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

Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

# Code of Federal Regulations 47 Part 15 – Radio Frequency Devices

Subpart C – Intentional Radiators
Section 15.247
Operation within the bands 902 - 928 MHz,
2400 - 2483.5 MHz, 5725 - 5875 MHz,
and 24.0 - 24.25 GHz.

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

| | |
|---|---|
| Formal Name: | Avenger AP 5.7GHz Radio |
| Kind of Equipment: | Point-to-Multipoint Digital Transmission Transceiver |
| Frequency Range: | 5740 to 5835 MHz (20 MHz bandwidth)<br>5750 to 5825 MHz (40 MHz bandwidth) |
| Test Configuration: | Stand-alone |
| Model Number(s): | C050900P12A |
| Model(s) Tested: | C050900P12A |
| Serial Number(s): | 000456C005DE & 000456C005E4 |
| Date of Tests: | June 12th to June 17th, and July 1st & 2nd, 2013 |
| Test Conducted For: | Cambium Networks<br>3800 Golf Road, Suite 360<br>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.

SIGNATURE PAGE

Tested By:

James Ochoa
Test Engineer

Reviewed By:

William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

# Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

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

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

## ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

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

2012-10-01 through 2013-09-30
*Effective dates*

*For the National Institute of Standards and Technology*

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

## 1.0 Summary of Test Report

It was determined that the Cambium Networks Avenger AP 5.7GHz Radio, Model: C050900P12A, complies with the requirements of CFR 47 Part 15 Subpart C Section 15.247.

### Applicable Technical Requirements Tested:

| Section | Description | Procedure | Note | Compliant? |
|---|---|---|---|---|
| FCC 15.247(a)(2) | 6 dB Emission Bandwidth - Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 8.1 Option 1 | 1 | Yes |
| FCC 15.247(b)(3) | Fundamental Emission Output Power – Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 9.2.3.1-AVGPM | 1 | Yes |
| FCC 15.247(e) | Maximum Power Spectral Density - Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 10.3-AVGPSD-1 | 1 | Yes |
| FCC 15.247(d) | Maximum Unwanted Emission Levels – Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Sections 11.0, 11.2, 11.3 | 1 | Yes |
| FCC 15.247(d) | Band Edge Measurements - Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 13.0, 13.2 | 1 | Yes |
| FCC 15.247(d), FCC 15.205 | Restricted Band Measurements - RF Conducted | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 12.0 & 12.2 | 1 | Yes |
| FCC 15.247(d), FCC 15.205 | Restricted Band Measurements - Radiated | FCC Publication KDB 558074 D01 DTS Meas Guidance v03r01 Section 12.0 & 12.1 | 2 | Yes |
| FCC 15.35(c) | Duty Cycle of Test Unit | ANSI C63.10-2009 Section 7.5 | 1 | NA |
| FCC 15.207(a) | AC Line Conducted Emissions | ANSI C63.10-2009 Section 6.2 | 3 | Yes |

Note 1: RF conducted measurement.
Note 2: Radiated emission measurement.
Note 3: AC line conducted measurement.

## 2.0 Introduction

From June 12th through June 17th and July 1st & 2nd, 2013 the Avenger AP 5.7GHz Radio, Model C050900P12A, as provided from Cambium Networks, was tested to the requirements of CFR 47 Part 15 Subpart C Section 15.247. To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S Electronic Systems, Inc.

## 3.0 Test Facilities

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

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

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

## 4.0 Description of Test Sample

**Description:**

Point-to-Multipoint 5.7GHz 802.11 fixed outdoor transceiver with either 20 MHz or 40 MHz channel bandwidth. 16dBi antenna assembly. OFDM modulation. This is a software defined radio.

**Type of Equipment**

Stand-Alone

**Frequency Range:**

5740 to 5835 MHz (20 MHz bandwidth)
5750 to 5825 MHz (40 MHz bandwidth)

**Physical Dimensions of Equipment Under Test:**

Length: 8.5 in. Width: 3 in. Height: 1 in.

**Power Source:**

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

**Internal Frequencies:**

292 kHz, 940 - 1000 kHz, 4 MHz (Switching Power Supply Frequency)
25 MHz, 40 MHz

**Transmit Frequencies Used For Test Purpose:**

| | |
|---|---|
| 20 MHz Channel Bandwidth: | Low channel: 5740 MHz<br>Middle channel: 5775 MHz<br>High channel: 5835 MHz |
| 40 MHz Channel Bandwidth: | Low channel: 5750 MHz<br>Middle channel: 5785 MHz<br>High channel: 5825 MHz |

Power Settings noted on the test data

**Type of Modulations:**

OFDM: 802.11n: MCS15

**Description of Circuit Board(s) / Part Number:**

| | |
|---|---|
| AP PCB | 84009654001 |
| external 17dBi antenna w/1dB cables | 85009324001 Rev AA |
| antenna assembly | P005135 |

## 5.0 Test Equipment

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

**D.L.S. Wisconsin**

| Description | Manufacturer | Model Number | Serial Number | Frequency Range | Cal Dates | Cal Due Dates |
|---|---|---|---|---|---|---|
| Receiver | Rohde & Schwarz | ESI 40 | 837808/005 | 20 Hz – 40 GHz | 7-23-12 | 7-23-13 |
| LISN | Solar | 9252-50-R-24-BNC | 961019 | 9 kHz – 30 MHz | 5-24-13 | 5-24-14 |
| Filter- High-Pass | SOLAR | 7930-120 | 090702 | 120 kHz – 30 MHz | 1-7-13 | 1-7-14 |
| Limiter | Electro-Metrics | EM-7600 | 706 | 9 kHz – 30 MHz | 1-7-13 | 1-7-14 |
| Preamp | Miteq | AMF-7D-01001800-22-10P | 1809602 | 1GHz-18GHz | 5-29-13 | 5-29-14 |
| Horn Antenna | EMCO | 3115 | 9502-4451 | 1-18GHz | 3-18-13 | 3-18-15 |
| Filter- High-Pass | Q-Microwave | 100462 | 2 | 4.2GHz-18GHz | 5-28-13 | 5-28-14 |
| Preamp | Miteq | AMF-8B-180265-40-10P-H/S | 438727 | 18GHz-26GHz | 8-13-12 | 8-13-13 |
| Horn Antenna | ETS Lindgren | 3116 | 00062917 | 18 – 40GHz | 10-4-11 | 9-23-13 |
| High Pass Filter | Planar | CL22500-9000-CD-SS | PF1229/0728 | 15-40 GHz | 8-13-12 | 8-13-13 |
| 20 dB attenuator | Aeroflex/weinschel | 75A-20-12 | 1071 | DC – 40 GHz | 8-13-12 | 8-13-13 |
| 10 dB attenuator | narda | 4768-10 | 0702 | DC – 40 GHz | 8-13-12 | 8-13-13 |
| Receiver | Rohde & Schwarz | ESI 26 | 837491/010 | 20 Hz – 26 GHz | 1-3-13 | 1-3-14 |
| Preamplifier | Rohde & Schwarz | TS-PR10 | 032001/005 | 9 kHz – 1 GHz | 1-10-13 | 1-10-14 |
| Antenna | EMCO | 3104C | 97014785 | 20 MHz – 200 MHz | 8-22-12 | 8-22-14 |
| Antenna | EMCO | 3146 | 97024895 | 200 MHz – 1 GHz | 9-6-12 | 9-6-14 |

## 6.0 Test Arrangements

**Radiated Emissions Measurement Arrangement:**

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

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

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

**RF Conducted Emissions Measurement Arrangement:**

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

## 7.0 Test Conditions

**Normal Test Conditions:**

**Temperature and Humidity:**

70°F at 34% RH (or as noted)

**Supply Voltage:**

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

## 8.0 Modifications Made To EUT for Compliance

None noted at time of test.

## 9.0 Additional Descriptions

Testing was performed at low, mid, and high channels over 2 modulation bandwidths (20MHz & 40MHz). The antenna ports were tested (Channel 0 & 1). Worst case emissions were recorded. AC line conducted tested in transmit mode.

Radiated emissions were tested with a 16dBi panel antenna assembly, Model: 85009324001 Rev AA, below 1 GHz. Tested cabinet radiated emissions (ports terminated into a 50 Ohm load) above 1 GHz.

Emission Designators: 20M0x1D, 40M0x1D

Power Settings noted on the test data.

## 10.0 Results

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

## 11.0 Conclusion

The Avenger AP 5.7GHz Radio, Model C050900P12A, as provided from Cambium Networks tested from June 12th to June 17th and July 1st & 2nd, 2013 **meets** the requirements of CFR 47 Part 15 Subpart C Section 15.247.

## Appendix A – Test Photos

### Photo Information and Test Setup:

Item0: Avenger AP 5.7GHz Radio, Model C050900P12A
Item1: Panel Antenna with cable Model: 85009324001 Rev AA
Item2: Unshielded Ethernet Cable - 20 meters long

**Radiated - Below 1 GHz**

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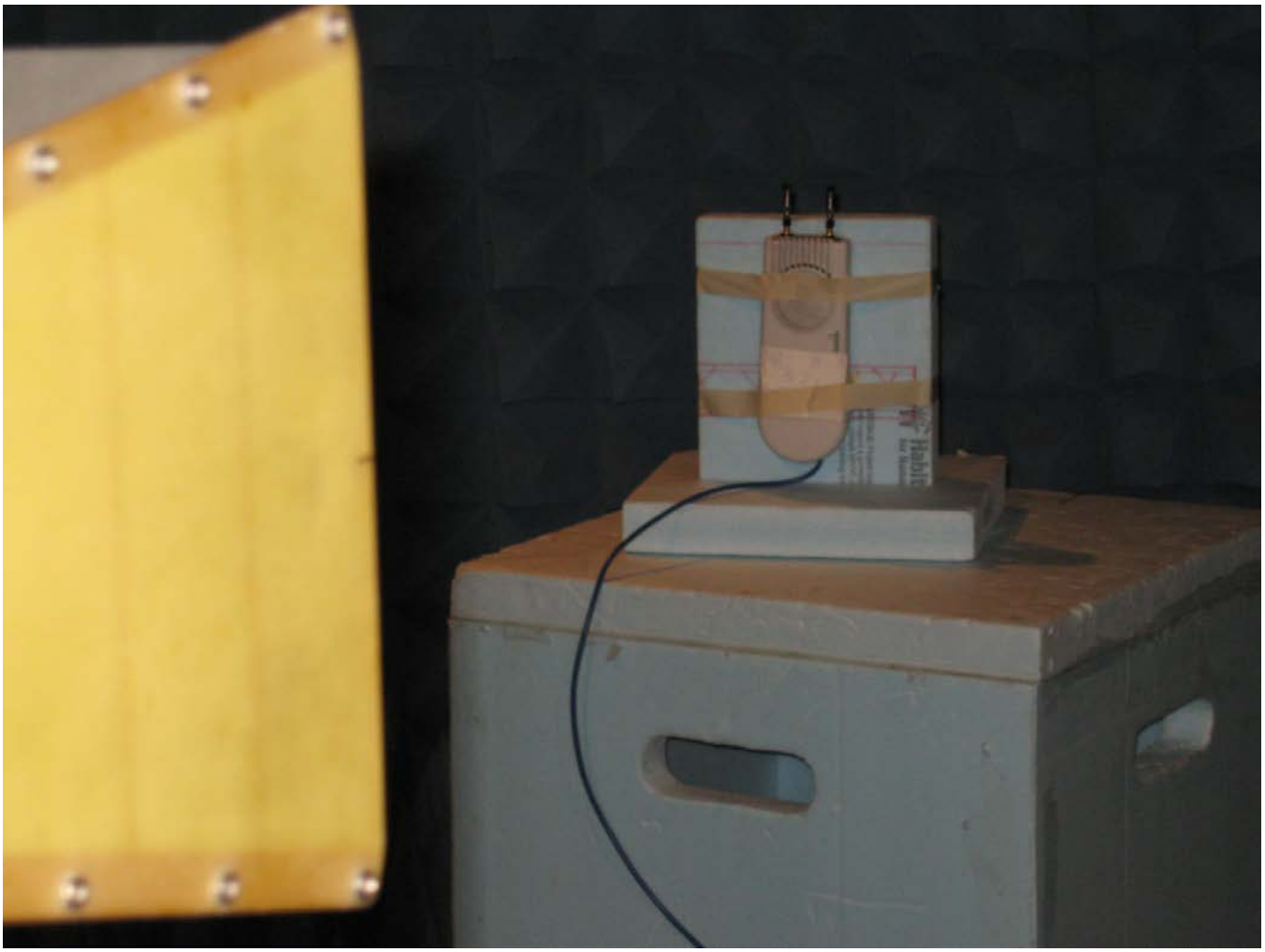
## Appendix A – Test Photos

**Radiated - Below 1 GHz - Back - showing Panel Antenna**

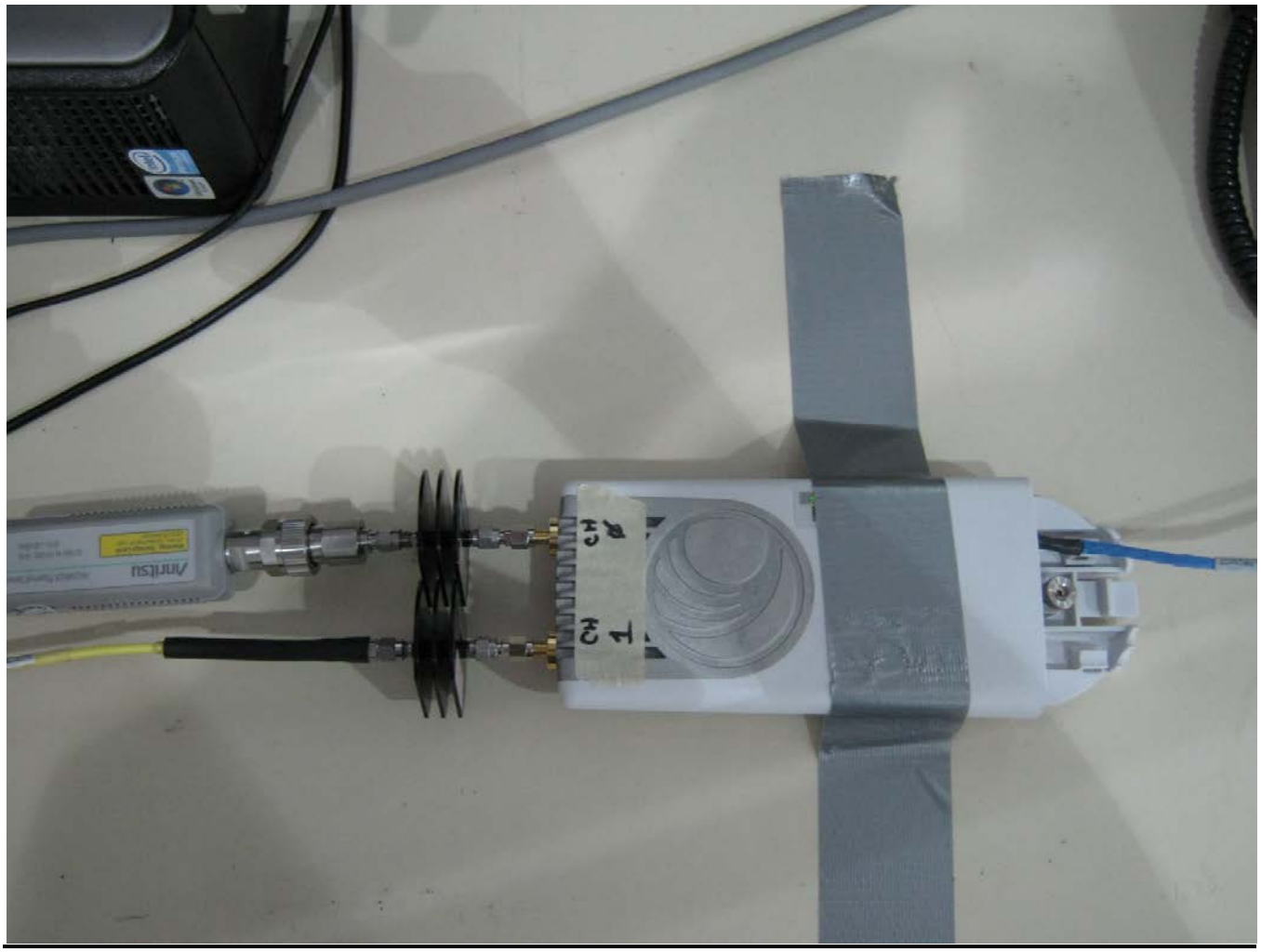
## Appendix A – Test Photos

**Radiated - above 1 GHz**



## Appendix A – Test Photos

**RF Conducted / Output Power**



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## Appendix A – Test Photos

### AC Line Conducted

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**Appendix B – Measurement Data**

## B1.0 DTS Bandwidth – 6 dB bandwidth - Conducted

**Rule Section**: Section 15.247(a)(2)

**Test Procedure**: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

Section 8.0 DTS Bandwidth
8.1 Option 1

**Description**:

RBW = 100kHz
Detector = Peak
Sweep = Auto Couple

VBW ≥ 3 x RBW
Trace mode = Max Hold

Allow the trace to stabilize. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Measure the maximum width of the emission between the lower and upper frequencies that measure 6 dB below the maximum level of the in-band emission.

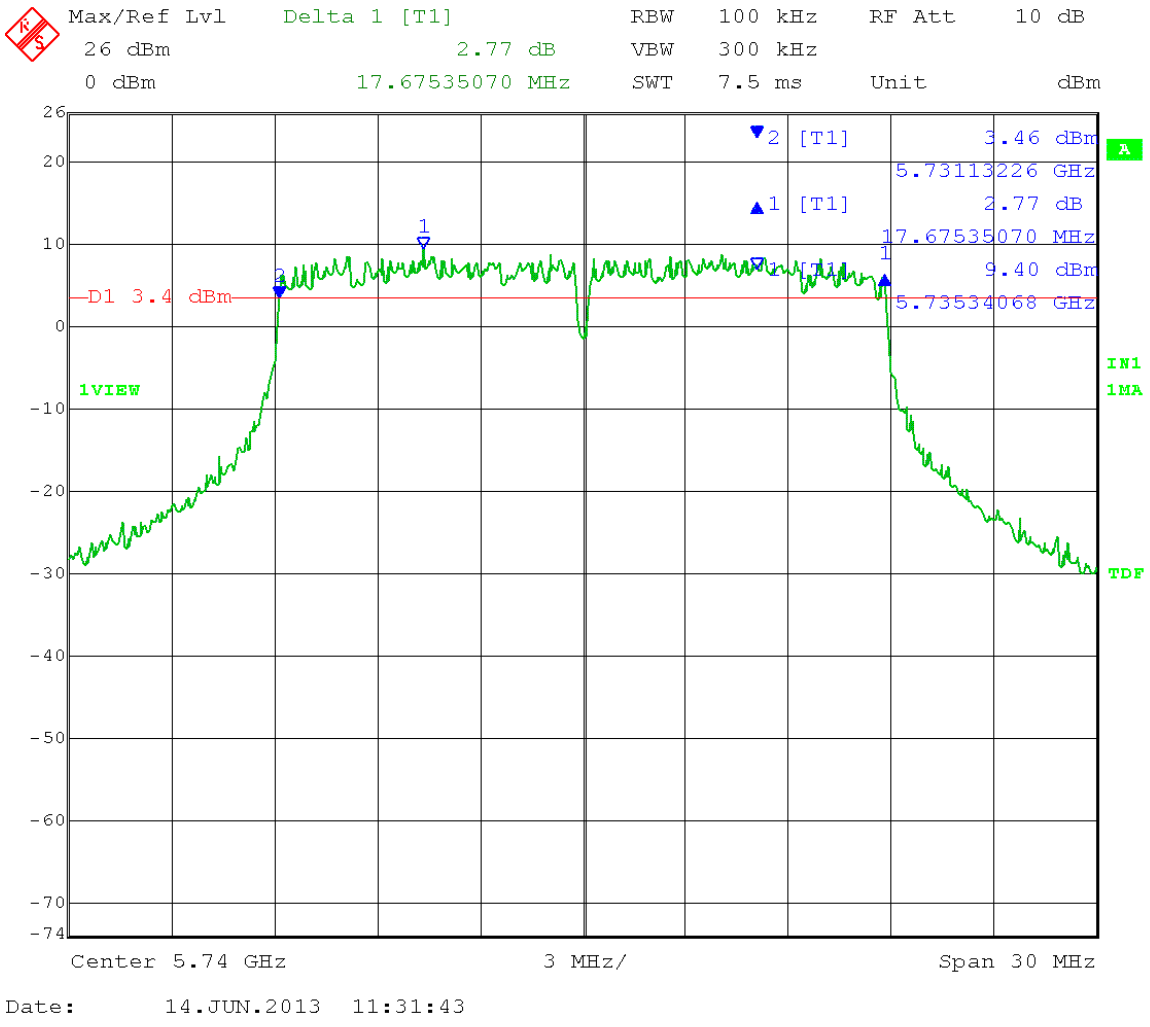
Measurements were taken for an OFDM modulation over a 20MHz and 40MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings.

**Limit:** DTS Bandwidth shall be at least 500 kHz

**Results:** Passed

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz OFDM
Test: DTS Bandwidth (6 dB) - Conducted
Operator: Jim O
Comment: FCC DTS operating under 15.247 – OET 4/9/2013
8.0 DTS Bandwidth: Section 8.1 Option 1
RBW = 100 kHz VBW = 300 kHz
Low Channel: Transmit = 5.740 GHz 20MHz BW
Output power setting: 20 Channel 0
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 17.67MHz**



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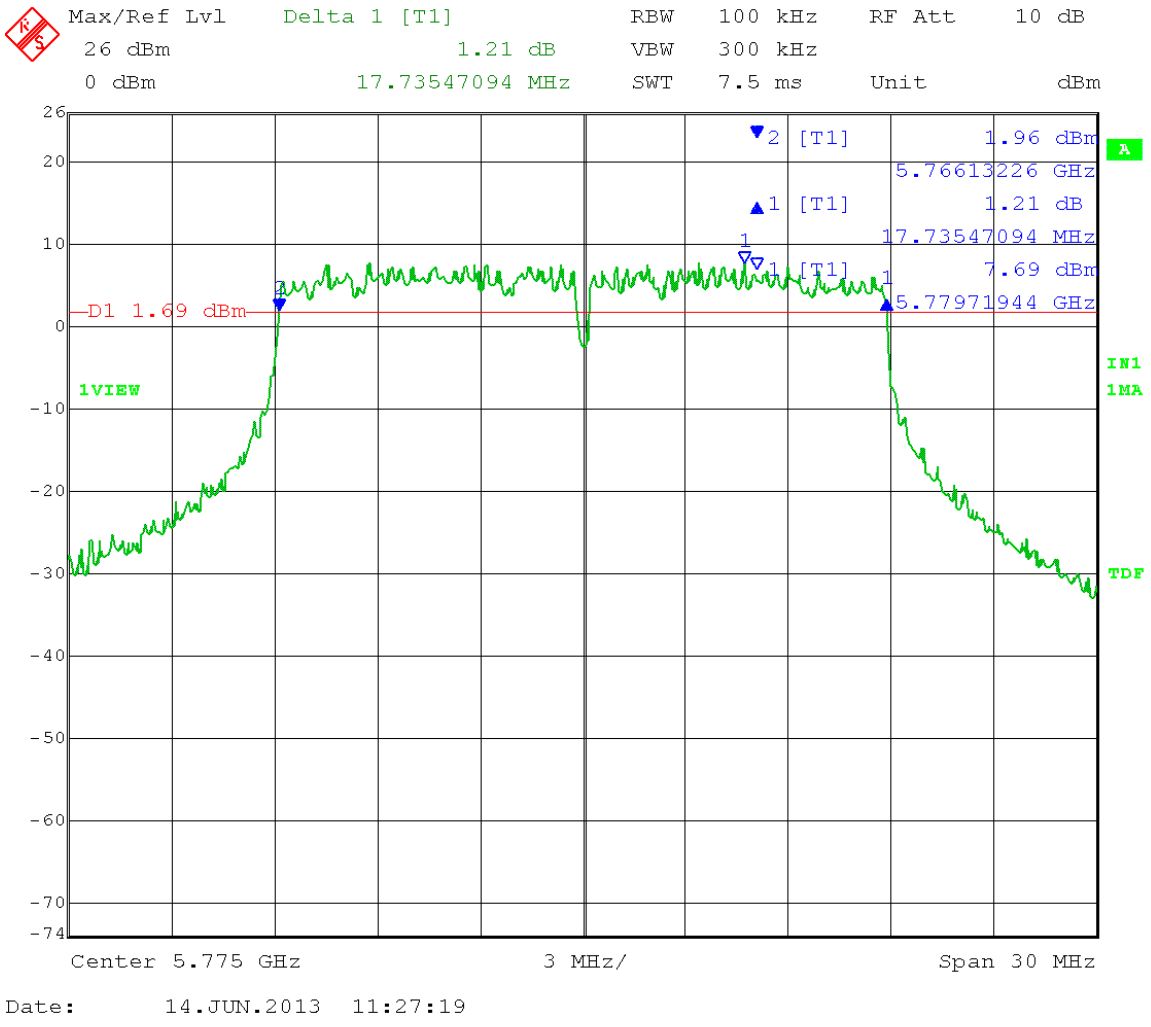
8.0 DTS Bandwidth: Section 8.1 Option 1
RBW = 100 kHz VBW = 300 kHz
Mid Channel: Transmit = 5.775 GHz 20MHz BW
Output power setting: 20 Channel 0
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 17.74MHz**



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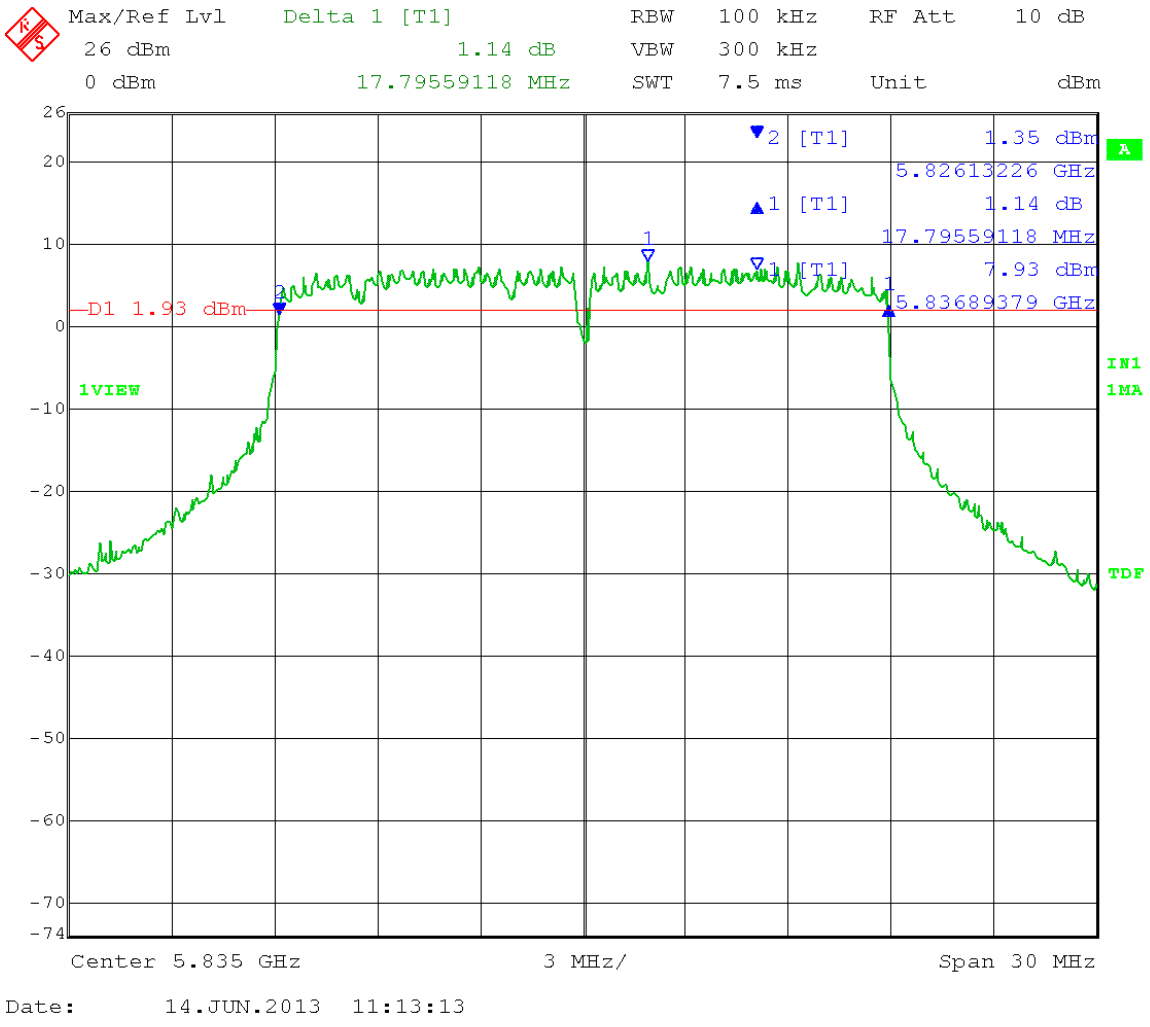
Comment: FCC DTS operating under 15.247 – OET 4/9/2013
8.0 DTS Bandwidth: Section 8.1 Option 1
RBW = 100 kHz VBW = 300 kHz
High Channel: Transmit = 5.835 GHz 20MHz BW
Output power setting: 20 Channel 0
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 17.80MHz**



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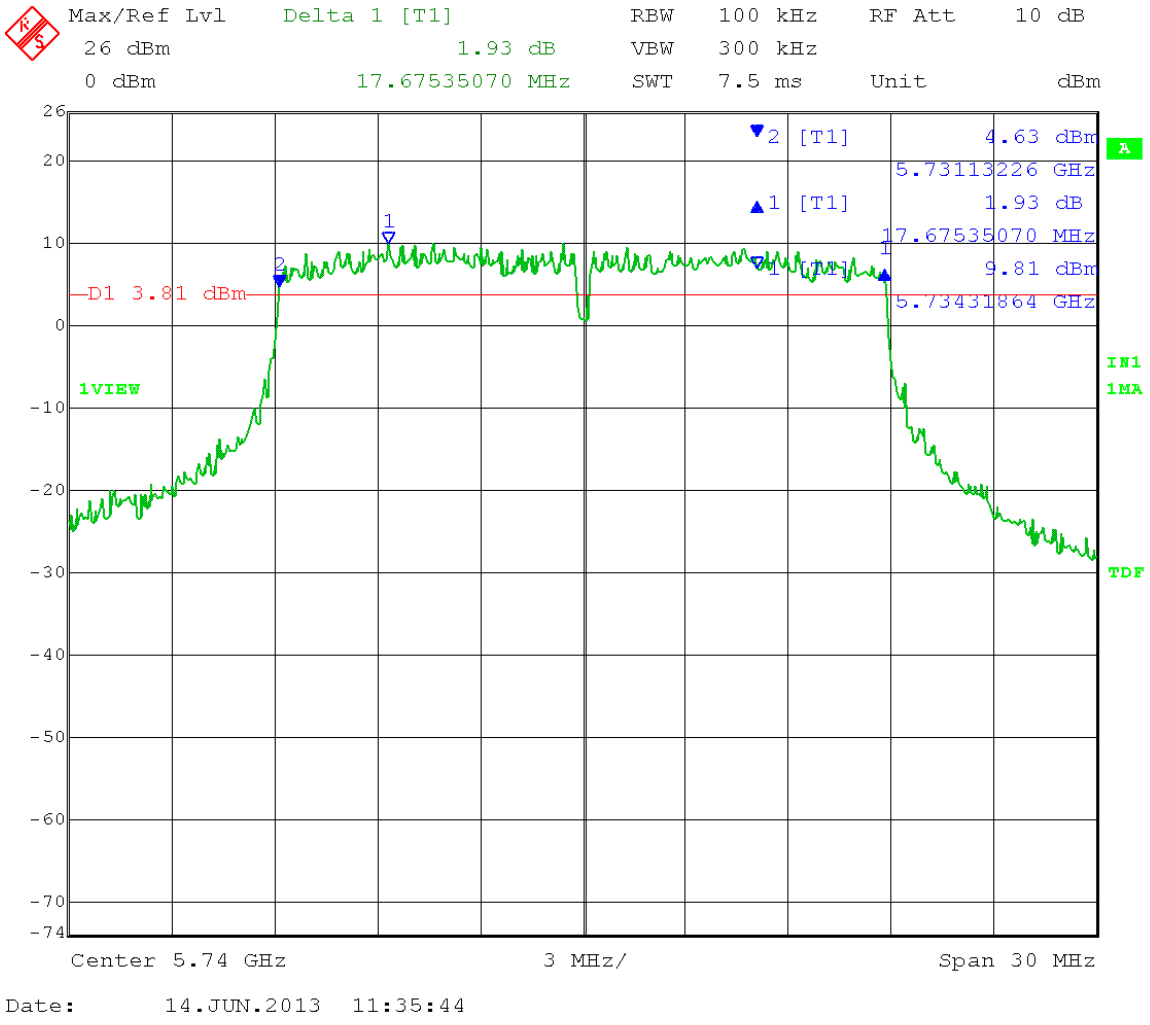
| | |
|---|---|
| Company: | Cambium Networks |
| Model Tested: | C050900P12A |
| Report Number: | 19128 |
| DLS Project: | 5941 |

| | |
|---|---|
| Test Date: | 06-14-2013 |
| Company: | Cambium Networks |
| EUT: | Avenger AP 5.7GHz OFDM |
| Test: | DTS Bandwidth (6 dB) - Conducted |
| Operator: | Jim O |
| Comment: | FCC DTS operating under 15.247 – OET 4/9/2013 |

