DLS ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

Company:	Cambium Networks
Model Tested:	C036045A004A
Report Number:	19784
DLS Project:	6383

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:	PMP450AP 3.65GHz OFDM Radio
Kind of Equipment:	Point-to-Multipoint 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):	C036045A001A,C036045A002A, C036045A003A, C036045A004A
Model(s) Tested:	C036045A004A
Serial Number(s):	MAC Address: 0A003E4030BC
Date of Tests:	February 5th to 13th, 2014
Test Conducted For:	Cambium Networks 3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA

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SIGNATURE PAGE

Tested By:

Craig Brandt

Craig Brandt
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William Stumpf
OATS Manager

Approved By:

Brian J. Mattson

Brian Mattson
General Manager

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

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

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

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

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

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

For the National Institute of Standards and Technology

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

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1.0 Summary of Test Report

It was determined that the Cambium Networks PMP450AP 3.65GHz OFDM Radio, Model C036045A004A, 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	1	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 3.0 & 7.0	1	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 5th through February 13th, 2014 the PMP450AP 3.65GHz OFDM Radio, Model C036045A004A, 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.

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Company:	Cambium Networks
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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-Multipoint 3.65 GHz Fixed Access Wireless Transceiver with Sector (17 dBi) external antenna with 5 MHz, 10 MHz or 20 MHz channel bandwidth. The 17 dBi antenna operates with 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: 8 in. Width: 2.25 in. Height: 9.5 in.

Power Source:

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

Internal Frequencies:

292kHz, 940-1000kHz, 4MHz (Switching Power Supply Frequencies)
40 MHz, 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:

Cambium Networks PC Board	MAC Address: 0A003E4030BC
17 dBi Sector antenna	Laird C030045D901A revAA

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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	SMT 03	DE23762	5kHz - 3GHz	7-23-13	7-23-14
Tunable Dipole Set	Com-Power, Corp.	AD-100	40139	80MHz - 1GHz	N/A	N/A
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:

66°F at 20% RH, or notes on the test data

Supply Voltage:

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

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 PMP450AP 3.65GHz OFDM Radio, Model C036045A004A, as provided from Cambium Networks tested from February 5th to 13th, 2014 **meets** the requirements of CFR 47 Part 90 Subpart Z.

![DLS Electronic Systems, Inc. logo]

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Appendix A – Test Photos

Photo Information and Test Setup:

Item 0:   PMP450AP 3.65GHz OFDM Radio, Model C036045A004A
Item 1:   Phihong Power Supply, Model PSA15M-300 (AP)
Item 2:   Unshielded Power Over Ethernet cable, 1.5m long
Item 3:   Unshielded CAT 5e Ethernet cable to remote PC, 10m long
Item 4:   2 x Shielded RF cables, each with 1dB loss at 3.65GHz, 0.3m long
Item 5:   Laird 17dBi Sector Antenna, Model C030045D901A revAA

Radiated Below 1 GHz - Front   **Radiated Below 1 GHz - Back**

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Appendix A – Test Photos

Radiated Below 1 GHz - Side

Radiated Above 1 GHz
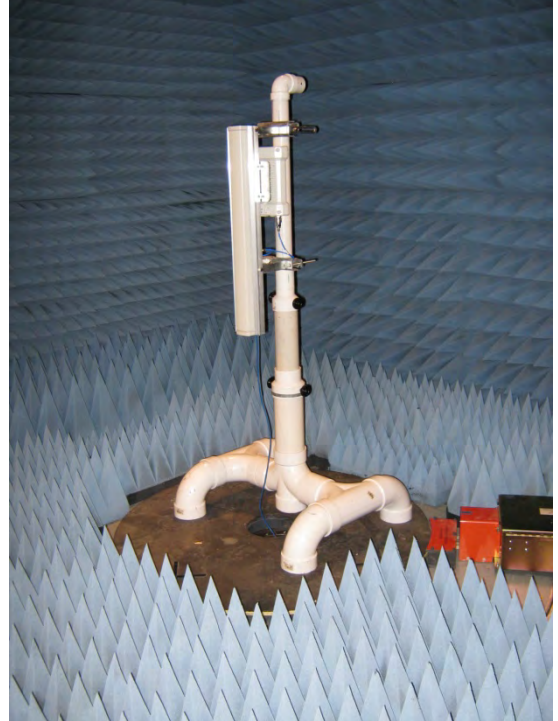
Radiated Above 1 GHz - Close-up

Radiated from Cabinet
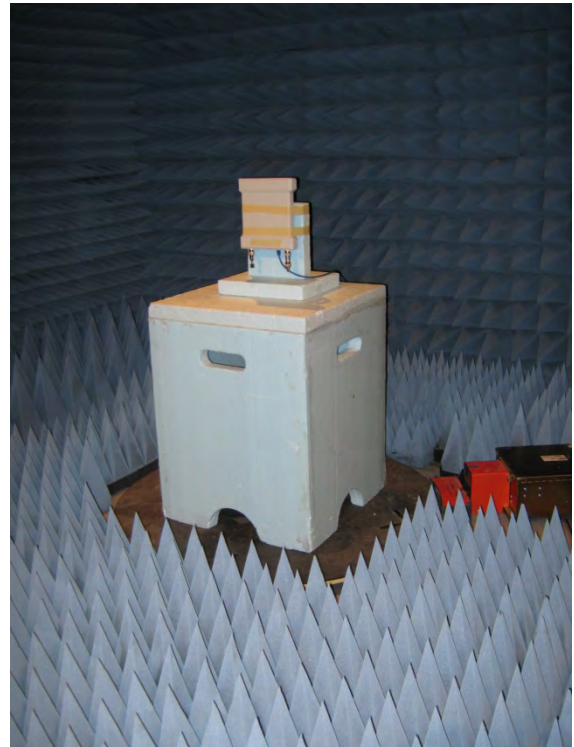
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Appendix A – Test Photos

RF Conducted
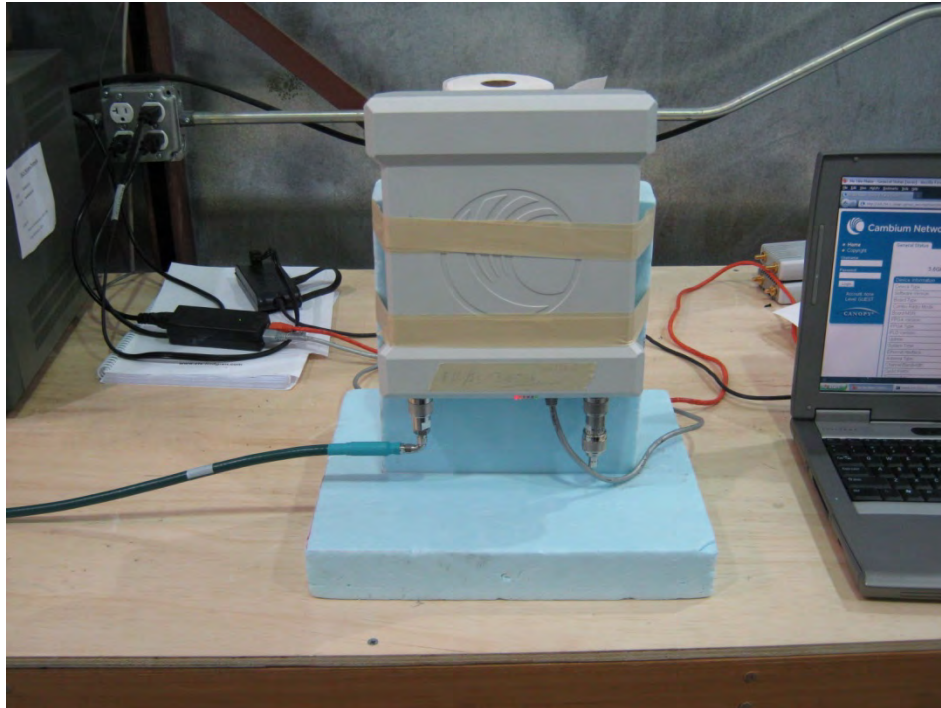
Frequency Stability at Extreme Conditions

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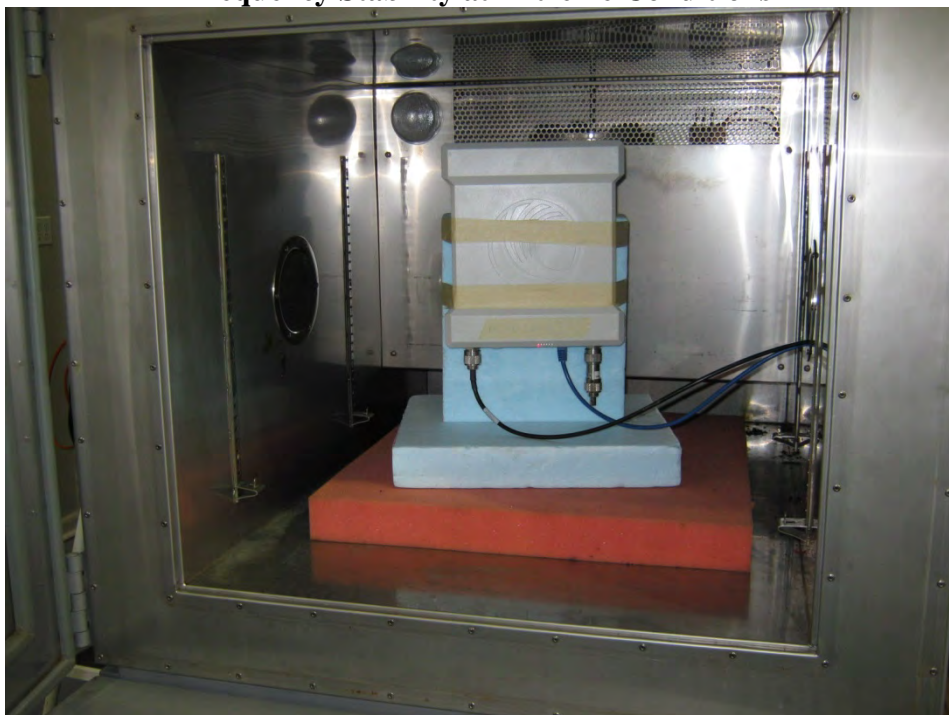
Appendix A – Test Photo

AC Line Conducted - Front

AC Line Conducted - Back - View 1

AC Line Conducted - Back - View 2

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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: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Duty Cycle during testing
Operator: Craig B

5 MHz channel bandwidth; QPSK

Comment: ON time = 2.284569 ms during 2.501002 ms cycle
x = 2.284569 / 2.501002 = 0.913461
Duty cycle correction factor = 10log(x) **= 0.393 dB**

ON + OFF time of 1 cycle = 2.501002 ms

Max/Ref Lvl	Delta 1 [T1]		RBW	1 MHz	RF Att	20 dB
20 dBm		0.00 dB	VBW	3 MHz		
10 dBm		2.501002 ms	SWT	6 ms	Unit	dBm

Center 3.675 GHz   600 µs/
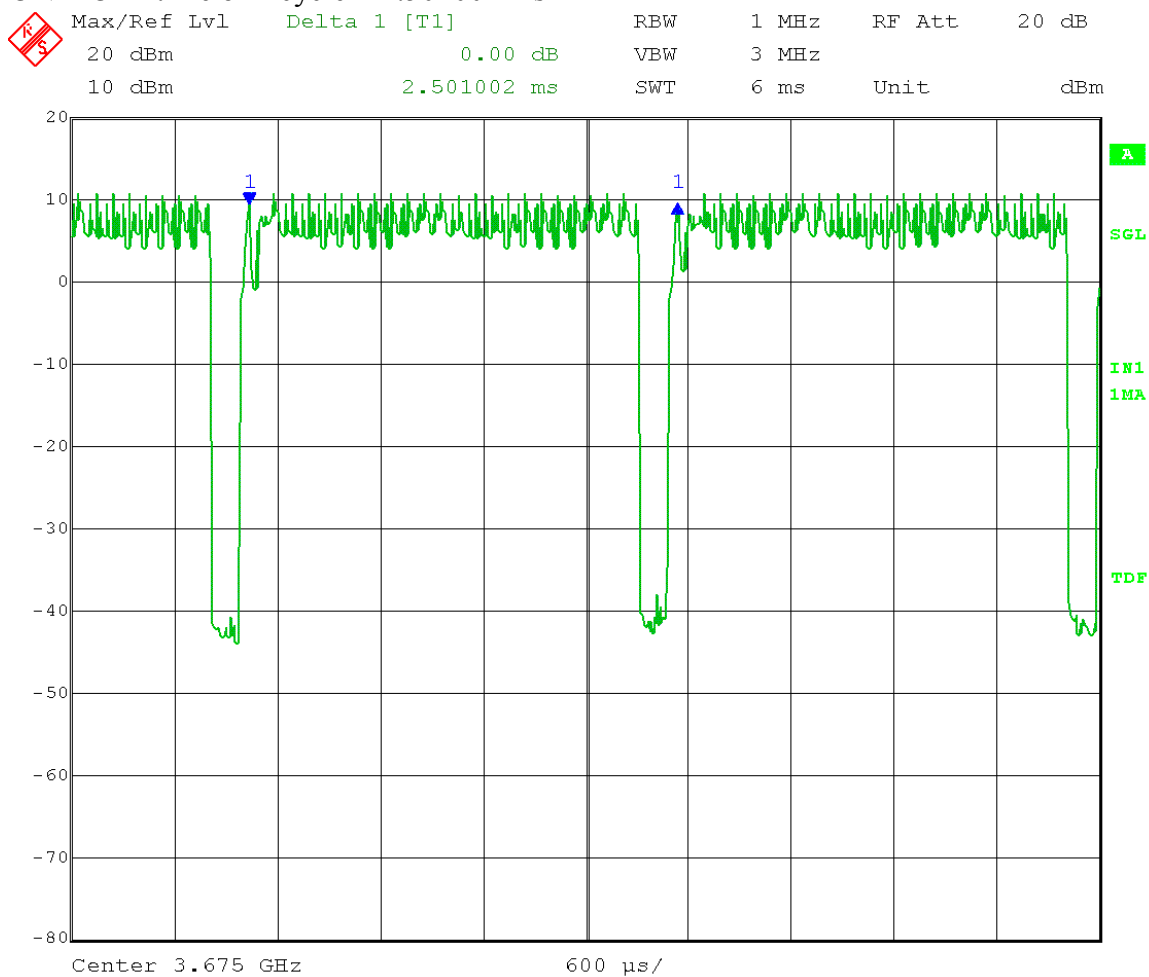
Date: 6.FEB.2014 13:26:04

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Duty Cycle during testing
Operator: Craig B

                5 MHz channel bandwidth; QPSK

Comment: ON time = 2.284569 ms during 2.501002 ms cycle
                x = 2.284569 / 2.501002 = 0.913461
                Duty cycle correction factor = 10log(x) = **0.393 dB**

ON time of 1 cycle = 2.284569 ms
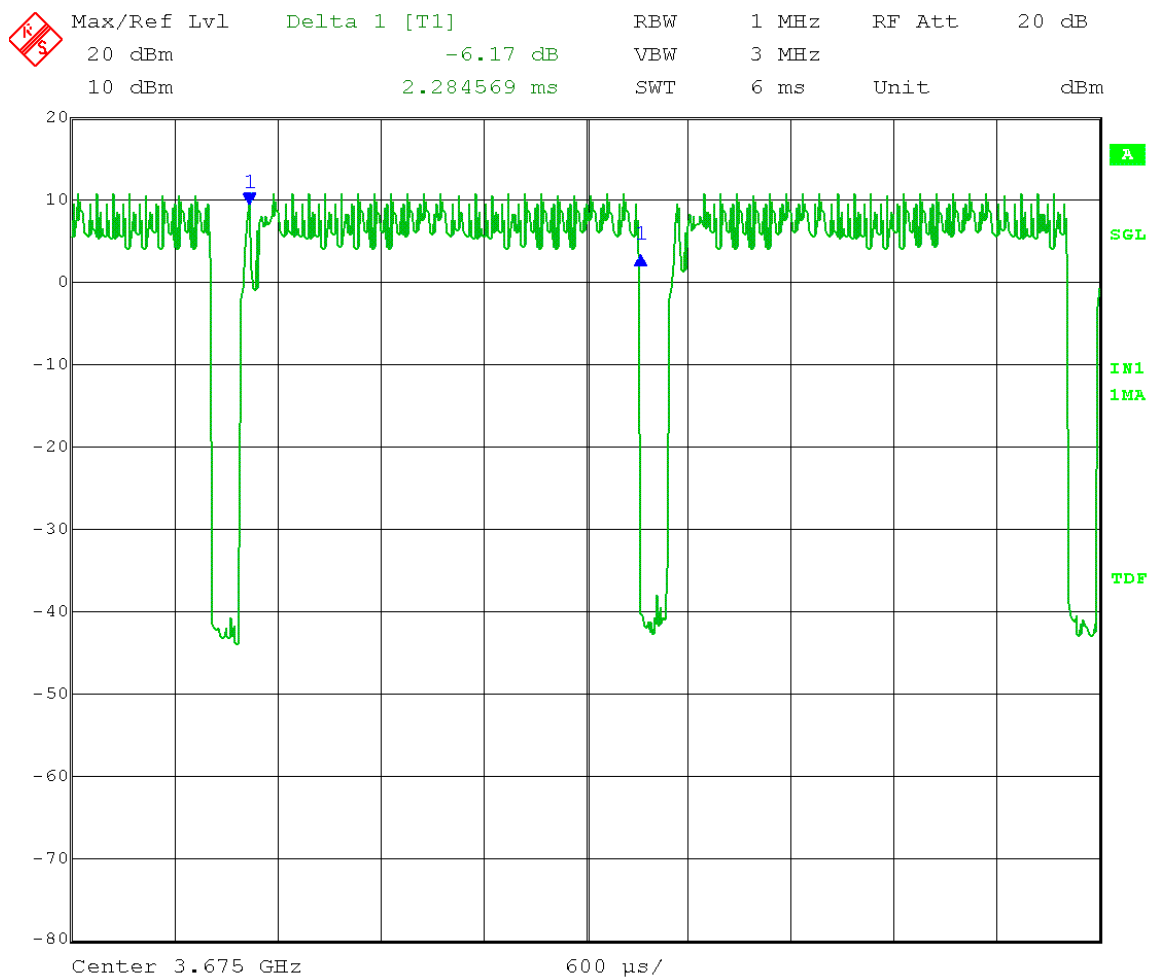
Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Duty Cycle during testing
Operator: Craig B

10 MHz channel bandwidth; QPSK

Comment: ON time = 2.404810 ms during 2.501002 ms cycle
x = 2.404810 / 2.501002 = 0.961539
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	20 dB
20 dBm		0.01 dB	VBW	3 MHz		
10 dBm		2.501002 ms	SWT	6 ms	Unit	dBm

Center 3.675 GHz   600 µs/
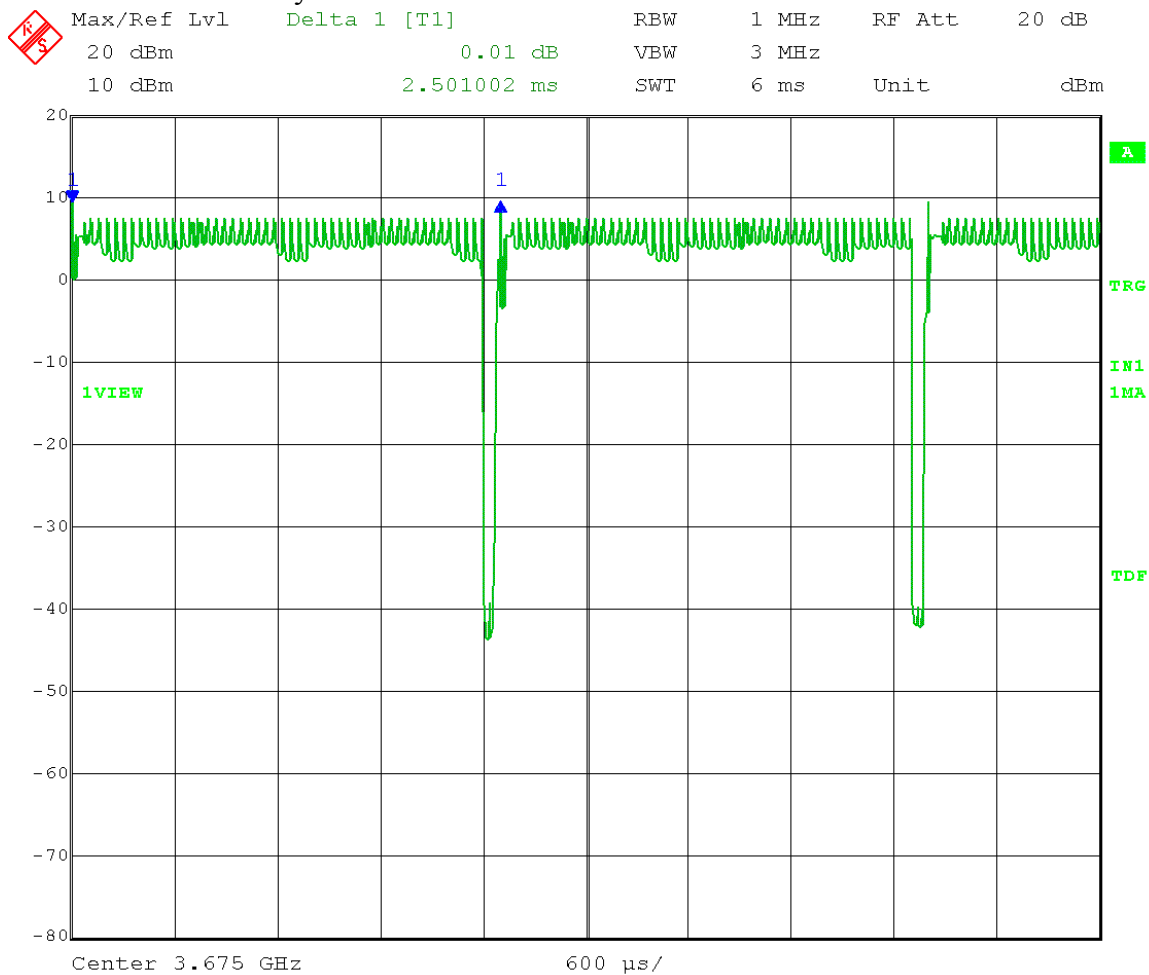
Date: 6.FEB.2014 12:25:15

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 = 0.961539
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	20 dB
20 dBm		-9.28 dB	VBW	3 MHz		
10 dBm		2.404810 ms	SWT	6 ms	Unit	dBm

Center 3.675 GHz   600 µs/
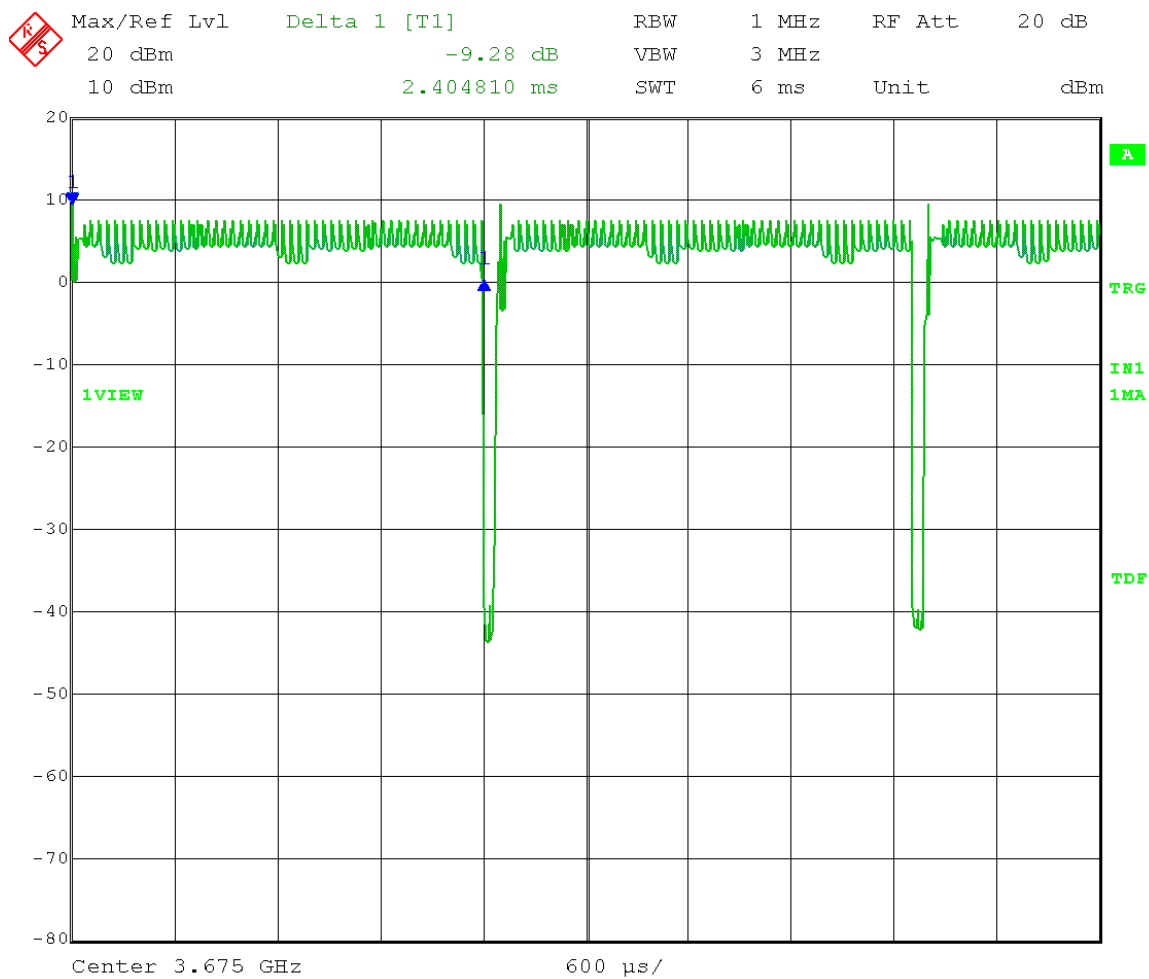
Date: 6.FEB.2014 12:27:16

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Duty Cycle during testing
Operator: Craig B

20 MHz channel bandwidth; QPSK

Comment: ON time = 2.404810 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	20 dB
20 dBm		0.11 dB	VBW	3 MHz		
10 dBm		2.501002 ms	SWT	6 ms	Unit	dBm

Center 3.675 GHz   600 µs/
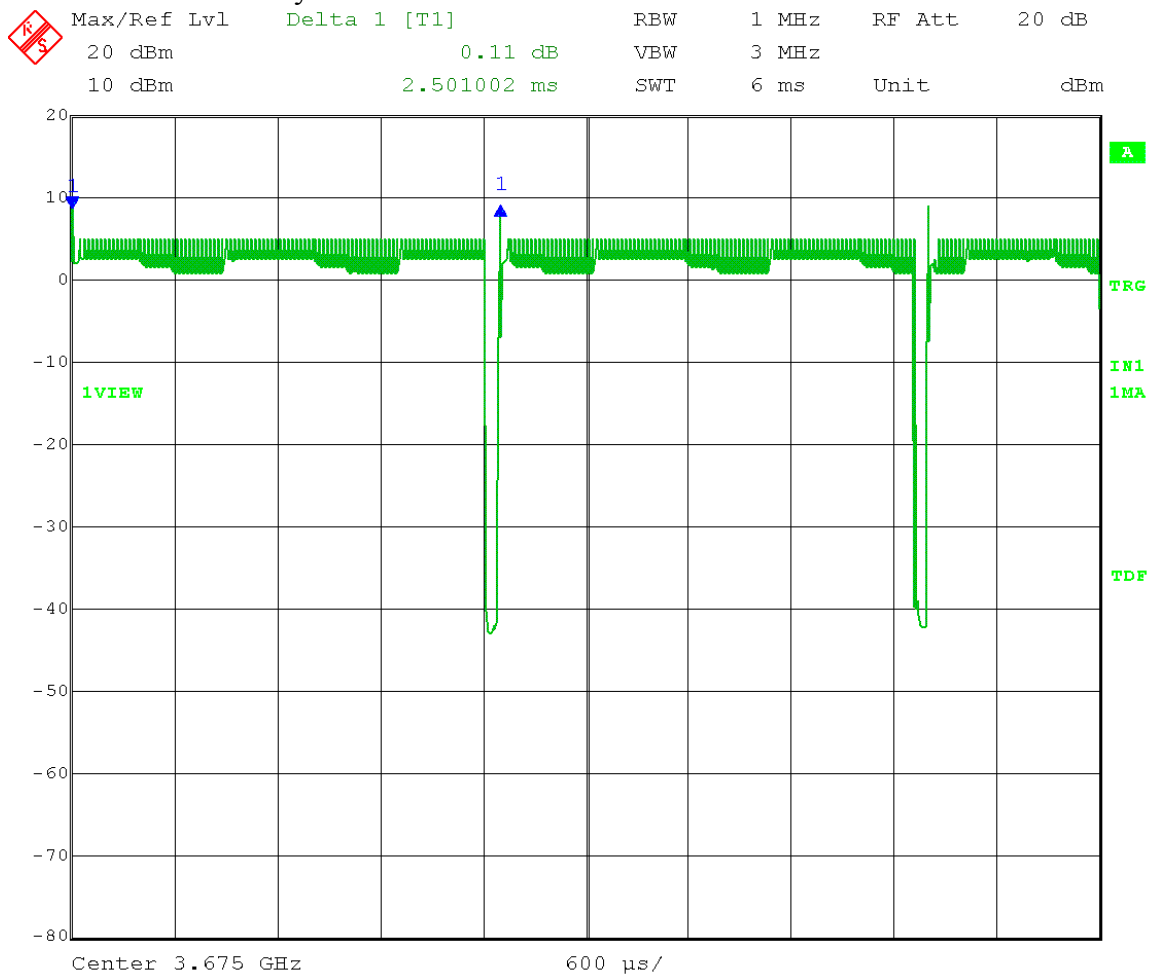
Date: 6.FEB.2014 13:47:22

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Duty Cycle during testing
Operator: Craig B

20 MHz channel bandwidth; QPSK

Comment: ON time = 2.404810 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
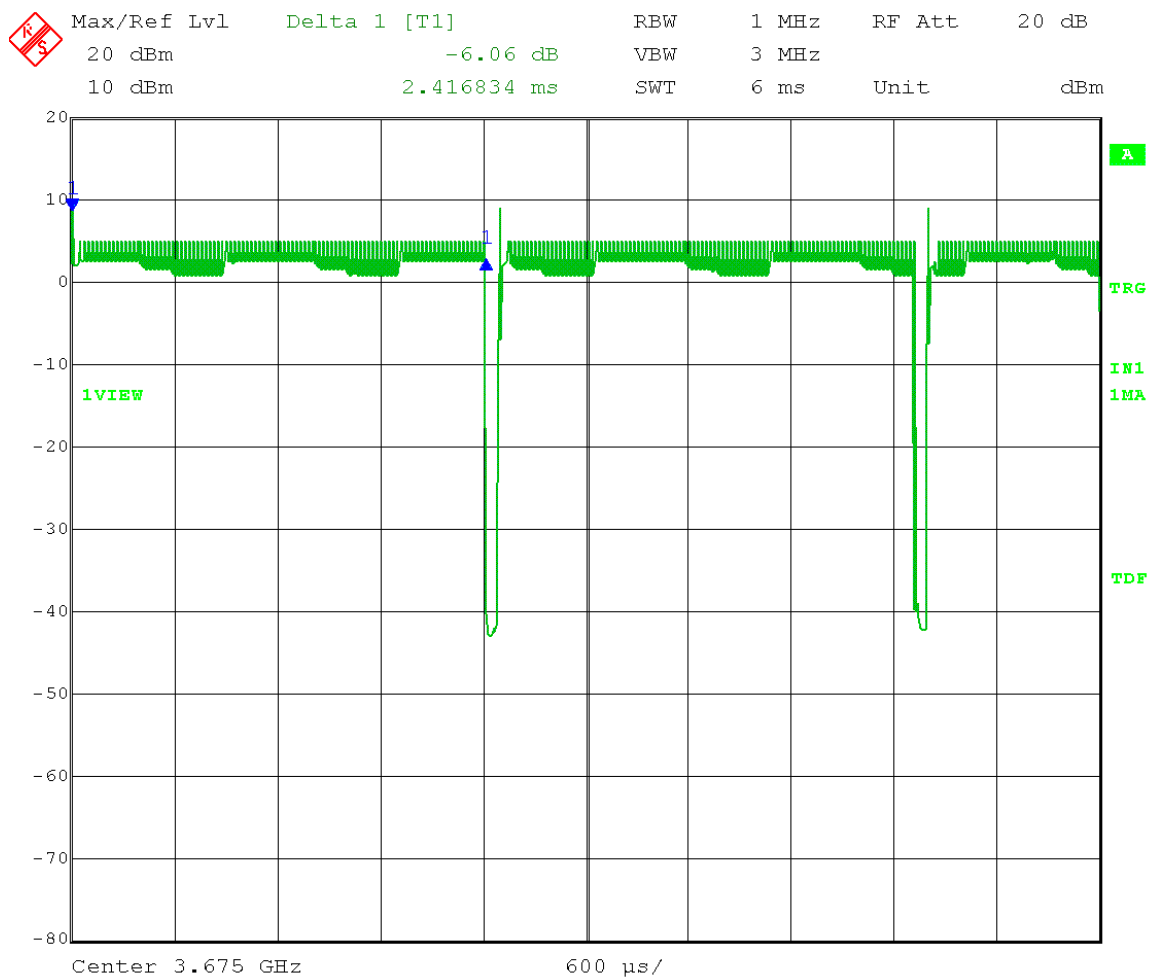
Max/Ref Lvl	Delta 1 [T1]	RBW	1 MHz	RF Att	20 dB
20 dBm	−6.06 dB	VBW	3 MHz		
10 dBm	2.416834 ms	SWT	6 ms	Unit	dBm

Center 3.675 GHz   600 µs/

Date: 6.FEB.2014 13:47:56

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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: 02-06-2013
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 5 MHz channel BW mode; Port A
                Antenna Gain = 17 dBi sector antenna
                Measurement taken at end of Cambium Networks cable that connects to
                the antenna (1 dB cable loss).
                Recorded levels are measured RF conducted levels + 17 dBi antenna gain
                + 3 dB (2-port MIMO operation) + 0.393 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 19 (total of both chains)

Modulation Type	120 V +20 °C	
	EIRP / 25 MHz	EIRP / 1 MHz
QPSK	35.88	29.72

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	36.05	29.87

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	35.31	29.13

Test Date: 02-06-2013
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 10 MHz channel BW mode; Port A
Antenna Gain = 17 dBi sector antenna
Measurement taken at end of Cambium Networks cable that connects to the antenna (1 dB cable loss).
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	38.40	29.39

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	38.55	29.51

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	38.71	29.64

Test Date: 02-06-2013
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Tests: Transmitter Maximum E.I.R.P.
Operator: Craig B
Comment: 20 MHz channel BW mode; Port A
                Antenna Gain = 17 dBi sector antenna
                Measurement taken at end of Cambium Networks cable that connects to
                the antenna (1 dB cable loss).
                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	41.27	29.32

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	41.40	29.44

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	41.53	29.62

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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: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Low Channel: Transmit = 3652.5 MHz
              Output power setting: 19   5 MHz channel BW
              Output port A   Modulation: QPSK

Occupied Bandwidth = 4.55 MHz

Test Date: 02-05-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Mid Channel: Transmit = 3675 MHz
               Output power setting: 19   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	20 dB
20 dBm		8.20 dBm	VBW	200 kHz		
10 dBm		3.67498597 GHz	SWT	14 ms	Unit	dBm

1 [T1]   8.20 dBm
                 3.67498597 GHz
OPB   4.54509018 MHz
T1 [T1]   3.11 dBm
                 3.67274148 GHz
T2 [T1]   3.91 dBm
                 3.67728657 GHz

1MAX
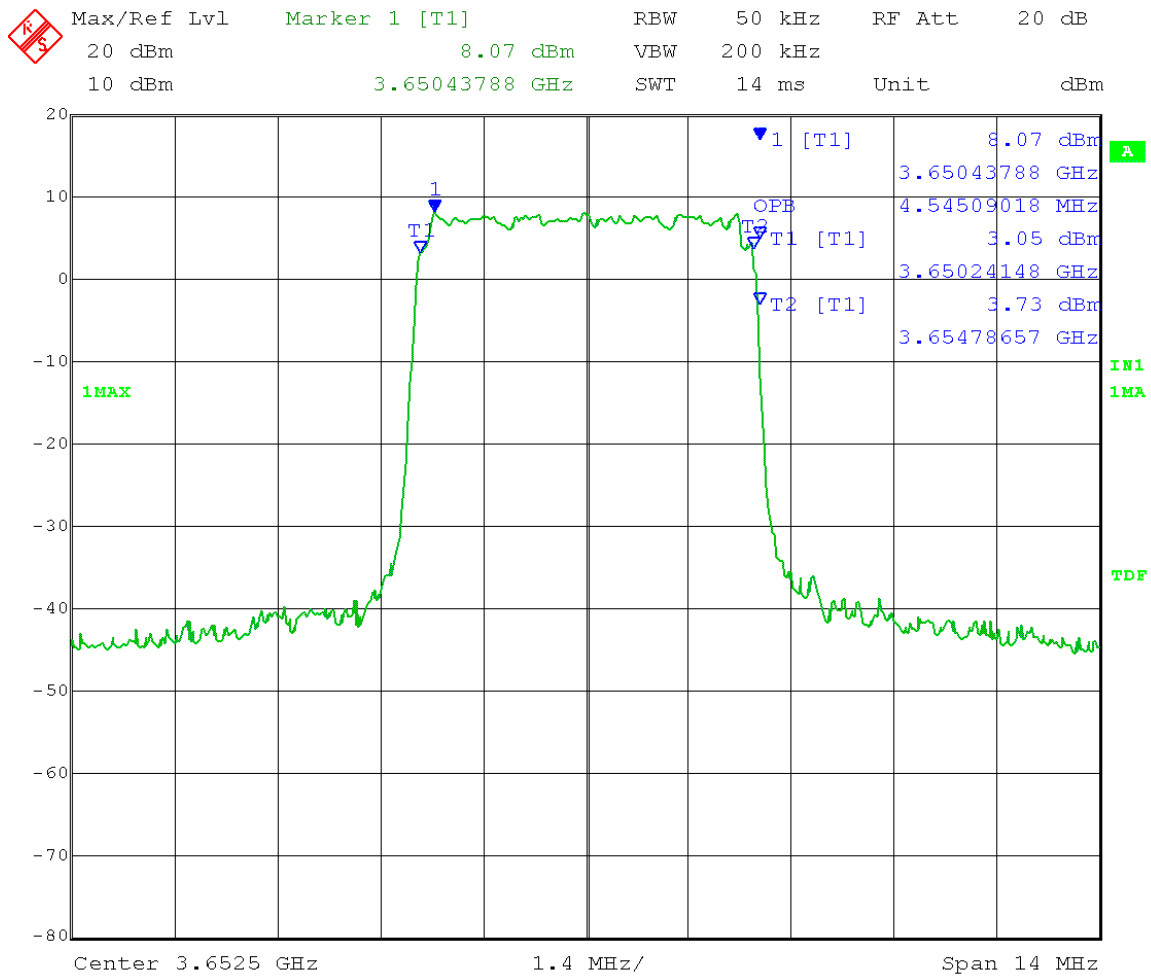
Center 3.675 GHz   1.4 MHz/   Span 14 MHz
Date: 6.FEB.2014   14:48:05

Test Date: 02-05-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: High Channel: Transmit = 3697.5 MHz
                Output power setting: 18   5 MHz channel BW
                Output port A   Modulation: QPSK

Occupied Bandwidth = 4.55 MHz
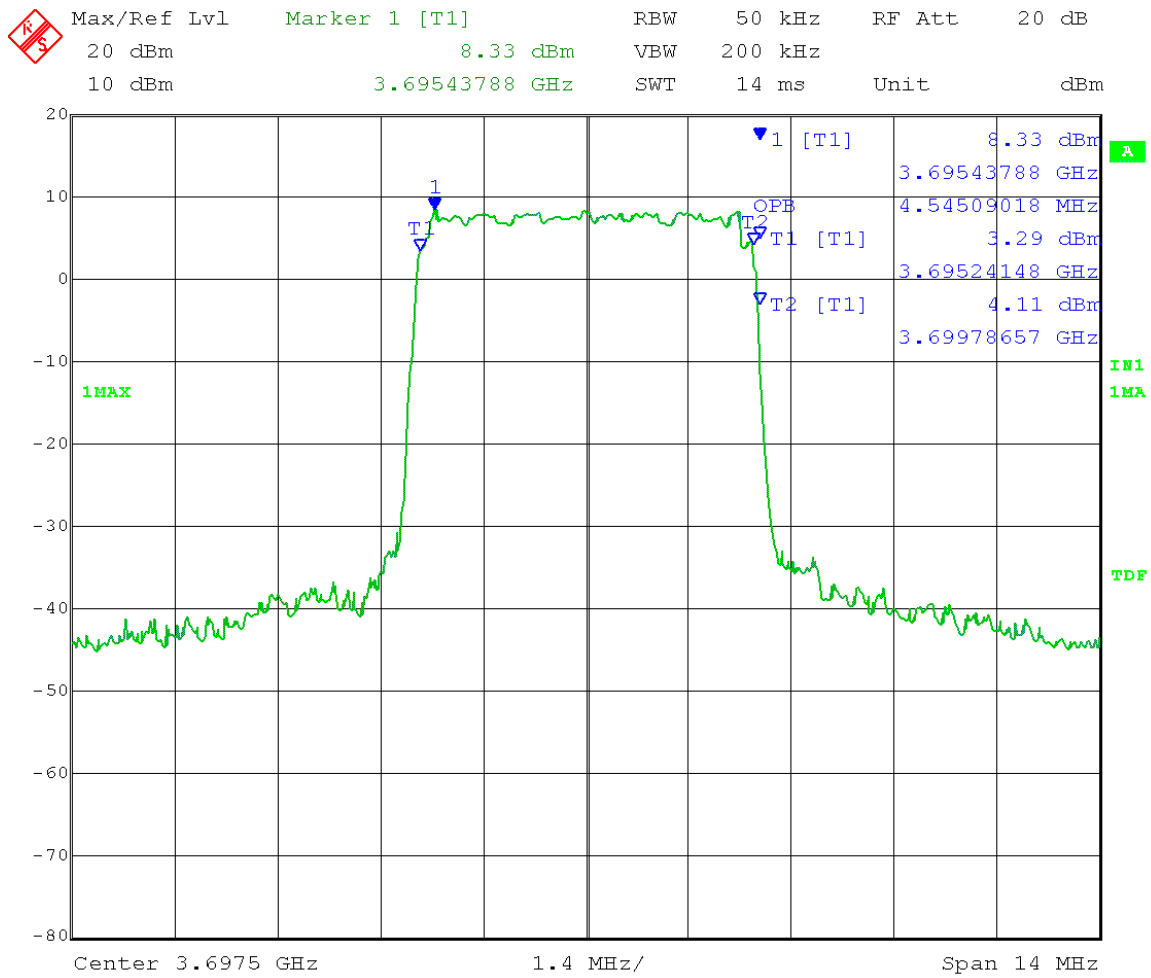
Date: 6.FEB.2014   14:49:47

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Low Channel: Transmit = 3655 MHz
              Output power setting: 22   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	20 dB
20 dBm		10.62 dBm	VBW	300 kHz		
10 dBm		3.65088176 GHz	SWT	7.5 ms	Unit	dBm

1 [T1]   10.62 dBm
                 3.65088176 GHz
                 9.07815631 MHz
T1 [T1]   5.62 dBm
                 3.65052104 GHz
T2 [T1]   5.67 dBm
                 3.65959920 GHz

Center 3.655 GHz   3 MHz/   Span 30 MHz

Date: 6.FEB.2014   14:35:22

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: Mid Channel: Transmit = 3675 MHz
Output power setting: 22   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	20 dB
20 dBm	10.68 dBm	VBW	300 kHz		
10 dBm	3.67088176 GHz	SWT	7.5 ms	Unit	dBm

```
1 [T1]              10.68 dBm
                  3.67088176 GHz
                  9.07815631 MHz
T1 [T1]             5.72 dBm
                  3.67052104 GHz
T2 [T1]             5.74 dBm
                  3.67959920 GHz
```

1MAX

IN1
1MA

TDF

Center 3.675 GHz   3 MHz/   Span 30 MHz
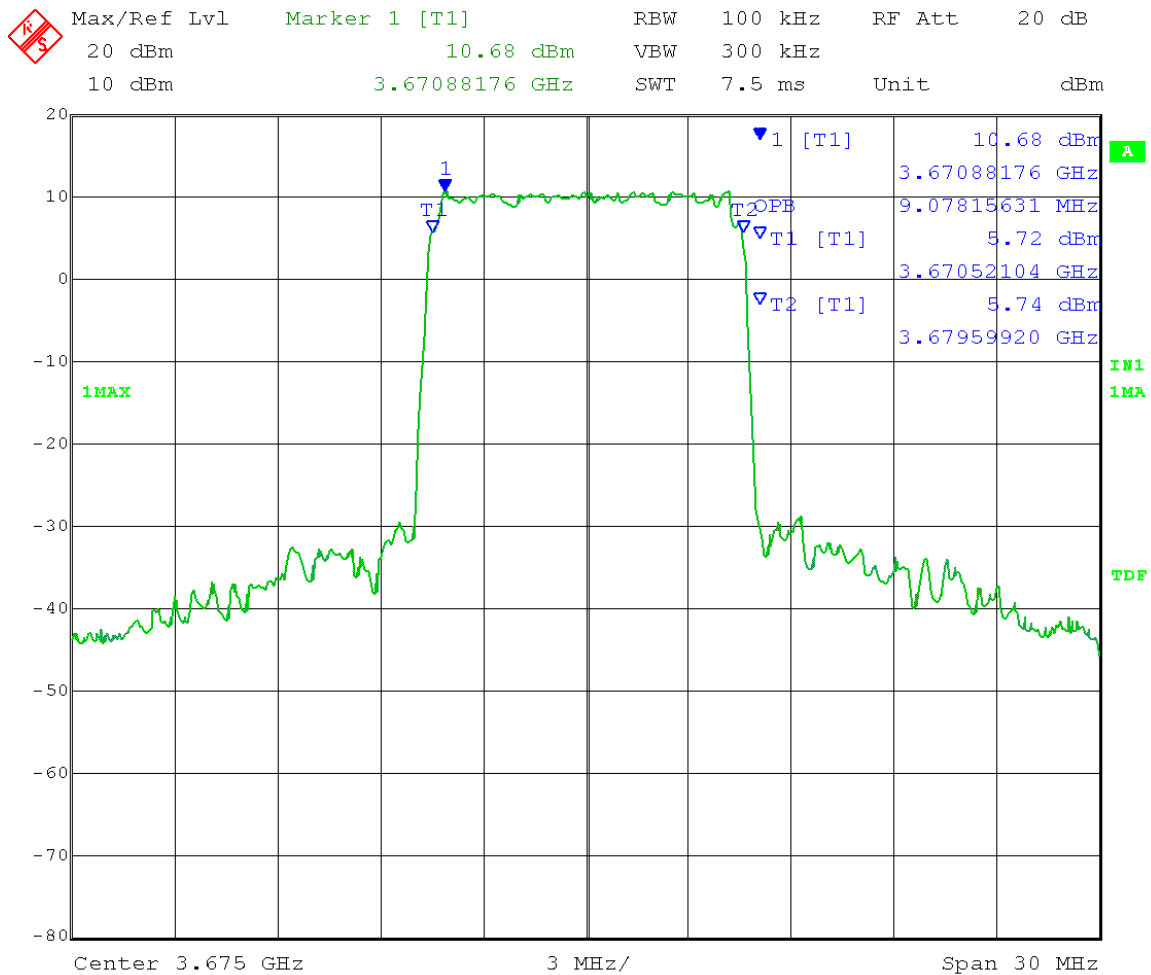
Date: 6.FEB.2014   14:38:23

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Occupied Bandwidth (99% power) - Conducted
Operator: Craig B

Comment: High Channel: Transmit = 3695 MHz
            Output power setting: 22   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    20 dB
 20 dBm                      10.80 dBm   VBW    300 kHz
 10 dBm              3.69088176 GHz      SWT    7.5 ms     Unit         dBm
```

Spectrum plot:
- Marker 1 [T1]: 10.80 dBm, 3.69088176 GHz
- T2OPB: 9.07815631 MHz
- T1 [T1]: 5.88 dBm, 3.69052104 GHz
- T2 [T1]: 6.06 dBm, 3.69959920 GHz
- 1MAX
- A
- IN1
- 1MA
- TDF

Center 3.695 GHz   3 MHz/   Span 30 MHz

Date: 6.FEB.2014   14:41:19

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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

Max/Ref Lvl	Marker 1 [T1]	RBW	200 kHz	RF Att	20 dB
20 dBm	13.93 dBm	VBW	1 MHz		
10 dBm	3.67518036 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   13.93 dBm
3.67518036 GHz
OPB   18.15631263 MHz
▽T1 [T1]   8.77 dBm
3.66604208 GHz
▽T2 [T1]   9.48 dBm
3.68419840 GHz

A
IN1
1MA
TDF

1MAX

Center 3.675 GHz   6 MHz/   Span 60 MHz
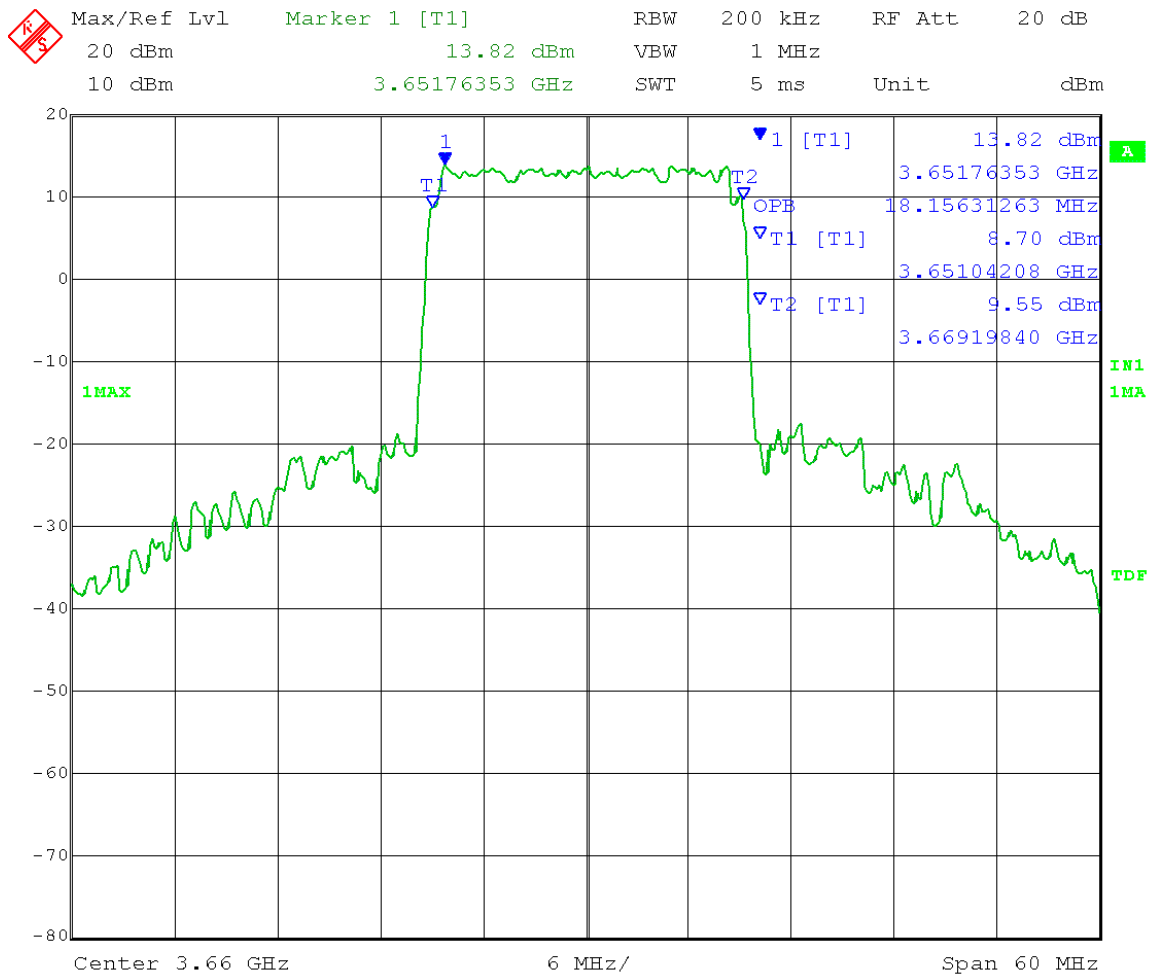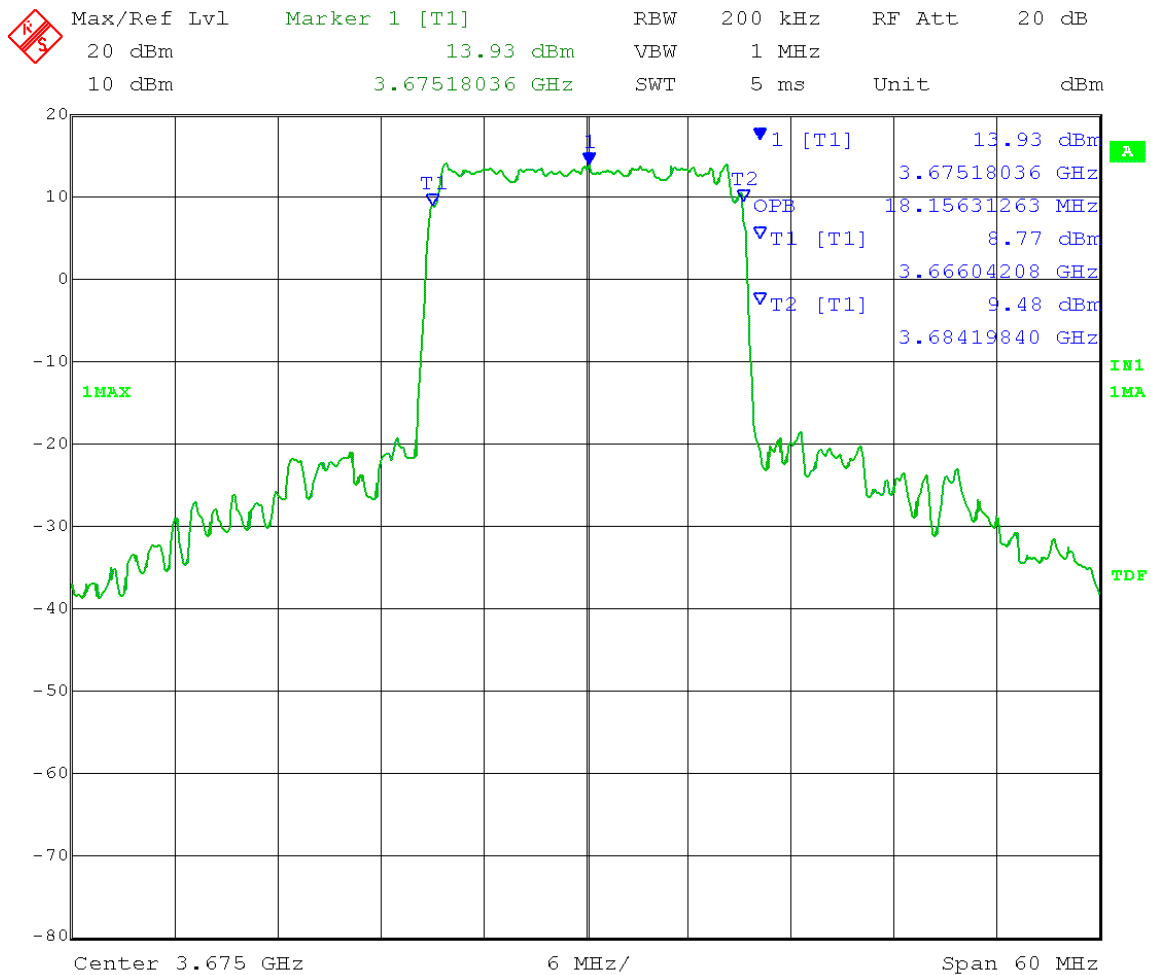
Date: 6.FEB.2014 14:23:15

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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	20 dB
20 dBm		14.03 dBm	VBW	1 MHz		
10 dBm		3.69823647 GHz	SWT	5 ms	Unit	dBm

1 ▼1 [T1]   14.03 dBm
                    3.69823647 GHz
OPB   18.15631263 MHz
▽T1 [T1]   8.80 dBm
                    3.68104208 GHz
▽T2 [T1]   9.63 dBm
                    3.69919840 GHz

1MAX

IN1
1MA

TDF

Center 3.69 GHz   6 MHz/   Span 60 MHz

Date: 6.FEB.2014   14:29:08

DLS
ELECTRONIC SYSTEMS, INC.
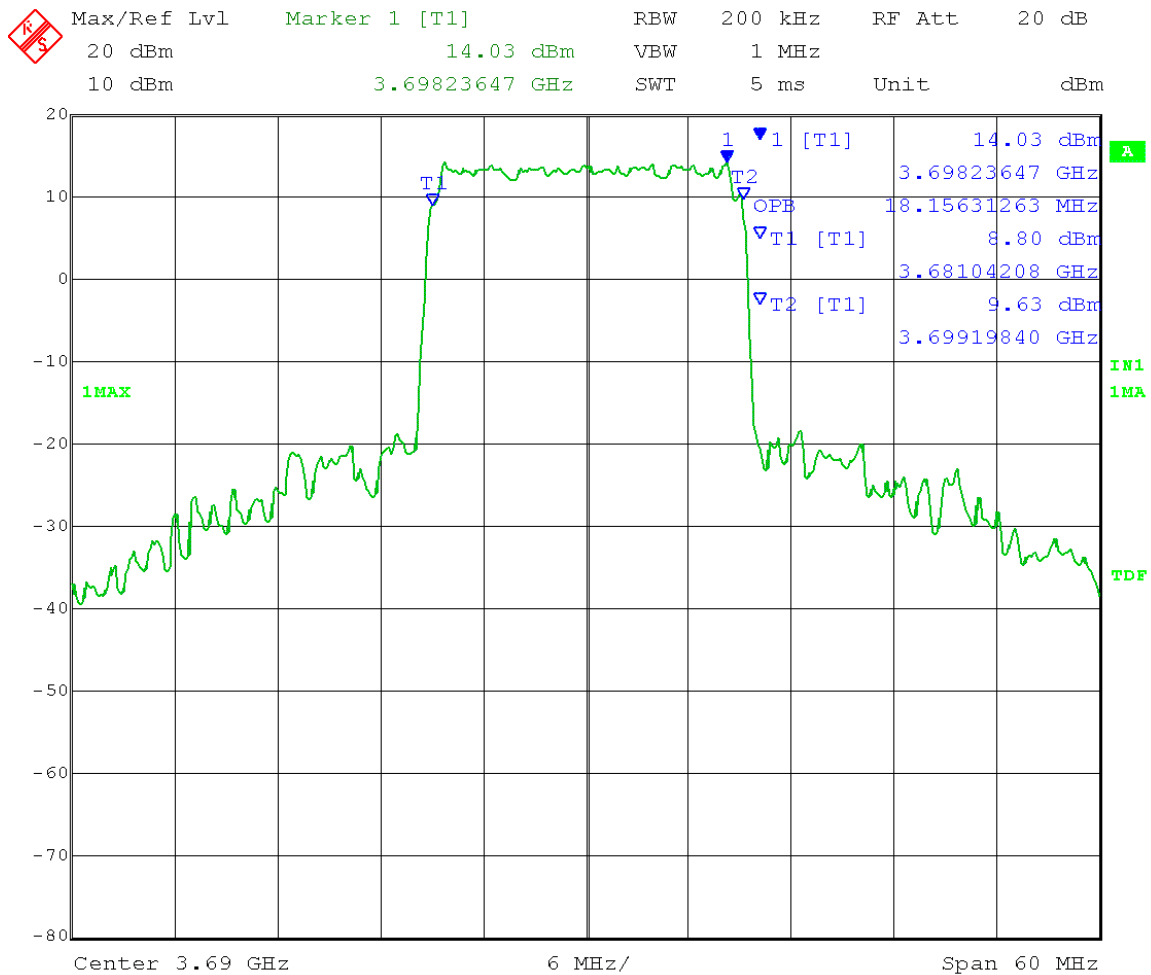
166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C036045A004A
Report Number: 19784
DLS Project: 6383

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 set to the same level as was used in the Transmitter Output Power test.

Radiated from cabinet (1-18 GHz): Both ports of the EUT were terminated with 50 Ohm terminations. Both ports were active during testing.

Radiated from 17 dBi antenna (30-1000 MHz and 18-37 GHz): EUT was connected to 17 dBi sector antenna. Both ports were active during testing.

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

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
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	20 dB
30 dBm		-39.06 dBm	VBW	3 MHz		
0 dBm		955.29058116 MHz	SWT	5 ms	Unit	dBm

A

IN1
1MA

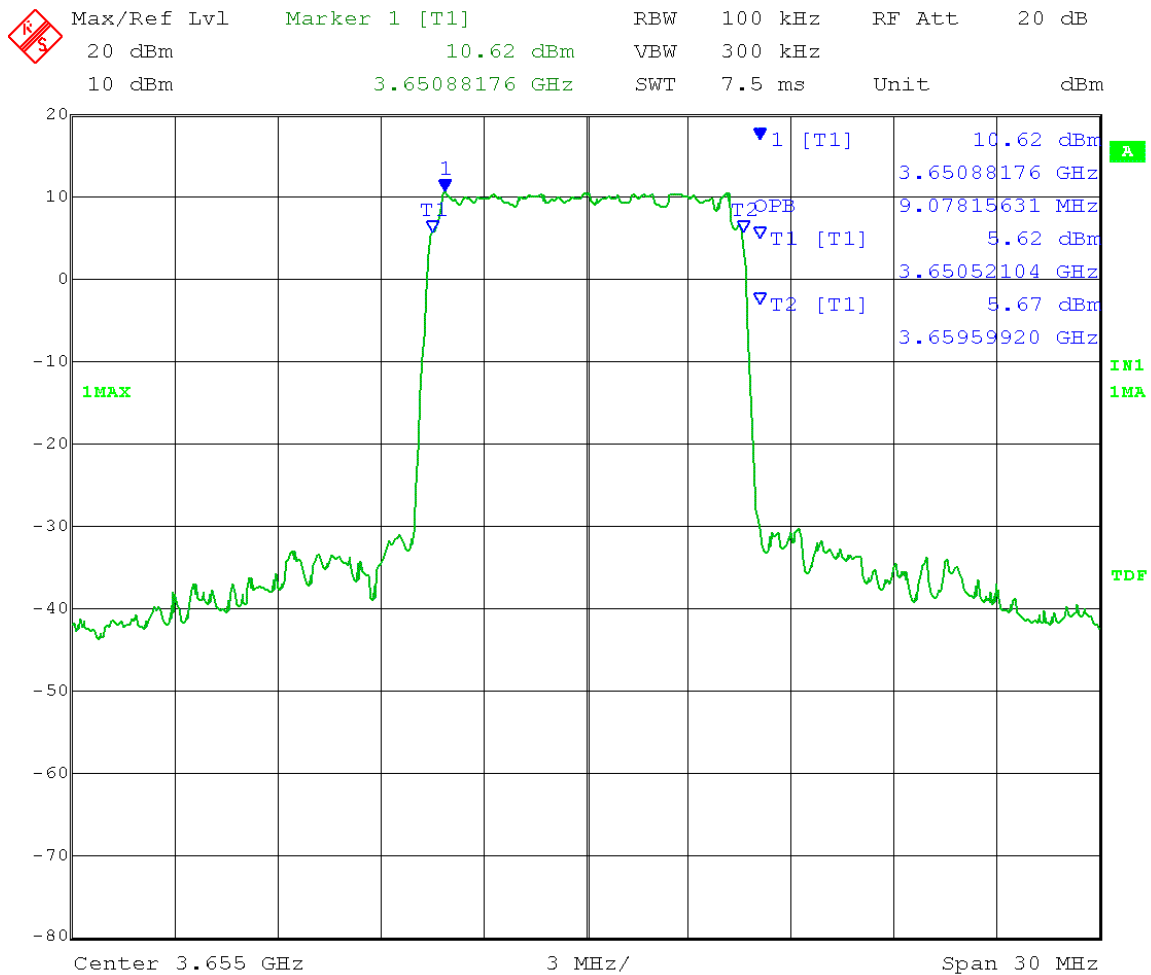1VIEW

D1 -13 dBm

TDF

1

Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 11.FEB.2014   09:19:47

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
Channel bandwidth: 5 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
       = -13 dBm/MHz

Frequency Range: 1 – 7 GHz

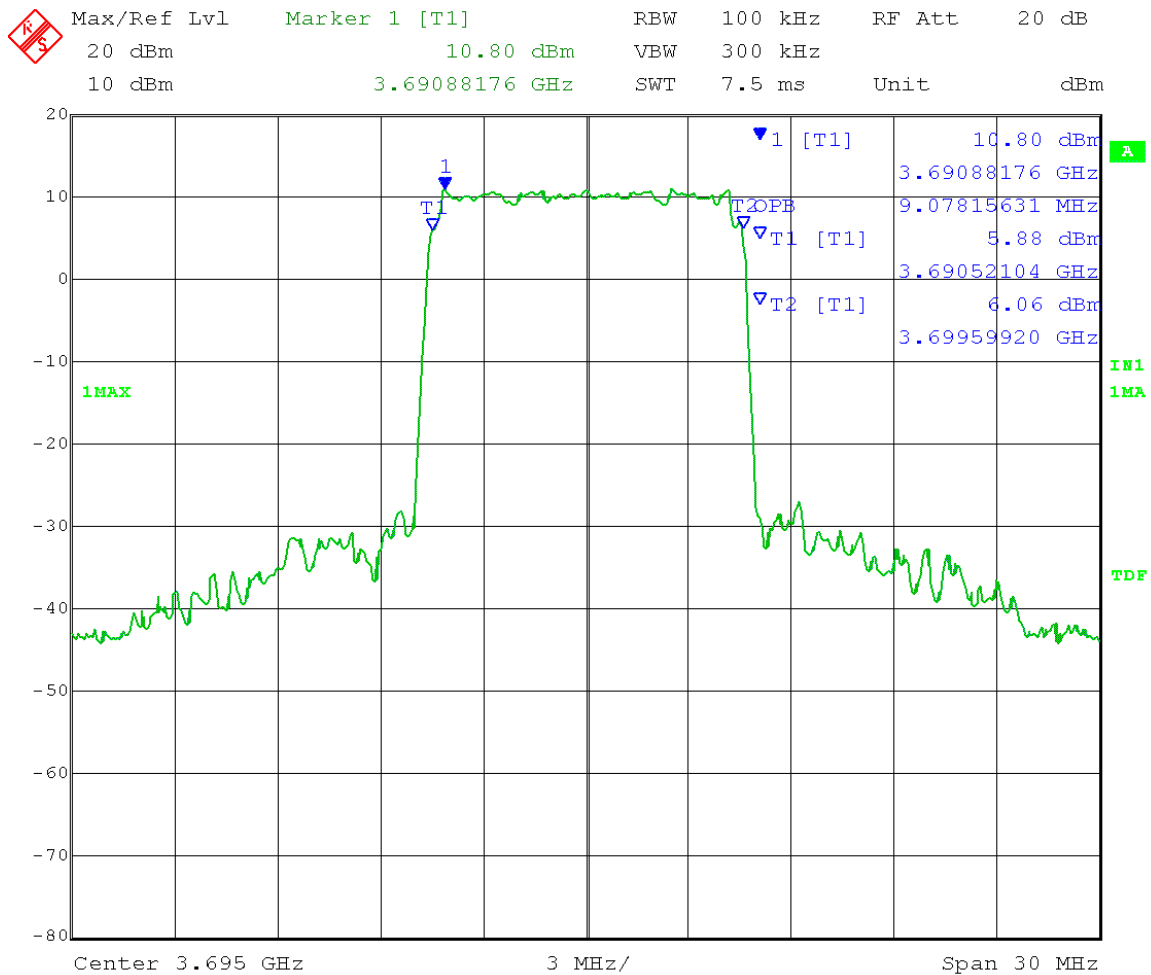| Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	20 dB
30 dBm	-31.57 dBm		VBW	3 MHz		
0 dBm	7.00000000 GHz		SWT	15 ms	Unit	dBm

Date: 11.FEB.2014 09:21:33

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
               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                    -40.65 dBm       VBW     3 MHz
  0 dBm            15.33266533 GHz          SWT   110 ms     Unit        dBm
```



```
Start 7 GHz                    1.1 GHz/                    Stop 18 GHz
Date:      11.FEB.2014  09:23:32
```

