



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 5 th to 13 th , 2014
Test Conducted For:	Cambium Networks 3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA

NOTICE: “This test report relates only to the items tested and must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government”. Please see the "Description of Test Sample" page listed inside of this report.

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SIGNATURE PAGE

Tested By:

A handwritten signature in black ink that reads "Craig Brandt". The signature is fluid and cursive.

Craig Brandt
Senior Test Engineer

Reviewed By:

A handwritten signature in black ink that reads "William Stumpf". The signature is fluid and cursive.

William Stumpf
OATS Manager

Approved By:

A handwritten signature in black ink that reads "Brian J. Mattson". The signature is fluid and cursive.

Brian Mattson
General Manager



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United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

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

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

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

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



W. D. M. L.

For the National Institute of Standards and Technology

2013-10-01 through 2014-09-30

Effective dates

NVLAP-01C (REV. 2009-01-26)



166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C036045A004A
Report Number: 19784
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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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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



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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



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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)



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8.0 Modifications Made To EUT for Compliance

No modifications were needed for the OFDM transmitters.

9.0 Additional Descriptions

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

Emission Designators: 5M0X1D, 10M0X1D, 20M0X1D

10.0 Results

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

11.0 Conclusion

The 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.



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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

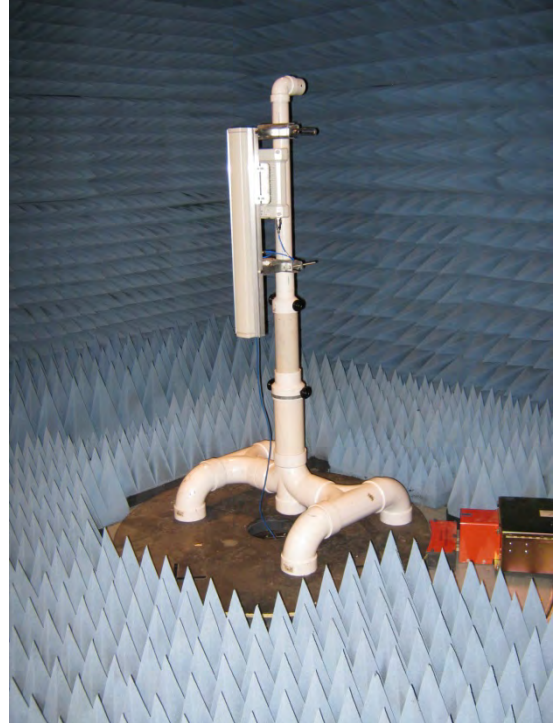


Appendix A – Test Photos

Radiated Below 1 GHz - Side



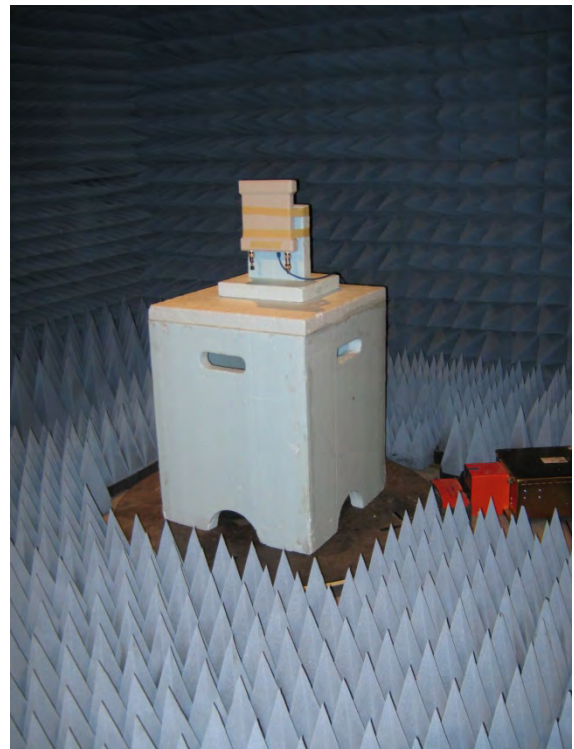
Radiated Above 1 GHz



Radiated Above 1 GHz - Close-up



Radiated from Cabinet





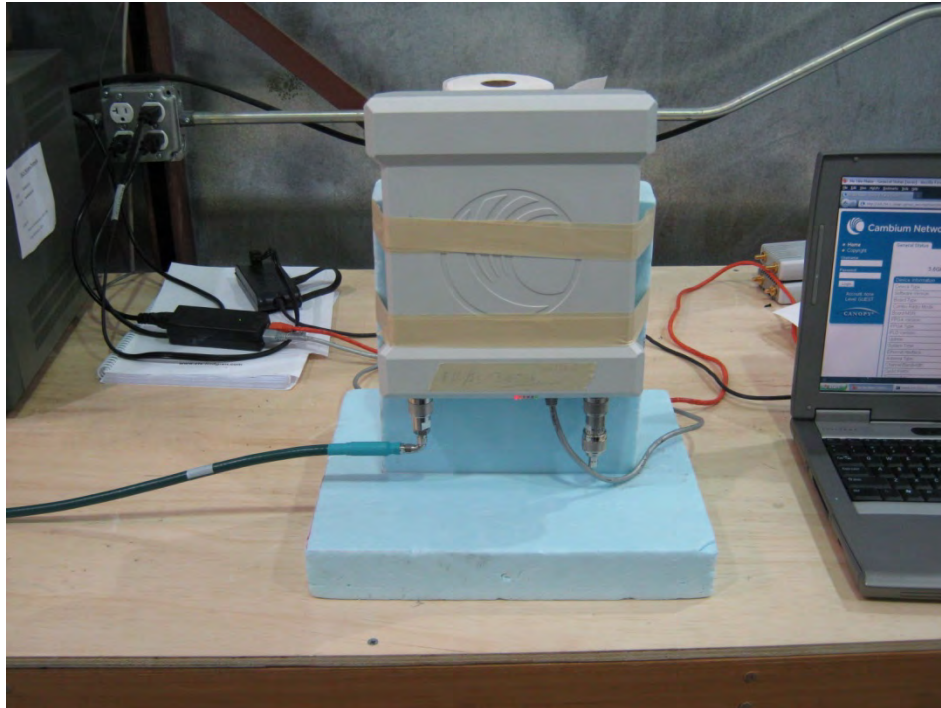
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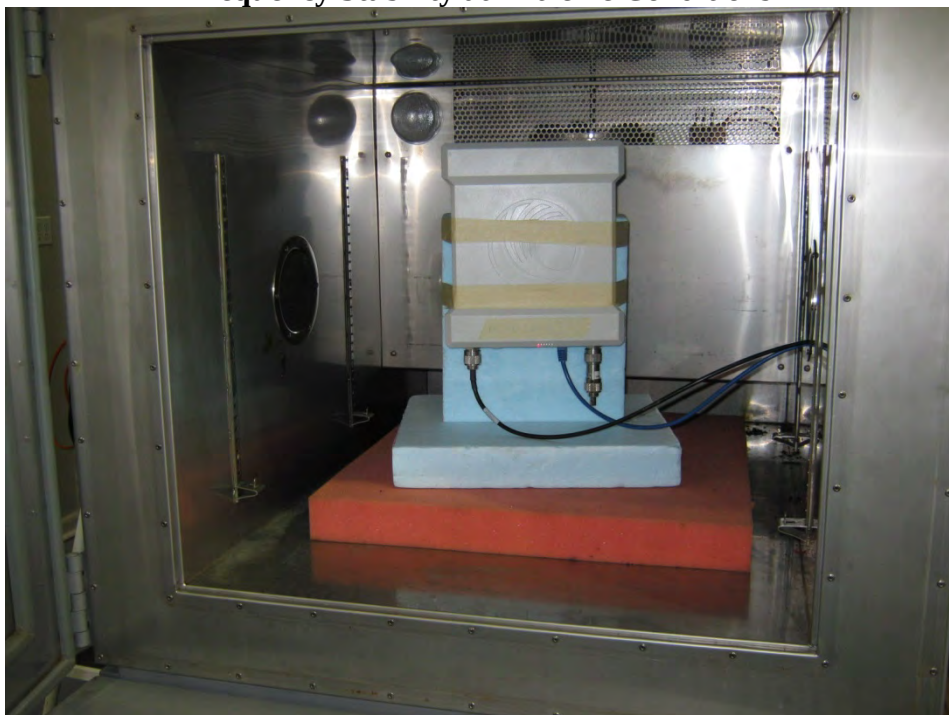
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Appendix A – Test Photos

RF Conducted



Frequency Stability at Extreme Conditions



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

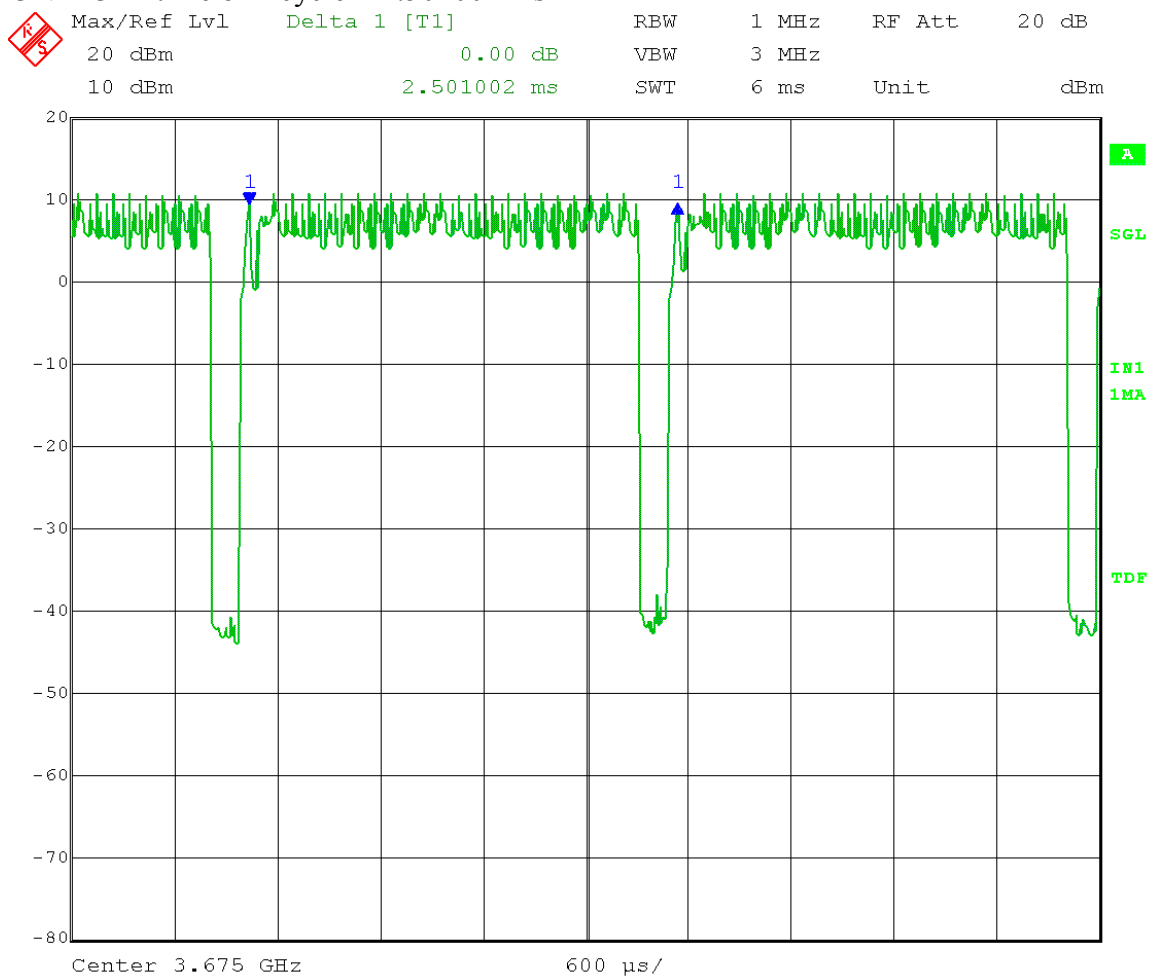
Rule Part:	FCC Part 90.1321 (a) and (b) Duty cycle correction needed for special procedure for Output Power and Power Density test per the FCC accepted KDB procedure as documented in the Cambium Networks PBA for this project.
Test Procedure:	RBW = 1 MHz; VBW = 3 MHz; Span = zero span; Sweep time set 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 = $10\log(x) = 0.393$ dB

ON + OFF time of 1 cycle = 2.501002 ms



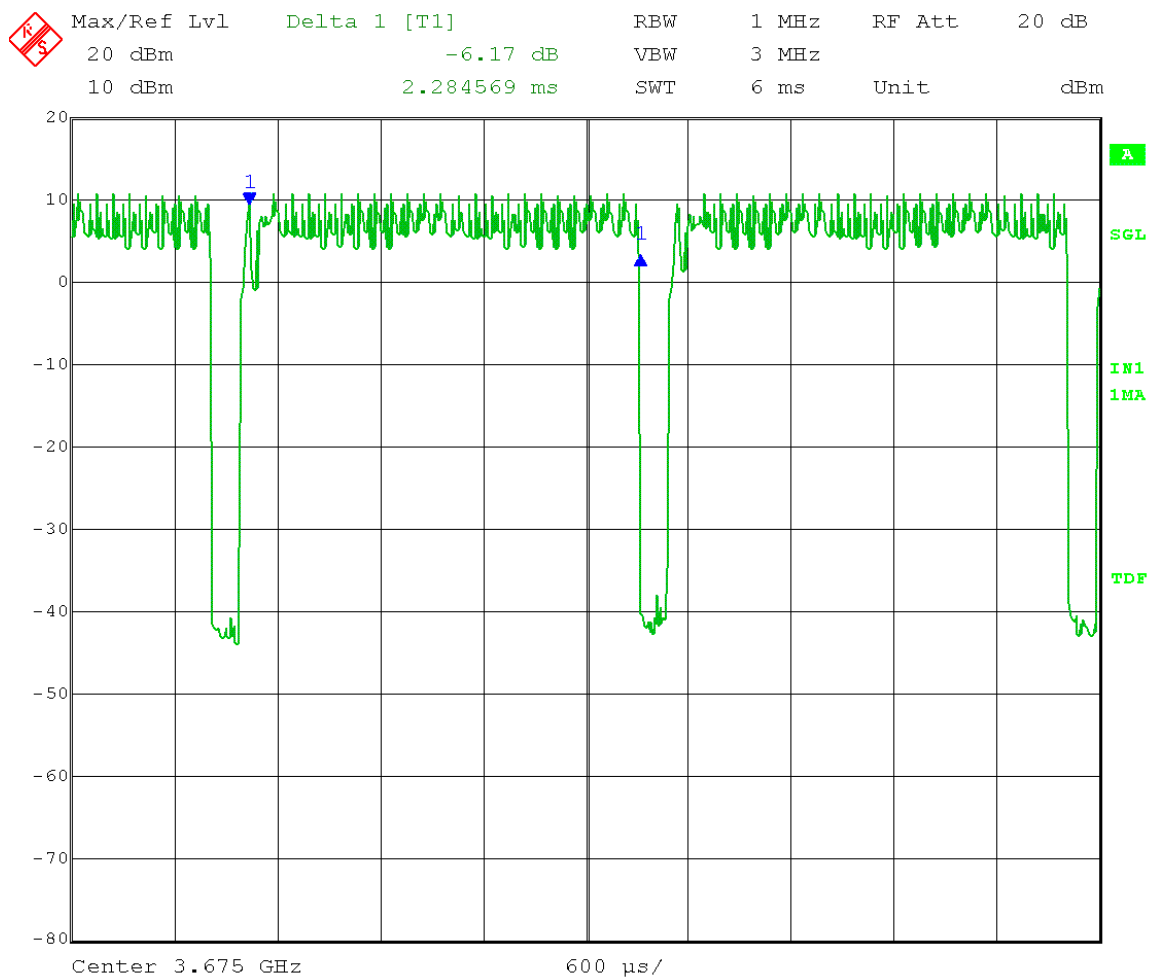
Date: 6.FEB.2014 13:26:04

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 = $10\log(x) = 0.393$ dB

ON time of 1 cycle = 2.284569 ms



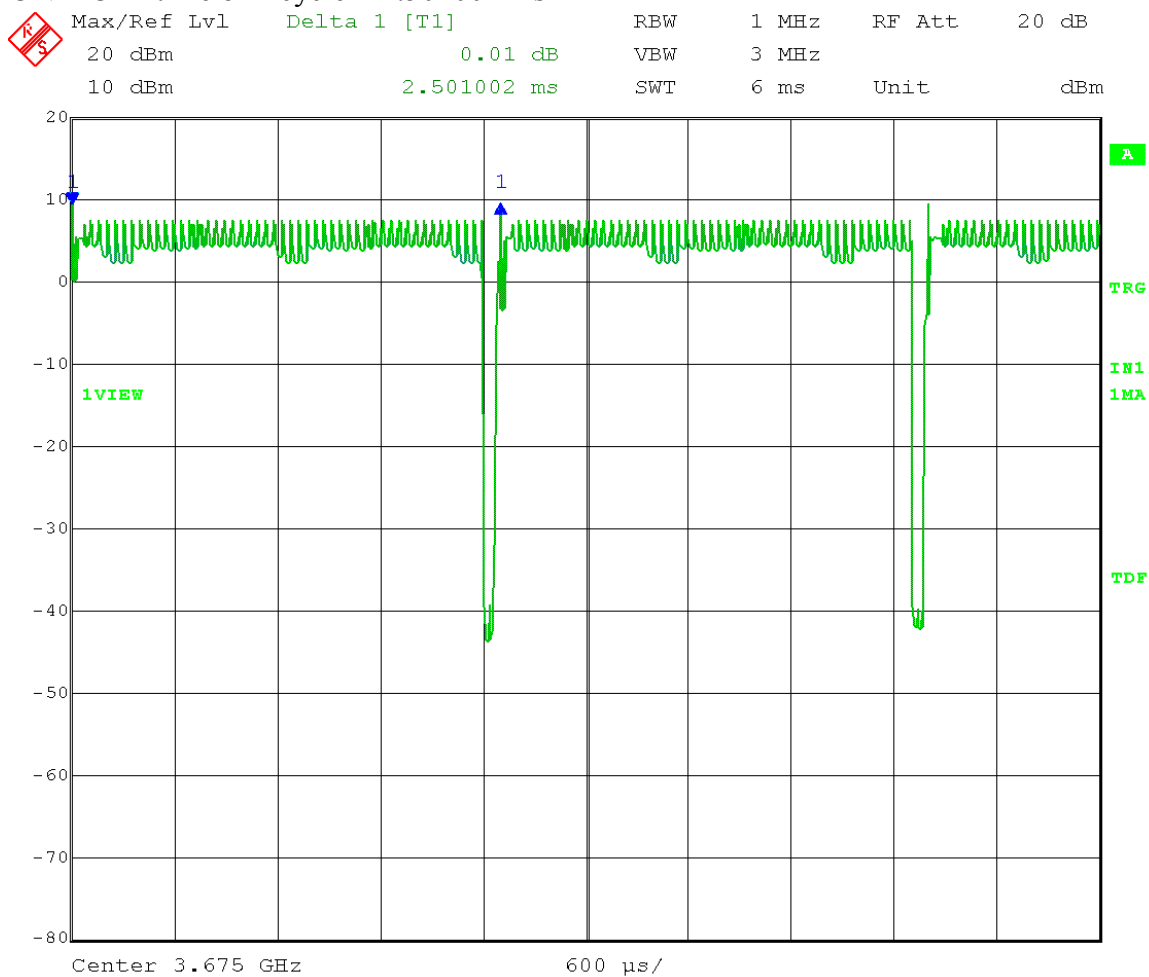
Date: 6.FEB.2014 13:27:10

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 = $10\log(x) = 0.17$ dB

ON + OFF time of 1 cycle = 2.501002 ms



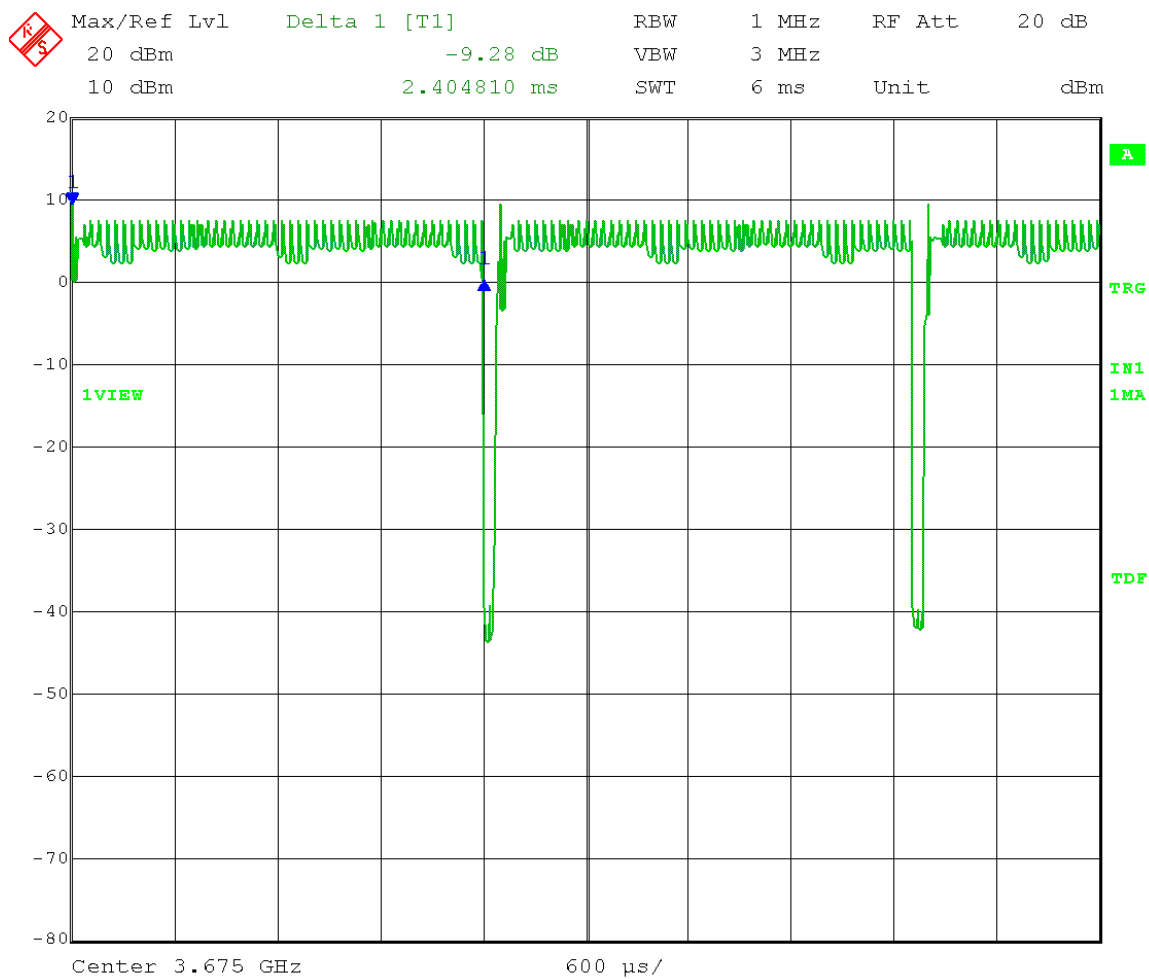
Date: 6.FEB.2014 12:25:15

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 = $10\log(x) = 0.17$ dB

ON time of 1 cycle = 2.404810 ms



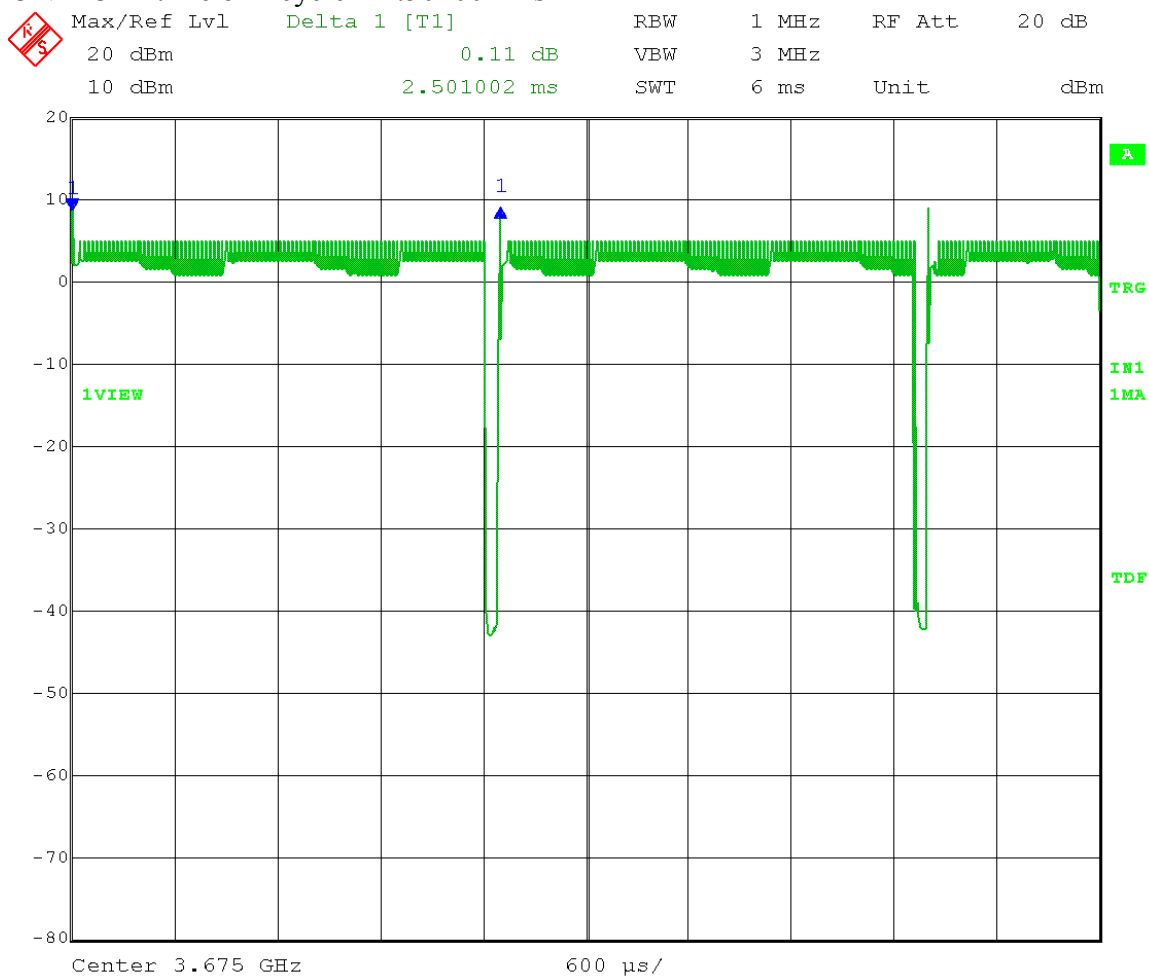
Date: 6.FEB.2014 12:27:16

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 = $10\log(x) = 0.15$ dB

ON + OFF time of 1 cycle = 2.501002 ms



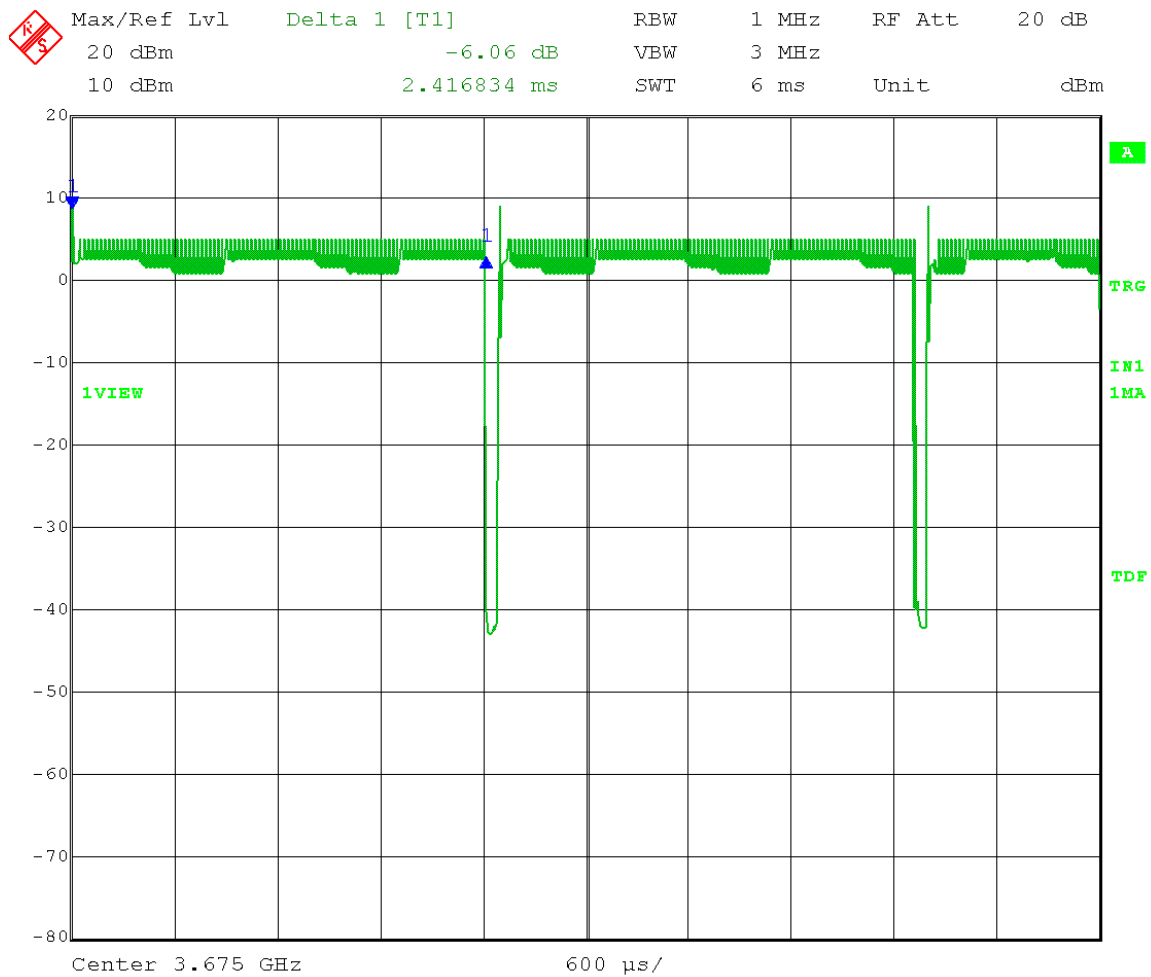
Date: 6.FEB.2014 13:47:22

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 = $10\log(x) = 0.15$ dB

ON time of 1 cycle = 2.416834 ms



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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	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	
QPSK	EIRP / 25 MHz	EIRP / 1 MHz
	41.53	29.62



166 South Carter, Genoa City, WI 53128

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

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 $\geq 3 \times$ RBW
Detector = Peak
Trace mode = max hold

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

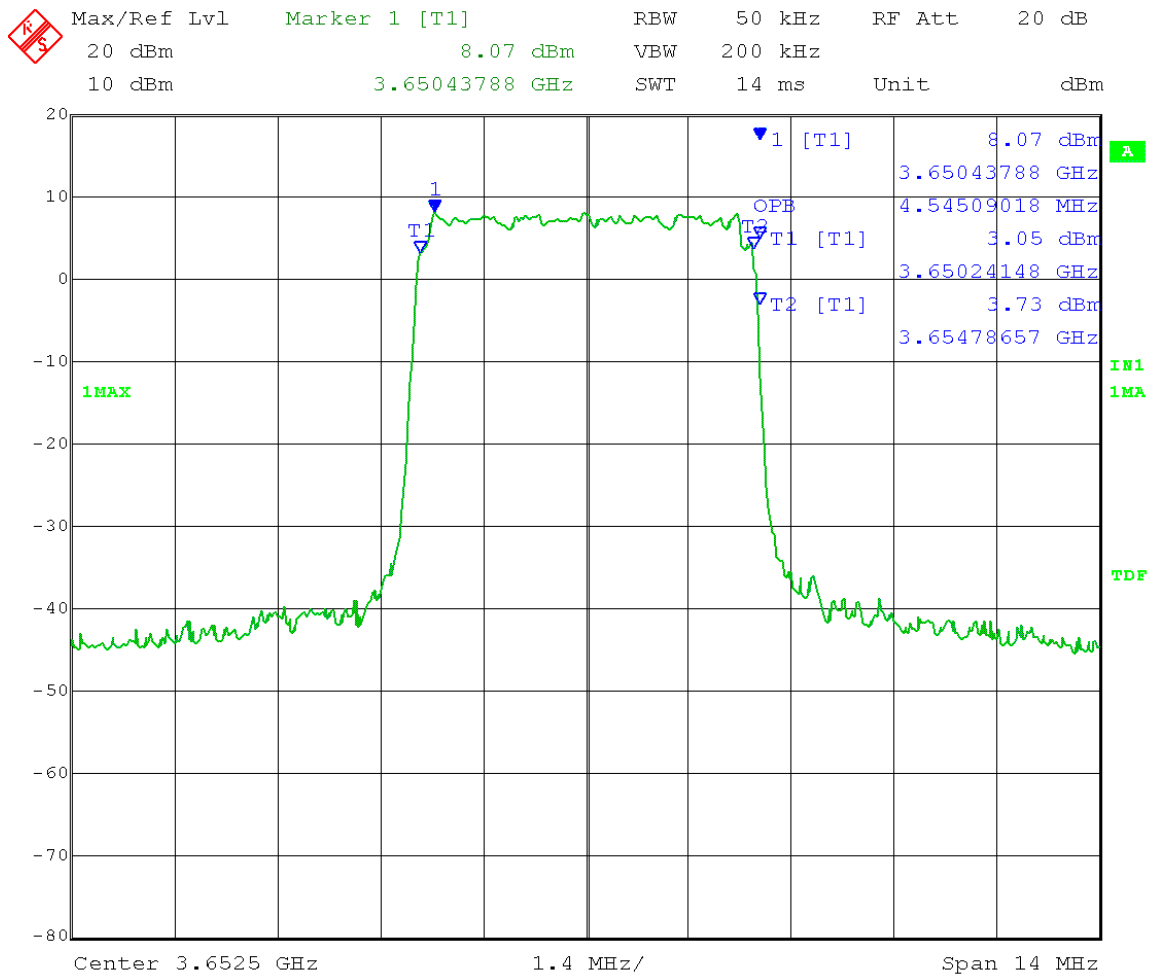
Limit: Informative

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

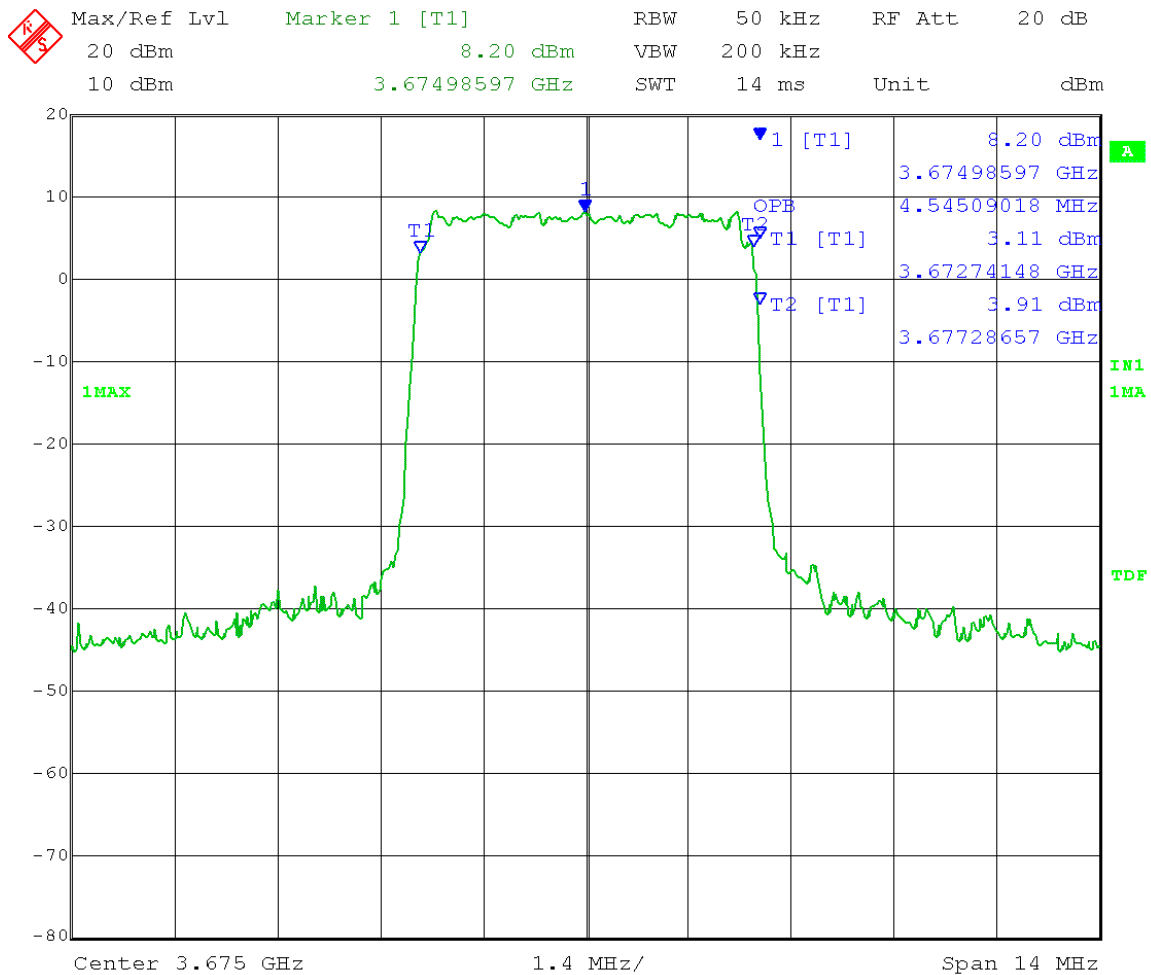


Date: 6.FEB.2014 14:46:05

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: Mid Channel: Transmit = 3675 MHz
Output power setting: 19 5 MHz channel BW
Output port A Modulation: QPSK

Occupied Bandwidth = 4.55 MHz

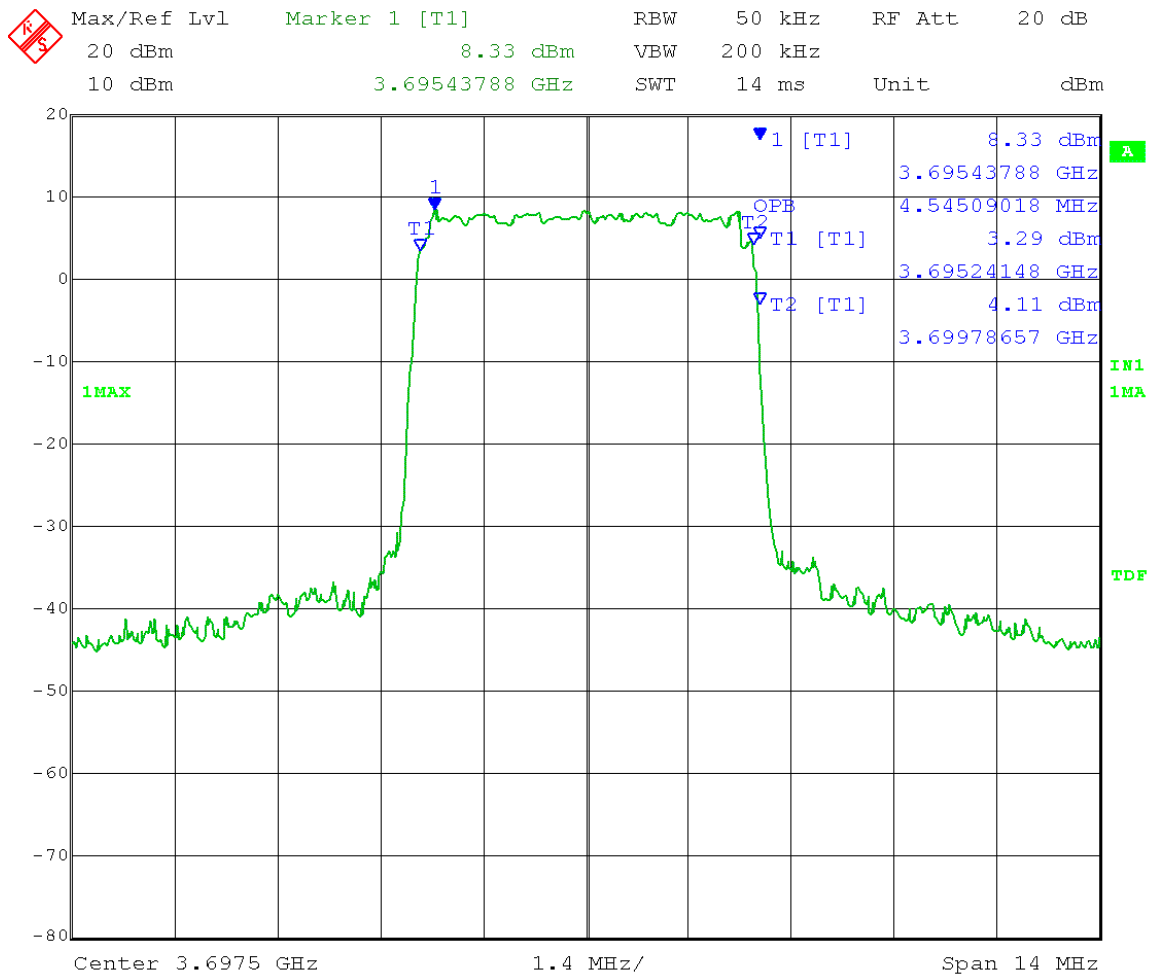


Date: 6.FEB.2014 14:48:05

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

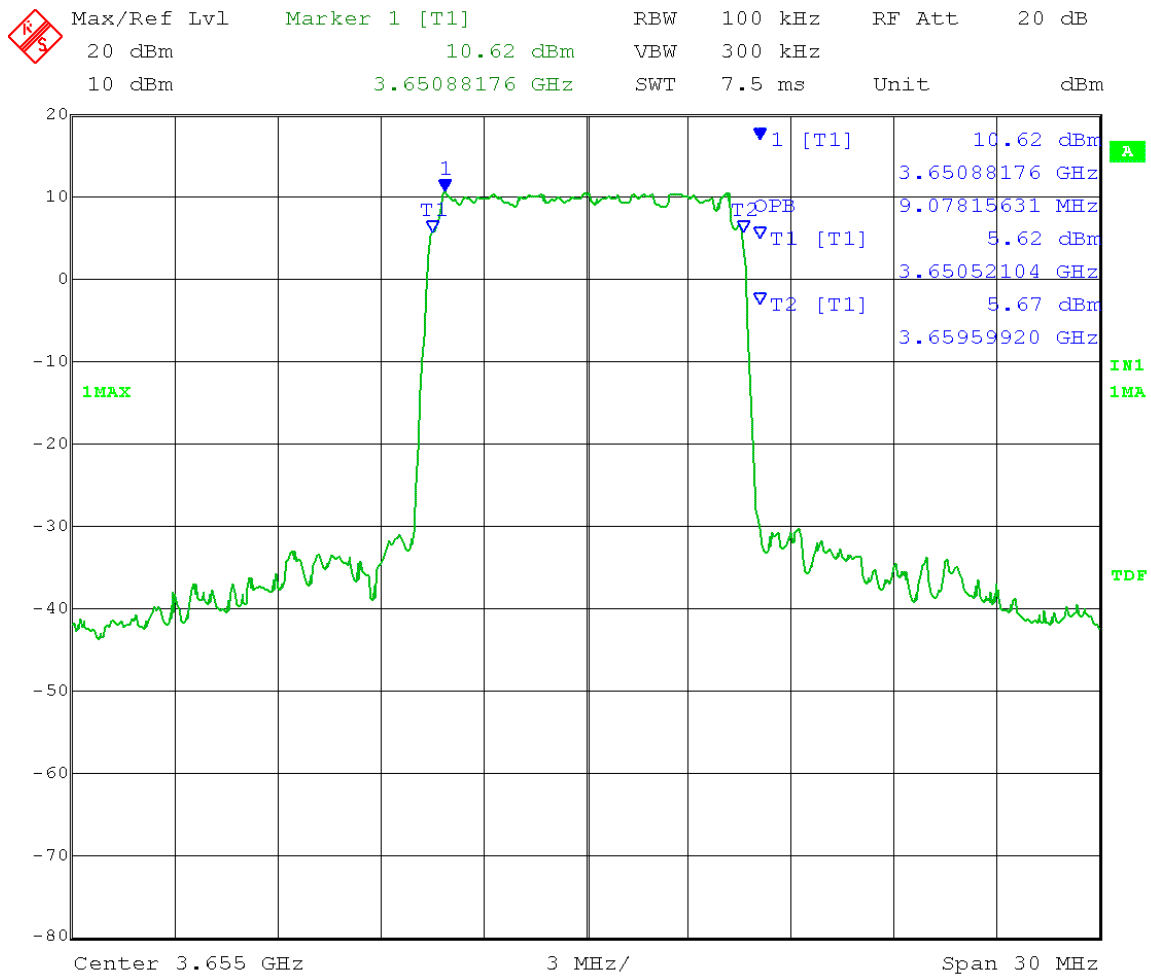


Date: 6.FEB.2014 14:49:47

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

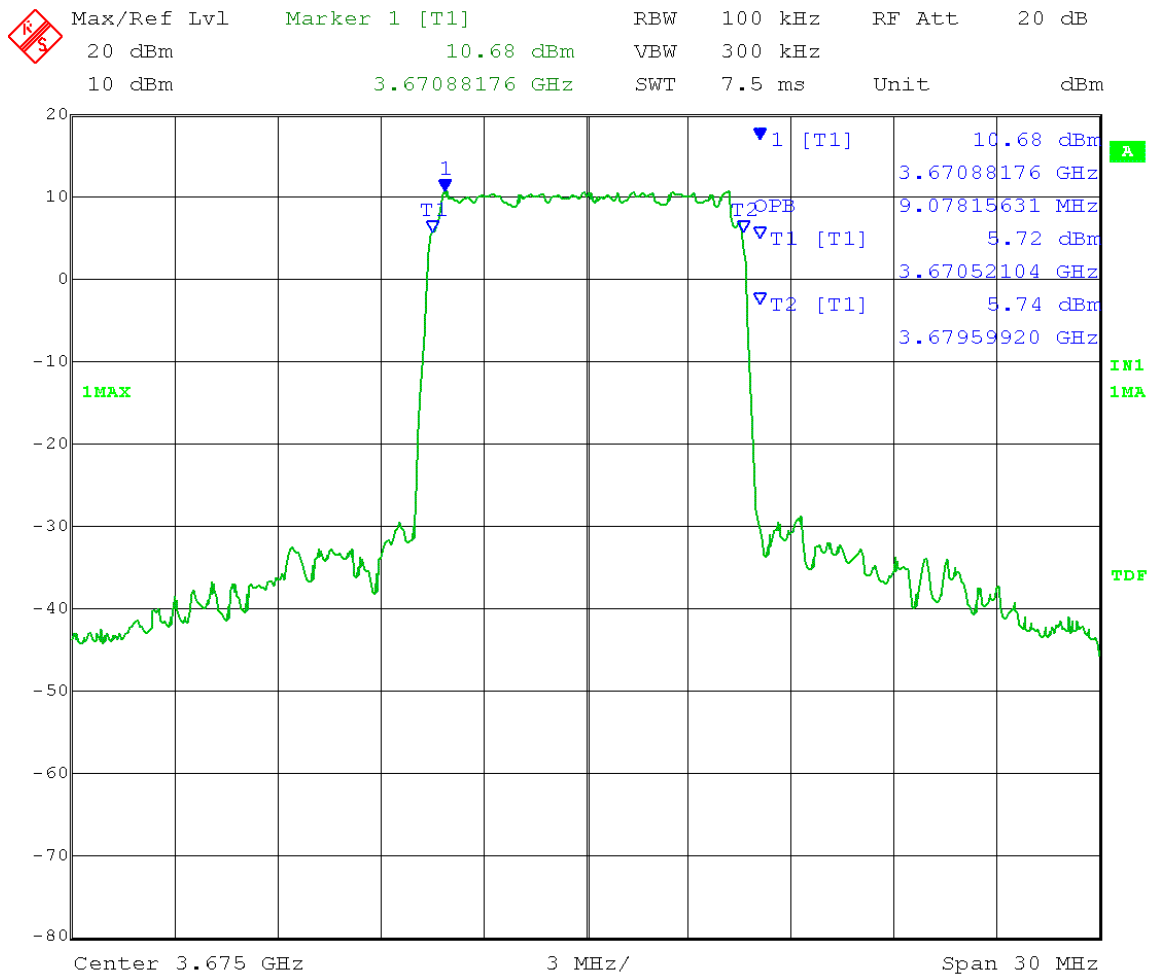


Date: 6.FEB.2014 14:35:22

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

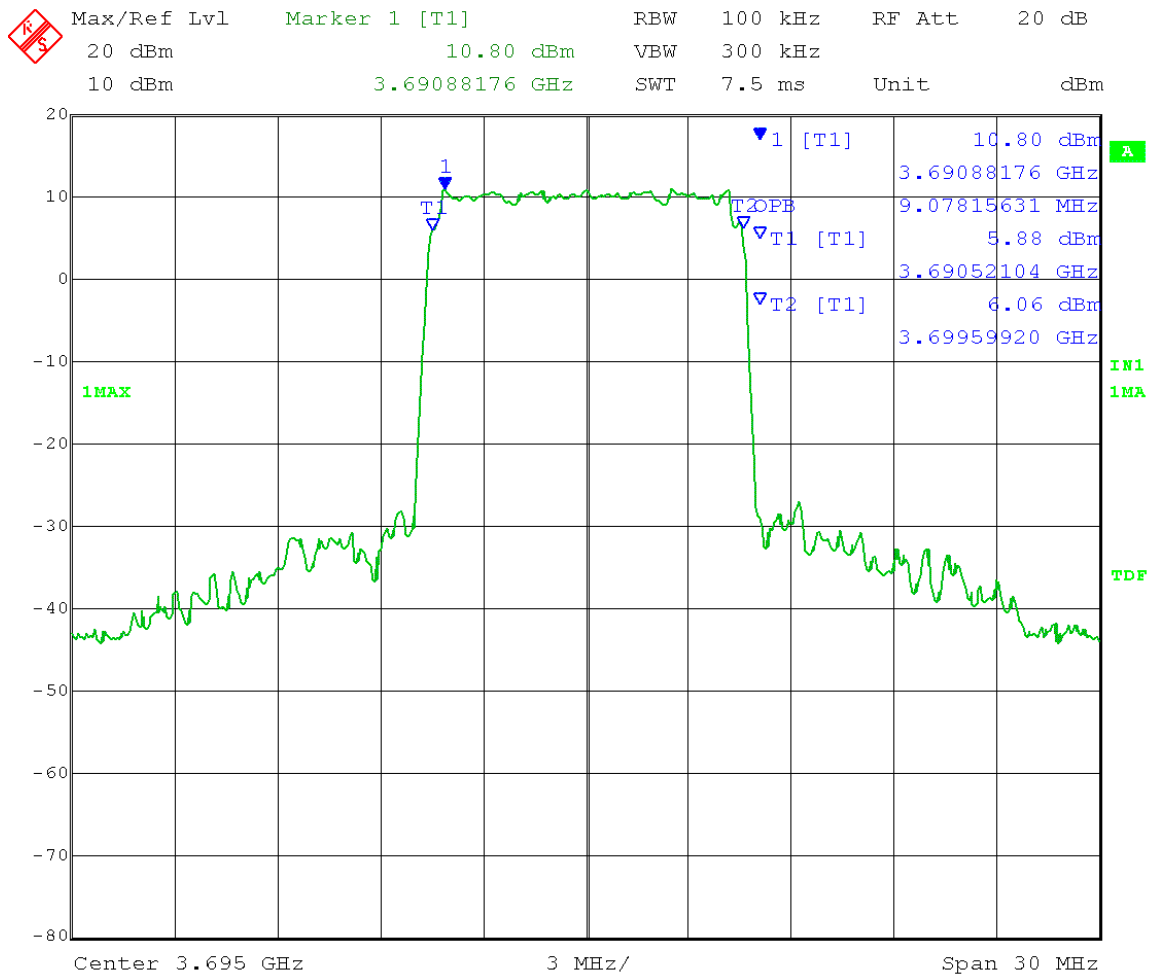


Date: 6.FEB.2014 14:38:23

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

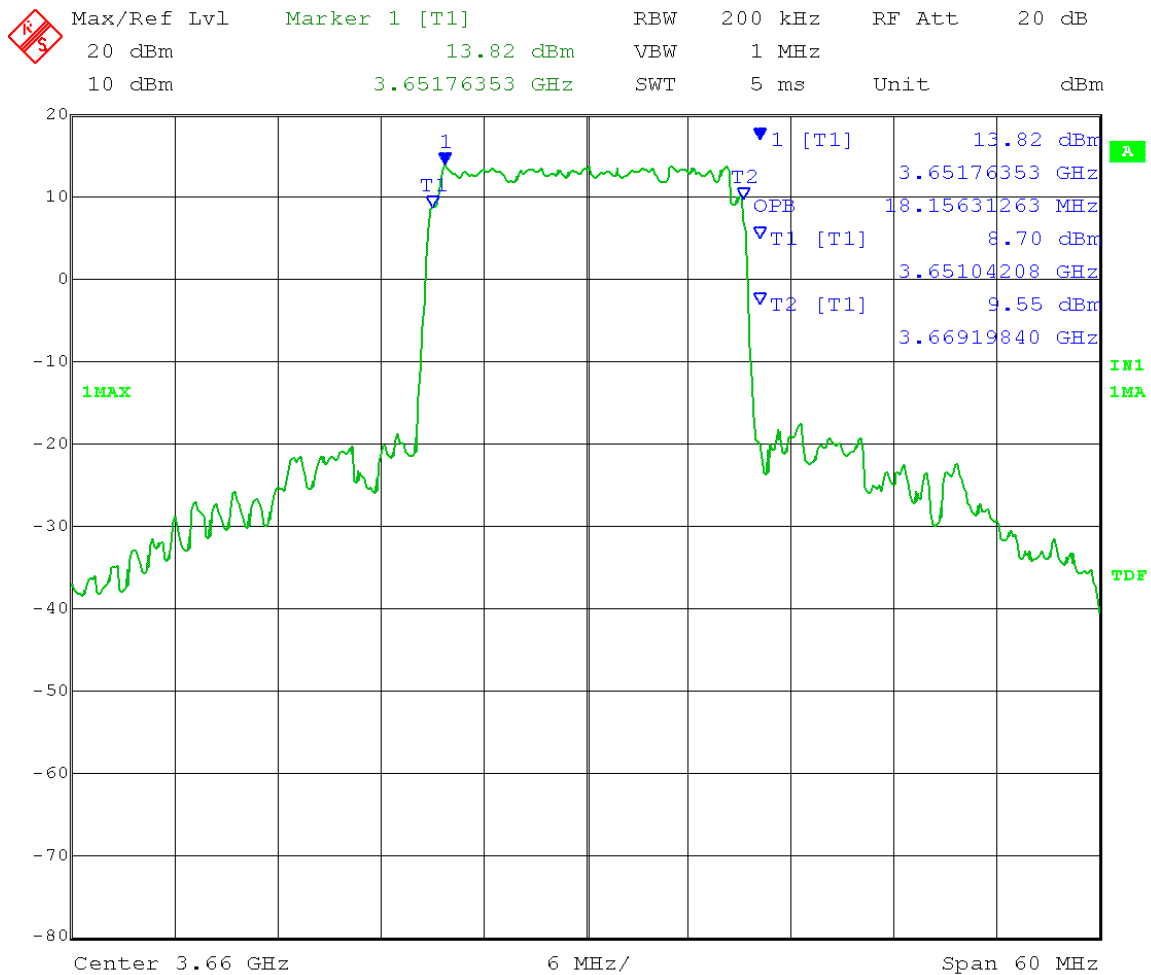


Date: 6.FEB.2014 14:41:19

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

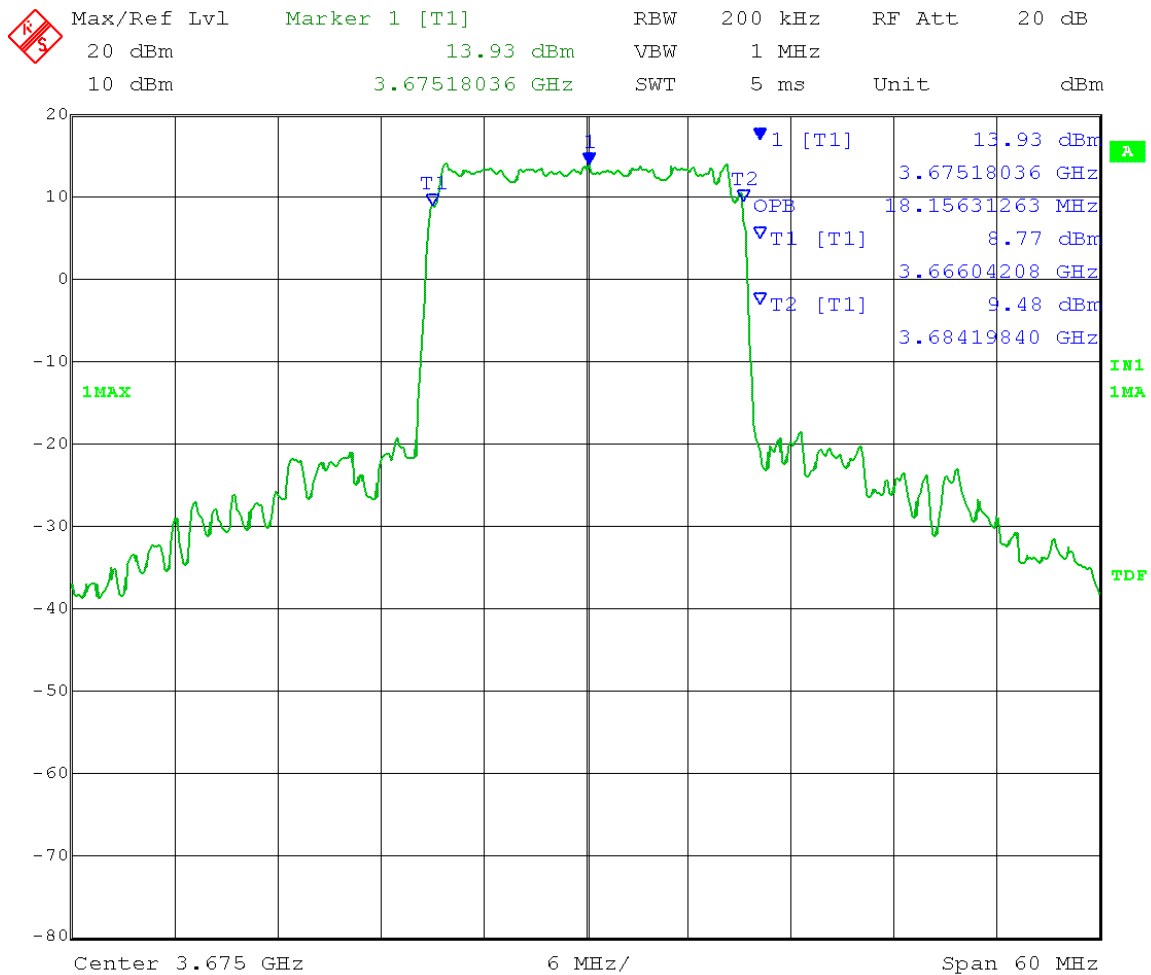


Date: 6.FEB.2014 14:17:00

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

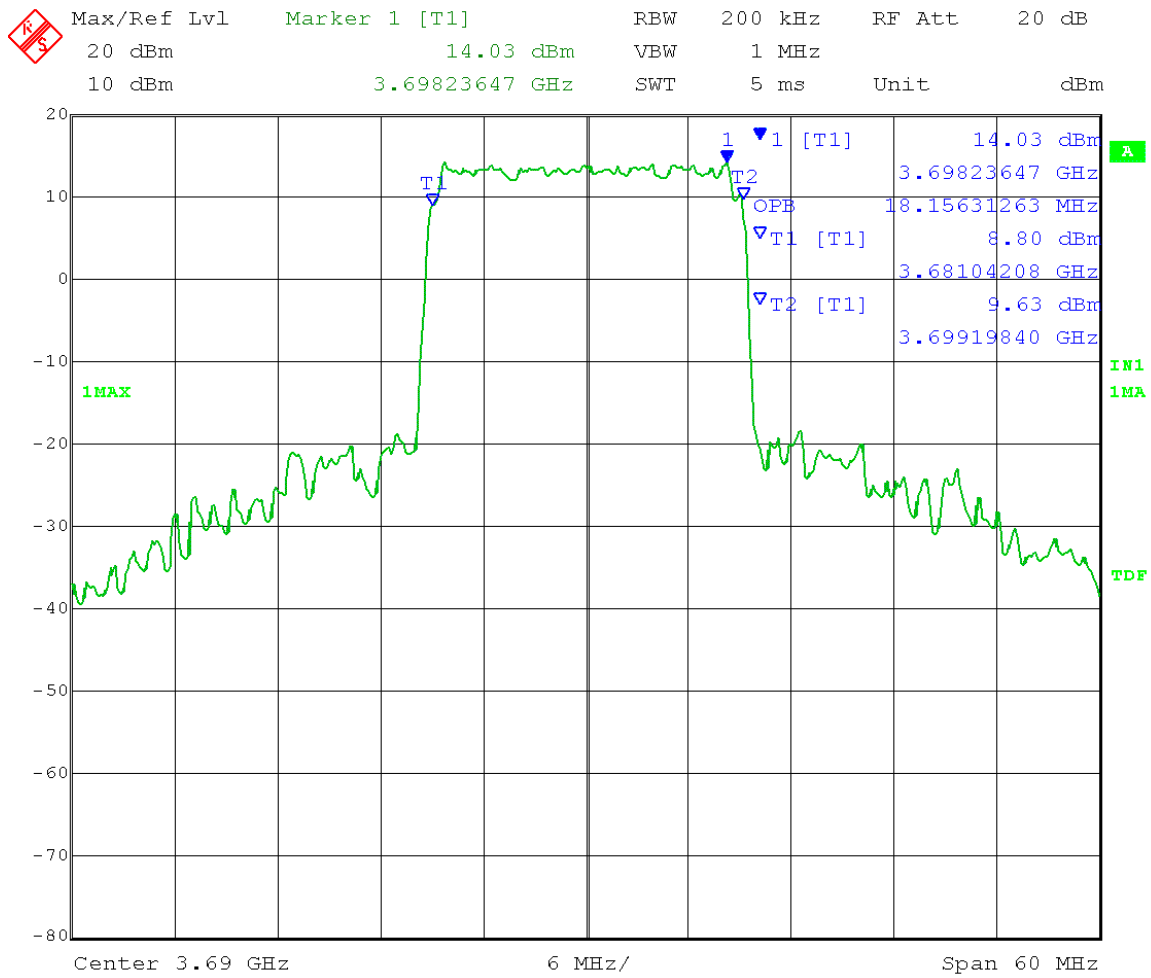


Date: 6.FEB.2014 14:23:15

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



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



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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