8.0 DTS Bandwidth: Section 8.1 Option 1

| | |
|---|---|
| RBW = 100 kHz | VBW = 300 kHz |
| Low Channel: Transmit = 5.740 GHz | 20MHz BW |
| Output power setting: 20 | Channel 1 |
| Limit > 500 kHz | ESN# 000456C005DE |

**DTS Bandwidth = 17.67MHz**



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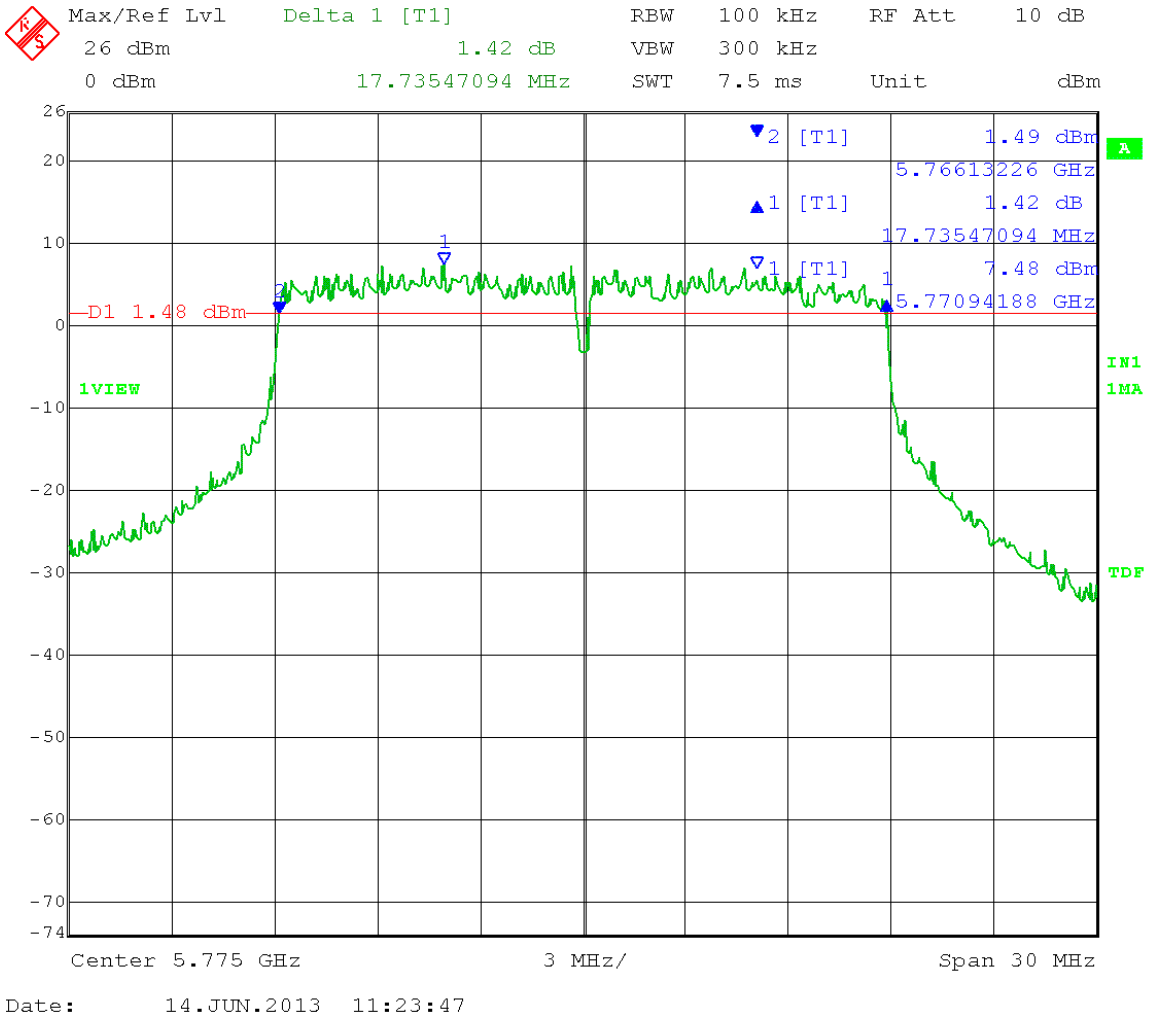
| | 8.0 DTS Bandwidth: Section 8.1 Option 1 |
| | RBW = 100 kHz VBW = 300 kHz |
| | Mid Channel: Transmit = 5.775 GHz 20MHz BW |
| | Output power setting: 20 Channel 1 |
| | Limit > 500 kHz ESN# 000456C005DE |

**DTS Bandwidth = 17.74MHz**



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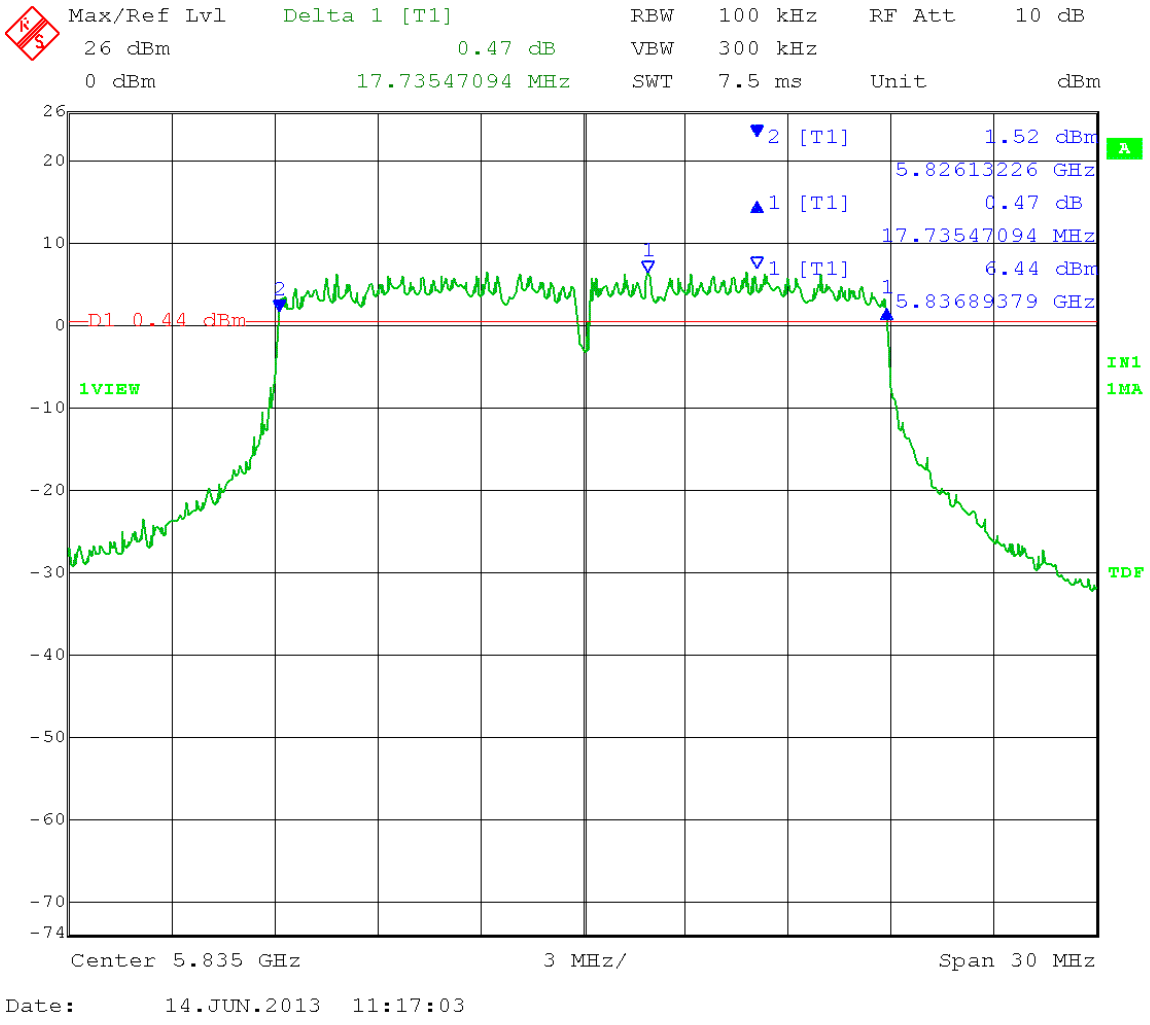
**DTS Bandwidth = 17.74MHz**



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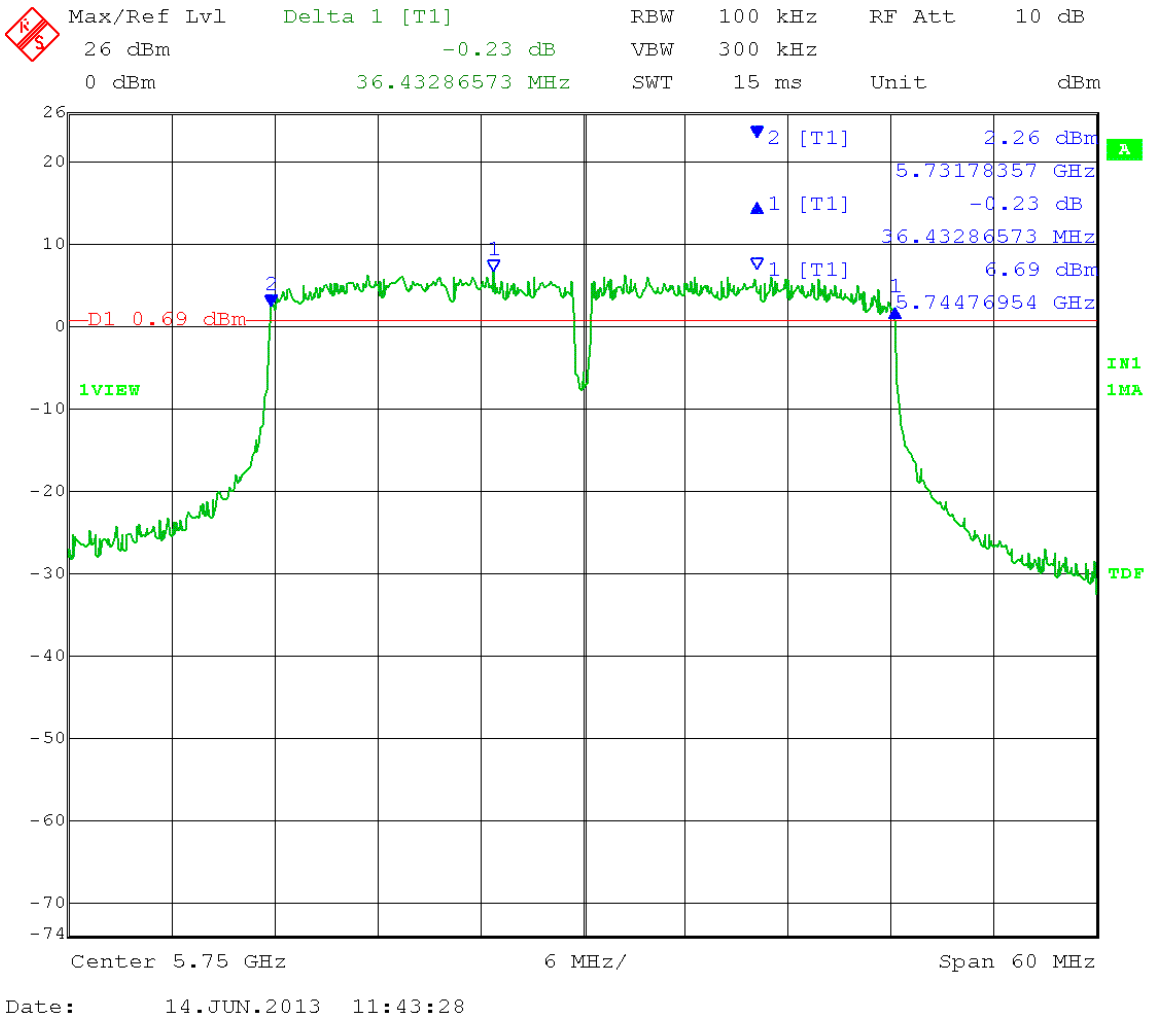
8.0 DTS Bandwidth: Section 8.1 Option 1
RBW = 100 kHz VBW = 300 kHz
Low Channel: Transmit = 5.750 GHz 40MHz BW
Output power setting: 20 Channel 0
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 36.43MHz**



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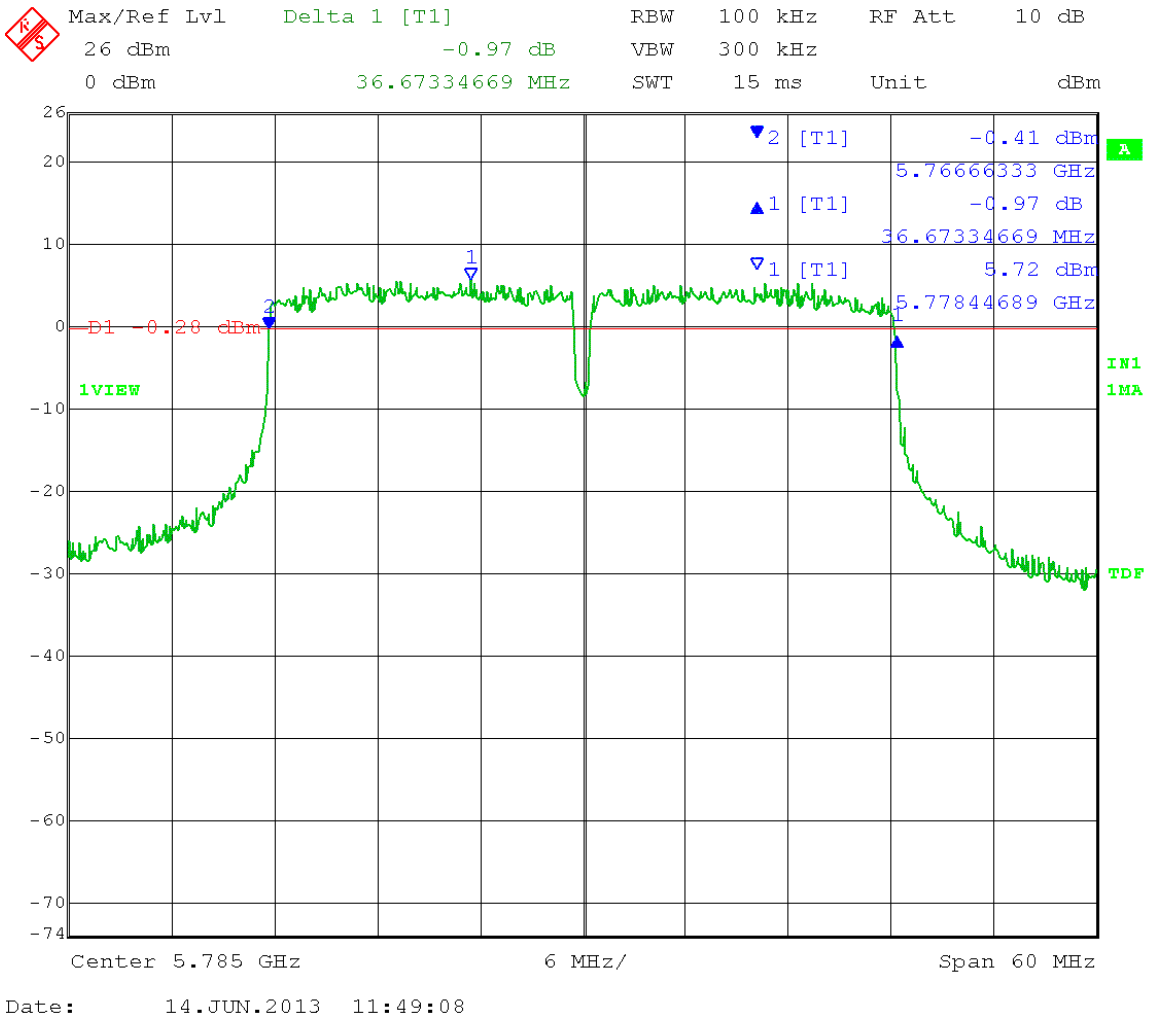
8.0 DTS Bandwidth: Section 8.1 Option 1
RBW = 100 kHz VBW = 300 kHz
Mid Channel: Transmit = 5.785 GHz 40MHz BW
Output power setting: 20 Channel 0
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 36.67MHz**



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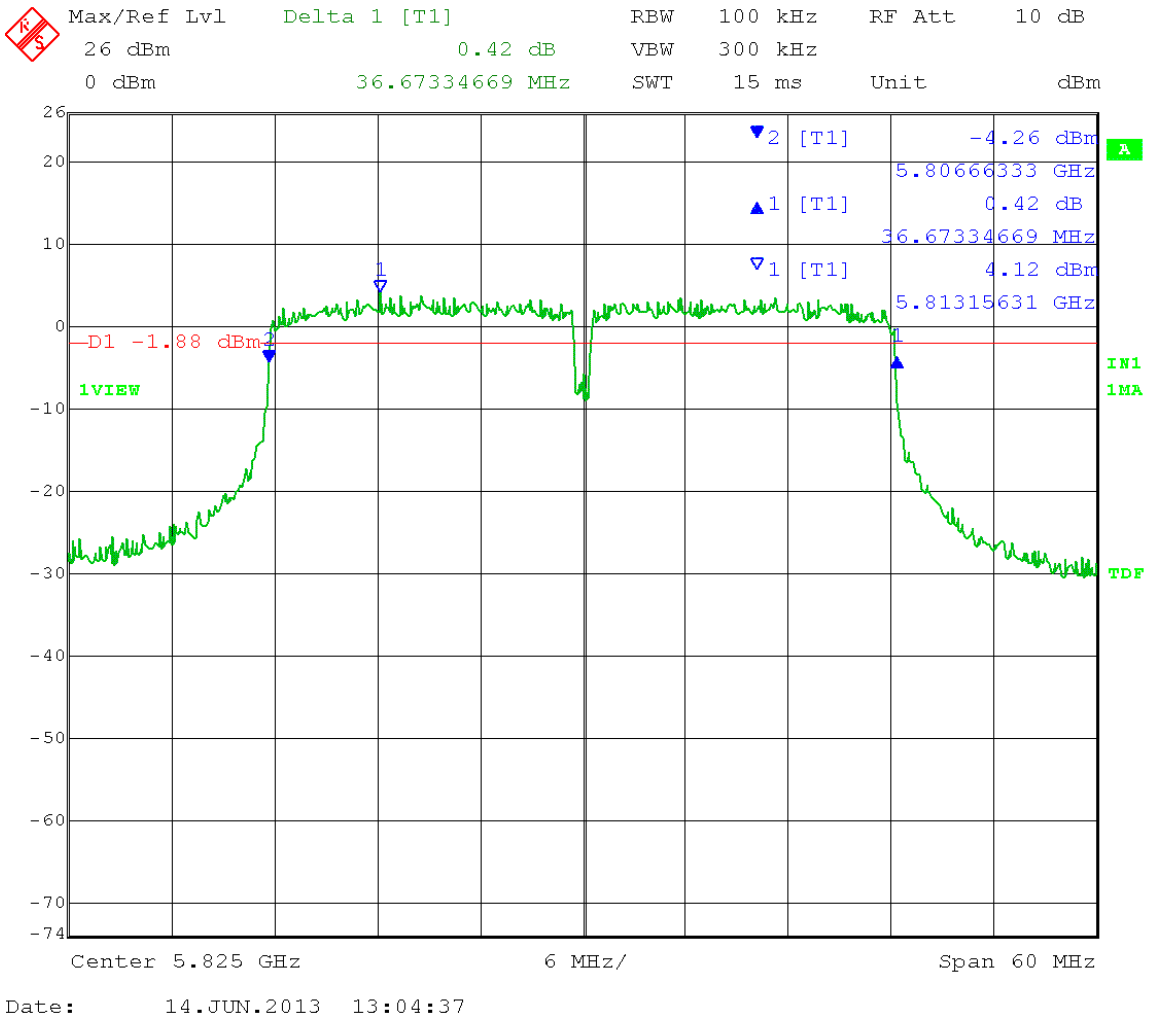
8.0 DTS Bandwidth: Section 8.1 Option 1
RBW = 100 kHz VBW = 300 kHz
High Channel: Transmit = 5.825 GHz 40MHz BW
Output power setting: 20 Channel 0
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 36.67MHz**



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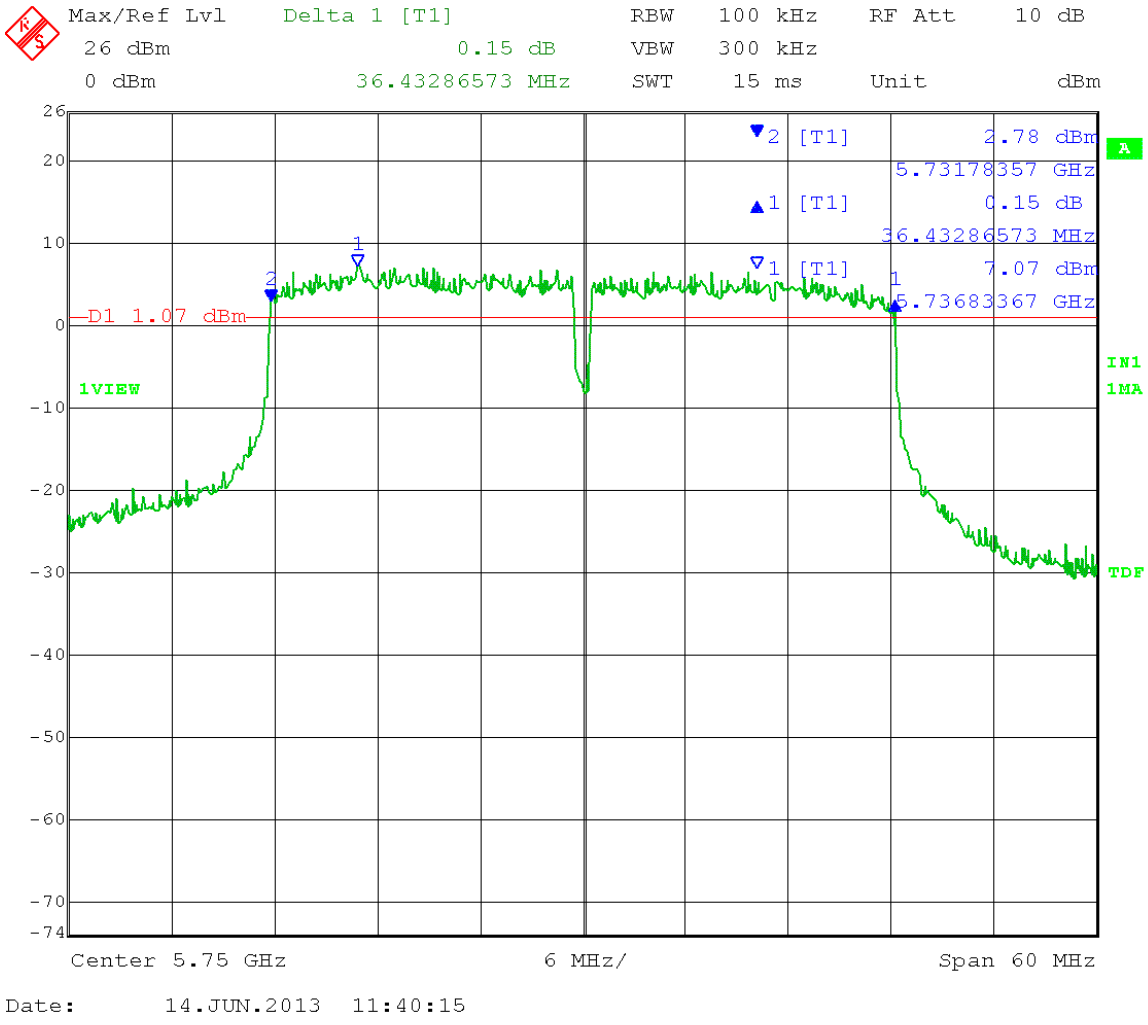
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 36.43MHz**



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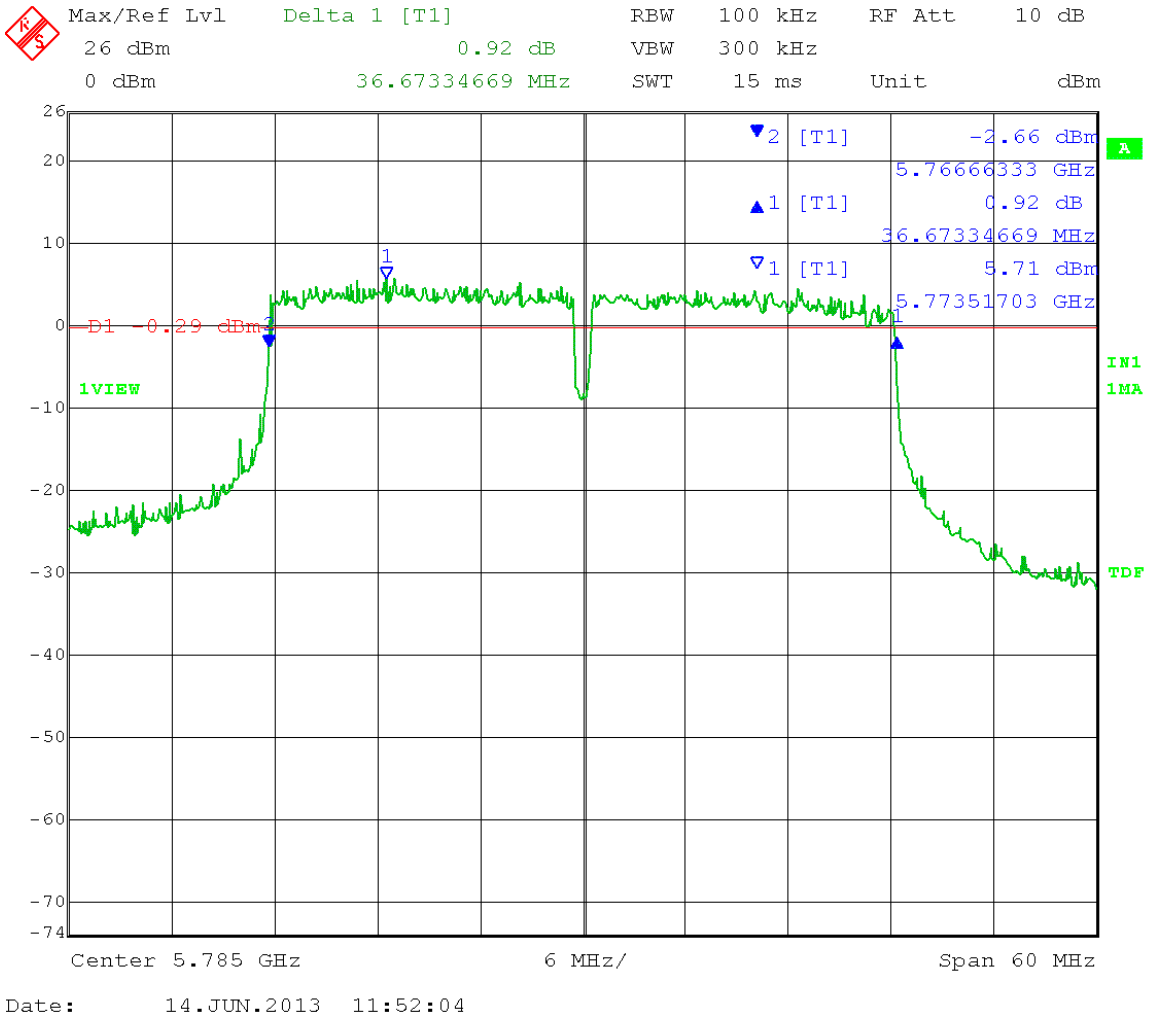
Output power setting: 20 Channel 1
Limit > 500 kHz ESN# 000456C005DE

**DTS Bandwidth = 36.67MHz**



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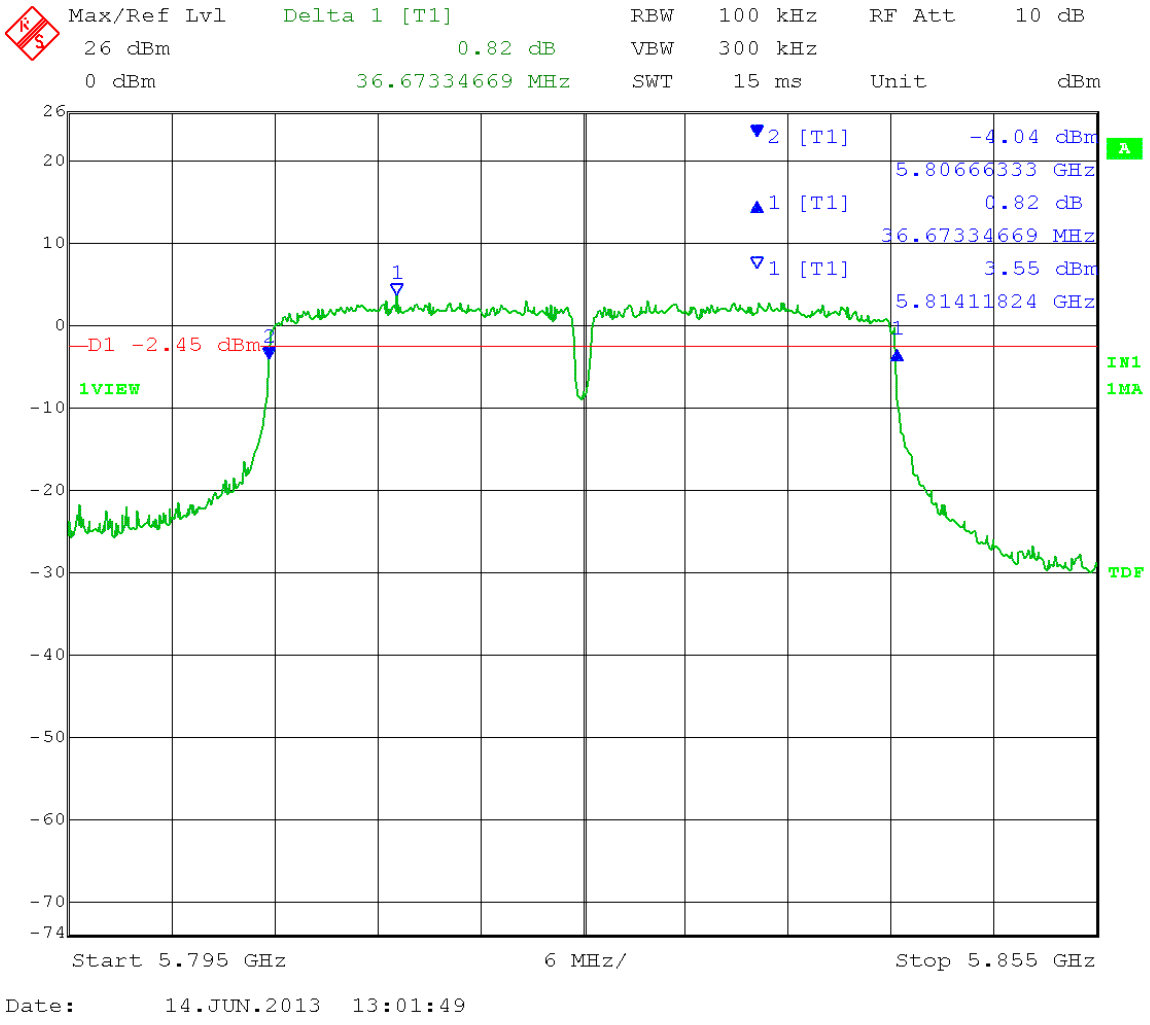
**DTS Bandwidth = 36.67MHz**



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## Appendix B – Measurement Data

### B2.0 Fundamental Emission Output Power - Conducted

**Rule Section**: Section 15.247(b)(3)

**Test Procedure**: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)

**Description**: As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent.

Measurements were taken for an OFDM modulation over a 20MHz and 40MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings. A duty cycle measurement of greater than 98% was confirmed.

