166 South Carter, Genoa City, WI 53128

Company:	Cambium Networks
Model Tested:	C054045A001A
Report Number:	22500
DLS Project:	8665

Code of Federal Regulations 47 Part 15 – Radio Frequency Devices

Subpart E – Unlicensed National Information Infrastructure Devices
Section 15.407
General Technical Requirements.

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION
FOR A **CLASS III** PERMISSIVE CHANGE
(to add 40 MHz channel bandwidth to the 5.2 and 5.4 GHz bands)
(DFS not tested by DLS Electronic Systems Inc.)

FCC ID: QWP-50450I

Formal Name:	5 GHz PMP450i
Kind of Equipment:	Point-to-Point or Point-to-Multipoint Digital Transmission Transceiver
Frequency Range:	5275 to 5325 MHz 5495 to 5700 MHz
Test Configuration:	Stand-alone
Model Number:	C054045A001A
Model(s) Tested:	C054045A001A
Serial Number(s):	F50980BB011B
Date of Tests:	January 18-23, 2017
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.

166 South Carter, Genoa City, WI 53128

Company:	Cambium Networks
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SIGNATURE PAGE

Report By:

Craig Brandt
Test Engineer

Reviewed By:

William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

166 South Carter, Genoa City, WI 53128

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

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

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

Electromagnetic Compatibility & Telecommunications

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

2016-08-16 through 2017-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC COMPATIBILITY & TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

Emissions

Designation	***Description***
Off-site test location	D.L.S. Electronics performs radiated emissions testing at an additional location, 166 South Carter Street, Genoa City, WI 53128.

1.0 Summary of Test Report

It was determined that the Cambium Networks 5GHz PMP450i, Model C054045A001A, complies with the requirements of CFR 47 Part 15 Subpart E Section 15.407. The purpose of this test was to show FCC compliance of the 5GHz PMP450i, pursuant to a Class III Permissive Change to FCC ID: QWP-50450I. This report is being generated to show compliance of a 40 MHz channel bandwidth being added to the software package of the device. The data demonstrating FCC compliance of the 5, 10, and 20 MHz channel bandwidth functions of the radio is found in UL VS LTD. Test Report No. UL-RPT-RP10655468JD03A V2.0.

NOTE: AC line conducted emissions were reported to the FCC in UL VS LTD. Test Report No. UL-RPT-RP10655468JD03A V2.0.

Radiated emission in the frequency range 30 MHz to 1000 MHz were reported to the FCC in UL VS LTD. Test Report No. UL-RPT-RP10655468JD03A V2.0

Subpart E Section 15.407 Applicable Technical Requirements Tested:

Section	Description	Procedure	Note	Compliant?
Informative	Duty cycle of Test Unit – for RMS measurements	ANSI C63.10-2013 Section 12.2(b)(2)	1	NA
Informative	Emission Bandwidth – 26 dB bandwidth	ANSI C63.10-2013 Section 12.4.1	1	NA
15.407(a)(2)	Maximum Conducted Output Power	ANSI C63.10-2013 Section 12.3.3.1	1	Yes
15.407(a)(2)	Peak Power Spectral Density - Conducted	ANSI C63.10-2013 Section 12.5 - PPSD Section 12.3.2.4 SA-2	1	Yes
15.407(b)(2), 15.407(b)(3), 15.407(b)(5)	Unwanted Emission Levels – Band-Edge	ANSI C63.10 Section 12.7.3	1	Yes
15.407(b)(2), 15.407(b)(3), 15.407(b)(6), 15.407(b)(7)	Unwanted Emission Levels – RF Conducted	ANSI C63.10-2013 Section 12.7.2 Section 12.7.3	1	Yes
15.407(b)(2), 15.407(b)(3), 15.407(b)(7)	Unwanted Emission Levels – Radiated from cabinet	ANSI C63.10-2013 Section 6.6	2	Yes
15.407(h)(2)	Dynamic Frequency Selection (DFS)	Not tested by DLS		NA

Note 1: RF Conducted emission measurement.
Note 2: Radiated emission measurement.

2.0 Introduction

On January 18-23, 2017 the 5GHz PMP450i, Model C054045A001A, as provided from Cambium Networks, was tested to the requirements of CFR 47 Part 15 Subpart E Section 15.407 to be added to FCC ID: QWP-50450I as a Class III Permissive Change. Testing was performed to show compliance of a 40 MHz channel bandwidth in the 5.2 and 5.4 GHz frequency bands. 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

FCC Registration #90531

4.0 Description of Test Sample

Description:

Cambium Networks fixed outdoor frame based wireless 5.2 GHz & 5.4 GHz UNII transceiver with 17 dBi sector antenna. Tested with 40 MHz channel bandwidth.

Type of Equipment / Frequency Range:

Stand-Alone /	5275 to 5325 MHz (40 MHz bandwidth)	(in this report)
	5495 to 5700 MHz (40 MHz bandwidth)	(in this report)

4.0 Description of Test Sample (continued)

Physical Dimensions of Equipment Under Test:

Length: 10 in. Width: 5.25 in. Height: 3.5 in.

Power Source:

56 VDC (Power Over Ethernet to Radio)
120 Vac, 60 Hz using Cambium Networks model NET-P30-56IN power supply

Internal Frequencies:

55 kHz (Switching Power Supply Frequency)
80 MHz, 50 MHz, 40 MHz, 25 MHz, 20 MHz

Transmit / Receive Frequencies Used For Test Purpose:

5.2 GHz Band:	40 MHz Channel Bandwidth:	Low channel: 5275 MHz Middle channel: 5300 MHz High channel: 5320 MHz
5.4 GHz Band:	40 MHz Channel Bandwidth:	Low channel: 5495 MHz Middle channel: 5575 MHz High channel: 5700 MHz

Type of Modulation(s):

QPSK (worst case) used for testing, 16QAM, 64QAM, 256QAM

Description of Circuit Board(s) / Part Number:

Cambium Networks PC Board	P005539
2 x N Female Connectors	NA
17 dBi Sector Antenna	A005297

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	6-23-16	6-23-17
Preamp	Rohde & Schwarz	TS-PR10	032001/003	9kHz-1GHz	12-2-16	12-2-17
Preamp	Ciao	CA118-4010	101	1GHz-18GHz	1-9-17	1-9-18
Preamp	Planar	PTB-60-2040-5R0-10-115VAC-292FF	PL3292	18-40GH	6-6-16	6-6-17
Low Pass Filter	Mini-Circuits	VLFX-1125	R UU92600920	DC-1125MHz	6-3-16	6-3-17
High Pass Filter	K & L	50140 11SH10-18000/T40000-K-K	8	18-40GHz	1-27-16	1-27-18
20 dB attenuator	MCE/weinschel	5955A-20	2056	DC – 40 GHz	6-5-16	6-5-17
Thermal Power Sensor	Rohde & Schwarz	NRP-Z51	1138.0005.03 -104290-Wq	DC - 18GHz	6-23-16	6-23-17
20 dB attenuator	Anritsu	42N50-20	000451	DC-18GHz	5-11-16	5-11-17
Horn Antenna	EMCO	3115	9502-4451	1-18GHz	6-1-15	6-1-17
Horn Antenna	A.H. Systems	SAS-574	222	18 – 40GHz	3-14-16	3-14-18
Test Software	Rohde & Schwarz	ESK-1	V1.7.1	N/A	N/A	N/A

6.0 Test Arrangements

RF Conducted Emissions Measurement Arrangement:

All RF conducted emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to ANSI C63.10-2013, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for additional photos of the test set up. See Appendix C for measurement uncertainty.

6.0 Test Arrangements (continued)

Radiated Emissions Measurement Arrangement:

All radiated emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to ANSI C63.10-2013, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for additional photos of the test set up. See Appendix C for measurement uncertainty.

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

7.0 Test Conditions

Normal Test Conditions:

Temperature and Humidity:

70°F at 27% RH

Supply Voltage:

56 VDC (Power Over Ethernet to Radio)
120 Vac, 60 Hz using Cambium Networks model NET-P30-56IN power supply

8.0 Modifications Made To EUT For Compliance

5.2 GHz band:
The lowest channel to be used was changed from 5270 MHz to 5275 MHz.
The highest channel to be used was changed from 5330 MHz to 5325 MHz.
Output power settings were lowered. The final power settings used are listed on the data.

5.4 GHz band:
The lowest channel to be used was changed from 5490 MHz to 5495 MHz.
The highest channel to be used was changed from 5705 MHz to 5700 MHz.
Output power settings were lowered. The final power settings used are listed on the data.

9.0 Additional Descriptions

Test software was used to set the frequency, modulation, and output power of the EUT. Transmitter parameters are software controlled and set to Cambium Networks' specifications. Any new software will not enable any features/operations which would violate regulatory requirements.

10.0 Results

Measurements were performed in accordance with ANSI C63.10-2013. Graphical and tabular data can be found in Appendix B at the end of this report.

11.0 Conclusion

Dynamic Frequency Selection (DFS) testing was not performed by DLS Electronic Systems,Inc. Otherwise, the 5GHz PMP450i, Model C054045A001A, as provided from Cambium Networks tested on January 18-23, 2017 **meets** the requirements of CFR 47 Part 15 Subpart E Section 15.407, to have a 40 MHz channel bandwidth added to FCC ID: QWP-50450I as a Class III Permissive Change.

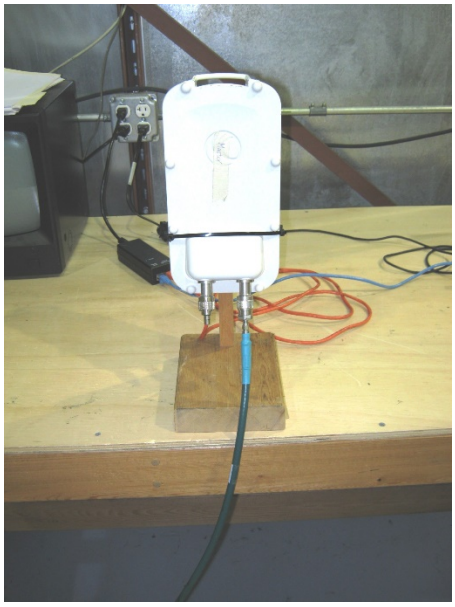
166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C054045A001A
Report Number: 22500
DLS Project: 8665

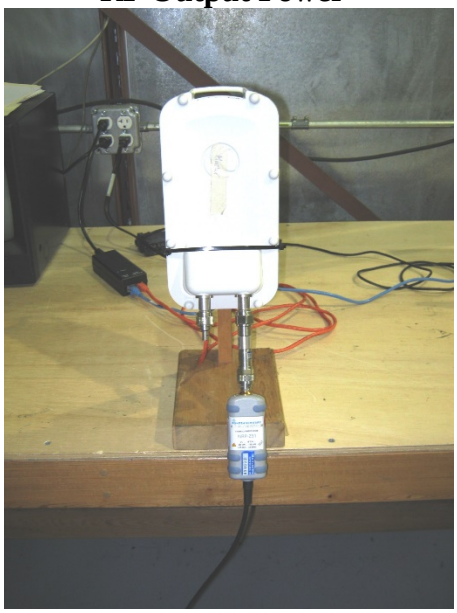
Appendix A – Test Setup Photos

5GHz PMP450i, Model C054045A001A
Cat 5e Power-Over-Ethernet cable. (2.2 meter un-shielded with plastic connectors)
Cat 5e Ethernet cable to remote computer. (10 meter un-shielded with plastic connectors)
Cambium Networks model NET-P30-56IN power supply

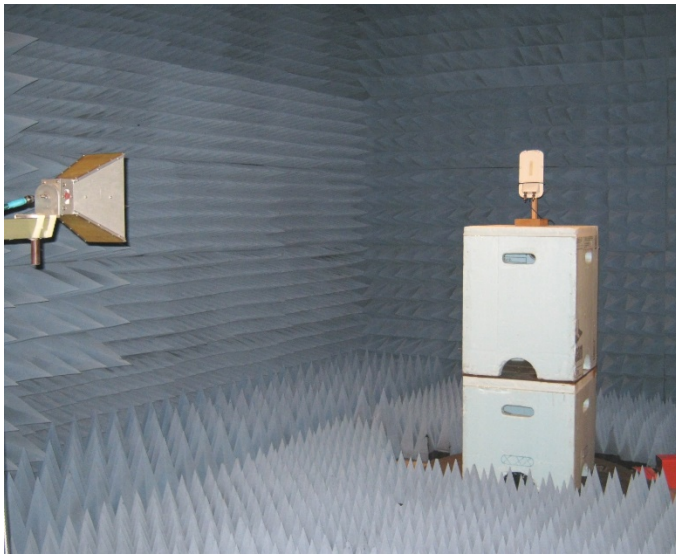
RF Conducted



RF Output Power



Radiated



Radiated – close-up

Appendix B – Measurement Data

B1.0 Duty Cycle of Test Unit

Rule Part: Informative

Test Procedure: ANSI C63.10-2013
Section 12.2(b)(2) zero-span on spectrum analyzer

Description: SPAN: zero span
RBW ≥ EBW (or to the largest available value)
Detector = peak
RBW and VBW must be > 50/*T*
Number of sweep points across *T* must be > 100
(*T* = Transmit duration at maximum power level)

Limits: Informative

Duty cycle (x) is the fraction of time over which the transmitter is on and transmitting at its maximum power control level.

Results: 5.2 GHz Band:
Duty cycle correction for power measurements = 10 log (1/0.793)
= **1.01 dB**

Duty cycle correction for voltage measurements = 20 log (1/0.793)
= **2.01 dB**

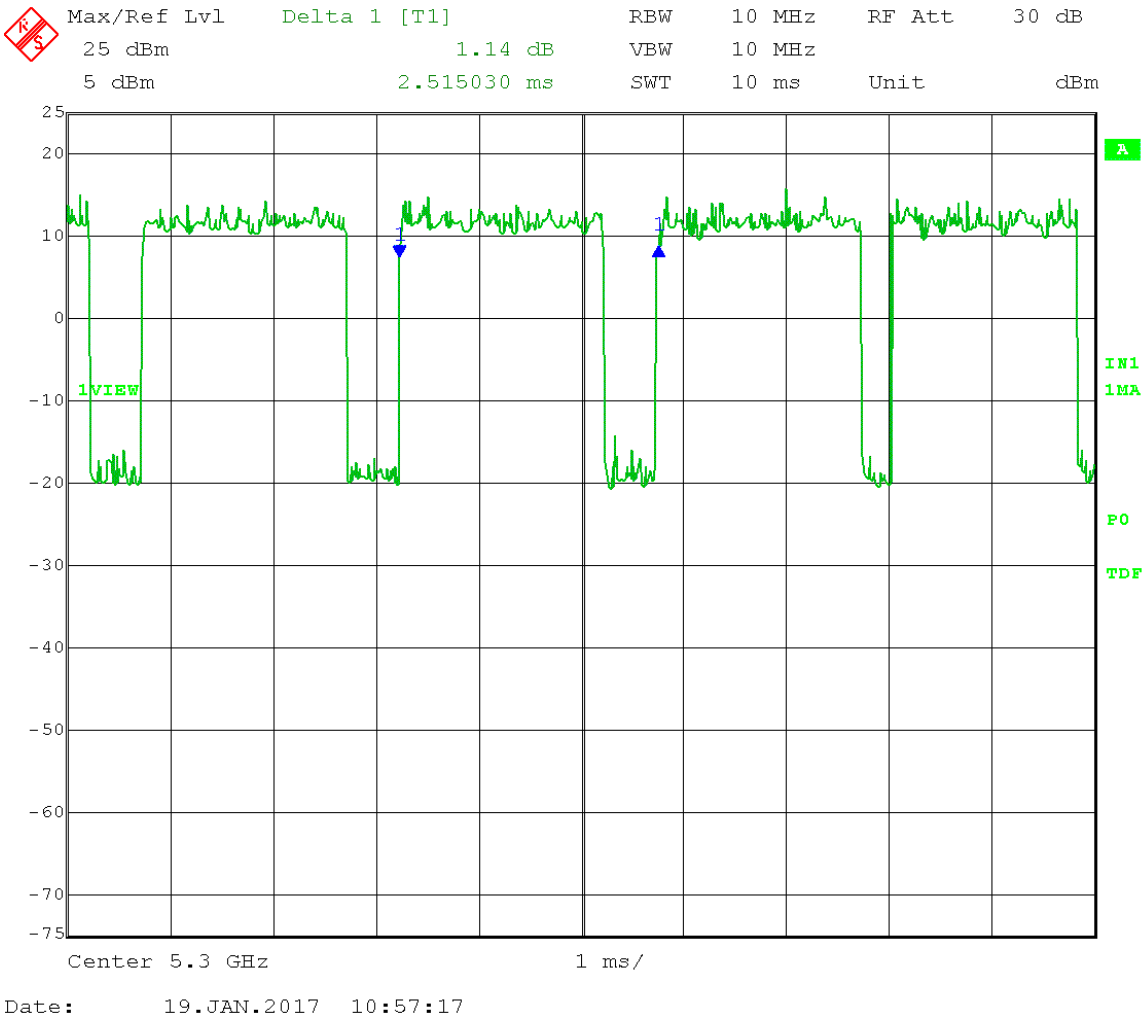
5.4 GHz Band:
Duty cycle correction for power measurements = 10 log (1/0.792)
= **1.01 dB**

Duty cycle correction for voltage measurements = 20 log (1/0.792)
= **2.03 dB**

Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Duty Cycle during testing
Operator: Craig B
Comment: ANSI C63.10, 12.2(b)(2) zero-span on spectrum analyzer
Mid Channel: Transmit = 5300 MHz 40 MHz BW

Duty cycle = (1.993988 ms) / (2.515030 ms) x 100 = 79.3%
Duty cycle correction for power measurements = 10 log (1/0.793) = **1.01 dB**
Duty cycle correction for voltage measurements = 20 log (1/0.793) = **2.01 dB**

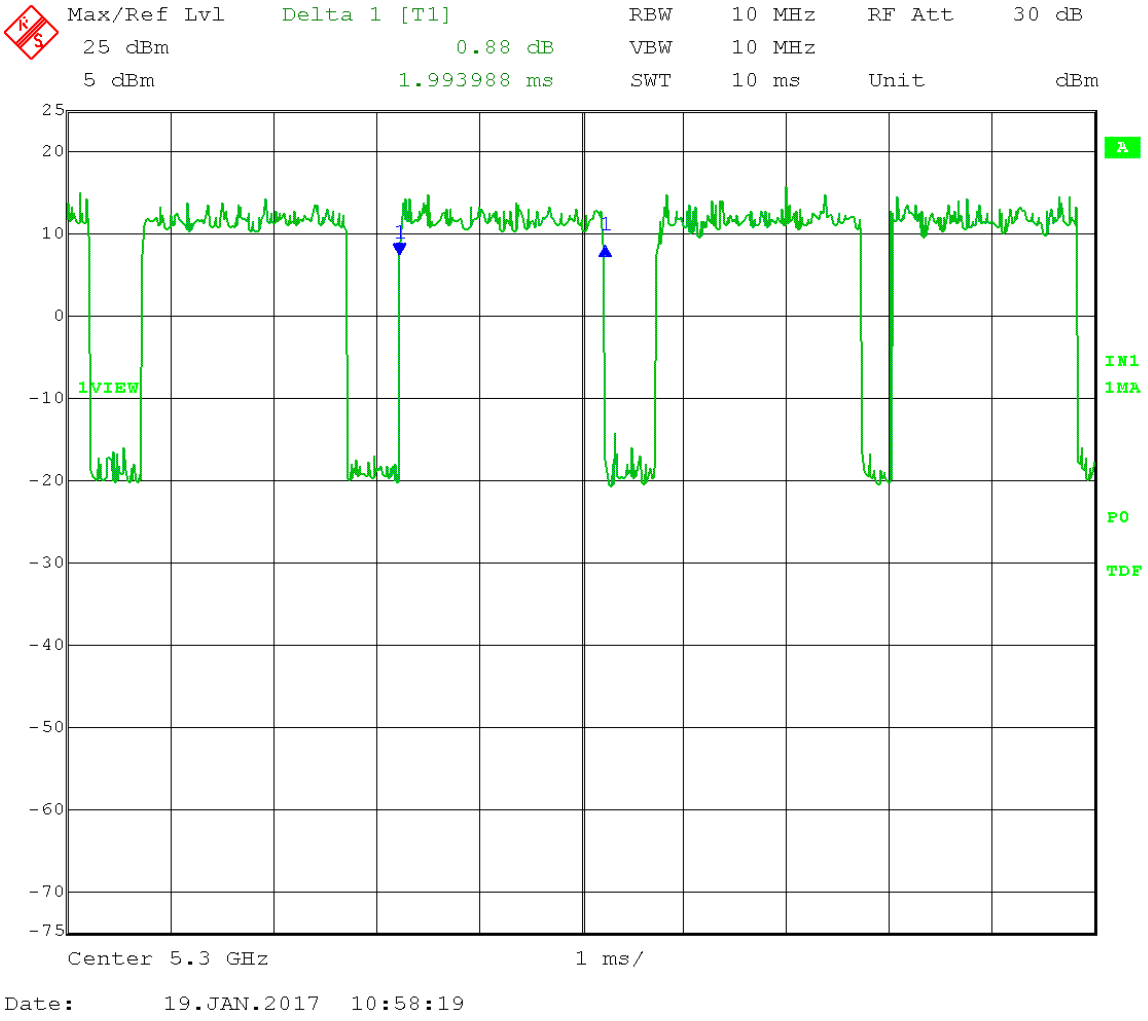
Time of one cycle: 2.515030 ms



Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Duty Cycle during testing
Operator: Craig B
Comment: ANSI C63.10, 12.2(b)(2) zero-span on spectrum analyzer
Mid Channel: Transmit = 5300 MHz 40 MHz BW

Duty cycle = (1.993988 ms) / (2.515030 ms) x 100 = 79.3%
Duty cycle correction for power measurements = 10 log (1/0.793) = **1.01 dB**
Duty cycle correction for voltage measurements = 20 log (1/0.793) = **2.01 dB**

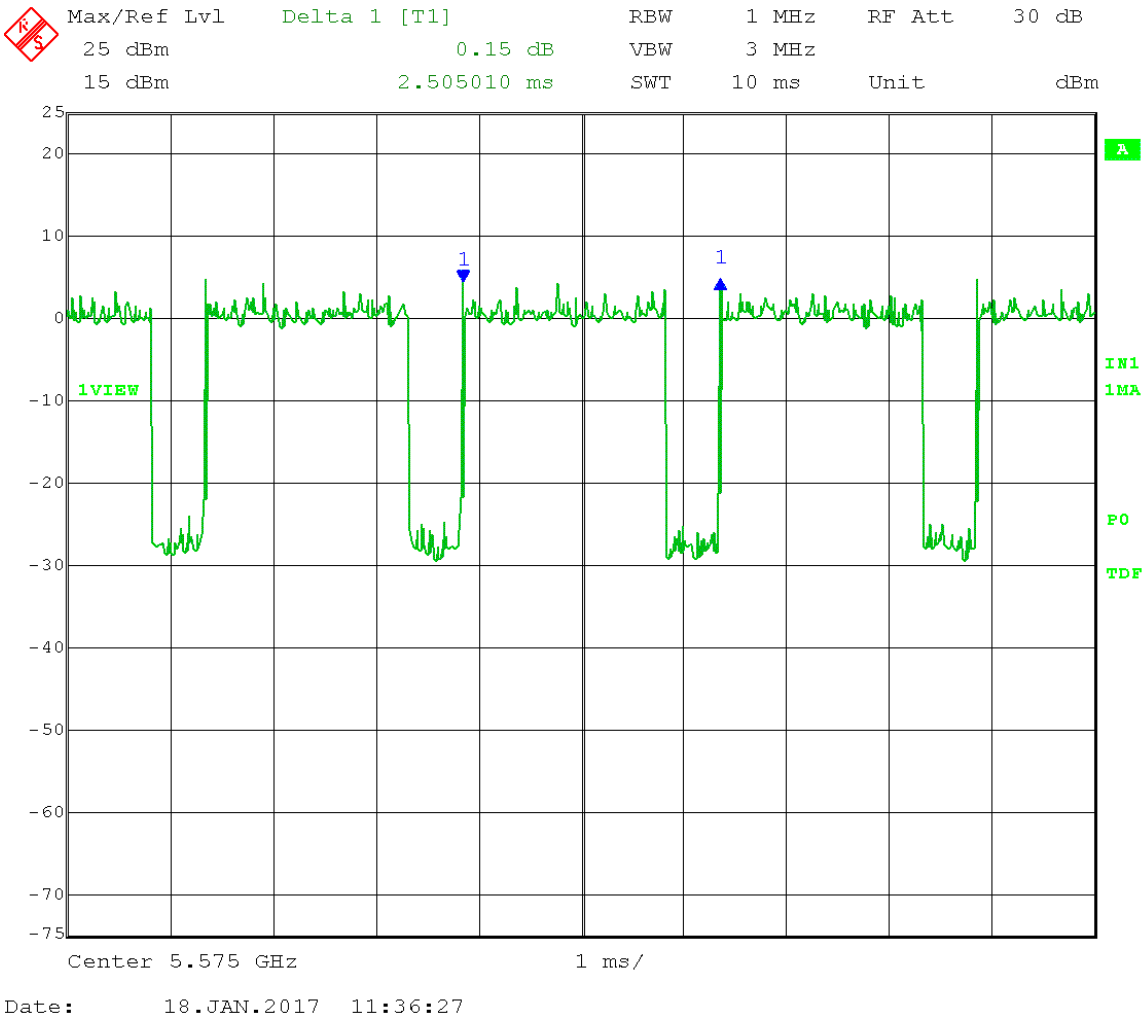
ON time during one cycle: 1.993988 ms



Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Duty Cycle during testing
Operator: Craig B
Comment: ANSI C63.10, 12.2(b)(2) zero-span on spectrum analyzer
Mid Channel: Transmit = 5575 MHz 40 MHz BW

Duty cycle = (1.983968 ms) / (2.505010 ms) x 100 = 79.2%
Duty cycle correction for power measurements = 10 log (1/0.792) = **1.01 dB**
Duty cycle correction for voltage measurements = 20 log (1/0.792) = **2.03 dB**

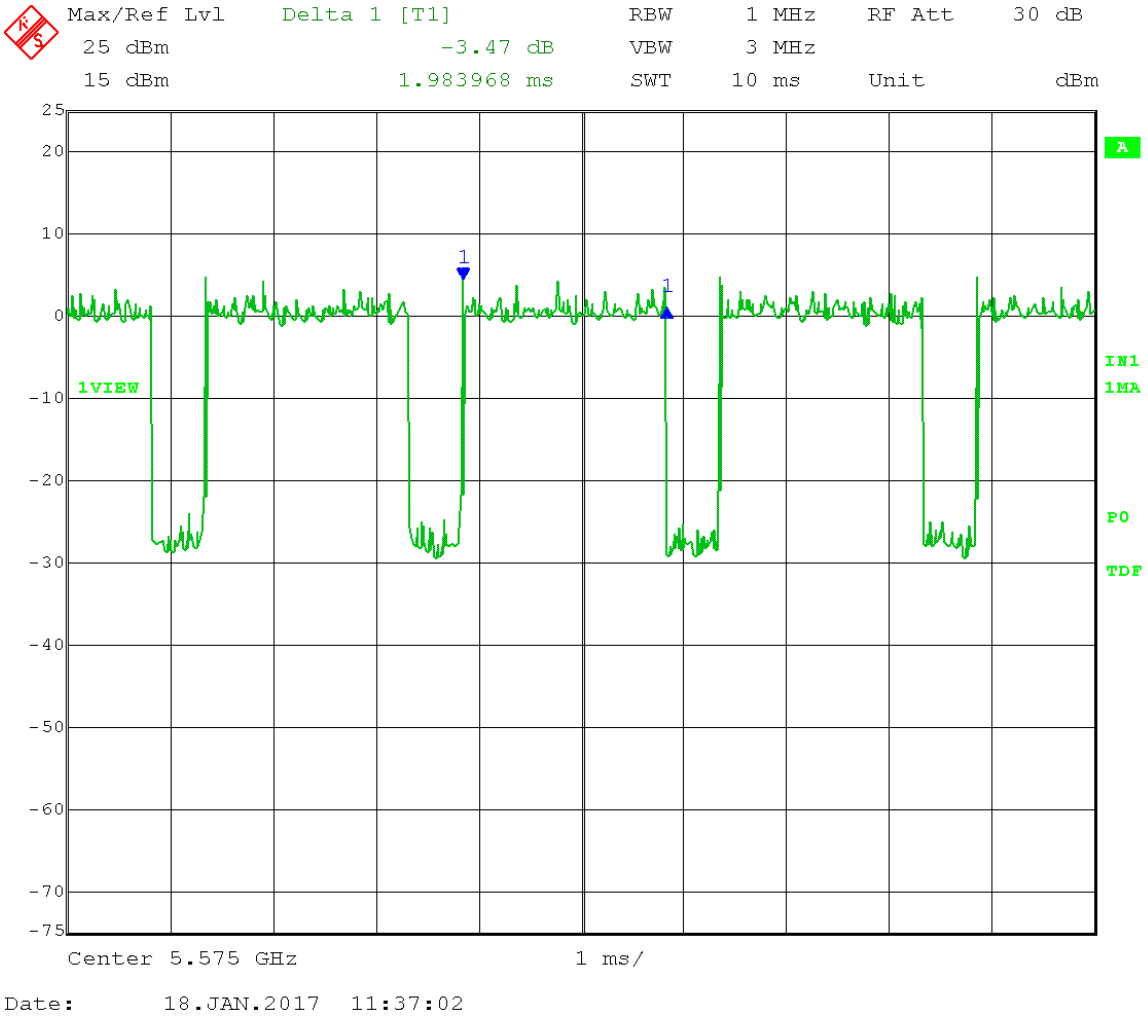
Time of one cycle: 2.505010 ms



Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Duty Cycle during testing
Operator: Craig B
Comment: ANSI C63.10, 12.2(b)(2) zero-span on spectrum analyzer
Mid Channel: Transmit = 5575 MHz 40 MHz BW

Duty cycle = (1.983968 ms) / (2.505010 ms) x 100 = 79.2%
Duty cycle correction for power measurements = 10 log (1/0.792) = **1.01 dB**
Duty cycle correction for voltage measurements = 20 log (1/0.792) = **2.03 dB**

ON time during one cycle: 1.983968 ms



Appendix B – Measurement Data

B2.0 Emission Bandwidth – 26 dB bandwidth

Rule Section: Informative

Test Procedure: ANSI C63.10-2013
Section 12.4.1

Description: RBW = approximately 1% of EBW
VBW > RBW
Detector = Peak
Trace mode = max hold

Measure the maximum width of the emission between the lower and upper frequencies that measure 26 dB below the maximum level of the in-band emission.

Limit: Informative

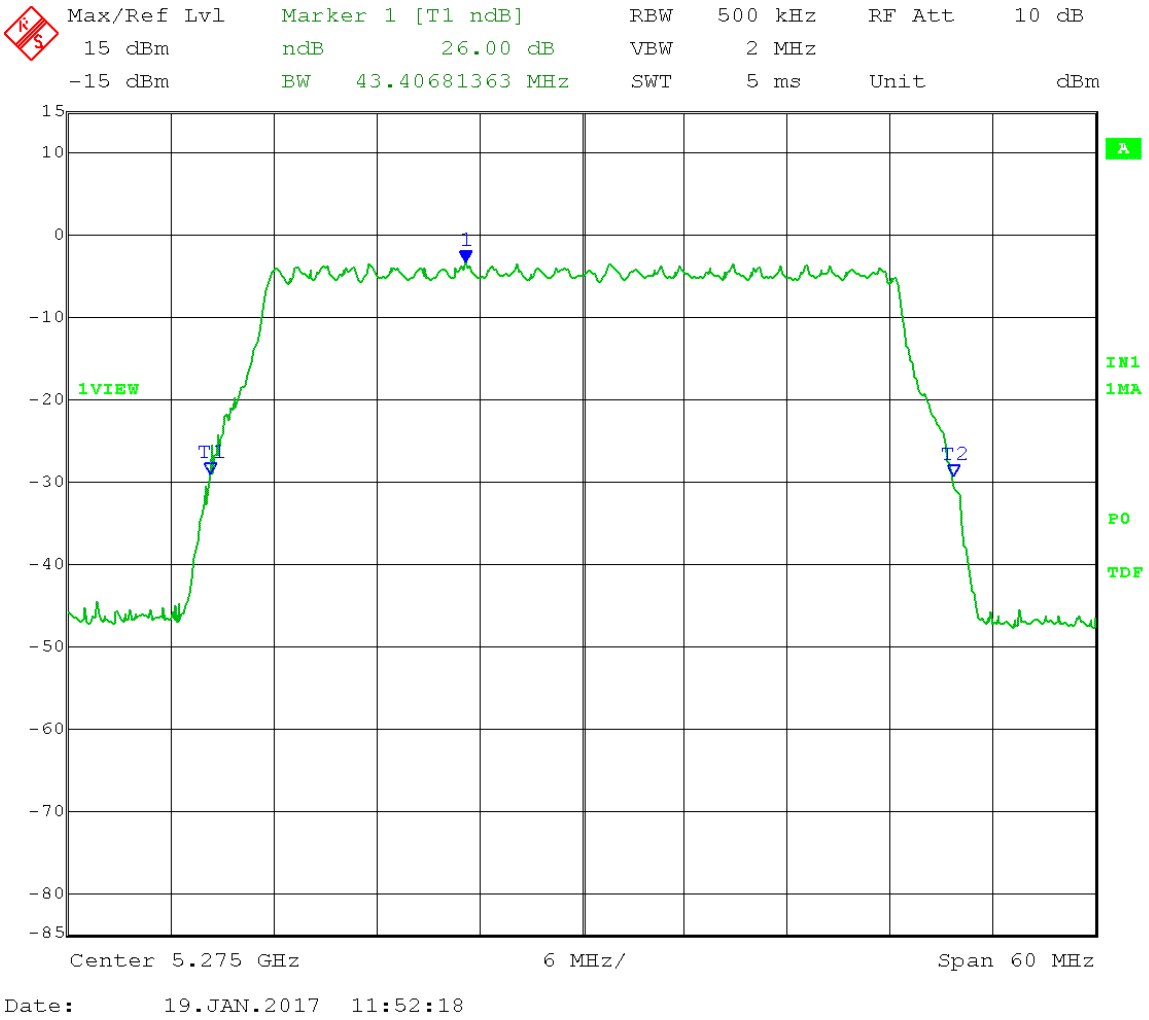
Notes: Measurements were taken for QPSK at the lowest, middle, and highest channels of operation. EUT was set to transmit continuously with 79.3% duty cycle in the 5.2 GHz band and 79.2% duty cycle in the 5.4 GHz band.

Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.2GHz
Test:	26 dB Emission Bandwidth
Operator:	Craig B
Comment:	ANSI C63.10, 12.4.1

Low Channel: Transmit = 5275 MHz — 40 MHz BW

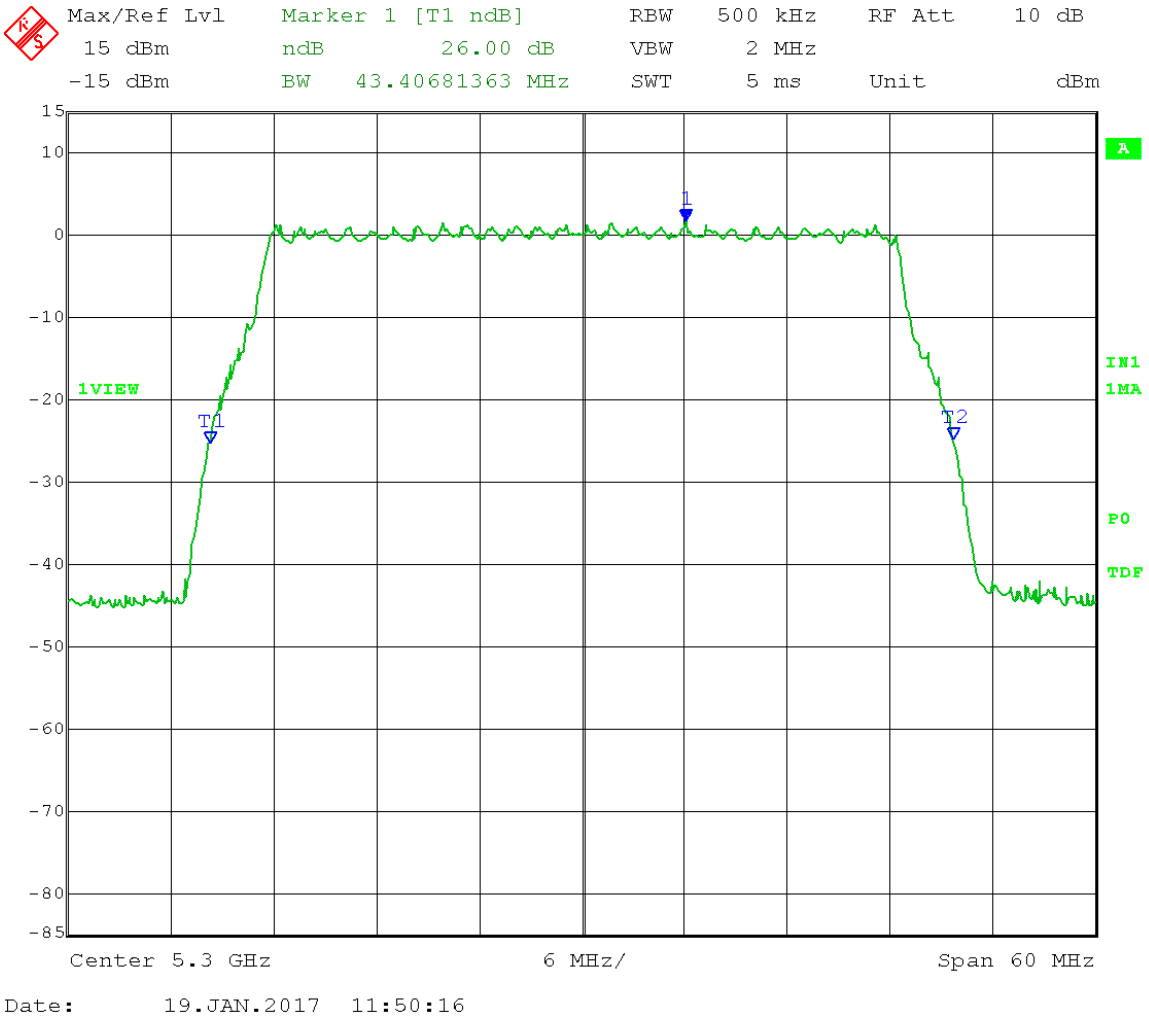
Power setting: 4 — Port B — QPSK

26 dB Emission Bandwidth = 43.4 MHz



Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.2GHz
Test:	26 dB Emission Bandwidth
Operator:	Craig B
Comment:	ANSI C63.10, 12.4.1
	Mid Channel: Transmit = 5300 MHz 40 MHz BW
	Power setting: 9 Port B QPSK

26 dB Emission Bandwidth = 43.4 MHz

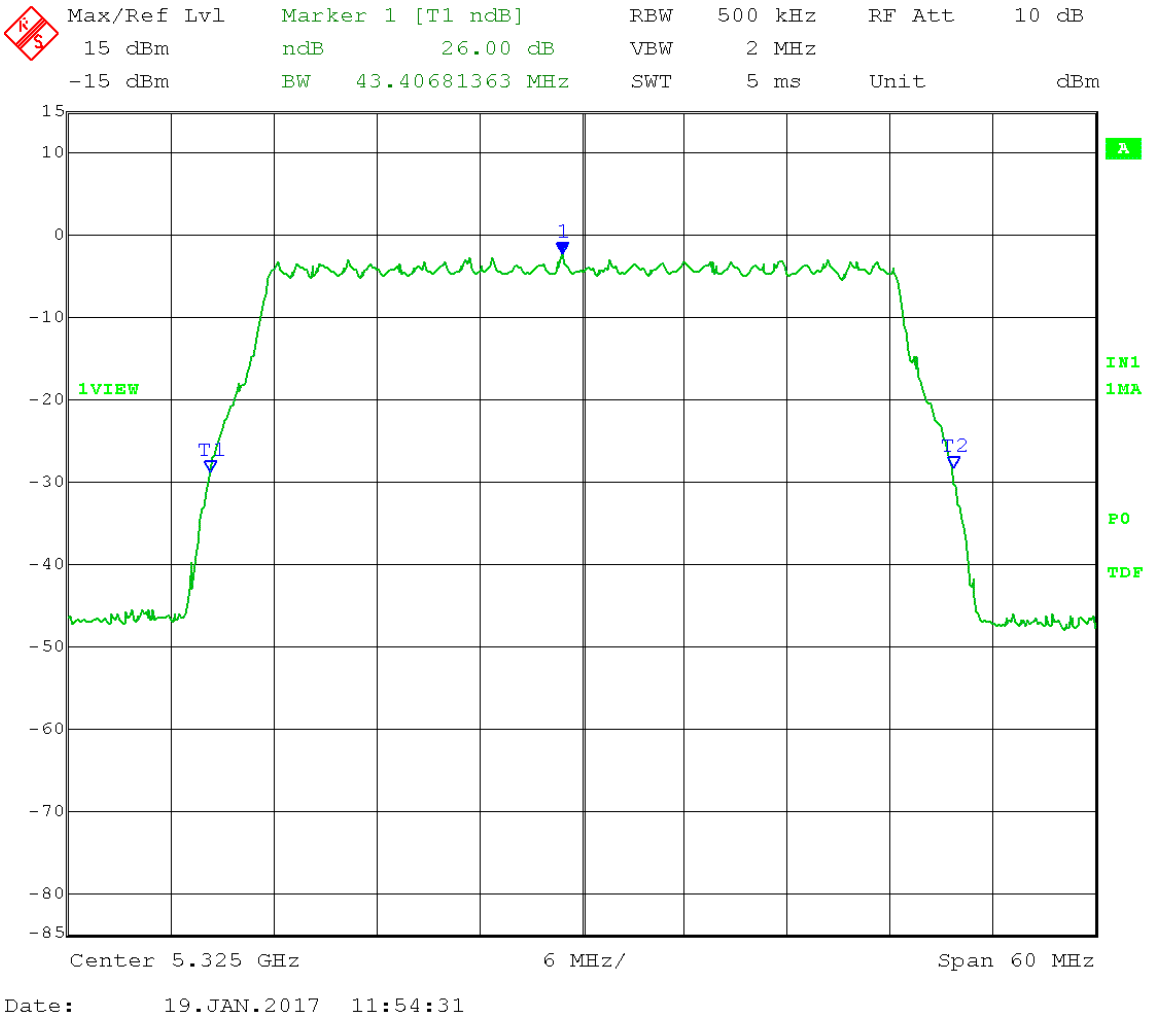


Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.2GHz
Test:	26 dB Emission Bandwidth
Operator:	Craig B
Comment:	ANSI C63.10, 12.4.1

