



166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

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.

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

Formal Name: PMP450SM 2.4 GHz OFDM Radio
Kind of Equipment: Point-to-Point Digital Transmission Transceiver
Frequency Range: 2402.5 to 2475 MHz (5 MHz bandwidth)
2405 to 2470 MHz (10 MHz bandwidth)
2417.5 to 2460 MHz (20 MHz bandwidth)

See Section 4: "Description of Test Sample" for Specific Frequency Ranges programmed with each Antenna.

Test Configuration: Stand-alone
Model Number(s): Integrated models: C024045C001A, C024045C002A, C024045C003A,
& C024045C004A,
Connectorized models: C024045C005A, C024045C006A,
C024045C007A, & C024045C008A
Model(s) Tested: Integrated: C024045C004A &
Connectorized: C024045C008A
Serial Number(s): Integrated: 0A003E47D0A1
Connectorized: 0A003E47D0A3
Date of Tests: April 24th to May 9th, 2013
Test Conducted For: Cambium Networks
3800 Golf Road, Suite 360
Rolling Meadows, IL 60008, USA

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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166 South Carter, Genoa City, WI 53128

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Cambium Networks
C024045C004A & C024045C008A
19014

SIGNATURE PAGE

Tested By:

A handwritten signature in black ink that reads "James R. Ochoa". The signature is written in a cursive style with a large, prominent "J" and "O".

James Ochoa
Test Engineer

Reviewed By:

A handwritten signature in black ink that reads "William Stumpf". The signature is written in a cursive style with a large, prominent "W" and "S".

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 large, prominent "B" and "M".

Brian Mattson
General Manager



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 Report Number: 19014

166 South Carter, Genoa City, WI 53128

Table of Contents

i. Cover Page1

ii. Signature Page2

iii. Table of Contents3

iv. NVLAP Certificate of Accreditation5

1.0 Summary of Test Report6

2.0 Introduction7

3.0 Test Facilities7

4.0 Description of Test Sample7

5.0 Test Equipment10

6.0 Test Arrangements11

7.0 Test Conditions11

8.0 Modifications Made To EUT for Compliance12

9.0 Additional Descriptions12

10.0 Results12

11.0 Conclusion12

Appendix A – Measurement Data13

 A1.0 DTS Bandwidth – 6 dB bandwidth - Conducted13

 A1.0a - Channel A14

 A1.0b - Channel B23

 A2.0 Fundamental Emission Output Power - Conducted32

 A2.0a - Channel A33

 A2.0b - Channel B42

 A3.0 Maximum Power Spectral Density – Conducted51

 A3.0a - Channel A52

 A3.0b - Channel B61

 A4.0 Maximum Unwanted Emission Levels – Conducted70

 A4.0a - Channel A71

 A4.0b - Channel B116

 A5.0 Band-Edge Conducted Measurements for Radiated Restricted Band Compliance161

 A5.0a - Channel A - Patch Antenna Only162

 A5.0b - Channel B - Patch Antenna Only174

 A6.0 Maximum Unwanted Emission Levels – Conducted Band-Edge186

 A6.0a - Channel A187

 A6.0b - Channel B193

 A7.0 Maximum Unwanted Emission Levels into Restricted Frequency Bands - Radiated199

 A7.0a - Patch Antenna200

 A7.0b - Dish Antenna230



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

| | |
|---|-----|
| A7.0c - Panel Antenna..... | 260 |
| A8.0 Max Unwanted Emissions - Radiated Band-Edge with Cabinet - Restricted Bands..... | 290 |
| A9.0 Duty Cycle of Test Unit..... | 303 |
| A10.0 AC Line Conducted Emissions..... | 310 |
| Appendix B – Measurement Data..... | 319 |
| B1.0 Max Unwanted Emissions - Radiated Band-Edge - Restricted Bands | 319 |
| B1.0a - Dish Antenna | 320 |
| B1.0b - Panel Antenna..... | 344 |

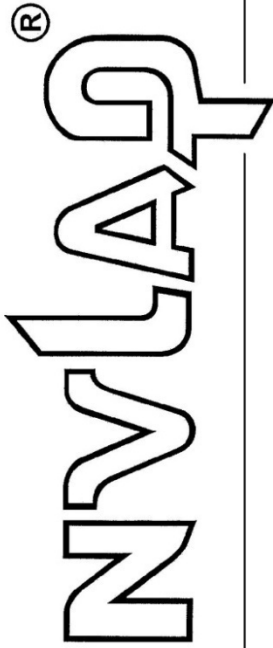


166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Report Number:

Cambium Networks
C024045C004A & C024045C008A
19014

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 Communiqué dated January 2009).



For the National Institute of Standards and Technology

2012-10-01 through 2013-09-30

Effective dates

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



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Cambium Networks
C024045C004A & C024045C008A
19014

166 South Carter, Genoa City, WI 53128

1.0 Summary of Test Report

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 – Average | 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 Level in the Fundamental Emission - Average | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 10.5-AVGPSD-2 | 1 | Yes |
| FCC 15.247(d) | Maximum Unwanted Emission Levels – RF Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 11.0 | 1 | Yes |
| FCC 15.247 (d), FCC 15.205 | Band-Edge Conducted Measurements for Radiated Restricted Band Compliance (with Patch Antenna) | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 12.1/ | 1 | Yes |
| FCC 15.247(d) FCC 15.205 | Band Edge Measurements - Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 11.0 | 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 15.247(d) FCC 15.205 | Band Edge Measurements - Radiated with Cabinet | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 12.2.4 & 12.2.7 | 2 | Yes |
| FCC 15.35(c) | Duty Cycle of Test Unit | ANSI C63.10-2009 Section 7.5 | 1 | NA |
| FCC 15.207(a) | AC Line Conducted Emissions | ANSI C63.10-2009 Section 6.2 | | Yes |
| FCC 15.247 (d), FCC 15.205 | Band-Edge Measurements - Radiated (with Dish & Panel Antennas) | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 13.0 | 2 | Yes |

Note 1: RF conducted measurement.

Note 2: Radiated emission measurement.



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Conclusion:

It was determined that the Cambium Networks PMP450SM 2.4 GHz OFDM Radio, Integrated model: C024045C004A, and Connectorized model: C024045C008A, complies with the requirements of CFR 47 Part 15 Subpart C Section 15.247.

2.0 Introduction

From April 24th through May 9th the PMP450SM 2.4 GHz Radio, Models C024045C004A & C024045C008A, as provided from Cambium Networks, was tested to the requirements of CFR 47 Part 15 Subpart C Section 15.247. To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S Electronic Systems, Inc.

3.0 Test Facilities

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

Wisconsin Test Facility:

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

Wheeling Test Facility:

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

4.0 Description of Test Sample

Description:

Point-to-Point 2.4 GHz DTS Transceiver with either integrated Patch (8 dBi) and external Wing, or integrated Patch (8 dBi) and Reflector Dish (12 dB), or connectorized with Panel (12 dBi dual polarized slant) antennas with 5 MHz or 10 MHz or 20 MHz channel bandwidth. OFDM modulation.

Type of Equipment

Stand-Alone

Frequency Range:

With Patch Antenna: 2402.5 to 2475 MHz (5 MHz bandwidth)
2405 to 2470 MHz (10 MHz bandwidth)
2417.5 to 2460 MHz (20 MHz bandwidth)

With Dish Antenna: 2407.5 to 2465 MHz (5 MHz bandwidth)
2420 to 2450 MHz (10 MHz bandwidth)
2430 to 2445 MHz (20 MHz bandwidth)



166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

Frequency Range (continued):

With Panel Antenna: 2402.5 to 2475 MHz (5 MHz bandwidth)
2405 to 2470 MHz (10 MHz bandwidth)
2420 to 2460 MHz (20 MHz bandwidth)

Physical Dimensions of Equipment Under Test:

Length: 12 in. Width: 3 in. Height: 1 in.

Power Source:

29 VDC (Power Over Ethernet to Radio)
120 Vac, 60 Hz using Phihong power supply model: 15R (for AC Line Conducted)
or Phihong power supply: PSA 15M300AP

Internal Frequencies:

150 kHz (Switching Power Supply Frequency)
25 MHz, 20 MHz

Transmit Frequencies Used For Test Purpose:

With Patch Antenna

5 MHz Channel Bandwidth: Low channel: 2402.5 MHz (power setting 19)
Middle channel: 2440 MHz (power setting 19)
High channel: 2475 MHz (power setting 15)

10 MHz Channel Bandwidth: Low channel: 2405 MHz (power setting 19)
Middle channel: 2440 MHz (power setting 19)
High channel: 2470 MHz (power setting 15)

20 MHz Channel Bandwidth: Low channel: 2417.5 MHz (power setting 19)
Middle channel: 2440 MHz (power setting 19)
High channel: 2460 MHz (power setting 16)

With Dish Antenna

5 MHz Channel Bandwidth: Low channel: 2407.5 MHz (power setting 16)
High channel: 2465 MHz (power setting 16)



Company: Cambium Networks
 Model Tested: C024045C004A & C024045C008A
 Report Number: 19014

166 South Carter, Genoa City, WI 53128

Transmit Frequencies Used For Test Purpose (continued):

With Dish Antenna (continued)

10 MHz Channel Bandwidth: Low channel: 2420 MHz (power setting 16)
 High channel: 2450 MHz (power setting 17)

20 MHz Channel Bandwidth: Low channel: 2430MHz (power setting 19)
 High channel: 2445 MHz (power setting 19)

With Panel Antenna

5 MHz Channel Bandwidth: Low channel: 2402.5 MHz (power setting 19)
 High channel: 2475 MHz (power setting 17)

10 MHz Channel Bandwidth: Low channel: 2405 MHz (power setting 19)
 High channel: 2470 MHz (power setting 16)

20 MHz Channel Bandwidth: Low channel: 2420 MHz (power setting 19)
 High channel: 2460 MHz (power setting 15)

Type of Modulations:

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

Description of Circuit Board(s) / Part Number:

| | |
|---------------------------|---------------|
| Cambium Networks PC Board | PMP840001P2 |
| Patch Antenna | PMP850001_B |
| Dish Antenna | 27RD |
| Panel Antenna | MAWA24MIMO |
| Cable | 30010188001/D |
| 2 x Connector | 0989419C01 |



Company: Cambium Networks
 Model Tested: C024045C004A & C024045C008A
 Report Number: 19014

166 South Carter, Genoa City, WI 53128

5.0 Test Equipment

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

D.L.S. Wisconsin

| Description | Manufacturer | Model Number | Serial Number | Frequency Range | Cal Dates | Cal Due Dates |
|-------------------|--------------------|--------------------------|---------------|------------------|-----------|---------------|
| Receiver | Rohde & Schwarz | ESI 40 | 837808/005 | 20 Hz – 40 GHz | 7-23-12 | 7-23-13 |
| LISN | Solar | 9252-50-R-24-BNC | 961019 | 9 kHz – 30 MHz | 5-24-12 | 5-24-13 |
| Filter- High-Pass | SOLAR | 7930-120 | 090702 | 120 kHz – 30 MHz | 1-7-13 | 1-7-14 |
| Limiter | Electro-Metrics | EM-7600 | 706 | 9 kHz – 30 MHz | 1-7-13 | 1-7-14 |
| Preamp | Ciao | CA118-4010 | 101 | 1GHz-18GHz | 2-26-13 | 2-26-14 |
| Horn Antenna | EMCO | 3115 | 9502-4451 | 1-18GHz | 3-18-13 | 3-18-15 |
| Filter- High-Pass | Q-Microwave | 100462 | 2 | 4.2GHz-18GHz | 5-18-12 | 5-18-13 |
| Preamp | Miteq | AMF-8B-180265-40-10P-H/S | 438727 | 18GHz-26GHz | 8-13-12 | 8-13-13 |
| Horn Antenna | ETS Lindgren | 3116 | 00062917 | 18 – 40GHz | 10-4-11 | 9-23-13 |
| High Pass Filter | Planar | CL22500-9000-CD-SS | PF1229/0728 | 15-40 GHz | 8-13-12 | 8-13-13 |
| 20 dB attenuator | Aeroflex/weinschel | 75A-20-12 | 1071 | DC – 40 GHz | 8-13-12 | 8-13-13 |
| Receiver | Rohde & Schwarz | ESI 26 | 837491/010 | 20 Hz – 26 GHz | 1-3-13 | 1-3-14 |
| Preamplifier | Rohde & Schwarz | TS-PR10 | 032001/004 | 9 kHz – 1 GHz | 1-10-13 | 1-10-14 |
| Antenna | EMCO | 3104C | 00054892 | 20 MHz – 200 MHz | 9-13-12 | 9-13-14 |
| Receiver | Rohde & Schwarz | ESI 26 | 837491/010 | 20 Hz – 26 GHz | 1-3-13 | 1-3-14 |



Company: Cambium Networks
 Model Tested: C024045C004A & C024045C008A
 Report Number: 19014

166 South Carter, Genoa City, WI 53128

6.0 Test Arrangements

Radiated Emissions Measurement Arrangement:

All radiated emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to ANSI C63.10-2009, unless otherwise noted. Description of procedures and measurements can be found in Appendix A – Measurement Data. Appendix B has additional data taken for the PMP450SM 2.4 GHz OFDM Radio connected to either the Dish or Panel antenna. **See the separate exhibit for photos of the test set up.**

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

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

RF Conducted Emissions Measurement Arrangement:

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

7.0 Test Conditions

Normal Test Conditions:

Temperature and Humidity:

68°F at 33% RH (or as noted)

Supply Voltage:

29 VDC (Power Over Ethernet to Radio)
 120 Vac, 60 Hz using Pihong power supply model: 15R (for AC Line Conducted)
 or Pihong power supply: PSA 15M300AP



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

8.0 Modifications Made To EUT for Compliance

The SM Chassis needed to be grounded to pass unwanted emissions at 325MHz, 375MHz & 400MHz (below 1GHz).

ADISPI WRITE Commands were made by Steve Payne (of Cambium Networks) to boost RF conducted power to reflect the corresponding power setting.

9.0 Additional Descriptions

Models C024045C004A & C024045C008A were chosen for testing as they have "unlimited" speed (as worst case). Measurements were taken for QPSK modulation (as worst case) at the lowest, middle, and highest channels of operation. Channel A & Channel B were tested using the Internal (Patch), Panel & Dish Antennas. 5, 10, and 20 MHz channel bandwidths were tested. EUT was set to transmit continuously (at various power settings) with approximately 94% duty cycle.

Emission Designators: 5M0X1D, 10M0X1D, 20M0X1D

10.0 Results

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

11.0 Conclusion

The PMP450SM 2.4 GHz Radio, Models C024045C004A & C024045C008A, as provided from Cambium Networks tested from April 24th to May 9th **meets** the requirements of CFR 47 Part 15 Subpart C Section 15.247.



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A1.0 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 8.1 Option 1

Description: RBW = 100kHz
VBW \geq 3 x RBW
Detector = Peak
Trace mode = max hold
Sweep = auto couple

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 over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low, middle and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle.

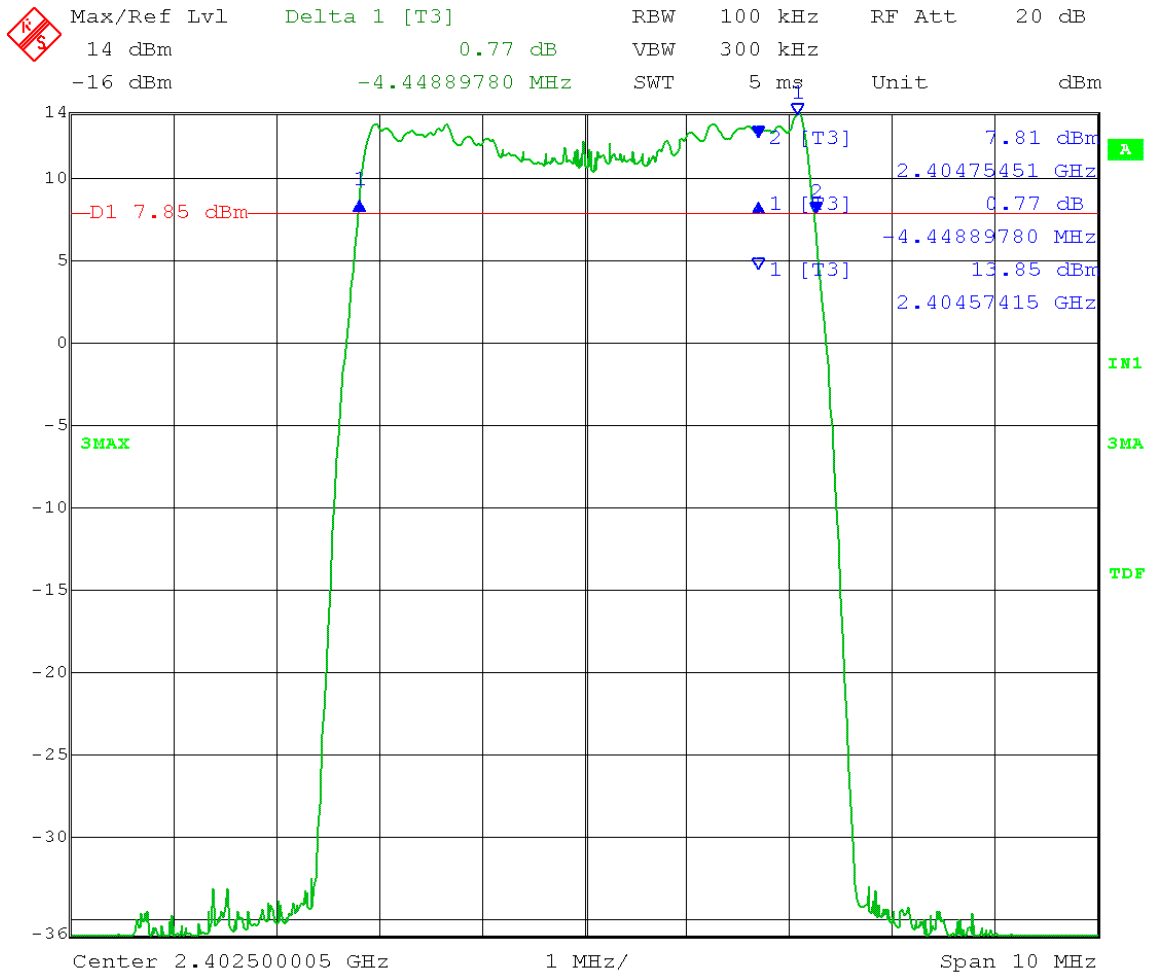
Limit: DTS Bandwidth shall be at least 500 kHz

Results: Passed

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Low Channel: Transmit = 2.4025 GHz
 Output power setting: 19
 Channel A
 5MHz BW

6 dB Emission Bandwidth = 4.45MHz



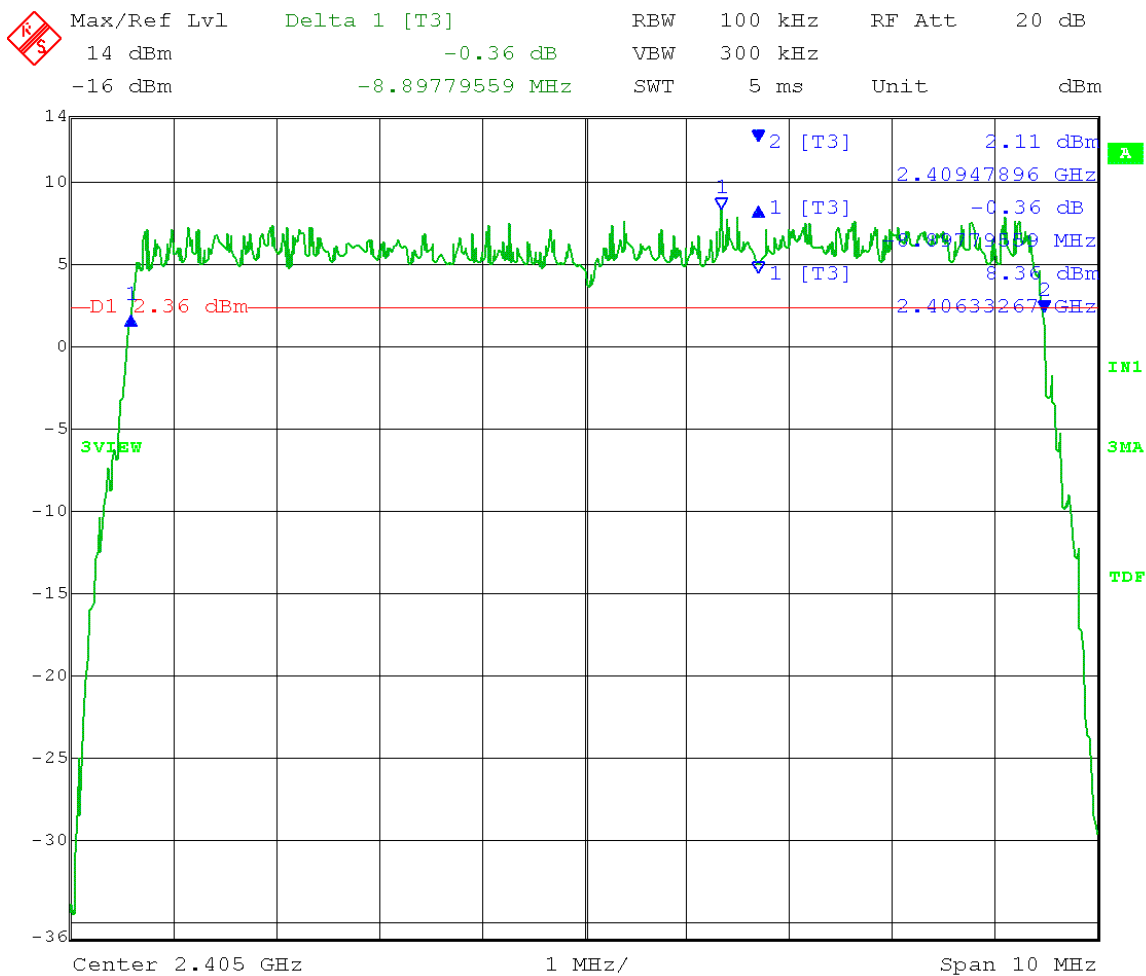
Date: 1.MAY.2013 09:05:58

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Low Channel: Transmit = 2.405 GHz
 Output power setting: 19
 Channel A

10MHz BW

6 dB Emission Bandwidth = 8.90MHz



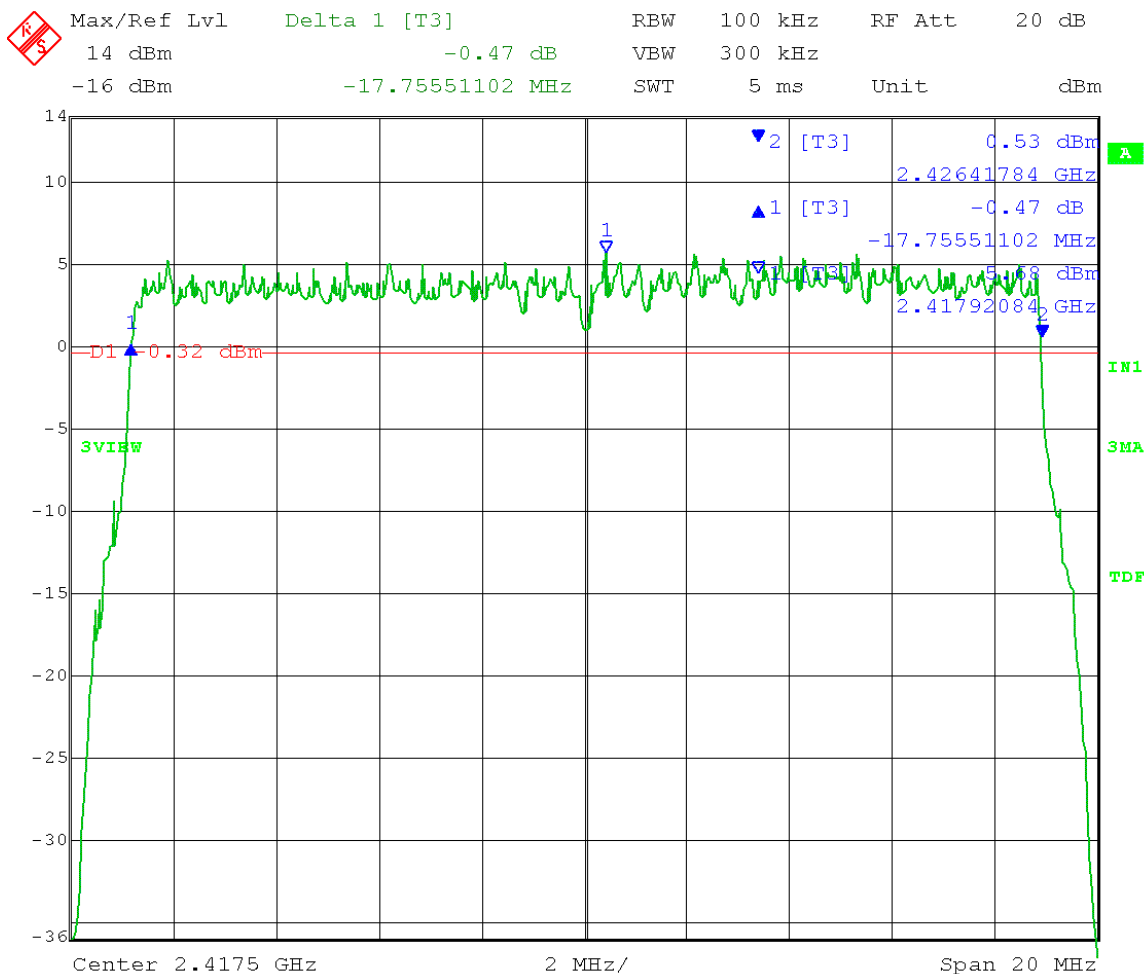
Date: 1.MAY.2013 10:08:55

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Low Channel: Transmit = 2.4175 GHz
 Output power setting: 19
 Channel A

20MHz BW

6 dB Emission Bandwidth = 17.76MHz

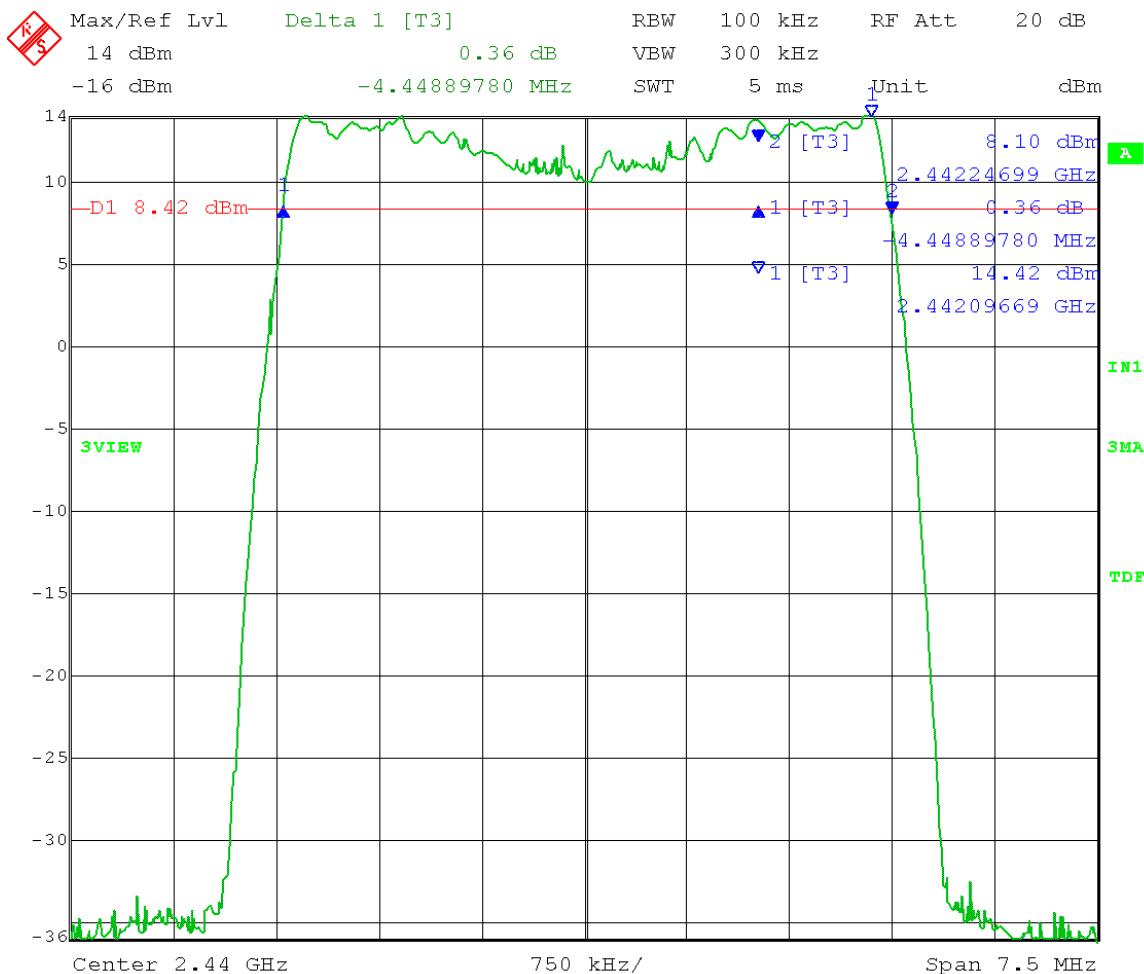


Date: 1.MAY.2013 10:32:20

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Mid Channel: Transmit = 2.44 GHz
 Output power setting: 19
 Channel A
 5MHz BW

6 dB Emission Bandwidth = 4.45MHz



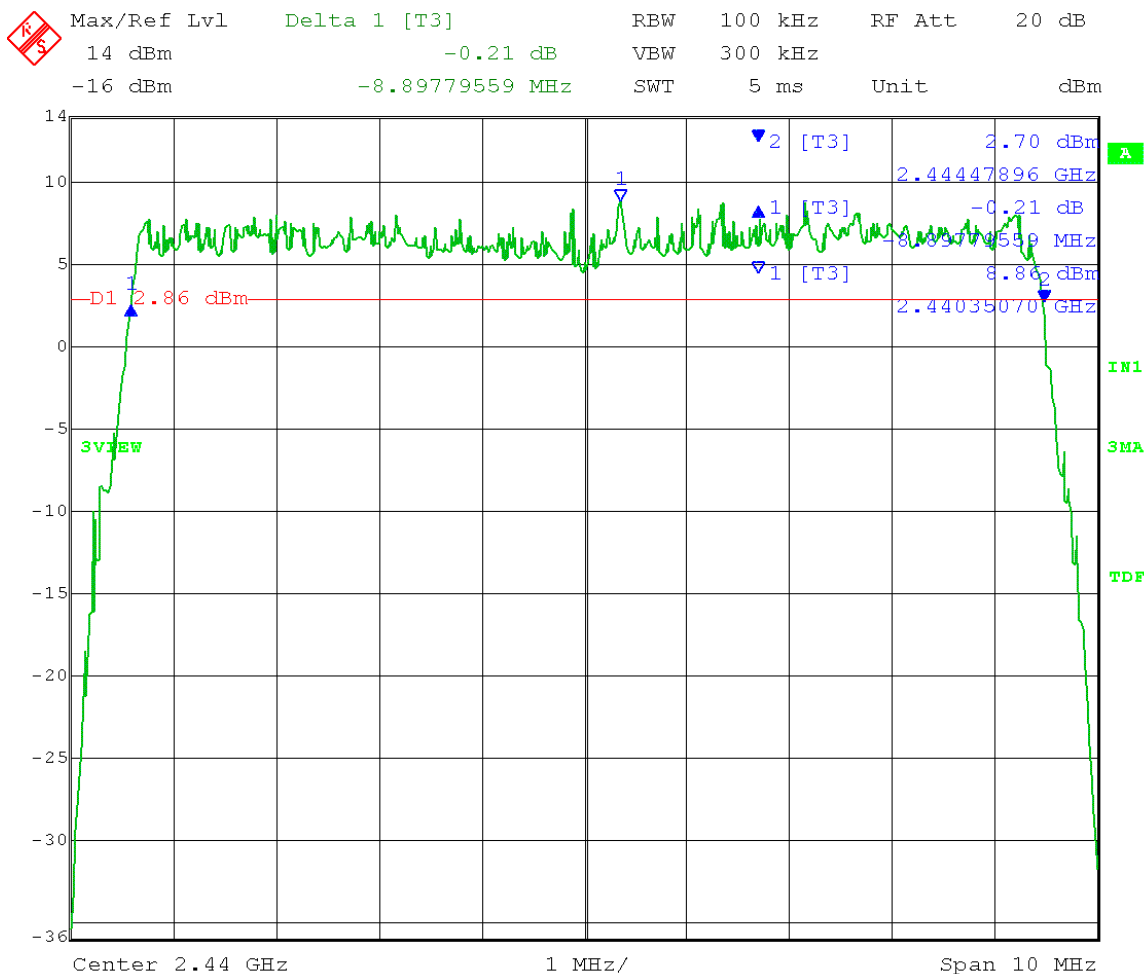
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Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Mid Channel: Transmit = 2.44 GHz
 Output power setting: 19
 Channel A

10MHz BW

6 dB Emission Bandwidth = 8.90MHz

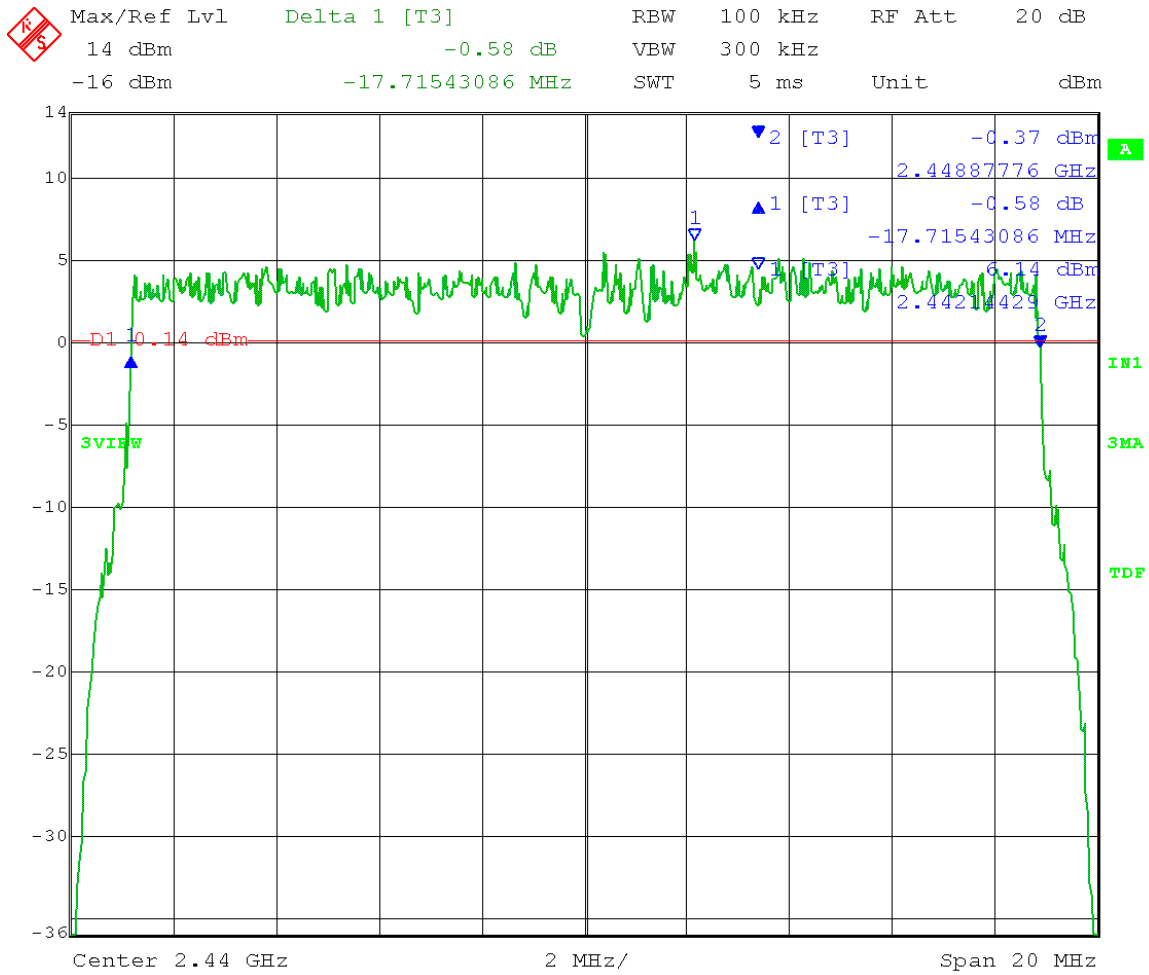


Date: 1.MAY.2013 10:05:33

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Mid Channel: Transmit = 2.44 GHz
 Output power setting: 19
 Channel A
 20MHz BW

6 dB Emission Bandwidth = 17.72MHz

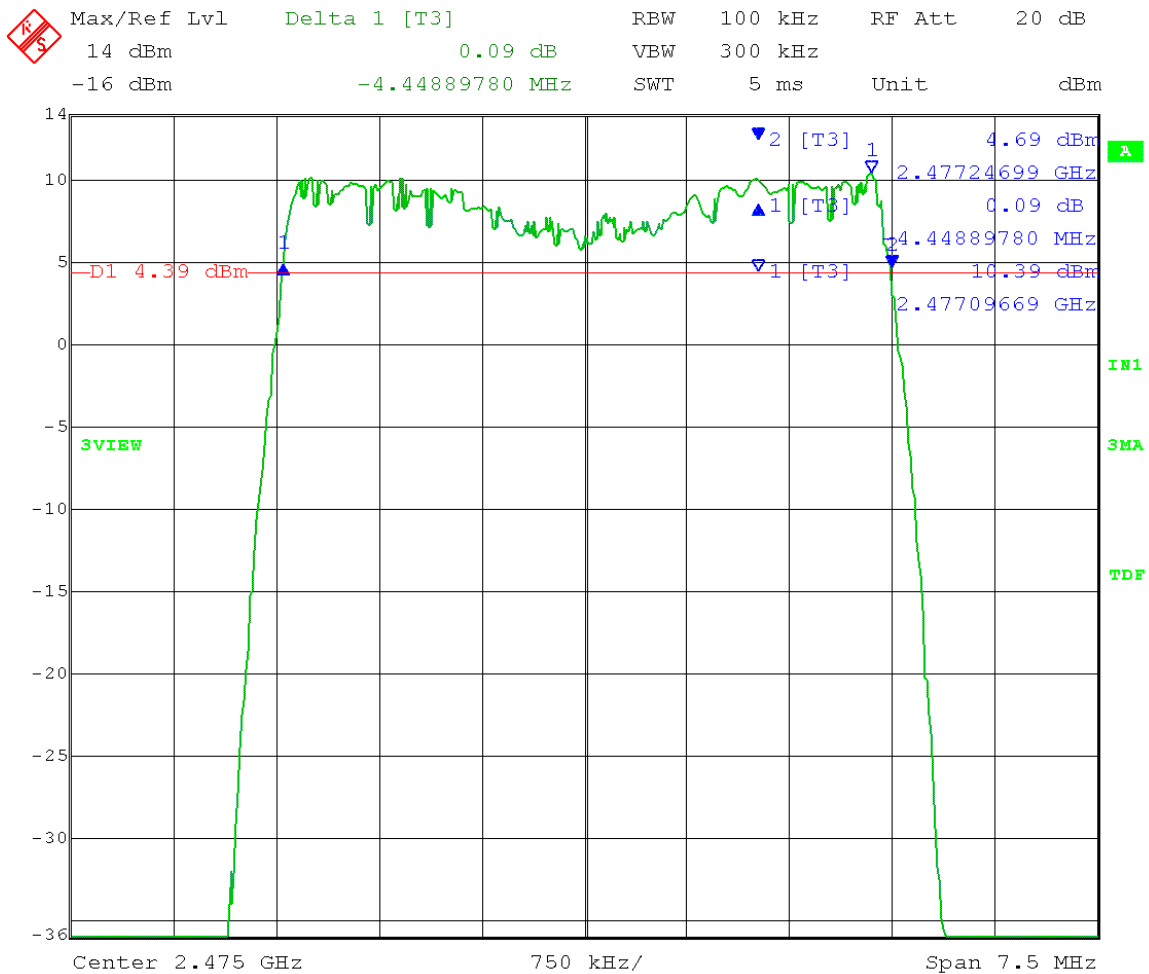


Date: 1.MAY.2013 10:44:31

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: High Channel: Transmit = 2.475 GHz
 Output power setting: 15
 Channel A
 5MHz BW

6 dB Emission Bandwidth = 4.45MHz



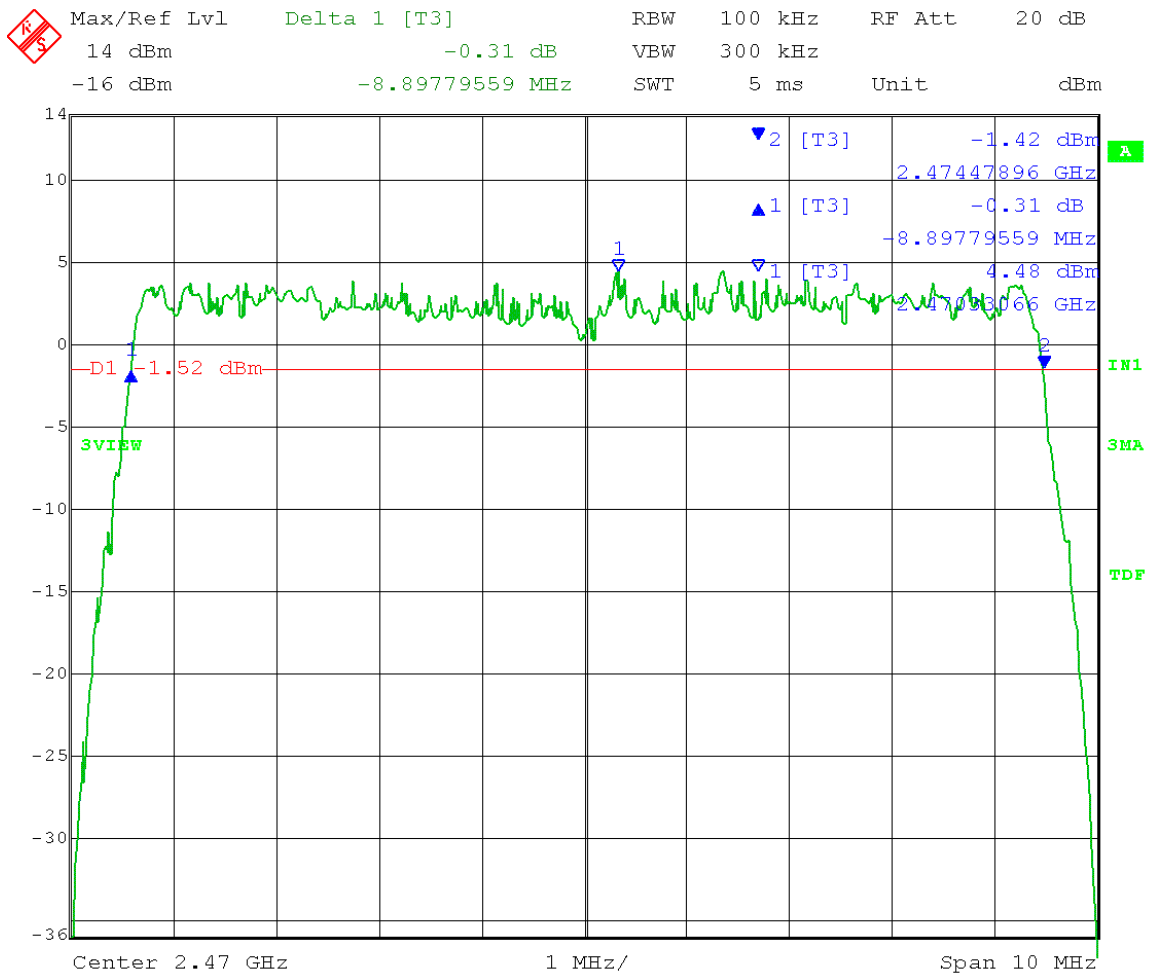
Date: 1.MAY.2013 09:26:09

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: High Channel: Transmit = 2.470 GHz
 Output power setting: 15
 Channel A

10MHz BW

6 dB Emission Bandwidth = 8.90MHz



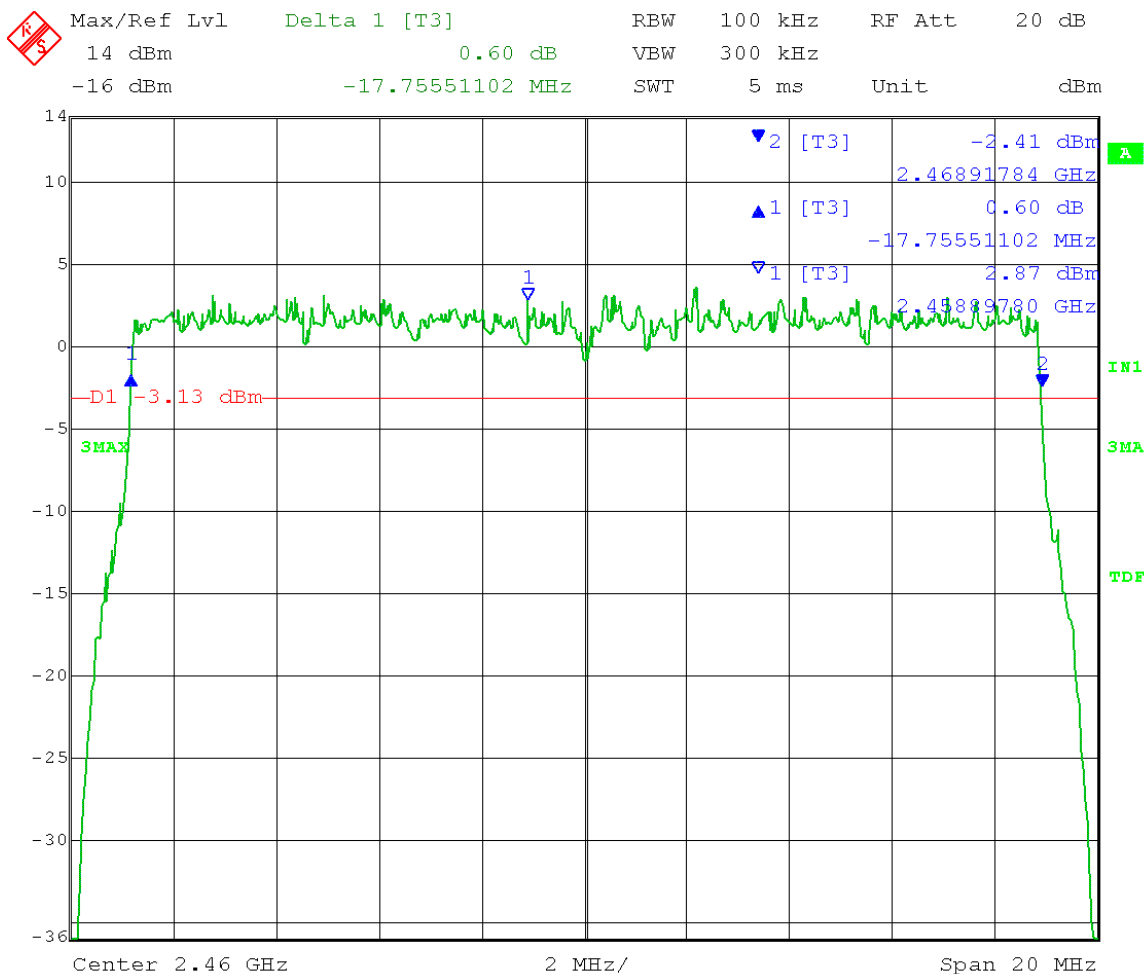
Date: 1.MAY.2013 10:18:04

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: High Channel: Transmit = 2.460 GHz
 Output power setting: 16
 Channel A

20MHz BW

6 dB Emission Bandwidth = 17.76MHz

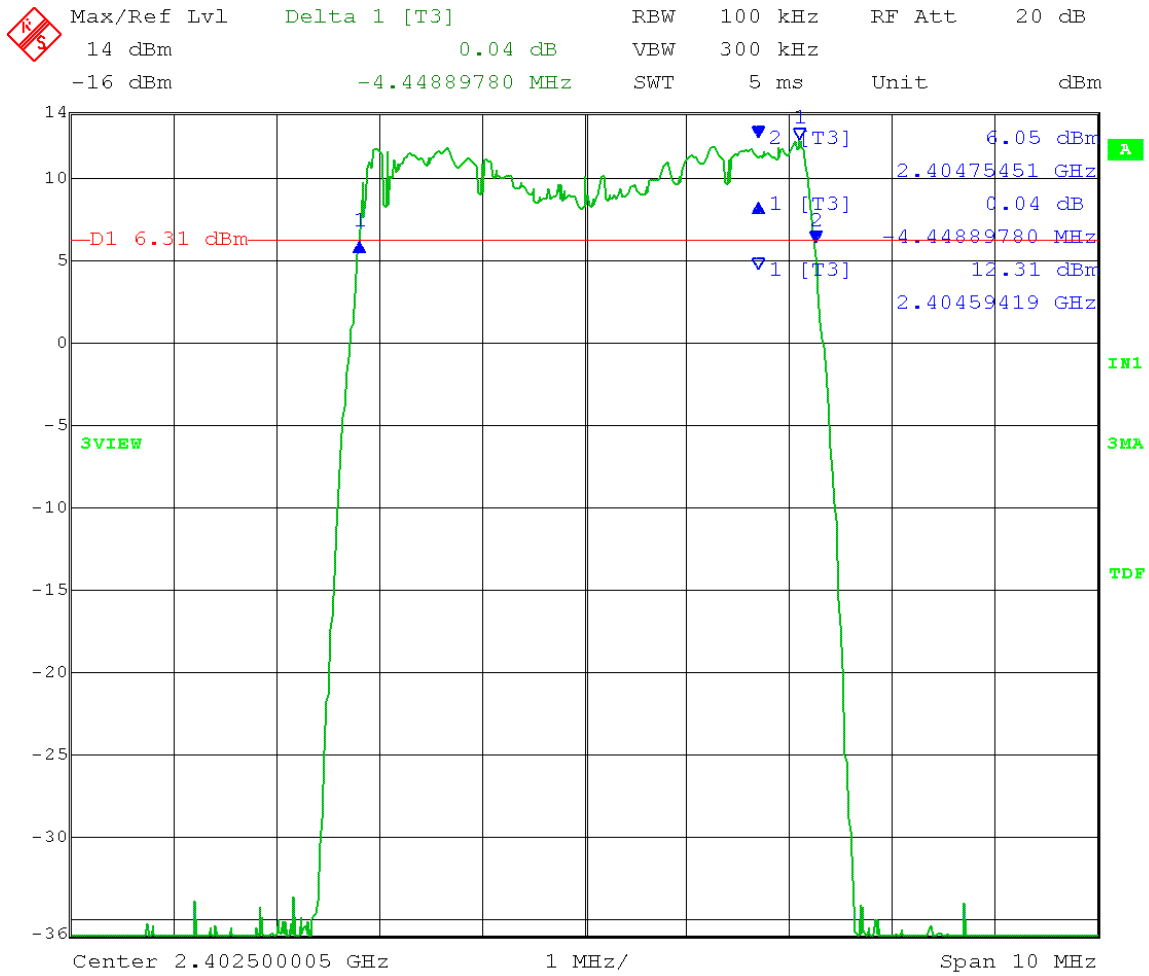


Date: 1.MAY.2013 10:41:50

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Low Channel: Transmit = 2.4025 GHz
 Output power setting: 19
 ChannelB 5MHz BW

6 dB Emission Bandwidth = 4.45MHz



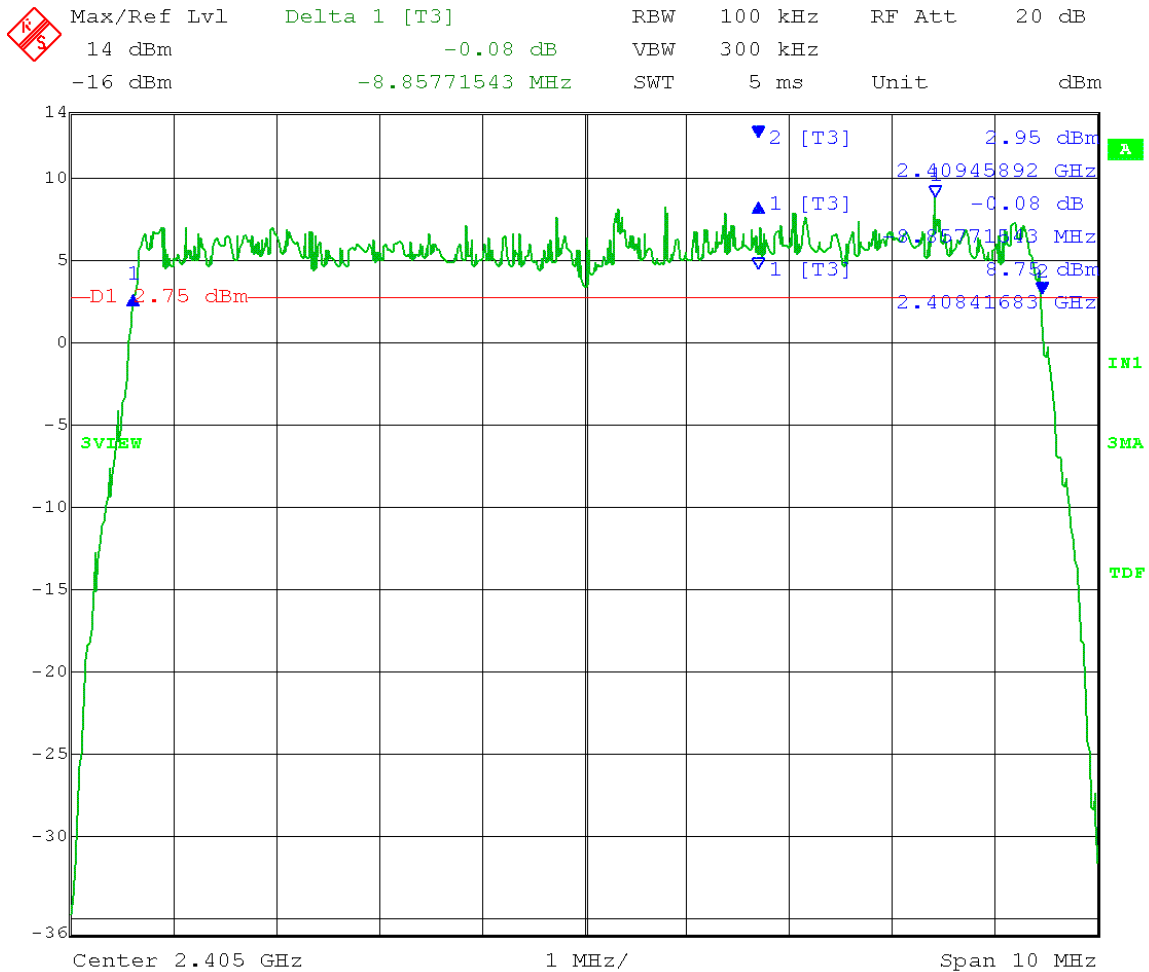
Date: 1.MAY.2013 09:09:34

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Low Channel: Transmit = 2.405 GHz
 Output power setting: 19
 Channel B

10MHz BW

6 dB Emission Bandwidth = 8.86MHz

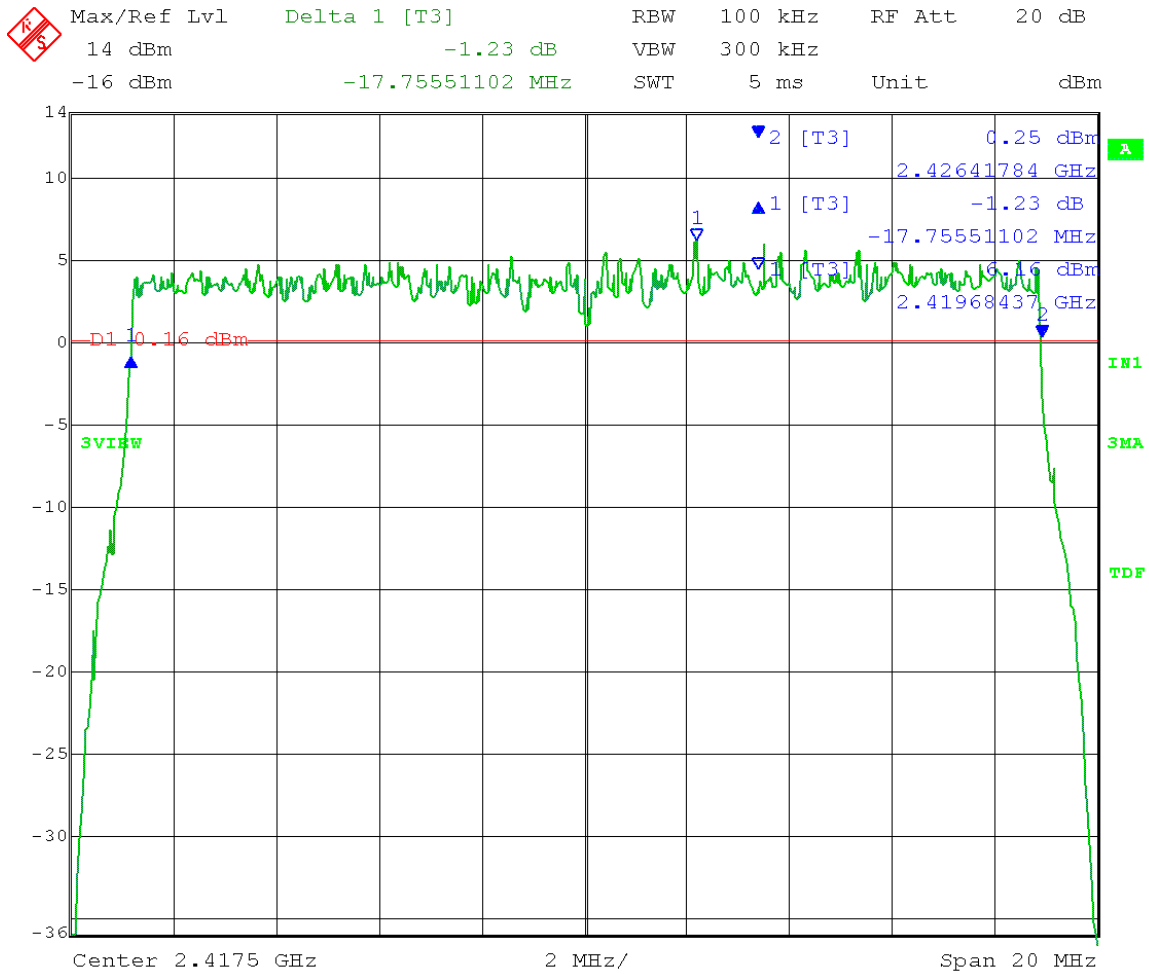


Date: 1.MAY.2013 10:12:05

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Low Channel: Transmit = 2.4175 GHz
 Output power setting: 19
 Channel B

6 dB Emission Bandwidth = 17.76MHz

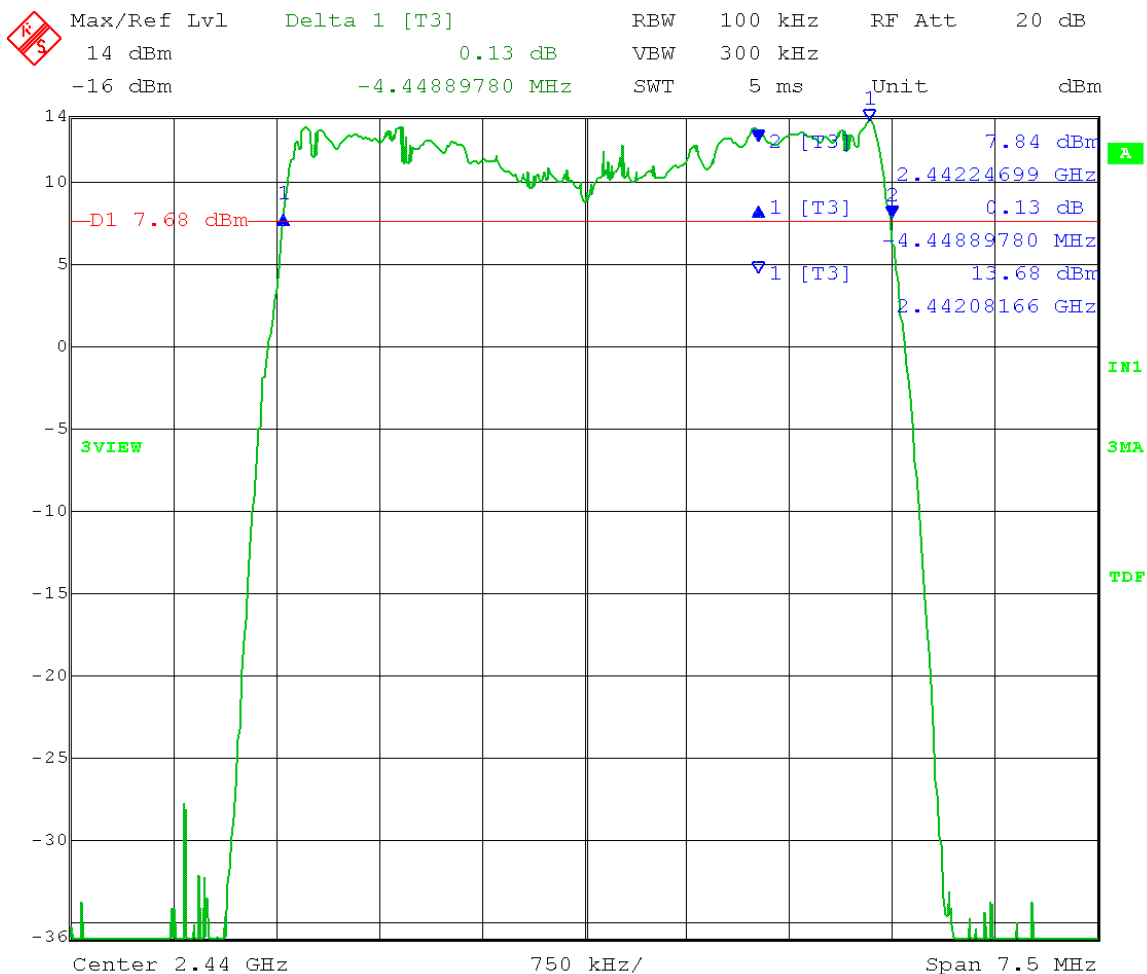


Date: 1.MAY.2013 10:35:44

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Mid Channel: Transmit = 2.44 GHz
 Output power setting: 19
 Channel B
 5MHz BW

6 dB Emission Bandwidth = 4.45MHz

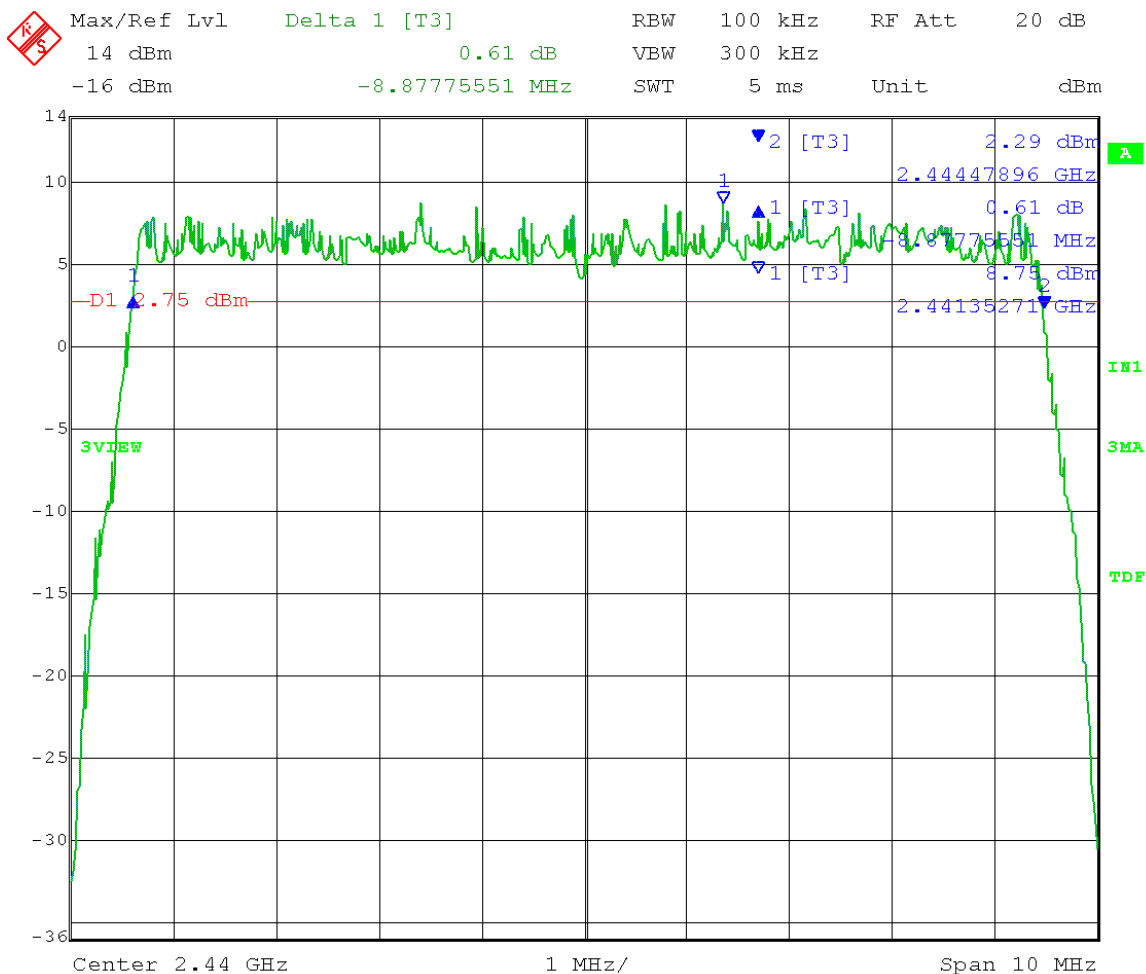


Date: 1.MAY.2013 09:14:56

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Mid Channel: Transmit = 2.44 GHz
 Output power setting: 19
 Channel B
 10MHz BW

6 dB Emission Bandwidth = 8.88MHz

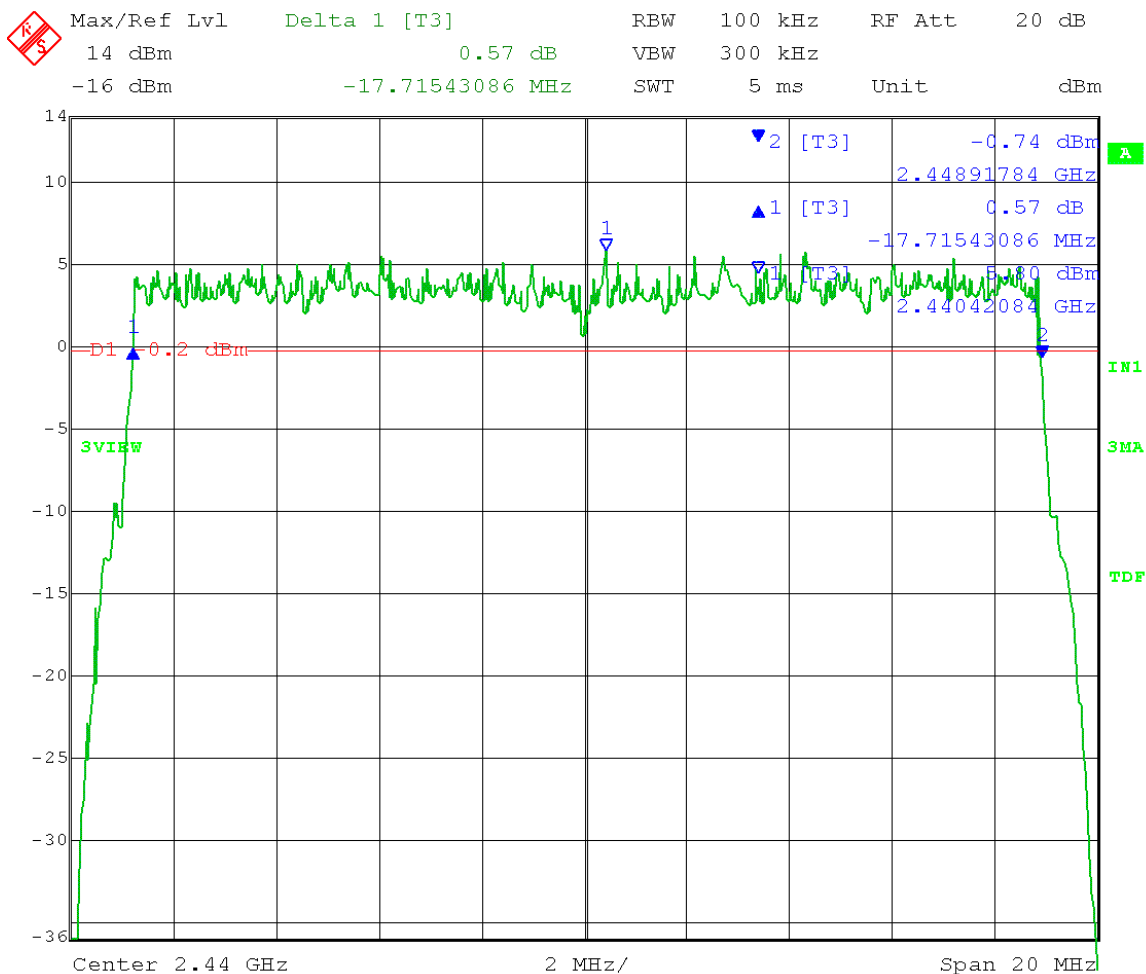


Date: 1.MAY.2013 10:02:07

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: Mid Channel: Transmit = 2.44 GHz
 Output power setting: 19
 Channel B
 20MHz BW

6 dB Emission Bandwidth = 17.72MHz



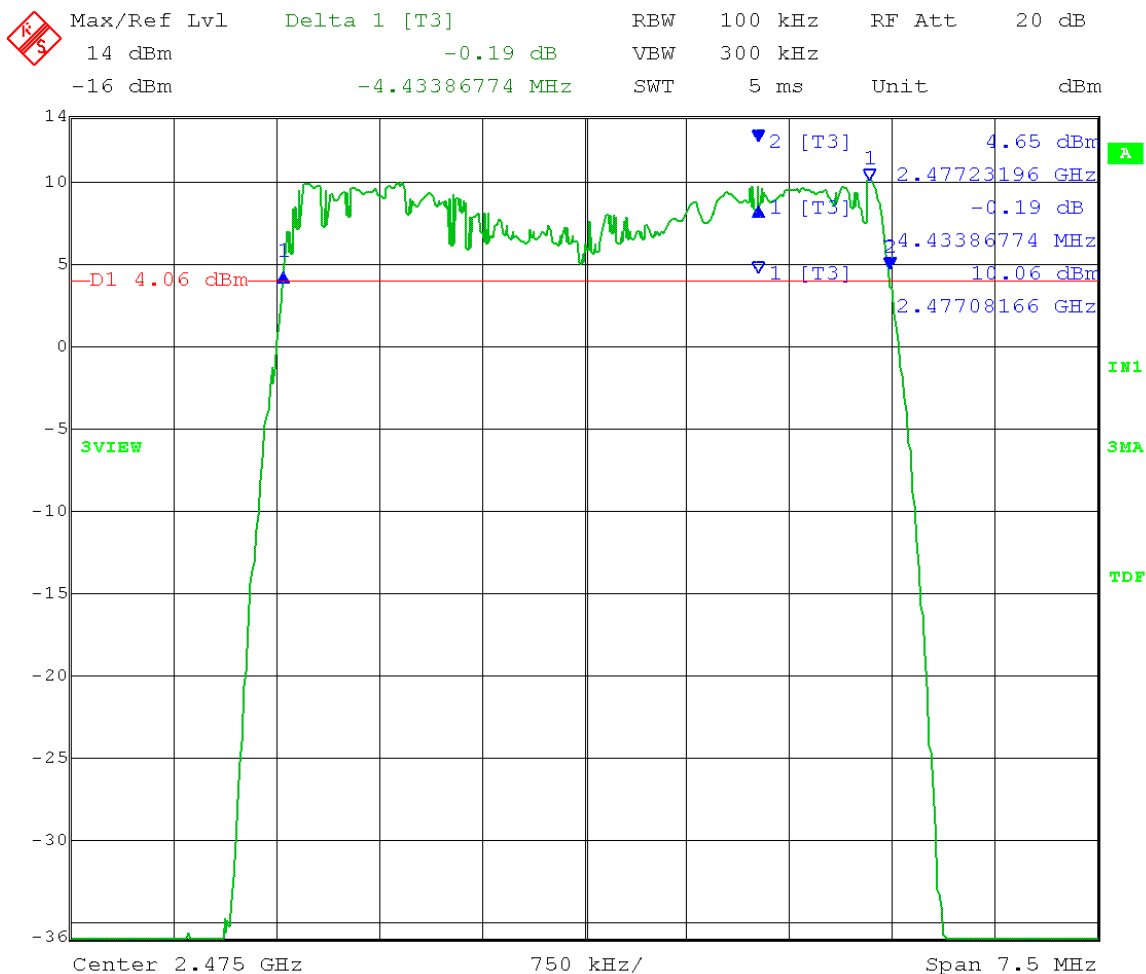
Date: 1.MAY.2013 10:46:37

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: High Channel: Transmit = 2.475 GHz
 Output power setting: 15
 Channel A

5MHz BW

6 dB Emission Bandwidth = 4.43MHz



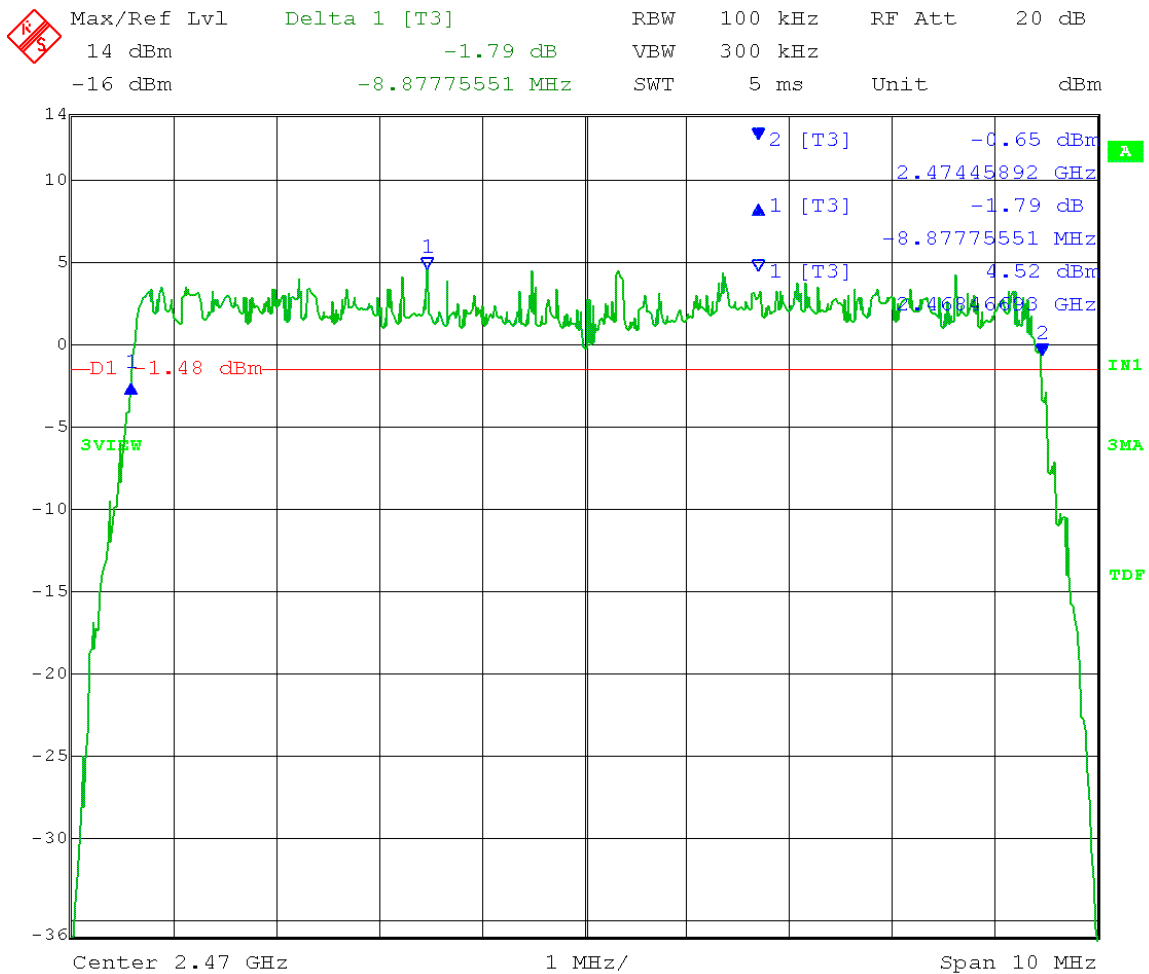
Date: 1.MAY.2013 09:29:20

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: High Channel: Transmit = 2.470 GHz
 Output power setting: 15
 Channel B

10MHz BW

6 dB Emission Bandwidth = 8.88MHz



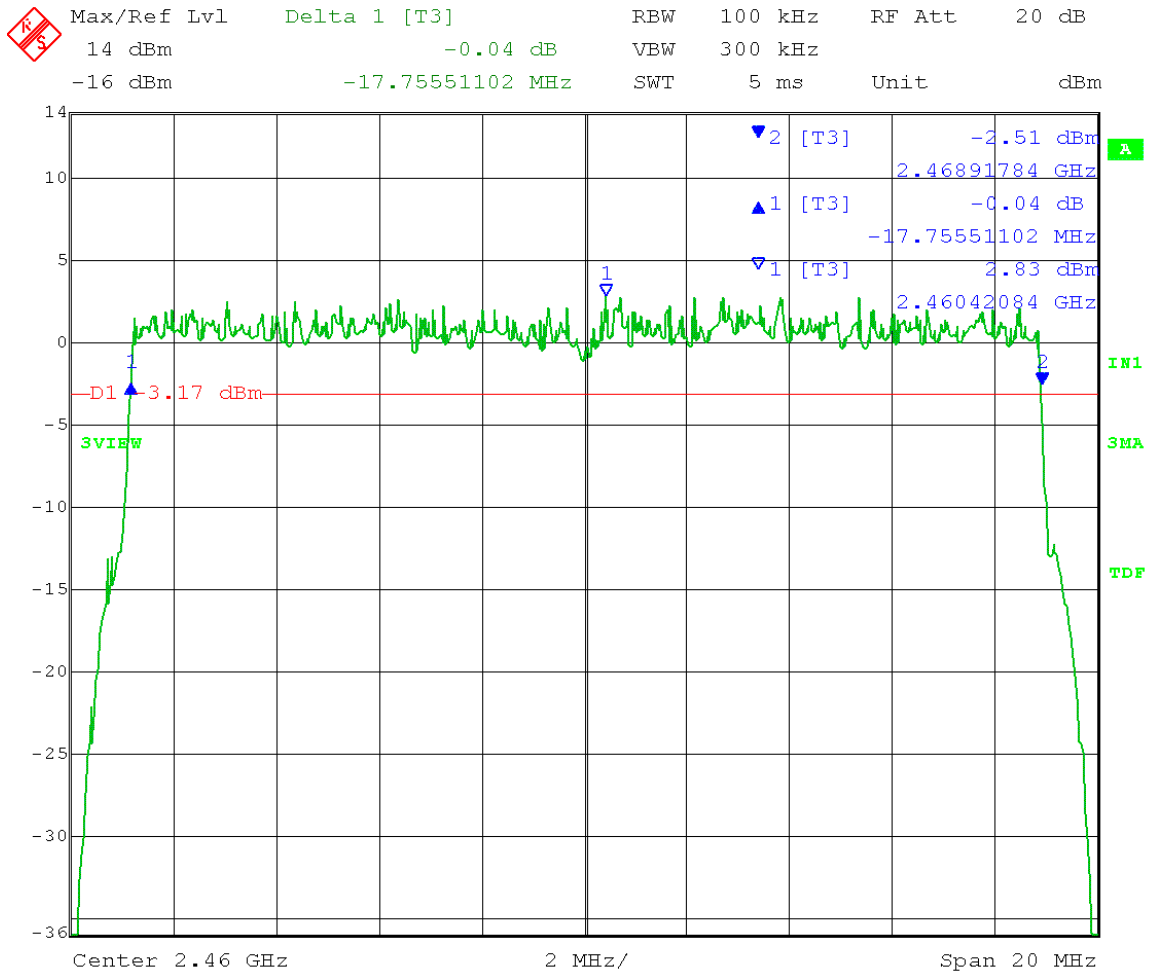
Date: 1.MAY.2013 10:15:16

Test Date: 05-01-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4GHz: OFDM)
 Test: Emission Bandwidth (6 dB) - Conducted
 Operator: Jim O

Comment: High Channel: Transmit = 2.460 GHz
 Output power setting: 16
 Channel B

20MHz BW

6 dB Emission Bandwidth = 17.76MHz



Date: 1.MAY.2013 10:39:33



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A2.0 Fundamental Emission Output Power - Conducted

Rule Section: FCC 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 if all of the conditions listed below are satisfied.

The EUT is configured to transmit continuously at a constant duty factor.

At all times when the EUT is transmitting, it is transmitting at its maximum power control level.

The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

The average power of the transmitter was measured. This measurement is an average over both the on and off periods of the transmitter.

The measurement was adjusted in dBm by adding $10\log(1/x)$, where x is the duty cycle, to the measurement result.

Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low, middle and high channels of operation. EUT was set to transmit continuously with approximately a 94% duty cycle.

Limit: 1 Watt (30dBm); 19dBm (see note below)

Results: Passed

Notes: Antenna gain is 17dBi. Therefore, the RF conducted power limit was reduced by 11 dB to 19dBm (the amount by which the antenna gain exceeds 6dBi).

Measurements were made for MIMO Matrix A mode.

Test Date: 05-03-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

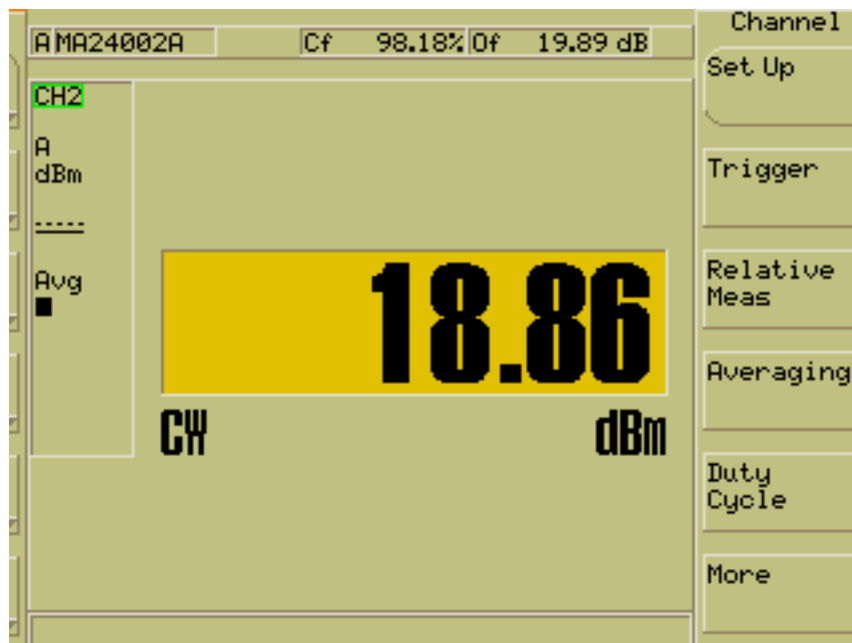
EUT nominal channel bandwidth: 5 MHz
Output port: Channel A; Low Channel Frequency: 2.4025 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 18.86dBm + 0.29 dB (for duty cycle) + 3 dB
(MIMO Cross-Pole) = 22.15dBm = 164mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

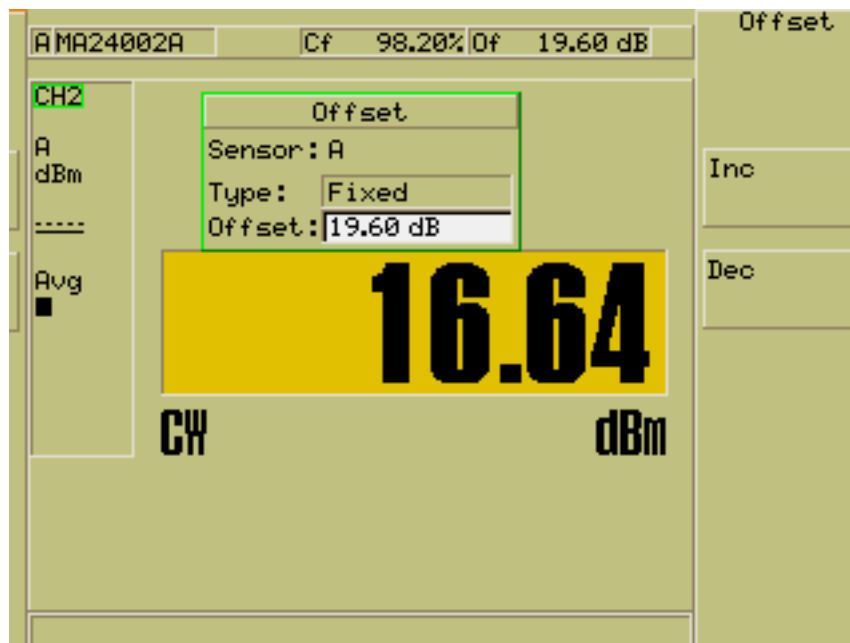
EUT nominal channel bandwidth: 10 MHz
Output port: Channel A; Low Channel Frequency: 2.405 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 16.64dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 20.03dBm = 101mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

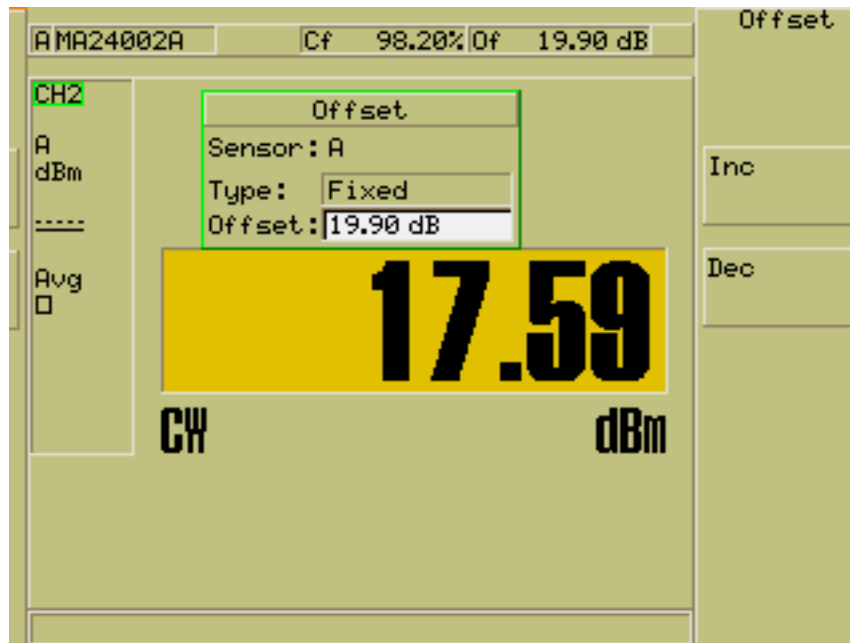
EUT nominal channel bandwidth: 20 MHz
Output port: Channel A; Low Channel Frequency: 2.4175 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 17.59dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 20.88dBm = 122mW



Test Date: 05-03-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

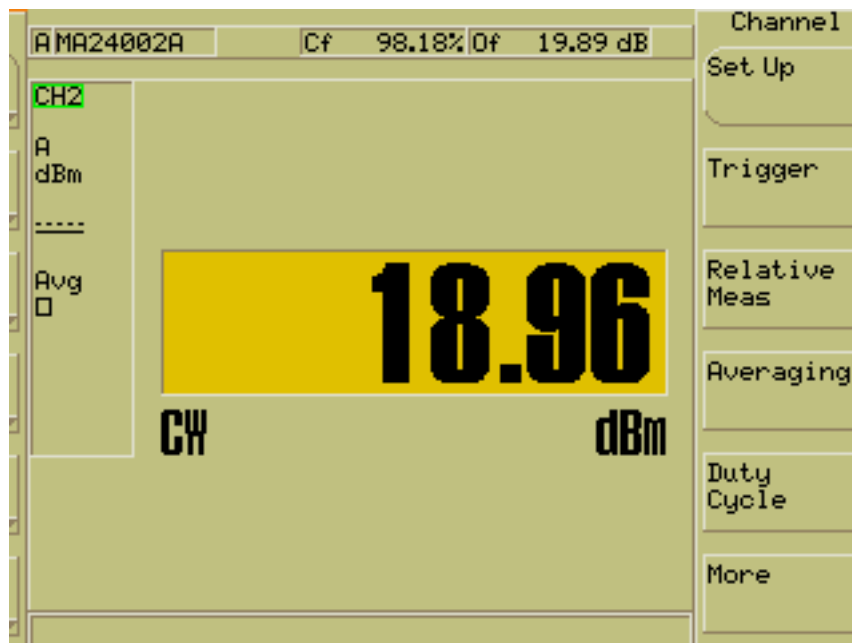
EUT nominal channel bandwidth: 5 MHz
Output port: Channel A; Mid Channel Frequency: 2.44 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 18.96dBm + 0.29 dB (for duty cycle) + 3 dB
(MIMO Cross-Pole) = 22.25dBm = 168mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

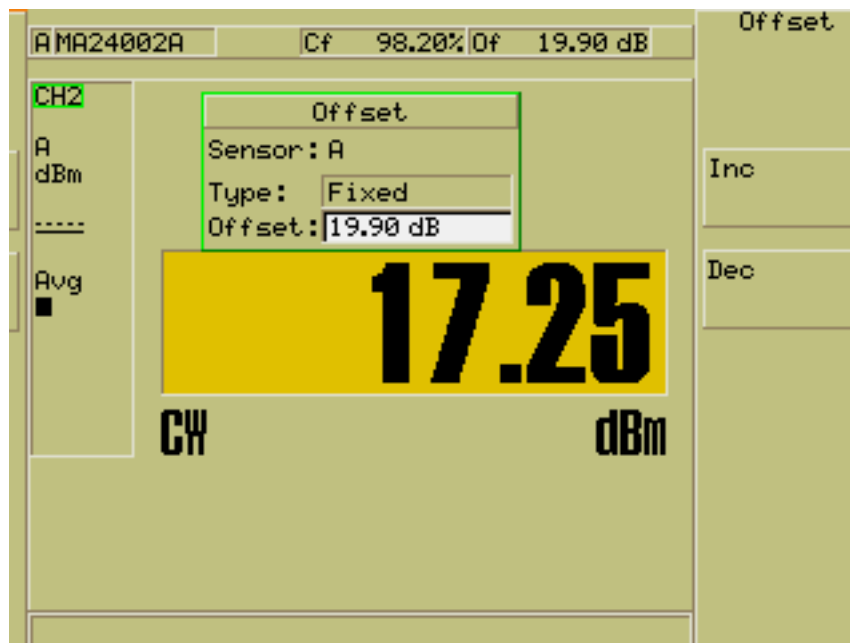
EUT nominal channel bandwidth: 10 MHz
Output port: Channel A; Mid Channel Frequency: 2.44 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 17.25dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 20.54dBm = 113mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

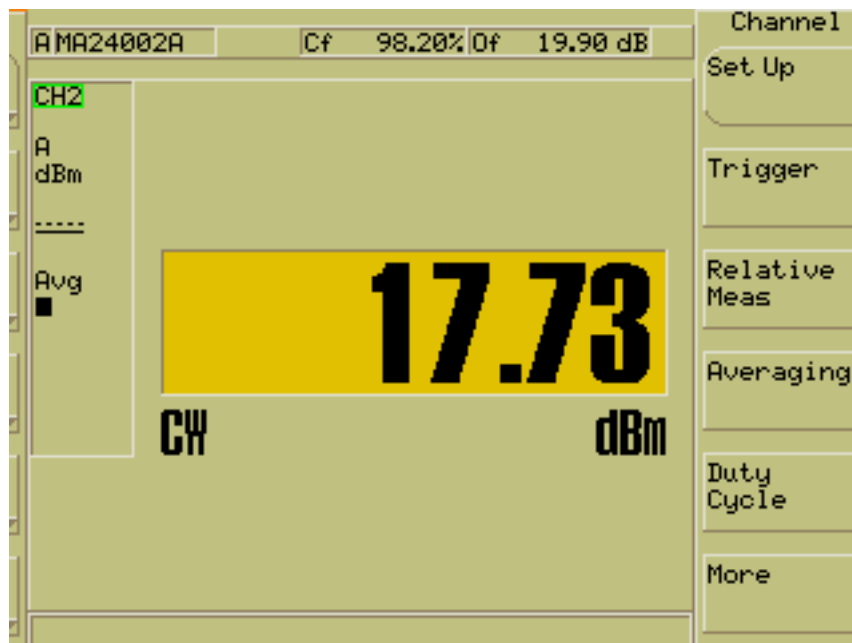
EUT nominal channel bandwidth: 20 MHz
Output port: Channel A; Mid Channel Frequency: 2.44 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 17.73dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 21.02dBm = 126mW



Test Date: 05-03-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

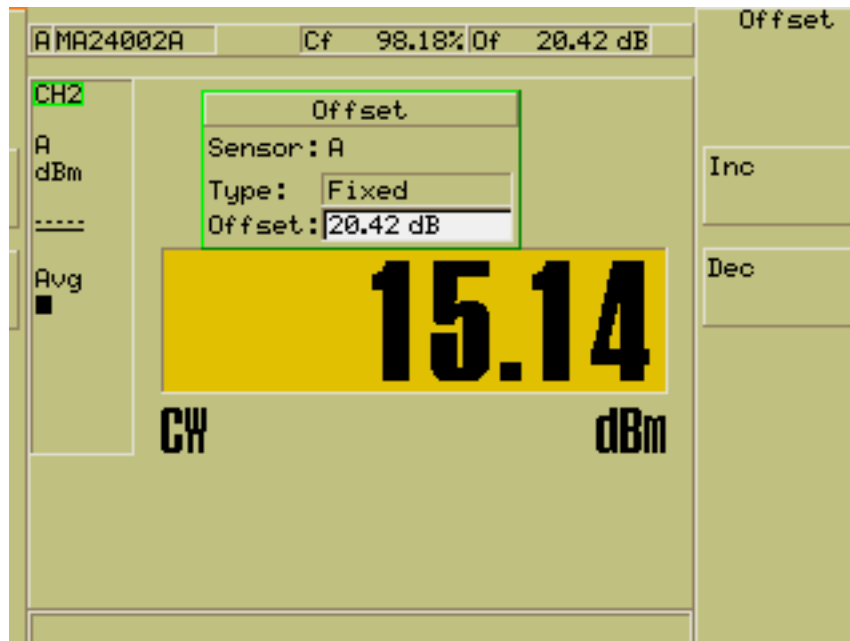
EUT nominal channel bandwidth: 5 MHz
Output port: Channel A; High Channel Frequency: 2.475 GHz
Output power setting: 15; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 15.14dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 18.43dBm = 70mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

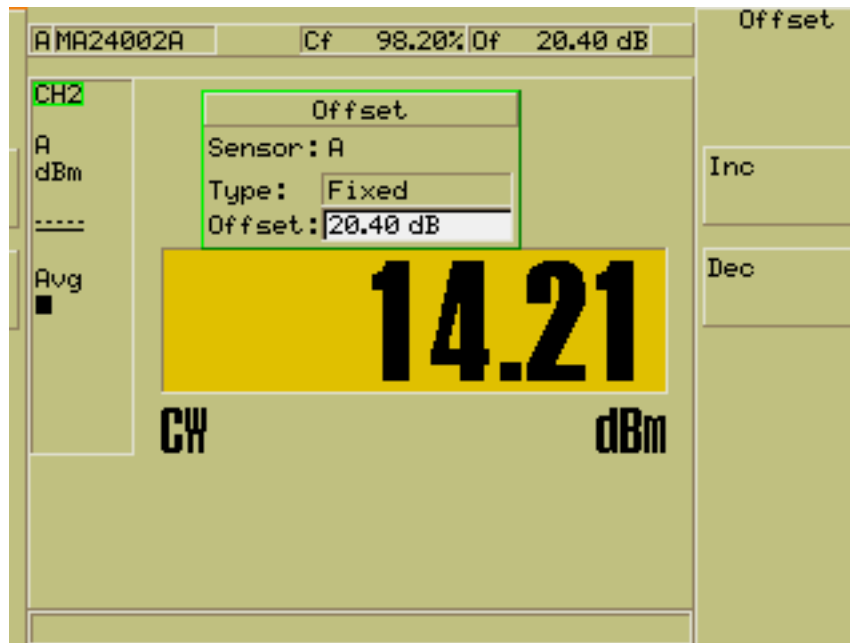
EUT nominal channel bandwidth: 10 MHz
Output port: Channel A; High Channel Frequency: 2.47 GHz
Output power setting: 15; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 14.21dBm + 0.29 dB (for duty cycle) + 3 dB
(MIMO Cross-Pole) = 17.50dBm = 56.2mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

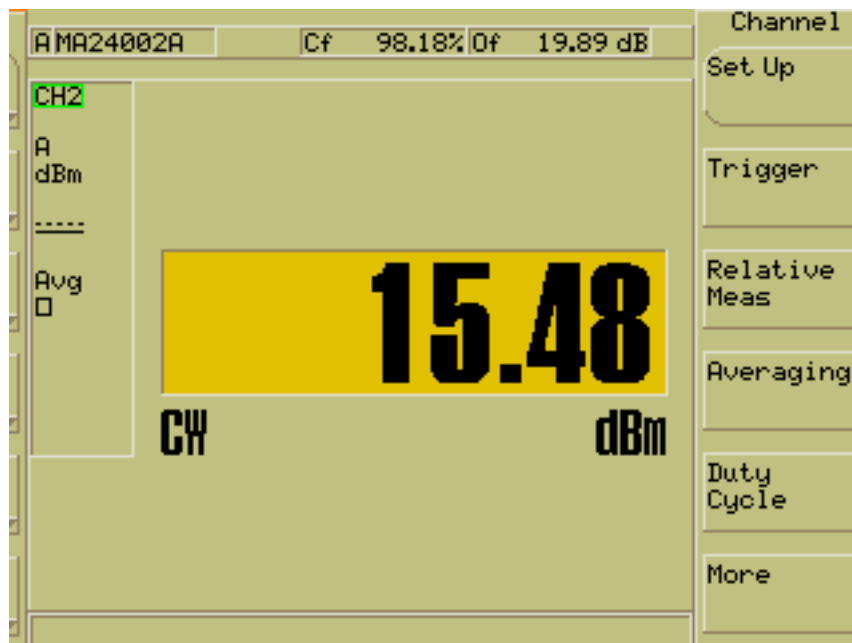
EUT nominal channel bandwidth: 20 MHz
Output port: Channel A; High Channel Frequency: 2.460 GHz
Output power setting: 16; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 15.48dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 18.77dBm = 75mW



Test Date: 05-03-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

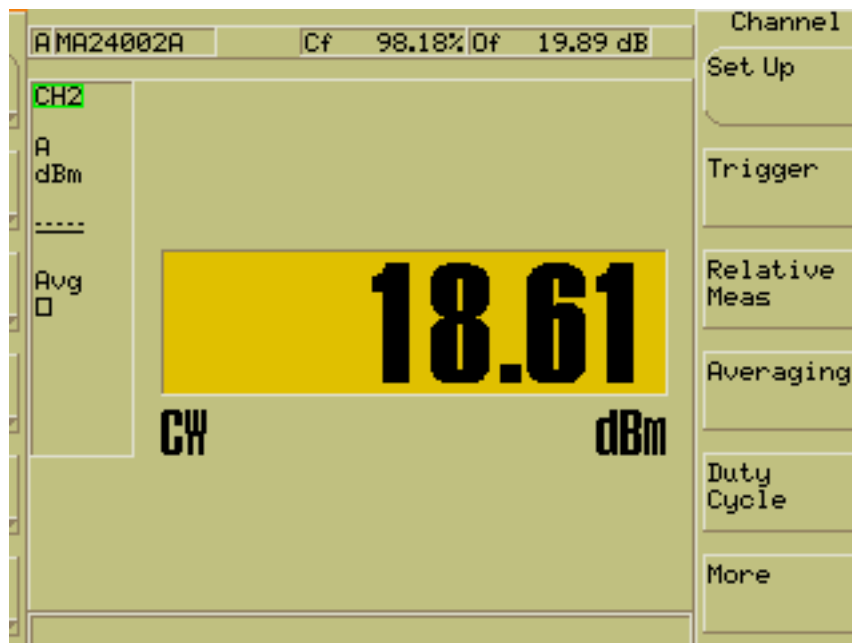
EUT nominal channel bandwidth: 5 MHz
Output port: Channel B; Low Channel Frequency: 2.4025 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 18.61dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 21.90dBm = 155mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

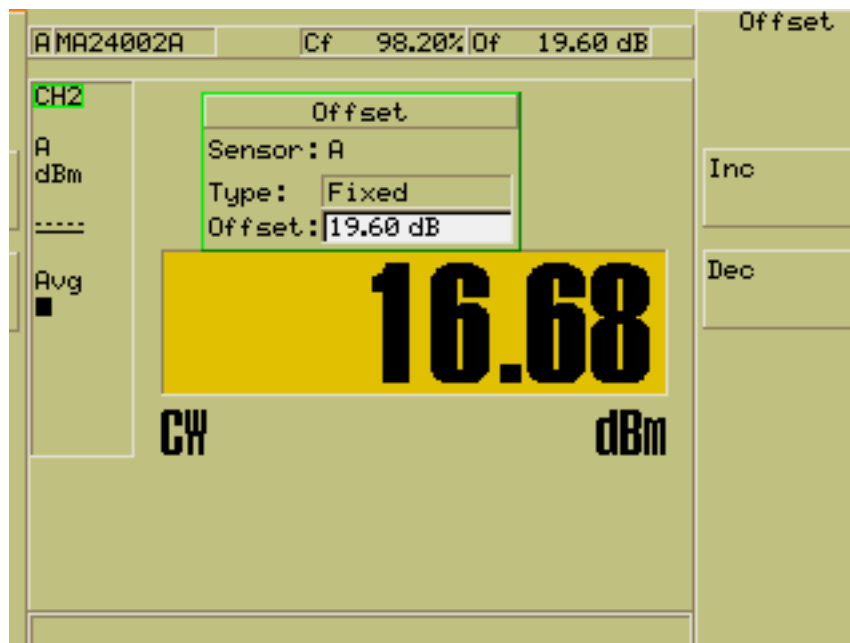
EUT nominal channel bandwidth: 10 MHz
Output port: Channel B; Low Channel Frequency: 2.405 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 16.68dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 20.07dBm = 102mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

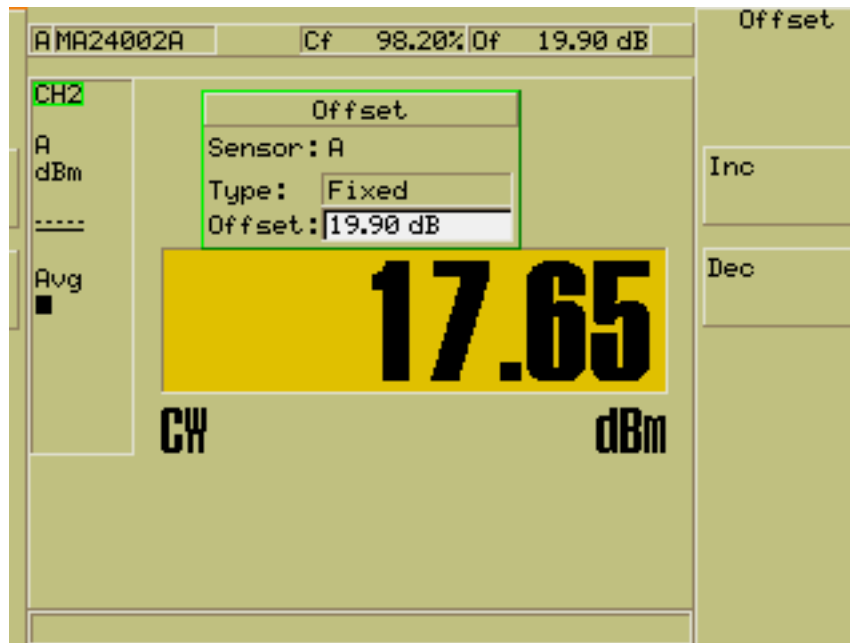
EUT nominal channel bandwidth: 20 MHz
Output port: Channel B; Low Channel Frequency: 2.4175 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 17.65dBm + 0.29 dB (for duty cycle) + 3 dB
(MIMO Cross-Pole) = 21.04dBm = 127mW



Test Date: 05-03-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

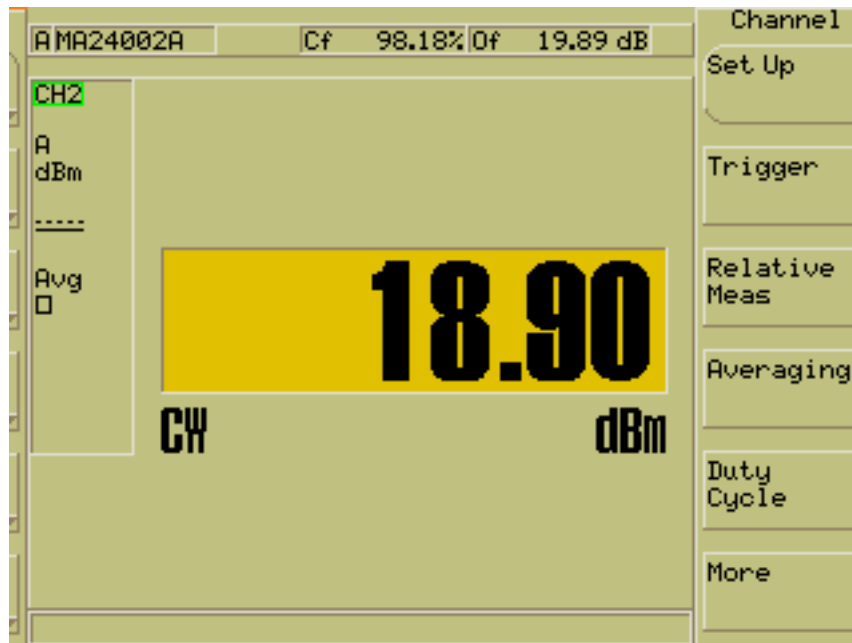
EUT nominal channel bandwidth: 5 MHz
Output port: Channel B; Mid Channel Frequency: 2.44 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 18.90dBm + 0.29 dB (for duty cycle) + 3 dB
(MIMO Cross-Pole) = 22.19dBm = 166mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

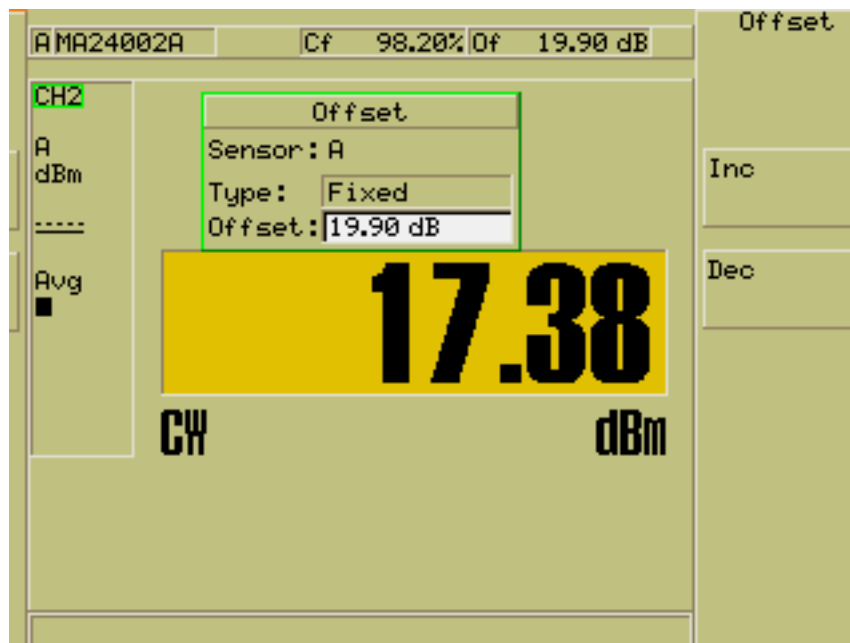
EUT nominal channel bandwidth: 10 MHz
Output port: Channel B; Mid Channel Frequency: 2.44 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 17.38dBm + 0.29 dB (for duty cycle) + 3 dB
(MIMO Cross-Pole) = 20.67dBm = 117mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

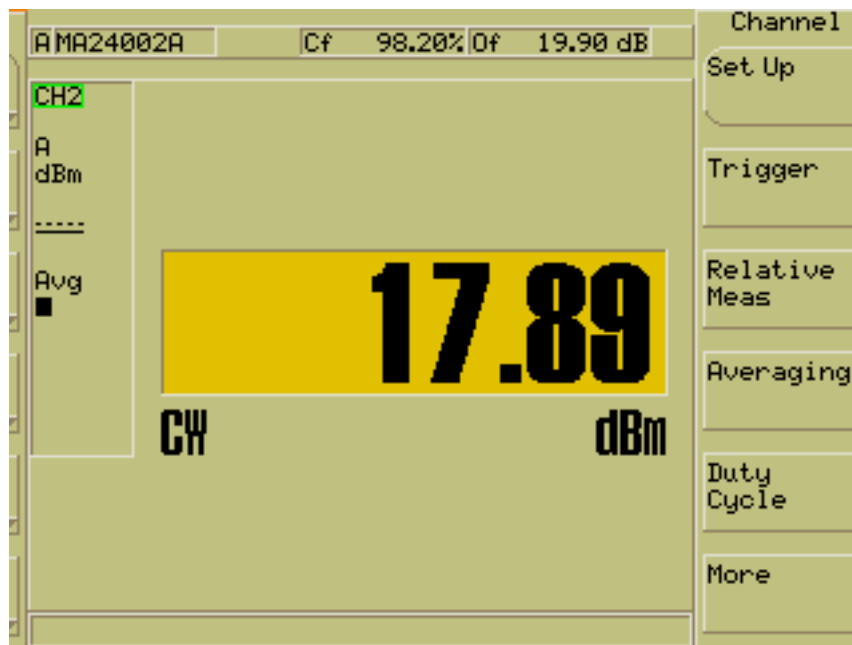
EUT nominal channel bandwidth: 20 MHz
Output port: Channel B; Mid Channel Frequency: 2.44 GHz
Output power setting: 19; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 17.89dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 21.18dBm = 131mW



Test Date: 05-03-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

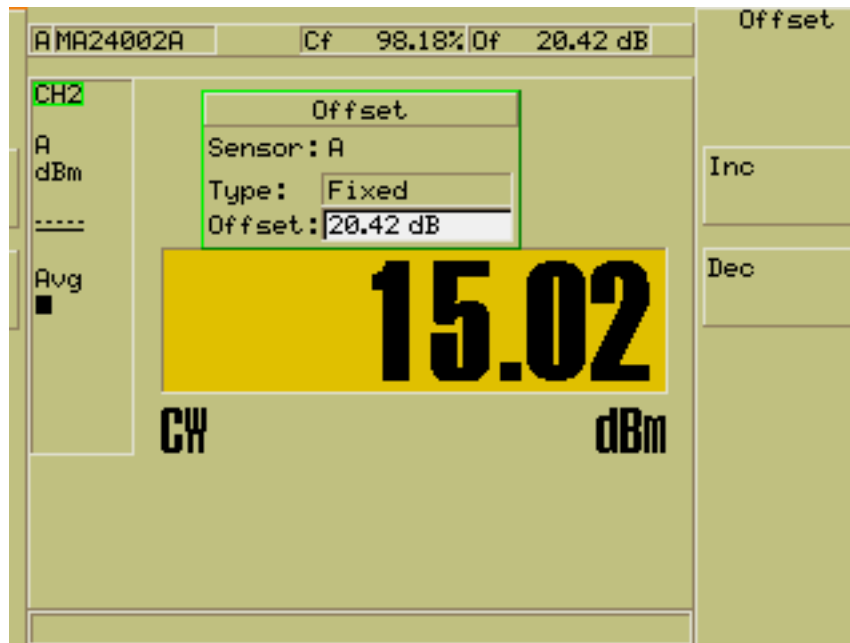
EUT nominal channel bandwidth: 5 MHz
Output port: Channel B; High Channel Frequency: 2.475 GHz
Output power setting: 15; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 15.02dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 18.31dBm = 68mW



Test Date: 05-03-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

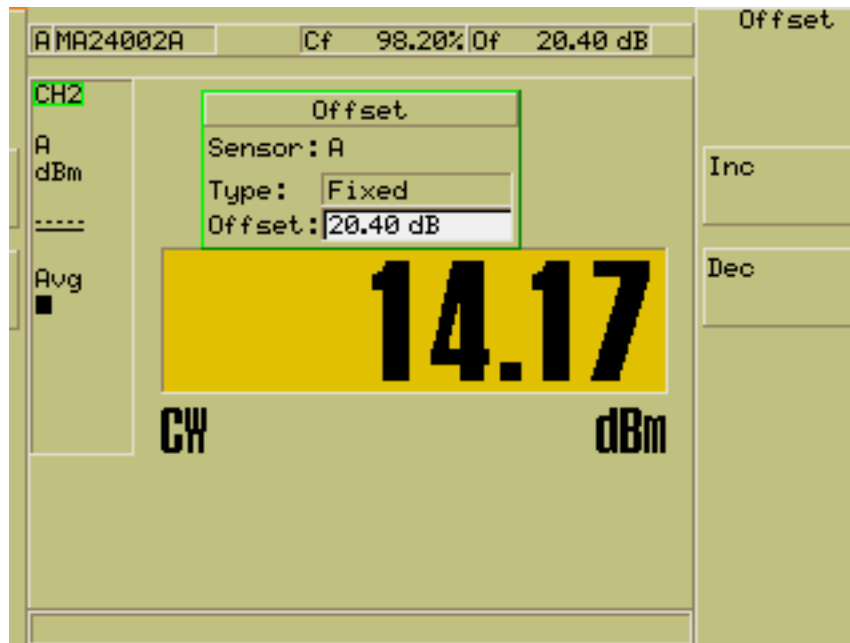
EUT nominal channel bandwidth: 10 MHz
Output port: Channel B; High Channel Frequency: 2.47 GHz
Output power setting: 15; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 14.17dBm + 0.29 dB (for duty cycle) + 3 dB
(MIMO Cross-Pole) = 17.46dBm = 55.7mW



Test Date: 05-06-2013
Company: Cambium Networks
EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
Test: AVERAGE Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O

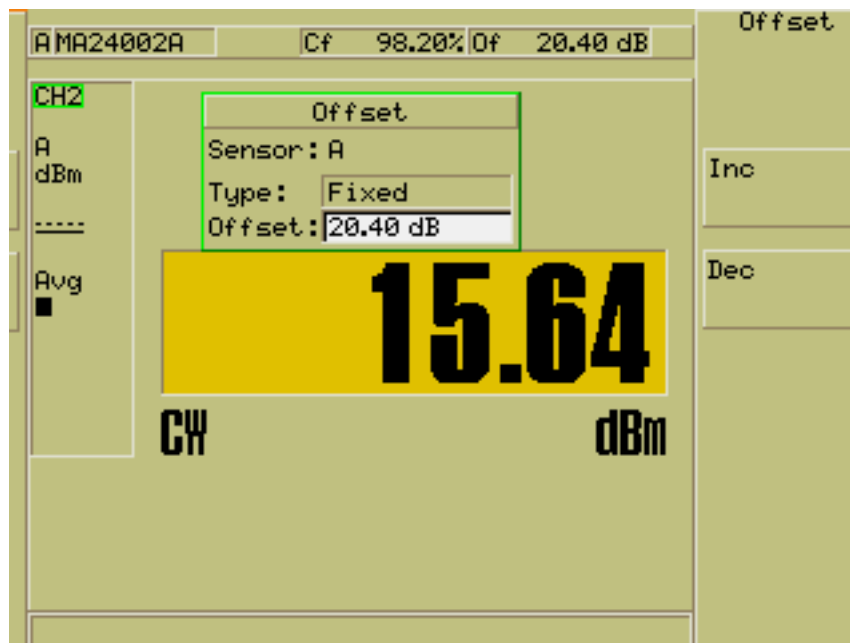
EUT nominal channel bandwidth: 20 MHz
Output port: Channel B; High Channel Frequency: 2.460 GHz
Output power setting: 16; Modulation Type: QPSK

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 2 dB (antenna gain is 8 dB greater than the 6 dB allowed) = 28dBm conducted.

MIMO MATRIX A: Measure-and-sum technique for MIMO with Cross-Polarized antenna:
Measure and add 10 log(N) dB, where N is the number of outputs.
= 10 log(2) = 3 dB

Correction for duty cycle = 10 log (4.7879ms / 5.0128ms) = 0.29 dB

Fundamental Emission AVERAGE Output Power = 15.64dBm + 0.29 dB (for duty cycle) + 3 dB (MIMO Cross-Pole) = 18.93dBm = 78mW





Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A3.0 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*

10.5 Method AVGPSD-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction)

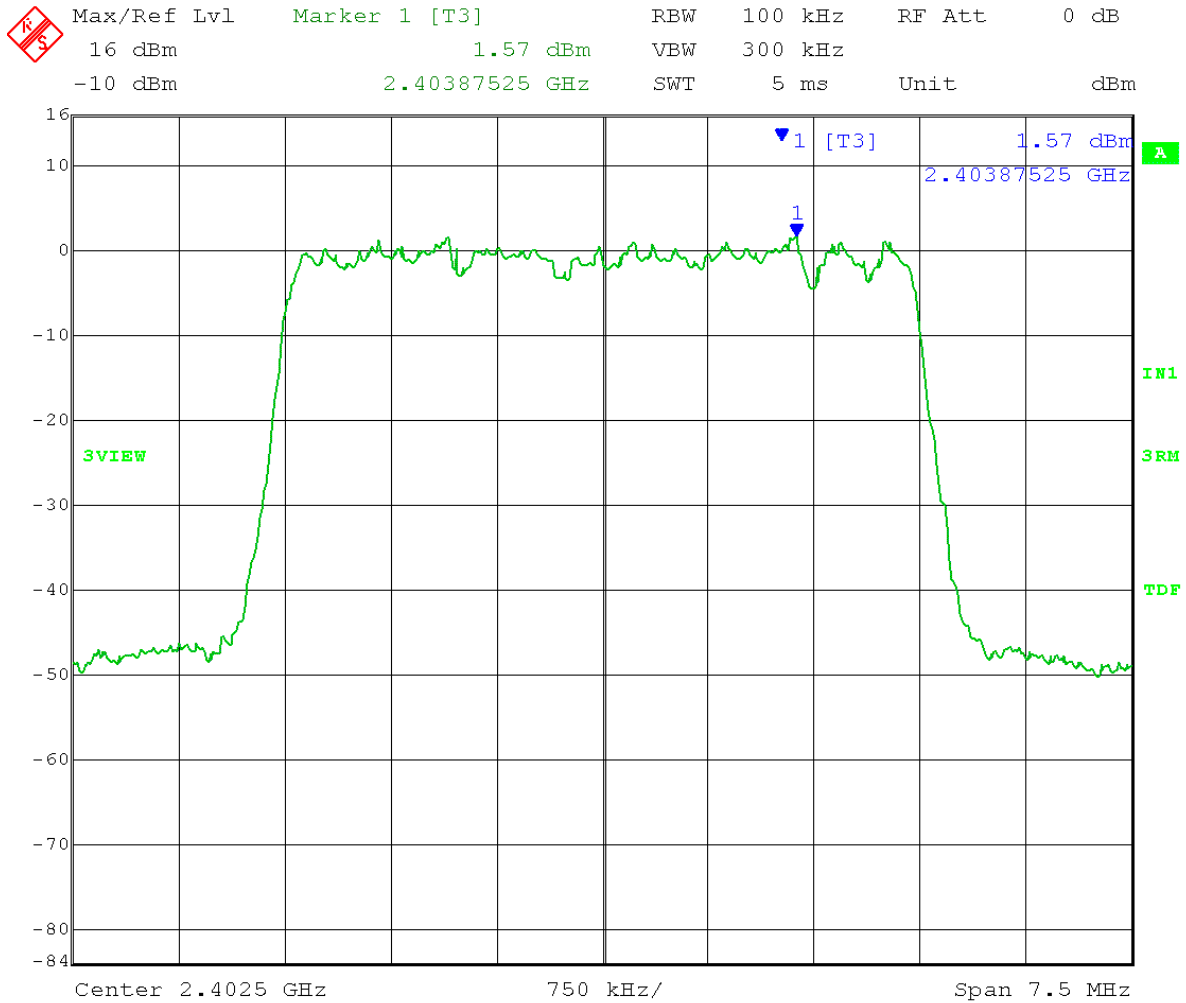
Description: Measure the duty cycle (x) of the transmitter output signal as described in 6.0. Set instrument center frequency to DTS channel center frequency. Set span to at least 1.5 times the OBW. Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$. Set VBW $\geq 3 \times \text{RBW}$. Detector = power averaging (RMS). Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$. Sweep time = auto couple. Do not use sweep triggering. Allow sweep to “free run”. Employ trace averaging (RMS) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum amplitude level. Add $10 \log (1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.

Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low, middle and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle.