**Limit:** 1 Watt (30dBm); 20dBm for Point-to-Multipoint mode. (see note below)

**Results:** Passed

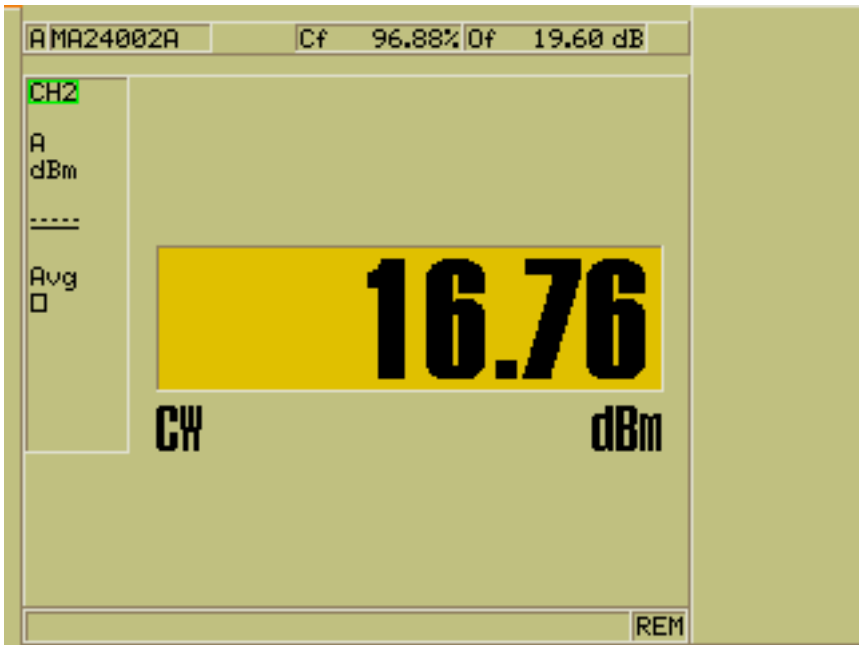
**Notes:** Antenna gain is 16dBi. Therefore, the RF conducted power limit was reduced by 10 dB to 20dBm (the amount by which the antenna gain exceeds 6dBi) for Point-to-Multipoint mode.

Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 0; Low Channel Frequency: 5.740 GHz
Output power setting: 17 Modulation BW: 20MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.76dBm + 3 dB (MIMO)
= 19.76dBm = 95.1**mW**

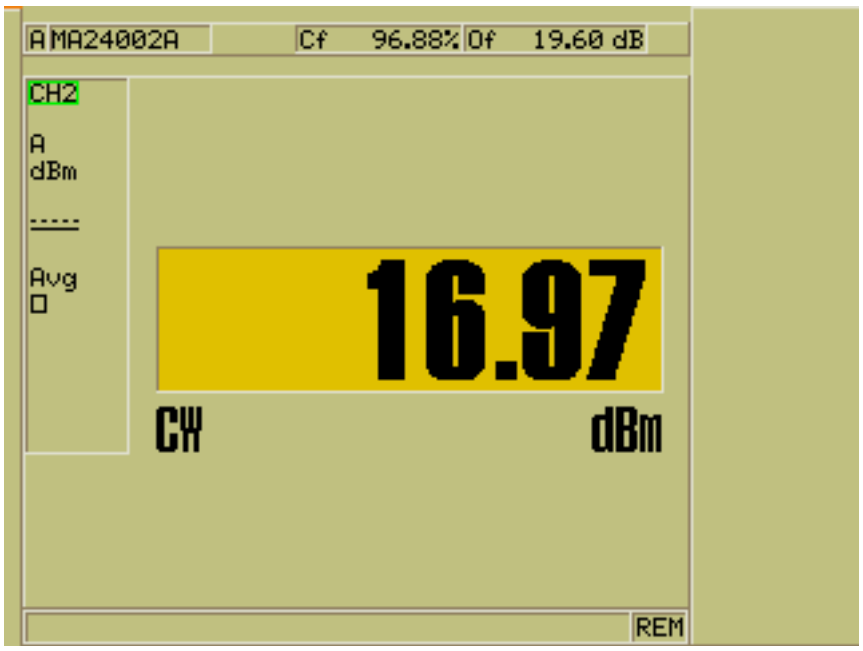


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 0; Mid Channel Frequency: 5.775 GHz
Output power setting: 17 Modulation BW: 20MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.97dBm + 3 dB (MIMO)
= 19.97dBm = 99.3**mW**

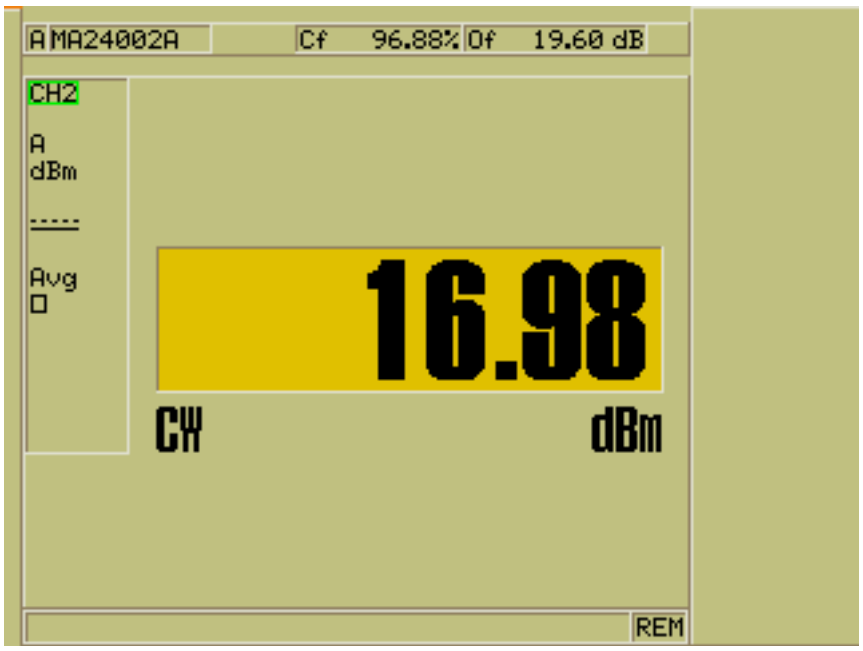


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 0 High Channel Frequency: 5.835 GHz
Output power setting: 17 Modulation BW: 20MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.98dBm + 3 dB (MIMO)
= 19.98dBm = 99.1**mW**

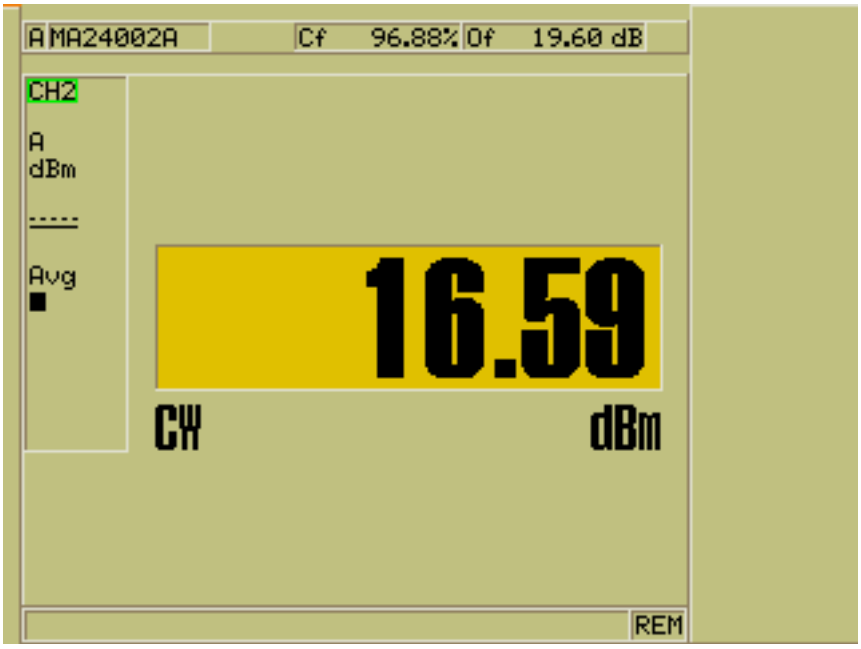


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 1; Low Channel Frequency: 5.740 GHz
Output power setting: 17 Modulation BW: 20MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.59dBm + 3 dB (MIMO)
= 19.59dBm = 91**mW**

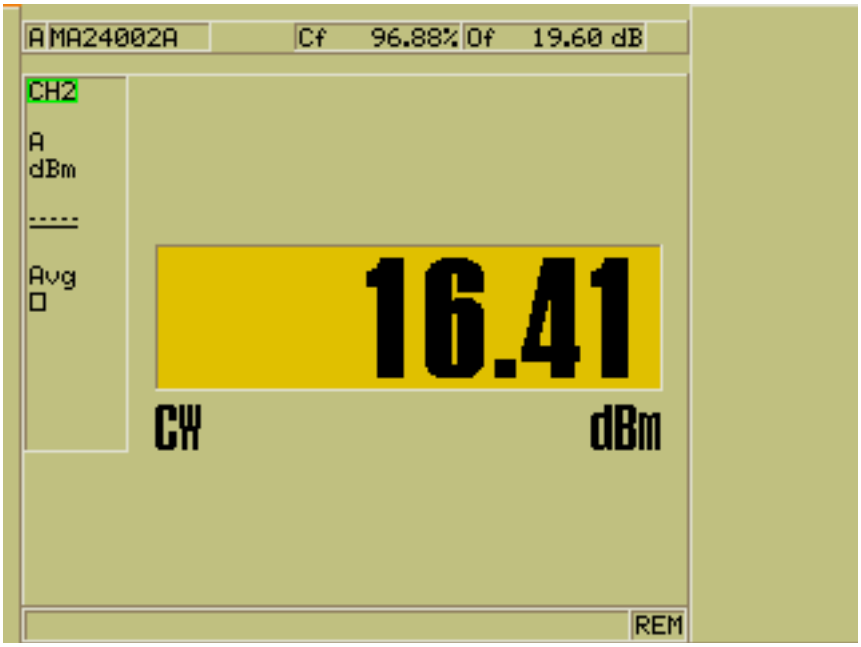


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 1 Mid Channel Frequency: 5.775 GHz
Output power setting: 17 Modulation BW: 20MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.41dBm + 3 dB (MIMO)
= 19.41dBm = 87.3**mW**



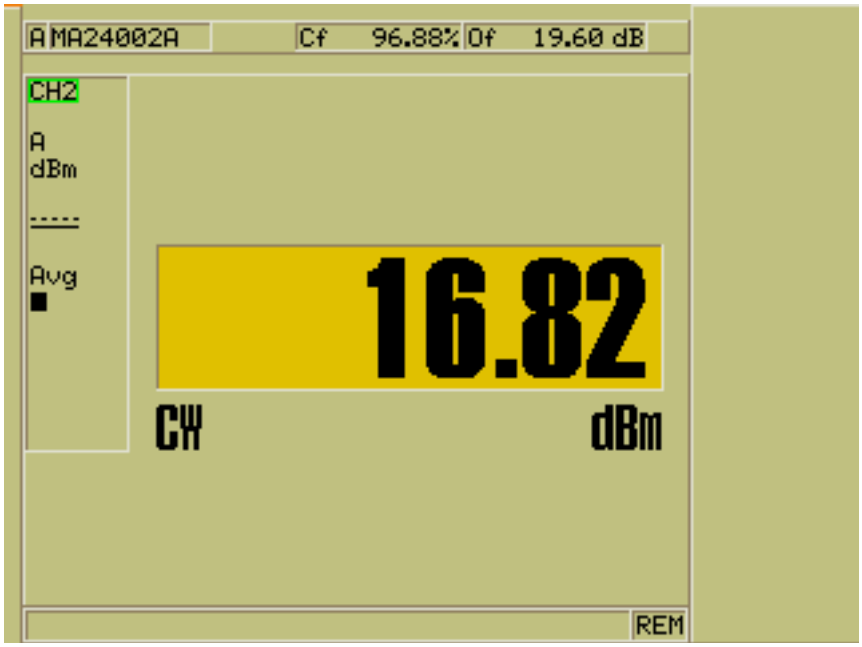
166 South Carter, Genoa City, WI 53128

Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 1 High Channel Frequency: 5.835 GHz
Output power setting: 17 Modulation BW: 20MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.82dBm + 3 dB (MIMO)
= 19.82dBm = 95.9**mW**



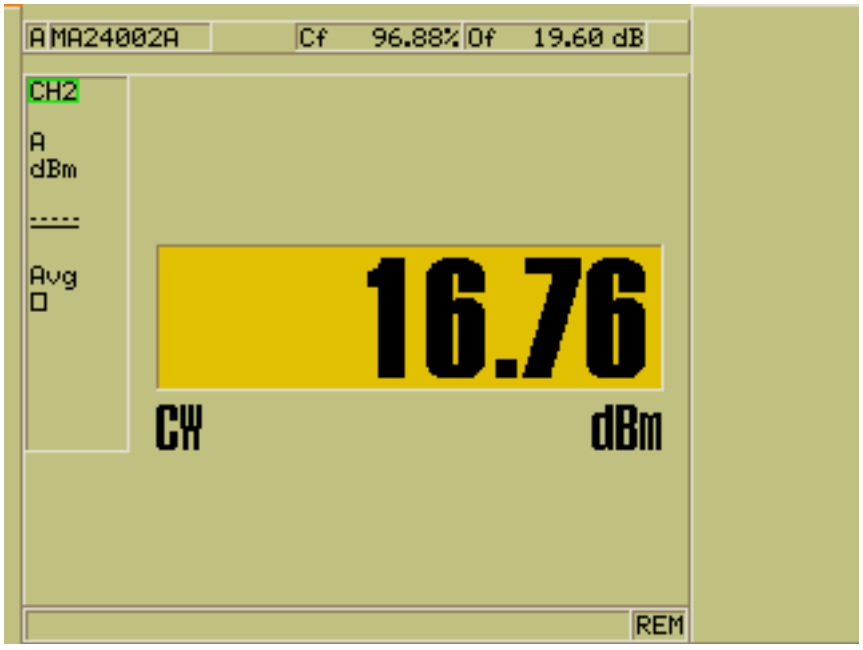
Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)

Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 0 Low Channel Frequency: 5.750 GHz
Output power setting: 17 Modulation BW: 40MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.76dBm + 3 dB (MIMO)
= 19.76dBm = 94.6**mW**

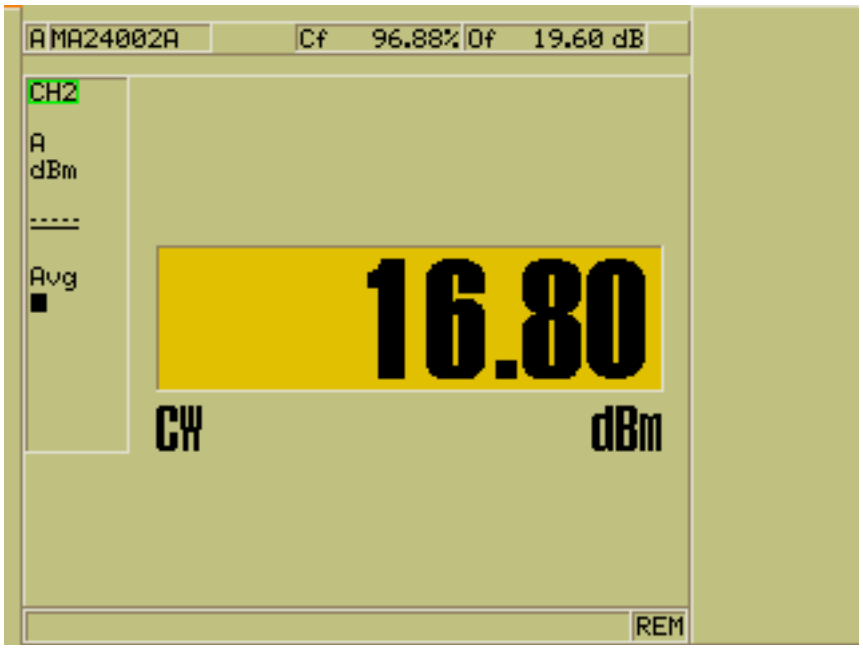


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 0 Mid Channel Frequency: 5.775 GHz
Output power setting: 17 Modulation BW: 40MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.80dBm + 3 dB (MIMO)
= 19.80dBm = 95.5**mW**

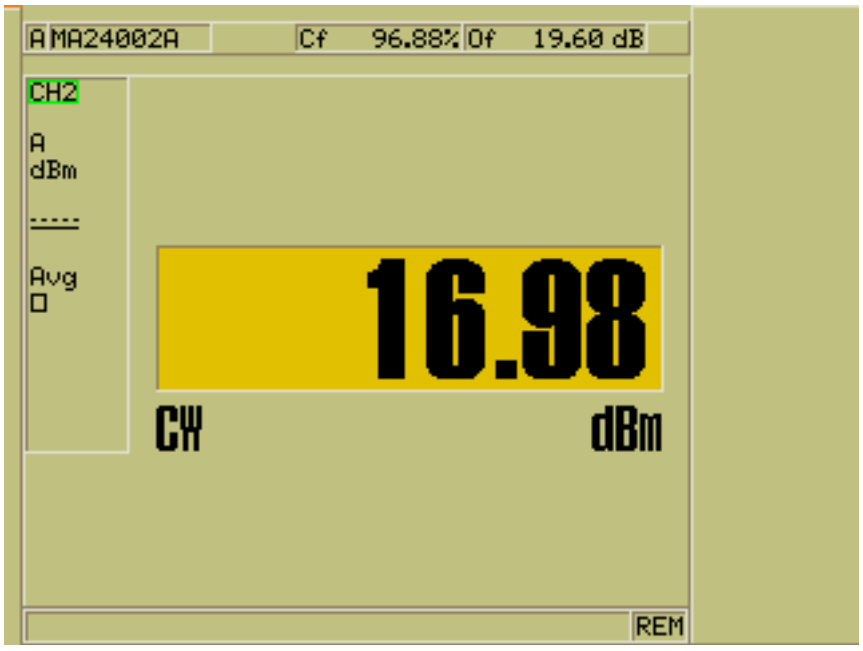


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 0 High Channel Frequency: 5.825 GHz
Output power setting: 17 Modulation BW: 40MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.98dBm + 3 dB (MIMO)
= 19.98dBm = 99.5**mW**

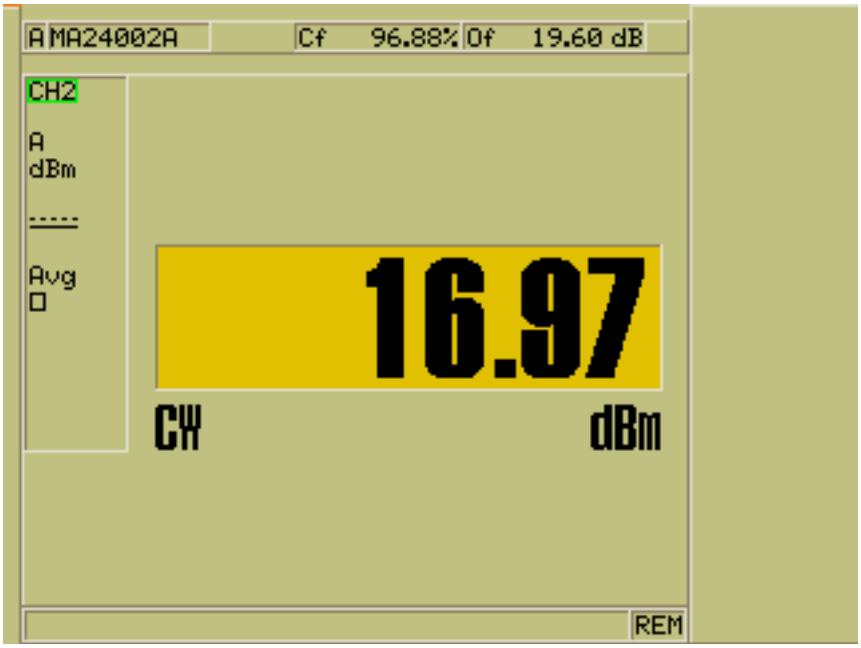


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 1 Low Channel Frequency: 5.750 GHz
Output power setting: 17 Modulation BW: 40MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.97dBm + 3 dB (MIMO)
= 19.97dBm = 99.3**mW**

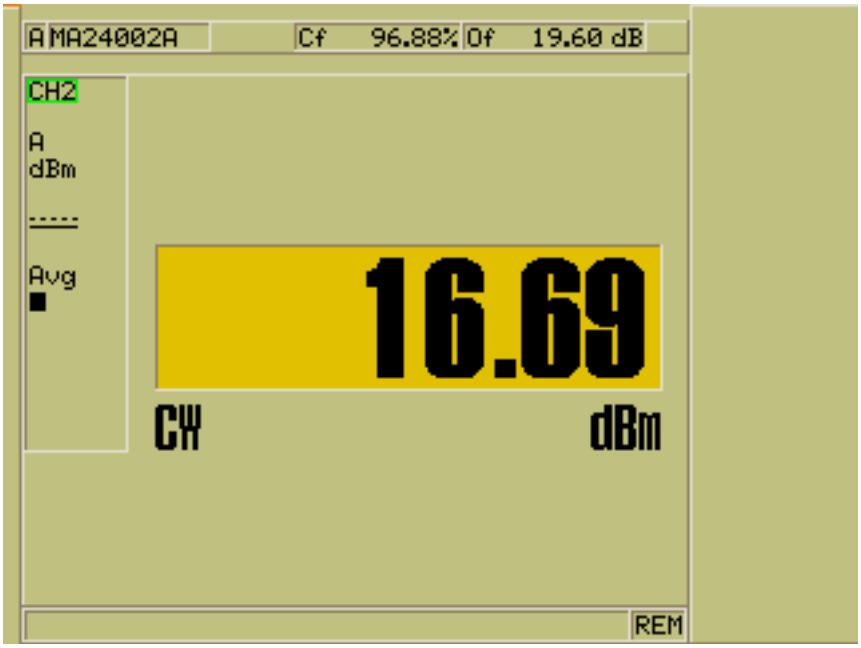


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 1 Mid Channel Frequency: 5.775 GHz
Output power setting: 17 Modulation BW: 40MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.69dBm + 3 dB (MIMO)
= 19.69dBm = 93.1**mW**

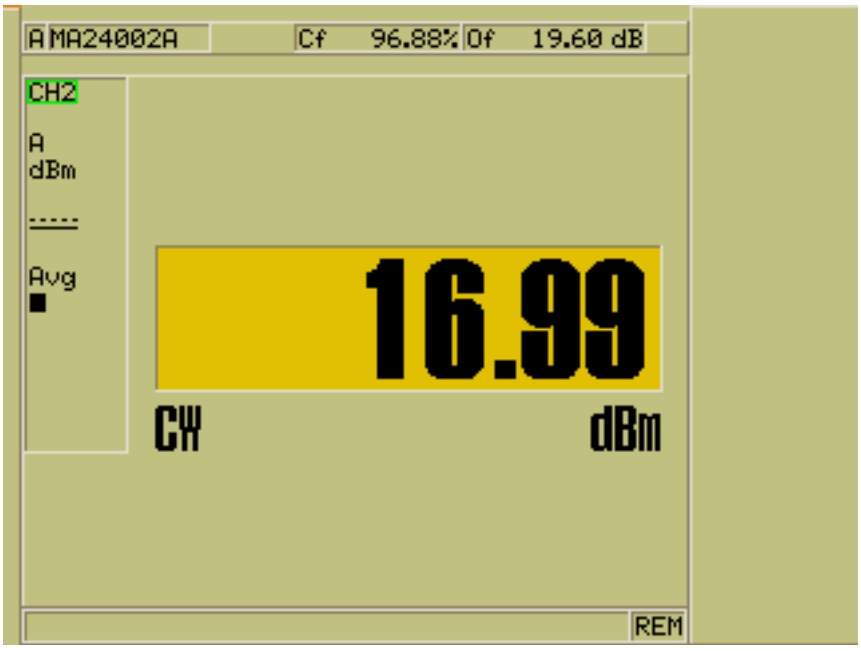


Test Date: 06-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz OFDM
Test: AVERAGE AP Fundamental Emission Output Power – Conducted
Procedure: FCC KDB D01 DTS Meas Guidance v03r01
Section 9.2.3.1 – AVGPM (Measurement using an RF average power meter with a thermocouple detector)
Operator: Jim O ESN# 000456C005DE
Comments: Output port: Channel 1 High Channel Frequency: 5.825 GHz
Output power setting: 17 Modulation BW: 40MHz
Operating Mode: Point-to-Multipoint Antenna Gain = 16dBi

Limit: [15.247(b)(3)]: 30 dBm (1 Watt) – 10 dB (antenna gain is 10 dB greater than the 6 dB allowed) = 20dBm conducted.

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

Fundamental Emission AVERAGE Output Power = 16.99dBm + 3 dB (MIMO)
= 19.99dBm = 99.8**mW**



166 South Carter, Genoa City, WI 53128

## Appendix B – Measurement Data

### B3.0 Maximum Power Spectral Density – Conducted

**Rule Section**: Section 15.247(e)

**Test Procedure**: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

**10.3 Method AVGPSD-1 (trace averaging with EUT transmitting at full (power throughout each sweep)**

**Description**:
Set instrument center frequency to DTS channel center frequency.
Set span to at least 1.5 times the OBW.
Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
Set VBW ≥3 x RBW.
Detector = power averaging (RMS) or sample detector (when RMS not available).
Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
Sweep time = auto couple.
Employ trace averaging (RMS) mode over a minimum of 100 traces.
Use the peak marker function to determine the maximum amplitude level.

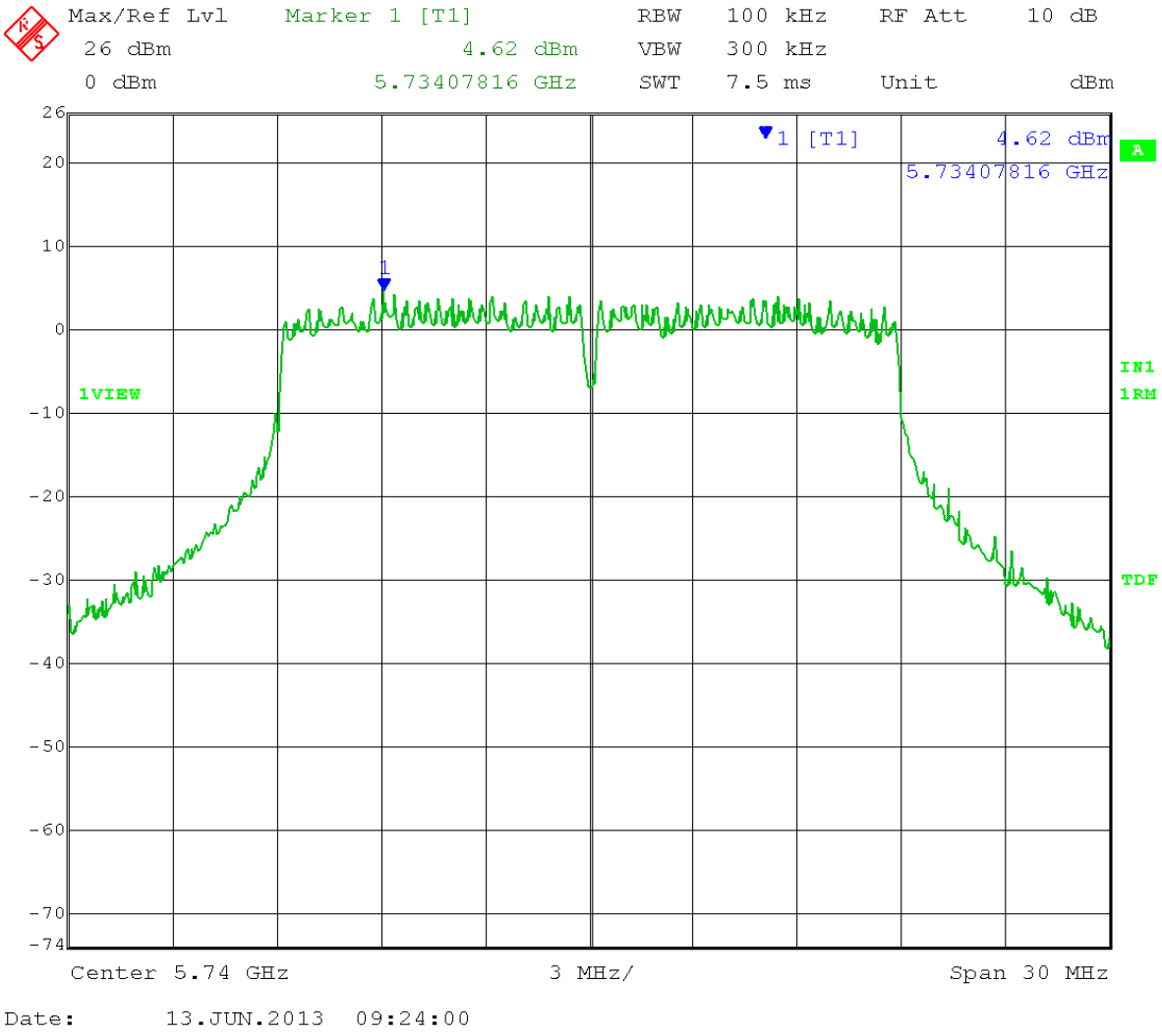
Measurements were taken for an OFDM modulation over a 20MHz and 40MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings. A duty cycle measurement of greater than 98% was confirmed.