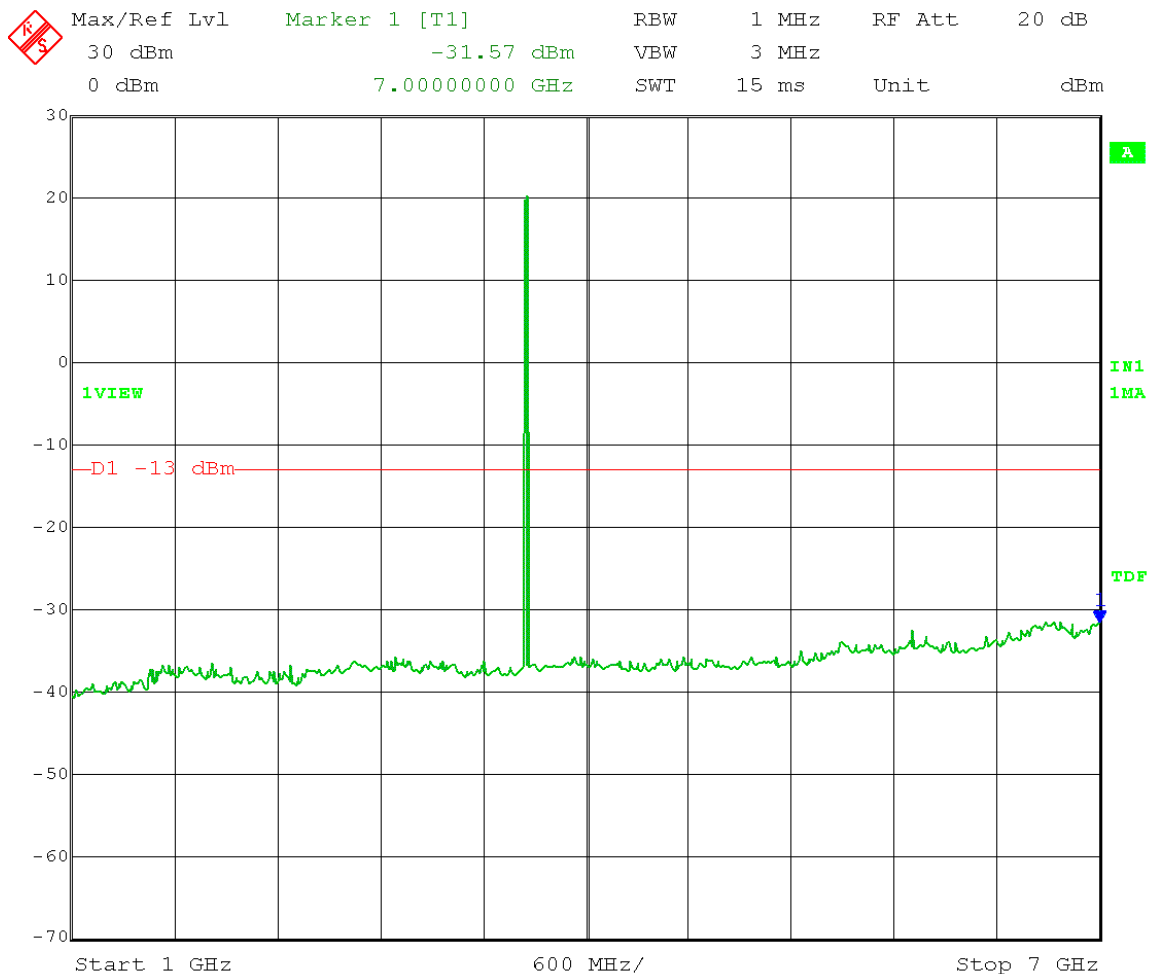


Date: 11.FEB.2014 09:19:47

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

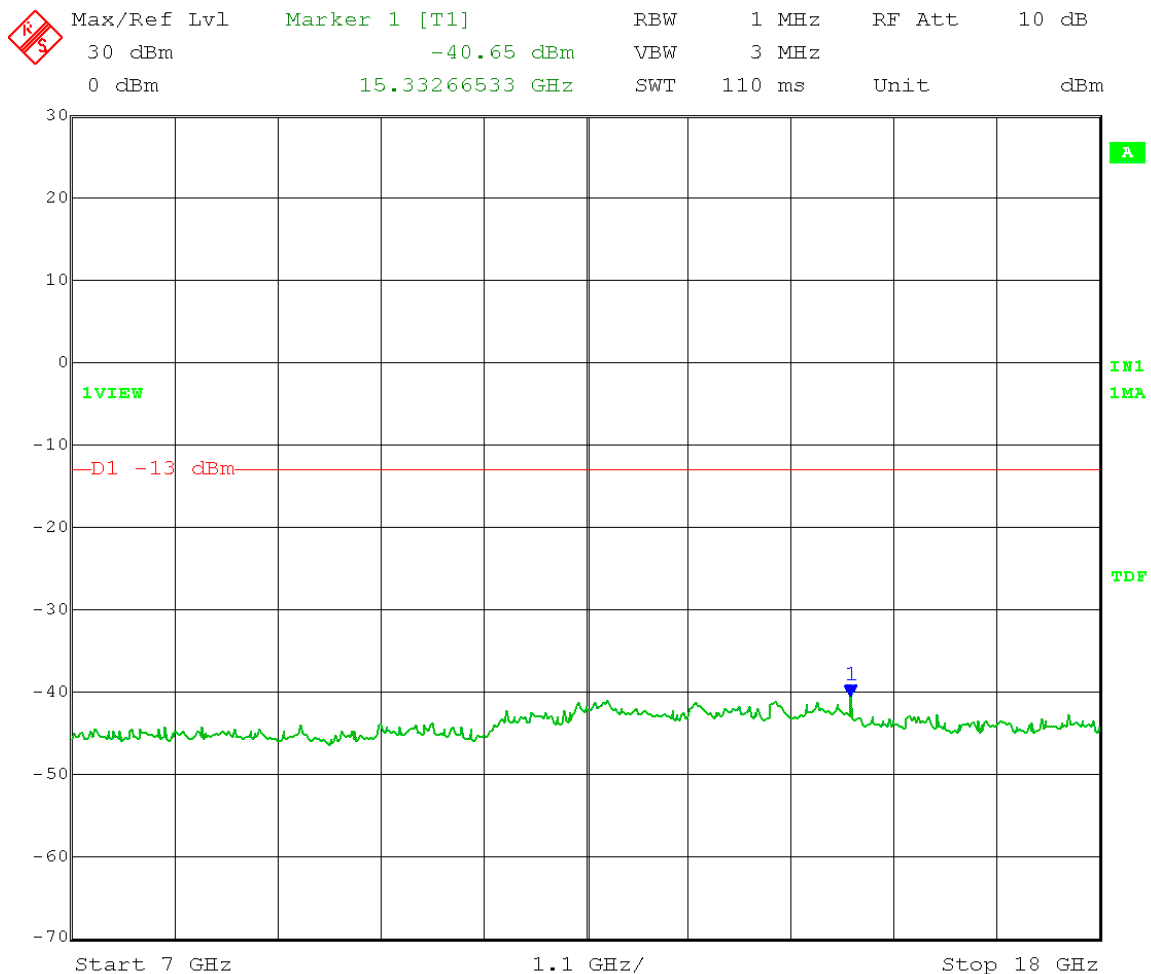


Date: 11.FEB.2014 09:21:33

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

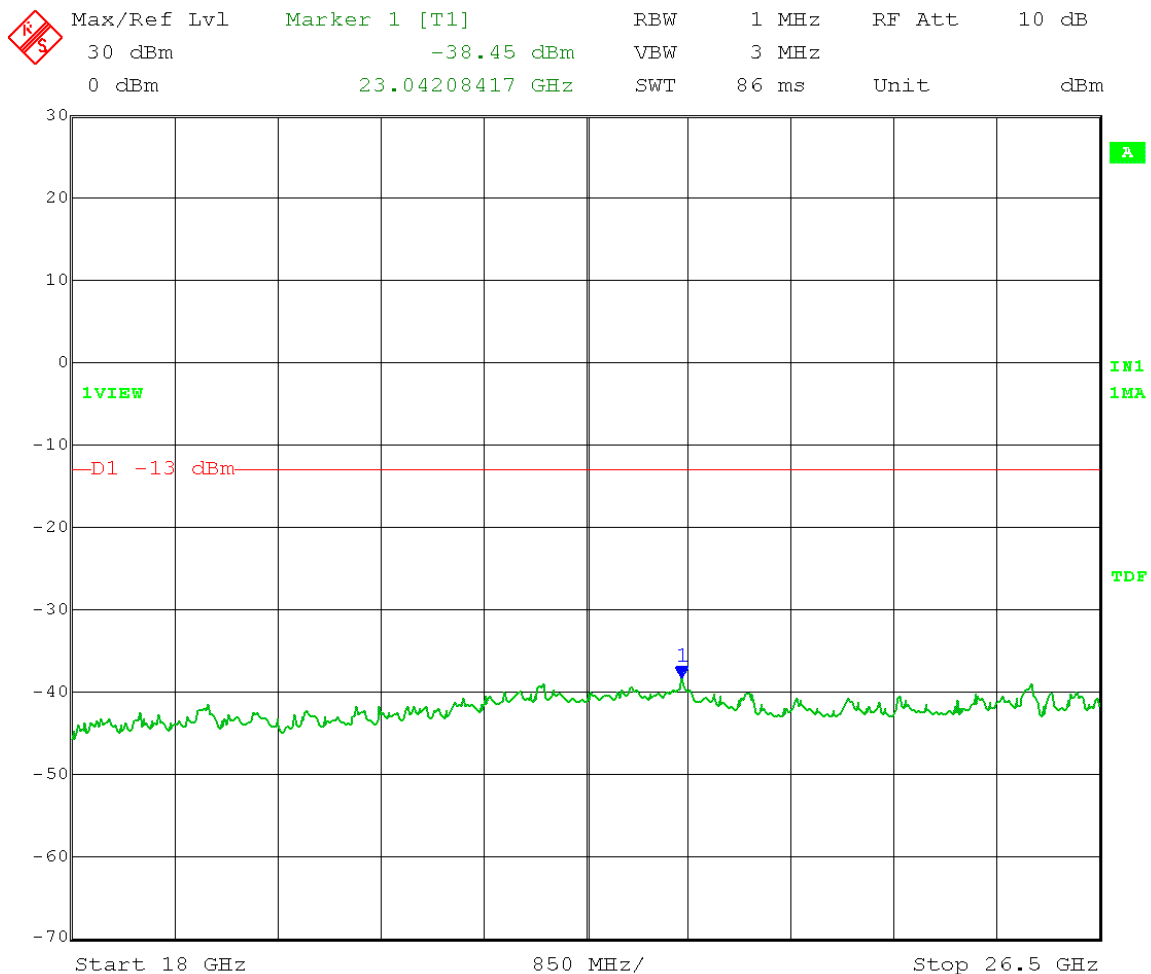


Date: 11.FEB.2014 09:23:32

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

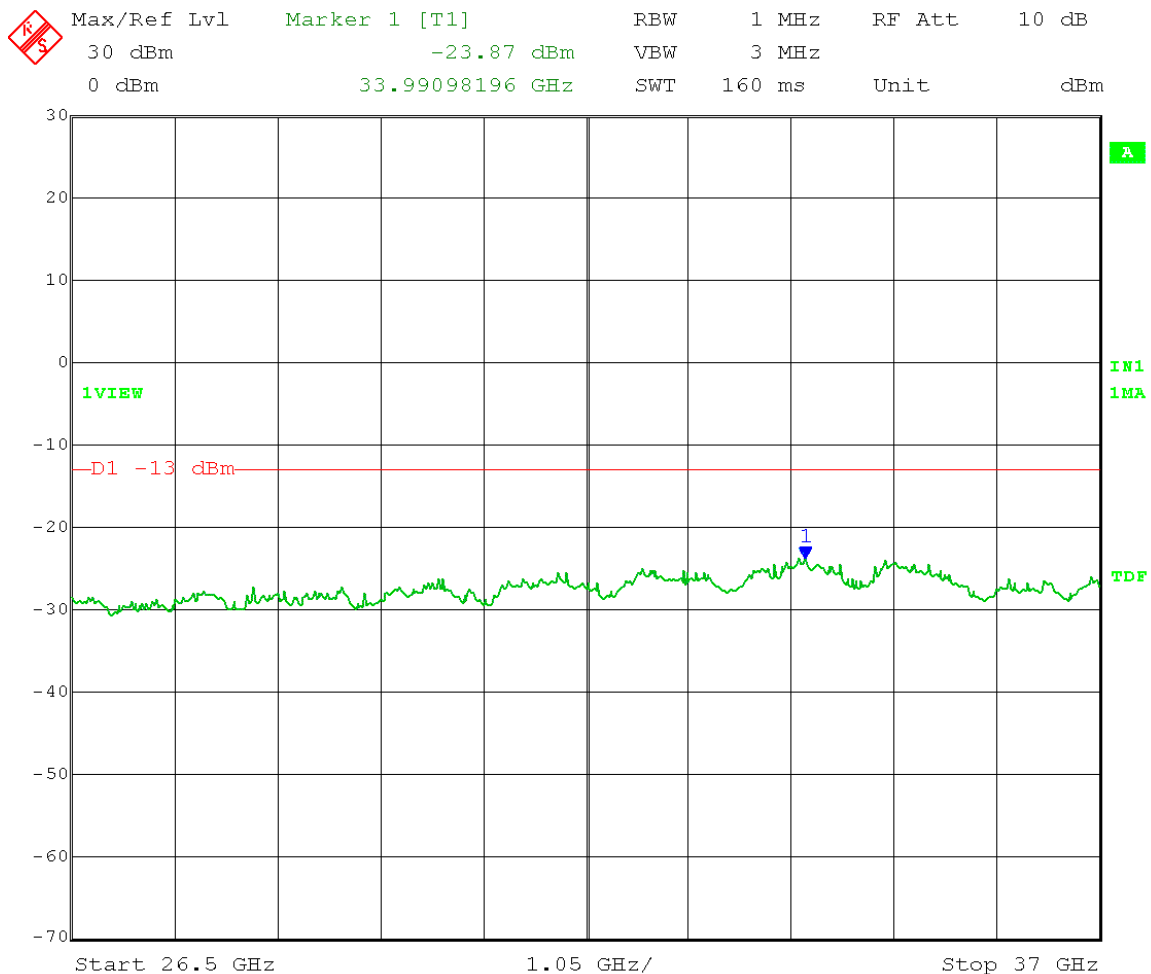


Date: 11.FEB.2014 09:25:02

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

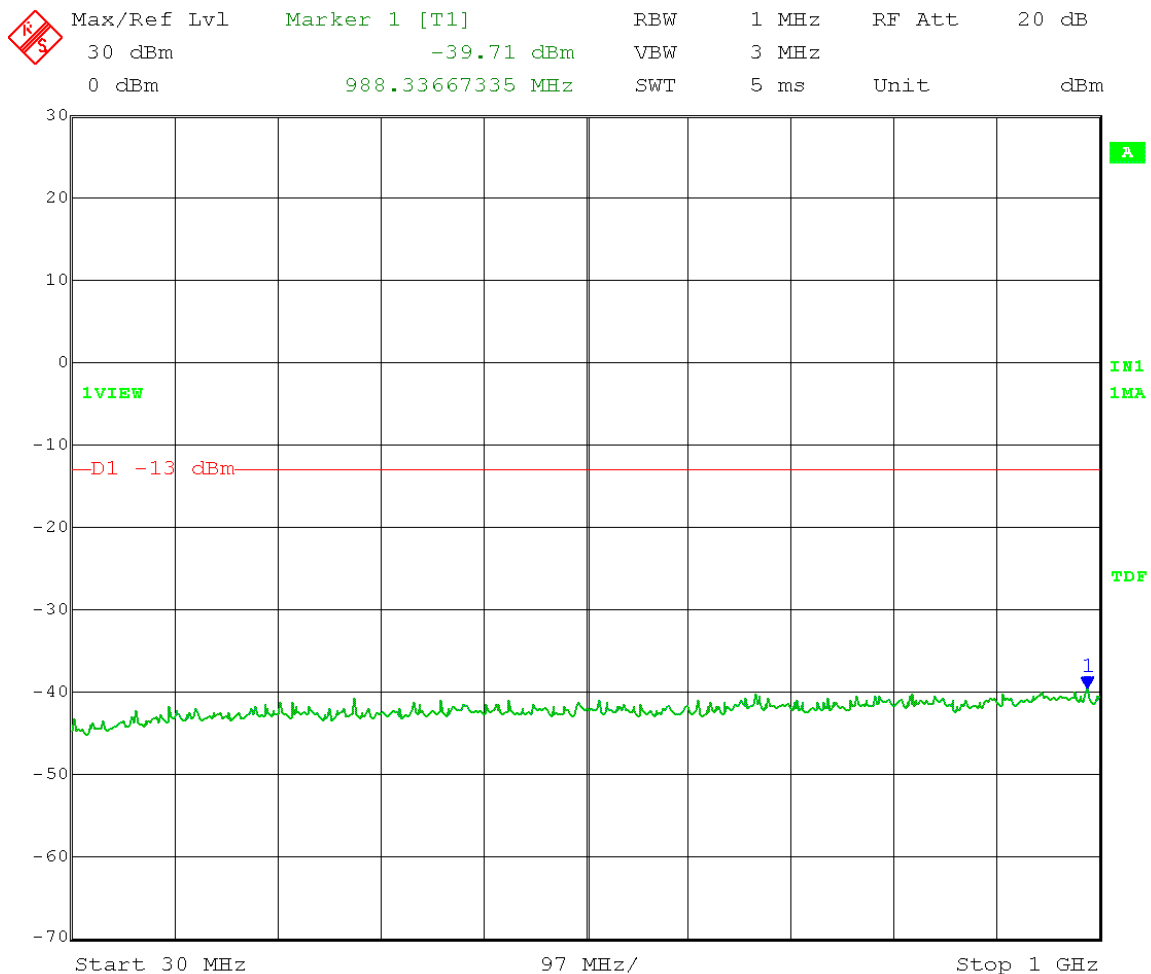


Date: 11.FEB.2014 09:27:00

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz



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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

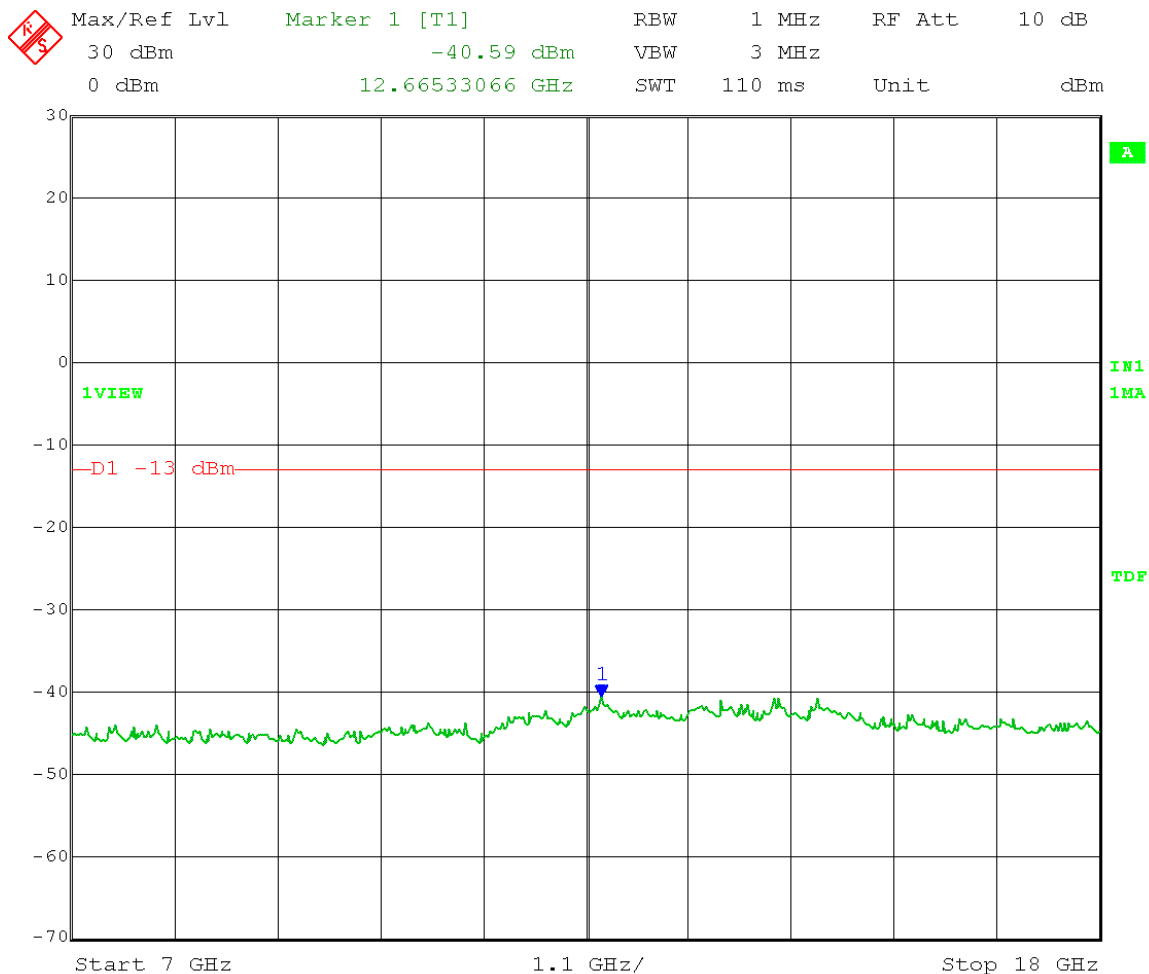


Date: 11.FEB.2014 09:30:45

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

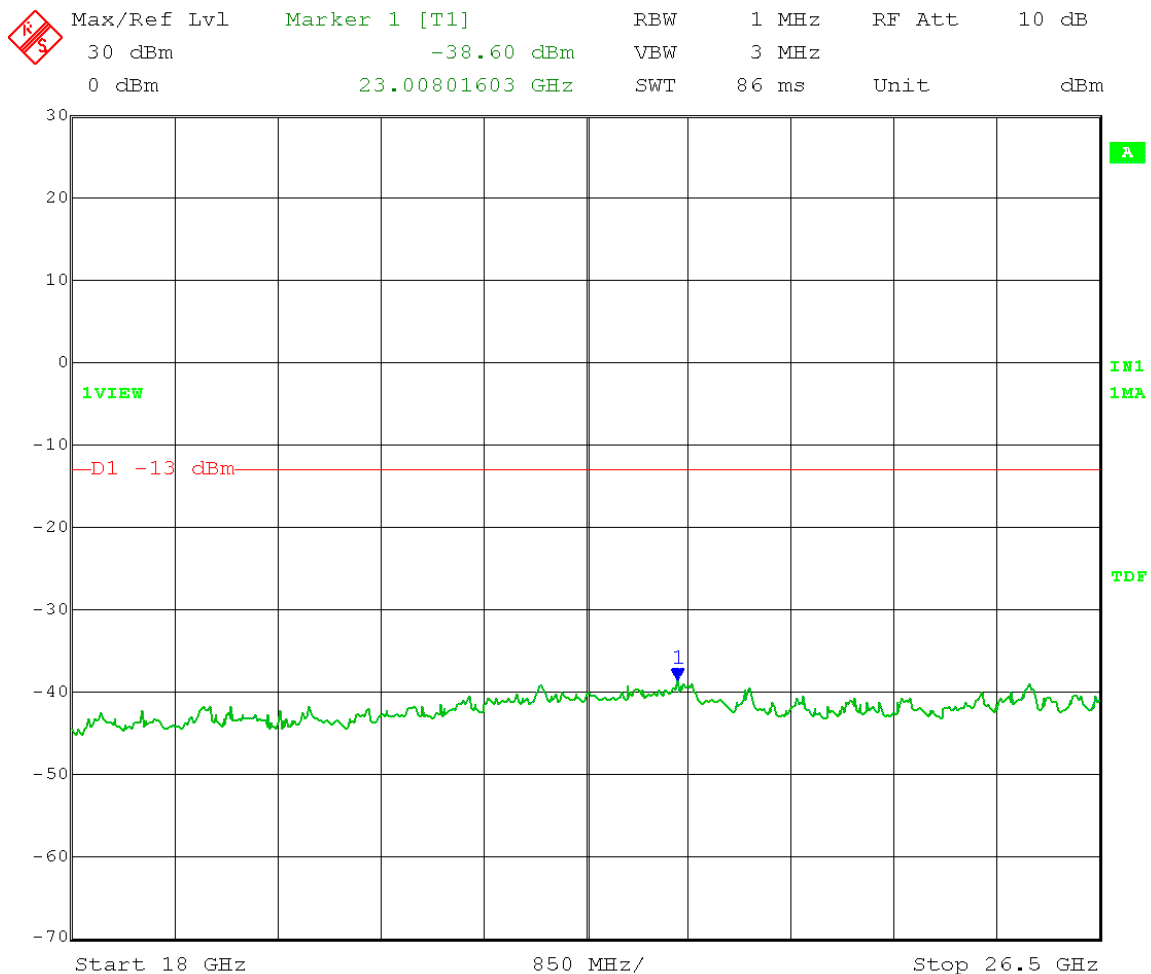


Date: 11.FEB.2014 09:32:25

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

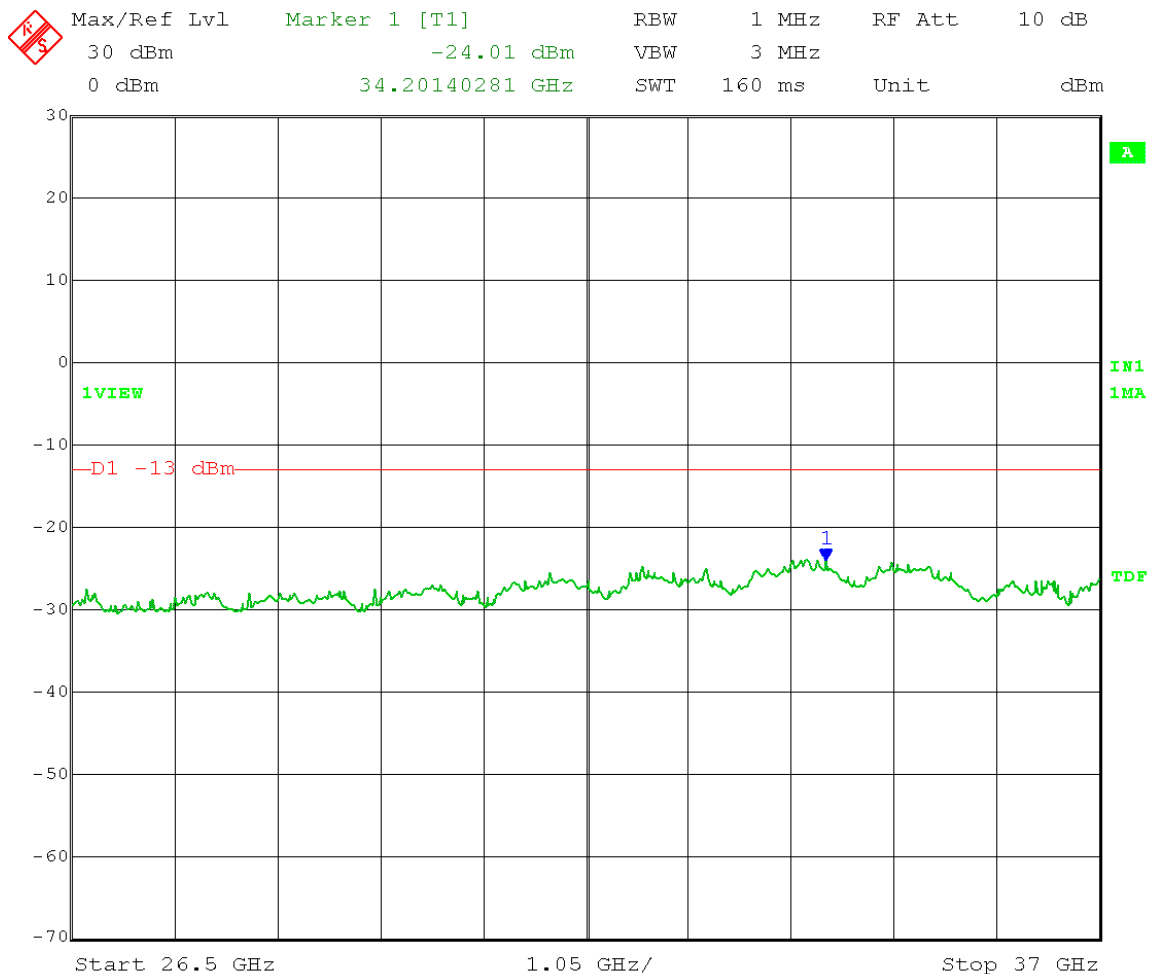


Date: 11.FEB.2014 09:33:47

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
Mid Channel: 3675 MHz Output power setting: 19
Channel bandwidth: 5 MHz Output port: A
Limit: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

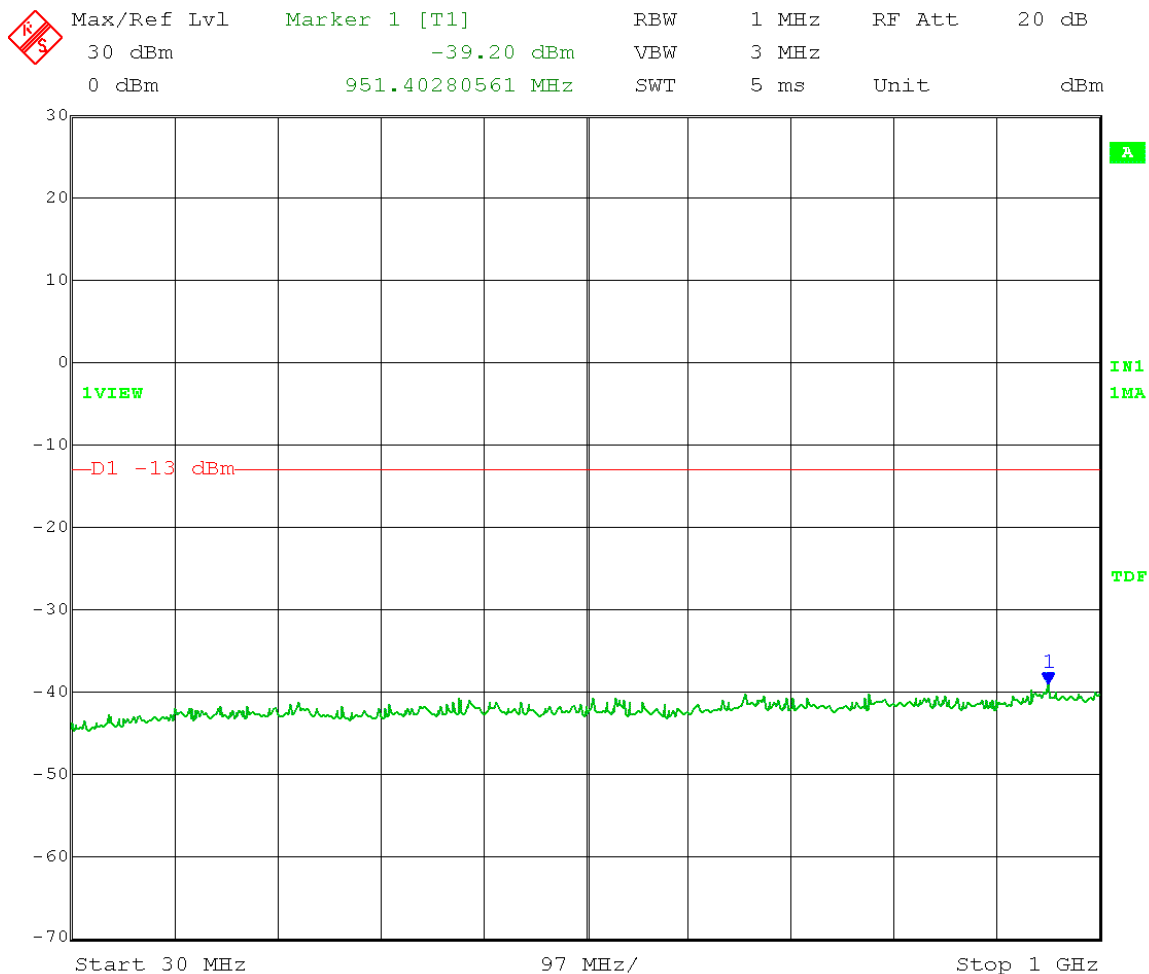


Date: 11.FEB.2014 09:35:46

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz



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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