High Channel: Transmit = 5325 MHz — 40 MHz BW

Power setting: 4 — Port B — QPSK

26 dB Emission Bandwidth = 43.4 MHz

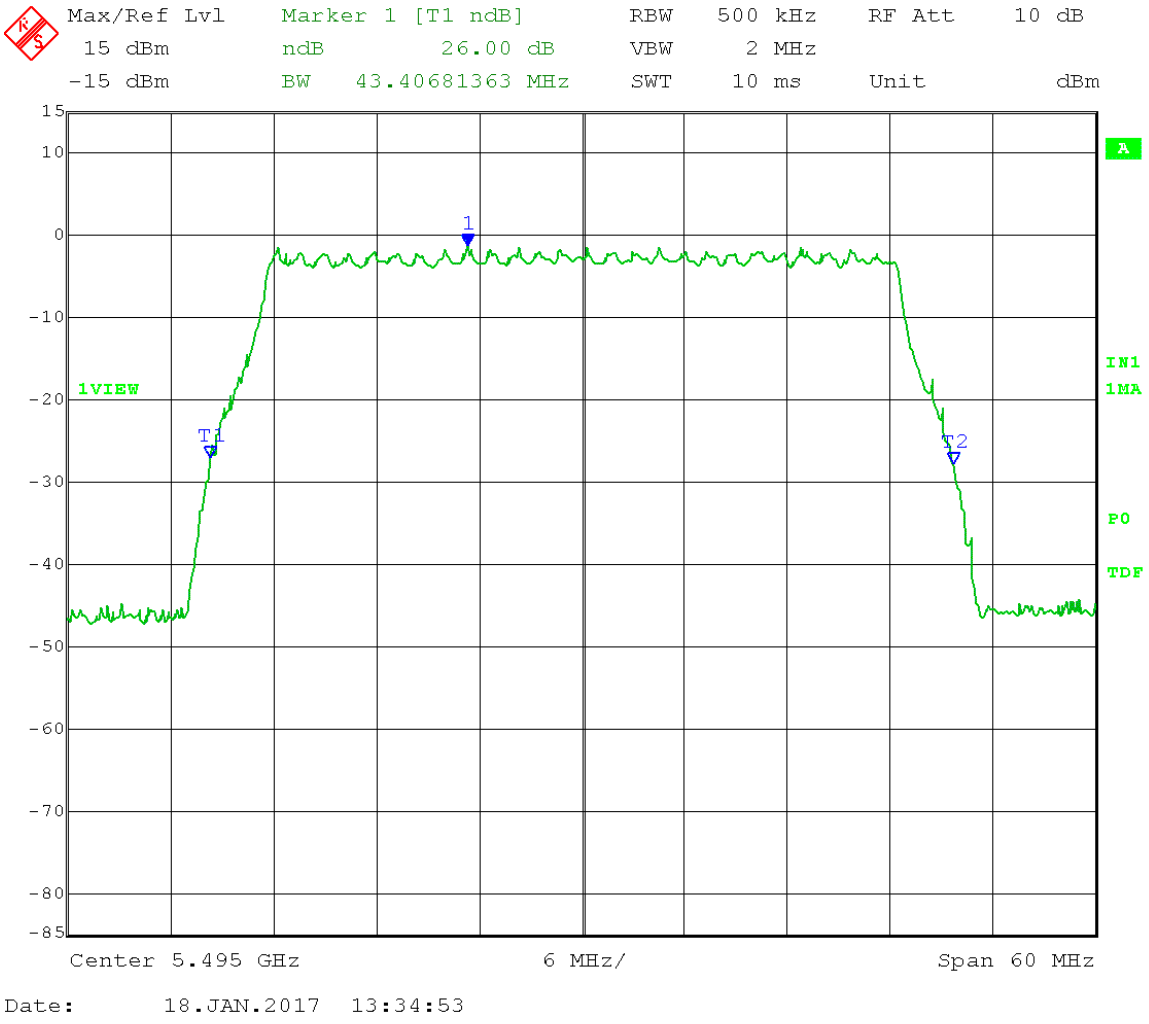


Test Date:	01-18-2017
Company:	Cambium Networks
EUT:	PMP450i 5.4GHz
Test:	26 dB Emission Bandwidth
Operator:	Craig B
Comment:	ANSI C63.10, 12.4.1

Low Channel: Transmit = 5495 MHz — 40 MHz BW

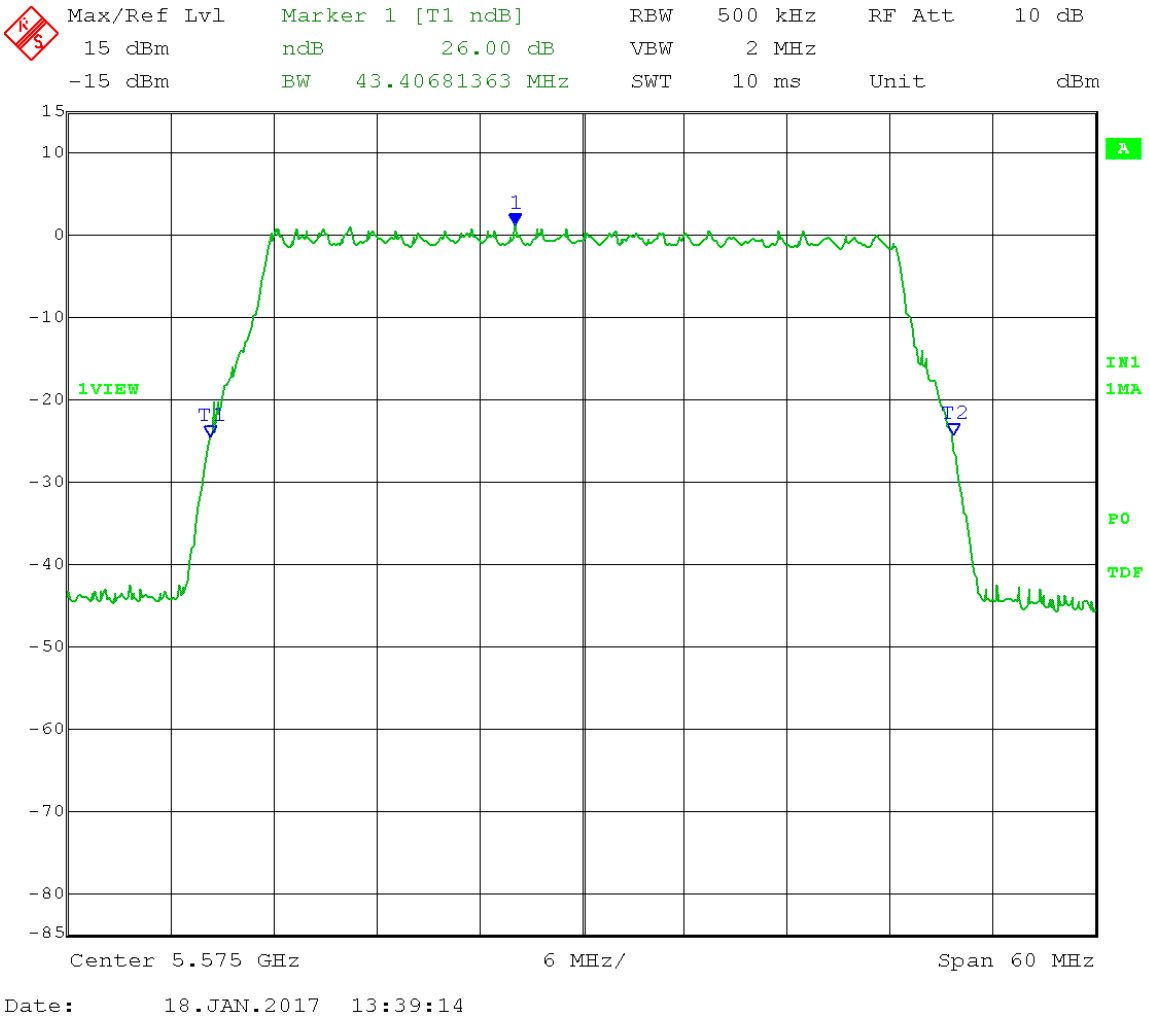
Power setting: 5 — Port B — QPSK

26 dB Emission Bandwidth = 43.4 MHz



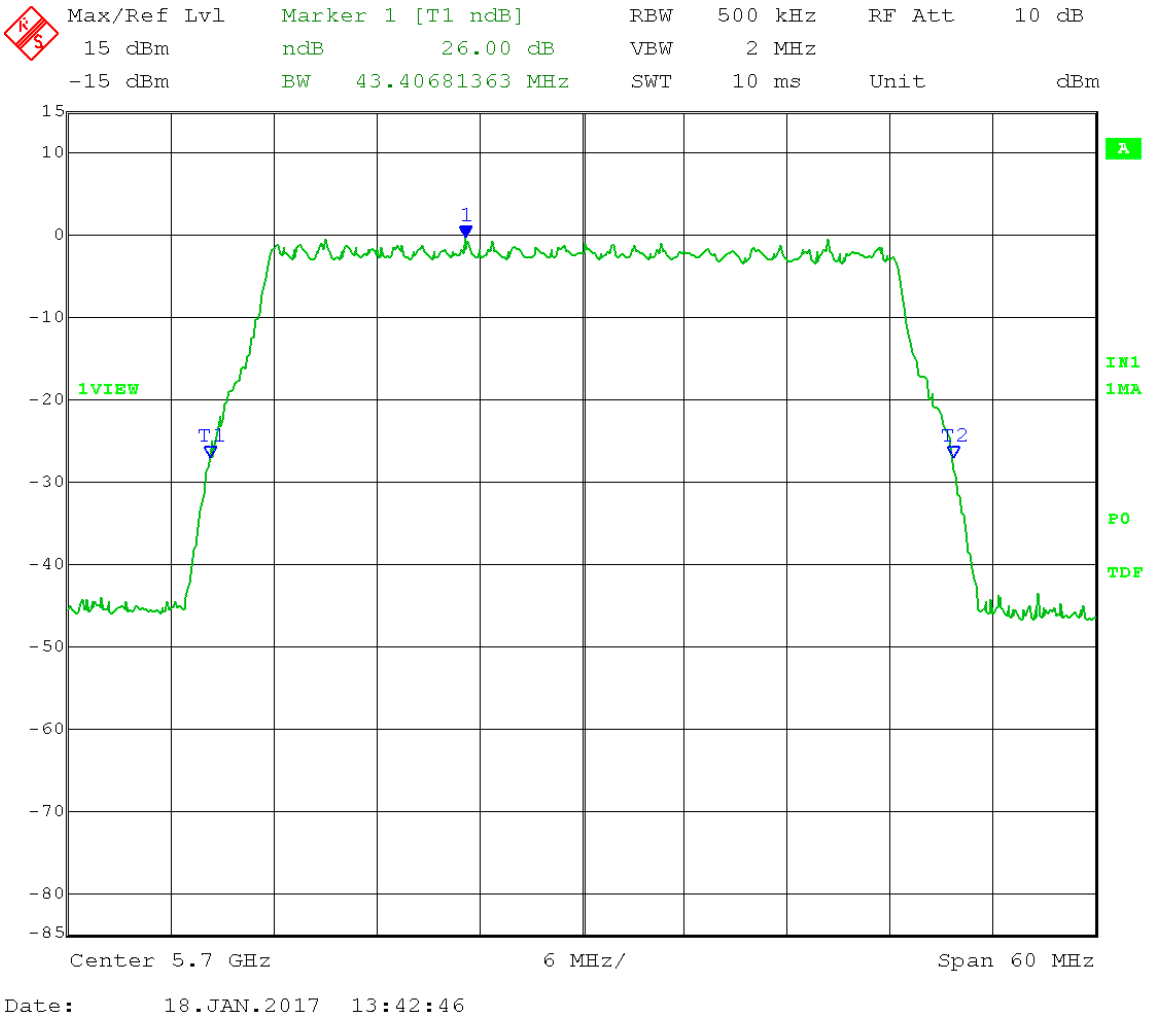
Test Date:	01-18-2017	
Company:	Cambium Networks	
EUT:	PMP450i 5.4GHz	
Test:	26 dB Emission Bandwidth	
Operator:	Craig B	
Comment:	ANSI C63.10, 12.4.1	
	Mid Channel: Transmit = 5575 MHz	40 MHz BW
	Power setting: 9 Port B	QPSK

26 dB Emission Bandwidth = 43.4 MHz



Test Date:	01-18-2017
Company:	Cambium Networks
EUT:	PMP450i 5.4GHz
Test:	26 dB Emission Bandwidth
Operator:	Craig B
Comment:	ANSI C63.10, 12.4.1
	High Channel: Transmit = 5700 MHz — 40 MHz BW
	Power setting: 7 — Port B — QPSK

26 dB Emission Bandwidth = 43.4 MHz



Appendix B – Measurement Data

B3.0 Maximum Conducted Output Power

Rule Section: FCC 15.407(a)(2)

Test Procedure: ANSI C63.10-2013
Section 12.3.3.1 – Average power meter with correction for duty cycle

Description: Measure using a wideband RF power meter with a thermocouple detector.
Add 10 log (1/x), where x is the duty cycle, to the measured power.
Sum the power of both output ports.

Limit: 250 mW (24 dBm) RF conducted
Limit shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

1.0 Watts e.i.r.p.

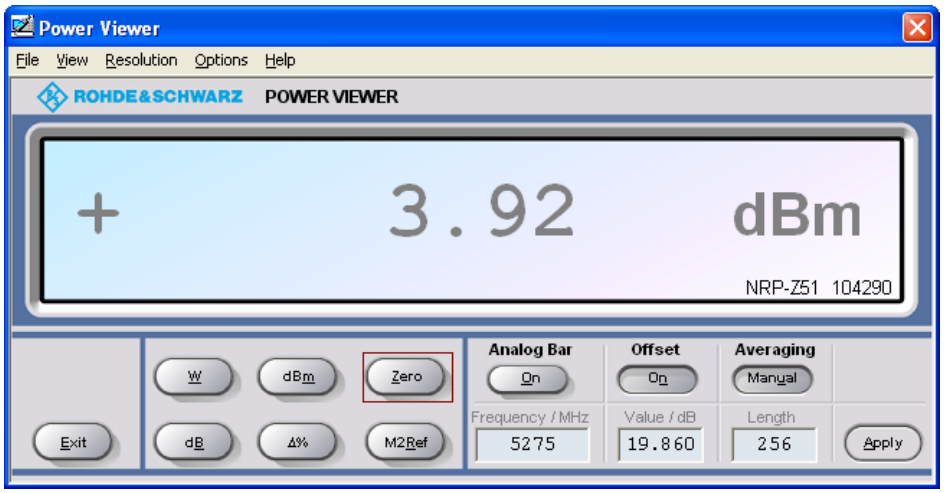
Results: Passed

Notes: Measurements were taken for QPSK at the lowest, middle, and highest channels of operation. EUT was set to transmit continuously with 79.3% duty cycle in the 5.2 GHz band and 79.2% duty cycle in the 5.4 GHz band.

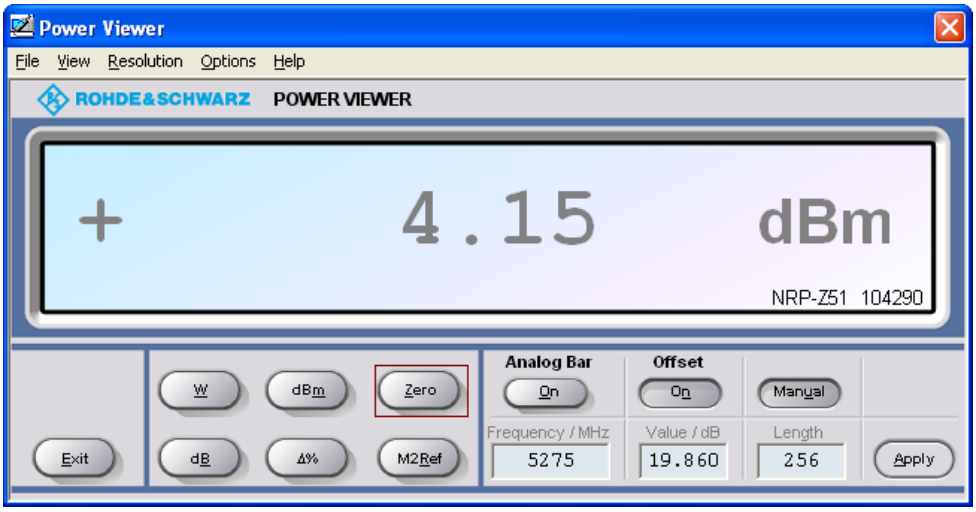
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Maximum conducted output power
Operator: Craig B
Comment: ANSI C63.10, 12.3.3.1 power meter method

Low Channel: Transmit = 5275 MHz — 40 MHz BW
Power setting: 4 — QPSK
Antenna gain: 17 dBi
Conducted limit: 24 dBm - (17-6) = 13 dBm
e.i.r.p. limit: 30 dBm

Port A:
Maximum conducted output power = 3.92 dBm + 1.01 dB duty cycle correction = 4.93 dBm = 3.112 mW



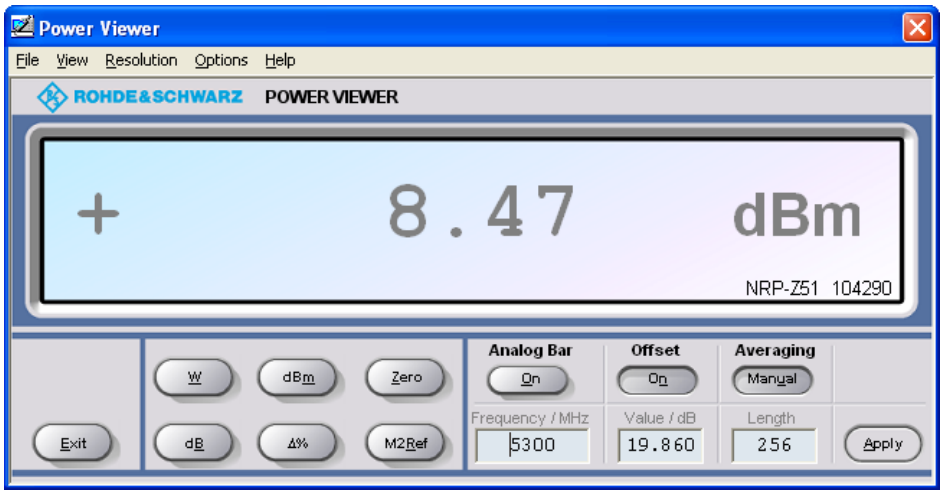
Port B:
Maximum conducted output power = 4.15 dBm + 1.01 dB duty cycle correction = 5.16 dBm = 3.281 mW



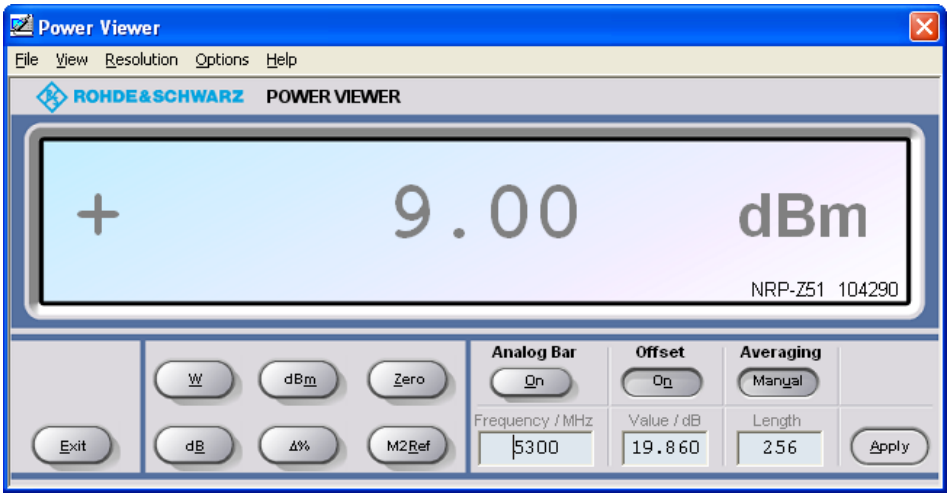
Total output power = 3.112 mW + 3.281 mW = 6.393 mW = **8.06 dBm**
Total e.i.r.p. = 8.06 dBm + 17 dBi = **25.06 dBm**

Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Maximum conducted output power
Operator: Craig B
Comment: ANSI C63.10, 12.3.3.1 power meter method
Mid Channel: Transmit = 5300 MHz 40 MHz BW
Power setting: 9 QPSK
Antenna gain: 17 dBi
Conducted limit: 24 dBm - (17-6) = 13 dBm
e.i.r.p. limit: 30 dBm

Port A:
Maximum conducted output power = 8.47 dBm + 1.01 dB duty cycle correction = 9.48 dBm = 8.872 mW



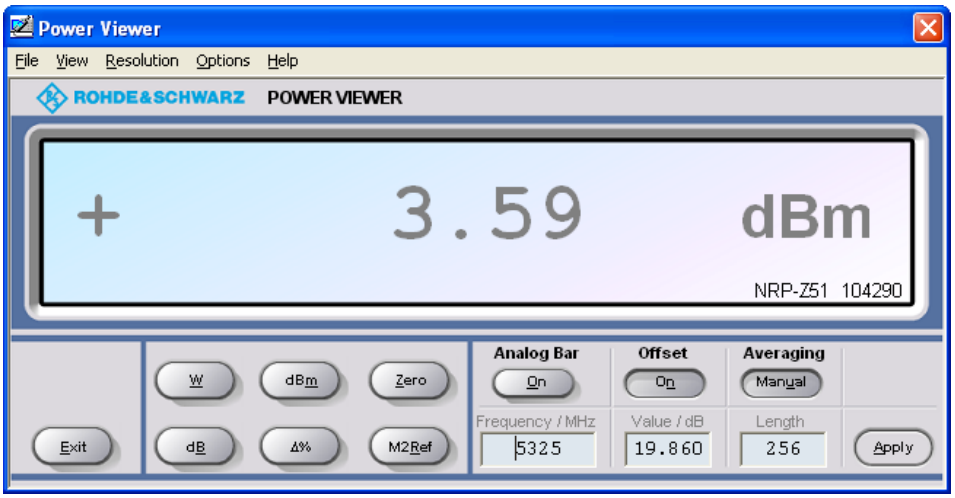
Port B:
Maximum conducted output power = 9.00 dBm + 1.01 dB duty cycle correction = 10.01 dBm = 10.023 mW



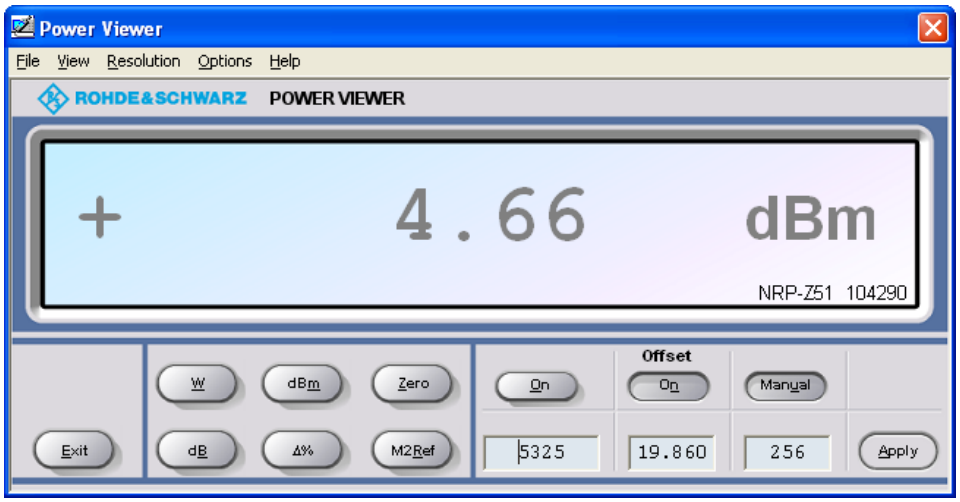
Total output power = 8.872 mW + 10.023 mW = 18.895 mW = **12.76 dBm**
Total e.i.r.p. = 12.76 dBm + 17 dBi = **29.76 dBm**

Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Maximum conducted output power
Operator: Craig B
Comment: ANSI C63.10, 12.3.3.1 power meter method
High Channel: Transmit = 5325 MHz 40 MHz BW
Power setting: 4 QPSK
Antenna gain: 17 dBi
Conducted limit: 24 dBm - (17-6) = 13 dBm
e.i.r.p. limit: 30 dBm

Port A:
Maximum conducted output power = 3.59 dBm + 1.01 dB duty cycle correction = 4.60 dBm = 2.884 mW



Port B:
Maximum conducted output power = 4.66 dBm + 1.01 dB duty cycle correction = 5.67 dBm = 3.690 mW

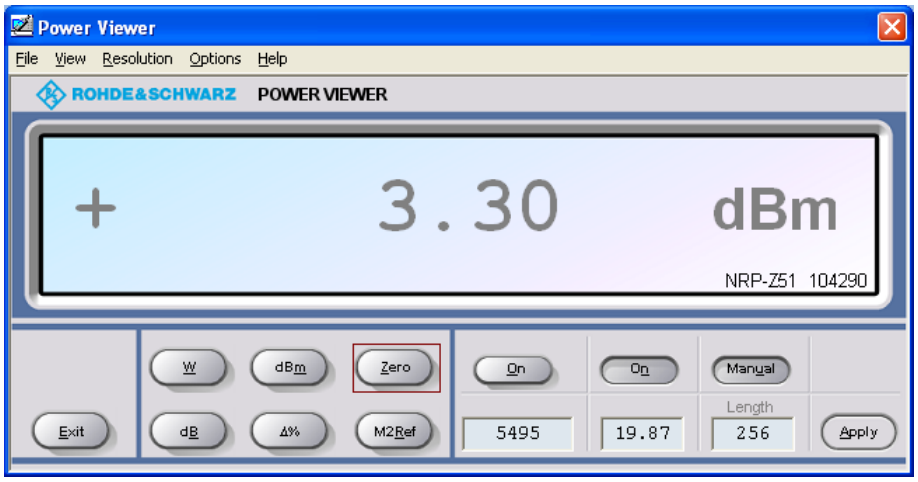


Total conducted output power = 2.884 mW + 3.690 mW = 6.574 mW = **8.18 dBm**
Total e.i.r.p. = 8.18 dBm + 17 dBi = **25.18 dBm**

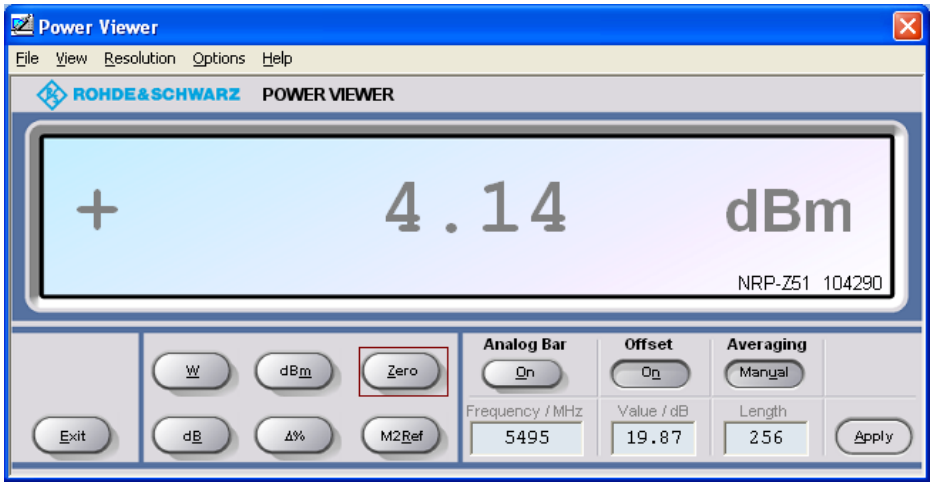
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Maximum conducted output power
Operator: Craig B
Comment: ANSI C63.10, 12.3.3.1 power meter method

Low Channel: Transmit = 5495 MHz — 40 MHz BW
Power setting: 5 — QPSK
Antenna gain: 17 dBi
Conducted limit: 24 dBm - (17-6) = 13 dBm
e.i.r.p. limit: 30 dBm

Port A:
Maximum conducted output power = 3.30 dBm + 1.01 dB duty cycle correction = 4.31 dBm = 2.698 mW



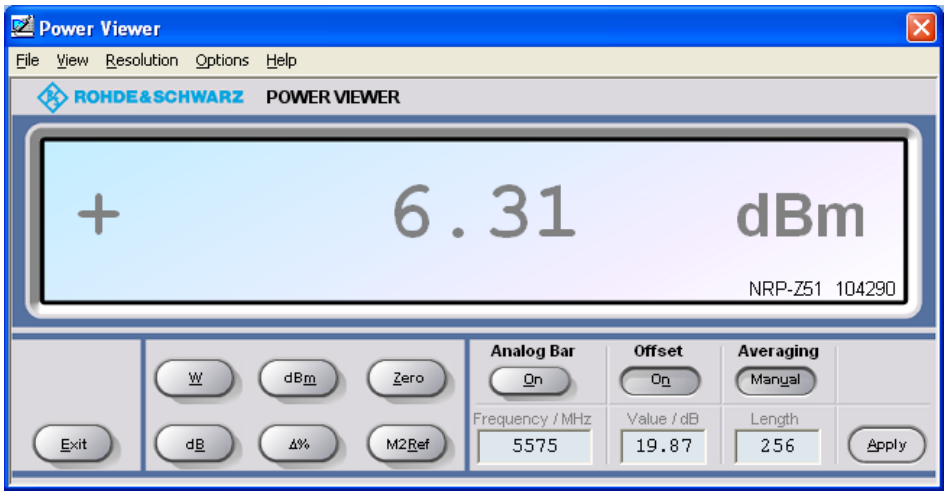
Port B:
Maximum conducted output power = 4.14 dBm + 1.01 dB duty cycle correction = 5.15 dBm = 3.273 mW



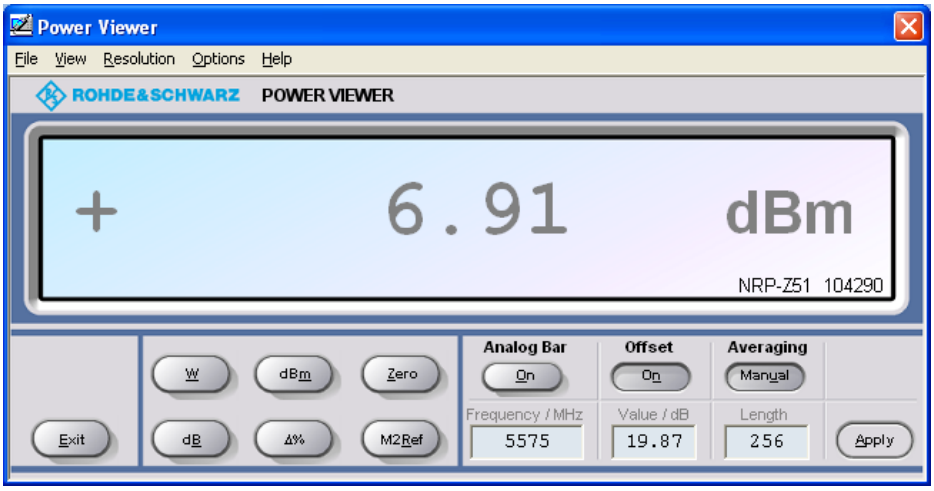
Total output power = 2.698 mW + 3.273 mW = 5.971 mW = **7.76 dBm**
Total e.i.r.p. = 7.76 dBm + 17 dBi = **24.76 dBm**

Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Maximum conducted output power
Operator: Craig B
Comment: ANSI C63.10, 12.3.3.1 power meter method
Mid Channel: Transmit = 5575 MHz 40 MHz BW
Power setting: 9 QPSK
Antenna gain: 17 dBi
Conducted limit: 24 dBm - (17-6) = 13 dBm
e.i.r.p. limit: 30 dBm

Port A:
Maximum conducted output power = 6.31 dBm + 1.01 dB duty cycle correction = 7.32 dBm = 5.395 mW



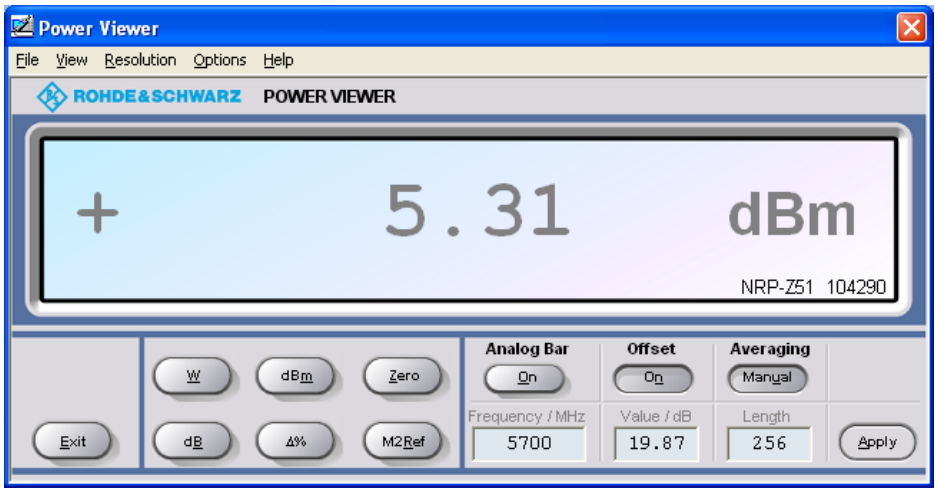
Port B:
Maximum conducted output power = 6.91 dBm + 1.01 dB duty cycle correction = 7.92 dBm = 6.194 mW



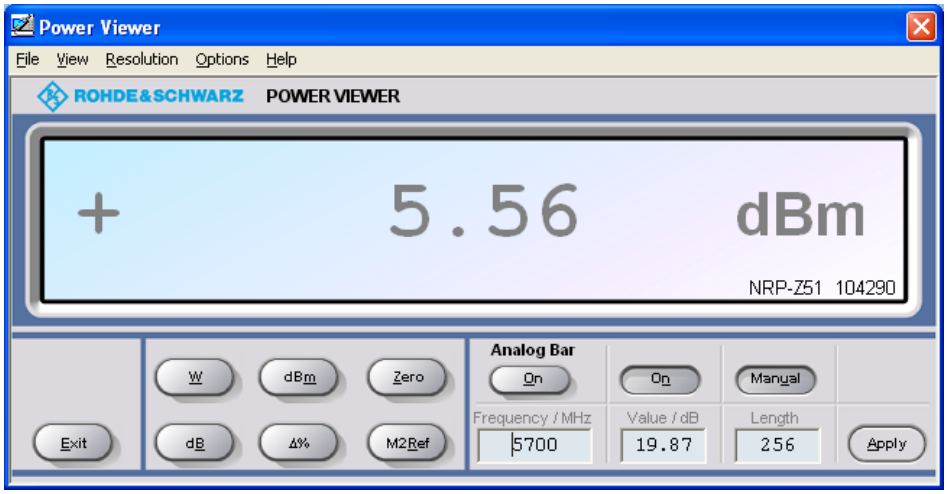
Total output power = 5.395 mW + 6.194 mW = 11.589 mW = **10.64 dBm**
Total e.i.r.p. = 10.64 dBm + 17 dBi = **27.64 dBm**

Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Maximum conducted output power
Operator: Craig B
Comment: ANSI C63.10, 12.3.3.1 power meter method
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 QPSK
Antenna gain: 17 dBi
Conducted limit: 24 dBm - (17-6) = 13 dBm
e.i.r.p. limit: 30 dBm

Port A:
Maximum conducted output power = 5.31 dBm + 1.01 dB duty cycle correction = 6.32 dBm = 4.285 mW



Port B:
Maximum conducted output power = 5.56 dBm + 1.01 dB duty cycle correction = 6.57 dBm = 4.539 mW



Total conducted output power = 4.285 mW + 4.539 mW = 8.824 mW = **9.46 dBm**
Total e.i.r.p. = 9.46 dBm + 17 dBi = **26.46 dBm**

Appendix B – Measurement Data

B4.0 Peak Power Spectral Density – Conducted

Rule Section: FCC 15.407(a)(2)

Test Procedure: ANSI C63.10-2013
Section 12.5 - PPSD
Section 12.3.2.4 SA-2 – trace averaging followed by duty cycle correction

Description: SPAN: set to encompass entire emission bandwidth
RBW = 1 MHz
VBW ≥ 3 MHz
Number of points ≥ 2 x Span/RBW
Sweep time: auto
Detector = RMS
Sweep: Average 200 traces
Use peak search to find the peak of the spectrum
Add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum
Add 3 dB to account for two-port MIMO operation [10 log (number of ports)]

Limit: 11 dBm in any 1 MHz band
Limit shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

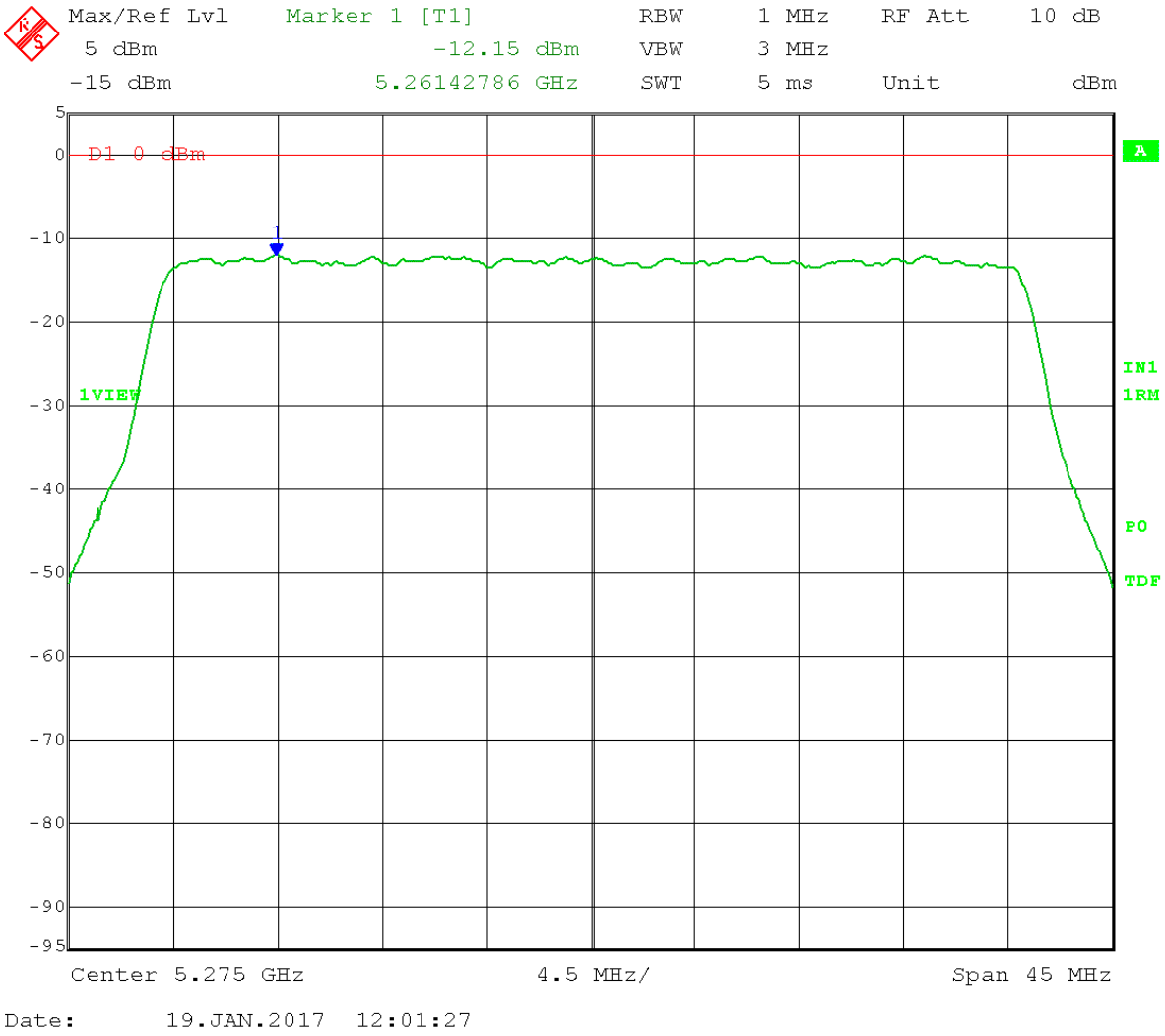
Results: Passed

Notes: Measurements were taken for QPSK at the lowest, middle, and highest channels of operation. EUT was set to transmit continuously with 79.3% duty cycle in the 5.2 GHz band and 79.2% duty cycle in the 5.4 GHz band.

Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Peak power spectral density
Operator: Craig B
Comment: ANSI C63.10, 12.5 and 12.3.2.4 SA-2 trace averaging followed by duty cycle correction

Low Channel: Transmit = 5275 MHz — 40 MHz BW
Power setting: 4 — Port B — QPSK
RBW = 1 MHz — VBW = 3 MHz
Detector = RMS — Trace = AVG
Sweep Time = Auto — Sweep counts = 200
Antenna gain = 17 dBi
Limit: 11 dBm/MHz – (17-6) = 0 dBm/MHz

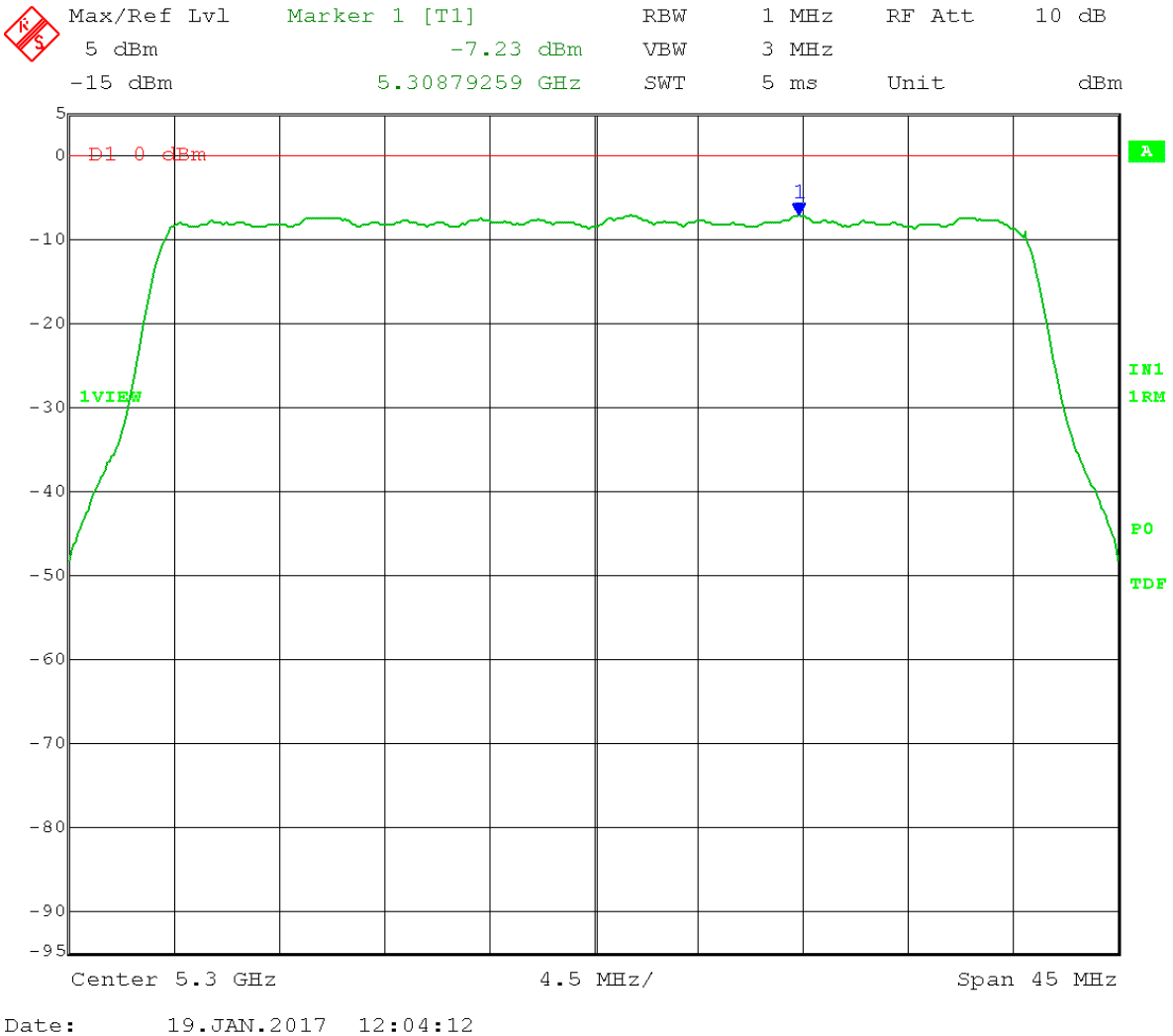
PPSD = -12.15 dBm + 1.01 dB (duty cycle correction) + 3 dB (2-port MIMO)
= **-8.14** dBm/MHz



Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Peak power spectral density
Operator: Craig B
Comment: ANSI C63.10, 12.5 and 12.3.2.4 SA-2 trace averaging followed by duty cycle correction

Mid Channel: Transmit = 5300 MHz — 40 MHz BW
Power setting: 9 — Port B — QPSK
RBW = 1 MHz — VBW = 3 MHz
Detector = RMS — Trace = AVG
Sweep Time = Auto — Sweep counts = 200
Antenna gain = 17 dBi
Limit: 11 dBm/MHz – (17-6) = 0 dBm/MHz

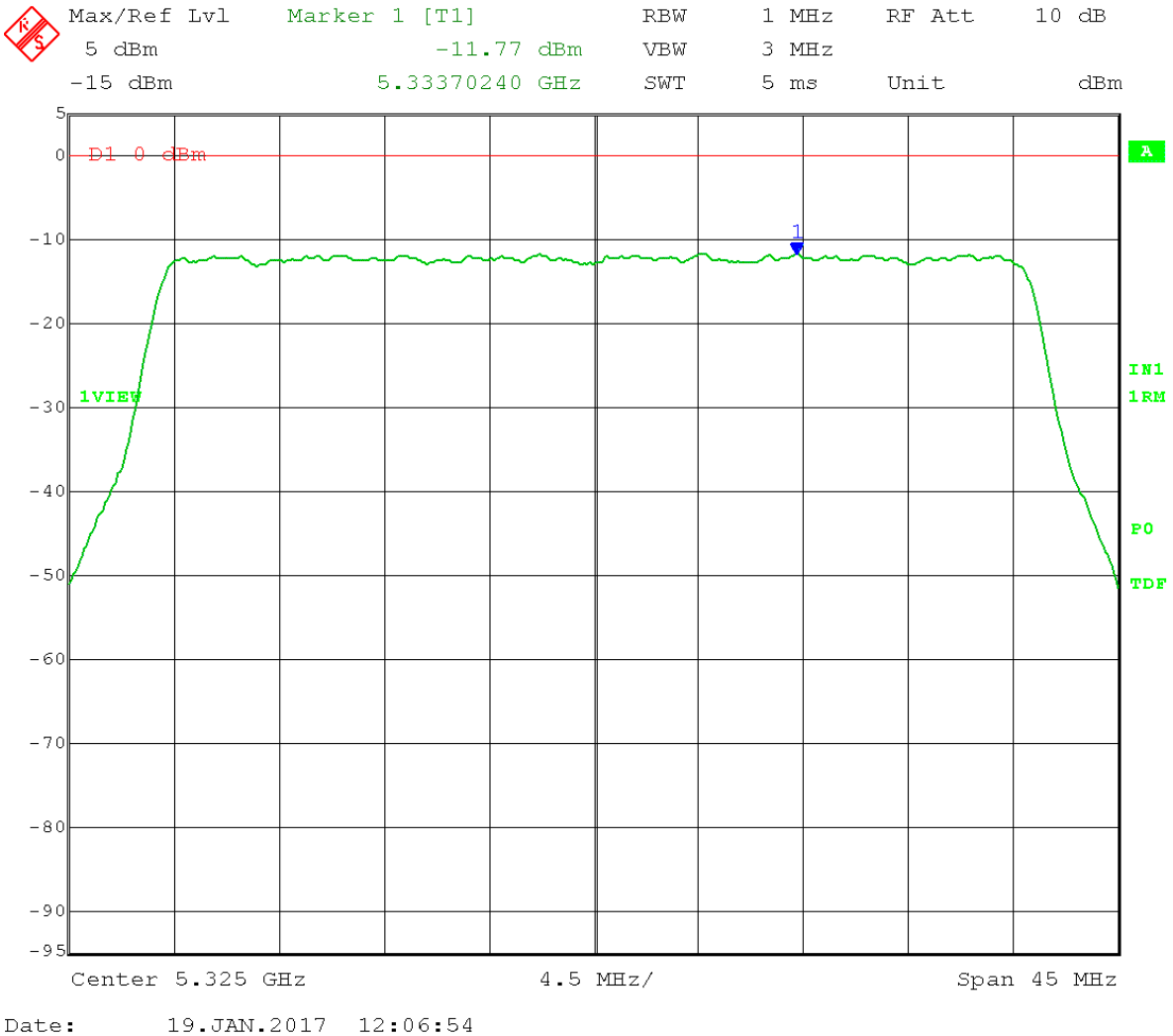
PPSD = -7.23 dBm + 1.01 dB (duty cycle correction) + 3 dB (2-port MIMO)
= **-3.22** dBm/MHz



Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Peak power spectral density
Operator: Craig B
Comment: ANSI C63.10, 12.5 and 12.3.2.4 SA-2 trace averaging followed by duty cycle correction

High Channel: Transmit = 5325 MHz — 40 MHz BW
Power setting: 4 — Port B — QPSK
RBW = 1 MHz — VBW = 3 MHz
Detector = RMS — Trace = AVG
Sweep Time = Auto — Sweep counts = 200
Antenna gain = 17 dBi
Limit: 11 dBm/MHz – (17-6) = 0 dBm/MHz

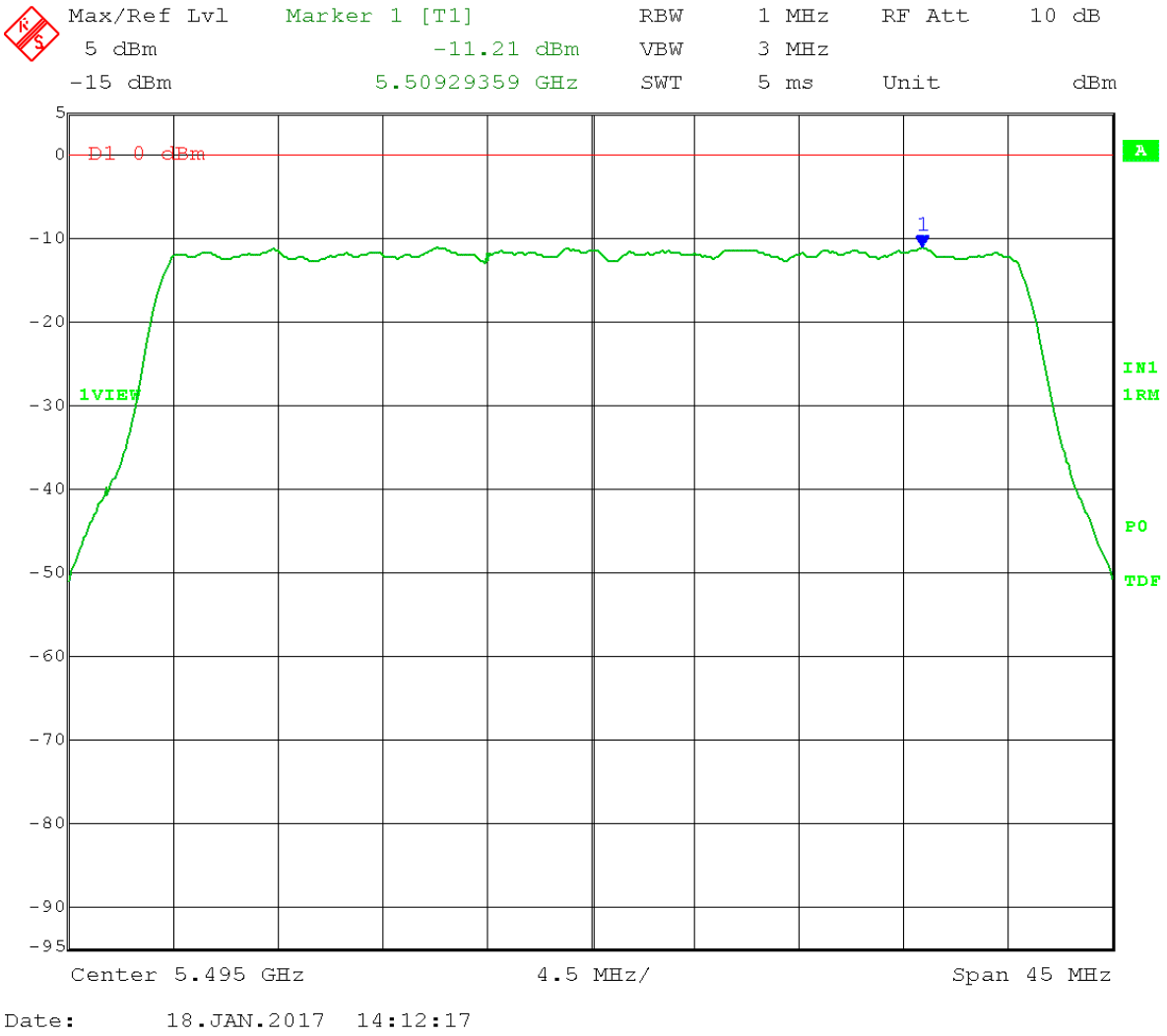
PPSD = -9.87 dBm + 1.01 dB (duty cycle correction) + 3 dB (2-port MIMO)
= **-7.76** dBm/MHz



Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Peak power spectral density
Operator: Craig B
Comment: ANSI C63.10, 12.5 and 12.3.2.4 SA-2 trace averaging followed by duty cycle correction

Low Channel: Transmit = 5495 MHz — 40 MHz BW
Power setting: 5 — Port B — QPSK
RBW = 1 MHz — VBW = 3 MHz
Detector = RMS — Trace = AVG
Sweep Time = Auto — Sweep counts = 200
Antenna gain = 17 dBi
Limit: 11 dBm/MHz – (17-6) = 0 dBm/MHz

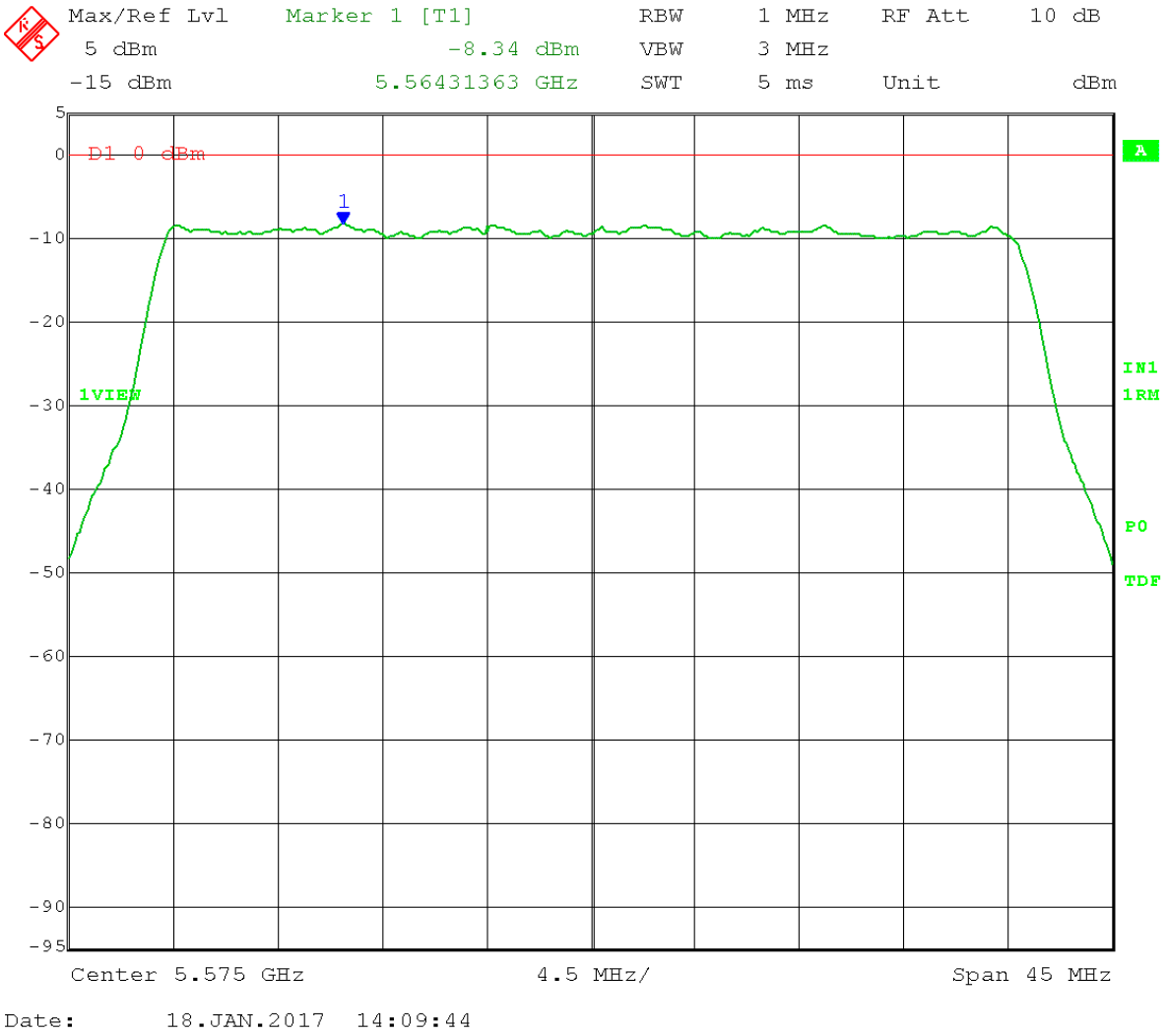
PPSD = -11.21 dBm + 1.01 dB (duty cycle correction) + 3 dB (2-port MIMO)
= **-7.20** dBm/MHz



Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Peak power spectral density
Operator: Craig B
Comment: ANSI C63.10, 12.5 and 12.3.2.4 SA-2 trace averaging followed by duty cycle correction

Mid Channel: Transmit = 5575 MHz — 40 MHz BW
Power setting: 9 — Port B — QPSK
RBW = 1 MHz — VBW = 3 MHz
Detector = RMS — Trace = AVG
Sweep Time = Auto — Sweep counts = 200
Antenna gain = 17 dBi
Limit: 11 dBm/MHz – (17-6) = 0 dBm/MHz

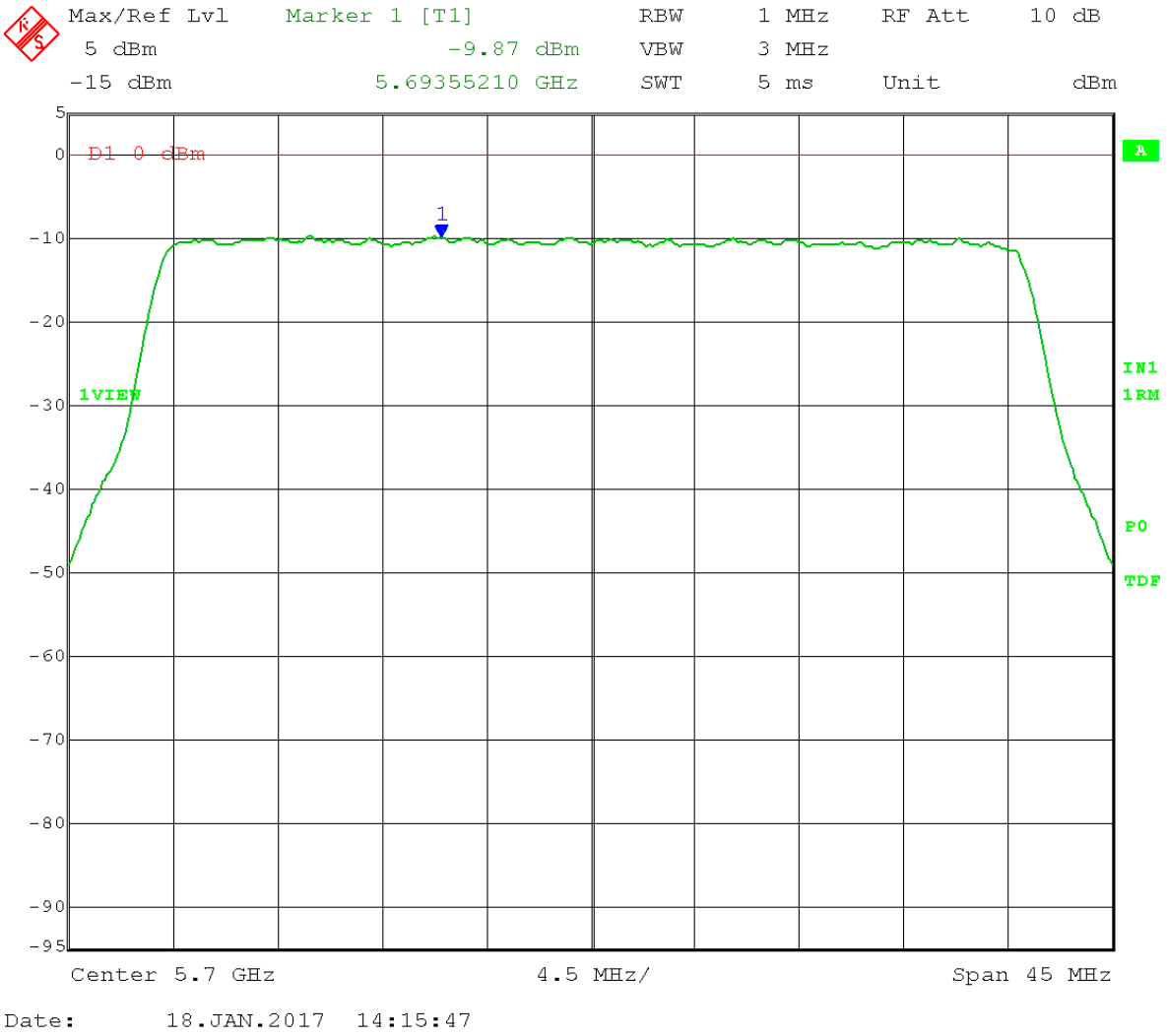
PPSD = -8.34 dBm + 1.01 dB (duty cycle correction) + 3 dB (2-port MIMO)
= **-4.33** dBm/MHz



Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Peak power spectral density
Operator: Craig B
Comment: ANSI C63.10, 12.5 and 12.3.2.4 SA-2 trace averaging followed by duty cycle correction

High Channel: Transmit = 5700 MHz — 40 MHz BW
Power setting: 7 — Port B — QPSK
RBW = 1 MHz — VBW = 3 MHz
Detector = RMS — Trace = AVG
Sweep Time = Auto — Sweep counts = 200
Antenna gain = 17 dBi
Limit: 11 dBm/MHz – (17-6) = 0 dBm/MHz

PPSD = -9.87 dBm + 1.01 dB (duty cycle correction) + 3 dB (2-port MIMO)
= **-5.86** dBm/MHz



Appendix B – Measurement Data

B5.0 Band-Edge – Unwanted Emission Levels

RF Conducted

Rule Section: FCC 15.407(b)(2), 15.407(b)(3) and 15.407(b)(5)

Test Procedure: ANSI C63.10
Section 12.7.3

Description: Unwanted emissions that fall outside of the restricted bands

Measure the band-edge emission level using the following settings
RBW = 1 MHz
VBW ≥ [3 x RBW]
Detector = peak
Sweep time = auto
Trace mode = max hold until trace stabilizes

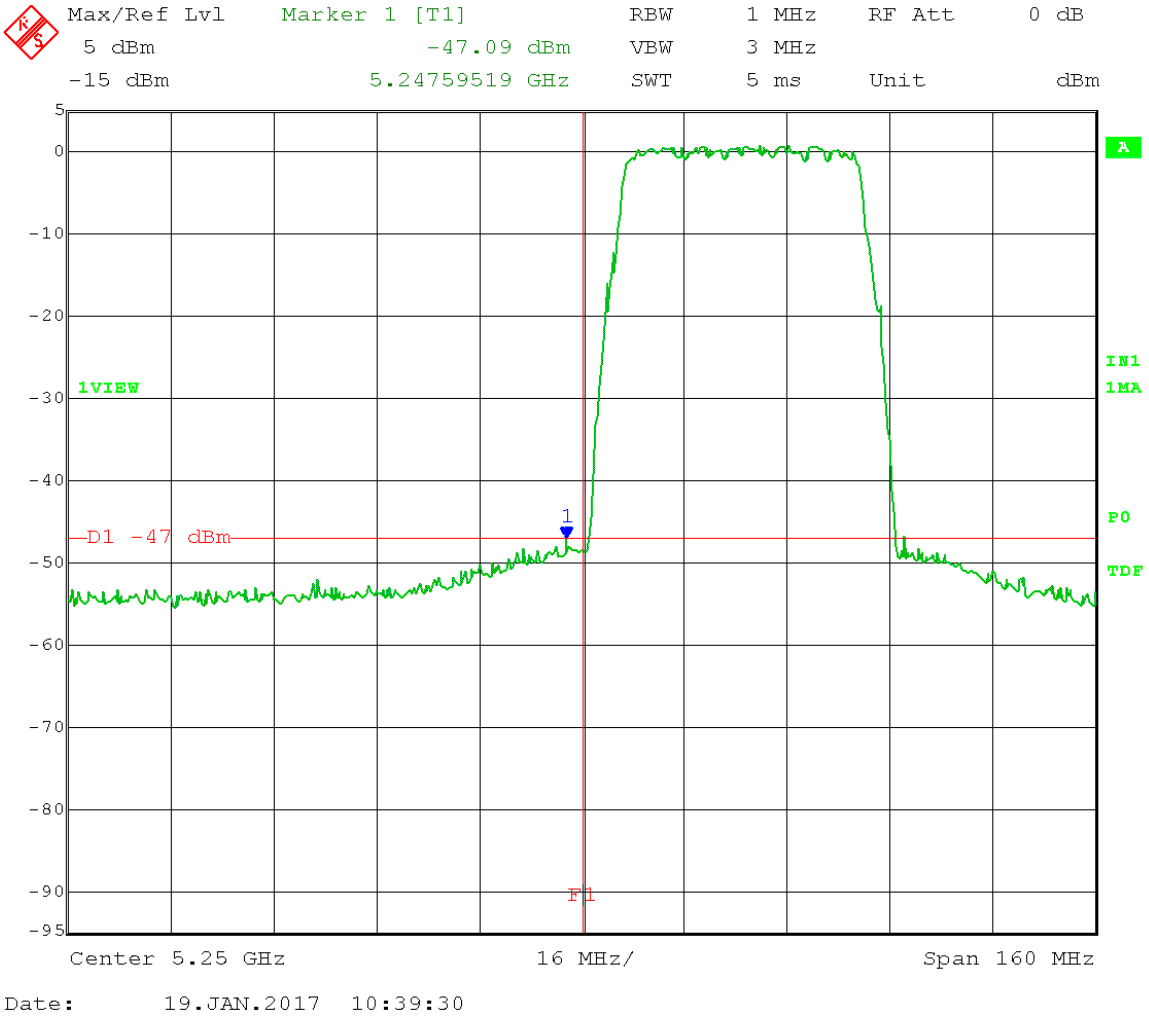
Limit: EIRP of -27 dBm/MHz
RF conducted limit lowered to account for two-port MIMO operation and antenna gain.

Results: Passed

Notes: Measurements were taken for QPSK at the lowest and highest channels of operation. EUT was set to transmit continuously with 79.3% duty cycle in the 5.2 GHz band and 79.2% duty cycle in the 5.4 GHz band.

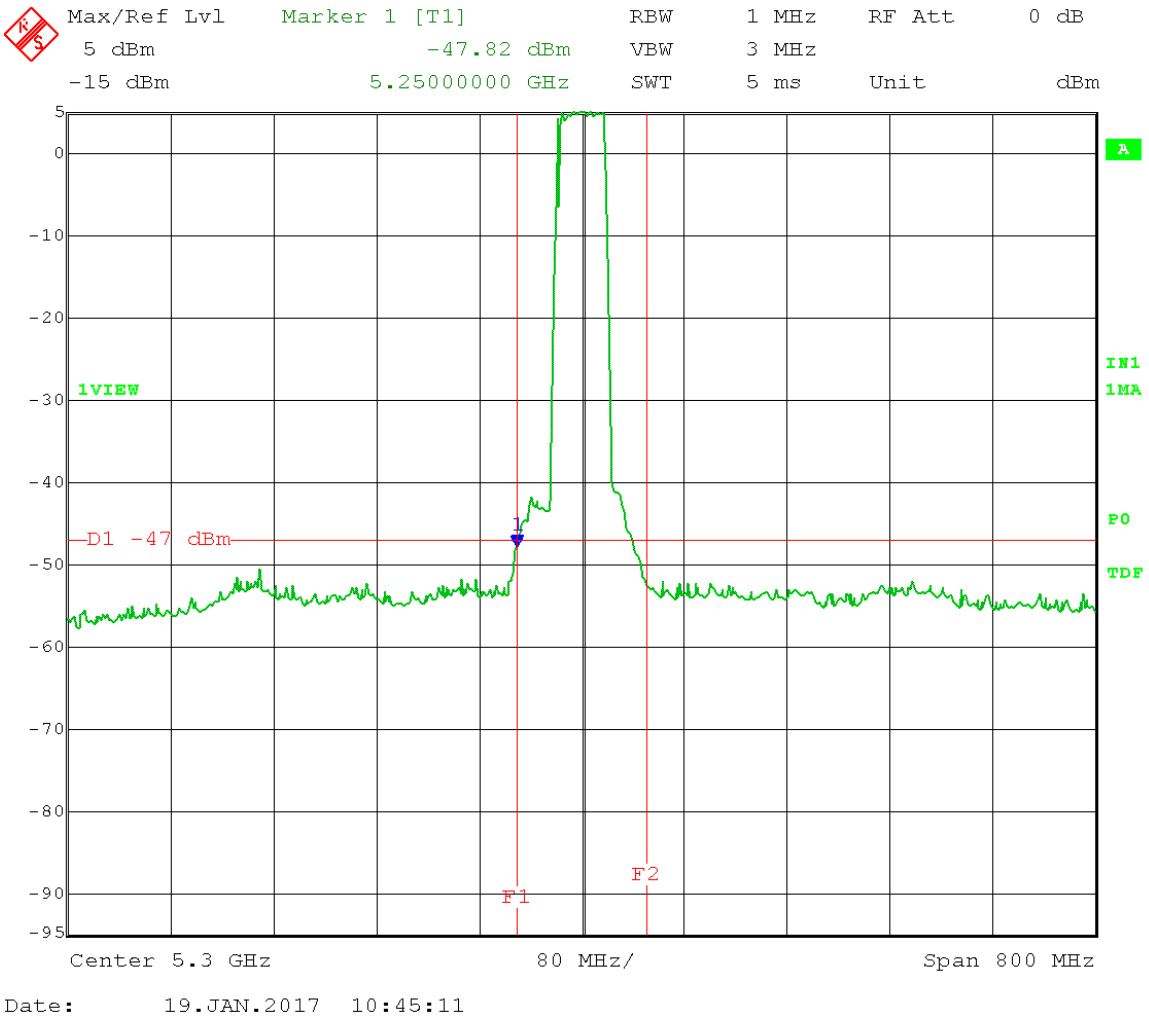
Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.2GHz
Test:	Lower Band-edge (5250 MHz)
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.3
	Low Channel: Transmit = 5275 MHz 40 MHz BW
	Power setting: 4 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

Limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz



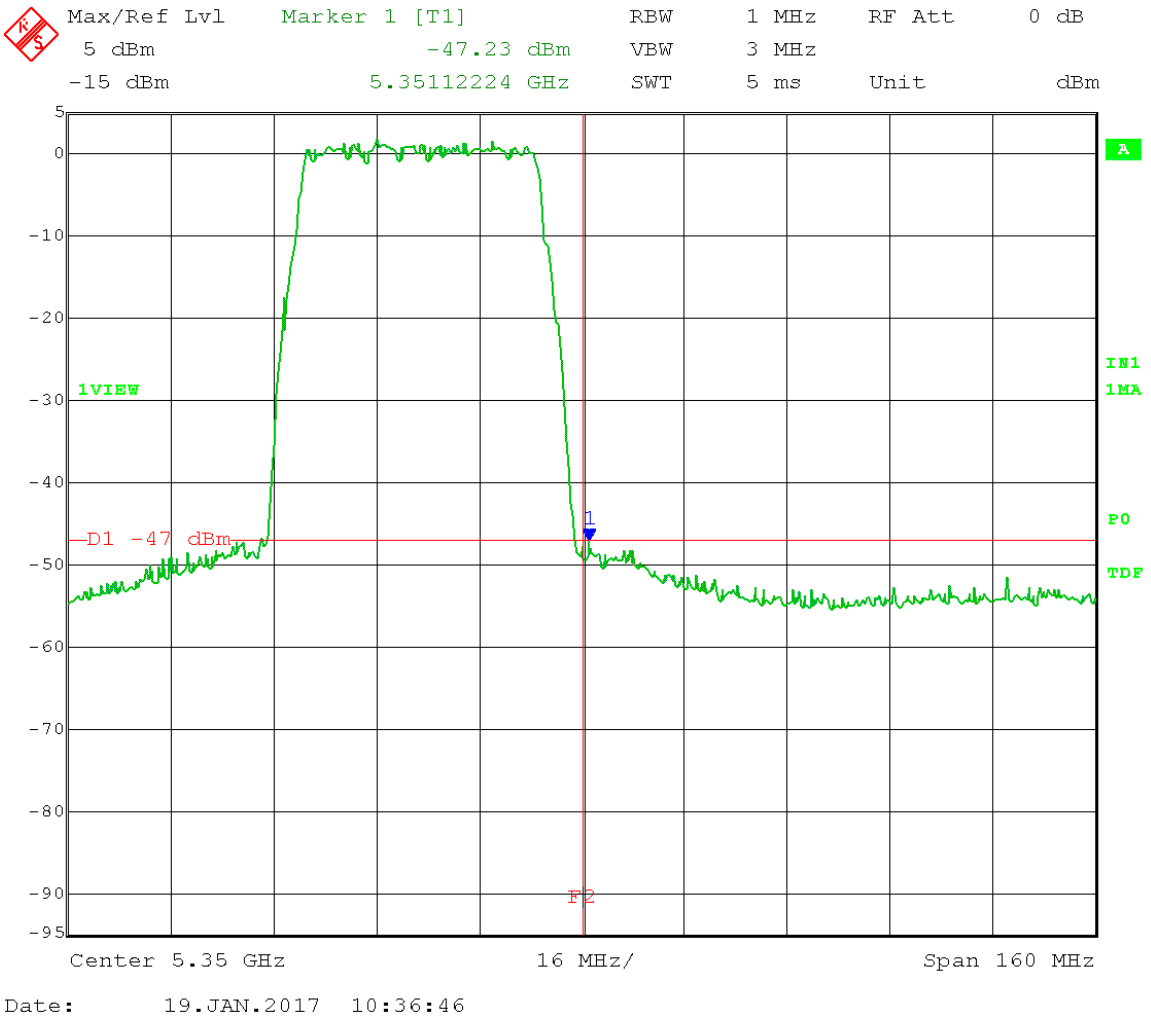
Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.2GHz
Test:	Lower & Upper Band-edges (5250 MHz & 5350 MHz)
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.3
	Mid Channel: Transmit = 5300 MHz 40 MHz BW
	Power setting: 9 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

Limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz



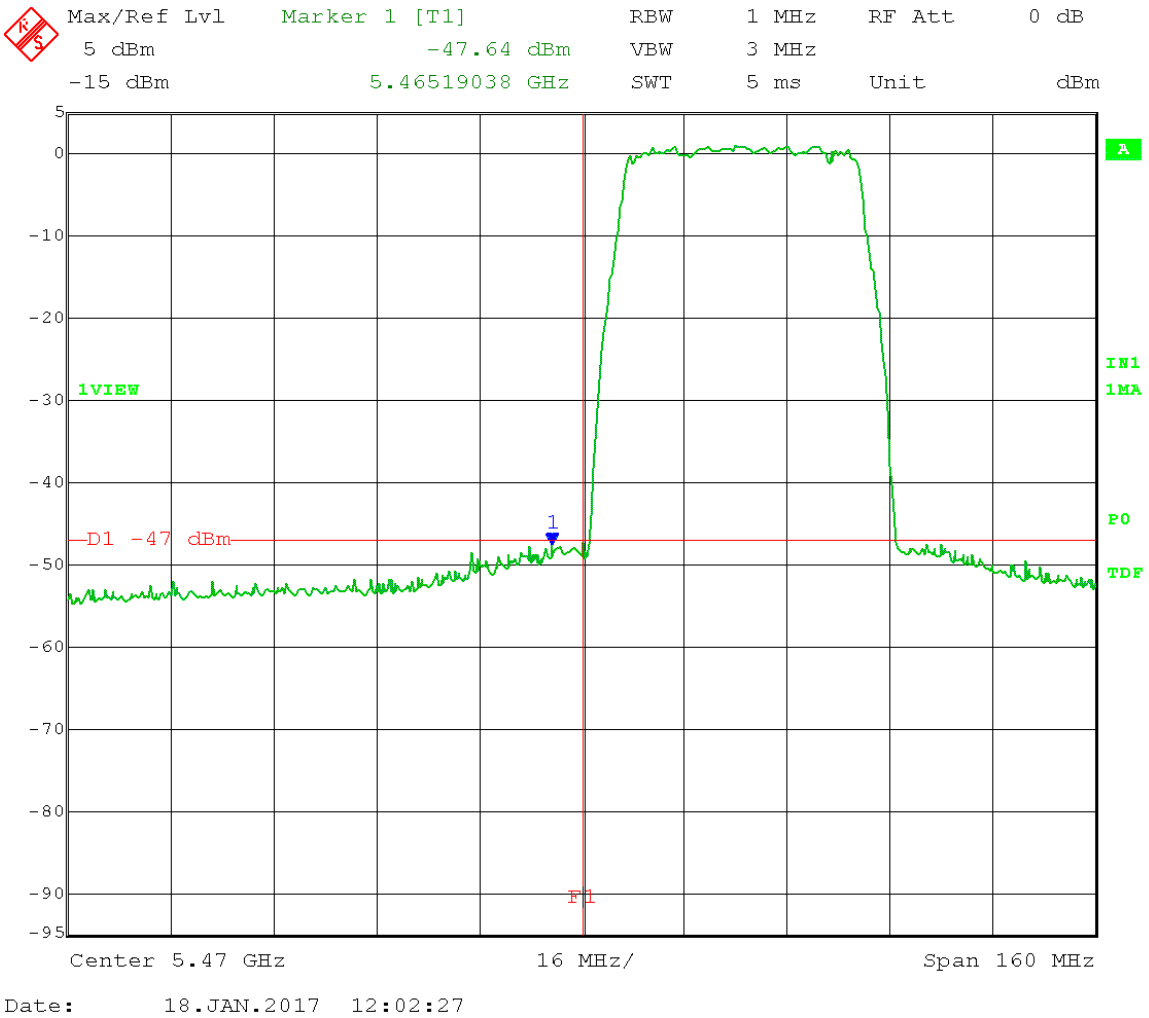
Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.2GHz
Test:	Upper Band-edge (5350 MHz)
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.3
	High Channel: Transmit = 5325 MHz 40 MHz BW
	Power setting: 4 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

Limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz



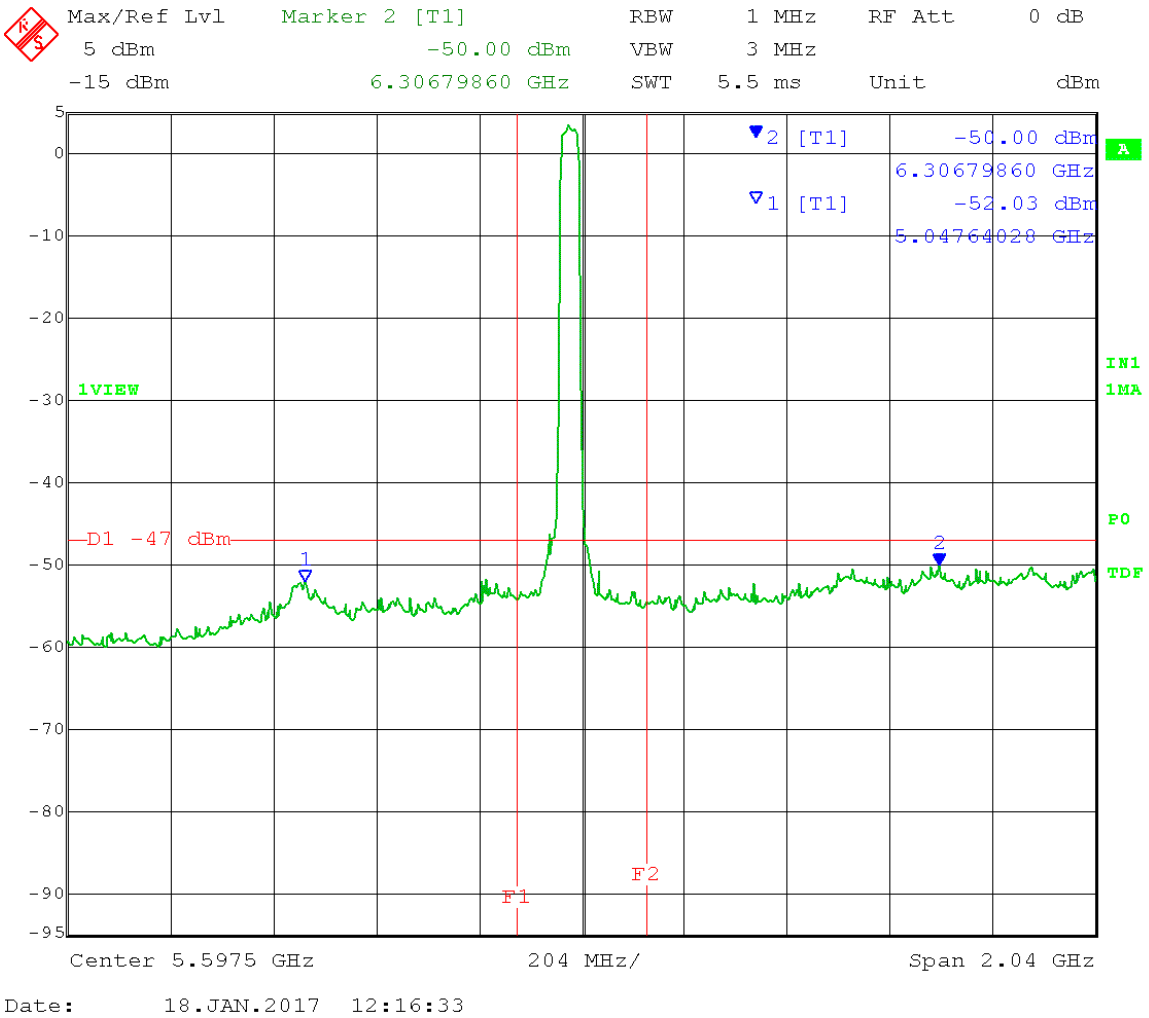
Test Date:	01-18-2017
Company:	Cambium Networks
EUT:	PMP450i 5.4GHz
Test:	Lower Band-edge (5470 MHz)
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.3
	Low Channel: Transmit = 5495 MHz 40 MHz BW
	Power setting: 5 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

Limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz



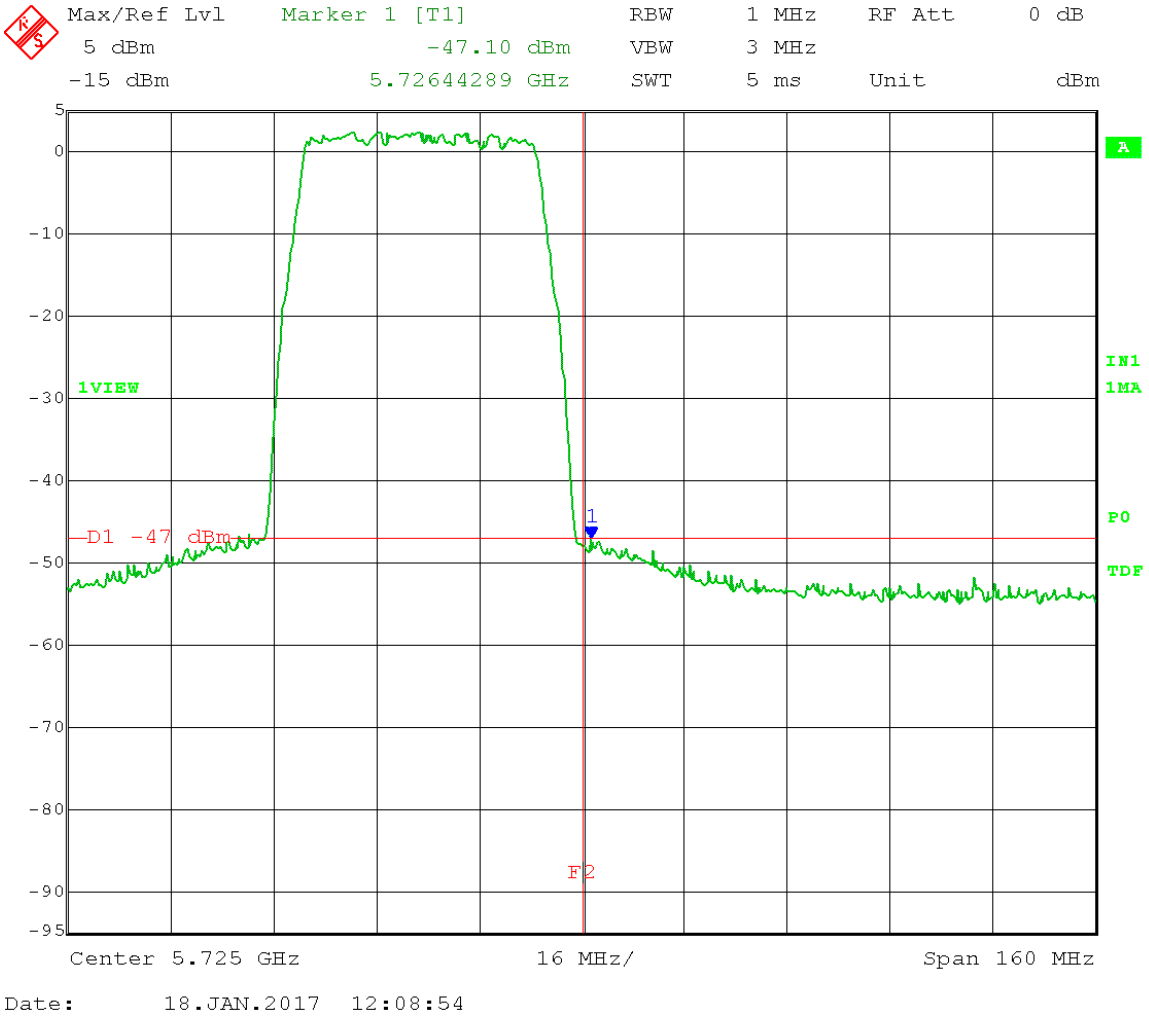
Test Date:	01-18-2017
Company:	Cambium Networks
EUT:	PMP450i 5.4GHz
Test:	Lower & Upper Band-edges (5470 MHz & 5725 MHz)
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.3
	Mid Channel: Transmit = 5575 MHz 40 MHz BW
	Power setting: 9 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

Limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz



Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Upper Band-edge (5725 MHz)
Operator: Craig B
Comment: ANSI C63.10, 12.7.3
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz



Appendix B – Measurement Data

B6.0 Unwanted Emission Levels – RF Conducted

Rule Section: FCC 15.407(b)(2), 15.407(b)(3), 15.407(b)(6), and 15.407(b)(7)

Test Procedure: ANSI C63.10-2013
Sections 12.7.2 and 12.7.3

Below 1000 MHz
Detector = quasi-peak
Alternately, peak detector is permitted

Peak measurements above 1000 MHz
RBW = 1 MHz
VBW ≥ 3 MHz
Detector = peak
Trace mode = max hold

Average measurements above 1000 MHz (required for peak emissions that are above the average limits)
RBW = 1 MHz
VBW ≥ 3 MHz
Detector = Average (linear)
Trace mode = max hold

EIRP calculation:
Add upper bound on out-of-band antenna gain to measured antenna port conducted emission power. (This is the maximum in-band gain or 2 dBi, whichever is greater)
Add 10 log(N), where N is the number of outputs, for MIMO operation

Field strength calculation:
Above 1 GHz:
E (dBµV/m) = EIRP (dBm) – 20 log (d{meters}) + 104.77
Below 1 GHz:
E (dBµV/m) = EIRP (dBm) – 20 log (d{meters}) + 104.77 + 4.7 dB

Limits: Outside restricted bands: Peak EIRP shall not exceed -27 dBm/MHz
Inside restricted bands: Peak and Average limits of FCC Part 15.209

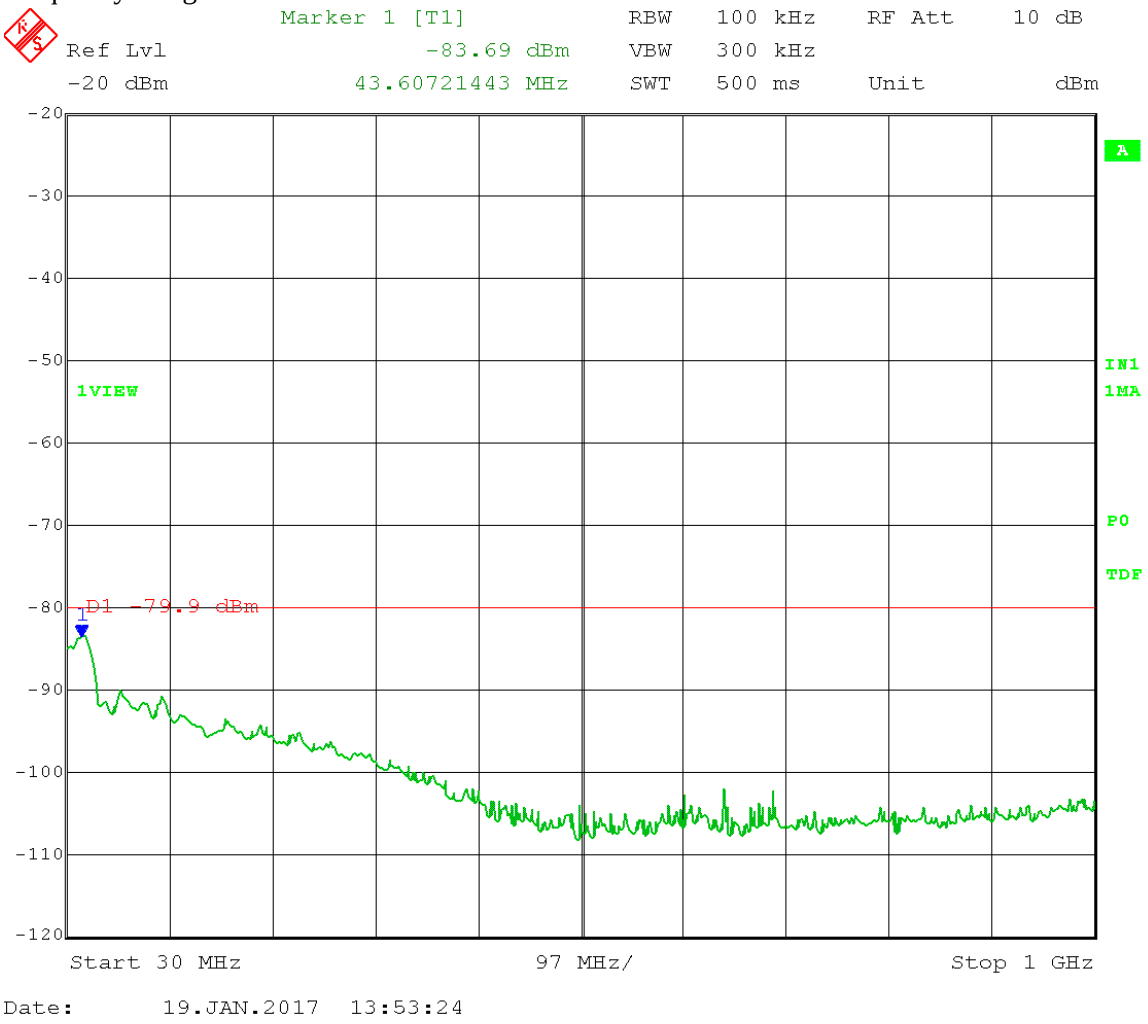
RF conducted limits lowered to account for duty cycle, two-port MIMO operation and antenna gain.

Notes: Measurements were taken for QPSK at the lowest, middle, and highest channels of operation. EUT was set to transmit continuously with 79.3% duty cycle in the 5.2 GHz band and 79.2% duty cycle in the 5.4 GHz band.

Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5275 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

FCC 15.209 limit: 40 dBµV/m at 3 meters; Conducted limit = 40 - 95.2 - 4.7 dB (ground plane) - 3 dB (MIMO) - 17 dBi antenna gain = -79.9 dBm/100 kHz

Frequency Range: 30 – 1000 MHz



Date: 19.JAN.2017 13:53:24

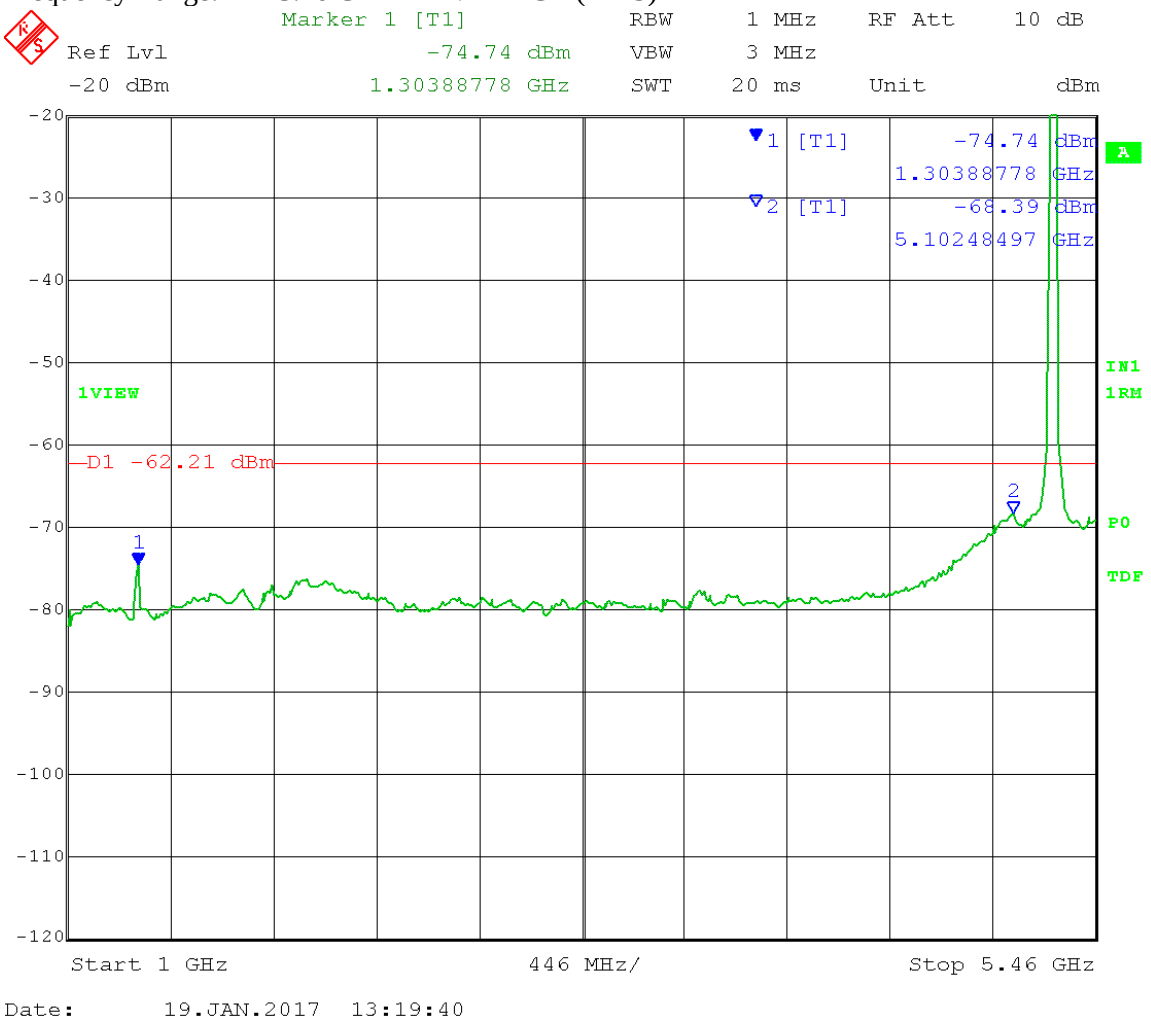
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5275 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: RMS

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz AVERAGE (RMS)



Date: 19.JAN.2017 13:19:40

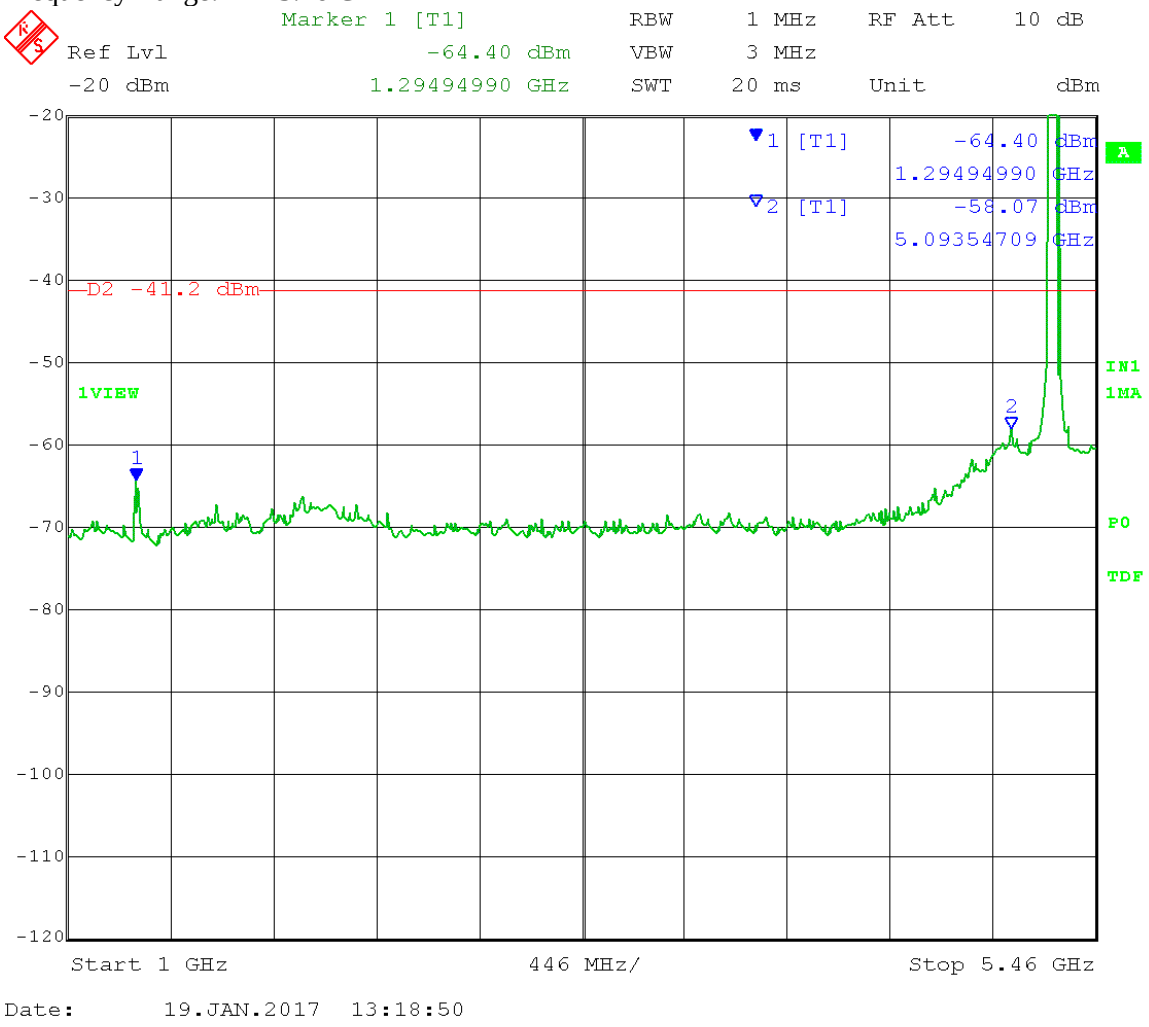
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5275 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz PEAK



Date: 19.JAN.2017 13:18:50

Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5275 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 5.46 – 7.25 GHz

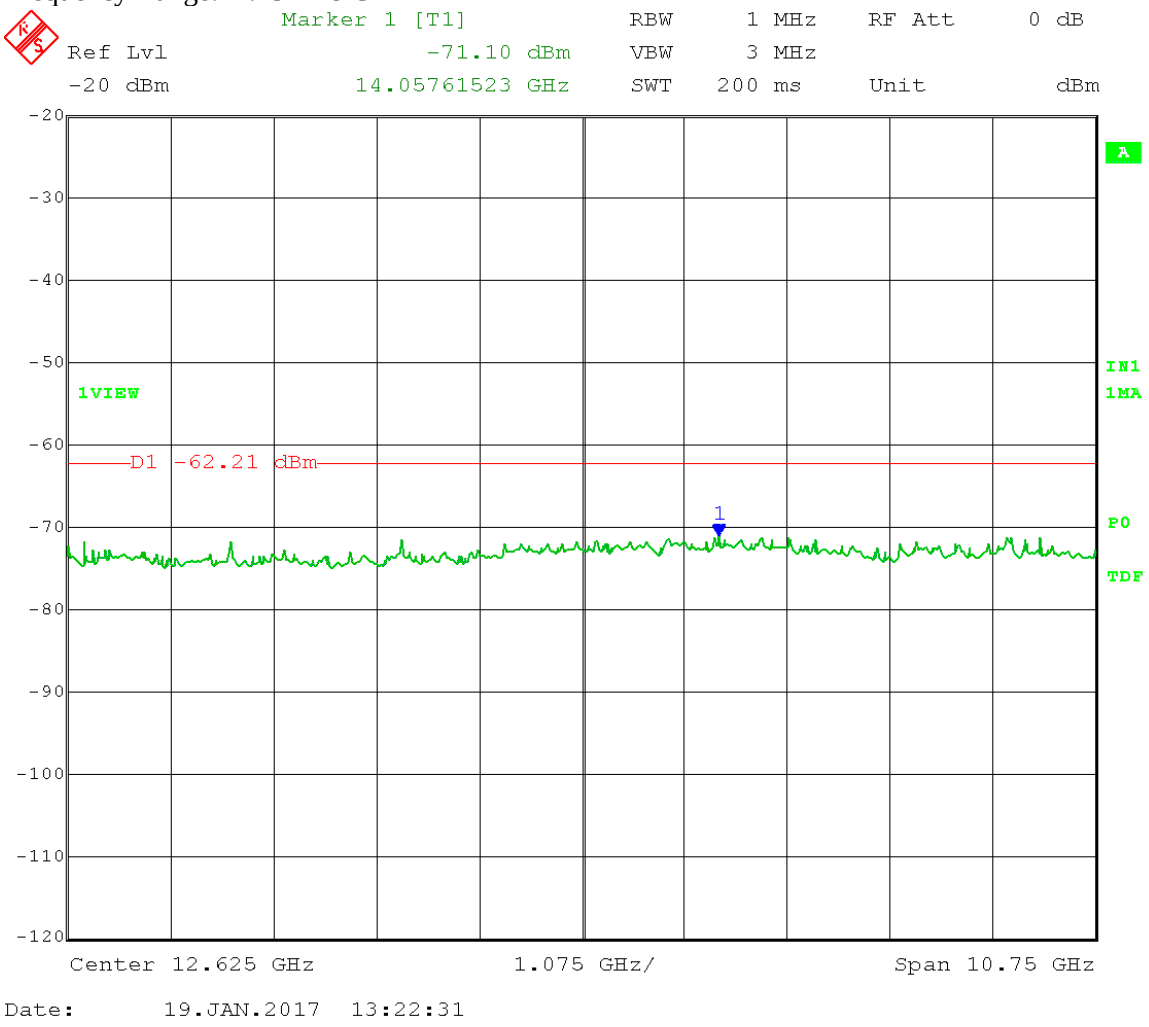
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5275 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 7.25 – 18 GHz



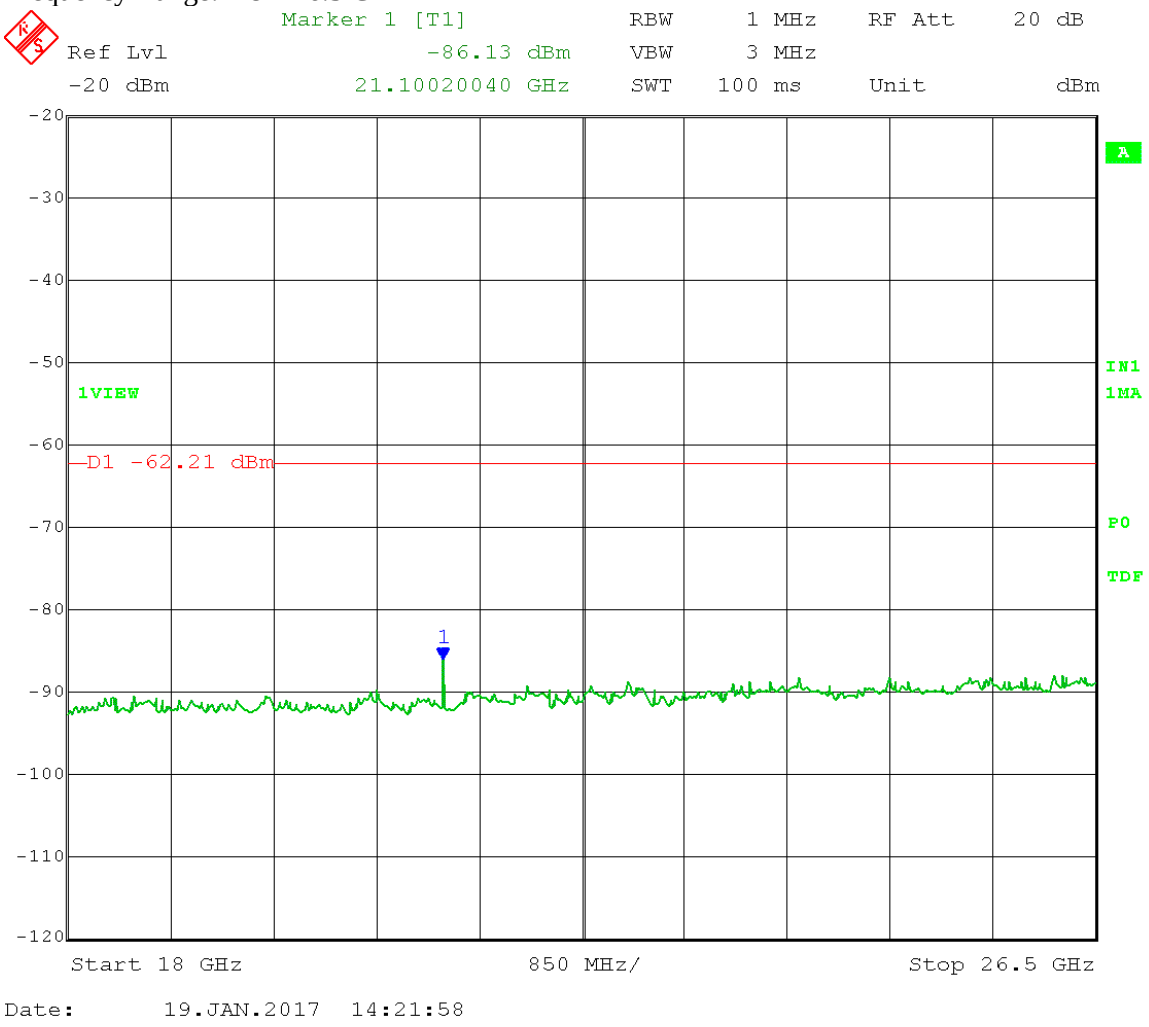
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5275 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 18 – 26.5 GHz



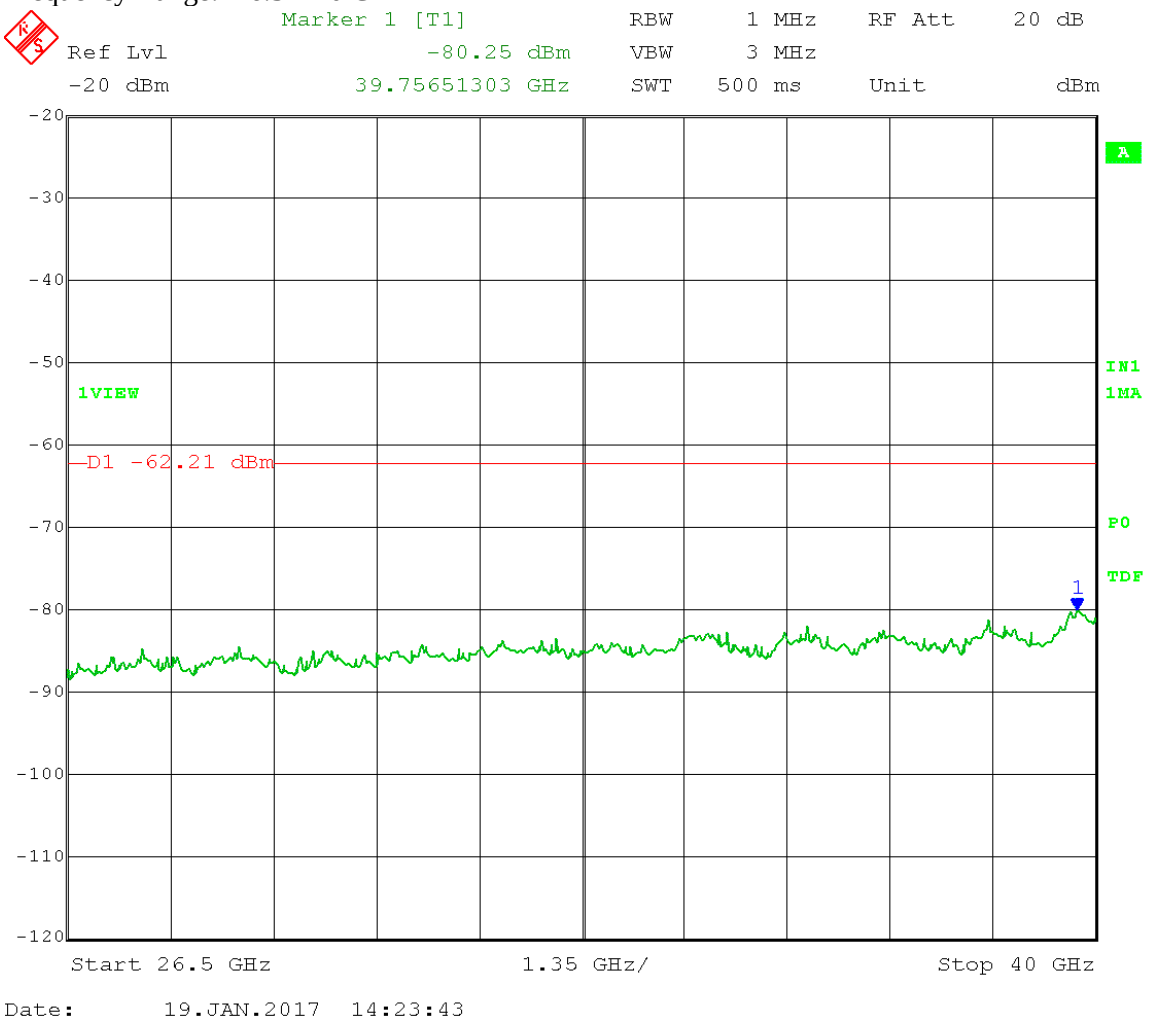
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5275 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

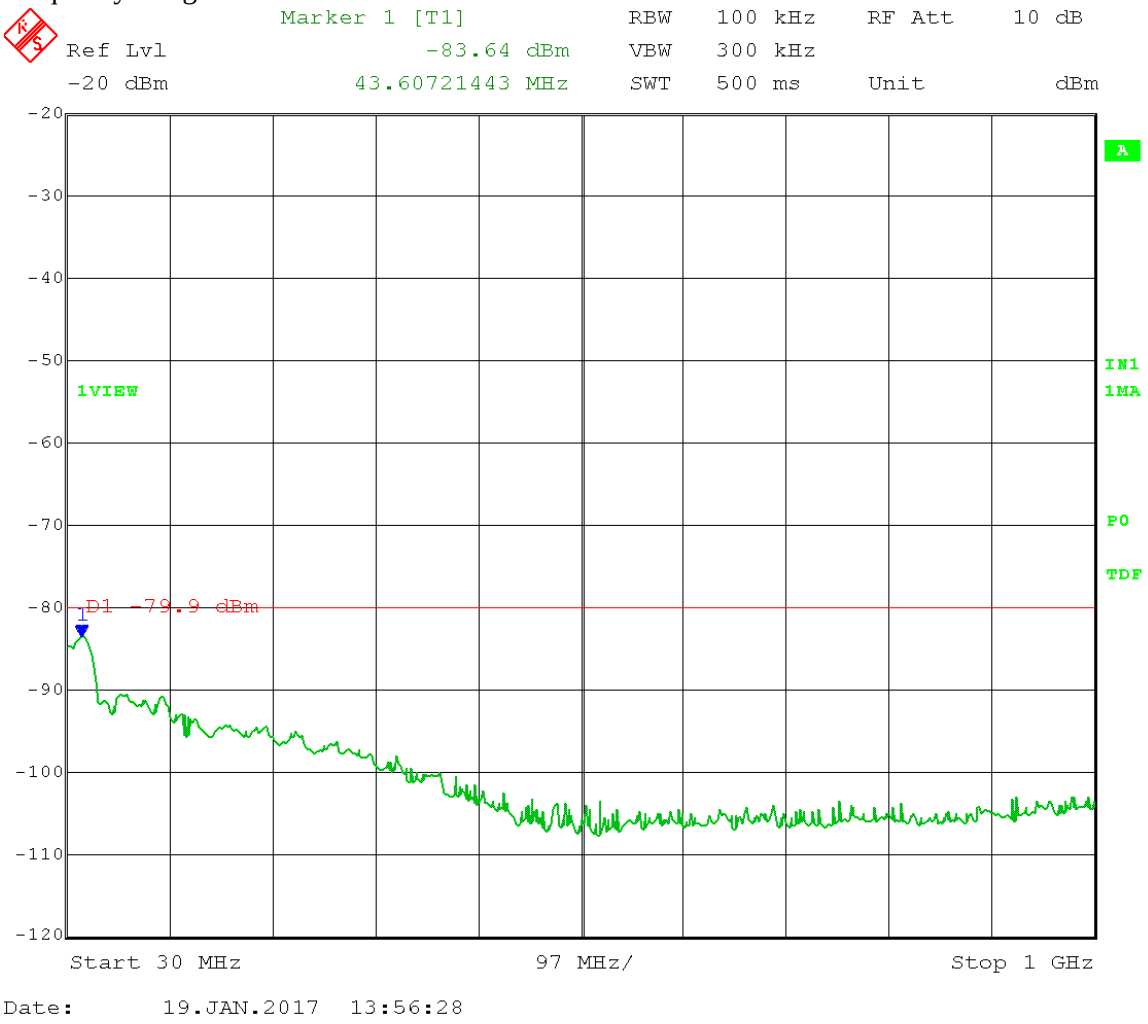
Frequency Range: 26.5 – 40 GHz



Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.2GHz
Test:	Unwanted emissions
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.2 and 12.7.3
	Mid Channel: Transmit = 5300 MHz 40 MHz BW
	Power setting: 9 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

FCC 15.209 limit: 40 dBµV/m at 3 meters; Conducted limit = 40 - 95.2 - 4.7 dB (ground plane) - 3 dB (MIMO) - 17 dBi antenna gain = -79.9 dBm/100 kHz

Frequency Range: 30 – 1000 MHz



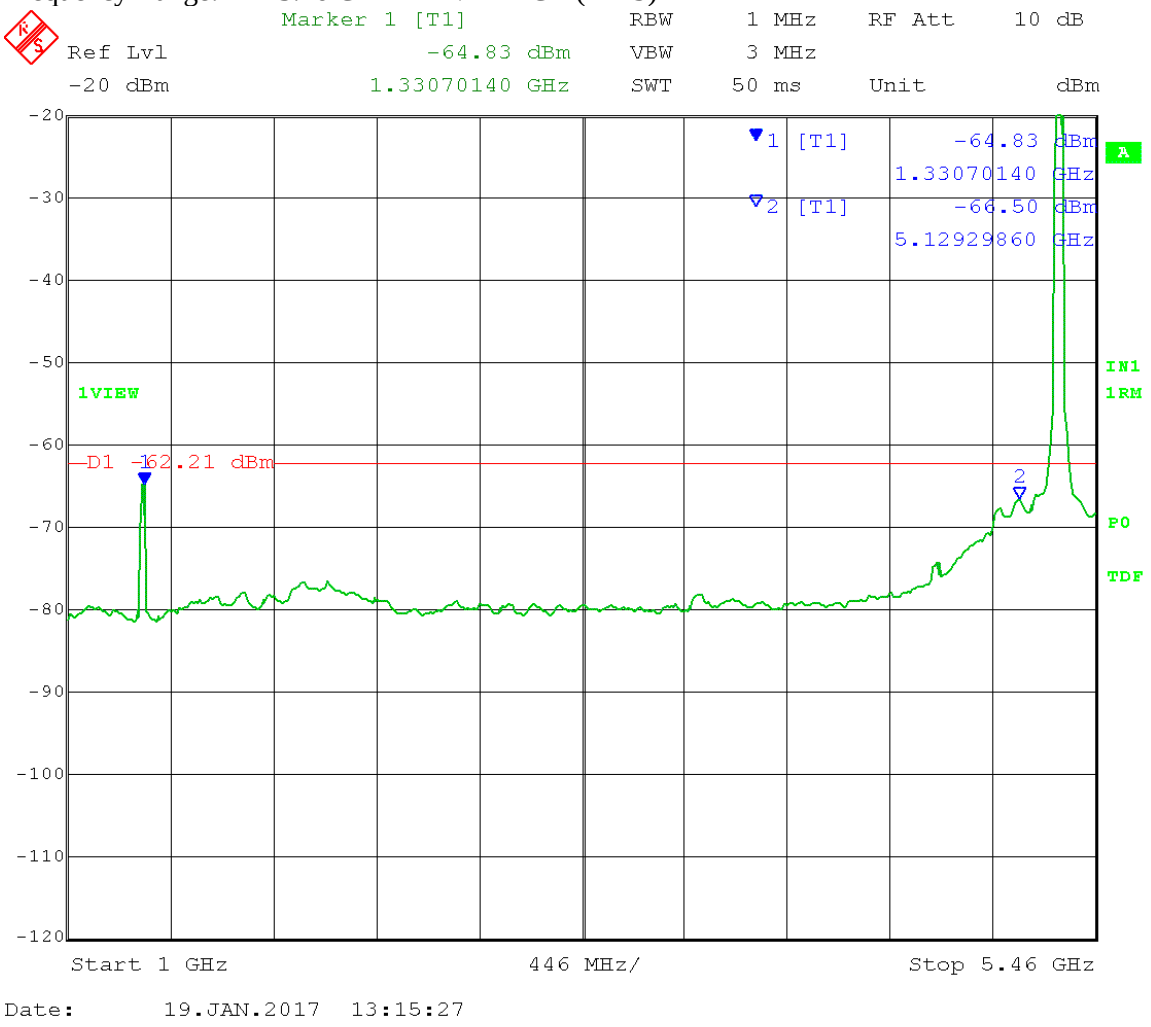
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5300 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: RMS

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz AVERAGE (RMS)



Date: 19.JAN.2017 13:15:27

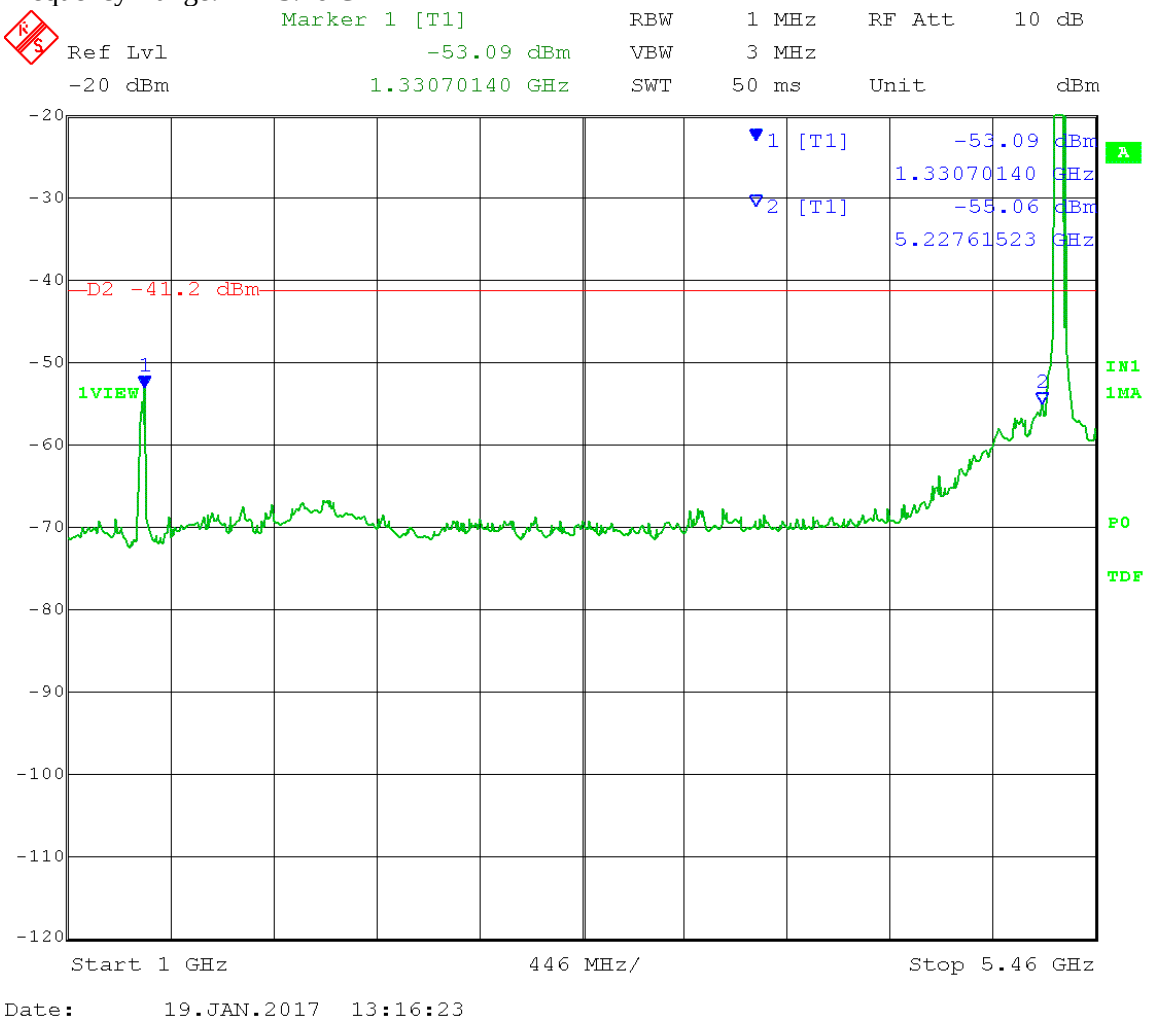
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5300 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz PEAK