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
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

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
               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                    -23.87 dBm    VBW    3 MHz
   0 dBm             33.99098196 GHz      SWT   160 ms    Unit       dBm
```



```
 30 ┤                                                                    A
    │
 20 ┤
    │
 10 ┤
    │
  0 ┤                                                                  IN1
    │                                                                  1MA
    1VIEW
-10 ┤
    ─D1 -13 dBm────────────────────────────────────────────────────────
    │
-20 ┤                                              1
    │                                              ▼                  TDF
-30 ┤
    │
-40 ┤
    │
-50 ┤
    │
-60 ┤
    │
-70 ┤
     Start 26.5 GHz              1.05 GHz/            Stop 37 GHz
Date:      11.FEB.2014  09:27:00
```

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
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     20 dB
 30 dBm                    -39.71 dBm     VBW     3 MHz
  0 dBm          988.33667335 MHz         SWT     5 ms    Unit       dBm
```



```
 30                                                                    A

 20

 10

  0                                                                    IN1
                                                                       1MA
1VIEW
-10
—D1 -13 dBm————————————————————————————————————————————————————————
-20

-30                                                                    TDF

                                                                    1
-40  ╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌╌▼

-50

-60

-70
    Start 30 MHz            97 MHz/              Stop 1 GHz
Date:     11.FEB.2014  09:29:09
```

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
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	20 dB
30 dBm		-31.37 dBm	VBW	3 MHz		
0 dBm		6.71142285 GHz	SWT	15 ms	Unit	dBm

1VIEW

D1 -13 dBm

A

IN1
1MA

TDF

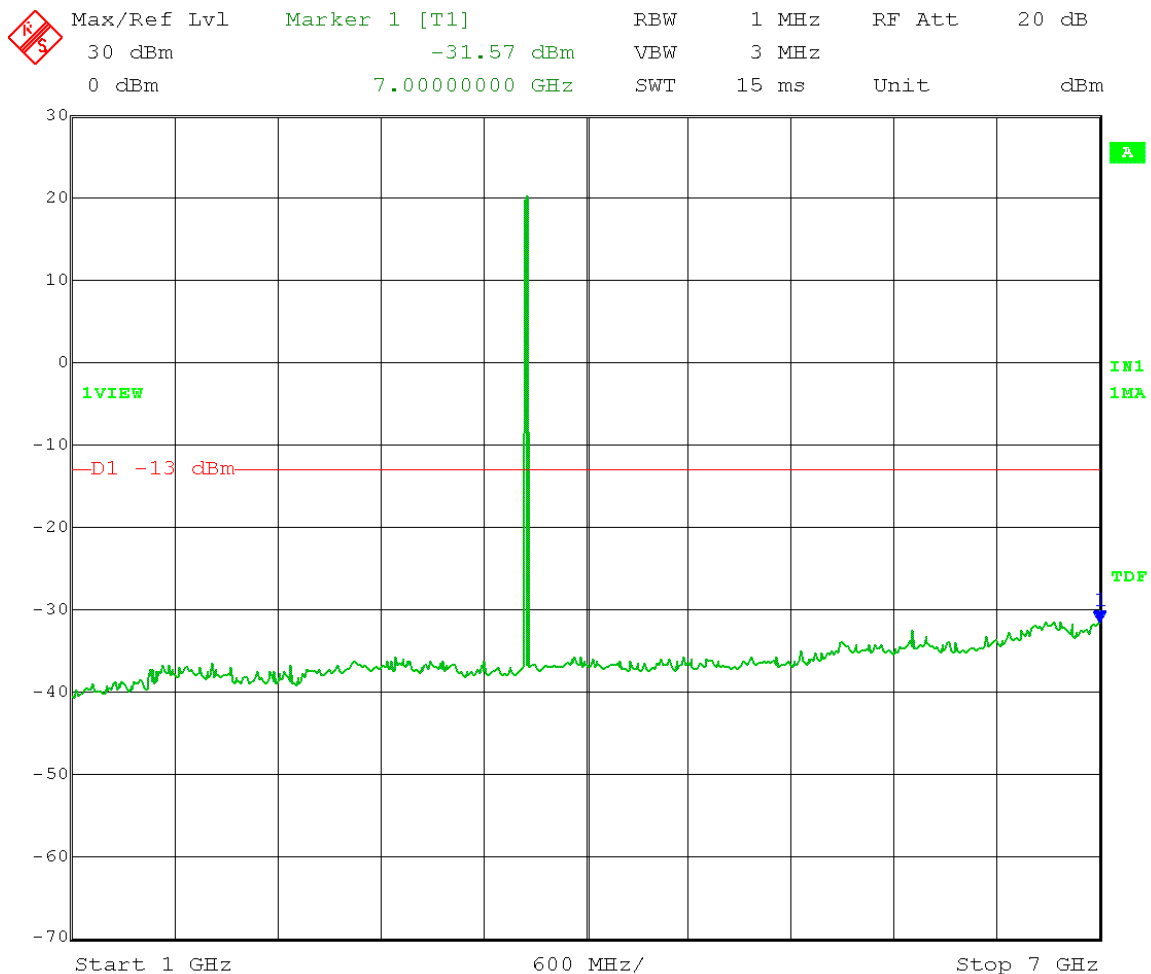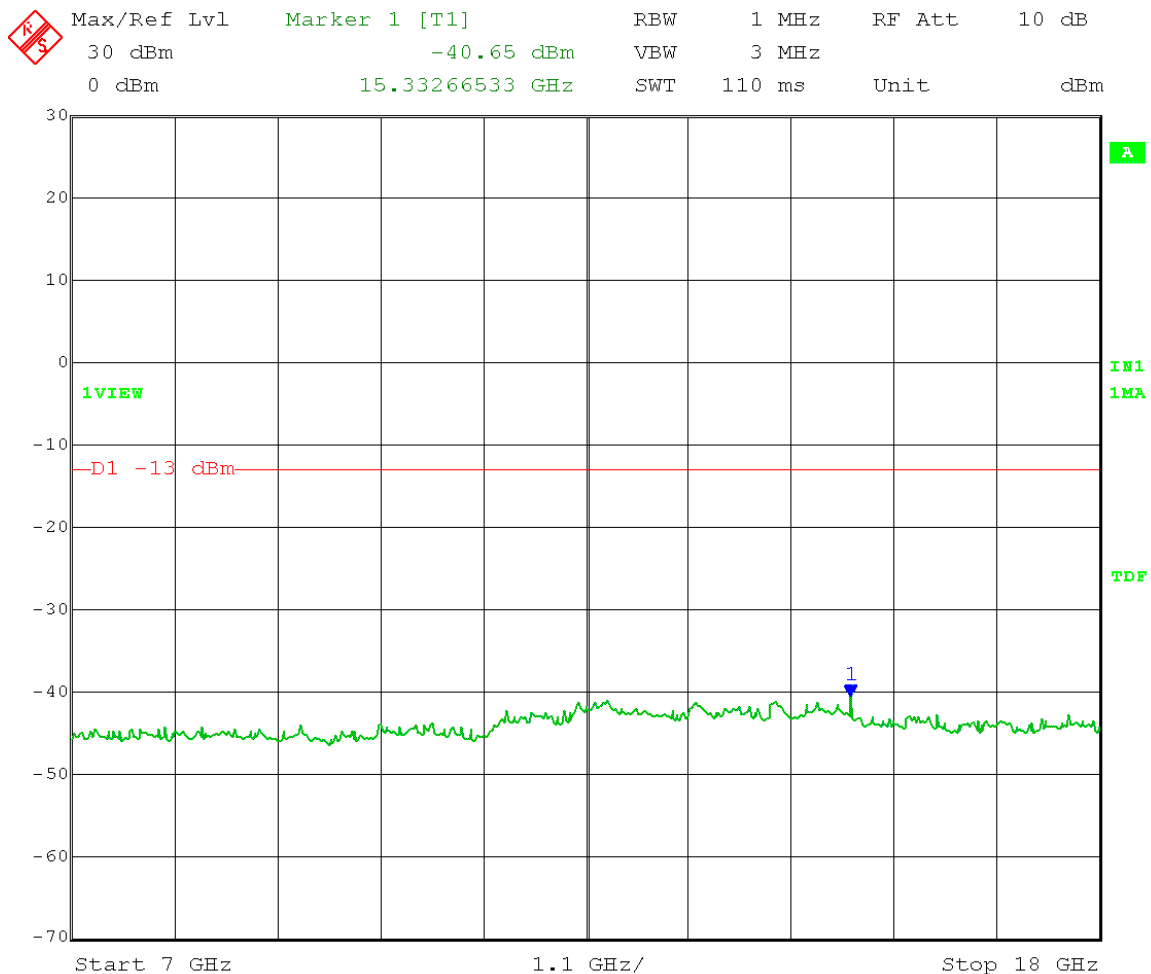Start 1 GHz   600 MHz/   Stop 7 GHz

Date: 11.FEB.2014 09:30:45

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
         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                     -40.59 dBm    VBW     3 MHz
  0 dBm              12.66553066 GHz      SWT    110 ms    Unit        dBm
```



```
Start 7 GHz                      1.1 GHz/                    Stop 18 GHz
Date:      11.FEB.2014   09:32:25
```

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
             Channel bandwidth: 5 MHz   Output port: A
             Limit: 43 + 10log (P) below the channel transmitter power
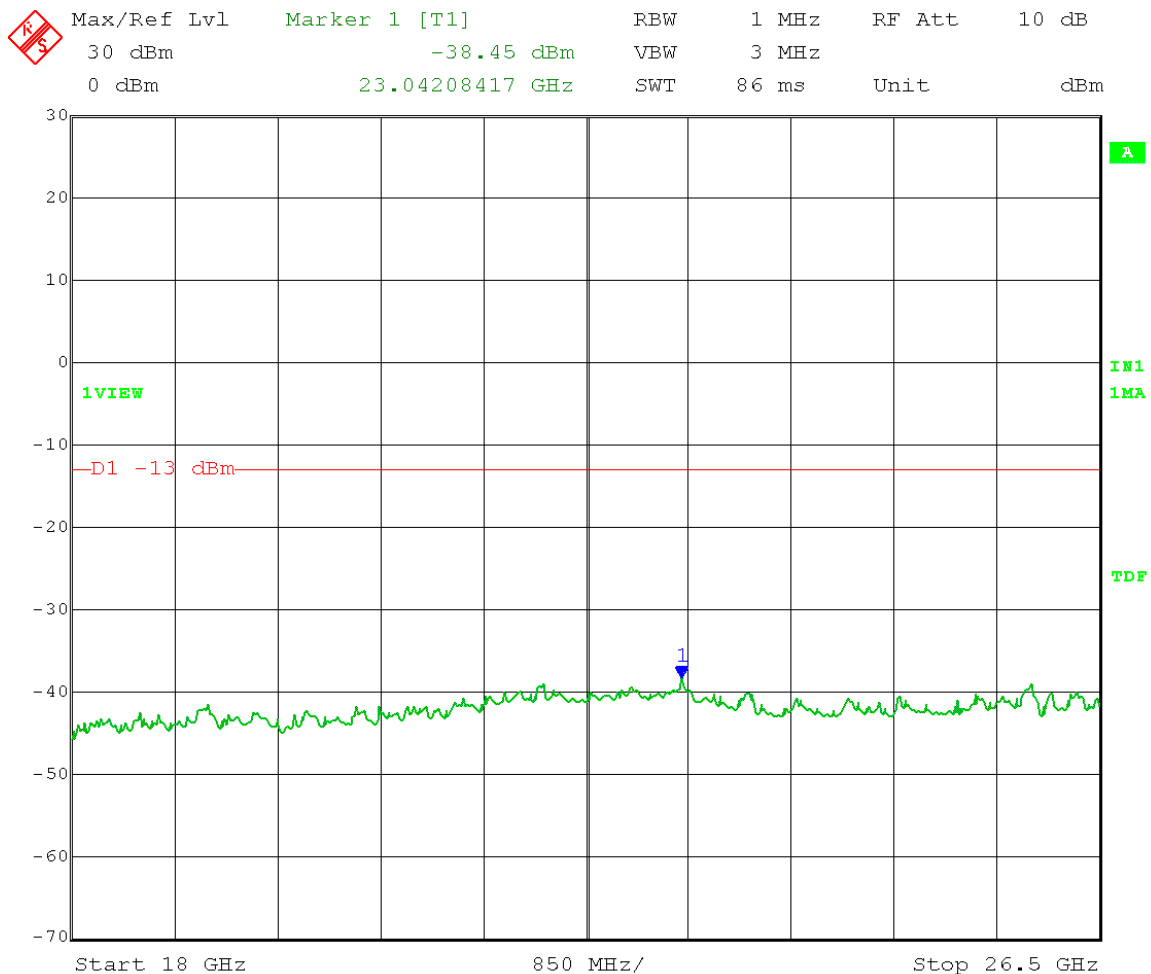   = -13 dBm/MHz

             Frequency Range: 18 – 26.5 GHz

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
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		-24.01 dBm	VBW	3 MHz		
0 dBm		34.20140281 GHz	SWT	160 ms	Unit	dBm

A

1VIEW

IN1
1MA

D1 -13 dBm

1

TDF

Start 26.5 GHz   1.05 GHz/   Stop 37 GHz
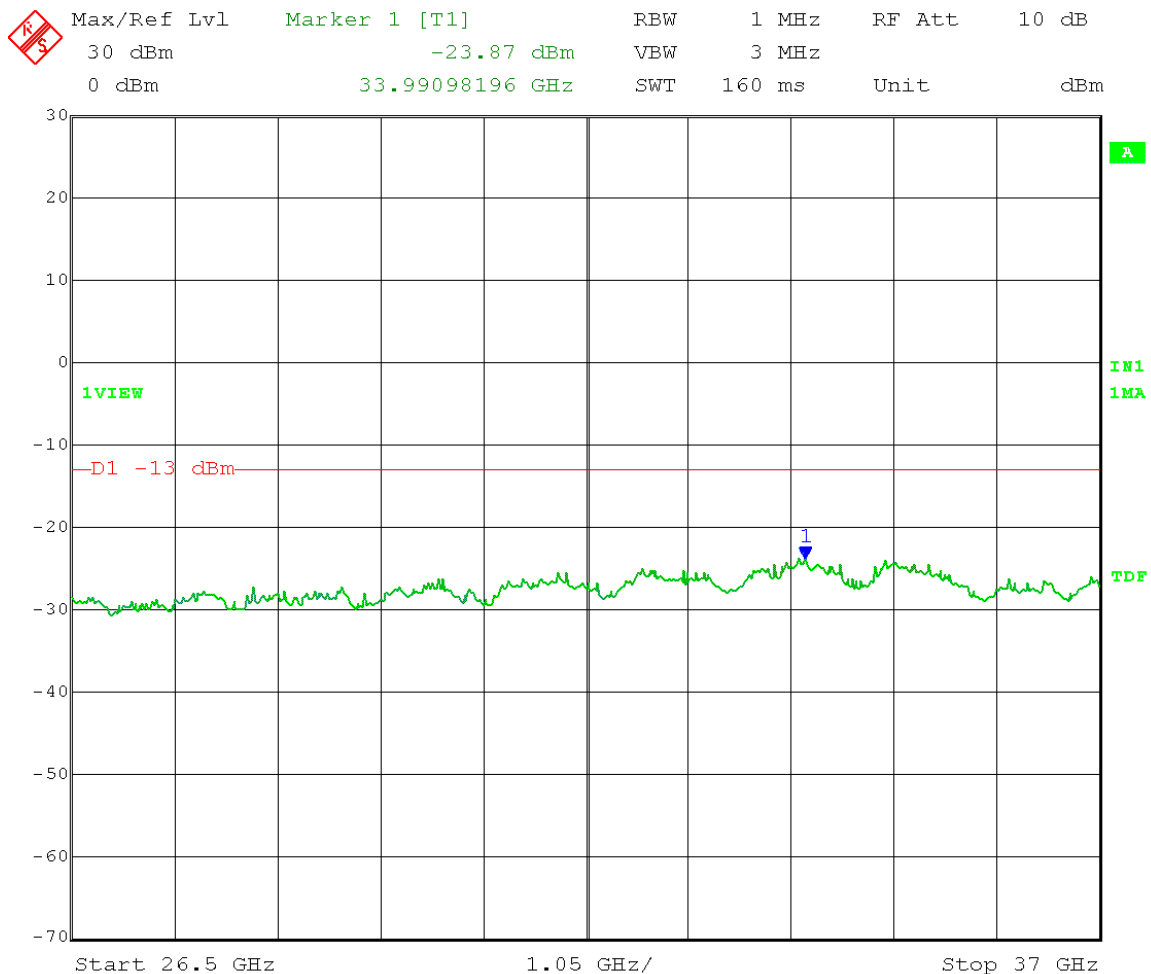
Date: 11.FEB.2014 09:35:46

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
              Channel bandwidth: 5 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power
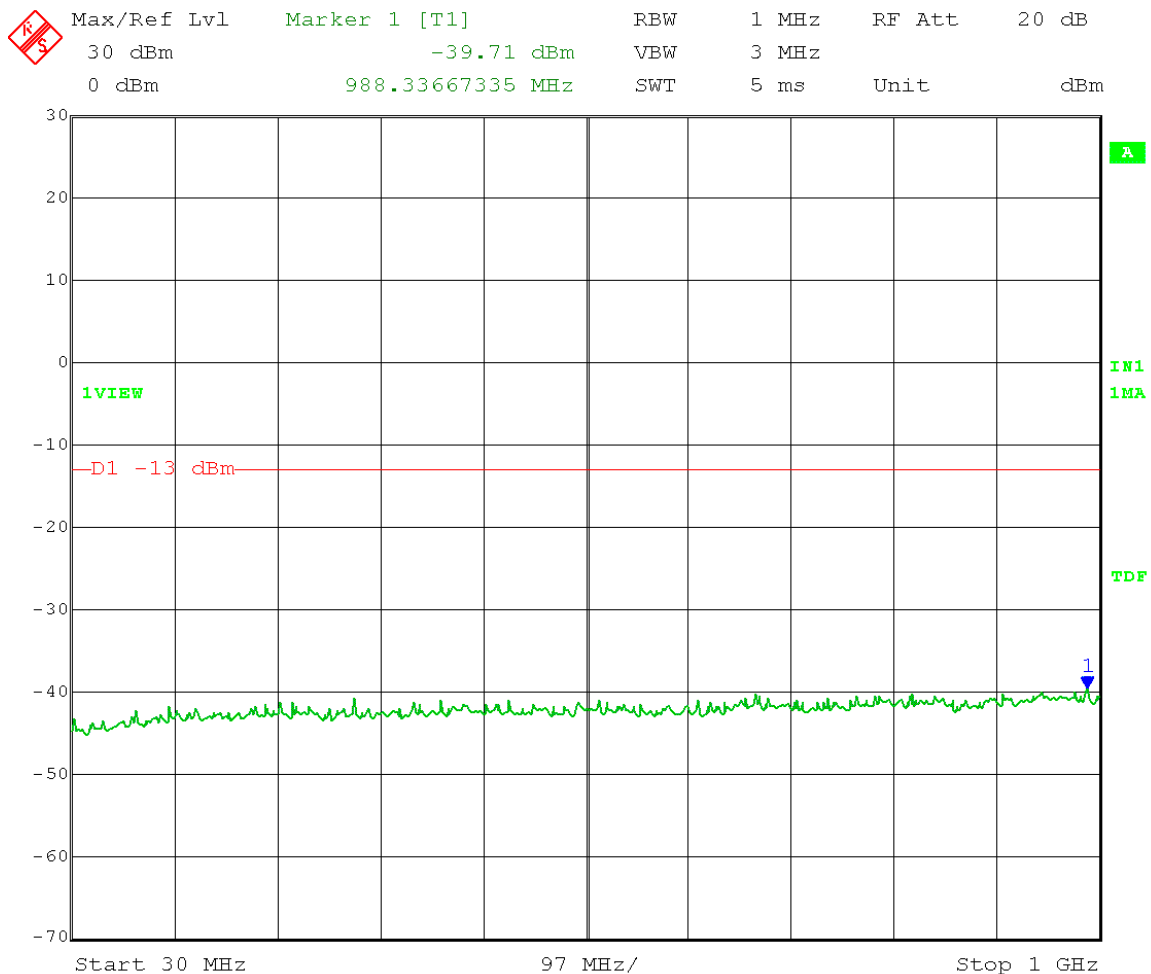   = -13 dBm/MHz

              Frequency Range: 30 – 1000 MHz


```
Max/Ref Lvl     Marker 1 [T1]              RBW    1 MHz    RF Att    20 dB
 30 dBm                      -39.20 dBm    VBW    3 MHz
  0 dBm             951.40280561 MHz       SWT    5 ms     Unit       dBm
```

Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 11.FEB.2014   09:38:30

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
              Channel bandwidth: 5 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power
                    = -13 dBm/MHz

              Frequency Range: 1 – 7 GHz

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
              Channel bandwidth: 5 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power
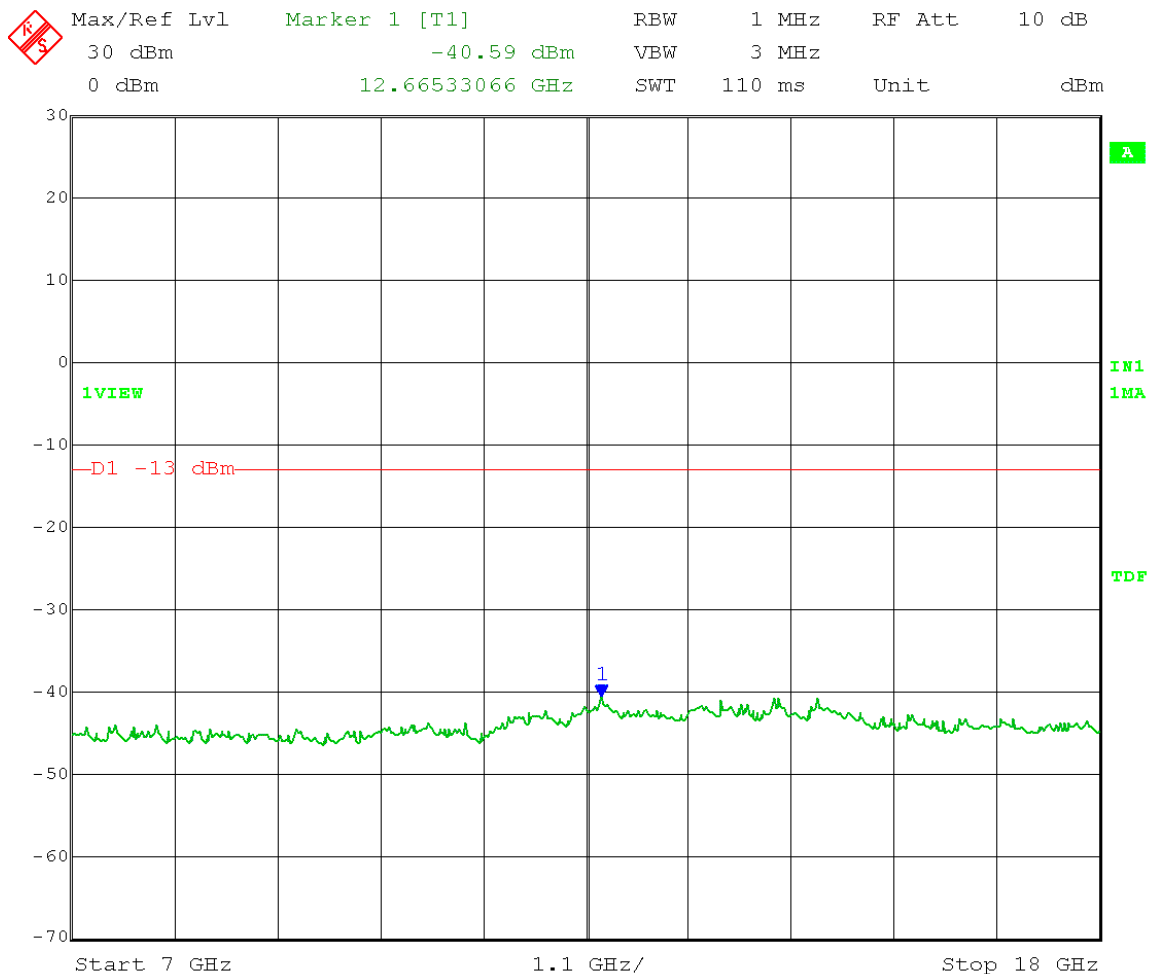   = -13 dBm/MHz

              Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-41.01 dBm	VBW	3 MHz		
0 dBm		14.56112224 GHz	SWT	110 ms	Unit	dBm

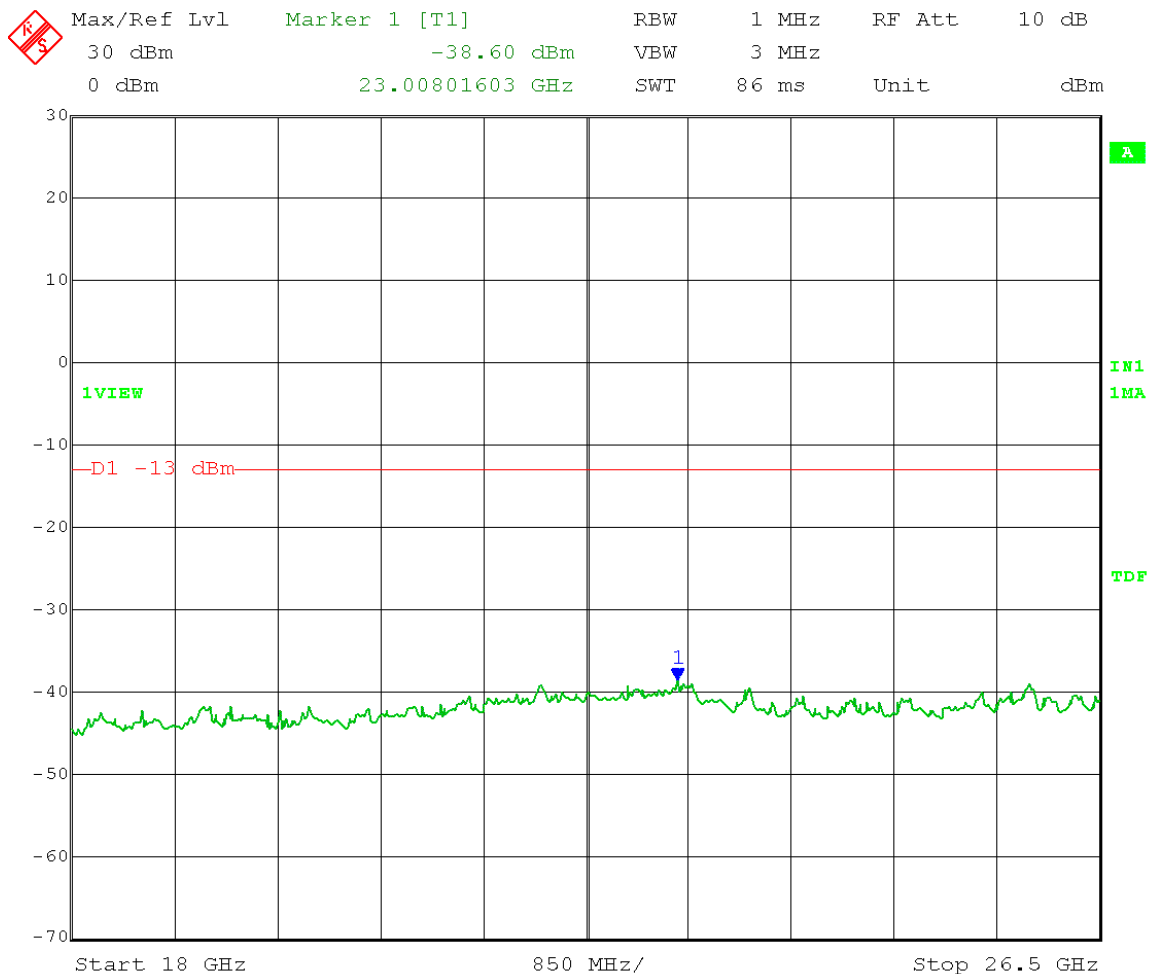Start 7 GHz   1.1 GHz/   Stop 18 GHz

Date: 11.FEB.2014 09:42:20

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
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		-38.79 dBm	VBW	3 MHz		
0 dBm		23.05911824 GHz	SWT	86 ms	Unit	dBm

A
IN1
1MA
1VIEW
D1 -13 dBm
TDF

Start 18 GHz   850 MHz/   Stop 26.5 GHz
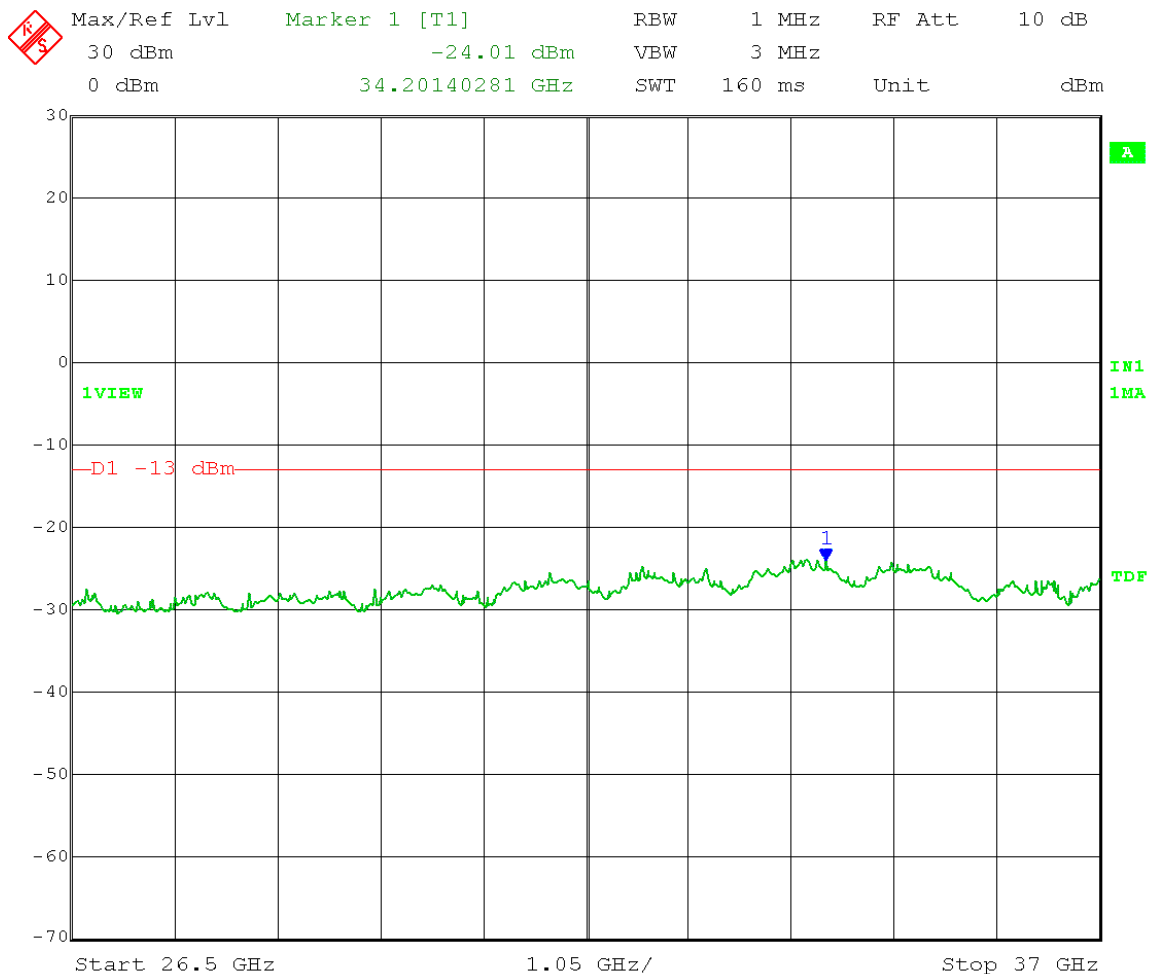Date: 11.FEB.2014   09:43:40

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 19
            Channel bandwidth: 5 MHz   Output port: A
            Limit: 43 + 10log (P) below the channel transmitter power
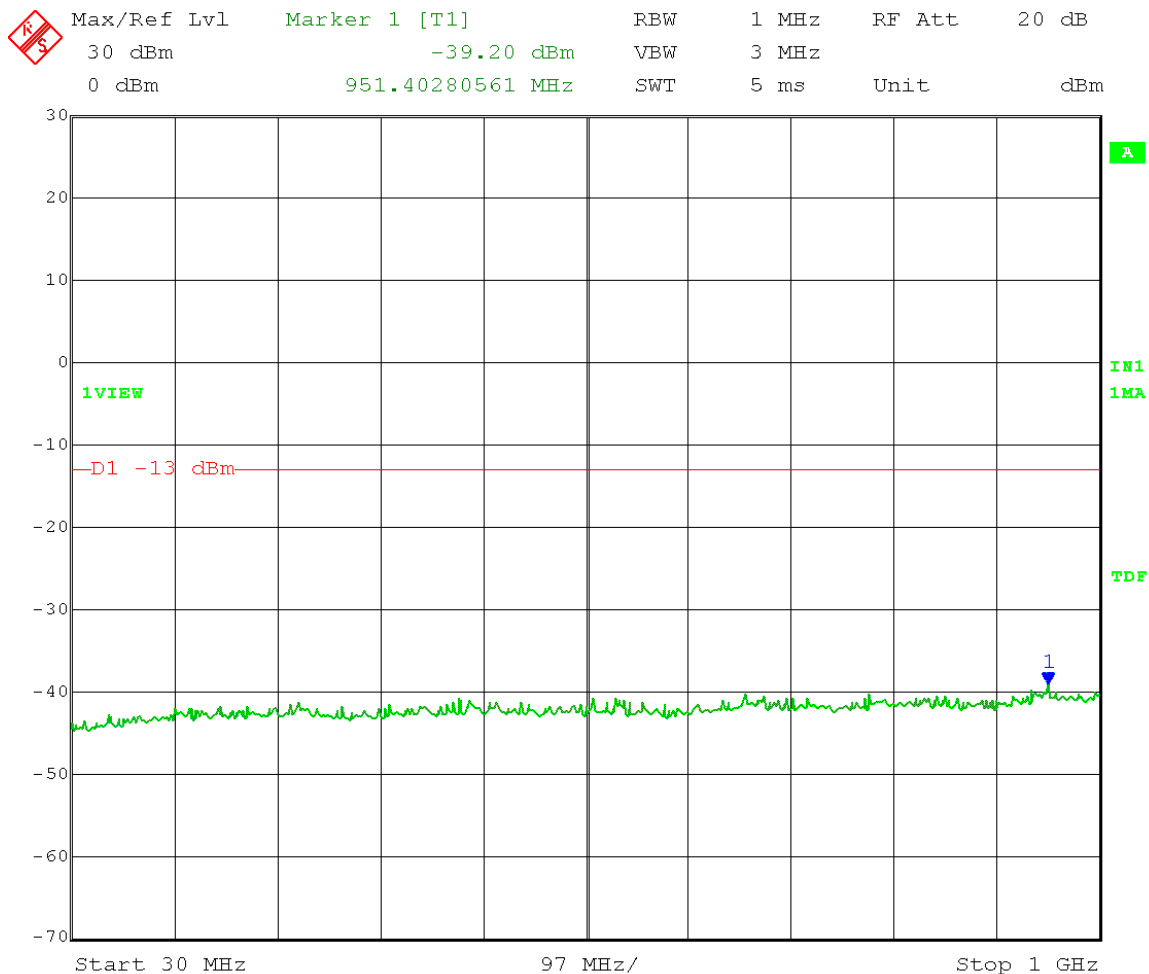   = -13 dBm/MHz

            Frequency Range: 26.5 – 37 GHz

```
  Max/Ref Lvl    Marker 1 [T1]          RBW    1 MHz    RF Att    10 dB
   30 dBm                 -24.30 dBm    VBW    3 MHz
    0 dBm          34.79058116 GHz      SWT  160 ms     Unit        dBm
```



```
 Start 26.5 GHz              1.05 GHz/            Stop 37 GHz
Date:      11.FEB.2014  09:45:03
```

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
              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	20 dB
30 dBm		-39.37 dBm	VBW	3 MHz		
0 dBm		992.22444890 MHz	SWT	5 ms	Unit	dBm

Start 30 MHz   97 MHz/   Stop 1 GHz
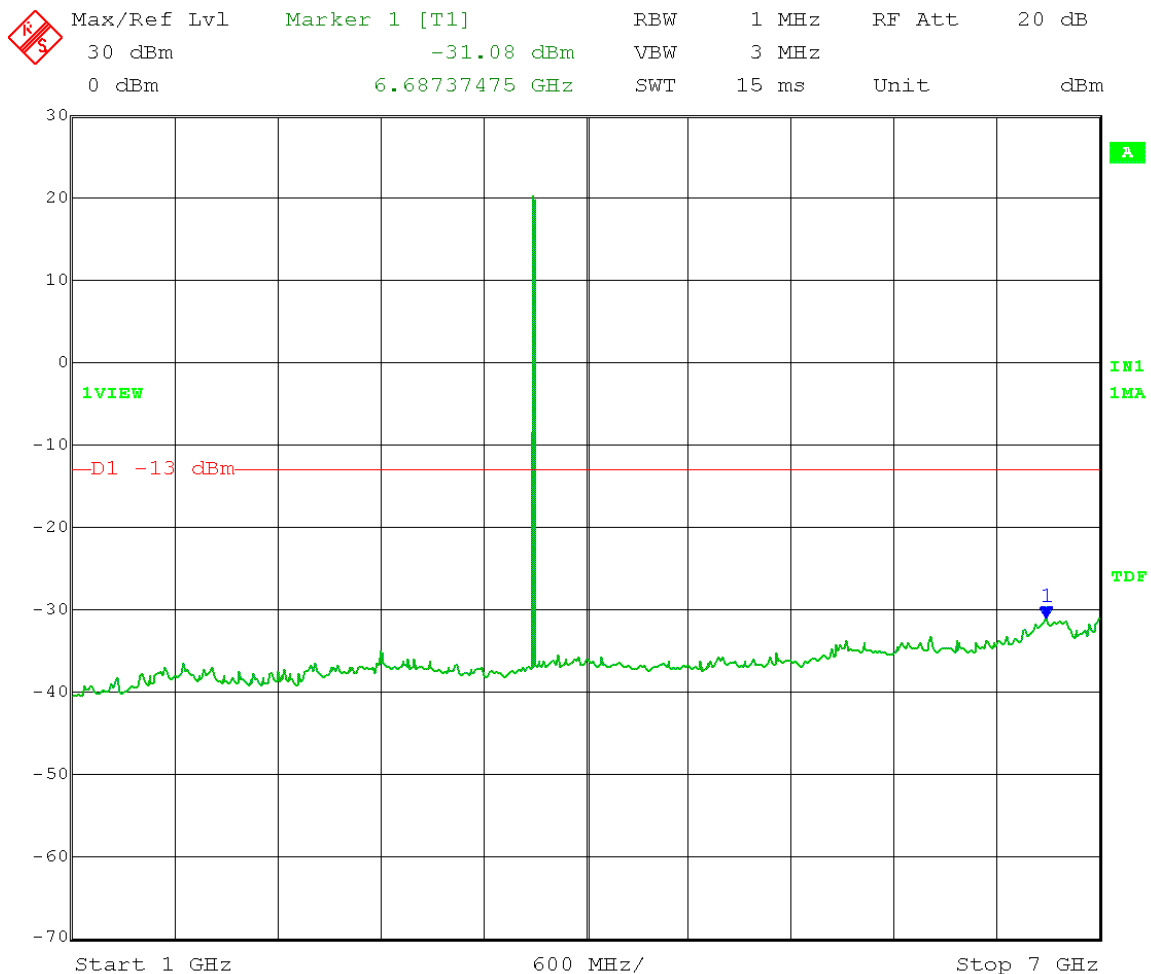
Date: 11.FEB.2014   08:49:28

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
                Channel bandwidth: 10 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
                        = -13 dBm/MHz

                Frequency Range: 1 – 7 GHz
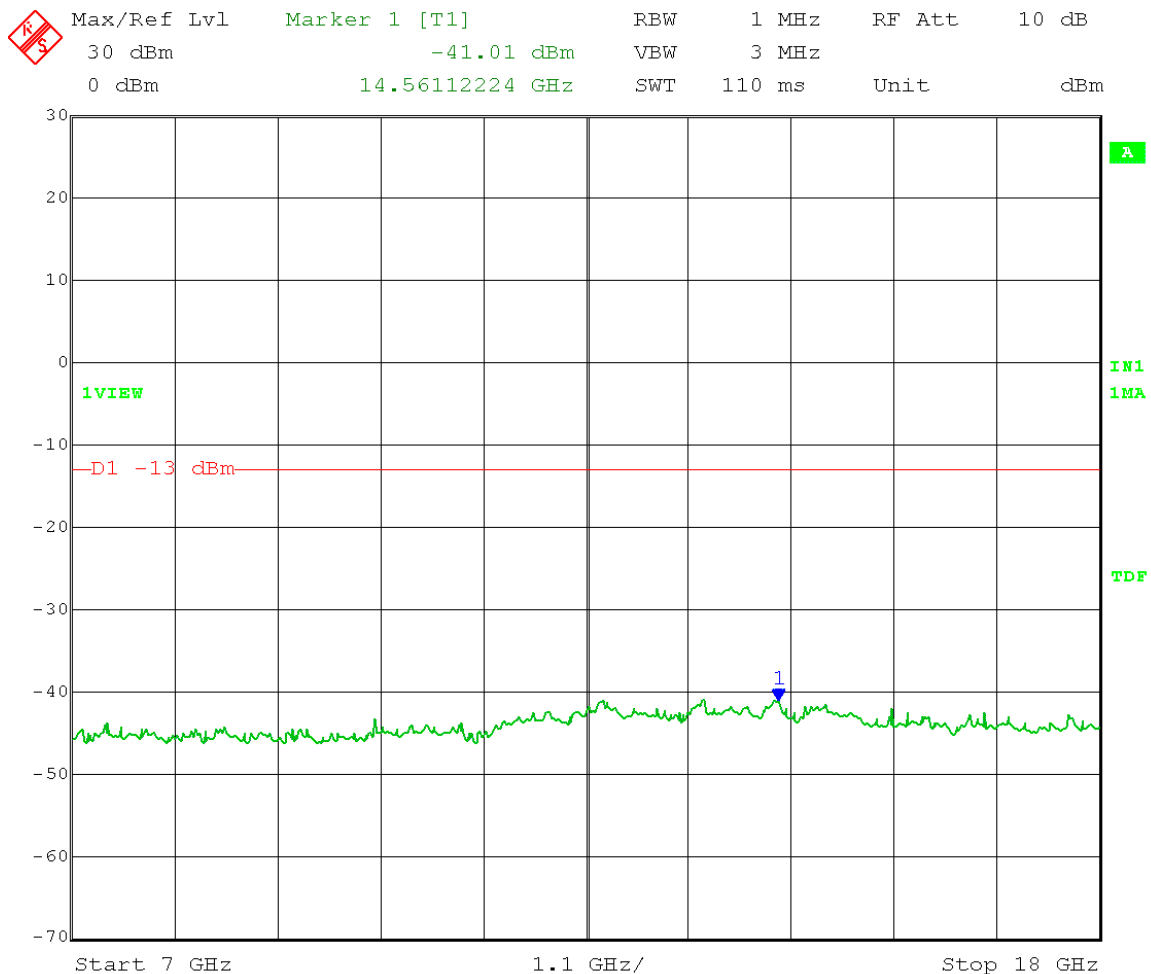

Date: 11.FEB.2014 08:51:40

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
          = -13 dBm/MHz

Frequency Range: 7 – 18 GHz

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
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
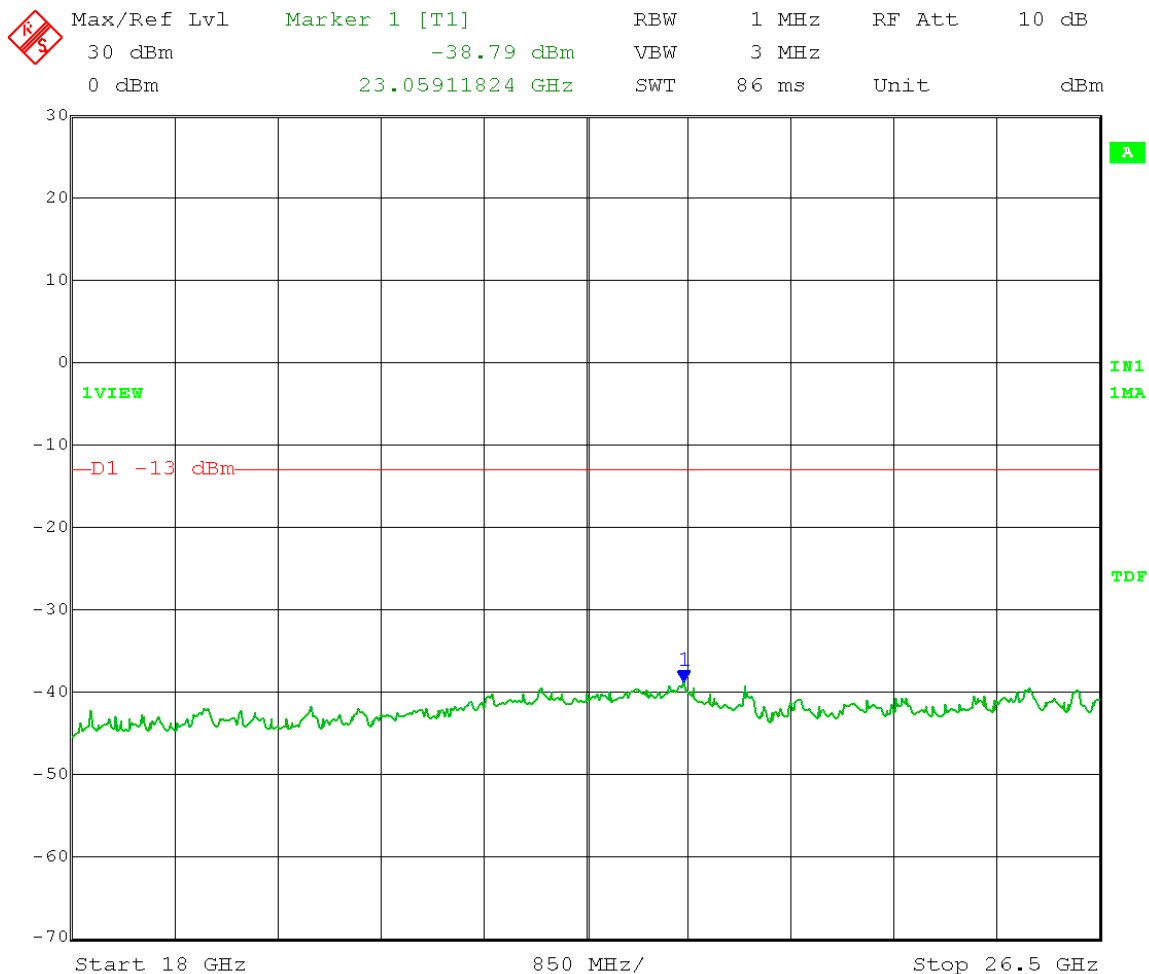
Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                Low Channel: 3655 MHz   Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
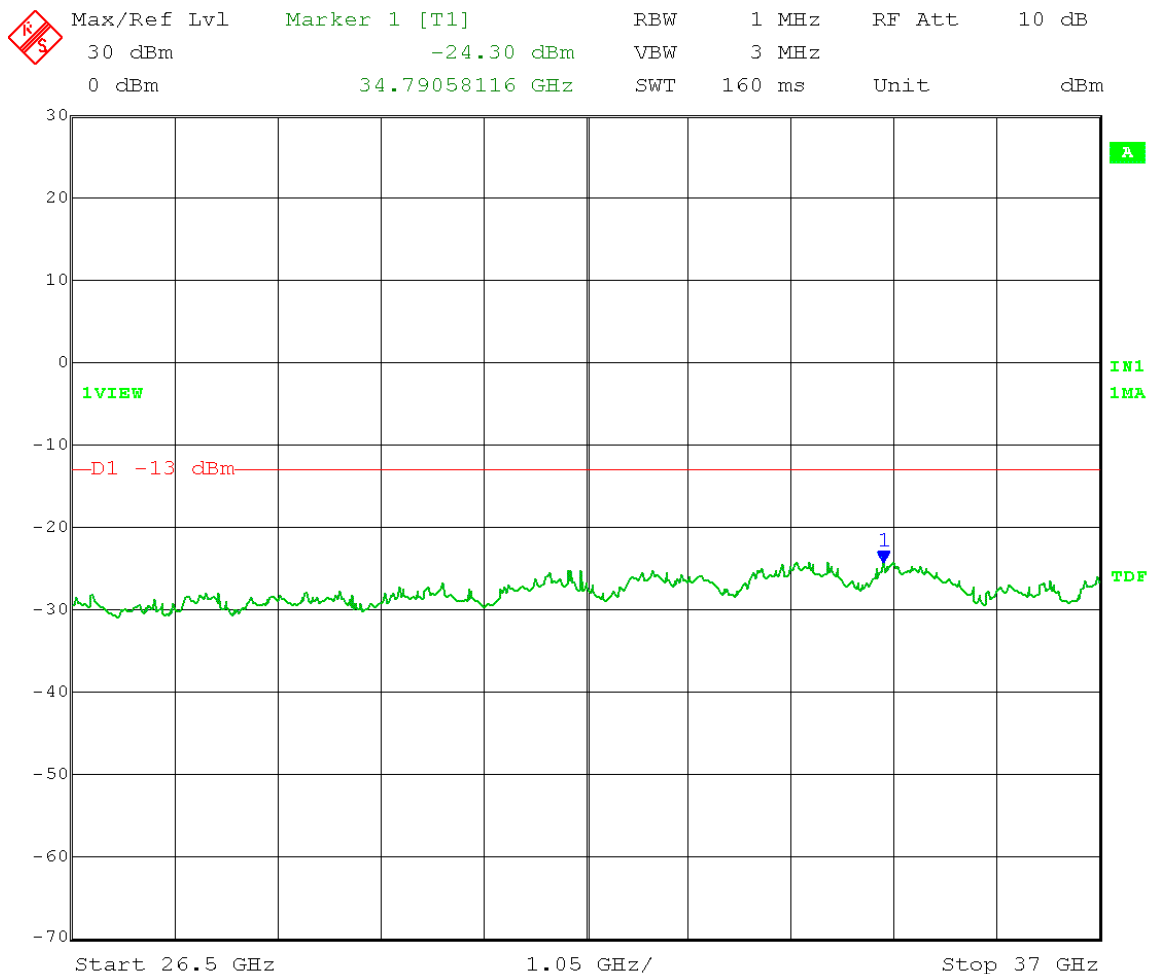   = -13 dBm/MHz

                Frequency Range: 26.5 – 37 GHz

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
                    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	20 dB
30 dBm		-39.23 dBm	VBW	3 MHz		
0 dBm		939.73947896 MHz	SWT	5 ms	Unit	dBm

A

IN1
1MA

TDF

1VIEW

D1 -13 dBm

1

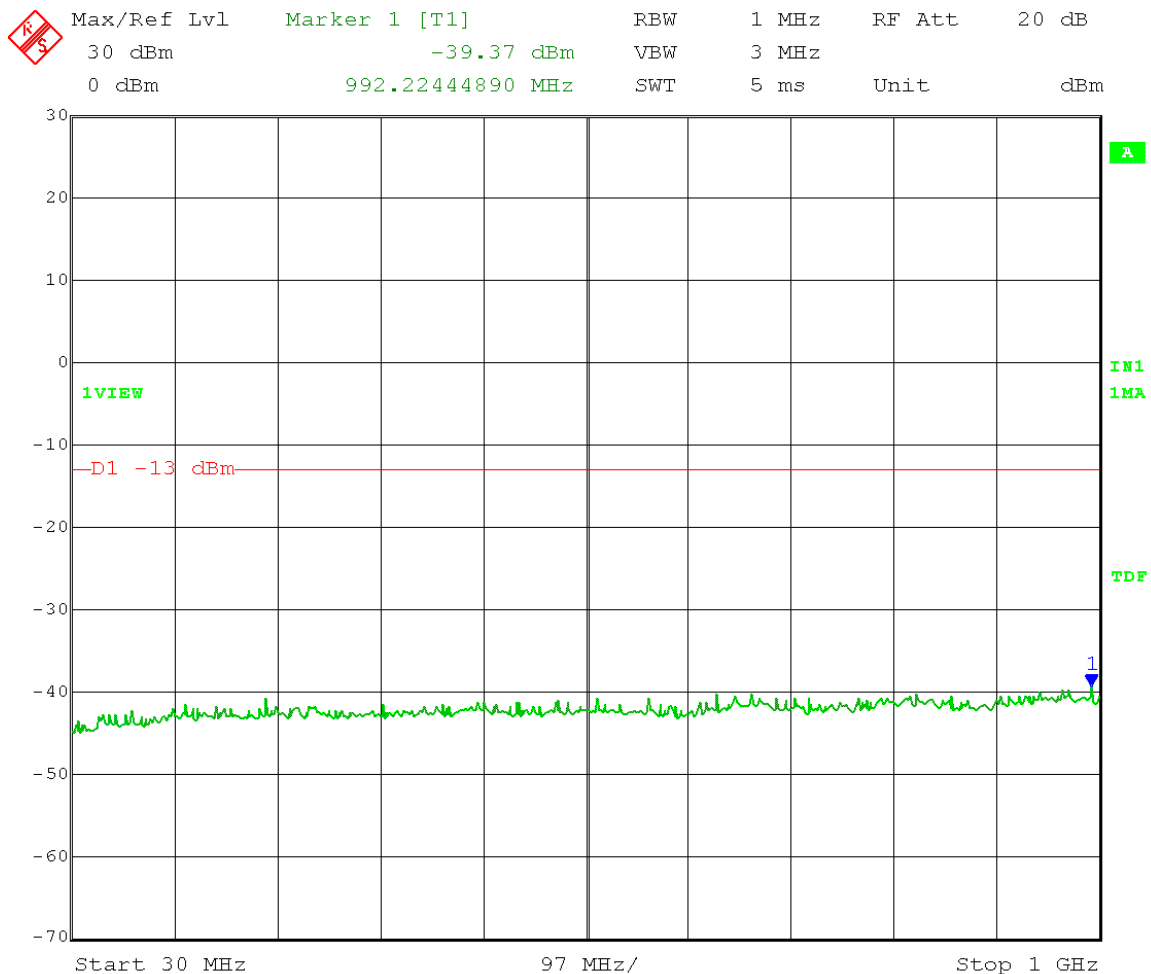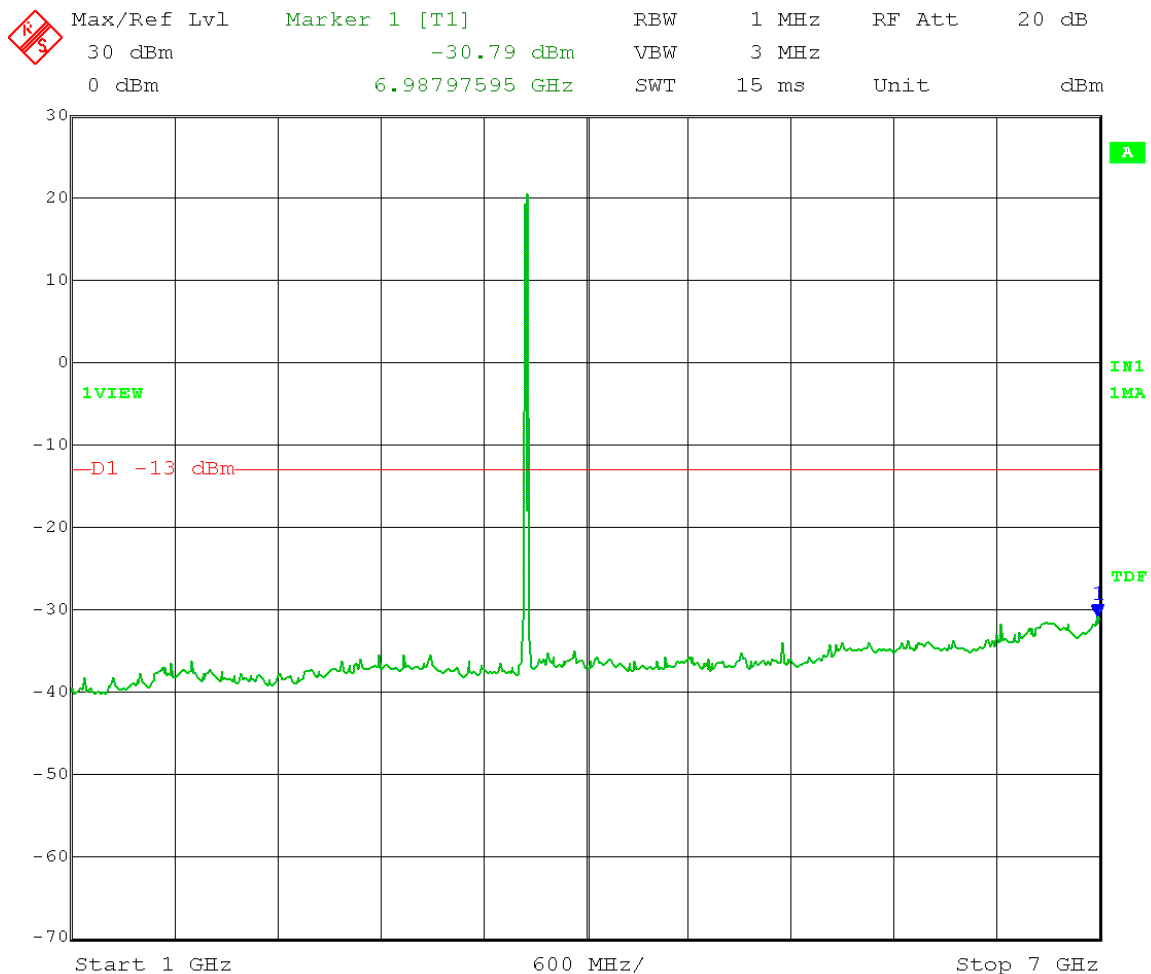Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 11.FEB.2014   09:01:10

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
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    20 dB
 30 dBm                  -31.54 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
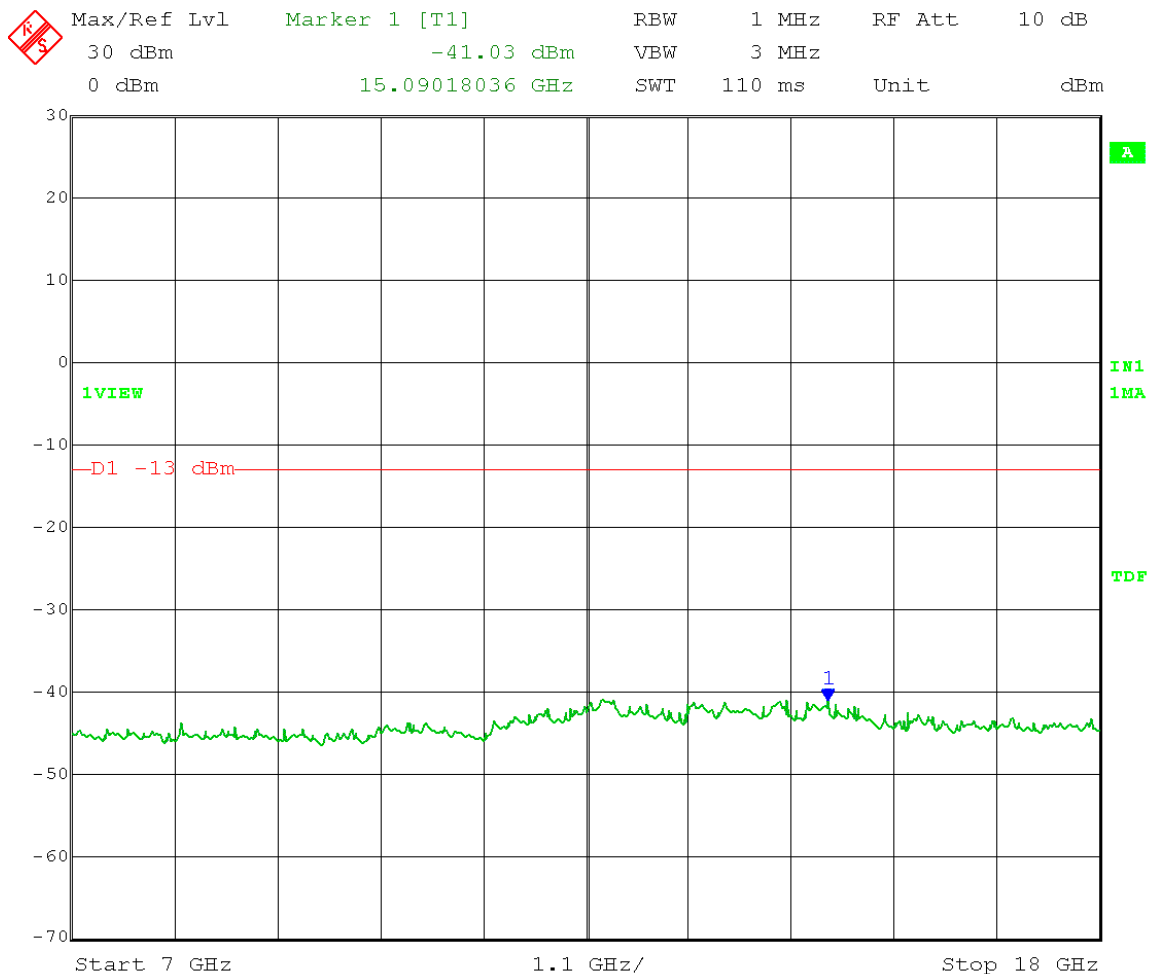
Date: 11.FEB.2014   09:02:40

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
                Channel bandwidth: 10 MHz   Output port: A
                Limit: 43 + 10log (P) below the channel transmitter power
                        = -13 dBm/MHz

                Frequency Range: 7 – 18 GHz

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
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		-38.58 dBm	VBW	3 MHz		
0 dBm		25.95490982 GHz	SWT	86 ms	Unit	dBm

D1 -13 dBm

1VIEW

Start 18 GHz   850 MHz/   Stop 26.5 GHz
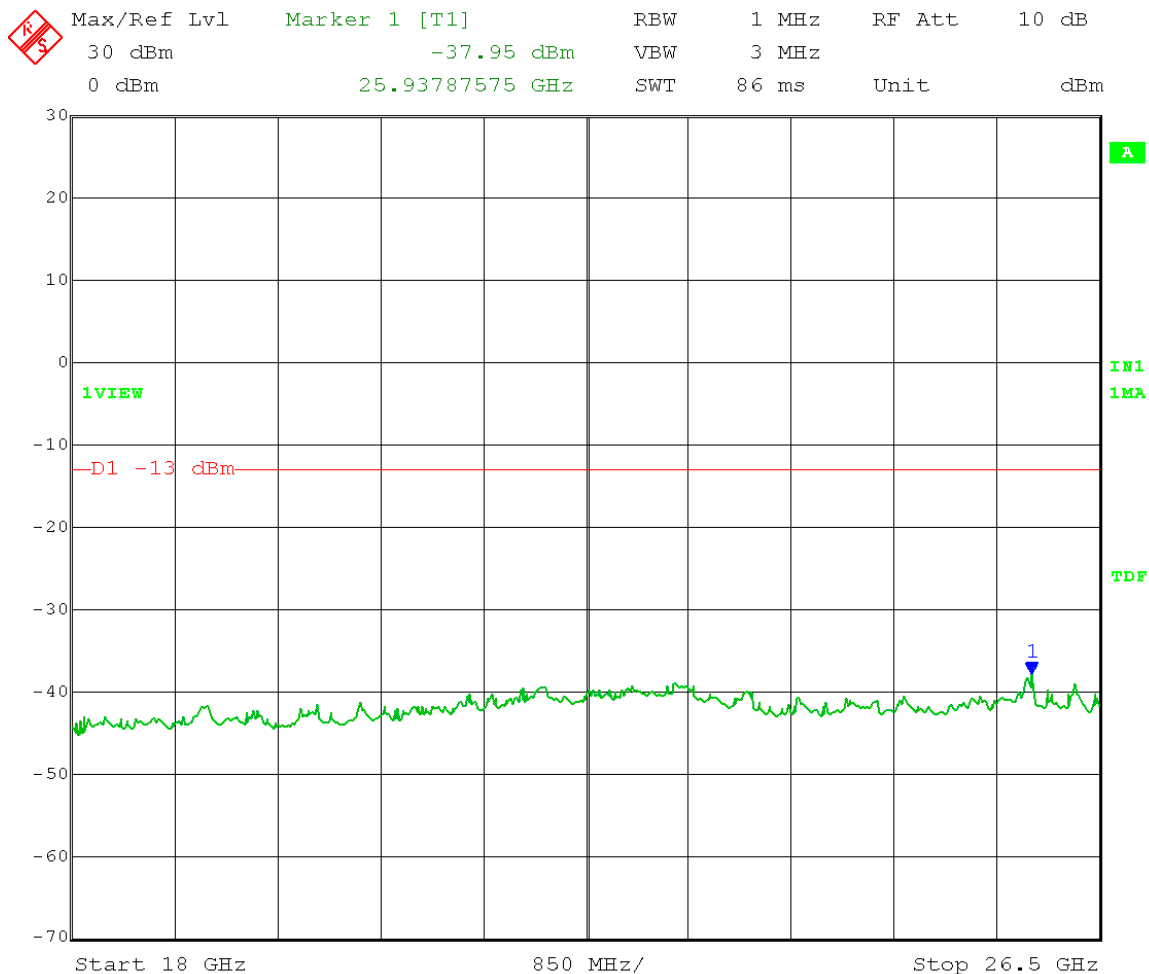
Date: 11.FEB.2014 09:06:05

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
         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	-23.87 dBm		VBW	3 MHz		
0 dBm	33.92785571 GHz		SWT	160 ms	Unit	dBm

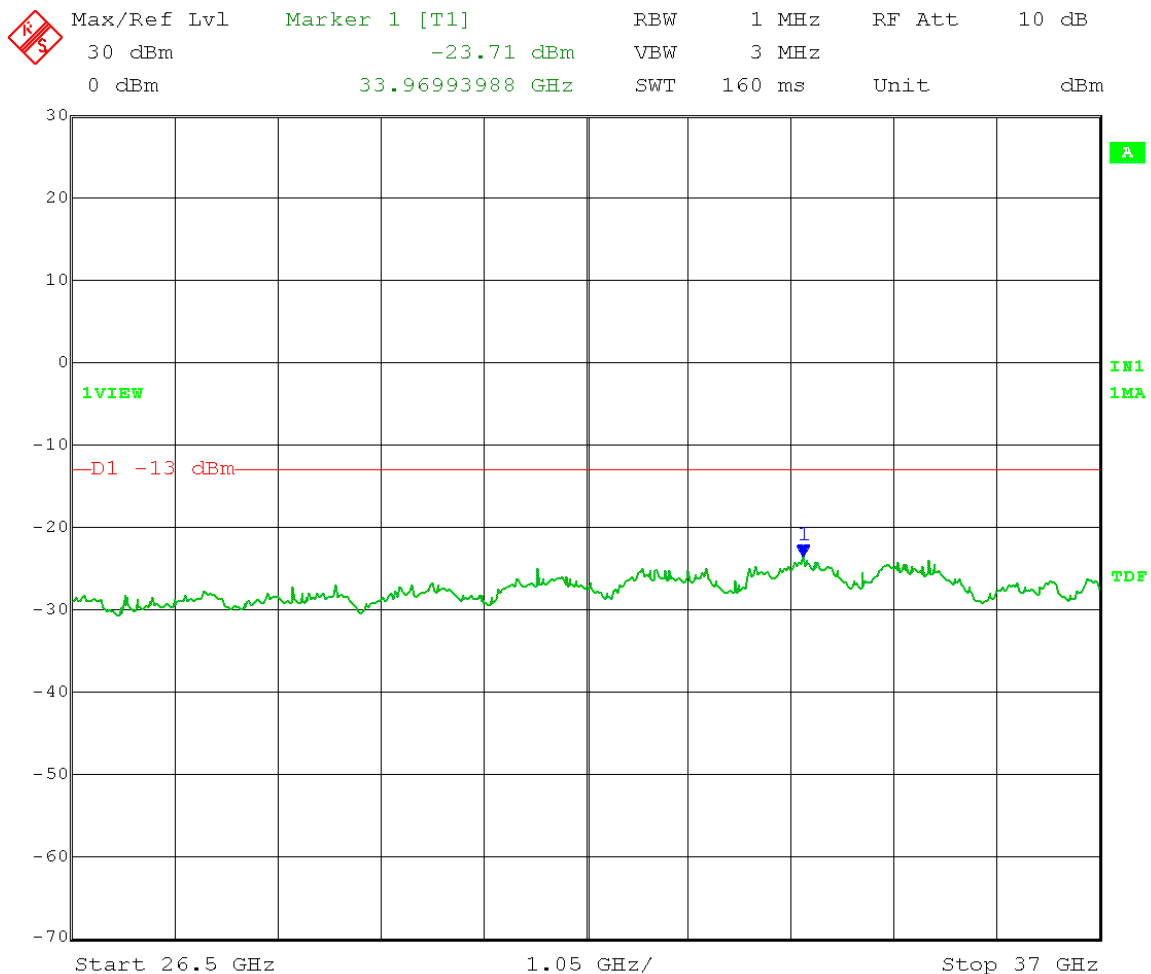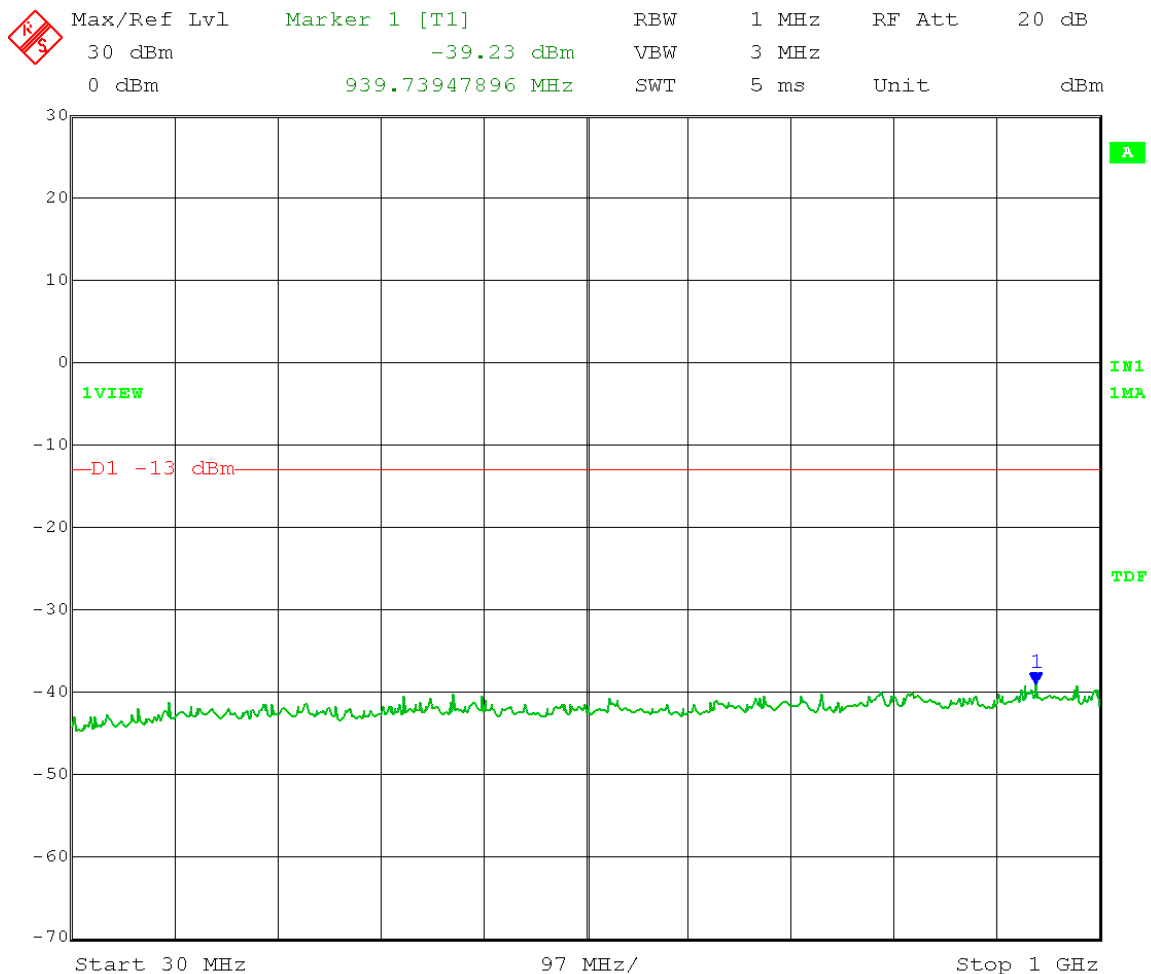Start 26.5 GHz   1.05 GHz/   Stop 37 GHz

Date: 11.FEB.2014   09:07:29

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
         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    20 dB
 30 dBm                   -39.61 dBm      VBW    3 MHz
  0 dBm            953.34669339 MHz       SWT    5 ms     Unit      dBm
```