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

**Results:** Passed

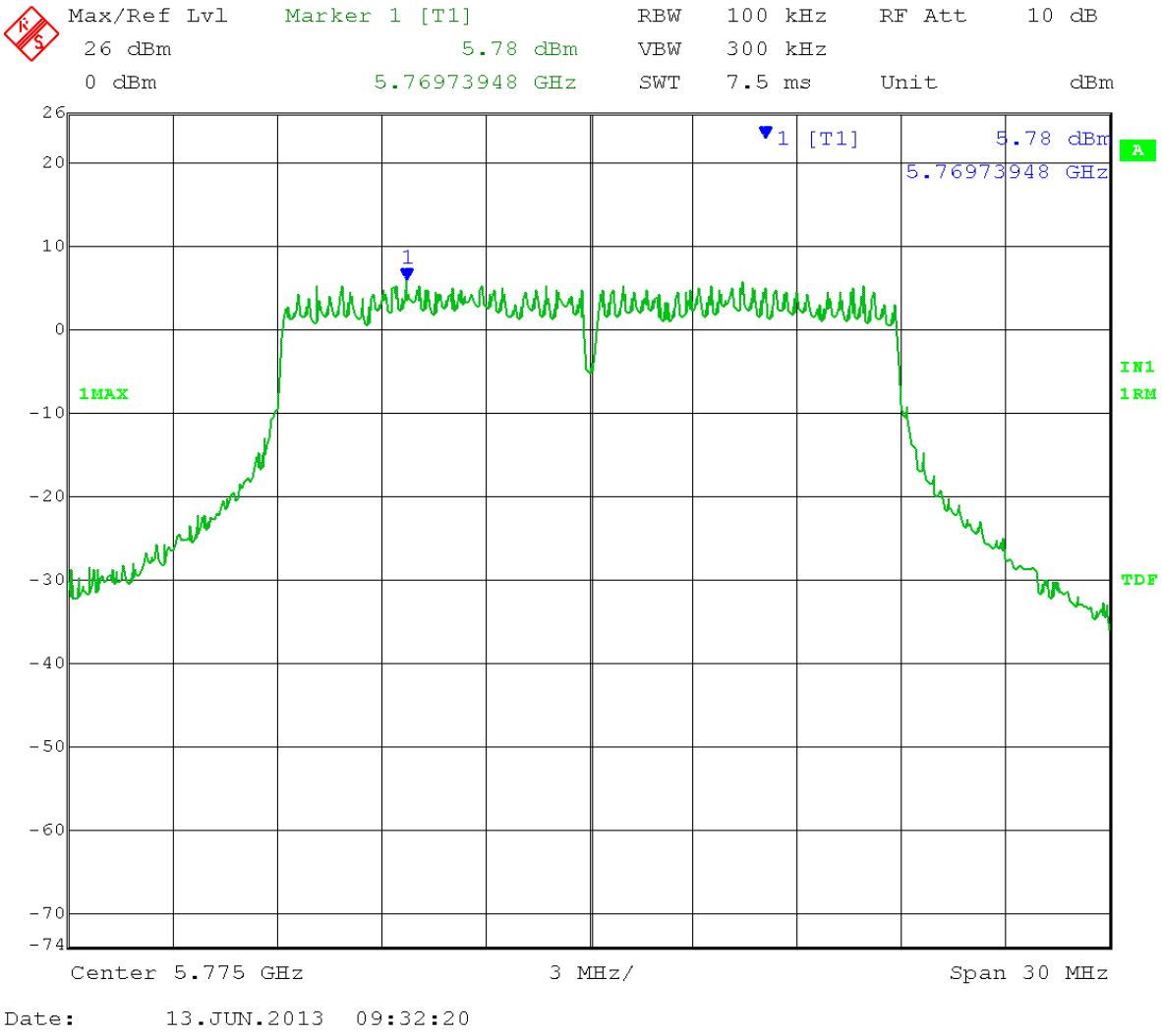
| | |
|---|---|
| Test Date: | 6-13-2013 |
| Company: | Cambium Networks |
| EUT: | Avenger AP 5.7GHz: OFDM |
| Test: | Maximum Power Spectral Density - Conducted |
| Operator: | Jim O |
| Comment: | Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013) |

Low Channel: Frequency = 5.740GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 20MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 0 Limit: +8 dBm/3kHz (RBW)
PSD =4.62dBm = Pass

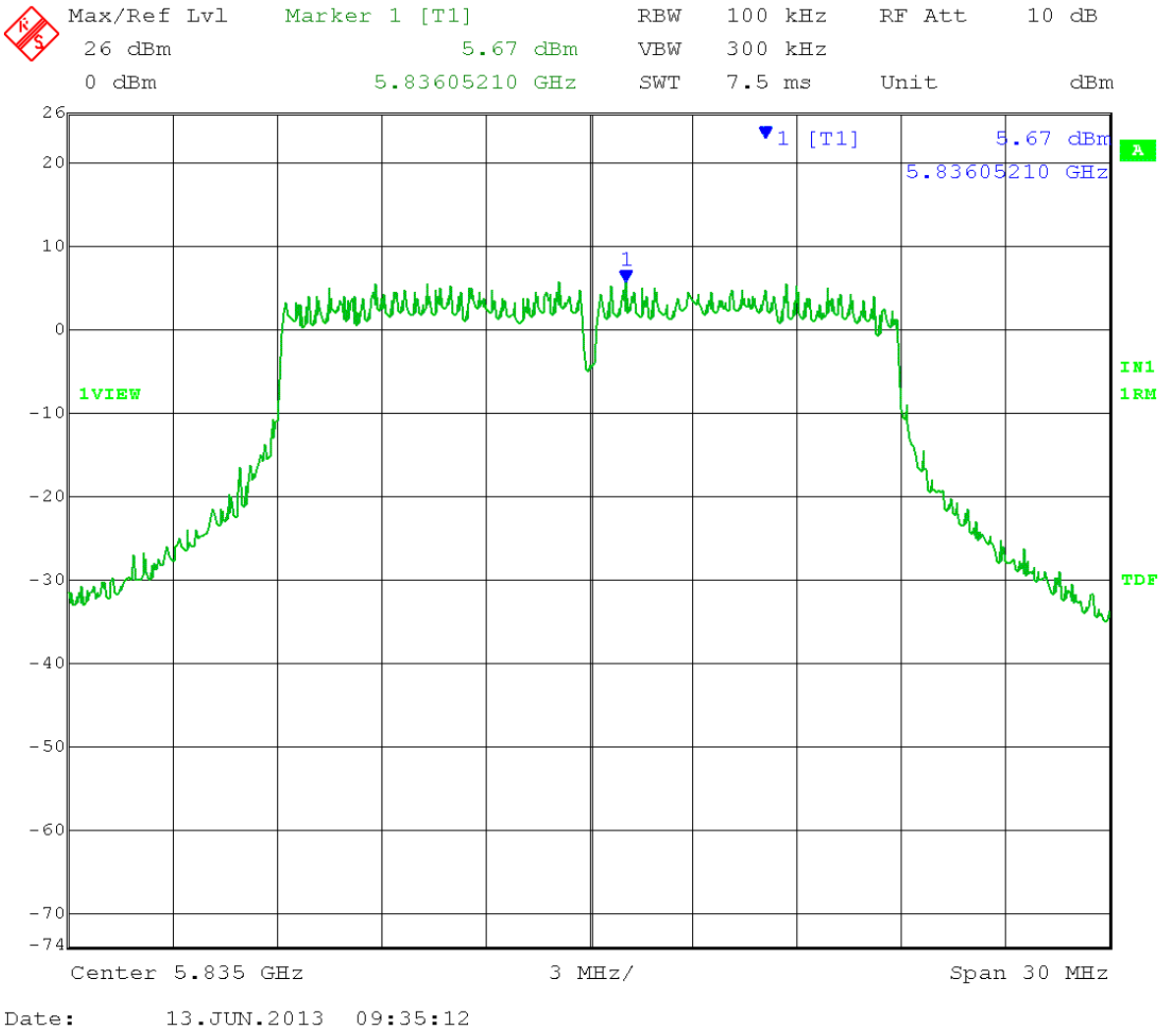


| | |
|---|---|
| Test Date: | 6-13-2013 |
| Company: | Cambium Networks |
| EUT: | Avenger AP 5.7GHz: OFDM |
| Test: | Maximum Power Spectral Density - Conducted |
| Operator: | Jim O |
| Comment: | Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013) |

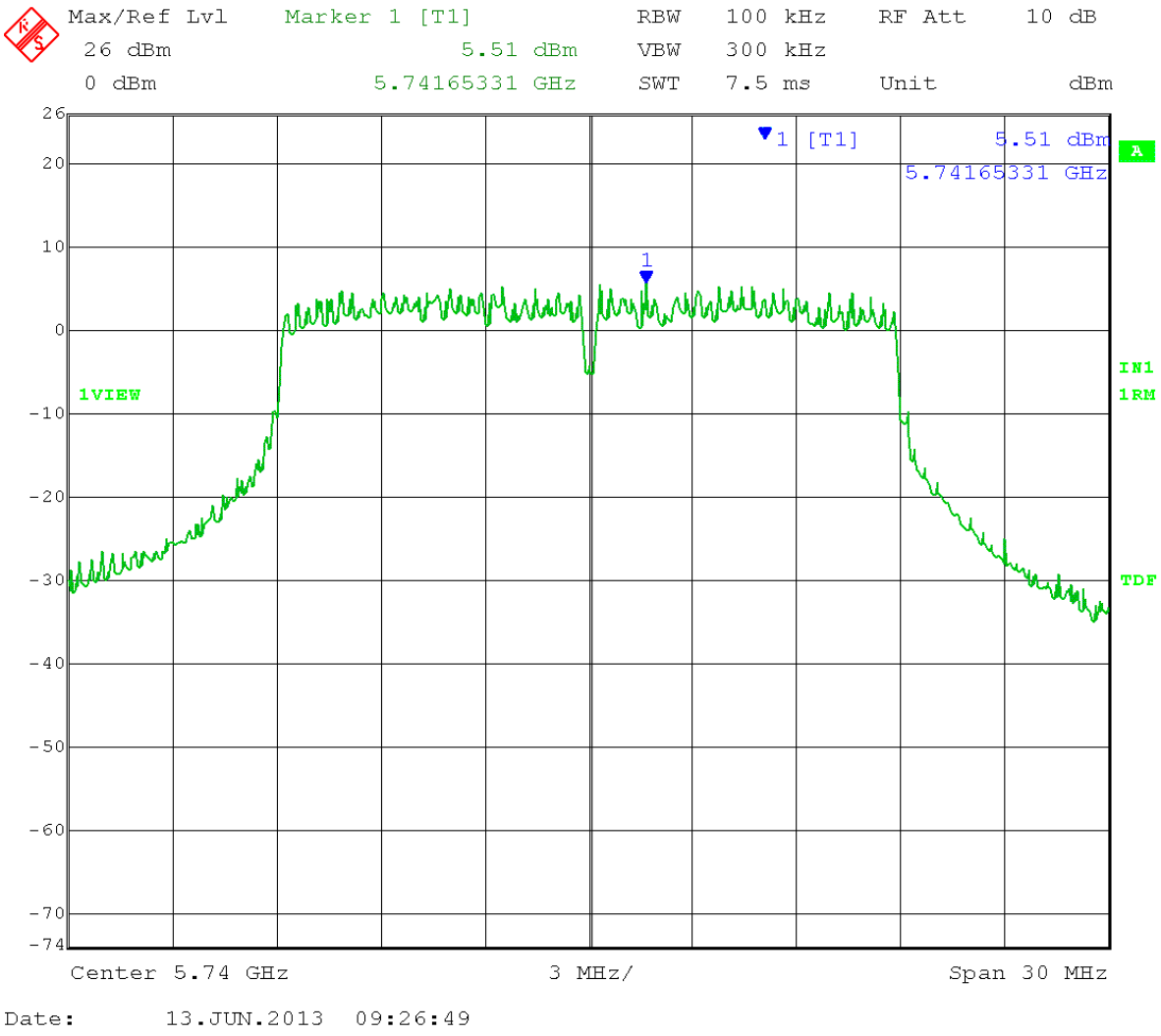
Mid Channel: Frequency = 5.775GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 20MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 0 Limit: +8 dBm/3kHz (RBW)
PSD =5.78dBm = Pass



Test Date: 6-13-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
High Channel: Frequency = 5.835GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 20MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 0 Limit: +8 dBm/3kHz (RBW)
PSD =5.67dBm = Pass



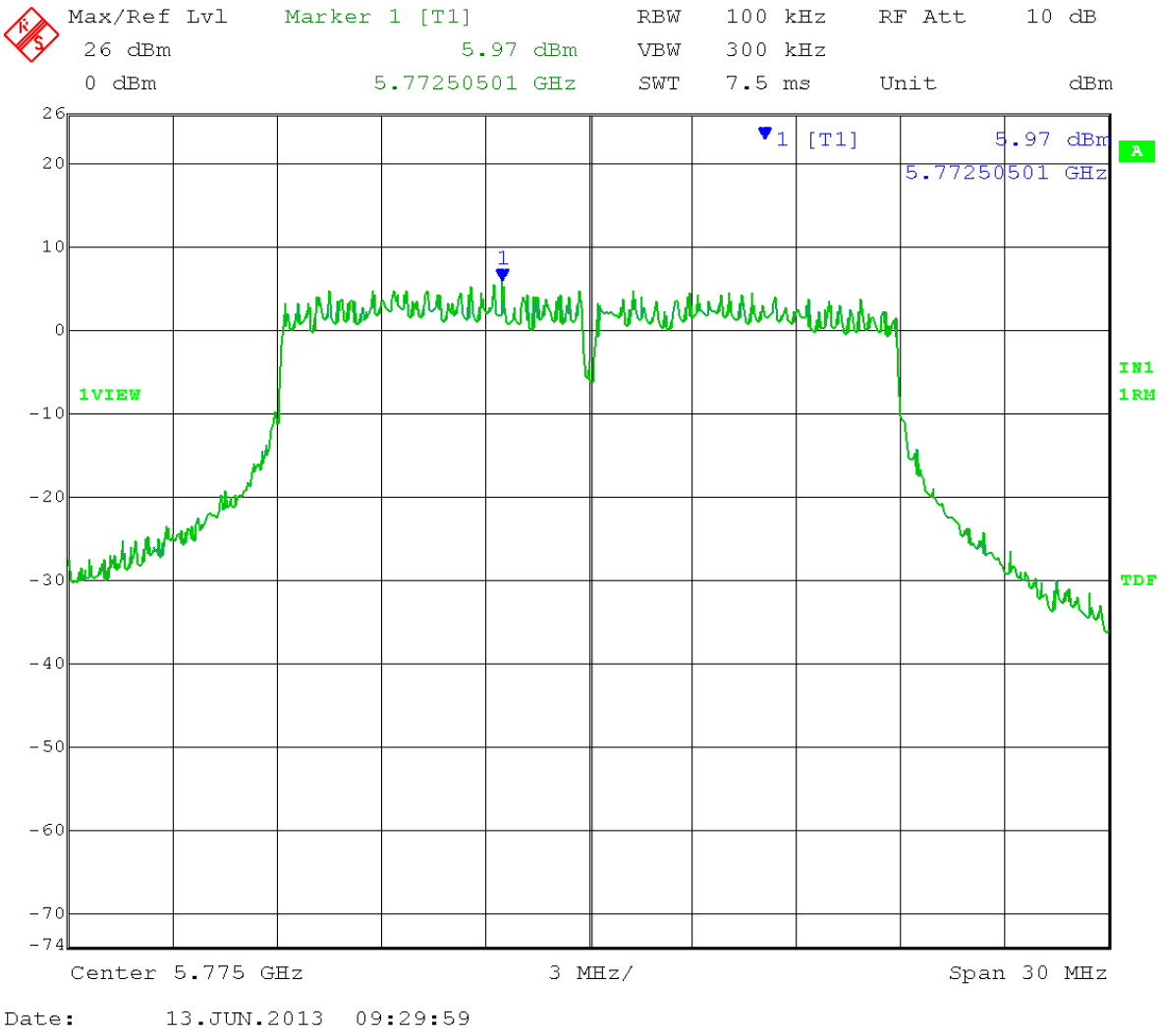
Test Date: 6-13-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
Low Channel: Frequency = 5.740GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 20MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 1 Limit: +8 dBm/3kHz (RBW)
PSD = 5.51dBm = Pass




Date: 13.JUN.2013 09:26:49

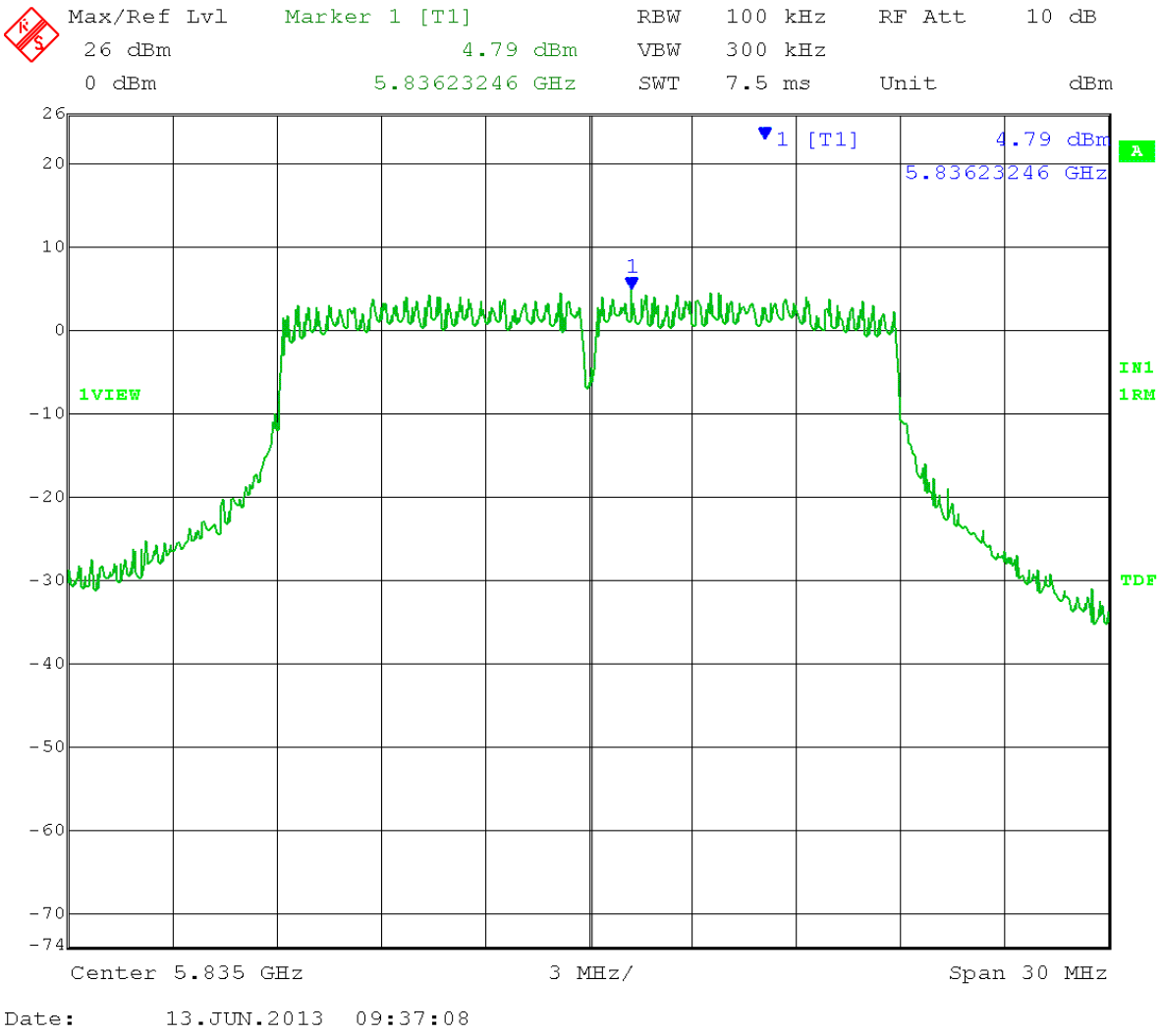
Test Date: 6-13-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)

| | |
|---|---|
| Mid Channel: Frequency = 5.775GHz | ESN# 000456C005DE |
| TX Output Power Setting = 20dBm | 20MHz BW |
| RBW = 100 kHz | VBW = 300 kHz |
| Span = 1.5 x EBW | Detector = RMS |
| Sweep = Auto Couple | Trace = Max Hold |
| Channel 1 | Limit: +8 dBm/3kHz (RBW) |
| PSD = 5.97dBm = Pass | |

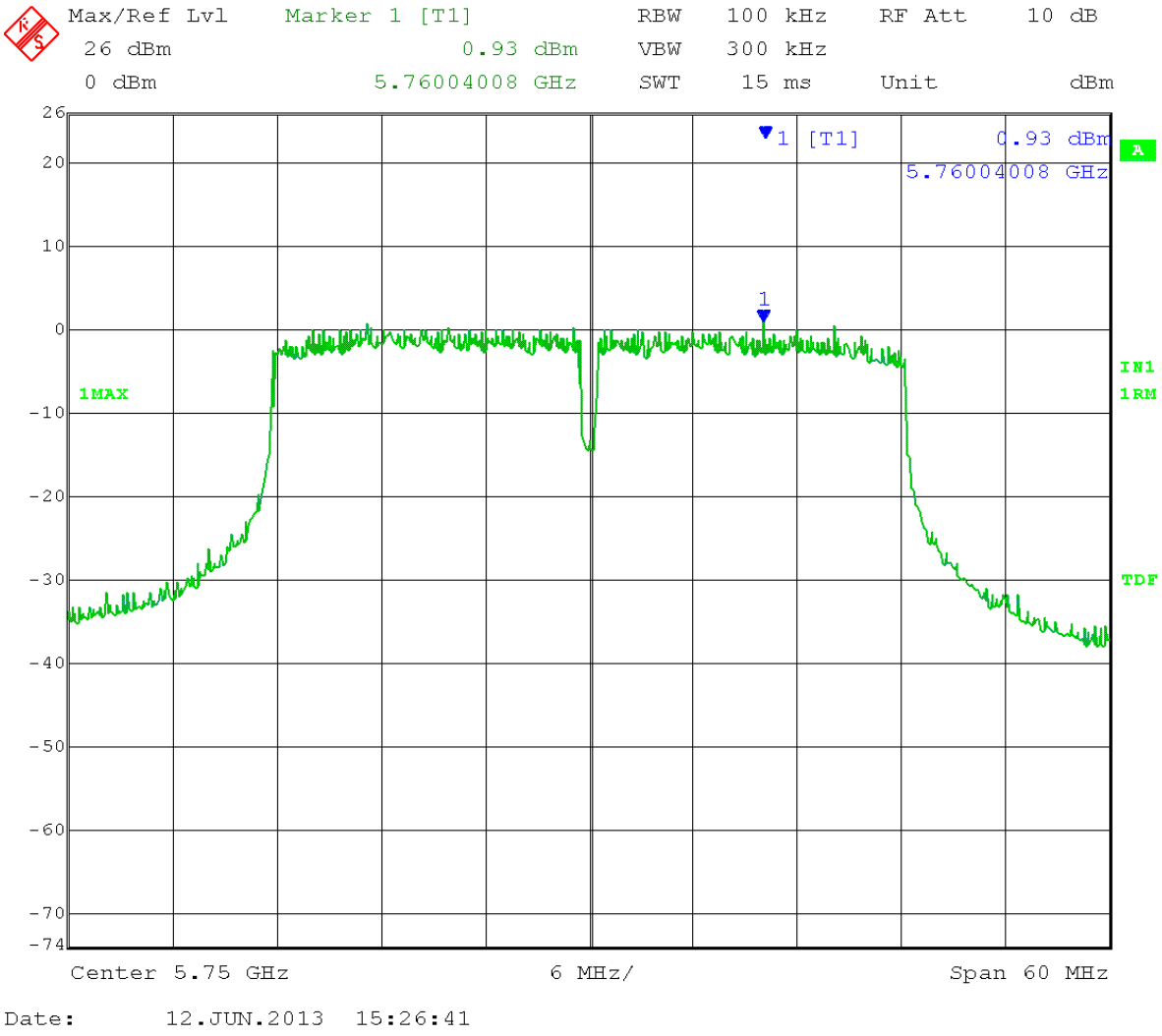



Date: 13.JUN.2013 09:29:59

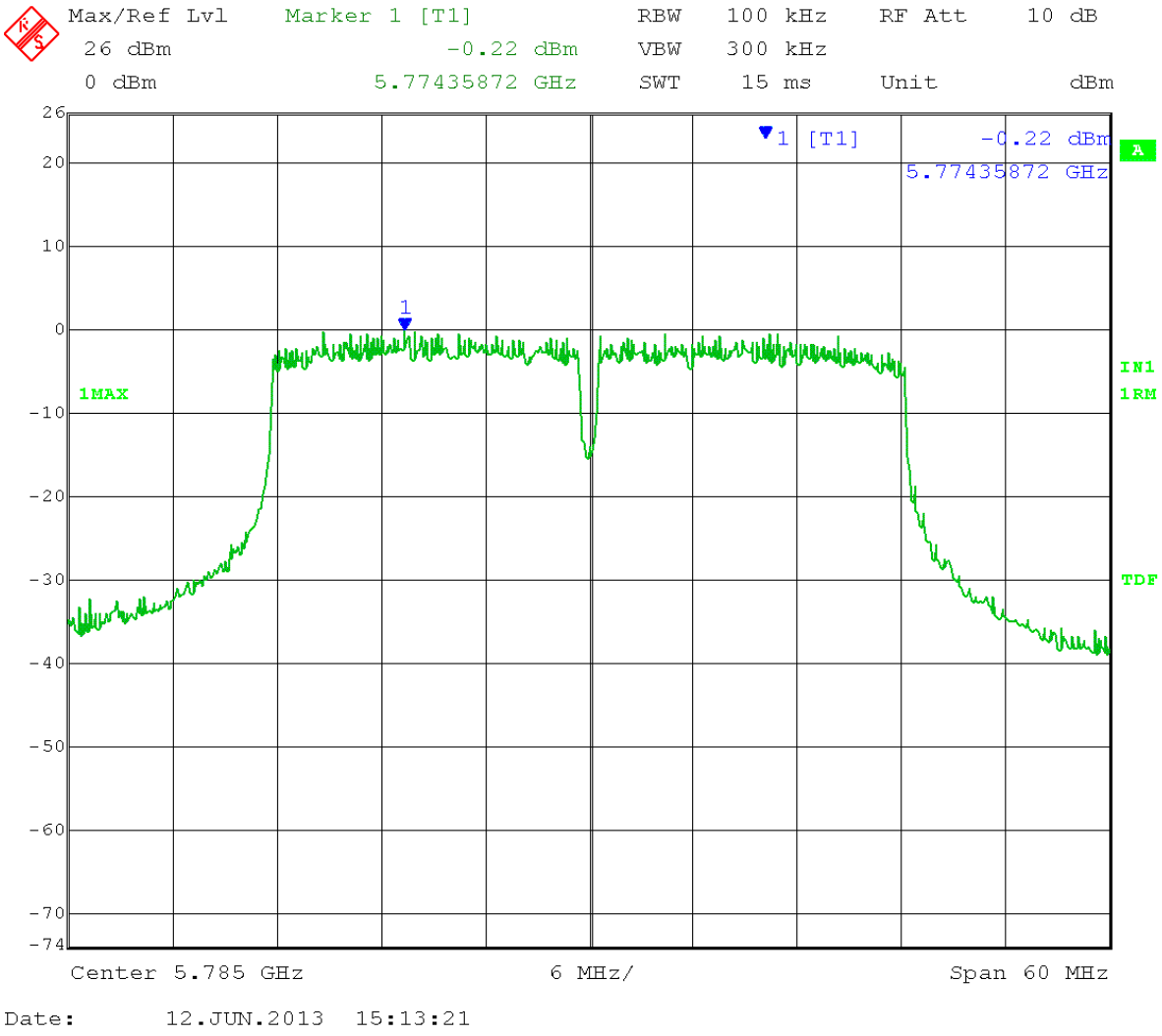
Test Date: 6-13-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
High Channel: Frequency = 5.835GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 20MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 1 Limit: +8 dBm/3kHz (RBW)
PSD = 4.79dBm = Pass



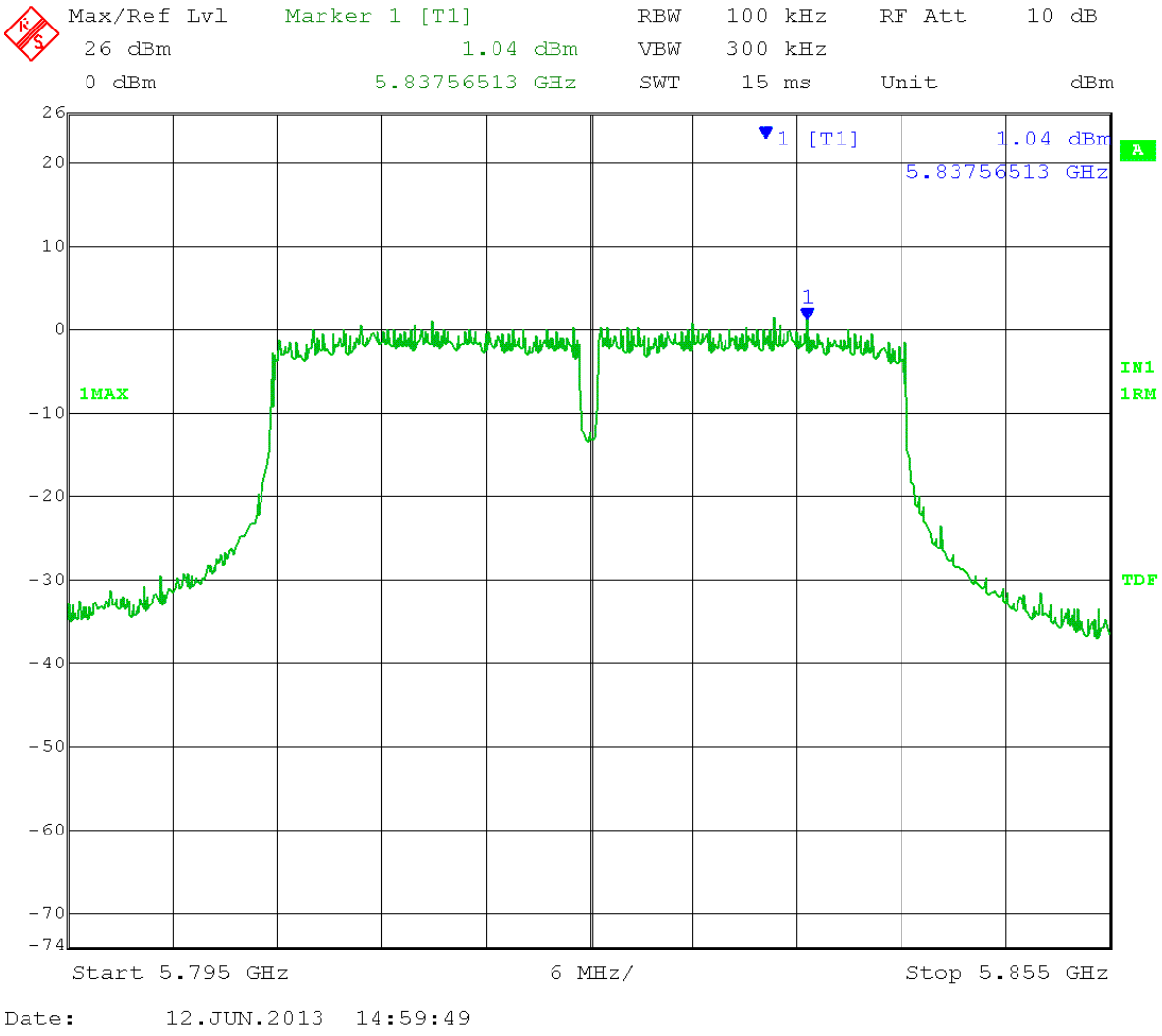
Test Date: 6-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
Low Channel: Frequency = 5.750GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 40MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 0 Limit: +8 dBm/3kHz (RBW)
PSD =0.93dBm = Pass



Test Date: 6-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
Mid Channel: Frequency = 5.785GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 40MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 0 Limit: +8 dBm/3kHz (RBW)
PSD = -0.22dBm = Pass

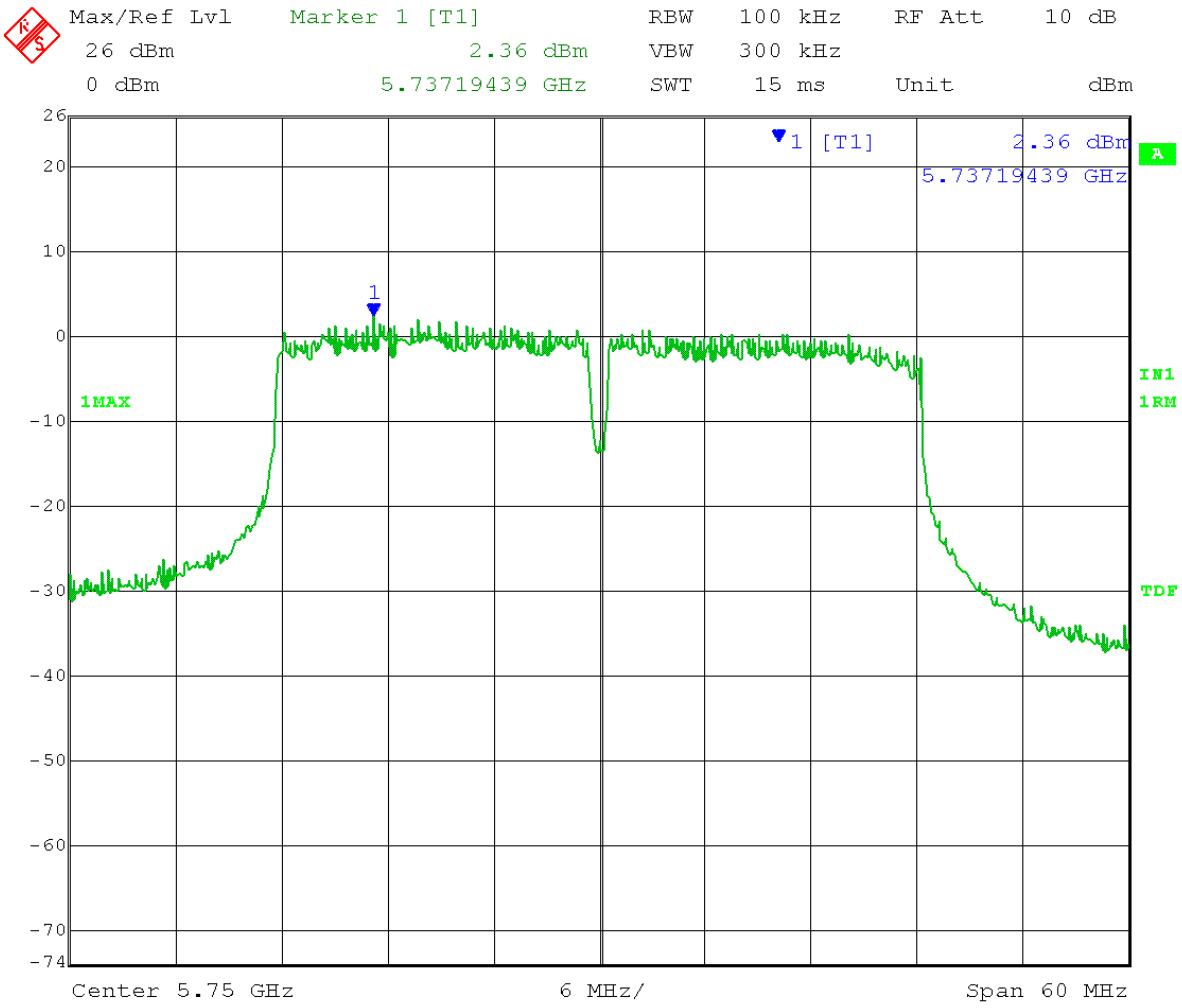


Test Date: 6-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
High Channel: Frequency = 5.825GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 40MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 0 Limit: +8 dBm/3kHz (RBW)
PSD =1.04dBm = Pass