Date: 19.JAN.2017 13:16:23

Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5300 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 5.46 – 7.25 GHz

Date: 19.JAN.2017 13:13:46

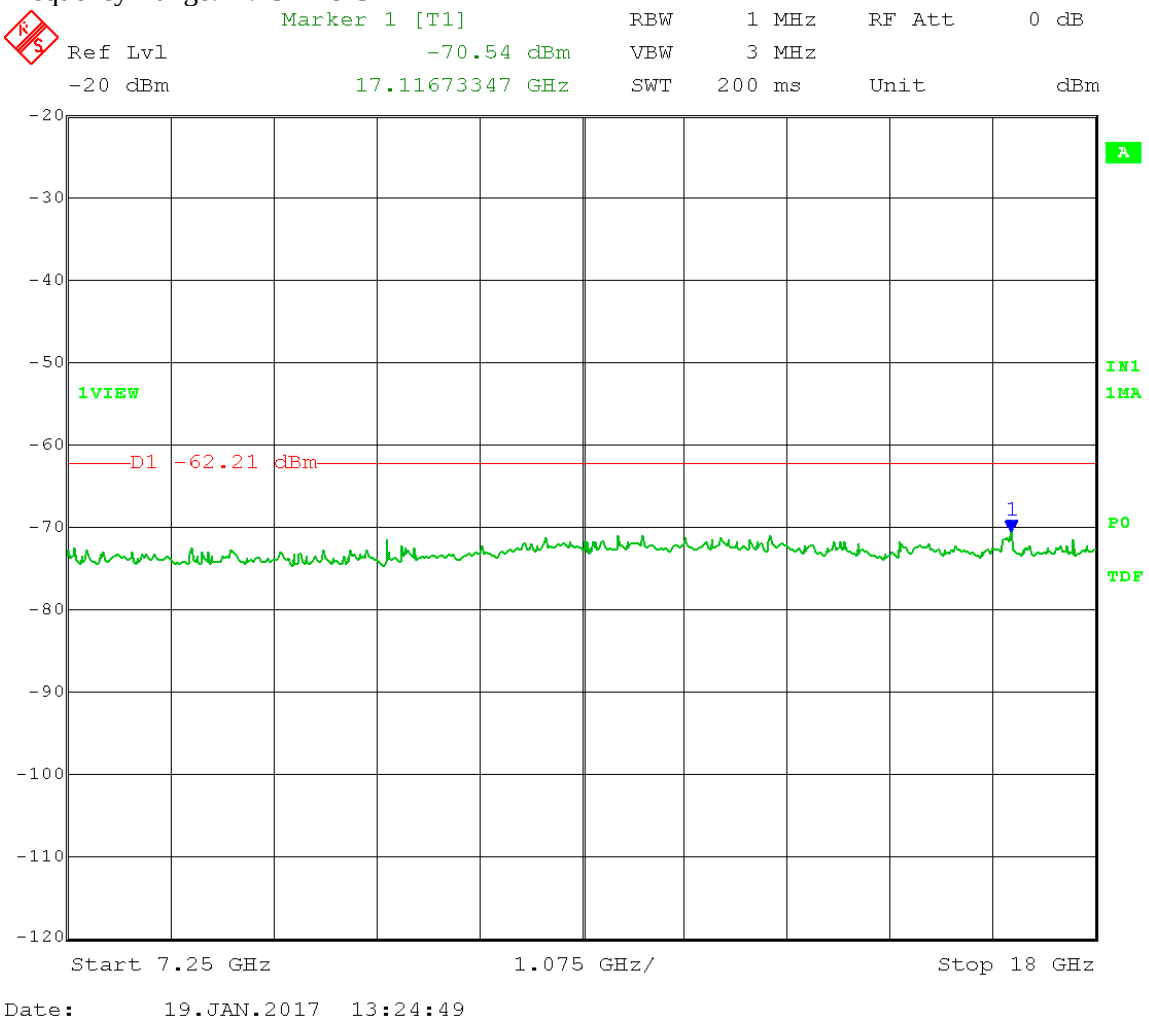
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5300 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 7.25 – 18 GHz



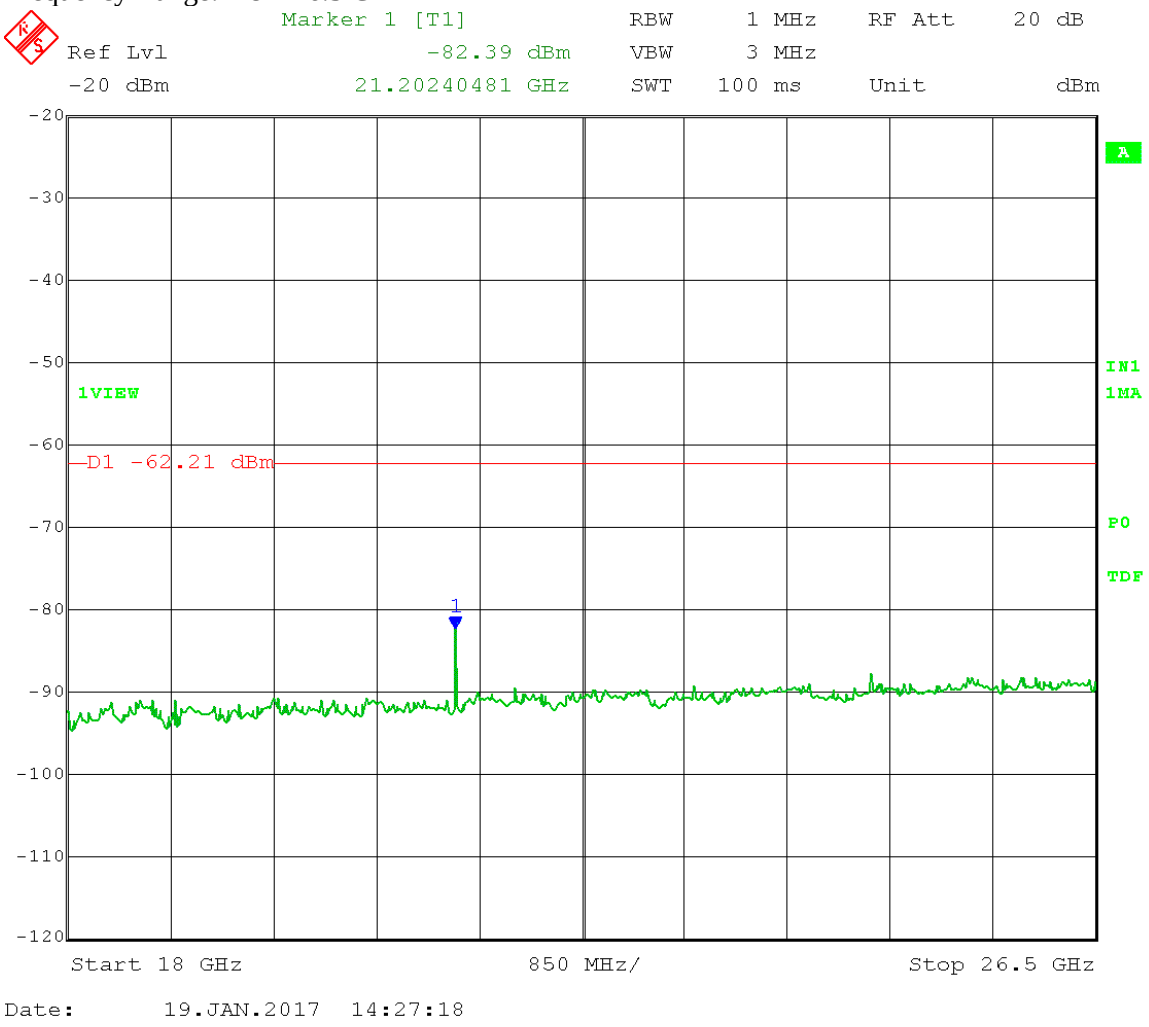
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5300 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 18 – 26.5 GHz



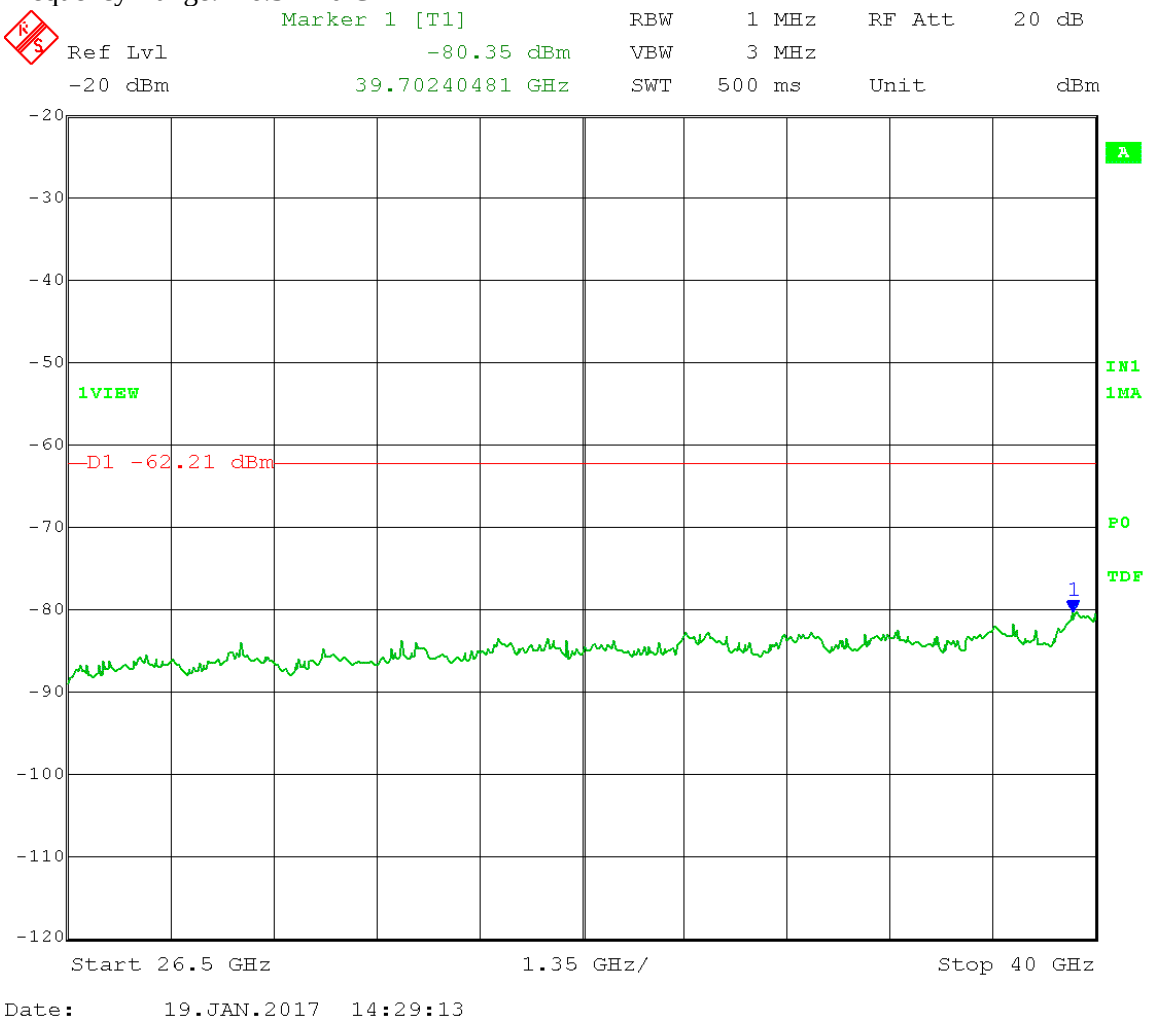
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5300 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

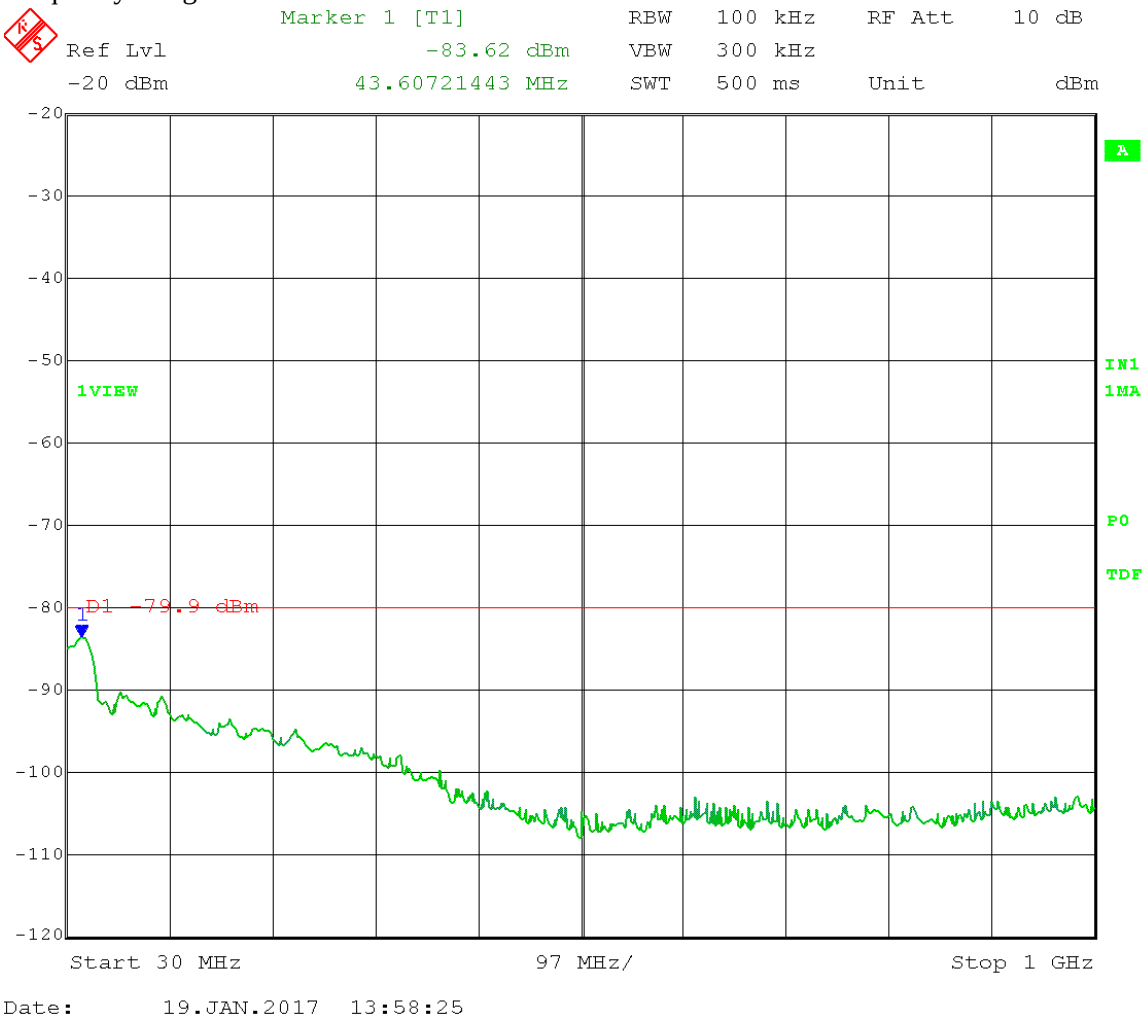
Frequency Range: 26.5 – 40 GHz



Test Date:	01-19-2017		
Company:	Cambium Networks		
EUT:	PMP450i 5.2GHz		
Test:	Unwanted emissions		
Operator:	Craig B		
Comment:	ANSI C63.10, 12.7.2 and 12.7.3		
	High Channel: Transmit = 5325 MHz		40 MHz BW
	Power setting: 4	Port B	QPSK
	Antenna gain: 17 dBi		
	Detector: Peak		

FCC 15.209 limit: 40 dBµV/m at 3 meters; Conducted limit = 40 - 95.2 - 4.7 dB (ground plane) - 3 dB (MIMO) - 17 dBi antenna gain = -79.9 dBm/100 kHz

Frequency Range: 30 – 1000 MHz



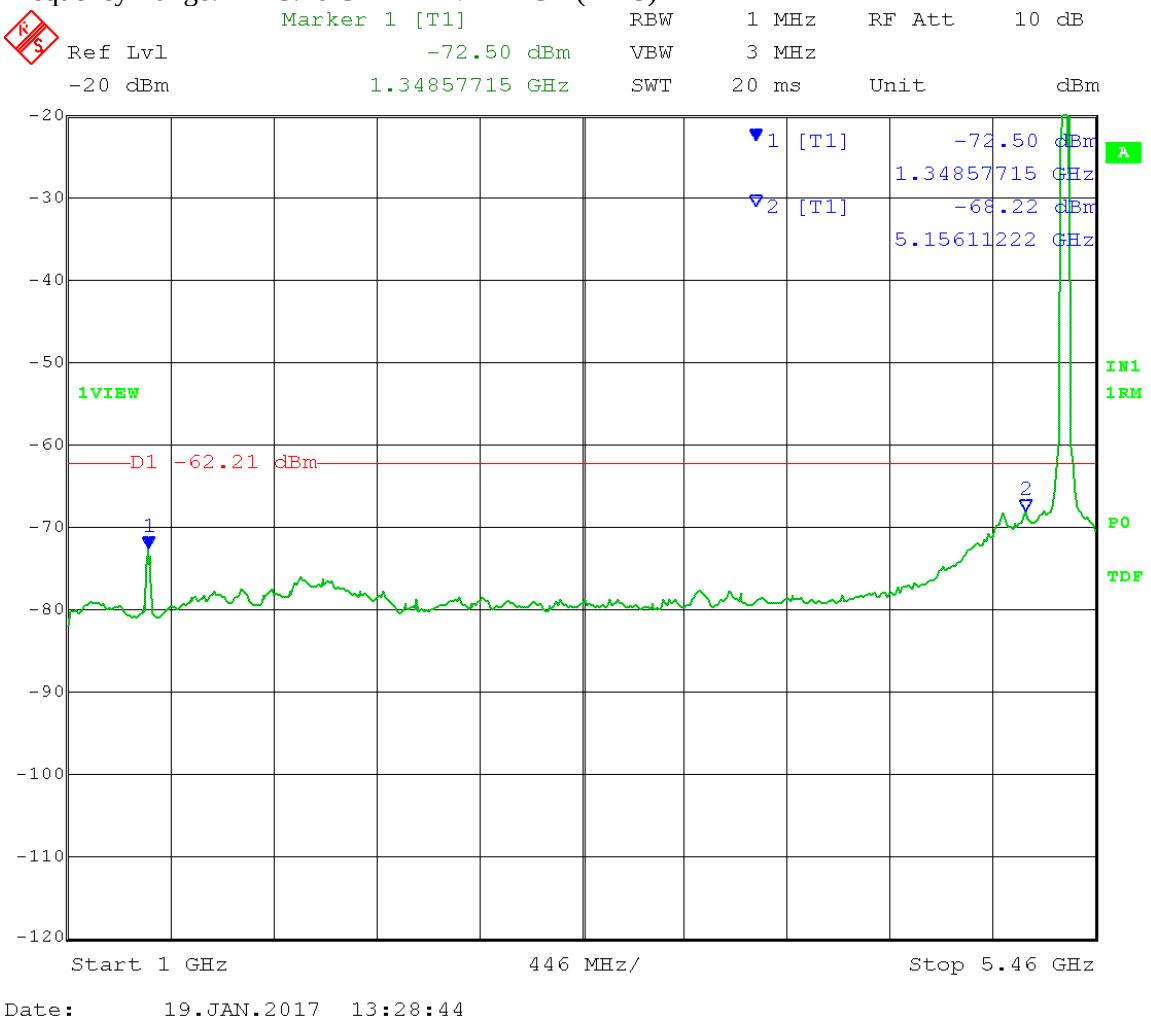
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5325 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: RMS

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz AVERAGE (RMS)



Date: 19.JAN.2017 13:28:44

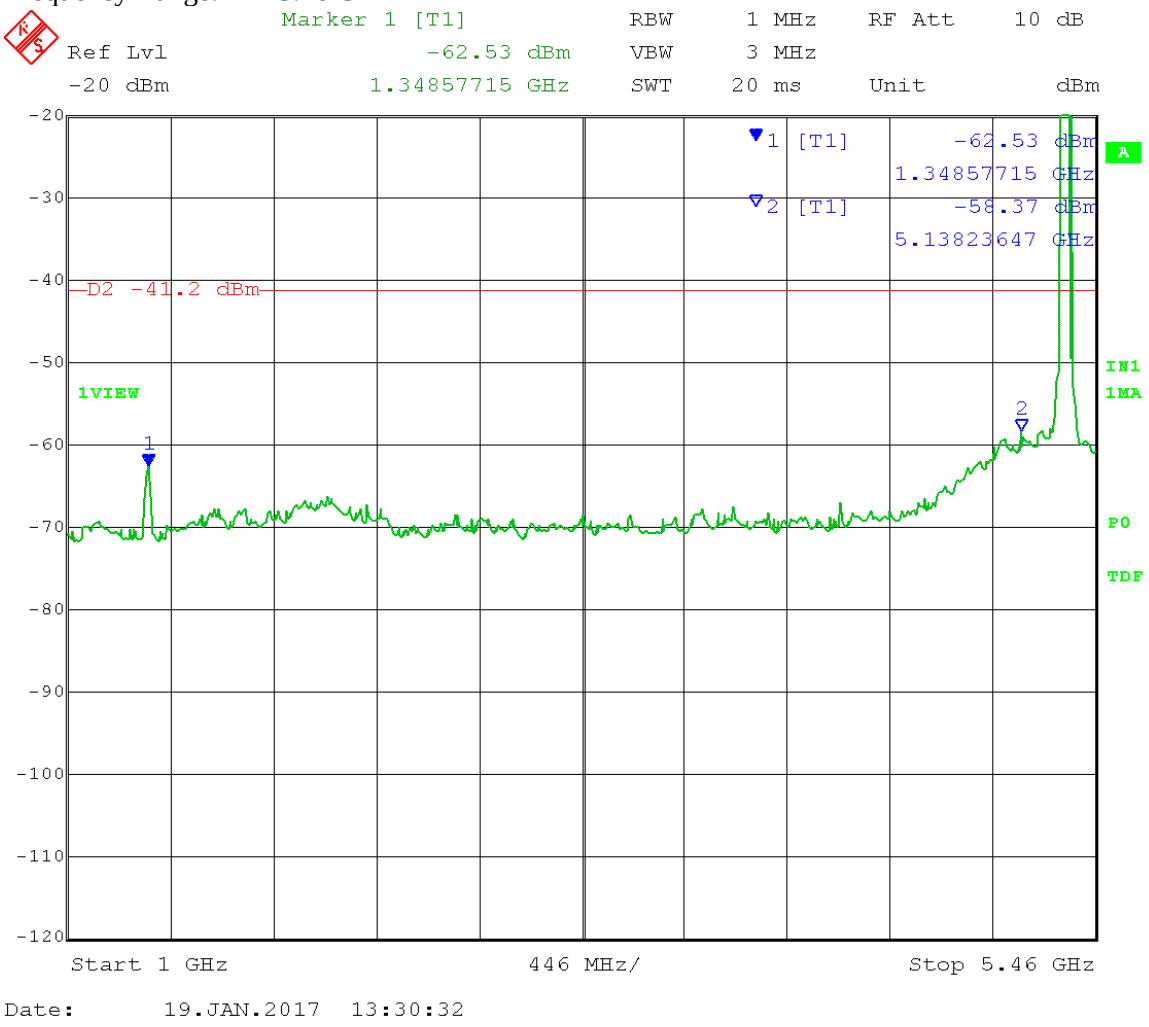
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5325 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz PEAK



Date: 19.JAN.2017 13:30:32

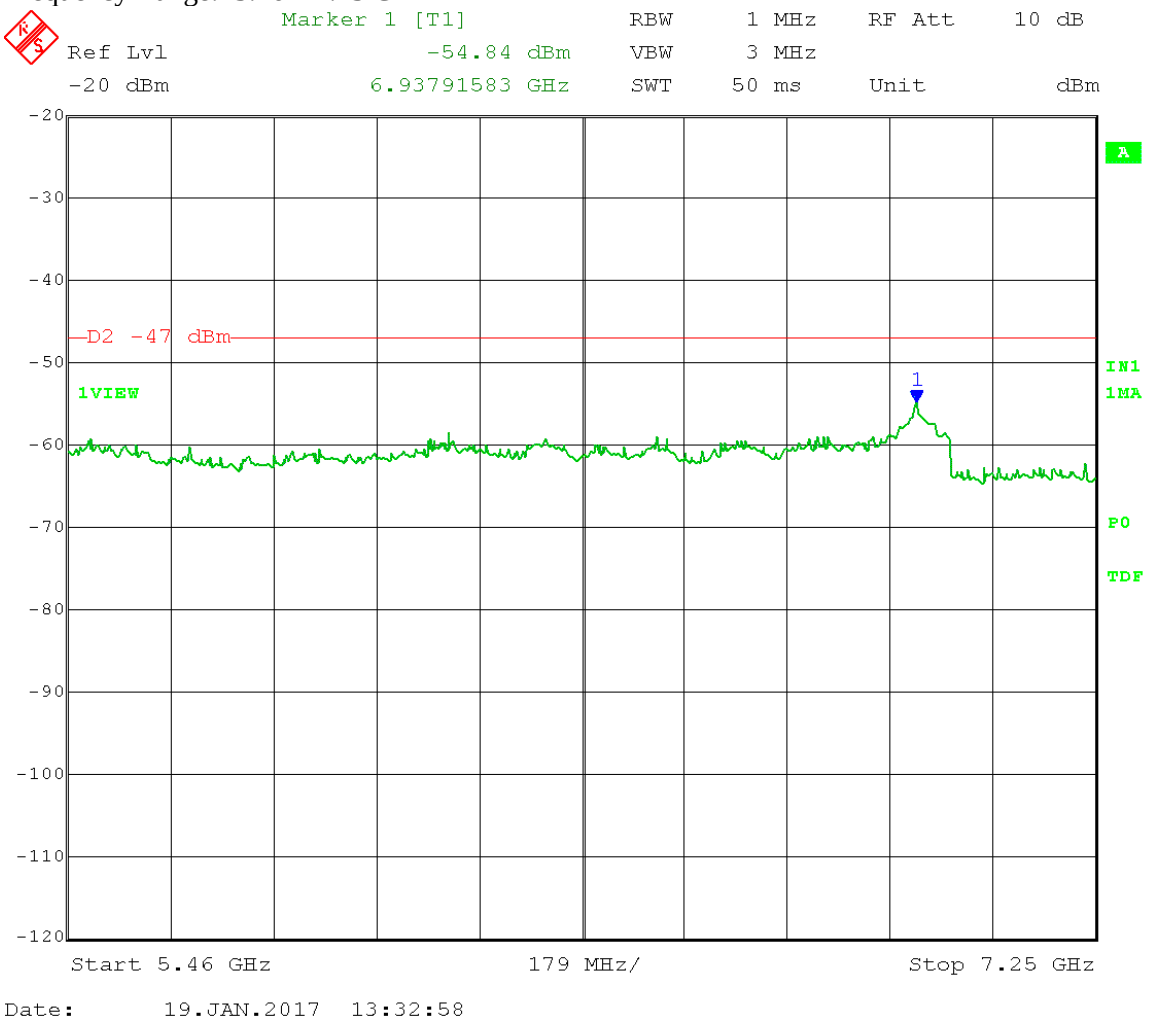
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5325 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 5.46 – 7.25 GHz



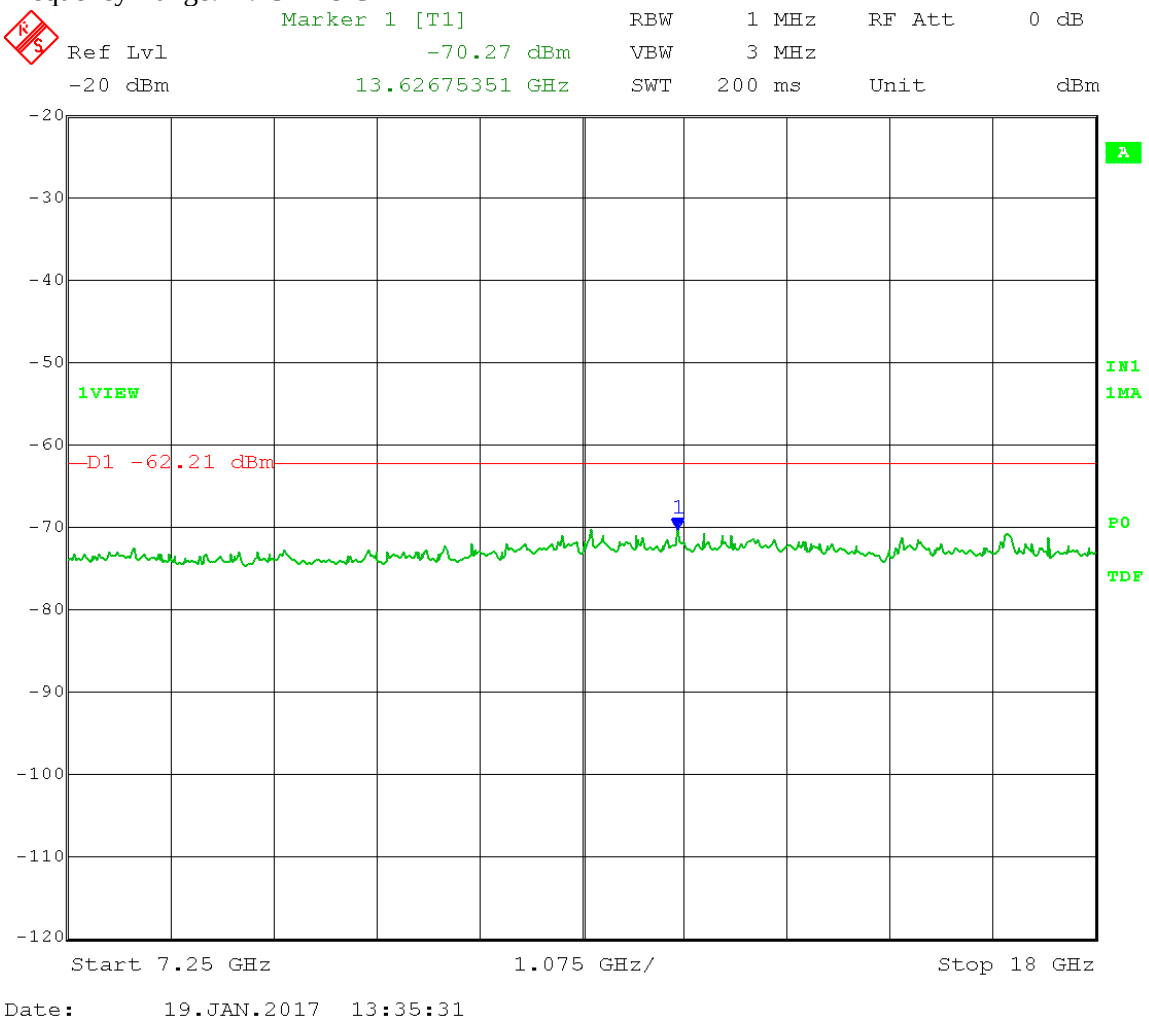
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5325 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 7.25 – 18 GHz



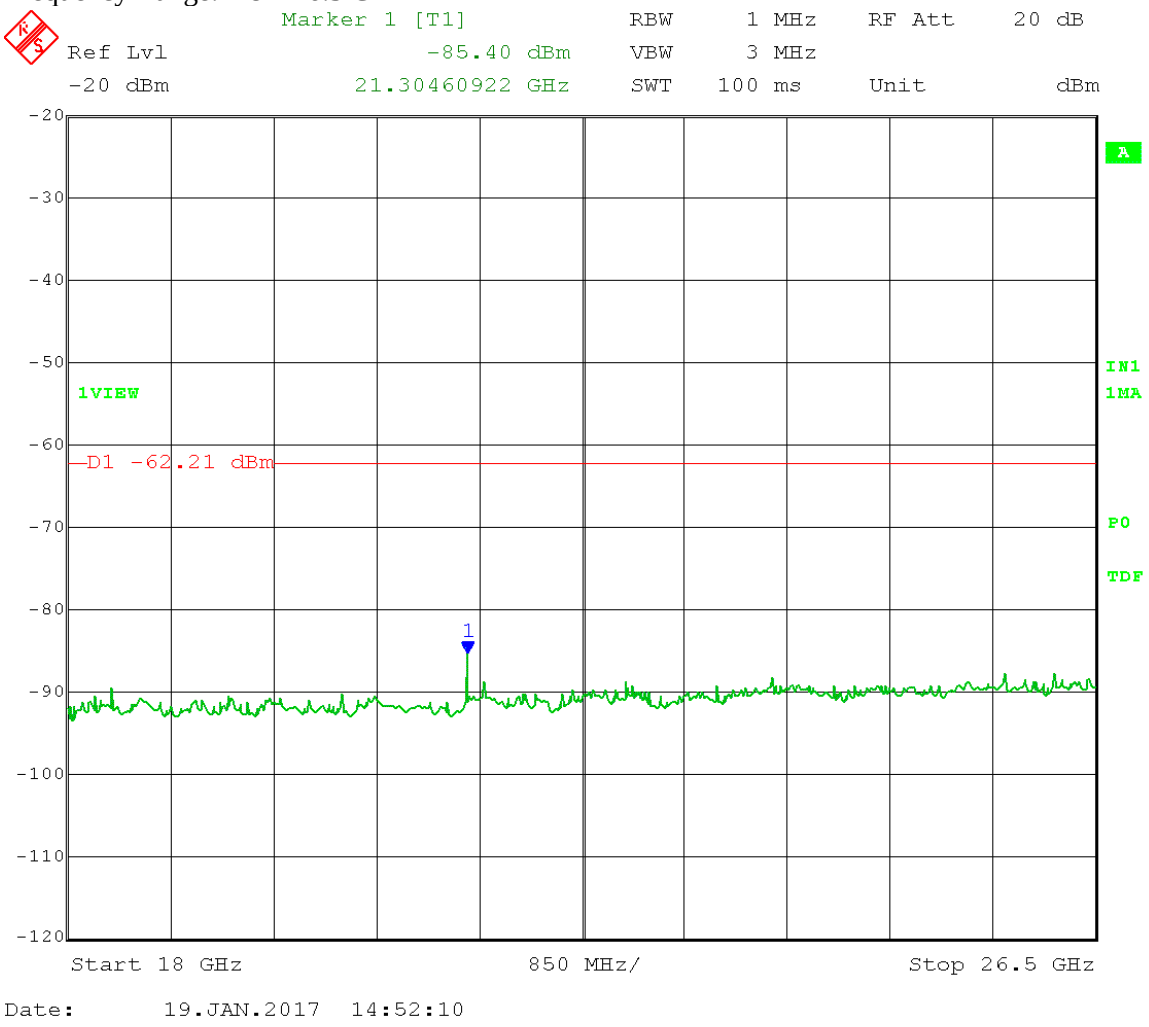
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5325 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 18 – 26.5 GHz



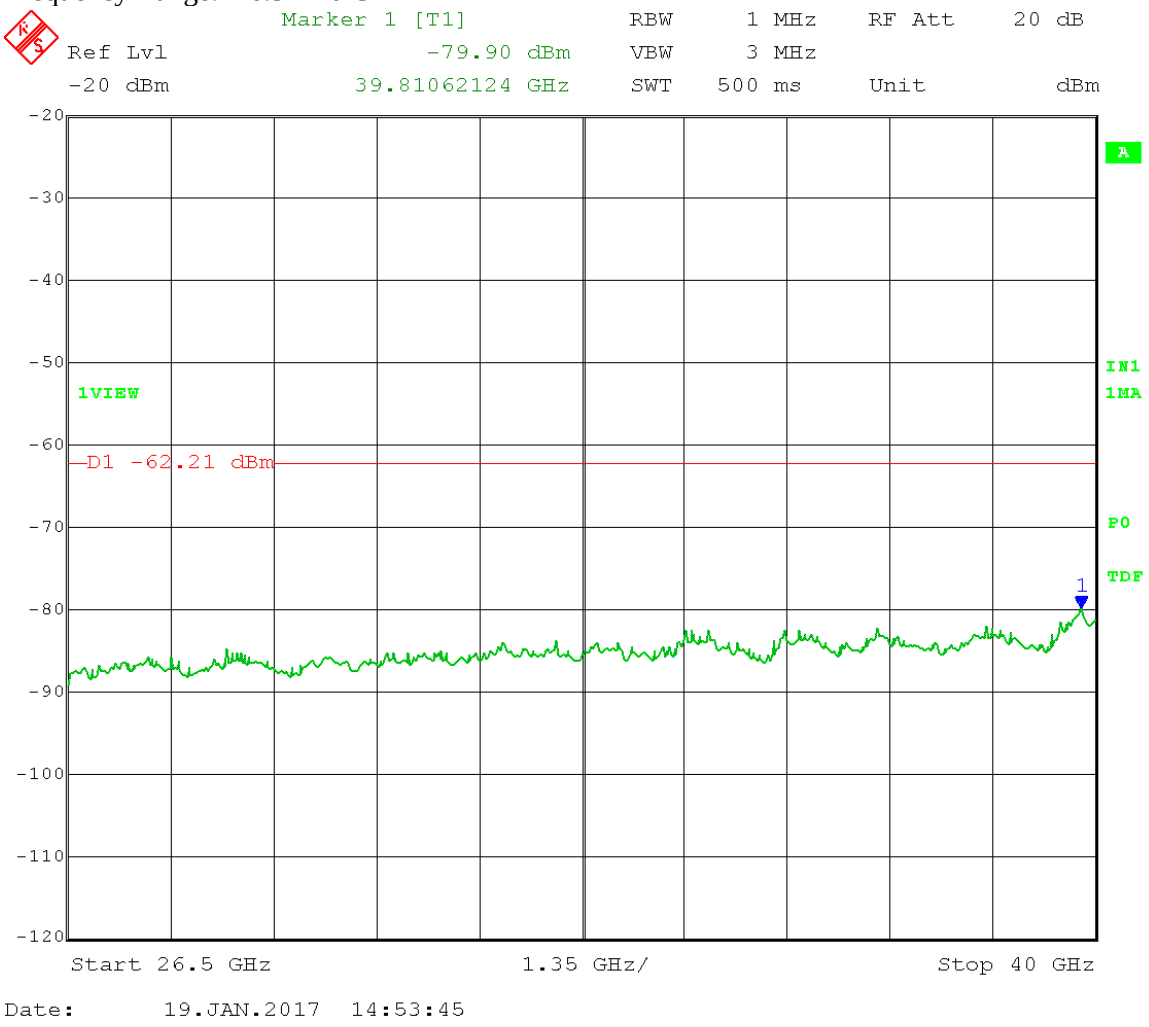
Test Date: 01-19-2017
Company: Cambium Networks
EUT: PMP450i 5.2GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5325 MHz 40 MHz BW
Power setting: 4 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

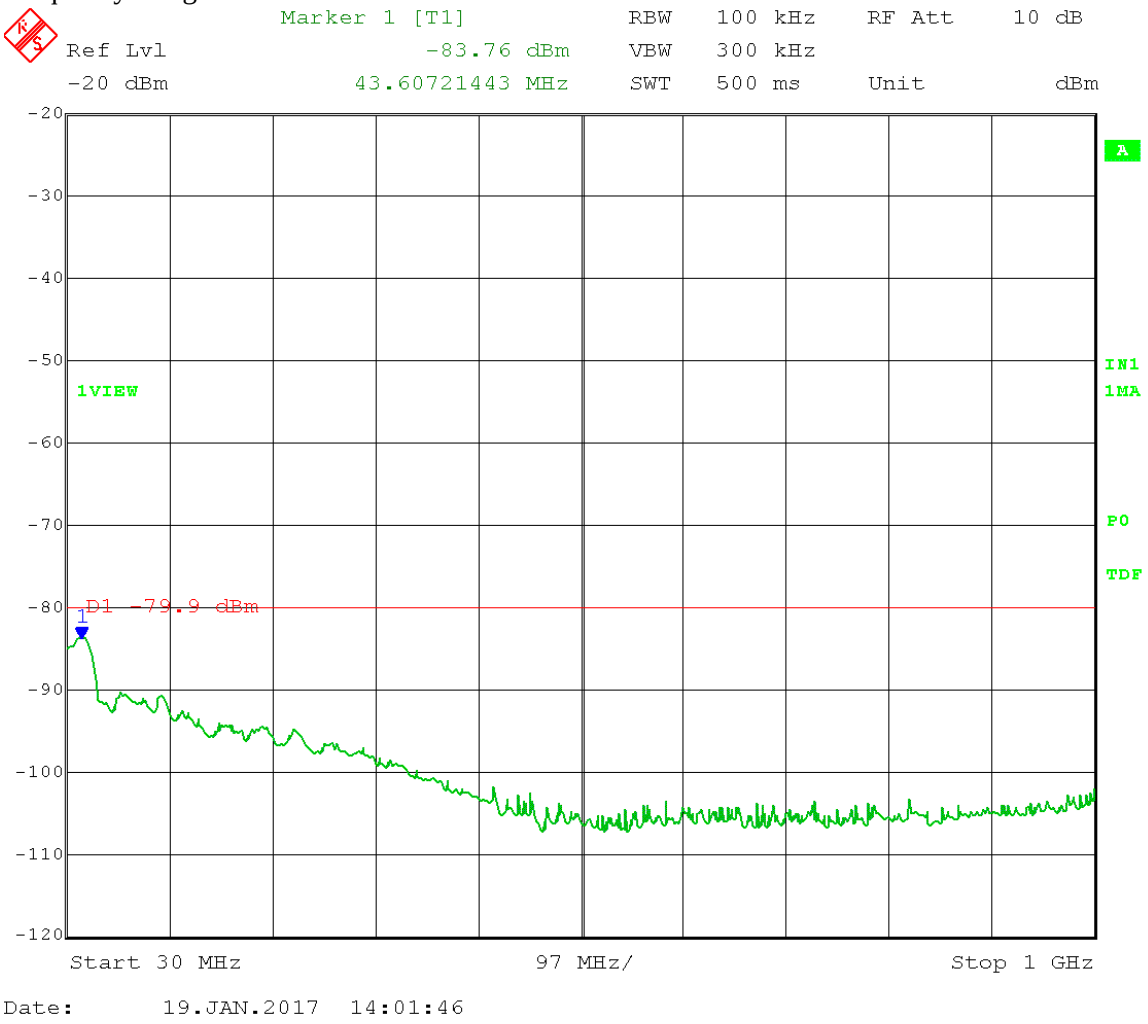
Frequency Range: 26.5 – 40 GHz



Test Date:	01-19-2017		
Company:	Cambium Networks		
EUT:	PMP450i 5.4GHz		
Test:	Unwanted emissions		
Operator:	Craig B		
Comment:	ANSI C63.10, 12.7.2 and 12.7.3		
	Low Channel: Transmit = 5495 MHz		40 MHz BW
	Power setting: 5	Port B	QPSK
	Antenna gain: 17 dBi		
	Detector: Peak		

