DLS ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Models Tested: C036045C004A & C036045C008A
Report Number: 19812
DLS Project: 6384

Code of Federal Regulations 47
PART 90—PRIVATE LAND MOBILE RADIO SERVICES

Subpart Z—Wireless Broadband Services in the 3650-3700 MHz Band

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

Formal Name: PMP450SM 3.65GHz OFDM Radio

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

Frequency Range: 3652.5 to 3697.5 MHz (5 MHz bandwidth)
                         3655 to 3695 MHz (10 MHz bandwidth)
                         3660 to 3690 MHz (20 MHz bandwidth)

Test Configuration: Stand-alone

Model Number(s):   Integrated models: C036045C001A, C036045C002A, C036045C003A, C036045C004A
                         Connectorized models: C036045C005A, C036045C006A, C036045C007A, C036045C008A

Model(s) Tested: C036045C004A & C036045C008A

Serial Number(s):   Integrated model MAC Address: 0A003E4030EA
                         Connectorized model MAC Address: 0A003E4030CD

Date of Tests: February 14th to 27th, 2014

Test Conducted For: Cambium Networks
                         3800 Golf Road, Suite 360
                         Rolling Meadows, IL 60008, USA

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SIGNATURE PAGE

Tested By:

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OATS Manager

Approved By:

Brian Mattson
General Manager

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP ®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

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

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

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

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

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

For the National Institute of Standards and Technology

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

DLS
ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Models Tested: C036045C004A & C036045C008A
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1.0   Summary of Test Report

It was determined that the Cambium Networks PMP450SM 3.65GHz OFDM Radio, Model C036045C004A & C036045C008A, complies with the requirements of CFR 47 Part 90 Subpart Z.

Applicable Technical Requirements Tested:

Section	Description	Procedure	Note	Compliant?
Pt 90.1321 (a) & (b)	Duty Cycle of Test Unit - for RMS measurements	See Cambium Networks' PBA	2	NA
Pt 90.1321 (a) & (b)	Transmitter Output Power and Power Density	See Cambium Networks' PBA	1	Yes
Pt 2.1049	Occupied Bandwidth - 99% power bandwidth	FCC Publication KDB 971168 D01 Power Meas License Digital Systems v02r01 Section 4.2	1	Yes
Pt 90.1323(a) Pt 2.1051 Pt 2.1053	Transmitter Unwanted Emissions	FCC Publication KDB 971168 D01 Power Meas License Digital Systems v02r01 Sections 6.0 & 7.0	1, 2	Yes
Pt 2.1055	Transmitter RF Conducted Band-edge with Frequency Stability	FCC Publication KDB 971168 D01 Power Meas License Digital Systems v02r01 Section 9.30	1	Yes
Pt 90.1323(a) Pt 2.1053	Radiated Band Edge Compliance	FCC Publication KDB 971168 D01 Power Meas License Digital Systems v02r01 Section 7.0	2	Yes
15.207(a)	AC Line Conducted Emissions	ANSI C63.10-2009 Section 6.2	3	Yes

Note 1: RF conducted measurement.
Note 2: Radiated emission measurement.
Note 3: Informative.

2.0   Introduction

From February 14th through February 27th, 2014 the PMP450SM 3.65GHz OFDM Radio, Model C036045C004A & C036045C008A, as provided from Cambium Networks, was tested to the requirements of CFR 47 Part 90 Subpart Z. To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S Electronic Systems, Inc.

3.0   Test Facilities

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

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

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

4.0   Description of Test Sample

Description:

Point-to-Point 3.65 GHz Fixed Access Wireless Transceiver with either integrated Patch (8 dBi) antenna, or Patch (8 dBi) with external Dish (12 dBi) antennas (20 dBi total), or connectorized Sector (17dBi) antenna, or connectorized Panel (22 dBi) antenna. 5 MHz, 10 MHz or 20 MHz channel bandwidth. OFDM modulation.

Type of Equipment / Frequency Range:

Stand-Alone /   3652.5 to 3697.5 MHz (5 MHz bandwidth)
                3655 to 3695 MHz (10 MHz bandwidth)
                3660 to 3690 MHz (20 MHz bandwidth)

Physical Dimensions of Equipment Under Test:

Length: 3.5 in. Width: 1 in. Height: 11.5 in.

Power Source:

30 VDC (Power Over Ethernet to Radio)
120 Vac, 60 Hz using Power supply model: PSA15M-300 (SM)

Internal Frequencies:

292kHz, 940-1000kHz, 4MHz (Switching Power Supply Frequencies)
25 MHz, 20MHz

Transmit Frequencies Used For Test Purpose:

5 MHz Channel Bandwidth:	Low channel: 3652.5 MHz
	Middle channel: 3675 MHz
	High channel: 3697.5 MHz
10 MHz Channel Bandwidth:	Low channel: 3655 MHz
	Middle channel: 3675 MHz
	High channel: 3695 MHz
20 MHz Channel Bandwidth:	Low channel: 3660 MHz
	Middle channel: 3675 MHz
	High channel: 3690 MHz

Type of Modulations:

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

Description of Circuit Board(s) / Part Number:

PC Board - Integrated EUT	MAC Address: 0A003E4030EA
PC Board - Connectorized EUT	MAC Address: 0A003E4030CD
8dBi Patch Antenna	On integrated EUT PC Board
12dBi Dish Antenna	27RD
17 dBi Sector Antenna	Laird C030045D901A revAA
22 dBi Panel Antenna	Mars M291810400015

Company: Cambium Networks
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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	20Hz – 40GHz	7-23-13	7-23-14
LISN	Solar	9252-50-R-24-BNC	961019	9kHz – 30MHz	5-24-13	5-24-14
Low Pass Filter	Mini-Circuits	VLFX-1125	R UU92600920	30MHz-1GHz	8-13-13	8-13-14
Filter- High-Pass	SOLAR	7930-120	090702	120 kHz – 30 MHz	1-3-14	1-3-15
Limiter	Electro-Metrics	EM-7600	706	9 kHz – 30 MHz	1-3-14	1-3-15
Preamplifier	Rohde & Schwarz	TS-PR10	032001/004	9 kHz – 1 GHz	1-4-14	1-4-15
Preamp	Ciao	CA118-4010	101	1GHz-18GHz	2-26-13	2-26-14
Preamp	Miteq	AMF-8B-180265-40-10P-H/S	438727	18GHz-26GHz	8-12-13	8-12-14
Preamp	Rohde & Schwarz	TS-PR40	052002/025	26GHz-40GHz	5-23-13	5-23-14
Horn Antenna	EMCO	3115	6204	1GHz-18GHz	6-3-13	6-3-15
Horn Antenna	EMCO	3116	2549	18GHz-40GHz	9-6-12	9-6-14
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	9-13-12	9-13-14
Antenna	EMCO	3146	1205	200 MHz – 1 GHz	9-19-12	9-19-14
High Pass Filter	Q Microwave, Inc.	100462	1	4.2GHz - 18GHz	5-23-13	5-24-14
High Pass Filter	Q Microwave, Inc.	100462	2	4.2GHz - 18GHz	5-23-13	5-24-14
High Pass Filter	Planar	CL22500-9000-CD-SS	PF1229/0728	15GHz-40GHz	8-14-13	8-14-14
Signal Generator	Rohde & Schwarz	SMR40	100092	1GHz - 40GHz	7-23-13	7-23-14
Horn Antenna	A.H. Systmes	SAS-574	221	80MHz - 1GHz	4-17-12	4-17-14
20 dB attenuator	Aeroflex/weinschel	75A-20-12	1071	DC – 40 GHz	8-14-13	8-14-14
Temperature Chamber	Test Equity	1007C	R035716	-73° C to +175° C	4-27-13	4-27-14

6.0   Test Arrangements

Radiated Emissions Measurement Arrangement:

All radiated emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to FCC Publication KDB 971168 D01 Power Meas License Digital Systems v02r01 and per the FCC accepted KDB procedure documented in the Cambium Networks PBA for this project, 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.

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

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

RF Conducted Emissions Measurement Arrangement:

All RF conducted emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to FCC Publication KDB 971168 D01 Power Meas License Digital Systems v02r01 and per the FCC accepted KDB procedure documented in the Cambium Networks PBA for this project, 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.

7.0   Test Conditions

Temperature and Humidity:

72°F at 20% RH, or noted on the test data

Supply Voltage:

30 VDC (Power Over Ethernet to Radio)
120 Vac, 60 Hz using Phihong power supply model: PSA15M-300 (SM)

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8.0 Modifications Made To EUT for Compliance

No modifications were needed for the OFDM transmitters.

9.0 Additional Descriptions

Mode of operation: Measurements were taken for QPSK modulation (as worst case) at the lowest, middle, and highest channels of operation. Output Port A & Port B were tested. Port A was tested as representative of Port B. Port A was equal to/or worst case over Port B per Cambium Networks. 5, 10 and 20 MHz channel bandwidths were tested. Continuous Transmit, Continuous Receive, and Continuous Scan modes were tested.

Emission Designators: 5M0X1D, 10M0X1D, 20M0X1D

10.0 Results

Measurements were performed in accordance with FCC Publication KDB 971168 D01 Power Meas License Digital Systems v02r01, ANSI C63.10-2009, and per the FCC accepted KDB procedure documented in the Cambium Networks PBA for this project. Graphical and tabular data can be found in Appendix B at the end of this report.

11.0 Conclusion

The PMP450SM 3.65GHz OFDM Radio, Model C036045C004A & C036045C008A, as provided from Cambium Networks tested from February 14th to 27th, 2014 **meets** the requirements of CFR 47 Part 90 Subpart Z.

Company: Cambium Networks
Models Tested: C036045C004A & C036045C008A
Report Number: 19812
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Appendix A – Test Photos

Photo Information and Test Setup:

Item 0:   PMP450AP 3.65GHz OFDM Radio, Model C036045A004A (integrated)
            or Model C036045C008A (connectorized)
Item 1:   Unshielded CAT 5e Power Over Ethernet cable, 1.5m long with plastic
Item 2:   Unshielded CAT 5e Ethernet cable to remote PC, 10m long with plastic
Item 3:   Phihong Power Supply, Model PSA15M-300 (SM)

Radiated Below 1 GHz
with Integral Patch Antenna - Front
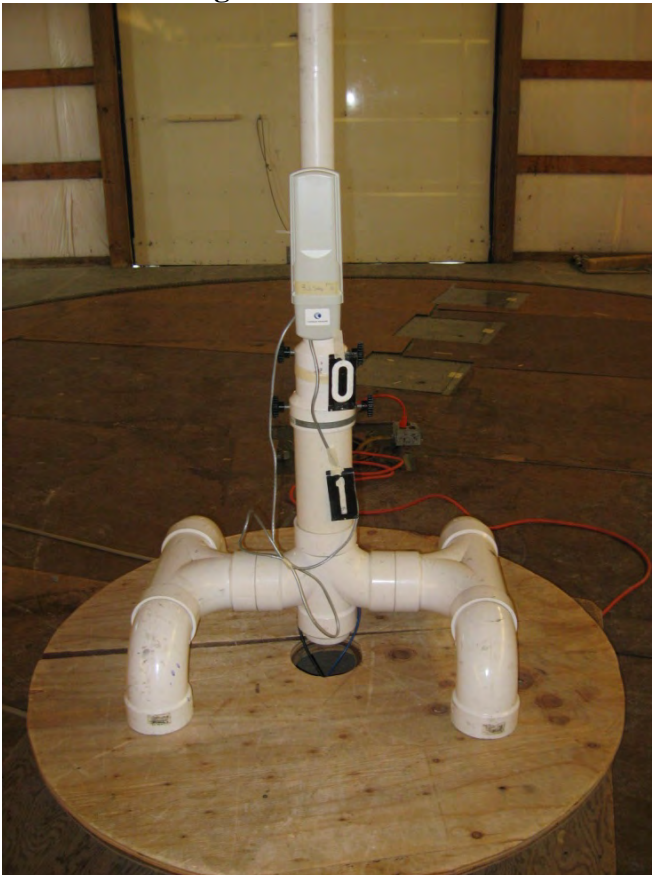
Radiated Below 1 GHz
with Integral Patch Antenna - Back

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Appendix A – Test Photos

**Radiated Below 1 GHz
with Integral Patch Antenna - Side**

**Radiated Above 1 GHz
with Integral Patch Antenna - Front**
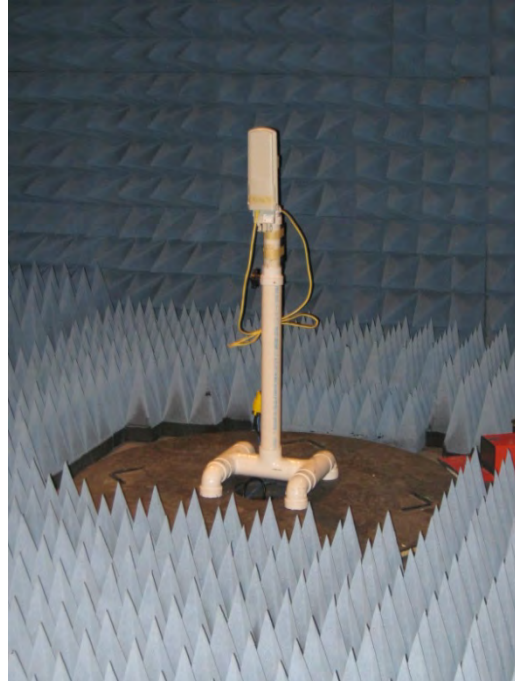
**Radiated Above 1 GHz
with Integral Patch Antenna - Side**
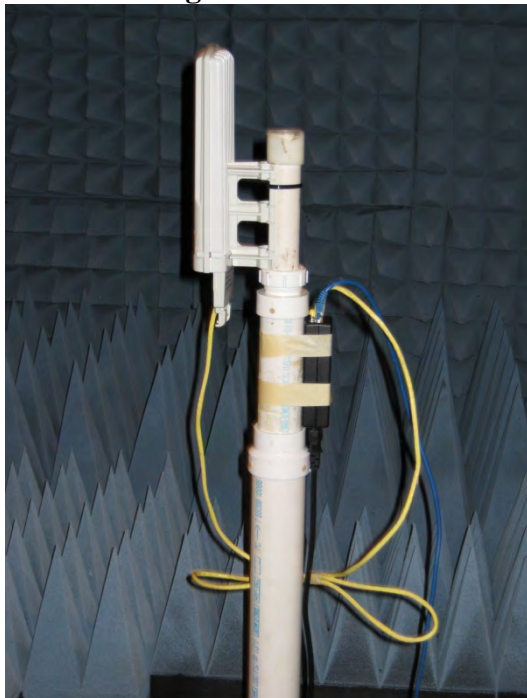
**Radiated from Cabinet
Above 1 GHz - Front**

Appendix A – Test Photos

**Radiated from Cabinet
Above 1 GHz - Back**
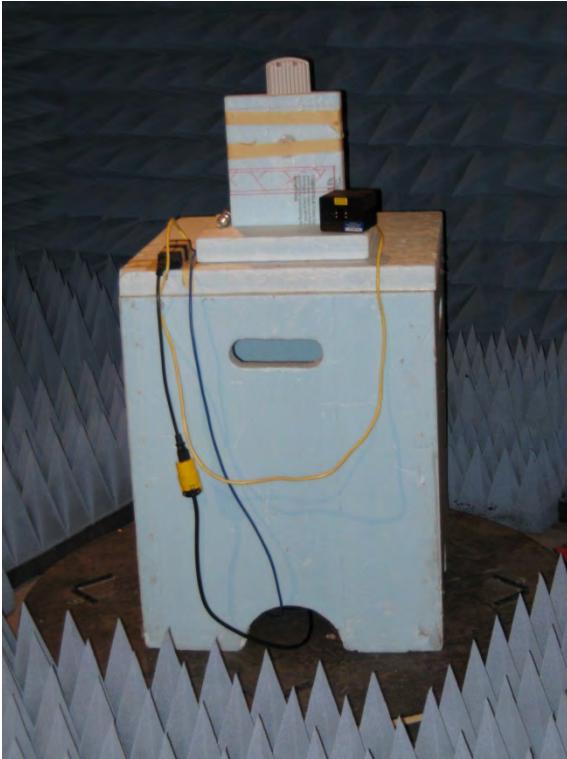
RF Conducted
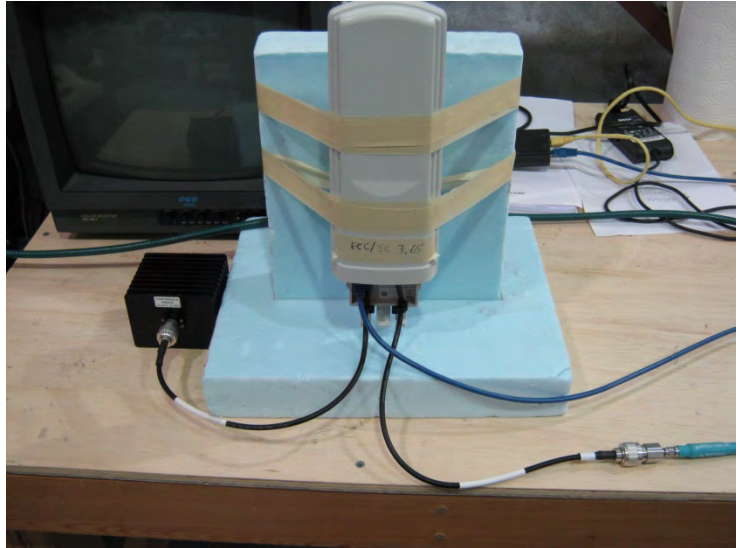
Frequency Stability at Extreme Conditions
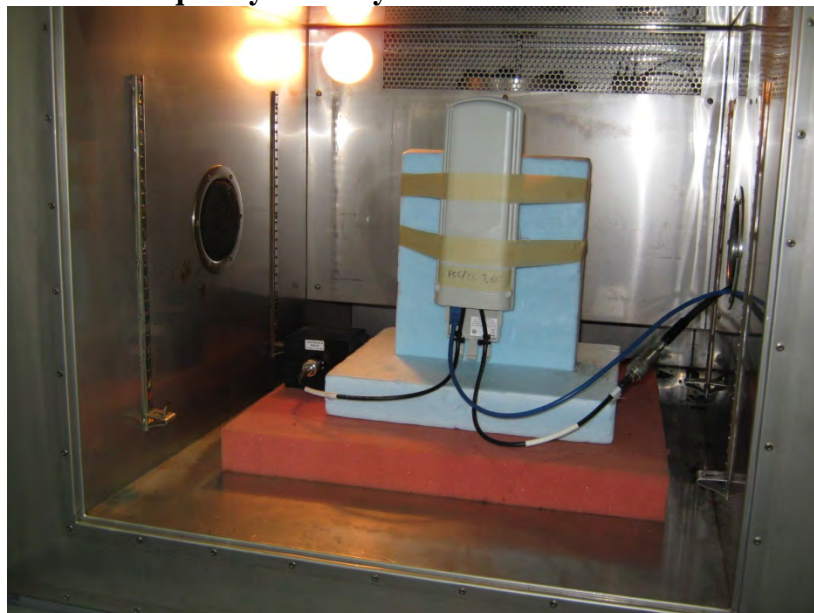
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ELECTRONIC SYSTEMS, INC.

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Company: Cambium Networks
Models Tested: C036045C004A & C036045C008A
Report Number: 19812
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Appendix A – Test Photo

AC Line Conducted - Front

AC Line Conducted - Back

Appendix B – Measurement Data

B1.0   Duty Cycle of Test Unit - for RMS measurements

Rule Part:	FCC Part 90.1321 (a) and (b)
	Duty cycle correction needed for special procedure for Output Power and Power Density test per the FCC accepted KDB procedure as documented in the Cambium Networks PBA for this project.
Test Procedure:	RBW = 1 MHz; VBW = 3 MHz; Span = zero span; Sweep time set as appropriate to capture the on and off times of one complete cycle.
Limits:	Informative.
Results:	EUT is transmitting at a duty cycle less than 100%. The duty cycle correction factor was measured and applied to the output power (RMS) and Power Density (RMS) measurements.
Notes:	None.

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A
Test: Duty Cycle during testing
Operator: Craig B

                5 MHz channel bandwidth; QPSK

Comment: ON time = 2.272545 ms during 2.501002 ms cycle
                x = 2.272545 / 2.501002 = 0.908653
                Duty cycle correction factor = 10log(x) **= 0.42 dB**

ON + OFF time of 1 cycle = 2.501002 ms

Max/Ref Lvl	Delta 1 [T1]	RBW	1 MHz	RF Att	30 dB
127 dB*	0.57 dB	VBW	3 MHz		
117 dB*	2.501002 ms	SWT	6 ms	Unit	dBµV/m

Center 3.675 GHz   600 µs/
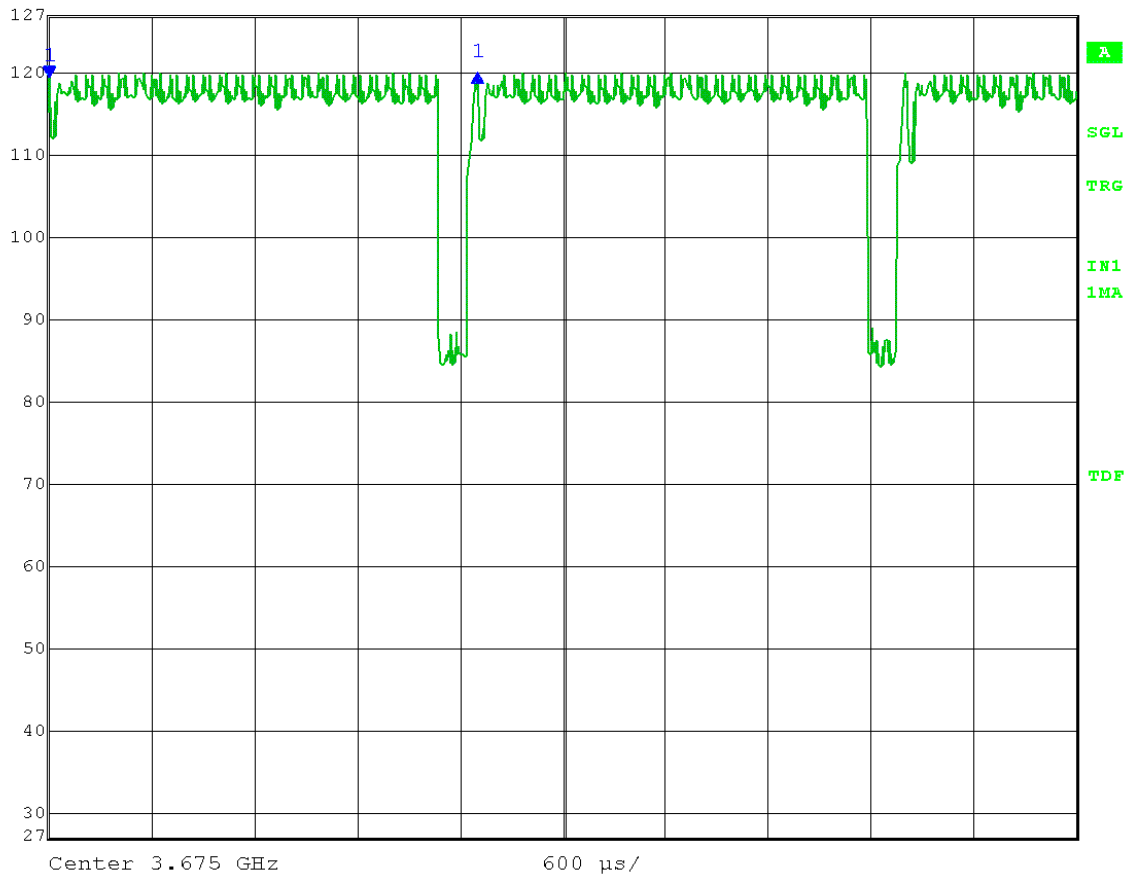
Date: 18.FEB.2014   10:26:36

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A
Test: Duty Cycle during testing
Operator: Craig B

5 MHz channel bandwidth; QPSK

Comment: ON time = 2.272545 ms during 2.501002 ms cycle
             x = 2.272545 / 2.501002 = 0.908653
             Duty cycle correction factor = 10log(x) **= 0.42 dB**

ON time of 1 cycle = 2.272545 ms
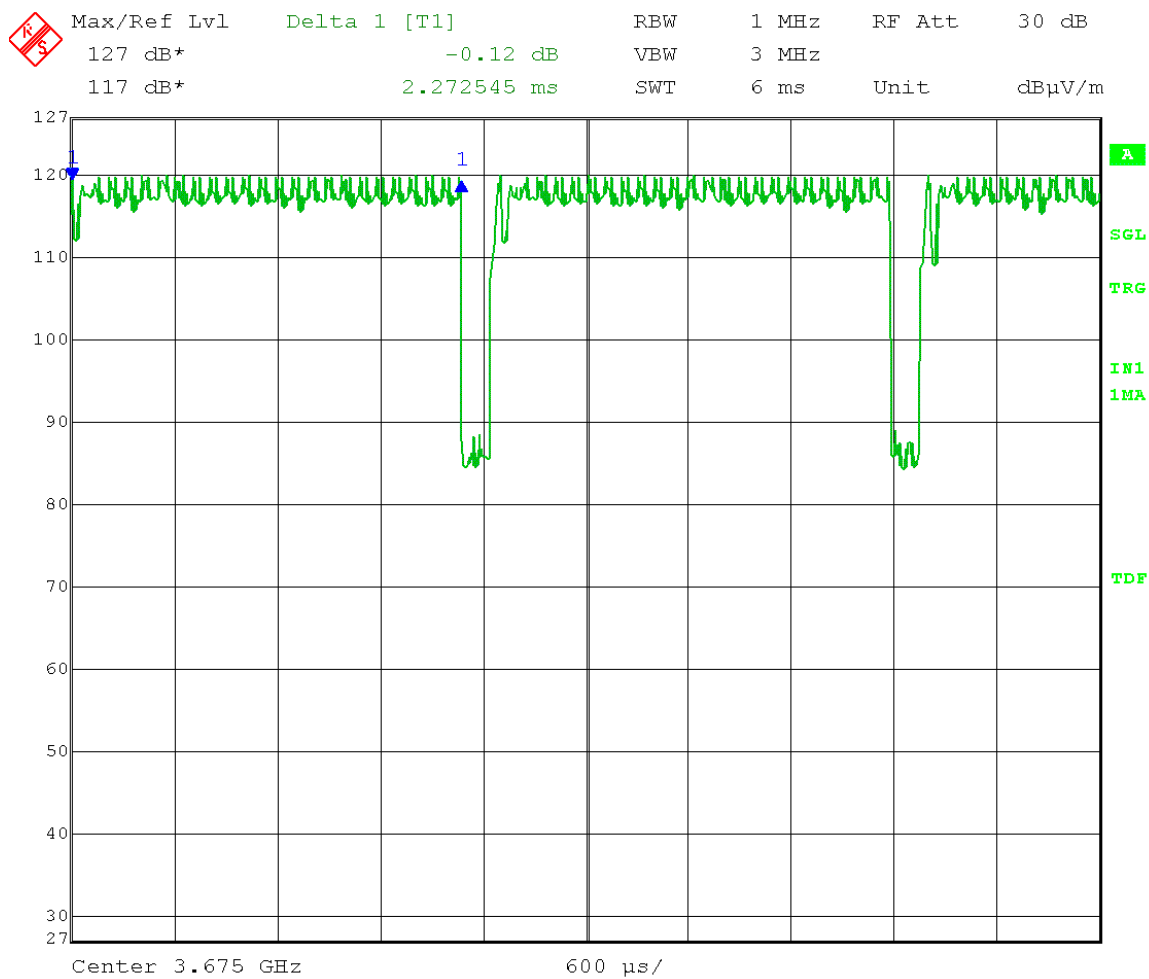
Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A
Test: Duty Cycle during testing
Operator: Craig B

               10 MHz channel bandwidth; QPSK

Comment: ON time = 2.404810 ms during 2.501002 ms cycle
               x = 2.404810 / 2.501002 = 0.9615538
               Duty cycle correction factor = 10log(x) = **0.17 dB**

ON + OFF time of 1 cycle = 2.501002 ms

Max/Ref Lvl	Delta 1 [T1]		RBW	1 MHz	RF Att	30 dB
127 dB*		−0.13 dB	VBW	3 MHz		
117 dB*		2.501002 ms	SWT	6 ms	Unit	dBµV/m

Center 3.675 GHz   600 µs/
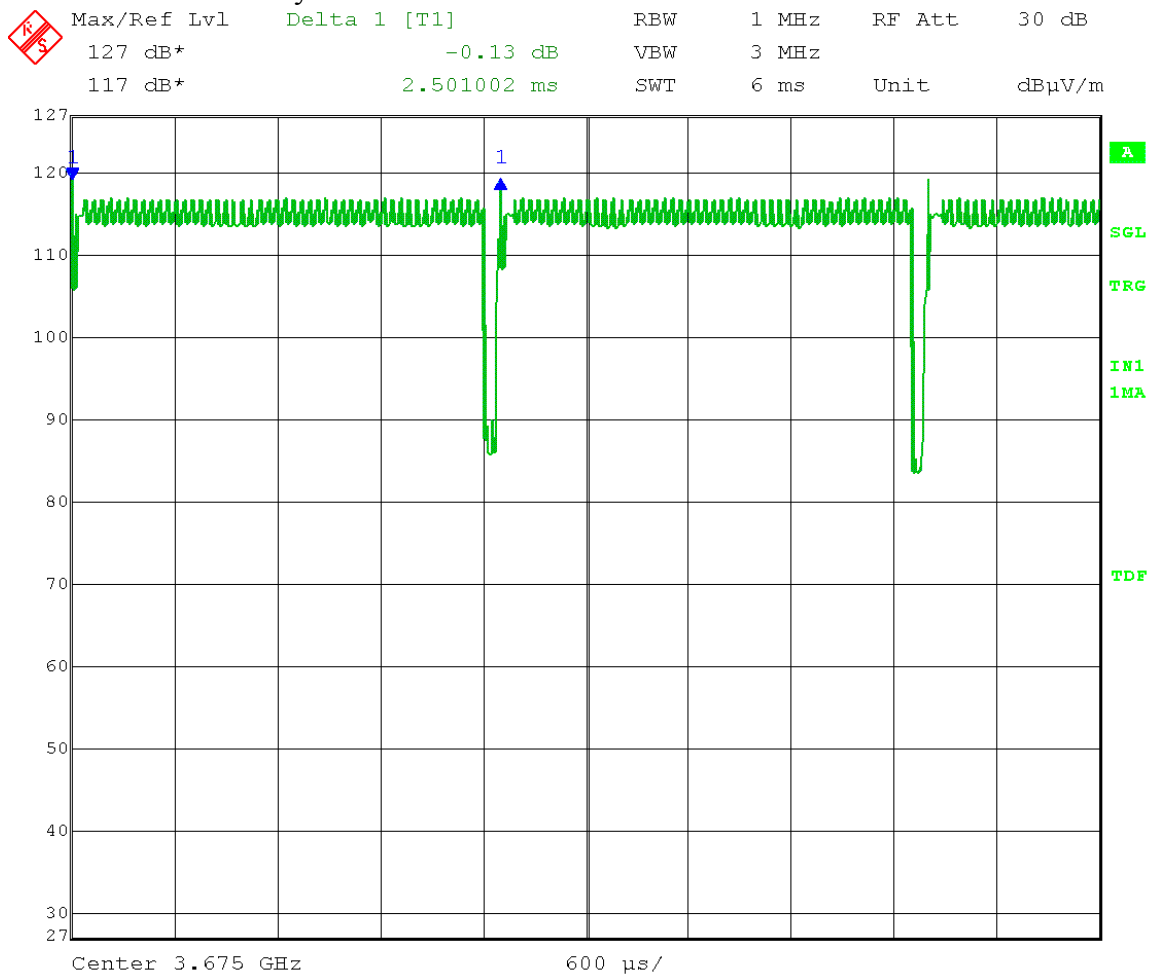
Date: 18.FEB.2014   10:13:47

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A
Test: Duty Cycle during testing
Operator: Craig B

10 MHz channel bandwidth; QPSK

Comment: ON time = 2.404810 ms during 2.501002 ms cycle
x = 2.404810 / 2.501002 = 0.9615538
Duty cycle correction factor = 10log(x) = **0.17 dB**

ON time of 1 cycle = 2.404810 ms

Max/Ref Lvl	Delta 1 [T1]		RBW	1 MHz	RF Att	30 dB
127 dB*		-3.46 dB	VBW	3 MHz		
117 dB*		2.404810 ms	SWT	6 ms	Unit	dBμV/m

Center 3.675 GHz   600 μs/

Date: 18.FEB.2014 10:14:50

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A
Test: Duty Cycle during testing
Operator: Craig B

    20 MHz channel bandwidth; QPSK

Comment: ON time = 2.416834 ms during 2.501002 ms cycle
                x = 2.416834 / 2.501002 = 0.966346
                Duty cycle correction factor = 10log(x) **= 0.15 dB**

ON + OFF time of 1 cycle = 2.501002 ms

Max/Ref Lvl	Delta 1 [T1]		RBW	1 MHz	RF Att	30 dB
127 dB*		0.08 dB	VBW	3 MHz		
117 dB*		2.501002 ms	SWT	6 ms	Unit	dBµV/m

Center 3.675 GHz   600 µs/
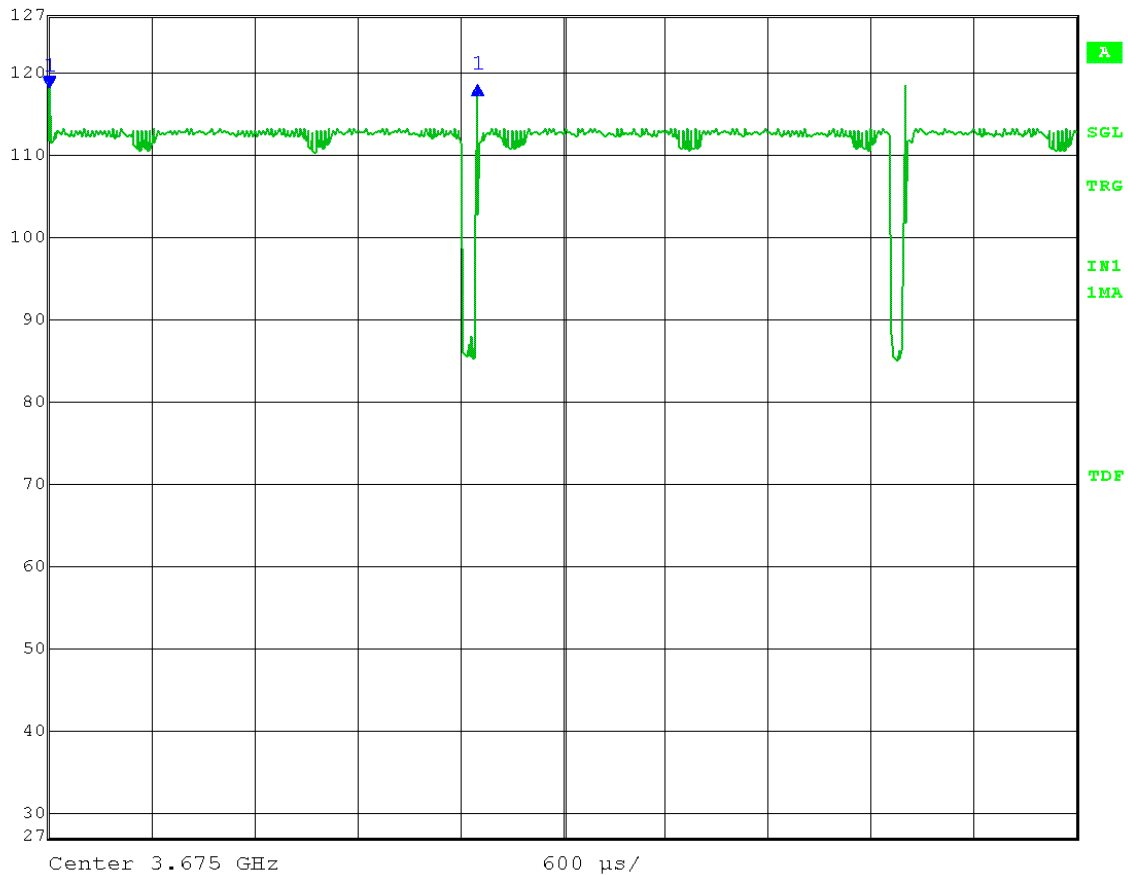
Date: 18.FEB.2014   10:20:49

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A
Test: Duty Cycle during testing
Operator: Craig B

                20 MHz channel bandwidth; QPSK

Comment: ON time = 2.416834 ms during 2.501002 ms cycle
                x = 2.416834 / 2.501002 = 0.966346
                Duty cycle correction factor = 10log(x) = **0.15 dB**

ON time of 1 cycle = 2.416834 ms
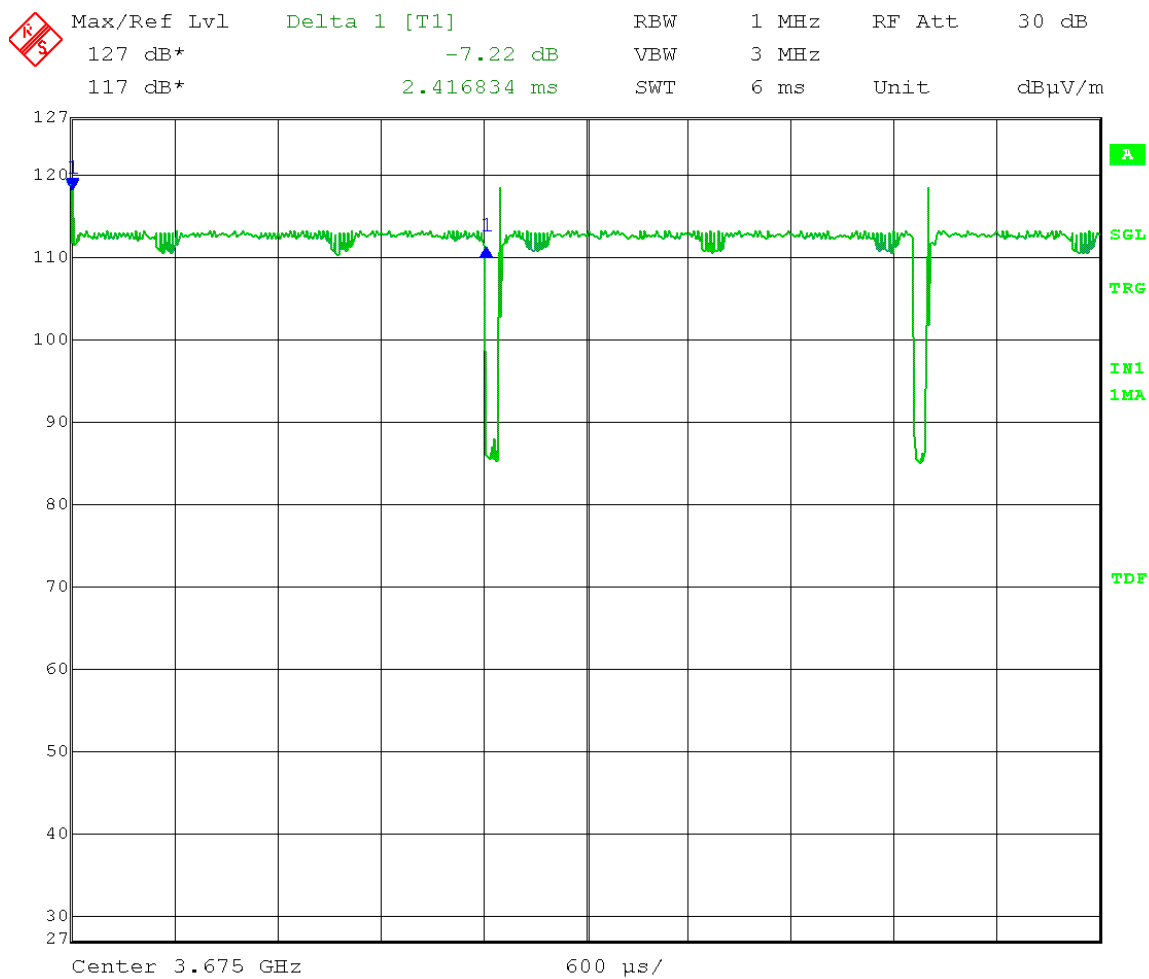
Appendix B – Measurement Data

B2.0   Transmitter Output Power and Power Density

Rule Part: FCC Part 90.1321 (a) and (b)

Test Procedure: Tested per the FCC accepted KDB procedure as documented in the
Cambium Networks PBA for this project.

Limit: e.i.r.p. of 25 Watts (44 dBm) per 25 MHz
e.i.r.p. of 1 Watt (30 dBm) per 1 MHz

Results:

Compliant

Notes:
Only tested QPSK modulation mode as determined worst case by Cambium Networks.
Only tested output port A as determined worst case by Cambium Networks.

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 5 MHz channel BW mode; Port A
              Antenna Gain = 8 dBi patch
              Recorded levels are measured RF conducted levels + 8 dBi antenna gain +
              3 dB (2-port MIMO operation) + 0.42 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
              = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3652.5 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	34.97	28.98

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	34.98	28.96

Peak EIRP Power (dBm):   **High channel** (3697.5 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	34.79	29.18

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 5 MHz channel BW mode; Port A
                Antenna Gain = 17 dBi sector antenna
                Recorded levels are measured RF conducted levels + 17 dBi antenna gain
                + 3 dB (2-port MIMO operation) + 0.42 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
                = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3652.5 MHz)
Power setting 18 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.30	29.15

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)
Power setting 18 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.26	29.12

Peak EIRP Power (dBm):   **High channel** (3697.5 MHz)
Power setting 18 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.42	29.30

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 5 MHz channel BW mode; Port A
Antenna Gain = 8 dBi patch + 12 dBi dish = 20 dBi total gain
Recorded levels are measured RF conducted levels + 20 dBi antenna gain
+ 3 dB (2-port MIMO operation) + 0.42 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
= 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3652.5 MHz)
Power setting 15 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.35	29.19

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)
Power setting 15 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.30	29.14

Peak EIRP Power (dBm):   **High channel** (3697.5 MHz)
Power setting 15 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.46	29.31

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 5 MHz channel BW mode; Port A
                 Antenna Gain = 22 dBi panel antenna
                 Recorded levels are measured RF conducted levels + 22 dBi antenna gain
                 + 3 dB (2-port MIMO operation) + 0.42 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
                 = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3652.5 MHz)

Power setting 13 (total of both chains)

Modulation Type	120 V +20 °C	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	35.90	29.77

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)

Power setting 13 (total of both chains)

Modulation Type	120 V +20 °C	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	35.86	29.75

Peak EIRP Power (dBm):   **High channel** (3697.5 MHz)

Power setting 13 (total of both chains)

Modulation Type	120 V +20 °C	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	36.01	29.96

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: <u>10 MHz channel BW</u> mode; Port A
                Antenna Gain = <mark>8 dBi</mark> patch
                Recorded levels are measured RF conducted levels + 8 dBi antenna gain +
                3 dB (2-port MIMO operation) + 0.17 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
                = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3655 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	34.89	25.85

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	34.92	25.88

Peak EIRP Power (dBm):   **High channel** (3695 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.11	26.06

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: <u>10 MHz channel BW</u> mode; Port A
                Antenna Gain = 17 dBi sector antenna
                Recorded levels are measured RF conducted levels + 17 dBi antenna gain
                + 3 dB (2-port MIMO operation) + 0.17 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
                = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3655 MHz)

Power setting 22 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	38.70	29.60

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)

Power setting 22 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	38.69	29.60

Peak EIRP Power (dBm):   **High channel** (3695 MHz)

Power setting 22 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	38.83	29.74

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 10 MHz channel BW mode; Port A
               Antenna Gain = 8 dBi patch + 12 dBi dish = 20 dBi total gain
               Recorded levels are measured RF conducted levels + 20 dBi antenna gain
               + 3 dB (2-port MIMO operation) + 0.17 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
               = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3655 MHz)
Power setting 19 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	39.02	29.96

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)
Power setting 19 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	39.00	29.94

Peak EIRP Power (dBm):   **High channel** (3695 MHz)
Power setting 18 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	38.20	29.11

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 10 MHz channel BW mode; Port A
Antenna Gain = 22 dBi panel antenna
Recorded levels are measured RF conducted levels + 22 dBi antenna gain
+ 3 dB (2-port MIMO operation) + 0.17 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
= 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm): **Low channel** (3655 MHz)
Power setting 16 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	38.51	29.41

Peak EIRP Power (dBm): **Mid channel** (3675 MHz)
Power setting 16 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	38.49	29.40

Peak EIRP Power (dBm): **High channel** (3695 MHz)
Power setting 16 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	38.63	29.53

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 20 MHz channel BW mode; Port A
               Antenna Gain = 8 dBi patch
               Recorded levels are measured RF conducted levels + 8 dBi antenna gain +
               3 dB (2-port MIMO operation) + 0.15 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
                = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3660 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	34.87	23.00

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	34.94	23.20

Peak EIRP Power (dBm):   **High channel** (3690 MHz)
Power setting 25 (for each chain)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.11	23.23

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 20 MHz channel BW mode; Port A
                Antenna Gain = 17 dBi sector antenna
                Recorded levels are measured RF conducted levels + 17 dBi antenna gain
                + 3 dB (2-port MIMO operation) + 0.15 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
                = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3660 MHz)
Power setting 25 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.43	29.44

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)
Power setting 25 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.44	29.56

Peak EIRP Power (dBm):   **High channel** (3690 MHz)
Power setting 25 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.56	29.62

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 20 MHz channel BW mode; Port A
                Antenna Gain = 8 dBi patch + 12 dBi dish = 20 dBi total gain
                Recorded levels are measured RF conducted levels + 20 dBi antenna gain
                + 3 dB (2-port MIMO operation) + 0.15 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
                = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3660 MHz)

Power setting 22 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.55	29.55

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)

Power setting 22 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.56	29.67

Peak EIRP Power (dBm):   **High channel** (3690 MHz)

Power setting 22 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.69	29.76

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 20 MHz channel BW mode; Port A
               Antenna Gain = 22 dBi panel antenna
               Recorded levels are measured RF conducted levels + 22 dBi antenna gain
               + 3 dB (2-port MIMO operation) + 0.15 dB (correction for duty cycle)

EIRP Limit: 25 W / 25 MHz; 1 W / 1 MHz
               = 44 dBm / 25 MHz; 30 dBm / 1 MHz

RBW = 1 MHz; VBW = 3 MHz; **Detector = RMS**
Trace mode = max hold; **Sweep time = 10 seconds per Cambium Networks**
Span = 1.5 x nominal channel bandwidth
Measurement using peak-search function of spectrum analyzer

Band power integrated over a 25 MHz bandwidth for EIRP / 25 MHz measurement
(span = 30 MHz)

Peak EIRP Power (dBm):   **Low channel** (3660 MHz)

Power setting 19 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.42	29.42

Peak EIRP Power (dBm):   **Mid channel** (3675 MHz)

Power setting 19 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.41	29.50

Peak EIRP Power (dBm):   **High channel** (3690 MHz)

Power setting 19 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	41.51	29.56

Appendix B – Measurement Data

B3.0   Occupied Bandwidth - 99% power bandwidth

Rule Part: FCC Part 2.1049 - Occupied bandwidth

Test Procedure: KDB 971168 D01 Power Meas License Digital Systems v02r01
4.2 Occupied bandwidth - power bandwidth (99%)

Description: SPAN = 1.5 to 5 times the OBW
RBW = 1% to 5% of OBW
VBW ≥ 3 x RBW
Detector = Peak
Trace mode = max hold

Measure the width of the emission using the 99% power bandwidth function of the spectrum analyzer

Limit: Informative

Notes: Only tested QPSK modulation mode as determined worst case by Cambium Networks.
Only tested output port A as determined worst case by Cambium Networks.

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Low Channel: Transmit = 3652.5 MHz
                Output power setting: 25   5 MHz channel BW
                Output port A   Modulation: QPSK

Occupied Bandwidth = 4.55 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	30 dB
30 dBm		16.66 dBm	VBW	200 kHz		
20 dBm		3.65043788 GHz	SWT	14 ms	Unit	dBm

1 [T1]   16.66 dBm
                  3.65043788 GHz
OPB   4.54509018 MHz
T1 [T1]   10.13 dBm
                  3.65024148 GHz
T2 [T1]   12.24 dBm
                  3.65478657 GHz

1VIEW

Center 3.6525 GHz   1.4 MHz/   Span 14 MHz
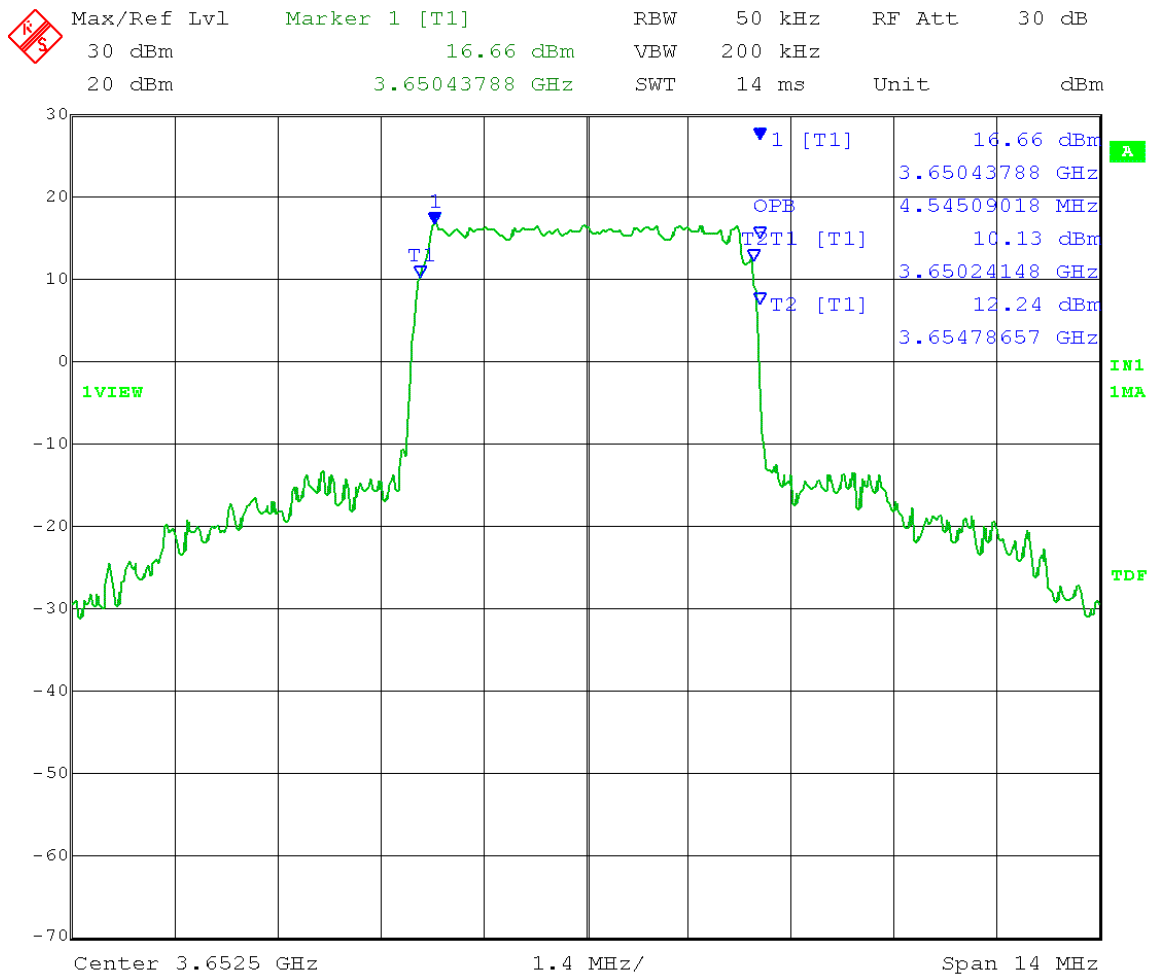
Date: 18.FEB.2014 15:24:10

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Mid Channel: Transmit = 3675 MHz
Output power setting: 25   5 MHz channel BW
Output port A   Modulation: QPSK
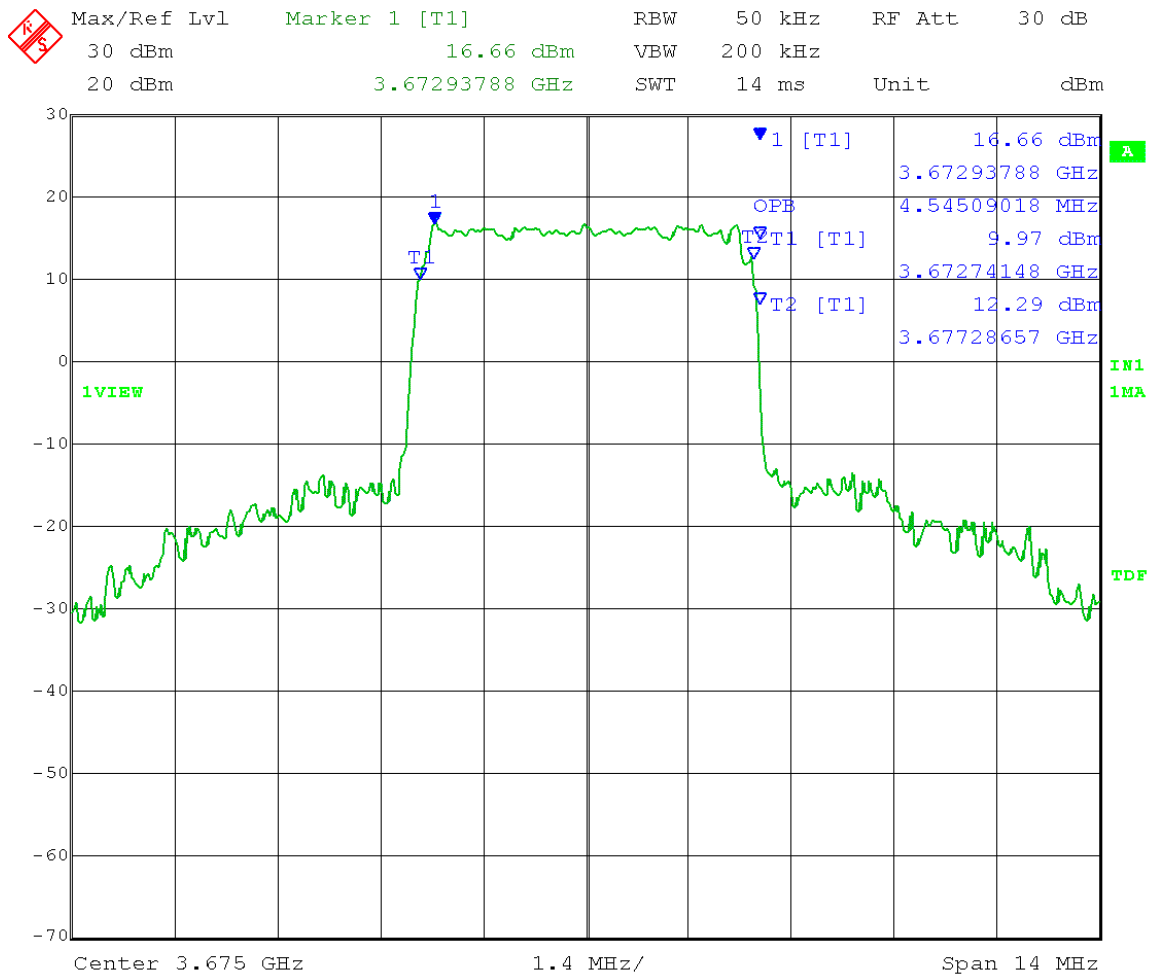
Occupied Bandwidth = 4.55 MHz

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: High Channel: Transmit = 3697.5 MHz
             Output power setting: 25   5 MHz channel BW
             Output port A   Modulation: QPSK
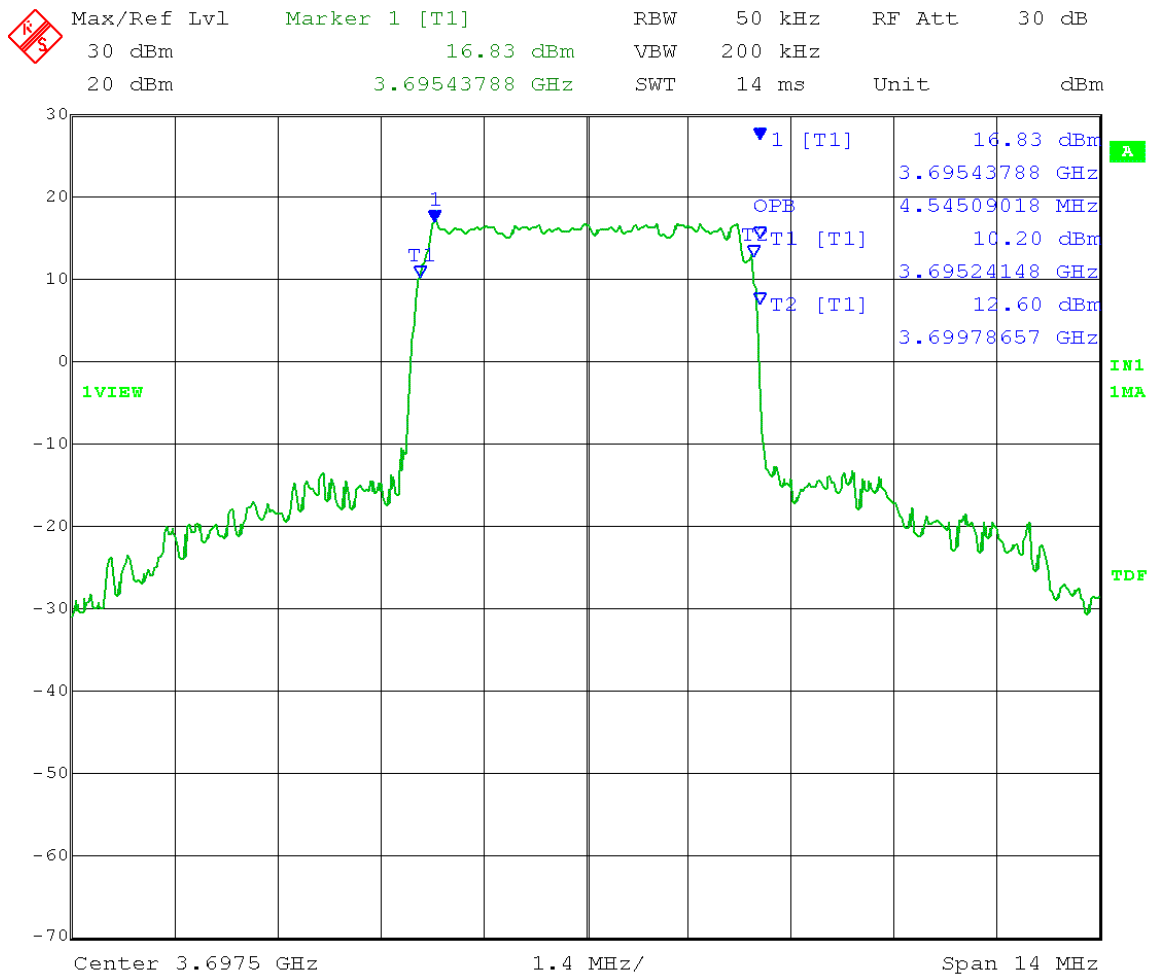
Occupied Bandwidth = 4.55 MHz

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Low Channel: Transmit = 3655 MHz
Output power setting: 25   10 MHz channel BW
Output port A   Modulation: QPSK

Occupied Bandwidth = 9.08 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	30 dB
30 dBm		16.54 dBm	VBW	300 kHz		
20 dBm		3.65088176 GHz	SWT	7.5 ms	Unit	dBm

▼1 [T1]   16.54 dBm
3.65088176 GHz
OPB   9.07815631 MHz
▽T1 [T1]   10.65 dBm
3.65052104 GHz
▽T2 [T1]   11.68 dBm
3.65959920 GHz

A
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1VIEW

Center 3.655 GHz   3 MHz/   Span 30 MHz
Date: 18.FEB.2014 15:34:35

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Mid Channel: Transmit = 3675 MHz
Output power setting: 25   10 MHz channel BW
Output port A   Modulation: QPSK

Occupied Bandwidth = 9.08 MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	30 dB
30 dBm	16.36 dBm	VBW	300 kHz		
20 dBm	3.67088176 GHz	SWT	7.5 ms	Unit	dBm

1 [T1]   16.36 dBm
              3.67088176 GHz
OPB   9.07815631 MHz
T1 [T1]   10.46 dBm
              3.67052104 GHz
T2 [T1]   11.58 dBm
              3.67959920 GHz

1VIEW

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Center 3.675 GHz   3 MHz/   Span 30 MHz

Date: 18.FEB.2014 15:36:52

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: High Channel: Transmit = 3695 MHz
Output power setting: 25   10 MHz channel BW
Output port A   Modulation: QPSK

Occupied Bandwidth = 9.08 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	30 dB
30 dBm		16.56 dBm	VBW	300 kHz		
20 dBm		3.69088176 GHz	SWT	7.5 ms	Unit	dBm

▼1 [T1]   16.56 dBm
3.69088176 GHz

OPB   9.07815631 MHz

▽T1 [T1]   10.58 dBm
3.69052104 GHz

▽T2 [T1]   11.87 dBm
3.69959920 GHz

1VIEW

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Center 3.695 GHz   3 MHz/   Span 30 MHz

Date: 18.FEB.2014 15:39:12

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Low Channel: Transmit = 3660 MHz
                 Output power setting: 25   20 MHz channel BW
                 Output port A   Modulation: QPSK

Occupied Bandwidth = 18.16 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	30 dB
30 dBm		16.71 dBm	VBW	1 MHz		
20 dBm		3.65176353 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   16.71 dBm
              3.65176353 GHz
OPB   18.15631263 MHz
▽T1 [T1]   10.74 dBm
              3.65104208 GHz
▽T2 [T1]   12.22 dBm
              3.66919840 GHz

1MAX

Center 3.66 GHz   6 MHz/   Span 60 MHz

Date: 18.FEB.2014   15:44:57

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Mid Channel: Transmit = 3675 MHz
                Output power setting: 25   20 MHz channel BW
                Output port A   Modulation: QPSK

Occupied Bandwidth = 18.16 MHz

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: High Channel: Transmit = 3690 MHz
Output power setting: 25   20 MHz channel BW
Output port A   Modulation: QPSK

Occupied Bandwidth = 18.16 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	30 dB
30 dBm		16.61 dBm	VBW	1 MHz		
20 dBm		3.68176353 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   16.61 dBm
3.68176353 GHz
OPB   18.15631263 MHz
▽T1 [T1]   10.41 dBm
3.68104208 GHz
▽T2 [T1]   12.22 dBm
3.69919840 GHz

1VIEW

A
IN1
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TDF

Center 3.69 GHz   6 MHz/   Span 60 MHz

Date: 18.FEB.2014   16:01:19

DLS ✕
ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Models Tested: C036045C004A & C036045C008A
Report Number: 19812
DLS Project: 6384

Appendix B – Measurement Data

B4.0   Transmitter Unwanted Emissions

Rule Part: FCC Part 90.1323(a) - Emission limits
                     FCC Part 2.1051 - Spurious emissions at antenna terminals
                     FCC Part 2.1053 - Field strength of spurious radiation

Test Procedure: KDB 971168 D01 Power Meas License Digital Systems v02r01
                        6.0 Spurious Emissions at Antenna Terminals
                        7.0 Field Strength of Spurious Radiation

RBW = 1 MHz; VBW = 3 MHz; Detector = peak; Trace mode = max hold

RF Conducted: The EUT was connected to a spectrum analyzer through a cable and attenuator. The output power was set to the highest level used in the Transmitter Output Power test (power level corresponding to the 8 dBi antenna gain).

Radiated from cabinet (1-37 GHz): Both ports of the EUT were terminated with 50 Ohm terminations. Both ports were active during testing. The output power was set to the highest level used in the Transmitter Output Power test (power level corresponding to the 8 dBi antenna gain).

Radiated from 8 dBi integral patch antenna (30-1000 MHz and 1-37 GHz): Both ports were active during testing. The output power was set to the level used in the Transmitter Output Power test corresponding to the 8 dBi antenna gain.

Limit: The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.

                 Calculated limit = -13 dBm.

Results:

                 Compliant

Notes:

                 Only tested QPSK modulation mode as determined worst case by Cambium Networks. For RF conducted measurements, only port A was tested as it was determined worst case by Cambium Networks.

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Low Channel: 3652.5 MHz   Output power setting: 25
              Channel bandwidth: 5 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power
                    = -13 dBm/MHz

              Frequency Range: 30 – 1000 MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	−49.82 dBm	VBW	3 MHz		
0 dBm	941.68336673 MHz	SWT	5 ms	Unit	dBm

A

1VIEW

D1 −13 dBm

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1MA

TDF

Start 30 MHz   97 MHz/   Stop 1 GHz
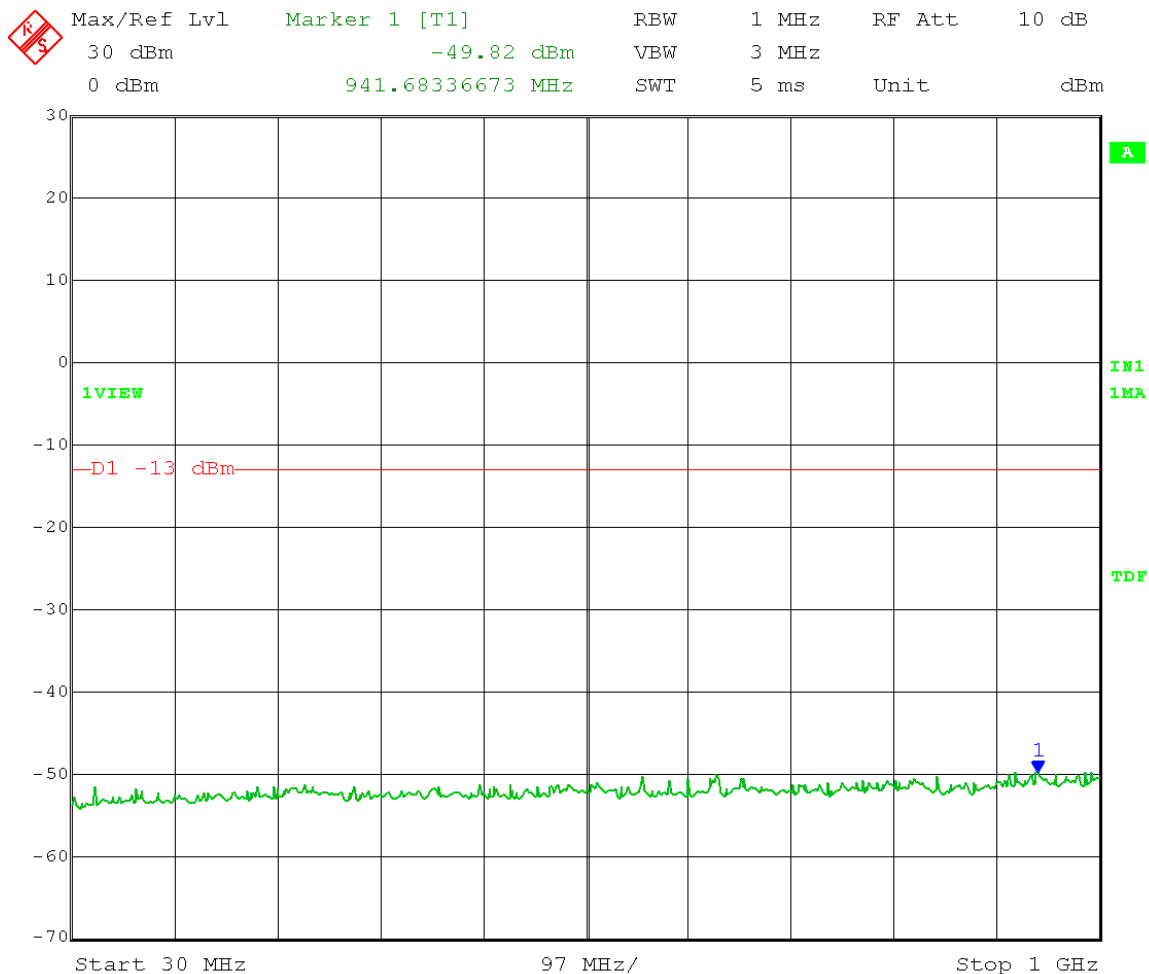
Date: 21.FEB.2014   09:22:27

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
         Detector = Peak   Sweep = auto couple
         Trace = max hold
         Low Channel: 3652.5 MHz   Output power setting: 25
         Channel bandwidth: 5 MHz   Output port: A
         Limit: 43 + 10log (P) below the channel transmitter power
                 = -13 dBm/MHz

         Frequency Range: 1 – 7 GHz

| Max/Ref Lvl | Marker 1 [T1] | RBW | 1 MHz | RF Att | 10 dB |
| 30 dBm | -41.90 dBm | VBW | 3 MHz | | |
| 0 dBm | 6.97595190 GHz | SWT | 15 ms | Unit | dBm |

Date: 21.FEB.2014   09:17:12

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz VBW = 3 MHz
Detector = Peak Sweep = auto couple
Trace = max hold
Low Channel: 3652.5 MHz Output power setting: 25
Channel bandwidth: 5 MHz Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	−40.96 dBm	VBW	3 MHz		
0 dBm	17.09619238 GHz	SWT	110 ms	Unit	dBm

Start 7 GHz   1.1 GHz/   Stop 18 GHz
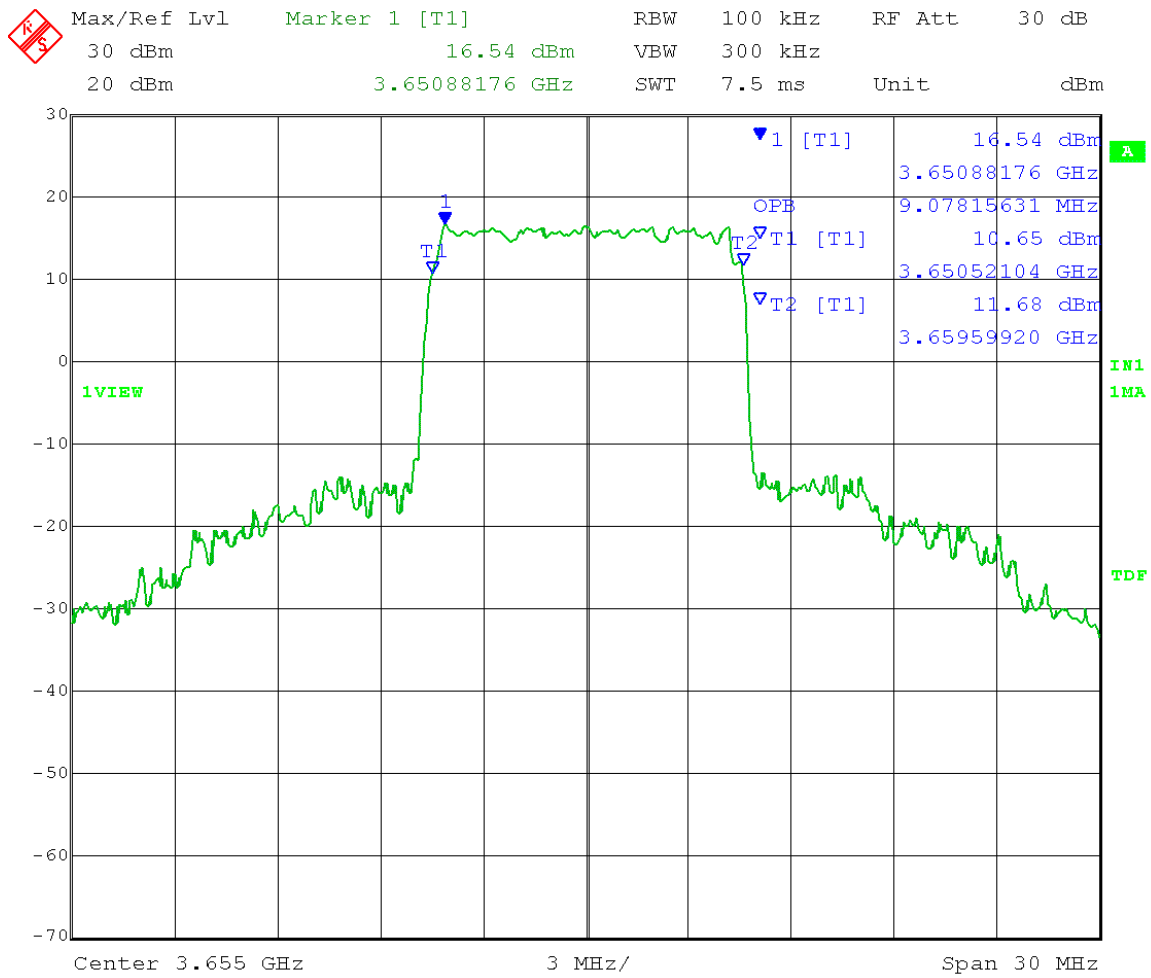
Date: 21.FEB.2014   09:15:51

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
          Detector = Peak   Sweep = auto couple
          Trace = max hold
          Low Channel: 3652.5 MHz   Output power setting: 25
          Channel bandwidth: 5 MHz   Output port: A
          Limit: 43 + 10log (P) below the channel transmitter power
                = -13 dBm/MHz

          Frequency Range: 18 – 26.5 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		−38.06 dBm	VBW	3 MHz		
0 dBm		23.00801603 GHz	SWT	86 ms	Unit	dBm

1MAX

D1 −13 dBm

1

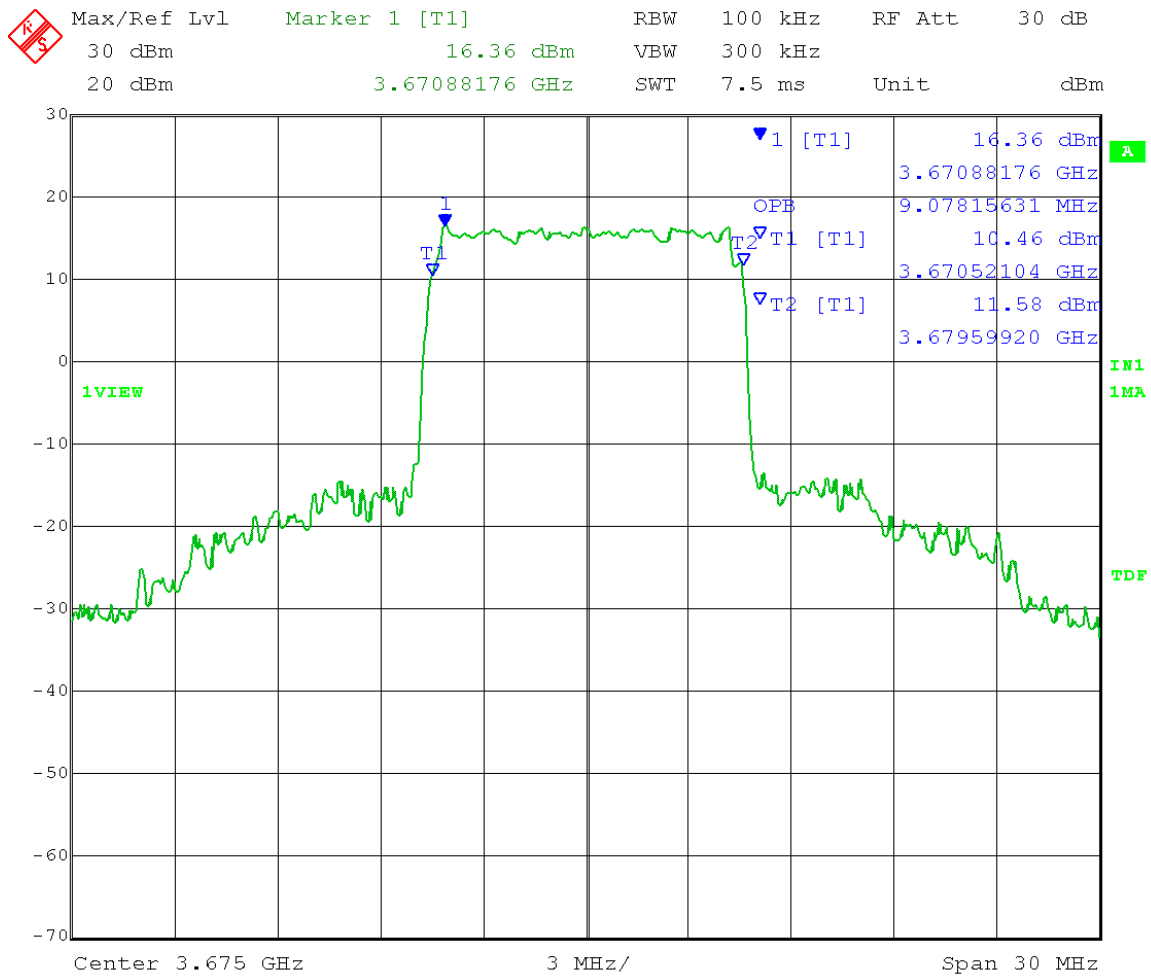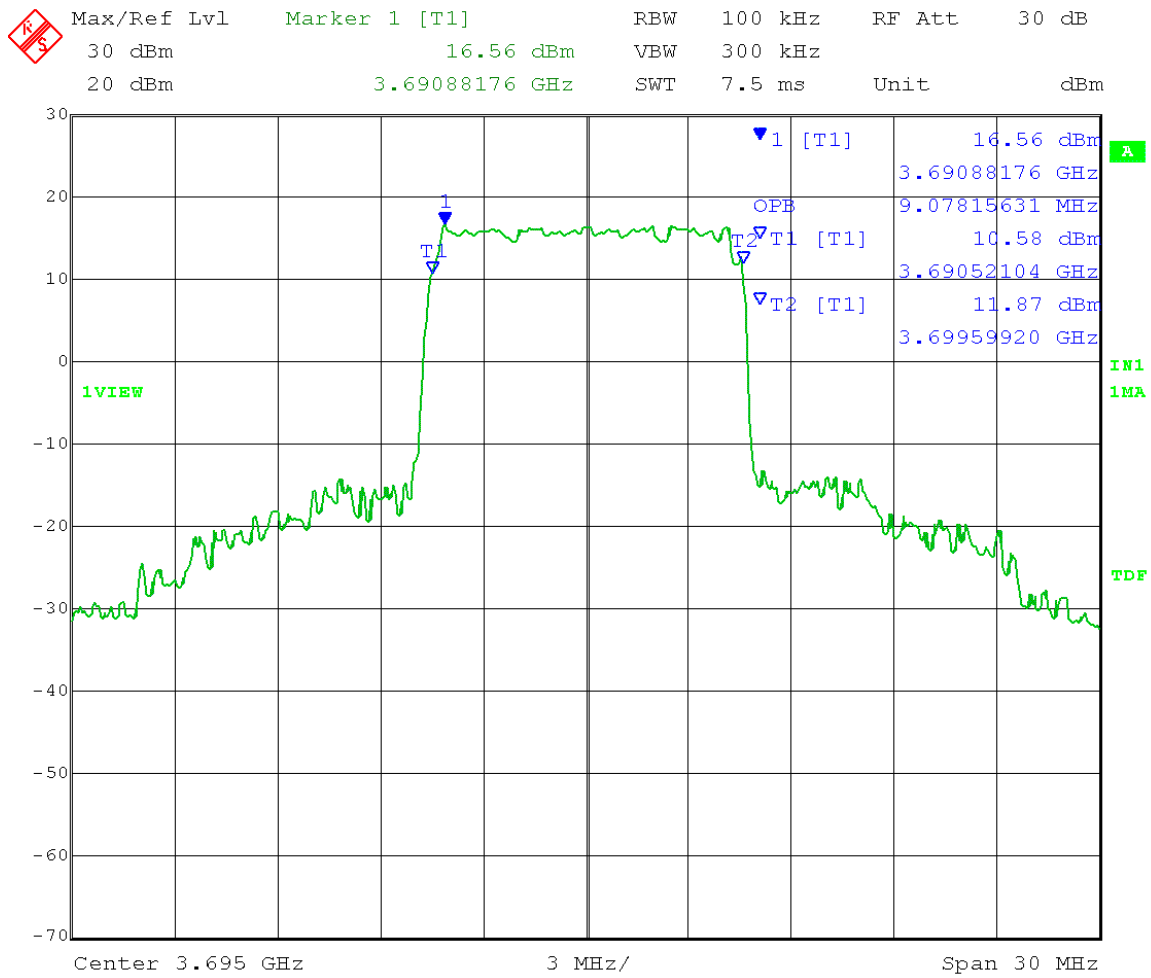Start 18 GHz   850 MHz/   Stop 26.5 GHz

Date: 21.FEB.2014   09:18:39

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: 3652.5 MHz   Output power setting: 25
               Channel bandwidth: 5 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power
                       = -13 dBm/MHz

               Frequency Range: 26.5 – 37 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-23.99 dBm	VBW	3 MHz		
0 dBm		34.60120240 GHz	SWT	160 ms	Unit	dBm

1VIEW

D1 -13 dBm
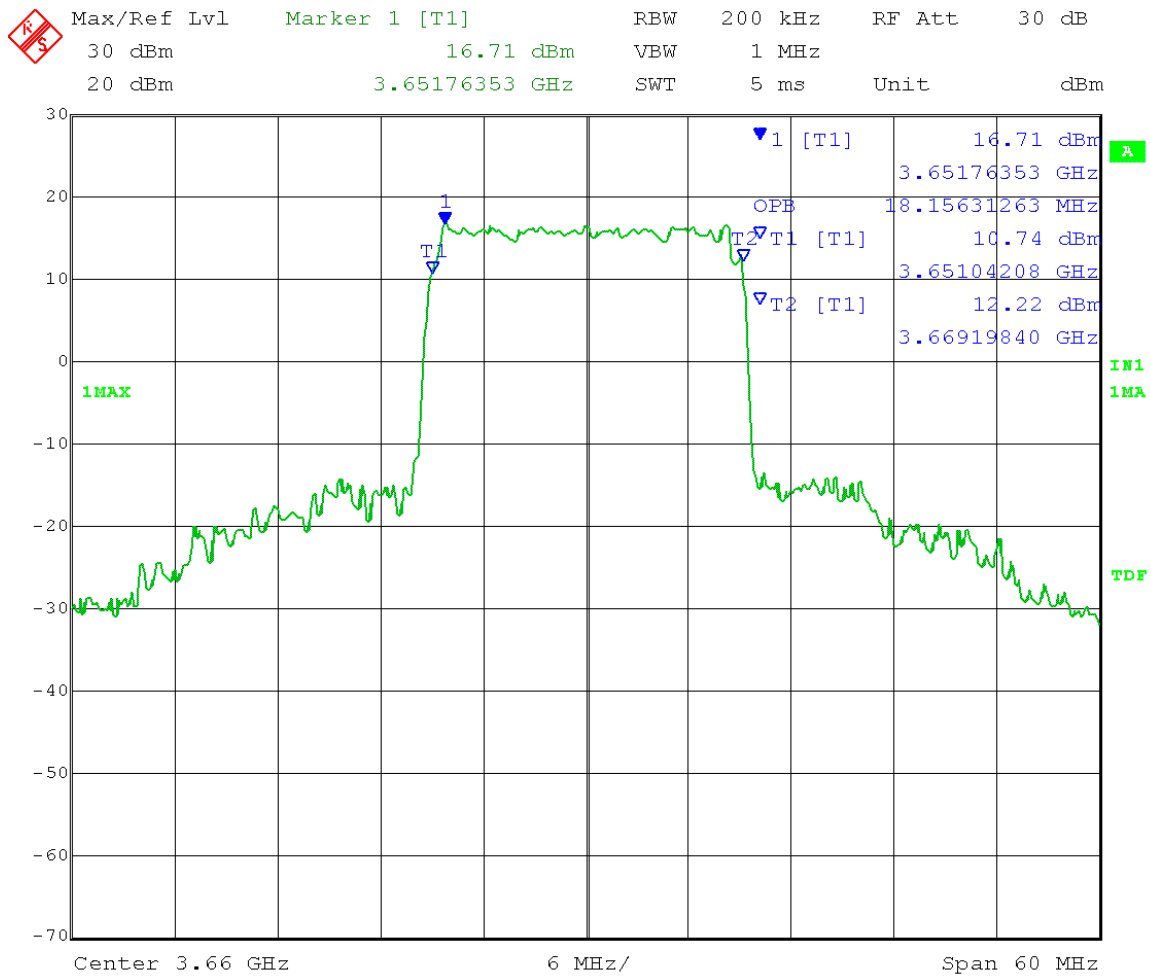
1

A

IN1
1MA

TDF

Start 26.5 GHz   1.05 GHz/   Stop 37 GHz

Date: 21.FEB.2014 09:20:24

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Mid Channel: 3675.0 MHz   Output power setting: 25 each port
Channel bandwidth: 5 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		−48.90 dBm	VBW	3 MHz		
0 dBm		980.56112224 MHz	SWT	5 ms	Unit	dBm

```
 30                                                              A
 20
 10
  0                                                            IN1
                                                               1MA
1MAX
-10
 D1 -13 dBm
-20
                                                               TDF
-30
-40
                                                         1
-50
-60
-70
   Start 30 MHz            97 MHz/              Stop 1 GHz
```
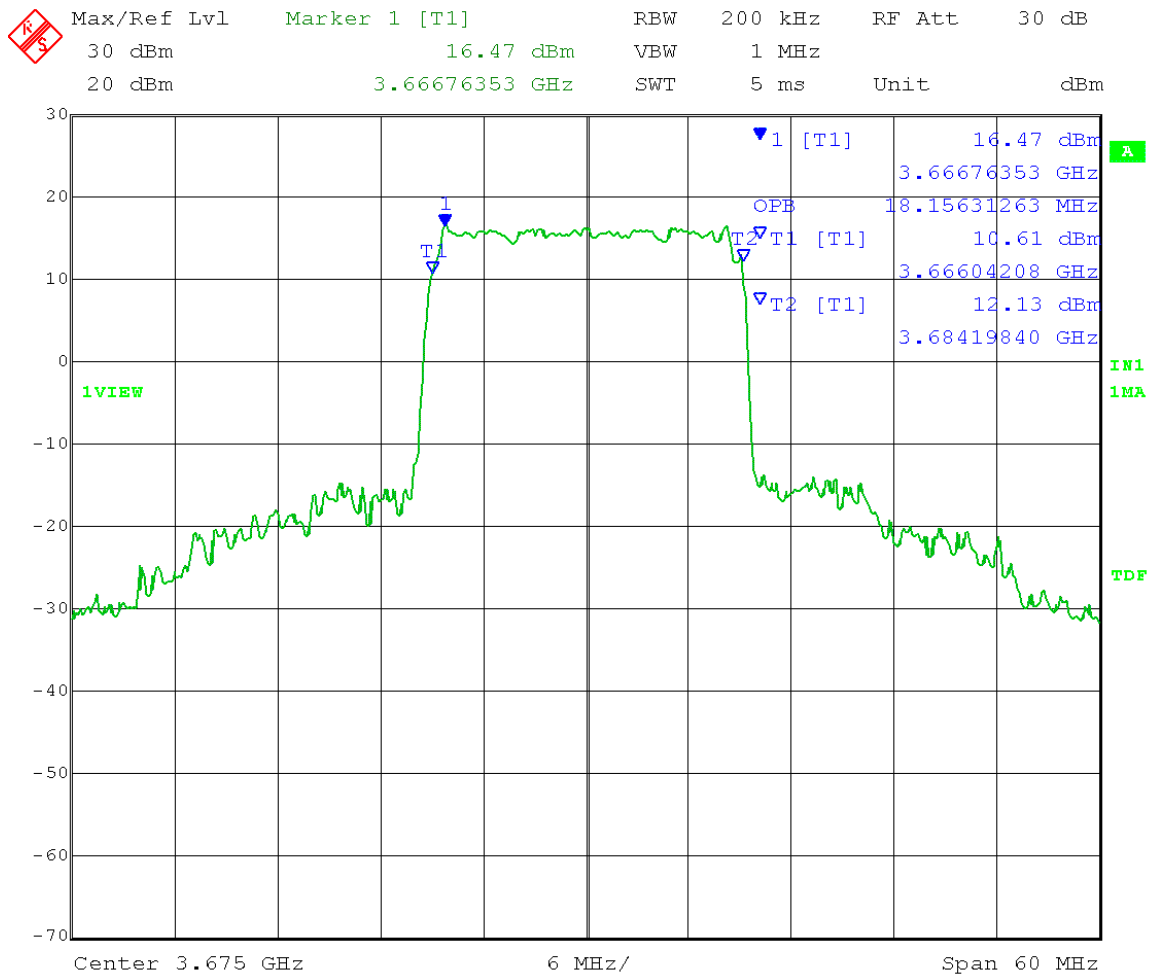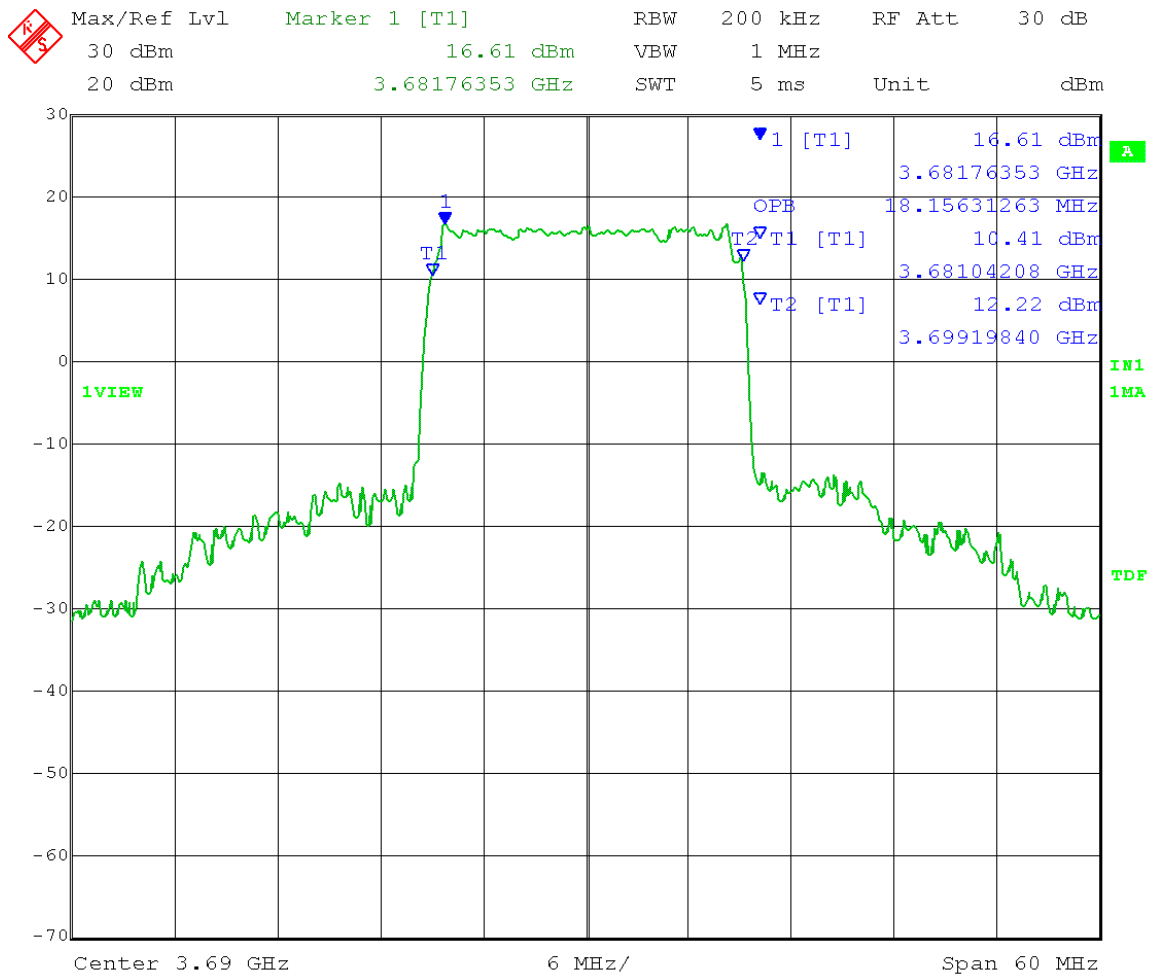
Date: 21.FEB.2014 11:28:32

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
            Detector = Peak   Sweep = auto couple
            Trace = max hold
            Mid Channel: 3675.0 MHz   Output power setting: 25 each port
            Channel bandwidth: 5 MHz   Output port: A
            Limit: 43 + 10log (P) below the channel transmitter power
                    = -13 dBm/MHz

            Frequency Range: 1 – 7 GHz

```
Max/Ref Lvl      Marker 1 [T1]          RBW    1 MHz    RF Att    10 dB
 30 dBm                 -42.84 dBm      VBW    3 MHz
  0 dBm           7.00000000 GHz        SWT   15 ms    Unit        dBm
```



```
 30
                                                                        A
 20
 10
  0
                                                                       IN1
1MAX                                                                   1MA
-10
 D1 -13 dBm
-20
                                                                       TDF
-30
-40
-50
-60
-70
   Start 1 GHz              600 MHz/              Stop 7 GHz
Date:     21.FEB.2014  11:21:55
```

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz VBW = 3 MHz
Detector = Peak Sweep = auto couple
Trace = max hold
Mid Channel: 3675.0 MHz Output power setting: 25 each port
Channel bandwidth: 5 MHz Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
        = -13 dBm/MHz

Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-39.36 dBm	VBW	3 MHz		
0 dBm		14.71543086 GHz	SWT	110 ms	Unit	dBm


```
 30                                                                    A
 20
 10
  0                                                                   IN1
1MAX                                                                  1MA
-10
 D1 -13 dBm
-20
                                                                     TDF
-30
-40                                    1
-50
-60
-70
   Start 7 GHz              1.1 GHz/              Stop 18 GHz
```

Date: 21.FEB.2014 11:23:18

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
            Detector = Peak   Sweep = auto couple
            Trace = max hold
            Mid Channel: 3675.0 MHz   Output power setting: 25 each port
            Channel bandwidth: 5 MHz   Output port: A
            Limit: 43 + 10log (P) below the channel transmitter power
                    = -13 dBm/MHz

            Frequency Range: 18 – 26.5 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-38.07 dBm	VBW	3 MHz		
0 dBm		23.04208417 GHz	SWT	86 ms	Unit	dBm

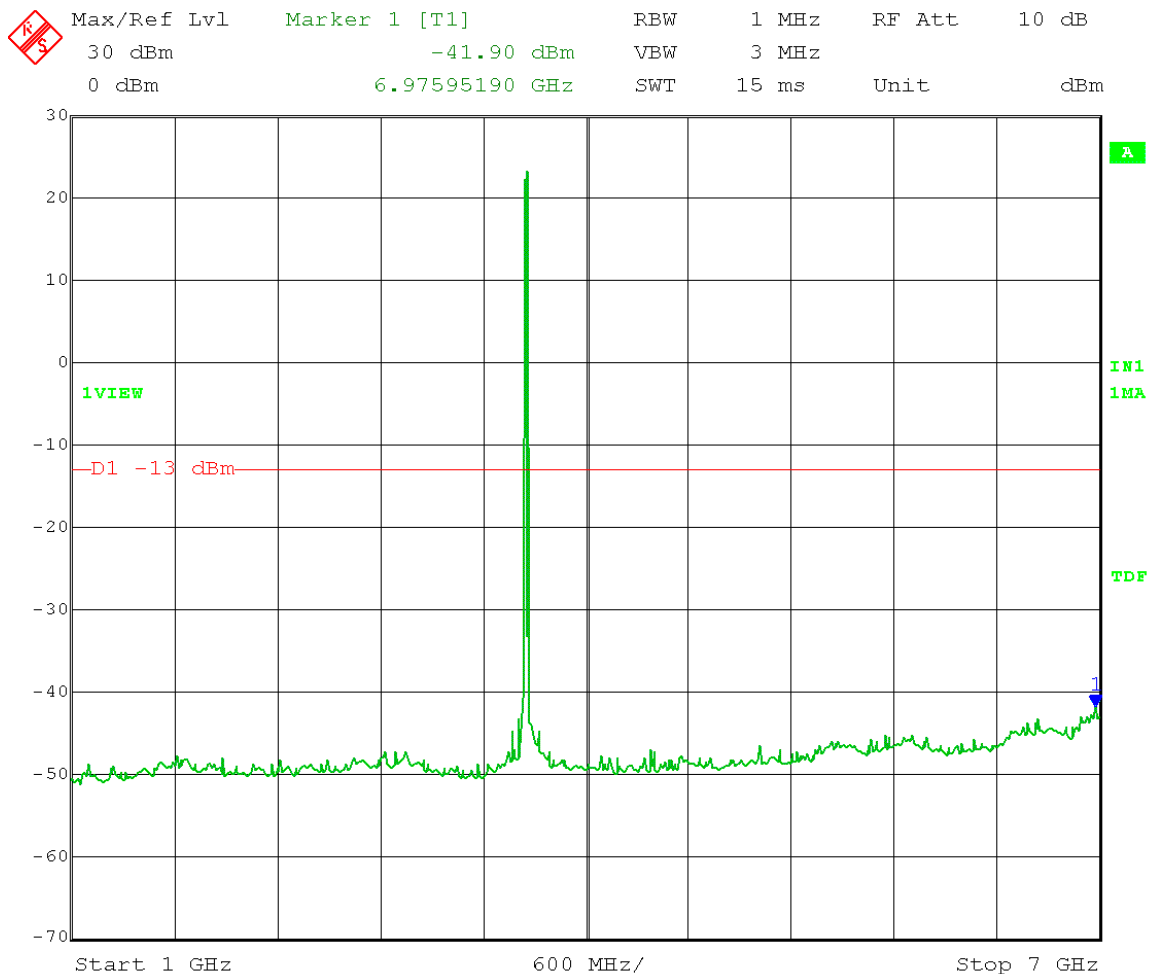Start 18 GHz   850 MHz/   Stop 26.5 GHz

Date: 21.FEB.2014 11:24:44

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Mid Channel: 3675.0 MHz   Output power setting: 25 each port
Channel bandwidth: 5 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz


```
Max/Ref Lvl      Marker 1 [T1]              RBW     1 MHz    RF Att    10 dB
 30 dBm                    -24.59 dBm       VBW     3 MHz
  0 dBm              36.01102204 GHz        SWT   160 ms    Unit        dBm
```