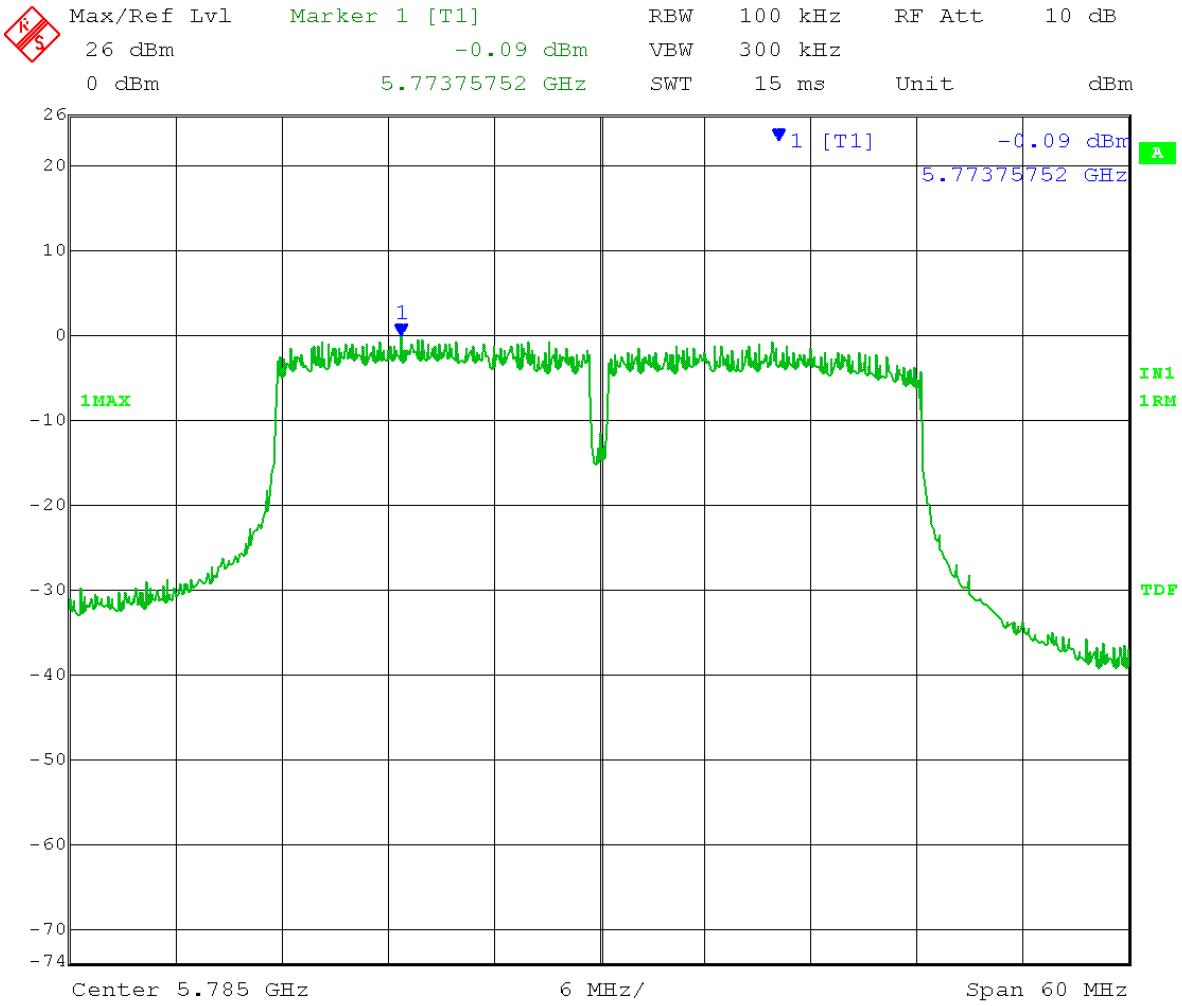
Test Date: 6-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)

Low Channel: Frequency = 5.750GHz — ESN# 000456C005DE
TX Output Power Setting = 20dBm — 40MHz BW
RBW = 100 kHz — VBW = 300 kHz
Span = 1.5 x EBW — Detector = RMS
Sweep = Auto Couple — Trace = Max Hold
Channel 1 — Limit: +8 dBm/3kHz (RBW)
PSD = 2.36dBm = Pass



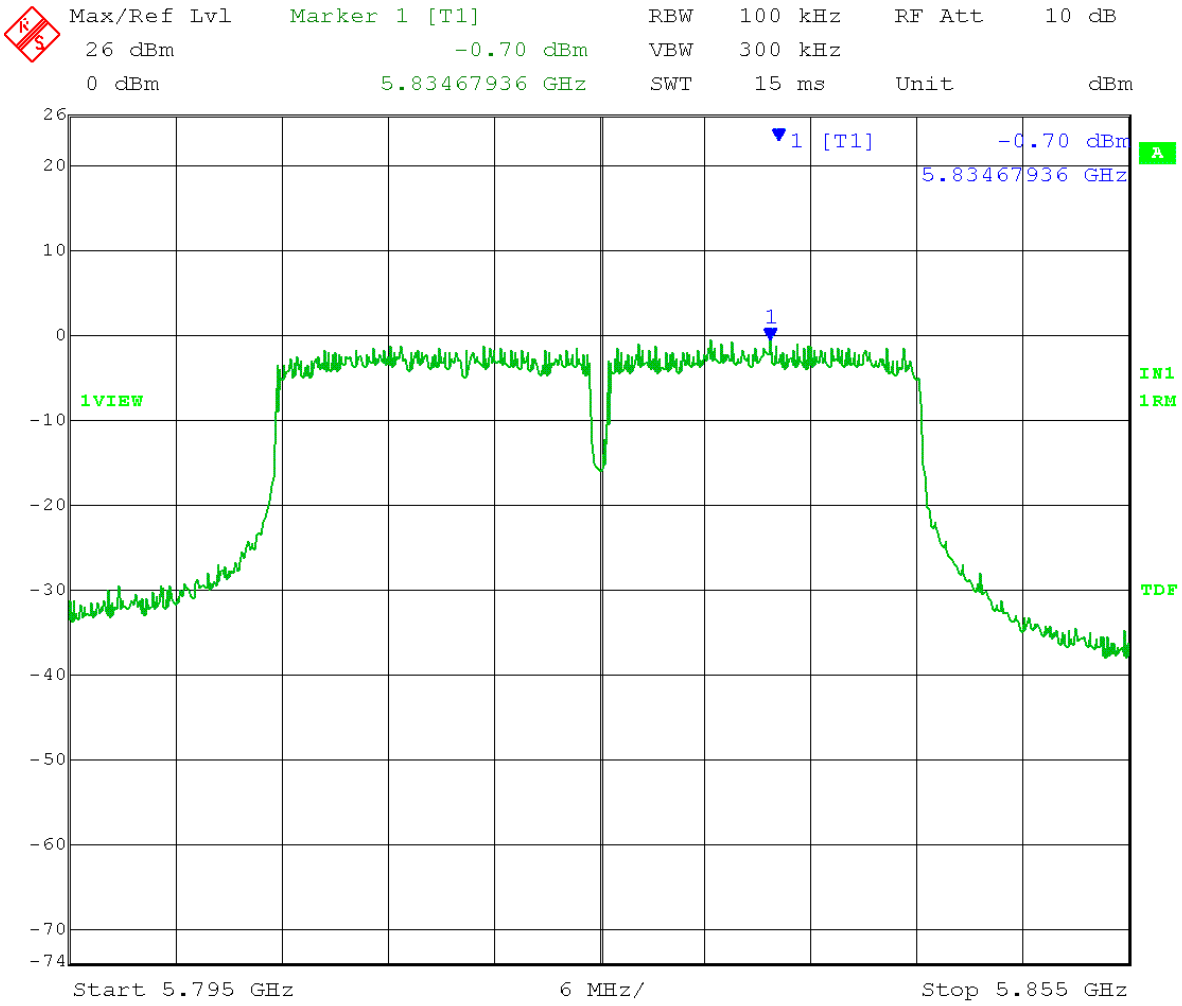

Date: 12.JUN.2013 15:23:09

Test Date: 6-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
Mid Channel: Frequency = 5.785GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 40MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 1 Limit: +8 dBm/3kHz (RBW)
PSD = -0.09dBm = Pass




Date: 12.JUN.2013 15:11:03

Test Date: 6-12-2013
Company: Cambium Networks
EUT: Avenger AP 5.7GHz: OFDM
Test: Maximum Power Spectral Density - Conducted
Operator: Jim O
Comment: Method AVGPSD-1 (FCC DTS operating under 15.247 – OET 4/7/2013)
High Channel: Frequency = 5.825GHz ESN# 000456C005DE
TX Output Power Setting = 20dBm 40MHz BW
RBW = 100 kHz VBW = 300 kHz
Span = 1.5 x EBW Detector = RMS
Sweep = Auto Couple Trace = Max Hold
Channel 1 Limit: +8 dBm/3kHz (RBW)
PSD = -0.70dBm = Pass




Date: 12.JUN.2013 15:06:01

166 South Carter, Genoa City, WI 53128

**Appendix B – Measurement Data**

## B4.0 Maximum Unwanted Emission Levels – Conducted

**Rule Section**: Section 15.247(d)

**Test Procedure**: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

**11.0 -Emissions in non-restricted frequency bands**
**11.2 - Reference level measurement**
**11.3 - Emission level measurement**

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

Measurements were taken for an OFDM modulation over a 20MHz and 40MHz modulation bandwidth at the low, mid and high channels of operation. EUT was set to transmit continuously over various frequencies and power settings.

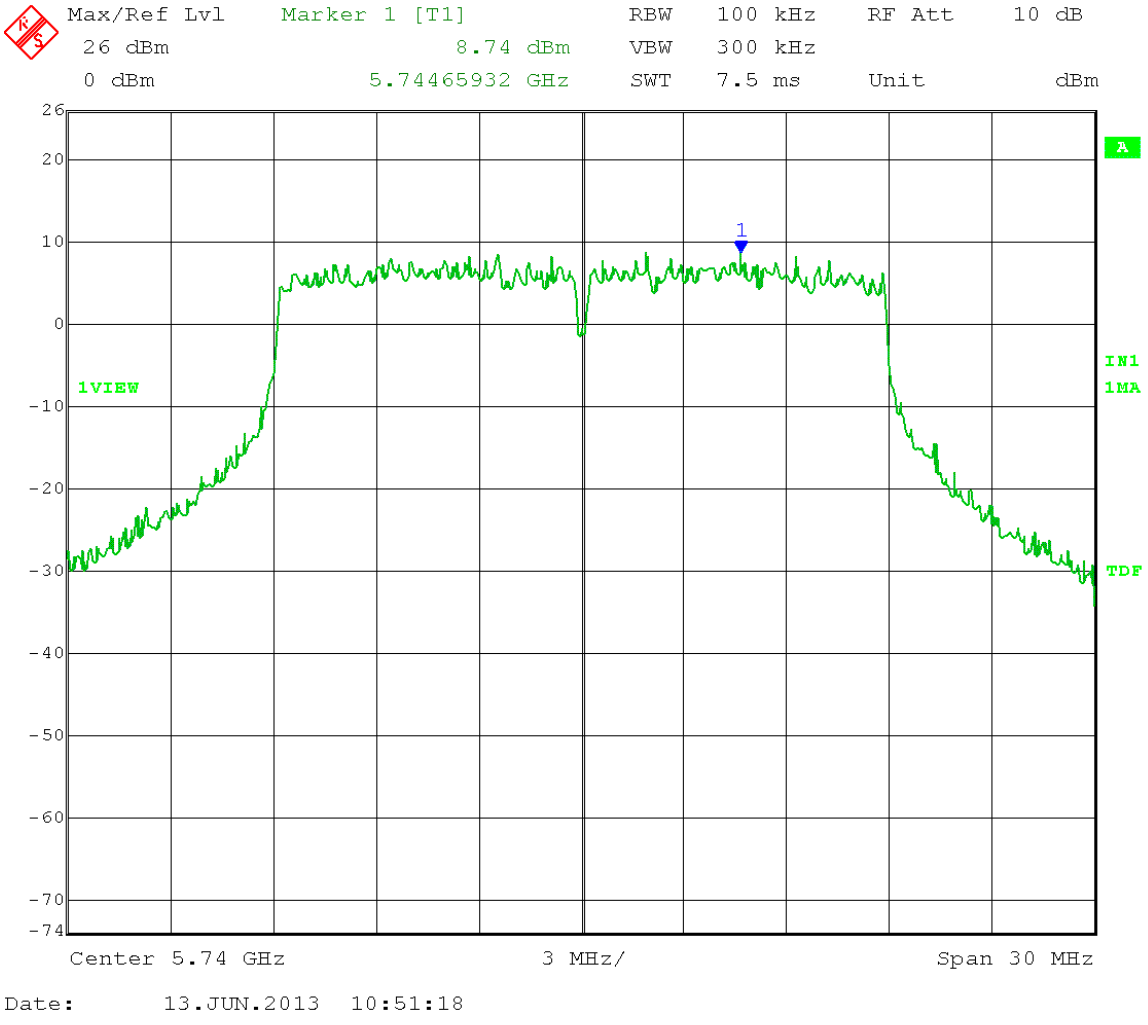
**Limit:** 30 dB below maximum in-band average PSD level (maximum level in any 100 kHz band). Average output power procedure was used to measure the fundamental emission power

**Results:** Passed

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |

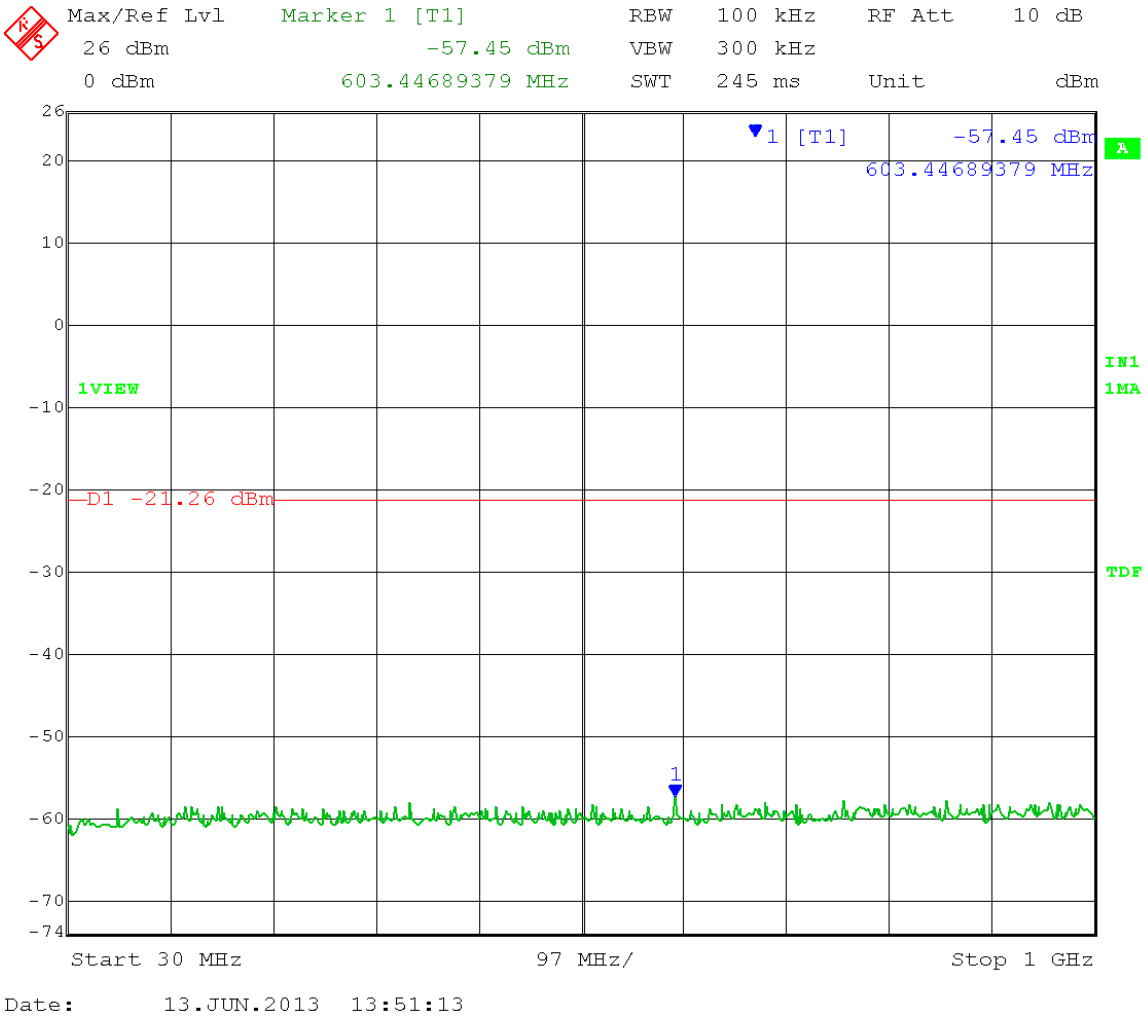
**Reference Level** measurement
Limit = 8.74dBm - 30 dB = -21.26dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

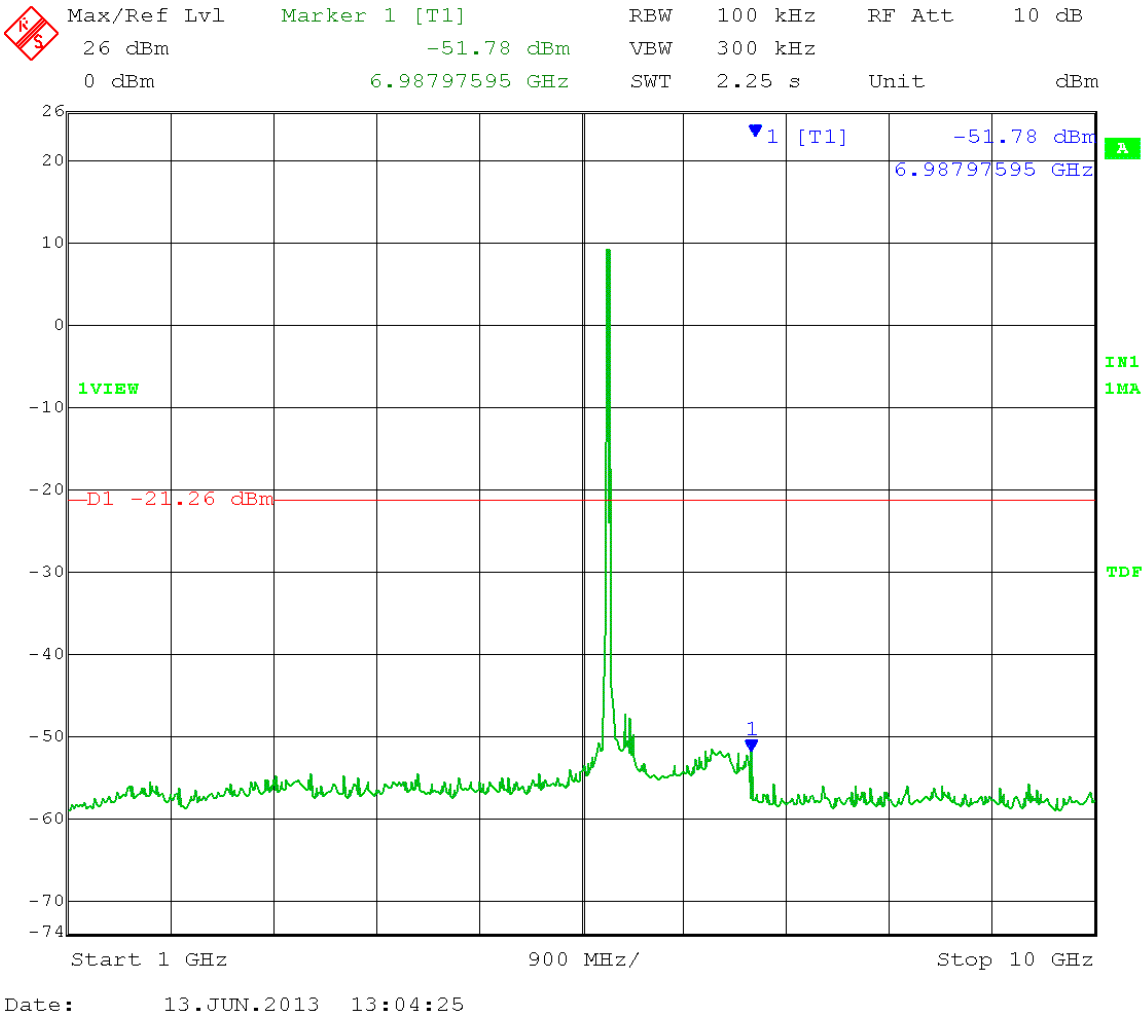
Limit = 8.74dBm - 30 dB = -21.26dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

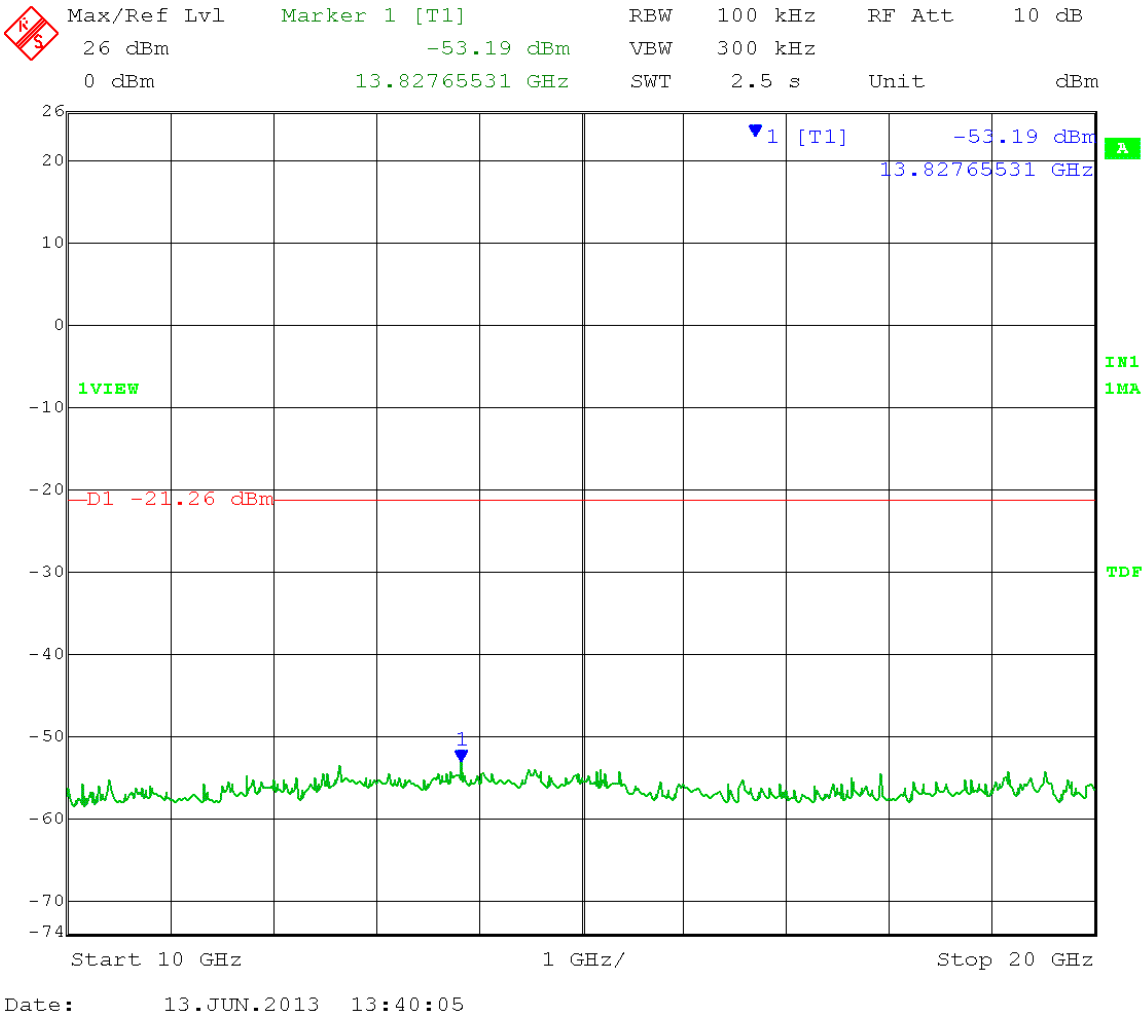
Limit = 8.74dBm - 30 dB = -21.26dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

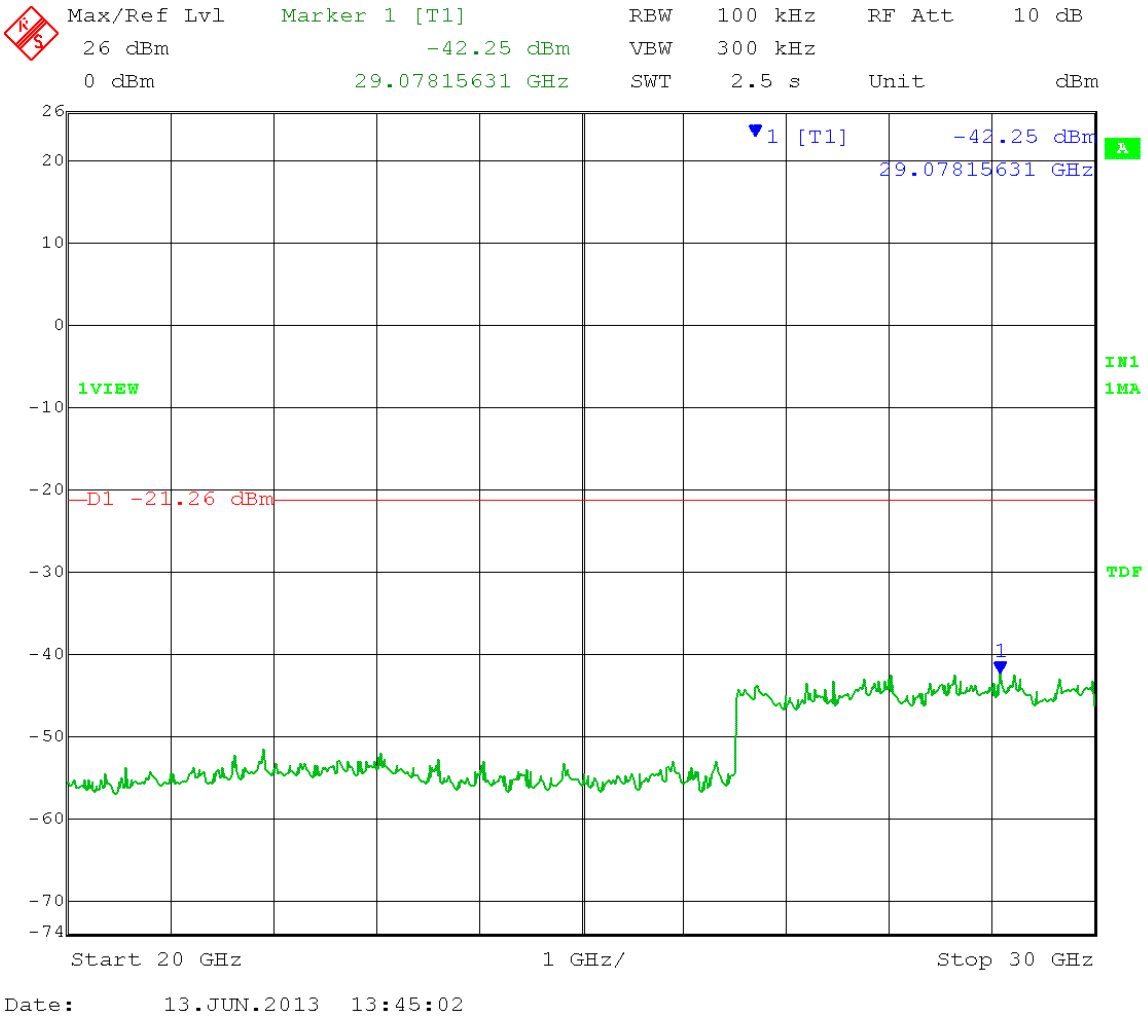
Limit = 8.74dBm - 30 dB = -21.26dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

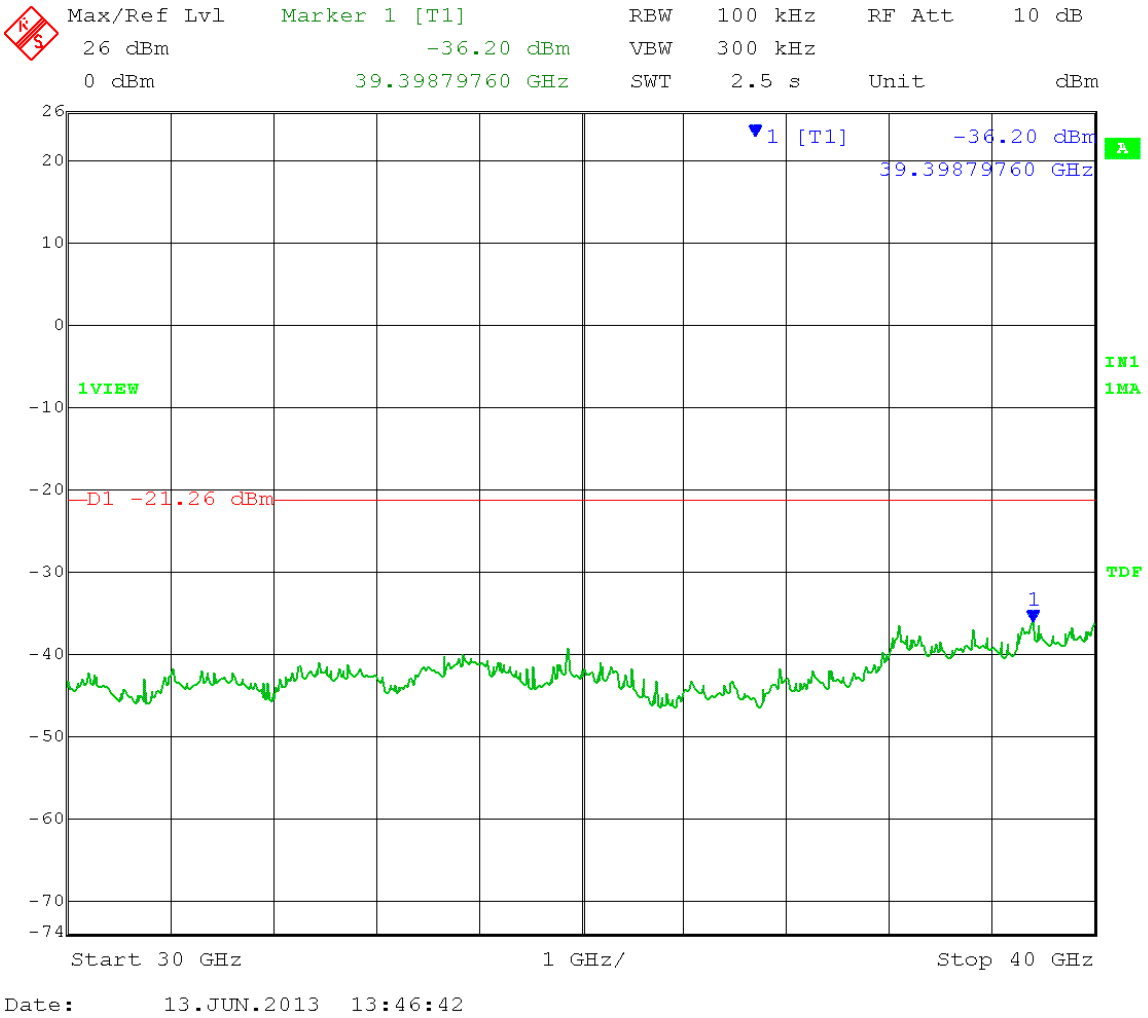
Limit = 8.74dBm - 30 dB = -21.26dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