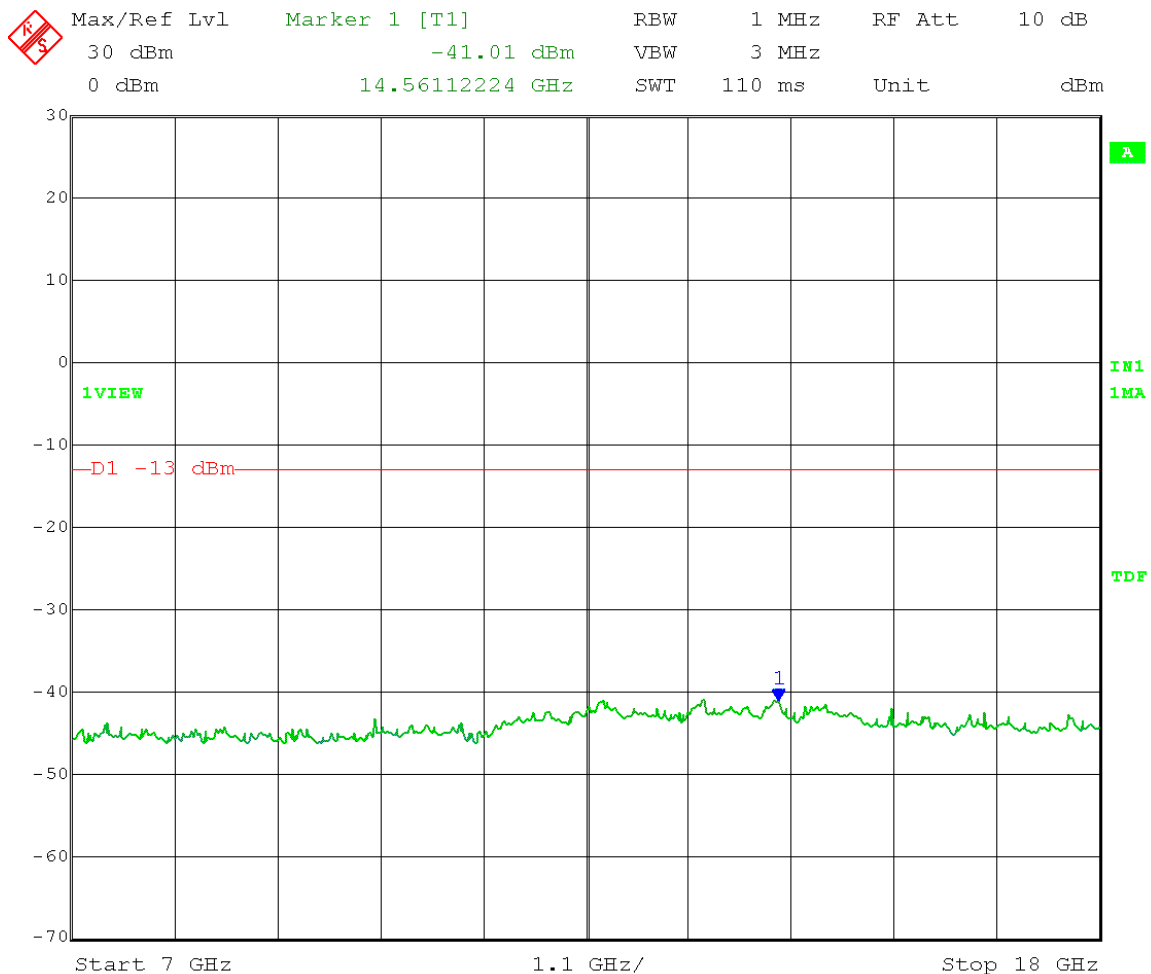


Date: 11.FEB.2014 09:40:22

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

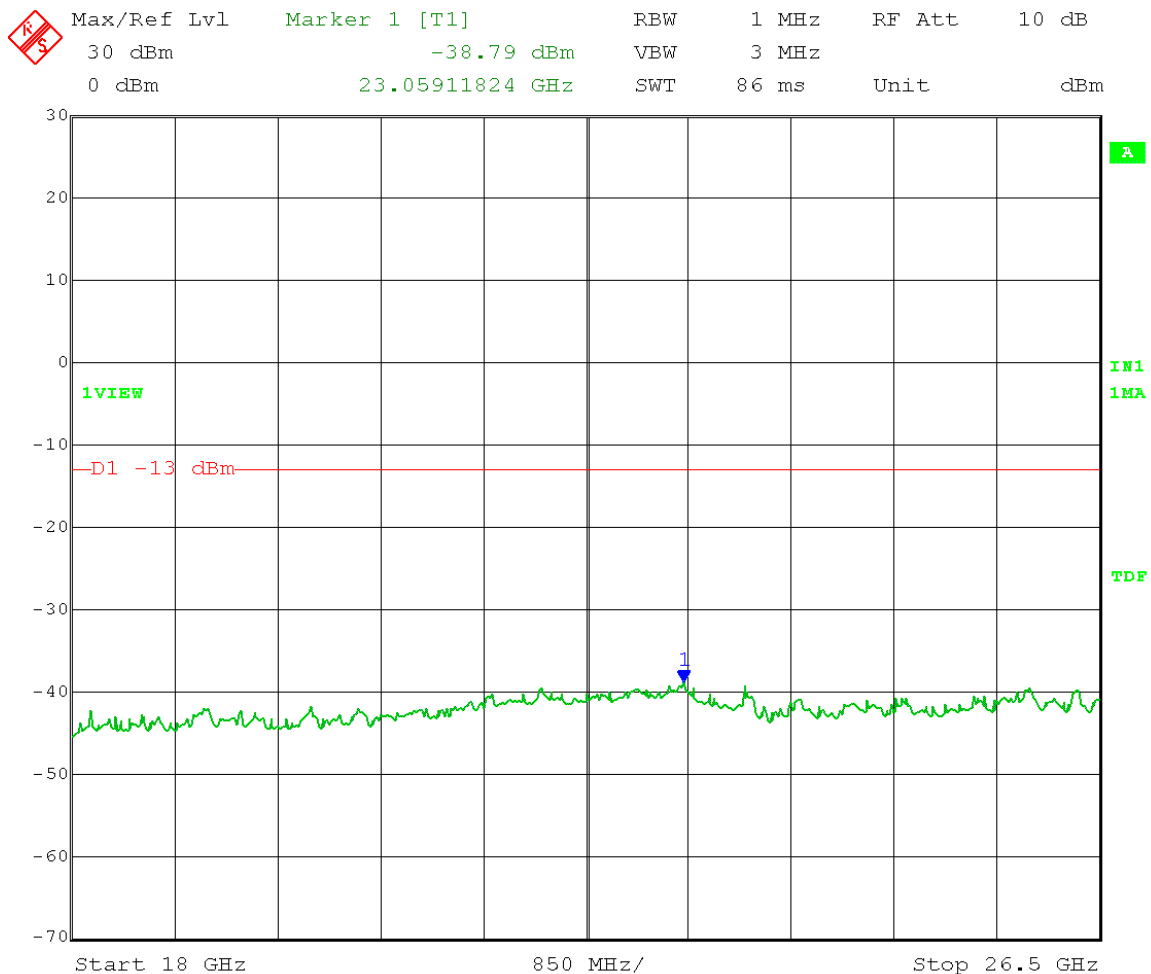


Date: 11.FEB.2014 09:42:20

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

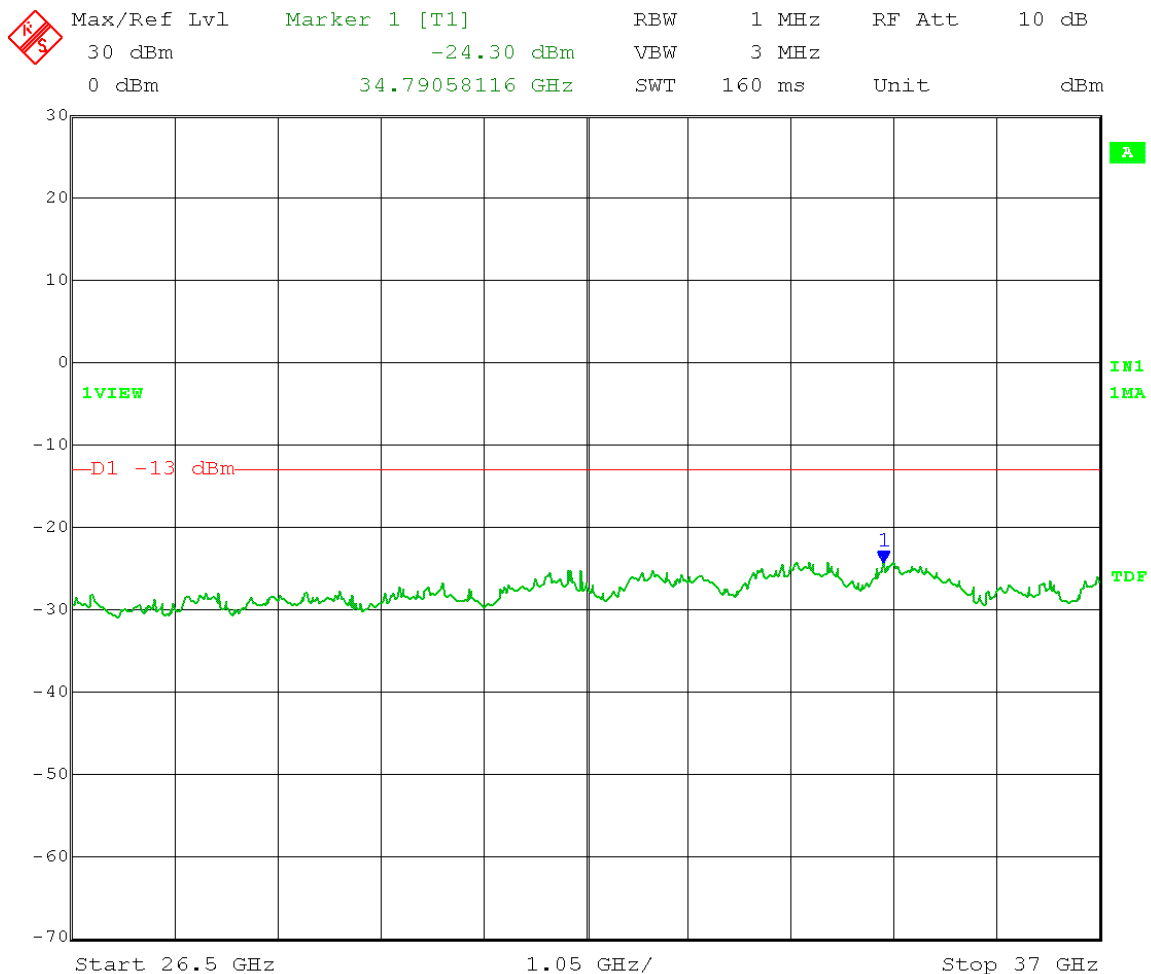


Date: 11.FEB.2014 09:43:40

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

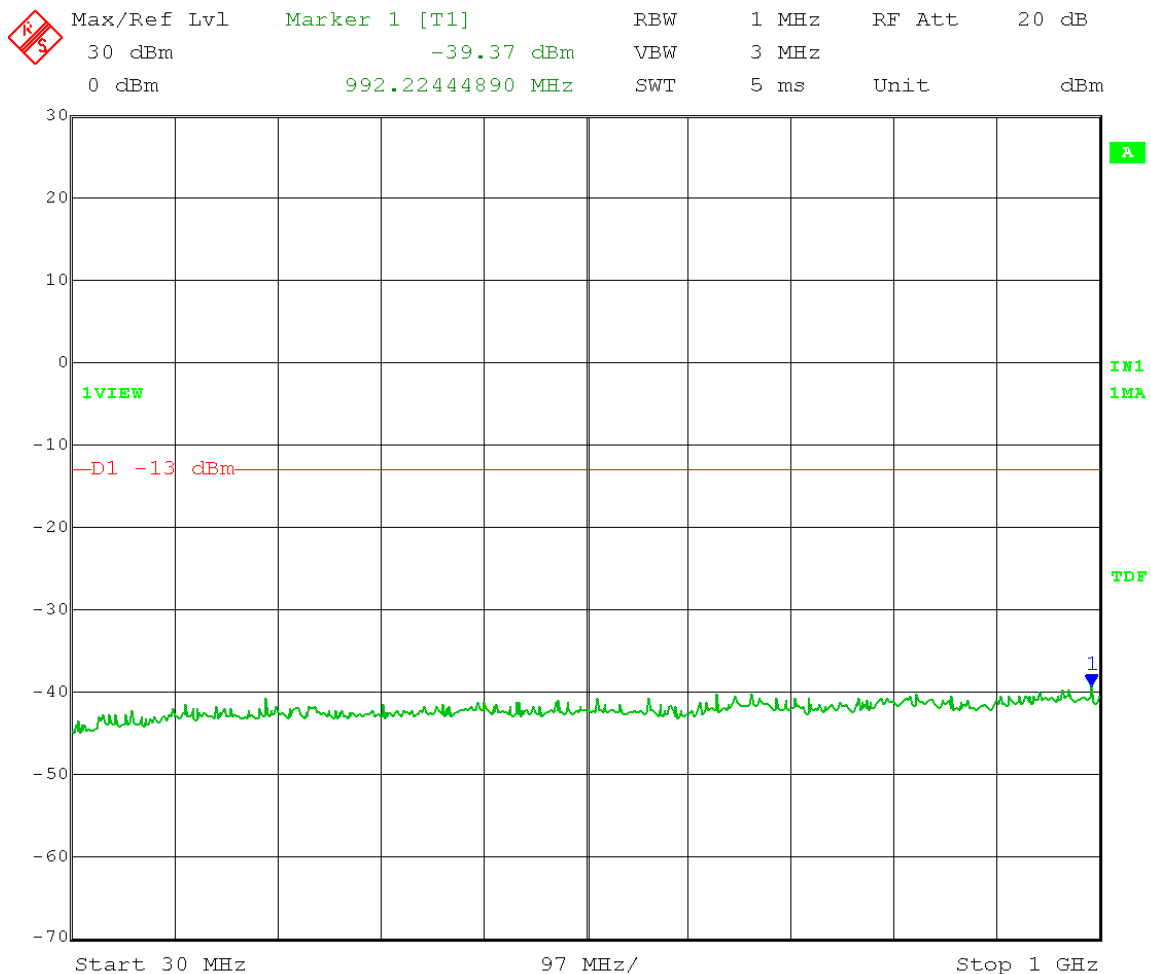


Date: 11.FEB.2014 09:45:03

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

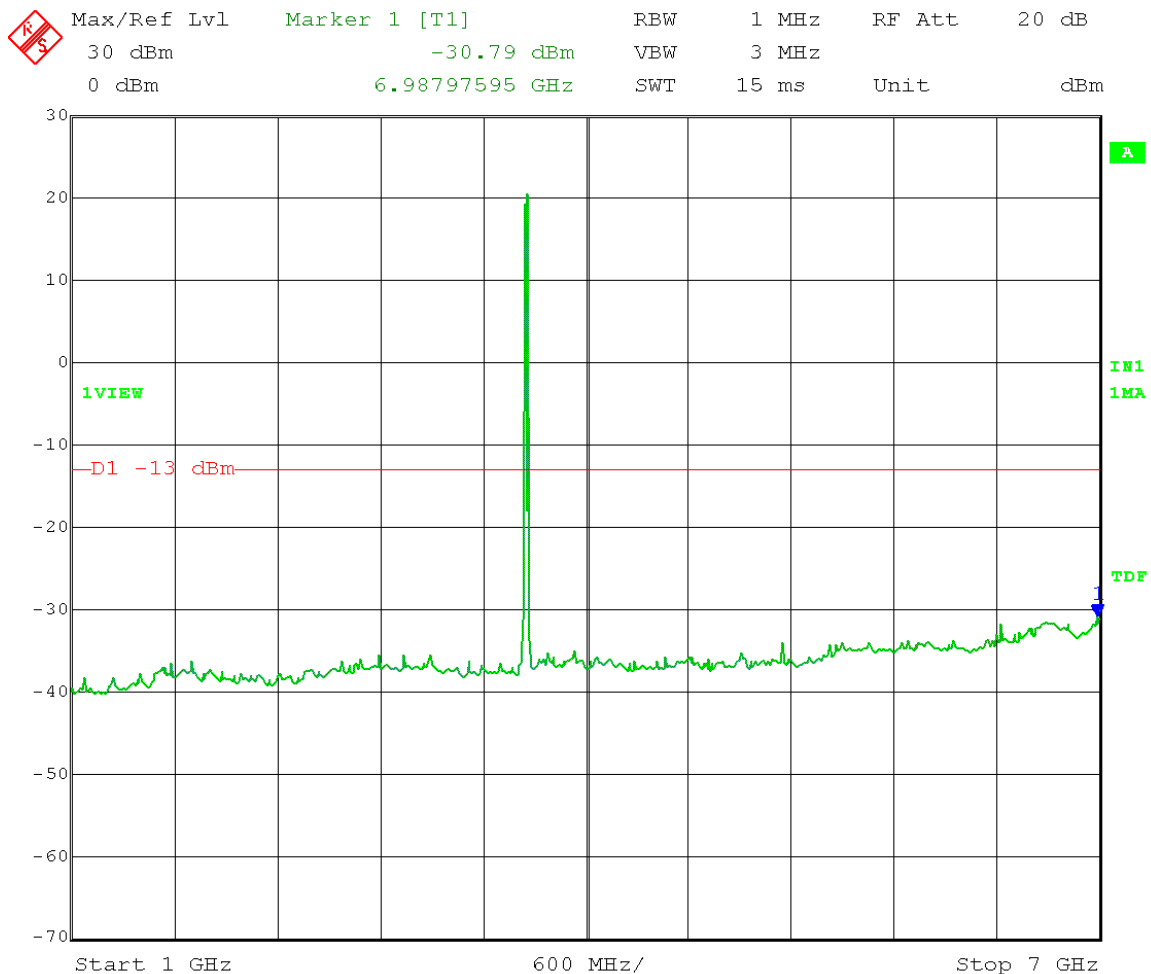


Date: 11.FEB.2014 08:49:28

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

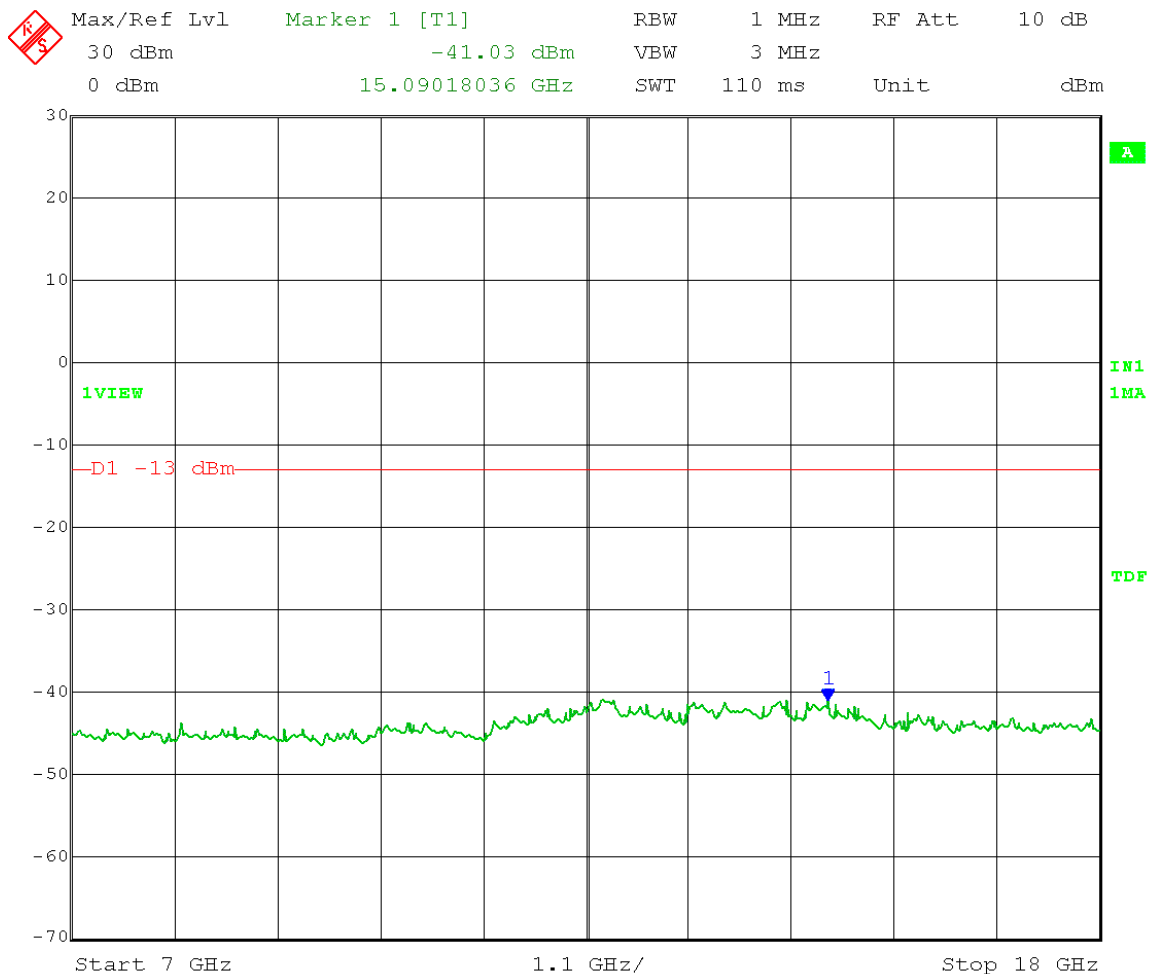


Date: 11.FEB.2014 08:51:40

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

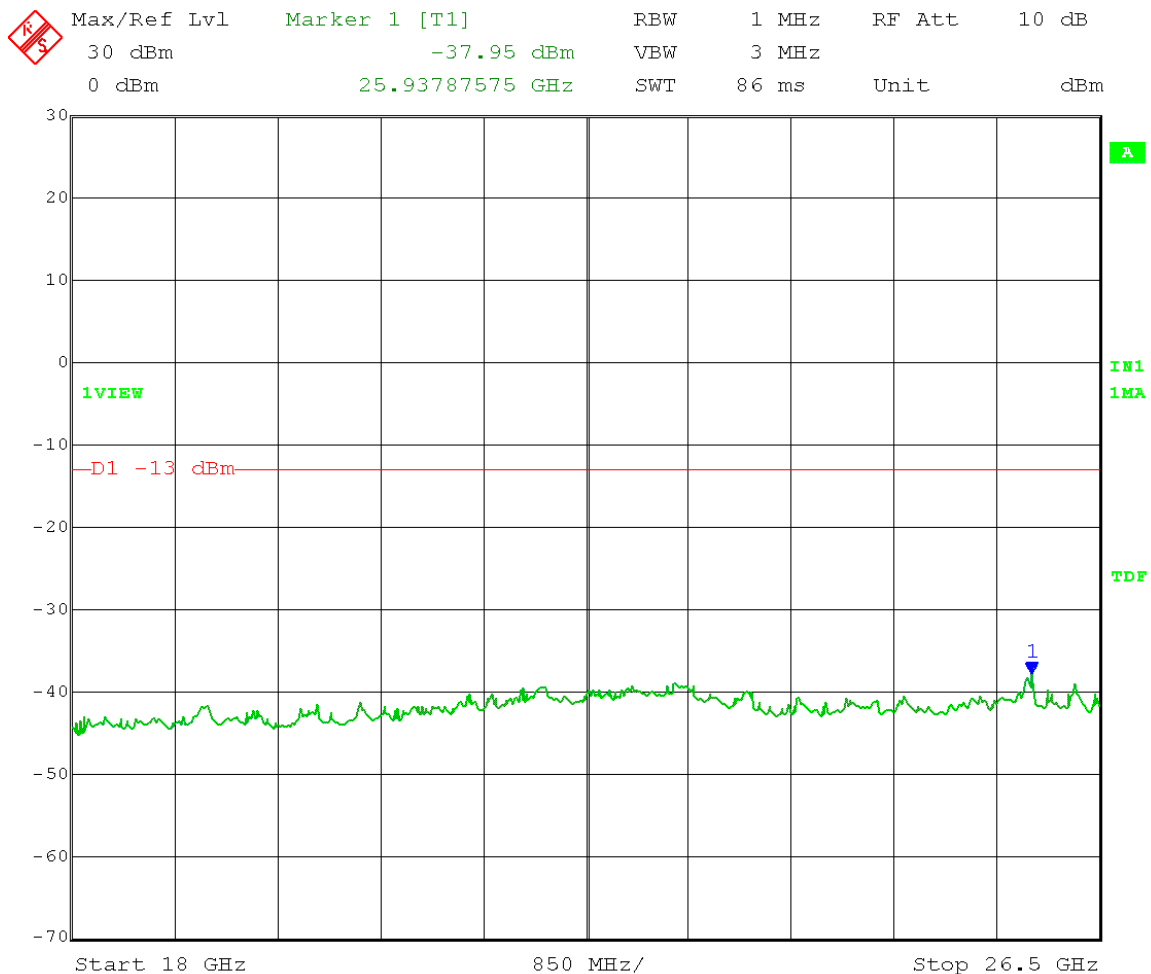


Date: 11.FEB.2014 08:53:40

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

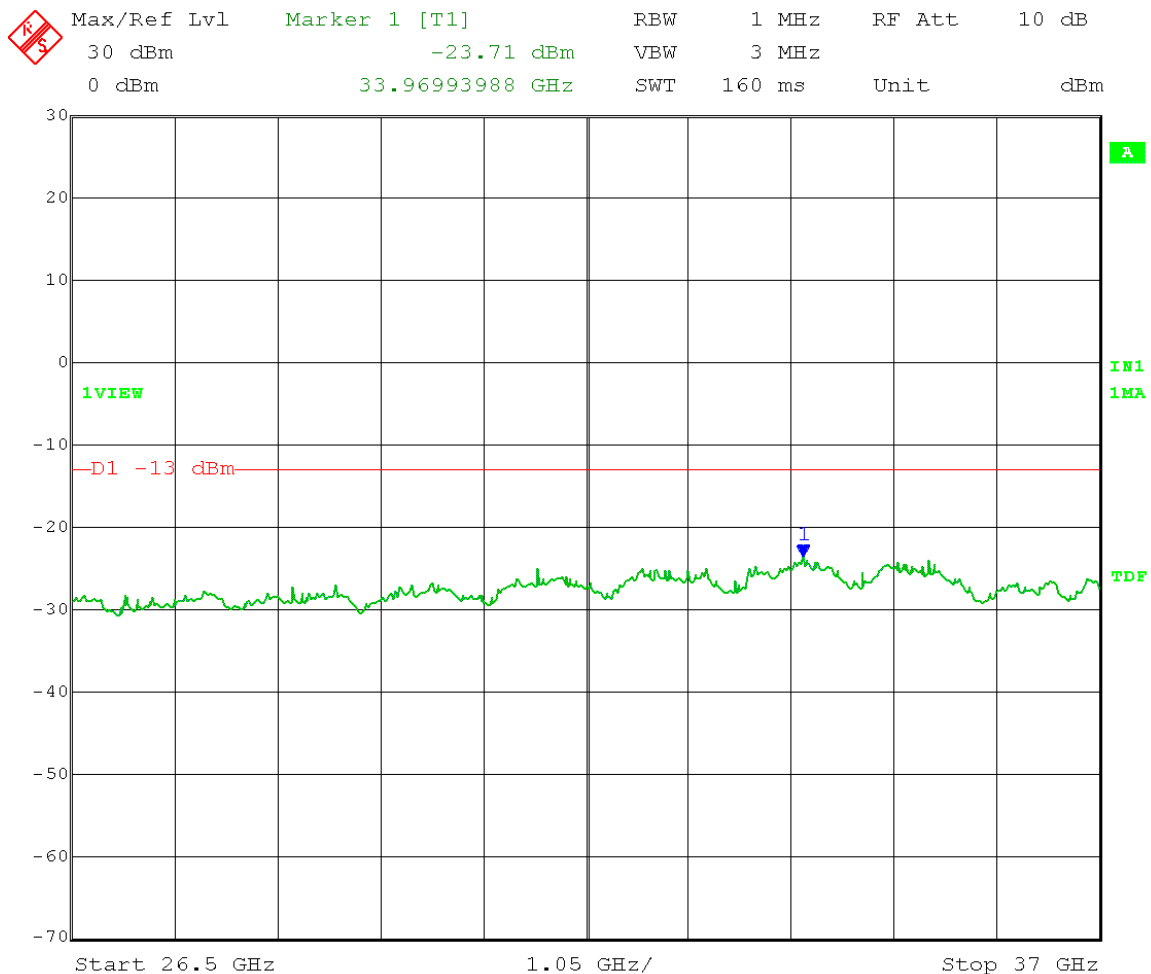


Date: 11.FEB.2014 08:55:40

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

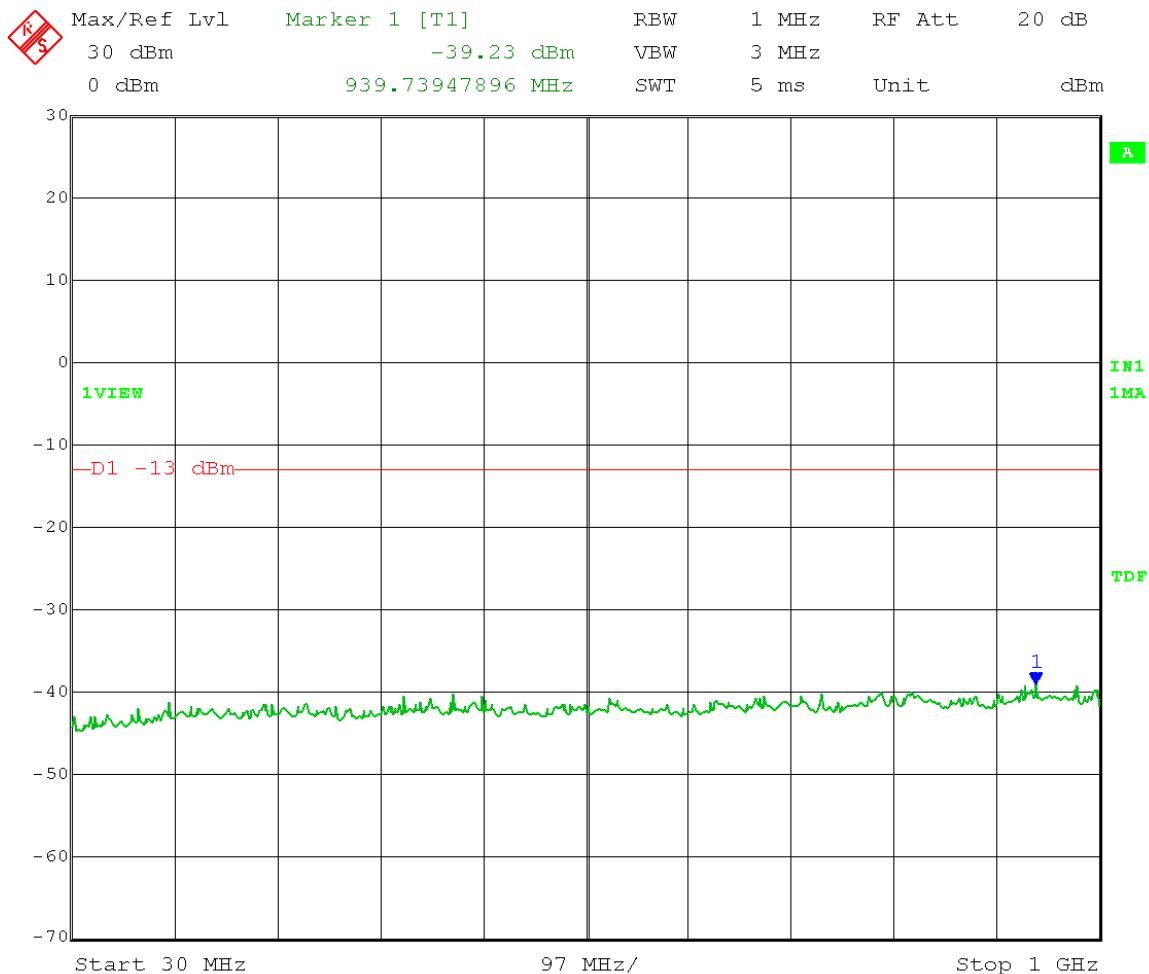


Date: 11.FEB.2014 08:57:38

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

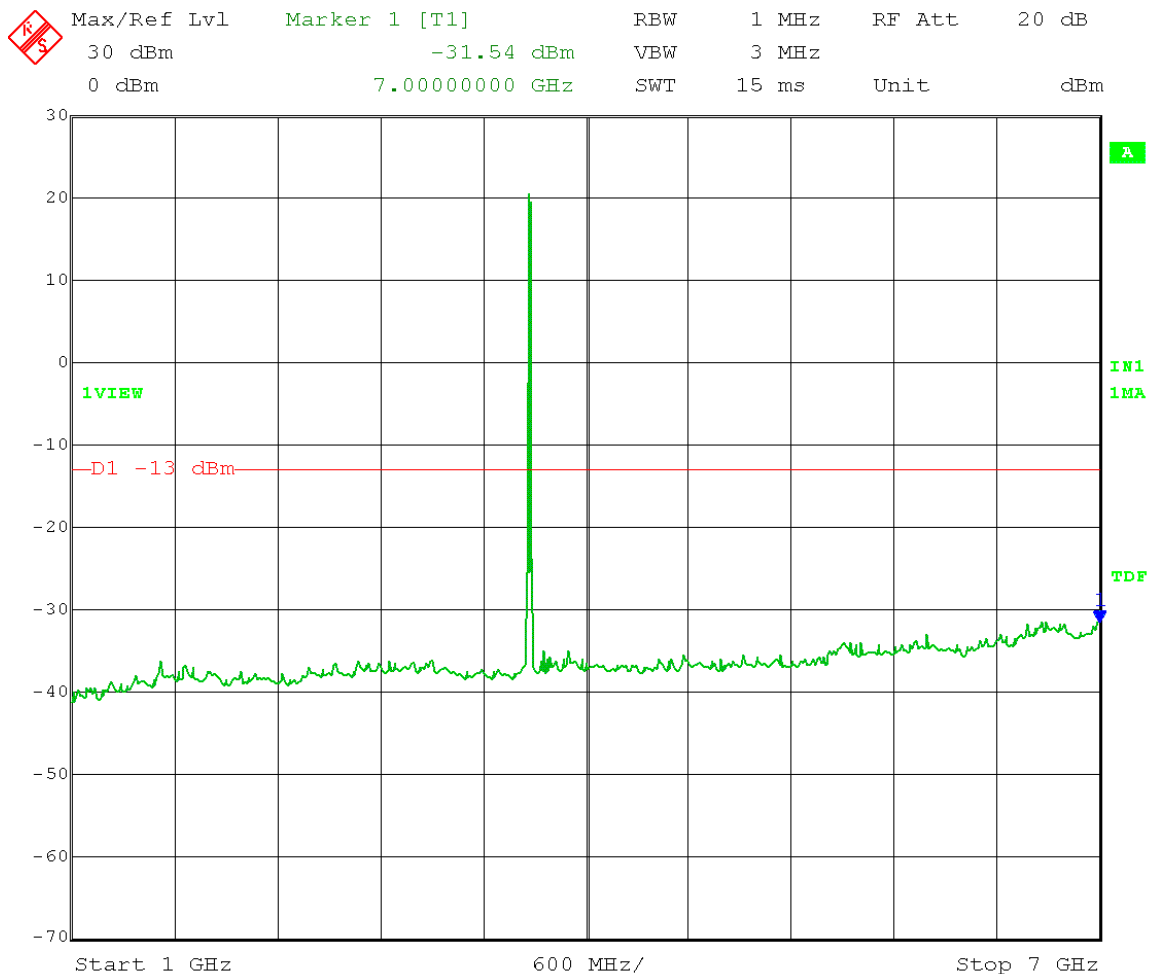


Date: 11.FEB.2014 09:01:10

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

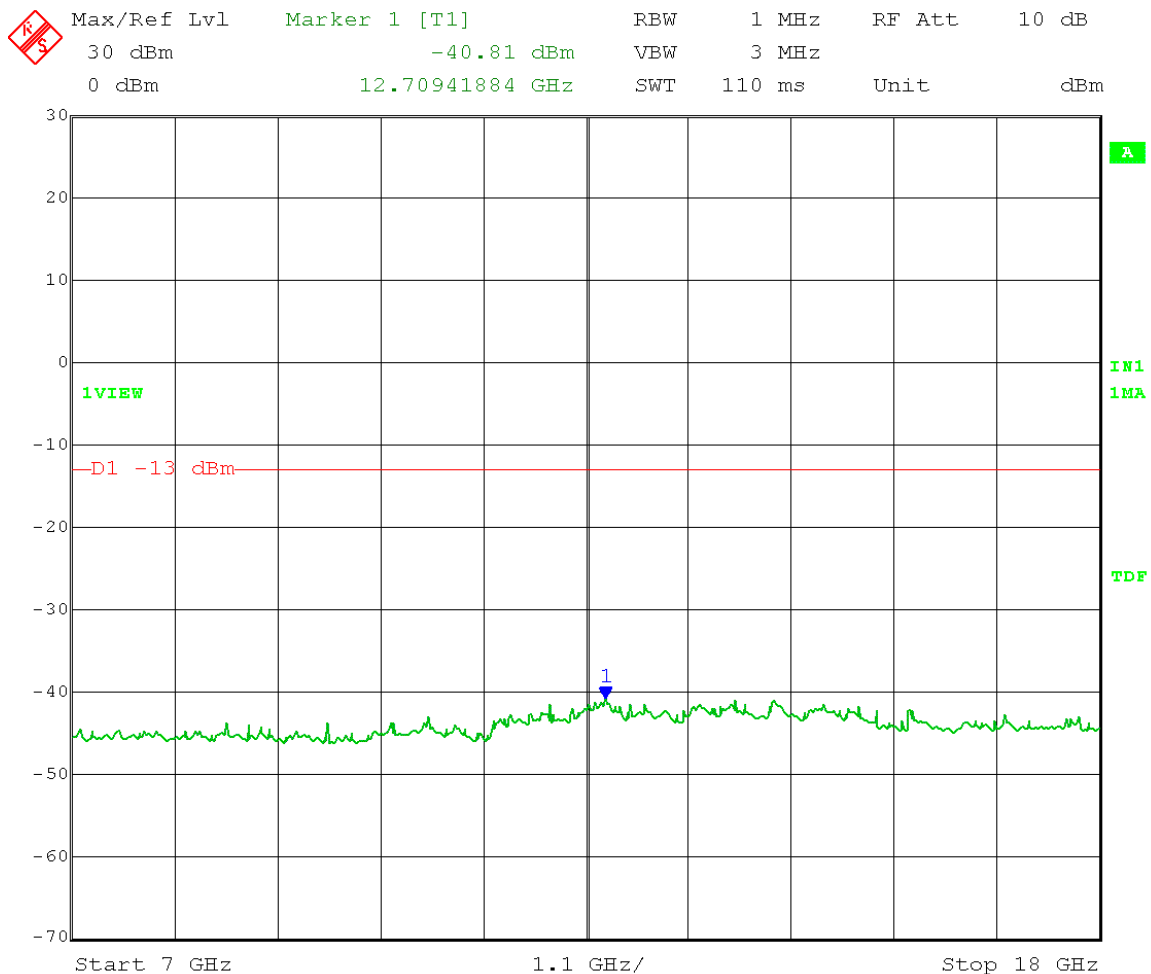


Date: 11.FEB.2014 09:02:40

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

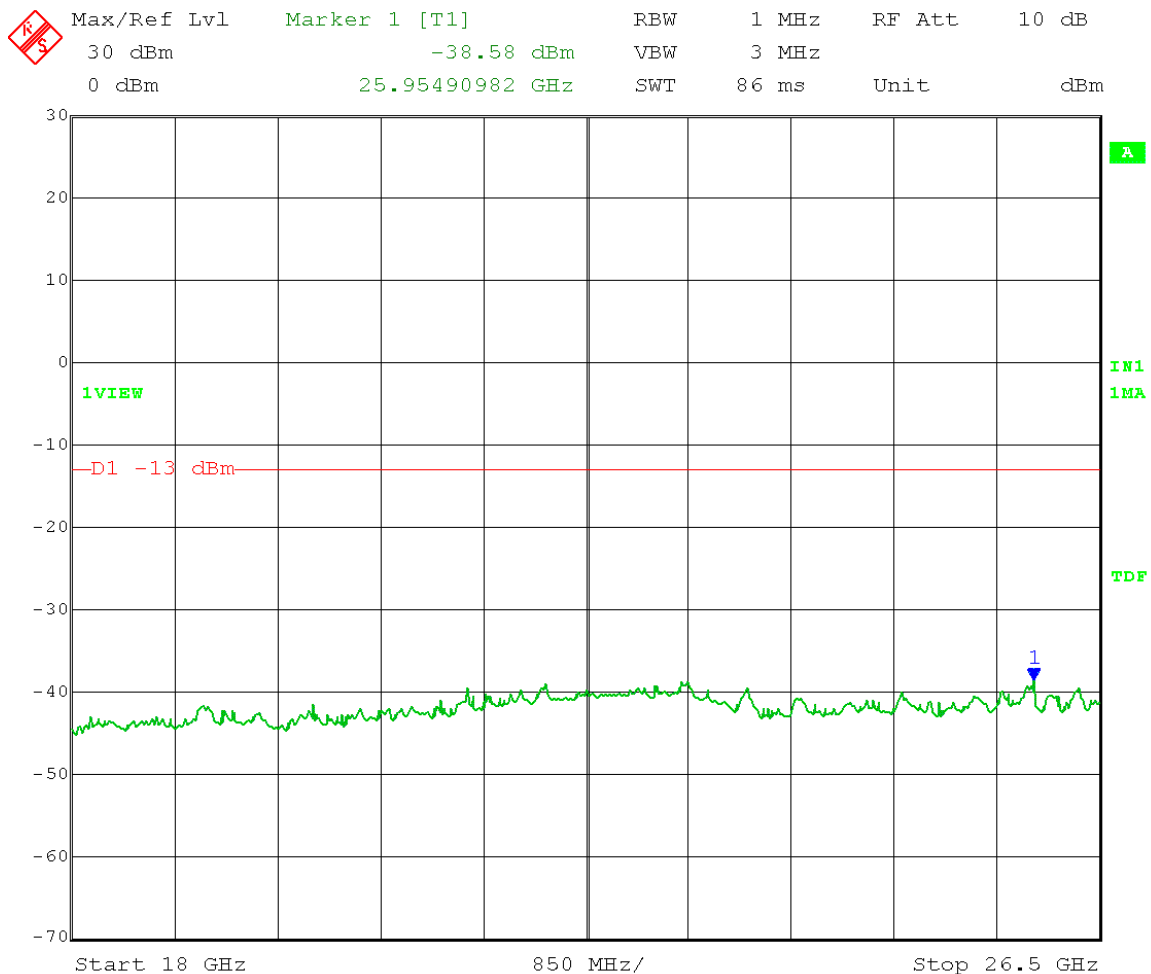


Date: 11.FEB.2014 09:04:22

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

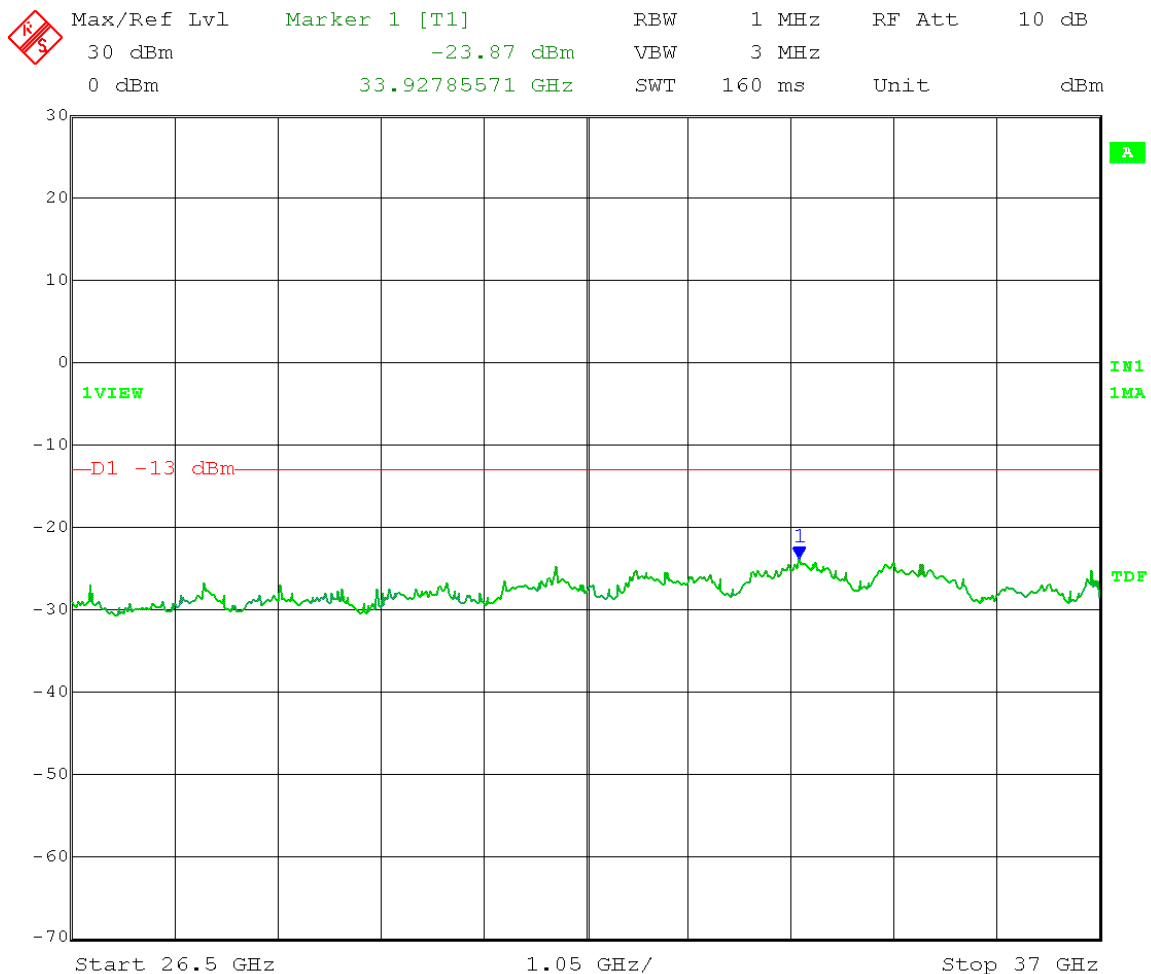


Date: 11.FEB.2014 09:06:05

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

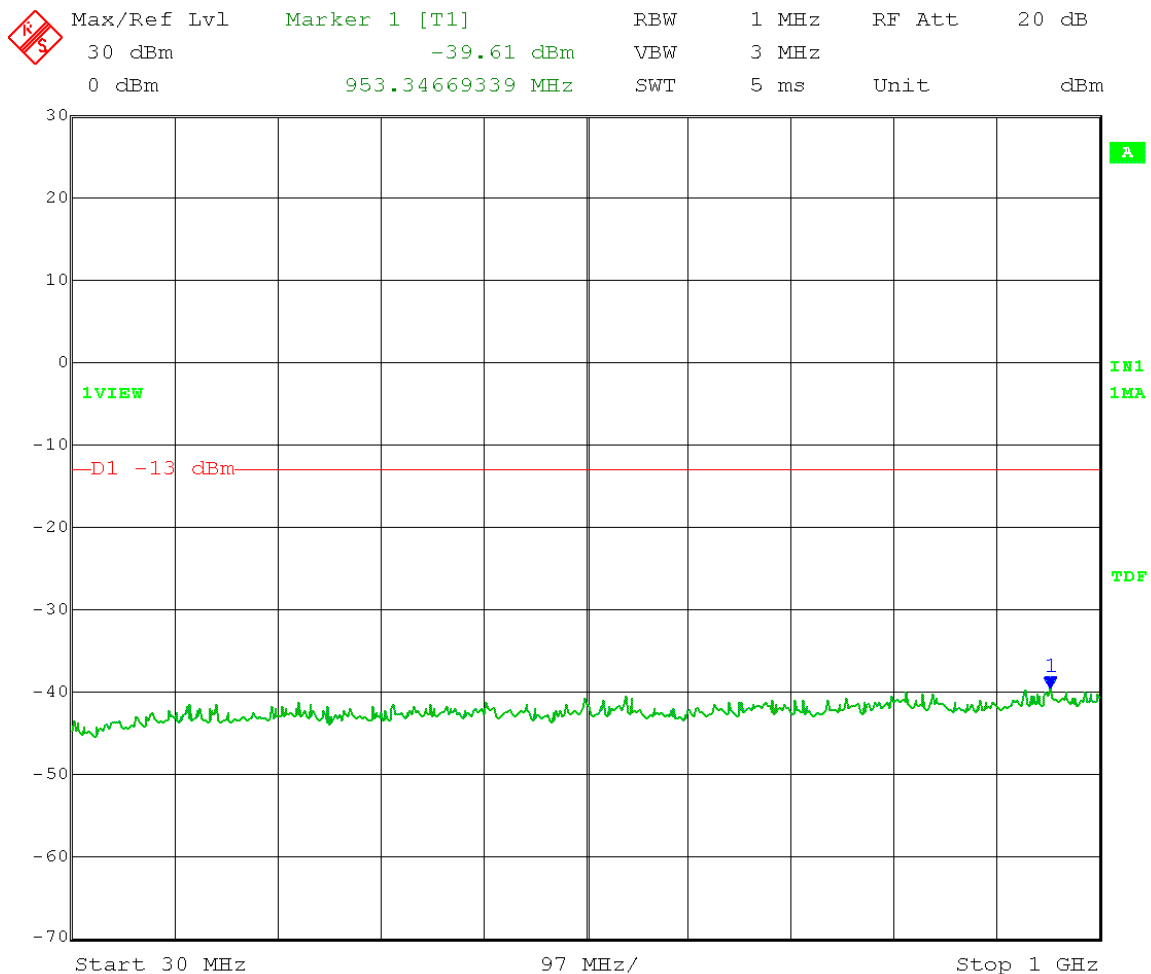


Date: 11.FEB.2014 09:07:29

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

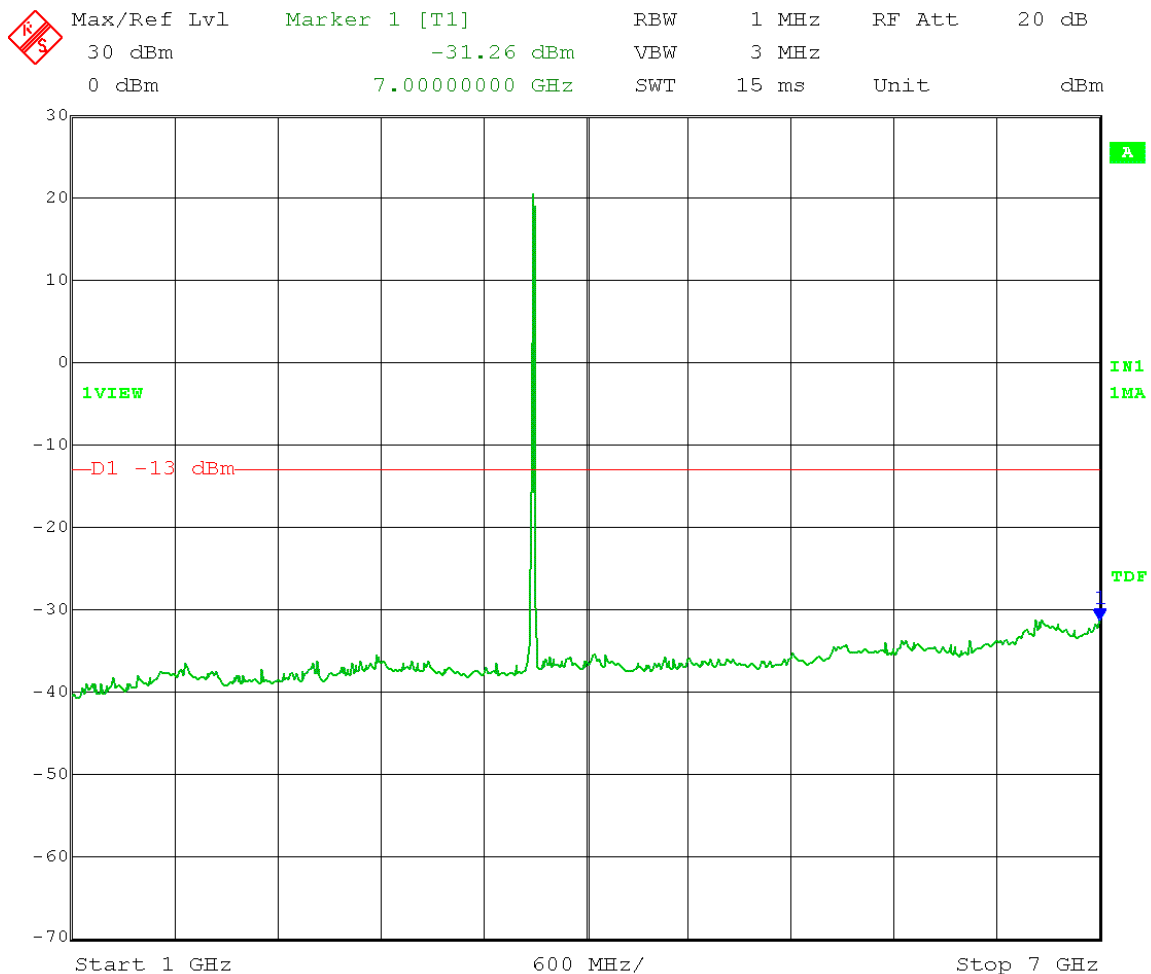


Date: 11.FEB.2014 09:09:45

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

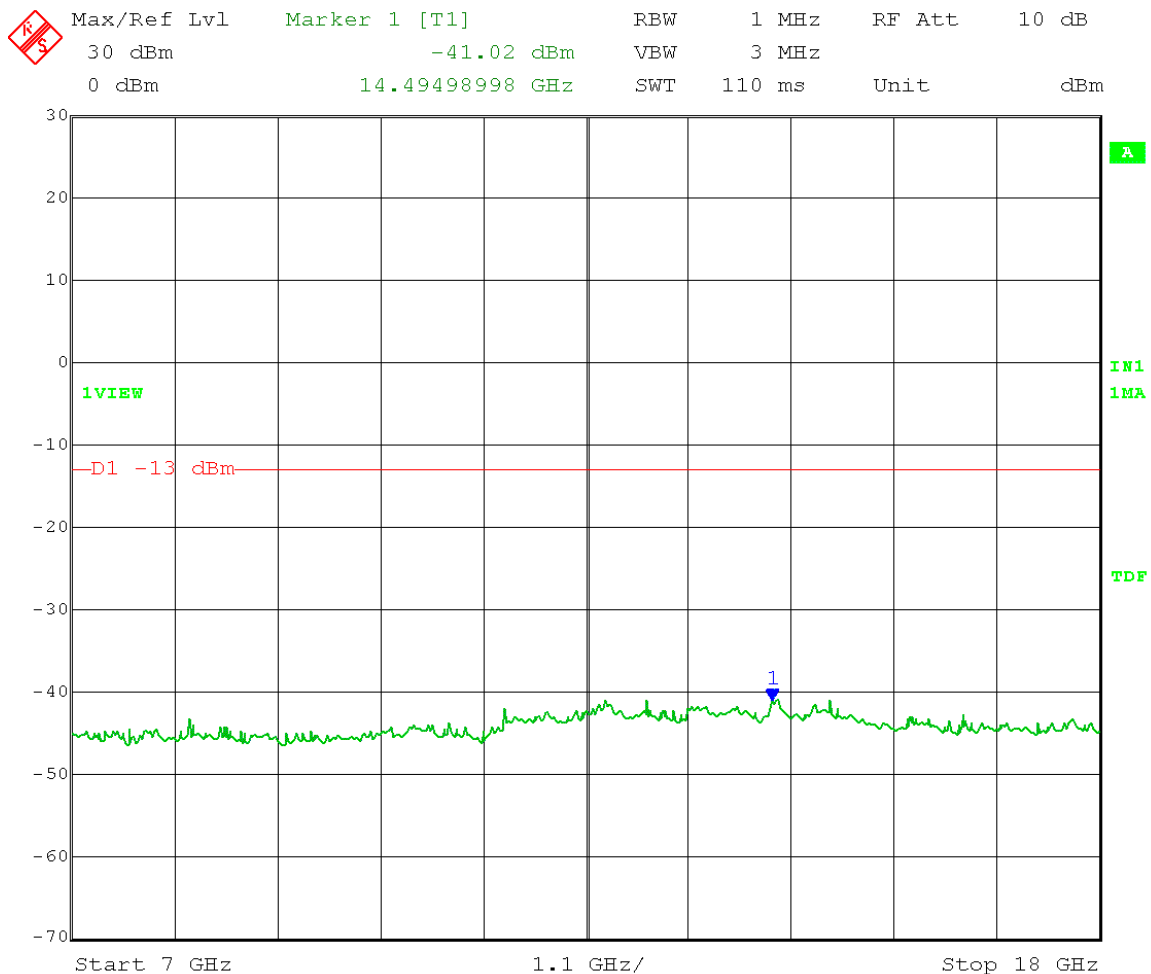


Date: 11.FEB.2014 09:11:15

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

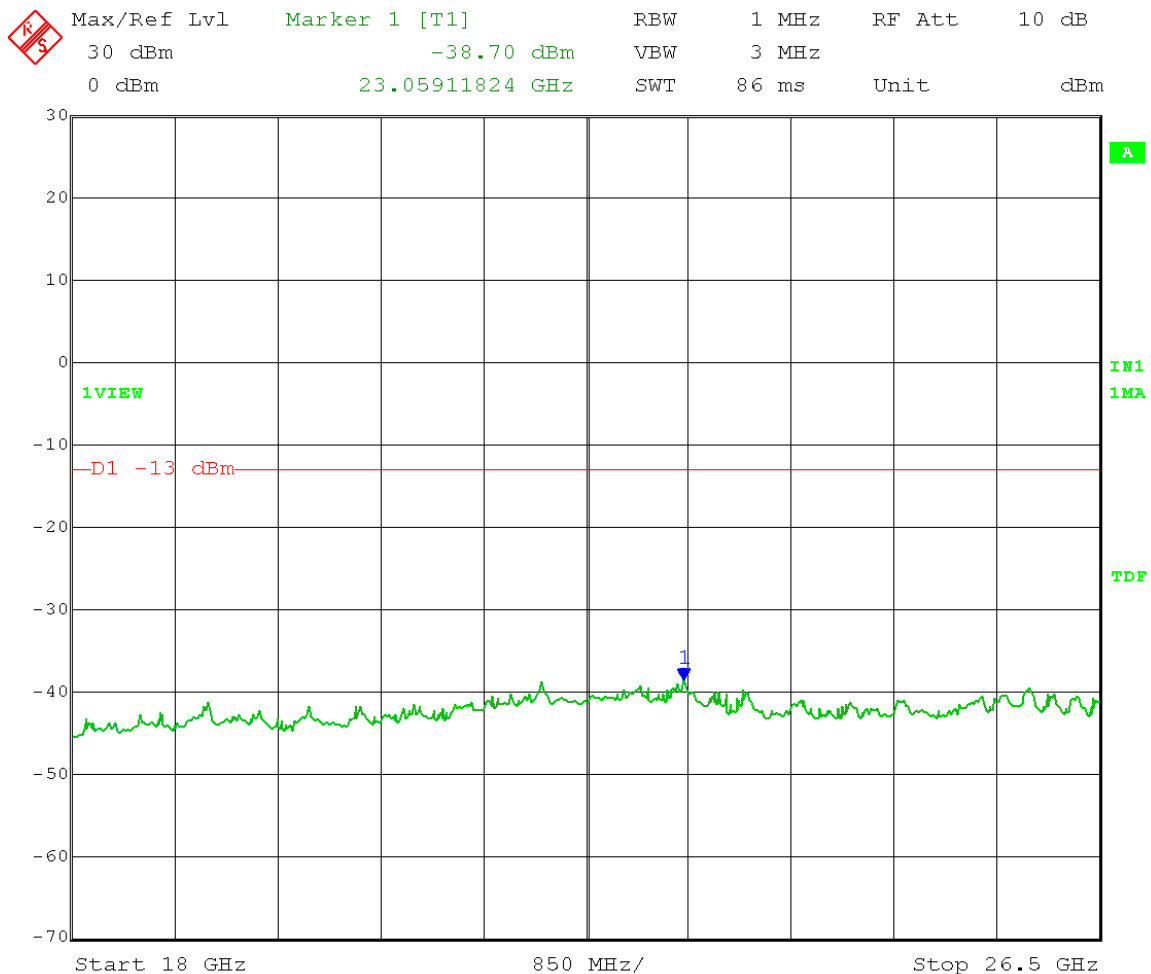


Date: 11.FEB.2014 09:12:45

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

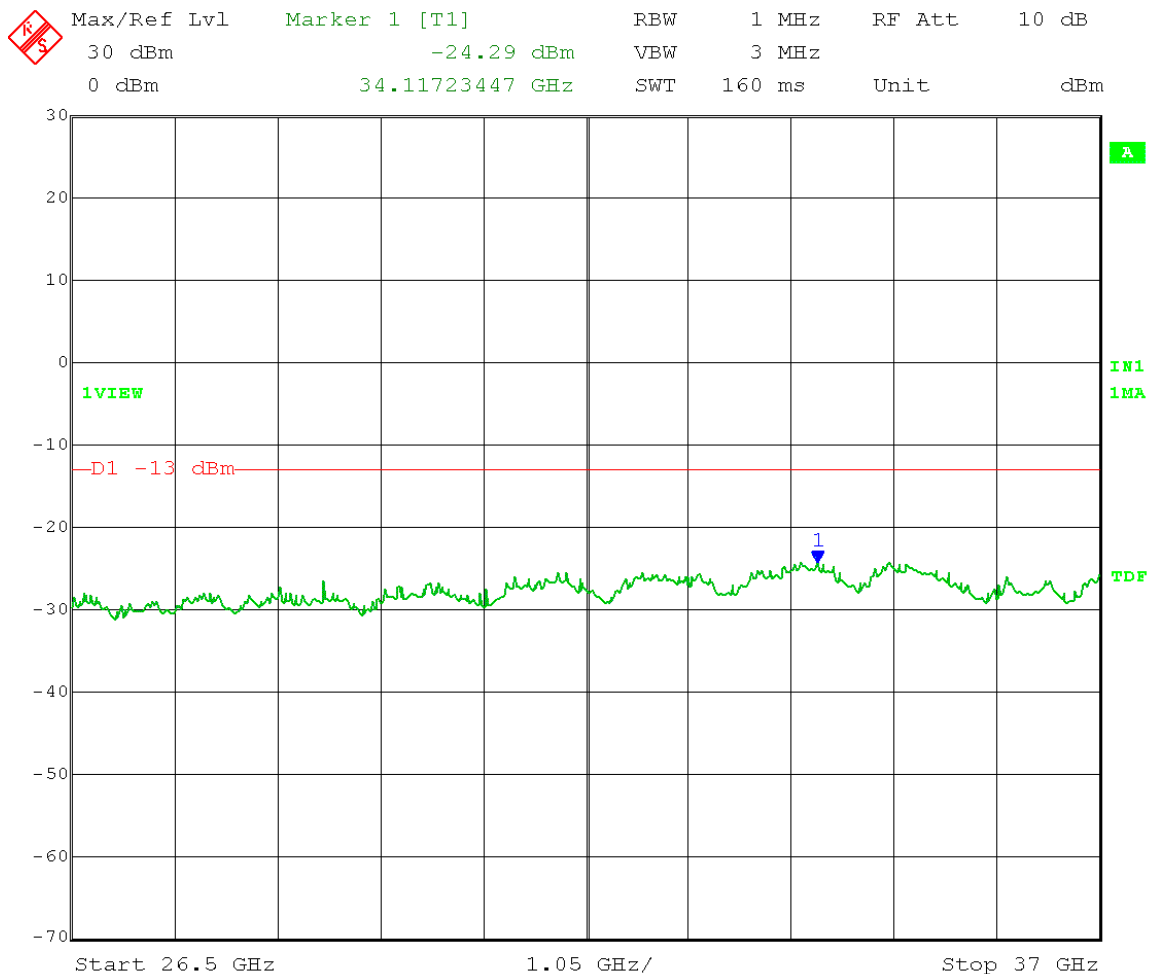


Date: 11.FEB.2014 09:13:50

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

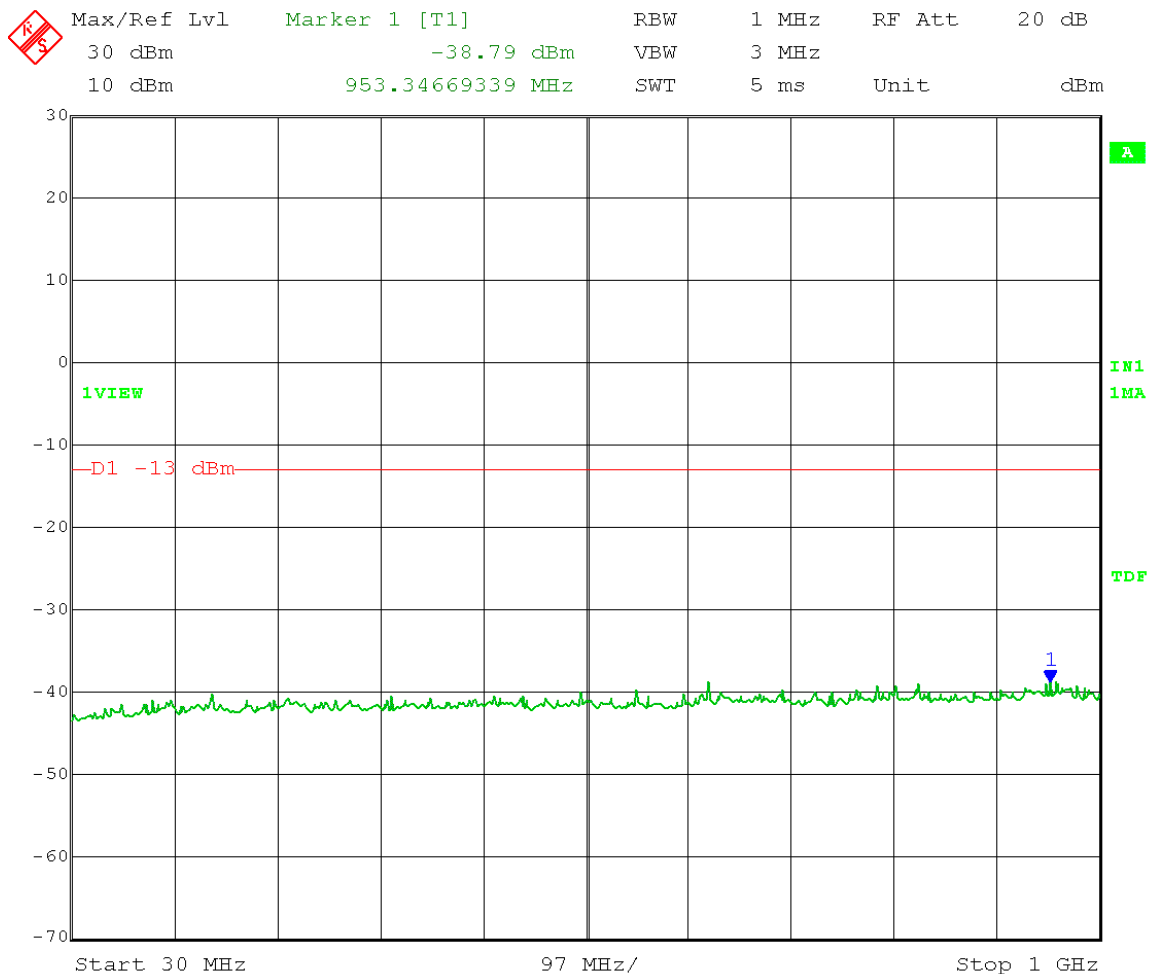


Date: 11.FEB.2014 09:15:13

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

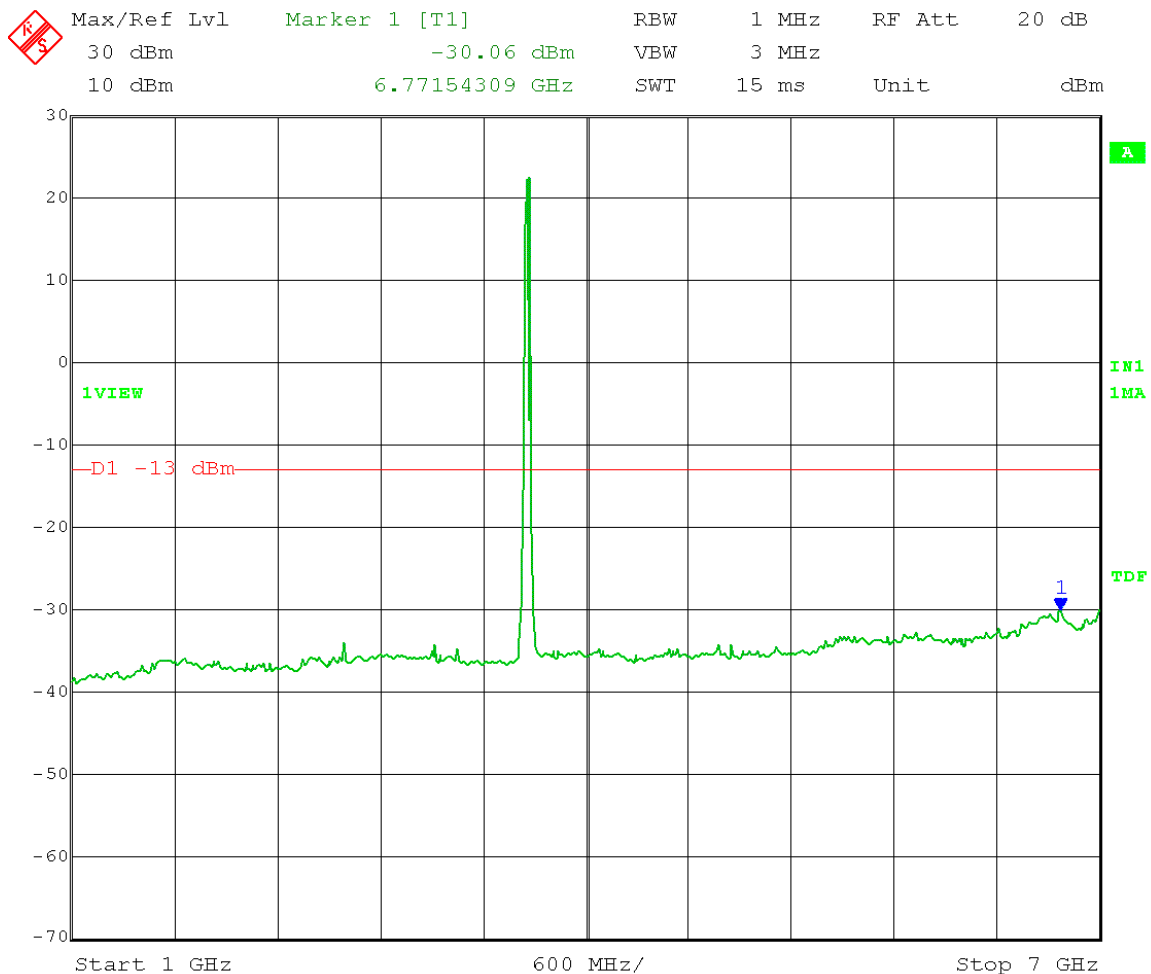


Date: 10.FEB.2014 14:52:23

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

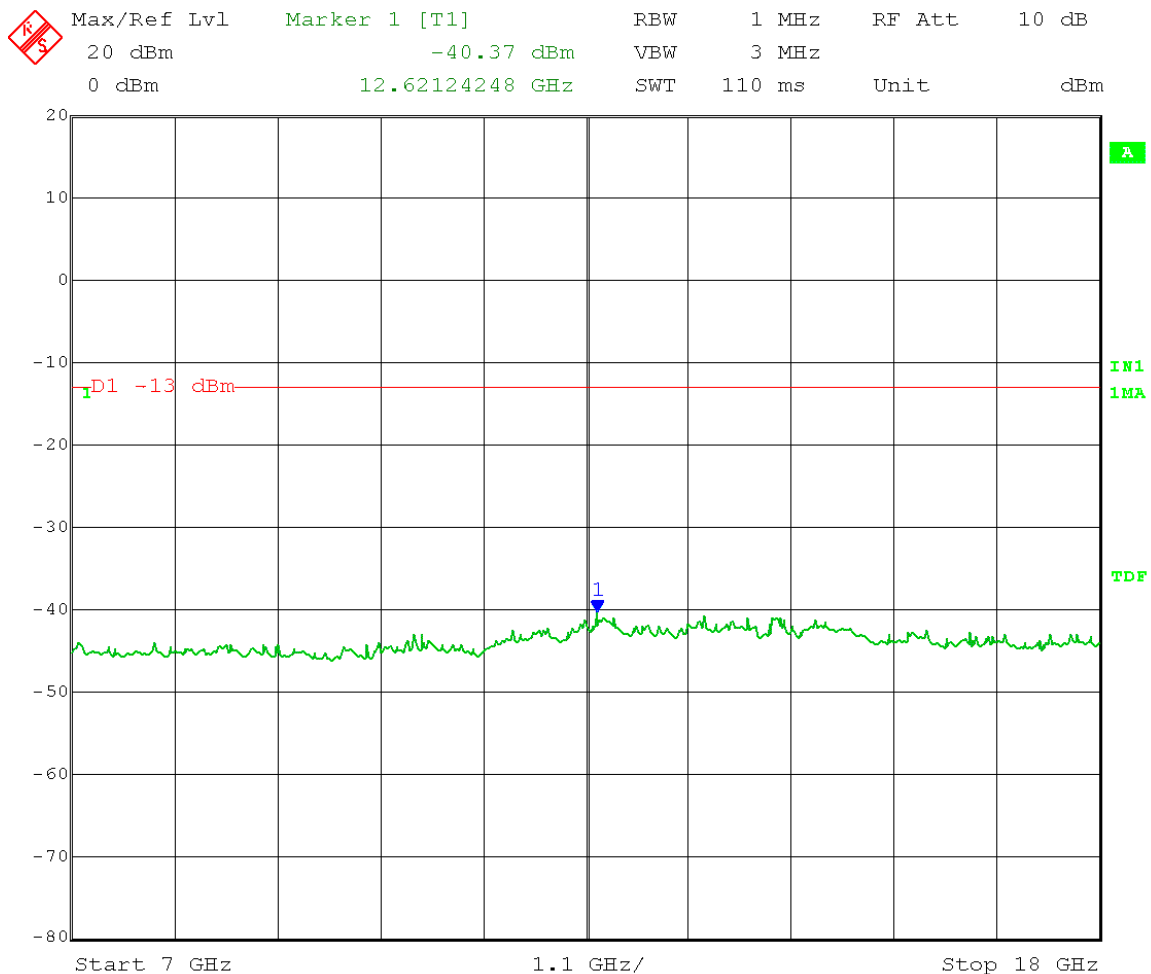


Date: 10.FEB.2014 15:17:14

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

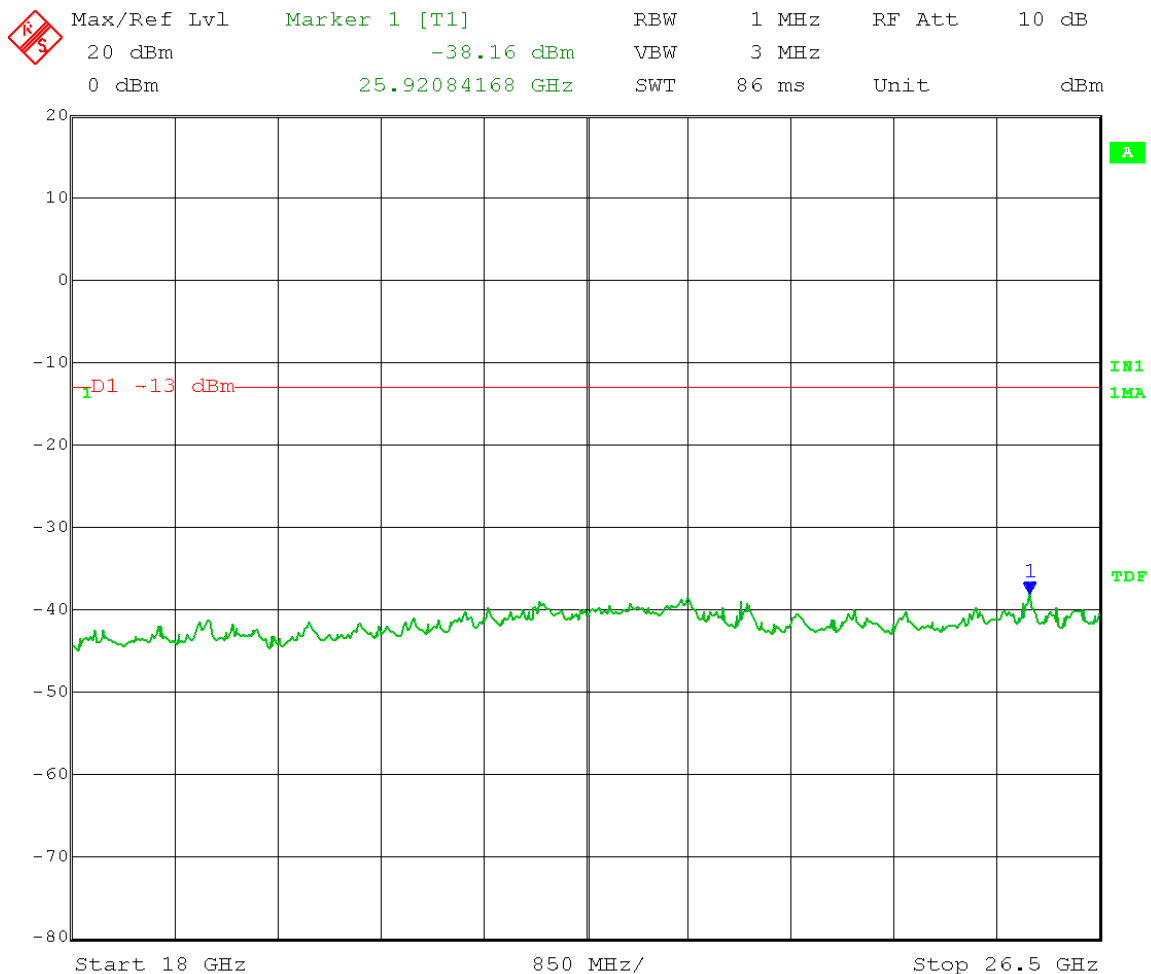


Date: 10.FEB.2014 15:20:12

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

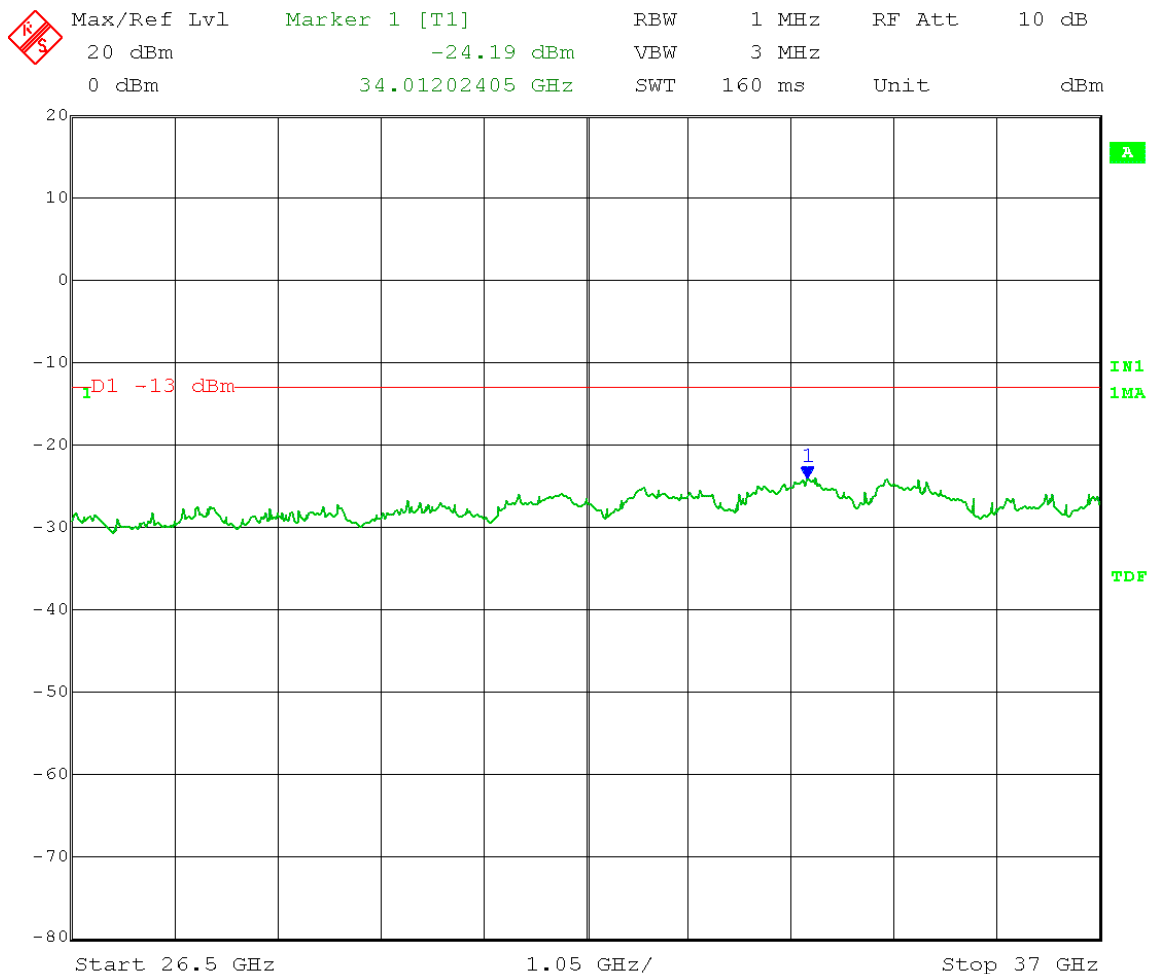


Date: 10.FEB.2014 15:22:34

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