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

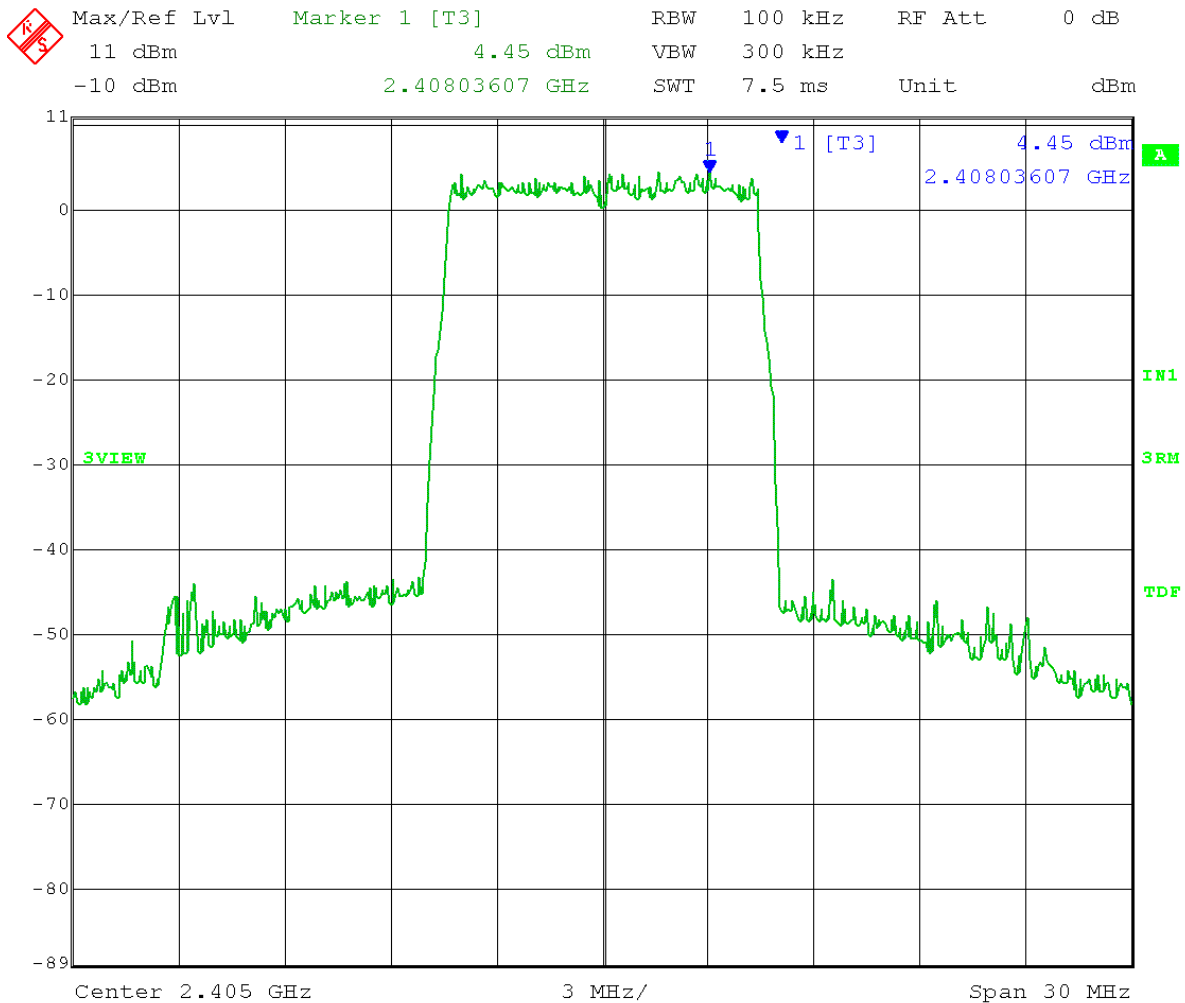
Results: Passed

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Low Channel: Frequency = 2.4025GHz
 TX Output Power Setting = 19dBm 5MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = auto couple Trace = max hold
 Channel A
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = $1.57 + 10\log(1/.934) = 1.87\text{dBm}/100\text{kHz} = \text{Pass}$



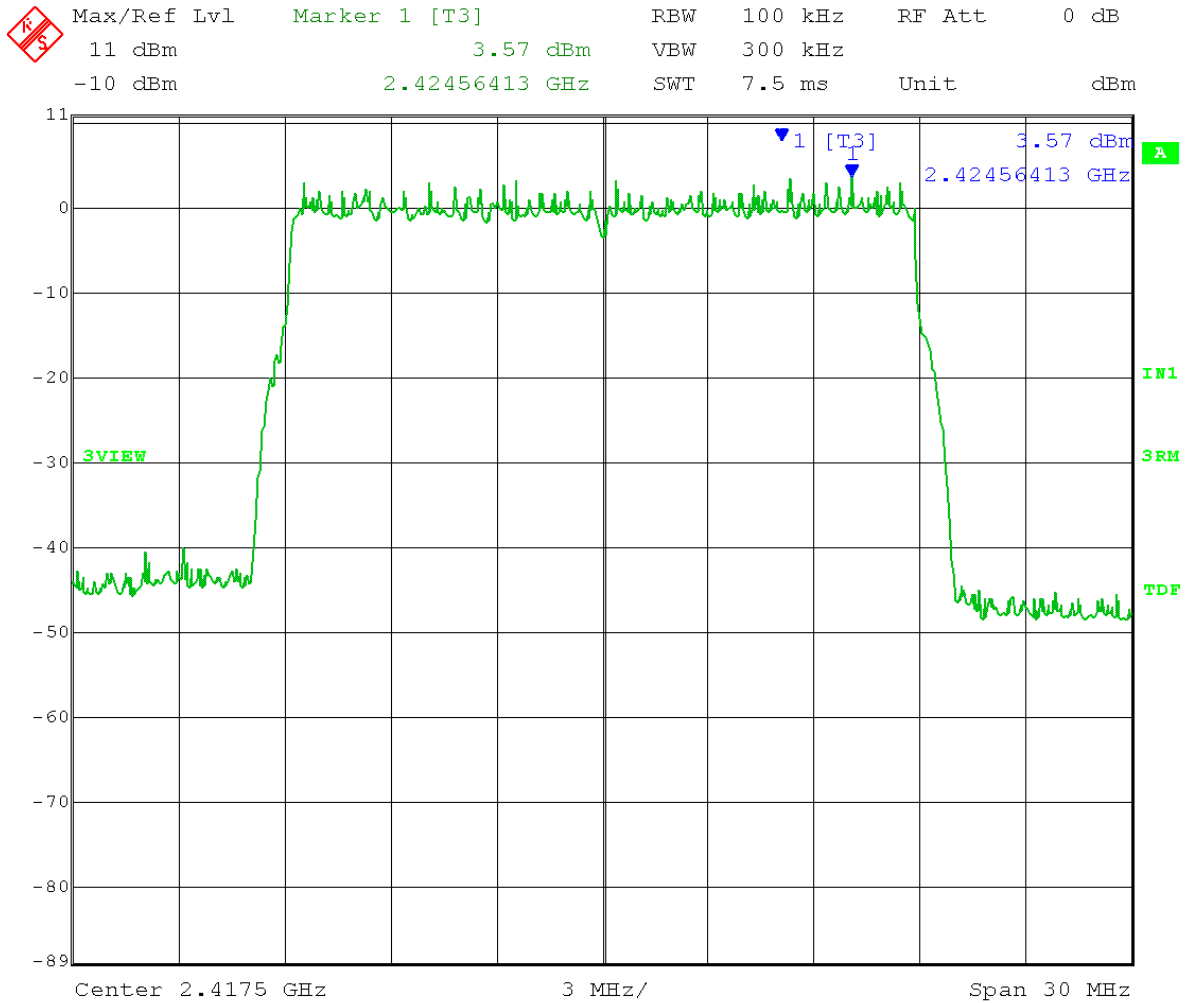
Date: 30.APR.2013 14:07:30

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Low Channel: Frequency = 2.405GHz
 TX Output Power Setting = 19dBm 10MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = auto couple Trace = max hold
 Channel A
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = 4.45 + 10log(1/.954) = 4.65 dBm/100kHz = Pass



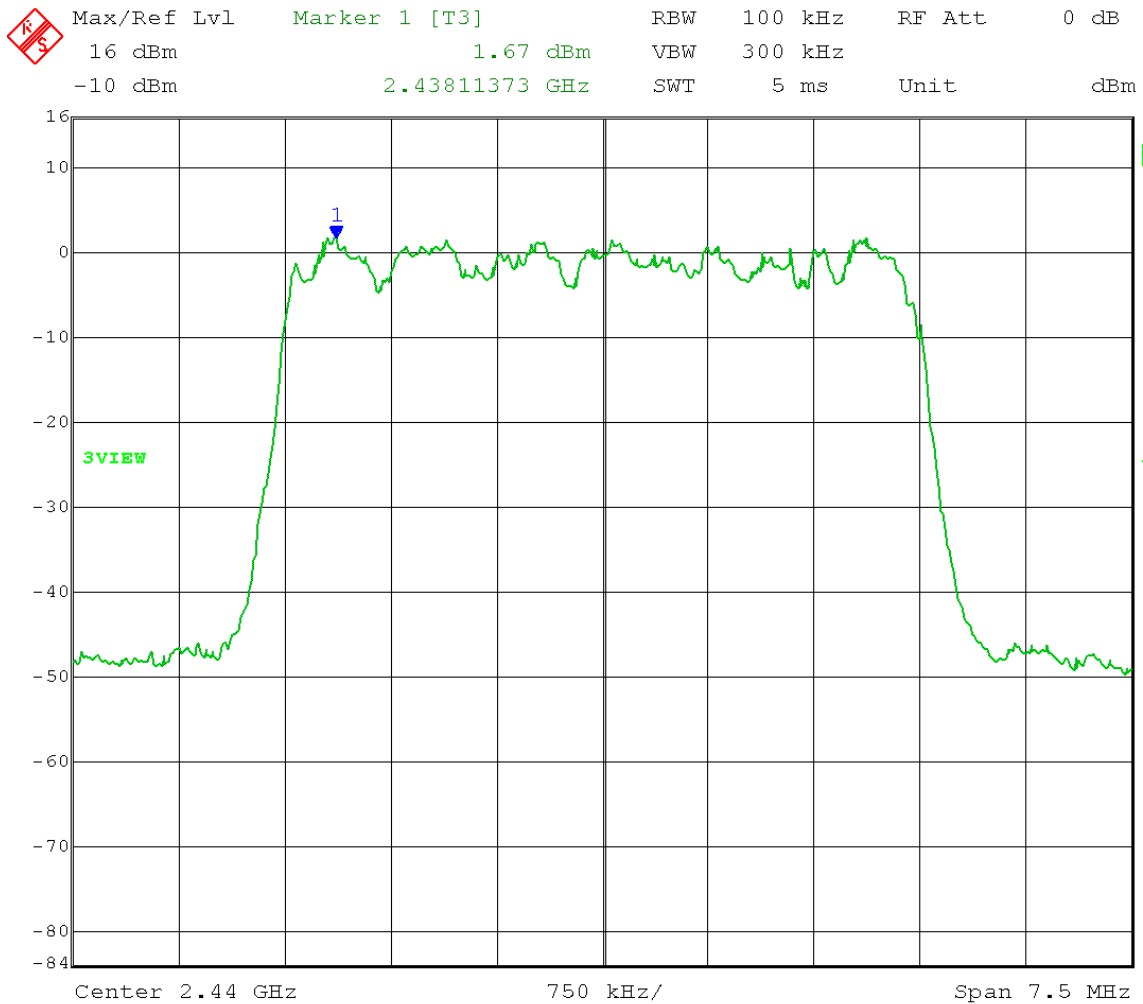
Date: 30.APR.2013 11:14:40

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Low Channel: Frequency = 2.4175GHz
 TX Output Power Setting = 19dBm 20MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = auto couple Trace = max hold
 Channel A
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = 3.57 + 10log (1/.954) = 3.77 dBm/100kHz = Pass



Date: 30.APR.2013 12:35:56

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Mid Channel: Frequency = 2.44GHz
 TX Output Power Setting = 19dBm
 RBW = 100 kHz
 Span = 1.5 x EBW
 Sweep = auto couple
 Channel A
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = $1.67 + 10\log(1/0.934) = 1.97\text{dBm}/100\text{kHz} = \text{Pass}$

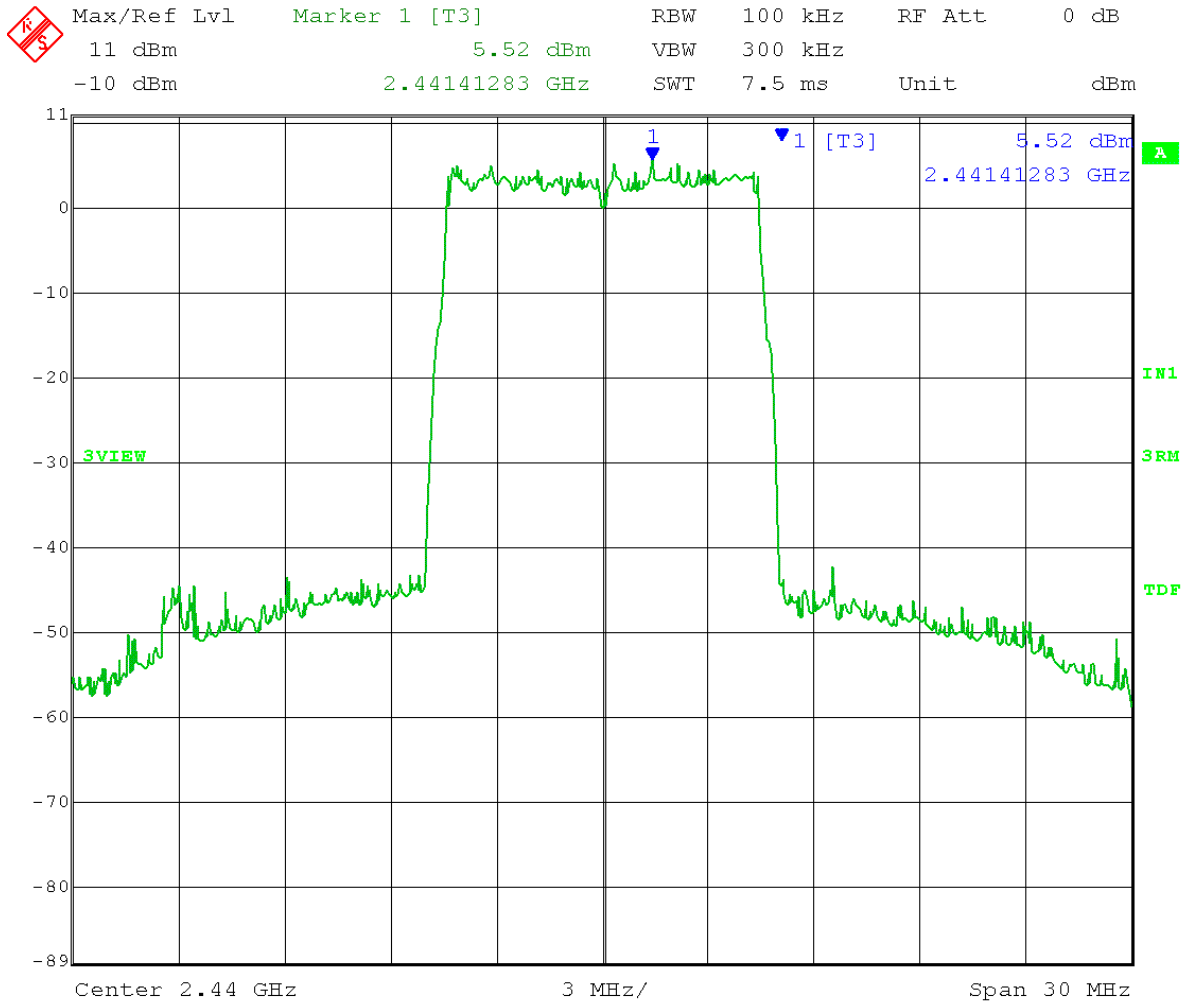


Date: 30.APR.2013 14:40:15

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O

Comment: Mid Channel: Frequency = 2.44GHz
 TX Output Power Setting = dBm 10MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = auto couple Trace = max hold

Channel A
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 $PSD = 5.52 + 10\log(1/.954) = 5.72 \text{ dBm}/100\text{kHz} = \text{Pass}$



Date: 30.APR.2013 09:35:14

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O

Comment: Mid Channel: Frequency = 2.44GHz
 TX Output Power Setting = 19dBm
 RBW = 100 kHz
 Span = 1.5 x EBW
 Sweep = Auto Couple

20MHz BW
 VBW = 300 kHz
 Detector = RMS
 Trace = Max Hold

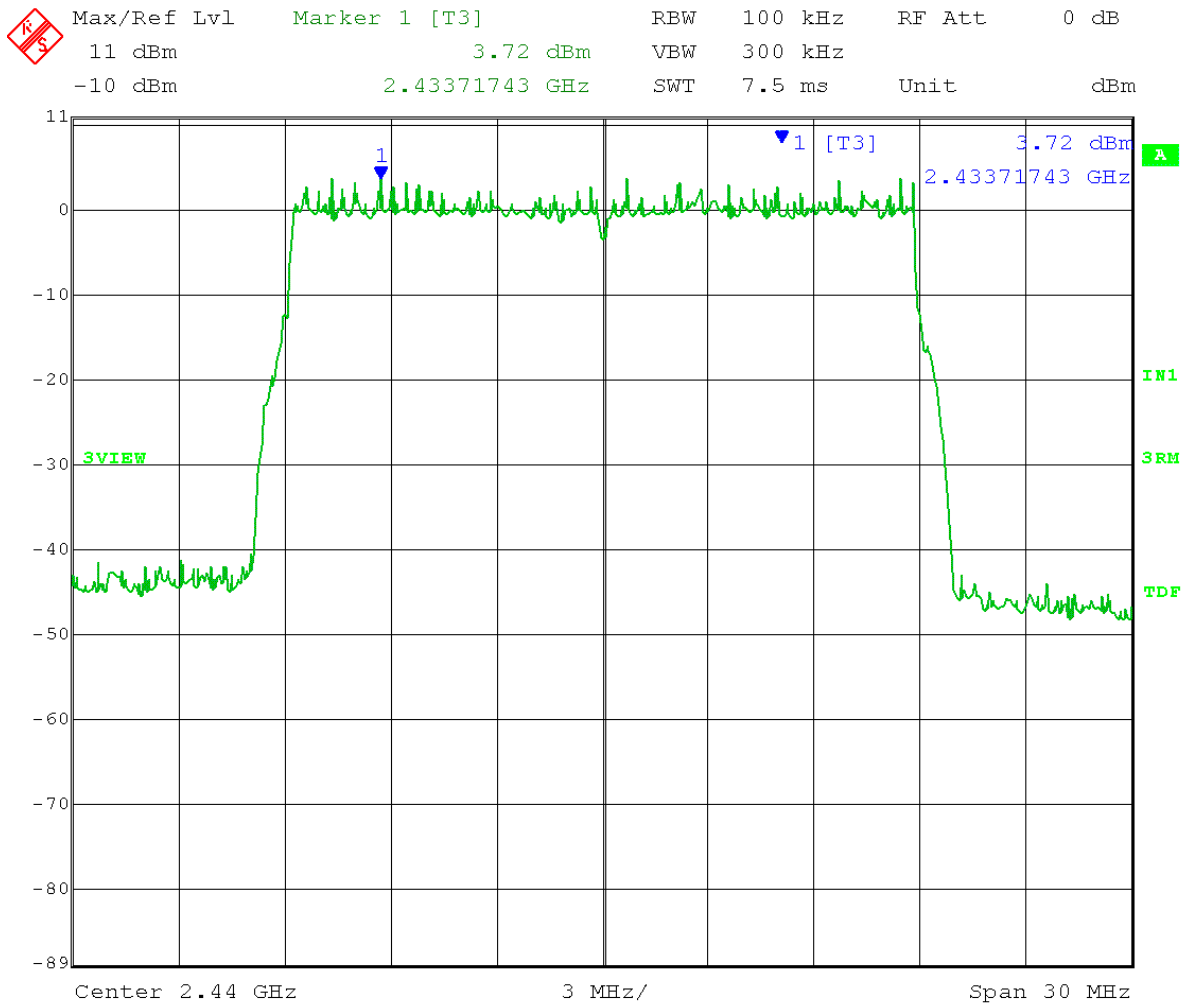
Channel A

Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).

Measurement (dBm) + duty cycle correction


Limit: +8 dBm

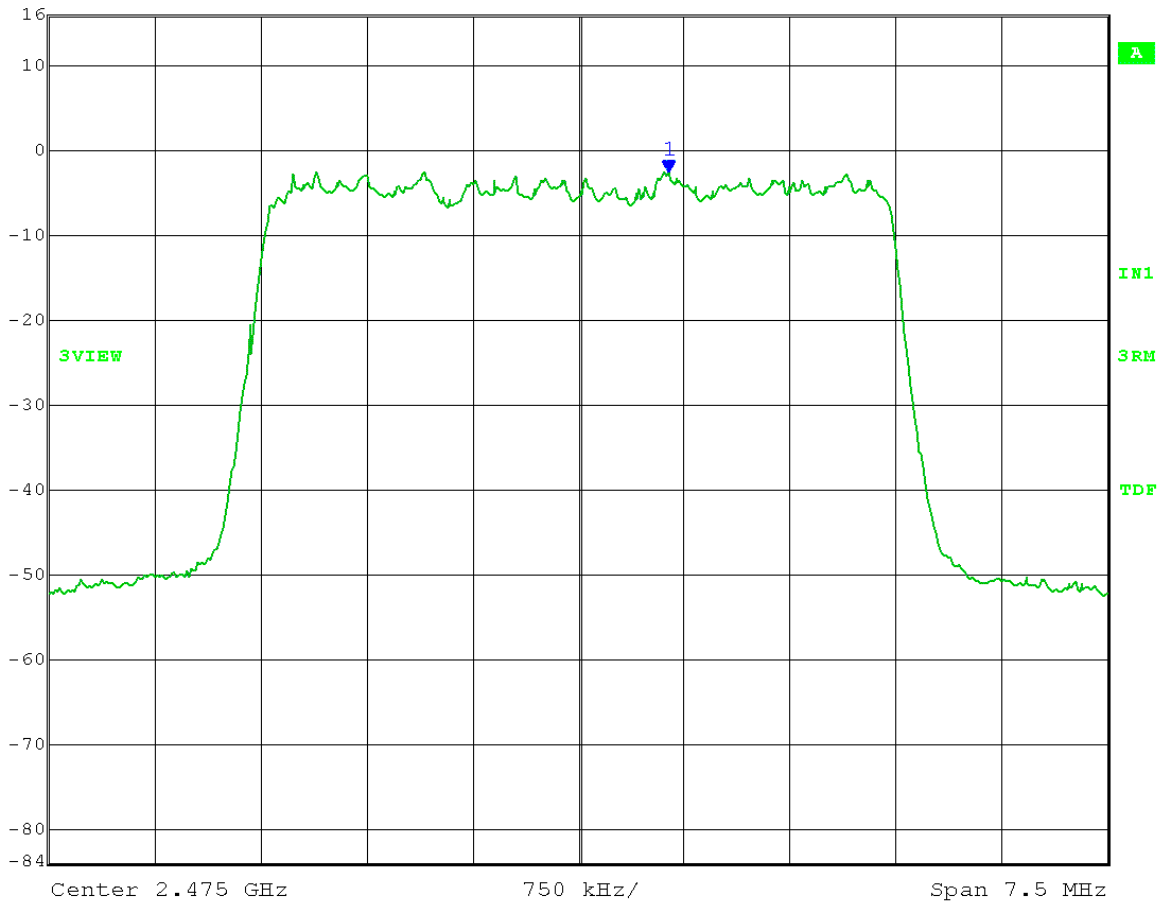
PSD = $3.72 + 10\log(1/.954) = 3.92 \text{ dBm}/100\text{kHz} = \text{Pass}$



Date: 30.APR.2013 12:59:14

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: High Channel: Frequency = 2.475GHz
 TX Output Power Setting = 15dBm 5MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = Auto Couple Trace = Max Hold
 Channel A
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = $-2.59 + 10\log(1/934) = -2.29 \text{ dBm}/100\text{kHz} = \text{Pass}$

| | | | | | | |
|---|-------------|----------------|-----|---------|--------|------|
|  | Max/Ref Lvl | Marker 1 [T3] | RBW | 100 kHz | RF Att | 0 dB |
| | 16 dBm | -2.59 dBm | VBW | 300 kHz | | |
| | -10 dBm | 2.47563878 GHz | SWT | 5 ms | Unit | dBm |



Date: 30.APR.2013 15:03:10

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O

Comment: High Channel: Frequency = 2.47GHz
 TX Output Power Setting = 15dBm
 RBW = 100 kHz
 Span = 1.5 x EBW
 Sweep = auto couple

10MHz BW
 VBW = 300 kHz
 Detector = RMS
 Trace = max hold

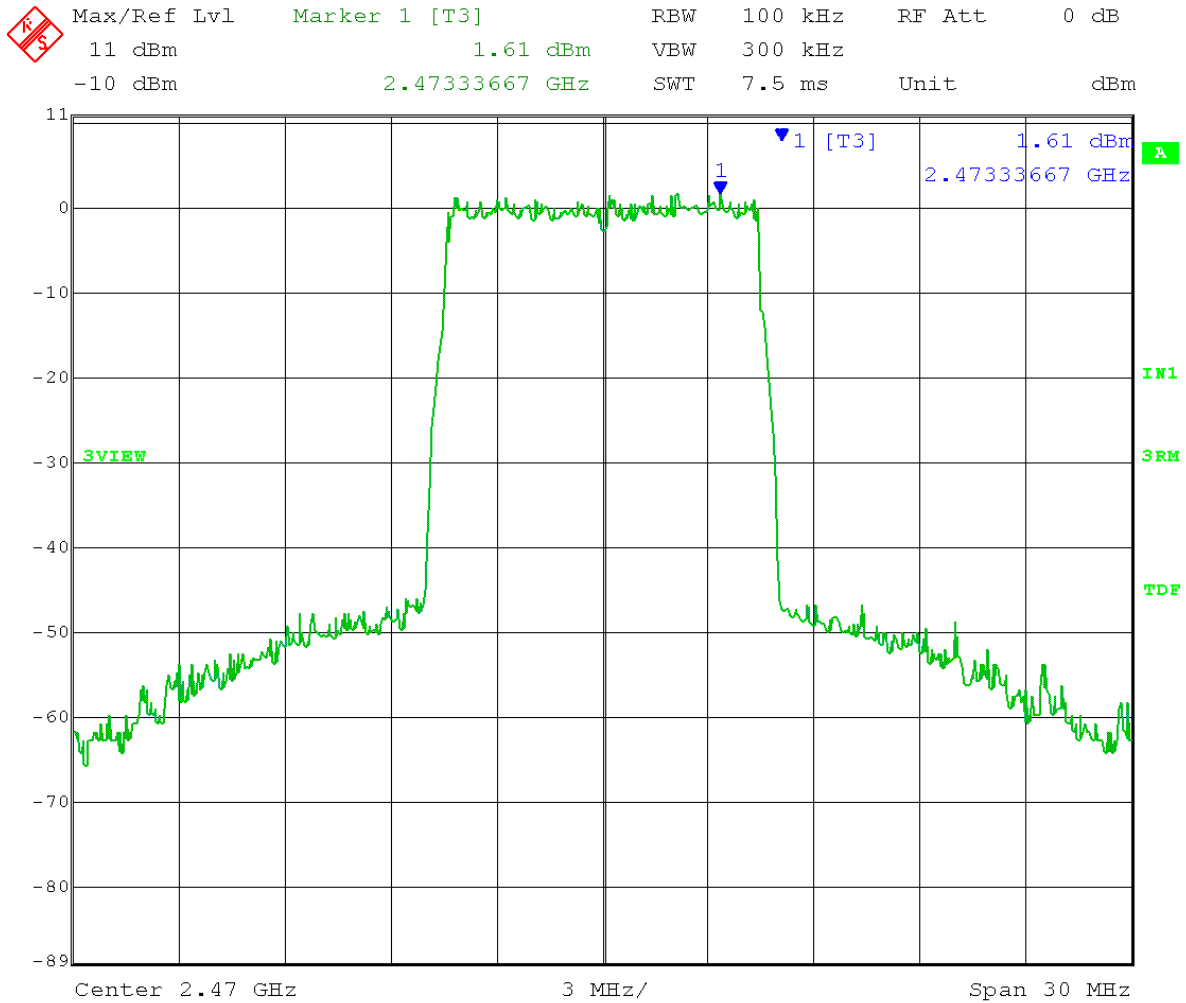
Channel A

Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).

Measurement (dBm) + duty cycle correction

Limit: +8 dBm

PSD = $1.61 + 10\log(1/954) = 1.81 \text{ dBm}/100\text{kHz} = \text{Pass}$



Date: 30.APR.2013 10:54:39

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: High Channel: Frequency = 2.46GHz

TX Output Power Setting = 16dBm 20MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = Auto Couple Trace = Max Hold

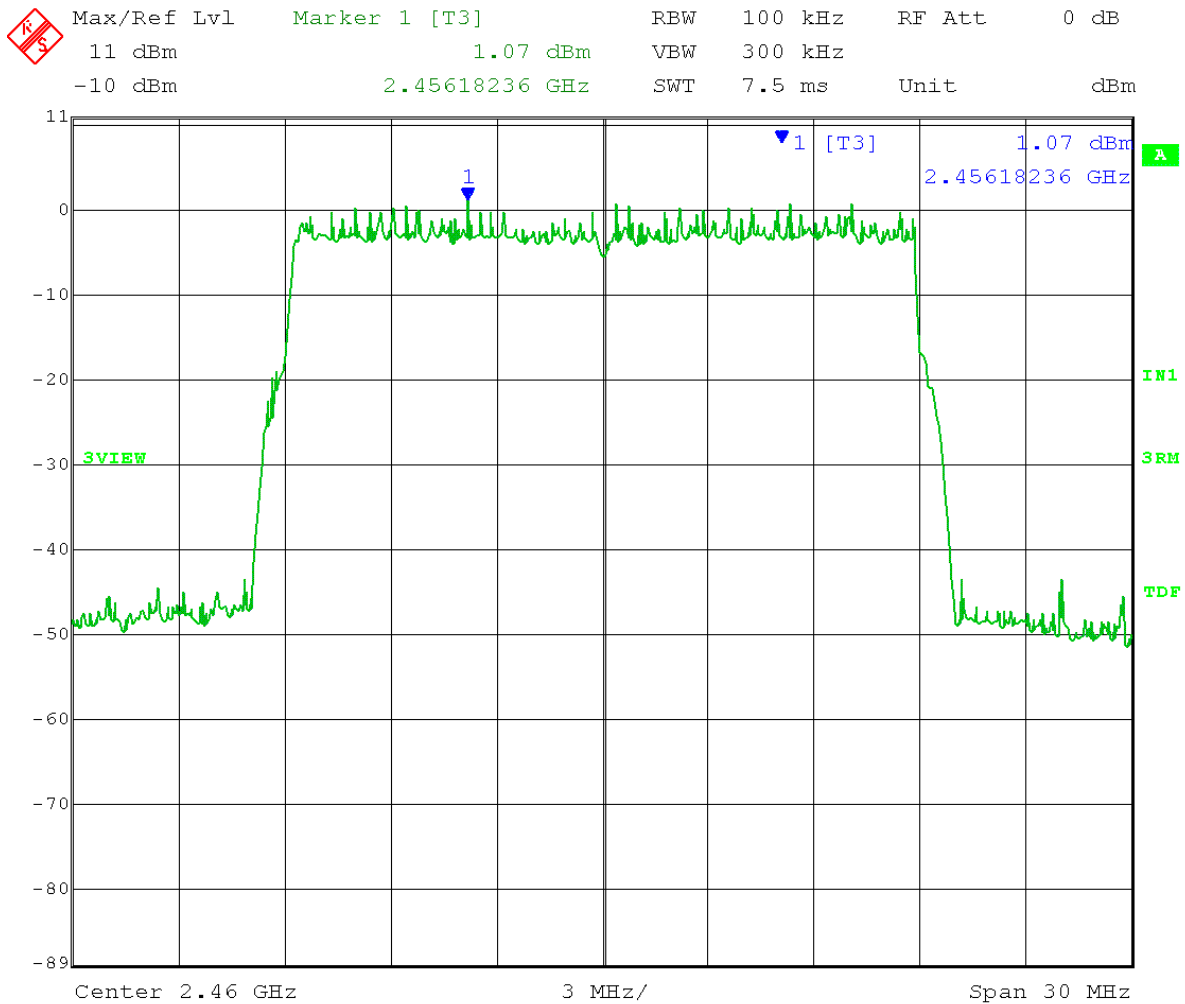
Channel A

Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).

Measurement (dBm) + duty cycle correction

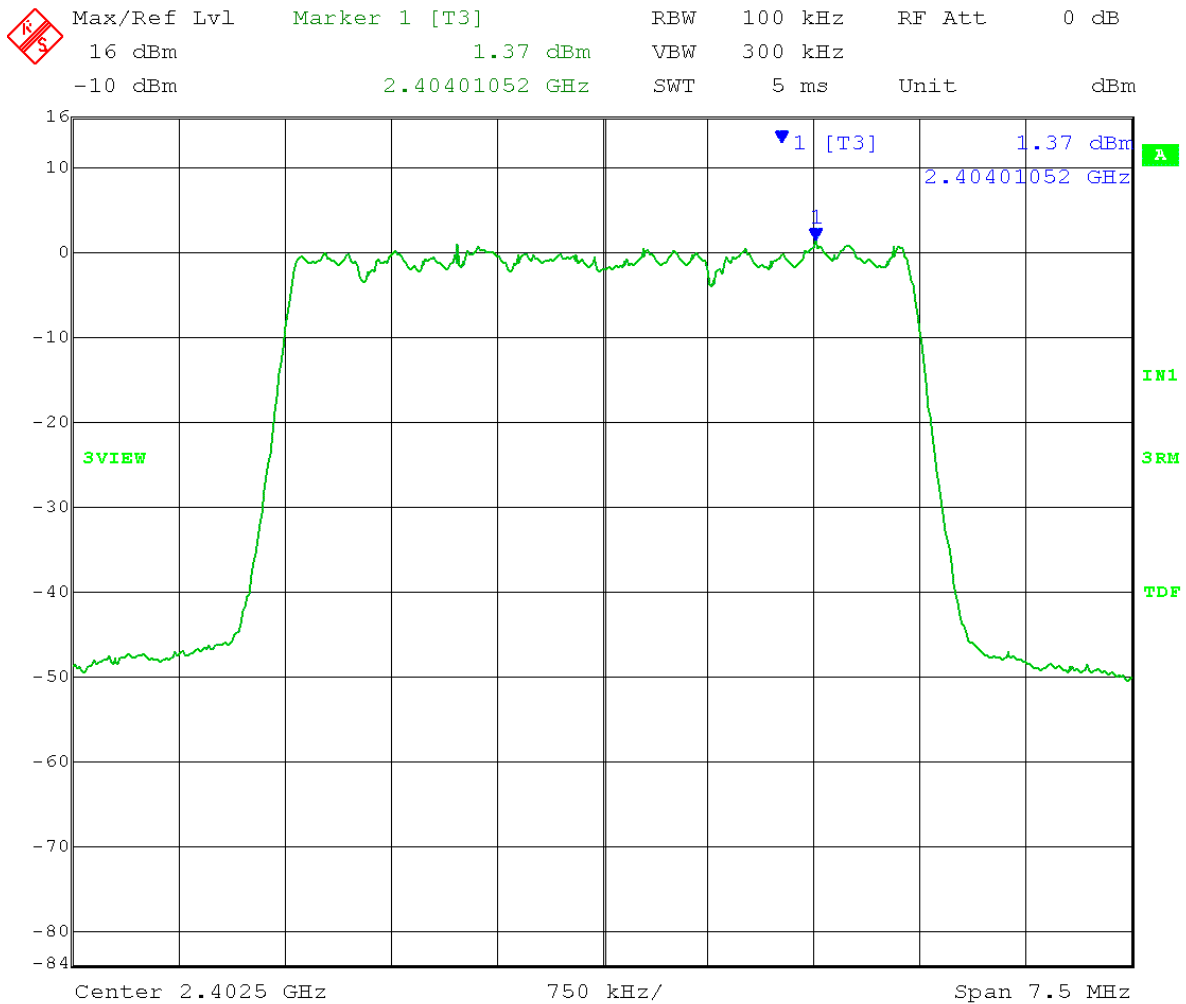
Limit: +8 dBm

PSD = $1.07 + 10\log(1/0.956) = 1.27 \text{ dBm}/100\text{kHz} = \text{Pass}$



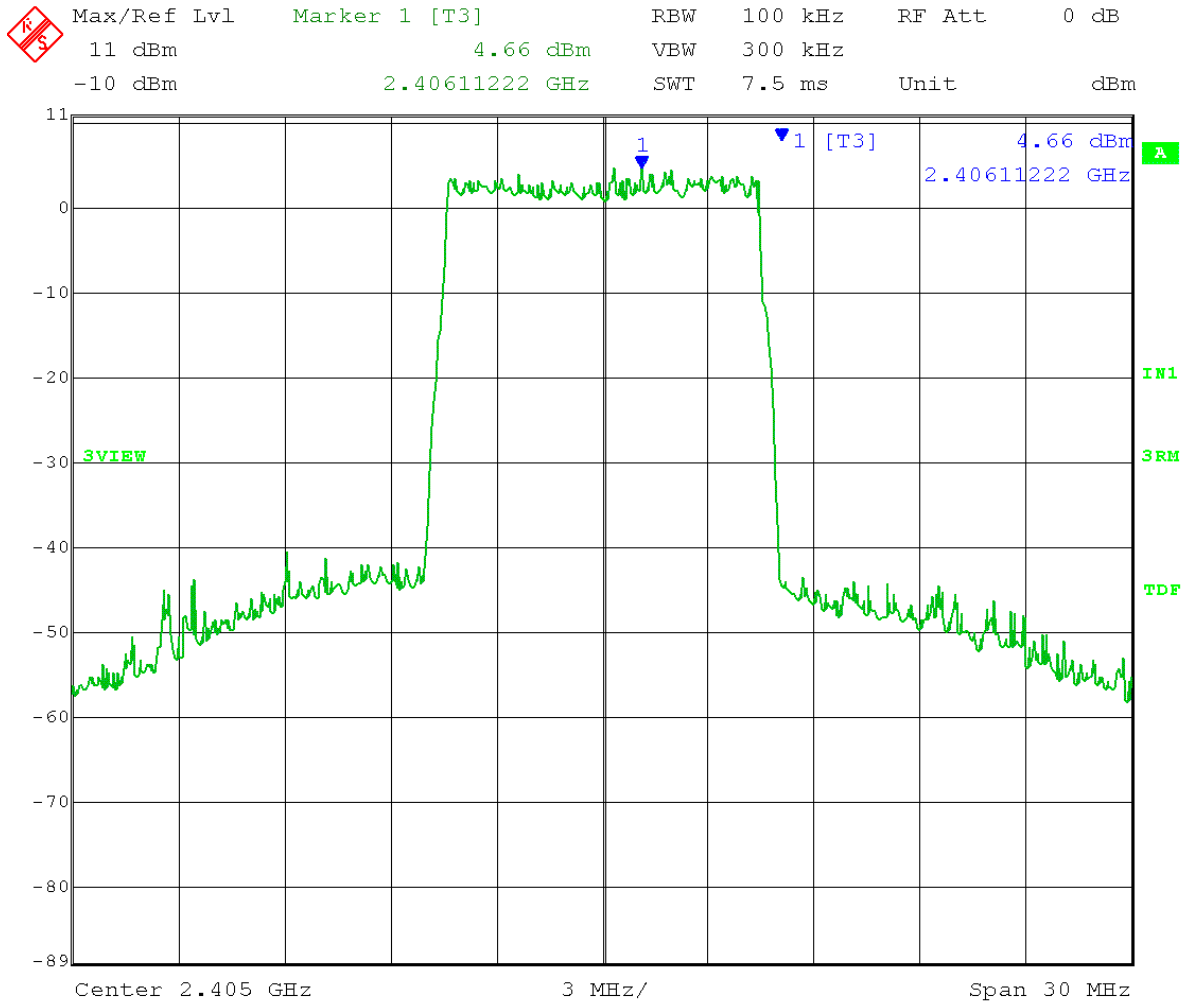
Date: 30.APR.2013 13:16:08

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Low Channel: Frequency = 2.4025GHz
 TX Output Power Setting = 19dBm
 RBW = 100 kHz
 Span = 1.5 x EBW
 Sweep = Auto Couple
 Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = 1.37 + 10log(1/.934) = 1.67dBm/100kHz = Pass



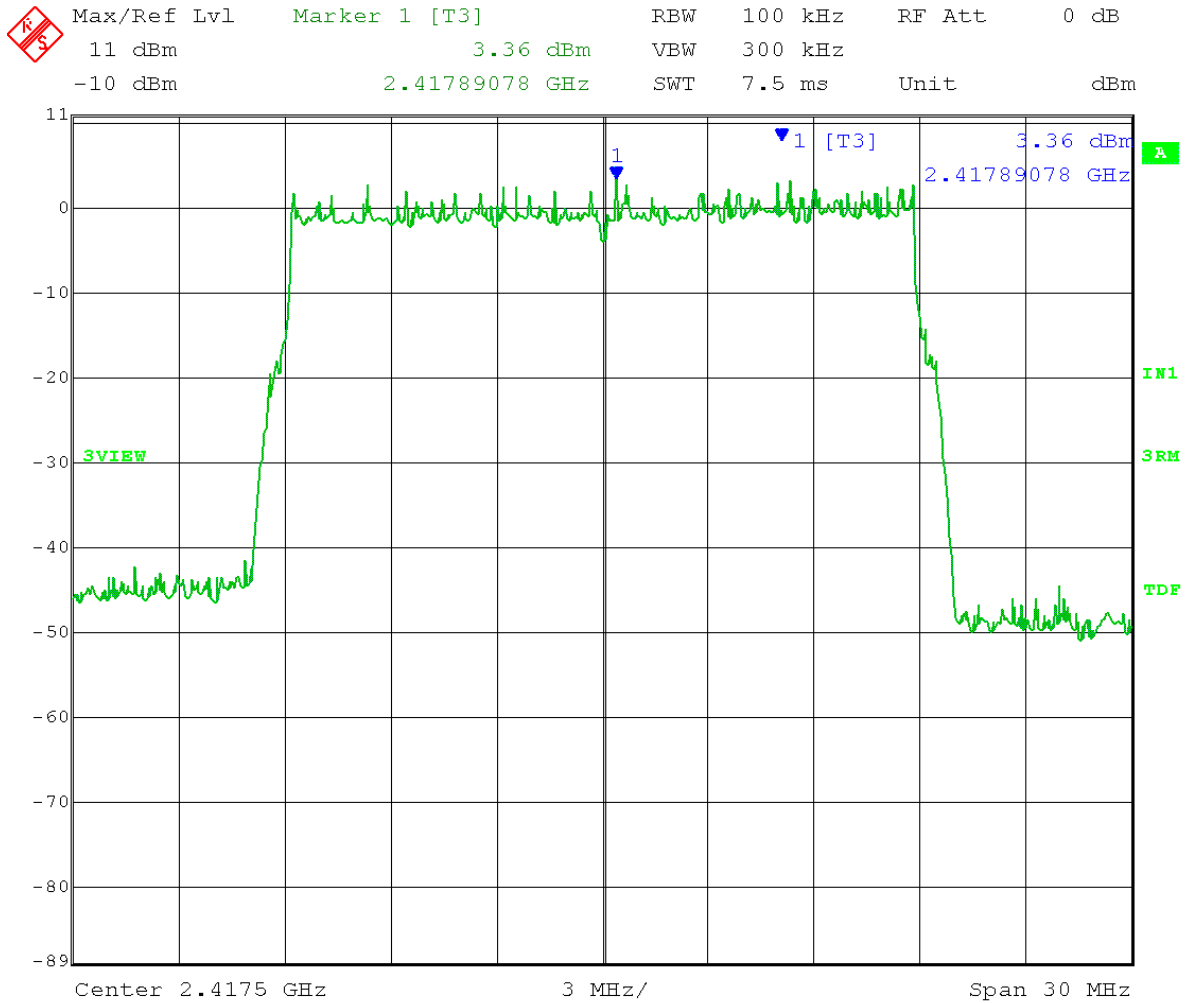
Date: 30.APR.2013 14:10:53

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Low Channel: Frequency = 2.405GHz
 TX Output Power Setting = 19dBm
 RBW = 100 kHz
 Span = 1.5 x EBW
 Sweep = auto couple
 Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = 4.66 + 10log(1/.954) = 4.86 dBm/100kHz = Pass



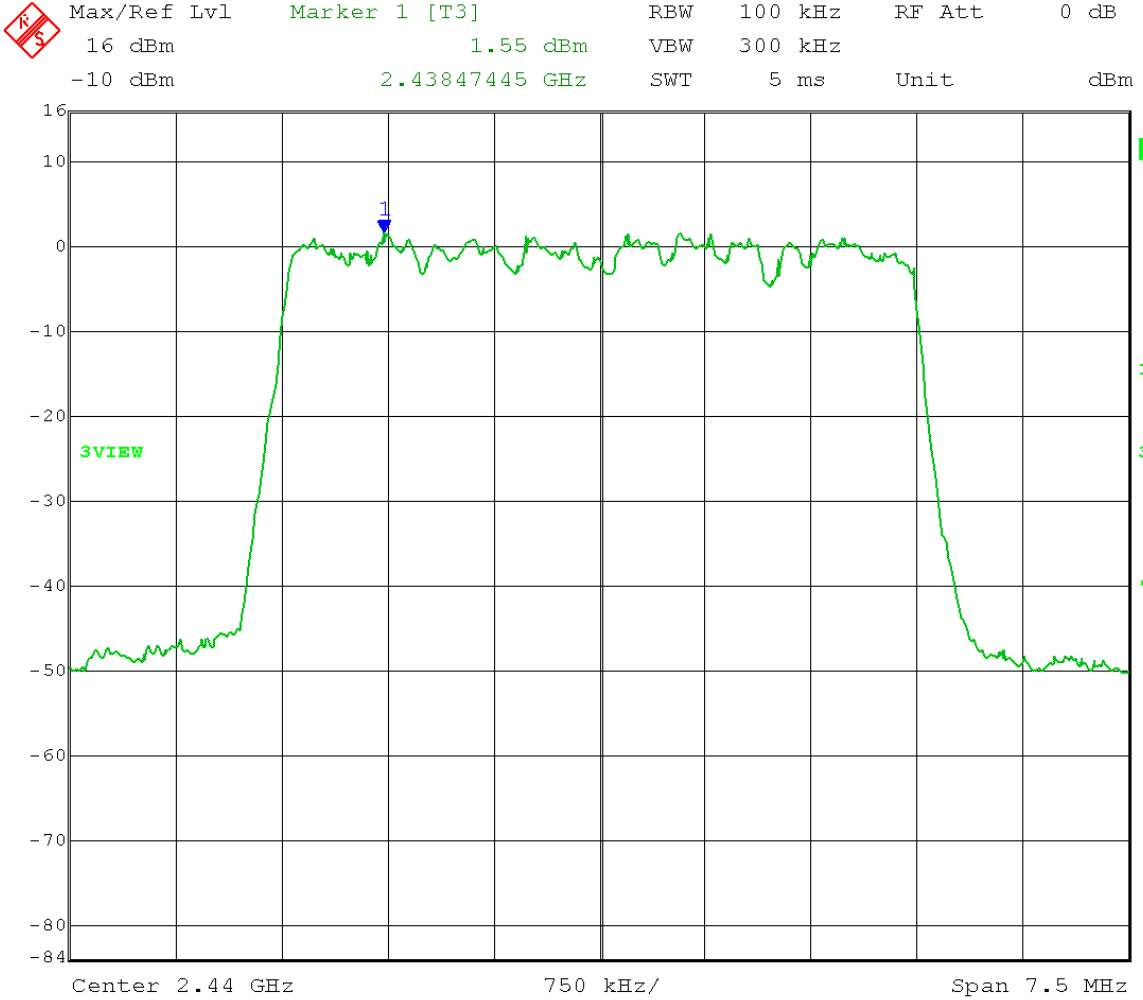
Date: 30.APR.2013 11:34:07

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Low Channel: Frequency = 2.4175GHz
 TX Output Power Setting = 19dBm 20MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = auto couple Trace = max hold
 Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = 3.36 + 10log (1/.954) = 3.56 dBm/100kHz = Pass



Date: 30.APR.2013 12:37:49

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Mid Channel: Frequency = 2.44GHz
 TX Output Power Setting = 19dBm
 RBW = 100 kHz
 Span = 1.5 x EBW
 Sweep = auto couple
 Channel B
 Method 10.5 AVGPSSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = 1.55 + 10log (1/.934) = 1.85dBm/100kHz = Pass

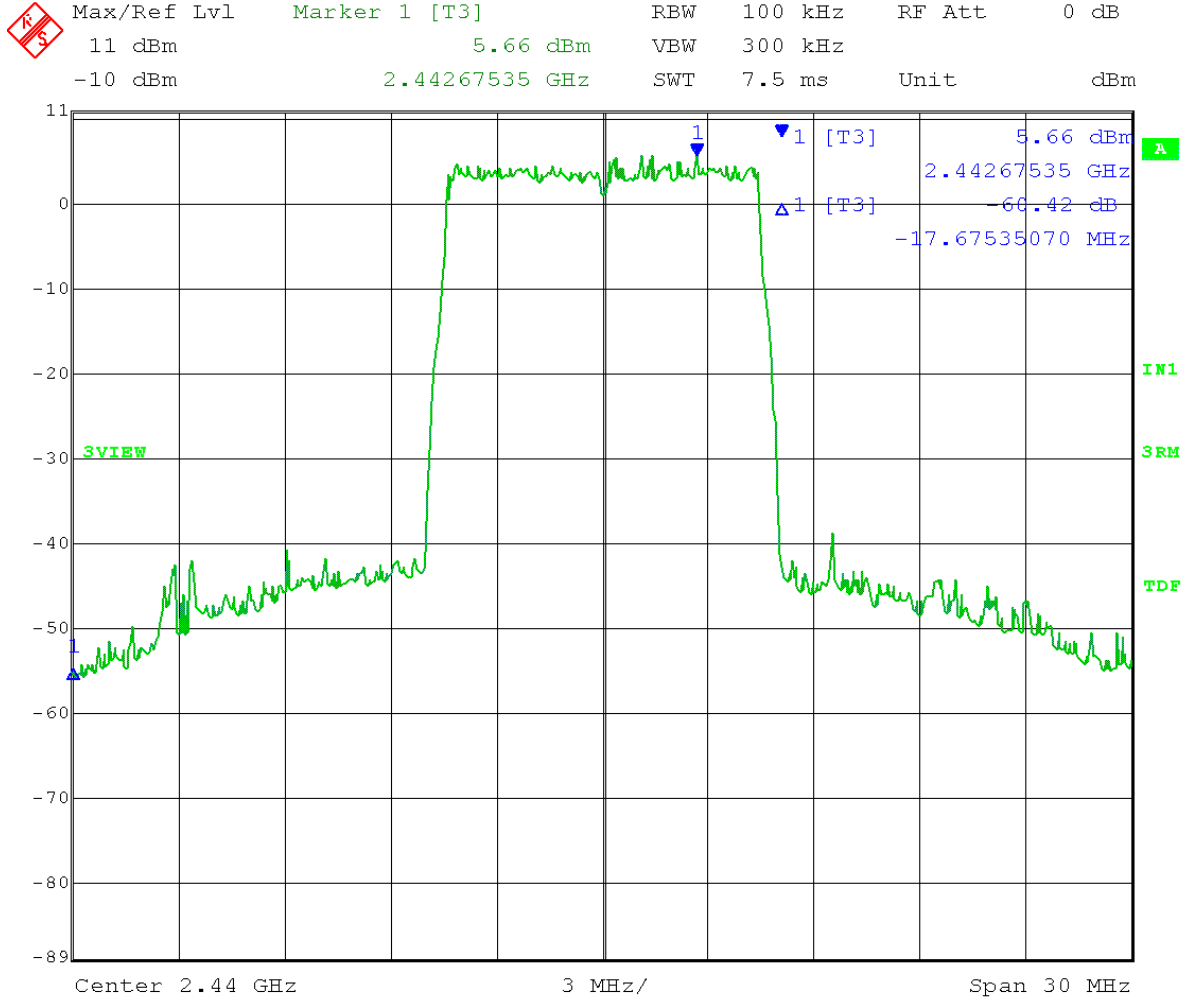


Date: 30.APR.2013 14:37:49

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: Mid Channel: Frequency = 2.44GHz

TX Output Power Setting = dBm 10MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = auto couple Trace = max hold

Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 $PSD = 5.66 + 10\log(1/.954) = 5.86 \text{ dBm}/100\text{kHz} = \text{Pass}$

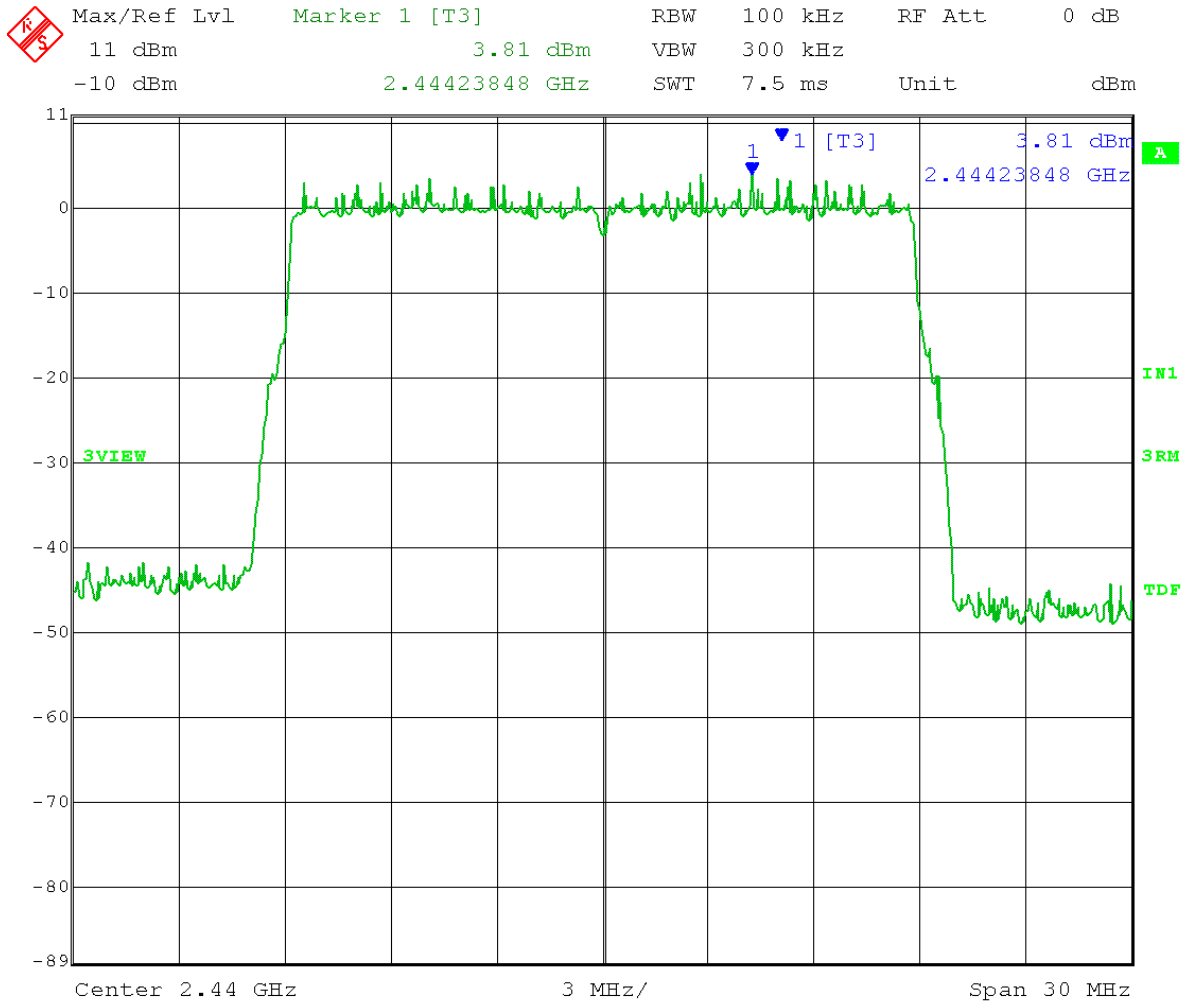


Date: 30.APR.2013 10:22:41

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O


Comment: Mid Channel: Frequency = 2.44GHz
 TX Output Power Setting = 19dBm 20MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = Auto Couple Trace = Max Hold

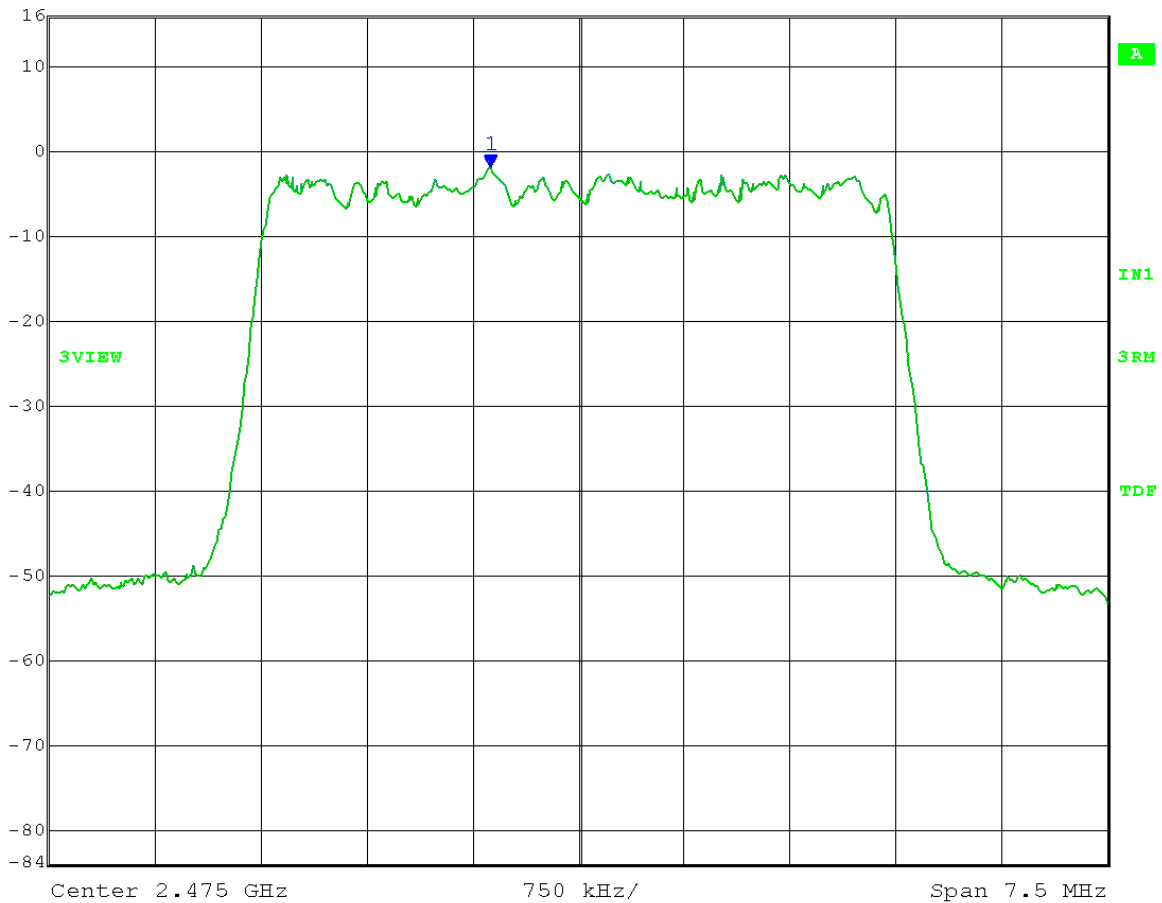
Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 $PSD = 3.81 + 10\log(1/.954) = 4.01 \text{ dBm}/100\text{kHz} = \text{Pass}$



Date: 30.APR.2013 13:00:57

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O
 Comment: High Channel: Frequency = 2.475GHz
 TX Output Power Setting = 15dBm 5MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = auto couple Trace = max hold
 Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 PSD = $-1.97 + 10\log(1/0.934) = -1.67 \text{ dBm}/100\text{kHz} = \text{Pass}$

| | | | | | | |
|---|-------------|----------------|-----|---------|--------|------|
|  | Max/Ref Lvl | Marker 1 [T3] | RBW | 100 kHz | RF Att | 0 dB |
| | 16 dBm | -1.97 dBm | VBW | 300 kHz | | |
| | -10 dBm | 2.47437625 GHz | SWT | 5 ms | Unit | dBm |




Date: 30.APR.2013 15:00:39

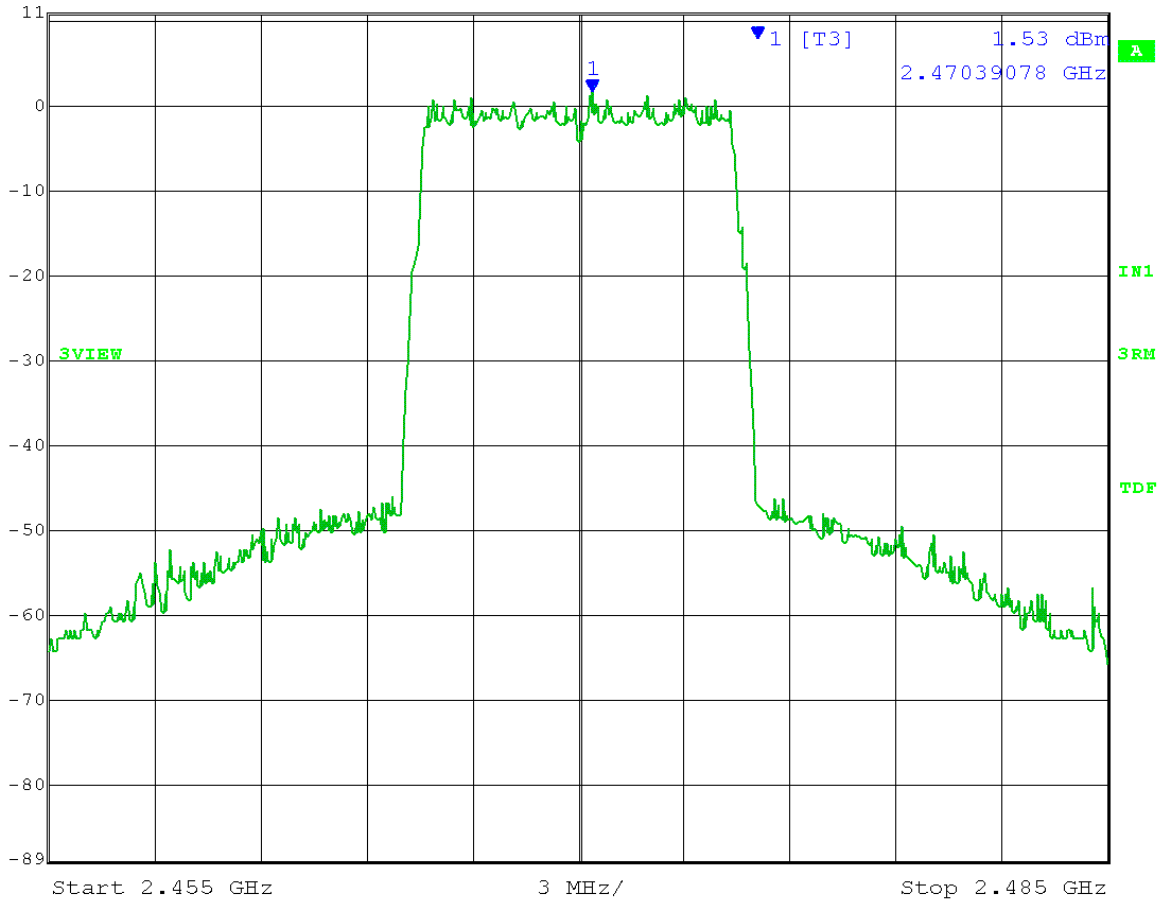
Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O

Comment: High Channel: Frequency = 2.47GHz
 TX Output Power Setting = 15dBm
 RBW = 100 kHz
 Span = 1.5 x EBW
 Sweep = auto couple

10MHz BW
 VBW = 300 kHz
 Detector = RMS
 Trace = max hold

Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 $PSD = 1.52 + 10\log(1/.954) = 1.72 \text{ dBm}/100\text{kHz} = \text{Pass}$

| | | | | | | |
|---|-------------|----------------|-----|---------|--------|------|
|  | Max/Ref Lvl | Marker 1 [T3] | RBW | 100 kHz | RF Att | 0 dB |
| | 11 dBm | 1.53 dBm | VBW | 300 kHz | | |
| | -10 dBm | 2.47039078 GHz | SWT | 7.5 ms | Unit | dBm |

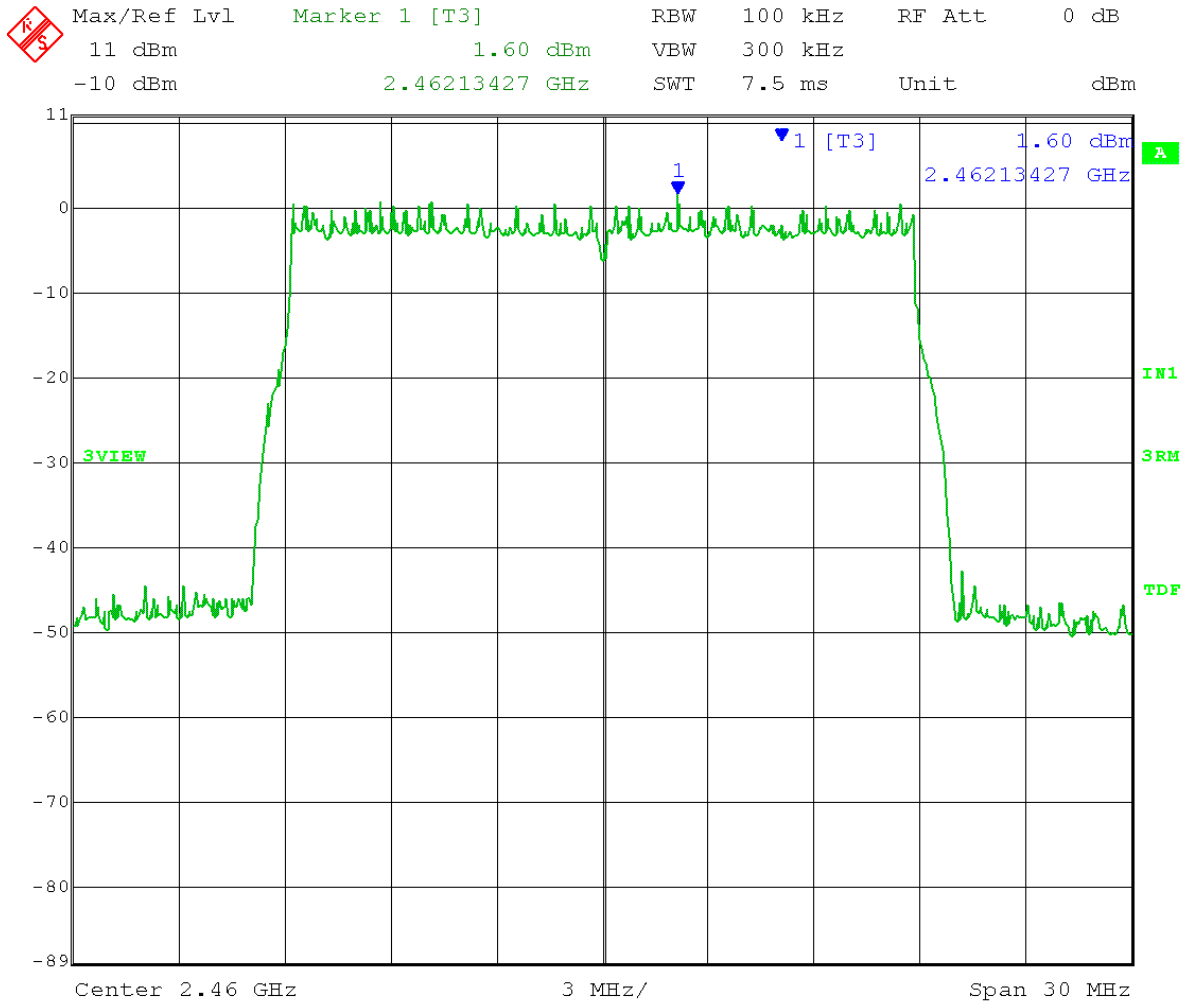


Date: 30.APR.2013 10:37:58

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4GHz OFDM
 Test: Maximum Peak Power Spectral Density - Conducted
 Operator: Jim O

Comment: High Channel: Frequency = 2.46GHz
 TX Output Power Setting = 16dBm 20MHz BW
 RBW = 100 kHz VBW = 300 kHz
 Span = 1.5 x EBW Detector = RMS
 Sweep = Auto Couple Trace = Max Hold

Channel B
 Method 10.5 AVGPSD-2 (trace averaging across on and off times of the EUT transmission, followed by the duty cycle correction).
 Measurement (dBm) + duty cycle correction
 Limit: +8 dBm
 $PSD = 1.60 + 10\log(1/.956) = 1.81 \text{ dBm}/100\text{kHz} = \text{Pass}$



Date: 30.APR.2013 13:13:15



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A4.0 Maximum Unwanted Emission Levels – Conducted

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

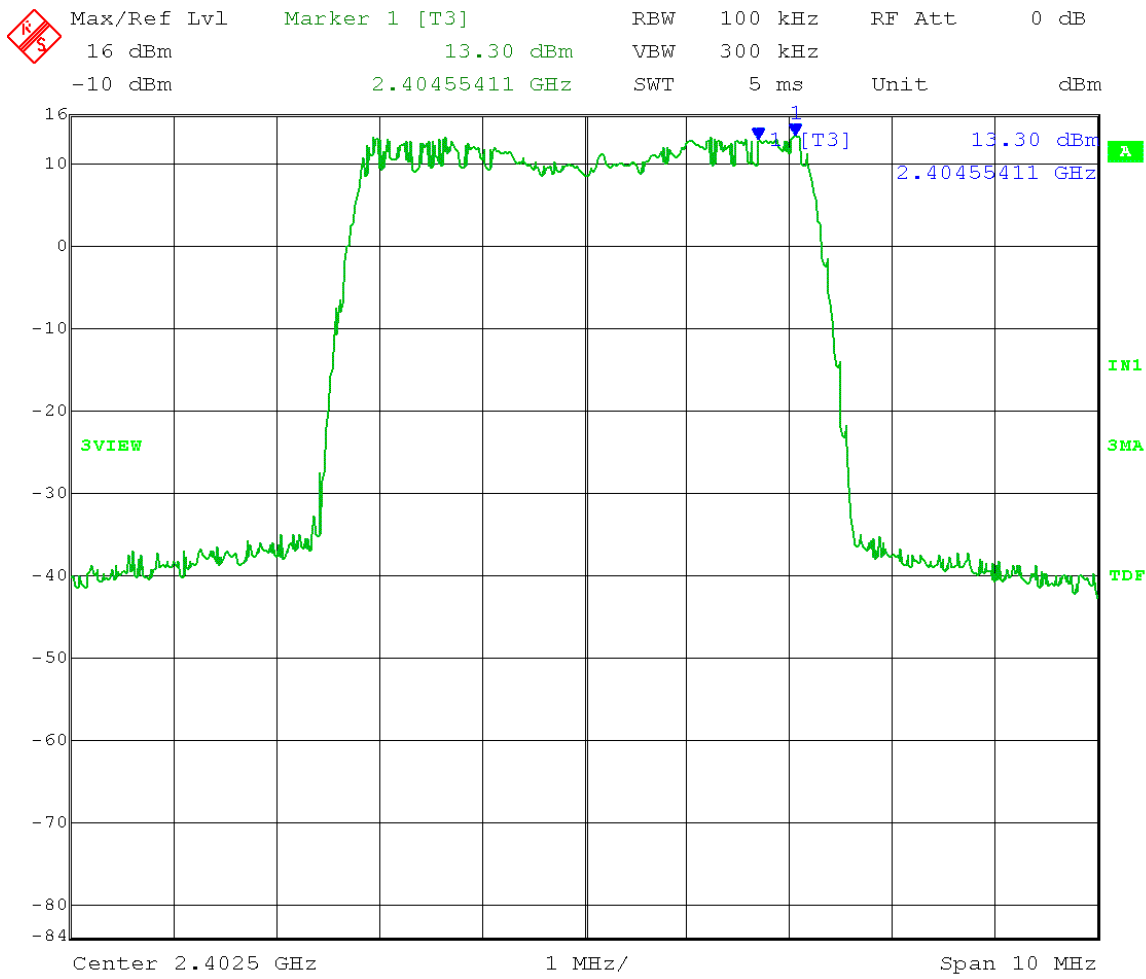
Description: RBW = 100 kHz
VBW \geq 300 kHz
Span to \geq 1.5 times the *DTS bandwidth* (Reference Level)
Set the center frequency and span to encompass frequency range to be measured.
(Emission Level)
Detector = peak
Sweep = auto couple
Trace mode = max hold

Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low, middle and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle.

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

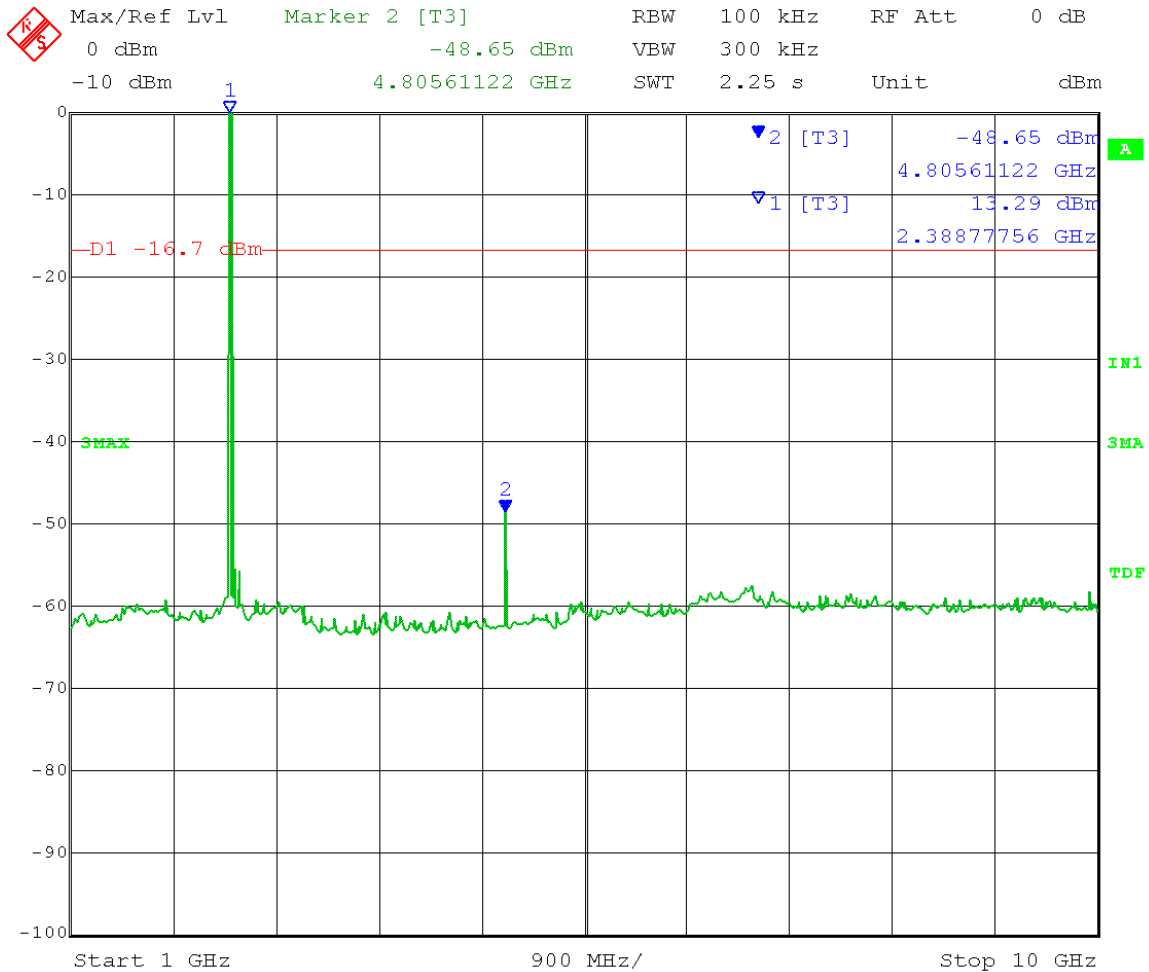
Results: Passed

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.4025GHz**
 Output Power Setting = 19dBm @ 5MHz BW
 Channel A
 Reference Level Measurement
 Limit = 13.30dBm – 30 dB = 16.70dBm



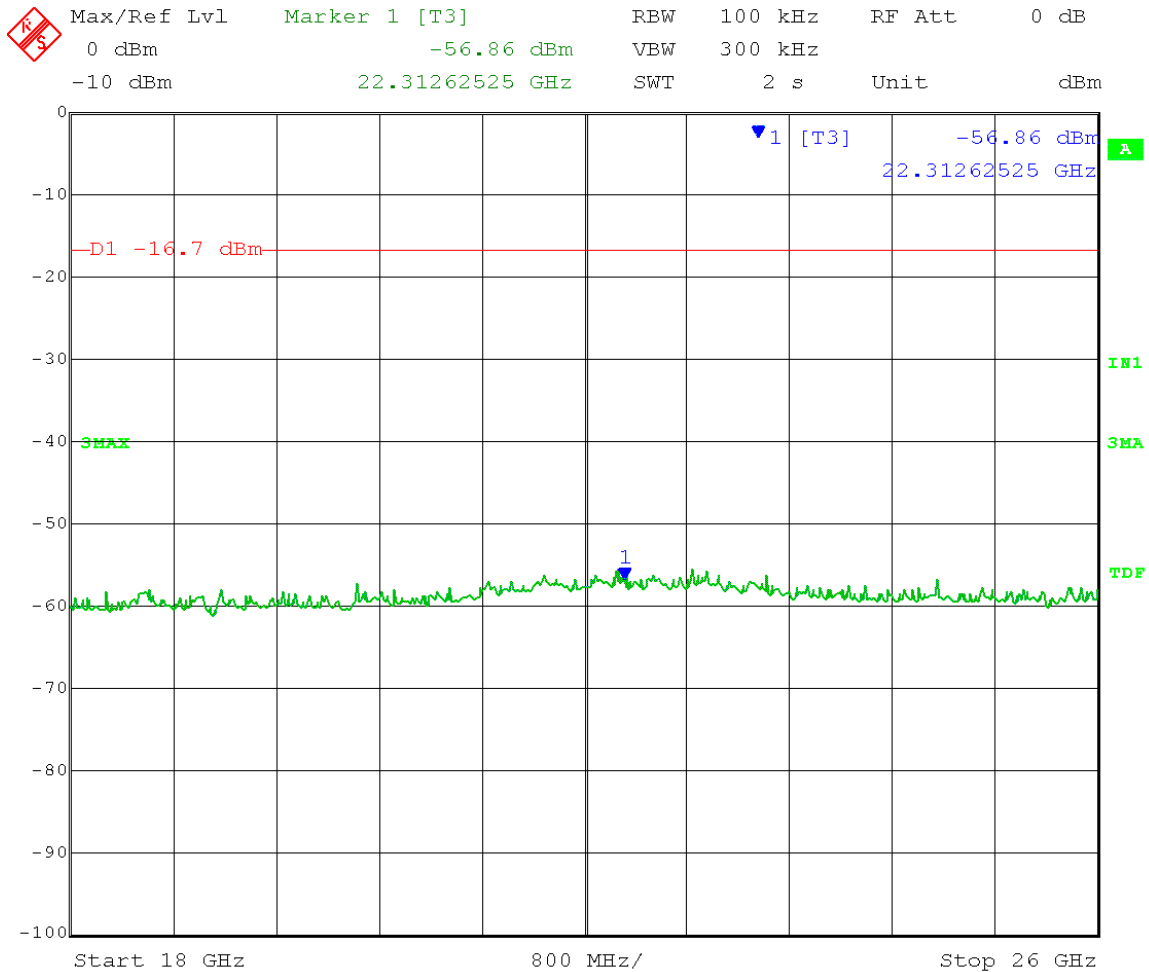
Date: 30.APR.2013 13:53:18

Test Date: 05-01-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.4025GHz**
 Output Power Setting 19dBm @ 5 MHz BW
 Channel A
 Frequency Range 1-10GHz
Emission Level Measurement
 Limit (D1) = 13.30dBm – 30 dB = 16.70dBm



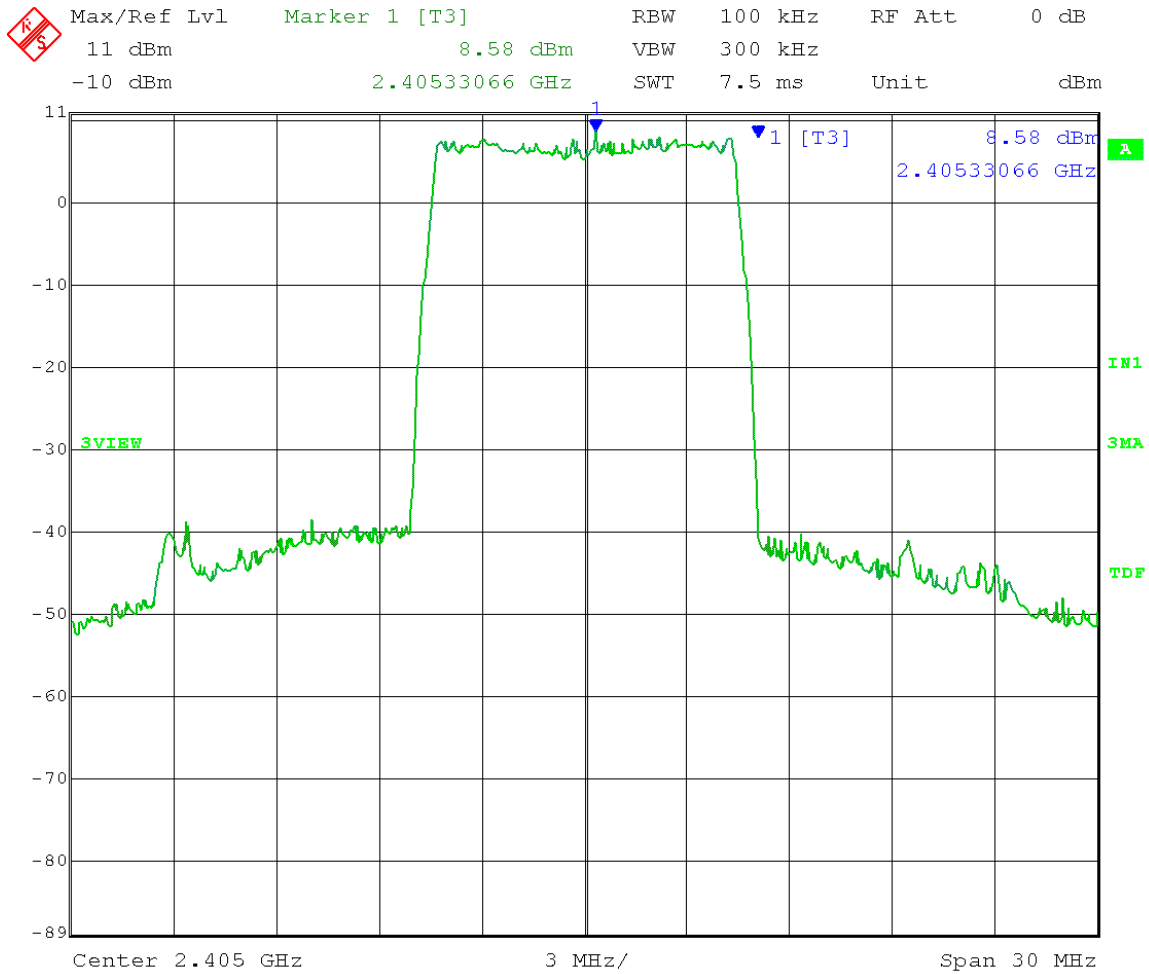
Date: 1.MAY.2013 08:35:43

Test Date: 05-01-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Low Channel Transmit = 2.4025GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel A
 Frequency Range 18-26GHz
Emission Level Measurement
 Limit (D1) = 13.30dBm – 30 dB = 16.70dBm



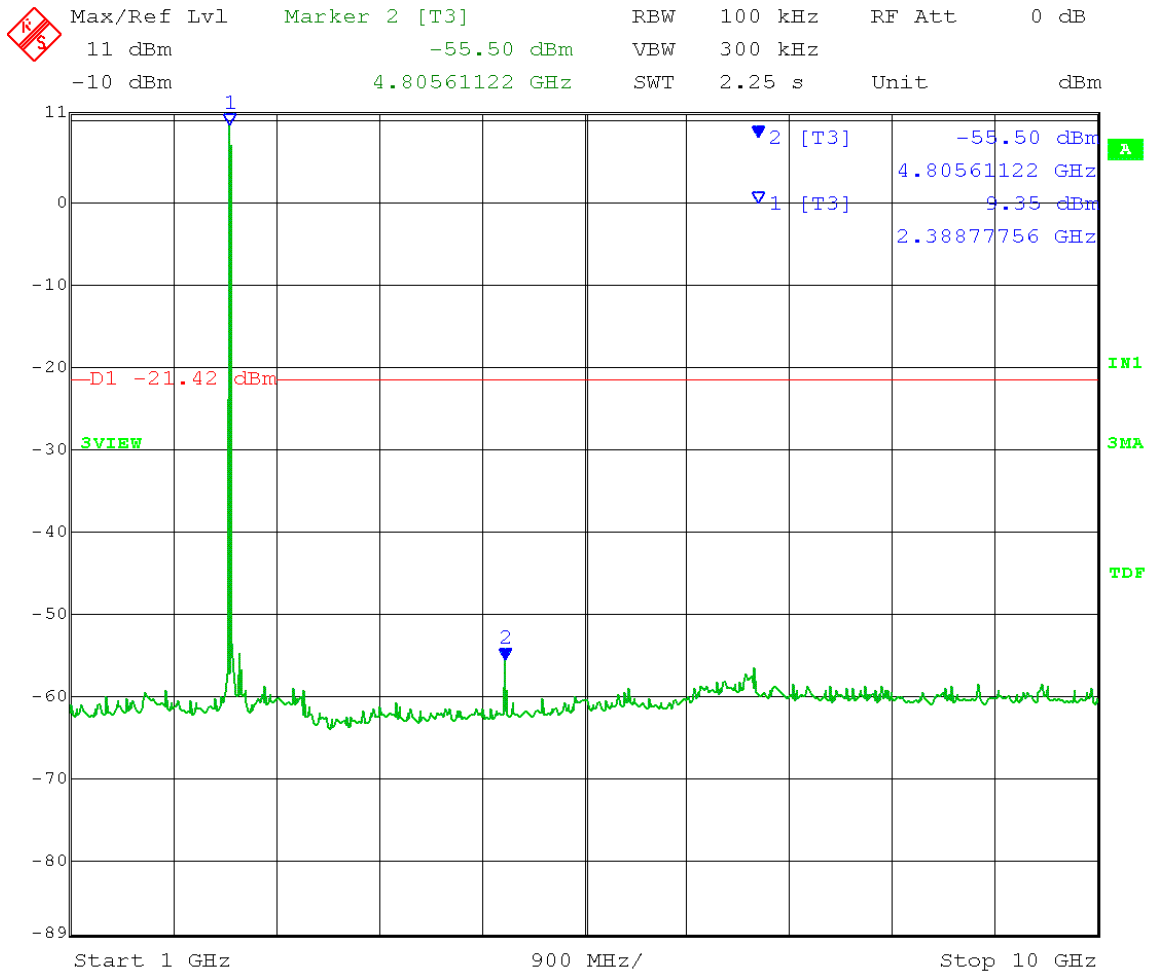
Date: 1.MAY.2013 08:33:05

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Low Channel Transmit = 2.405GHz
 Output power setting 19dBm @ 10MHz BW
 Channel A
Reference Level measurement
 Limit = 8.58dBm – 30 dB = -21.42dBm



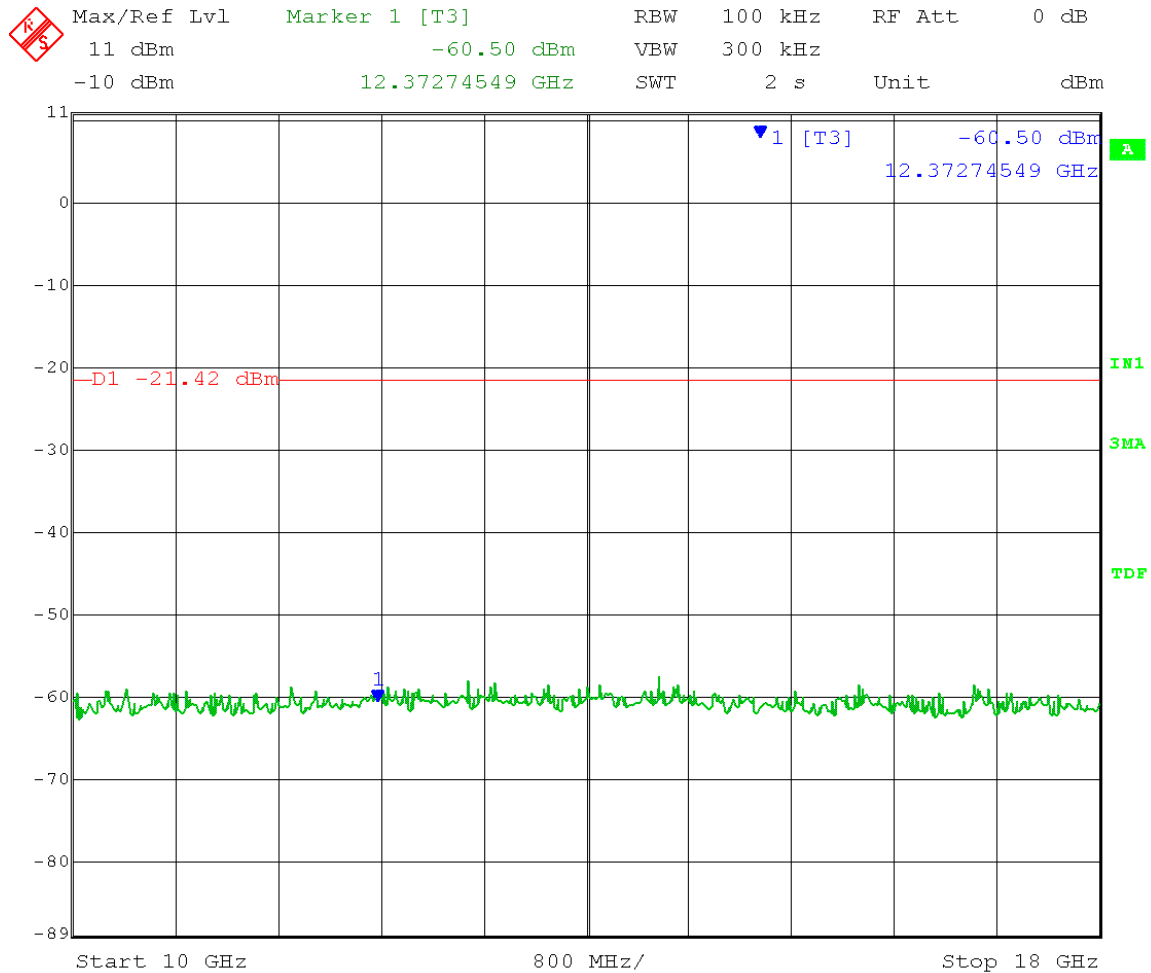
Date: 30.APR.2013 11:12:34

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.405GHz**
 Output Power Setting = 19dBm @ 10 MHz BW
 Channel A
 Frequency Range 1-10GHz
Emission Level Measurement
 Limit = 8.58dBm – 30 dB = -21.42dBm



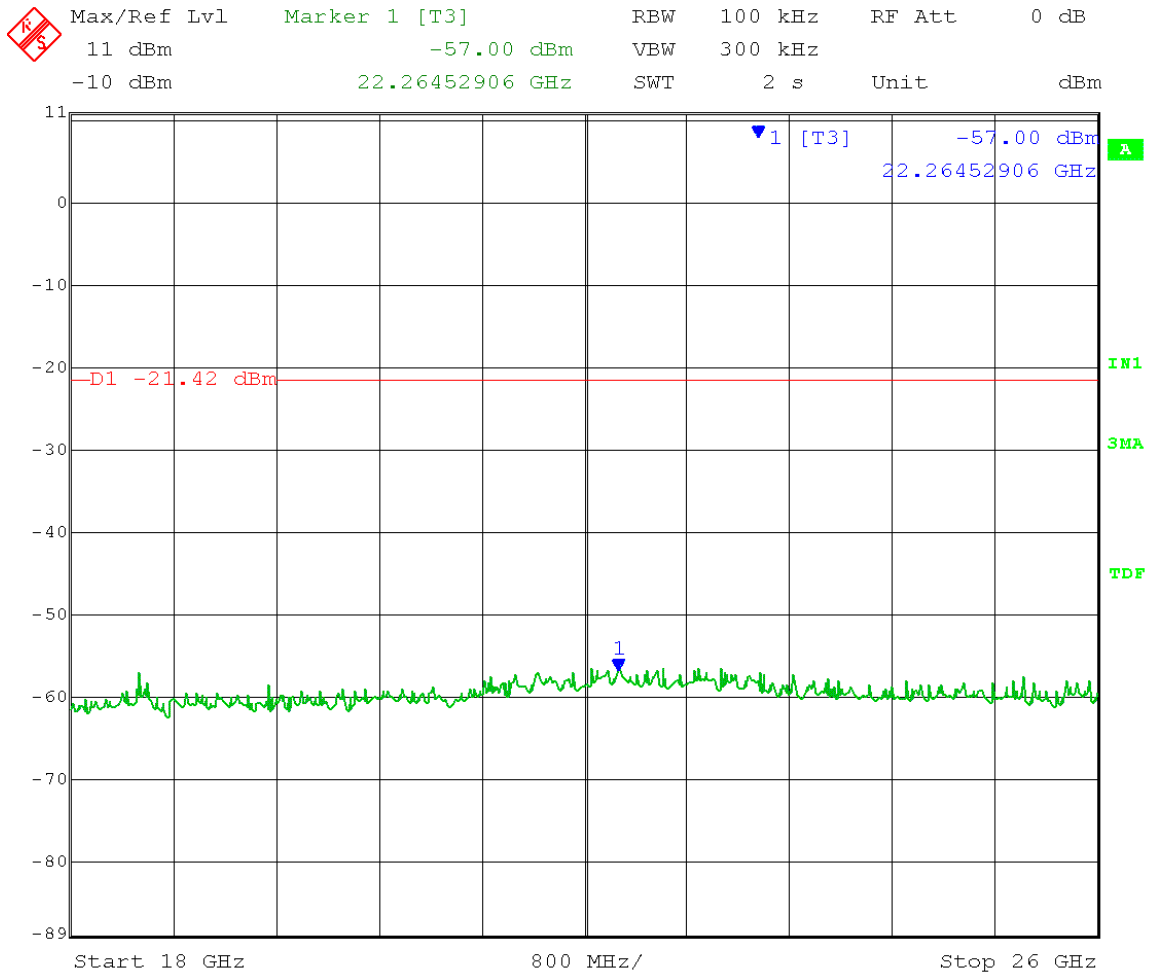
Date: 30.APR.2013 11:25:12

Test Date: 4-30-13
Company: Cambium Networks
EUT: PMP 450SM 2.4GHz: OFDM
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.405GHz**
 Output Power Setting = 19dBm @ 10 MHz BW
 Channel A
 Frequency Range 10-18GHz
 Emission Level Measurement
 Limit = 8.58dBm – 30 dB = -21.42dBm



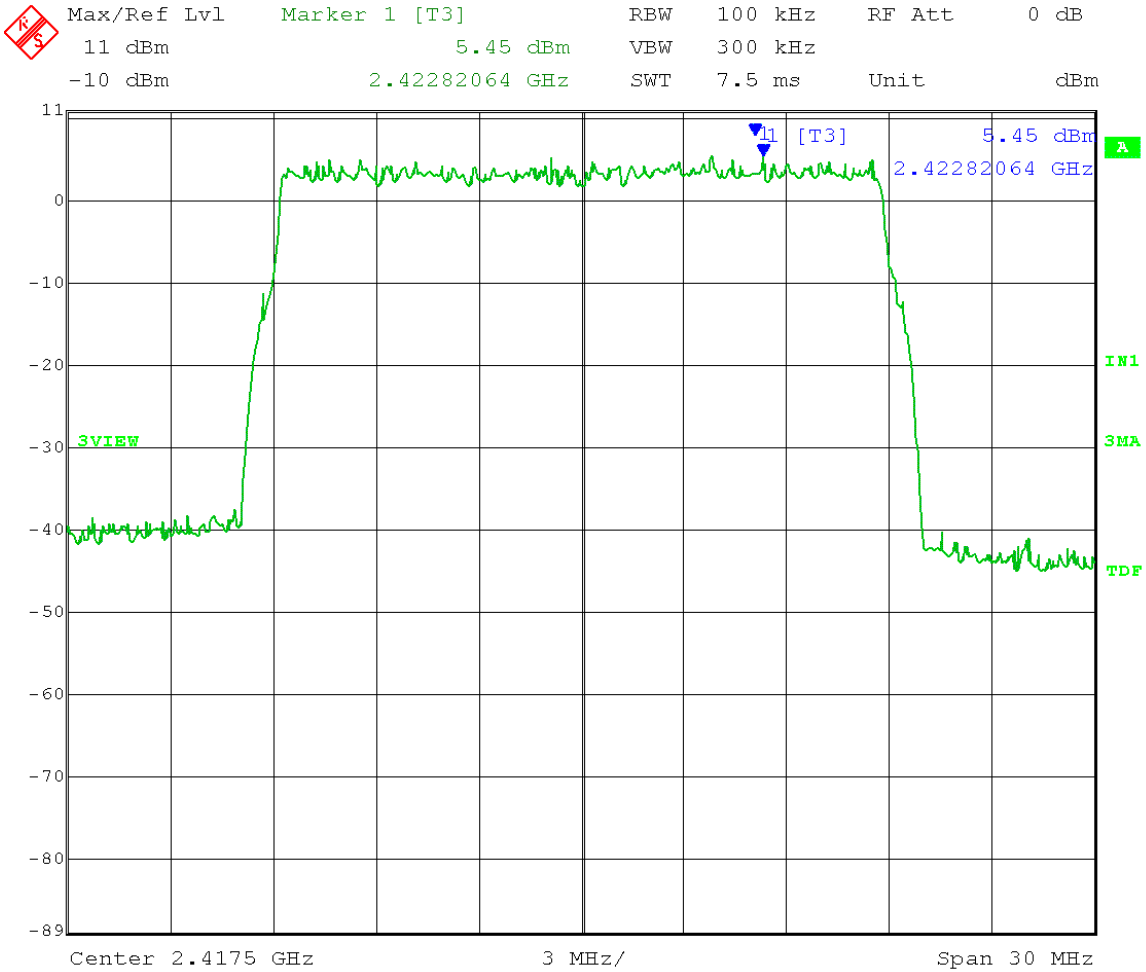
Date: 30.APR.2013 11:26:59

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.405GHz**
 Output Power Setting = 19dBm @ 10 MHz BW
 Channel A
 Frequency Range 18-26GHz
Emission Level Measurement
 Limit = 8.58dBm - 30 dB = -21.42dBm



Date: 30.APR.2013 11:28:19

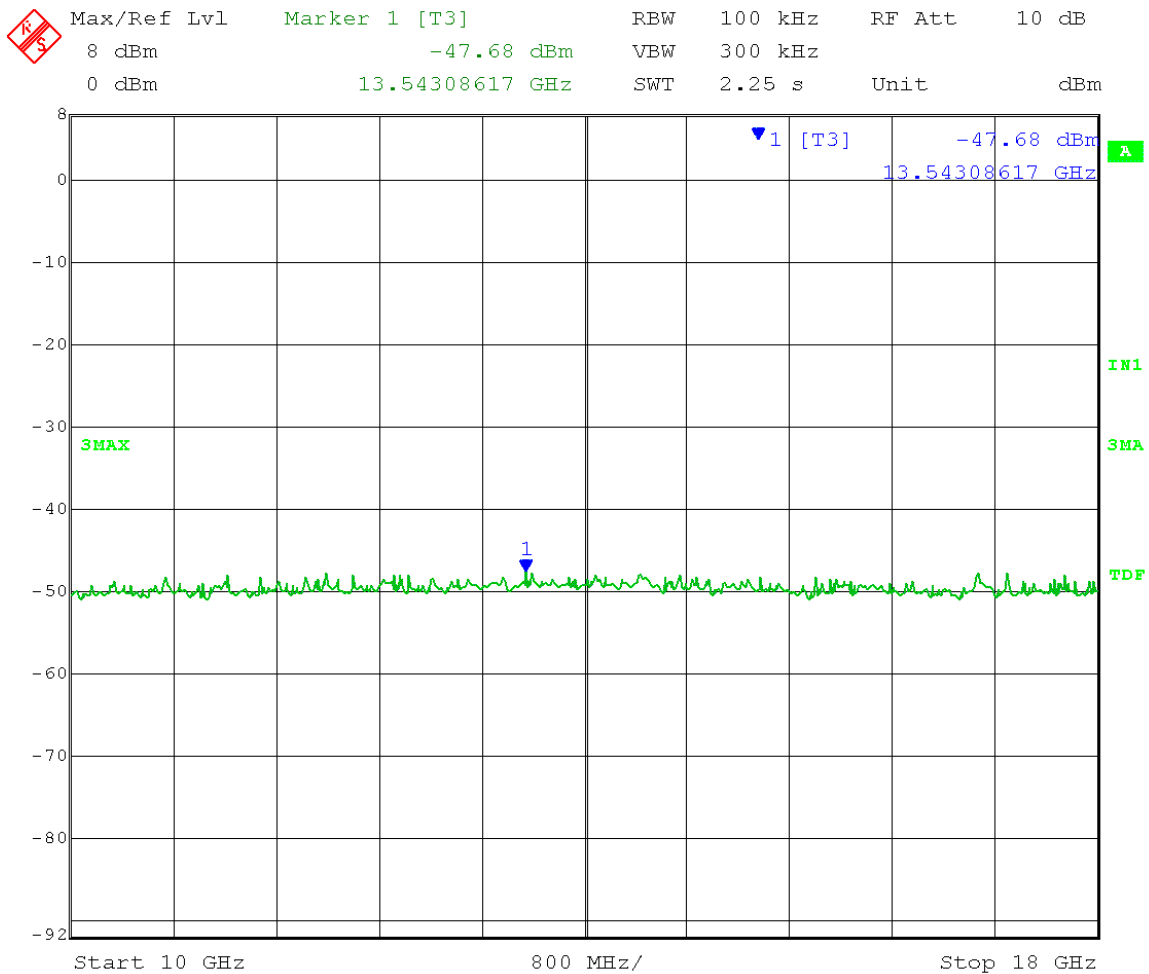
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold **Low Channel Transmit = 2.4175GHz**
 Output power setting 19dBm @ 20MHz BW
 Channel A
Reference Level measurement
 Limit = 5.45dBm - 30 dB = -24.55dBm



Date: 30.APR.2013 12:31:56

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

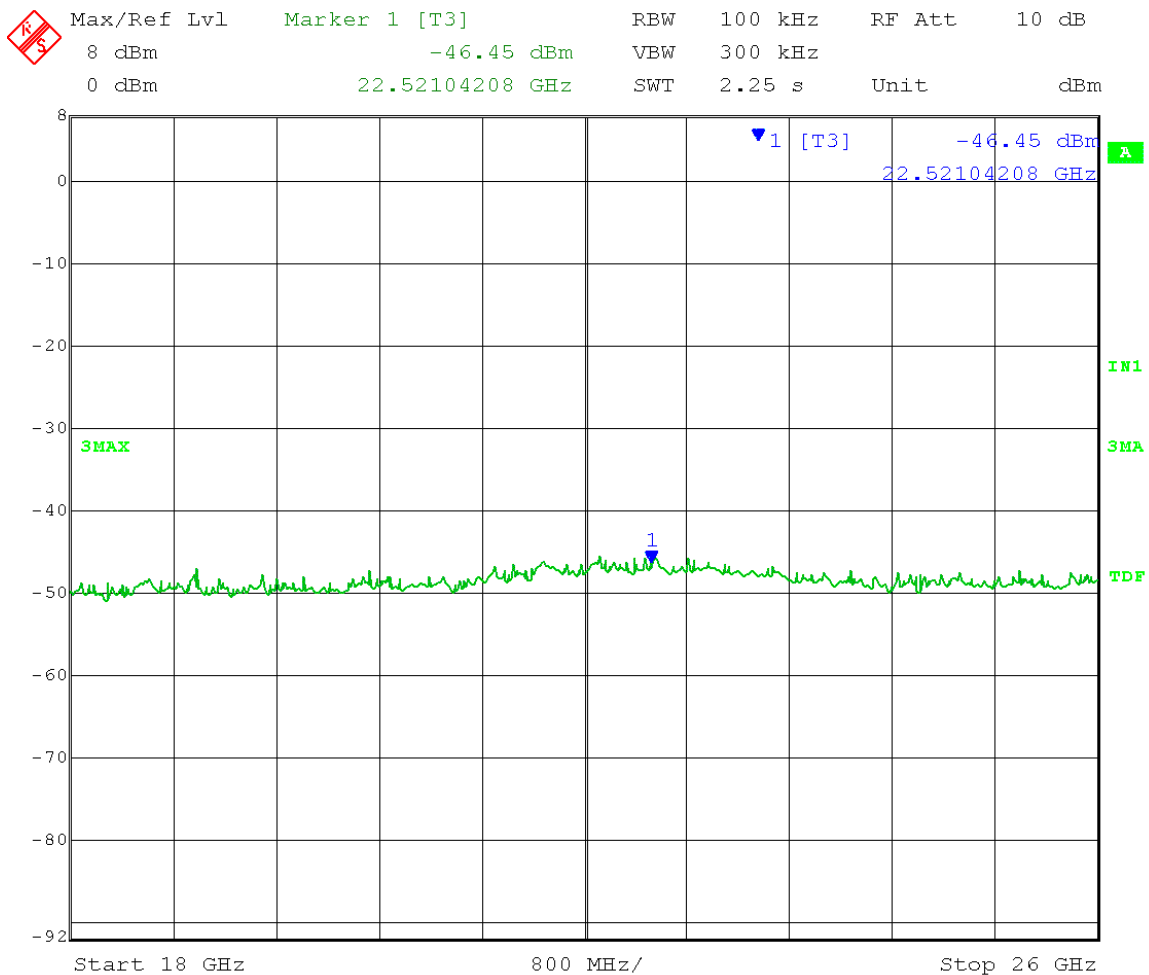
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.4175GHz
 Output power setting 16dBm @ 20 MHz BW
 Channel A
 Frequency Range 10-18GHz
 Emission Level measurement
 Limit = 5.45dBm – 30 dB = -24.55dBm



Date: 29.APR.2013 15:01:05

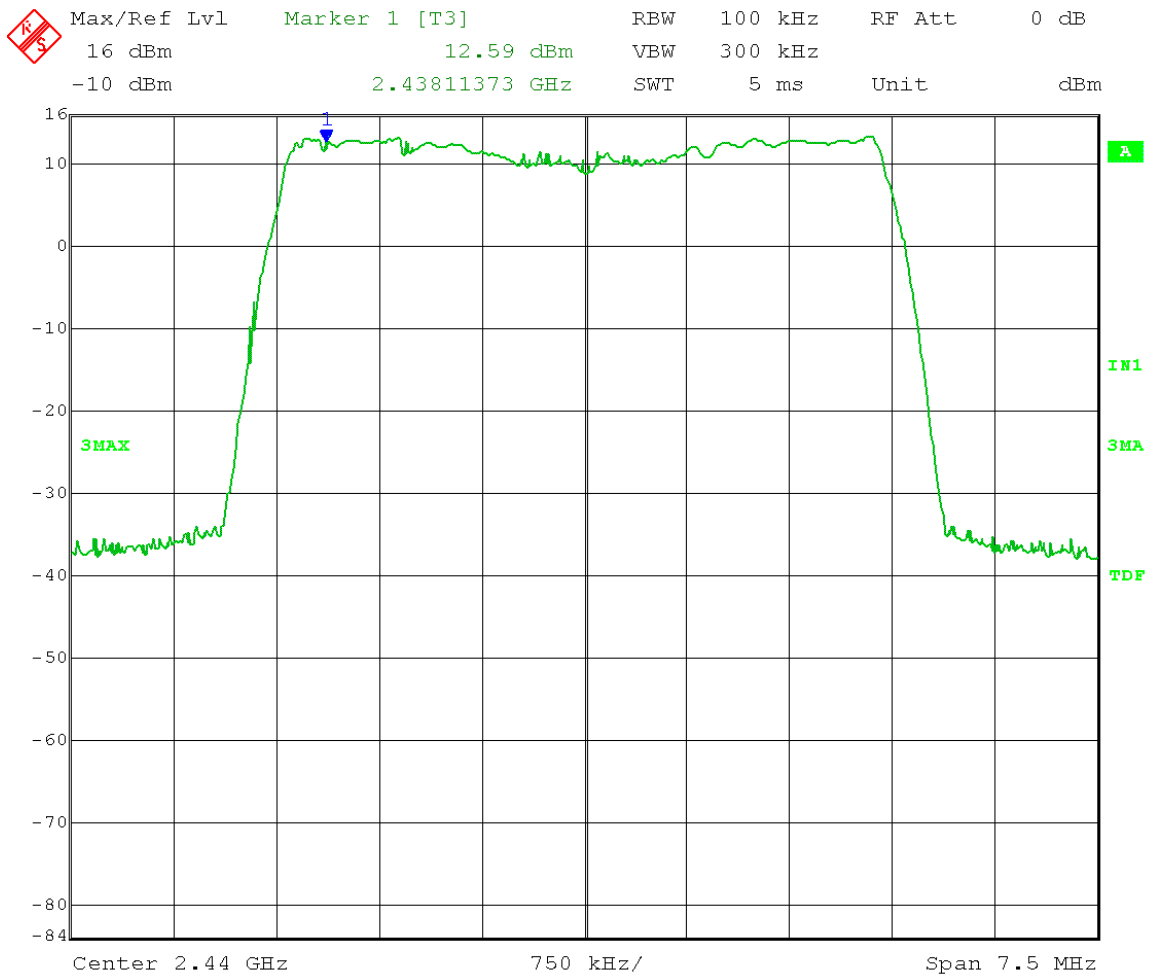
Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.4175GHz
 Output power setting 16dBm @ 20 MHz BW
 Channel A
 Frequency Range 18-26GHz
 Emission Level measurement
 Limit = 5.45dBm – 30 dB = -24.55dBm




Date: 29.APR.2013 14:59:48

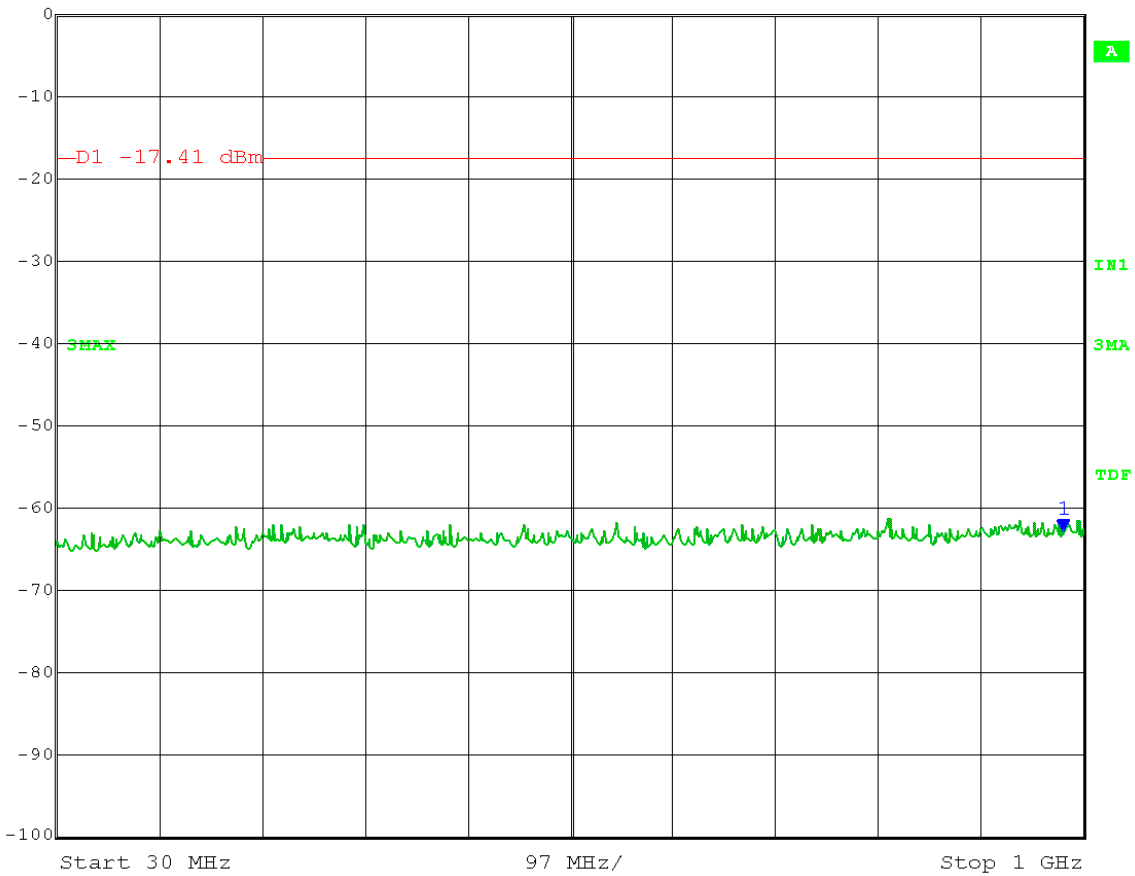
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.44GHz
 Output Power Setting = 19dBm @ 5MHz BW
 Channel A
 Reference Level Measurement
 Limit = 12.59dBm – 30 dB = -17.41dBm



Date: 30.APR.2013 14:42:51

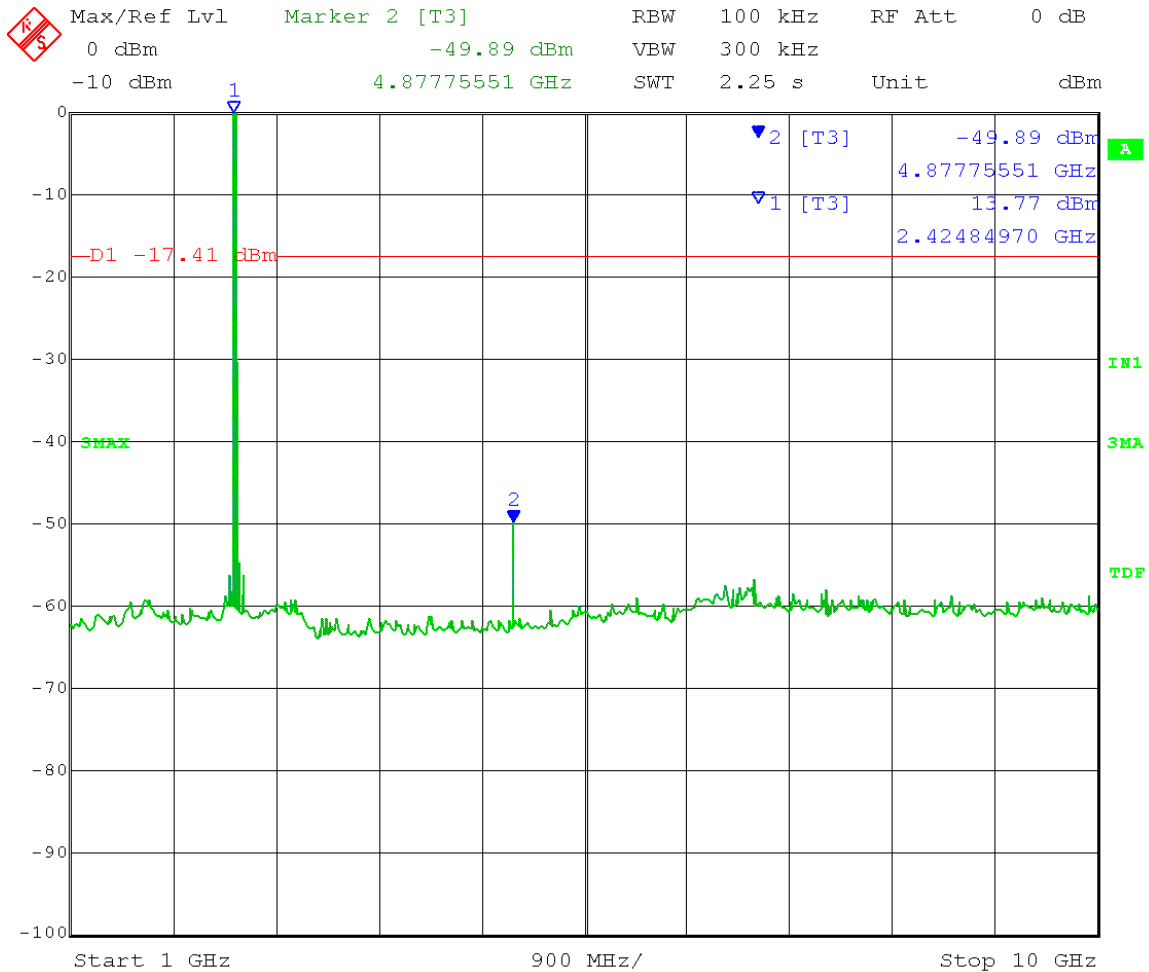
Test Date: 5-1-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel A
 Frequency Range 30M-1GHz
Emission Level Measurement
 Limit = 12.59dBm – 30 dB = -17.41dBm

| | | | | | | |
|---|-------------|------------------|-----|---------|--------|------|
|  | Max/Ref Lvl | Marker 1 [T3] | RBW | 100 kHz | RF Att | 0 dB |
| | 0 dBm | -62.77 dBm | VBW | 300 kHz | | |
| | -10 dBm | 980.56112224 MHz | SWT | 245 ms | Unit | dBm |



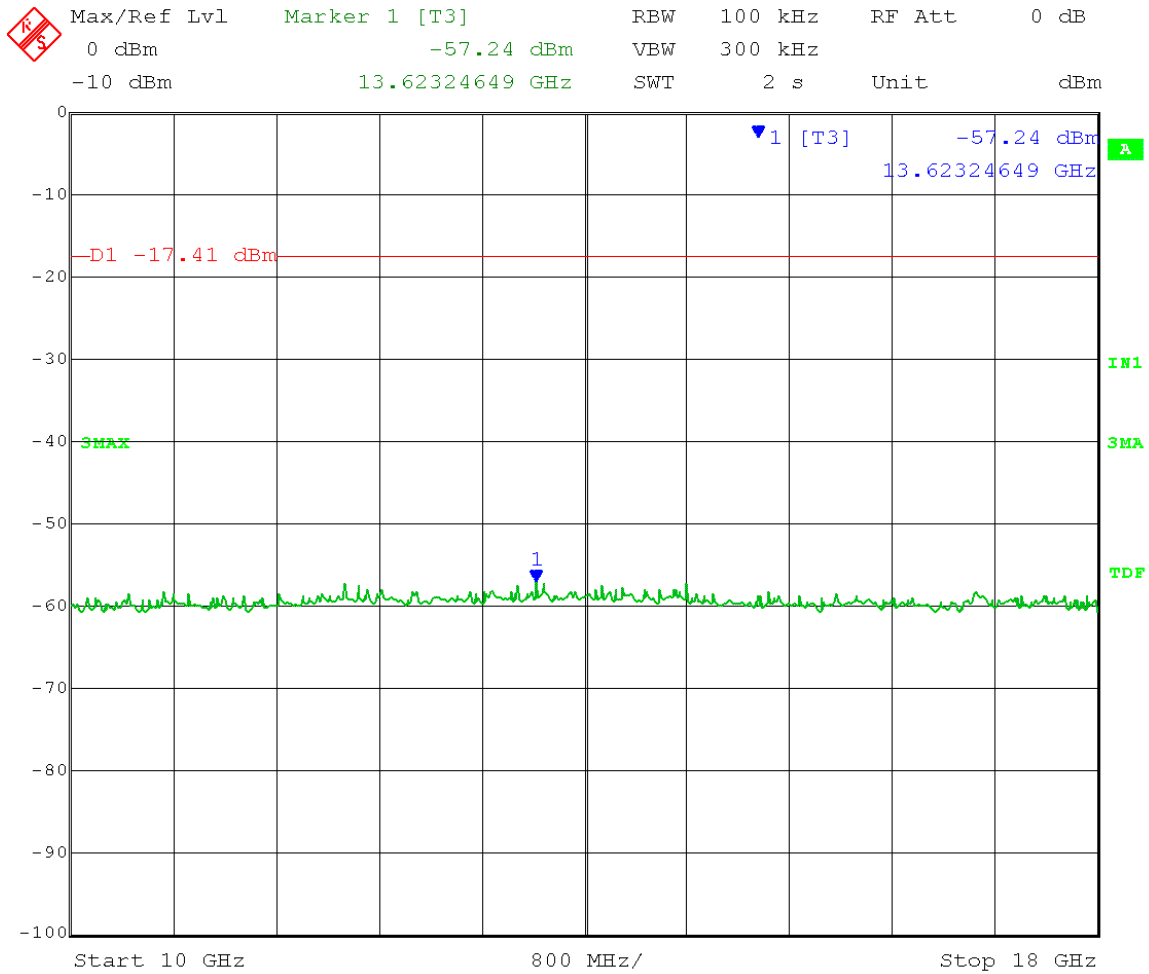
Date: 1.MAY.2013 08:11:00

Test Date: 5-1-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel A
 Frequency Range 1-10GHz
Emission Level Measurement
 Limit = 12.59dBm – 30 dB = -17.41dBm



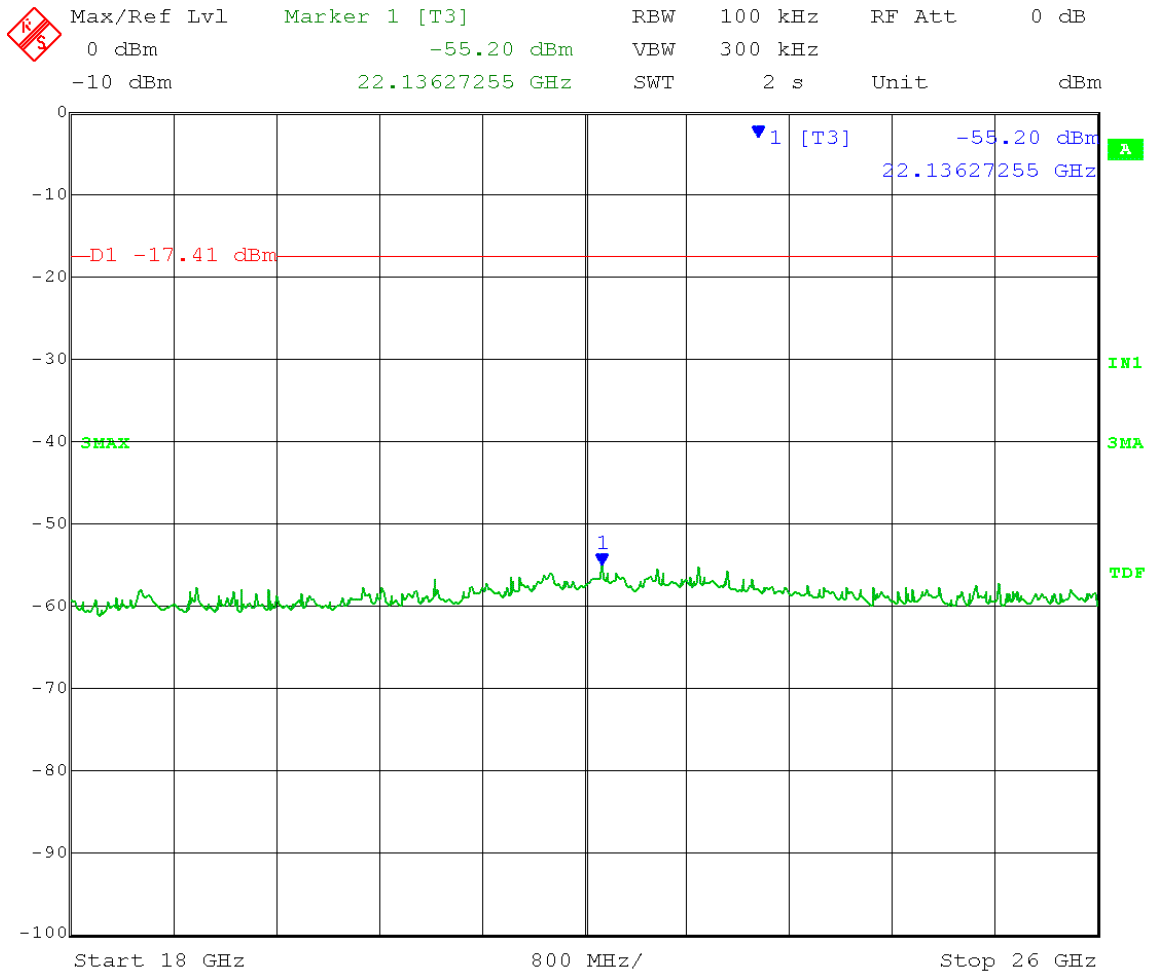
Date: 1.MAY.2013 08:13:14

Test Date: 5-1-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel A
 Frequency Range 10-18GHz
Emission Level Measurement
 Limit (D1) = 12.59dBm – 30 dB = -17.41dBm



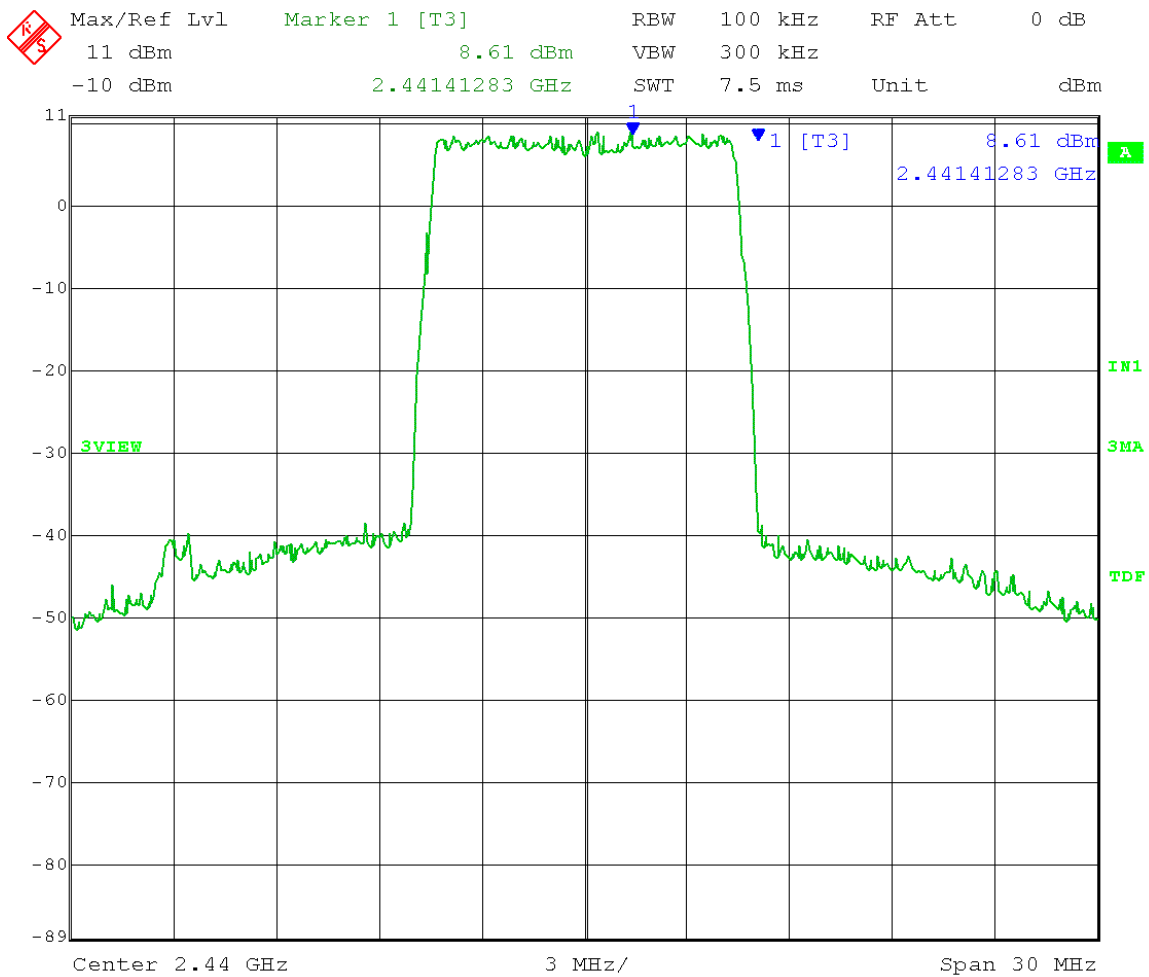
Date: 1.MAY.2013 08:15:08

Test Date: 5-1-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel A
 Frequency Range 18-26GHz
Emission Level Measurement
 Limit (D1) = 12.59dBm – 30 dB = -17.41dBm



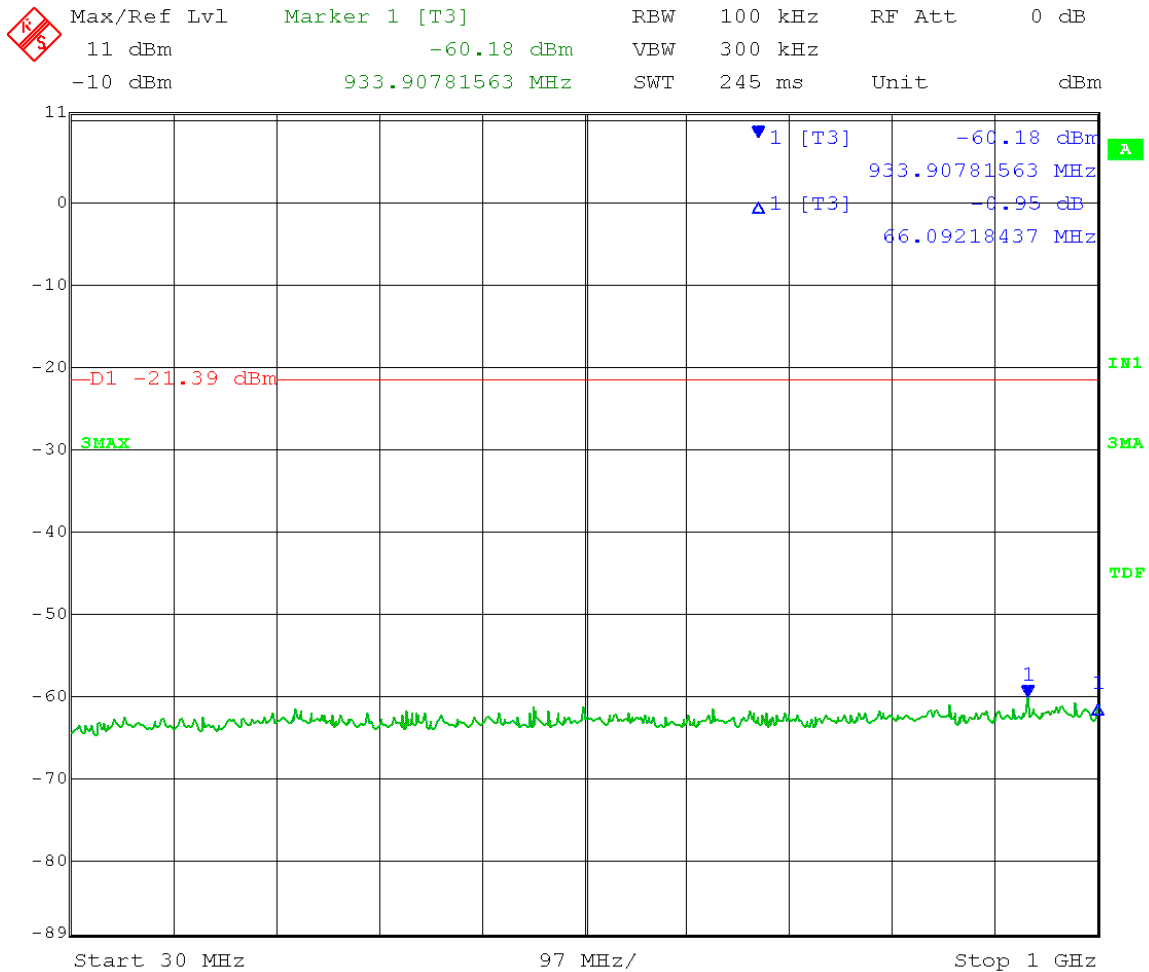
Date: 1.MAY.2013 08:16:32

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold **Mid Channel Transmit = 2.44GHz**
 Output power setting 19dBm @ 10MHz BW
 Channel A
Reference Level measurement
 Limit = 8.61dBm – 30 dB = -21.39dBm



Date: 30.APR.2013 09:31:05

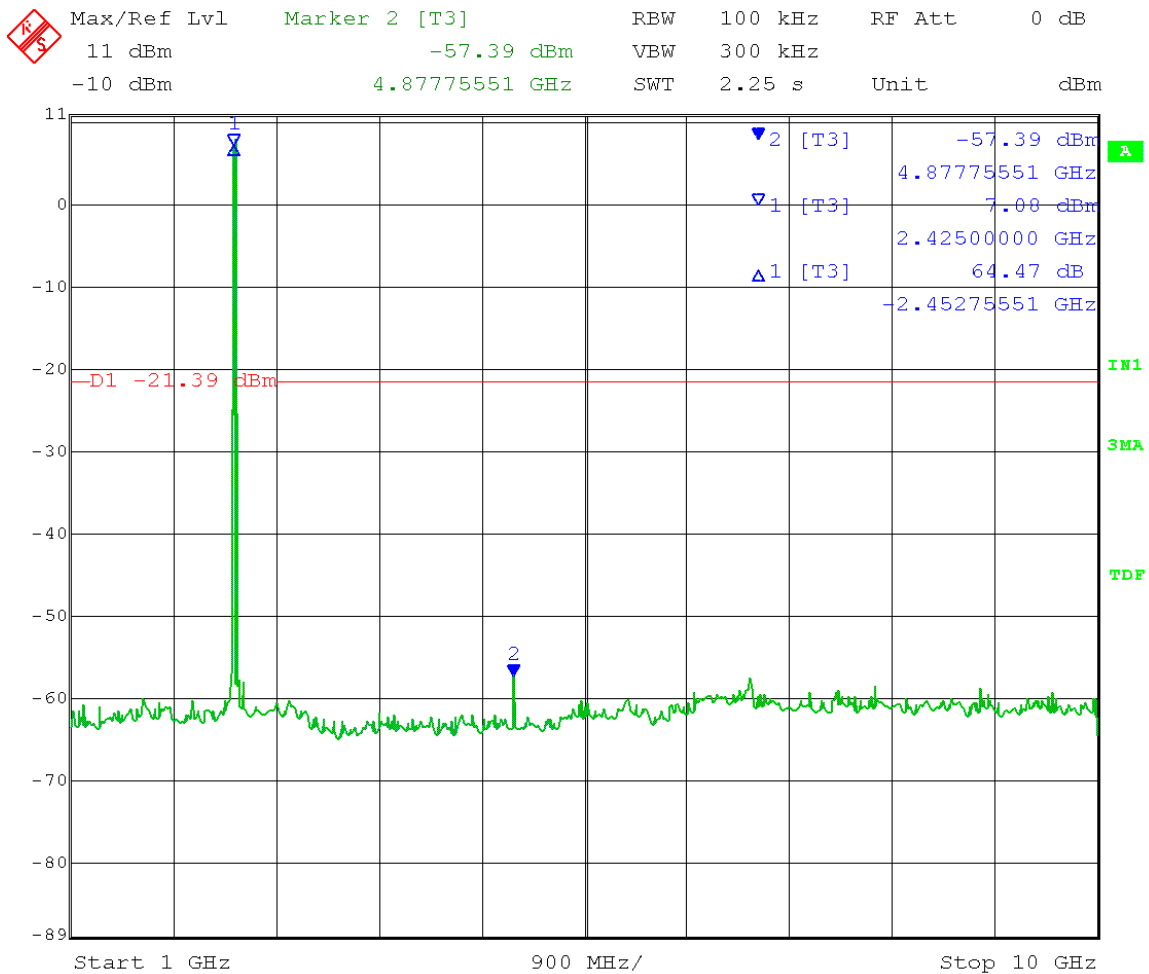
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 10 MHz BW
 Channel A
 Frequency Range 30M-1GHz
Emission Level measurement
 Limit (D1) = 8.61dBm – 30 dB = -21.39dBm