FCC 15.209 limit: 40 dBµV/m at 3 meters; Conducted limit = 40 - 95.2 - 4.7 dB (ground plane) - 3 dB (MIMO) - 17 dBi antenna gain = -79.9 dBm/100 kHz

Frequency Range: 30 – 1000 MHz



Date: 19.JAN.2017 14:01:46

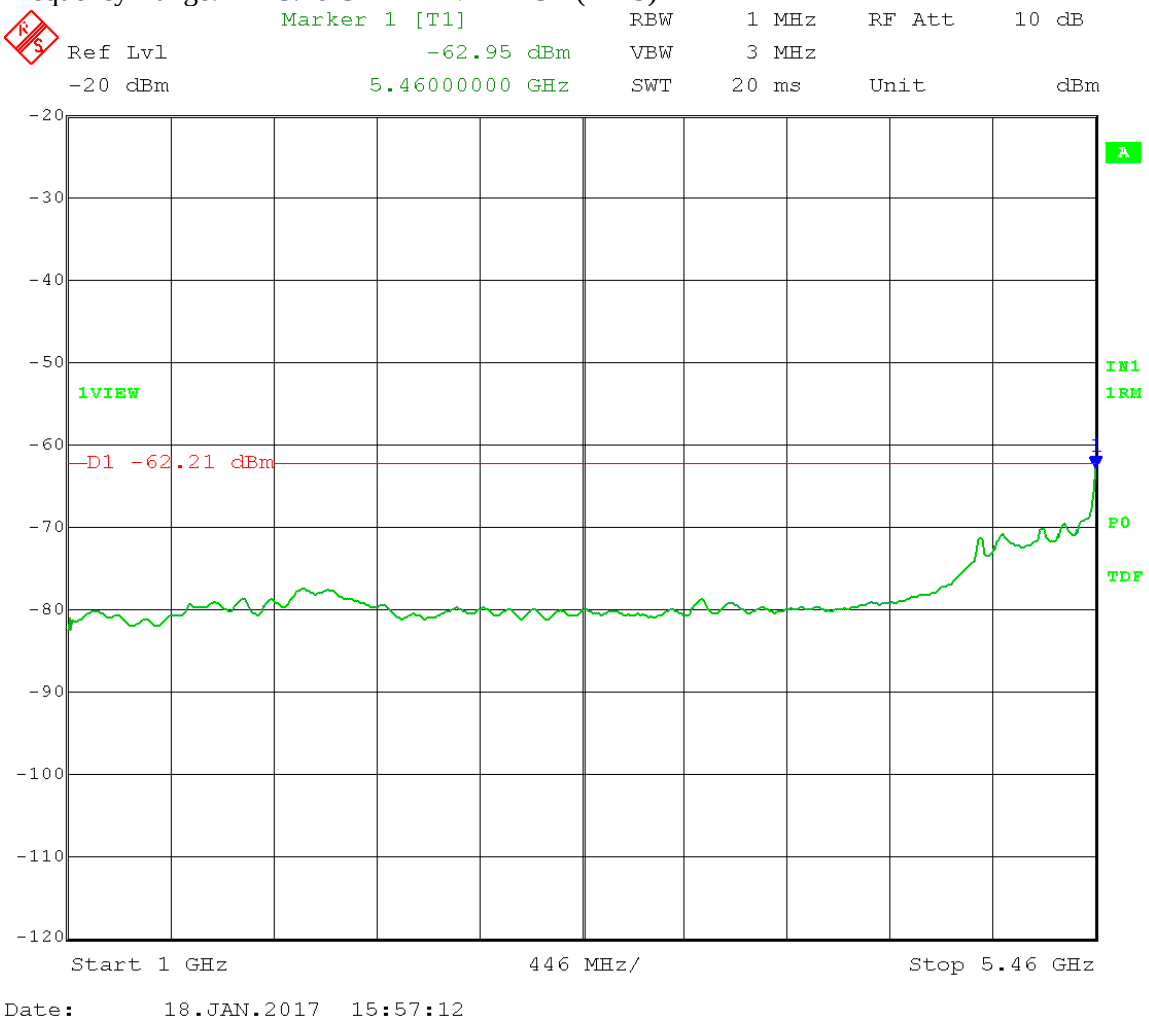
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5495 MHz 40 MHz BW
Power setting: 5 Port B QPSK
Antenna gain: 17 dBi
Detector: RMS

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz AVERAGE (RMS)



Date: 18.JAN.2017 15:57:12

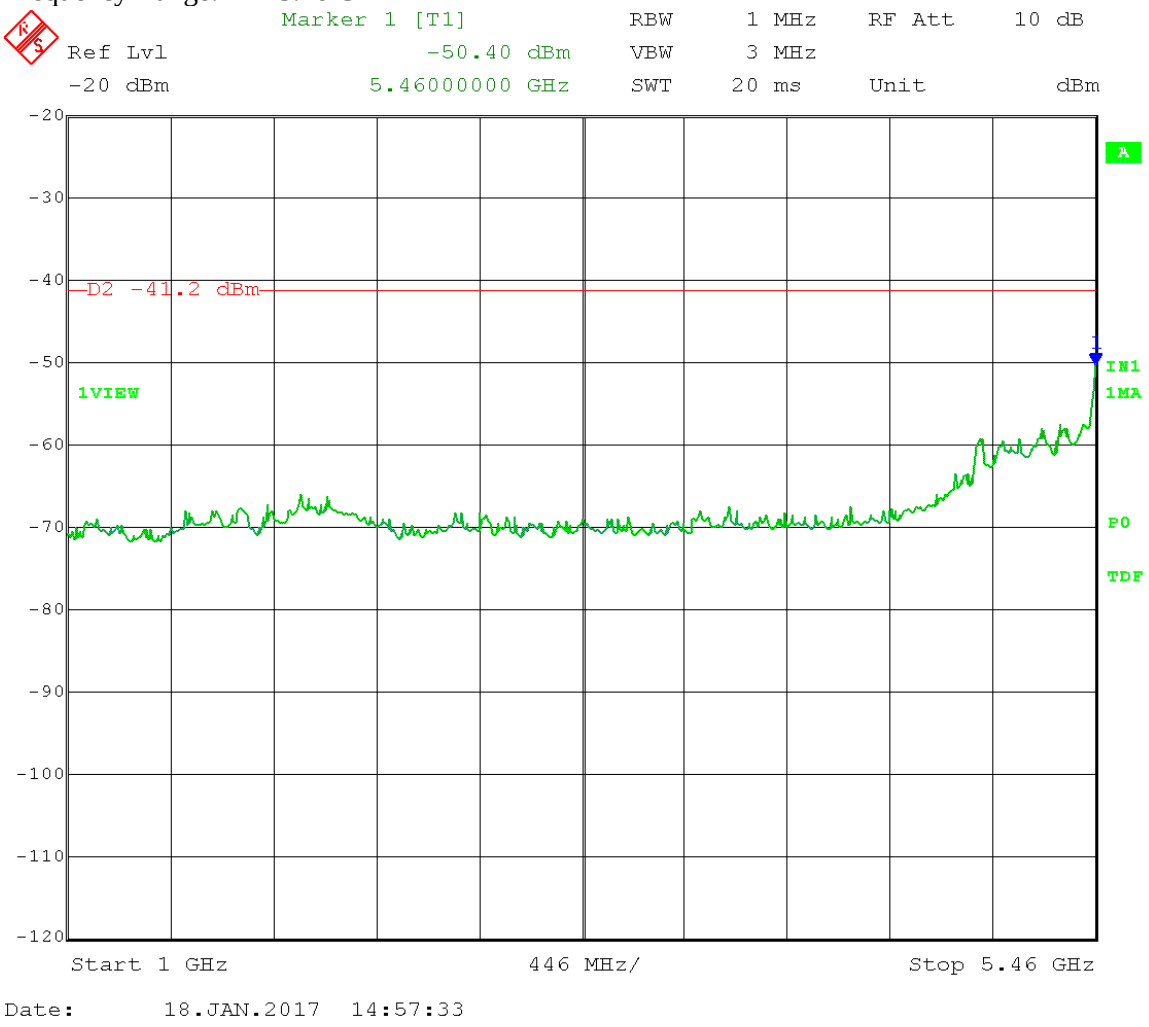
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5495 MHz 40 MHz BW
Power setting: 5 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz PEAK



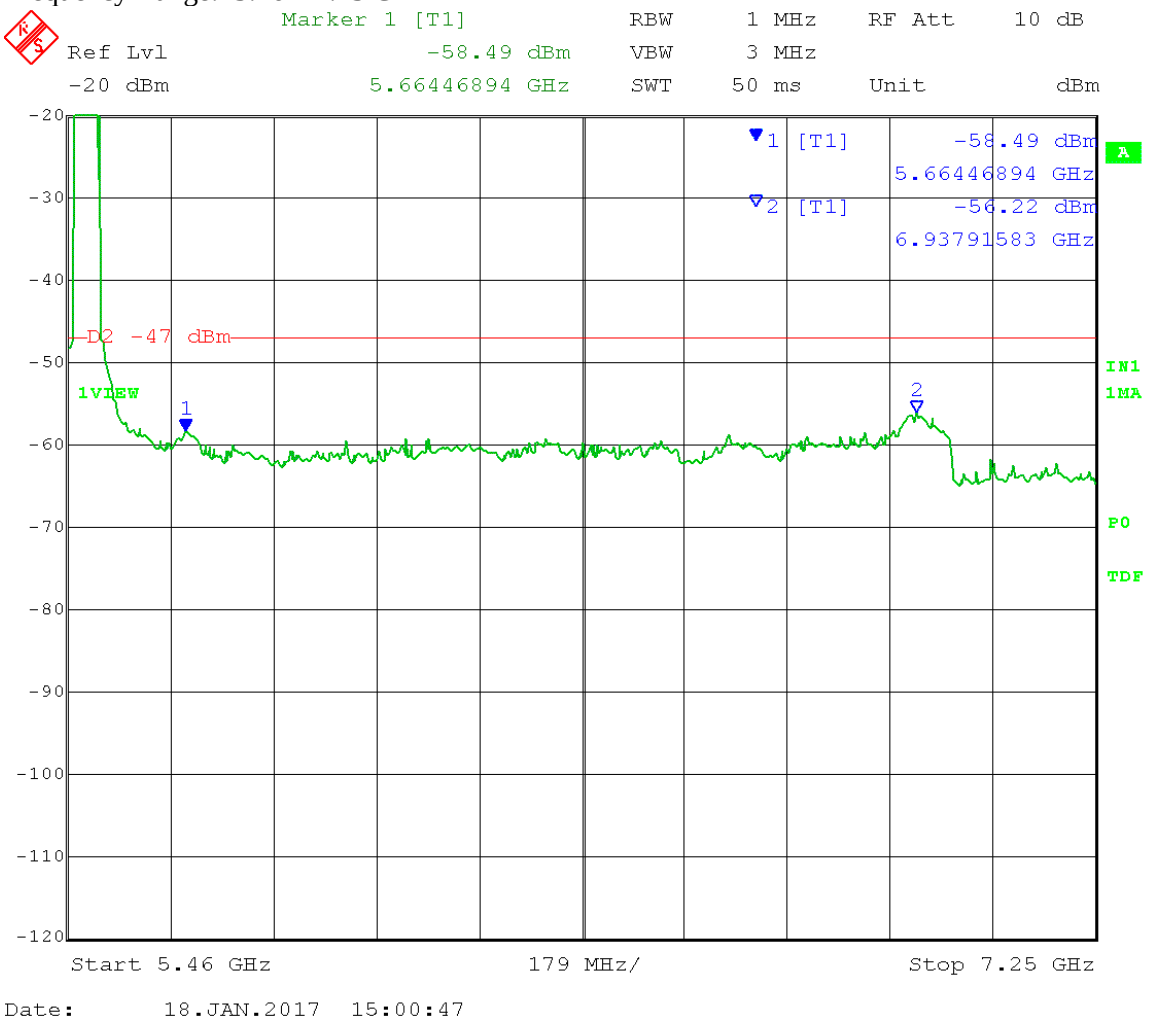
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5495 MHz 40 MHz BW
Power setting: 5 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 5.46 – 7.25 GHz



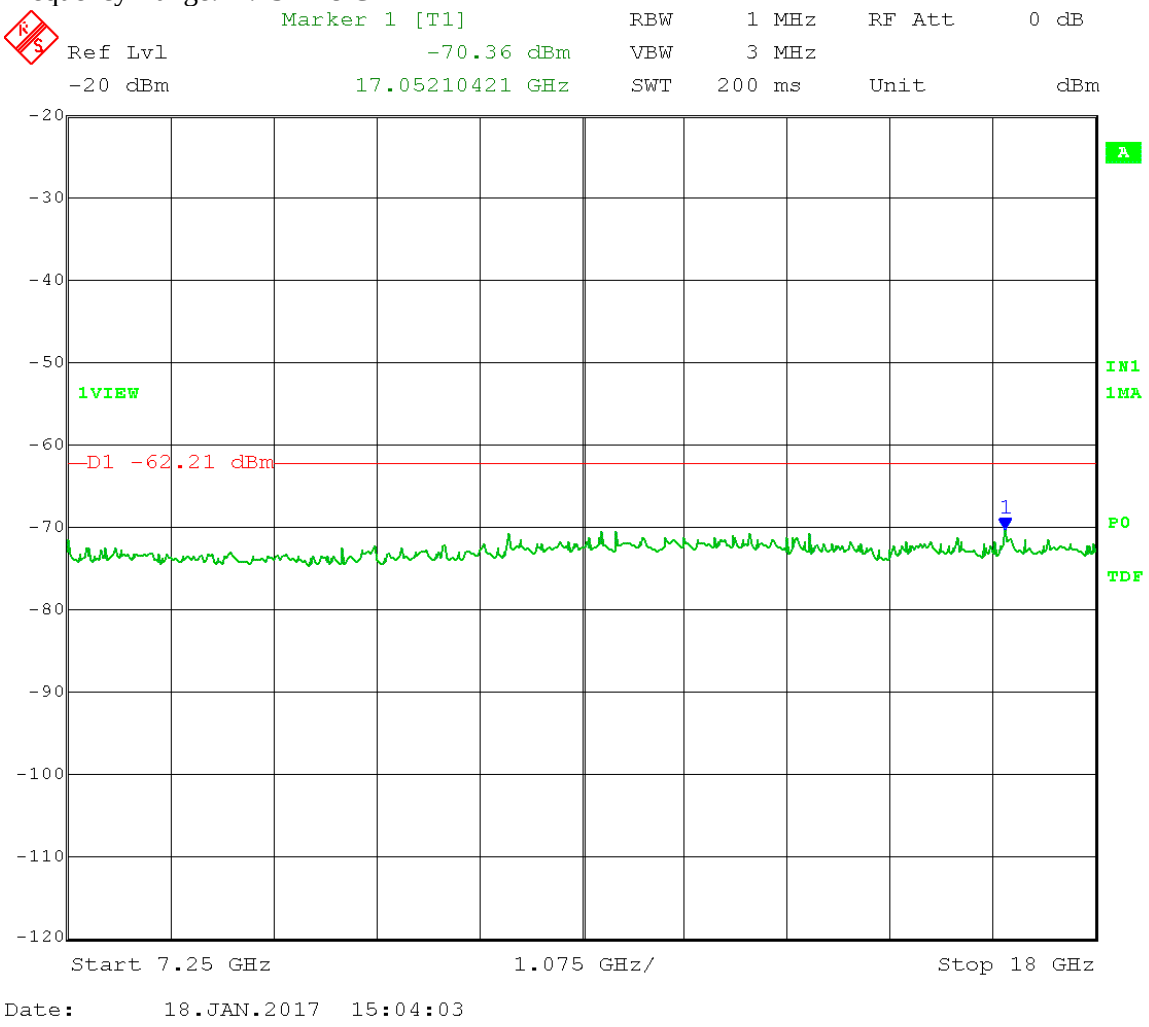
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5495 MHz 40 MHz BW
Power setting: 5 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 7.25 – 18 GHz



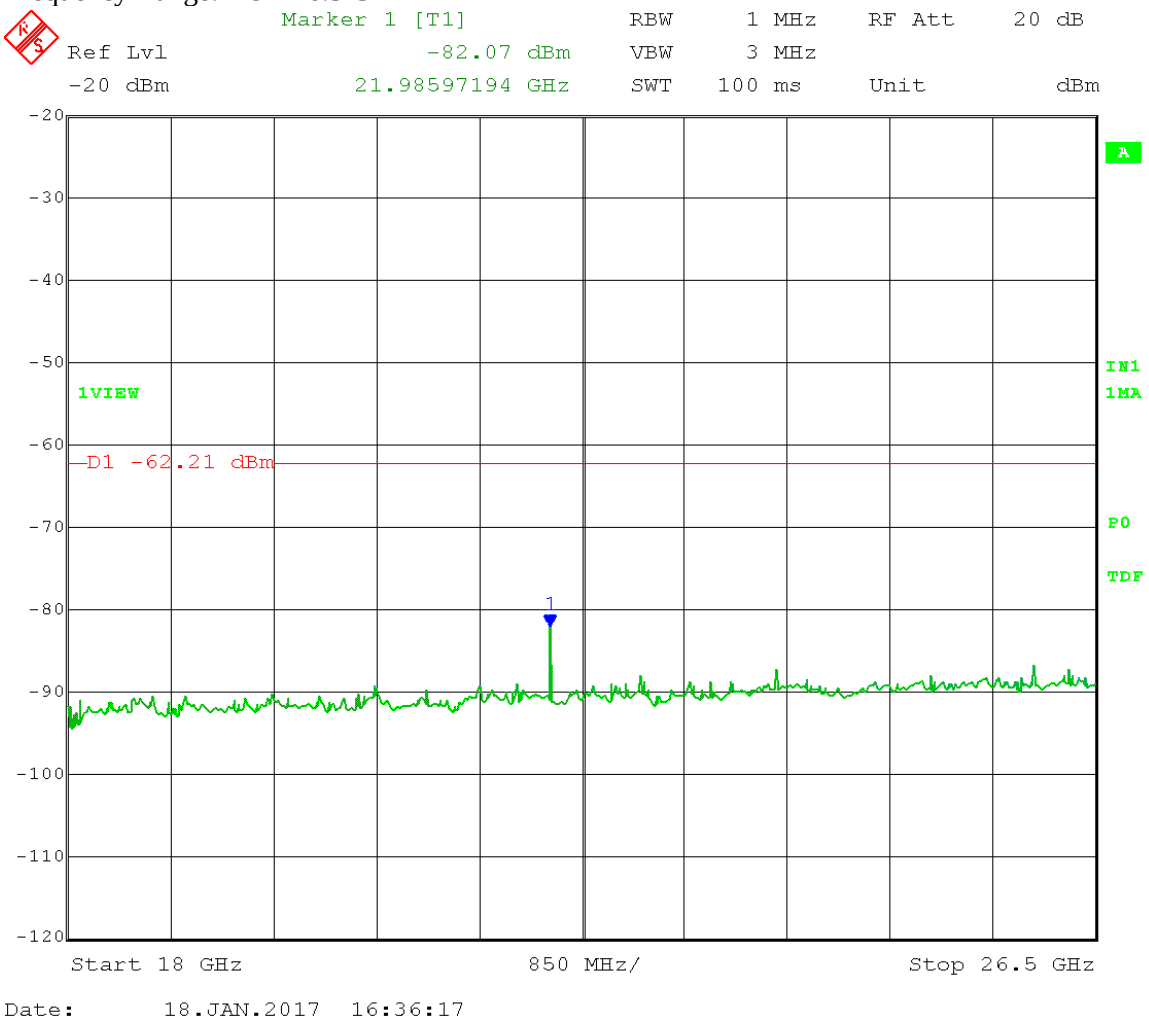
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5495 MHz 40 MHz BW
Power setting: 5 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 18 – 26.5 GHz



Date: 18.JAN.2017 16:36:17

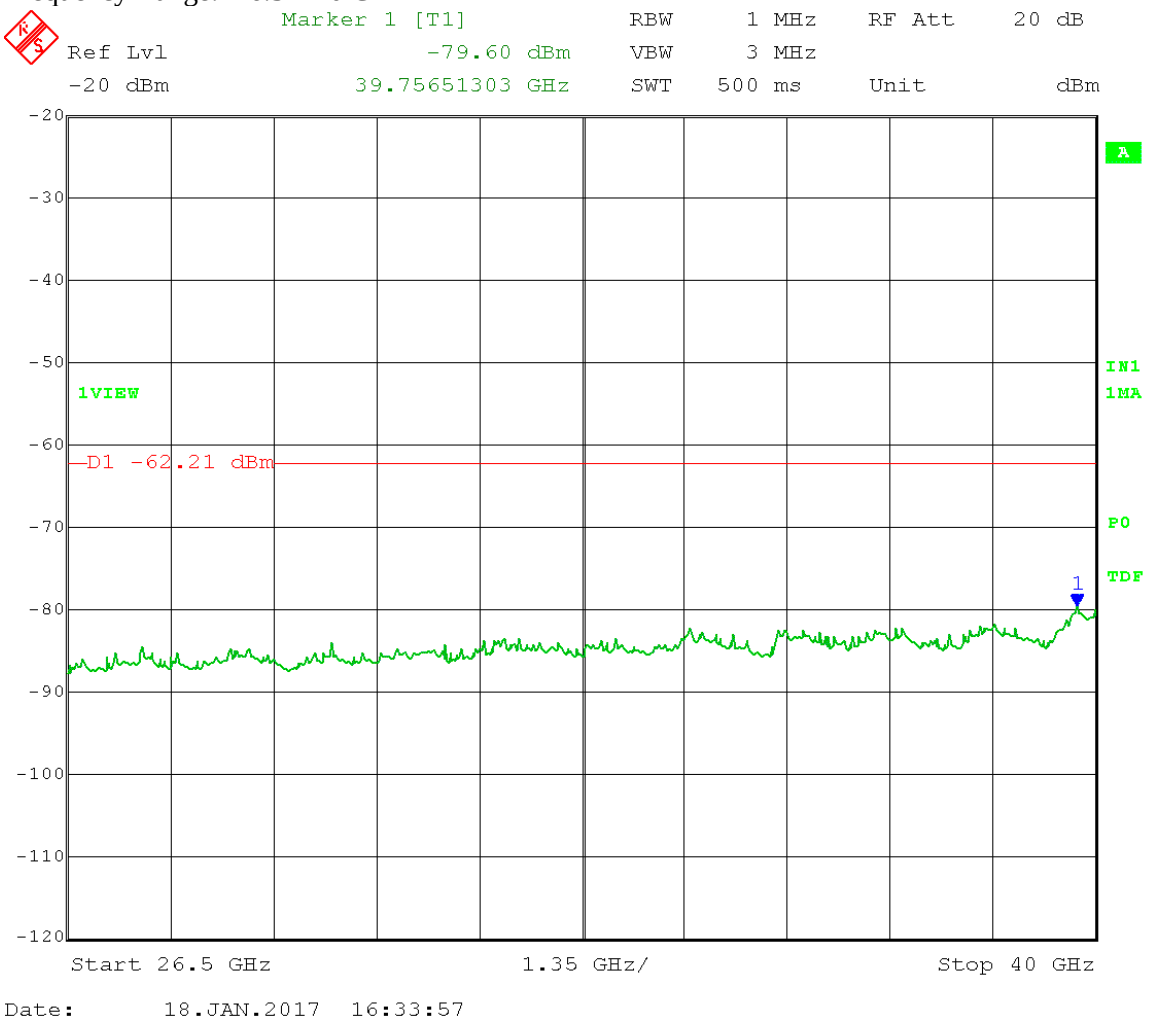
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Low Channel: Transmit = 5495 MHz 40 MHz BW
Power setting: 5 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

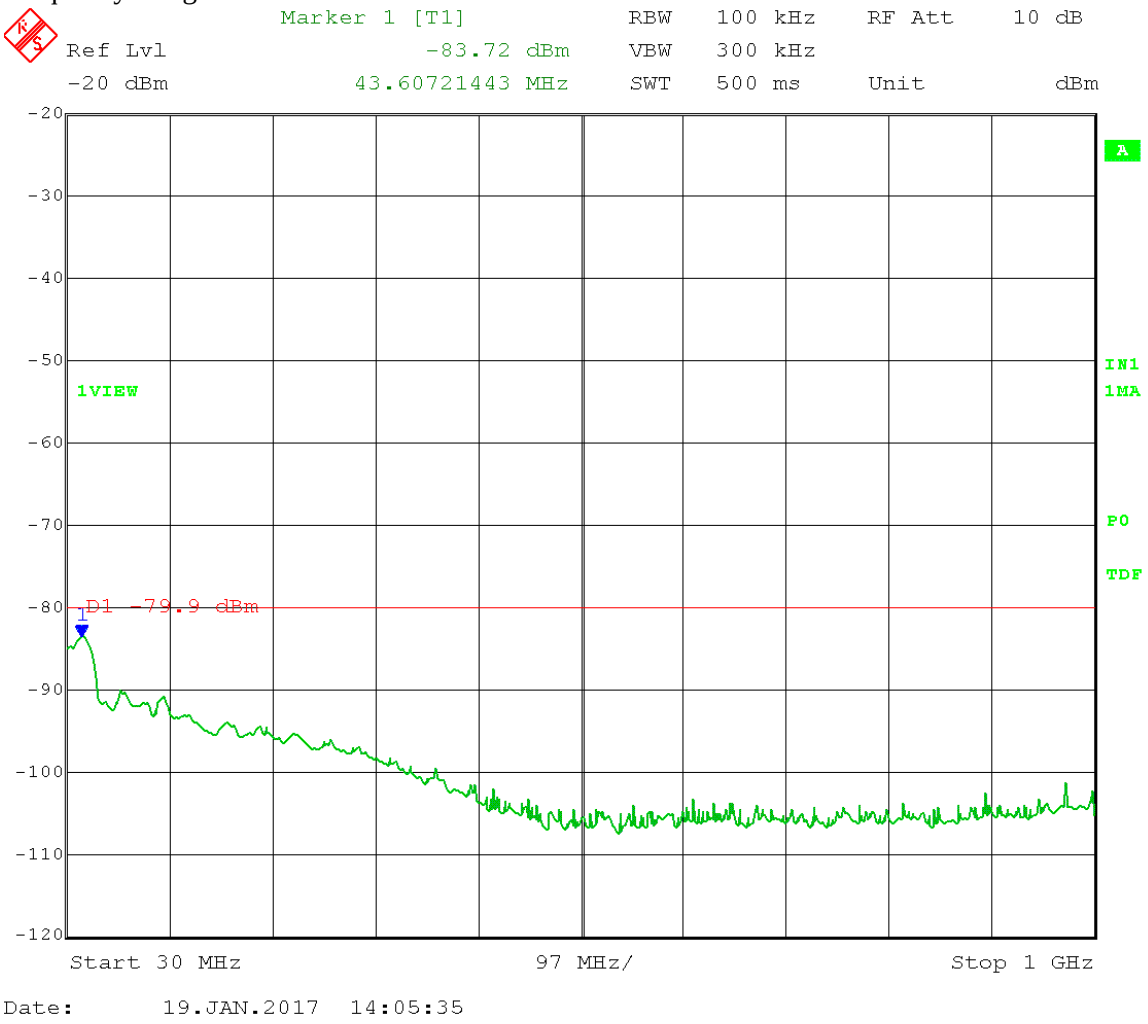
Frequency Range: 26.5 – 40 GHz



Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.4GHz
Test:	Unwanted emissions
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.2 and 12.7.3
	Mid Channel: Transmit = 5575 MHz 40 MHz BW
	Power setting: 9 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

FCC 15.209 limit: 40 dBµV/m at 3 meters; Conducted limit = 40 - 95.2 - 4.7 dB (ground plane) - 3 dB (MIMO) - 17 dBi antenna gain = -79.9 dBm/100 kHz

Frequency Range: 30 – 1000 MHz



Date: 19.JAN.2017 14:05:35

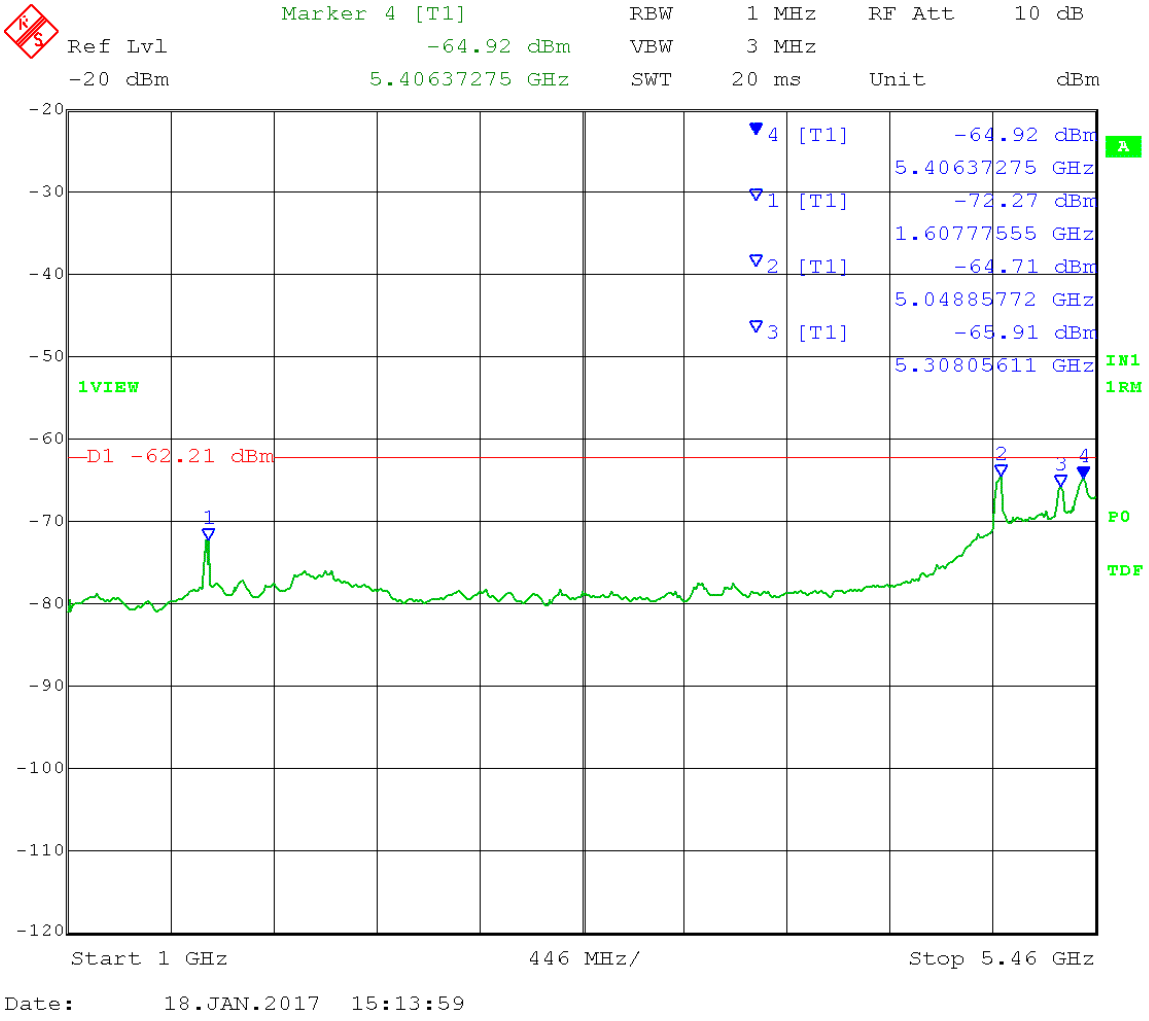
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5575 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: RMS

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz AVERAGE (RMS)



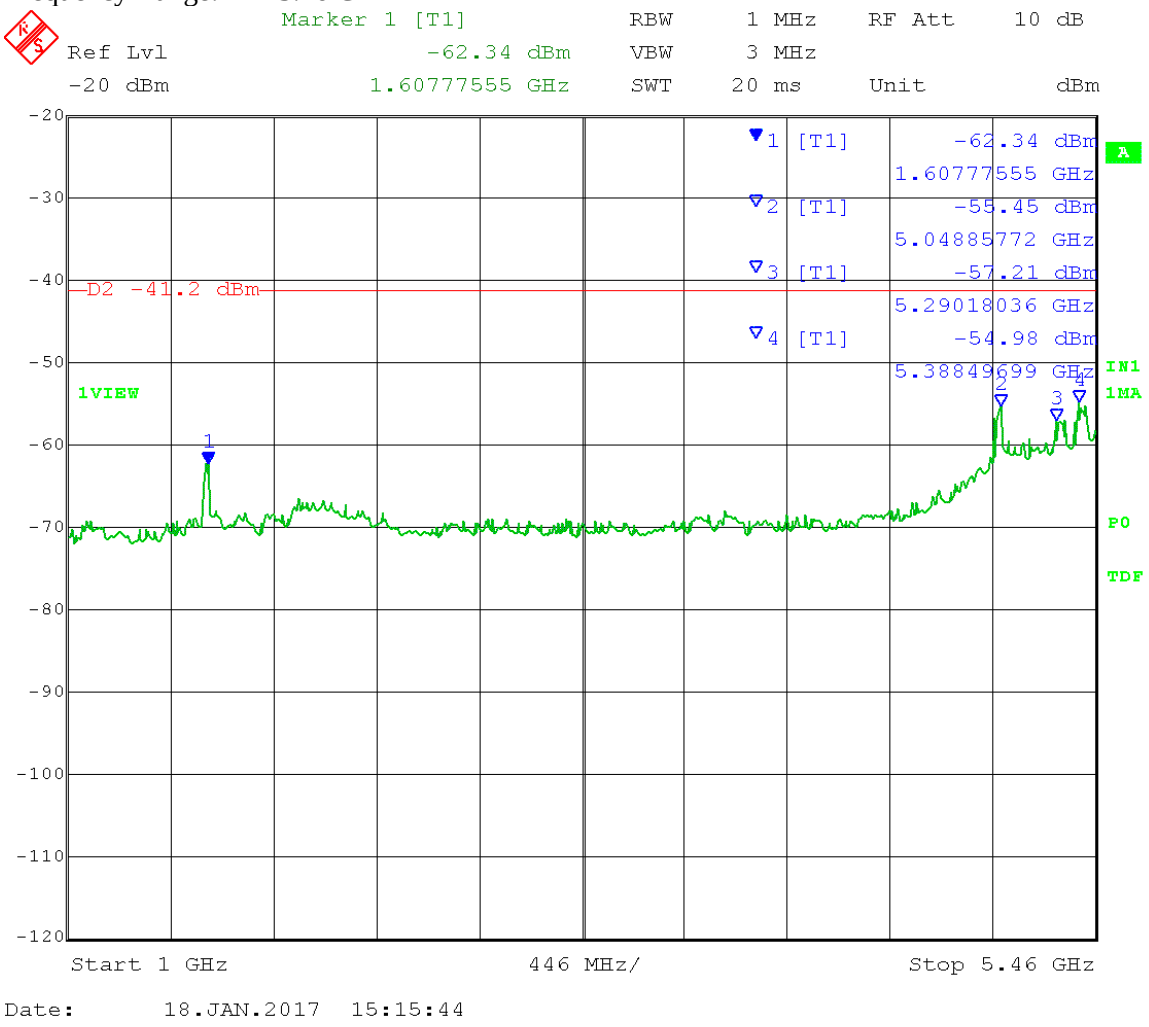
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5575 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz PEAK



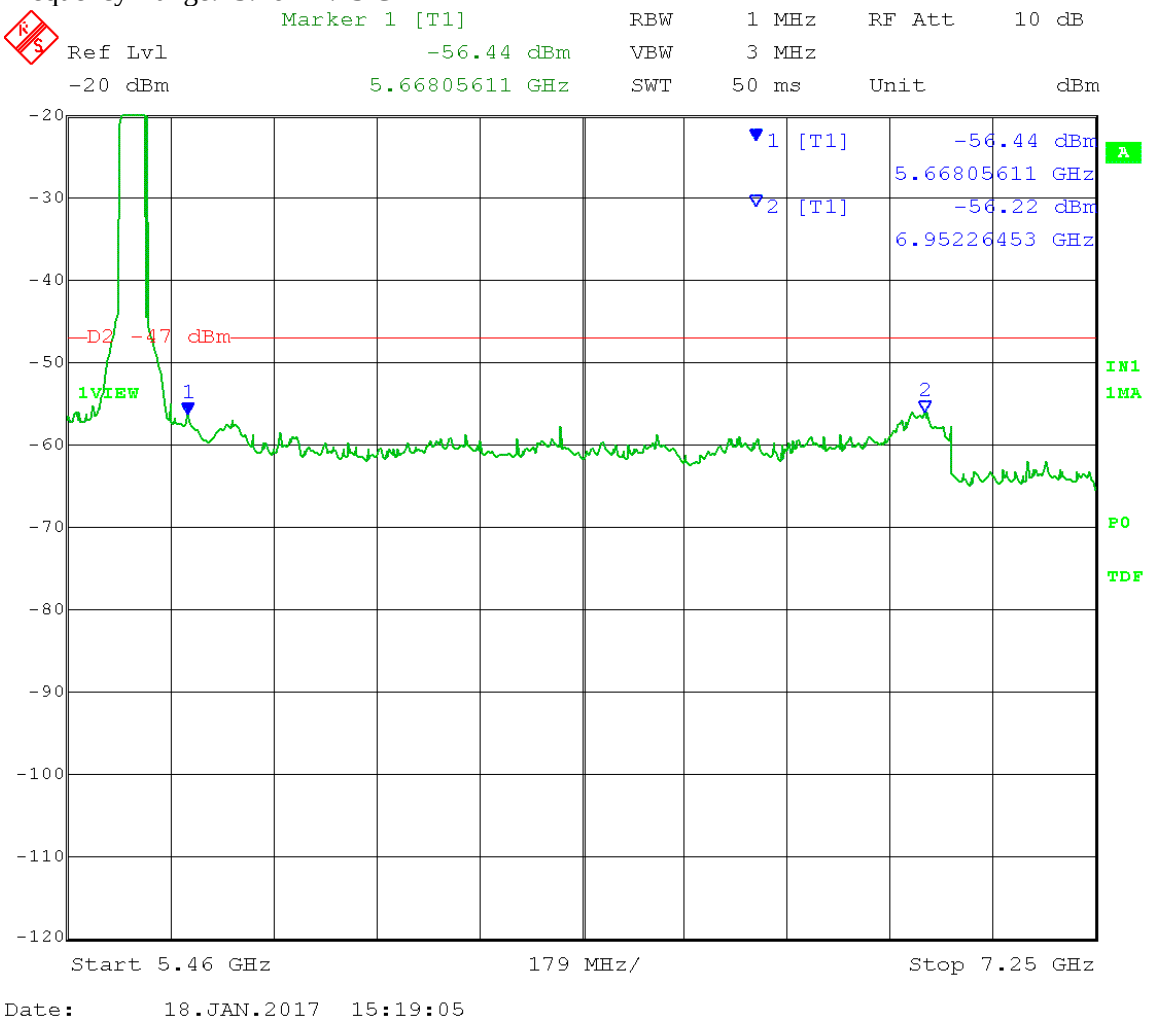
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5575 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 5.46 – 7.25 GHz