Start 30 MHz   97 MHz/   Stop 1 GHz
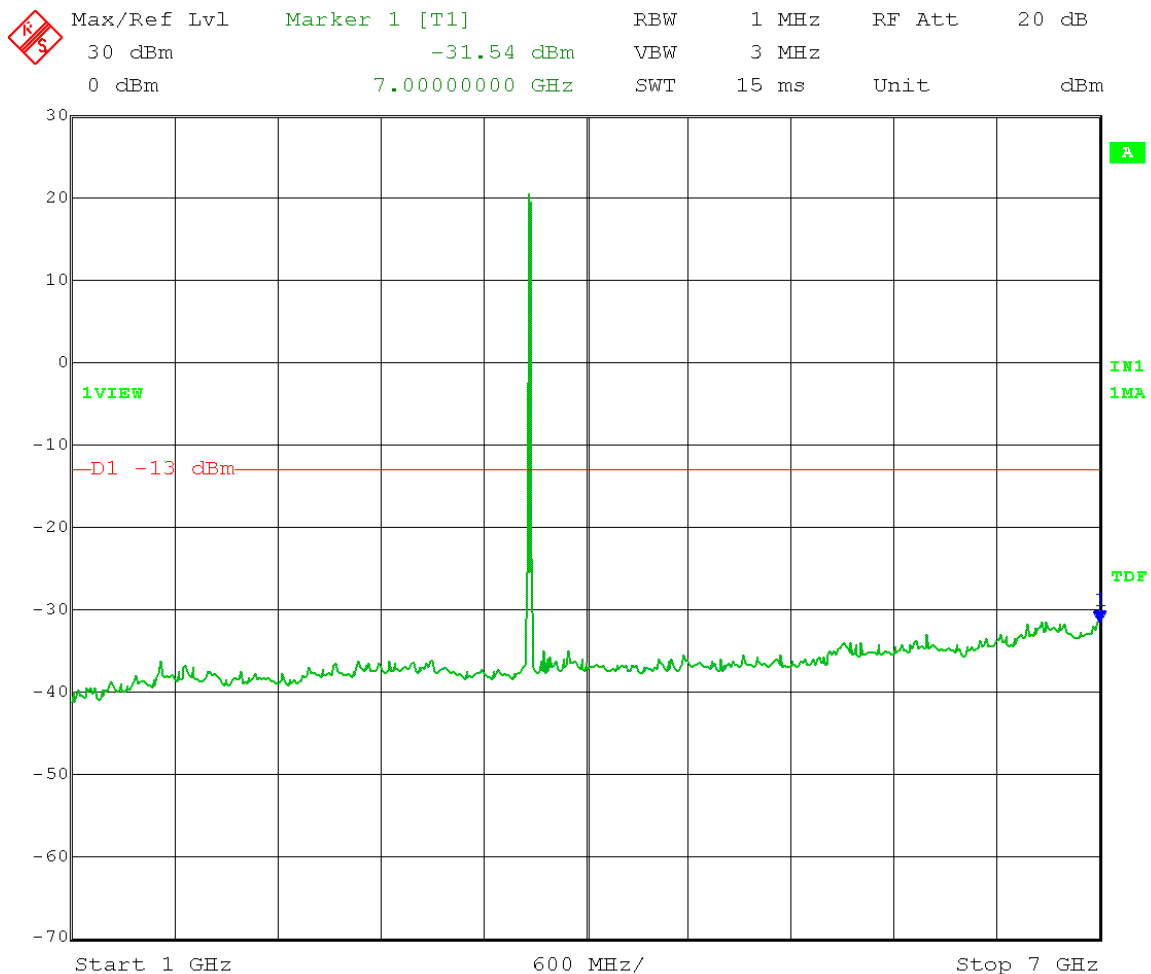
Date: 11.FEB.2014 09:09:45

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
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	20 dB
30 dBm		-31.26 dBm	VBW	3 MHz		
0 dBm		7.00000000 GHz	SWT	15 ms	Unit	dBm

1VIEW

D1 -13 dBm

Start 1 GHz   600 MHz/   Stop 7 GHz

Date: 11.FEB.2014 09:11:15

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
             Channel bandwidth: 10 MHz   Output port: A
             Limit: 43 + 10log (P) below the channel transmitter power
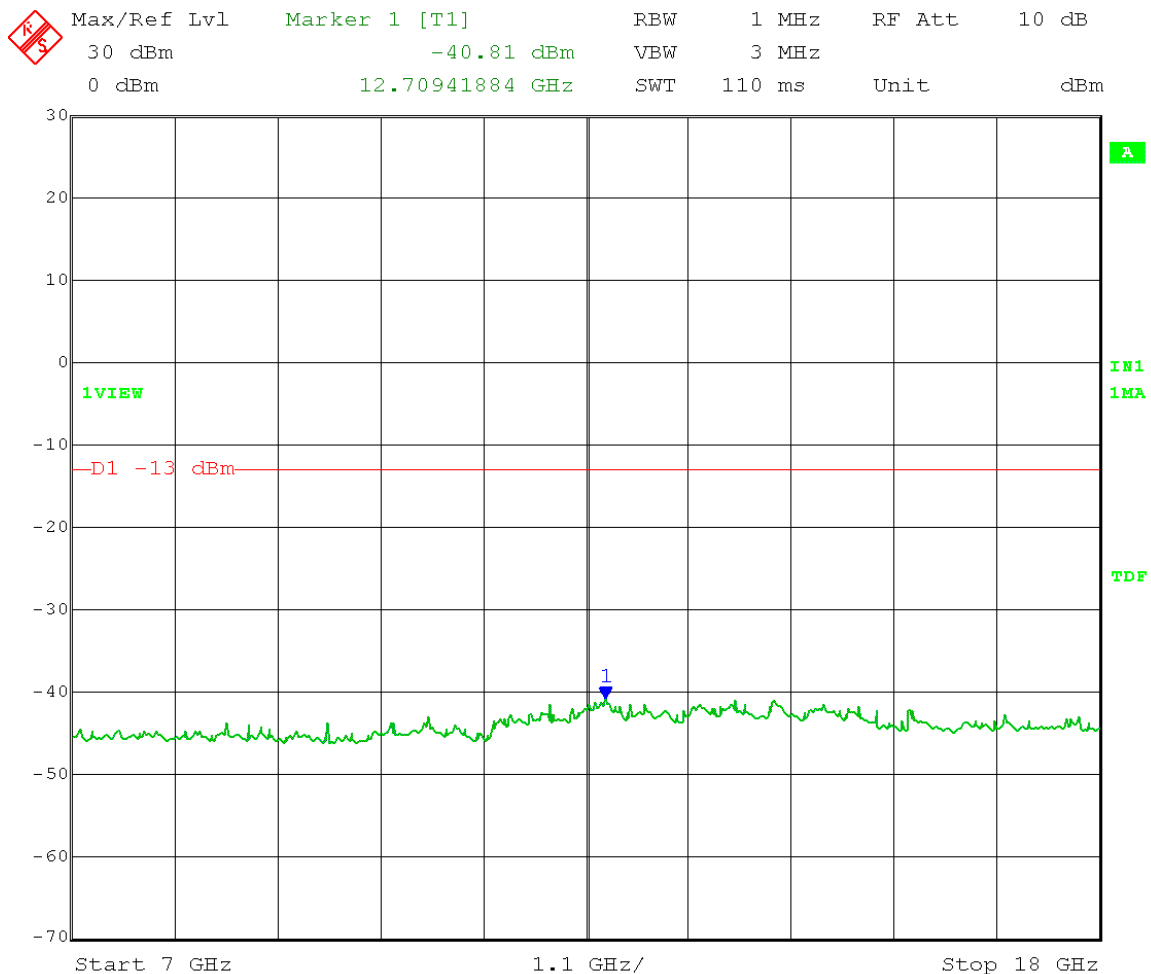   = -13 dBm/MHz

             Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	-41.02 dBm	VBW	3 MHz		
0 dBm	14.49498998 GHz	SWT	110 ms	Unit	dBm

A

1VIEW

IN1
1MA

D1 -13 dBm

TDF

1

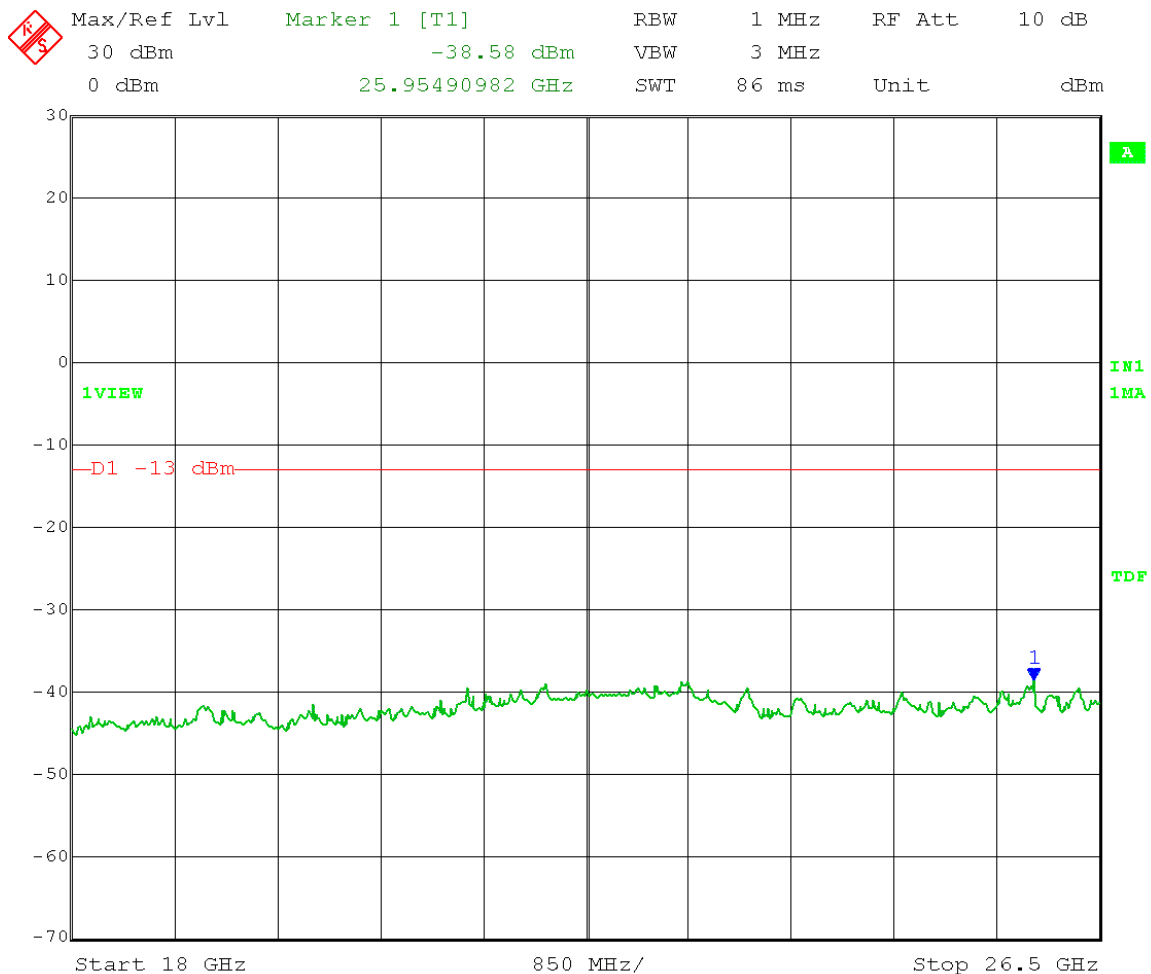Start 7 GHz   1.1 GHz/   Stop 18 GHz

Date: 11.FEB.2014 09:12:45

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
$\quad\quad$ = -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		−38.70 dBm	VBW	3 MHz		
0 dBm		23.05911824 GHz	SWT	86 ms	Unit	dBm

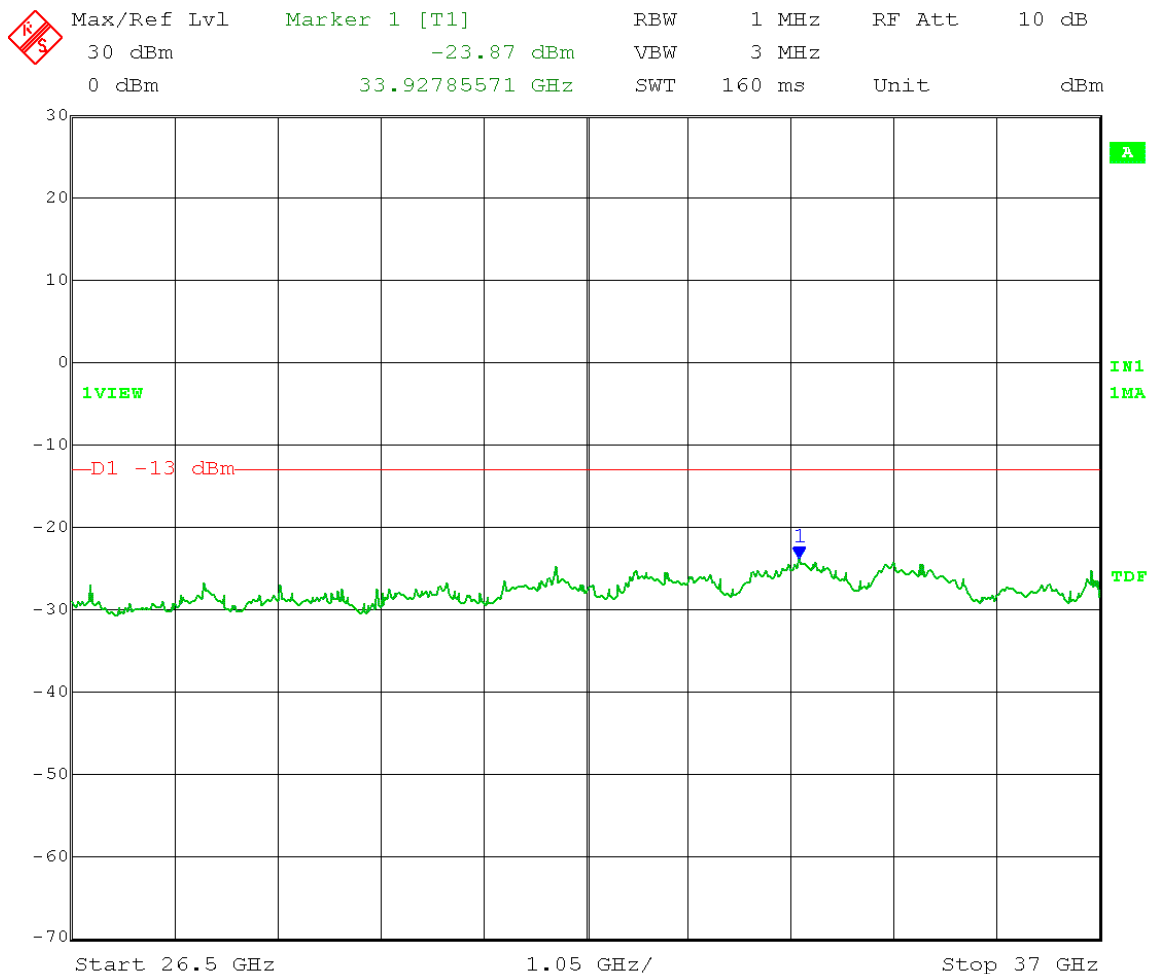Start 18 GHz   850 MHz/   Stop 26.5 GHz

Date: 11.FEB.2014 09:13:50

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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: 22
Channel bandwidth: 10 MHz   Output port: A
Limit: 43 + 10log (P) below the channel transmitter power
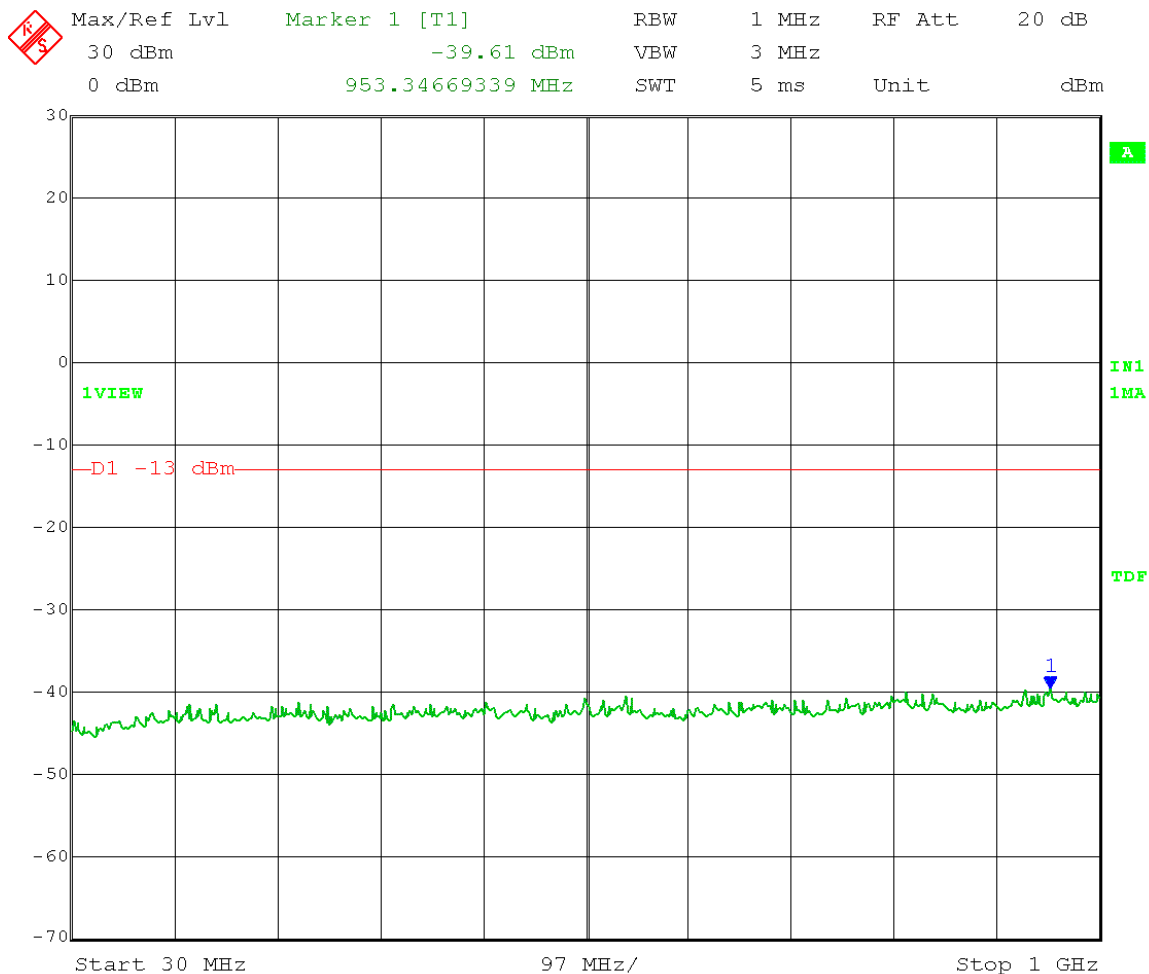   = -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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    20 dB
 30 dBm                 -38.79 dBm     VBW    3 MHz
 10 dBm          953.34669339 MHz      SWT    5 ms    Unit      dBm
```



```
Start 30 MHz                97 MHz/                  Stop 1 GHz
Date:      10.FEB.2014  14:52:23
```

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
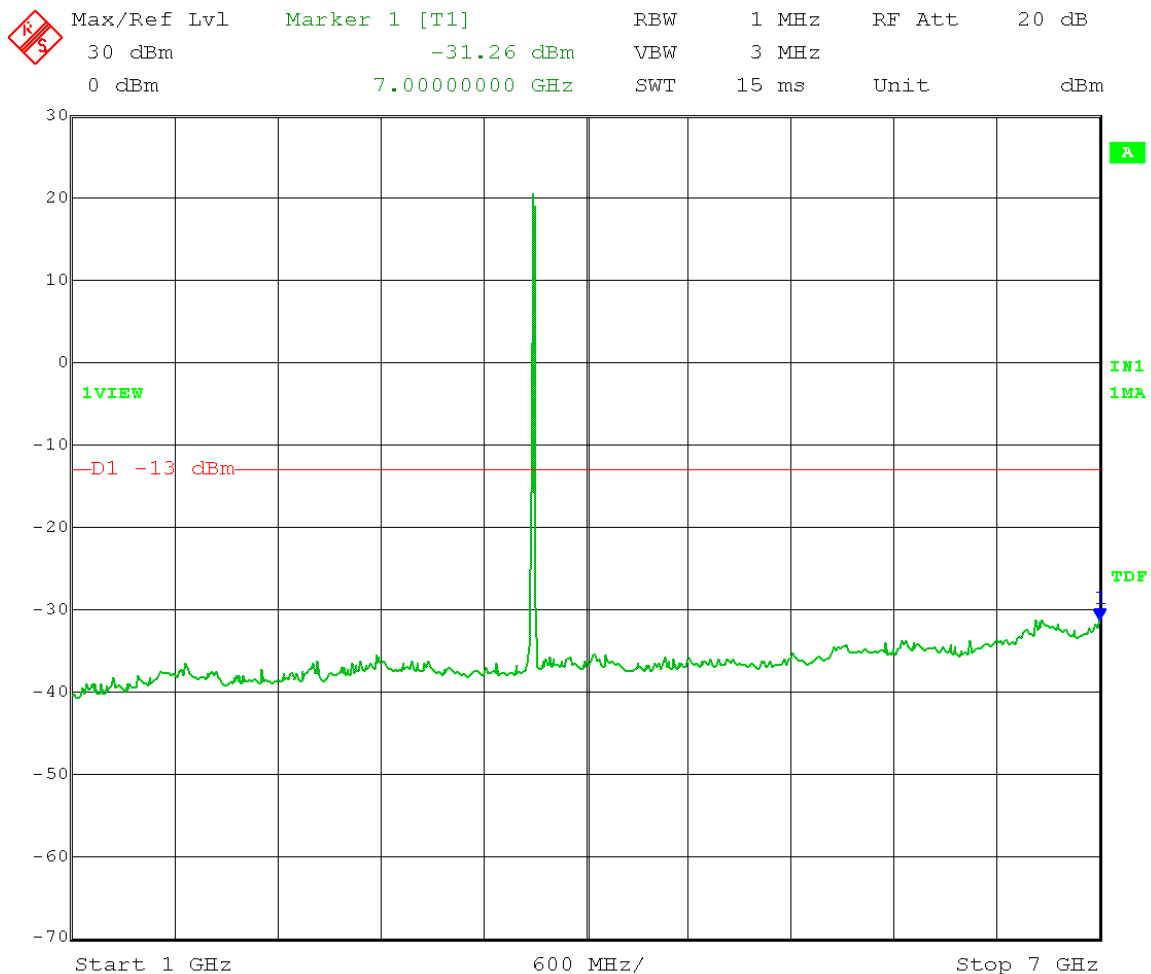
            Frequency Range: 1 – 7 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
30 dBm	-30.06 dBm	VBW	3 MHz		
10 dBm	6.77154309 GHz	SWT	15 ms	Unit	dBm

1VIEW

D1 -13 dBm

1

A

IN1
1MA

TDF

Start 1 GHz   600 MHz/   Stop 7 GHz

Date: 10.FEB.2014   15:17:14

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
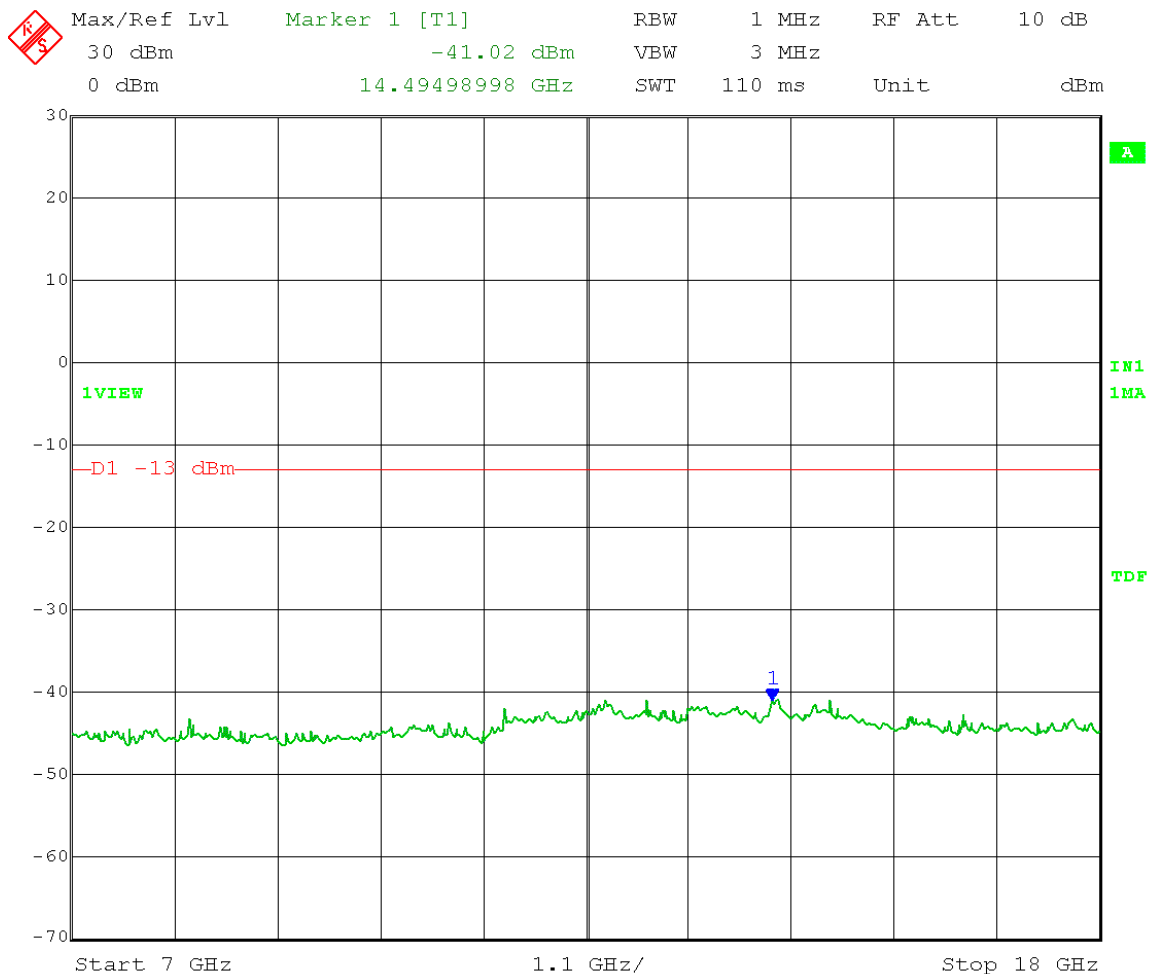   = -13 dBm/MHz
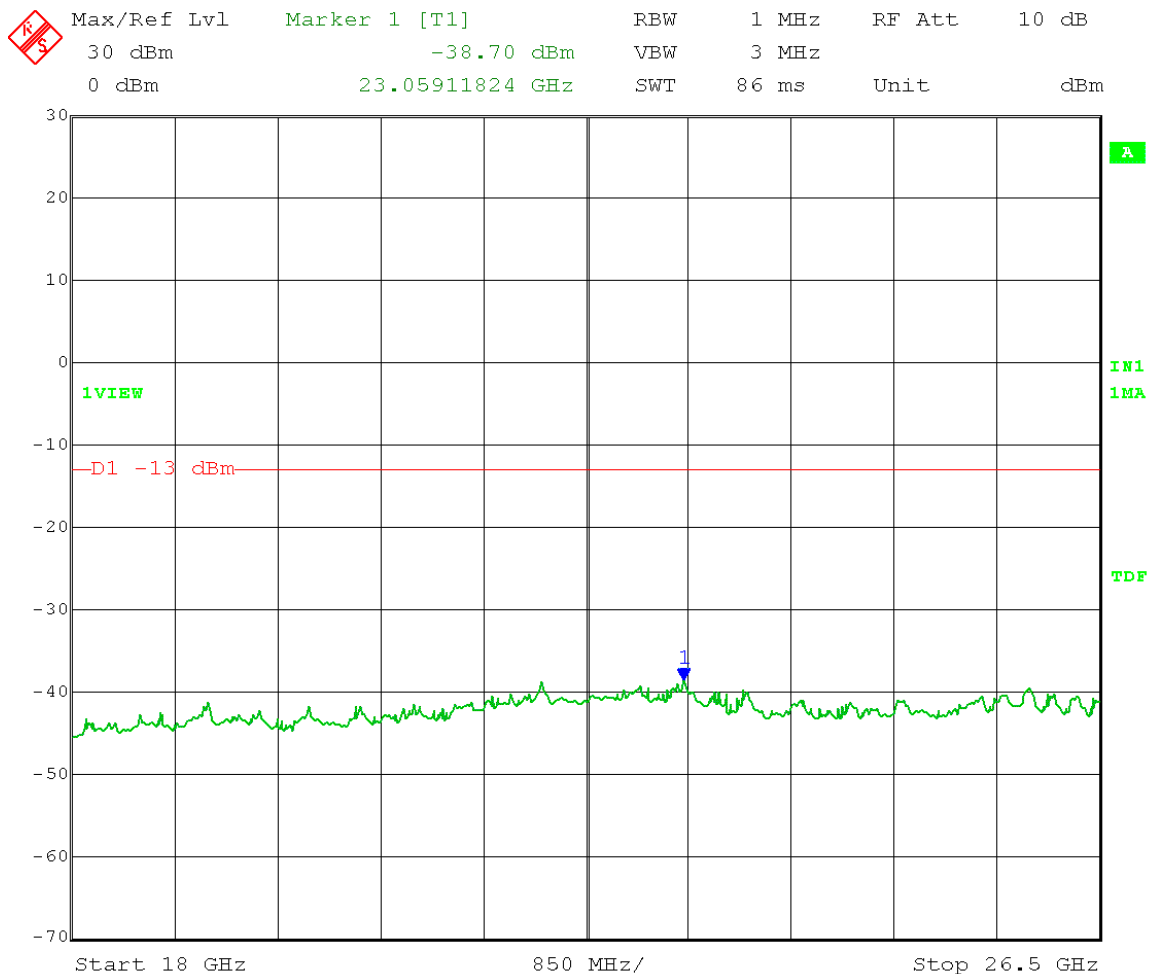

               Frequency Range: 7 – 18 GHz

```
 Max/Ref Lvl     Marker 1 [T1]           RBW     1 MHz    RF Att    10 dB
  20 dBm                    -40.37 dBm    VBW     3 MHz
   0 dBm              12.62124248 GHz     SWT    110 ms    Unit         dBm
```



```
   Start 7 GHz                    1.1 GHz/                  Stop 18 GHz
Date:      10.FEB.2014  15:20:12
```

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
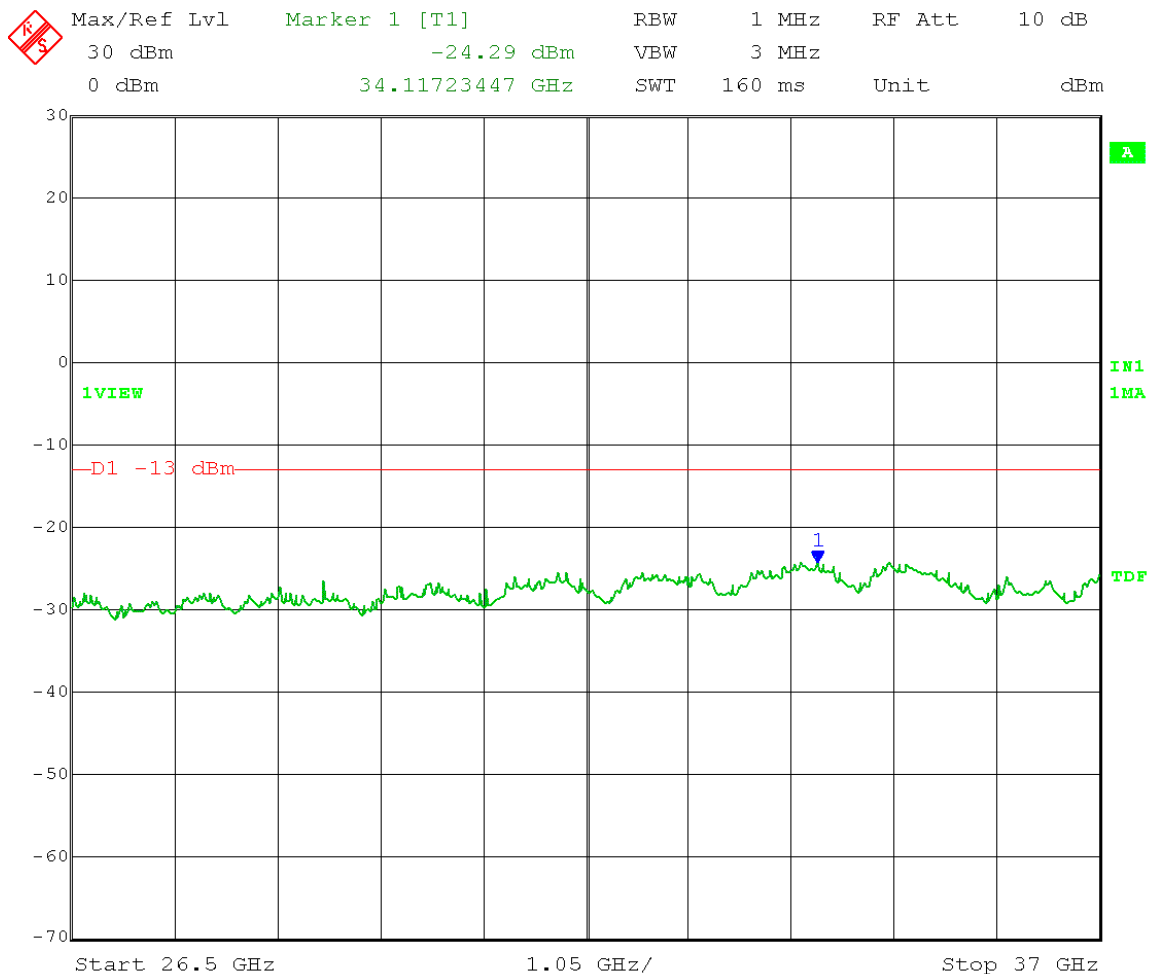
             Frequency Range: 18 – 26.5 GHz

```
Max/Ref Lvl     Marker 1 [T1]              RBW     1 MHz    RF Att    10 dB
 20 dBm                      -38.16 dBm    VBW     3 MHz
  0 dBm              25.92084168 GHz       SWT    86 ms     Unit        dBm
```



```
Start 18 GHz                    850 MHz/              Stop 26.5 GHz
Date:      10.FEB.2014  15:22:34
```

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
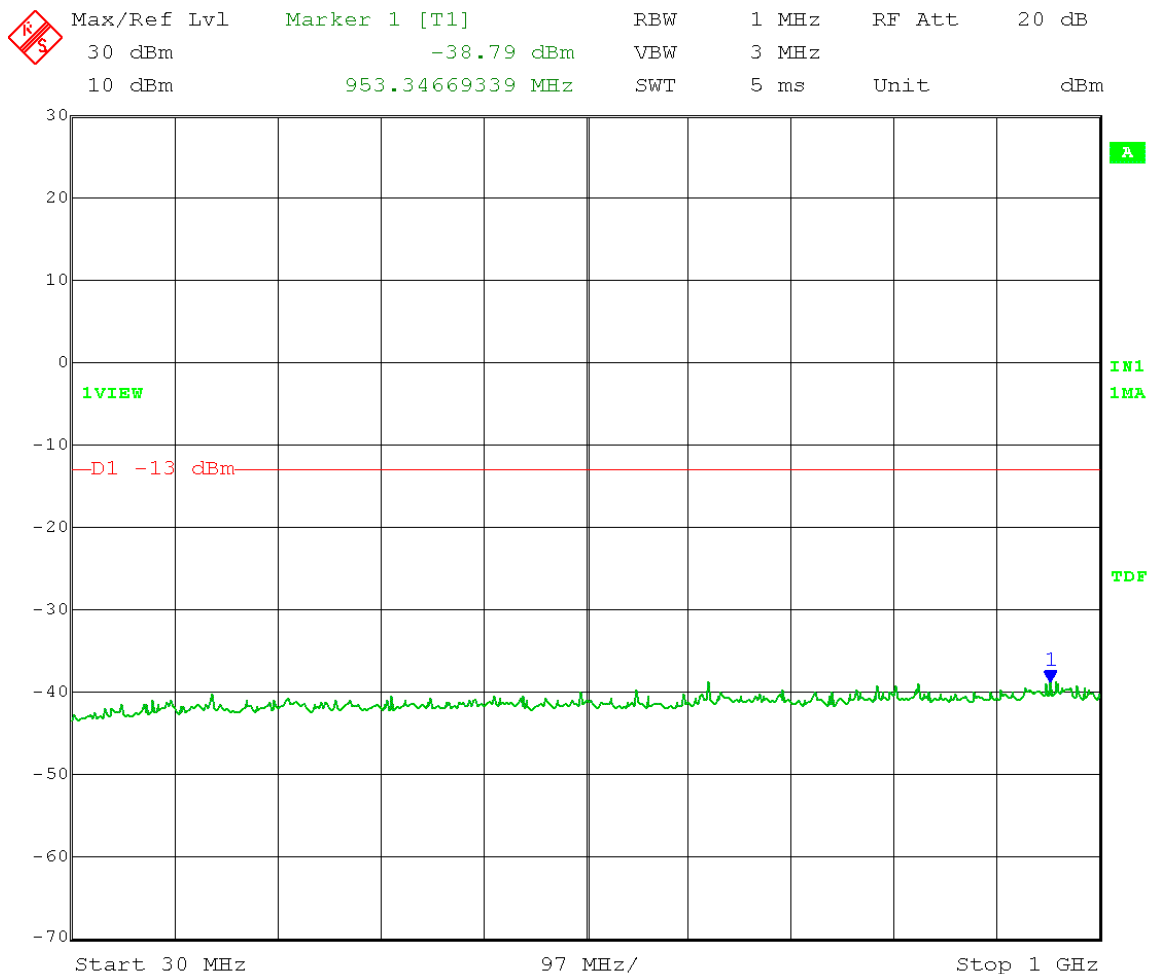

              Frequency Range: 26.5 – 37 GHz