Start 26.5 GHz   1.05 GHz/   Stop 37 GHz

Date: 21.FEB.2014 11:26:29

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: 3697.5 MHz   Output power setting: 25
                Channel bandwidth: 5 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
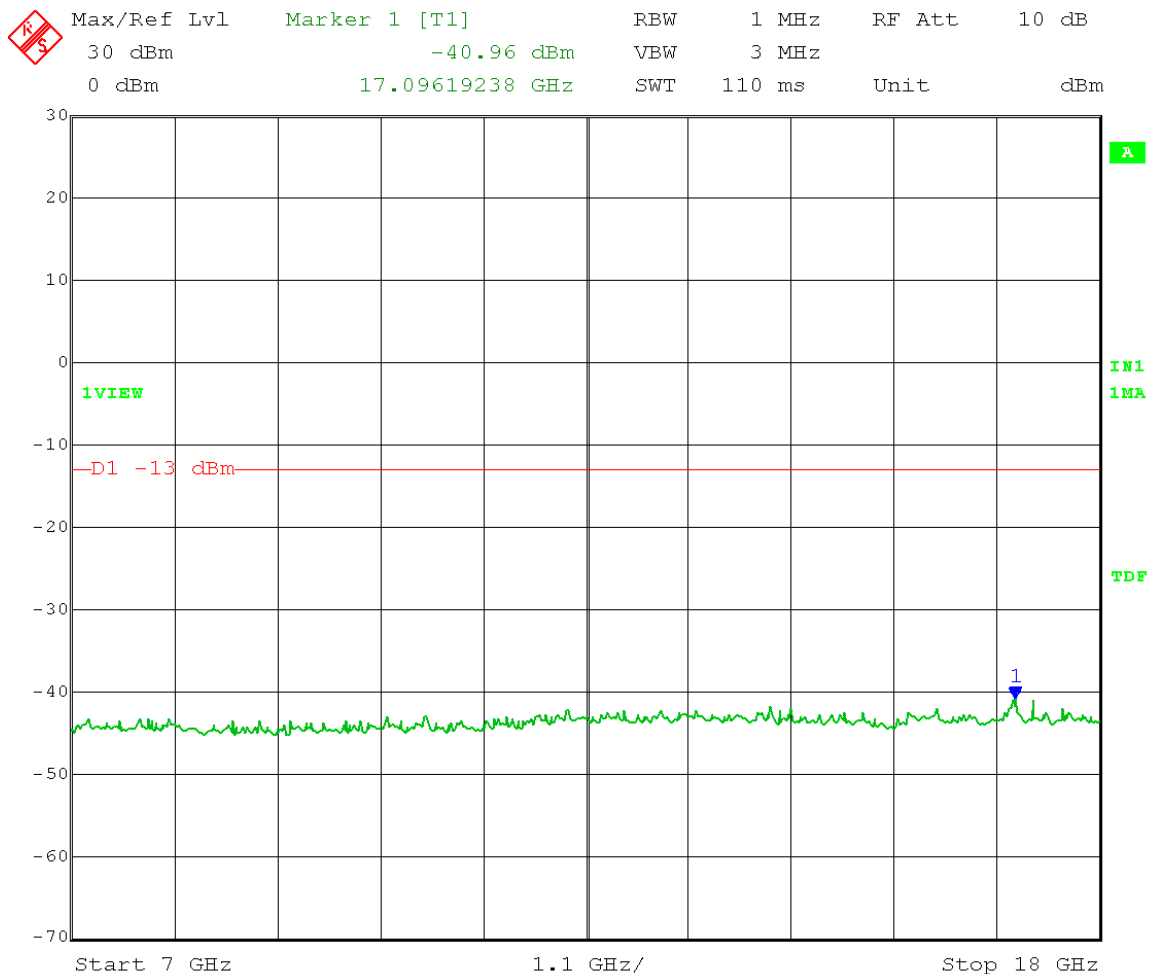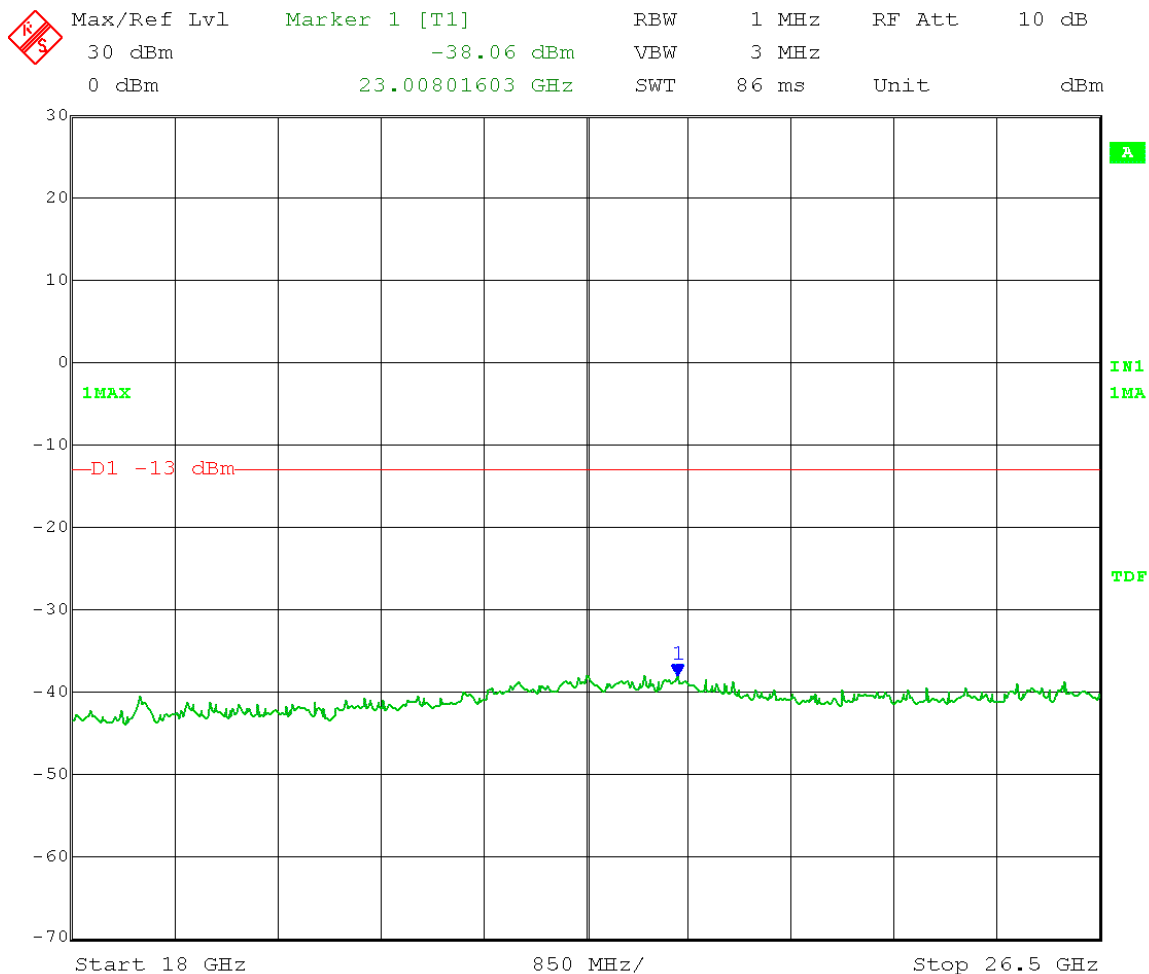   = -13 dBm/MHz

                Frequency Range: 30 – 1000 MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-48.95 dBm	VBW	3 MHz		
0 dBm	545.13026052 MHz	SWT	5 ms	Unit	dBm

D1 -13 dBm

1MAX

A
IN1
1MA
TDF

Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 21.FEB.2014 09:46:46

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
             Detector = Peak   Sweep = auto couple
             Trace = max hold
             High Channel: 3697.5 MHz   Output power setting: 25
             Channel bandwidth: 5 MHz   Output port: A
             Limit: 43 + 10log (P) below the channel transmitter power
                   = -13 dBm/MHz

             Frequency Range: 1 – 7 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-41.73 dBm	VBW	3 MHz		
0 dBm		7.00000000 GHz	SWT	15 ms	Unit	dBm

Start 1 GHz   600 MHz/   Stop 7 GHz
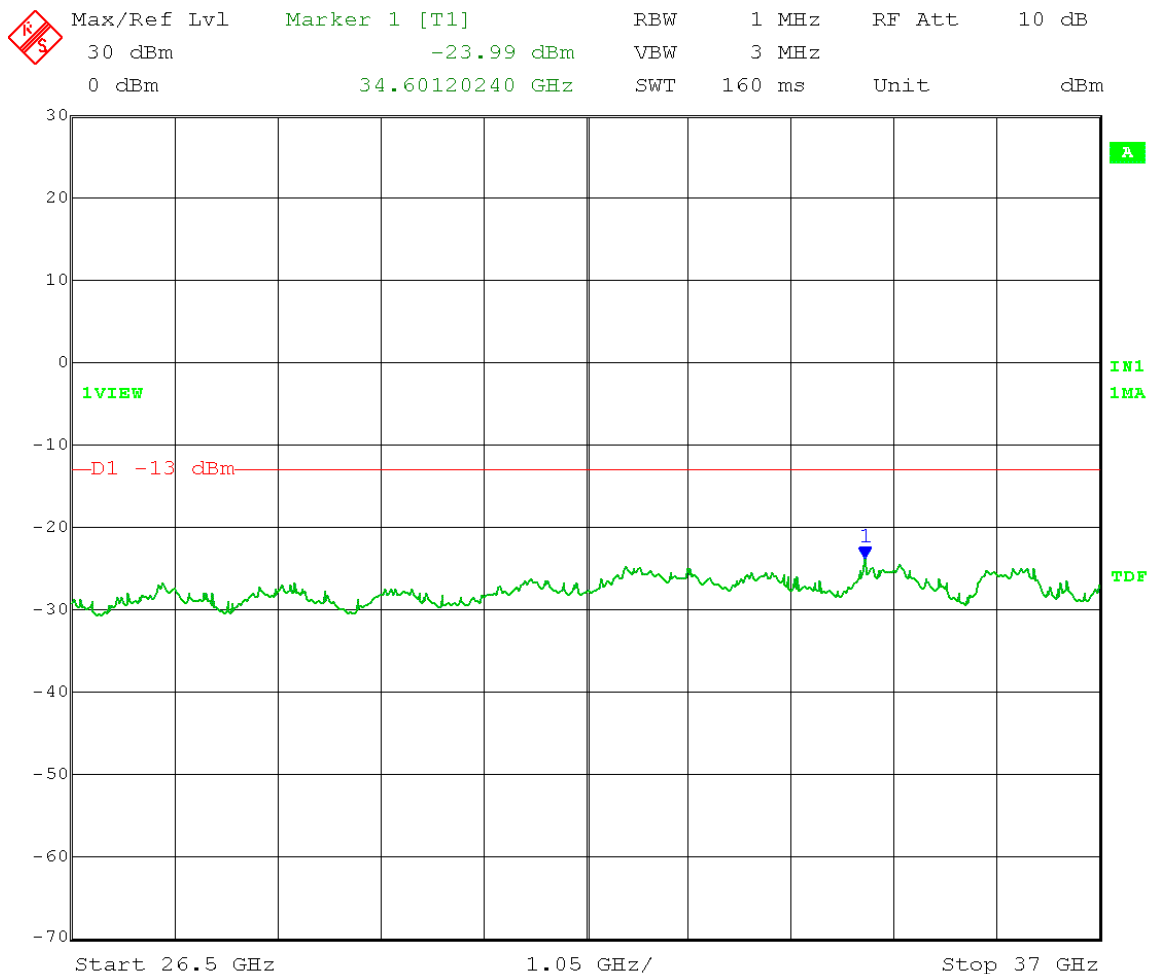
Date: 21.FEB.2014   09:39:15

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: 3697.5 MHz   Output power setting: 25
                Channel bandwidth: 5 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
                        = -13 dBm/MHz

                Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-41.19 dBm	VBW	3 MHz		
0 dBm		17.09619238 GHz	SWT	110 ms	Unit	dBm

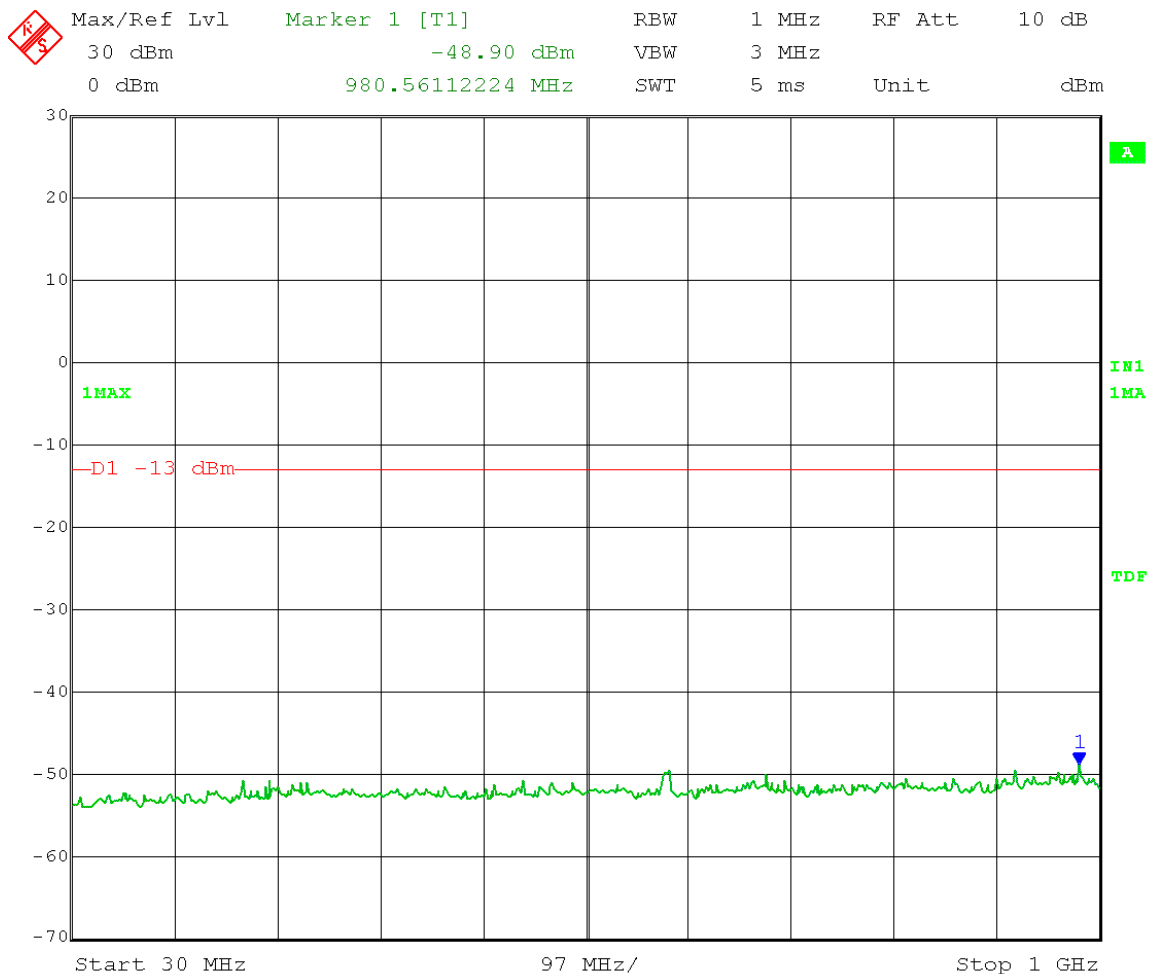Start 7 GHz   1.1 GHz/   Stop 18 GHz

Date: 21.FEB.2014   09:41:20

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: 3697.5 MHz   Output power setting: 25
Channel bandwidth: 5 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-37.64 dBm	VBW	3 MHz		
0 dBm		22.63326653 GHz	SWT	86 ms	Unit	dBm

1MAX

D1 -13 dBm

1

Start 18 GHz   850 MHz/   Stop 26.5 GHz
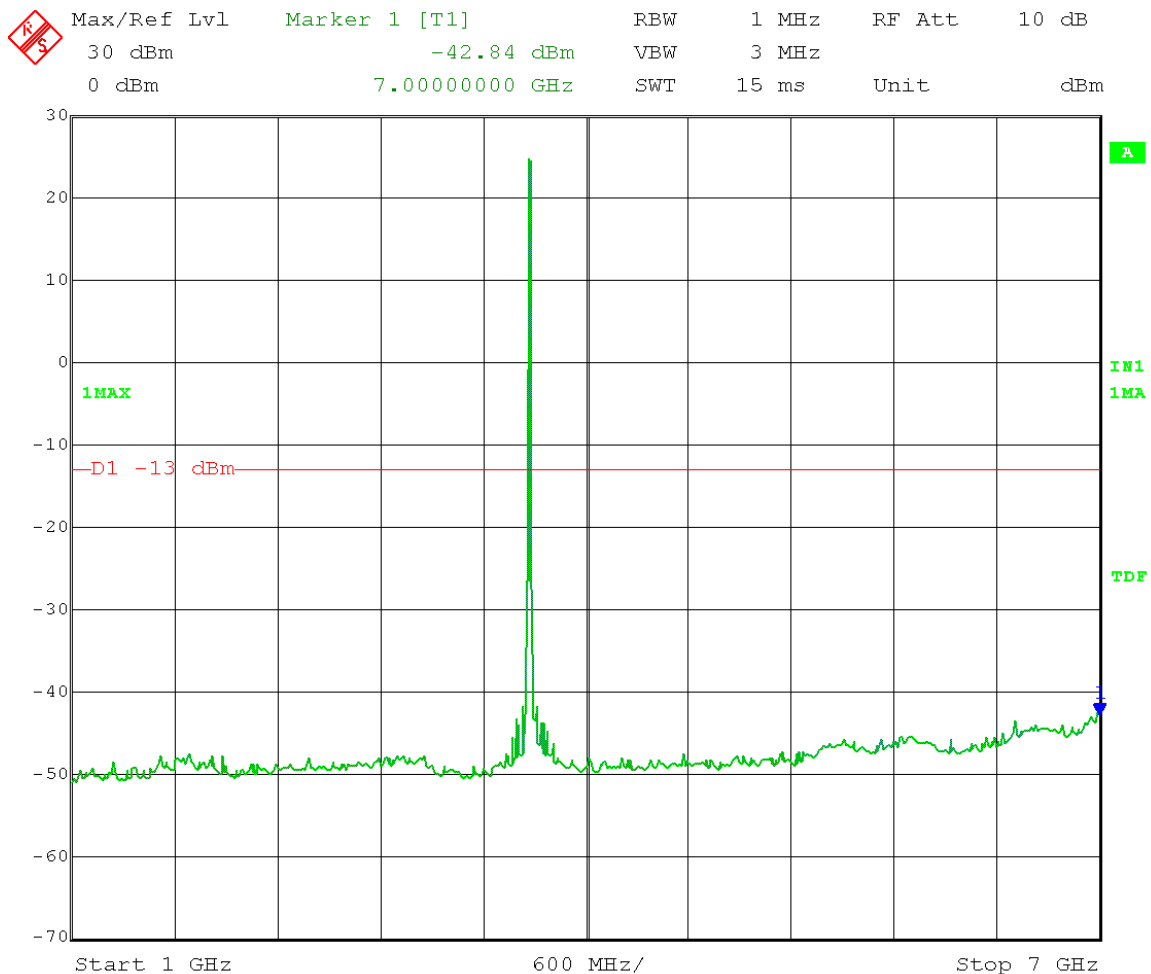
Date: 21.FEB.2014 09:42:45

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: 3697.5 MHz   Output power setting: 25
               Channel bandwidth: 5 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power
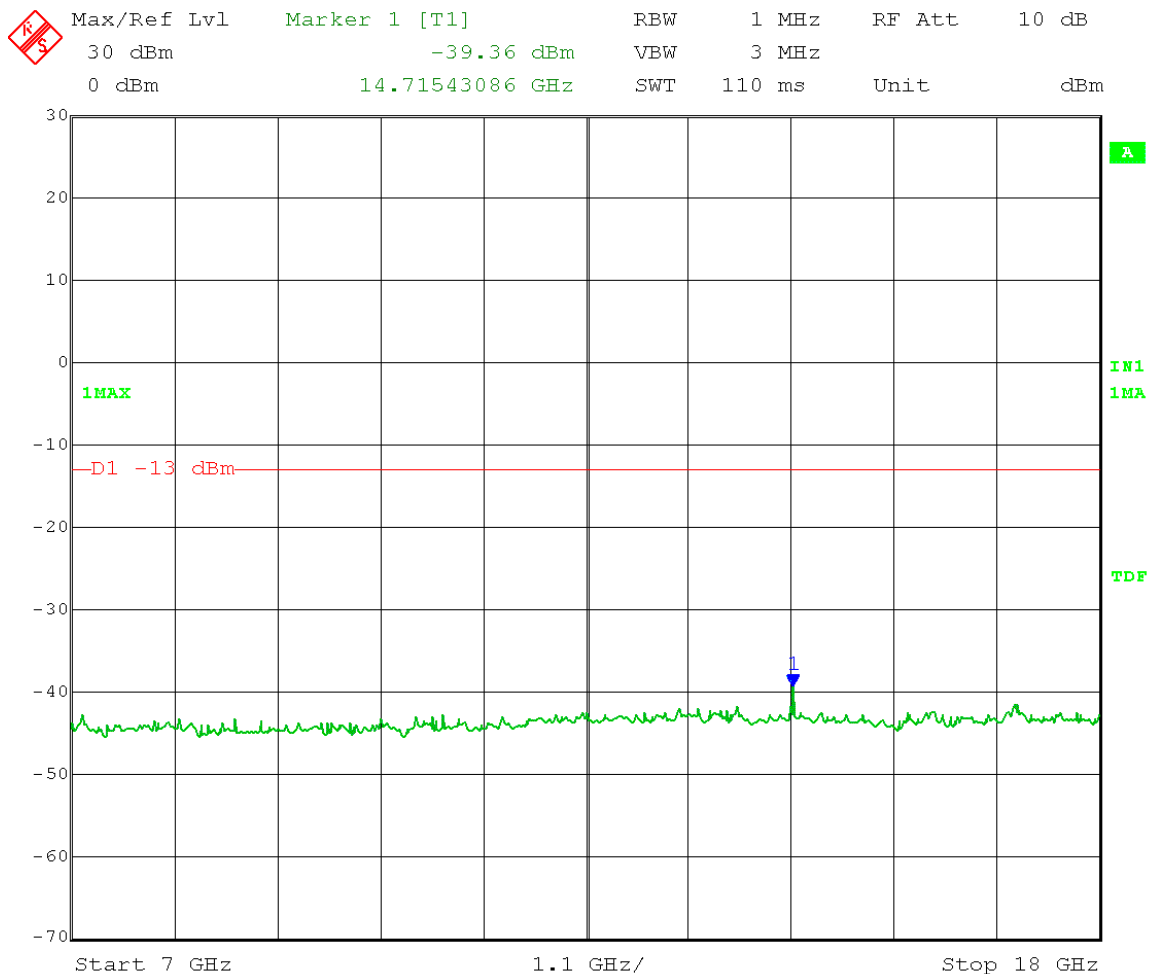   = -13 dBm/MHz

               Frequency Range: 26.5 – 37 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-24.11 dBm	VBW	3 MHz		
0 dBm	34.97995992 GHz	SWT	160 ms	Unit	dBm

1VIEW

D1 -13 dBm

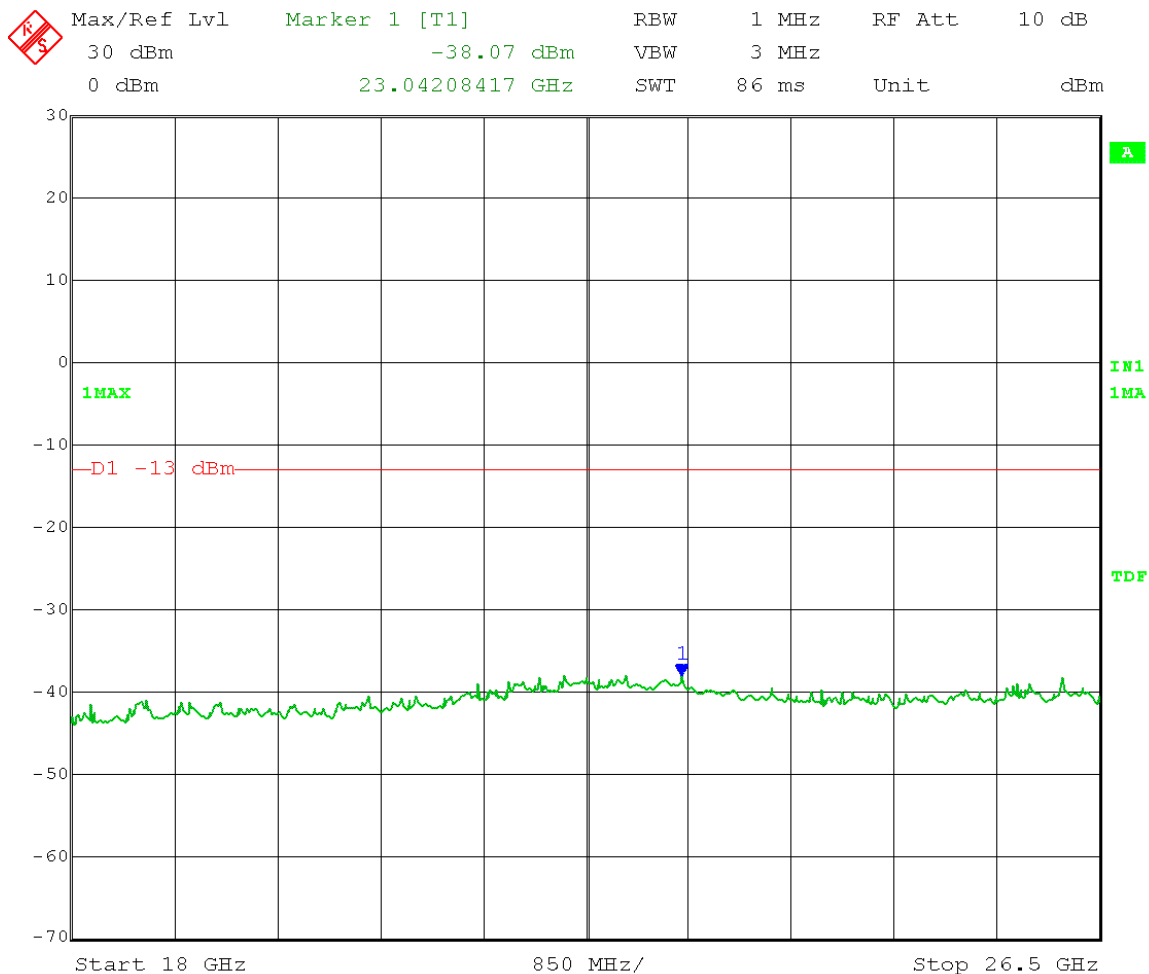Start 26.5 GHz   1.05 GHz/   Stop 37 GHz

Date: 21.FEB.2014 09:44:47

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: 3655 MHz   Output power setting: 25
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
        = -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		−49.63 dBm	VBW	3 MHz		
0 dBm		968.89779559 MHz	SWT	5 ms	Unit	dBm

A

IN1
1MA

1MAX

D1 −13 dBm

TDF

1

Start 30 MHz   97 MHz/   Stop 1 GHz
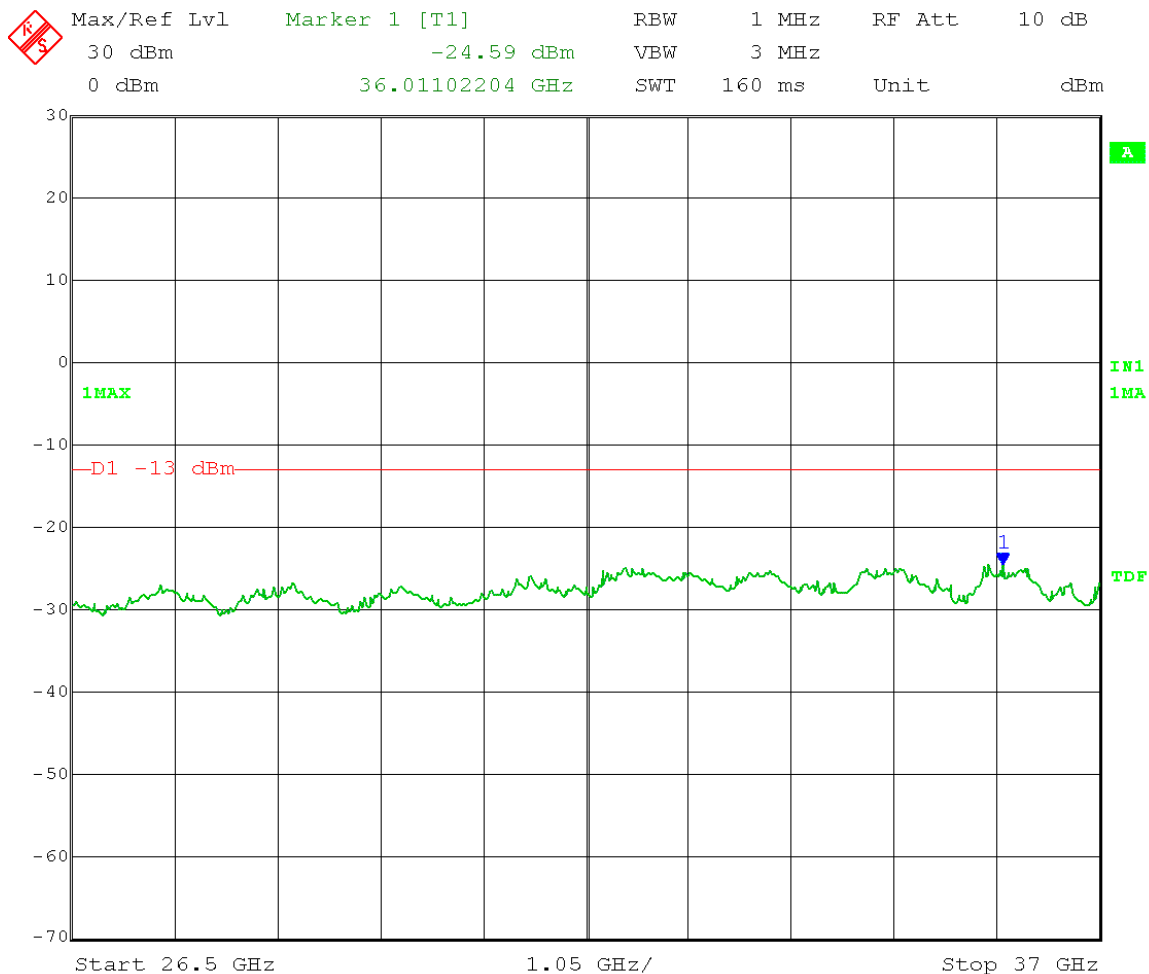
Date: 21.FEB.2014 10:05:43

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: 3655 MHz   Output power setting: 25
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

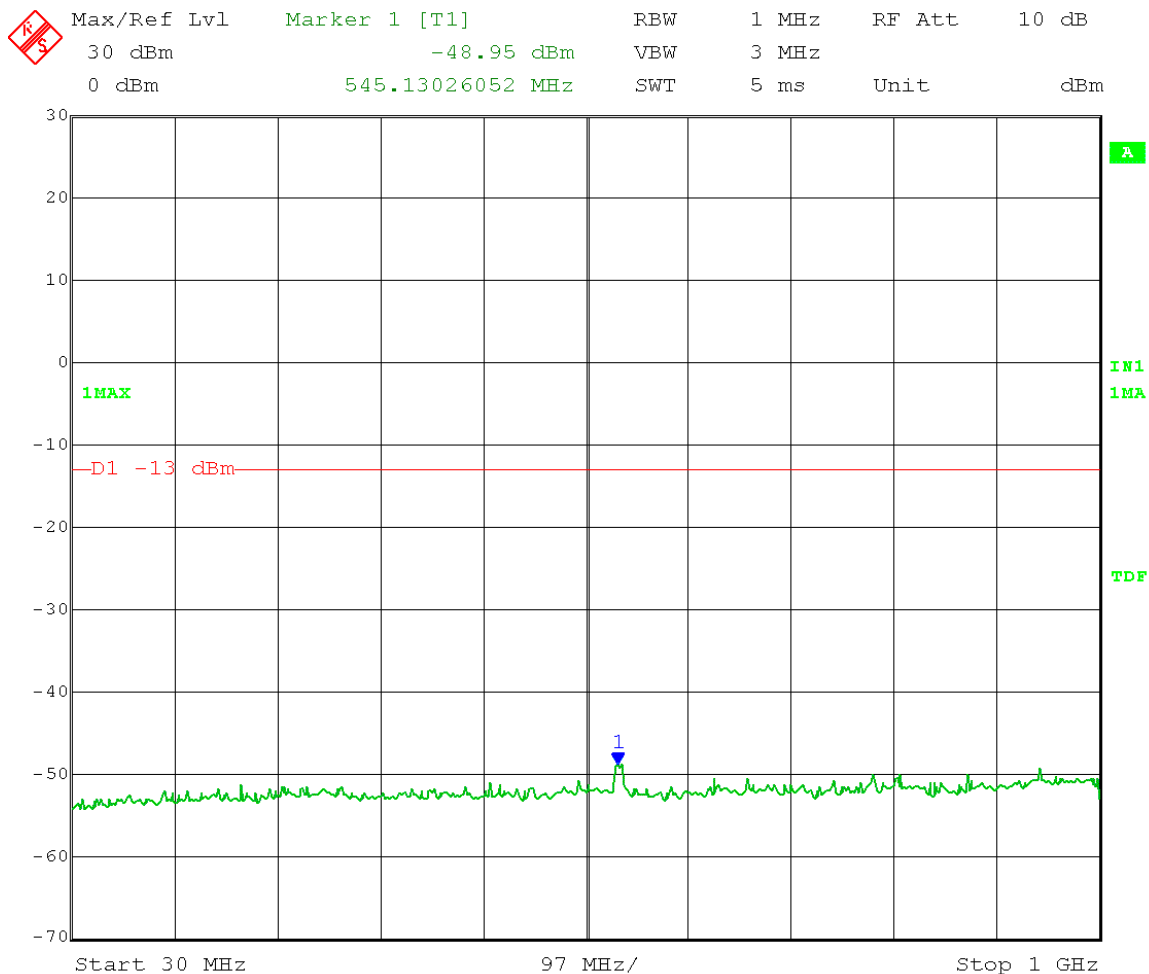| Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-42.70 dBm	VBW	3 MHz		
0 dBm	6.95190381 GHz	SWT	15 ms	Unit	dBm

Date: 21.FEB.2014 09:57:26

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: 3655 MHz   Output power setting: 25
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

```
Max/Ref Lvl     Marker 1 [T1]              RBW     1 MHz    RF Att    10 dB
 30 dBm                      -41.75 dBm     VBW     3 MHz
  0 dBm              17.09619238 GHz        SWT    110 ms    Unit        dBm
```



```
Start 7 GHz                    1.1 GHz/                    Stop 18 GHz
```
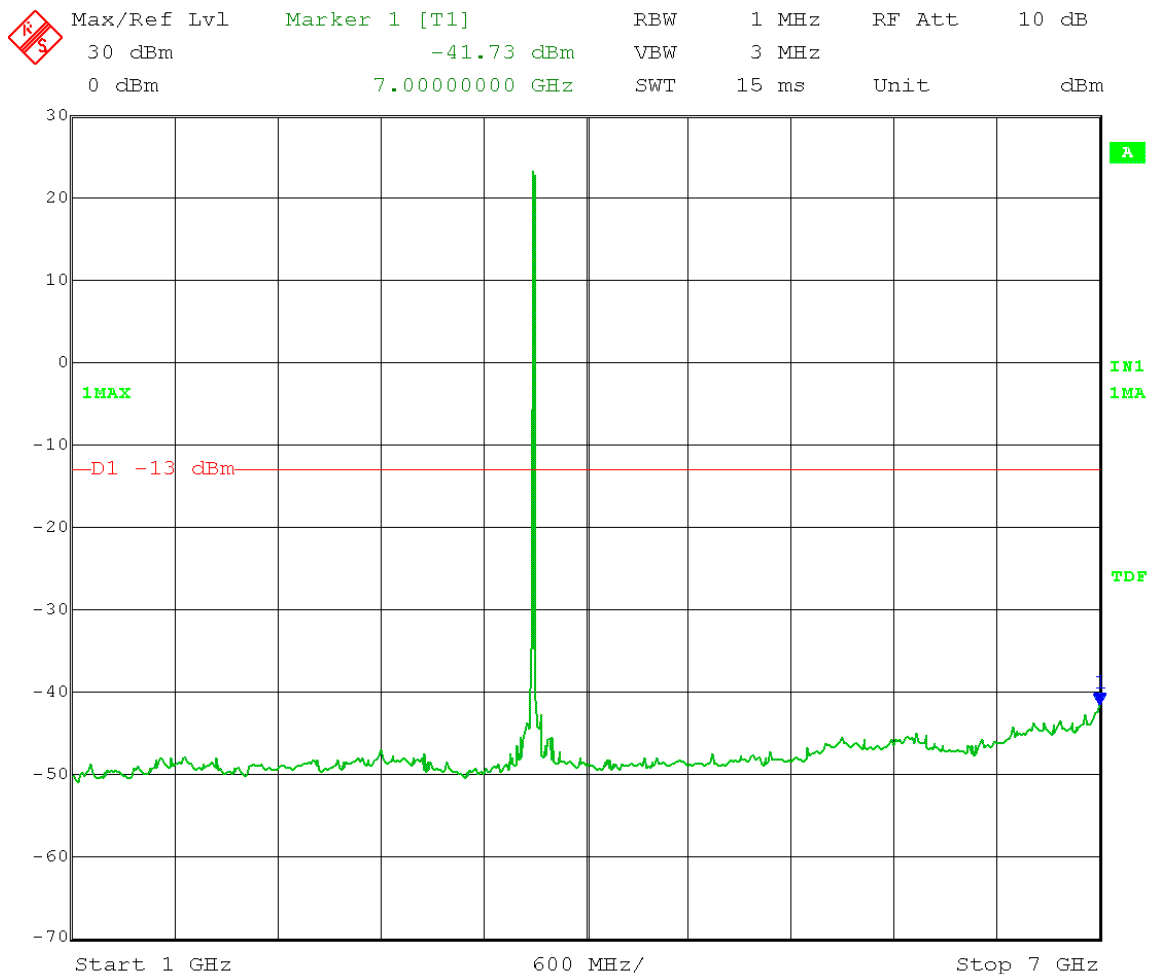
Date: 21.FEB.2014 09:59:19

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: 3655 MHz   Output power setting: 25
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
        = -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz


```
Max/Ref Lvl     Marker 1 [T1]           RBW    1 MHz    RF Att    10 dB
 30 dBm                    -37.74 dBm    VBW    3 MHz
  0 dBm              22.90581162 GHz     SWT    86 ms    Unit       dBm
```

Start 18 GHz   850 MHz/   Stop 26.5 GHz
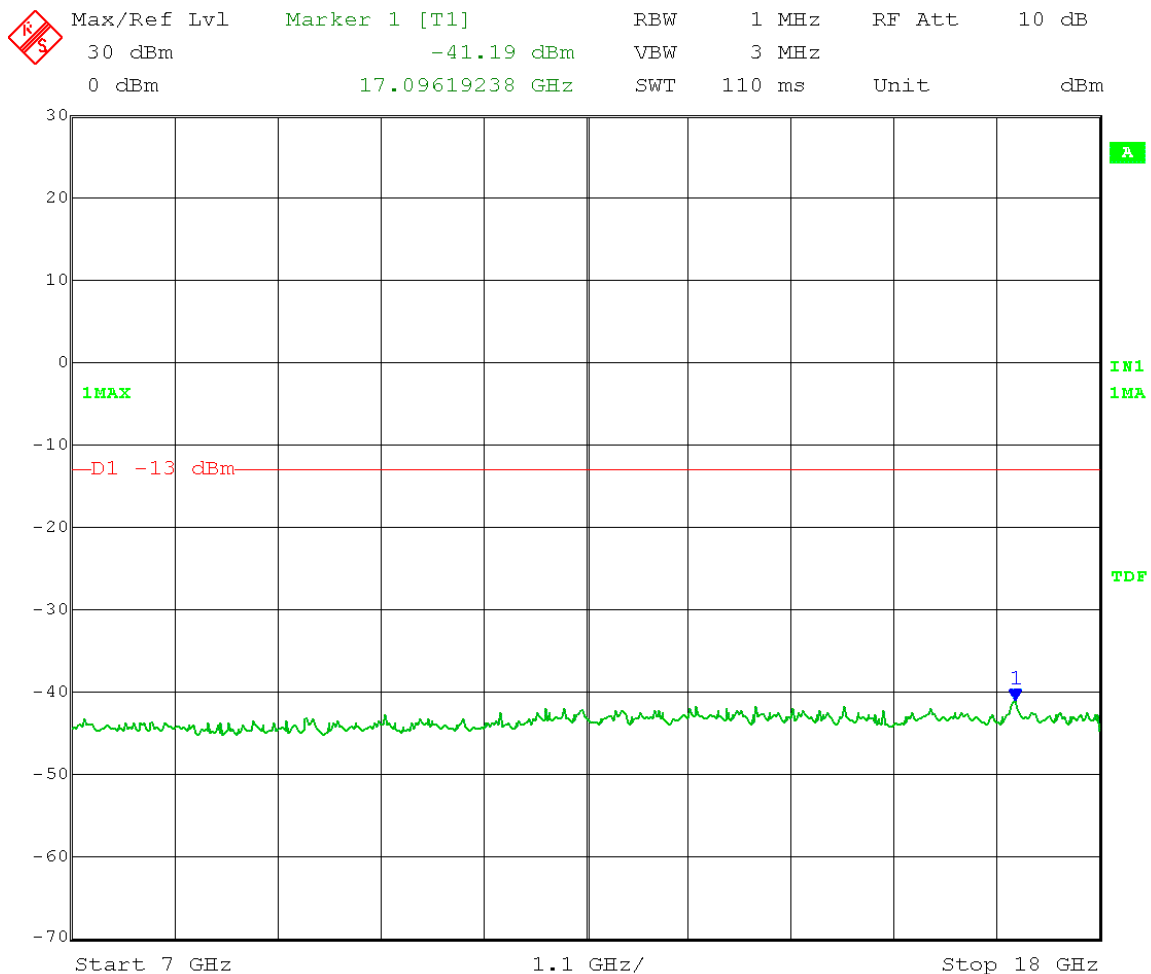
Date: 21.FEB.2014 10:01:11

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: 3655 MHz   Output power setting: 25
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
       = -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-24.91 dBm	VBW	3 MHz		
0 dBm		34.97995992 GHz	SWT	160 ms	Unit	dBm

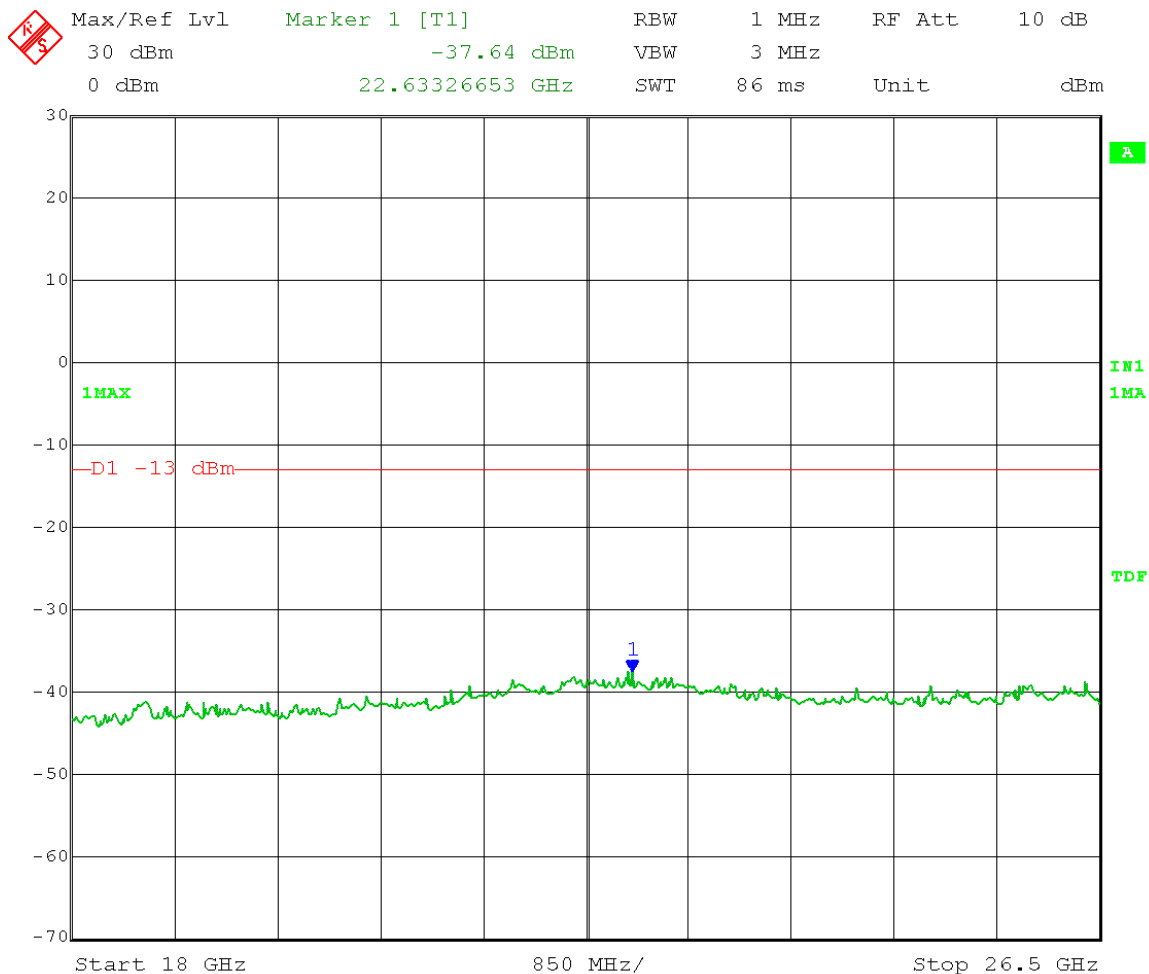Start 26.5 GHz   1.05 GHz/   Stop 37 GHz

Date: 21.FEB.2014 10:02:37

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Mid Channel: 3675 MHz   Output power setting: 25 each port
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 GHz

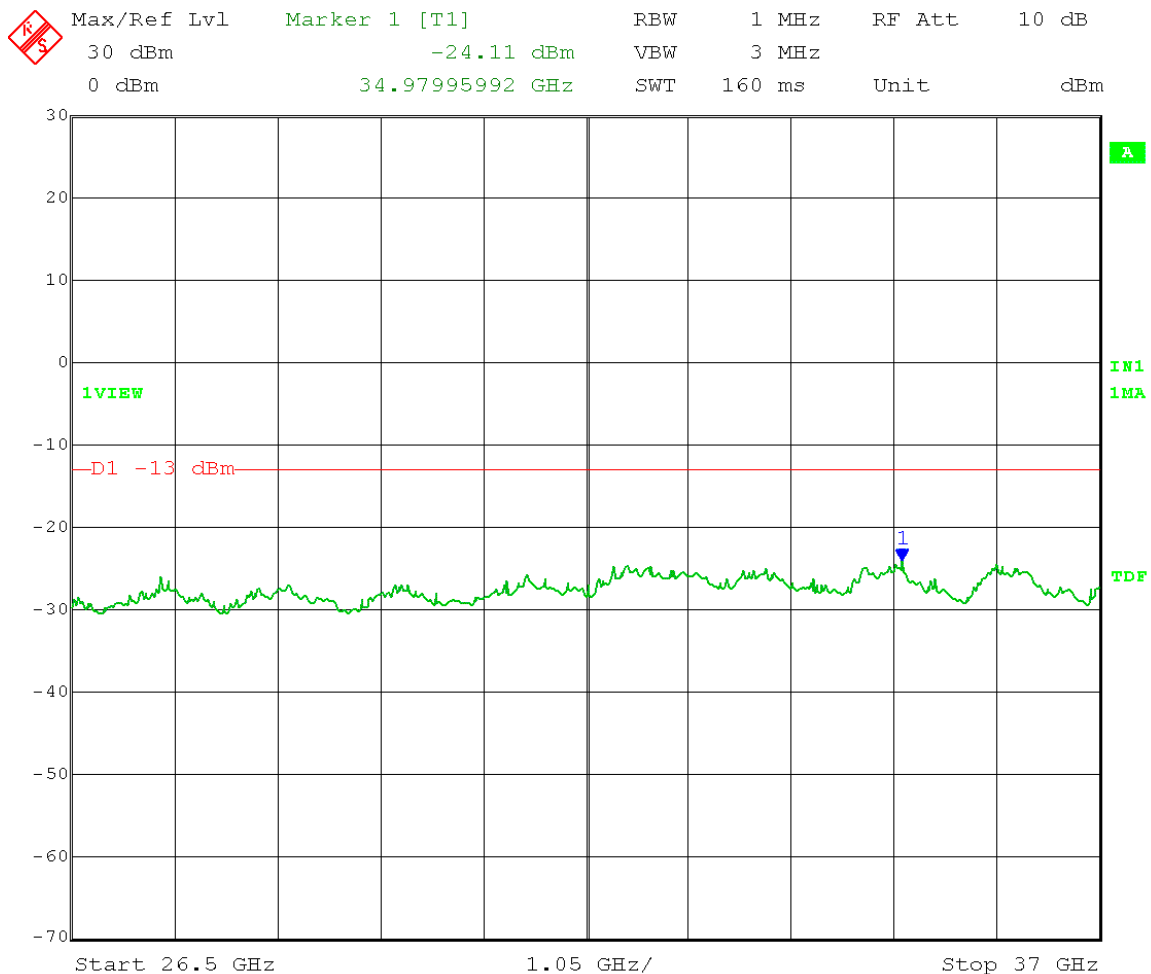| Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-49.16 dBm	VBW	3 MHz		
0 dBm	976.67334669 MHz	SWT	5 ms	Unit	dBm

Date: 21.FEB.2014 10:19:16

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Mid Channel: 3675 MHz   Output power setting: 25 each port
              Channel bandwidth: 10 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power
                     = -13 dBm/MHz

              Frequency Range: 1 – 7 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-42.78 dBm	VBW	3 MHz		
0 dBm	6.91583166 GHz	SWT	15 ms	Unit	dBm

1VIEW

D1 -13 dBm

A

IN1
1MA

TDF

Start 1 GHz   600 MHz/   Stop 7 GHz
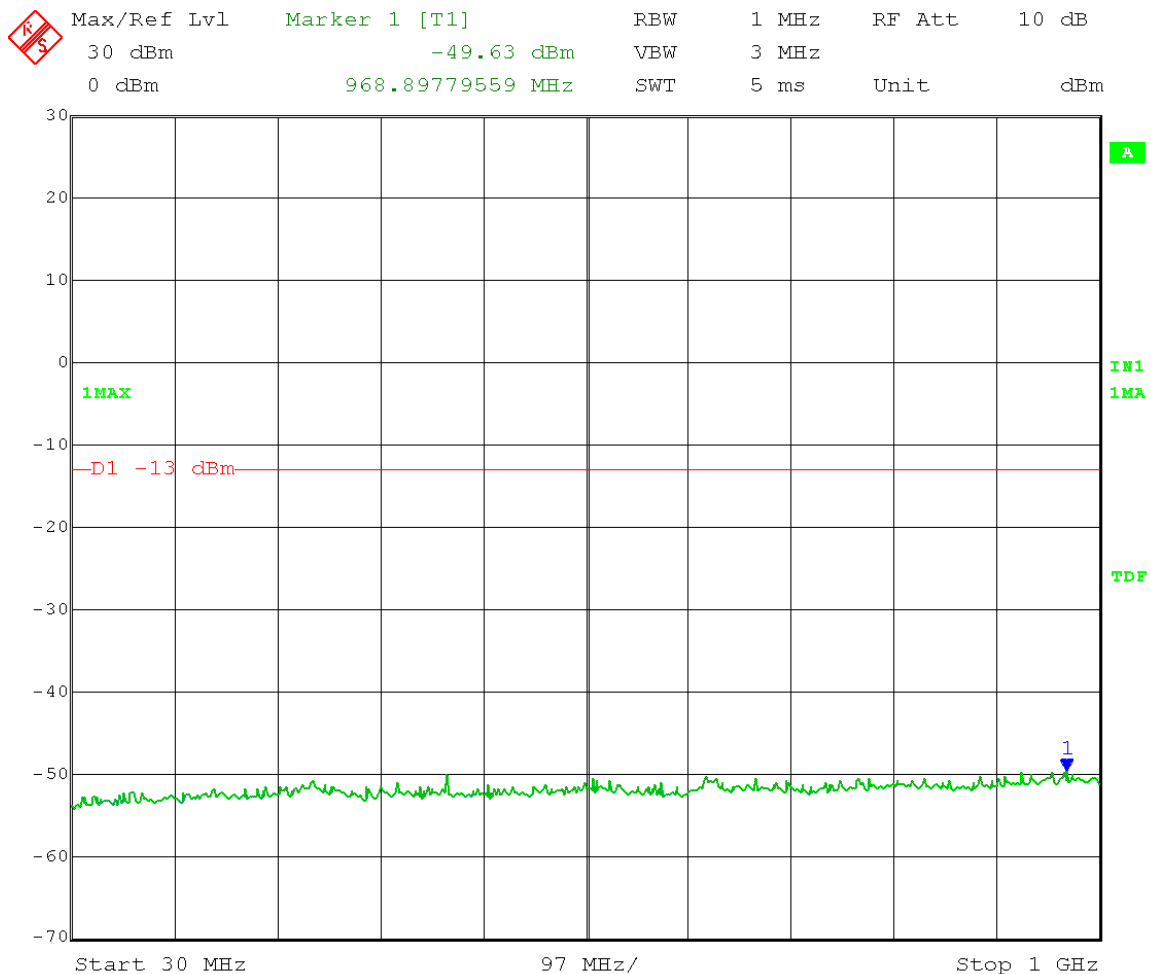
Date: 21.FEB.2014 10:09:42

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Mid Channel: 3675 MHz   Output power setting: 25 each port
               Channel bandwidth: 10 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power
                      = -13 dBm/MHz

               Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-40.34 dBm	VBW	3 MHz		
0 dBm		14.71543086 GHz	SWT	110 ms	Unit	dBm

1VIEW

D1 -13 dBm

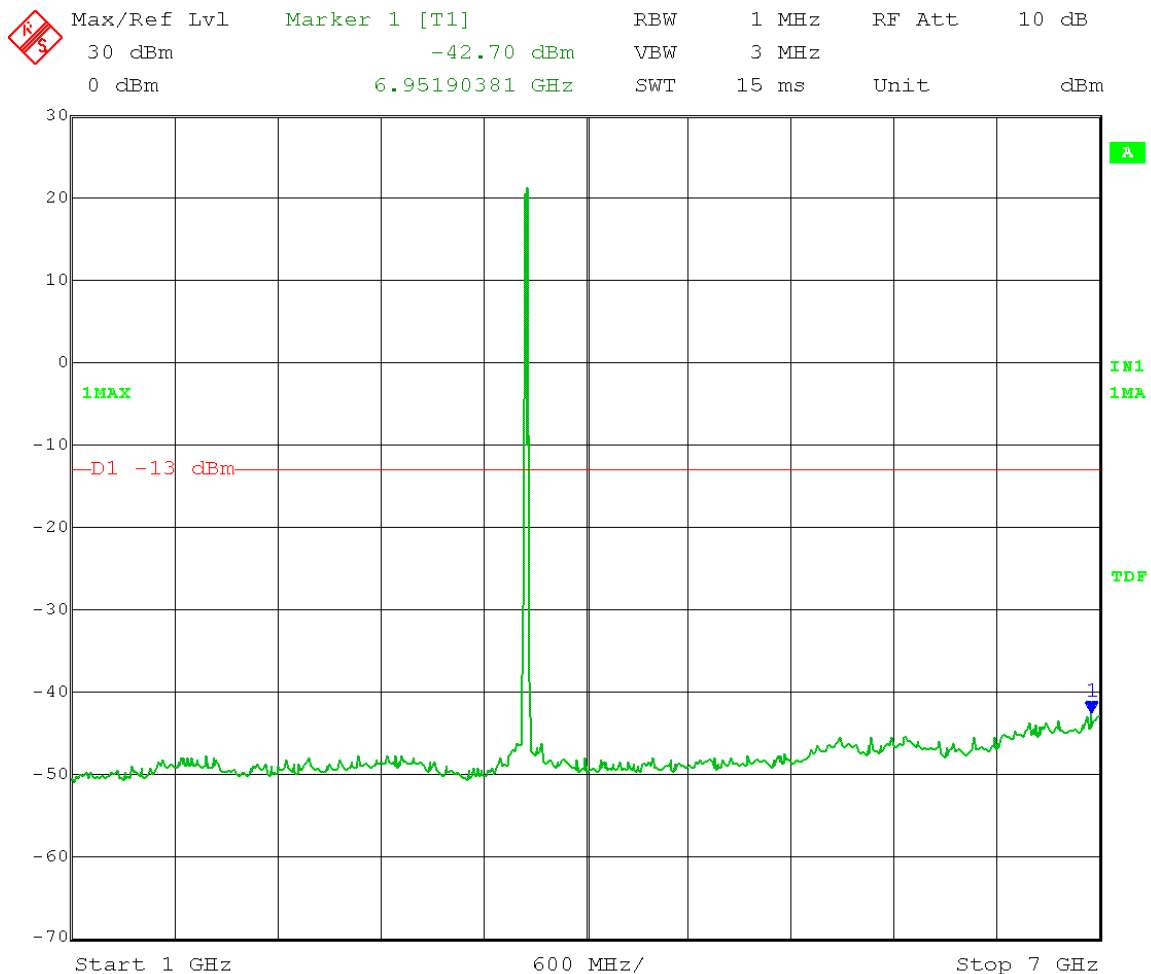Start 7 GHz   1.1 GHz/   Stop 18 GHz

Date: 21.FEB.2014   10:12:30

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
         Detector = Peak   Sweep = auto couple
         Trace = max hold
         Mid Channel: 3675 MHz   Output power setting: 25 each port
         Channel bandwidth: 10 MHz   Output port: A
         Limit: 43 + 10log (P) below the channel transmitter power
                = -13 dBm/MHz

         Frequency Range: 18 – 26.5 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-37.03 dBm	VBW	3 MHz		
0 dBm		22.25851703 GHz	SWT	86 ms	Unit	dBm

A

IN1
1MA

1VIEW

D1 -13 dBm

TDF

Start 18 GHz   850 MHz/   Stop 26.5 GHz
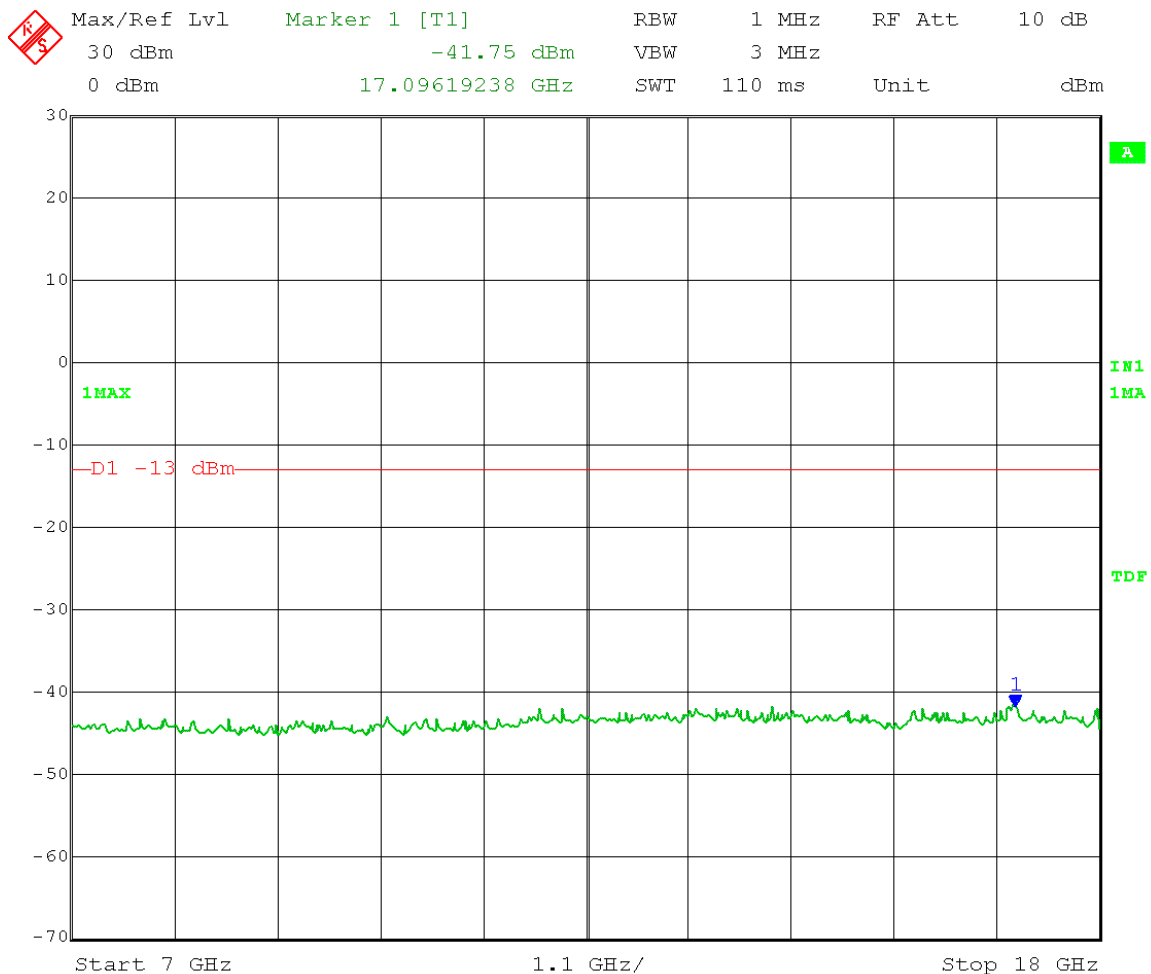
Date: 21.FEB.2014   10:15:03

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Mid Channel: 3675 MHz   Output power setting: 25 each port
                Channel bandwidth: 10 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
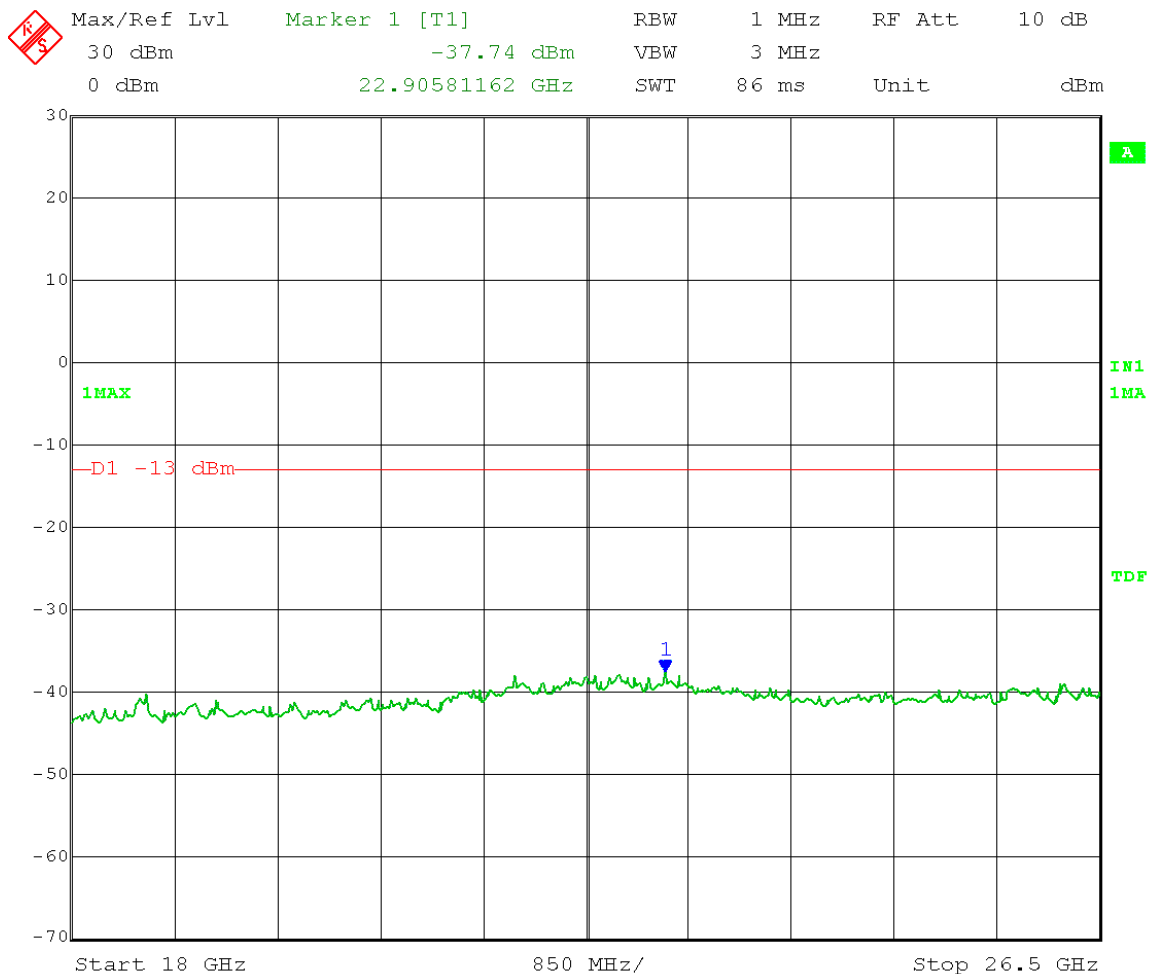   = -13 dBm/MHz

                Frequency Range: 26.5 – 37 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-24.46 dBm	VBW	3 MHz		
0 dBm		32.83366733 GHz	SWT	160 ms	Unit	dBm

```
 30                                                                    A

 20

 10

  0                                                                    IN1
                                                                       1MA
 1VIEW
-10
   D1 -13 dBm
-20
                                              1
-30                                                                    TDF

-40

-50

-60

-70
      Start 26.5 GHz              1.05 GHz/              Stop 37 GHz
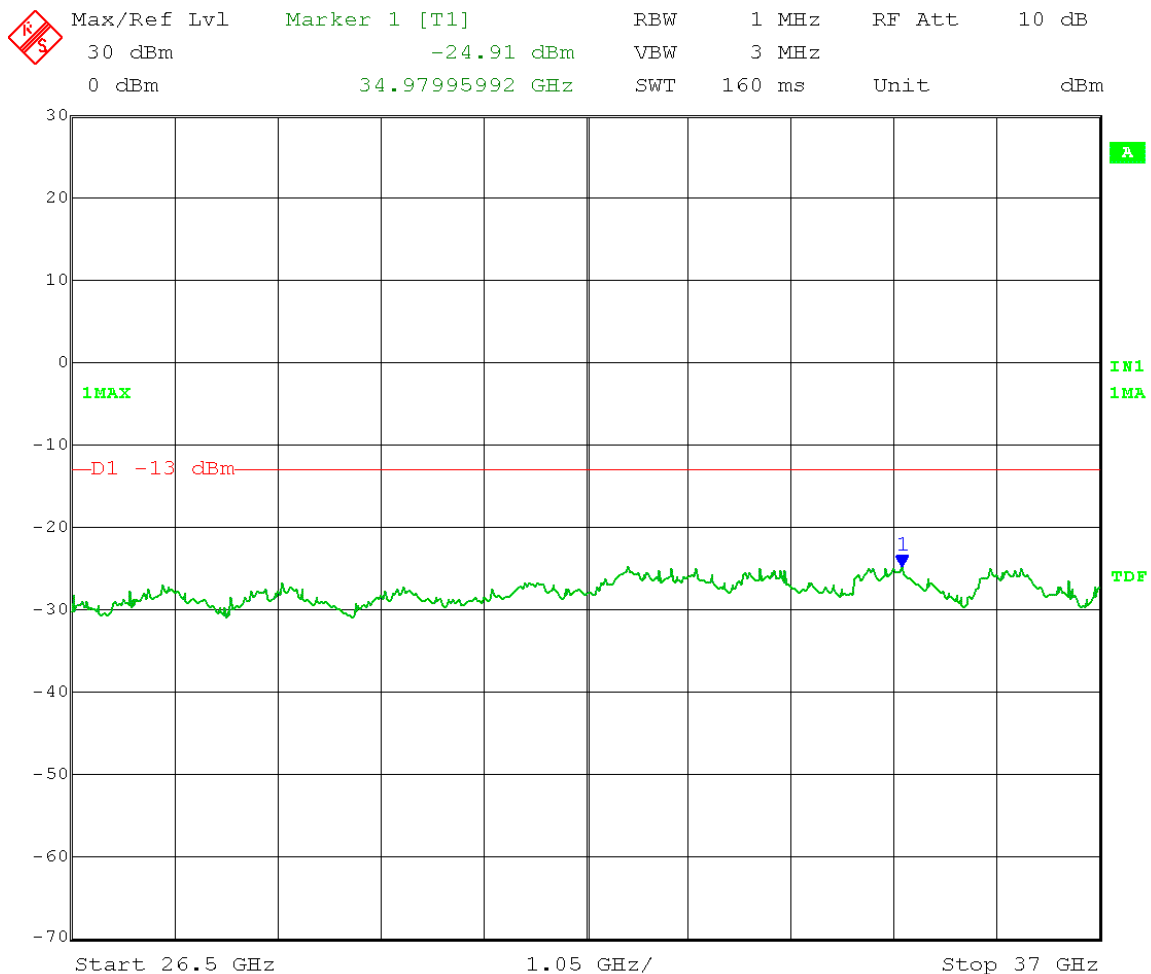```

Date:       21.FEB.2014  10:17:08

Test Date:      02-21-2014
Company:      Cambium Networks
EUT:           PMP450SM 3.65 GHz, Model C036045C008A
Test:          Transmitter Unwanted Emissions – RF Conducted
Operator:      Craig B

Comment:      RBW = 1 MHz              VBW = 3 MHz
              Detector = Peak          Sweep = auto couple
              Trace = max hold
              High Channel: 3695 MHz        Output power setting: 25
              Channel bandwidth: 10 MHz     Output port: A
              Limit:  43 + 10log (P) below the channel transmitter power
                    = -13 dBm/MHz

              Frequency Range:  30 – 1000 MHz



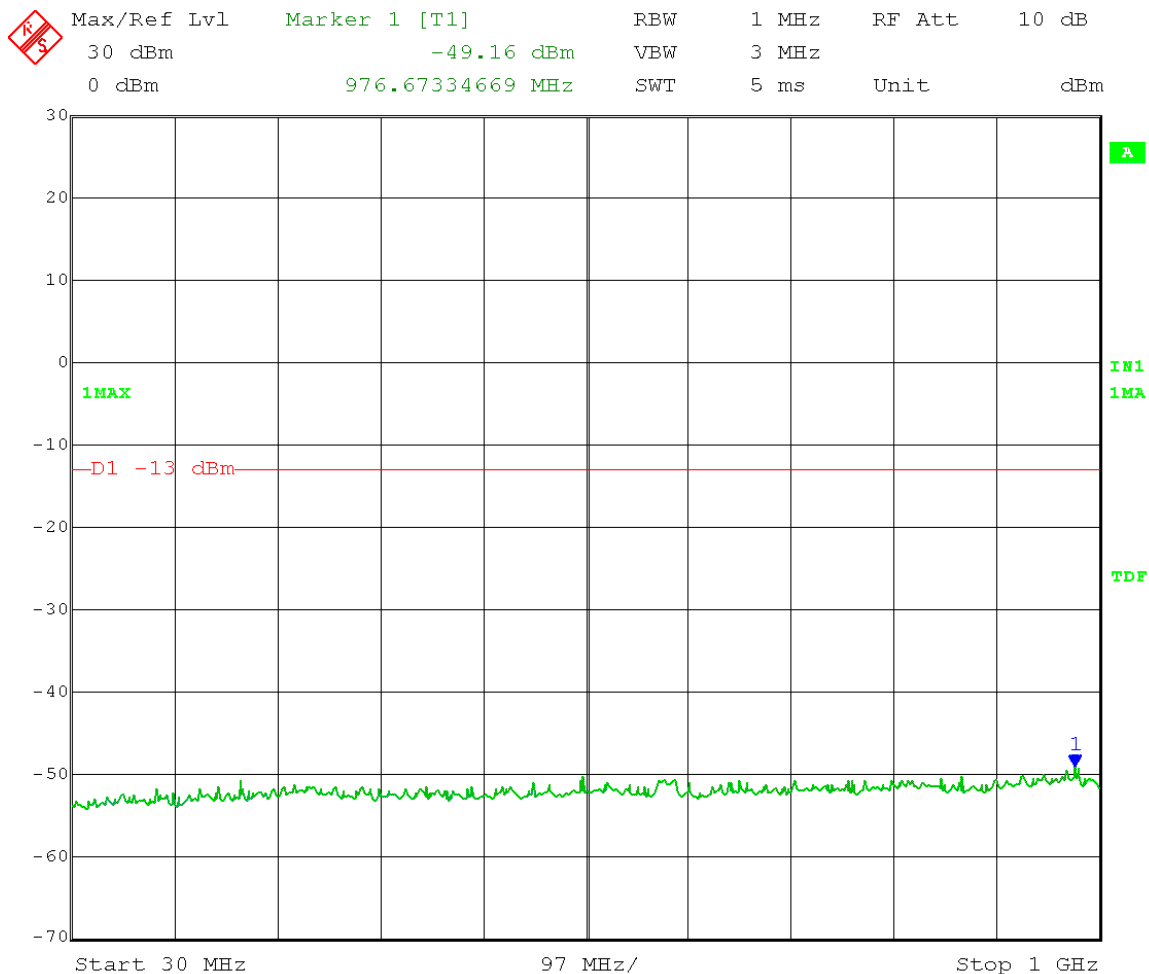| Max/Ref Lvl | Marker 1 [T1] | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|
| 30 dBm | -47.99 dBm | VBW | 3 MHz | | |
| 0 dBm | 545.13026052 MHz | SWT | 5 ms | Unit | dBm |

Date:      21.FEB.2014  10:40:10

Test Date:     02-21-2014
Company:       Cambium Networks
EUT:           PMP450SM 3.65 GHz, Model C036045C008A
Test:          Transmitter Unwanted Emissions – RF Conducted
Operator:      Craig B

Comment:       RBW = 1 MHz                VBW = 3 MHz
               Detector = Peak            Sweep = auto couple
               Trace = max hold
               High Channel: 3695 MHz        Output power setting: 25
               Channel bandwidth: 10 MHz     Output port: A
               Limit:  43 + 10log (P) below the channel transmitter power
                       = -13 dBm/MHz

               Frequency Range:  1 – 7 GHz

| Max/Ref Lvl | Marker 1 [T1] | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|
| 30 dBm | -42.01 dBm | VBW | 3 MHz | | |
| 0 dBm | 7.00000000 GHz | SWT | 15 ms | Unit | dBm |

A

1VIEW

IN1
1MA

D1 -13 dBm

TDF

Start 1 GHz          600 MHz/          Stop 7 GHz
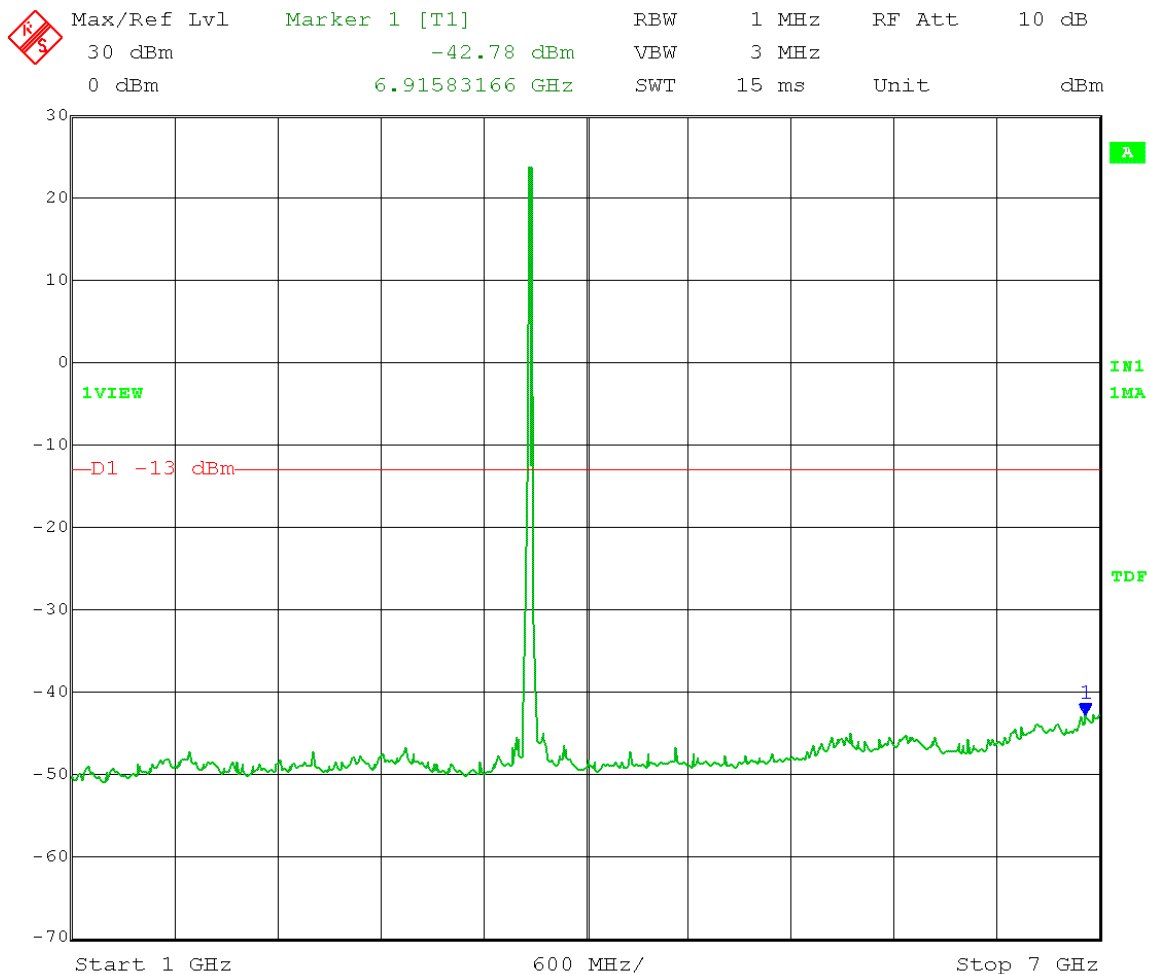
Date:     21.FEB.2014  10:31:49

Test Date:     02-21-2014
Company:       Cambium Networks
EUT:           PMP450SM 3.65 GHz, Model C036045C008A
Test:          Transmitter Unwanted Emissions – RF Conducted
Operator:      Craig B


Comment:       RBW = 1 MHz              VBW = 3 MHz
               Detector = Peak          Sweep = auto couple
               Trace = max hold
               High Channel: 3695 MHz       Output power setting: 25
               Channel bandwidth: 10 MHz    Output port: A
               Limit:  43 + 10log (P) below the channel transmitter power
                       = -13 dBm/MHz


               Frequency Range:  7 – 18 GHz



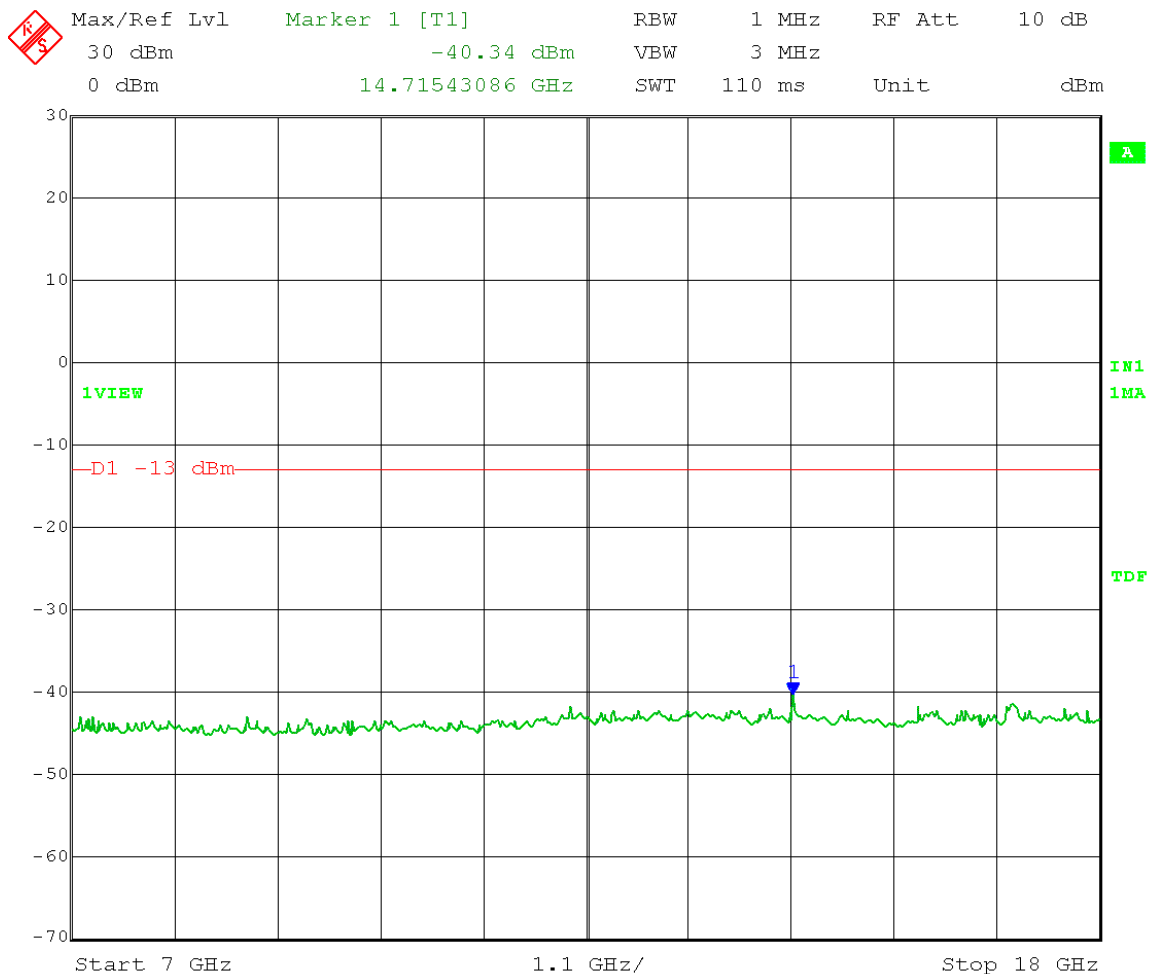| Max/Ref Lvl | Marker 1 [T1] | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|
| 30 dBm | −40.53 dBm | VBW | 3 MHz | | |
| 0 dBm | 17.09619238 GHz | SWT | 110 ms | Unit | dBm |

Date:        21.FEB.2014  10:34:01

Test Date:      02-21-2014
Company:        Cambium Networks
EUT:            PMP450SM 3.65 GHz, Model C036045C008A
Test:           Transmitter Unwanted Emissions – RF Conducted
Operator:       Craig B


Comment:        RBW = 1 MHz              VBW = 3 MHz
                Detector = Peak          Sweep = auto couple
                Trace = max hold
                High Channel: 3695 MHz          Output power setting: 25
                Channel bandwidth: 10 MHz       Output port: A
                Limit:  43 + 10log (P) below the channel transmitter power
                        = -13 dBm/MHz


                Frequency Range:  18 – 26.5 GHz



| Max/Ref Lvl | Marker 1 [T1] | | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|---|
| 30 dBm | | -38.06 dBm | VBW | 3 MHz | | |
| 0 dBm | | 23.02505010 GHz | SWT | 86 ms | Unit | dBm |

1MAX

D1 -13 dBm

A

IN1
1MA

TDF

Start 18 GHz                850 MHz/                Stop 26.5 GHz
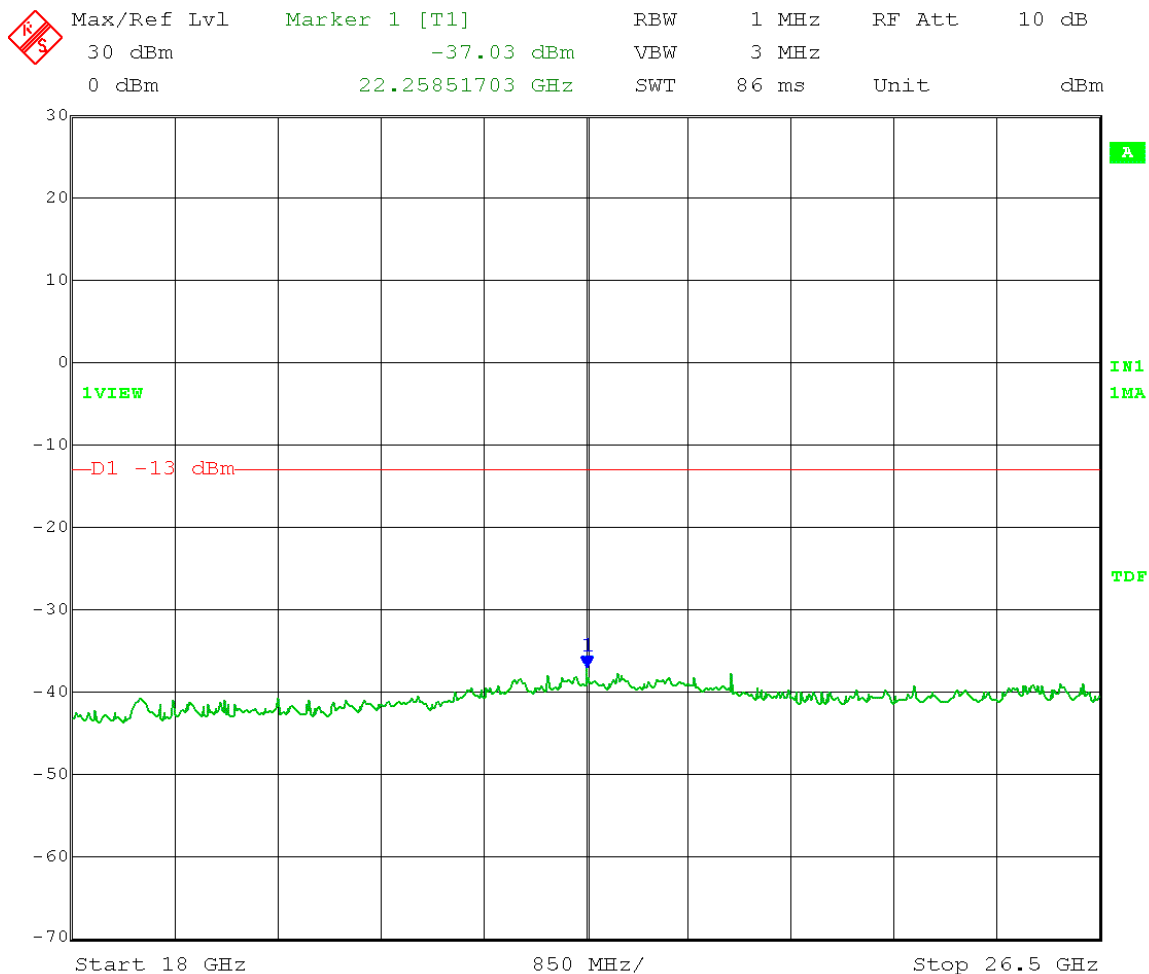
Date:      21.FEB.2014  10:36:05

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz VBW = 3 MHz
Detector = Peak Sweep = auto couple
Trace = max hold
High Channel: 3695 MHz Output power setting: 25
Channel bandwidth: 10 MHz Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz



| Max/Ref Lvl | Marker 1 [T1] | | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|---|
| 30 dBm | | -24.41 dBm | VBW | 3 MHz | | |
| 0 dBm | | 32.22344689 GHz | SWT | 160 ms | Unit | dBm |

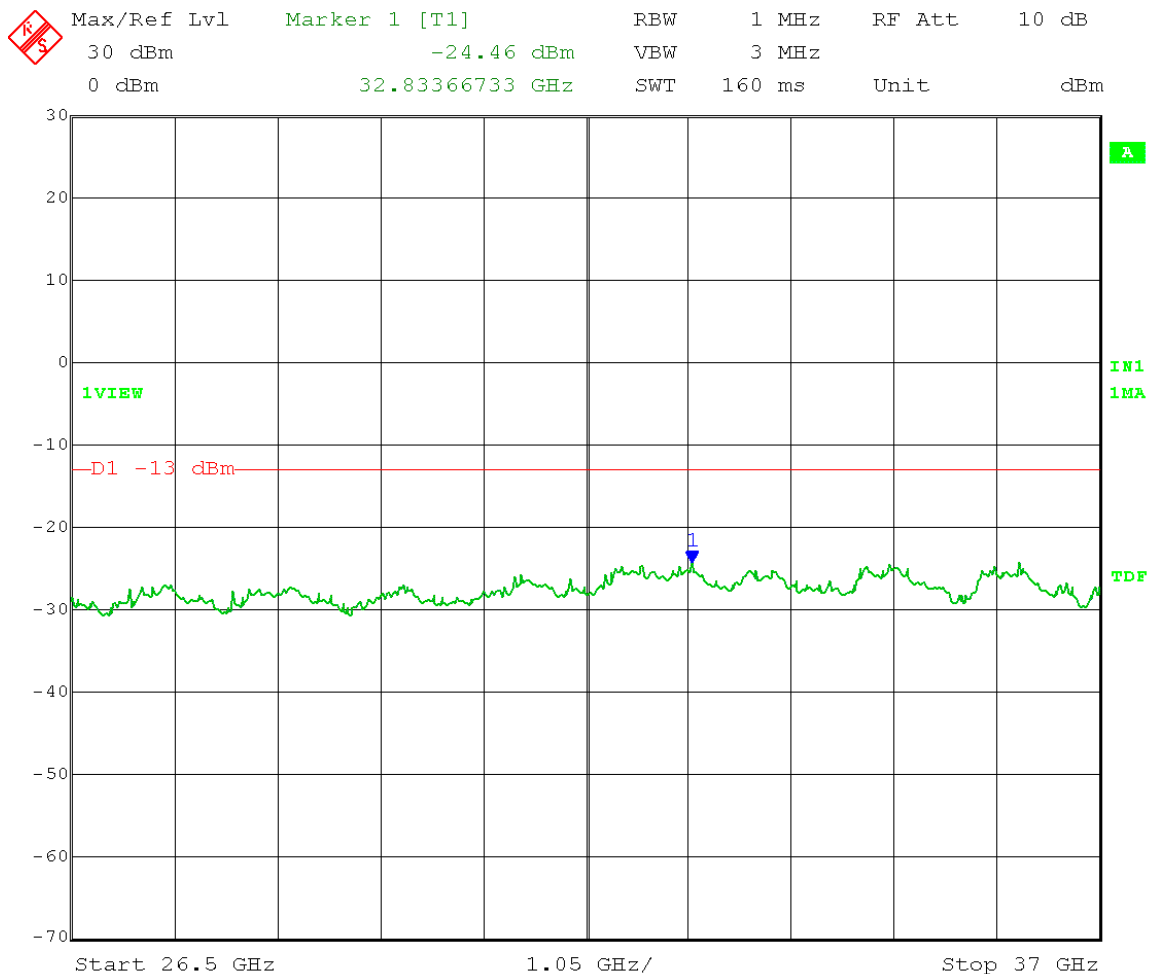Start 26.5 GHz   1.05 GHz/   Stop 37 GHz

Date:      21.FEB.2014  10:38:12

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz          VBW = 3 MHz
Detector = Peak          Sweep = auto couple
Trace = max hold
Low Channel: 3660 MHz          Output power setting: 25
Channel bandwidth: 20 MHz          Output port: A
Limit:  43 + 10log (P) below the channel transmitter power
          = -13 dBm/MHz

Frequency Range:  30 – 1000 MHz



| Max/Ref Lvl | Marker 1 [T1] | | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|---|
| 30 dBm | | -49.74 dBm | VBW | 3 MHz | | |
| 0 dBm | | 918.35671343 MHz | SWT | 5 ms | Unit | dBm |

1MAX

D1 -13 dBm

Start 30 MHz          97 MHz/          Stop 1 GHz
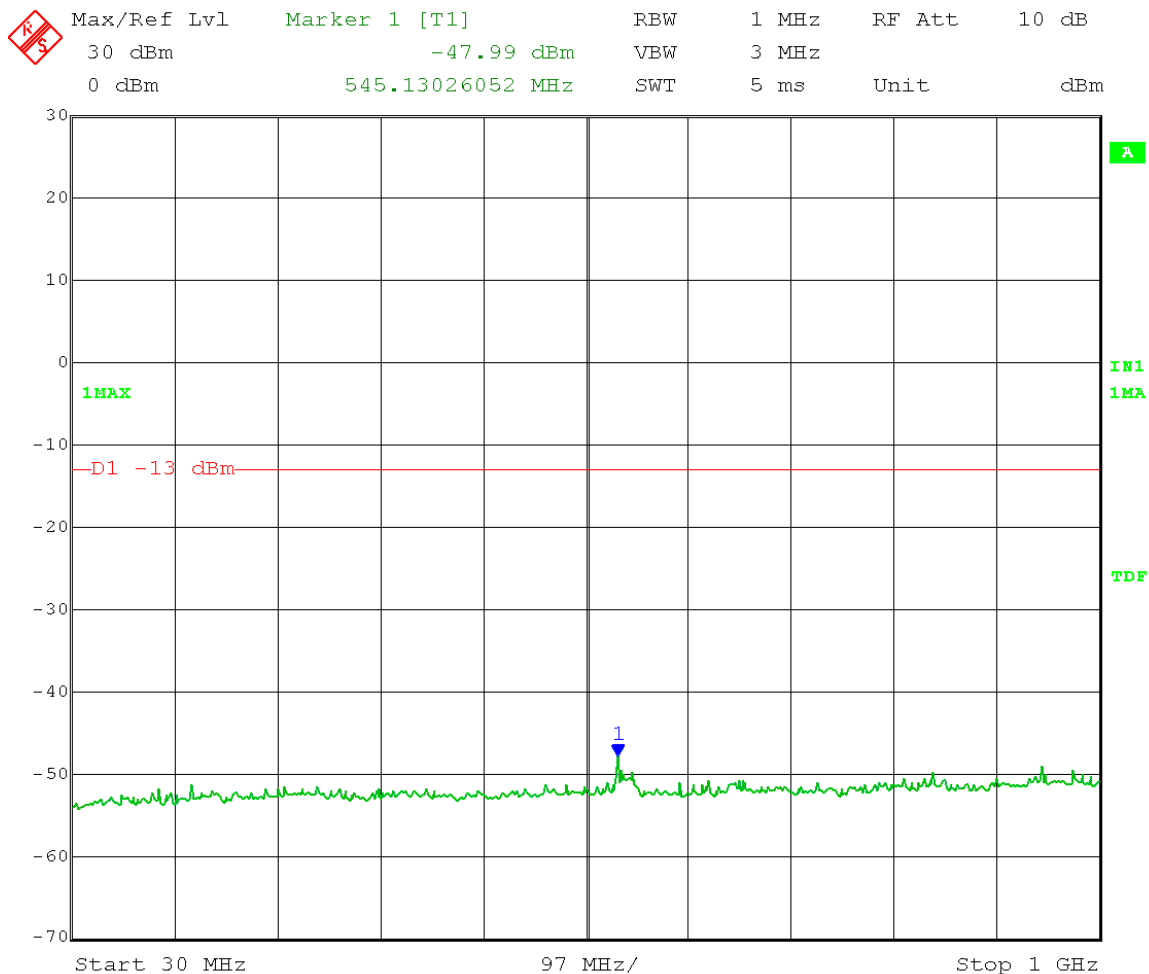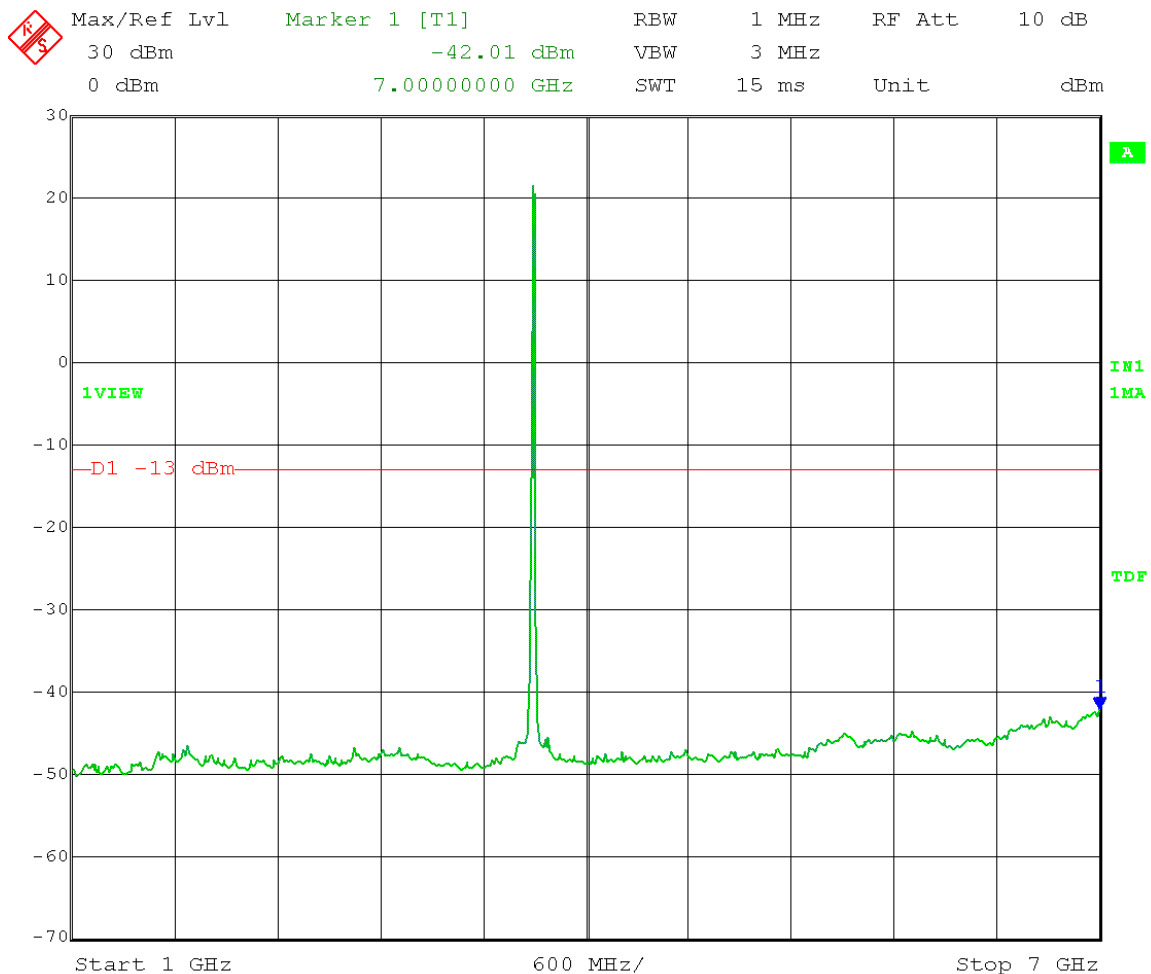
Date:        21.FEB.2014  10:54:29

Test Date:     02-21-2014
Company:     Cambium Networks
EUT:     PMP450SM 3.65 GHz, Model C036045C008A
Test:     Transmitter Unwanted Emissions – RF Conducted
Operator:     Craig B

Comment:     RBW = 1 MHz     VBW = 3 MHz
     Detector = Peak     Sweep = auto couple
     Trace = max hold
     Low Channel: 3660 MHz     Output power setting: 25
     Channel bandwidth: 20 MHz     Output port: A
     Limit:  43 + 10log (P) below the channel transmitter power
          = -13 dBm/MHz

     Frequency Range:  1 – 7 GHz



| Max/Ref Lvl | Marker 1 [T1] | | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|---|
| 30 dBm | | −41.87 dBm | VBW | 3 MHz | | |
| 0 dBm | | 6.96392786 GHz | SWT | 15 ms | Unit | dBm |

1VIEW

D1 −13 dBm

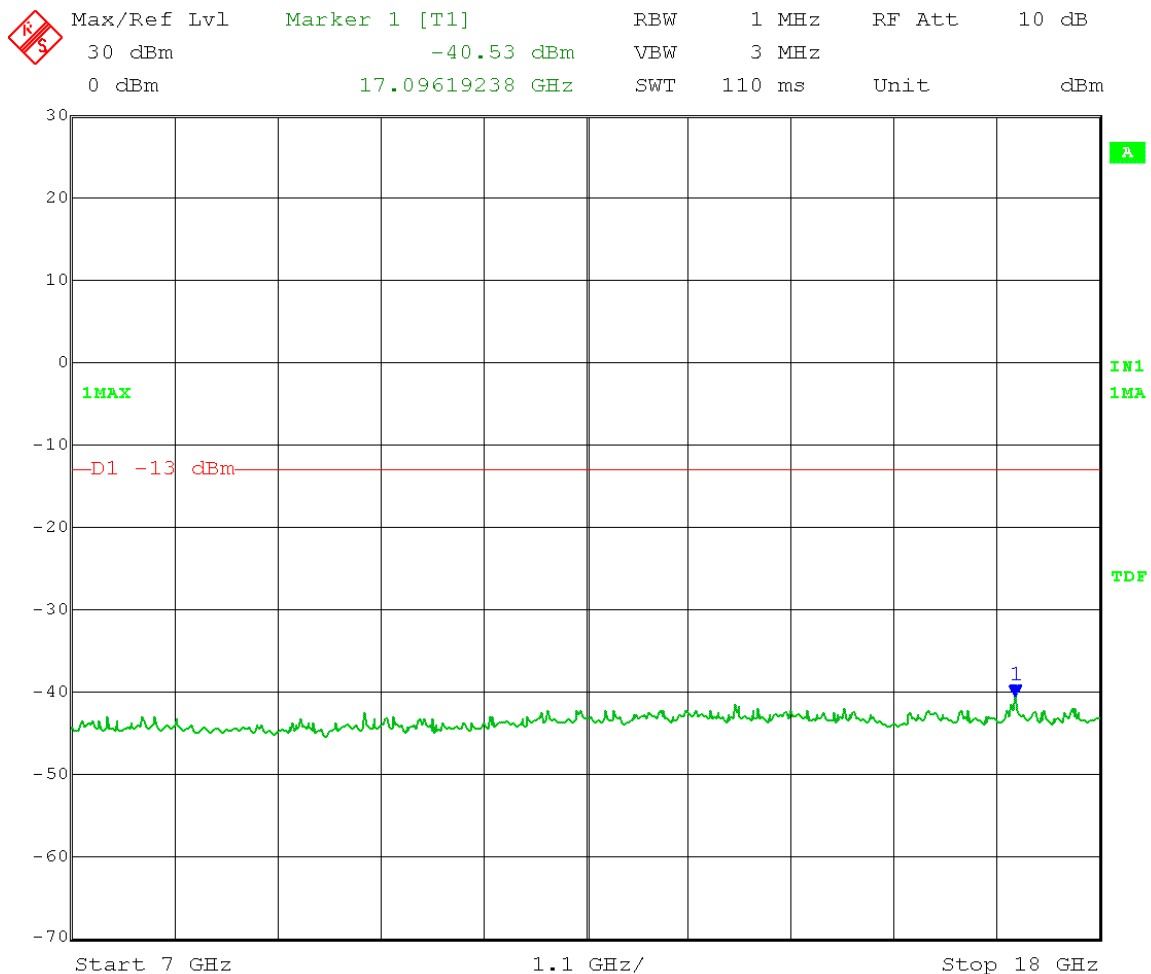Start 1 GHz     600 MHz/     Stop 7 GHz

Date:     21.FEB.2014  10:45:39

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz                    VBW = 3 MHz
Detector = Peak                   Sweep = auto couple
Trace = max hold
Low Channel: 3660 MHz             Output power setting: 25
Channel bandwidth: 20 MHz        Output port: A
Limit:  43 + 10log (P) below the channel transmitter power
        = -13 dBm/MHz

Frequency Range:  7 – 18 GHz



| Max/Ref Lvl | Marker 1 [T1] | RBW | 1 MHz | RF Att | 10 dB |
|---|---|---|---|---|---|
| 30 dBm | -41.26 dBm | VBW | 3 MHz | | |
| 0 dBm | 13.72344689 GHz | SWT | 110 ms | Unit | dBm |

Start 7 GHz          1.1 GHz/          Stop 18 GHz
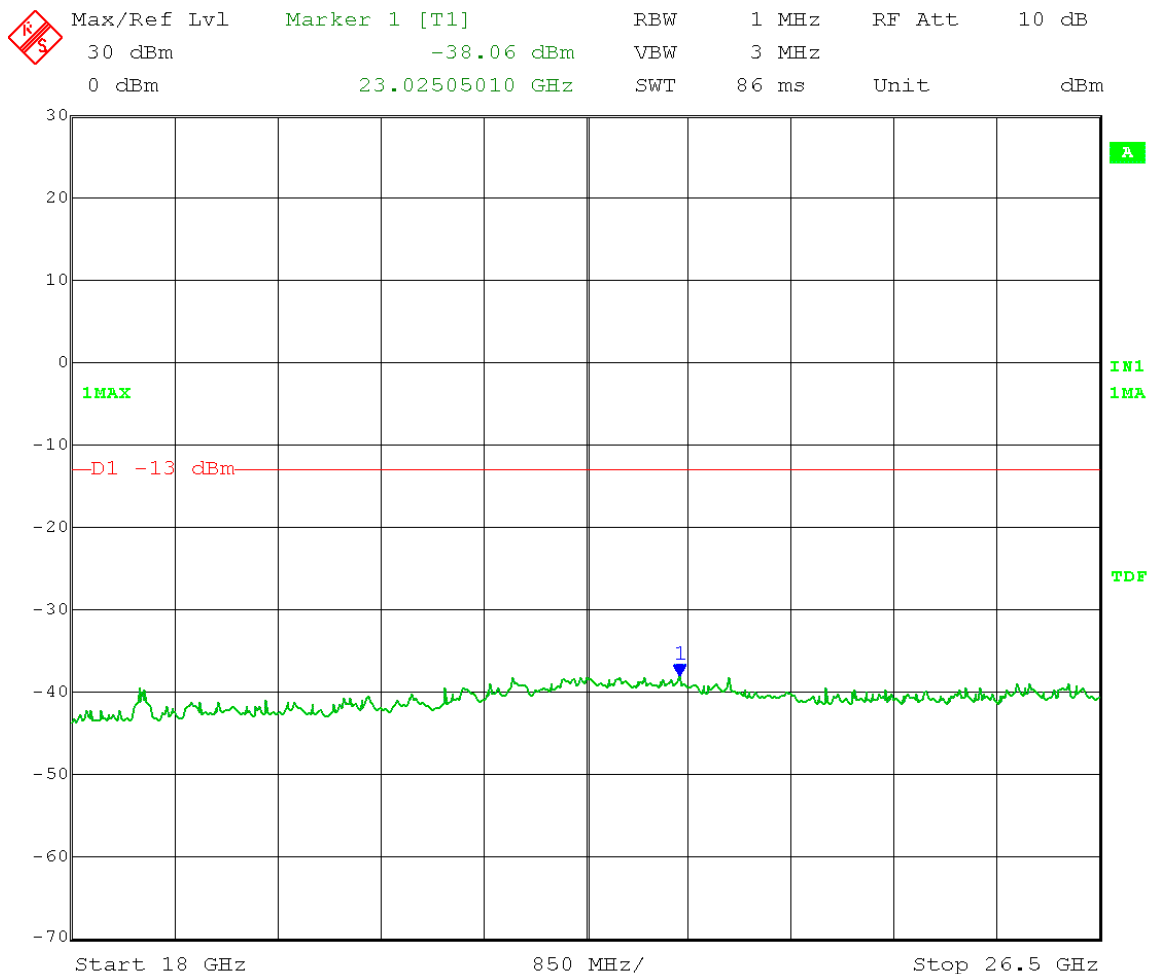
Date:      21.FEB.2014  10:47:43

Test Date:      02-21-2014
Company:        Cambium Networks
EUT:            PMP450SM 3.65 GHz, Model C036045C008A
Test:           Transmitter Unwanted Emissions – RF Conducted
Operator:       Craig B

Comment:        RBW = 1 MHz              VBW = 3 MHz
                Detector = Peak          Sweep = auto couple
                Trace = max hold
                Low Channel: 3660 MHz            Output power setting: 25
                Channel bandwidth: 20 MHz       Output port: A
                Limit:  43 + 10log (P) below the channel transmitter power
                        = -13 dBm/MHz

                Frequency Range:  18 – 26.5 GHz