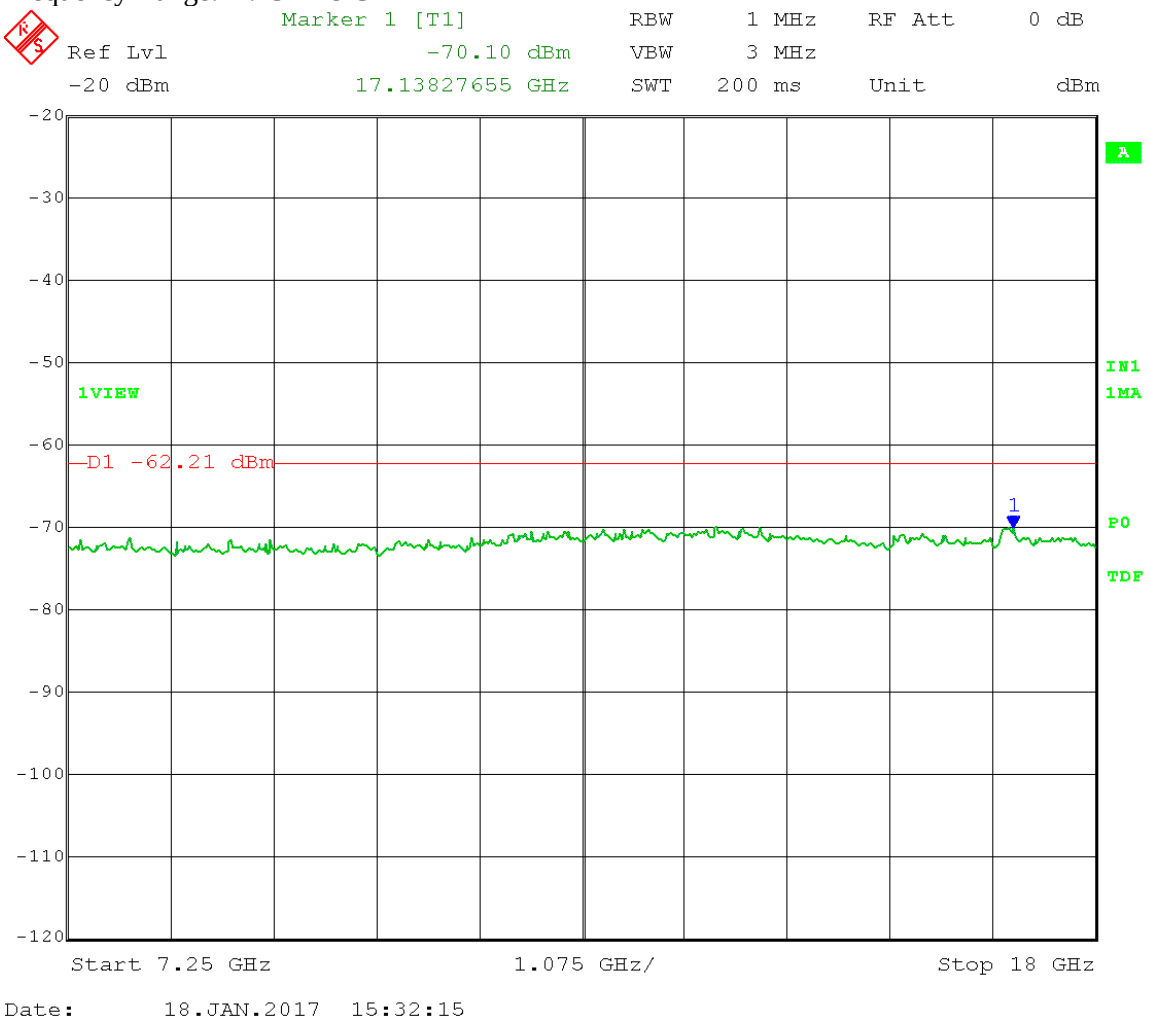
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5575 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 7.25 – 18 GHz



Date: 18.JAN.2017 15:32:15

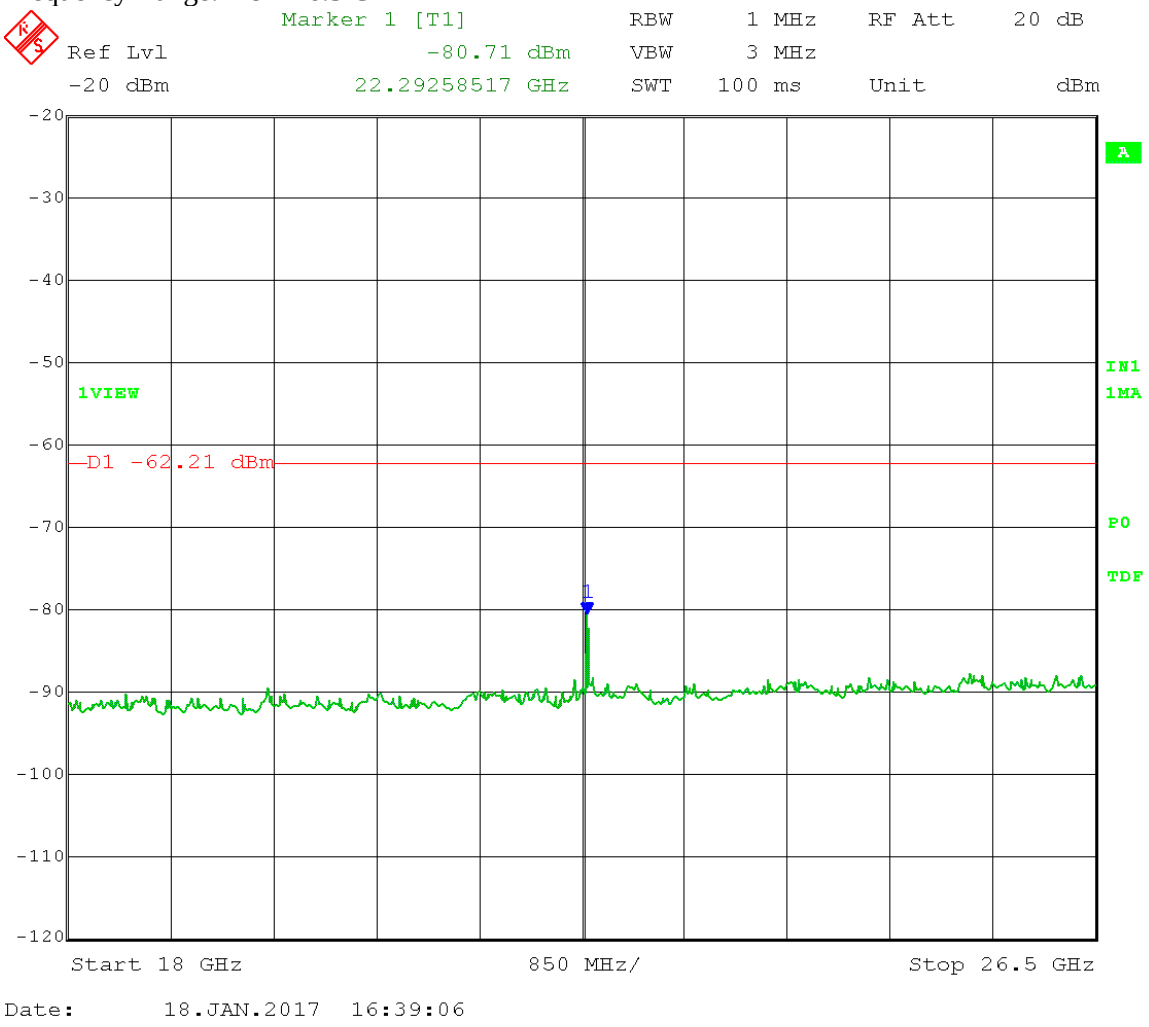
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5575 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 18 – 26.5 GHz



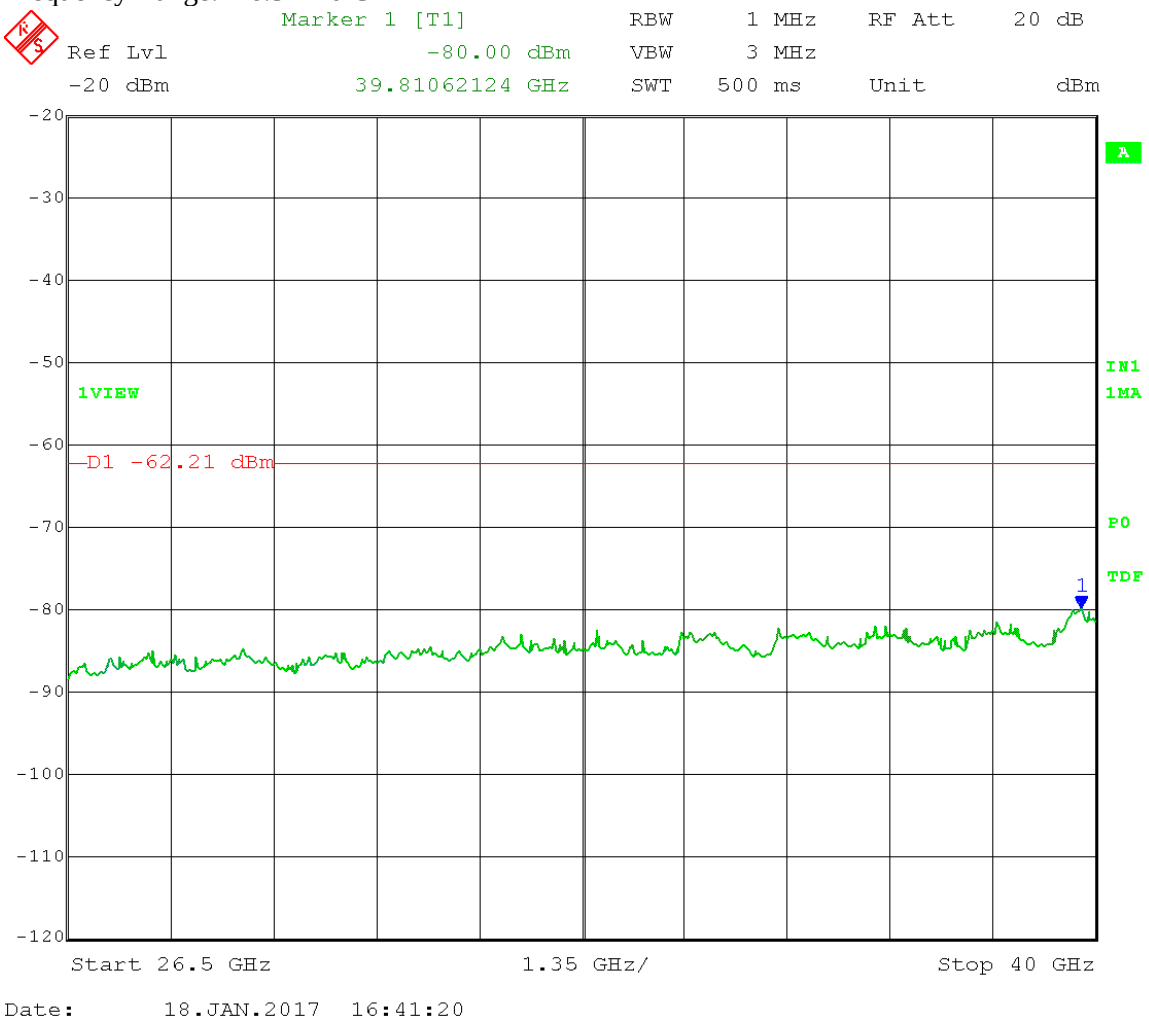
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
Mid Channel: Transmit = 5575 MHz 40 MHz BW
Power setting: 9 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

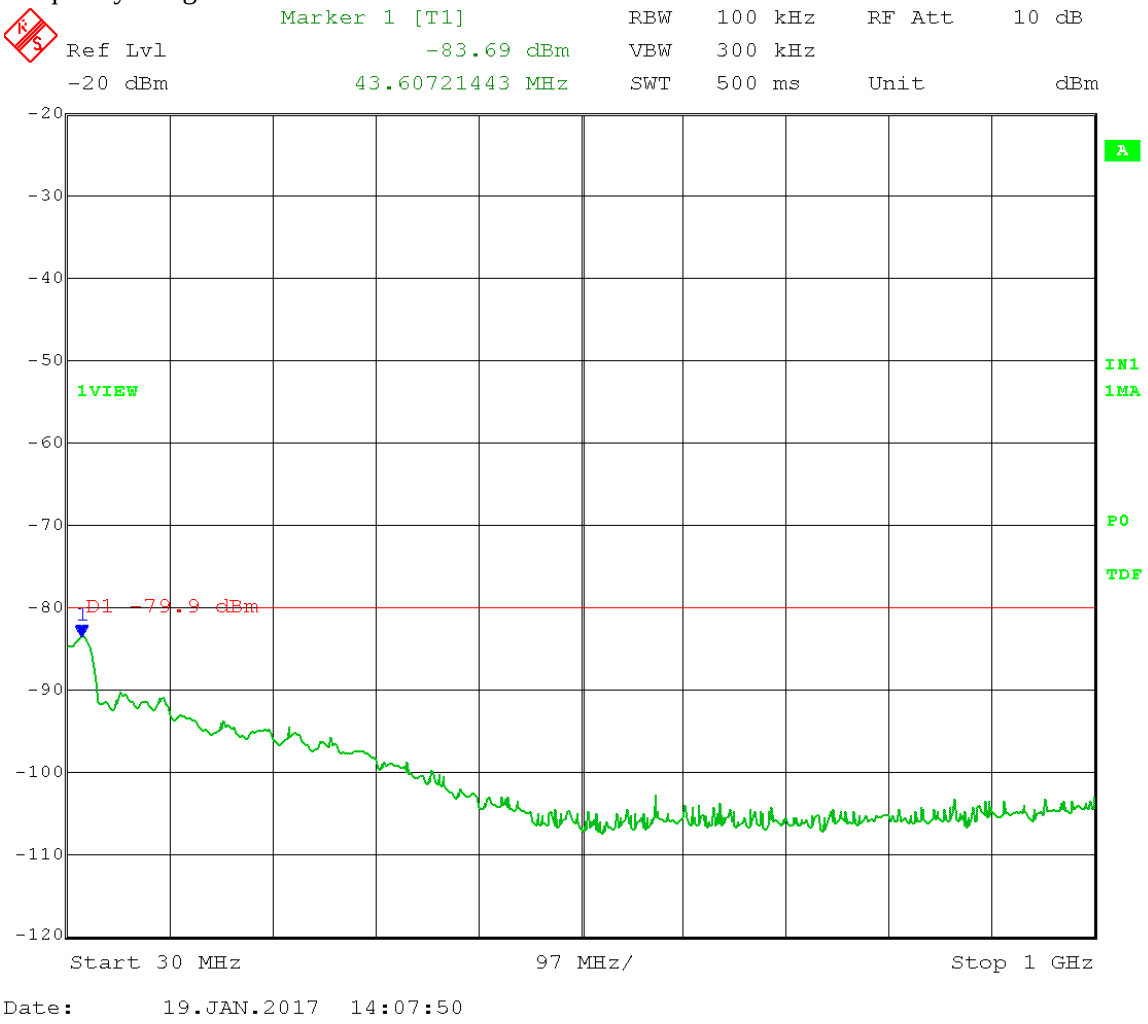
Frequency Range: 26.5 – 40 GHz



Test Date:	01-19-2017
Company:	Cambium Networks
EUT:	PMP450i 5.4GHz
Test:	Unwanted emissions
Operator:	Craig B
Comment:	ANSI C63.10, 12.7.2 and 12.7.3
	High Channel: Transmit = 5700 MHz 40 MHz BW
	Power setting: 7 Port B QPSK
	Antenna gain: 17 dBi
	Detector: Peak

FCC 15.209 limit: 40 dBµV/m at 3 meters; Conducted limit = 40 - 95.2 - 4.7 dB (ground plane) - 3 dB (MIMO) - 17 dBi antenna gain = -79.9 dBm/100 kHz

Frequency Range: 30 – 1000 MHz



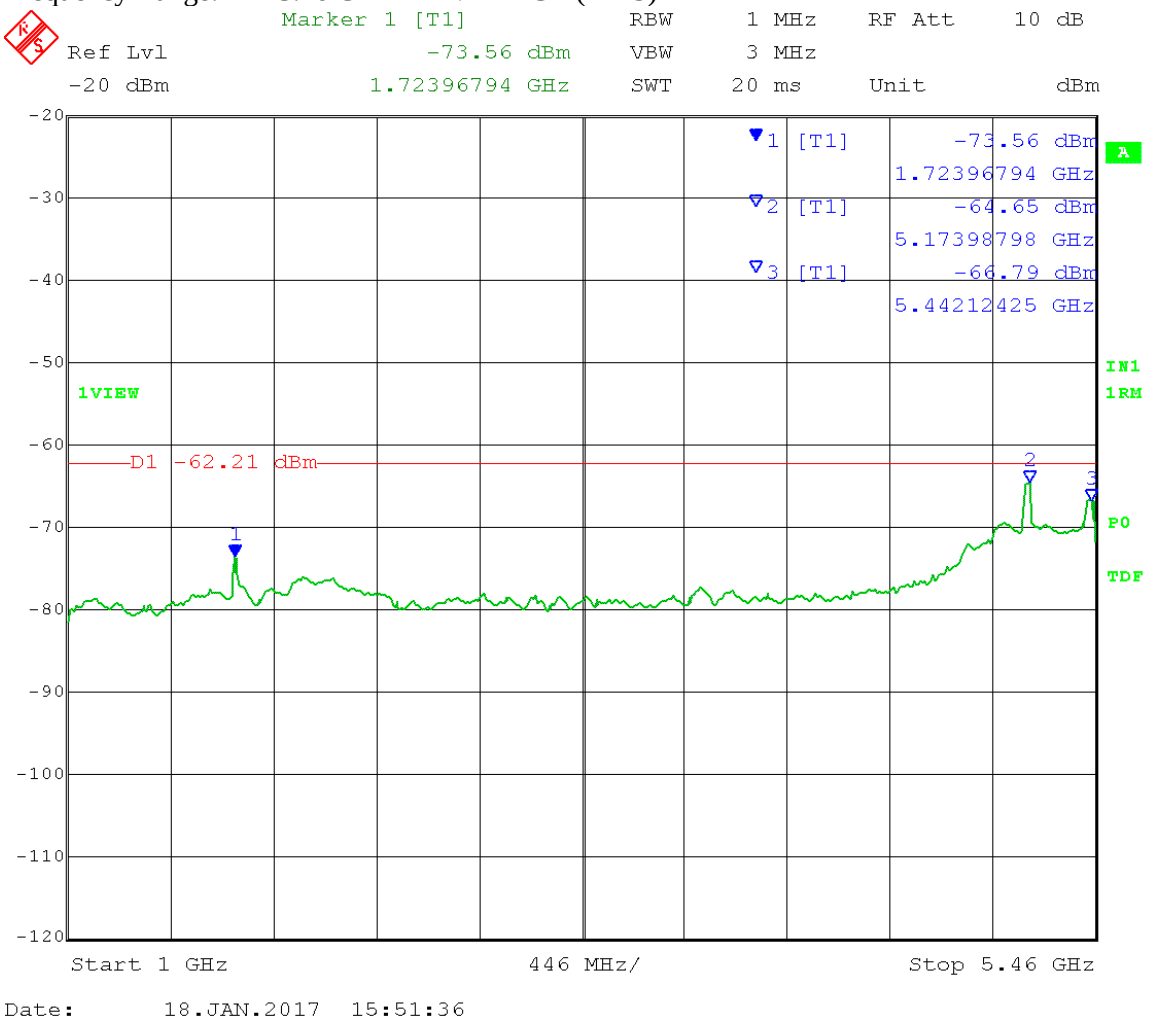
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 Port B QPSK
Antenna gain: 17 dBi
Detector: RMS

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz AVERAGE (RMS)



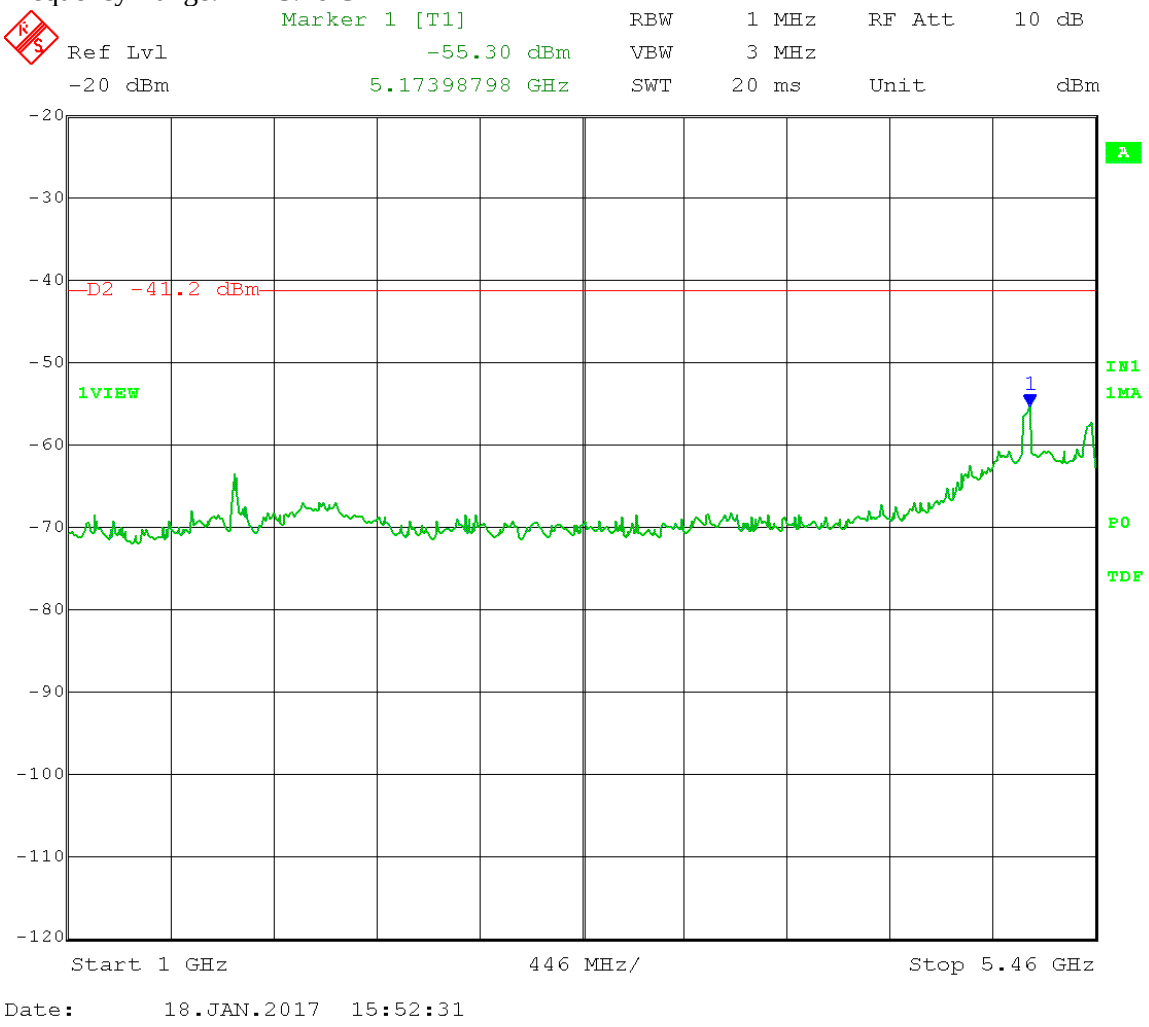
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 1 – 5.46 GHz PEAK



Date: 18.JAN.2017 15:52:31

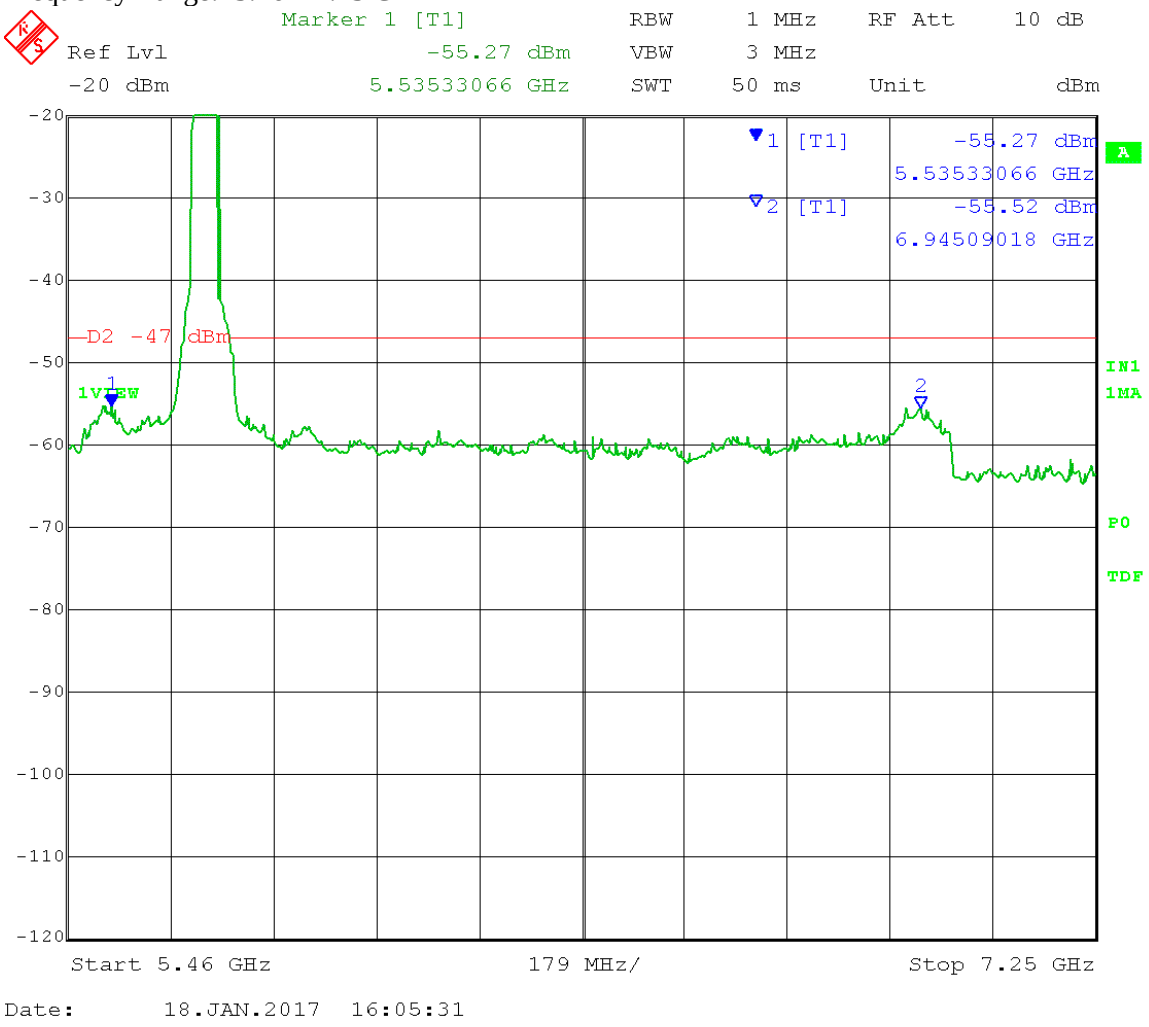
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 5.46 – 7.25 GHz



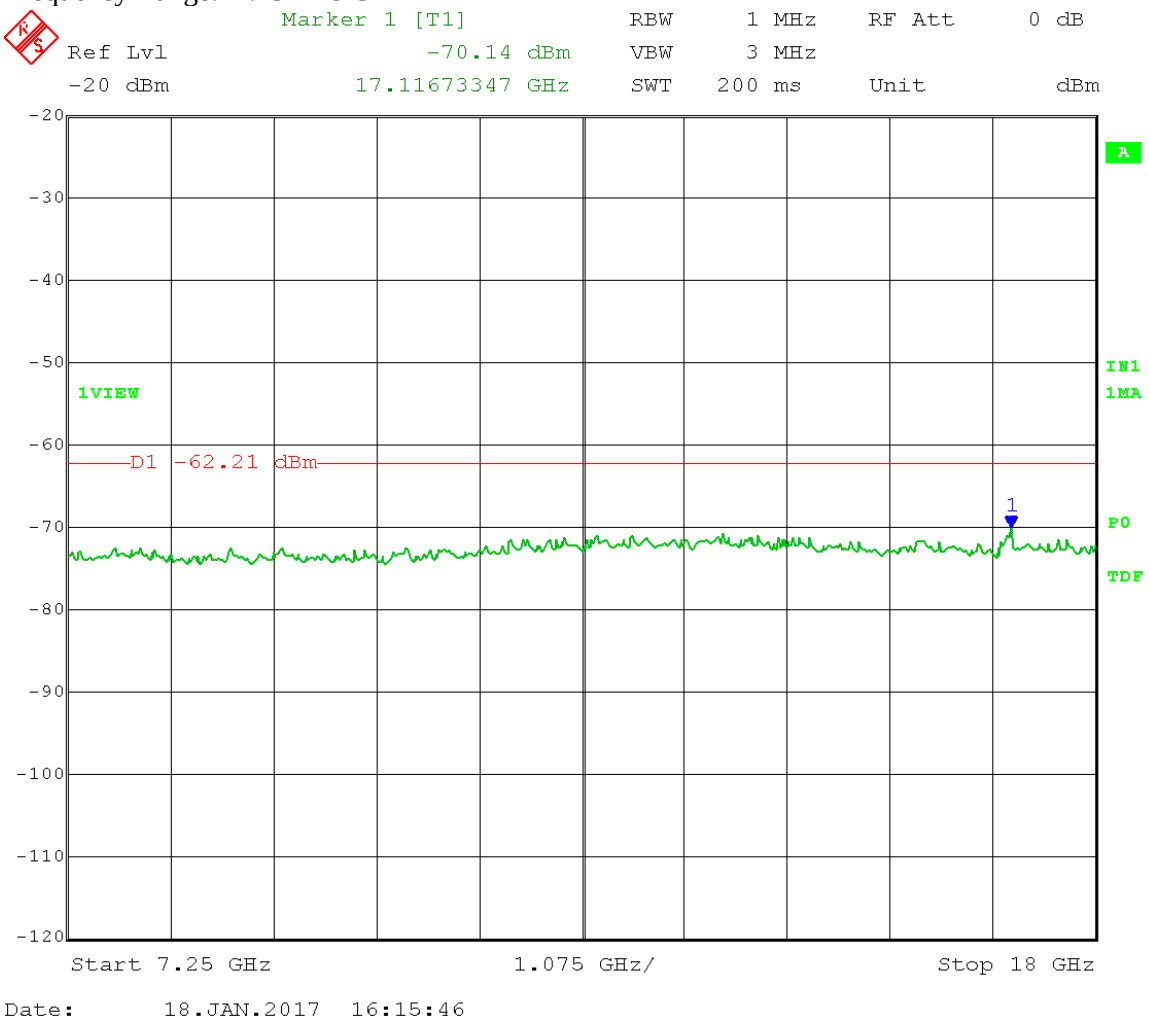
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 7.25 – 18 GHz



Date: 18.JAN.2017 16:15:46

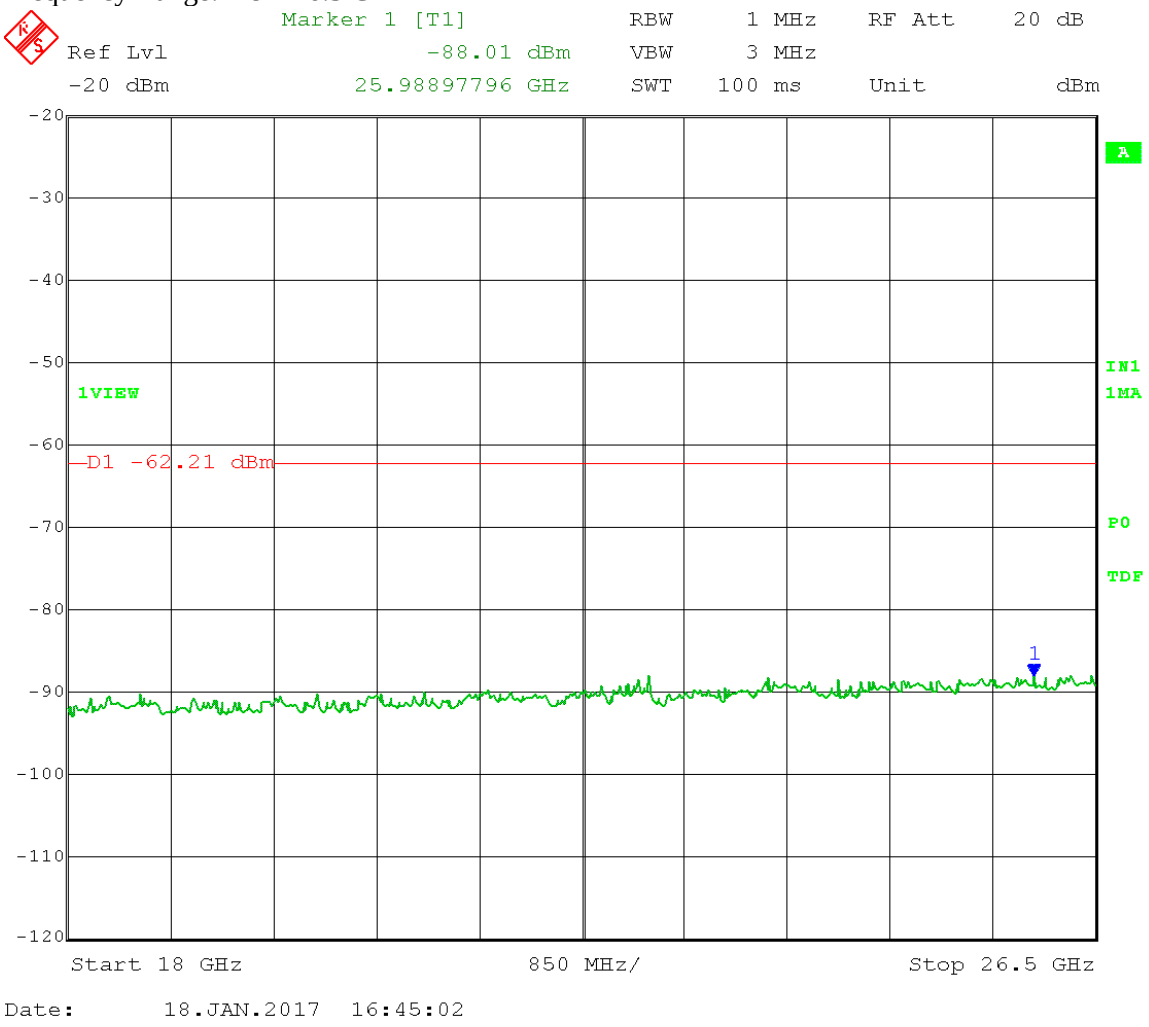
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 18 – 26.5 GHz



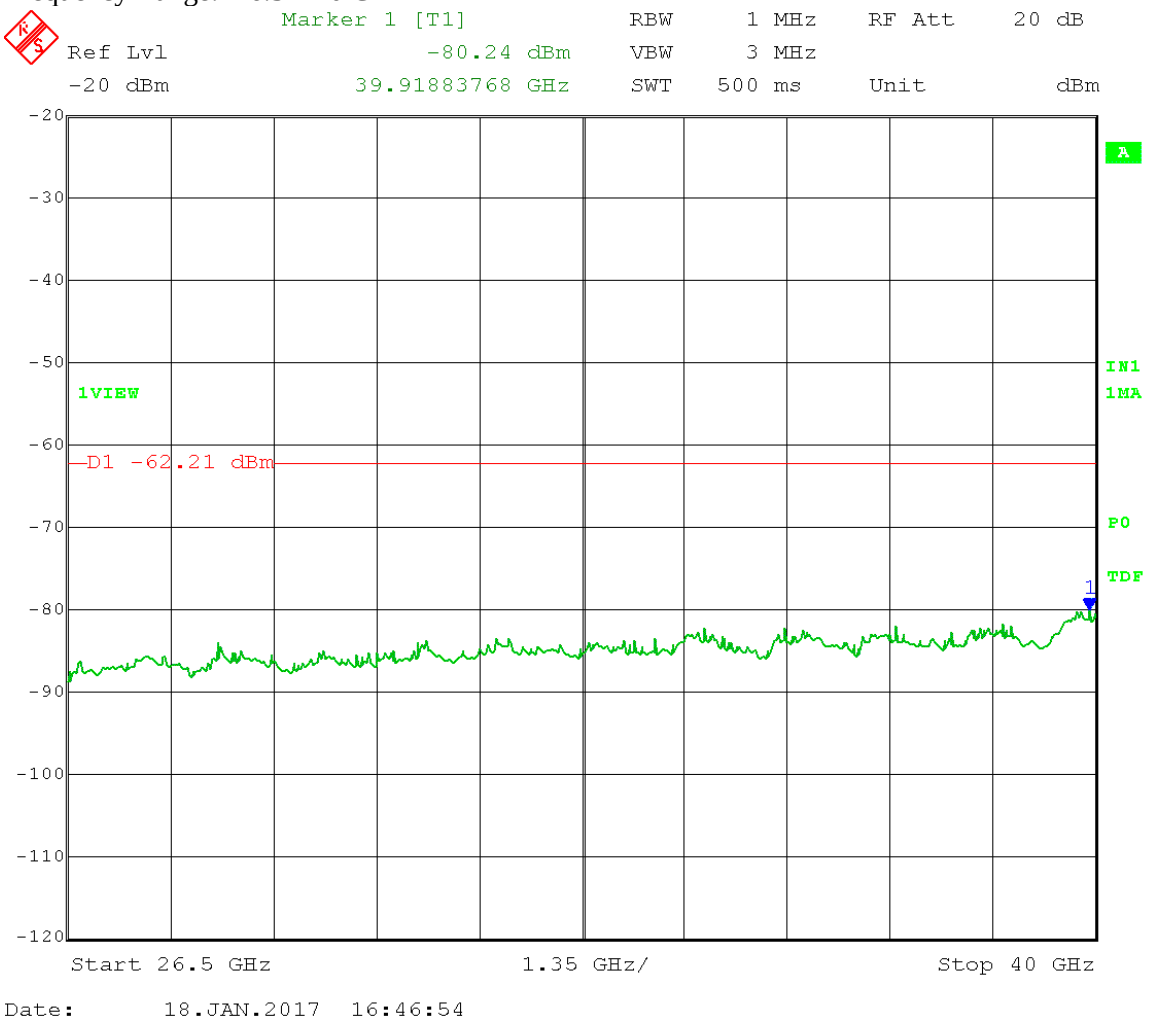
Test Date: 01-18-2017
Company: Cambium Networks
EUT: PMP450i 5.4GHz
Test: Unwanted emissions
Operator: Craig B
Comment: ANSI C63.10, 12.7.2 and 12.7.3
High Channel: Transmit = 5700 MHz 40 MHz BW
Power setting: 7 Port B QPSK
Antenna gain: 17 dBi
Detector: Peak

Non-restricted band limit: -27 dBm/MHz - 3 dB (MIMO) - 17 dBi antenna gain = -47 dBm/MHz

Restricted band Average limit: 54 dBµV/m at 3 meters; Conducted limit = 54 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain - 1.01 duty cycle correction = -62.21 dBm/MHz

Restricted band Peak limit: 74 dBµV/m at 3 meters; Conducted limit = 74 - 95.2 - 3 dB (MIMO) - 17 dBi antenna gain = -41.2 dBm/MHz

Frequency Range: 26.5 – 40 GHz



Appendix B – Measurement Data

B7.0 Unwanted Emission Levels – Radiated from cabinet

Rule Section: FCC 15.407(b)(2), 15.407(b)(3) and 15.407(b)(7)

Test Procedure: ANSI C63.10-2013
Section 6.6 – Radiated emissions from unlicensed wireless devices above 1 GHz

Peak measurements above 1000 MHz
RBW = 1 MHz
VBW ≥ 3 MHz
Detector = peak
Trace mode = max hold

Average measurements above 1000 MHz (required for peak emissions that are above the average limits)
RBW = 1 MHz
VBW ≥ 3 MHz
Detector = Average (linear)
Trace mode = max hold

EIRP calculation:
EIRP (dBm) = E + 20 log (d) – 104.77
E = field strength in dBµV/m
d = the measurement distance in meters

Limits: Outside restricted bands: Peak EIRP shall not exceed -27 dBm/MHz
Inside restricted bands: Peak and Average limits of FCC Part 15.209

Average limit was lowered to account for duty cycle.

Results: Passed

Notes: All radiated emissions were tested to the restricted band limits of FCC Part 15.209
Both transmit chains were active and at power setting 9 during test.

Antenna ports were terminated with 50 Ohm terminations.

Measurements were taken for QPSK at the lowest, middle, and highest channels of operation. EUT was set to transmit continuously with 79.3% duty cycle in the 5.2 GHz band and 79.2% duty cycle in the 5.4 GHz band.