```
Max/Ref Lvl    Marker 1 [T1]              RBW    1 MHz    RF Att    10 dB
 20 dBm                     -24.19 dBm    VBW    3 MHz
  0 dBm              34.01202405 GHz      SWT    160 ms   Unit        dBm
```

Start 26.5 GHz   1.05 GHz/   Stop 37 GHz

Date: 10.FEB.2014 15:25:16

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
              Channel bandwidth: 20 MHz   Output port: A
              Limit: 43 + 10log (P) below the channel transmitter power
                     = -13 dBm/MHz
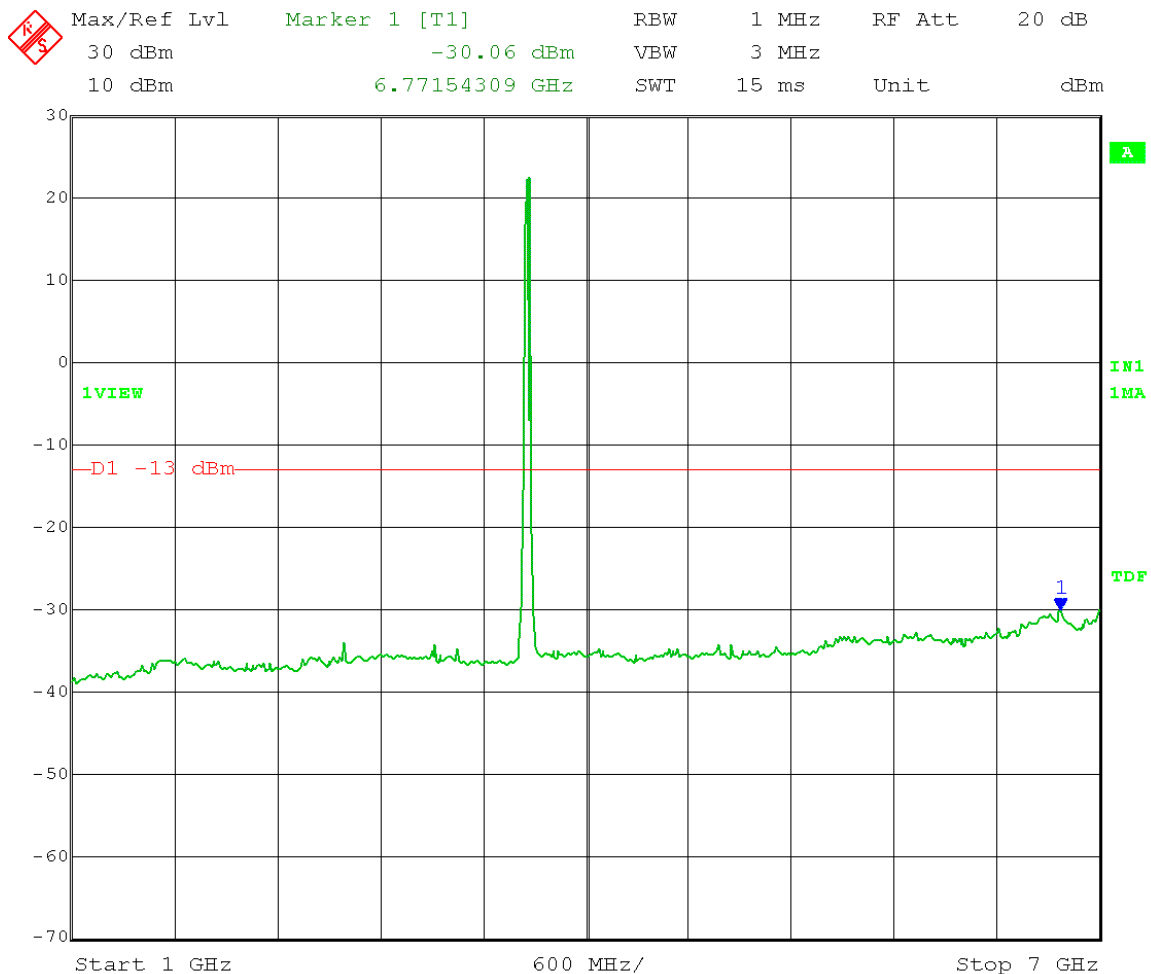
              Frequency Range: 30 – 1000 MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	20 dB
30 dBm		-39.25 dBm	VBW	3 MHz		
0 dBm		848.37675351 MHz	SWT	5 ms	Unit	dBm

1VIEW

D1 -13 dBm

Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 10.FEB.2014   15:29:50

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
               Channel bandwidth: 20 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power
                      = -13 dBm/MHz
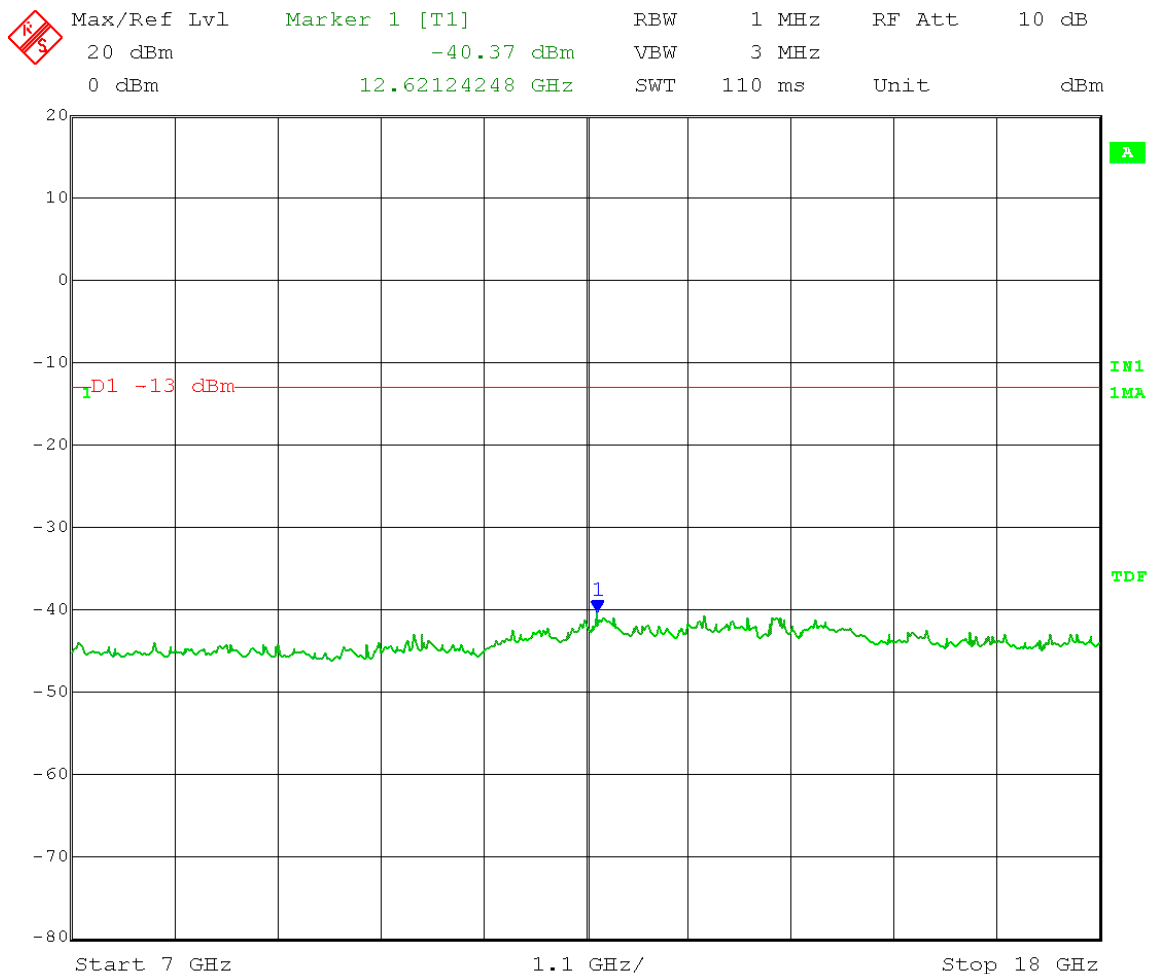

               Frequency Range: 1 – 7 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	20 dB
30 dBm		-31.10 dBm	VBW	3 MHz		
0 dBm		6.98797595 GHz	SWT	15 ms	Unit	dBm

A

IN1
1MA

1VIEW

D1 -13 dBm

TDF

Start 1 GHz   600 MHz/   Stop 7 GHz
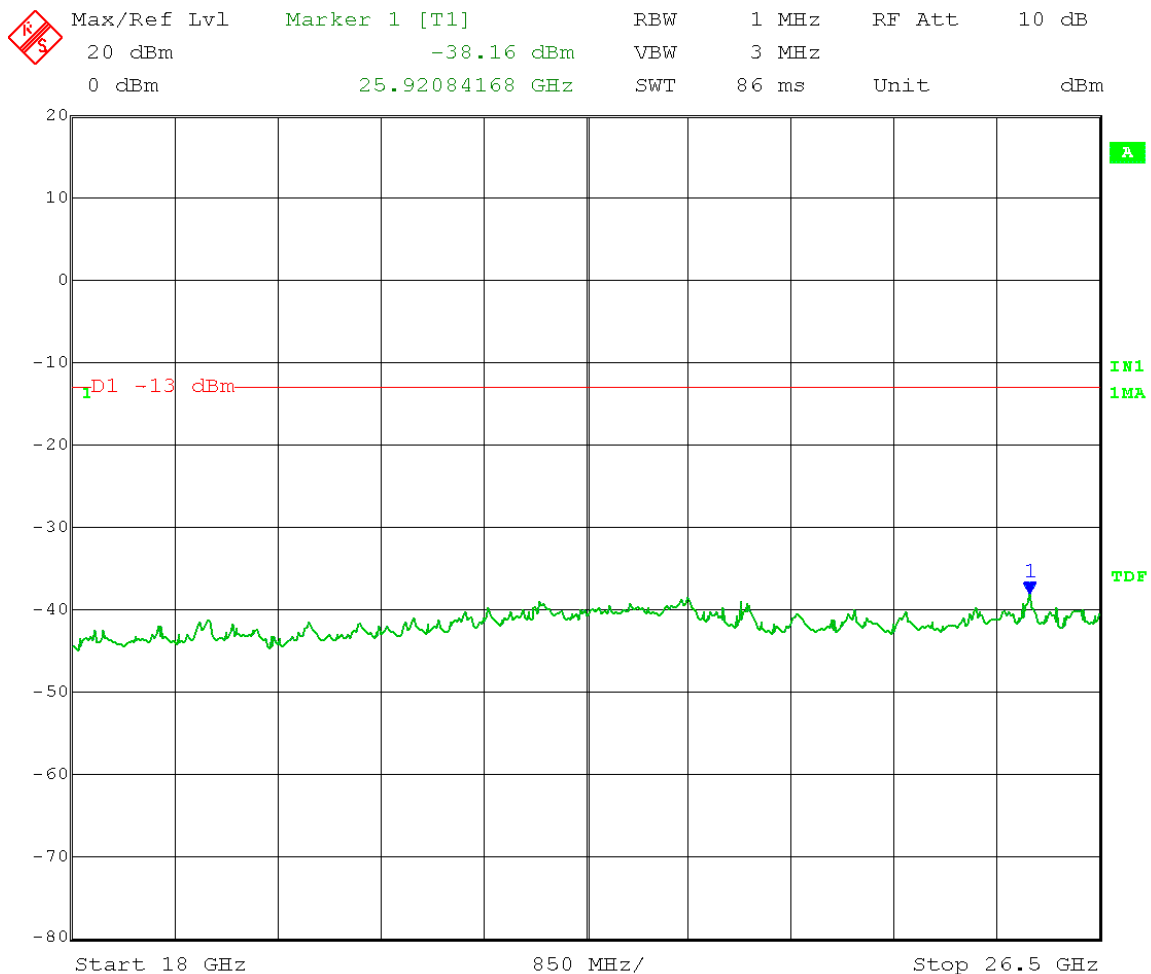
Date: 10.FEB.2014   15:32:00

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
               Channel bandwidth: 20 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power
                     = -13 dBm/MHz

               Frequency Range: 7 – 18 GHz

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
     Channel bandwidth: 20 MHz   Output port: A
     Limit: 43 + 10log (P) below the channel transmitter power
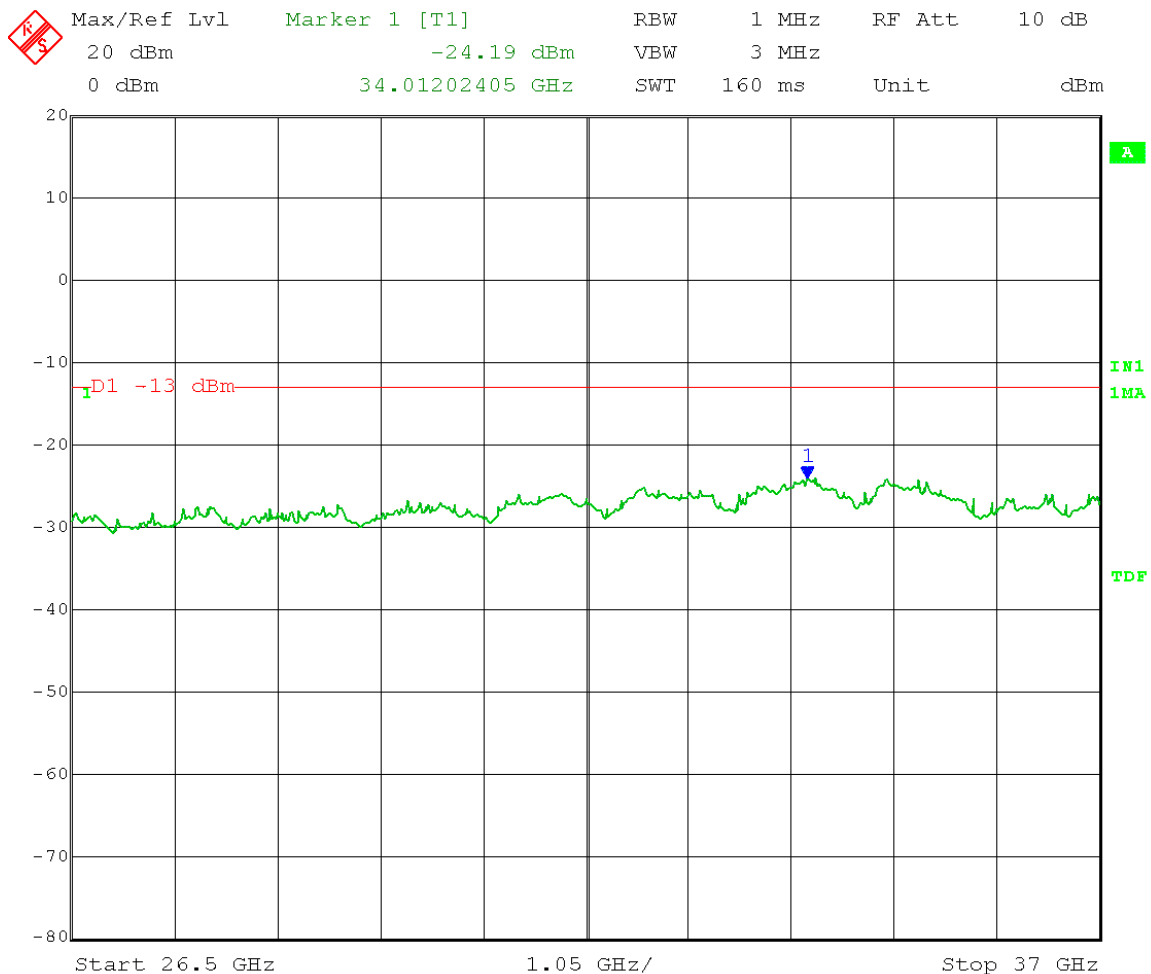   = -13 dBm/MHz

     Frequency Range: 18 – 26.5 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm	-38.27 dBm		VBW	3 MHz		
0 dBm	21.90080160 GHz		SWT	86 ms	Unit	dBm

Start 18 GHz   850 MHz/   Stop 26.5 GHz

Date: 10.FEB.2014 15:37:03

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
               Channel bandwidth: 20 MHz   Output port: A
               Limit: 43 + 10log (P) below the channel transmitter power
                       = -13 dBm/MHz
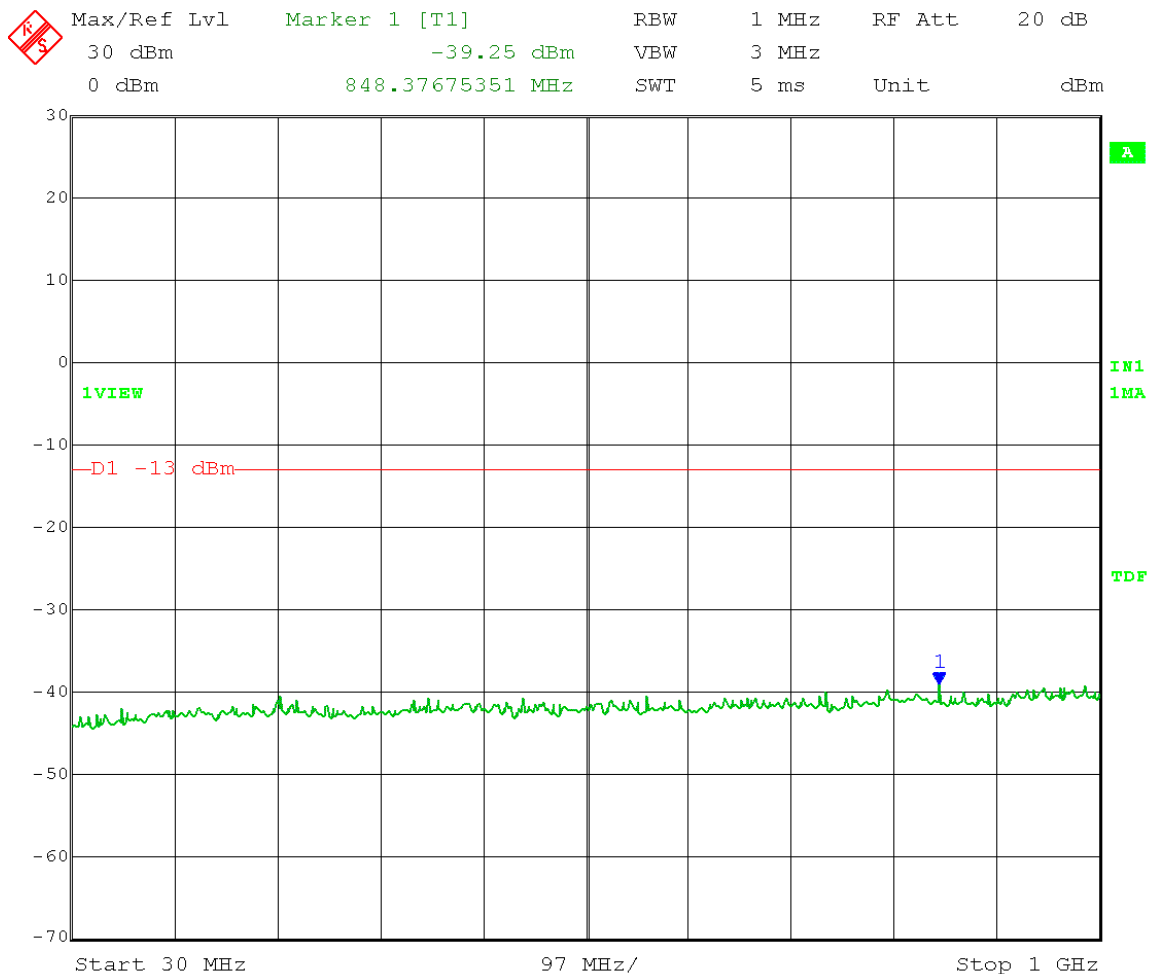

               Frequency Range: 26.5 – 37 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
30 dBm	−24.04 dBm	VBW	3 MHz		
0 dBm	34.28557114 GHz	SWT	160 ms	Unit	dBm

Start 26.5 GHz   1.05 GHz/   Stop 37 GHz
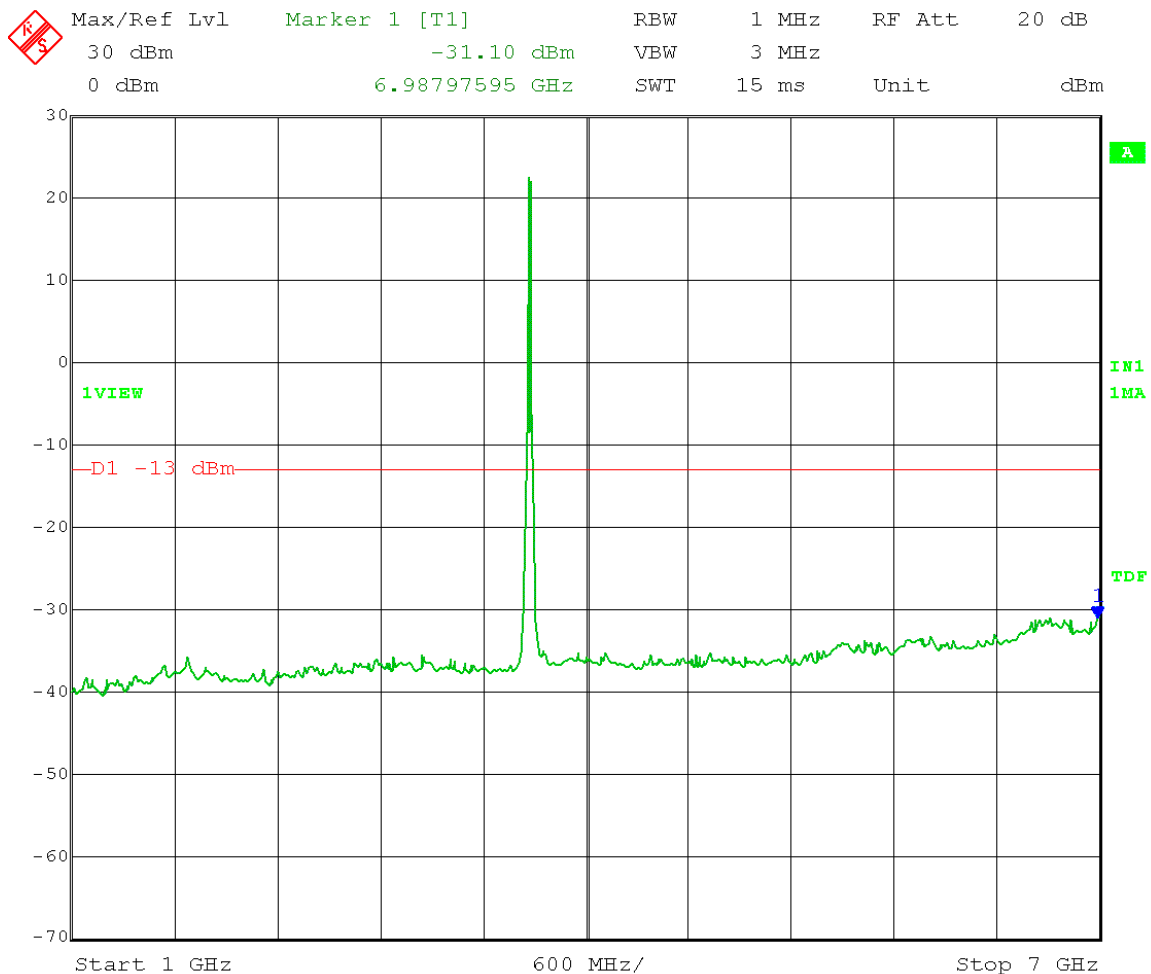
Date: 10.FEB.2014 15:39:20

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
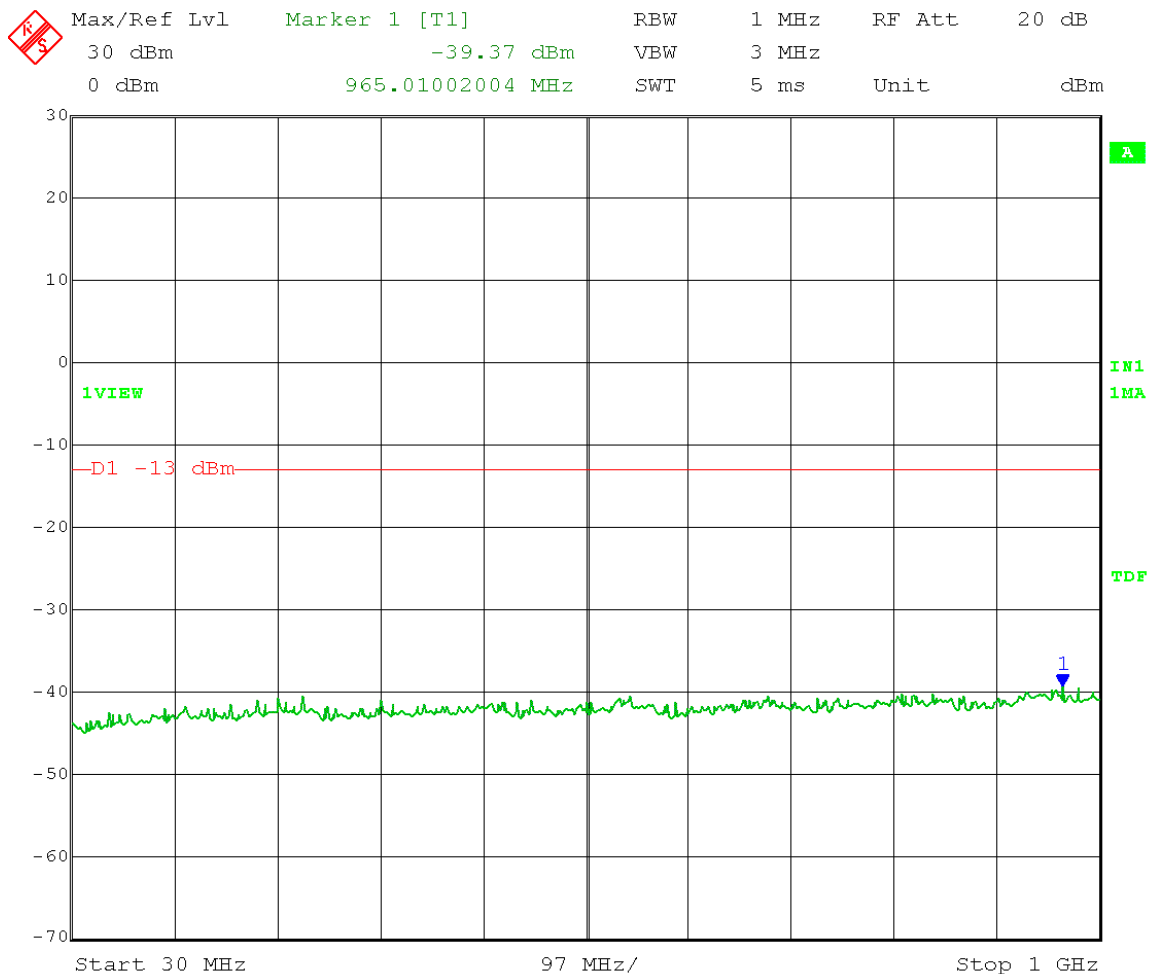
Date: 11.FEB.2014   08:29:59

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
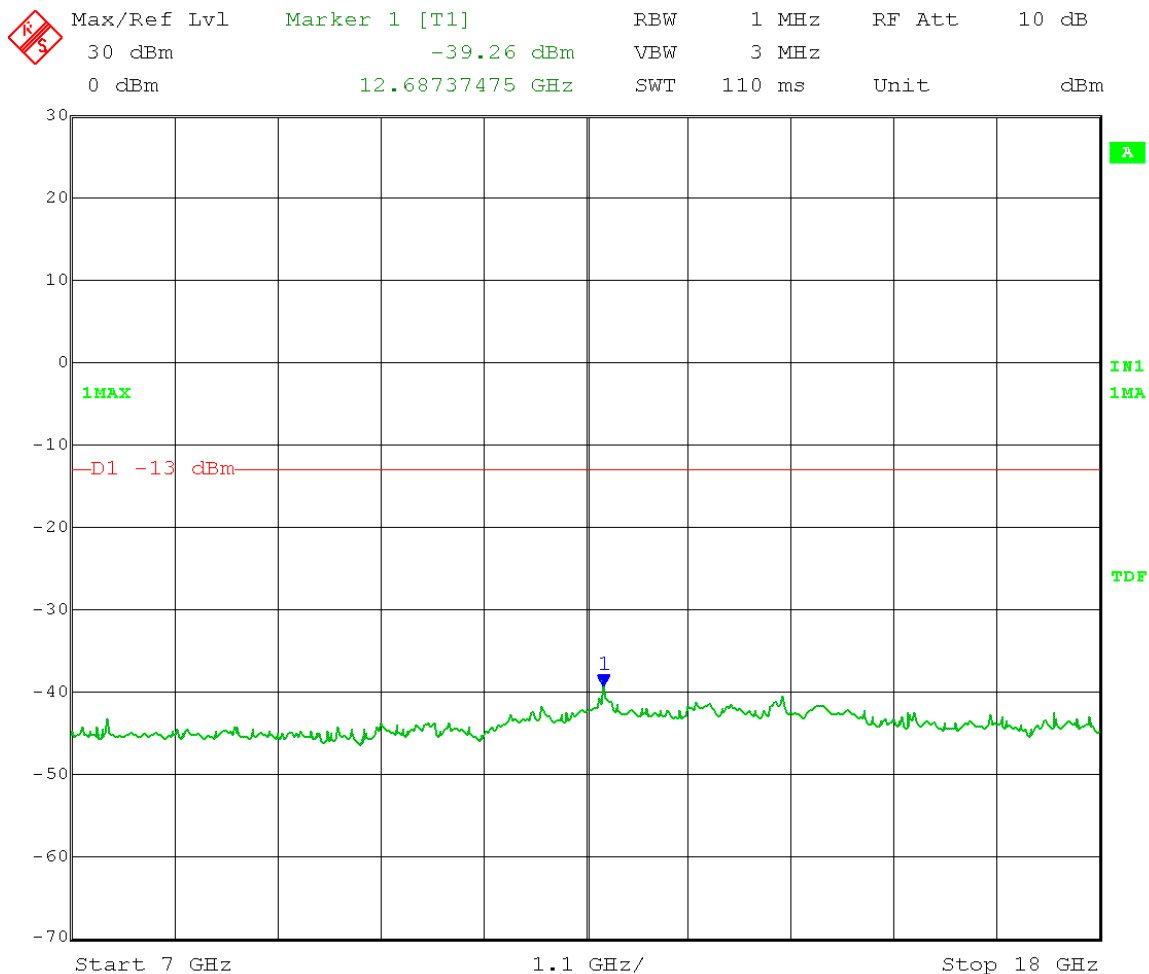

               Frequency Range: 1 – 7 GHz

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
30 dBm	-30.92 dBm	VBW	3 MHz		
0 dBm	6.75951904 GHz	SWT	15 ms	Unit	dBm

1VIEW

D1 -13 dBm

Start 1 GHz   600 MHz/   Stop 7 GHz

Date: 11.FEB.2014 08:32:00

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
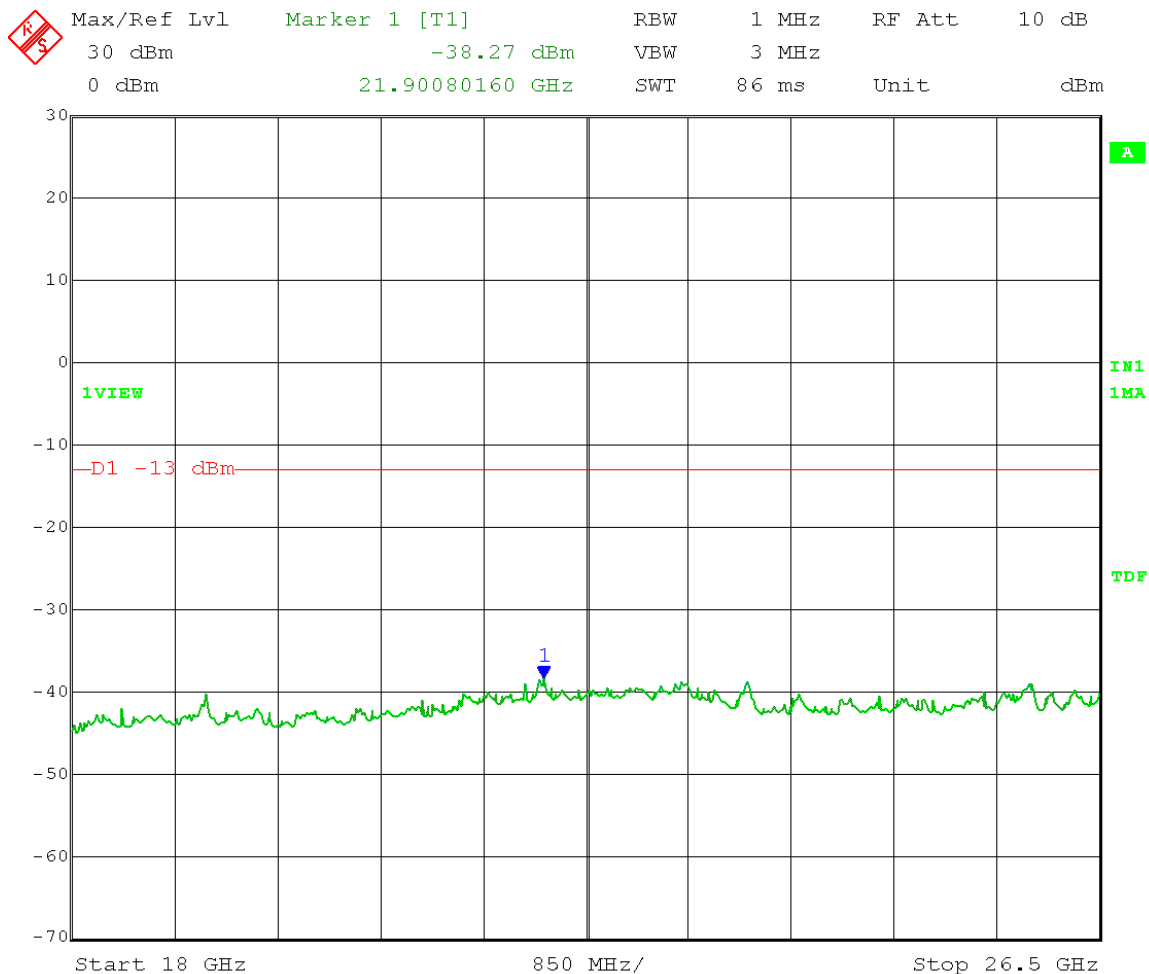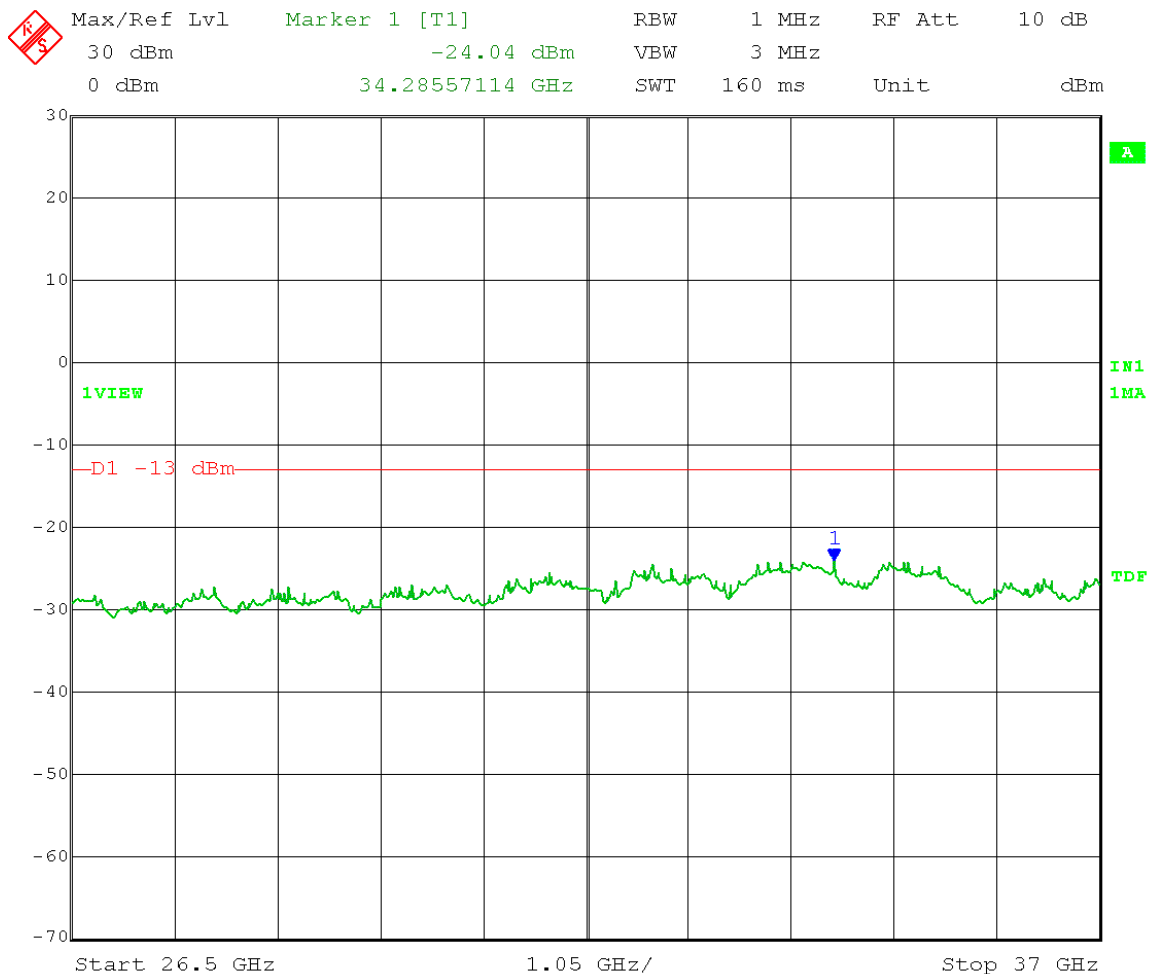
              Frequency Range: 7 – 18 GHz

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	10 dB
30 dBm		-40.98 dBm	VBW	3 MHz		
0 dBm		12.73146293 GHz	SWT	110 ms	Unit	dBm

Start 7 GHz   1.1 GHz/   Stop 18 GHz

Date: 11.FEB.2014   08:33:31

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
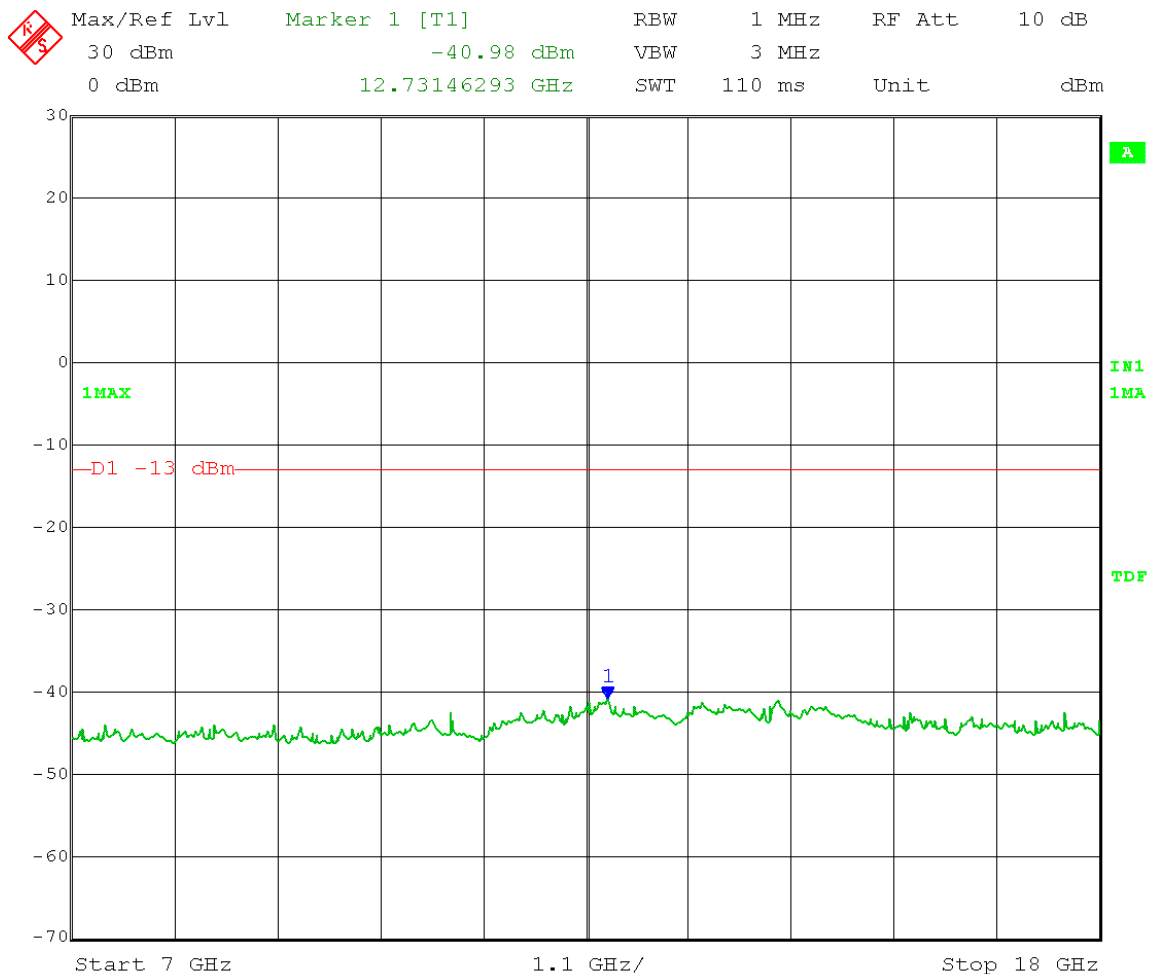
                 Frequency Range: 26.5 – 37 GHz

FCC Part 15.209 / FCC Part 2.1053

Electric Field Strength

```
EUT:                PMP450 AP 3.65 GHz,  Model C036045A004A;    Unit 2
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 17 dBi antenna
Comment:            L,M,H channels, 5,10,20 MHz ch BWs, powersetting 25
                    Date:  02-13-2014
```

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]

MES	A213a_F1H_Quasi-Peak
+ + ·MES	A213a_F1H_Peak_List
LIM	FCC Class B 3m Quasi-Peak Limit @ 3 Meters
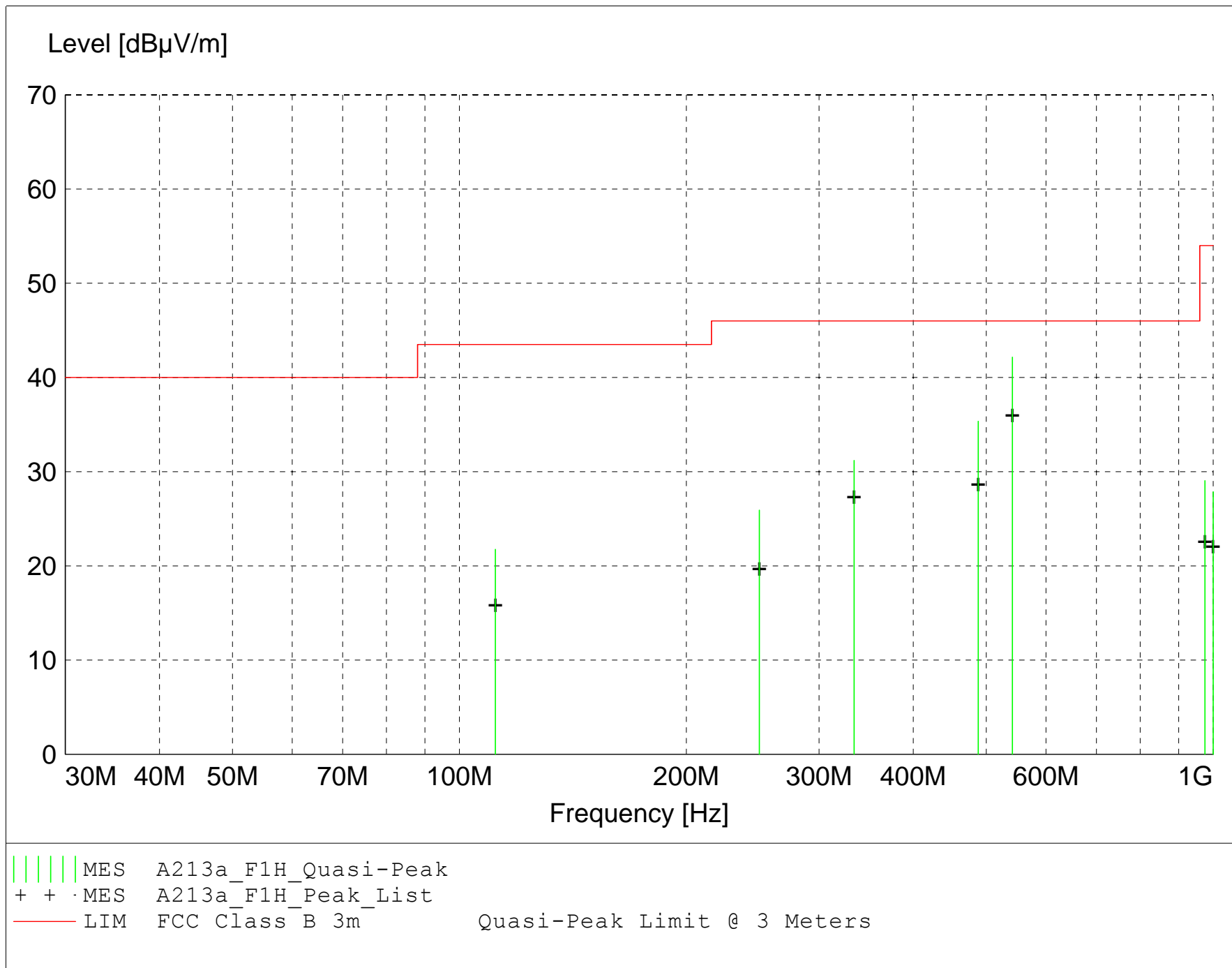
Frequency [Hz]

MEASUREMENT RESULT: "A213a_F1H_Final"

2/13/2014 11:32AM

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
541.390000	44.14	18.27	-20.3	42.2	46.0	3.8	2.10	180	QUASI-PEAK	Tx OFF
487.850000	38.53	17.57	-20.7	35.4	46.0	10.6	2.80	225	QUASI-PEAK	broadband
333.960000	38.03	14.76	-21.6	31.2	46.0	14.8	2.00	180	QUASI-PEAK	broadband
250.000000	35.57	12.40	-22.1	25.9	46.0	20.1	2.00	315	QUASI-PEAK	None
111.600000	32.68	12.12	-23.0	21.8	43.5	21.7	3.00	270	QUASI-PEAK	broadband
974.990000	22.41	23.90	-17.3	29.0	54.0	25.0	2.60	270	QUASI-PEAK	None
999.990000	20.14	24.60	-16.9	27.9	54.0	26.1	2.60	225	QUASI-PEAK	None

FCC Part 15.209 / FCC Part 2.1053

Electric Field Strength

```
EUT:                PMP450 AP 3.65 GHz,  Model C036045A004A;    Unit 2
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 17 dBi antenna
Comment:            L,M,H channels, 5,10,20 MHz ch BWs, powersetting 25
                    Date:  02-13-2014
```

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]

Frequency [Hz]

	MES	A213a_F1V_Quasi-Peak
+ + ·	MES	A213a_F1V_Peak_List
——	LIM	FCC Class B 3m Quasi-Peak Limit @ 3 Meters

MEASUREMENT RESULT: "A213a_F1V_Final"

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		
45.580000	48.57	11.96	-23.9	36.6	40.0	3.4	1.00	280	QUASI-PEAK	broadband
77.200000	53.02	5.90	-23.5	35.4	40.0	4.6	1.30	320	QUASI-PEAK	broadband
30.640000	47.99	11.31	-24.3	35.0	40.0	5.0	1.00	260	QUASI-PEAK	broadband
537.560000	39.62	18.35	-20.2	37.8	46.0	8.2	1.00	270	QUASI-PEAK	broadband
375.000000	38.37	15.20	-21.4	32.2	46.0	13.8	1.50	135	QUASI-PEAK	None
111.565000	37.82	12.11	-23.0	26.9	43.5	16.6	1.00	340	QUASI-PEAK	broadband
488.790000	29.17	17.63	-20.8	26.0	46.0	20.0	1.00	190	QUASI-PEAK	broadband
800.000000	20.71	21.70	-18.3	24.1	46.0	21.9	2.30	30	QUASI-PEAK	None
250.000000	32.11	12.40	-22.1	22.5	46.0	23.5	1.00	30	QUASI-PEAK	None
1000.000000	20.56	24.60	-16.9	28.3	54.0	25.7	2.00	200	QUASI-PEAK	None
335.770000	26.90	14.82	-21.6	20.1	46.0	25.9	1.50	80	QUASI-PEAK	broadband
974.990000	20.73	23.90	-17.3	27.4	54.0	26.6	2.30	180	QUASI-PEAK	None
425.000000	22.01	16.50	-21.0	17.5	46.0	28.5	1.00	270	QUASI-PEAK	None

Test Date: 02-13-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Tests: Transmitter Unwanted Emissions
Operator: Craig B
Comment: Both transmit chains active at power setting 25
             Transmit from 17 dBi sector antenna
             5, 10, 20 MHz channel BWs; Modulation: QPSK
             Low, Mid, High channels
             RBW = 1 MHz; VBW = 3 MHz; Detector = peak; Max hold

Limit: -13 dBm

Frequency and Polarization (MHz)	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 [ERP] (dBm)	Limit (dBm)	Margin (dB)
537.56 vertical	50.77	-40.90	8.33	2.15	-49.23	-13	36.23
541.39 horizontal	62.17	-32.40	8.33	2.15	-40.73	-13	27.73

ERP = Signal generator output - cable loss + antenna gain – 2.15

No Cabinet Radiated Emissions

were found from

1 to 18GHz

Low, Mid & High Channels

5MHz, 10MHz, & 20MHz Channel bandwidths

Power Setting 25

No Radiated Emissions
were found from
18 to 37GHz

Low, Mid & High Channels

5MHz, 10MHz, & 20MHz Channel bandwidths

Power Setting 25

17dBi Antenna

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.

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
              Channel bandwidth: 5 MHz   Output port: A
              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 ℃, 120 V
                Power level at band edge = -26.54 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-33.15 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

```
1 [T1]           -33.15 dBm
                 3.65000000 GHz
CH PWR           -26.54 dBm
CH BW            1.00000000 MHz
```

1MAX

D1 -13 dBm

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

A
IN1
1MA
TDF
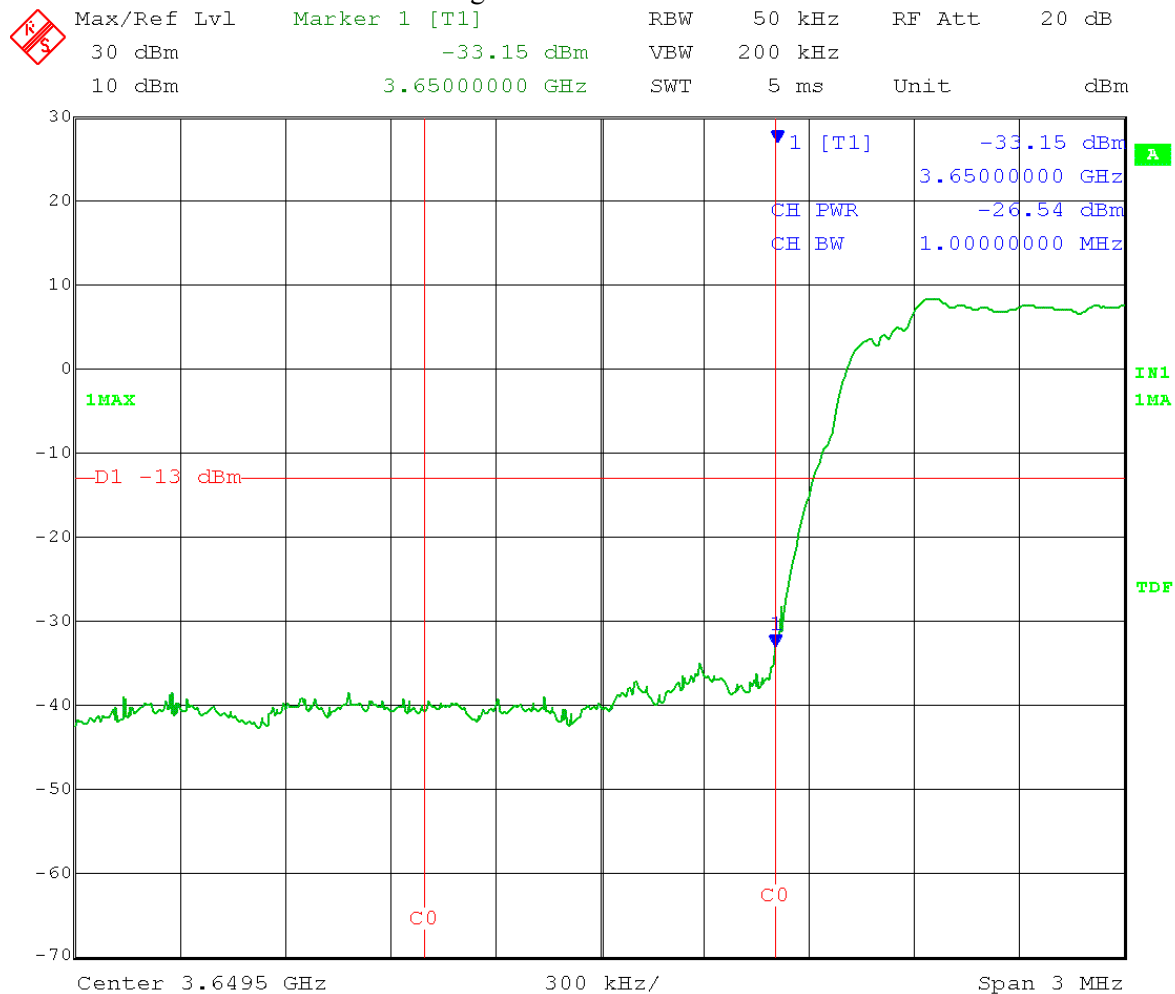
Date: 7.FEB.2014 08:45:40

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
                Channel bandwidth: 5 MHz   Output port: A
                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 = -26.64 dBm/MHz
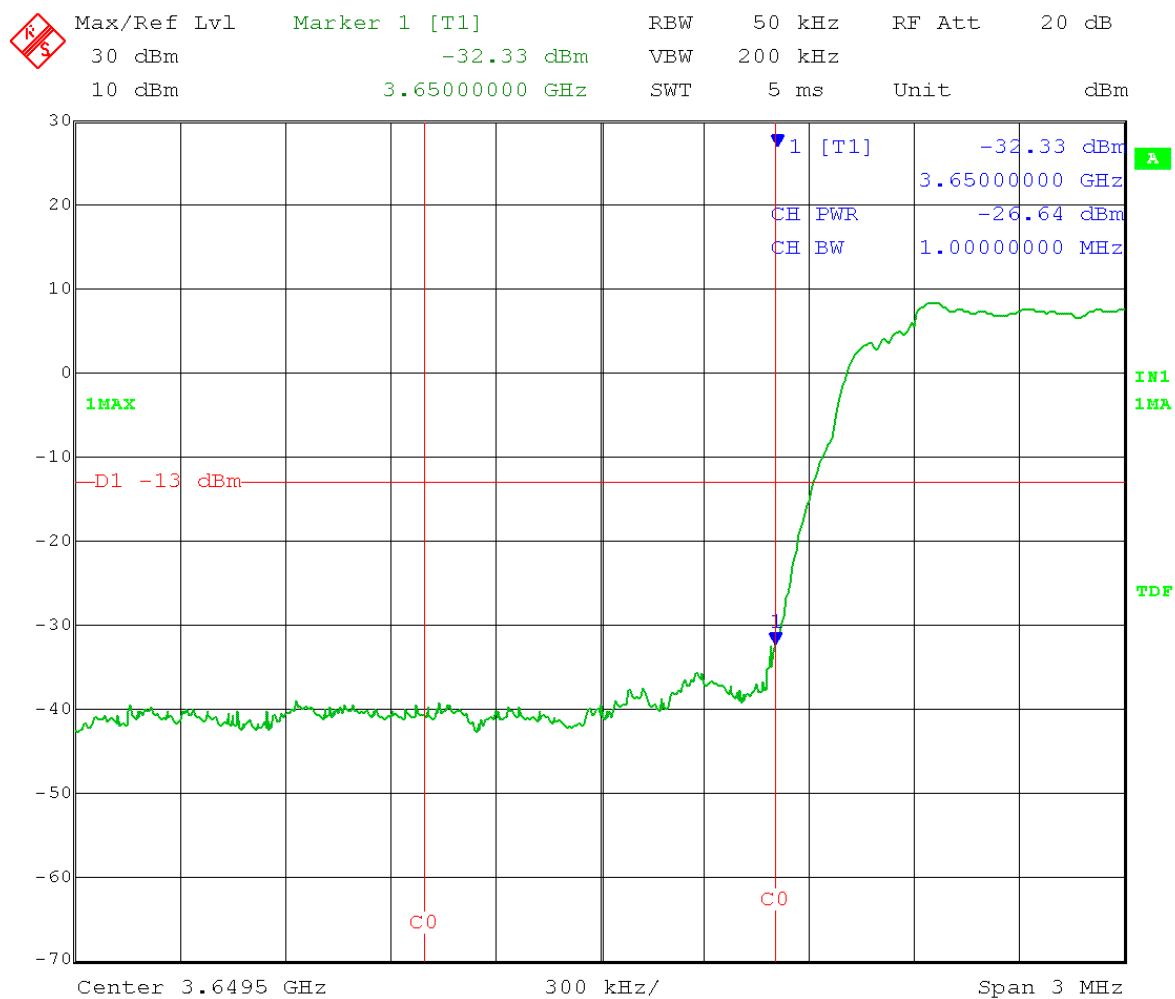
Date: 7.FEB.2014   08:47:56

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
             Channel bandwidth: 5 MHz   Output port: A
             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 = -26.63 dBm/MHz

Date: 7.FEB.2014   08:50:25

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
Channel bandwidth: 5 MHz   Output port: A
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 ℃, 120 V

Power level at band edge = -26.81 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-32.69 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -32.69 dBm
3.65000000 GHz
CH PWR   -26.81 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: 7.FEB.2014   09:38:37

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
Channel bandwidth: 5 MHz   Output port: A
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 = -27.00 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-31.88 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

```
 30
                                                    ▼1 [T1]        -31.88 dBm    A
                                                                3.65000000 GHz
 20
                                                    CH PWR          -27.00 dBm
                                                    CH BW      1.00000000 MHz
 10
                                                                             IN1
  0                                                                          1MA
 1MAX
-10
 D1 -13 dBm
-20
                                                                             TDF
-30                                                    ▼1
-40  ᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡᴡ
-50
-60                      C0                    C0
-70
 Center 3.6495 GHz              300 kHz/              Span 3 MHz
```
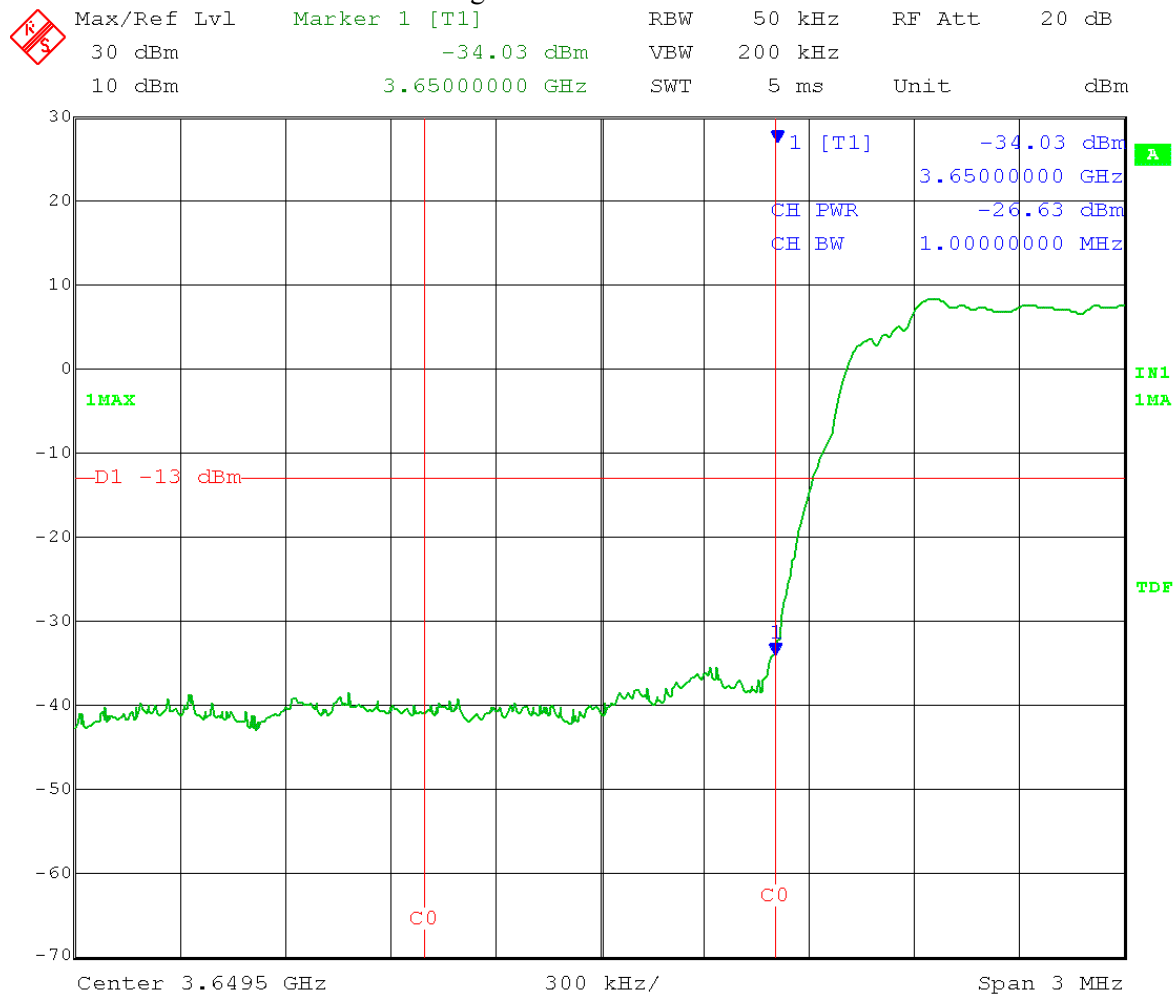
Date: 7.FEB.2014 11:18:32

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
Channel bandwidth: 5 MHz   Output port: A
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 = -27.28 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-33.93 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

```
                                                    ▼1 [T1]        -33.93 dBm      A
                                                                3.65000000 GHz
                                                    CH PWR          -27.28 dBm
                                                    CH BW        1.00000000 MHz

                                                                                    IN1
                                                                                    1MA

1MAX

D1 -13 dBm

                                                                                    TDF




                                C0                          C0
```

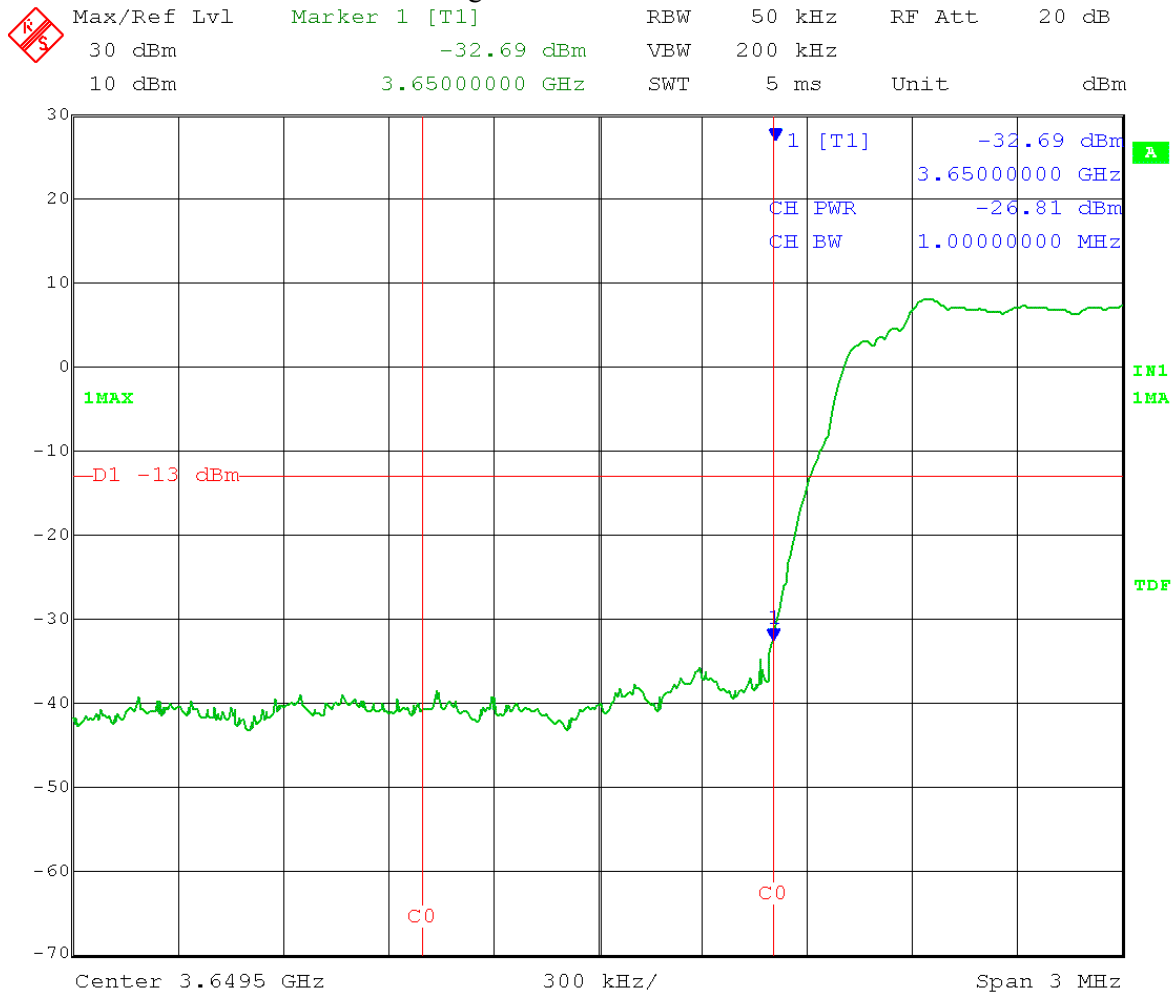Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 7.FEB.2014 12:49:59

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
Channel bandwidth: 5 MHz   Output port: A
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 = -26.39 dBm/MHz
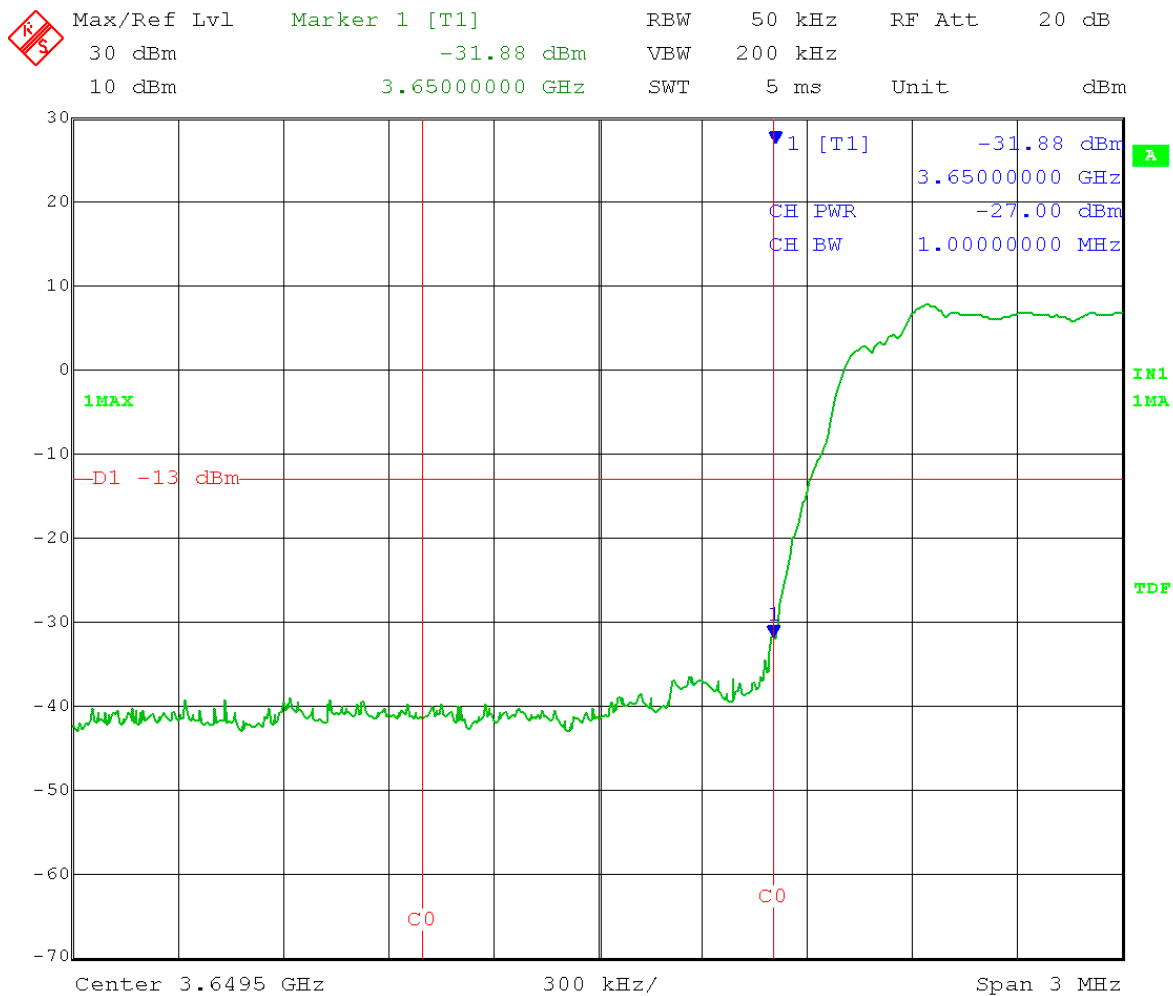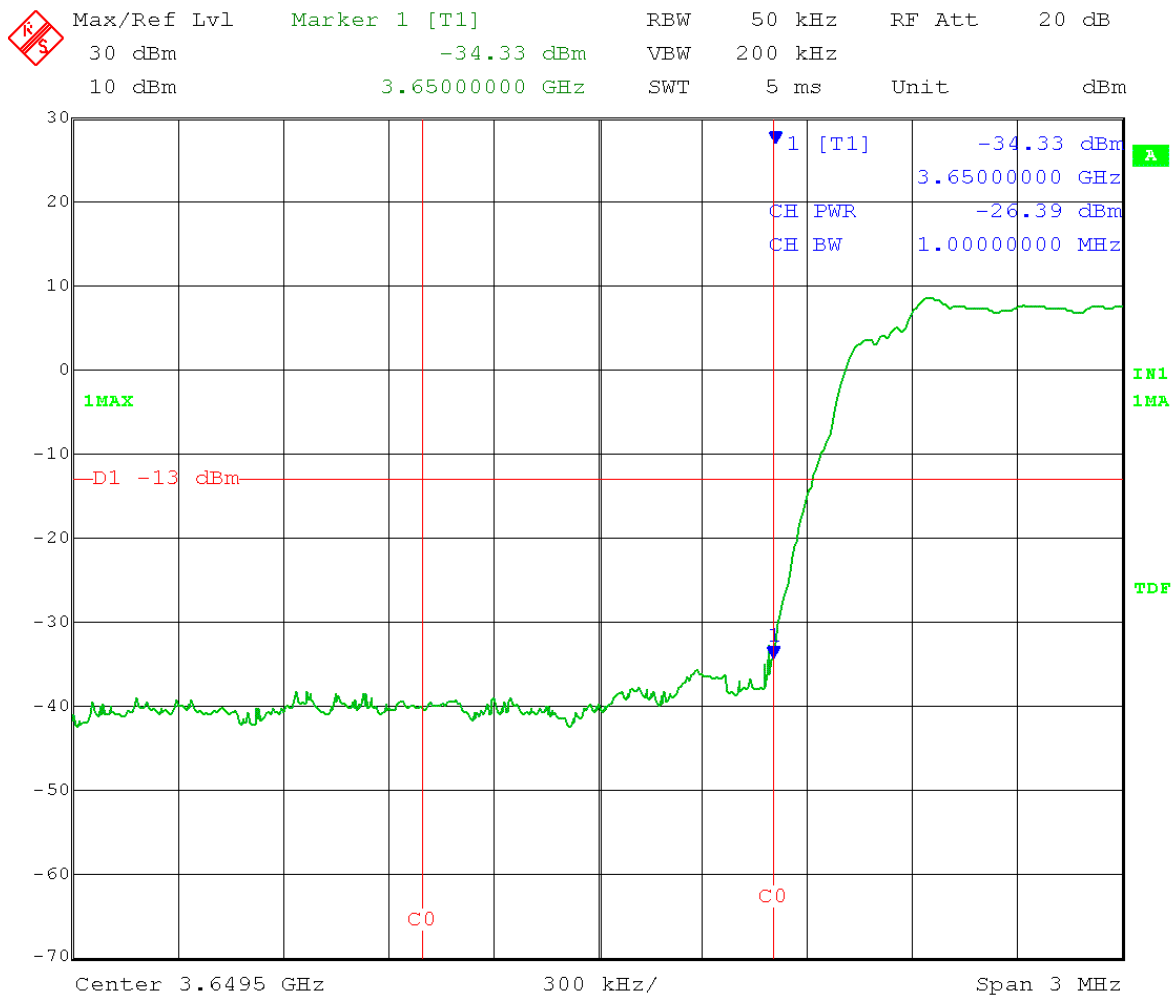

Date: 7.FEB.2014   15:38:14

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
Channel bandwidth: 5 MHz   Output port: A
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
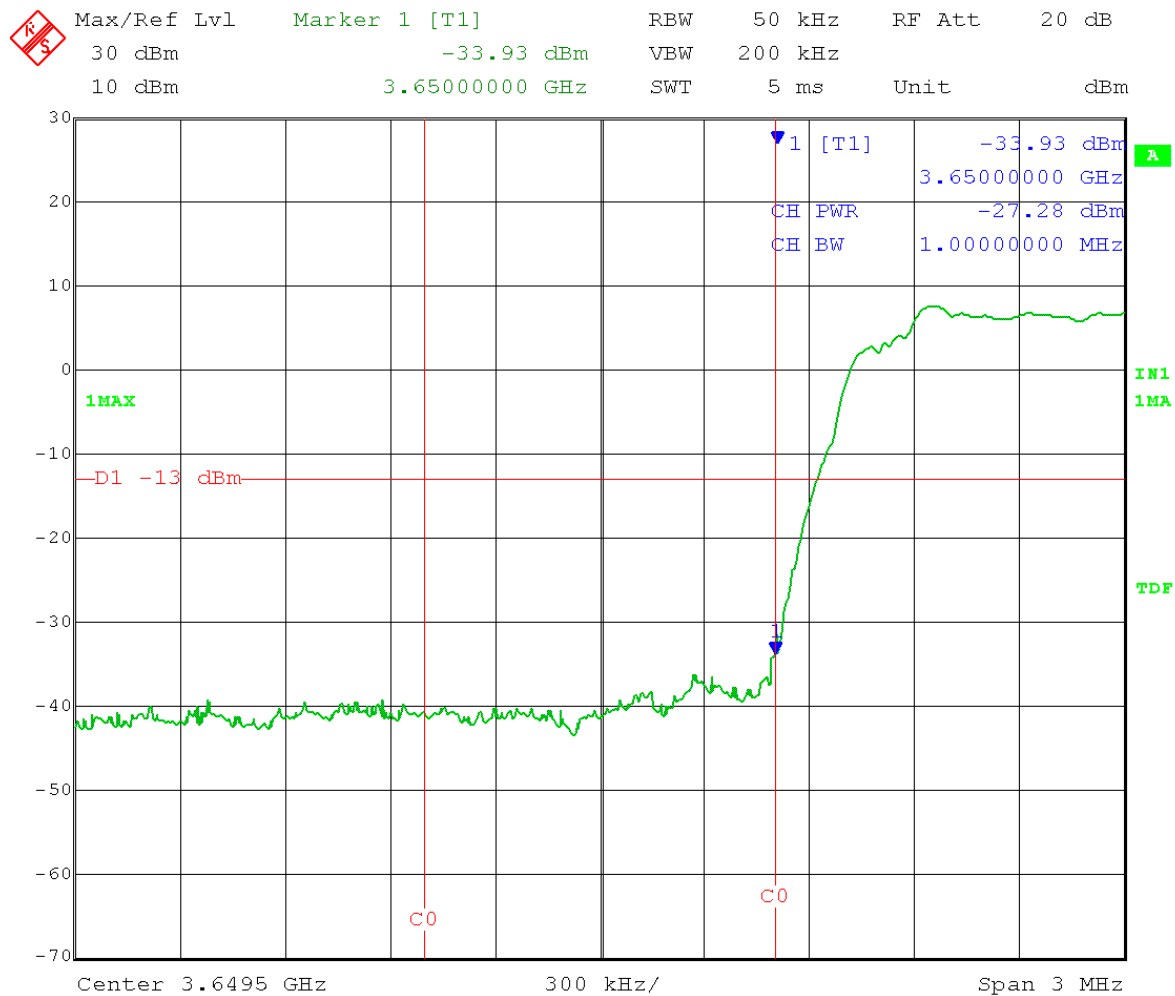
0 °C, 120 V

Power level at band edge = -26.30 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-31.86 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