```
Max/Ref Lvl     Marker 1 [T1]              RBW     1 MHz    RF Att    10 dB
 30 dBm                    -38.22 dBm      VBW     3 MHz
  0 dBm            22.27555110 GHz         SWT     86 ms    Unit       dBm
```



```
Start 18 GHz                     850 MHz/                 Stop 26.5 GHz
Date:       21.FEB.2014  10:49:49
```

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz VBW = 3 MHz
Detector = Peak Sweep = auto couple
Trace = max hold
Low Channel: 3660 MHz Output power setting: 25
Channel bandwidth: 20 MHz Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

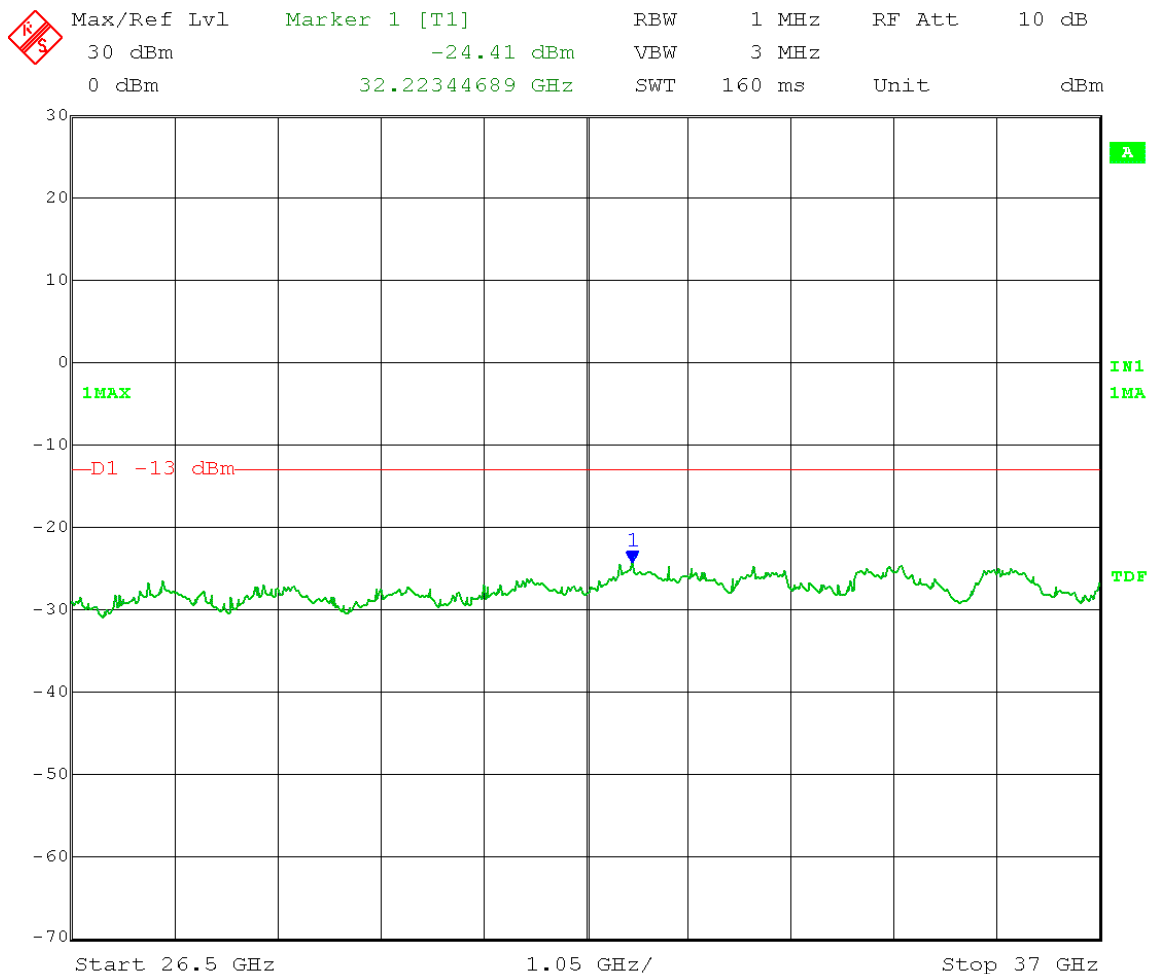

```
       Max/Ref Lvl     Marker 1 [T1]          RBW    1 MHz    RF Att     10 dB
        30 dBm                  -24.44 dBm     VBW    3 MHz
         0 dBm             36.09519038 GHz     SWT   160 ms    Unit         dBm
```

Start 26.5 GHz   1.05 GHz/   Stop 37 GHz
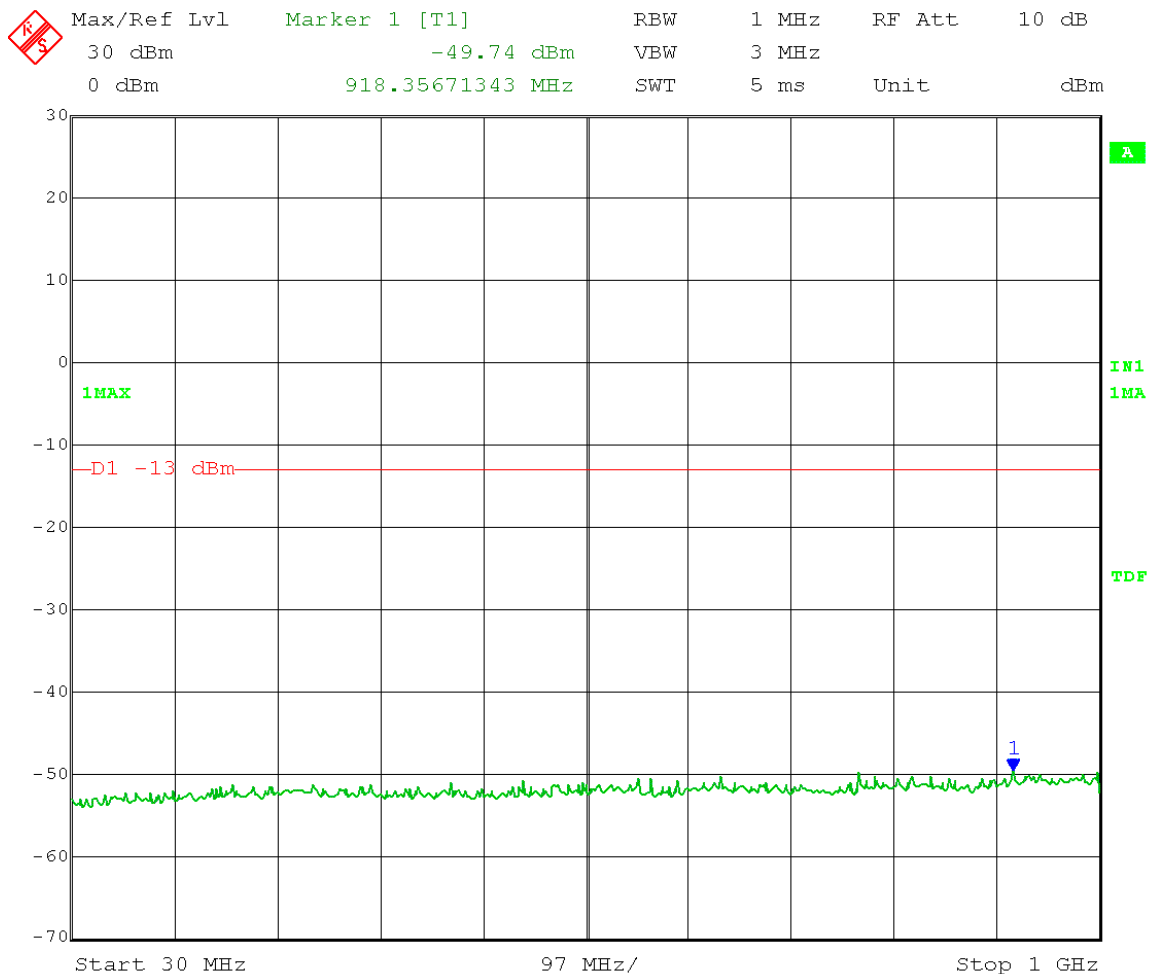
Date: 21.FEB.2014 10:51:48

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Mid Channel: 3675 MHz   Output power setting: 25 each port
                Channel bandwidth: 20 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
                        = -13 dBm/MHz
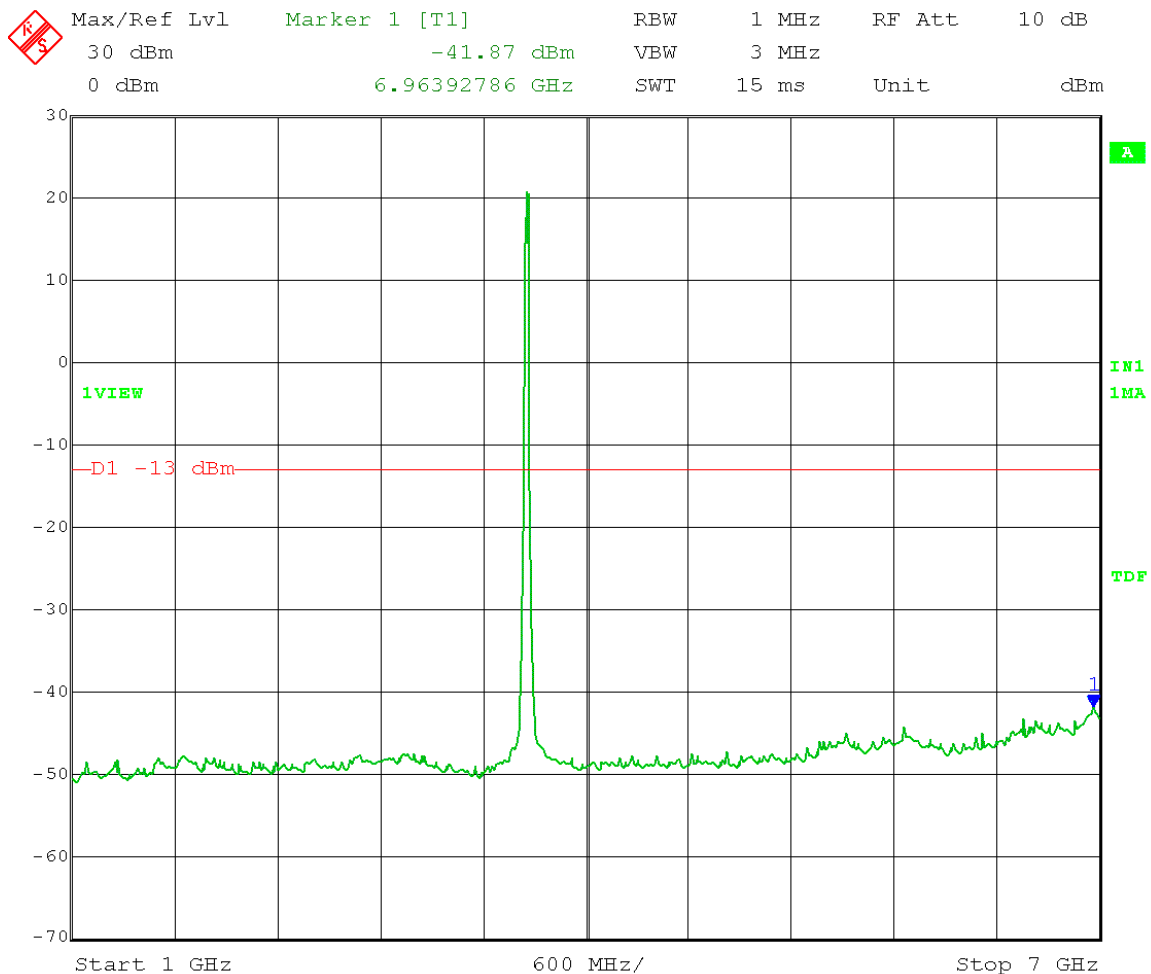
                Frequency Range: 30 – 1000 MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-49.27 dBm	VBW	3 MHz		
0 dBm	823.10621242 MHz	SWT	5 ms	Unit	dBm

Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 21.FEB.2014   11:06:14

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Mid Channel: 3675 MHz   Output power setting: 25 each port
              Channel bandwidth: 20 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power
                    = -13 dBm/MHz

          Frequency Range: 1 – 7 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-42.37 dBm	VBW	3 MHz		
0 dBm		6.93987976 GHz	SWT	15 ms	Unit	dBm

1MAX

D1 -13 dBm

Start 1 GHz   600 MHz/   Stop 7 GHz
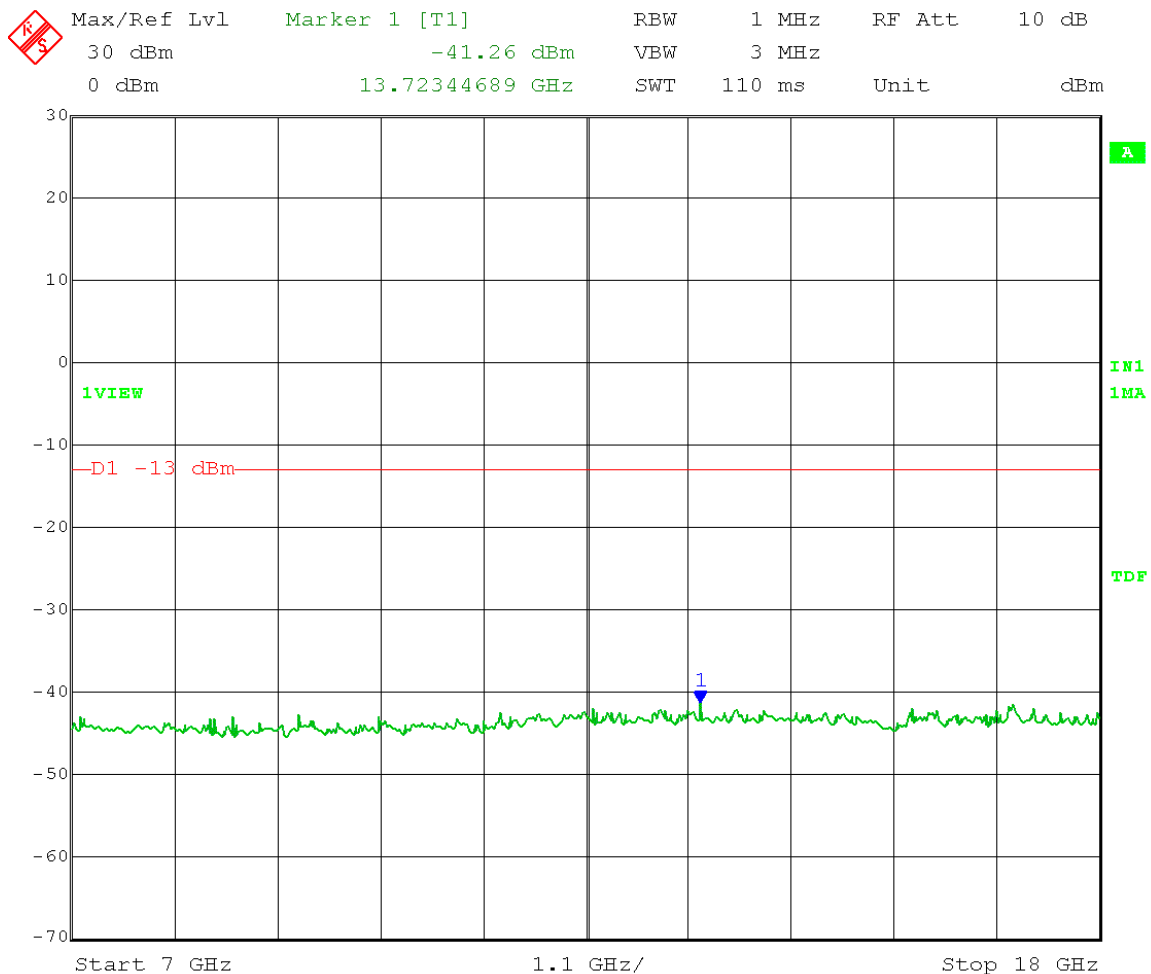
Date: 21.FEB.2014 10:57:38

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz VBW = 3 MHz
Detector = Peak Sweep = auto couple
Trace = max hold
Mid Channel: 3675 MHz Output power setting: 25 each port
Channel bandwidth: 20 MHz Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-41.14 dBm	VBW	3 MHz		
0 dBm		17.07414830 GHz	SWT	110 ms	Unit	dBm

```
 30                                                              A

 20

 10

  0                                                              IN1
1MAX                                                             1MA

-10
 D1 -13 dBm

-20
                                                                TDF

-30

-40                                                   1

-50

-60

-70
    Start 7 GHz          1.1 GHz/           Stop 18 GHz
```
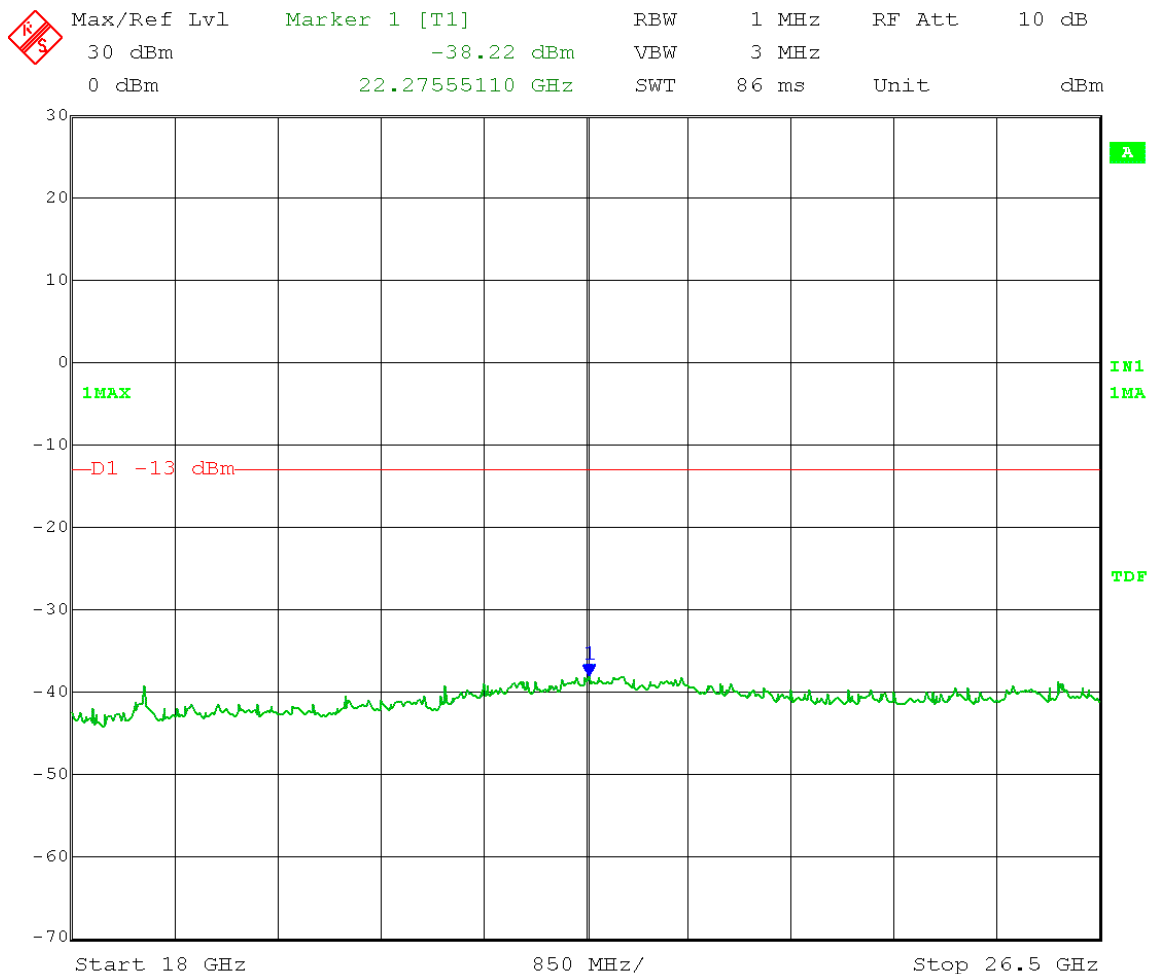
Date: 21.FEB.2014 11:00:00

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Mid Channel: 3675 MHz   Output power setting: 25 each port
Channel bandwidth: 20 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
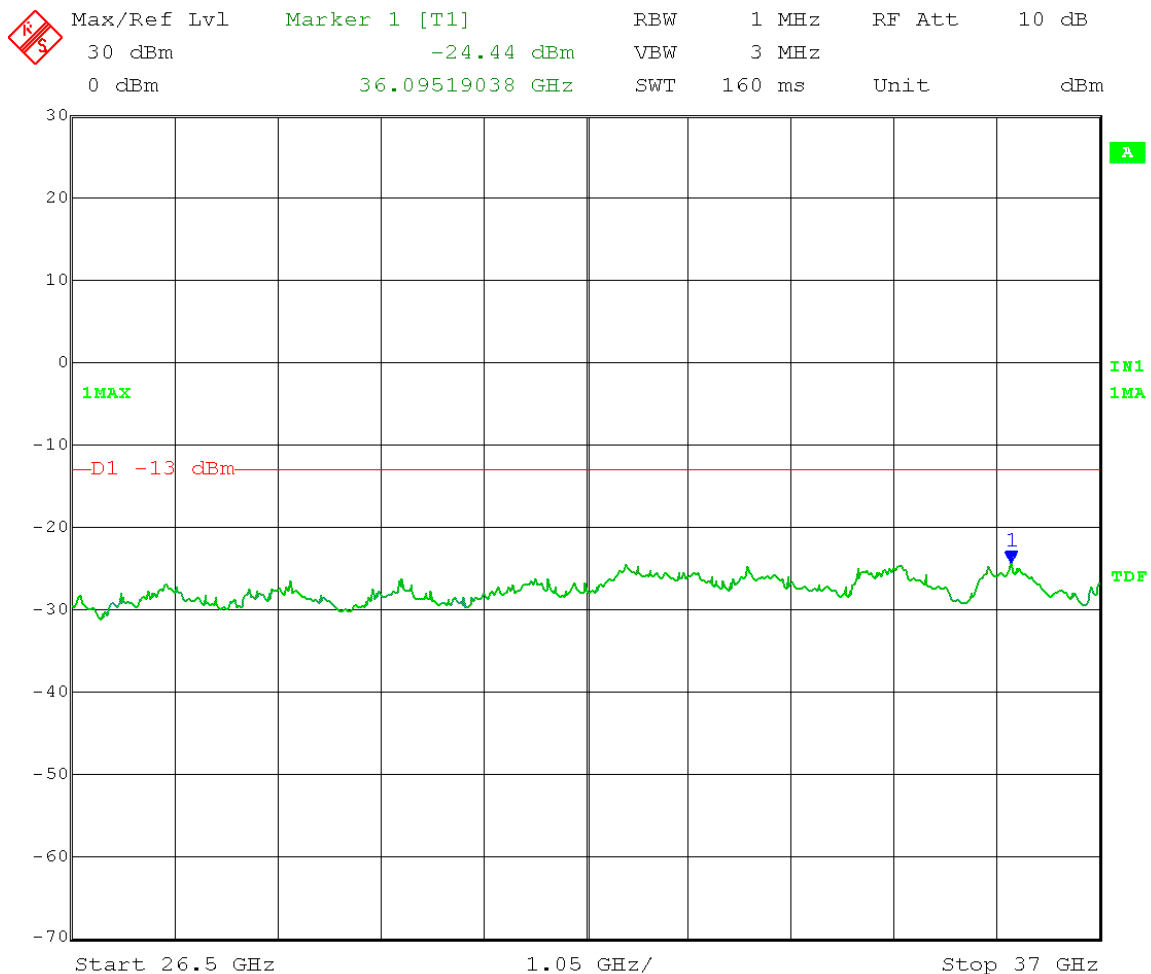   = -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-37.82 dBm	VBW	3 MHz		
0 dBm		22.27555110 GHz	SWT	86 ms	Unit	dBm

1MAX

D1 -13 dBm

Start 18 GHz   850 MHz/   Stop 26.5 GHz

Date: 21.FEB.2014   11:02:01

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
            Detector = Peak   Sweep = auto couple
            Trace = max hold
            Mid Channel: 3675 MHz   Output power setting: 25 each port
            Channel bandwidth: 20 MHz   Output port: A
            Limit: 43 + 10log (P) below the channel transmitter power
                  = -13 dBm/MHz

            Frequency Range: 26.5 – 37 GHz


```
Max/Ref Lvl     Marker 1 [T1]           RBW     1 MHz    RF Att     10 dB
 30 dBm                    -23.57 dBm    VBW     3 MHz
  0 dBm              34.66432866 GHz     SWT    160 ms    Unit          dBm
```

30 .... A

20

10

0 .... IN1
                                                                              1MA
1MAX

-10
─D1 ─13 dBm───

-20   1▼
                                                              TDF

-30

-40

-50

-60

-70
    Start 26.5 GHz   1.05 GHz/   Stop 37 GHz
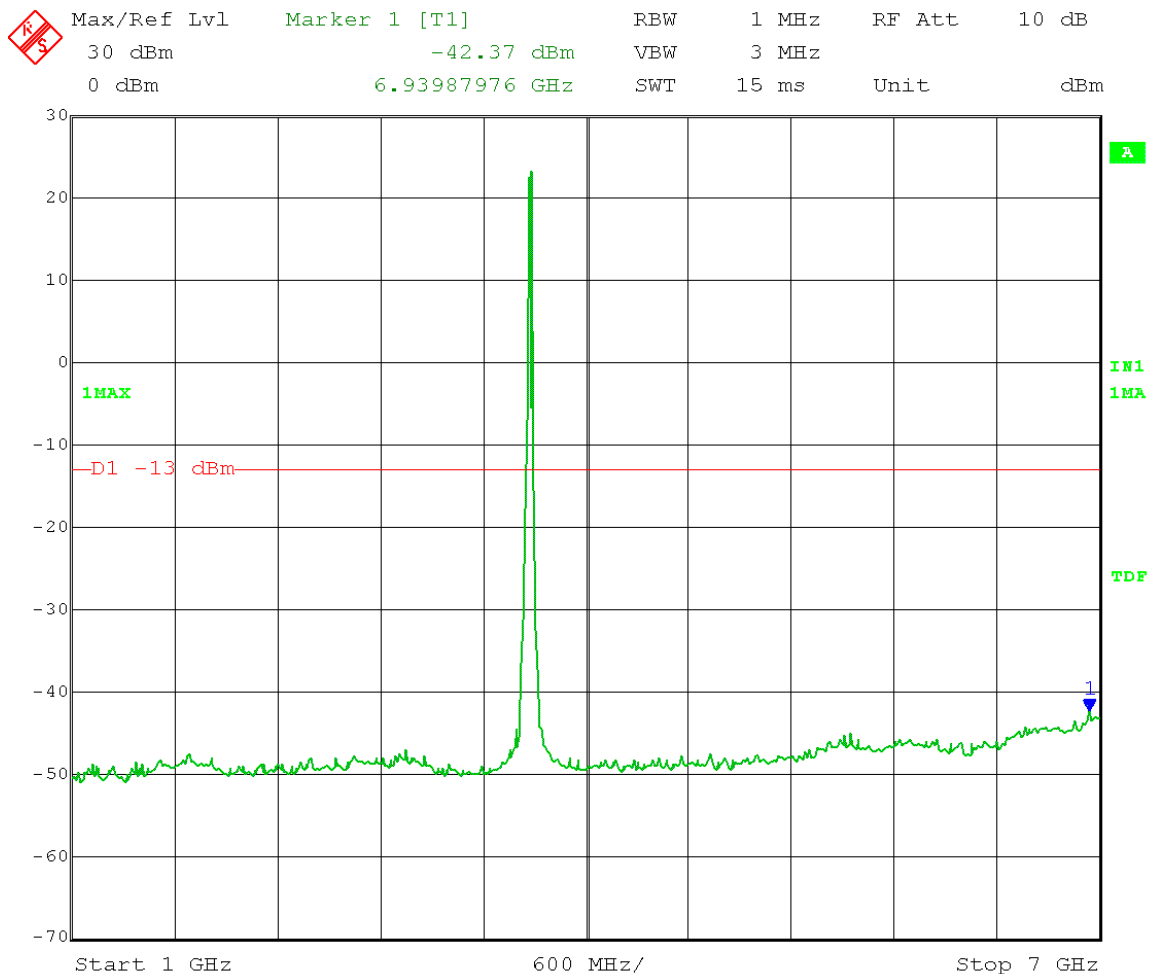
Date: 21.FEB.2014 11:04:01

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: 3690 MHz   Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
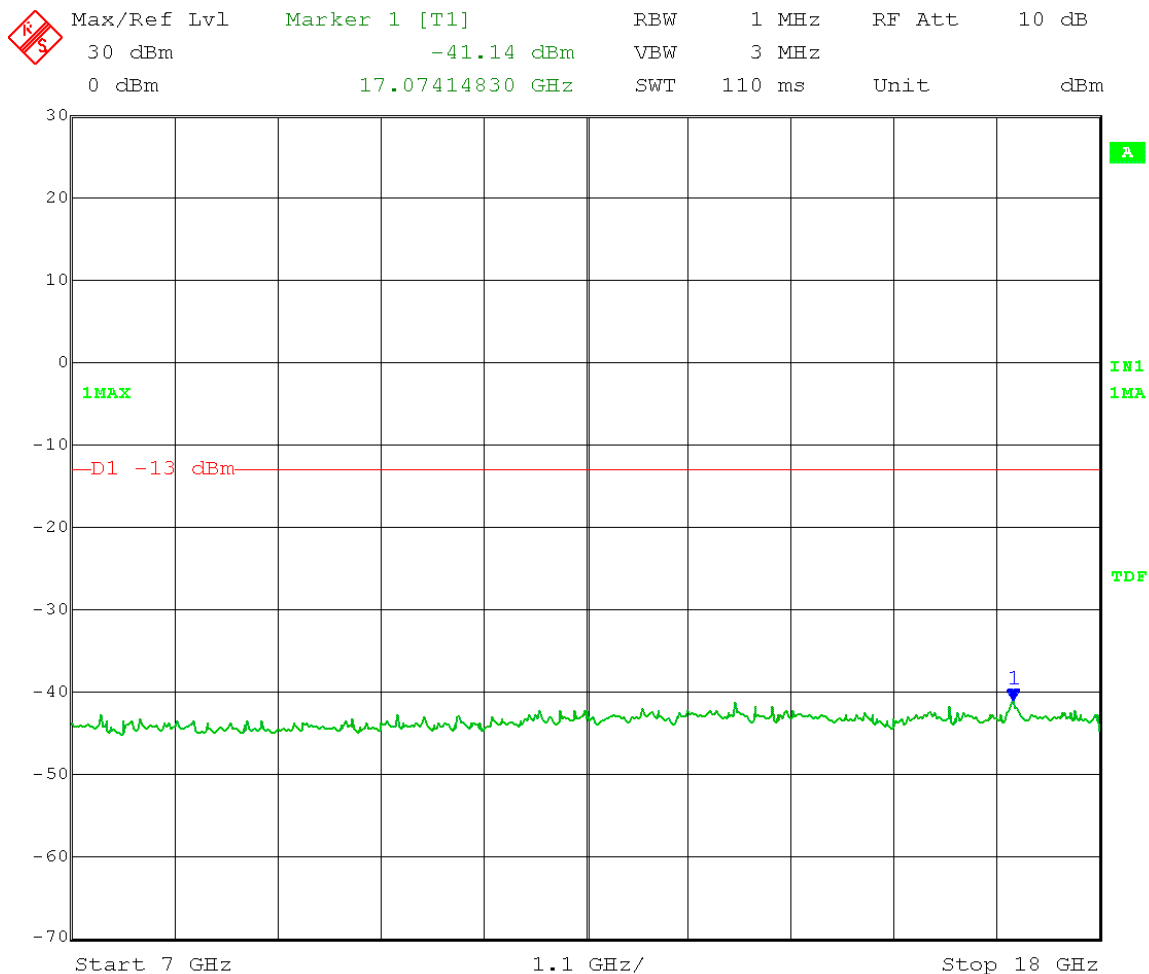   = -13 dBm/MHz

                Frequency Range: 30 – 1000 MHz

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: 3690 MHz   Output power setting: 25
               Channel bandwidth: 20 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power
                       = -13 dBm/MHz

               Frequency Range: 1 – 7 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-42.75 dBm	VBW	3 MHz		
0 dBm	7.00000000 GHz	SWT	15 ms	Unit	dBm

1VIEW

D1 -13 dBm

A

IN1
1MA

TDF

Start 1 GHz   600 MHz/   Stop 7 GHz
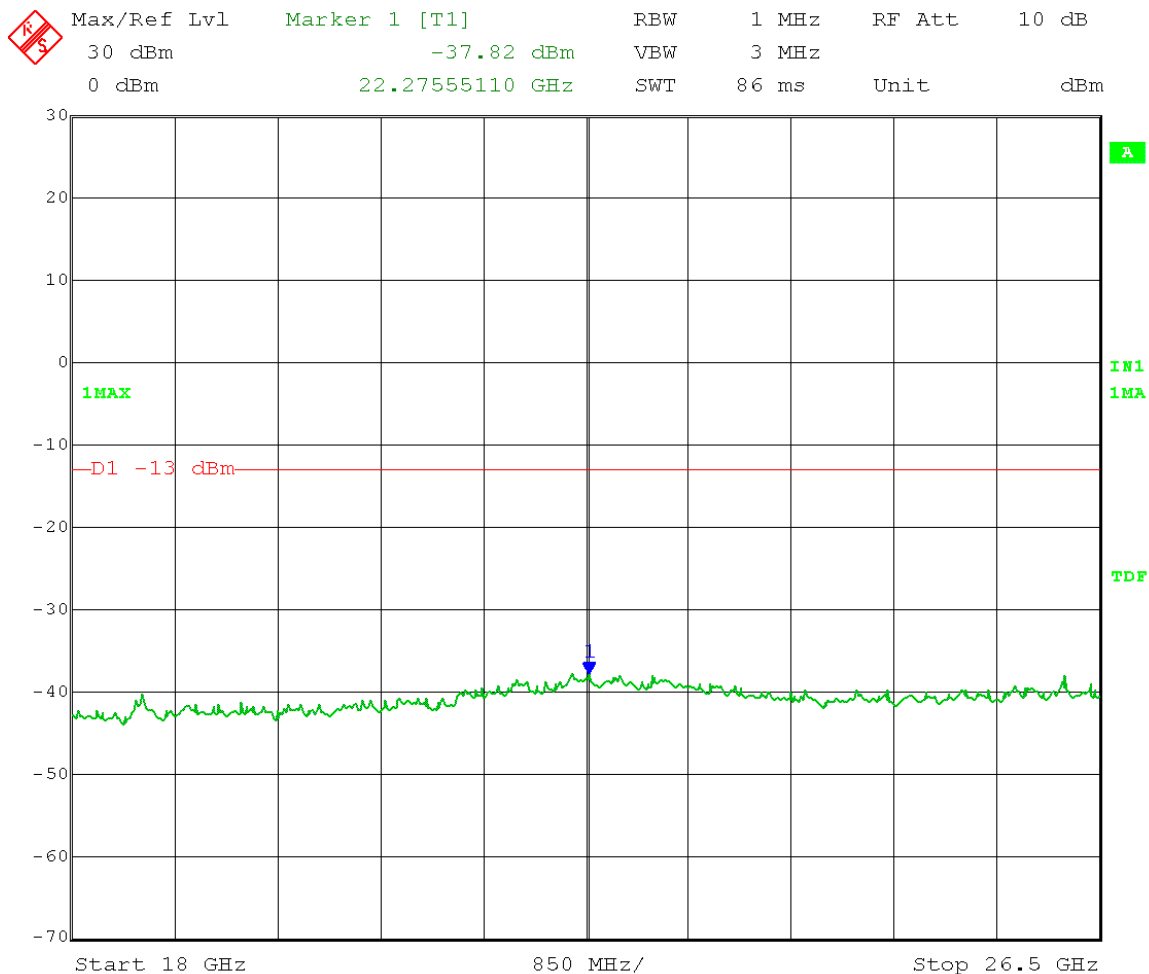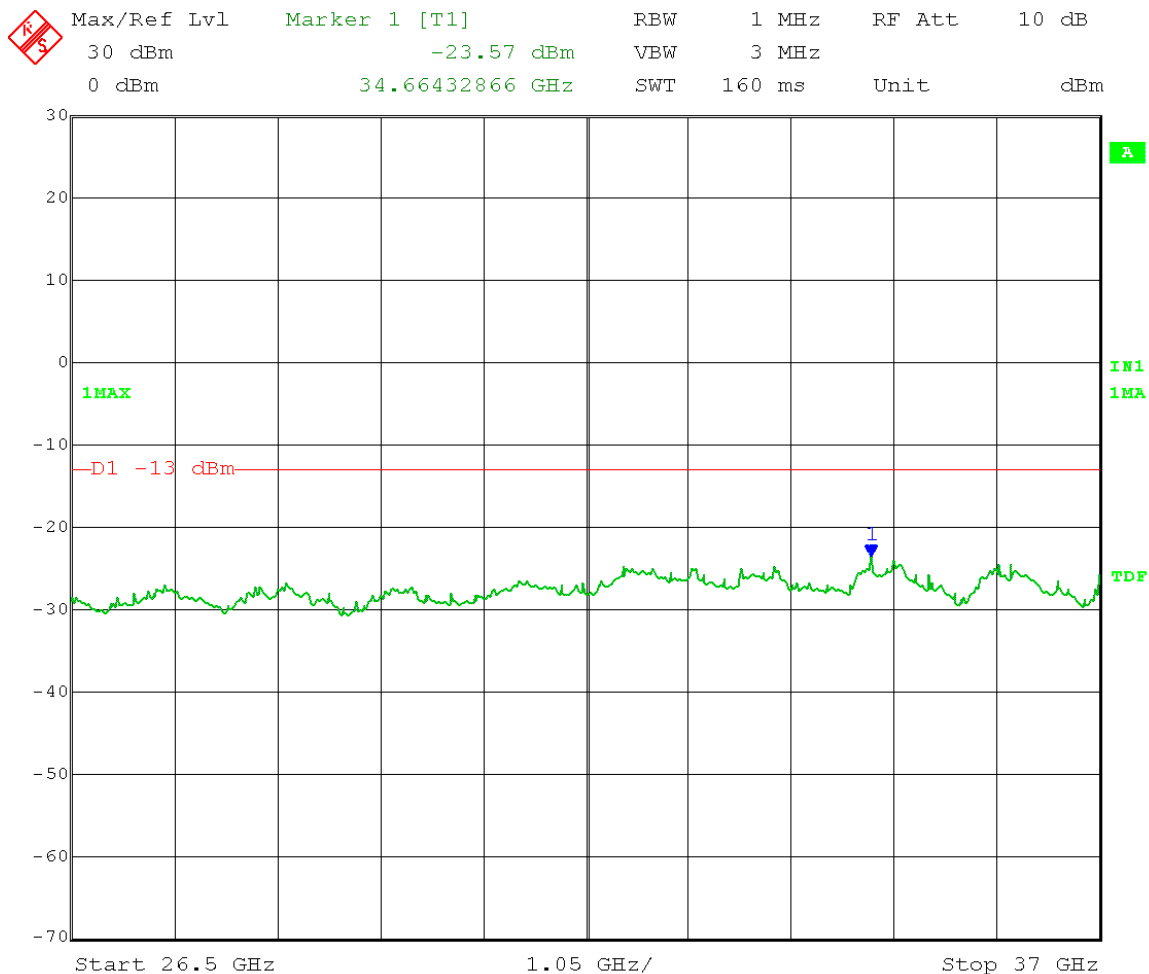
Date: 21.FEB.2014 11:10:19

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: 3690 MHz   Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
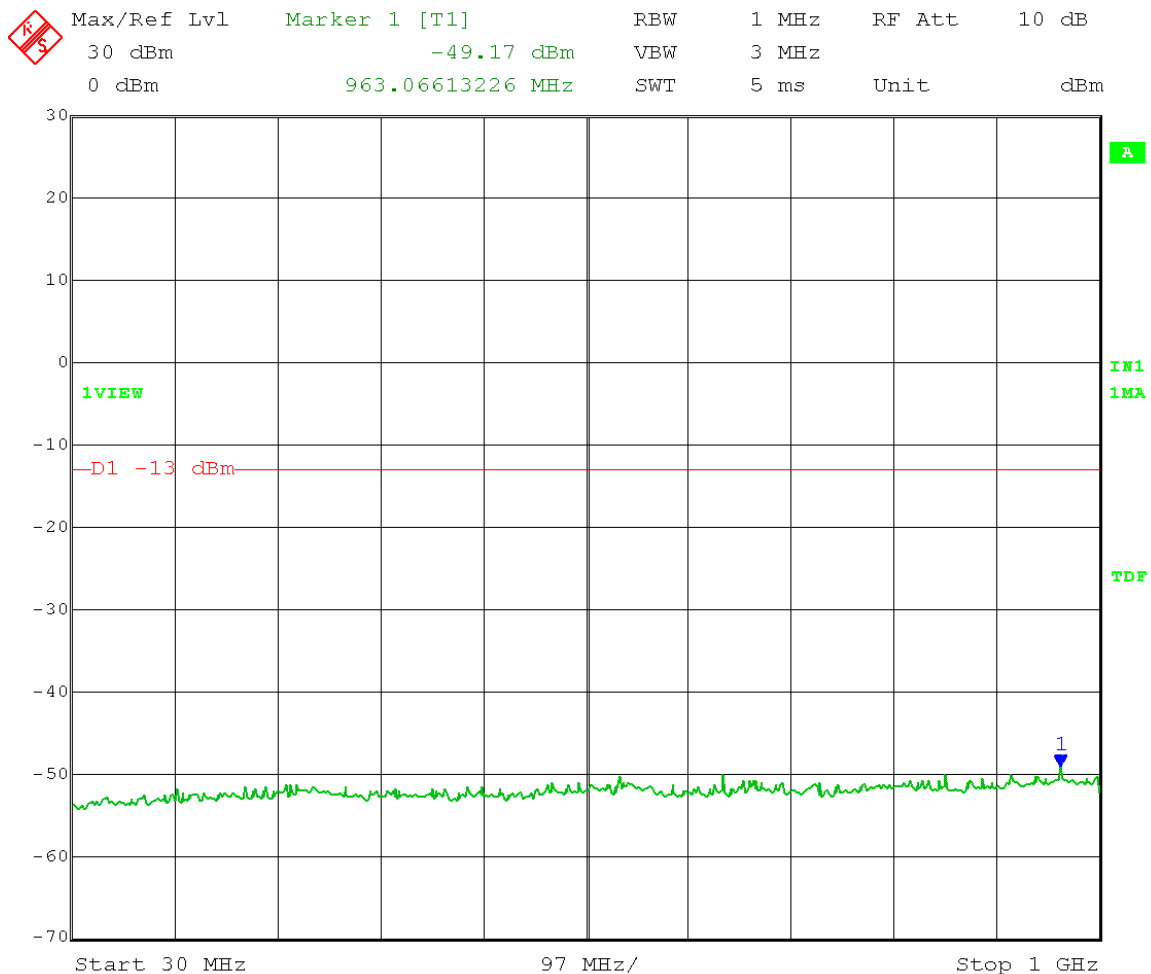   = -13 dBm/MHz

                Frequency Range: 7 – 18 GHz

```
Max/Ref Lvl      Marker 1 [T1]              RBW      1 MHz     RF Att     10 dB

 30 dBm                    -41.85 dBm        VBW      3 MHz

  0 dBm           17.07414830 GHz           SWT    110 ms     Unit        dBm
```



```
 30
                                                                             A
 20

 10

  0                                                                         IN1
1MAX                                                                        1MA

-10
 D1 -13 dBm

-20
                                                                            TDF

-30

                                                                     1
-40

-50

-60

-70
   Start 7 GHz              1.1 GHz/              Stop 18 GHz
```
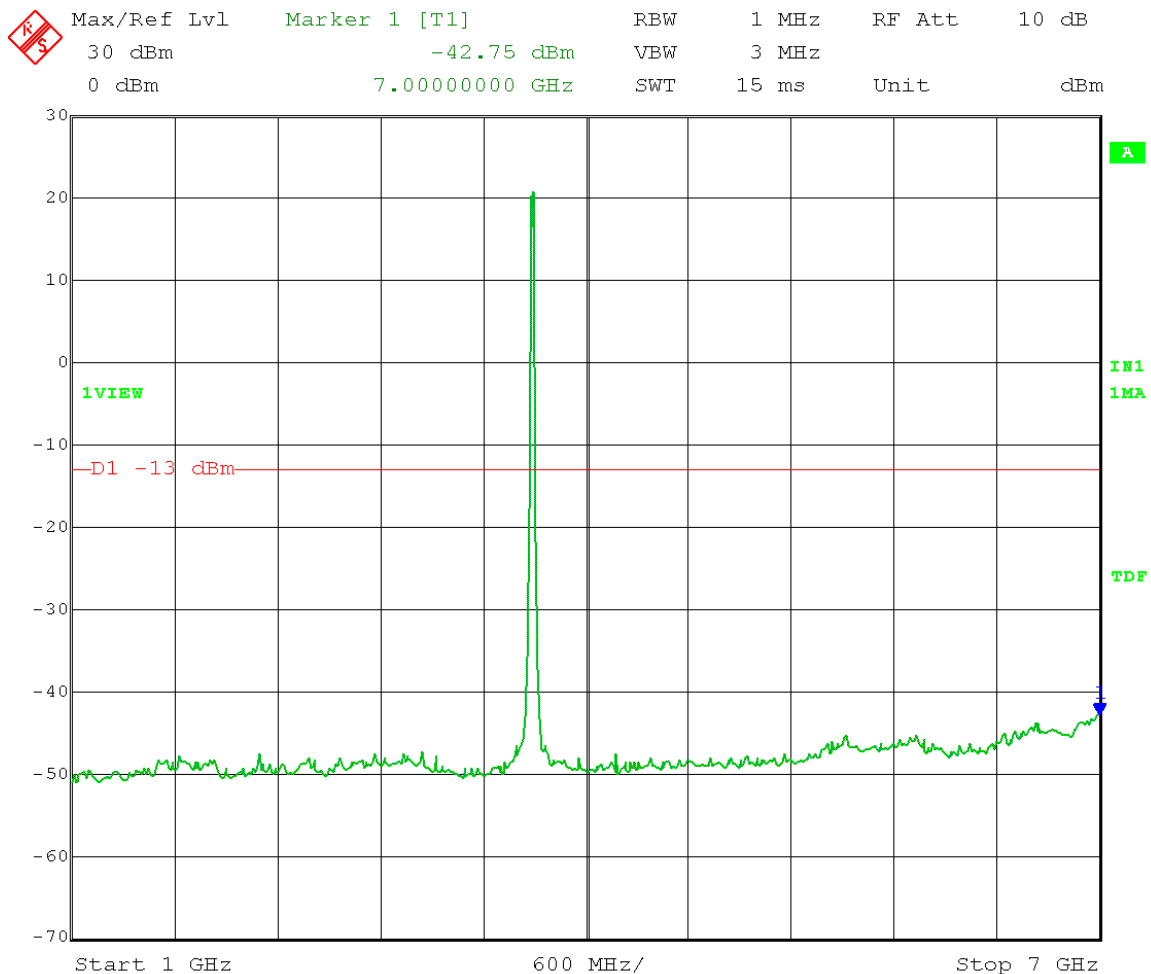
Date: 21.FEB.2014 11:11:36

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz VBW = 3 MHz
Detector = Peak Sweep = auto couple
Trace = max hold
High Channel: 3690 MHz Output power setting: 25
Channel bandwidth: 20 MHz Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

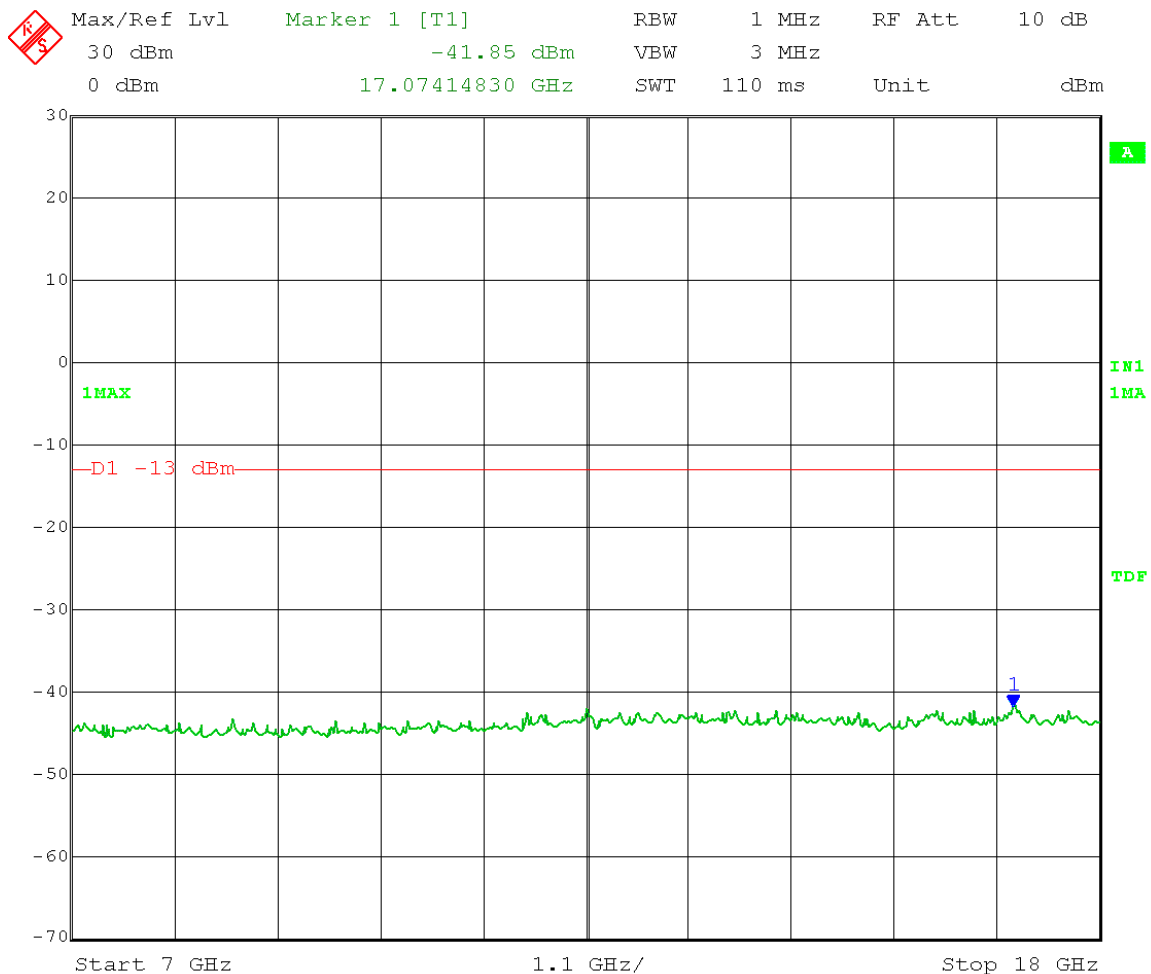| Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-37.50 dBm	VBW	3 MHz		
0 dBm		22.03707415 GHz	SWT	86 ms	Unit	dBm

Date: 21.FEB.2014 11:13:25

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: 3690 MHz   Output power setting: 25
Channel bandwidth: 20 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
      = -13 dBm/MHz
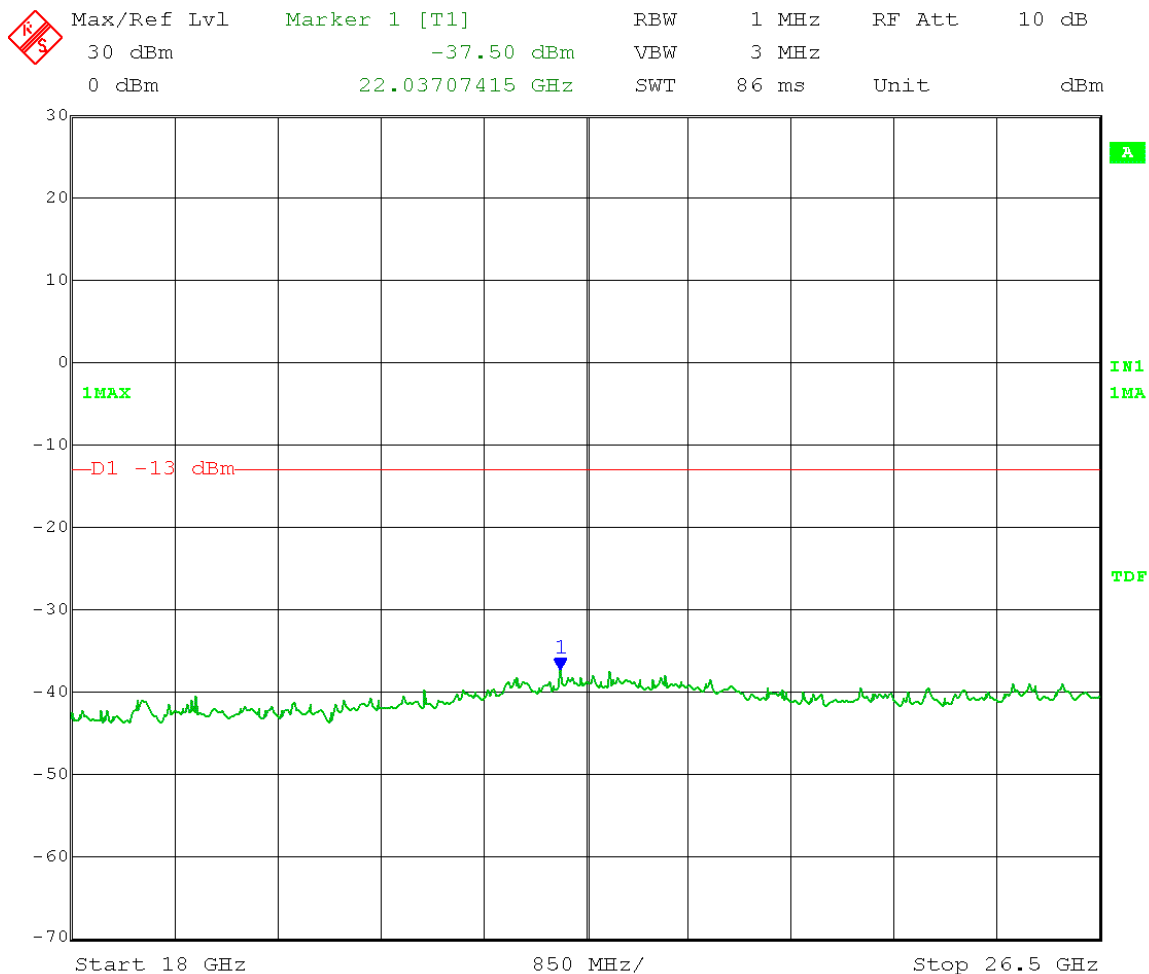
Frequency Range: 26.5 – 37 GHz

FCC Part 15.209 / FCC Part 2.1053

Electric Field Strength

```
EUT:                PMP450SM 3.65 GHz,  Model C036045C004A
Manufacturer:       Cambium Networks
Operating Condition: 66 deg. F; 20% R.H.
Test Site:          DLS O.F. Site 2
Operator:           Craig B
Test Specification: Transmitter Spuriuos emissions with 8 dBi integral patch ant
Comment:            L,M,H channels, 5,10,20 MHz ch BWs, powersetting 25
                    Date:  02-14-2014
```

TEXT: "Horz 3 meters"

```
   Short Description:            Test Set-up
```

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

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

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

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

                |        Final maximized level using Quasi-Peak detector

                X        Final maximized level using Average dector

                #        Final maximized level using Peak detector
```

Level [dBµV/m]
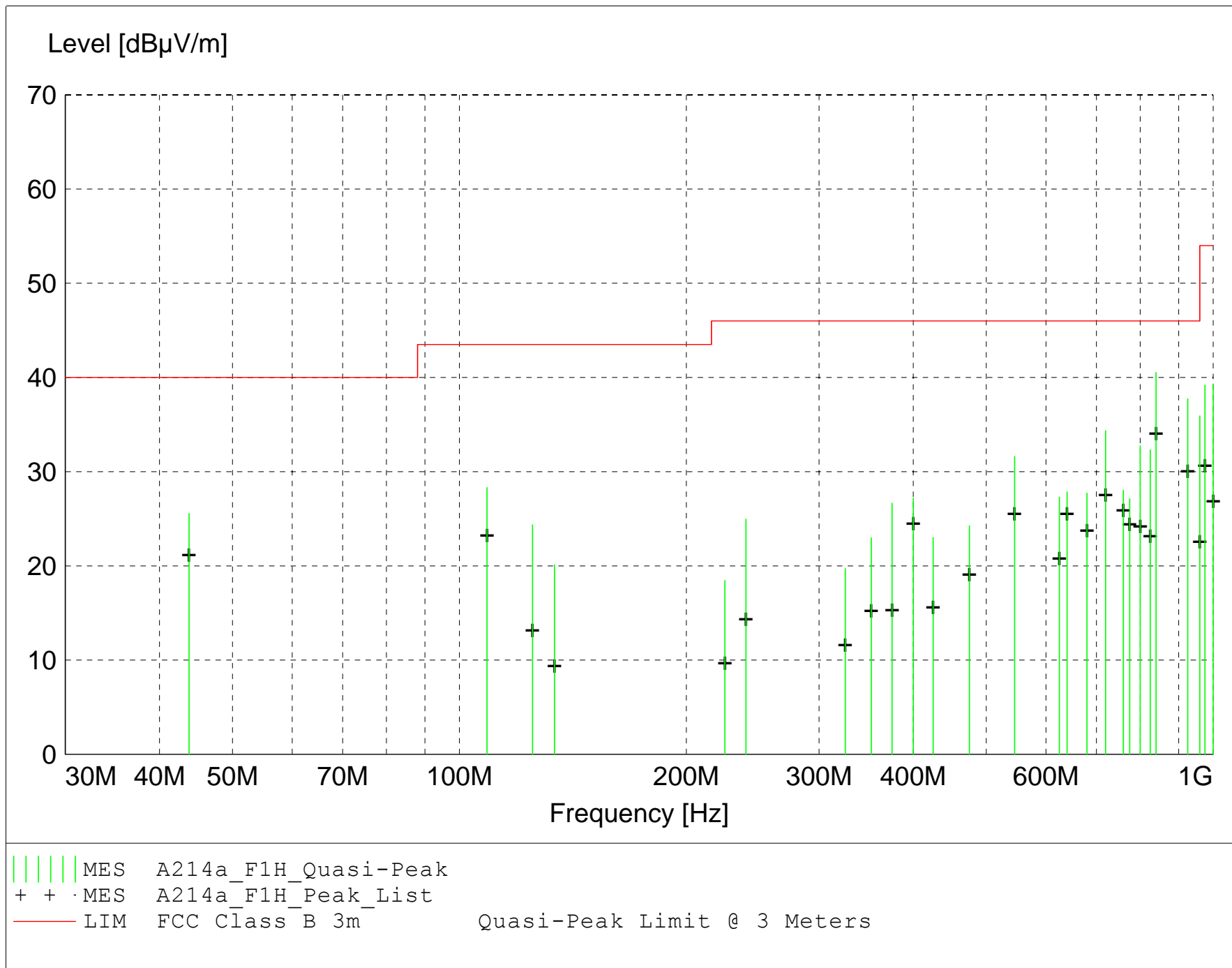
2/14/2014 12:51PM

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		
840.000000	36.13	22.40	-18.0	40.5	46.0	5.5	1.20	290	QUASI-PEAK	None
925.000000	31.97	23.50	-17.7	37.7	46.0	8.3	1.10	75	QUASI-PEAK	None
960.000000	29.46	23.70	-17.2	35.9	46.0	10.1	1.10	125	QUASI-PEAK	None
720.000000	32.35	21.40	-19.4	34.4	46.0	11.6	1.00	0	QUASI-PEAK	None
800.000000	29.34	21.70	-18.3	32.7	46.0	13.3	2.00	80	QUASI-PEAK	None
825.000000	28.10	22.10	-17.9	32.3	46.0	13.7	1.00	270	QUASI-PEAK	None
545.050000	33.65	18.20	-20.2	31.6	46.0	14.4	1.30	315	QUASI-PEAK	broadband
43.785000	37.56	11.98	-24.0	25.6	40.0	14.4	2.70	90	QUASI-PEAK	broadband
1000.000000	31.59	24.60	-16.9	39.3	54.0	14.7	1.10	0	QUASI-PEAK	None
975.000000	32.56	23.90	-17.3	39.2	54.0	14.8	1.10	0	QUASI-PEAK	None
108.780000	39.67	11.70	-23.1	28.3	43.5	15.2	3.00	225	QUASI-PEAK	broadband
760.000000	25.22	21.50	-18.7	28.0	46.0	18.0	1.00	5	QUASI-PEAK	None
640.000000	28.07	19.70	-19.9	27.9	46.0	18.1	1.00	270	QUASI-PEAK	None
680.000000	26.41	20.90	-19.6	27.7	46.0	18.3	1.00	0	QUASI-PEAK	None
625.000000	27.85	19.40	-20.0	27.3	46.0	18.7	1.20	80	QUASI-PEAK	None
400.000000	32.44	15.90	-21.2	27.2	46.0	18.8	2.00	45	QUASI-PEAK	None
775.000000	24.04	21.60	-18.5	27.1	46.0	18.9	1.00	60	QUASI-PEAK	None
125.000000	34.45	12.90	-23.0	24.4	43.5	19.1	2.60	95	QUASI-PEAK	None
375.000000	32.81	15.20	-21.4	26.7	46.0	19.3	1.00	180	QUASI-PEAK	None
240.000000	35.01	12.00	-22.0	25.0	46.0	21.0	1.00	225	QUASI-PEAK	None
475.000000	27.44	17.40	-20.6	24.3	46.0	21.7	2.00	30	QUASI-PEAK	None
425.000000	27.56	16.50	-21.0	23.0	46.0	23.0	1.00	0	QUASI-PEAK	None
351.880000	29.45	14.90	-21.4	23.0	46.0	23.0	1.00	180	QUASI-PEAK	None
133.705000	30.46	12.60	-22.9	20.1	43.5	23.4	2.70	120	QUASI-PEAK	None
325.000000	26.79	14.60	-21.7	19.7	46.0	26.3	1.00	45	QUASI-PEAK	None
225.000000	29.43	11.30	-22.3	18.5	46.0	27.5	1.00	0	QUASI-PEAK	None

FCC Part 15.209 / FCC Part 2.1053

Electric Field Strength

```
EUT:                 PMP450SM 3.65 GHz,  Model C036045C004A
Manufacturer:        Cambium Networks
Operating Condition: 66 deg. F; 20% R.H.
Test Site:           DLS O.F. Site 2
Operator:            Craig B
Test Specification:  Transmitter Spuriuos emissions with 8 dBi integral patch ant
Comment:             L,M,H channels, 5,10,20 MHz ch BWs, powersetting 25
                     Date:  02-14-2014
```

TEXT: "Vert 3 meters"

```
  Short Description:            Test Set-up


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


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

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


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

                |       Final maximized level using Quasi-Peak detector

                X       Final maximized level using Average dector

                #       Final maximized level using Peak detector
```

Level [dBµV/m]

MES   A214a_F1V_Quasi-Peak
+ + · MES   A214a_F1V_Peak_List
—— LIM   FCC Class B 3m   Quasi-Peak Limit @ 3 Meters

MEASUREMENT RESULT: "A214a_F1V_Final"

2/14/2014 11:41AM

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		
108.790000	54.13	11.70	-23.1	42.8	43.5	0.7	1.00	100	QUASI-PEAK	broadband
30.625000	51.77	11.31	-24.3	38.8	40.0	1.2	1.00	30	QUASI-PEAK	broadband
43.765000	48.53	11.98	-24.0	36.5	40.0	3.5	1.00	180	QUASI-PEAK	broadband
920.000000	36.65	23.50	-17.8	42.3	46.0	3.7	1.30	350	QUASI-PEAK	None
66.220000	48.17	8.33	-23.6	32.9	40.0	7.1	1.00	45	QUASI-PEAK	broadband
840.000000	33.75	22.40	-18.0	38.1	46.0	7.9	1.10	30	QUASI-PEAK	None
925.000000	32.32	23.50	-17.7	38.1	46.0	7.9	1.20	350	QUASI-PEAK	None
69.125000	45.98	7.55	-23.6	30.0	40.0	10.0	1.00	315	QUASI-PEAK	broadband
800.000000	29.65	21.70	-18.3	33.1	46.0	12.9	1.30	10	QUASI-PEAK	None
555.500000	34.68	18.61	-20.4	32.9	46.0	13.1	1.20	270	QUASI-PEAK	None
960.000000	25.14	23.70	-17.2	31.6	46.0	14.4	1.20	20	QUASI-PEAK	None
125.000000	38.36	12.90	-23.0	28.3	43.5	15.2	1.00	100	QUASI-PEAK	None
640.000000	29.75	19.70	-19.9	29.5	46.0	16.5	1.00	90	QUASI-PEAK	None
148.135000	37.03	12.00	-22.8	26.2	43.5	17.3	1.00	180	QUASI-PEAK	broadband
1000.000000	28.62	24.60	-16.9	36.3	54.0	17.7	1.30	10	QUASI-PEAK	None
525.000000	29.61	18.40	-20.3	27.7	46.0	18.3	1.00	0	QUASI-PEAK	None
375.000000	33.77	15.20	-21.4	27.6	46.0	18.4	1.70	225	QUASI-PEAK	None
975.000000	28.64	23.90	-17.3	35.3	54.0	18.7	1.30	0	QUASI-PEAK	None
720.000000	24.38	21.40	-19.4	26.4	46.0	19.6	1.00	80	QUASI-PEAK	None
250.000000	34.46	12.40	-22.1	24.8	46.0	21.2	1.00	0	QUASI-PEAK	None
475.000000	27.55	17.40	-20.6	24.4	46.0	21.6	1.00	100	QUASI-PEAK	None
351.860000	30.72	14.90	-21.4	24.3	46.0	21.7	1.00	20	QUASI-PEAK	None
270.340000	29.81	13.31	-21.9	21.3	46.0	24.7	1.00	110	QUASI-PEAK	None
466.520000	24.41	17.30	-20.7	21.0	46.0	25.0	1.00	190	QUASI-PEAK	None

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25.
5 MHz channel BW; Modulation: QPSK
Low channel center frequency: 3652.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.610 vertical	67.06	-42.25	8.79	11.77	-39.27	-13	26.27
14.610 horizontal	71.36	-36.72	8.79	11.77	-33.74	-13	20.74

EIRP = Signal generator output - cable loss + antenna gain
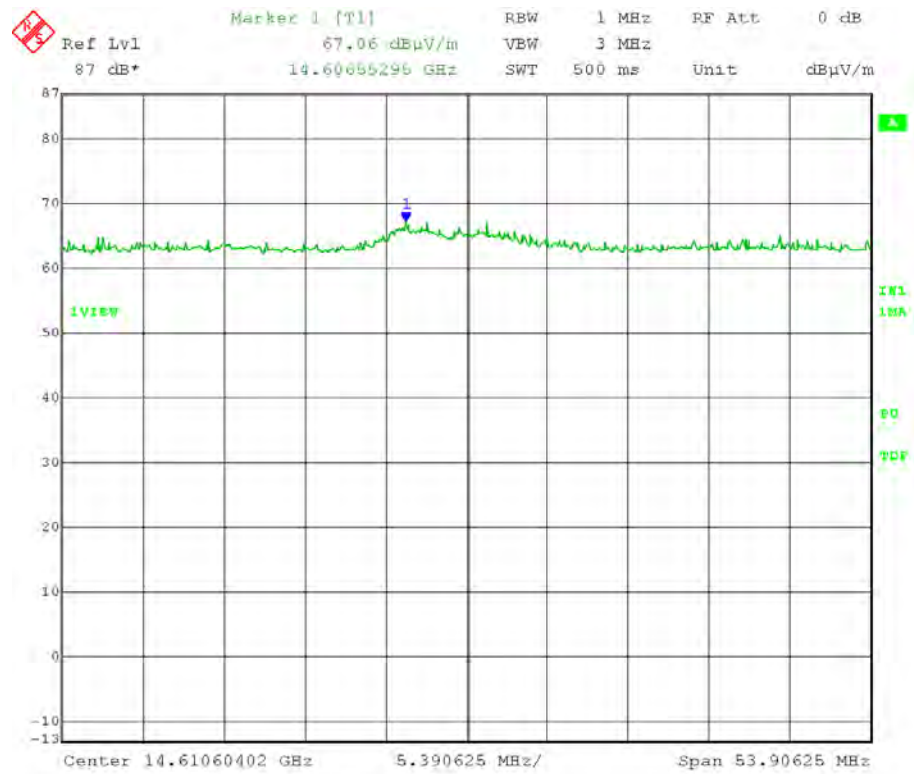
Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
5 MHz channel BW; Modulation: QPSK
Low channel center frequency: 3652.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.2625 vertical	67.93	-43.16	9.87	15.18	-37.85	-13	24.85
18.2625 horizontal	68.57	-42.13	9.87	15.18	-36.82	-13	23.82

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   67.93 dBμV/m   VBW   3 MHz
87 dB*   18.26475451 GHz   SWT   200 ms   Unit   dBμV/m

Center 18.2625 GHz   5 MHz/   Span 50 MHz

Date: 25.FEB.2014   10:09:41

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   68.57 dBμV/m   VBW   3 MHz
87 dB*   18.26475451 GHz   SWT   200 ms   Unit   dBμV/m

Center 18.2625 GHz   5 MHz/   Span 50 MHz

Date: 25.FEB.2014   09:37:16

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
5 MHz channel BW; Modulation: QPSK
Low channel center frequency: 3652.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

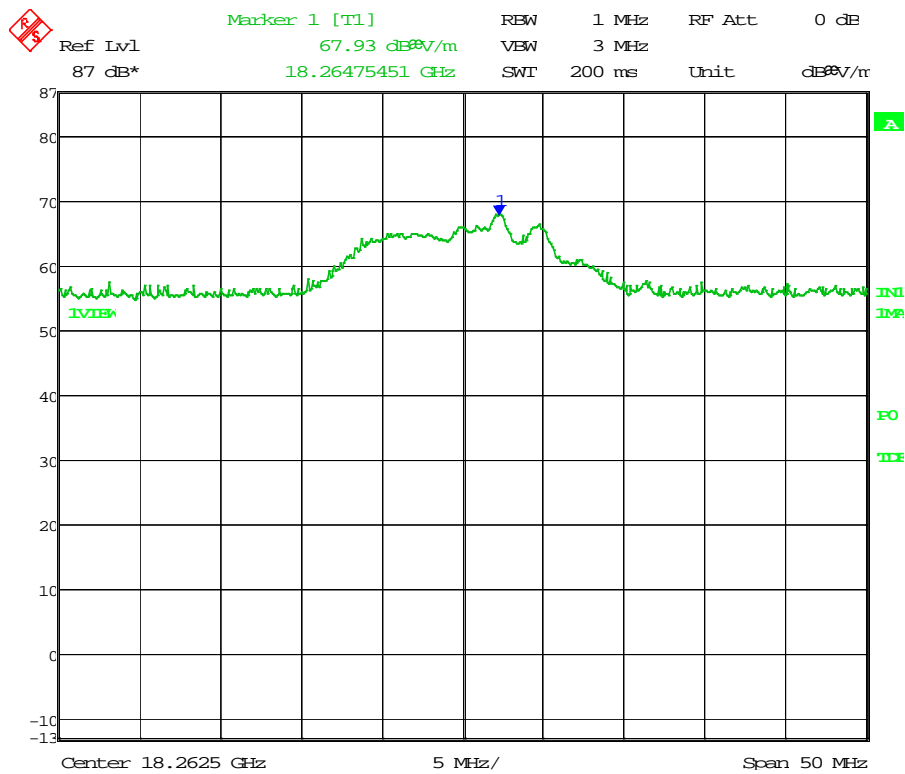**NOTE: NO EMISSIONS FOUND 26 to 37 GHz**

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
5 MHz channel BW; Modulation: QPSK
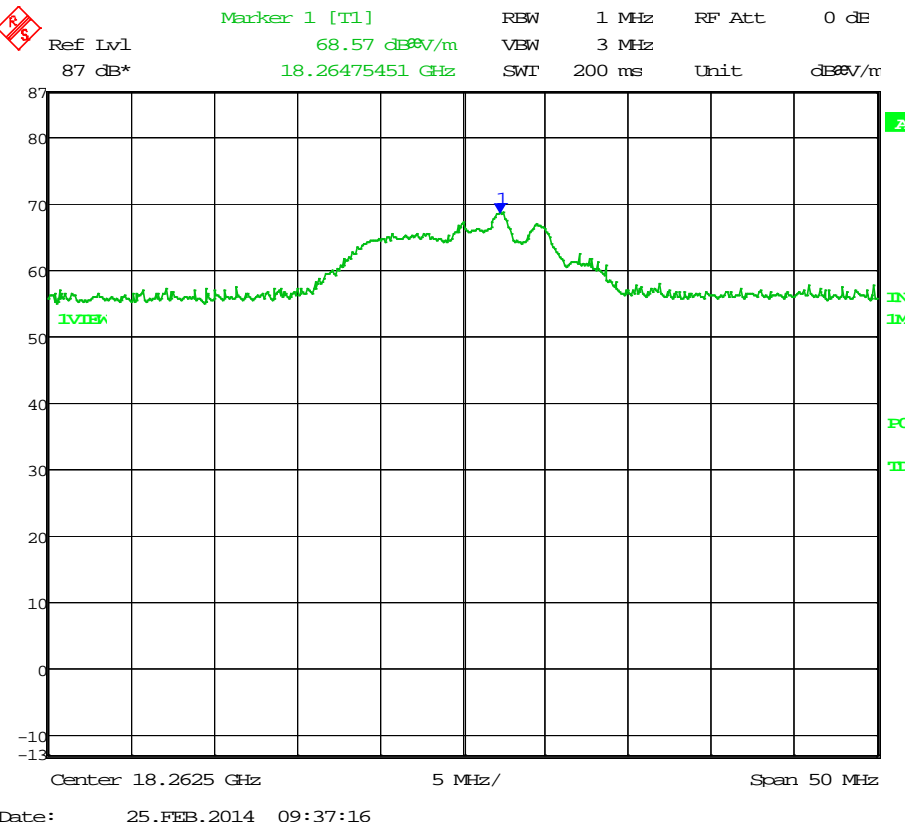Mid channel center frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.700 vertical	76.16	-33.42	8.83	12.10	-30.15	-13	17.15
14.700 horizontal	79.41	-29.11	8.83	12.10	-25.84	-13	12.84

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
5 MHz channel BW; Modulation: QPSK
Mid channel center frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.375 vertical	69.89	-41.94	9.91	15.18	-36.67	-13	23.67
18.375 horizontal	73.21	-38.37	9.91	15.18	-33.10	-13	20.10

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

	Marker 1 [T1]		RBW	1 MHz	RF Att	0 dE
Ref Lvl		69.89 dBµV/m	VBW	3 MHz		
87 dB*		18.37234469 GHz	SWT	200 ms	Unit	dBµV/m

Center 18.375 GHz   5 MHz/   Span 50 MHz

Date: 25.FEB.2014 10:00:28

Horizontal:

	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dE
Ref Lvl		73.21 dBµV/m	VBW	3 MHz		
87 dB*		18.37094188 GHz	SWT	200 ms	Unit	dBµV/m

Center 18.375 GHz   5 MHz/   Span 50 MHz

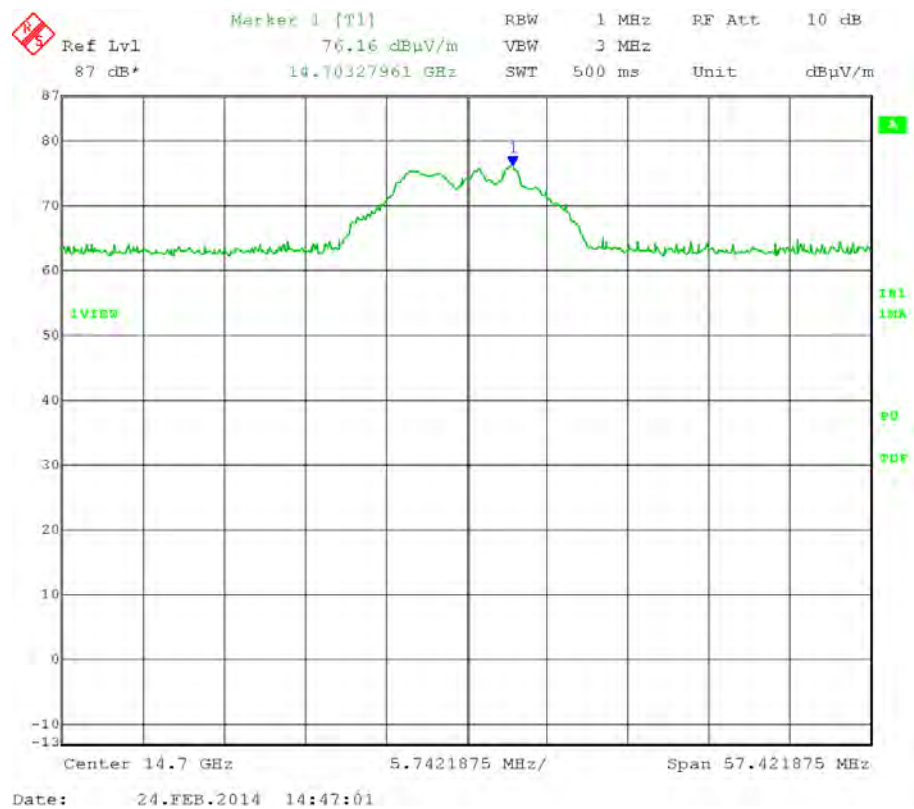Date: 25.FEB.2014 09:50:47

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
               5 MHz channel BW; Modulation: QPSK
               Mid channel center frequency: 3675 MHz
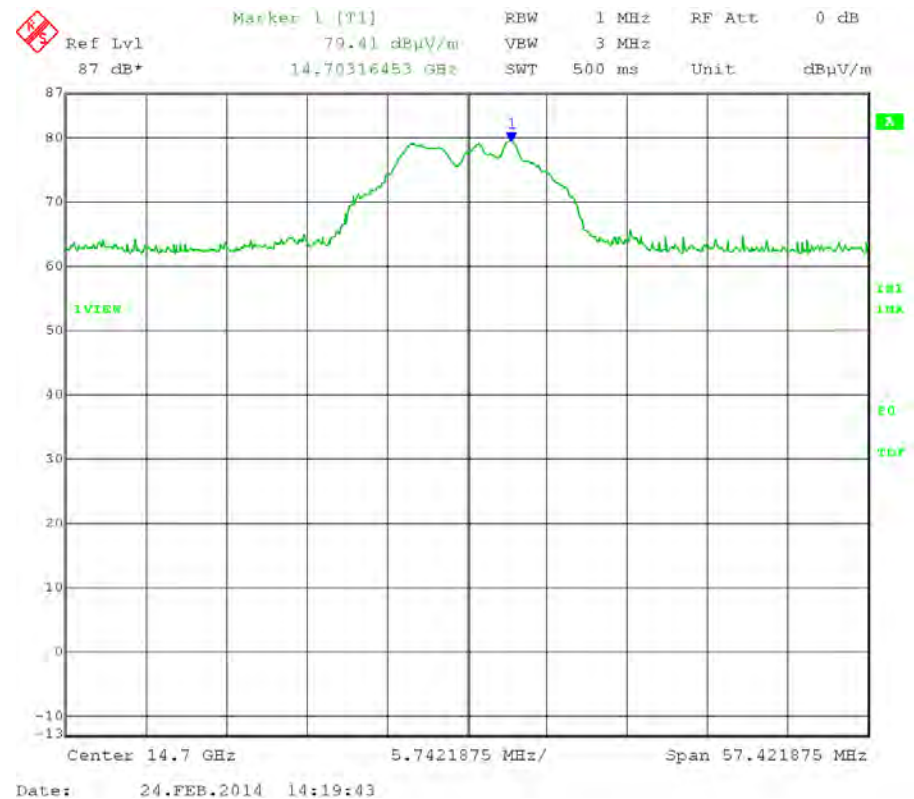
Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
33.075 vertical	71.33	-45.06	13.67	19.75	-38.98	-13	25.98
33.075 horizontal	71.76	-44.37	13.67	19.75	-38.29	-13	25.29

EIRP = Signal generator output - cable loss + antenna gain
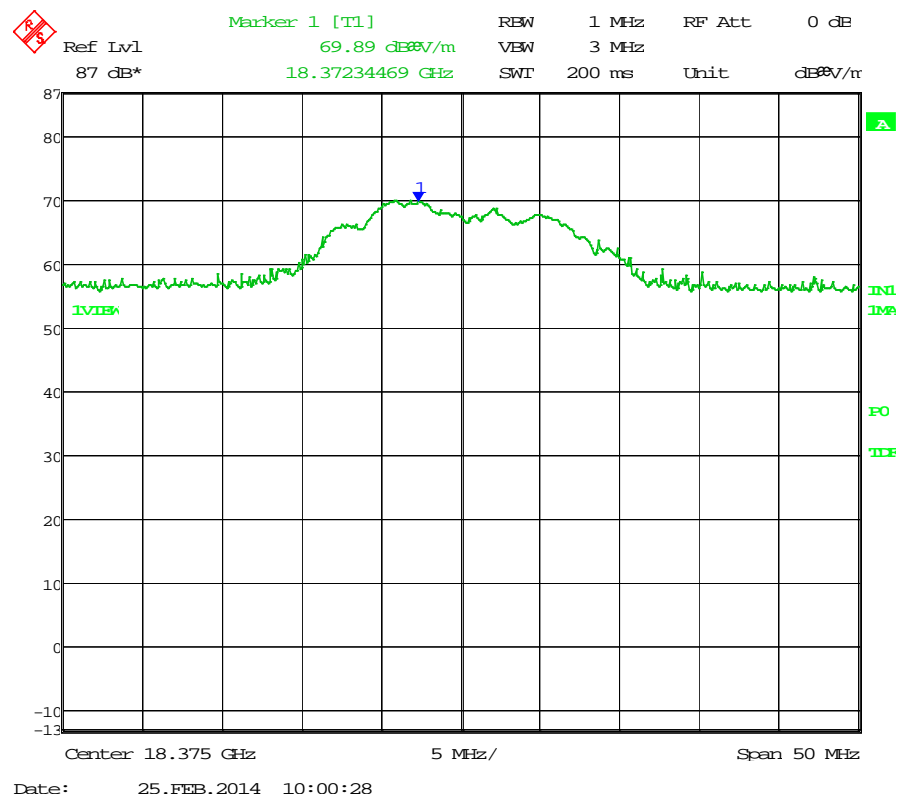
Vertical:

Horizontal:

Test Date: 02-18-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25.
         5 MHz channel BW; Modulation: QPSK
         High channel center frequency: 3697.5 MHz
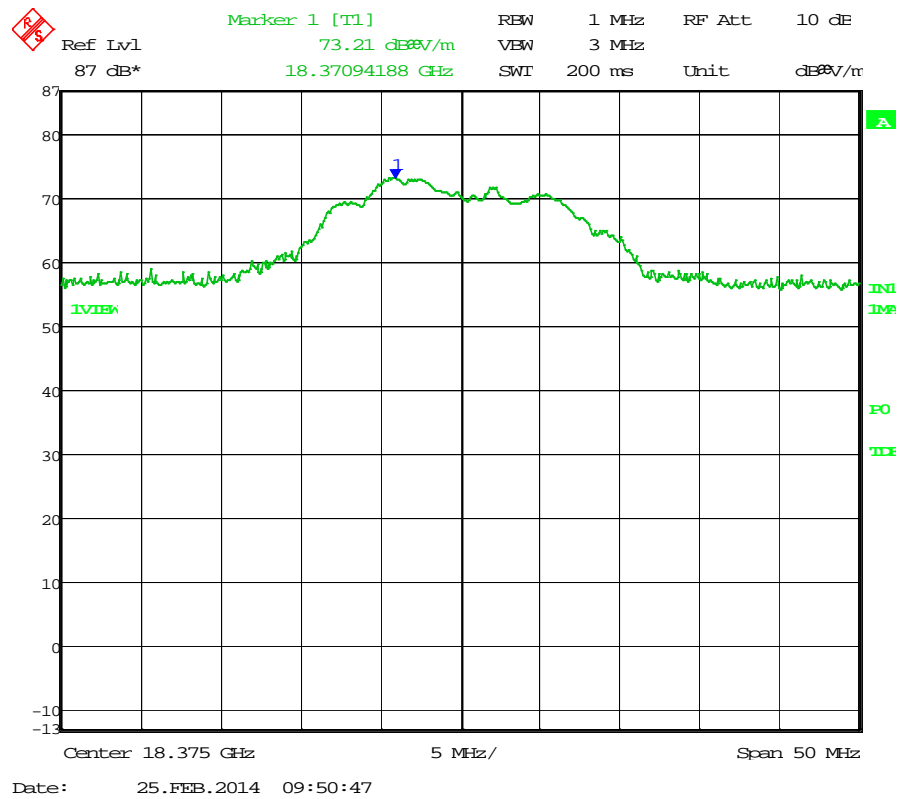
Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.790 vertical	67.10	-41.23	8.83	12.57	-37.49	-13	24.49
14.790 horizontal	68.18	-38.98	8.83	12.57	-35.24	-13	22.24

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
      5 MHz channel BW; Modulation: QPSK
      High channel center frequency: 3697.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.4875 vertical	noise floor						
18.4875 horizontal	65.07	-46.20	9.94	15.18	-40.96	-13	27.96

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

	Marker 1 [T1]		RBW	1 MHz	RF Att 10 dB
Ref Lvl	65.07 dBµV/m		VBW	3 MHz	
87 dB*	18.48985471 GHz		SWT	200 ms	Unit dBµV/m

Center 18.4875 GHz   5 MHz/   Span 50 MHz
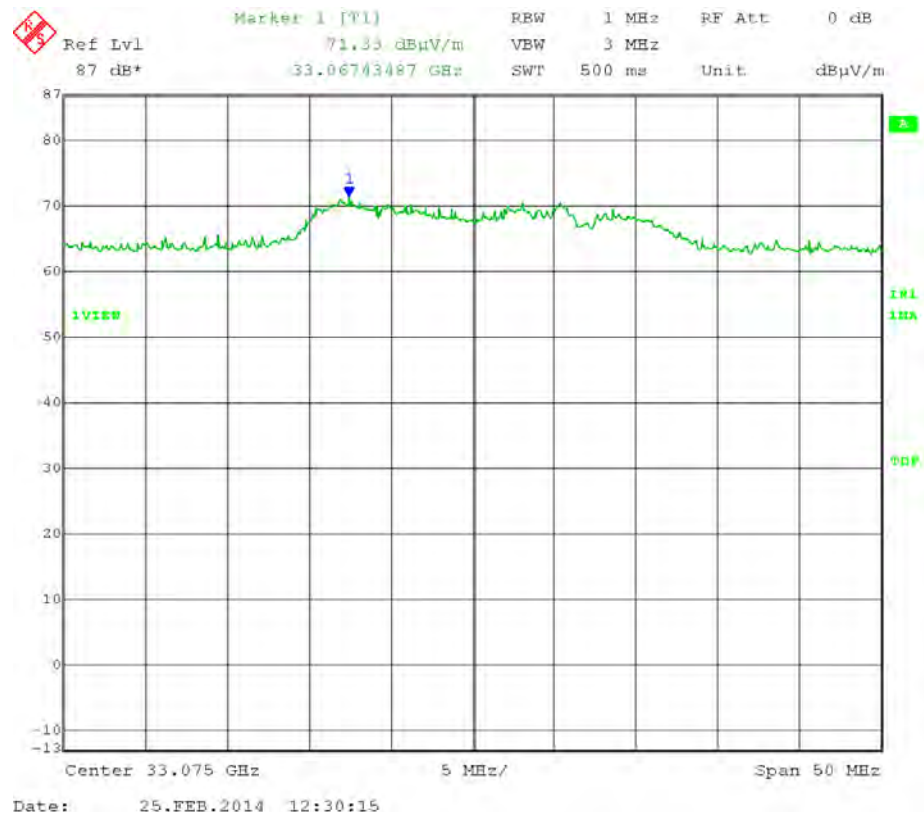
Date: 25.FEB.2014   09:46:35

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
5 MHz channel BW; Modulation: QPSK
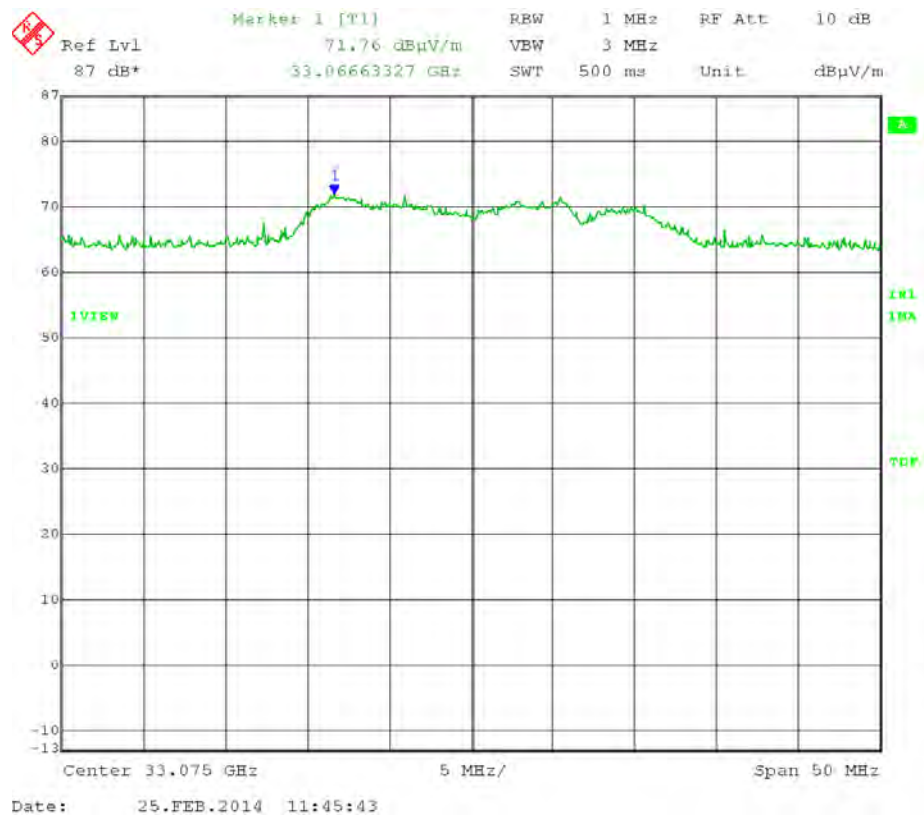High channel center frequency: 3697.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