Date: 30.APR.2013 10:15:30

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

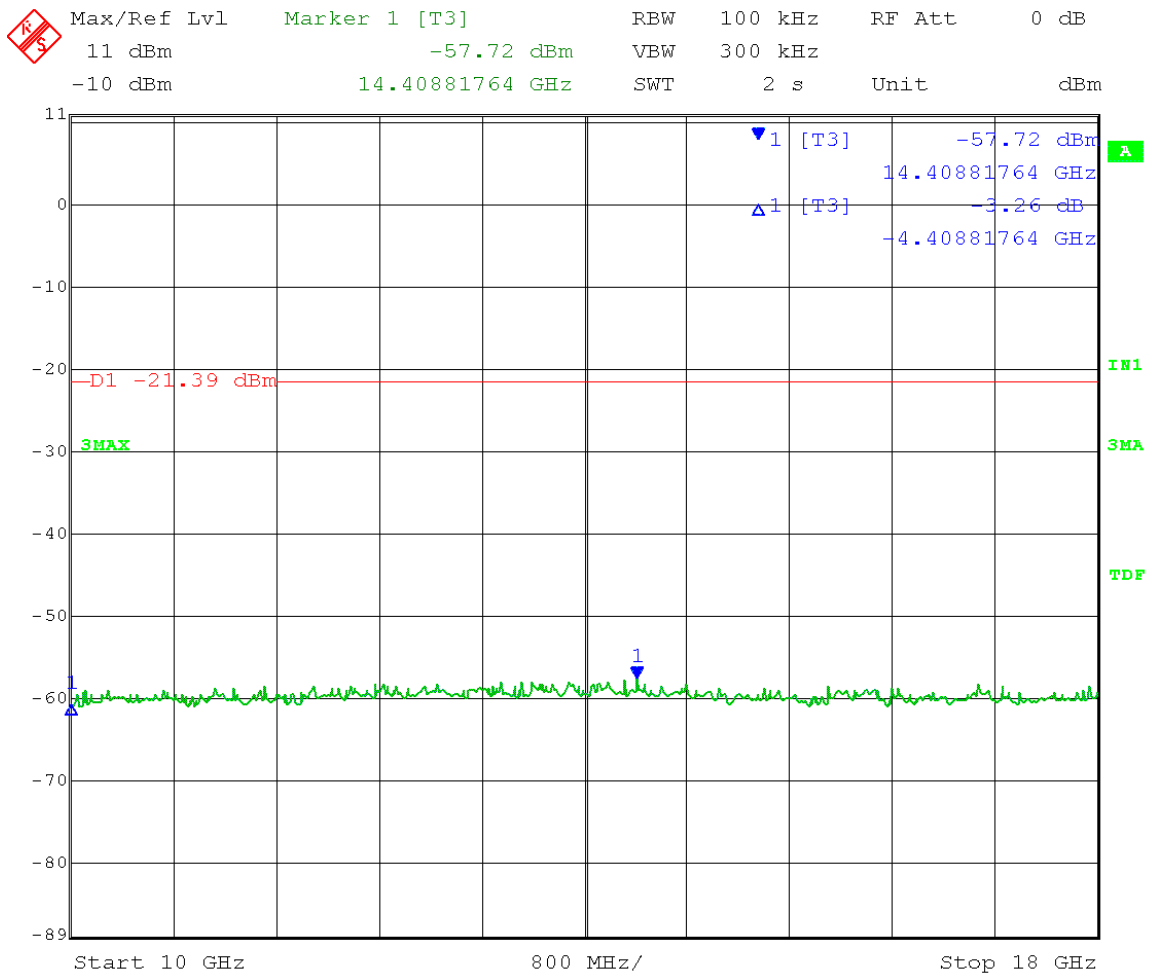
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 10 MHz BW
 Channel A
 Frequency Range 1-10GHz
 Emission Level measurement
 Limit (D1) = 8.61dBm – 30 dB = -21.39dBm



Date: 30.APR.2013 10:10:46

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

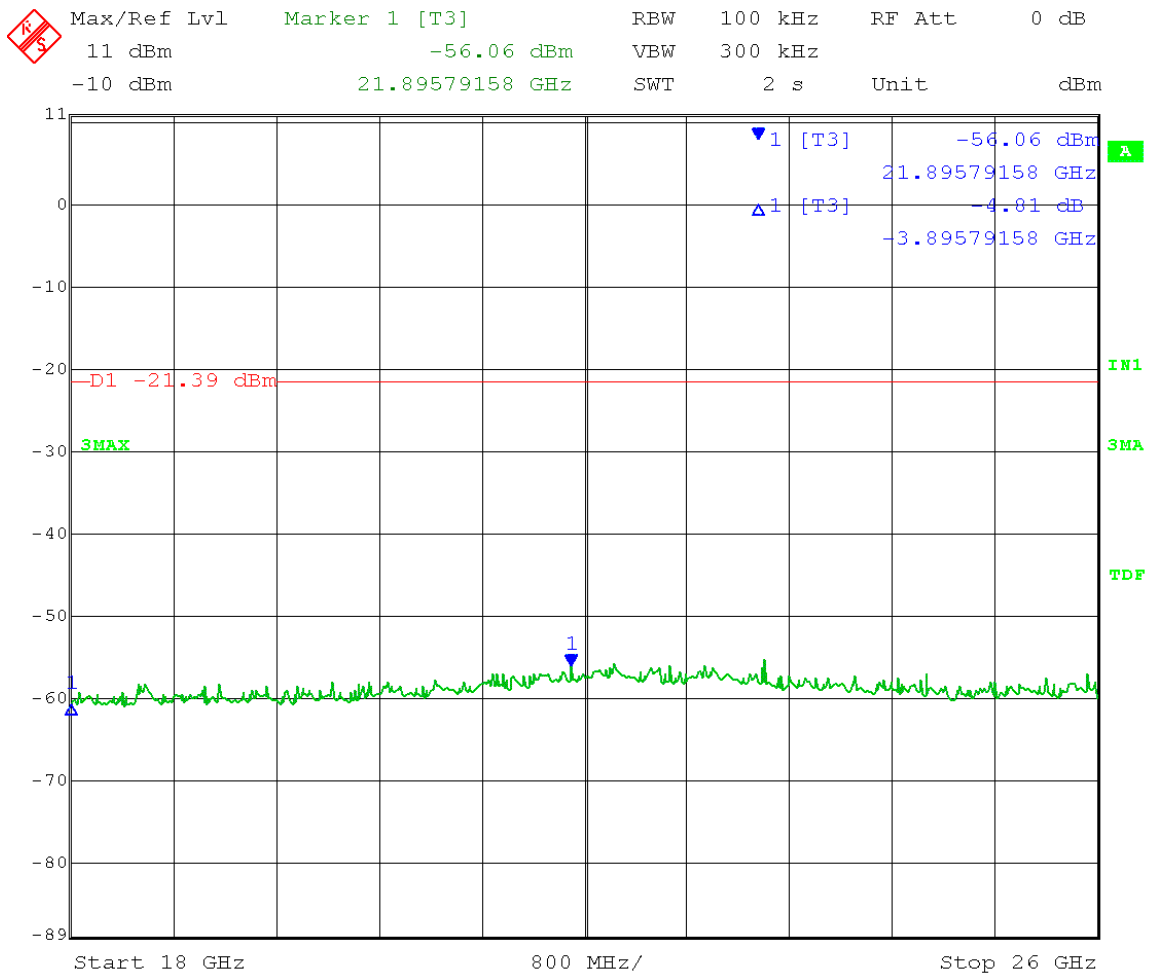
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 10 MHz BW
 Channel A
 Frequency Range 10-18GHz
 Emission Level measurement
 Limit (D1) = 8.61dBm – 30 dB = -21.39dBm



Date: 30.APR.2013 10:12:51

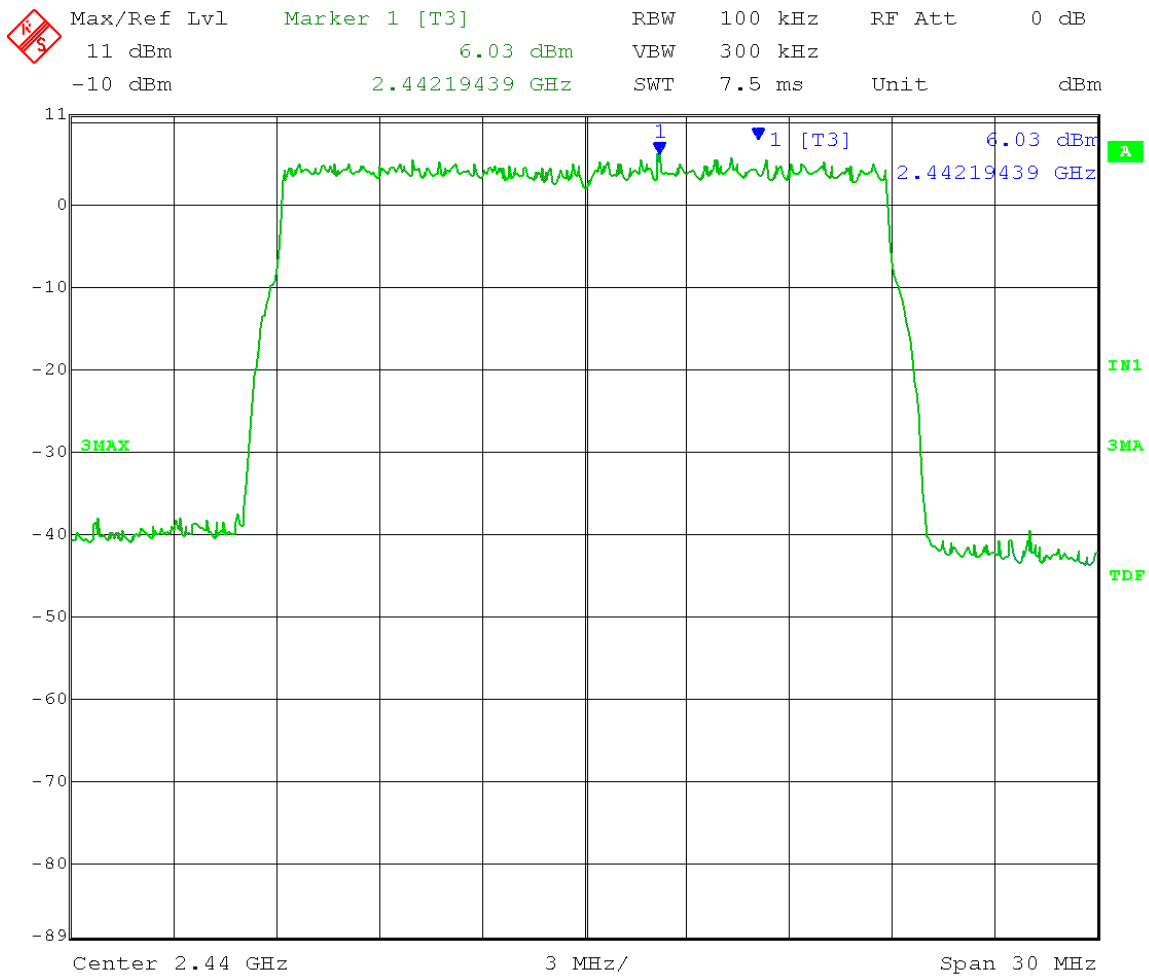
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold **Mid Channel Transmit = 2.440GHz**
 Output power setting 19dBm @ 10 MHz BW
 Channel A
 Frequency Range 18-26GHz
 Emission Level measurement
 Limit (D1) = 8.61dBm – 30 dB = -21.39dBm



Date: 30.APR.2013 10:14:10

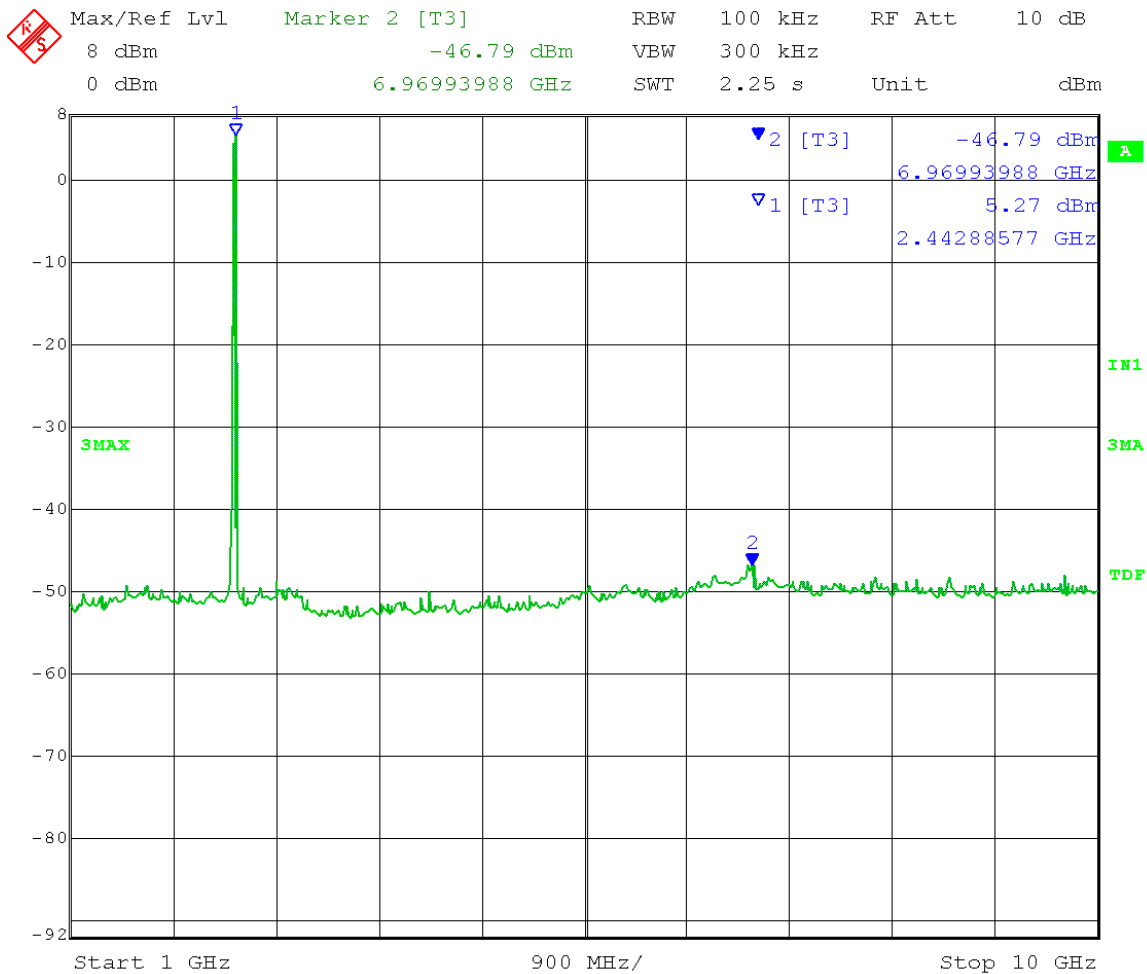
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.44GHz
 Output Power Setting 19dBm @ 20MHz BW
 Channel A
Reference Level Measurement
 Limit = 6.03dBm – 30 dB = -23.97dBm



Date: 30.APR.2013 12:55:55

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

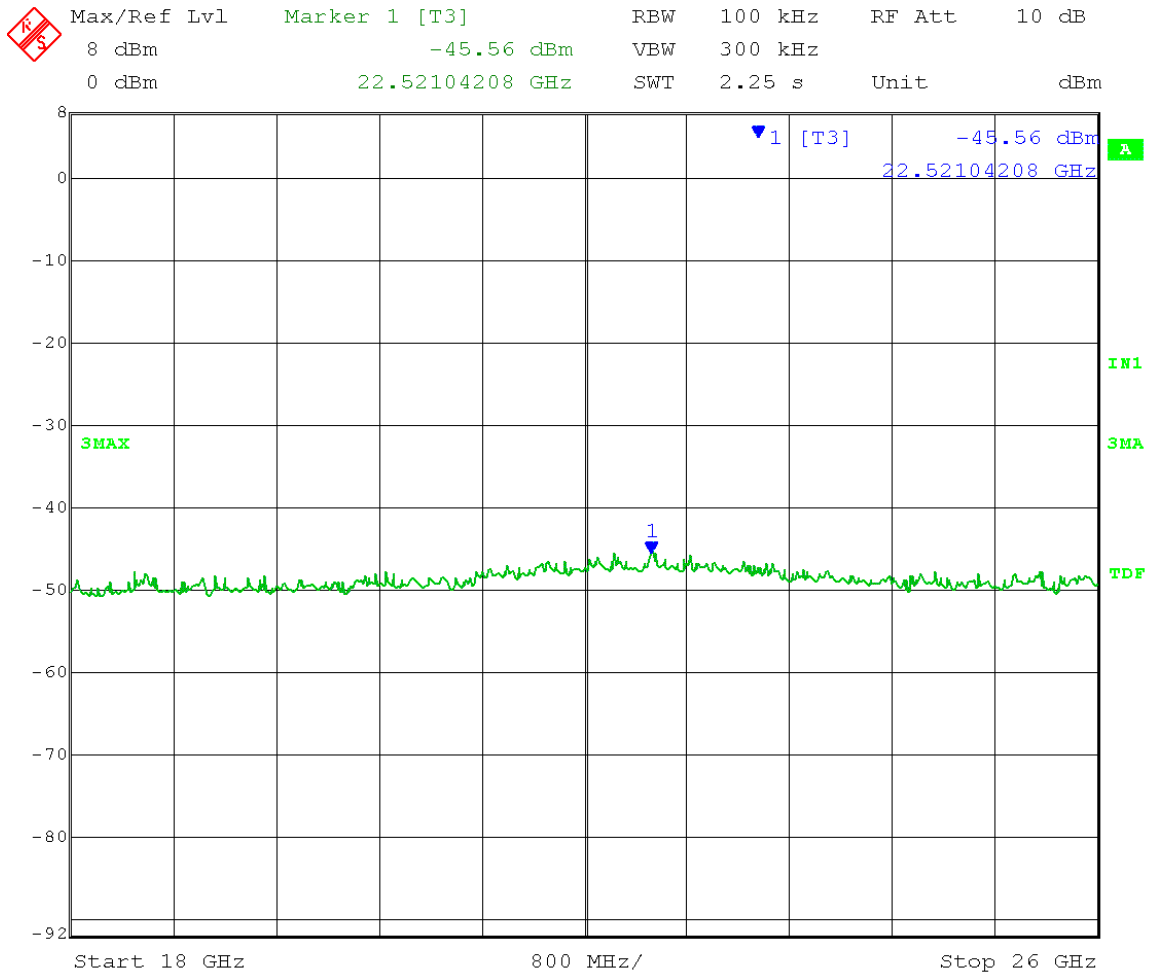
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 20 MHz BW
 Channel A
 Frequency Range 1-10GHz
 Emission Level measurement
 Limit = 6.03dBm – 30 dB = -23.97dBm



Date: 29.APR.2013 14:52:17

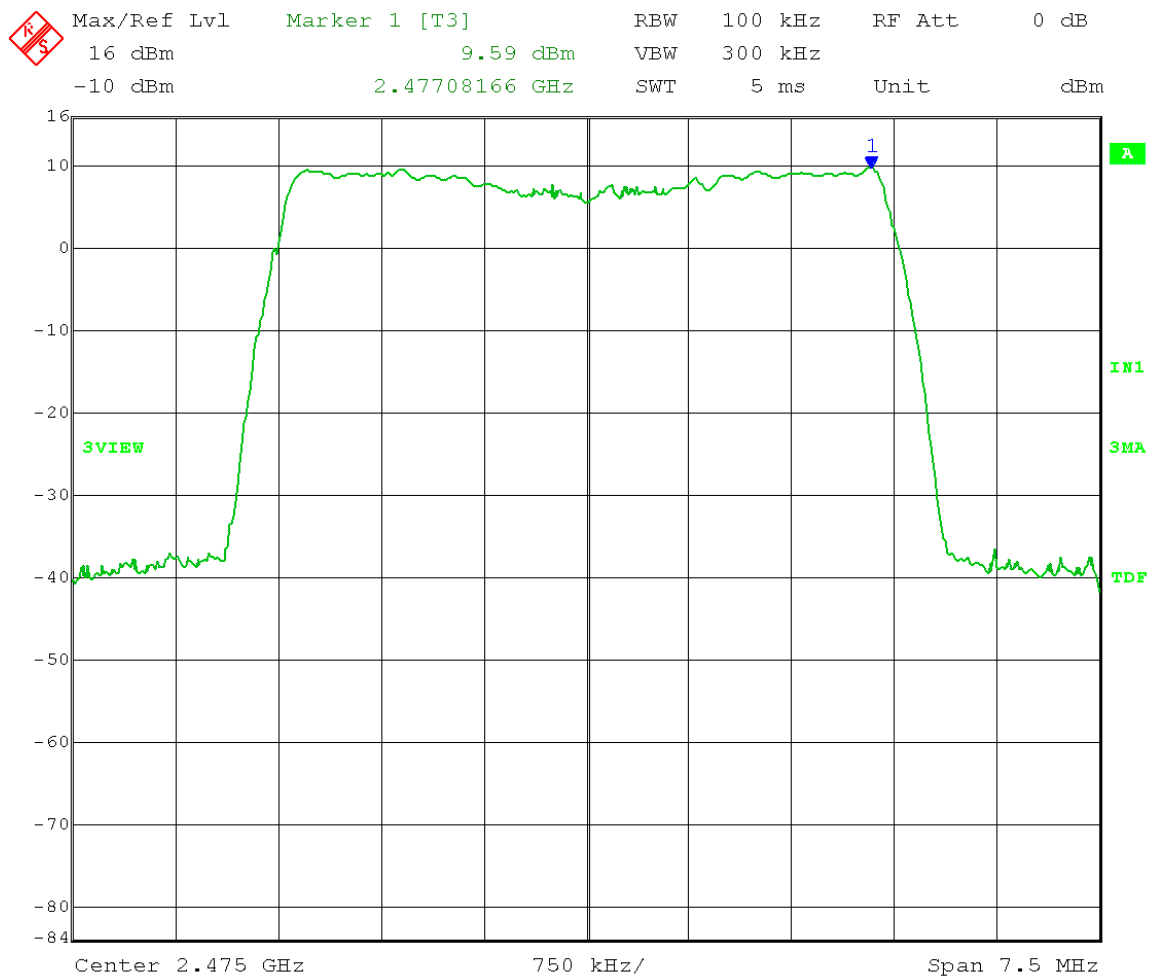
Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 20 MHz BW
 Channel A
 Frequency Range 18-26GHz
 Emission Level measurement
 Limit = 6.03dBm – 30 dB = -23.97dBm



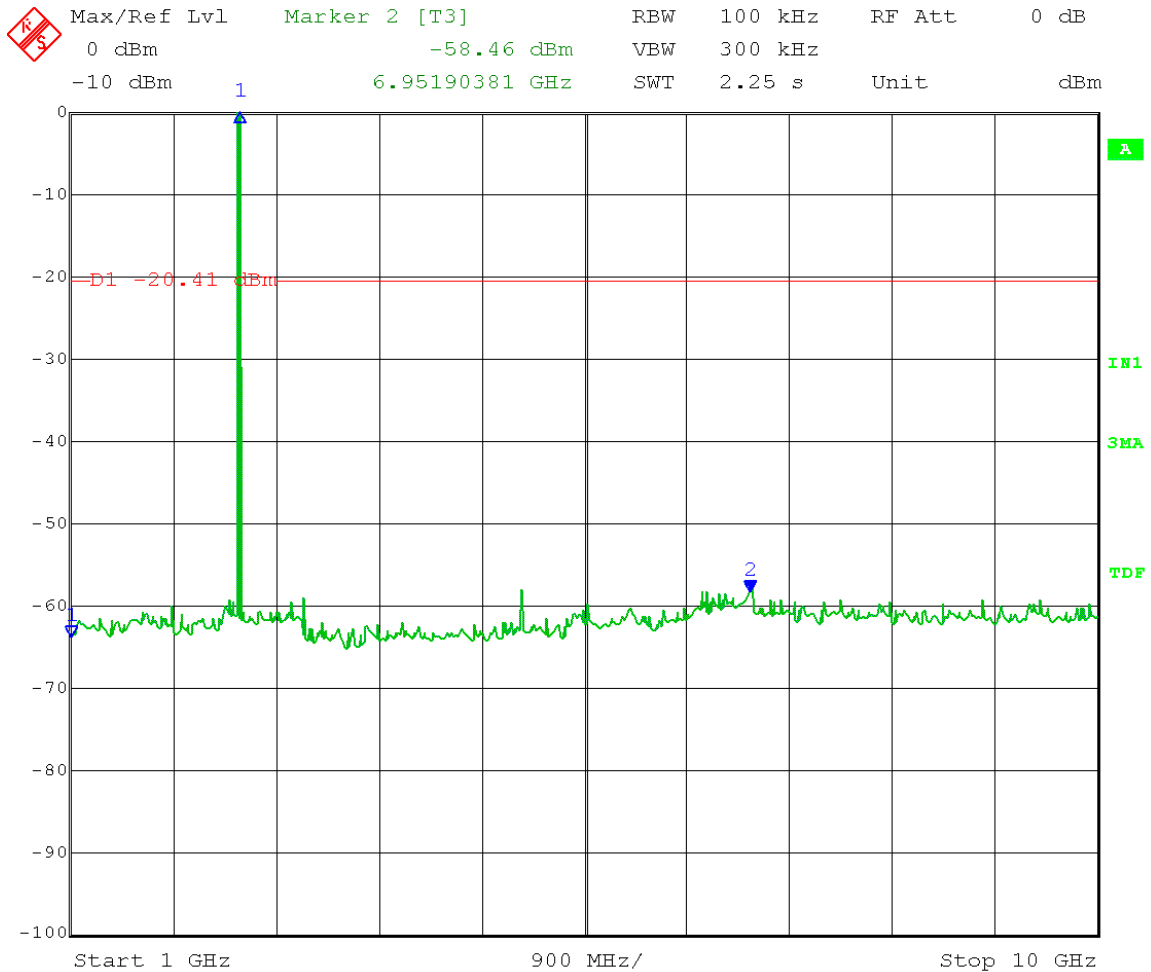
Date: 29.APR.2013 14:54:35

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold High Channel Transmit = 2.475GHz
 Output power setting 15dBm @ 5MHz BW
 Channel A
Reference Level measurement
 Limit = 9.59dBm - 30 dB = -20.41dBm



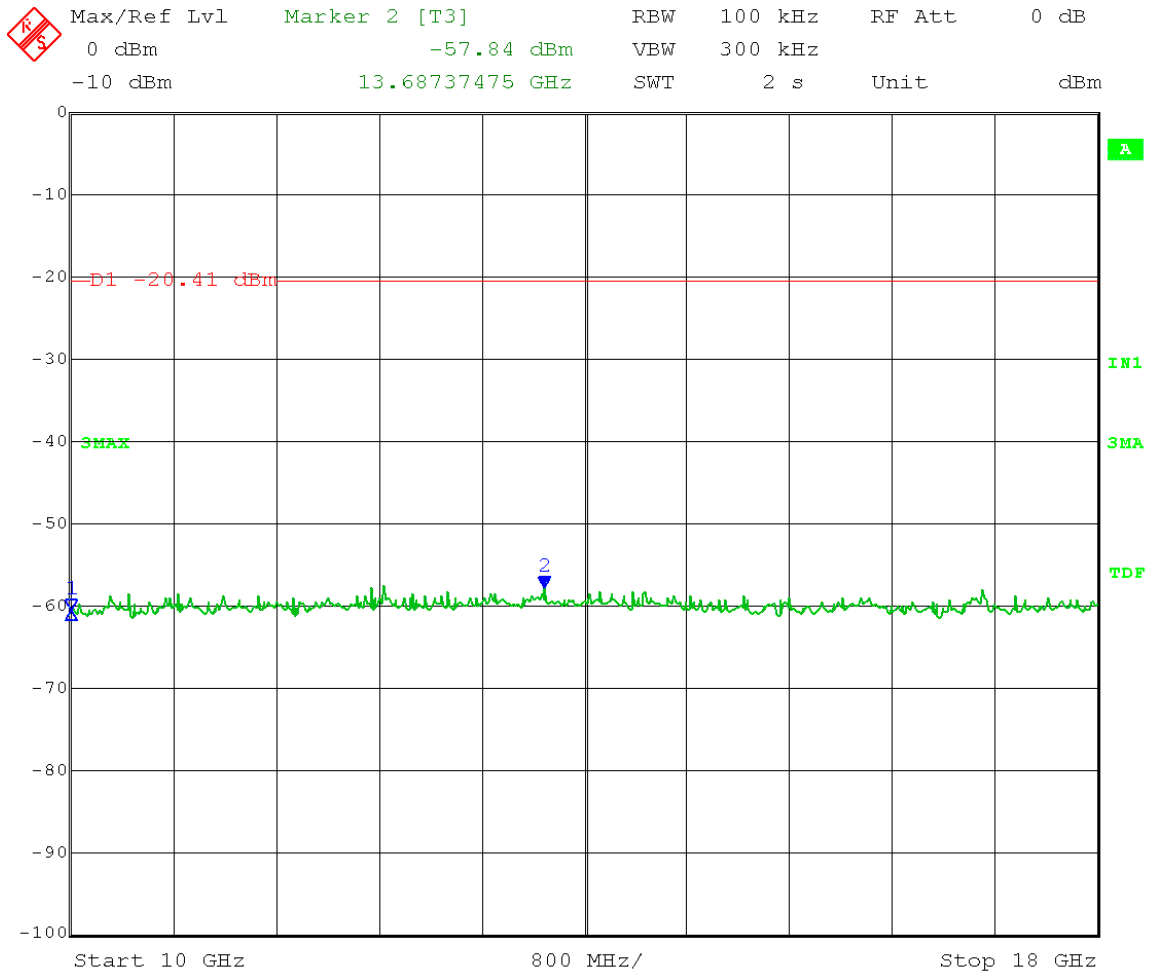
Date: 30.APR.2013 14:50:14

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold High Channel Transmit = 2.475GHz
 Output Power Setting 15dBm @ 5 MHz BW
 Channel A
 Frequency Range 1-10GHz
Emission Level Measurement
 Limit = 9.59dBm - 30 dB = -20.41dBm



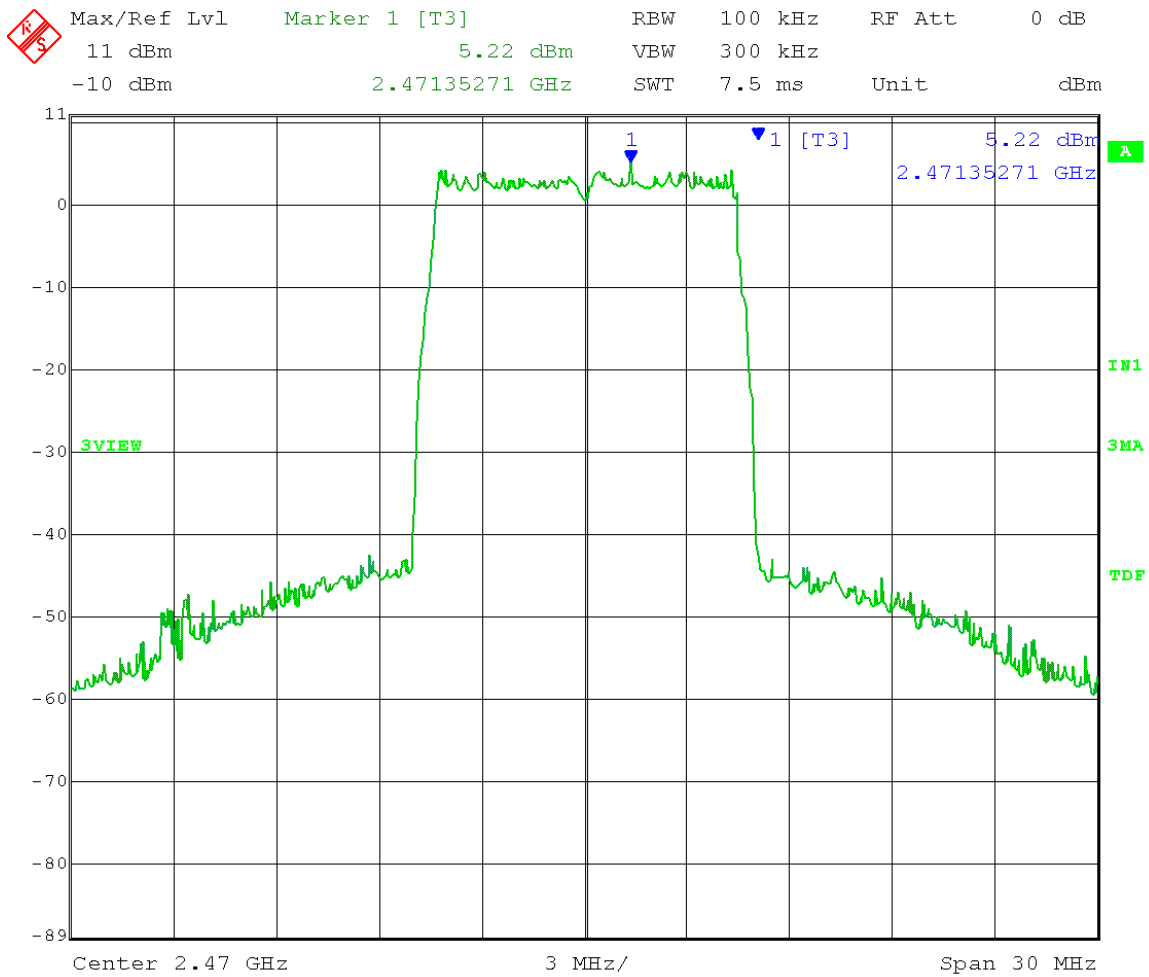
Date: 30.APR.2013 15:38:44

Test Date: 4-30-13
Company: Cambium Networks
EUT: PMP 450SM 2.4GHz: OFDM
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: RBW = 100 kHz VBW \geq 300 kHz
Detector = Peak Sweep = Auto Couple
Trace = Max Hold High Channel Transmit = 2.475GHz
Output Power Setting 15dBm @ 5 MHz BW
Channel A
Frequency Range 10-18GHz
Emission Level Measurement
Limit = 9.59dBm – 30 dB = -20.41dBm



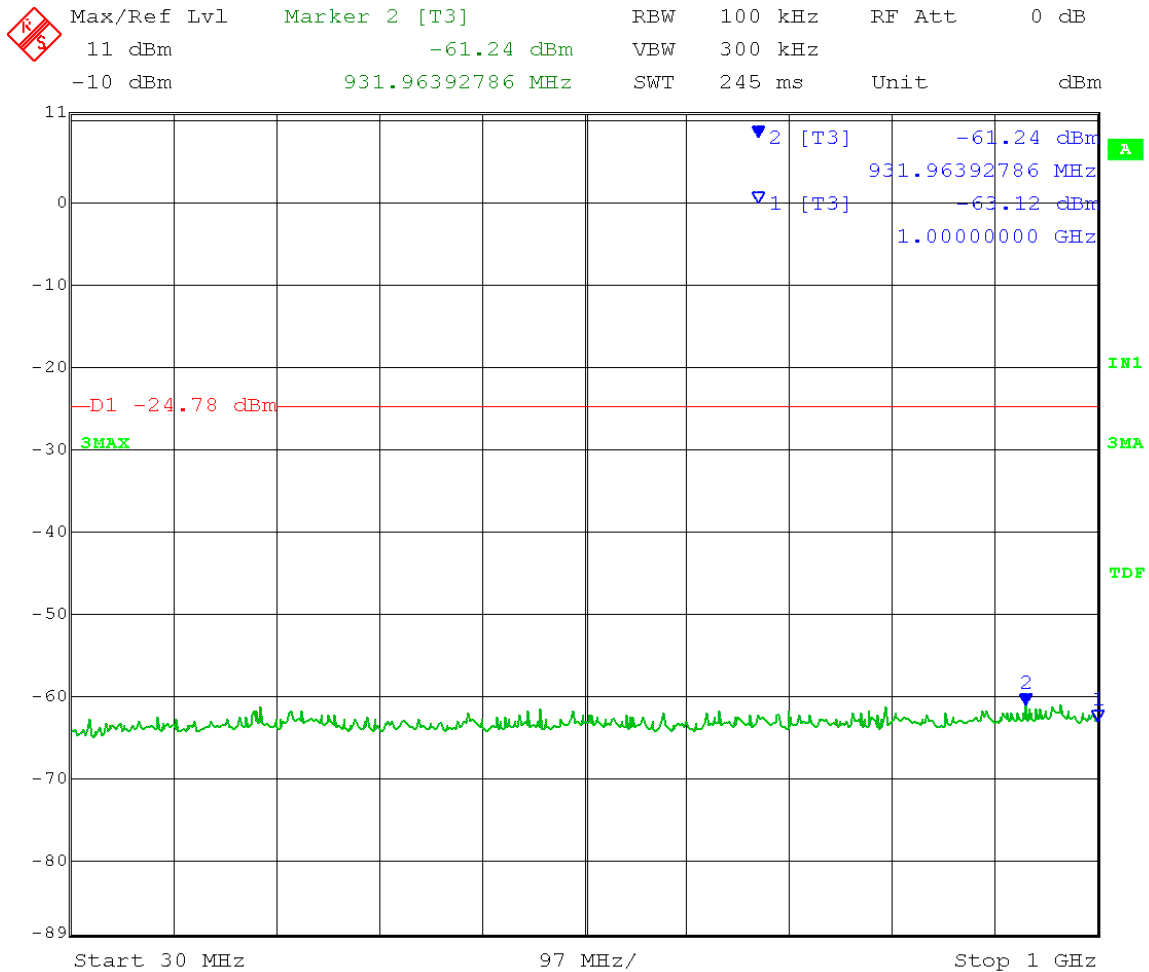
Date: 30.APR.2013 15:40:08

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.470GHz
 Output power setting 15dBm @ 10MHz BW
 Channel A
Reference Level measurement
 Limit = 5.22dBm - 30 dB = -24.78dBm



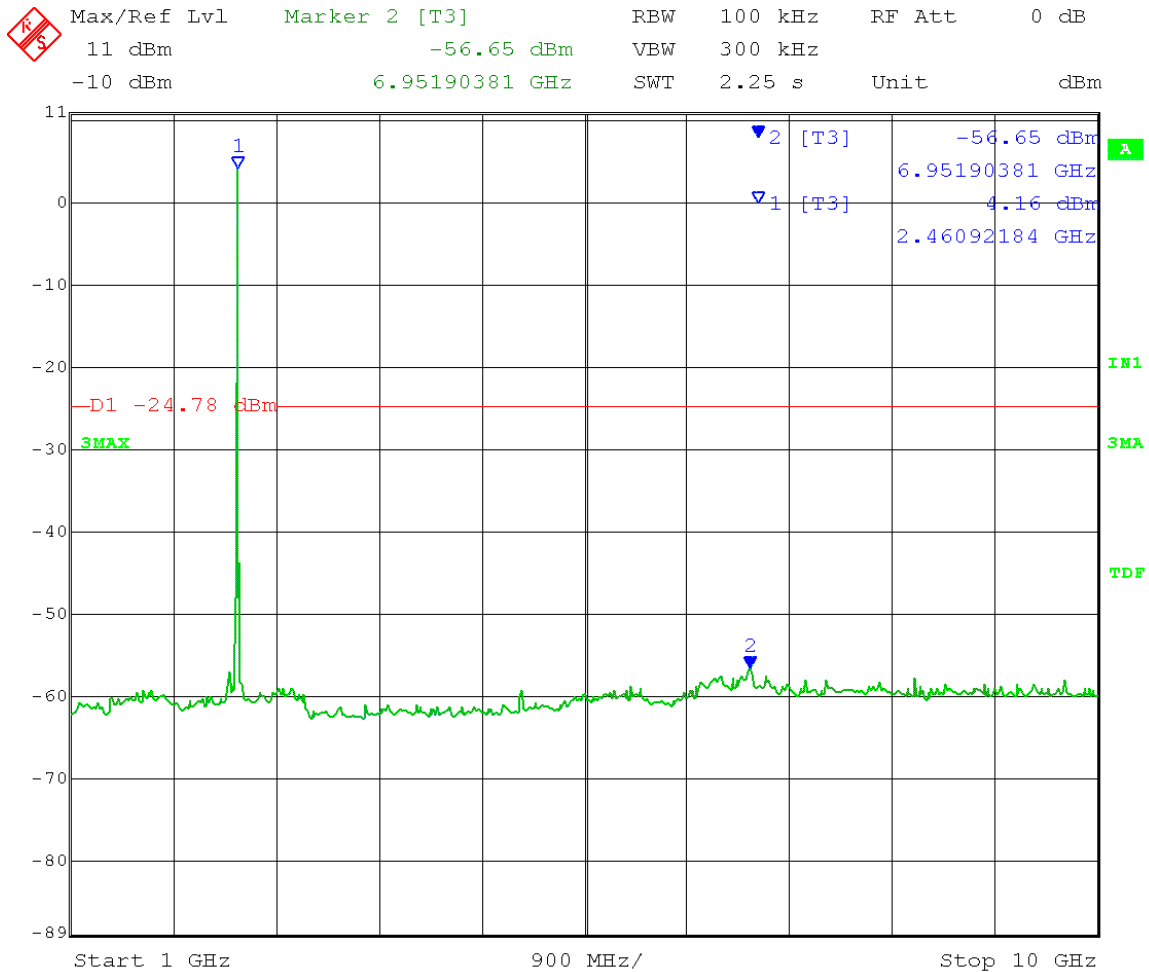
Date: 30.APR.2013 10:51:14

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.470GHz
 Output power setting 15dBm @ 10 MHz BW
 Channel A
 Frequency Range 30M-1GHz
Emission Level measurement
 Limit (D1) = 5.22dBm – 30 dB = -24.78dBm



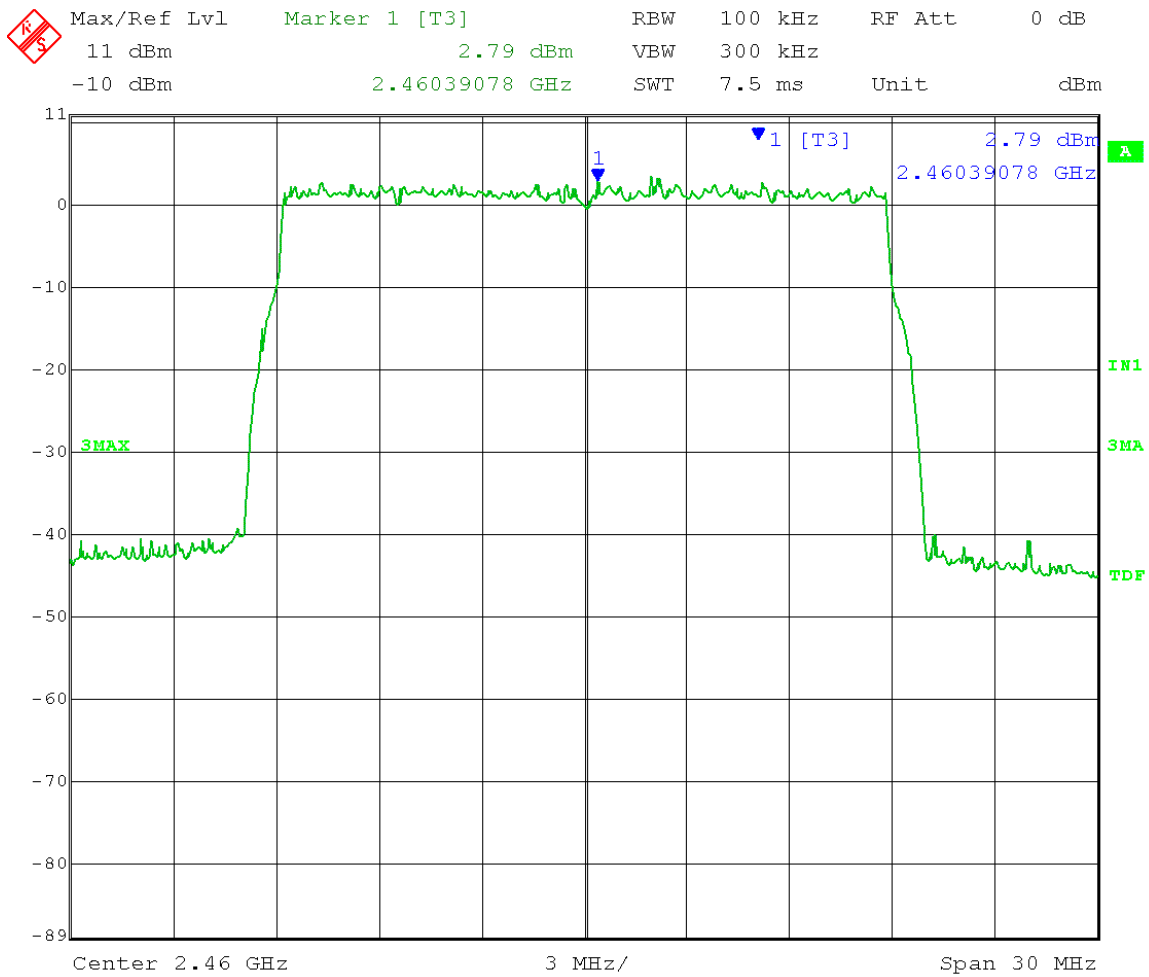
Date: 30.APR.2013 11:06:06

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.470GHz
 Output power setting 15dBm @ 10 MHz BW
 Channel A
 Frequency Range 1-10GHz
 Emission Level measurement
 Limit (D1) = 5.22dBm – 30 dB = -24.78dBm



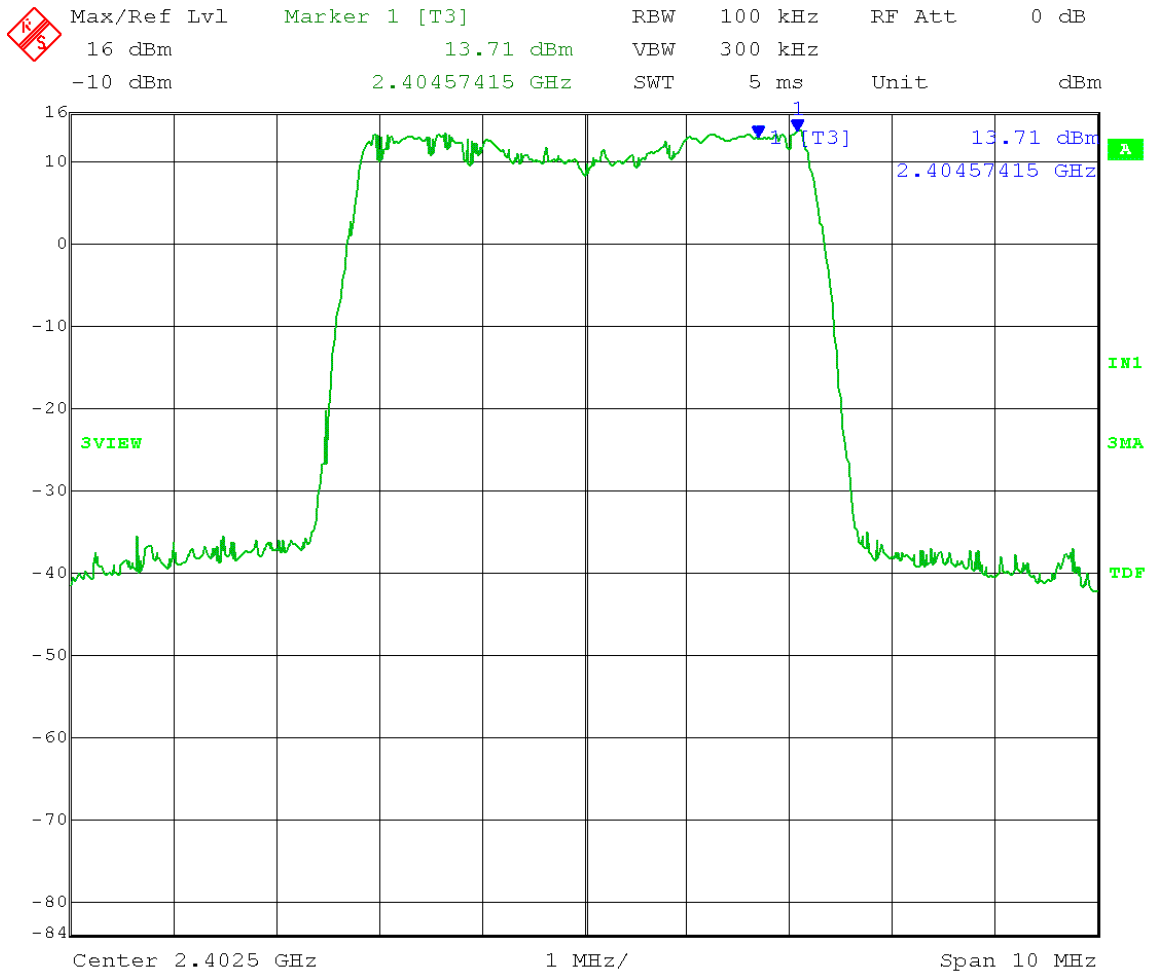
Date: 30.APR.2013 11:04:47

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.460GHz
 Output power setting 16dBm @ 20MHz BW
 Channel A
 Reference Level measurement
 Limit = 2.79dBm – 30 dB = -27.21dBm



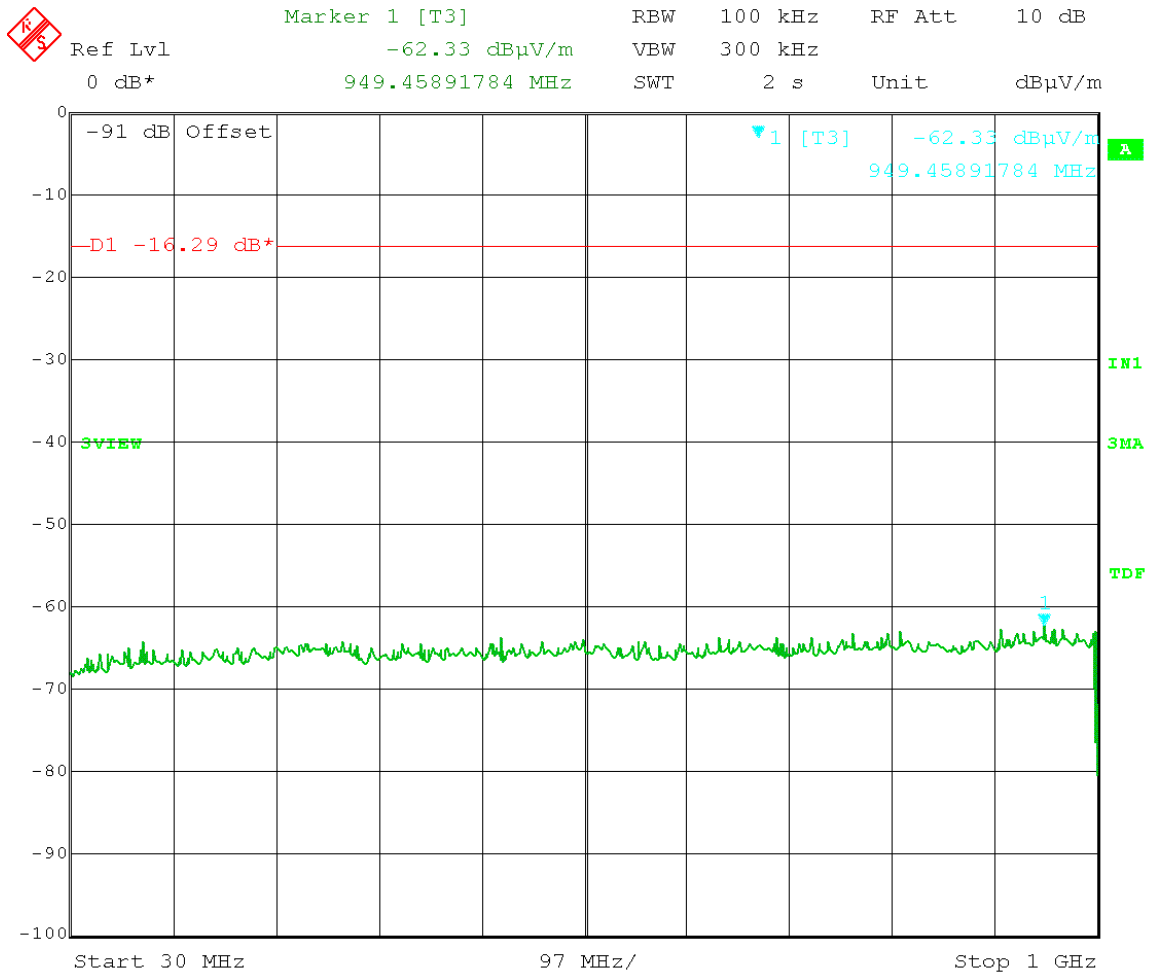
Date: 30.APR.2013 13:20:15

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Low Channel Transmit = 2.4025GHz
 Output Power Setting = 19dBm @ 5MHz BW
 Channel B
Reference Level Measurement
 Limit = 13.71dBm – 30 dB = 16.29dBm



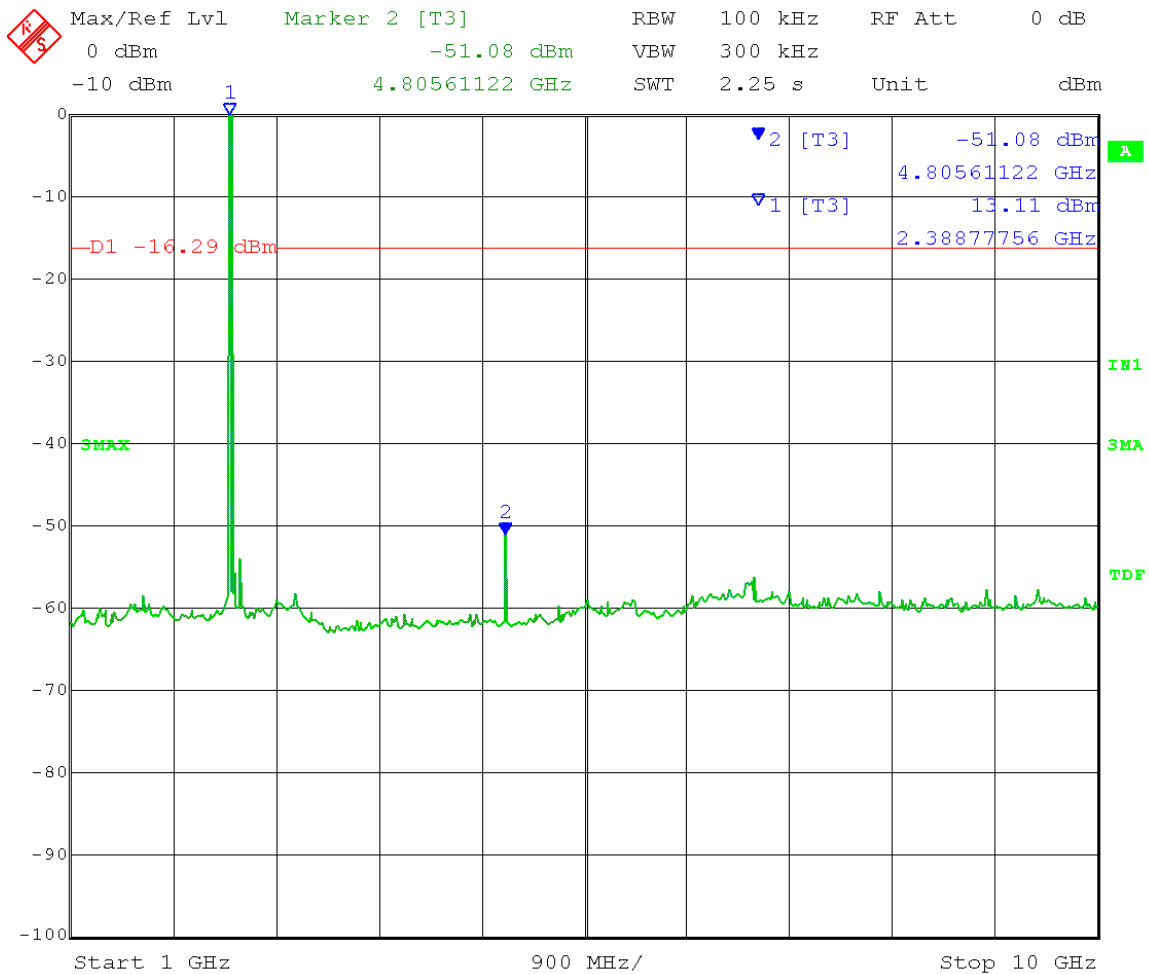
Date: 30.APR.2013 13:51:09

Test Date: 05-14-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.4025GHz**
 Output Power Setting 19dBm @ 5 MHz BW
 Channel B
 Frequency Range 30M-1GHz
Emission Level Measurement
 Limit (D1) = 13.71dBm – 30 dB = -16.29dBm



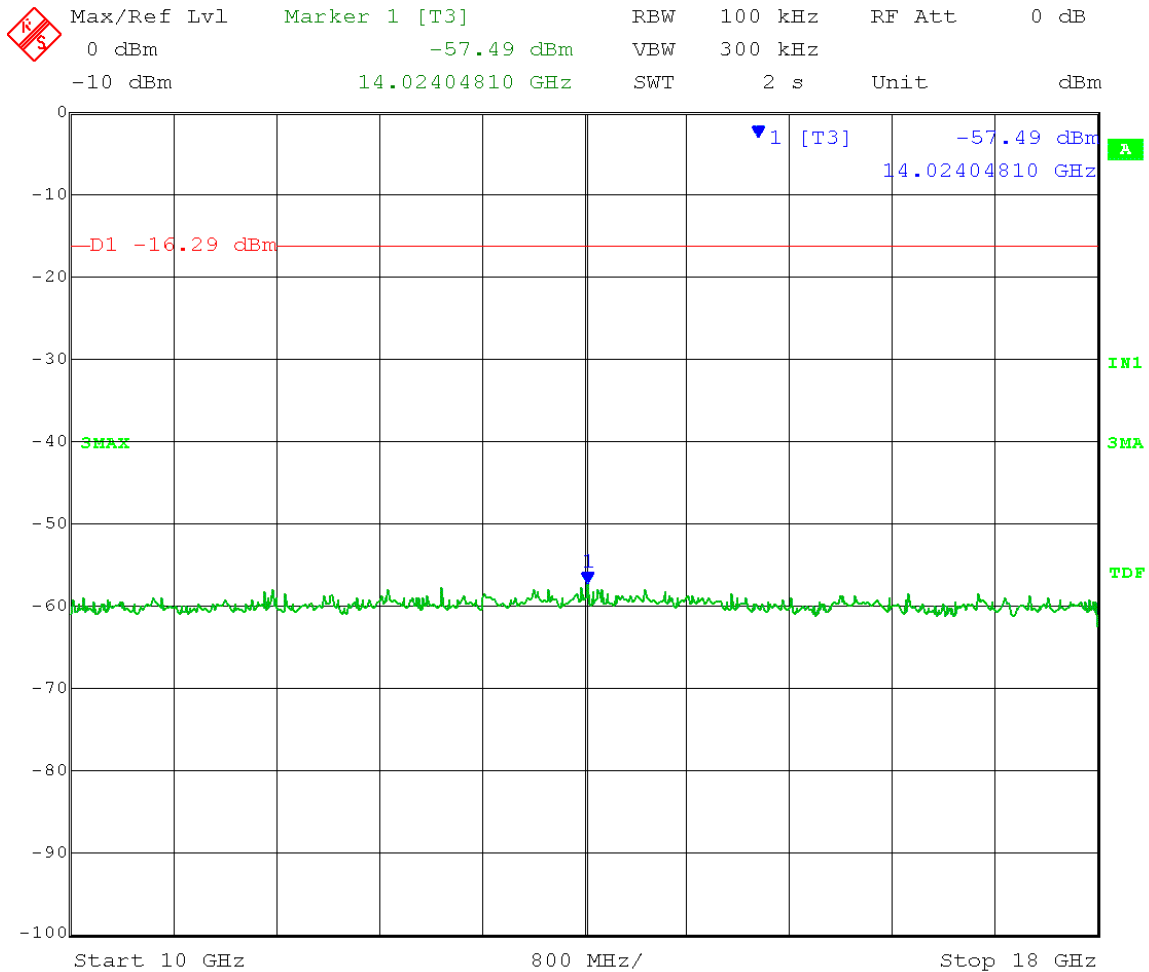
Date: 14.MAY.2013 14:10:40

Test Date: 05-01-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.4025GHz**
 Output Power Setting 19dBm @ 5 MHz BW
 Channel B
 Frequency Range 1-10GHz
Emission Level Measurement
 Limit (D1) = 13.71dBm – 30 dB = -16.29dBm



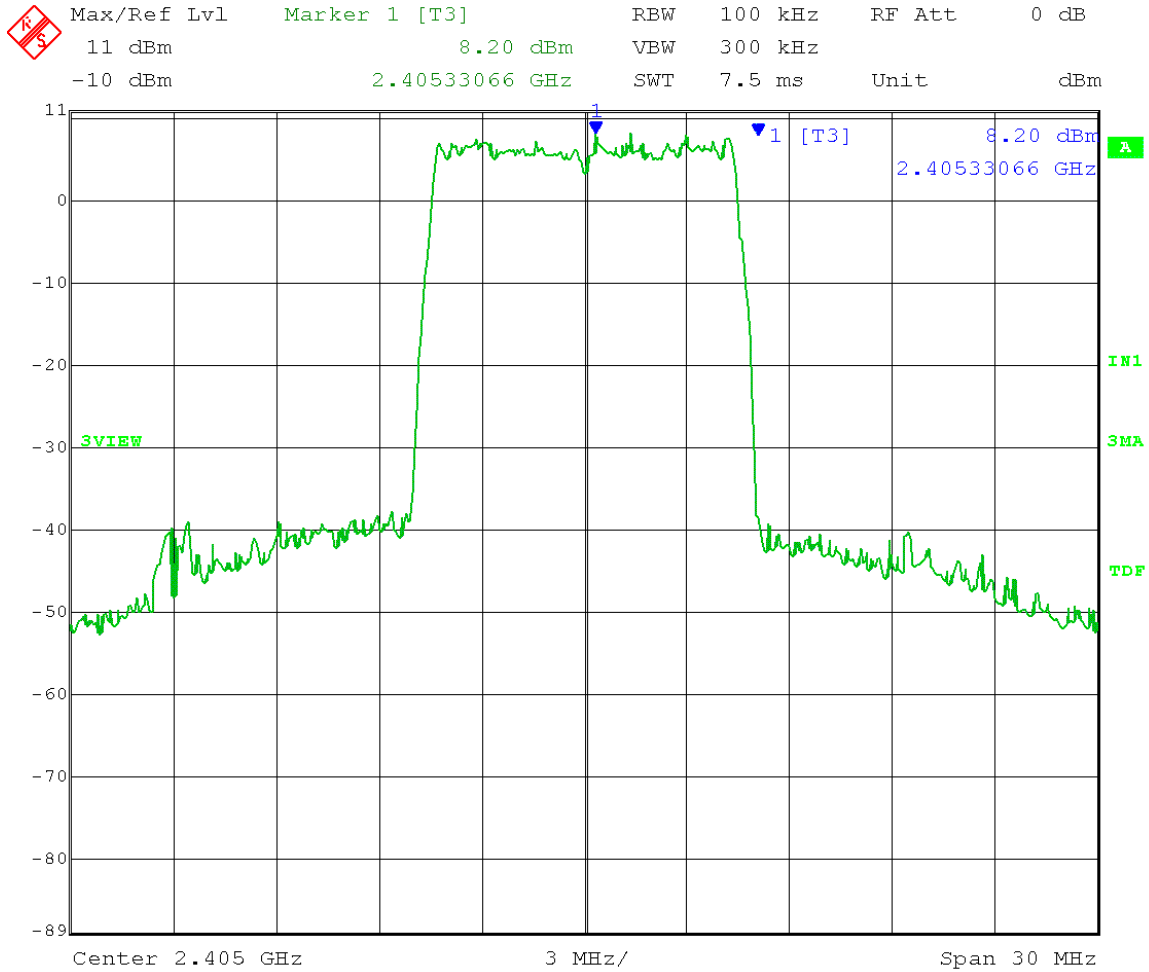
Date: 1.MAY.2013 08:28:37

Test Date: 05-01-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.4025GHz**
 Output Power Setting 19dBm @ 5 MHz BW
 Channel B
 Frequency Range 10-18GHz
Emission Level Measurement
 Limit (D1) = 13.71dBm - 30 dB = -16.29dBm



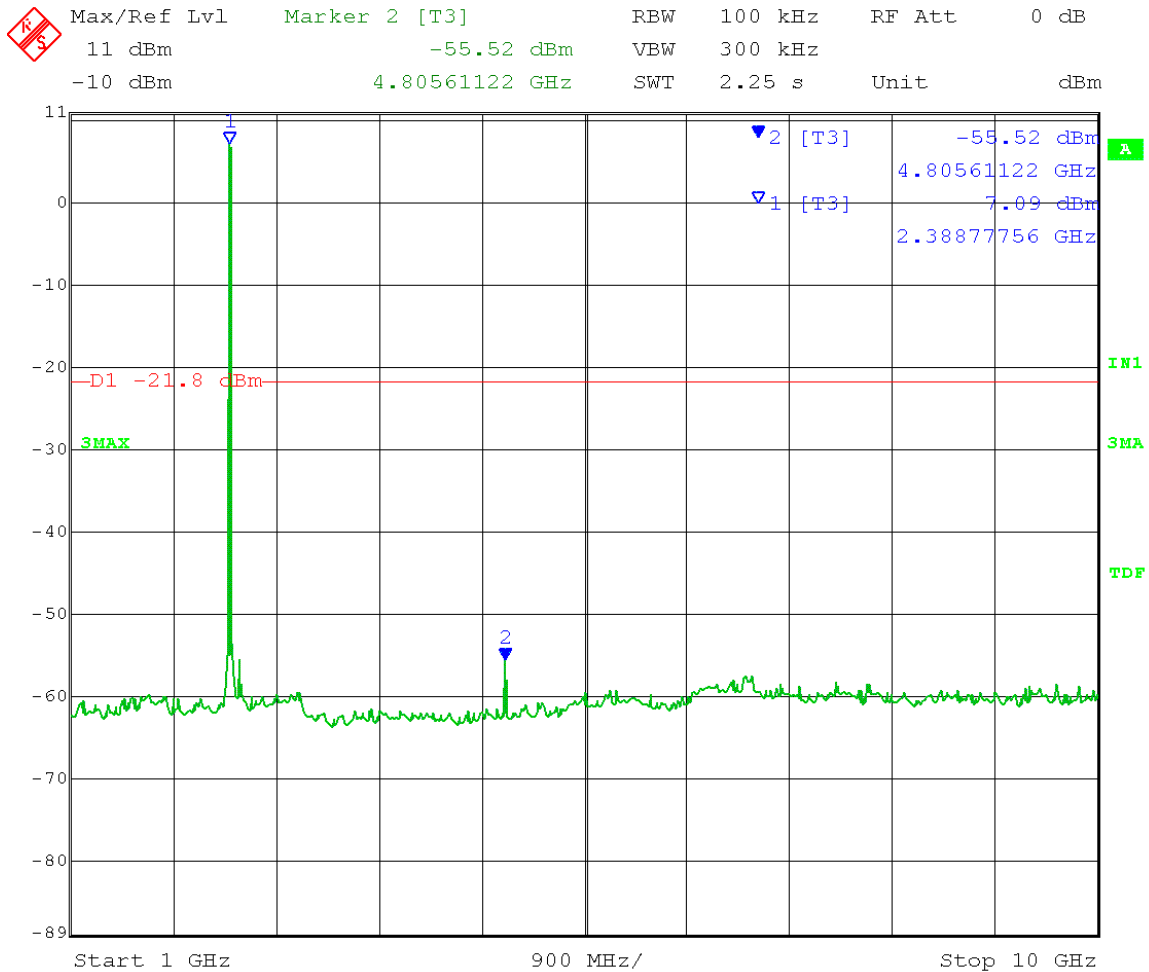
Date: 1.MAY.2013 08:29:54

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Low Channel Transmit = 2.405GHz
 Output power setting 19dBm @ 10MHz BW
 Channel B
Reference Level measurement
 Limit = 8.20dBm – 30 dB = -21.80dBm



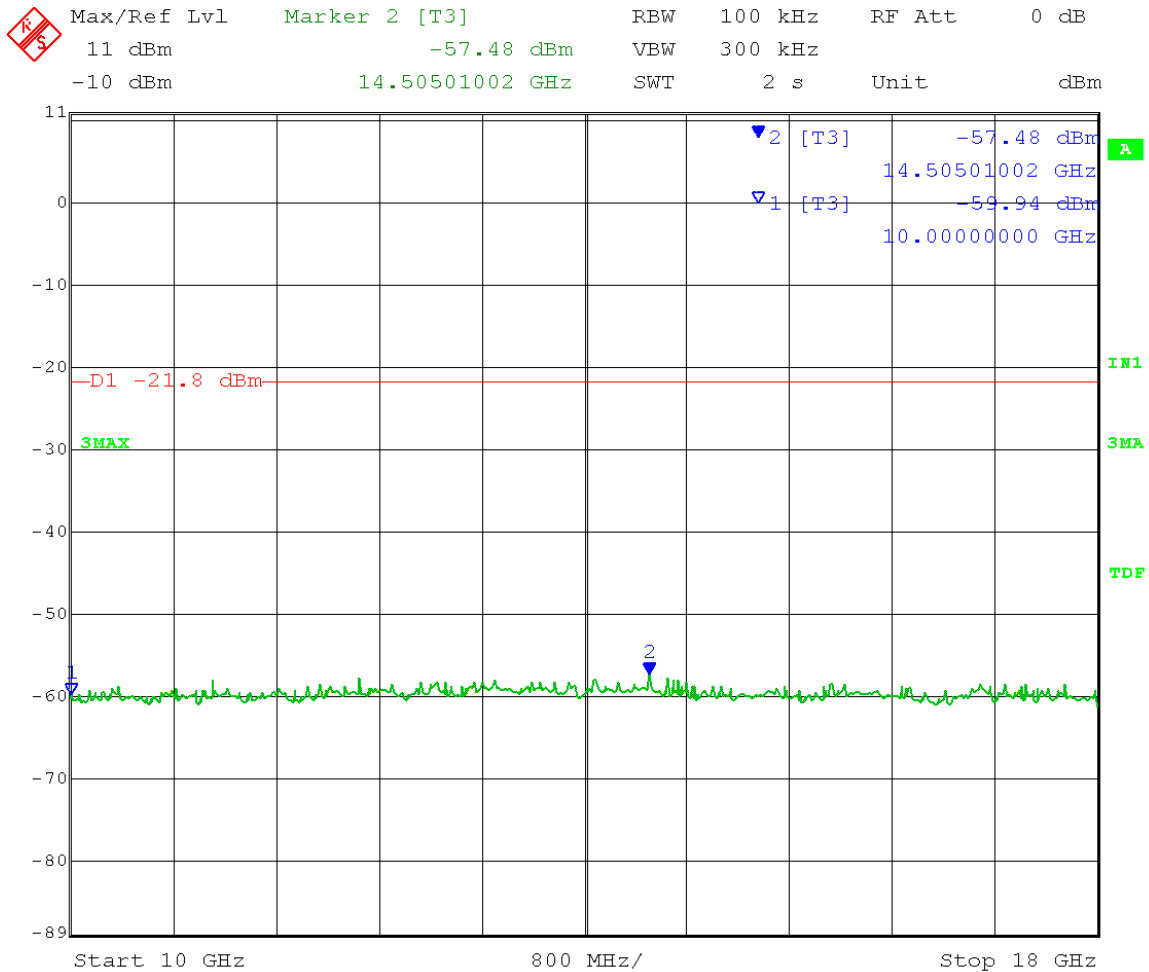
Date: 30.APR.2013 11:32:05

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.405GHz
 Output power setting 19dBm @ 10 MHz BW
 Channel B
 Frequency Range = 1-10GHz
Emission Level Measurement
 Limit = 8.20dBm – 30 dB = -21.80dBm



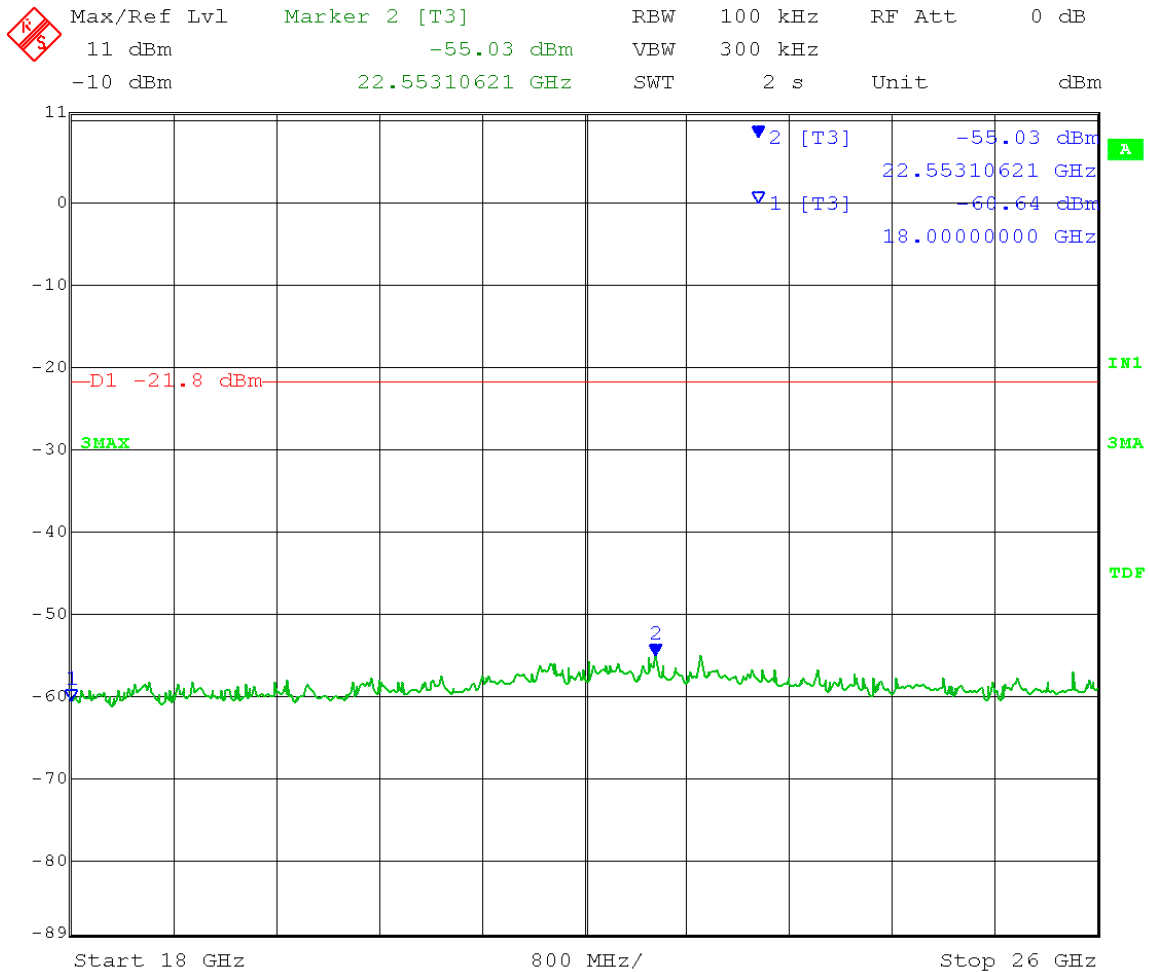
Date: 30.APR.2013 11:40:19

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.405GHz
 Output power setting 19dBm @ 10 MHz BW
 Channel B
 Frequency Range = 10-18GHz
Emission Level Measurement
 Limit = 8.20dBm – 30 dB = -21.80dBm



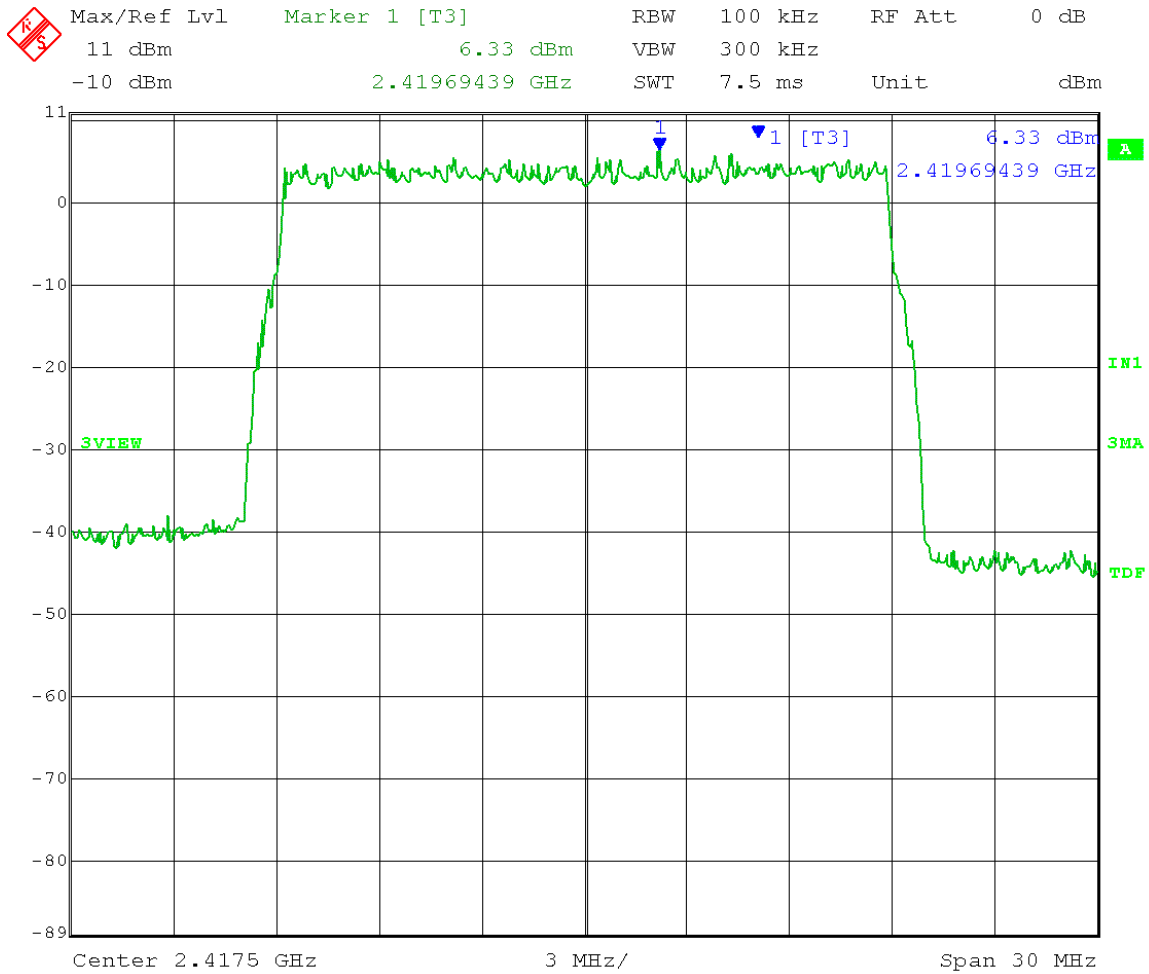
Date: 30.APR.2013 11:42:33

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.405GHz
 Output power setting 19dBm @ 10 MHz BW
 Channel B
 Frequency Range = 18-26GHz
Emission Level Measurement
 Limit = 8.20dBm – 30 dB = -21.80dBm



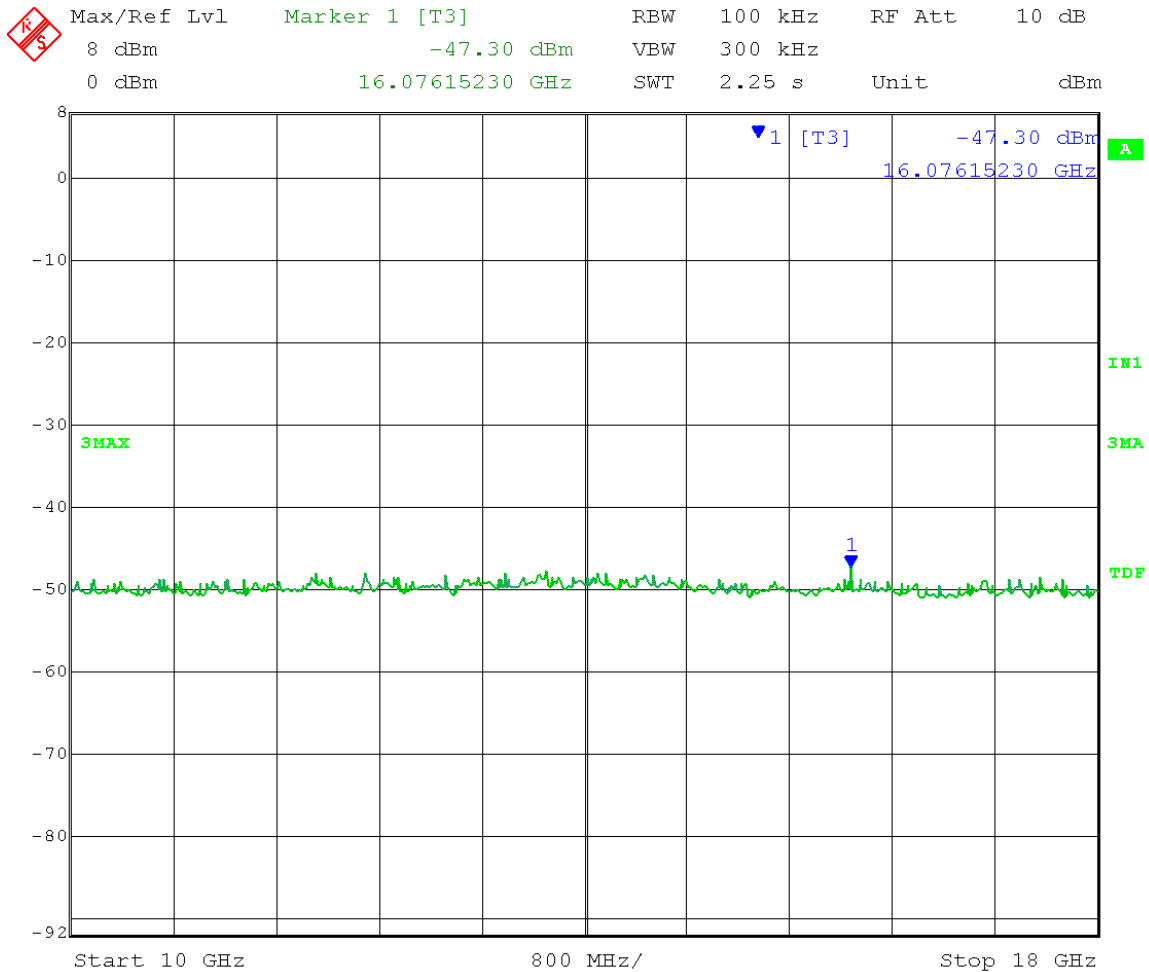
Date: 30.APR.2013 11:43:38

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold **Low Channel Transmit = 2.4175GHz**
 Output power setting 19dBm @ 20MHz BW
 Channel B
Reference Level measurement
 Limit = 6.33dBm – 30 dB = -23.67dBm



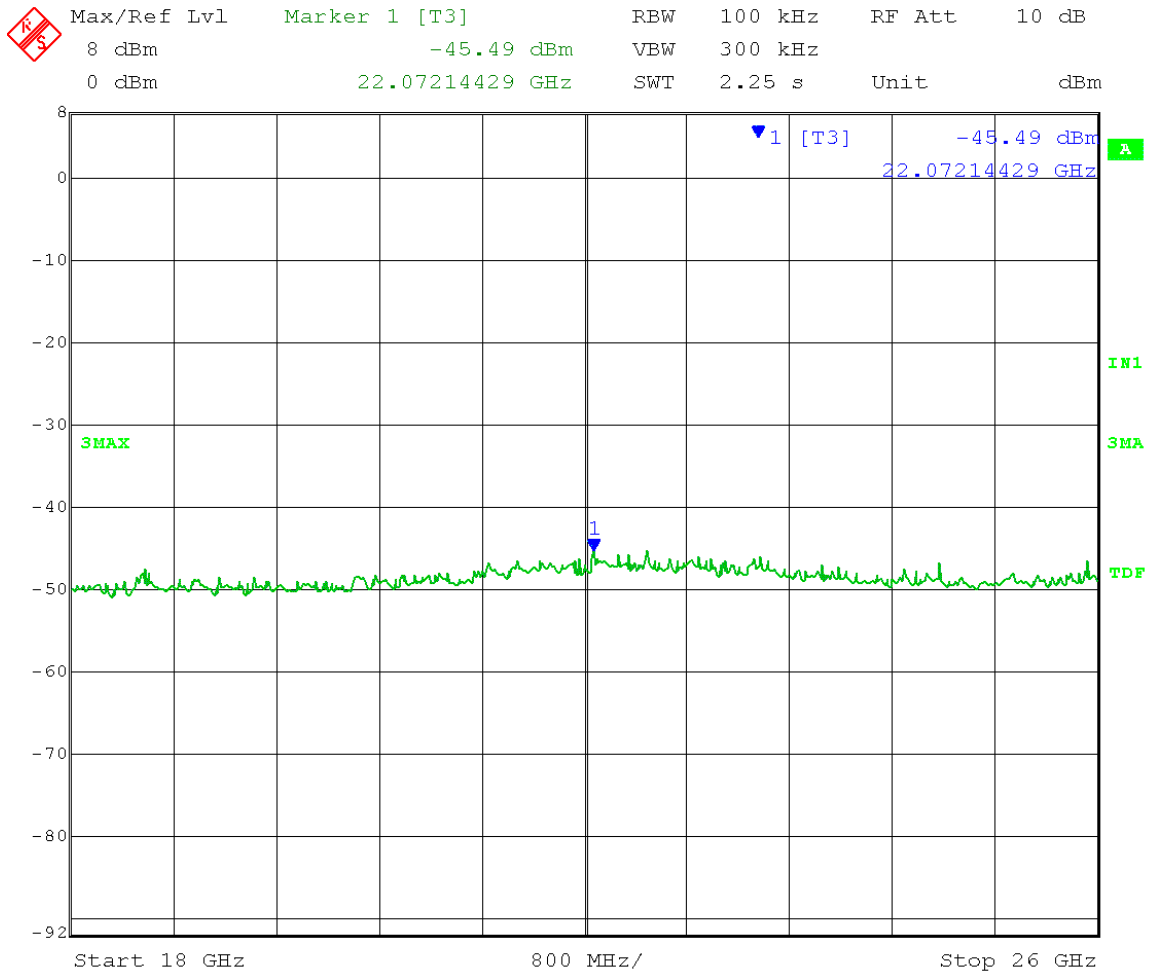
Date: 30.APR.2013 12:29:37

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.4175GHz**
 Output Power Setting 16dBm @ 20 MHz BW
 Channel B
 Frequency Range 10-18GHz
Emission Level Measurement
 Limit = 6.33dBm - 30 dB = -23.67dBm



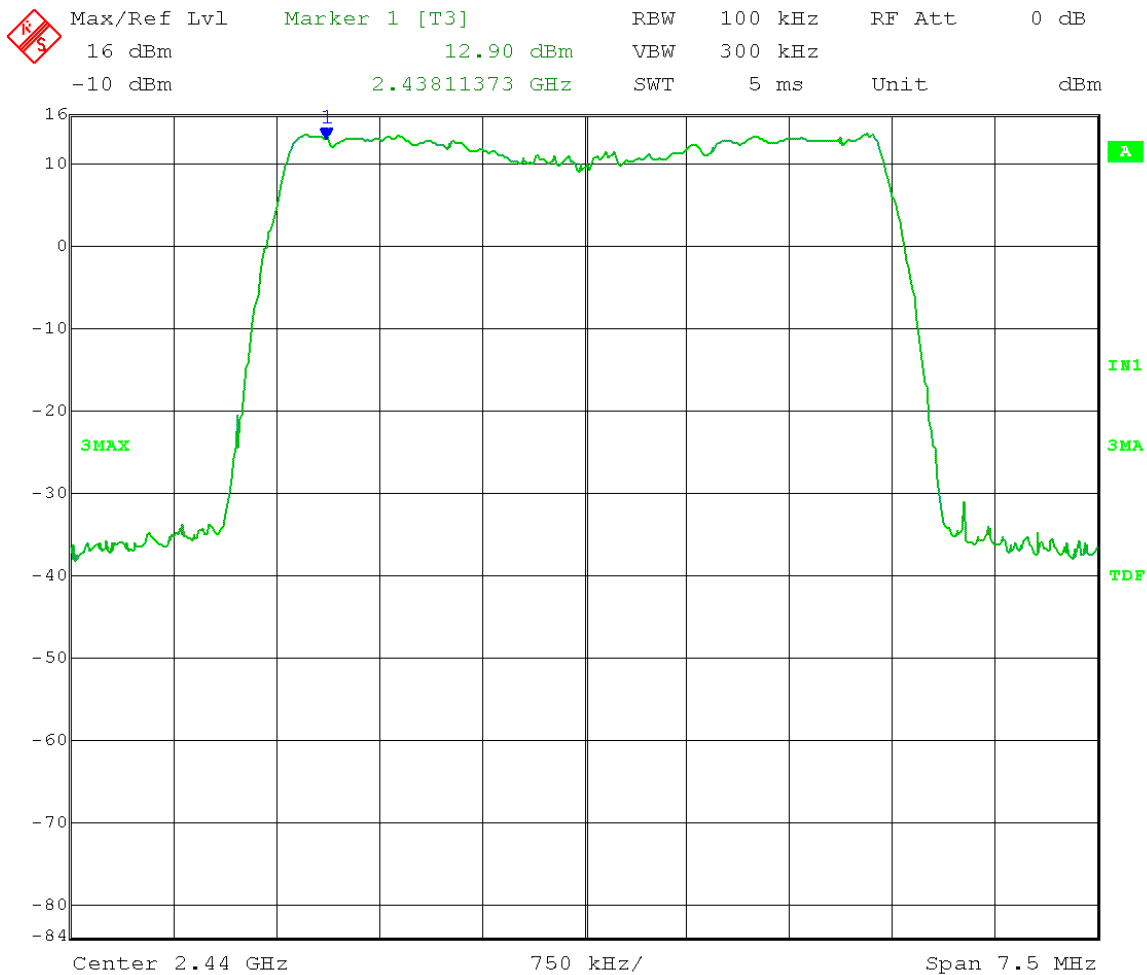
Date: 29.APR.2013 15:09:26

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold **Low Channel Transmit = 2.4175GHz**
 Output power setting 16dBm @ 20 MHz BW
 Channel B
 Frequency Range 18-26GHz
Emission Level Measurement
 Limit = 6.33dBm - 30 dB = -23.67dBm



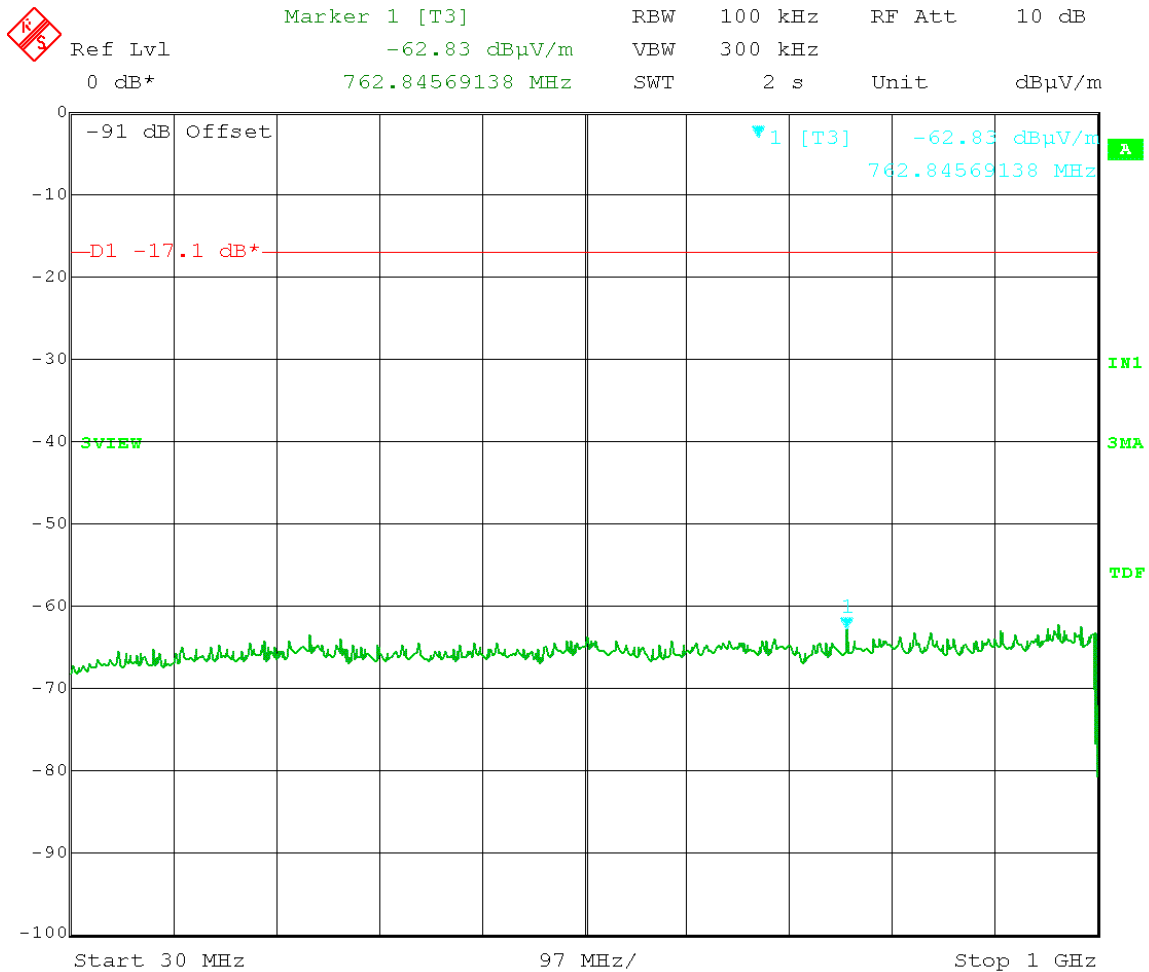
Date: 29.APR.2013 15:10:52

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.44GHz
 Output Power Setting = 19dBm @ 5MHz BW
 Channel B
 Reference Level Measurement
 Limit = 12.90dBm – 30 dB = -17.10dBm



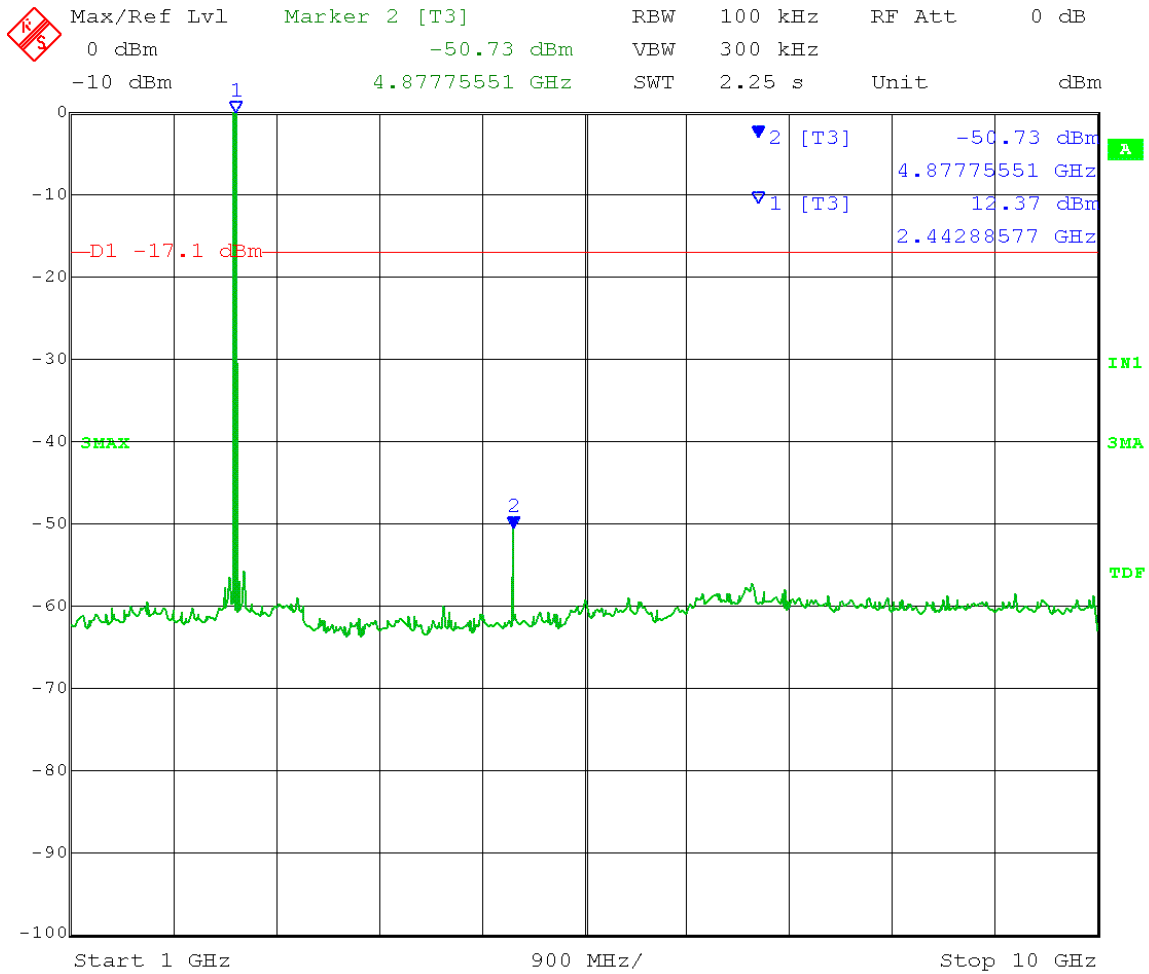
Date: 30.APR.2013 14:47:01

Test Date: 5-14-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel B
 Frequency Range 30M-1GHz
Emission Level Measurement
 Limit (D1) = 12.90dBm – 30 dB = -17.10dBm



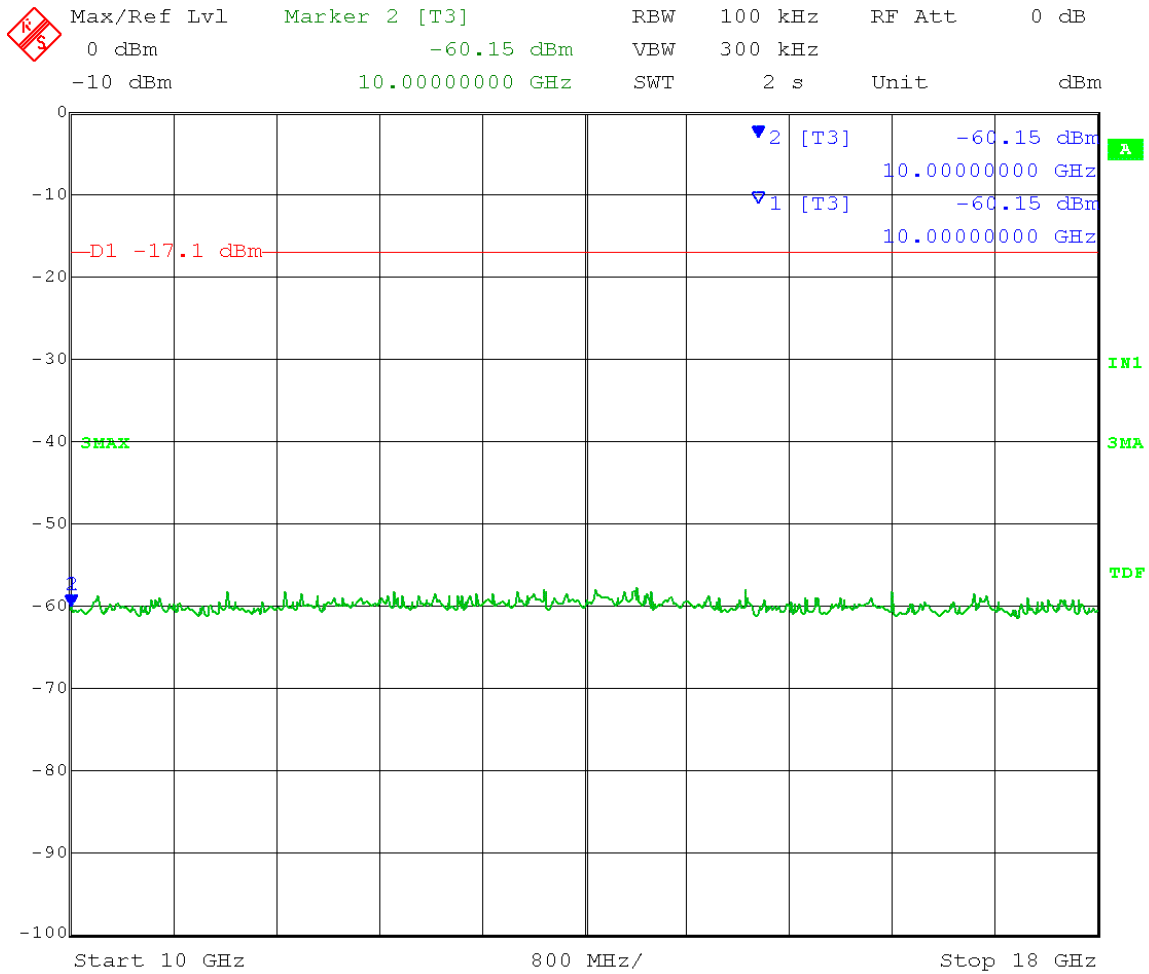
Date: 14.MAY.2013 14:14:04

Test Date: 5-1-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel B
 Frequency Range 1-10GHz
Emission Level Measurement
 Limit (D1) = 12.90dBm – 30 dB = -17.10dBm



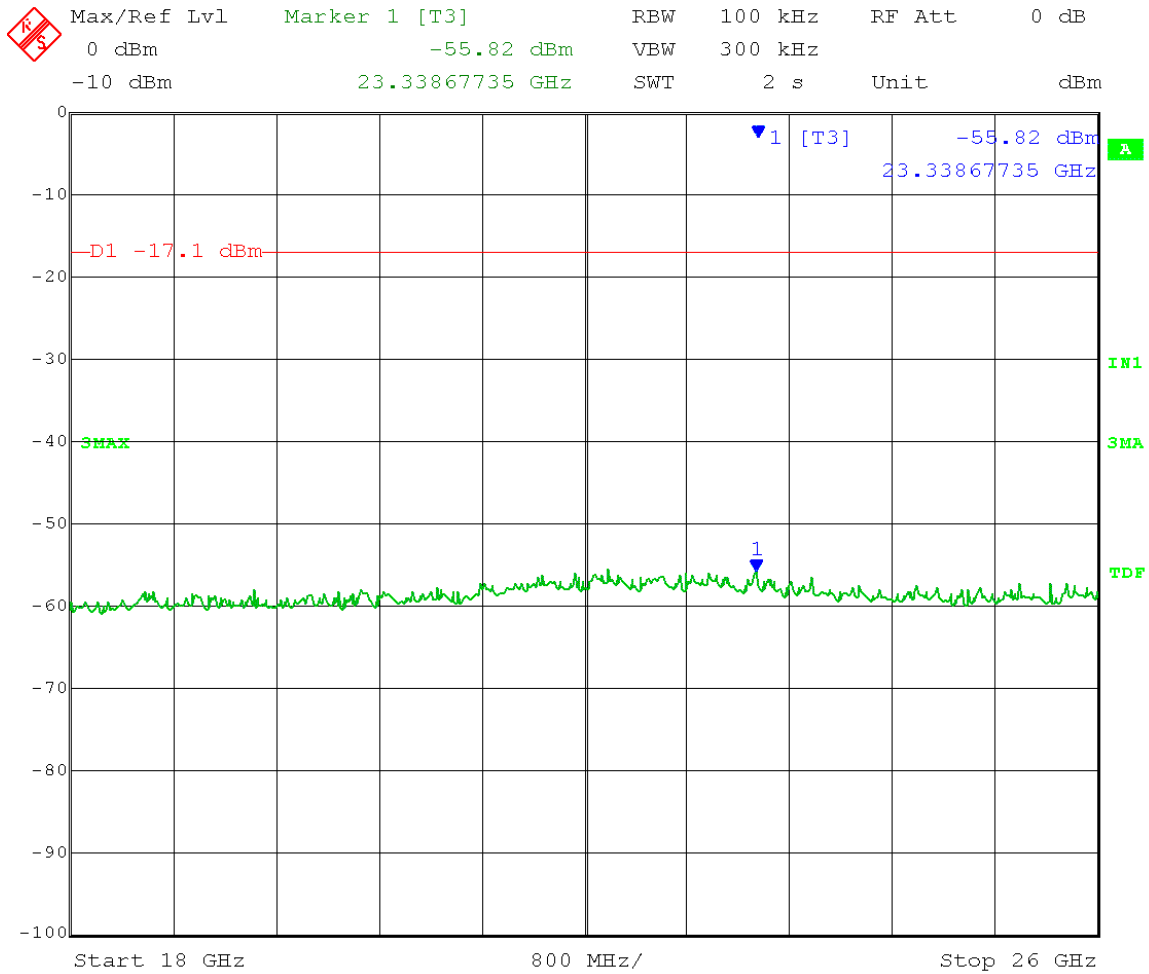
Date: 1.MAY.2013 08:19:55

Test Date: 5-1-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel B
 Frequency Range 10-18GHz
Emission Level Measurement
 Limit (D1) = 12.90dBm – 30 dB = -17.10dBm



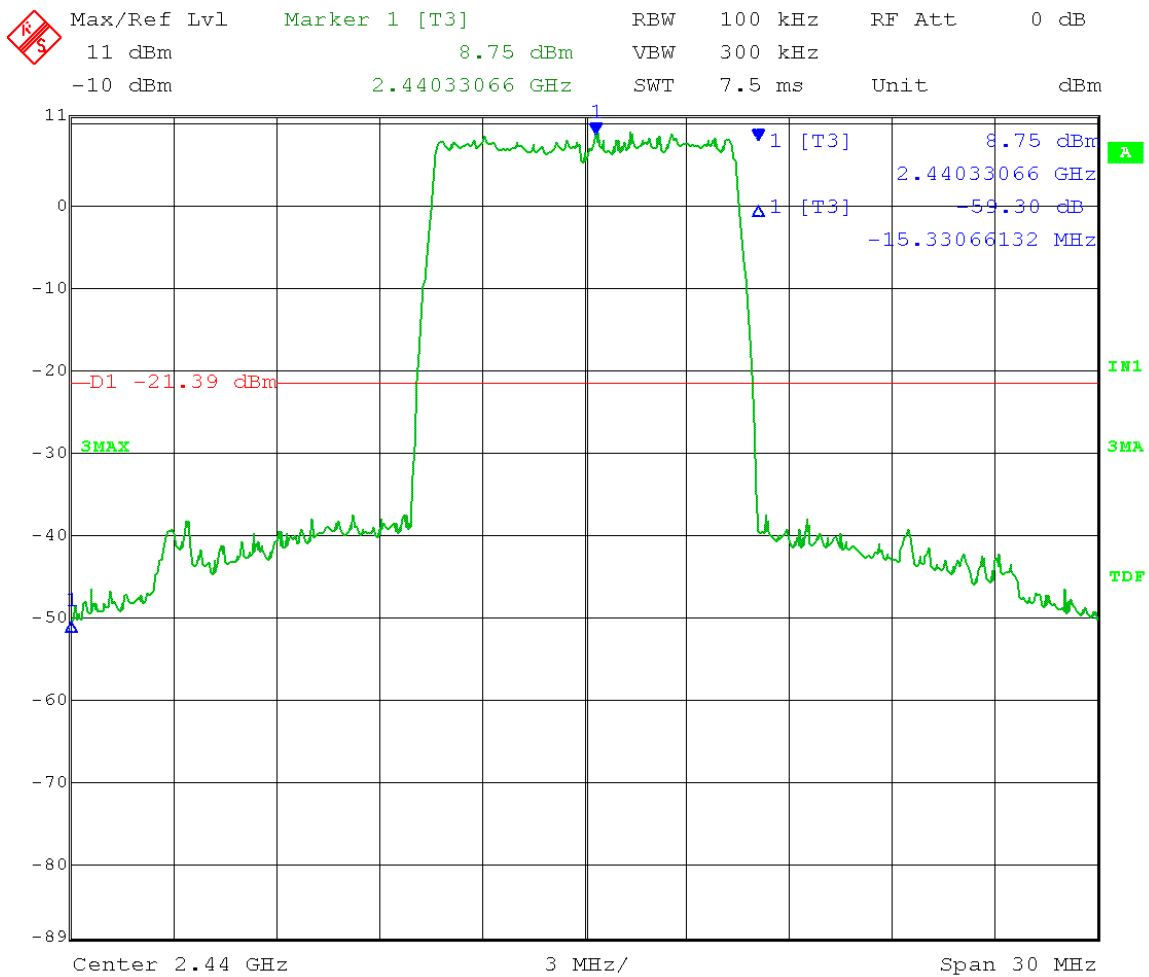
Date: 1.MAY.2013 08:21:27

Test Date: 5-1-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.440GHz
 Output Power Setting 19dBm @ 5 MHz BW
 Channel B
 Frequency Range 18-26GHz
Emission Level Measurement
 Limit (D1) = 12.90dBm – 30 dB = -17.10dBm



Date: 1.MAY.2013 08:18:45

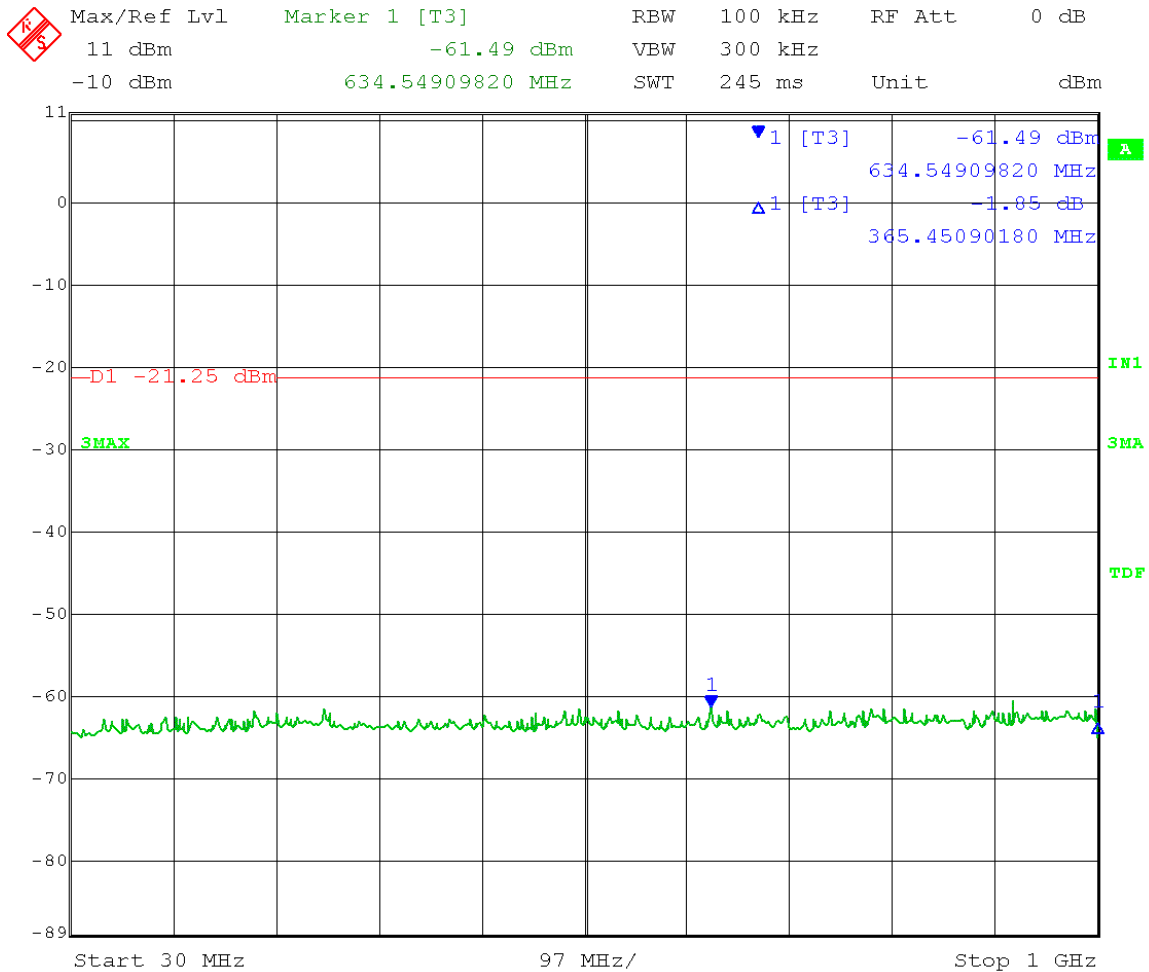
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold **Mid Channel Transmit = 2.44GHz**
 Output power setting 19dBm @ 10MHz BW
 Channel B
Reference Level measurement
 Limit = 8.75dBm – 30 dB = -21.25dBm



Date: 30.APR.2013 10:19:47

Test Date: 4-30-13
Company: Cambium Networks
EUT: PMP 450SM 2.4GHz: OFDM
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O

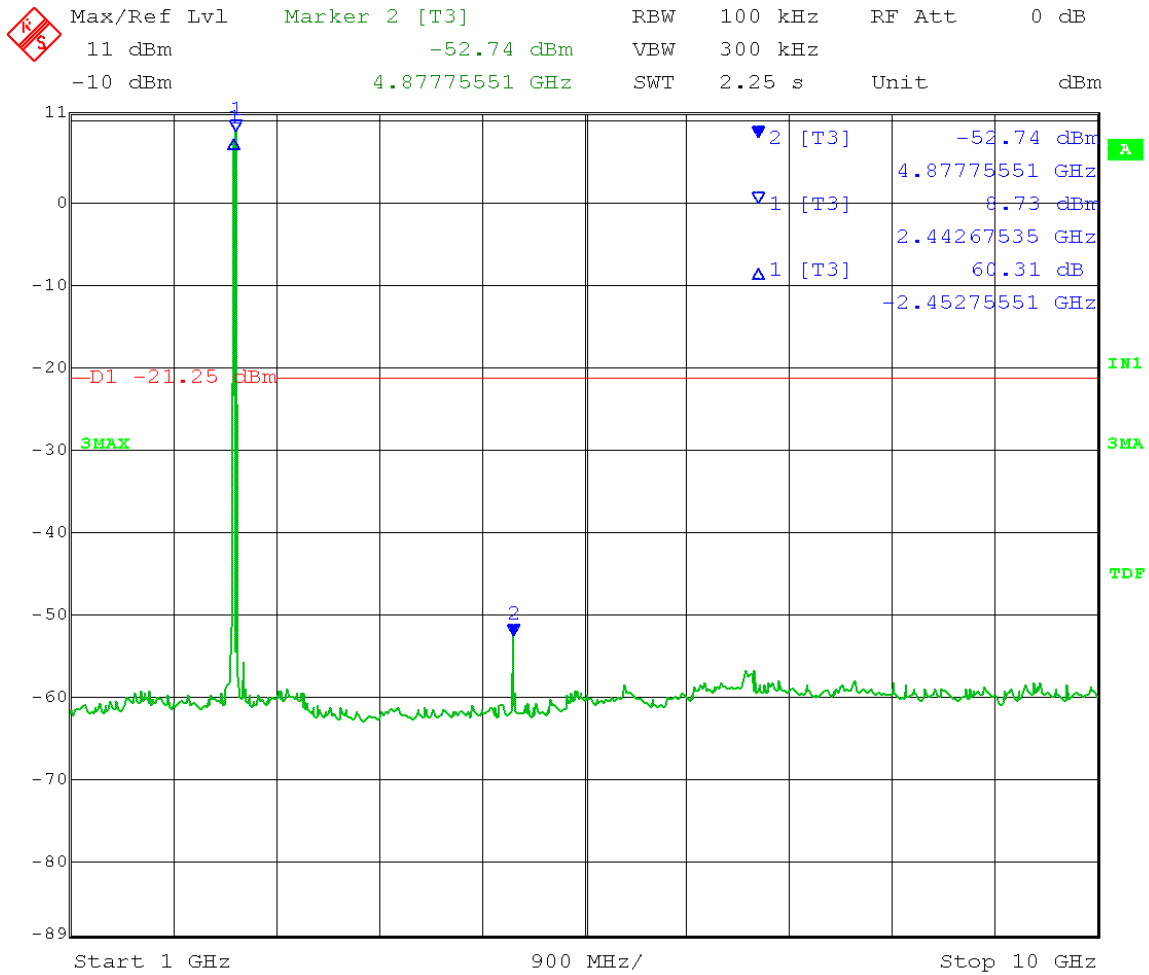
Comment: RBW = 100 kHz VBW ≥ 300 kHz
Detector = Peak Sweep = auto couple
Trace = max hold Mid Channel Transmit = 2.440GHz
Output power setting 19dBm @ 10 MHz BW
Channel B
Frequency Range 30M-1GHz
Emission Level measurement
Limit = 8.75dBm – 30 dB = -21.25dBm



Date: 30.APR.2013 10:30:19

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

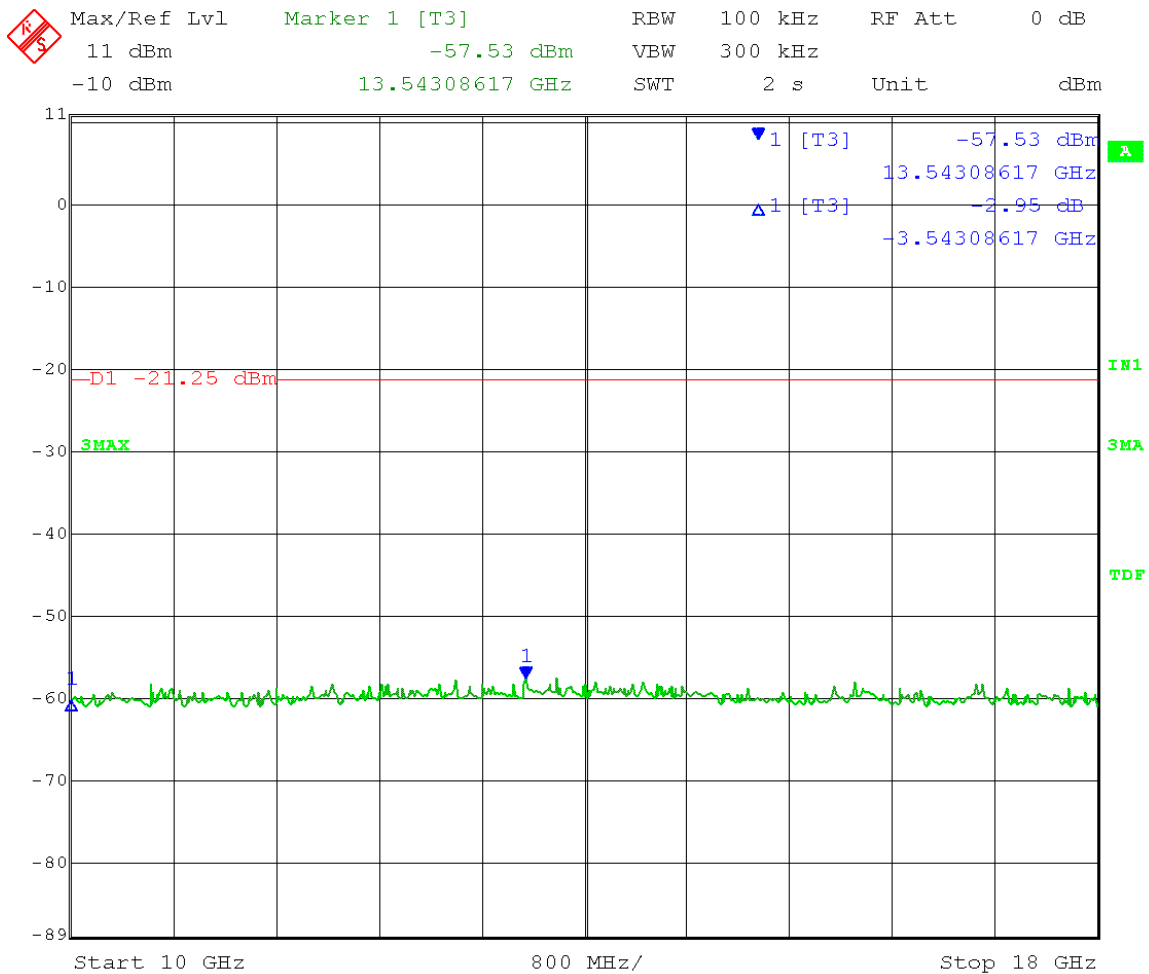
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 10 MHz BW
 Channel B
 Frequency Range 1-10GHz
Emission Level measurement
 Limit = 8.75dBm – 30 dB = -21.25dBm



Date: 30.APR.2013 10:26:02

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

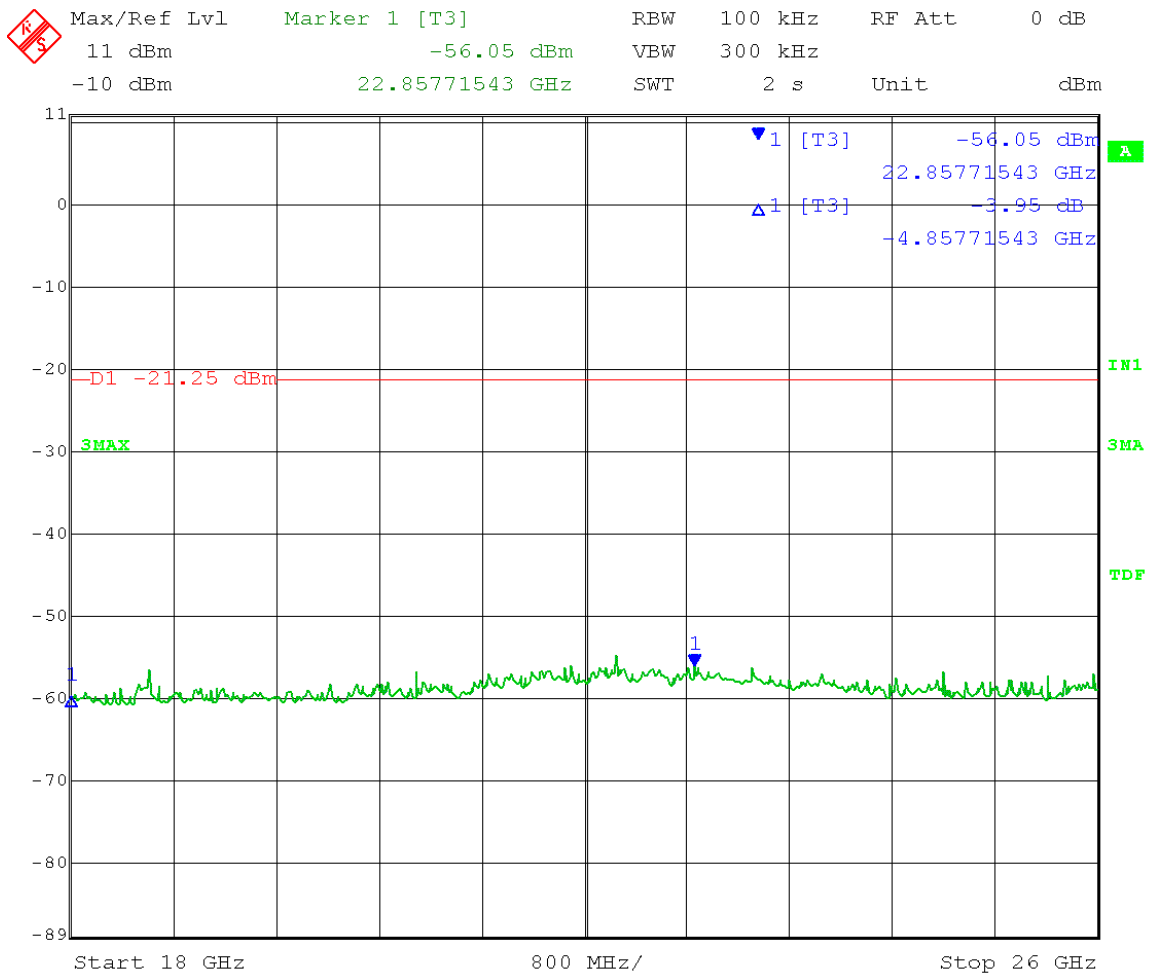
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold **Mid Channel Transmit = 2.440GHz**
 Output power setting 19dBm @ 10 MHz BW
 Channel B
 Frequency Range 10-18GHz
 Emission Level measurement
 Limit = 8.75dBm – 30 dB = -21.25dBm



Date: 30.APR.2013 10:27:46

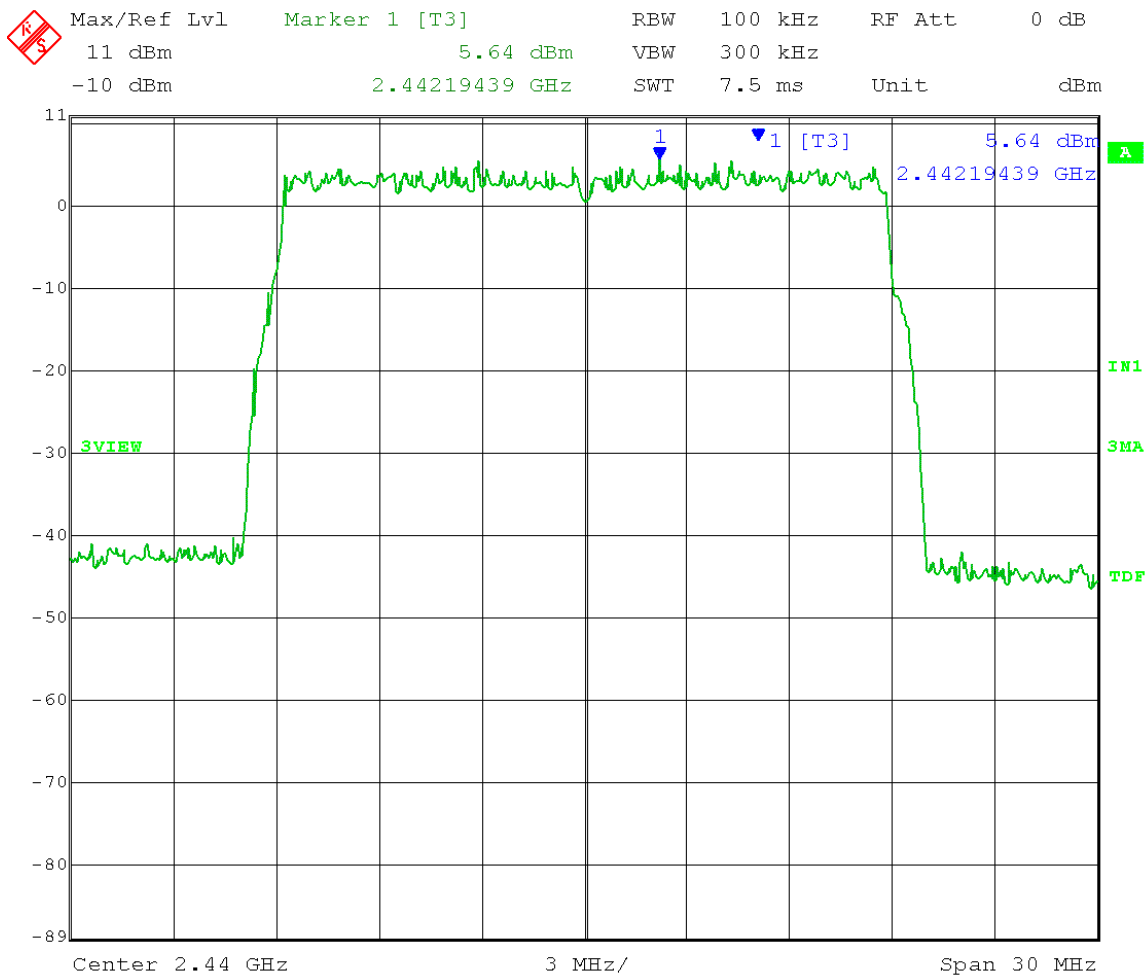
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold **Mid Channel Transmit = 2.440GHz**
 Output power setting 19dBm @ 10 MHz BW
 Channel B
 Frequency Range 18-26GHz
 Emission Level measurement
 Limit = 8.75dBm – 30 dB = -21.25dBm



Date: 30.APR.2013 10:28:48

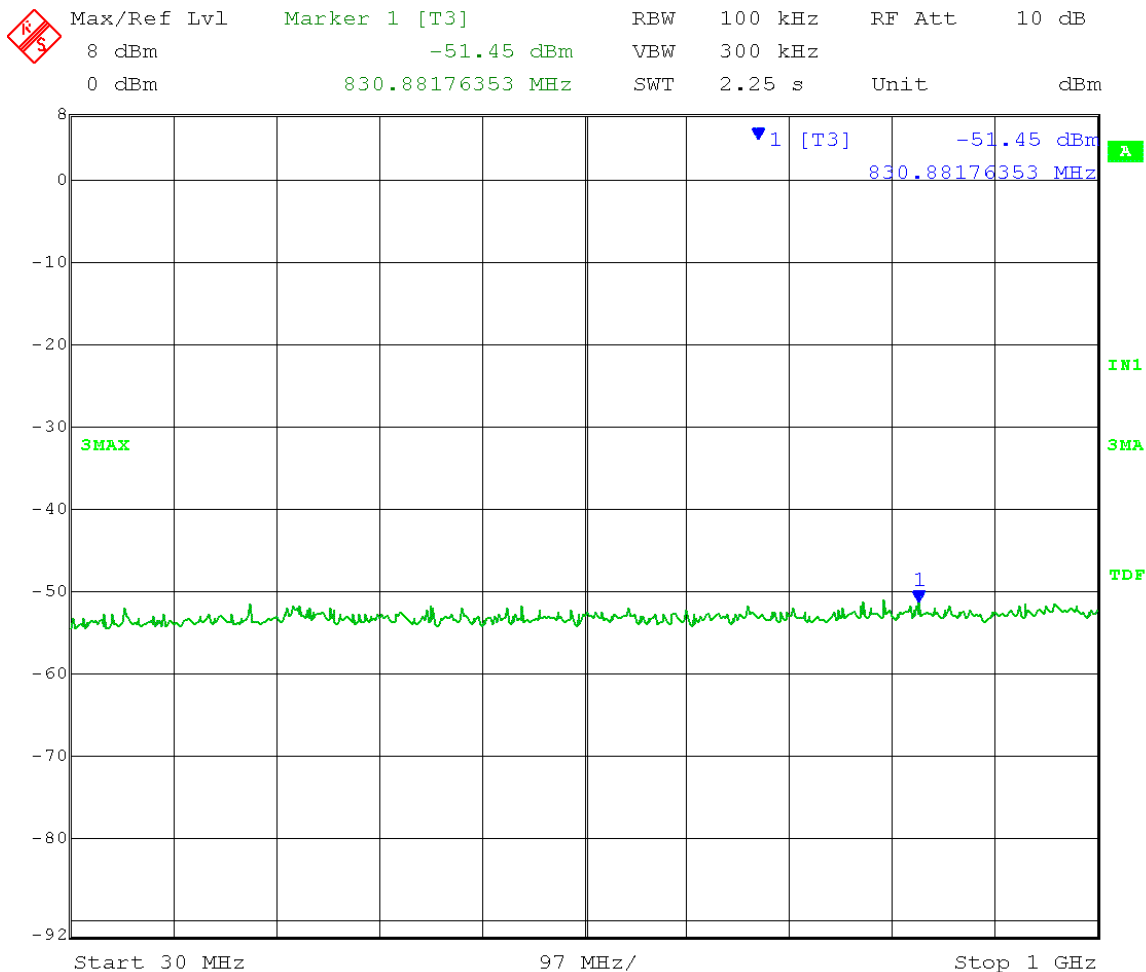
Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold Mid Channel Transmit = 2.44GHz
 Output Power Setting 19dBm @ 20MHz BW
 Channel B
 Reference Level Measurement
 Limit = 5.64dBm – 30 dB = -24.36dBm