Limit = 8.74dBm - 30 dB = -21.26dBm

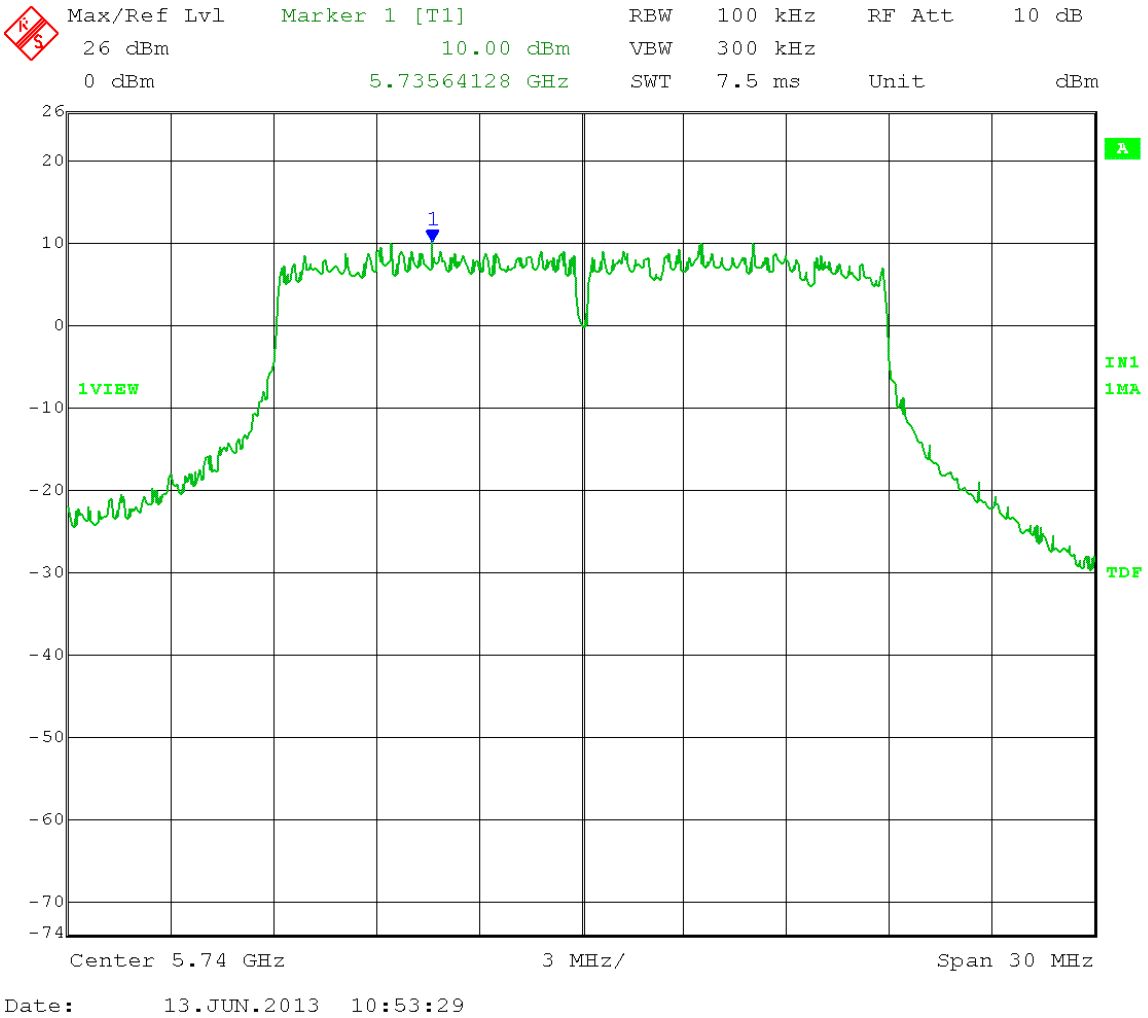



Date: 13.JUN.2013 13:46:42

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting = 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |

**Reference Level** measurement
Limit = 10.00dBm - 30 dB = -20.00dBm

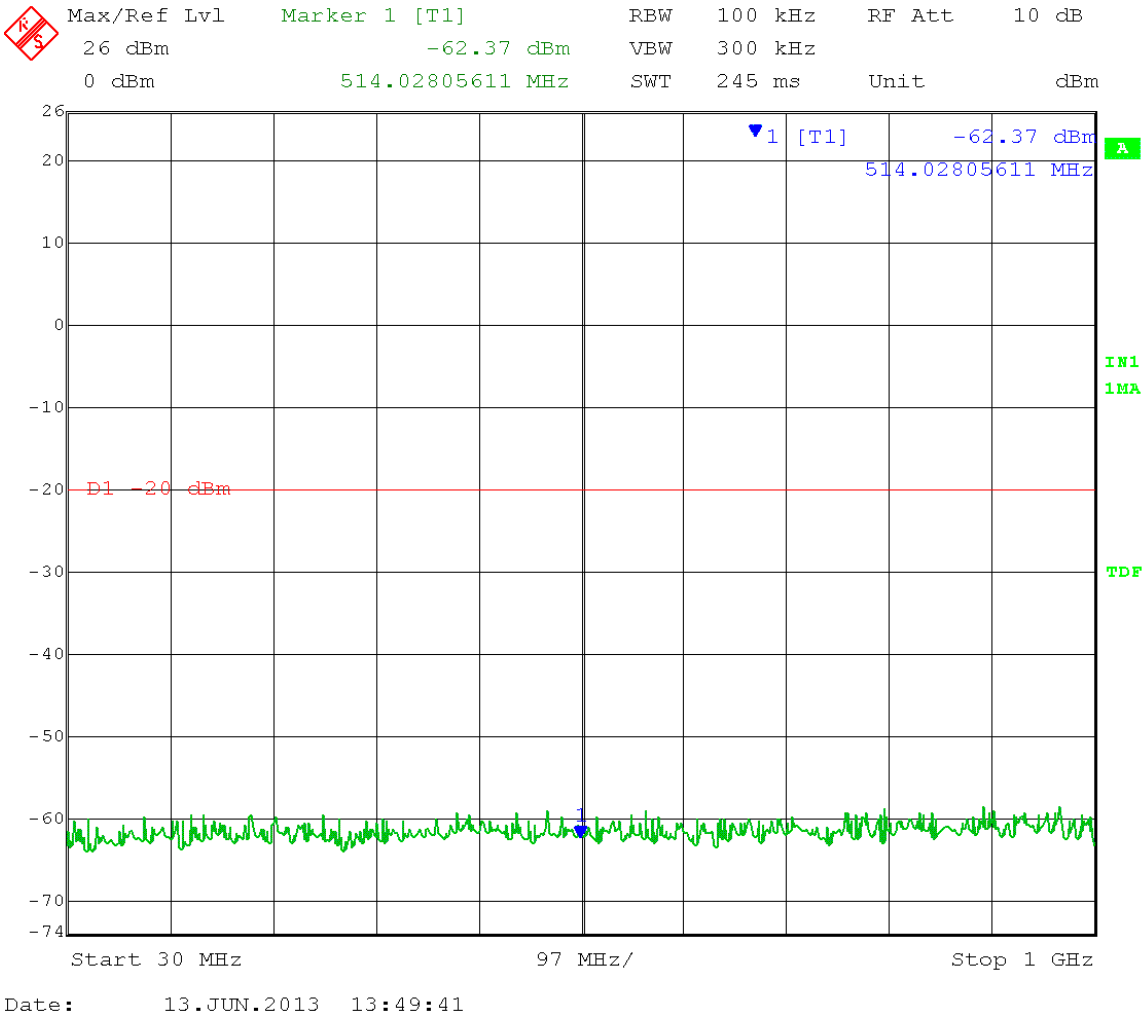



Date: 13.JUN.2013 10:53:29

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

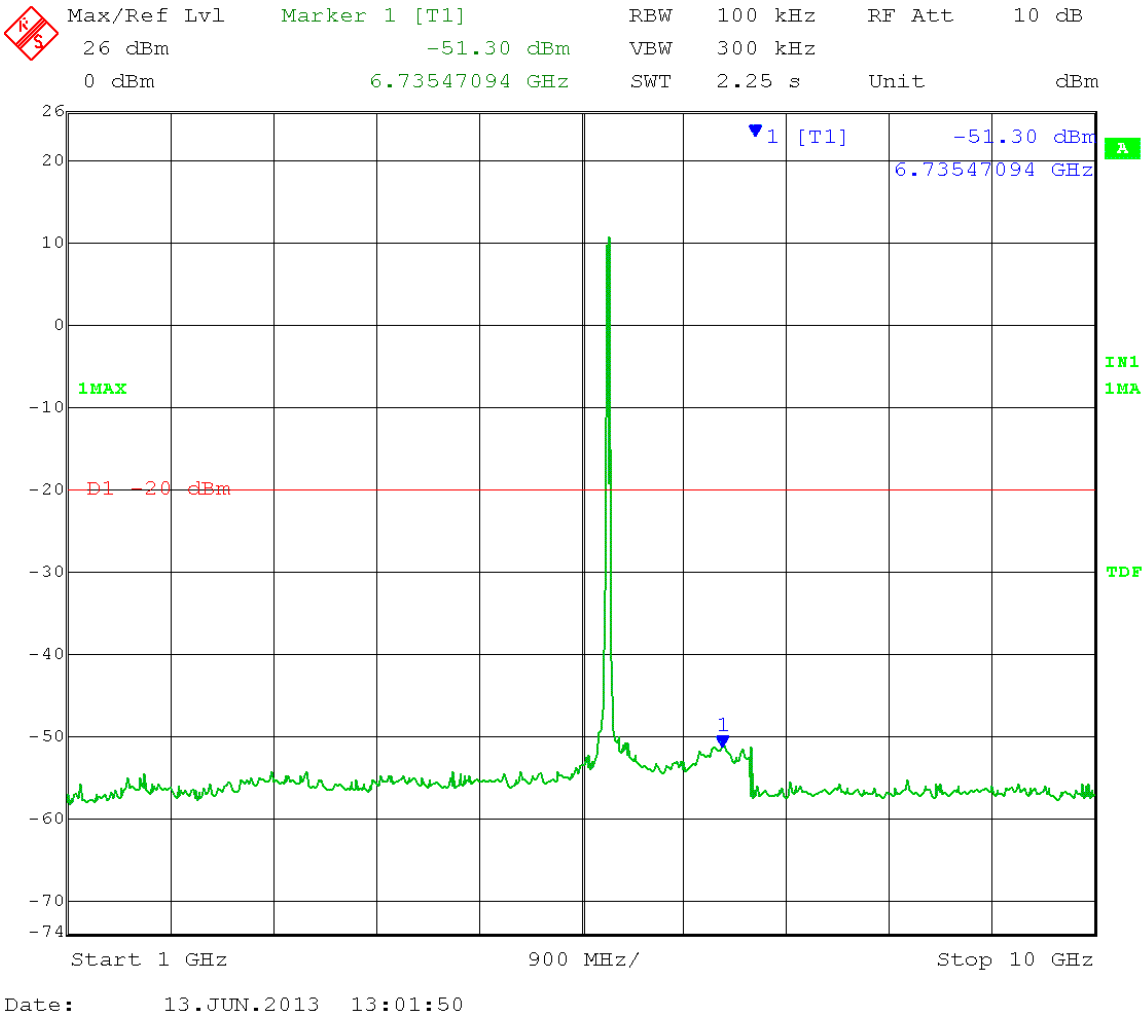
Limit = 10.00dBm - 30 dB = -20.00dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

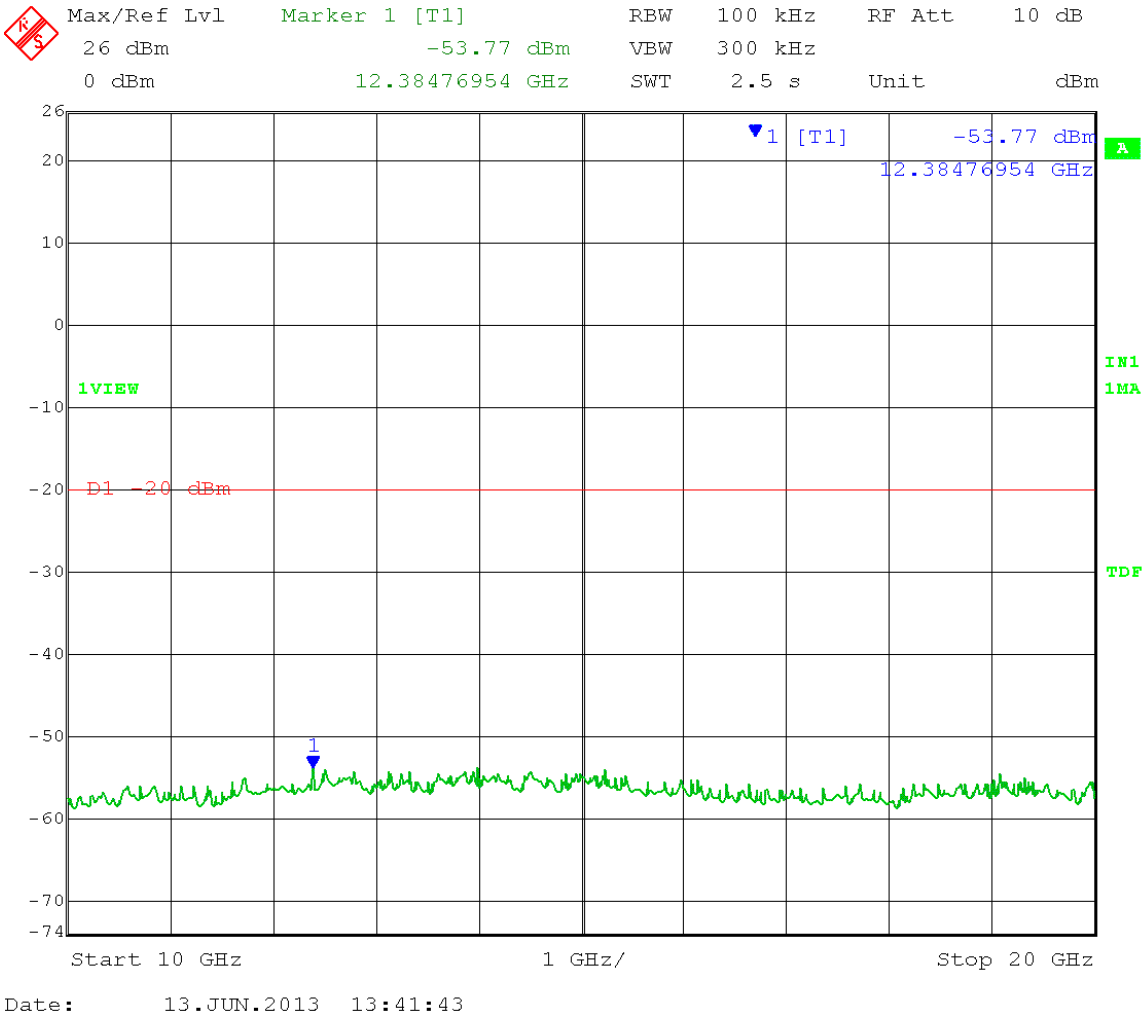
Limit = 10.00dBm - 30 dB = -20.00dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

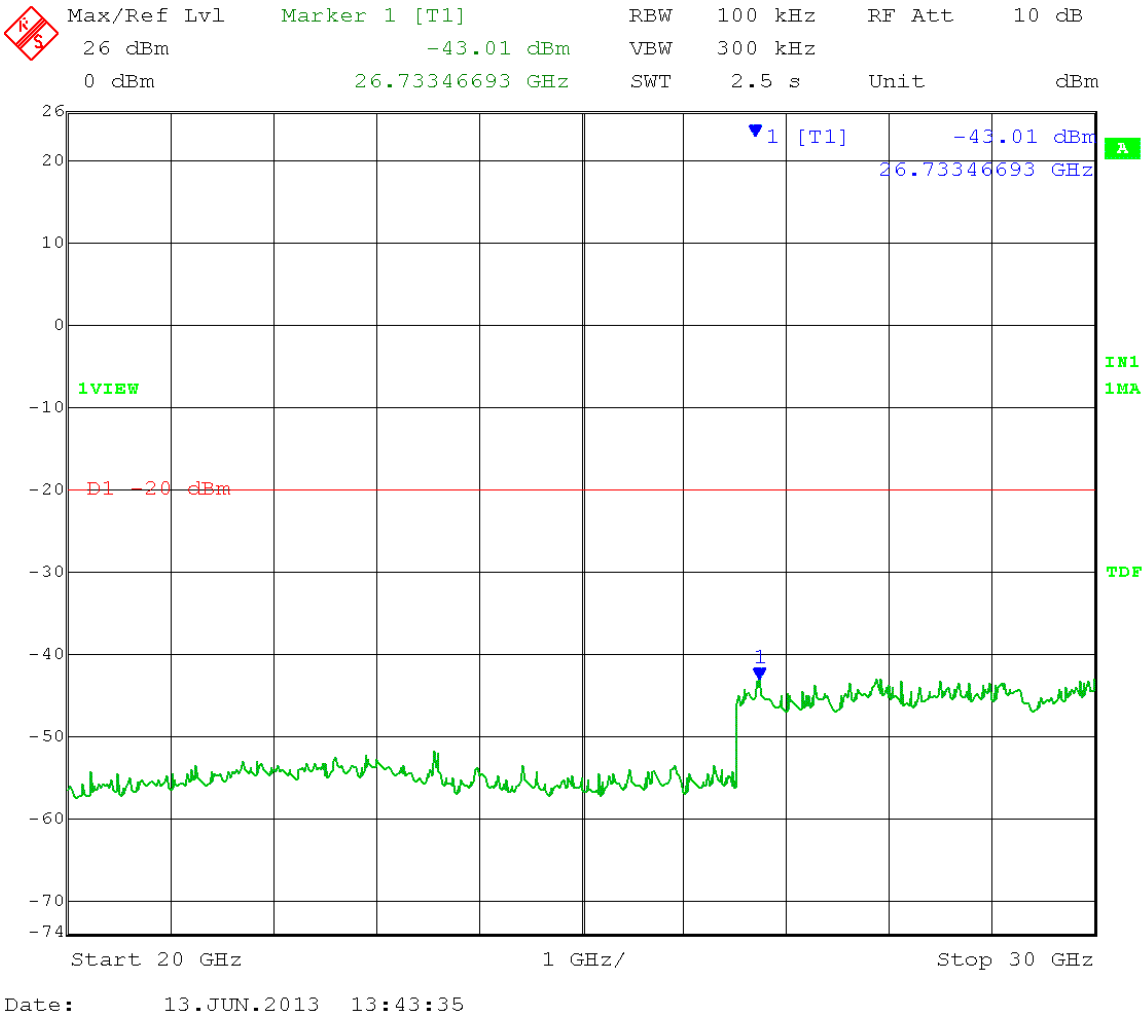
Limit = 10.00dBm - 30 dB = -20.00dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

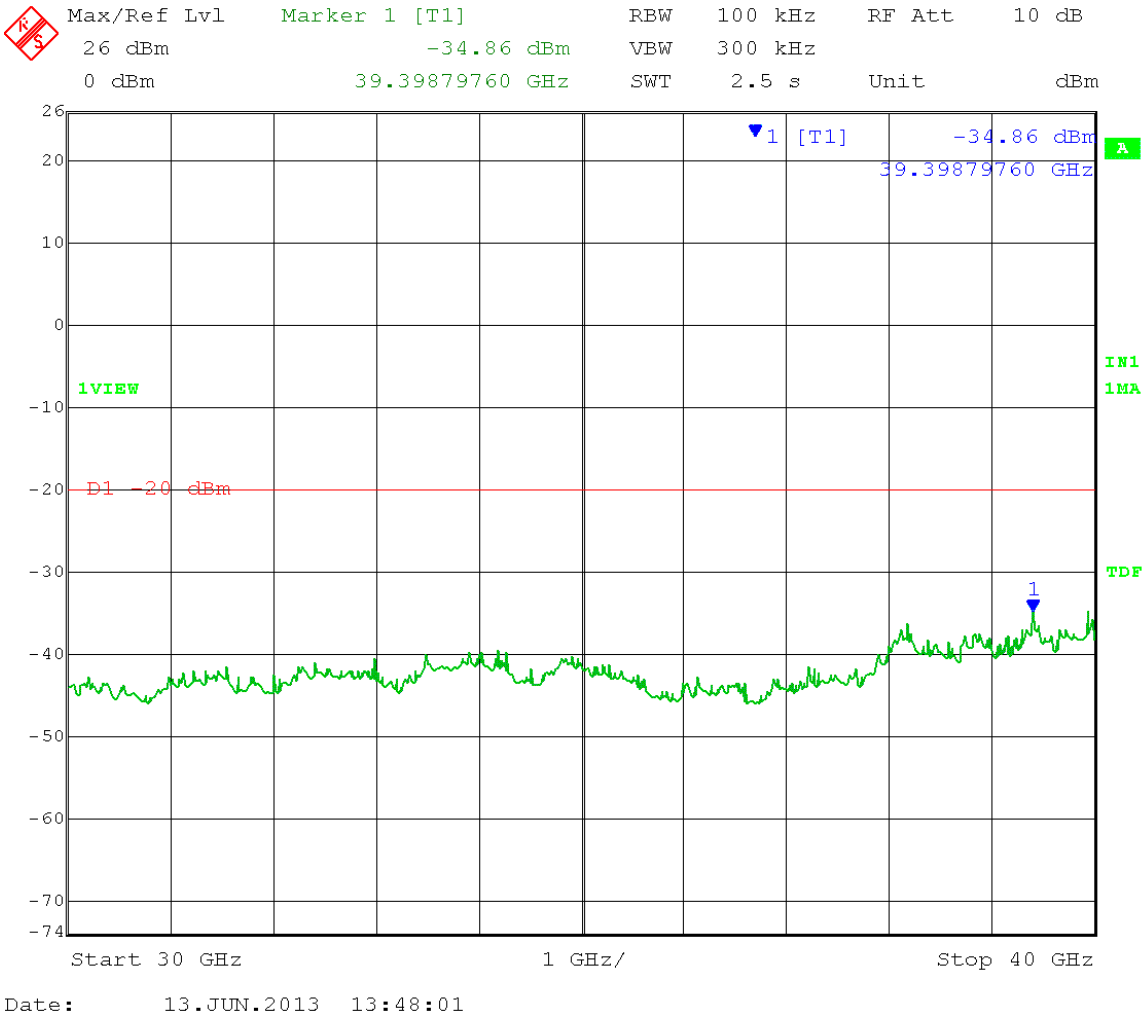
Limit = 10.00dBm - 30 dB = -20.00dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.740GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

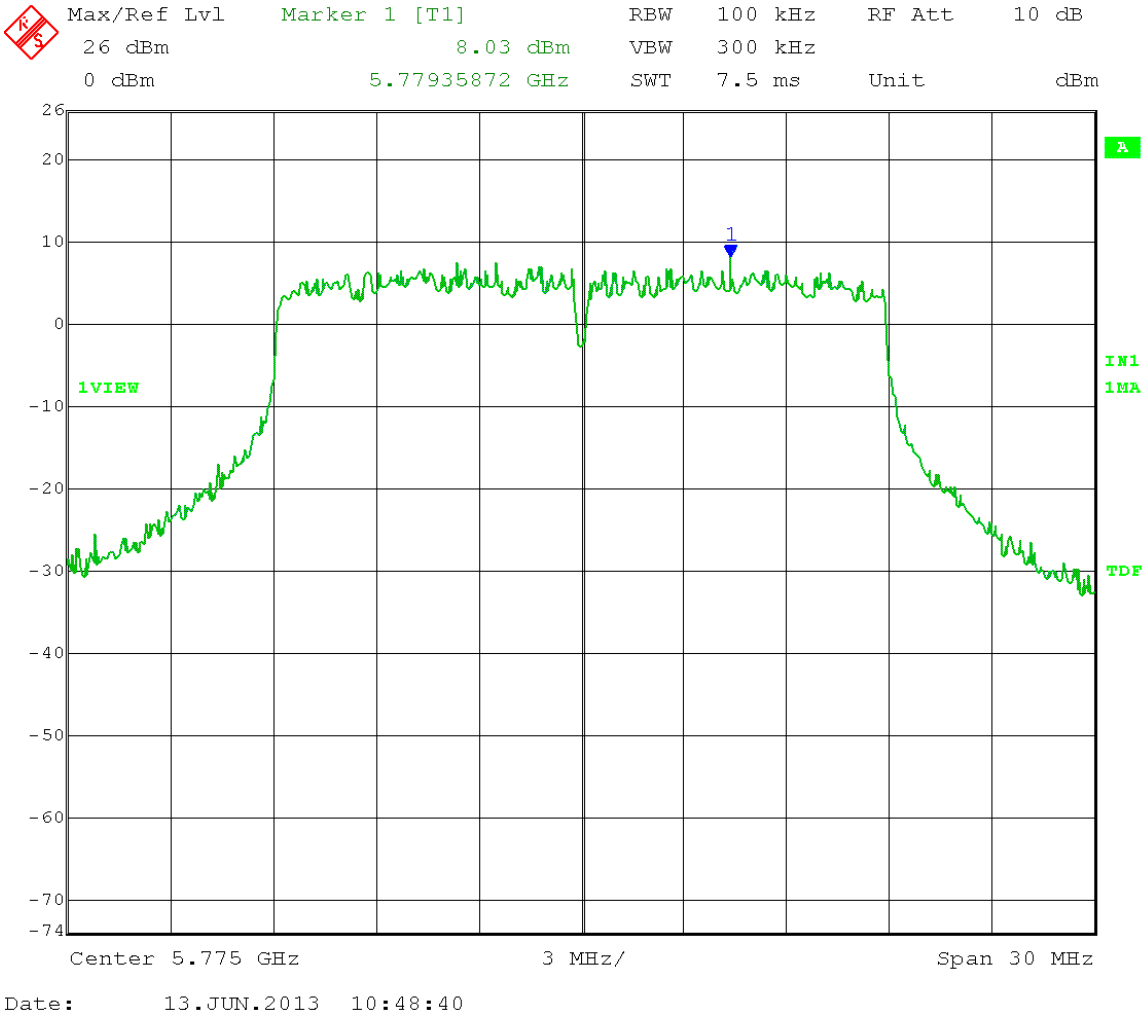
Limit = 10.00dBm - 30 dB = -20.00dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.755GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |

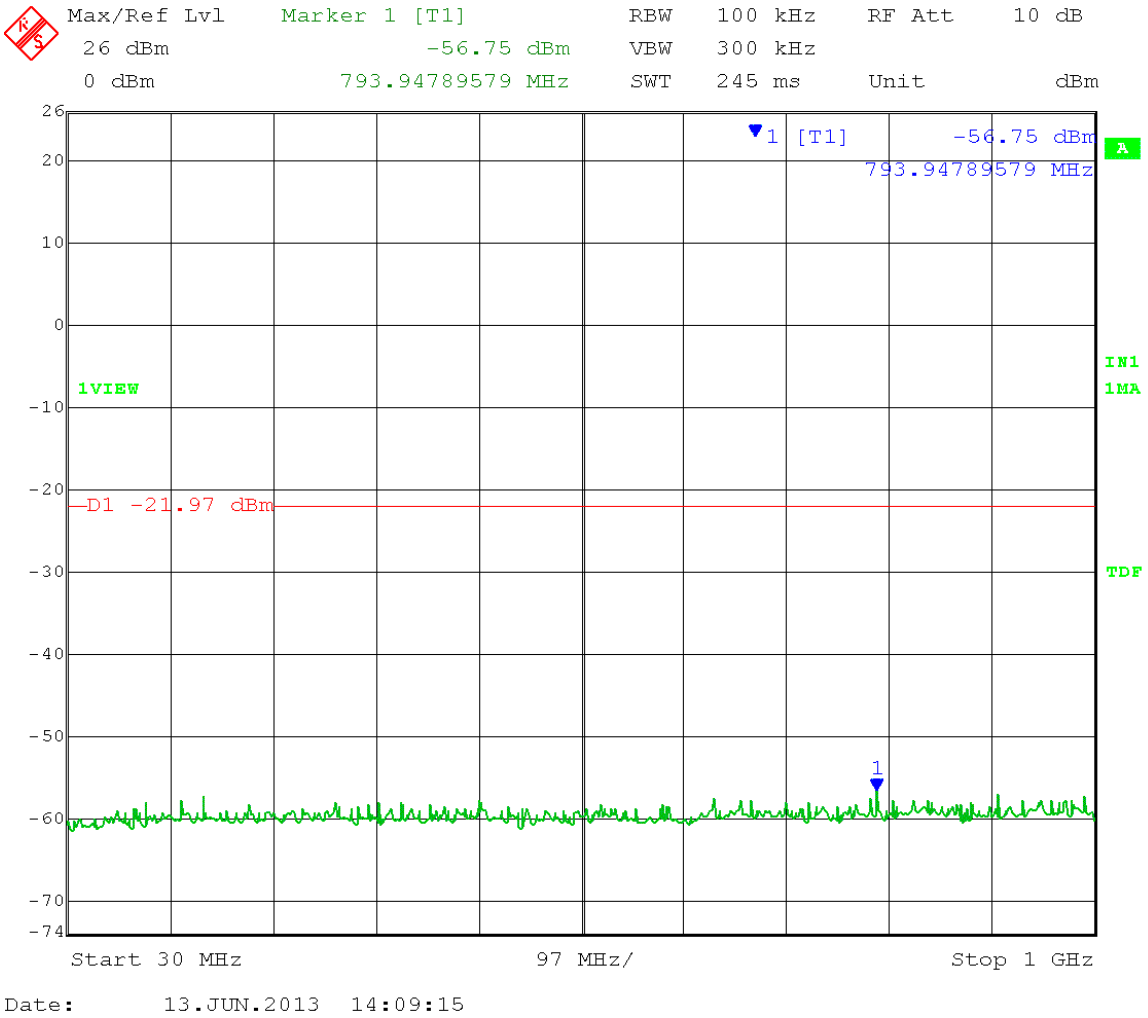
**Reference Level** measurement
Limit = 8.03dBm - 30 dB = -21.97dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

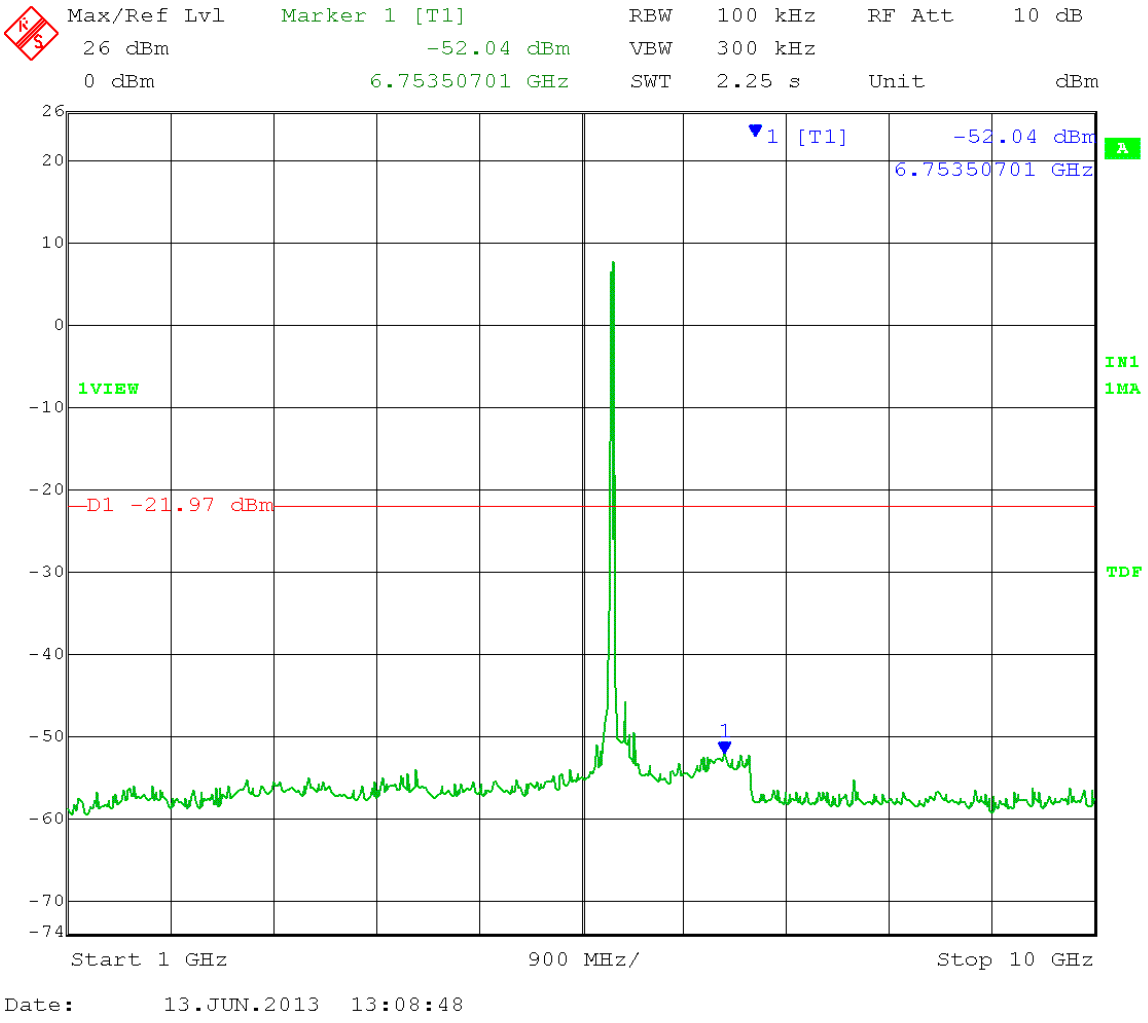
Limit = 8.03dBm - 30 dB = -21.97dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