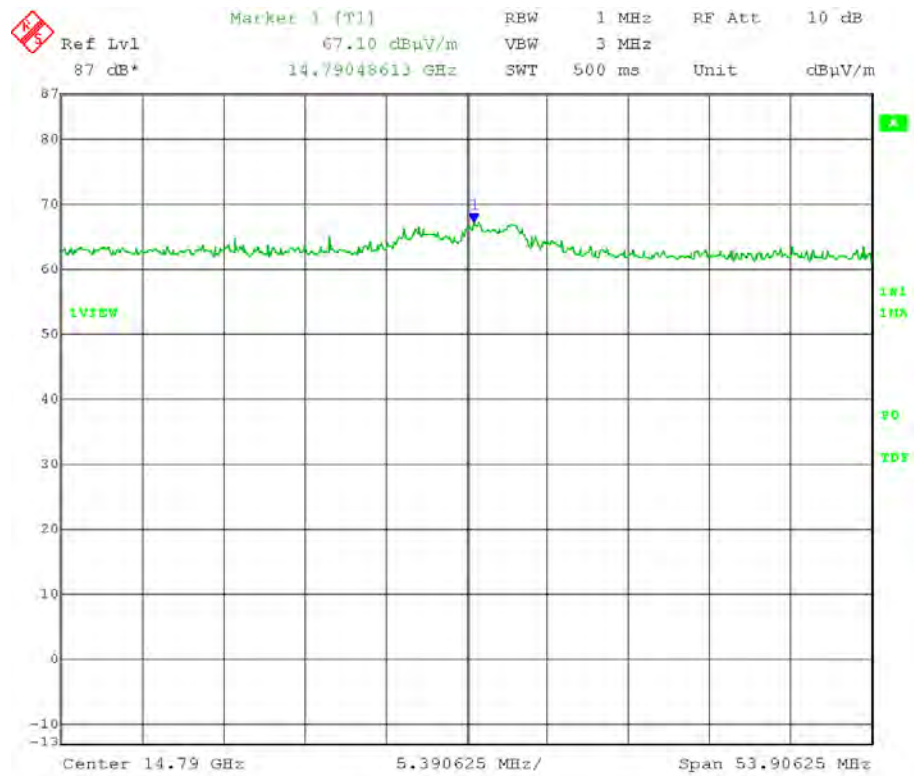**NOTE: NO EMISSIONS FOUND 26 to 37 GHz**

Test Date: 02-24-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25.
              10 MHz channel BW; Modulation: QPSK
              Low channel center frequency: 3655 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.620 vertical	noise floor						
14.620 horizontal	68.57	-38.58	8.79	11.77	-35.60	-13	22.60

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB

Ref Lvl   68.57 dBμV/m   VBW   3 MHz

87 dB*   14.62664376 GHz   SWT   500 ms   Unit   dBμV/m

A

1VIEW

IN1
1MA

PO

TDF

Center 14.62 GHz   5.390625 MHz/   Span 53.90625 MHz

Date: 24.FEB.2014   15:19:35

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
10 MHz channel BW; Modulation: QPSK
Low channel center frequency: 3655 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.275 vertical	63.57	-47.87	9.87	15.18	-42.56	-13	29.56
18.275 horizontal	65.60	-45.51	9.87	15.18	-40.20	-13	27.20

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
               10 MHz channel BW; Modulation: QPSK
               Low channel center frequency: 3655 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-24-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
10 MHz channel BW; Modulation: QPSK
Mid channel center frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.700 vertical	74.20	-35.38	8.83	12.10	-32.11	-13	19.11
14.700 horizontal	76.85	-31.67	8.83	12.10	-28.40	-13	15.40

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

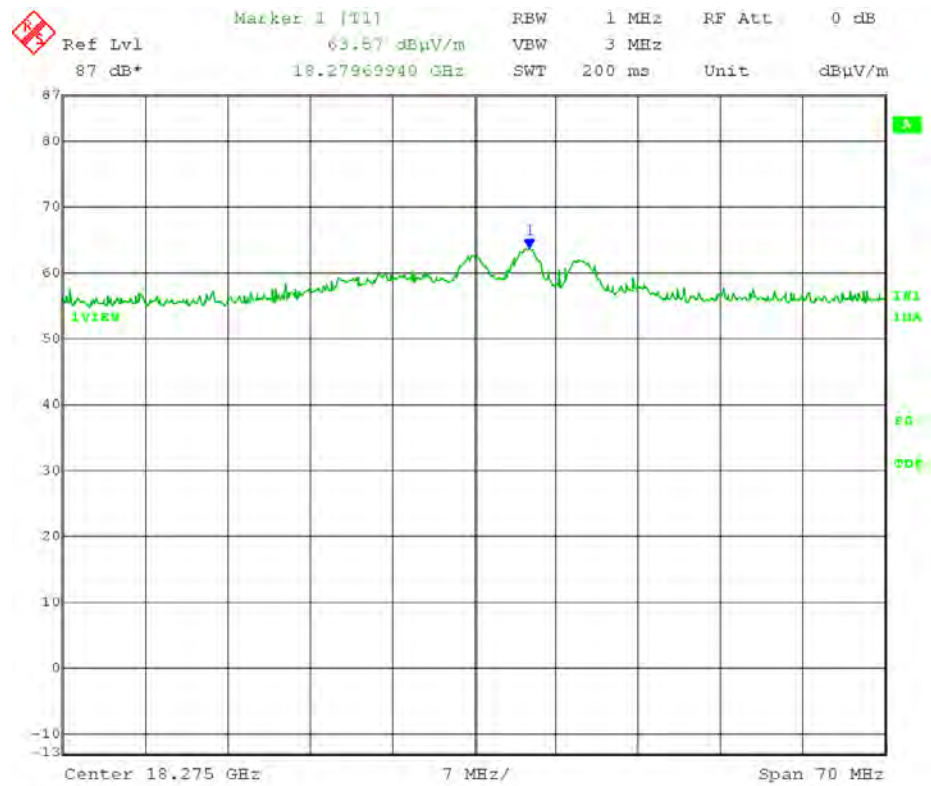Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
              10 MHz channel BW; Modulation: QPSK
              Mid channel center frequency: 3675 MHz
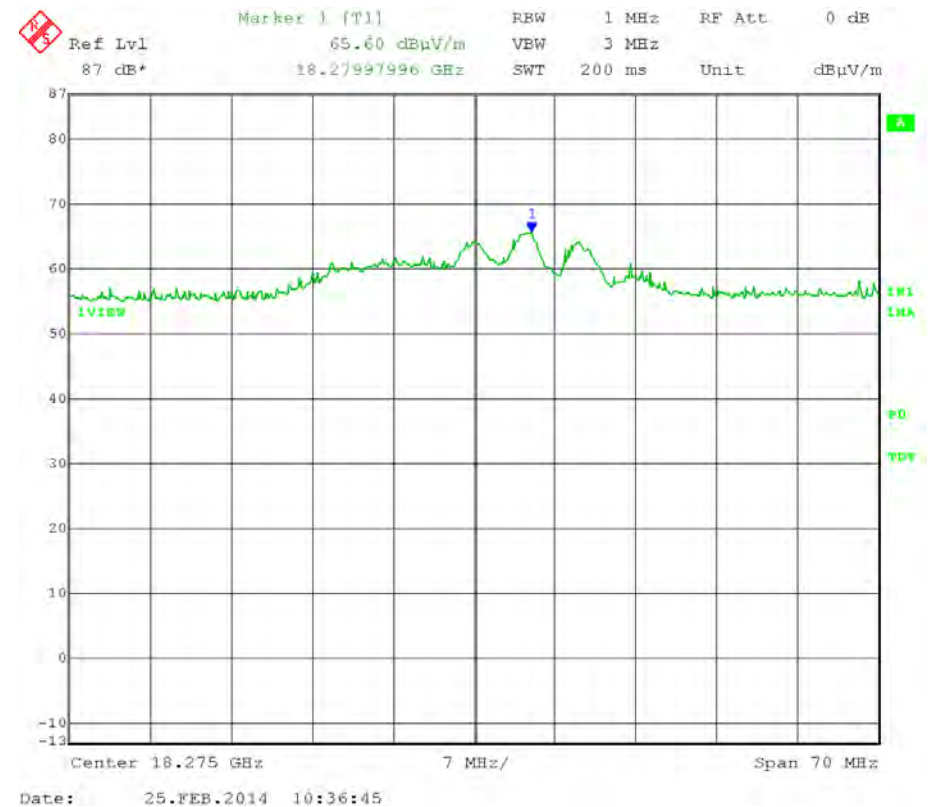
Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.375 vertical	66.26	-45.57	9.91	15.18	-40.30	-13	27.30
18.375 horizontal	70.37	-41.21	9.91	15.18	-35.94	-13	22.94

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
              10 MHz channel BW; Modulation: QPSK
              Mid channel center frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
33.075 vertical	noise floor						
33.075 horizontal	69.69	-46.44	13.67	19.75	-40.36	-13	27.36

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

	Marker 1 [T1]		RBW	1 MHz	RF Att	0 dB
Ref Lvl		69.69 dBμV/m	VBW	3 MHz		
87 dB*		33.08133267 GHz	SWT	500 ms	Unit	dBμV/m

Center 33.075 GHz   8 MHz/   Span 80 MHz

Date: 25.FEB.2014   12:43:35
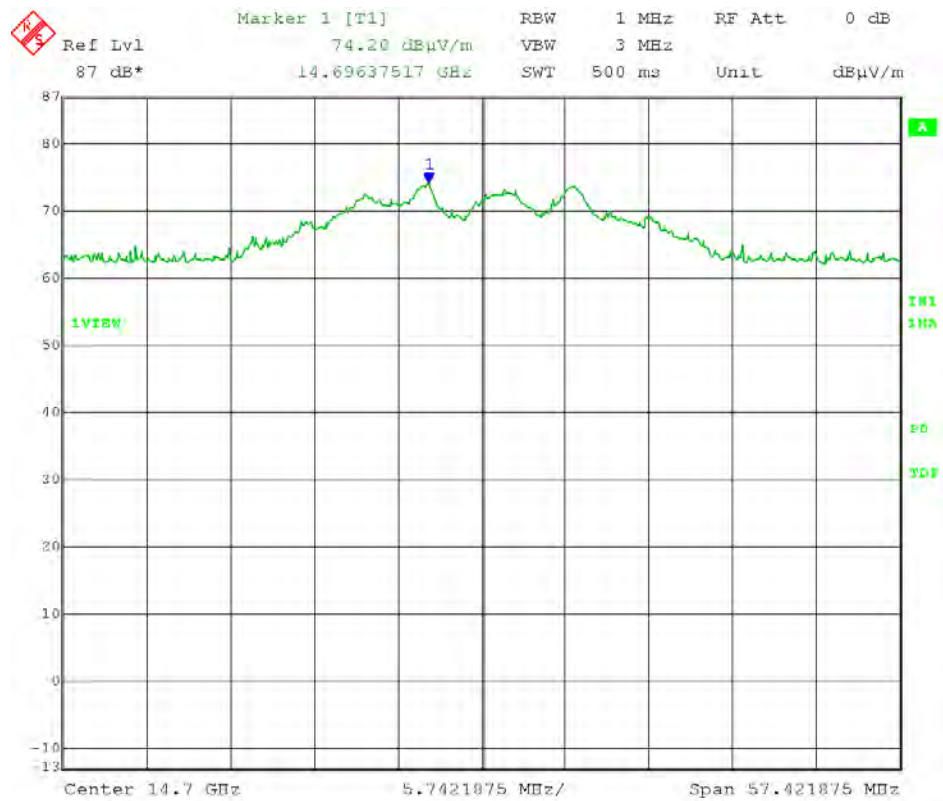
Test Date: 02-24-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25.
             10 MHz channel BW; Modulation: QPSK
             High channel center frequency: 3695 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.780 vertical	noise floor						
14.780 horizontal	65.91	-41.15	8.83	12.57	-37.41	-13	24.41

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   65.91 dBμV/m   VBW   3 MHz
87 dB*   14.78588756 GHz SWT   500 ms   Unit   dBμV/m

Center 14.78 GHz   5.390625 MHz/   Span 53.90625 MHz

Date: 24.FEB.2014   15:46:40

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chins).
          10 MHz channel BW; Modulation: QPSK
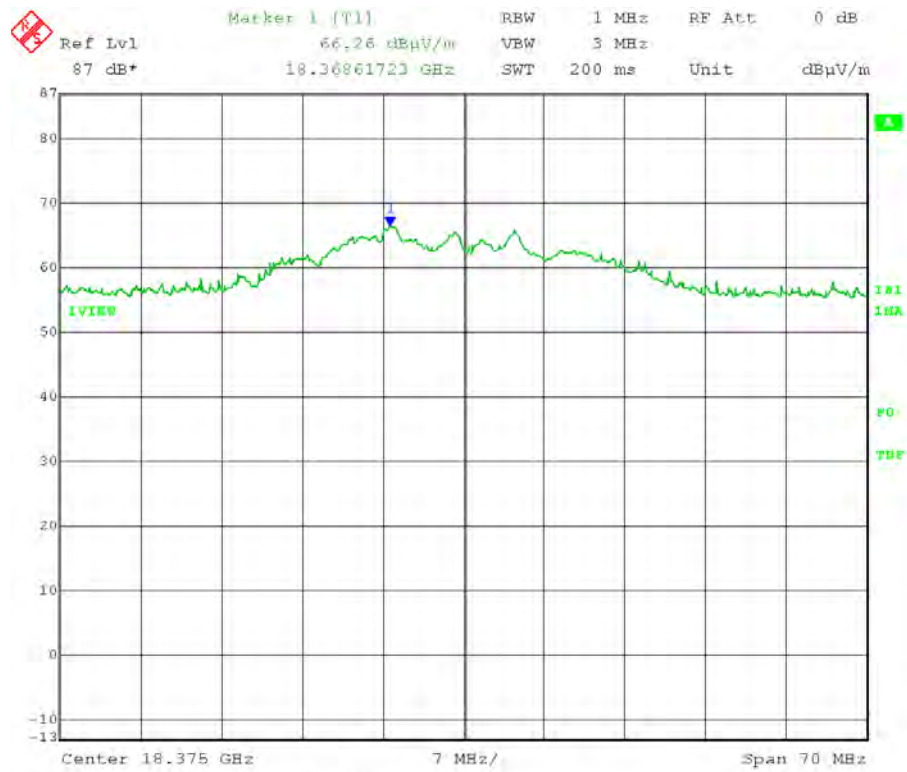   High channel center frequency: 3695 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.475 vertical	noise floor						
18.475 horizontal	61.13	-50.05	9.94	15.18	-44.81	-13	31.81

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   61.13 dBμV/m   VBW   3 MHz
87 dB*   18.47955912 GHz   SWT   200 ms   Unit   dBμV/m

Center 18.475 GHz   7 MHz/   Span 70 MHz

Date: 25.FEB.2014   10:41:12

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chins).
              10 MHz channel BW; Modulation: QPSK
              High channel center frequency: 3695 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-24-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25.
20 MHz channel BW; Modulation: QPSK
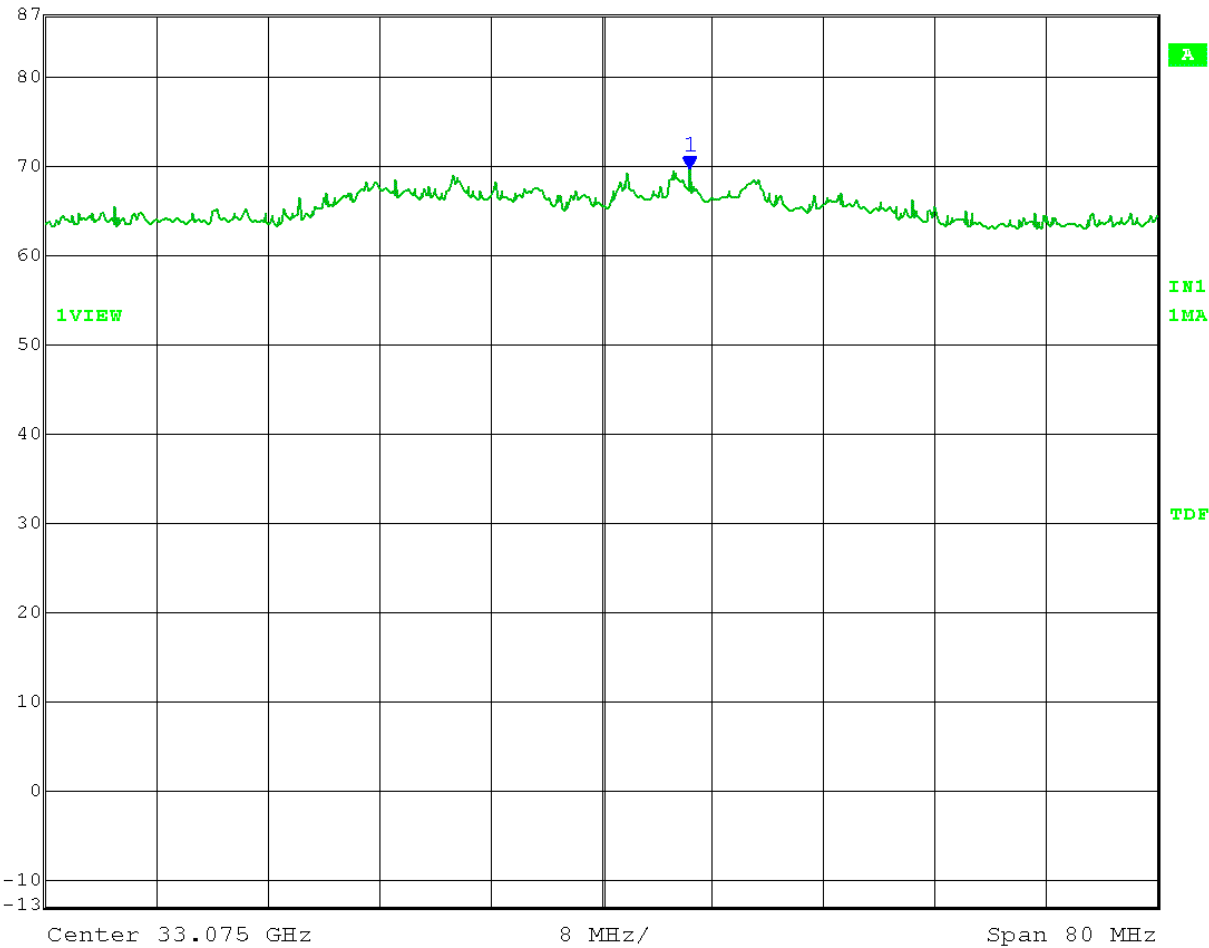Low channel center frequency: 3660 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.640 vertical	noise floor						
14.640 horizontal	65.87	-42.09	8.79	11.77	-39.11	-13	26.11

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

	Marker 1 [T1]	RBW 1 MHz	RF Att 0 dB
Ref Lvl	65.87 dBµV/m	VBW 3 MHz	
87 dB*	14.64378100 GHz	SWT 500 ms	Unit dBµV/m

Center 14.64 GHz   10.78125 MHz/   Span 107.8125 MHz

Date: 24.FEB.2014   15:22:32
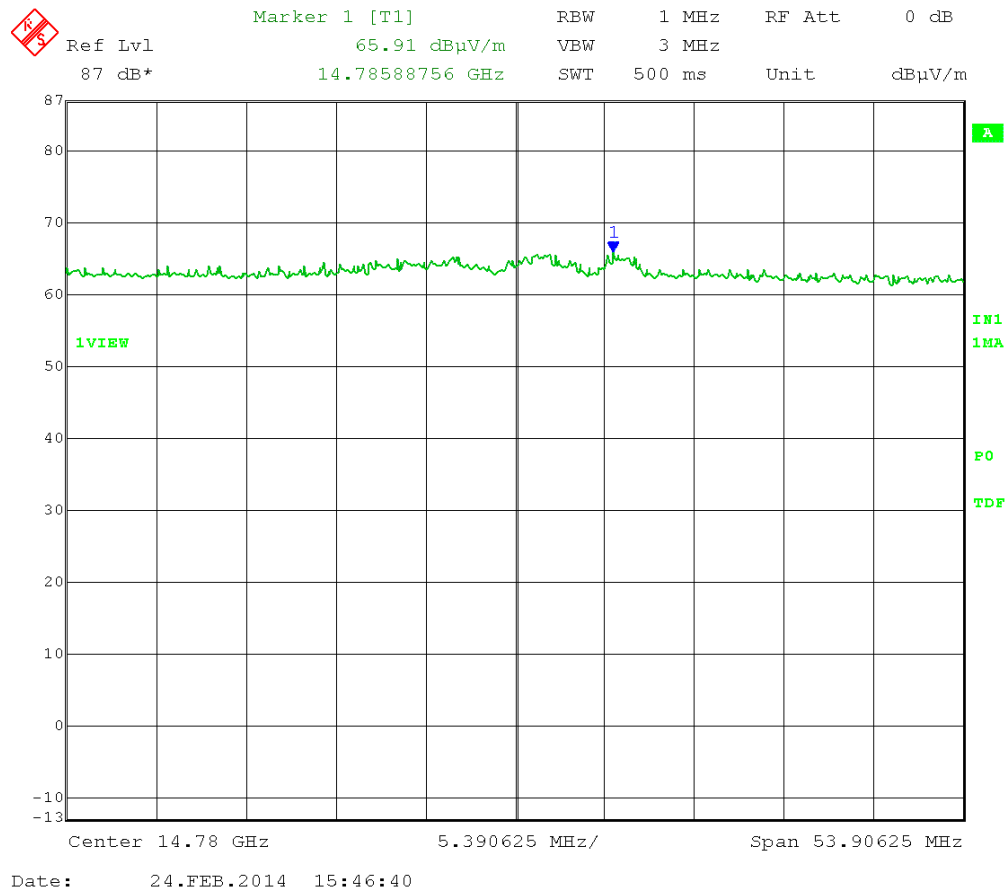
Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
               20 MHz channel BW; Modulation: QPSK
               Low channel center frequency: 3660 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.300 vertical	61.20	-50.42	9.91	15.18	-45.15	-13	32.15
18.300 horizontal	62.12	-48.88	9.91	15.18	-43.61	-13	30.61

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
             20 MHz channel BW; Modulation: QPSK
             Low channel center frequency: 3660 MHz
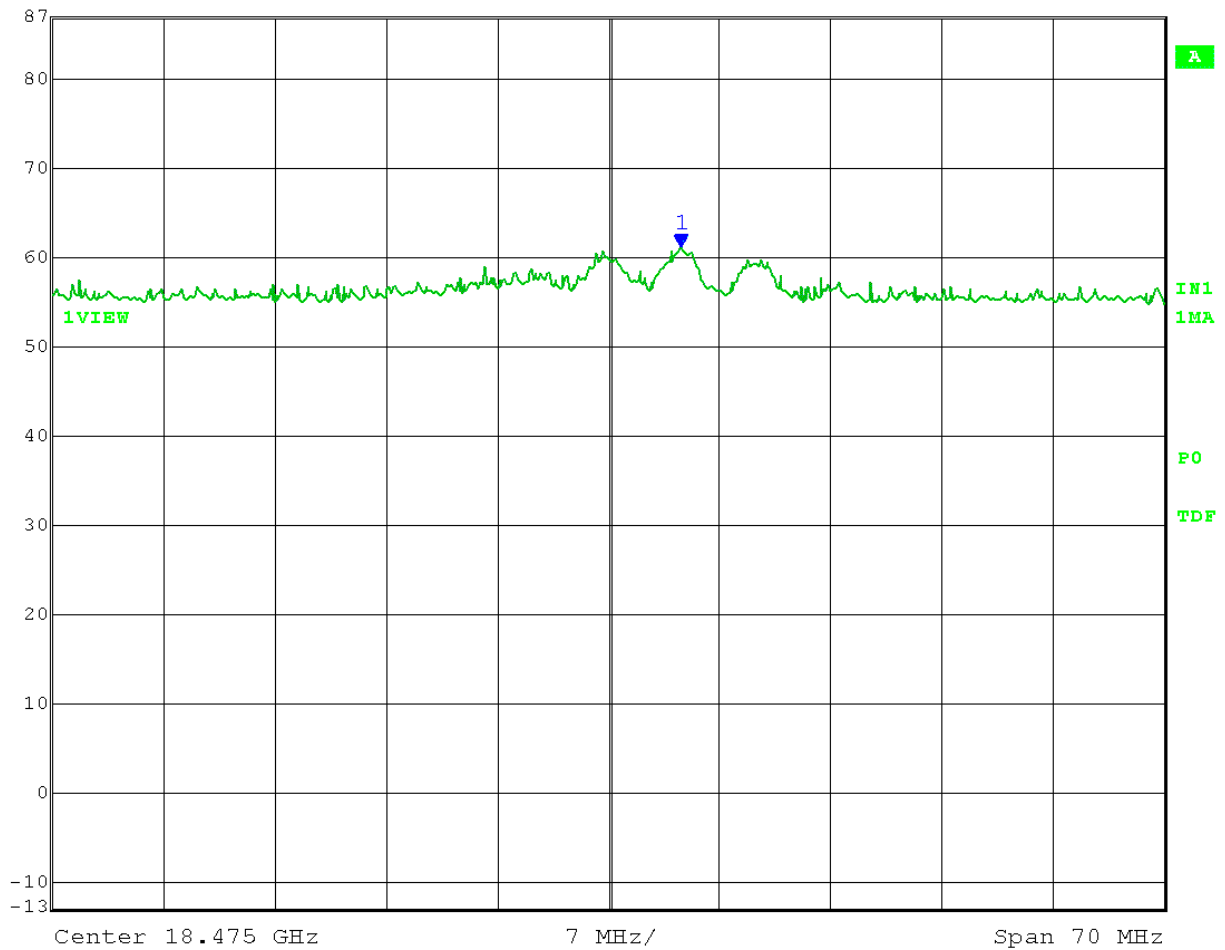
Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-24-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
               20 MHz channel BW; Modulation: QPSK
               Mid channel center frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.700 vertical	72.22	-37.36	8.83	12.10	-34.09	-13	21.09
14.700 horizontal	74.61	-33.91	8.83	12.10	-30.64	-13	17.64

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
20 MHz channel BW; Modulation: QPSK
Mid channel center frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.375 vertical	63.79	-48.04	9.91	15.18	-42.77	-13	29.77
18.375 horizontal	66.29	-45.29	9.91	15.18	-40.02	-13	27.02

EIRP = Signal generator output - cable loss + antenna gain
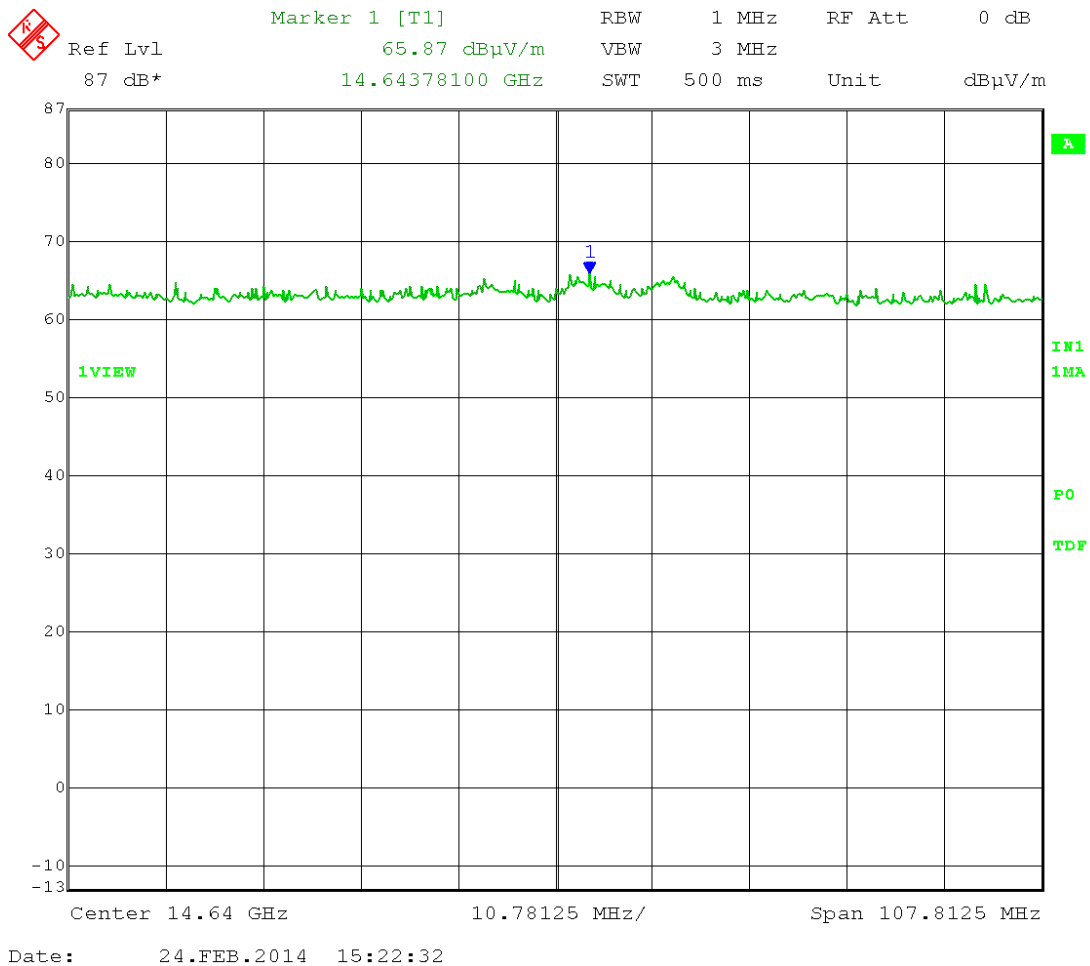
Vertical:

Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active. Power setting 25 on each chain.
            20 MHz channel BW; Modulation: QPSK
            Mid channel center frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

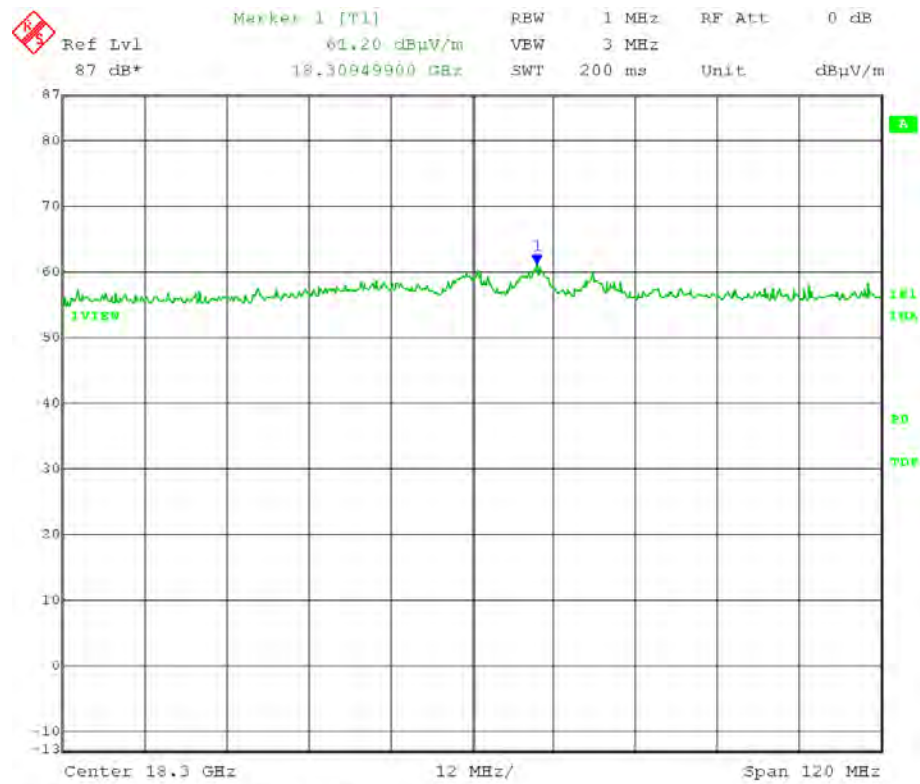**NOTE: NO EMISSIONS FOUND 26 to 37 GHz**

Test Date: 02-24-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25.
         20 MHz channel BW; Modulation: QPSK
         High channel center frequency: 3690 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 1 to 18 GHz

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
              20 MHz channel BW; Modulation: QPSK
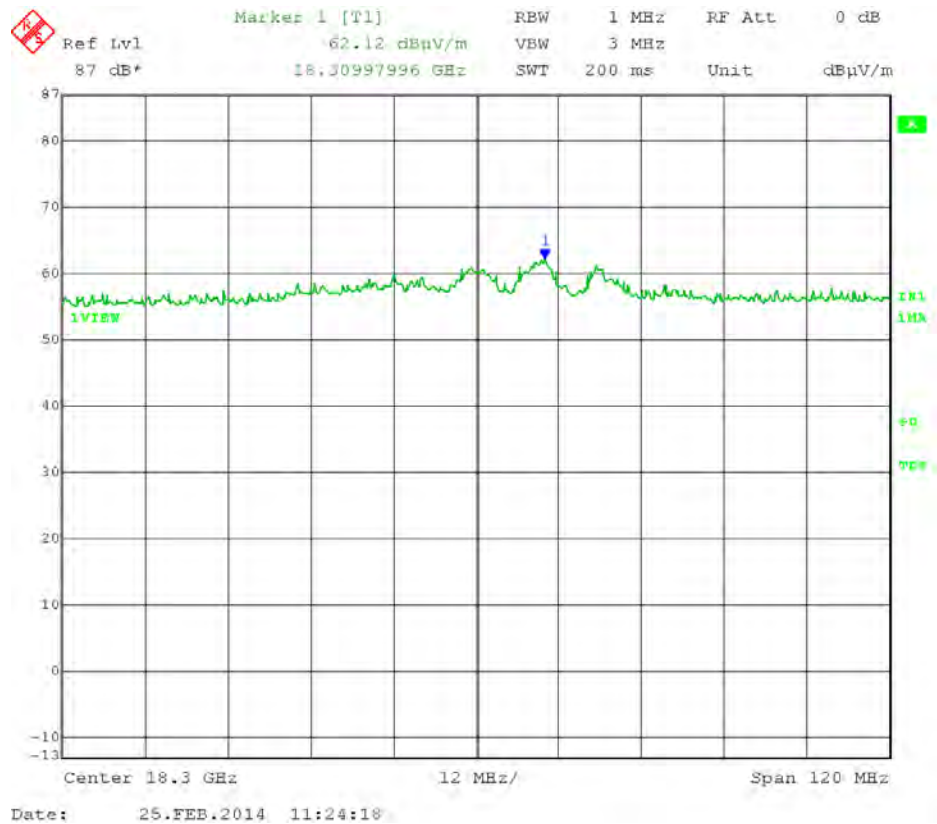   High channel center frequency: 3690 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 18 to 26 GHz
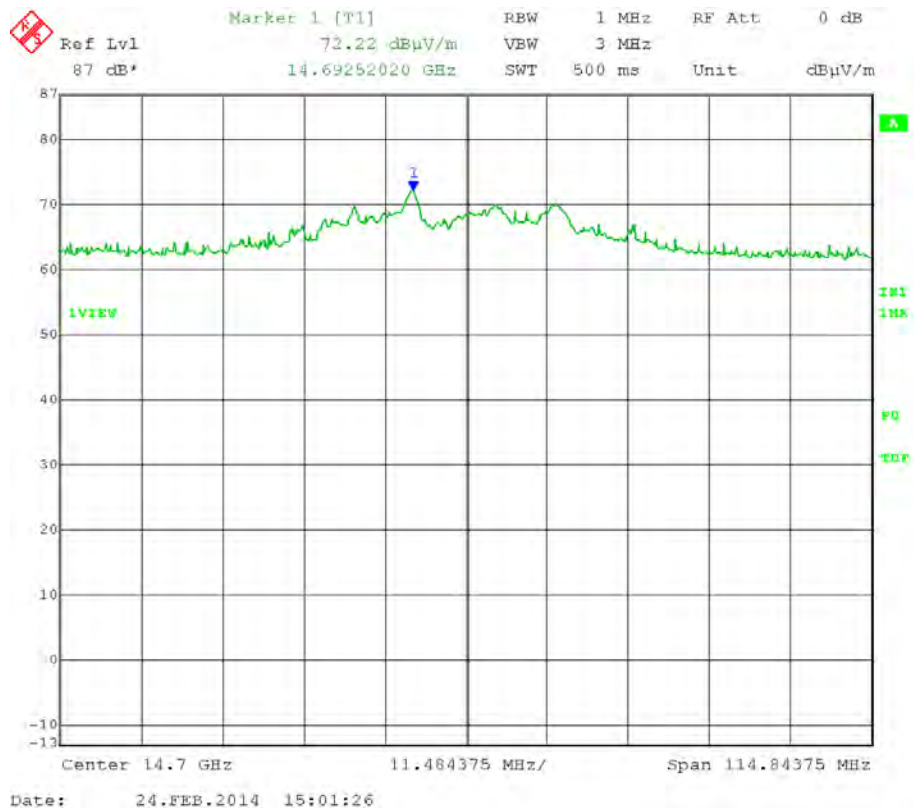
Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C004A (with integral patch antenna)
Tests: Transmitter Unwanted Out-of-Band Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25 (total of both chains).
                20 MHz channel BW; Modulation: QPSK
                High channel center frequency: 3690 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
               5 MHz channel BW; Modulation: QPSK
               Low channel frequency: 3652.5 MHz
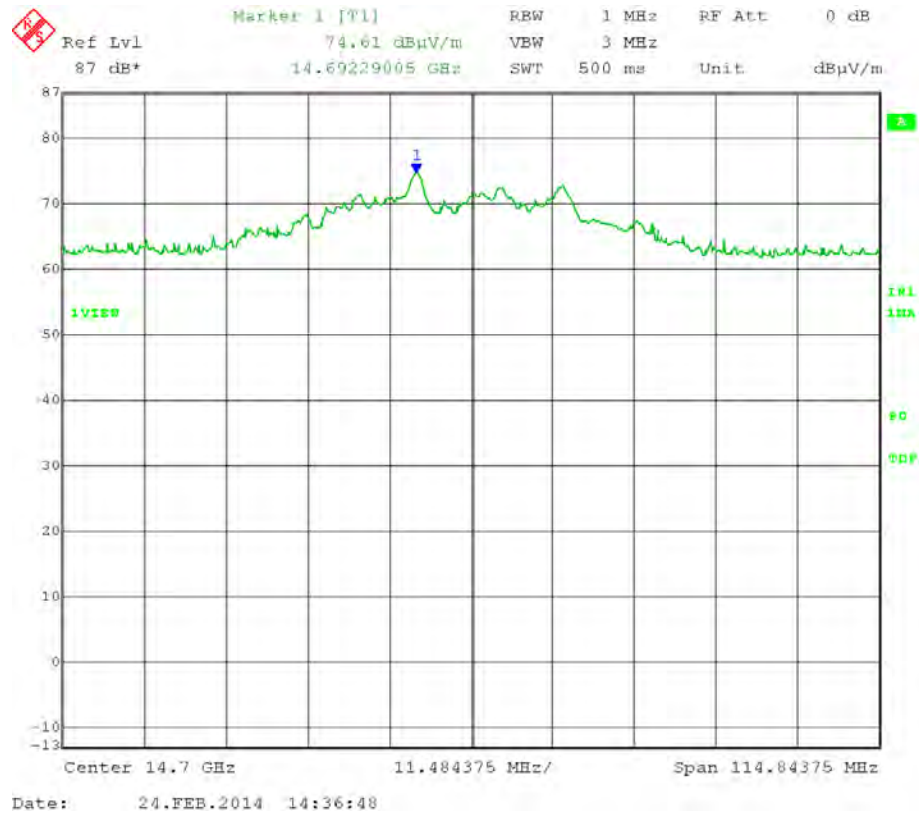
Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.610 vertical	Noise Floor						
14.610 horizontal	74.41	-33.68	8.79	11.77	-30.70	-13	17.70

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1] RBW 1 MHz RF Att 0 dB
Ref Lvl 74.41 dBµV/m VBW 3 MHz
87 dB* 14.60627301 GHz SWT 500 ms Unit dBµV/m

Center 14.61 GHz 5.390625 MHz/ Span 53.90625 MHz
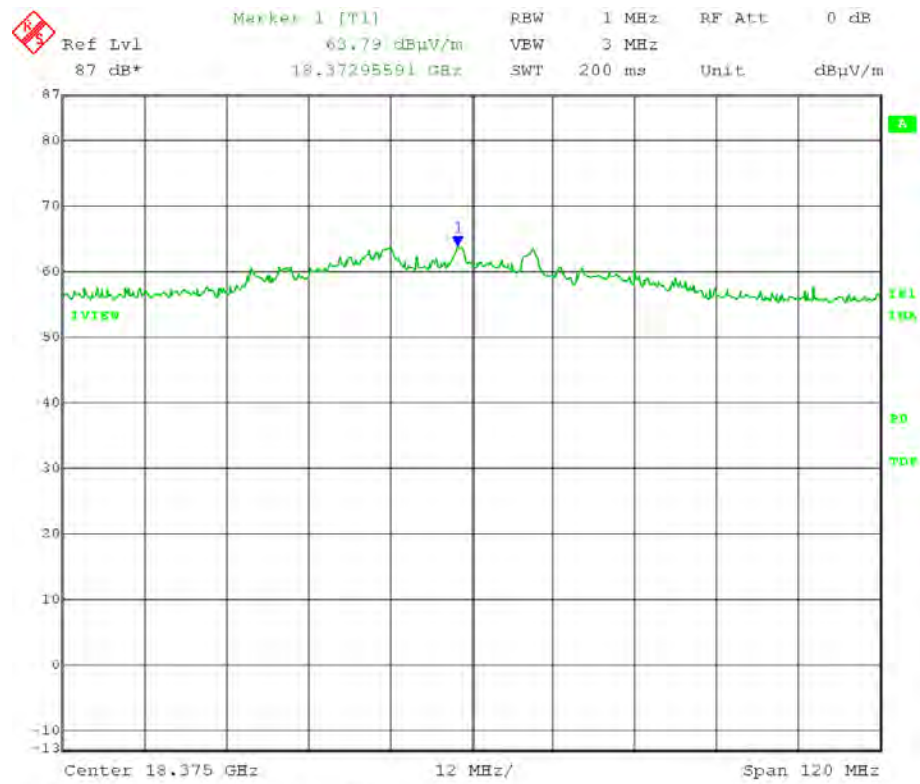
Date: 21.FEB.2014 13:03:47

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
             5 MHz channel BW; Modulation: QPSK
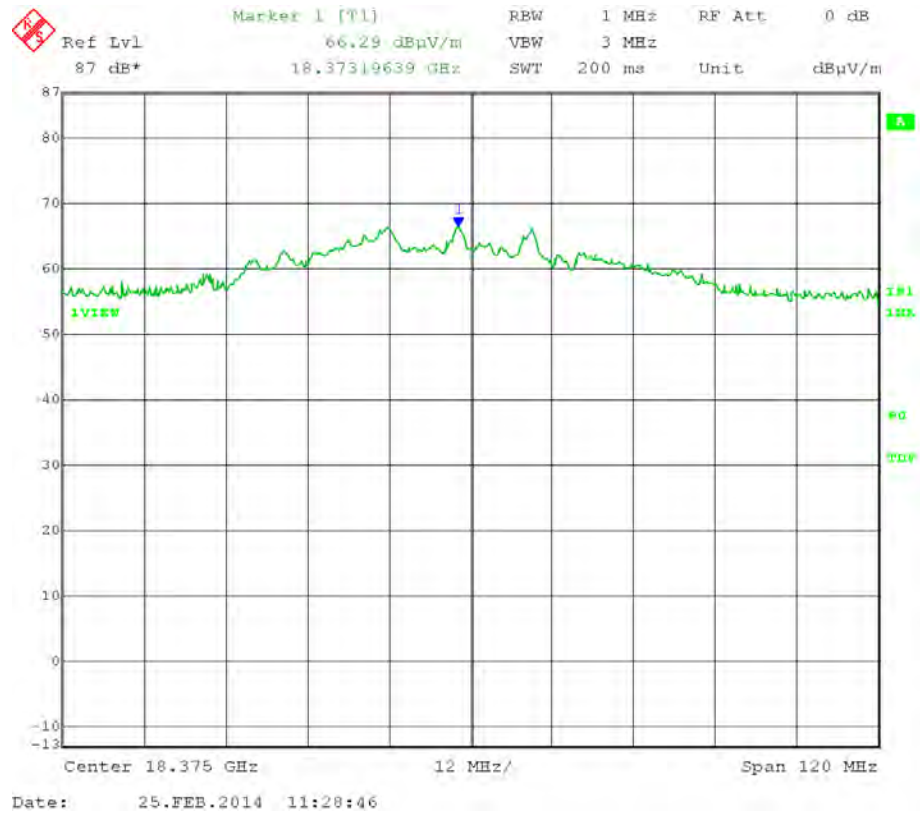   Low channel frequency: 3652.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.2625 vertical	64.37	-47.16	9.87	15.18	-41.85	-13	28.85
18.2625 horizontal	69.81	-40.92	9.87	15.18	-35.61	-13	22.61

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
                5 MHz channel BW; Modulation: QPSK
                Low channel frequency: 3652.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
29.220 vertical	noise floor						
29.220 horizontal	67.37	-44.05	12.73	18.55	-38.23	-13	25.23

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	67.37 dBµV/m	VBW	3 MHz
87 dB*	29.21303607 GHz	SWT	500 ms	Unit	dBµV/m

Center 29.22 GHz   5 MHz/   Span 50 MHz

Date: 26.FEB.2014   09:30:46

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
                5 MHz channel BW; Modulation: QPSK
                Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.700 vertical	Noise Floor						
14.700 horizontal	72.09	-36.43	8.79	12.10	-33.12	-13	20.12

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   72.09 dBµV/m   VBW   3 MHz
  87 dB*   14.70318684 GHz   SWT   500 ms   Unit   dBµV/m

Center 14.7 GHz   5.390625 MHz/   Span 53.90625 MHz

Date: 21.FEB.2014   13:19:37

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
5 MHz channel BW; Modulation: QPSK
Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.375 vertical	63.71	-48.12	9.91	15.18	-42.85	-13	29.85
18.375 horizontal	69.25	-42.33	9.91	15.18	-37.06	-13	24.06

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
5 MHz channel BW; Modulation: QPSK
Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
29.400 vertical	noise floor						
29.400 horizontal	67.69	-44.82	12.74	18.57	-38.99	-13	25.99

EIRP = Signal generator output - cable loss + antenna gain
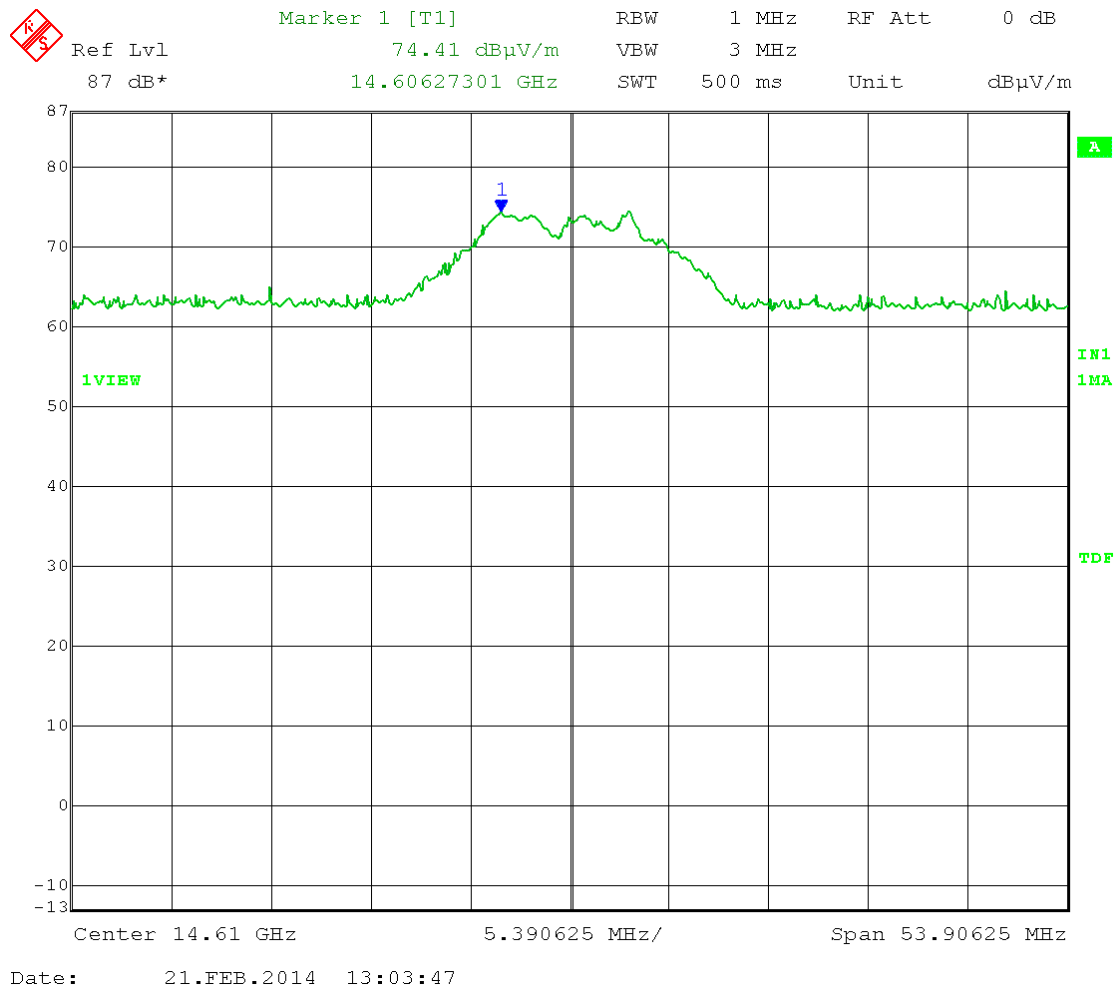
Horizontal:

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
5 MHz channel BW; Modulation: QPSK
High channel frequency: 3697.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.790 vertical	Noise Floor						
14.790 horizontal	69.73	-40.29	8.83	12.57	-36.55	-13	23.55

EIRP = Signal generator output - cable loss + antenna gain
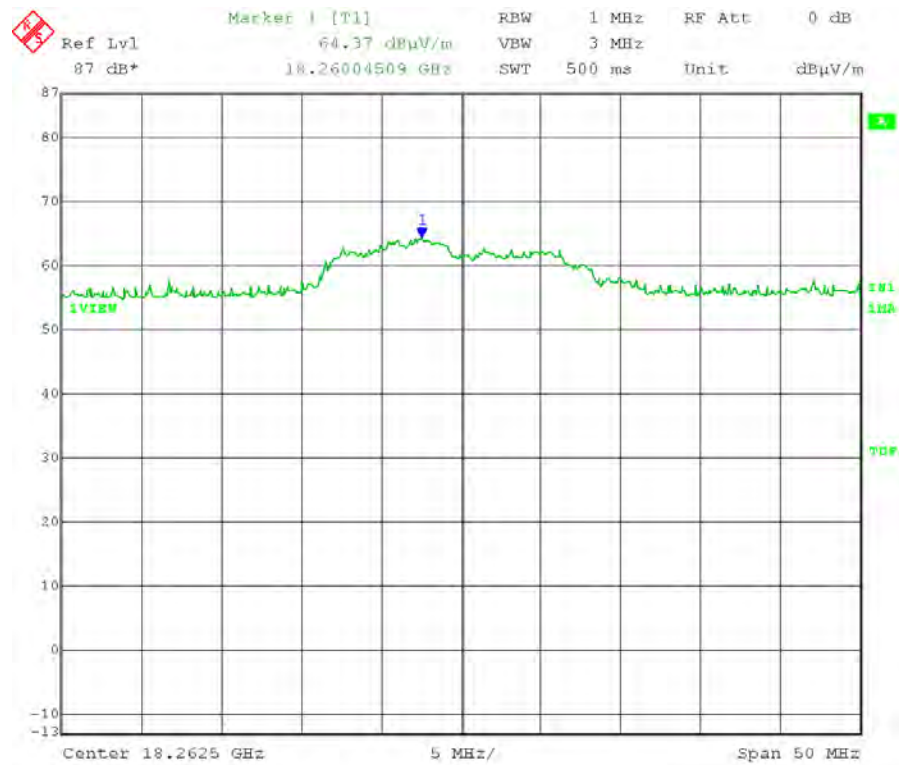
Horizontal:

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
                   5 MHz channel BW; Modulation: QPSK
                   High channel frequency: 3697.5 MHz
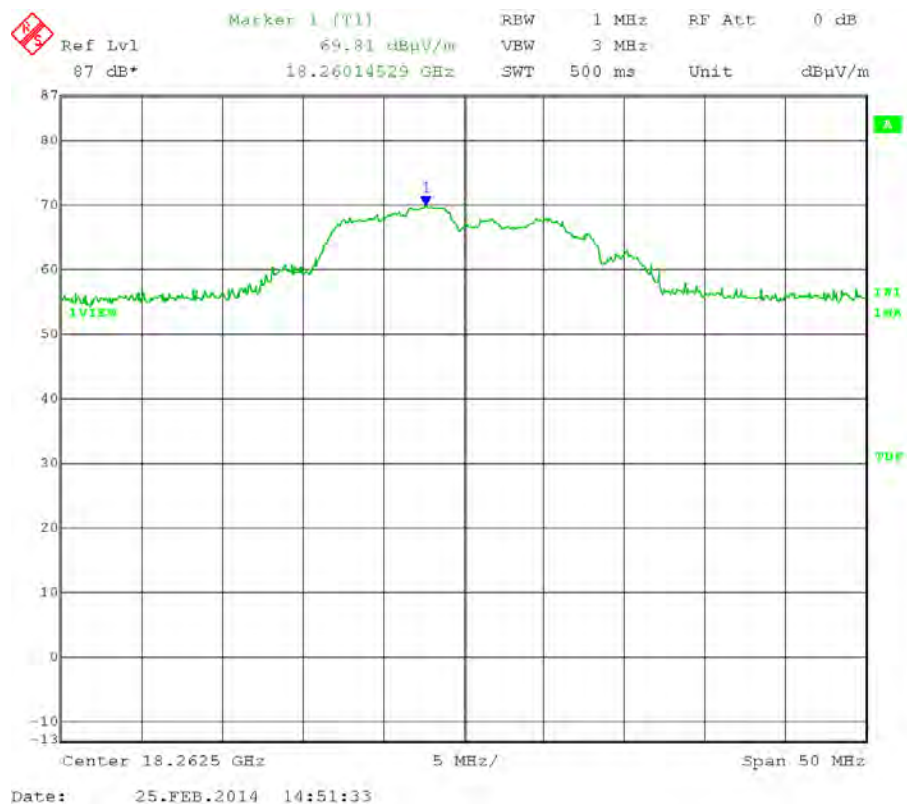
Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.4875 vertical	62.19	-49.19	9.94	15.18	-43.95	-13	30.95
18.4875 horizontal	66.18	-45.52	9.94	15.18	-40.28	-13	27.28

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
5 MHz channel BW; Modulation: QPSK
High channel frequency: 3697.5 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
29.580 vertical	noise floor						
29.580 horizontal	69.79	-43.65	12.87	18.62	-37.90	-13	24.90

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
10 MHz channel BW; Modulation: QPSK
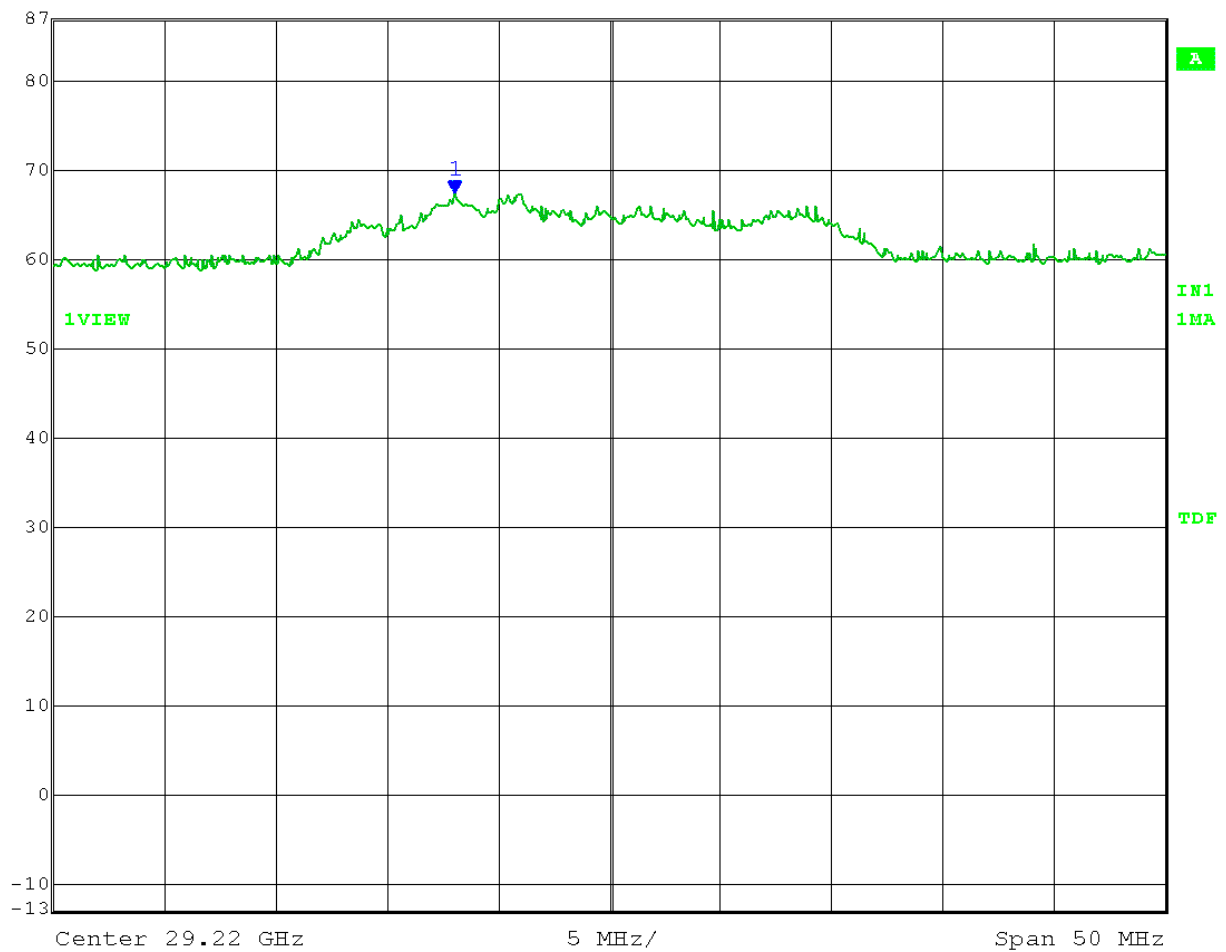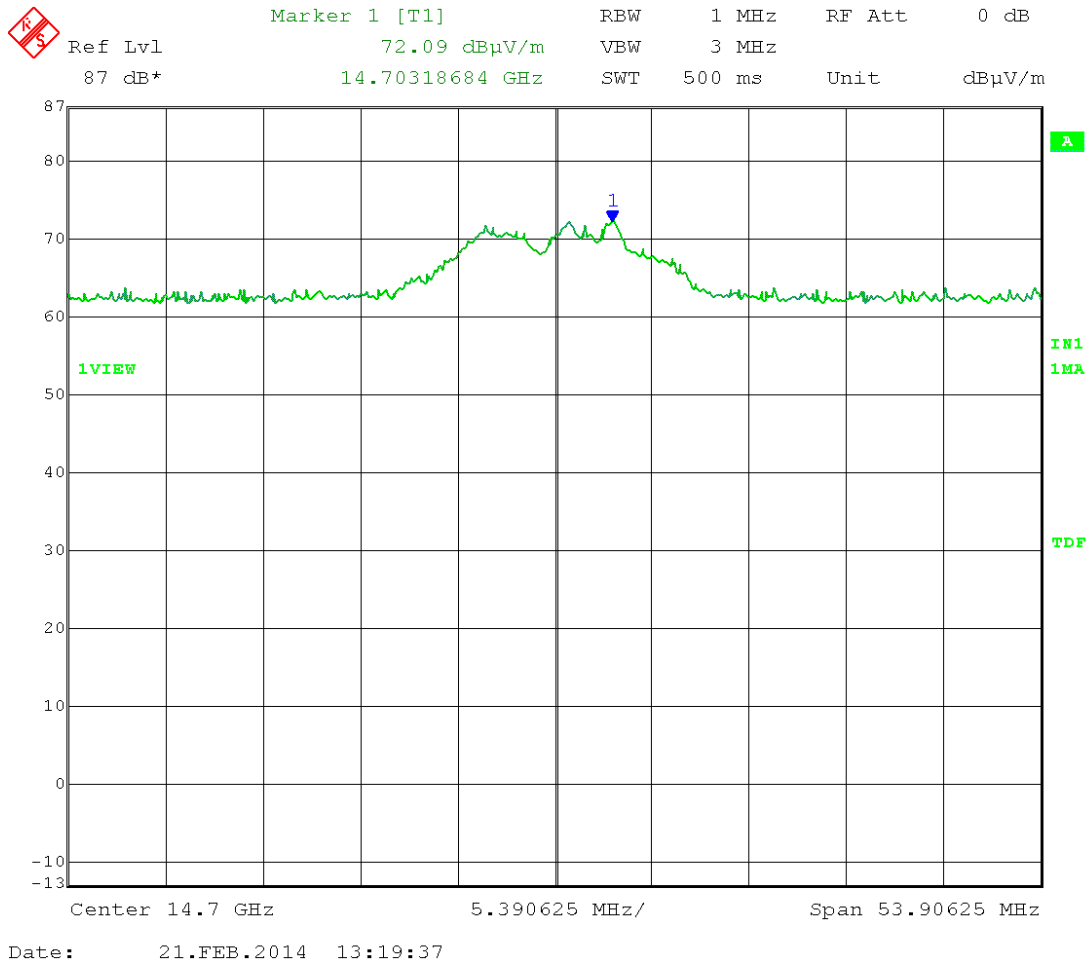Low channel frequency: 3655 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.620 vertical	Noise Floor						
14.620 horizontal	70.57	-36.58	8.79	11.77	-33.60	-13	20.60

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   70.57 dBµV/m   VBW   3 MHz
87 dB*   14.62642770 GHz   SWT   500 ms   Unit   dBµV/m

Center 14.62 GHz   5.390625 MHz/   Span 53.90625 MHz

Date: 21.FEB.2014   13:33:20

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
10 MHz channel BW; Modulation: QPSK
Low channel frequency: 3655 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.275 vertical	62.05	-49.26	9.87	15.18	-43.95	-13	30.95
18.275 horizontal	66.58	-44.60	9.87	15.18	-39.29	-13	26.29

EIRP = Signal generator output - cable loss + antenna gain

Vertical:
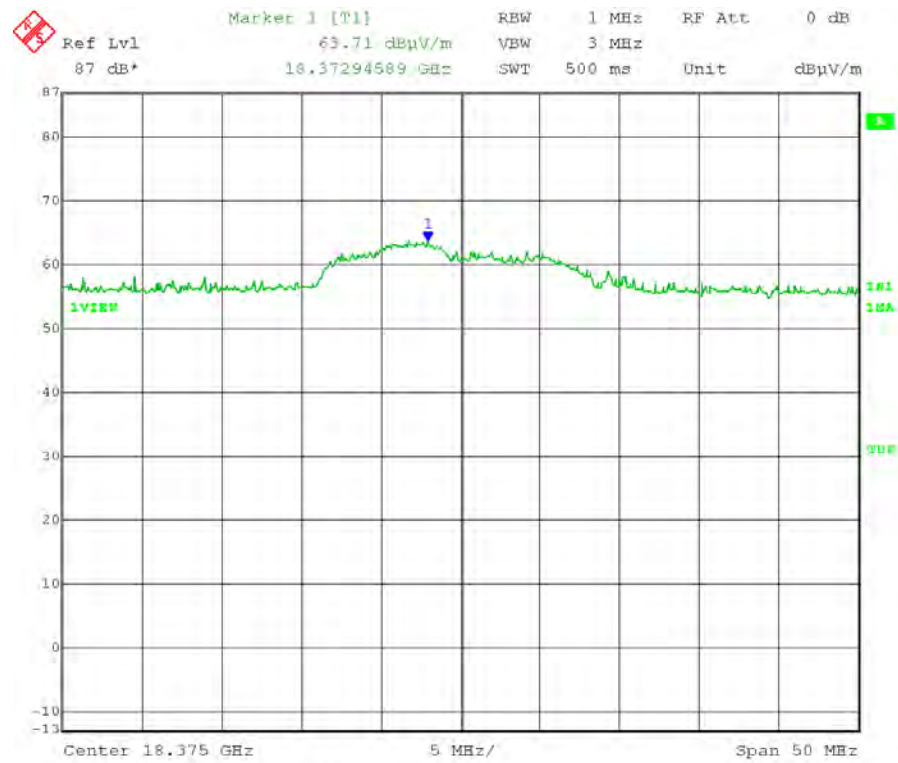

Horizontal:

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
              10 MHz channel BW; Modulation: QPSK
              Low channel frequency: 3655 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
                10 MHz channel BW; Modulation: QPSK
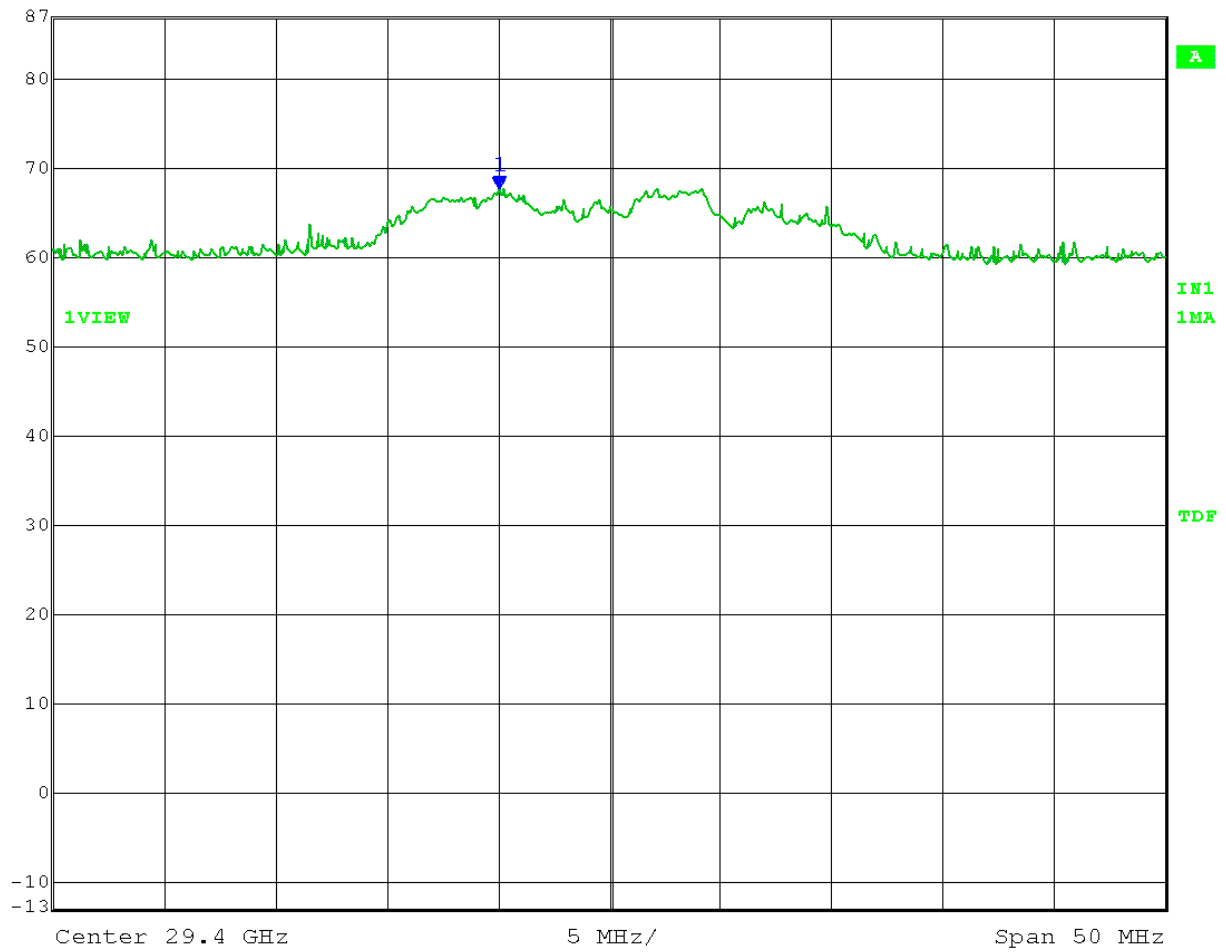   Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.700 vertical	Noise Floor						
14.700 horizontal	70.58	-37.94	8.83	12.10	-34.67	-13	21.67

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

	Marker 1 [T1]		RBW	1 MHz	RF Att	0 dB
Ref Lvl		70.58 dBµV/m	VBW	3 MHz		
87 dB*		14.69594893 GHz	SWT	500 ms	Unit	dBµV/m

Center 14.7 GHz   5.390625 MHz/   Span 53.90625 MHz

Date: 21.FEB.2014   13:43:06

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
                10 MHz channel BW; Modulation: QPSK
                Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.375 vertical	62.14	-49.69	9.91	15.18	-44.42	-13	31.42
18.375 horizontal	65.44	-46.14	9.91	15.18	-40.87	-13	27.87

EIRP = Signal generator output - cable loss + antenna gain

Vertical:

Horizontal:

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
10 MHz channel BW; Modulation: QPSK
Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

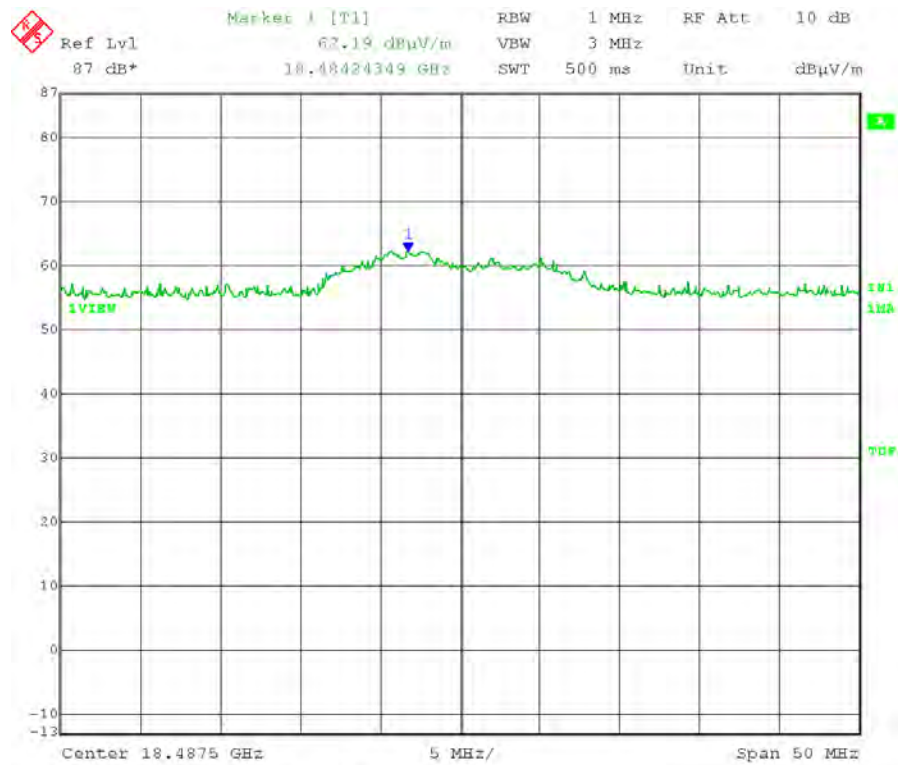**NOTE: NO EMISSIONS FOUND 26 to 37 GHz**

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
    10 MHz channel BW; Modulation: QPSK
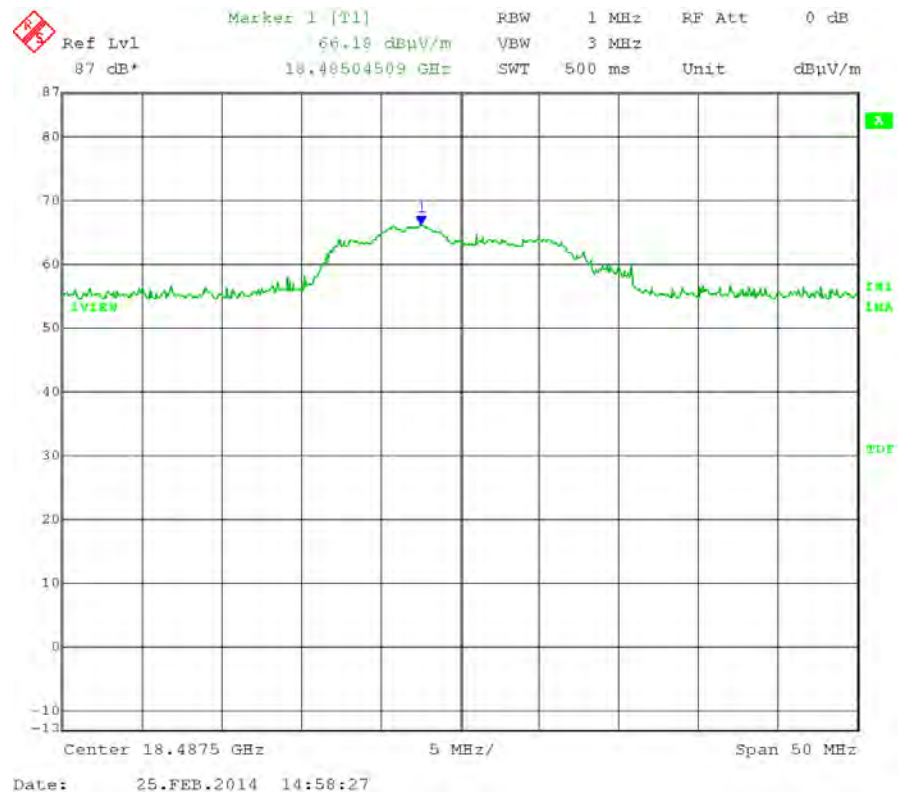   High channel frequency: 3695 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.780 vertical	Noise Floor						
14.780 horizontal	68.03	-38.93	8.83	12.10	-35.66	-13	22.66

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   68.03 dBµV/m   VBW   3 MHz
87 dB*   14.78664376 GHz   SWT   500 ms   Unit   dBµV/m

Center 14.78 GHz   5.390625 MHz/   Span 53.90625 MHz

Date: 21.FEB.2014   13:46:29

Test Date: 02-25-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
10 MHz channel BW; Modulation: QPSK
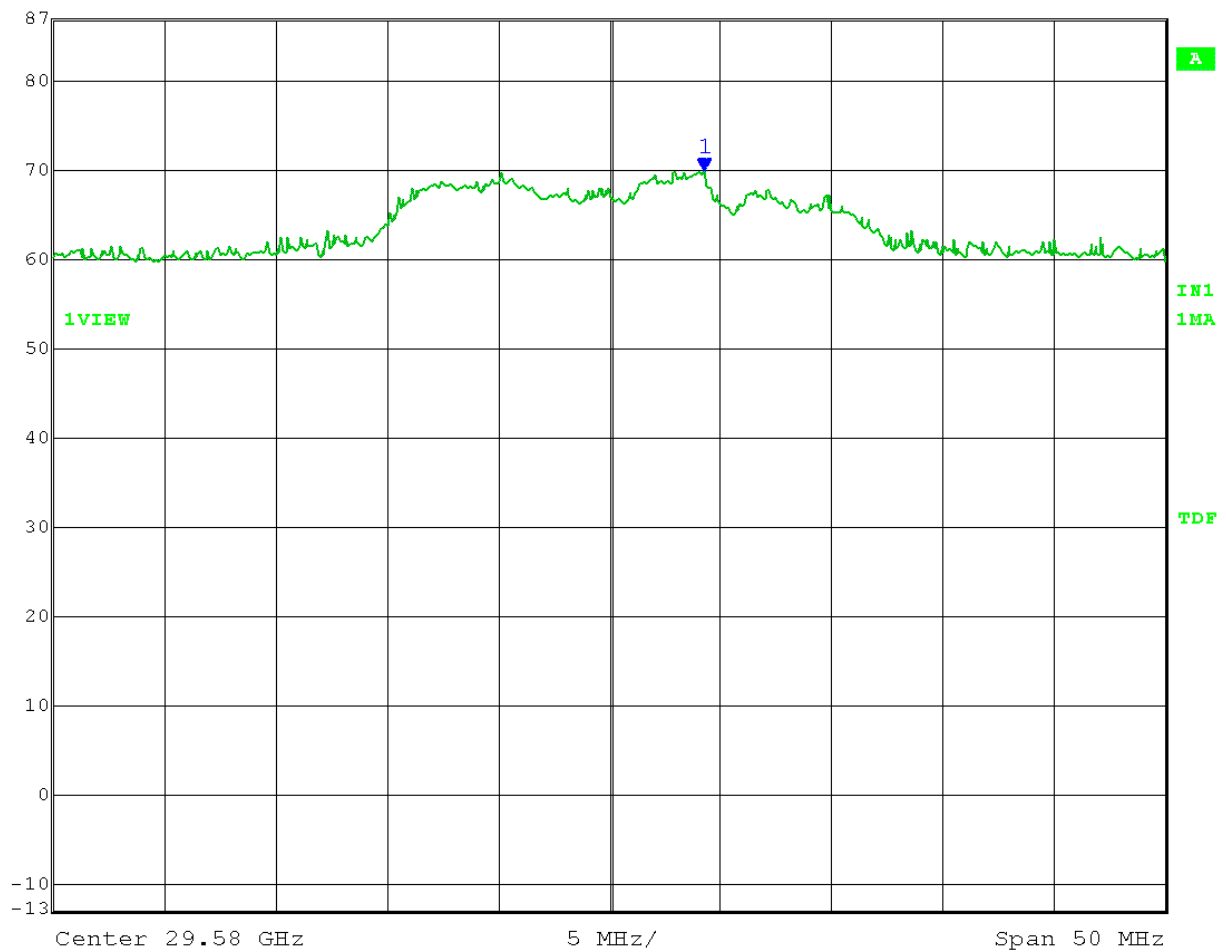High channel frequency: 3695 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.475 vertical	noise floor						
18.475 horizontal	63.62	-48.06	9.94	15.18	-42.82	-13	29.82

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   63.62 dBµV/m   VBW   3 MHz
87 dB*   18.46850701 GHz   SWT   500 ms   Unit   dBµV/m

Center 18.475 GHz   8 MHz/   Span 80 MHz

Date: 25.FEB.2014   15:27:42

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
             10 MHz channel BW; Modulation: QPSK
             High channel frequency: 3695 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
                20 MHz channel BW; Modulation: QPSK
                Low channel frequency: 3660 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.640 vertical	Noise Floor						
14.640 horizontal	68.23	-39.61	8.79	11.77	-36.63	-13	23.63

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   68.23 dBµV/m   VBW   3 MHz
87 dB*   14.63254603 GHz SWT   500 ms   Unit   dBµV/m

Center 14.64 GHz   10.78125 MHz/   Span 107.8125 MHz
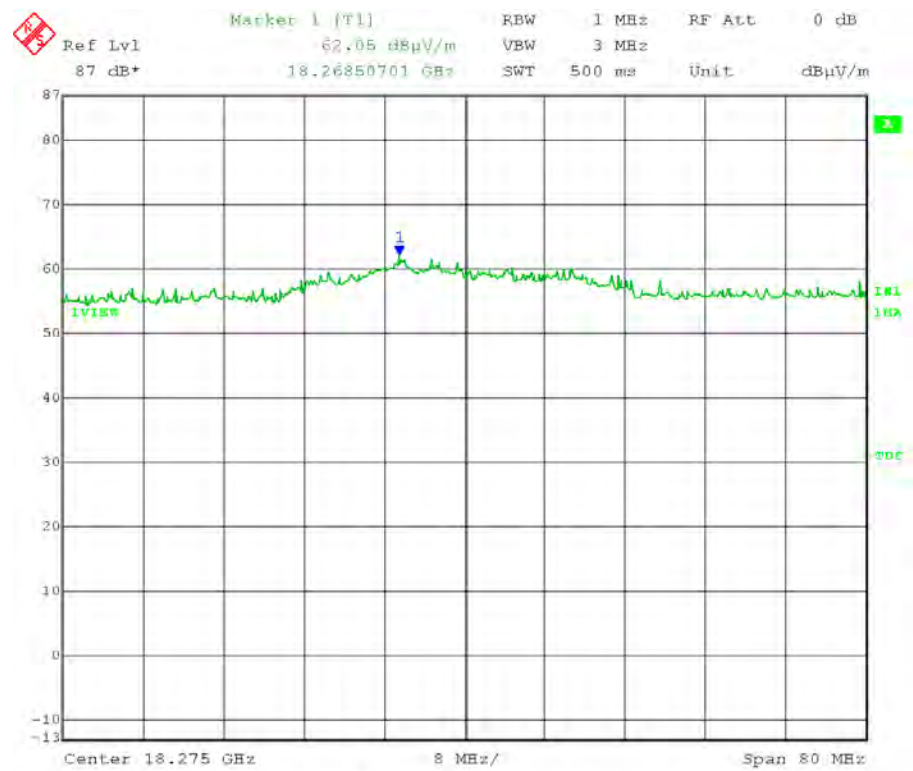
Date: 21.FEB.2014   13:53:58

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
20 MHz channel BW; Modulation: QPSK
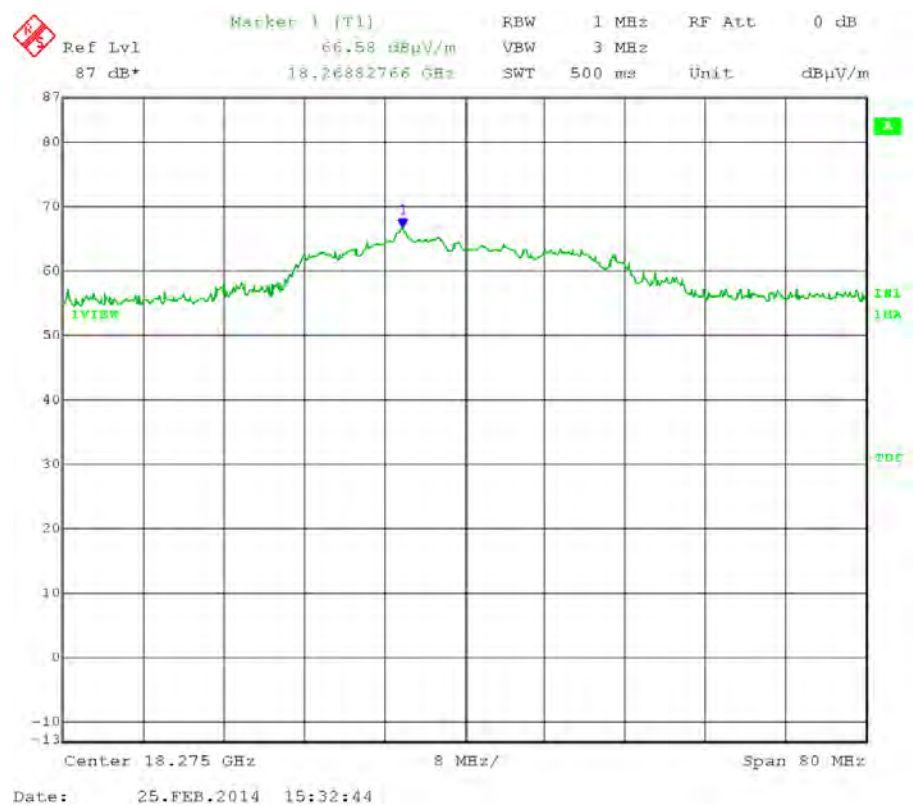Low channel frequency: 3660 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.300 vertical	noise floor						
18.300 horizontal	63.99	-47.40	9.87	15.18	-42.09	-13	29.09

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

	Marker 1 [T1]	RBW 1 MHz	RF Att 0 dB
Ref Lvl	63.99 dBμV/m	VBW 3 MHz	
87 dB*	18.28857715 GHz	SWT 500 ms	Unit dBμV/m

Center 18.3 GHz   12 MHz/   Span 120 MHz
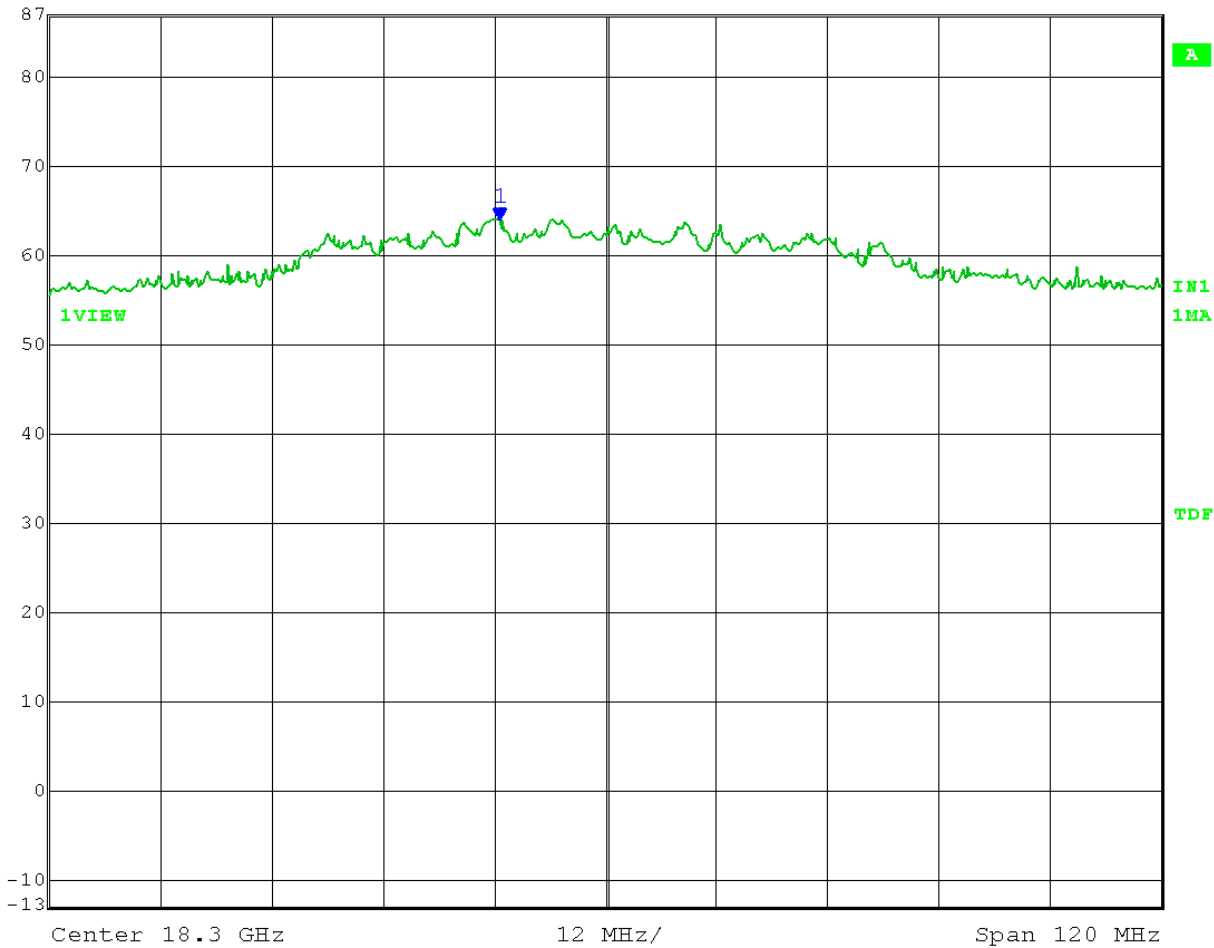
Date: 26.FEB.2014   08:53:53

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
               20 MHz channel BW; Modulation: QPSK
               Low channel frequency: 3660 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
20 MHz channel BW; Modulation: QPSK
Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.700 vertical	Noise Floor						
14.700 horizontal	68.46	-40.06	8.79	12.10	-36.75	-13	23.75

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

	Marker 1 [T1]		RBW	1 MHz	RF Att	0 dB
Ref Lvl		68.46 dBµV/m	VBW	3 MHz		
87 dB*		14.69276209 GHz	SWT	500 ms	Unit	dBµV/m

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Center 14.7 GHz   10.78125 MHz/   Span 107.8125 MHz
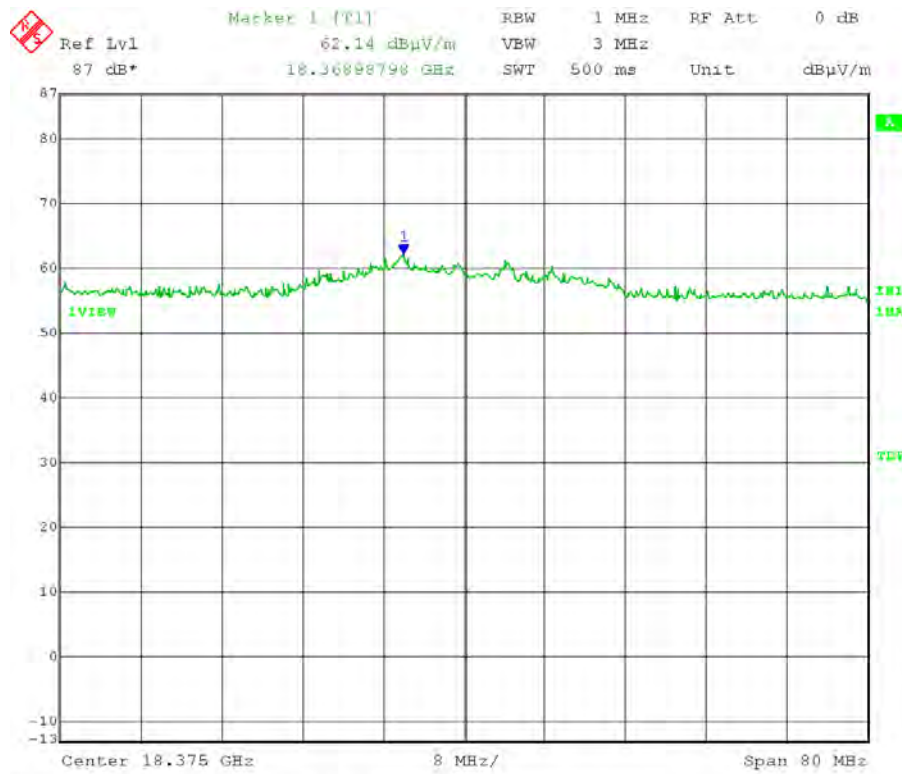
Date: 21.FEB.2014 13:57:15

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
20 MHz channel BW; Modulation: QPSK
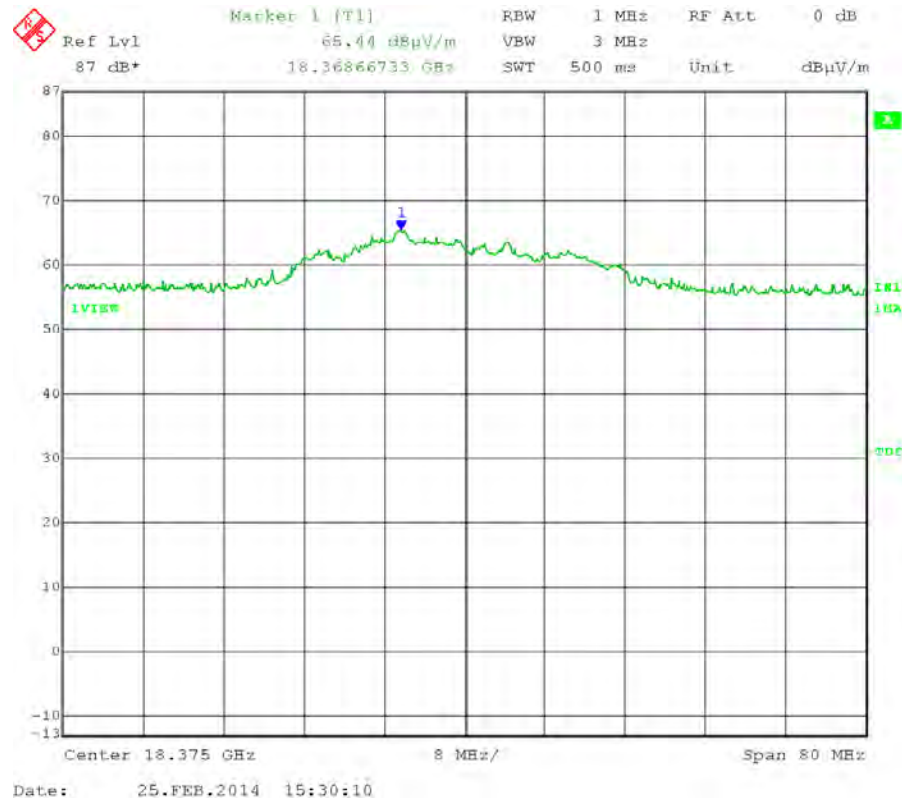Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.375 vertical	noise floor						
18.375 horizontal	64.46	-47.12	9.91	15.18	-41.85	-13	28.85

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	64.46 dBµV/m	VBW	3 MHz		
87 dB*	18.36309619 GHz	SWT	500 ms	Unit	dBµV/m

Center 18.375 GHz   12 MHz/   Span 120 MHz
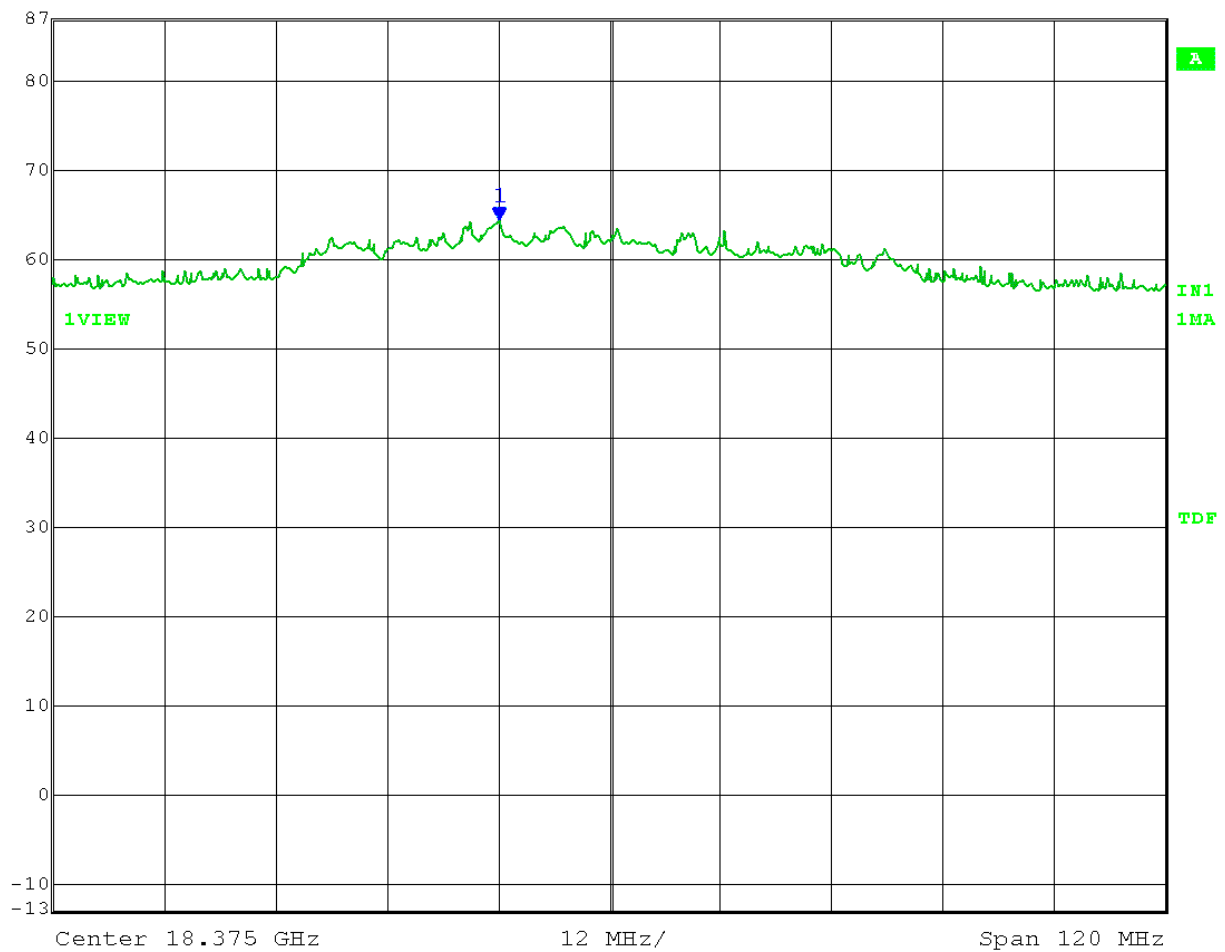
Date: 26.FEB.2014   08:49:28

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
                20 MHz channel BW; Modulation: QPSK
                Mid channel frequency: 3675 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Test Date: 02-21-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
               20 MHz channel BW; Modulation: QPSK
               High channel frequency: 3690 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
14.760 vertical	Noise Floor						
14.760 horizontal	65.67	-41.74	8.83	12.10	-38.47	-13	25.47

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   65.67 dBµV/m   VBW   3 MHz
87 dB*   14.75211392 GHz SWT   500 ms   Unit   dBµV/m

Center 14.76 GHz   10.78125 MHz/   Span 107.8125 MHz

Date: 21.FEB.2014   14:02:14

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
               20 MHz channel BW; Modulation: QPSK
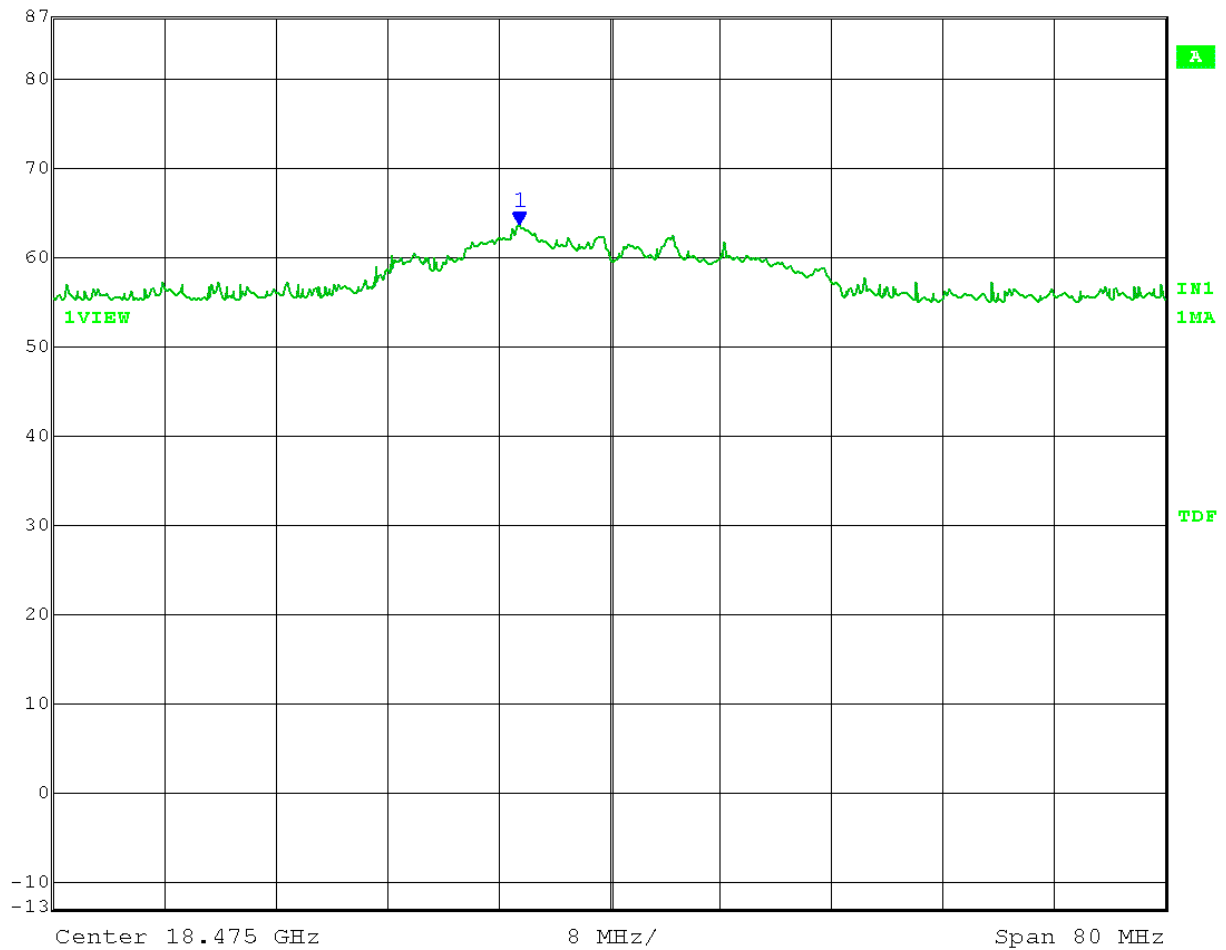   High channel frequency: 3690 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
18.450 vertical	noise floor						
18.450 horizontal	62.83	-48.07	9.94	15.18	-42.83	-13	29.83

EIRP = Signal generator output - cable loss + antenna gain

Horizontal:

Marker 1 [T1]   RBW   1 MHz   RF Att   0 dB
Ref Lvl   62.83 dBµV/m   VBW   3 MHz
87 dB*   18.43737475 GHz   SWT   500 ms   Unit   dBµV/m

Center 18.45 GHz   12 MHz/   Span 120 MHz
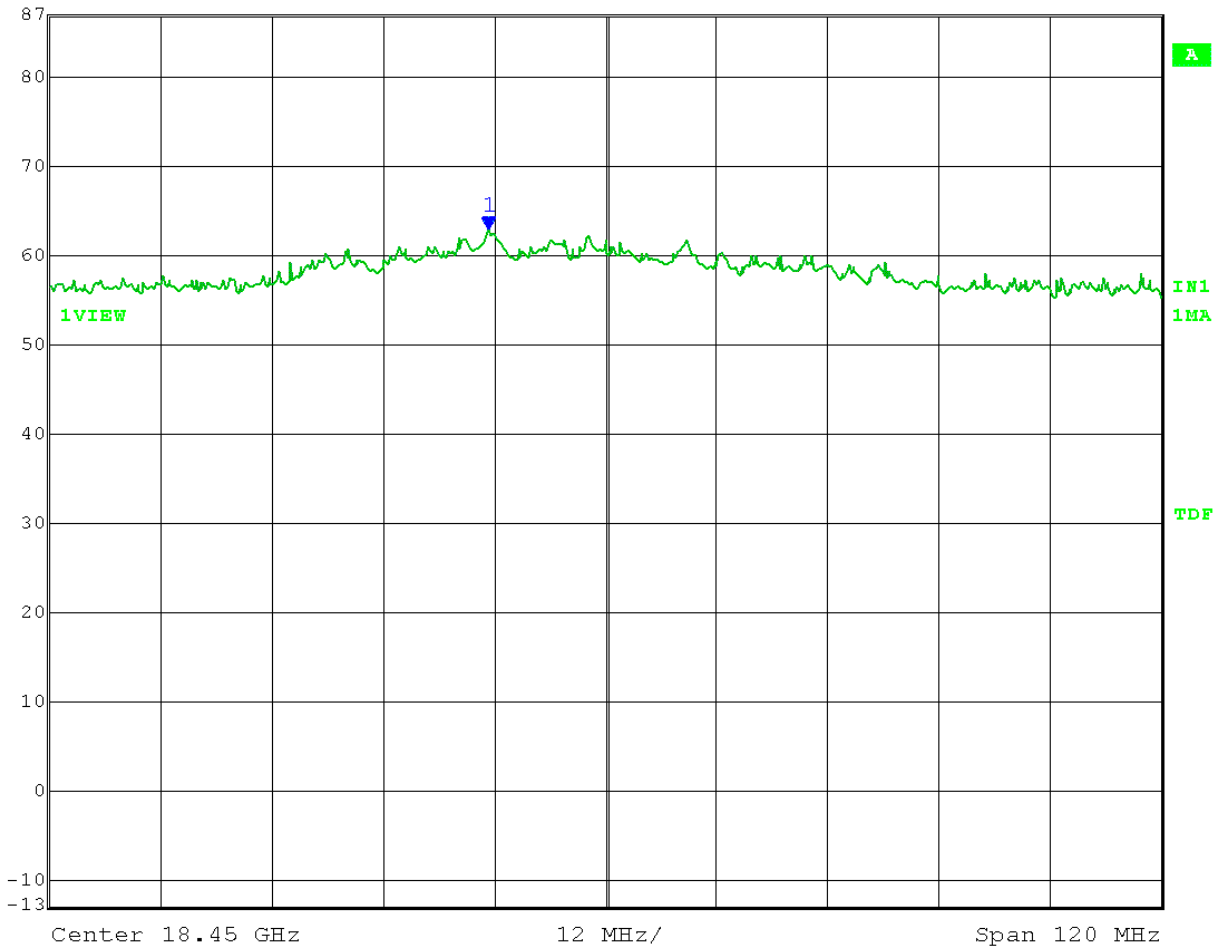
Date: 26.FEB.2014   08:57:06

Test Date: 02-26-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Tests: Transmitter Unwanted Out-of-Band Emissions – Radiated from cabinet
Operator: Craig B
Comment: Both transmit chains active at power setting 25 for each chain.
              20 MHz channel BW; Modulation: QPSK
              High channel frequency: 3690 MHz

Limit: -13 dBm

Frequency and Polarization (GHz)	Max. Field Strength of EUT @ 1 meter (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)
						-13	
						-13	

EIRP = Signal generator output - cable loss + antenna gain

NOTE: NO EMISSIONS FOUND 26 to 37 GHz

Appendix B – Measurement Data

B5.0   Transmitter RF Conducted Band-edge with Frequency Stability

Rule Part: FCC Part 2.1055 - Frequency stability

Test Procedure: KDB 971168 D01 Power Meas License Digital Systems v02r01
9.30 Frequency Stability

The EUT was connected to a spectrum analyzer through a cable and attenuator. The ambient temperature was varied from -30 ºC to +50 ºC, and the supply voltage was varied from 102 VAC to 138 VAC. For each condition, the lower and upper band edge was measured to show the frequency of the transmitter does not drift out of its authorized band of operation.