Date: 30.APR.2013 12:53:37

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

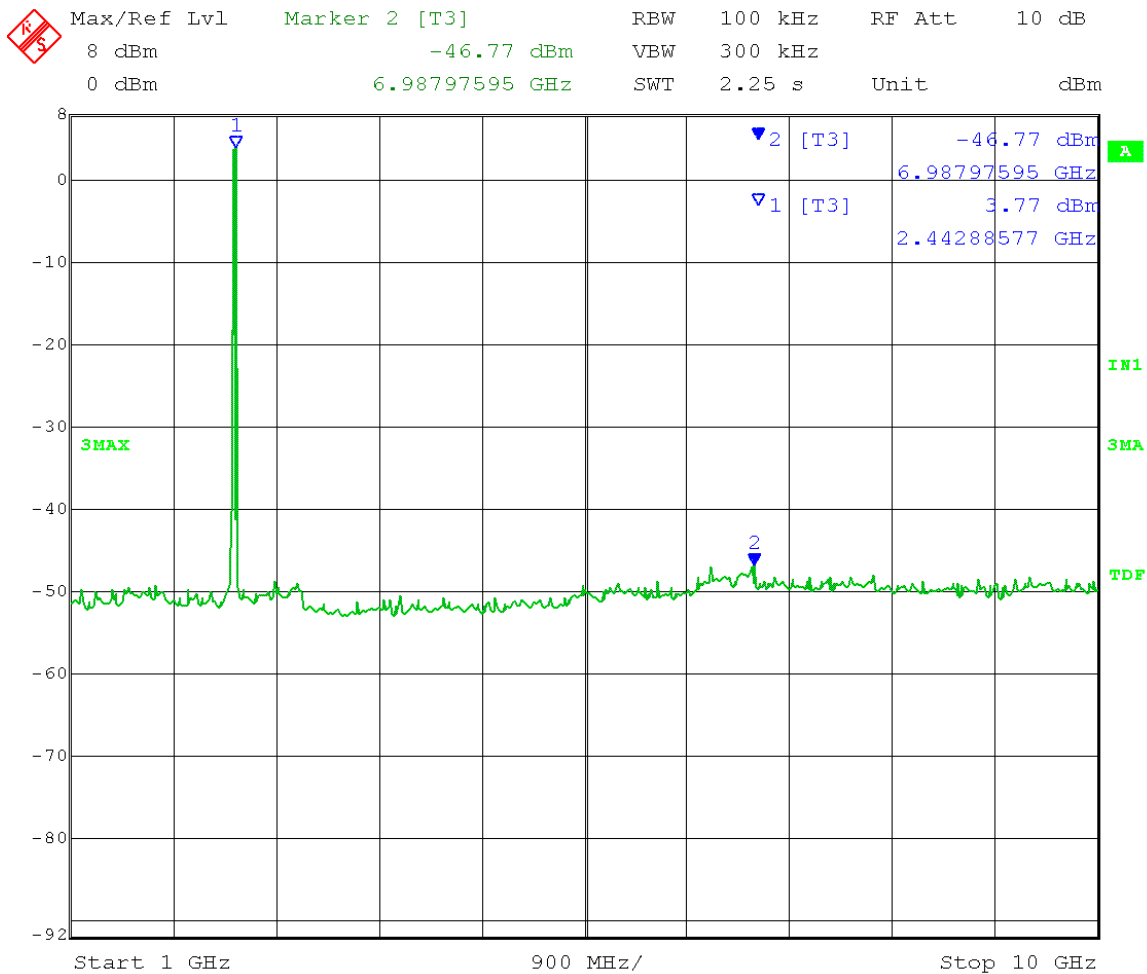
Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 20 MHz BW
 Channel B
 Frequency Range 30M-1GHz
 Emission Level measurement
 Limit = 5.64dBm – 30 dB = -24.36dBm



Date: 29.APR.2013 14:48:35

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

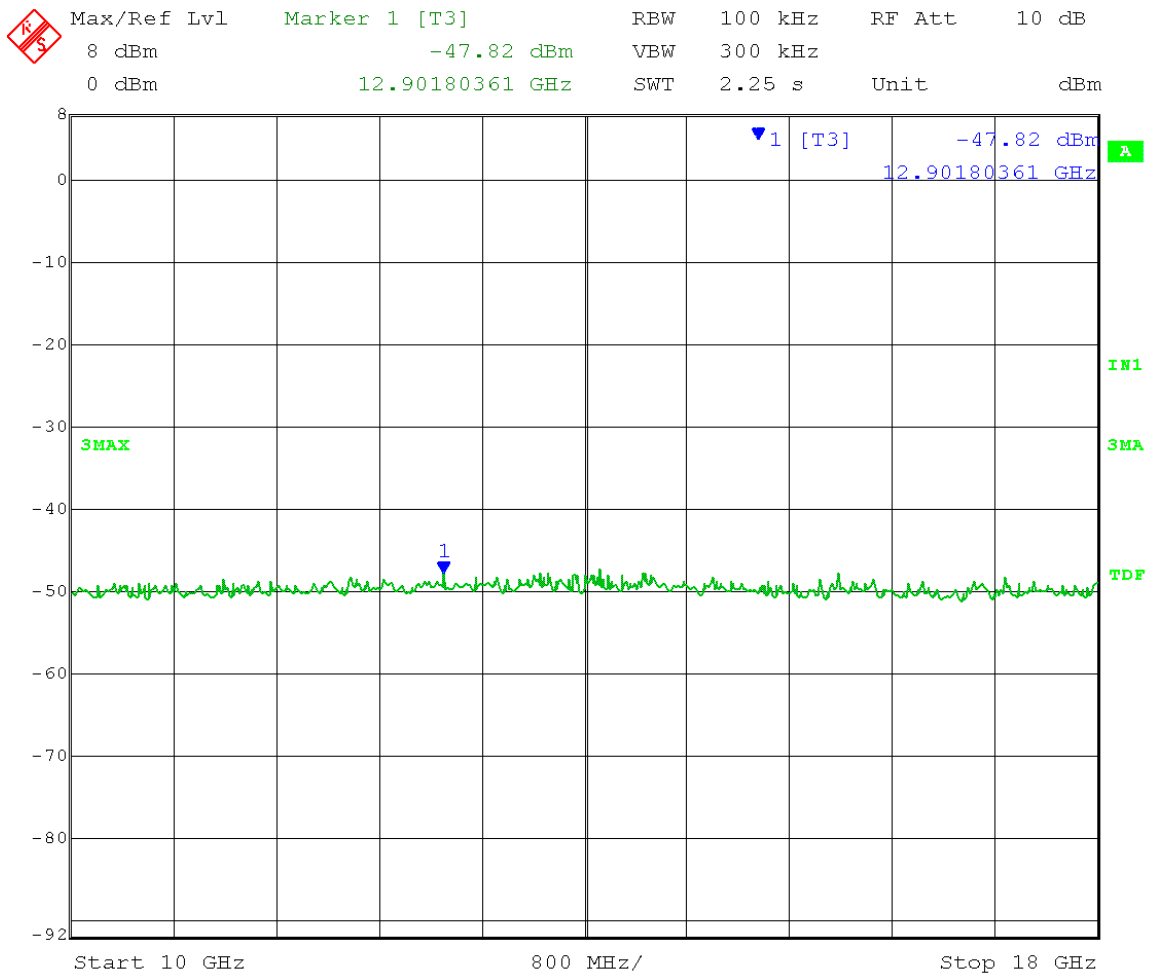
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 20 MHz BW
 Channel B
 Frequency Range 1-10GHz
 Emission Level measurement
 Limit = 5.64dBm – 30 dB = -24.36dBm



Date: 29.APR.2013 14:46:38

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

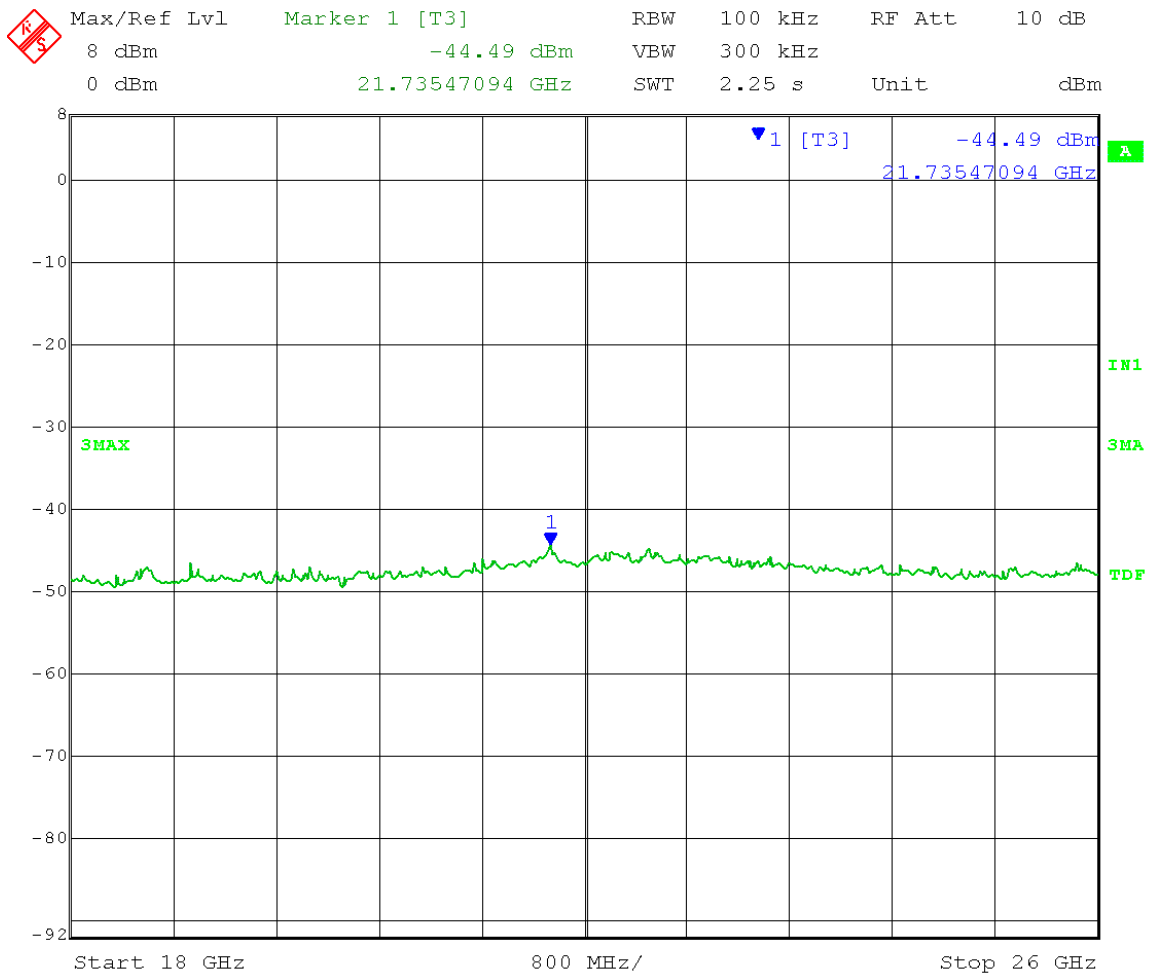
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 20 MHz BW
 Channel B
 Frequency Range 10-18GHz
Emission Level measurement
 Limit = 5.64dBm – 30 dB = -24.36dBm



Date: 29.APR.2013 14:45:06

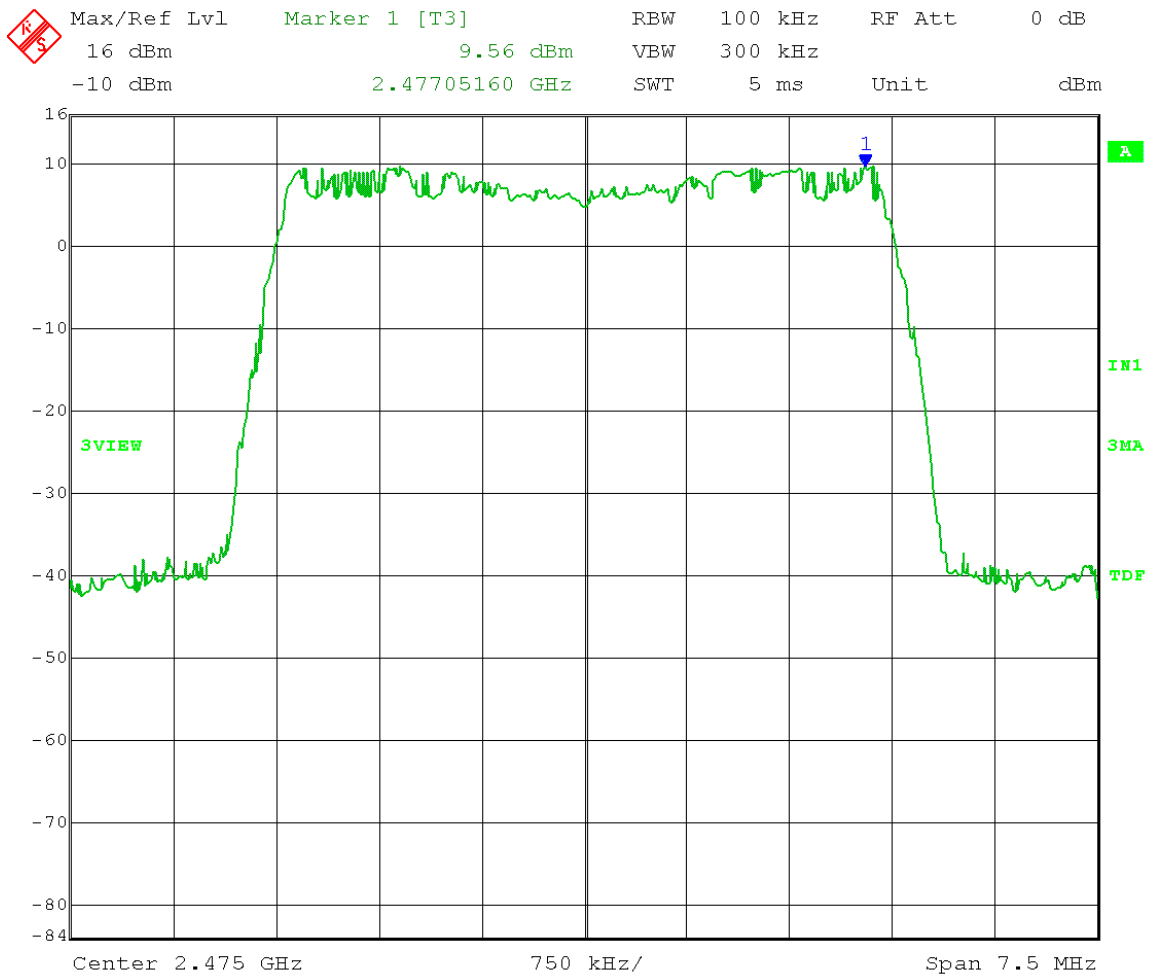
Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold Mid Channel Transmit = 2.440GHz
 Output power setting 19dBm @ 20 MHz BW
 Channel B
 Frequency Range 18-26GHz
 Emission Level measurement
 Limit = 5.64dBm – 30 dB = -24.36dBm



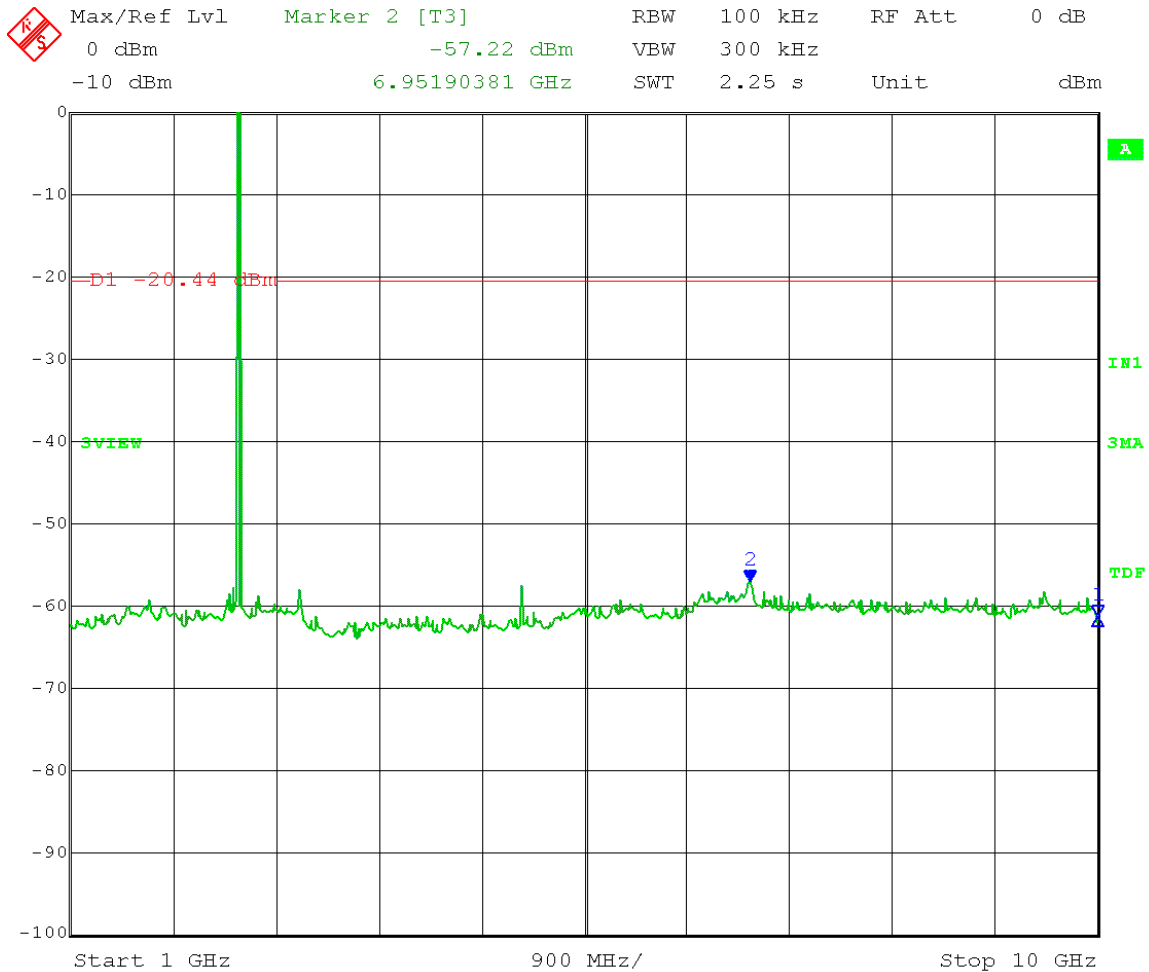
Date: 29.APR.2013 14:42:35

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold High Channel Transmit = 2.475GHz
 Output power setting 15dBm @ 5MHz BW
 Channel B
Reference Level measurement
 Limit = 9.56dBm - 30 dB = -20.44dBm



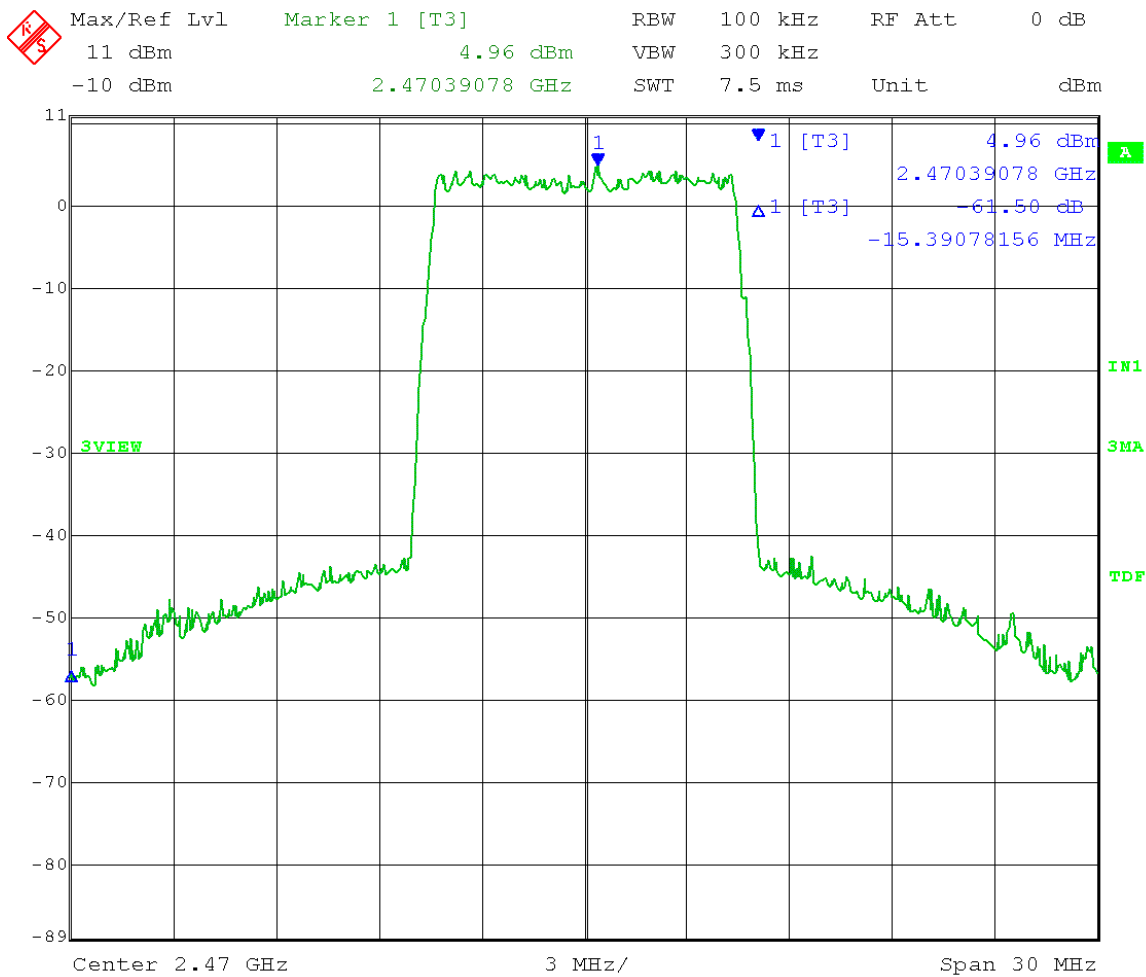
Date: 30.APR.2013 14:52:36

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = Auto Couple
 Trace = Max Hold High Channel Transmit = 2.475GHz
 Output Power Setting 15dBm @ 5 MHz BW
 Channel B
 Frequency Range 1-10GHz
 Emission Level Measurement
 Limit = 9.56dBm – 30 dB = -20.44dBm



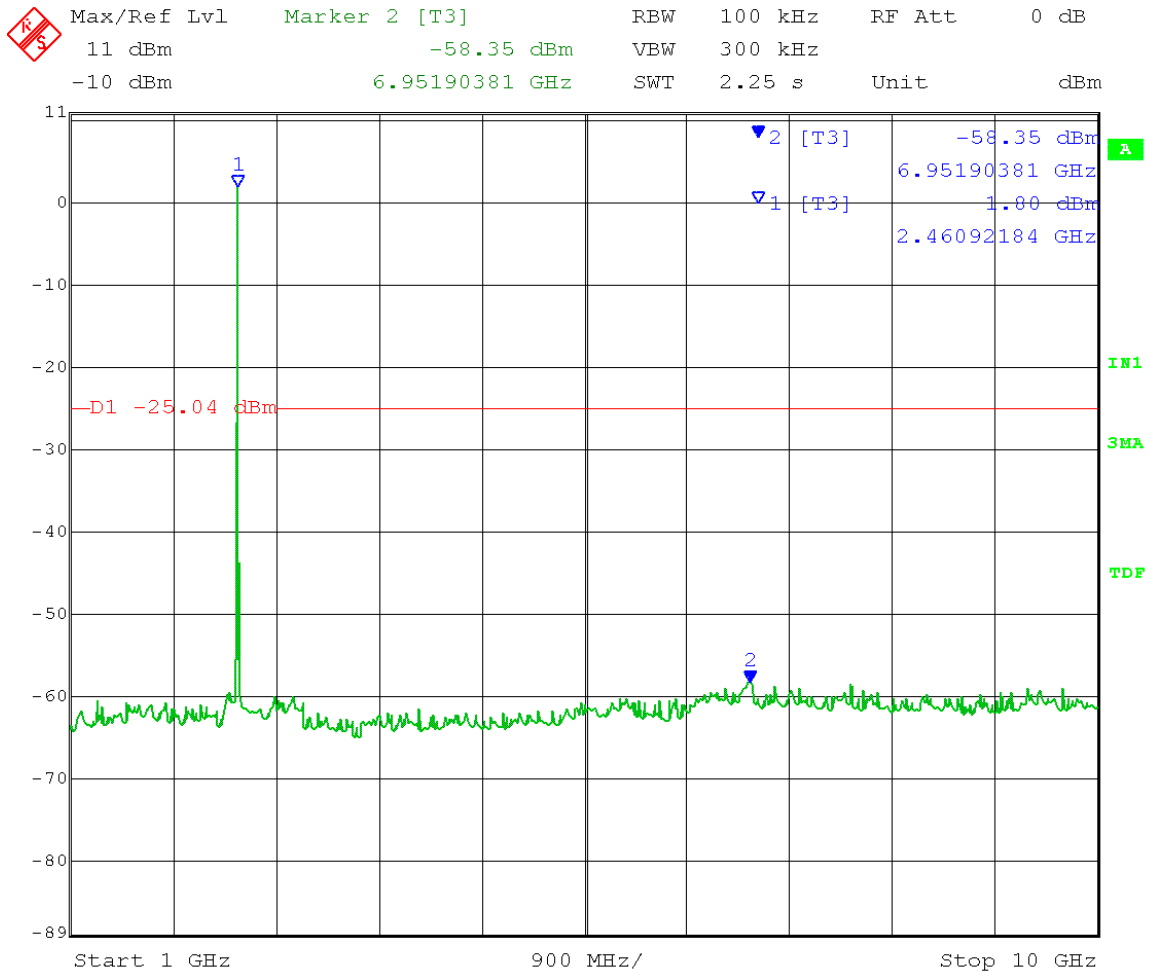
Date: 30.APR.2013 15:47:35

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.470GHz
 Output power setting 15dBm @ 10MHz BW
 Channel B
Reference Level measurement
 Limit = 4.96dBm – 30 dB = -25.04dBm



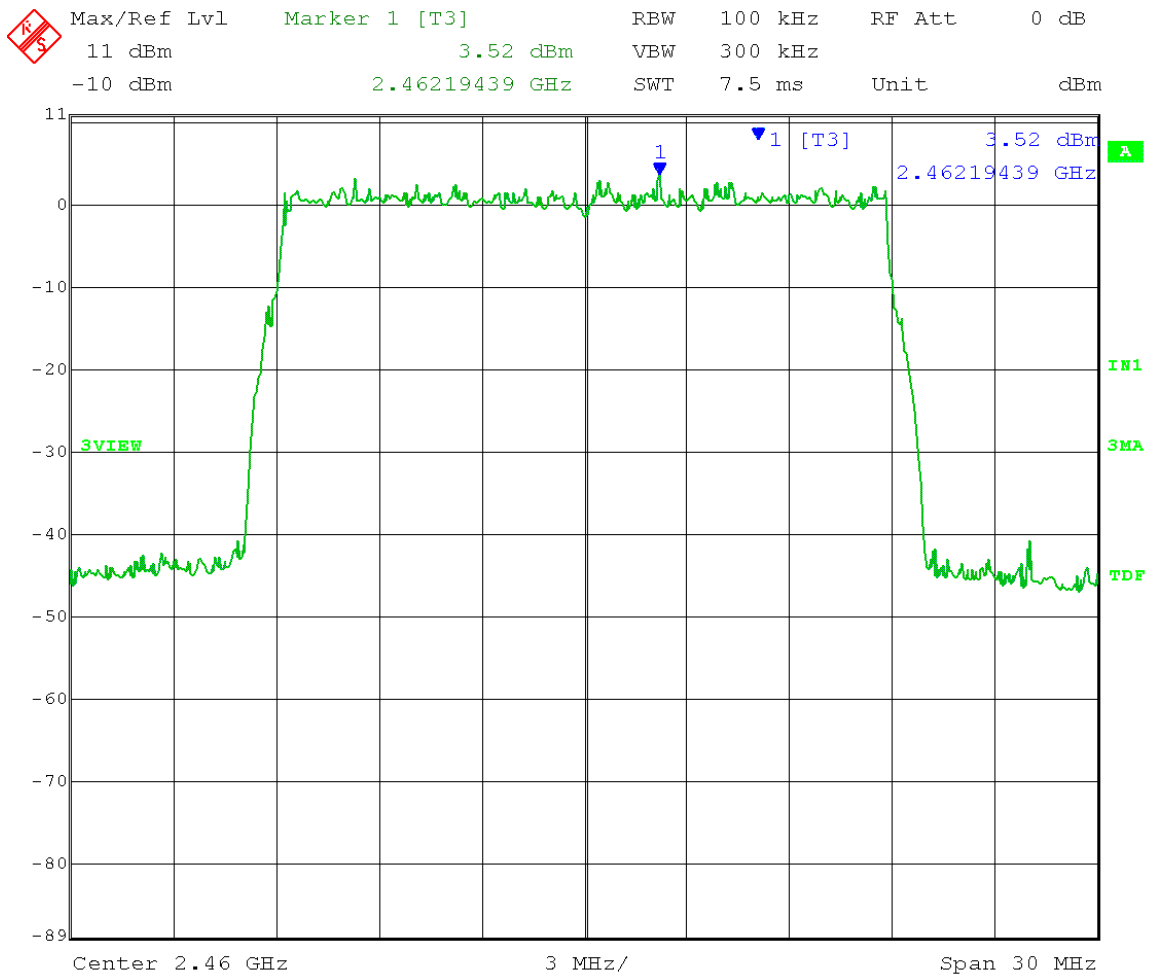
Date: 30.APR.2013 10:35:04

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.470GHz
 Output power setting 15dBm @ 10 MHz BW
 Channel B
 Frequency Range 1-10GHz
Emission Level measurement
 Limit = 4.96dBm – 30 dB = -25.04dBm



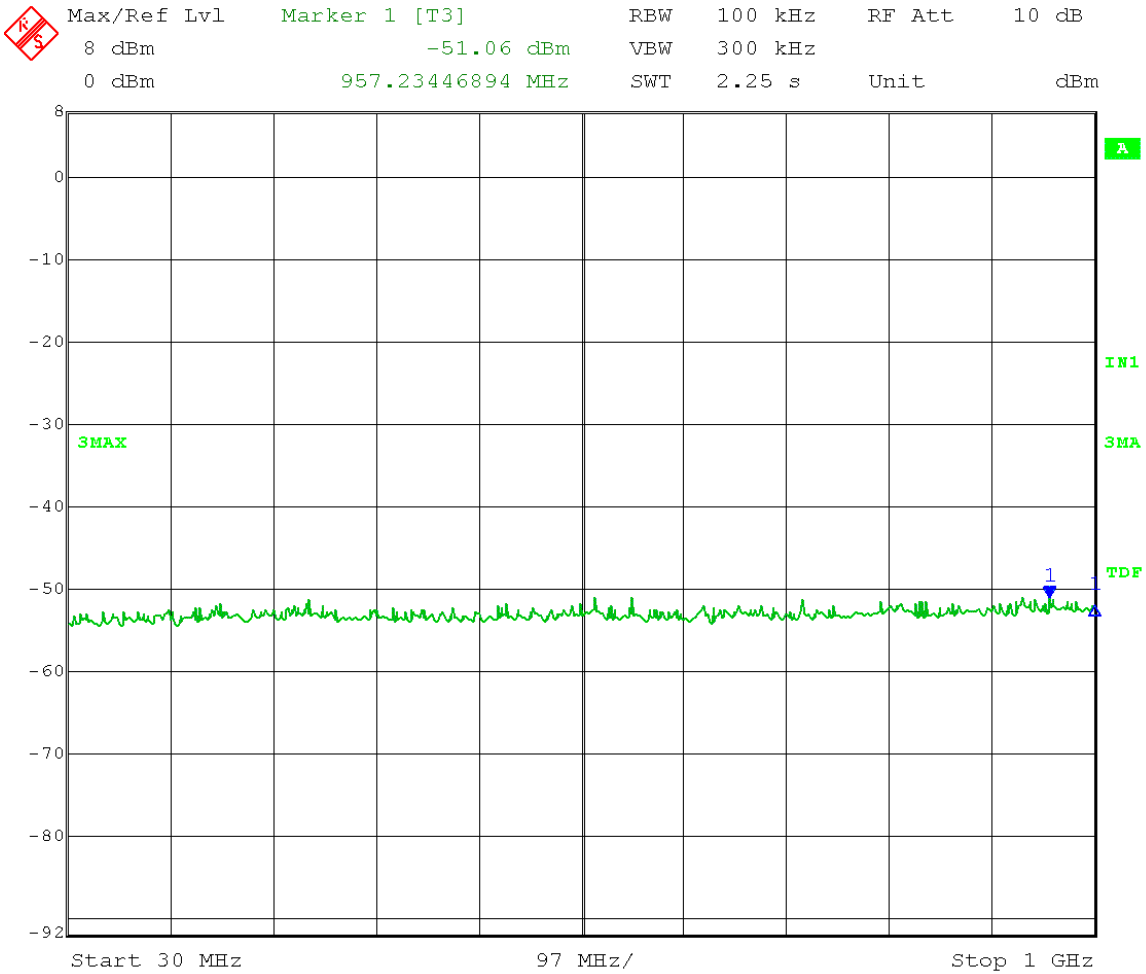
Date: 30.APR.2013 10:41:33

Test Date: 4-30-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.460GHz
 Output power setting 16dBm @ 20MHz BW
 Channel B
Reference Level Measurement
 Limit = 3.52dBm – 30 dB = -26.48dBm



Date: 30.APR.2013 13:22:04

Test Date: 4-29-13
 Company: Cambium Networks
 EUT: PMP 450SM 2.4GHz: OFDM
 Test: Maximum Unwanted Emission Levels - Conducted
 Operator: Jim O
 Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold High Channel Transmit = 2.460GHz
 Output power setting 16dBm @ 20 MHz BW
 Channel B
 Frequency Range 30M-1GHz
Emission Level measurement
 Limit = 3.52dBm – 30 dB = -26.48dBm = Pass



Date: 29.APR.2013 14:22:26



Company: Cambium Networks
 Model Tested: C024045C004A & C024045C008A
 Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A5.0 Band-Edge Conducted Measurements for Radiated Restricted Band Compliance

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*

ANSI C63.10:2009 – Sections 6.5 and 6.6

12.1 Emissions in restricted frequency bands

12.2.2 General Procedure for conducted measurements in restricted bands

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

Description: Measure the conducted output power (in dBm) using the detector specified (see 12.2.2, 12.2.3, and 12.2.4 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)

Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).

Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \sqrt{EIRP - 20 \log D + 104.8}$$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

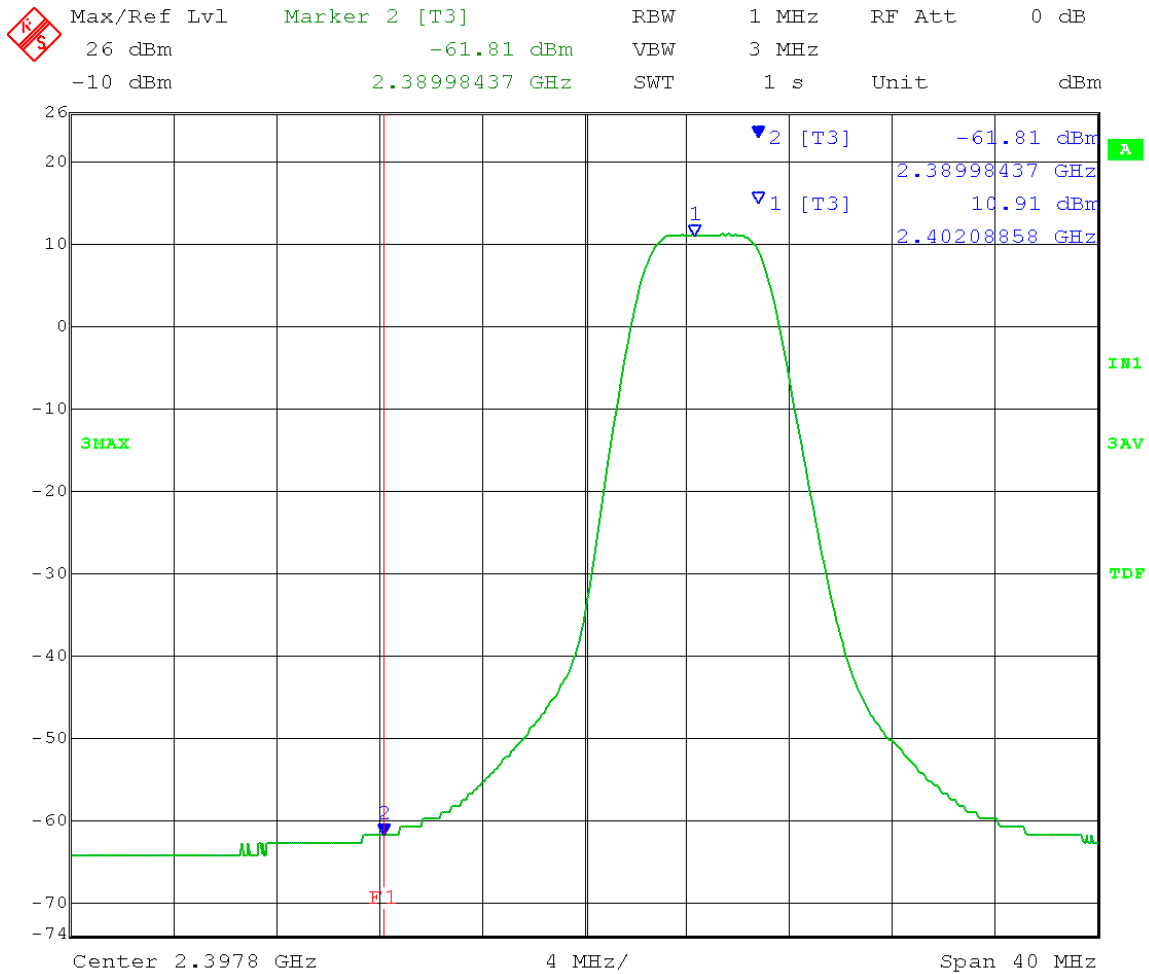
Compare the resultant electric field strength level to the applicable limit. Perform radiated spurious emission test

Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low, middle and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle. **This method was used for measurements with the integrated Patch Antenna only.**

Limit: Average Limit = 54dBuV/m @ 3 meters
 Peak Limit = 74dBuV/m @ 3 meters

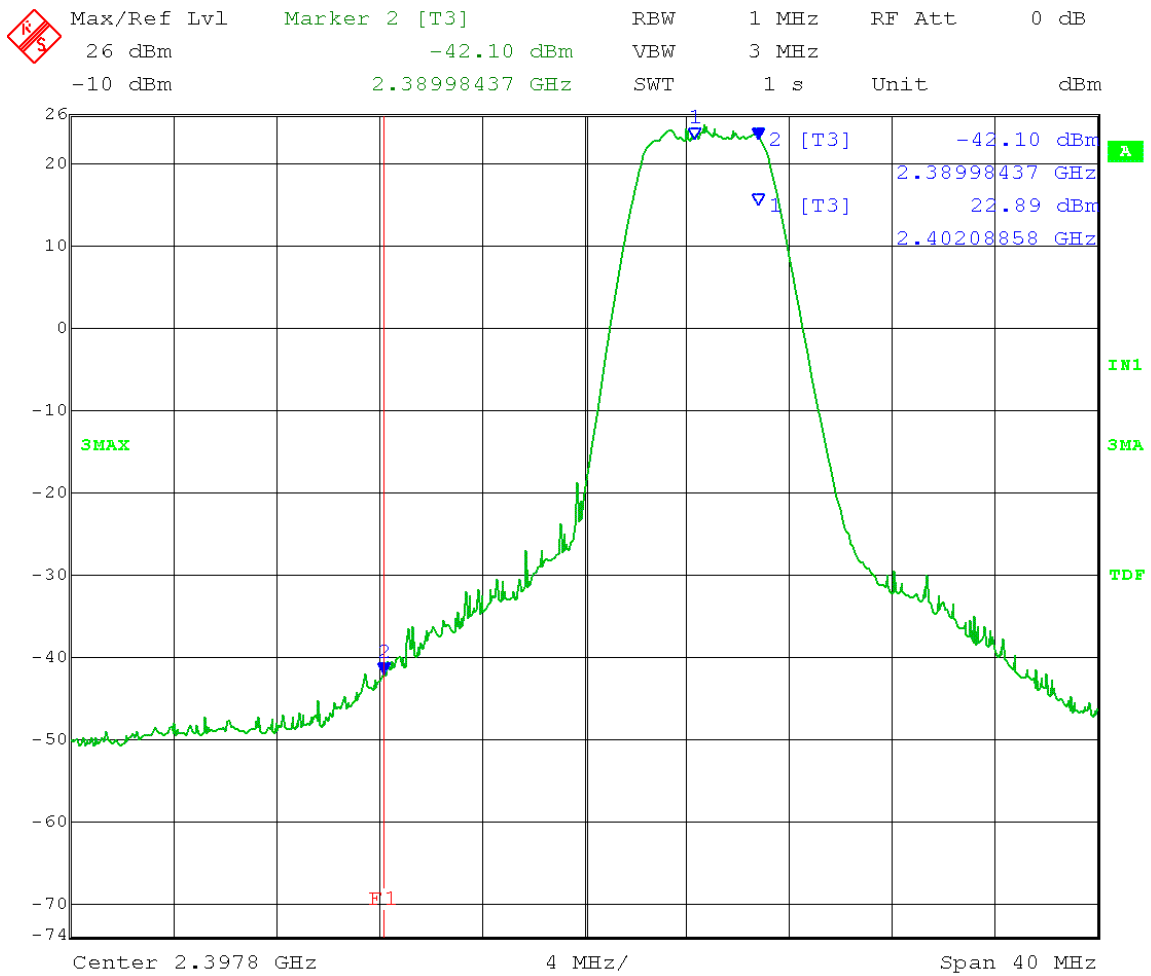
Results: Passed

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 Low Channel Frequency = 2402.5MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH A)
 $-61.81\text{Bm} + 8\text{dBi (Ant Gain)} + 3\text{dB (MIMO)} - 20 \log (3\text{m}) + 104.8 =$
 $44.45\text{dBuV/m @ 3 meters}$



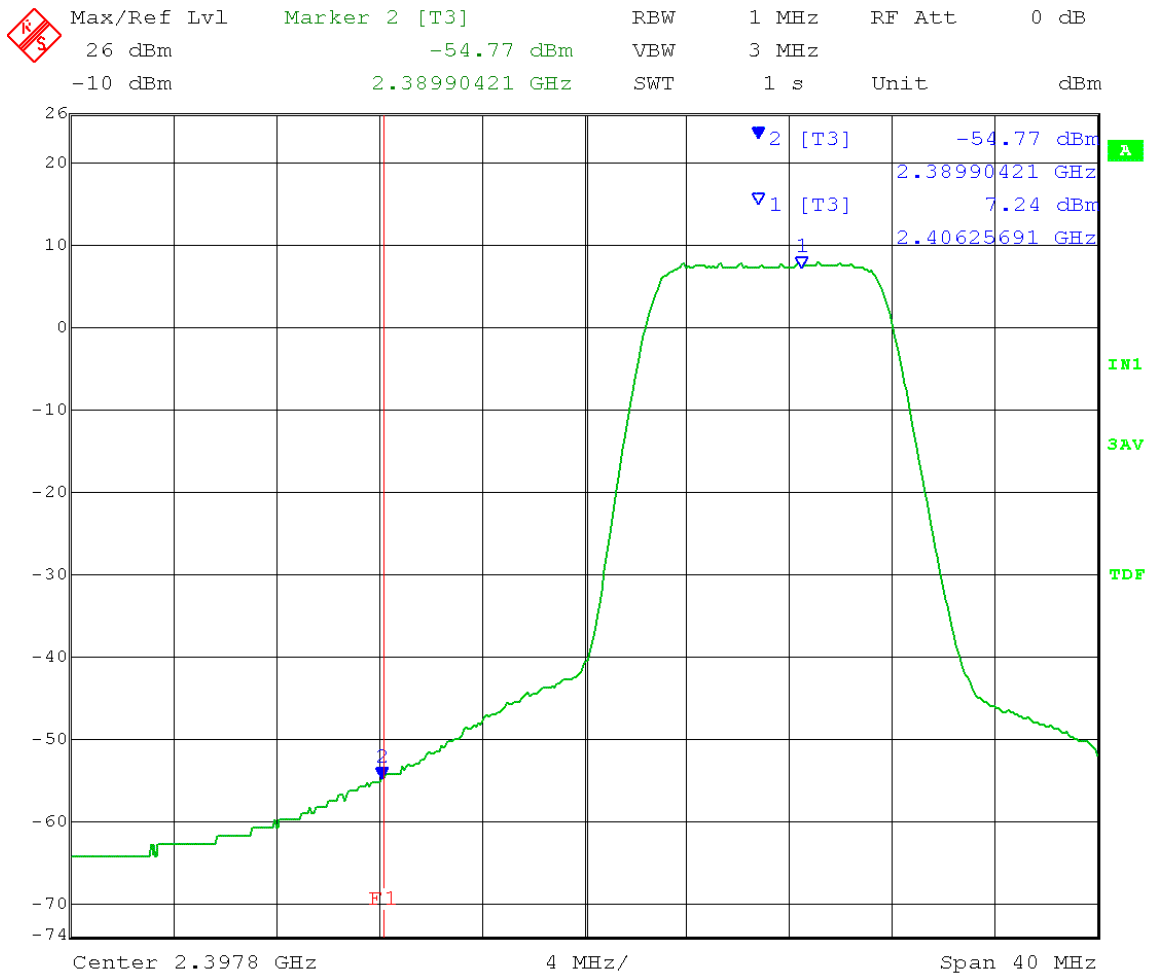
Date: 24.APR.2013 11:45:20

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 Low Channel Frequency = 2402.5 MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Peak Limit = 74dBuV/m @ 3 meters
 Conducted measurement (CH A)
 $-42.10 + 8 \text{ dBi (Ant Gain)} + 3\text{dB (MIMO)} - 20 \log (3\text{m}) + 104.8 =$
 $64.15\text{dBuV/m @ 3 meters}$



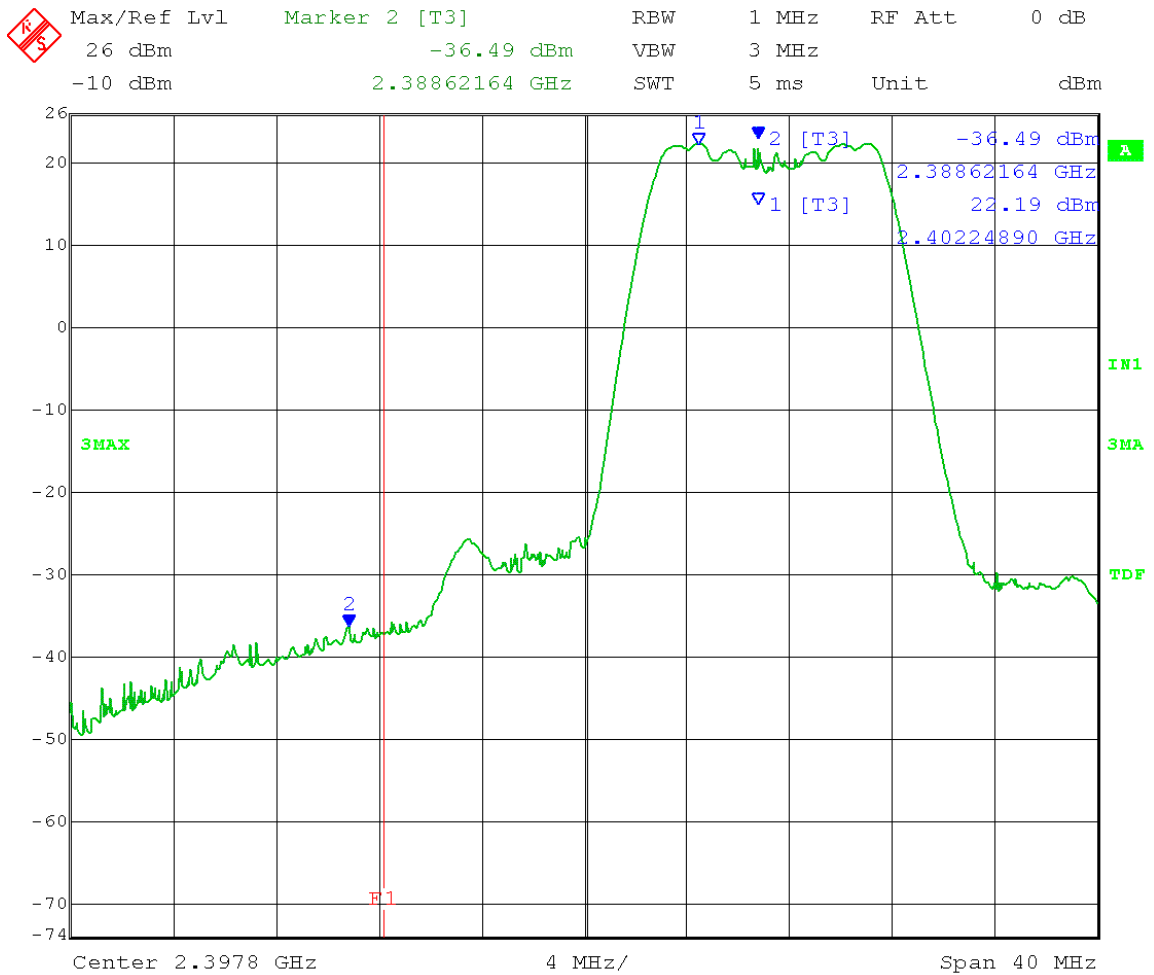
Date: 24.APR.2013 11:44:24

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 10 MHz Both Output Ports on
 Low Channel Frequency = 2405MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH A)
 $-54.77\text{Bm} + 8\text{dBi (Ant Gain)} + 3\text{dB (MIMO)} - 20 \log (3\text{m}) + 104.8 =$
 $51.48\text{dBuV/m @ 3 meters}$



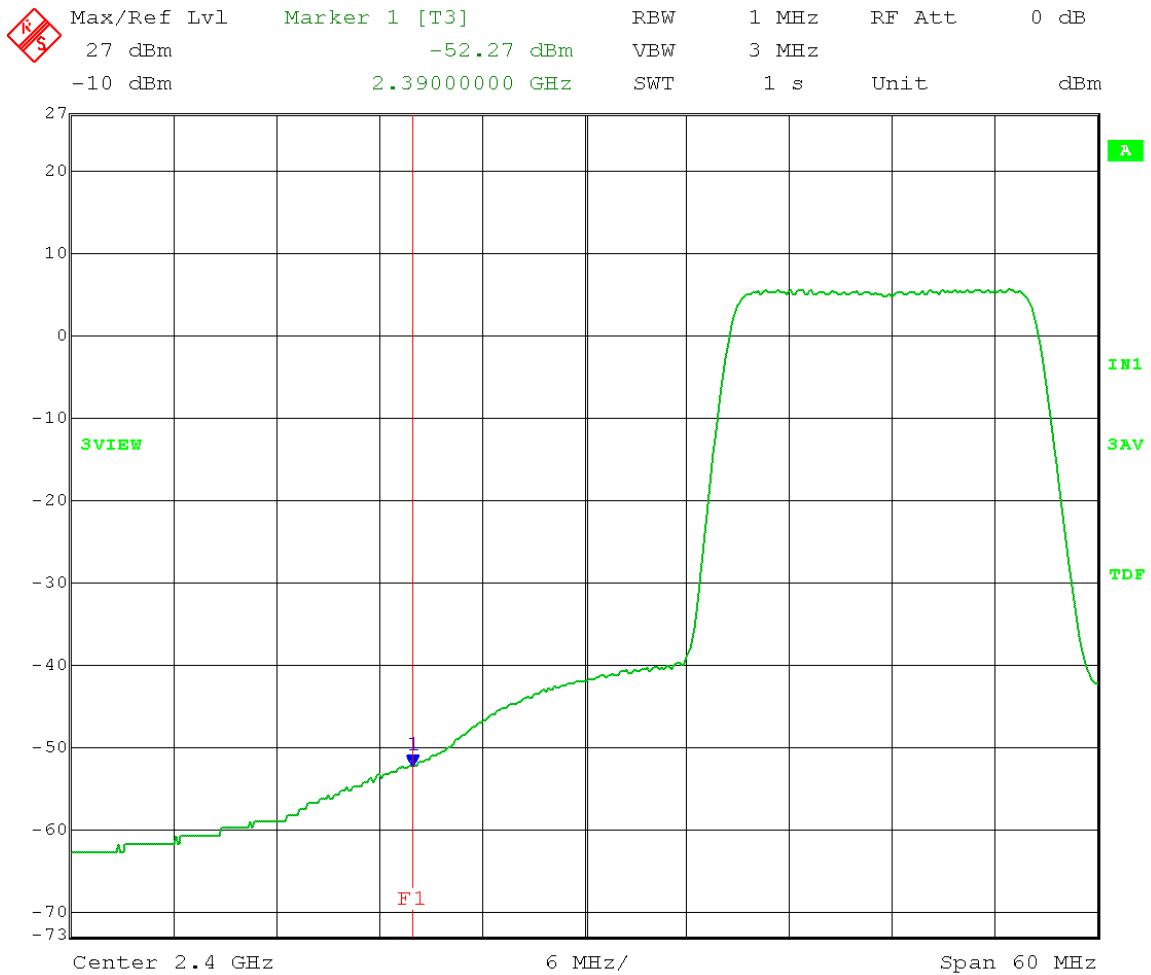
Date: 24.APR.2013 10:23:49

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 10 MHz Both Output Ports on
 Low Channel Frequency = 2405 MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Peak Limit = 74dBuV/m @ 3 meters
 Conducted measurement (CH A)
-36.49 + 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 69.77dBuV/m @ 3 meters



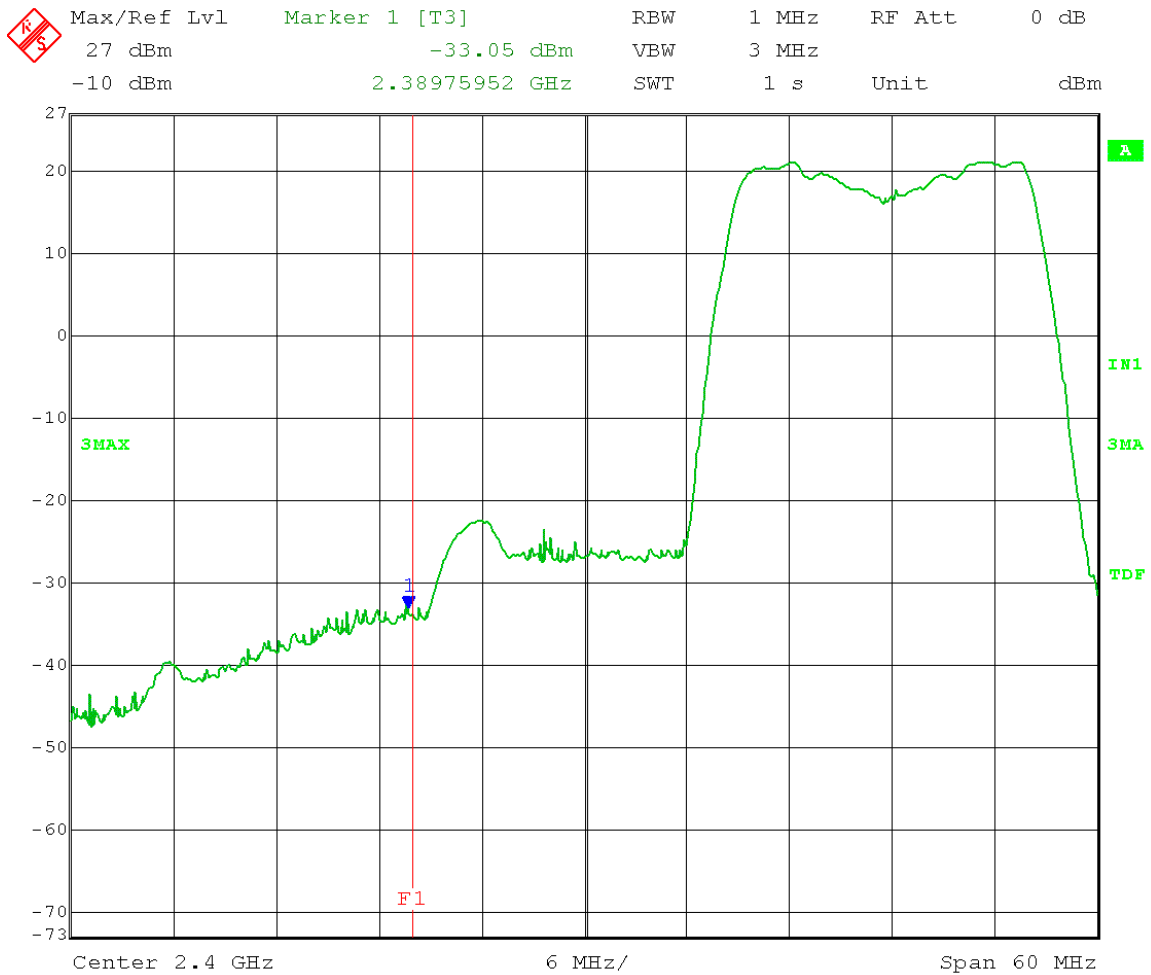
Date: 24.APR.2013 10:02:48

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 Low Channel Frequency = 24175MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH A)
 $-52.27\text{Bm} + 8\text{dBi (Ant Gain)} + 3\text{dB (MIMO)} - 20 \log (3\text{m}) + 104.8 =$
 $53.99\text{dBuV/m @ 3 meters}$



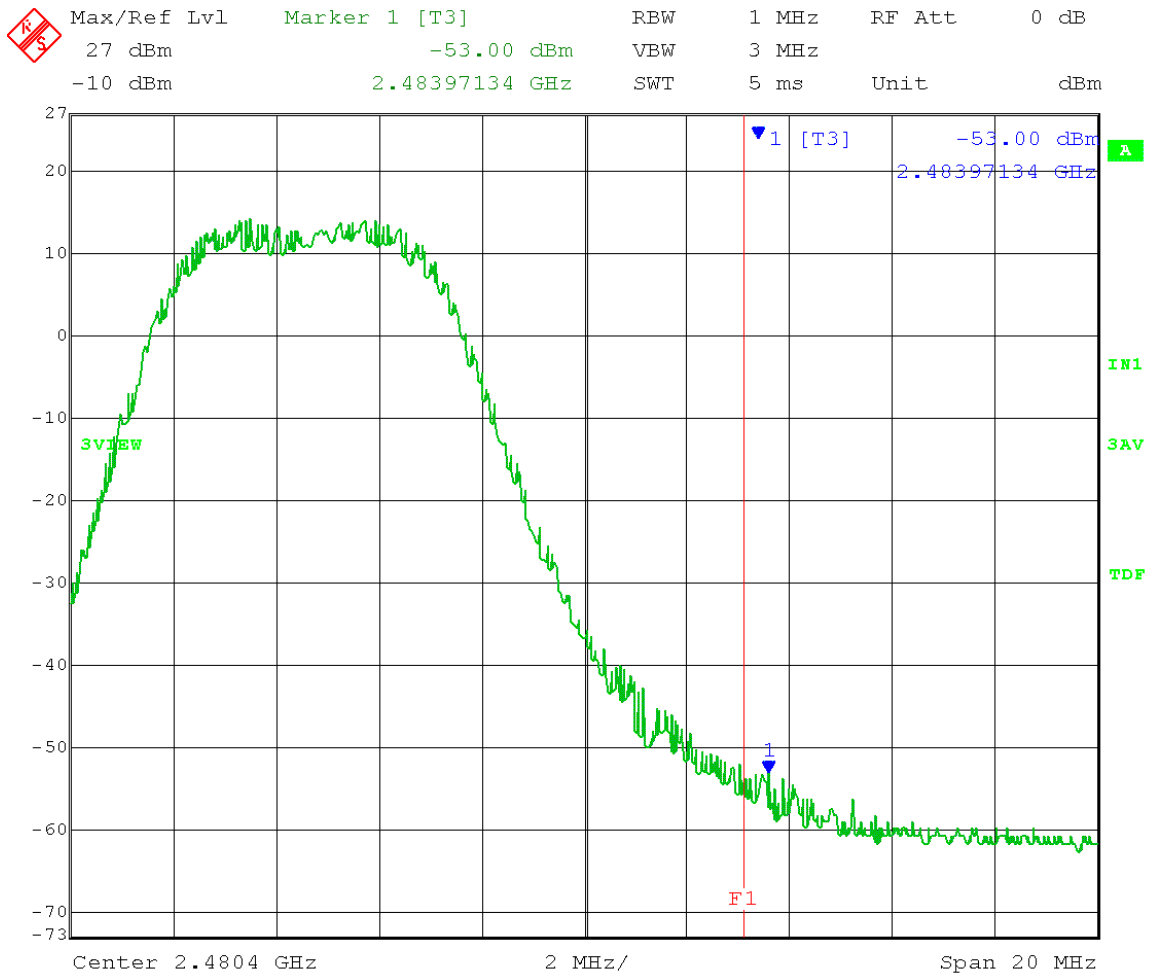
Date: 25.APR.2013 09:28:22

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 Low Channel Frequency = 24175 MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Peak Limit = 74dBuV/m @ 3 meters
 Conducted measurement (CH A)
-33.05+ 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 73.21dBuV/m @ 3 meters



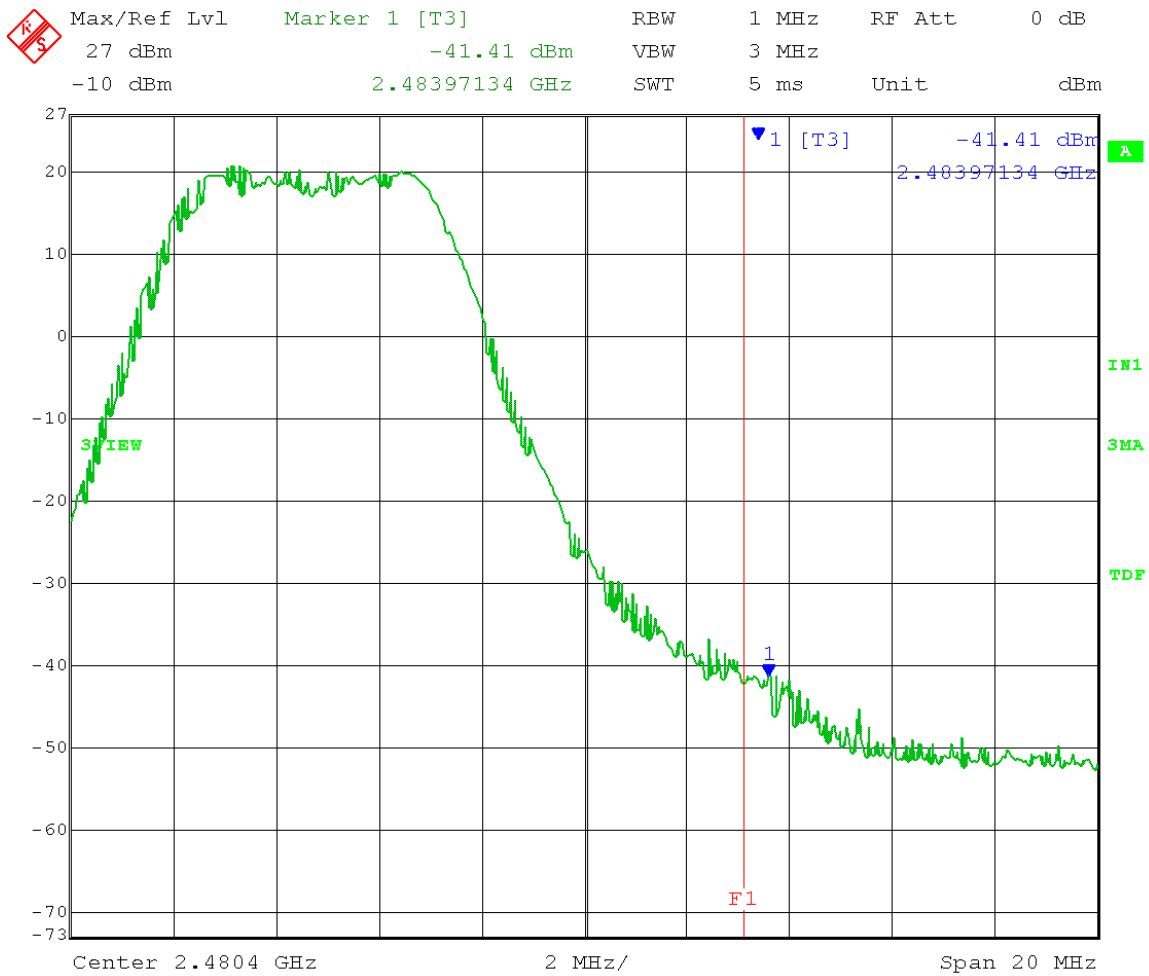
Date: 25.APR.2013 09:30:42

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 High Channel Frequency = 2475MHz
 Output power setting: 15 (CH A) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH A)
 -53.00+ 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 53.26dBuV/m
 @ 3 meters



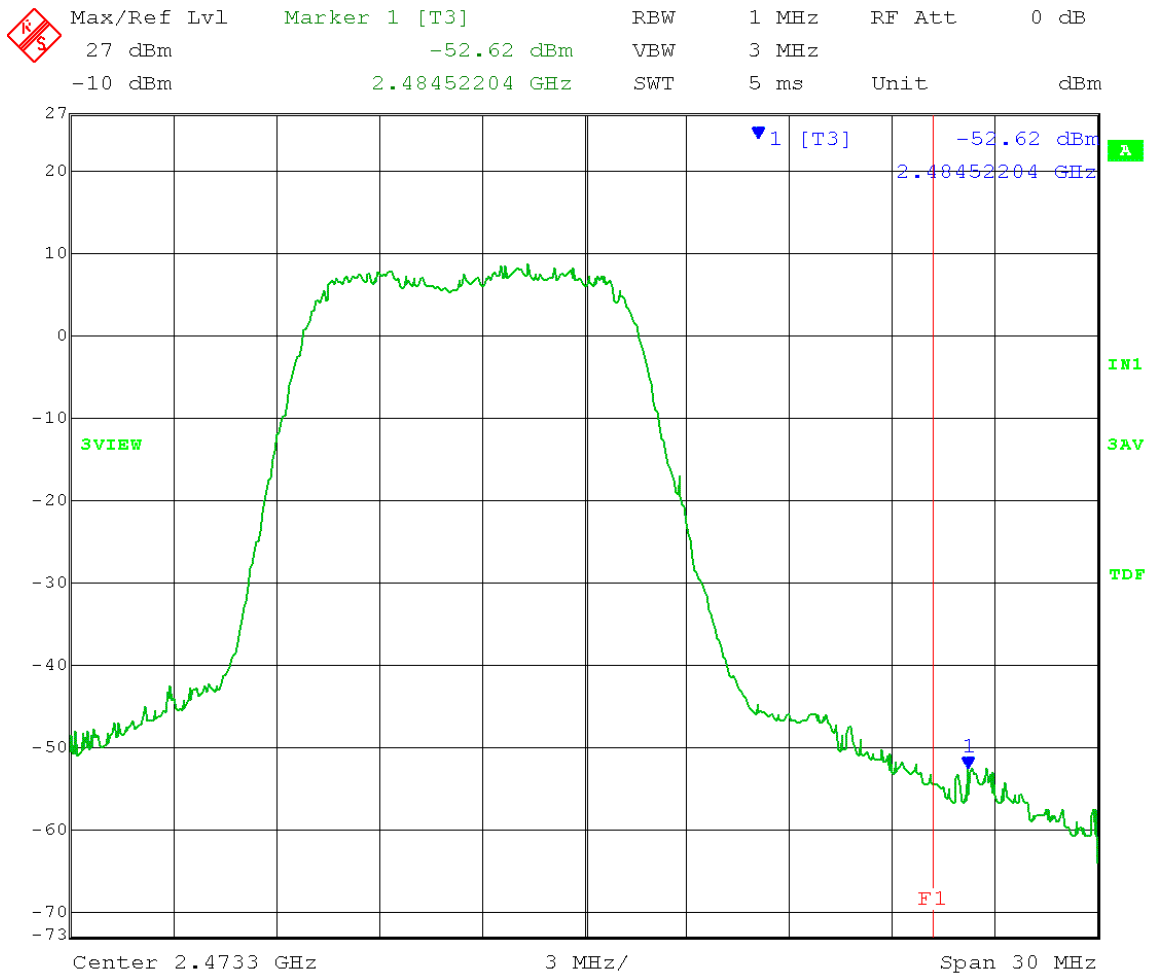
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Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 High Channel Frequency = 2475 MHz
 Output power setting: 15 (CH A) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Peak Limit = 74dBuV/m @ 3 meters Conducted measurement (CH A)
 -41.41 + 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 64.85dBuV/m
 @ 3 meters



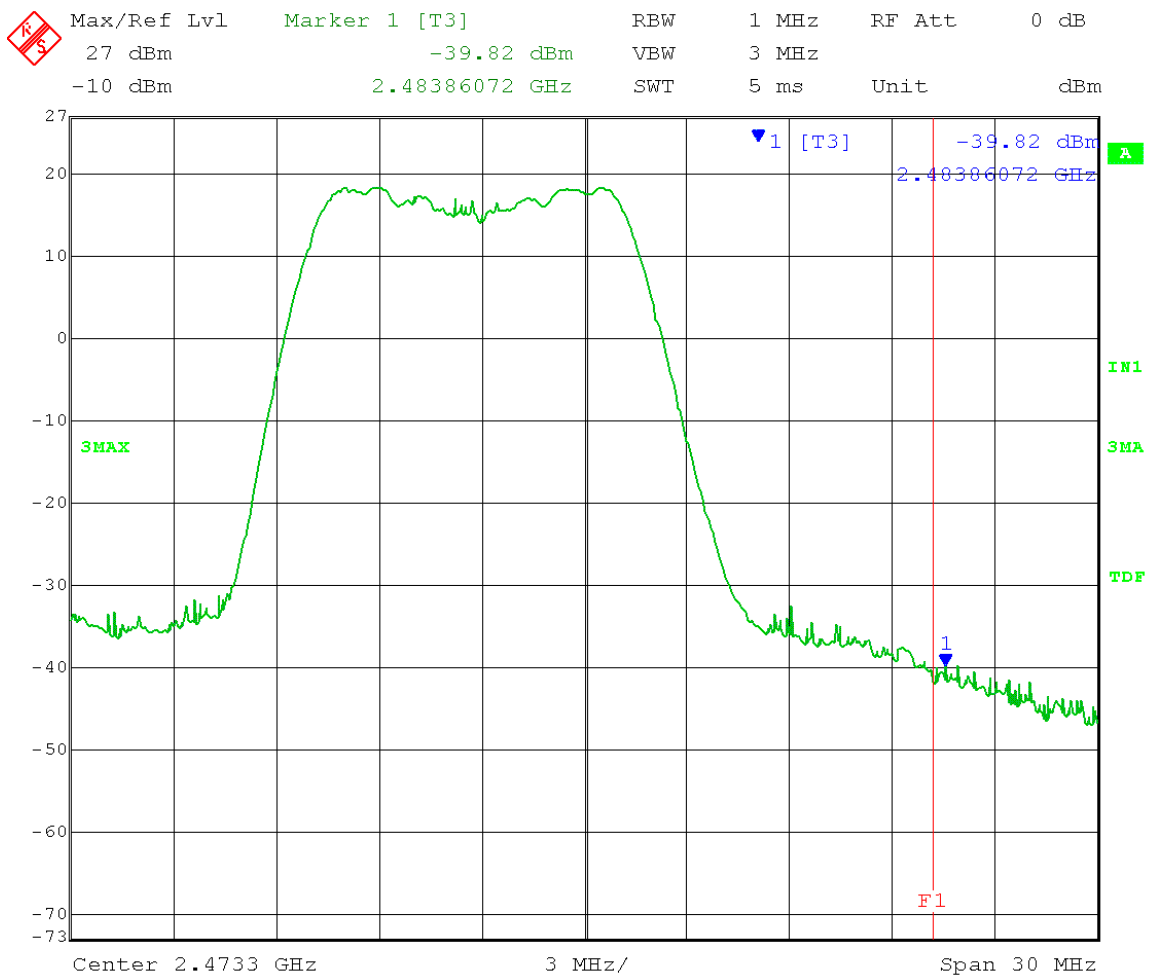
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Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2470MHz
 Output power setting: 15 (CH A) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH A)
 -52.62+ 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 53.64dBuV/m
 @ 3 meters



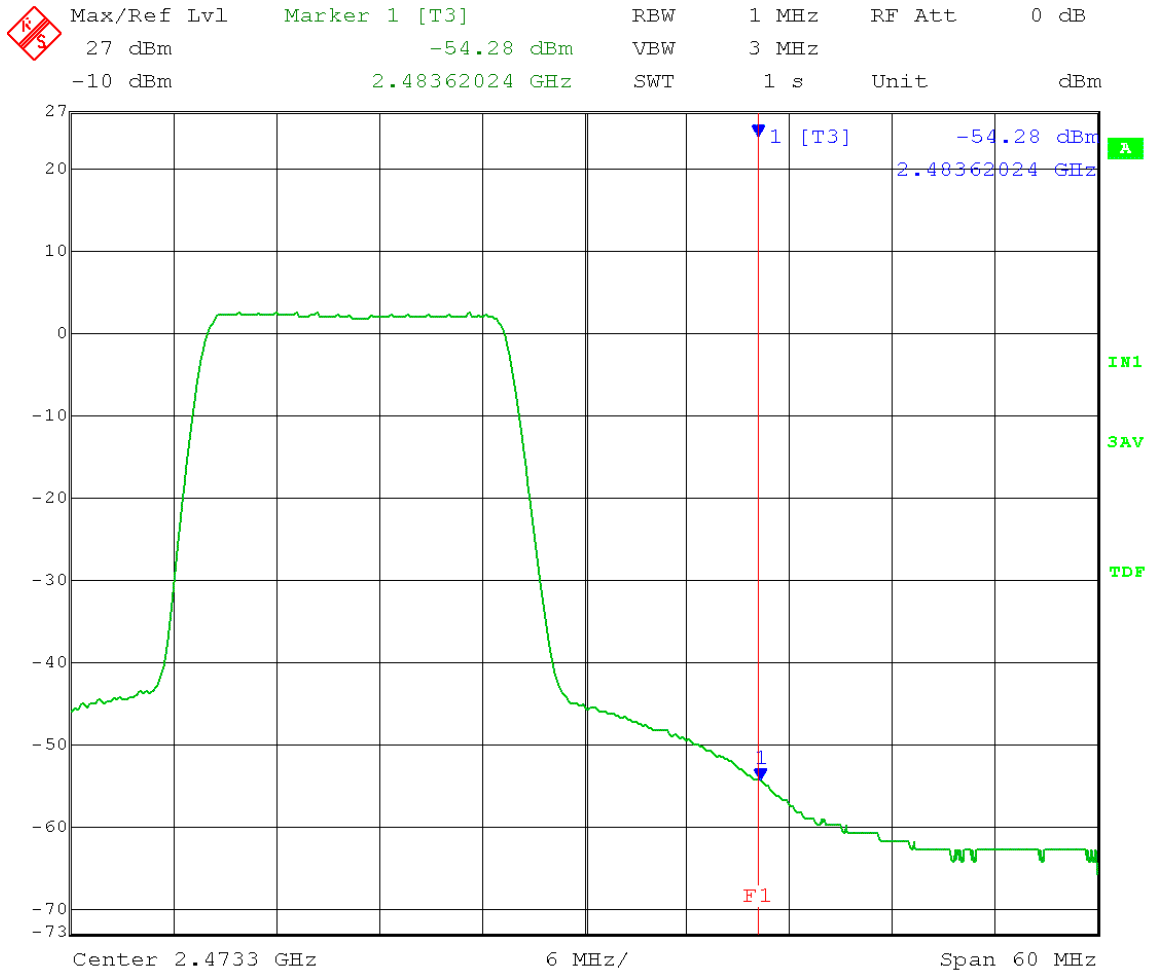
Date: 25.APR.2013 11:18:57

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2470 MHz
 Output power setting: 15 (CH A) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Peak Limit = 74dBuV/m @ 3 meters Conducted measurement (CH A)
 -39.82+ 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 66.44dBuV/m
 @ 3 meters



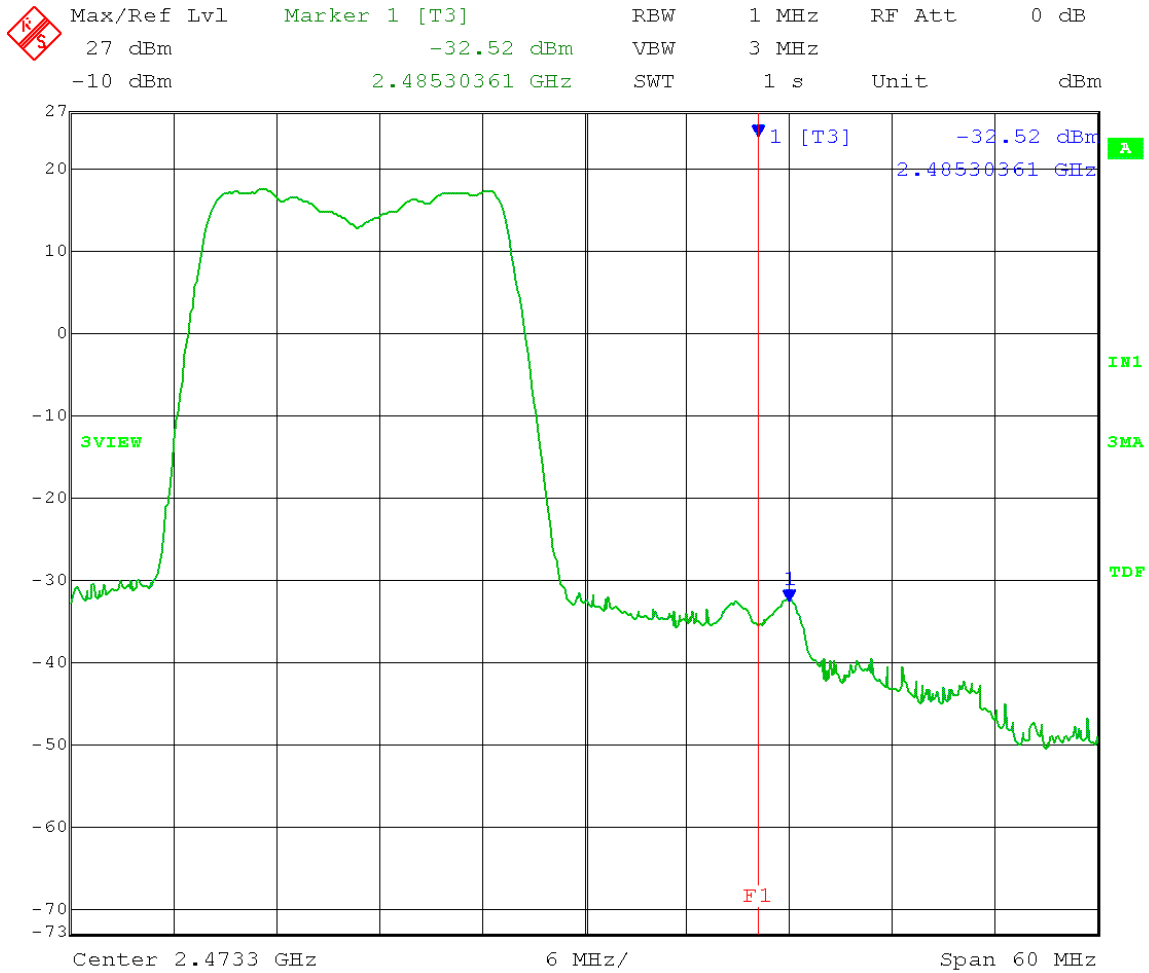
Date: 25.APR.2013 11:22:59

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2460MHz
 Output power setting: 16 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH A)
 -54.28+ 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 51.98dBuV/m
 @ 3 meters



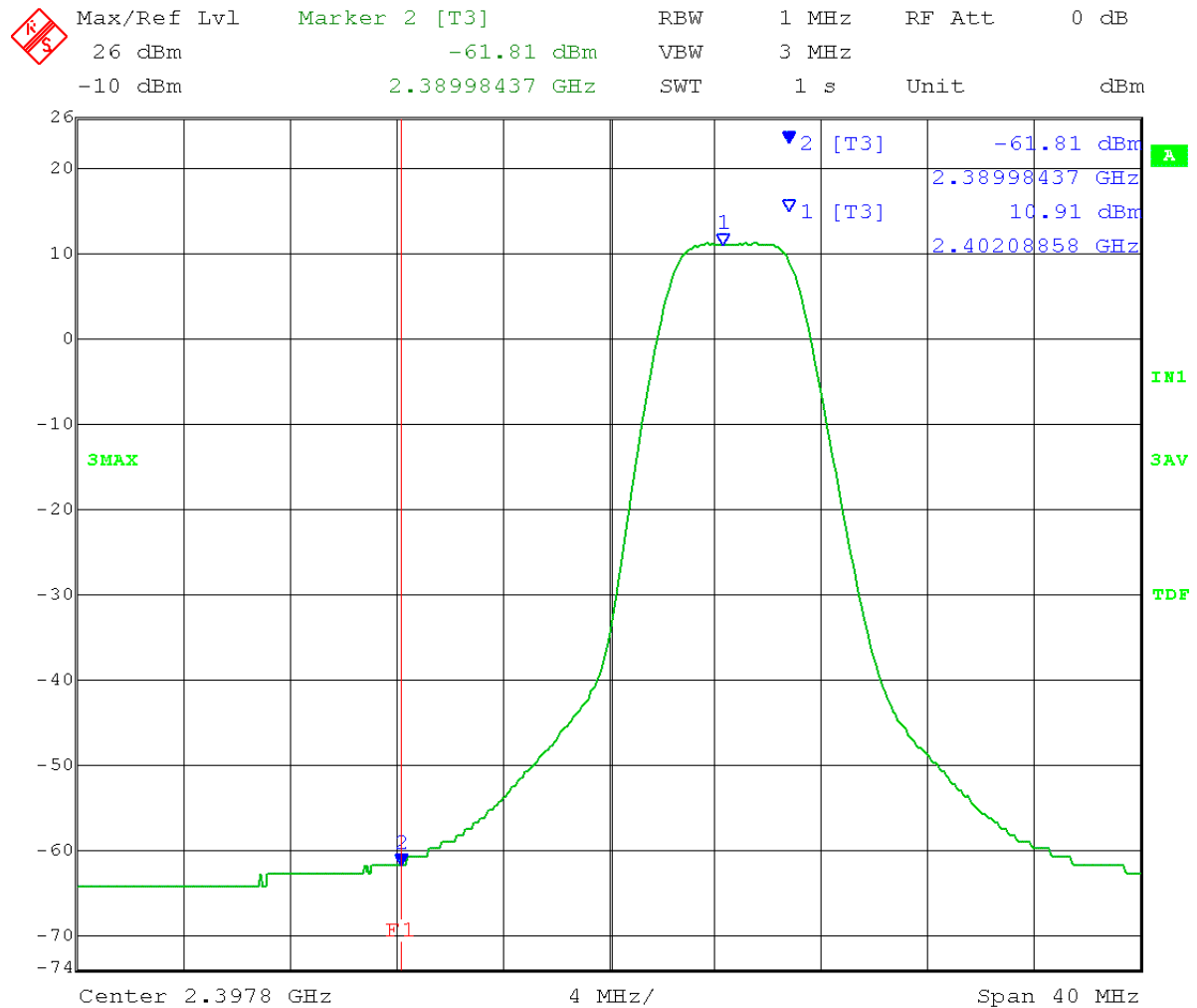
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Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2460 MHz
 Output power setting: 16 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Peak Limit = 74dBuV/m @ 3 meters Conducted measurement (CH A)
 -32.52+ 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 73.74dBuV/m
 @ 3 meters



Date: 25.APR.2013 10:58:40

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 Low Channel Frequency = 2402.5MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH B)
 -61.81Bm + 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 44.45dBuV/m
 @ 3 meters

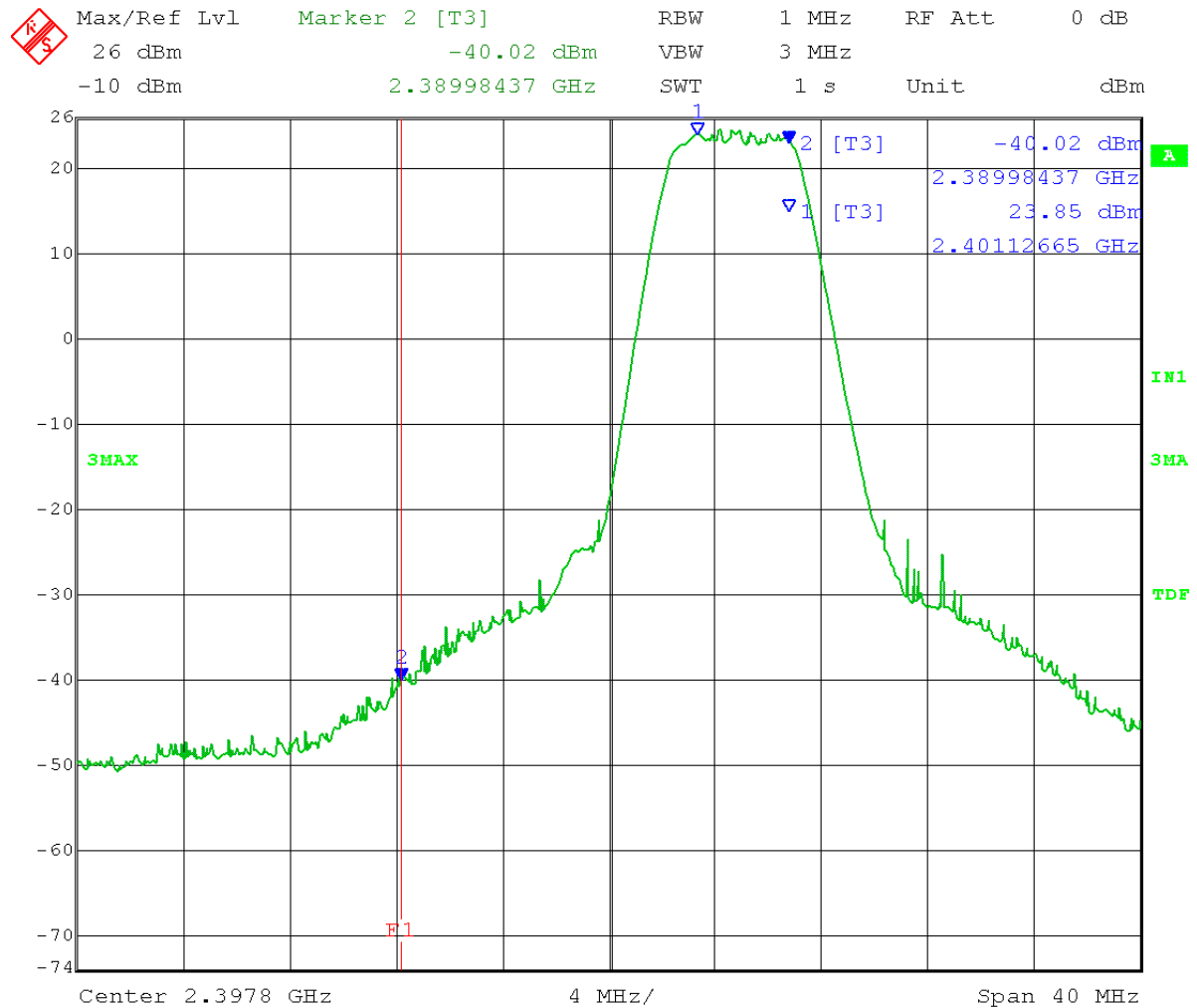


Date: 24.APR.2013 11:50:49

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands

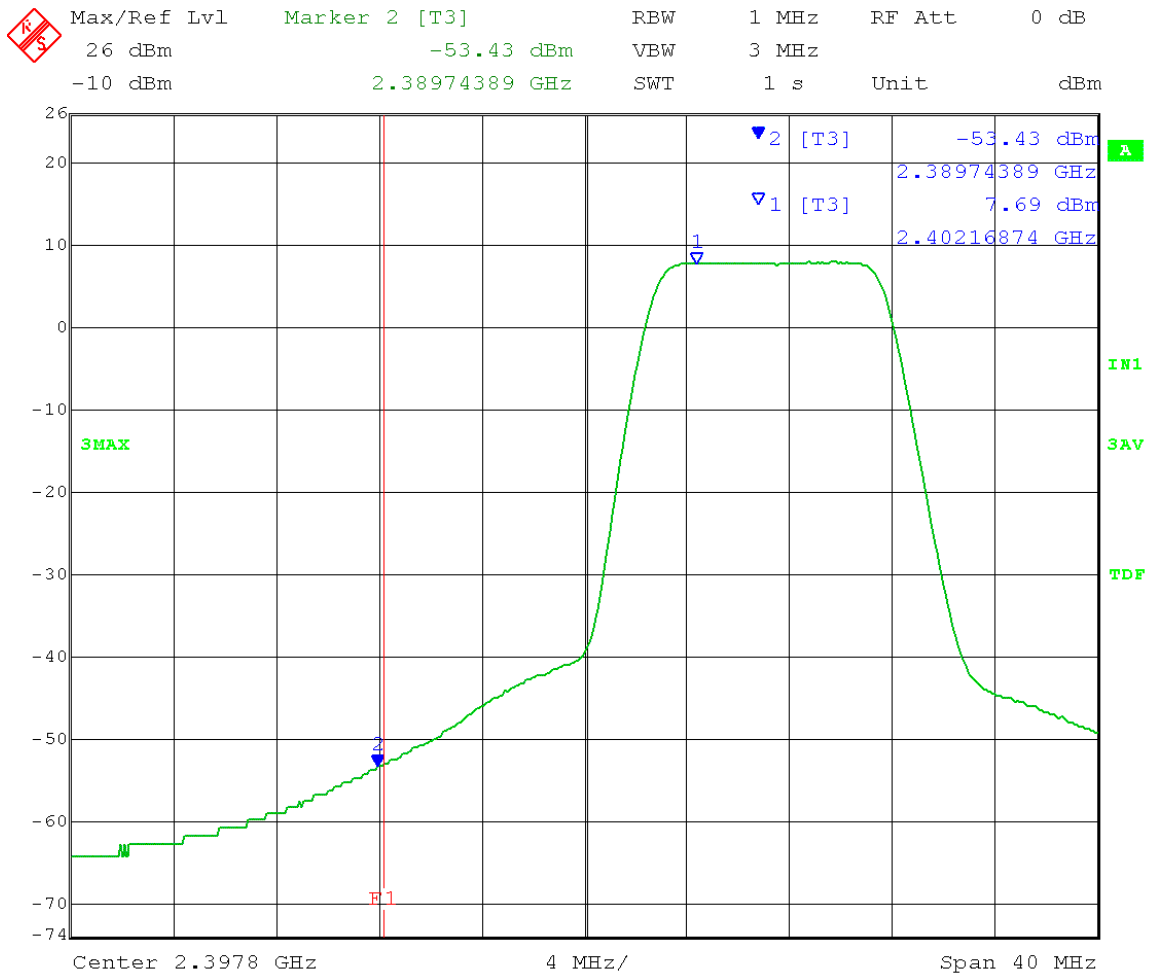
Operator: Jim O

Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 Low Channel Frequency = 2402.5 MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Peak Limit = 74dBuV/m @ 3 meters Conducted measurement (CH B)
 -40.02 + 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 66.23dBuV/m @
 3 meters



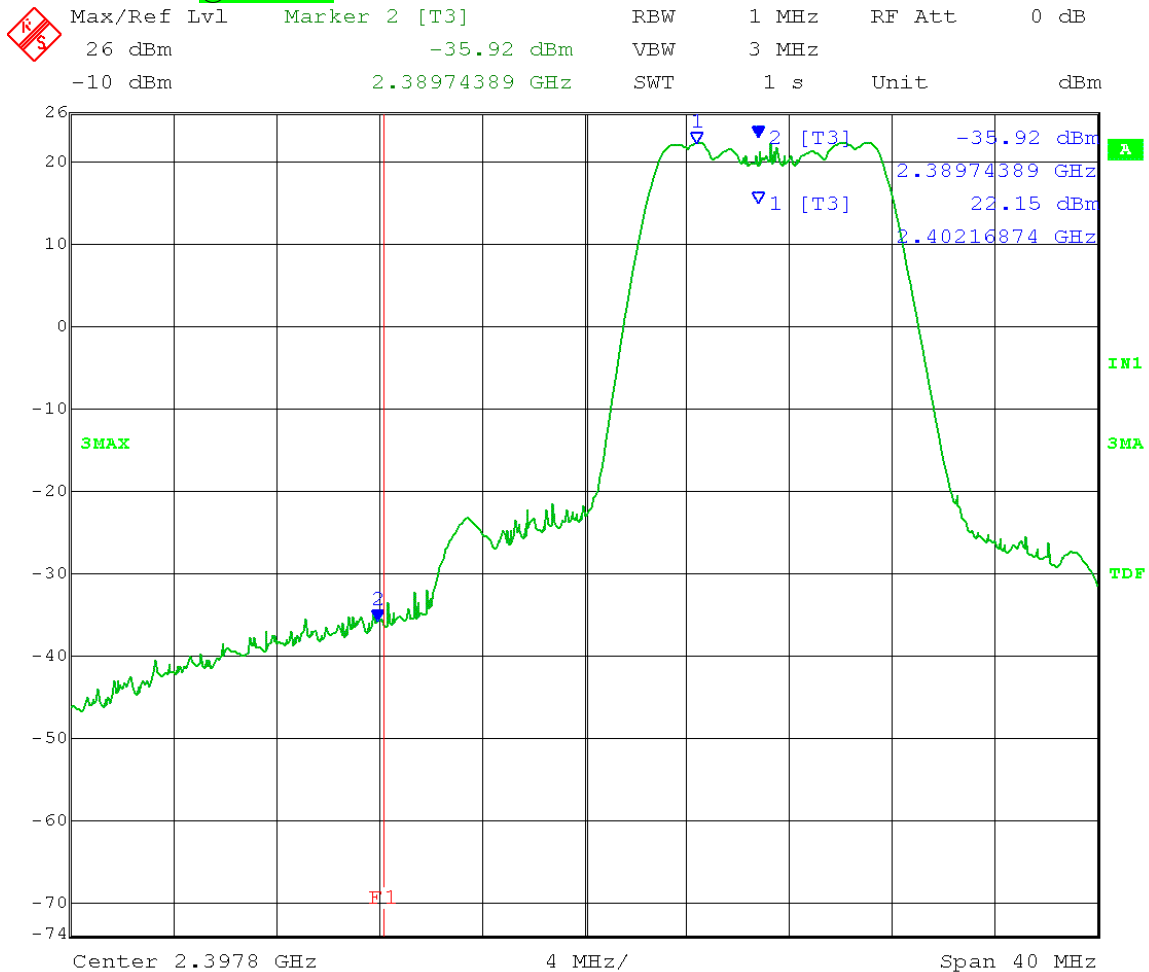
Date: 24.APR.2013 11:53:26

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 10 MHz Both Output Ports on
 Low Channel Frequency = 2405MHz
 Output power setting: 19 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH B)
 $-53.43\text{Bm} + 8\text{dBi (Ant Gain)} + 3\text{dB (MIMO)} - 20 \log (3\text{m}) + 104.8 =$
 $52.82\text{dBuV/m @ 3 meters}$



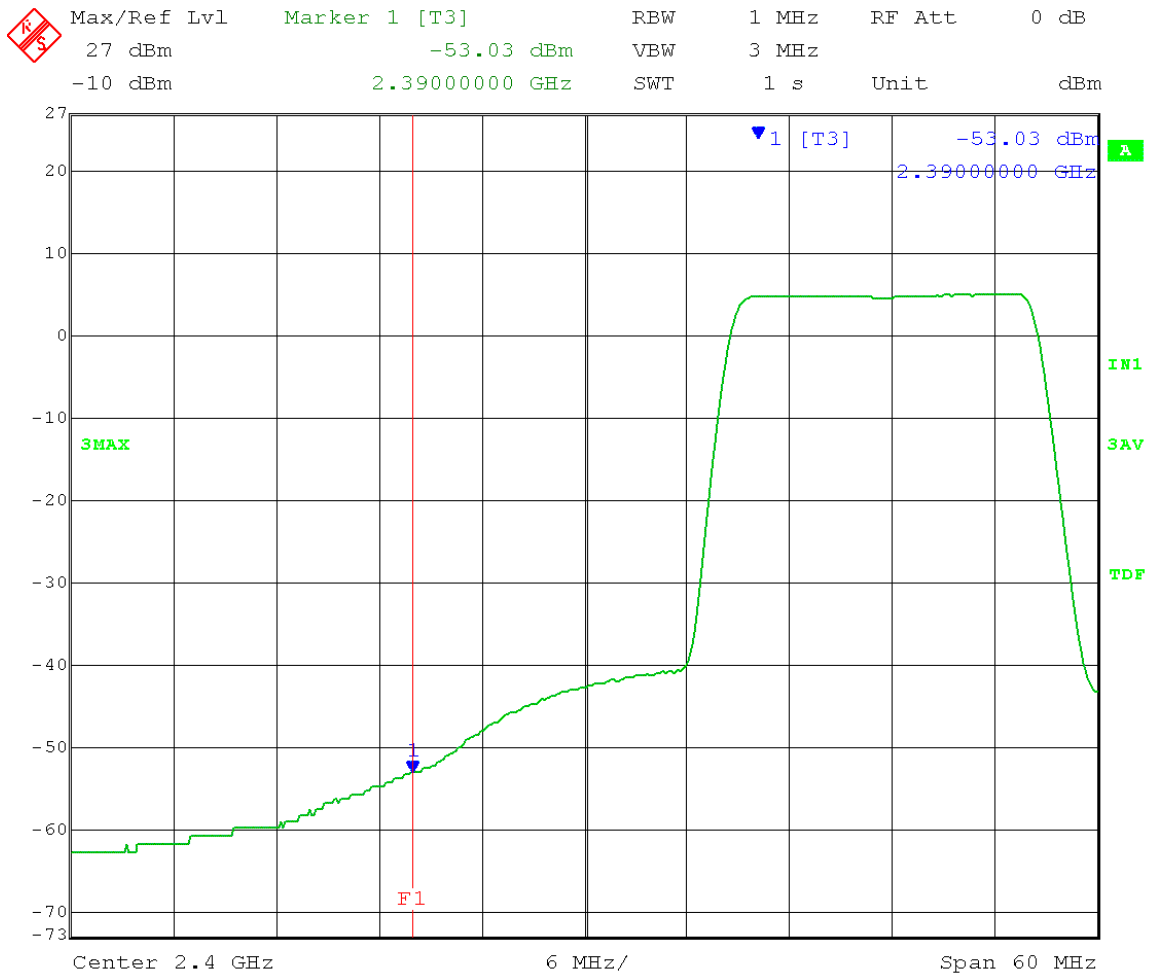
Date: 24.APR.2013 11:09:10

Test Date: 04-24-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 10 MHz Both Output Ports on
 Low Channel Frequency = 2405 MHz
 Output power setting: 22 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Peak Limit = 74dBuV/m @ 3 meters
 Conducted measurement (CH B)
-35.92 + 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 70.33dBuV/m @ 3 meters



Date: 24.APR.2013 11:08:17

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 Low Channel Frequency = 24175MHz
 Output power setting: 18 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH B)
 -53.03Bm + 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 =
 52.98dBuV/m @ 3 meters

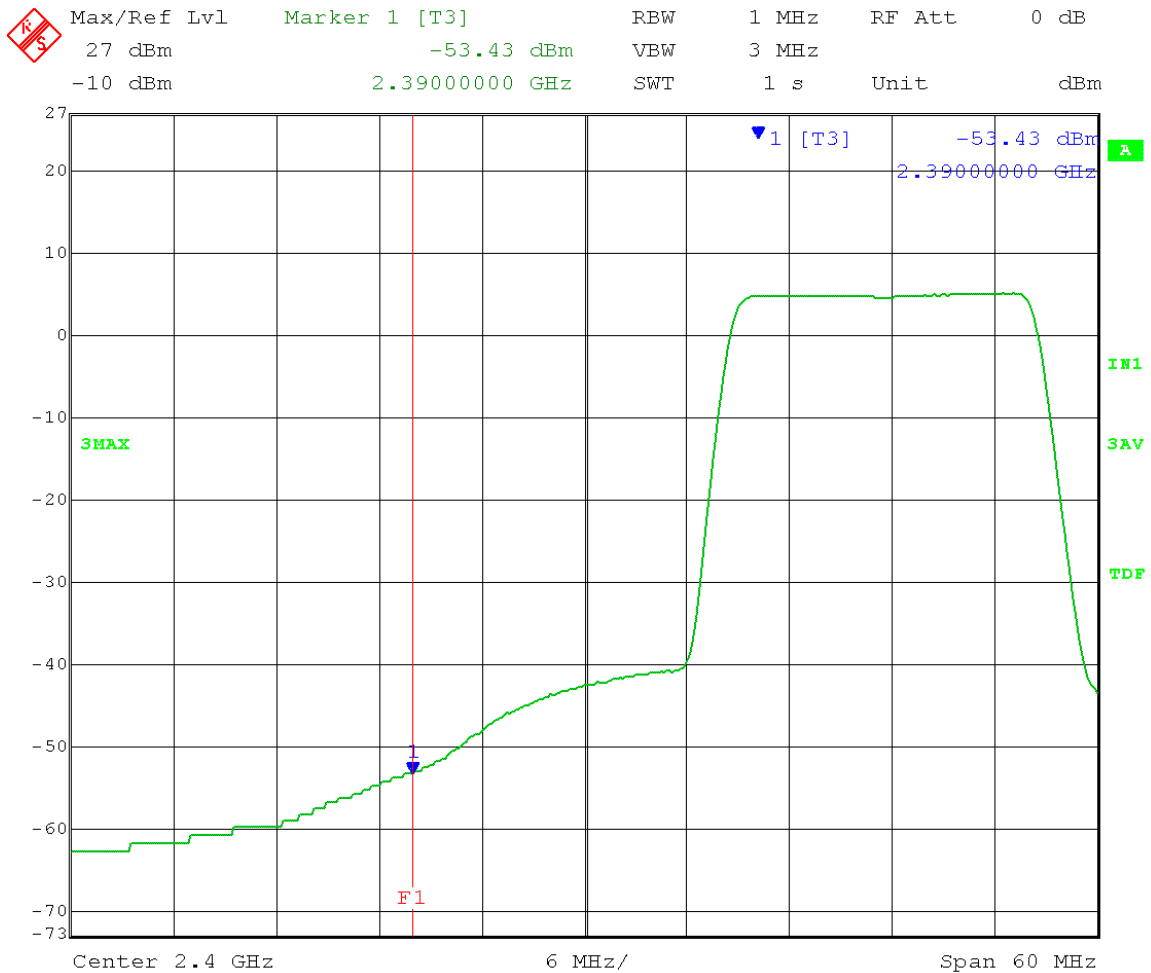


Date: 25.APR.2013 10:13:57

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Lower Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands

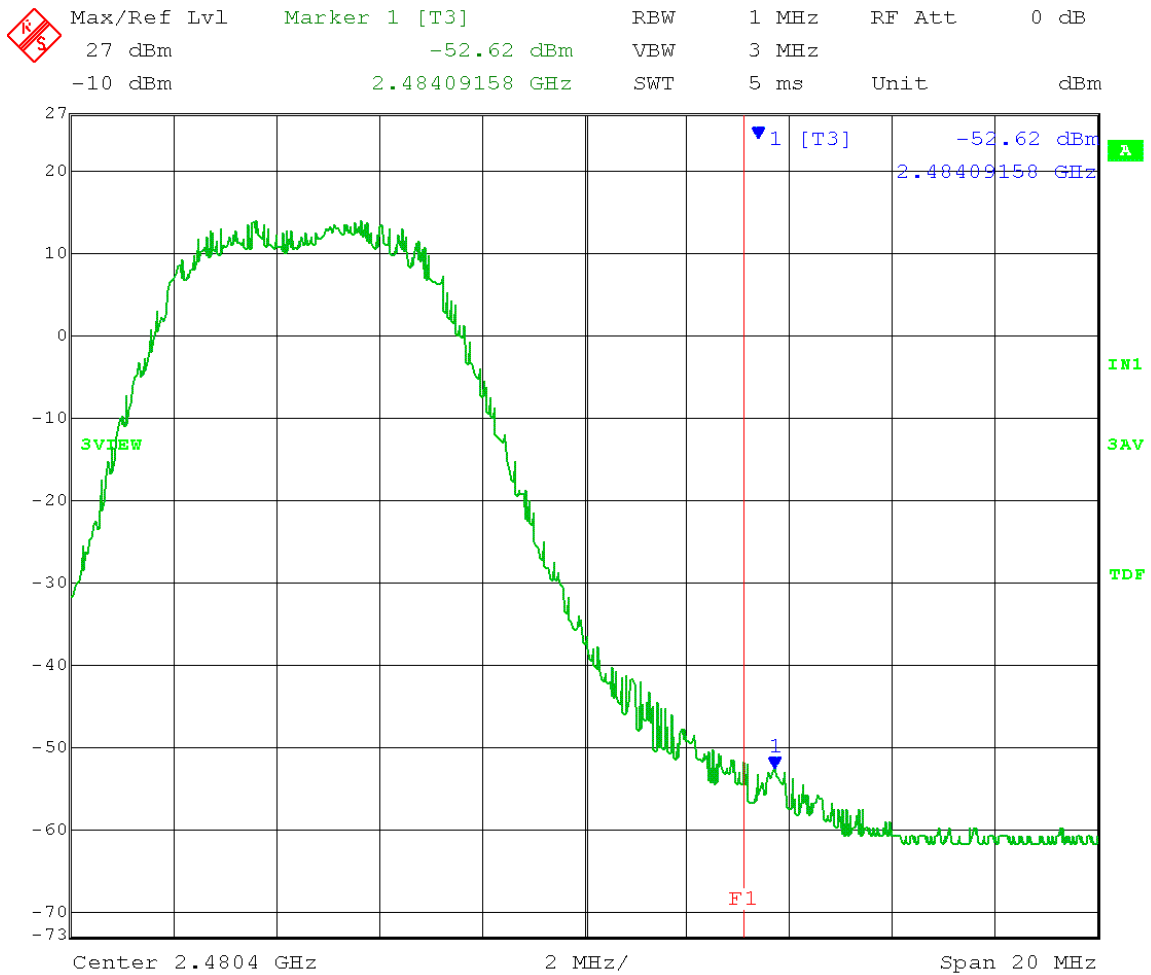
Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 Low Channel Frequency = 24175 MHz
 Output power setting: 19 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.39 GHz
 Peak Limit = 74dBuV/m @ 3 meters
 Conducted measurement (CH B)

$-33.43 + 8 \text{ dBi (Ant Gain)} + 3\text{dB (MIMO)} - 20 \log(3\text{m}) + 104.8 = 72.84\text{dBuV/m}$
 @ 3 meters



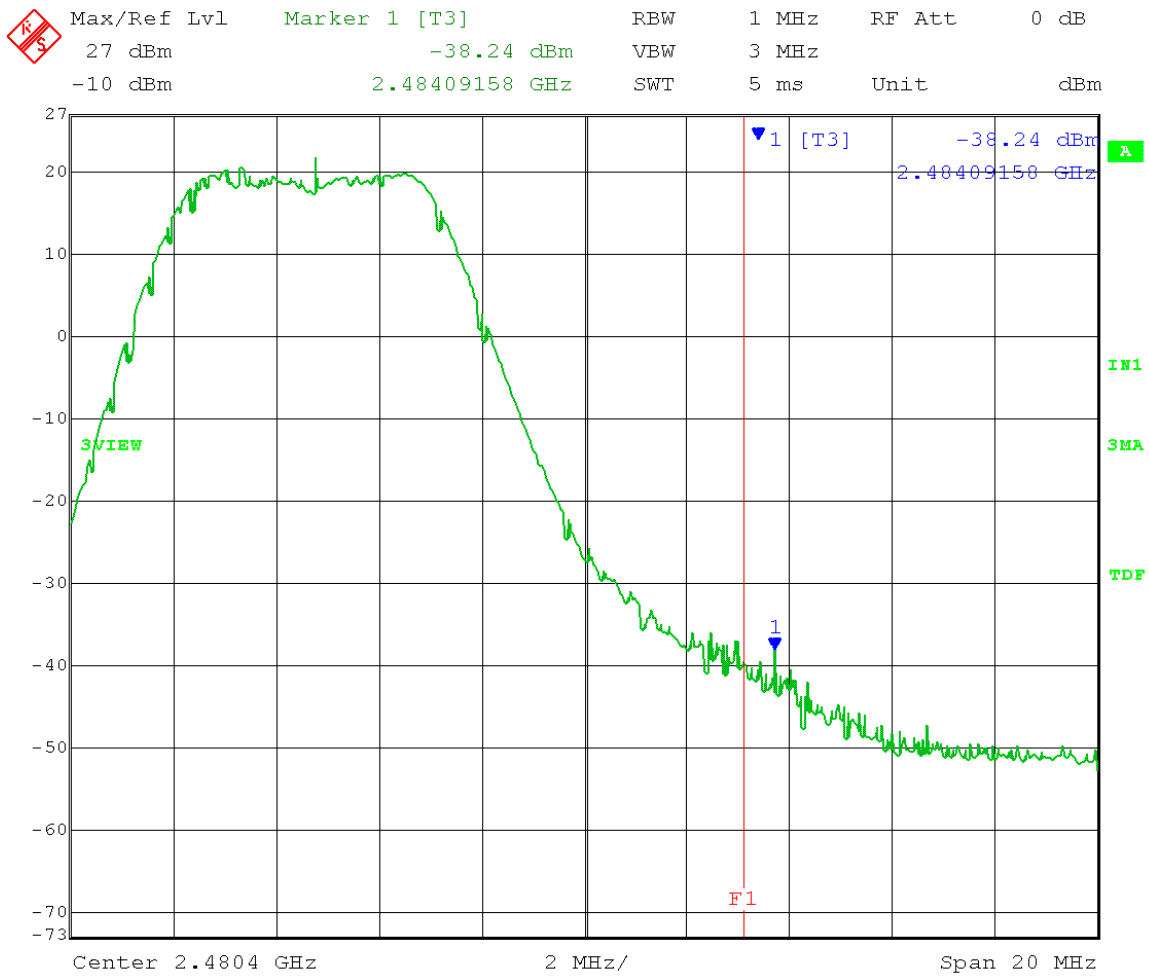
Date: 25.APR.2013 09:56:00

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 High Channel Frequency = 2475MHz
 Output power setting: 15 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH B)
 -52.62+ 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 53.64dBuV/m
 @ 3 meters



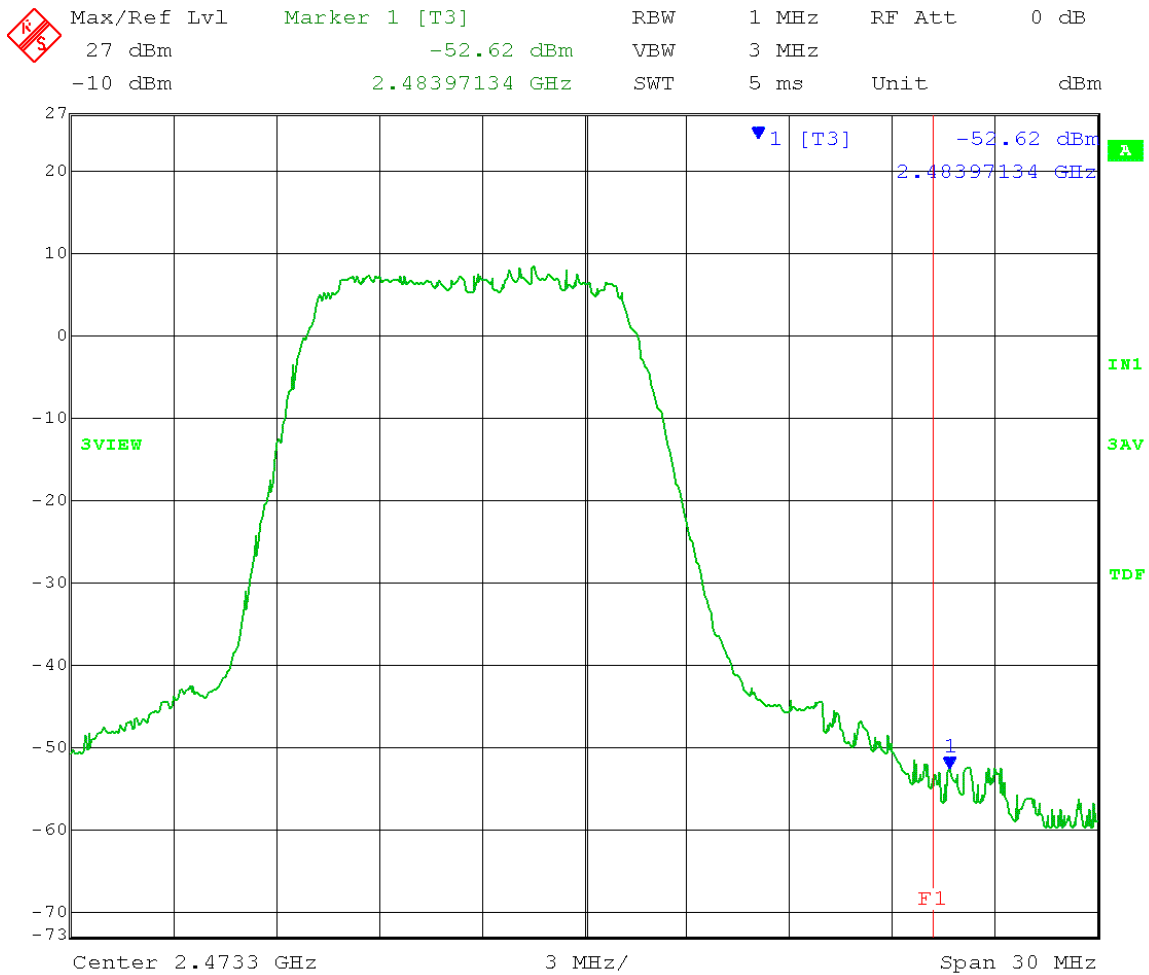
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Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 5 MHz Both Output Ports on
 High Channel Frequency = 2475 MHz
 Output power setting: 15 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Peak Limit = 74dBuV/m @ 3 meters Conducted measurement (CH B)
 -38.24 + 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 68.02dBuV/m
 @ 3 meters



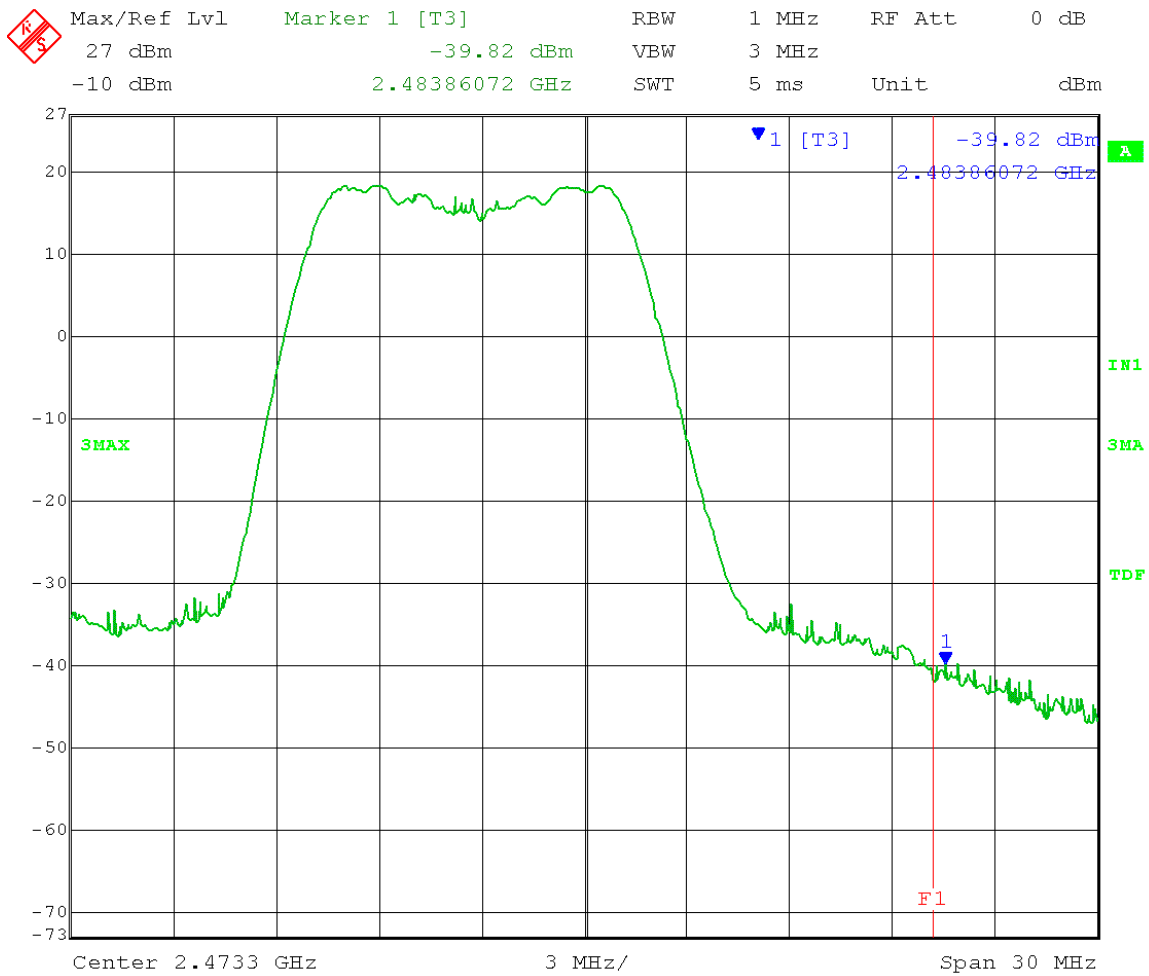
Date: 25.APR.2013 11:42:16

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2470MHz
 Output power setting: 15 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH B)
 -52.62+ 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 53.64dBuV/m
 @ 3 meters



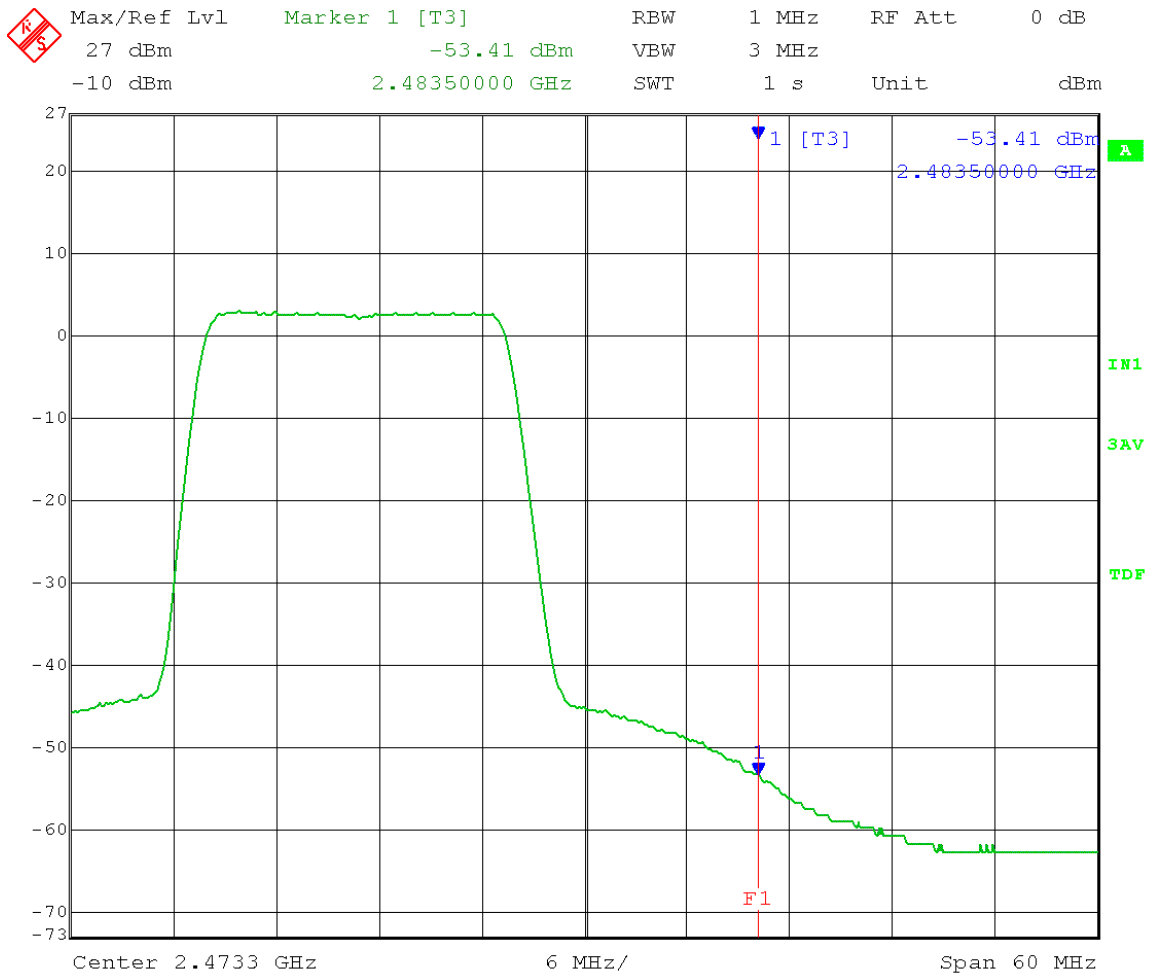
Date: 25.APR.2013 11:28:28

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2470 MHz
 Output power setting: 15 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Peak Limit = 74dBuV/m @ 3 meters Conducted measurement (CH B)
 -39.82+ 8 dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 = 66.44dBuV/m
 @ 3 meters



Date: 25.APR.2013 11:22:59

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands
 Operator: Jim O
 Comments: RBW = 1MHz VBW ≥ 3MHz
 Detector = Average Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2460MHz
 Output power setting: 16 (CH B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Average Limit = 54dBuV/m @ 3 meters Conducted measurement (CH B)
 -53.03Bm + 8dBi (Ant Gain) + 3dB (MIMO) – 20 log (3m) + 104.8 =
 52.85dBuV/m @ 3 meters



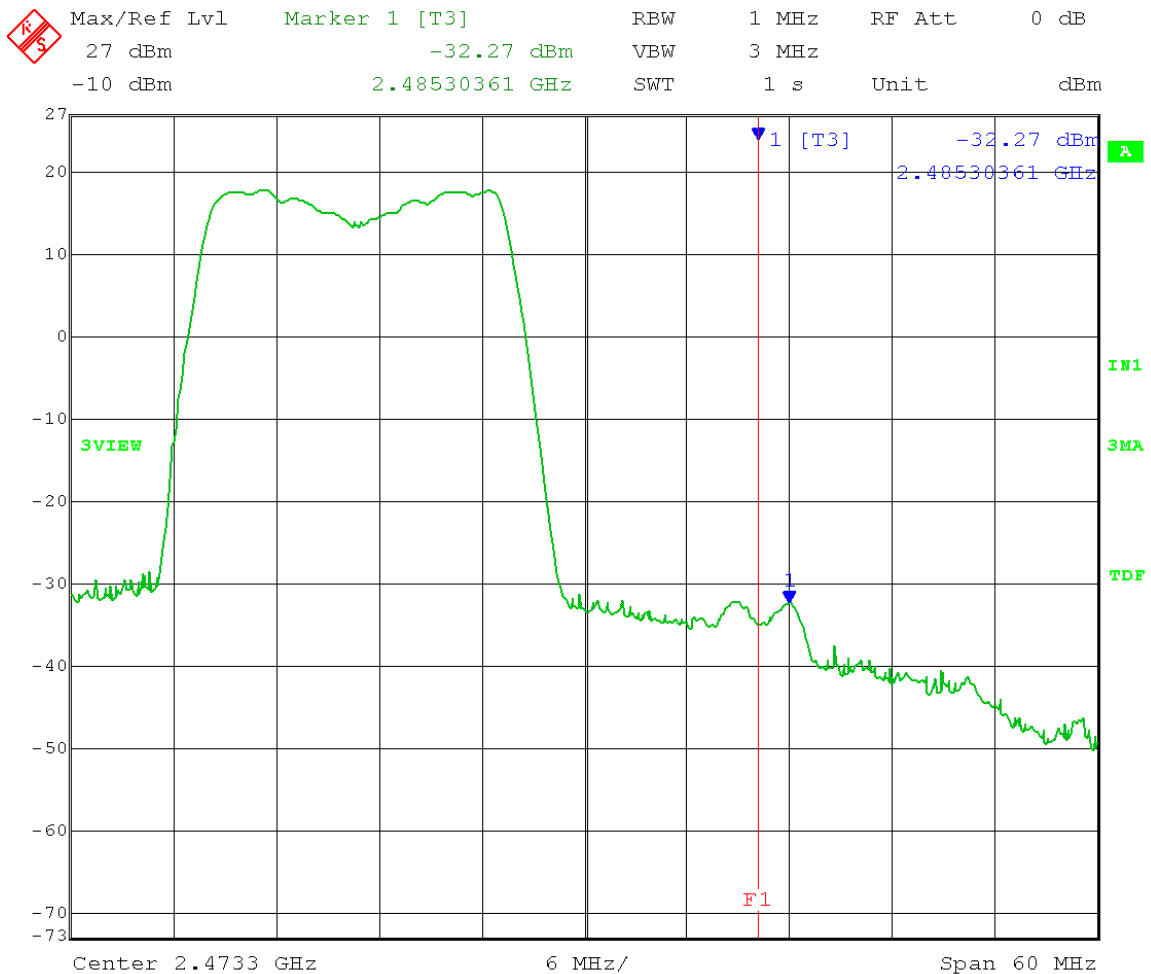
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Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM 2.4 GHz OFDM SN: 0A003E47D0A3
 Test: Maximum Unwanted Emission Levels – Radiated Upper Band-Edge
 Procedure: FCC KDB 558074 D01 DTS Meas Guidance v03r01
 Section 12.2.2 Radiated Emission Measurements in Restricted Frequency Bands

Operator: Jim O

Comments: RBW = 1MHz; VBW ≥ 3MHz
 Detector = Peak Trace mode = max hold
 EUT nominal channel bandwidth = 20 MHz Both Output Ports on
 High Channel Frequency = 2460 MHz
 Output power setting: 16 (CH A&B) Modulation Type = OFDM/QPSK
 Restricted Band-edge frequency (F1) = 2.4835 GHz
 Peak Limit = 74dBuV/m @ 3 meters
 Conducted measurement (CH B)

$-32.27 + 8 \text{ dBi (Ant Gain)} + 3 \text{ dB (MIMO)} - 20 \log(3\text{m}) + 104.8 = 73.99 \text{ dBuV/m}$
 @ 3 meters



Date: 25.APR.2013 10:51:57



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A6.0 Maximum Unwanted Emission Levels – Conducted Band-Edge

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*

11.0 Emissions in non-restricted frequency bands

Description: RBW = 100 kHz
VBW \geq 300 kHz
Span = 5-30% greater than the EBW – (Reference Level)
Span = spectrum to be examined – (Unwanted Emissions)
Detector = peak
Sweep = auto couple
Trace mode = max hold

Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low, middle and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle.

