B  
Test Specification: Radiated emissions with integral antenna  
Comment: 40 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 11-08-2013

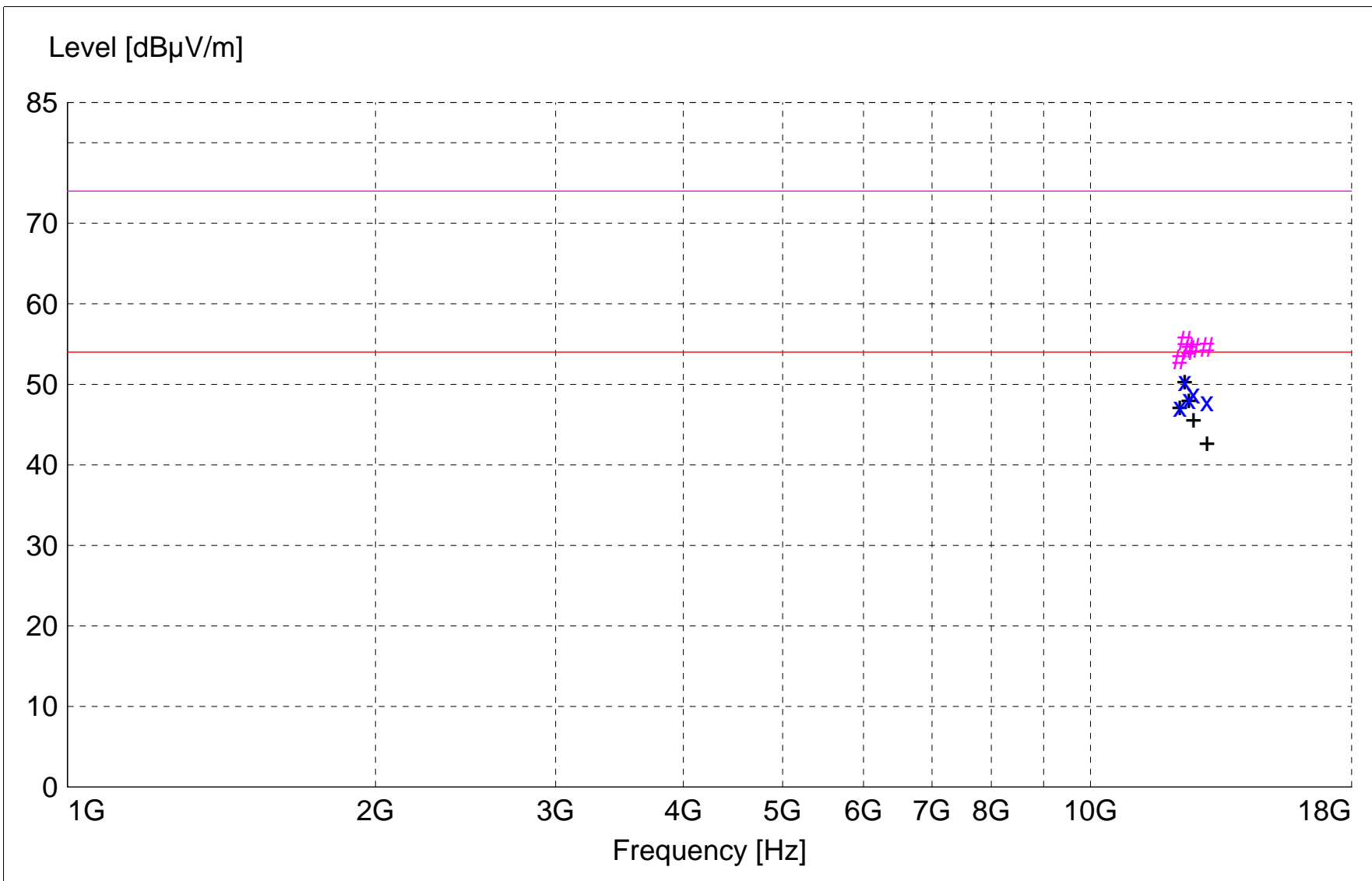
**TEXT: "Horz 3 meters"**

Short Description: Test Set-up

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

Equations: 
$$\text{Total Level(dB}\mu\text{V/m)} = \text{Level(dB}\mu\text{V)} + \text{System Loss(dB)} + \text{Antenna Factor(dB}\mu\text{V/m)}$$
$$\text{Margin(dB)} = \text{Limit(dB}\mu\text{V/m)} - \text{Total Level(dB}\mu\text{V/m)}$$

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



x x :MES A1174\_sh\_Average  
 # # :MES A1174\_sh\_Peak  
 + + :MES A1174\_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: "A1174\_sh\_Final"**

11/8/2013 11:25AM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		m	deg		
12366.000000	62.92	38.85	-51.4	50.4	54.0	3.6	1.00	0	AVERAGE	Low ch
12609.000000	61.19	38.69	-51.1	48.8	54.0	5.2	1.60	135	AVERAGE	High ch
12480.000000	60.69	38.75	-51.2	48.2	54.0	5.8	1.60	200	AVERAGE	Mid ch
13000.000000	59.46	39.50	-51.1	47.8	54.0	6.2	1.10	15	AVERAGE	all channels
12225.000000	59.73	38.95	-51.5	47.2	54.0	6.8	1.50	0	AVERAGE	all channels
12366.000000	67.92	38.85	-51.4	55.4	74.0	18.6	1.00	0	MAX PEAK	Low ch
13000.000000	66.25	39.50	-51.1	54.6	74.0	19.4	1.10	15	MAX PEAK	all channels
12609.000000	66.93	38.69	-51.1	54.6	74.0	19.4	1.60	135	MAX PEAK	High ch
12480.000000	66.79	38.75	-51.2	54.3	74.0	19.7	1.60	200	MAX PEAK	Mid ch
12225.000000	65.58	38.95	-51.5	53.1	74.0	20.9	1.50	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: 40 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 11-08-2013

**TEXT: "Vert 3 meters"**

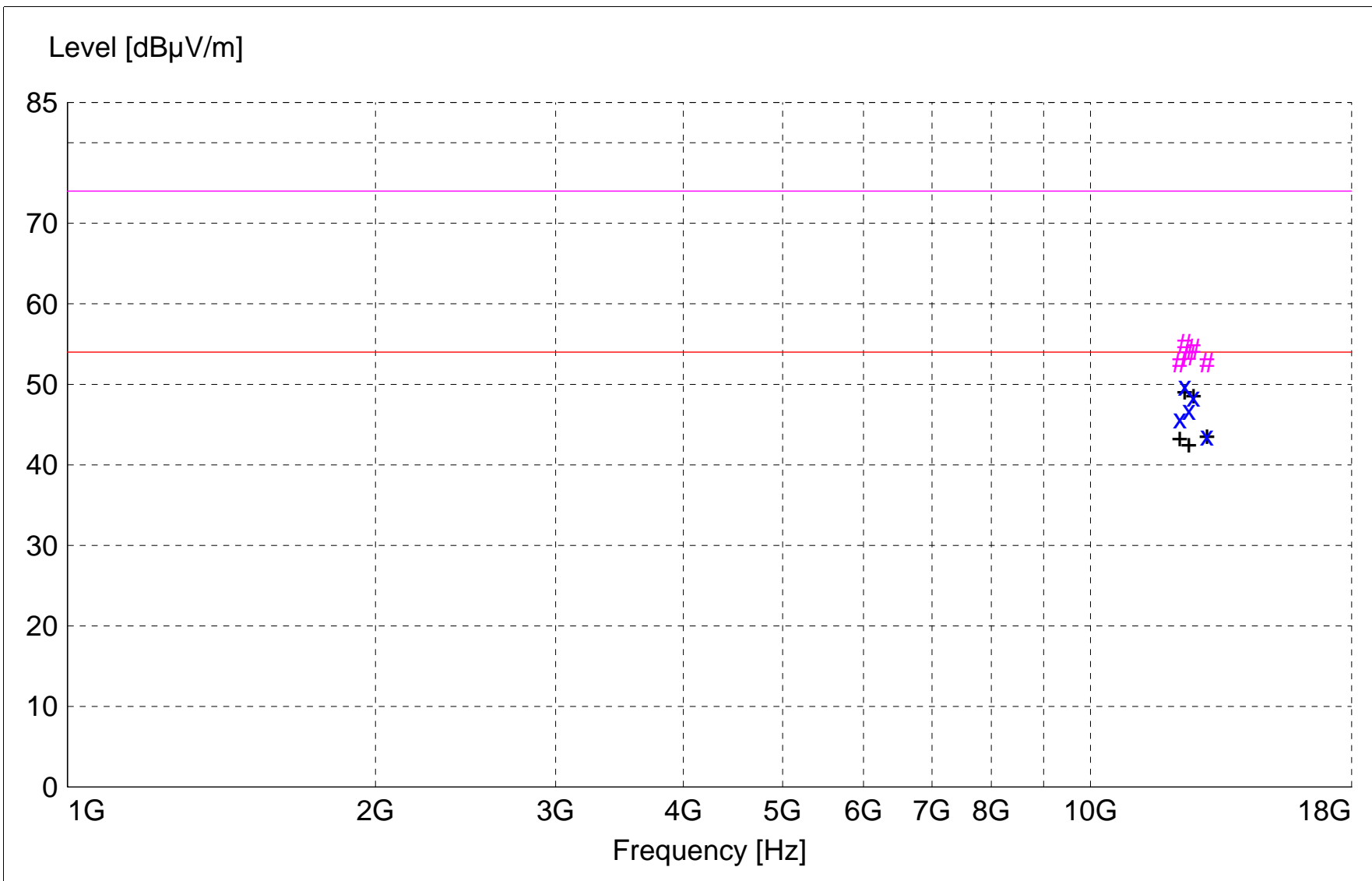
Short Description: Test Set-up

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

Sample Equations: 
$$\begin{aligned} \text{Total Level(dB}\mu\text{V/m)} &= \text{Level(dB}\mu\text{V)} + \text{System Loss(dB)} + \text{Antenna Factor(dB}\mu\text{V/m)} \\ 24.6 &= 35.51 + (-22.1) + 11.20 \end{aligned}$$