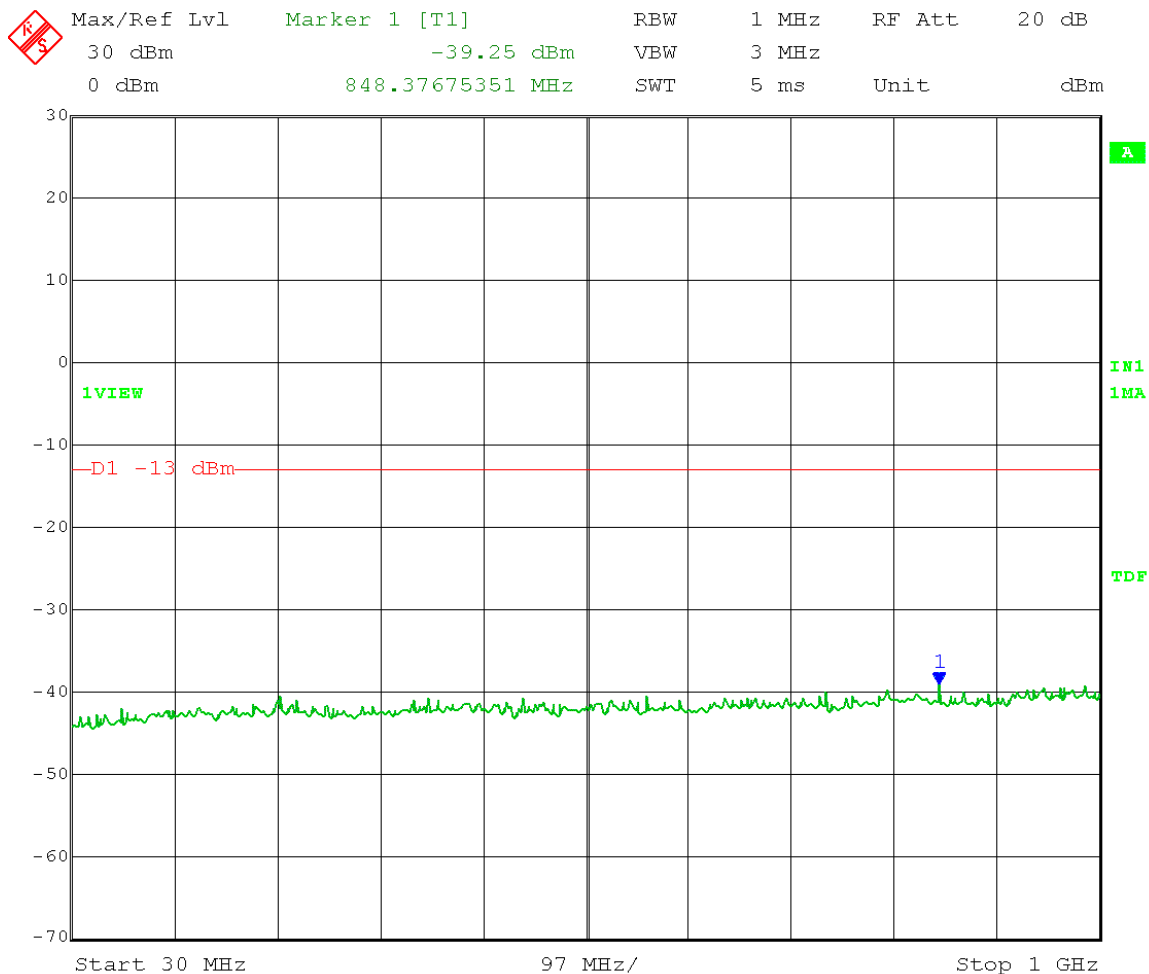


Date: 10.FEB.2014 15:25:16

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 30 – 1000 MHz

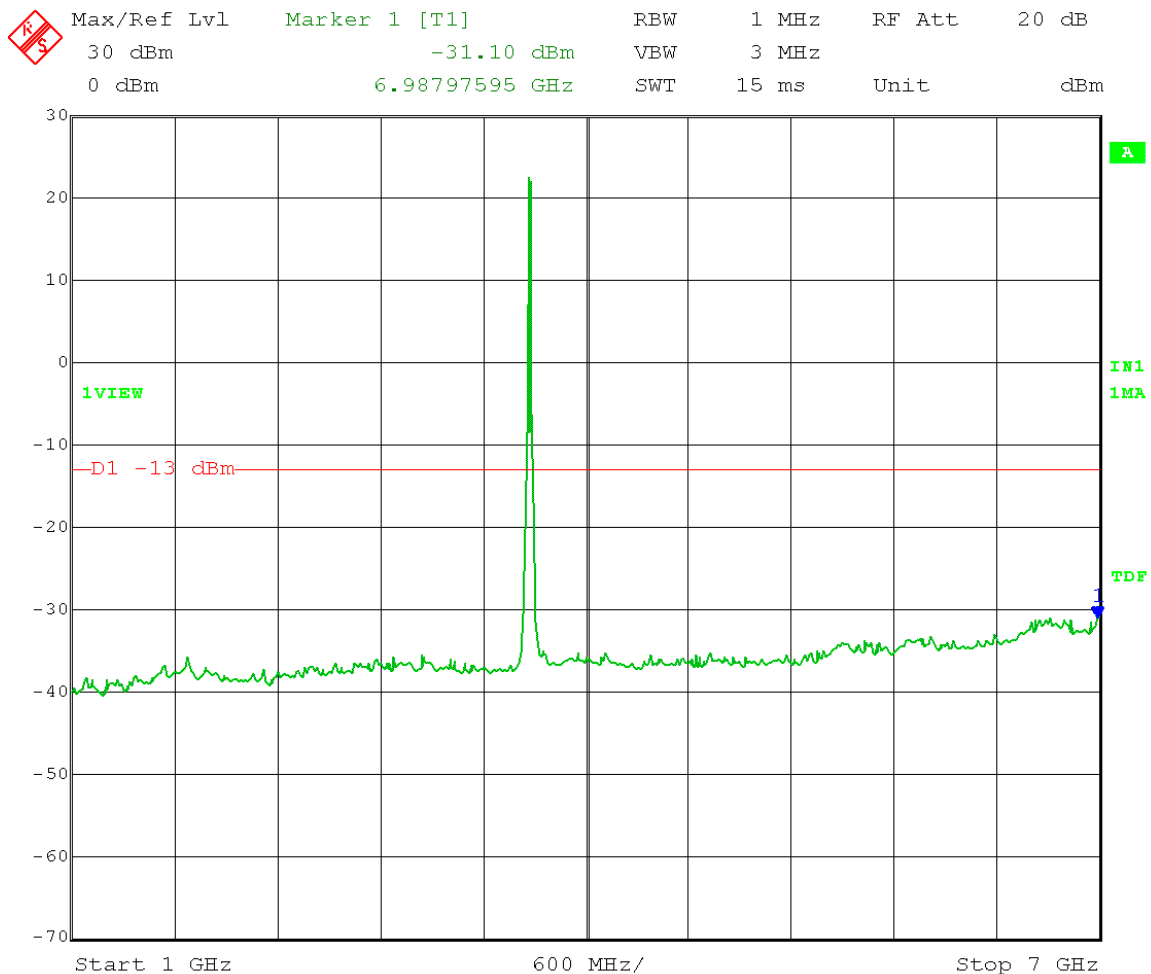


Date: 10.FEB.2014 15:29:50

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

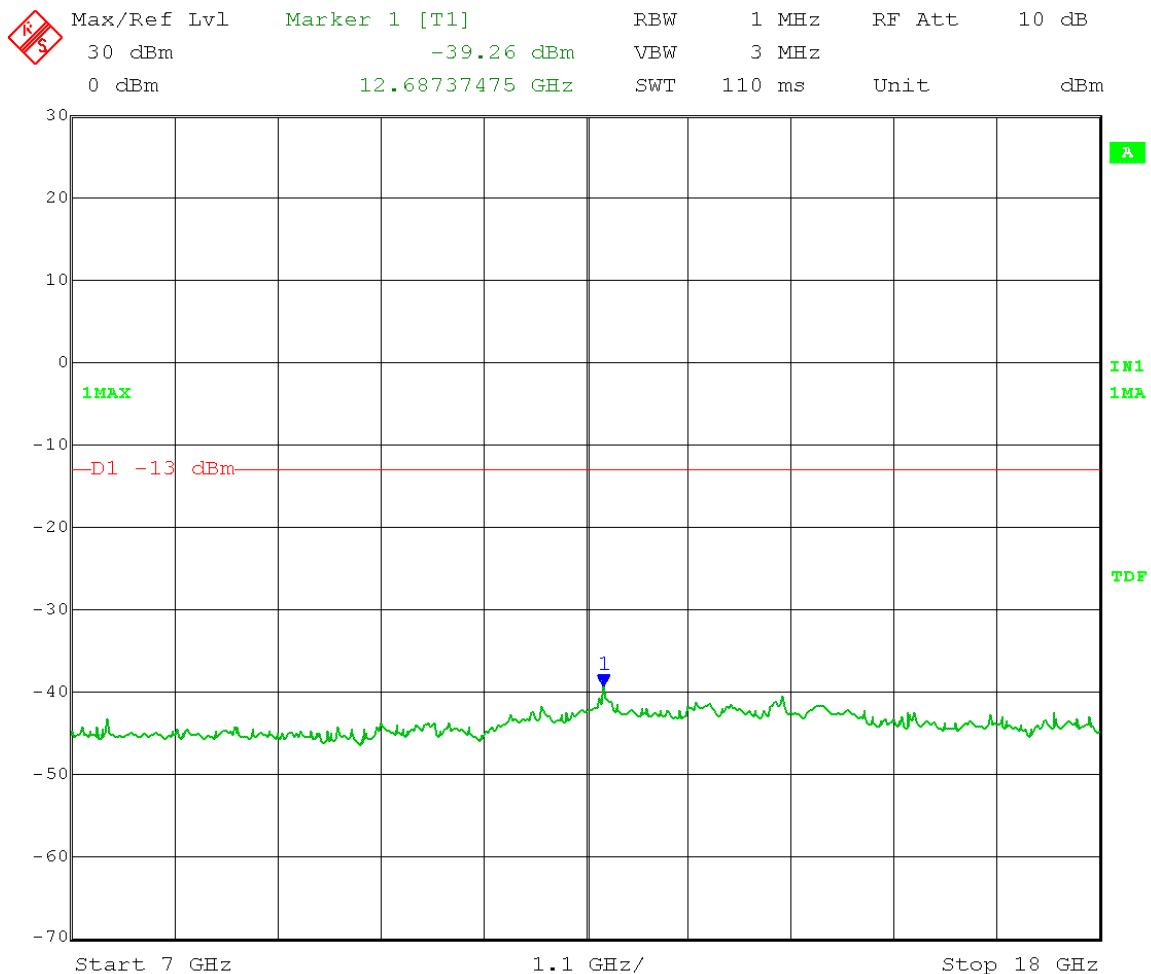


Date: 10.FEB.2014 15:32:00

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

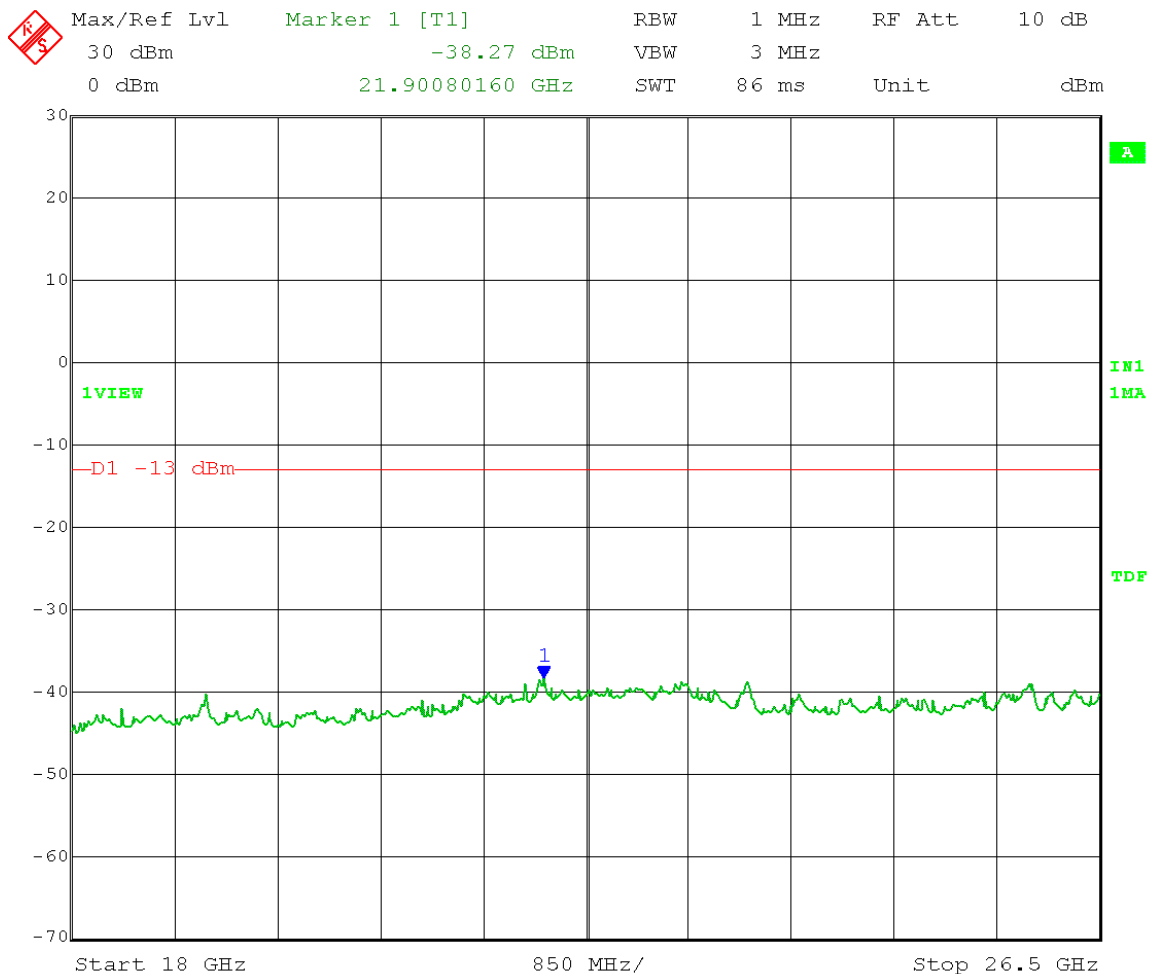


Date: 10.FEB.2014 15:34:30

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

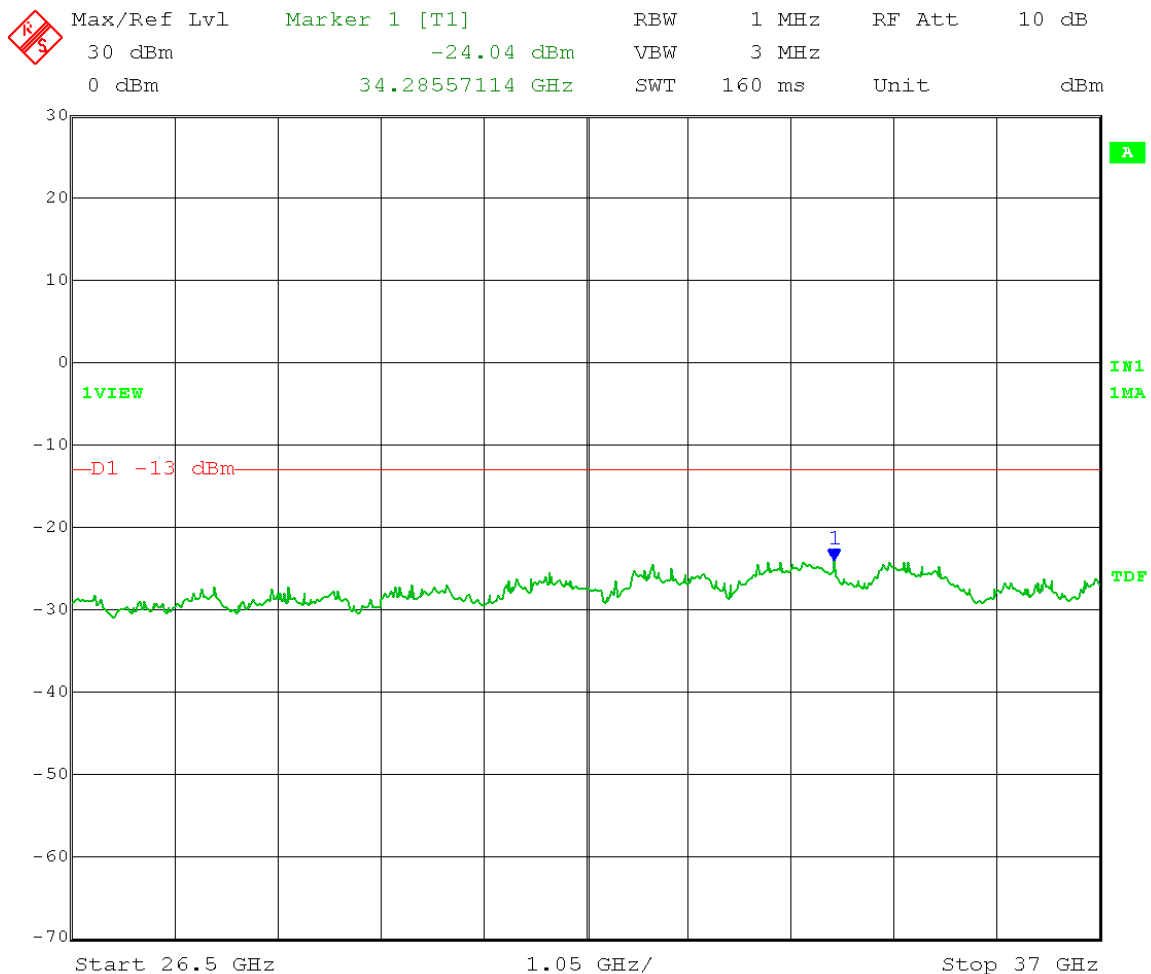


Date: 10.FEB.2014 15:37:03

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz

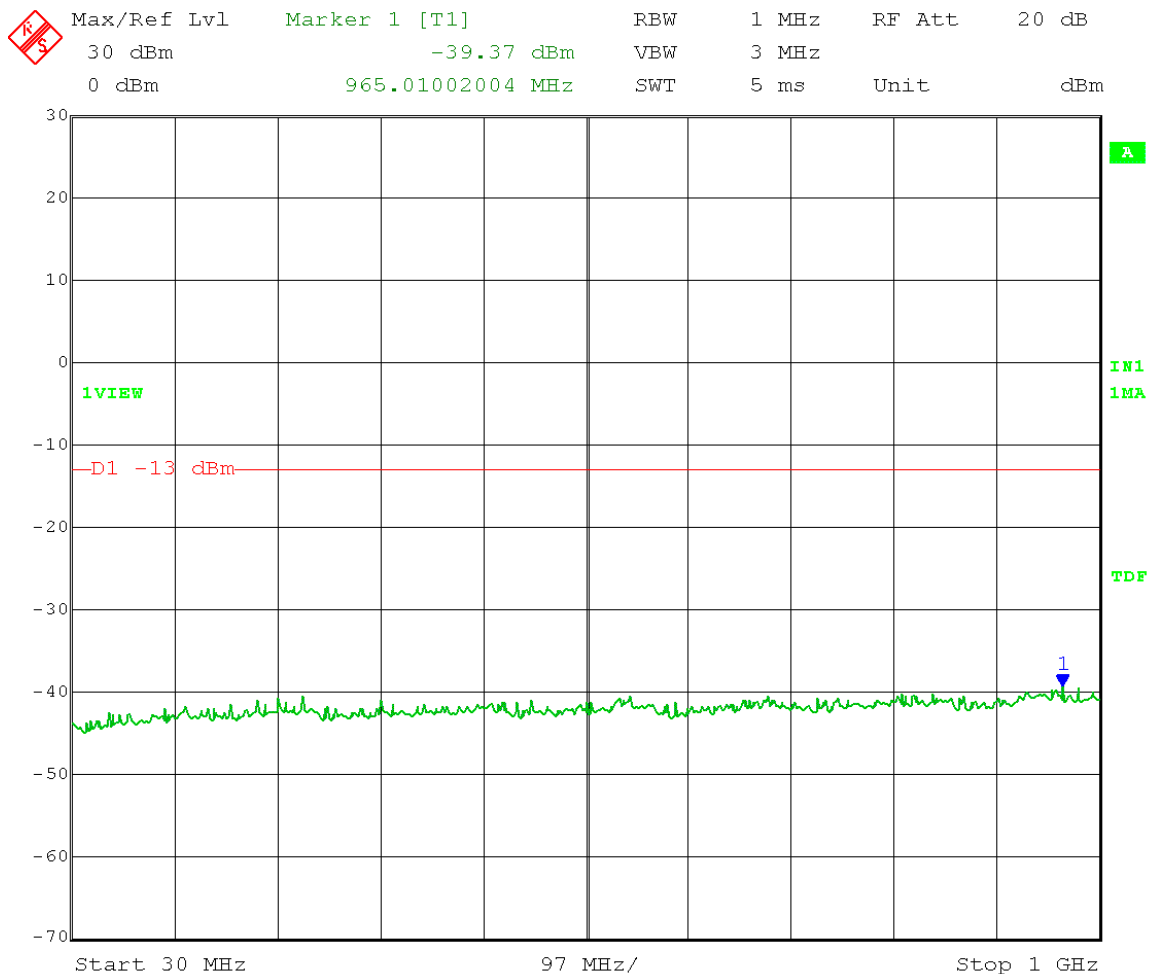


Date: 10.FEB.2014 15:39:20

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: $43 + 10\log(P)$ 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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 1 – 7 GHz

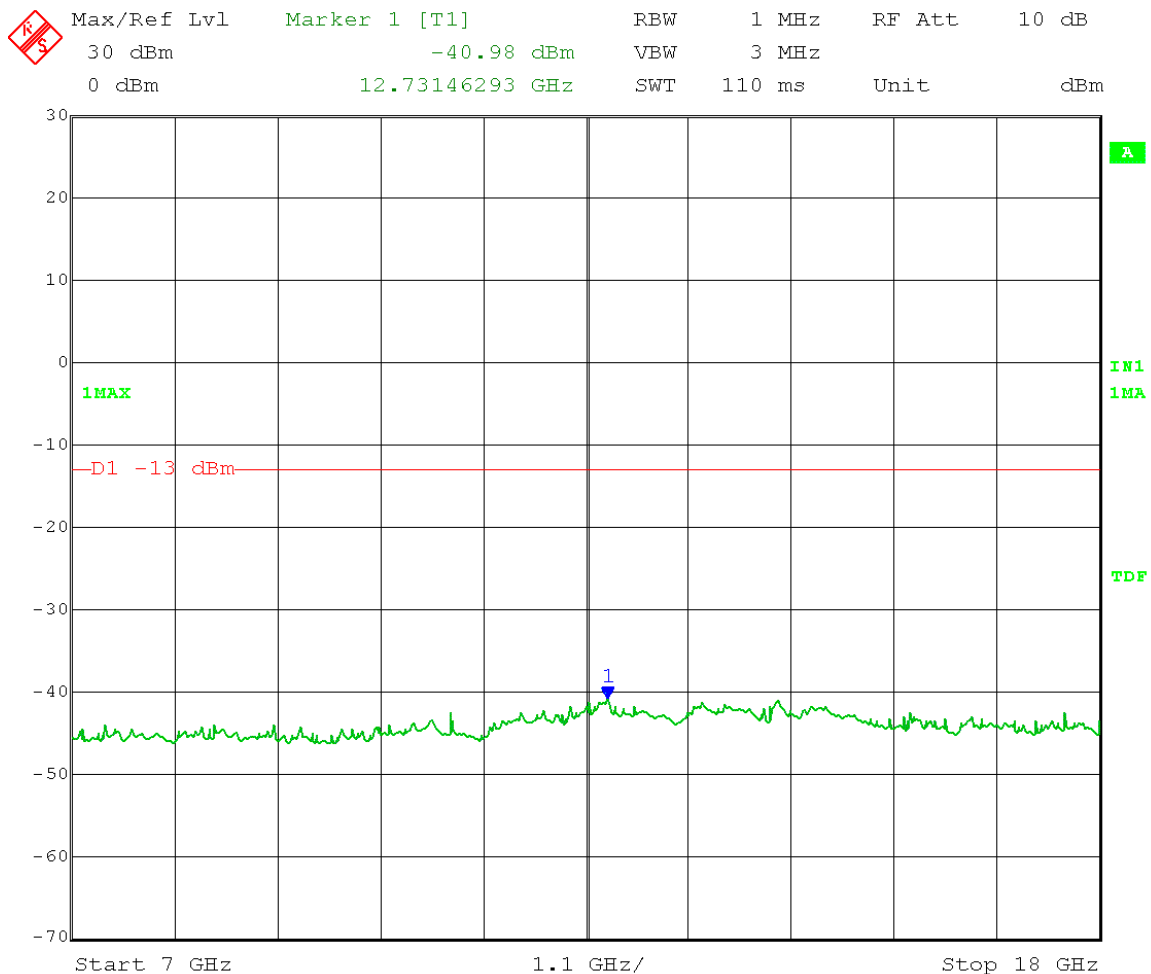


Date: 11.FEB.2014 08:32:00

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 7 – 18 GHz

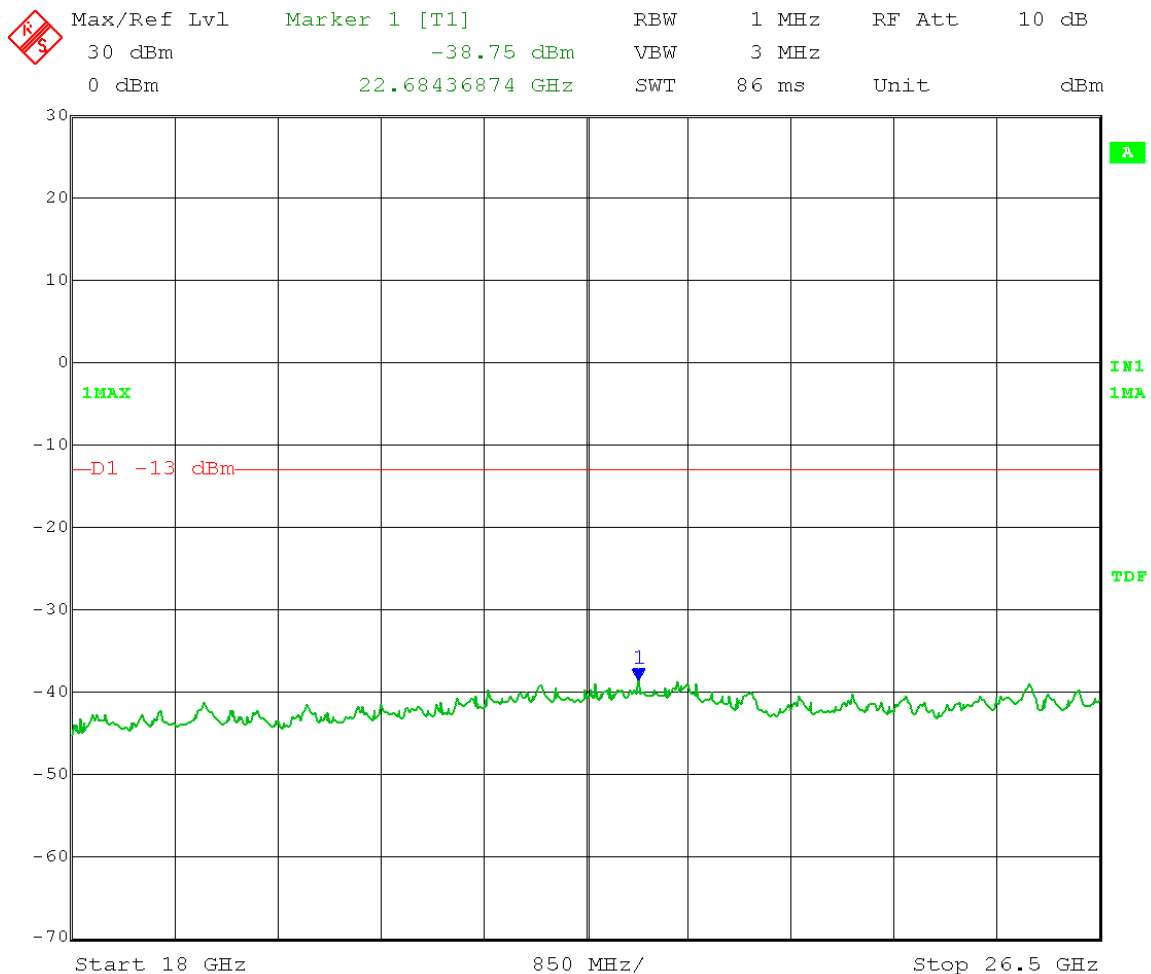


Date: 11.FEB.2014 08:33:31

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 18 – 26.5 GHz

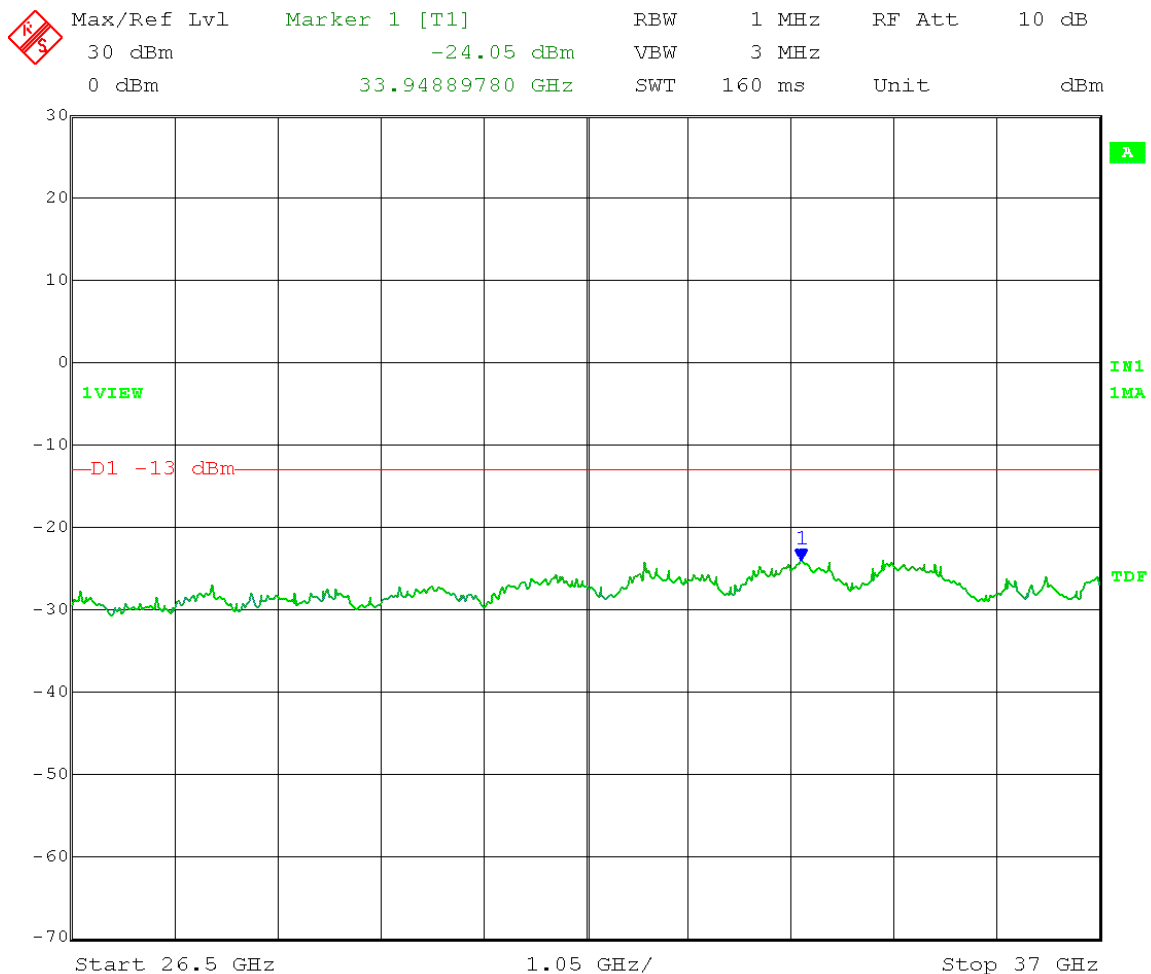


Date: 11.FEB.2014 08:35:18

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: $43 + 10\log(P)$ below the channel transmitter power
= -13 dBm/MHz

Frequency Range: 26.5 – 37 GHz



Date: 11.FEB.2014 08:37:04

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 Spurious emissions with 17 dBi antenna
Comment: L,M,H channels, 5,10,20 MHz ch BWs, powersetting 25
Date: 02-13-2014

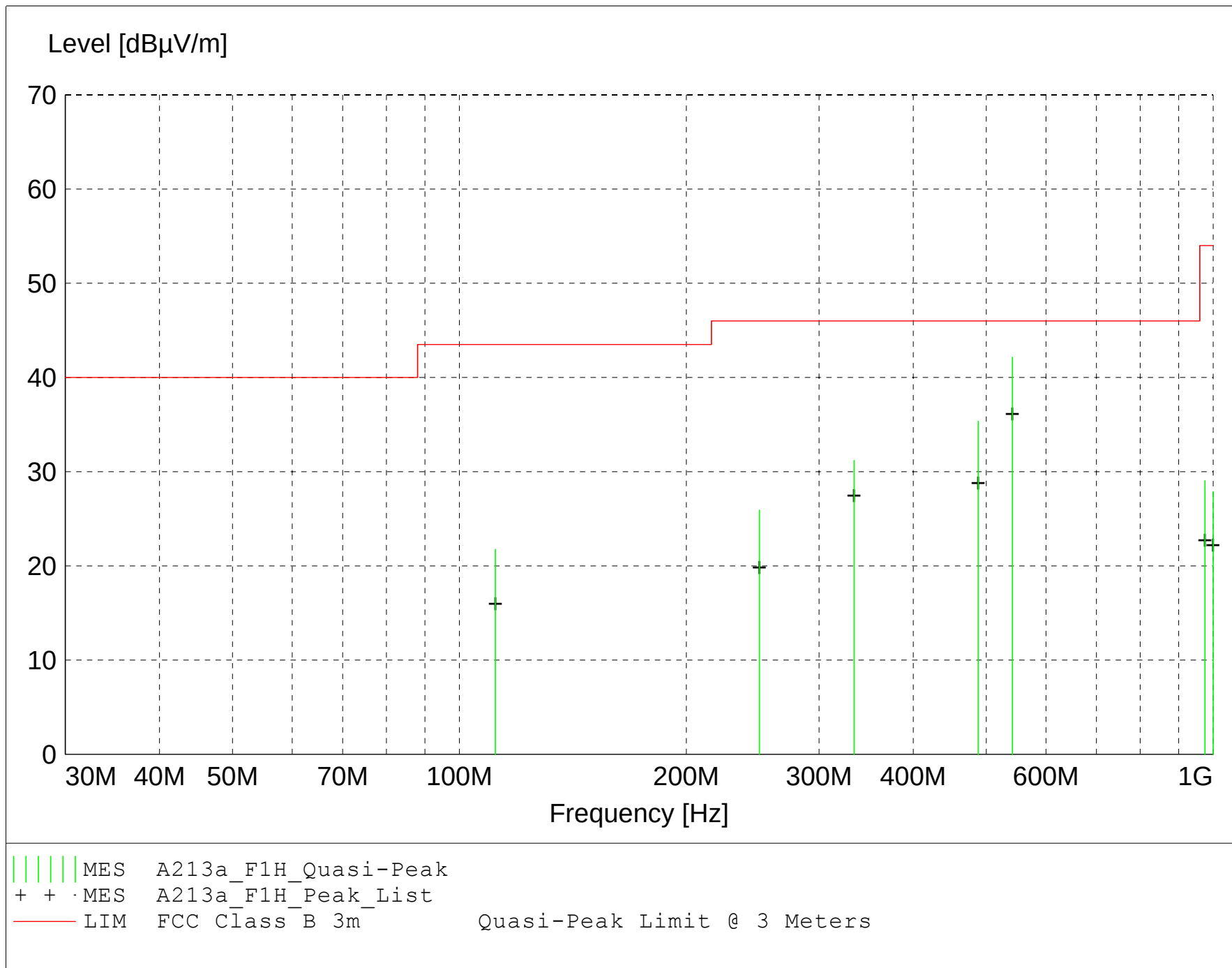
TEXT: "Horz 3 meters"

Short Description: Test Set-up

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

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

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



MEASUREMENT RESULT: "A213a_F1H_Final"

2/13/2014 11:32AM

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

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 Spurious 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"

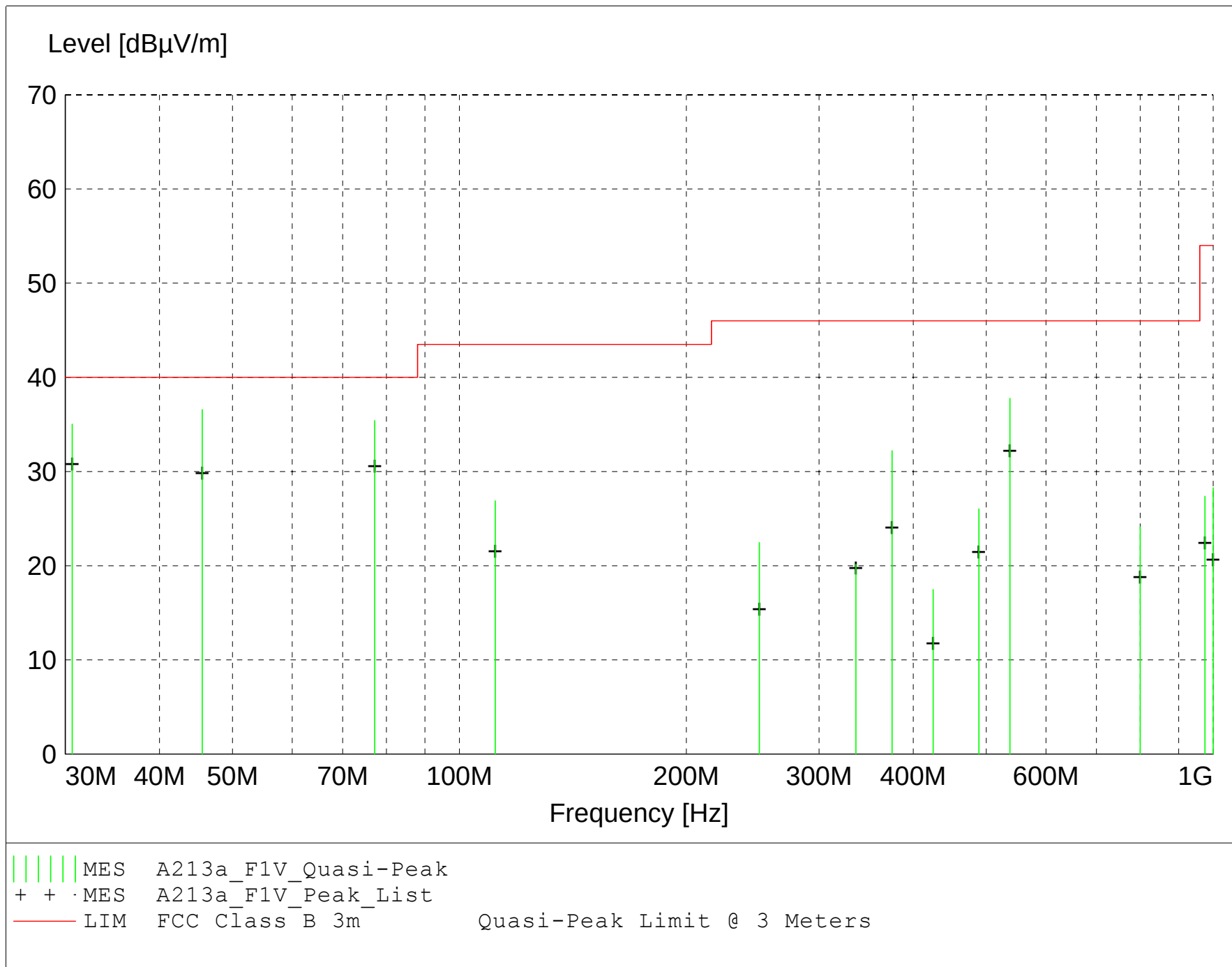
Short Description: Test Set-up

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

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

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

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



MEASUREMENT RESULT: "A213a_F1V_Final"

2/13/2014 12:59PM

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



166 South Carter, Genoa City, WI 53128

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

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 °C to +50 °C, 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:

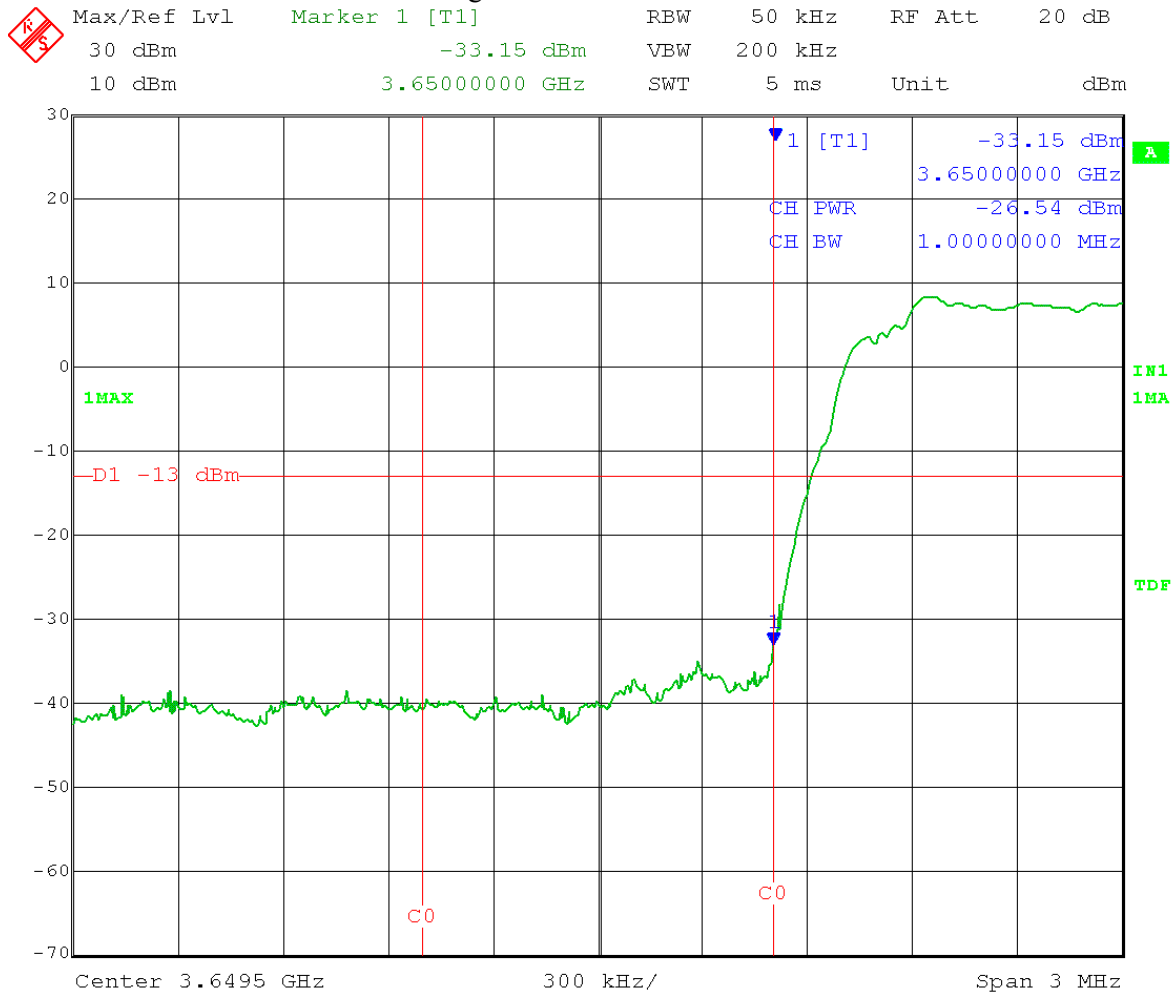
Only tested QPSK modulation mode as determined worst case by Cambium Networks.
Only tested output port A as determined worst case by Cambium Networks.