```
1 [T1]              -31.86 dBm
                 3.65000000 GHz
CH PWR              -26.30 dBm
CH BW           1.00000000 MHz
```

1MAX

D1 -13 dBm

1MA

IN1

TDF

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 10.FEB.2014 09:18:30

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
Channel bandwidth: 5 MHz   Output port: A
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 = -26.36 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-31.72 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.72 dBm
3.65000000 GHz
CH PWR   -26.36 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

C0   C0

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 10.FEB.2014 10:43:45

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
                Channel bandwidth: 5 MHz   Output port: A
                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

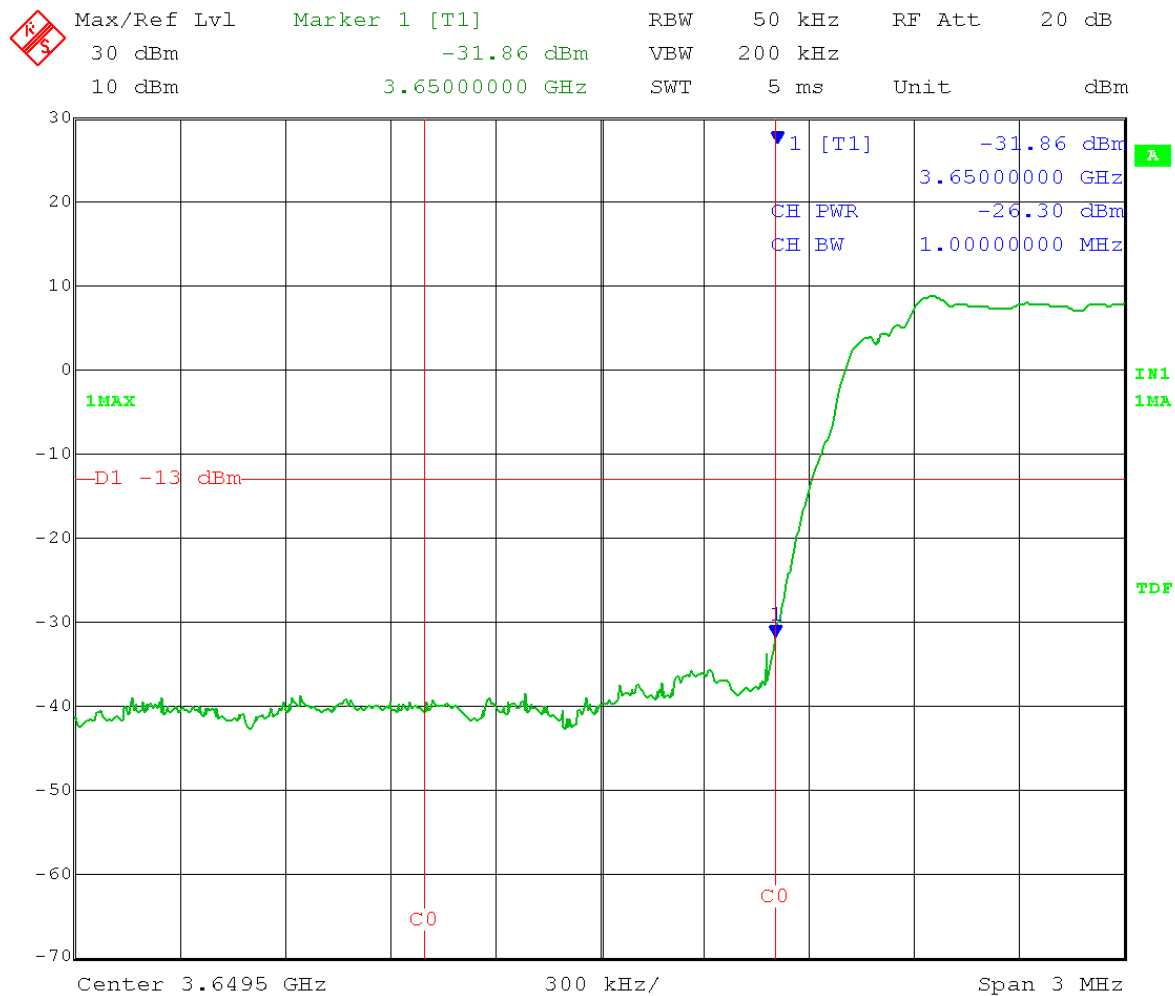   Power level at band edge = -26.08 dBm/MHz
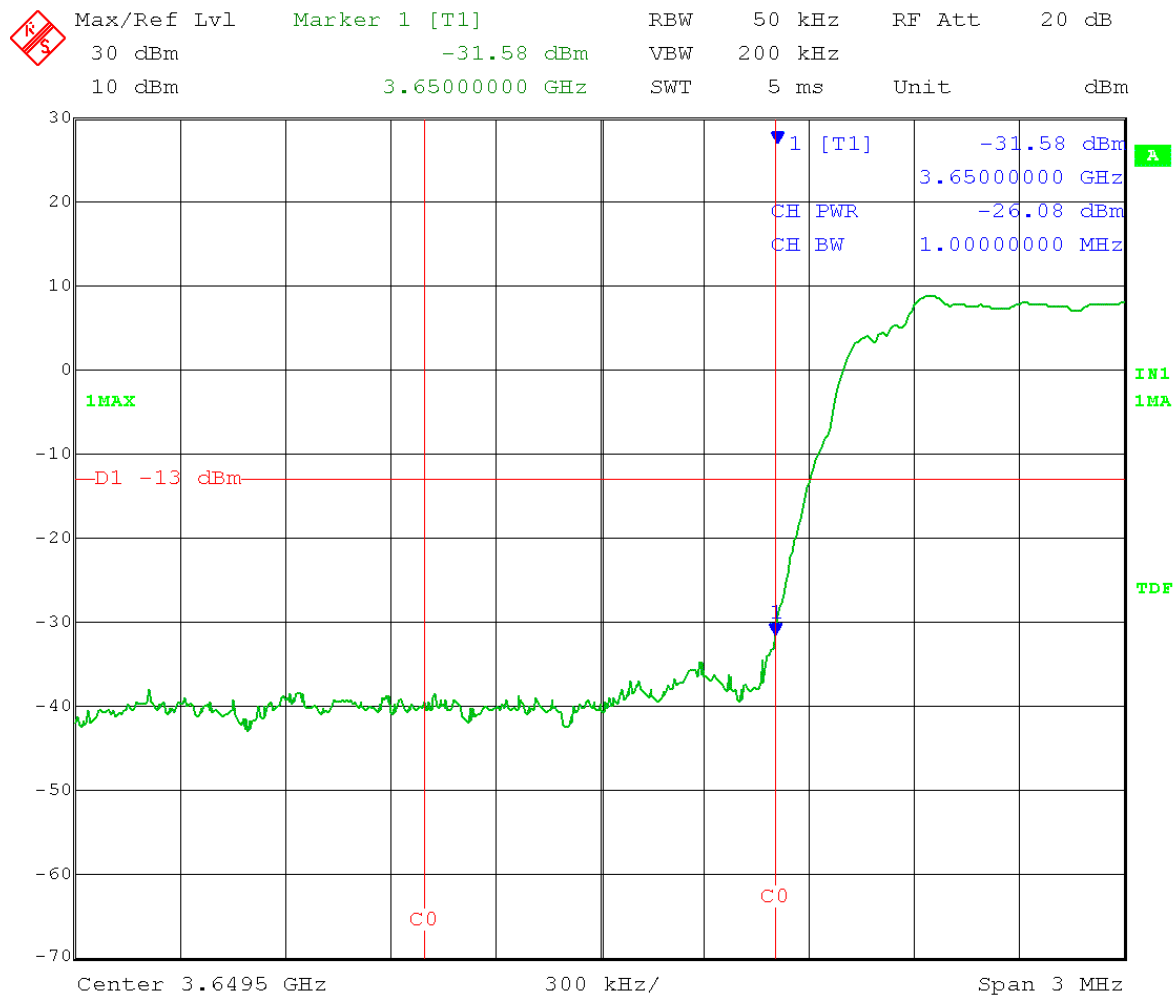
Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Low Channel: Transmit = 3652.5 MHz   Output power setting: 19
              Channel bandwidth: 5 MHz   Output port: A
              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

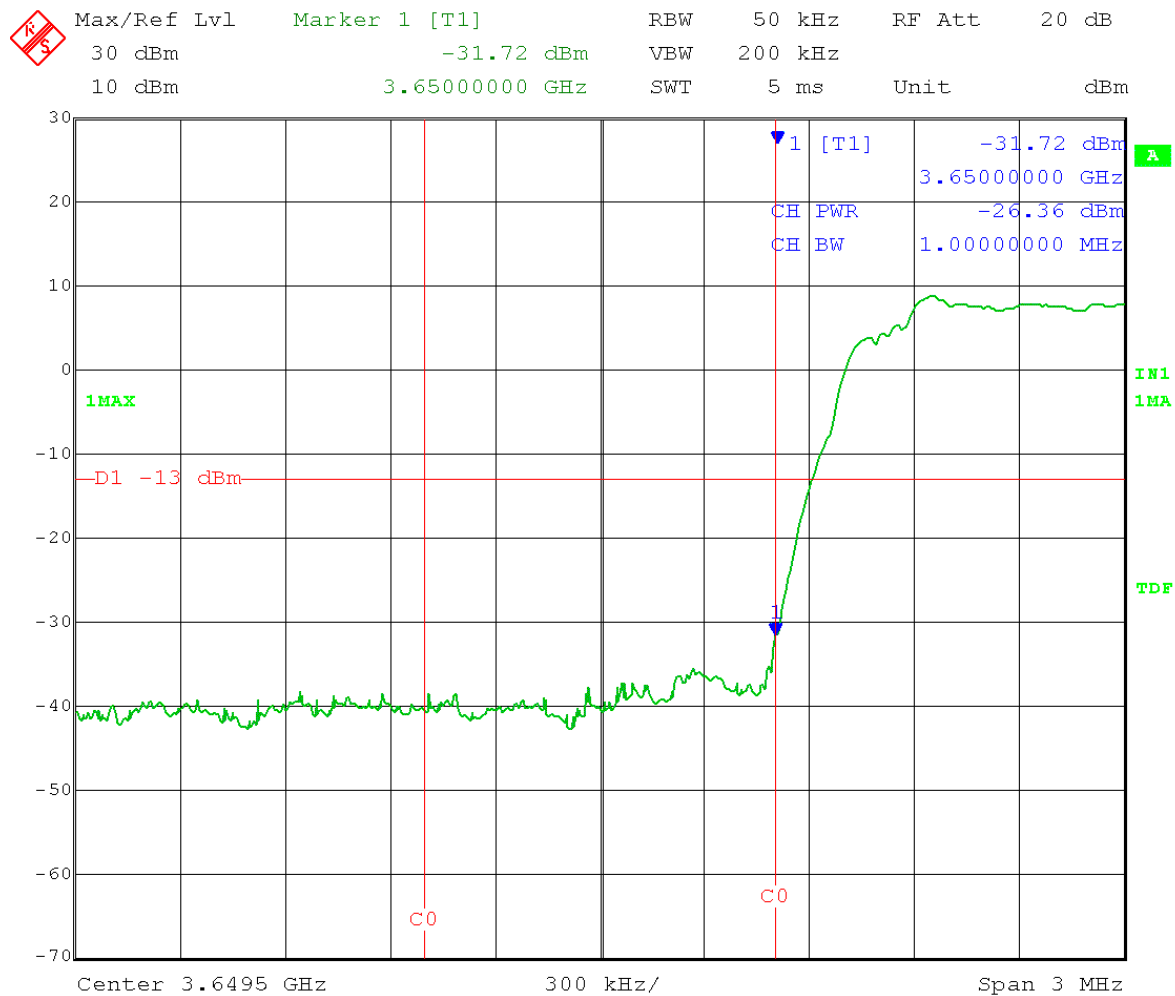   Power level at band edge = -26.02 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-31.56 dBm	VBW	200 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.56 dBm
              3.65000000 GHz
CH PWR   -26.02 dBm
CH BW   1.00000000 MHz

1MAX
D1 -13 dBm

Center 3.6495 GHz   300 kHz/   Span 3 MHz

Date: 10.FEB.2014   13:54:13

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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　　　Output power setting: 18
　　　　　　Channel bandwidth: 5 MHz　　　Output port: A
　　　　　　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 = -25.88 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-35.19 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]　　　-35.19 dBm
　　　　　3.70000000 GHz
CH PWR　　　-25.88 dBm
CH BW　1.00000000 MHz

1MAX

D1 -13 dBm

IN1
1MA

TDF

C0

C0

Center 3.7005 GHz　　　　300 kHz/　　　　Span 3 MHz

Date:　　7.FEB.2014　08:57:51

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
               Channel bandwidth: 5 MHz   Output port: A
               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 ℃, 138 V
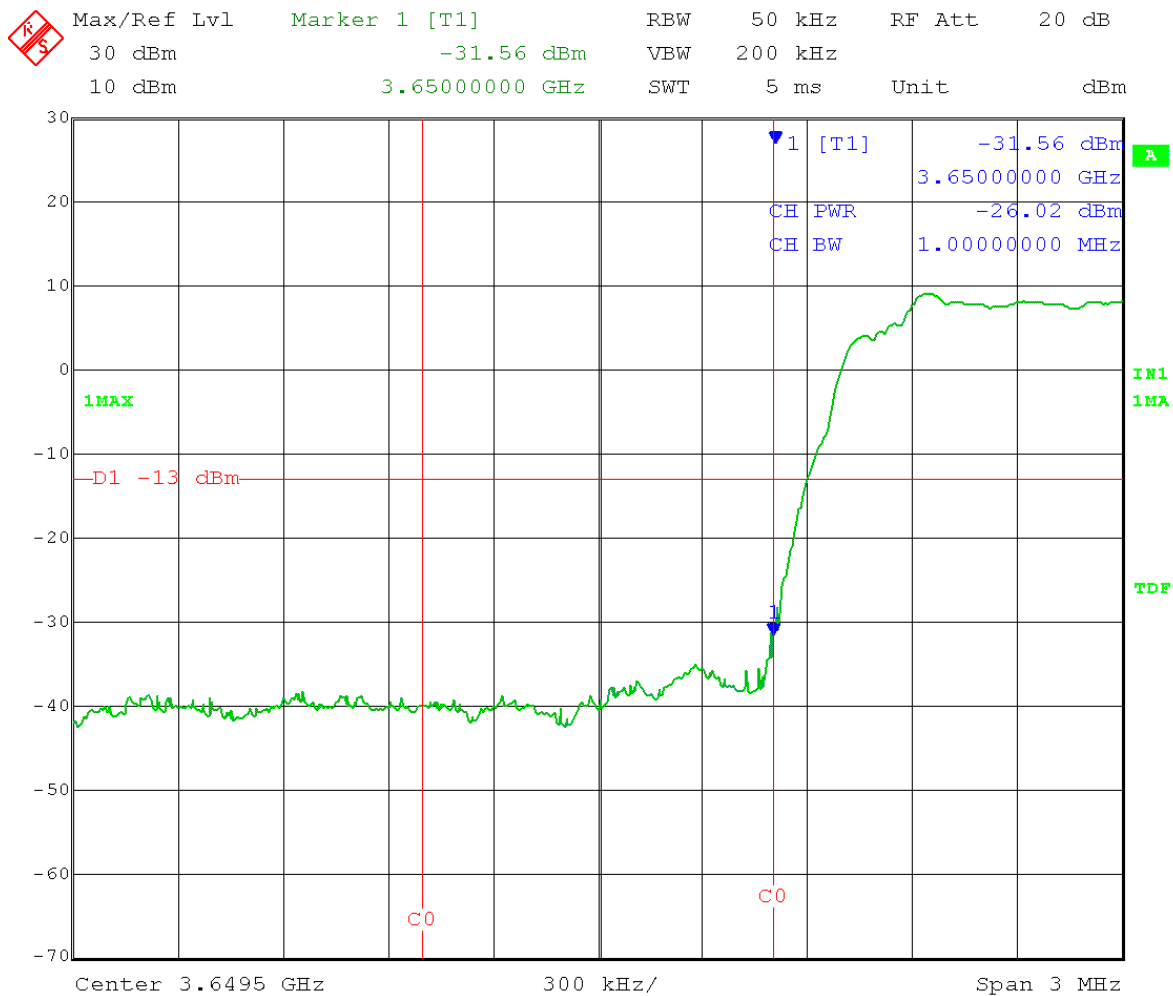
               Power level at band edge = -26.03 dBm/MHz

Date: 7.FEB.2014   09:00:24

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
                Channel bandwidth: 5 MHz   Output port: A
                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 = -26.10 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-34.92 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -34.92 dBm
                 3.70000000 GHz
CH PWR   -26.10 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7005 GHz   300 kHz/   Span 3 MHz

Date: 7.FEB.2014 08:55:25

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
                Channel bandwidth: 5 MHz   Output port: A
                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 = -26.35 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-35.62 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

Center 3.7005 GHz   300 kHz/   Span 3 MHz
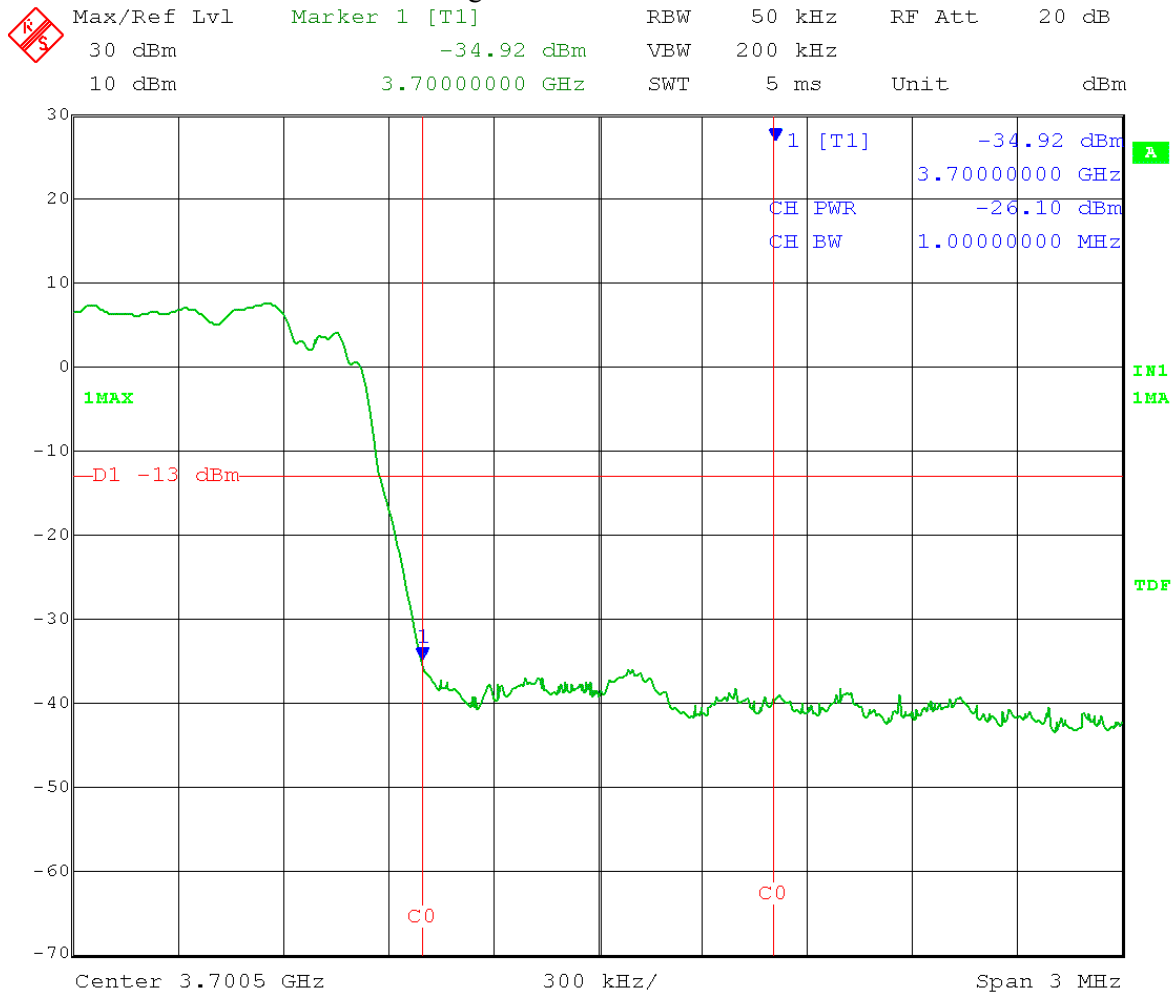
Date: 7.FEB.2014 09:33:01

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
                Channel bandwidth: 5 MHz   Output port: A
                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 = -26.90 dBm/MHz

Date: 7.FEB.2014 11:14:56

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
              Channel bandwidth: 5 MHz   Output port: A
              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

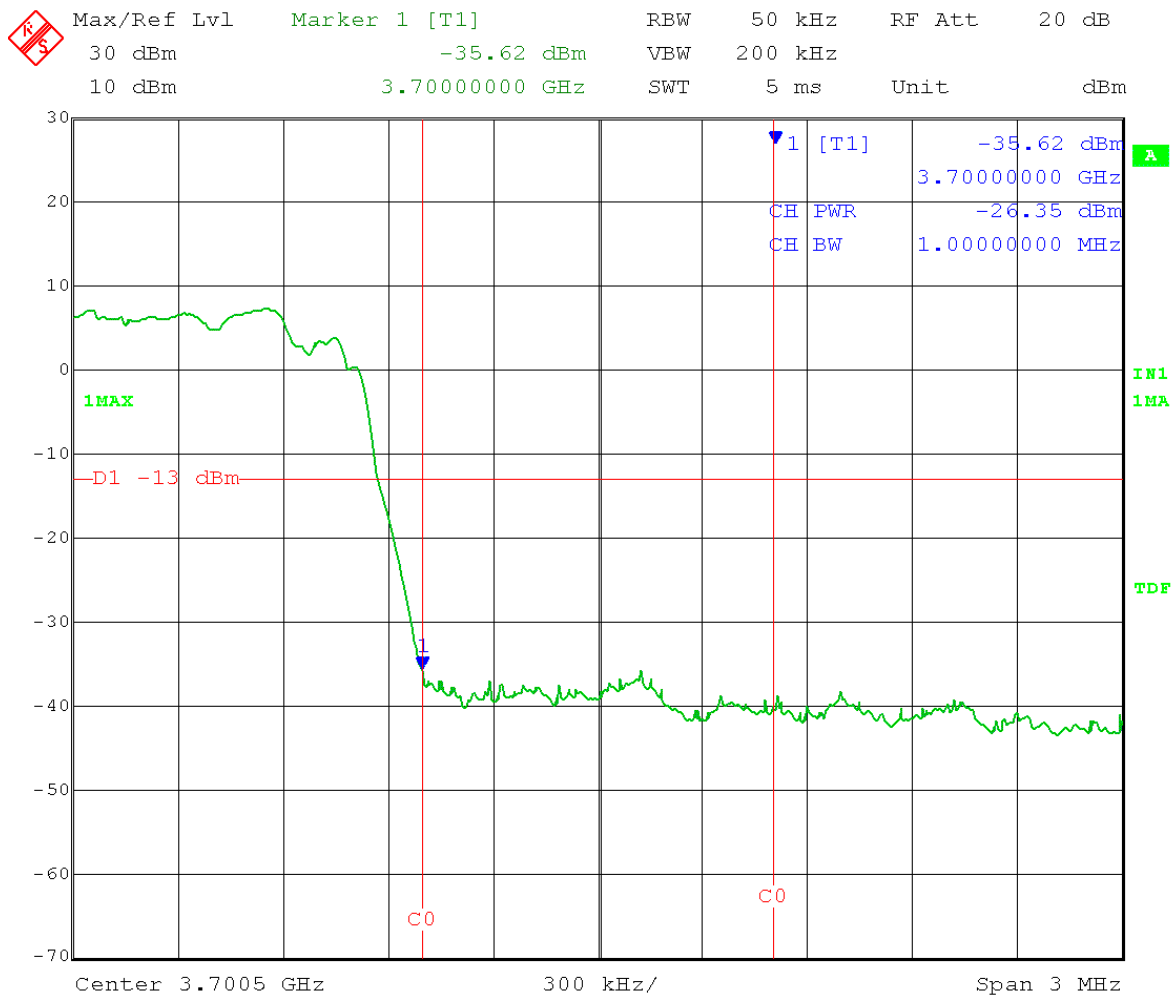   Power level at band edge = -27.10 dBm/MHz

Date: 7.FEB.2014 12:46:46

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
             Channel bandwidth: 5 MHz   Output port: A
             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
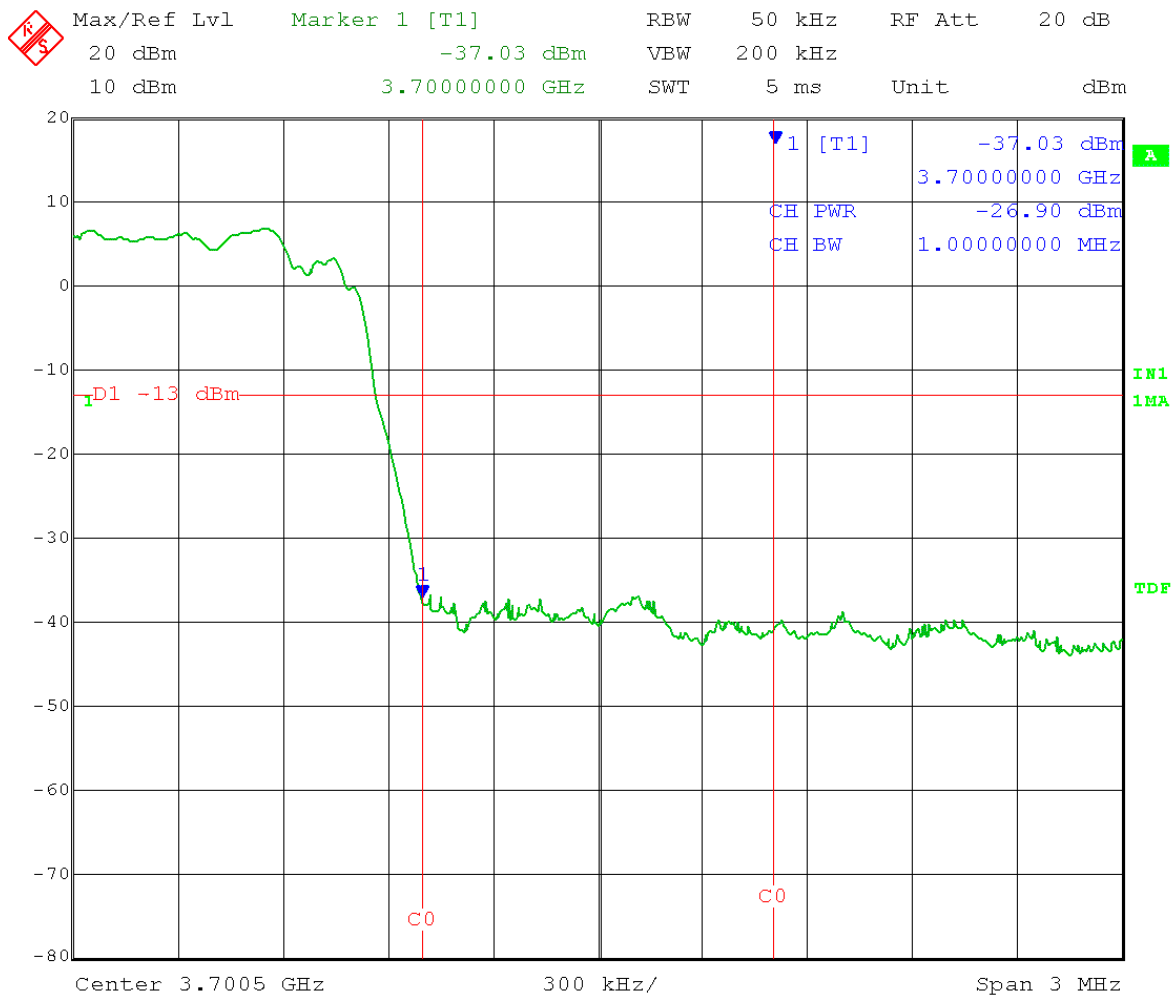
             Power level at band edge = -25.50 dBm/MHz

Date: 7.FEB.2014   15:34:52

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
Channel bandwidth: 5 MHz   Output port: A
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 = -25.43 dBm/MHz

Date: 10.FEB.2014 09:14:53

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
Channel bandwidth: 5 MHz   Output port: A
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 = -25.49 dBm/MHz

Date: 10.FEB.2014 10:40:58

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
                Channel bandwidth: 5 MHz   Output port: A
                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 = -25.25 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-35.15 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -35.15 dBm
                3.70000000 GHz
CH PWR   -25.25 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

C0   C0

Center 3.7005 GHz   300 kHz/   Span 3 MHz
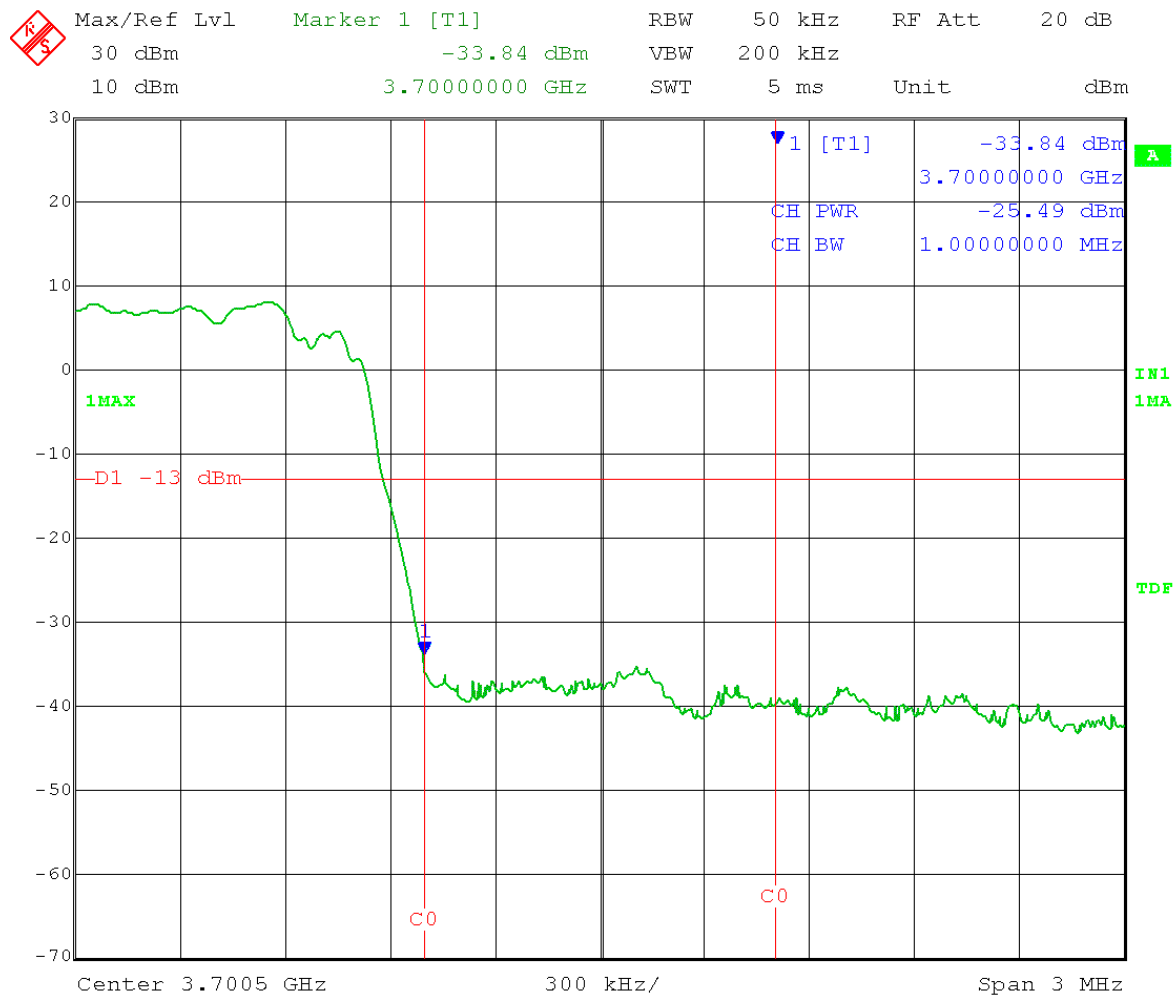
Date: 10.FEB.2014 12:34:50

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 18
              Channel bandwidth: 5 MHz   Output port: A
              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 ℃, 120 V
              Power level at band edge = -25.16 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	50 kHz	RF Att	20 dB
30 dBm		-35.21 dBm	VBW	200 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

```
30 ┬                                              ▼1 [T1]        -35.21 dBm      [A]
   │                                               │            3.70000000 GHz
20 ┤                                              CH PWR          -25.16 dBm
   │                                              CH BW         1.00000000 MHz
10 ┤                                                                            IN1
   │                                                                            1MA
 0 ┼
   │ 1MAX
-10┤
   │ D1 -13 dBm
-20┤
   │                                                                            TDF
-30┤                         1
   │                         ▼
-40┤
   │
-50┤
   │
-60┤                      C0                     C0
   │
-70┴
   Center 3.7005 GHz              300 kHz/                    Span 3 MHz
```

Date: 10.FEB.2014 13:51:06

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
               Channel bandwidth: 10 MHz   Output port: A
               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 ℃, 120 V
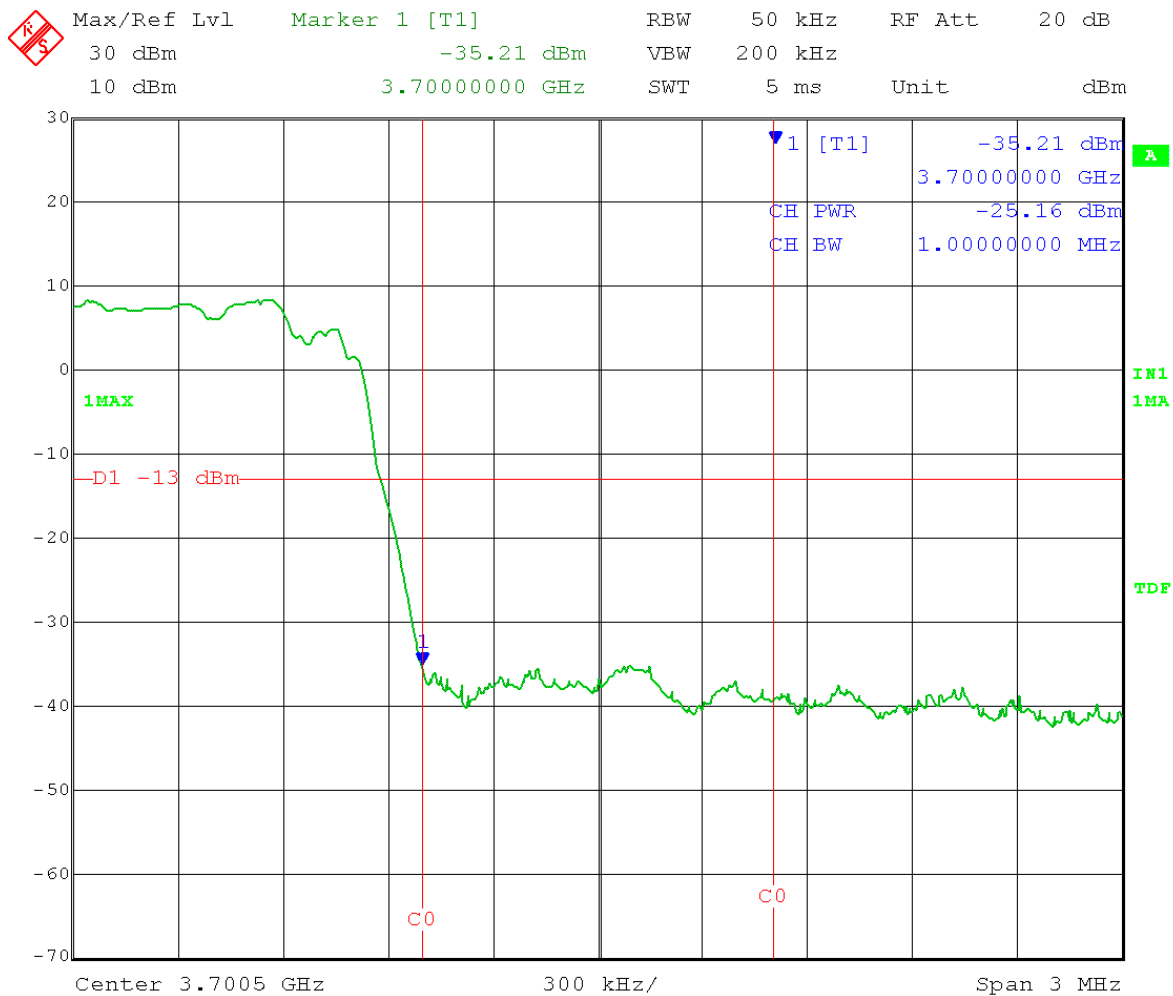   Power level at band edge = -23.14 dBm/MHz

| Max/Ref Lvl | Marker 1 [T1] | | RBW | 100 kHz | RF Att | 20 dB |

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz
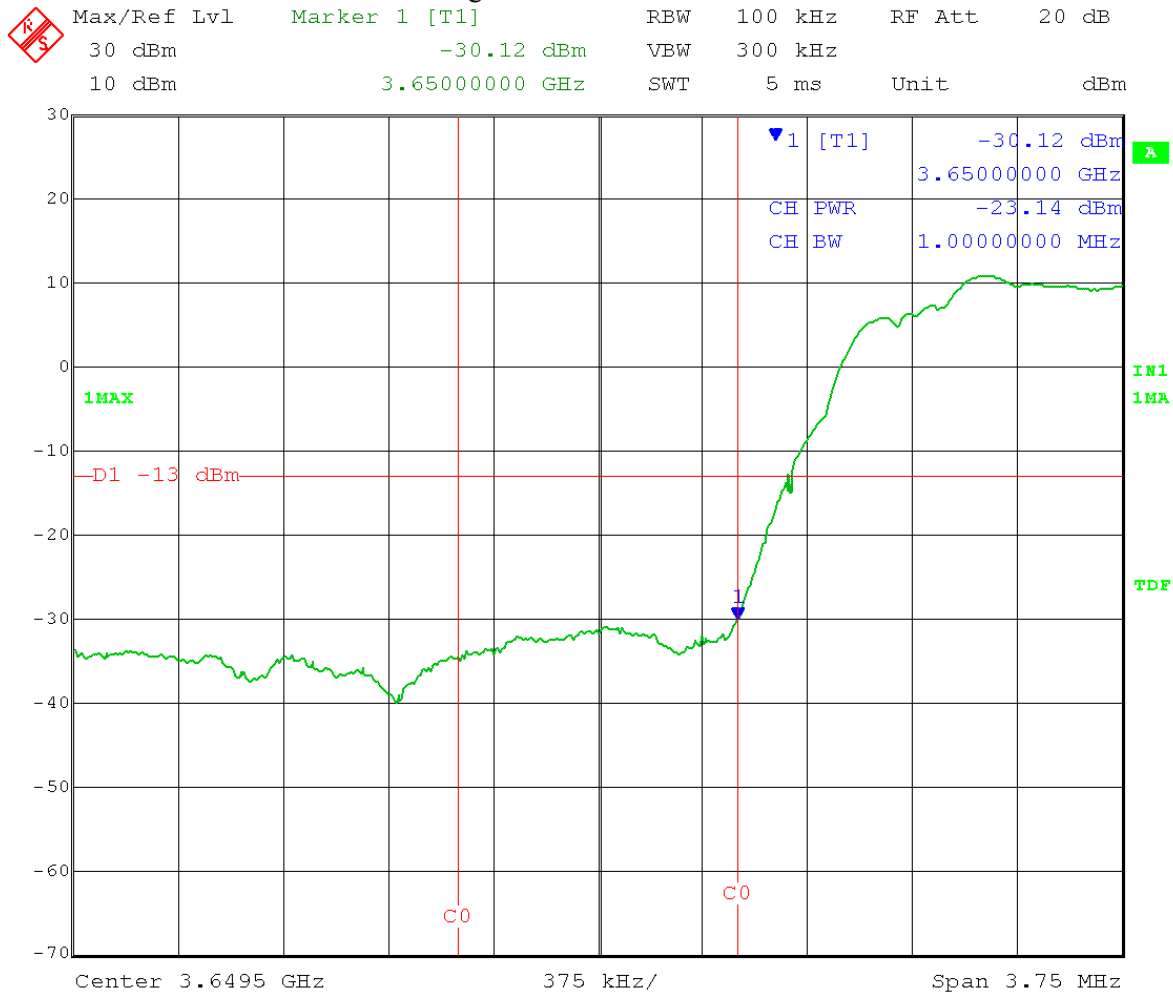
Date: 6.FEB.2014 15:01:09

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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 = -23.12 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-30.91 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -30.91 dBm
                3.65000000 GHz
CH PWR   -23.12 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz
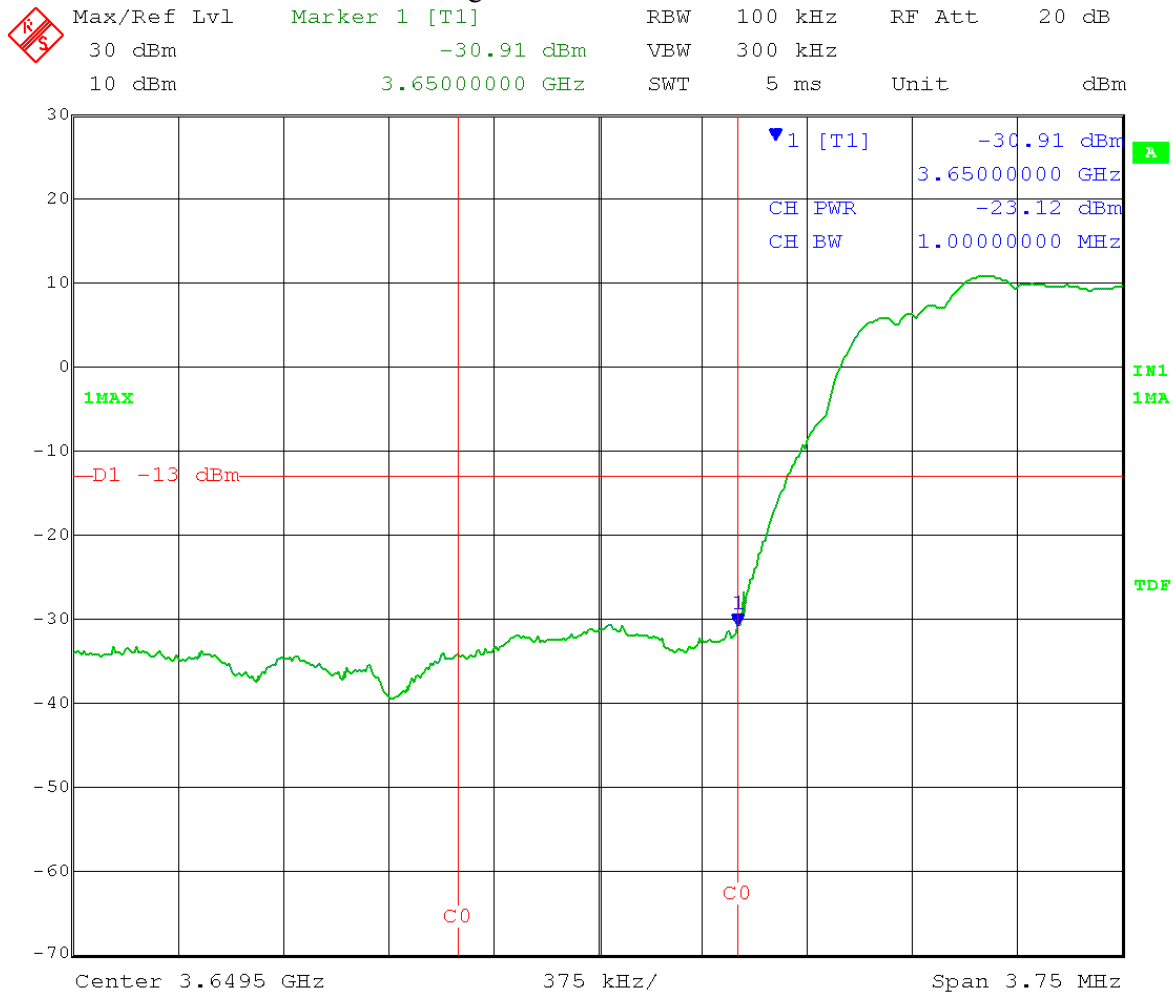
Date: 6.FEB.2014   15:03:58

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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 = -23.08 dBm/MHz
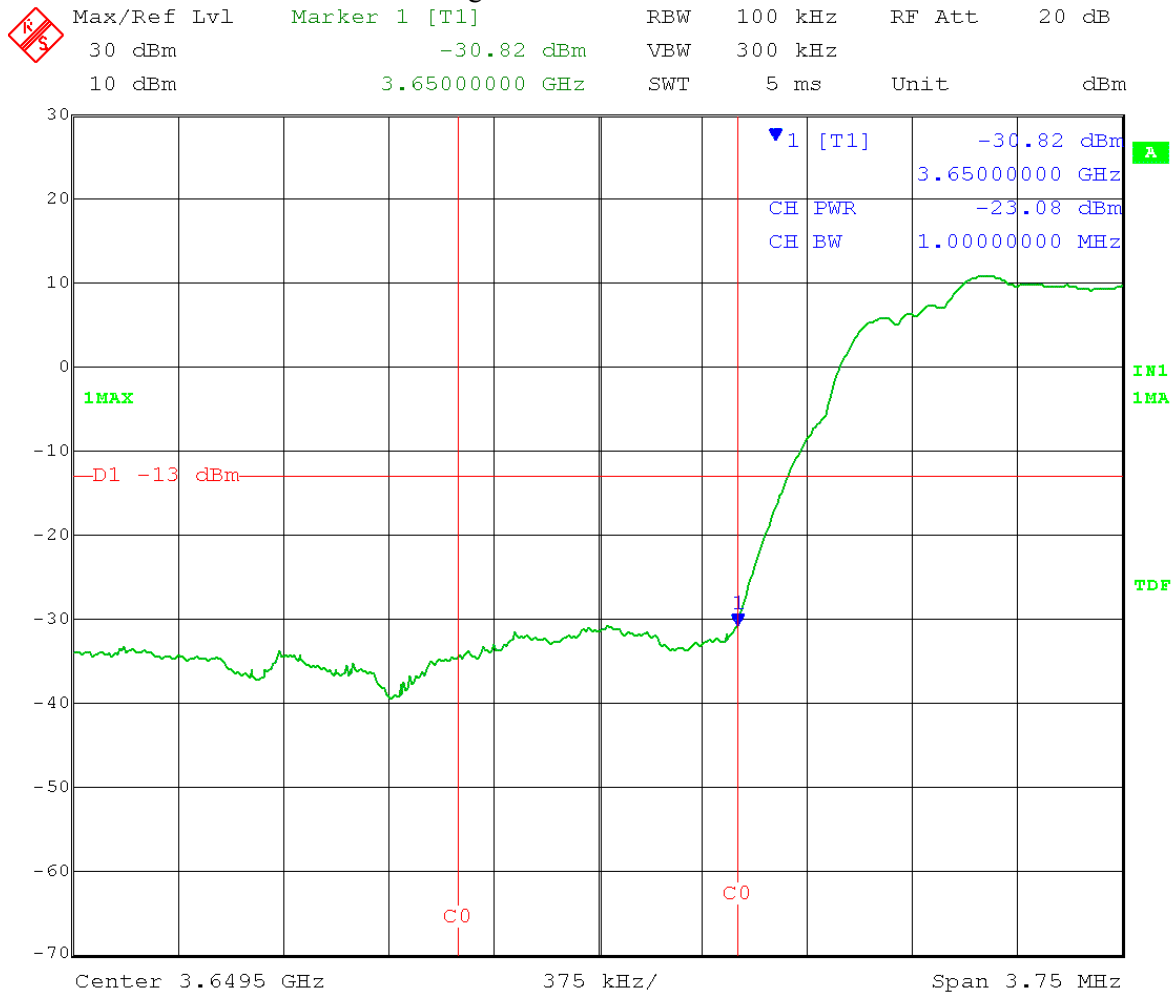
Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Low Channel: Transmit = 3655 MHz Output power setting: 22
              Channel bandwidth: 10 MHz   Output port: A
              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 = -23.65 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-30.21 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1MAX

▼1 [T1]   -30.21 dBm
               3.65000000 GHz
CH PWR   -23.65 dBm
CH BW   1.00000000 MHz

A

IN1
1MA

TDF

D1 -13 dBm

C0   C0

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 7.FEB.2014 09:45:48

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
Channel bandwidth: 10 MHz   Output port: A
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
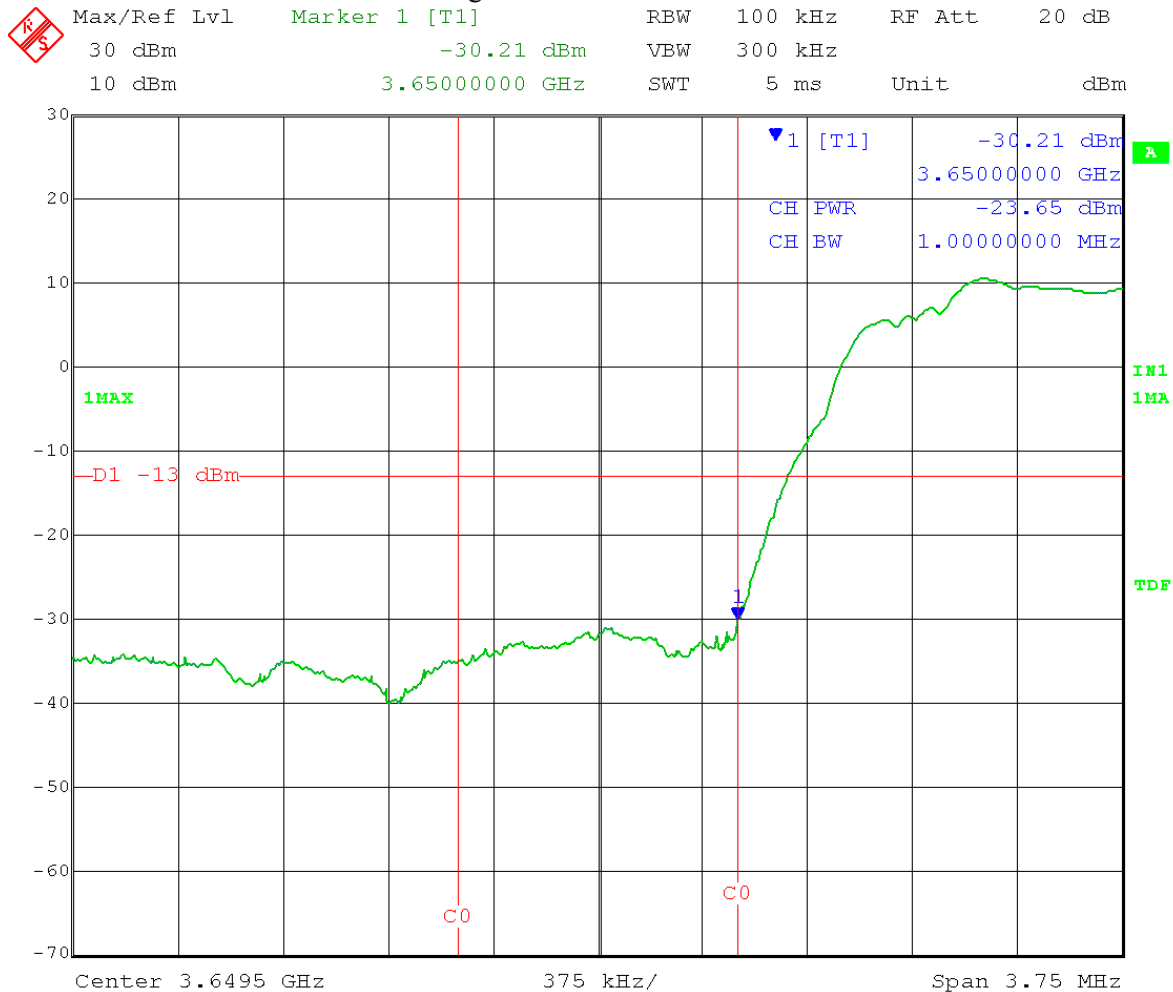
Power level at band edge = -24.48 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-32.90 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

Marker: 1 [T1] -32.90 dBm 3.65000000 GHz
CH PWR -24.48 dBm
CH BW 1.00000000 MHz

1MAX
D1 -13 dBm

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 7.FEB.2014 11:02:20

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
Channel bandwidth: 10 MHz   Output port: A
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
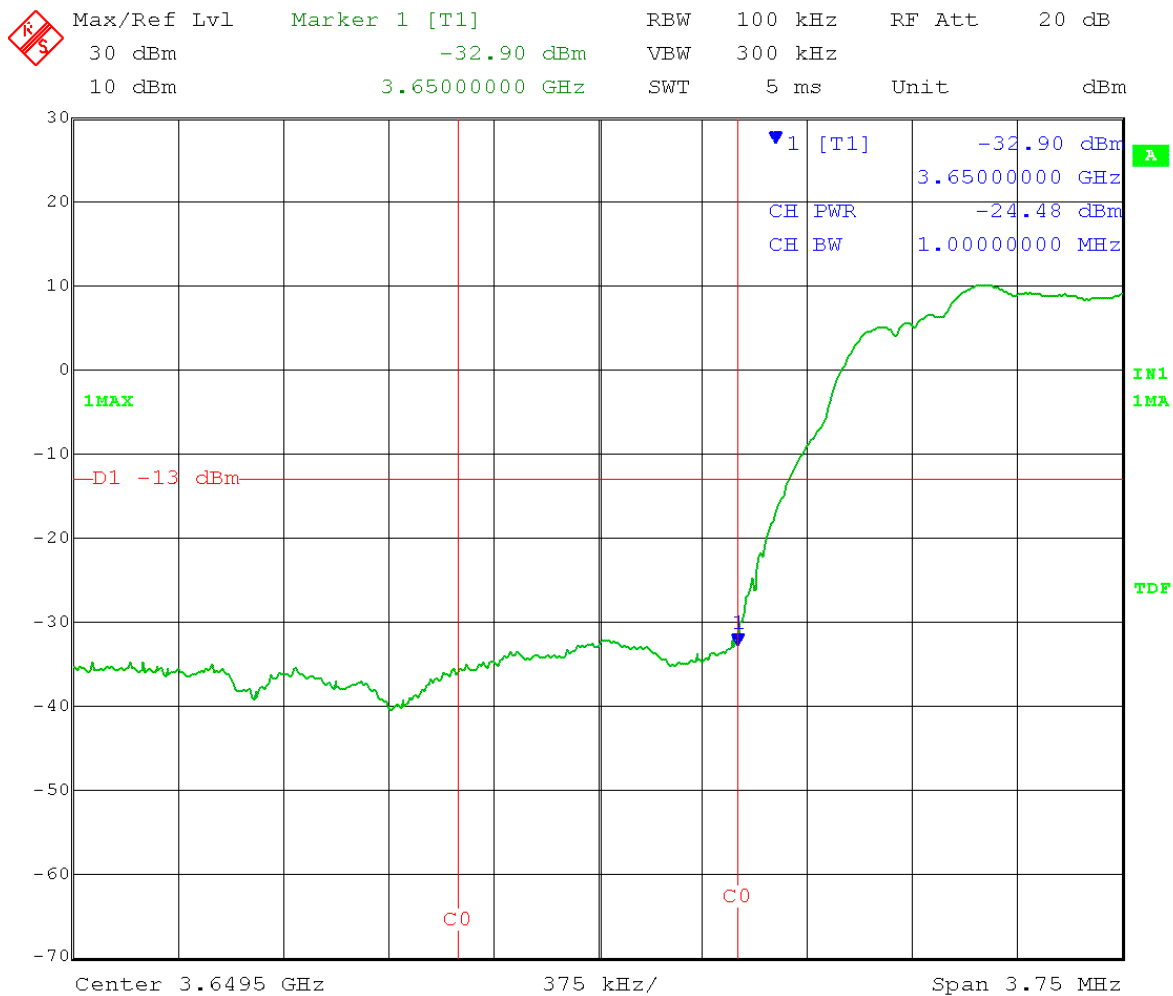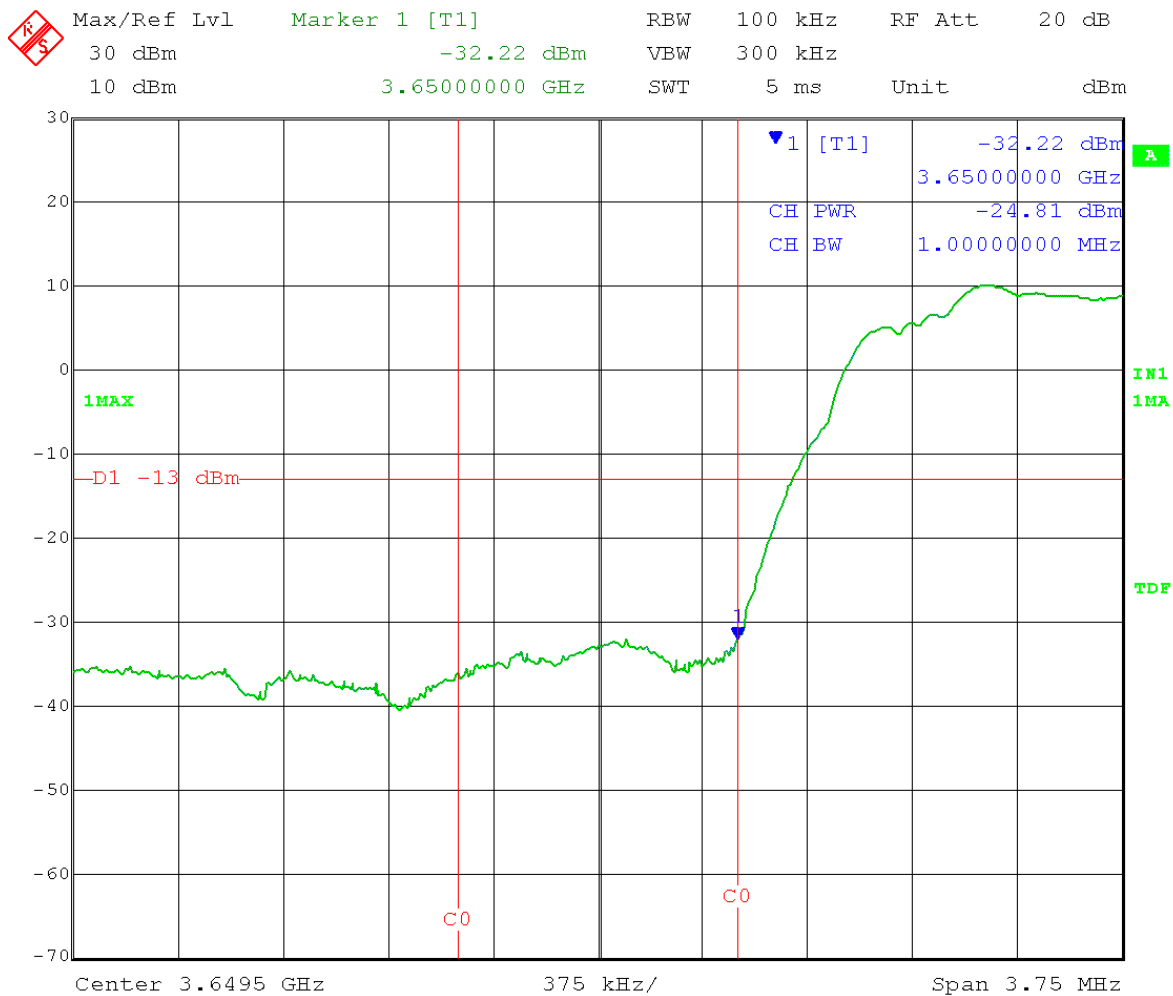
Power level at band edge = -24.81 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-32.22 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