Limit: Amplitude level of -13 dBm at the lower and upper band edges (3650 MHz and 3700 MHz)

Results: Compliant.

Notes:

Only tested QPSK modulation mode as determined worst case by Cambium Networks.
Only tested output port A as determined worst case by Cambium Networks.

The following charts show the band-edge power settings determined for each antenna under normal conditions followed by the extreme conditions band-edge charts using the worst case power settings.

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3652.5 MHz   Power setting: 25 total of both chains

Channel bandwidth: 5 MHz   for 8 dBi antenna gain
Lower band edge frequency = 3650 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -13.25 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-21.85 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -21.85 dBm
3.65000000 GHz
CH PWR   -13.25 dBm
CH BW   1.00000000 MHz

A

1VIEW

IN1
1MA

D1 -13 dBm

TDF

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014   10:31:12

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3652.5 MHz   Power setting: 18 total of both chains
                Channel bandwidth: 5 MHz   for 17 dBi antenna gain
                Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -27.74 dBm/MHz

Date: 19.FEB.2014   10:52:55

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3652.5 MHz   Power setting: 15 total of both chains

Channel bandwidth: 5 MHz   for 20 dBi antenna gain
Lower band edge frequency = 3650 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -29.93 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-33.73 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -33.73 dBm
3.65000000 GHz
CH PWR   -29.93 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

C0

C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014 10:55:17

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3652.5 MHz   Power setting: 13 total of both chains

               Channel bandwidth: 5 MHz   for 22 dBi antenna gain
               Lower band edge frequency = 3650 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -30.54 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	50 kHz	RF Att	20 dB
30 dBm	-35.94 dBm	VBW	200 kHz		
10 dBm	3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -35.94 dBm
                3.65000000 GHz
CH PWR   -30.54 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014 10:57:56

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
             Detector = Peak   Sweep = auto couple
             Trace = max hold
             Low Channel: Transmit = 3652.5 MHz   Power setting: 25 total of both chains

             Channel bandwidth: 5 MHz   for 8 dBi antenna gain
             Lower band edge frequency = 3650 MHz   Output port: A
             Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
             Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

                   Power level at band edge = -13.25 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-21.85 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

	1 [T1]	-21.85 dBm
		3.65000000 GHz
	CH PWR	-13.25 dBm
	CH BW	1.00000000 MHz

1VIEW

D1 -13 dBm

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014 10:31:12

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3652.5 MHz   Power setting: 25 total of both chains

                Channel bandwidth: 5 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 138 V
                Power level at band edge = -13.01 dBm/MHz

| Max/Ref Lvl | Marker 1 [T1] | | RBW | 50 kHz | RF Att | 20 dB |

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014   14:48:26

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
             Detector = Peak   Sweep = auto couple
             Trace = max hold
             Low Channel: Transmit = 3652.5 MHz   Power setting: 25 total of both
                                                      chains
             Channel bandwidth: 5 MHz   for 8 dBi antenna gain
             Lower band edge frequency = 3650 MHz   Output port: A
             Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
             Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 102 V

            Power level at band edge = -13.00 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	50 kHz	RF Att	20 dB
30 dBm		-21.57 dBm	VBW	200 kHz	
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -21.57 dBm
                        3.65000000 GHz
CH PWR   -13.00 dBm
CH BW   1.00000000 MHz

1VIEW

D1 -13 dBm

A
IN1
1MA
TDF

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014 14:50:30

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
          Detector = Peak   Sweep = auto couple
          Trace = max hold
          Low Channel: Transmit = 3652.5 MHz   Power setting: 25 total of both chains

          Channel bandwidth: 5 MHz   for 8 dBi antenna gain
          Lower band edge frequency = 3650 MHz   Output port: A
          Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
          Measured power at band edge is integrated over a 1 MHz bandwidth

30 °C, 120 V

Power level at band edge = -13.15 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-21.67 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm


```
          1 [T1]           -21.67 dBm
                           3.65000000 GHz
          CH PWR           -13.15 dBm
          CH BW            1.00000000 MHz

1VIEW

D1 -13 dBm
```

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014   15:29:13

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3652.5 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 5 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

40 °C, 120 V

                Power level at band edge = -13.44 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-21.71 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -21.71 dBm
                3.65000000 GHz
CH PWR   -13.44 dBm
CH BW   1.00000000 MHz

A

1VIEW

IN1
1MA

D1 -13 dBm

TDF

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014   08:54:48

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3652.5 MHz   Power setting: 25 total of both chains
               Channel bandwidth: 5 MHz   for 8 dBi antenna gain
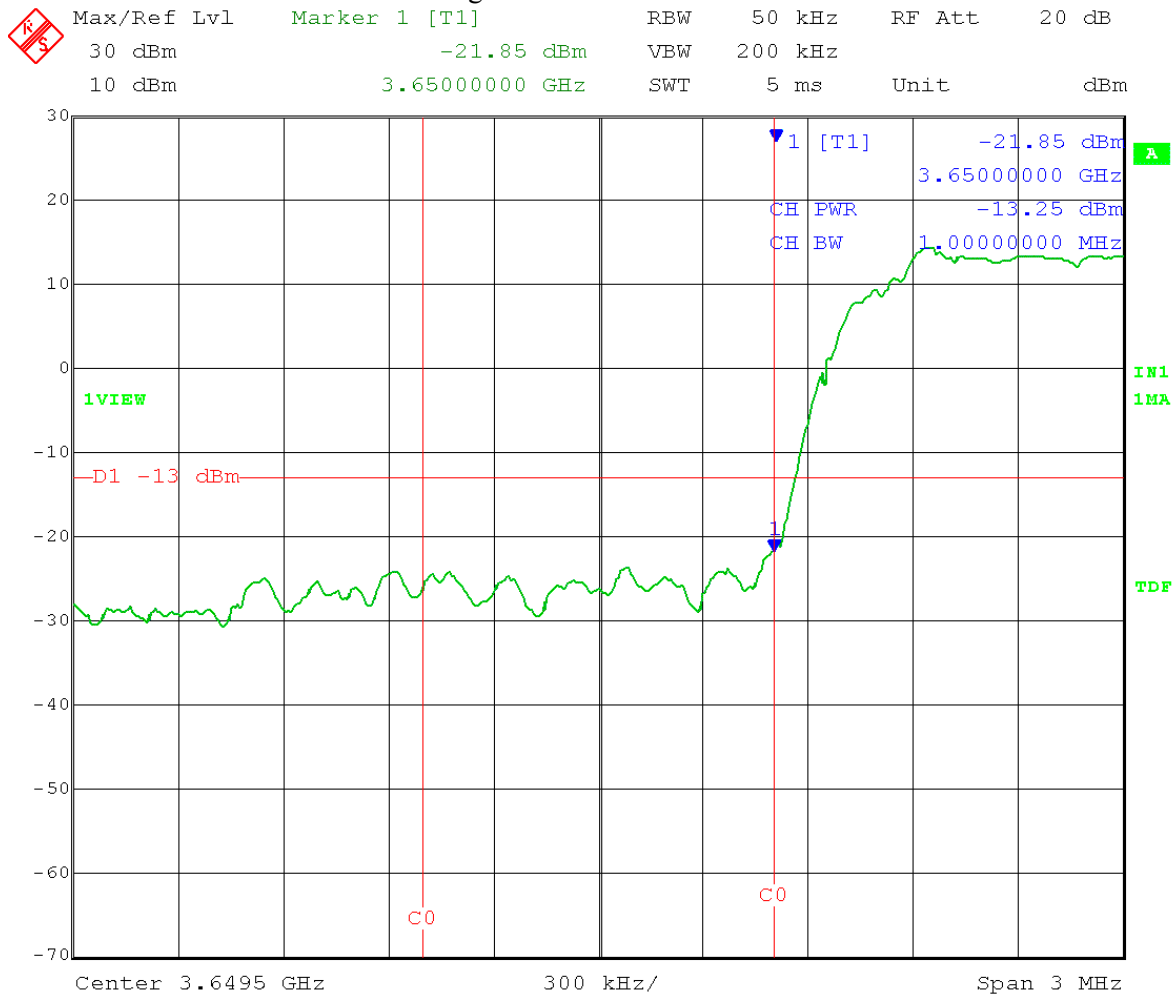   Lower band edge frequency = 3650 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

50 °C, 120 V
                    Power level at band edge = -13.72 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-21.97 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -21.97 dBm
                3.65000000 GHz
CH PWR   -13.72 dBm
CH BW   1.00000000 MHz

1VIEW

D1 -13 dBm

A
IN1
1MA
TDF

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 09:59:42

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
          Detector = Peak   Sweep = auto couple
          Trace = max hold
          Low Channel: Transmit = 3652.5 MHz   Power setting: 24 total of both chains

          Channel bandwidth: 5 MHz   for 8 dBi antenna gain
          Lower band edge frequency = 3650 MHz   Output port: A
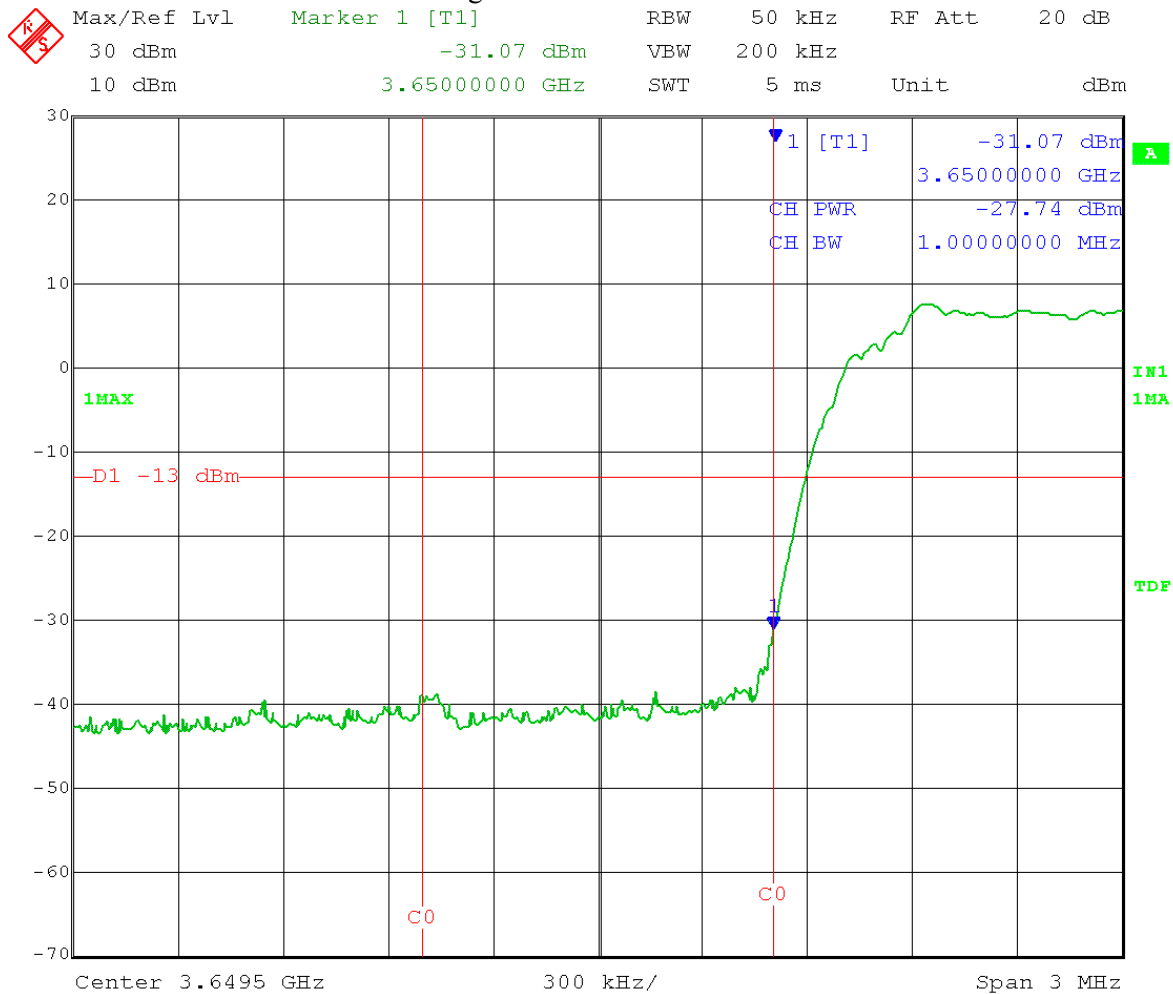   Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
          Measured power at band edge is integrated over a 1 MHz bandwidth

10 °C, 120 V
                    Power level at band edge = -15.64 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-24.05 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -24.05 dBm
                3.65000000 GHz
CH PWR   -15.64 dBm
CH BW   1.00000000 MHz

A
IN1
1MA

1MAX

D1 -13 dBm

TDF

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 11:21:37

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3652.5 MHz   Power setting: 24 total of both chains

               Channel bandwidth: 5 MHz   for 8 dBi antenna gain
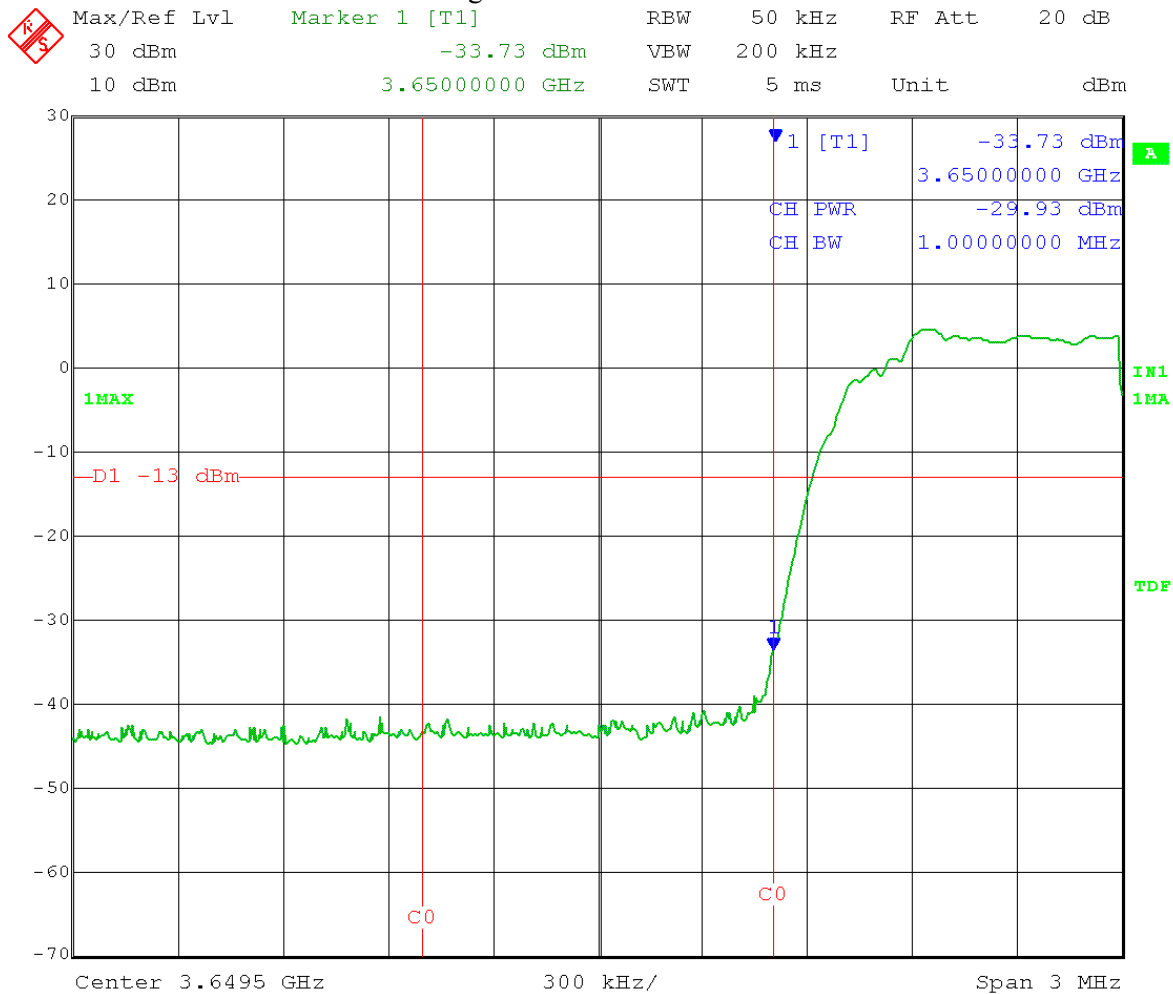   Lower band edge frequency = 3650 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

0 °C, 120 V

Power level at band edge = -15.10 dBm/MHz

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 12:49:13

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3652.5 MHz   Power setting: 24 total of both chains

               Channel bandwidth: 5 MHz   for 8 dBi antenna gain
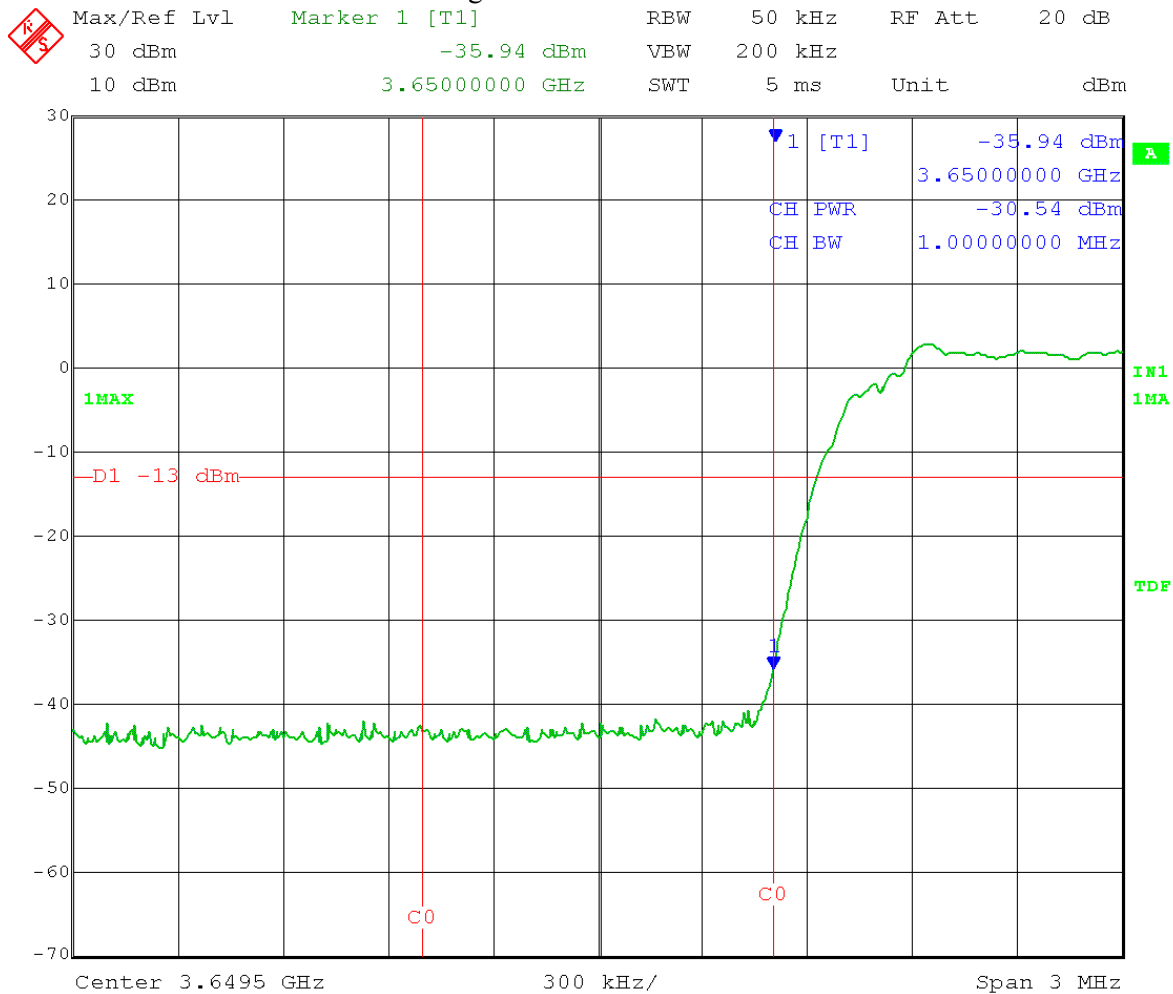   Lower band edge frequency = 3650 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

               Power level at band edge = -14.75 dBm/MHz

Date: 20.FEB.2014   13:45:19

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3652.5 MHz   Power setting: 24 total of both chains
Channel bandwidth: 5 MHz   for 8 dBi antenna gain
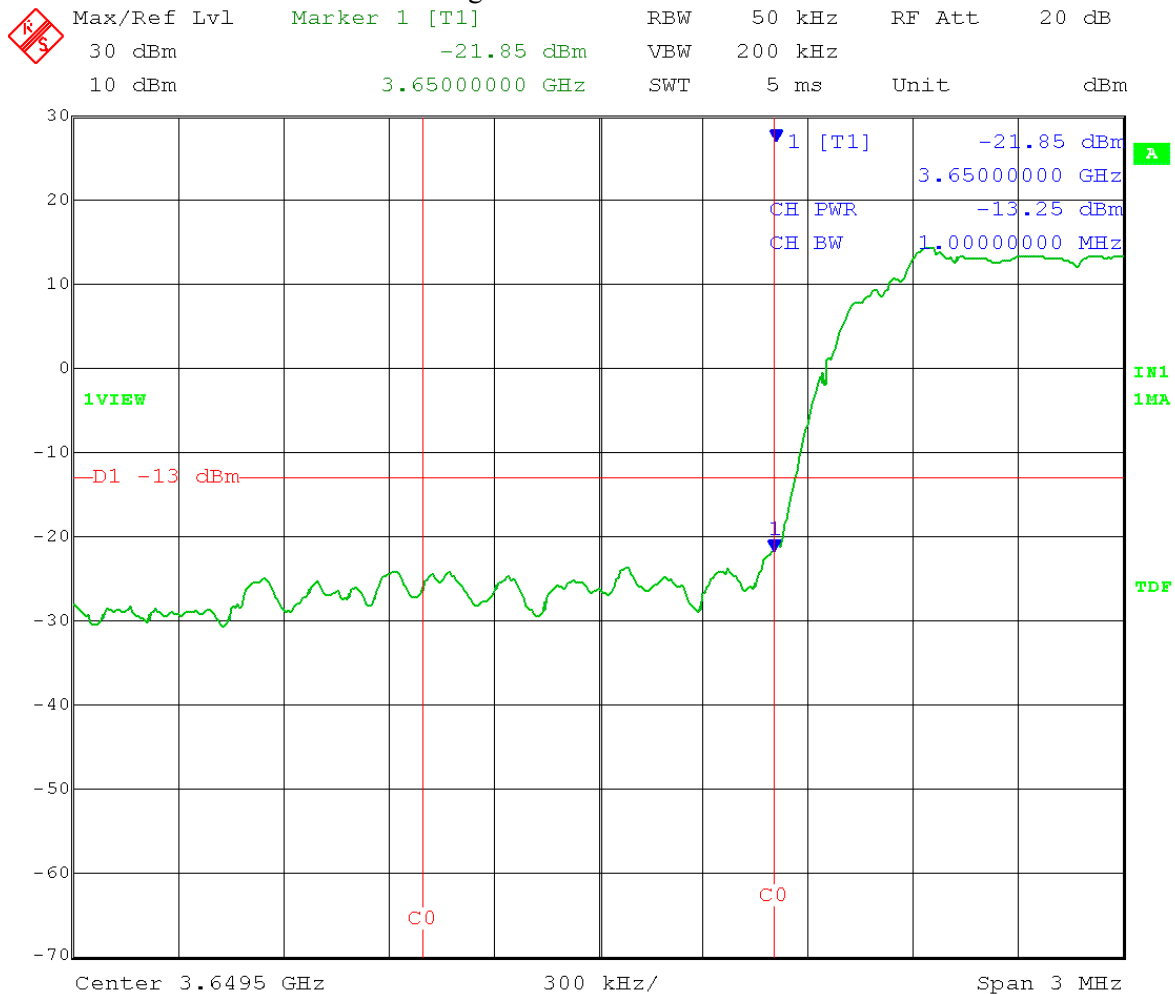Lower band edge frequency = 3650 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

-20 °C, 120 V

Power level at band edge = -14.41 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-23.13 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -23.13 dBm
3.65000000 GHz
CH PWR   -14.41 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 14:45:23

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3652.5 MHz   Power setting: 24 total of both chains
Channel bandwidth: 5 MHz   for 8 dBi antenna gain
Lower band edge frequency = 3650 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

-30 °C, 120 V
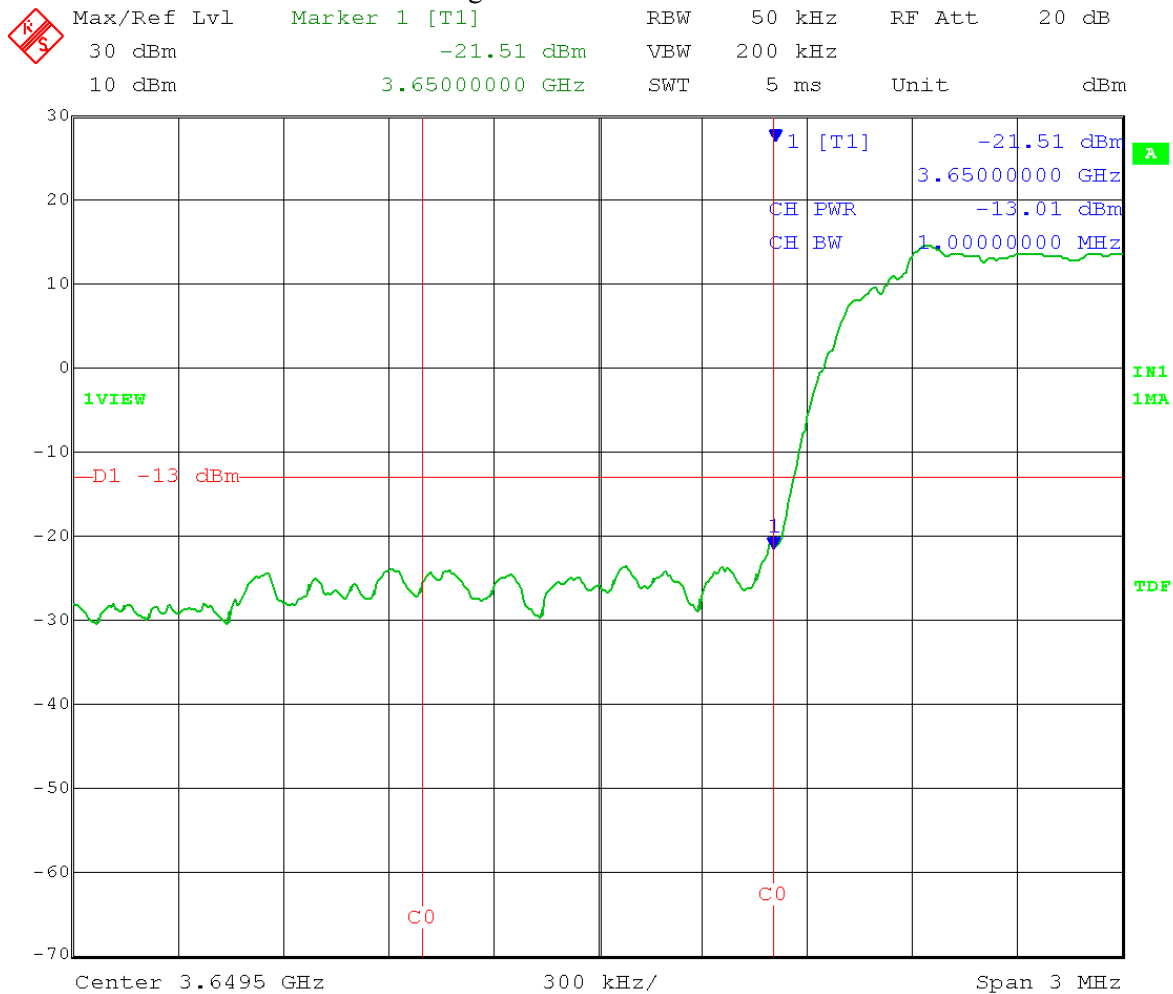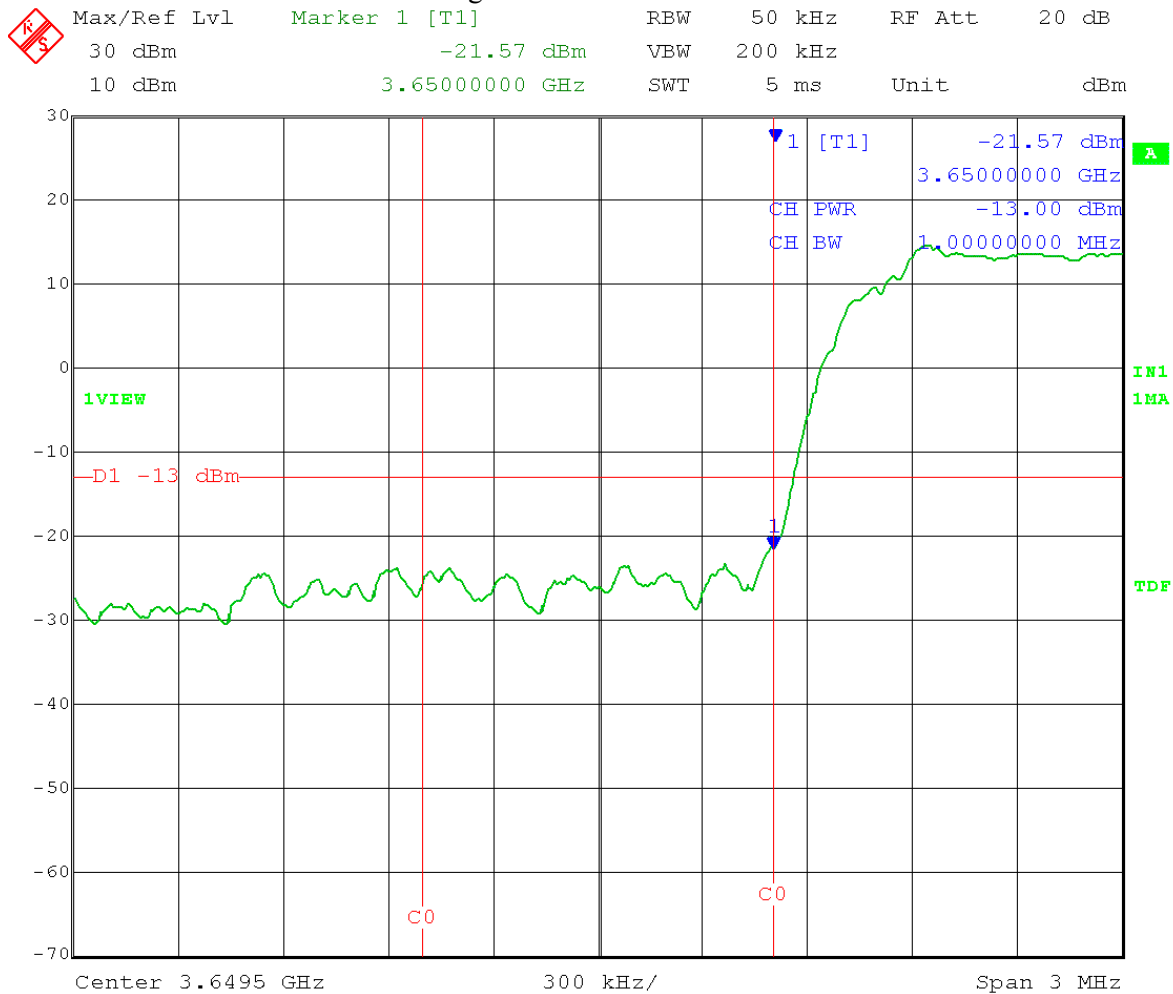
Power level at band edge = -13.83 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-22.54 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -22.54 dBm
                    3.65000000 GHz
CH PWR   -13.83 dBm
CH BW   1.00000000 MHz

A
1MAX
D1 -13 dBm
IN1
1MA
TDF
C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 15:43:41

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains

Channel bandwidth: 5 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -14.78 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-24.78 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -24.78 dBm
3.70000000 GHz
CH PWR   -14.78 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014   11:18:23

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3697.5 MHz   Power setting: 18 total of both chains

Channel bandwidth: 5 MHz   for 17 dBi antenna gain
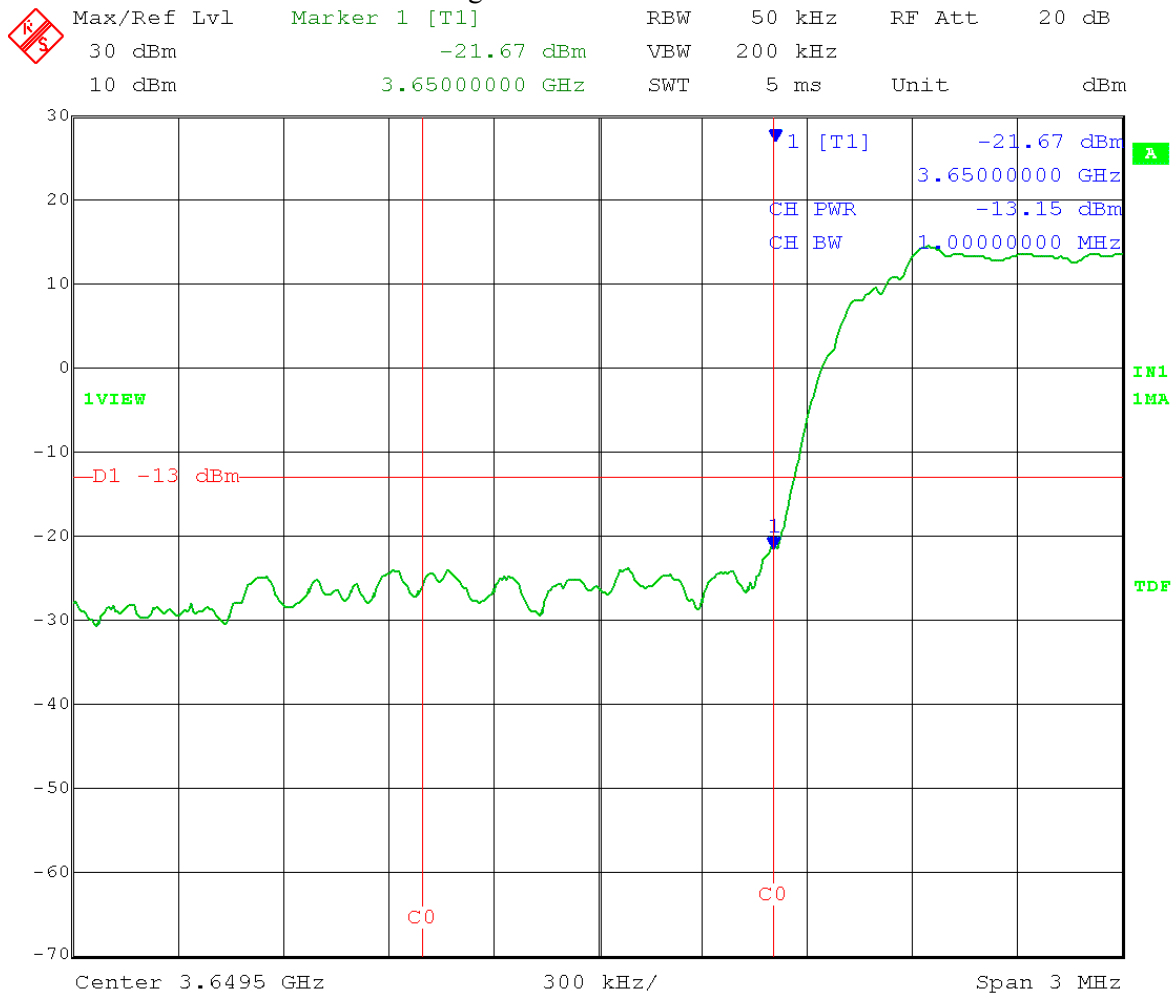Upper band edge frequency = 3700 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -27.54 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-35.04 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -35.04 dBm
3.70000000 GHz
CH PWR   -27.54 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

IN1
1MA

TDF

C0   C0

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 19.FEB.2014 11:21:54

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3697.5 MHz   Power setting: 15 total of both chains

               Channel bandwidth: 5 MHz   for 20 dBi antenna gain
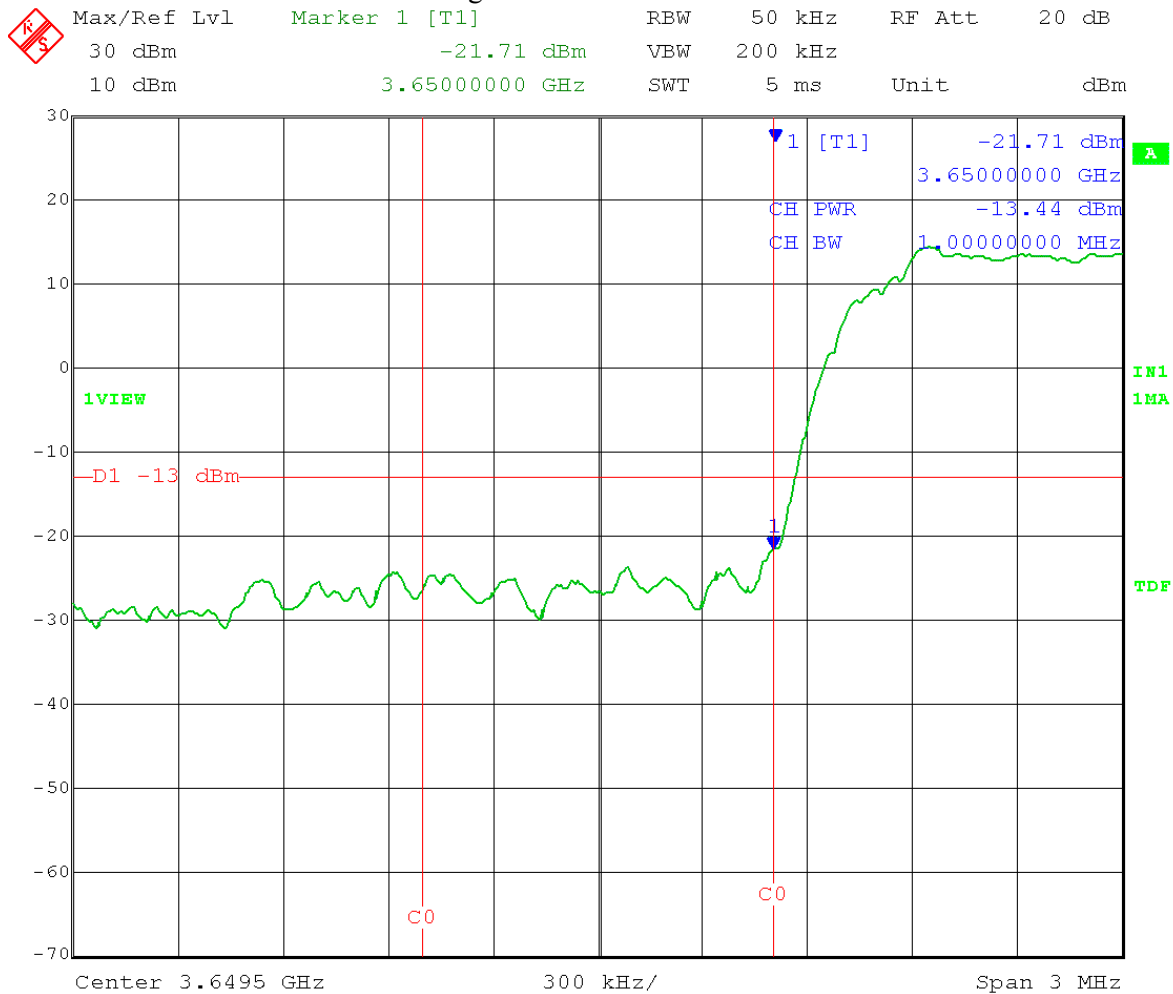   Upper band edge frequency = 3700 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -30.06 dBm/MHz
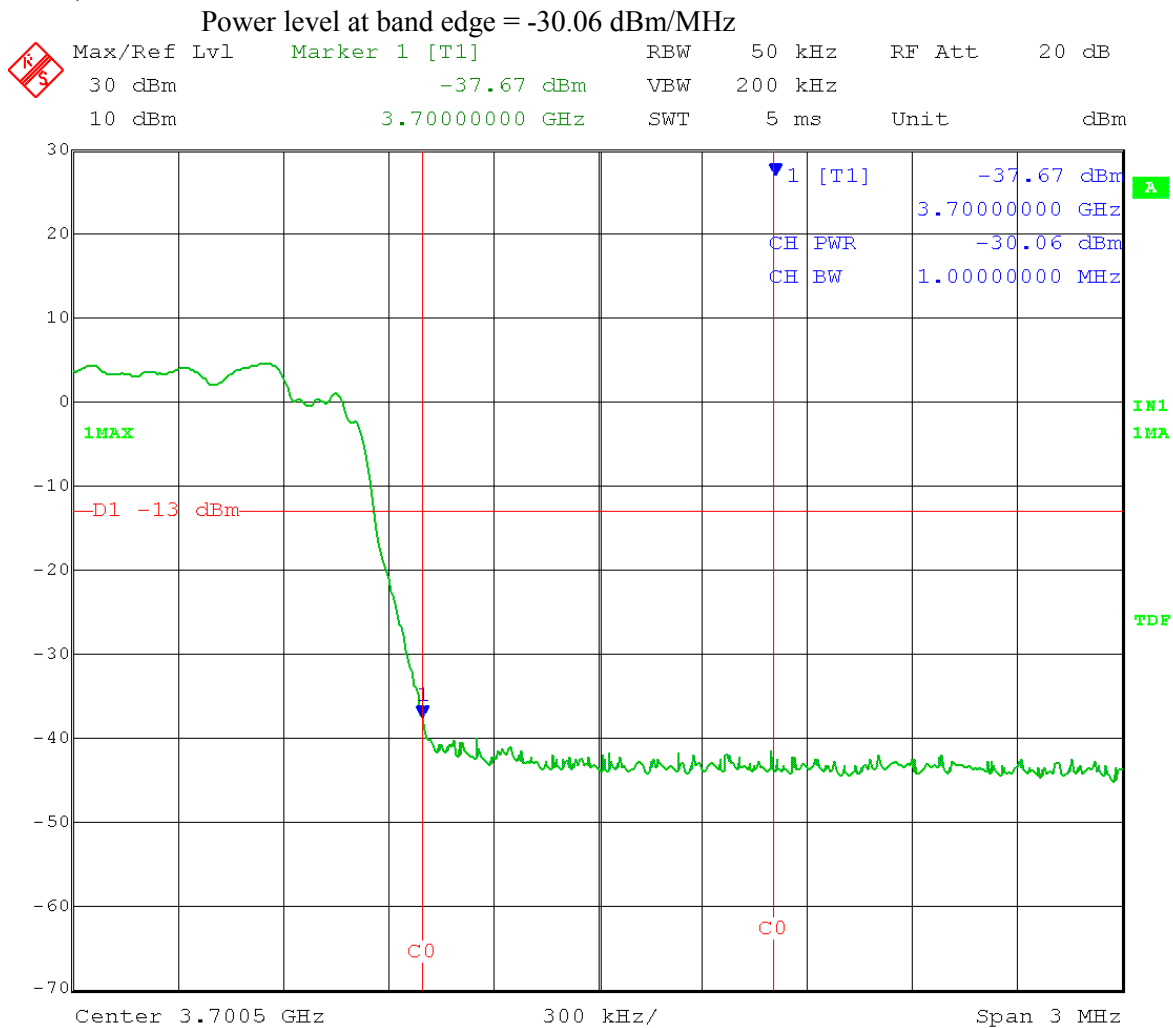
Date: 19.FEB.2014 11:24:26

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3697.5 MHz   Power setting: 13 total of both
                                                           chains
                Channel bandwidth: 5 MHz   for 22 dBi antenna gain
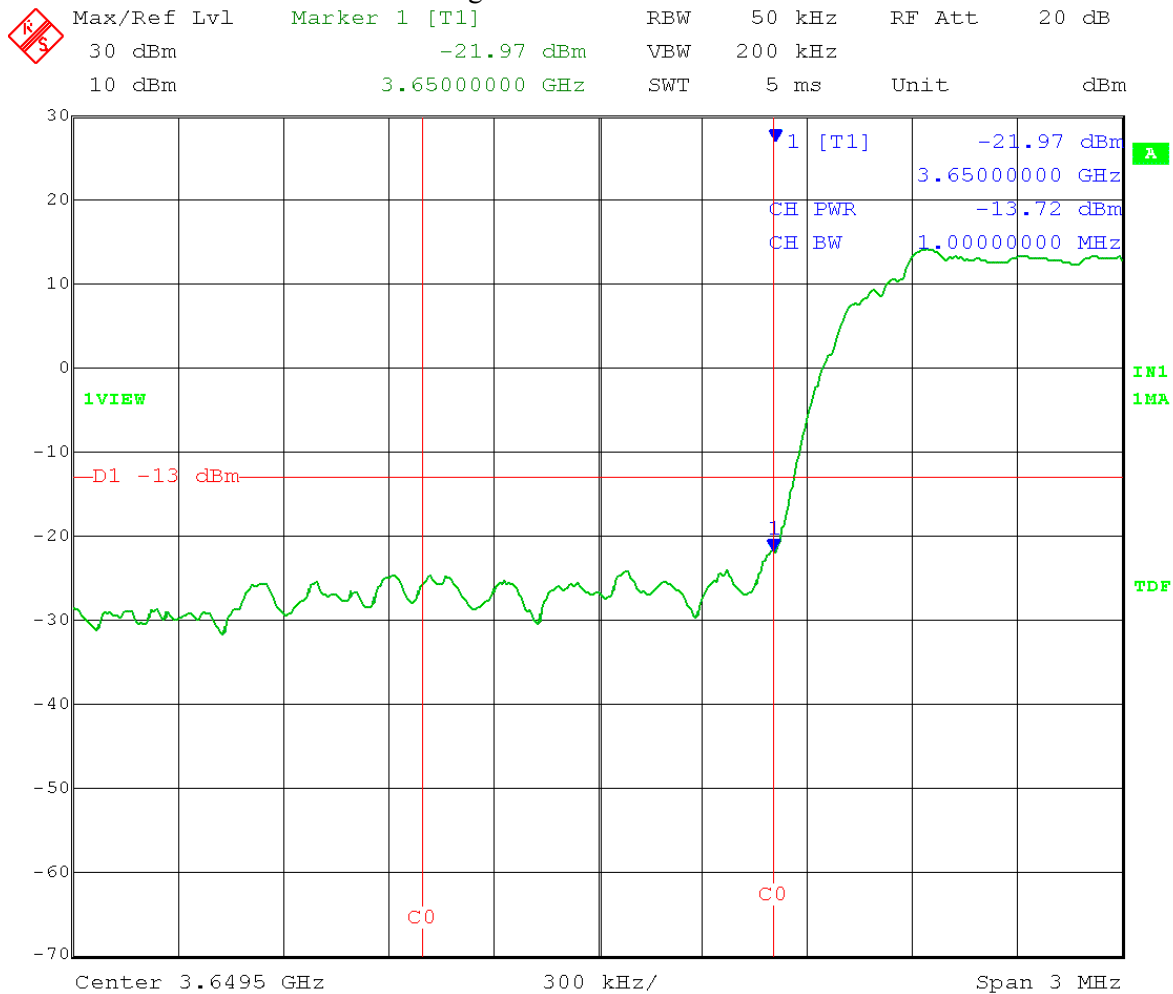   Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V
                        Power level at band edge = -30.80 dBm/MHz
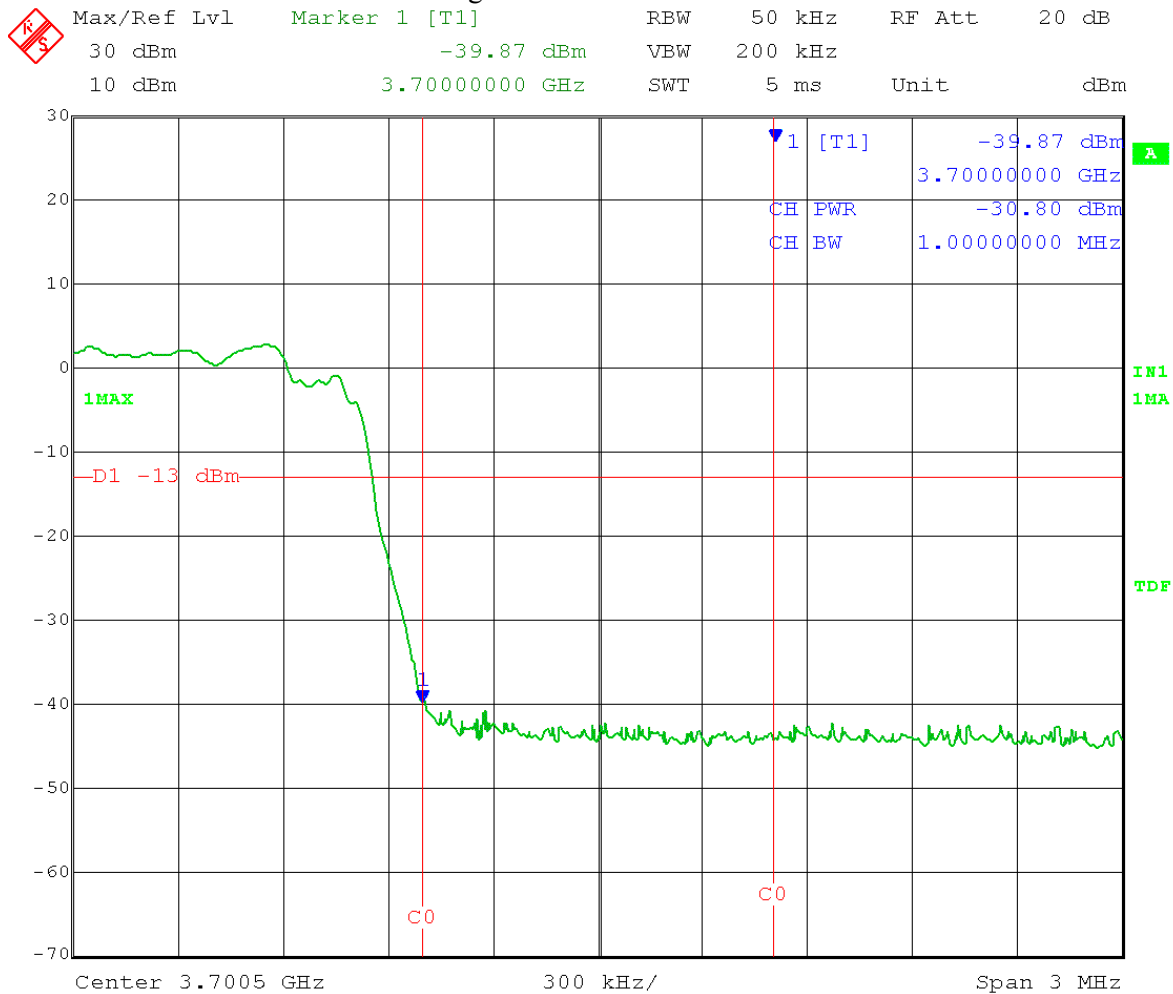
Date: 19.FEB.2014   11:26:36

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains
              Channel bandwidth: 5 MHz   for 8 dBi antenna gain
              Upper band edge frequency = 3700 MHz   Output port: A
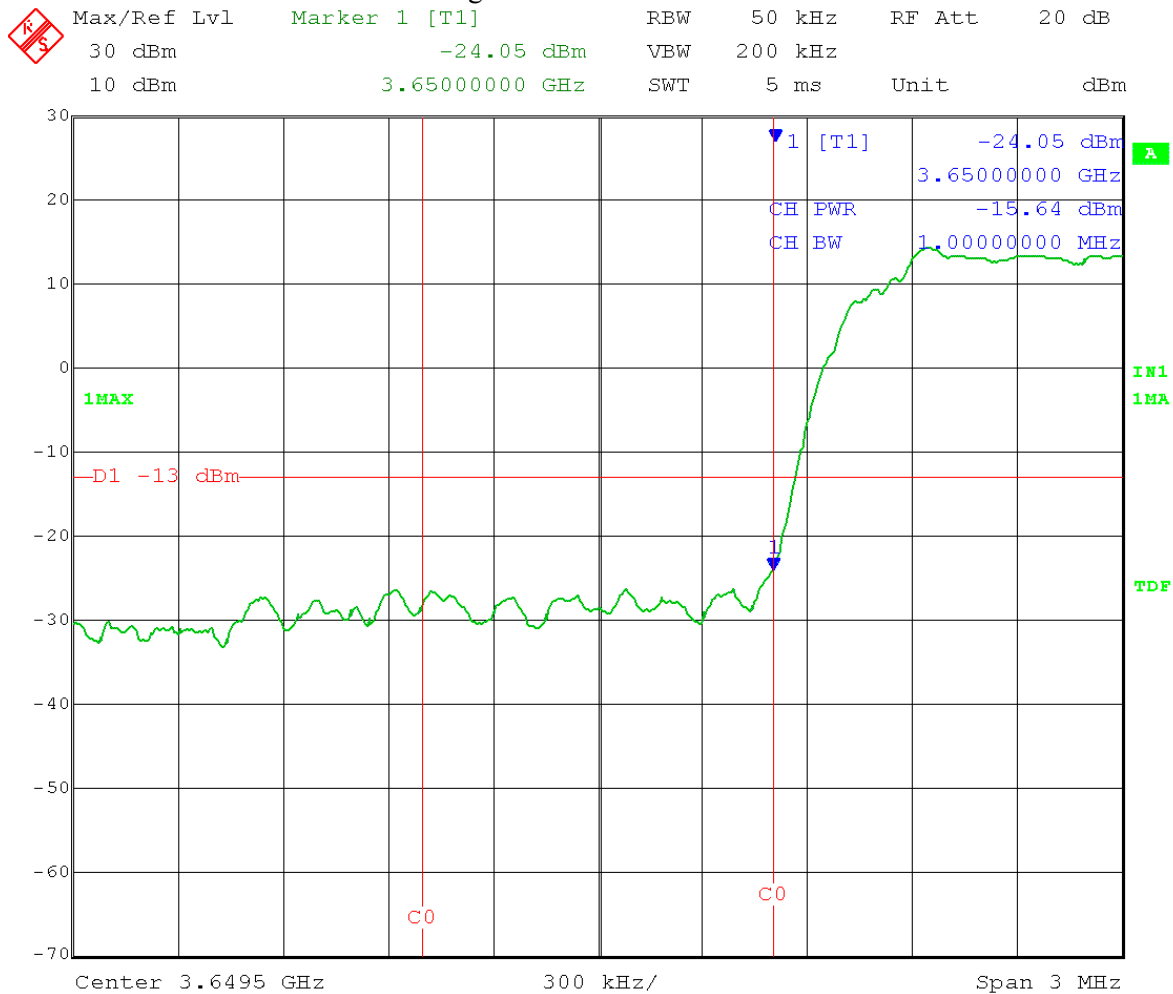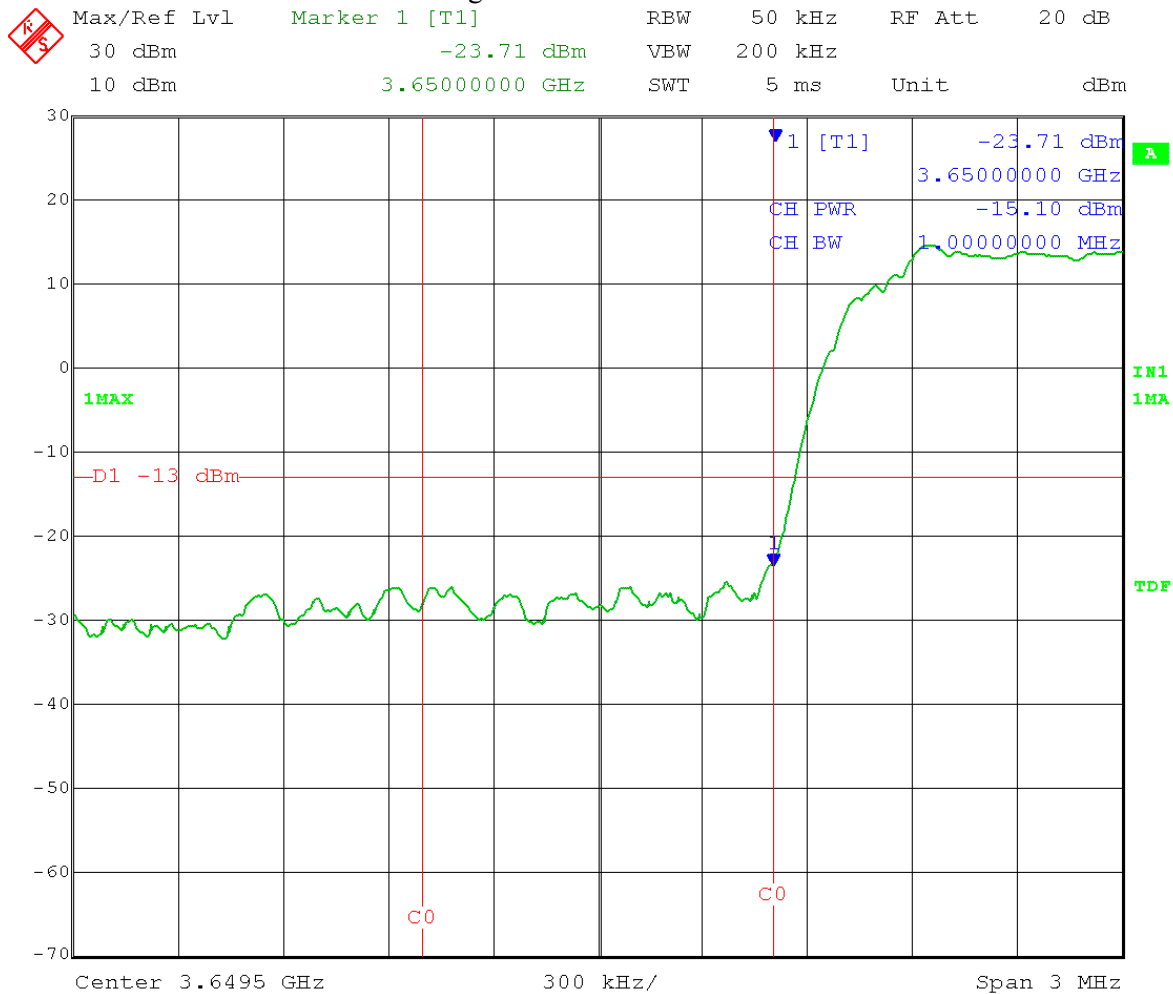   Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
              Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -14.78 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-24.78 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
 30
                                          ▼1 [T1]          -24.78 dBm    A
                                                        3.70000000 GHz
 20
                                          CH PWR          -14.78 dBm
                                          CH BW       1.00000000 MHz
 10
                                                                          IN1
  0                                                                       1MA
 1MAX
-10
-D1 -13 dBm
-20
            1
-30
-40
-50
-60                               C0              C0
-70
     Center 3.7005 GHz          300 kHz/            Span 3 MHz
```

Date: 19.FEB.2014 11:18:23

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains
               Channel bandwidth: 5 MHz   for 8 dBi antenna gain
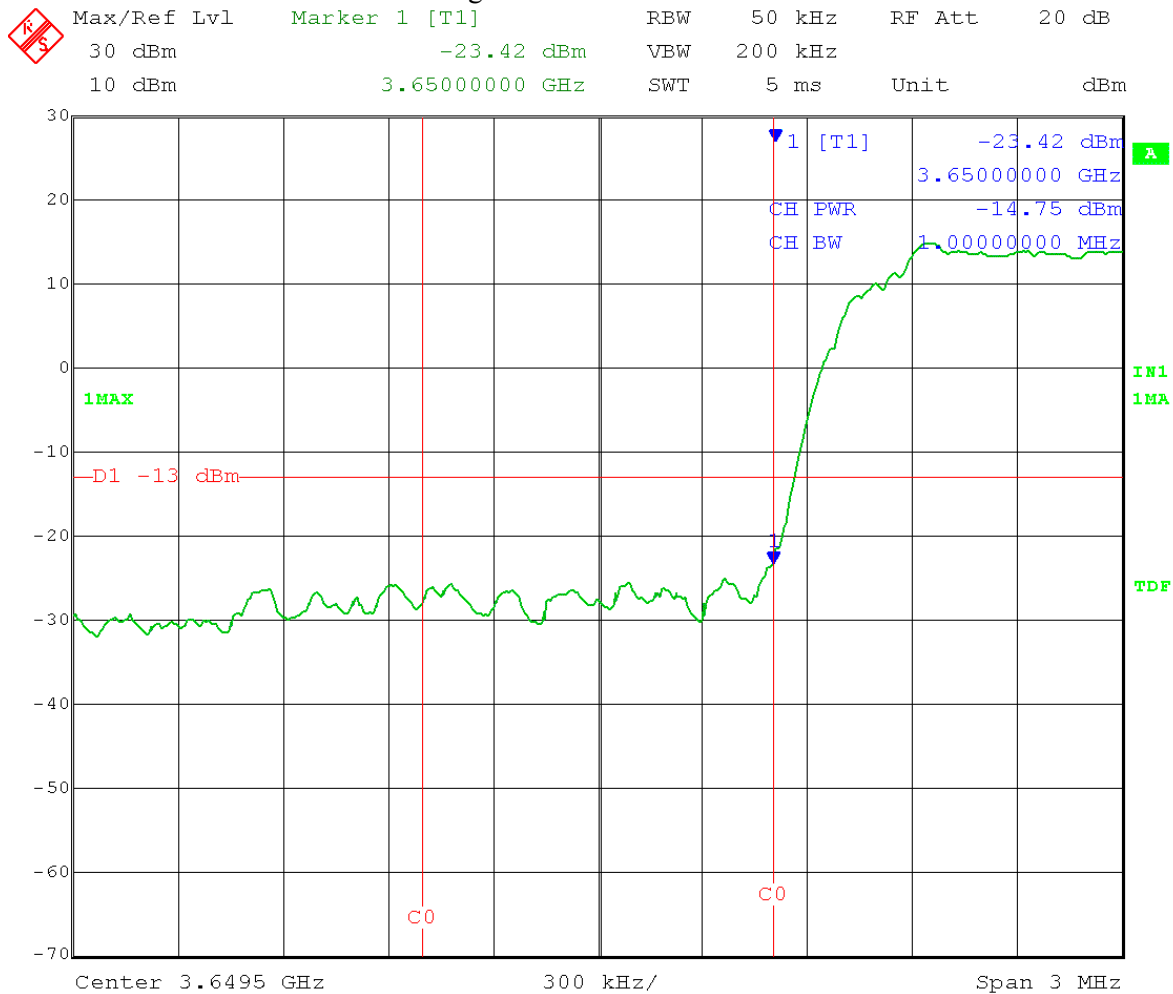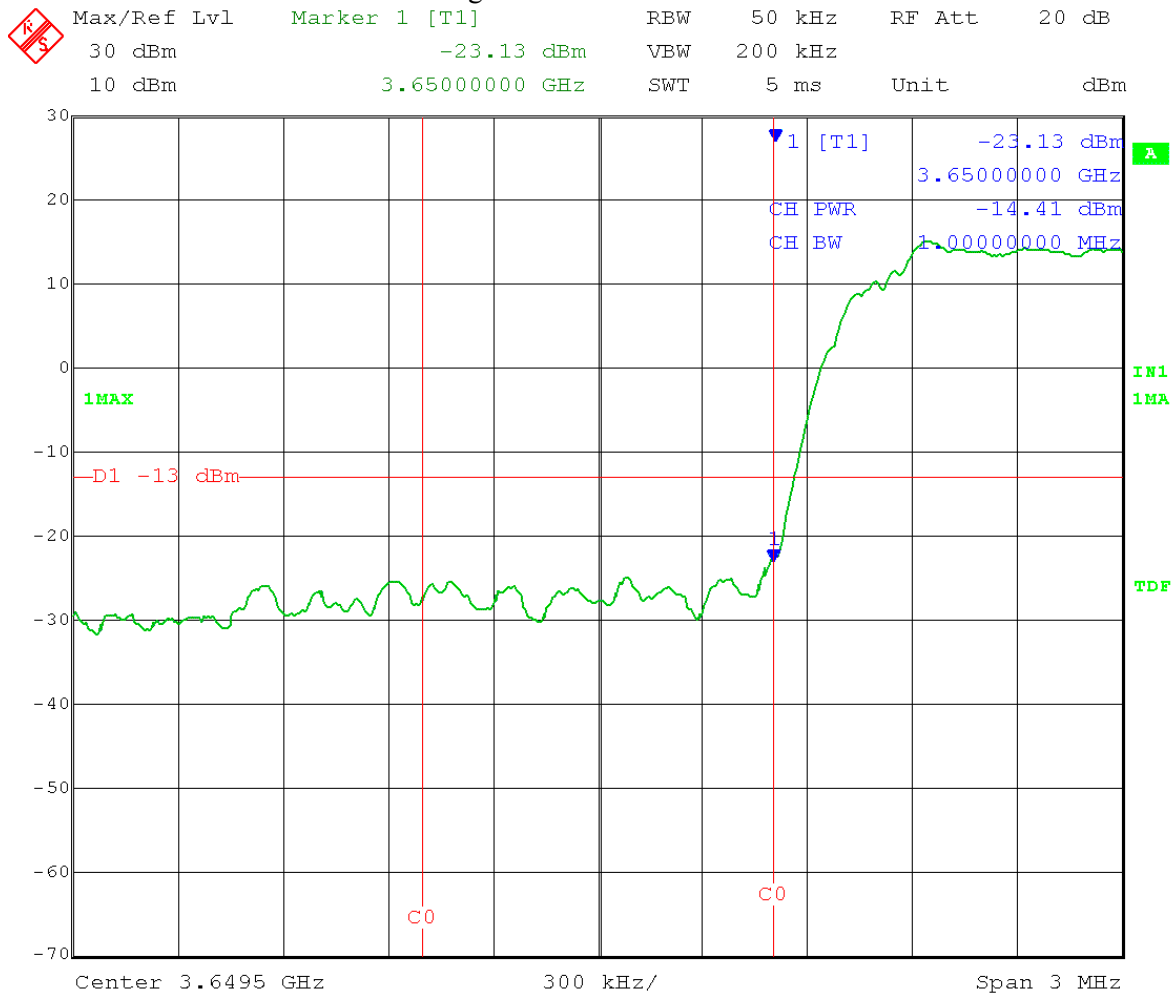   Upper band edge frequency = 3700 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 138 V

Power level at band edge = -14.53 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-24.84 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
  30 ┬─────────────────────────┬─────────────────────────┐
     │                         │        ▼1 [T1]    -24.84 dBm │ A
     │                         │        3.70000000 GHz        │
  20 ┼─────────────────────────┼────────                      │
     │                         │        CH PWR    -14.53 dBm │
     │                         │        CH BW  1.00000000 MHz │
  10 ┼──╥──────────────────────┼─────────────────────────┤ IN1
     │   ╙╥─╥─╥──╥              │                            │ 1MA
   0 ┼─────────────────────────┼─────────────────────────┤
     │ 1MAX      ╙╥            │                          │
 -10 ┼────────────╫────────────┼─────────────────────────┤
     │─D1 -13 dBm─╫────────────┼─────────────────────────┤
 -20 ┼────────────╫────────────┼─────────────────────────┤
     │            1╙╥─╥─╥─╥╖╥─╥─╥─╥─╥─╥╖╥╥─╥╥╥─╥╖──╥      │ TDF
 -30 ┼─────────────────────────┼───────────────────╙╥─╥╖╥┤
     │                         │                         ╙╥─┤
 -40 ┼─────────────────────────┼─────────────────────────┤
     │                         │                          │
 -50 ┼─────────────────────────┼─────────────────────────┤
     │                         │                          │
 -60 ┼─────────────────────────┼──────────C0─────────────┤
     │            C0           │                          │
 -70 ┴─────────────────────────┴─────────────────────────┘
   Center 3.7005 GHz        300 kHz/              Span 3 MHz
```

Date: 19.FEB.2014 15:00:23

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
            Detector = Peak   Sweep = auto couple
            Trace = max hold
            High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains
            Channel bandwidth: 5 MHz   for 8 dBi antenna gain
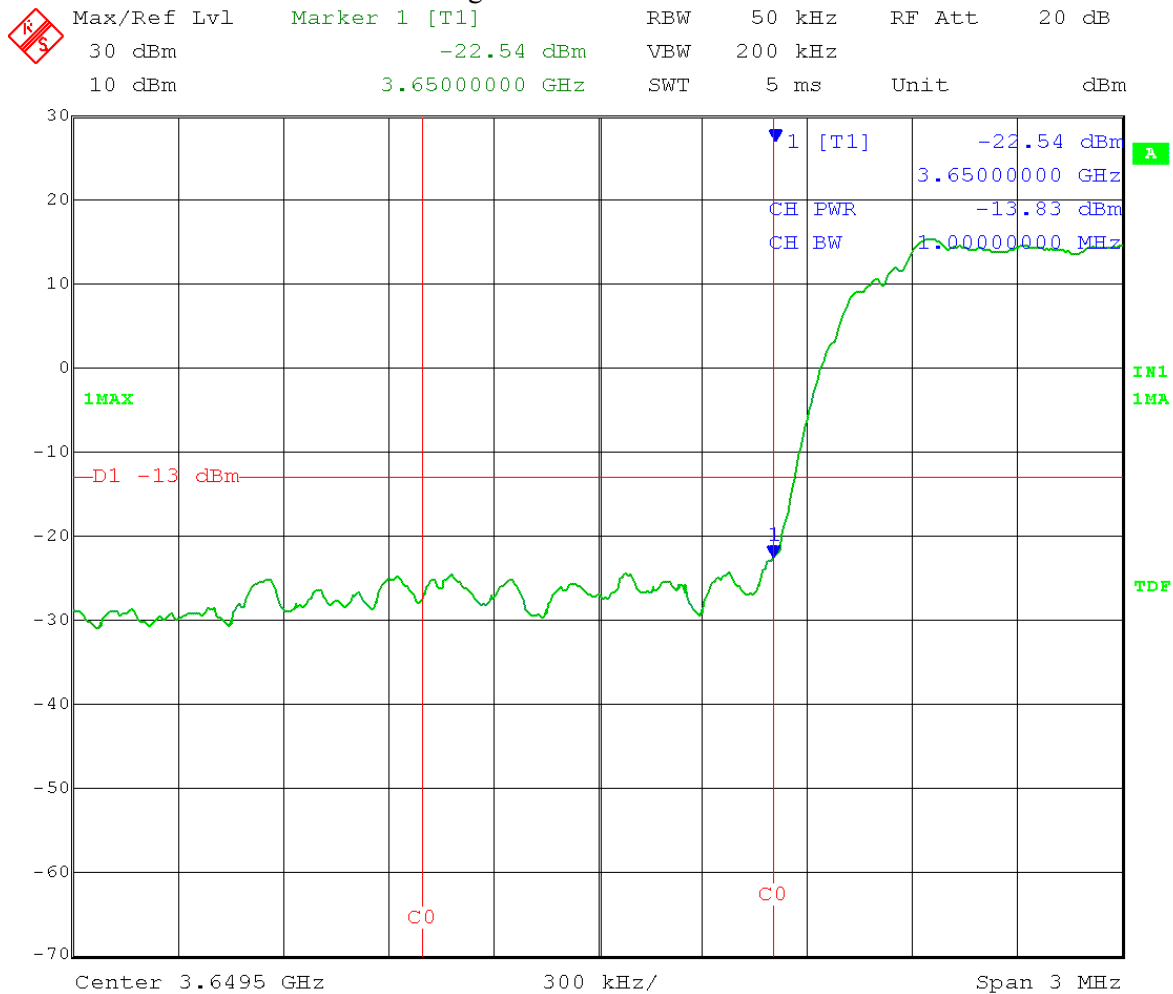   Upper band edge frequency = 3700 MHz   Output port: A
            Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
            Measured power at band edge is integrated over a 1 MHz bandwidth
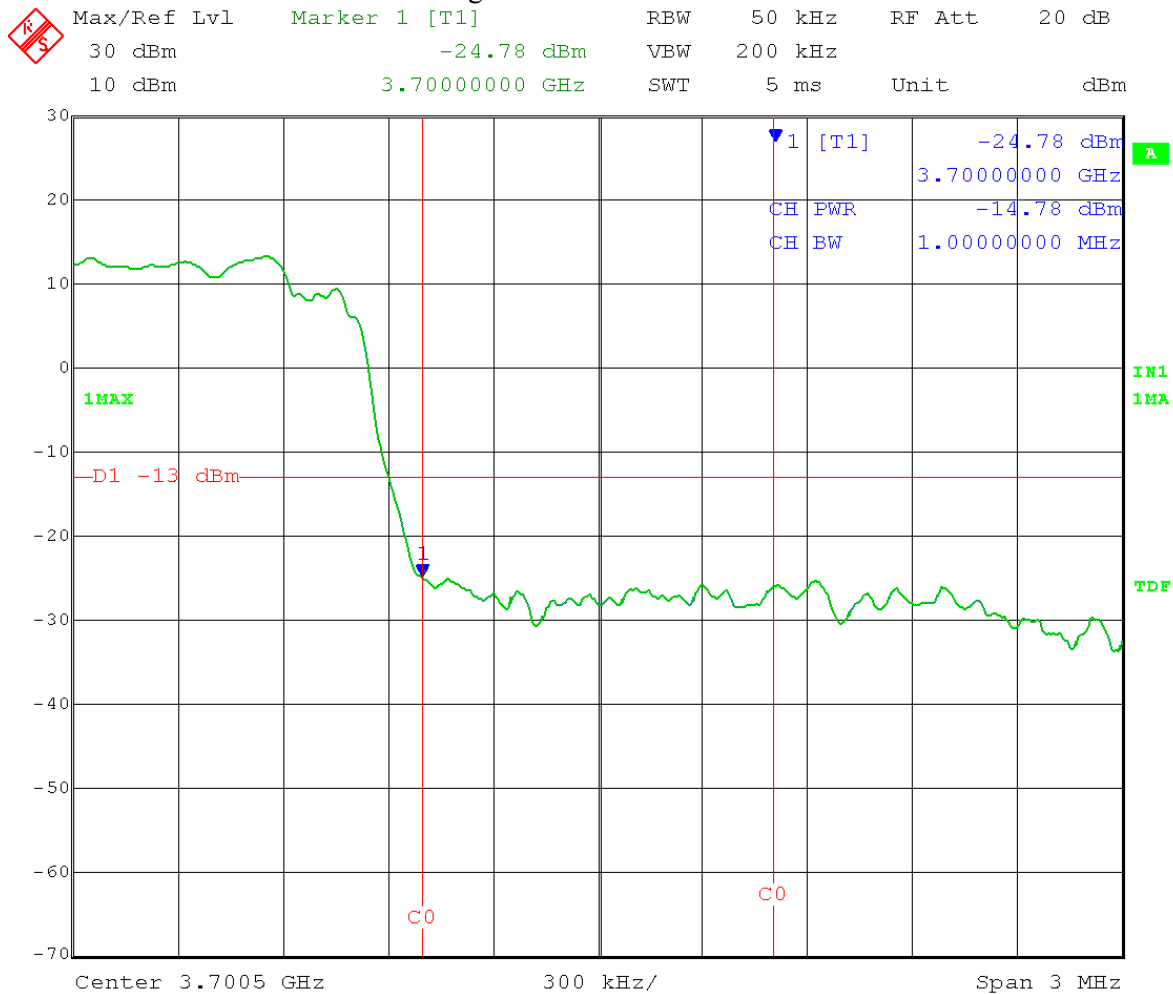
20 °C, 102 V

Power level at band edge = -14.66 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-25.10 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

Date: 19.FEB.2014 14:57:35

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                 Detector = Peak   Sweep = auto couple
                 Trace = max hold
                 High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains

                 Channel bandwidth: 5 MHz   for 8 dBi antenna gain
                 Upper band edge frequency = 3700 MHz   Output port: A
                 Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                 Measured power at band edge is integrated over a 1 MHz bandwidth
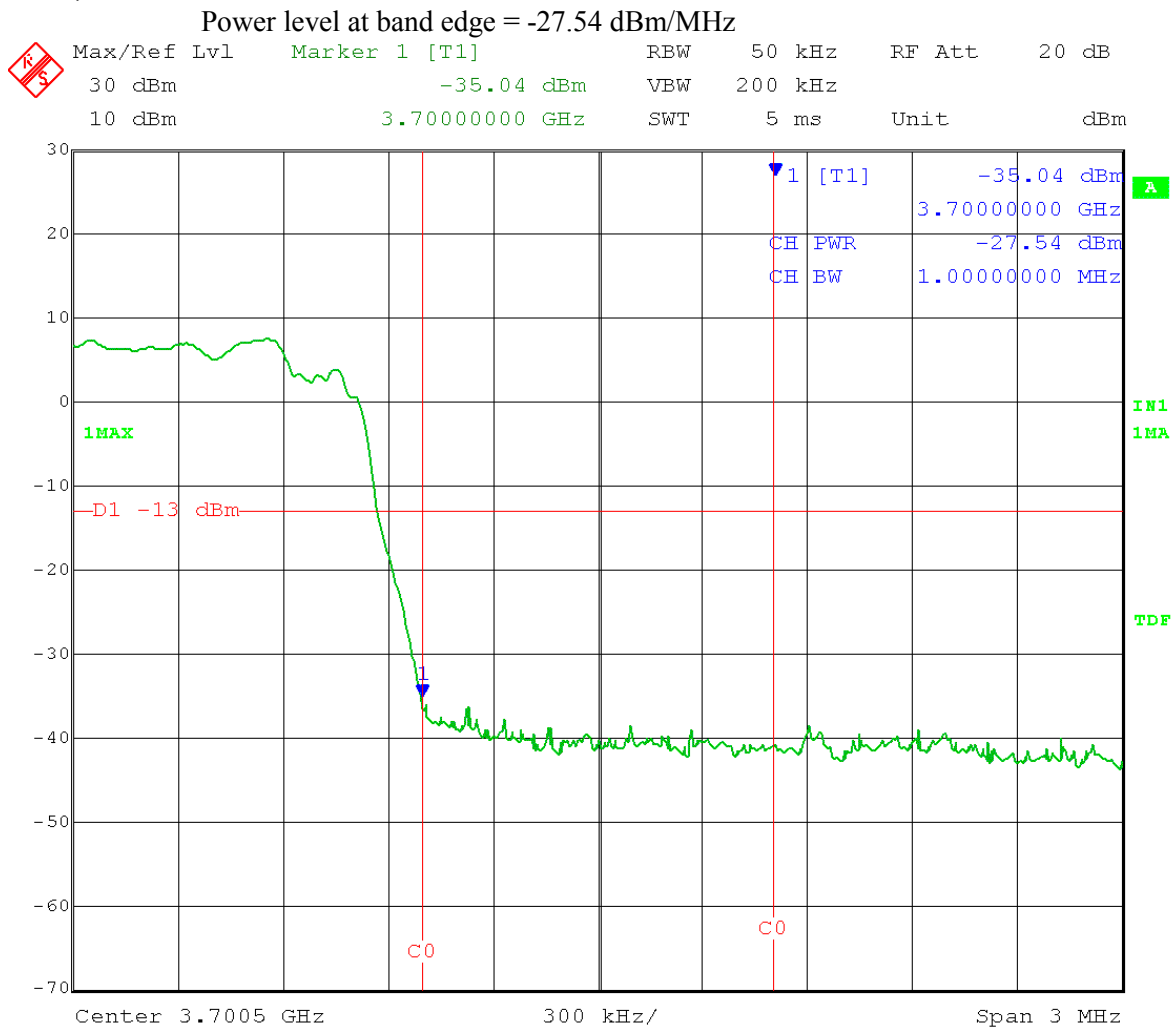
30 °C, 120 V

Power level at band edge = -14.64 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	50 kHz	RF Att	20 dB
30 dBm	-24.71 dBm	VBW	200 kHz		
10 dBm	3.70000000 GHz	SWT	5 ms	Unit	dBm

```
30 ┤                                    ▼1 [T1]        -24.71 dBm
   │                                                3.70000000 GHz
   │                                                               A
20 ┤                                    CH PWR         -14.64 dBm
   │                                    CH BW      1.00000000 MHz
10 ┤ ╱‾‾‾‾‾‾‾╲__╲
   │                ╲
 0 ┤                 ╲                                           IN1
   │1MAX              ╲                                          1MA
-10┤                   ╲
   │─D1 -13 dBm─────────╲──────────────────────────────────────
-20┤                     ╲
   │                    1╲▼_____          TDF
-30┤                      ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾╲_
   │
-40┤
   │
-50┤
   │
-60┤           C0                       C0
   │
-70┴
   Center 3.7005 GHz          300 kHz/            Span 3 MHz
```

Date: 19.FEB.2014 15:26:21

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains

Channel bandwidth: 5 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

40 °C, 120 V

Power level at band edge = -15.13 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	50 kHz	RF Att	20 dB
30 dBm	-25.11 dBm	VBW	200 kHz		
10 dBm	3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -25.11 dBm
3.70000000 GHz
CH PWR   -15.13 dBm
CH BW   1.00000000 MHz

A
IN1
1MA
TDF

1MAX

D1 -13 dBm

C0   C0

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 08:58:43

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains
                Channel bandwidth: 5 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

50 °C, 120 V
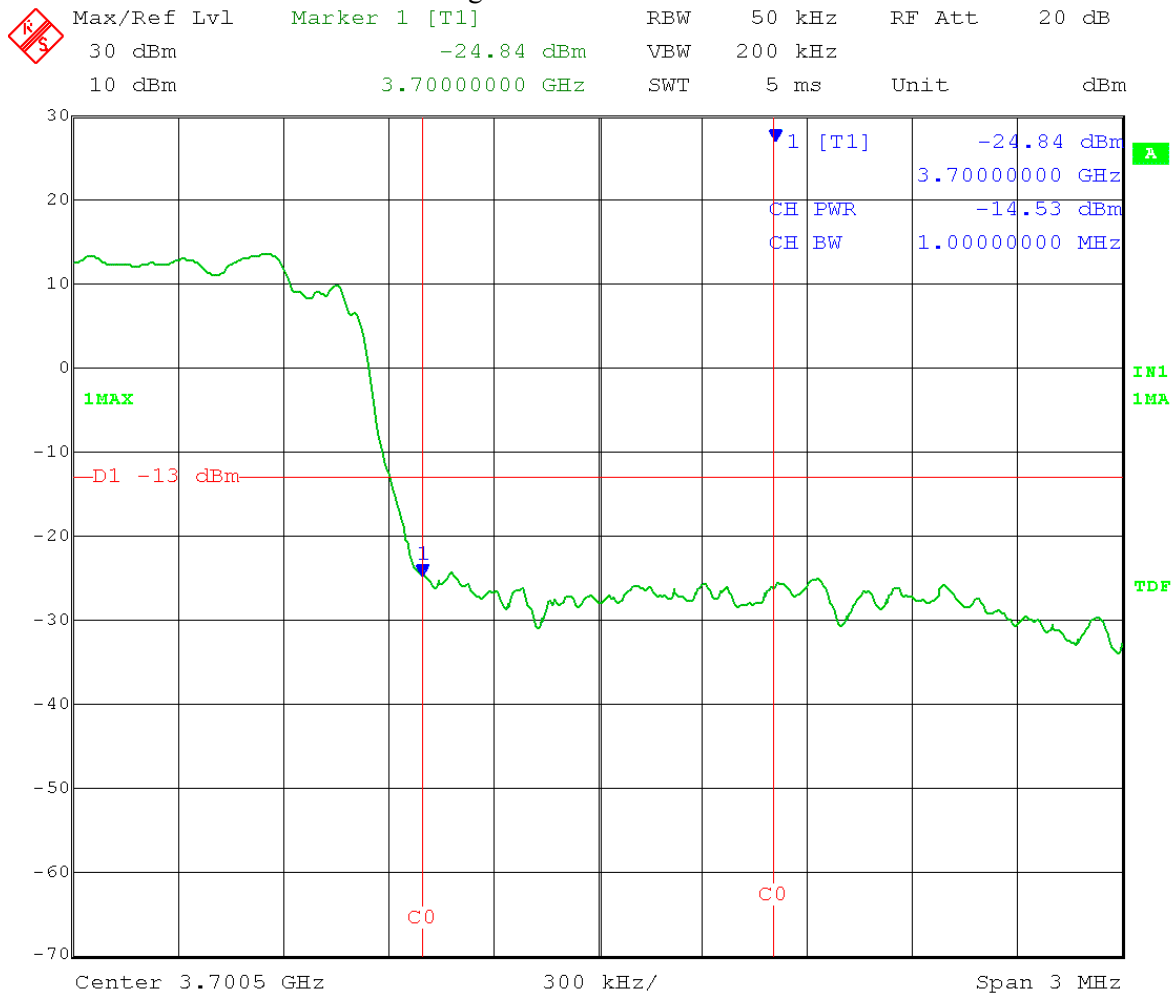   Power level at band edge = -15.64 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-25.90 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm


```
                                                    1 [T1]        -25.90 dBm
                                                                3.70000000 GHz
                                                    CH PWR        -15.64 dBm
                                                    CH BW      1.00000000 MHz
1MAX
D1 -13 dBm

        1

C0                                      C0
```

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014   10:03:09

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
    Detector = Peak   Sweep = auto couple
    Trace = max hold
    High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains
    Channel bandwidth: 5 MHz   for 8 dBi antenna gain
    Upper band edge frequency = 3700 MHz   Output port: A
    Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
    Measured power at band edge is integrated over a 1 MHz bandwidth

10 °C, 120 V

Power level at band edge = -14.05 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-24.38 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1] -24.38 dBm 3.70000000 GHz
CH PWR -14.05 dBm
CH BW 1.00000000 MHz

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 11:24:39

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains
               Channel bandwidth: 5 MHz   for 8 dBi antenna gain
               Upper band edge frequency = 3700 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

0 °C, 120 V

Power level at band edge = -13.66 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	50 kHz	RF Att	20 dB
30 dBm	-23.78 dBm	VBW	200 kHz		
10 dBm	3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -23.78 dBm
                3.70000000 GHz
CH PWR   -13.66 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

C0   C0

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 12:52:32

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains
                Channel bandwidth: 5 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

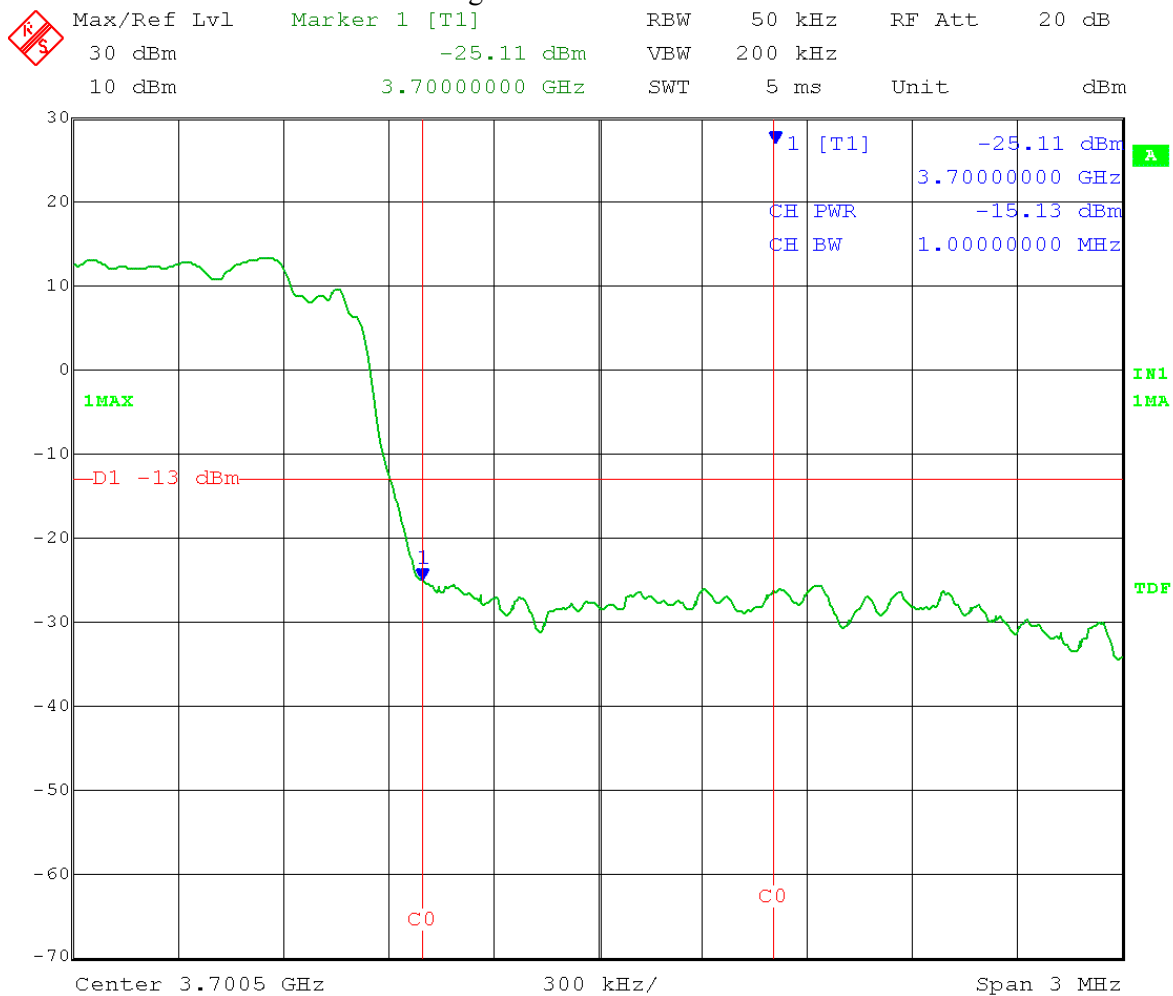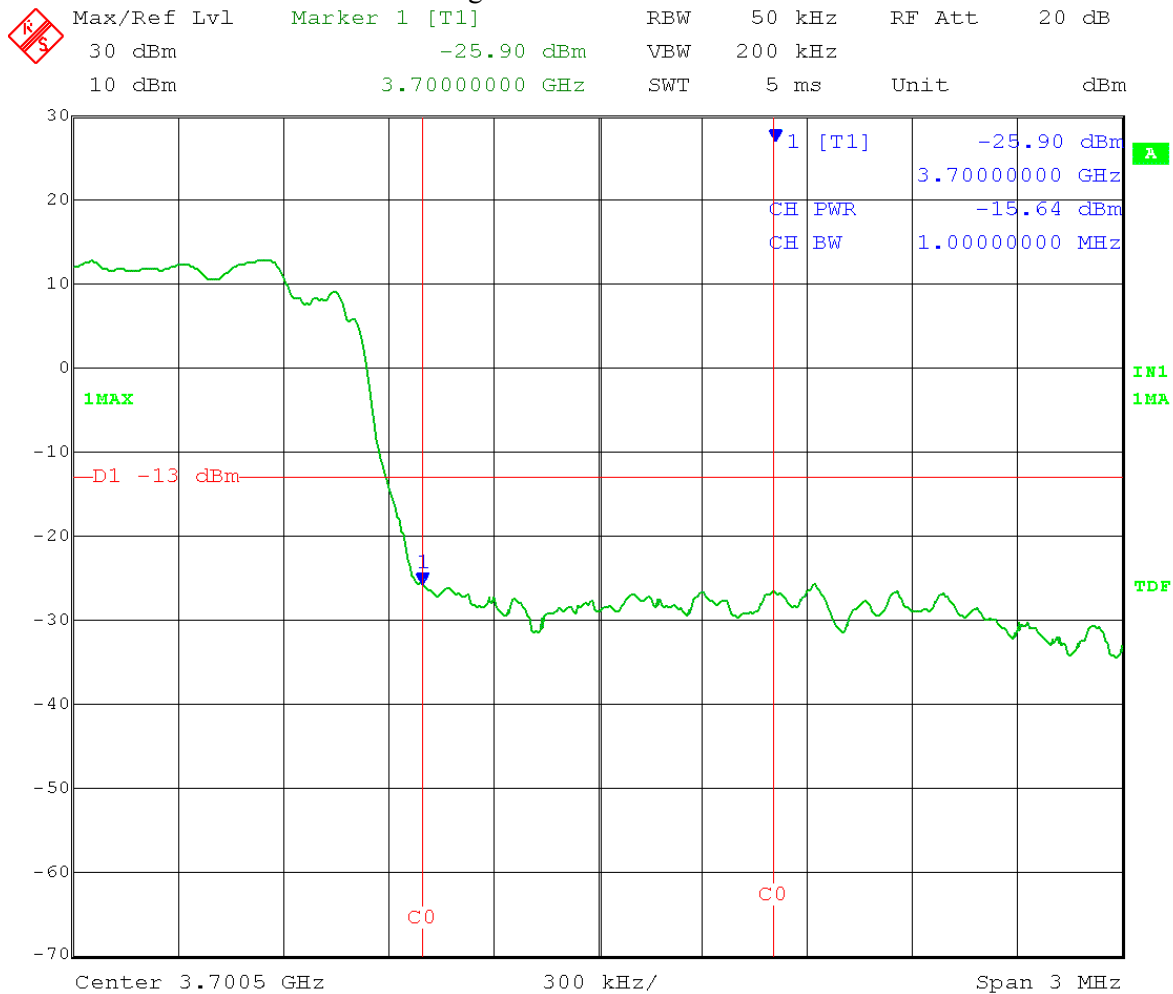   Power level at band edge = -13.34 dBm/MHz
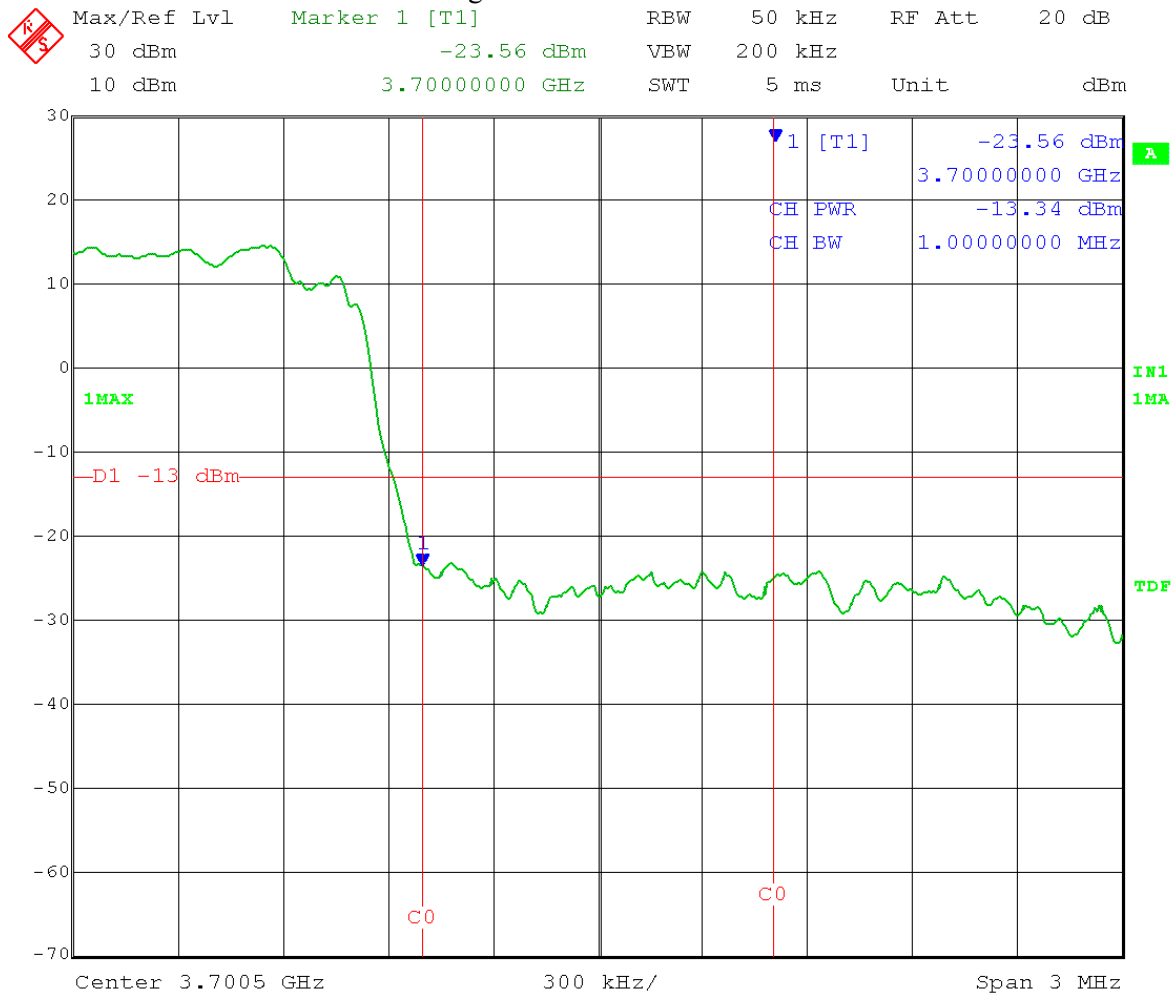
Date: 20.FEB.2014   13:48:10