$$\begin{aligned} \text{Margin(dB)} &= \text{Limit(dB}\mu\text{V/m)} - \text{Total Level(dB}\mu\text{V/m)} \\ 15.4 &= 40 - 24.6 \end{aligned}$$

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 :MES  A1174_sv_Average
# # :MES  A1174_sv_Peak
+ + :MES  A1174_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: "A1174\_sv\_Final"**

11/8/2013 10:47AM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		m	deg		
12366.000000	62.29	38.85	-51.4	49.8	54.0	4.2	1.10	0	AVERAGE	Low ch
12608.980000	60.79	38.69	-51.1	48.4	54.0	5.6	1.10	0	AVERAGE	High ch
12480.000000	59.34	38.75	-51.2	46.8	54.0	7.2	1.40	0	AVERAGE	Mid ch
12225.000000	58.25	38.95	-51.5	45.8	54.0	8.2	1.20	0	AVERAGE	all channels
13000.000000	55.22	39.50	-51.1	43.6	54.0	10.4	1.20	0	AVERAGE	all channels
12366.000000	67.55	38.85	-51.4	55.0	74.0	19.0	1.10	0	MAX PEAK	Low ch
12608.980000	66.79	38.69	-51.1	54.4	74.0	19.6	1.10	0	MAX PEAK	High ch
12480.000000	66.11	38.75	-51.2	53.6	74.0	20.4	1.40	0	MAX PEAK	Mid ch
12225.000000	65.18	38.95	-51.5	52.7	74.0	21.3	1.20	0	MAX PEAK	all channels
13000.000000	64.27	39.50	-51.1	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: 40 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 11-08-2013

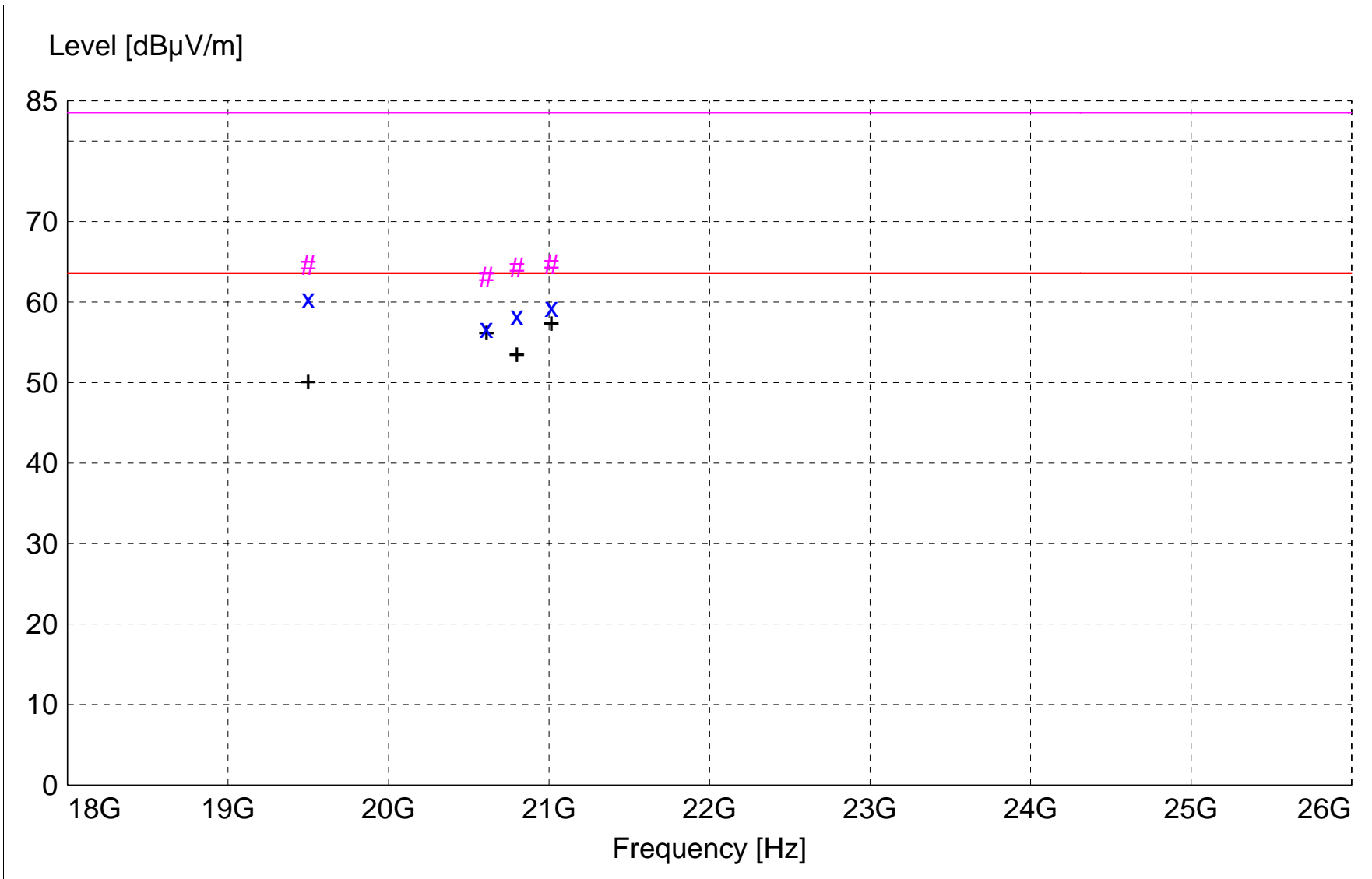
**TEXT: "Horz 1 meters"**

Short Description: Test Set-up

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

Equations:  $\text{Total Level(dB}\mu\text{V/m)} = \text{Level(dB}\mu\text{V)} + \text{System Loss(dB)} + \text{Antenna Factor(dB}\mu\text{V/m)}$   
 $\text{Margin(dB)} = \text{Limit(dB}\mu\text{V/m)} - \text{Total Level(dB}\mu\text{V/m)}$