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -26.54 dBm/MHz



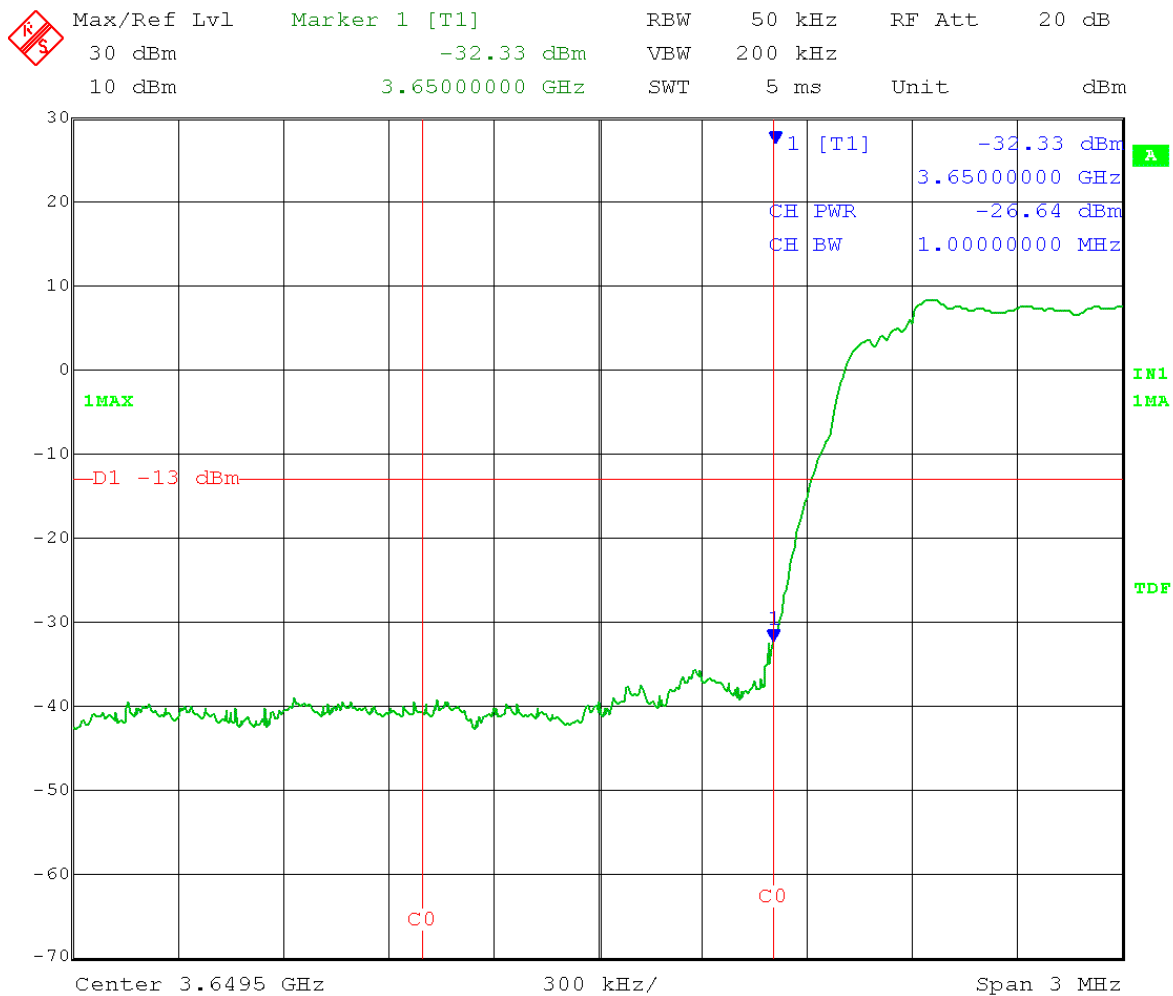
Date: 7.FEB.2014 08:45:40

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



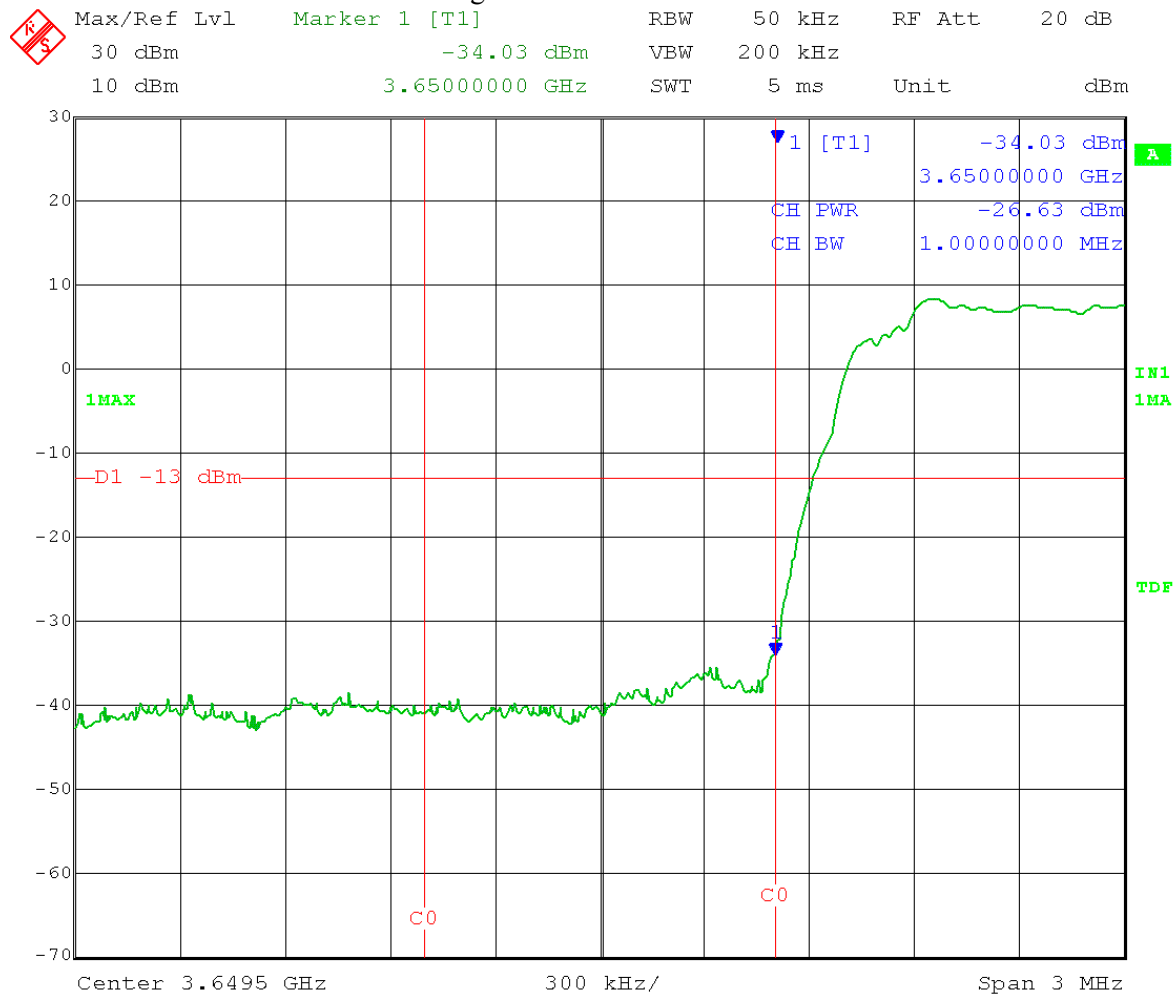
Date: 7.FEB.2014 08:47:56

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



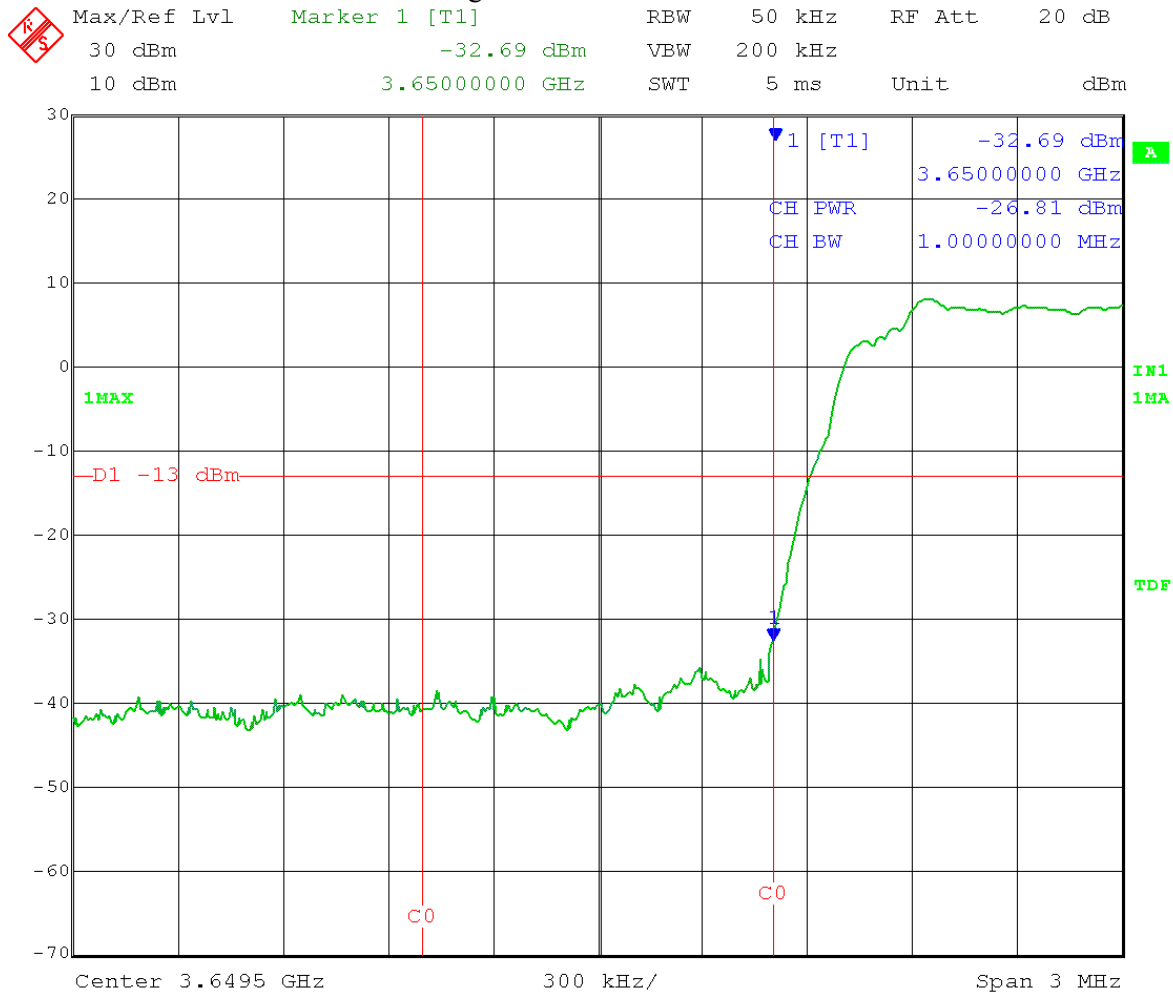
Date: 7.FEB.2014 08:50:25

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -26.81 dBm/MHz



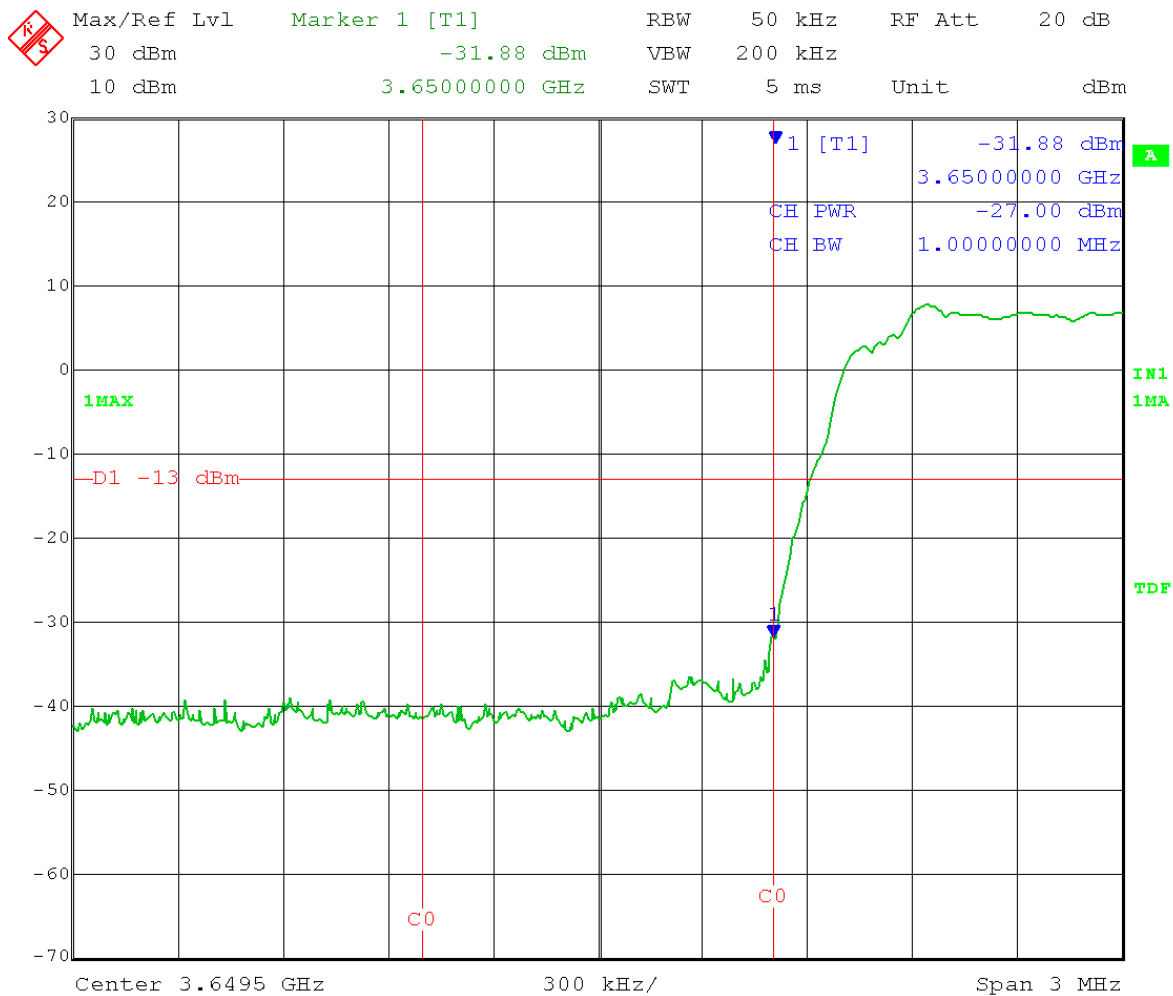
Date: 7.FEB.2014 09:38:37

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



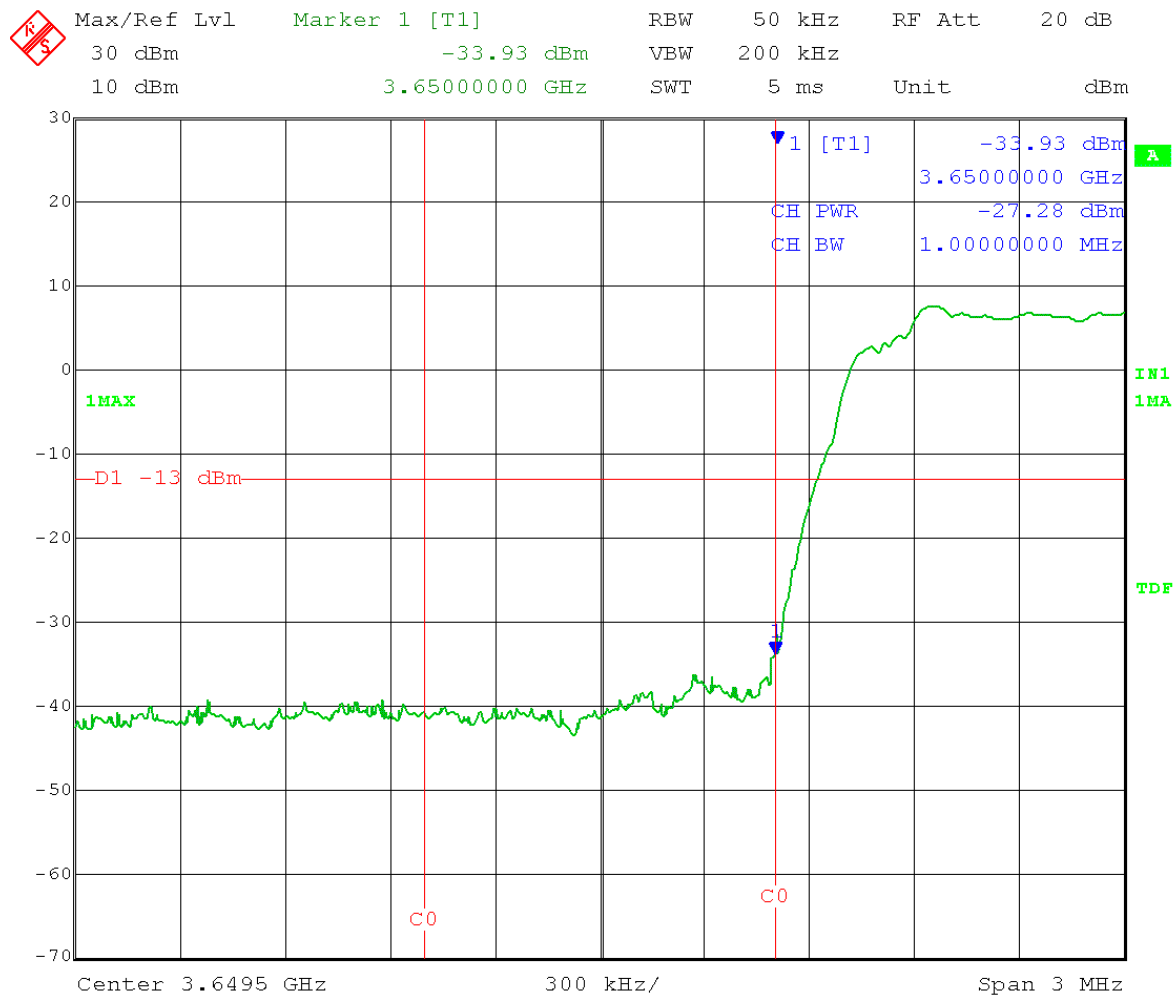
Date: 7.FEB.2014 11:18:32

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



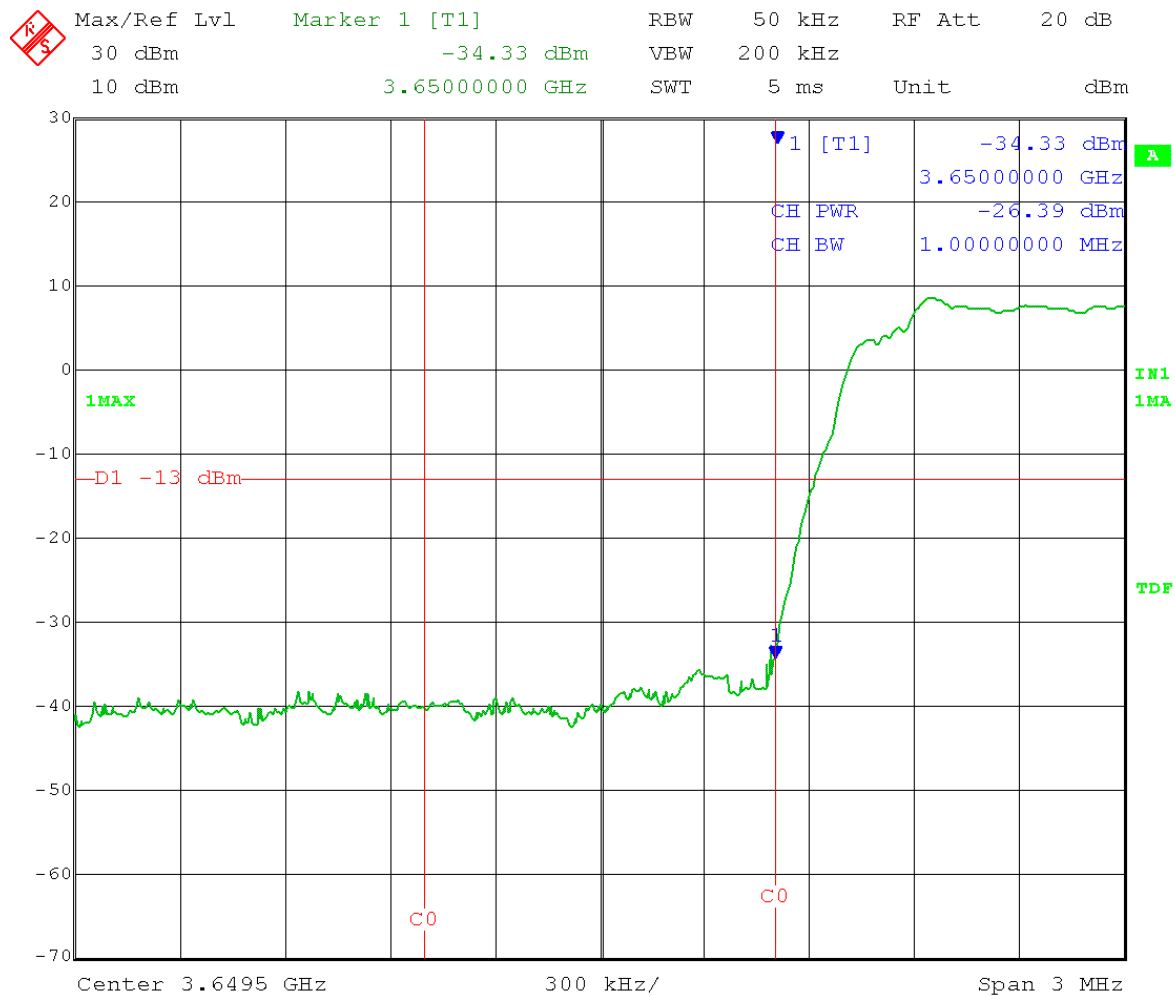
Date: 7.FEB.2014 12:49:59

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



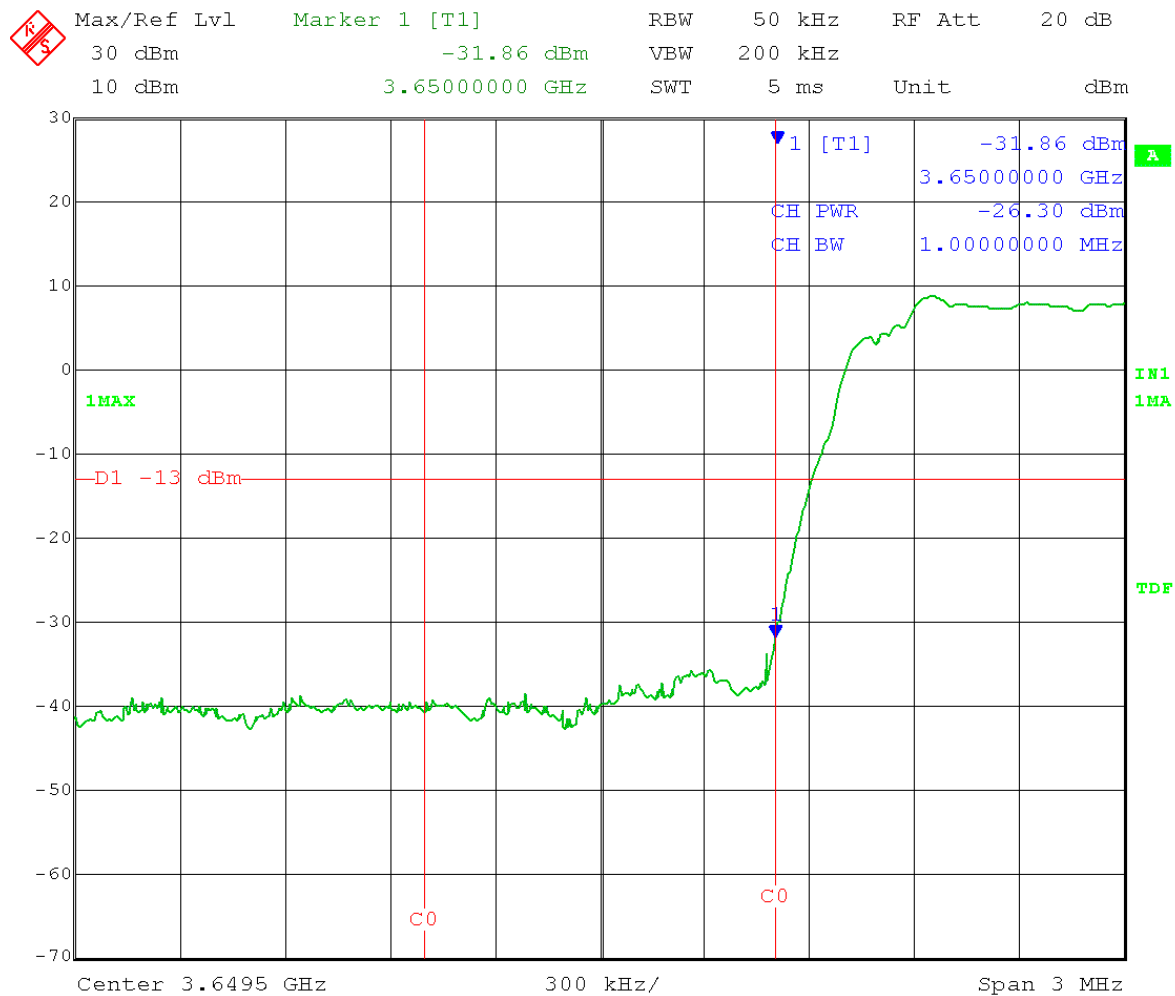
Date: 7.FEB.2014 15:38:14

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



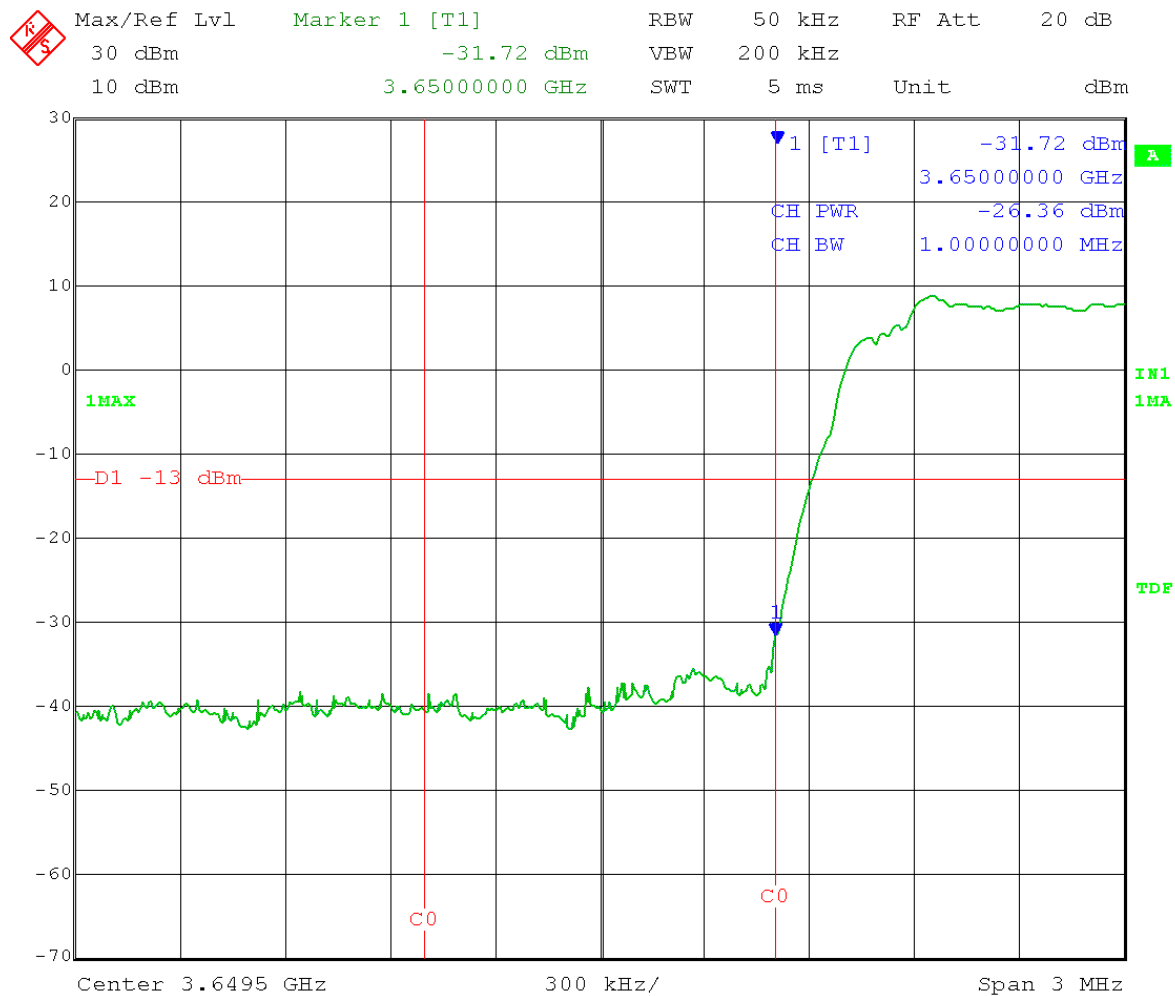
Date: 10.FEB.2014 09:18:30

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



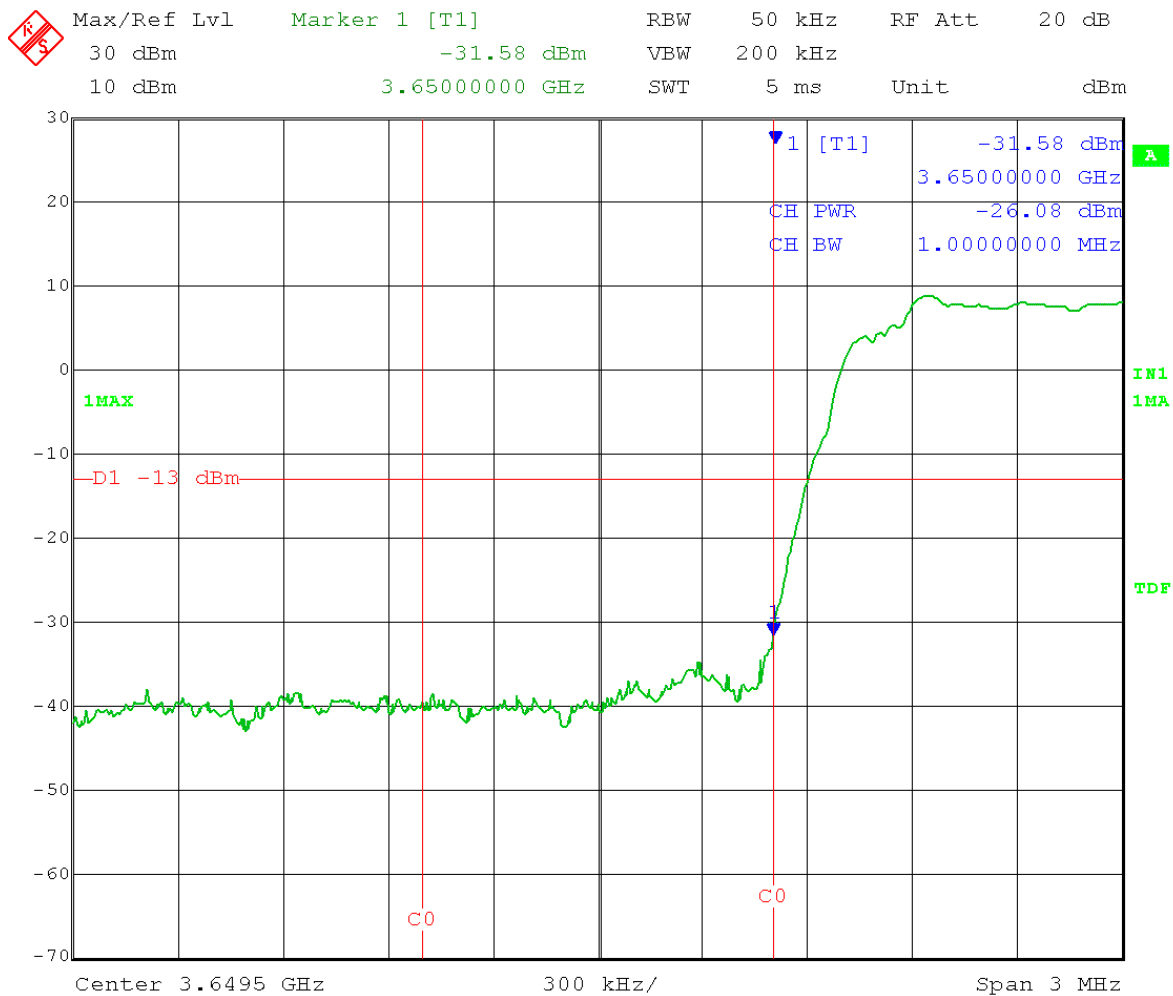
Date: 10.FEB.2014 10:43:45

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



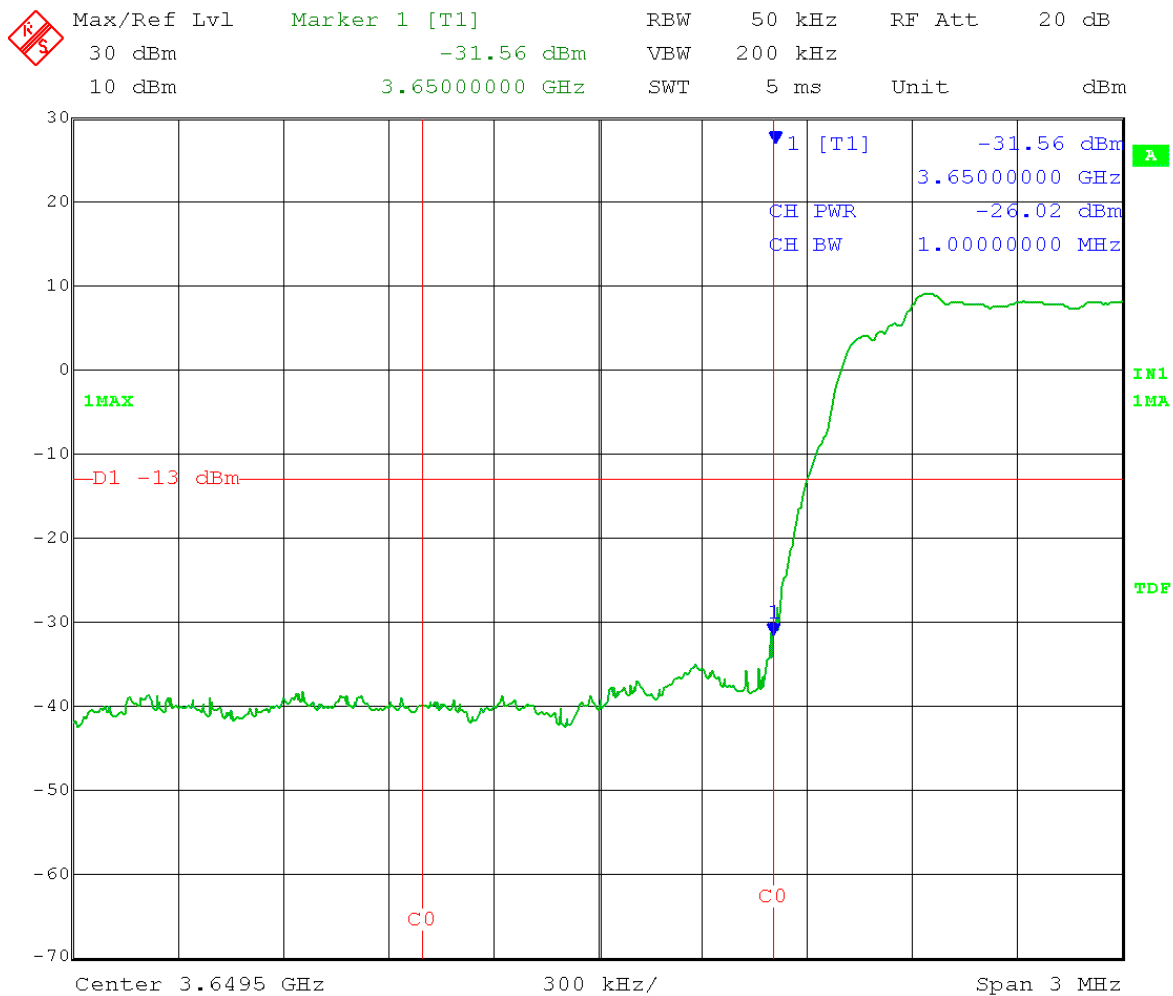
Date: 10.FEB.2014 12:38:03

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -25.88 dBm/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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -26.03 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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



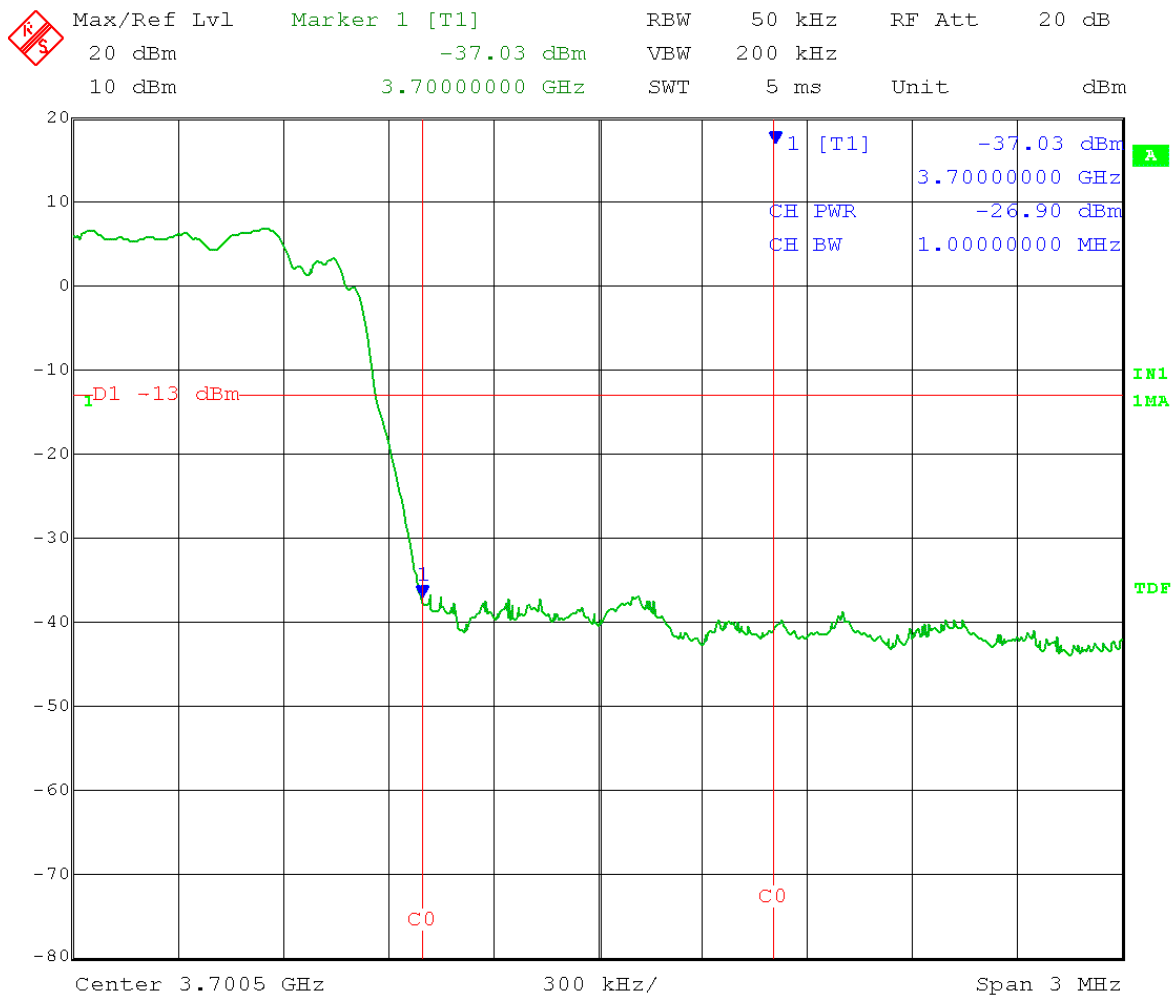
Date: 7.FEB.2014 09:33:01

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -25.16 dBm/MHz



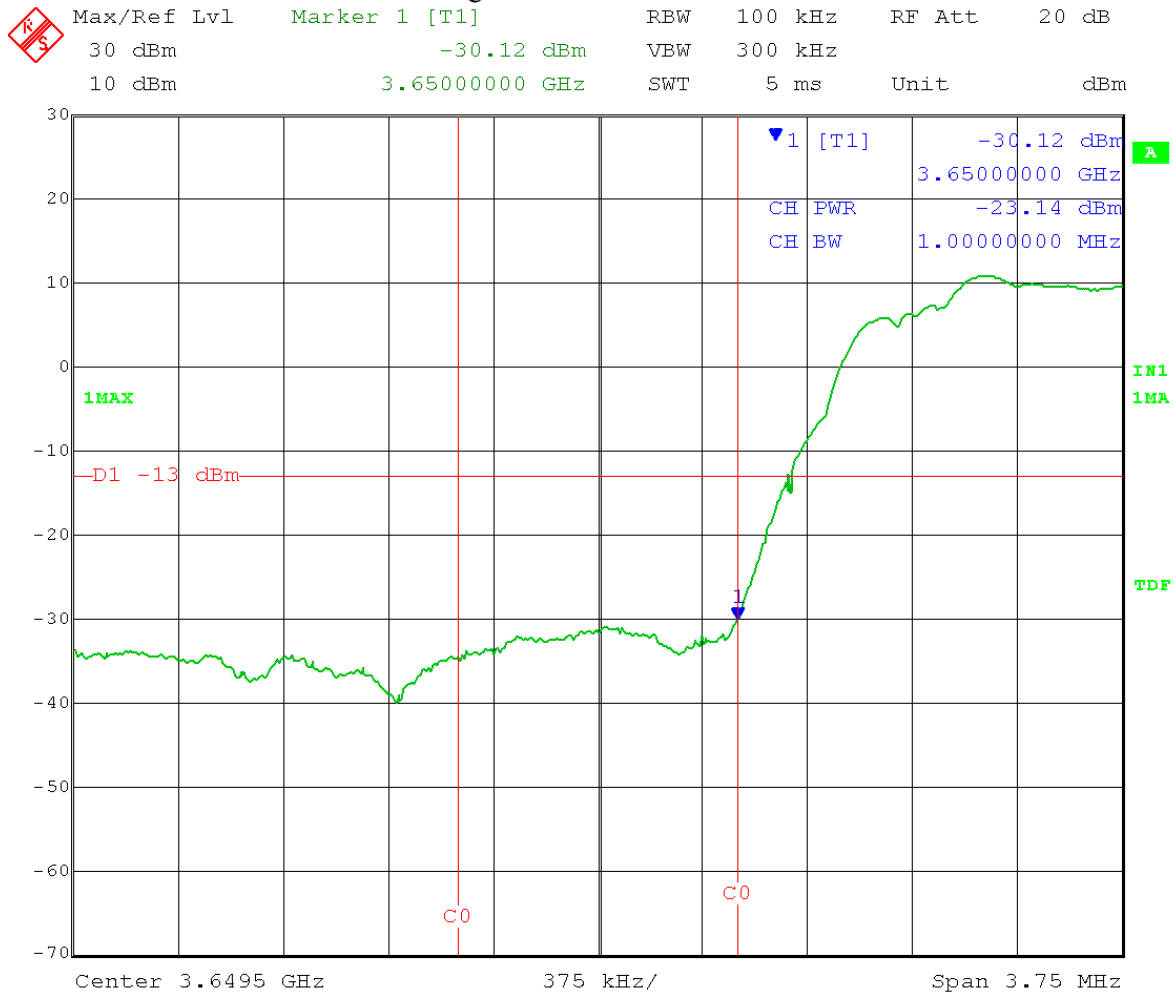
Date: 10.FEB.2014 13:51:06

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -23.14 dBm/MHz



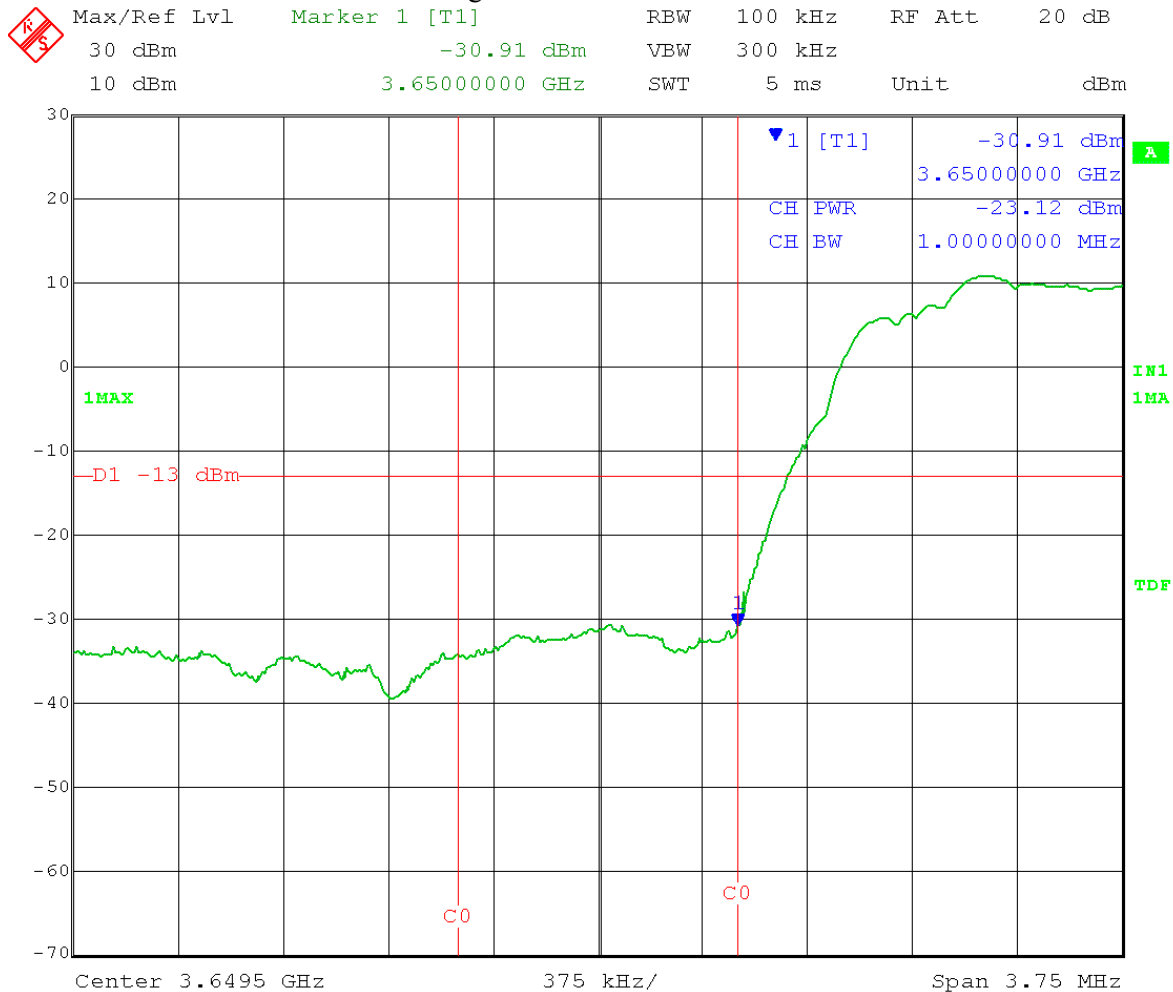
Date: 6.FEB.2014 15:01:09

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



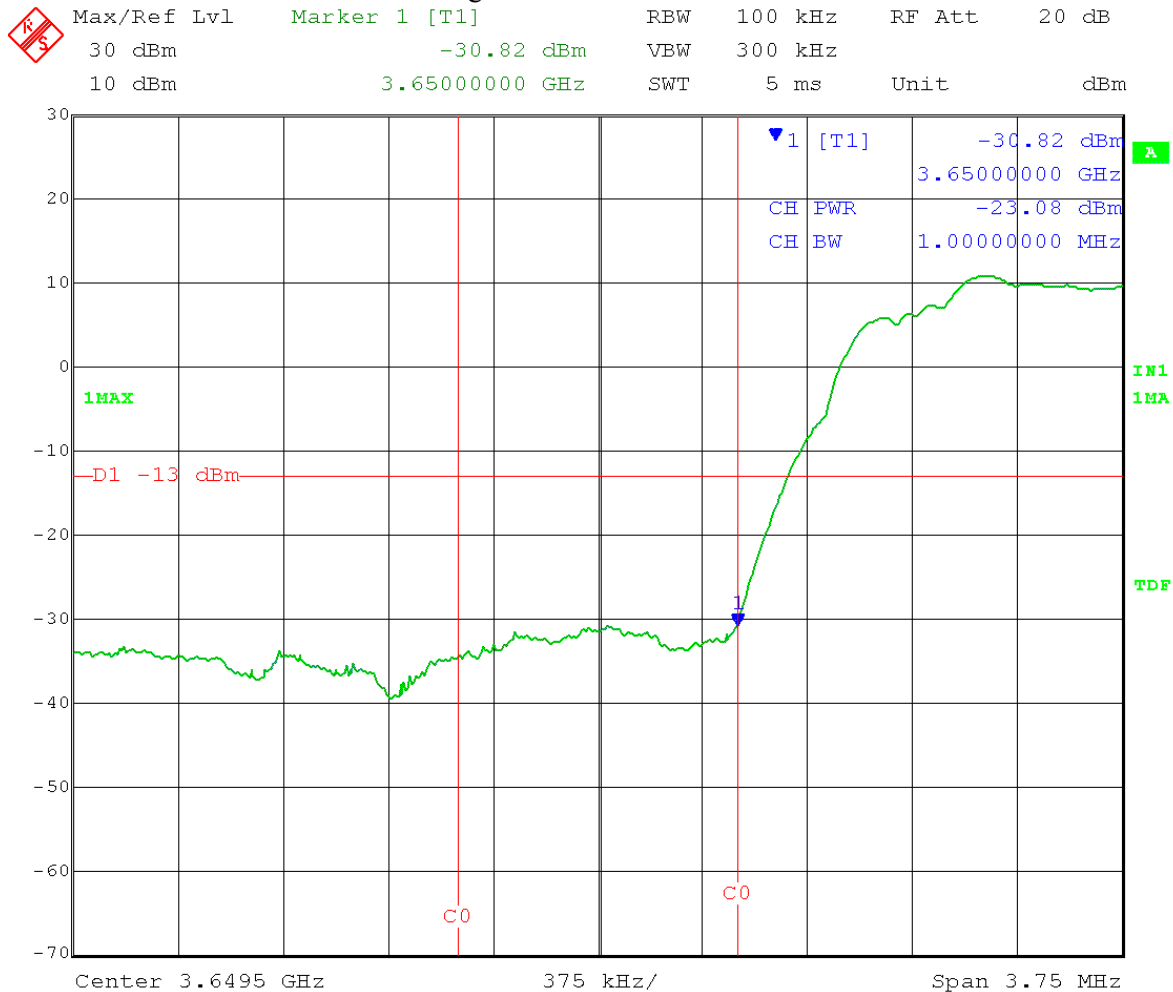
Date: 6.FEB.2014 15:03:58

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



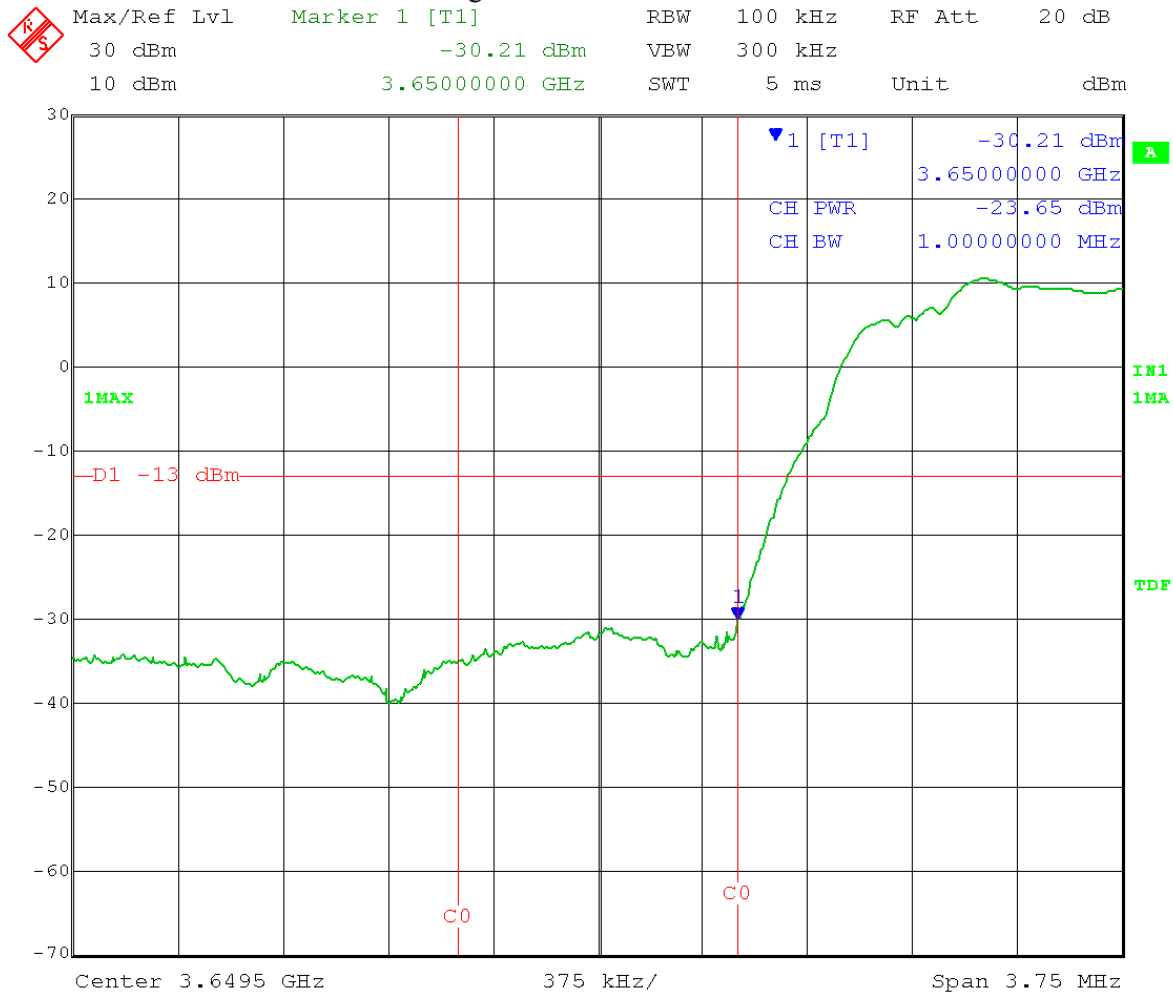
Date: 6.FEB.2014 15:06:27

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



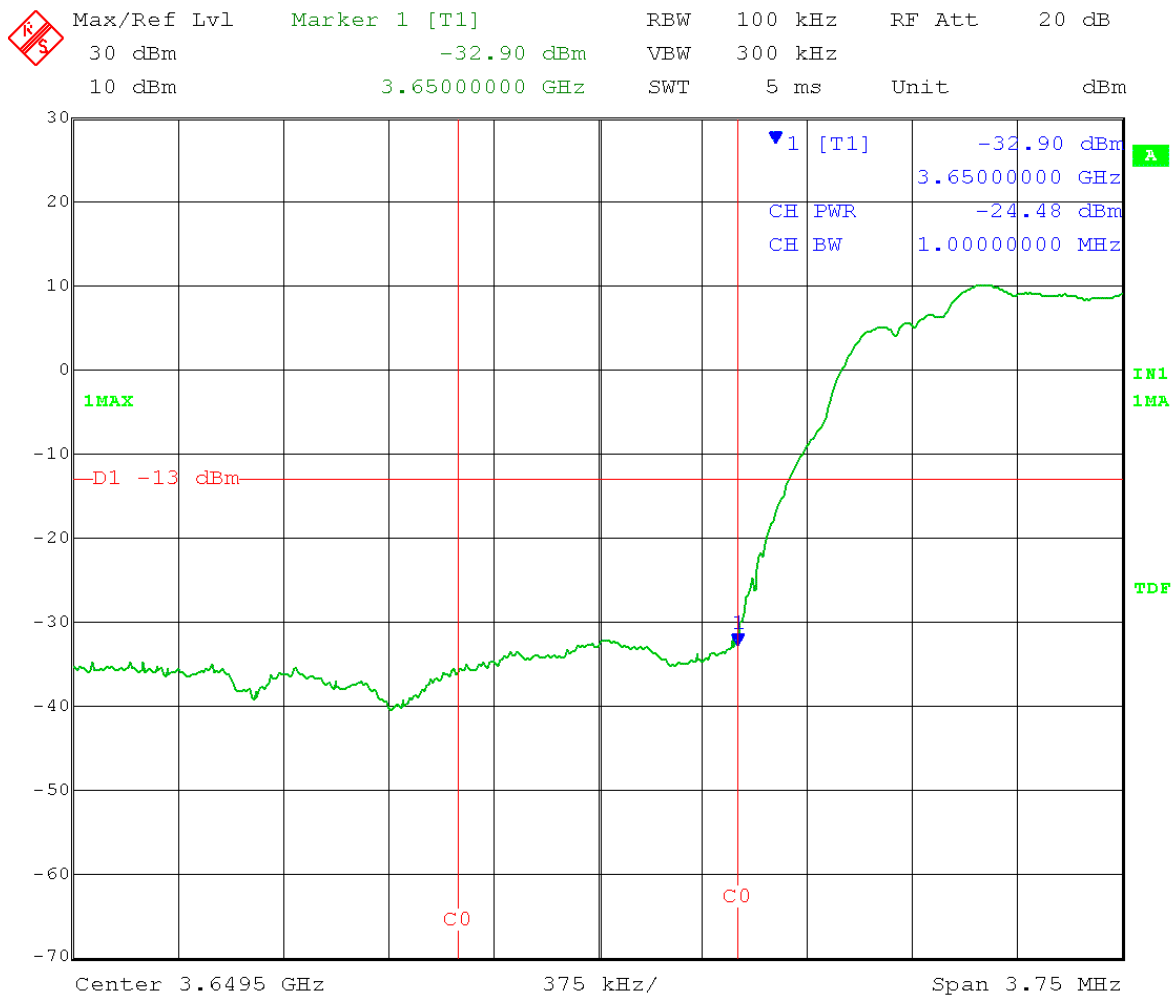
Date: 7.FEB.2014 09:45:48

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



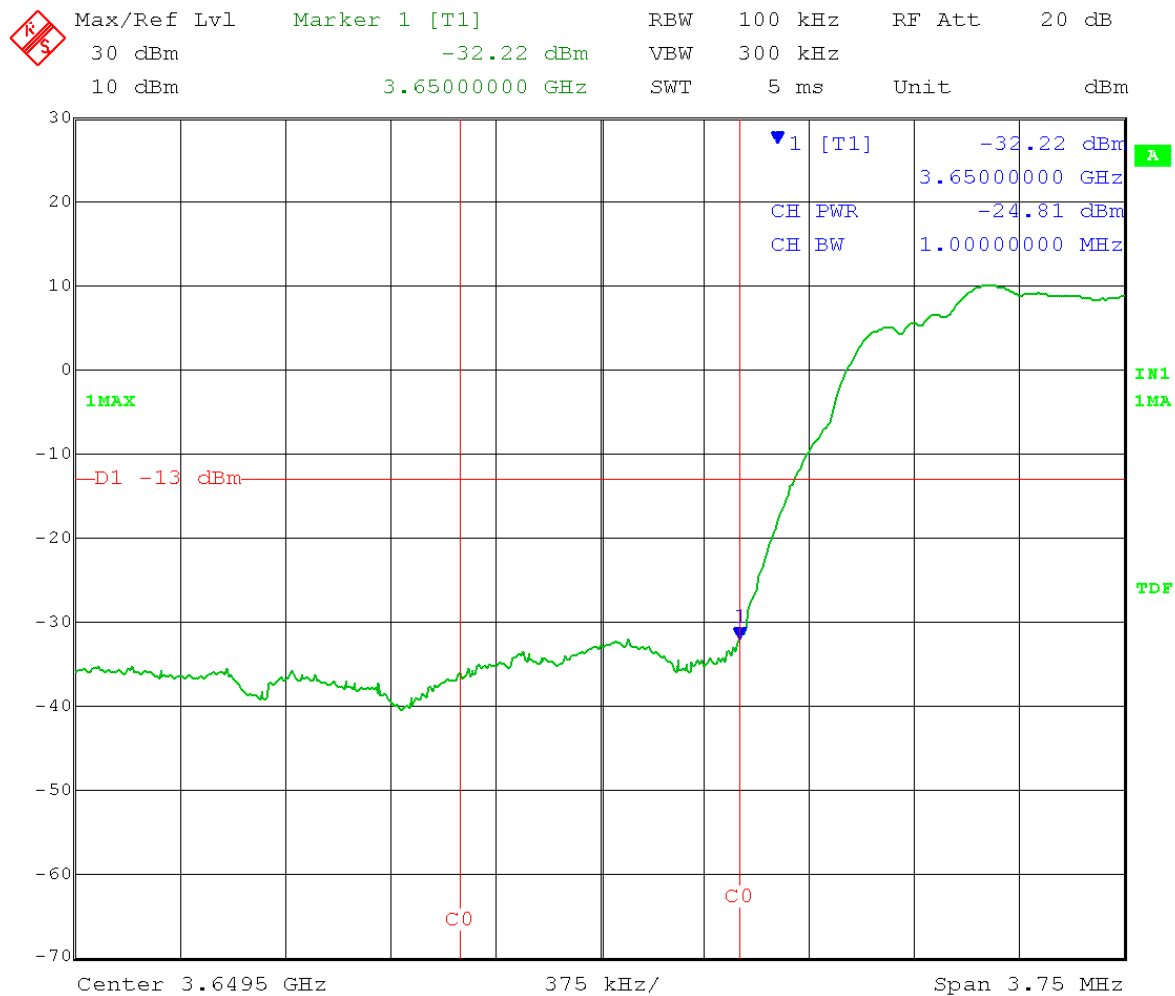
Date: 7.FEB.2014 11:02:20

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



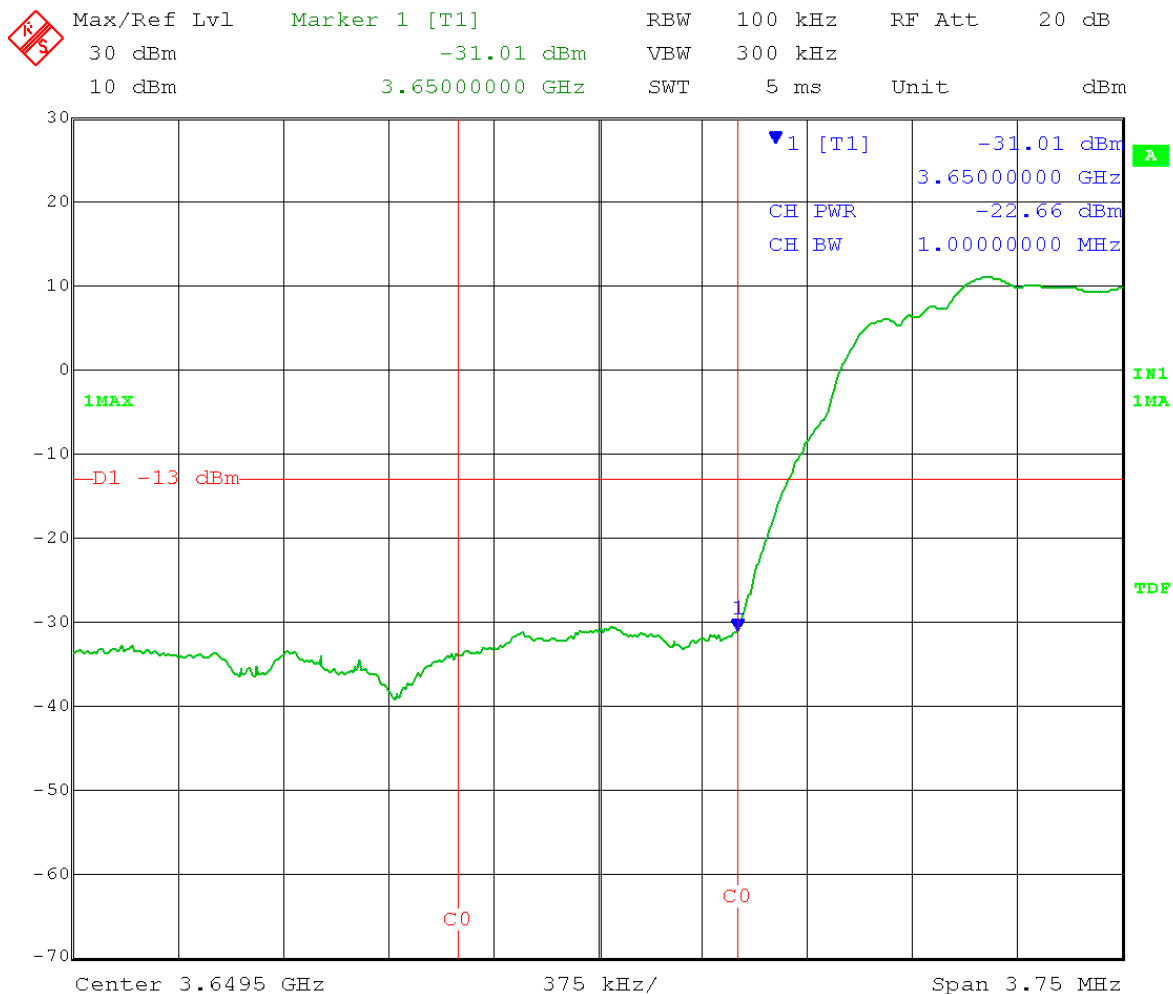
Date: 7.FEB.2014 13:05:53

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



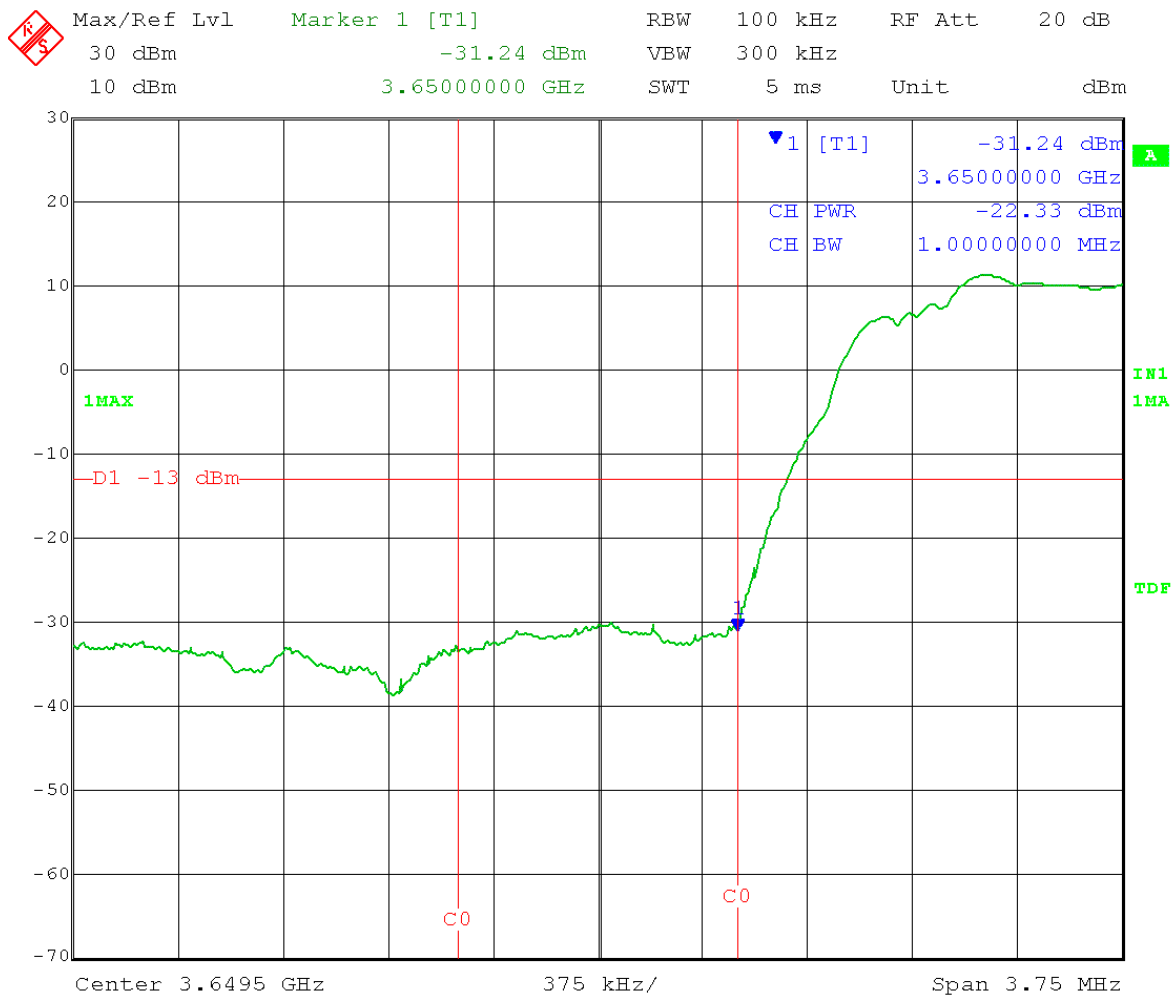
Date: 7.FEB.2014 15:08:07

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: $RBW \geq 1\% \text{ OBW}$ $VBW \geq 3 \times RBW$
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: $43 + 10\log(P)$ 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



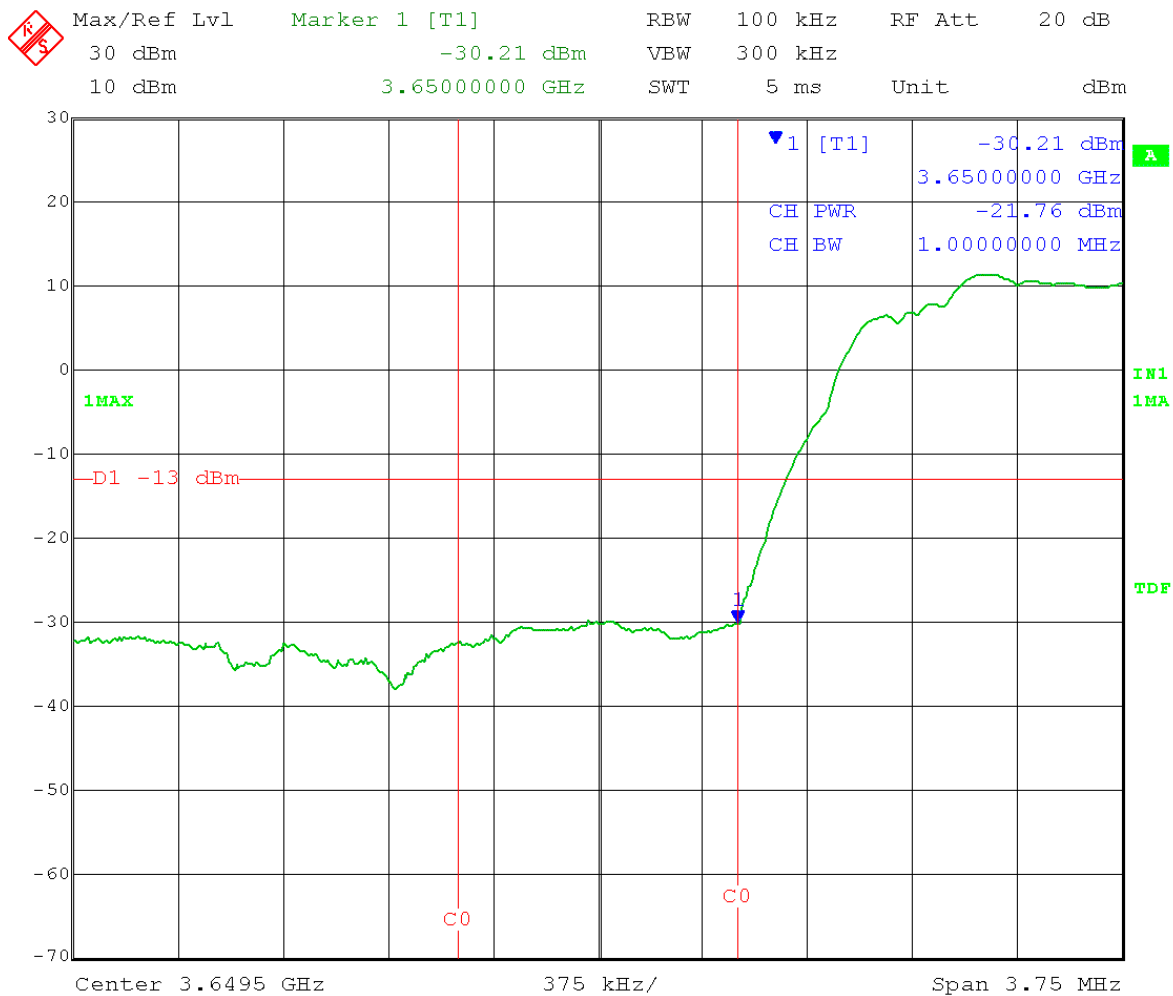
Date: 10.FEB.2014 09:01:48

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: $RBW \geq 1\% OBW$ $VBW \geq 3 \times RBW$
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: $43 + 10\log(P)$ 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