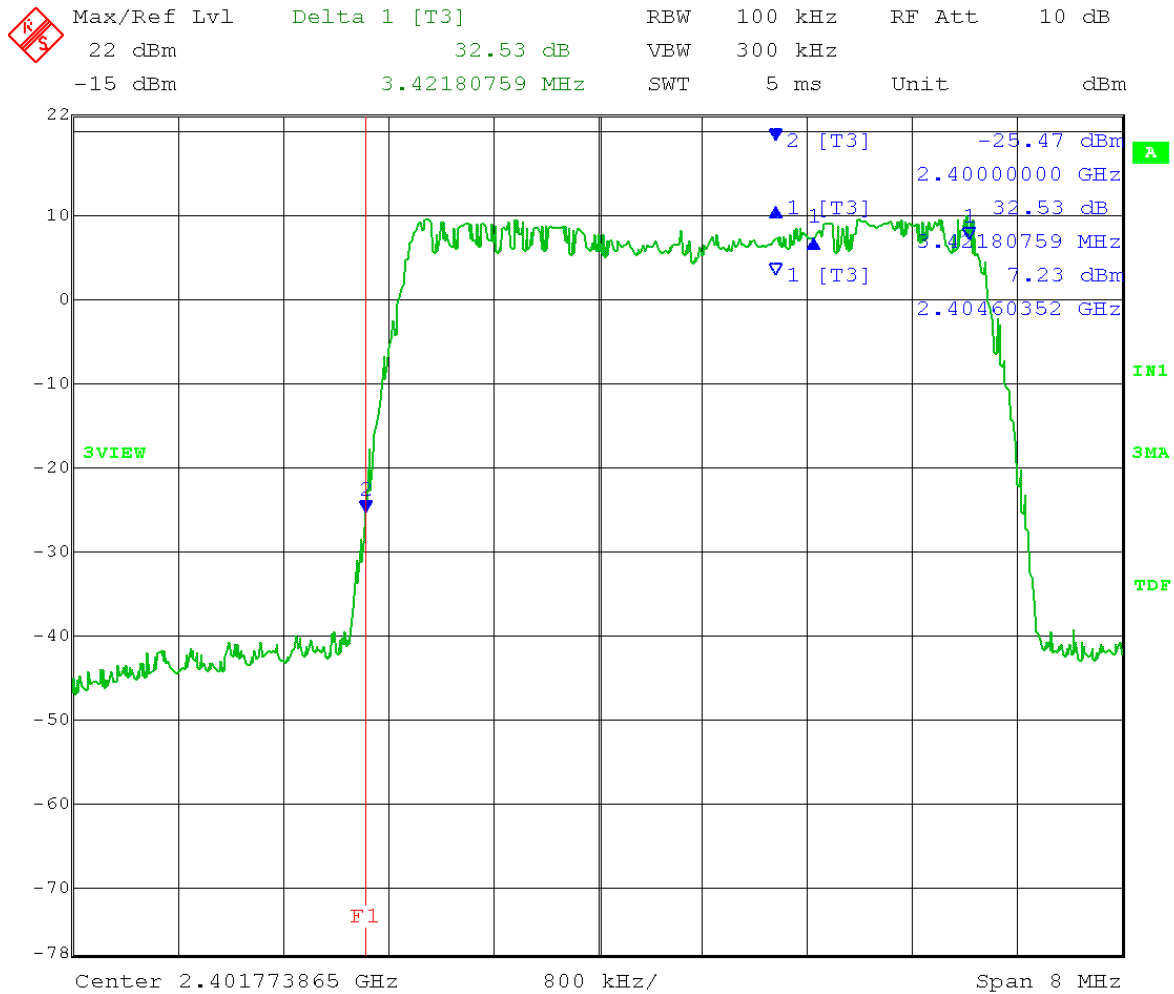
Limit: 30 dB below maximum in-band average PSD level (maximum level in any 100 kHz band). Average output power procedure was used to measure the fundamental emission power.

Results: Passed

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Lower Band-Edge Measurements - Conducted
 Operator: Jim O

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

Low Channel: Transmit = 2.4025 GHz Output power setting: 15
 5MHz BW Channel A
 Band-Edge Frequency (F1) = 2.4 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 32.52dBm

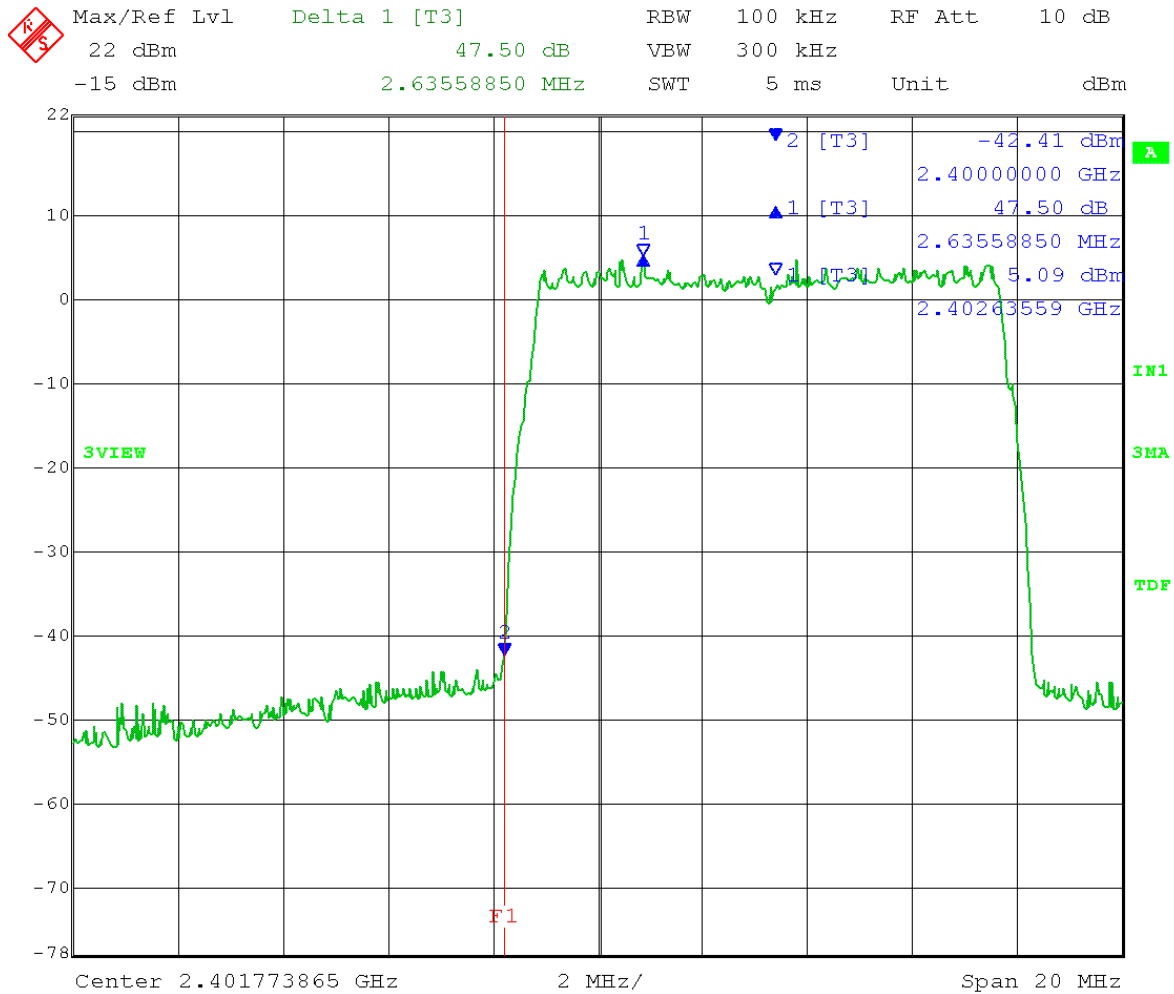


Date: 25.APR.2013 12:48:12

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Lower Band-Edge Measurements - Conducted
 Operator: Jim O

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

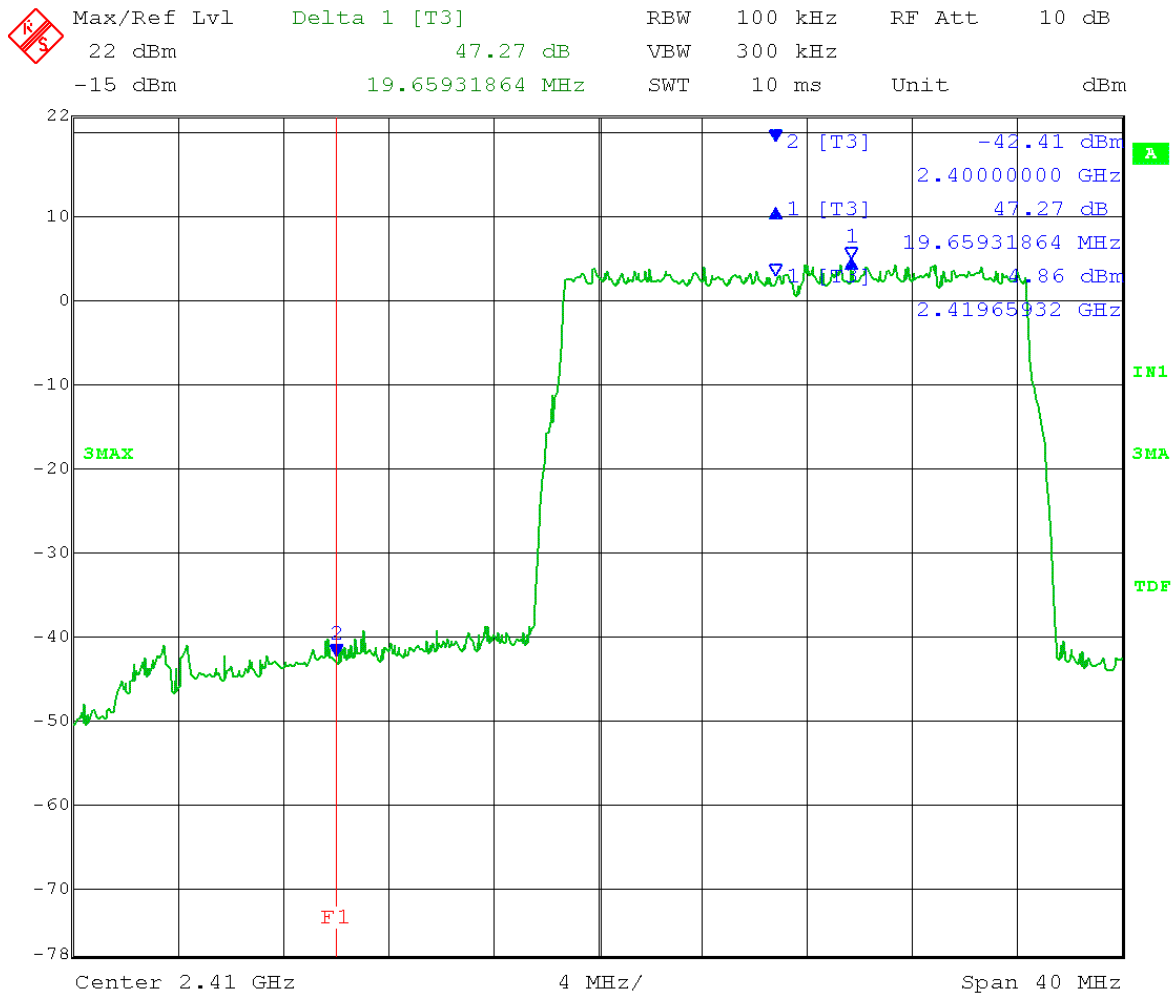
Low Channel: Transmit = 2.405 GHz Output power setting: 15
 10MHz BW Channel A
 Band-Edge Frequency (F1) = 2.4 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 47.50dBm



Date: 25.APR.2013 12:57:48

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Lower Band-Edge Measurements - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold
 Low Channel: Transmit = 2.4175 GHz Output power setting: 18
 20MHz BW Channel A
 Band-Edge Frequency (F1) = 2.4 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 47.27dBm

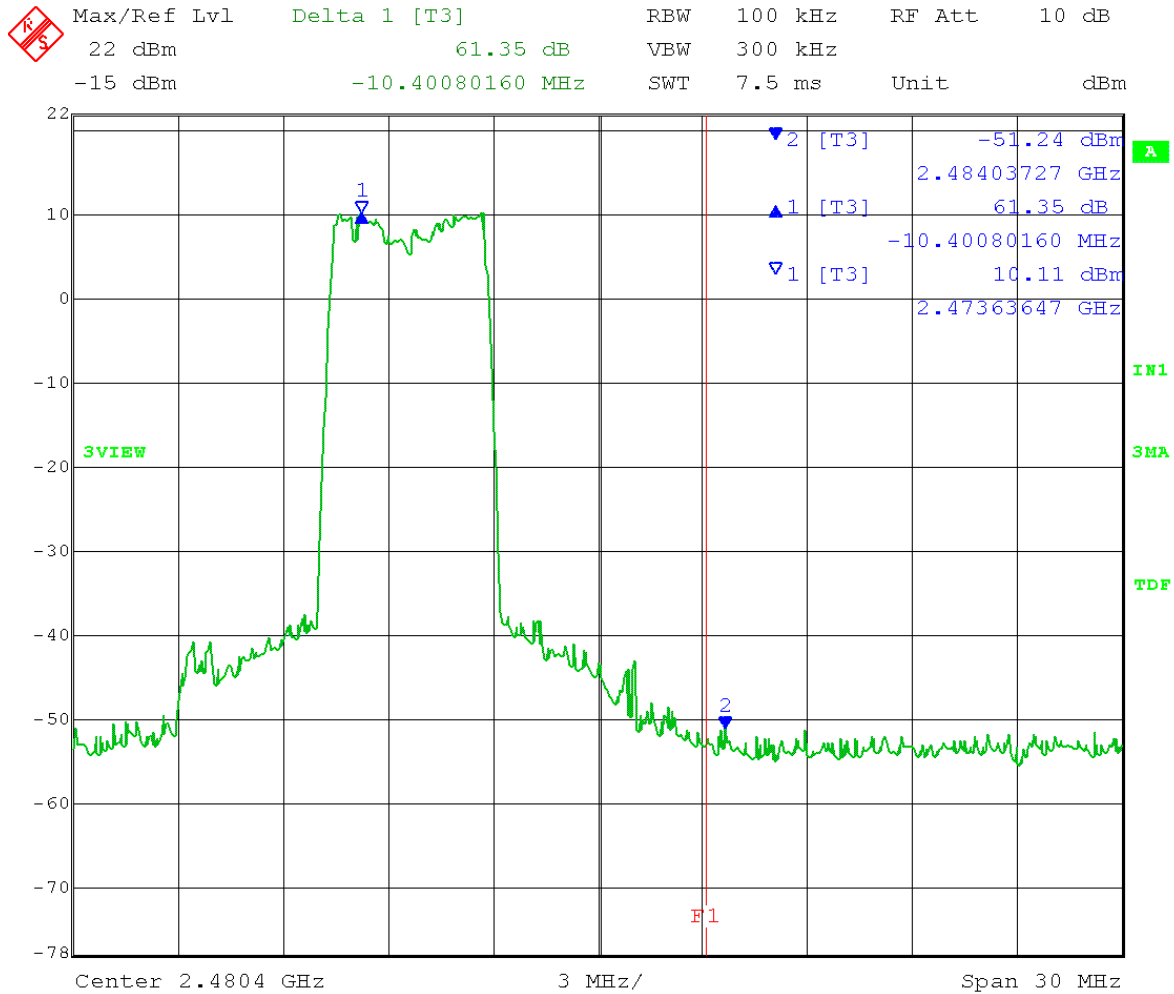


Date: 25.APR.2013 13:39:26

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Upper Band-Edge Measurements - Conducted
 Operator: Jim O

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

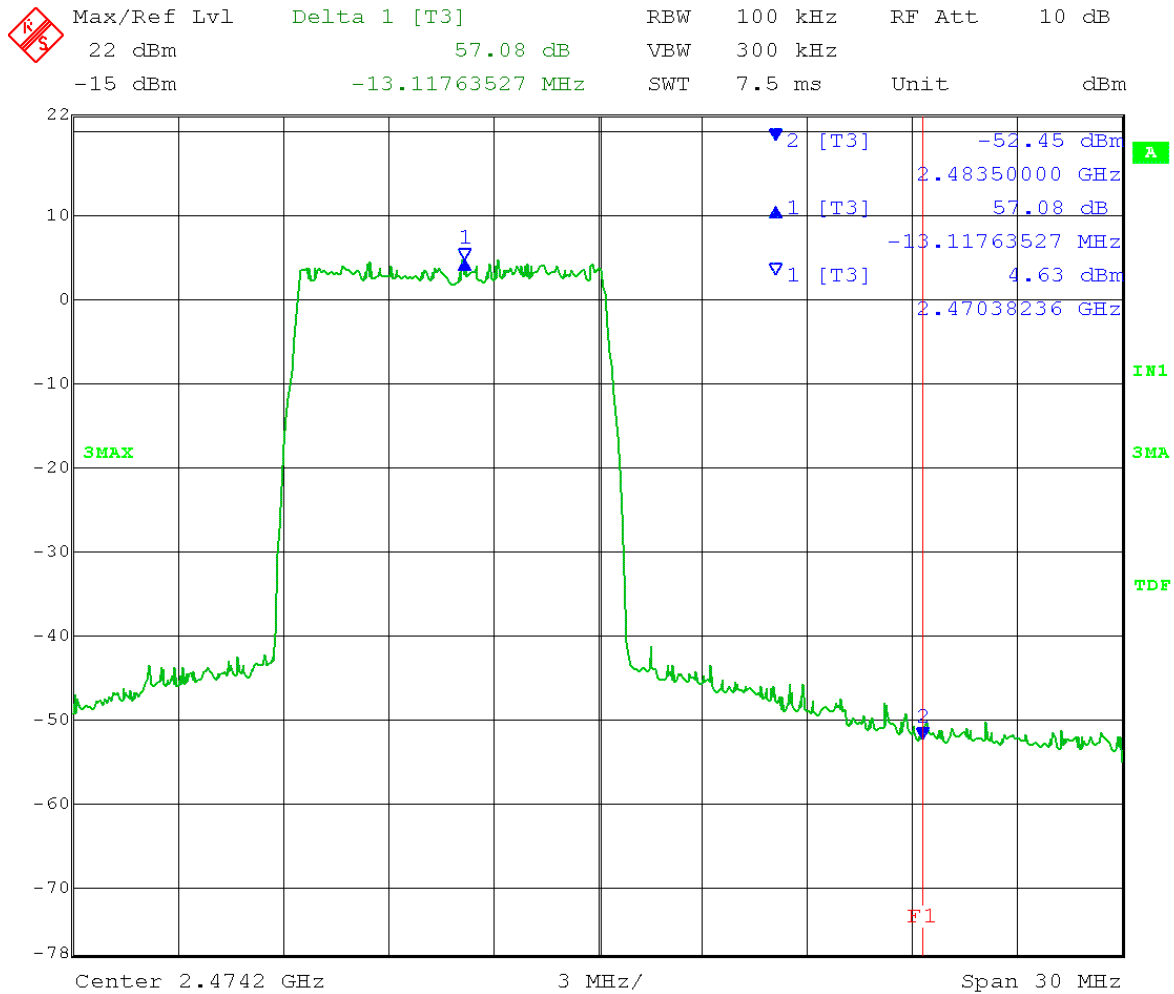
High Channel: Transmit = 2.475 GHz Output power setting: 15
 5MHz BW Channel A
 Band-Edge Frequency (F1) = 2.4835 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = **61.35dBm**



Date: 25.APR.2013 12:37:10

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Upper Band-Edge Measurements - Conducted
 Operator: Jim O

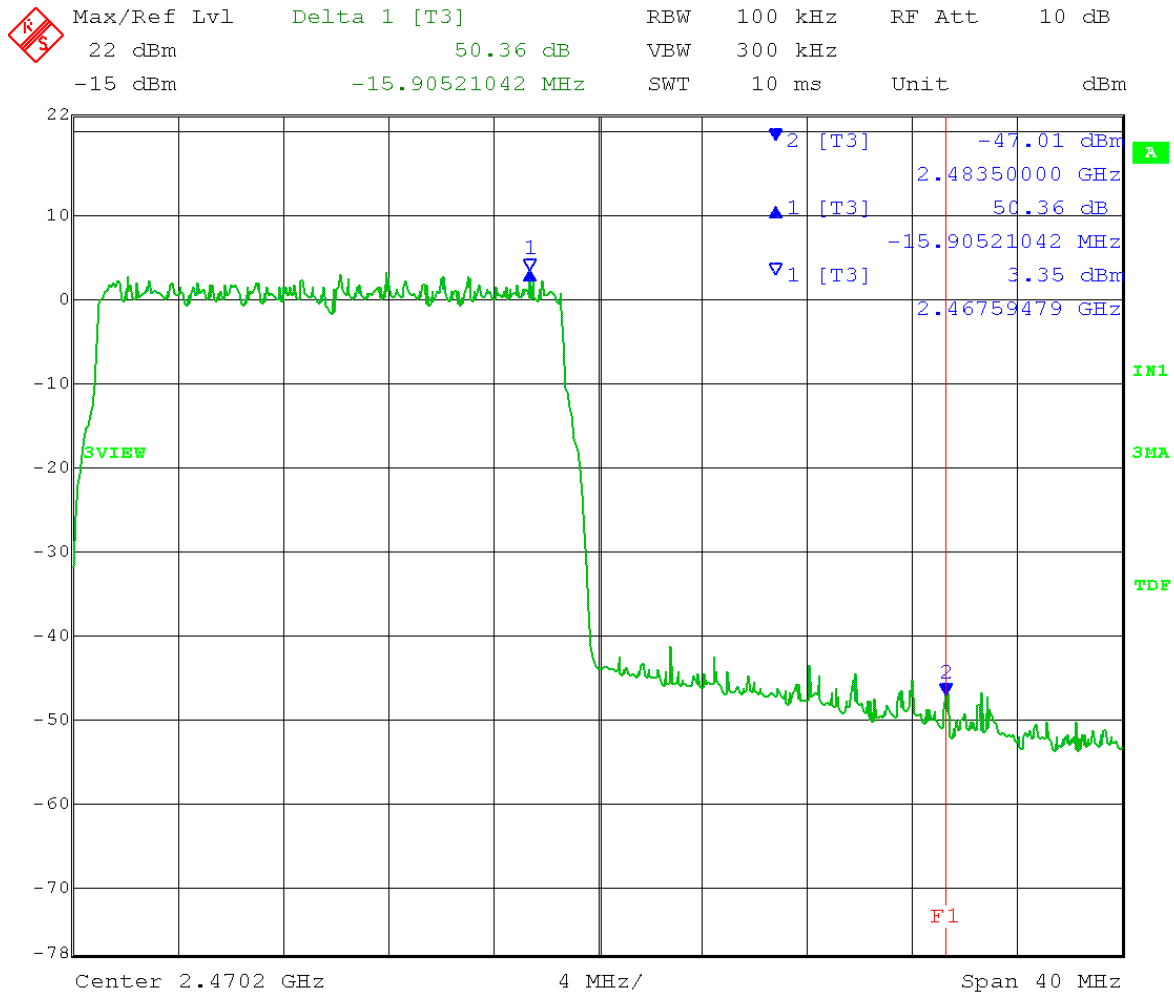
Comment: RBW = 100 kHz VBW \geq 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold
 High Channel: Transmit = 2.470 GHz Output power setting: 15
 10MHz BW Channel A
 Band-Edge Frequency (F1) = 2.4835 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 57.08dBm



Date: 25.APR.2013 13:19:21

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Upper Band-Edge Measurements - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold
 High Channel: Transmit = 2.460 GHz Output power setting: 16
 20MHz BW Channel A
 Band-Edge Frequency (F1) = 2.4835 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 50.36dBm

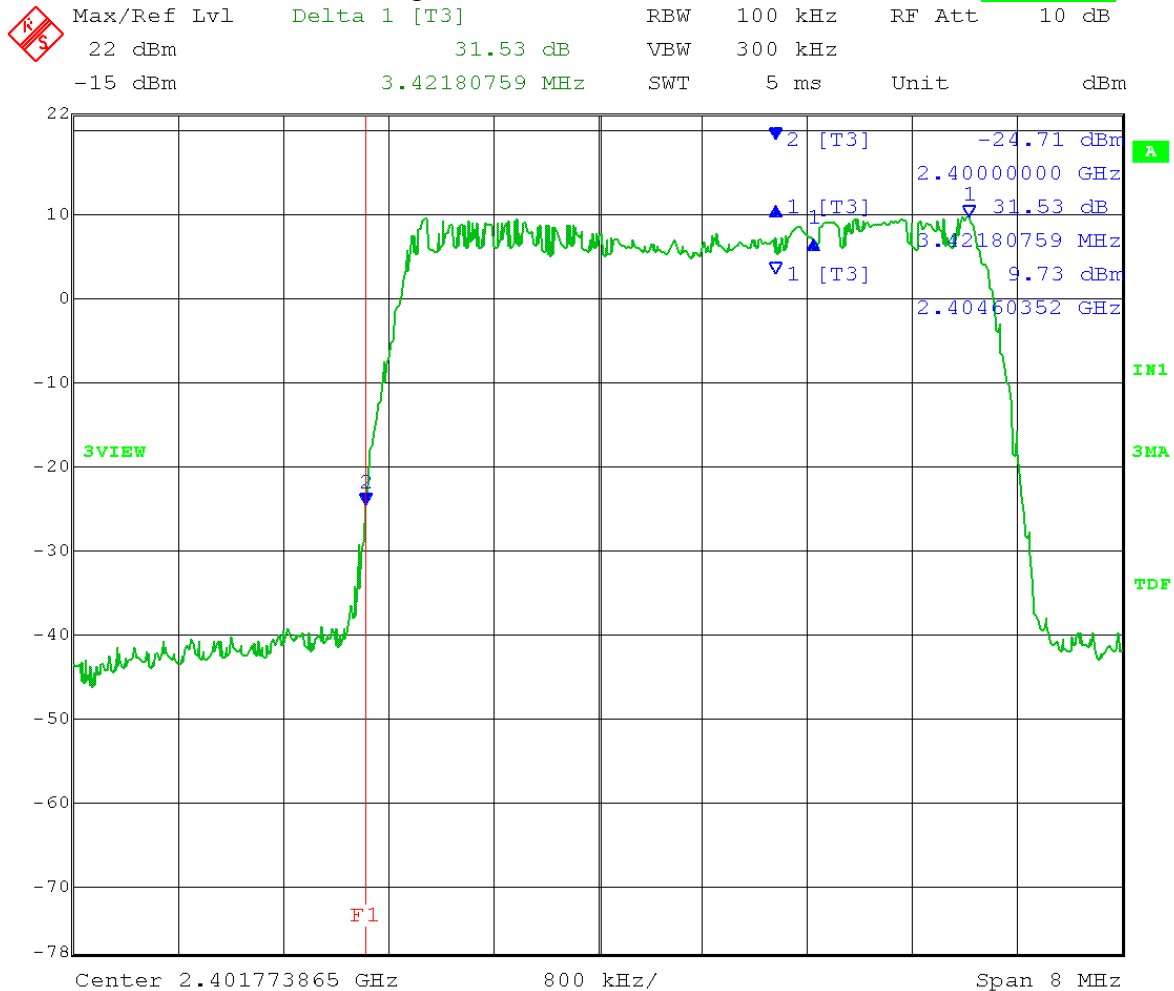


Date: 25.APR.2013 13:24:58

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Lower Band-Edge Measurements - Conducted
 Operator: Jim O

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

Low Channel: Transmit = 2.4025 GHz Output power setting: 15
 5MHz BW Channel B
 Band-Edge Frequency (F1) = 2.4 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = **31.53dBm**

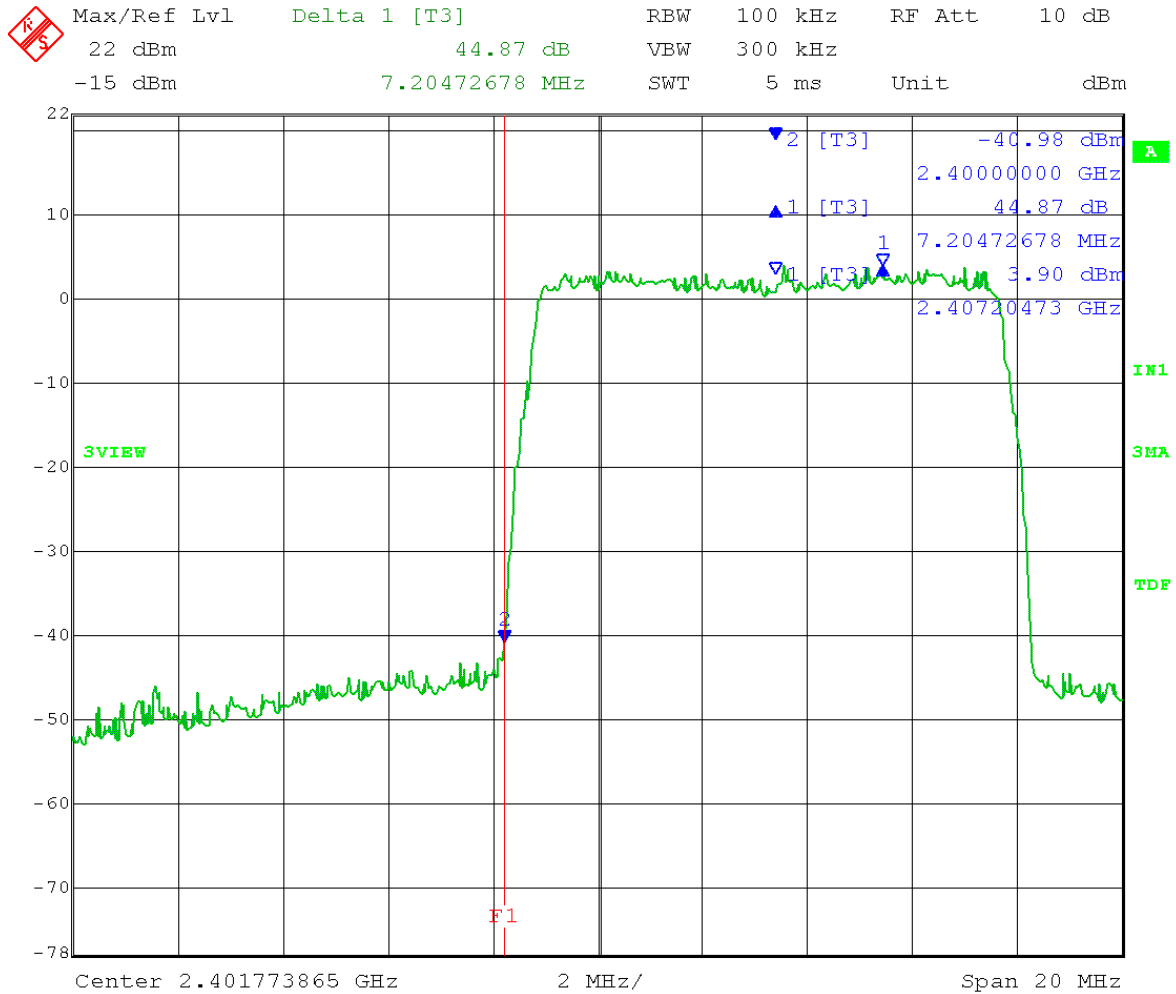


Date: 25.APR.2013 12:46:11

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Lower Band-Edge Measurements - Conducted
 Operator: Jim O

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

Low Channel: Transmit = 2.405 GHz Output power setting: 15
 10MHz BW Channel B
 Band-Edge Frequency (F1) = 2.4 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = **44.87dBm**

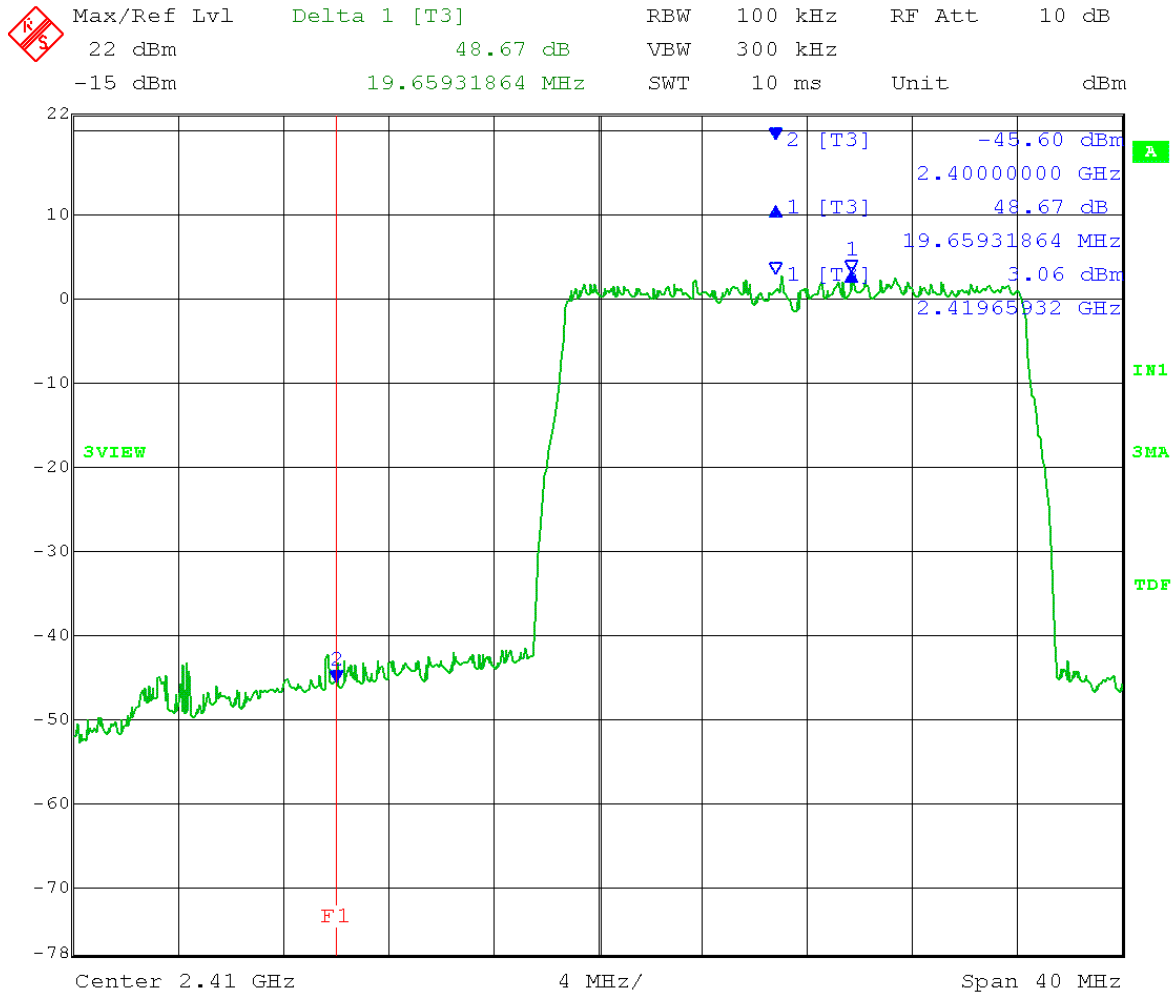


Date: 25.APR.2013 13:09:30

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Lower Band-Edge Measurements - Conducted
 Operator: Jim O

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

Low Channel: Transmit = 2.4175 GHz Output power setting: 18
 20MHz BW Channel B
 Band-Edge Frequency (F1) = 2.4 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 48.67dBm

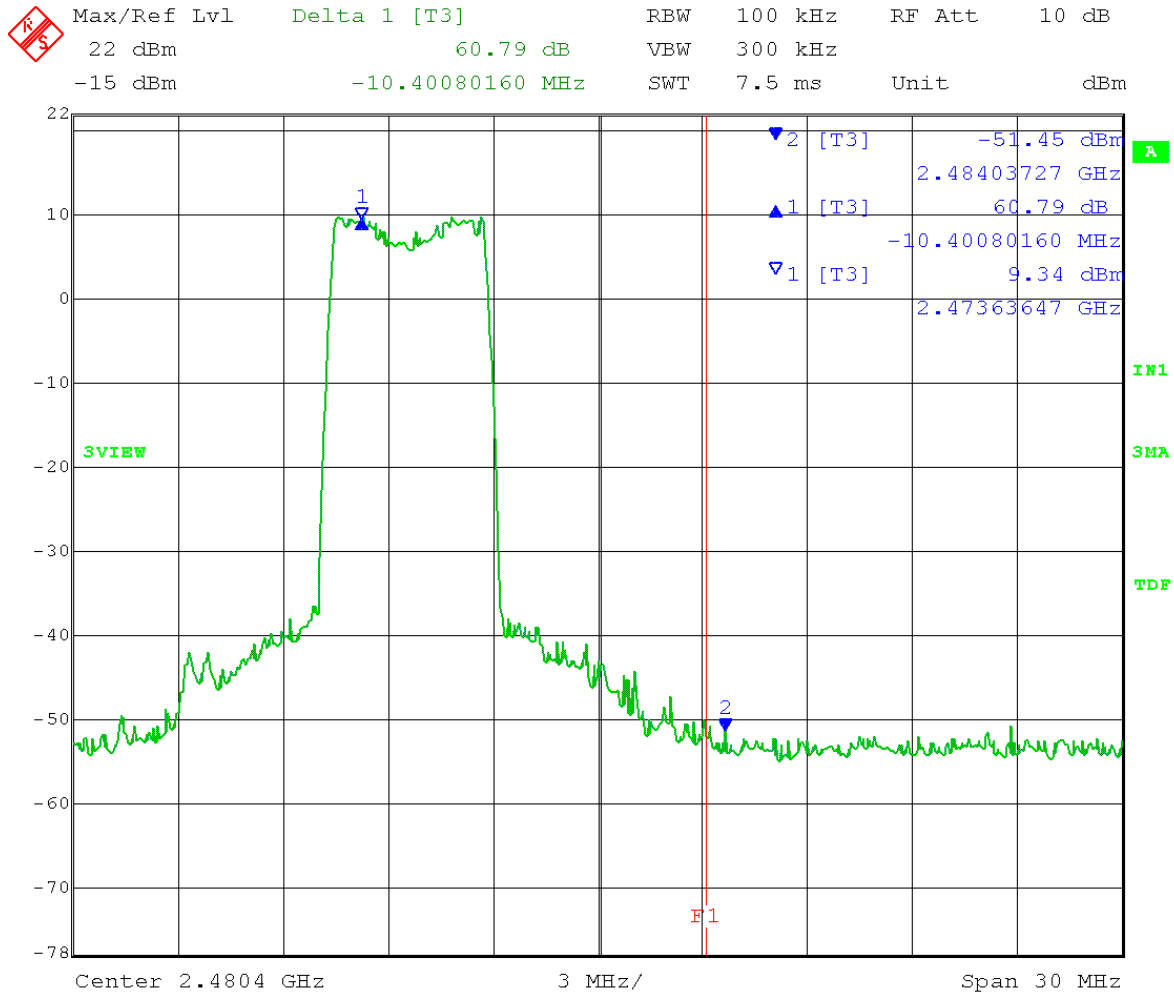


Date: 25.APR.2013 13:35:12

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Upper Band-Edge Measurements - Conducted
 Operator: Jim O

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

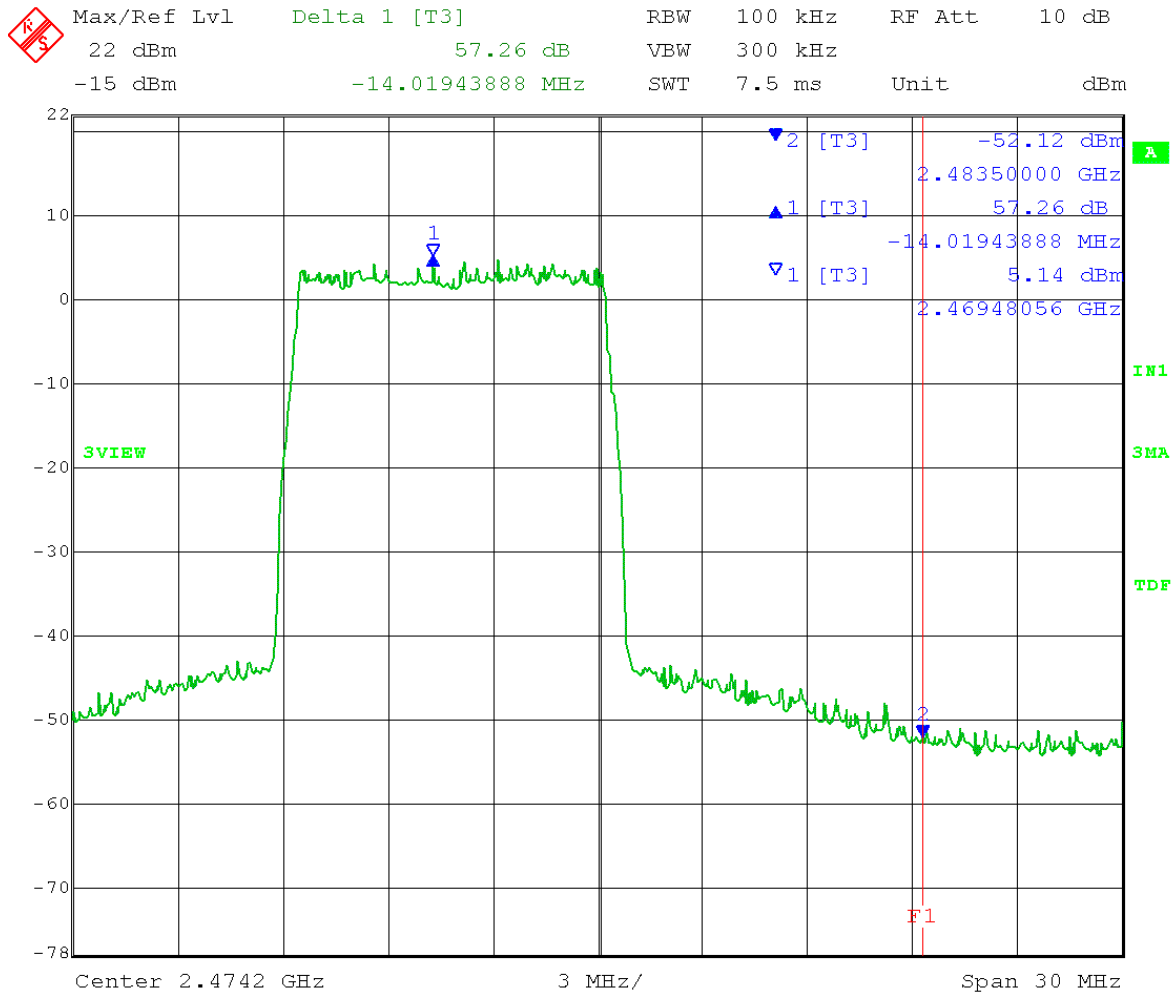
High Channel: Transmit = 2.475 GHz Output power setting: 15
 5MHz BW Channel B
 Band-Edge Frequency (F1) = 2.4835 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = **60.79dBm**



Date: 25.APR.2013 12:41:40

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Upper Band-Edge Measurements - Conducted
 Operator: Jim O

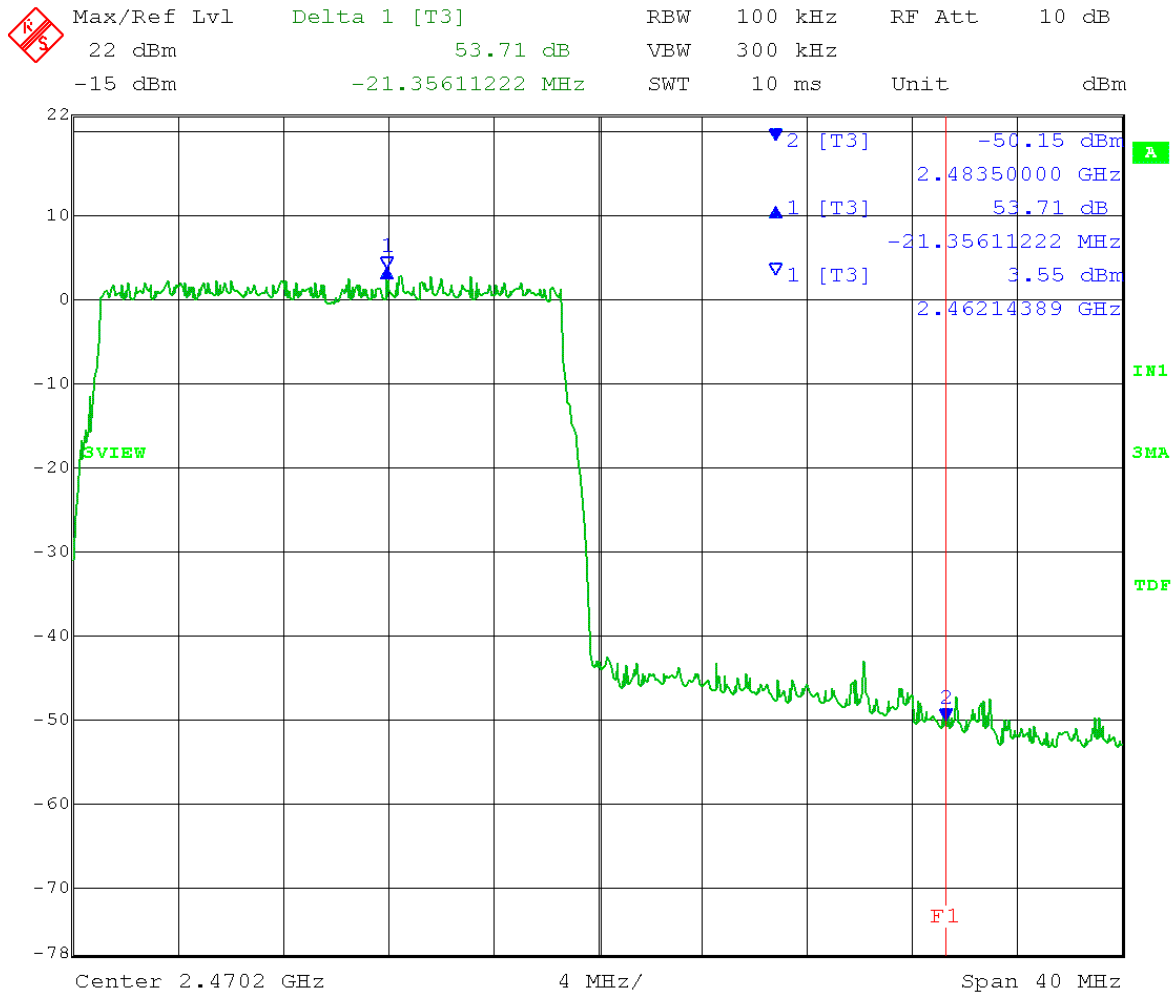
Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold
 High Channel: Transmit = 2.470 GHz Output power setting: 15
 10MHz BW Channel B
 Band-Edge Frequency (F1) = 2.4835 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 57.26dBm



Date: 25.APR.2013 13:16:58

Test Date: 04-25-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Upper Band-Edge Measurements - Conducted
 Operator: Jim O

Comment: RBW = 100 kHz VBW ≥ 300 kHz
 Detector = Peak Sweep = auto couple
 Trace = max hold
 High Channel: Transmit = 2.460 GHz Output power setting: 16
 20MHz BW Channel B
 Band-Edge Frequency (F1) = 2.4835 GHz
 Limit: Band-Edge > 30 dB below Peak In-Band Emission = 53.71dBm



Date: 25.APR.2013 13:28:26



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A7.0 Maximum 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*

ANSI C63.10:2009 – Sections 6.5 and 6.6

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 Section 15.205.

Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle. Data provided for the EUT being tested with the Integrated Patch, Dish, and Panel antennas.

Limit: FCC Part 15.209

Results: Passed

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM
Manufacturer: Cambium Networks
Operating Condition: 68 deg. F; 33% R.H.
Test Site: DLS O.F. Site 2
Operator: Jim O
Test Specification: Continuous Transmit Mode
Comment: with patch antenna tested at 10MHz BW Mid Channel
Date: 05-02-2013

TEXT: "Horz 3 meters"

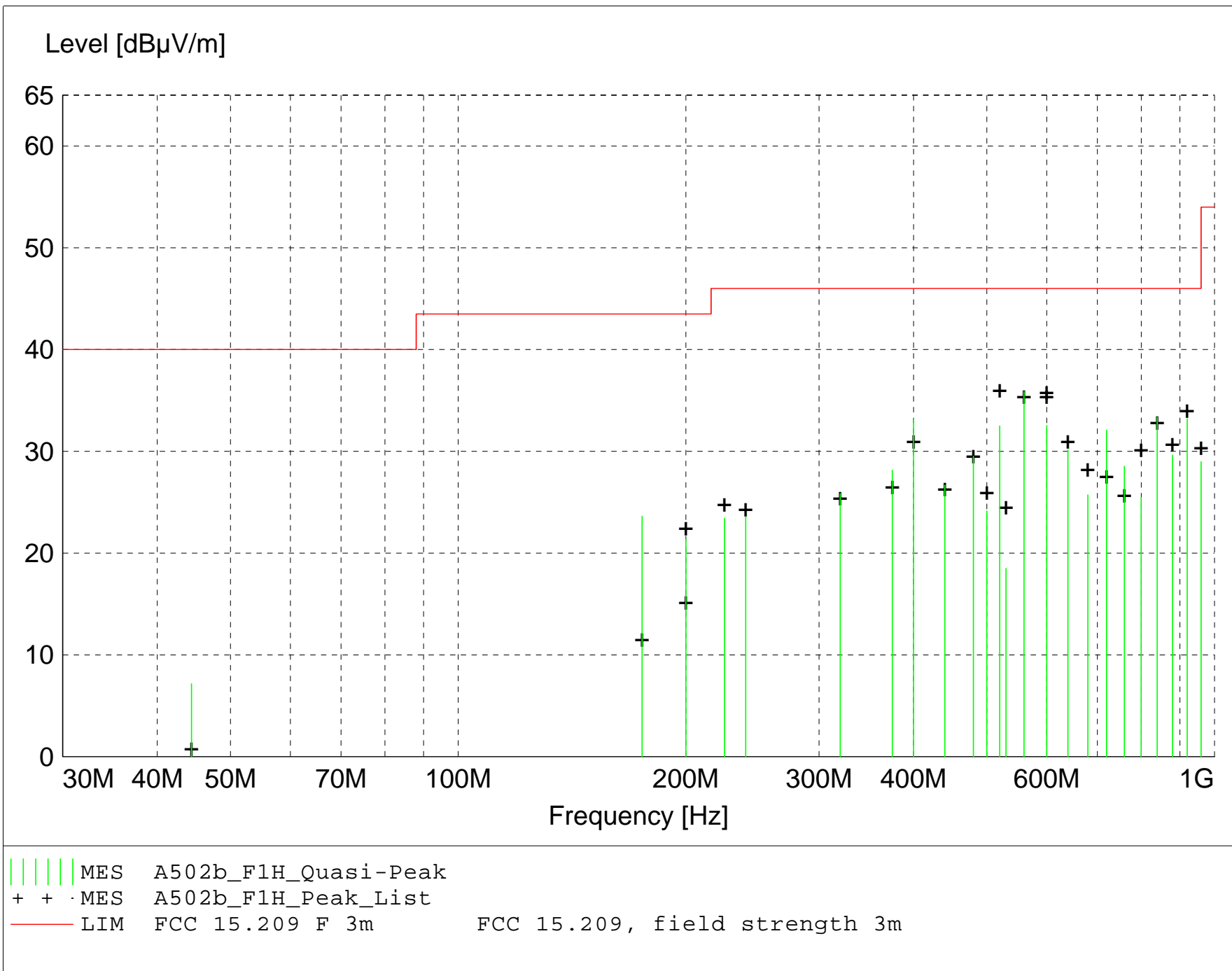
Short Description: Test Set-up

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



MEASUREMENT RESULT: "A502b_F1H_Final"

5/3/2013 12:23PM

| 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 | | | m | deg | | |
| 560.000000 | 37.27 | 18.70 | -20.1 | 35.9 | 46.0 | 10.1 | 1.00 | 350 | QUASI-PEAK | None |
| 839.980000 | 28.72 | 22.40 | -17.8 | 33.4 | 46.0 | 12.6 | 1.50 | 240 | QUASI-PEAK | None |
| 920.020000 | 27.36 | 23.50 | -17.7 | 33.2 | 46.0 | 12.8 | 1.00 | 240 | QUASI-PEAK | None |
| 400.020000 | 37.91 | 15.90 | -20.6 | 33.2 | 46.0 | 12.8 | 2.00 | 220 | QUASI-PEAK | None |
| 600.020000 | 33.02 | 19.20 | -19.7 | 32.5 | 46.0 | 13.5 | 1.00 | 185 | QUASI-PEAK | None |
| 519.980000 | 33.82 | 18.70 | -20.0 | 32.5 | 46.0 | 13.5 | 1.00 | 340 | QUASI-PEAK | None |
| 720.000000 | 29.88 | 21.40 | -19.2 | 32.1 | 46.0 | 13.9 | 1.50 | 280 | QUASI-PEAK | None |
| 639.980000 | 30.14 | 19.70 | -19.7 | 30.1 | 46.0 | 15.9 | 1.50 | 45 | QUASI-PEAK | None |
| 880.020000 | 24.30 | 23.20 | -17.9 | 29.6 | 46.0 | 16.4 | 2.00 | 185 | QUASI-PEAK | None |
| 480.000000 | 32.51 | 17.40 | -20.4 | 29.5 | 46.0 | 16.5 | 2.00 | 220 | QUASI-PEAK | None |
| 959.980000 | 22.42 | 23.70 | -17.1 | 29.0 | 46.0 | 17.0 | 1.50 | 155 | QUASI-PEAK | None |
| 759.960000 | 25.50 | 21.50 | -18.5 | 28.5 | 46.0 | 17.5 | 1.50 | 95 | QUASI-PEAK | None |
| 375.000000 | 33.98 | 15.20 | -21.0 | 28.1 | 46.0 | 17.9 | 2.00 | 320 | QUASI-PEAK | None |
| 439.980000 | 30.94 | 16.50 | -20.8 | 26.7 | 46.0 | 19.3 | 1.50 | 330 | QUASI-PEAK | None |
| 175.020000 | 30.15 | 15.40 | -21.9 | 23.6 | 43.5 | 19.9 | 1.00 | 30 | QUASI-PEAK | None |
| 320.000000 | 32.34 | 14.80 | -21.3 | 25.8 | 46.0 | 20.2 | 1.50 | 330 | QUASI-PEAK | None |
| 680.000000 | 24.27 | 20.90 | -19.5 | 25.7 | 46.0 | 20.3 | 3.50 | 200 | QUASI-PEAK | None |
| 799.960000 | 21.95 | 21.70 | -18.2 | 25.5 | 46.0 | 20.5 | 2.00 | 190 | QUASI-PEAK | None |
| 500.000000 | 26.52 | 18.00 | -20.4 | 24.1 | 46.0 | 21.9 | 1.50 | 175 | QUASI-PEAK | None |
| 200.000000 | 31.01 | 12.20 | -21.8 | 21.4 | 43.5 | 22.1 | 1.00 | 95 | QUASI-PEAK | None |
| 199.980000 | 25.43 | 17.60 | -21.8 | 21.2 | 43.5 | 22.3 | 1.00 | 0 | QUASI-PEAK | None |
| 239.960000 | 33.24 | 12.00 | -21.6 | 23.6 | 46.0 | 22.4 | 1.50 | 355 | QUASI-PEAK | None |
| 224.960000 | 33.83 | 11.30 | -21.7 | 23.4 | 46.0 | 22.6 | 1.50 | 175 | QUASI-PEAK | None |
| 530.000000 | 20.10 | 18.40 | -20.0 | 18.5 | 46.0 | 27.5 | 1.50 | 180 | QUASI-PEAK | None |
| 44.400000 | 18.38 | 11.96 | -23.2 | 7.2 | 40.0 | 32.8 | 1.00 | 0 | QUASI-PEAK | NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM
Manufacturer: Cambium Networks
Operating Condition: 68 deg. F; 33% R.H.
Test Site: DLS O.F. Site 2
Operator: Jim O
Test Specification: Continuous Transmit Mode
Comment: with patch antenna tested at 10MHz BW Mid Channel
Date: 05-02-2013

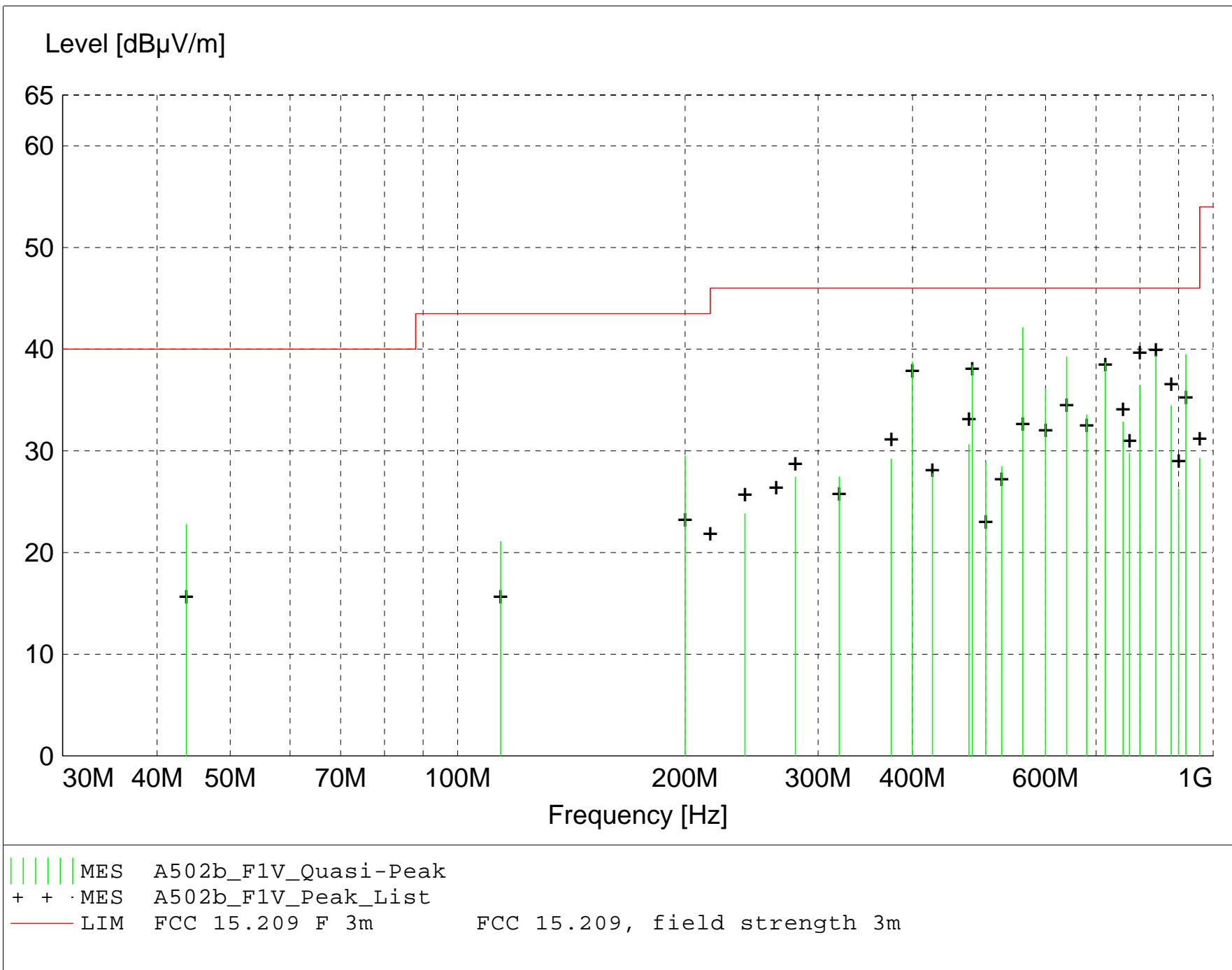
TEXT: "Vert 3 meters"

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 detector
Final maximized level using Peak detector



MEASUREMENT RESULT: "A502b_F1V_Final"

5/3/2013 11:23AM

| 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 | | | m | deg | | |
| 560.000000 | 43.52 | 18.70 | -20.1 | 42.1 | 46.0 | 3.9 | 1.50 | 190 | QUASI-PEAK | None |
| 919.980000 | 33.64 | 23.50 | -17.7 | 39.5 | 46.0 | 6.5 | 2.00 | 170 | QUASI-PEAK | None |
| 840.000000 | 34.73 | 22.40 | -17.8 | 39.4 | 46.0 | 6.6 | 1.50 | 175 | QUASI-PEAK | None |
| 639.980000 | 39.24 | 19.70 | -19.7 | 39.2 | 46.0 | 6.8 | 2.00 | 165 | QUASI-PEAK | None |
| 399.960000 | 43.48 | 15.90 | -20.6 | 38.7 | 46.0 | 7.3 | 1.00 | 225 | QUASI-PEAK | None |
| 720.000000 | 36.50 | 21.40 | -19.2 | 38.7 | 46.0 | 7.3 | 1.00 | 170 | QUASI-PEAK | None |
| 480.000000 | 41.41 | 17.40 | -20.4 | 38.4 | 46.0 | 7.6 | 1.00 | 175 | QUASI-PEAK | None |
| 799.980000 | 32.79 | 21.70 | -18.2 | 36.3 | 46.0 | 9.7 | 1.00 | 190 | QUASI-PEAK | None |
| 599.960000 | 36.58 | 19.20 | -19.7 | 36.1 | 46.0 | 9.9 | 1.50 | 200 | QUASI-PEAK | None |
| 879.960000 | 29.12 | 23.20 | -17.9 | 34.5 | 46.0 | 11.5 | 2.50 | 180 | QUASI-PEAK | None |
| 680.000000 | 32.06 | 20.90 | -19.5 | 33.5 | 46.0 | 12.5 | 1.50 | 200 | QUASI-PEAK | None |
| 759.960000 | 29.81 | 21.50 | -18.5 | 32.8 | 46.0 | 13.2 | 2.00 | 185 | QUASI-PEAK | None |
| 200.000000 | 33.74 | 17.60 | -21.8 | 29.5 | 43.5 | 14.0 | 1.00 | 60 | QUASI-PEAK | None |
| 475.020000 | 33.56 | 17.40 | -20.3 | 30.6 | 46.0 | 15.4 | 1.00 | 200 | QUASI-PEAK | None |
| 774.960000 | 26.49 | 21.60 | -18.3 | 29.8 | 46.0 | 16.2 | 1.00 | 230 | QUASI-PEAK | None |
| 959.940000 | 22.70 | 23.70 | -17.1 | 29.3 | 46.0 | 16.7 | 2.00 | 185 | QUASI-PEAK | None |
| 375.000000 | 35.04 | 15.20 | -21.0 | 29.2 | 46.0 | 16.8 | 1.00 | 255 | QUASI-PEAK | None |
| 500.000000 | 31.23 | 18.00 | -20.4 | 28.8 | 46.0 | 17.2 | 2.00 | 275 | QUASI-PEAK | None |
| 43.740000 | 33.95 | 11.97 | -23.2 | 22.7 | 40.0 | 17.3 | 1.00 | 0 | QUASI-PEAK | NF |
| 524.960000 | 30.04 | 18.40 | -20.0 | 28.4 | 46.0 | 17.6 | 1.50 | 220 | QUASI-PEAK | None |
| 424.980000 | 31.93 | 16.50 | -20.6 | 27.8 | 46.0 | 18.2 | 1.00 | 185 | QUASI-PEAK | None |
| 320.000000 | 33.93 | 14.80 | -21.3 | 27.4 | 46.0 | 18.6 | 1.00 | 200 | QUASI-PEAK | None |
| 279.980000 | 35.39 | 13.50 | -21.5 | 27.4 | 46.0 | 18.6 | 1.00 | 255 | QUASI-PEAK | None |
| 900.000000 | 20.59 | 23.50 | -17.9 | 26.2 | 46.0 | 19.8 | 2.00 | 230 | QUASI-PEAK | None |
| 240.020000 | 33.45 | 12.00 | -21.6 | 23.8 | 46.0 | 22.2 | 1.00 | 350 | QUASI-PEAK | None |
| 114.000000 | 31.01 | 12.40 | -22.3 | 21.1 | 43.5 | 22.4 | 1.00 | 0 | QUASI-PEAK | NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with patch antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 5MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

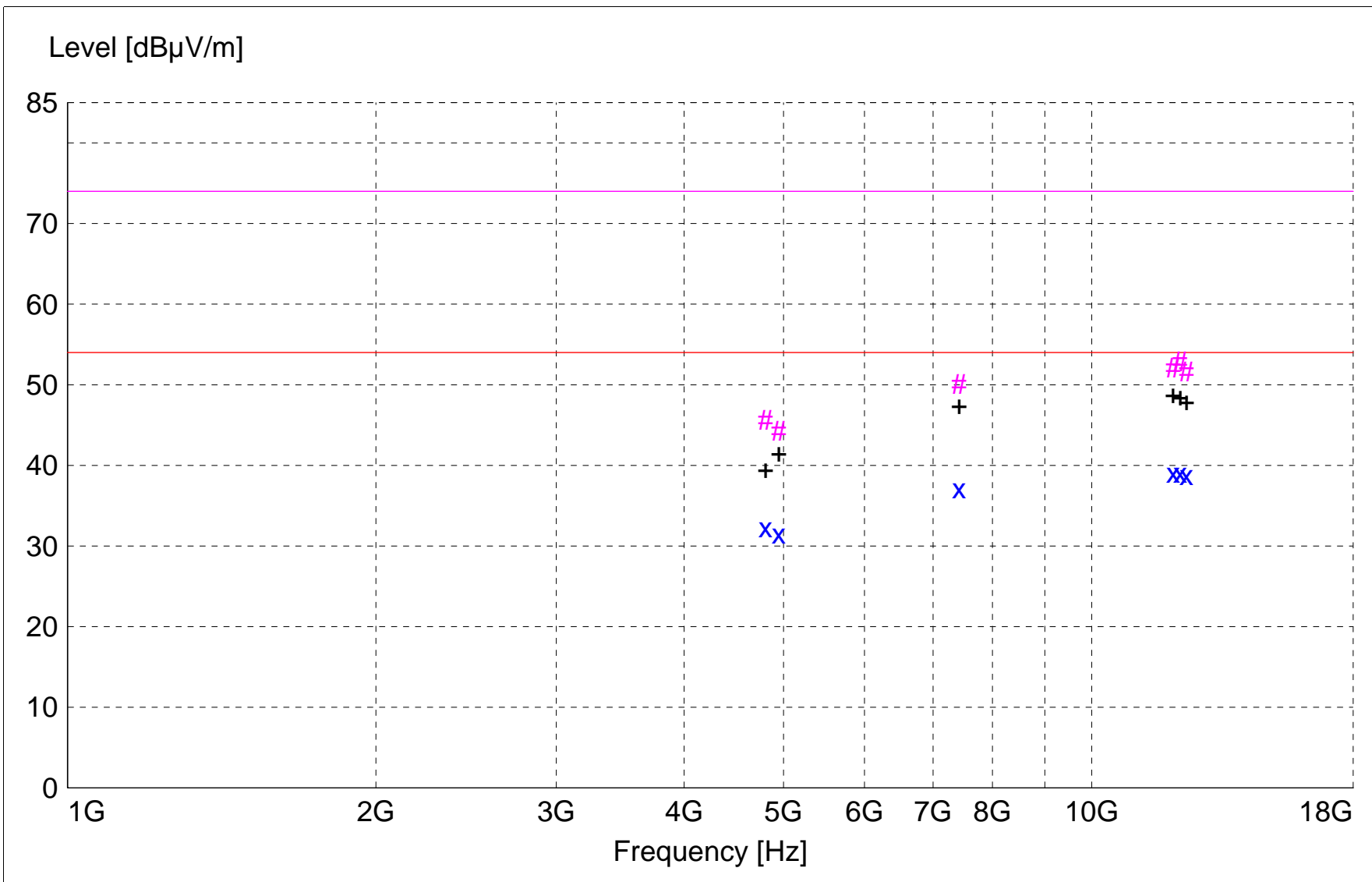
TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A507g_sh_Average
# # :MES  A507g_sh_Peak
+ + :MES  A507g_sh_Peak_List
— — :LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— — :LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A507g_sh_Final"

5/7/2013 2:35PM

| Frequency MHz | Level dBµV | Antenna Factor dBµV/m | System Loss dB | Total Level dBµV/m | Limit dBµV/m | Margin dB | Height Ant. m | EuT Angle deg | Final Detector | Comment |
|------------------|---------------|-----------------------------|----------------------|--------------------------|-----------------|--------------|---------------------|---------------------|-------------------|---------------|
| 12200.400000 | 51.82 | 38.96 | -51.7 | 39.1 | 54.0 | 14.9 | 1.50 | 0 | AVERAGE | Mid ch 5th NF |
| 12009.600000 | 52.09 | 39.08 | -52.1 | 39.1 | 54.0 | 14.9 | 1.50 | 0 | AVERAGE | lo ch 5th NF |
| 12374.800000 | 51.45 | 38.85 | -51.5 | 38.8 | 54.0 | 15.2 | 1.50 | 0 | AVERAGE | hi ch 5th NF |
| 7425.200000 | 54.57 | 36.65 | -54.1 | 37.1 | 54.0 | 16.9 | 1.50 | 0 | AVERAGE | hi ch 3rd NF |
| 12200.400000 | 65.67 | 38.96 | -51.7 | 52.9 | 74.0 | 21.1 | 1.50 | 0 | MAX PEAK | Mid ch 5th NF |
| 4804.800000 | 54.96 | 32.89 | -55.6 | 32.3 | 54.0 | 21.7 | 1.50 | 0 | AVERAGE | lo ch 2nd NF |
| 12009.600000 | 65.14 | 39.08 | -52.1 | 52.1 | 74.0 | 21.9 | 1.50 | 0 | MAX PEAK | lo ch 5th NF |
| 12374.800000 | 64.35 | 38.85 | -51.5 | 51.7 | 74.0 | 22.3 | 1.50 | 0 | MAX PEAK | hi ch 5th NF |
| 4950.000000 | 54.05 | 33.05 | -55.6 | 31.5 | 54.0 | 22.5 | 1.50 | 0 | AVERAGE | hi ch 2nd NF |
| 7425.200000 | 67.61 | 36.65 | -54.1 | 50.1 | 74.0 | 23.9 | 1.50 | 0 | MAX PEAK | hi ch 3rd NF |
| 4804.800000 | 68.35 | 32.89 | -55.6 | 45.7 | 74.0 | 28.3 | 1.50 | 0 | MAX PEAK | lo ch 2nd NF |
| 4950.000000 | 66.85 | 33.05 | -55.6 | 44.3 | 74.0 | 29.7 | 1.50 | 0 | MAX PEAK | hi ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with patch antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 5MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

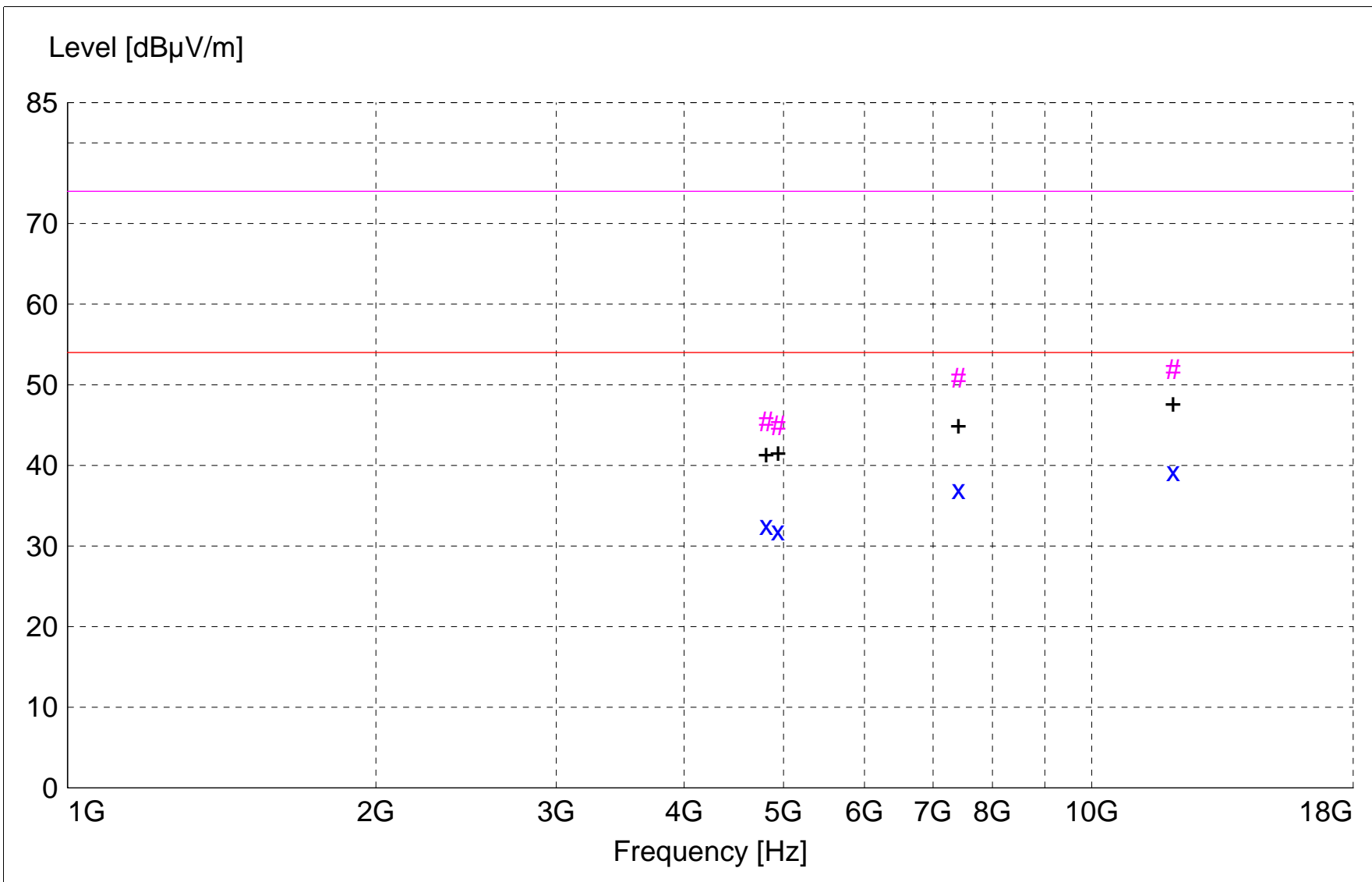
TEXT: "Vert 3 meters"

Short Description: Test Set-up

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

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



x x :MES A507g_sv_Average
 # # :MES A507g_sv_Peak
 + + :MES A507g_sv_Peak_List
 — LIM FCC 15.209 F 3m AVG Field Strength AVG Limit 3m
 — LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A507g_sv_Final"

5/7/2013 2:25PM

| 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 | | |
| 12010.000000 | 52.24 | 39.08 | -52.1 | 39.2 | 54.0 | 14.8 | 1.50 | 0 | AVERAGE | lo ch 5th NF |
| 7410.000000 | 54.57 | 36.66 | -54.2 | 37.0 | 54.0 | 17.0 | 1.50 | 0 | AVERAGE | lo ch 3rd NF |
| 4810.000000 | 55.26 | 32.90 | -55.6 | 32.6 | 54.0 | 21.4 | 1.50 | 0 | AVERAGE | lo ch 2nd NF |
| 12010.000000 | 65.01 | 39.08 | -52.1 | 52.0 | 74.0 | 22.0 | 1.50 | 0 | MAX PEAK | lo ch 5th NF |
| 4940.000000 | 54.46 | 33.03 | -55.6 | 31.9 | 54.0 | 22.1 | 1.50 | 0 | AVERAGE | hi ch 2nd NF |
| 7410.000000 | 68.35 | 36.66 | -54.2 | 50.8 | 74.0 | 23.2 | 1.50 | 0 | MAX PEAK | lo ch 3rd NF |
| 4810.000000 | 68.11 | 32.90 | -55.6 | 45.5 | 74.0 | 28.5 | 1.50 | 0 | MAX PEAK | lo ch 2nd NF |
| 4940.000000 | 67.49 | 33.03 | -55.6 | 44.9 | 74.0 | 29.1 | 1.50 | 0 | MAX PEAK | hi ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with internal patch antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 10MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

TEXT: "Horz 3 meters"

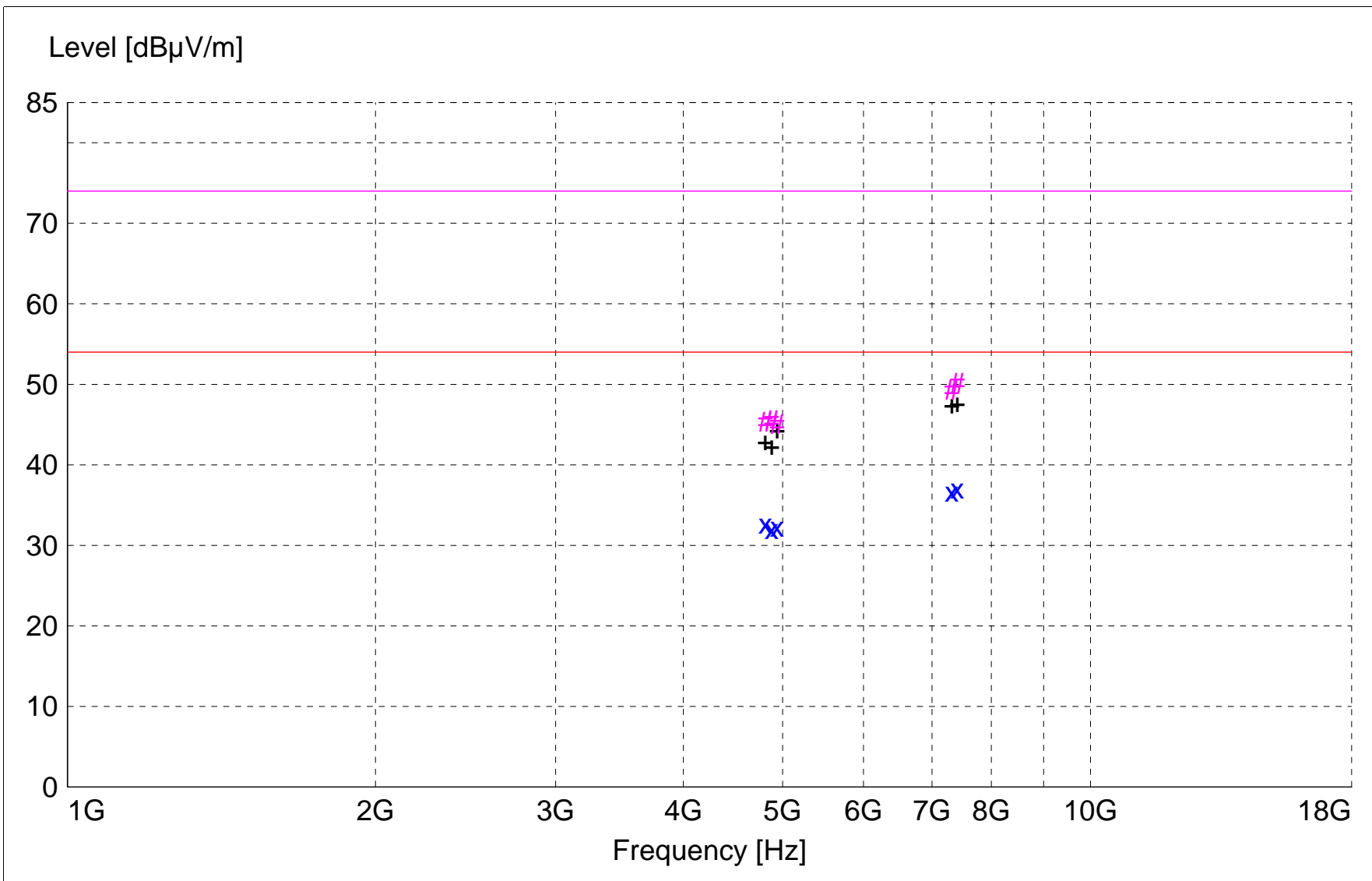
Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A429e_sh_Average
# # :MES  A429e_sh_Peak
+ + :MES  A429e_sh_Peak_List
— — :LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— — :LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A429e_sh_Final"

4/29/2013 1:08PM

| 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 | | |
| 7410.370000 | 54.55 | 36.66 | -54.2 | 37.0 | 54.0 | 17.0 | 1.00 | 0 | AVERAGE | Hi Ch 3rd NF |
| 7320.130000 | 54.84 | 36.52 | -54.7 | 36.7 | 54.0 | 17.3 | 1.00 | 0 | AVERAGE | Mid Ch 3rd NF |
| 4810.260000 | 55.38 | 32.90 | -55.6 | 32.7 | 54.0 | 21.3 | 1.00 | 0 | AVERAGE | Mid Ch 2nd NF |
| 4939.200000 | 54.84 | 33.03 | -55.6 | 32.3 | 54.0 | 21.7 | 1.00 | 0 | AVERAGE | High Ch 2nd NF |
| 4880.190000 | 54.62 | 32.95 | -55.6 | 32.0 | 54.0 | 22.0 | 1.00 | 0 | AVERAGE | Mid Ch 2nd NF |
| 7410.370000 | 67.77 | 36.66 | -54.2 | 50.2 | 74.0 | 23.8 | 1.00 | 0 | MAX PEAK | Hi Ch 3rd NF |
| 7320.130000 | 67.53 | 36.52 | -54.7 | 49.3 | 74.0 | 24.7 | 1.00 | 0 | MAX PEAK | Mid Ch 3rd NF |
| 4880.190000 | 68.25 | 32.95 | -55.6 | 45.6 | 74.0 | 28.4 | 1.00 | 0 | MAX PEAK | Mid Ch 2nd NF |
| 4810.260000 | 68.00 | 32.90 | -55.6 | 45.3 | 74.0 | 28.7 | 1.00 | 0 | MAX PEAK | Mid Ch 2nd NF |
| 4939.200000 | 67.65 | 33.03 | -55.6 | 45.1 | 74.0 | 28.9 | 1.00 | 0 | MAX PEAK | High Ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with internal patch antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 10MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

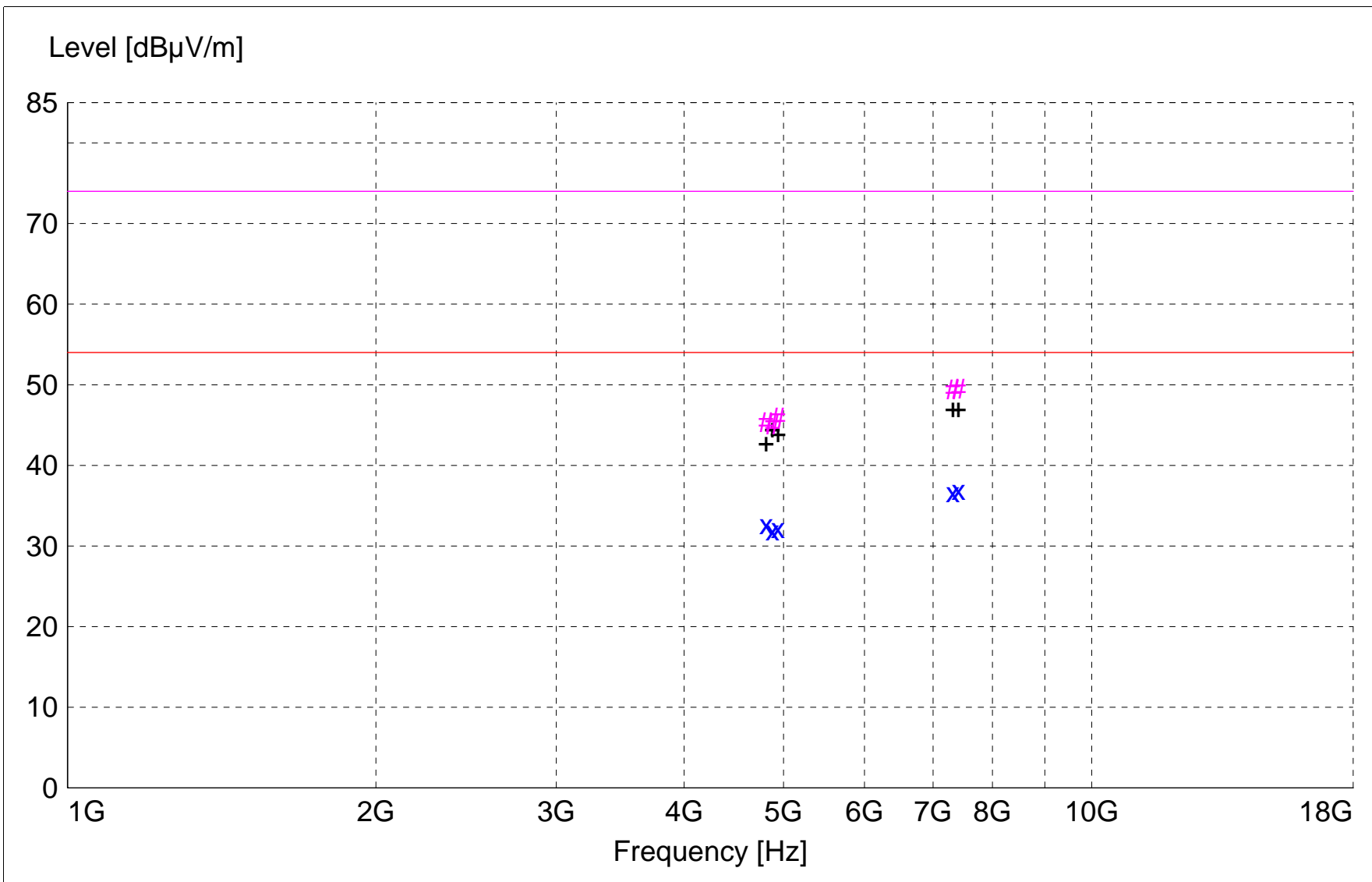
TEXT: "Vert 3 meters"

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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



x x :MES A429e_sv_Average
 # # :MES A429e_sv_Peak
 + + :MES A429e_sv_Peak_List
 — (Red) LIM FCC 15.209 F 3m AVG Field Strength AVG Limit 3m
 — (Magenta) LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A429e_sv_Final"

4/29/2013 12:59PM

| 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 | | |
| 7409.880000 | 54.50 | 36.66 | -54.2 | 37.0 | 54.0 | 17.0 | 1.50 | 0 | AVERAGE | Hi ch 3rd NF |
| 7319.970000 | 54.80 | 36.52 | -54.7 | 36.6 | 54.0 | 17.4 | 1.00 | 0 | AVERAGE | Mid ch 3rd NF |
| 4809.720000 | 55.32 | 32.90 | -55.6 | 32.7 | 54.0 | 21.3 | 1.50 | 0 | AVERAGE | Low ch 2nd NF |
| 4939.740000 | 54.79 | 33.03 | -55.6 | 32.2 | 54.0 | 21.8 | 1.50 | 0 | AVERAGE | Hi ch 2nd NF |
| 4879.020000 | 54.57 | 32.95 | -55.6 | 31.9 | 54.0 | 22.1 | 1.50 | 0 | AVERAGE | Mid ch 2nd NF |
| 7409.880000 | 67.05 | 36.66 | -54.2 | 49.5 | 74.0 | 24.5 | 1.50 | 0 | MAX PEAK | Hi ch 3rd NF |
| 7319.970000 | 67.65 | 36.52 | -54.7 | 49.5 | 74.0 | 24.5 | 1.00 | 0 | MAX PEAK | Mid ch 3rd NF |
| 4939.740000 | 68.49 | 33.03 | -55.6 | 45.9 | 74.0 | 28.1 | 1.50 | 0 | MAX PEAK | Hi ch 2nd NF |
| 4809.720000 | 68.00 | 32.90 | -55.6 | 45.3 | 74.0 | 28.7 | 1.50 | 0 | MAX PEAK | Low ch 2nd NF |
| 4879.020000 | 67.77 | 32.95 | -55.6 | 45.1 | 74.0 | 28.9 | 1.50 | 0 | MAX PEAK | Mid ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with internal patch antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 20MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

TEXT: "Horz 3 meters"

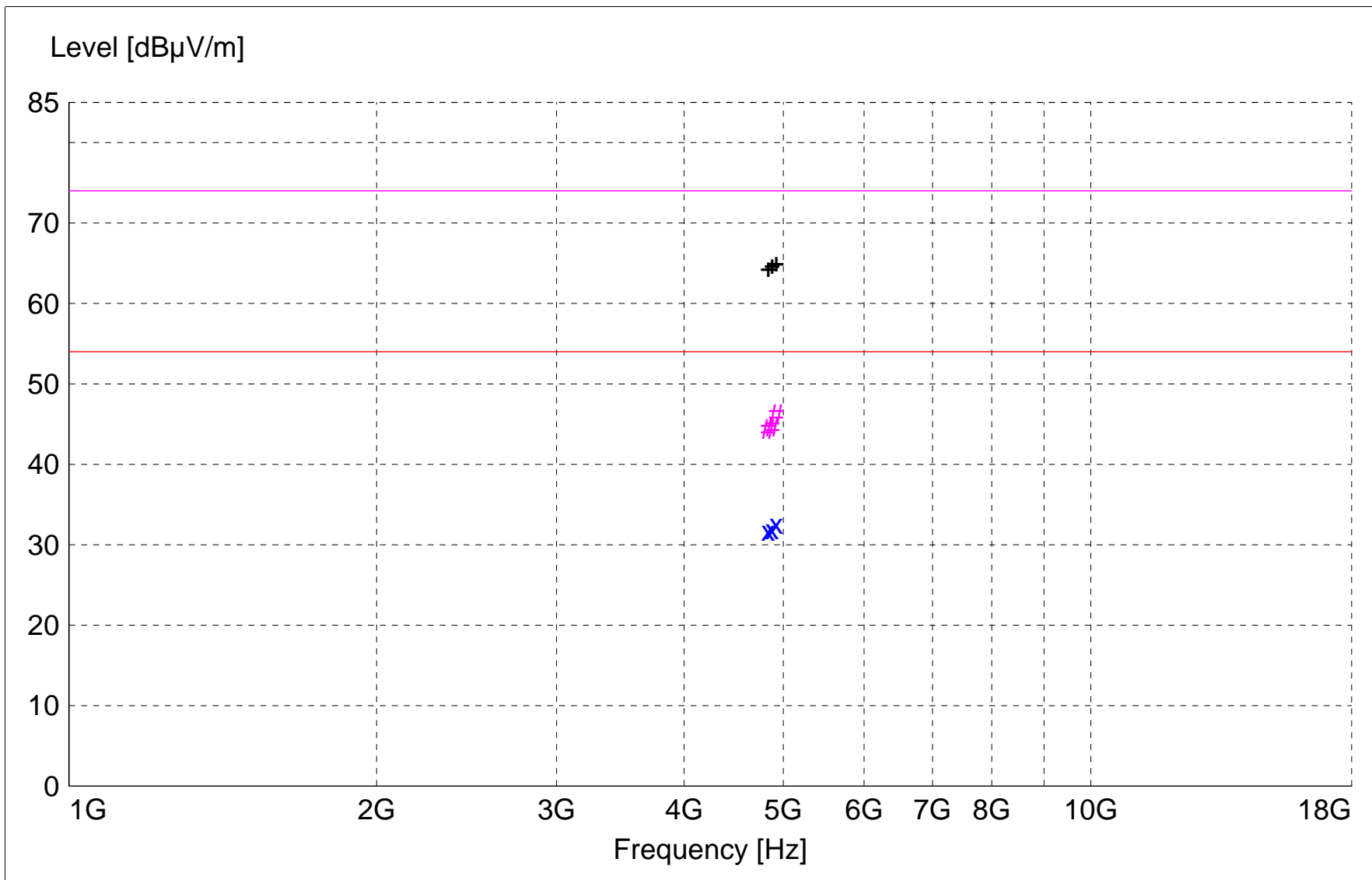
Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A429d_sh_Average
# # :MES  A429d_sh_Peak
+ + :MES  A429d_sh_Peak_List
— LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A429d_sh_Final"

4/29/2013 11:52AM

| 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 | | |
| 4921.600000 | 55.19 | 33.00 | -55.6 | 32.6 | 54.0 | 21.4 | 1.80 | 0 | AVERAGE | Hi Ch 2nd NF |
| 4878.800000 | 54.57 | 32.95 | -55.6 | 31.9 | 54.0 | 22.1 | 1.80 | 0 | AVERAGE | Mid Ch 2nd NF |
| 4834.400000 | 54.37 | 32.91 | -55.6 | 31.7 | 54.0 | 22.3 | 1.80 | 0 | AVERAGE | Low Ch 2nd NF |
| 4921.600000 | 68.85 | 33.00 | -55.6 | 46.2 | 74.0 | 27.8 | 1.80 | 0 | MAX PEAK | Hi Ch 2nd NF |
| 4878.800000 | 67.29 | 32.95 | -55.6 | 44.6 | 74.0 | 29.4 | 1.80 | 0 | MAX PEAK | Mid Ch 2nd NF |
| 4834.400000 | 67.05 | 32.91 | -55.6 | 44.4 | 74.0 | 29.6 | 1.80 | 0 | MAX PEAK | Low Ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with internal patch antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 20MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

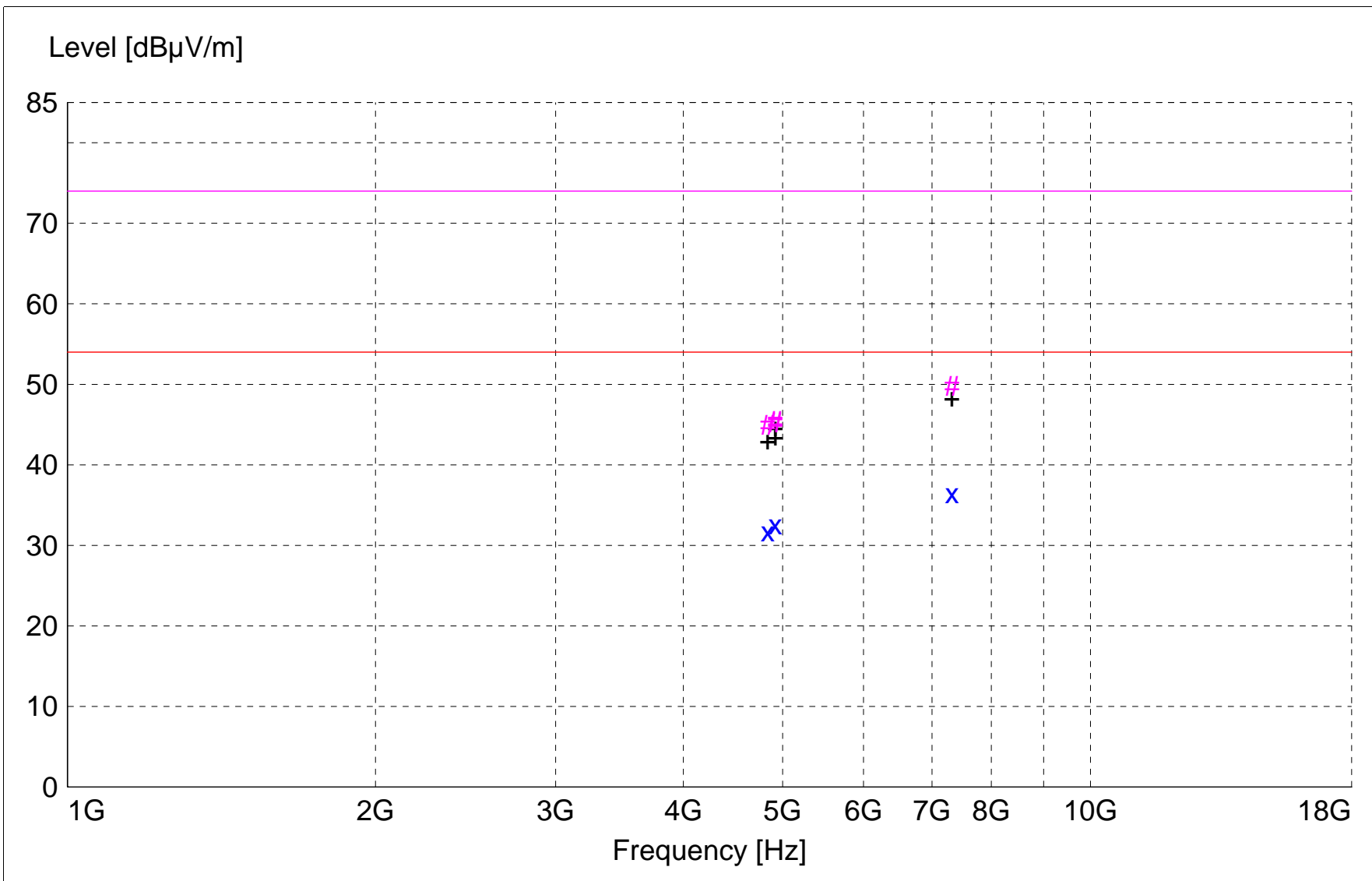
TEXT: "Vert 3 meters"

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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A429d_sv_Average
# # :MES  A429d_sv_Peak
+ + :MES  A429d_sv_Peak_List
— LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A429d_sv_Final"

4/29/2013 11:44AM

| 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 | | |
| 7319.320000 | 54.68 | 36.52 | -54.7 | 36.5 | 54.0 | 17.5 | 1.50 | 0 | AVERAGE | Mid Ch 3rd NF |
| 4919.640000 | 55.20 | 32.99 | -55.6 | 32.6 | 54.0 | 21.4 | 1.50 | 0 | AVERAGE | High Ch 2nd NF |
| 4919.100000 | 55.19 | 32.99 | -55.6 | 32.6 | 54.0 | 21.4 | 1.00 | 0 | AVERAGE | Hi CH 2nd NF |
| 4834.920000 | 54.38 | 32.91 | -55.6 | 31.7 | 54.0 | 22.3 | 1.00 | 0 | AVERAGE | Lo ch 2nd NF |
| 7319.320000 | 68.00 | 36.52 | -54.7 | 49.8 | 74.0 | 24.2 | 1.50 | 0 | MAX PEAK | Mid Ch 3rd NF |
| 4919.100000 | 68.13 | 32.99 | -55.6 | 45.5 | 74.0 | 28.5 | 1.00 | 0 | MAX PEAK | Hi CH 2nd NF |
| 4919.640000 | 67.89 | 32.99 | -55.6 | 45.3 | 74.0 | 28.7 | 1.50 | 0 | MAX PEAK | High Ch 2nd NF |
| 4834.920000 | 67.65 | 32.91 | -55.6 | 45.0 | 74.0 | 29.0 | 1.00 | 0 | MAX PEAK | Lo ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM 2.4GHz: OFDM
Manufacturer: Cambium Networks
Operating Condition: 75 deg F; 46% R.H.
Test Site: DLS Site G1
Operator: Jim O
Test Specification: 5, 10, & 20 MHz bandwidths
Comment: Patch Antenna
Date: 5-06-2013

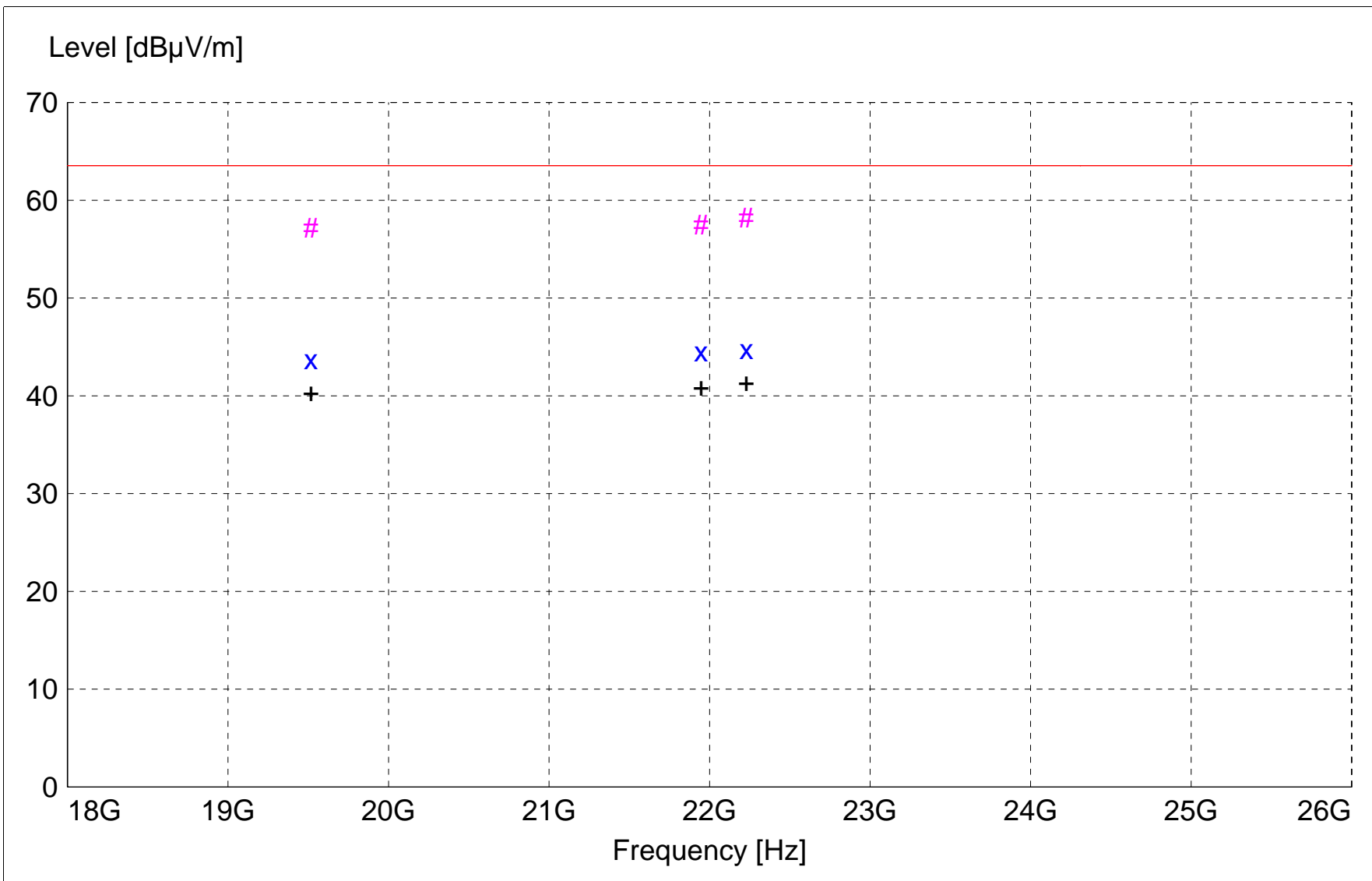
TEXT: "Horz 1 meters"

Short Description: Test Set-up

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

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

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 A506a_sh_Average
# # :MES A506a_sh_Peak
+ + :MES A506a_sh_Peak_List
— LIM FCC 15.209 F 1m AVG Field Strength AVG Limit 3m
— LIM FCC 15.209 F 1m PK Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A506a_sh_Final"

5/6/2013 3:01PM

| 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 | | |
| 22229.600000 | 40.67 | 46.40 | -42.3 | 44.8 | 63.5 | 18.8 | 1.00 | 0 | AVERAGE | HI ch 9th NF |
| 21946.600000 | 40.01 | 46.39 | -41.9 | 44.5 | 63.5 | 19.1 | 1.00 | 0 | AVERAGE | Mid ch 9th NF |
| 19516.400000 | 38.78 | 45.96 | -41.0 | 43.7 | 63.5 | 19.8 | 1.00 | 0 | AVERAGE | Mid ch 8th NF |
| 22229.600000 | 54.12 | 46.40 | -42.3 | 58.2 | 83.5 | 25.3 | 1.00 | 0 | MAX PEAK | HI ch 9th NF |
| 21946.600000 | 53.01 | 46.39 | -41.9 | 57.5 | 83.5 | 26.1 | 1.00 | 0 | MAX PEAK | Mid ch 9th NF |
| 19516.400000 | 52.23 | 45.96 | -41.0 | 57.2 | 83.5 | 26.3 | 1.00 | 0 | MAX PEAK | Mid ch 8th NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM 2.4GHz: OFDM
Manufacturer: Cambium Networks
Operating Condition: 75 deg F; 46% R.H.
Test Site: DLS Site G1
Operator: Jim O
Test Specification: 5, 10, & 20 MHz bandwidths
Comment: Patch Antenna
Date: 5-06-2013

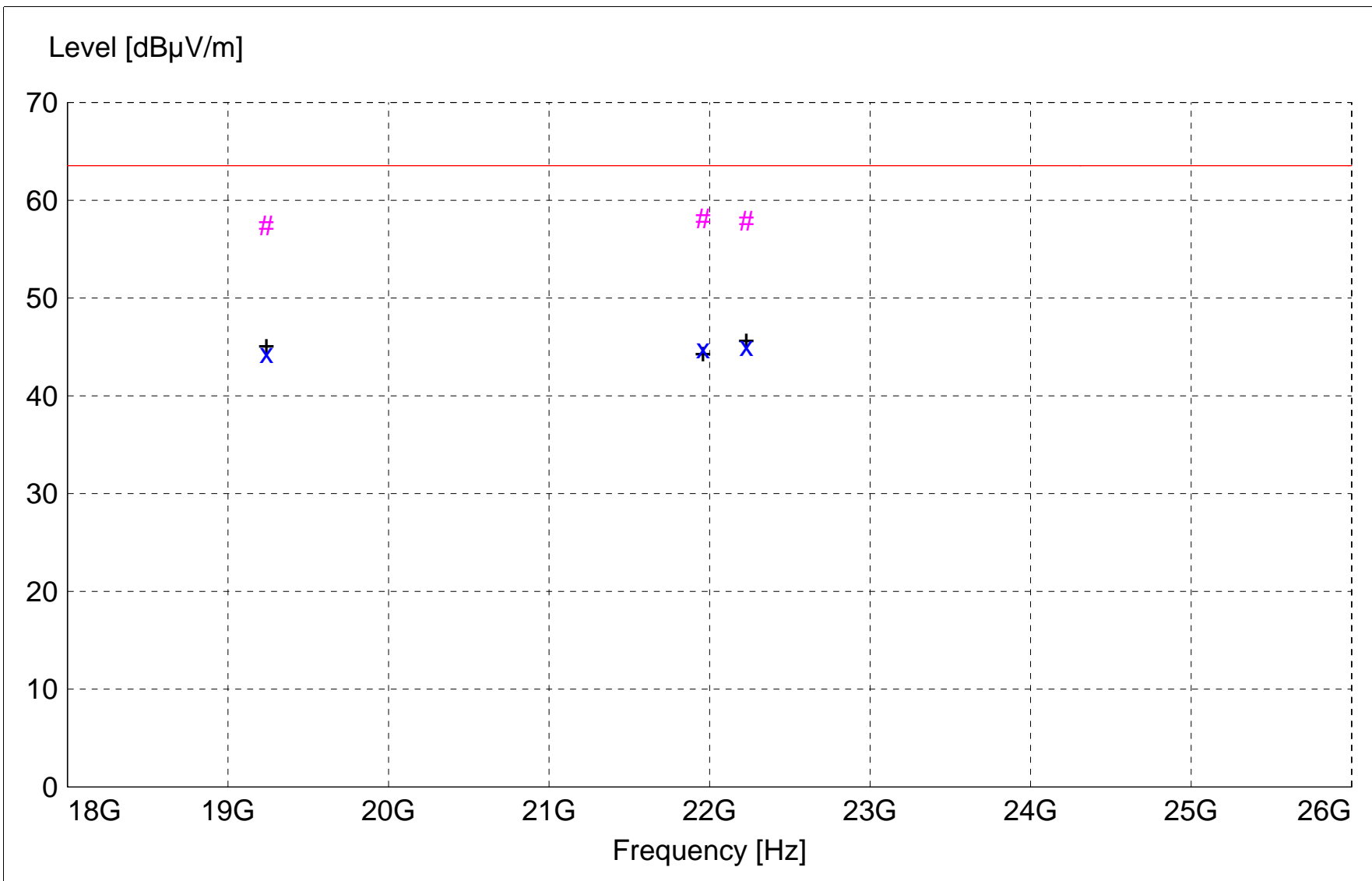
TEXT: "Vert 1 meters"

Short Description: Test Set-up

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

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

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  A506a_sv_Average
# # :MES  A506a_sv_Peak
+ + :MES  A506a_sv_Peak_List
— LIM  FCC 15.209 F 1m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 1m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A506a_sv_Final"

5/6/2013 2:50PM

| 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 | | |
| 22230.000000 | 40.96 | 46.41 | -42.3 | 45.1 | 63.5 | 18.5 | 1.00 | 0 | AVERAGE | hi ch 9th NF |
| 21960.000000 | 40.37 | 46.39 | -41.9 | 44.8 | 63.5 | 18.7 | 1.00 | 0 | AVERAGE | 9th harm NF |
| 19239.600000 | 40.06 | 45.59 | -41.3 | 44.3 | 63.5 | 19.2 | 1.00 | 0 | AVERAGE | 8th harm NF |
| 21960.000000 | 53.70 | 46.39 | -41.9 | 58.2 | 83.5 | 25.4 | 1.00 | 0 | MAX PEAK | 9th harm NF |
| 22230.000000 | 53.84 | 46.41 | -42.3 | 57.9 | 83.5 | 25.6 | 1.00 | 0 | MAX PEAK | hi ch 9th NF |
| 19239.600000 | 53.14 | 45.59 | -41.3 | 57.4 | 83.5 | 26.1 | 1.00 | 0 | MAX PEAK | 8th harm NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM w/Dish
Manufacturer: Cambium Networks
Operating Condition: 68 deg. F; 33% R.H.
Test Site: DLS O.F. Site 2
Operator: Jim O
Test Specification: Continuous Transmit Mode
Comment: with patch antenna tested at 10MHz BW Mid Channel
Date: 05-02-2013

TEXT: "Horz 3 meters"

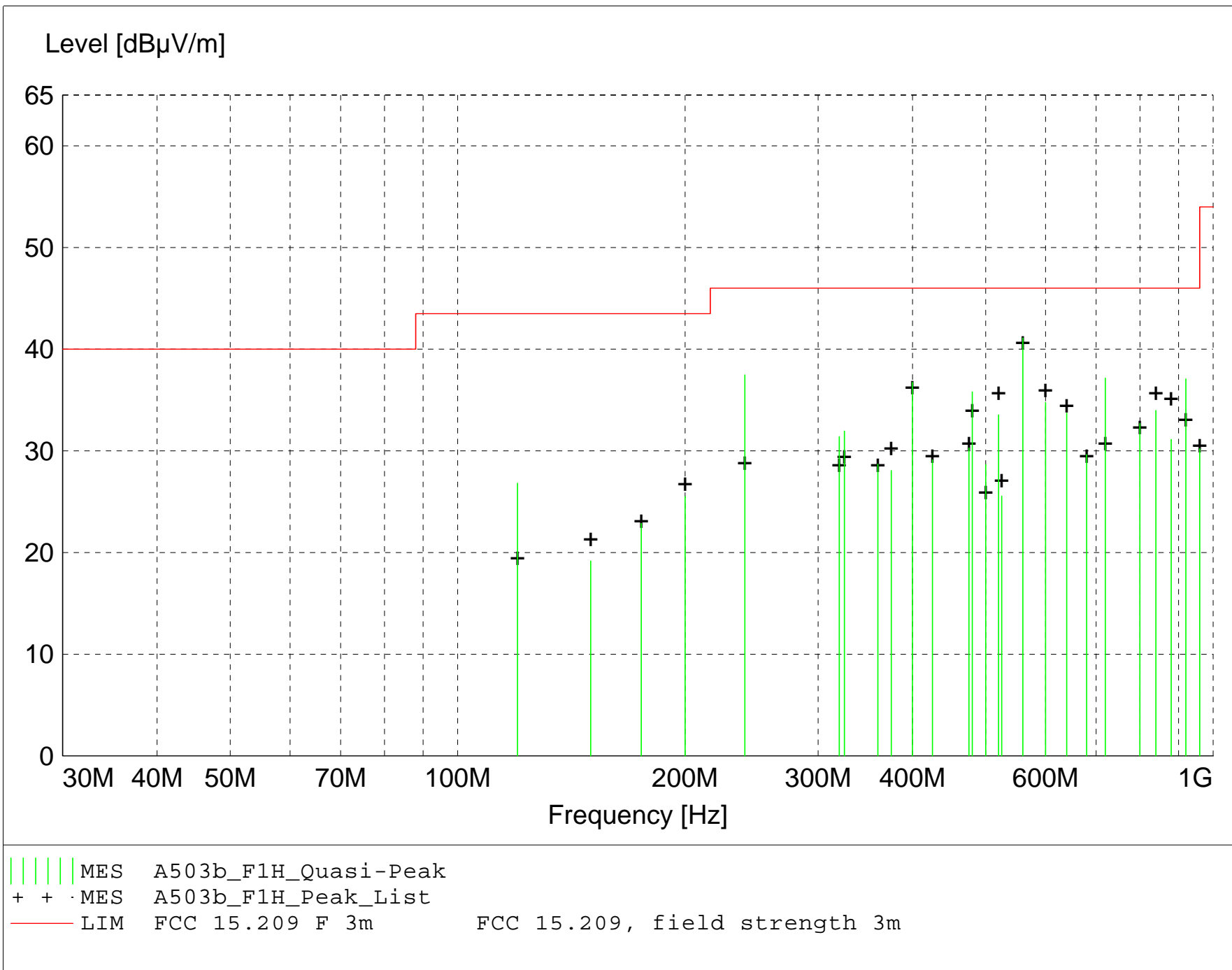
Short Description: Test Set-up

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



MEASUREMENT RESULT: "A503b_F1H_Final"

5/3/2013 2:03PM

| 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 | | | m | deg | | |
| 560.000000 | 42.49 | 18.70 | -20.1 | 41.1 | 46.0 | 4.9 | 1.00 | 65 | QUASI-PEAK | None |
| 239.960000 | 47.10 | 12.00 | -21.6 | 37.5 | 46.0 | 8.5 | 1.00 | 255 | QUASI-PEAK | None |
| 720.000000 | 34.96 | 21.40 | -19.2 | 37.2 | 46.0 | 8.8 | 2.00 | 230 | QUASI-PEAK | None |
| 919.980000 | 31.24 | 23.50 | -17.7 | 37.1 | 46.0 | 8.9 | 1.50 | 95 | QUASI-PEAK | None |
| 399.960000 | 41.47 | 15.90 | -20.6 | 36.7 | 46.0 | 9.3 | 1.00 | 150 | QUASI-PEAK | None |
| 480.000000 | 38.81 | 17.40 | -20.4 | 35.8 | 46.0 | 10.2 | 1.00 | 335 | QUASI-PEAK | None |
| 599.960000 | 35.24 | 19.20 | -19.7 | 34.8 | 46.0 | 11.2 | 1.00 | 335 | QUASI-PEAK | None |
| 840.000000 | 29.35 | 22.40 | -17.8 | 34.0 | 46.0 | 12.0 | 1.50 | 335 | QUASI-PEAK | None |
| 639.980000 | 33.71 | 19.70 | -19.7 | 33.7 | 46.0 | 12.3 | 1.50 | 225 | QUASI-PEAK | None |
| 519.980000 | 34.88 | 18.70 | -20.0 | 33.5 | 46.0 | 12.5 | 1.50 | 5 | QUASI-PEAK | None |
| 799.980000 | 29.17 | 21.70 | -18.2 | 32.7 | 46.0 | 13.3 | 2.00 | 315 | QUASI-PEAK | None |
| 324.980000 | 38.61 | 14.60 | -21.3 | 31.9 | 46.0 | 14.1 | 1.00 | 255 | QUASI-PEAK | None |
| 320.000000 | 37.91 | 14.80 | -21.3 | 31.4 | 46.0 | 14.6 | 2.50 | 160 | QUASI-PEAK | None |
| 879.960000 | 25.80 | 23.20 | -17.9 | 31.1 | 46.0 | 14.9 | 1.50 | 340 | QUASI-PEAK | None |
| 475.020000 | 33.22 | 17.40 | -20.3 | 30.3 | 46.0 | 15.7 | 1.00 | 335 | QUASI-PEAK | None |
| 960.000000 | 23.65 | 23.70 | -17.1 | 30.2 | 46.0 | 15.8 | 1.50 | 355 | QUASI-PEAK | None |
| 680.000000 | 28.19 | 20.90 | -19.5 | 29.6 | 46.0 | 16.4 | 1.50 | 320 | QUASI-PEAK | None |
| 120.000000 | 36.31 | 12.80 | -22.3 | 26.8 | 43.5 | 16.7 | 2.00 | 95 | QUASI-PEAK | None |
| 424.980000 | 33.26 | 16.50 | -20.6 | 29.1 | 46.0 | 16.9 | 2.50 | 155 | QUASI-PEAK | None |
| 360.000000 | 34.72 | 14.90 | -20.9 | 28.7 | 46.0 | 17.3 | 1.00 | 225 | QUASI-PEAK | None |
| 500.000000 | 31.04 | 18.00 | -20.4 | 28.7 | 46.0 | 17.3 | 1.50 | 50 | QUASI-PEAK | None |
| 375.000000 | 33.89 | 15.20 | -21.0 | 28.1 | 46.0 | 17.9 | 2.50 | 240 | QUASI-PEAK | None |
| 200.000000 | 35.15 | 12.20 | -21.8 | 25.5 | 43.5 | 18.0 | 2.50 | 160 | QUASI-PEAK | None |
| 524.960000 | 27.14 | 18.40 | -20.0 | 25.5 | 46.0 | 20.5 | 1.50 | 340 | QUASI-PEAK | None |
| 175.000000 | 29.39 | 15.40 | -21.9 | 22.9 | 43.5 | 20.6 | 2.00 | 275 | QUASI-PEAK | None |
| 149.980000 | 29.36 | 12.00 | -22.2 | 19.2 | 43.5 | 24.3 | 2.00 | 250 | QUASI-PEAK | None |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM w/Dish
Manufacturer: Cambium Networks
Operating Condition: 68 deg. F; 33% R.H.
Test Site: DLS O.F. Site 2
Operator: Jim O
Test Specification: Continuous Transmit Mode
Comment: with patch antenna tested at 10MHz BW Mid Channel
Date: 05-02-2013

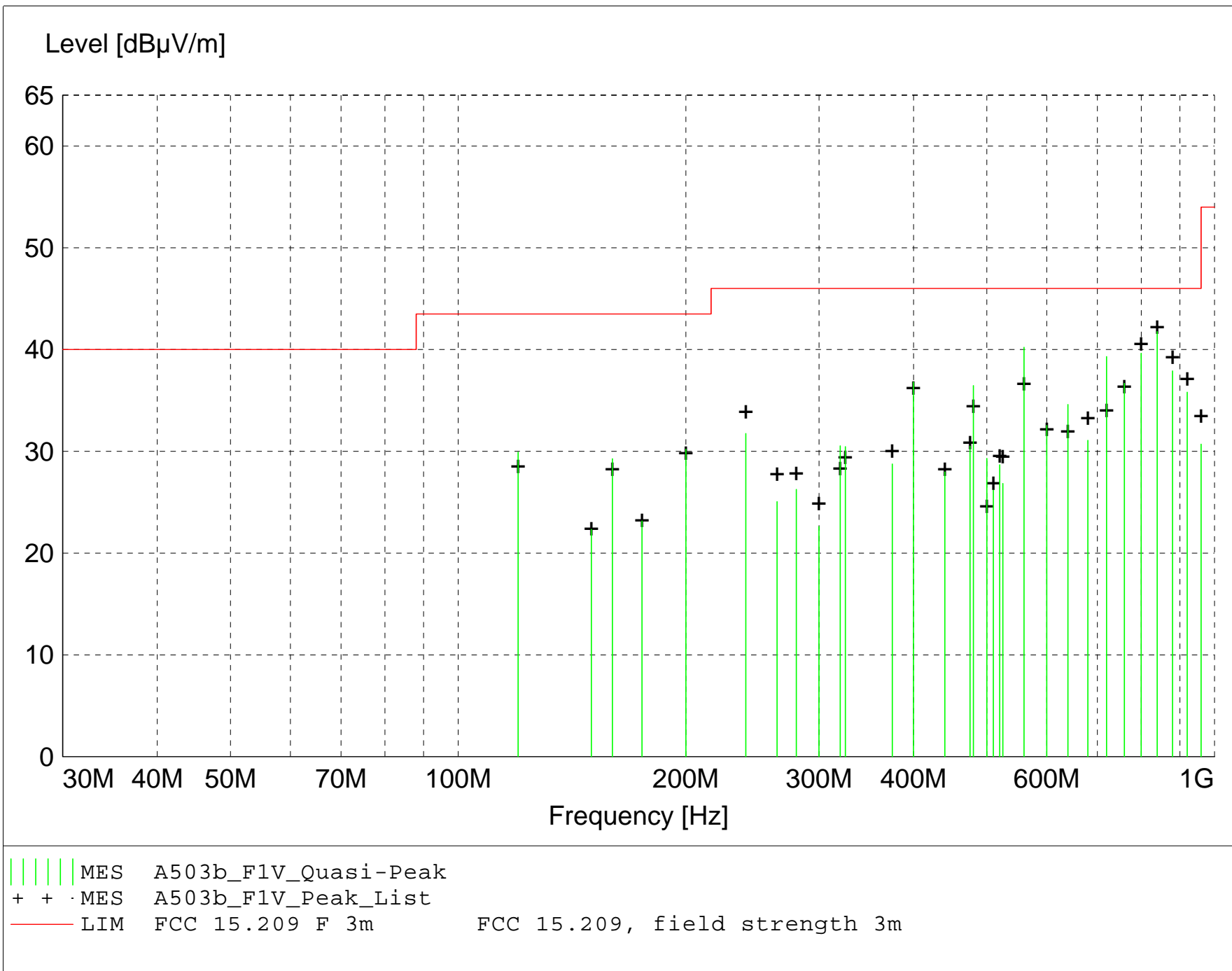
TEXT: "Vert 3 meters"

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



MEASUREMENT RESULT: "A503b_F1V_Final"

5/3/2013 1:51PM

| 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 | | | m | deg | | |
| 840.000000 | 37.13 | 22.40 | -17.8 | 41.8 | 46.0 | 4.2 | 1.00 | 10 | QUASI-PEAK | None |
| 560.000000 | 41.62 | 18.70 | -20.1 | 40.2 | 46.0 | 5.8 | 1.00 | 70 | QUASI-PEAK | None |
| 799.980000 | 36.09 | 21.70 | -18.2 | 39.6 | 46.0 | 6.4 | 1.00 | 350 | QUASI-PEAK | None |
| 720.000000 | 37.11 | 21.40 | -19.2 | 39.3 | 46.0 | 6.7 | 1.00 | 0 | QUASI-PEAK | None |
| 879.960000 | 32.57 | 23.20 | -17.9 | 37.9 | 46.0 | 8.1 | 1.00 | 5 | QUASI-PEAK | None |
| 399.960000 | 41.53 | 15.90 | -20.6 | 36.8 | 46.0 | 9.2 | 1.00 | 355 | QUASI-PEAK | None |
| 759.960000 | 33.65 | 21.50 | -18.5 | 36.7 | 46.0 | 9.3 | 1.00 | 0 | QUASI-PEAK | None |
| 480.000000 | 39.45 | 17.40 | -20.4 | 36.5 | 46.0 | 9.5 | 1.00 | 5 | QUASI-PEAK | None |
| 920.020000 | 29.97 | 23.50 | -17.7 | 35.8 | 46.0 | 10.2 | 1.00 | 340 | QUASI-PEAK | None |
| 639.980000 | 34.60 | 19.70 | -19.7 | 34.6 | 46.0 | 11.4 | 1.00 | 150 | QUASI-PEAK | None |
| 200.000000 | 39.86 | 12.20 | -21.8 | 30.2 | 43.5 | 13.3 | 1.00 | 15 | QUASI-PEAK | None |
| 599.960000 | 33.01 | 19.20 | -19.7 | 32.5 | 46.0 | 13.5 | 1.00 | 45 | QUASI-PEAK | None |
| 120.000000 | 39.40 | 12.80 | -22.3 | 29.9 | 43.5 | 13.6 | 1.00 | 150 | QUASI-PEAK | None |
| 159.940000 | 38.59 | 12.79 | -22.1 | 29.3 | 43.5 | 14.2 | 1.00 | 355 | QUASI-PEAK | None |
| 240.020000 | 41.38 | 12.00 | -21.6 | 31.8 | 46.0 | 14.2 | 1.00 | 5 | QUASI-PEAK | None |
| 680.000000 | 29.64 | 20.90 | -19.5 | 31.1 | 46.0 | 14.9 | 1.00 | 5 | QUASI-PEAK | None |
| 959.980000 | 24.14 | 23.70 | -17.1 | 30.7 | 46.0 | 15.3 | 1.00 | 15 | QUASI-PEAK | None |
| 320.000000 | 37.04 | 14.80 | -21.3 | 30.5 | 46.0 | 15.5 | 1.00 | 330 | QUASI-PEAK | None |
| 475.020000 | 33.45 | 17.40 | -20.3 | 30.5 | 46.0 | 15.5 | 1.00 | 10 | QUASI-PEAK | None |
| 324.980000 | 37.12 | 14.60 | -21.3 | 30.5 | 46.0 | 15.5 | 1.00 | 45 | QUASI-PEAK | None |
| 500.000000 | 31.69 | 18.00 | -20.4 | 29.3 | 46.0 | 16.7 | 1.00 | 340 | QUASI-PEAK | None |
| 375.000000 | 34.59 | 15.20 | -21.0 | 28.8 | 46.0 | 17.2 | 1.00 | 355 | QUASI-PEAK | None |
| 519.980000 | 30.01 | 18.70 | -20.0 | 28.7 | 46.0 | 17.3 | 1.00 | 20 | QUASI-PEAK | None |
| 439.980000 | 32.24 | 16.50 | -20.8 | 28.0 | 46.0 | 18.0 | 1.00 | 10 | QUASI-PEAK | None |
| 524.960000 | 28.43 | 18.40 | -20.0 | 26.8 | 46.0 | 19.2 | 1.00 | 20 | QUASI-PEAK | None |
| 279.980000 | 34.23 | 13.50 | -21.5 | 26.3 | 46.0 | 19.7 | 1.00 | 5 | QUASI-PEAK | None |
| 509.960000 | 27.71 | 18.70 | -20.2 | 26.2 | 46.0 | 19.8 | 1.00 | 300 | QUASI-PEAK | None |
| 175.000000 | 29.67 | 15.40 | -21.9 | 23.2 | 43.5 | 20.3 | 1.00 | 15 | QUASI-PEAK | None |
| 264.020000 | 33.40 | 13.16 | -21.5 | 25.1 | 46.0 | 20.9 | 1.00 | 40 | QUASI-PEAK | None |
| 149.980000 | 32.52 | 12.00 | -22.2 | 22.3 | 43.5 | 21.2 | 1.00 | 15 | QUASI-PEAK | None |
| 299.960000 | 29.56 | 14.40 | -21.3 | 22.6 | 46.0 | 23.4 | 1.00 | 350 | QUASI-PEAK | None |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with dish antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 5MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

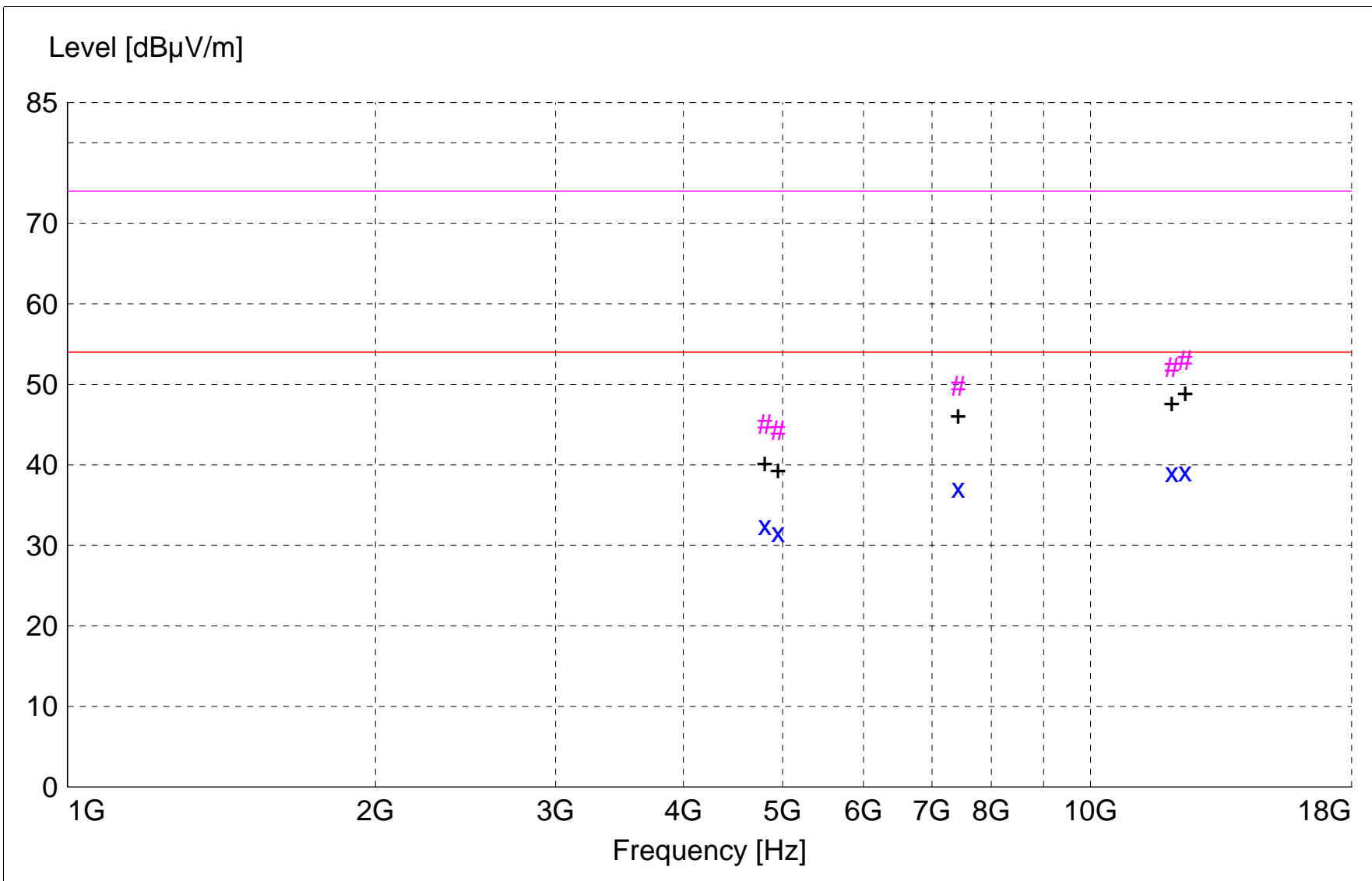
TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A507e_sh_Average
# # :MES  A507e_sh_Peak
+ + :MES  A507e_sh_Peak_List
— — :LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— — :LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A507e_sh_Final"