```
 30
                                              ▼1 [T1]        -32.22 dBm      [A]
                                                        3.65000000 GHz
 20
                                              CH PWR        -24.81 dBm
                                              CH BW      1.00000000 MHz
 10
                                                                             IN1
  0                                                                          1MA
 1MAX
-10
 D1 -13 dBm
-20                                                                          TDF
-30                                    1
-40
-50
-60            C0              C0
-70
```

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 7.FEB.2014 13:05:53
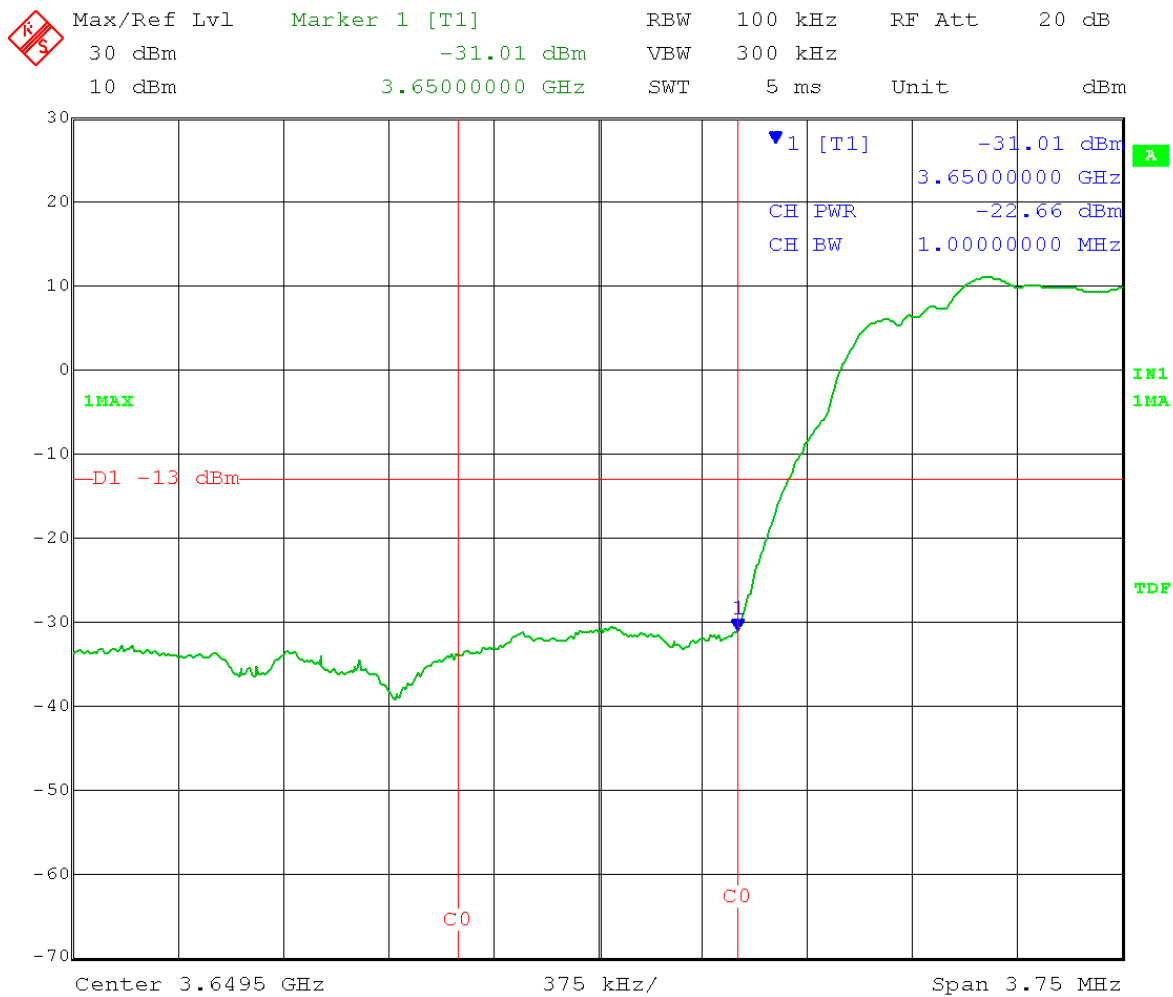
Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               Low Channel: Transmit = 3655 MHz Output power setting: 22
               Channel bandwidth: 10 MHz   Output port: A
               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 = -22.66 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-31.01 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.01 dBm
              3.65000000 GHz
CH PWR   -22.66 dBm
CH BW   1.00000000 MHz

A

1MAX

D1 -13 dBm

IN1
1MA

TDF

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz
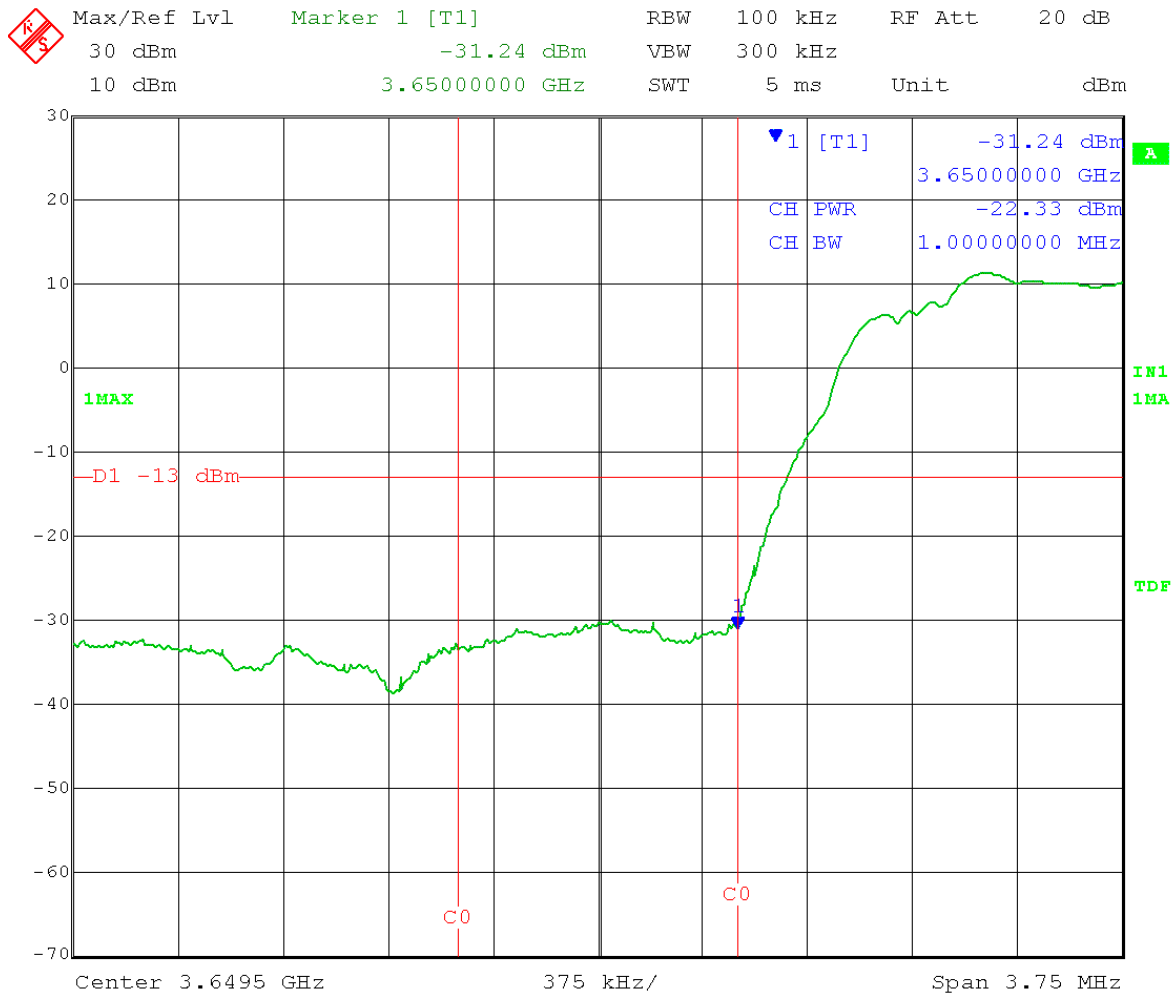
Date: 7.FEB.2014   15:08:07

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
               Channel bandwidth: 10 MHz   Output port: A
               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 = -22.33 dBm/MHz

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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 = -21.76 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-30.21 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -30.21 dBm
                3.65000000 GHz
CH PWR   -21.76 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.6495 GHz   375 kHz/   Span 3.75 MHz
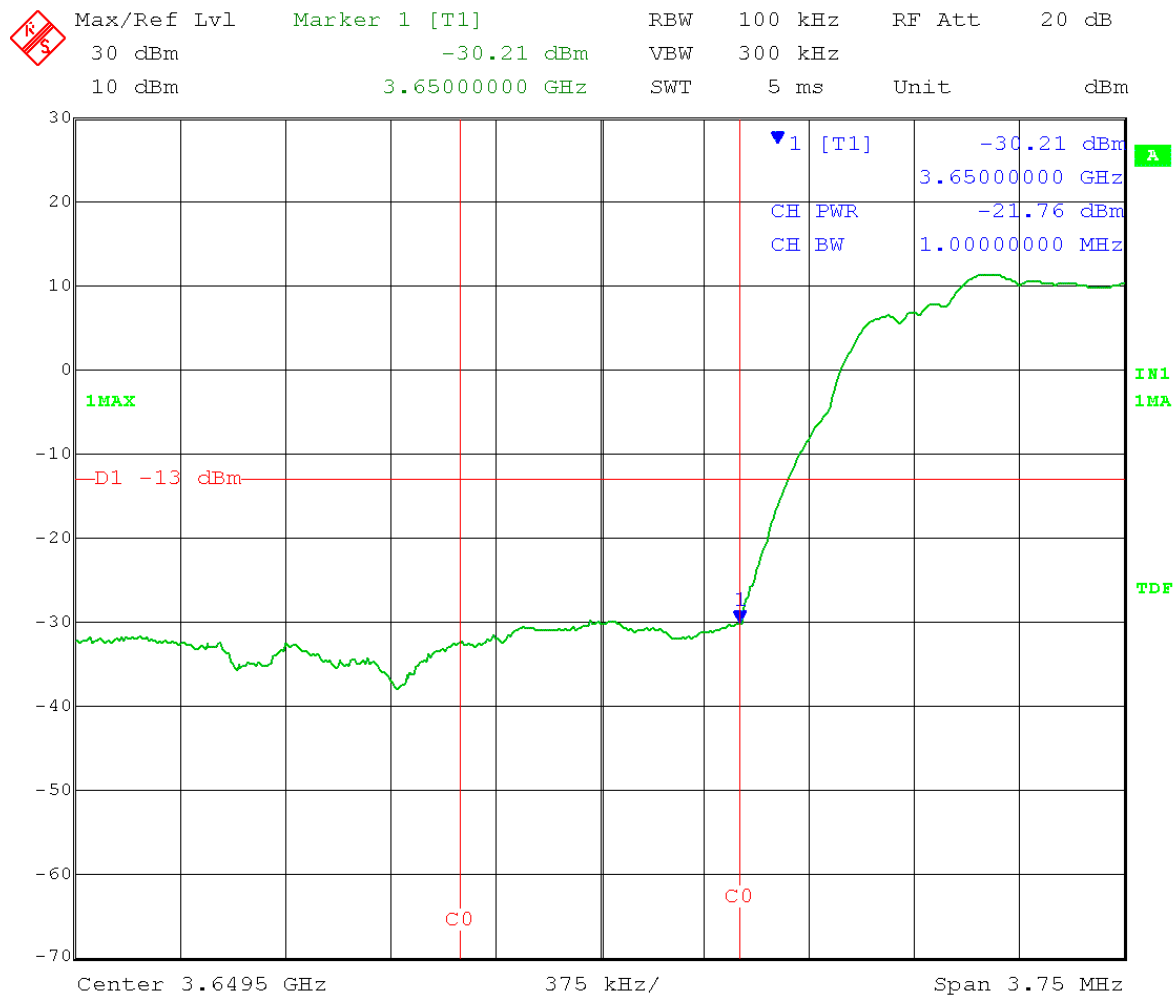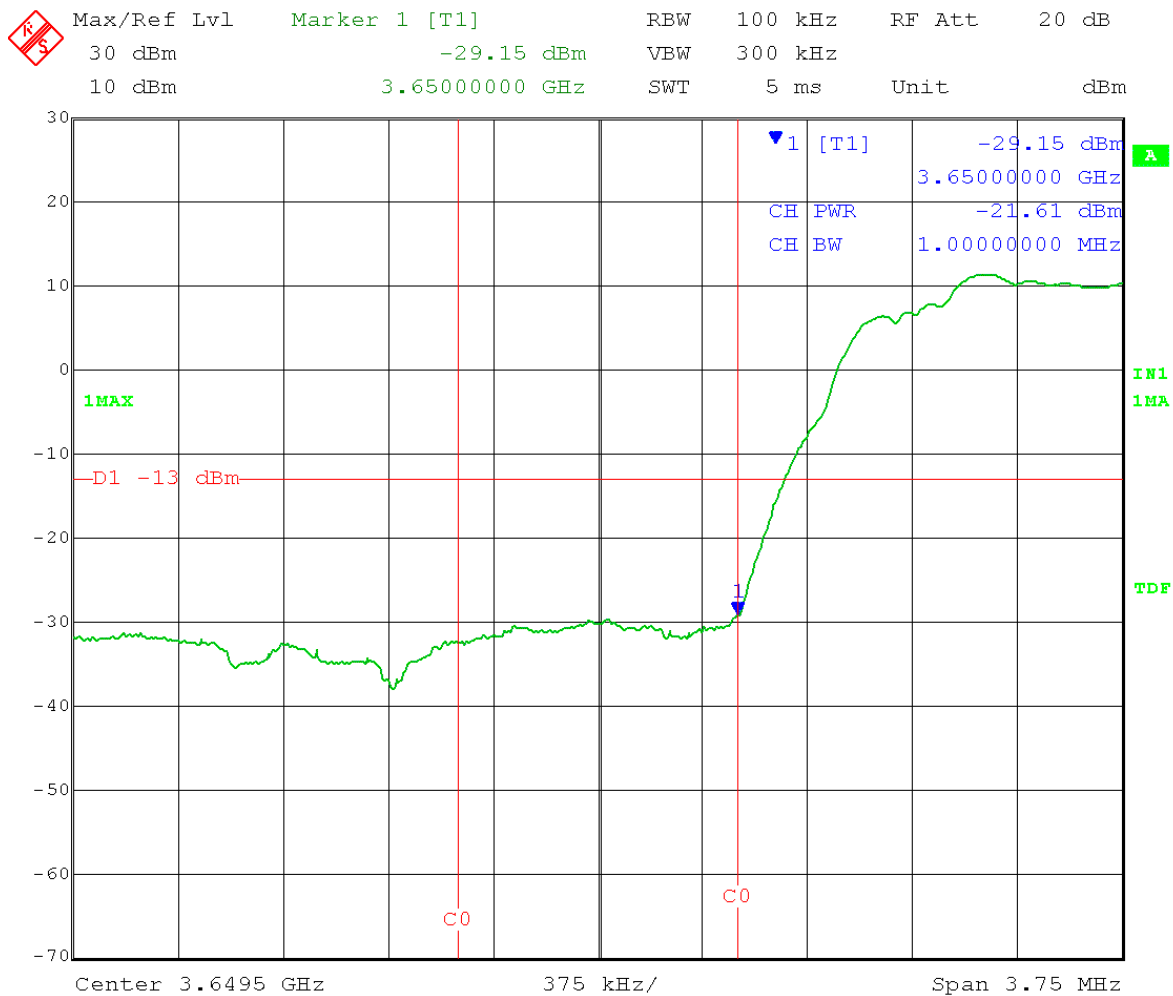
Date: 10.FEB.2014   10:26:26

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
             Channel bandwidth: 10 MHz   Output port: A
             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 = -21.61 dBm/MHz

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
Channel bandwidth: 10 MHz   Output port: A
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
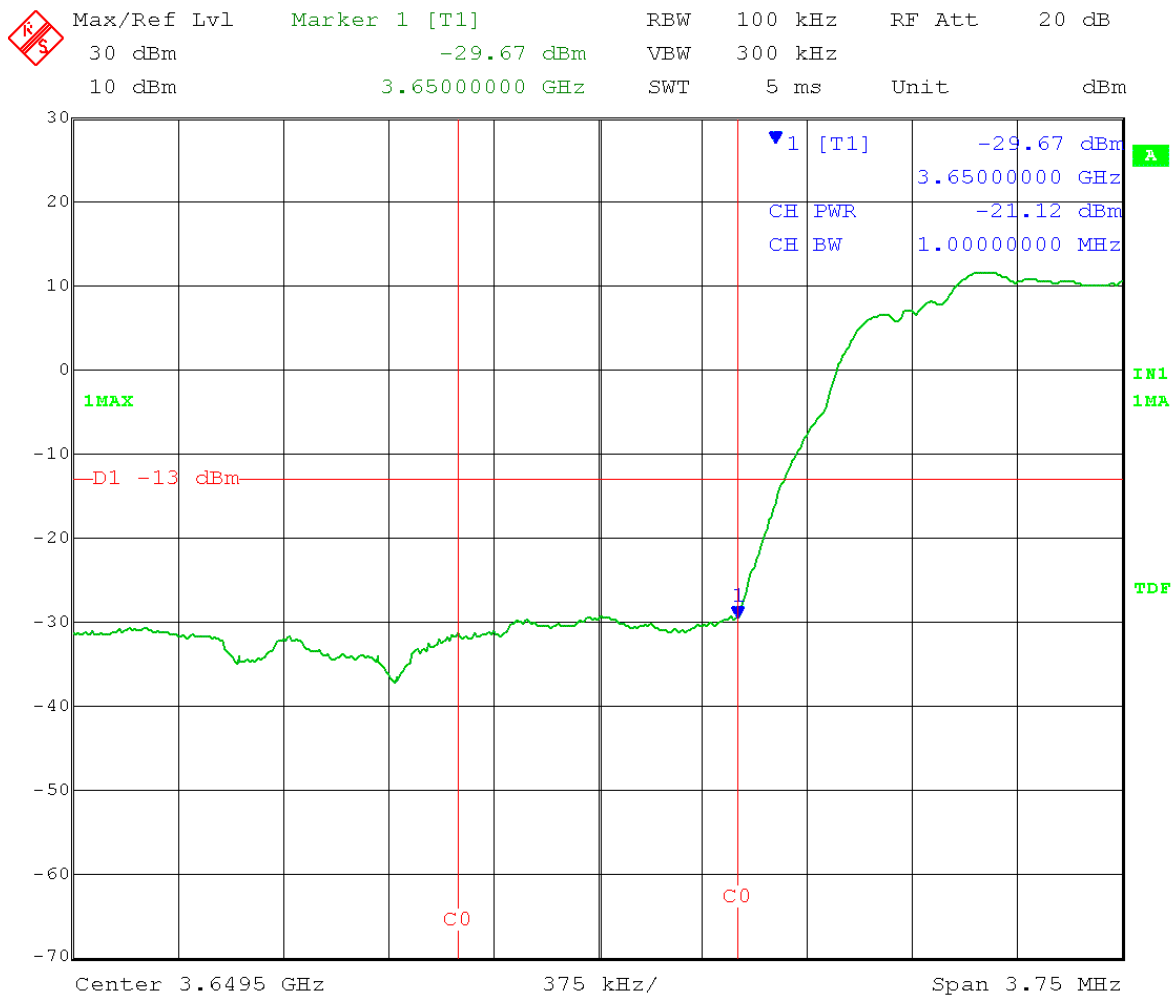
-30 °C, 120 V
Power level at band edge = -21.12 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-29.67 dBm	VBW	300 kHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -29.67 dBm
                          3.65000000 GHz
CH PWR   -21.12 dBm
CH BW   1.00000000 MHz

A

1MAX

IN1
1MA

D1 -13 dBm

TDF

1

C0   C0

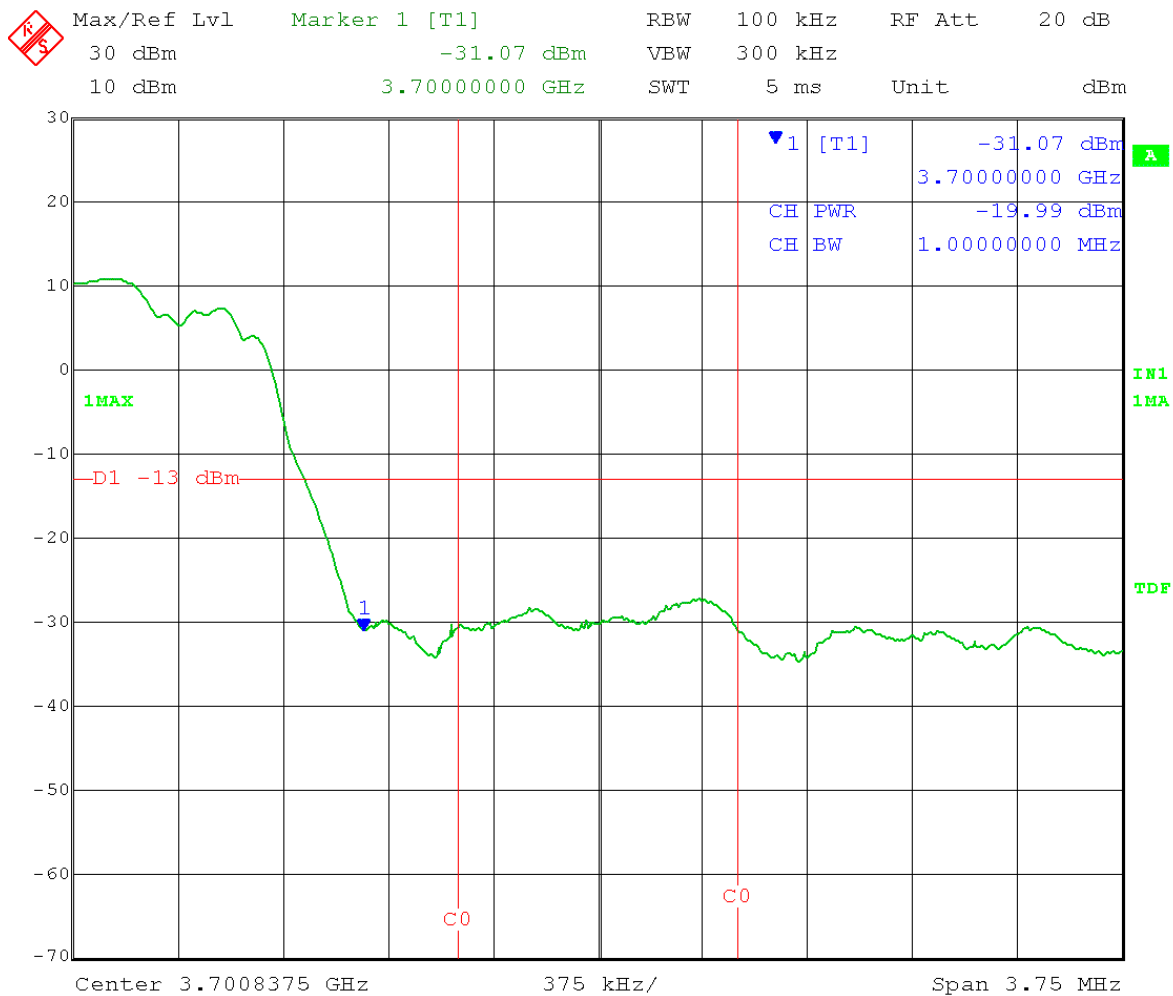Center 3.6495 GHz   375 kHz/   Span 3.75 MHz

Date: 10.FEB.2014 13:37:53

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
Channel bandwidth: 10 MHz   Output port: A
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 = -19.99 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-31.07 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.07 dBm
3.70000000 GHz
CH PWR   -19.99 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7008375 GHz   375 kHz/   Span 3.75 MHz

Date: 6.FEB.2014   15:12:45

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
               Channel bandwidth: 10 MHz   Output port: A
               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 = -19.92 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-31.00 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.00 dBm
                3.70000000 GHz
CH PWR   -19.92 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7008375 GHz   375 kHz/   Span 3.75 MHz
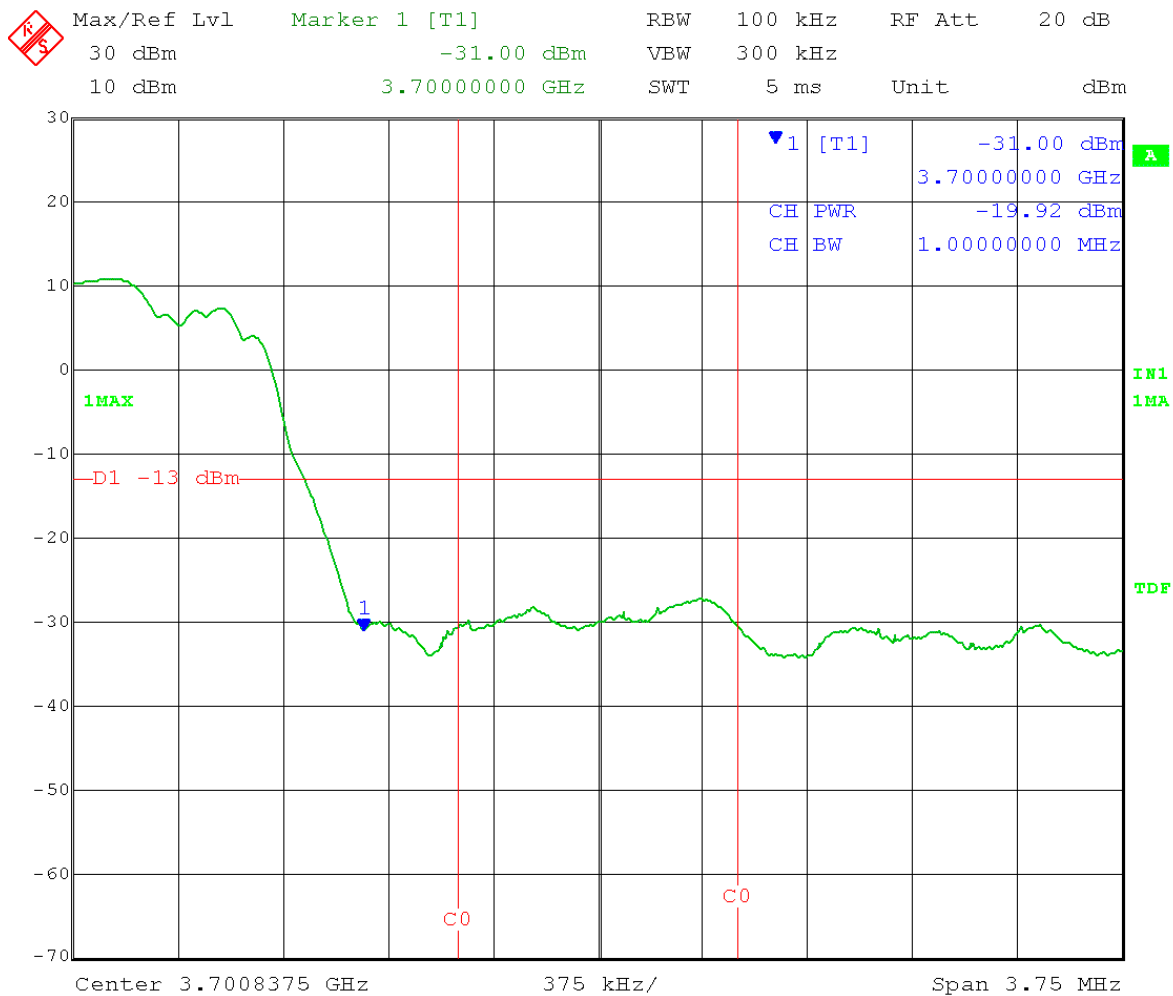
Date: 6.FEB.2014 15:14:21

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
               Channel bandwidth: 10 MHz   Output port: A
               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 = -19.85 dBm/MHz

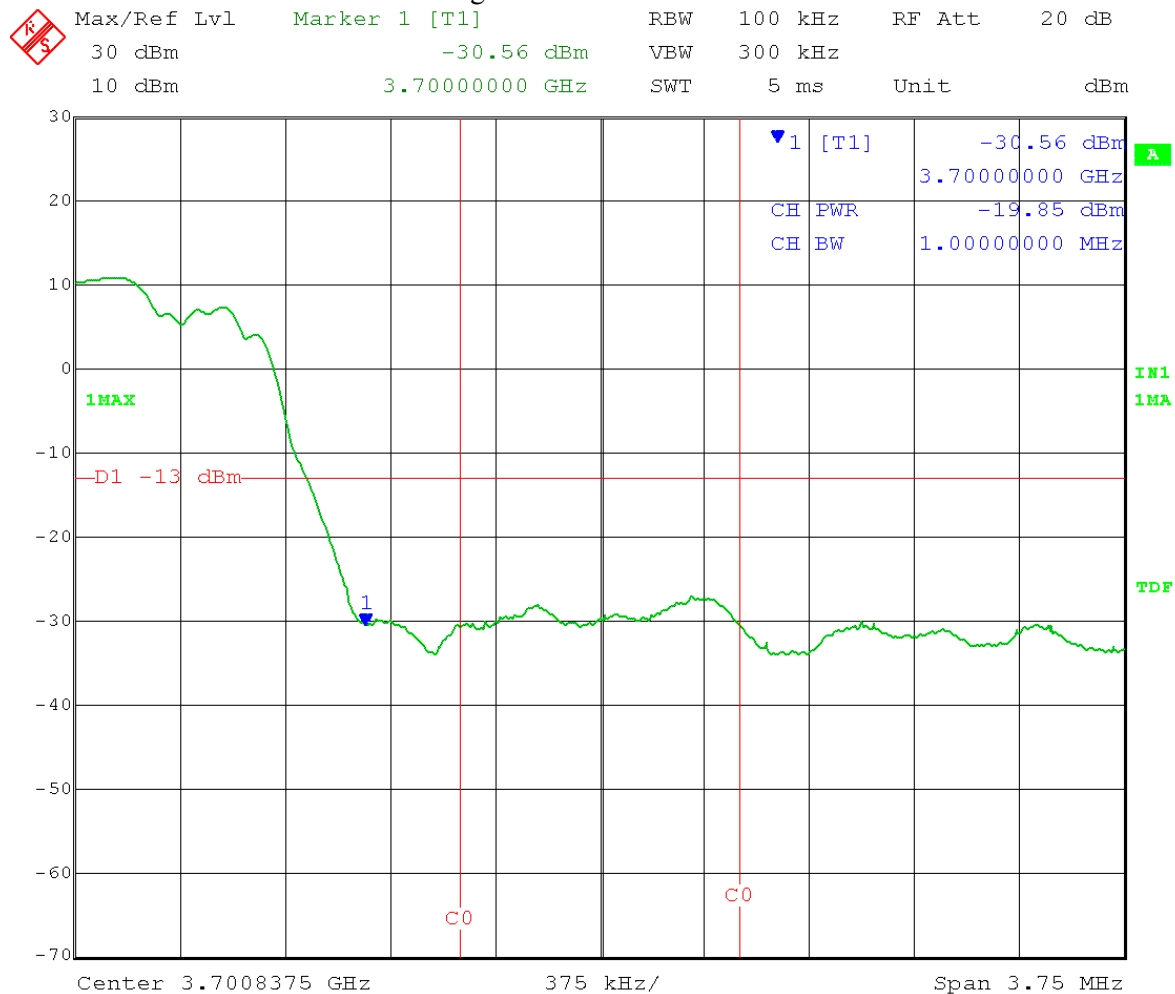
Date: 6.FEB.2014 15:11:31

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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 = -20.54 dBm/MHz
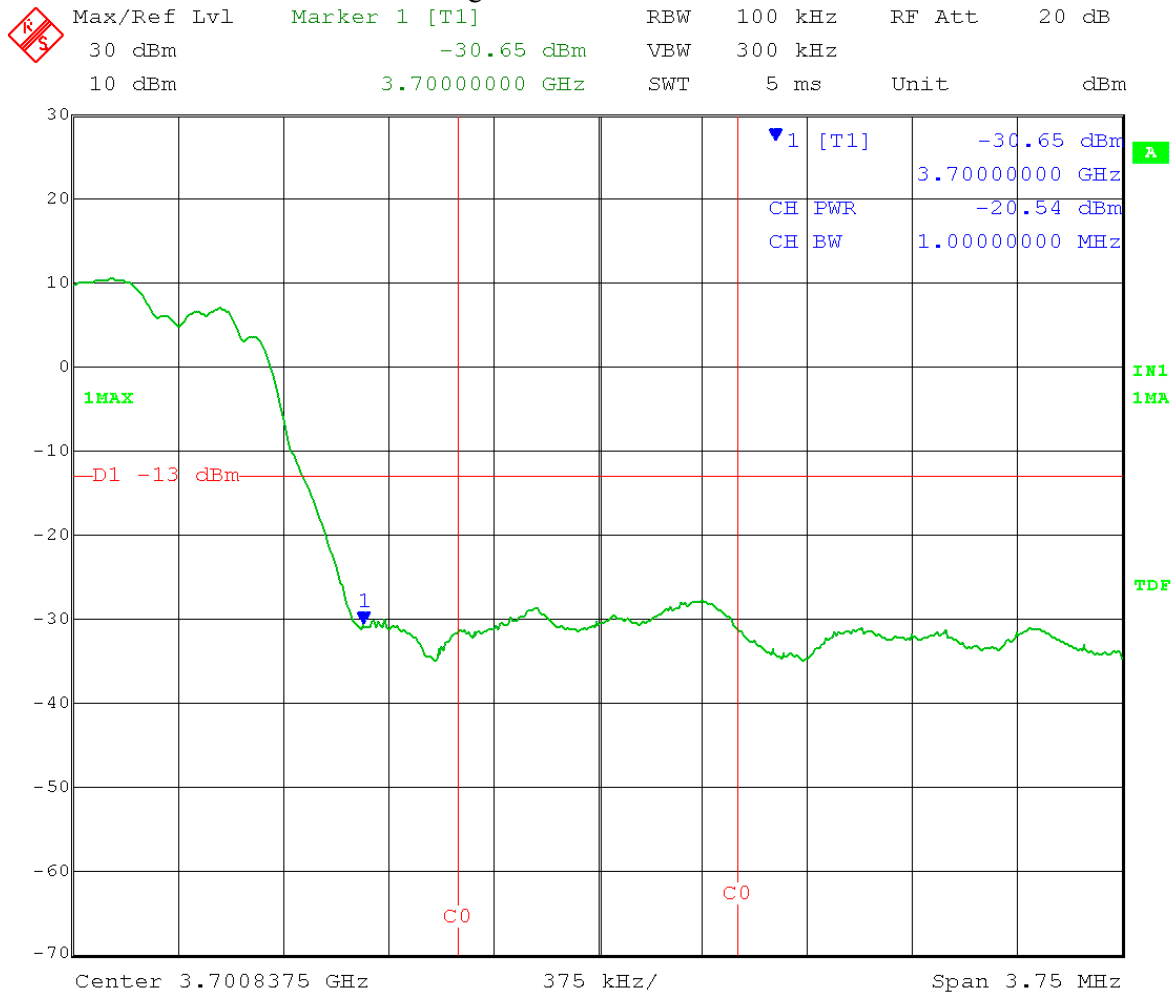
Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3695 MHz   Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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 = -21.24 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-31.93 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -31.93 dBm
                 3.70000000 GHz
CH PWR   -21.24 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7008375 GHz   375 kHz/   Span 3.75 MHz
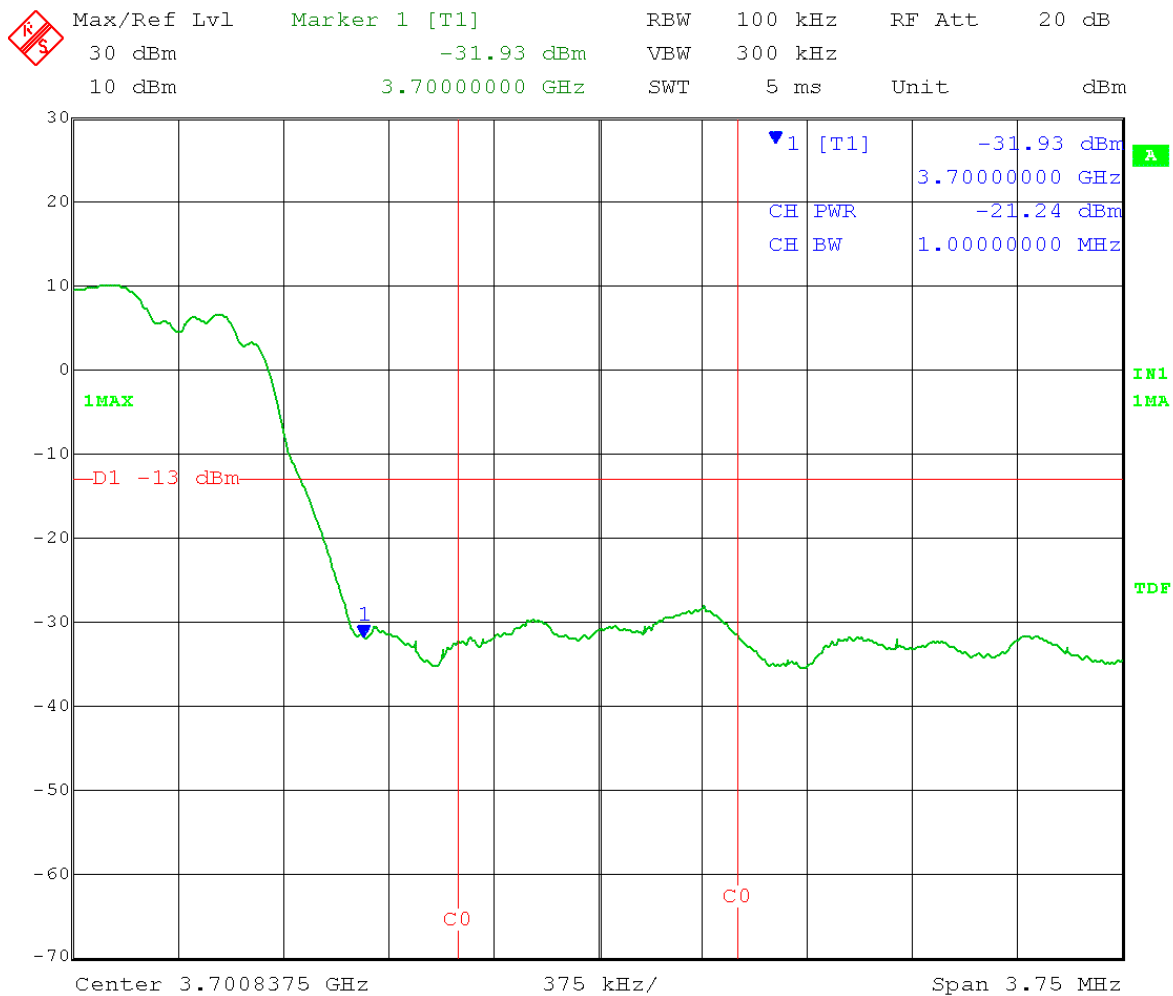
Date: 7.FEB.2014 10:59:30

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
                <mark>High Channel: Transmit = 3695 MHz</mark>   Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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

<mark>50 °C</mark>, 120 V

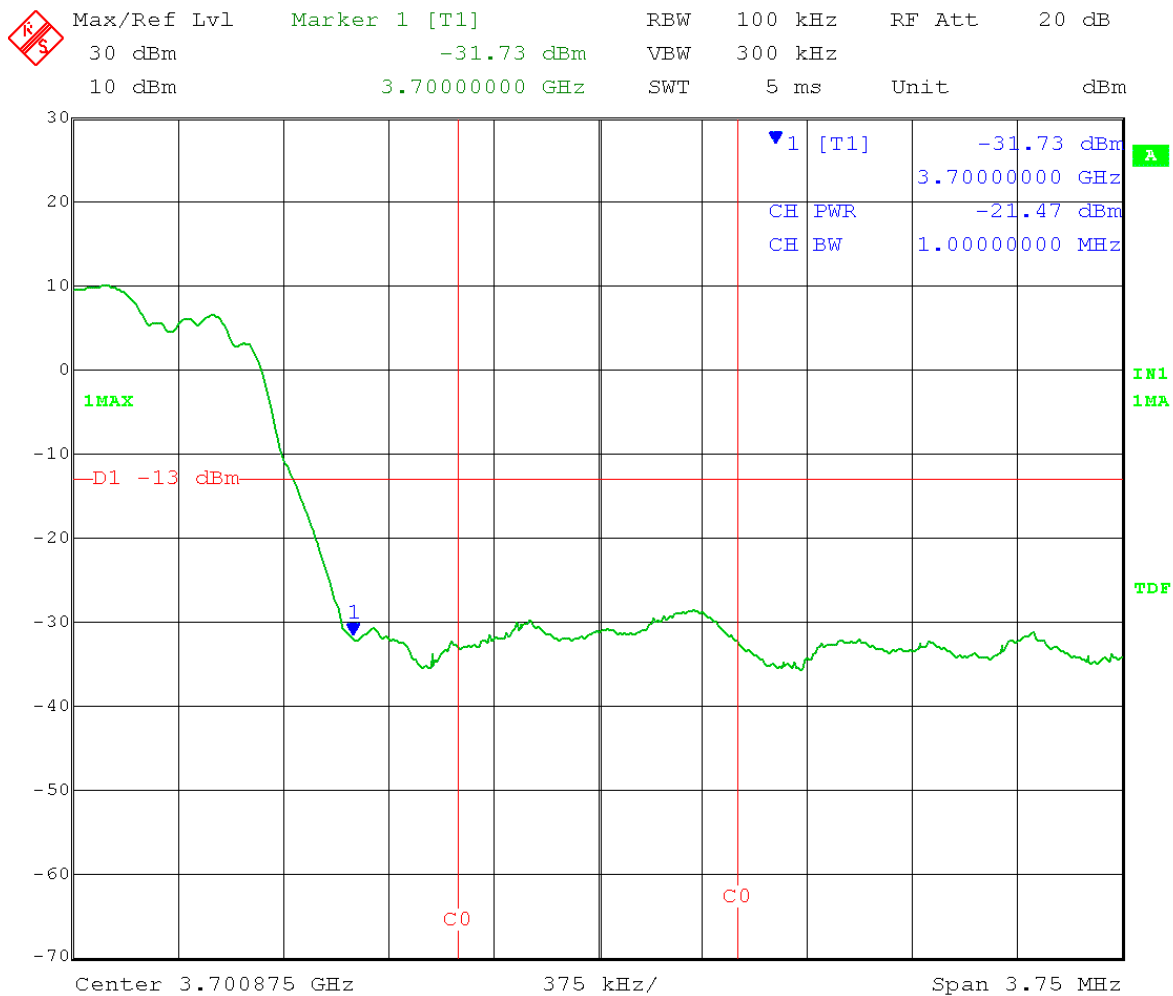   Power level at band edge = -21.47 dBm/MHz

Date: 7.FEB.2014   13:02:36

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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
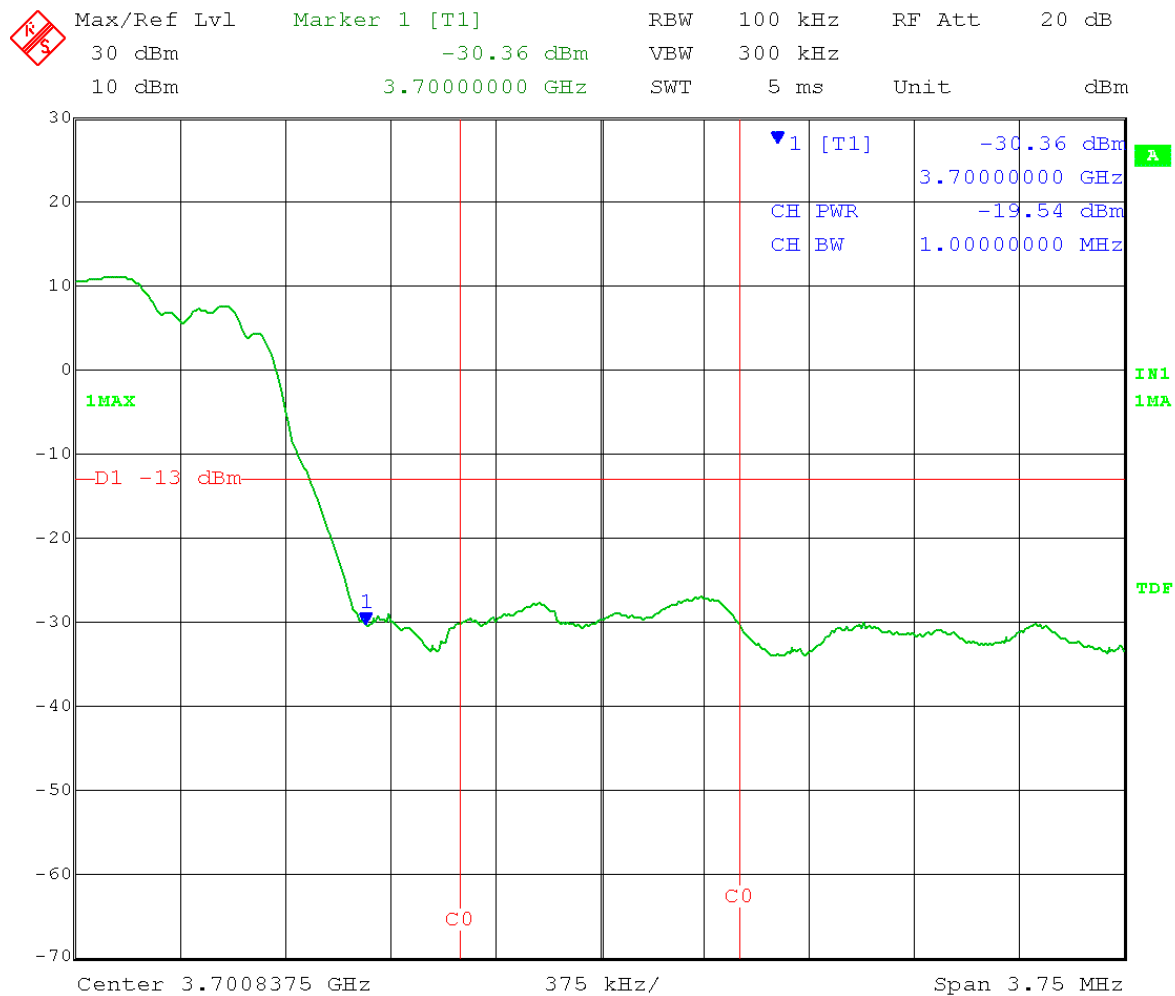
                Power level at band edge = -19.54 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-30.36 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -30.36 dBm
              3.70000000 GHz
CH PWR   -19.54 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

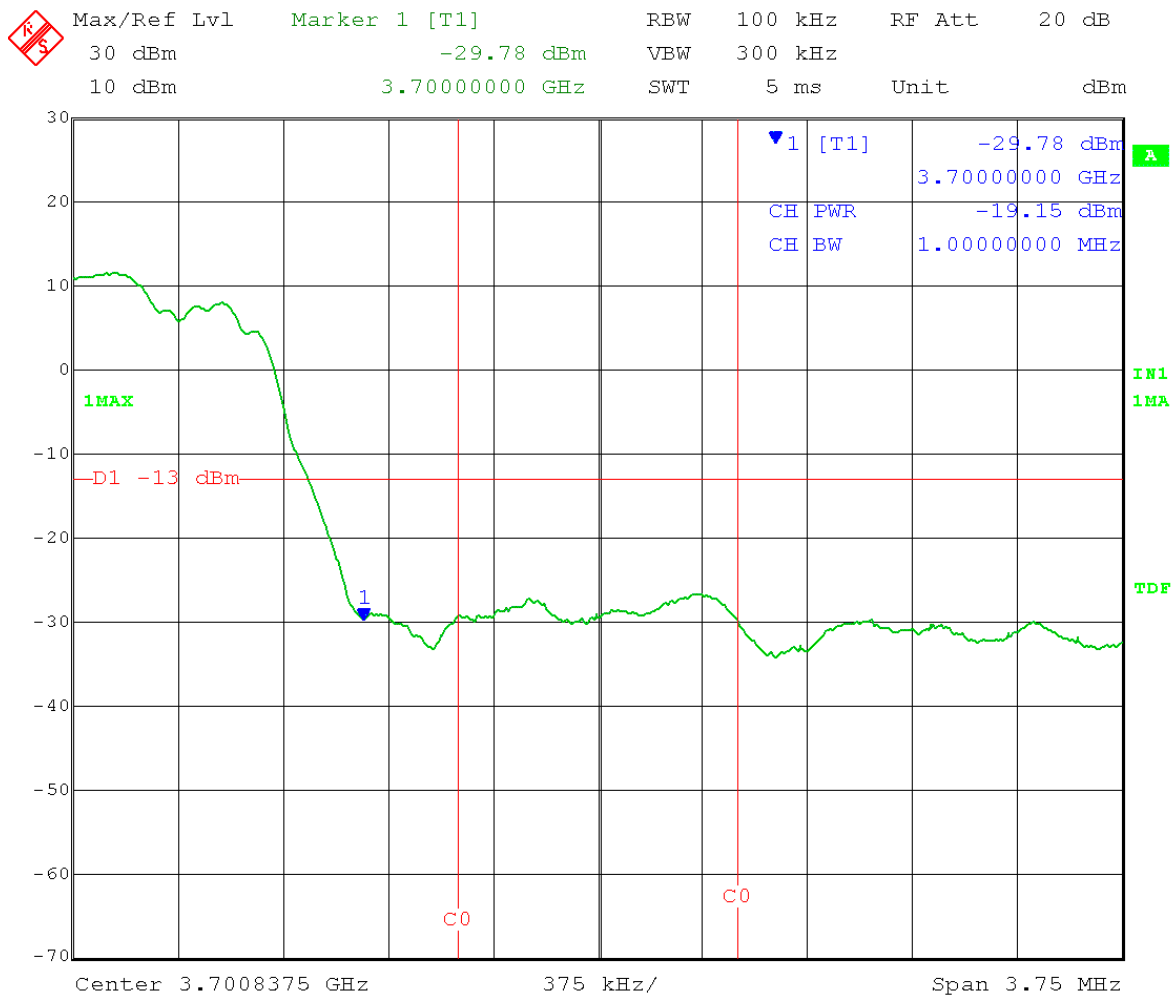Center 3.7008375 GHz   375 kHz/   Span 3.75 MHz

Date: 7.FEB.2014   15:04:31

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
Channel bandwidth: 10 MHz   Output port: A
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

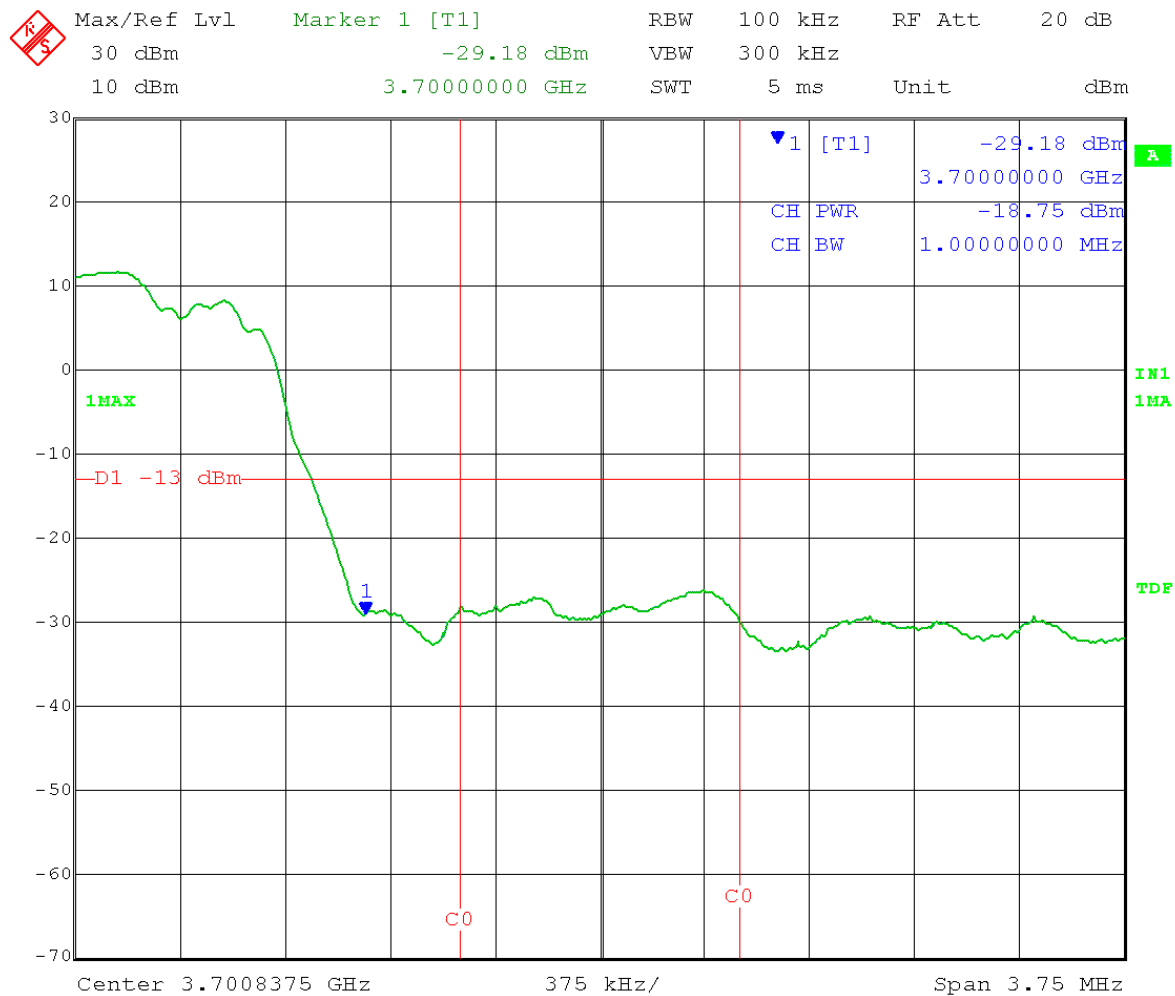   Power level at band edge = -19.15 dBm/MHz

Date: 10.FEB.2014 08:59:21

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
                <mark>High Channel: Transmit = 3695 MHz</mark>   Output power setting: 22
                Channel bandwidth: 10 MHz   Output port: A
                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

<mark>-10 °C</mark>, 120 V

                Power level at band edge = -18.75 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	100 kHz	RF Att	20 dB
30 dBm		-29.18 dBm	VBW	300 kHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -29.18 dBm
              3.70000000 GHz
CH PWR   -18.75 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7008375 GHz   375 kHz/   Span 3.75 MHz

Date: 10.FEB.2014 10:22:58

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
           Channel bandwidth: 10 MHz   Output port: A
           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

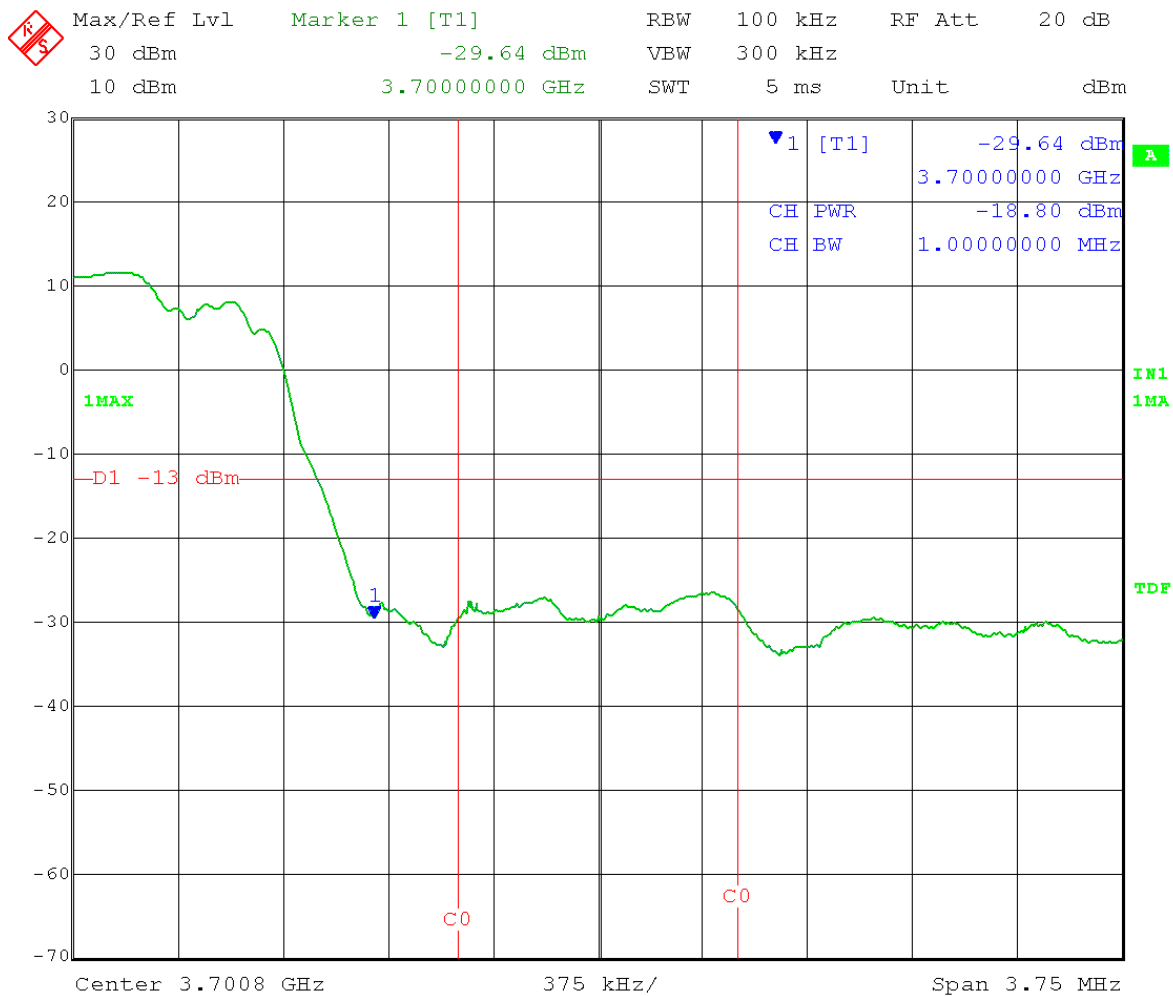   Power level at band edge = -18.80 dBm/MHz
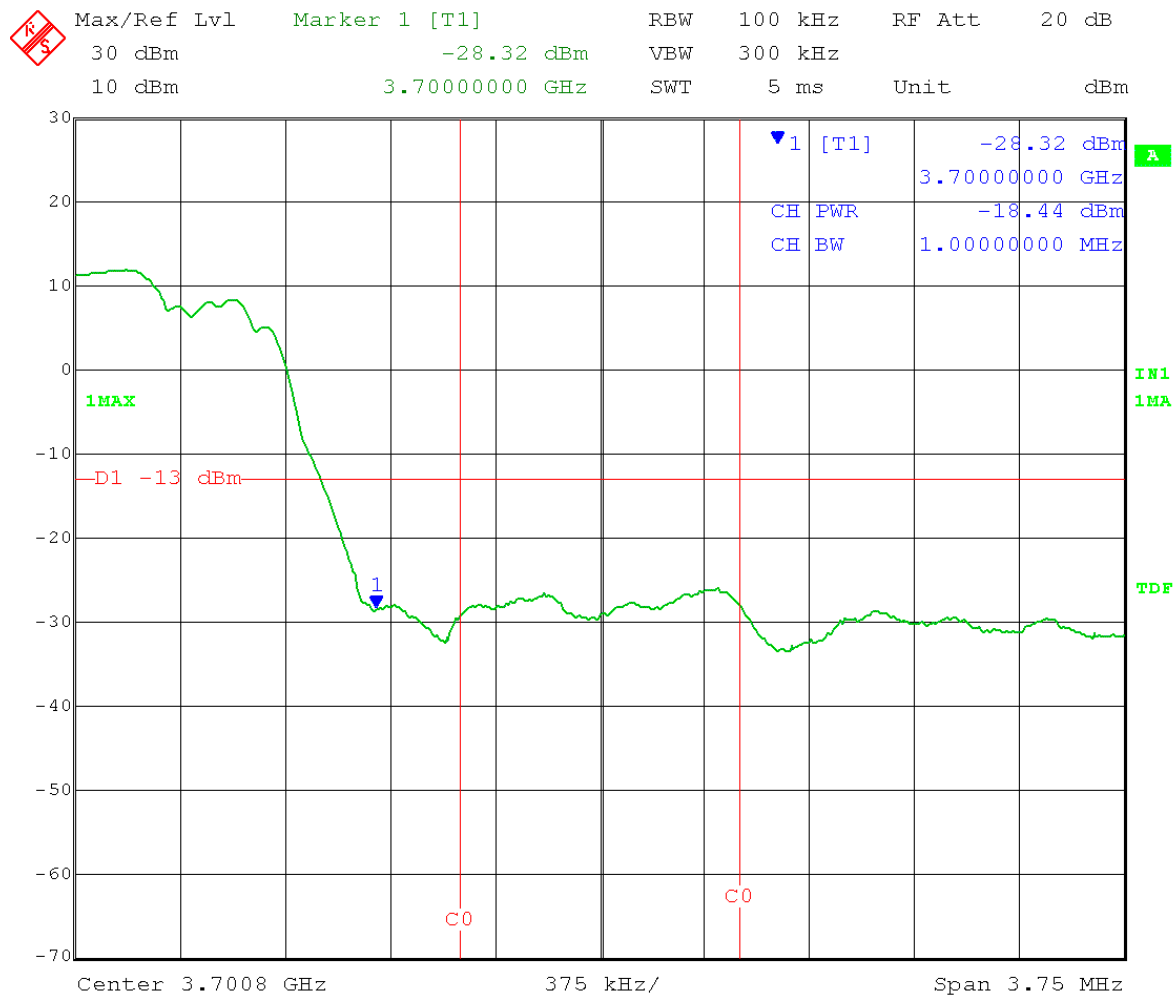

Date: 10.FEB.2014 11:40:29

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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
                   <mark>High Channel: Transmit = 3695 MHz</mark>   Output power setting: 22
                   Channel bandwidth: 10 MHz   Output port: A
                   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

<mark>-30 ℃</mark>, 120 V

                   Power level at band edge = -18.44 dBm/MHz

Date: 10.FEB.2014   13:35:05

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
Channel bandwidth: 20 MHz   Output port: A
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 ℃, 120 V

Power level at band edge = -14.05 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-21.61 dBm	VBW	1 MHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -21.61 dBm
3.65000000 GHz
CH PWR   -14.05 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

Center 3.6492 GHz   500 kHz/   Span 5 MHz

Date: 6.FEB.2014   15:26:54
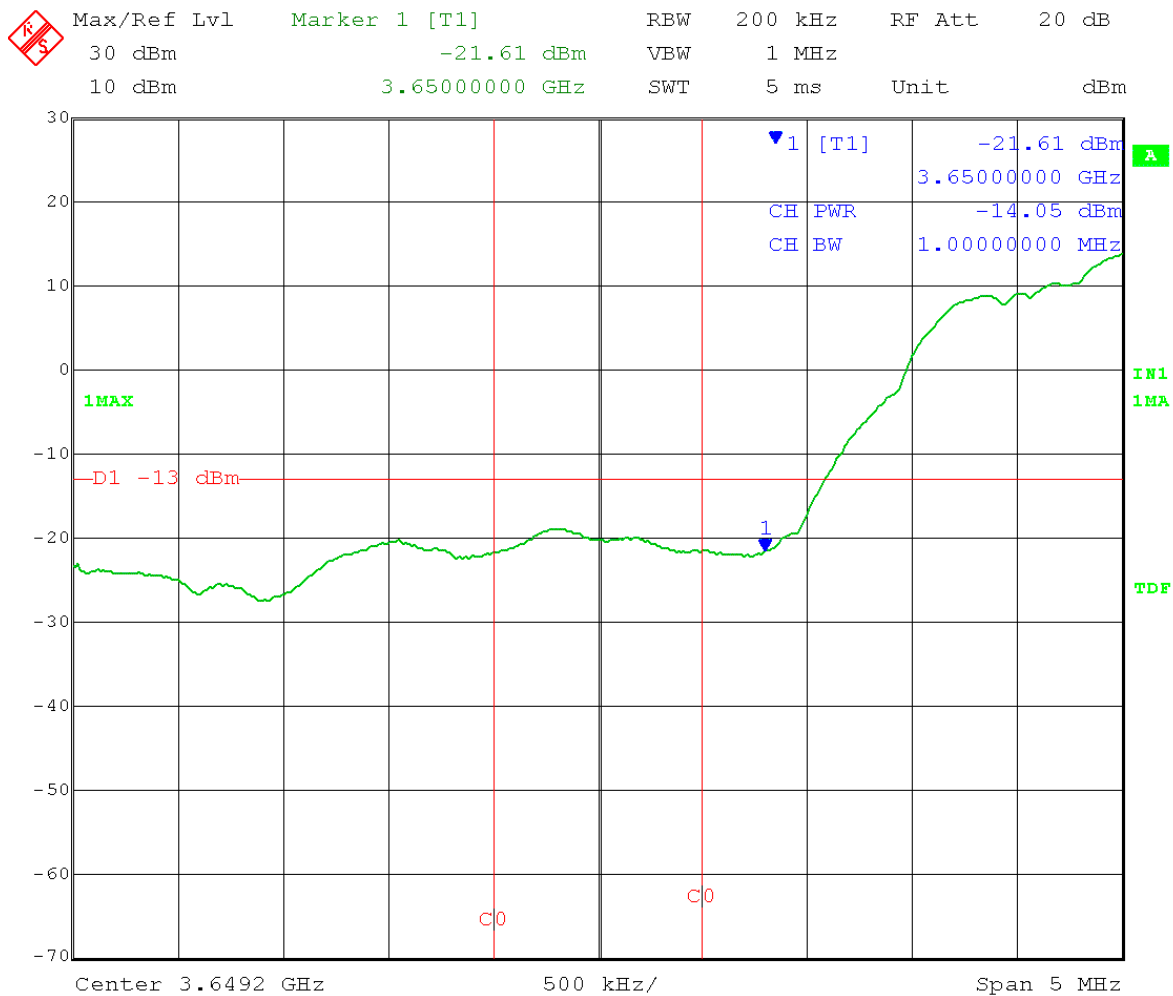
Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Lower Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
              Detector = Peak   Sweep = auto couple
              Trace = max hold
              Low Channel: Transmit = 3660 MHz Output power setting: 25
              Channel bandwidth: 20 MHz   Output port: A
              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 = -14.03 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-21.62 dBm	VBW	1 MHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

Center 3.6492 GHz   500 kHz/   Span 5 MHz
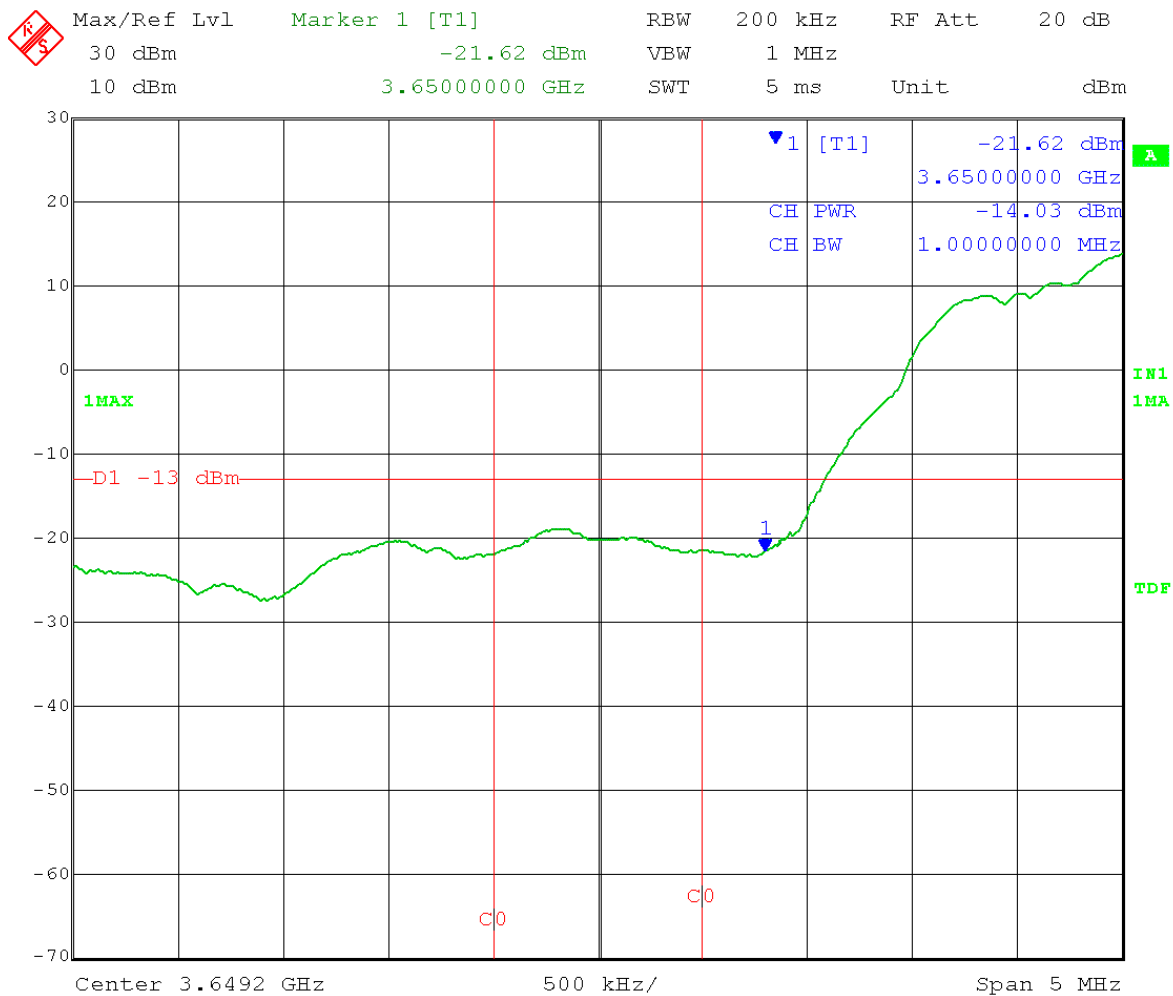
Date: 6.FEB.2014   15:25:04

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
               Channel bandwidth: 20 MHz   Output port: A
               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 = -14.01 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	200 kHz	RF Att	20 dB
30 dBm	-21.63 dBm	VBW	1 MHz		
10 dBm	3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -21.63 dBm
               3.65000000 GHz