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3697.5 MHz   Power setting: 24 total of both chains

Channel bandwidth: 5 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

-20 °C, 120 V

Power level at band edge = -13.05 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-23.62 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
1 [T1]           -23.62 dBm
                 3.70000000 GHz
CH PWR            -13.05 dBm
CH BW     1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA

TDF

C0          C0
```

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 20.FEB.2014 14:50:14

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3697.5 MHz   Power setting: 23 total of both chains
               Channel bandwidth: 5 MHz   for 8 dBi antenna gain
               Upper band edge frequency = 3700 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

-30 °C, 120 V

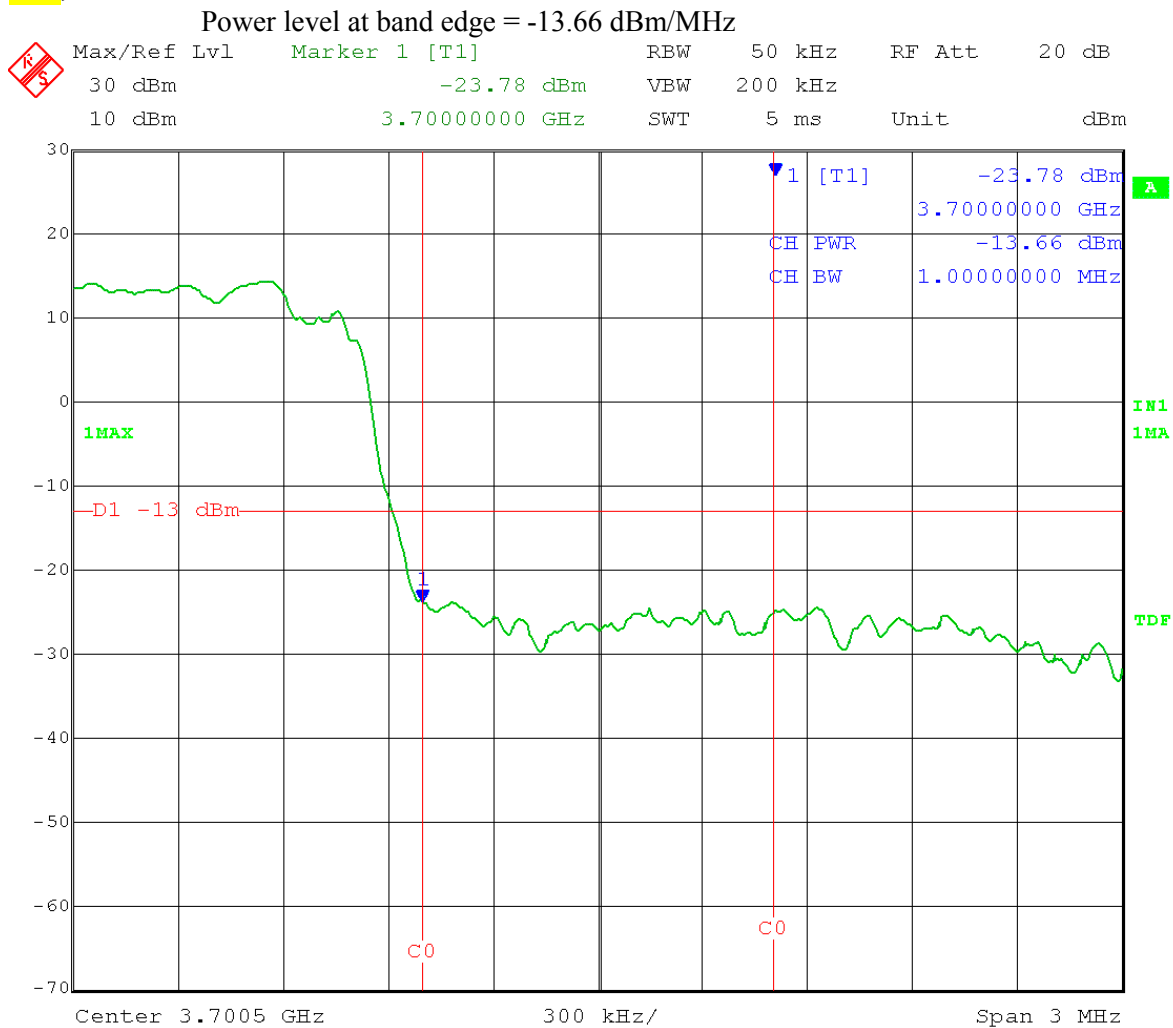Power level at band edge = -15.70 dBm/MHz
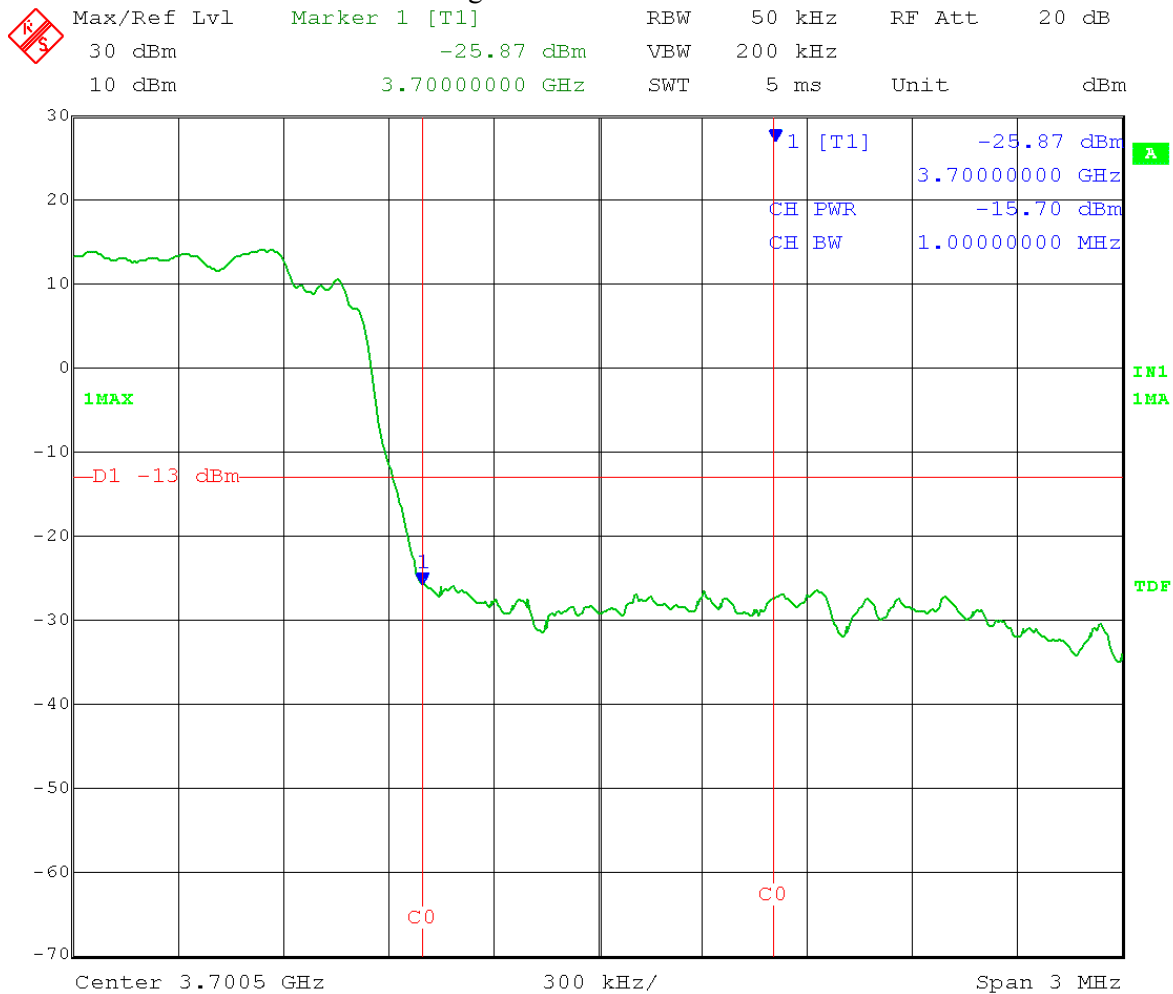
Date: 20.FEB.2014   15:47:58

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
          Detector = Peak   Sweep = auto couple
          Trace = max hold
          Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains
          Channel bandwidth: 10 MHz   for 8 dBi antenna gain
          Lower band edge frequency = 3650 MHz   Output port: A
          Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
          Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -17.00 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-22.72 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -22.72 dBm
               3.65000000 GHz
CH PWR   -17.00 dBm
CH BW   1.00000000 MHz

1MAX
D1 -13 dBm

C0   C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 19.FEB.2014 11:39:19

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3655 MHz   Power setting: 22 total of both chains
Channel bandwidth: 10 MHz   for 17 dBi antenna gain
Lower band edge frequency = 3650 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth
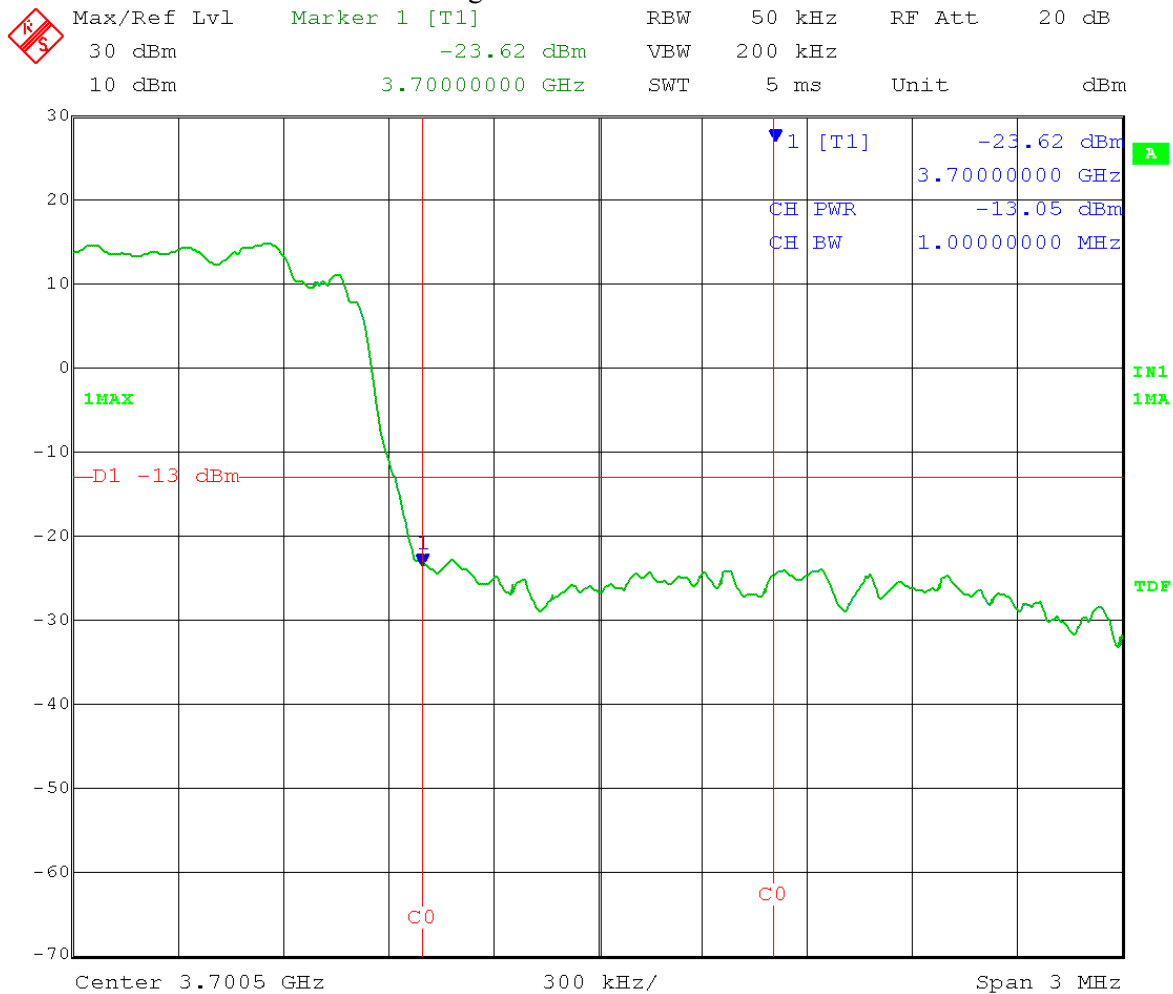
20 °C, 120 V

Power level at band edge = -25.35 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-29.85 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -29.85 dBm
                         3.65000000 GHz
CH PWR   -25.35 dBm
CH BW   1.00000000 MHz

A
1MAX
D1 -13 dBm
IN1
1MA
TDF
C0   C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 19.FEB.2014 11:42:03

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3655 MHz   Power setting: 19 total of both chains
                Channel bandwidth: 10 MHz   for 20 dBi antenna gain
                Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 ℃, 120 V

Power level at band edge = -30.25 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-31.82 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.82 dBm
                     3.65000000 GHz
CH PWR   -30.25 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

1MAX
1MA

TDF

C0

C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 19.FEB.2014 11:44:23

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
          Detector = Peak   Sweep = auto couple
          Trace = max hold
          Low Channel: Transmit = 3655 MHz   Power setting: 16 total of both chains

          Channel bandwidth: 10 MHz   for 22 dBi antenna gain
          Lower band edge frequency = 3650 MHz   Output port: A
          Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
          Measured power at band edge is integrated over a 1 MHz bandwidth
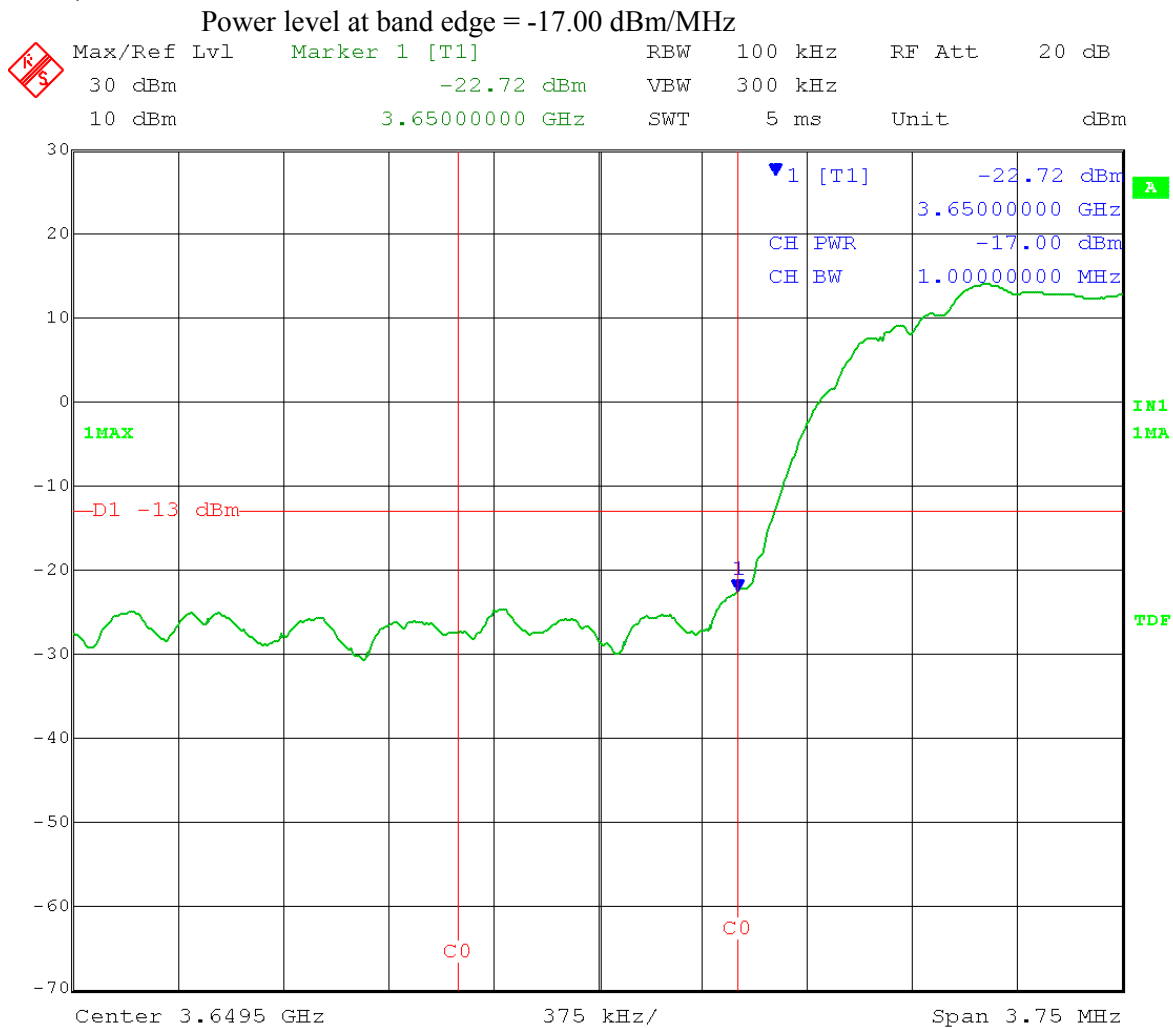
20 °C, 120 V

Power level at band edge = -33.20 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-35.69 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -35.69 dBm
                3.65000000 GHz
CH PWR   -33.20 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA

TDF

C0   C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 19.FEB.2014 11:46:32

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains

Channel bandwidth: 10 MHz   for 8 dBi antenna gain
Lower band edge frequency = 3650 MHz   Output port: A
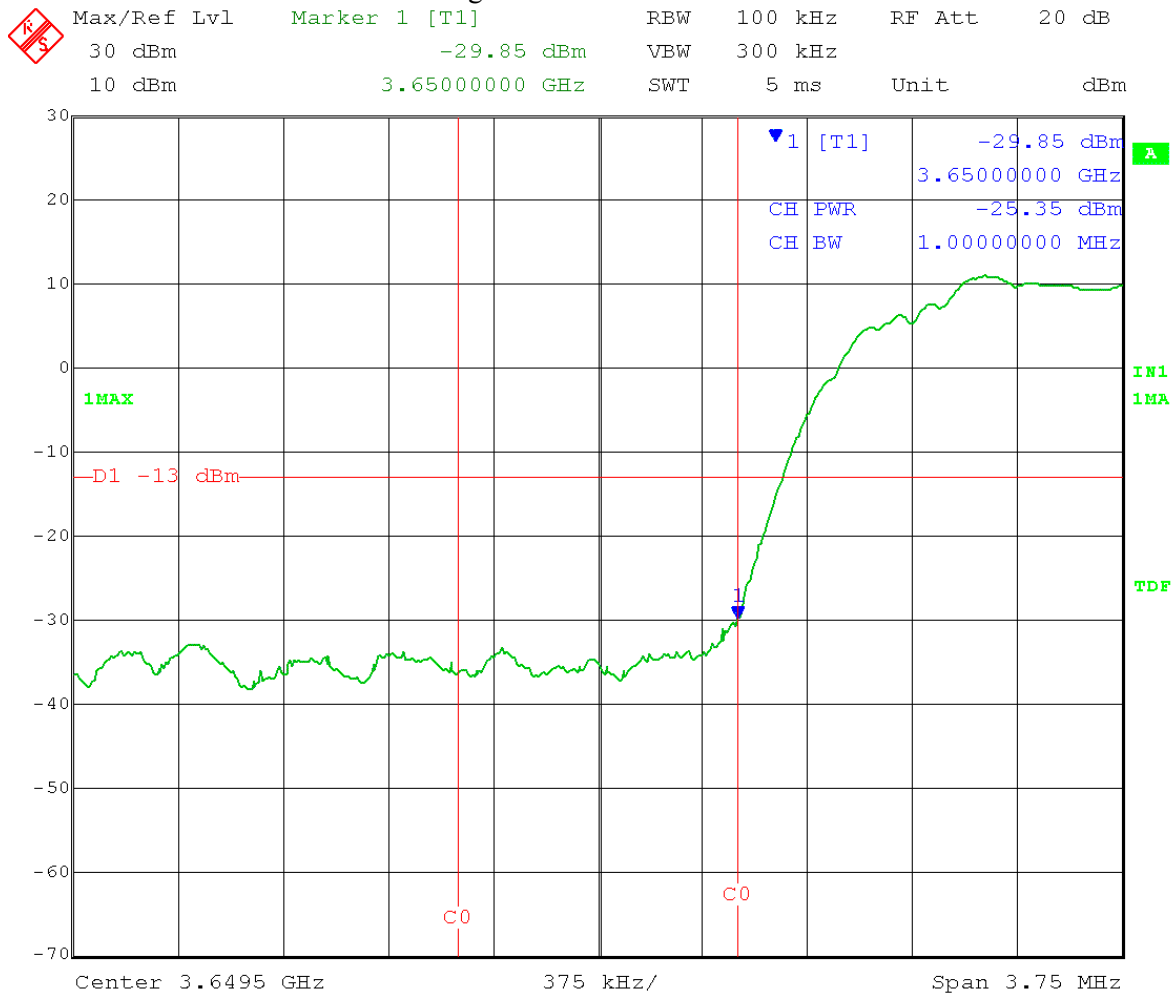Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -17.00 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-22.72 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -22.72 dBm
3.65000000 GHz
CH PWR   -17.00 dBm
CH BW   1.00000000 MHz

A
IN1
1MA
TDF

1MAX

D1 -13 dBm

C0   C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 19.FEB.2014 11:39:19

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
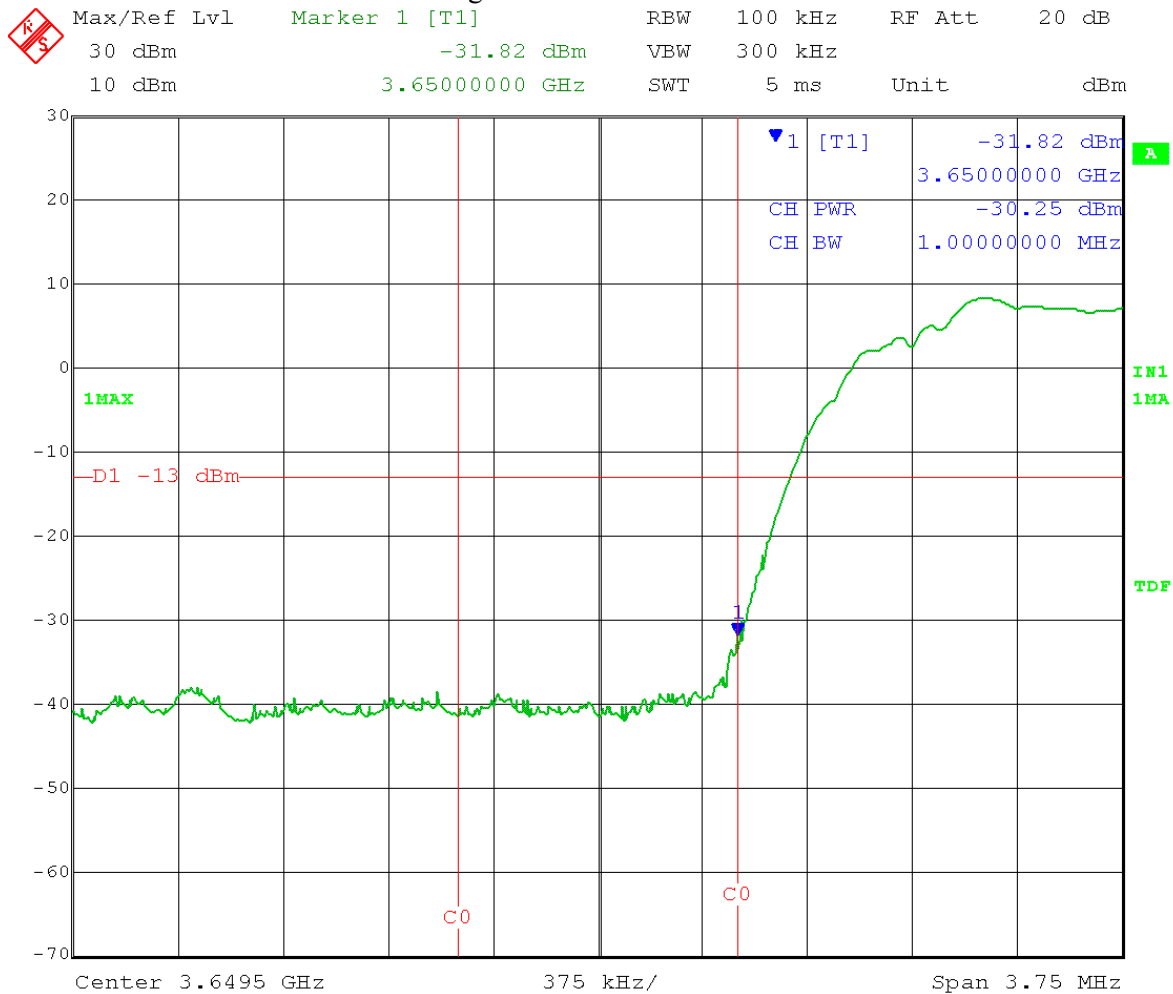   Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 138 V

                Power level at band edge = -16.55 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-22.43 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]	-22.43 dBm
	3.65000000 GHz
CH PWR	-16.55 dBm
CH BW	1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 19.FEB.2014 14:27:13

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                 Detector = Peak   Sweep = auto couple
                 Trace = max hold
                 Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains
                 Channel bandwidth: 10 MHz   for 8 dBi antenna gain
                 Lower band edge frequency = 3650 MHz   Output port: A
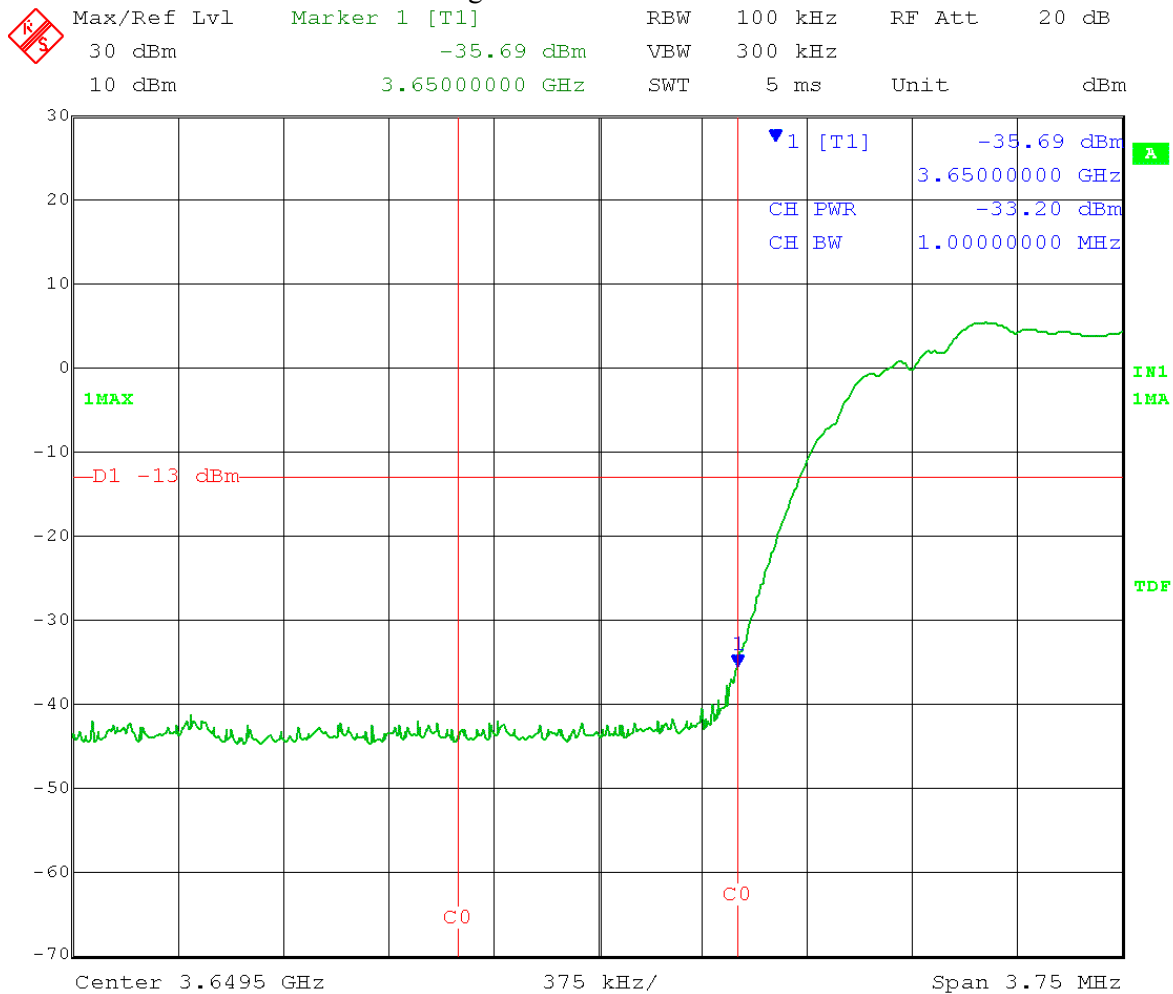   Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                 Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 102 V

Power level at band edge = -16.56 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-22.27 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -22.27 dBm
                3.65000000 GHz
CH PWR   -16.56 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

C0   C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz
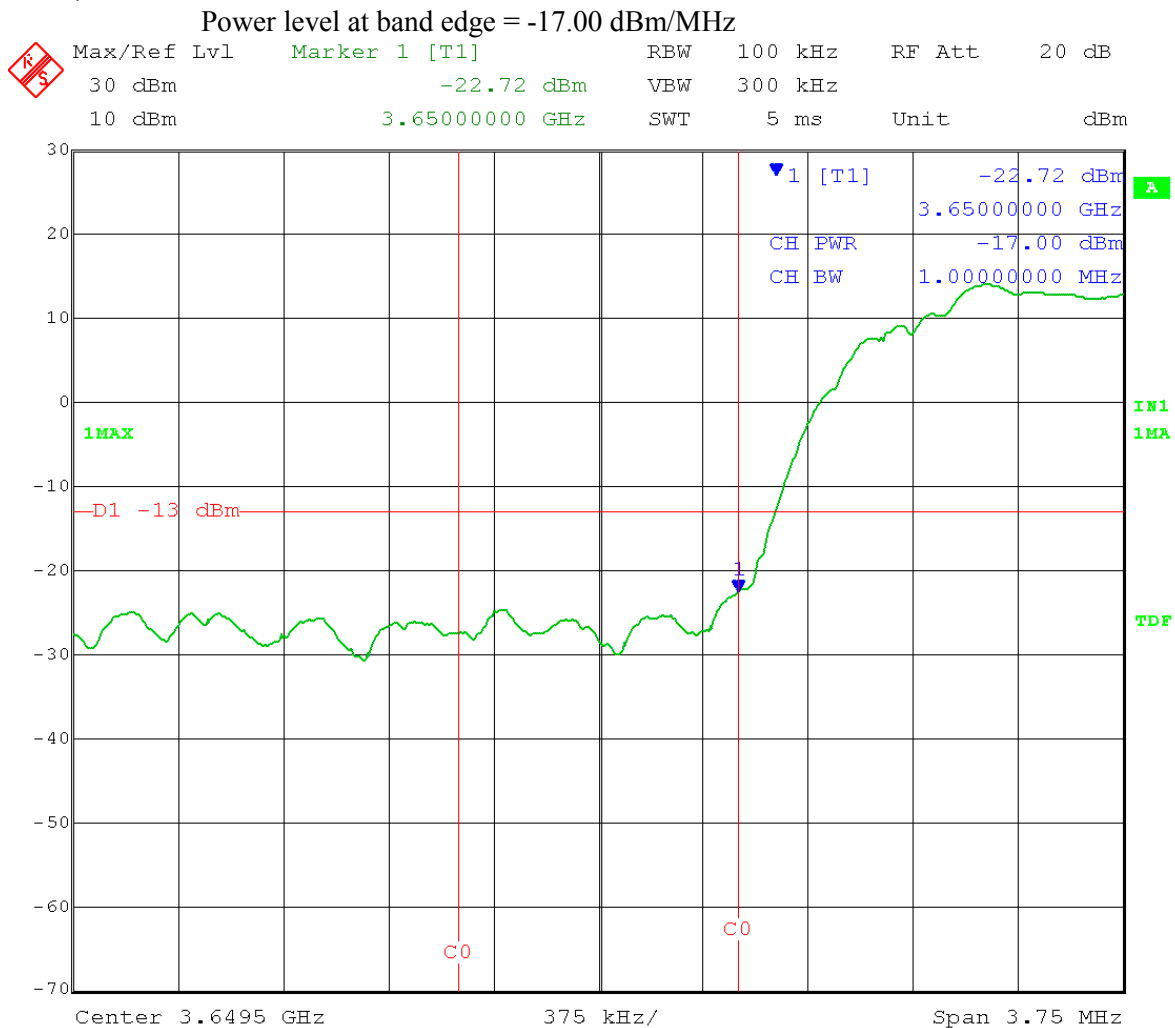
Date: 19.FEB.2014 14:30:00

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
            Detector = Peak   Sweep = auto couple
            Trace = max hold
            Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains
            Channel bandwidth: 10 MHz   for 8 dBi antenna gain
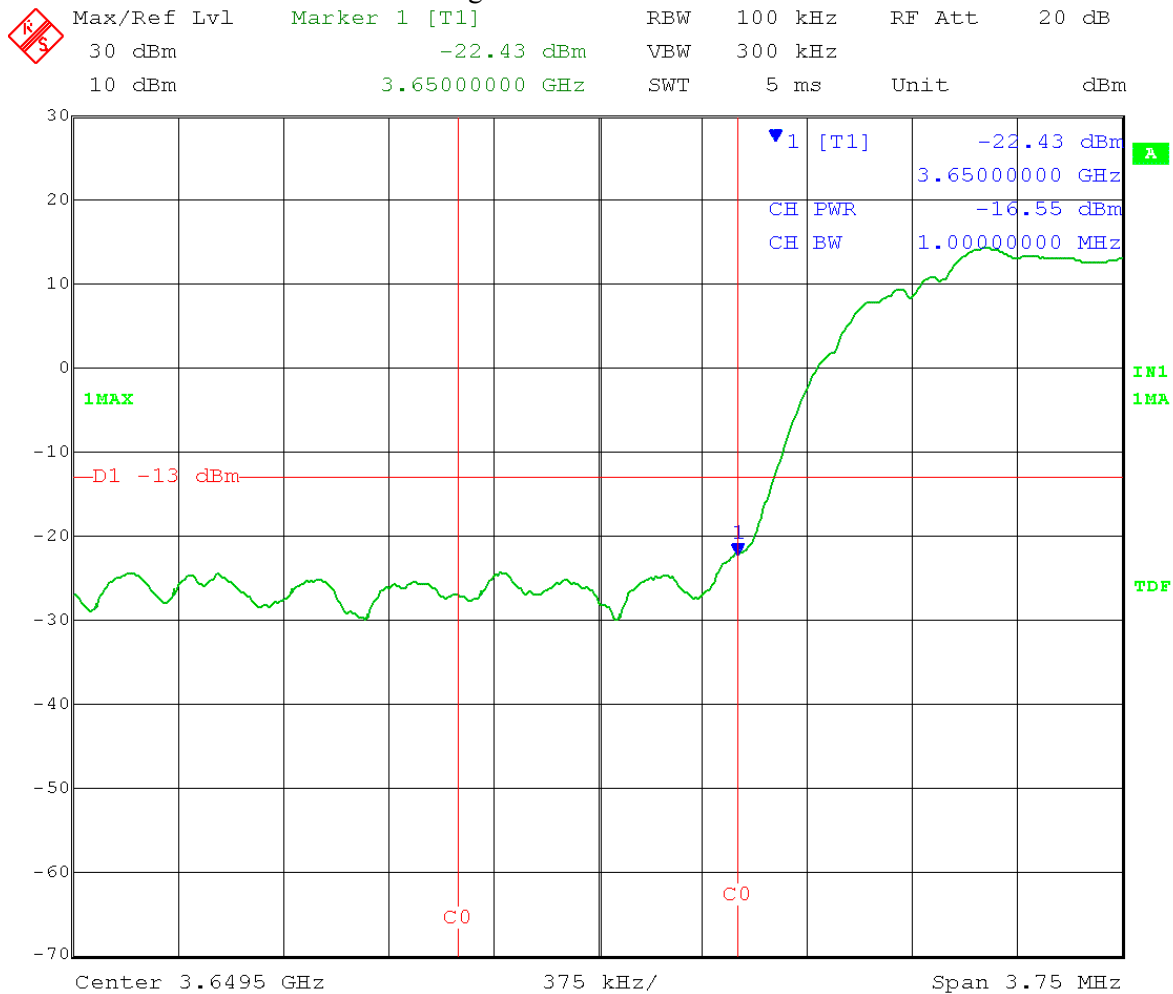   Lower band edge frequency = 3650 MHz   Output port: A
            Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
            Measured power at band edge is integrated over a 1 MHz bandwidth

30 °C, 120 V
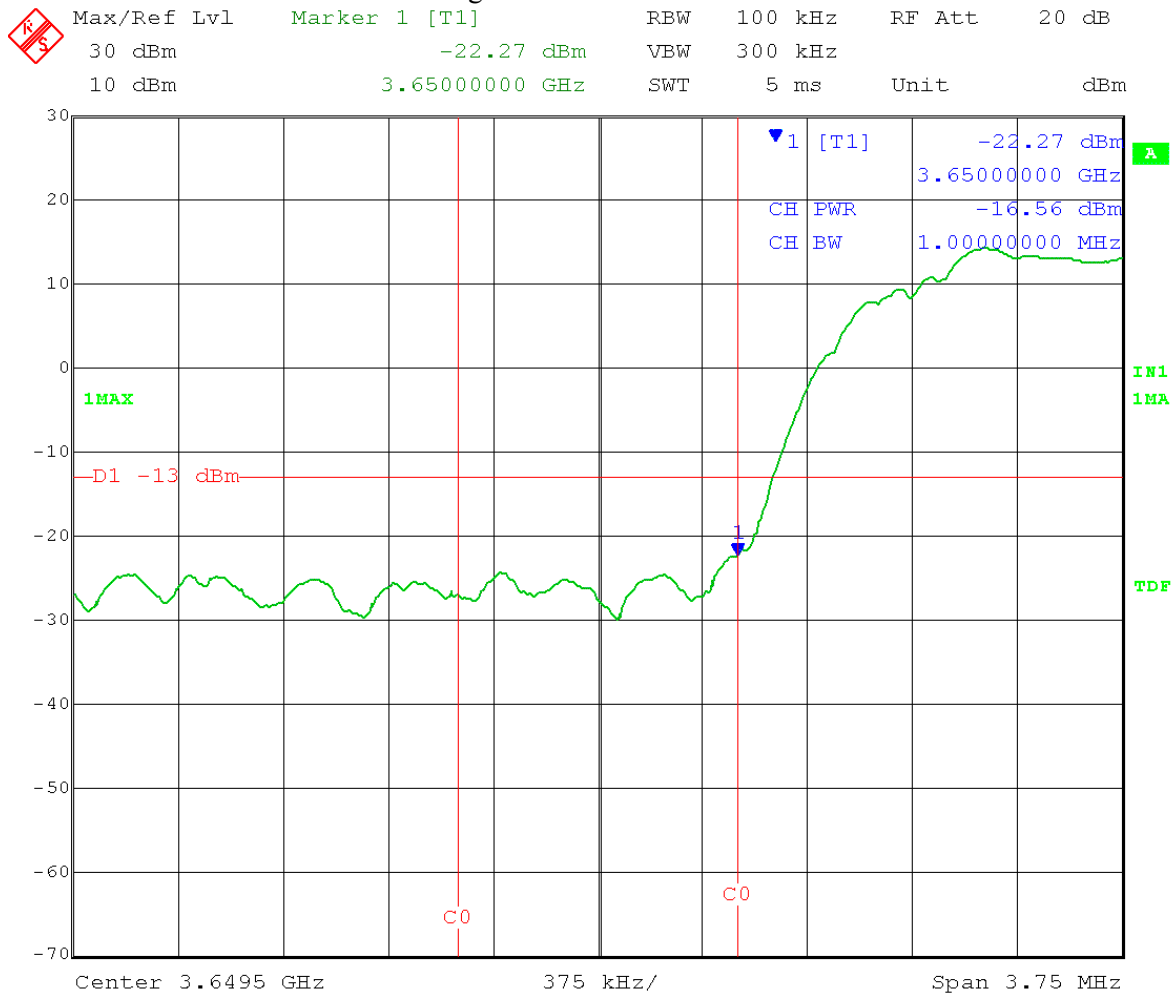
Power level at band edge = -16.88 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-22.53 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

```
 30                                                                    A
                                              ▼1 [T1]        -22.53 dBm
                                                          3.65000000 GHz
 20                                           CH PWR           -16.88 dBm
                                              CH BW       1.00000000 MHz
 10                                                                   IN1
                                                                      1MA
  0
1MAX
-10
 D1 -13 dBm
-20                                        1
                                          ▼                           TDF
-30
-40
-50
-60              C0                   C0
-70
     Center 3.6495 GHz        375 kHz/              Span 3.75 MHz
```

Date: 19.FEB.2014   15:33:33

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains

                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

40 °C, 120 V

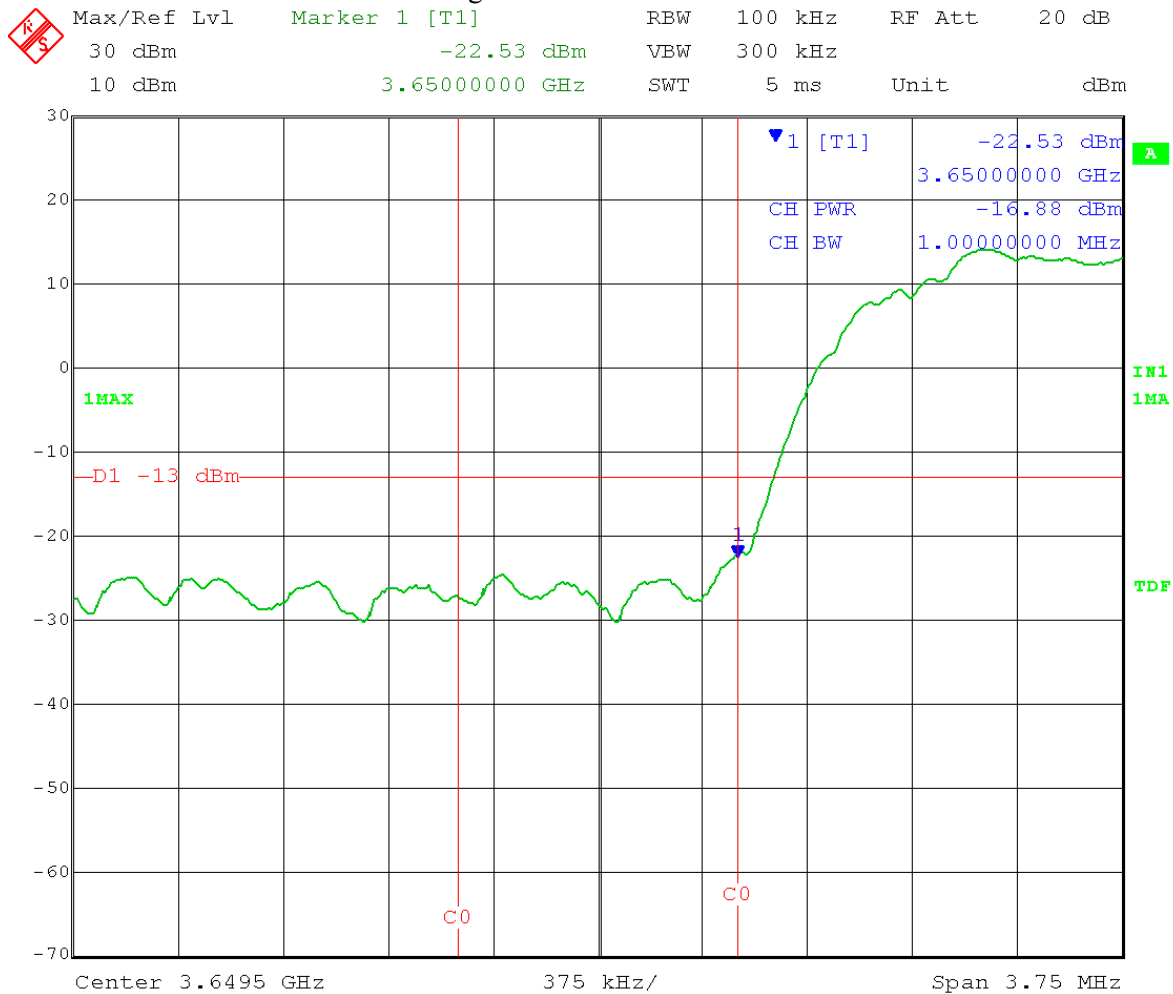   Power level at band edge = -17.00 dBm/MHz

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 20.FEB.2014   08:50:21

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains

                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
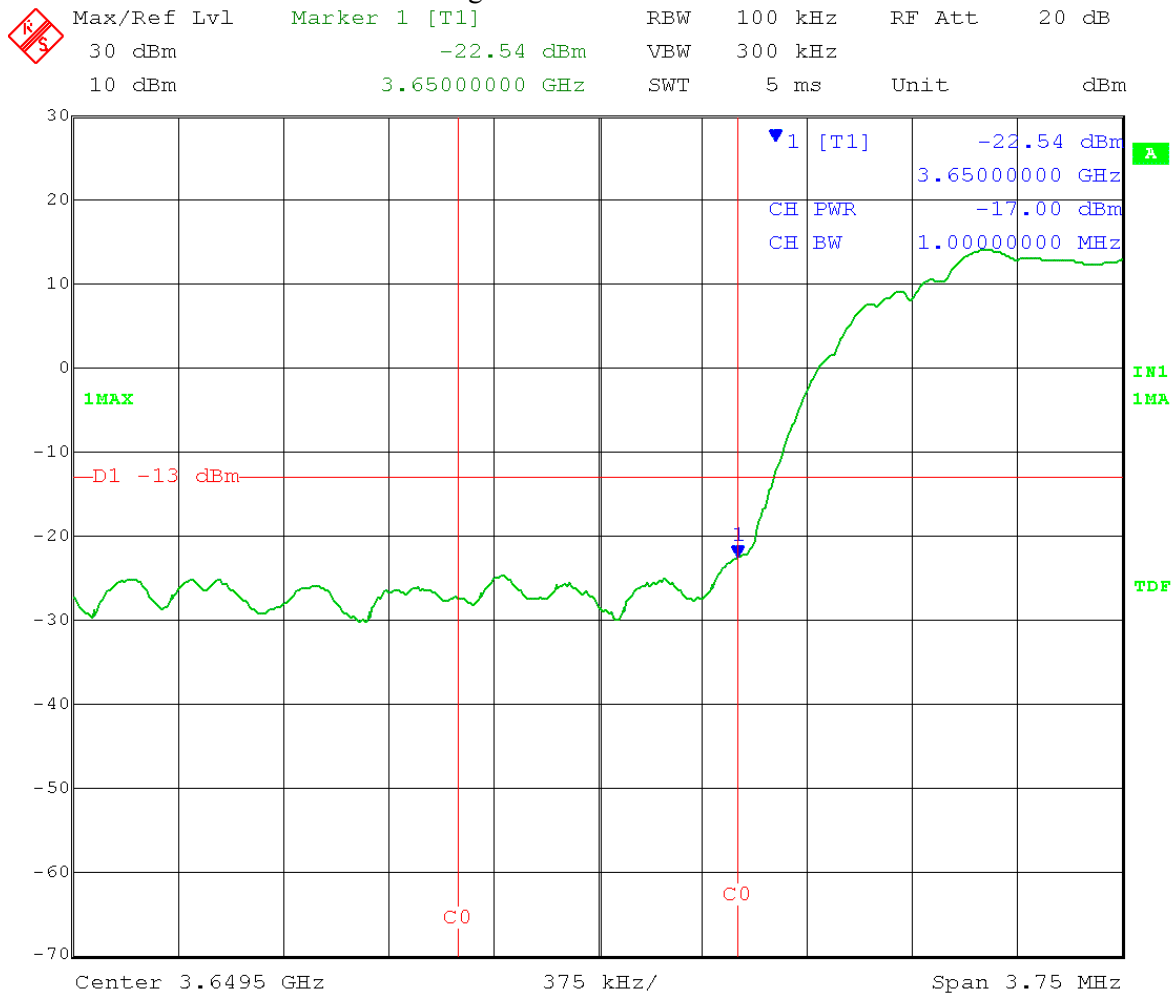   Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

50 °C, 120 V
                Power level at band edge = -17.42 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	20 dB
30 dBm		-23.02 dBm	VBW	300 kHz	
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -23.02 dBm
                     3.65000000 GHz
CH PWR   -17.42 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

C0   C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 20.FEB.2014   09:55:15

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
             Detector = Peak   Sweep = auto couple
             Trace = max hold
             Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains

             Channel bandwidth: 10 MHz   for 8 dBi antenna gain
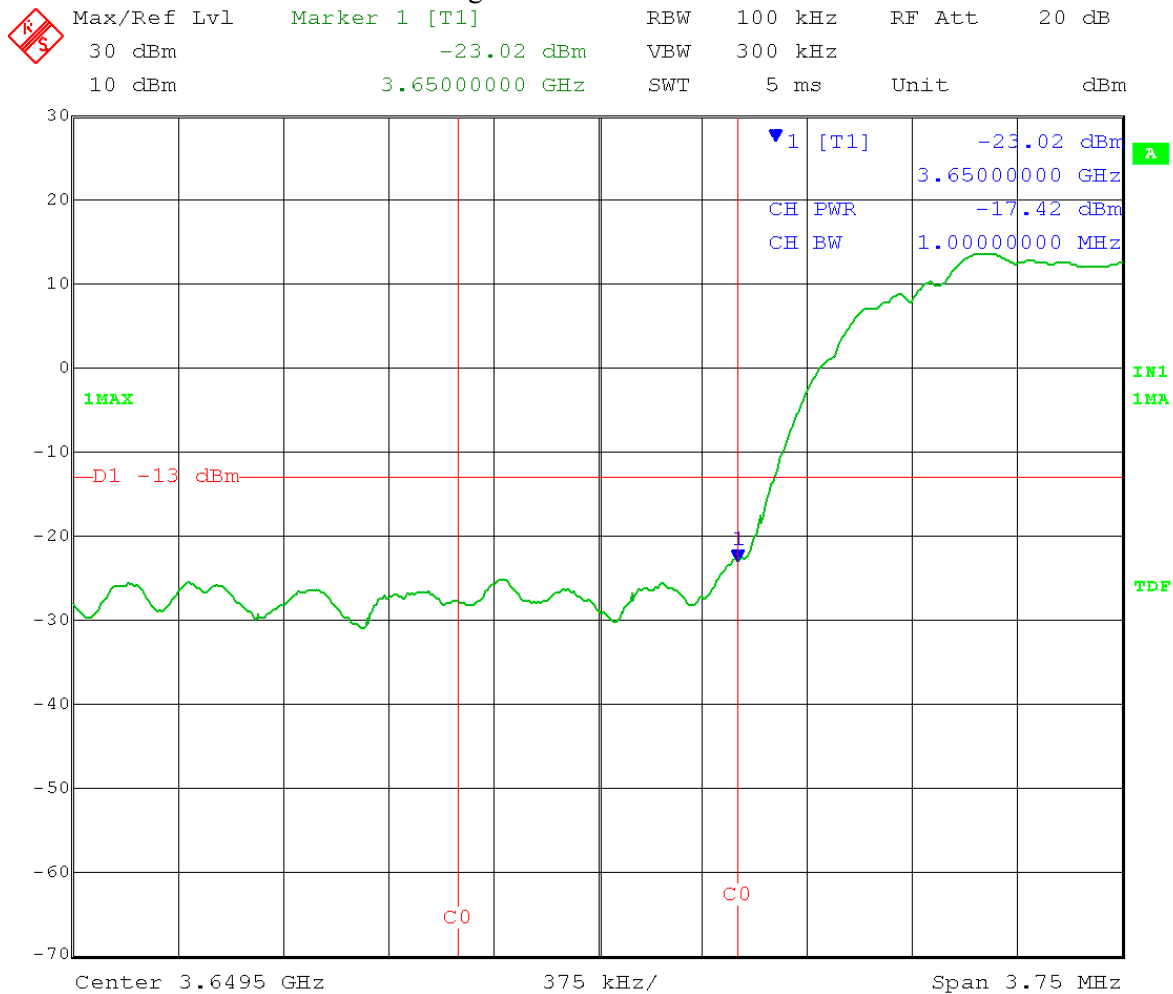   Lower band edge frequency = 3650 MHz   Output port: A
             Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
             Measured power at band edge is integrated over a 1 MHz bandwidth

10 °C, 120 V

Power level at band edge = -16.07 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-21.75 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 20.FEB.2014 11:17:05

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains

              Channel bandwidth: 10 MHz   for 8 dBi antenna gain
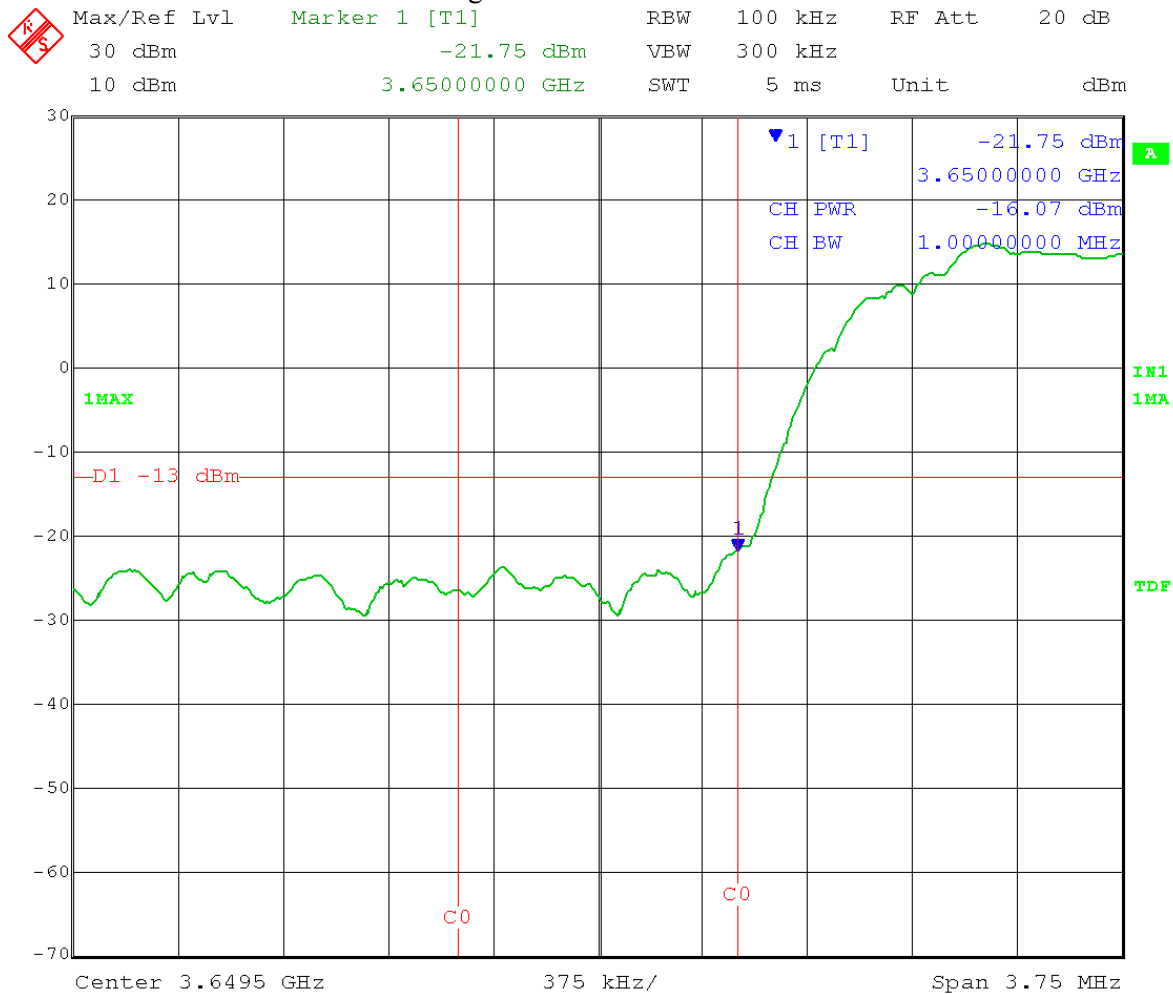   Lower band edge frequency = 3650 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
              Measured power at band edge is integrated over a 1 MHz bandwidth

0 °C, 120 V

              Power level at band edge = -15.53 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW 100 kHz	RF Att 20 dB
30 dBm		-21.46 dBm	VBW 300 kHz	
10 dBm		3.65000000 GHz	SWT 5 ms	Unit dBm


```
                                                    ▼1 [T1]        -21.46 dBm
                                                        3.65000000 GHz
                                                    CH PWR          -15.53 dBm
                                                    CH BW      1.00000000 MHz
```

1MAX

D1 -13 dBm

1MA
IN1

TDF

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 20.FEB.2014 12:45:19

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both
                                                      chains
                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
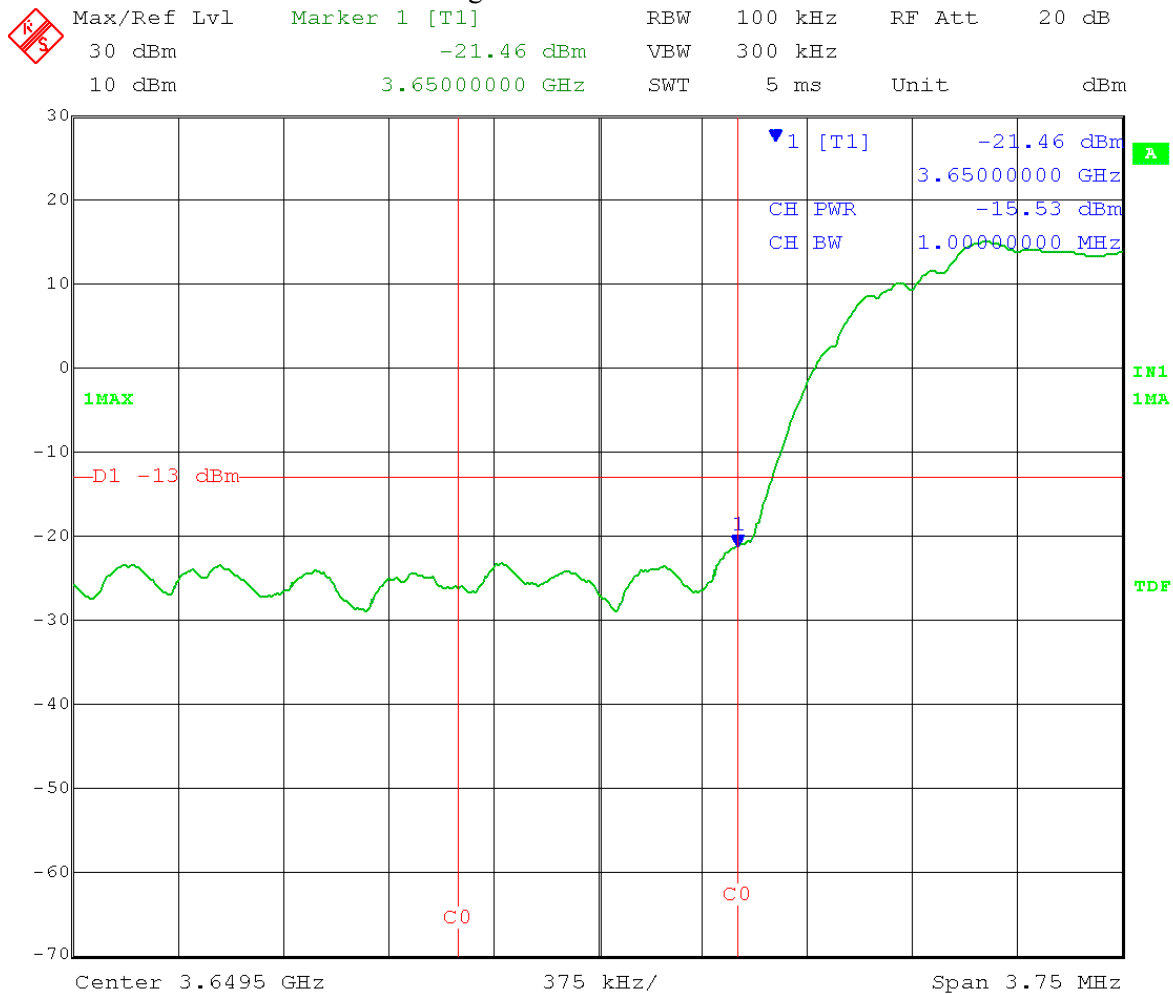   Lower band edge frequency = 3650 MHz Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

                Power level at band edge = -14.96 dBm/MHz

Date: 20.FEB.2014   13:40:41

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains
               Channel bandwidth: 10 MHz   for 8 dBi antenna gain
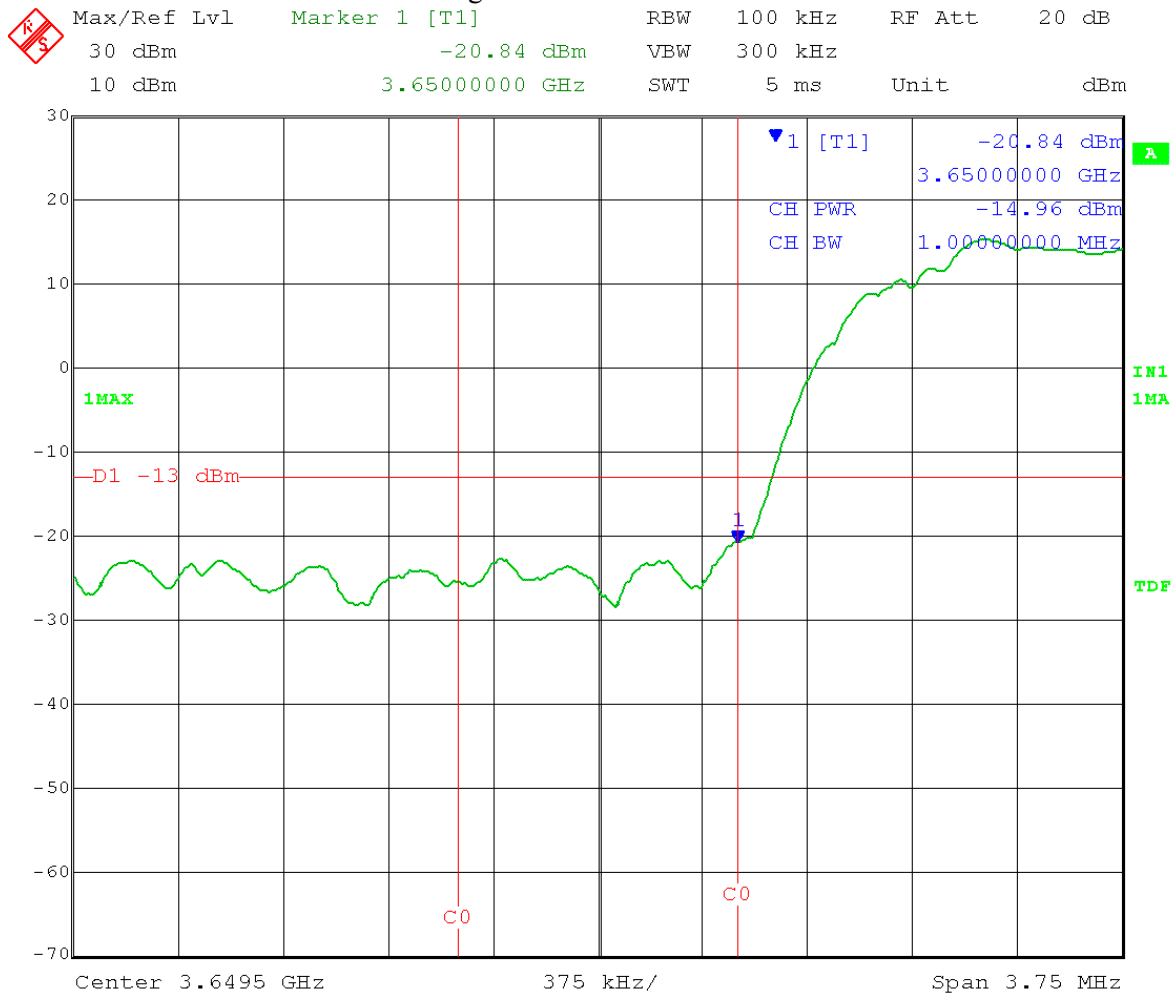   Lower band edge frequency = 3650 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

-20 °C, 120 V
               Power level at band edge = -14.51 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-20.53 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -20.53 dBm
               3.65000000 GHz
CH PWR   -14.51 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 20.FEB.2014   14:41:10

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3655 MHz   Power setting: 25 total of both chains

Channel bandwidth: 10 MHz   for 8 dBi antenna gain
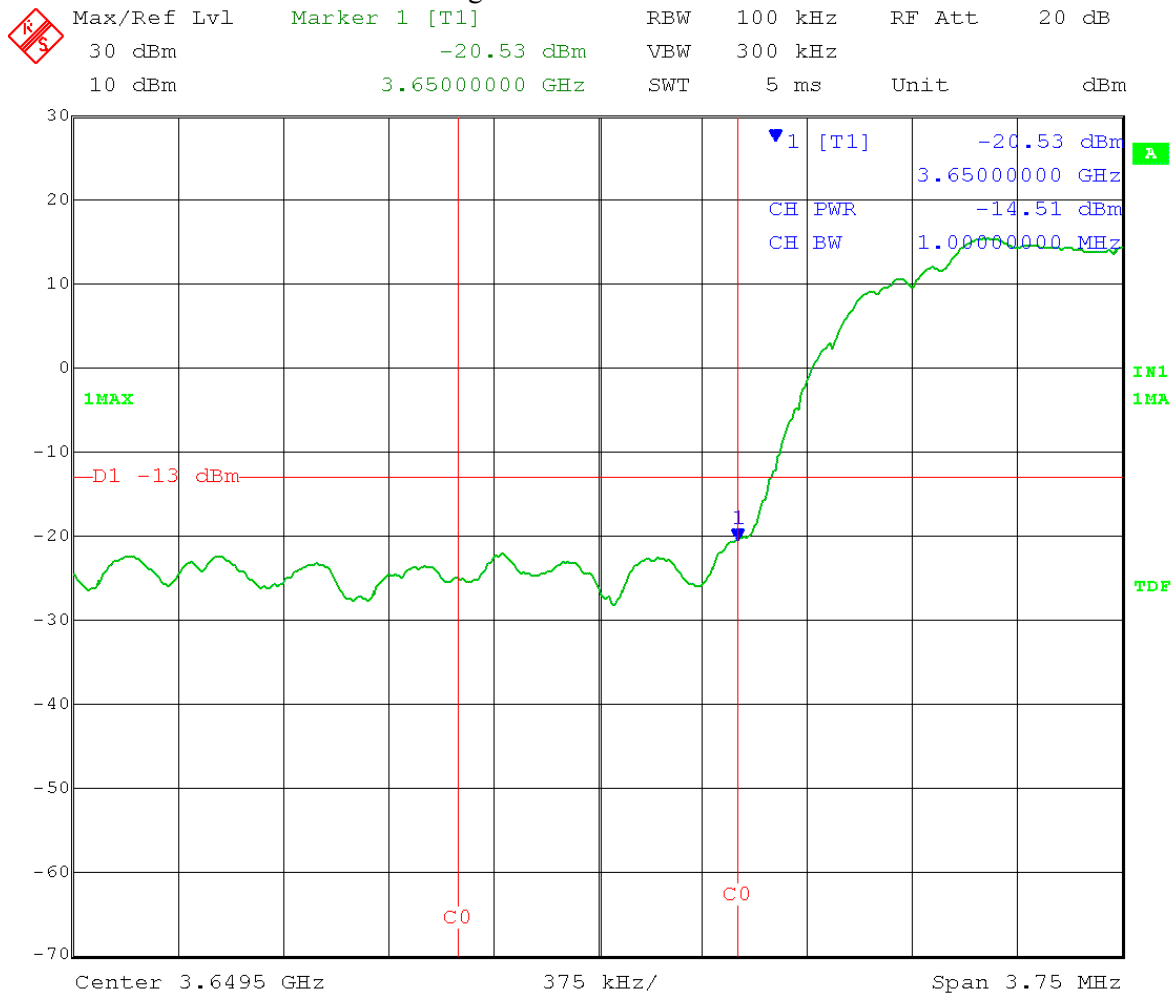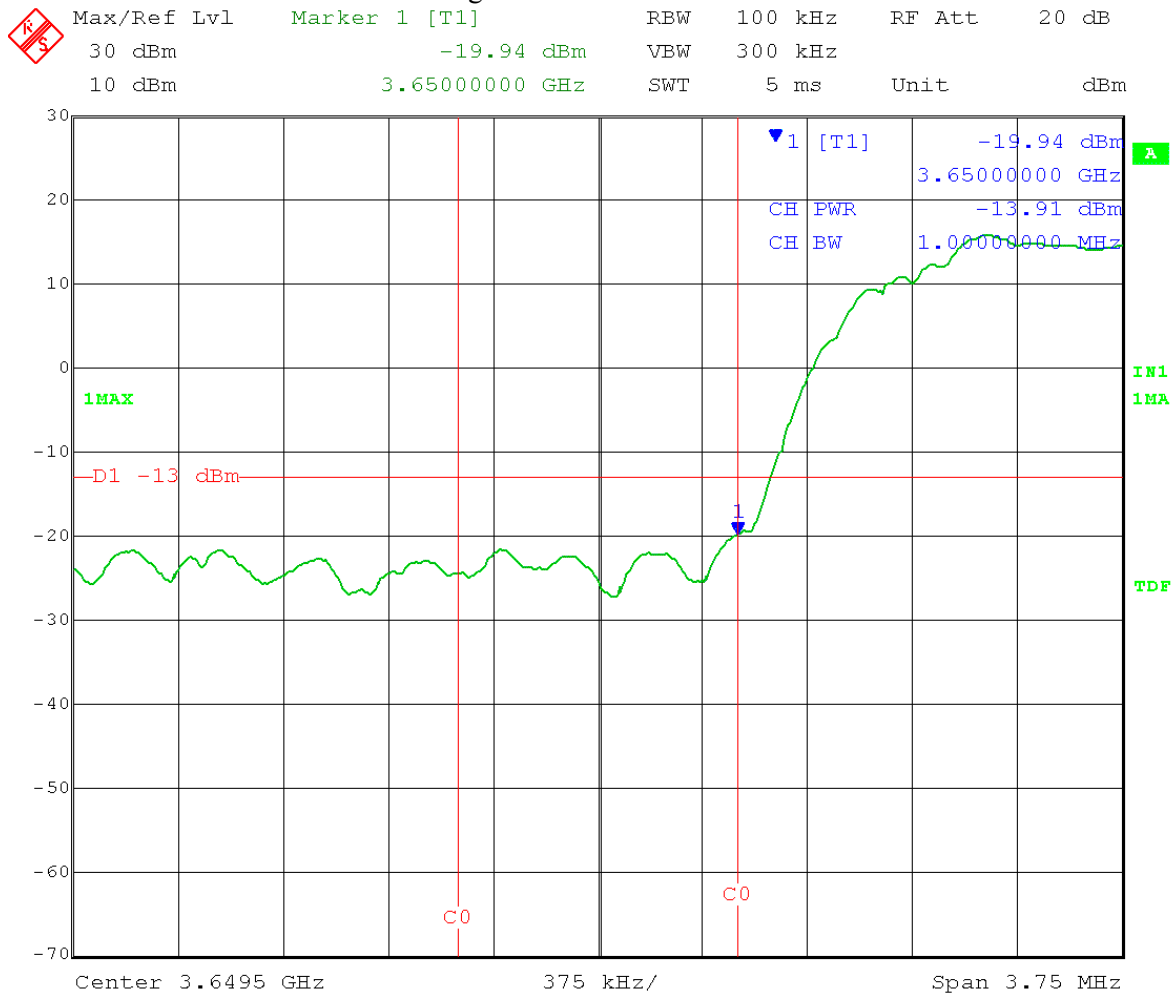Lower band edge frequency = 3650 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

-30 °C, 120 V

Power level at band edge = -13.91 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-19.94 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -19.94 dBm
3.65000000 GHz
CH PWR   -13.91 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz
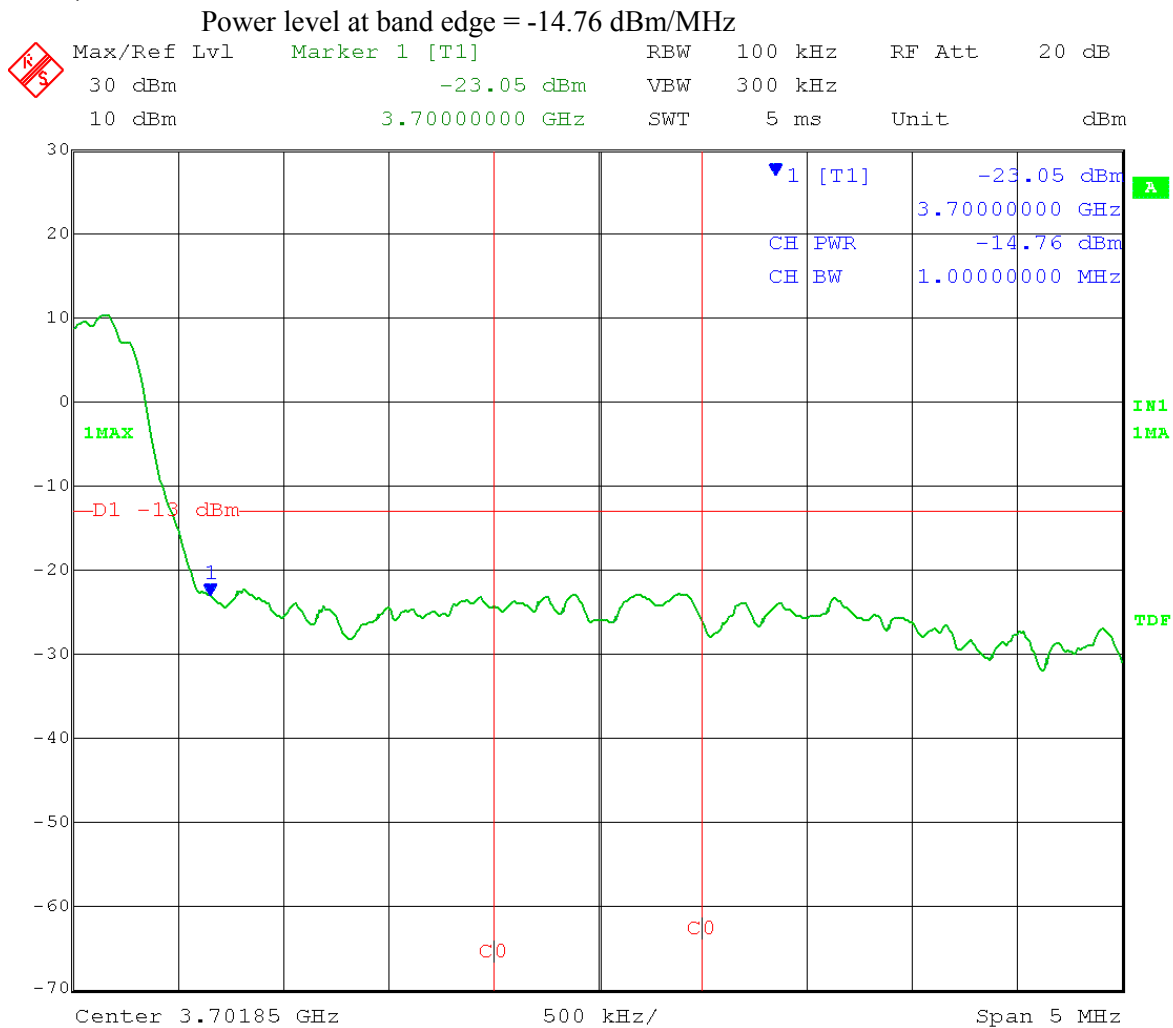
Date: 20.FEB.2014 15:39:21

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains

               Channel bandwidth: 10 MHz   for 8 dBi antenna gain
               Upper band edge frequency = 3700 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -14.76 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	20 dB
30 dBm	-23.05 dBm	VBW	300 kHz		
10 dBm	3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -23.05 dBm
                 3.70000000 GHz
CH PWR   -14.76 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

C0   C0

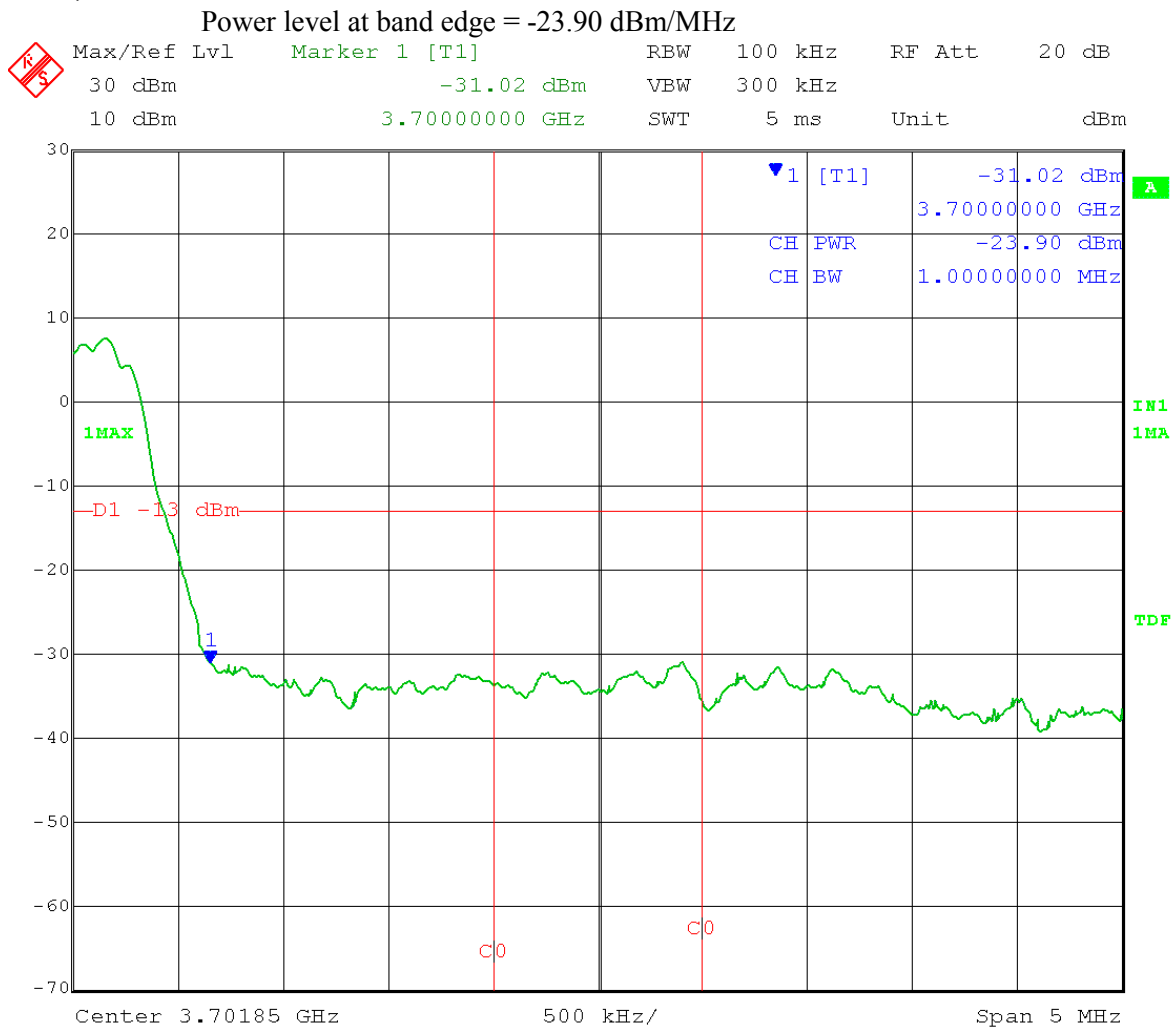Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 19.FEB.2014   12:53:36

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3695 MHz   Power setting: 22 total of both chains
Channel bandwidth: 10 MHz   for 17 dBi antenna gain
Upper band edge frequency = 3700 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -23.90 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-31.02 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.02 dBm
                          3.70000000 GHz
CH PWR   -23.90 dBm
CH BW   1.00000000 MHz

Center 3.70185 GHz   500 kHz/   Span 5 MHz
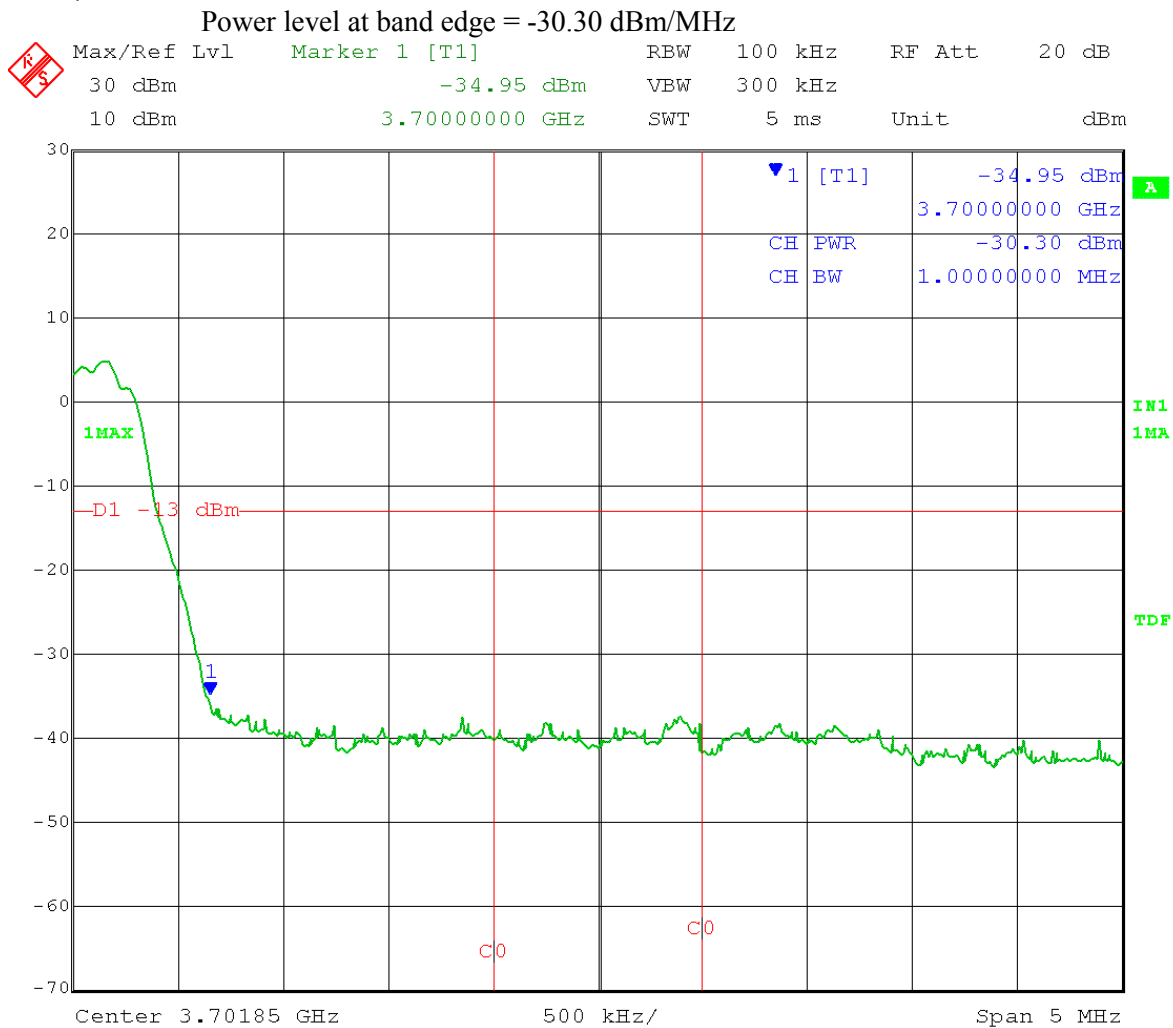
Date: 19.FEB.2014 12:55:41

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 19 total of both chains

                Channel bandwidth: 10 MHz   for 20 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

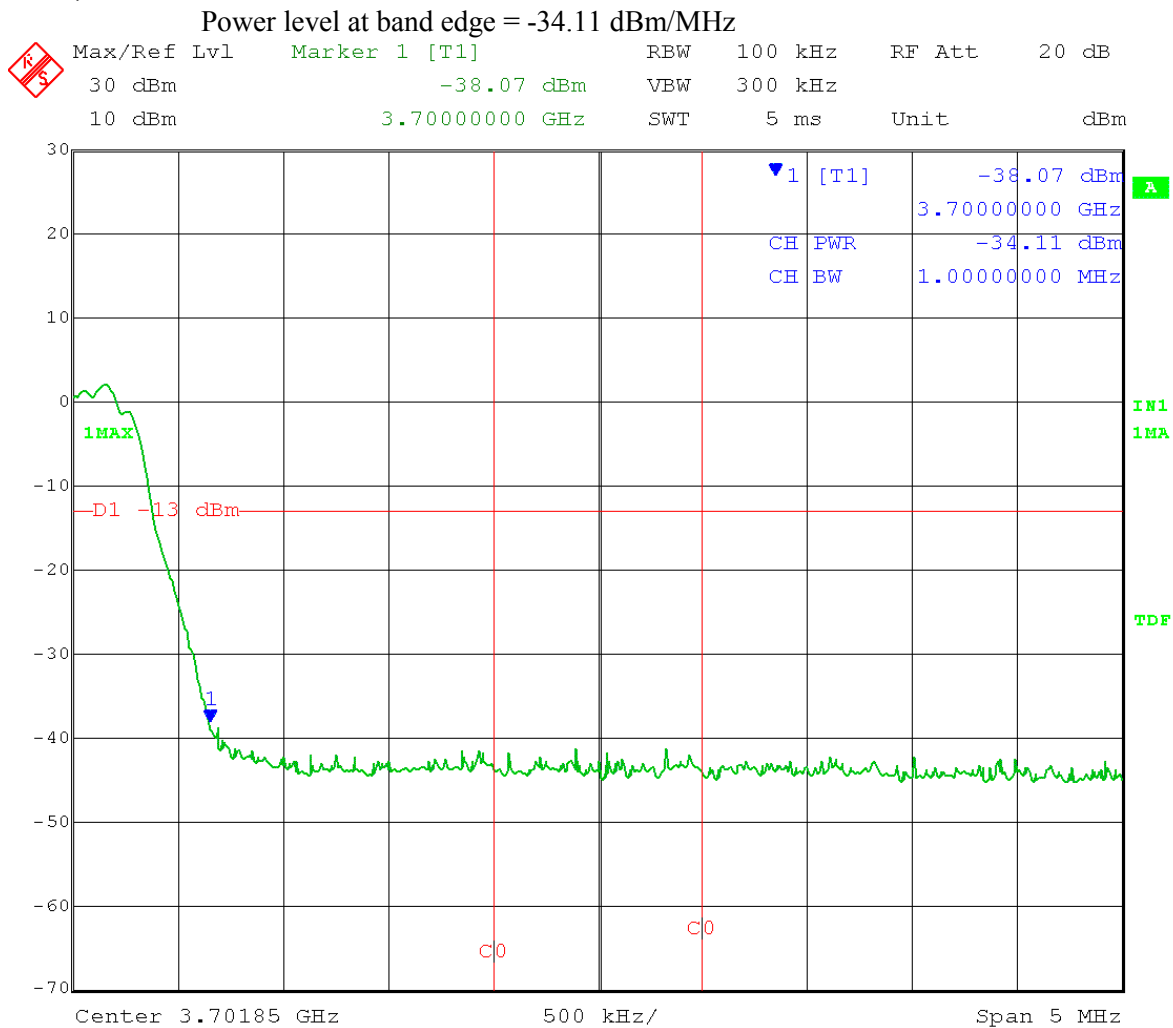Power level at band edge = -30.30 dBm/MHz

Date: 19.FEB.2014 12:57:10

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3695 MHz   Power setting: 16 total of both chains

Channel bandwidth: 10 MHz   for 22 dBi antenna gain
Upper band edge frequency = 3700 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -34.11 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	20 dB
30 dBm		-38.07 dBm	VBW	300 kHz	
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -38.07 dBm
3.70000000 GHz
CH PWR   -34.11 dBm
CH BW   1.00000000 MHz

Center 3.70185 GHz   500 kHz/   Span 5 MHz
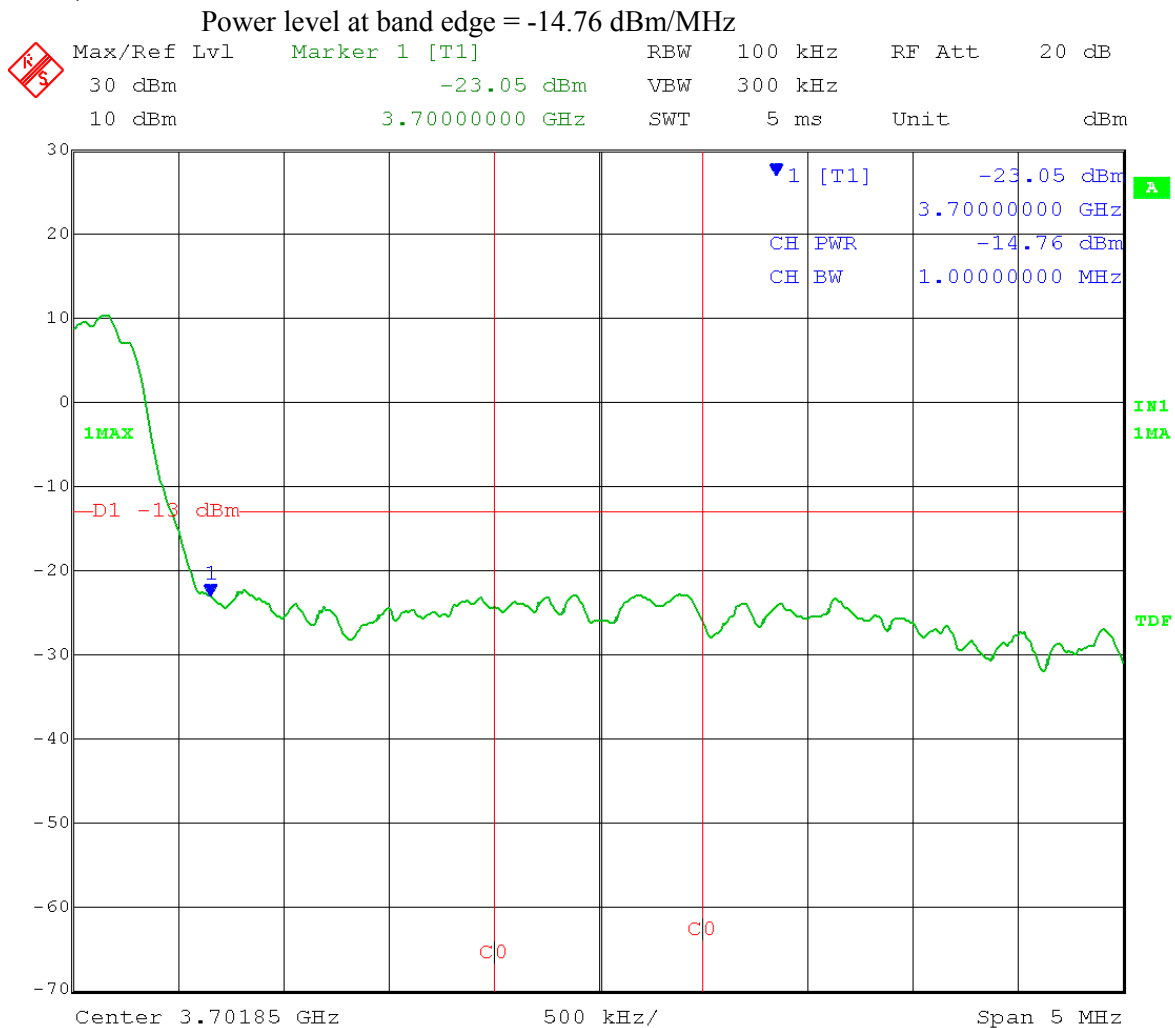
Date: 19.FEB.2014 12:58:51

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains

                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 ℃, 120 V

Power level at band edge = -14.76 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-23.05 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -23.05 dBm
                 3.70000000 GHz
CH PWR   -14.76 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

1

IN1
1MA

TDF

C0   C0

Center 3.70185 GHz   500 kHz/   Span 5 MHz
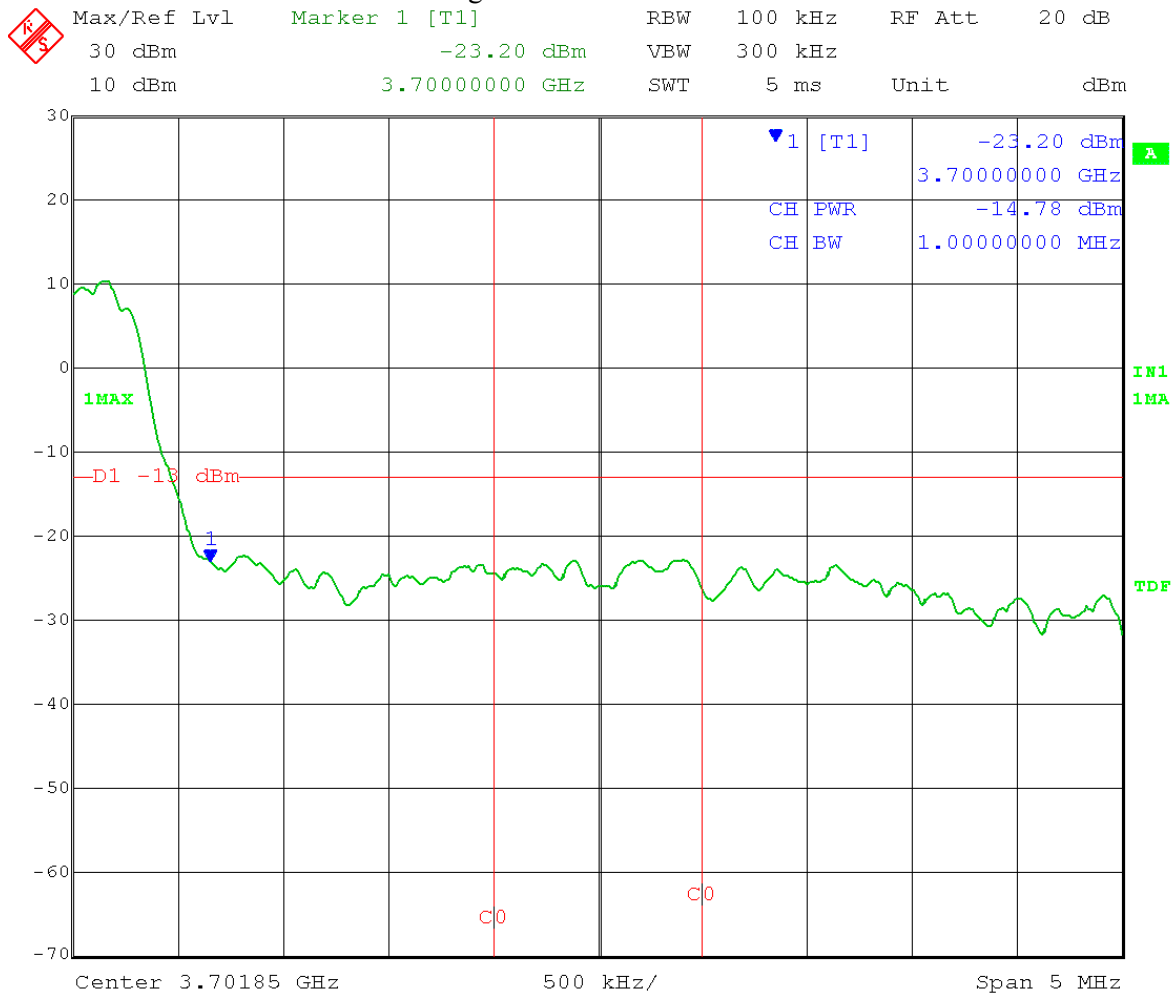
Date: 19.FEB.2014 12:53:36

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

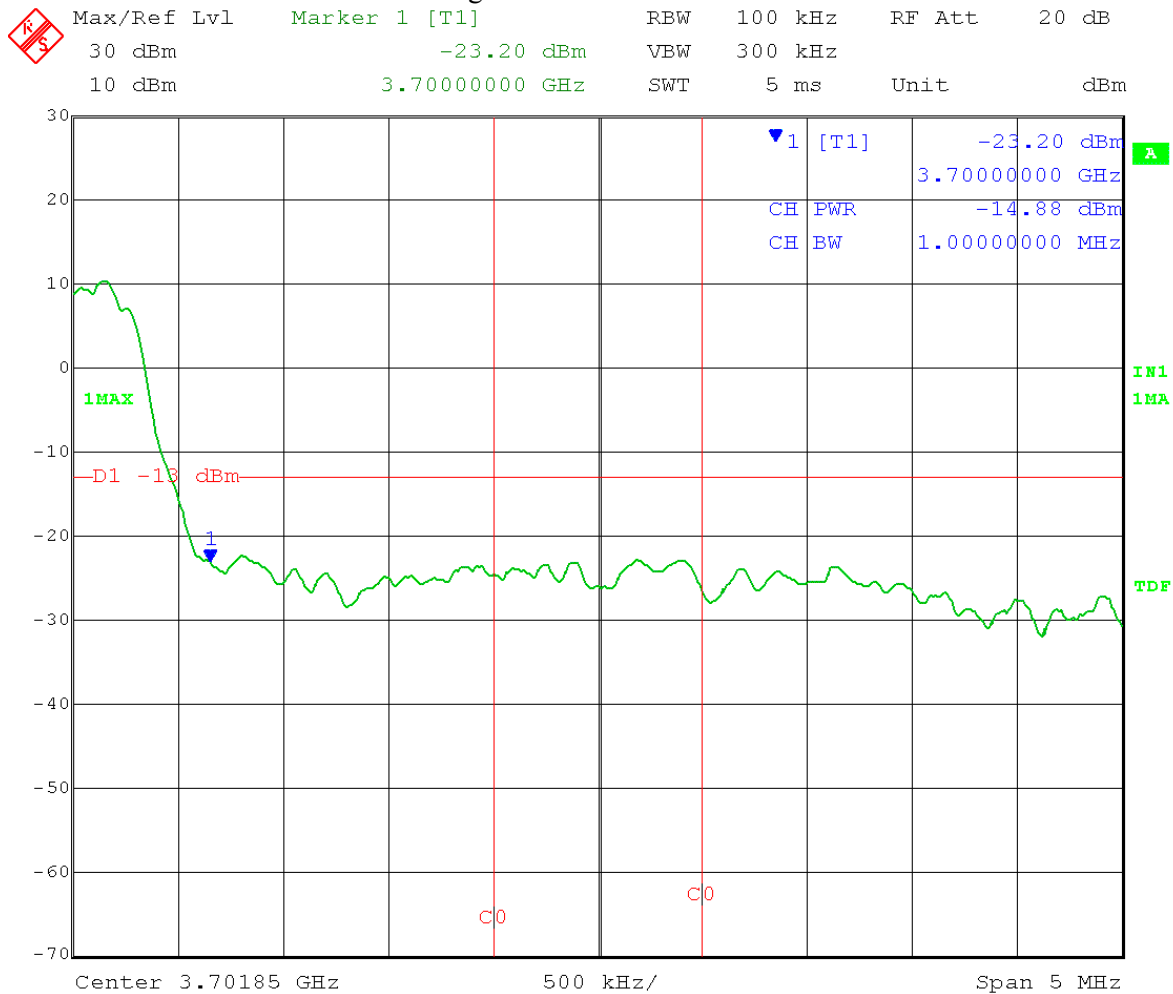20 °C, 138 V

Power level at band edge = -14.78 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-23.20 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
                                          ▼1 [T1]        -23.20 dBm
                                                     3.70000000 GHz
                                          CH PWR         -14.78 dBm
                                          CH BW      1.00000000 MHz
```