5/7/2013 1:52PM

| 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 | | |
| 12375.200000 | 51.84 | 38.85 | -51.5 | 39.2 | 54.0 | 14.8 | 2.00 | 0 | AVERAGE | hi ch 5th NF |
| 12009.600000 | 52.12 | 39.08 | -52.1 | 39.1 | 54.0 | 14.9 | 2.00 | 0 | AVERAGE | lo ch 5th NF |
| 7424.800000 | 54.56 | 36.65 | -54.1 | 37.1 | 54.0 | 16.9 | 2.00 | 0 | AVERAGE | hi ch 3rd NF |
| 12375.200000 | 65.67 | 38.85 | -51.5 | 53.0 | 74.0 | 21.0 | 2.00 | 0 | MAX PEAK | hi ch 5th NF |
| 4804.800000 | 55.13 | 32.89 | -55.6 | 32.5 | 54.0 | 21.5 | 2.00 | 0 | AVERAGE | lo ch 2nd NF |
| 12009.600000 | 65.14 | 39.08 | -52.1 | 52.1 | 74.0 | 21.9 | 2.00 | 0 | MAX PEAK | lo ch 5th NF |
| 4950.000000 | 54.18 | 33.05 | -55.6 | 31.6 | 54.0 | 22.4 | 2.00 | 0 | AVERAGE | hi ch 2nd NF |
| 7424.800000 | 67.24 | 36.65 | -54.1 | 49.8 | 74.0 | 24.2 | 2.00 | 0 | MAX PEAK | hi ch 3rd NF |
| 4804.800000 | 67.74 | 32.89 | -55.6 | 45.1 | 74.0 | 28.9 | 2.00 | 0 | MAX PEAK | lo ch 2nd NF |
| 4950.000000 | 66.85 | 33.05 | -55.6 | 44.3 | 74.0 | 29.7 | 2.00 | 0 | MAX PEAK | hi ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with dish antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 5MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

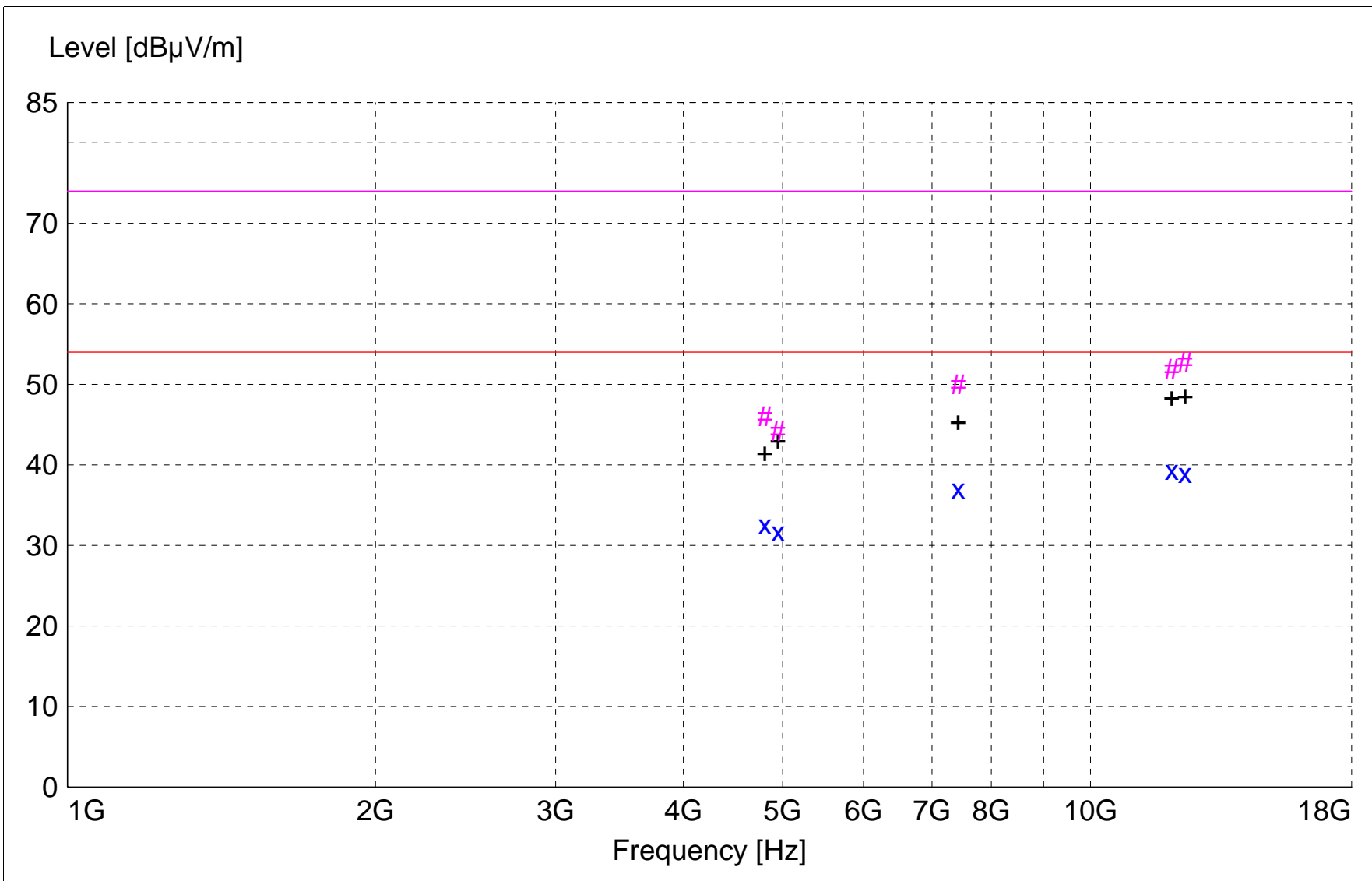
TEXT: "Vert 3 meters"

Short Description: Test Set-up

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

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average dector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A507e_sv_Average
# # :MES  A507e_sv_Peak
+ + :MES  A507e_sv_Peak_List
— — :LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— — :LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```


MEASUREMENT RESULT: "A507e_sv_Final"

5/7/2013 1:44PM

| 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 | | |
| 12010.000000 | 52.39 | 39.08 | -52.1 | 39.4 | 54.0 | 14.6 | 2.00 | 0 | AVERAGE | lo ch 5th NF |
| 12375.200000 | 51.69 | 38.85 | -51.5 | 39.0 | 54.0 | 15.0 | 2.00 | 0 | AVERAGE | hi ch 5th NF |
| 7425.200000 | 54.50 | 36.65 | -54.1 | 37.0 | 54.0 | 17.0 | 2.00 | 0 | AVERAGE | hi ch 3rd NF |
| 12375.200000 | 65.53 | 38.85 | -51.5 | 52.8 | 74.0 | 21.2 | 2.00 | 0 | MAX PEAK | hi ch 5th NF |
| 4804.800000 | 55.23 | 32.89 | -55.6 | 32.6 | 54.0 | 21.4 | 2.00 | 0 | AVERAGE | lo ch 2nd NF |
| 12010.000000 | 65.01 | 39.08 | -52.1 | 52.0 | 74.0 | 22.0 | 2.00 | 0 | MAX PEAK | lo ch 5th NF |
| 4950.000000 | 54.28 | 33.05 | -55.6 | 31.7 | 54.0 | 22.3 | 2.00 | 0 | AVERAGE | hi ch 2nd NF |
| 7425.200000 | 67.49 | 36.65 | -54.1 | 50.0 | 74.0 | 24.0 | 2.00 | 0 | MAX PEAK | hi ch 3rd NF |
| 4804.800000 | 68.72 | 32.89 | -55.6 | 46.1 | 74.0 | 27.9 | 2.00 | 0 | MAX PEAK | lo ch 2nd NF |
| 4950.000000 | 66.72 | 33.05 | -55.6 | 44.2 | 74.0 | 29.8 | 2.00 | 0 | MAX PEAK | hi ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with dish antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 10MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

TEXT: "Horz 3 meters"

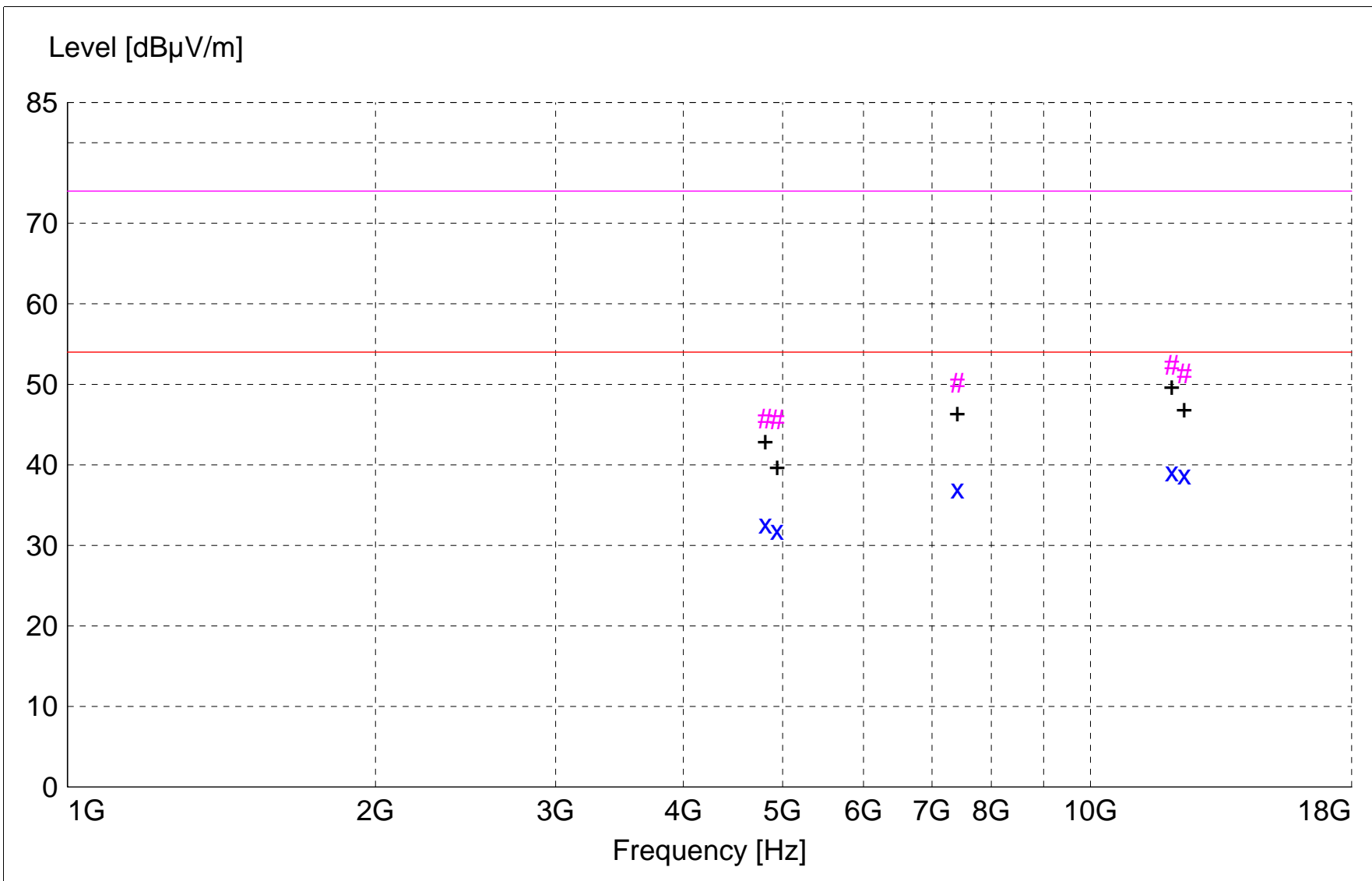
Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A507f_sh_Average
# # :MES  A507f_sh_Peak
+ + :MES  A507f_sh_Peak_List
— LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A507f_sh_Final"

5/7/2013 2:13PM

| 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 | | |
| 12009.600000 | 52.18 | 39.08 | -52.1 | 39.1 | 54.0 | 14.9 | 2.00 | 0 | AVERAGE | lo ch 5th NF |
| 12349.600000 | 51.40 | 38.87 | -51.5 | 38.7 | 54.0 | 15.3 | 2.00 | 0 | AVERAGE | hi ch 5th NF |
| 7410.000000 | 54.60 | 36.66 | -54.2 | 37.1 | 54.0 | 16.9 | 2.00 | 0 | AVERAGE | hi ch3rd NF |
| 4810.000000 | 55.32 | 32.90 | -55.6 | 32.7 | 54.0 | 21.3 | 2.00 | 0 | AVERAGE | lo ch 2nd NF |
| 12009.600000 | 65.40 | 39.08 | -52.1 | 52.4 | 74.0 | 21.6 | 2.00 | 0 | MAX PEAK | lo ch 5th NF |
| 4940.000000 | 54.51 | 33.03 | -55.6 | 31.9 | 54.0 | 22.1 | 2.00 | 0 | AVERAGE | hi ch 2nd NF |
| 12349.600000 | 63.96 | 38.87 | -51.5 | 51.3 | 74.0 | 22.7 | 2.00 | 0 | MAX PEAK | hi ch 5th NF |
| 7410.000000 | 67.74 | 36.66 | -54.2 | 50.2 | 74.0 | 23.8 | 2.00 | 0 | MAX PEAK | hi ch3rd NF |
| 4810.000000 | 68.35 | 32.90 | -55.6 | 45.7 | 74.0 | 28.3 | 2.00 | 0 | MAX PEAK | lo ch 2nd NF |
| 4940.000000 | 68.23 | 33.03 | -55.6 | 45.7 | 74.0 | 28.3 | 2.00 | 0 | MAX PEAK | hi ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with dish antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 10MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

TEXT: "Vert 3 meters"

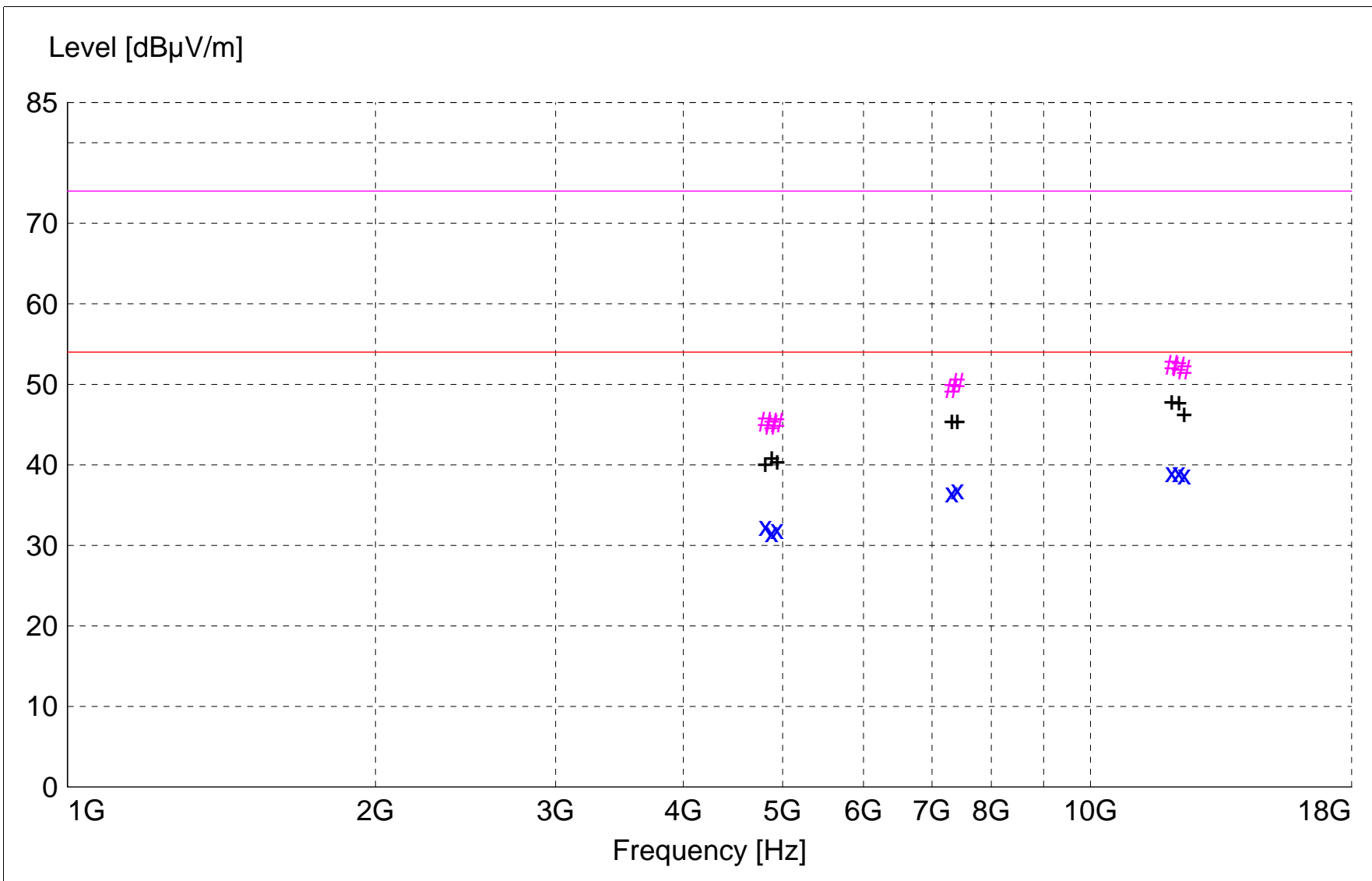
Short Description: Test Set-up

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

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

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

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A507f_sv_Average
# # :MES  A507f_sv_Peak
+ + :MES  A507f_sv_Peak_List
— — :LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— — :LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A507f_sv_Final"

5/7/2013 2:03PM

| 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 | | | m | deg | | |
| 12009.600000 | 52.12 | 39.08 | -52.1 | 39.1 | 54.0 | 14.9 | 2.00 | 0 | AVERAGE | lo ch 5th NF |
| 12199.600000 | 51.84 | 38.96 | -51.7 | 39.1 | 54.0 | 14.9 | 2.00 | 0 | AVERAGE | mid ch 5th NF |
| 12349.200000 | 51.37 | 38.87 | -51.5 | 38.7 | 54.0 | 15.3 | 2.00 | 0 | AVERAGE | hi ch 5th NF |
| 7410.000000 | 54.48 | 36.66 | -54.2 | 37.0 | 54.0 | 17.0 | 2.00 | 0 | AVERAGE | hi ch 3rd NF |
| 7320.000000 | 54.71 | 36.52 | -54.7 | 36.5 | 54.0 | 17.5 | 2.00 | 0 | AVERAGE | mi ch 2nd NF |
| 12009.600000 | 65.40 | 39.08 | -52.1 | 52.4 | 74.0 | 21.6 | 2.00 | 0 | MAX PEAK | lo ch 5th NF |
| 4810.000000 | 55.01 | 32.90 | -55.6 | 32.4 | 54.0 | 21.6 | 2.00 | 0 | AVERAGE | lo ch 2nd NF |
| 12199.600000 | 65.01 | 38.96 | -51.7 | 52.3 | 74.0 | 21.7 | 2.00 | 0 | MAX PEAK | mid ch 5th NF |
| 4940.000000 | 54.57 | 33.03 | -55.6 | 32.0 | 54.0 | 22.0 | 2.00 | 0 | AVERAGE | hi ch 2nd NF |
| 12349.200000 | 64.48 | 38.87 | -51.5 | 51.8 | 74.0 | 22.2 | 2.00 | 0 | MAX PEAK | hi ch 5th NF |
| 4880.000000 | 54.30 | 32.95 | -55.6 | 31.6 | 54.0 | 22.4 | 2.00 | 0 | AVERAGE | mid ch 2nd NF |
| 7410.000000 | 67.74 | 36.66 | -54.2 | 50.2 | 74.0 | 23.8 | 2.00 | 0 | MAX PEAK | hi ch 3rd NF |
| 7320.000000 | 67.74 | 36.52 | -54.7 | 49.5 | 74.0 | 24.5 | 2.00 | 0 | MAX PEAK | mi ch 2nd NF |
| 4810.000000 | 67.98 | 32.90 | -55.6 | 45.3 | 74.0 | 28.7 | 2.00 | 0 | MAX PEAK | lo ch 2nd NF |
| 4940.000000 | 67.86 | 33.03 | -55.6 | 45.3 | 74.0 | 28.7 | 2.00 | 0 | MAX PEAK | hi ch 2nd NF |
| 4880.000000 | 67.61 | 32.95 | -55.6 | 44.9 | 74.0 | 29.1 | 2.00 | 0 | MAX PEAK | mid ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with dish antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 20MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

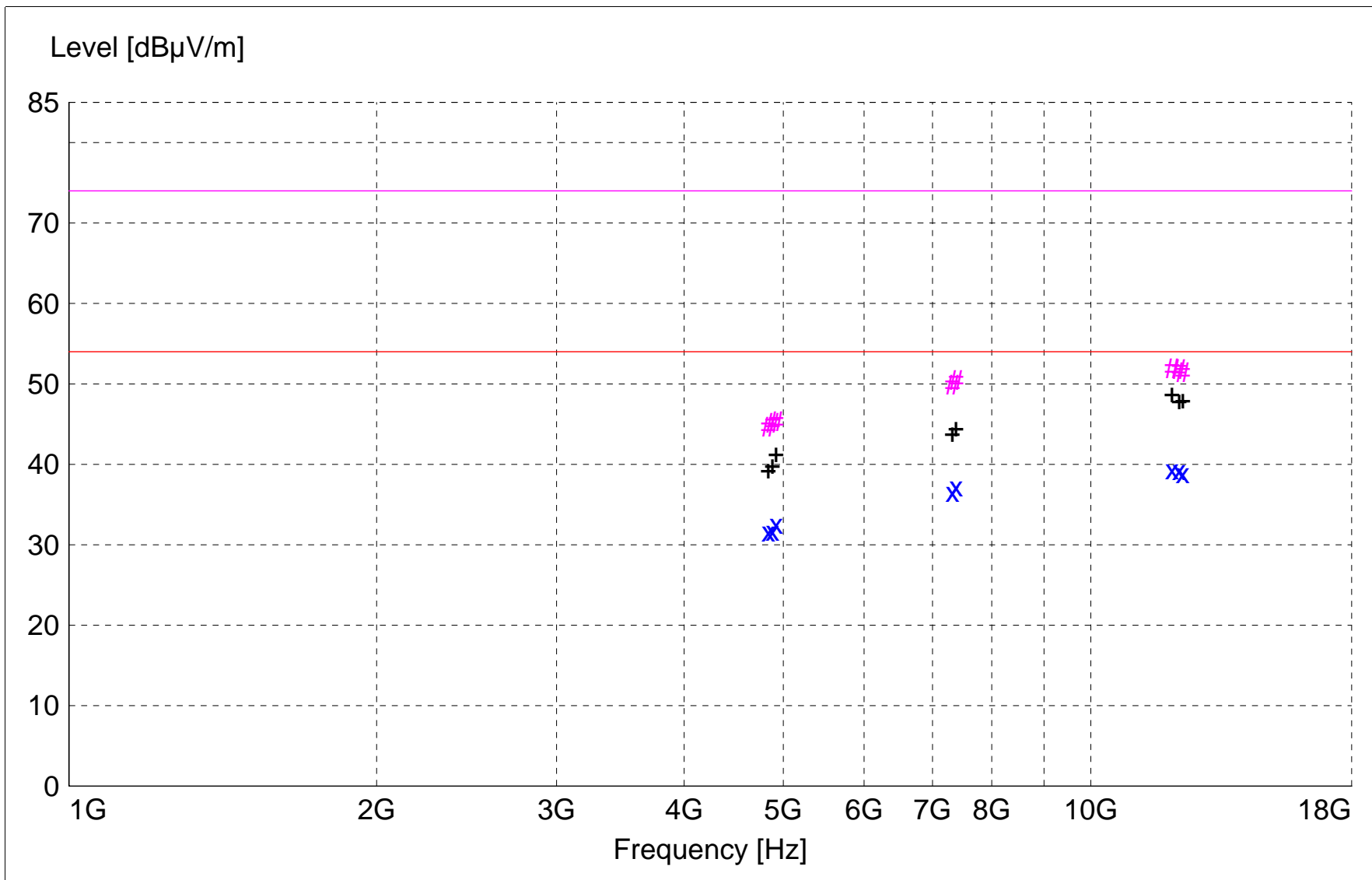
TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



x x :MES A507d_sh_Average
 # # :MES A507d_sh_Peak
 + + :MES A507d_sh_Peak_List
 — LIM FCC 15.209 F 3m AVG Field Strength AVG Limit 3m
 — LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A507d_sh_Final"

5/7/2013 1:09PM

| 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 | | | m | deg | | |
| 12009.600000 | 52.37 | 39.08 | -52.1 | 39.3 | 54.0 | 14.7 | 2.00 | 0 | AVERAGE | lo ch 5th NF |
| 12200.400000 | 52.04 | 38.96 | -51.7 | 39.3 | 54.0 | 14.7 | 2.00 | 0 | AVERAGE | mid ch 5th NF |
| 12300.000000 | 51.50 | 38.92 | -51.6 | 38.9 | 54.0 | 15.1 | 2.00 | 0 | AVERAGE | hi ch 5th NF |
| 7380.000000 | 54.93 | 36.63 | -54.4 | 37.2 | 54.0 | 16.8 | 2.00 | 0 | AVERAGE | hi ch 3rd NF |
| 7320.000000 | 54.73 | 36.52 | -54.7 | 36.5 | 54.0 | 17.5 | 2.00 | 0 | AVERAGE | mid ch 3rd NF |
| 4920.000000 | 55.22 | 32.99 | -55.6 | 32.6 | 54.0 | 21.4 | 2.00 | 0 | AVERAGE | hi ch 2nd NF |
| 12009.600000 | 65.01 | 39.08 | -52.1 | 52.0 | 74.0 | 22.0 | 2.00 | 0 | MAX PEAK | lo ch 5th NF |
| 12200.400000 | 64.61 | 38.96 | -51.7 | 51.9 | 74.0 | 22.1 | 2.00 | 0 | MAX PEAK | mid ch 5th NF |
| 4880.000000 | 54.36 | 32.95 | -55.6 | 31.7 | 54.0 | 22.3 | 2.00 | 0 | AVERAGE | hi ch 2nd NF |
| 4835.200000 | 54.26 | 32.91 | -55.6 | 31.6 | 54.0 | 22.4 | 2.00 | 0 | AVERAGE | lo ch 2nd NF |
| 12300.000000 | 64.09 | 38.92 | -51.6 | 51.5 | 74.0 | 22.5 | 2.00 | 0 | MAX PEAK | hi ch 5th NF |
| 7380.000000 | 68.23 | 36.63 | -54.4 | 50.5 | 74.0 | 23.5 | 2.00 | 0 | MAX PEAK | hi ch 3rd NF |
| 7320.000000 | 68.11 | 36.52 | -54.7 | 49.9 | 74.0 | 24.1 | 2.00 | 0 | MAX PEAK | mid ch 3rd NF |
| 4920.000000 | 67.98 | 32.99 | -55.6 | 45.4 | 74.0 | 28.6 | 2.00 | 0 | MAX PEAK | hi ch 2nd NF |
| 4880.000000 | 67.86 | 32.95 | -55.6 | 45.2 | 74.0 | 28.8 | 2.00 | 0 | MAX PEAK | hi ch 2nd NF |
| 4835.200000 | 67.36 | 32.91 | -55.6 | 44.7 | 74.0 | 29.3 | 2.00 | 0 | MAX PEAK | lo ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) with dish antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX 20MHz
Comment: Low, Mid and High Channel
Date: 05-07-2013

TEXT: "Vert 3 meters"

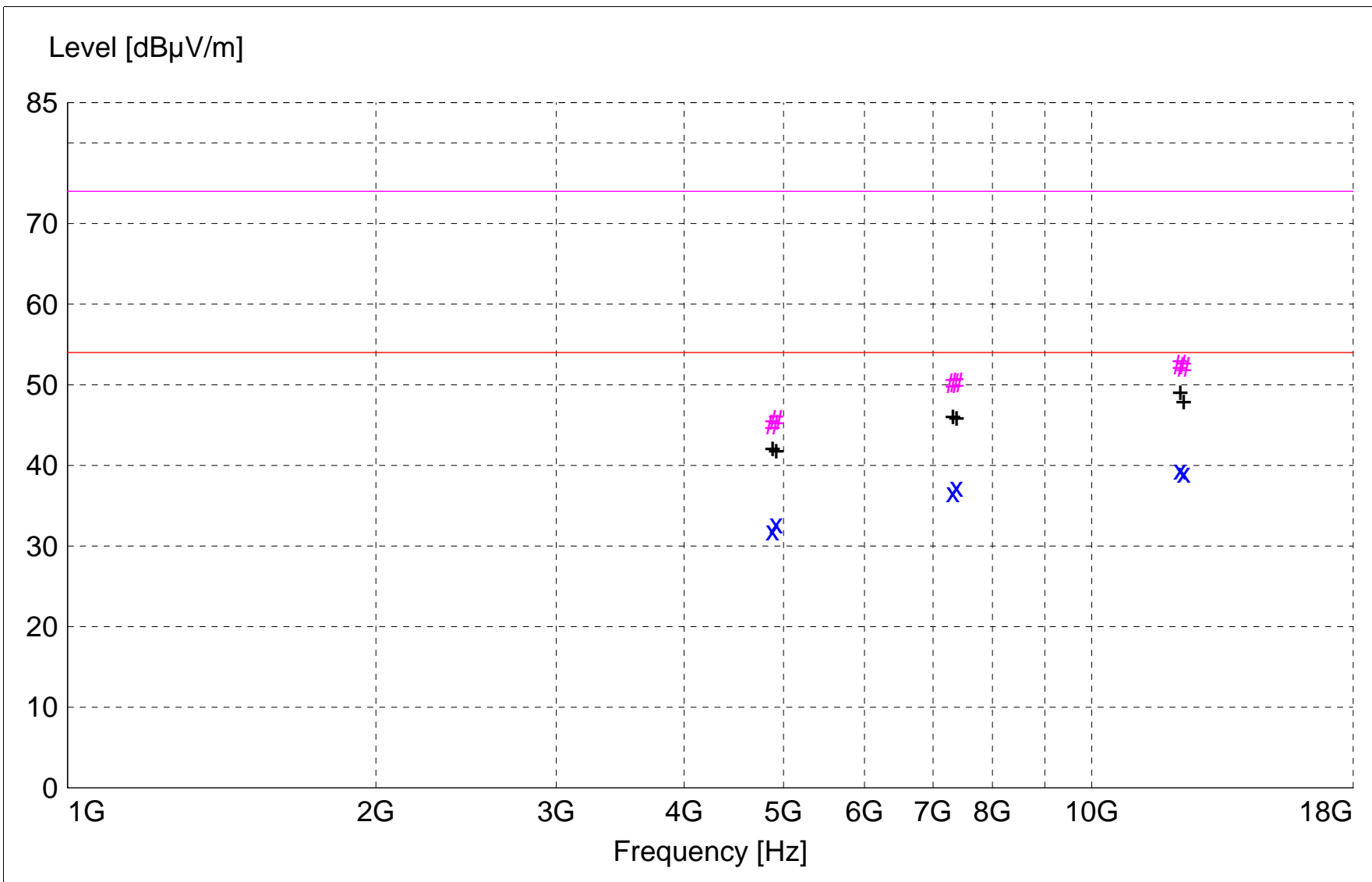
Short Description: Test Set-up

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

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

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

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A507d_sv_Average
# # :MES  A507d_sv_Peak
+ + :MES  A507d_sv_Peak_List
— LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A507d_sv_Final"

5/7/2013 11:49AM

| 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 | | |
| 12200.000000 | 52.18 | 38.96 | -51.7 | 39.4 | 54.0 | 14.6 | 2.00 | 0 | AVERAGE | Mid Ch 5th NF |
| 12300.000000 | 51.71 | 38.92 | -51.6 | 39.1 | 54.0 | 14.9 | 2.00 | 0 | AVERAGE | Hi Ch 5th NF |
| 7380.000000 | 55.05 | 36.63 | -54.4 | 37.3 | 54.0 | 16.7 | 2.00 | 0 | AVERAGE | Hi Ch 3rd NF |
| 7320.000000 | 54.83 | 36.52 | -54.7 | 36.6 | 54.0 | 17.4 | 2.00 | 0 | AVERAGE | Mid Ch 3rd NF |
| 4920.000000 | 55.40 | 32.99 | -55.6 | 32.8 | 54.0 | 21.2 | 2.00 | 0 | AVERAGE | Hi Ch 2nd NF |
| 12200.000000 | 65.27 | 38.96 | -51.7 | 52.5 | 74.0 | 21.5 | 2.00 | 0 | MAX PEAK | Mid Ch 5th NF |
| 12300.000000 | 64.88 | 38.92 | -51.6 | 52.2 | 74.0 | 21.8 | 2.00 | 0 | MAX PEAK | Hi Ch 5th NF |
| 4880.000000 | 54.57 | 32.95 | -55.6 | 31.9 | 54.0 | 22.1 | 2.00 | 0 | AVERAGE | Mid Ch 2nd NF |
| 7380.000000 | 67.98 | 36.63 | -54.4 | 50.2 | 74.0 | 23.8 | 2.00 | 0 | MAX PEAK | Hi Ch 3rd NF |
| 7320.000000 | 68.35 | 36.52 | -54.7 | 50.2 | 74.0 | 23.8 | 2.00 | 0 | MAX PEAK | Mid Ch 3rd NF |
| 4920.000000 | 68.23 | 32.99 | -55.6 | 45.6 | 74.0 | 28.4 | 2.00 | 0 | MAX PEAK | Hi Ch 2nd NF |
| 4880.000000 | 67.74 | 32.95 | -55.6 | 45.1 | 74.0 | 28.9 | 2.00 | 0 | MAX PEAK | Mid Ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM 2.4GHz: OFDM
Manufacturer: Cambium Networks
Operating Condition: 75 deg F; 46% R.H.
Test Site: DLS Site G1
Operator: Jim O
Test Specification: 5, 10, & 20 MHz Bandwidths
Comment: Dish Antenna
Date: 5-07-2013

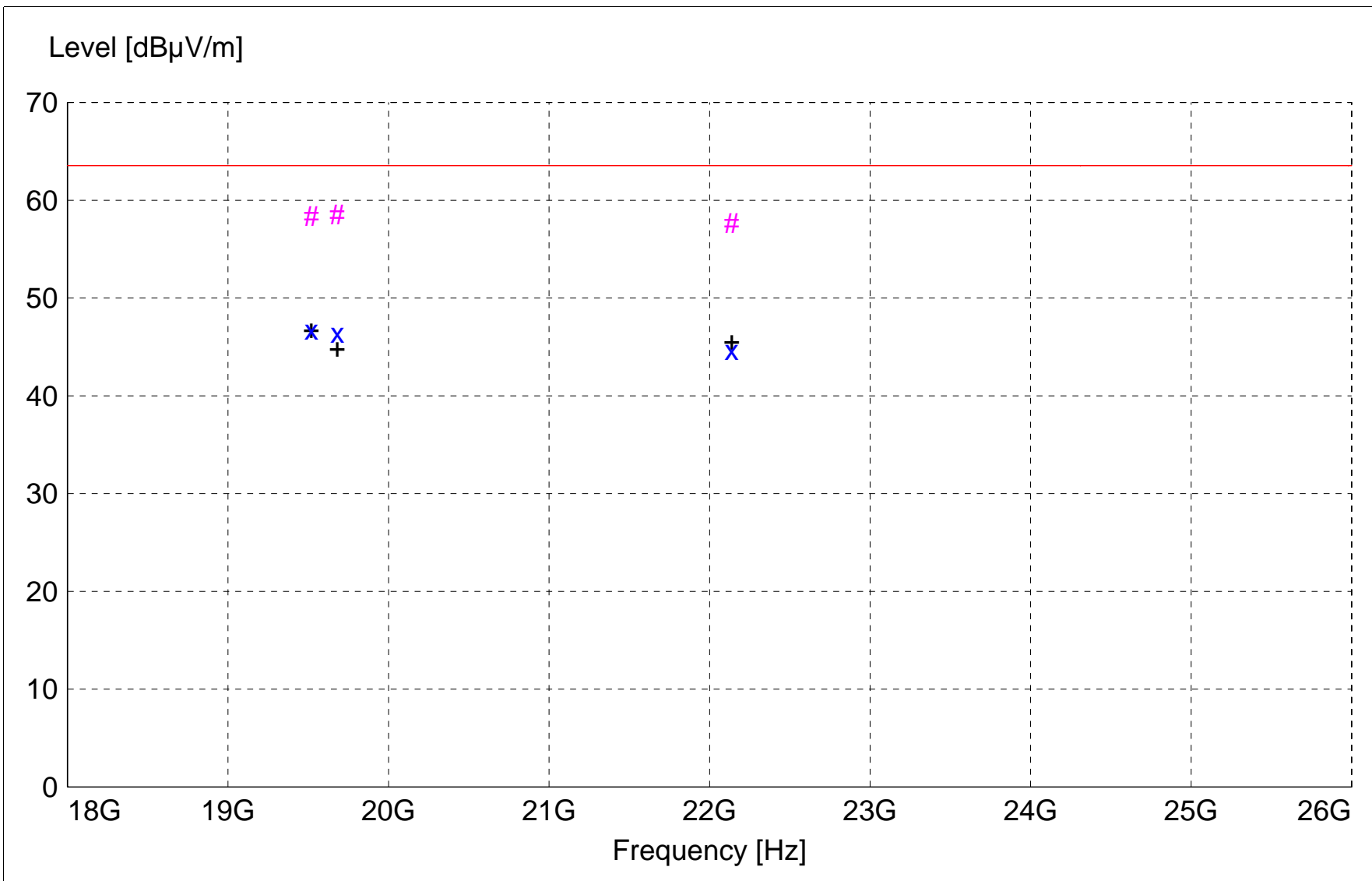
TEXT: "Horz 1 meters"

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  A507a_sh_Average
# # :MES  A507a_sh_Peak
+ + :MES  A507a_sh_Peak_List
— LIM  FCC 15.209 F 1m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 1m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A507a_sh_Final"

5/7/2013 10:07AM

| 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 | | |
| 19520.000000 | 41.78 | 45.97 | -41.0 | 46.8 | 63.5 | 16.8 | 1.50 | 0 | AVERAGE | Mid ch 8th 20Mh |
| 19680.200000 | 41.00 | 46.15 | -40.8 | 46.4 | 63.5 | 17.2 | 1.50 | 0 | AVERAGE | hi ch 8th 20MHz |
| 22138.200000 | 40.46 | 46.39 | -42.1 | 44.7 | 63.5 | 18.8 | 1.00 | 0 | AVERAGE | Hi ch 9th 20M N |
| 19680.200000 | 53.14 | 46.15 | -40.8 | 58.5 | 83.5 | 25.0 | 1.50 | 0 | MAX PEAK | hi ch 8th 20MHz |
| 19520.000000 | 53.42 | 45.97 | -41.0 | 58.4 | 83.5 | 25.1 | 1.50 | 0 | MAX PEAK | Mid ch 8th 20Mh |
| 22138.200000 | 53.42 | 46.39 | -42.1 | 57.7 | 83.5 | 25.9 | 1.00 | 0 | MAX PEAK | Hi ch 9th 20M N |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM 2.4GHz: OFDM
Manufacturer: Cambium Networks
Operating Condition: 75 deg F; 46% R.H.
Test Site: DLS Site G1
Operator: Jim O
Test Specification: 5, 10, & 20 MHz Bandwidths
Comment: Dish Antenna
Date: 5-07-2013

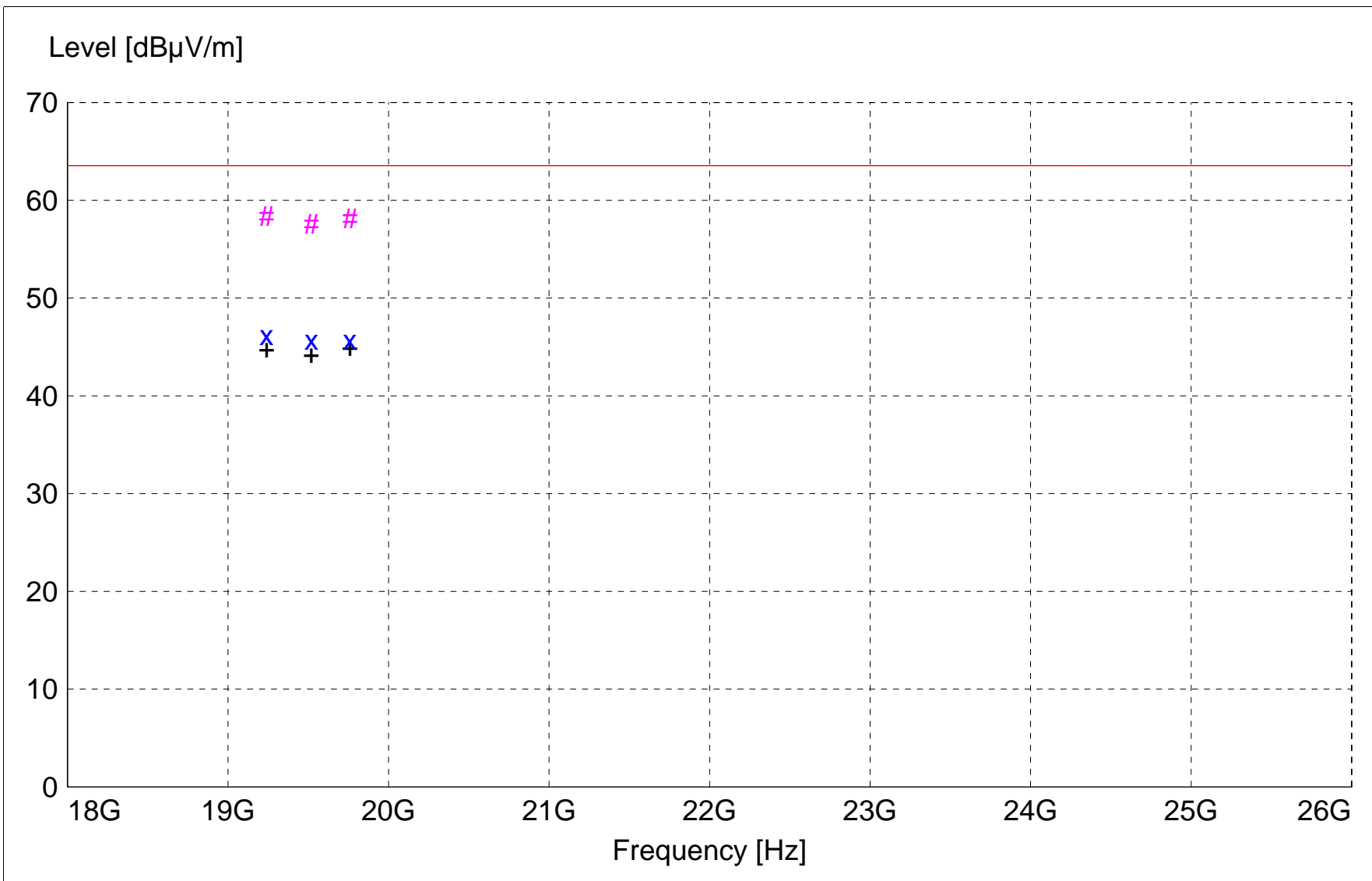
TEXT: "Vert 1 meters"

Short Description: Test Set-up

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

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

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  A507a_sv_Average
# # :MES  A507a_sv_Peak
+ + :MES  A507a_sv_Peak_List
— LIM  FCC 15.209 F 1m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 1m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A507a_sv_Final"

5/7/2013 9:46AM

| 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 | | | m | deg | | |
| 19240.000000 | 41.93 | 45.59 | -41.3 | 46.2 | 63.5 | 17.3 | 1.50 | 0 | AVERAGE | lo ch 8th 10MHz |
| 19759.800000 | 40.15 | 46.23 | -40.6 | 45.8 | 63.5 | 17.8 | 1.50 | 0 | AVERAGE | Hi ch 8th 10Mhz |
| 19520.000000 | 40.71 | 45.97 | -41.0 | 45.7 | 63.5 | 17.9 | 1.50 | 0 | AVERAGE | Mid ch 8th 20MH |
| 19240.000000 | 54.12 | 45.59 | -41.3 | 58.4 | 83.5 | 25.1 | 1.50 | 0 | MAX PEAK | lo ch 8th 10MHz |
| 19759.800000 | 52.49 | 46.23 | -40.6 | 58.1 | 83.5 | 25.4 | 1.50 | 0 | MAX PEAK | Hi ch 8th 10Mhz |
| 19520.000000 | 52.62 | 45.97 | -41.0 | 57.6 | 83.5 | 25.9 | 1.50 | 0 | MAX PEAK | Mid ch 8th 20MH |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM w/Panel
Manufacturer: Cambium Networks
Operating Condition: 68 deg. F; 33% R.H.
Test Site: DLS O.F. Site 2
Operator: Jim O
Test Specification: Continuous Transmit Mode
Comment: with patch antenna tested at 10MHz BW Mid Channel
Date: 05-02-2013

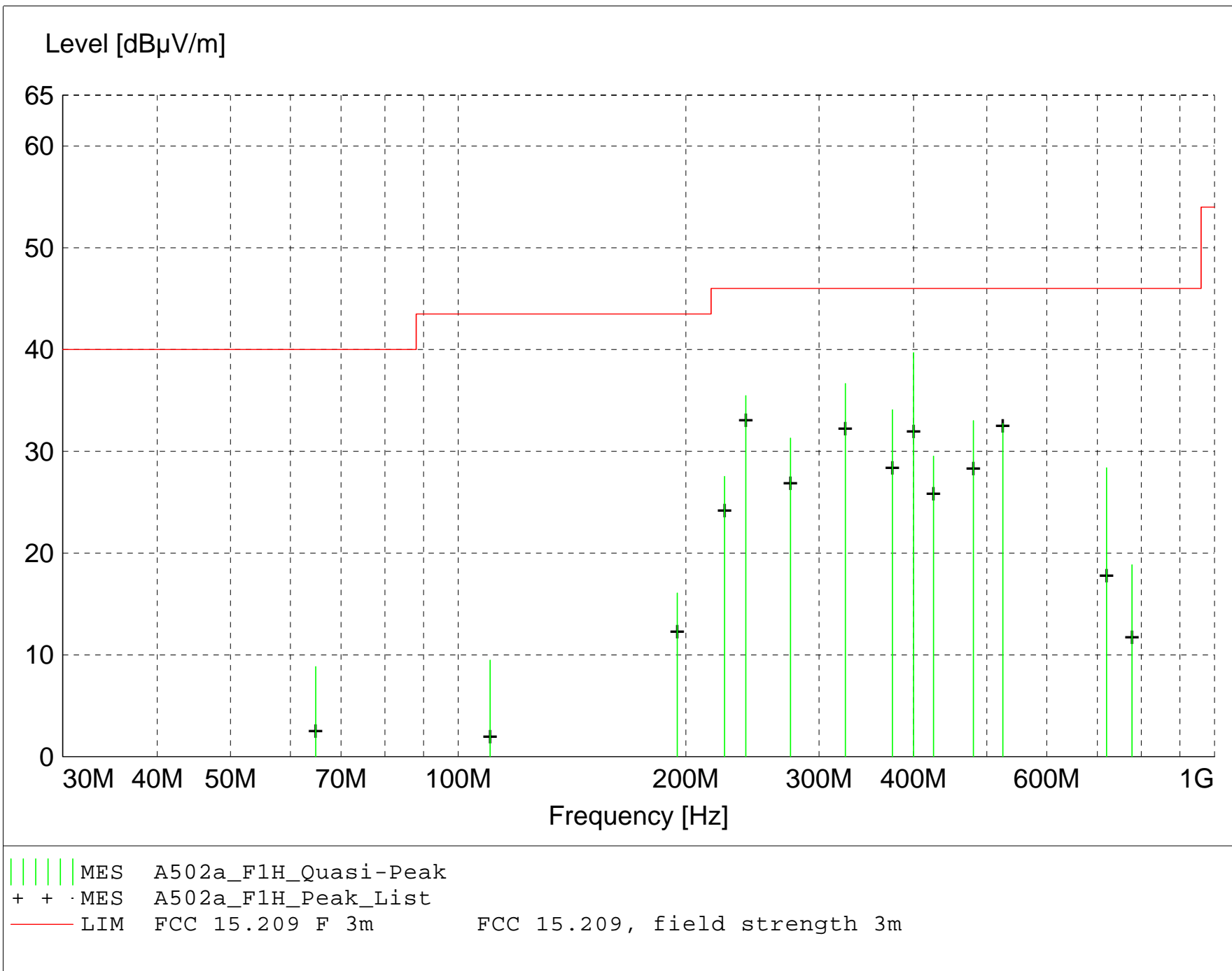
TEXT: "Horz 3 meters"

Short Description: Test Set-up

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



MEASUREMENT RESULT: "A502a_F1H_Final"

5/8/2013 10:21AM

| 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 | | | m | deg | | |
| 399.980000 | 44.43 | 15.90 | -20.6 | 39.7 | 46.0 | 6.3 | 1.50 | 0 | QUASI-PEAK | None |
| 324.980000 | 43.33 | 14.60 | -21.3 | 36.7 | 46.0 | 9.3 | 1.50 | 0 | QUASI-PEAK | None |
| 240.020000 | 45.10 | 12.00 | -21.6 | 35.5 | 46.0 | 10.5 | 1.50 | 0 | QUASI-PEAK | None |
| 375.020000 | 39.91 | 15.20 | -21.0 | 34.1 | 46.0 | 11.9 | 1.50 | 0 | QUASI-PEAK | None |
| 480.020000 | 36.00 | 17.40 | -20.4 | 33.0 | 46.0 | 13.0 | 1.50 | 0 | QUASI-PEAK | None |
| 525.020000 | 34.34 | 18.40 | -20.0 | 32.7 | 46.0 | 13.3 | 1.50 | 45 | QUASI-PEAK | None |
| 275.000000 | 39.43 | 13.40 | -21.5 | 31.3 | 46.0 | 14.7 | 1.50 | 0 | QUASI-PEAK | None |
| 425.000000 | 33.68 | 16.50 | -20.7 | 29.5 | 46.0 | 16.5 | 1.50 | 0 | QUASI-PEAK | None |
| 720.020000 | 26.19 | 21.40 | -19.2 | 28.4 | 46.0 | 17.6 | 1.50 | 45 | QUASI-PEAK | None |
| 225.020000 | 37.93 | 11.30 | -21.7 | 27.5 | 46.0 | 18.5 | 1.50 | 20 | QUASI-PEAK | None |
| 777.740000 | 15.73 | 21.60 | -18.5 | 18.9 | 46.0 | 27.1 | 1.50 | 0 | QUASI-PEAK | NF |
| 194.820000 | 20.54 | 17.42 | -21.9 | 16.1 | 43.5 | 27.4 | 1.00 | 0 | QUASI-PEAK | NF |
| 64.800000 | 23.02 | 8.76 | -22.9 | 8.8 | 40.0 | 31.2 | 1.00 | 0 | QUASI-PEAK | NF |
| 110.220000 | 19.91 | 11.92 | -22.3 | 9.5 | 43.5 | 34.0 | 1.00 | 0 | QUASI-PEAK | NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM w/Panel
Manufacturer: Cambium Networks
Operating Condition: 68 deg. F; 33% R.H.
Test Site: DLS O.F. Site 2
Operator: Jim O
Test Specification: Continuous Transmit Mode
Comment: with patch antenna tested at 10MHz BW Mid Channel
Date: 05-02-2013

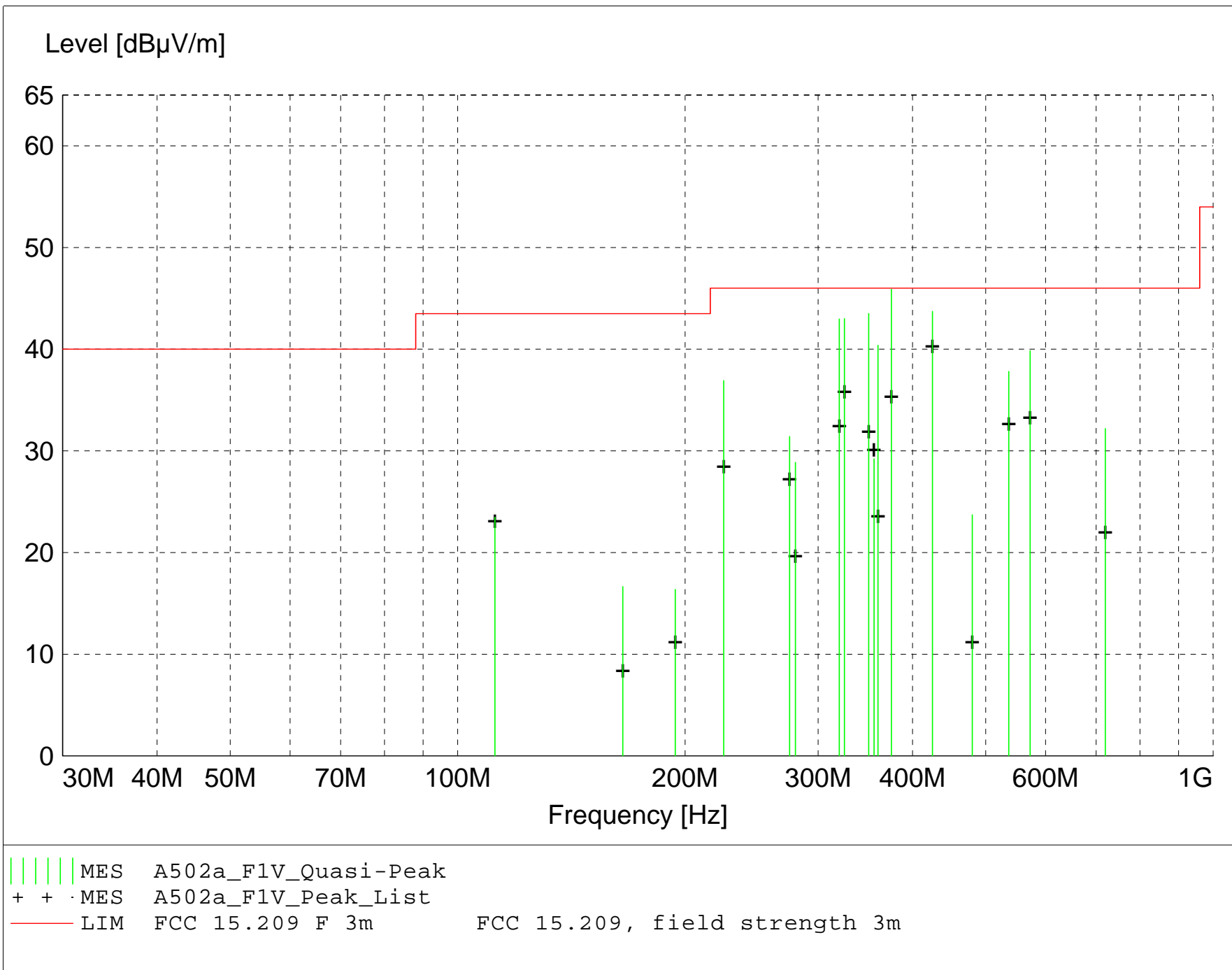
TEXT: "Vert 3 meters"

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



MEASUREMENT RESULT: "A502a_F1V_Final"

5/2/2013 2:01PM

| 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 | | | m | deg | | |
| 375.020000 | 51.74 | 15.20 | -21.0 | 45.9 | 46.0 | 0.1 | 1.20 | 180 | QUASI-PEAK | None |
| 425.000000 | 47.86 | 16.50 | -20.7 | 43.7 | 46.0 | 2.3 | 1.20 | 350 | QUASI-PEAK | None |
| 350.000000 | 49.54 | 14.90 | -20.9 | 43.5 | 46.0 | 2.5 | 1.20 | 180 | QUASI-PEAK | None |
| 324.980000 | 49.67 | 14.60 | -21.3 | 43.0 | 46.0 | 3.0 | 1.20 | 180 | QUASI-PEAK | None |
| 320.000000 | 49.48 | 14.80 | -21.3 | 43.0 | 46.0 | 3.0 | 1.20 | 200 | QUASI-PEAK | None |
| 360.020000 | 46.42 | 14.90 | -20.9 | 40.4 | 46.0 | 5.6 | 1.20 | 180 | QUASI-PEAK | None |
| 572.300000 | 41.11 | 18.75 | -20.0 | 39.9 | 46.0 | 6.1 | 1.00 | 80 | QUASI-PEAK | None |
| 536.360000 | 39.35 | 18.37 | -19.9 | 37.8 | 46.0 | 8.2 | 1.00 | 80 | QUASI-PEAK | None |
| 225.020000 | 47.31 | 11.30 | -21.7 | 36.9 | 46.0 | 9.1 | 1.20 | 180 | QUASI-PEAK | None |
| 719.960000 | 30.00 | 21.40 | -19.2 | 32.2 | 46.0 | 13.8 | 1.00 | 0 | QUASI-PEAK | None |
| 275.000000 | 39.54 | 13.40 | -21.5 | 31.4 | 46.0 | 14.6 | 1.20 | 180 | QUASI-PEAK | None |
| 355.700000 | 35.20 | 14.90 | -20.9 | 29.2 | 46.0 | 16.8 | 1.20 | 45 | QUASI-PEAK | None |
| 279.980000 | 36.84 | 13.50 | -21.5 | 28.9 | 46.0 | 17.1 | 1.20 | 180 | QUASI-PEAK | None |
| 112.020000 | 33.62 | 12.20 | -22.3 | 23.5 | 43.5 | 20.0 | 1.00 | 210 | QUASI-PEAK | None |
| 479.960000 | 26.71 | 17.40 | -20.4 | 23.7 | 46.0 | 22.3 | 1.20 | 0 | QUASI-PEAK | None |
| 165.420000 | 25.05 | 13.64 | -22.0 | 16.7 | 43.5 | 26.8 | 1.00 | 0 | QUASI-PEAK | NF |
| 194.100000 | 20.79 | 17.49 | -21.9 | 16.4 | 43.5 | 27.1 | 1.00 | 0 | QUASI-PEAK | NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) w/Dual polarized slant antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 5MHz BW
Comment: Low, Mid and High Channel
Date: 04-26-2013

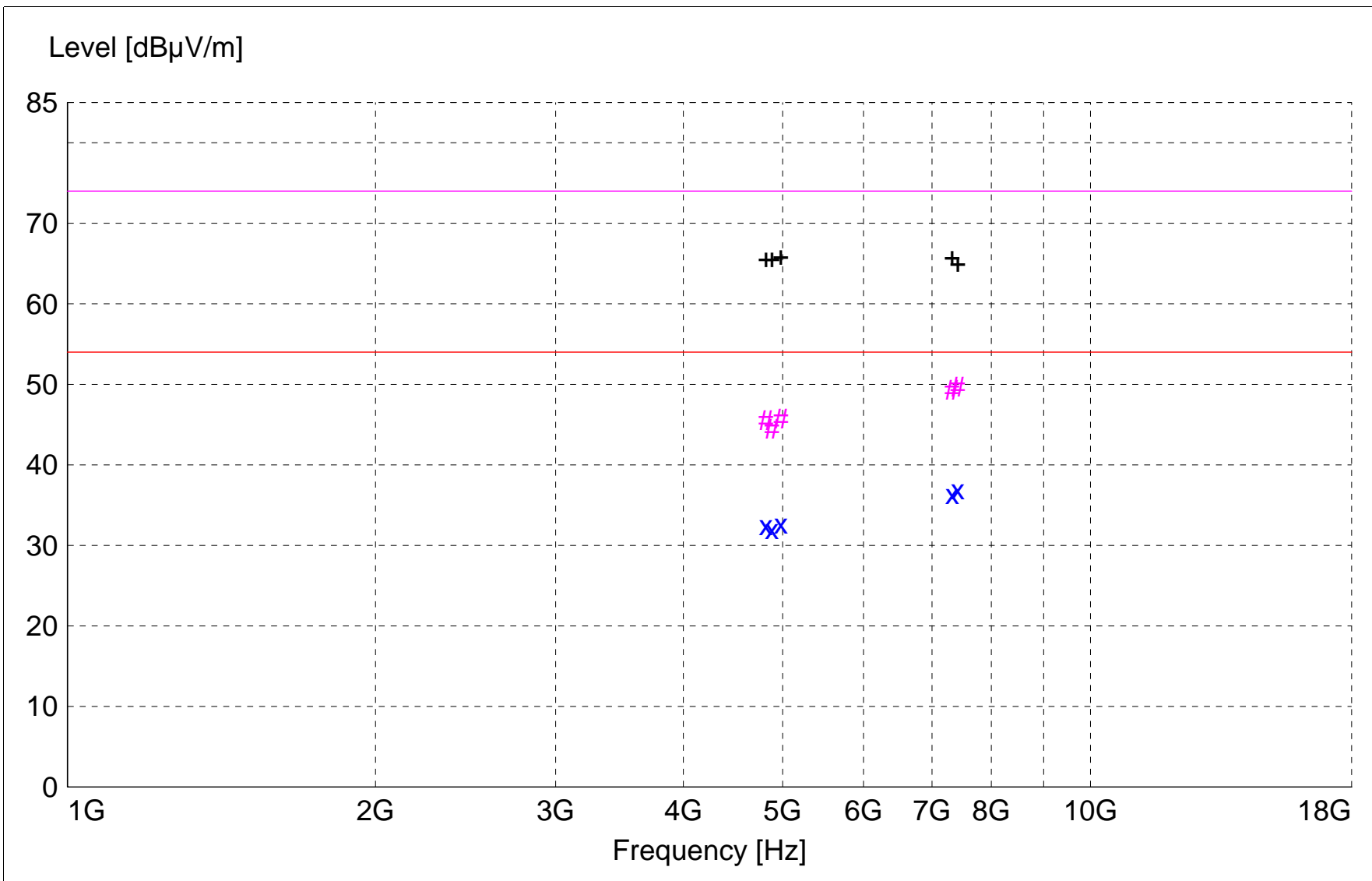
TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A426b_sh_Average
# # :MES  A426b_sh_Peak
+ + :MES  A426b_sh_Peak_List
— LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A426b_sh_Final"

4/26/2013 3:46PM

| 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 | | |
| 7417.200000 | 54.46 | 36.65 | -54.2 | 37.0 | 54.0 | 17.0 | 1.50 | 0 | AVERAGE | Hi ch 3rd NF |
| 7324.400000 | 54.56 | 36.53 | -54.7 | 36.4 | 54.0 | 17.6 | 1.50 | 0 | AVERAGE | Mid ch 3rd NF |
| 4982.000000 | 55.09 | 33.10 | -55.5 | 32.7 | 54.0 | 21.3 | 1.50 | 0 | AVERAGE | Hi ch 2nd NF |
| 4816.800000 | 55.18 | 32.90 | -55.6 | 32.5 | 54.0 | 21.5 | 1.50 | 0 | AVERAGE | Lo ch 2nd NF |
| 4882.000000 | 54.66 | 32.95 | -55.6 | 32.0 | 54.0 | 22.0 | 1.50 | 0 | AVERAGE | Mid ch 2nd NF |
| 7417.200000 | 67.17 | 36.65 | -54.2 | 49.7 | 74.0 | 24.3 | 1.50 | 0 | MAX PEAK | Hi ch 3rd NF |
| 7324.400000 | 67.53 | 36.53 | -54.7 | 49.4 | 74.0 | 24.6 | 1.50 | 0 | MAX PEAK | Mid ch 3rd NF |
| 4982.000000 | 68.13 | 33.10 | -55.5 | 45.7 | 74.0 | 28.3 | 1.50 | 0 | MAX PEAK | Hi ch 2nd NF |
| 4816.800000 | 68.25 | 32.90 | -55.6 | 45.6 | 74.0 | 28.4 | 1.50 | 0 | MAX PEAK | Lo ch 2nd NF |
| 4882.000000 | 67.17 | 32.95 | -55.6 | 44.5 | 74.0 | 29.5 | 1.50 | 0 | MAX PEAK | Mid ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) w/Dual polarized slant antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 5MHz BW
Comment: Low, Mid and High Channel
Date: 04-26-2013

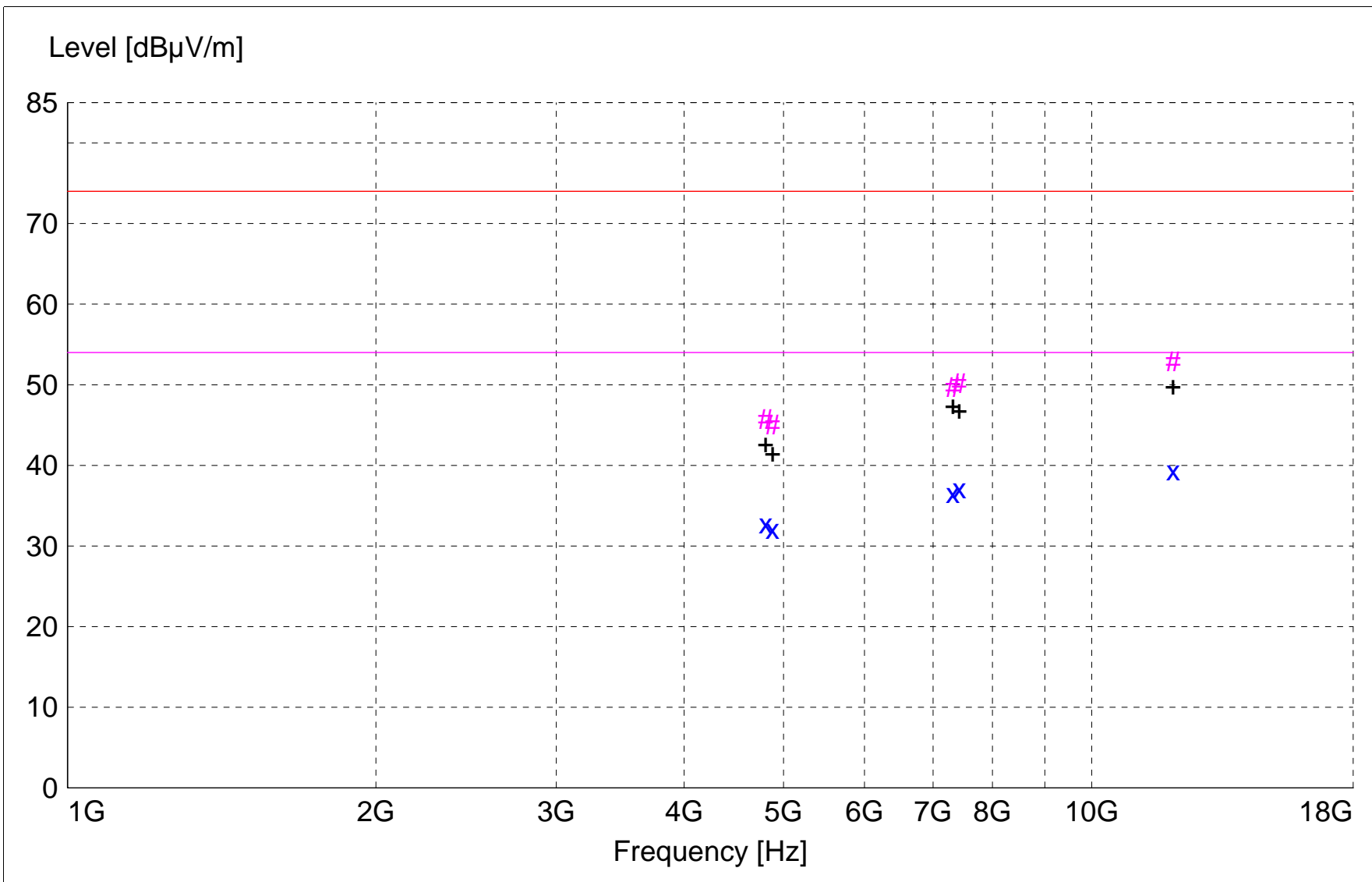
TEXT: "Vert 3 meters"

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 detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



x x :MES C426b_sv_Average
 # # :MES C426b_sv_Peak
 + + :MES C426b_sv_Peak_List
 — LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m
 — LIM FCC 15.209 F 3m AVG Field Strength AVG Limit 3m

MEASUREMENT RESULT: "C426b_sv_Final"

5/15/2013 10:06AM

| 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 | | |
| 12009.380000 | 52.33 | 39.08 | -52.1 | 39.3 | 54.0 | 14.7 | 1.00 | 0 | AVERAGE | Lo CH 5th NF |
| 7424.820000 | 54.58 | 36.65 | -54.1 | 37.1 | 54.0 | 16.9 | 1.00 | 0 | AVERAGE | High CH 3rd NF |
| 7319.960000 | 54.79 | 36.52 | -54.7 | 36.6 | 54.0 | 17.4 | 1.00 | 0 | AVERAGE | Mid CH 3rd NF |
| 12009.380000 | 65.89 | 39.08 | -52.1 | 52.9 | 74.0 | 21.1 | 1.00 | 0 | MAX PEAK | Lo CH 5th NF |
| 4804.980000 | 55.42 | 32.89 | -55.6 | 32.8 | 54.0 | 21.2 | 1.00 | 0 | AVERAGE | Lo Ch 2nd NF |
| 4879.800000 | 54.81 | 32.95 | -55.6 | 32.1 | 54.0 | 21.9 | 1.00 | 0 | AVERAGE | mid CH 2nd NF |
| 7424.820000 | 67.65 | 36.65 | -54.1 | 50.2 | 74.0 | 23.8 | 1.00 | 0 | MAX PEAK | High CH 3rd NF |
| 7319.960000 | 67.89 | 36.52 | -54.7 | 49.7 | 74.0 | 24.3 | 1.00 | 0 | MAX PEAK | Mid CH 3rd NF |
| 4804.980000 | 68.37 | 32.89 | -55.6 | 45.7 | 74.0 | 28.3 | 1.00 | 0 | MAX PEAK | Lo Ch 2nd NF |
| 4879.800000 | 67.77 | 32.95 | -55.6 | 45.1 | 74.0 | 28.9 | 1.00 | 0 | MAX PEAK | mid CH 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) w/Dual polarized slant antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 10MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

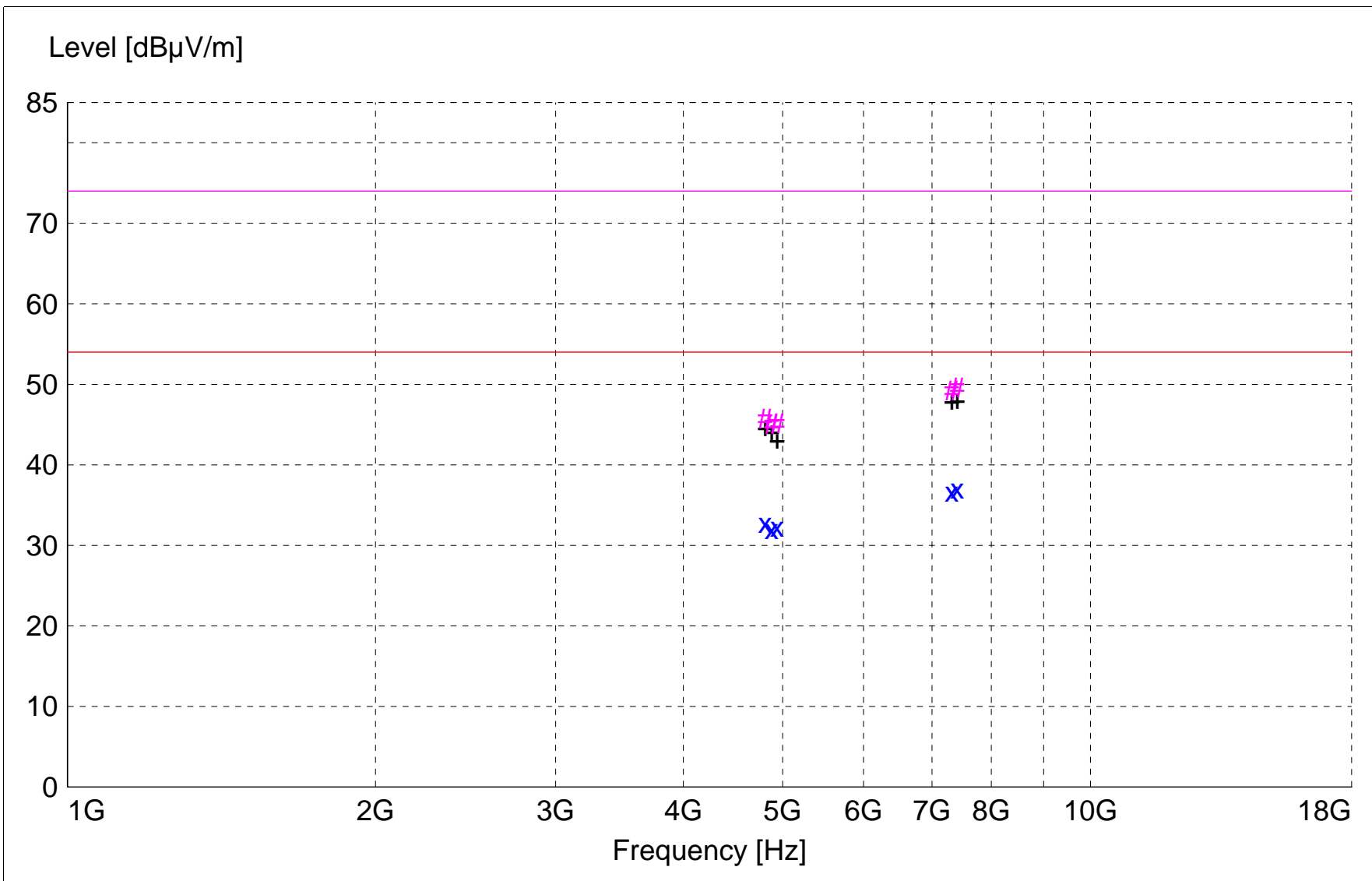
TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



x x :MES A429a_sh_Average
 # # :MES A429a_sh_Peak
 + + :MES A429a_sh_Peak_List
 — LIM FCC 15.209 F 3m AVG Field Strength AVG Limit 3m
 — LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A429a_sh_Final"

4/29/2013 9:26AM

| 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 | | |
| 7408.940000 | 54.54 | 36.66 | -54.2 | 37.0 | 54.0 | 17.0 | 1.80 | 0 | AVERAGE | Hi Ch 3rd NF |
| 7319.980000 | 54.87 | 36.52 | -54.7 | 36.7 | 54.0 | 17.3 | 1.50 | 0 | AVERAGE | Mid Ch 2nd NF |
| 4808.180000 | 55.42 | 32.89 | -55.6 | 32.8 | 54.0 | 21.2 | 1.50 | 0 | AVERAGE | Low Ch 2nd NF |
| 4939.860000 | 54.88 | 33.03 | -55.6 | 32.3 | 54.0 | 21.7 | 1.50 | 0 | AVERAGE | Mid Ch 2nd NF |
| 4880.080000 | 54.72 | 32.95 | -55.6 | 32.1 | 54.0 | 21.9 | 1.50 | 0 | AVERAGE | Mid Ch 2nd NF |
| 7408.940000 | 67.17 | 36.66 | -54.2 | 49.6 | 74.0 | 24.4 | 1.80 | 0 | MAX PEAK | Hi Ch 3rd NF |
| 7319.980000 | 67.41 | 36.52 | -54.7 | 49.2 | 74.0 | 24.8 | 1.50 | 0 | MAX PEAK | Mid Ch 2nd NF |
| 4808.180000 | 68.37 | 32.89 | -55.6 | 45.7 | 74.0 | 28.3 | 1.50 | 0 | MAX PEAK | Low Ch 2nd NF |
| 4939.860000 | 67.77 | 33.03 | -55.6 | 45.2 | 74.0 | 28.8 | 1.50 | 0 | MAX PEAK | Mid Ch 2nd NF |
| 4880.080000 | 67.77 | 32.95 | -55.6 | 45.1 | 74.0 | 28.9 | 1.50 | 0 | MAX PEAK | Mid Ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) w/Dual polarized slant antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 10MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

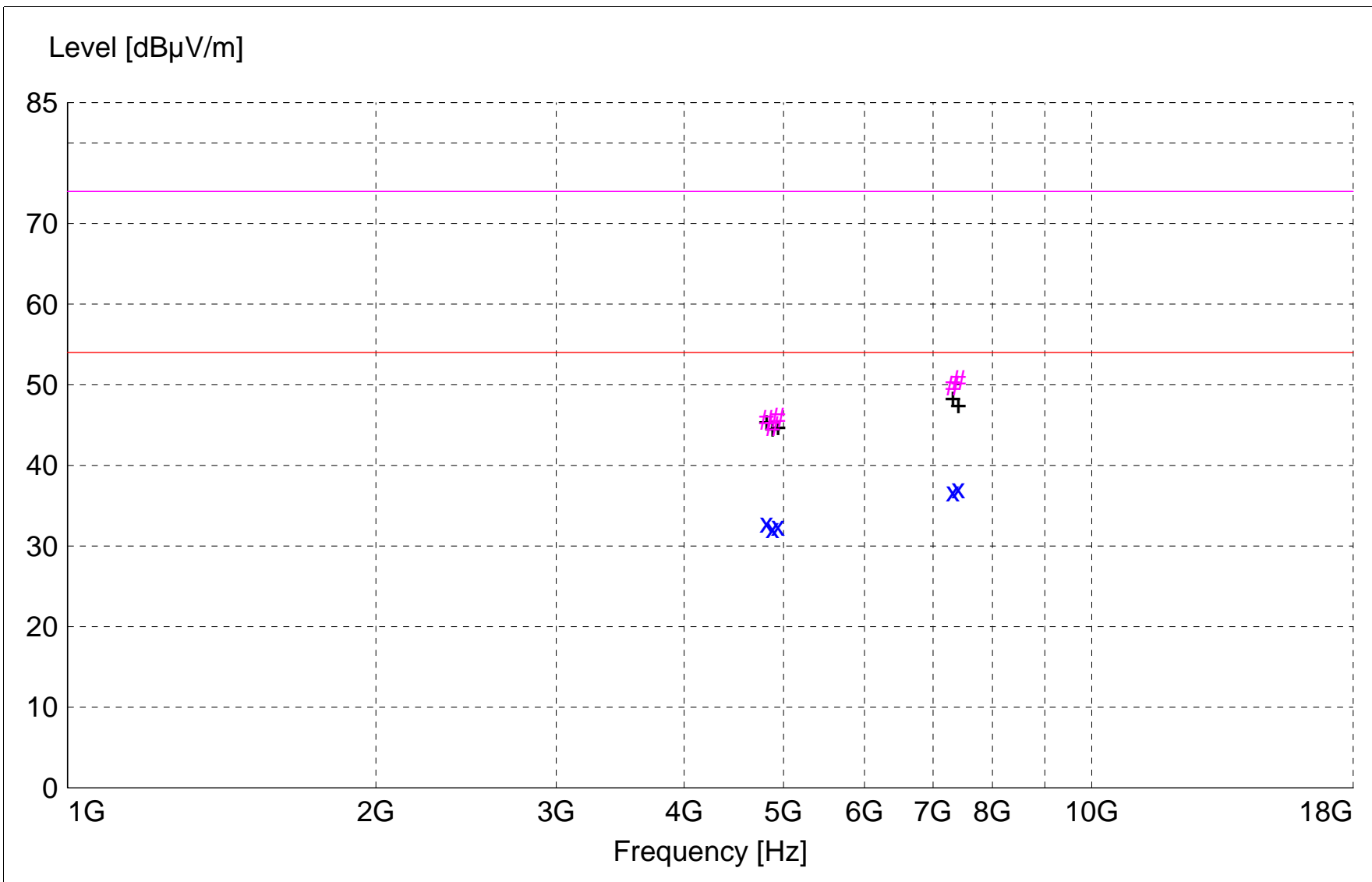
TEXT: "Vert 3 meters"

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 detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A429a_sv_Average
# # :MES  A429a_sv_Peak
+ + :MES  A429a_sv_Peak_List
— — :LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— — :LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A429a_sv_Final"

4/29/2013 8:51AM

| 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 | | |
| 7410.060000 | 54.67 | 36.66 | -54.2 | 37.2 | 54.0 | 16.8 | 1.50 | 0 | AVERAGE | Hi CH 3rd NF |
| 7318.140000 | 54.92 | 36.52 | -54.7 | 36.7 | 54.0 | 17.3 | 1.50 | 0 | AVERAGE | Mid CH 3rd NF |
| 4814.440000 | 55.52 | 32.90 | -55.6 | 32.9 | 54.0 | 21.1 | 1.50 | 0 | AVERAGE | Lo CH 2nd NF |
| 4939.060000 | 55.07 | 33.03 | -55.6 | 32.5 | 54.0 | 21.5 | 1.50 | 0 | AVERAGE | High CH 2nd NF |
| 4879.940000 | 54.87 | 32.95 | -55.6 | 32.2 | 54.0 | 21.8 | 1.50 | 0 | AVERAGE | Mid CH 2nd NF |
| 7410.060000 | 68.13 | 36.66 | -54.2 | 50.6 | 74.0 | 23.4 | 1.50 | 0 | MAX PEAK | Hi CH 3rd NF |
| 7318.140000 | 68.13 | 36.52 | -54.7 | 49.9 | 74.0 | 24.1 | 1.50 | 0 | MAX PEAK | Mid CH 3rd NF |
| 4939.060000 | 68.49 | 33.03 | -55.6 | 45.9 | 74.0 | 28.1 | 1.50 | 0 | MAX PEAK | High CH 2nd NF |
| 4814.440000 | 68.25 | 32.90 | -55.6 | 45.6 | 74.0 | 28.4 | 1.50 | 0 | MAX PEAK | Lo CH 2nd NF |
| 4879.940000 | 67.53 | 32.95 | -55.6 | 44.9 | 74.0 | 29.1 | 1.50 | 0 | MAX PEAK | Mid CH 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) w/Dual polarized slant antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 20MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

TEXT: "Horz 3 meters"

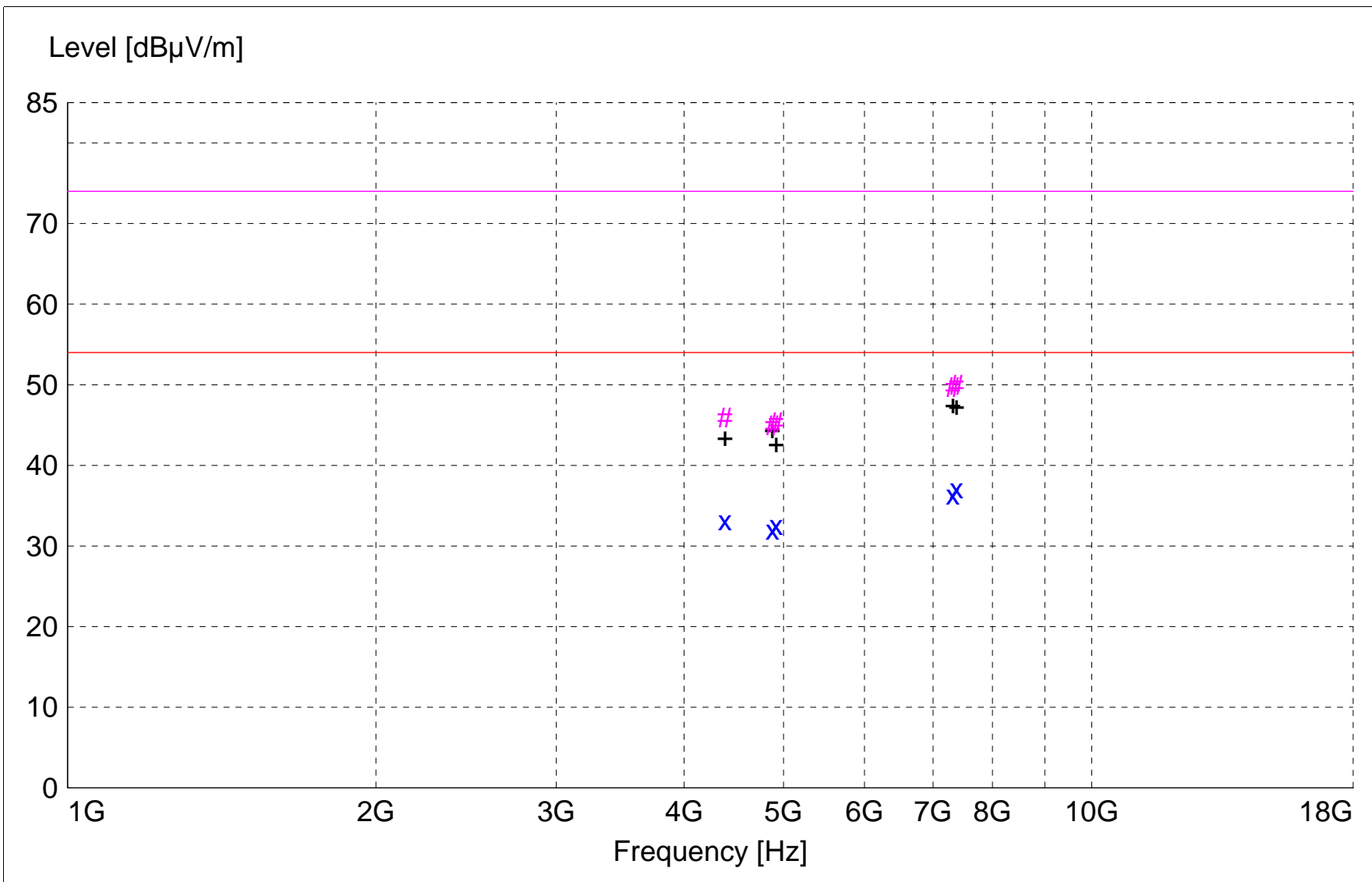
Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL 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
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A429b_sh_Average
# # :MES  A429b_sh_Peak
+ + :MES  A429b_sh_Peak_List
— LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A429b_sh_Final"

4/29/2013 10:44AM

| 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 | | |
| 7379.880000 | 54.84 | 36.63 | -54.4 | 37.1 | 54.0 | 16.9 | 1.50 | 0 | AVERAGE | Hi Ch 3rd NF |
| 7320.000000 | 54.59 | 36.52 | -54.7 | 36.4 | 54.0 | 17.6 | 1.00 | 0 | AVERAGE | Mid Ch 3rd NF |
| 4384.720000 | 55.18 | 32.15 | -54.1 | 33.2 | 54.0 | 20.8 | 1.50 | 0 | AVERAGE | Low Ch 2nd NF |
| 4919.960000 | 55.25 | 32.99 | -55.6 | 32.6 | 54.0 | 21.4 | 1.50 | 0 | AVERAGE | Hi Ch 2nd NF |
| 4878.760000 | 54.64 | 32.95 | -55.6 | 32.0 | 54.0 | 22.0 | 1.00 | 0 | AVERAGE | Mid Ch 2nd NF |
| 7379.880000 | 67.77 | 36.63 | -54.4 | 50.0 | 74.0 | 24.0 | 1.50 | 0 | MAX PEAK | Hi Ch 3rd NF |
| 7320.000000 | 67.89 | 36.52 | -54.7 | 49.7 | 74.0 | 24.3 | 1.00 | 0 | MAX PEAK | Mid Ch 3rd NF |
| 4384.720000 | 67.89 | 32.15 | -54.1 | 45.9 | 74.0 | 28.1 | 1.5 | 0 | MAX PEAK | Low Ch 2nd NF |
| 4919.960000 | 68.00 | 32.99 | -55.6 | 45.4 | 74.0 | 28.6 | 1.50 | 0 | MAX PEAK | Hi Ch 2nd NF |
| 4878.760000 | 67.65 | 32.95 | -55.6 | 45.0 | 74.0 | 29.0 | 1.00 | 0 | MAX PEAK | Mid Ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450 SM (2.4GHz OFDM) w/Dual polarized slant antenna
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O
Test Specification: Cont TX QPSK 20MHz BW
Comment: Low, Mid and High Channel
Date: 04-29-2013

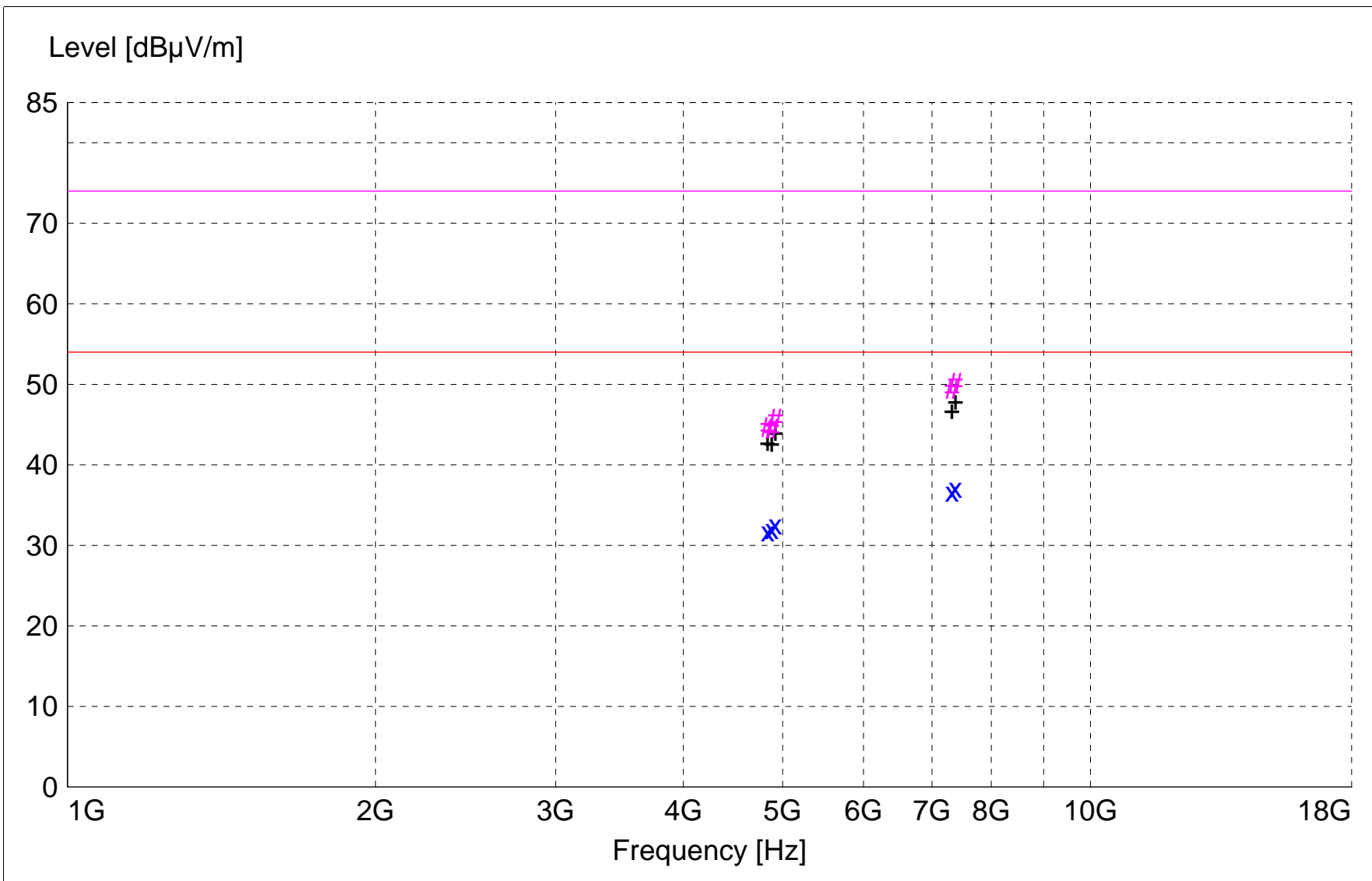
TEXT: "Vert 3 meters"

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 detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



```

x x :MES  A429b_sv_Average
# # :MES  A429b_sv_Peak
+ + :MES  A429b_sv_Peak_List
— LIM  FCC 15.209 F 3m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 3m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A429b_sv_Final"

4/29/2013 10:32AM

| 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 | | |
| 7379.560000 | 54.88 | 36.63 | -54.4 | 37.1 | 54.0 | 16.9 | 1.50 | 0 | AVERAGE | Hi Ch 3rd NF |
| 7320.340000 | 54.81 | 36.52 | -54.7 | 36.6 | 54.0 | 17.4 | 1.00 | 0 | AVERAGE | Mid Ch 3rd |
| 4920.100000 | 55.22 | 32.99 | -55.6 | 32.6 | 54.0 | 21.4 | 1.50 | 0 | AVERAGE | Hi Ch 2nd NF |
| 4880.560000 | 54.65 | 32.95 | -55.6 | 32.0 | 54.0 | 22.0 | 1.00 | 0 | AVERAGE | Mid Ch 2nd NF |
| 4834.780000 | 54.42 | 32.91 | -55.6 | 31.8 | 54.0 | 22.2 | 1.00 | 0 | AVERAGE | Low Ch 2nd NF |
| 7379.560000 | 67.89 | 36.63 | -54.4 | 50.1 | 74.0 | 23.9 | 1.50 | 0 | MAX PEAK | Hi Ch 3rd NF |
| 7320.340000 | 67.65 | 36.52 | -54.7 | 49.5 | 74.0 | 24.5 | 1.00 | 0 | MAX PEAK | Mid Ch 3rd NF |
| 4920.100000 | 68.37 | 32.99 | -55.6 | 45.7 | 74.0 | 28.3 | 1.50 | 0 | MAX PEAK | Hi Ch 2nd NF |
| 4834.780000 | 67.29 | 32.91 | -55.6 | 44.6 | 74.0 | 29.4 | 1.00 | 0 | MAX PEAK | Low Ch 2nd NF |
| 4880.560000 | 67.17 | 32.95 | -55.6 | 44.5 | 74.0 | 29.5 | 1.00 | 0 | MAX PEAK | Mid Ch 2nd NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM 2.4GHz: OFDM
Manufacturer: Cambium Networks
Operating Condition: 75 deg F; 46% R.H.
Test Site: DLS Site G1
Operator: Jim O
Test Specification: 5, 10, & 20 MHz bandwidths
Comment: Panel Antenna
Date: 5-06-2013

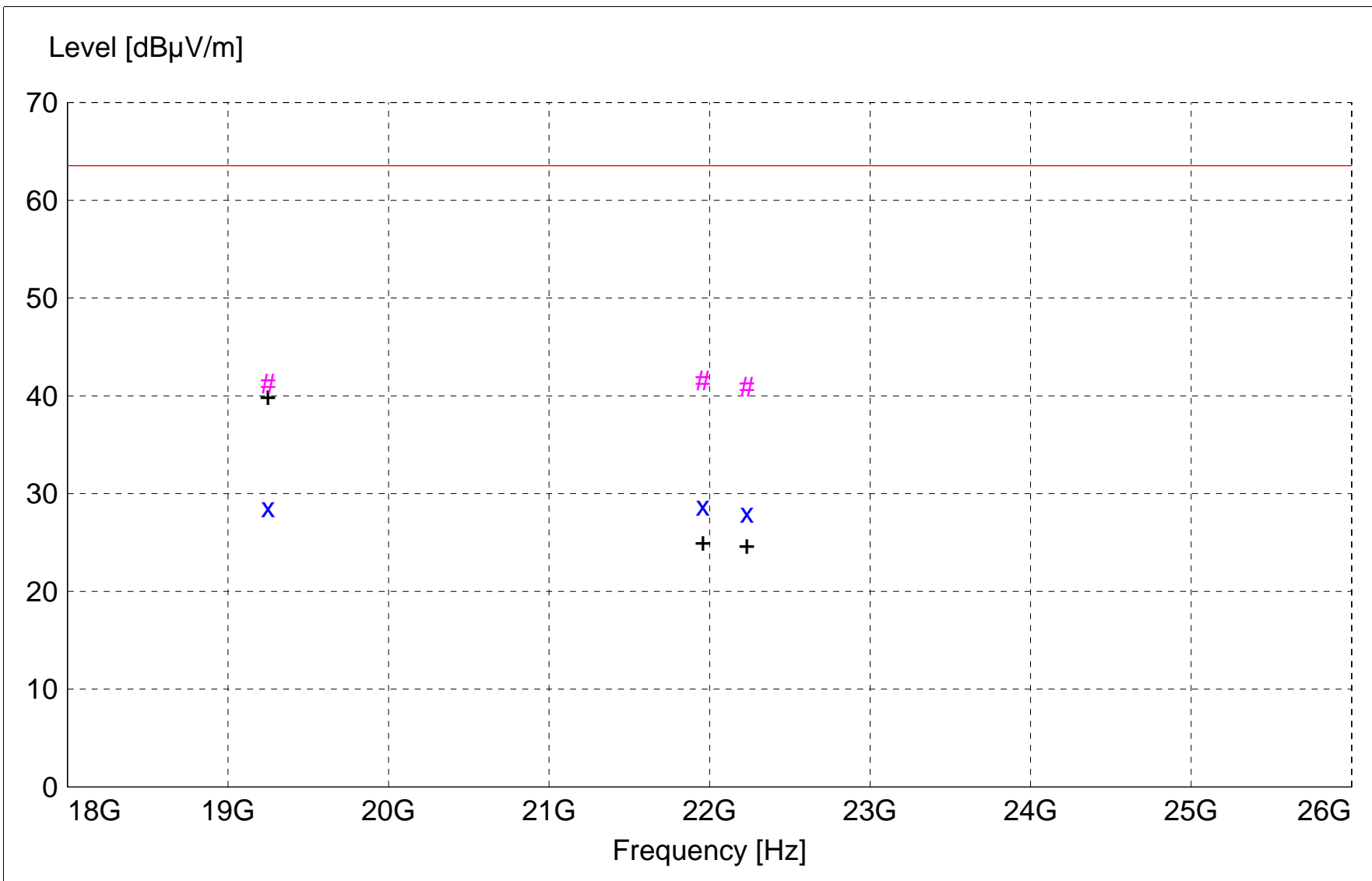
TEXT: "Horz 1 meters"

Short Description: Test Set-up

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

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

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  A506b_sh_Average
# # :MES  A506b_sh_Peak
+ + :MES  A506b_sh_Peak_List
— LIM  FCC 15.209 F 1m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 1m PK   Field Strength PEAK Limit 3m

```

MEASUREMENT RESULT: "A506b_sh_Final"

5/6/2013 3:38PM

| 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 | | |
| 21958.800000 | 24.26 | 46.39 | -41.9 | 28.7 | 63.5 | 34.8 | 1.00 | 0 | AVERAGE | mi ch 9th NF |
| 19249.400000 | 24.26 | 45.61 | -41.3 | 28.6 | 63.5 | 35.0 | 1.00 | 0 | AVERAGE | mi ch 8th NF |
| 22233.000000 | 23.98 | 46.41 | -42.3 | 28.1 | 63.5 | 35.5 | 1.00 | 0 | AVERAGE | hi ch 9th NF |
| 21958.800000 | 37.08 | 46.39 | -41.9 | 41.5 | 83.5 | 42.0 | 1.00 | 0 | MAX PEAK | mi ch 9th NF |
| 19249.400000 | 36.95 | 45.61 | -41.3 | 41.3 | 83.5 | 42.3 | 1.00 | 0 | MAX PEAK | mi ch 8th NF |
| 22233.000000 | 36.82 | 46.41 | -42.3 | 40.9 | 83.5 | 42.6 | 1.00 | 0 | MAX PEAK | hi ch 9th NF |

FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands

Electric Field Strength

EUT: PMP450SM 2.4GHz: OFDM
Manufacturer: Cambium Networks
Operating Condition: 75 deg F; 46% R.H.
Test Site: DLS Site G1
Operator: Jim O
Test Specification: 5, 10, & 20 MHz bandwidths
Comment: Panel Antenna
Date: 5-06-2013