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 detector  
# Final maximized level using Peak detector



```

x x :MES  A1177_sh_Average
# # :MES  A1177_sh_Peak
+ + :MES  A1177_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: "A1177\_sh\_Final"**

11/8/2013 3:57PM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		m	deg		
19500.000000	52.86	45.94	-38.3	60.5	63.5	3.0	1.50	225	AVERAGE	all channels
21015.000000	48.90	46.85	-36.4	59.3	63.5	4.2	1.40	245	AVERAGE	High ch
20800.020000	47.90	46.66	-36.3	58.3	63.5	5.2	1.50	250	AVERAGE	Mid ch
20610.020000	46.86	46.45	-36.5	56.8	63.5	6.8	1.70	240	AVERAGE	Low ch
21015.000000	54.24	46.85	-36.4	64.7	83.5	18.9	1.40	245	MAX PEAK	High ch
19500.000000	56.98	45.94	-38.3	64.6	83.5	18.9	1.50	225	MAX PEAK	all channels
20800.020000	53.97	46.66	-36.3	64.4	83.5	19.2	1.50	250	MAX PEAK	Mid ch
20610.020000	53.29	46.45	-36.5	63.2	83.5	20.3	1.70	240	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: 40 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 11-08-2013

**TEXT: "Vert 1 meters"**

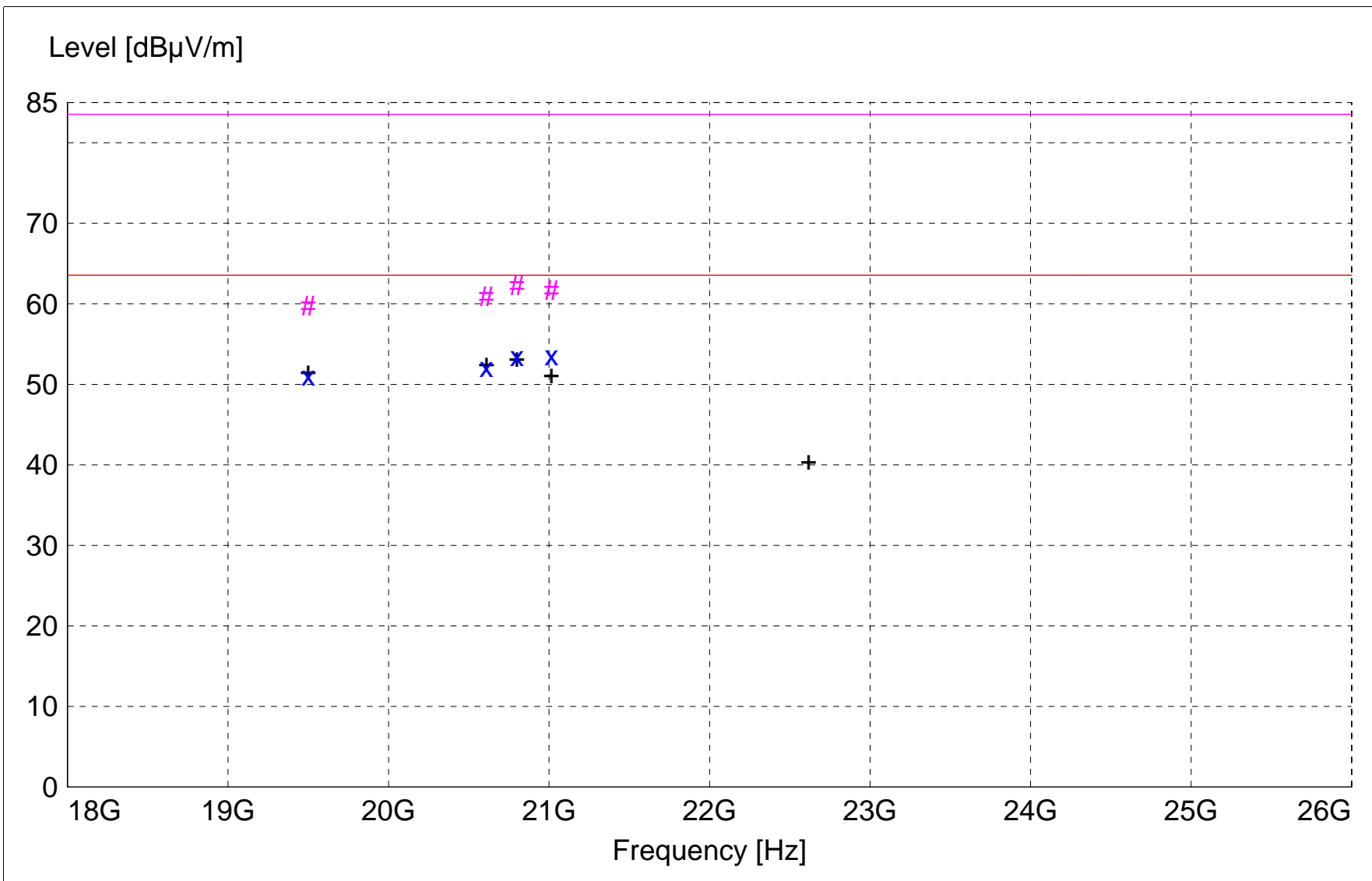
Short Description: Test Set-up

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 detector  
# Final maximized level using Peak detector



```

x x :MES  A1177_sv_Average
# # :MES  A1177_sv_Peak
+ + :MES  A1177_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: "A1177\_sv\_Final"**

11/8/2013 4:18PM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		m	deg		
21015.020000	43.16	46.85	-36.4	53.6	63.5	9.9	1.50	200	AVERAGE	High ch
20800.020000	43.09	46.66	-36.3	53.5	63.5	10.0	1.80	225	AVERAGE	Mid ch
20610.020000	42.22	46.45	-36.5	52.1	63.5	11.4	1.60	220	AVERAGE	Low ch
19500.000000	43.41	45.94	-38.3	51.0	63.5	12.5	1.70	170	AVERAGE	all channels
20800.020000	51.90	46.66	-36.3	62.3	83.5	21.2	1.80	225	MAX PEAK	Mid ch
21015.020000	51.25	46.85	-36.4	61.7	83.5	21.8	1.50	200	MAX PEAK	High ch
20610.020000	50.99	46.45	-36.5	60.9	83.5	22.6	1.60	220	MAX PEAK	Low ch
19500.000000	52.18	45.94	-38.3	59.8	83.5	23.7	1.70	170	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: 50 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 10-17-2013 / 11-08-2013

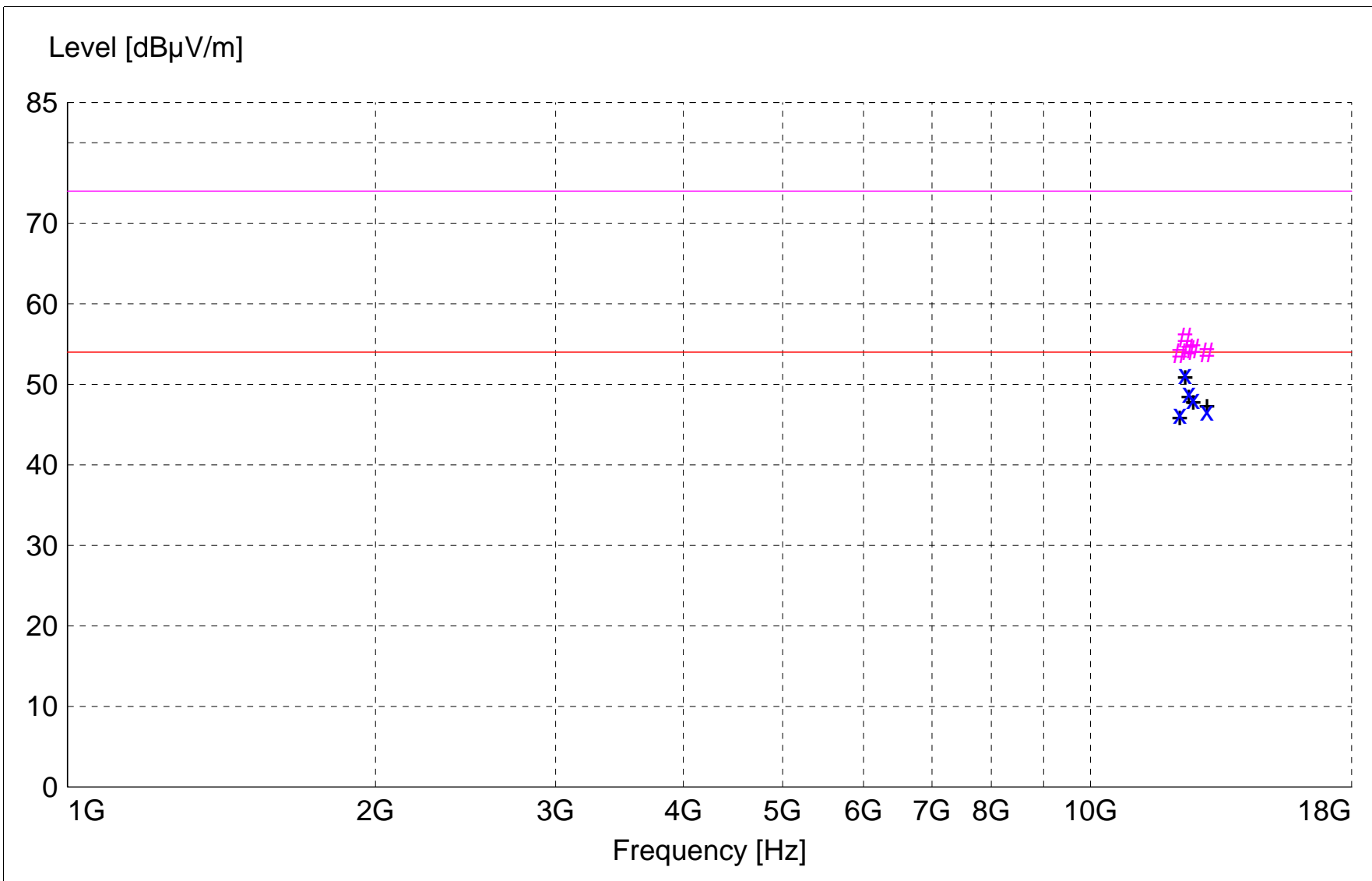
**TEXT: "Horz 3 meters"**

Short Description: Test Set-up

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

Equations:  $\text{Total Level(dB}\mu\text{V/m)} = \text{Level(dB}\mu\text{V)} + \text{System Loss(dB)} + \text{Antenna Factor(dB}\mu\text{V/m)}$   
 $\text{Margin(dB)} = \text{Limit(dB}\mu\text{V/m)} - \text{Total Level(dB}\mu\text{V/m)}$