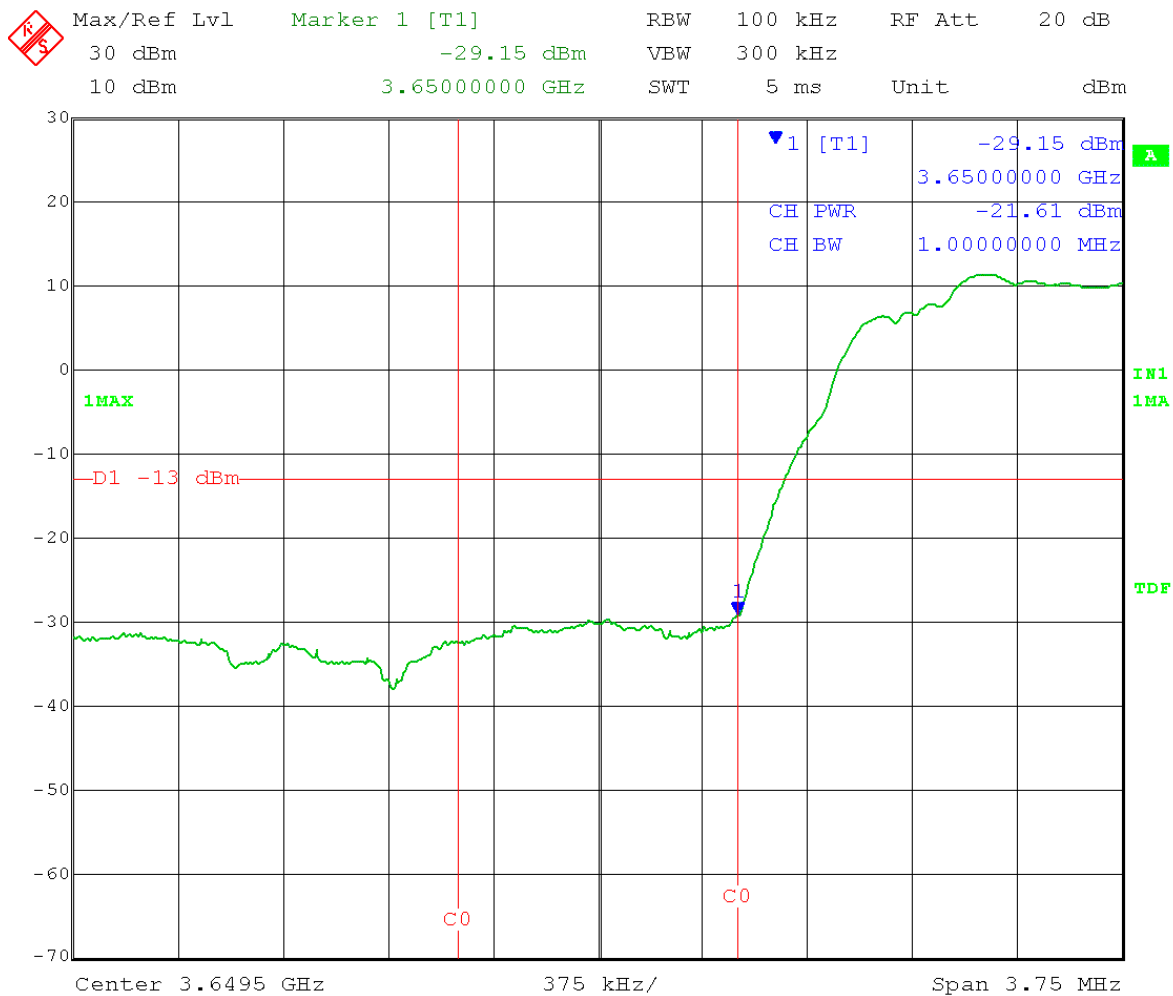
Date: 10.FEB.2014 10:26:26

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



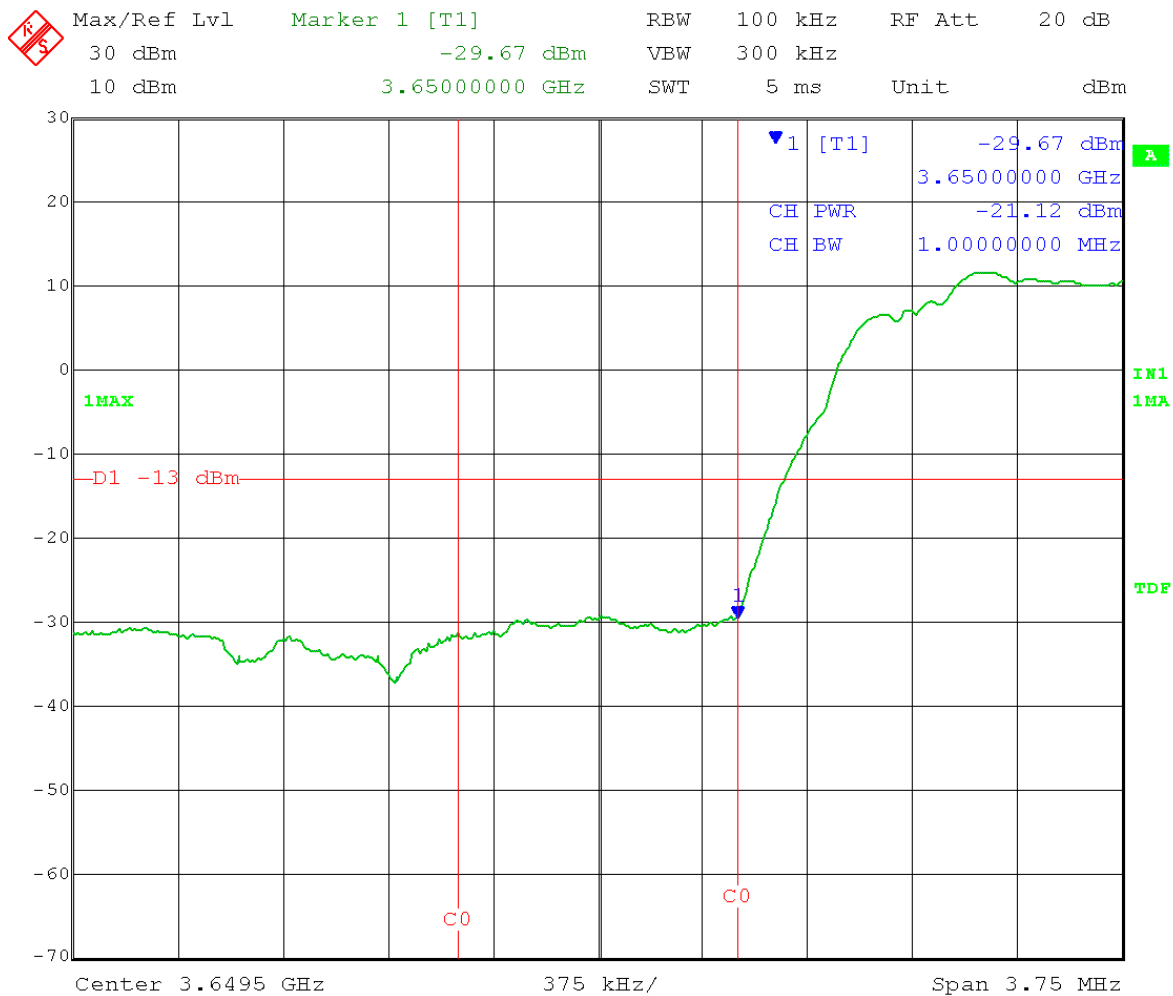
Date: 10.FEB.2014 11:43:02

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



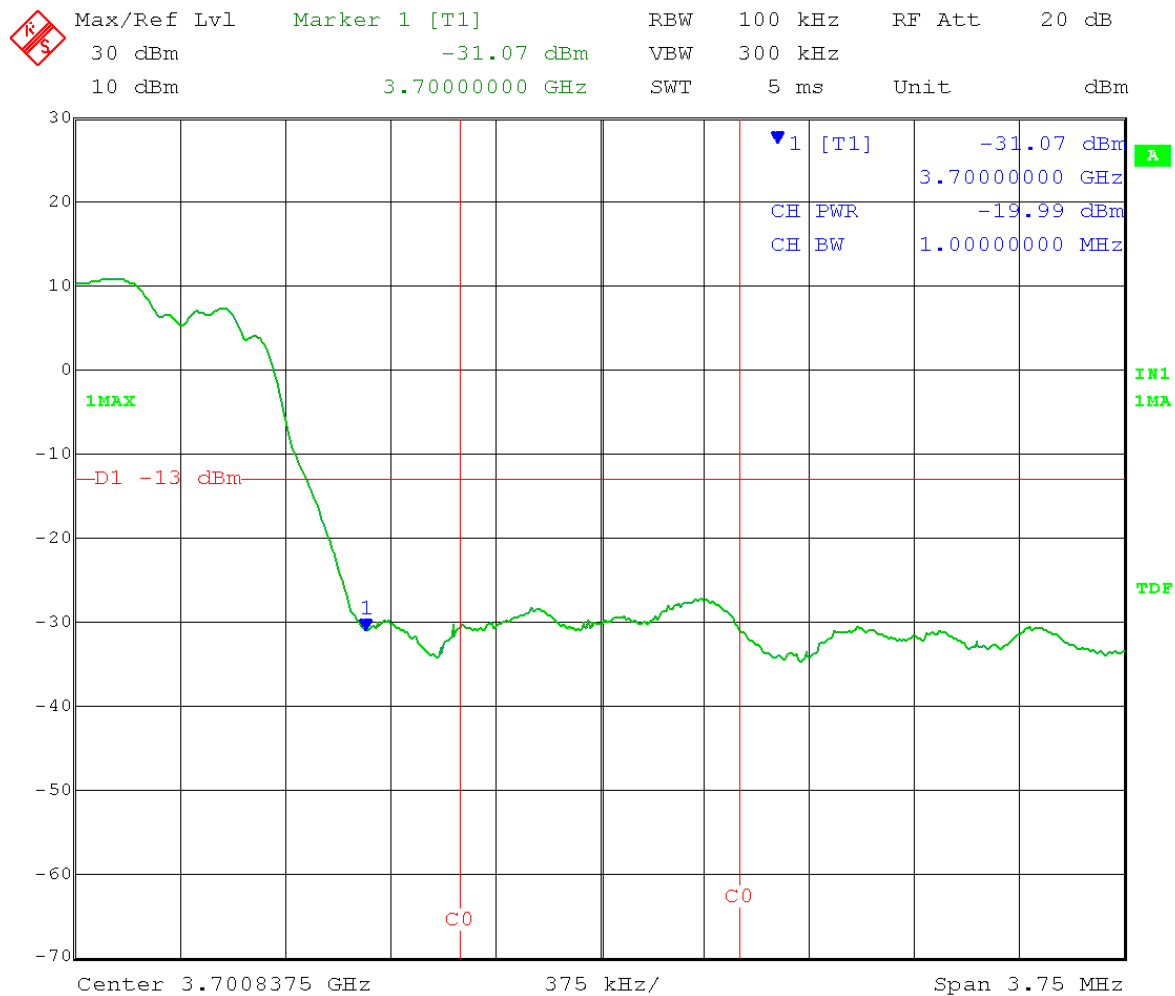
Date: 10.FEB.2014 13:37:53

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -19.99 dBm/MHz



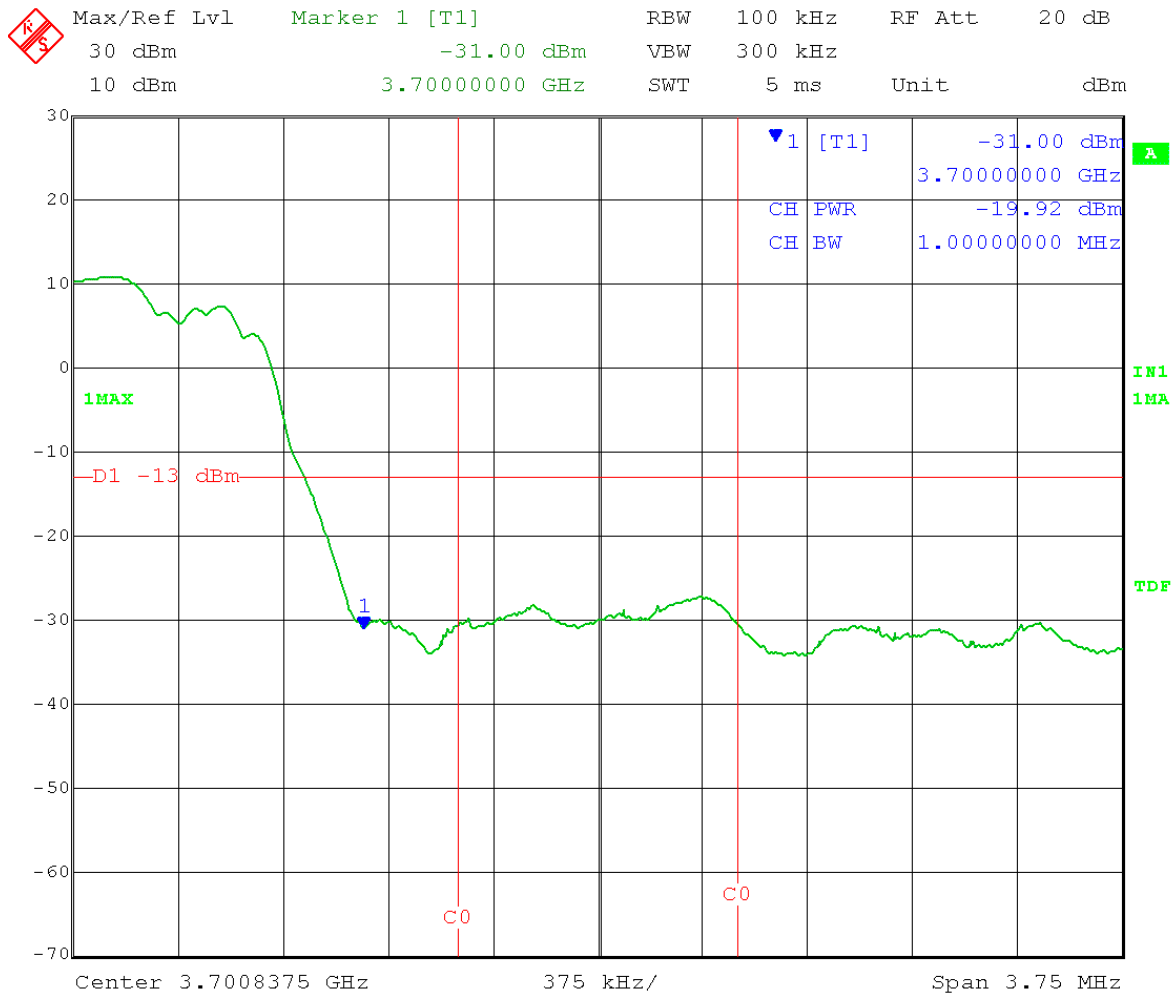
Date: 6.FEB.2014 15:12:45

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



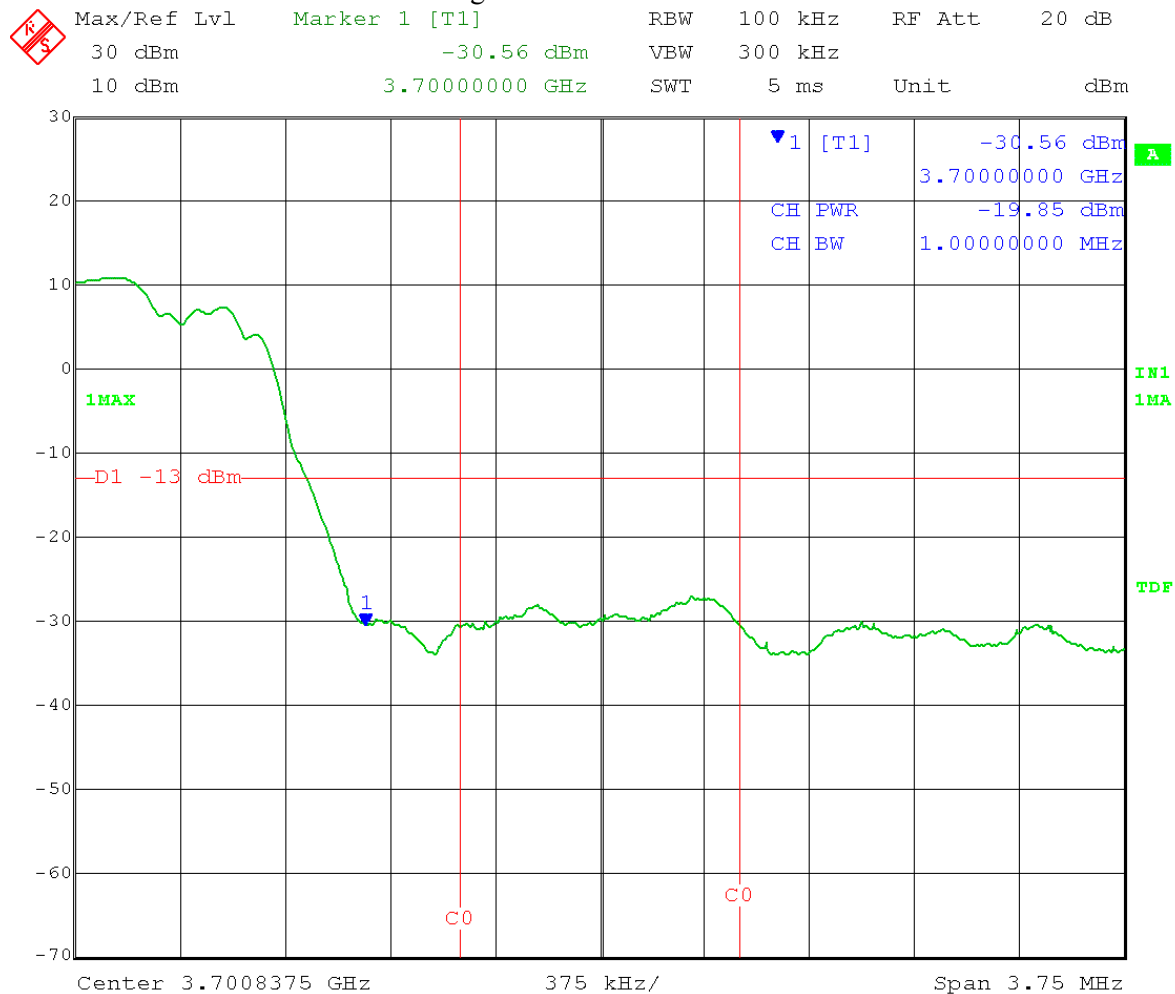
Date: 6.FEB.2014 15:14:21

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



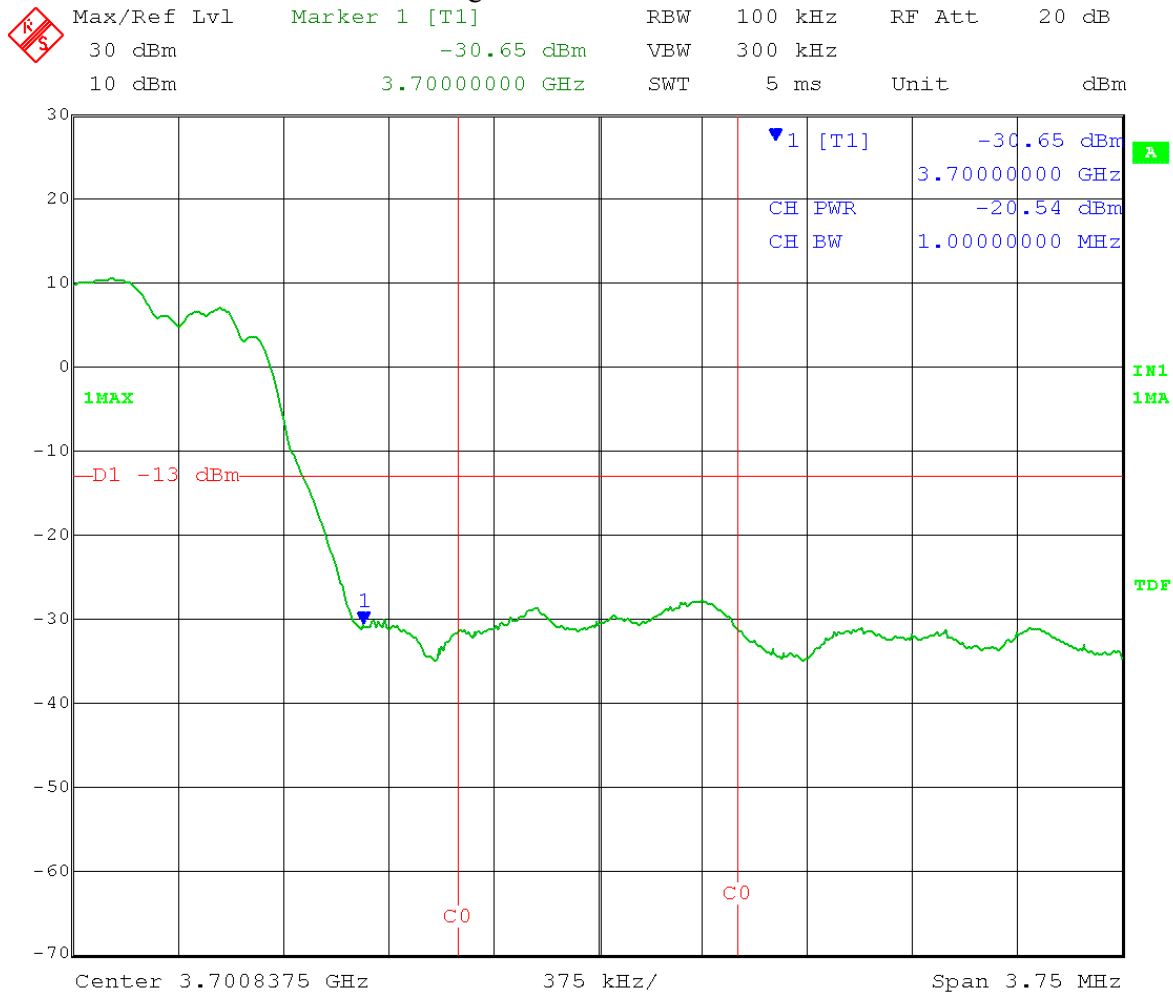
Date: 6.FEB.2014 15:11:31

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



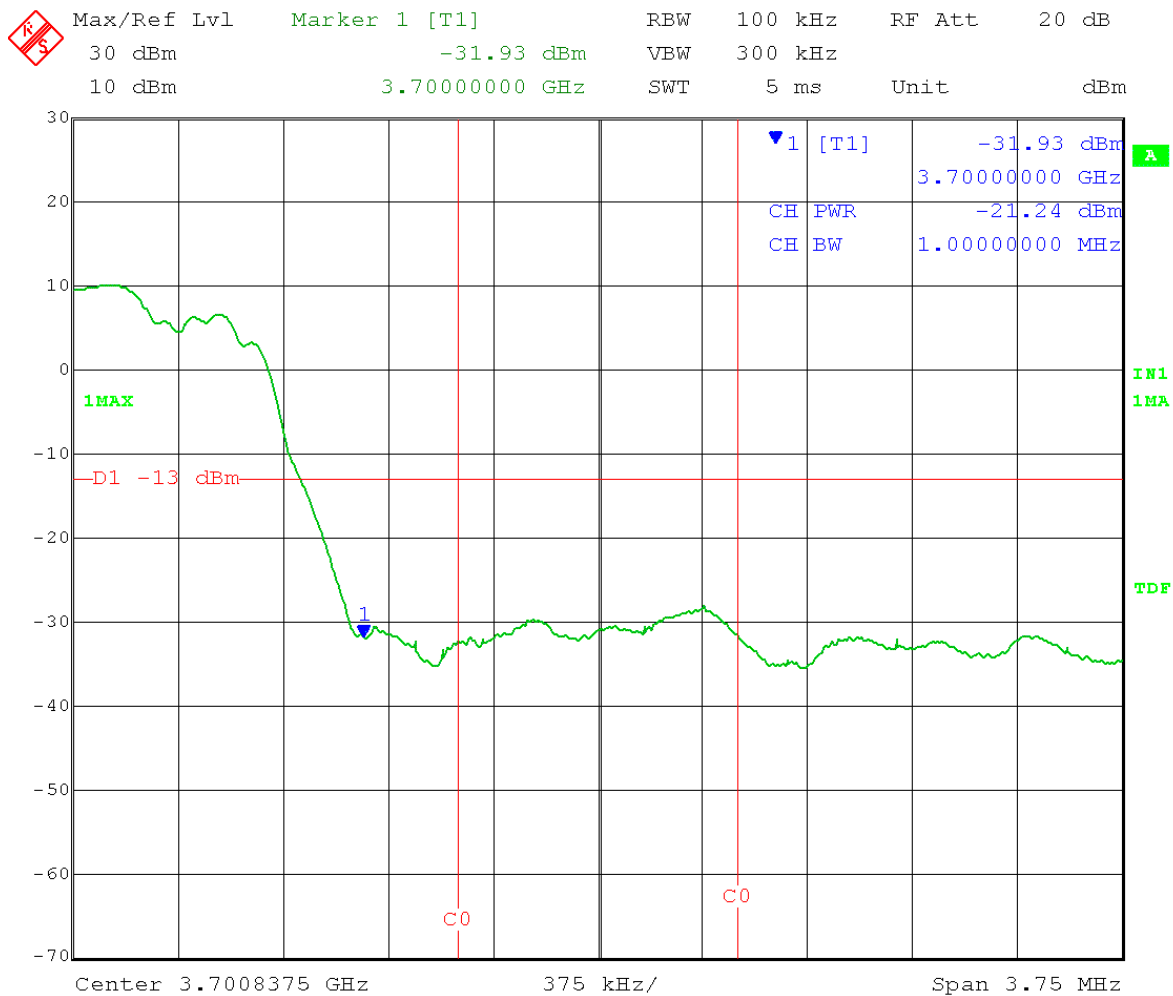
Date: 7.FEB.2014 09:50:39

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



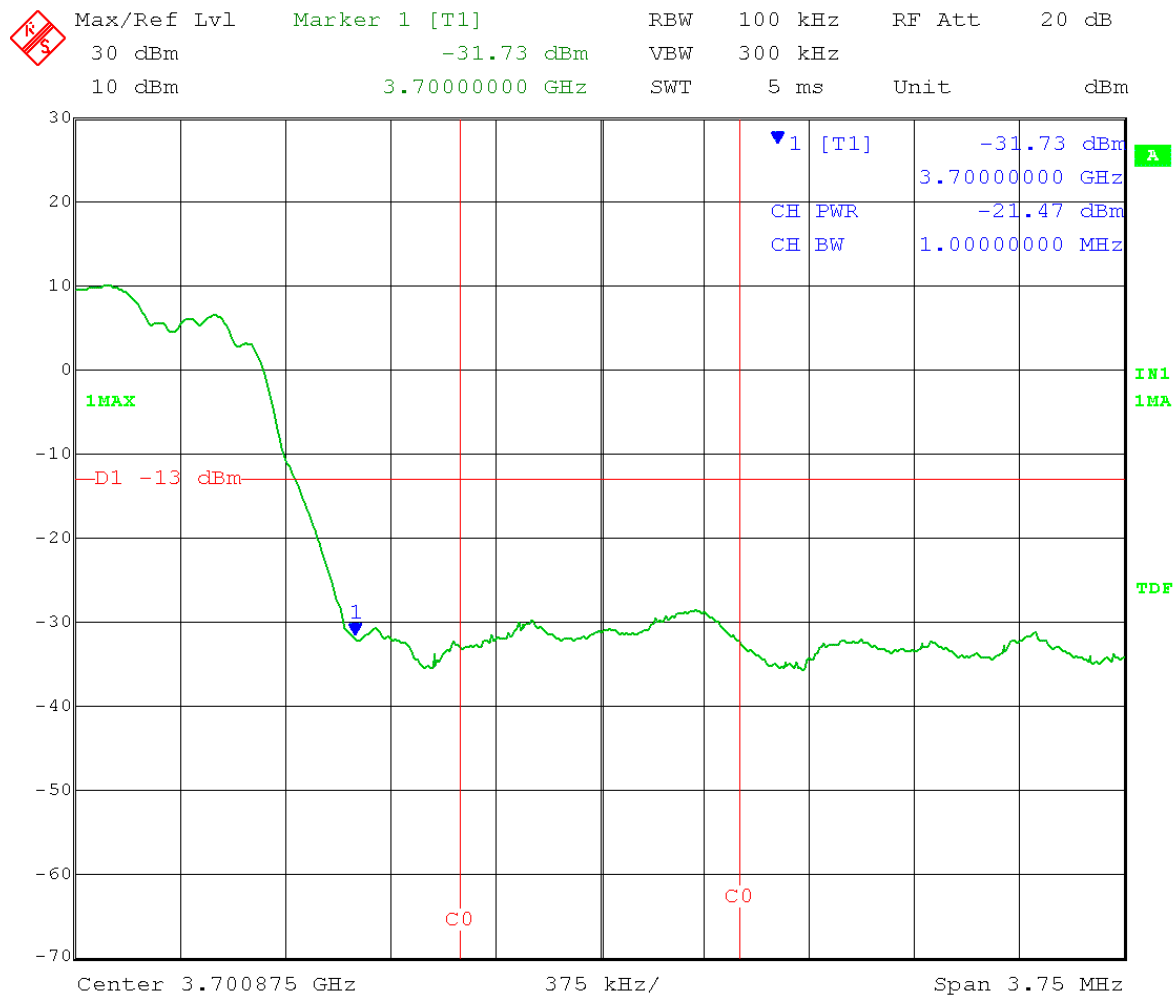
Date: 7.FEB.2014 10:59:30

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -21.47 dBm/MHz



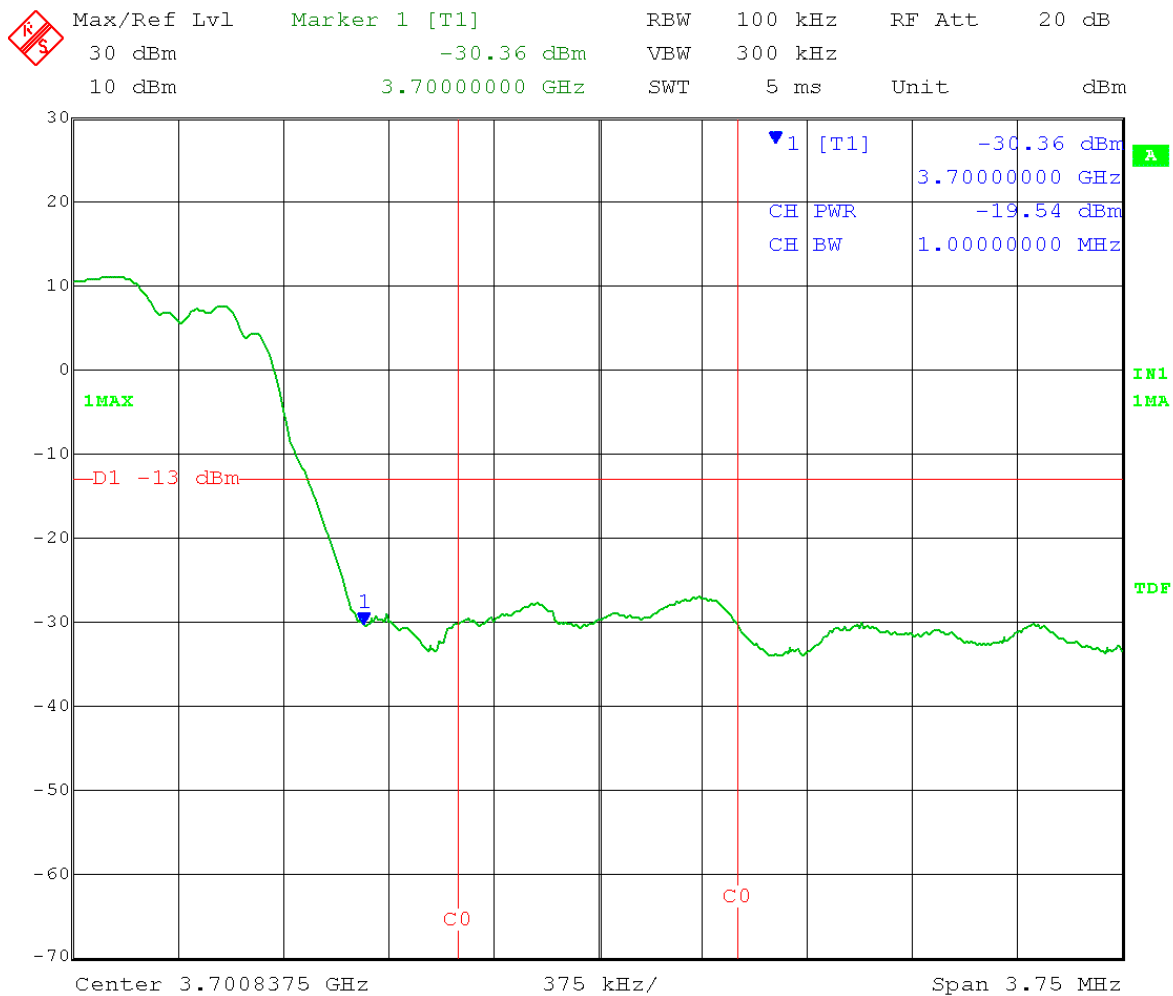
Date: 7.FEB.2014 13:02:36

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



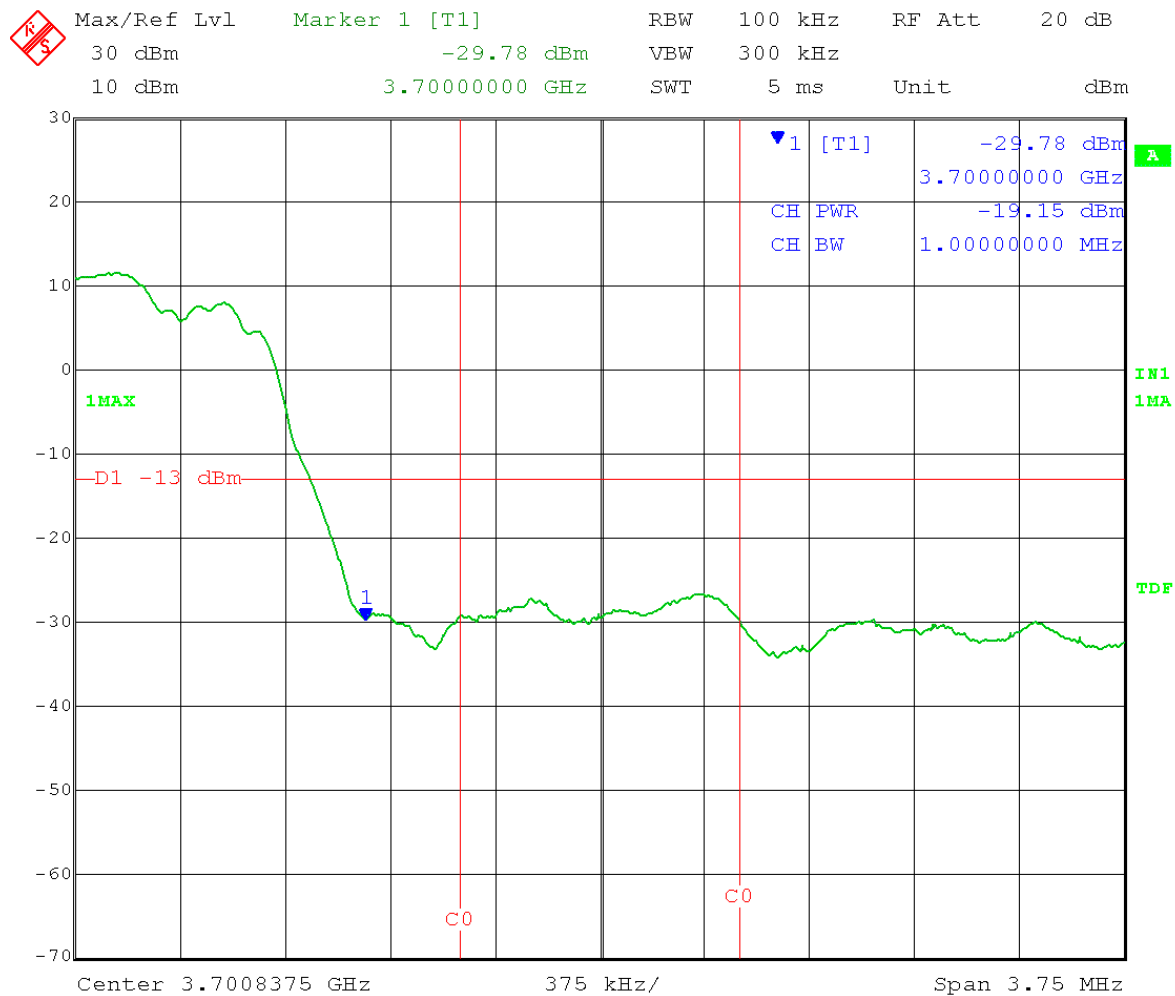
Date: 7.FEB.2014 15:04:31

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



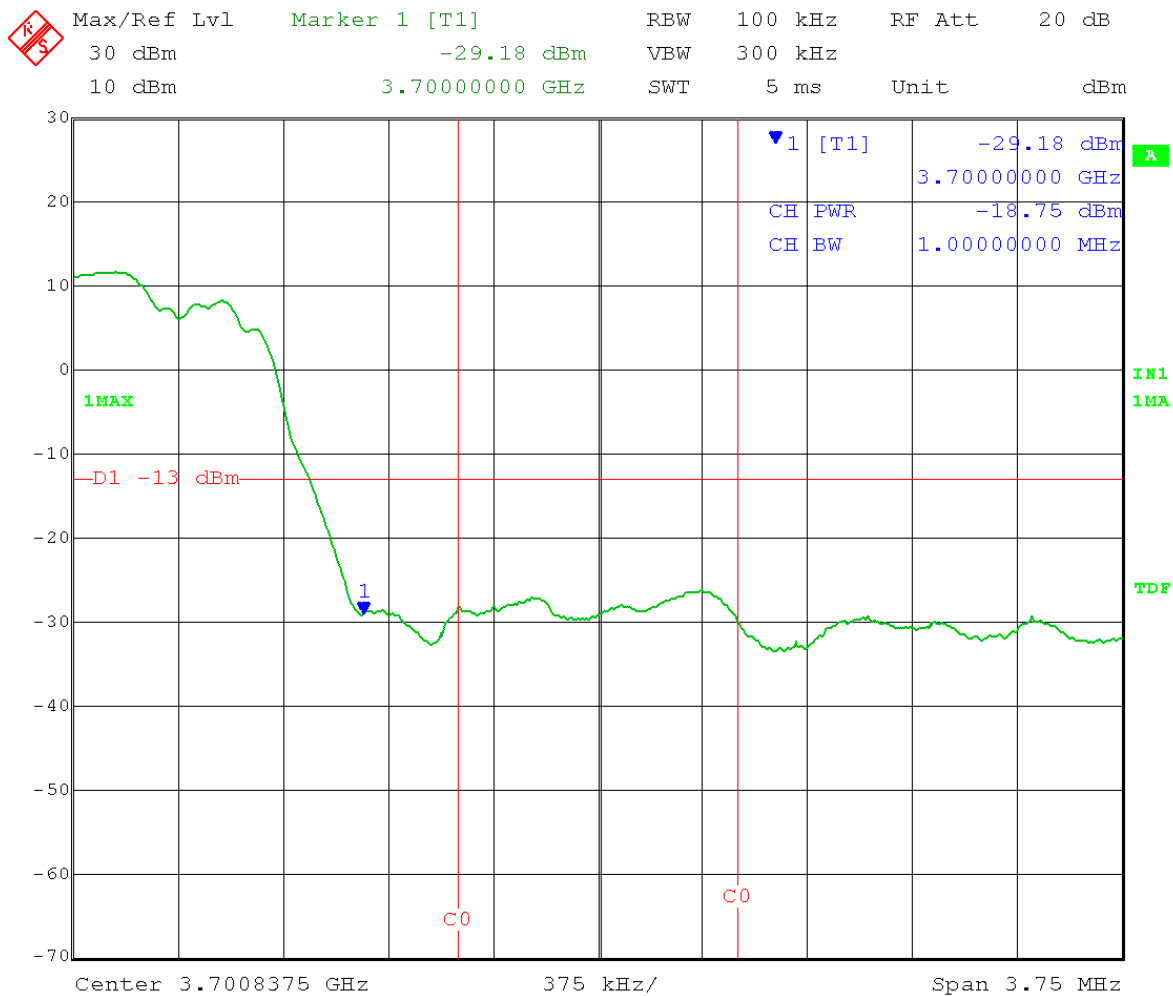
Date: 10.FEB.2014 08:59:21

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

Power level at band edge = -18.75 dBm/MHz



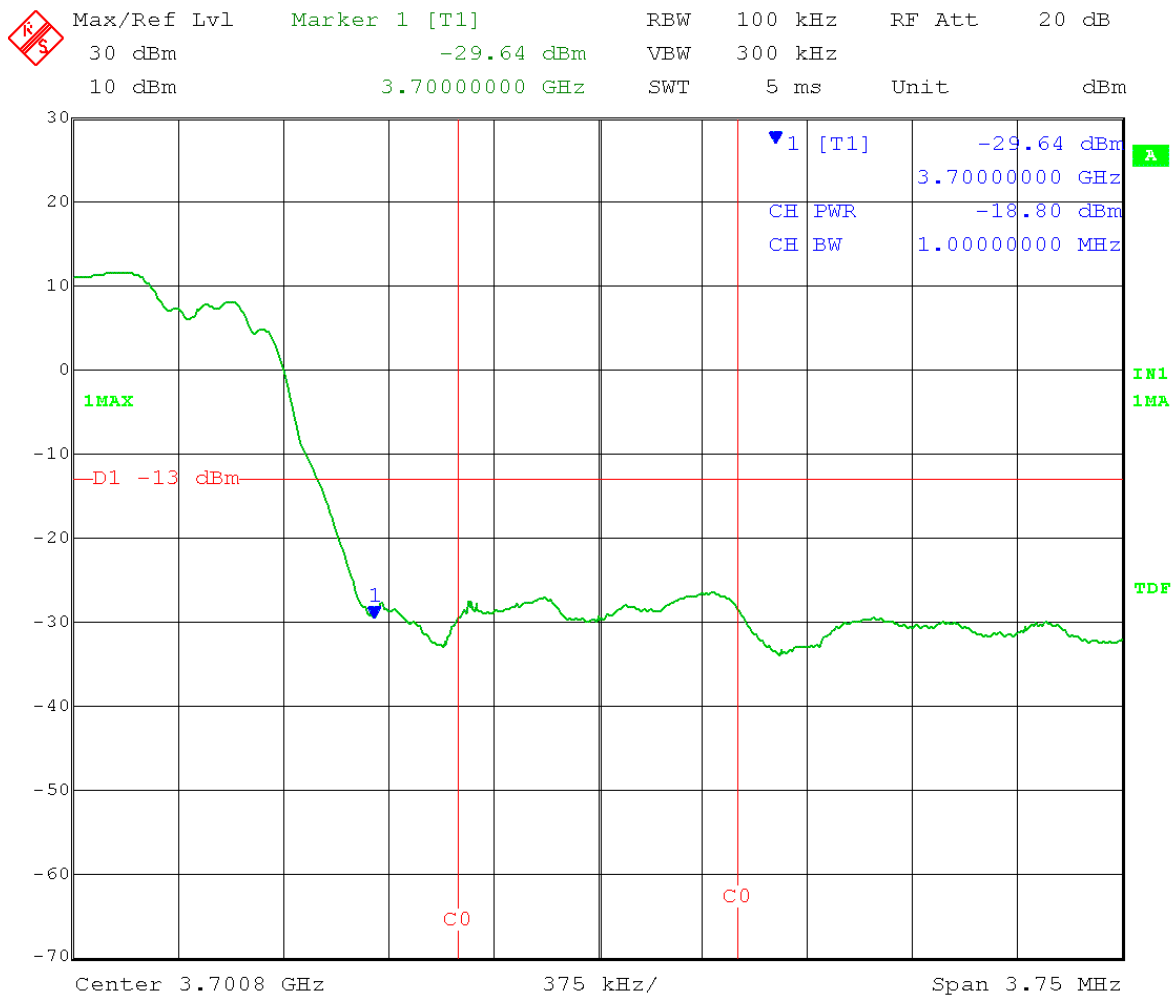
Date: 10.FEB.2014 10:22:58

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



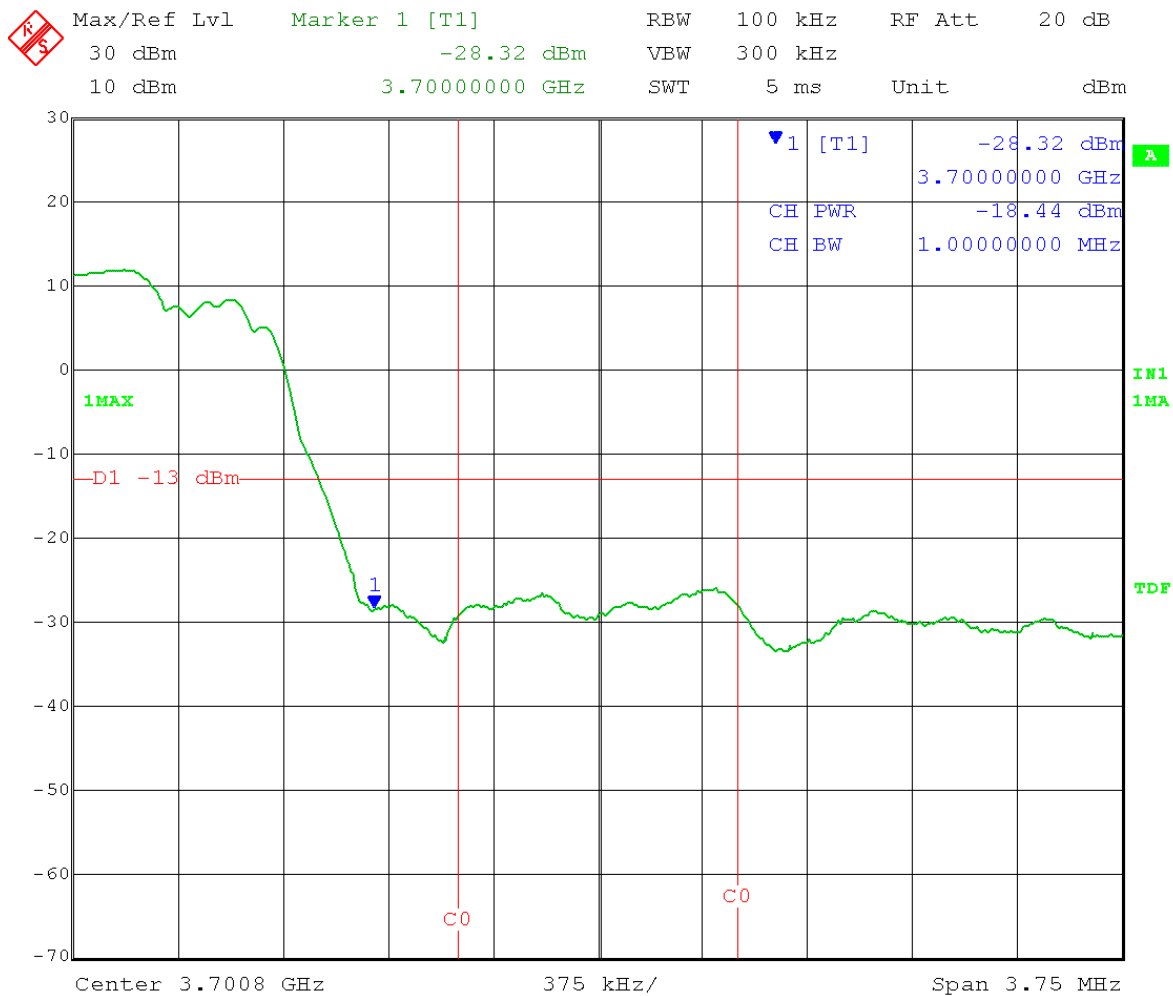
Date: 10.FEB.2014 11:40:29

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -18.44 dBm/MHz



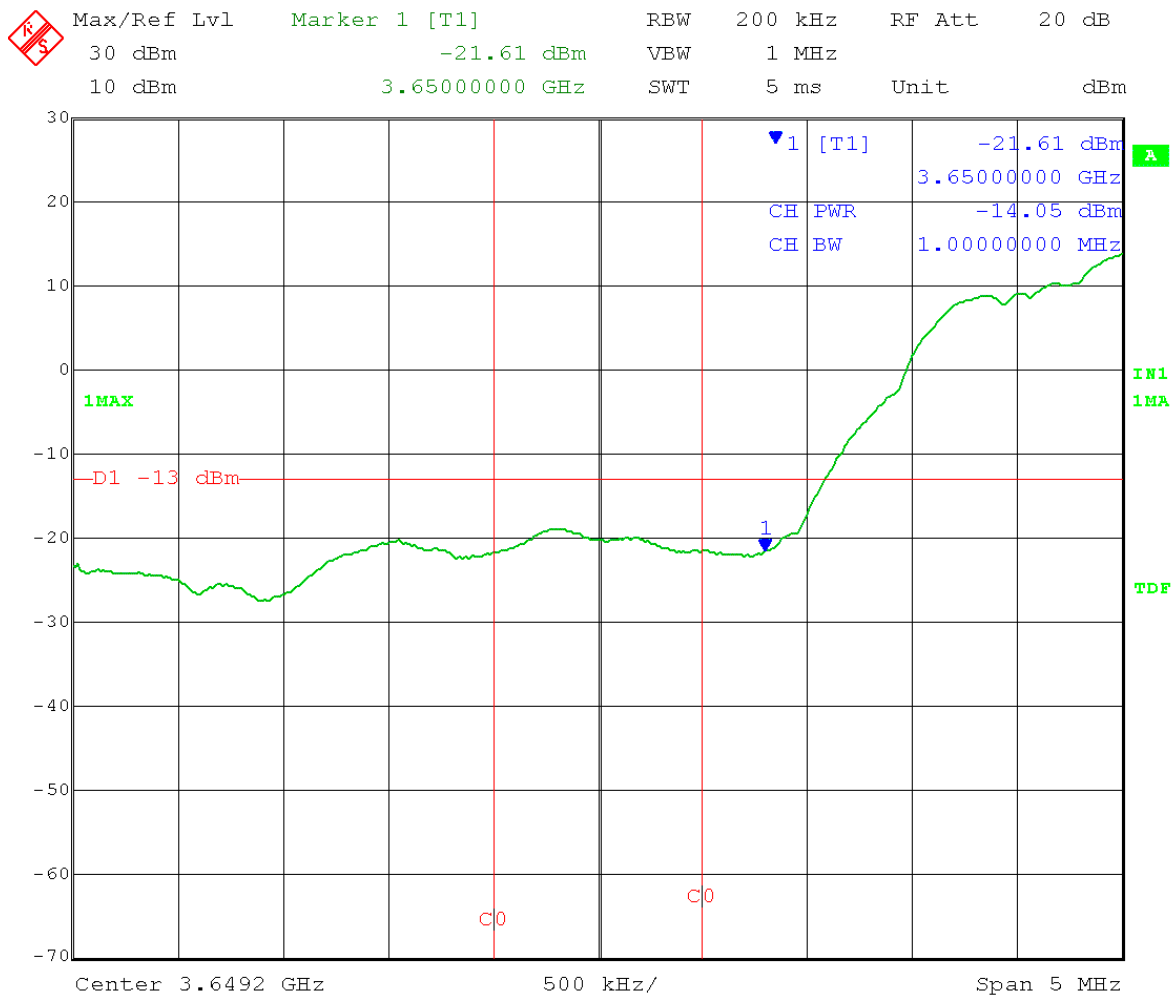
Date: 10.FEB.2014 13:35:05

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

20 °C, 120 V

Power level at band edge = -14.05 dBm/MHz



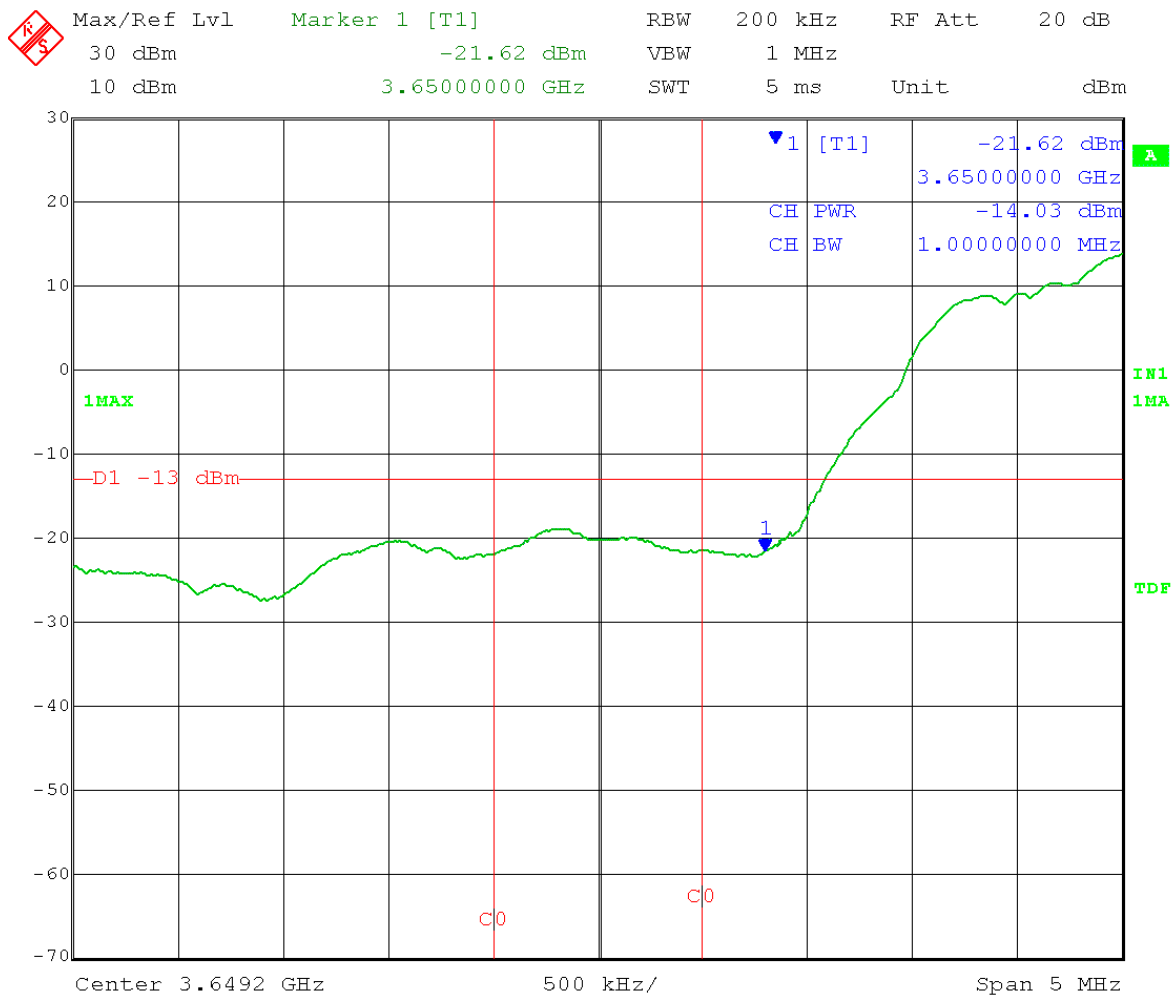
Date: 6.FEB.2014 15:26:54

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



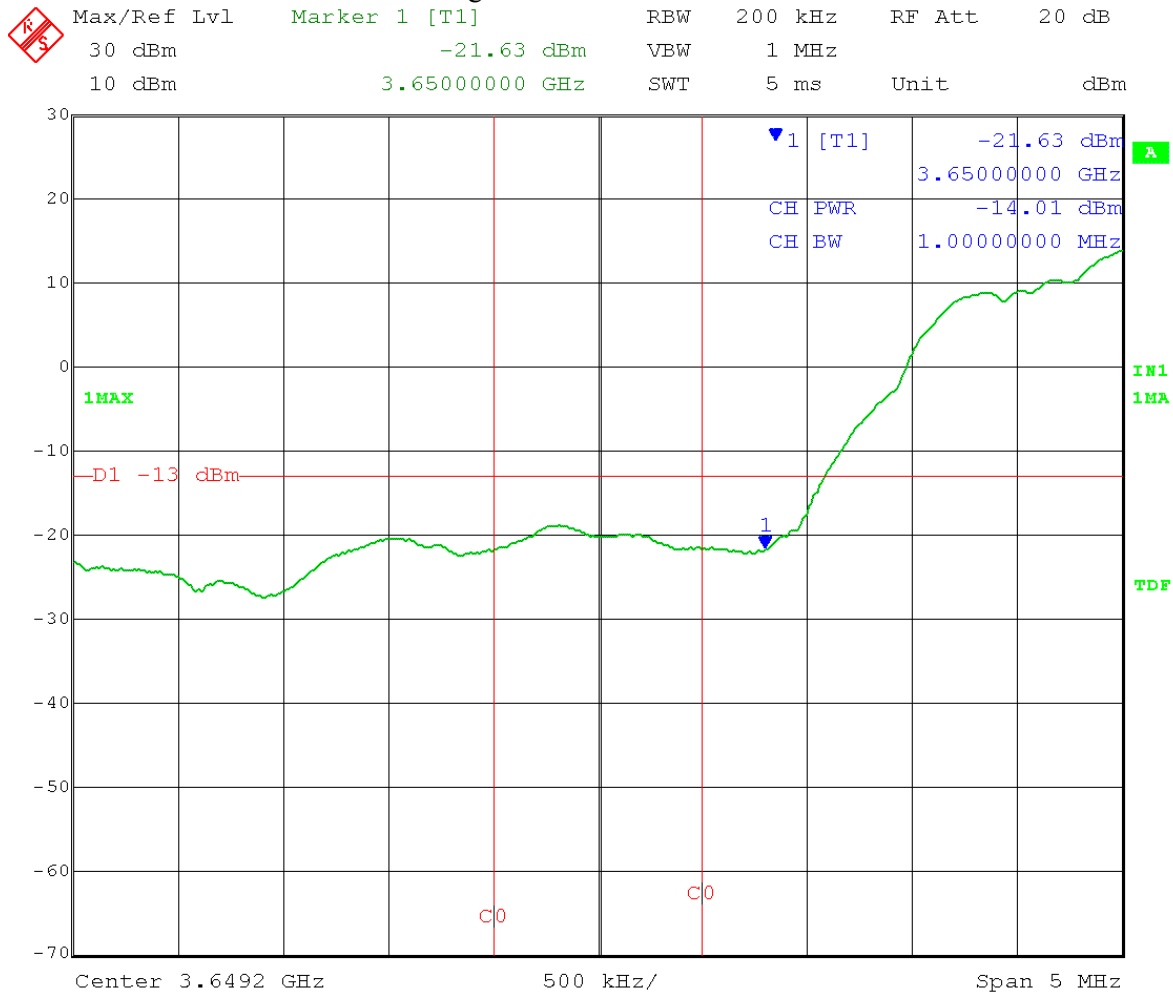
Date: 6.FEB.2014 15:25:04

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



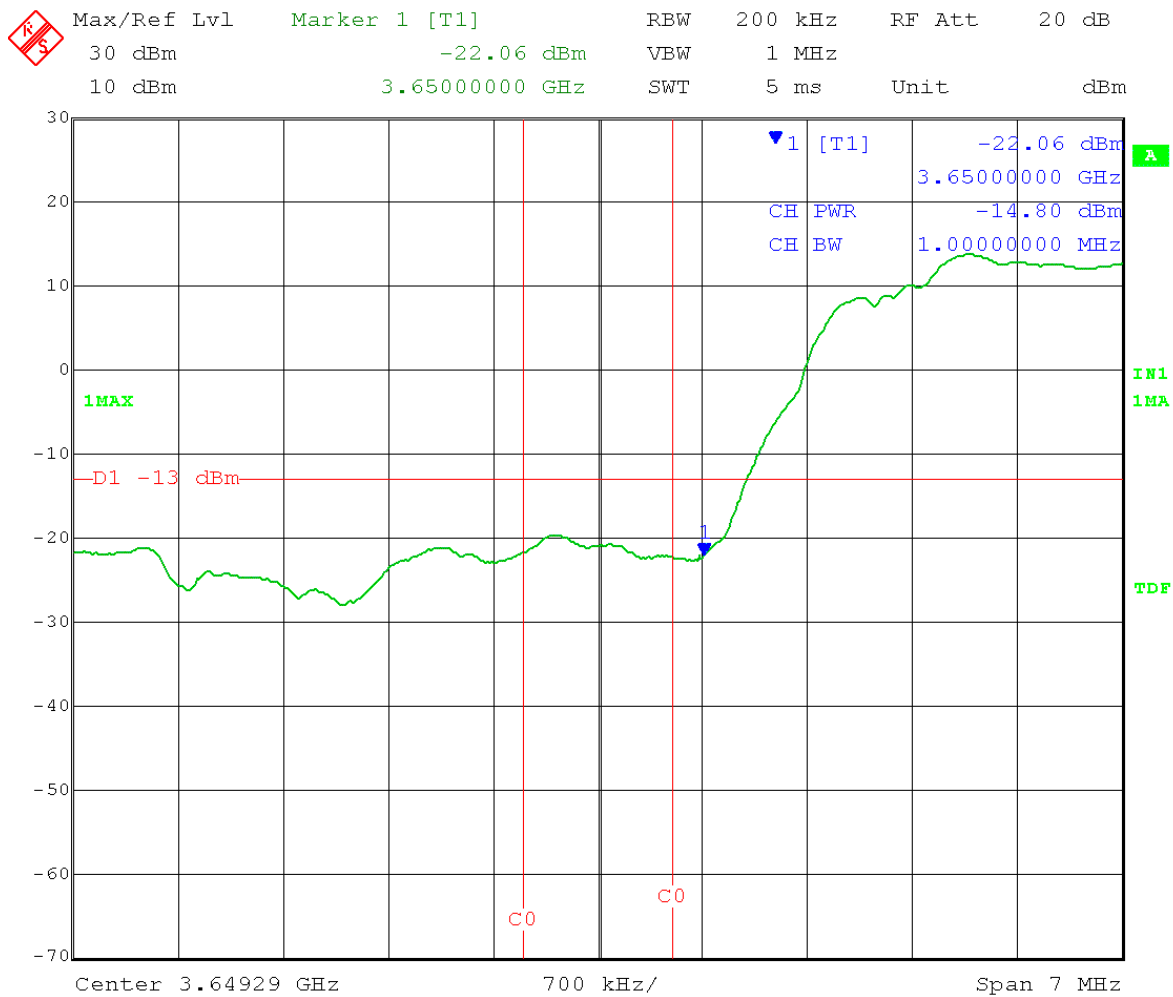
Date: 6.FEB.2014 15:32:05