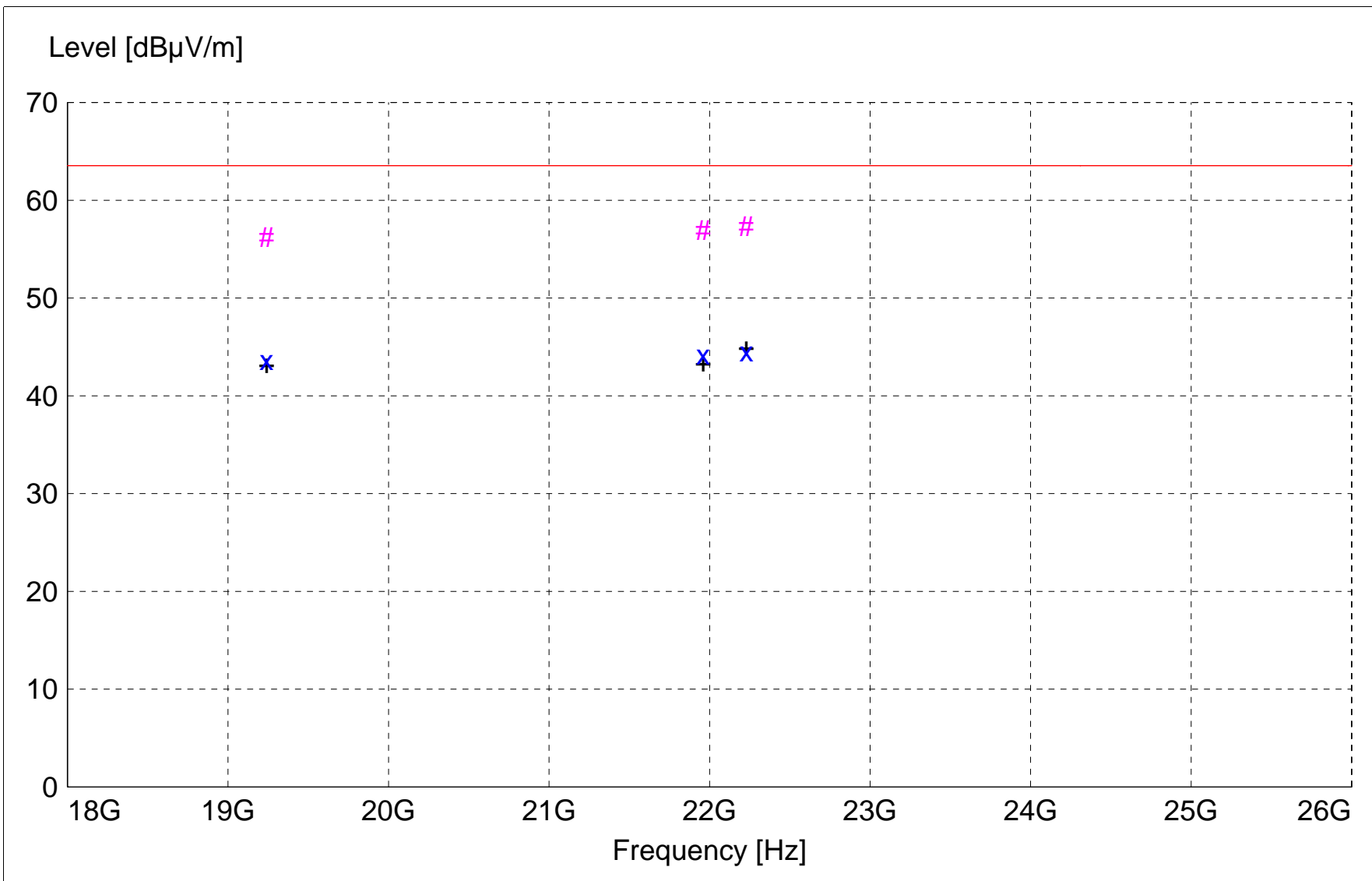
TEXT: "Vert 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with VERTICAL 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  A506b_sv_Average
# # :MES  A506b_sv_Peak
+ + :MES  A506b_sv_Peak_List
— LIM  FCC 15.209 F 1m AVG  Field Strength AVG Limit 3m
— LIM  FCC 15.209 F 1m PK   Field Strength PEAK Limit 3m

```


MEASUREMENT RESULT: "A506b_sv_Final"

5/6/2013 3:33PM

| 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 | | |
| 22229.600000 | 40.46 | 46.40 | -42.3 | 44.5 | 63.5 | 19.0 | 1.00 | 0 | AVERAGE | mid 8th NF |
| 21960.000000 | 39.78 | 46.39 | -41.9 | 44.2 | 63.5 | 19.3 | 1.00 | 0 | AVERAGE | mid 9th NF |
| 19240.000000 | 39.39 | 45.59 | -41.3 | 43.7 | 63.5 | 19.9 | 1.00 | 0 | AVERAGE | mi 8th NF |
| 22229.600000 | 53.28 | 46.40 | -42.3 | 57.4 | 83.5 | 26.2 | 1.00 | 0 | MAX PEAK | mid 8th NF |
| 21960.000000 | 52.49 | 46.39 | -41.9 | 56.9 | 83.5 | 26.6 | 1.00 | 0 | MAX PEAK | mid 9th NF |
| 19240.000000 | 51.98 | 45.59 | -41.3 | 56.3 | 83.5 | 27.3 | 1.00 | 0 | MAX PEAK | mi 8th NF |



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A8.0 Max Unwanted Emissions - Radiated Band-Edge with Cabinet - Restricted Bands

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*

ANSI C63.10:2009

12.2.4 Peak power measurement procedure

12.2.7 Radiated spurious emission test

Description: RBW = 1MHz
VBW \geq 3MHz
Span = spectrum to be examined – (Unwanted Emissions)
Detector = peak
Sweep = auto couple
Trace mode = max hold

Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle.

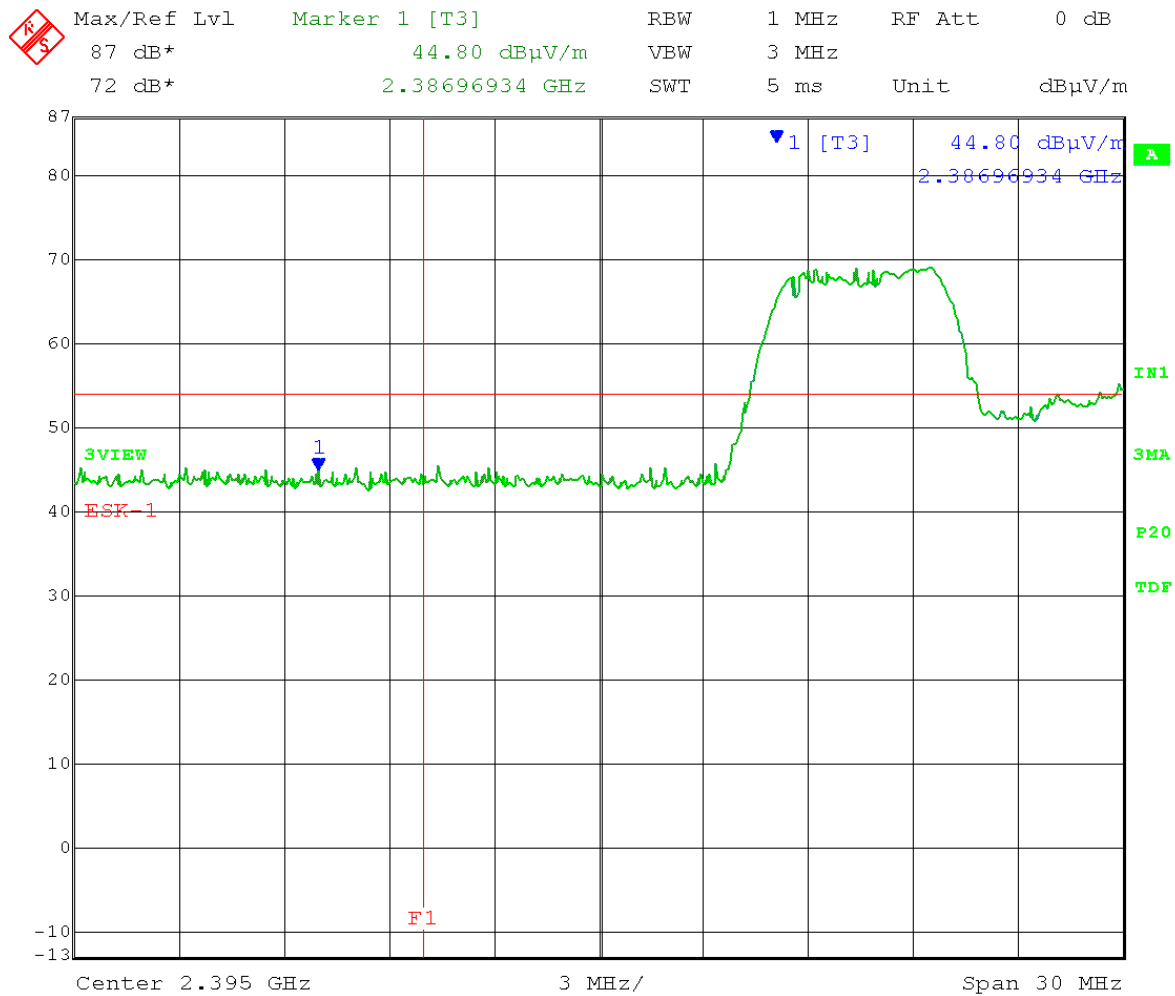
Limit: In this case (worst case), a Max Peak measurement was taken and compared to the more stringent Average limit of 54dBuV/m both vertically and horizontally. The Max Peak measurement complied with the Average limit. **The Patch Antenna was replaced with 50 Ohm terminations on Channel A & Channel B.**

Results: Passed

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 Low Channel: Transmit = 2.4025GHz
 5MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Average Limit (**D1**) = 54dBuV/m

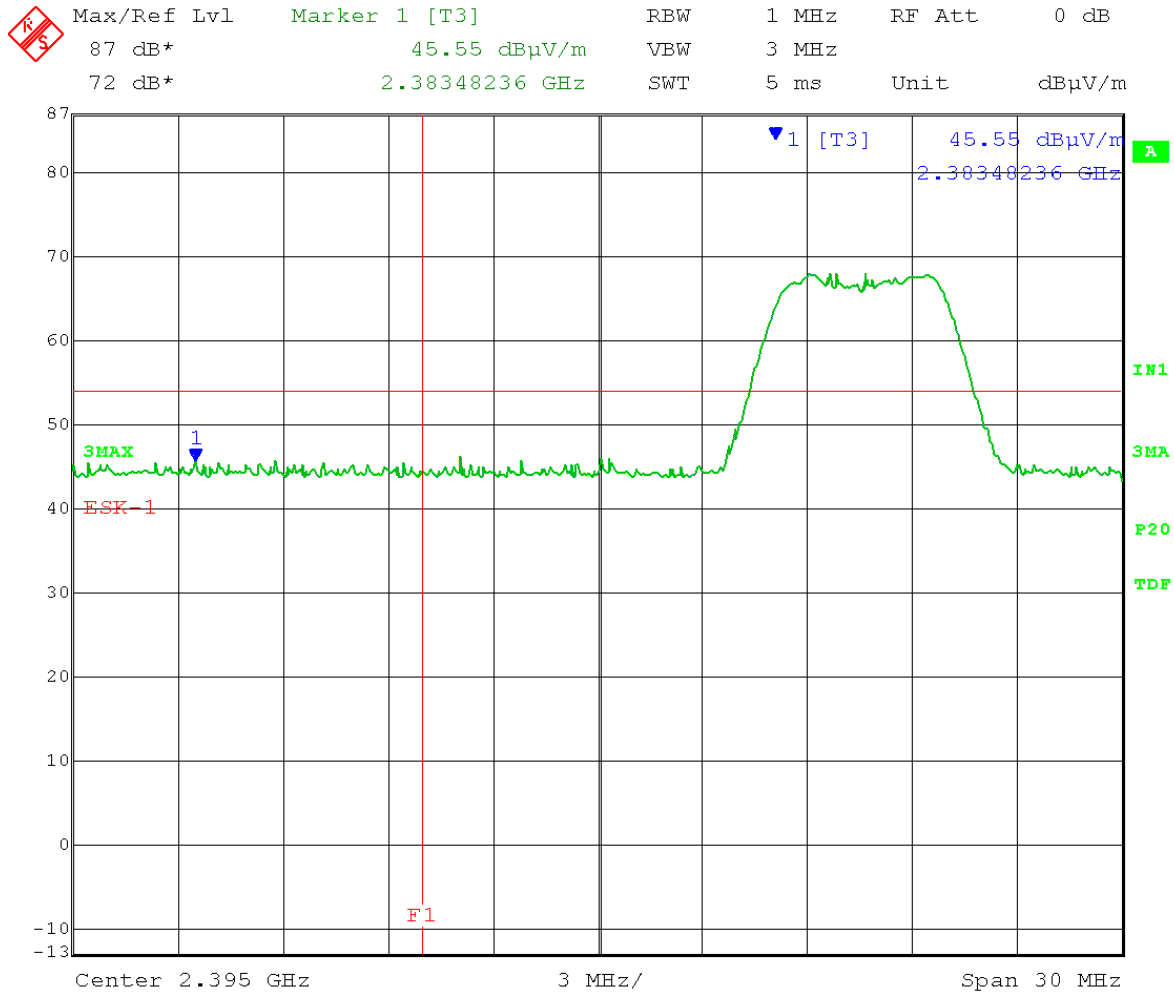
VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Horizontal
 Output power setting: 19
 Channel A&B Terminated



Date: 26.APR.2013 12:39:08

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

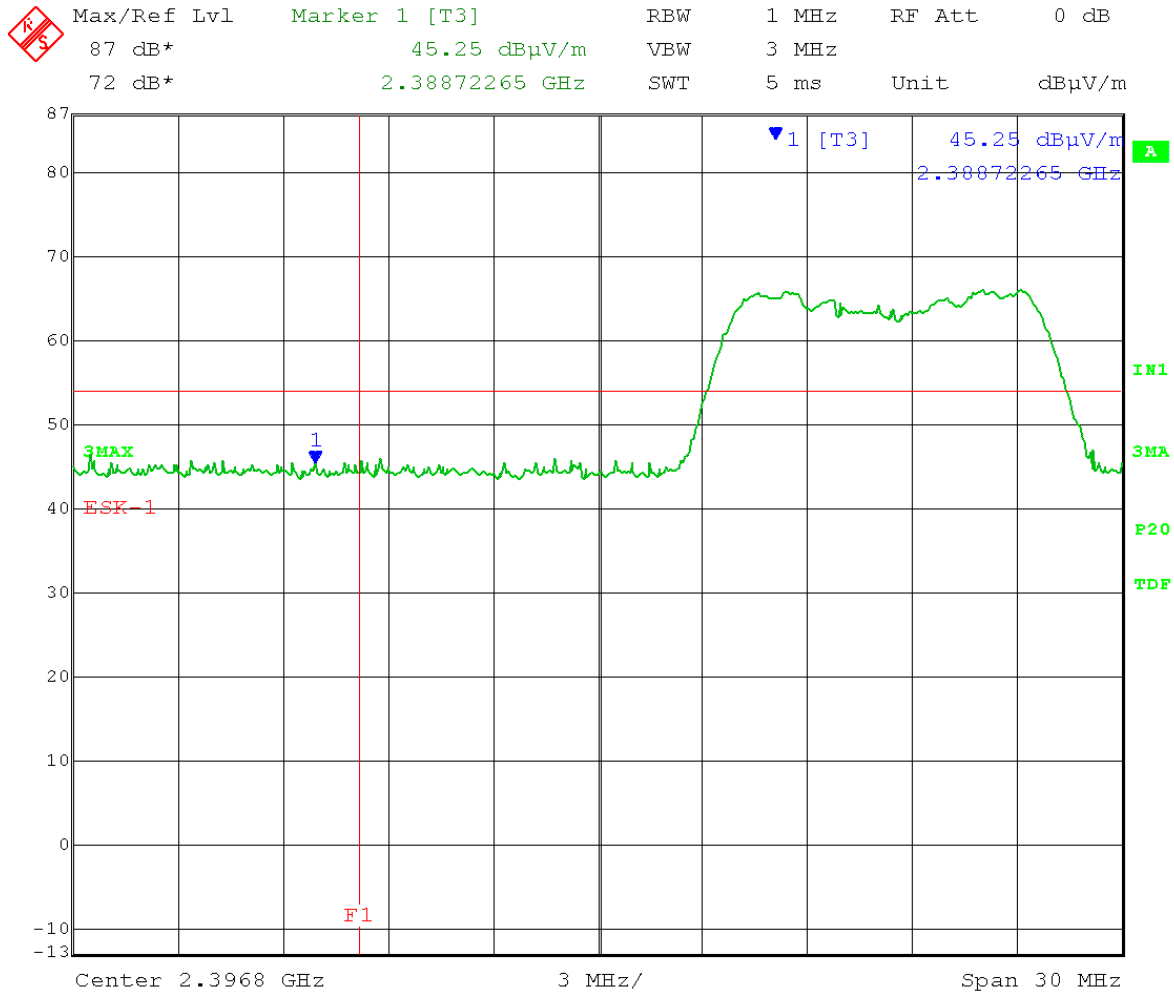
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 Low Channel: Transmit = 2.4025GHz
 5MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Vertical
 Output power setting: 19
 Channel A&B Terminated



Date: 26.APR.2013 12:35:57

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurement - Radiated
 Operator: Jim O

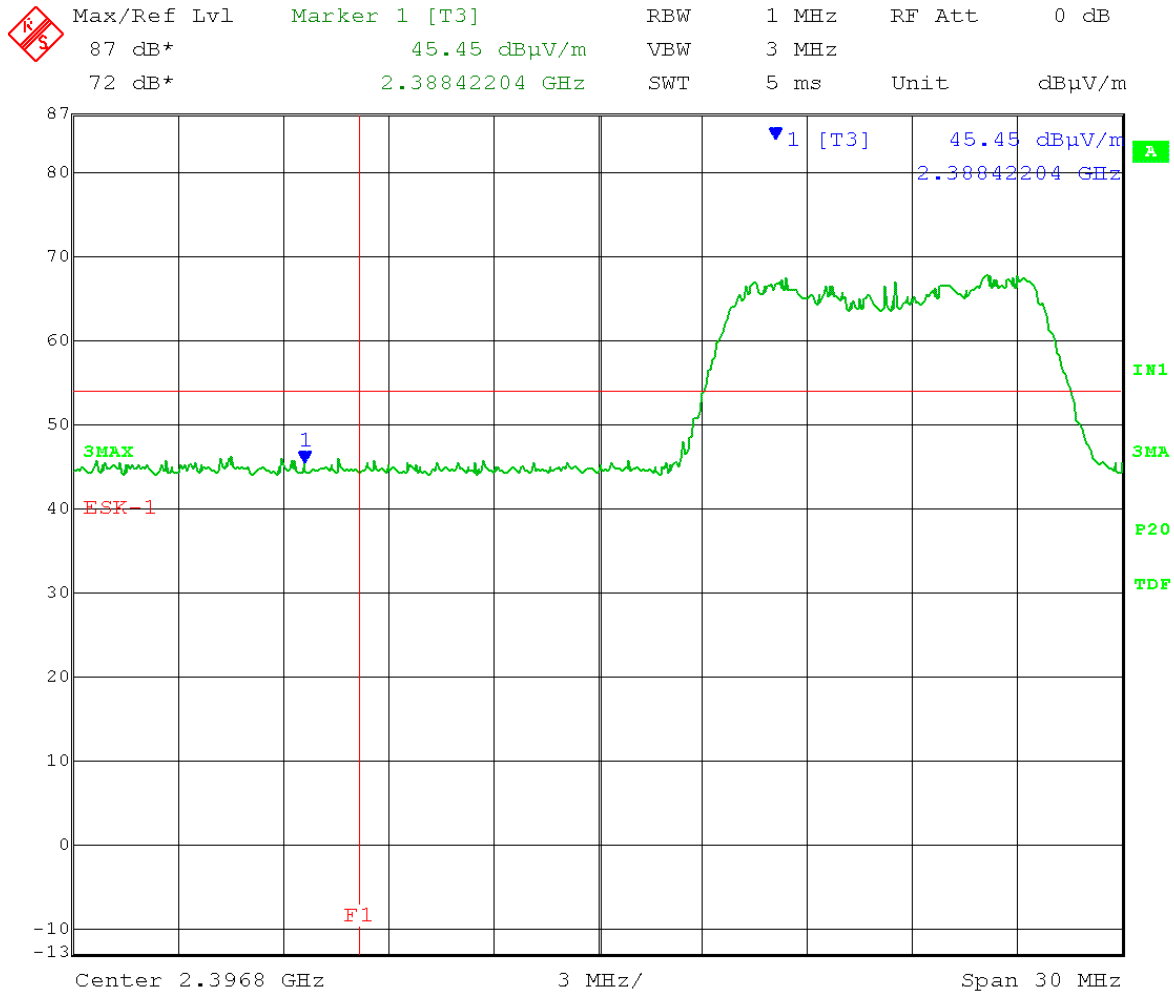
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 Low Channel: Transmit = 2.405 GHz
 10MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Horizontal
 Output power setting: 16
 Channel A&B Terminated



Date: 26.APR.2013 11:42:49

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurement - Radiated
 Operator: Jim O

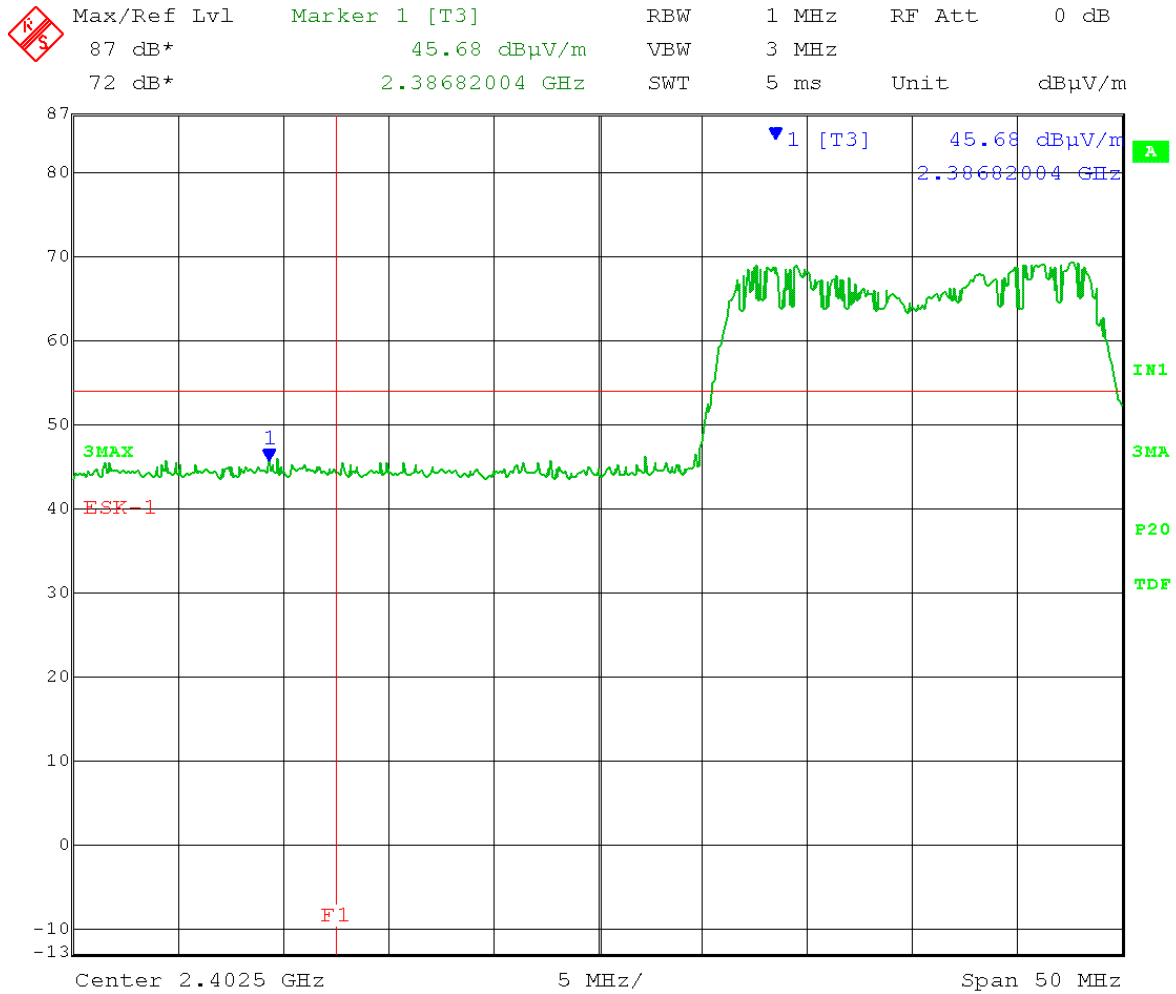
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 Low Channel: Transmit = 2.405 GHz
 10MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Vertical
 Output power setting: 19
 Channel A&B Terminated



Date: 26.APR.2013 11:39:37

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurement - Radiated
 Operator: Jim O

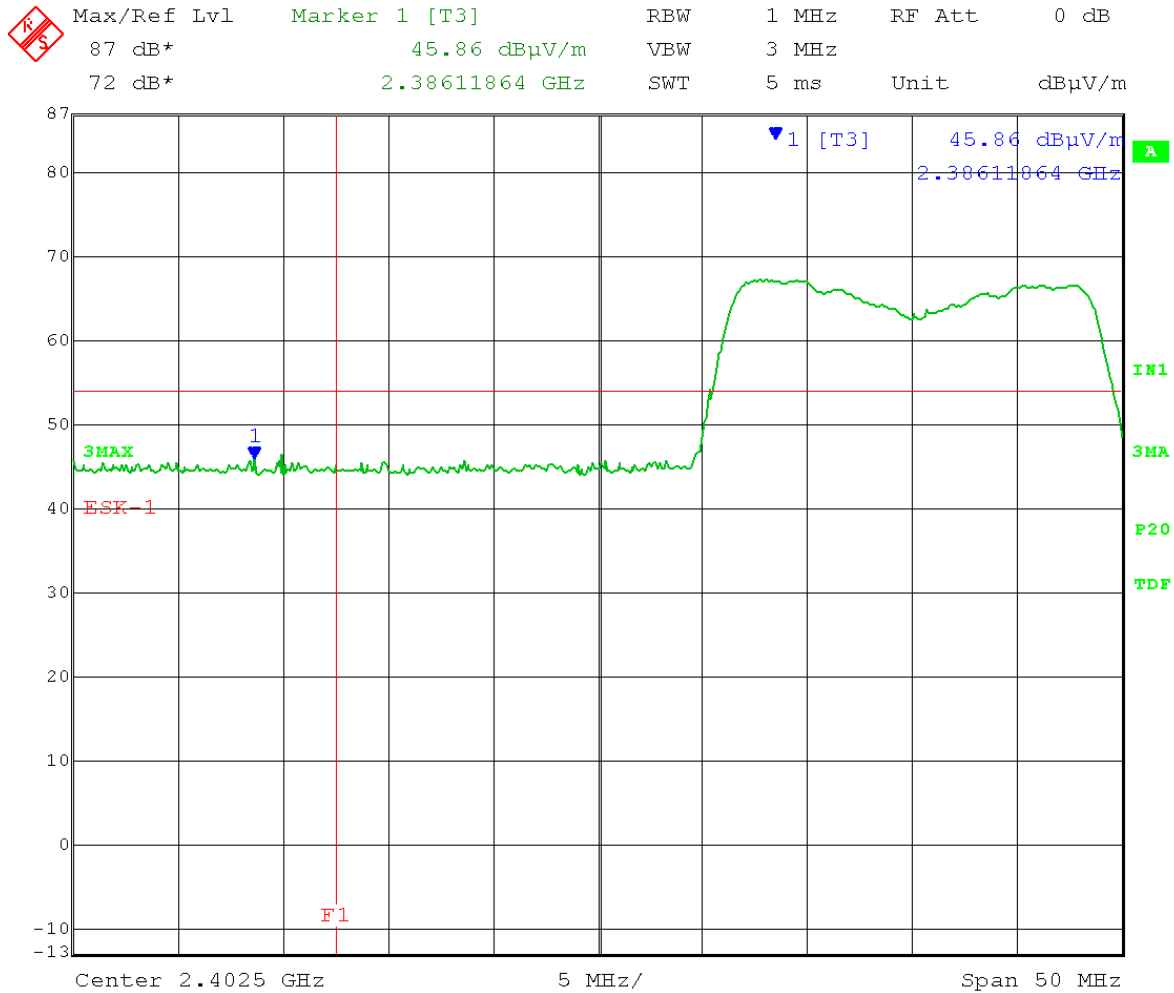
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 Low Channel: Transmit = 2.4175 GHz
 20MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW ≥ 3MHz
 Sweep = auto couple
 Polarization = Horizontal
 Output power setting: 19
 Channel A&B Terminated



Date: 26.APR.2013 11:32:09

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

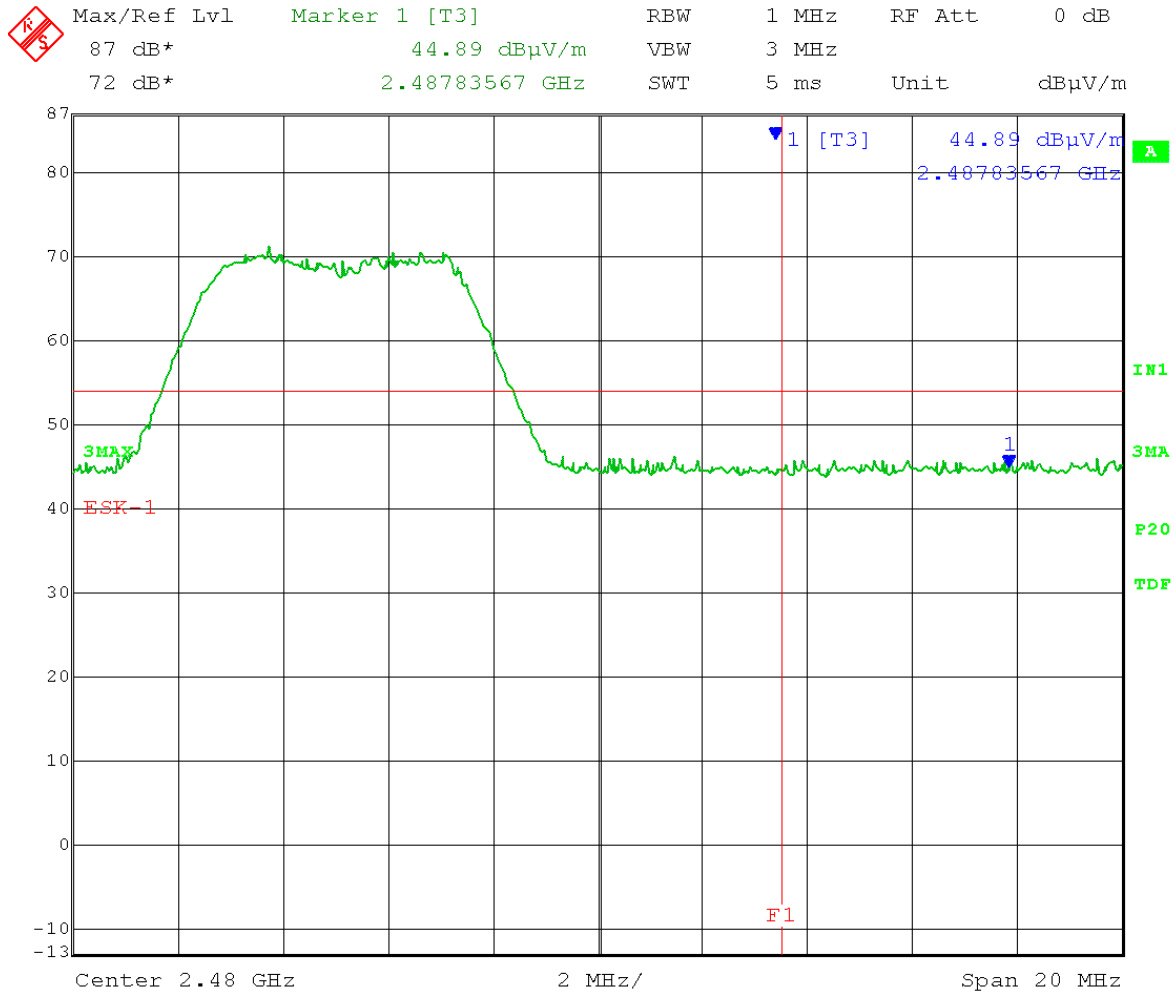
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 Low Channel: Transmit = 2.4175 GHz
 20MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Vertical
 Output power setting: 19
 Channel A&B Terminated



Date: 26.APR.2013 11:29:38

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Upper Band-Edge Measurement - Conducted
 Operator: Jim O

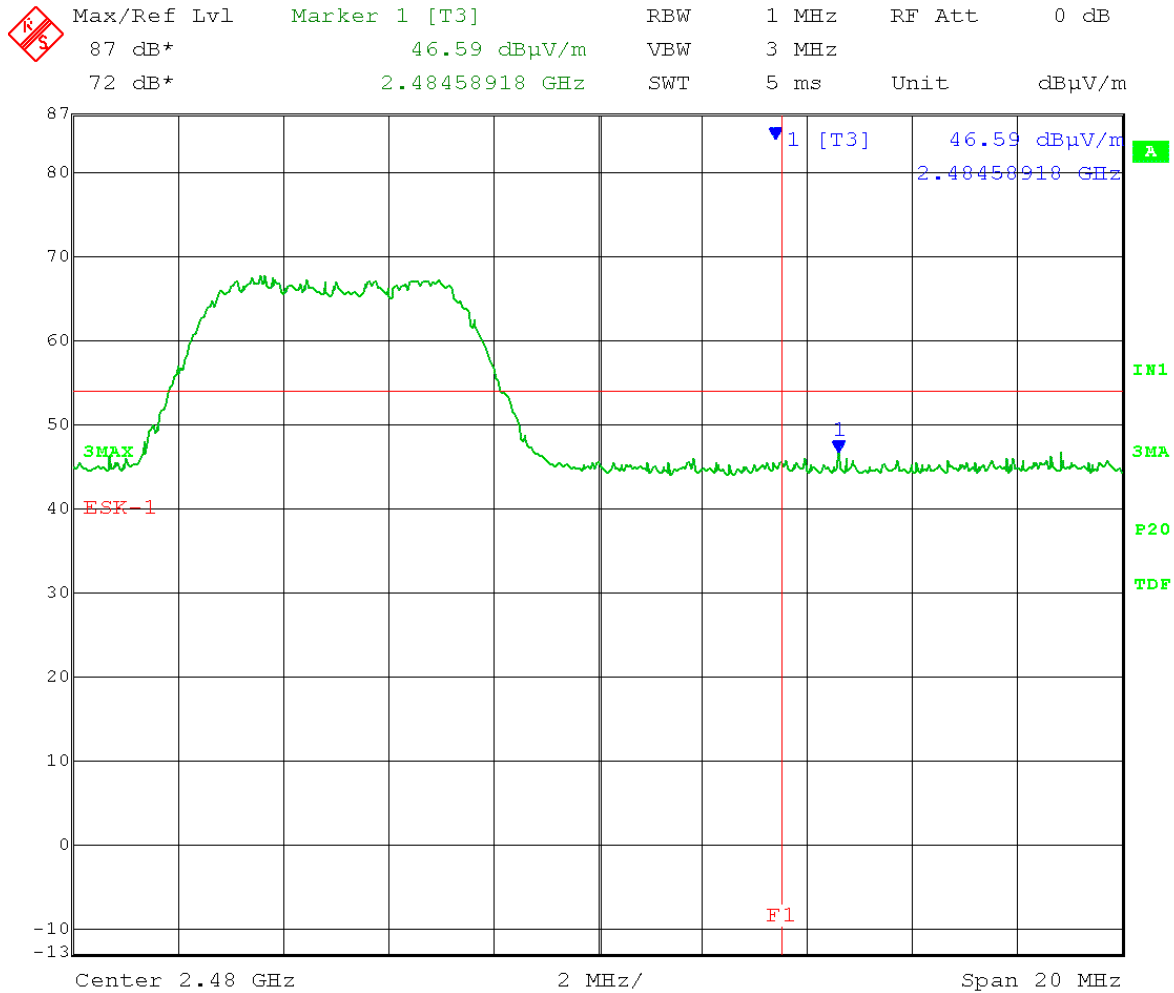
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 High Channel: Transmit = 2.475GHz
 5MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Horizontal
 Output power setting: 15
 Channel A&B Terminated



Date: 26.APR.2013 12:27:37

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

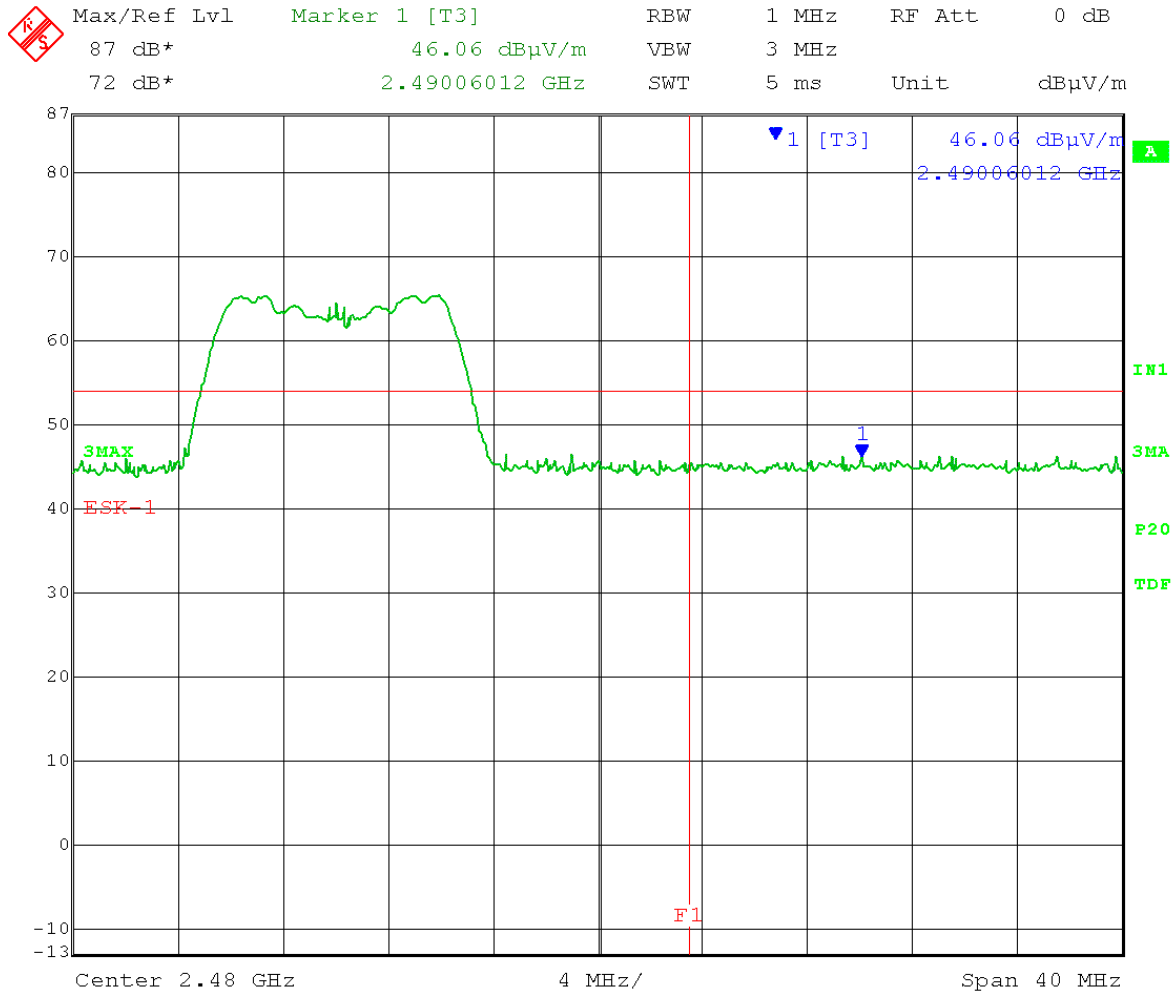
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 High Channel: Transmit = 2.475GHz
 5MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW ≥ 3MHz
 Sweep = auto couple
 Polarization = Vertical
 Output power setting: 15
 Channel A&B Terminated



Date: 26.APR.2013 12:30:47

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

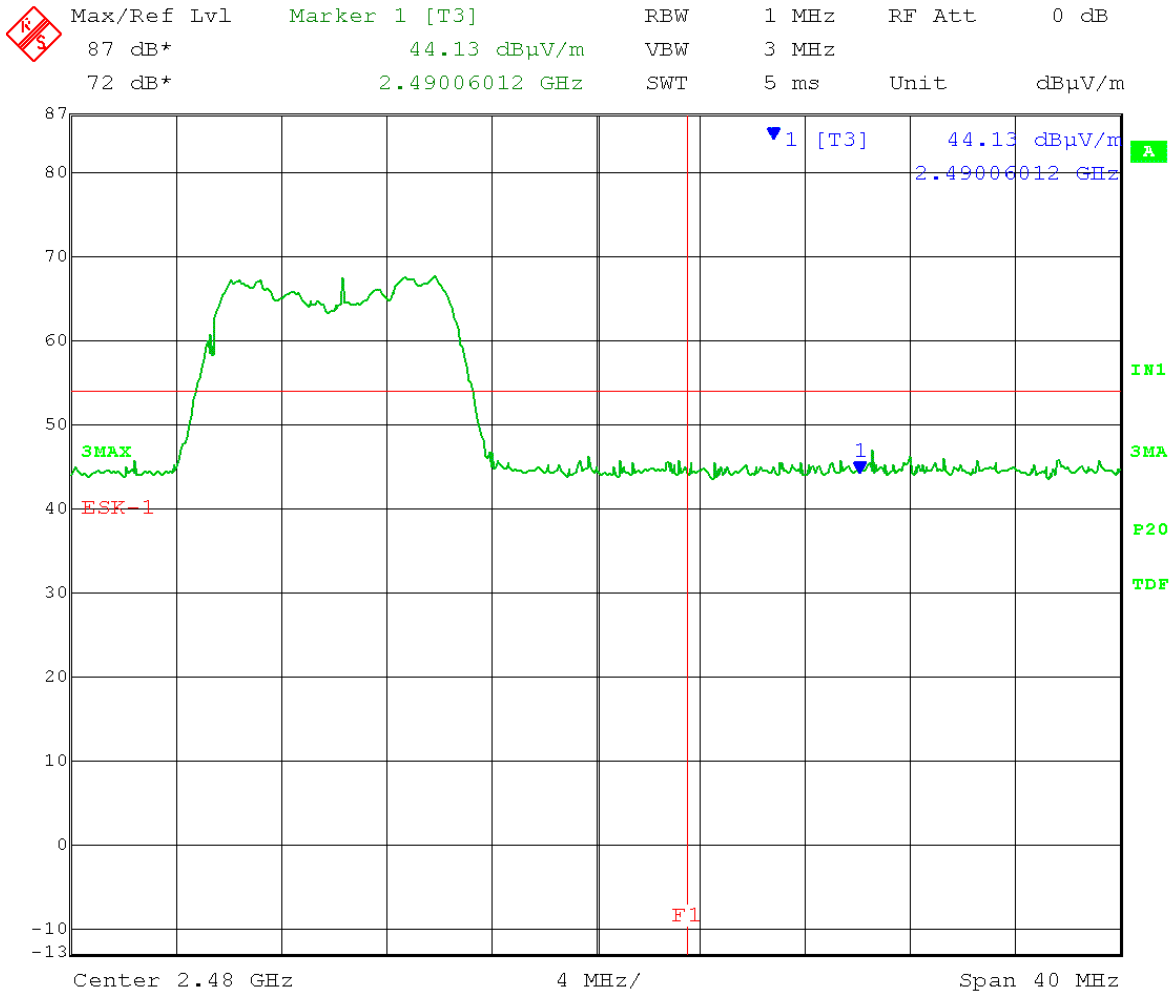
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 High Channel: Transmit = 2.470 GHz
 10MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Horizontal
 Output power setting: 15
 Channel A&B Terminated



Date: 26.APR.2013 11:46:33

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurement - Radiated
 Operator: Jim O

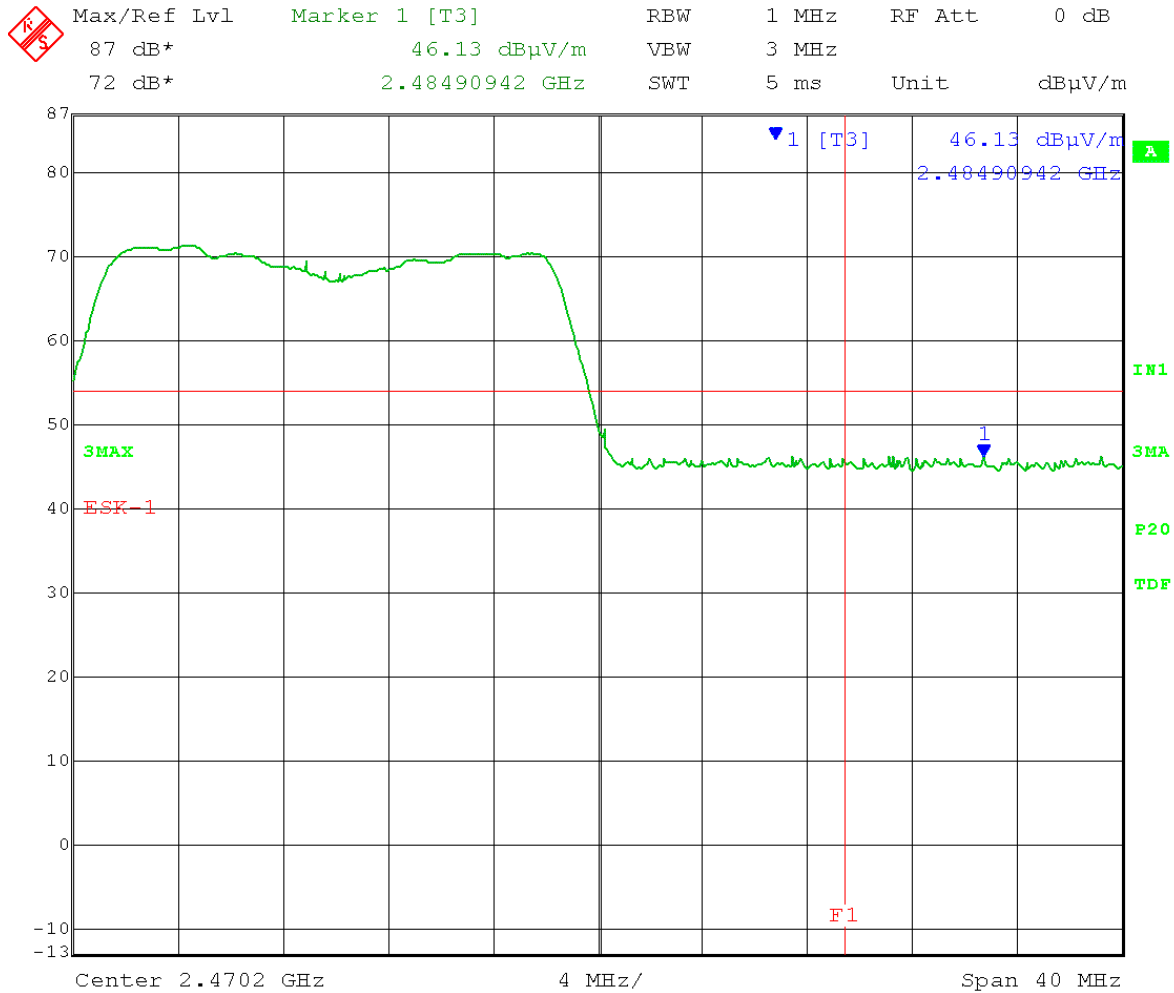
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 High Channel: Transmit = 2.470 GHz
 10MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW ≥ 3MHz
 Sweep = auto couple
 Polarization = Vertical
 Output power setting: 15
 Channel A&B Terminated



Date: 26.APR.2013 11:48:34

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurement - Radiated
 Operator: Jim O

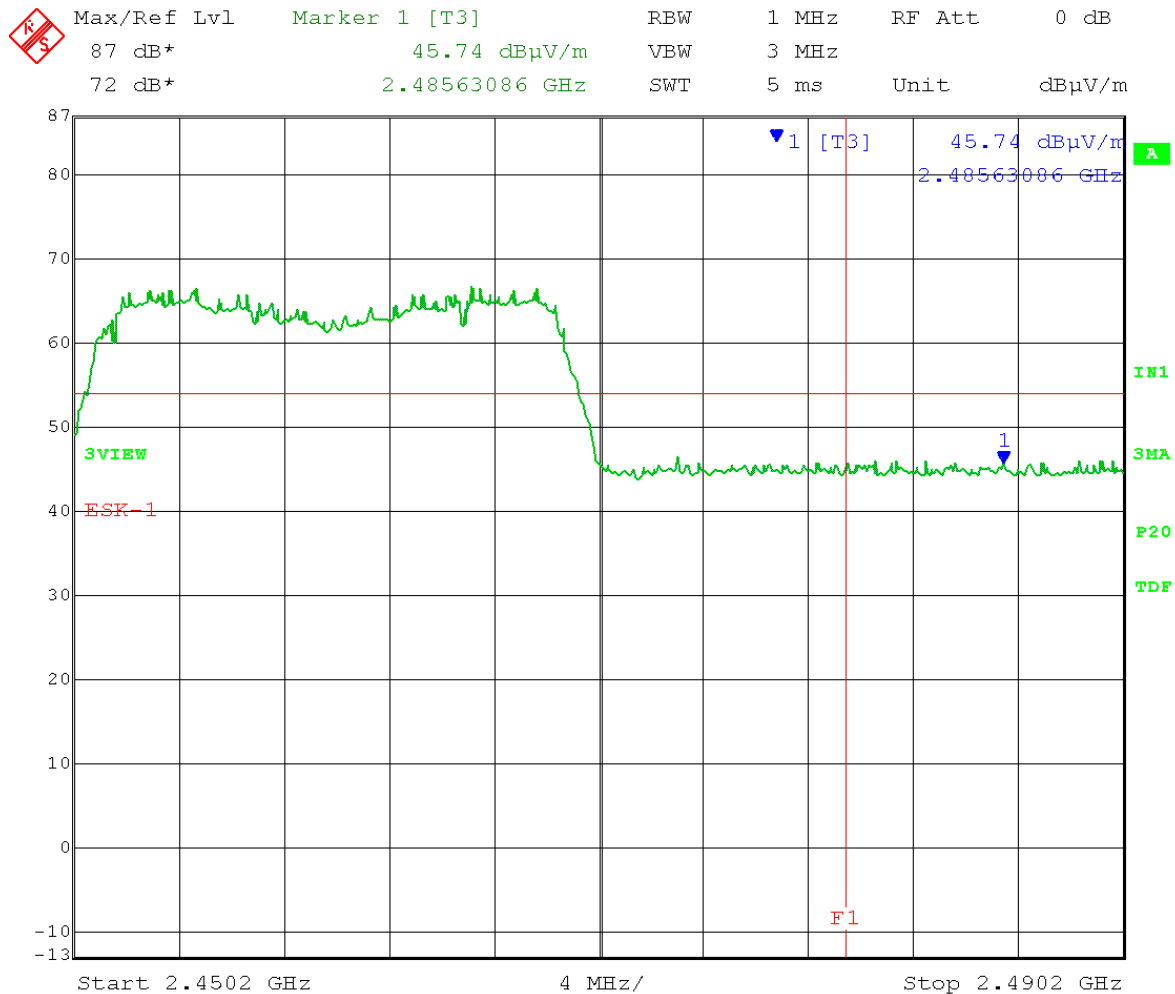
Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 High Channel: Transmit = 2.460 GHz
 20MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 VBW \geq 3MHz
 Sweep = auto couple
 Polarization = Horizontal
 Output power setting: 16
 Channel A&B Terminated



Date: 26.APR.2013 11:22:30

Test Date: 04-26-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM)
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

Comment: RBW = 1MHz
 Detector = Peak
 Trace = max hold
 High Channel: Transmit = 2.460 GHz
 20MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 VBW ≥ 3MHz
 Sweep = auto couple
 Polarization = Vertical
 Output power setting: 16
 Channel A&B Terminated



Date: 26.APR.2013 11:25:42



Company:
Model Tested:
Report Number:

Cambium Networks
C024045C004A & C024045C008A
19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A9.0 Duty Cycle of Test Unit

Rule Part: FCC Section 15.35(c)

Test Procedure: ANSI C63.10-2009 Section 7.5

Limits: Informative

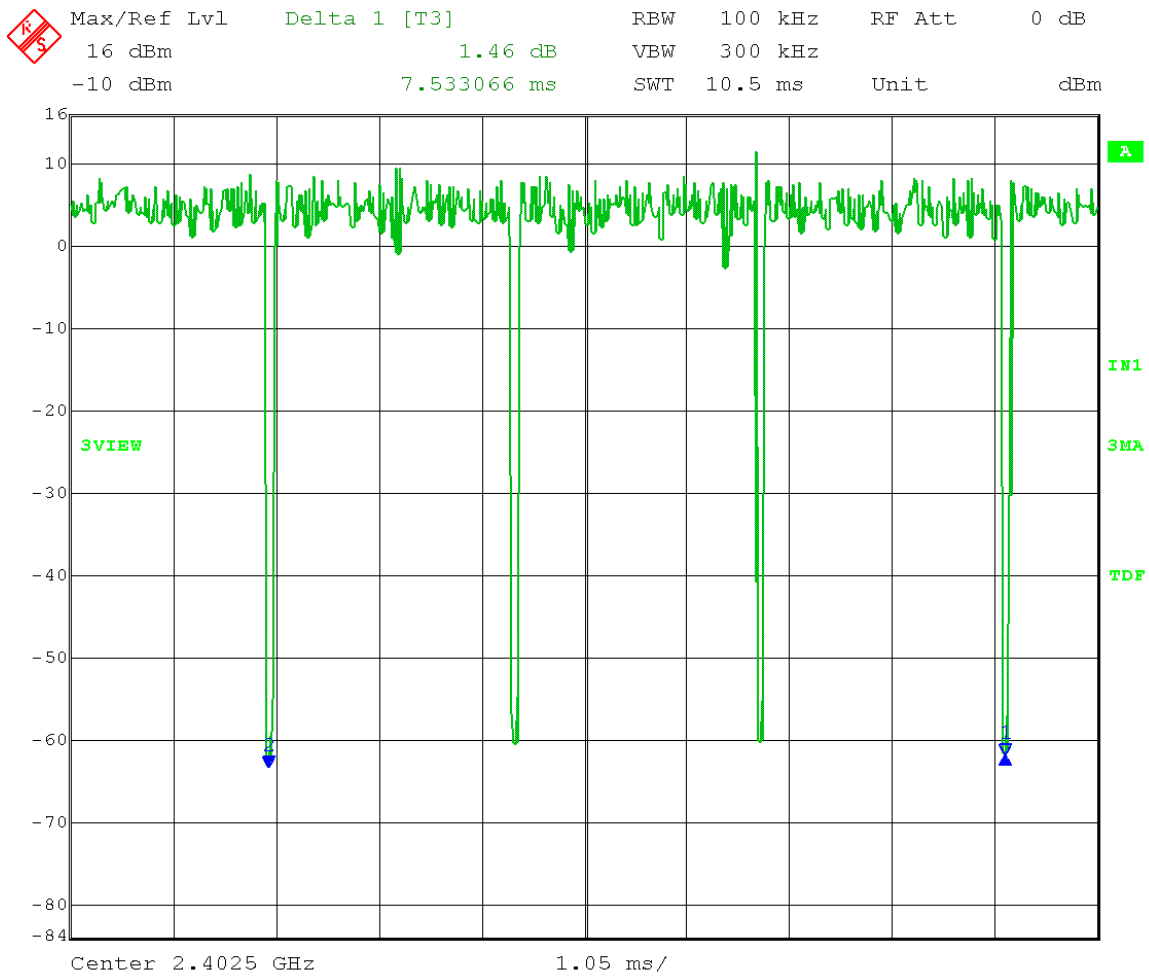
Results: EUT is continuously transmitting (duty cycle < 98%).

Sample Equations: None

Notes: Duty cycle correction factor was applied to measurements for this device.
The EUT was transmitting below the minimum duty cycle of 98%.

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450 SM 2.4 OFDM
 Test: Duty Cycle during testing
 Operator: Jim O
 5 MHz channel bandwidth; QPSK
 Comment: Total on Time = 2.3987 ms x 3 times = 7.1961 ms during 7.533 ms sweep
 X = 7.1961 / 7.5133
Duty cycle factor x = 0.934

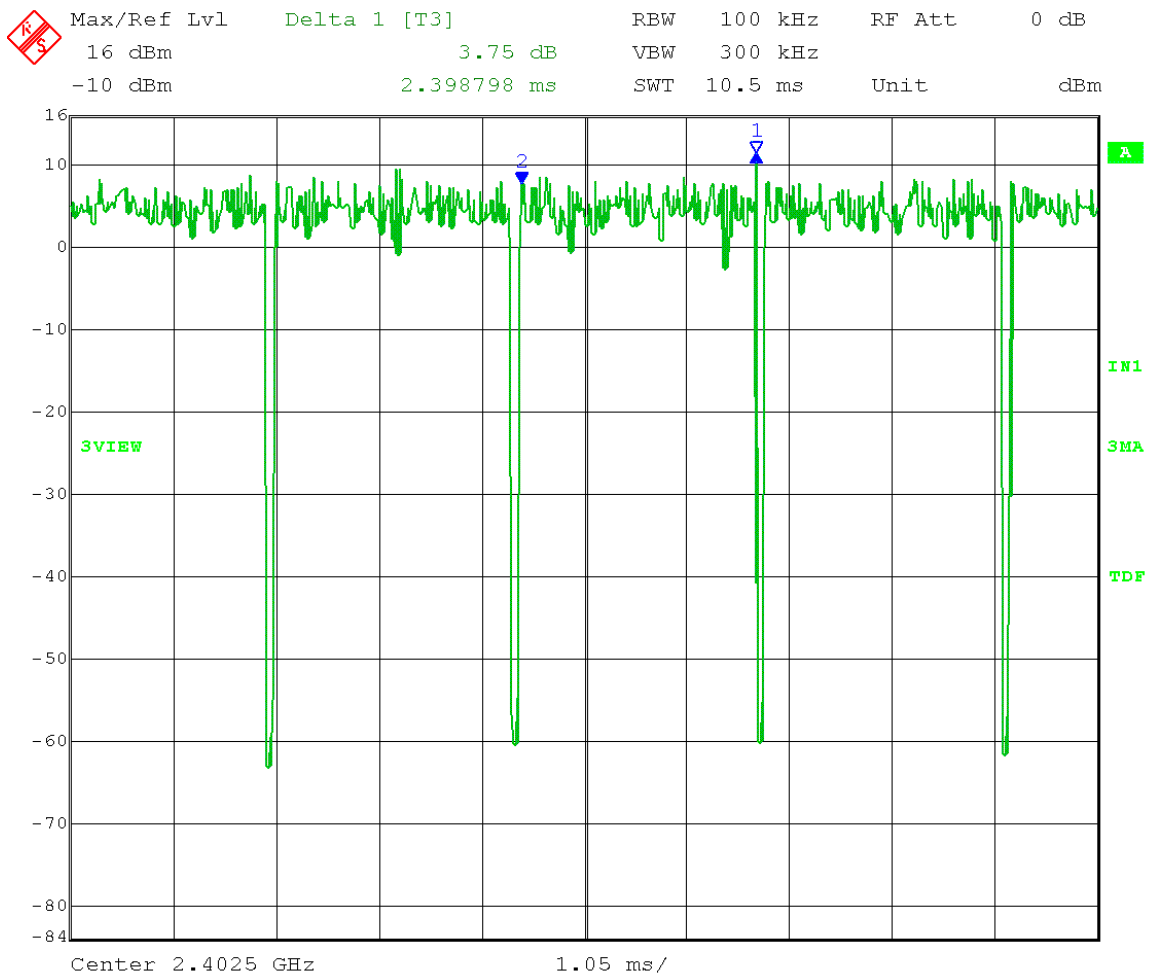
ON + OFF time = 7.533 ms



Date: 30.APR.2013 14:23:47

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450 SM 2.4 OFDM
 Test: Duty Cycle during testing
 Operator: Jim O
 5 MHz channel bandwidth; QPSK
 Comment: Total on Time = 2.3987 ms x 3 times = 7.1961 ms during 7.533 ms sweep
 X = 7.1961 / 7.5133
Duty cycle factor x = 0.934

Duration of one pulse: 2.3987 ms



Date: 30.APR.2013 14:21:28

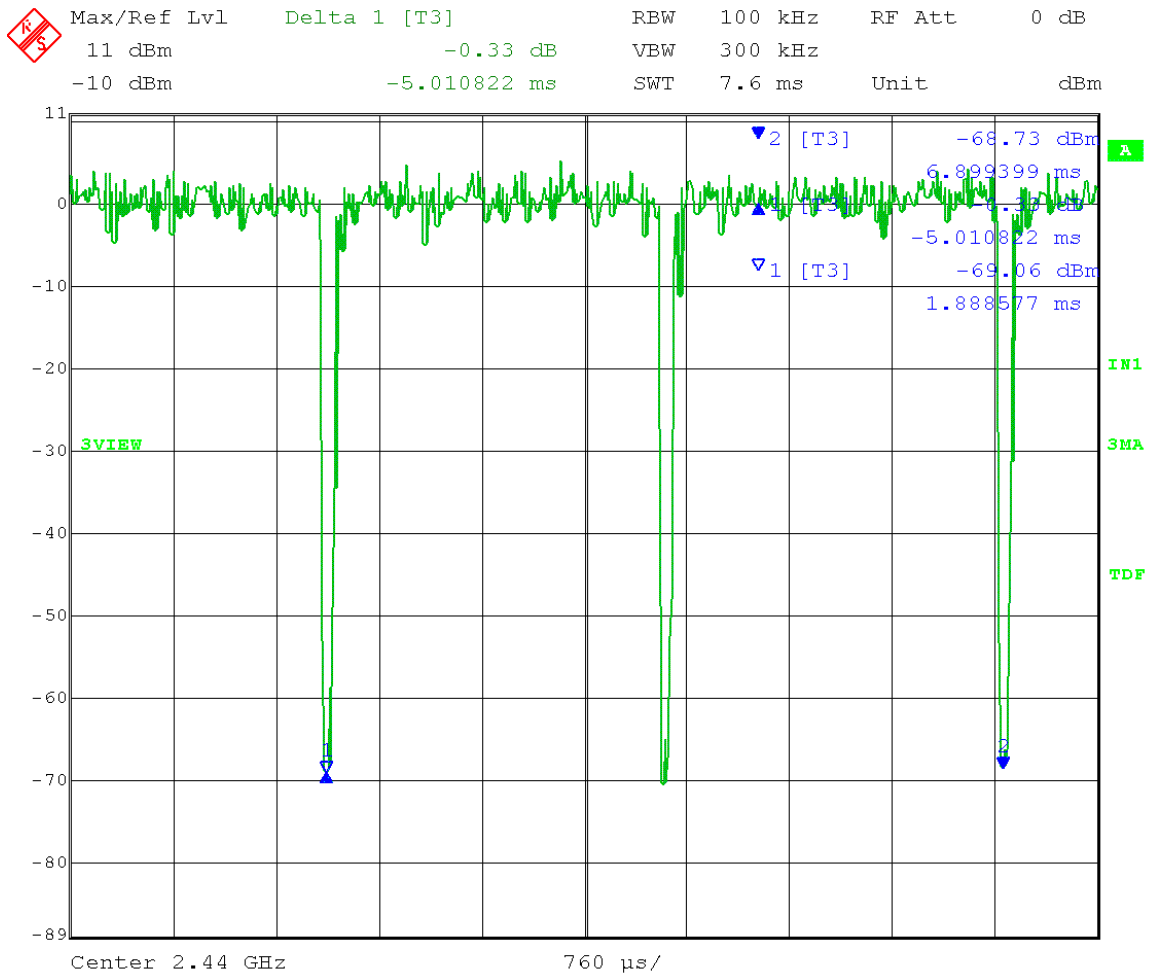
Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450 SM 2.4 OFDM
 Test: Duty Cycle during testing
 Operator: Jim O

10 MHz channel bandwidth; QPSK

Comment: Total on Time = 2.391182 ms x 2 times = 4.7832 during 5.011 ms sweep
 X = 4.7879 / 5.0128

Duty cycle factor x = 0.954

ON + OFF time = 5.0128ms



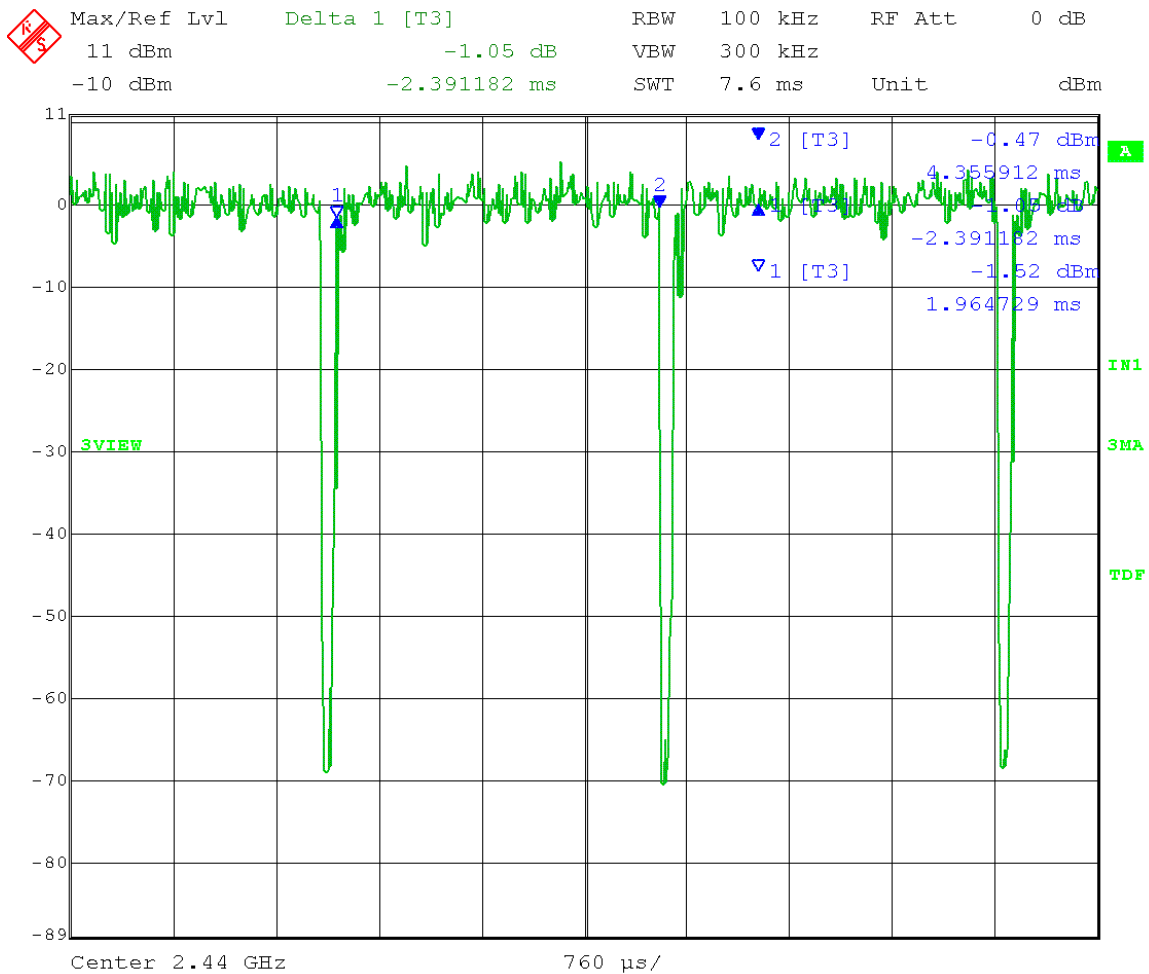
Date: 30.APR.2013 09:45:03

Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450 SM 2.4 OFDM
 Test: Duty Cycle during testing
 Operator: Craig B / Jim O

10 MHz channel bandwidth; QPSK

Comment: Comment: Total on Time = 2.393988 ms x 2 times = 4.7823ms during
 5.011 ms sweep
 $X = 4.7823 / 5.012$
Duty cycle factor x = 0.954

Duration of one pulse: 2.391182 ms




Date: 30.APR.2013 09:42:17

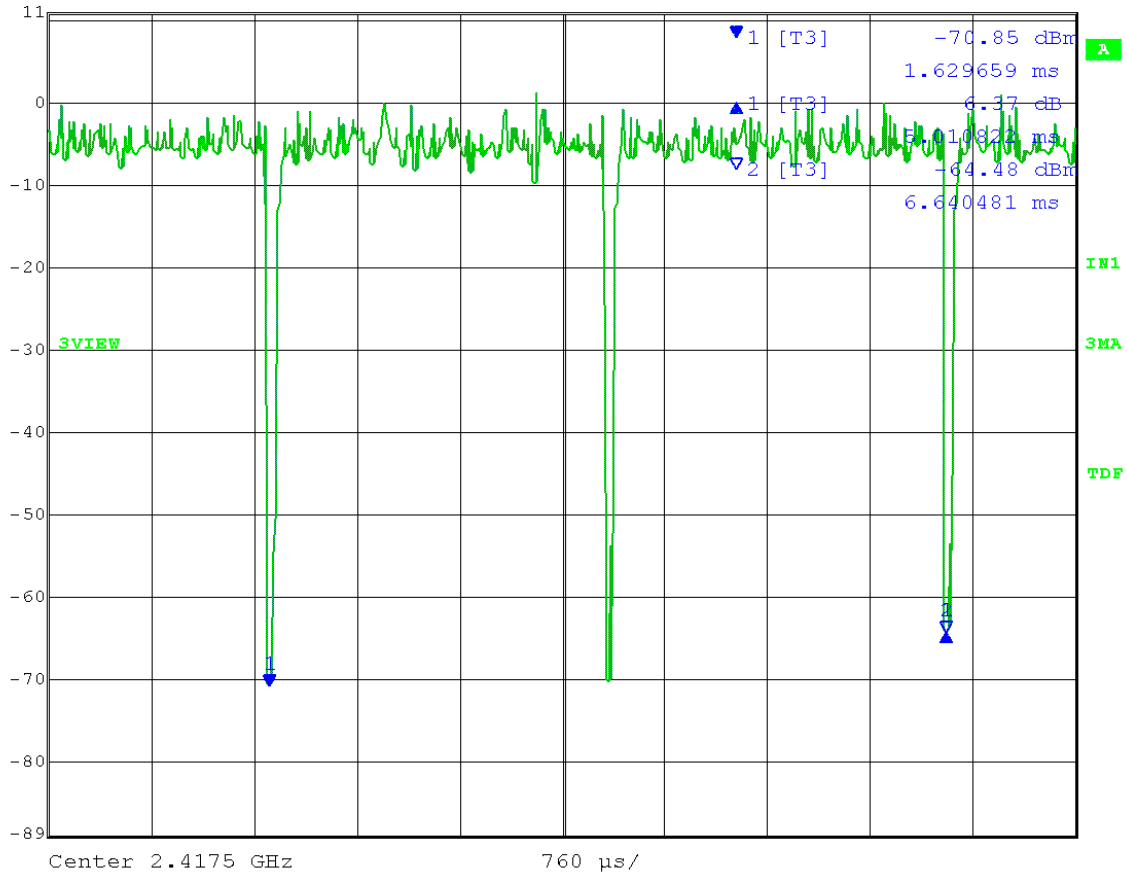
Test Date: 04-30-2013
 Company: Cambium Networks
 EUT: PMP450 SM 2.4 OFDM
 Test: Duty Cycle during testing
 Operator: Jim O

20 MHz channel bandwidth; QPSK

Comment: Comment: Total on Time = 2.376 ms x 2 times = 4.752ms during
 5.012826 ms sweep
 X = 4.7879 / 5.011
Duty cycle factor x = 0.956

ON + OFF time = 7.515 ms

| | | | | | | |
|---|-------------|--------------|-----|---------|--------|------|
|  | Max/Ref Lvl | Delta 1 [T3] | RBW | 100 kHz | RF Att | 0 dB |
| | 11 dBm | 6.37 dB | VBW | 300 kHz | | |
| | -10 dBm | 5.010822 ms | SWT | 7.6 ms | Unit | dBm |



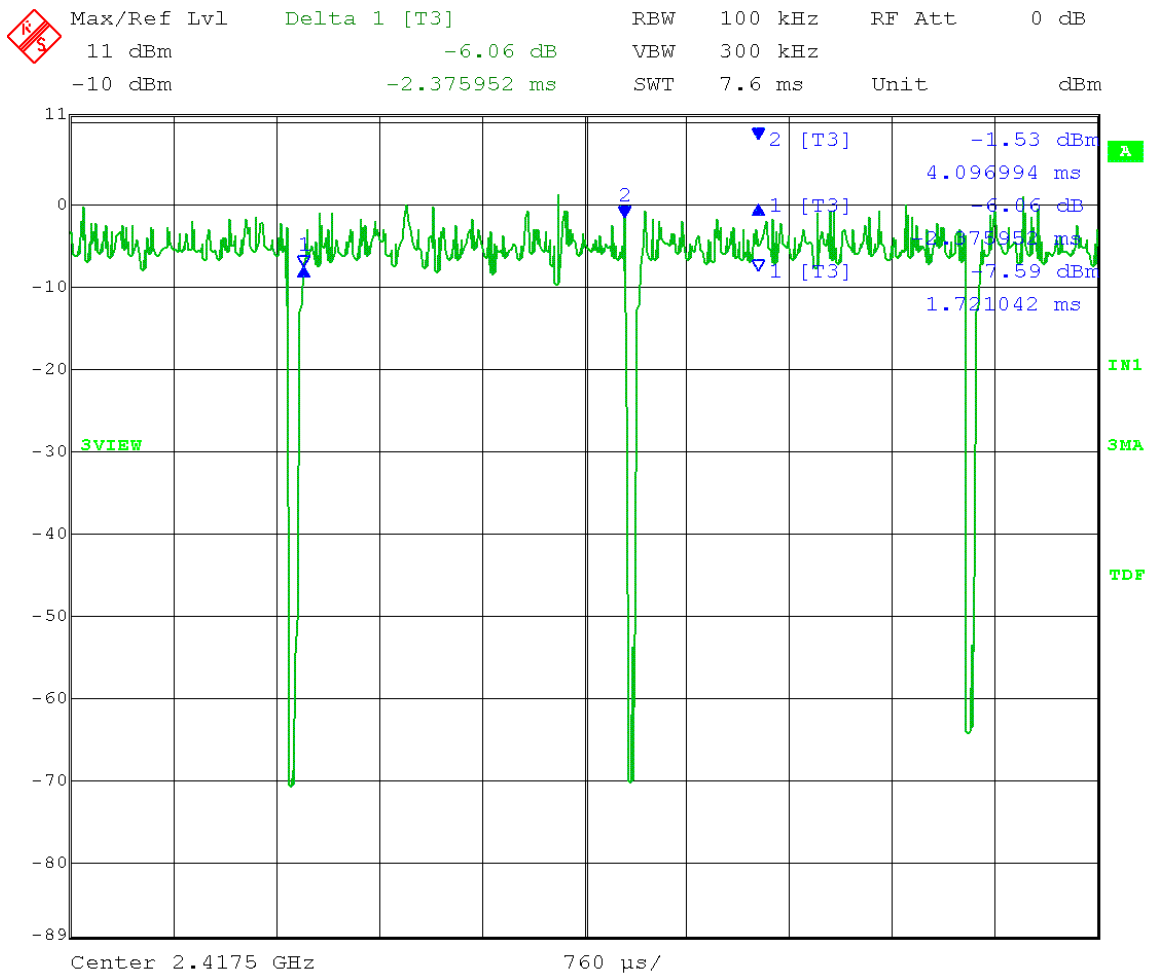
Date: 30.APR.2013 12:47:43

Test Date: 04-19-2013
 Company: Cambium Networks
 EUT: PMP450 AP 2.4 OFDM
 Test: Duty Cycle during testing
 Operator: Craig B / Jim O

20 MHz channel bandwidth; QPSK

Comment: Comment: Total on Time = 2.376 ms x 2 times = 4.7879ms during
 5.012826 ms sweep
 $X = 4.7879 / 5.011$
Duty cycle factor x = 0.956

Duration of one pulse: 2.375952



Date: 30.APR.2013 12:43:29



Company:
Model Tested:
Report Number:

Cambium Networks
C024045C004A & C024045C008A
19014

166 South Carter, Genoa City, WI 53128

Appendix A – Measurement Data

A10.0 AC Line Conducted Emissions

Rule Part: FCC Part 15.207

Test Procedure: ANSI C63.10-2009
Section 6.2

Limit: FCC Part 15.207(a)

Results: Compliant

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

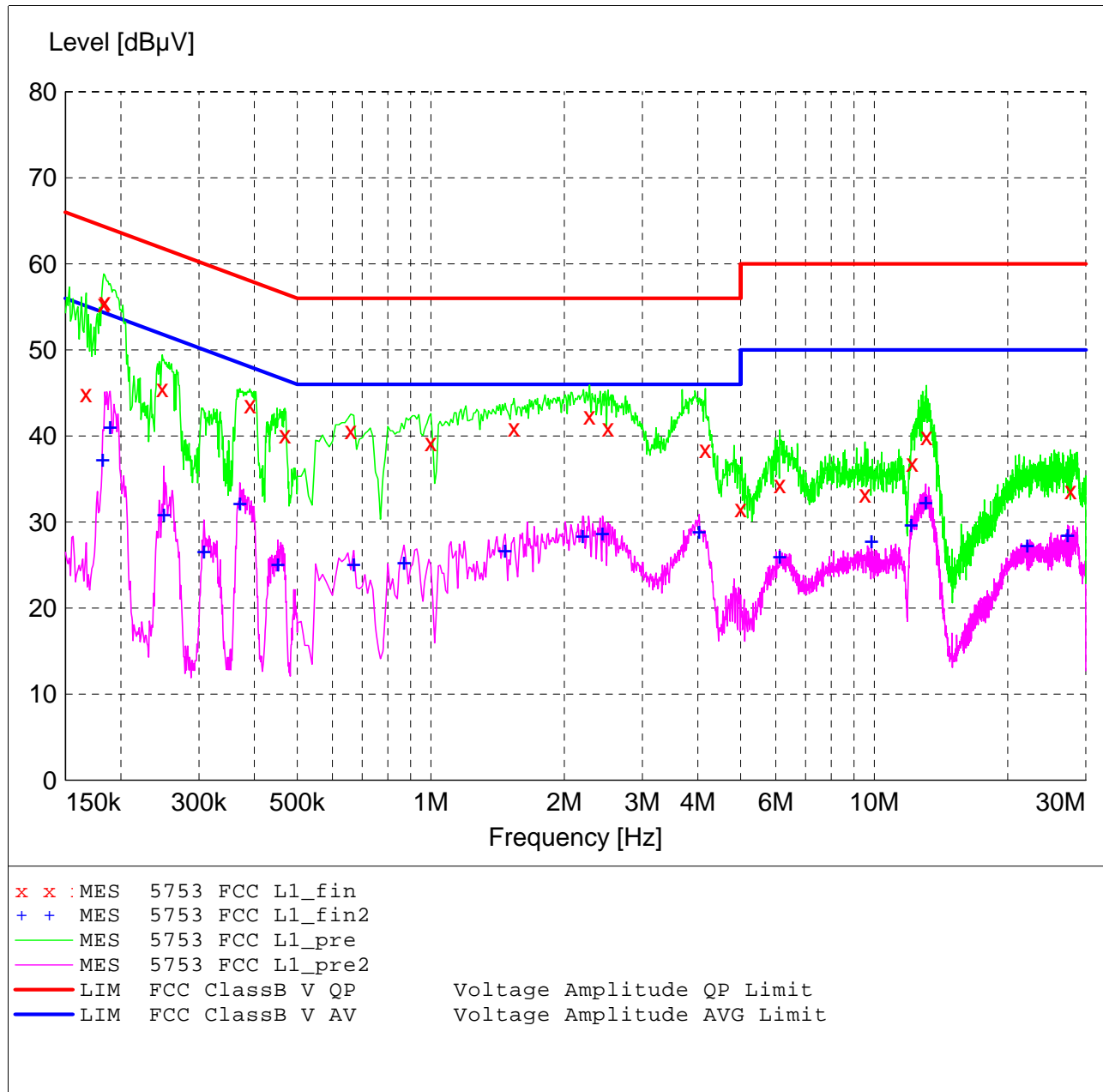
FCC Part 15.207

Voltage Mains Test

EUT: PMP450SM 2.4GHz OFDM
 Manufacturer: Cambium Networks
 Operating Condition: 72 deg. F, 31% R.H.
 Test Site: DLS O.F. Screen Room
 Operator: Jim O
 Test Specification: 120 V 60 Hz
 Comment: Line 1; continuous transmit mode
 Date: 05-02-2013

SCAN TABLE: "Line Cond SR Final"

| Short Description: | | Line Conducted Emissions | | | | | Transducer |
|--------------------|----------|--------------------------|-----------|------------|-----------|--------------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | | |
| 150.0 kHz | 30.0 MHz | 4.0 kHz | QuasiPeak | 5.0 s | 9 kHz | LISN DLS#128 | |
| CISPR AV | | | | | | | |



MEASUREMENT RESULT: "5753 FCC L1_fin"

5/2/2013 11:29AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.167000 | 44.90 | 13.2 | 65 | 20.2 | QP |
| 0.183000 | 55.40 | 12.9 | 64 | 8.9 | QP |
| 0.184000 | 55.60 | 12.9 | 64 | 8.7 | QP |
| 0.248000 | 45.50 | 12.1 | 62 | 16.3 | QP |
| 0.391000 | 43.60 | 11.4 | 58 | 14.4 | QP |
| 0.469000 | 40.10 | 11.2 | 57 | 16.4 | QP |
| 0.660000 | 40.60 | 10.8 | 56 | 15.4 | QP |
| 1.000000 | 39.30 | 10.6 | 56 | 16.7 | QP |
| 1.540000 | 41.00 | 10.6 | 56 | 15.0 | QP |
| 2.280000 | 42.30 | 10.6 | 56 | 13.7 | QP |
| 2.510000 | 40.90 | 10.6 | 56 | 15.1 | QP |
| 4.160000 | 38.40 | 10.6 | 56 | 17.6 | QP |
| 5.000000 | 31.60 | 10.6 | 56 | 24.4 | QP |
| 6.125000 | 34.40 | 10.7 | 60 | 25.6 | QP |
| 9.530000 | 33.30 | 10.9 | 60 | 26.7 | QP |
| 12.185000 | 36.90 | 11.0 | 60 | 23.1 | QP |
| 13.115000 | 39.90 | 11.0 | 60 | 20.1 | QP |
| 27.710000 | 33.70 | 11.6 | 60 | 26.3 | QP |

MEASUREMENT RESULT: "5753 FCC L1_fin2"

5/2/2013 11:29AM

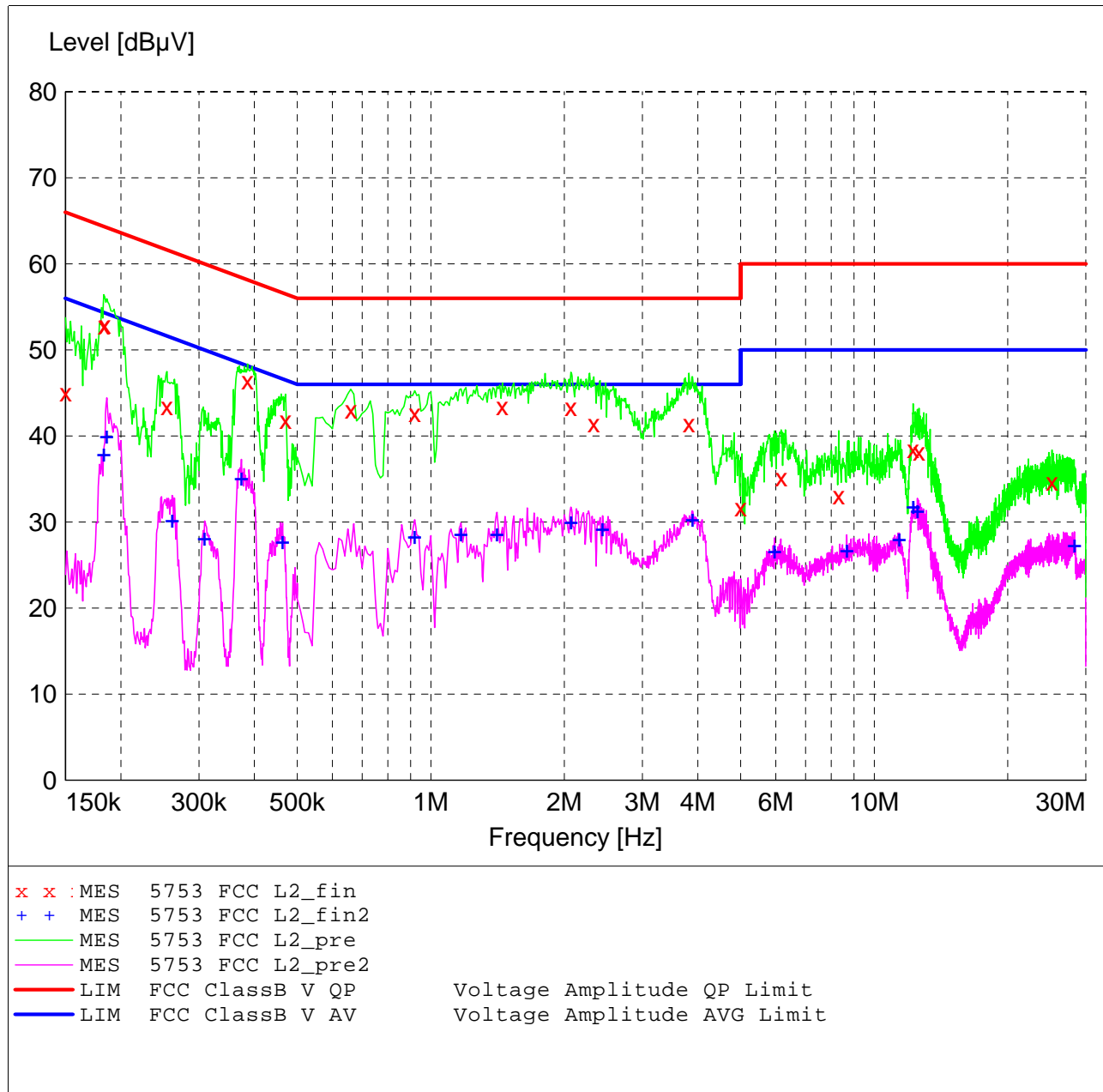
| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.182000 | 37.40 | 12.9 | 54 | 17.0 | CAV |
| 0.189000 | 41.10 | 12.8 | 54 | 13.0 | CAV |
| 0.250000 | 31.00 | 12.1 | 52 | 20.8 | CAV |
| 0.308000 | 26.70 | 11.8 | 50 | 23.3 | CAV |
| 0.371000 | 32.30 | 11.5 | 49 | 16.2 | CAV |
| 0.452000 | 25.20 | 11.3 | 47 | 21.6 | CAV |
| 0.670000 | 25.20 | 10.8 | 46 | 20.8 | CAV |
| 0.870000 | 25.40 | 10.7 | 46 | 20.6 | CAV |
| 1.470000 | 26.80 | 10.6 | 46 | 19.2 | CAV |
| 2.200000 | 28.50 | 10.6 | 46 | 17.5 | CAV |
| 2.440000 | 28.80 | 10.6 | 46 | 17.2 | CAV |
| 4.030000 | 29.00 | 10.6 | 46 | 17.0 | CAV |
| 6.125000 | 26.10 | 10.7 | 50 | 23.9 | CAV |
| 9.860000 | 27.90 | 10.9 | 50 | 22.1 | CAV |
| 12.125000 | 29.80 | 11.0 | 50 | 20.2 | CAV |
| 13.070000 | 32.40 | 11.0 | 50 | 17.6 | CAV |
| 22.160000 | 27.40 | 11.3 | 50 | 22.6 | CAV |
| 27.305000 | 28.60 | 11.5 | 50 | 21.4 | CAV |

Voltage Mains Test

EUT: PMP450SM 2.4GHz OFDM
 Manufacturer: Cambium Networks
 Operating Condition: 72 deg. F, 31% R.H.
 Test Site: DLS O.F. Screen Room
 Operator: Jim O
 Test Specification: 120 V 60 Hz
 Comment: Line 2; continuous transmit mode
 Date: 05-02-2013

SCAN TABLE: "Line Cond SR Final"

| Short Description: | | Line Conducted Emissions | | | | | Transducer |
|--------------------|----------|--------------------------|-----------|------------|-----------|--------------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | | |
| 150.0 kHz | 30.0 MHz | 4.0 kHz | QuasiPeak | 5.0 s | 9 kHz | LISN DLS#128 | |
| CISPR AV | | | | | | | |



MEASUREMENT RESULT: "5753 FCC L2_fin"

5/2/2013 11:38AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.150000 | 45.00 | 13.7 | 66 | 21.0 | QP |
| 0.183000 | 52.80 | 12.9 | 64 | 11.5 | QP |
| 0.184000 | 52.90 | 12.9 | 64 | 11.4 | QP |
| 0.254000 | 43.40 | 12.0 | 62 | 18.2 | QP |
| 0.386000 | 46.40 | 11.4 | 58 | 11.7 | QP |
| 0.470000 | 41.80 | 11.2 | 57 | 14.7 | QP |
| 0.660000 | 43.10 | 10.8 | 56 | 12.9 | QP |
| 0.920000 | 42.60 | 10.6 | 56 | 13.4 | QP |
| 1.450000 | 43.40 | 10.6 | 56 | 12.6 | QP |
| 2.070000 | 43.30 | 10.6 | 56 | 12.7 | QP |
| 2.330000 | 41.40 | 10.6 | 56 | 14.6 | QP |
| 3.820000 | 41.50 | 10.6 | 56 | 14.5 | QP |
| 5.000000 | 31.70 | 10.6 | 56 | 24.3 | QP |
| 6.170000 | 35.20 | 10.7 | 60 | 24.8 | QP |
| 8.315000 | 33.10 | 10.9 | 60 | 26.9 | QP |
| 12.245000 | 38.50 | 11.0 | 60 | 21.5 | QP |
| 12.620000 | 38.20 | 11.0 | 60 | 21.8 | QP |
| 25.160000 | 34.70 | 11.4 | 60 | 25.3 | QP |

MEASUREMENT RESULT: "5753 FCC L2_fin2"

5/2/2013 11:38AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.183000 | 38.00 | 12.9 | 54 | 16.3 | CAV |
| 0.186000 | 40.00 | 12.8 | 54 | 14.2 | CAV |
| 0.261000 | 30.30 | 12.0 | 51 | 21.1 | CAV |
| 0.309000 | 28.20 | 11.8 | 50 | 21.8 | CAV |
| 0.374000 | 35.20 | 11.5 | 48 | 13.2 | CAV |
| 0.463000 | 27.80 | 11.2 | 47 | 18.8 | CAV |
| 0.920000 | 28.40 | 10.6 | 46 | 17.6 | CAV |
| 1.170000 | 28.70 | 10.6 | 46 | 17.3 | CAV |
| 1.410000 | 28.70 | 10.6 | 46 | 17.3 | CAV |
| 2.070000 | 30.10 | 10.6 | 46 | 15.9 | CAV |
| 2.440000 | 29.30 | 10.6 | 46 | 16.7 | CAV |
| 3.890000 | 30.40 | 10.6 | 46 | 15.6 | CAV |
| 5.960000 | 26.70 | 10.7 | 50 | 23.3 | CAV |
| 8.675000 | 26.80 | 10.9 | 50 | 23.2 | CAV |
| 11.390000 | 28.10 | 10.9 | 50 | 21.9 | CAV |
| 12.245000 | 31.90 | 11.0 | 50 | 18.1 | CAV |
| 12.515000 | 31.40 | 11.0 | 50 | 18.6 | CAV |
| 28.280000 | 27.40 | 11.6 | 50 | 22.6 | CAV |

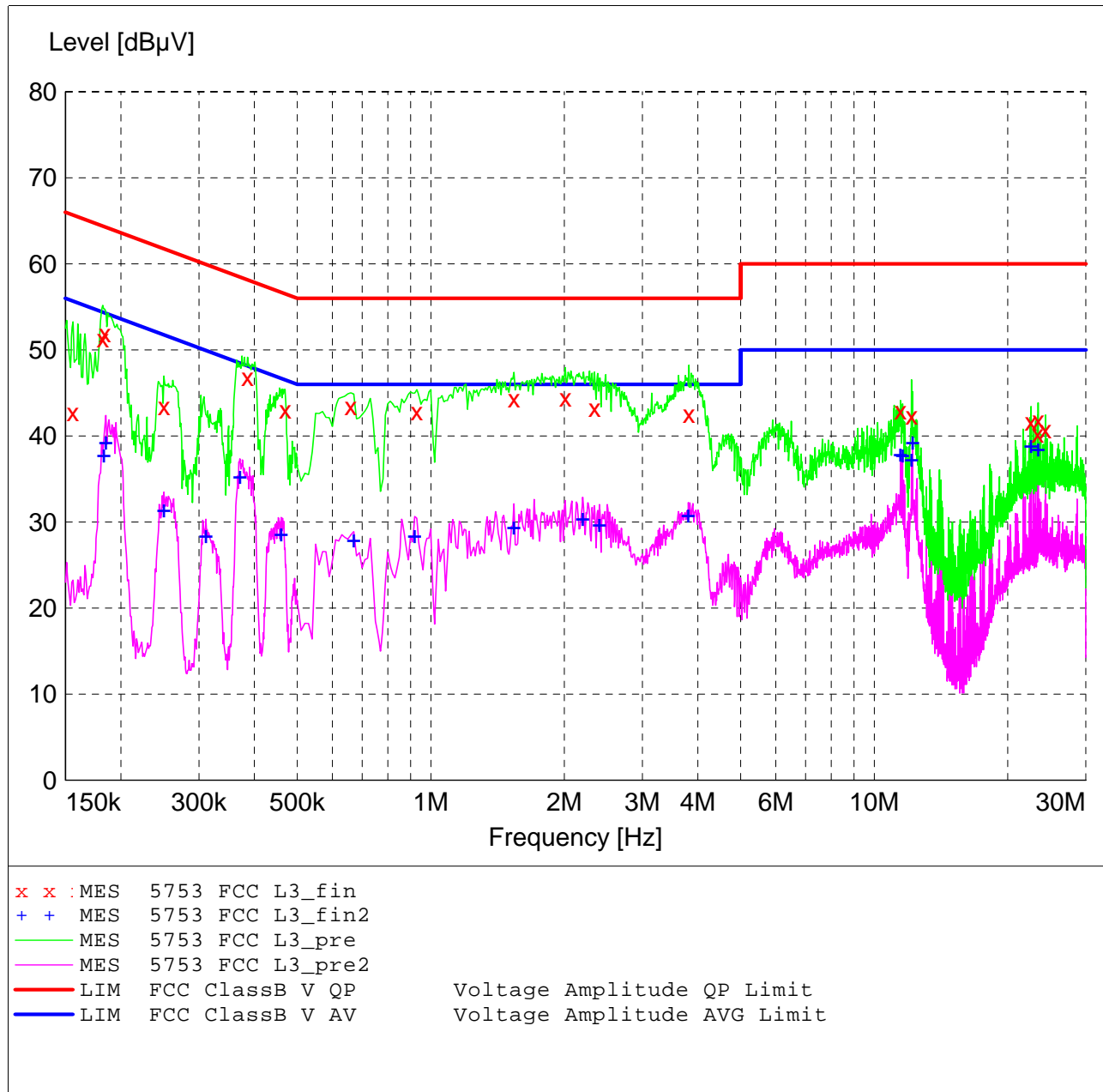
FCC Part 15.207

Voltage Mains Test

EUT: PMP450SM 2.4GHz OFDM
 Manufacturer: Cambium Networks
 Operating Condition: 72 deg. F, 31% R.H.
 Test Site: DLS O.F. Screen Room
 Operator: Jim O
 Test Specification: 120 V 60 Hz
 Comment: Line 1; continuous transmit mode with computer pinging
 Date: 05-02-2013

SCAN TABLE: "Line Cond SR Final"

| Short Description: | | Line Conducted Emissions | | | | | Transducer |
|--------------------|----------|--------------------------|-----------|------------|-----------|--------------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | | |
| 150.0 kHz | 30.0 MHz | 4.0 kHz | QuasiPeak | 5.0 s | 9 kHz | LISN DLS#128 | |
| | | | | | | | CISPR AV |



MEASUREMENT RESULT: "5753 FCC L3_fin"

5/2/2013 11:47AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.156000 | 42.70 | 13.6 | 66 | 23.0 | QP |
| 0.182000 | 51.30 | 12.9 | 64 | 13.1 | QP |
| 0.184000 | 51.90 | 12.9 | 64 | 12.4 | QP |
| 0.250000 | 43.40 | 12.1 | 62 | 18.4 | QP |
| 0.386000 | 46.80 | 11.4 | 58 | 11.3 | QP |
| 0.469000 | 43.00 | 11.2 | 57 | 13.5 | QP |
| 0.660000 | 43.40 | 10.8 | 56 | 12.6 | QP |
| 0.930000 | 42.80 | 10.6 | 56 | 13.2 | QP |
| 1.540000 | 44.30 | 10.6 | 56 | 11.7 | QP |
| 2.010000 | 44.40 | 10.6 | 56 | 11.6 | QP |
| 2.340000 | 43.20 | 10.6 | 56 | 12.8 | QP |
| 3.820000 | 42.50 | 10.6 | 56 | 13.5 | QP |
| 11.465000 | 42.90 | 10.9 | 60 | 17.1 | QP |
| 12.140000 | 42.30 | 11.0 | 60 | 17.7 | QP |
| 22.580000 | 41.60 | 11.3 | 60 | 18.4 | QP |
| 23.375000 | 40.20 | 11.3 | 60 | 19.8 | QP |
| 23.435000 | 41.80 | 11.3 | 60 | 18.2 | QP |
| 24.350000 | 40.70 | 11.4 | 60 | 19.3 | QP |

MEASUREMENT RESULT: "5753 FCC L3_fin2"

5/2/2013 11:47AM

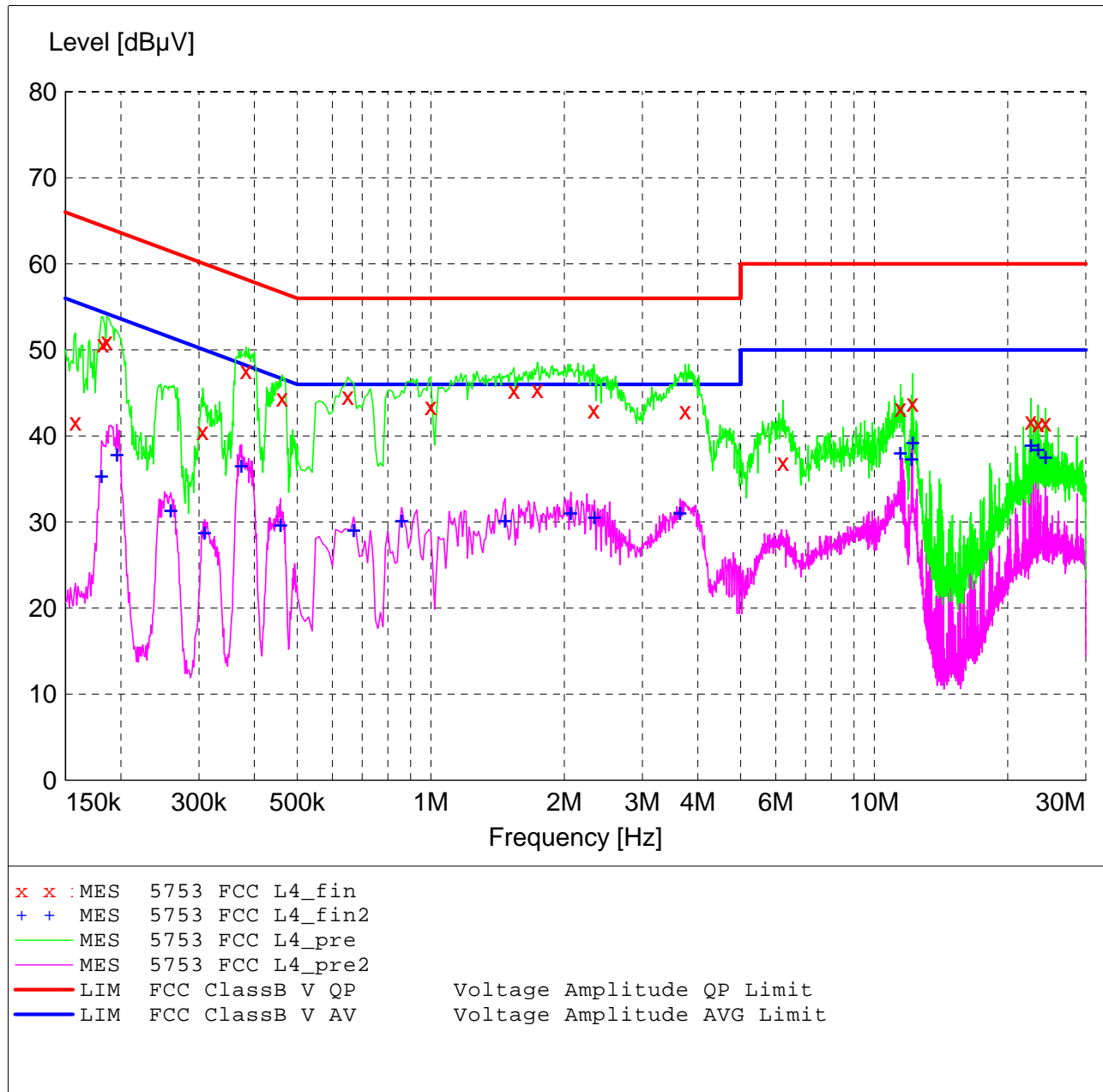
| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.183000 | 37.90 | 12.9 | 54 | 16.4 | CAV |
| 0.185000 | 39.40 | 12.9 | 54 | 14.9 | CAV |
| 0.250000 | 31.50 | 12.1 | 52 | 20.3 | CAV |
| 0.311000 | 28.50 | 11.8 | 50 | 21.4 | CAV |
| 0.371000 | 35.40 | 11.5 | 49 | 13.1 | CAV |
| 0.460000 | 28.70 | 11.3 | 47 | 18.0 | CAV |
| 0.670000 | 28.00 | 10.8 | 46 | 18.0 | CAV |
| 0.920000 | 28.50 | 10.6 | 46 | 17.5 | CAV |
| 1.540000 | 29.50 | 10.6 | 46 | 16.5 | CAV |
| 2.200000 | 30.50 | 10.6 | 46 | 15.5 | CAV |
| 2.400000 | 29.80 | 10.6 | 46 | 16.2 | CAV |
| 3.810000 | 30.90 | 10.6 | 46 | 15.1 | CAV |
| 11.465000 | 38.00 | 10.9 | 50 | 12.0 | CAV |
| 11.585000 | 37.90 | 10.9 | 50 | 12.1 | CAV |
| 12.140000 | 37.40 | 11.0 | 50 | 12.6 | CAV |
| 12.200000 | 39.30 | 11.0 | 50 | 10.7 | CAV |
| 22.580000 | 38.90 | 11.3 | 50 | 11.1 | CAV |
| 23.435000 | 38.60 | 11.3 | 50 | 11.4 | CAV |

Voltage Mains Test

EUT: PMP450SM 2.4GHz OFDM
 Manufacturer: Cambium Networks
 Operating Condition: 72 deg. F, 31% R.H.
 Test Site: DLS O.F. Screen Room
 Operator: Jim O
 Test Specification: 120 V 60 Hz
 Comment: Line 2; continuous transmit mode with computer pinging
 Date: 05-02-2013

SCAN TABLE: "Line Cond SR Final"

| Short Description: | | Line Conducted Emissions | | | | | Transducer |
|--------------------|----------|--------------------------|-----------|------------|-----------|--------------|------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | | |
| 150.0 kHz | 30.0 MHz | 4.0 kHz | QuasiPeak | 5.0 s | 9 kHz | LISN DLS#128 | |
| CISPR AV | | | | | | | |



MEASUREMENT RESULT: "5753 FCC L4_fin"

5/2/2013 11:55AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.158000 | 41.60 | 13.5 | 66 | 24.0 | QP |
| 0.182000 | 50.70 | 12.9 | 64 | 13.7 | QP |
| 0.186000 | 51.00 | 12.8 | 64 | 13.2 | QP |
| 0.306000 | 40.50 | 11.8 | 60 | 19.6 | QP |
| 0.383000 | 47.60 | 11.4 | 58 | 10.6 | QP |