1MAX

D1 -13 dBm

TDF

Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 19.FEB.2014 14:37:08

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains

                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 102 V

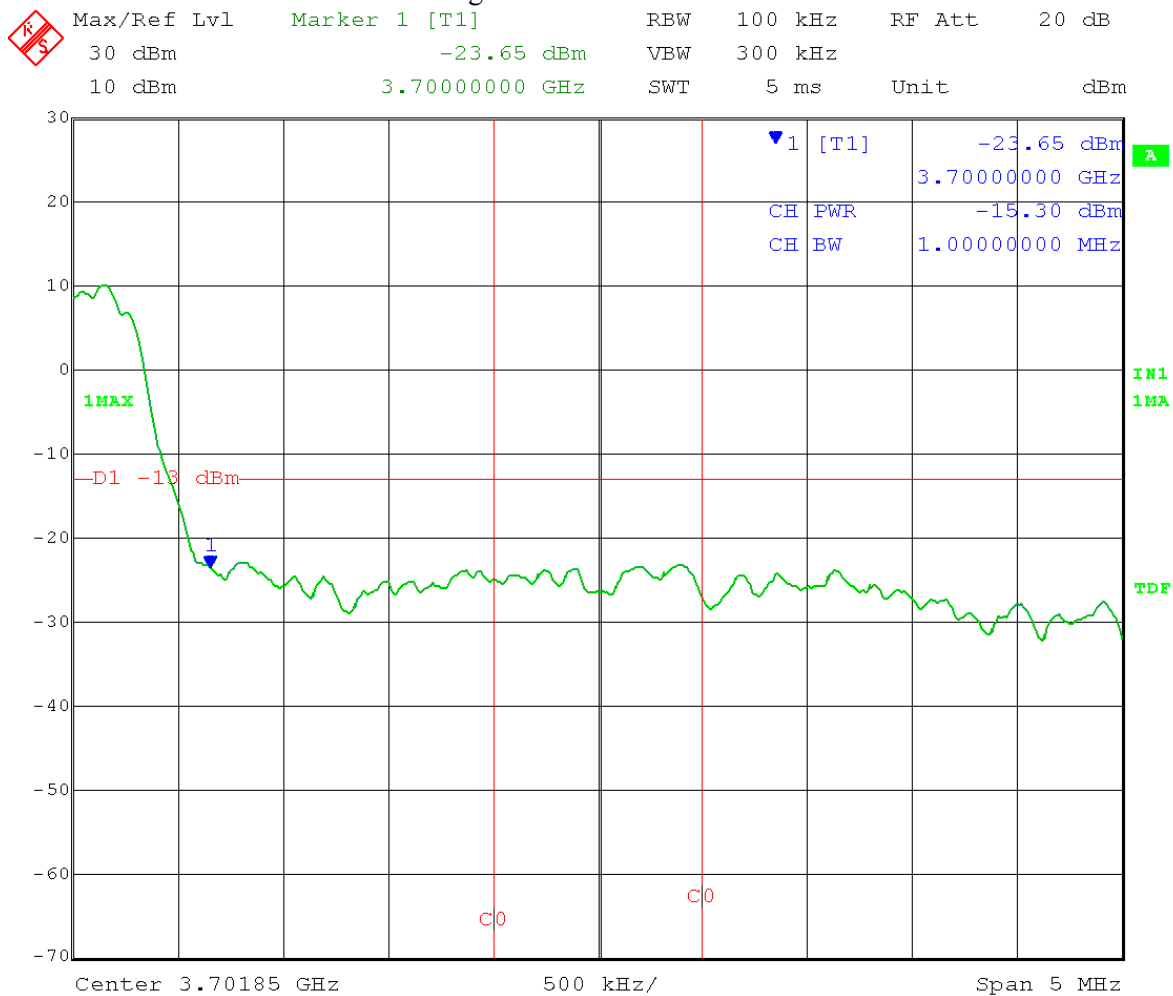   Power level at band edge = -14.88 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	20 dB
30 dBm	-23.20 dBm	VBW	300 kHz		
10 dBm	3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -23.20 dBm
                 3.70000000 GHz
CH PWR   -14.88 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

IN1
1MA

TDF

C0   C0

Center 3.70185 GHz   500 kHz/   Span 5 MHz
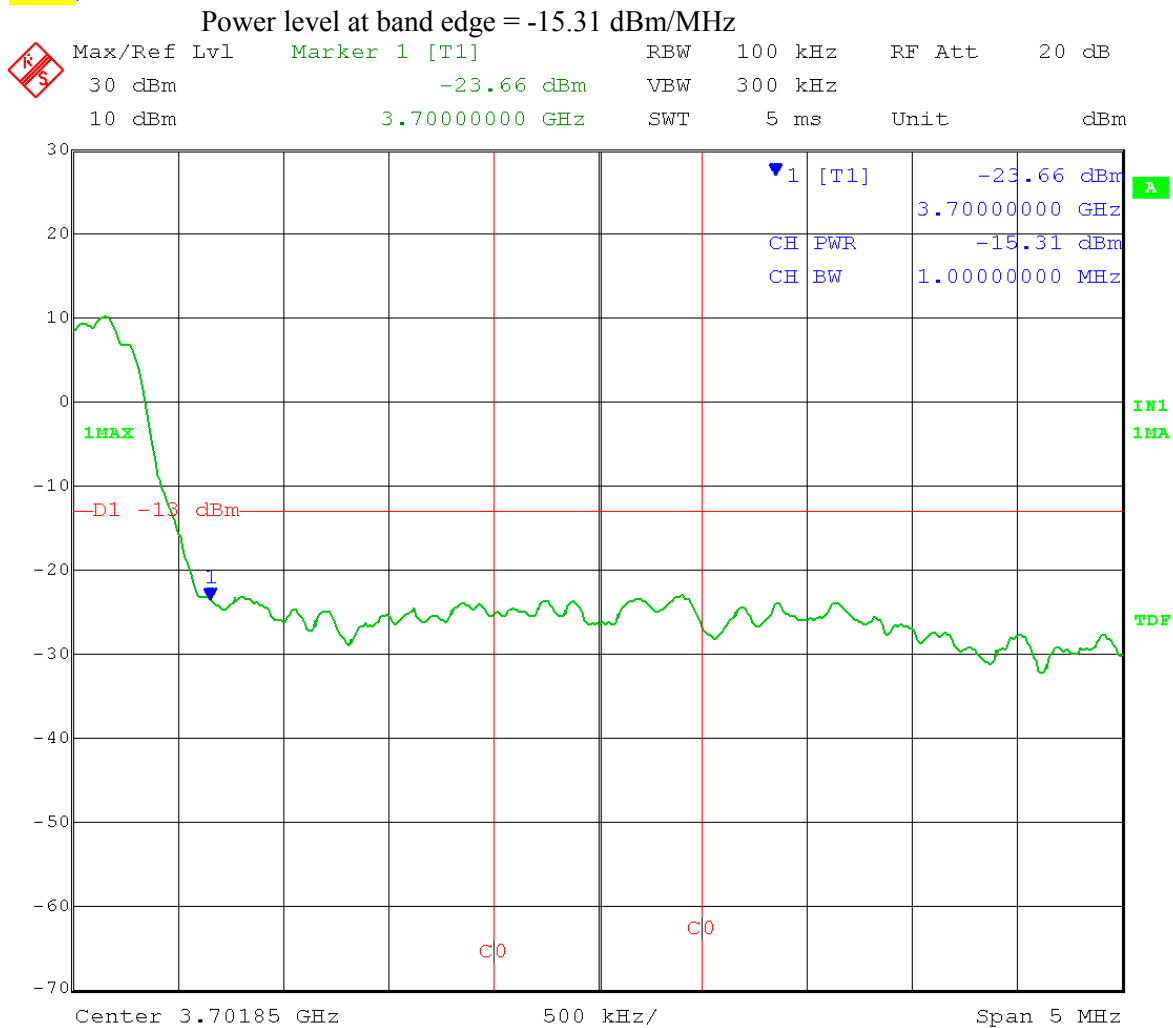
Date: 19.FEB.2014 14:38:37

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains

                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
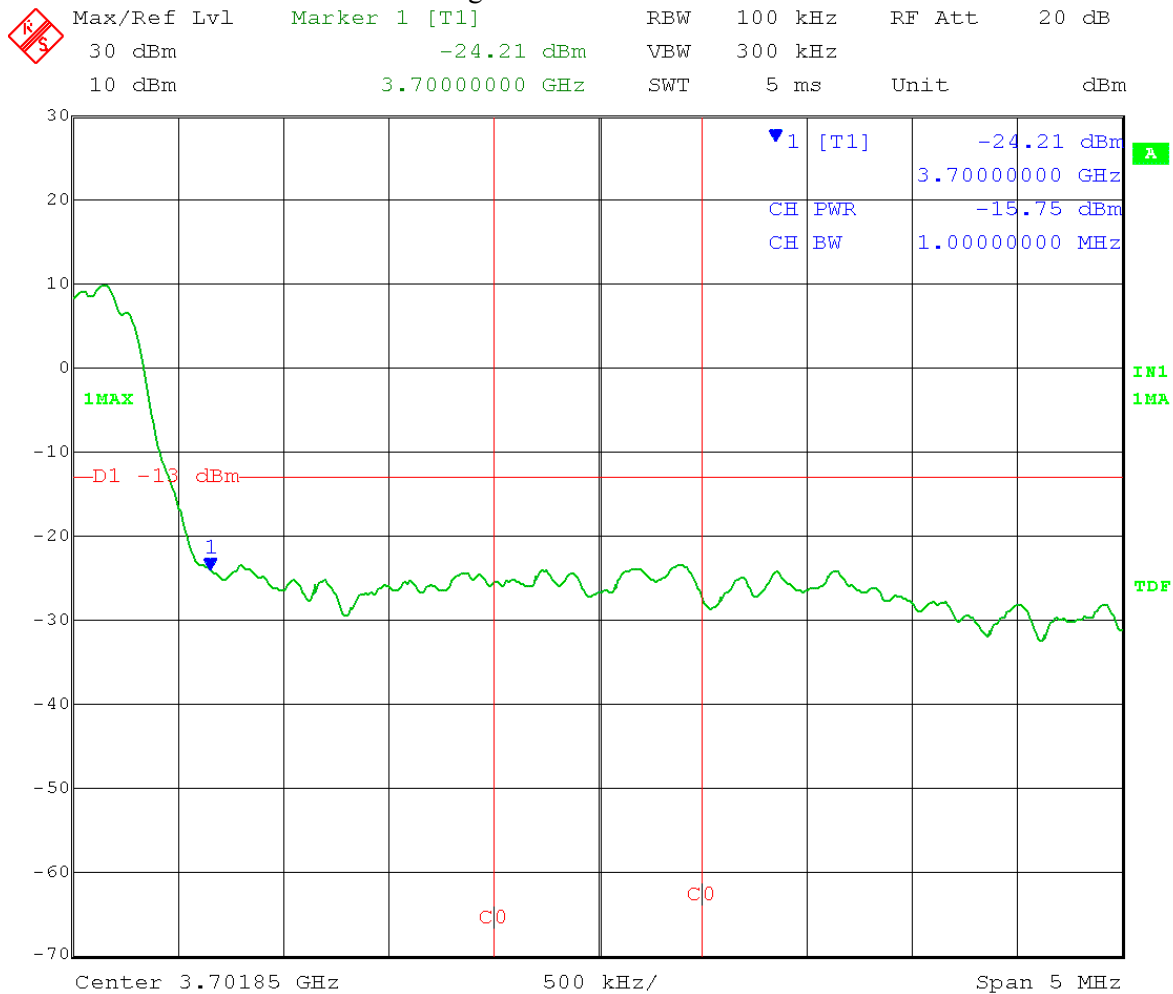   Measured power at band edge is integrated over a 1 MHz bandwidth

30 °C, 120 V
                Power level at band edge = -15.30 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-23.65 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -23.65 dBm
                 3.70000000 GHz
CH PWR   -15.30 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 19.FEB.2014 15:36:27

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

40 °C, 120 V

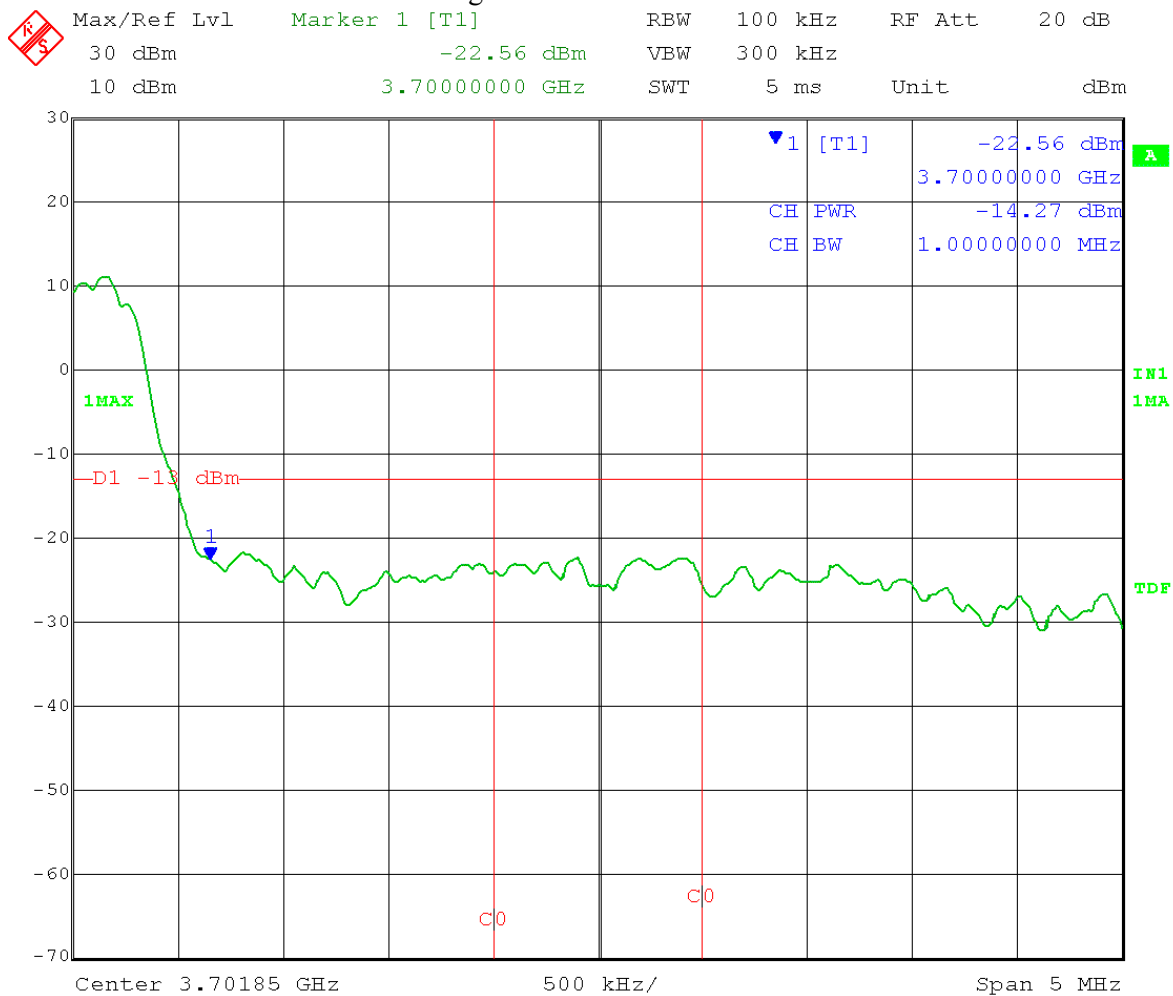   Power level at band edge = -15.31 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	20 dB
30 dBm	-23.66 dBm	VBW	300 kHz		
10 dBm	3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -23.66 dBm
                 3.70000000 GHz
CH PWR   -15.31 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

C0   C0

Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 20.FEB.2014 08:46:39

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
             Detector = Peak   Sweep = auto couple
             Trace = max hold
             High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains
             Channel bandwidth: 10 MHz   for 8 dBi antenna gain
             Upper band edge frequency = 3700 MHz   Output port: A
             Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
             Measured power at band edge is integrated over a 1 MHz bandwidth

50 °C, 120 V

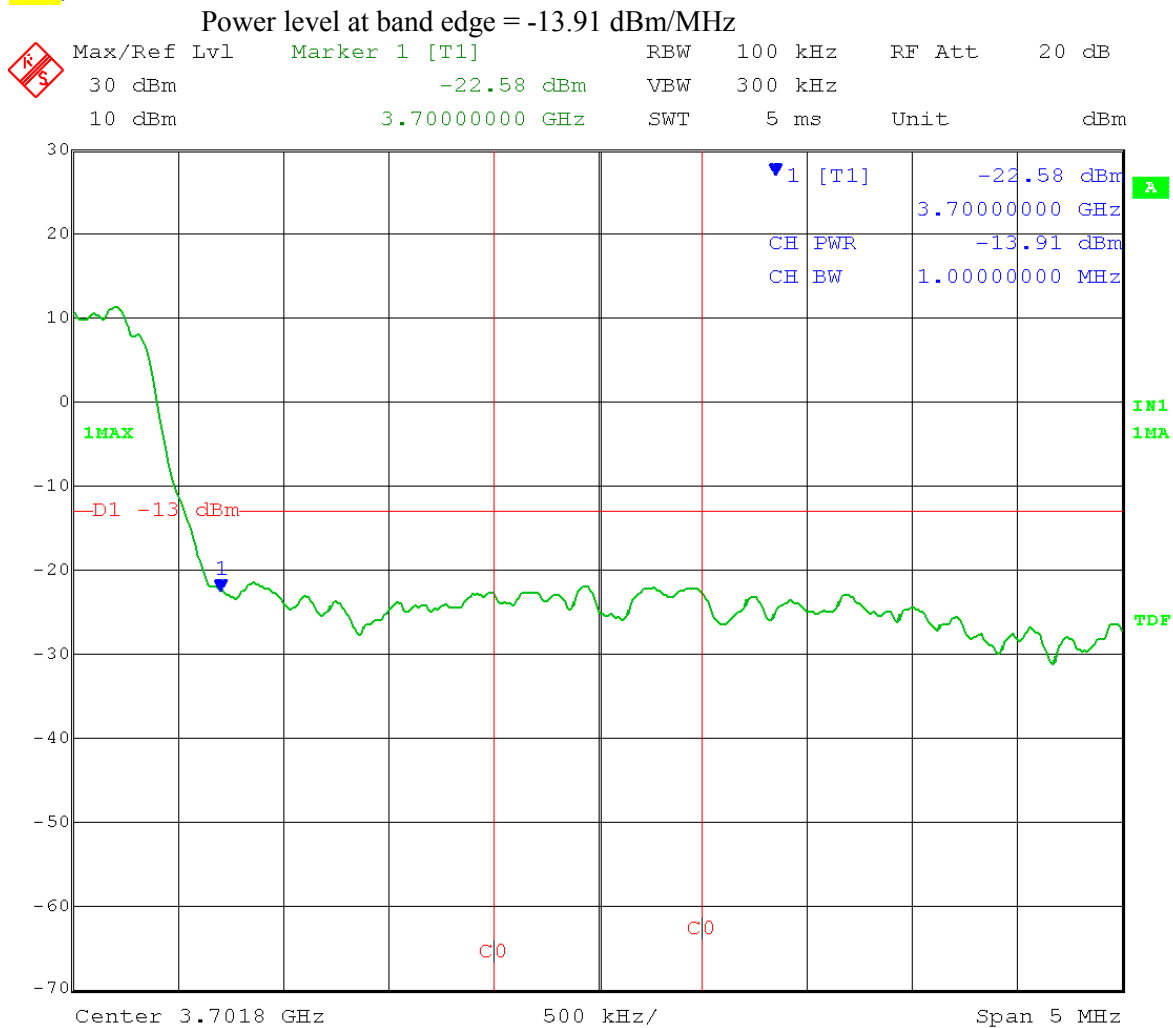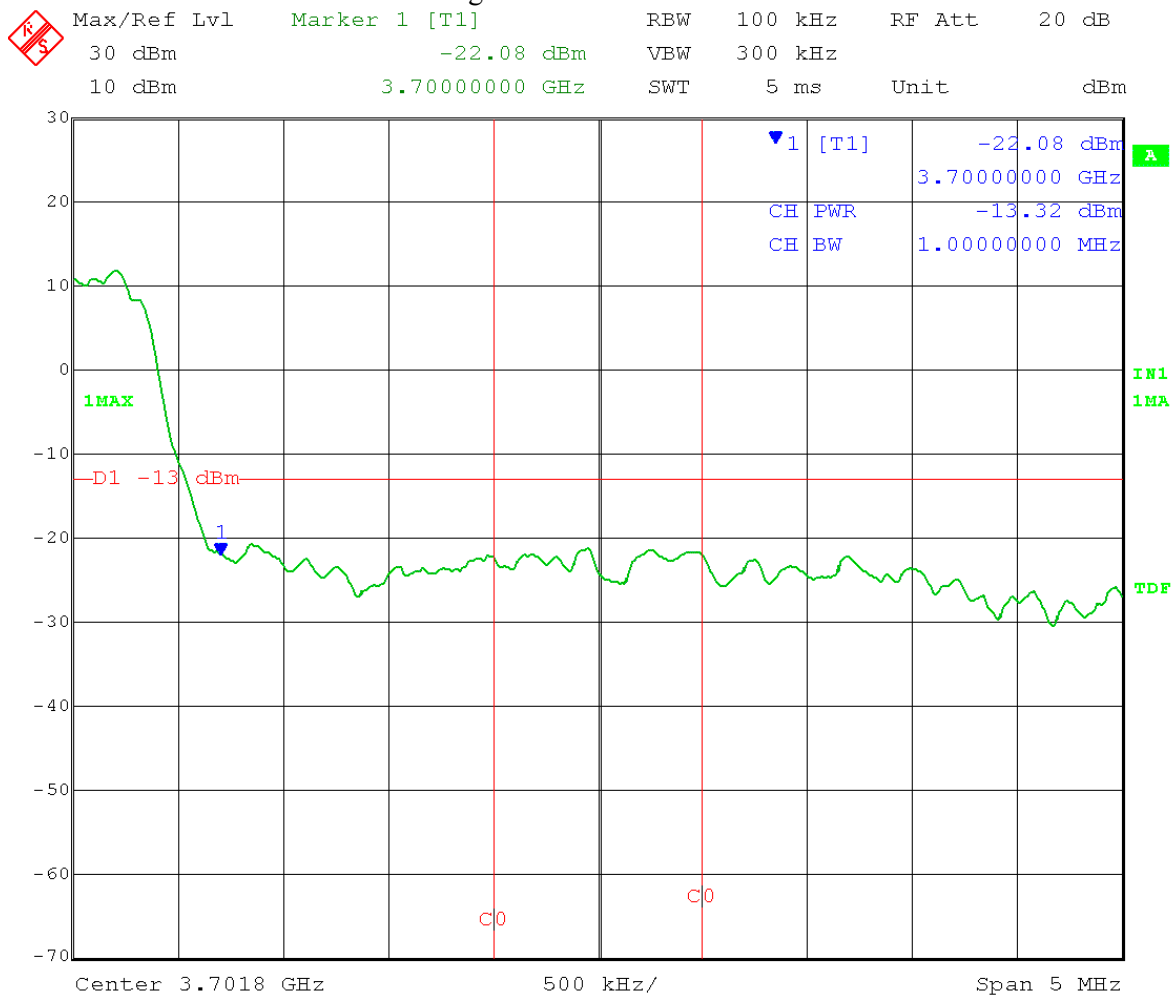Power level at band edge = -15.75 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-24.21 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -24.21 dBm
                 3.70000000 GHz
CH PWR   -15.75 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A

IN1
1MA

TDF

C0   C0

Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 20.FEB.2014 09:51:53

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
         Detector = Peak   Sweep = auto couple
         Trace = max hold
         High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains

         Channel bandwidth: 10 MHz   for 8 dBi antenna gain
         Upper band edge frequency = 3700 MHz   Output port: A
         Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
         Measured power at band edge is integrated over a 1 MHz bandwidth
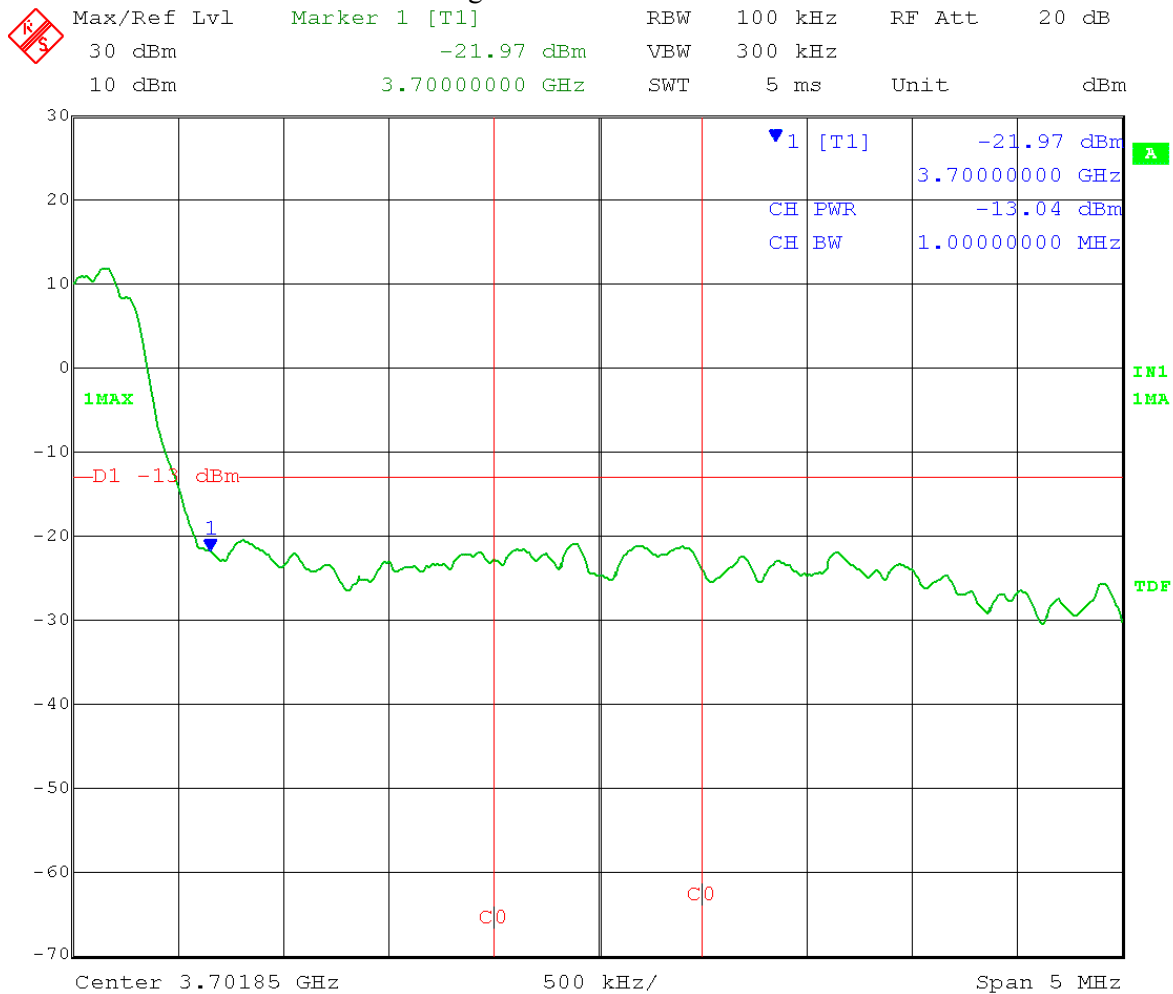
10 °C, 120 V

Power level at band edge = -14.27 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-22.56 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 20.FEB.2014   11:14:00

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3695 MHz   Power setting: 25 total of both
                                                         chains
               Channel bandwidth: 10 MHz   for 8 dBi antenna gain
               Upper band edge frequency = 3700 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

0 °C, 120 V

Power level at band edge = -13.91 dBm/MHz
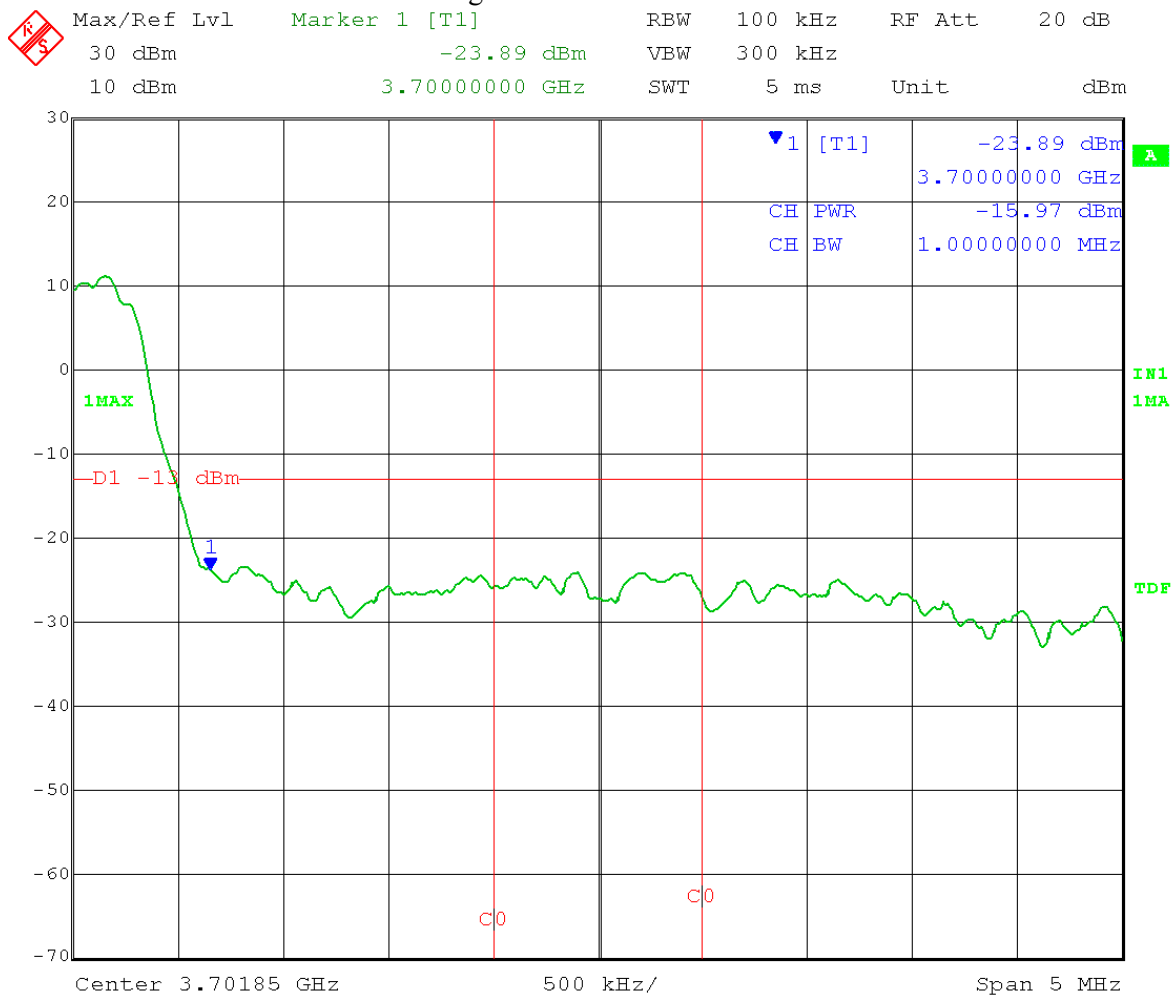

Max/Ref Lvl	Marker 1 [T1]	RBW 100 kHz	RF Att 20 dB
30 dBm	-22.58 dBm	VBW 300 kHz	
10 dBm	3.70000000 GHz	SWT 5 ms	Unit dBm

▼1 [T1]   -22.58 dBm
               3.70000000 GHz
CH PWR   -13.91 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7018 GHz   500 kHz/   Span 5 MHz

Date: 20.FEB.2014 12:42:10

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains
Channel bandwidth: 10 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

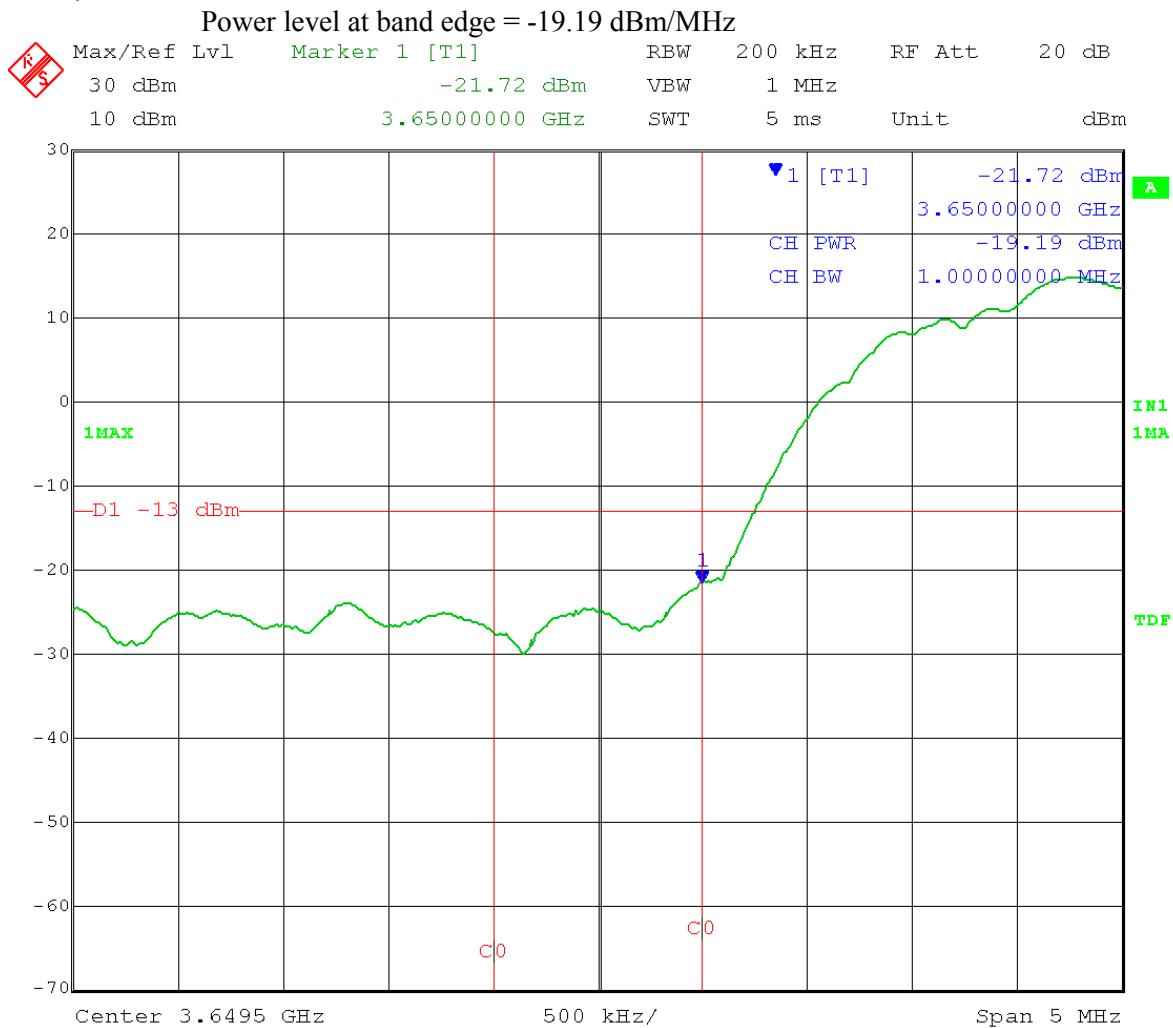Power level at band edge = -13.32 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-22.08 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -22.08 dBm
3.70000000 GHz
CH PWR   -13.32 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7018 GHz   500 kHz/   Span 5 MHz

Date: 20.FEB.2014   13:37:52

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
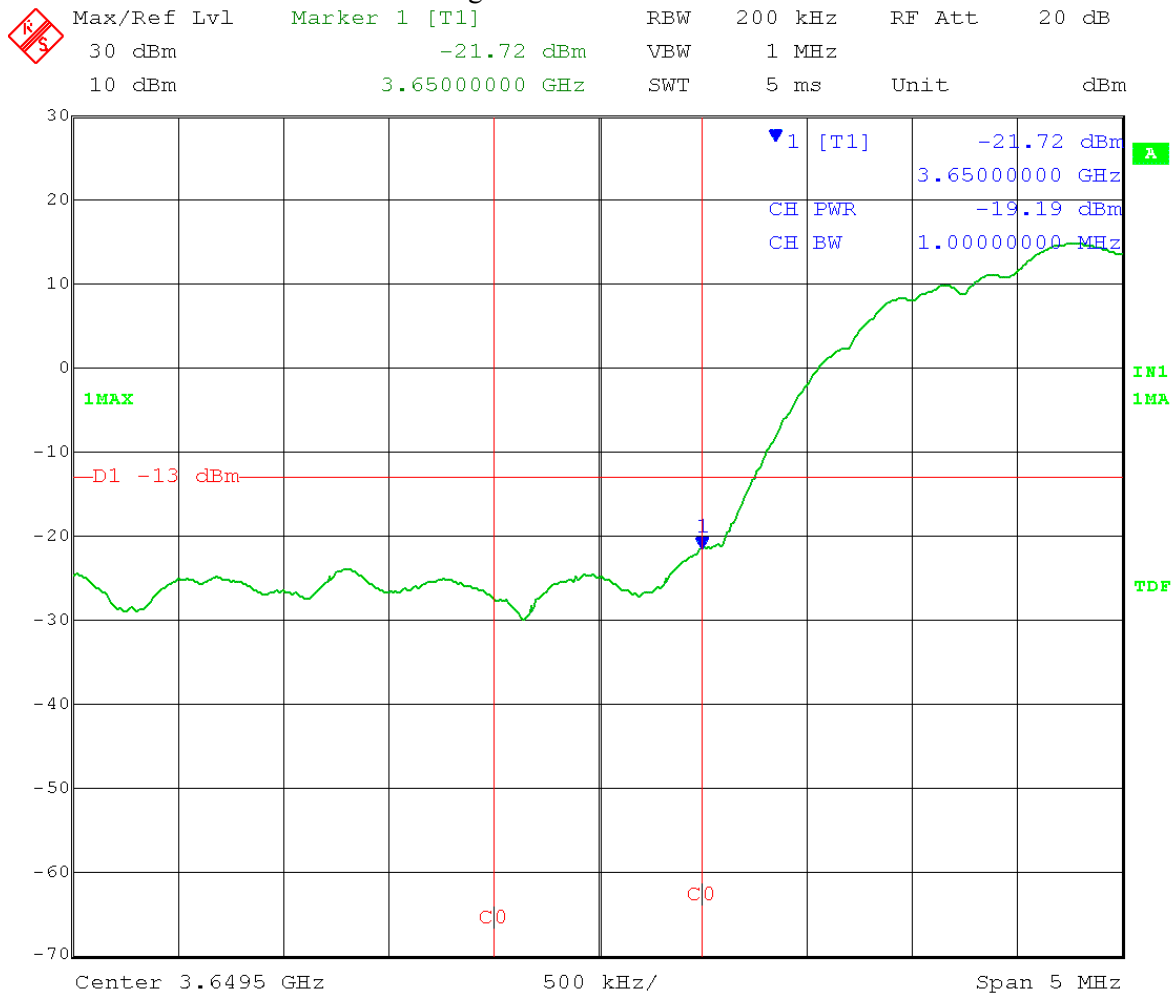   Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

-20 °C, 120 V

                Power level at band edge = -13.04 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-21.97 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -21.97 dBm
                 3.70000000 GHz
CH PWR   -13.04 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

1

IN1
1MA

TDF

C0   C0

Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 20.FEB.2014 14:38:39

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Power setting: 24 total of both chains
                Channel bandwidth: 10 MHz   for 8 dBi antenna gain
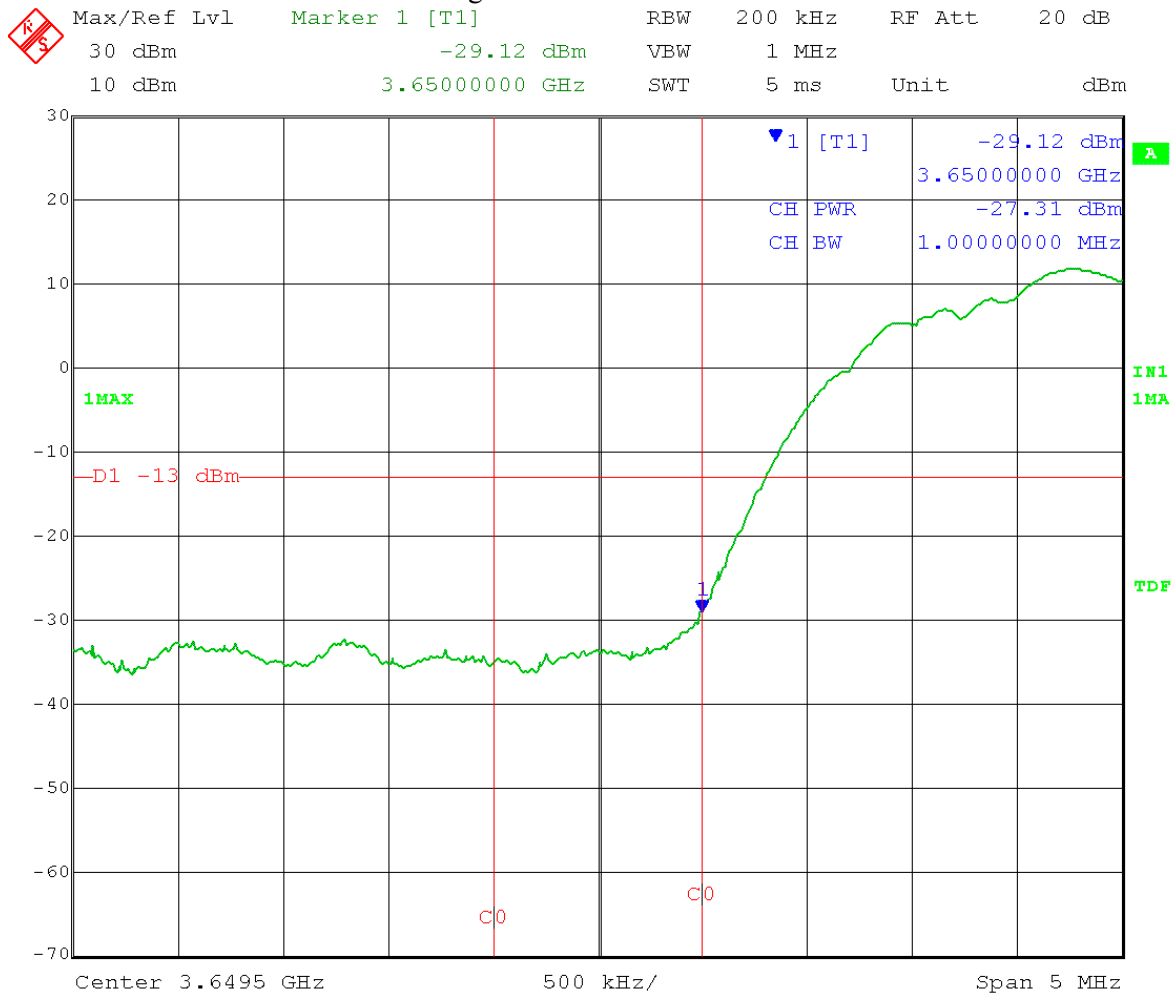   Upper band edge frequency = 3700 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

-30 °C, 120 V

Power level at band edge = -15.97 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-23.89 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -23.89 dBm
                3.70000000 GHz
CH PWR   -15.97 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

IN1
1MA

TDF

C 0   C 0

Center 3.70185 GHz   500 kHz/   Span 5 MHz

Date: 20.FEB.2014   15:36:20

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
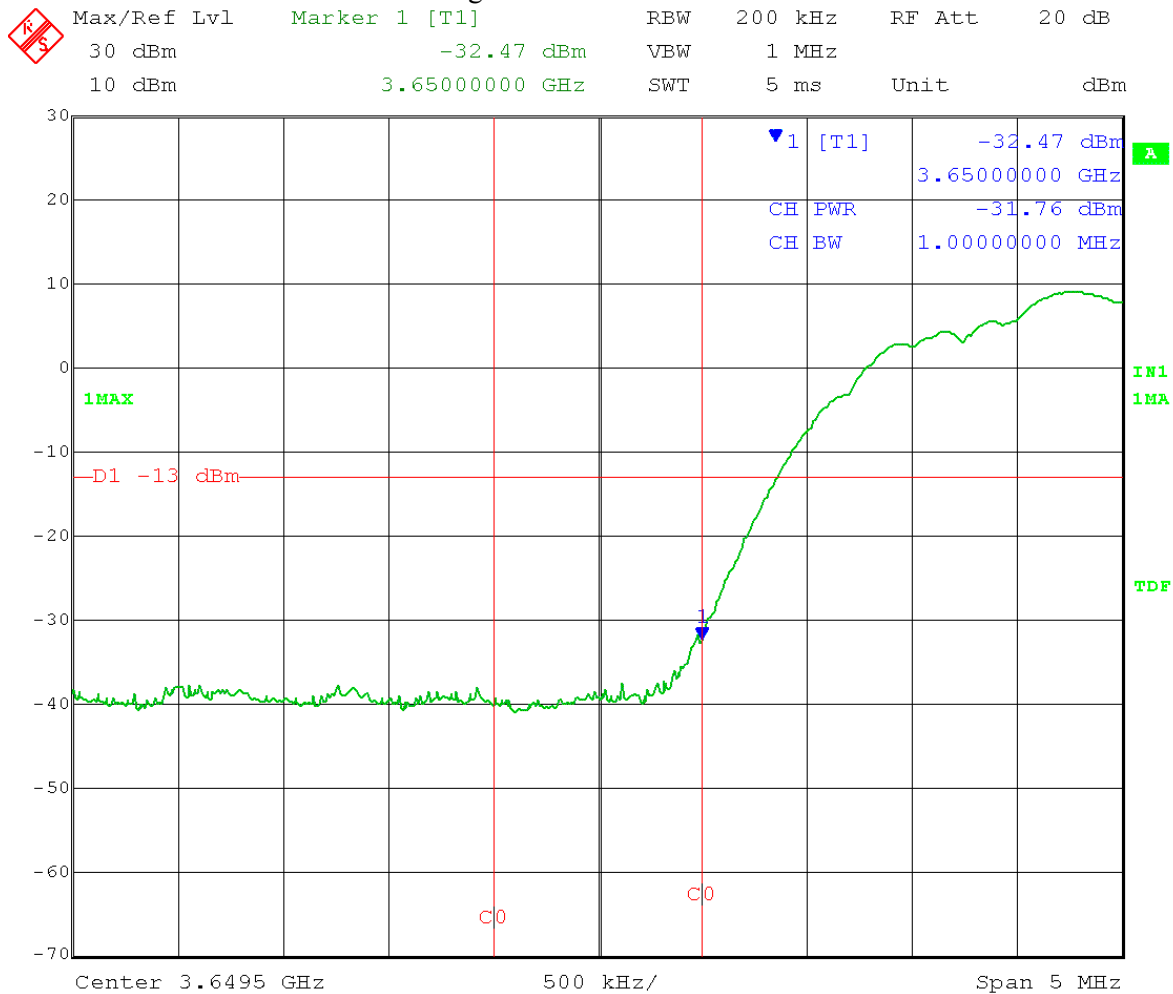   Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -19.19 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-21.72 dBm	VBW	1 MHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -21.72 dBm
           3.65000000 GHz
CH PWR   -19.19 dBm
CH BW   1.00000000 MHz

A
IN1
1MA
TDF

1MAX
D1 -13 dBm

C0   C0

Center 3.6495 GHz   500 kHz/   Span 5 MHz
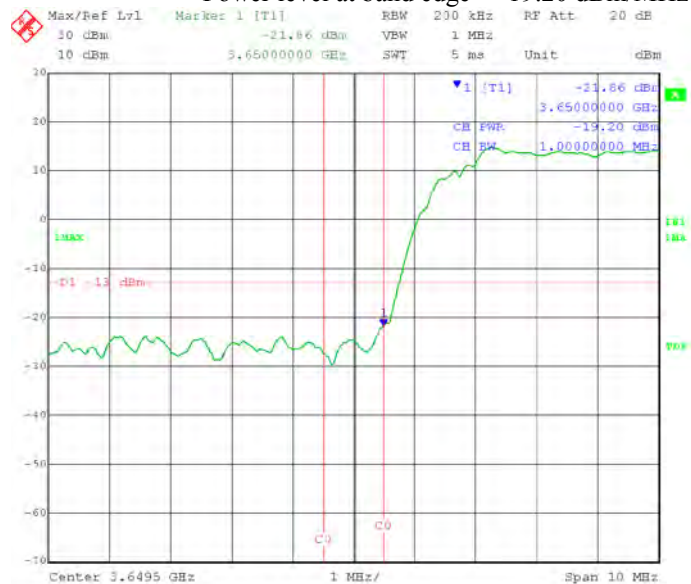
Date: 19.FEB.2014 13:10:43

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
         Detector = Peak   Sweep = auto couple
         Trace = max hold
         Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains

         Channel bandwidth: 20 MHz   for 17 dBi antenna gain
         Lower band edge frequency = 3650 MHz   Output port: A
         Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
         Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -19.19 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	200 kHz	RF Att	20 dB
30 dBm	-21.72 dBm	VBW	1 MHz		
10 dBm	3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -21.72 dBm
               3.65000000 GHz
CH PWR   -19.19 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

IN1
1MA

TDF

Center 3.6495 GHz   500 kHz/   Span 5 MHz

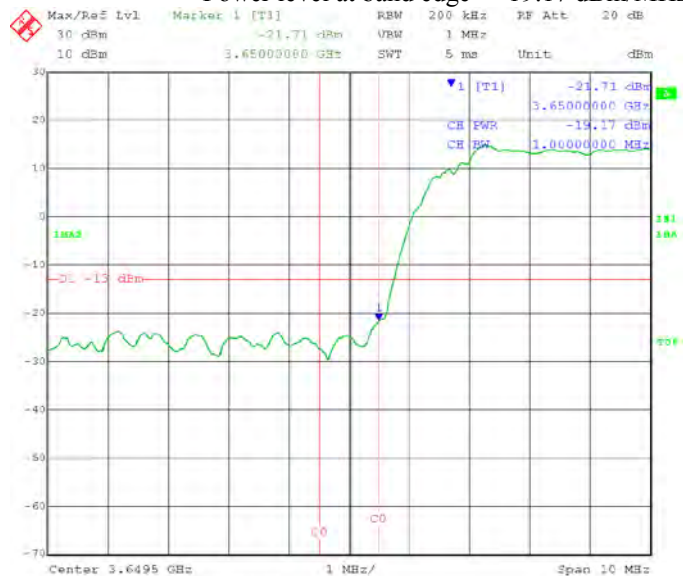Date: 19.FEB.2014   13:10:43

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 22 total of both chains

                Channel bandwidth: 20 MHz   for 20 dBi antenna gain
                Lower band edge frequency = 3650 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -27.31 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-29.12 dBm	VBW	1 MHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

```
                                               ▼1 [T1]          -29.12 dBm
                                                               3.65000000 GHz
                                               CH PWR            -27.31 dBm
                                               CH BW           1.00000000 MHz
```

1MAX

D1 -13 dBm

Center 3.6495 GHz   500 kHz/   Span 5 MHz

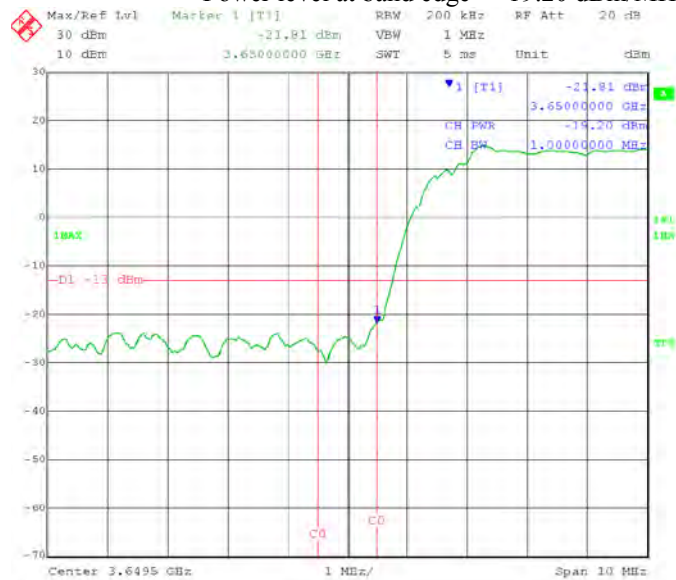Date: 19.FEB.2014   13:22:19

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3660 MHz   Power setting: 19 total of both chains
Channel bandwidth: 20 MHz   for 22 dBi antenna gain
Lower band edge frequency = 3650 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -31.76 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-32.47 dBm	VBW	1 MHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -32.47 dBm
3.65000000 GHz
CH PWR   -31.76 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A

IN1
1MA

TDF

C0   C0

Center 3.6495 GHz   500 kHz/   Span 5 MHz

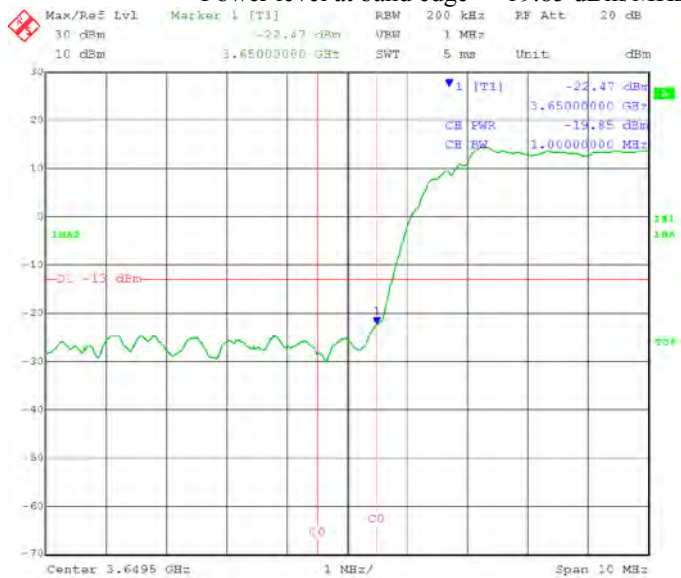Date: 19.FEB.2014   13:24:20

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
               Channel bandwidth: 20 MHz   for 8 dBi antenna gain
               Lower band edge frequency = 3650 MHz
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -19.20 dBm/MHz

Power level at band edge = -18.77 dBm/MHz
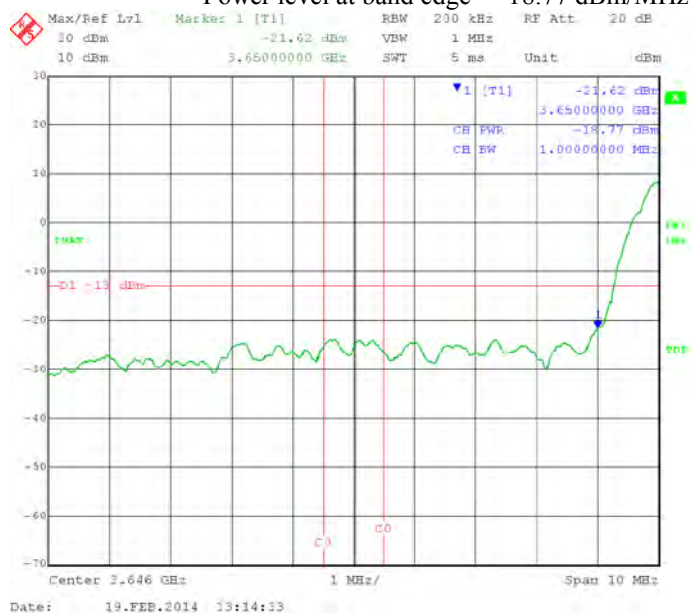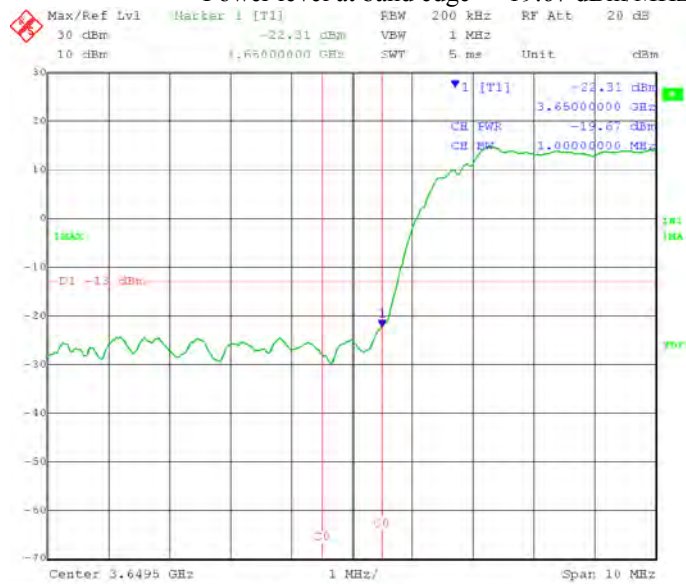
Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
               Channel bandwidth: 20 MHz   for 8 dBi antenna gain
               Lower band edge frequency = 3650 MHz
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 138 V

Power level at band edge = -19.17 dBm/MHz

Power level at band edge = -18.66 dBm/MHz
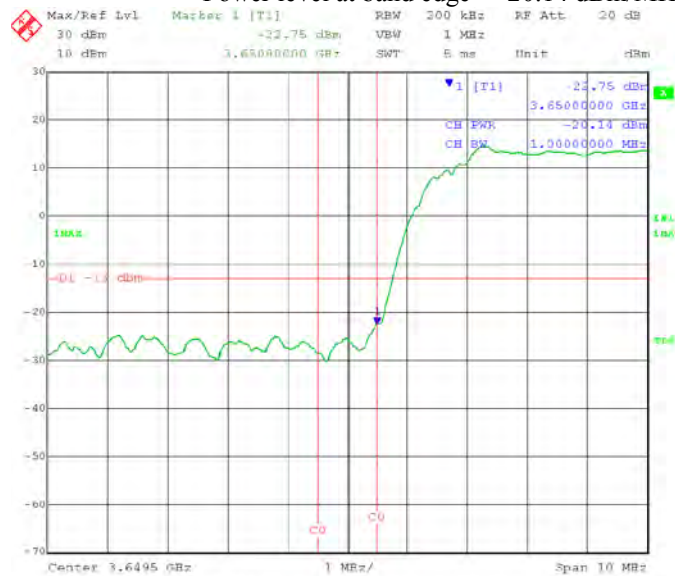
Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 102 V

Power level at band edge = -19.20 dBm/MHz

Power level at band edge = -18.70 dBm/MHz
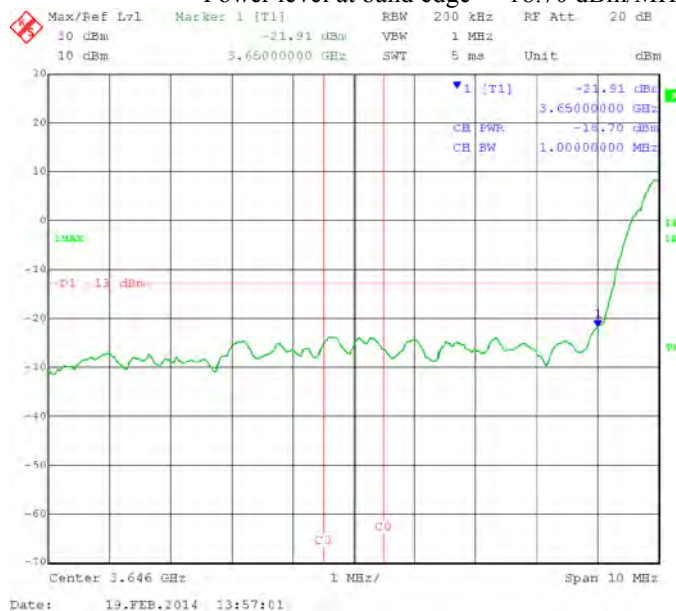
Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
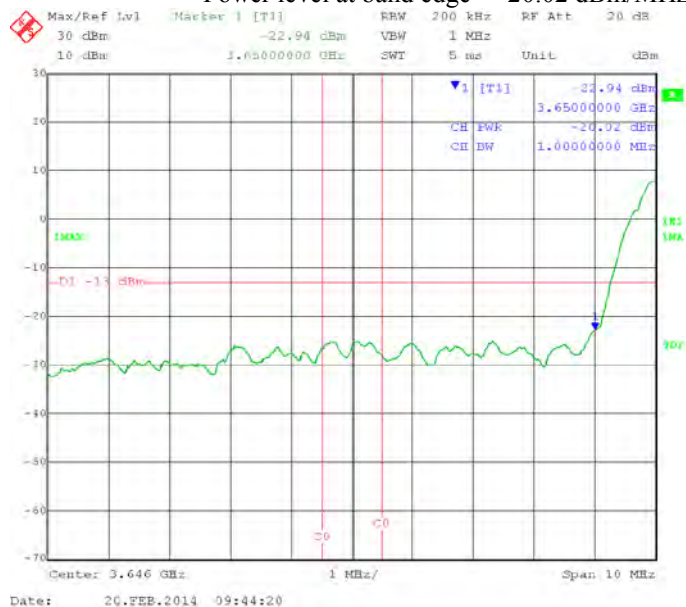   Measured power at band edge is integrated over a 1 MHz bandwidth
30 °C, 120 V

Power level at band edge = -19.85 dBm/MHz

Power level at band edge = -19.37 dBm/MHz
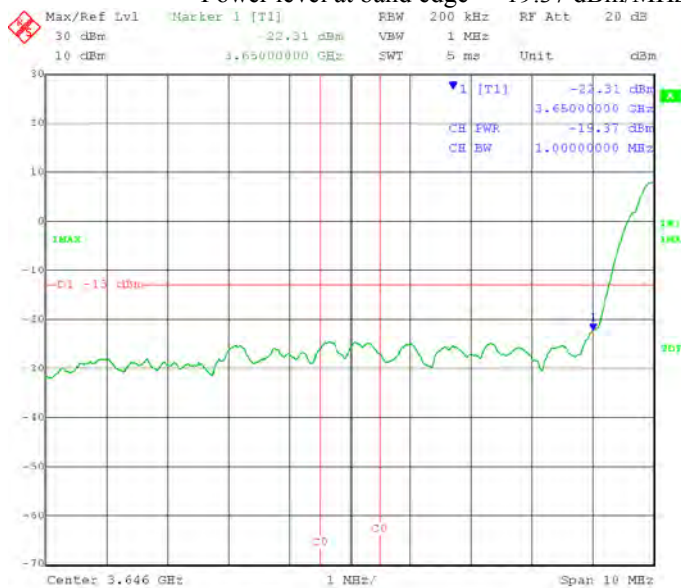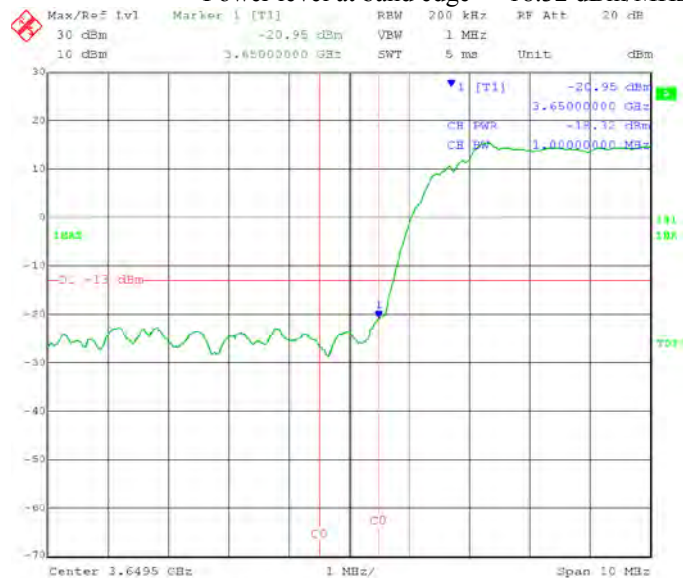
Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
              Channel bandwidth: 20 MHz   for 8 dBi antenna gain
              Lower band edge frequency = 3650 MHz
              Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
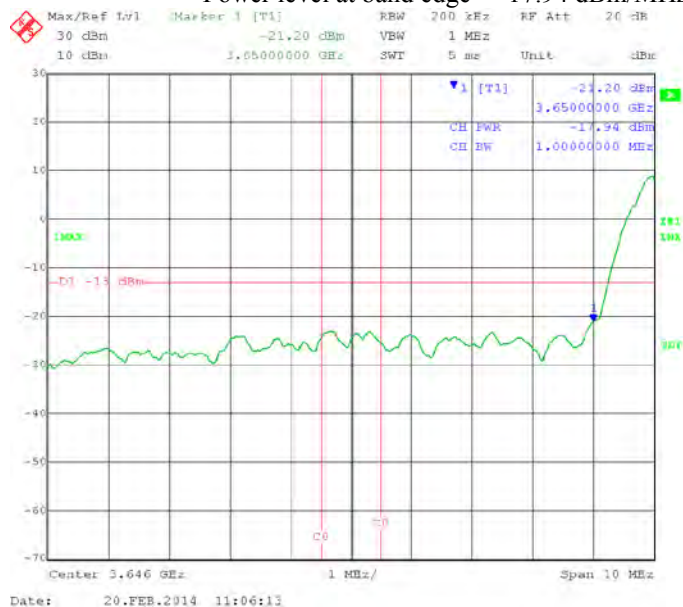   Measured power at band edge is integrated over a 1 MHz bandwidth

40 °C, 120 V

Power level at band edge = -19.67 dBm/MHz

Power level at band edge = -19.42 dBm/MHz
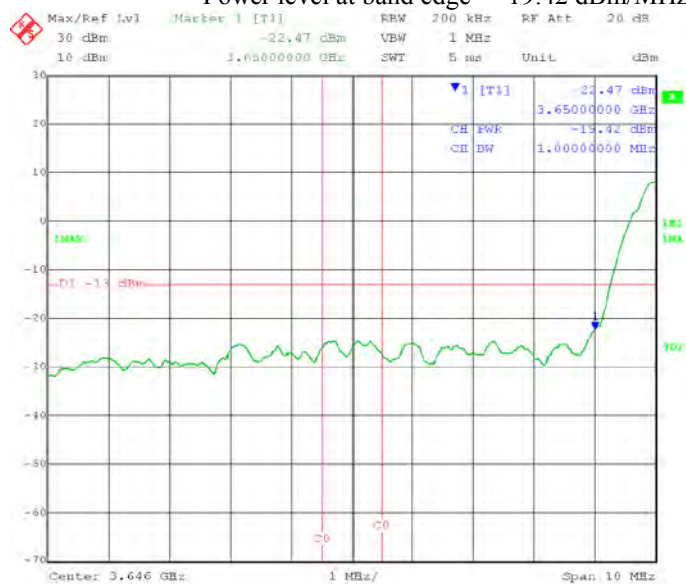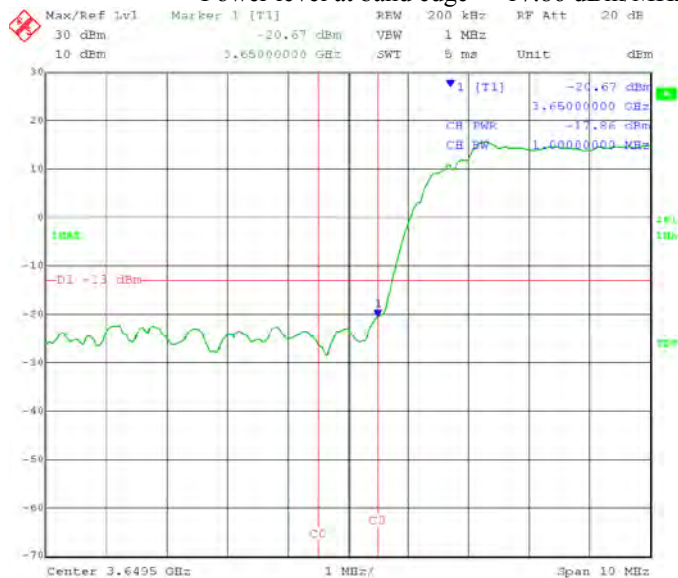
Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

50 °C, 120 V

Power level at band edge = -20.14 dBm/MHz

Power level at band edge = -20.02 dBm/MHz

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                  Detector = Peak   Sweep = auto couple
                  Trace = max hold
                  Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                  Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                  Lower band edge frequency = 3650 MHz
                  Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                  Measured power at band edge is integrated over a 1 MHz bandwidth

10 °C, 120 V

Power level at band edge = -18.32 dBm/MHz

Power level at band edge = -17.94 dBm/MHz
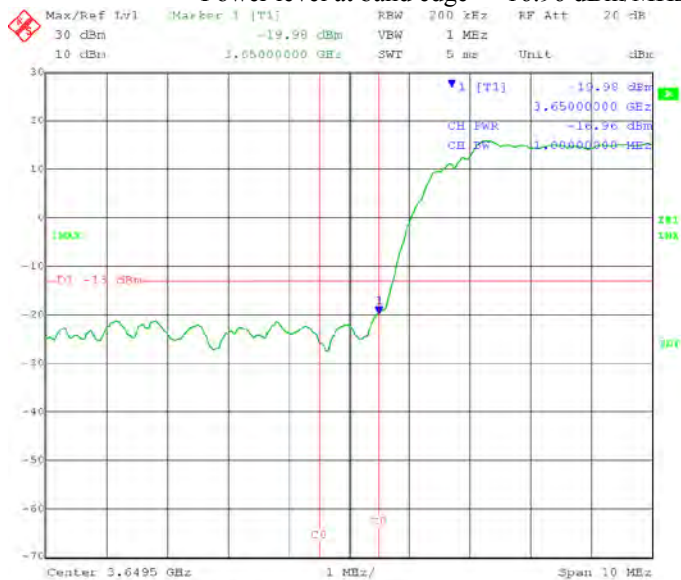
Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
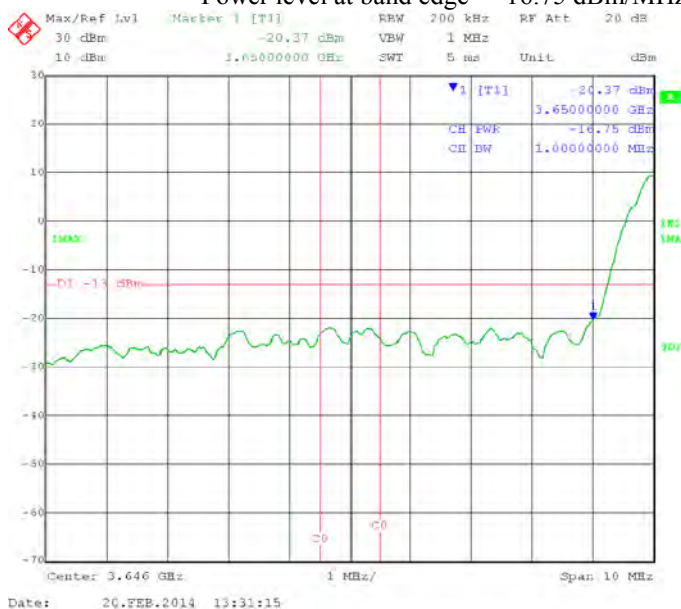   Measured power at band edge is integrated over a 1 MHz bandwidth

0 °C, 120 V

Power level at band edge = -17.86 dBm/MHz

Power level at band edge = -17.39 dBm/MHz
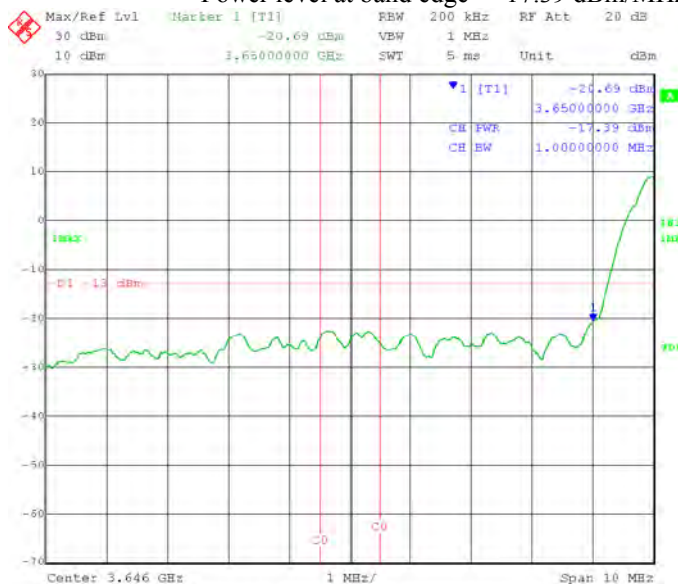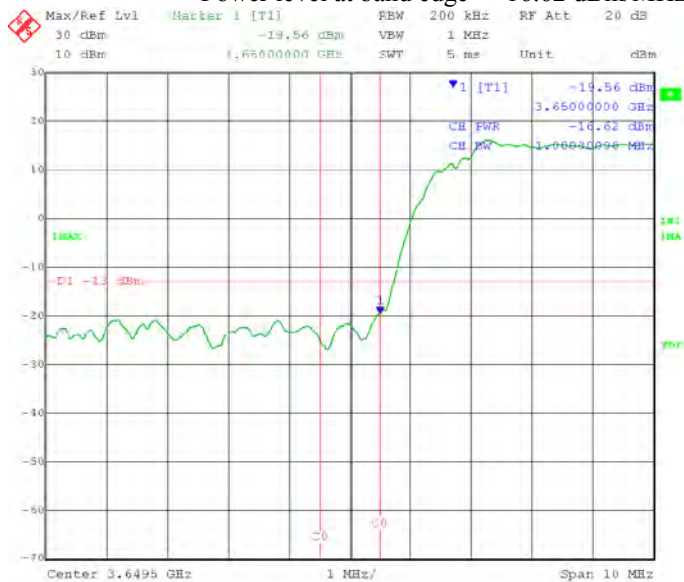
Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
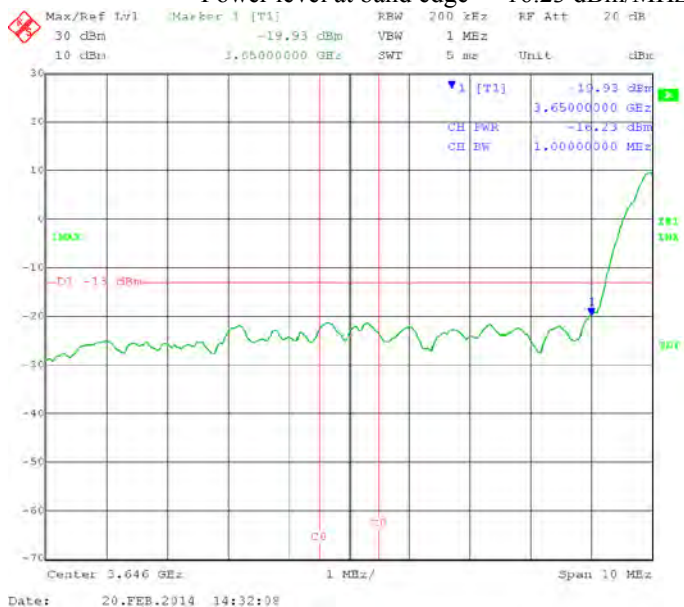   Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

Power level at band edge = -16.96 dBm/MHz

Power level at band edge = -16.75 dBm/MHz

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

-20 °C, 120 V

Power level at band edge = -16.62 dBm/MHz

Power level at band edge = -16.23 dBm/MHz
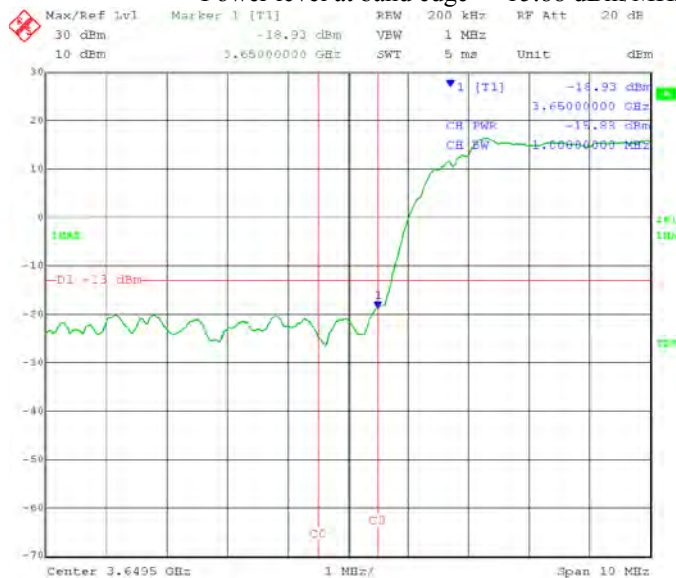
Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3660 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth
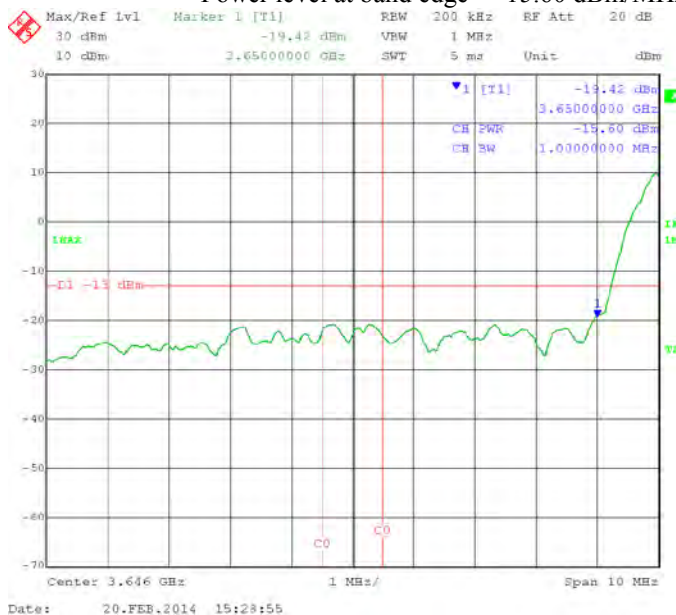
-30 °C, 120 V

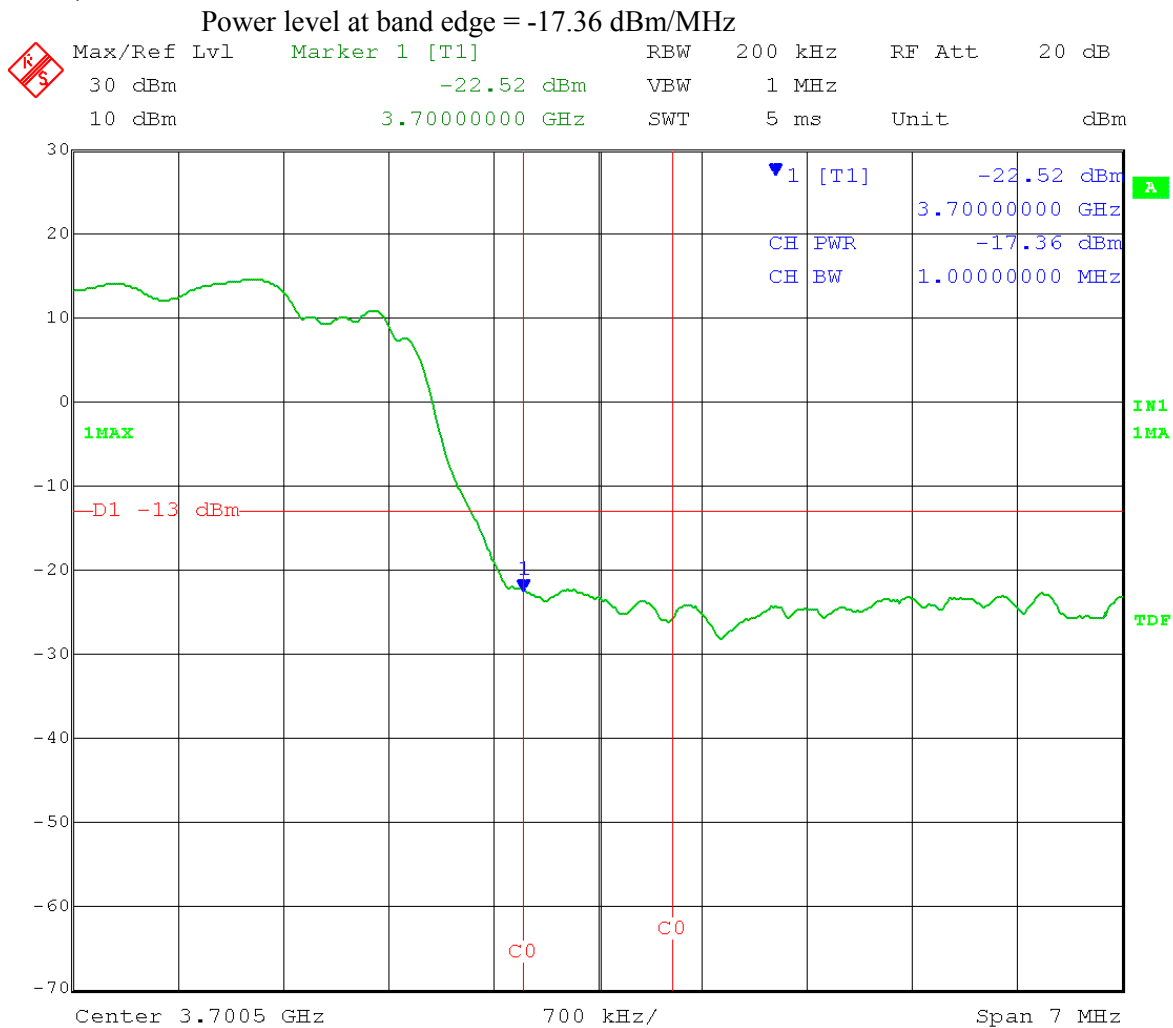Power level at band edge = -15.88 dBm/MHz

Power level at band edge = -15.60 dBm/MHz

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3690 MHz Power setting: 25 total of both chains
Channel bandwidth: 20 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -17.36 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.52 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -22.52 dBm
3.70000000 GHz
CH PWR   -17.36 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 19.FEB.2014 13:30:31

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains

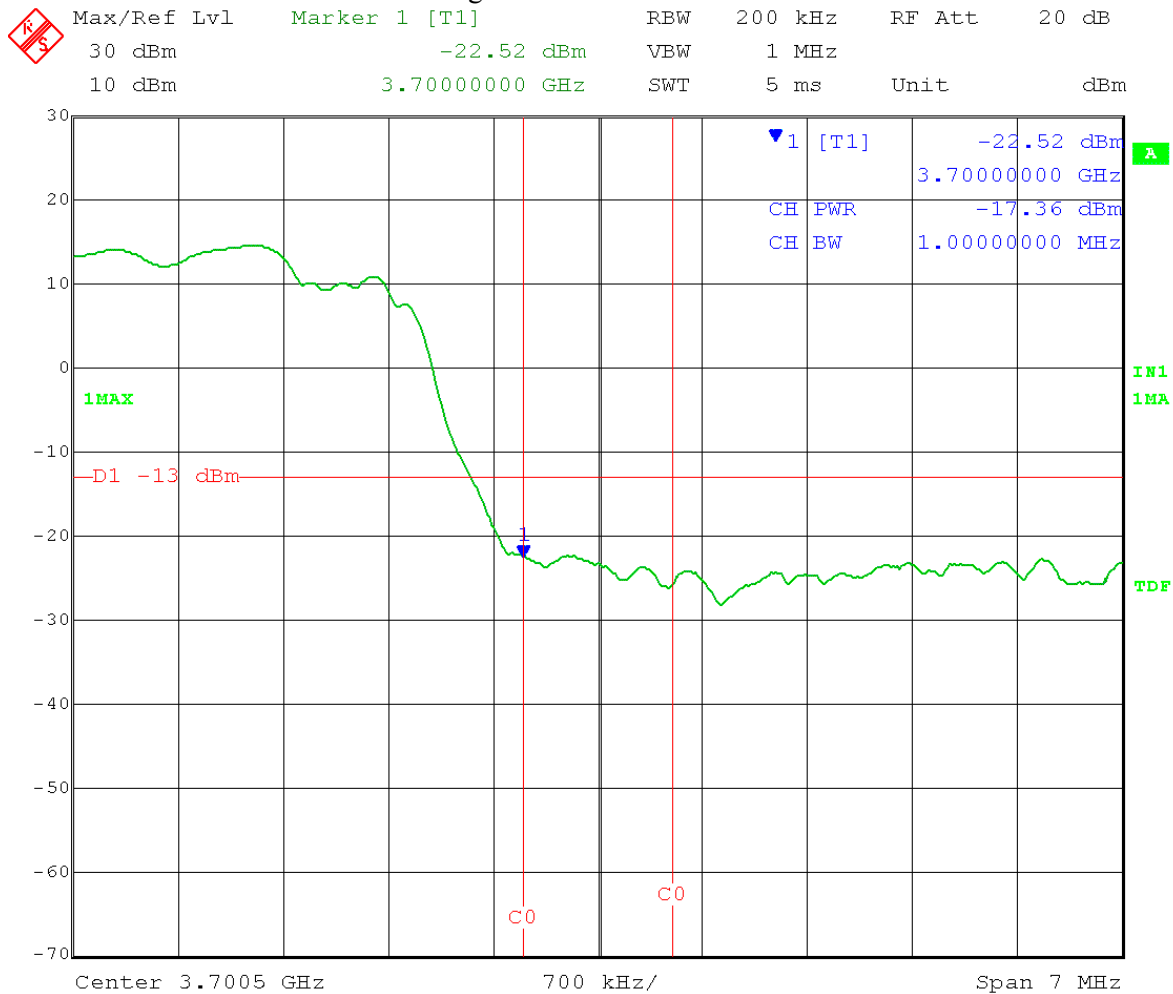   Channel bandwidth: 20 MHz   for 17 dBi antenna gain
               Upper band edge frequency = 3700 MHz
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -17.36 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.52 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -22.52 dBm
                       3.70000000 GHz
CH PWR   -17.36 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 19.FEB.2014 13:30:31

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              High Channel: Transmit = 3690 MHz   Power setting: 22 total of both chains

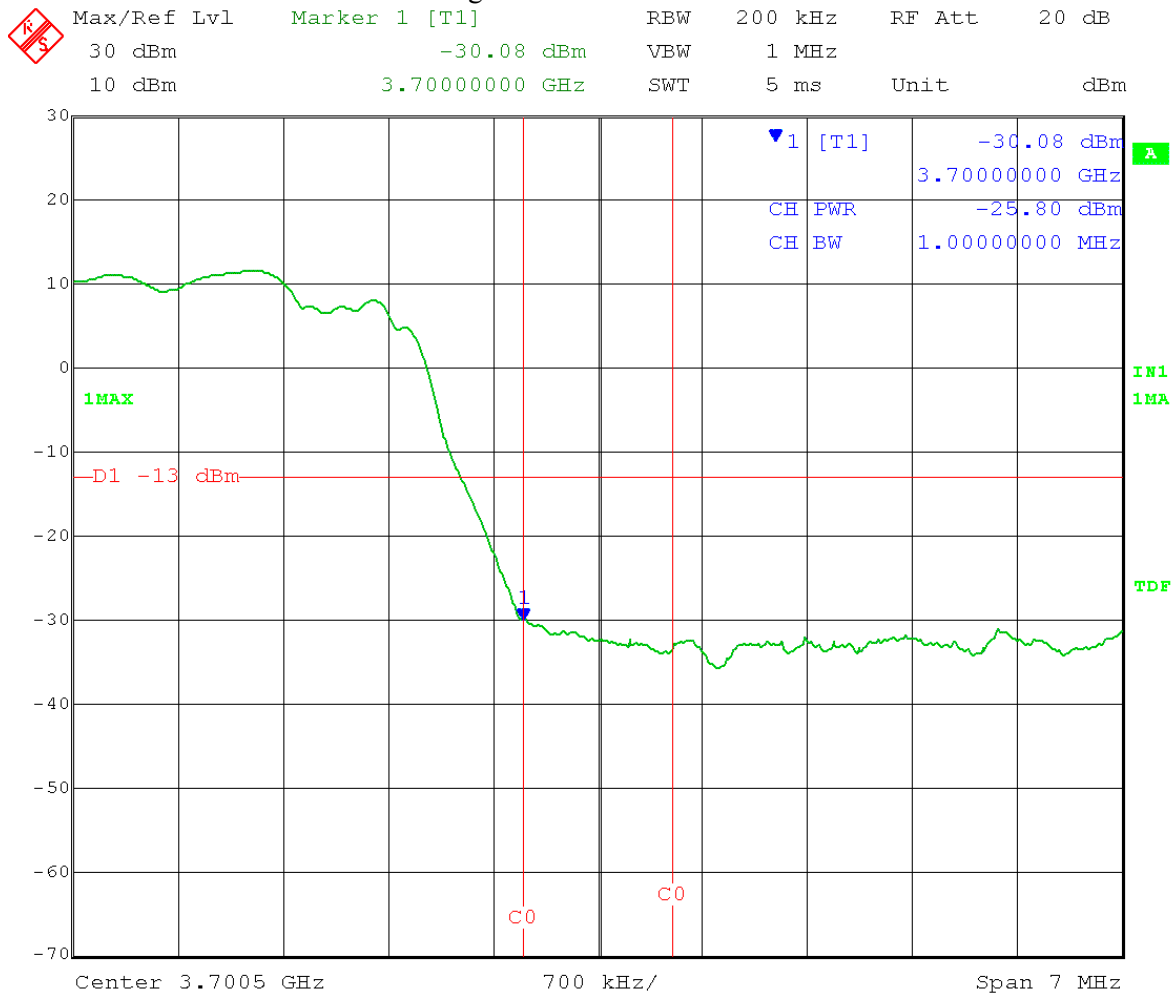   Channel bandwidth: 20 MHz   for 20 dBi antenna gain
              Upper band edge frequency = 3700 MHz
              Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
              Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -25.80 dBm/MHz

Date: 19.FEB.2014   13:44:50

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3690 MHz   Power setting: 19 total of both chains

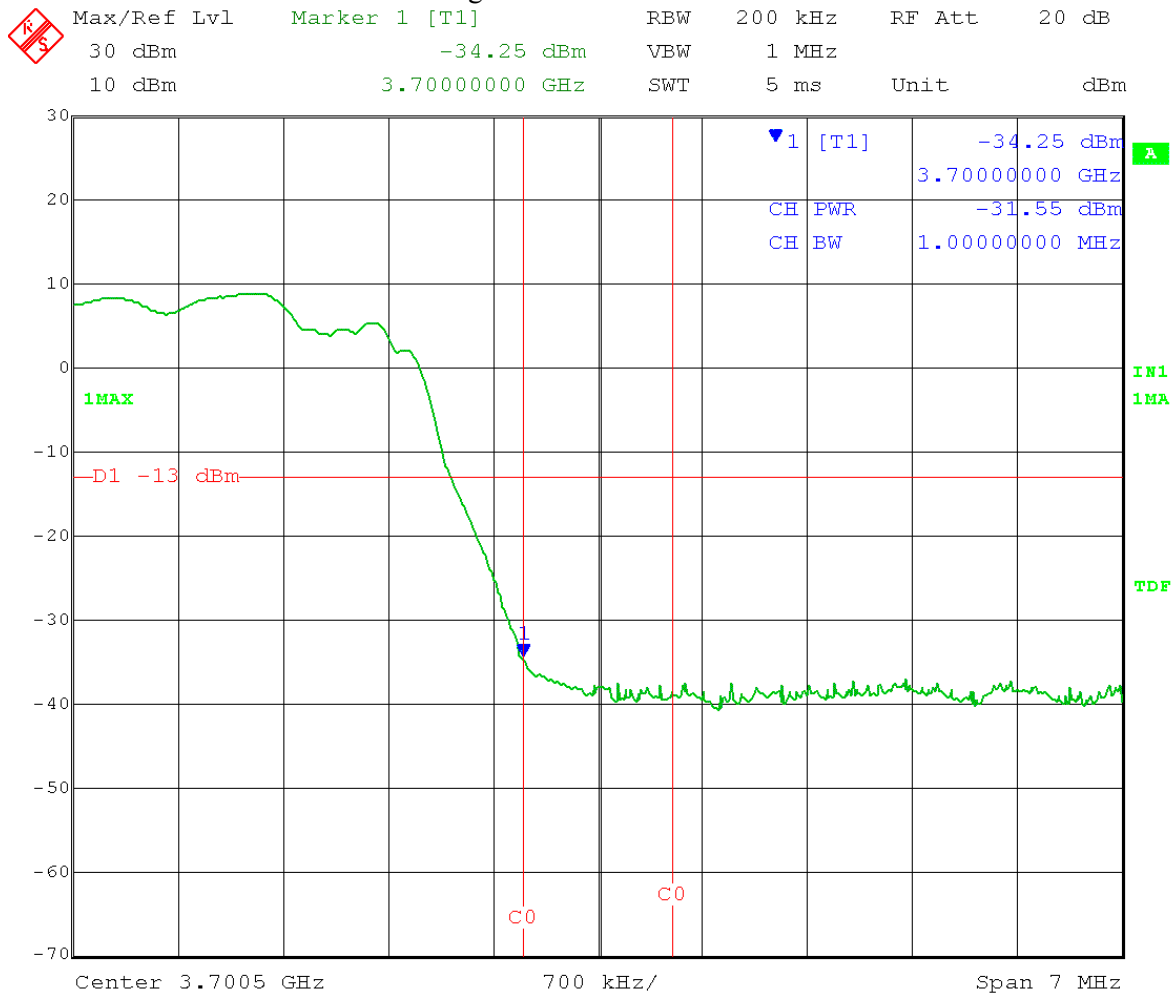   Channel bandwidth: 20 MHz   for 22 dBi antenna gain
                Upper band edge frequency = 3700 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 ℃, 120 V

Power level at band edge = -31.55 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-34.25 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -34.25 dBm
                3.70000000 GHz
CH PWR   -31.55 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