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 detector  
# Final maximized level using Peak detector



```

x x :MES  A1017_sh_Average
# # :MES  A1017_sh_Peak
+ + :MES  A1017_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: "A1017\_sh\_Final"**

11/8/2013 11:48AM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		m	deg		
12375.000000	63.79	38.85	-51.4	51.3	54.0	2.7	1.00	0	AVERAGE	Low ch
12480.000000	61.44	38.75	-51.2	48.9	54.0	5.1	1.00	195	AVERAGE	Mid ch
12600.000000	60.52	38.69	-51.1	48.1	54.0	5.9	1.00	180	AVERAGE	High ch
13000.000000	58.30	39.50	-51.1	46.7	54.0	7.3	1.00	10	AVERAGE	all channels
12225.000000	58.77	38.95	-51.5	46.3	54.0	7.7	1.80	215	AVERAGE	L,M,H ch; QPSK
12375.000000	68.29	38.85	-51.4	55.8	74.0	18.2	1.00	0	MAX PEAK	Low ch
12600.000000	66.79	38.69	-51.1	54.4	74.0	19.6	1.00	180	MAX PEAK	High ch
12480.000000	66.79	38.75	-51.2	54.3	74.0	19.7	1.00	195	MAX PEAK	Mid ch
13000.000000	65.58	39.50	-51.1	54.0	74.0	20.0	1.00	10	MAX PEAK	all channels
12225.000000	66.34	38.95	-51.5	53.8	74.0	20.2	1.80	215	MAX PEAK	L,M,H ch; QPSK

**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: 50 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 10-17-2013 / 11-08-2013

**TEXT: "Vert 3 meters"**

Short Description: Test Set-up

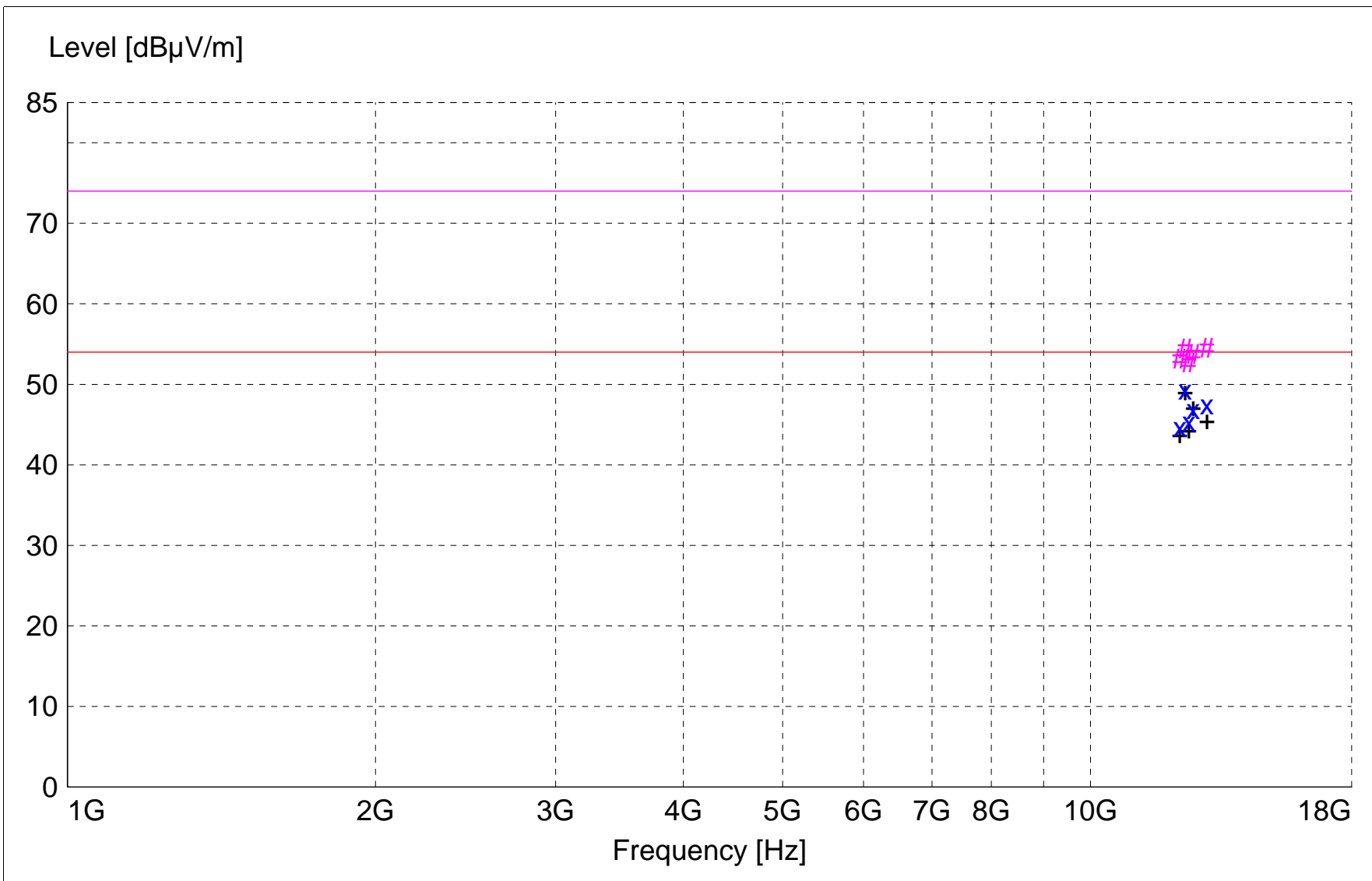
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

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





```

x x :MES  A1017_sv_Average
# # :MES  A1017_sv_Peak
+ + :MES  A1017_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: "A1017\_sv\_Final"**

11/8/2013 12:08PM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		m	deg		
12374.960000	61.79	38.85	-51.4	49.3	54.0	4.7	1.10	0	AVERAGE	Low ch
13000.000000	59.05	39.50	-51.1	47.4	54.0	6.6	1.00	0	AVERAGE	all channels
12599.980000	59.29	38.69	-51.1	46.9	54.0	7.1	1.10	0	AVERAGE	High ch
12480.000000	57.80	38.75	-51.2	45.3	54.0	8.7	1.00	0	AVERAGE	Mid ch
12225.000000	57.18	38.95	-51.5	44.7	54.0	9.3	1.80	0	AVERAGE	L,M,H ch; QPSK
13000.000000	66.11	39.50	-51.1	54.5	74.0	19.5	1.00	0	MAX PEAK	all channels
12374.960000	66.93	38.85	-51.4	54.4	74.0	19.6	1.10	0	MAX PEAK	Low ch
12599.980000	66.11	38.69	-51.1	53.7	74.0	20.3	1.10	0	MAX PEAK	High ch
12225.000000	65.71	38.95	-51.5	53.2	74.0	20.8	1.80	0	MAX PEAK	L,M,H ch; QPSK
12480.000000	65.18	38.75	-51.2	52.7	74.0	21.3	1.00	0	MAX PEAK	Mid 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: 50 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 10-18-2013 / 11-08-2013