| 0.462000 | 44.40 | 11.2 | 57 | 12.3 | QP |
| 0.650000 | 44.60 | 10.8 | 56 | 11.4 | QP |
| 1.000000 | 43.40 | 10.6 | 56 | 12.6 | QP |
| 1.540000 | 45.30 | 10.6 | 56 | 10.7 | QP |
| 1.740000 | 45.40 | 10.6 | 56 | 10.6 | QP |
| 2.330000 | 43.00 | 10.6 | 56 | 13.0 | QP |
| 3.750000 | 42.90 | 10.6 | 56 | 13.1 | QP |
| 6.230000 | 36.90 | 10.7 | 60 | 23.1 | QP |
| 11.465000 | 43.20 | 10.9 | 60 | 16.8 | QP |
| 12.200000 | 43.80 | 11.0 | 60 | 16.2 | QP |
| 22.580000 | 41.70 | 11.3 | 60 | 18.3 | QP |
| 23.435000 | 41.40 | 11.3 | 60 | 18.6 | QP |
| 24.350000 | 41.50 | 11.4 | 60 | 18.5 | QP |

MEASUREMENT RESULT: "5753 FCC L4_fin2"

5/2/2013 11:55AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|------------------|---------------|--------------|---------------|--------------|----------|
| 0.181000 | 35.50 | 12.9 | 54 | 18.9 | CAV |
| 0.196000 | 38.00 | 12.7 | 54 | 15.8 | CAV |
| 0.259000 | 31.50 | 12.0 | 52 | 20.0 | CAV |
| 0.309000 | 28.90 | 11.8 | 50 | 21.1 | CAV |
| 0.374000 | 36.70 | 11.5 | 48 | 11.7 | CAV |
| 0.458000 | 29.80 | 11.3 | 47 | 16.9 | CAV |
| 0.670000 | 29.20 | 10.8 | 46 | 16.8 | CAV |
| 0.860000 | 30.30 | 10.7 | 46 | 15.7 | CAV |
| 1.470000 | 30.30 | 10.6 | 46 | 15.7 | CAV |
| 2.070000 | 31.20 | 10.6 | 46 | 14.8 | CAV |
| 2.340000 | 30.70 | 10.6 | 46 | 15.3 | CAV |
| 3.650000 | 31.20 | 10.6 | 46 | 14.8 | CAV |
| 11.465000 | 38.20 | 10.9 | 50 | 11.8 | CAV |
| 12.140000 | 37.50 | 11.0 | 50 | 12.5 | CAV |
| 12.200000 | 39.40 | 11.0 | 50 | 10.6 | CAV |
| 22.580000 | 39.00 | 11.3 | 50 | 11.0 | CAV |
| 23.435000 | 38.50 | 11.3 | 50 | 11.5 | CAV |
| 24.350000 | 37.70 | 11.4 | 50 | 12.3 | CAV |



Company: Cambium Networks
Model Tested: C024045C004A & C024045C008A
Report Number: 19014

166 South Carter, Genoa City, WI 53128

Appendix B – Measurement Data

B1.0 Max Unwanted Emissions - Radiated Band-Edge - Restricted Bands

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*

ANSI C63.10:2009 – Sections 6.5 and 6.6

13.0 Band-edge measurements

Description: This test applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205.

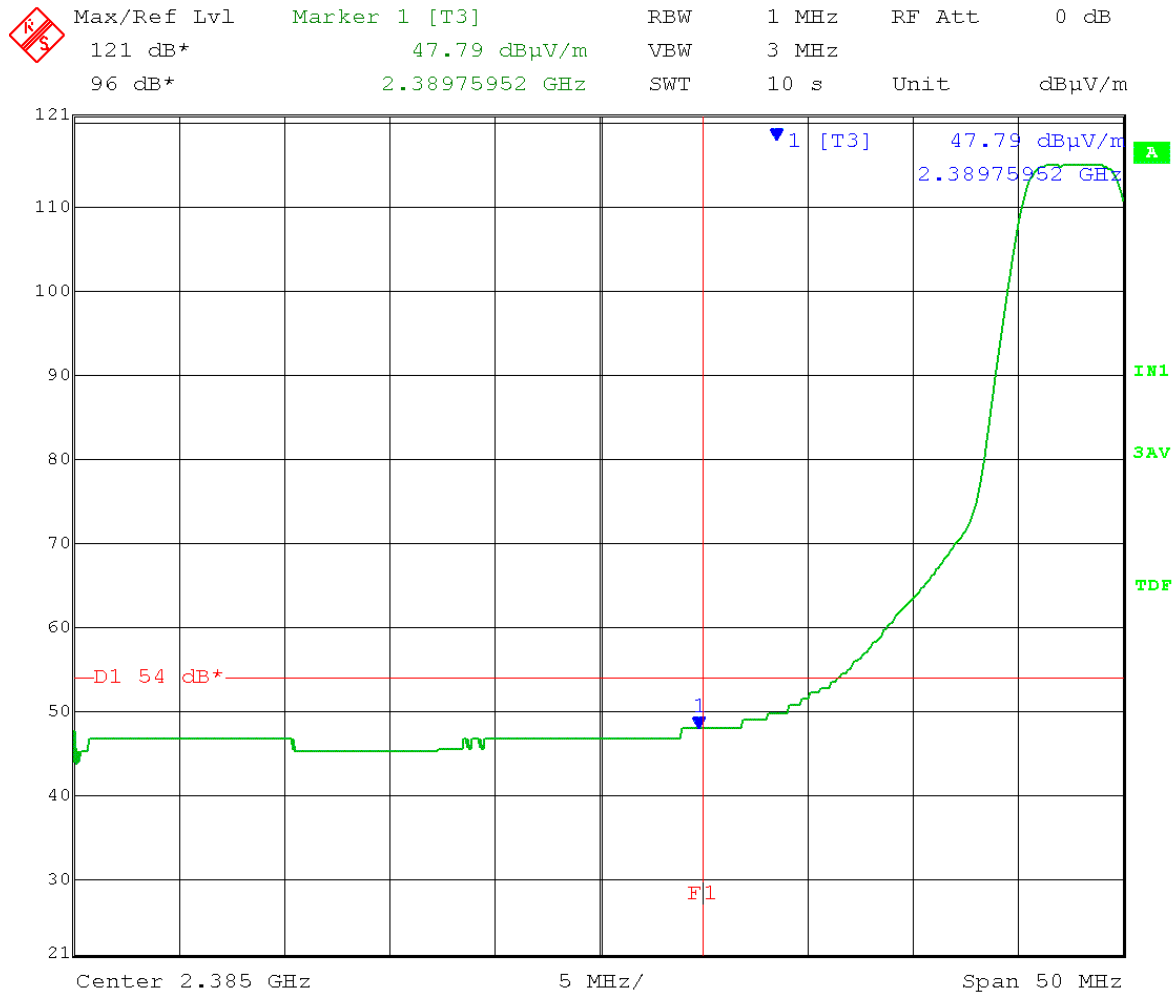
Measurements were taken for QPSK over a 5MHz, 10MHz and 20MHz modulation bandwidths at the low and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings with approximately a 94% duty cycle. **This method was used for measurements with the Dish and Panel Antennas.**

Limit: FCC Part 15.209

Results: Passed

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

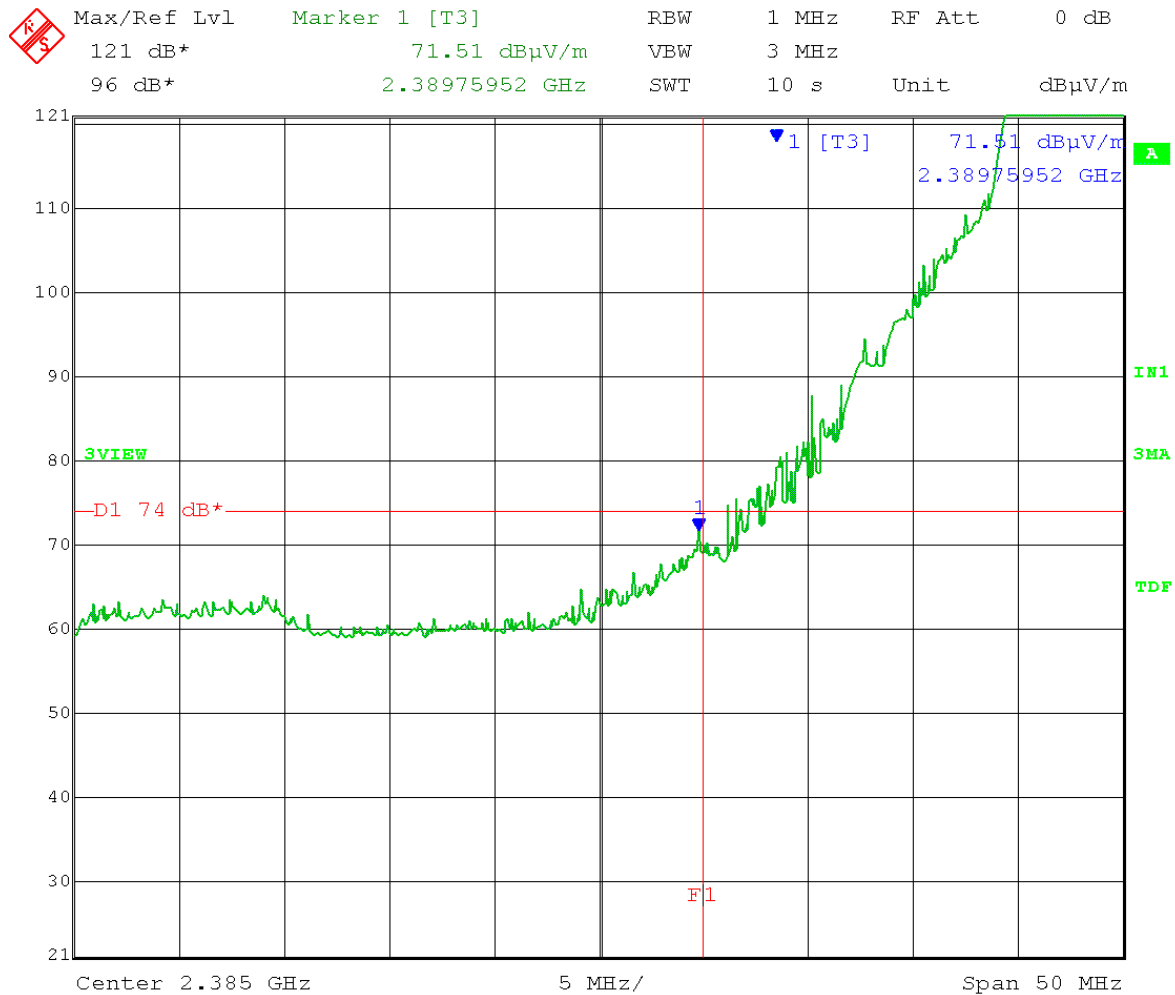
Comment: RBW = 1MHz
 VBW ≥ 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.4075GHz
 5MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 16



Date: 9.MAY.2013 10:49:55

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Upper Band-Edge Measurements - Radiated
 Operator: Jim O

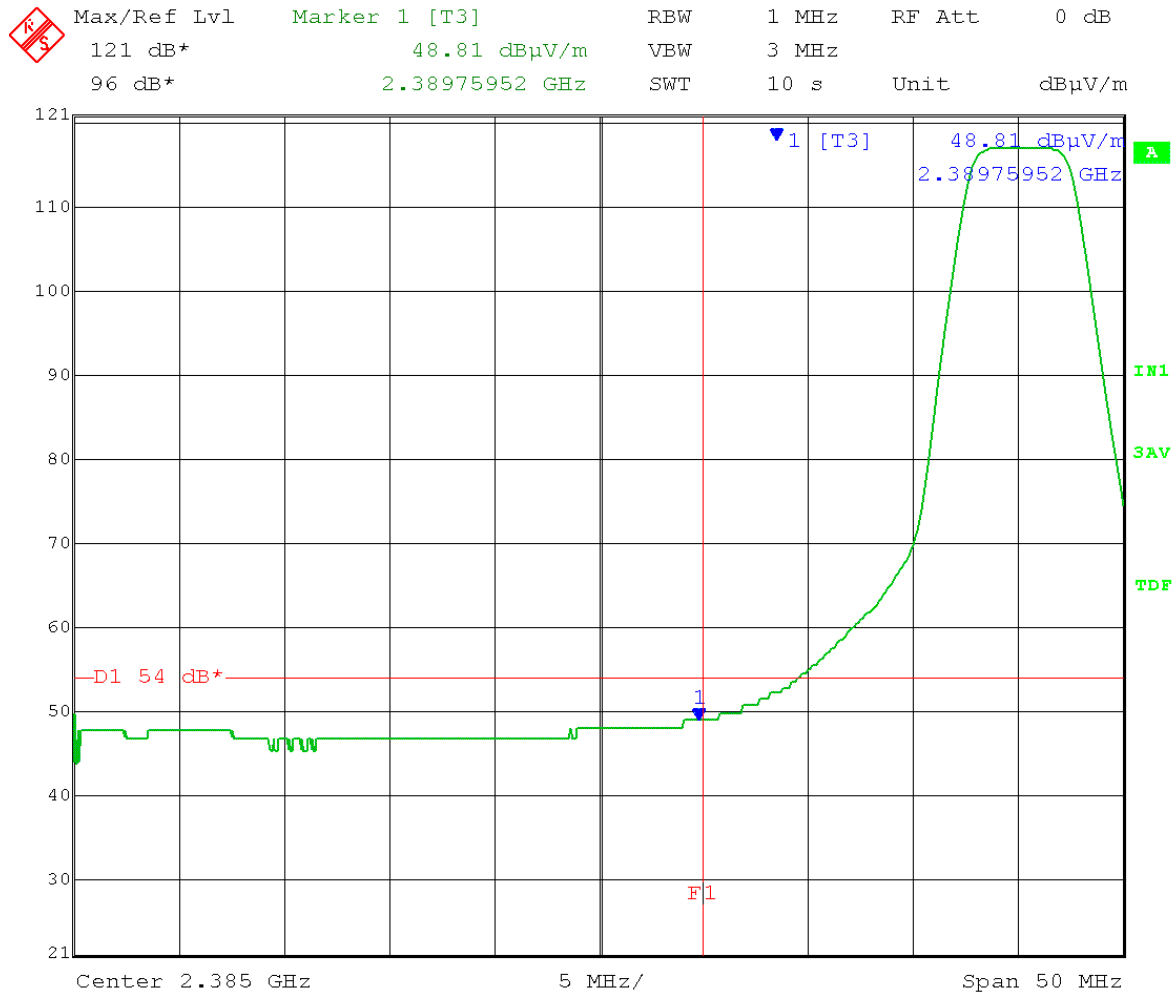
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Polarization = Horizontal
 Output power setting: 16
 Low Channel Transmit = 2.4075GHz
 5MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Peak Limit (D1) = 74dBuV/m



Date: 9.MAY.2013 10:48:38

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

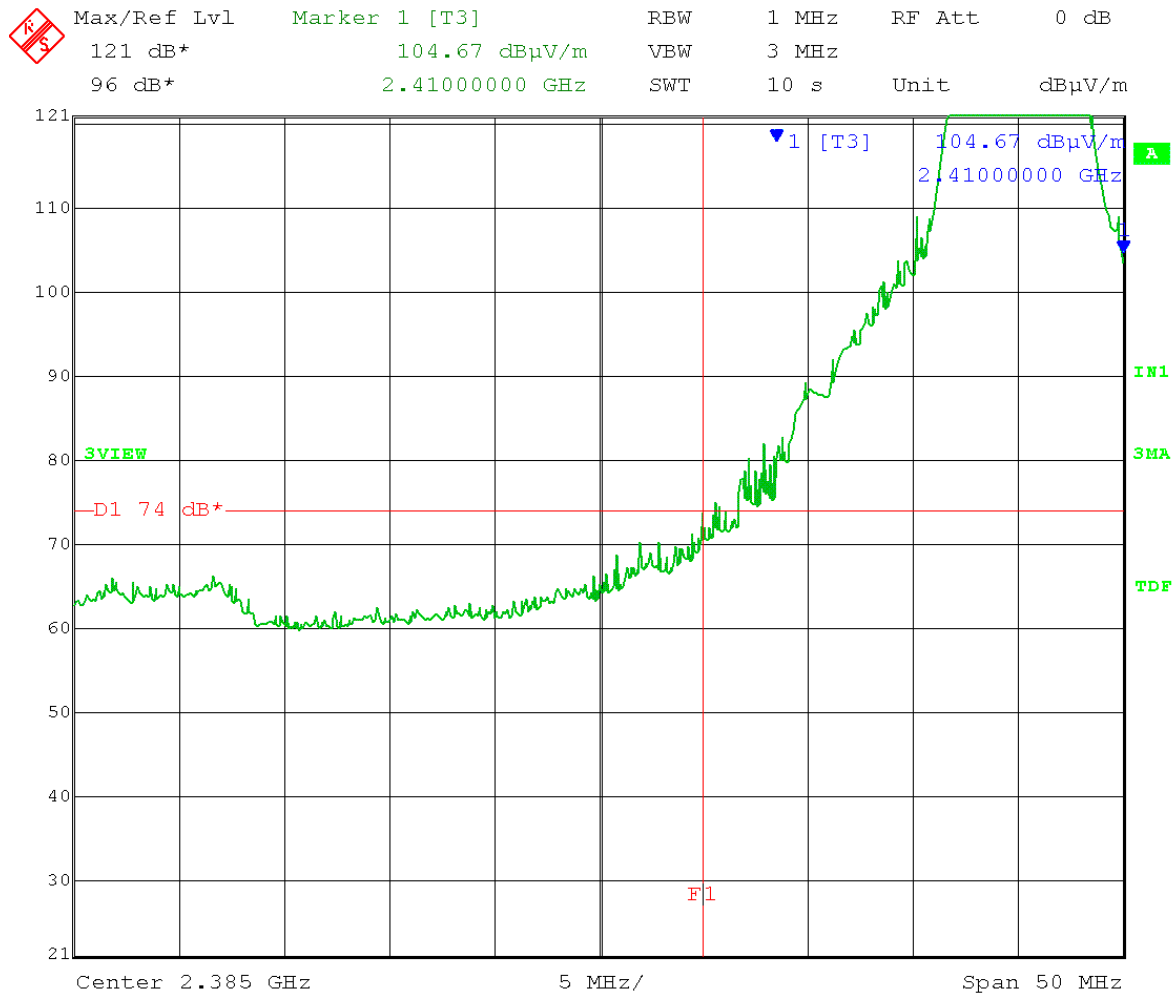
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.4075GHz
 5MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 16



Date: 9.MAY.2013 10:41:23

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Upper Band-Edge Measurements - Radiated
 Operator: Jim O

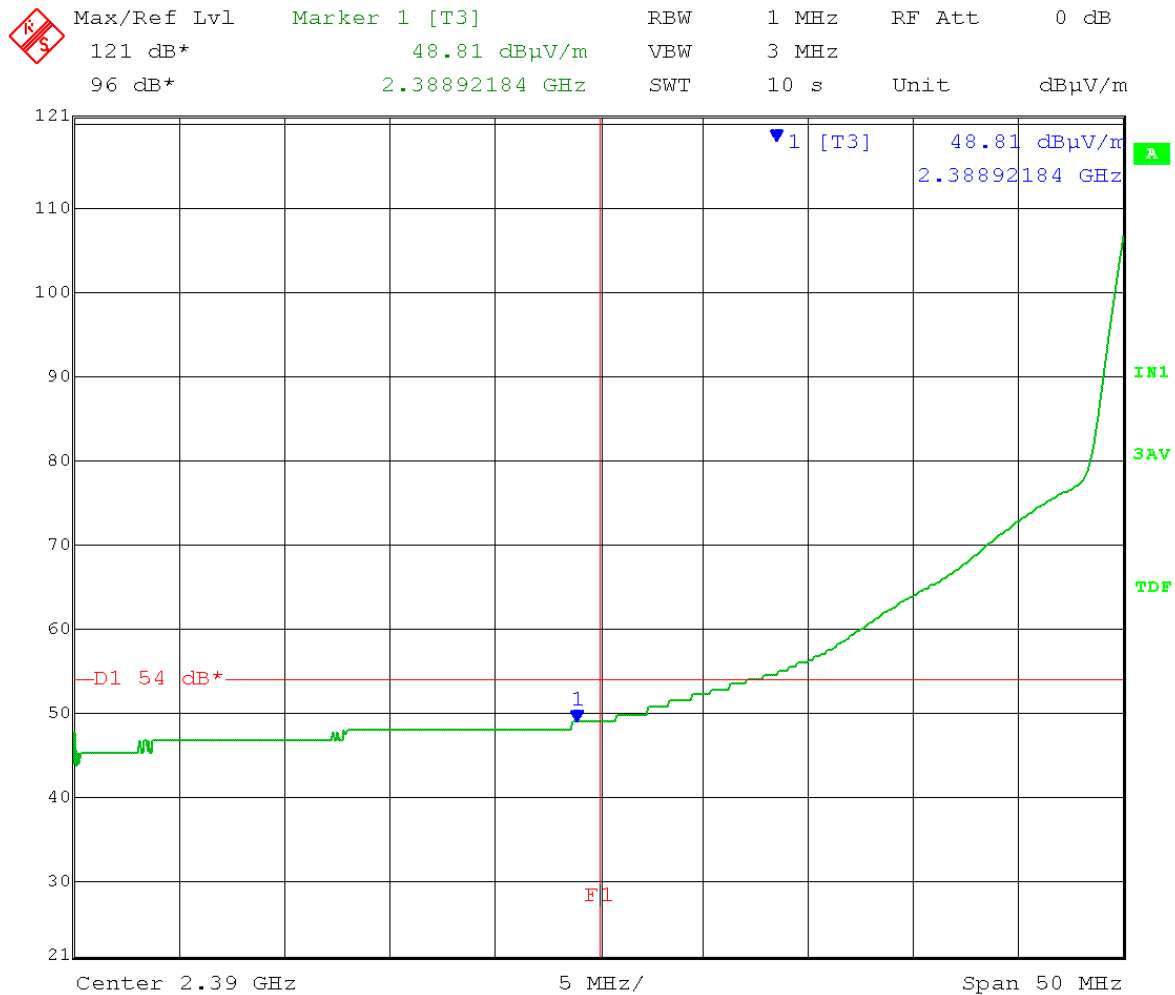
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.4075GHz
 5MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 16



Date: 9.MAY.2013 10:40:10

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

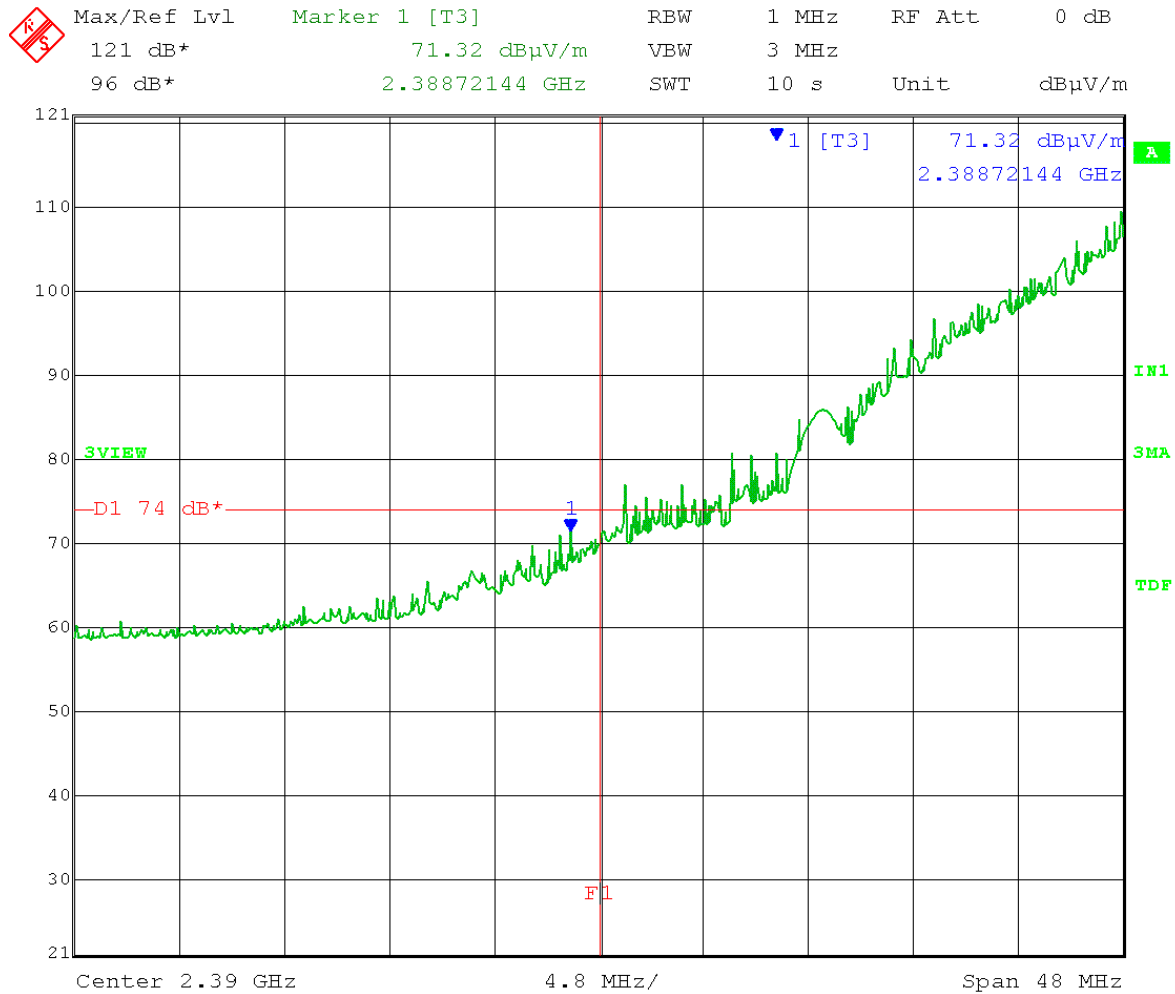
Comment: RBW = 1MHz
 VBW ≥ 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.420GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 16



Date: 9.MAY.2013 11:19:13

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

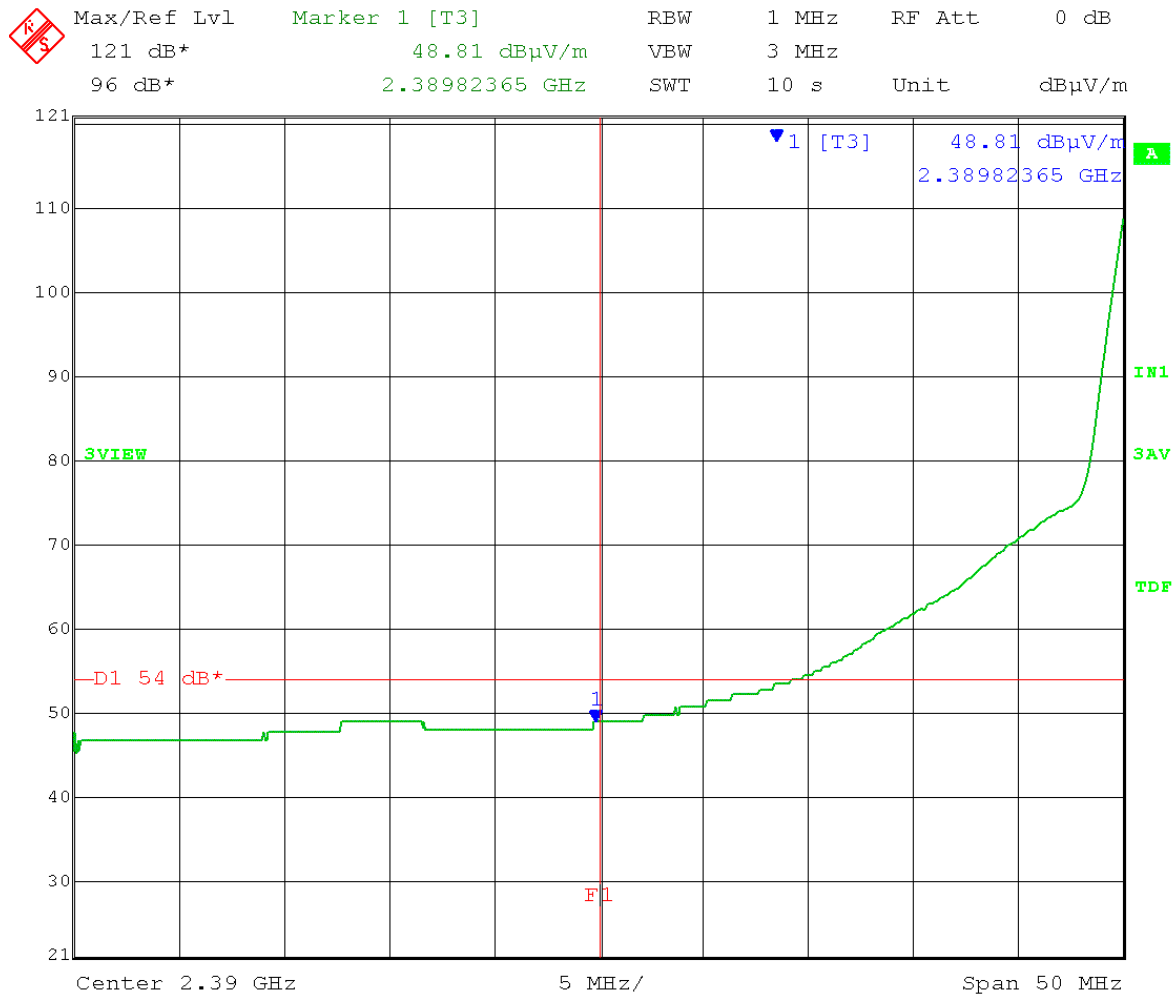
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Polarization = Horizontal
 Output power setting: 16
 Low Channel Transmit = 2.420GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Peak Limit (D1) = 74dBuV/m



Date: 9.MAY.2013 11:17:38

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

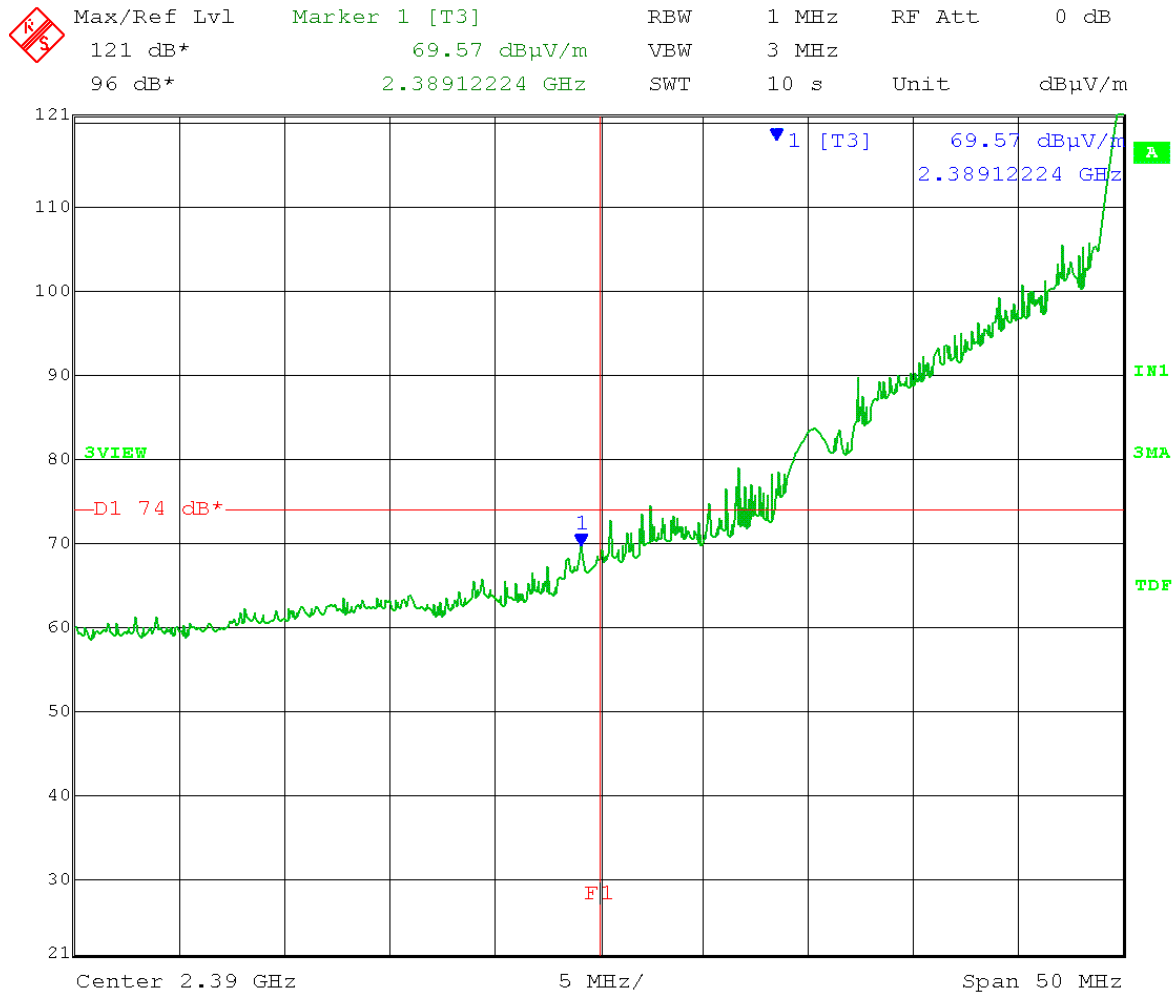
Comment: RBW = 1MHz
 VBW ≥ 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.420GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 16



Date: 9.MAY.2013 11:29:39

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

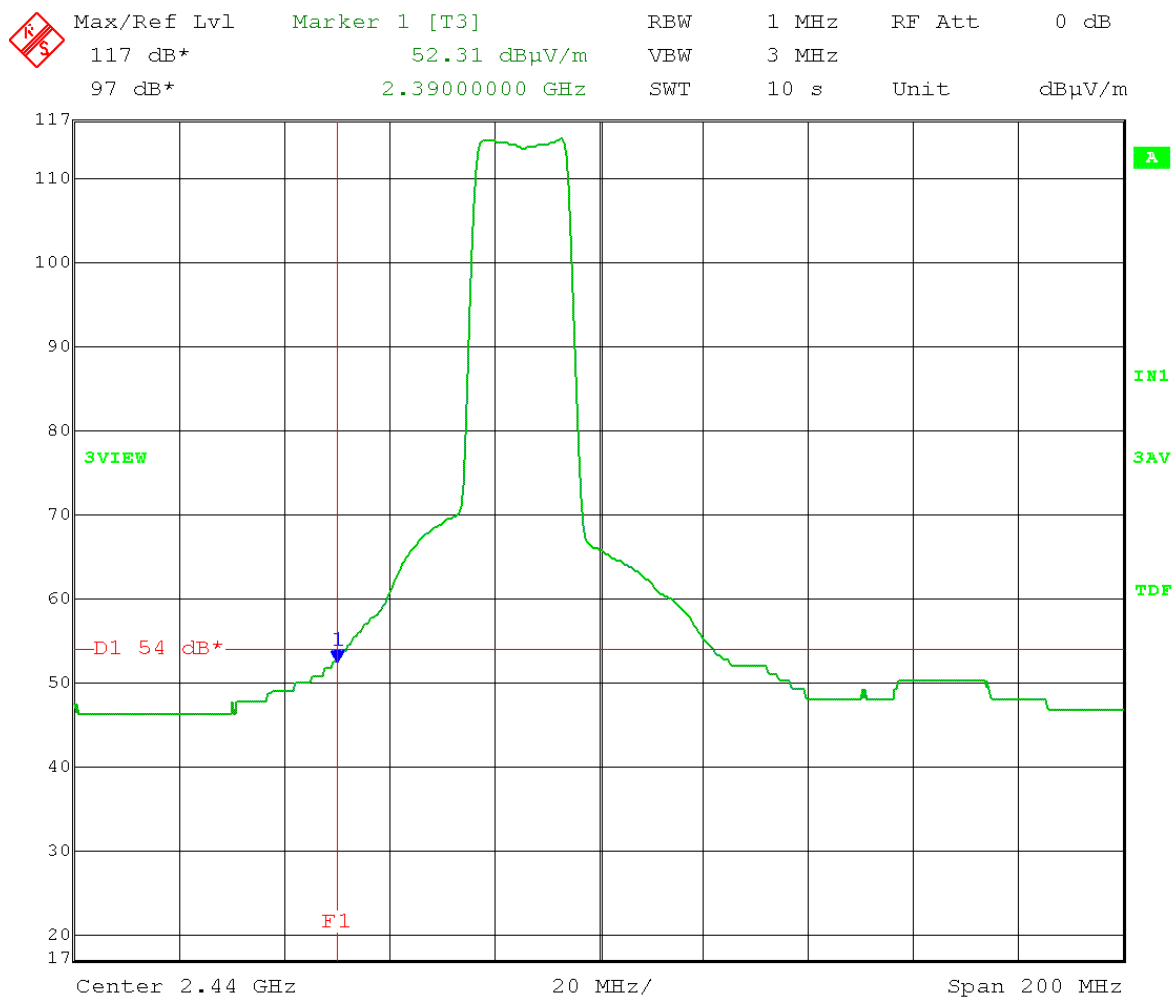
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.420GHz
 10MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Peak Limit (**D1**) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 16



Date: 9.MAY.2013 11:31:11

Test Date: 05-09-2013
Company: Cambium Networks
EUT: PMP450SM (2.4 GHz: OFDM) with Dish
Test: Band-Edge Measurements - Radiated
Operator: Jim O

Comment: RBW = 1MHz
VBW \geq 3MHz
Detector = Average
Trace = Max Hold
Low Channel Transmit = 2.430GHz
20MHz BW
Restricted Band-Edge Frequency (F1) = 2.39 GHz
Average Limit (D1) = 54dBuV/m
Polarization = Horizontal
Output power setting: 19

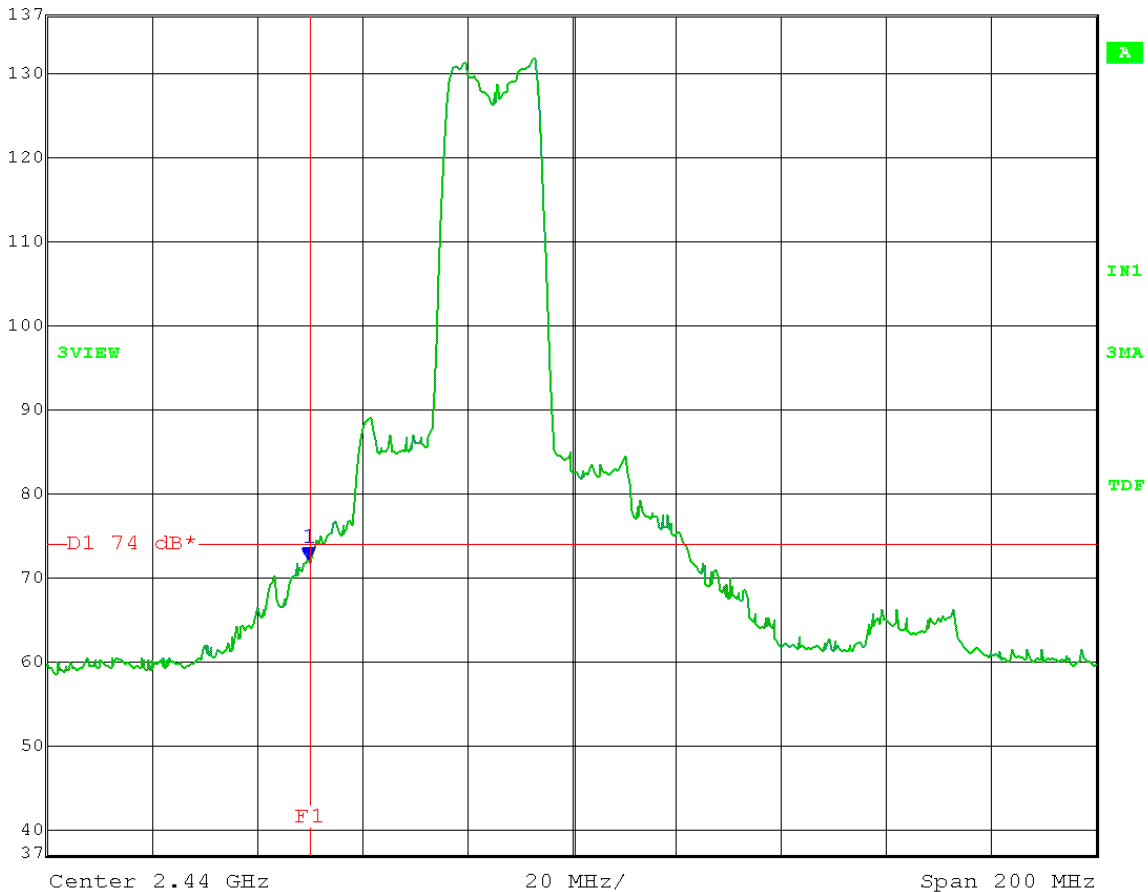


Date: 9.MAY.2013 14:21:07

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.430GHz
 20MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 19

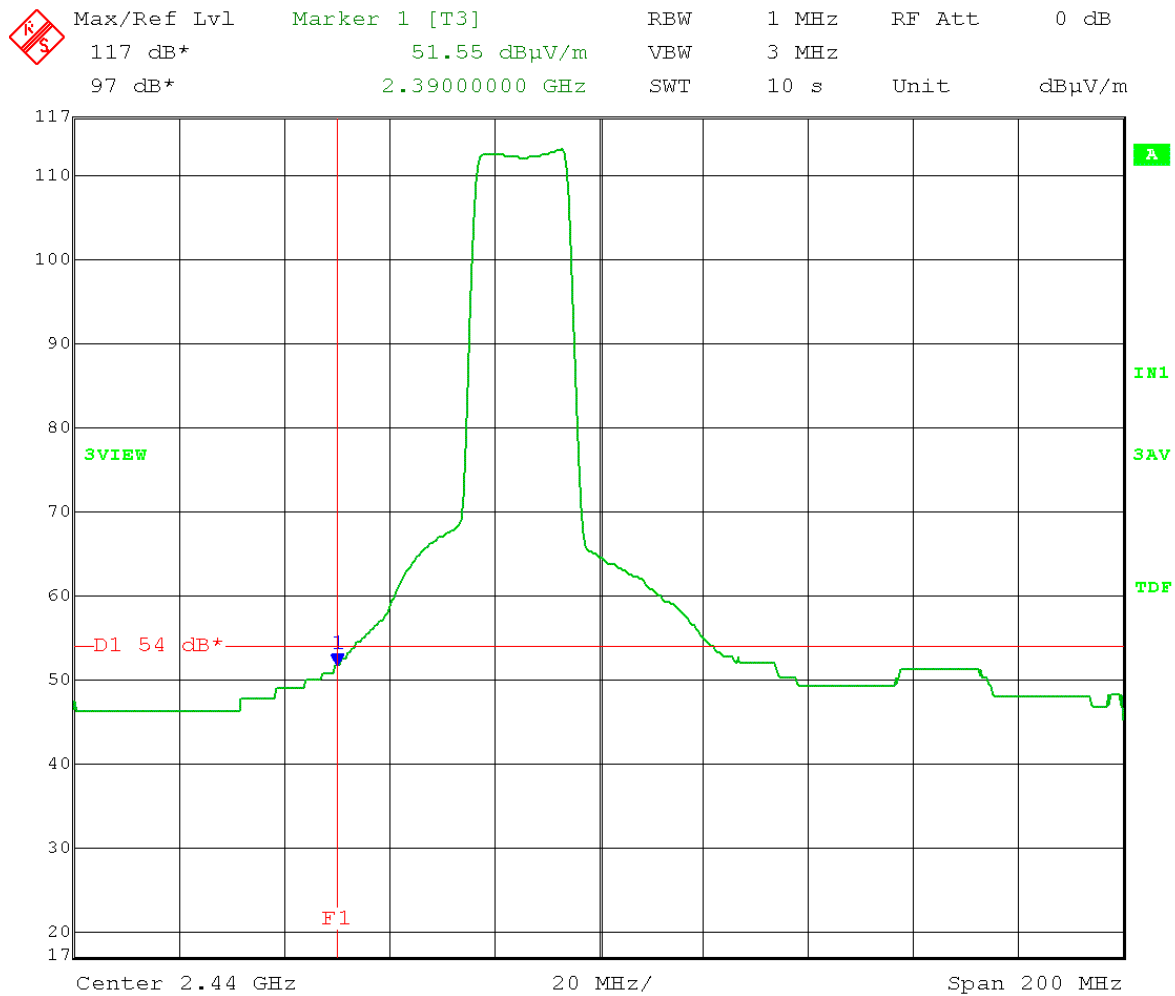
| | | | | | | |
|--|-------------|----------------|-----|-------|--------|--------|
| | Max/Ref Lvl | Marker 1 [T3] | RBW | 1 MHz | RF Att | 0 dB |
| | 137 dB* | 72.06 dBuV/m | VBW | 3 MHz | | |
| | 97 dB* | 2.38959920 GHz | SWT | 10 s | Unit | dBuV/m |



Date: 9.MAY.2013 14:23:19

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O


Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.430GHz
 20MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.39 GHz
 Average Limit (**D1**) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 19

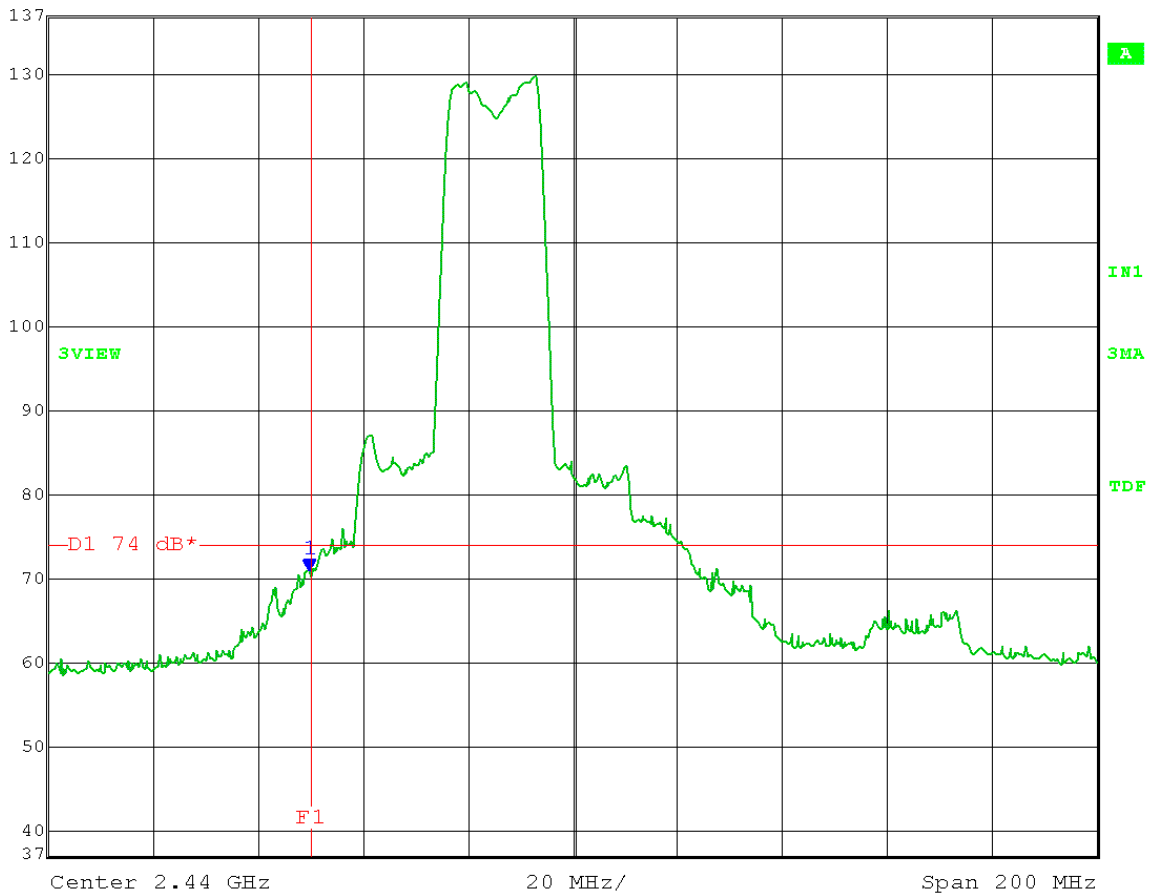


Date: 9.MAY.2013 14:18:45

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.430GHz
 20MHz BW
 Restricted Band-Edge Frequency (F1) = 2.39 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 19

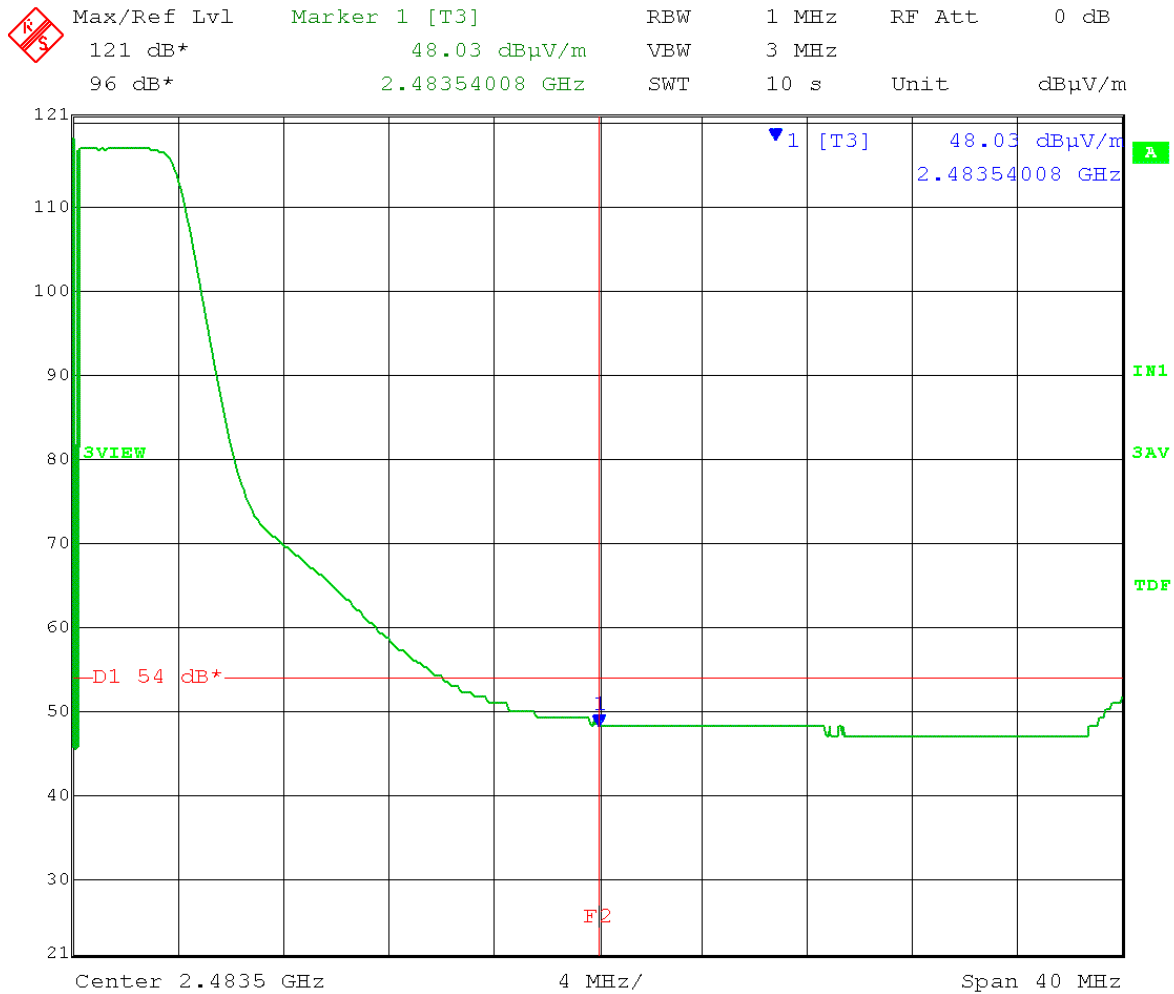
| | | | | | | |
|---|-------------|----------------|-----|-------|--------|--------|
|  | Max/Ref Lvl | Marker 1 [T3] | RBW | 1 MHz | RF Att | 0 dB |
| | 137 dB* | 70.88 dBuV/m | VBW | 3 MHz | | |
| | 97 dB* | 2.38959920 GHz | SWT | 10 s | Unit | dBuV/m |



Date: 9.MAY.2013 14:16:28

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Upper Band-Edge Measurements - Radiated
 Operator: Jim O

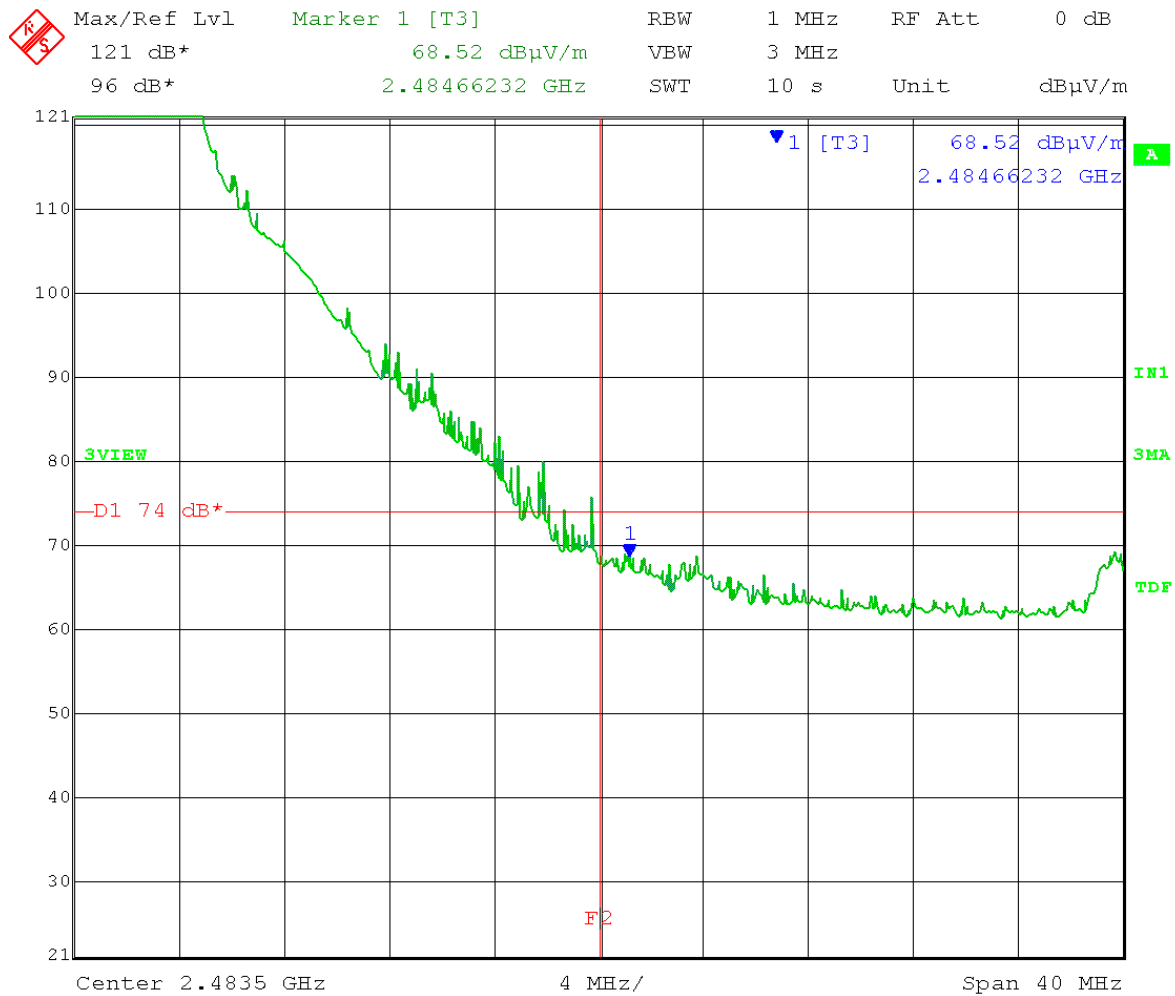
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel: Transmit = 2.465GHz
 5MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 16



Date: 9.MAY.2013 09:53:03

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Upper Band-Edge Measurements - Radiated
 Operator: Jim O

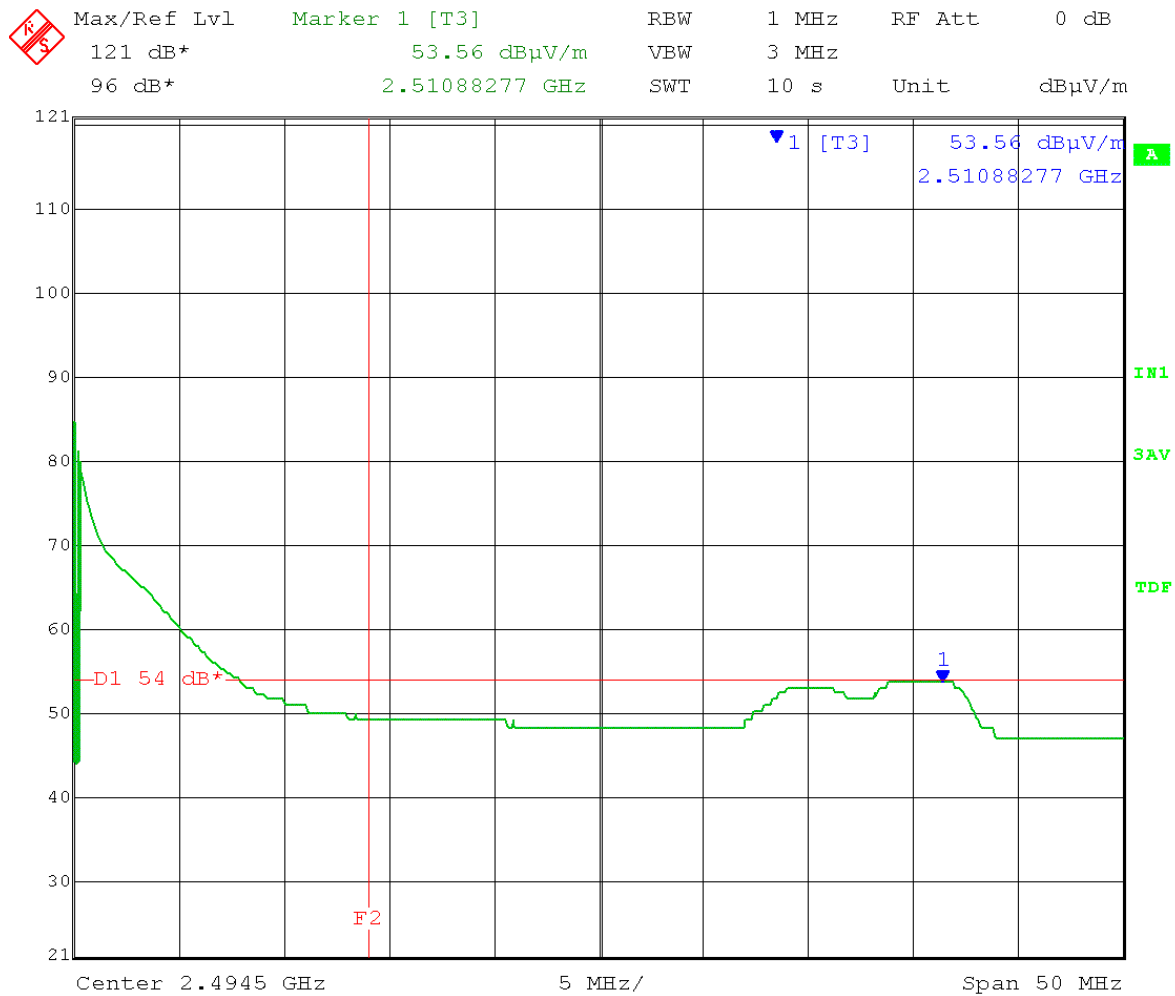
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel: Transmit = 2.465GHz
 5MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Peak Limit (**D1**) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 16



Date: 9.MAY.2013 09:51:20

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Upper Band-Edge Measurements - Radiated
 Operator: Jim O

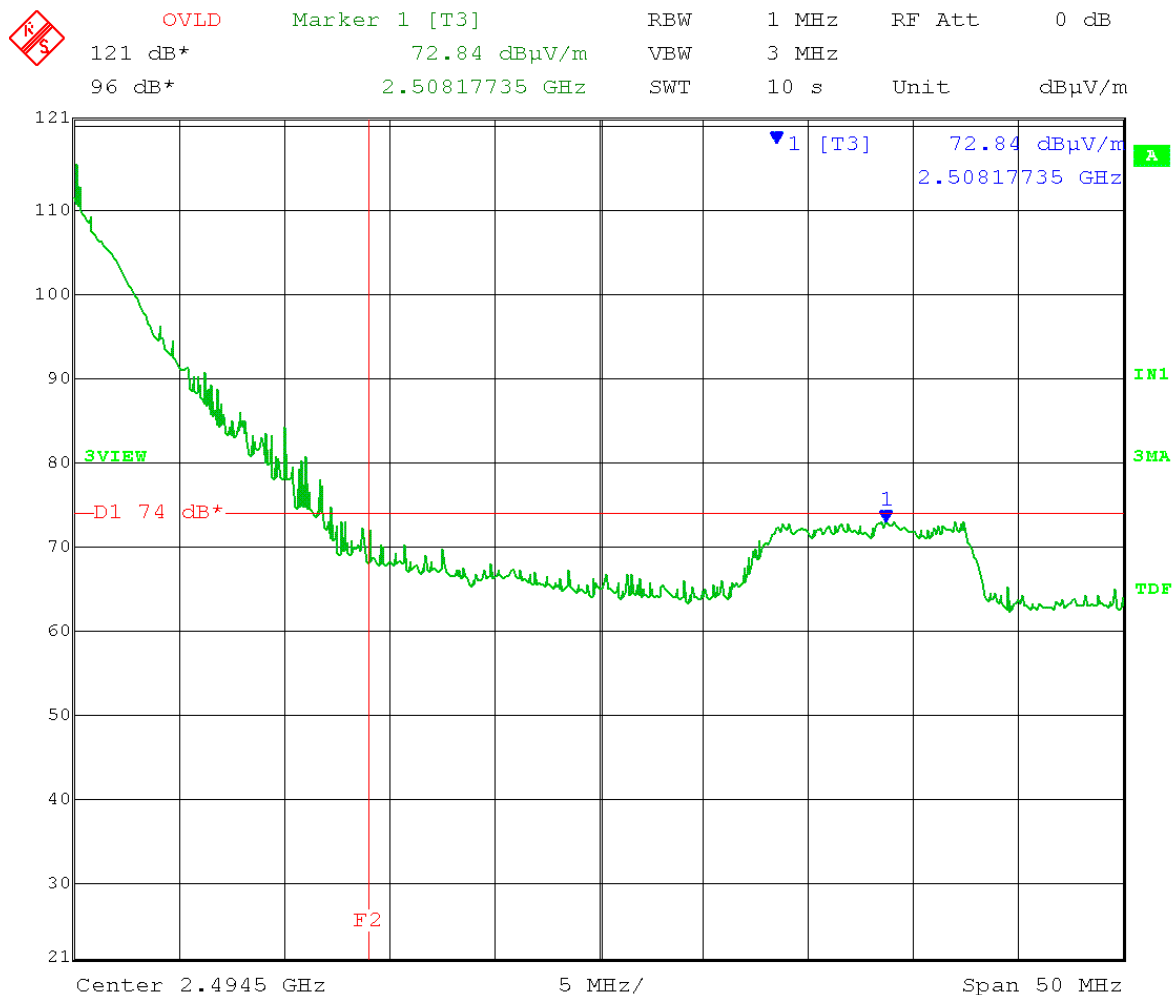
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel: Transmit = 2.465GHz
 5MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 16



Date: 9.MAY.2013 10:27:27

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Upper Band-Edge Measurements - Radiated
 Operator: Jim O

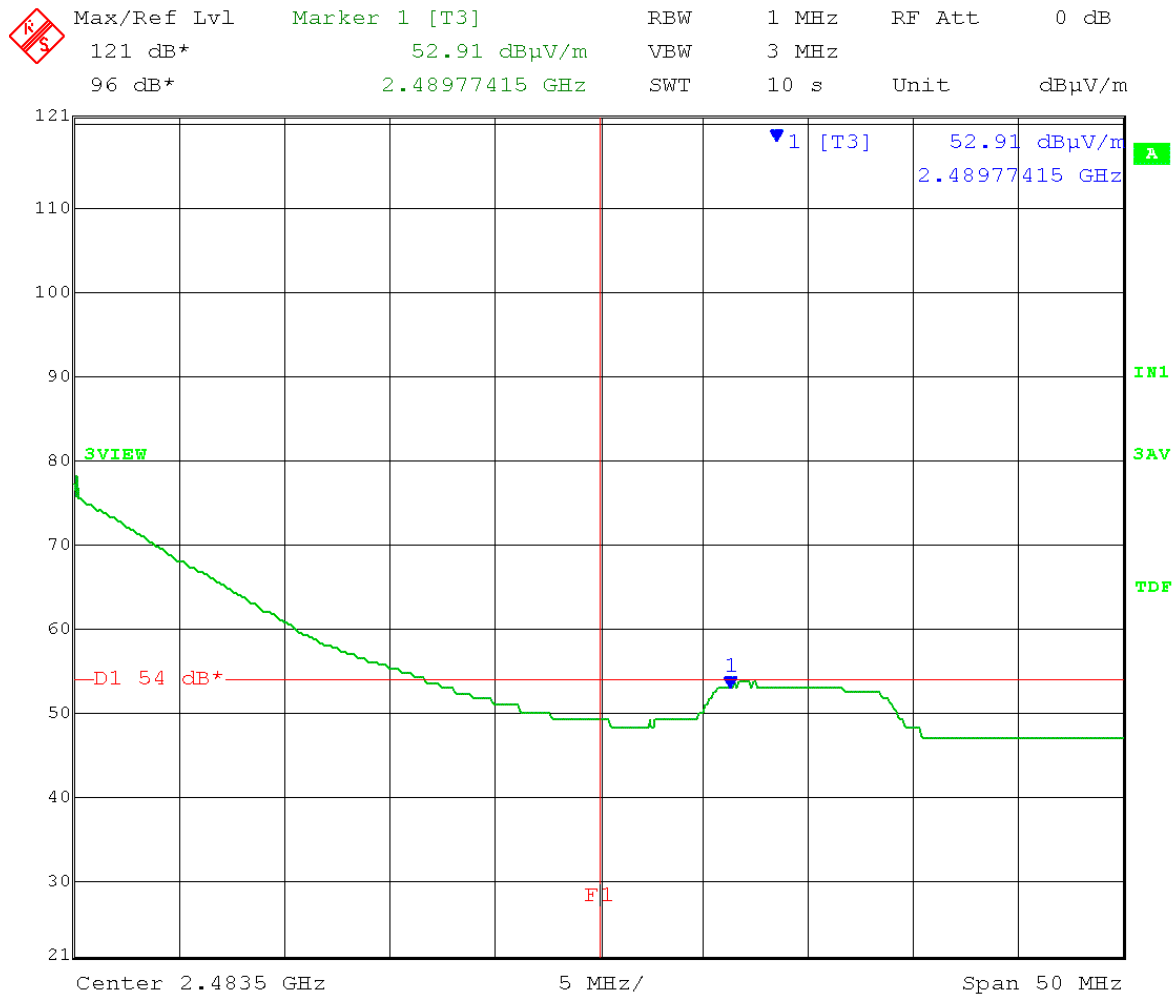
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel: Transmit = 2.465GHz
 5MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 16



Date: 9.MAY.2013 10:23:56

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

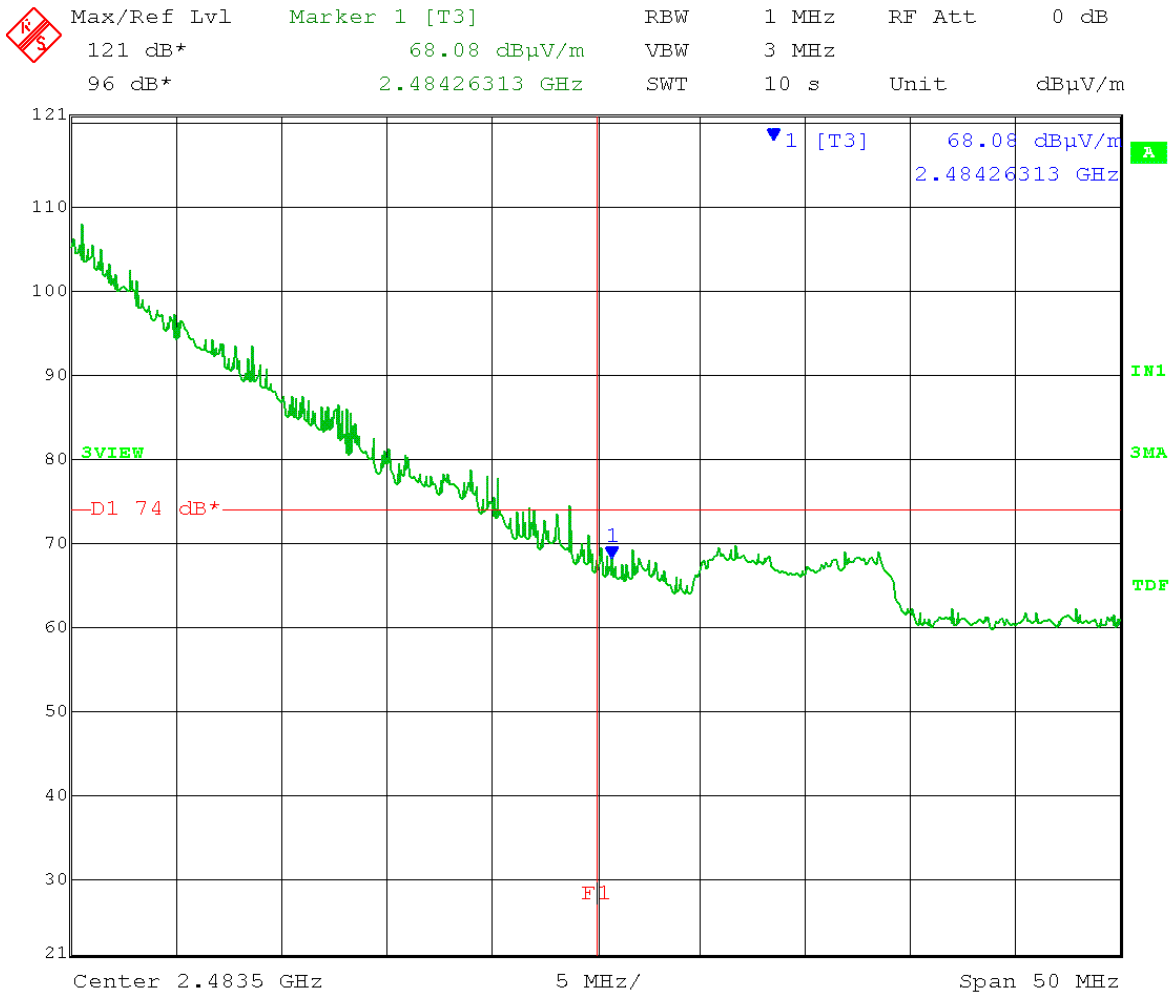
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.450GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 19



Date: 9.MAY.2013 11:45:38

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

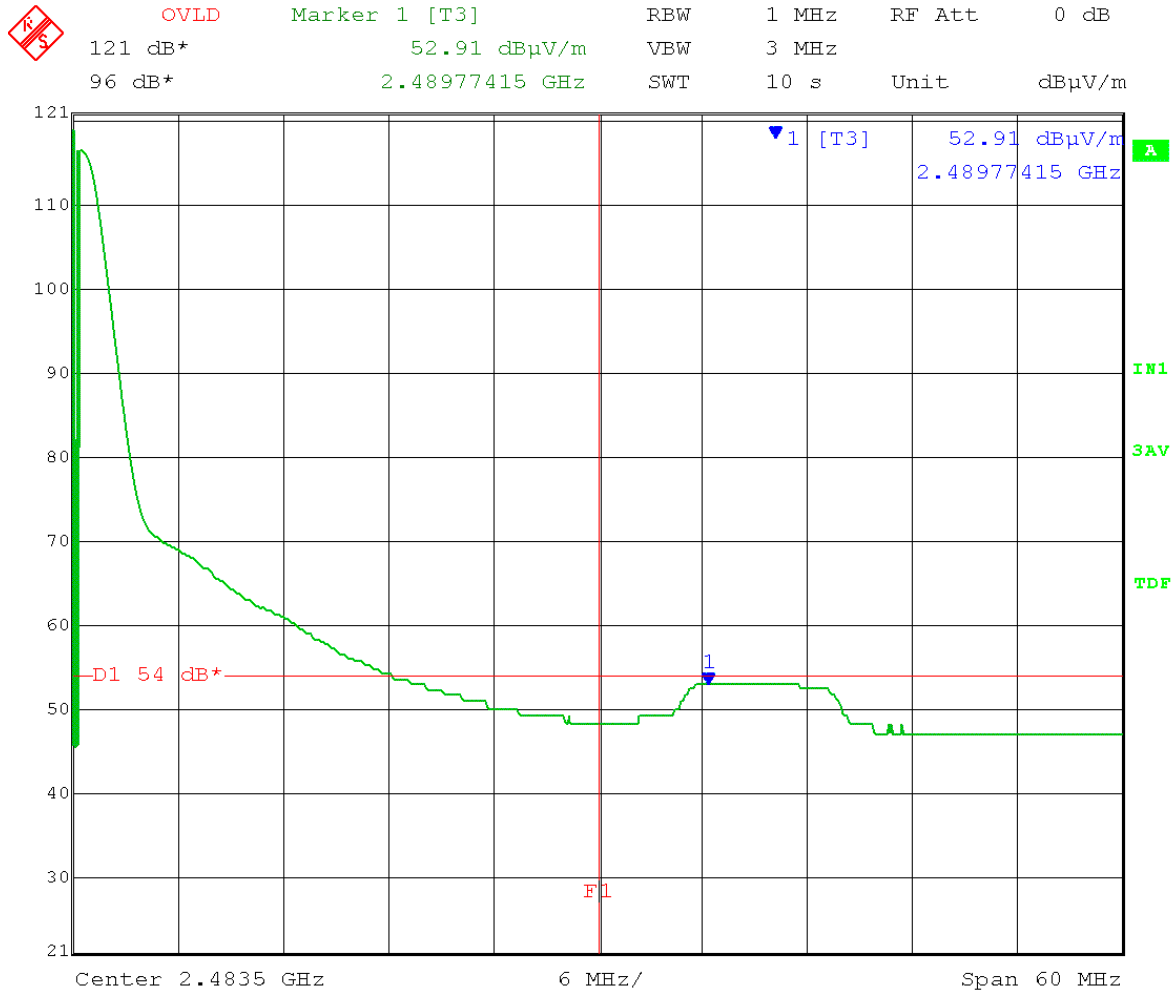
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.450GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 19



Date: 9.MAY.2013 11:43:17

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

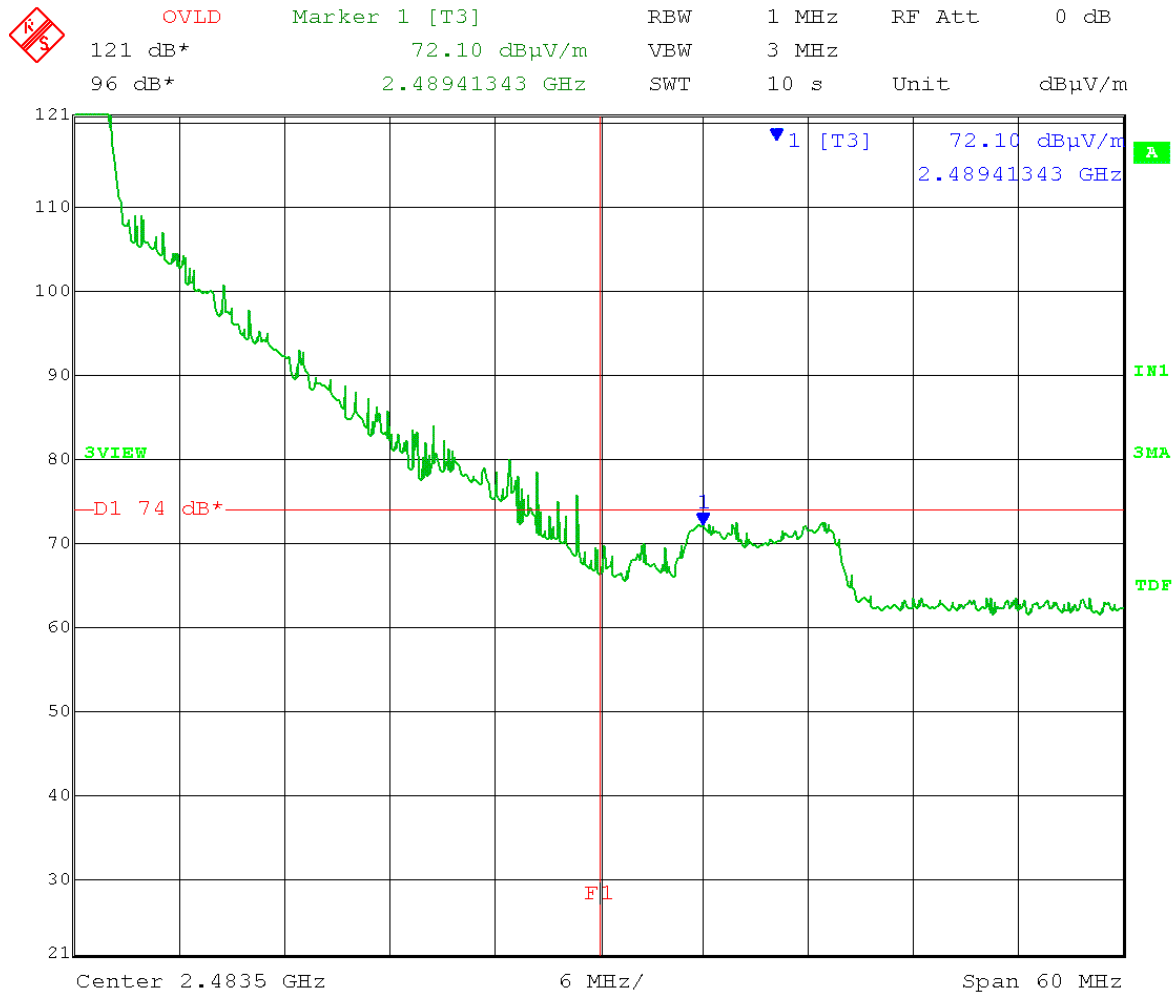
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.450GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 17



Date: 9.MAY.2013 12:34:27

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

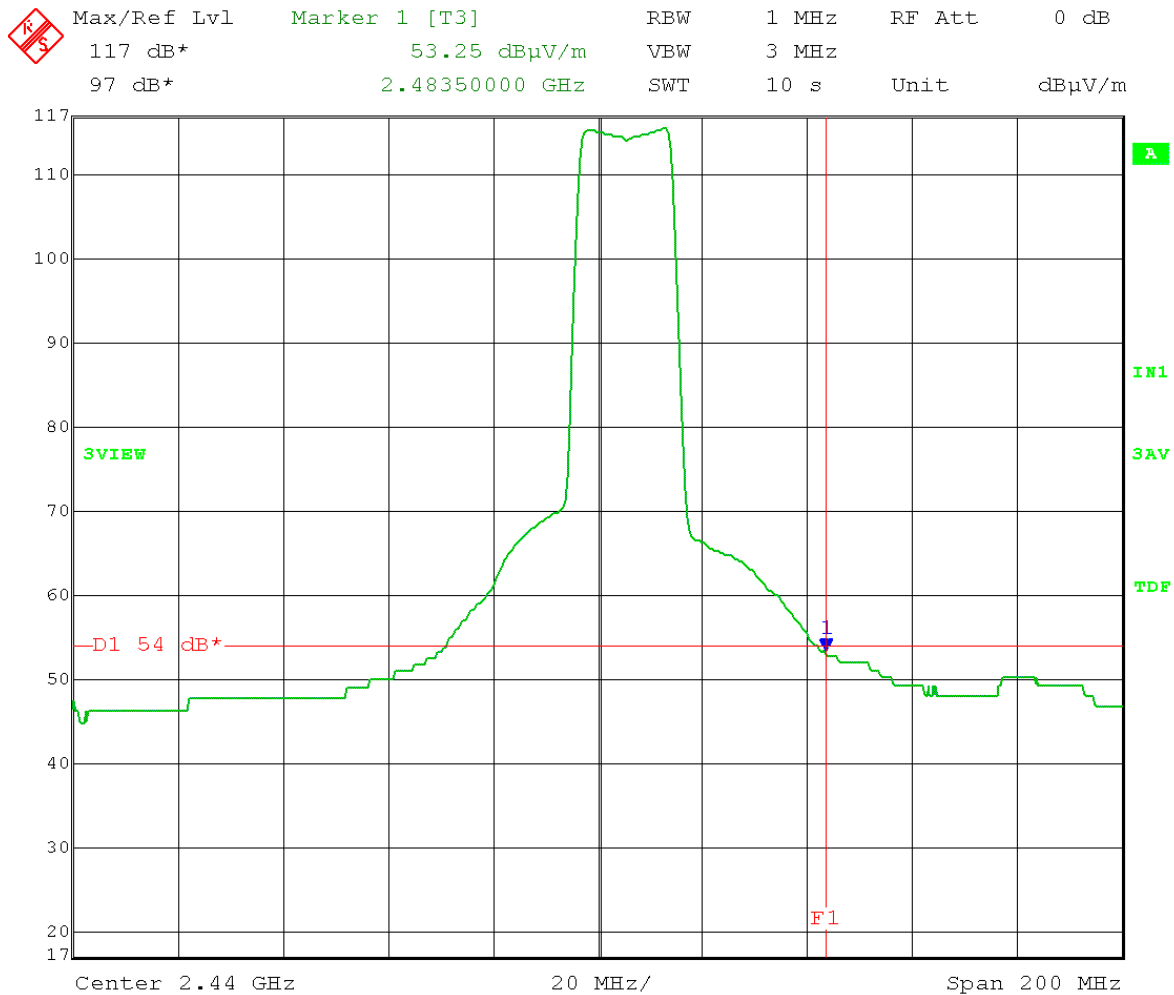
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.450GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 17



Date: 9.MAY.2013 12:35:53

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

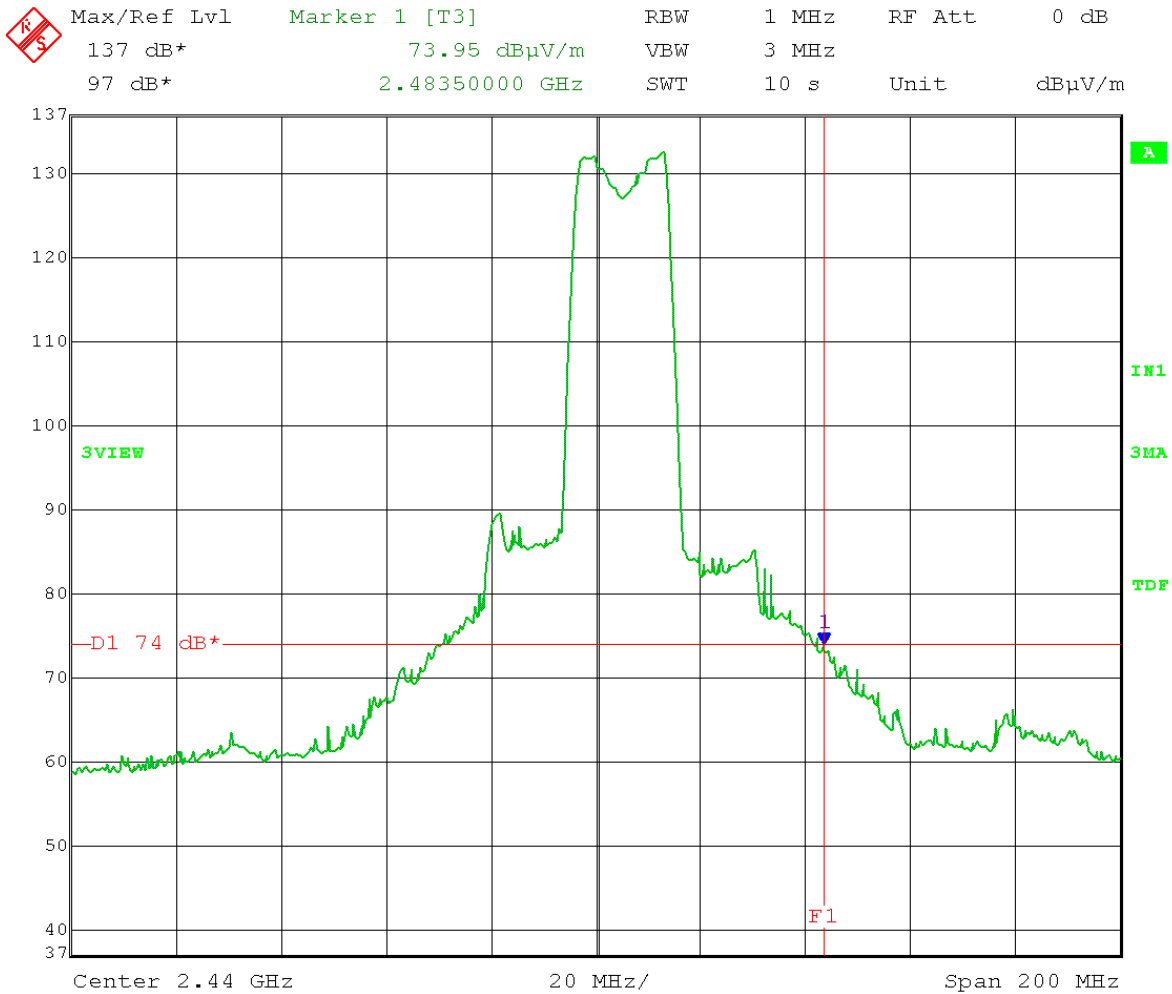
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.445GHz
 20MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 19



Date: 9.MAY.2013 14:07:07

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

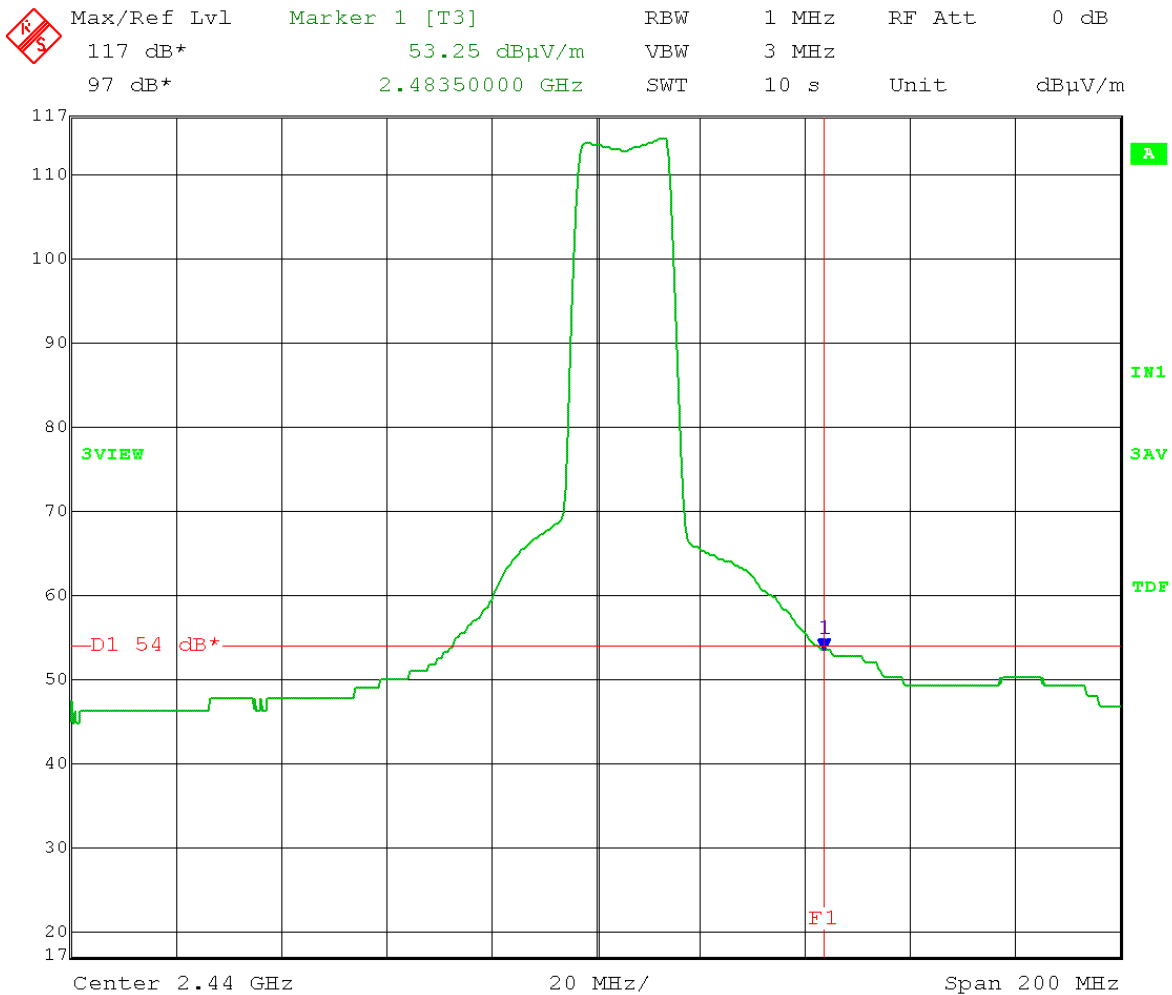
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.445GHz
 10MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 19



Date: 9.MAY.2013 14:00:49

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

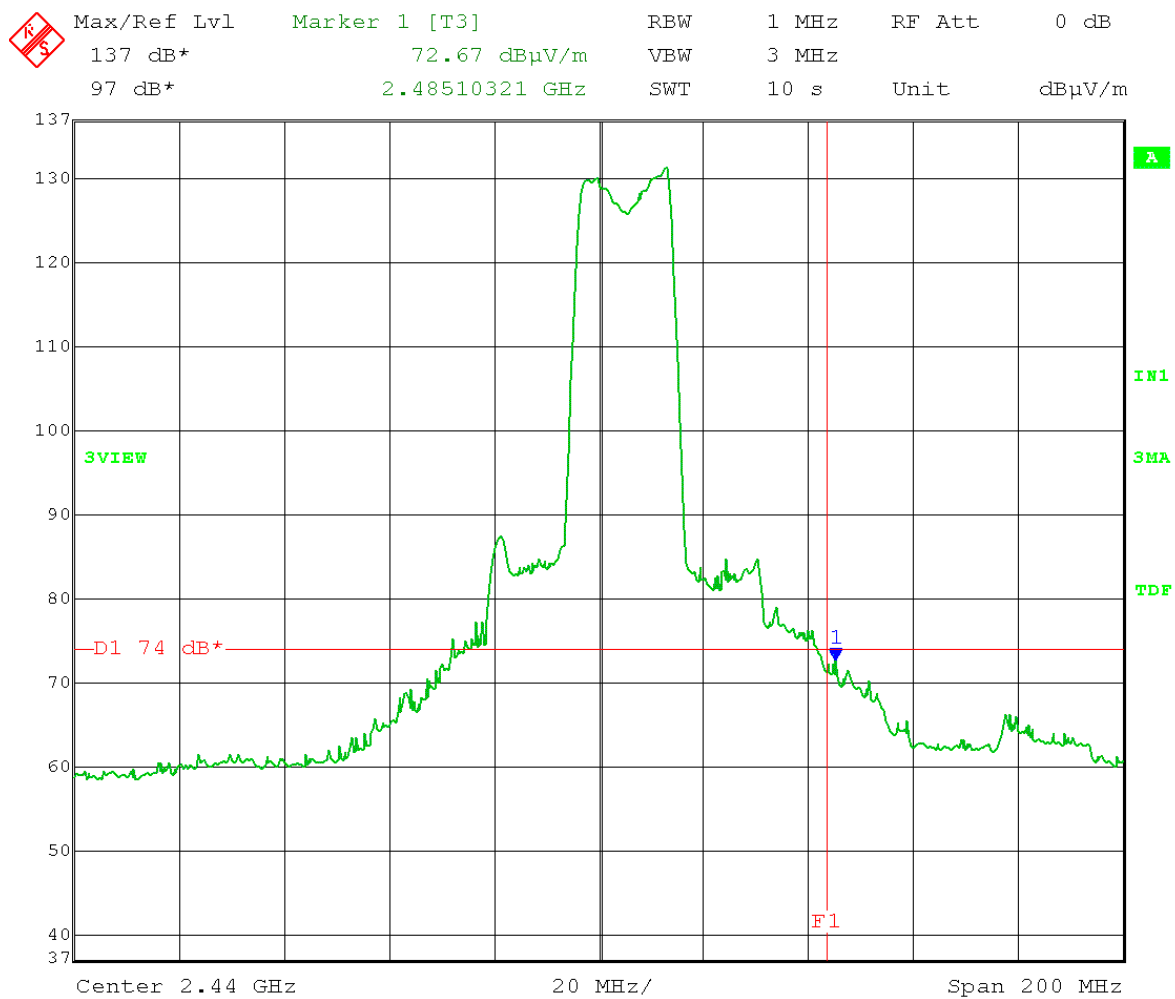
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.445GHz
 20MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 19



Date: 9.MAY.2013 14:10:13

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Dish
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O

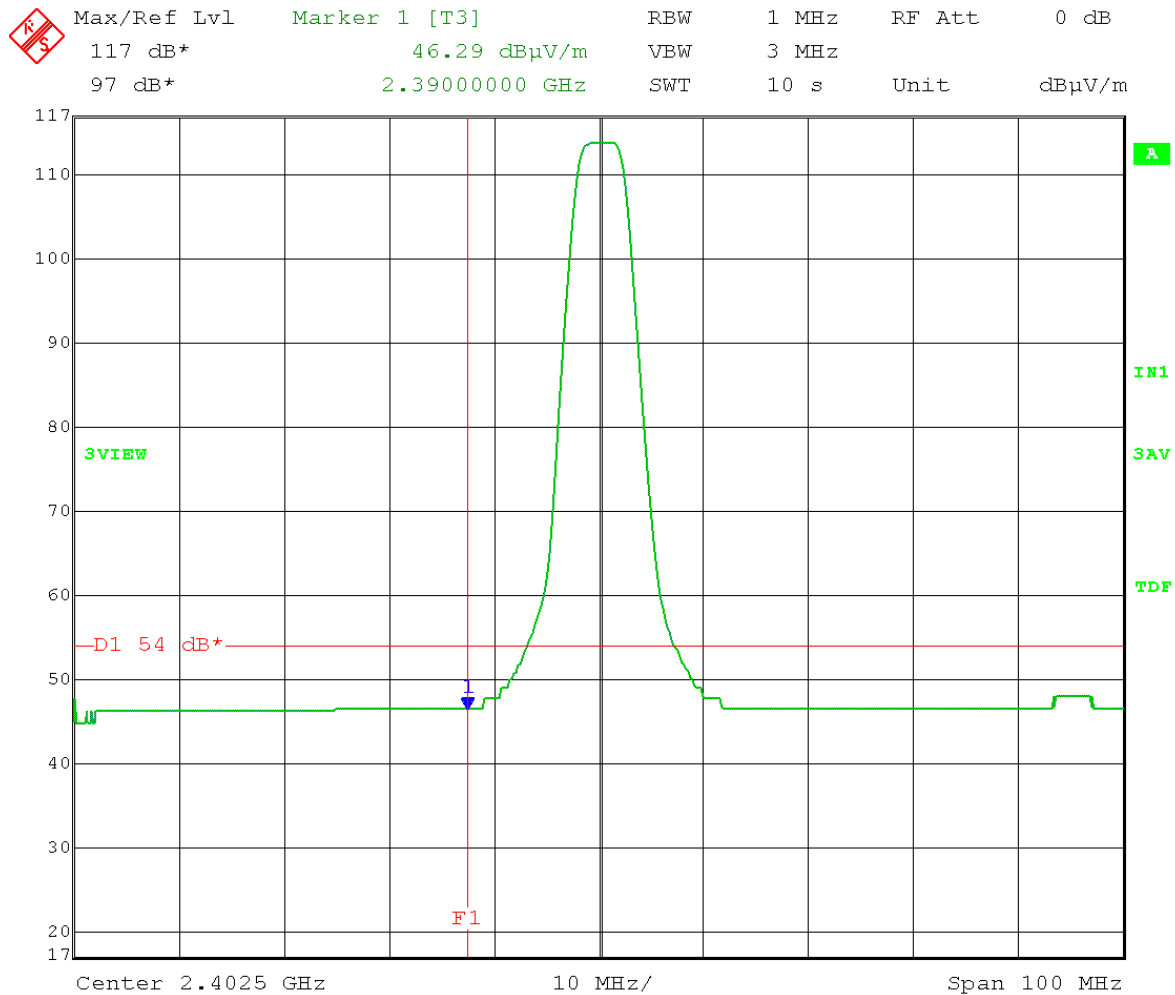
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.445GHz
 20MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 19



Date: 9.MAY.2013 14:12:02

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

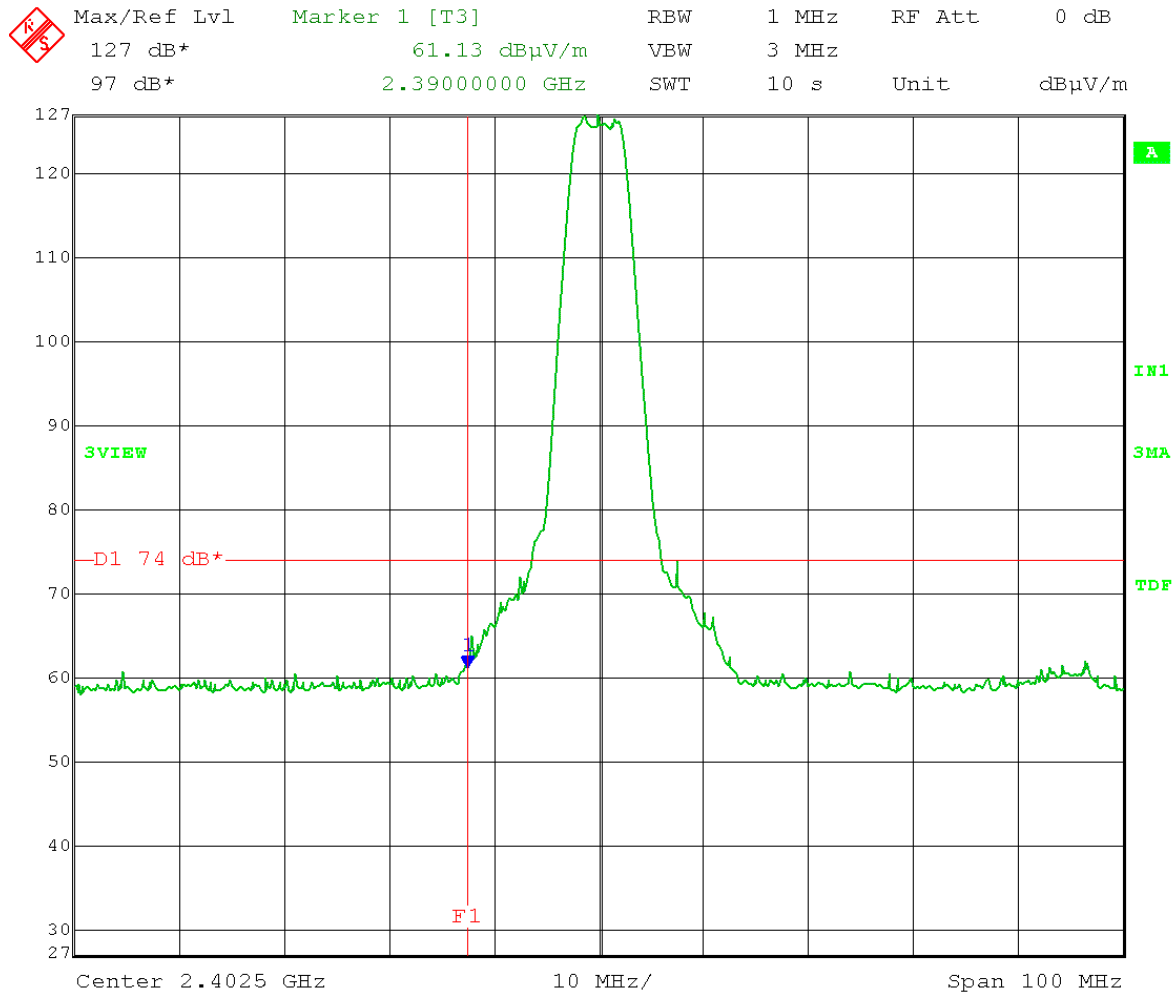
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.4025 GHz
 5 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 19
 Both ch A and B active



Date: 9.MAY.2013 16:13:56

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

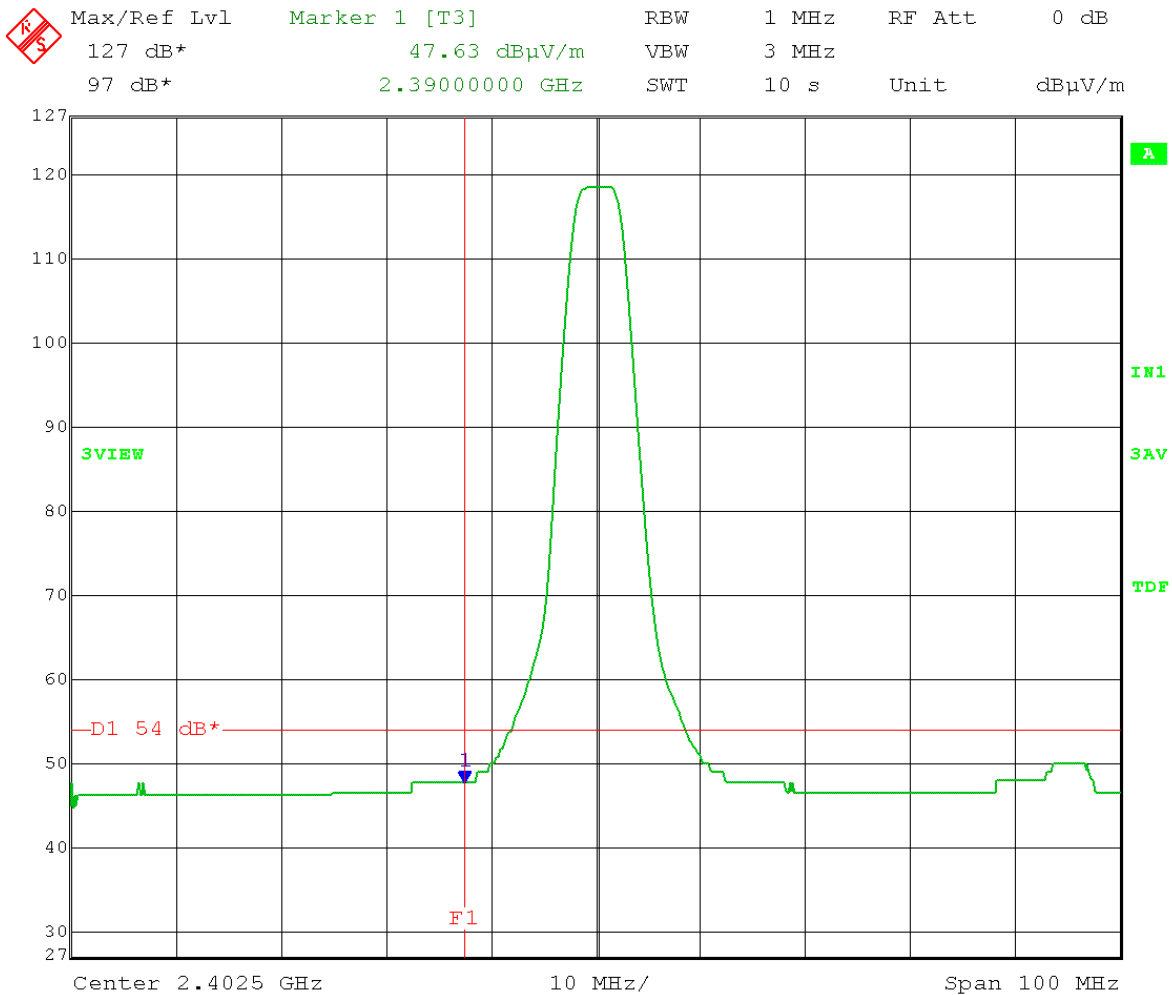
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.4025 GHz
 5 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 19
 Both ch A and B active



Date: 9.MAY.2013 16:12:27

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B


Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.4025 GHz
 5 MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.390 GHz
 Average Limit (**D1**) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 19
 Both ch A and B active

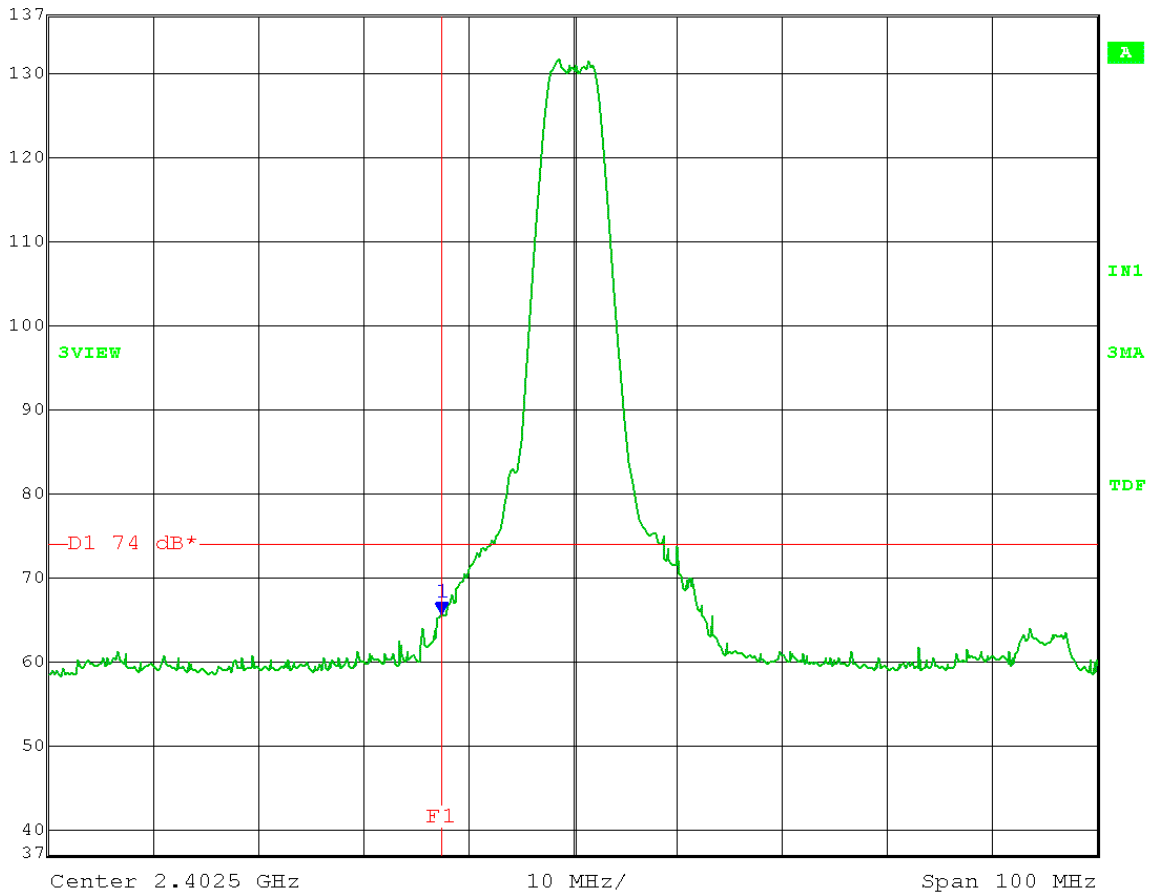


Date: 9.MAY.2013 16:06:27

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.4025 GHz
 5 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 19
 Both ch A and B active

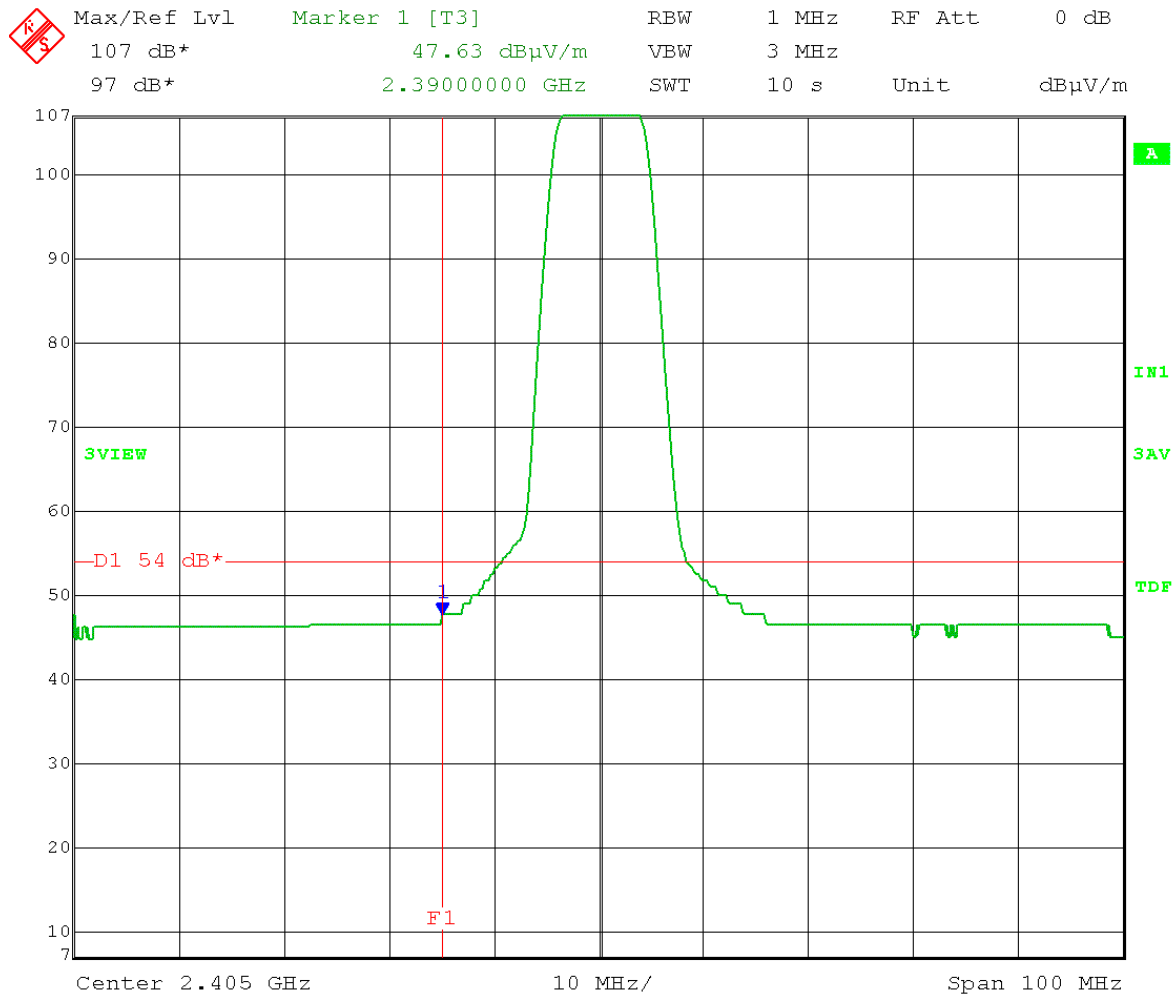
| | | | | | | |
|---|-------------|----------------|-----|-------|--------|--------|
|  | Max/Ref Lvl | Marker 1 [T3] | RBW | 1 MHz | RF Att | 0 dB |
| | 137 dB* | 65.74 dBuV/m | VBW | 3 MHz | | |
| | 97 dB* | 2.39000000 GHz | SWT | 10 s | Unit | dBuV/m |



Date: 9.MAY.2013 16:08:12

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

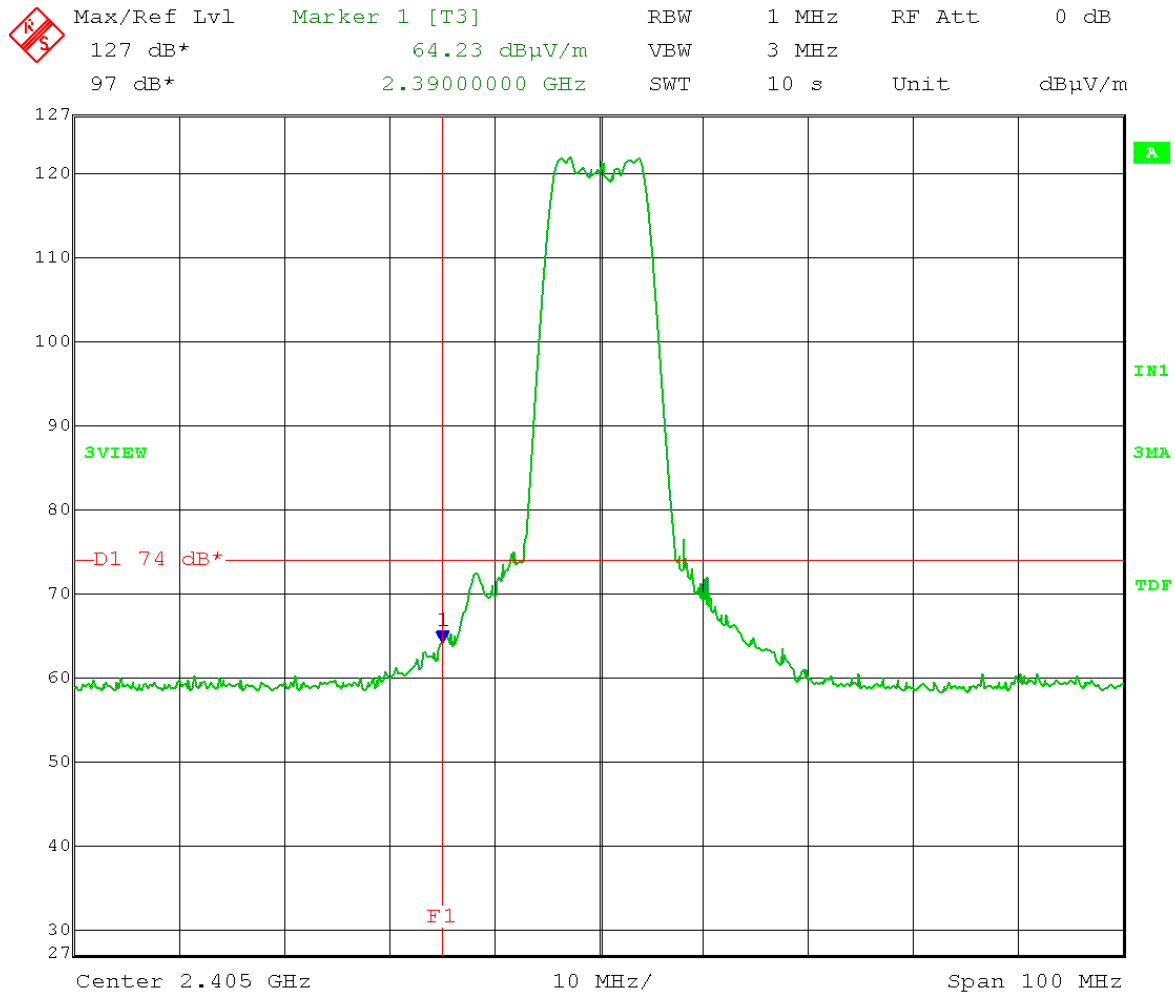
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Polarization = Horizontal
 Low Channel Transmit = 2.405 GHz Output power setting: 19
 10 MHz BW Both ch A and B active
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Average Limit (D1) = 54dBuV/m



Date: 9.MAY.2013 16:44:34

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

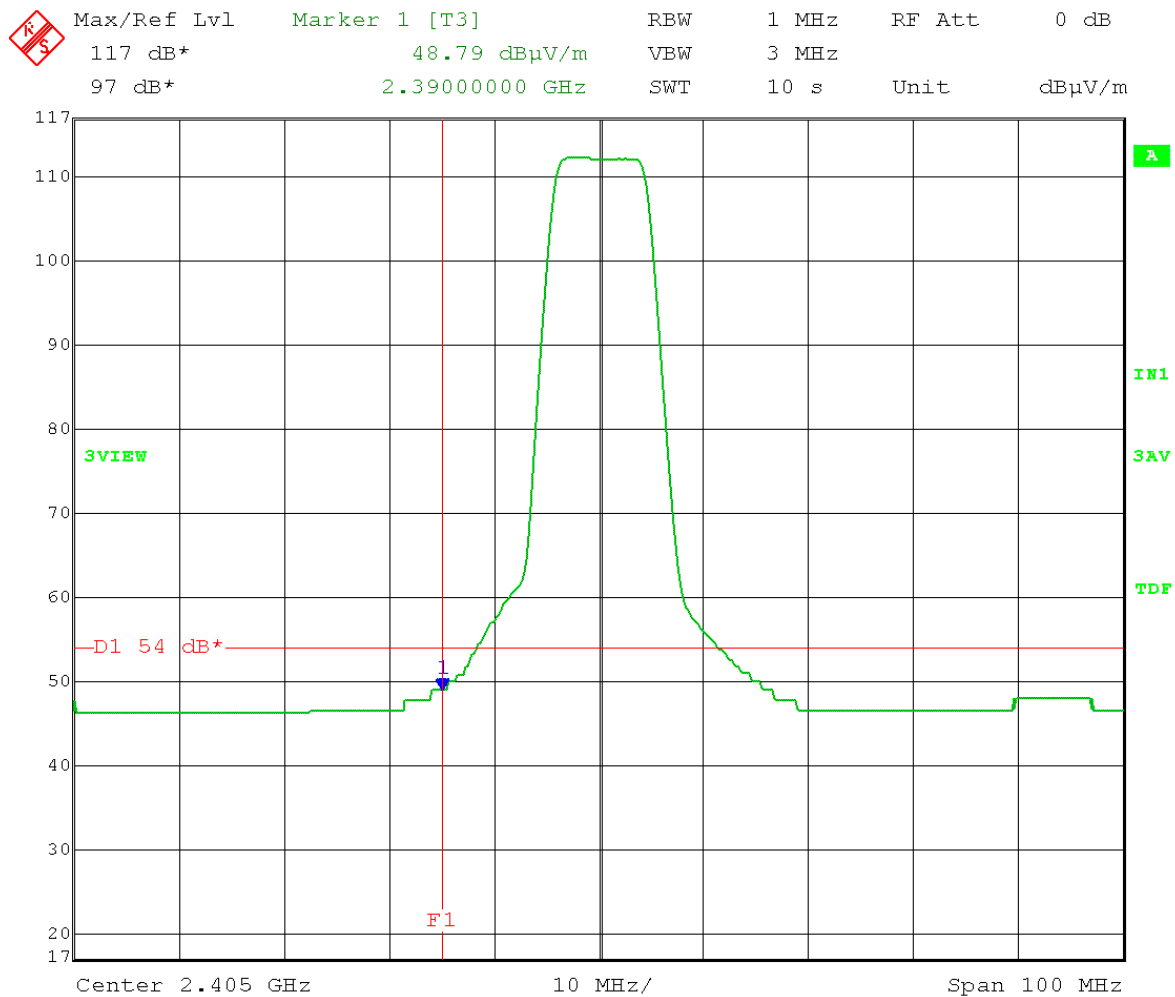
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Polarization = Horizontal
 Low Channel Transmit = 2.405 GHz Output power setting: 19
 10 MHz BW Both ch A and B active
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Peak Limit (D1) = 74dBuV/m



Date: 9.MAY.2013 16:43:08

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

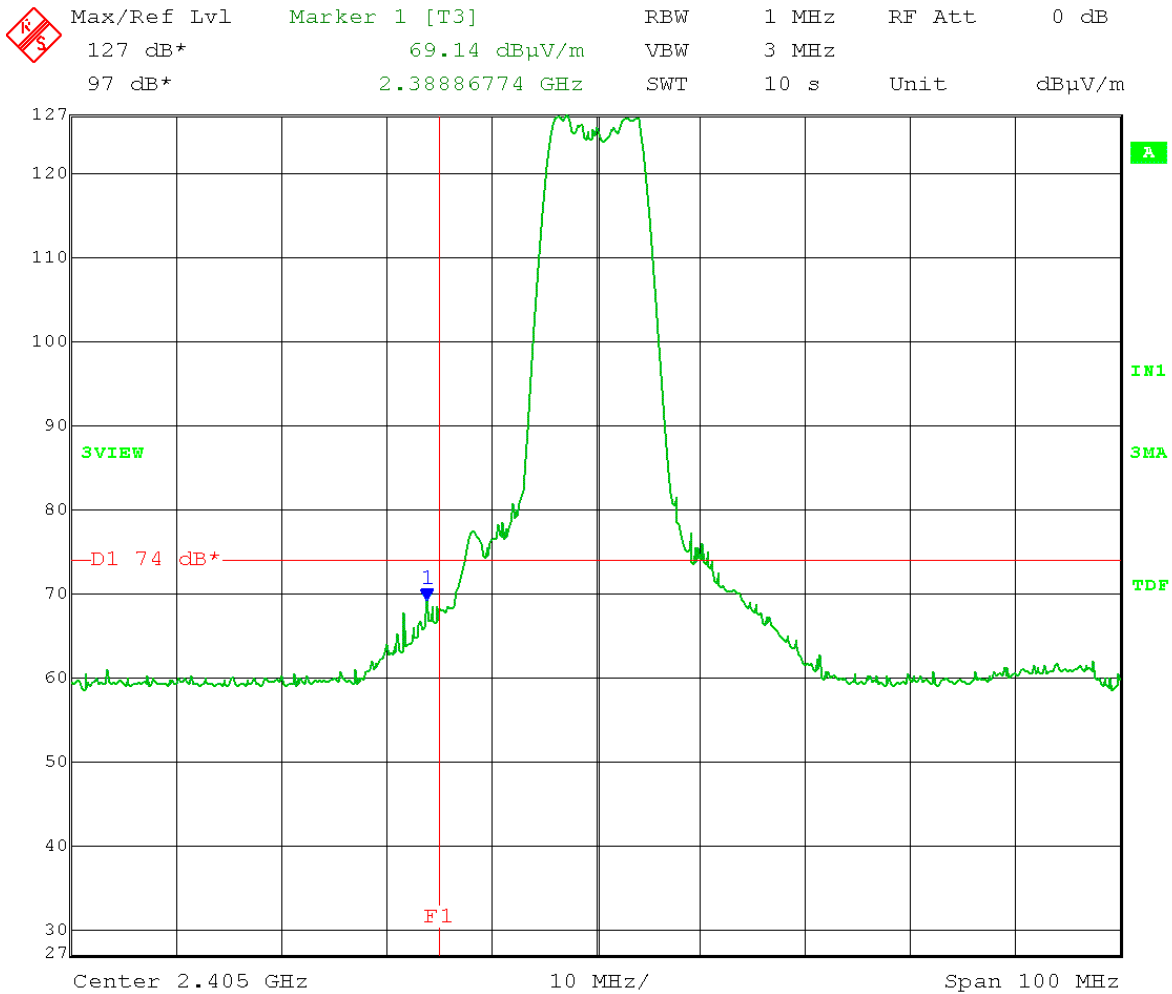
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Polarization = Vertical
 Low Channel Transmit = 2.405 GHz Output power setting: 19
 10 MHz BW Both ch A and B active
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Average Limit (D1) = 54dBuV/m



Date: 9.MAY.2013 16:35:23

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

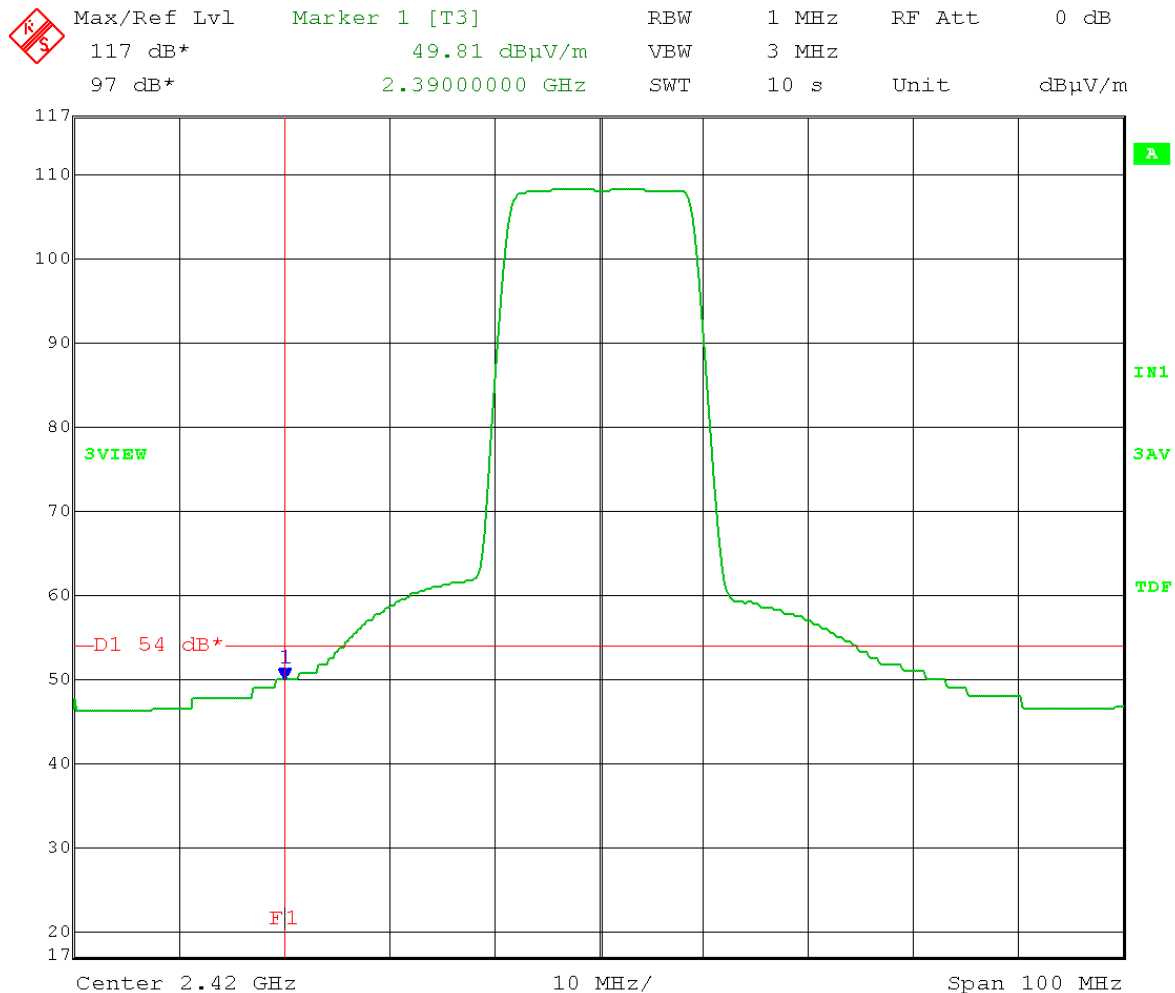
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Polarization = Vertical
 Low Channel Transmit = 2.405 GHz Output power setting: 19
 10 MHz BW Both ch A and B active
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Peak Limit (D1) = 74dBuV/m



Date: 9.MAY.2013 16:37:02

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

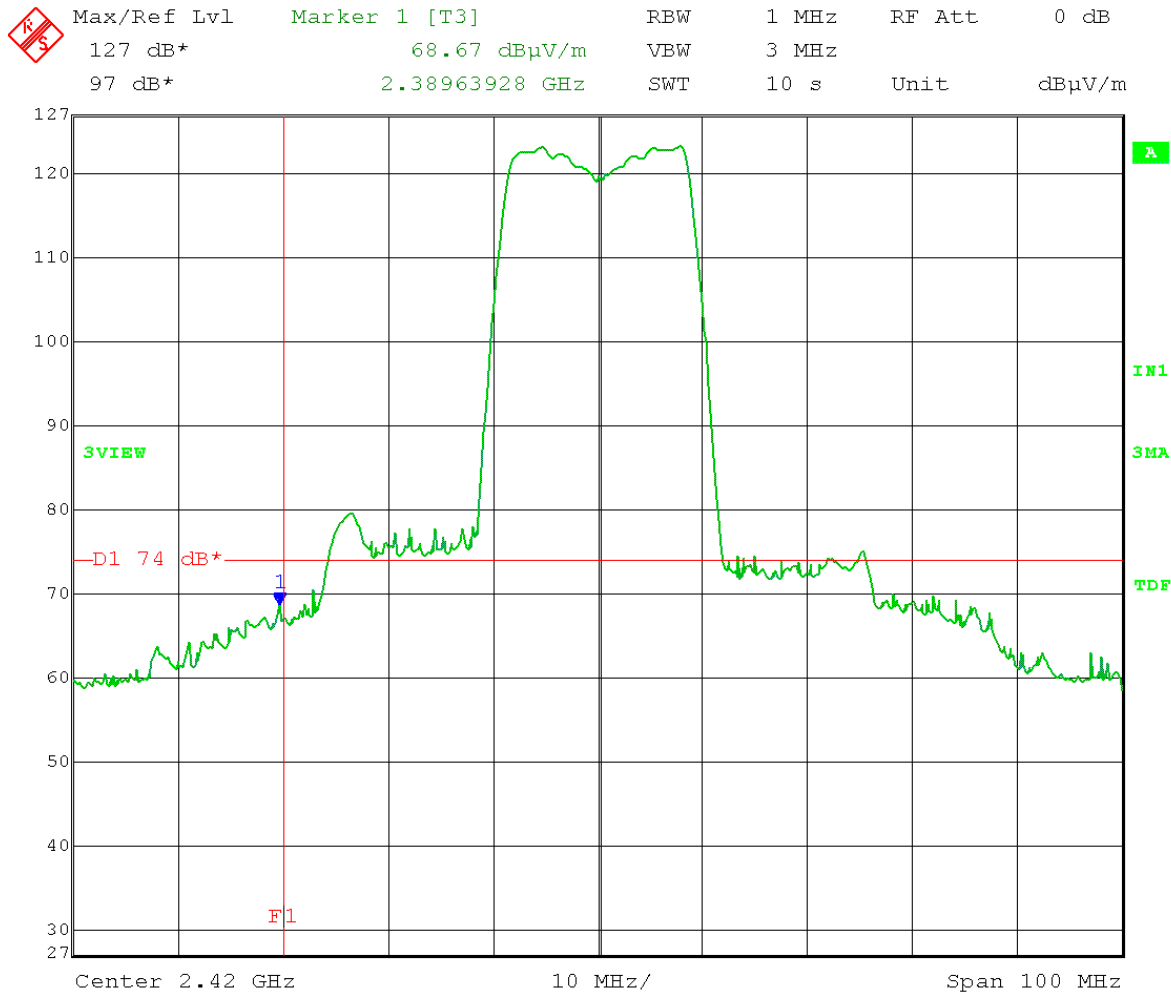
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.420 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 19
 Both ch A and B active



Date: 9.MAY.2013 15:37:39

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

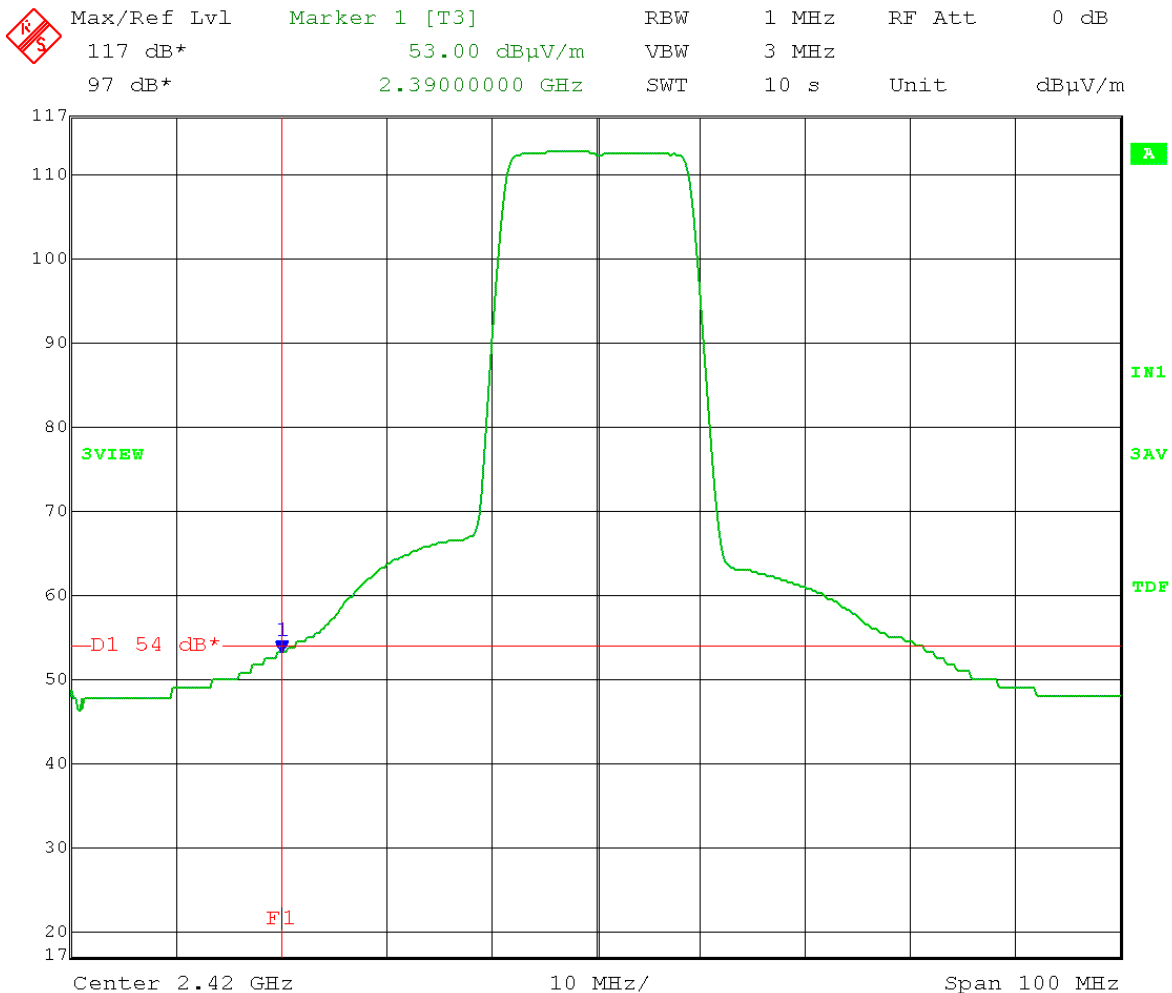
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.420 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 19
 Both ch A and B active



Date: 9.MAY.2013 15:39:04

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

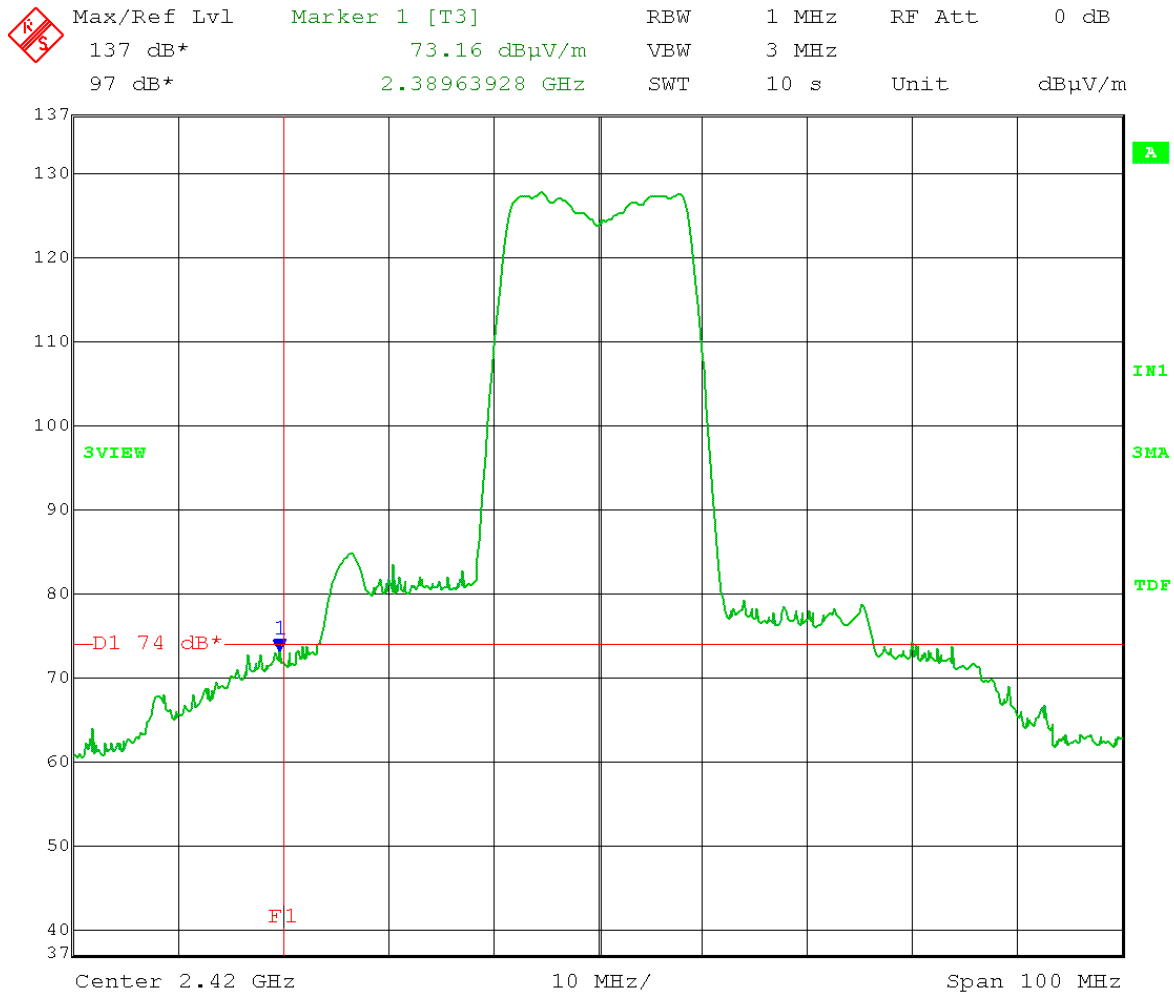
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 Low Channel Transmit = 2.420 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 19
 Both ch A and B active



Date: 9.MAY.2013 15:32:19

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

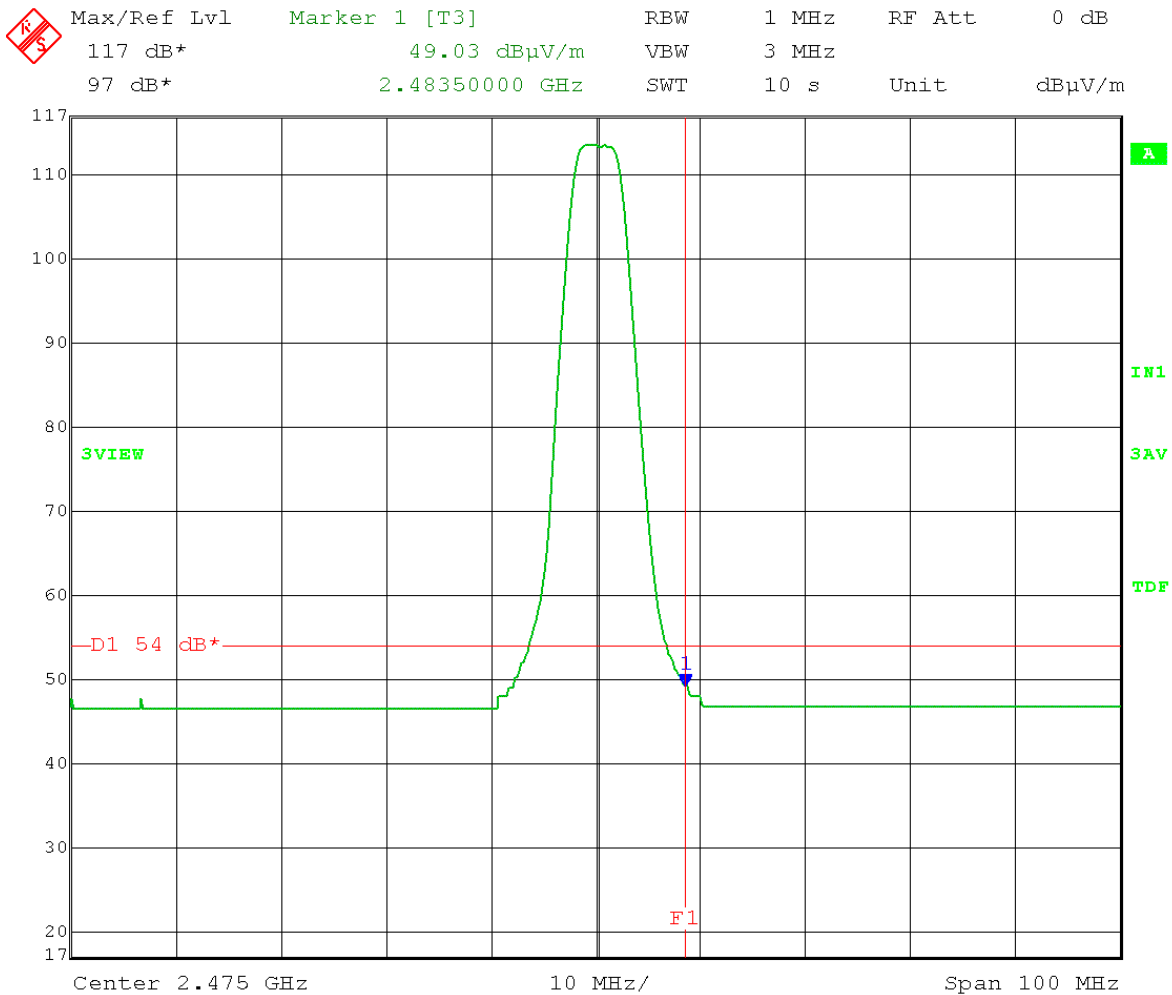
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 Low Channel Transmit = 2.420 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.390 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 19
 Both ch A and B active



Date: 9.MAY.2013 15:30:41

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

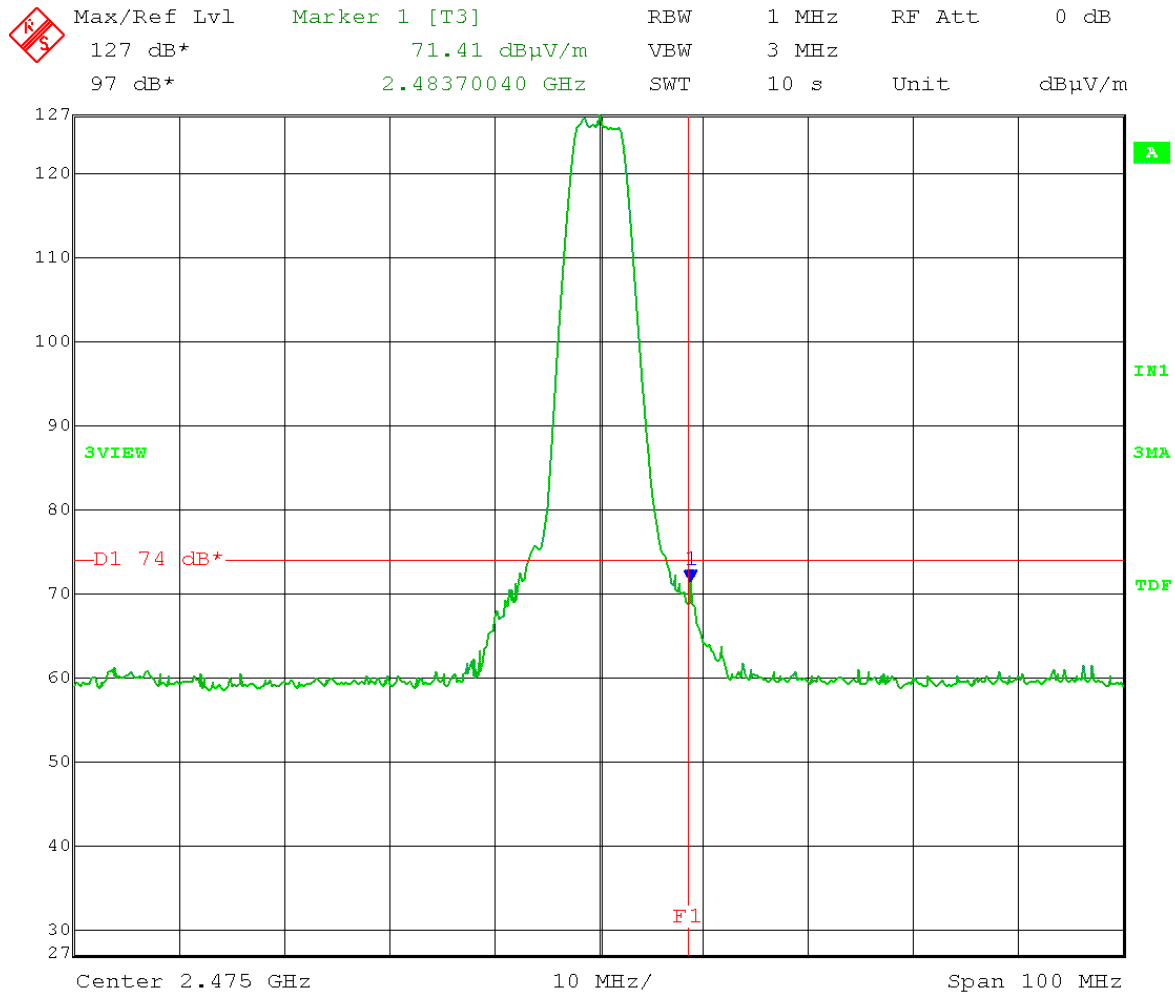
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.475 GHz
 5 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 17
 Both ch A and B active



Date: 9.MAY.2013 15:54:47

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

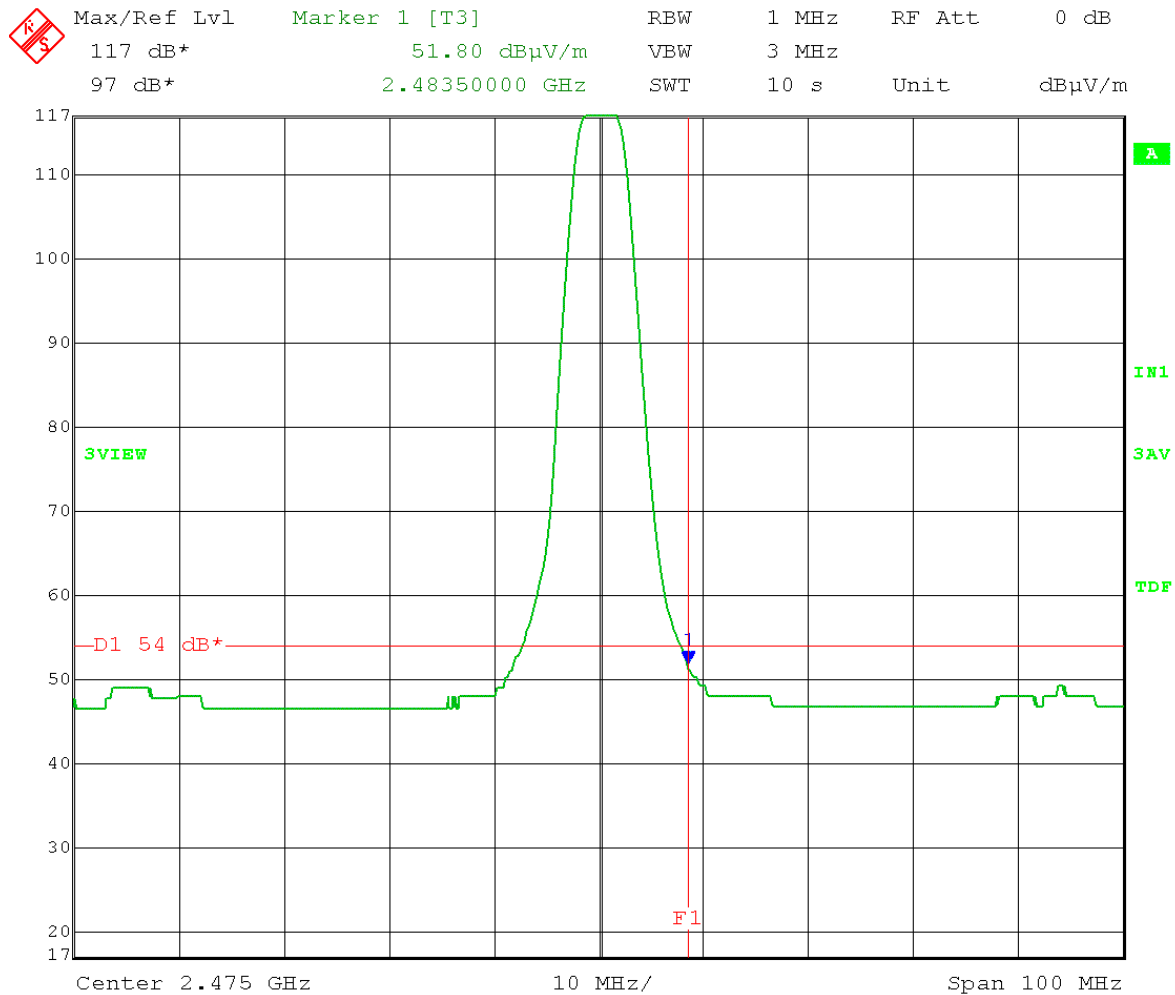
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.475 GHz
 5 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 17
 Both ch A and B active



Date: 9.MAY.2013 15:56:17

Test Date: 05-09-2013
Company: Cambium Networks
EUT: PMP450SM (2.4 GHz: OFDM) with Panel
Test: Band-Edge Measurements - Radiated
Operator: Jim O / Craig B


Comment: RBW = 1MHz
VBW \geq 3MHz
Detector = Average
Trace = Max Hold
High Channel Transmit = 2.475 GHz
5 MHz BW
Restricted Band-Edge Frequency (F1) = 2.4835 GHz
Average Limit (D1) = 54dBuV/m
Polarization = Vertical
Output power setting: 17
Both ch A and B active

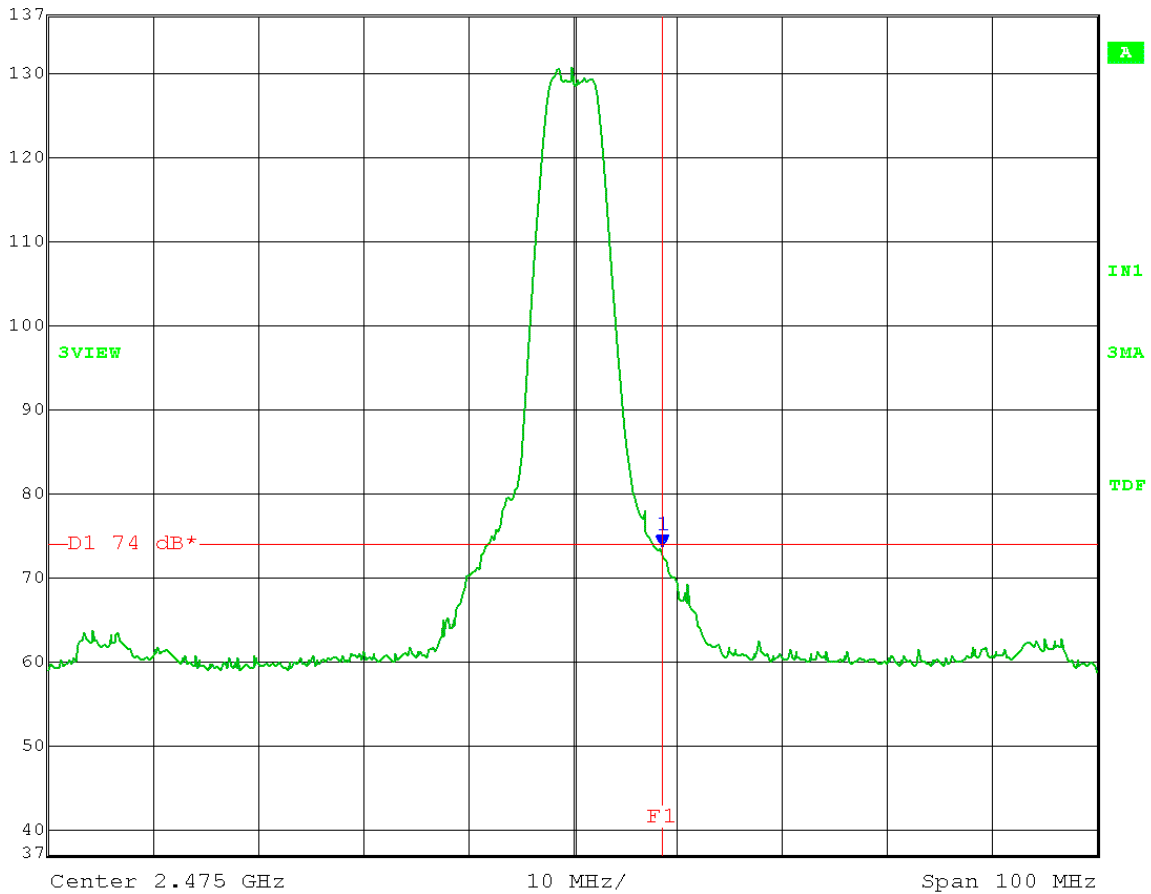


Date: 9.MAY.2013 15:50:18

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.475 GHz
 5 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 17
 Both ch A and B active

| | | | | | | |
|---|-------------|----------------|-----|-------|--------|--------|
|  | Max/Ref Lvl | Marker 1 [T3] | RBW | 1 MHz | RF Att | 0 dB |
| | 137 dB* | 73.53 dBuV/m | VBW | 3 MHz | | |
| | 97 dB* | 2.48350000 GHz | SWT | 10 s | Unit | dBuV/m |

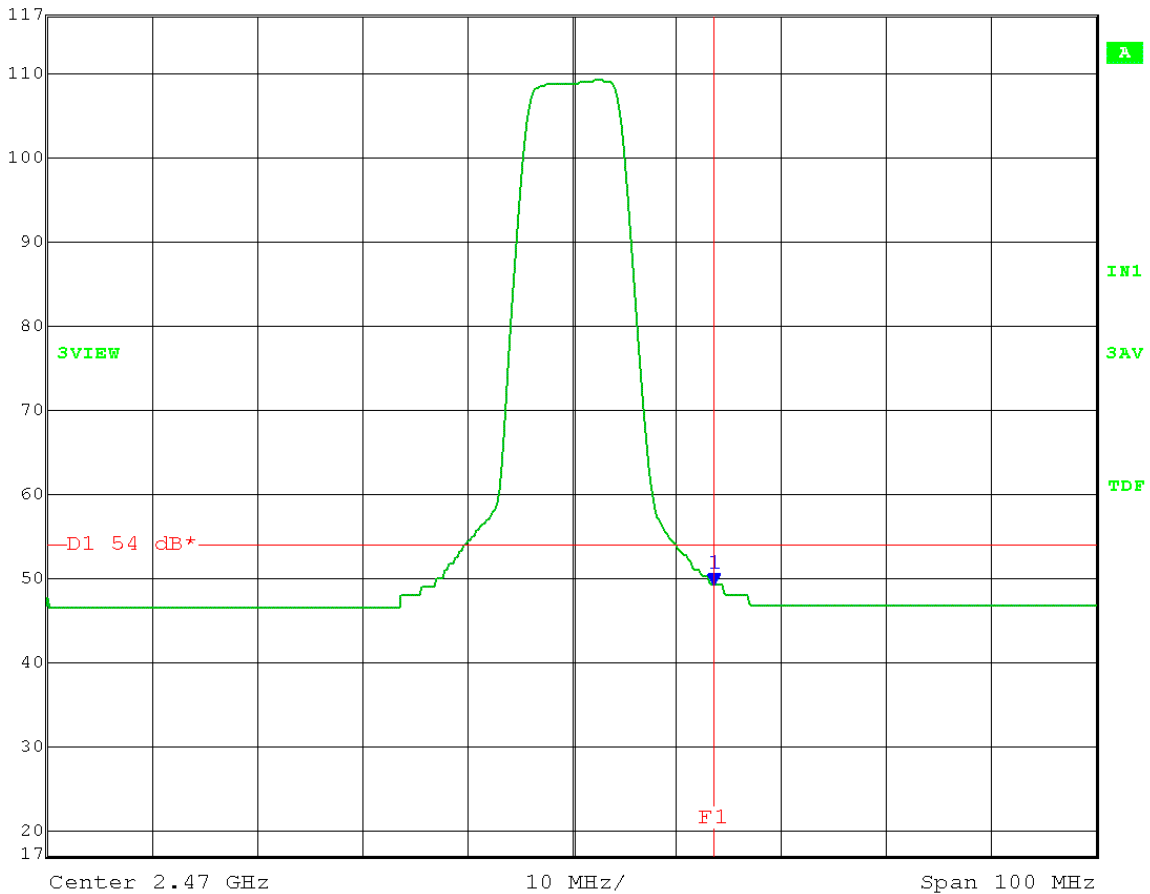


Date: 9.MAY.2013 15:48:43

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.470 GHz
 10 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 16
 Both ch A and B active

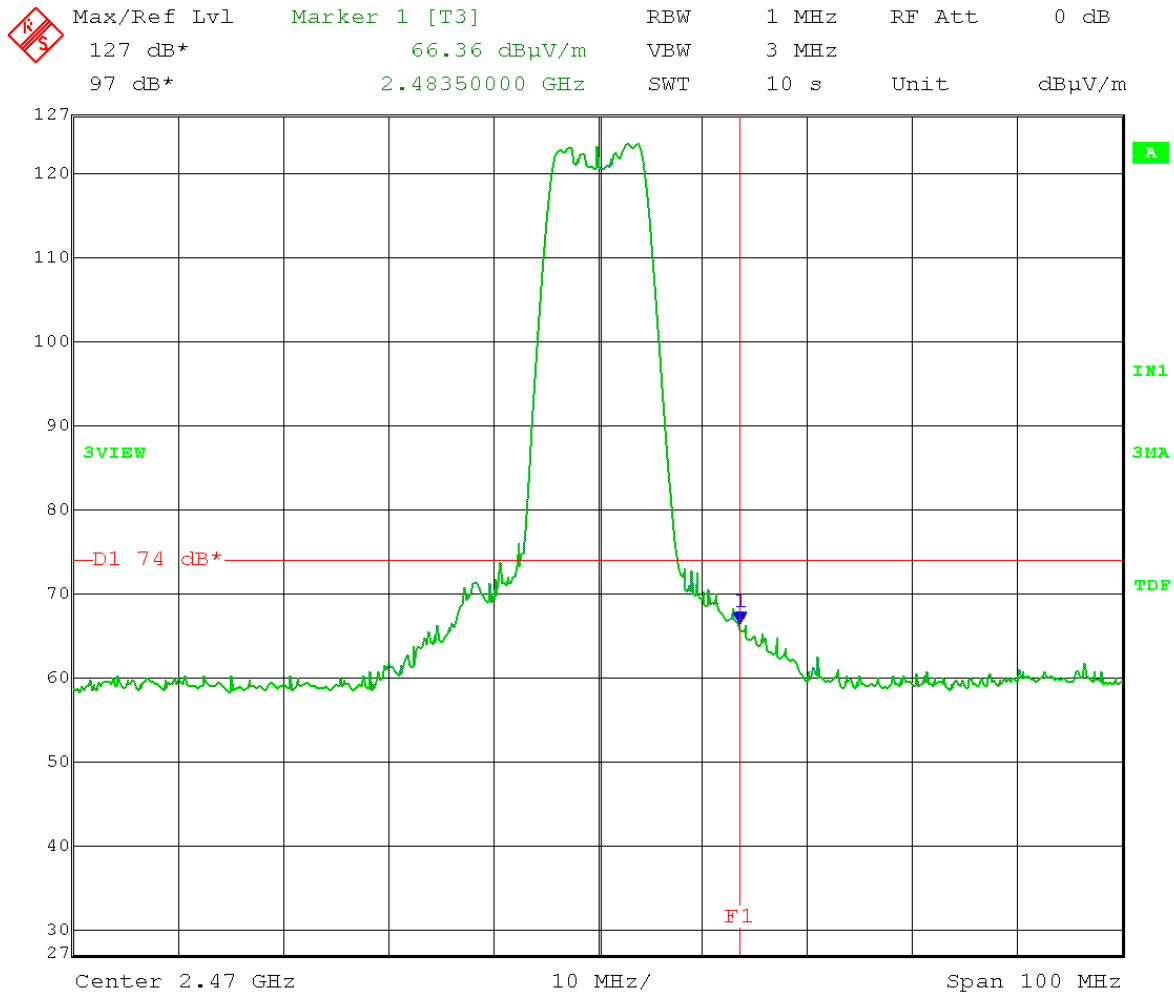
| | | | | | | |
|--|-------------|----------------|-----|-------|--------|--------|
| | Max/Ref Lvl | Marker 1 [T3] | RBW | 1 MHz | RF Att | 0 dB |
| | 117 dB* | 49.03 dBuV/m | VBW | 3 MHz | | |
| | 97 dB* | 2.48350000 GHz | SWT | 10 s | Unit | dBuV/m |



Date: 9.MAY.2013 16:29:47

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

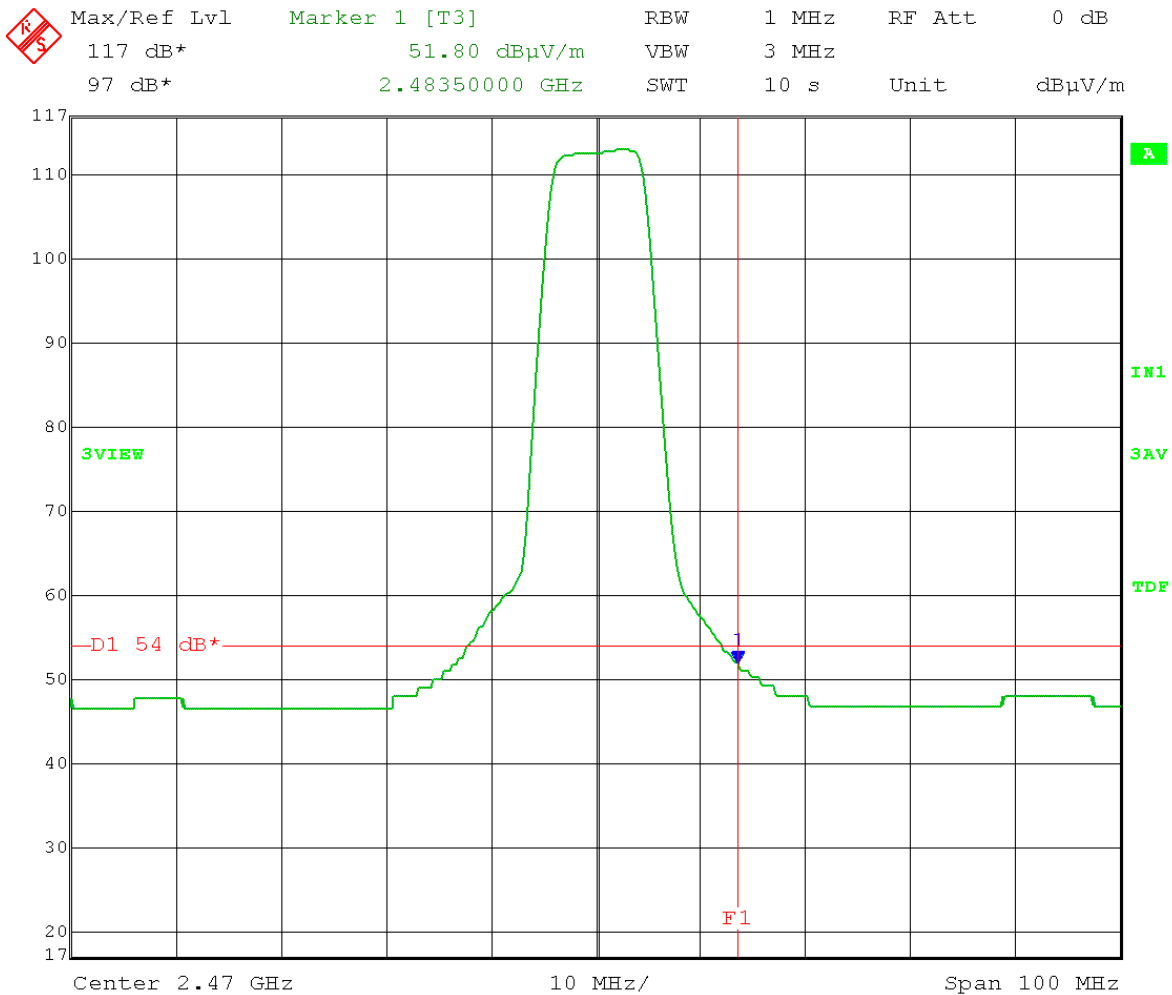
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.470 GHz
 10 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 16
 Both ch A and B active



Date: 9.MAY.2013 16:28:17

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

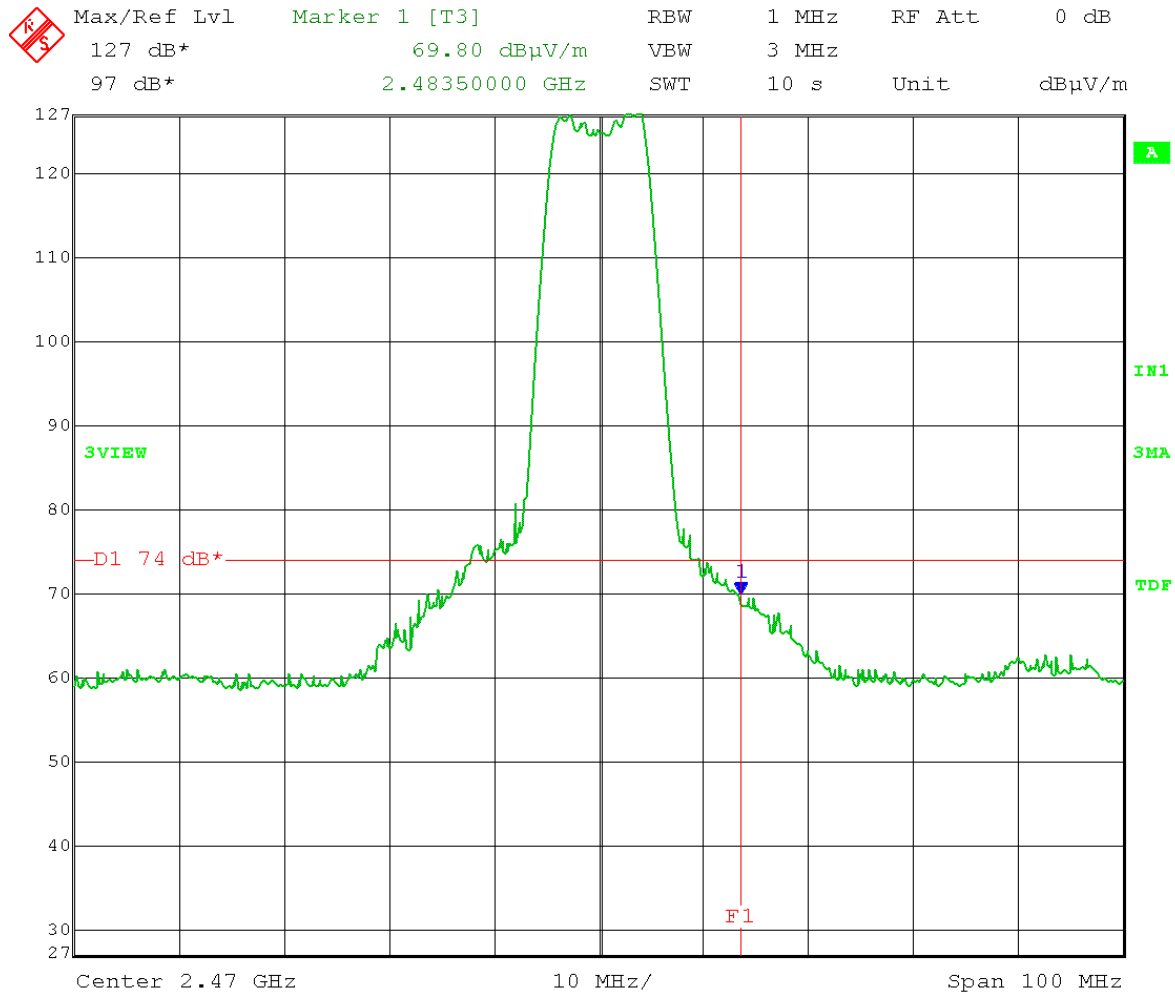
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.470 GHz
 10 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 16
 Both ch A and B active



Date: 9.MAY.2013 16:22:09

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

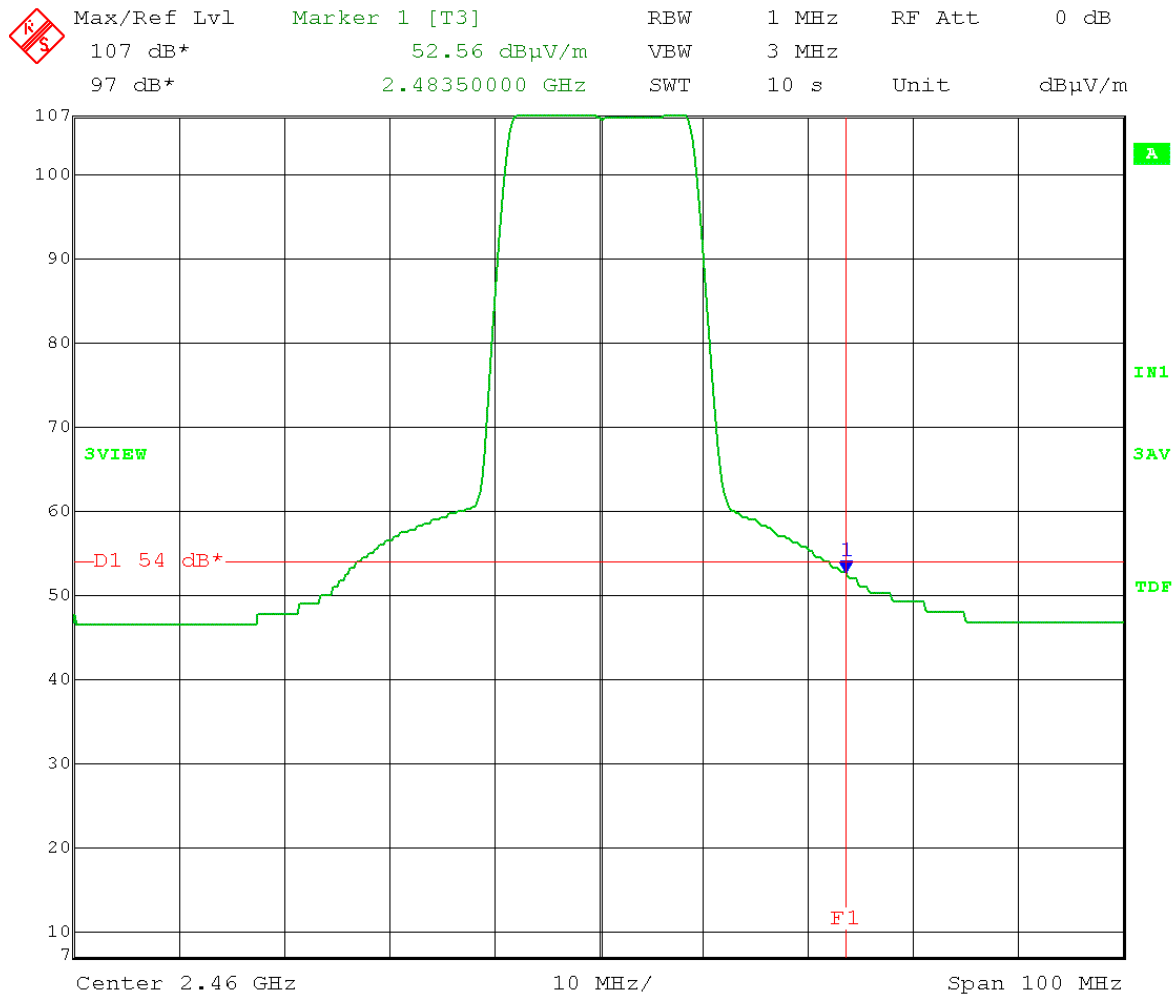
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.470 GHz
 10 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 16
 Both ch A and B active



Date: 9.MAY.2013 16:23:45

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

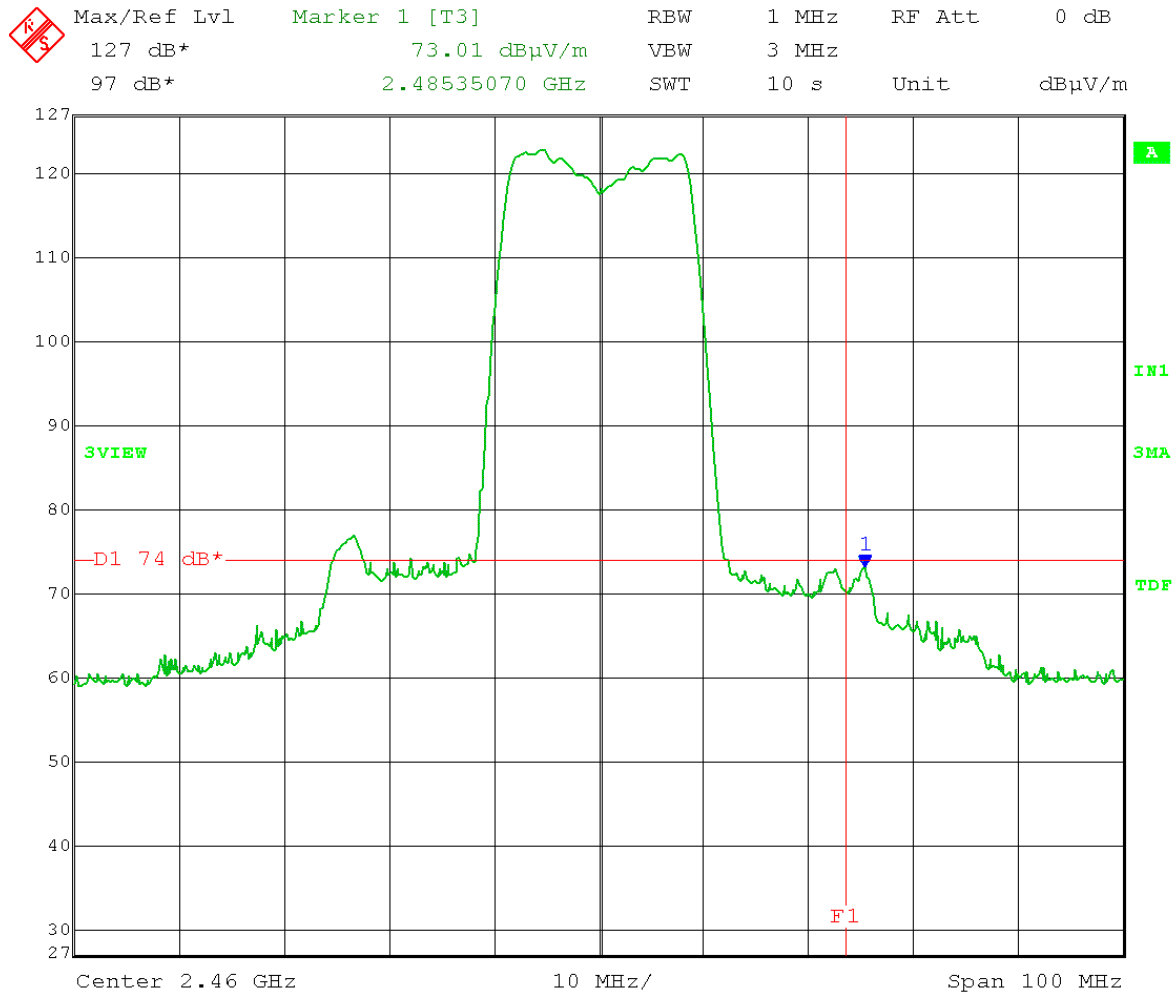
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.460 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Average Limit (D1) = 54dBuV/m
 Polarization = Horizontal
 Output power setting: 17
 Both ch A and B active



Date: 9.MAY.2013 15:10:14

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

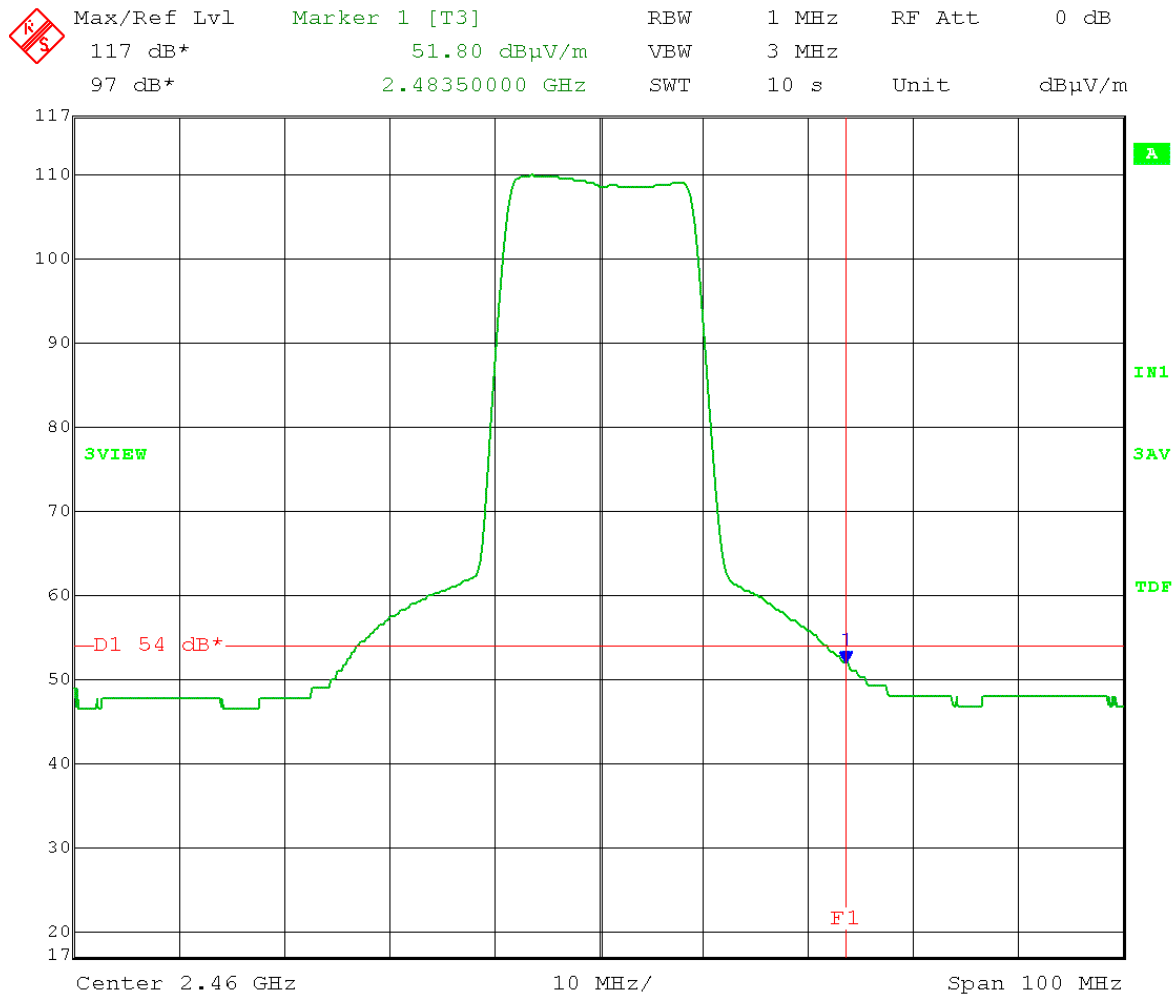
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.460 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Horizontal
 Output power setting: 17
 Both ch A and B active



Date: 9.MAY.2013 15:11:56

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

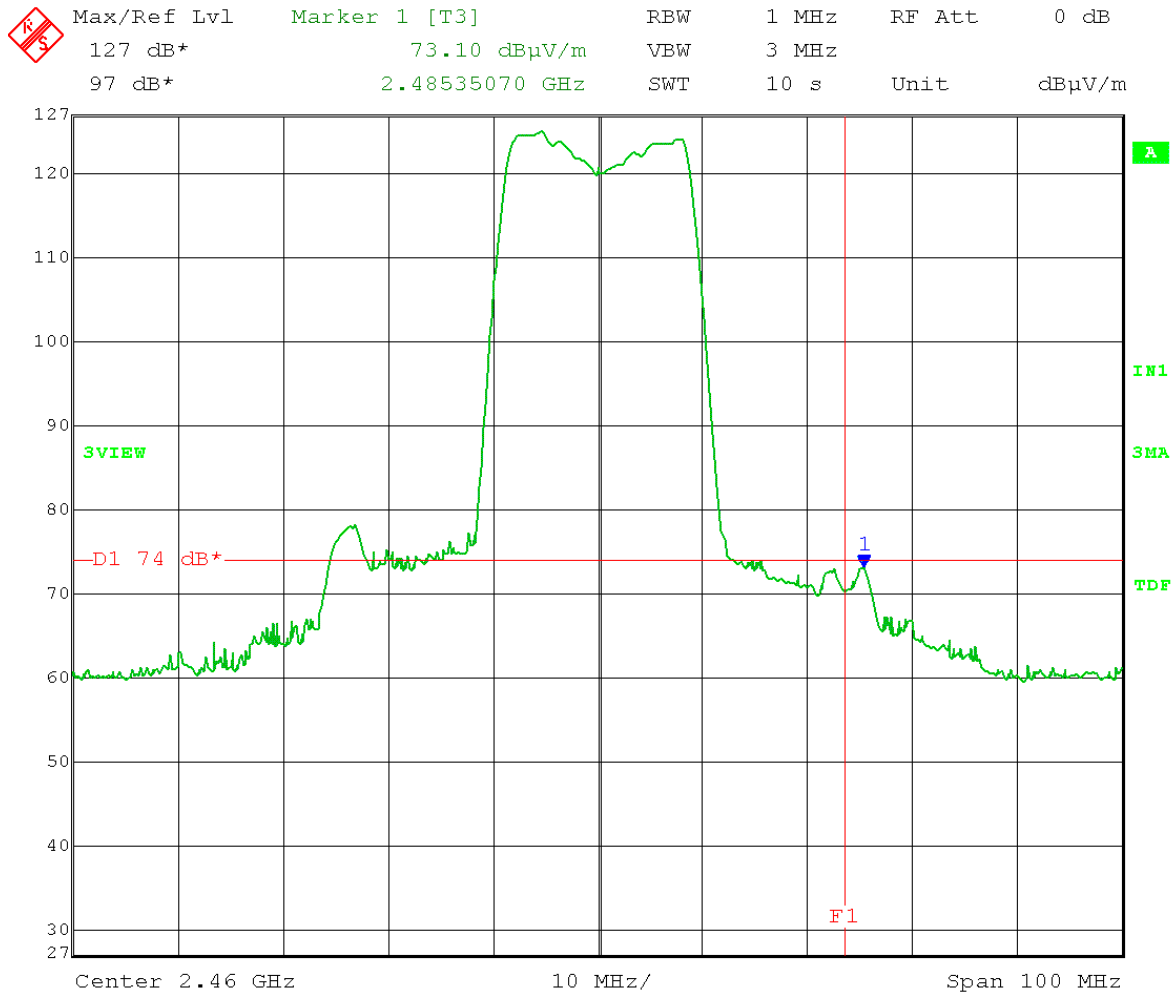
Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Average
 Trace = Max Hold
 High Channel Transmit = 2.460 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (**F1**) = 2.4835 GHz
 Average Limit (**D1**) = 54dBuV/m
 Polarization = Vertical
 Output power setting: 15
 Both ch A and B active



Date: 9.MAY.2013 15:20:46

Test Date: 05-09-2013
 Company: Cambium Networks
 EUT: PMP450SM (2.4 GHz: OFDM) with Panel
 Test: Band-Edge Measurements - Radiated
 Operator: Jim O / Craig B

Comment: RBW = 1MHz
 VBW \geq 3MHz
 Detector = Peak
 Trace = Max Hold
 High Channel Transmit = 2.460 GHz
 20 MHz BW
 Restricted Band-Edge Frequency (F1) = 2.4835 GHz
 Peak Limit (D1) = 74dBuV/m
 Polarization = Vertical
 Output power setting: 15
 Both ch A and B active



Date: 9.MAY.2013 15:19:15



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Report Number:

Cambium Networks
C024045C004A & C024045C008A
19014

END OF REPORT

| Revision # | Date | Comments | By |
|------------|------------|---------------------|----|
| 1.0 | 05-20-2013 | Preliminary Release | JS |
| 1.1 | 05-22-2013 | Page 7 edits | JS |
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