IN1
1MA

TDF

1

C0

C0

Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 19.FEB.2014 13:46:54

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains

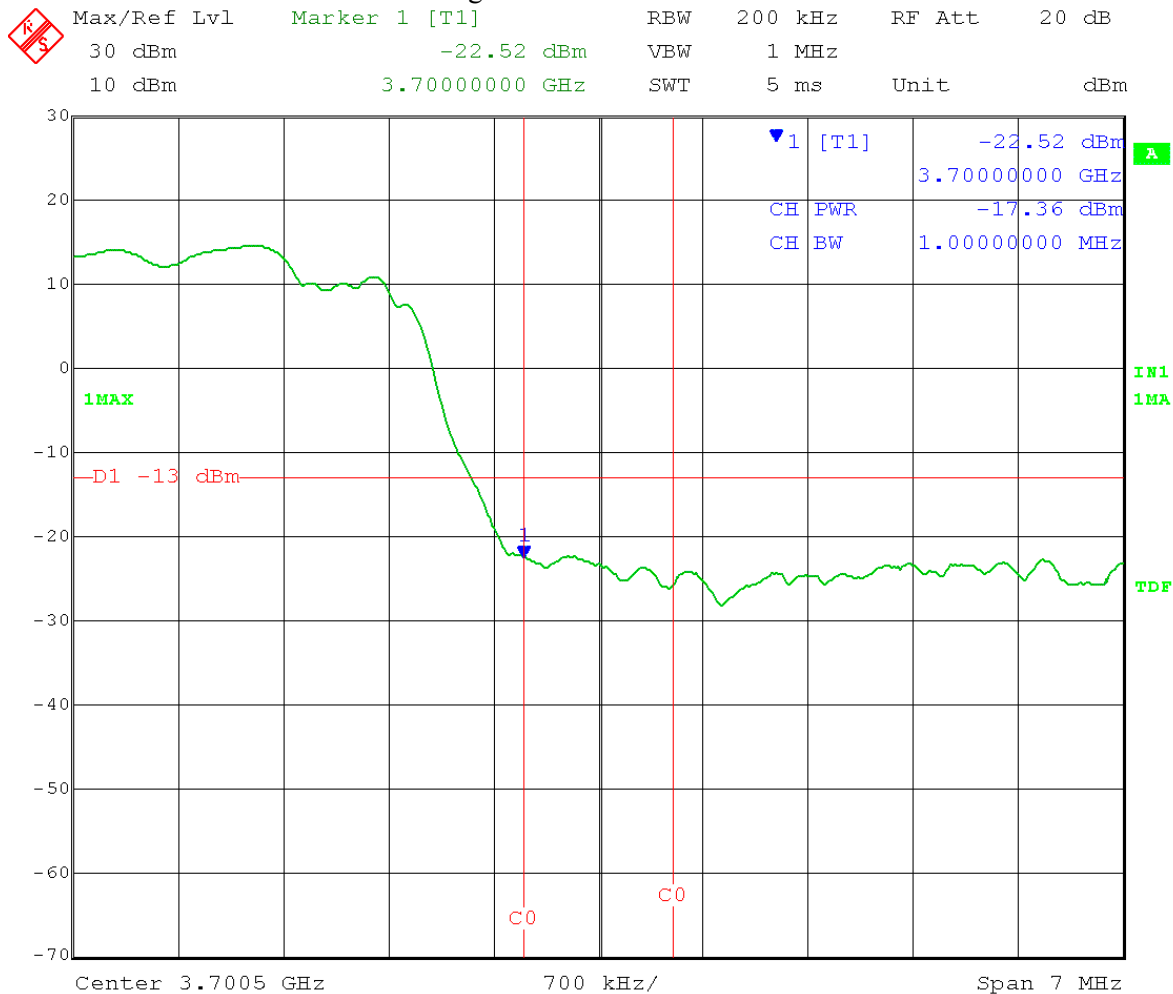   Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -17.36 dBm/MHz

Date: 19.FEB.2014   13:30:31

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains

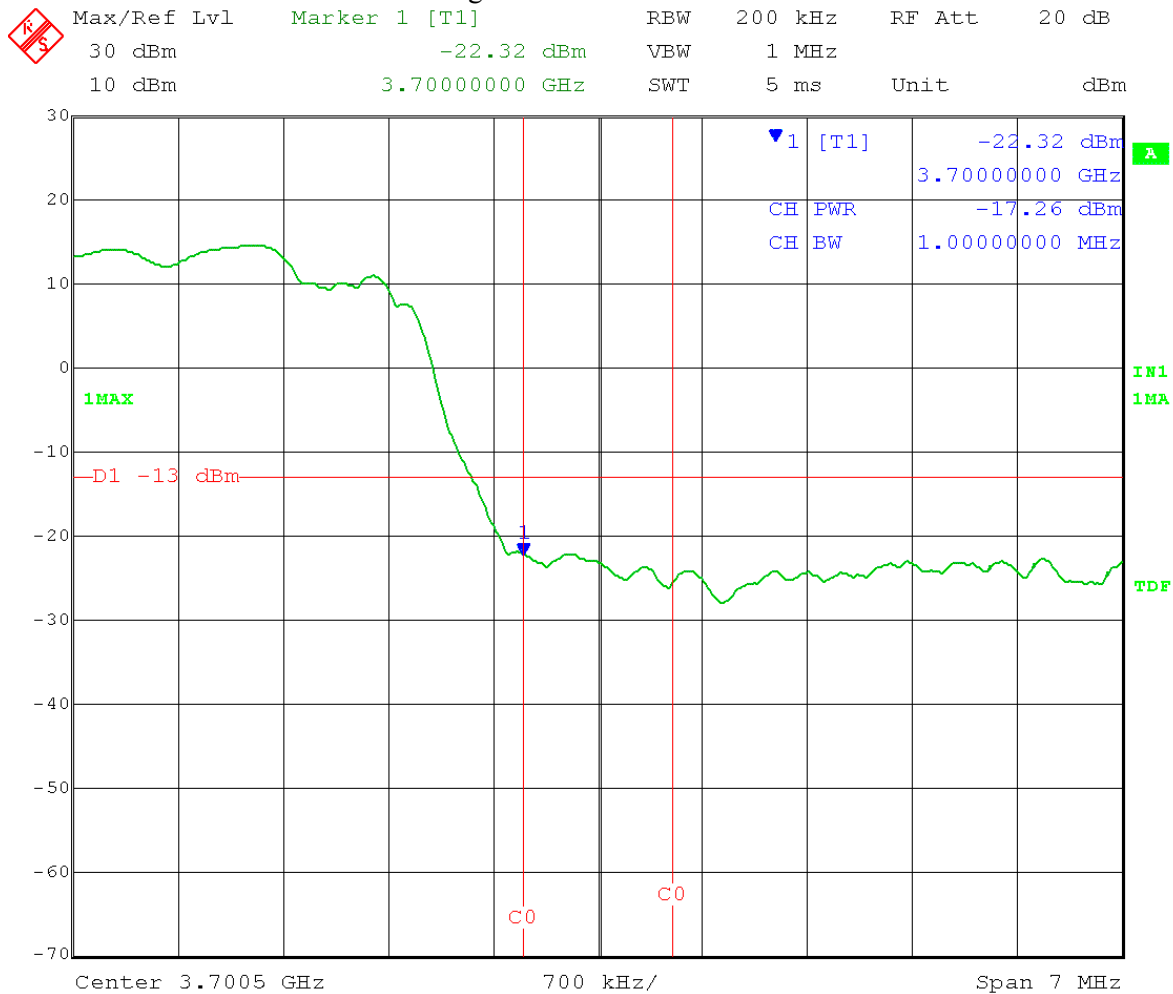   Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 138 V

                Power level at band edge = -17.26 dBm/MHz

Date: 19.FEB.2014 14:04:18

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains

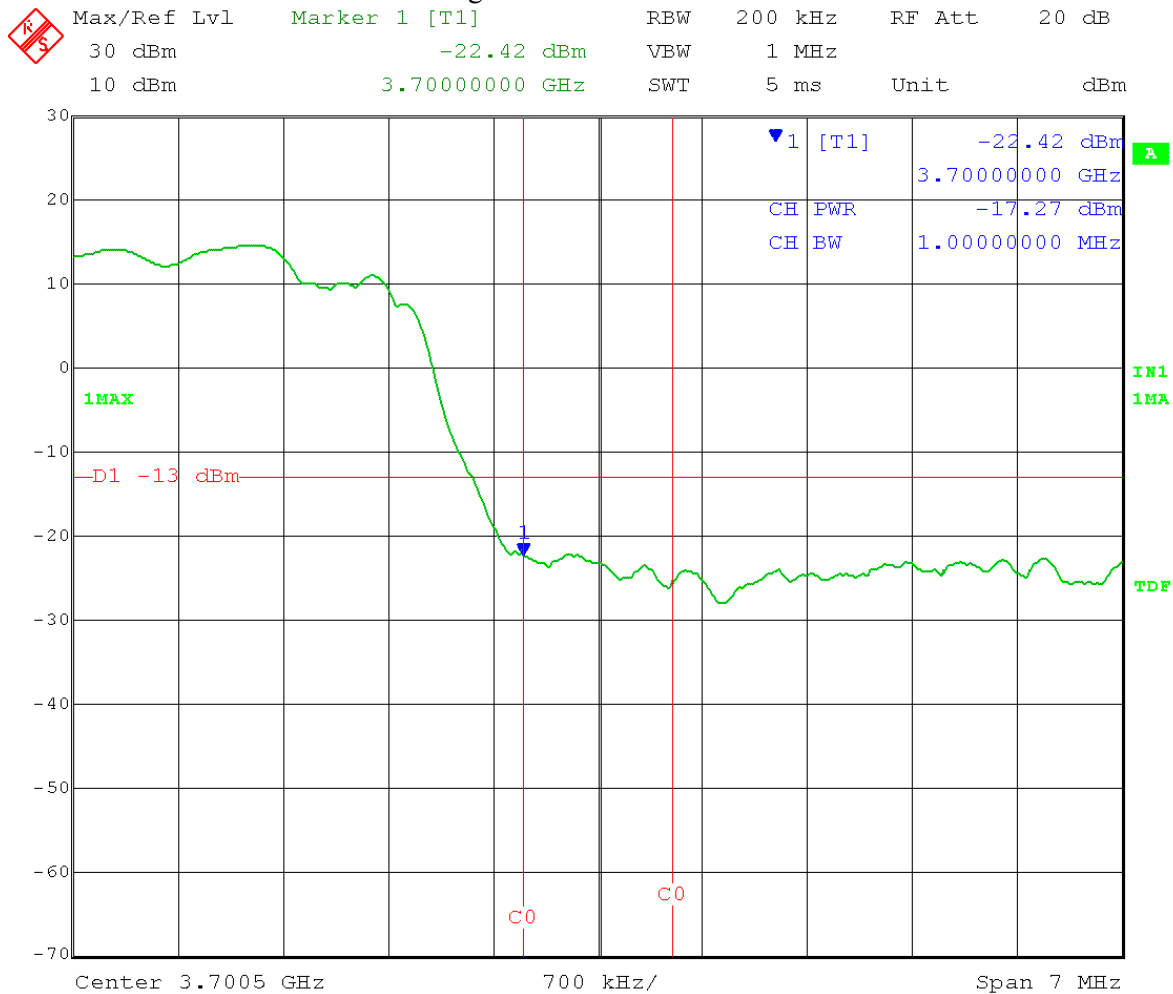Channel bandwidth: 20 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 102 V

Power level at band edge = -17.27 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	200 kHz	RF Att	20 dB
30 dBm	-22.42 dBm	VBW	1 MHz		
10 dBm	3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -22.42 dBm
3.70000000 GHz
CH PWR   -17.27 dBm
CH BW   1.00000000 MHz

A
1MAX
IN1
1MA
D1 -13 dBm
TDF
C0
C0

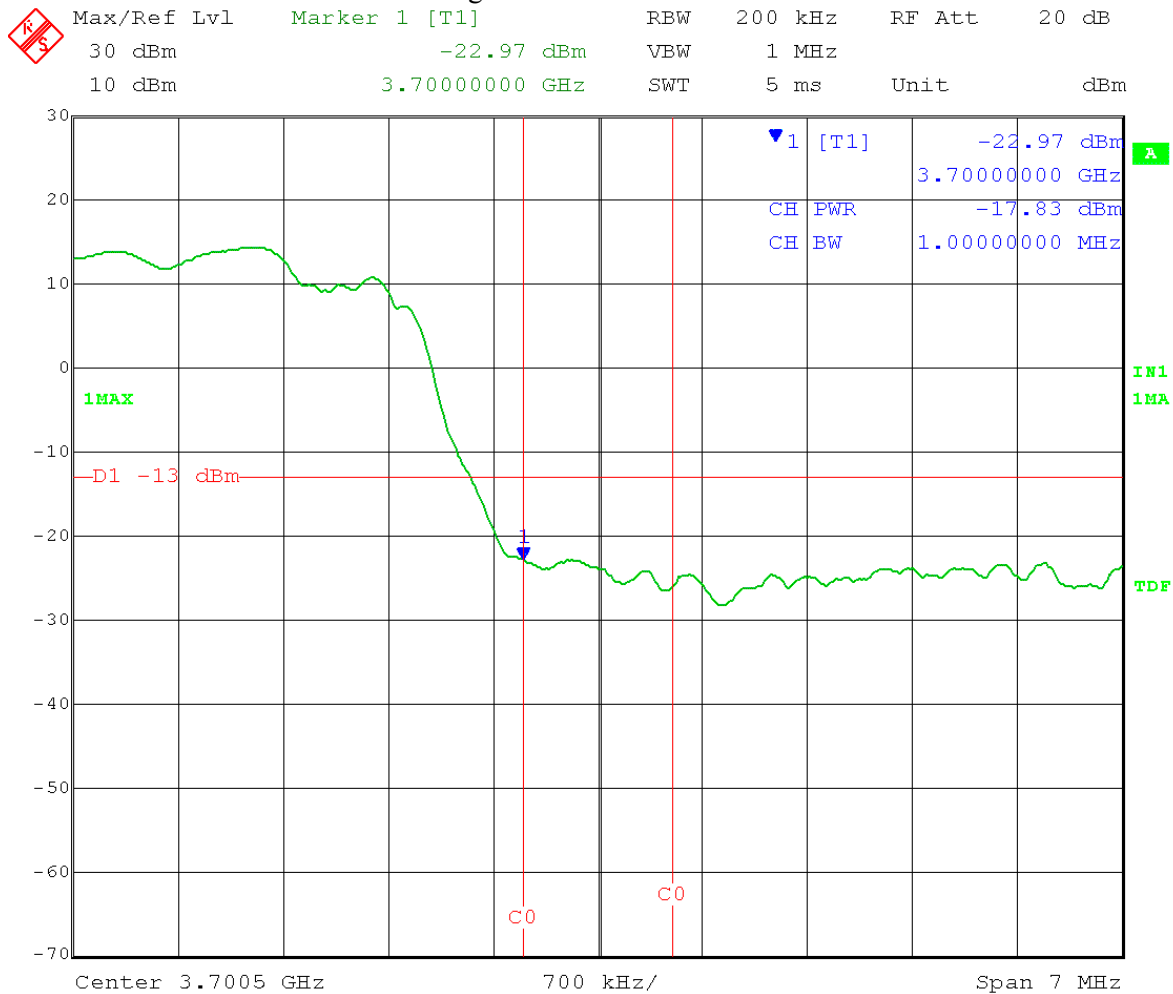Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 19.FEB.2014   14:06:34

Test Date: 02-19-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains
Channel bandwidth: 20 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

30 °C, 120 V

Power level at band edge = -17.83 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.97 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
▼1 [T1]           -22.97 dBm
                3.70000000 GHz
CH PWR            -17.83 dBm
CH BW       1.00000000 MHz
```

1MAX

D1 -13 dBm

A

IN1
1MA

TDF

C0   C0

Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 19.FEB.2014 15:40:56

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains

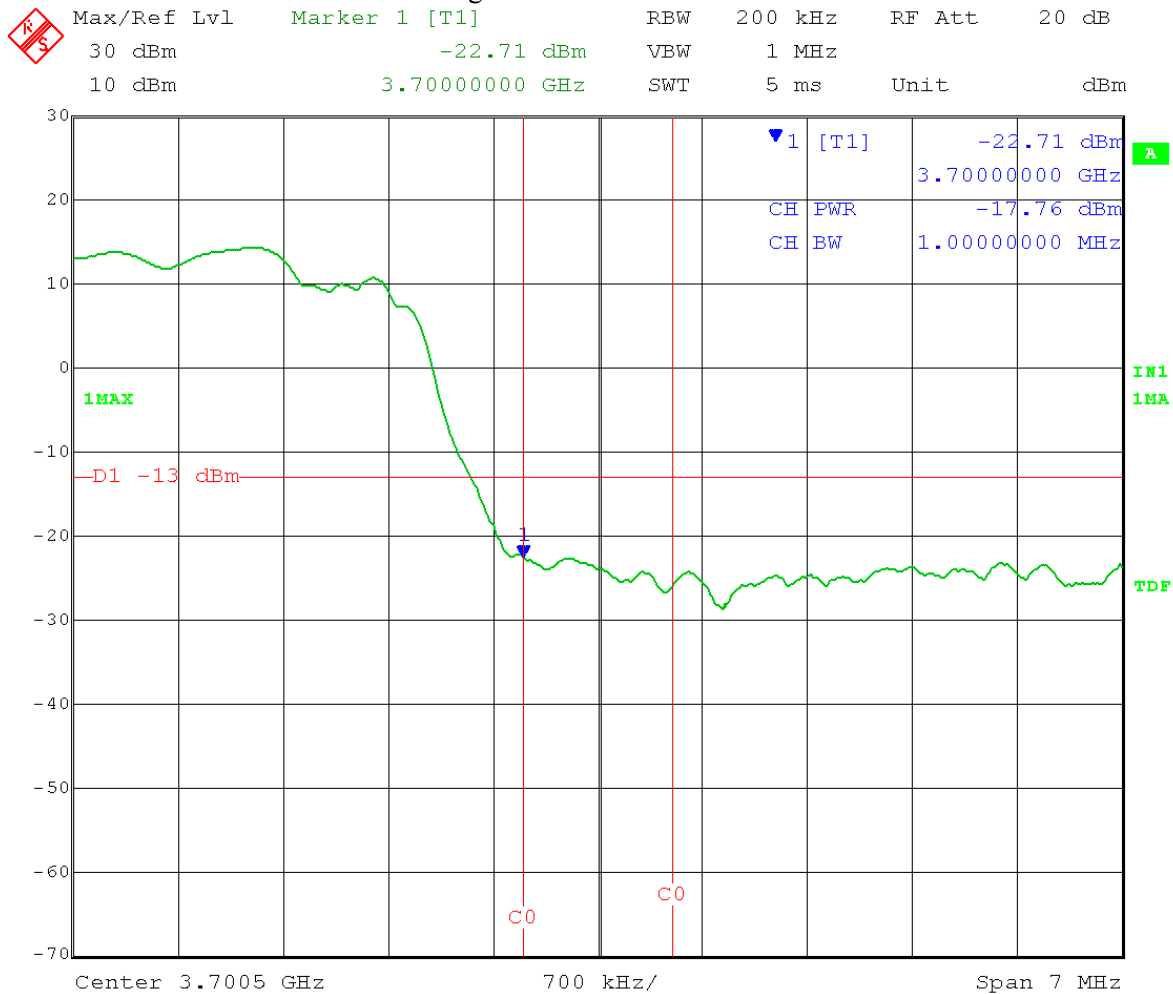   Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

40 °C, 120 V
                        Power level at band edge = -17.76 dBm/MHz

Date: 20.FEB.2014   08:41:34

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains
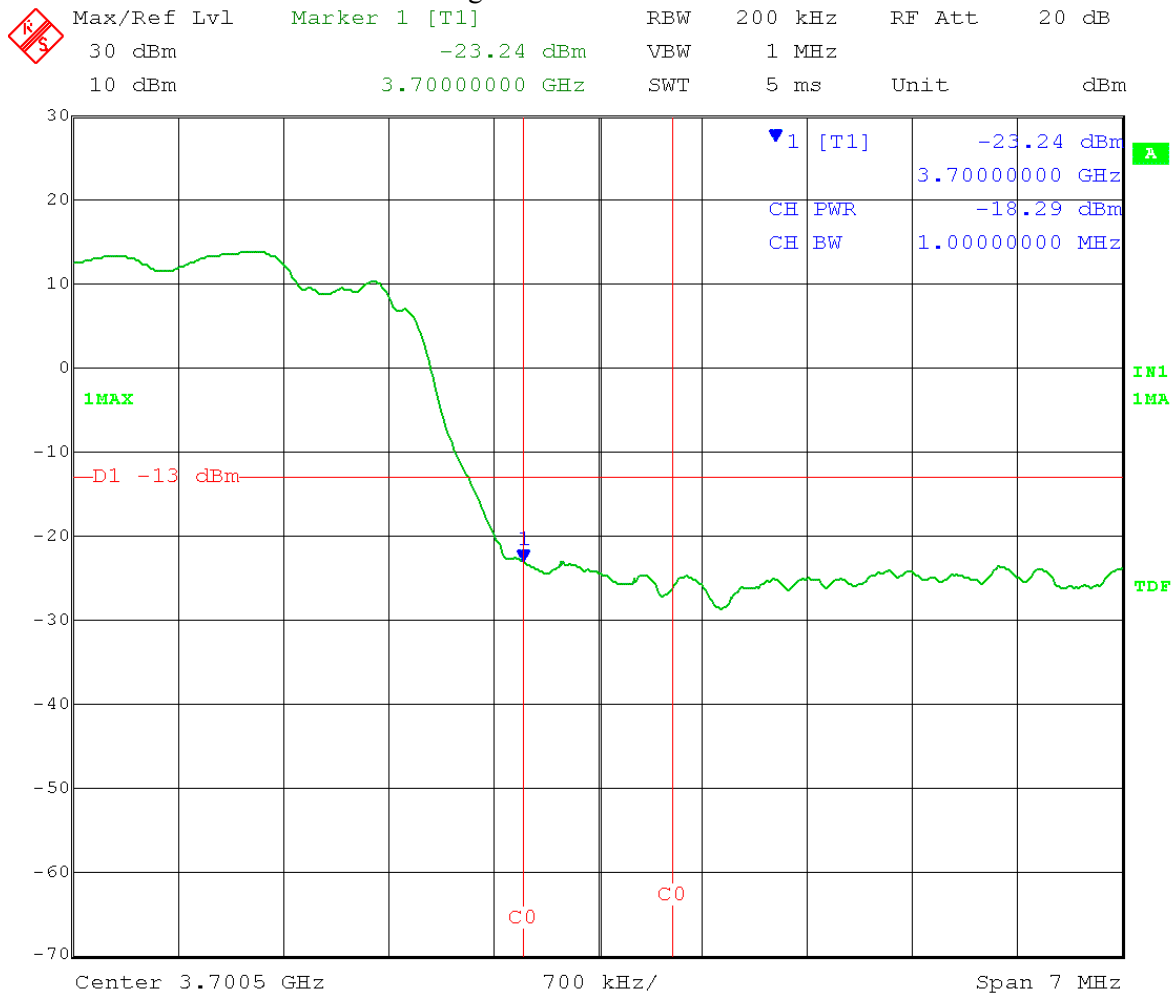Channel bandwidth: 20 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

50 °C, 120 V
Power level at band edge = -18.29 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-23.24 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -23.24 dBm
3.70000000 GHz
CH PWR   -18.29 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

C0
C0

Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 20.FEB.2014   09:47:46

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains
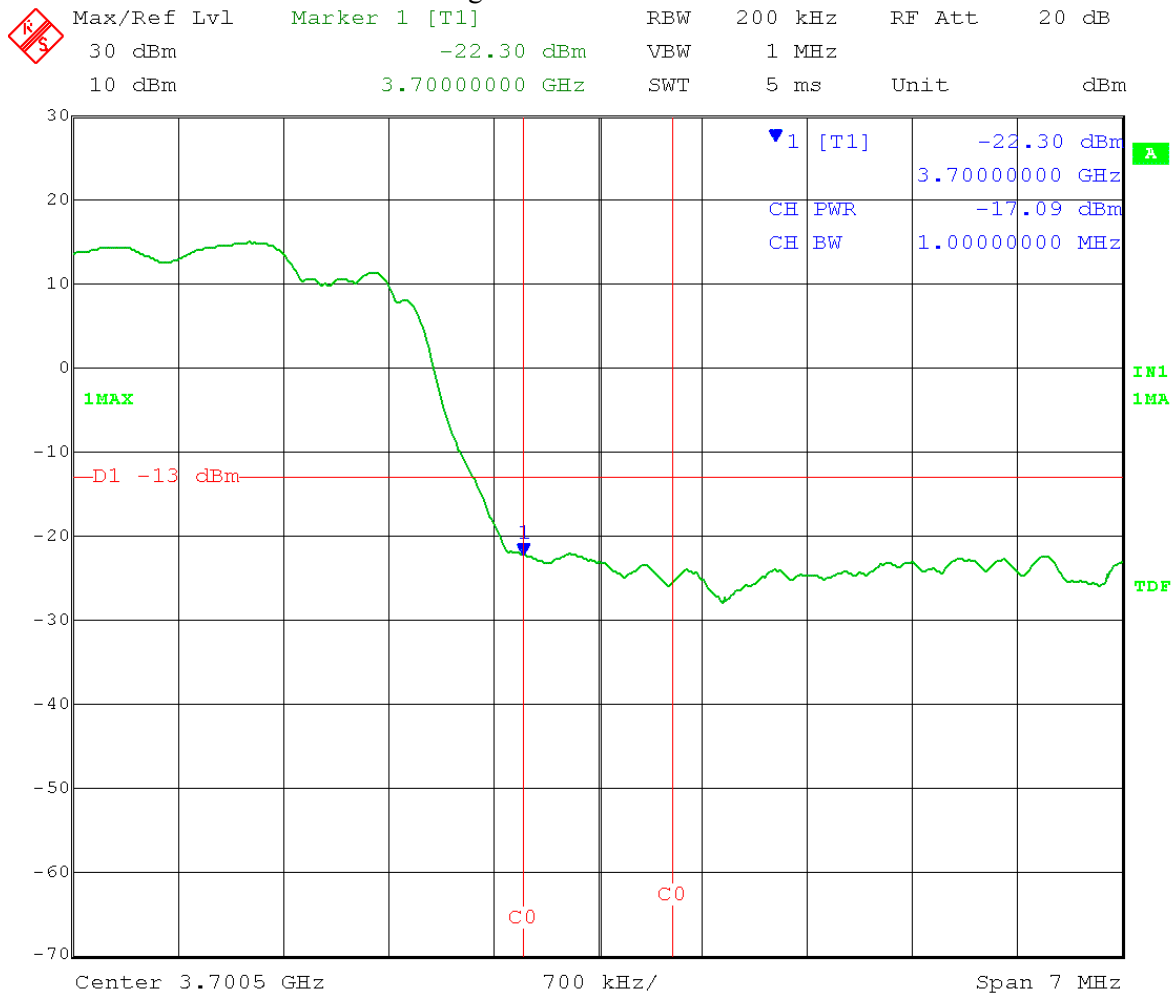Channel bandwidth: 20 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

10 °C, 120 V
Power level at band edge = -17.09 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.30 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -22.30 dBm
3.70000000 GHz
CH PWR   -17.09 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A

IN1
1MA

TDF

Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 20.FEB.2014   11:09:59

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains
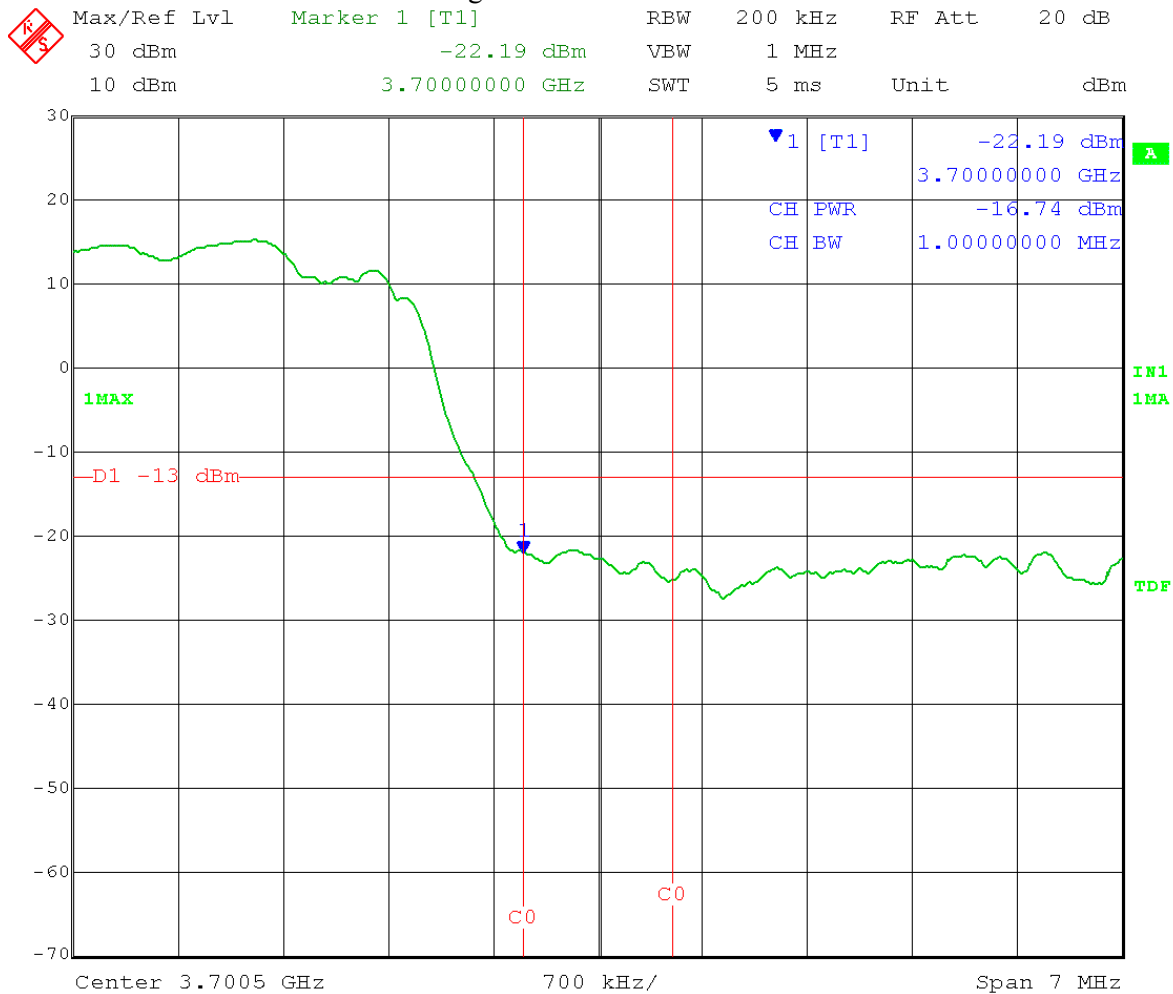Channel bandwidth: 20 MHz   for 8 dBi antenna gain
Upper band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

0 °C, 120 V

Power level at band edge = -16.74 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.19 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -22.19 dBm
3.70000000 GHz
CH PWR   -16.74 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7005 GHz   700 kHz/   Span 7 MHz

Date: 20.FEB.2014 12:37:56

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
            Detector = Peak   Sweep = auto couple
            Trace = max hold
            High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains
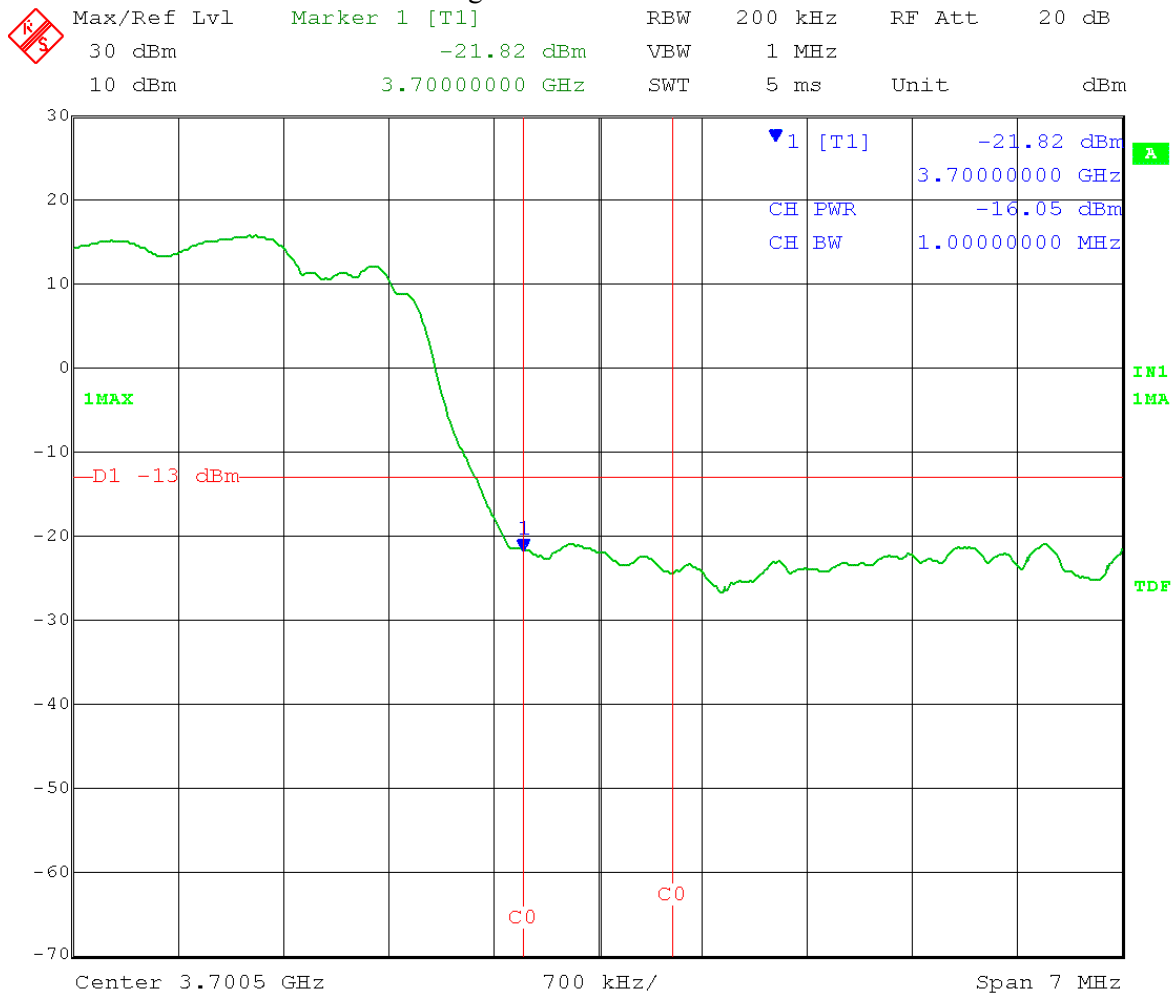   Channel bandwidth: 20 MHz   for 8 dBi antenna gain
            Upper band edge frequency = 3700 MHz
            Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
            Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

Power level at band edge = -16.39 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-21.95 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
  30                                          ▼1 [T1]        -21.95 dBm
                                                           3.70000000 GHz
  20                                           CH PWR        -16.39 dBm
                                               CH BW      1.00000000 MHz
  10
                                                                        A
   0
 1MAX                                                                  IN1
                                                                      1MA
 -10
 D1 -13 dBm
 -20               1
                                                                      TDF
 -30
 -40
 -50
 -60         C0        C0
 -70
   Center 3.7005 GHz        700 kHz/              Span 7 MHz
```

Date: 20.FEB.2014   13:34:00

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains

               Channel bandwidth: 20 MHz   for 8 dBi antenna gain
               Upper band edge frequency = 3700 MHz
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               Measured power at band edge is integrated over a 1 MHz bandwidth

-20 °C, 120 V

               Power level at band edge = -16.05 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-21.82 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
 30 ┬─────────────────────────────────────────────
    │                              ▼1 [T1]        -21.82 dBm
    │                               3.70000000 GHz
 20 ┤                              CH PWR         -16.05 dBm
    │                              CH BW      1.00000000 MHz
    │
 10 ┤
    │
  0 ┤                                                      IN1
    │ 1MAX                                                 1MA
-10 ┤
    │ D1 -13 dBm
-20 ┤                        1
    │
-30 ┤                                                      TDF
    │
-40 ┤
    │
-50 ┤
    │
-60 ┤                        C0
    │              C0
-70 ┴─────────────────────────────────────────────
    Center 3.7005 GHz        700 kHz/           Span 7 MHz
```

Date: 20.FEB.2014 14:34:59

Test Date: 02-20-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3690 MHz   Power setting: 25 total of both chains
                Channel bandwidth: 20 MHz   for 8 dBi antenna gain
                Upper band edge frequency = 3700 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                Measured power at band edge is integrated over a 1 MHz bandwidth

-30 °C, 120 V

                Power level at band edge = -15.67 dBm/MHz
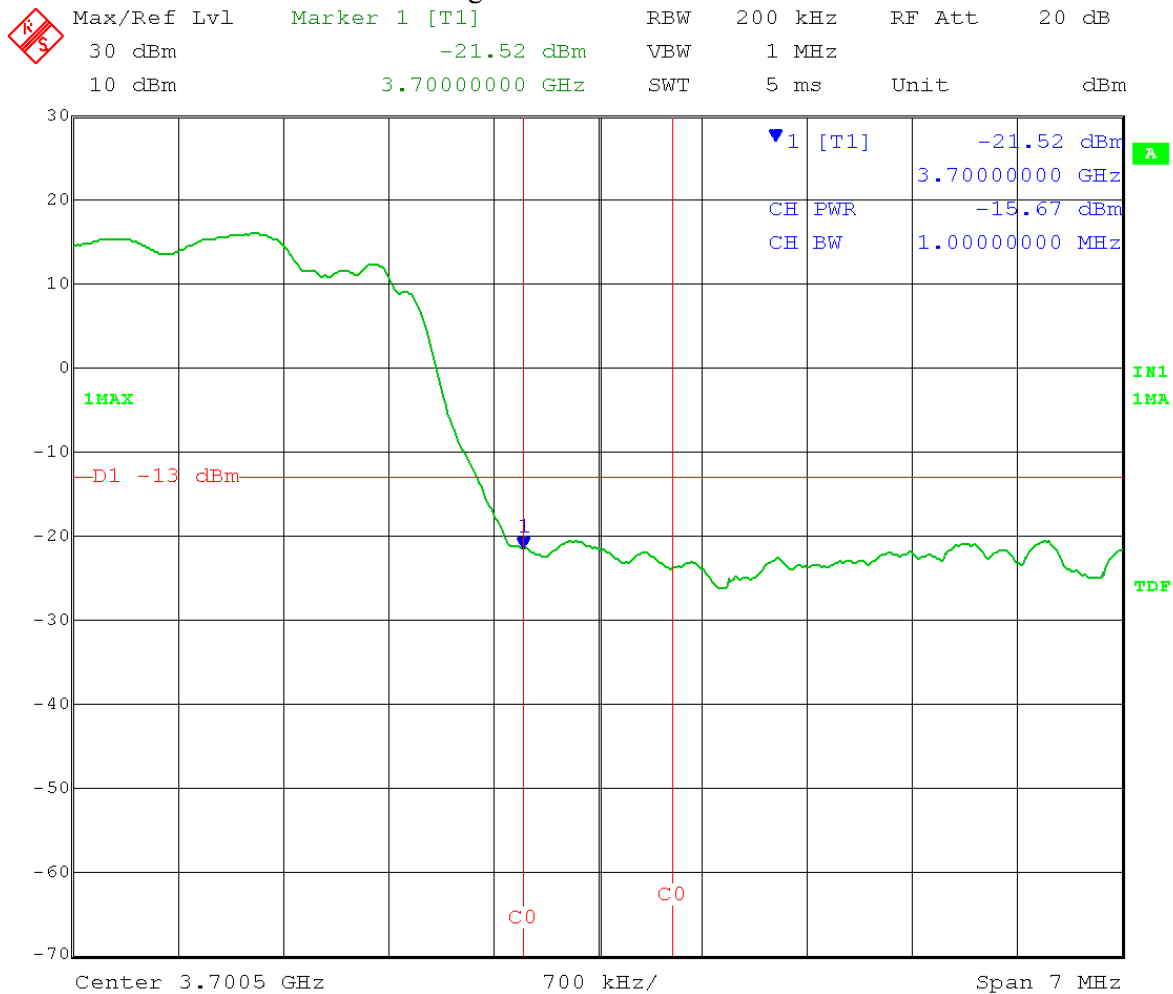
Date: 20.FEB.2014 15:32:06

Appendix B – Measurement Data

B6.0   Radiated Band Edge Compliance

Rule Part: FCC Part 90.1323(a) - Emission limits
FCC Part 2.1053 - Field strength of spurious radiation

Test Procedure: KDB 971168 D01 Power Meas License Digital Systems v02r01
7.0 Field Strength of Spurious Radiation

RBW = 1 MHz; VBW = 3 MHz; Detector = peak; Trace mode = max hold

Radiated from cabinet: Both ports of the EUT were terminated with 50 Ohm terminations. Both ports were active during testing. The output power was set to the highest level used in the Transmitter Output Power test (power level corresponding to the 8 dBi antenna gain).

Limit: The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

Calculated limit = -13 dBm.

Results:

Compliant

Notes:
Only tested QPSK modulation mode as determined worst case by Cambium Networks.

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Lower Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz VBW = 3 MHz
Detector = Peak Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3652.5 MHz
Power setting 25 (total of both chains)
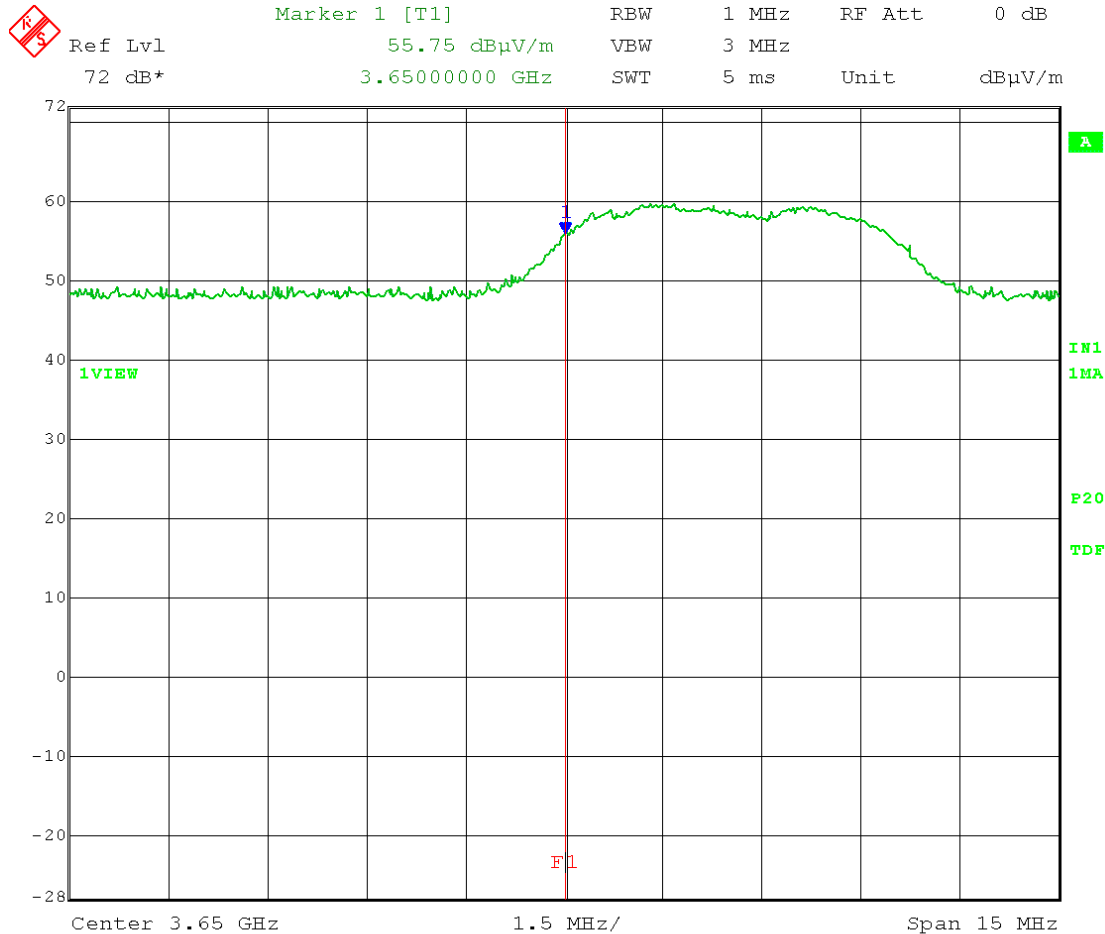Channel bandwidth: 5 MHz Both ports active and 50Ω terminated
Lower band edge frequency = 3650 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement distance in meters.

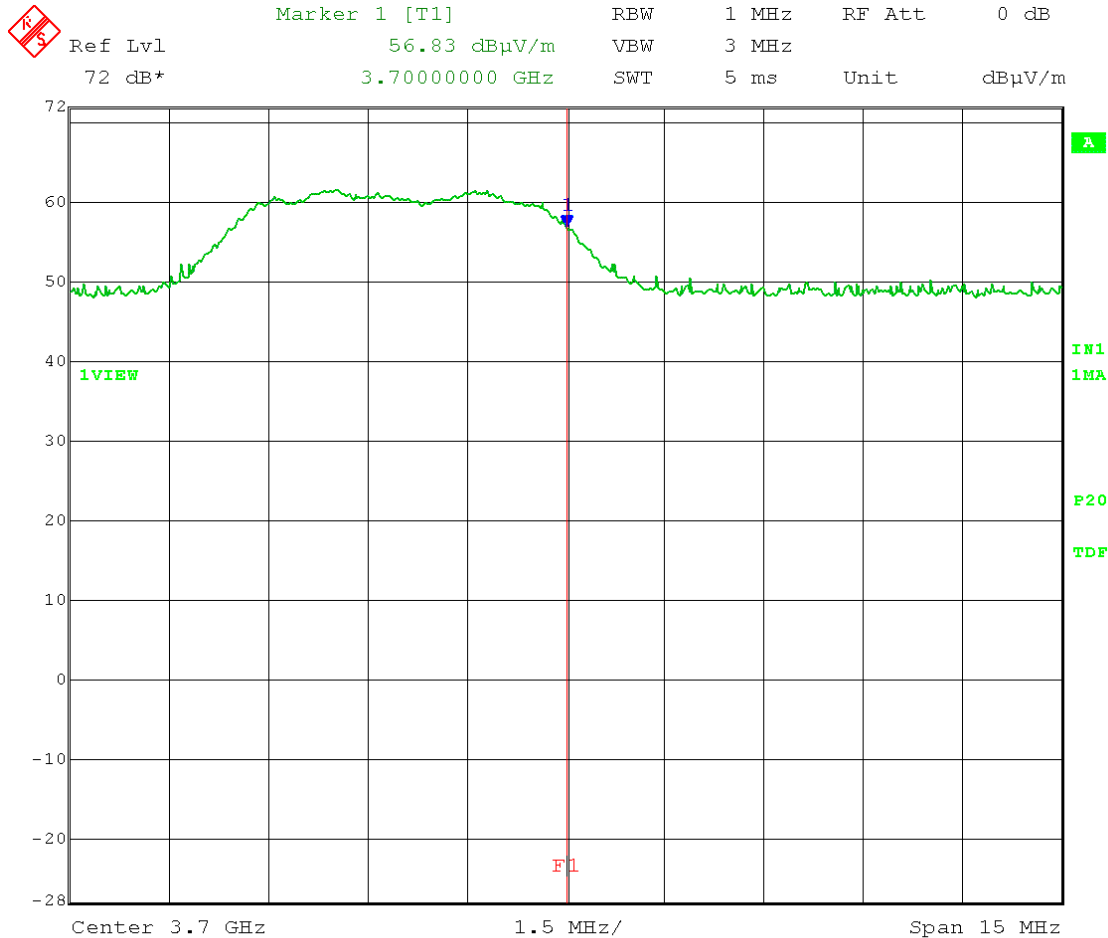Power level at band edge = 57.09 + 20log(3) – 104.8 = -38.17 dBm/MHz

Vertical:
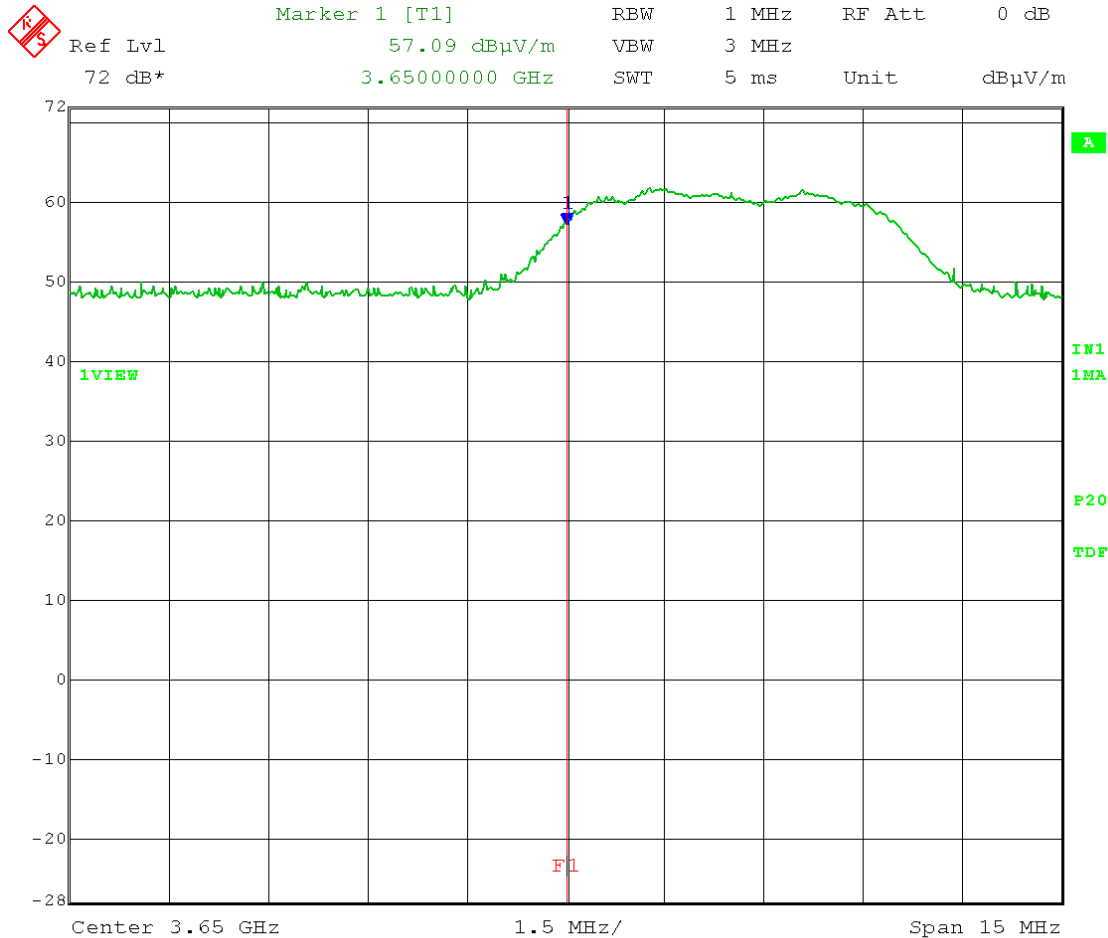
Date: 27.FEB.2014 13:08:23

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Lower Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3652.5 MHz
Power setting 25 (total of both chains)
Channel bandwidth: 5 MHz   Both ports active and 50Ω terminated
Lower band edge frequency = 3650 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement distance in meters.

Power level at band edge = 55.75 + 20log(3) – 104.8 = -39.5 dBm/MHz

Horizontal:

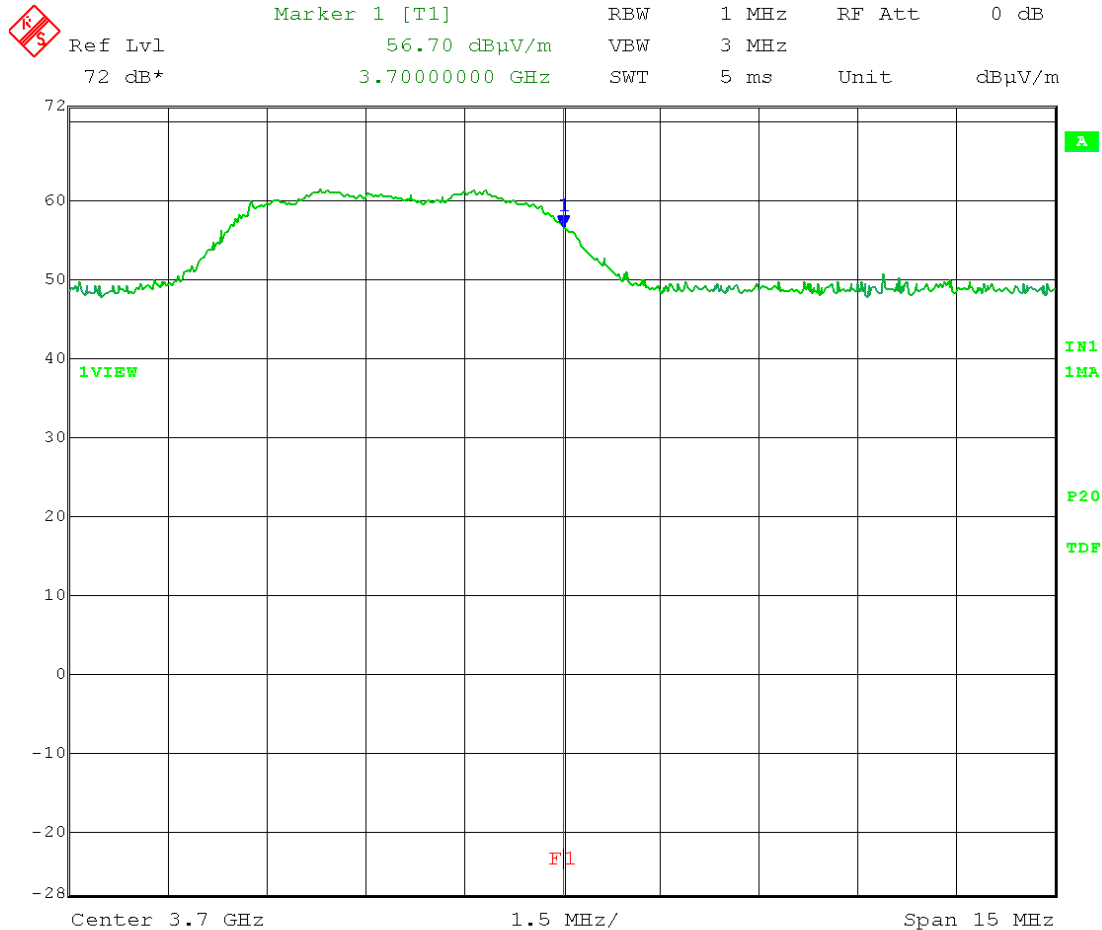Date: 27.FEB.2014   13:02:36

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Upper Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               High Channel: Transmit = 3697.5 MHz
               Power setting 25 (total of both chains)
               Channel bandwidth: 5 MHz   Both ports active and 50Ω terminated
               Uppwe band edge frequency = 3700 MHz
               Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
               EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement
               distance in meters.

               Power level at band edge = 56.83 + 20log(3) – 104.8 = -38.42 dBm/MHz
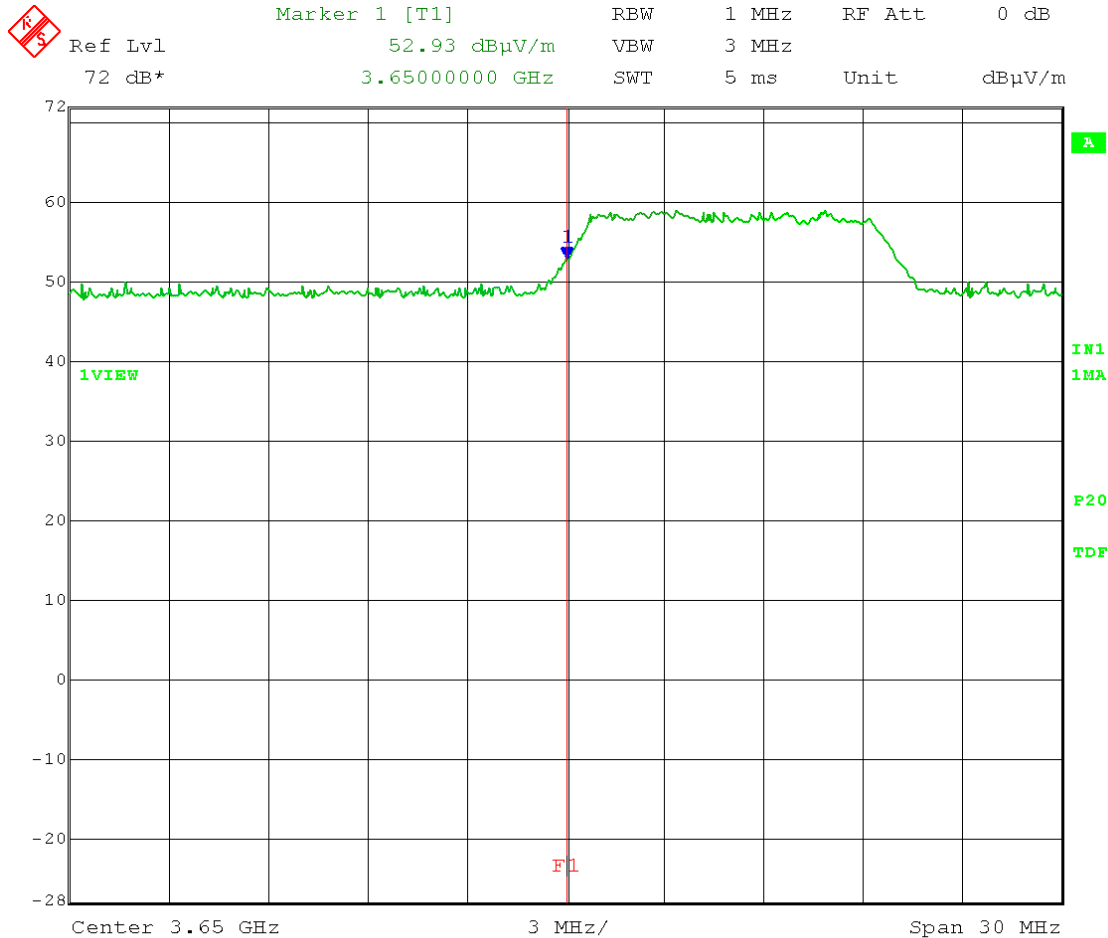
Vertical:

Date: 27.FEB.2014   13:17:46

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Upper Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3697.5 MHz
Power setting 25 (total of both chains)
Channel bandwidth: 5 MHz   Both ports active and 50Ω terminated
Uppwe band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement distance in meters.

Power level at band edge = 56.70 + 20log(3) – 104.8 = -38.55 dBm/MHz

Horizontal:
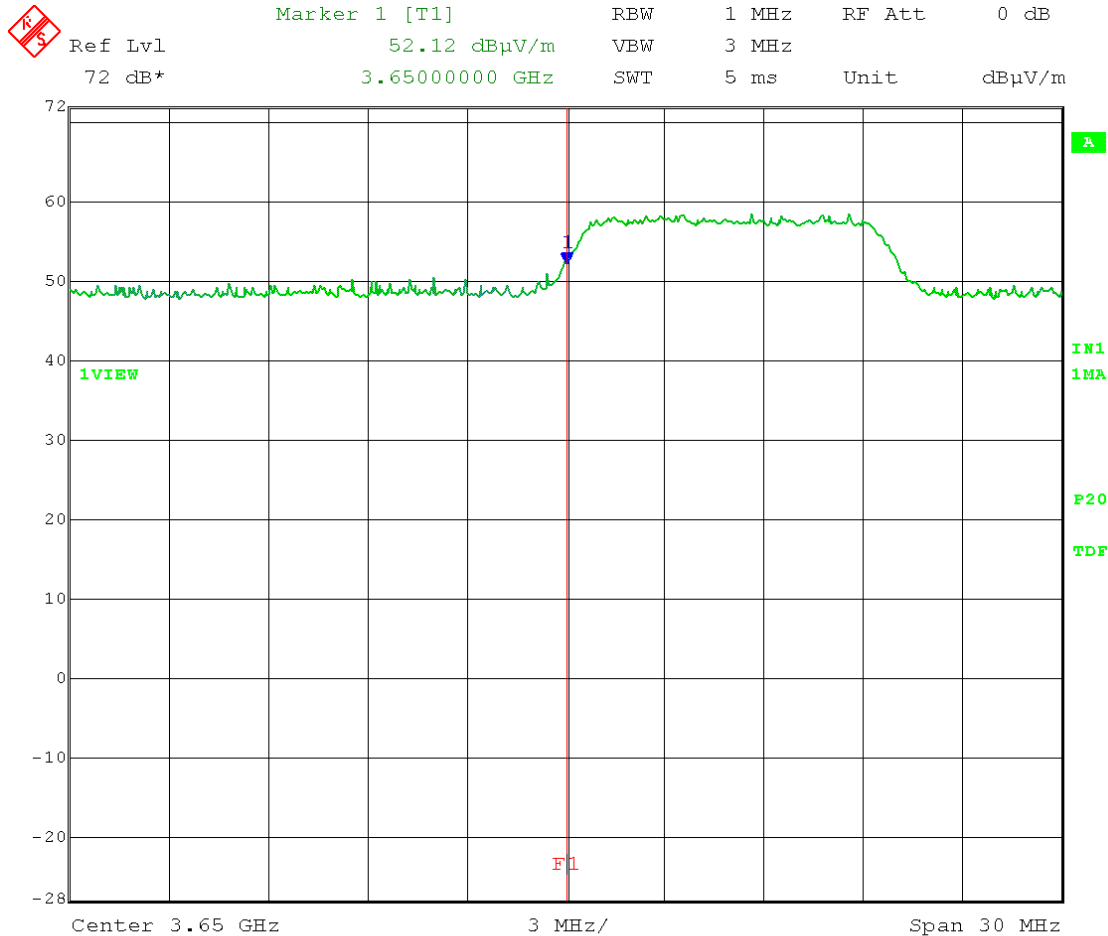

Date: 27.FEB.2014 13:21:40

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Lower Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: Transmit = 3655 MHz
                Power setting 25 (total of both chains)
                Channel bandwidth: 10 MHz   Both ports active and 50Ω terminated
                Lower band edge frequency = 3650 MHz
                Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
                EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement
                distance in meters.

                Power level at band edge = 52.93 + 20log(3) – 104.8 = -42.32 dBm/MHz
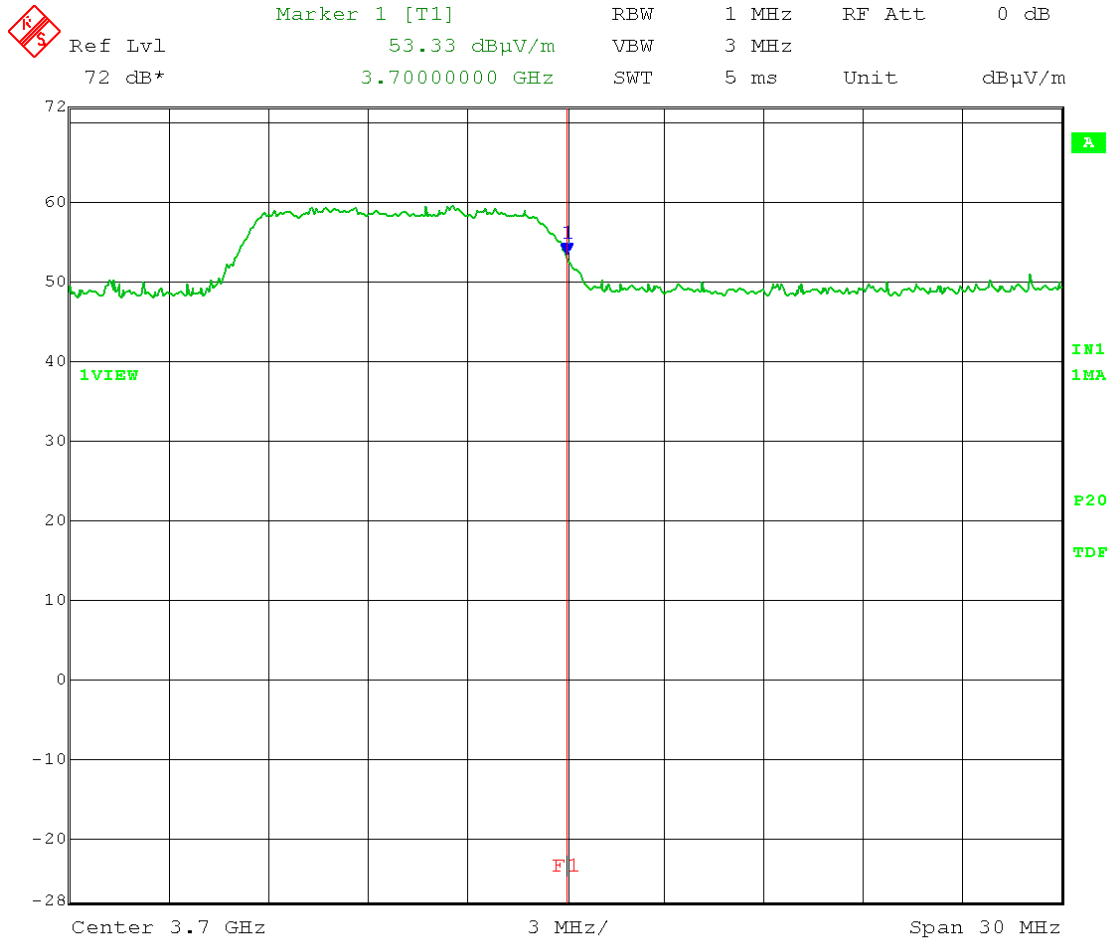
Vertical:

Date: 27.FEB.2014   13:36:35

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Lower Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3655 MHz
Power setting 25 (total of both chains)
Channel bandwidth: 10 MHz   Both ports active and 50Ω terminated
Lower band edge frequency = 3650 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
EIRP(dBm) = E(dBμV/m) + 20log(d) – 104.8 where D is the measurement
distance in meters.

Power level at band edge = 52.12 + 20log(3) – 104.8 = -43.13 dBm/MHz

Horizontal:

Date: 27.FEB.2014 13:40:53

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Upper Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
             Detector = Peak   Sweep = auto couple
             Trace = max hold
             <mark>High Channel: Transmit = 3695 MHz</mark>
             Power setting 25 (total of both chains)
             Channel bandwidth: 10 MHz   Both ports active and 50Ω terminated
             Uppwe band edge frequency = 3700 MHz
             Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
             EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement
             distance in meters.

             Power level at band edge = 53.33 + 20log(3) – 104.8 = -41.92 dBm/MHz

Vertical:

	Marker 1 [T1]		RBW	1 MHz	RF Att	0 dB
Ref Lvl		53.33 dBµV/m	VBW	3 MHz		
72 dB*		3.70000000 GHz	SWT	5 ms	Unit	dBµV/m

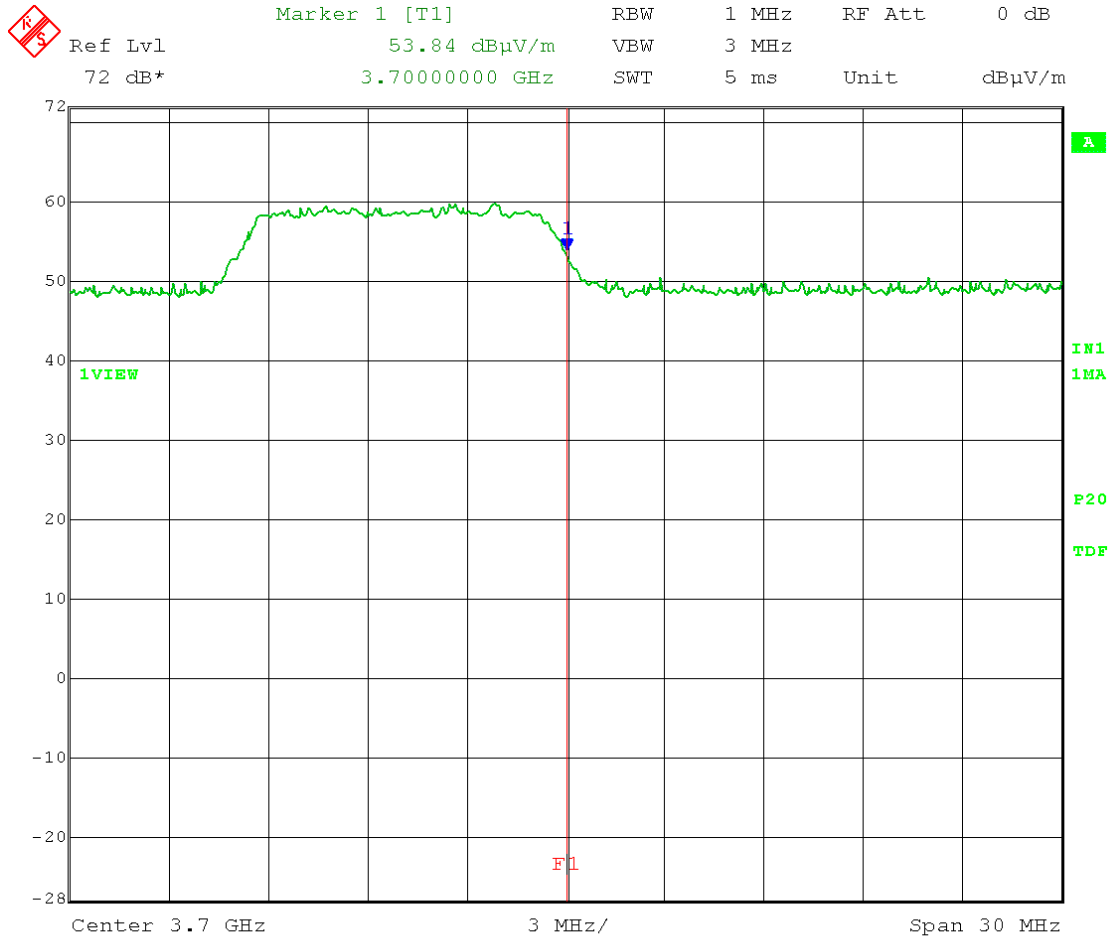Center 3.7 GHz   3 MHz/   Span 30 MHz

Date: 27.FEB.2014   13:32:28

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Upper Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3695 MHz
Power setting 25 (total of both chains)
Channel bandwidth: 10 MHz   Both ports active and 50Ω terminated
Uppwe band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement
distance in meters.

Power level at band edge = 53.84 + 20log(3) – 104.8 = -41.41 dBm/MHz

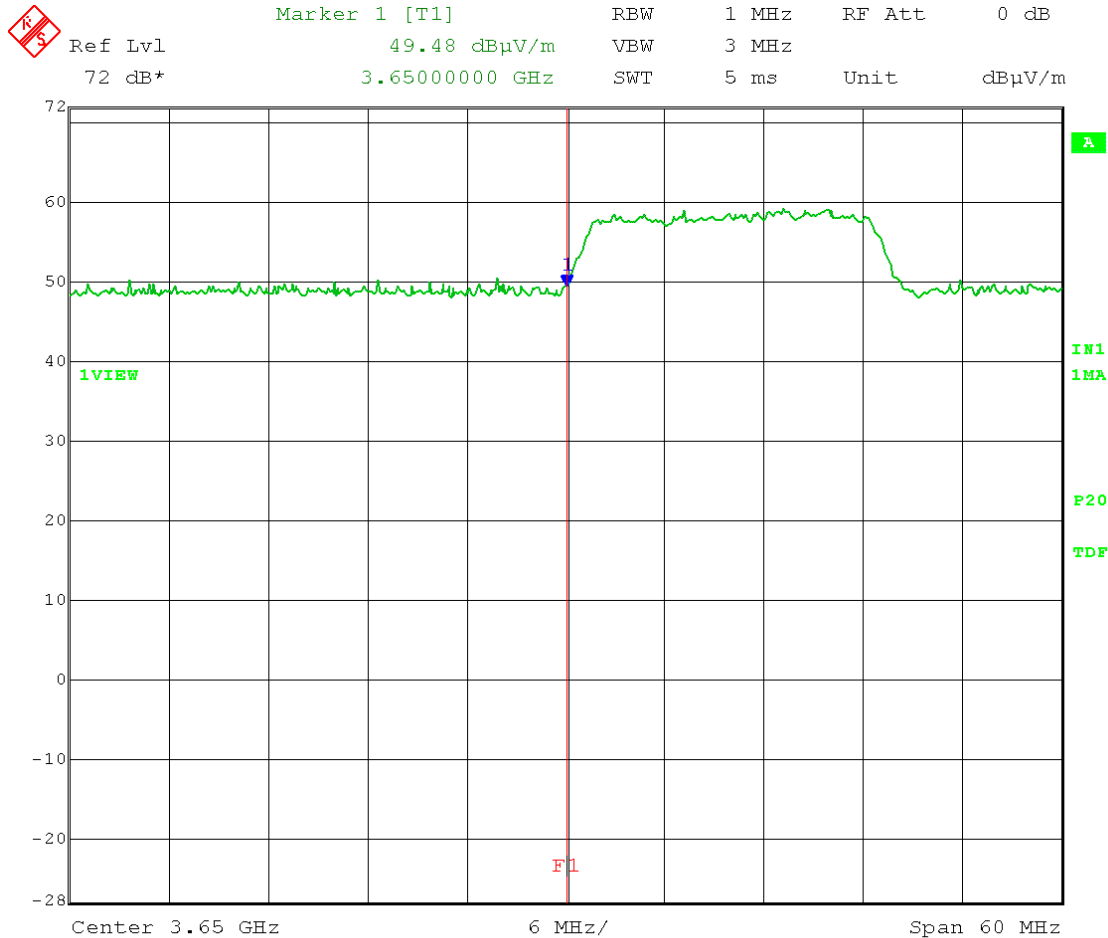Horizontal:

Date: 27.FEB.2014 13:27:59

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Lower Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
            Detector = Peak   Sweep = auto couple
            Trace = max hold
            Low Channel: Transmit = 3660 MHz
            Power setting 25 (total of both chains)
            Channel bandwidth: 20 MHz   Both ports active and 50Ω terminated
            Lower band edge frequency = 3650 MHz
            Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
            EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement
            distance in meters.

            Power level at band edge = 49.48 + 20log(3) – 104.8 = -45.77 dBm/MHz

Vertical:

Date: 27.FEB.2014   14:02:30

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Lower Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
Low Channel: Transmit = 3660 MHz
Power setting 25 (total of both chains)
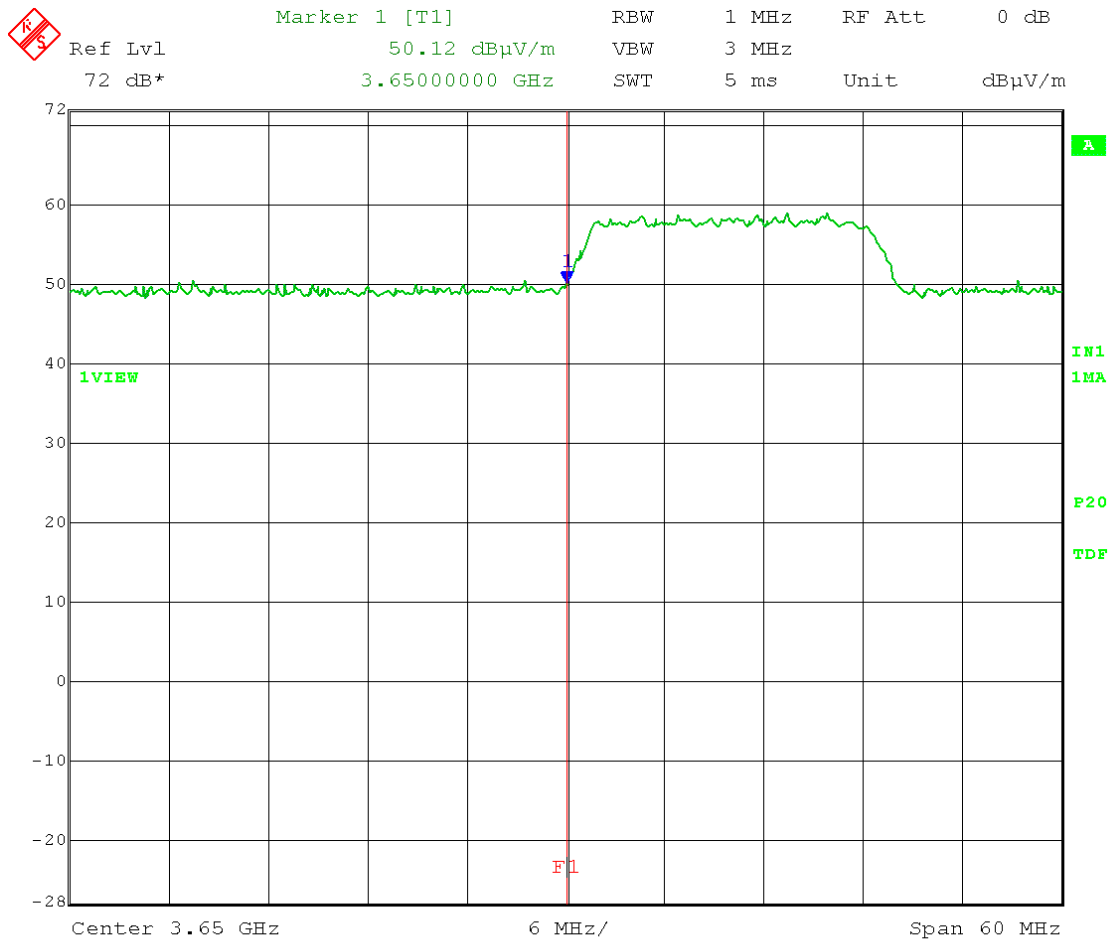Channel bandwidth: 20 MHz   Both ports active and 50Ω terminated
Lower band edge frequency = 3650 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement
distance in meters.

Power level at band edge = 50.12 + 20log(3) – 104.8 = -45.13 dBm/MHz
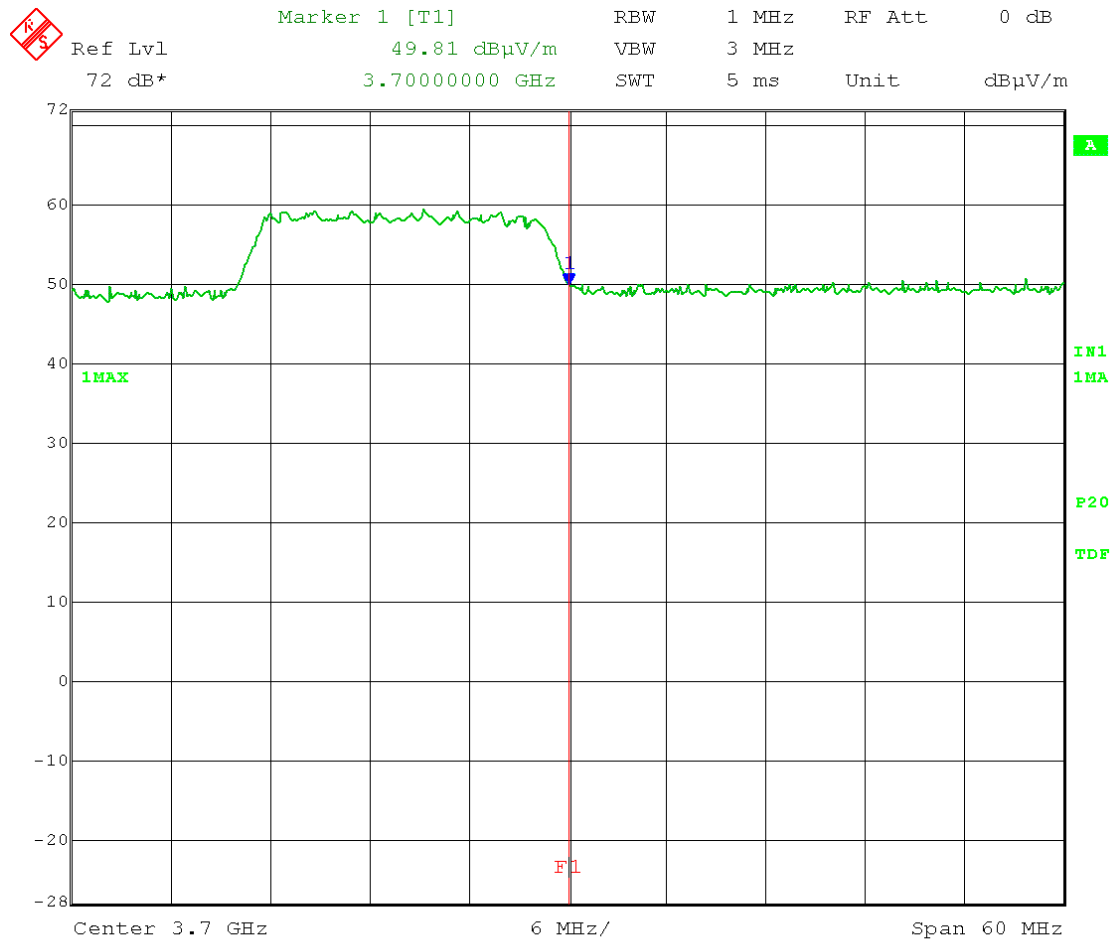
Horizontal:

Date: 27.FEB.2014   13:50:28

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Upper Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
Detector = Peak   Sweep = auto couple
Trace = max hold
High Channel: Transmit = 3690 MHz
Power setting 25 (total of both chains)
Channel bandwidth: 20 MHz   Both ports active and 50Ω terminated
Uppwe band edge frequency = 3700 MHz
Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement distance in meters.

Power level at band edge = 49.81 + 20log(3) – 104.8 = -45.44 dBm/MHz

Vertical:

| | Marker 1 [T1] | RBW | 1 MHz | RF Att | 0 dB |
| Ref Lvl | 49.81 dBµV/m | VBW | 3 MHz | | |
| 72 dB* | 3.70000000 GHz | SWT | 5 ms | Unit | dBµV/m |

Date: 27.FEB.2014   14:08:33

Test Date: 02-27-2014
Company: Cambium Networks
EUT: PMP450SM 3.65 GHz, Model C036045C008A (with ports 50 Ω terminated)
Test: Upper Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              High Channel: Transmit = 3690 MHz
              Power setting 25 (total of both chains)
              Channel bandwidth: 20 MHz   Both ports active and 50Ω terminated
              Uppwe band edge frequency = 3700 MHz
              Limit: 43 + 10log (P) below the channel transmitter power = -13 dBm/MHz
              EIRP(dBm) = E(dBµV/m) + 20log(d) – 104.8 where D is the measurement
              distance in meters.

              Power level at band edge = 50.15 + 20log(3) – 104.8 = -45.10 dBm/MHz

Horizontal:
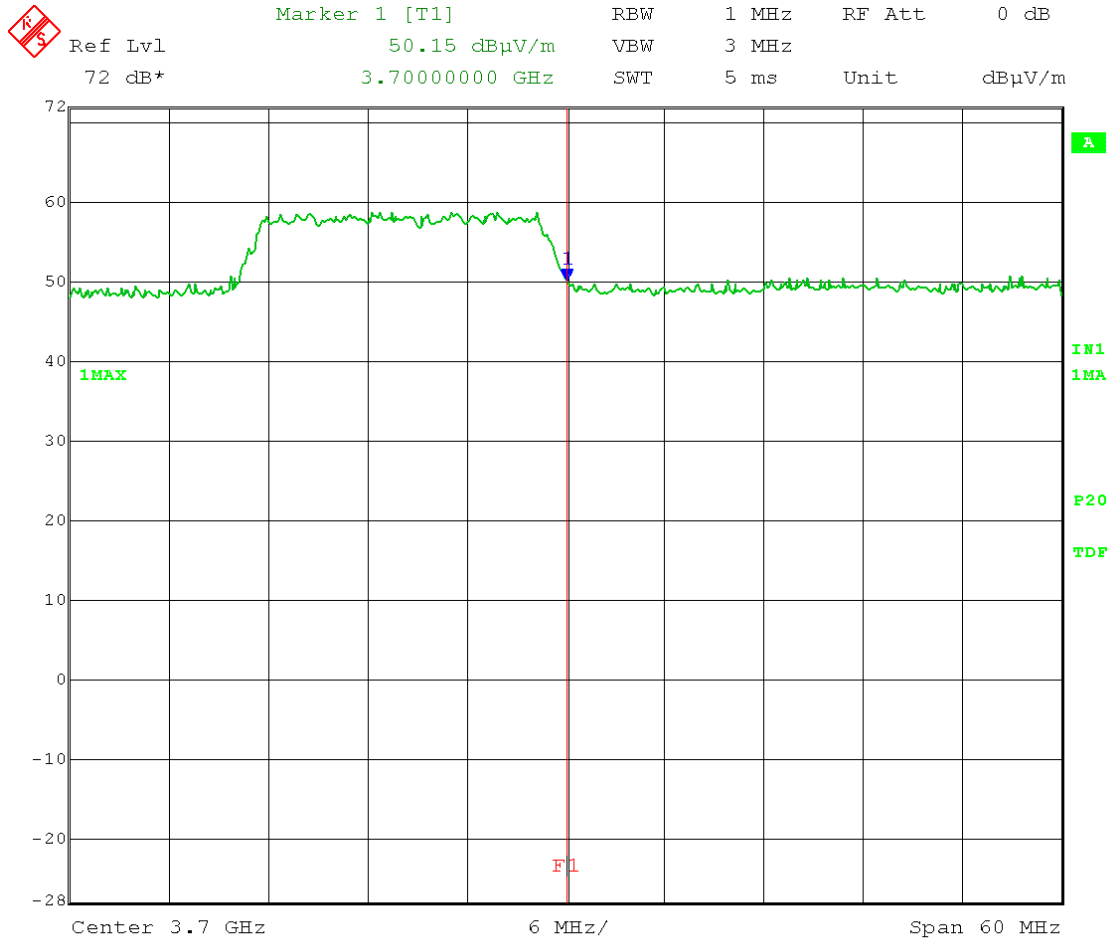
Date: 27.FEB.2014   14:13:16

166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Models Tested: C036045C004A & C036045C008A
Report Number: 19812
DLS Project: 6384

Appendix B – Measurement Data

B7.0   AC Line Conducted Emissions

Rule Part: FCC Part 15.207

    INFORMATIVE

Test Procedure: ANSI C63.10-2009
    Section 6.2

Limit: FCC Part 15.207(a)
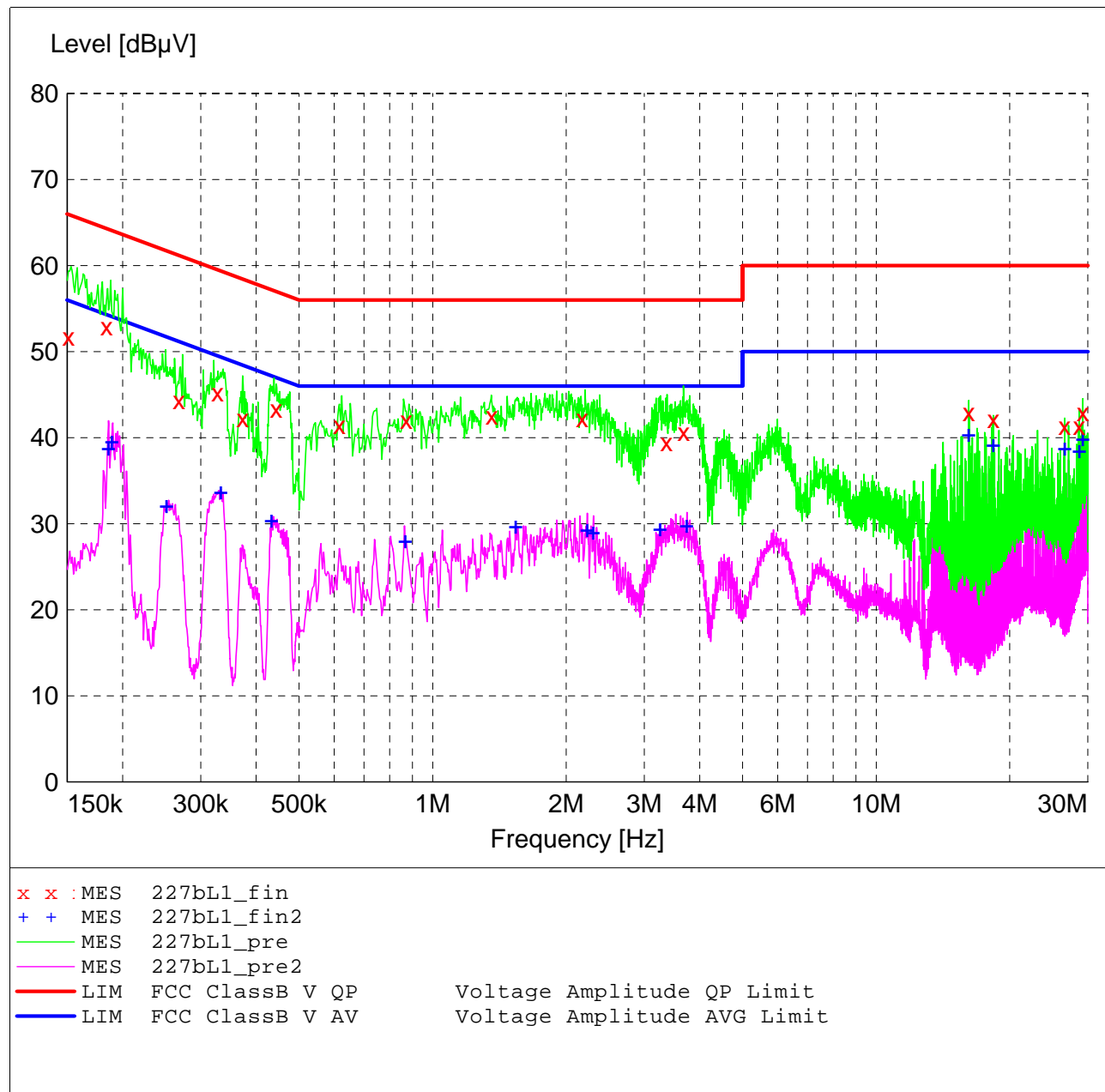
Results: Compliant

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

Voltage Mains Test

EUT: PMP450SM 3.65 GHz, Model C036045C004A
Manufacturer: Cambium Networks
Operating Condition: 72 deg. F, 20% R.H.
Test Site: DLS O.F. Screen Room
Operator: Craig B
Test Specification: 120 V 60 Hz
Comment: Line 1; continuous transmit mode
                    Date: 02-27-2014

SCAN TABLE: "Line Cond SR Final"

Short Description:			Line Conducted Emissions			
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak	3.0 s	9 kHz	LISN DLS#128
			CISPR AV			


```
x x :MES  227bL1_fin
+ +  MES  227bL1_fin2
──── MES  227bL1_pre
──── MES  227bL1_pre2
──── LIM  FCC ClassB V QP       Voltage Amplitude QP Limit
──── LIM  FCC ClassB V AV       Voltage Amplitude AVG Limit
```

MEASUREMENT RESULT: "227bL1_fin"

2/27/2014 3:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector
0.151000	51.70	13.8	66	14.2	QP
0.184000	52.90	13.0	64	11.4	QP
0.268000	44.30	12.1	61	16.9	QP
0.327000	45.20	11.7	60	14.3	QP
0.373000	42.20	11.6	58	16.2	QP
0.444000	43.30	11.3	57	13.7	QP
0.616000	41.50	11.0	56	14.5	QP
0.872000	42.00	10.9	56	14.0	QP
1.360000	42.50	10.6	56	13.5	QP
2.176000	42.20	10.6	56	13.8	QP
3.368000	39.50	10.7	56	16.5	QP
3.680000	40.70	10.7	56	15.3	QP
16.169000	42.90	11.1	60	17.1	QP
18.365000	42.10	11.3	60	17.9	QP
26.609000	41.30	11.6	60	18.7	QP
28.688000	41.30	11.6	60	18.7	QP
29.237000	42.90	11.6	60	17.1	QP

MEASUREMENT RESULT: "227bL1_fin2"

2/27/2014 3:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector
0.186000	38.80	13.0	54	15.4	CAV
0.189000	39.70	13.0	54	14.4	CAV
0.251000	32.20	12.2	52	19.5	CAV
0.333000	33.80	11.7	49	15.6	CAV
0.433000	30.50	11.4	47	16.7	CAV
0.868000	28.10	10.9	46	17.9	CAV
1.540000	29.80	10.6	46	16.2	CAV
2.232000	29.40	10.6	46	16.6	CAV
2.300000	29.10	10.6	46	16.9	CAV
3.260000	29.50	10.7	46	16.5	CAV
3.740000	29.90	10.7	46	16.1	CAV
16.169000	40.50	11.1	50	9.5	CAV
18.365000	39.30	11.3	50	10.7	CAV
26.609000	38.90	11.6	50	11.1	CAV
28.688000	38.60	11.6	50	11.4	CAV
29.237000	40.00	11.6	50	10.0	CAV

Voltage Mains Test

EUT: PMP450SM 3.65 GHz, Model C036045C004A
Manufacturer: Cambium Networks
Operating Condition: 72 deg. F, 20% R.H.
Test Site: DLS O.F. Screen Room
Operator: Craig B
Test Specification: 120 V 60 Hz
Comment: Line 2; continuous transmit mode
                      Date: 02-27-2014

SCAN TABLE: "Line Cond SR Final"

Short Description:			Line Conducted Emissions			
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak	3.0 s	9 kHz	LISN DLS#128
			CISPR AV			

x x	MES	227bL2_fin
+ +	MES	227bL2_fin2
——	MES	227bL2_pre
——	MES	227bL2_pre2
——	LIM	FCC ClassB V QP Voltage Amplitude QP Limit
——	LIM	FCC ClassB V AV Voltage Amplitude AVG Limit
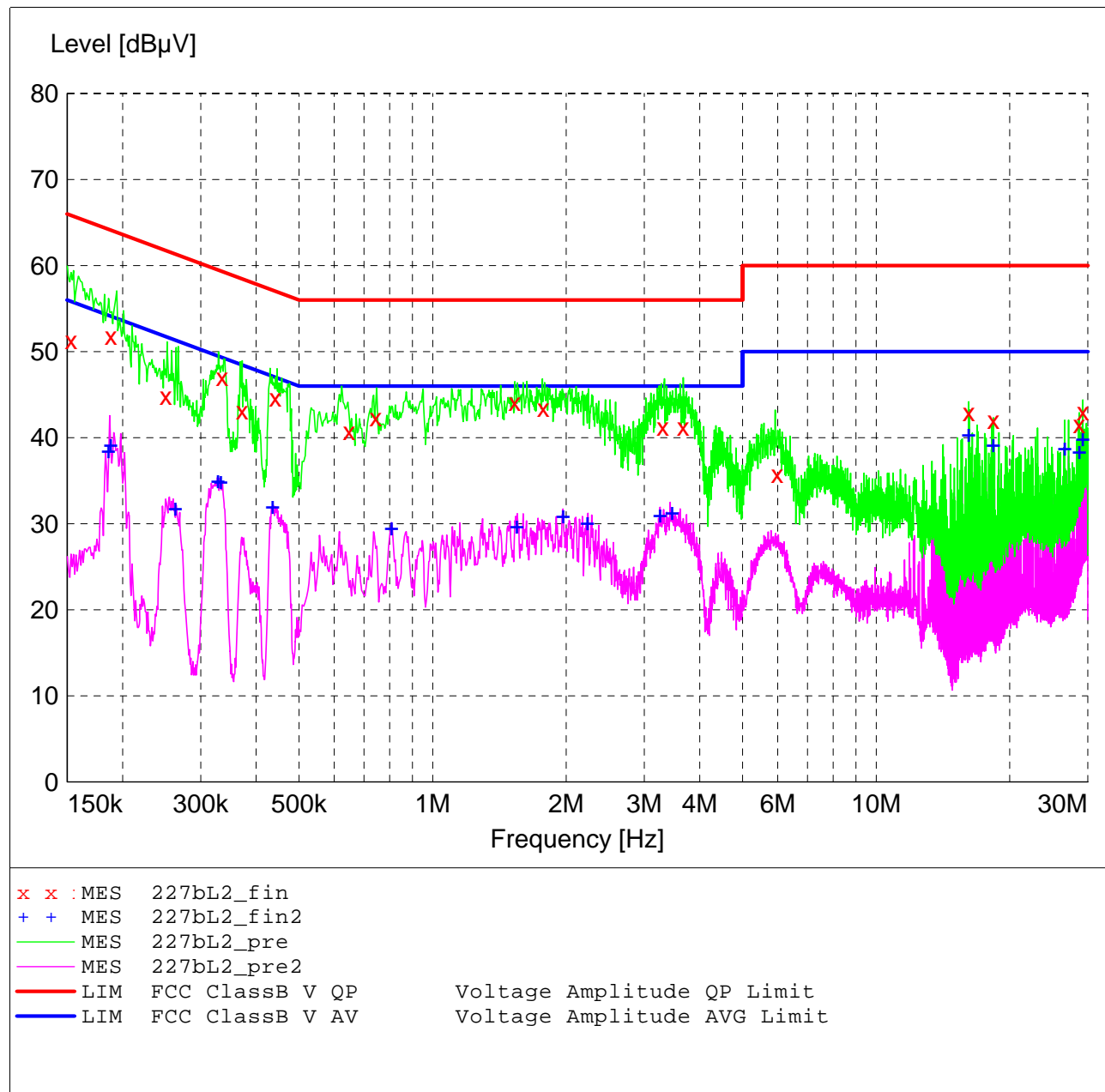
MEASUREMENT RESULT: "227bL2_fin"

2/27/2014 3:35PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.153000	51.30	13.7	66	14.5	QP
0.188000	51.80	13.0	64	12.3	QP
0.250000	44.80	12.2	62	17.0	QP
0.335000	47.00	11.7	59	12.3	QP
0.372000	43.10	11.6	59	15.4	QP
0.442000	44.60	11.3	57	12.4	QP
0.648000	40.70	10.9	56	15.3	QP
0.744000	42.30	10.9	56	13.7	QP
1.532000	44.10	10.6	56	11.9	QP
1.776000	43.40	10.7	56	12.6	QP
3.300000	41.20	10.7	56	14.8	QP
3.672000	41.20	10.7	56	14.8	QP
5.981000	35.80	10.7	60	24.2	QP
16.169000	42.90	11.1	60	17.1	QP
18.365000	42.00	11.3	60	18.0	QP
28.688000	41.50	11.6	60	18.5	QP
29.237000	43.00	11.6	60	17.0	QP

MEASUREMENT RESULT: "227bL2_fin2"

2/27/2014 3:35PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector
0.186000	38.60	13.0	54	15.6	CAV
0.188000	39.30	13.0	54	14.8	CAV
0.263000	31.90	12.1	51	19.4	CAV
0.328000	35.10	11.7	50	14.4	CAV
0.333000	35.00	11.7	49	14.4	CAV
0.436000	32.10	11.4	47	15.0	CAV
0.808000	29.60	10.9	46	16.4	CAV
1.548000	29.80	10.6	46	16.2	CAV
1.968000	31.00	10.6	46	15.0	CAV
2.236000	30.20	10.6	46	15.8	CAV
3.256000	31.10	10.7	46	14.9	CAV
3.464000	31.40	10.7	46	14.6	CAV
16.169000	40.40	11.1	50	9.6	CAV
18.365000	39.20	11.3	50	10.8	CAV
26.609000	38.90	11.6	50	11.1	CAV
28.688000	38.50	11.6	50	11.5	CAV
29.237000	39.90	11.6	50	10.1	CAV

END OF REPORT

Revision #	Date	Comments	By
1.0	03-05-2014	Preliminary Release	JS
1.1	03-07-2014	Minor edits to data notes - section 4	JS