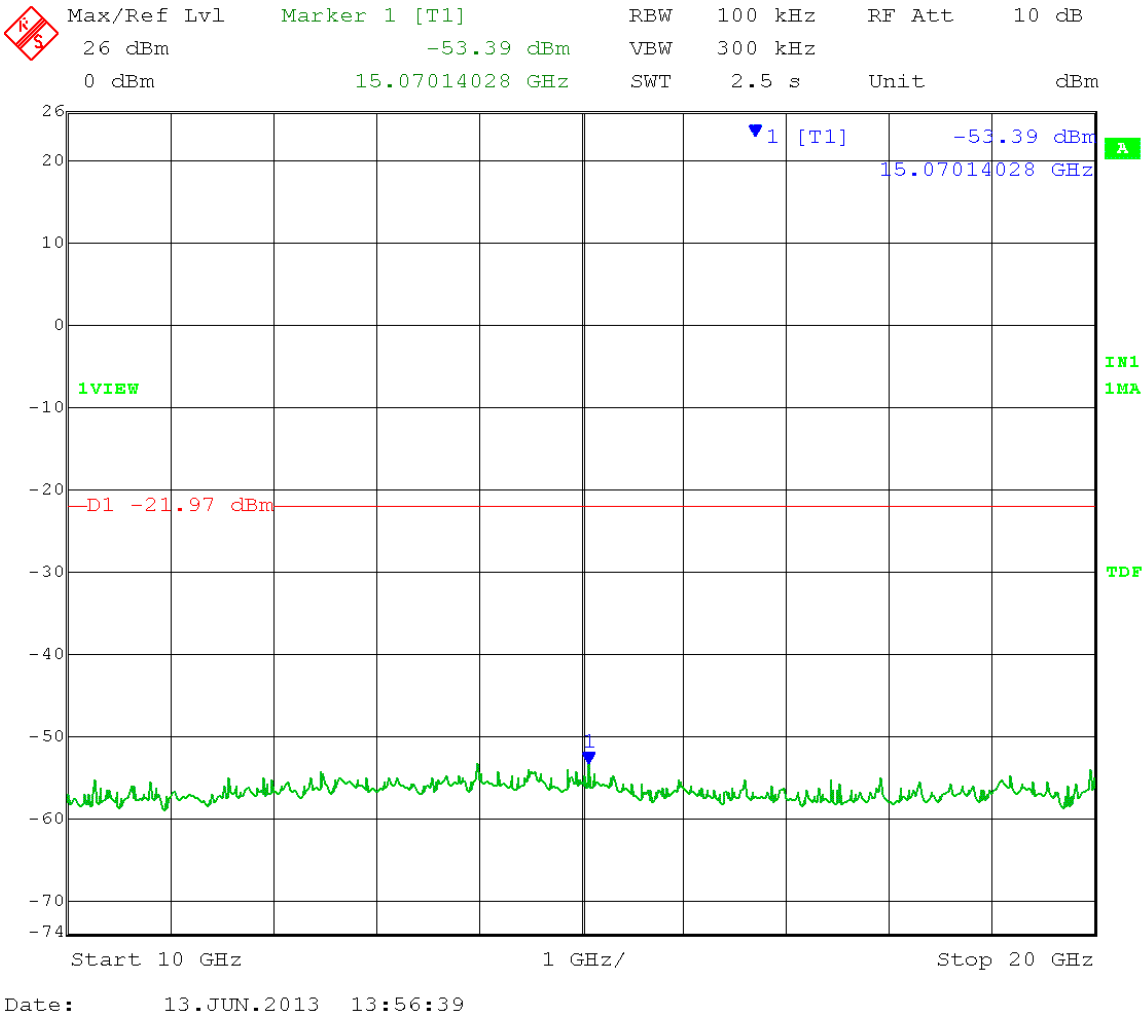
Limit = 8.03dBm - 30 dB = -21.97dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

Limit = 8.03dBm - 30 dB = -21.97dBm

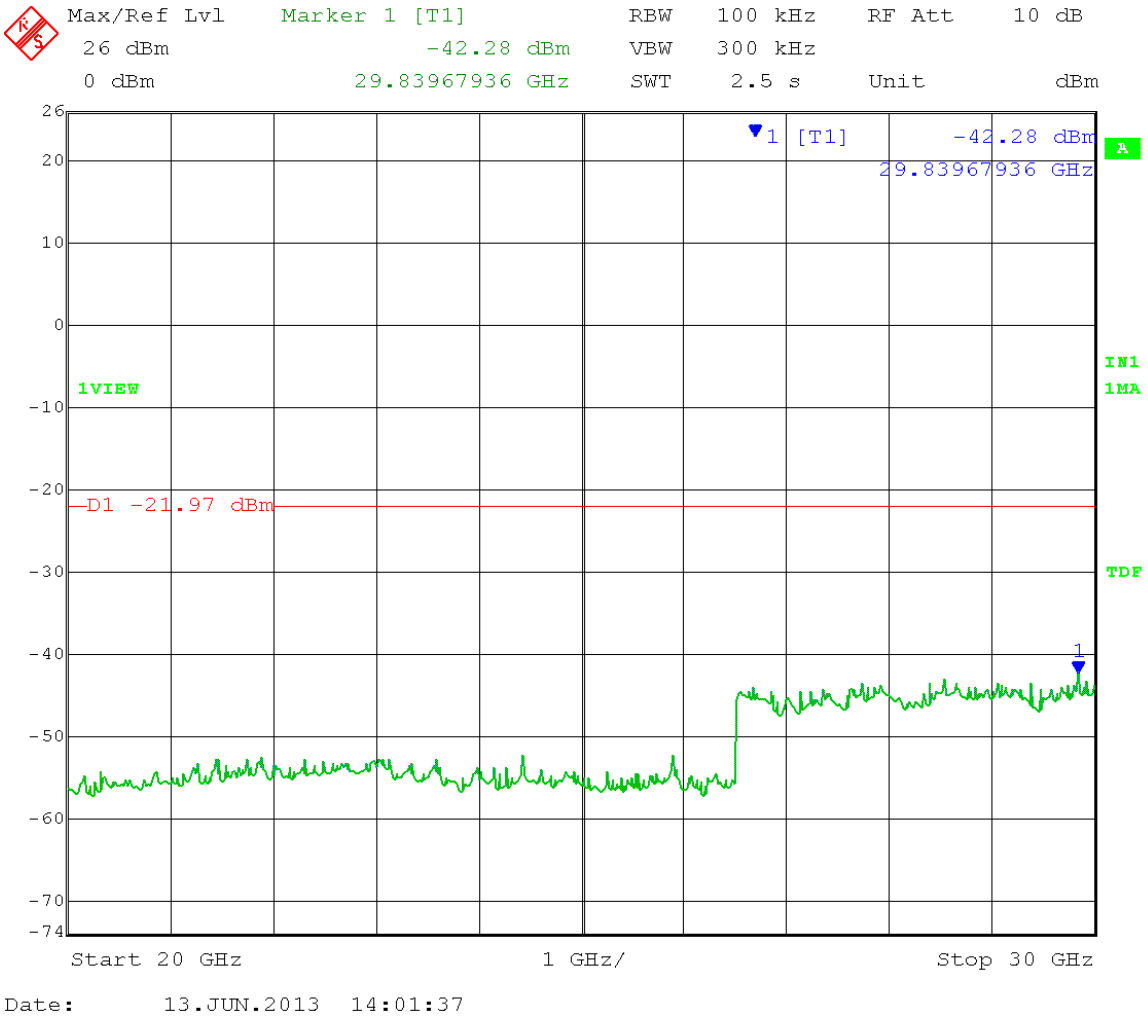



Date: 13.JUN.2013 13:56:39

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

Limit = 8.03dBm - 30 dB = -21.97dBm

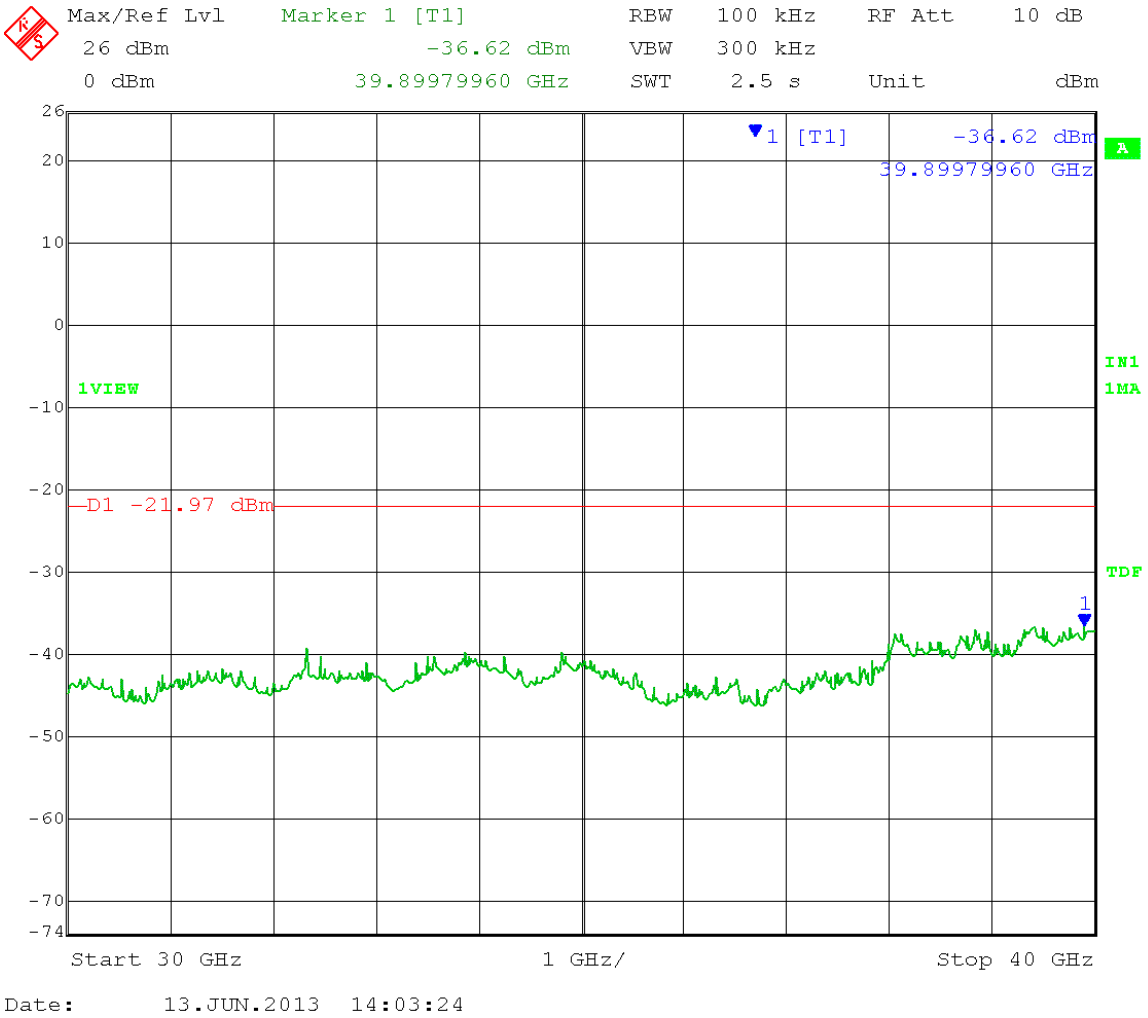



Date: 13.JUN.2013 14:01:37

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

Limit = 8.03dBm - 30 dB = -21.97dBm

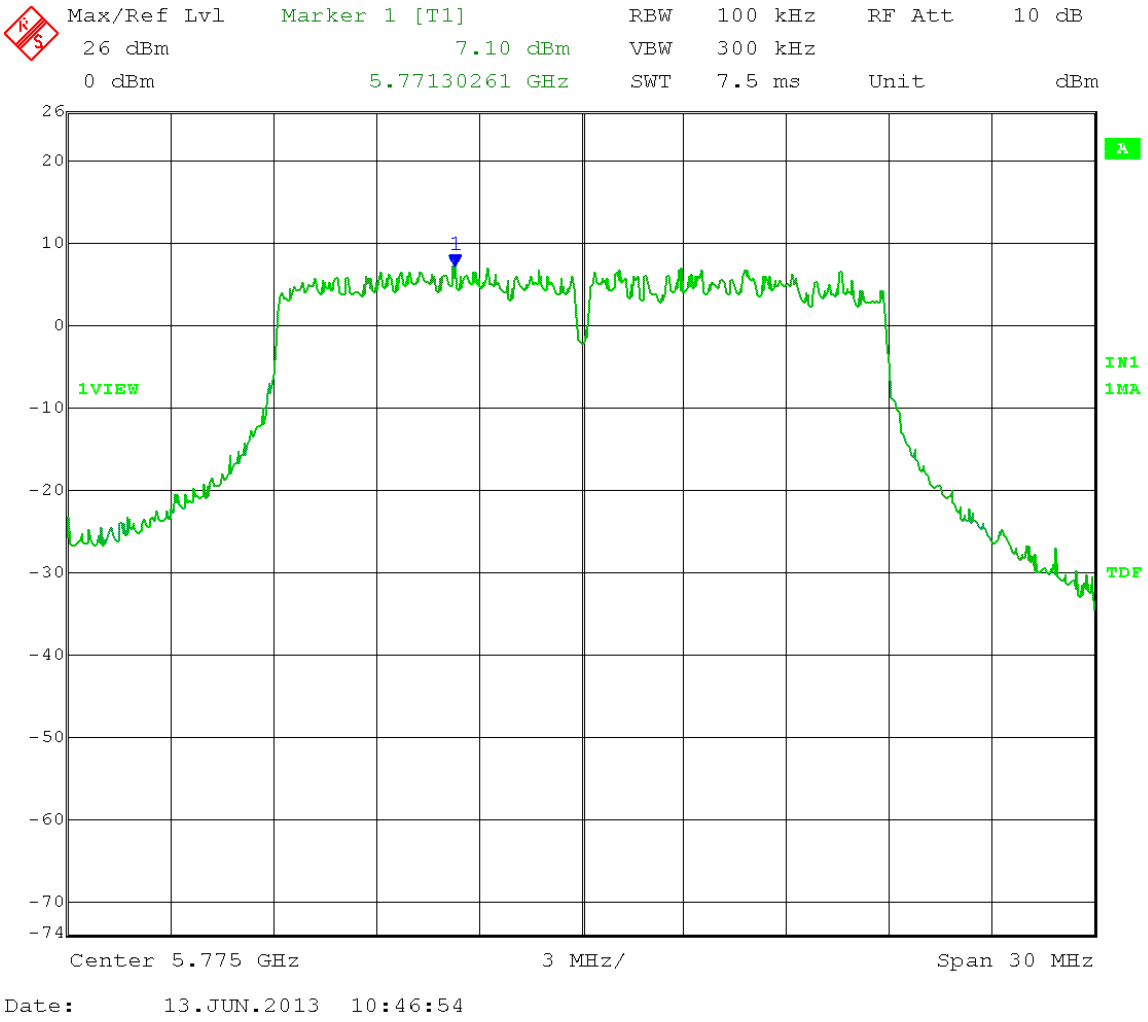



Date: 13.JUN.2013 14:03:24

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.755GHz |
| Output power setting = 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |

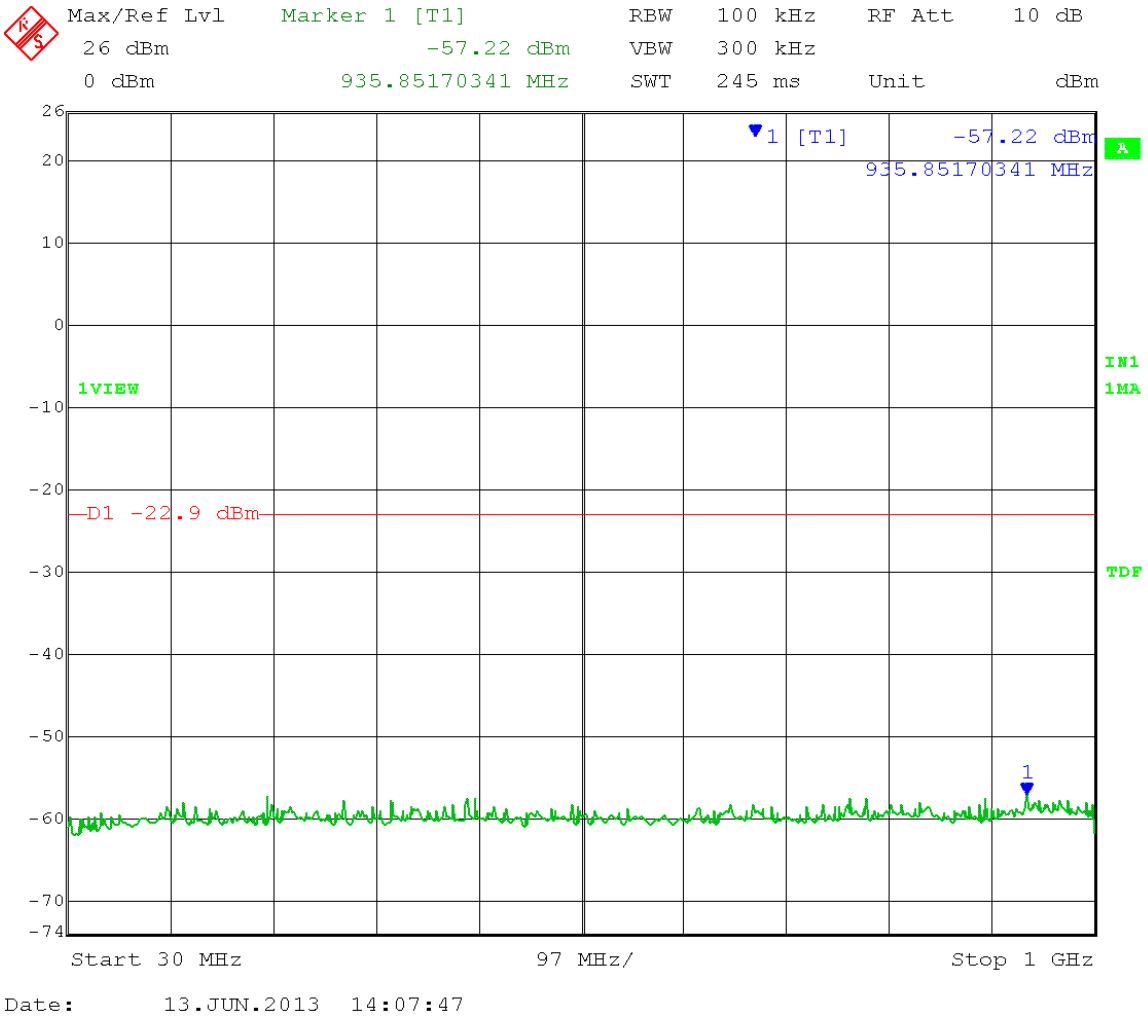
**Reference Level** measurement
Limit = 7.10dBm - 30 dB = -22.90dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

Limit = 7.10dBm - 30 dB = -22.90dBm

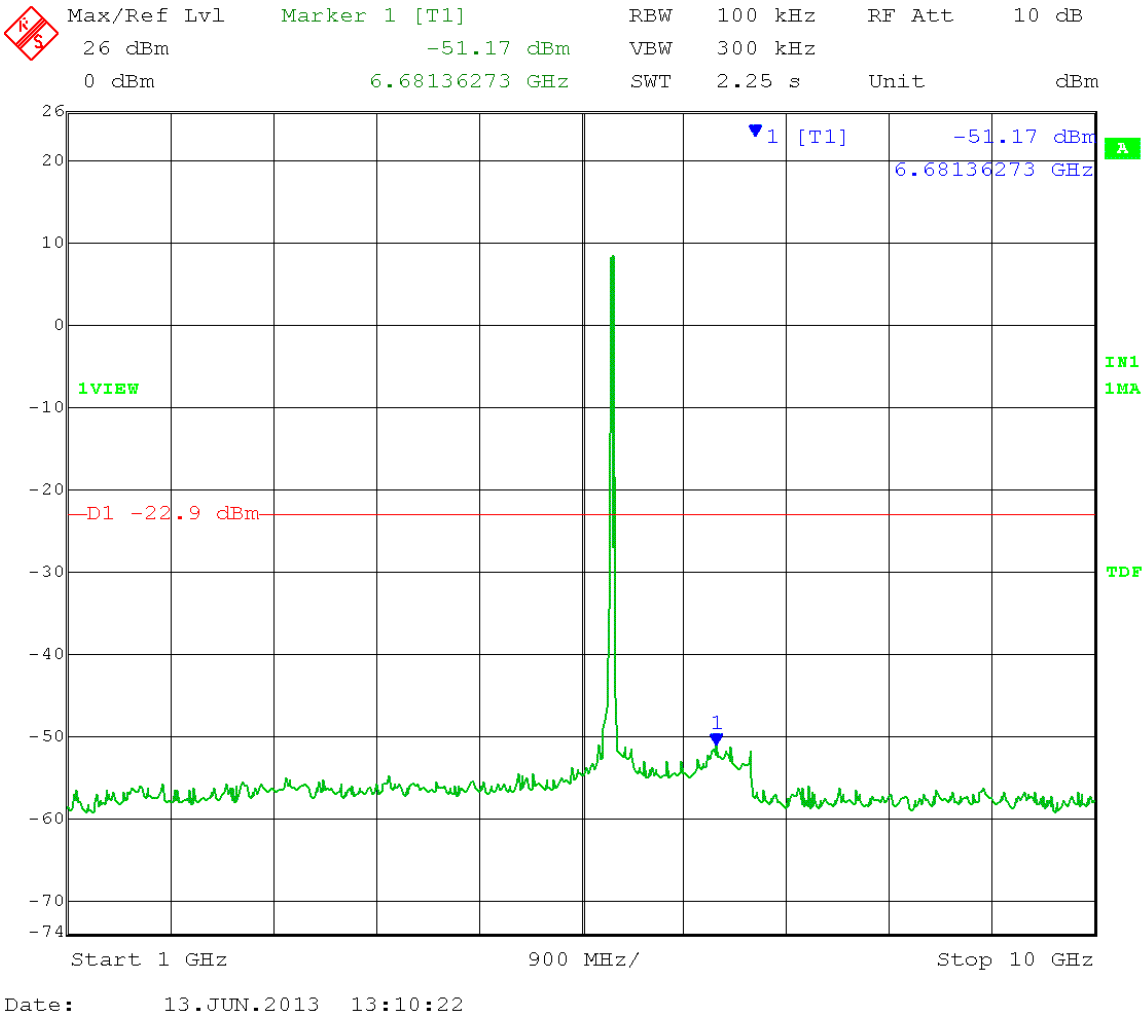



Date: 13.JUN.2013 14:07:47

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

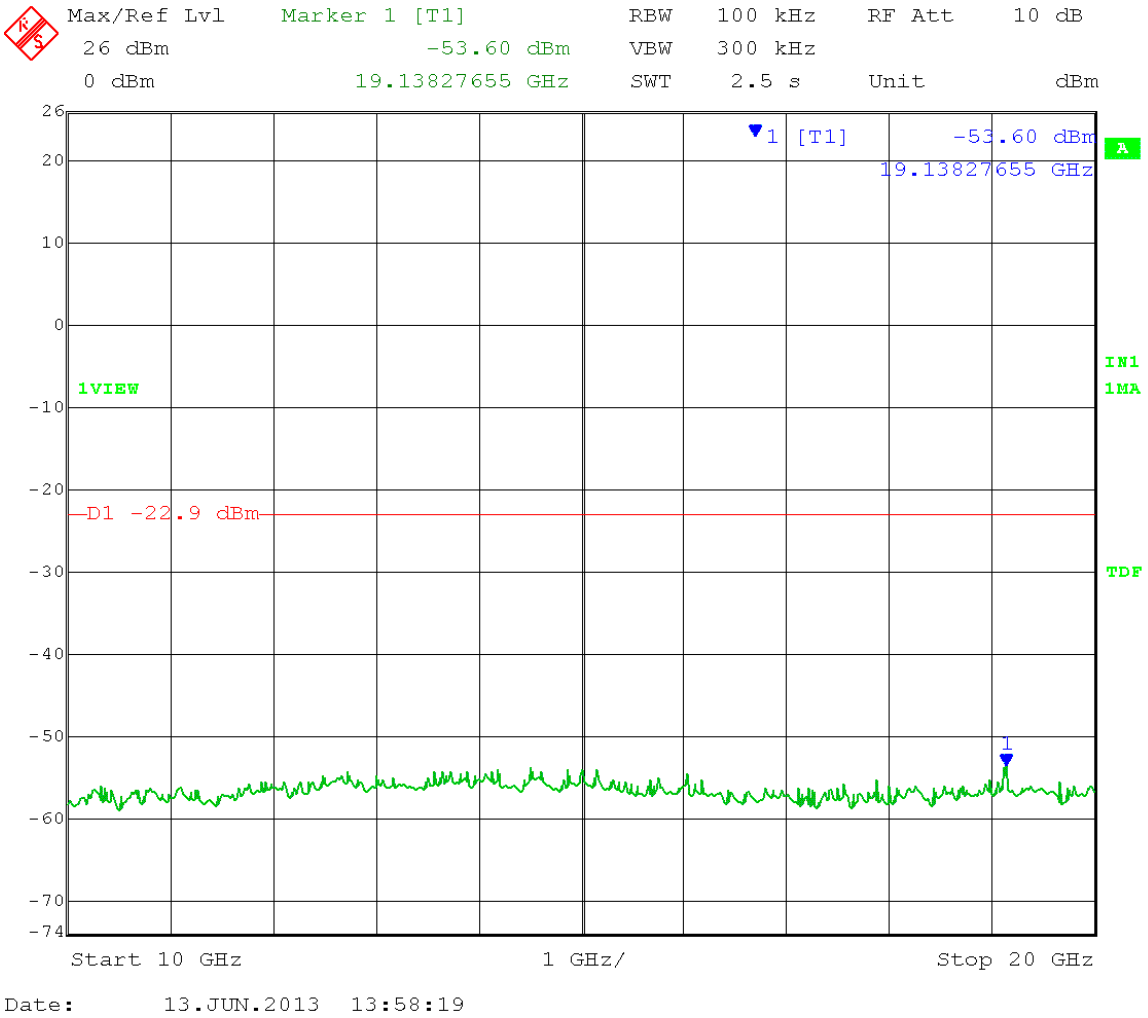
Limit = 7.10dBm - 30 dB = -22.90dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

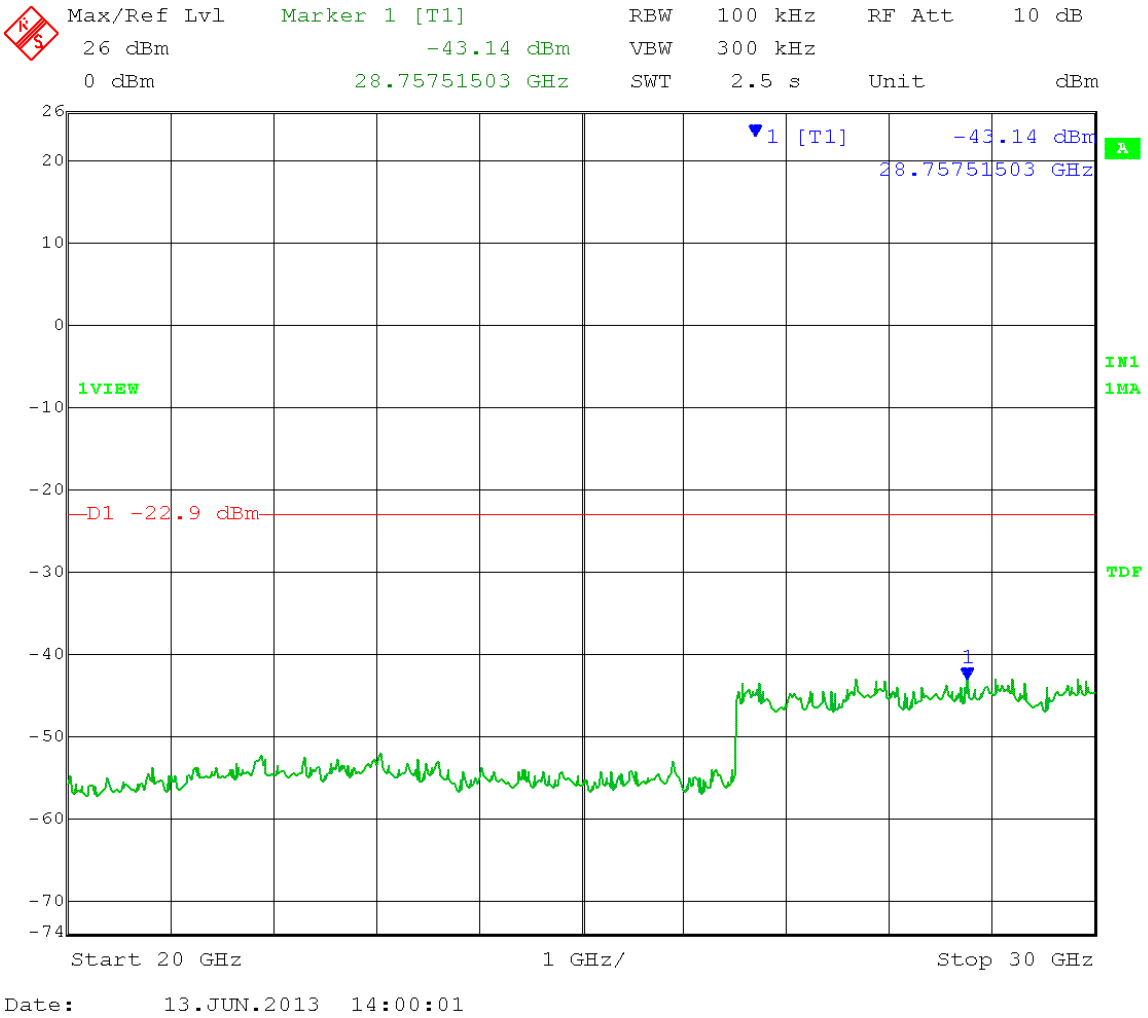
Limit = 7.10dBm - 30 dB = -22.90dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