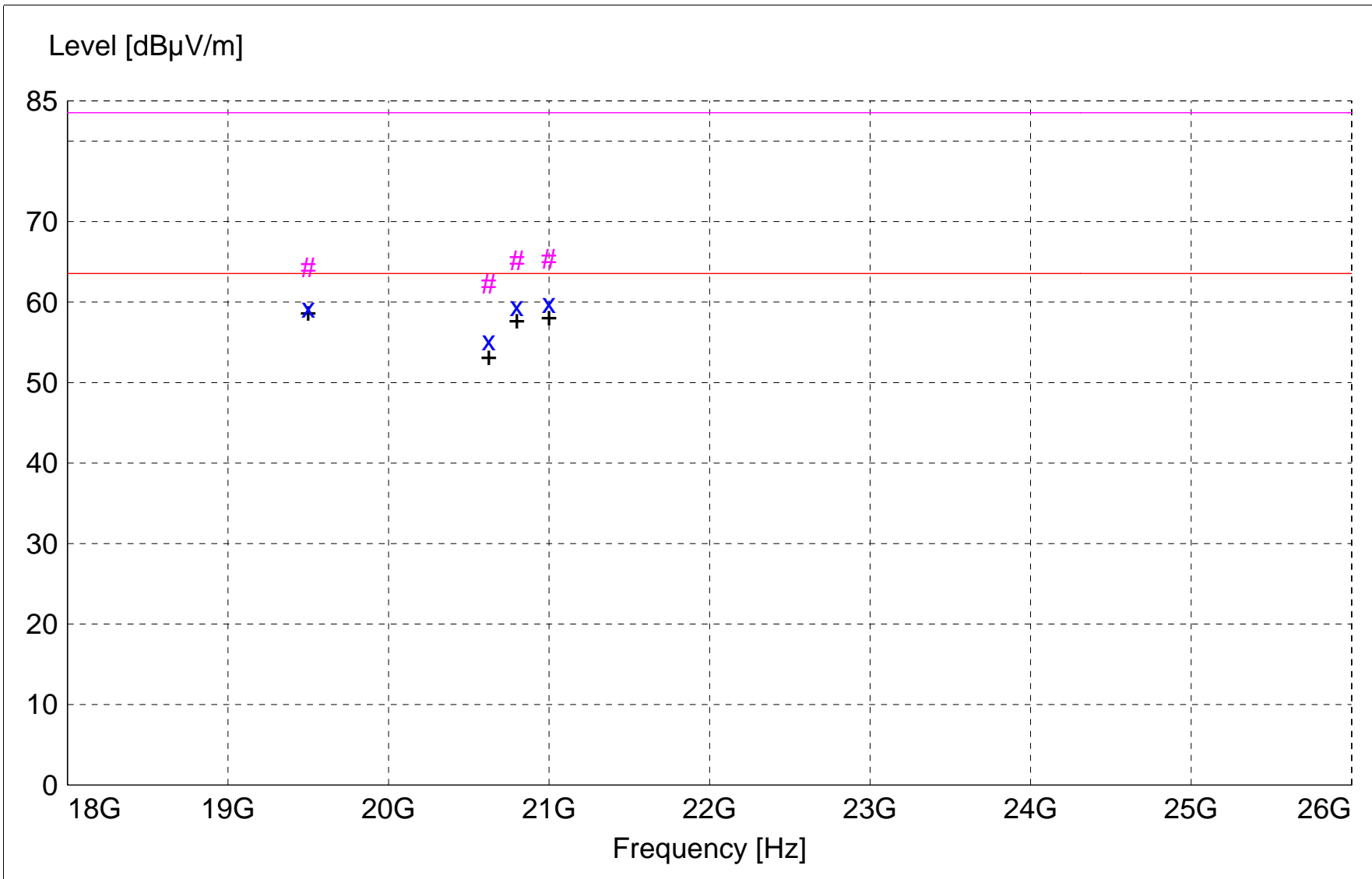
**TEXT: "Horz 1 meters"**

Short Description: Test Set-up

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

Equations: 
$$\text{Total Level(dB}\mu\text{V/m)} = \text{Level(dB}\mu\text{V)} + \text{System Loss(dB)} + \text{Antenna Factor(dB}\mu\text{V/m)}$$
$$\text{Margin(dB)} = \text{Limit(dB}\mu\text{V/m)} - \text{Total Level(dB}\mu\text{V/m)}$$

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



```

x x :MES  A1018_sh_Average
# # :MES  A1018_sh_Peak
+ + :MES  A1018_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: "A1018\_sh\_Final"**

11/8/2013 4:50PM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dB $\mu$ V	Factor	Loss	Level	dB $\mu$ V/m	dB	Ant.	Angle	Detector	
		dB $\mu$ V/m	dB	dB $\mu$ V/m	dB $\mu$ V/m		m	deg		
21000.020000	49.34	46.85	-36.3	59.8	63.5	3.7	1.40	230	AVERAGE	High ch
20800.020000	49.03	46.66	-36.3	59.4	63.5	4.1	1.50	250	AVERAGE	Mid ch
19500.000000	51.63	45.94	-38.3	59.3	63.5	4.3	1.70	190	AVERAGE	L,M,H ch; QPSK
20625.000000	45.24	46.46	-36.5	55.2	63.5	8.4	1.50	230	AVERAGE	Low ch
21000.020000	54.90	46.85	-36.3	65.4	83.5	18.1	1.40	230	MAX PEAK	High ch
20800.020000	54.77	46.66	-36.3	65.2	83.5	18.4	1.50	250	MAX PEAK	Mid ch
19500.000000	56.66	45.94	-38.3	64.3	83.5	19.2	1.70	190	MAX PEAK	L,M,H ch; QPSK
20625.000000	52.32	46.46	-36.5	62.2	83.5	21.3	1.50	230	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: 50 MHz ch BW; 50 dBm eirp; QPSK; L, M, H channels  
Date: 10-18-2013 / 11-08-2013

**TEXT: "Vert 1 meters"**

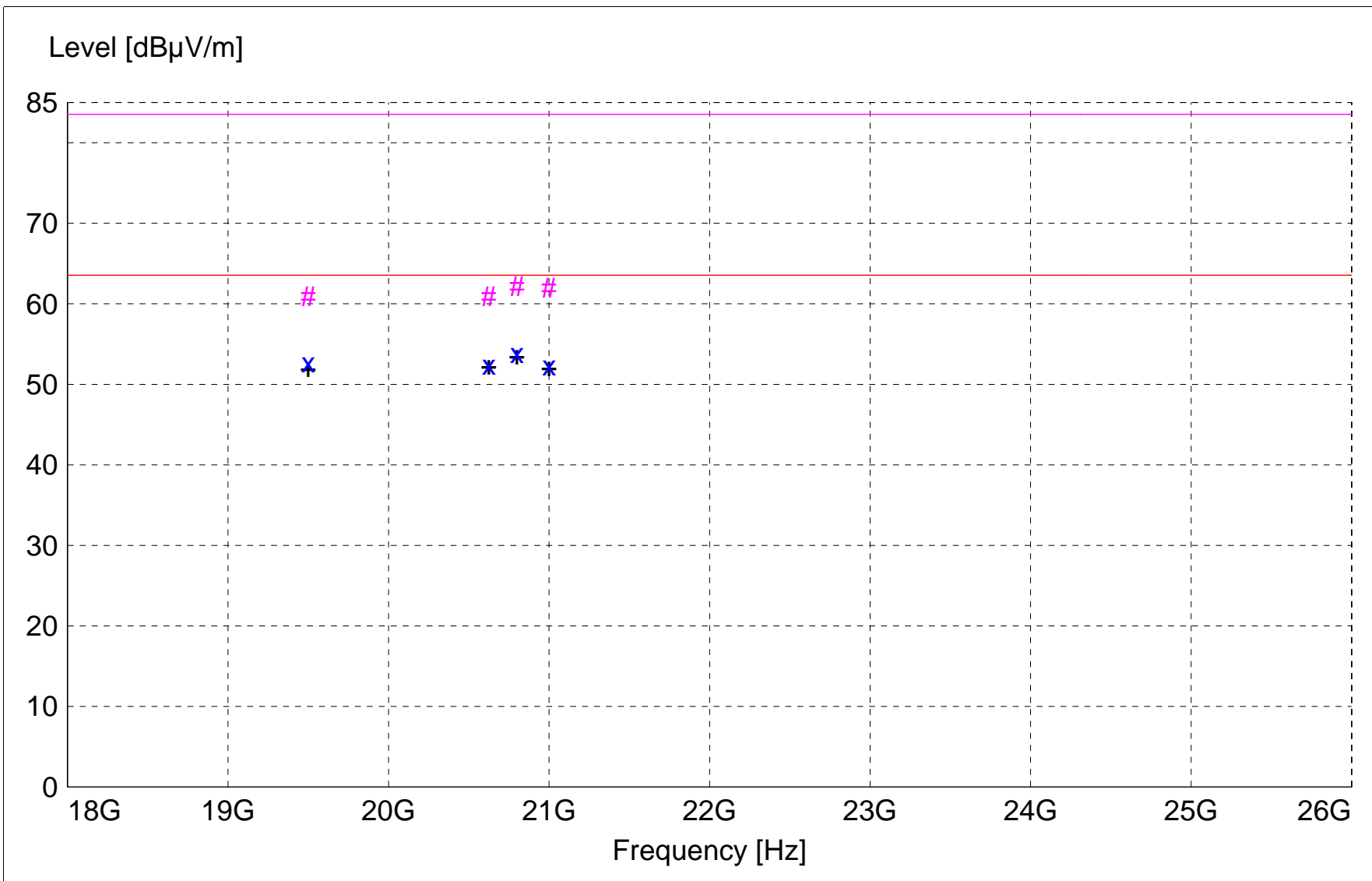
Short Description: Test Set-up

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 detector  
# Final maximized level using Peak detector



```

x x :MES A1018_sv_Average
# # :MES A1018_sv_Peak
+ + :MES A1018_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: "A1018\_sv\_Final"**

11/8/2013 4:35PM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
MHz	dBµV	Factor	Loss	Level	dBµV/m	dB	Ant.	Angle	Detector	
		dBµV/m	dB	dBµV/m	dBµV/m		m	deg		
20800.020000	43.50	46.66	-36.3	53.9	63.5	9.6	1.50	230	AVERAGE	Mid ch
19500.000000	45.06	45.94	-38.3	52.7	63.5	10.8	1.70	125	AVERAGE	L,M,H ch; QPSK
20625.020000	42.53	46.46	-36.5	52.4	63.5	11.1	1.50	225	AVERAGE	Low ch
21000.020000	41.82	46.85	-36.3	52.3	63.5	11.2	1.50	180	AVERAGE	High ch
20800.020000	51.77	46.66	-36.3	62.2	83.5	21.4	1.50	230	MAX PEAK	Mid ch
21000.020000	51.51	46.85	-36.3	62.0	83.5	21.5	1.50	180	MAX PEAK	High ch
19500.000000	53.33	45.94	-38.3	61.0	83.5	22.6	1.70	125	MAX PEAK	L,M,H ch; QPSK
20625.020000	50.99	46.46	-36.5	60.9	83.5	22.6	1.50	225	MAX PEAK	Low ch



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



Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
DLS Project: 6172

166 South Carter, Genoa City, WI 53128

## Appendix – Measurement Data

### 7.0 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  $\geq$  OBW if possible; otherwise, **set RBW to the largest available value**  
VBW  $\geq$  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%.