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



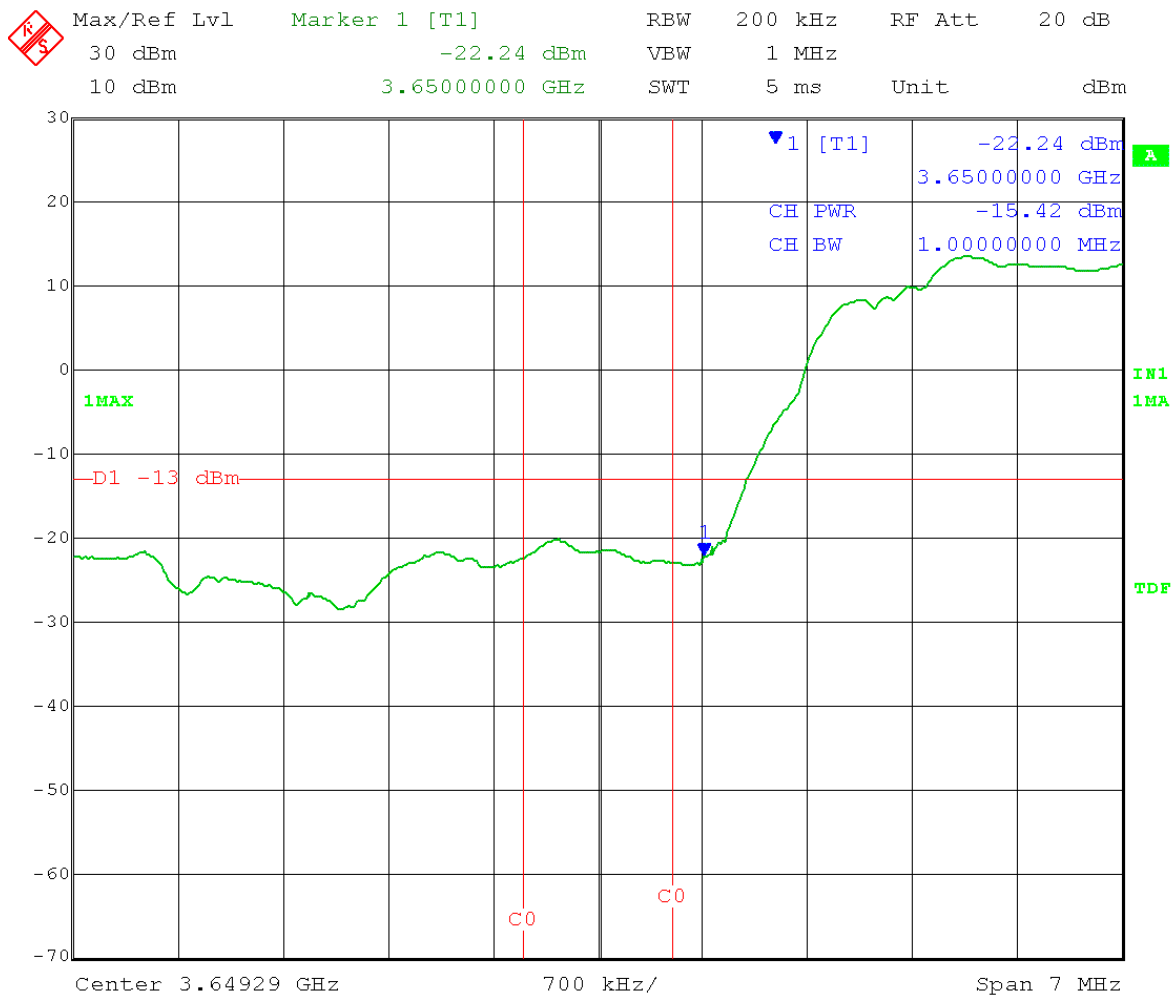
Date: 7.FEB.2014 10:03:46

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



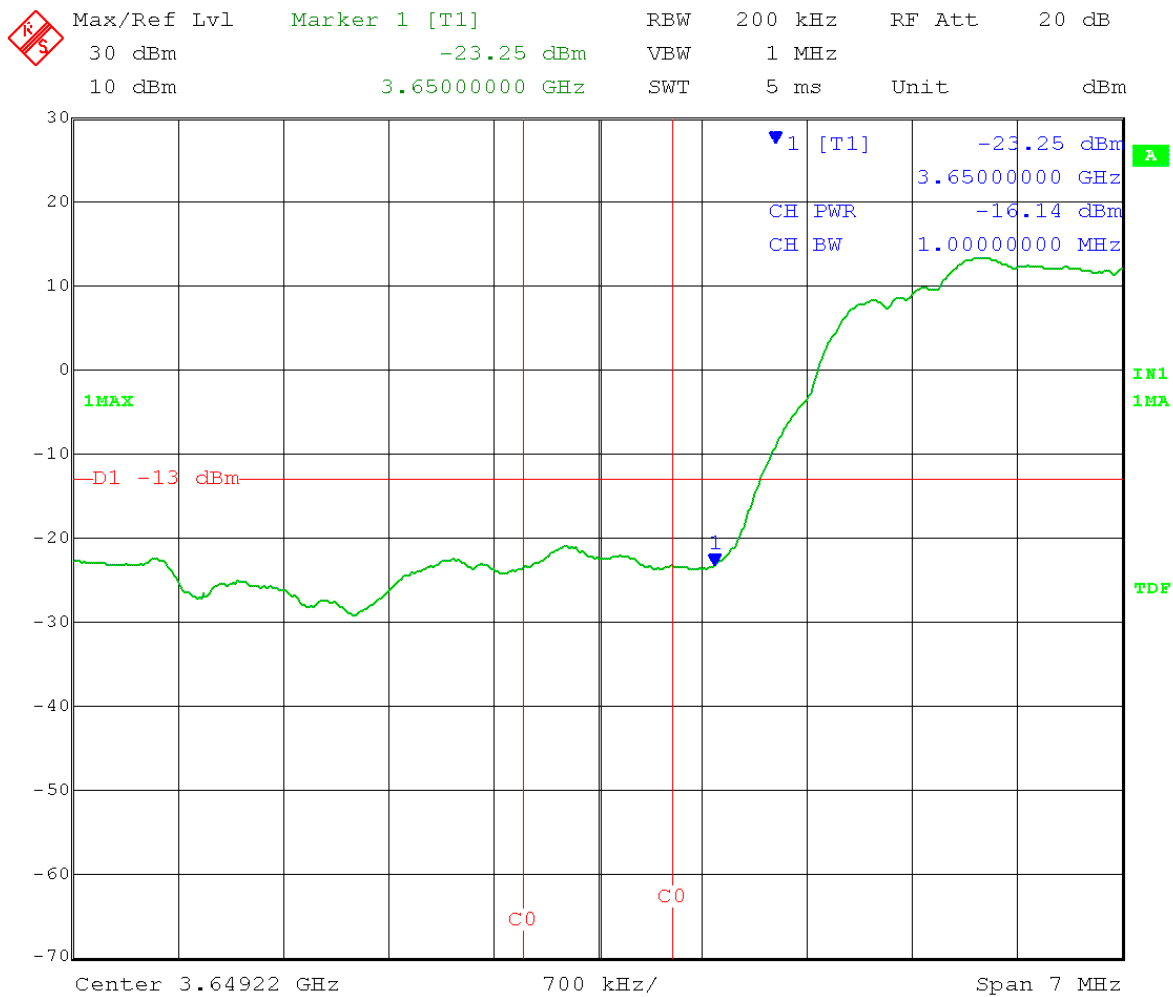
Date: 7.FEB.2014 10:40:29

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



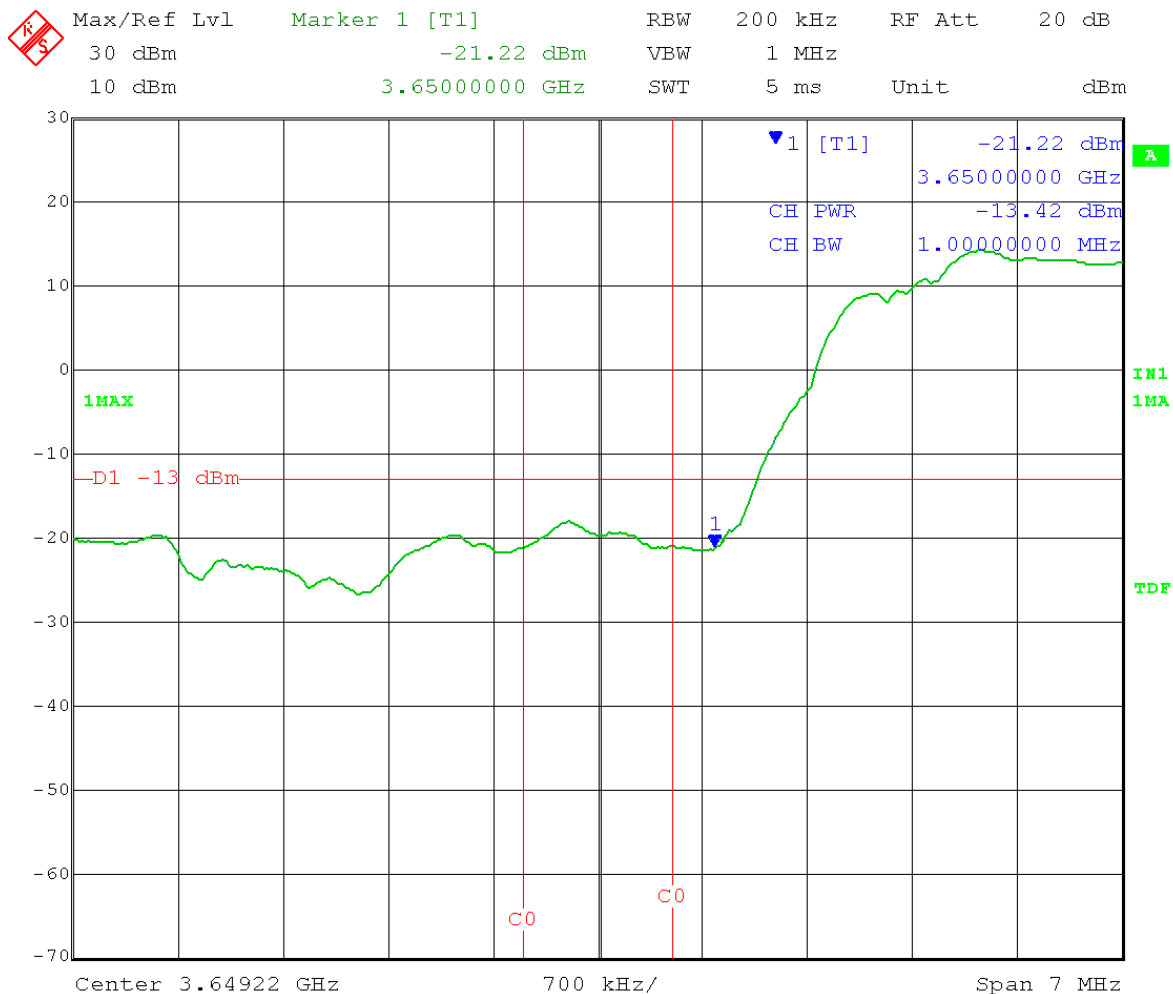
Date: 7.FEB.2014 13:33:46

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



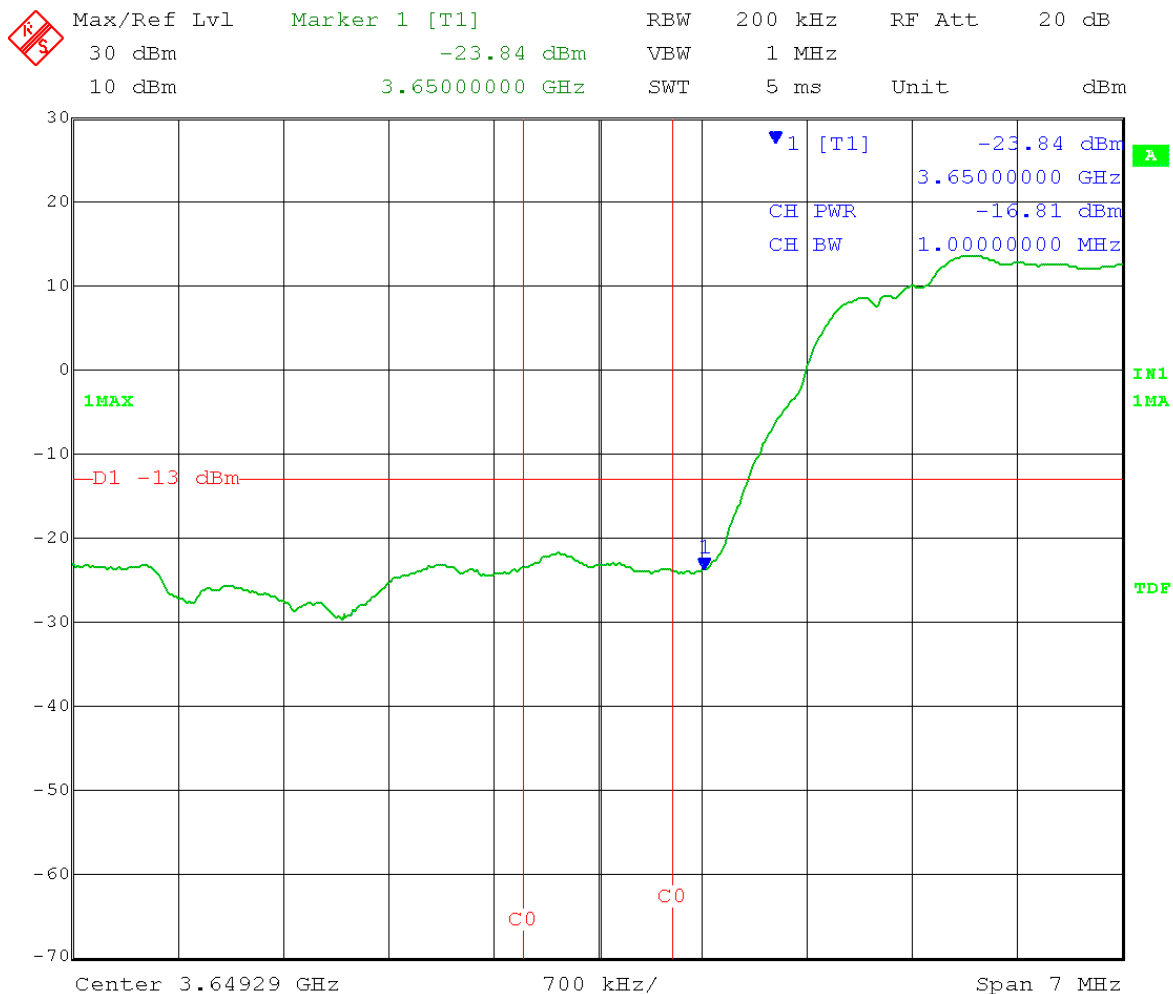
Date: 7.FEB.2014 14:49:39

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



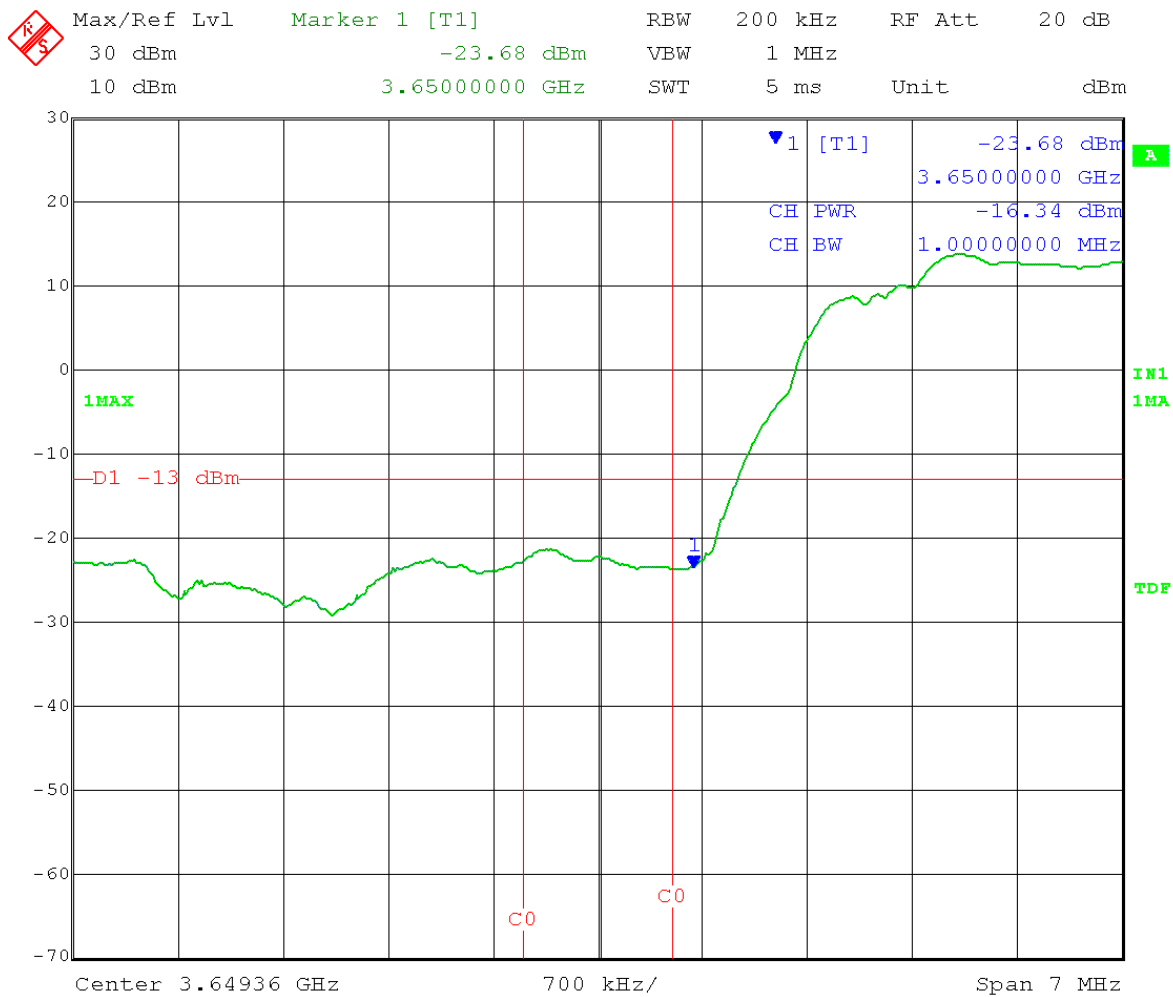
Date: 10.FEB.2014 08:44:09

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



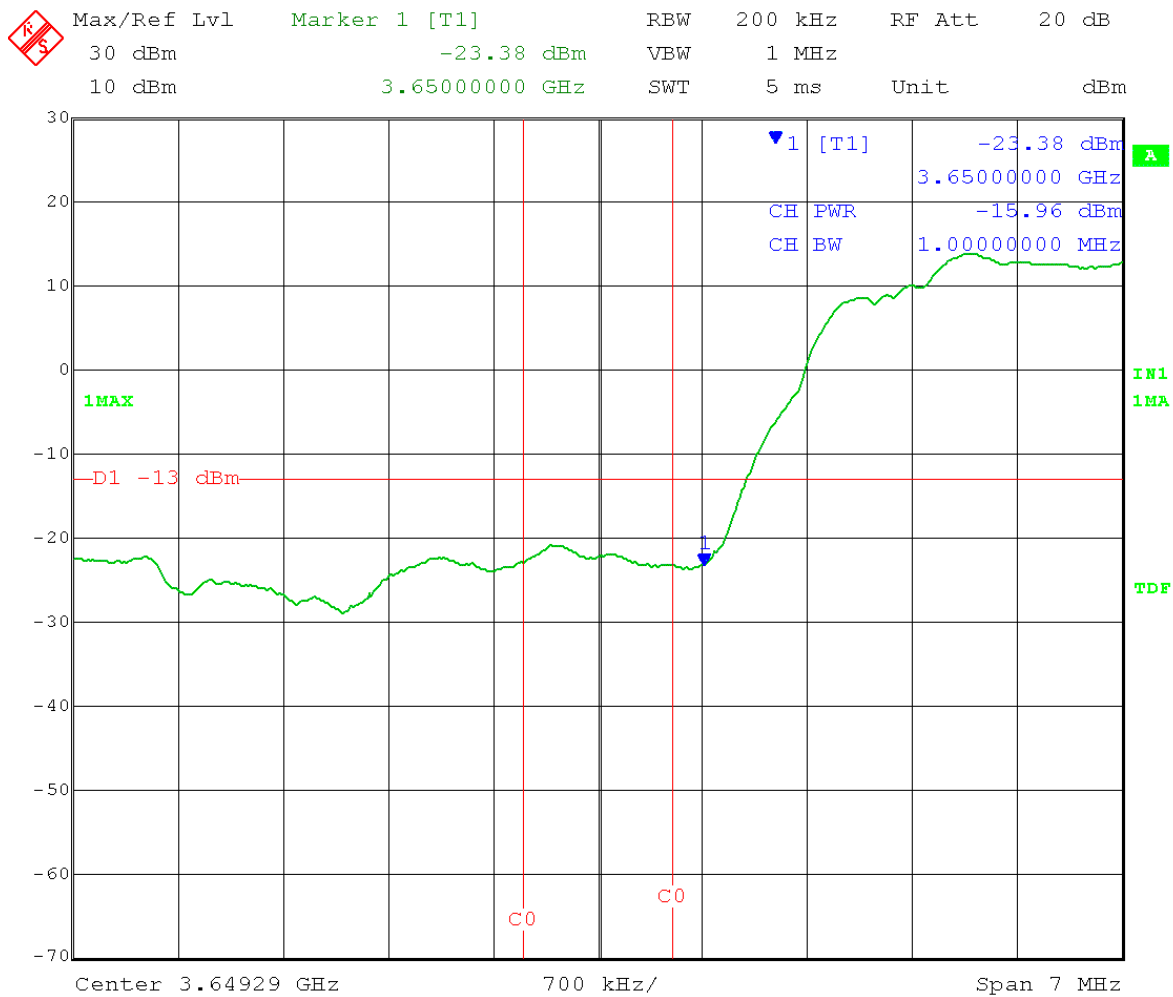
Date: 10.FEB.2014 10:10:10

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



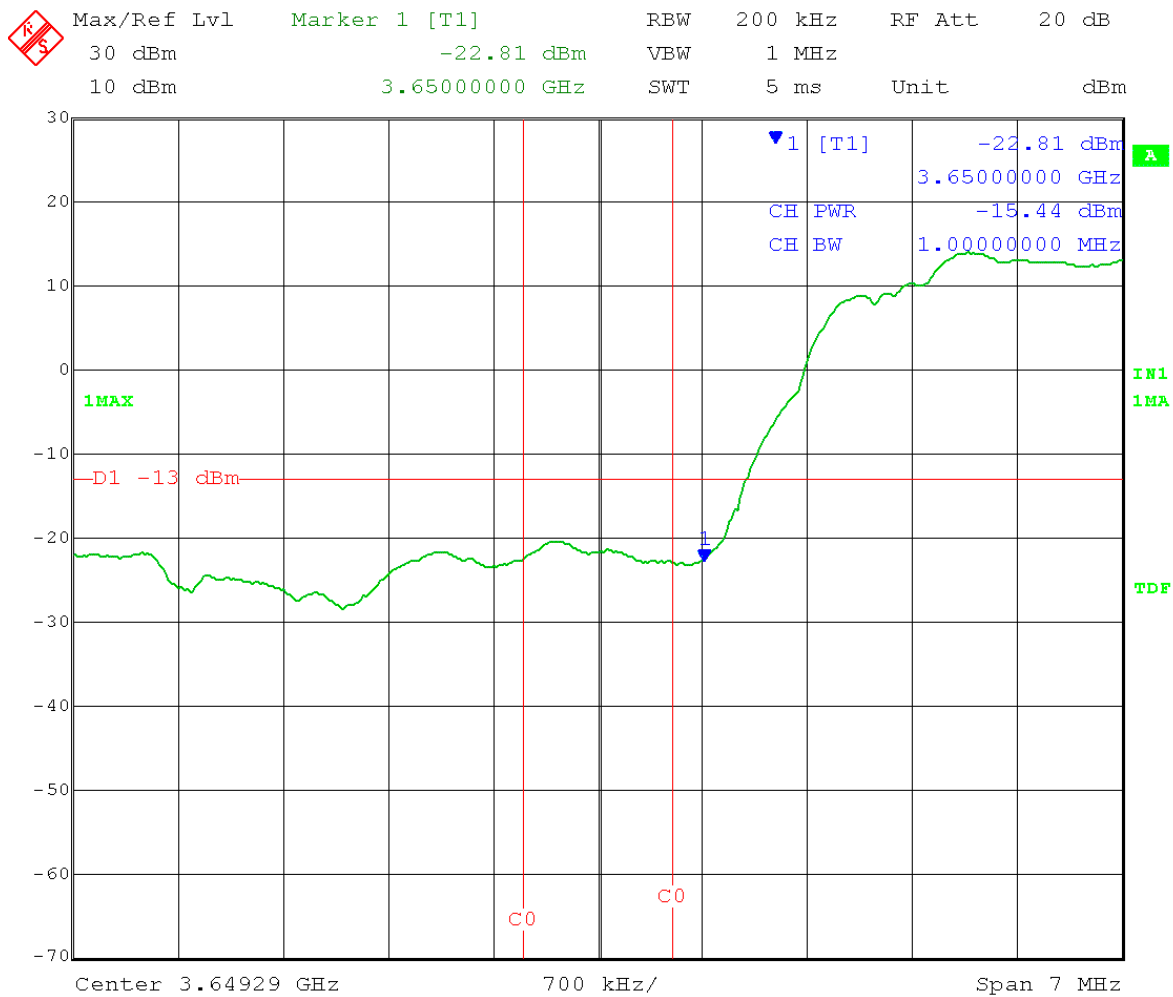
Date: 10.FEB.2014 11:29:46

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



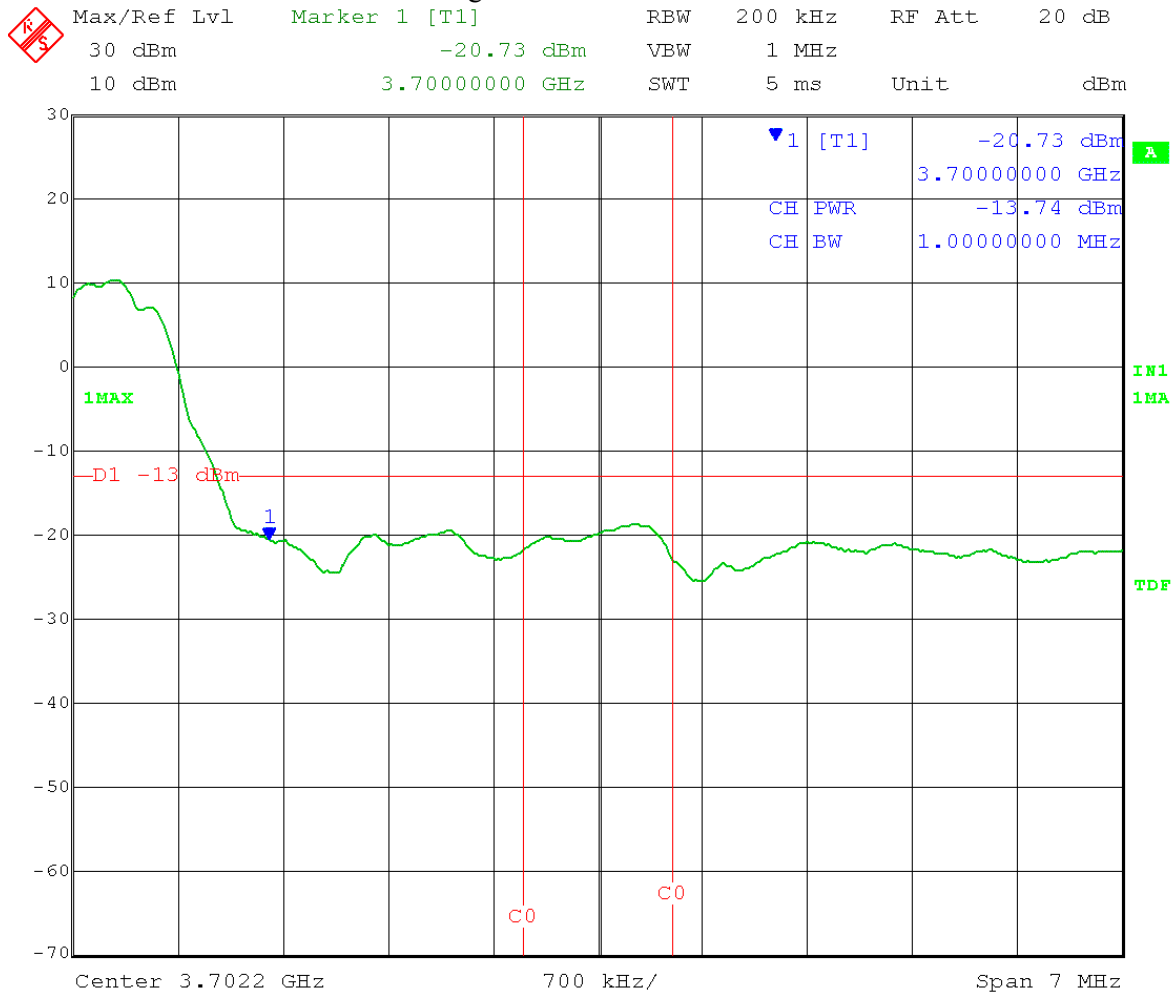
Date: 10.FEB.2014 13:23:00

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



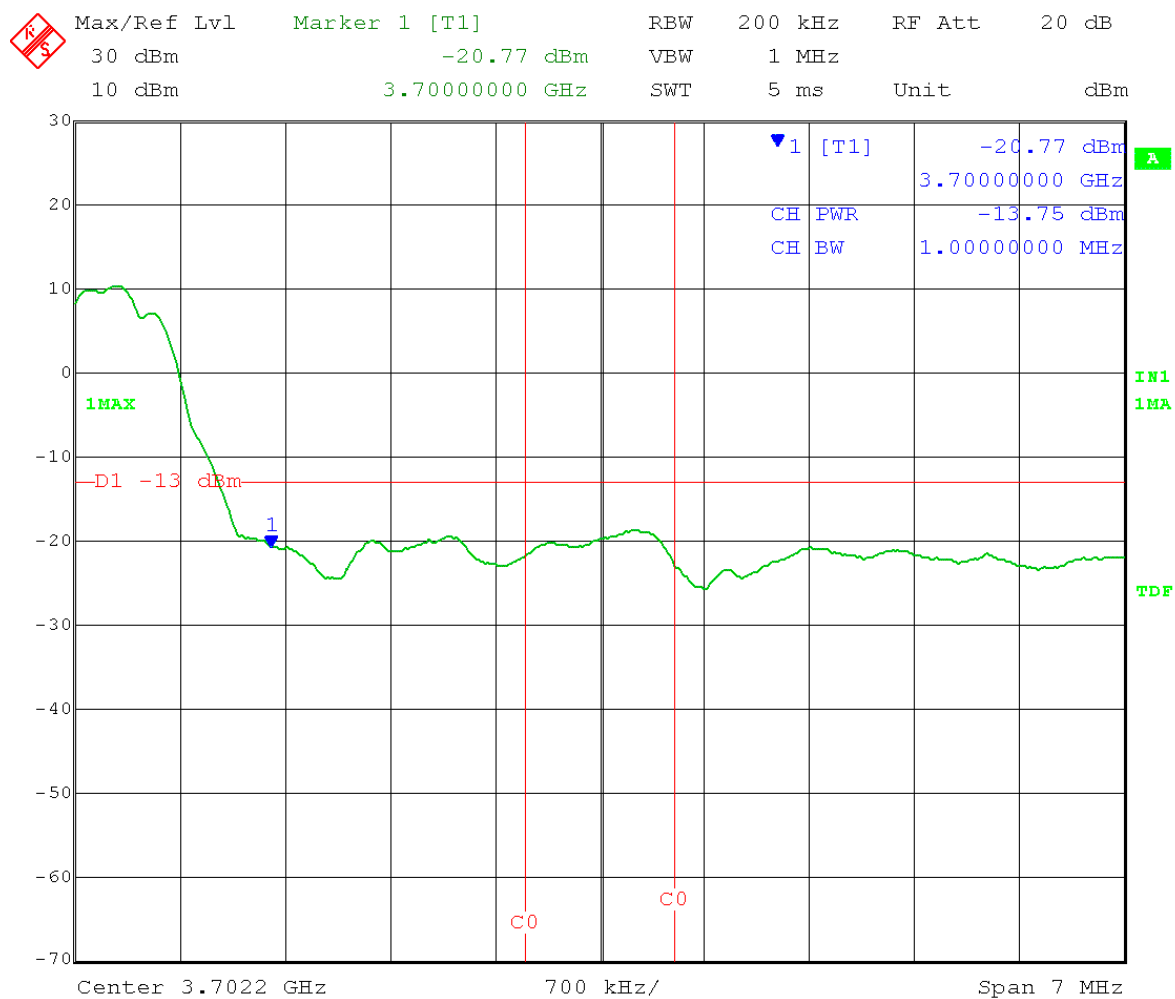
Date: 6.FEB.2014 15:36:28

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



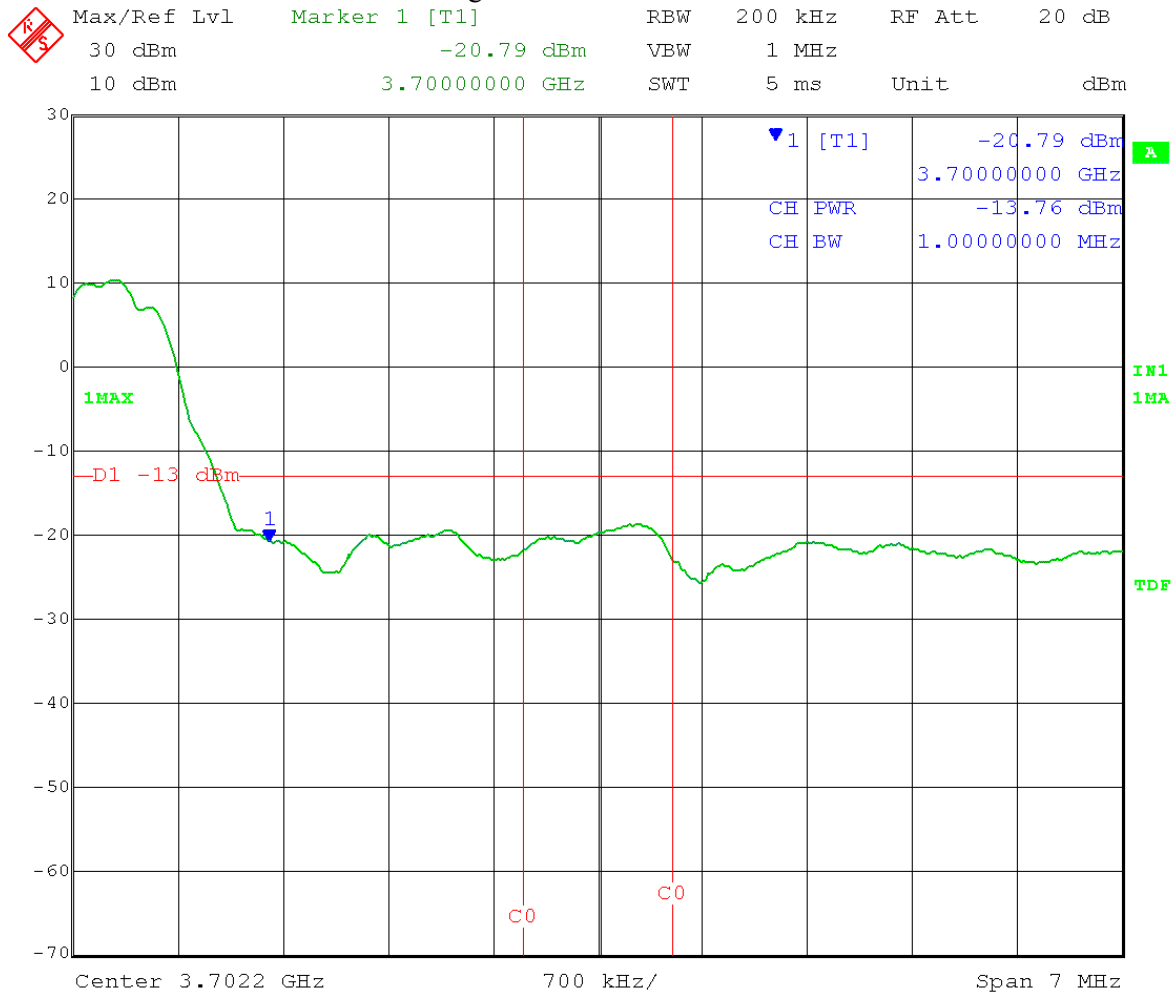
Date: 6.FEB.2014 15:38:01

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



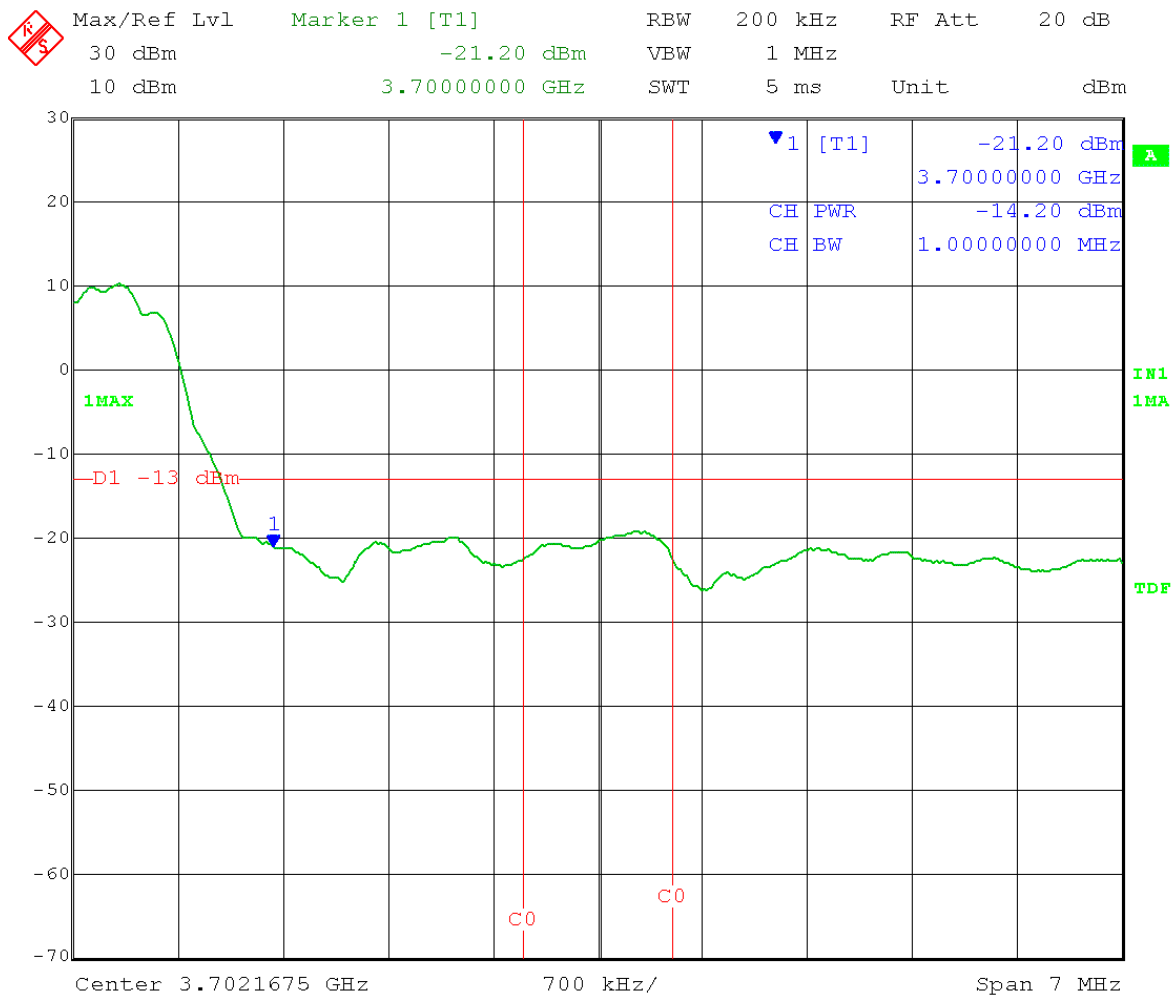
Date: 6.FEB.2014 15:39:41

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



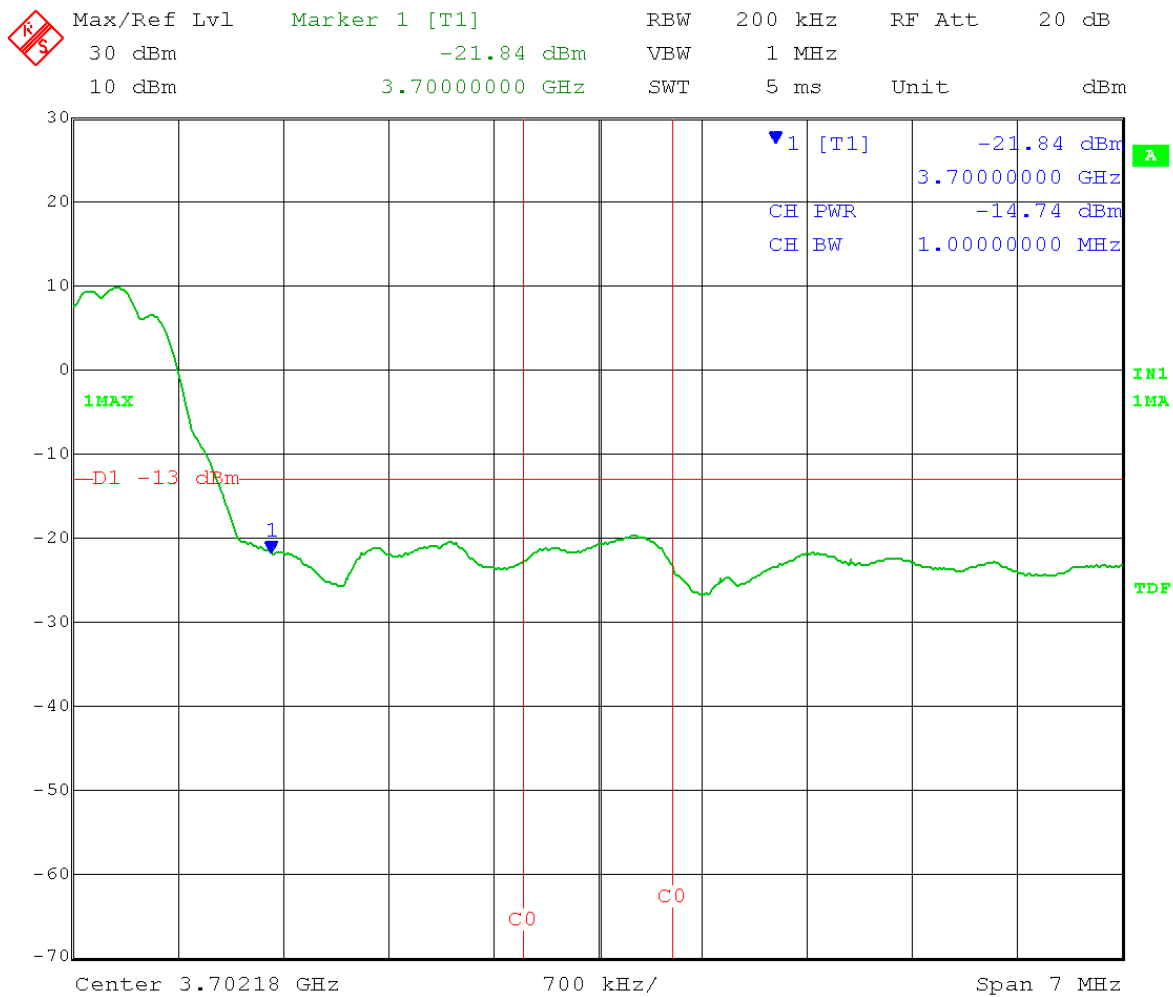
Date: 7.FEB.2014 09:57:57

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



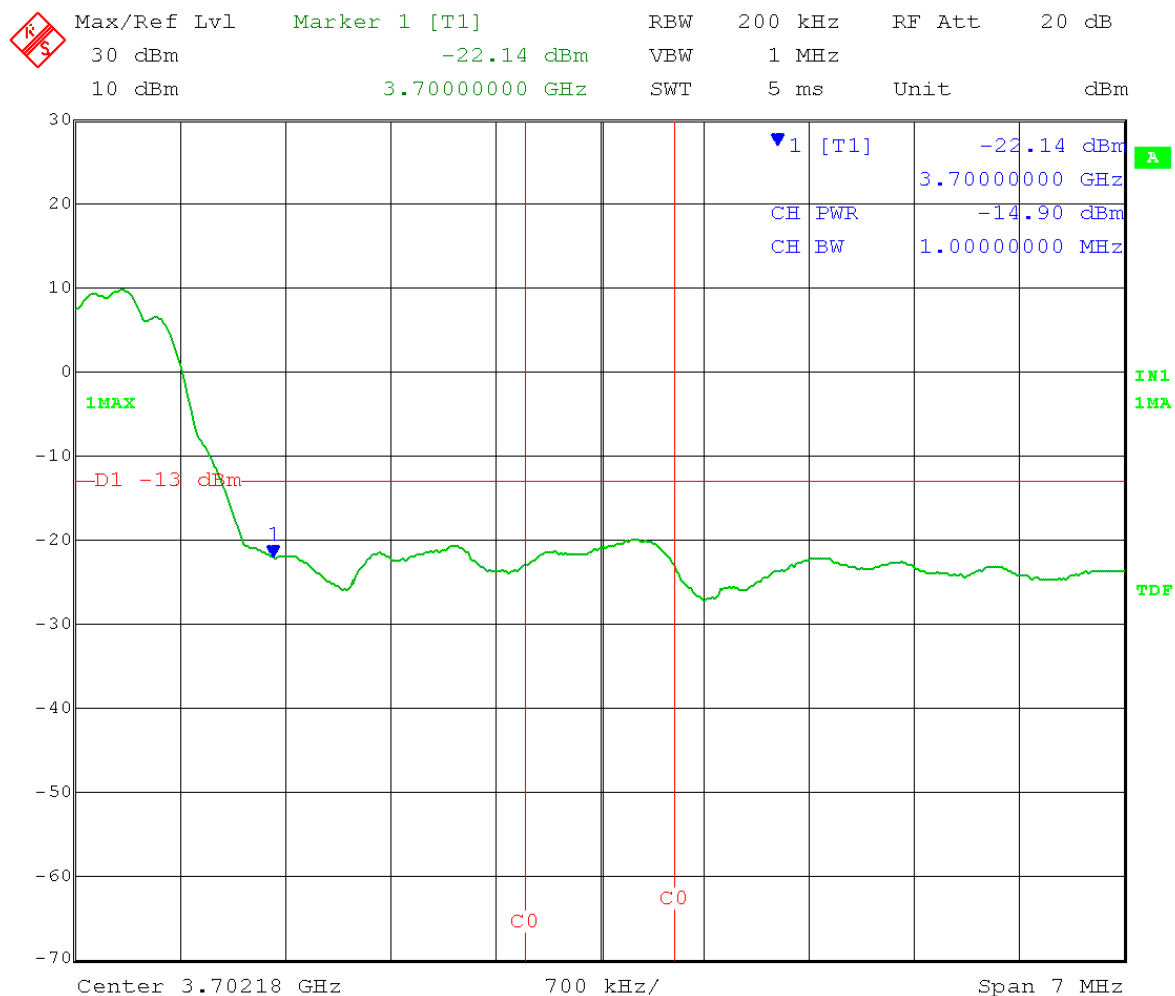
Date: 7.FEB.2014 10:52:23

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



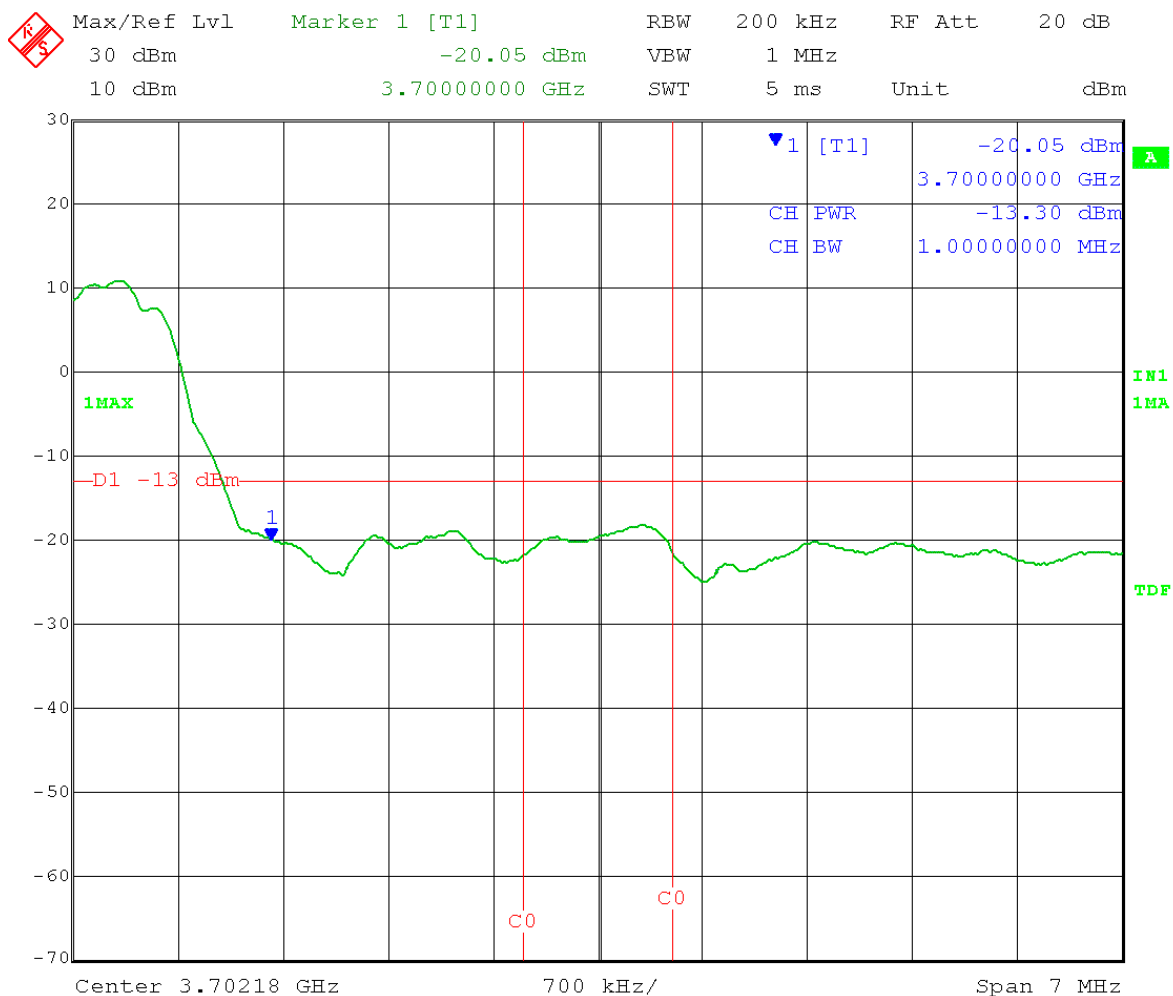
Date: 7.FEB.2014 13:30:39

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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 = -13.30 dBm/MHz



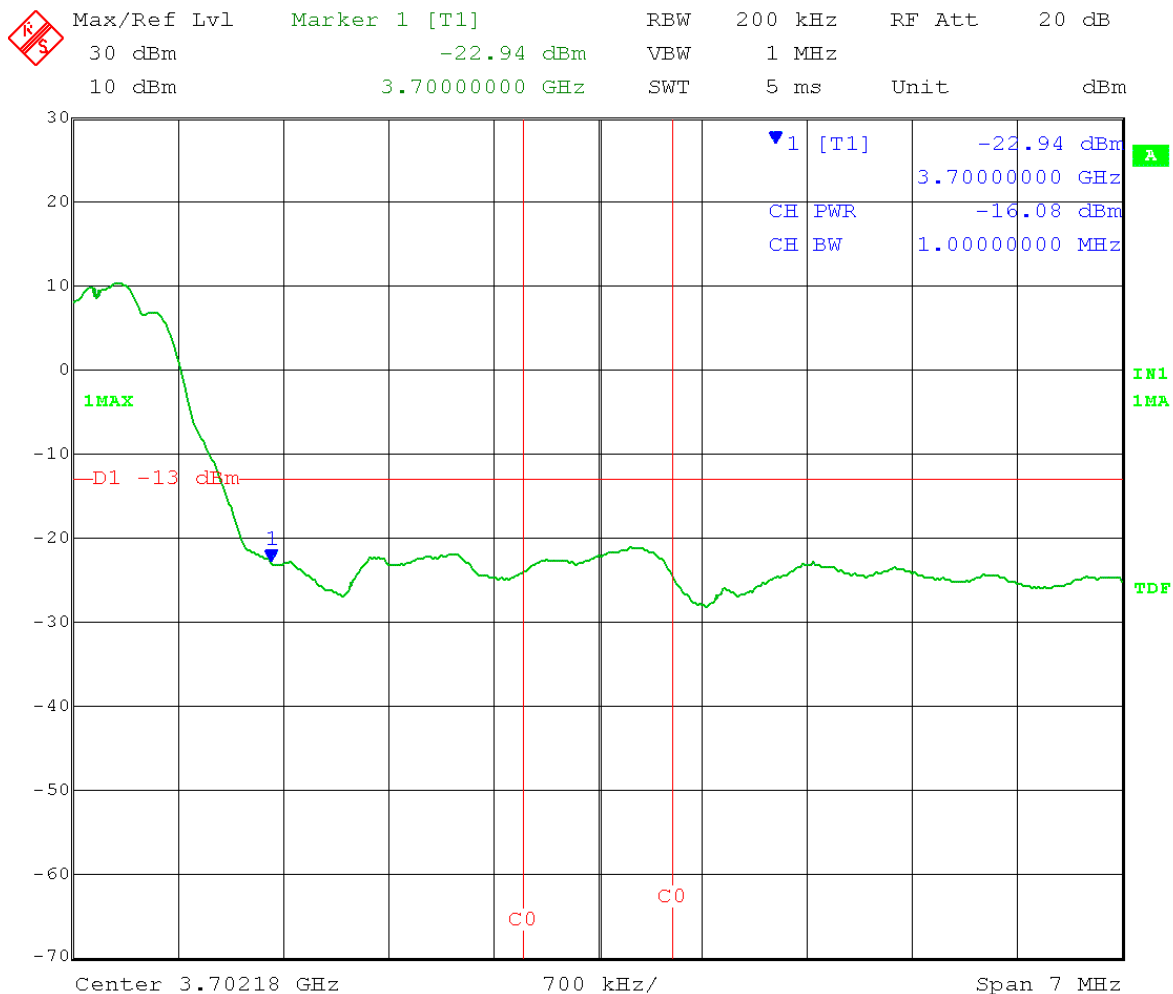
Date: 7.FEB.2014 14:38:29

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



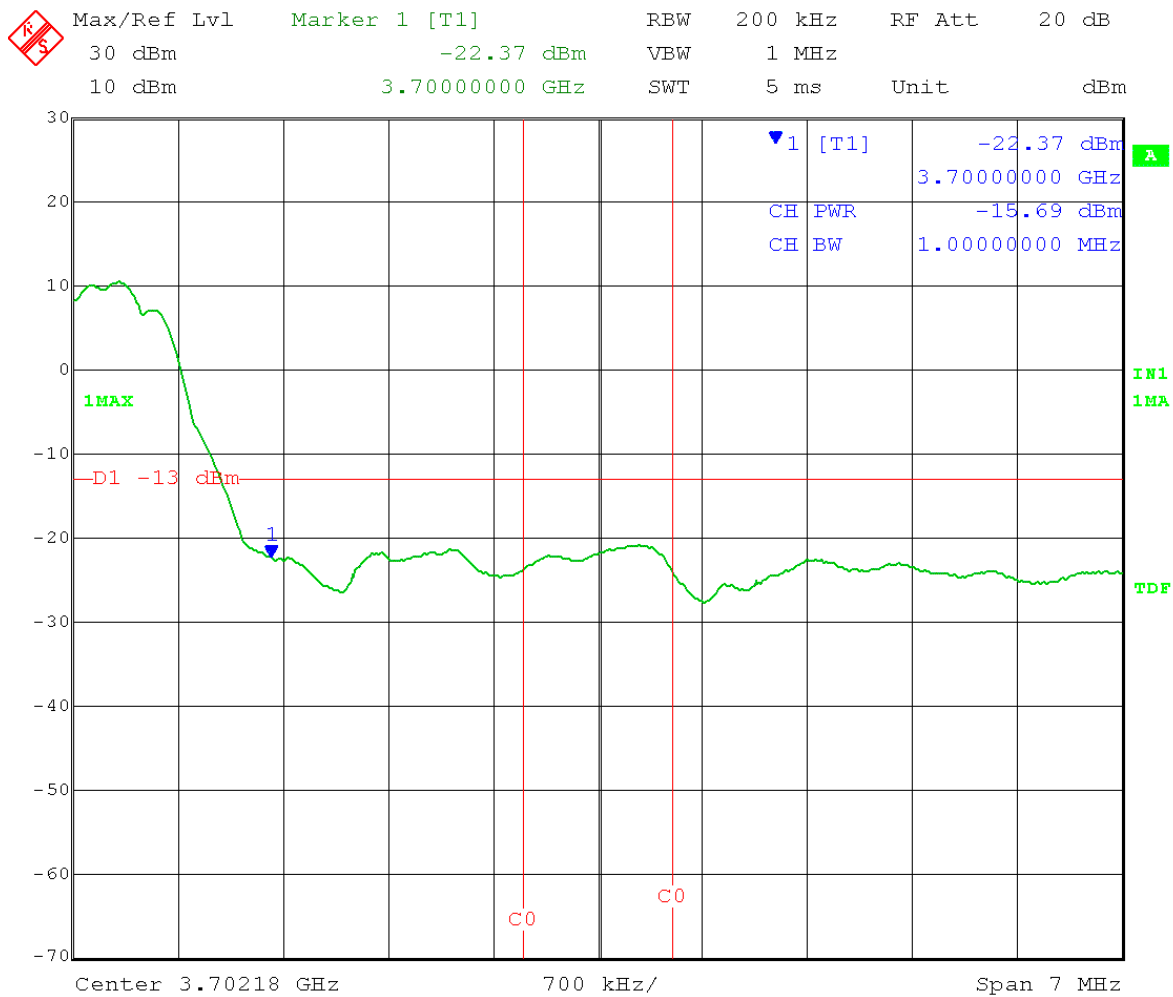
Date: 10.FEB.2014 08:40:09

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
Measured power at band edge is integrated over a 1 MHz bandwidth