CH PWR   -14.01 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.6492 GHz   500 kHz/   Span 5 MHz
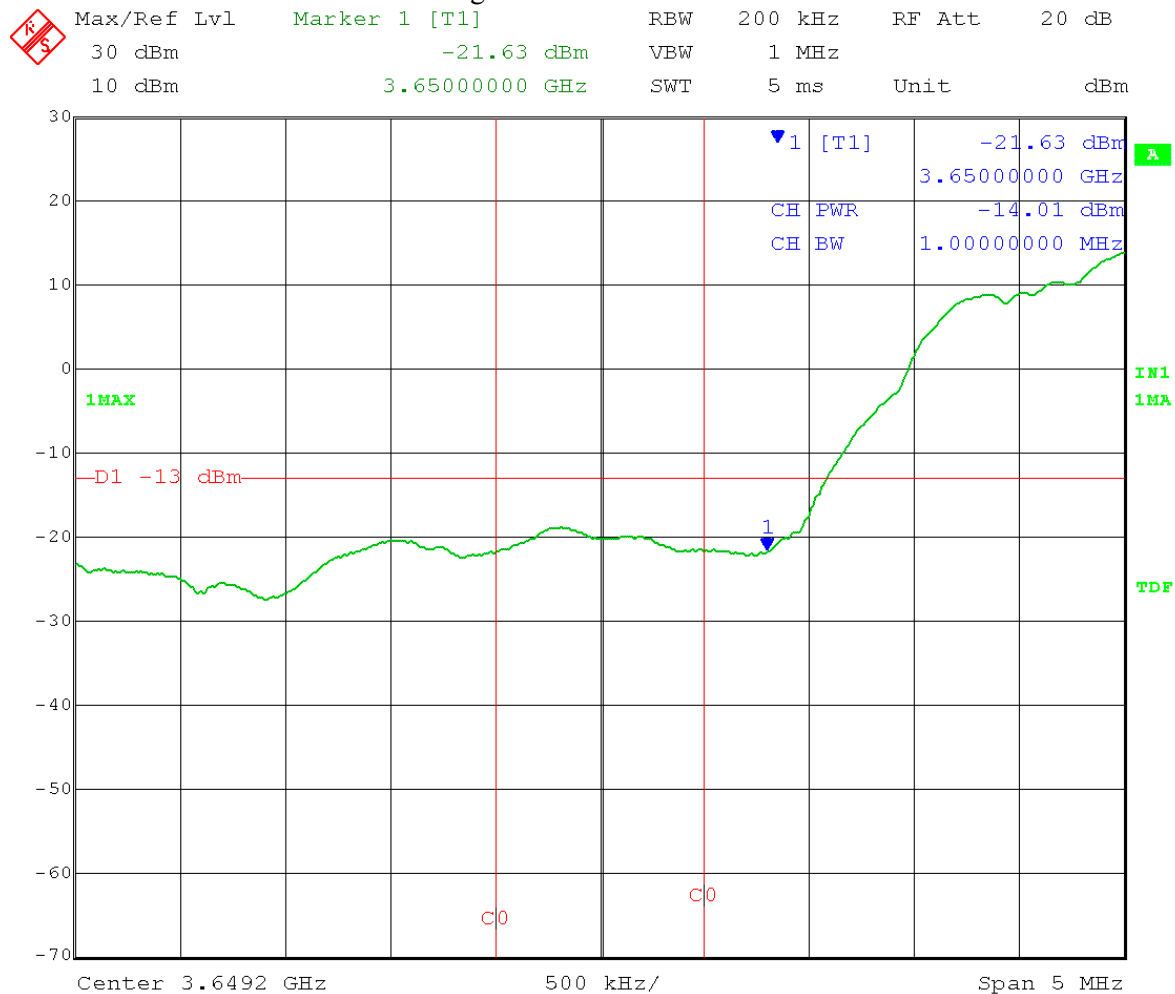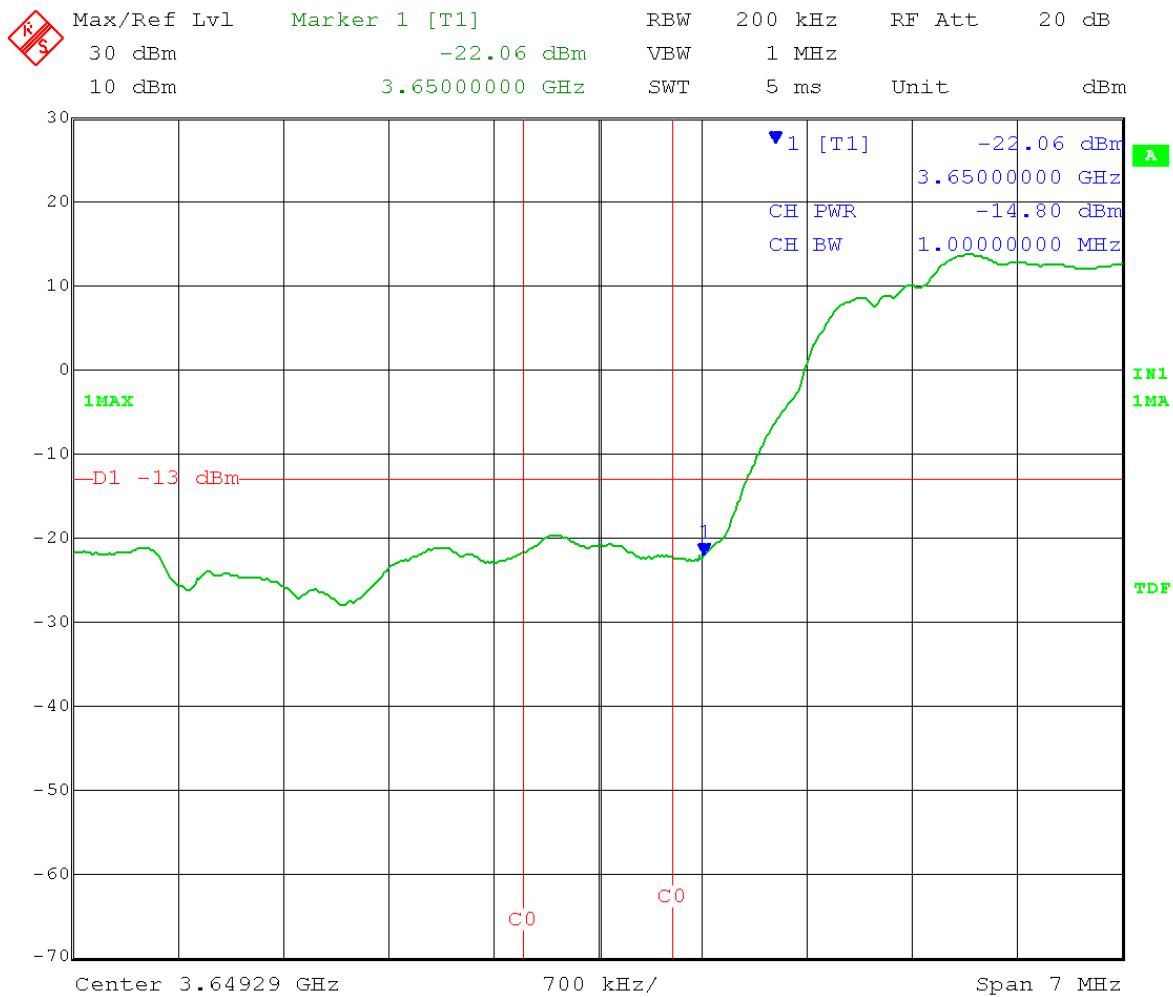Date: 6.FEB.2014 15:32:05

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                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 = -14.80 dBm/MHz

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                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 = -15.42 dBm/MHz

Date: 7.FEB.2014   10:40:29

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                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

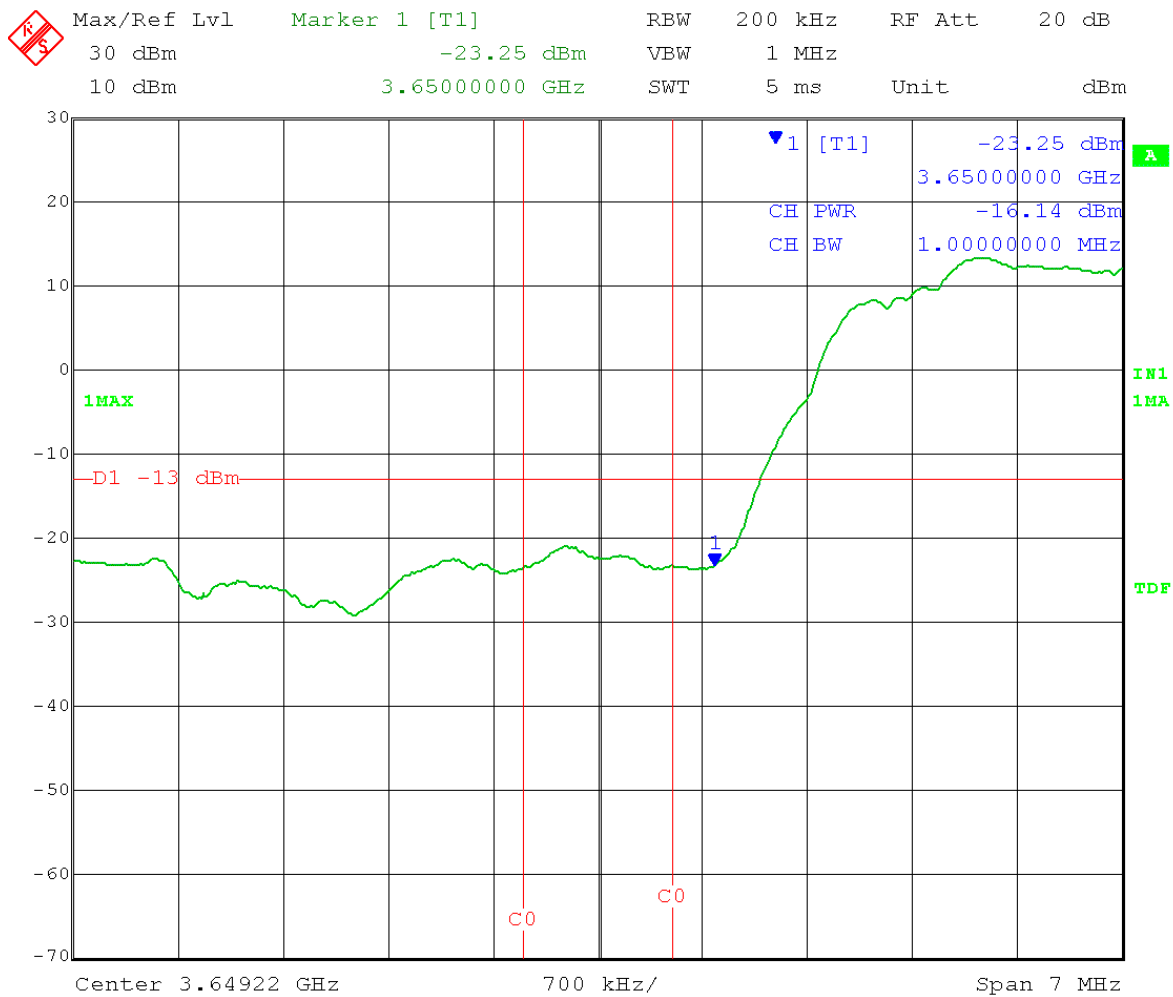   Power level at band edge = -16.14 dBm/MHz

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
Channel bandwidth: 20 MHz   Output port: A
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 = -13.42 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-21.22 dBm	VBW	1 MHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

Date: 7.FEB.2014 14:49:39

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 24
                Channel bandwidth: 20 MHz   Output port: A
                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
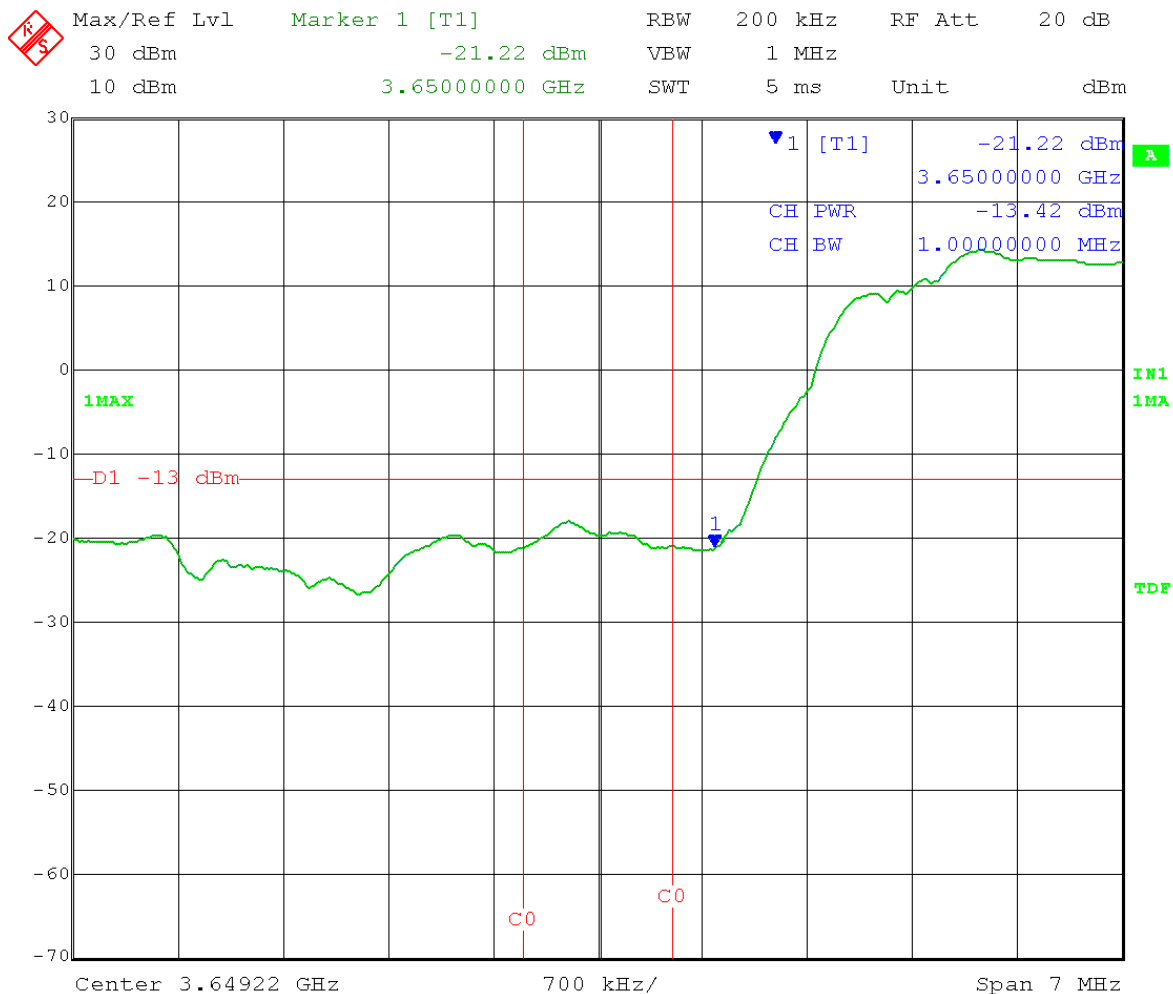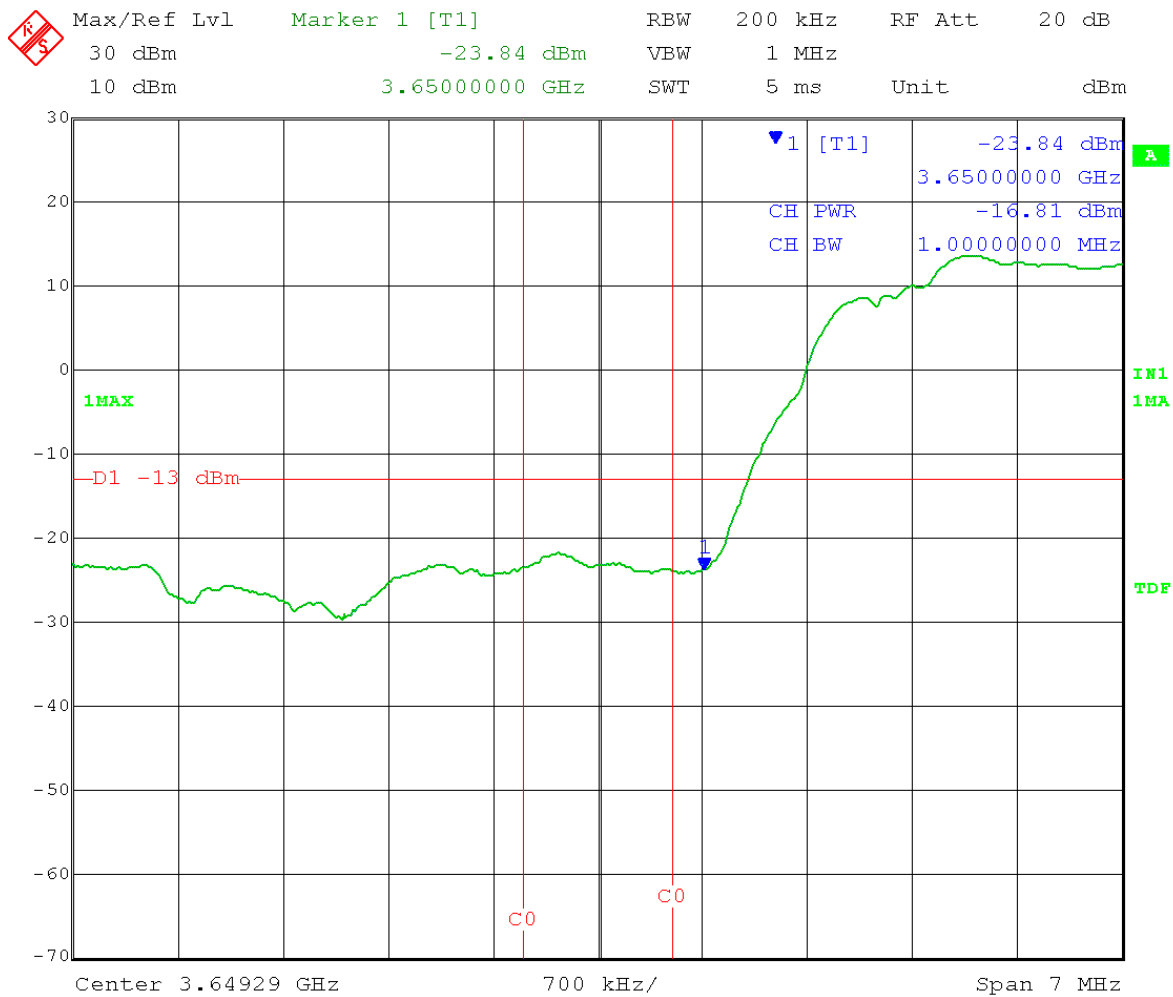
                Power level at band edge = -16.81 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	200 kHz	RF Att	20 dB
30 dBm	-23.84 dBm	VBW	1 MHz		
10 dBm	3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -23.84 dBm
              3.65000000 GHz
CH PWR   -16.81 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.64929 GHz   700 kHz/   Span 7 MHz

Date: 10.FEB.2014   08:44:09

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 24
              Channel bandwidth: 20 MHz   Output port: A
              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

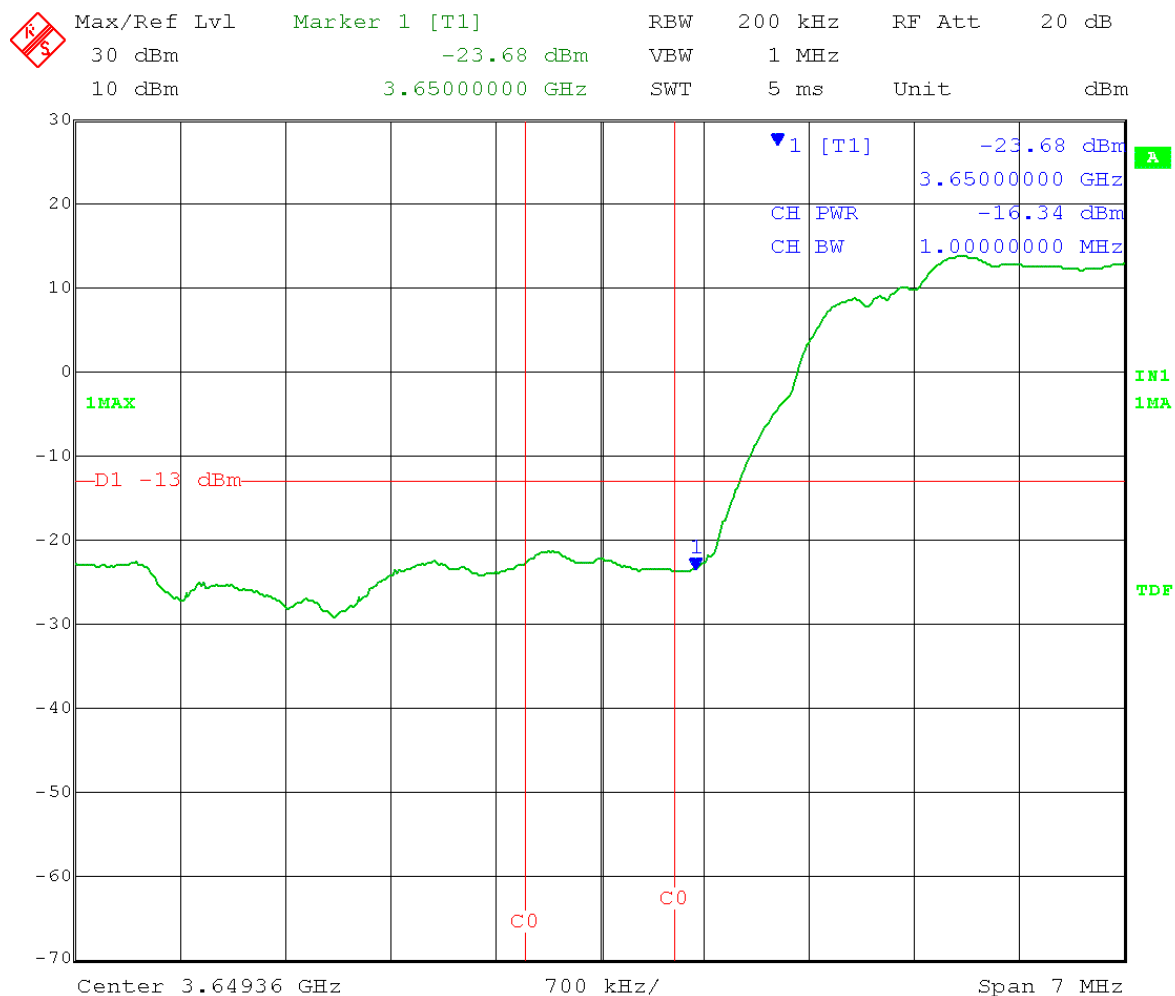   Power level at band edge = -16.34 dBm/MHz

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 24
Channel bandwidth: 20 MHz Output port: A
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 = -15.96 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]	RBW	200 kHz	RF Att	20 dB
30 dBm	-23.38 dBm	VBW	1 MHz		
10 dBm	3.65000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1] -23.38 dBm
3.65000000 GHz
CH PWR -15.96 dBm
CH BW 1.00000000 MHz

A

1MAX

IN1
1MA

D1 -13 dBm

TDF

C0
C0

Center 3.64929 GHz 700 kHz/ Span 7 MHz
Date: 10.FEB.2014 11:29:46

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 24
Channel bandwidth: 20 MHz   Output port: A
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
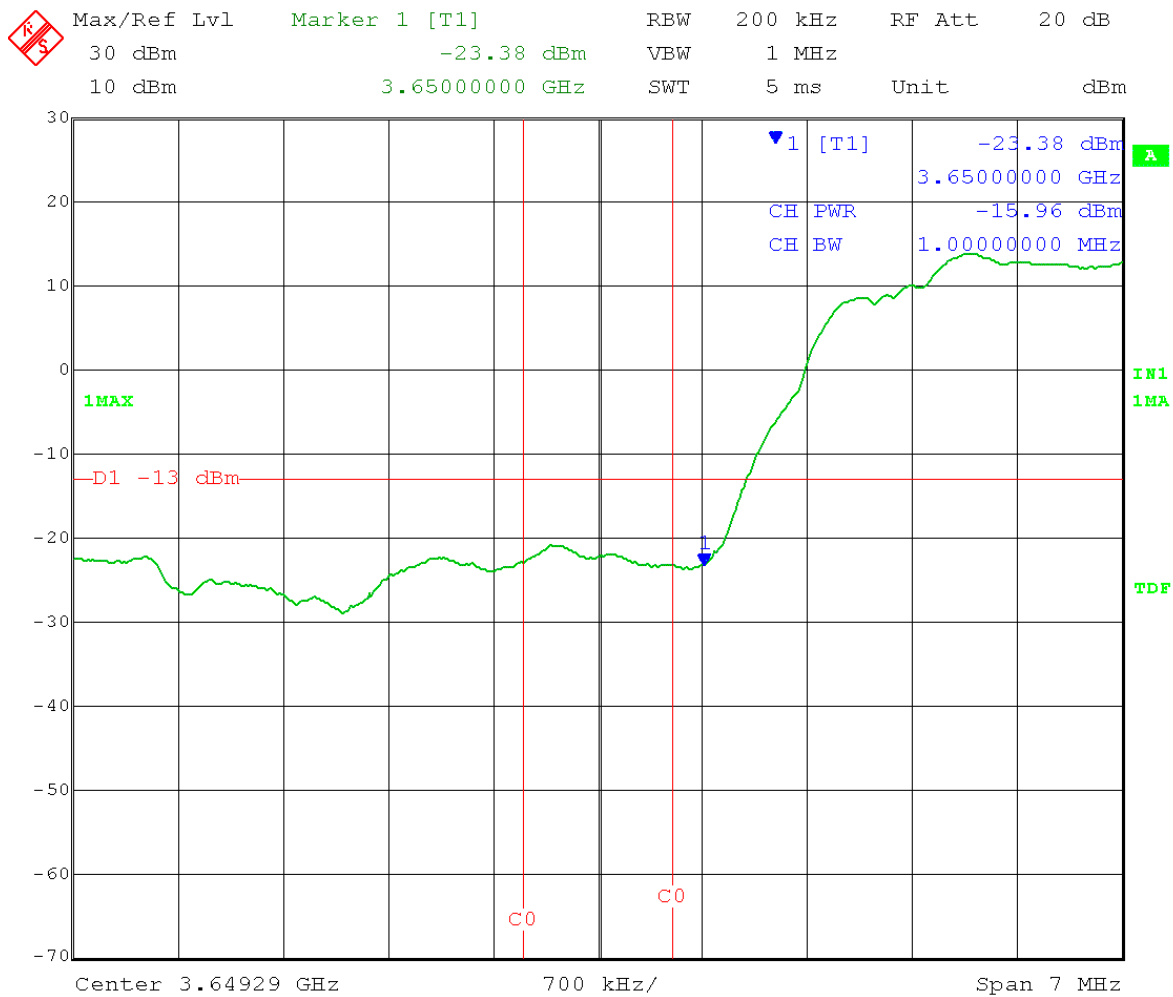
Power level at band edge = -15.44 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.81 dBm	VBW	1 MHz		
10 dBm		3.65000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -22.81 dBm
                    3.65000000 GHz
CH PWR   -15.44 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.64929 GHz   700 kHz/   Span 7 MHz

Date: 10.FEB.2014 13:23:00

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                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
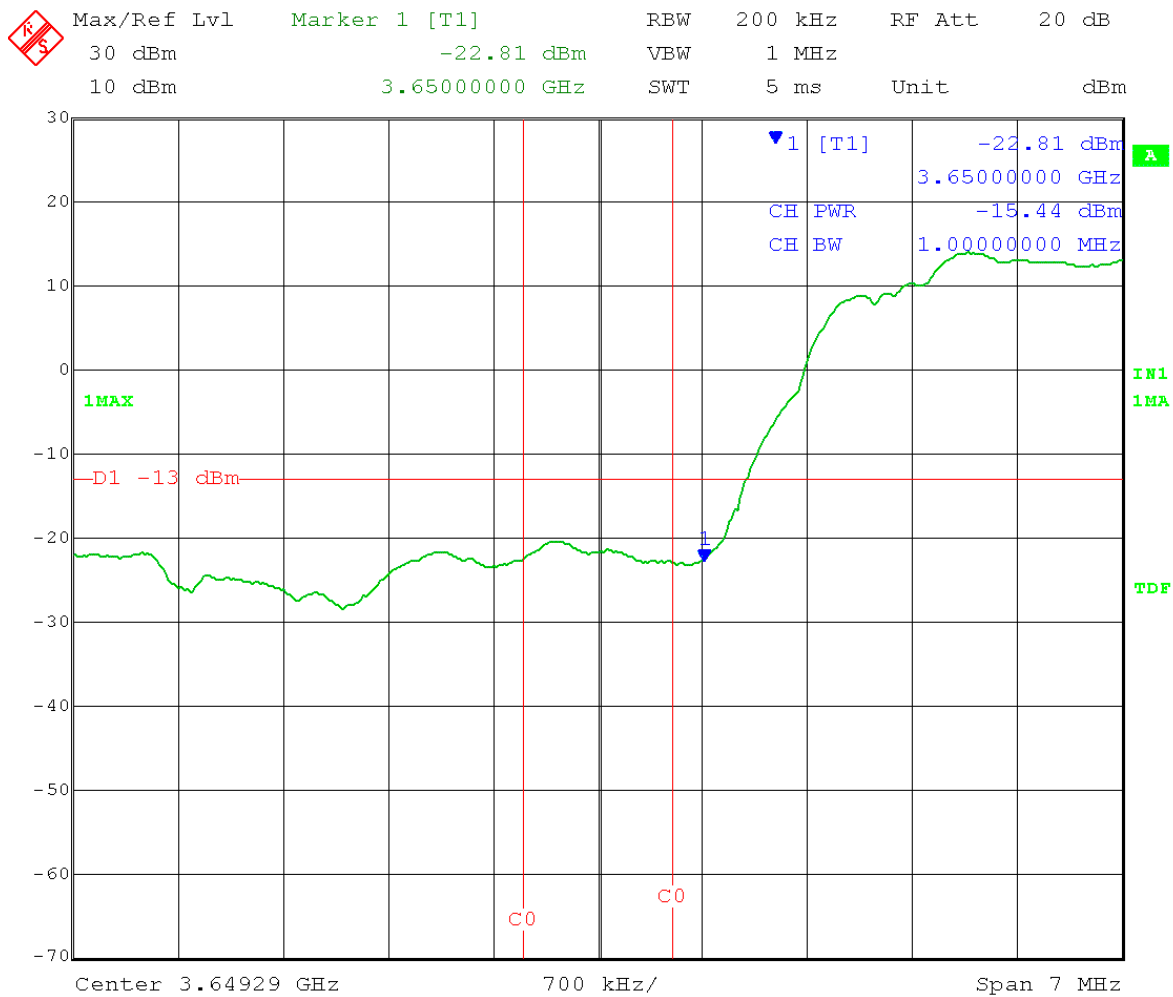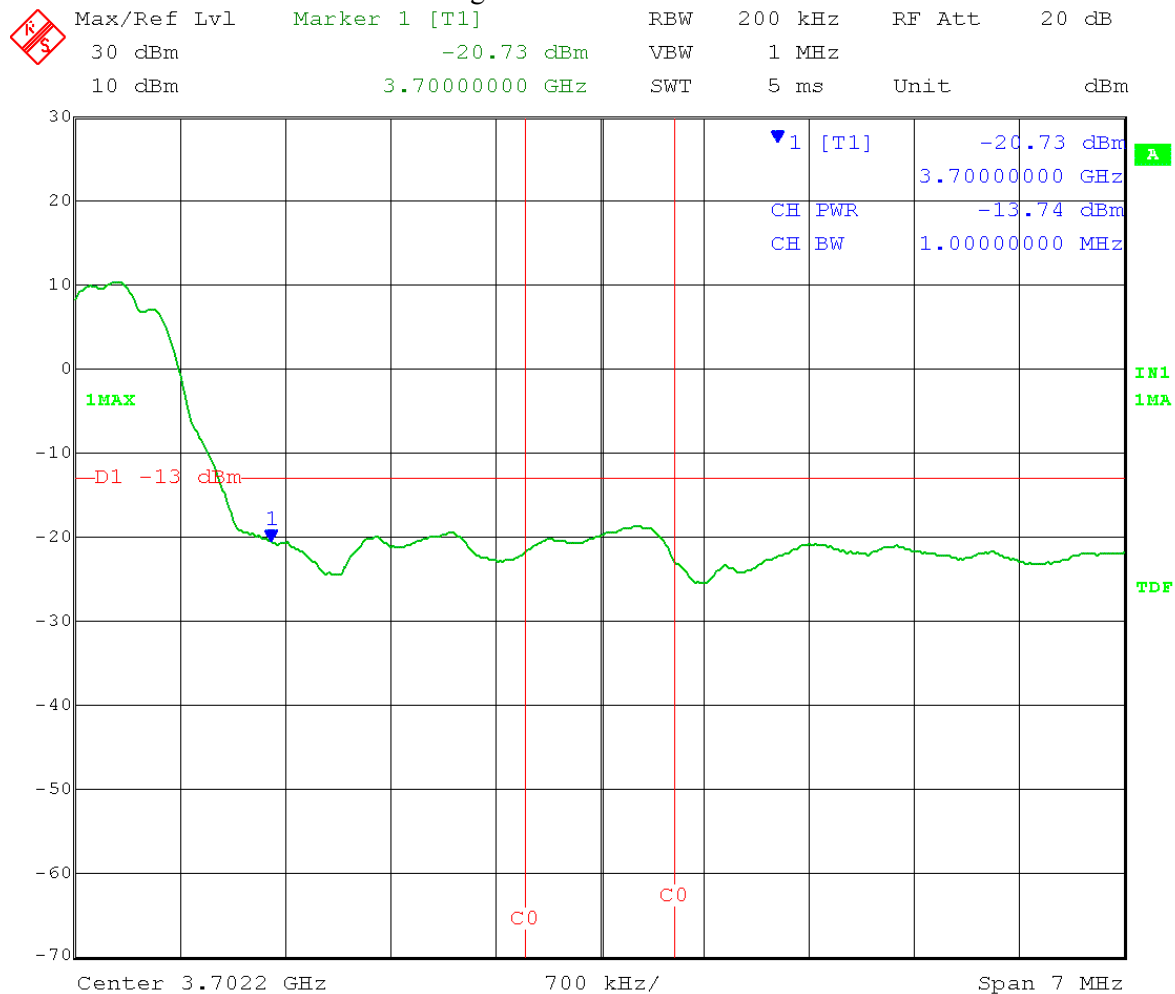   Power level at band edge = -13.74 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-20.73 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -20.73 dBm
                       3.70000000 GHz
CH PWR   -13.74 dBm
CH BW   1.00000000 MHz

1MAX

—D1 -13 dBm—

A

IN1
1MA

TDF

Center 3.7022 GHz   700 kHz/   Span 7 MHz

Date: 6.FEB.2014 15:36:28

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                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 = -13.75 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-20.77 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -20.77 dBm
              3.70000000 GHz
CH PWR   -13.75 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7022 GHz   700 kHz/   Span 7 MHz
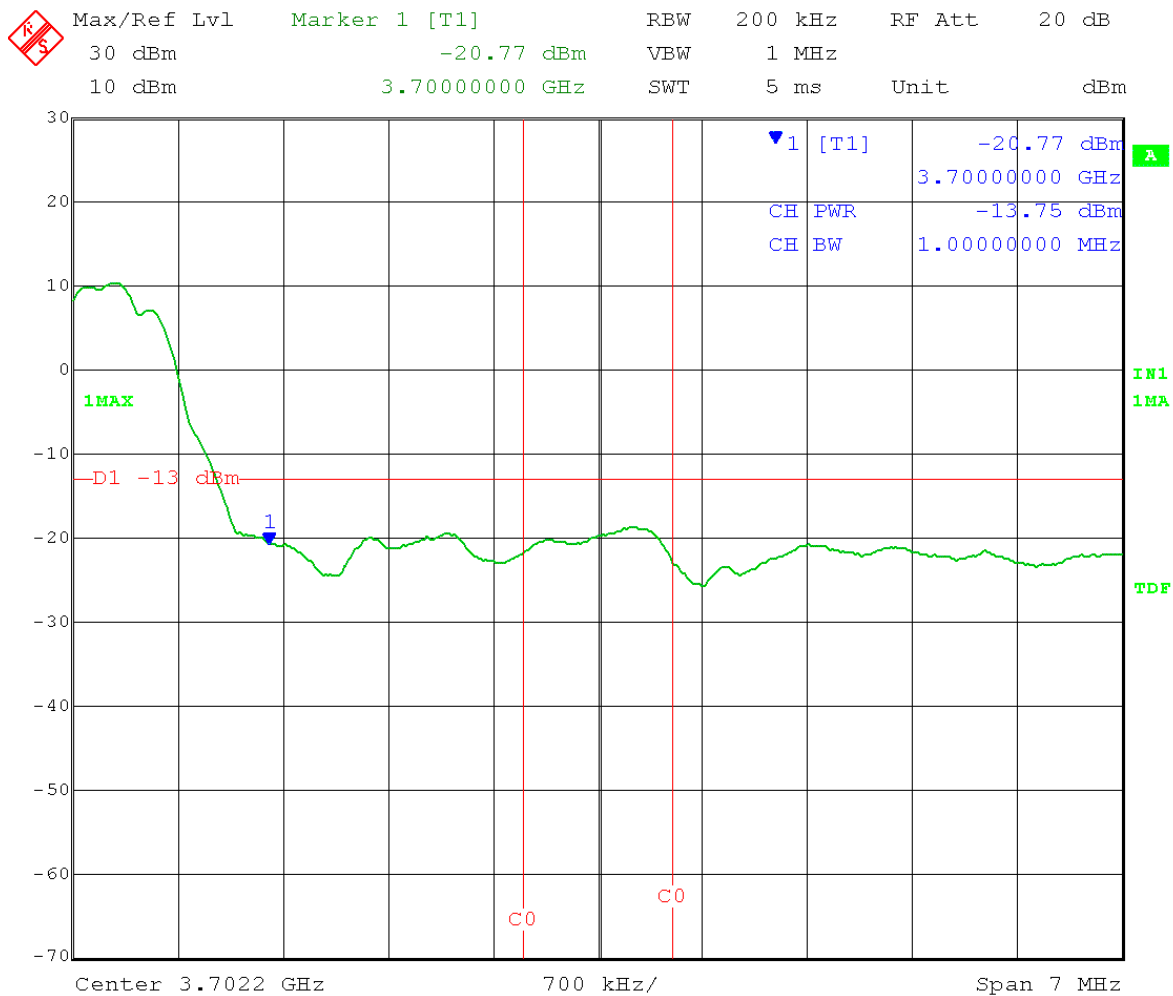
Date: 6.FEB.2014   15:38:01

Test Date: 02-06-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 25
               Channel bandwidth: 10 MHz   Output port: A
               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 = -13.76 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-20.79 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -20.79 dBm
                 3.70000000 GHz
CH PWR   -13.76 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.7022 GHz   700 kHz/   Span 7 MHz
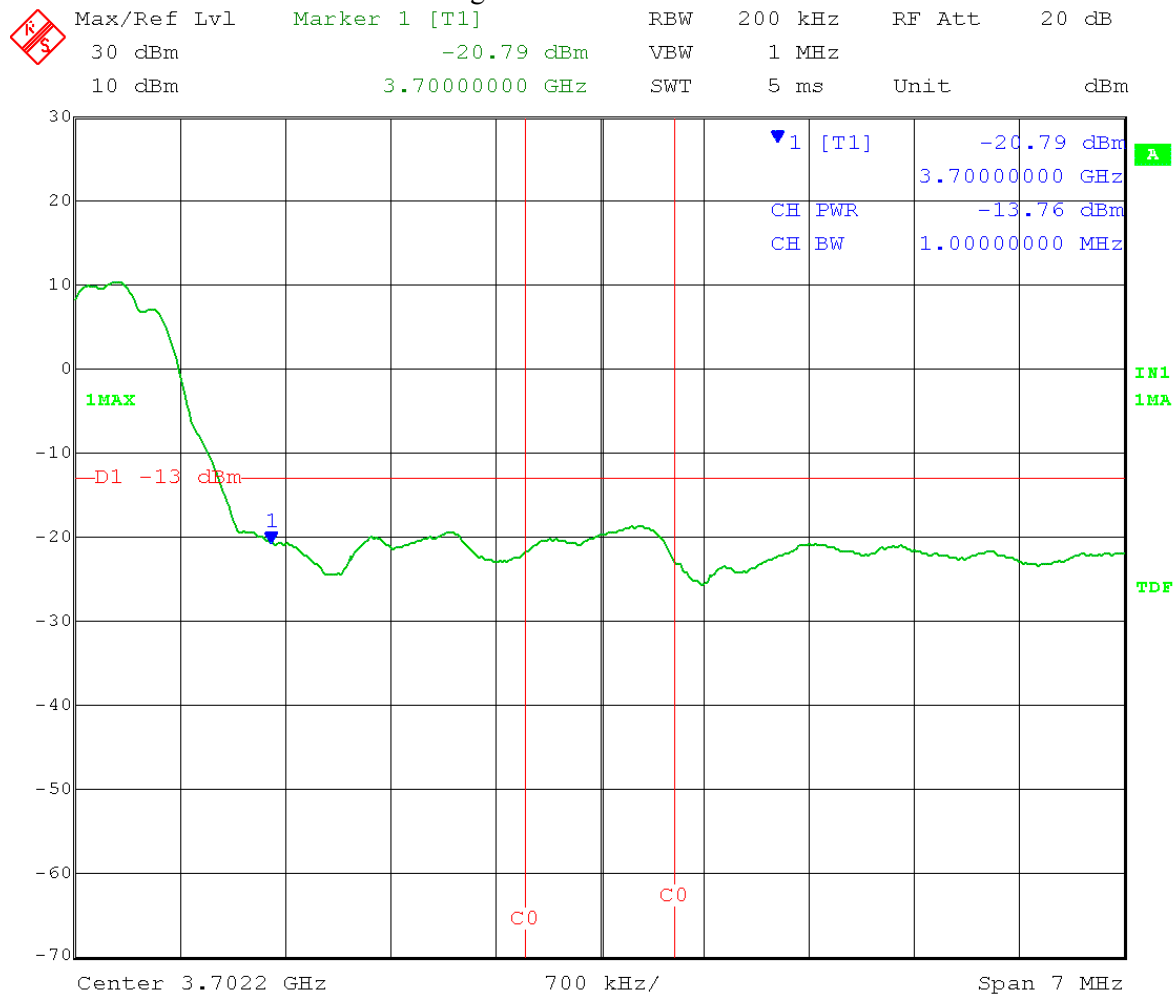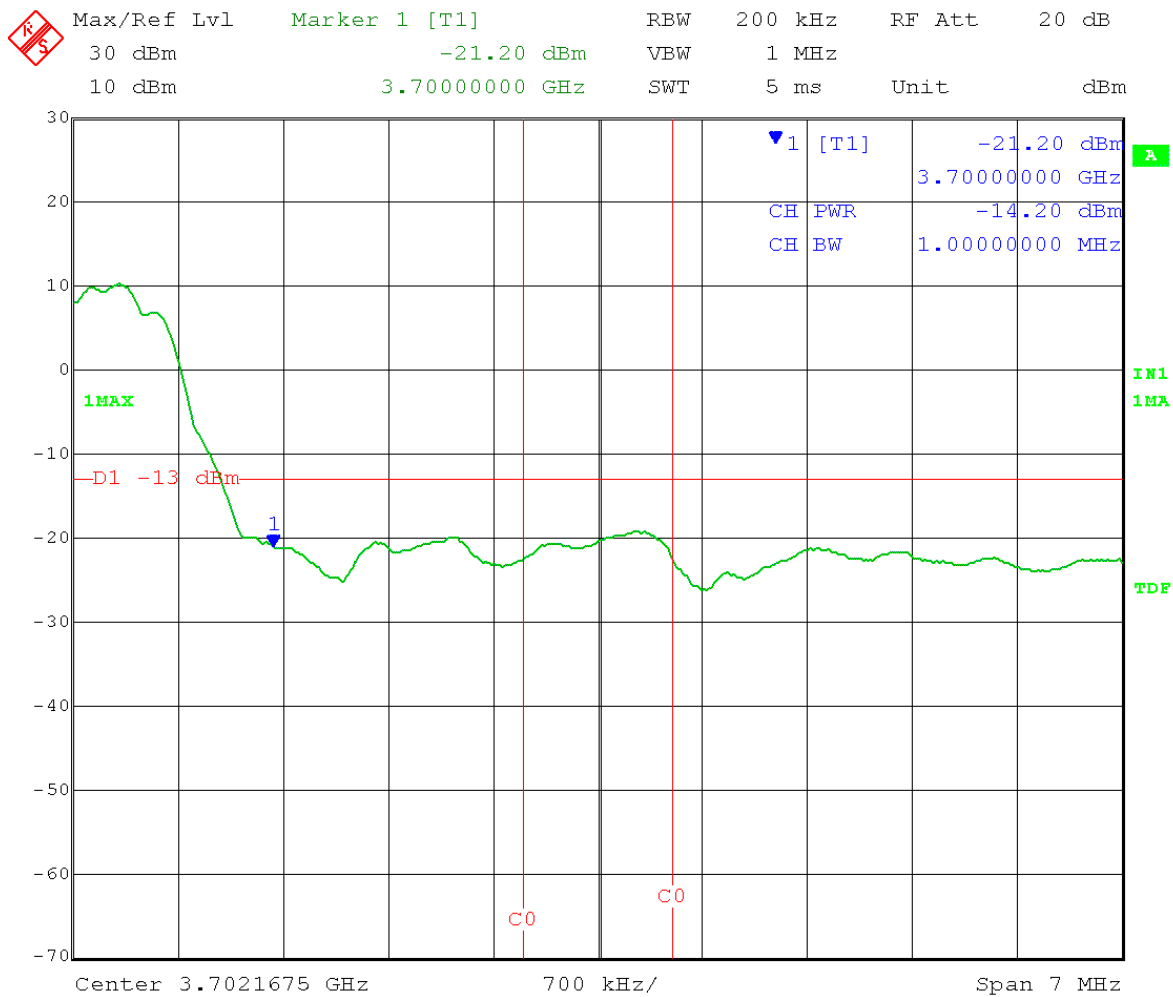
Date: 6.FEB.2014 15:39:41

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 25
              Channel bandwidth: 20 MHz   Output port: A
              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 = -14.20 dBm/MHz

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 25
               Channel bandwidth: 20 MHz   Output port: A
               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

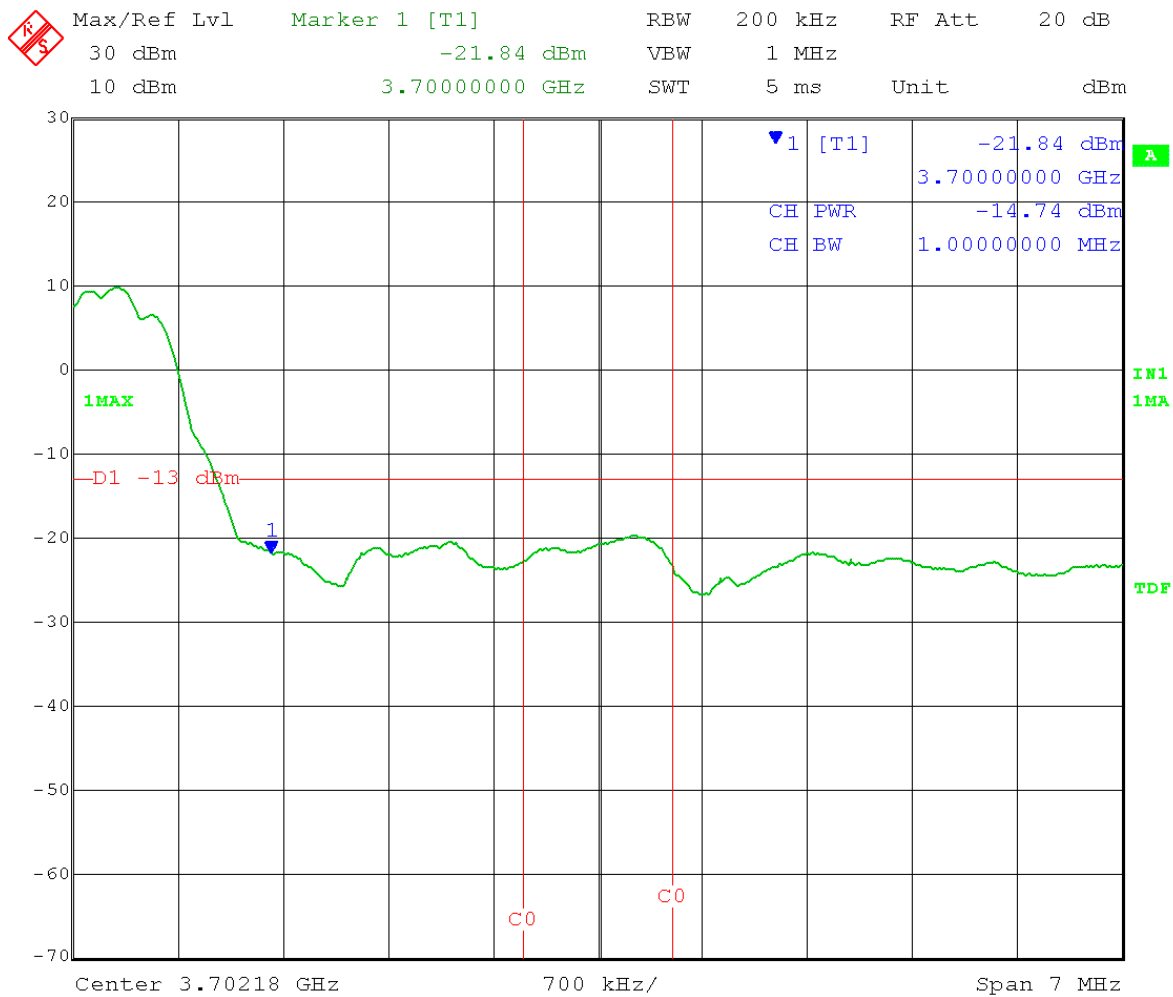   Power level at band edge = -14.74 dBm/MHz

Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 25
                Channel bandwidth: 20 MHz   Output port: A
                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 = -14.90 dBm/MHz

Date: 7.FEB.2014   13:30:39
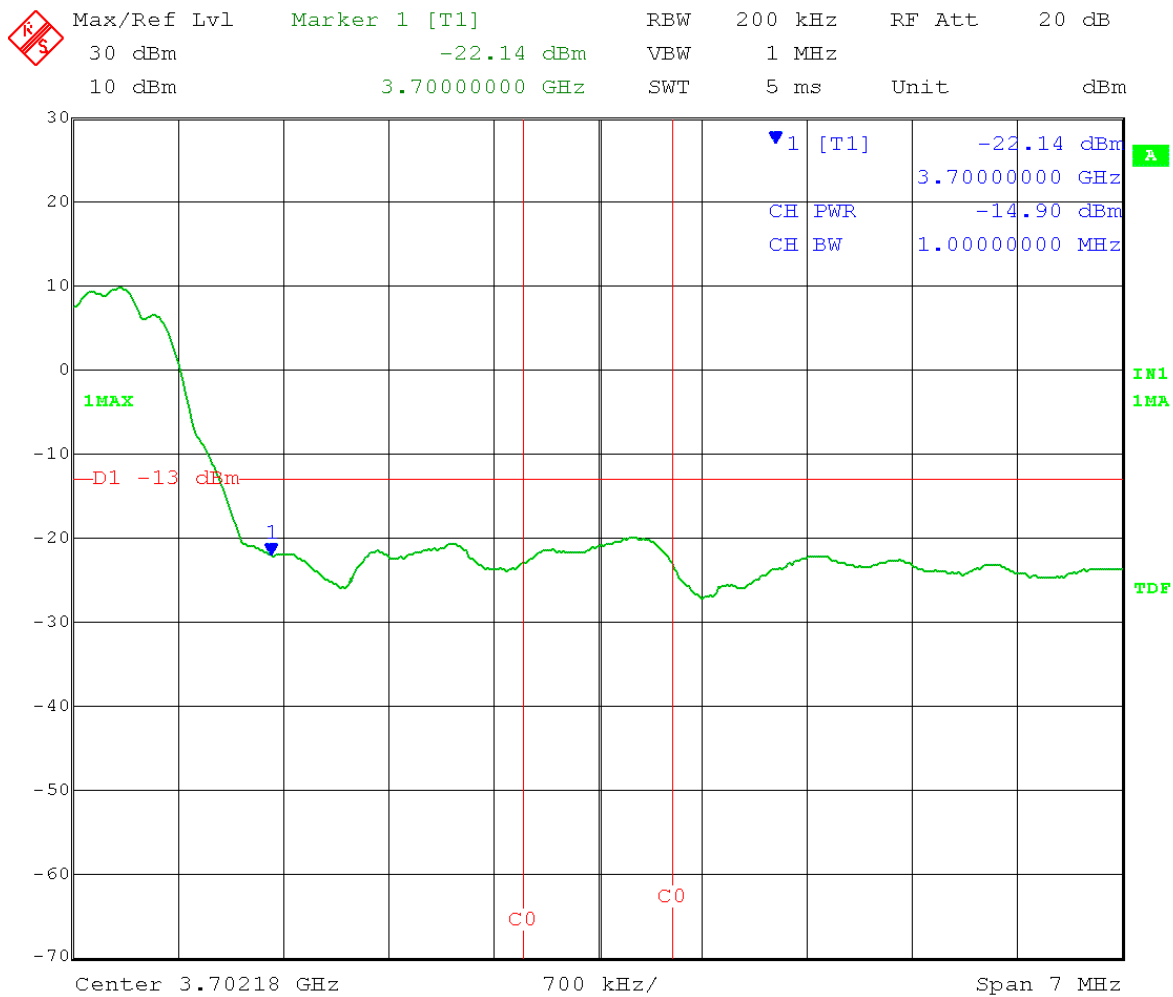
Test Date: 02-07-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Upper Band-Edge Measurements - Conducted
Operator: Craig B

Comment: RBW ≥ 1% OBW   VBW ≥ 3 x RBW
               Detector = Peak   Sweep = auto couple
               Trace = max hold
               <mark>High Channel: Transmit = 3690 MHz</mark>   Output power setting: 25
               Channel bandwidth: 20 MHz   Output port: A
               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

<mark>10 °C</mark>, 120 V

               Power level at band edge = -13.30 dBm/MHz
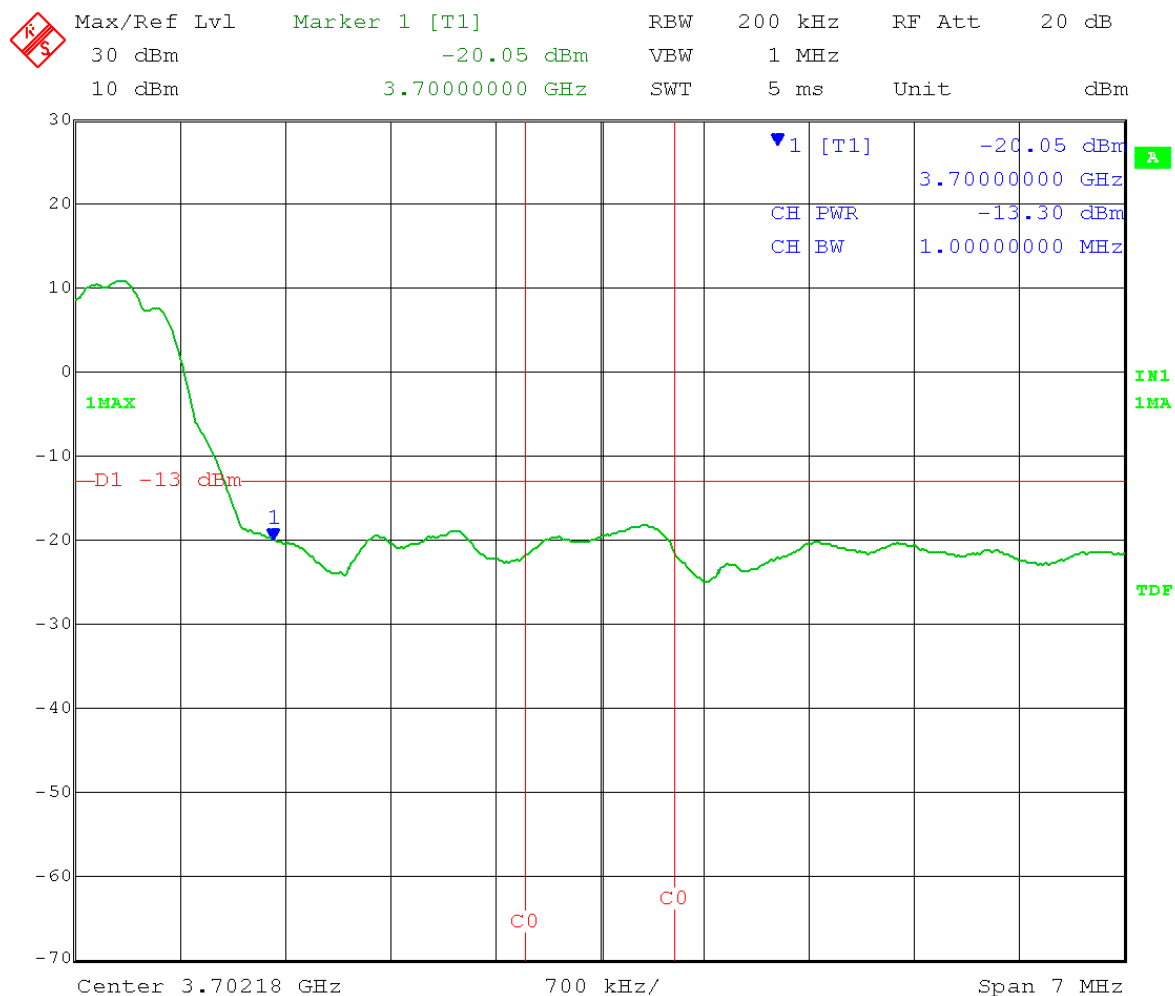
Date: 7.FEB.2014   14:38:29

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 24
                Channel bandwidth: 20 MHz   Output port: A
                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 = -16.08 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.94 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

▼1 [T1]   -22.94 dBm
                  3.70000000 GHz
CH PWR   -16.08 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.70218 GHz   700 kHz/   Span 7 MHz

Date: 10.FEB.2014 08:40:09

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 24
                Channel bandwidth: 20 MHz   Output port: A
                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 ℃, 120 V
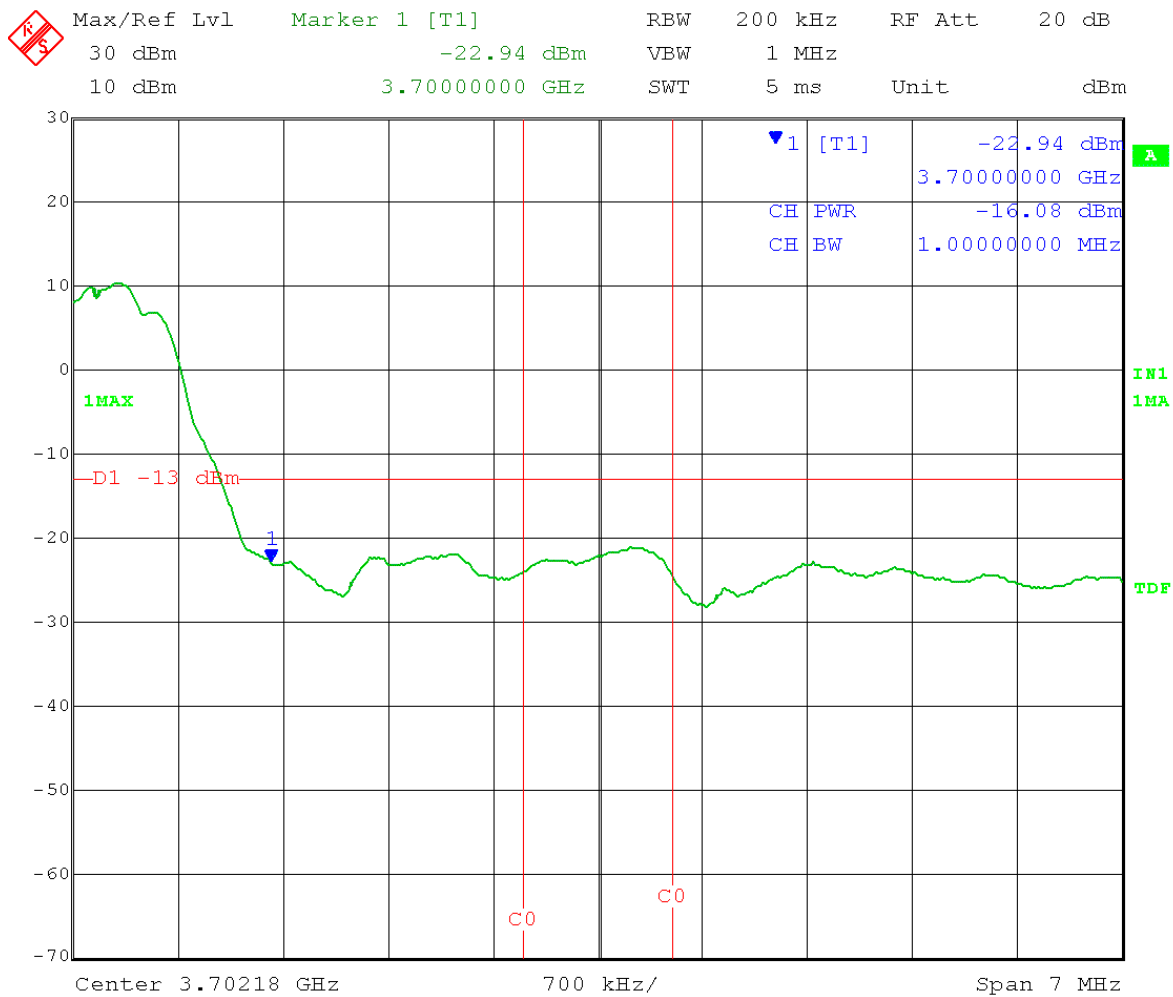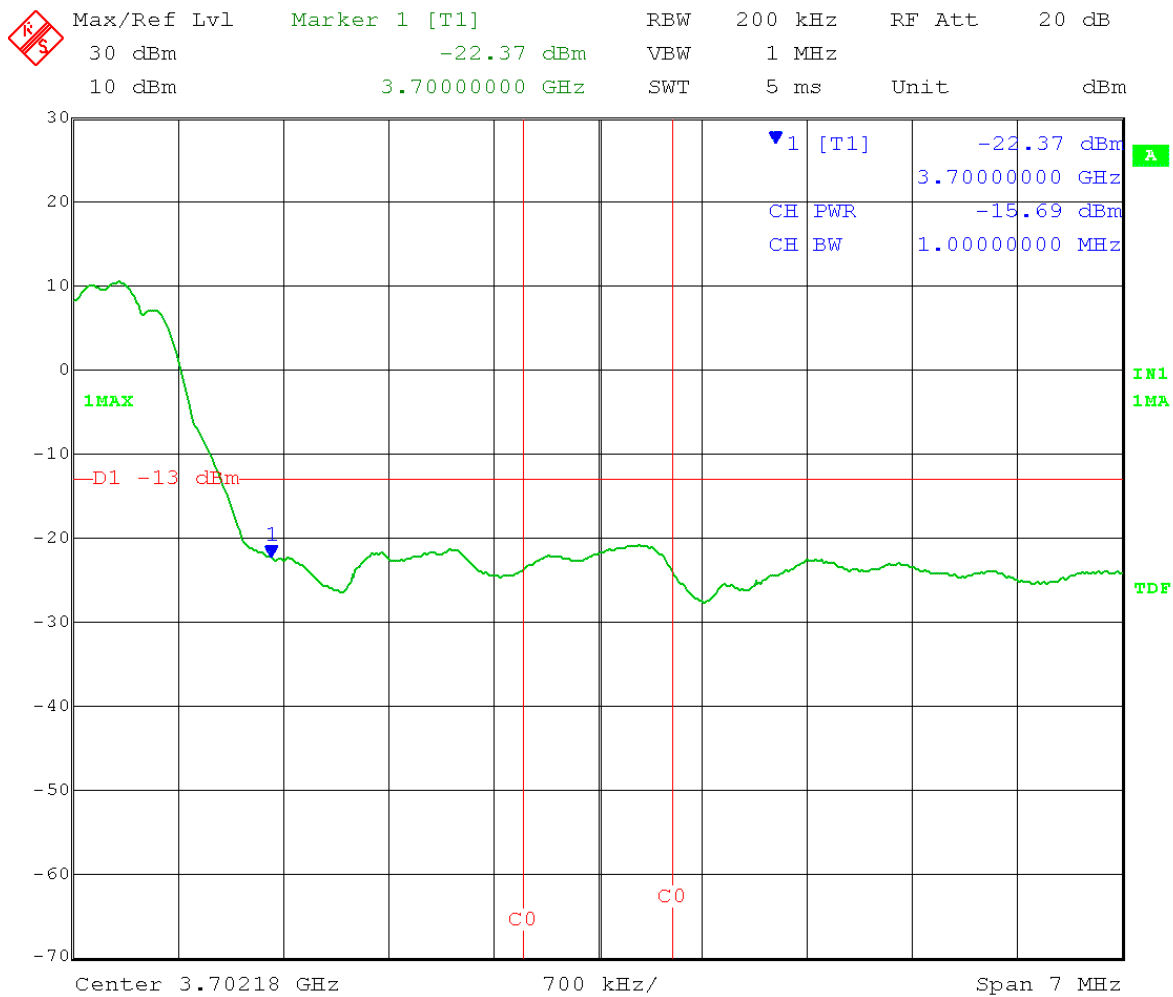   Power level at band edge = -15.69 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.37 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -22.37 dBm
              3.70000000 GHz
CH PWR   -15.69 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.70218 GHz   700 kHz/   Span 7 MHz

Date: 10.FEB.2014 10:07:07

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 24
                Channel bandwidth: 20 MHz   Output port: A
                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
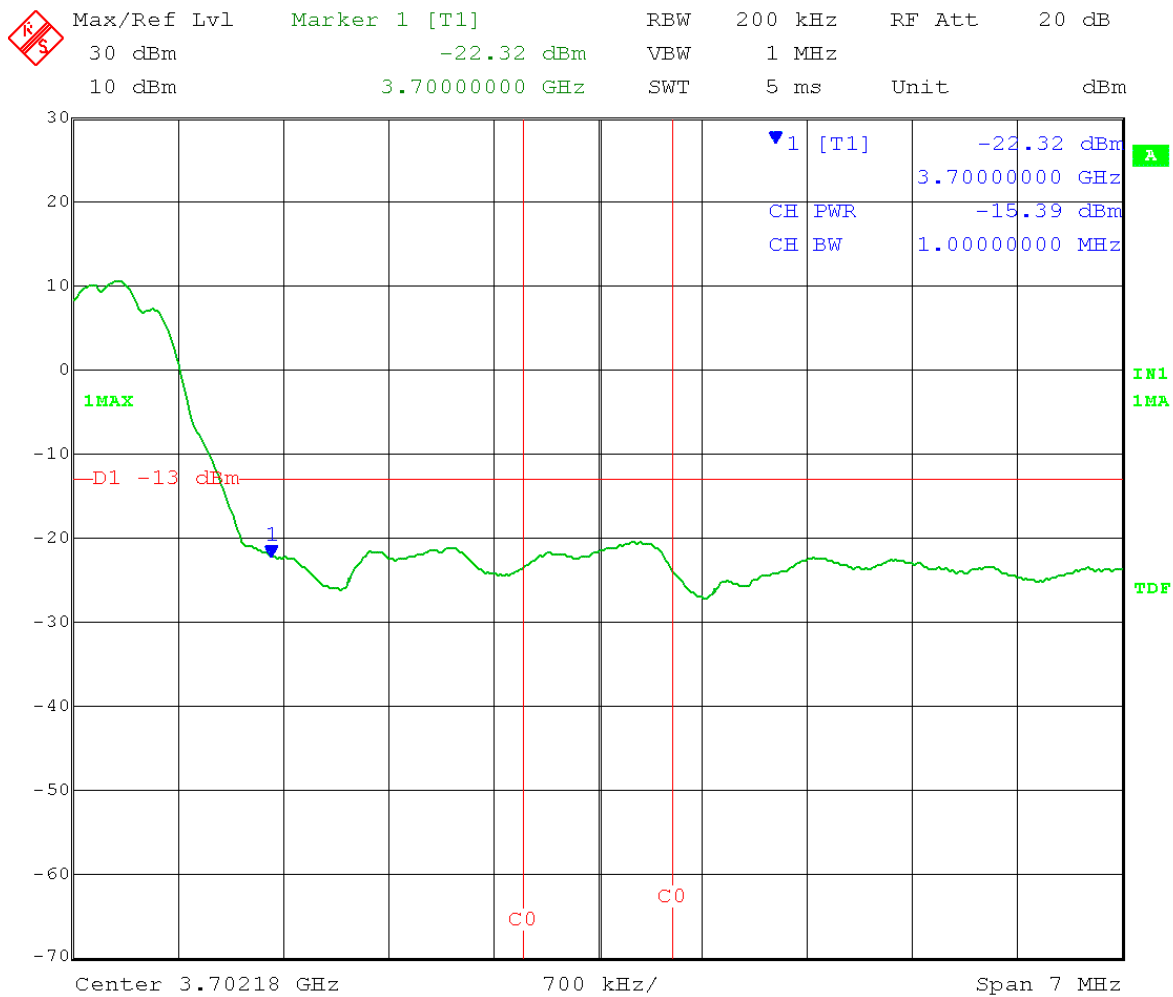   Power level at band edge = -15.39 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-22.32 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1]   -22.32 dBm
                3.70000000 GHz
CH PWR   -15.39 dBm
CH BW   1.00000000 MHz

1MAX

D1 -13 dBm

A
IN1
1MA
TDF

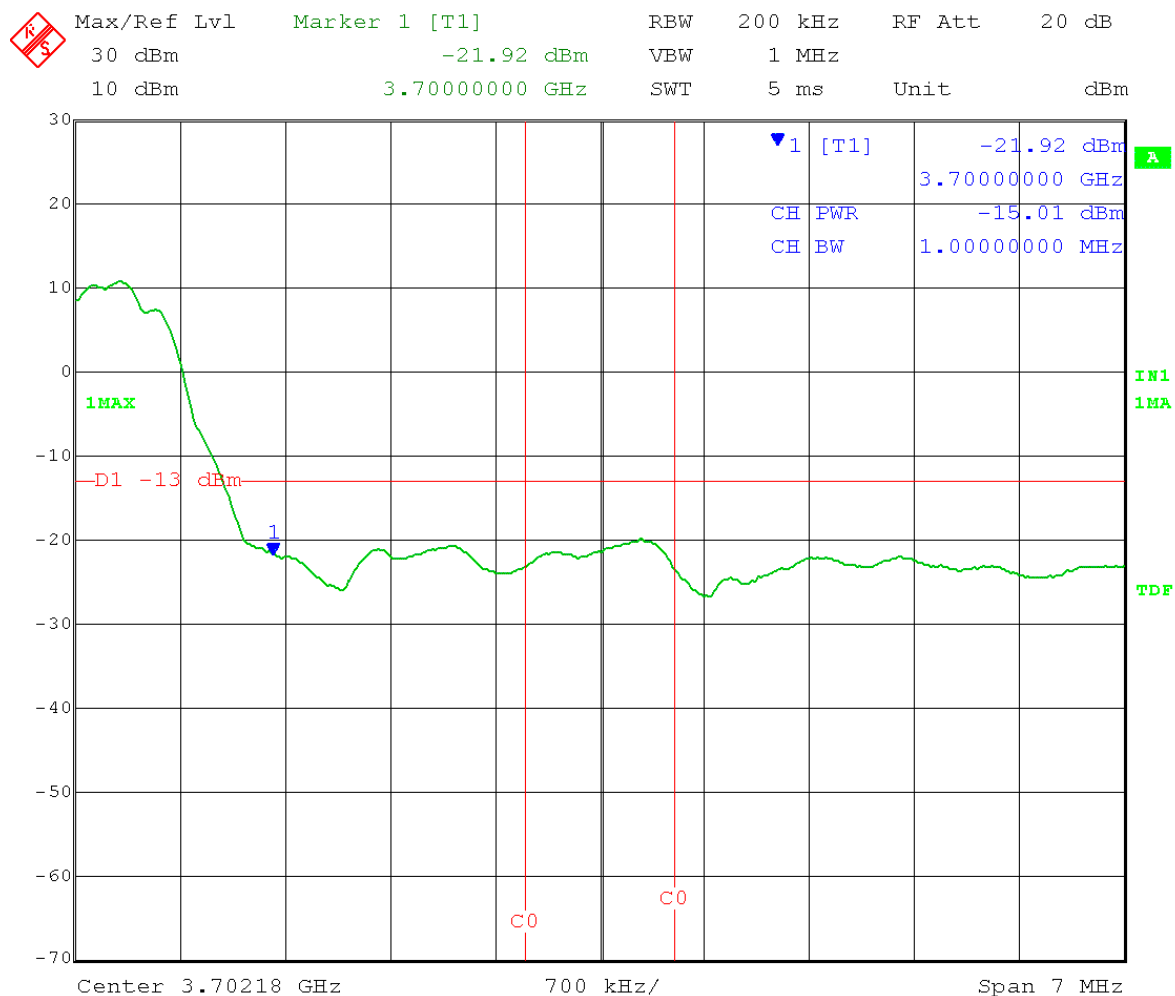Center 3.70218 GHz   700 kHz/   Span 7 MHz

Date: 10.FEB.2014 11:26:51

Test Date: 02-10-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 24
Channel bandwidth: 20 MHz Output port: A
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 = -15.01 dBm/MHz

Max/Ref Lvl	Marker 1 [T1]		RBW	200 kHz	RF Att	20 dB
30 dBm		-21.92 dBm	VBW	1 MHz		
10 dBm		3.70000000 GHz	SWT	5 ms	Unit	dBm

1 [T1] -21.92 dBm
3.70000000 GHz
CH PWR -15.01 dBm
CH BW 1.00000000 MHz

1MAX

D1 -13 dBm

Center 3.70218 GHz 700 kHz/ Span 7 MHz

Date: 10.FEB.2014 13:20:05

	Company:	Cambium Networks
	Model Tested:	C036045A004A
	Report Number:	19784
	DLS Project:	6383

166 South Carter, Genoa City, WI 53128

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.

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.

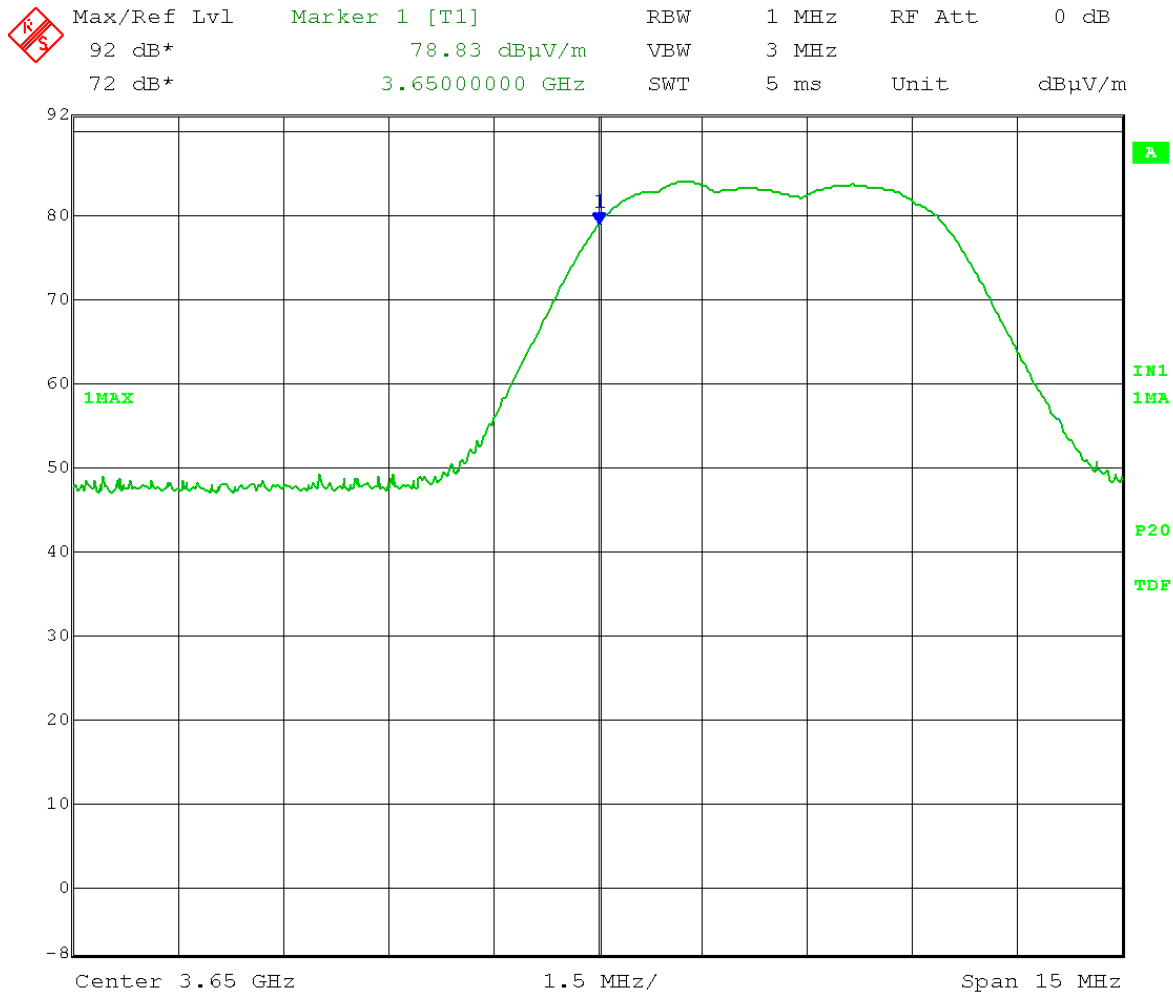**Results:**

Compliant

Notes:

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

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
                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 = 78.83 + 20log(3) – 104.8 = -16.42 dBm/MHz

Vertical:

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
                 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 = 74.64 + 20log(3) – 104.8 = -20.61 dBm/MHz

Horizontal:

Date: 11.FEB.2014   13:17:05
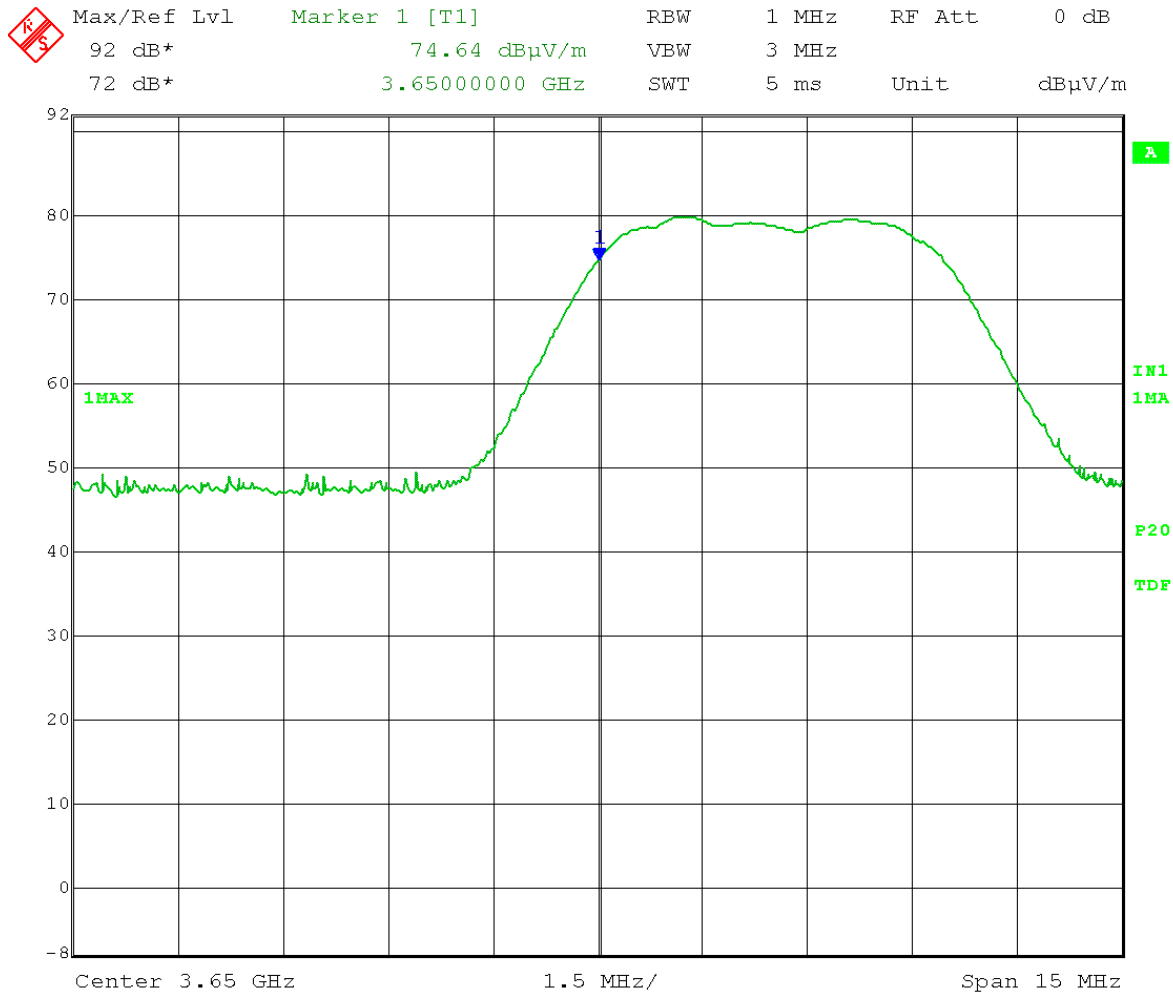
Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Test: Upper Band-Edge Measurements – Radiated from cabinet