40MHz BW

Total Cycle time = 4.428858-2.424850=2.004008 ms

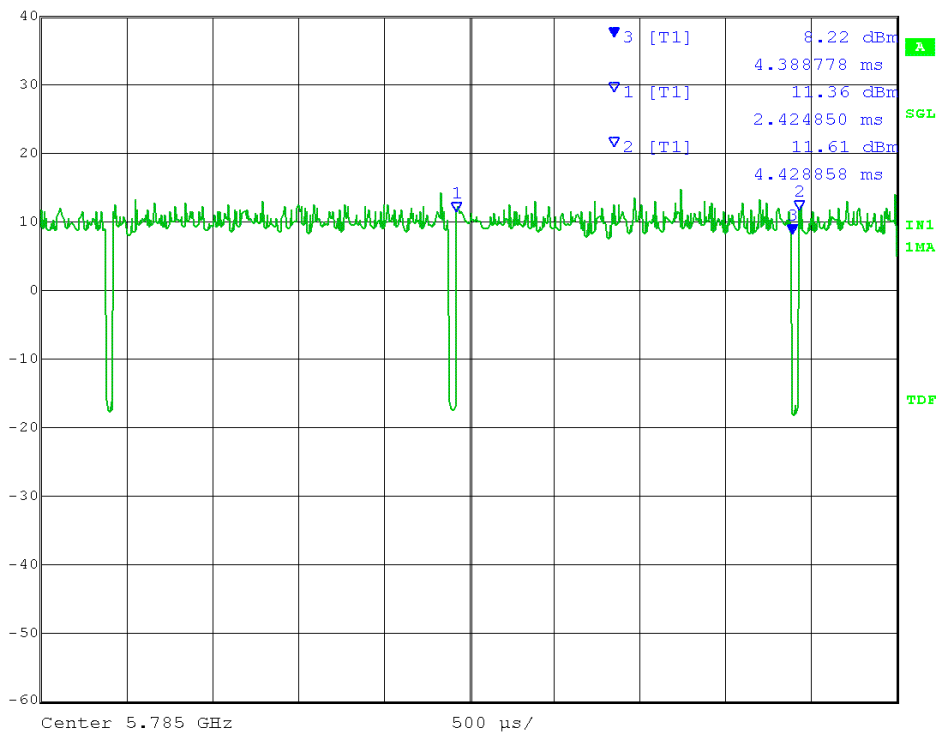
Total on Time = 4.388778-2.424850=1.963929 ms

Duty cycle factor  $x = 1.963928/2.004008=0.98$

Adjustment for duty cycle =  $10\log 1/x = 0$

### QPSK

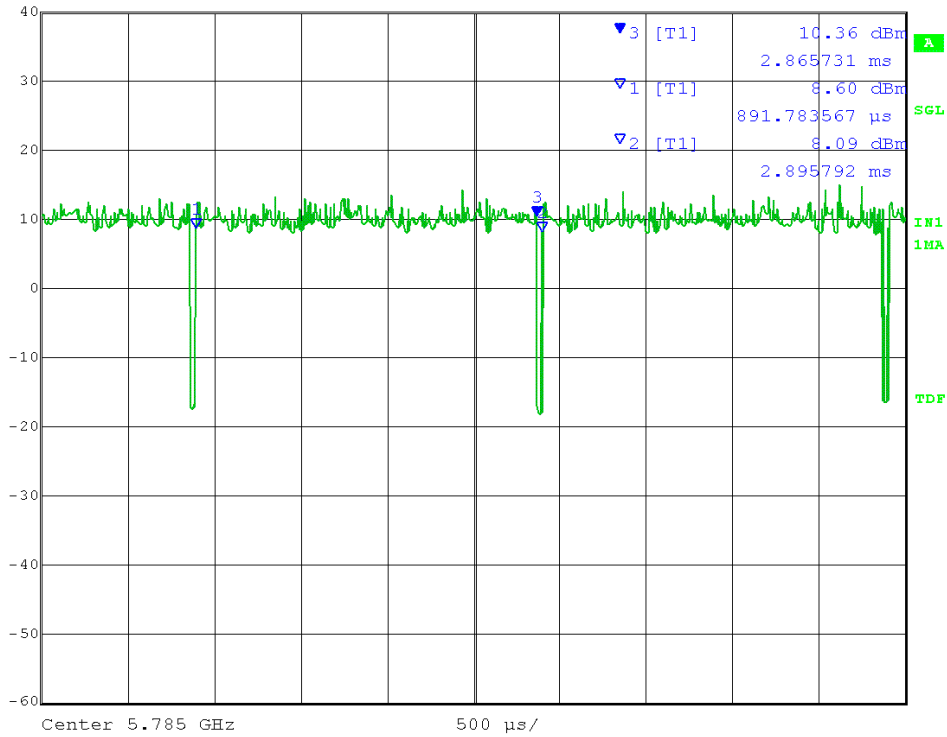
	Max/Ref Lvl	Marker 3 [T1]	RBW	10 MHz	RF Att	30 dB
	40 dBm	8.22 dBm	VBW	10 MHz		
	0 dBm	4.388778 ms	SWT	5 ms	Unit	dBm



Date: 5.NOV.2013 12:51:32

# 16QAM

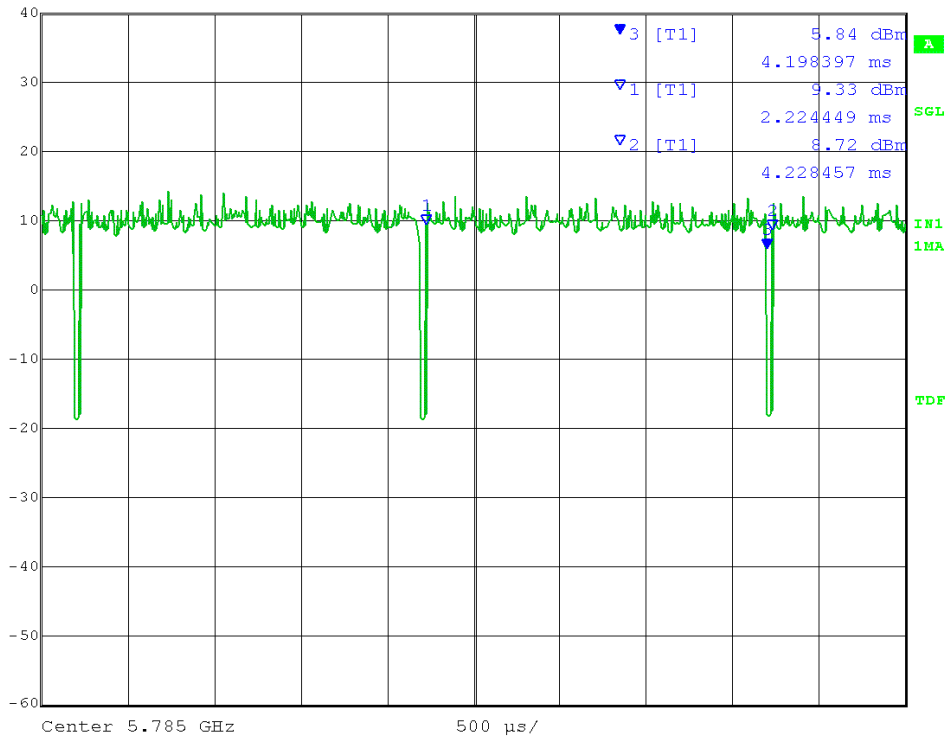
Max/Ref Lvl    Marker 3 [T1]    RBW 10 MHz    RF Att 30 dB  
40 dBm    10.36 dBm    VBW 10 MHz  
0 dBm    2.865731 ms    SWT 5 ms    Unit dBm