RSS-247 & FCC Part 15.407

Electric Field Strength

EUT: PMP450i 5.2 GHz
Manufacturer: Cambium Networks
Operating Condition: 70 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Craig B #8665
Test Specification: Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment: 40 MHz ch BW; Tx 79.3% duty cycle @ pwr setting 9 L,M,H chan
Date: 01-20-2017

TEXT: "Vert 3 meters"

Short Description: Test Set-up

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

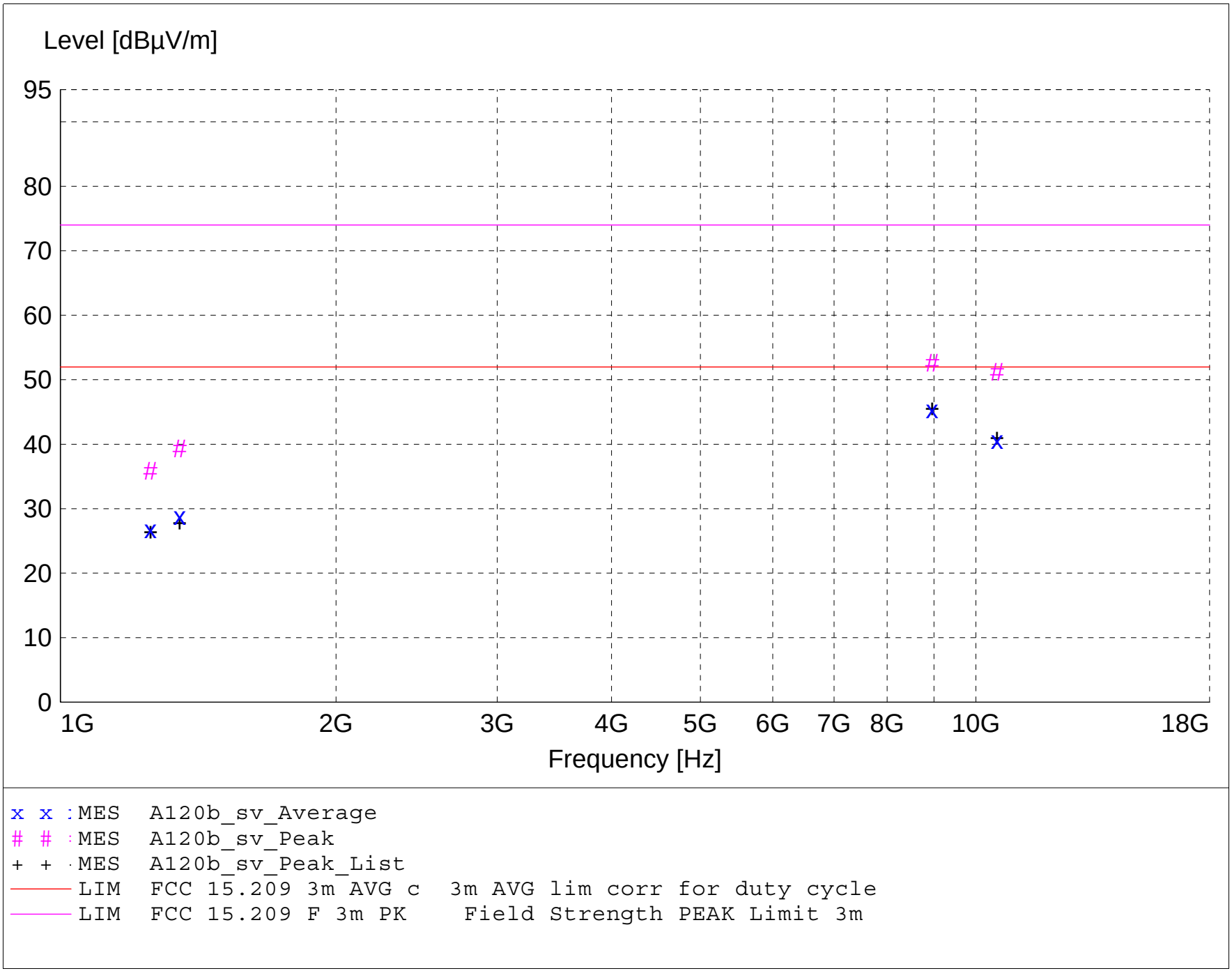
Sample Equations:

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 A120b_sv_Average
: MES A120b_sv_Peak
+ + : MES A120b_sv_Peak_List
——— LIM FCC 15.209 3m AVG c 3m AVG lim corr for duty cycle
——— LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A120b_sv_Final"

1/20/2017 11:16AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
8960.000000	43.19	37.99	-35.8	45.4	52.0	6.6	1.17	147	AVERAGE	None
10549.980000	38.68	38.12	-36.1	40.7	52.0	11.3	1.84	219	AVERAGE	None
8960.000000	50.42	37.99	-35.8	52.6	74.0	21.4	1.17	147	MAX PEAK	None
10549.980000	49.25	38.12	-36.1	51.3	74.0	22.7	1.84	219	MAX PEAK	None
1350.000000	43.03	25.09	-39.3	28.8	52.0	23.2	1.39	129	AVERAGE	None
1254.400000	40.67	25.02	-38.9	26.8	52.0	25.2	1.50	159	AVERAGE	None
1350.000000	53.51	25.09	-39.3	39.3	74.0	34.7	1.39	129	MAX PEAK	None
1254.400000	49.76	25.02	-38.9	35.9	74.0	38.1	1.50	159	MAX PEAK	None

RSS-247 & FCC Part 15.407

Electric Field Strength

EUT: PMP450i 5.2 GHz
Manufacturer: Cambium Networks
Operating Condition: 70 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Craig B #8665
Test Specification: Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment: 40 MHz ch BW; Tx 79.3% duty cycle @ pwr setting 9 L,M,H chan
Date: 01-20-2017

TEXT: "Horz 3 meters"

Short Description: Test Set-up

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

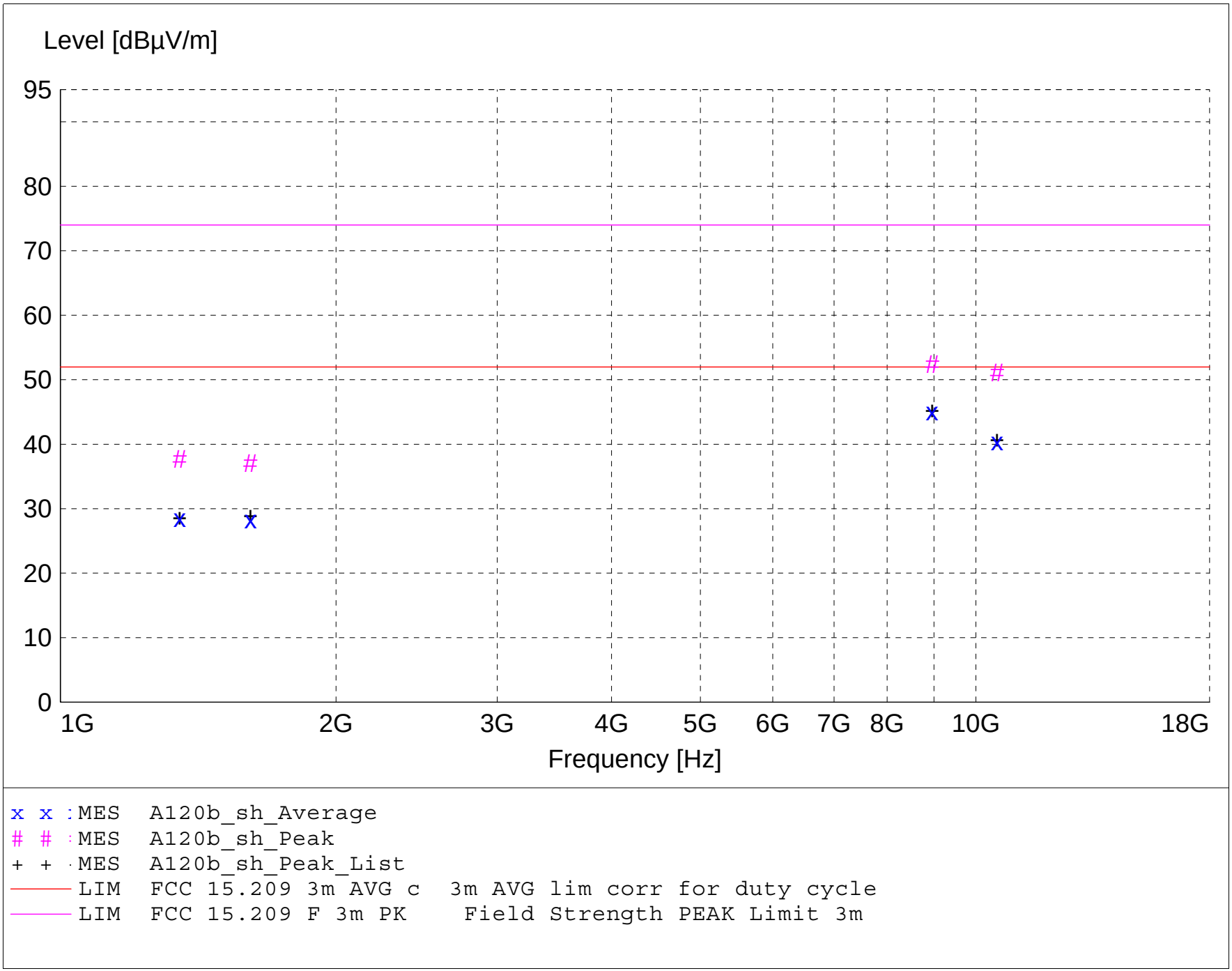
Sample Equations:

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 A120b_sh_Average
: MES A120b_sh_Peak
+ + : MES A120b_sh_Peak_List
——— LIM FCC 15.209 3m AVG c 3m AVG lim corr for duty cycle
——— LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A120b_sh_Final"

1/20/2017 12:53PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
8960.000000	42.83	37.99	-35.8	45.0	52.0	7.0	1.08	59	AVERAGE	None
10550.000000	38.35	38.12	-36.1	40.4	52.0	11.6	1.36	188	AVERAGE	None
8960.000000	50.29	37.99	-35.8	52.5	74.0	21.5	1.08	59	MAX PEAK	None
10550.000000	49.12	38.12	-36.1	51.1	74.0	22.9	1.36	188	MAX PEAK	None
1350.000000	42.77	25.09	-39.3	28.5	52.0	23.4	1.21	279	AVERAGE	None
1612.780000	42.77	25.56	-40.0	28.3	52.0	23.7	1.71	234	AVERAGE	None
1350.000000	51.90	25.09	-39.3	37.7	74.0	36.3	1.21	279	MAX PEAK	None
1612.780000	51.49	25.56	-40.0	37.0	74.0	37.0	1.71	234	MAX PEAK	None

RSS-247 & FCC Part 15.407

Electric Field Strength

EUT: PMP450i 5.2 GHz
Manufacturer: Cambium Networks
Operating Condition: 70 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Paul L #8665
Test Specification: Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment: 40 MHz ch BW; Tx 79.3% duty cycle @ pwr setting 9 L,M,H chan
Date: 01-20-2017

TEXT: "Vert 1 meters"

Short Description: Test Set-up

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

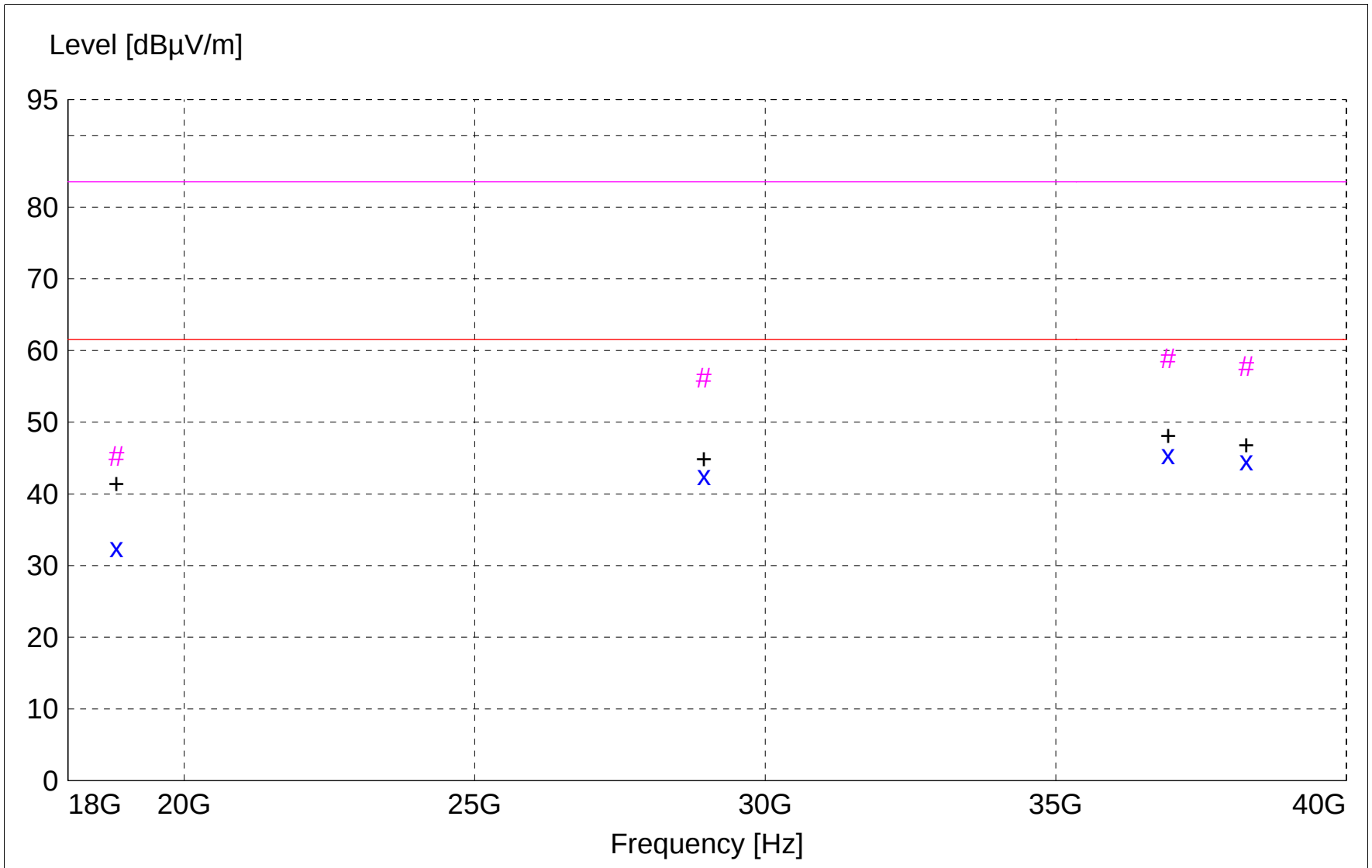
Sample Equations:

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

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

Graph Markers:

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



x x : MES A120c_sv_Average
: MES A120c_sv_Peak
+ + : MES A120c_sv_Peak_List
——— LIM FCC 15.209 1m AVG c 1m AVG lim corr for duty cycle
——— LIM FCC 15.209 F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A120c_sv_Final"

1/20/2017 1:42PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
36936.000000	48.26	41.50	-44.3	45.5	61.5	16.0	1.00	0	AVERAGE	noise floor
38280.800000	47.90	41.45	-44.7	44.7	61.5	16.9	1.00	0	AVERAGE	noise floor
28946.000000	48.04	40.50	-46.0	42.6	61.5	19.0	1.00	0	AVERAGE	noise floor
36936.000000	61.68	41.50	-44.3	58.9	83.5	24.6	1.00	0	MAX PEAK	noise floor
38280.800000	61.03	41.45	-44.7	57.8	83.5	25.7	1.00	0	MAX PEAK	noise floor
28946.000000	61.68	40.50	-46.0	56.2	83.5	27.3	1.00	0	MAX PEAK	noise floor
18835.200000	43.98	40.23	-51.6	32.6	61.5	29.0	1.00	0	AVERAGE	noise floor
18835.200000	56.73	40.23	-51.6	45.3	83.5	38.2	1.00	0	MAX PEAK	noise floor

RSS-247 & FCC Part 15.407

Electric Field Strength

EUT: PMP450i 5.2 GHz
Manufacturer: Cambium Networks
Operating Condition: 70 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Paul L #8665
Test Specification: Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment: 40 MHz ch BW; Tx 79.3% duty cycle @ pwr setting 9 L,M,H chan
Date: 01-20-2017

TEXT: "Horz 1 meters"

Short Description: Test Set-up

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

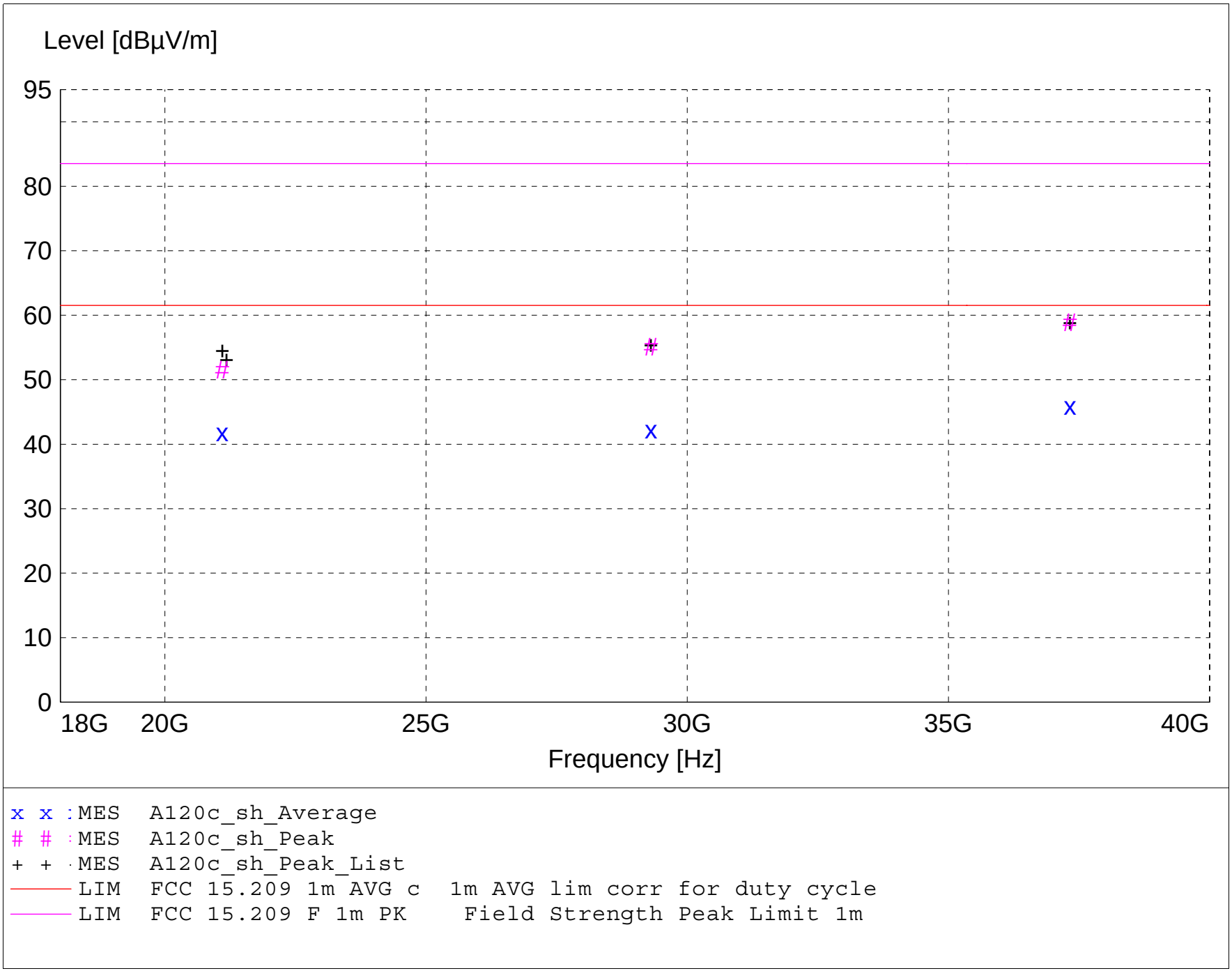
Sample Equations:

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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95
80
70
60
50
40
30
20
10
0
18G
20G
25G
30G
35G
40G
Frequency [Hz]
x x :MES A120c_sh_Average
:MES A120c_sh_Peak
+ + :MES A120c_sh_Peak_List
LIM FCC 15.209 1m AVG c 1m AVG lim corr for duty cycle
LIM FCC 15.209 F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A120c_sh_Final"

1/20/2017 2:58PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
37328.400000	48.57	41.67	-44.3	45.9	61.5	15.6	1.00	0	AVERAGE	noise floor
29305.600000	47.75	40.66	-46.1	42.3	61.5	19.3	1.00	0	AVERAGE	noise floor
21100.000000	52.95	40.59	-51.7	41.8	61.5	19.7	1.00	0	AVERAGE	Low Ch. 4th Harmonic
37328.400000	61.55	41.67	-44.3	58.9	83.5	24.6	1.00	0	MAX PEAK	noise floor
29305.600000	60.63	40.66	-46.1	55.2	83.5	28.4	1.00	0	MAX PEAK	noise floor
21100.000000	62.63	40.59	-51.7	51.5	83.5	32.0	1.00	0	MAX PEAK	Low Ch. 4th Harmonic

RSS-247 & FCC Part 15.407

Electric Field Strength

EUT: PMP450i 5.4 GHz
Manufacturer: Cambium Networks
Operating Condition: 70 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Craig B #8665
Test Specification: Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment: 40 MHz ch BW; Tx 79.2% duty cycle @ pwr setting 9 L,M,H chan
Date: 01-19-2017

TEXT: "Vert 3 meters"

Short Description: Test Set-up

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

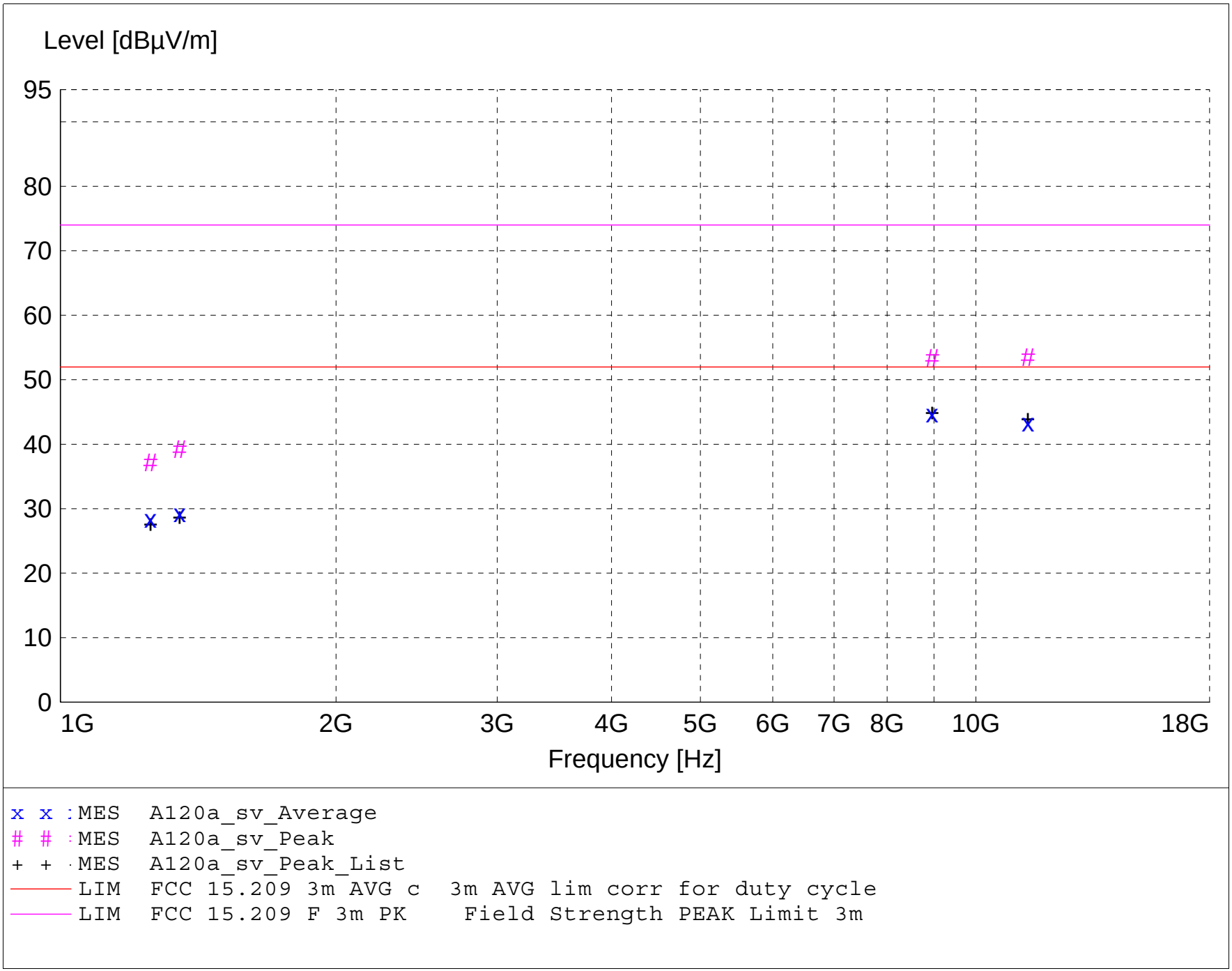
Sample Equations:

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 A120a_sv_Average
: MES A120a_sv_Peak
+ + : MES A120a_sv_Peak_List
——— LIM FCC 15.209 3m AVG c 3m AVG lim corr for duty cycle
——— LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A120a_sv_Final"

1/20/2017 8:49AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
8960.000000	42.60	37.99	-35.8	44.8	52.0	7.2	1.24	142	AVERAGE	None
11400.000000	40.24	38.49	-35.4	43.3	52.0	8.7	1.54	169	AVERAGE	None
11400.000000	50.42	38.49	-35.4	53.5	74.0	20.5	1.54	169	MAX PEAK	None
8960.000000	51.20	37.99	-35.8	53.4	74.0	20.6	1.24	142	MAX PEAK	None
1350.000000	43.53	25.09	-39.3	29.3	52.0	22.7	1.14	126	AVERAGE	None
1254.420000	42.32	25.02	-38.9	28.5	52.0	23.5	1.00	121	AVERAGE	None
1350.000000	53.41	25.09	-39.3	39.2	74.0	34.8	1.14	126	MAX PEAK	None
1254.420000	51.07	25.02	-38.9	37.2	74.0	36.8	1.00	121	MAX PEAK	None

RSS-247 & FCC Part 15.407

Electric Field Strength

EUT: PMP450i 5.4 GHz
Manufacturer: Cambium Networks
Operating Condition: 70 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Craig B #8665
Test Specification: Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment: 40 MHz ch BW; Tx 79.2% duty cycle @ pwr setting 9 L,M,H chan
Date: 01-20-2017

TEXT: "Horz 3 meters"

Short Description: Test Set-up

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

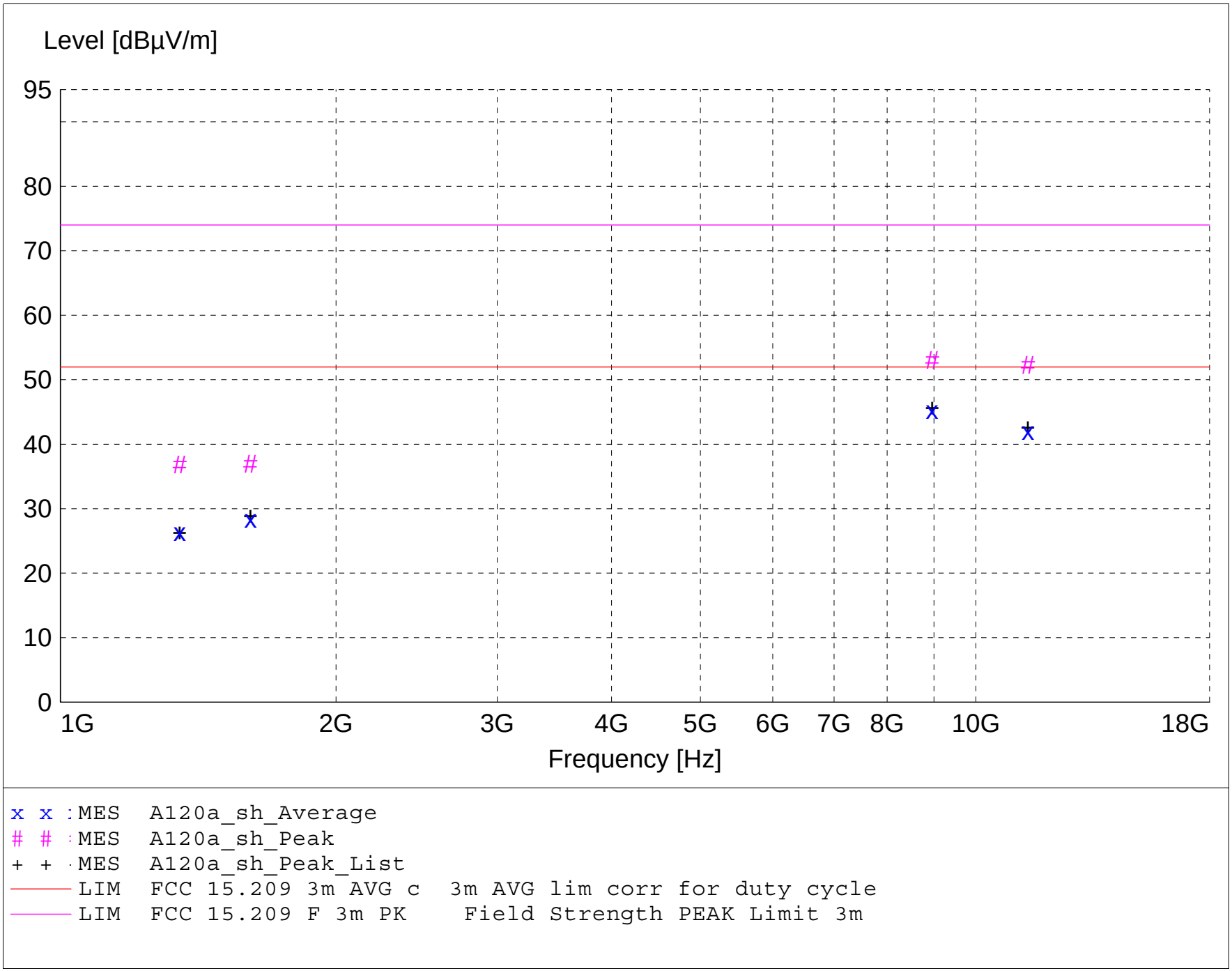
Sample Equations:

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 A120a_sh_Average
: MES A120a_sh_Peak
+ + : MES A120a_sh_Peak_List
——— LIM FCC 15.209 3m AVG c 3m AVG lim corr for duty cycle
——— LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A120a_sh_Final"

1/20/2017 9:40AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
8960.000000	43.06	37.99	-35.8	45.2	52.0	6.7	1.06	58	AVERAGE	None
11400.010000	38.99	38.49	-35.4	42.1	52.0	9.9	1.58	220	AVERAGE	None
8960.000000	50.95	37.99	-35.8	53.1	74.0	20.9	1.06	58	MAX PEAK	None
11400.010000	49.25	38.49	-35.4	52.3	74.0	21.7	1.58	220	MAX PEAK	None
1612.780000	42.87	25.56	-40.0	28.4	52.0	23.6	1.81	221	AVERAGE	None
1350.000000	40.63	25.09	-39.3	26.4	52.0	25.6	1.61	207	AVERAGE	None
1612.780000	51.35	25.56	-40.0	36.9	74.0	37.1	1.81	221	MAX PEAK	None
1350.000000	51.08	25.09	-39.3	36.9	74.0	37.1	1.61	207	MAX PEAK	None

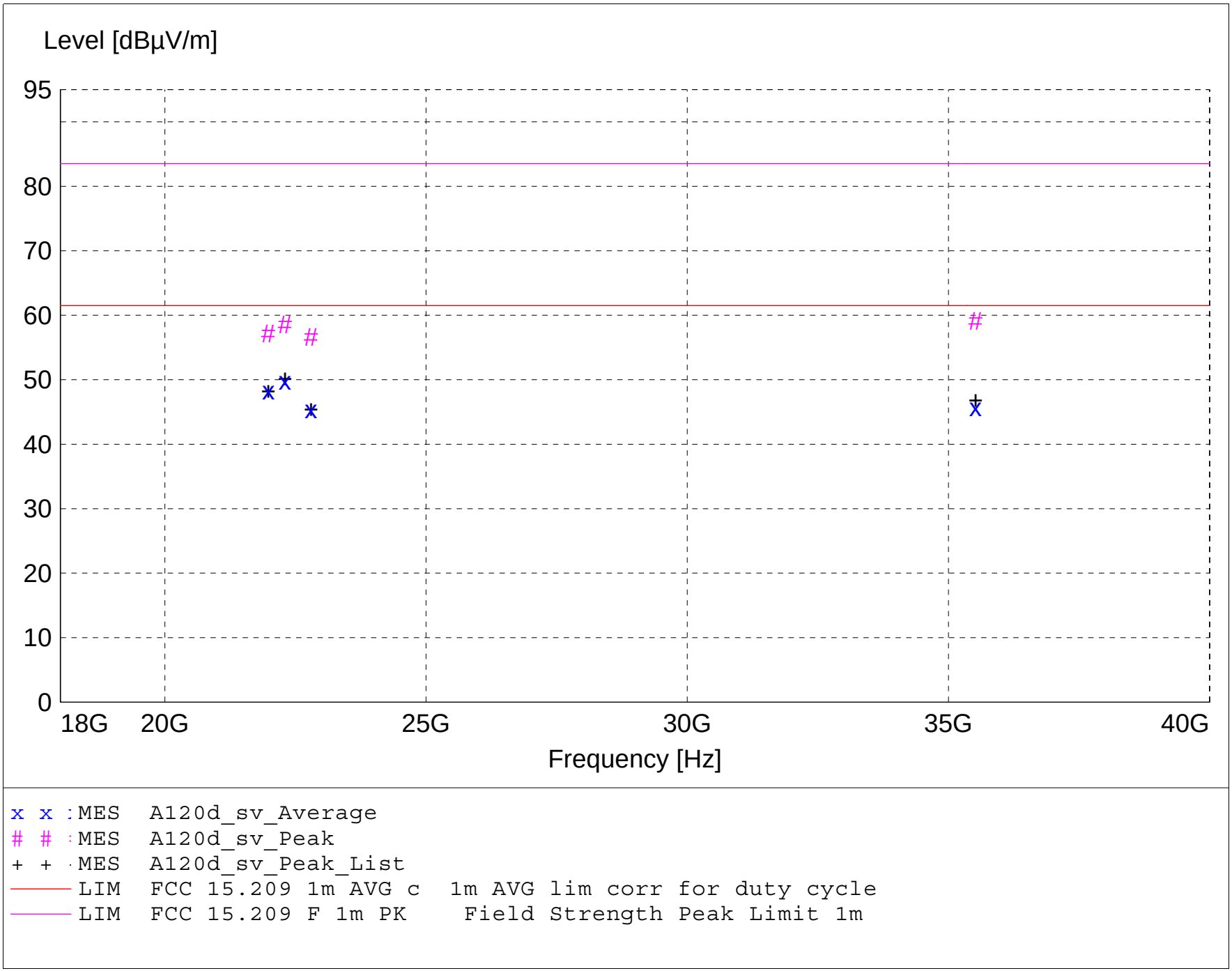
RSS-247 & FCC Part 15.407

Electric Field Strength

```
EUT:                  PMP450i 5.4 GHz
Manufacturer:         Cambium Networks
Operating Condition:  70 deg C  29% R.H.
Test Site:            DLS O.F. G1
Operator:             Craig B  #8665
Test Specification:   Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment:              40 MHz ch BW; Tx 79.2% duty cycle @ pwr setting 9 L,M,H chan
                      Date:  01-23-2017
```

TEXT: "Vert 1 meters"

```
  Short Description:            Test Set-up


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


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

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


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

                |       Final maximized level using Quasi-Peak detector

                X       Final maximized level using Average dector

                #       Final maximized level using Peak detector
```


Level [dBµV/m]
95
80
70
60
50
40
30
20
10
0
18G
20G
25G
30G
35G
40G
Frequency [Hz]
x x :MES A120d_sv_Average
:MES A120d_sv_Peak
+ + :MES A120d_sv_Peak_List
LIM FCC 15.209 1m AVG c 1m AVG lim corr for duty cycle
LIM FCC 15.209 F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A120d_sv_Final"

1/23/2017 8:50AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
22300.000000	59.74	40.16	-50.1	49.8	61.5	11.7	1.30	320	AVERAGE	None
21980.000000	59.33	40.15	-51.2	48.3	61.5	13.2	1.60	315	AVERAGE	None
35520.900000	49.61	40.83	-44.7	45.7	61.5	15.8	1.50	315	AVERAGE	noise floor
22800.000000	54.67	40.13	-49.4	45.4	61.5	16.2	1.50	45	AVERAGE	None
35520.900000	63.00	40.83	-44.7	59.1	83.5	24.4	1.50	315	MAX PEAK	noise floor
22300.000000	68.47	40.16	-50.1	58.5	83.5	25.0	1.30	320	MAX PEAK	None
21980.000000	68.22	40.15	-51.2	57.2	83.5	26.4	1.60	315	MAX PEAK	None
22800.000000	66.00	40.13	-49.4	56.7	83.5	26.9	1.50	45	MAX PEAK	None

RSS-247 & FCC Part 15.407

Electric Field Strength

EUT: PMP450i 5.4 GHz
Manufacturer: Cambium Networks
Operating Condition: 70 deg C 29% R.H.
Test Site: DLS O.F. G1
Operator: Craig B #8665
Test Specification: Transmitter Spurious; with 50 Ohm terminations on ant ports
Comment: 40 MHz ch BW; Tx 79.2% duty cycle @ pwr setting 9 L,M,H chan
Date: 01-23-2017

TEXT: "Horz 1 meters"

Short Description: Test Set-up

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

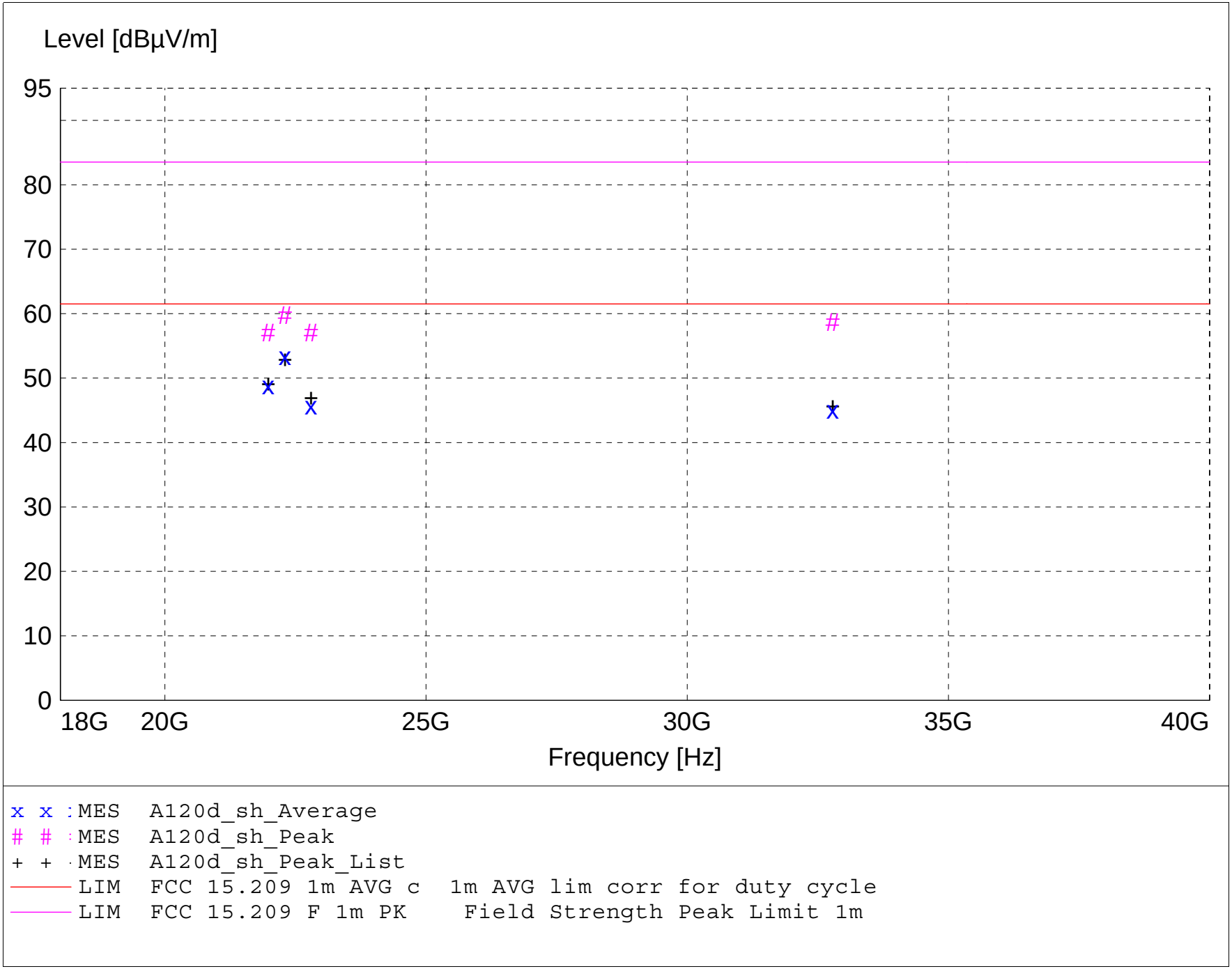
Sample Equations:

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



x x : MES A120d_sh_Average
: MES A120d_sh_Peak
+ + : MES A120d_sh_Peak_List
——— LIM FCC 15.209 1m AVG c 1m AVG lim corr for duty cycle
——— LIM FCC 15.209 F 1m PK Field Strength Peak Limit 1m

MEASUREMENT RESULT: "A120d_sh_Final"

1/23/2017 9:15AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
22300.020000	63.30	40.16	-50.1	53.4	61.5	8.1	1.60	290	AVERAGE	None
21980.060000	59.93	40.15	-51.2	48.9	61.5	12.6	1.70	315	AVERAGE	None
22800.020000	55.05	40.13	-49.4	45.7	61.5	15.8	1.60	225	AVERAGE	None
32787.600000	49.49	40.91	-45.4	45.0	61.5	16.5	1.50	320	AVERAGE	noise floor
22300.020000	69.72	40.16	-50.1	59.8	83.5	23.7	1.60	290	MAX PEAK	None
32787.600000	63.14	40.91	-45.4	58.7	83.5	24.9	1.50	320	MAX PEAK	noise floor
22800.020000	66.38	40.13	-49.4	57.1	83.5	26.5	1.60	225	MAX PEAK	None
21980.060000	68.10	40.15	-51.2	57.0	83.5	26.5	1.70	315	MAX PEAK	None

Appendix C – Measurement Uncertainty

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Parameter		Expanded Uncertainty (K=2)
Emission Bandwidth, Conducted		+/- 1.14%
RF Output Power, Conducted		+/- 1.36dB
Power Spectral Density, Conducted		+/- 1.26dB
All Emissions, Radiated		+/- 5.69dB
All Emissions, RF Conducted		+/- 3.31dB
Duty Cycle		+/- 0.05%

166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C054045A001A
Report Number: 22500
DLS Project: 8665

END OF REPORT

Revision #	Date	Comments	By
1.0	01-26-2017	Initial Release	CB