Operator: Craig B

Comment: RBW = 1 MHz   VBW = 3 MHz
                Detector = Peak   Sweep = auto couple
                Trace = max hold
                High Channel: Transmit = 3697.5 MHz   Output power setting: 19
                Channel bandwidth: 5 MHz   Both ports active and 50Ω terminated
                Upper 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 = 78.39 + 20log(3) – 104.8 = -16.86 dBm/MHz

Vertical:

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
92 dB*	78.39 dBμV/m	VBW	3 MHz		
72 dB*	3.70000000 GHz	SWT	5 ms	Unit	dBμV/m

Center 3.7 GHz   1.5 MHz/   Span 15 MHz
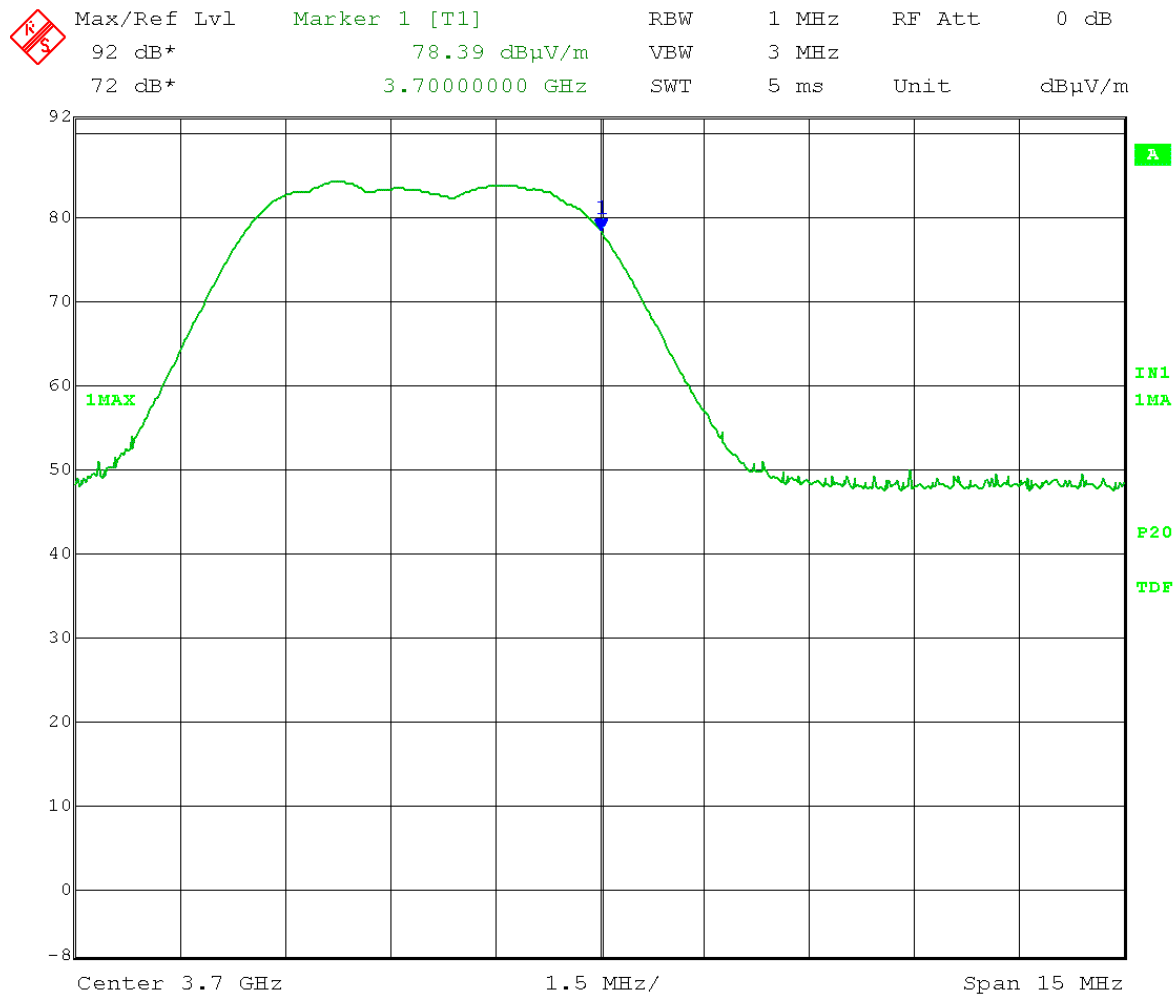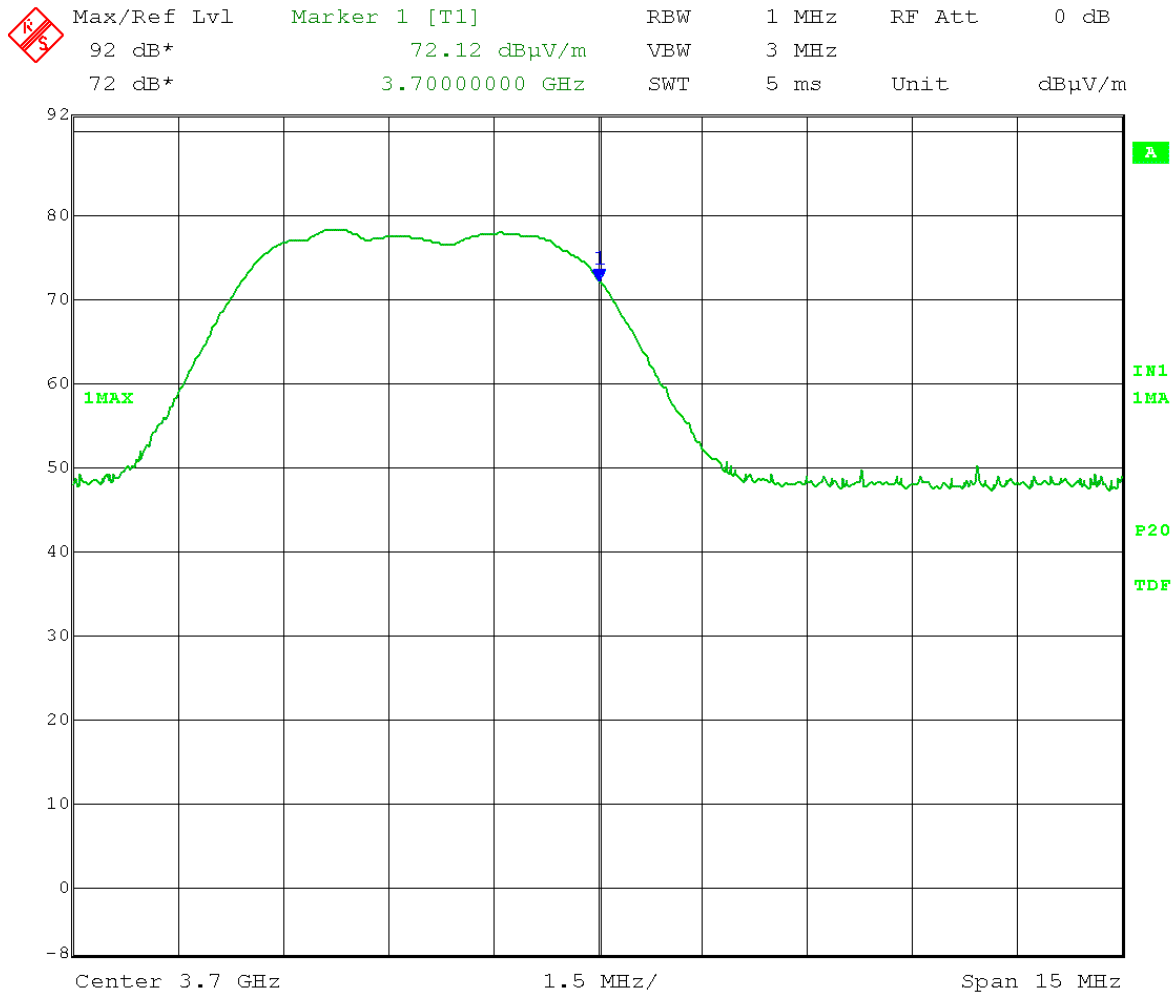
Date: 11.FEB.2014   13:08:28

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 19
              Channel bandwidth: 5 MHz   Both ports active and 50Ω terminated
              Upper 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 = 72.12 + 20log(3) – 104.8 = -23.13 dBm/MHz

Horizontal:

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
92 dB*	72.12 dBµV/m	VBW	3 MHz		
72 dB*	3.70000000 GHz	SWT	5 ms	Unit	dBµV/m

Center 3.7 GHz   1.5 MHz/   Span 15 MHz

Date: 11.FEB.2014   13:26:59

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
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 = 75.46 + 20log(3) – 104.8 = -19.79 dBm/MHz

Vertical:

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
92 dB*	75.46 dBµV/m	VBW	3 MHz		
72 dB*	3.65000000 GHz	SWT	5 ms	Unit	dBµV/m

Center 3.65 GHz   3 MHz/   Span 30 MHz
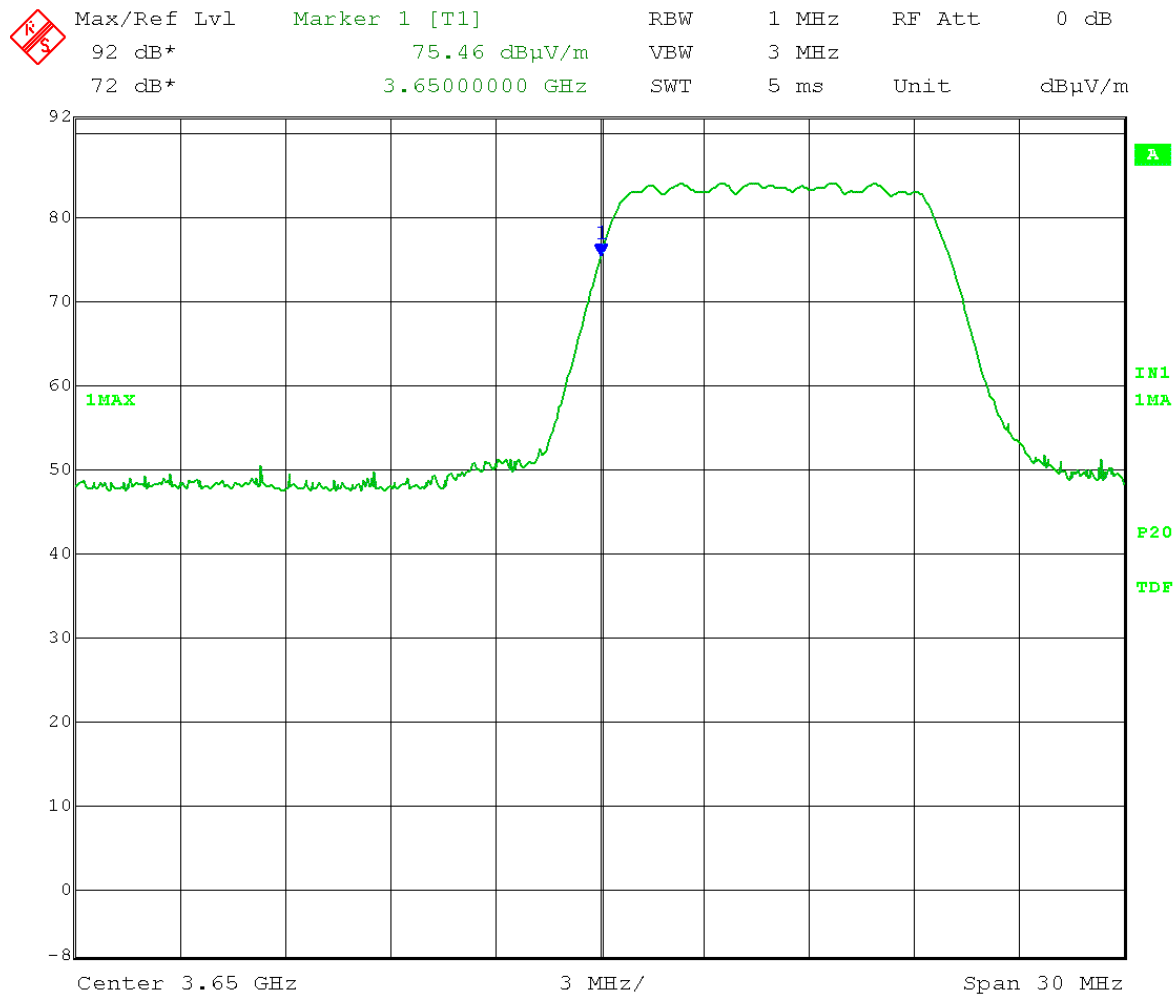
Date: 11.FEB.2014   12:46:58

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 22
               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 = 70.86 + 20log(3) – 104.8 = -24.39 dBm/MHz

Horizontal:

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
92 dB*	70.86 dBµV/m	VBW	3 MHz		
72 dB*	3.65000000 GHz	SWT	5 ms	Unit	dBµV/m

Center 3.65 GHz   3 MHz/   Span 30 MHz
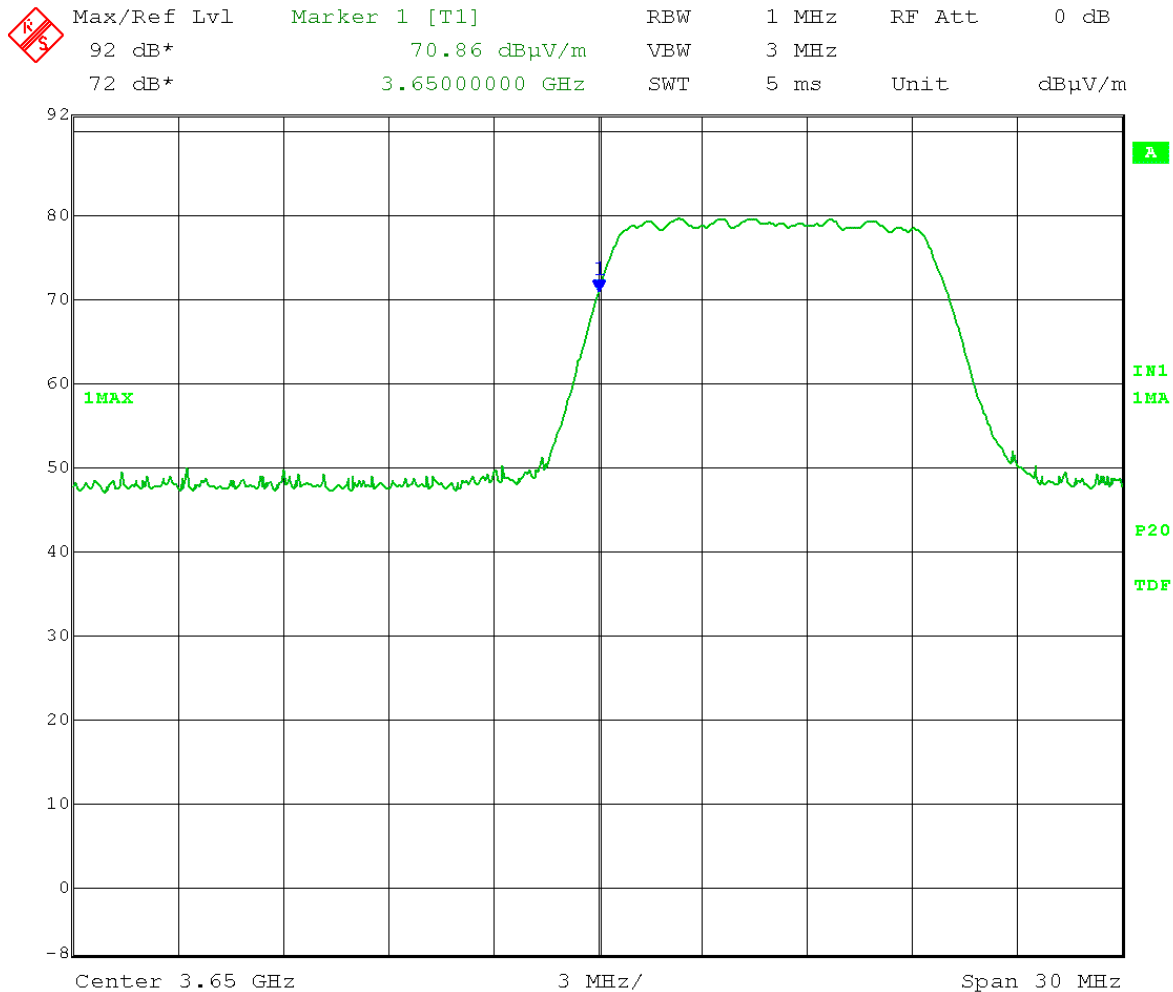
Date: 11.FEB.2014 12:52:52

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
              Channel bandwidth: 10 MHz   Both ports active and 50Ω terminated
              Upper 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 = 75.33 + 20log(3) – 104.8 = -19.92 dBm/MHz

Vertical:

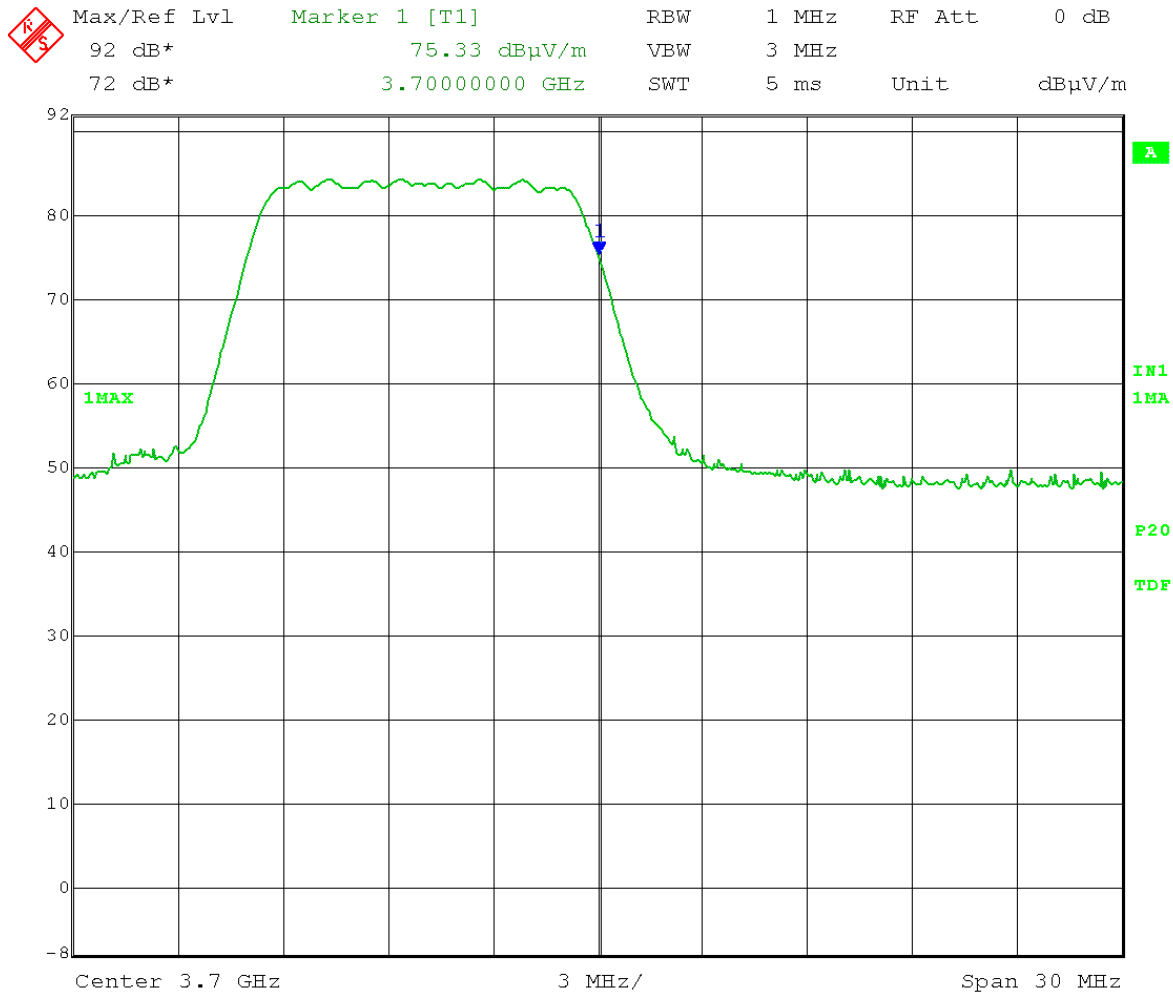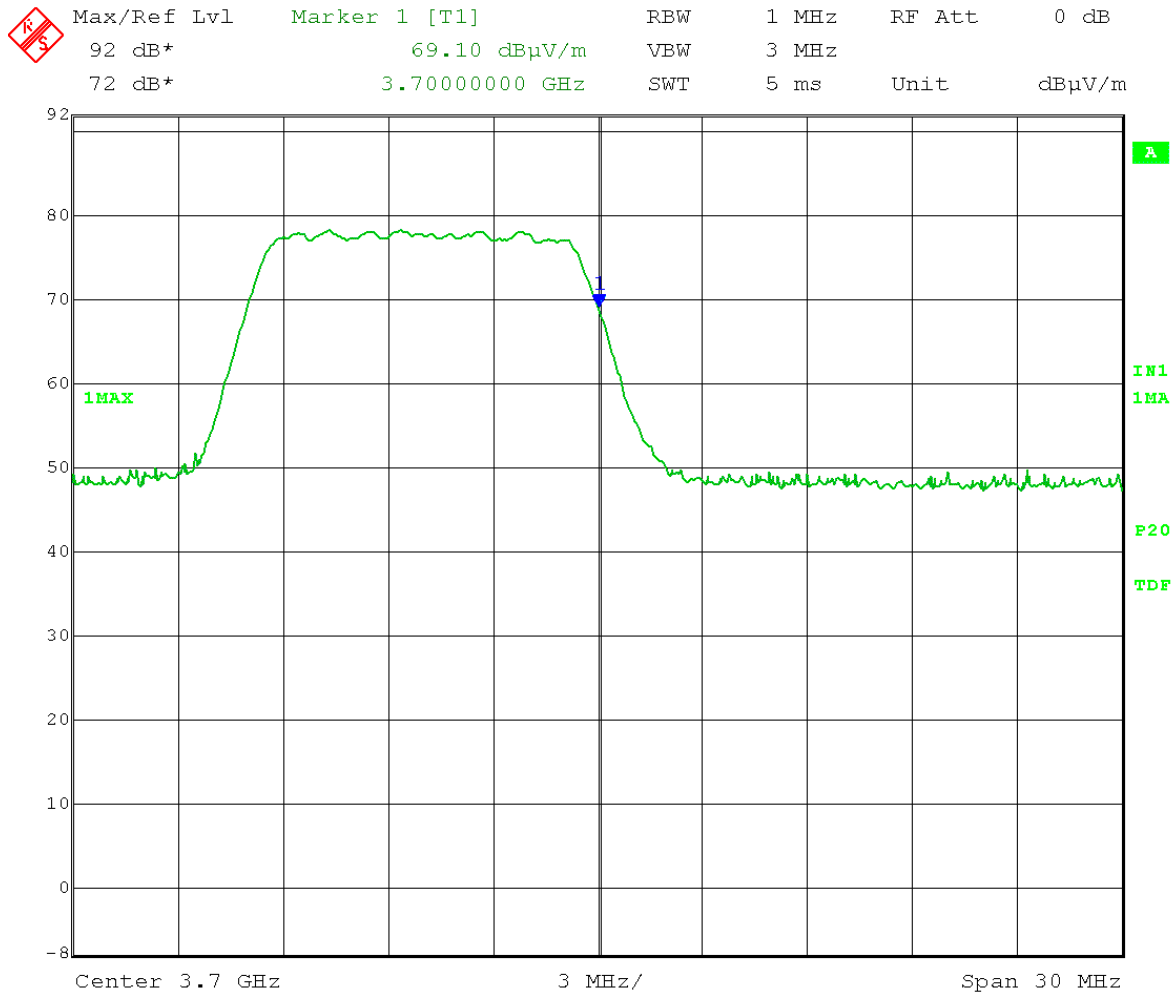| Max/Ref Lvl | Marker 1 [T1] | | RBW | 1 MHz | RF Att | 0 dB |
| 92 dB* | | 75.33 dBμV/m | VBW | 3 MHz | | |
| 72 dB* | | 3.70000000 GHz | SWT | 5 ms | Unit | dBμV/m |

Date: 11.FEB.2014 12:34:42

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 22
                Channel bandwidth: 10 MHz   Both ports active and 50Ω terminated
                Upper 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 = 69.10 + 20log(3) – 104.8 = -26.15 dBm/MHz

Horizontal:

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
92 dB*	69.10 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: 11.FEB.2014 12:58:28

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
                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 = 70.64 + 20log(3) – 104.8 = -24.61 dBm/MHz

Vertical:

Max/Ref Lvl	Marker 1 [T1]		RBW	1 MHz	RF Att	0 dB
92 dB*		70.64 dBμV/m	VBW	3 MHz		
72 dB*		3.65000000 GHz	SWT	5 ms	Unit	dBμV/m

Center 3.65 GHz   5 MHz/   Span 50 MHz
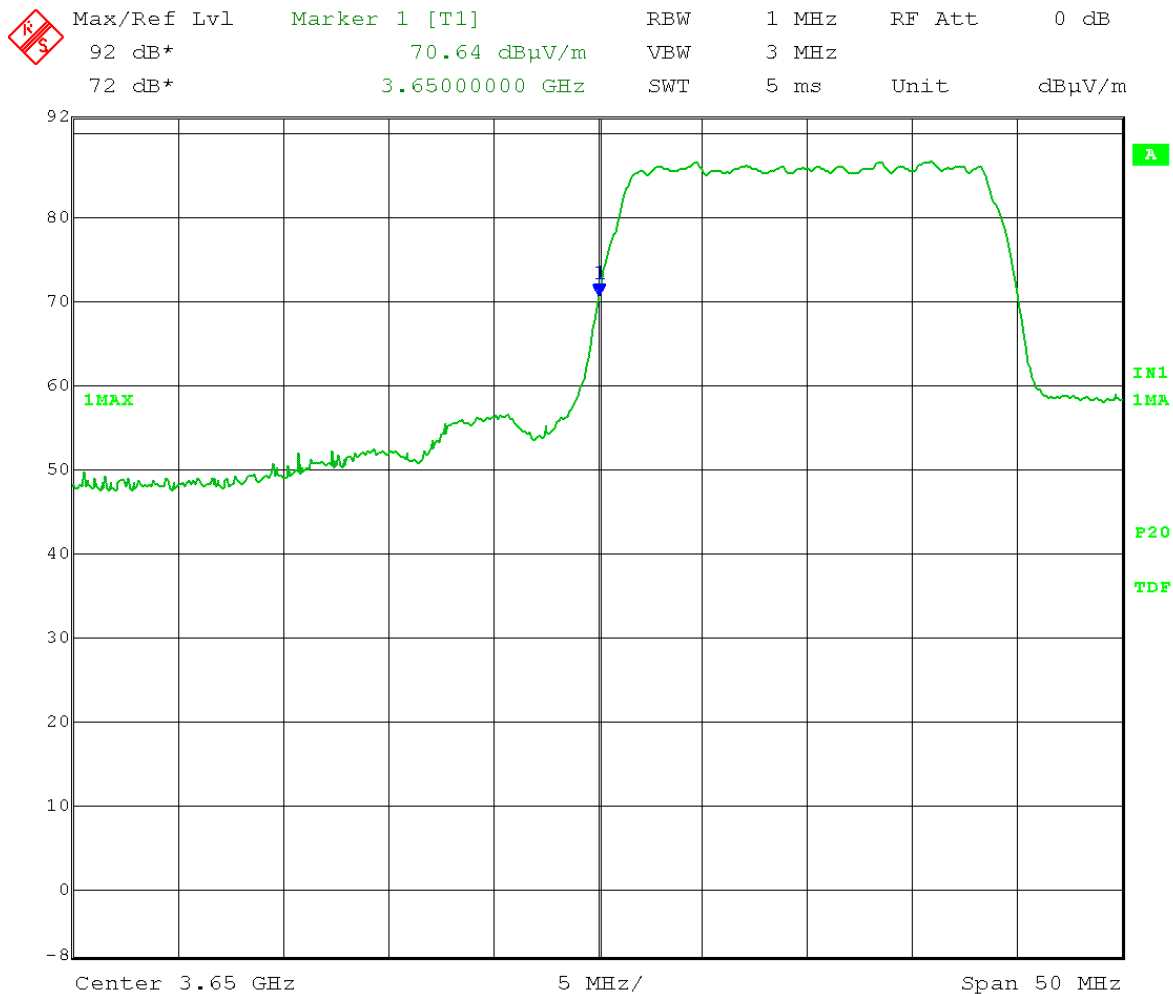
Date: 11.FEB.2014   11:31:08

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
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 = 66.18 + 20log(3) – 104.8 = -29.07 dBm/MHz

Horizontal:
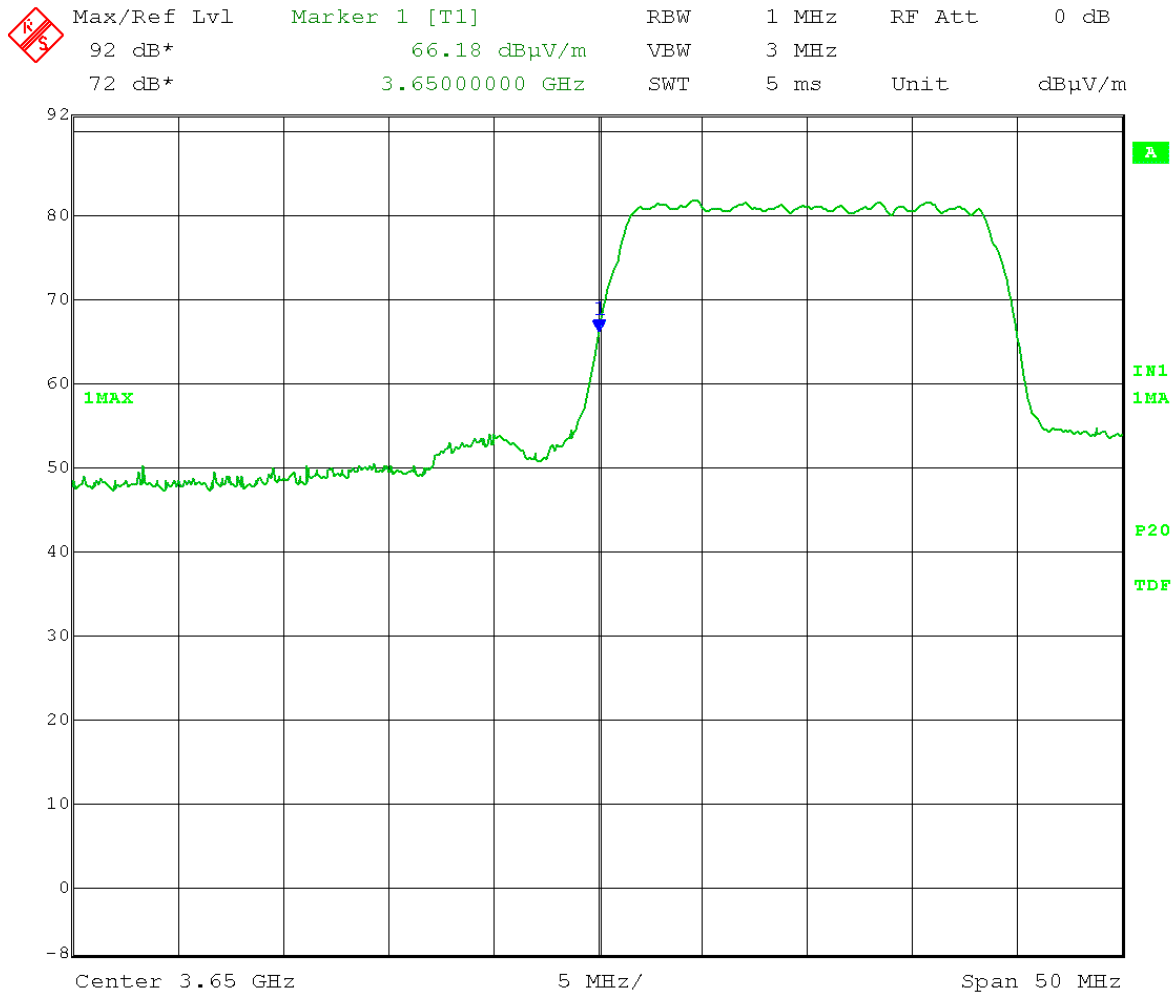

Date: 11.FEB.2014   11:39:30

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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 Output power setting: 25
Channel bandwidth: 20 MHz Both ports active and 50Ω terminated
Upper 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 = 70.14 + 20log(3) – 104.8 = -25.11 dBm/MHz

Vertical:

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
92 dB*	70.14 dBµV/m	VBW	3 MHz		
72 dB*	3.70000000 GHz	SWT	5 ms	Unit	dBµV/m

Center 3.7 GHz   5 MHz/   Span 50 MHz
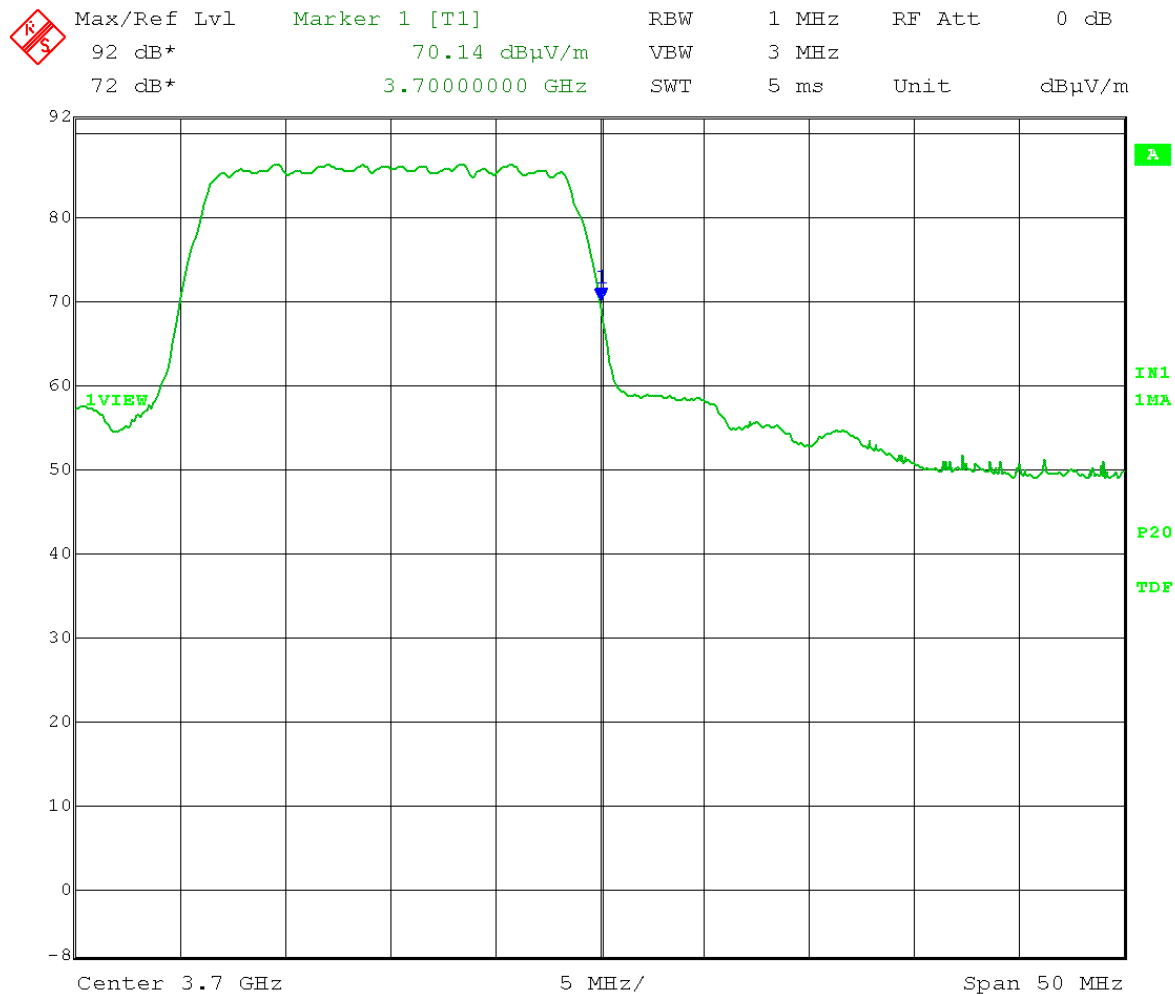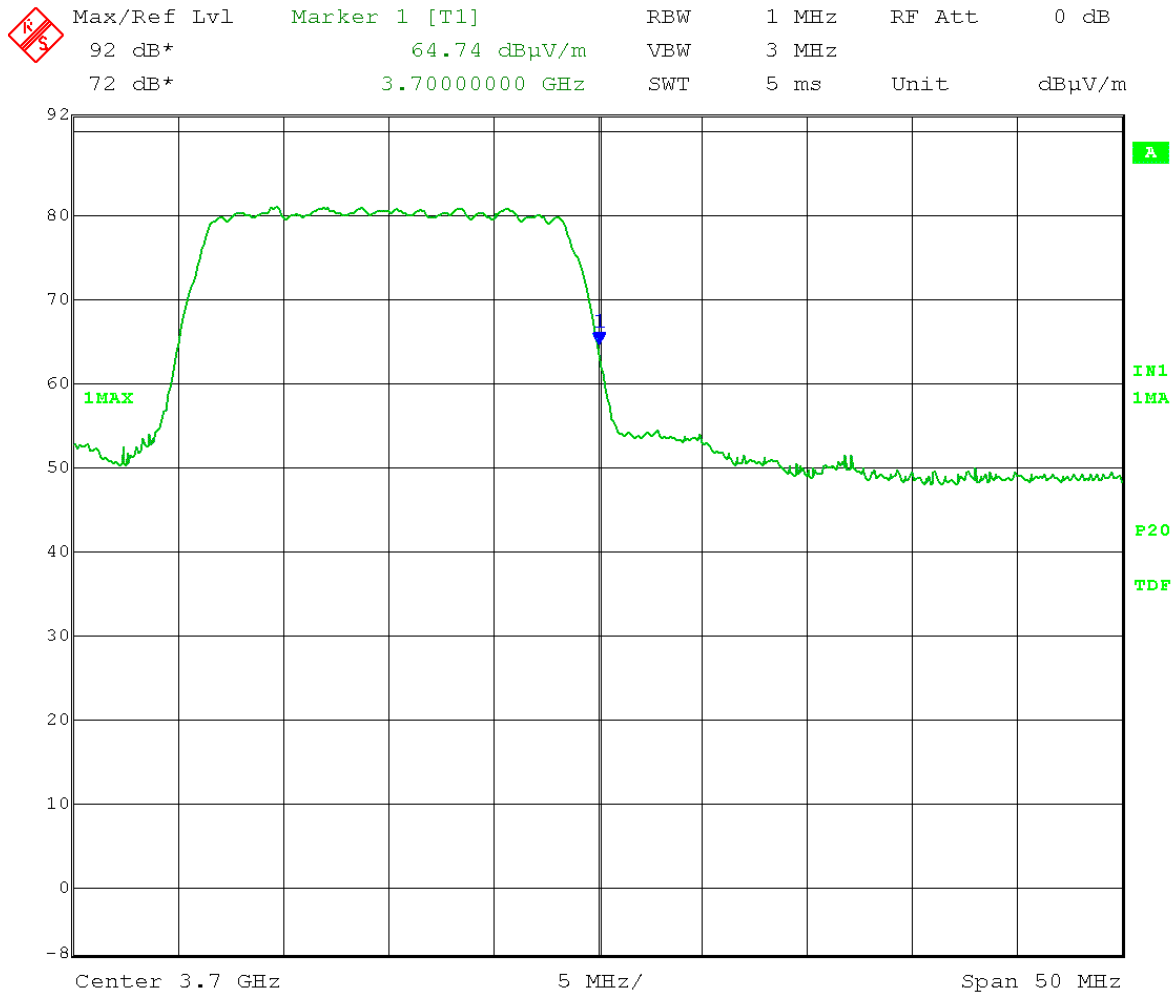
Date: 11.FEB.2014 11:16:57

Test Date: 02-11-2014
Company: Cambium Networks
EUT: PMP450 AP 3.65 GHz, Model C036045A004A
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   Output power setting: 25
               Channel bandwidth: 20 MHz   Both ports active and 50Ω terminated
               Upper 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 = 64.74 + 20log(3) – 104.8 = -30.51 dBm/MHz

Horizontal:

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	0 dB
92 dB*	64.74 dBµV/m	VBW	3 MHz		
72 dB*	3.70000000 GHz	SWT	5 ms	Unit	dBµV/m

Center 3.7 GHz   5 MHz/   Span 50 MHz

Date: 11.FEB.2014   11:45:49

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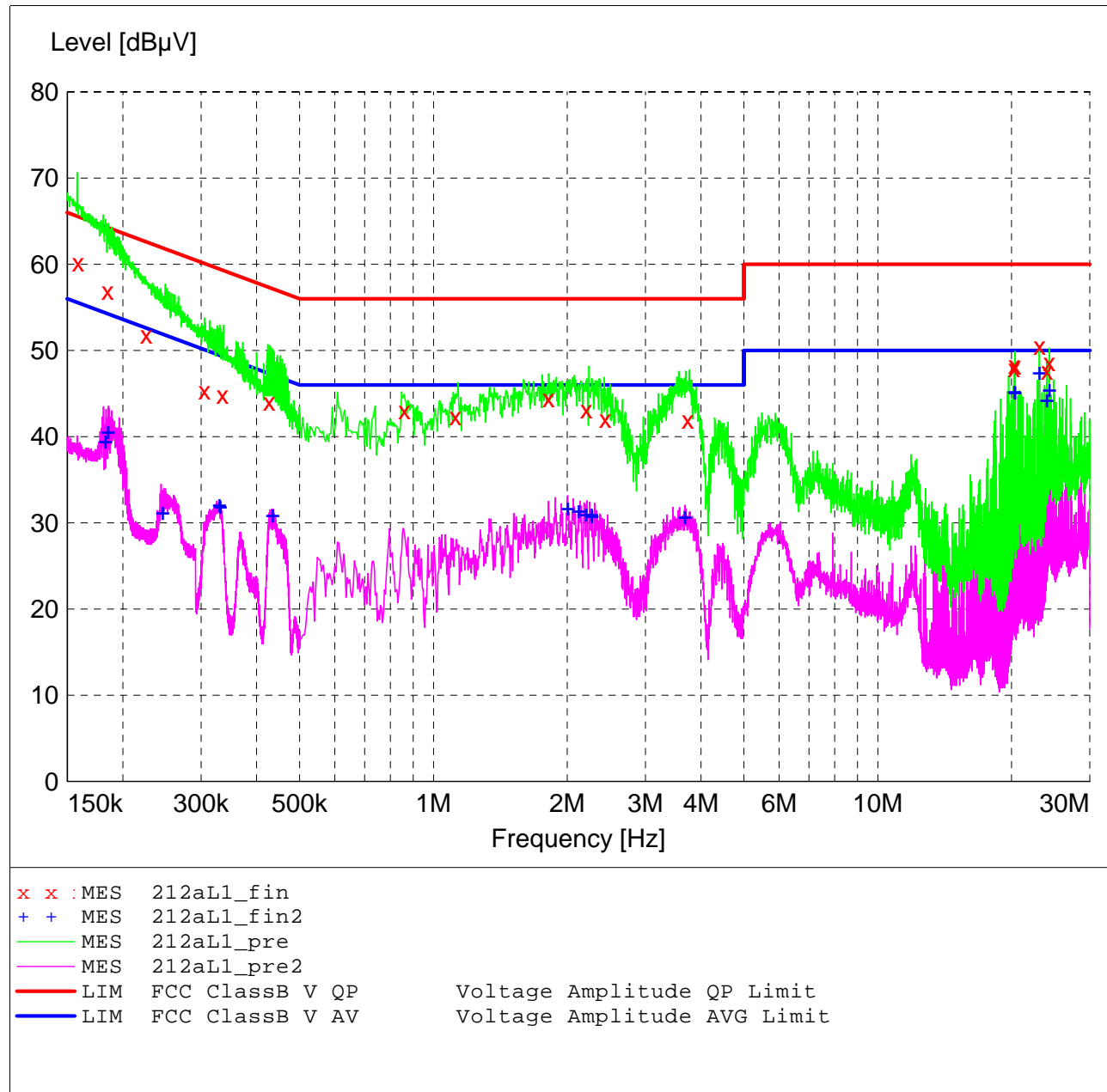
Notes: This was an AC Conducted emissions measurement.
                        The EUT was powered from a representative AC Adapter with an input of
                        120 VAC 60 Hz.

Voltage Mains Test

EUT: PMP450 AP 3.65 GHz,   Model C036045A004A
Manufacturer: Cambium Networks
Operating Condition: 72 deg. F, 16% R.H.
Test Site: DLS O.F. Screen Room
Operator: Craig B
Test Specification: 120 V 60 Hz
Comment: Line 1; continuous Tx
                              Date: 02-12-2014

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	212aL1_fin
+ +	MES	212aL1_fin2
——	MES	212aL1_pre
——	MES	212aL1_pre2
——	LIM	FCC ClassB V QP Voltage Amplitude QP Limit
——	LIM	FCC ClassB V AV Voltage Amplitude AVG Limit

MEASUREMENT RESULT: *"212aL1_fin"*

2/12/2014   3:07PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector
0.158600	60.20	13.6	66	5.3	QP
0.184800	56.90	13.0	64	7.4	QP
0.225800	51.80	12.5	63	10.8	QP
0.305400	45.30	11.9	60	14.8	QP
0.335200	44.80	11.7	59	14.5	QP
0.427400	44.00	11.4	57	13.3	QP
0.860000	43.00	10.9	56	13.0	QP
1.120000	42.30	10.7	56	13.7	QP
1.816000	44.40	10.7	56	11.6	QP
2.208000	43.10	10.6	56	12.9	QP
2.436000	42.00	10.6	56	14.0	QP
3.736000	41.90	10.7	56	14.1	QP
20.255000	47.90	11.4	60	12.1	QP
20.318000	48.30	11.4	60	11.7	QP
20.381000	48.20	11.4	60	11.8	QP
23.126000	50.50	11.5	60	9.5	QP
24.044000	47.60	11.5	60	12.4	QP
24.350000	48.60	11.5	60	11.4	QP

MEASUREMENT RESULT: *"212aL1_fin2"*

2/12/2014   3:07PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector
0.182800	39.50	13.0	54	14.9	CAV
0.185200	40.60	13.0	54	13.6	CAV
0.246000	31.30	12.3	52	20.6	CAV
0.330000	32.20	11.7	50	17.3	CAV
0.331600	32.00	11.7	49	17.4	CAV
0.435400	31.00	11.4	47	16.1	CAV
2.008000	31.80	10.6	46	14.2	CAV
2.124000	31.50	10.6	46	14.5	CAV
2.208000	31.10	10.6	46	14.9	CAV
2.272000	31.10	10.7	46	14.9	CAV
2.276000	30.90	10.7	46	15.1	CAV
3.688000	30.80	10.7	46	15.2	CAV
20.318000	45.30	11.4	50	4.7	CAV
20.381000	45.20	11.4	50	4.8	CAV
23.126000	47.50	11.5	50	2.5	CAV
24.044000	44.30	11.5	50	5.7	CAV
24.350000	45.50	11.5	50	4.5	CAV

Voltage Mains Test

EUT: PMP450 AP 3.65 GHz, Model C036045A004A
Manufacturer: Cambium Networks
Operating Condition: 72 deg. F, 16% R.H.
Test Site: DLS O.F. Screen Room
Operator: Craig B
Test Specification: 120 V 60 Hz
Comment: Line 2; continuous Tx
                     Date: 02-12-2014

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 212aL2_fin
+ + MES 212aL2_fin2
——— MES 212aL2_pre
——— MES 212aL2_pre2
——— LIM FCC ClassB V QP   Voltage Amplitude QP Limit
——— LIM FCC ClassB V AV   Voltage Amplitude AVG Limit

MEASUREMENT RESULT: "212aL2_fin"

2/12/2014 3:14PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector
0.151400	61.10	13.8	66	4.8	QP
0.182600	57.10	13.0	64	7.3	QP
0.226800	51.60	12.5	63	11.0	QP
0.333800	46.10	11.7	59	13.3	QP
0.336000	45.70	11.7	59	13.6	QP
0.429400	45.20	11.4	57	12.1	QP
0.604000	43.10	11.0	56	12.9	QP
0.852000	44.20	10.9	56	11.8	QP
1.576000	44.80	10.7	56	11.2	QP
2.148000	44.60	10.6	56	11.4	QP
3.360000	42.50	10.7	56	13.5	QP
3.768000	41.60	10.7	56	14.4	QP
20.318000	47.80	11.4	60	12.2	QP
20.381000	47.70	11.4	60	12.3	QP
23.126000	50.10	11.5	60	9.9	QP
24.044000	47.30	11.5	60	12.7	QP
24.350000	48.20	11.5	60	11.8	QP

MEASUREMENT RESULT: "212aL2_fin2"

2/12/2014 3:14PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector
0.181400	38.50	13.1	54	15.9	CAV
0.186200	41.00	13.0	54	13.2	CAV
0.249800	32.00	12.2	52	19.8	CAV
0.331400	33.30	11.7	49	16.1	CAV
0.332000	33.10	11.7	49	16.3	CAV
0.428600	32.50	11.4	47	14.8	CAV
1.816000	31.90	10.7	46	14.1	CAV
1.944000	32.20	10.6	46	13.8	CAV
2.068000	32.20	10.6	46	13.8	CAV
2.124000	31.90	10.6	46	14.1	CAV
2.272000	31.40	10.7	46	14.6	CAV
3.692000	31.80	10.7	46	14.2	CAV
20.318000	44.90	11.4	50	5.1	CAV
20.381000	44.80	11.4	50	5.2	CAV
23.126000	47.10	11.5	50	2.9	CAV
24.044000	44.00	11.5	50	6.0	CAV
24.350000	45.10	11.5	50	4.9	CAV

DLS
ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C036045A004A
Report Number: 19784
DLS Project: 6383

END OF REPORT

Revision #	Date	Comments	By
1.0	02-17-2014	Preliminary Release	JS
1.1	02-17-2014	Minor edits, pgs 6, 10, 91, 94, 121, 130, 141, 172	JS