Date: 5.NOV.2013 12:57:53

# 64QAM

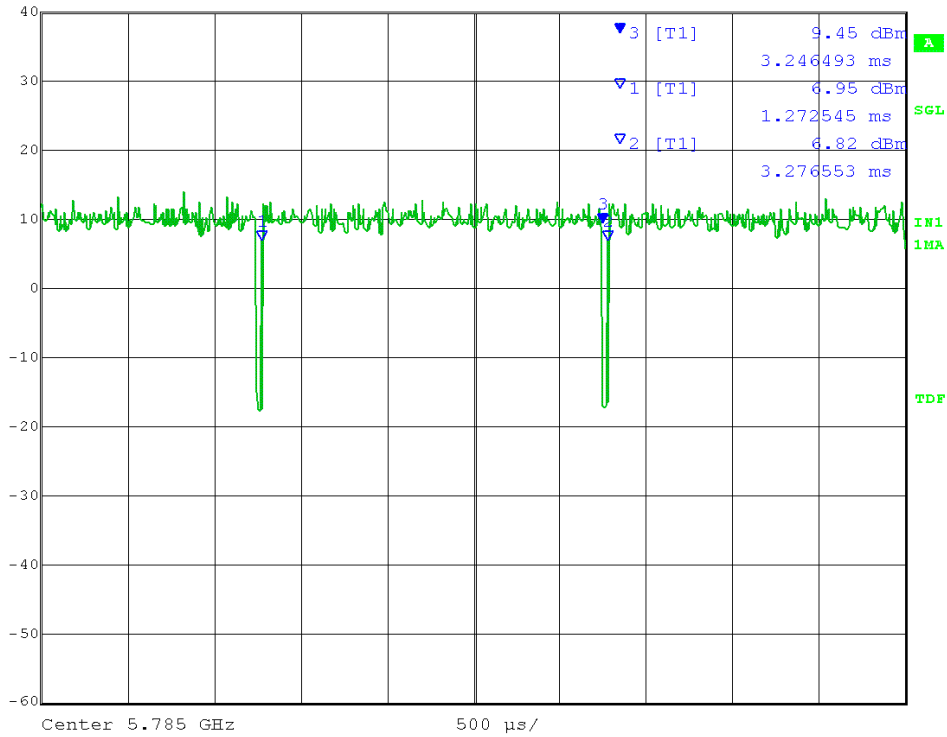
Max/Ref Lvl    Marker 3 [T1]    RBW 10 MHz    RF Att 30 dB  
40 dBm    5.84 dBm    VBW 10 MHz  
0 dBm    4.198397 ms    SWT 5 ms    Unit dBm



Date: 5.NOV.2013 12:59:05

# 256QAM

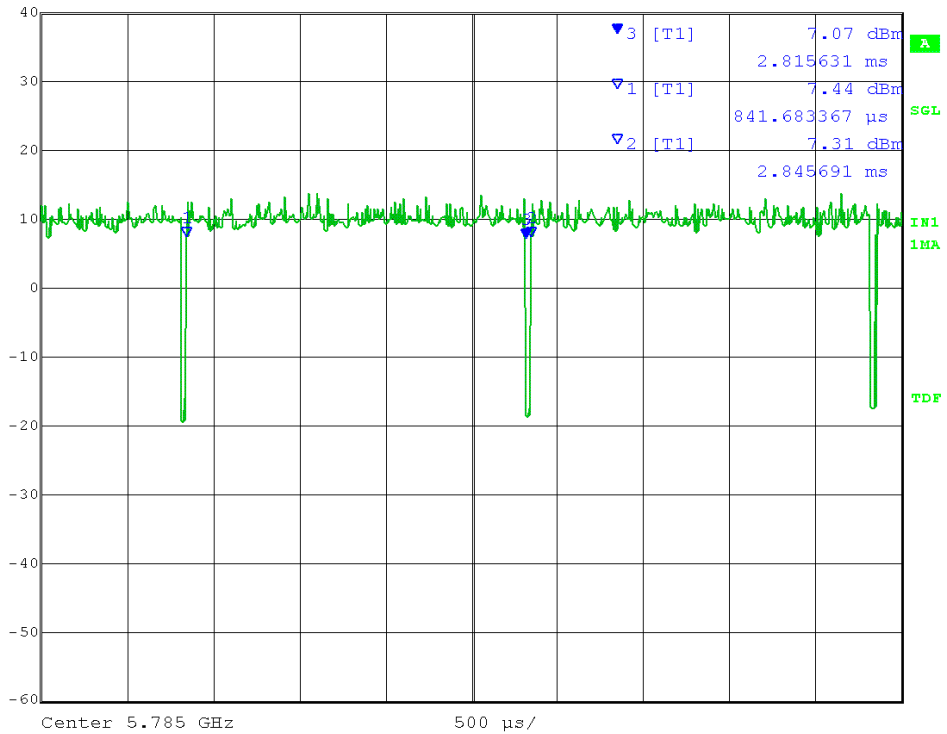
K  
S Max/Ref Lvl    Marker 3 [T1]    RBW    10 MHz    RF Att    30 dB  
 40 dBm                    9.45 dBm    VBW    10 MHz  
 0 dBm                    3.246493 ms    SWT    5 ms    Unit    dBm



Date: 5.NOV.2013 13:00:00

# 1024QAM

K  
S Max/Ref Lvl    Marker 3 [T1]    RBW    10 MHz    RF Att    30 dB  
 40 dBm                    7.07 dBm    VBW    10 MHz  
 0 dBm                    2.815631 ms    SWT    5 ms    Unit    dBm



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

50MHZ

Total Cycle time = 3.827655-1.823648=2.004007 ms

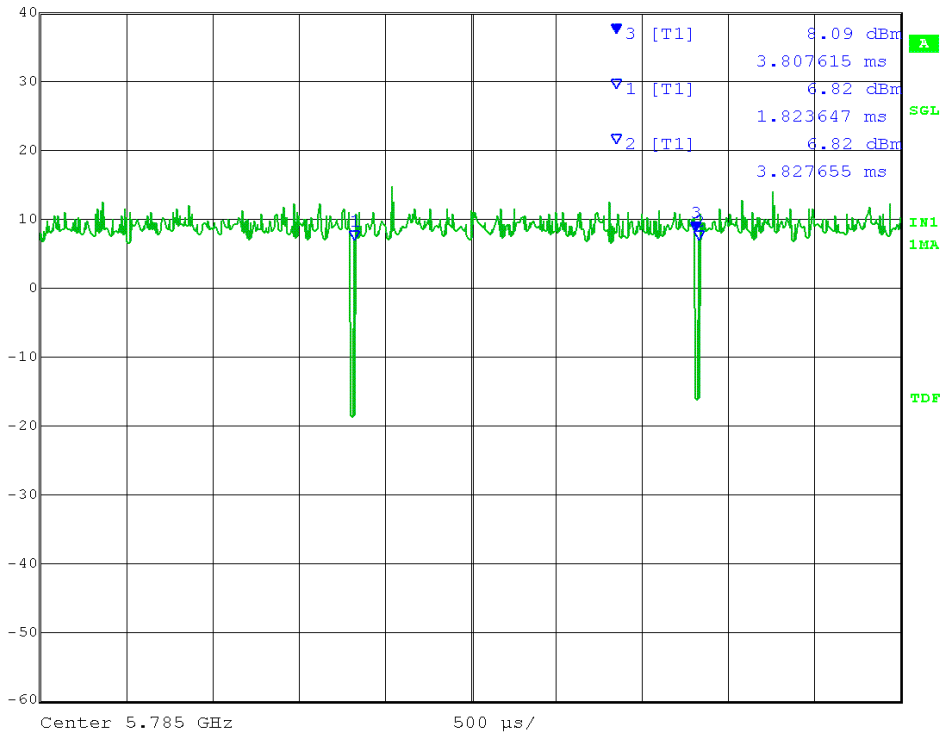
Total on Time = 3.807615-1.823648=1.983967 ms

**Duty cycle factor x** = 1.963928/2.004008=0.99

Adjustment for duty cycle =  $10\log 1/x = 0$

### QPSK

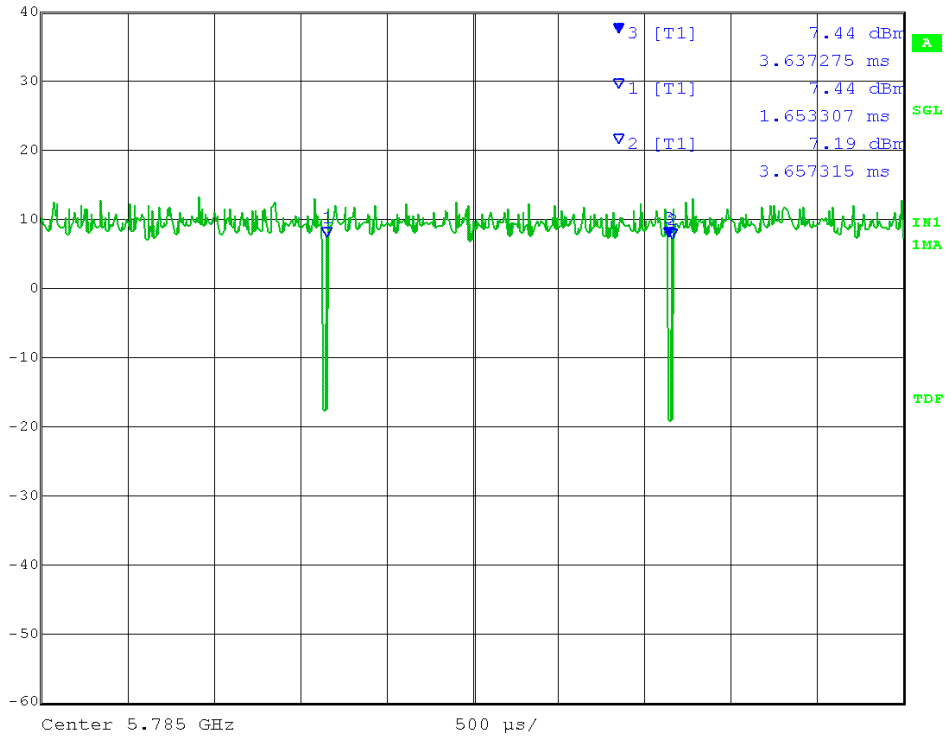
Max/Ref Lvl    Marker 3 [T1]    RBW    10 MHz    RF Att    30 dB  
40 dBm                    8.09 dBm    VBW    10 MHz  
0 dBm                    3.807615 ms    SWT    5 ms    Unit            dBm