-10 °C, 120 V

Power level at band edge = -15.69 dBm/MHz



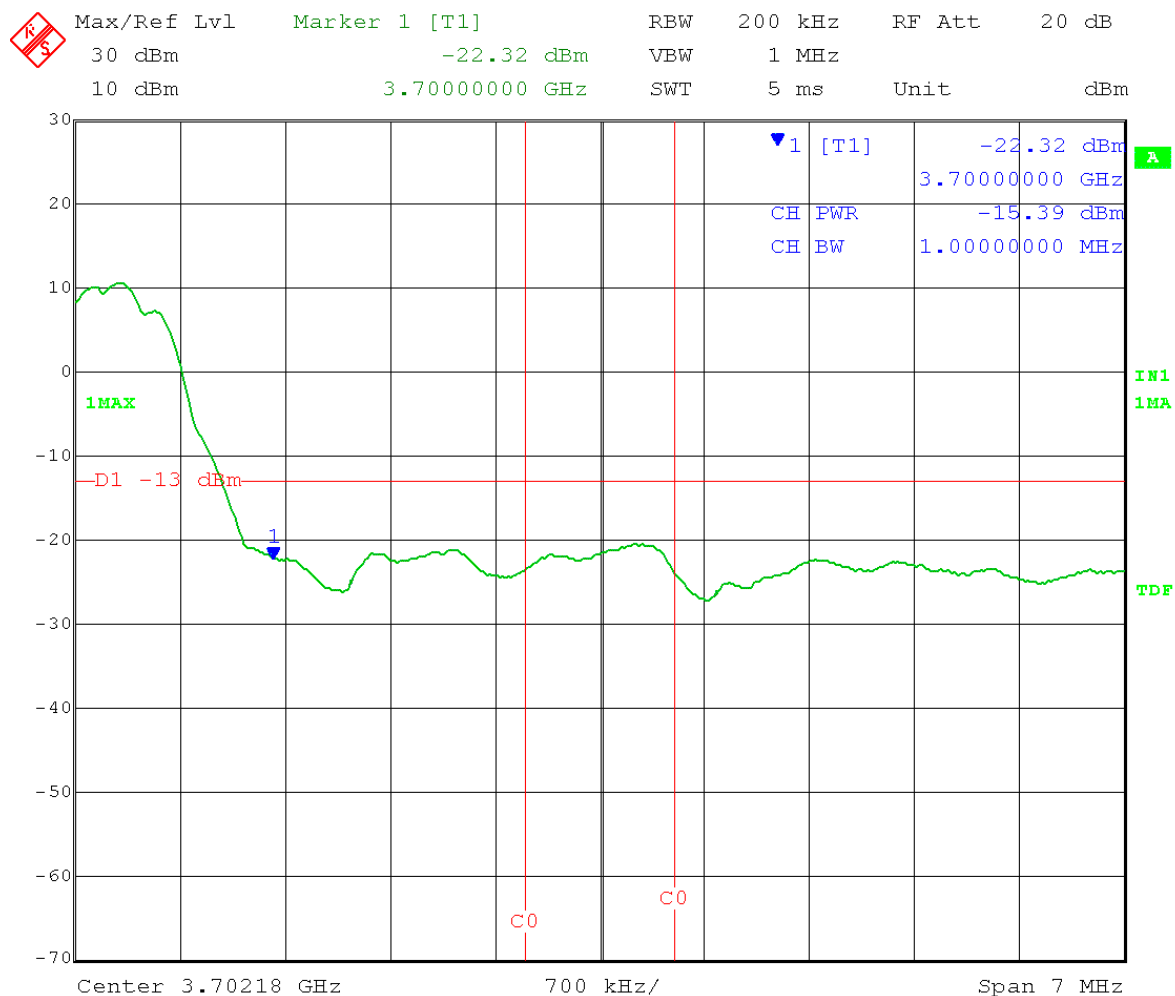
Date: 10.FEB.2014 10:07:07

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



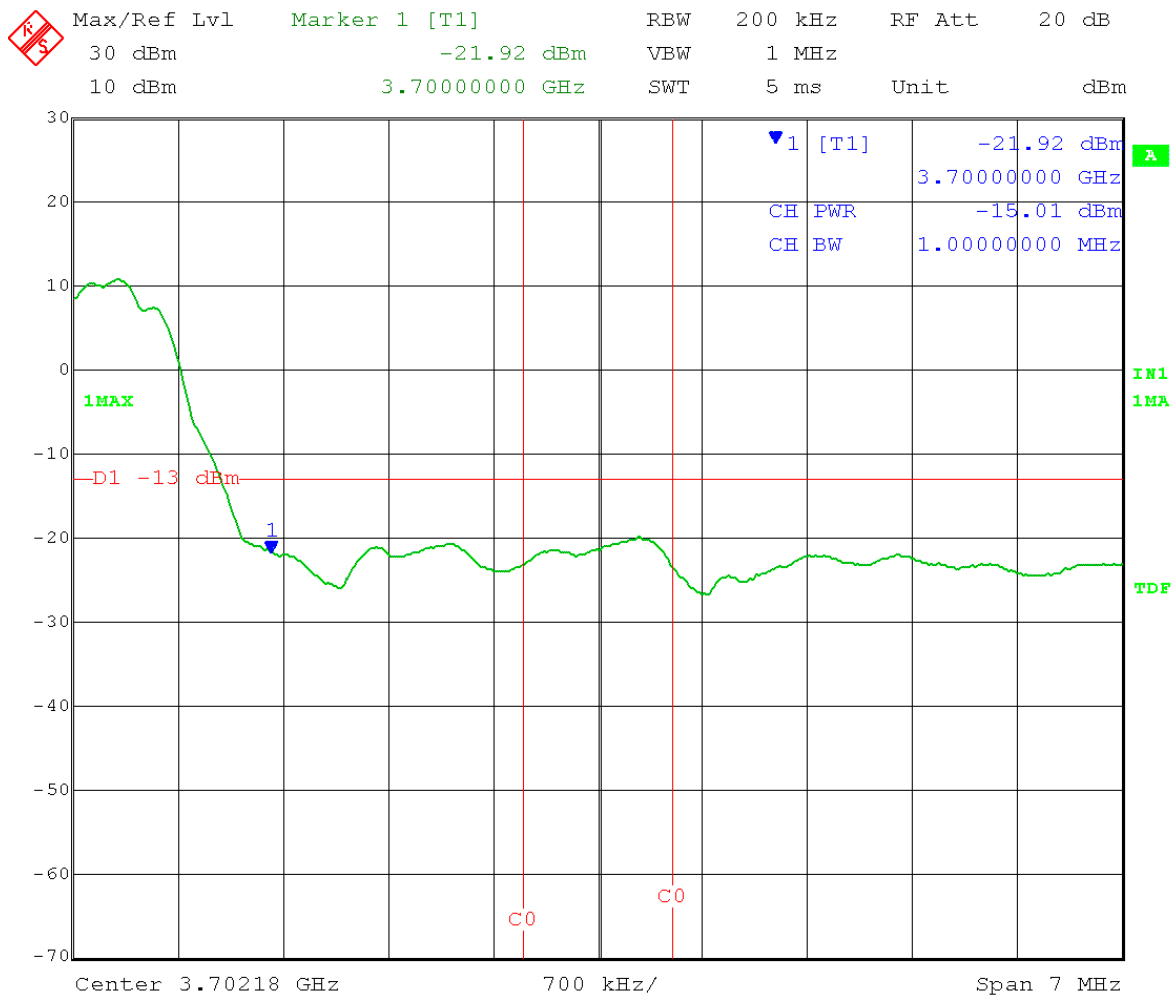
Date: 10.FEB.2014 11:26:51

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 $\geq$ 1% OBW VBW $\geq$ 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: $43 + 10\log(P)$ 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



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



166 South Carter, Genoa City, WI 53128

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

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:

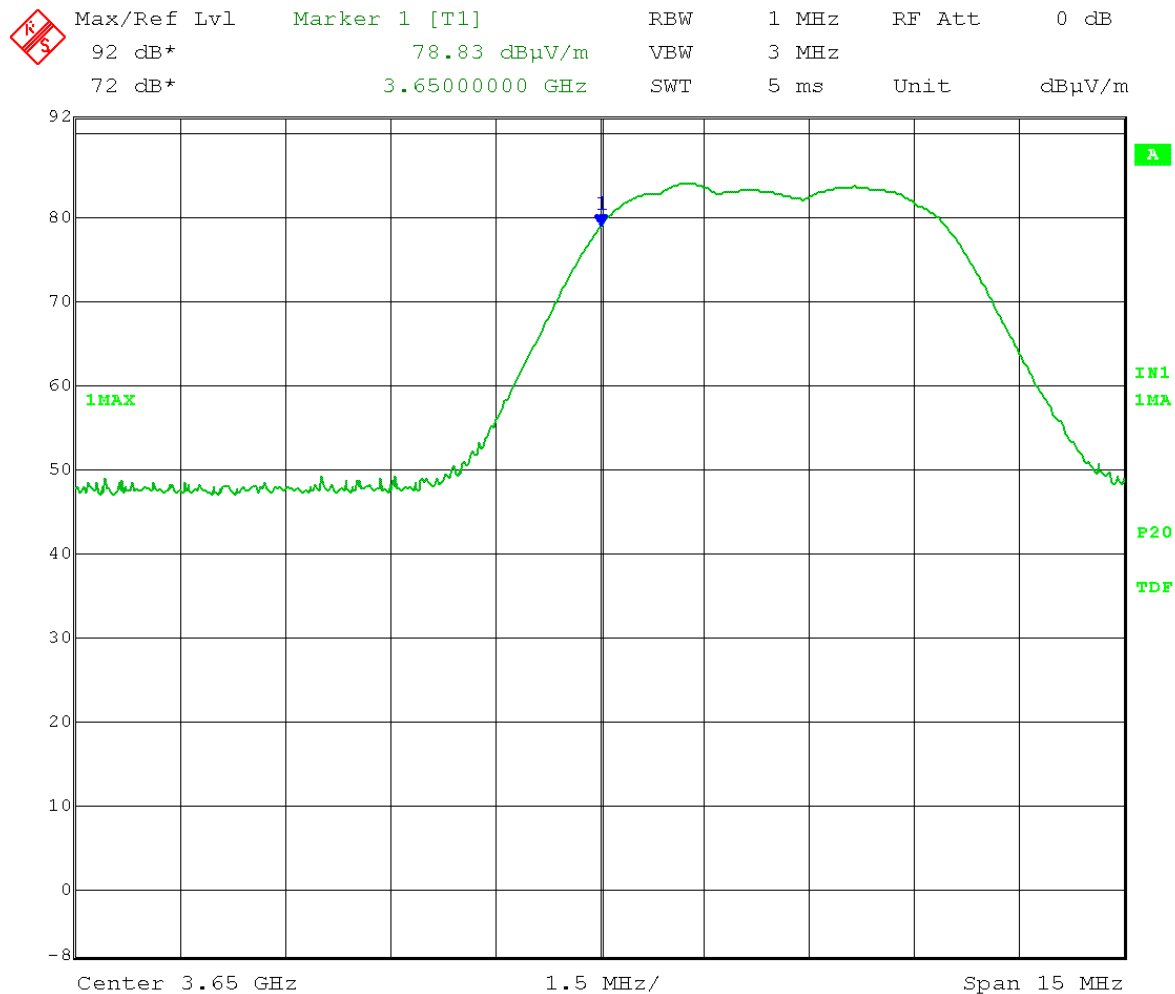
Only tested QPSK modulation mode as determined worst case by Cambium Networks.
Only tested output port A as determined worst case by Cambium Networks.

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $78.83 + 20\log(3) - 104.8 = -16.42$ dBm/MHz

Vertical:



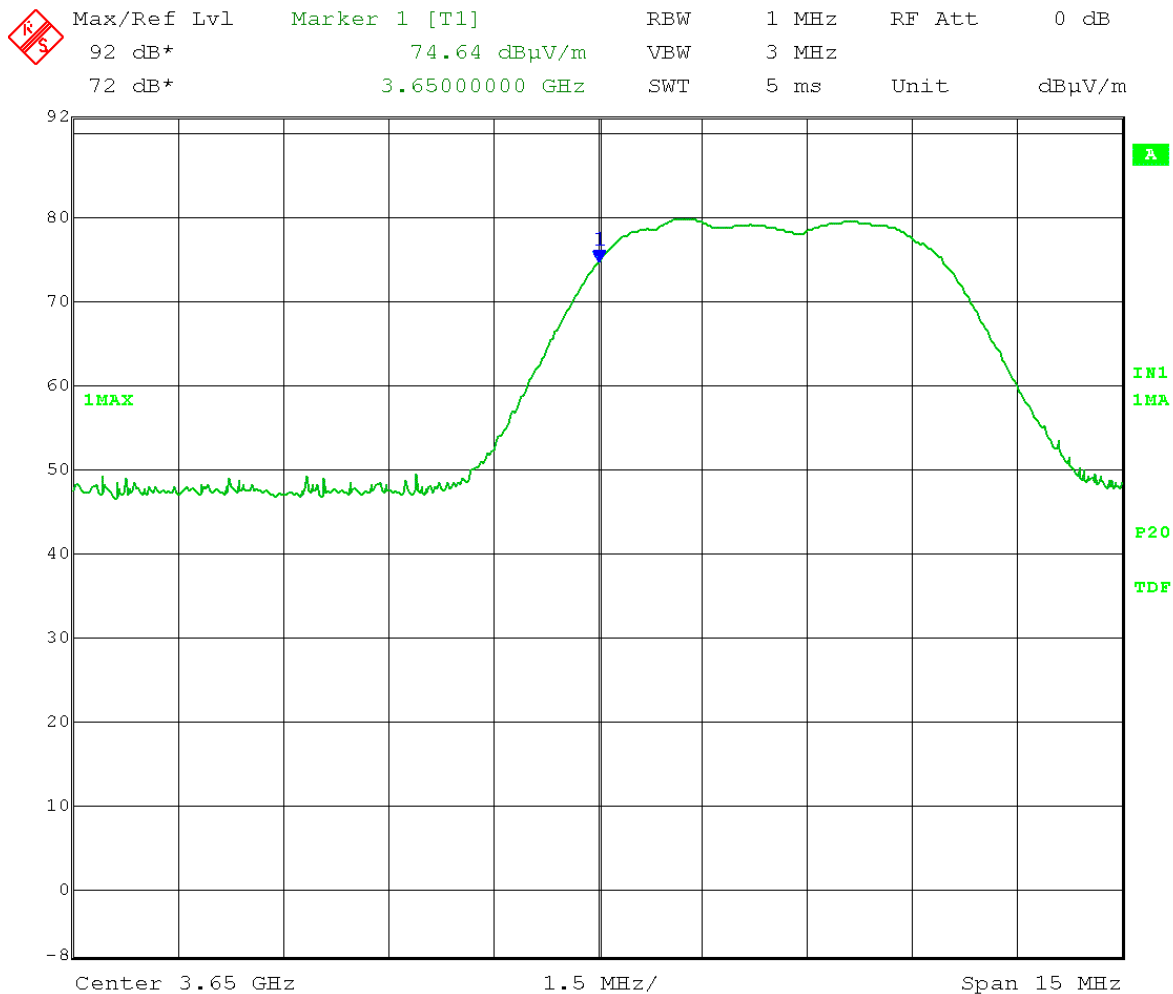
Date: 11.FEB.2014 13:13:03

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $74.64 + 20\log(3) - 104.8 = -20.61$ dBm/MHz

Horizontal:



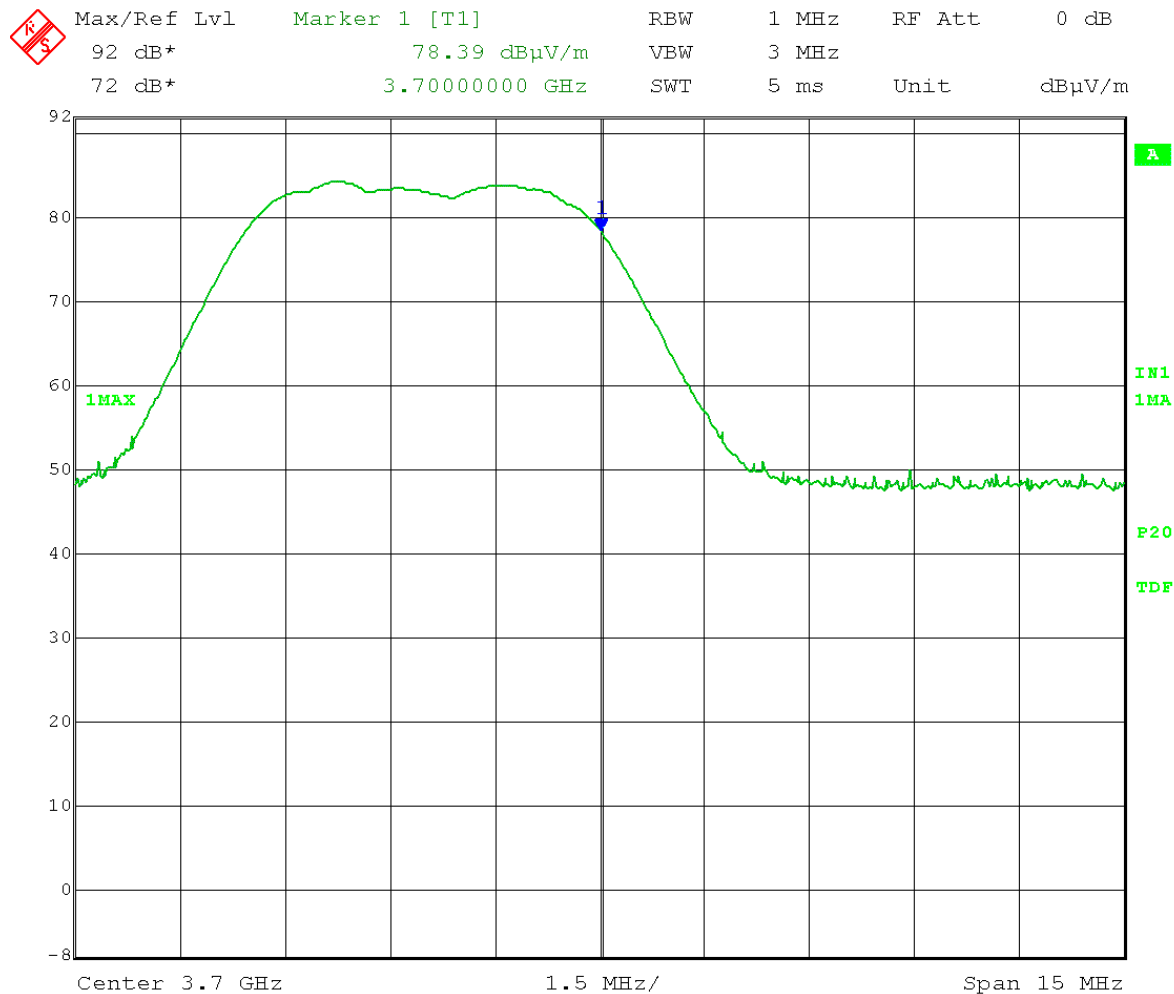
Date: 11.FEB.2014 13:17:05

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $78.39 + 20\log(3) - 104.8 = -16.86$ dBm/MHz

Vertical:



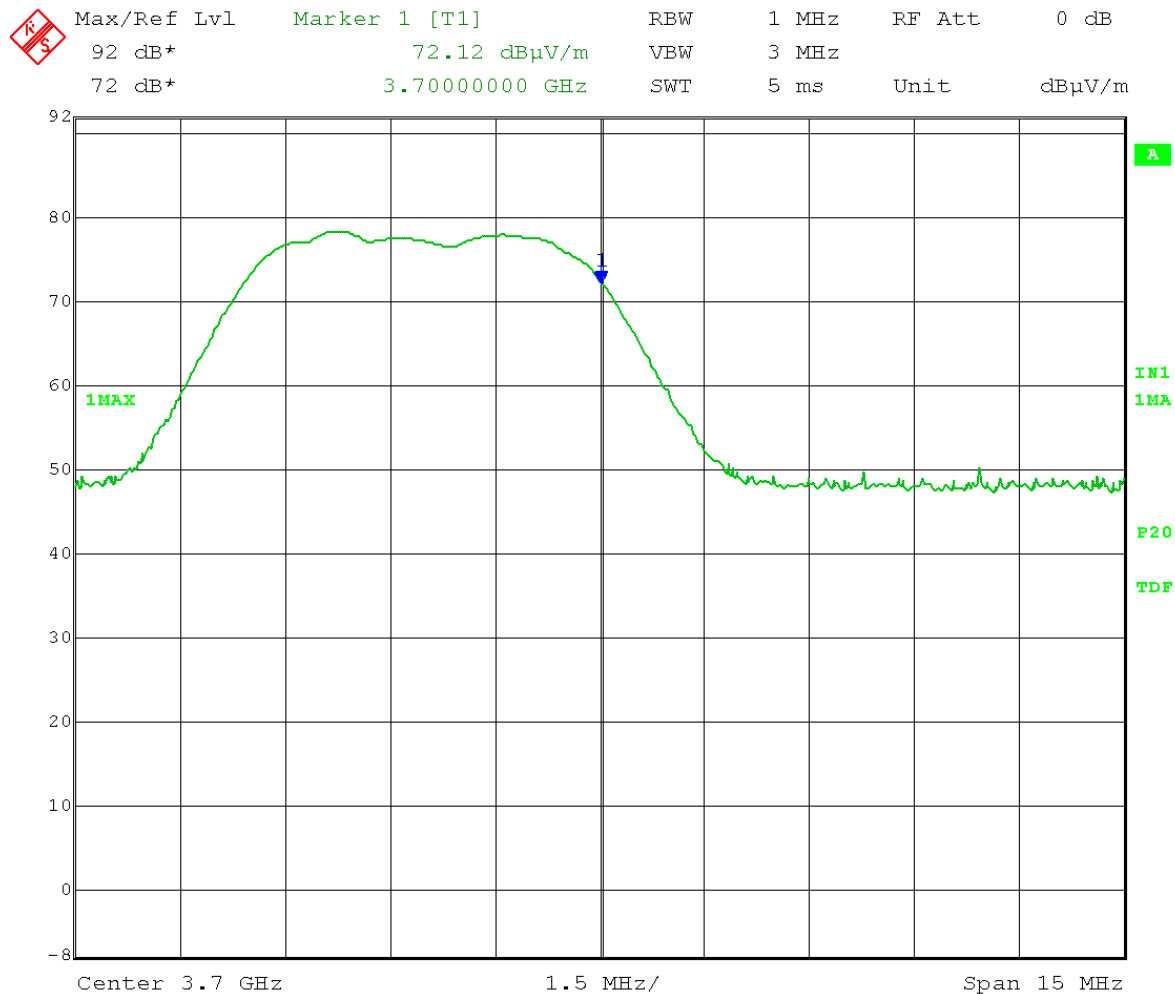
Date: 11.FEB.2014 13:08:28

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $72.12 + 20\log(3) - 104.8 = -23.13$ dBm/MHz

Horizontal:



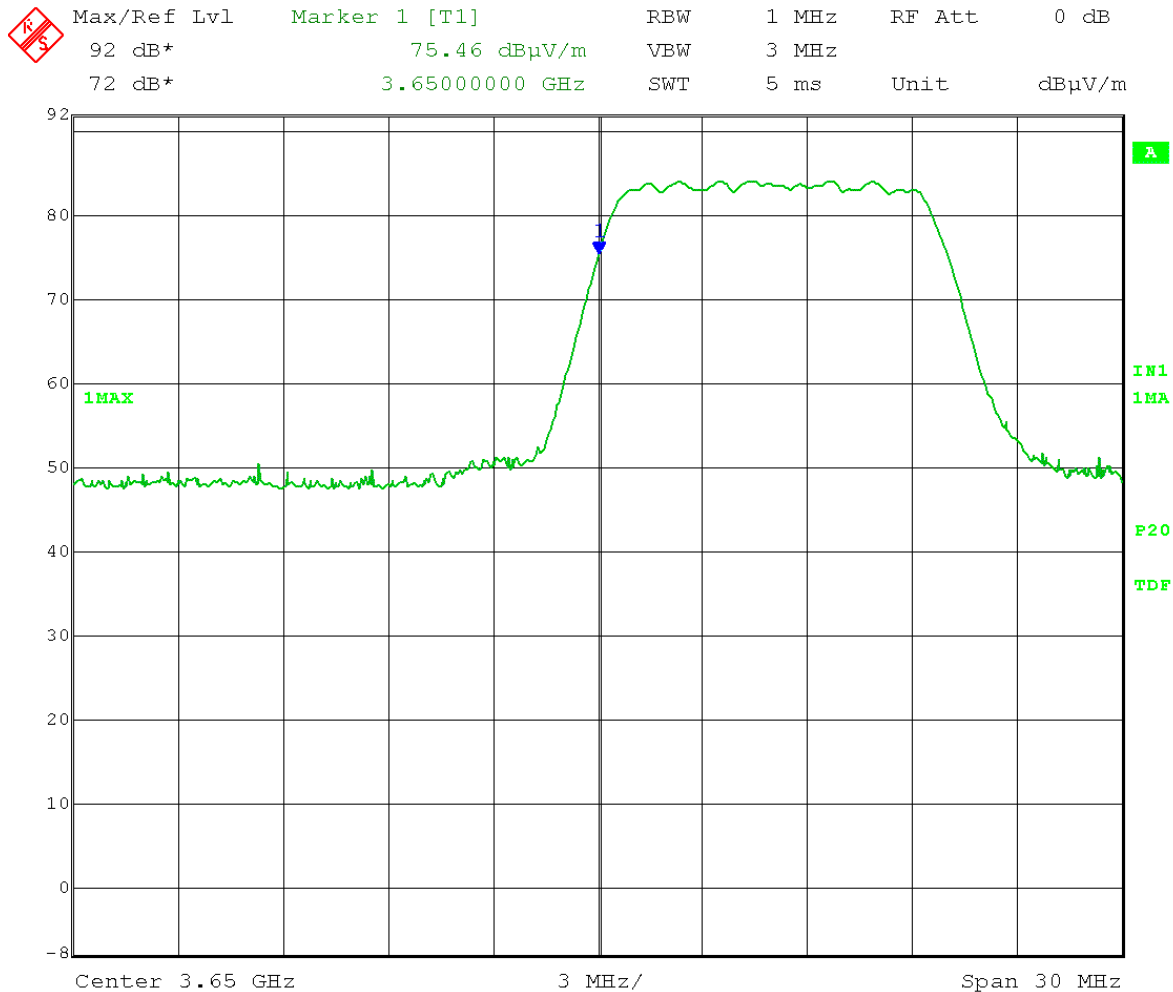
Date: 11.FEB.2014 13:26:59

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $75.46 + 20\log(3) - 104.8 = -19.79$ dBm/MHz

Vertical:



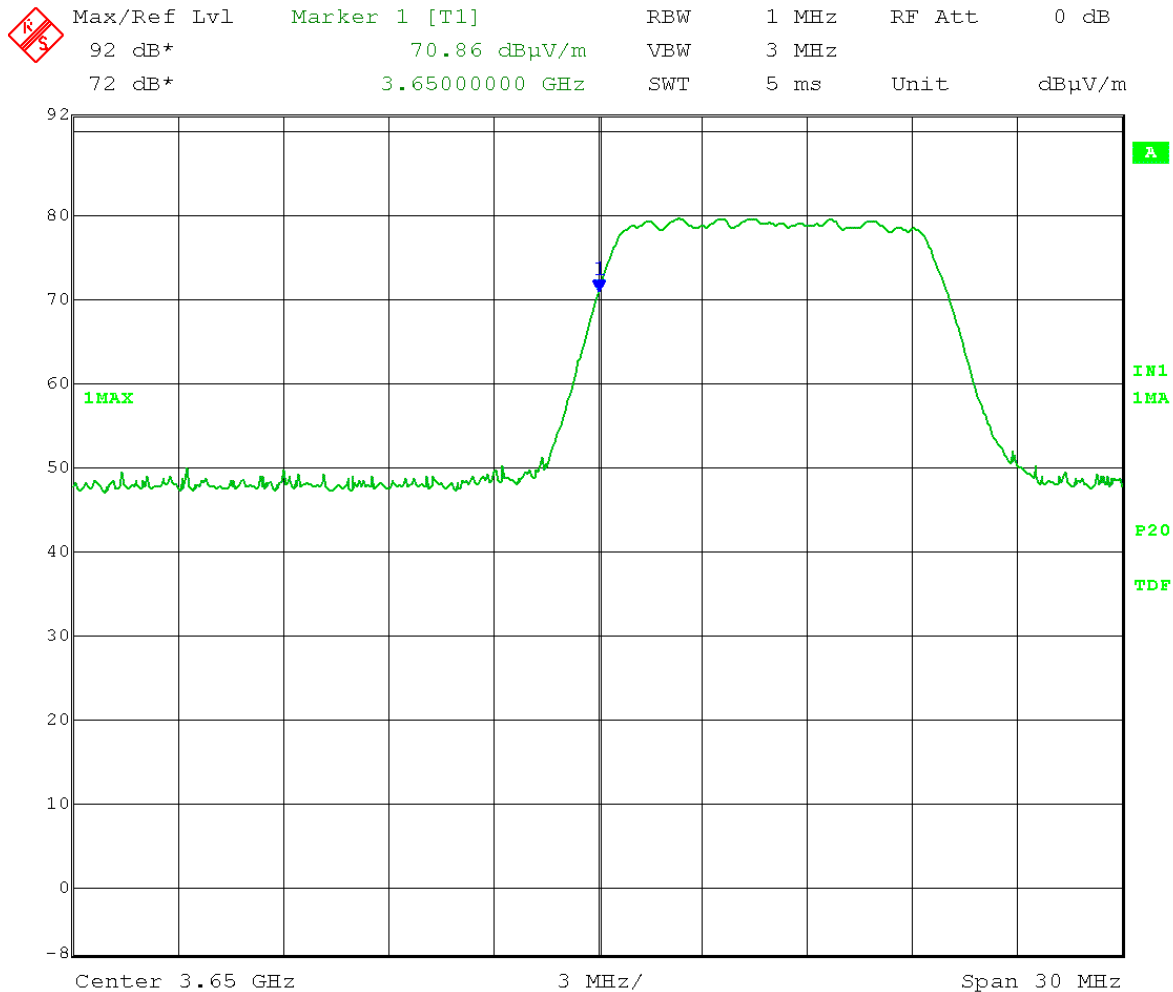
Date: 11.FEB.2014 12:46:58

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $70.86 + 20\log(3) - 104.8 = -24.39$ dBm/MHz

Horizontal:



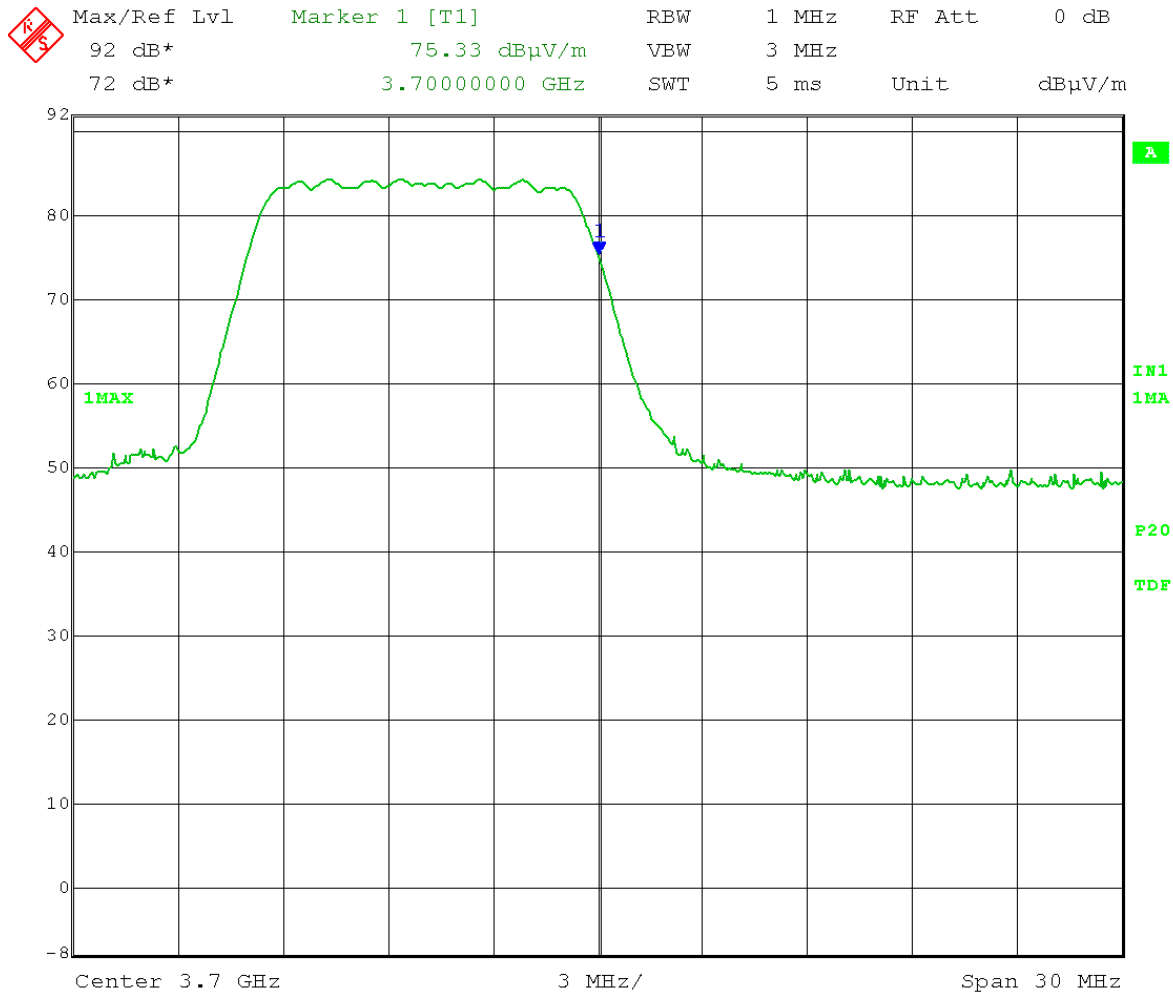
Date: 11.FEB.2014 12:52:52

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $75.33 + 20\log(3) - 104.8 = -19.92$ dBm/MHz

Vertical:



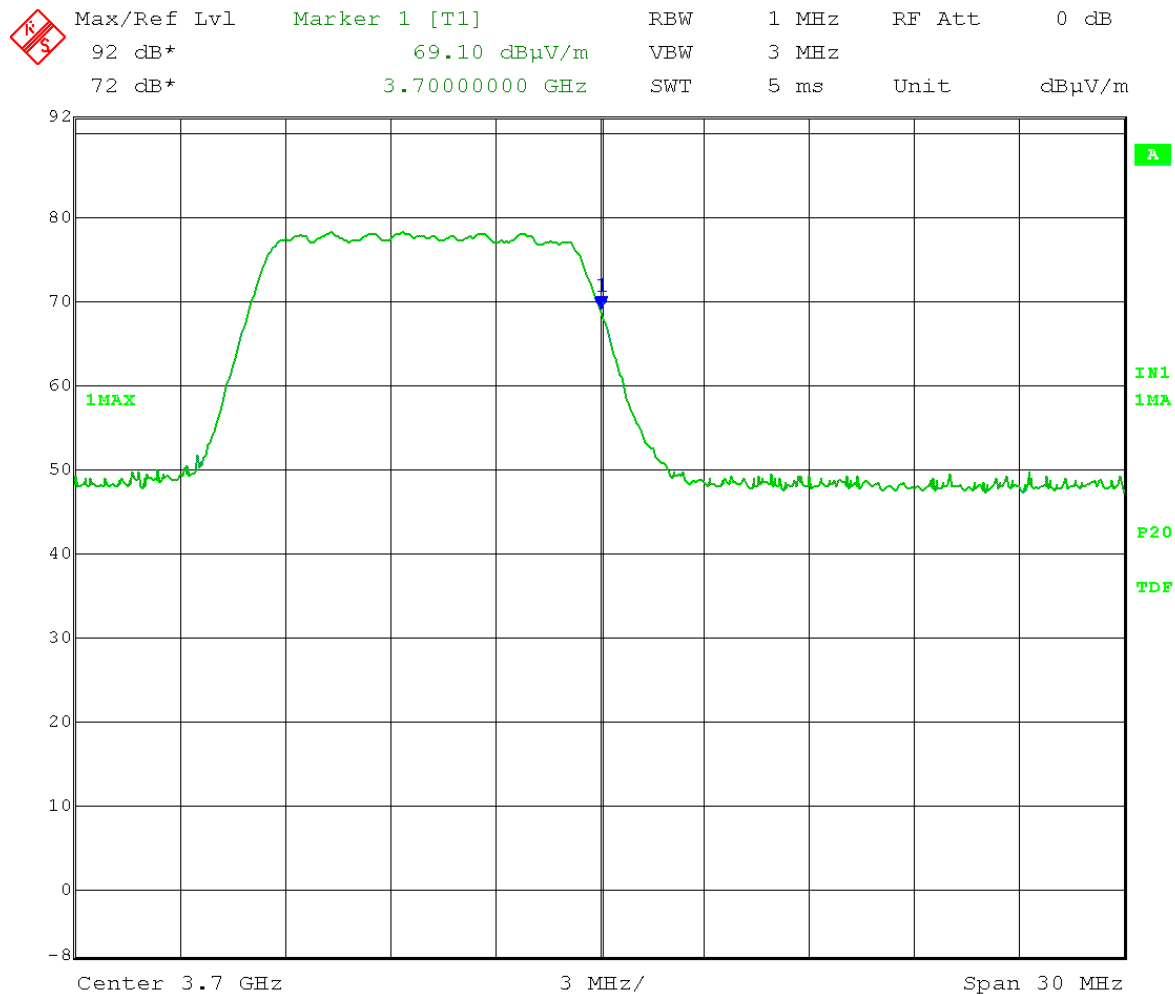
Date: 11.FEB.2014 12:34:42

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $69.10 + 20\log(3) - 104.8 = -26.15$ dBm/MHz

Horizontal:



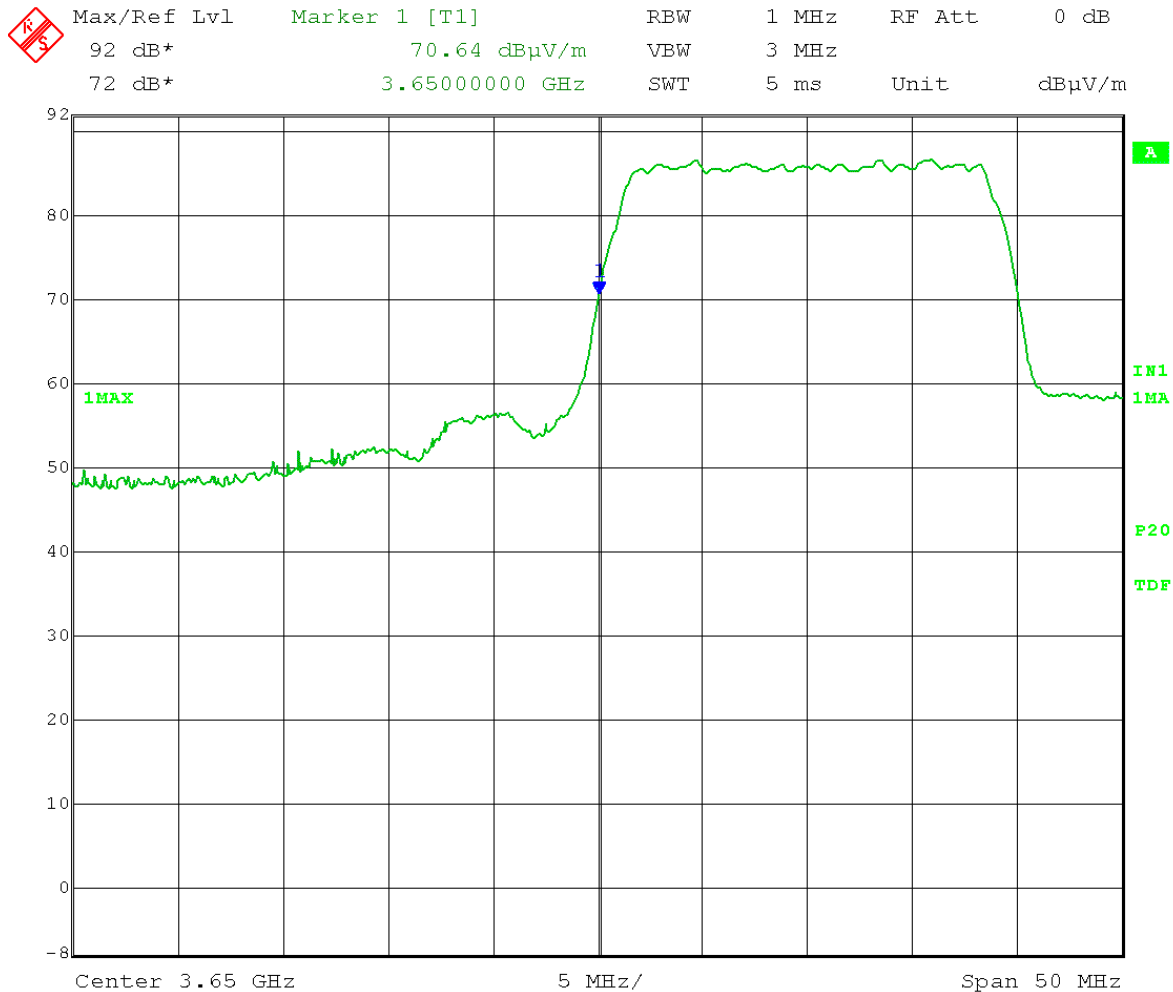
Date: 11.FEB.2014 12:58:28

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $70.64 + 20\log(3) - 104.8 = -24.61$ dBm/MHz

Vertical:



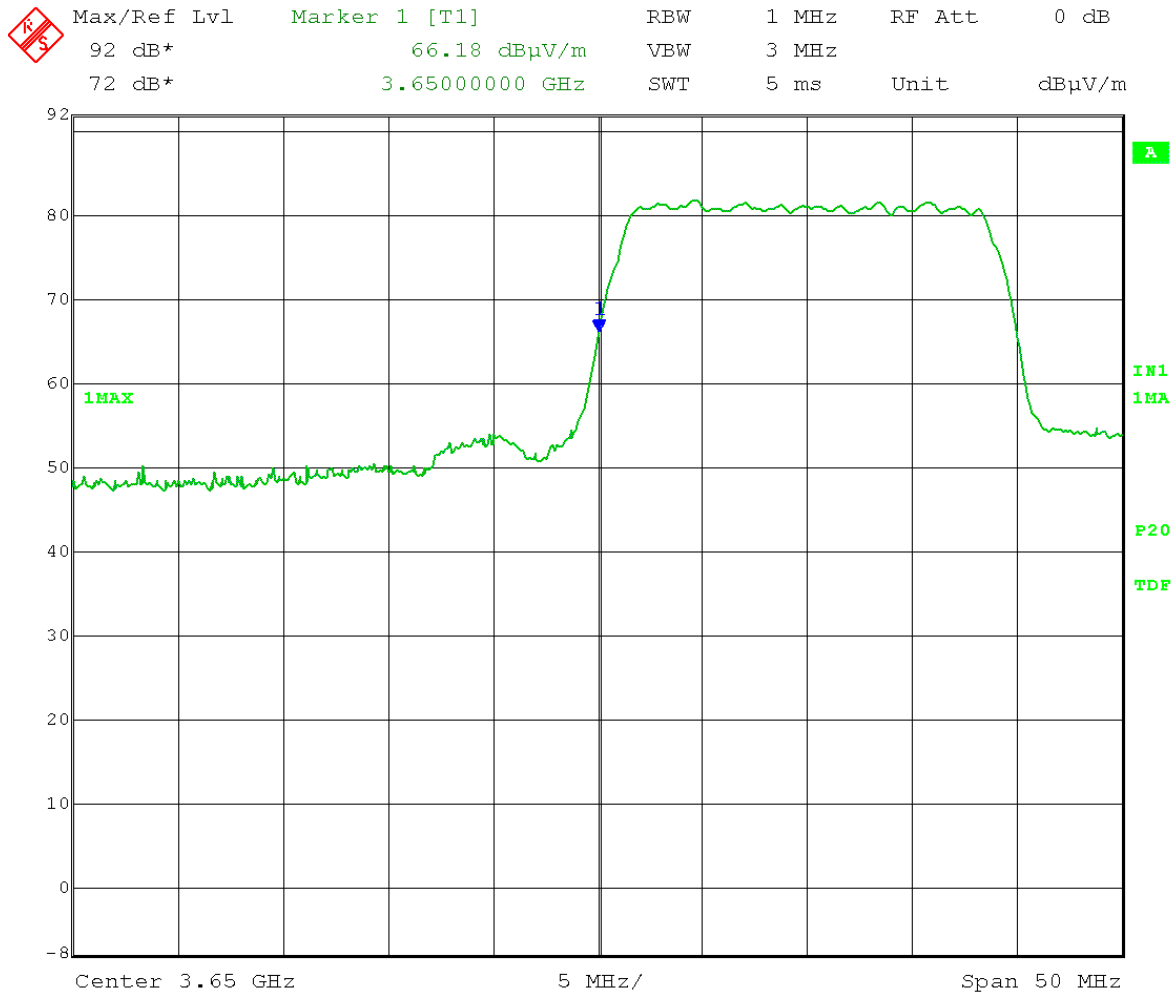
Date: 11.FEB.2014 11:31:08

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $66.18 + 20\log(3) - 104.8 = -29.07$ dBm/MHz

Horizontal:



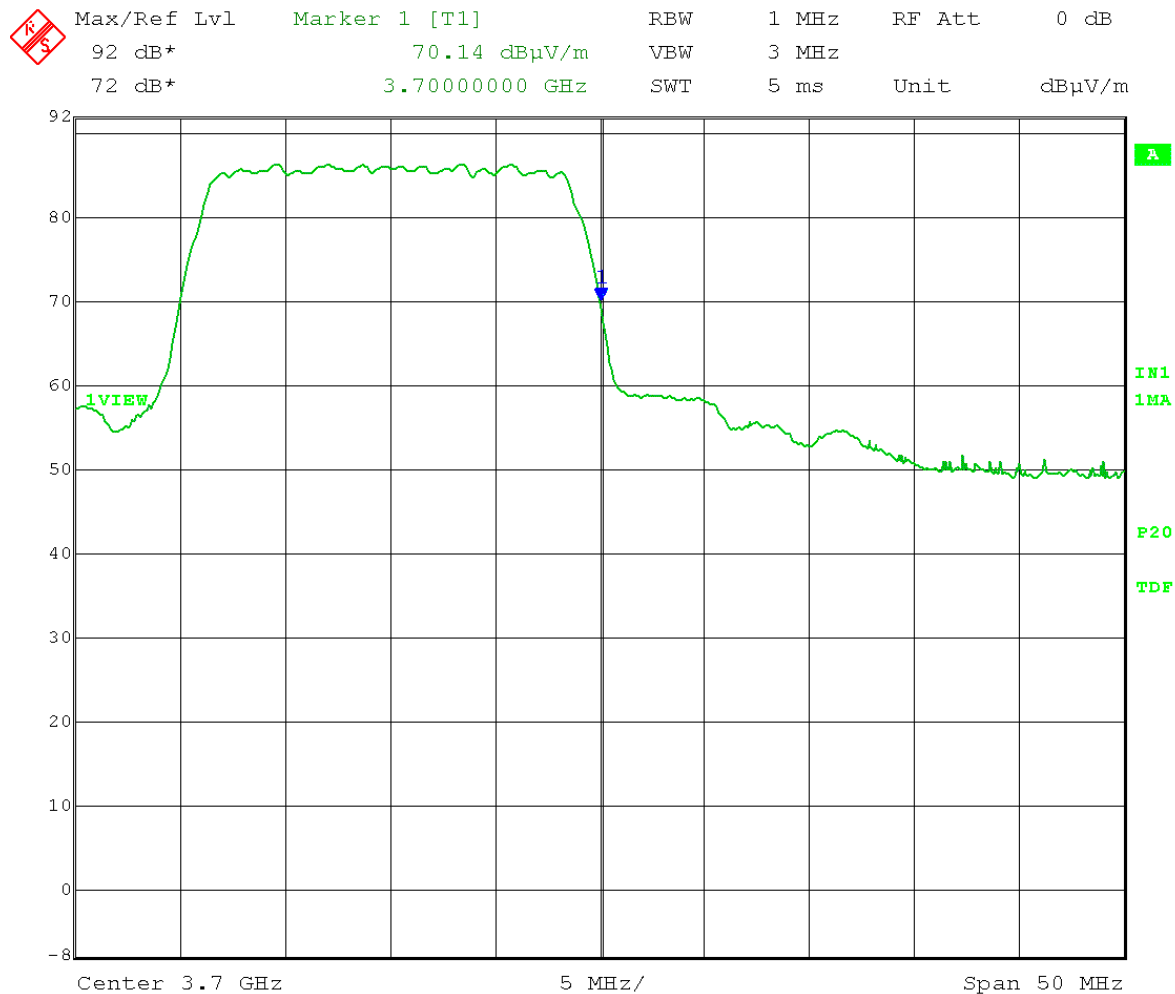
Date: 11.FEB.2014 11:39:30

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $70.14 + 20\log(3) - 104.8 = -25.11$ dBm/MHz

Vertical:



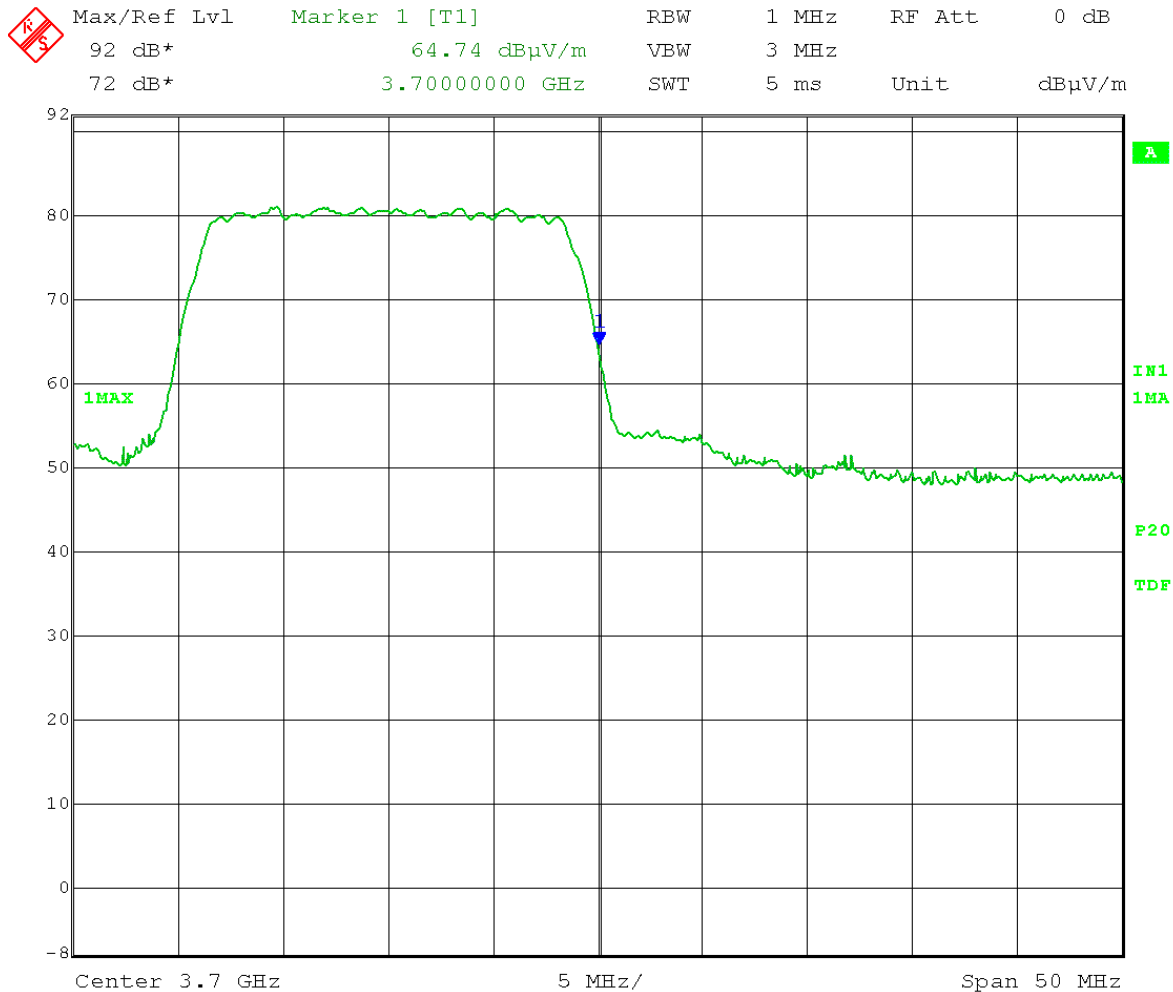
Date: 11.FEB.2014 11:16:57

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: $43 + 10\log(P)$ below the channel transmitter power = -13 dBm/MHz
 $EIRP(dBm) = E(dB\mu V/m) + 20\log(d) - 104.8$ where D is the measurement distance in meters.

Power level at band edge = $64.74 + 20\log(3) - 104.8 = -30.51$ dBm/MHz

Horizontal:



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



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Report Number:
DLS Project:

Cambium Networks
C036045A004A
19784
6383

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.

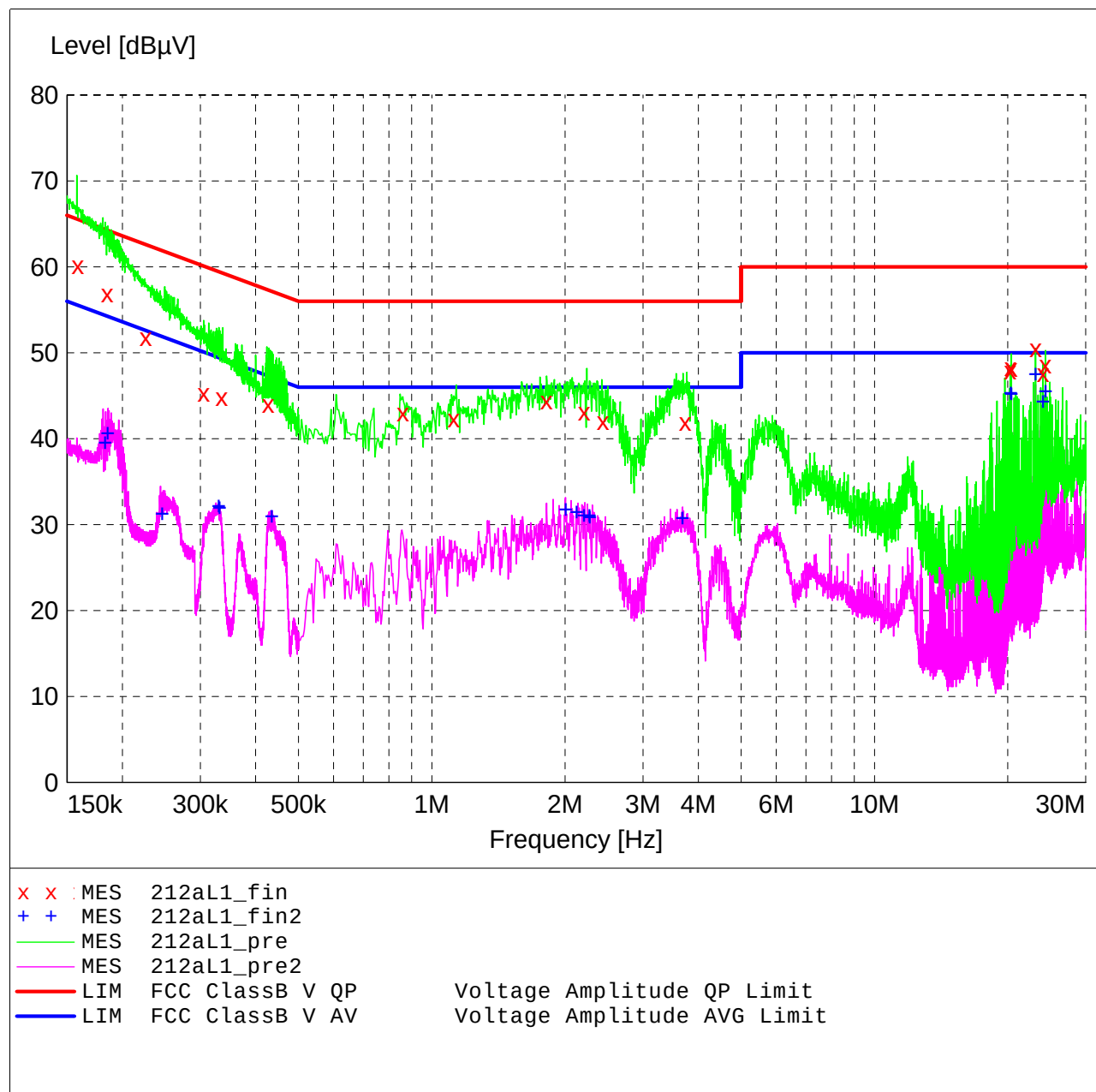
FCC Part 15.207

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. Time	IF Bandw.	Transducer	
Frequency	Frequency	Width					
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak	3.0 s	9 kHz	LISN DLS#128	
			CISPR AV				



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

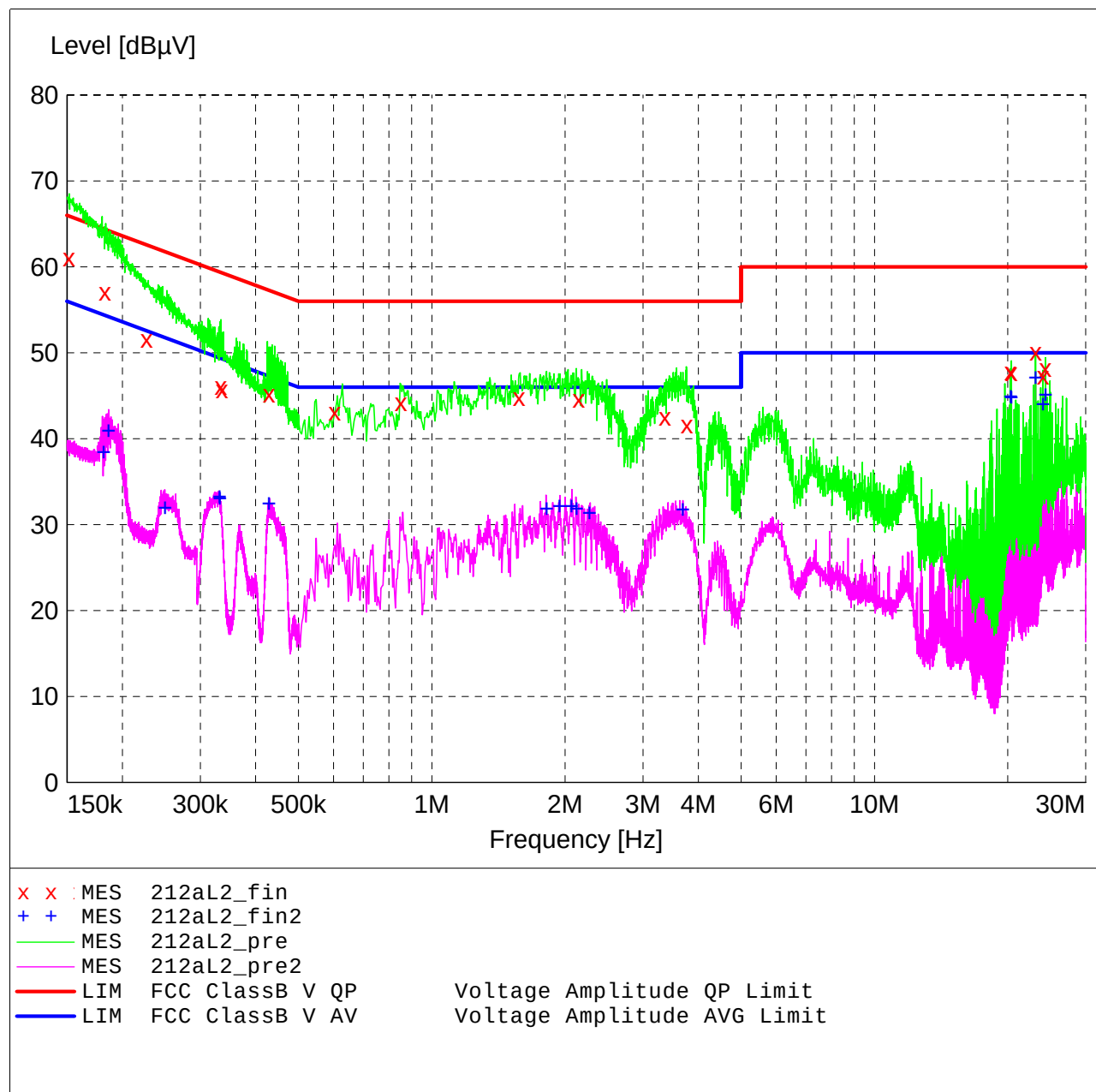
FCC Part 15.207

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. Time	IF Bandw.	Transducer	
Frequency 150.0 kHz	Frequency 30.0 MHz	Width 4.0 kHz	QuasiPeak CISPR AV	3.0 s	9 kHz	LISN DLS#128	



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



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