Date: 5.NOV.2013 13:02:49

# 16QAM

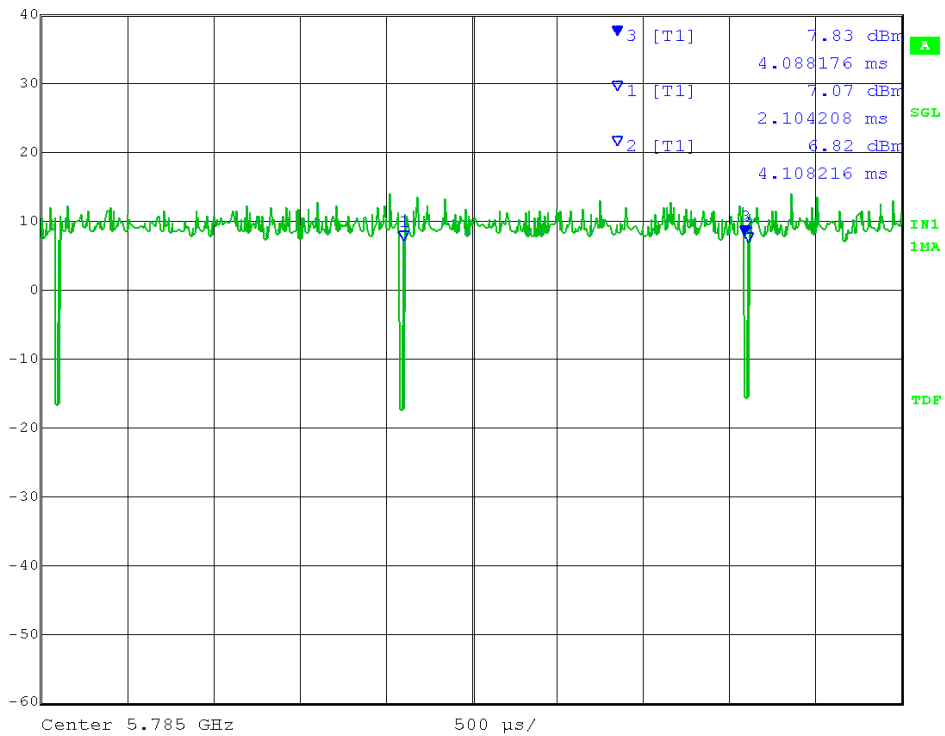
Max/Ref Lvl 40 dBm 0 dBm  
Marker 3 [T1] 7.44 dBm 3.637275 ms  
RBW 10 MHz VBW 10 MHz  
RF Att 30 dB  
SWT 5 ms Unit dBm



Date: 5.NOV.2013 13:03:35

# 64QAM

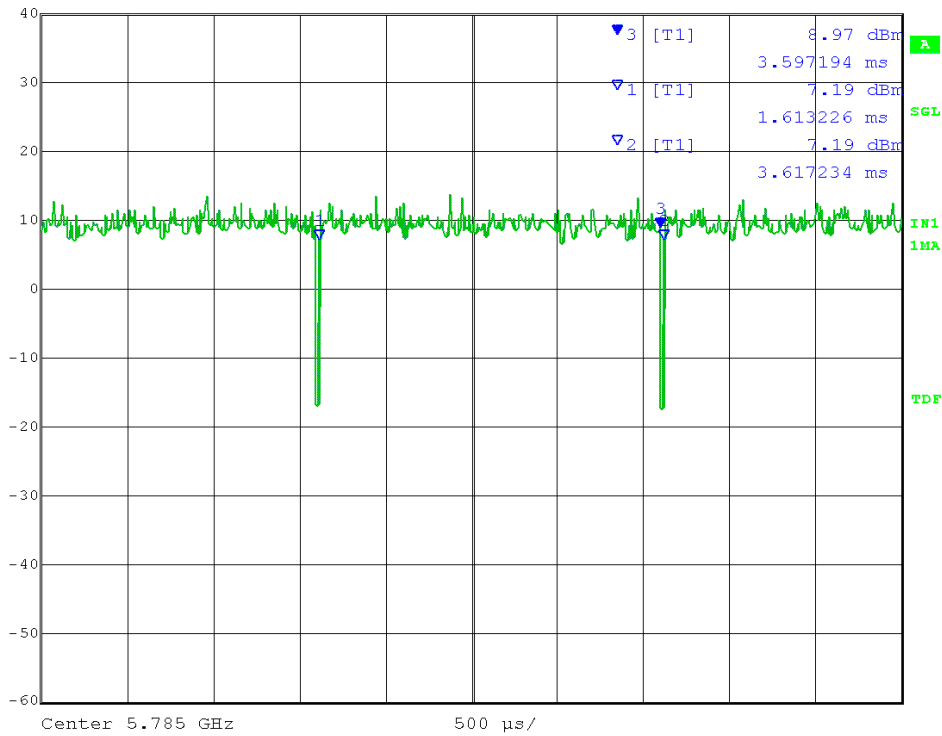
Max/Ref Lvl 40 dBm 0 dBm  
Marker 3 [T1] 7.83 dBm 4.088176 ms  
RBW 10 MHz VBW 10 MHz  
RF Att 30 dB  
SWT 5 ms Unit dBm



Date: 5.NOV.2013 13:04:32

# 256QAM

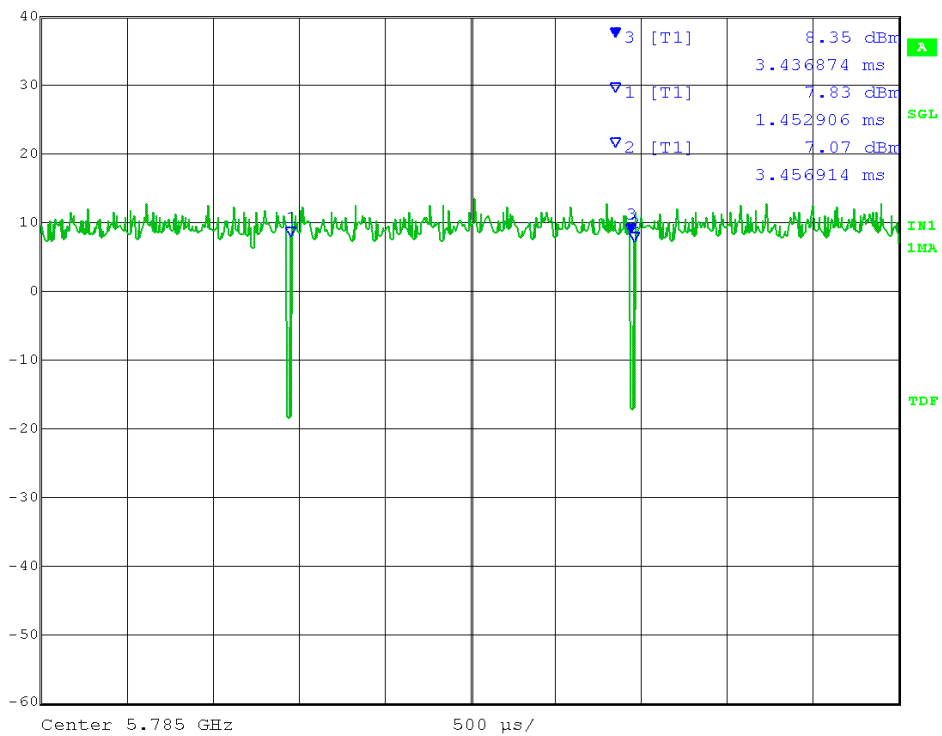
Max/Ref Lvl Marker 3 [T1] RBW 10 MHz RF Att 30 dB  
40 dBm 8.97 dBm VBW 10 MHz  
0 dBm 3.597194 ms SWT 5 ms Unit dBm



Date: 5.NOV.2013 13:05:21

# 1024QAM

Max/Ref Lvl Marker 3 [T1] RBW 10 MHz RF Att 30 dB  
40 dBm 8.35 dBm VBW 10 MHz  
0 dBm 3.436874 ms SWT 5 ms Unit dBm



Date: 5.NOV.2013 13:06:00





166 South Carter, Genoa City, WI 53128

Company: Ubiquiti Networks, Inc.  
Model Tested: AF5  
Report Number: 19544 Part 2  
DLS Project: 6172

# 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