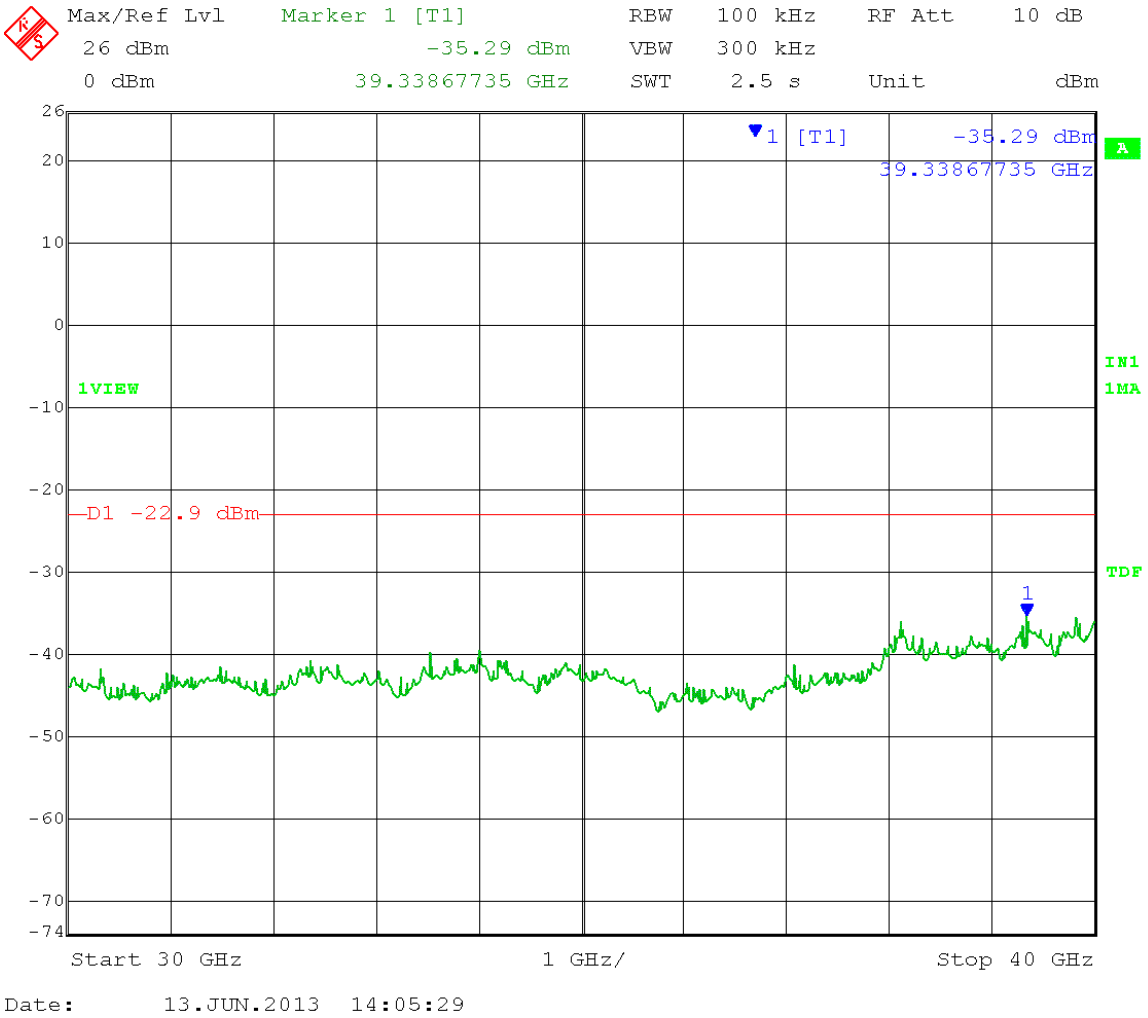
Limit = 7.10dBm - 30 dB = -22.90dBm



| | |
|---|---|
| Test Date: | 06-13-2013 |
| Company: | Cambium Networks |
| EUT: | Avenger AP (5.7GHz: OFDM) |
| Test: | Maximum Unwanted Emission Levels - Conducted |
| Operator: | Jim O/Lillian Li |
| Comment: | 11.0 Emissions in Non-Restricted Frequency Bands - Conducted |
| | 11.3 Emission Level Measurement |

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.775GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

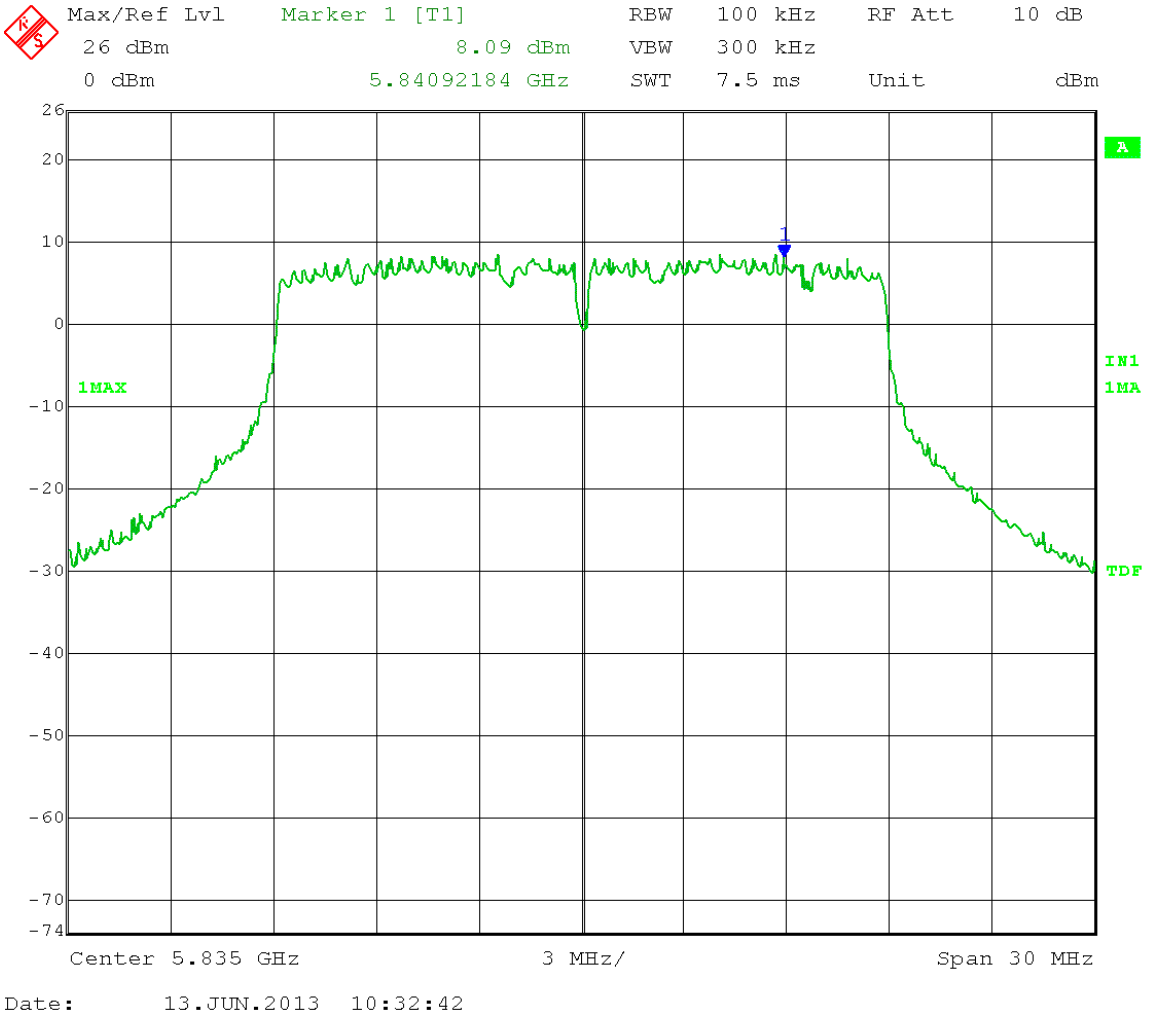
Limit = 7.10dBm - 30 dB = -22.90dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |

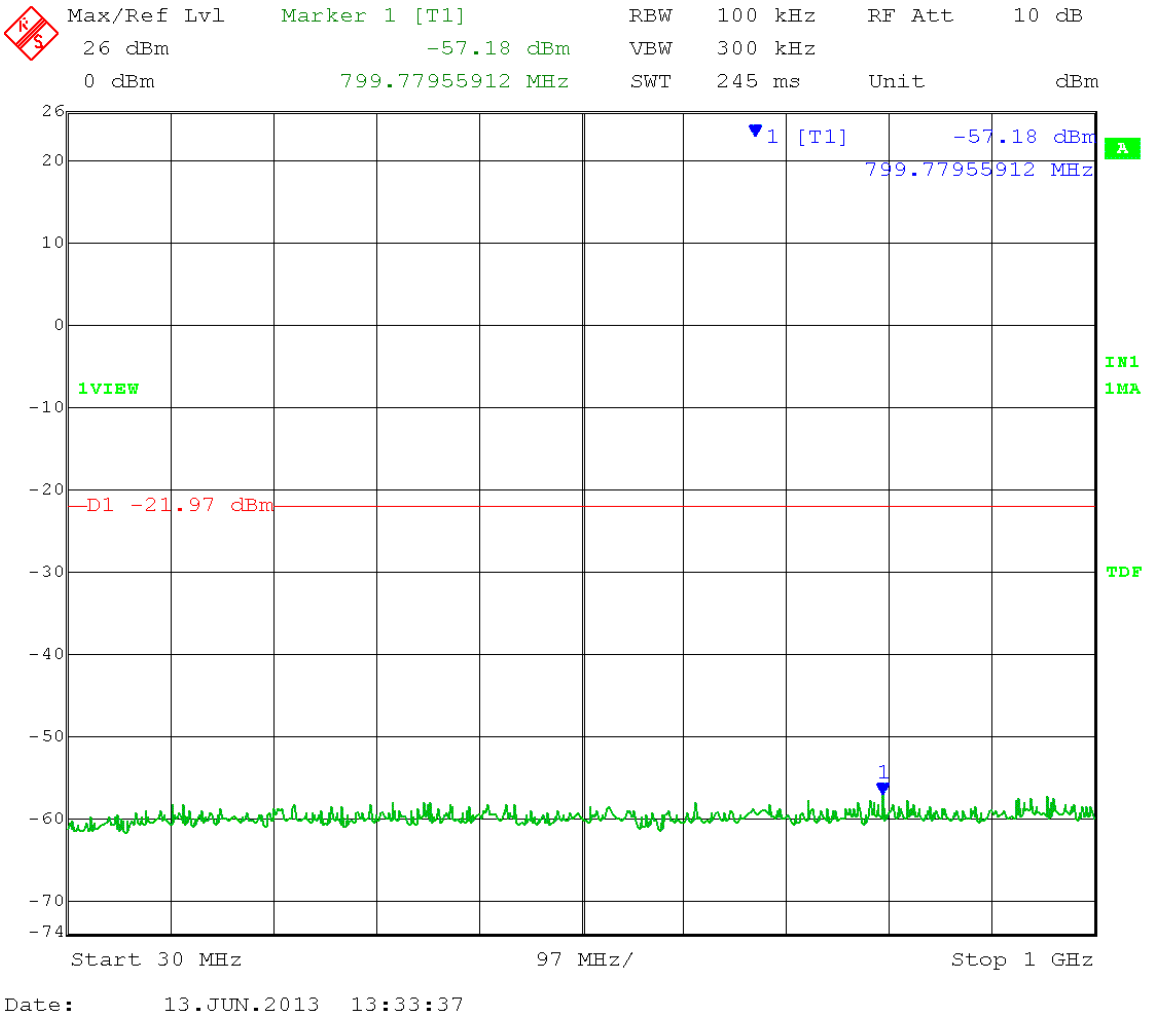
**Reference Level** measurement
Limit = 8.09dBm - 30 dB = -21.91dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

Limit = 8.03dBm - 30 dB = -21.97dBm

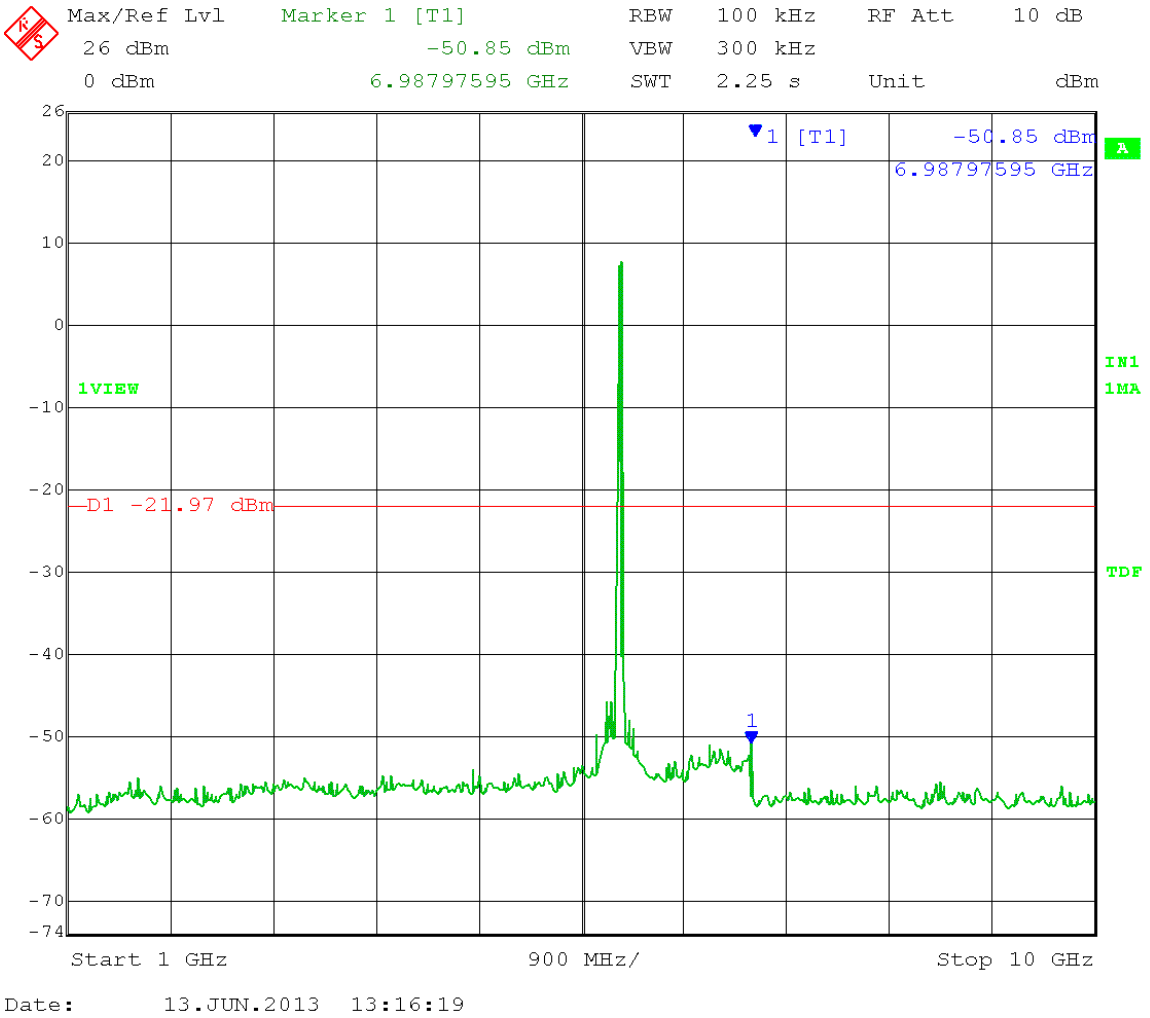



Date: 13.JUN.2013 13:33:37

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

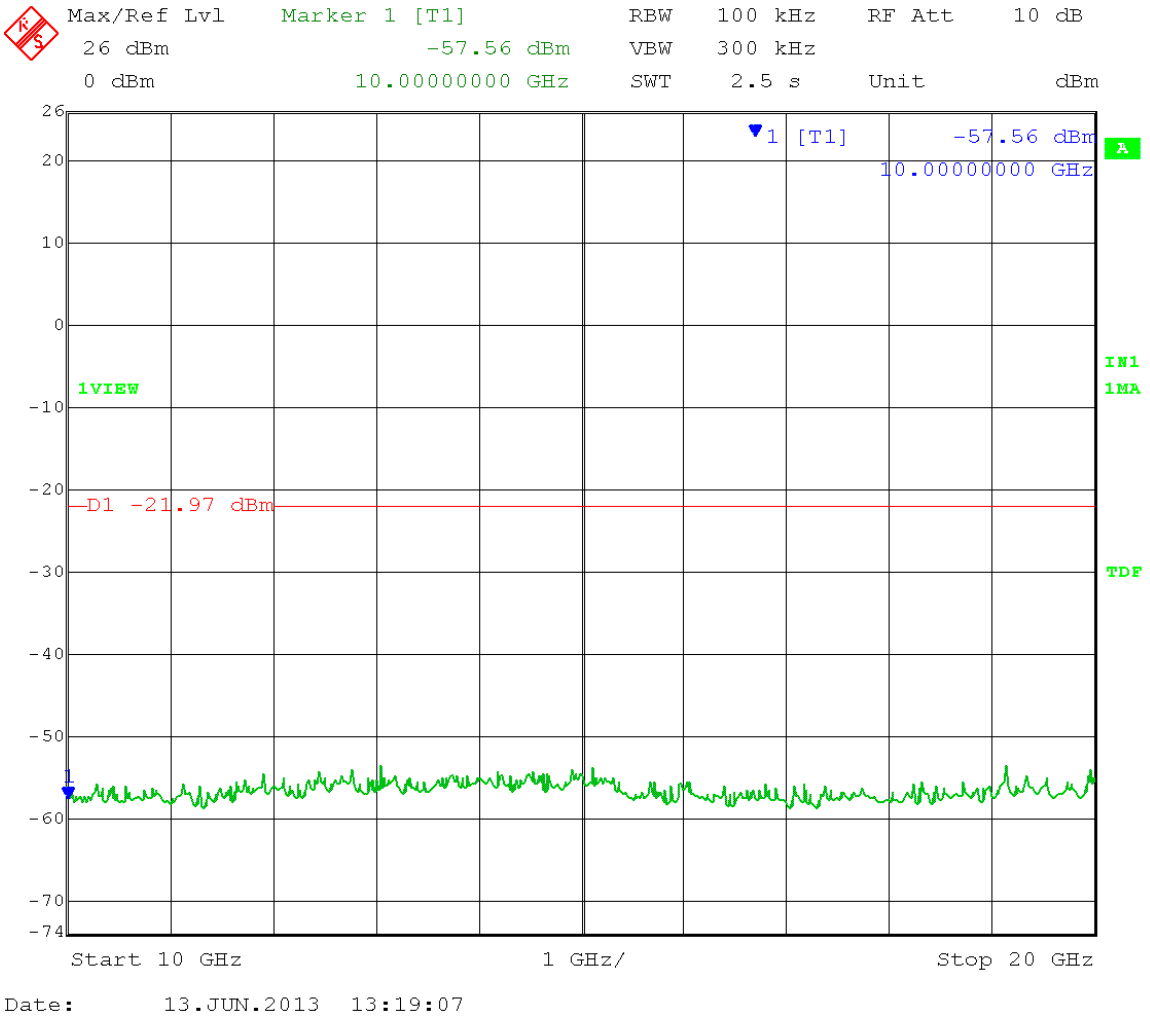
Limit = 8.03dBm - 30 dB = -21.97dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

Limit = 8.03dBm - 30 dB = -21.97dBm

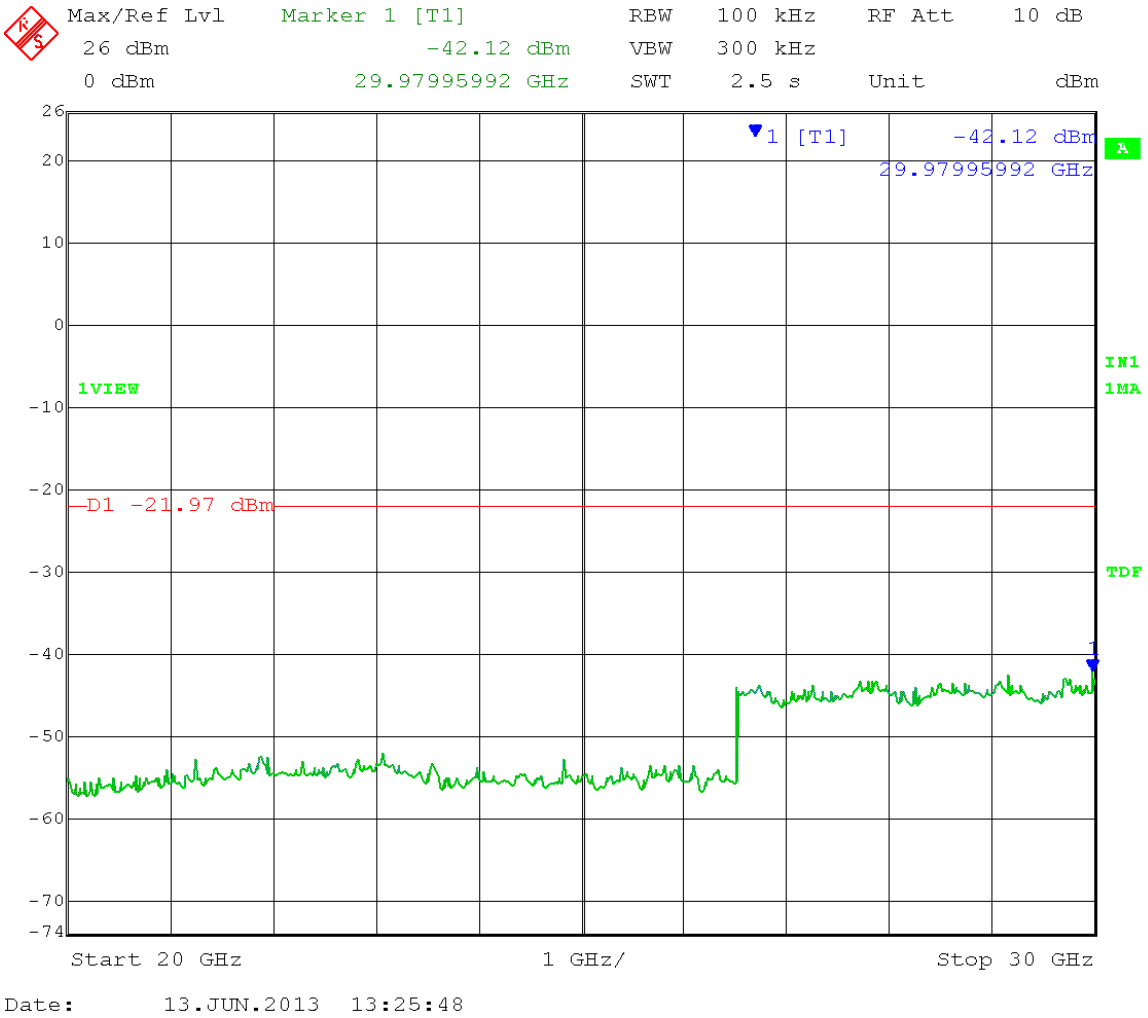



Date: 13.JUN.2013 13:19:07

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

Limit = 8.03dBm - 30 dB = -21.97dBm

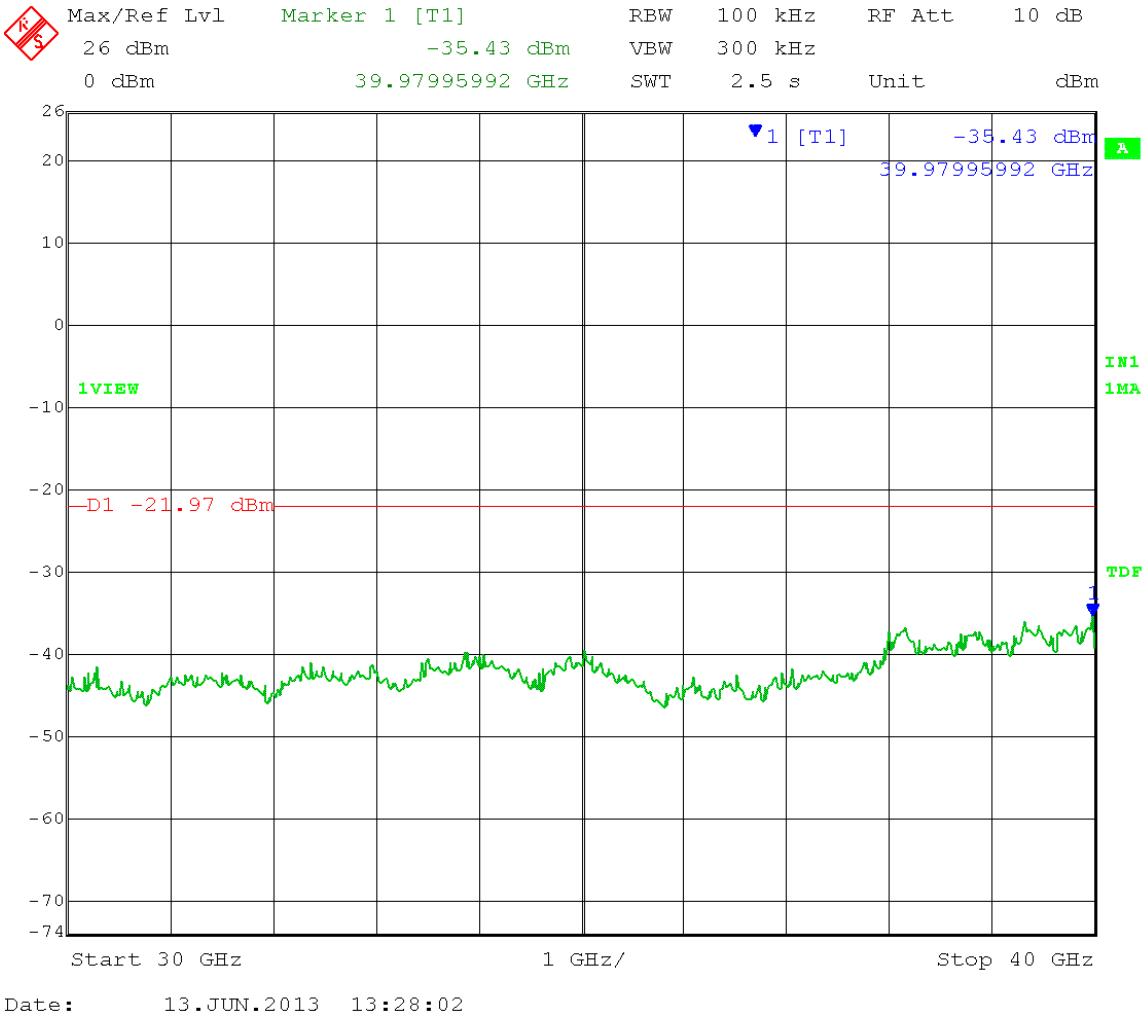



Date: 13.JUN.2013 13:25:48

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

Limit = 8.03dBm - 30 dB = -21.97dBm

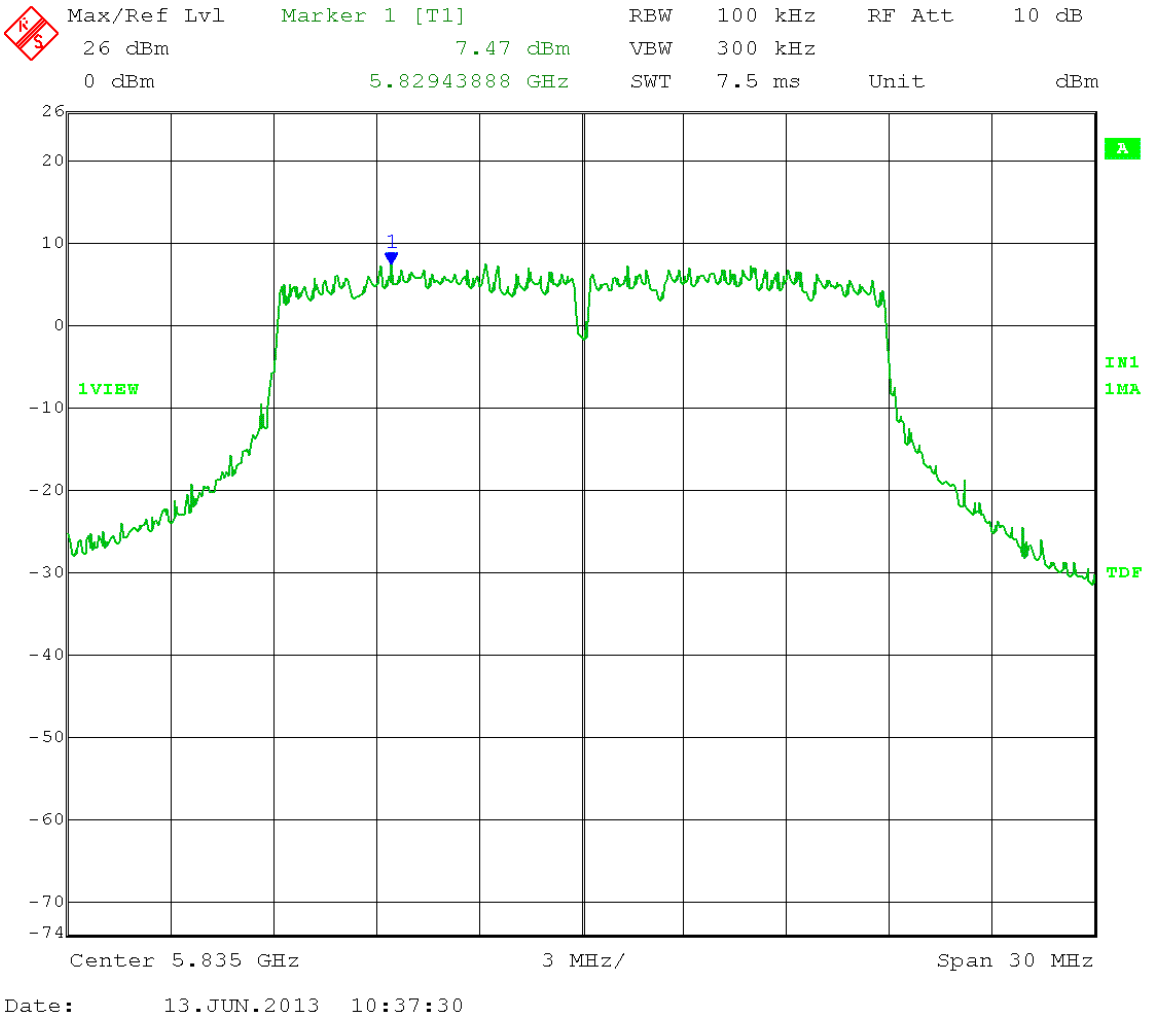



Date: 13.JUN.2013 13:28:02

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting = 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |

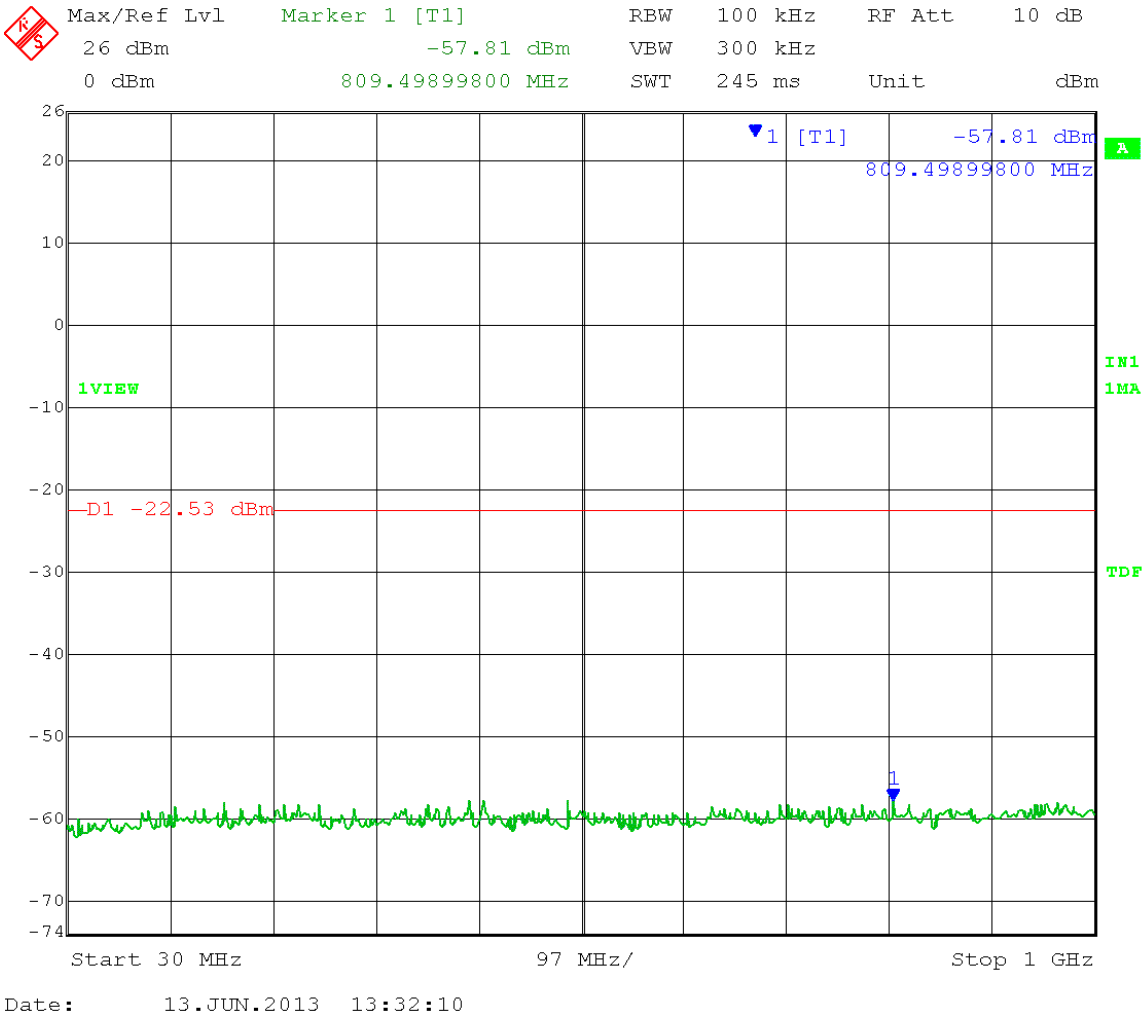
**Reference Level** measurement
Limit = 7.47dBm - 30 dB = -22.53dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

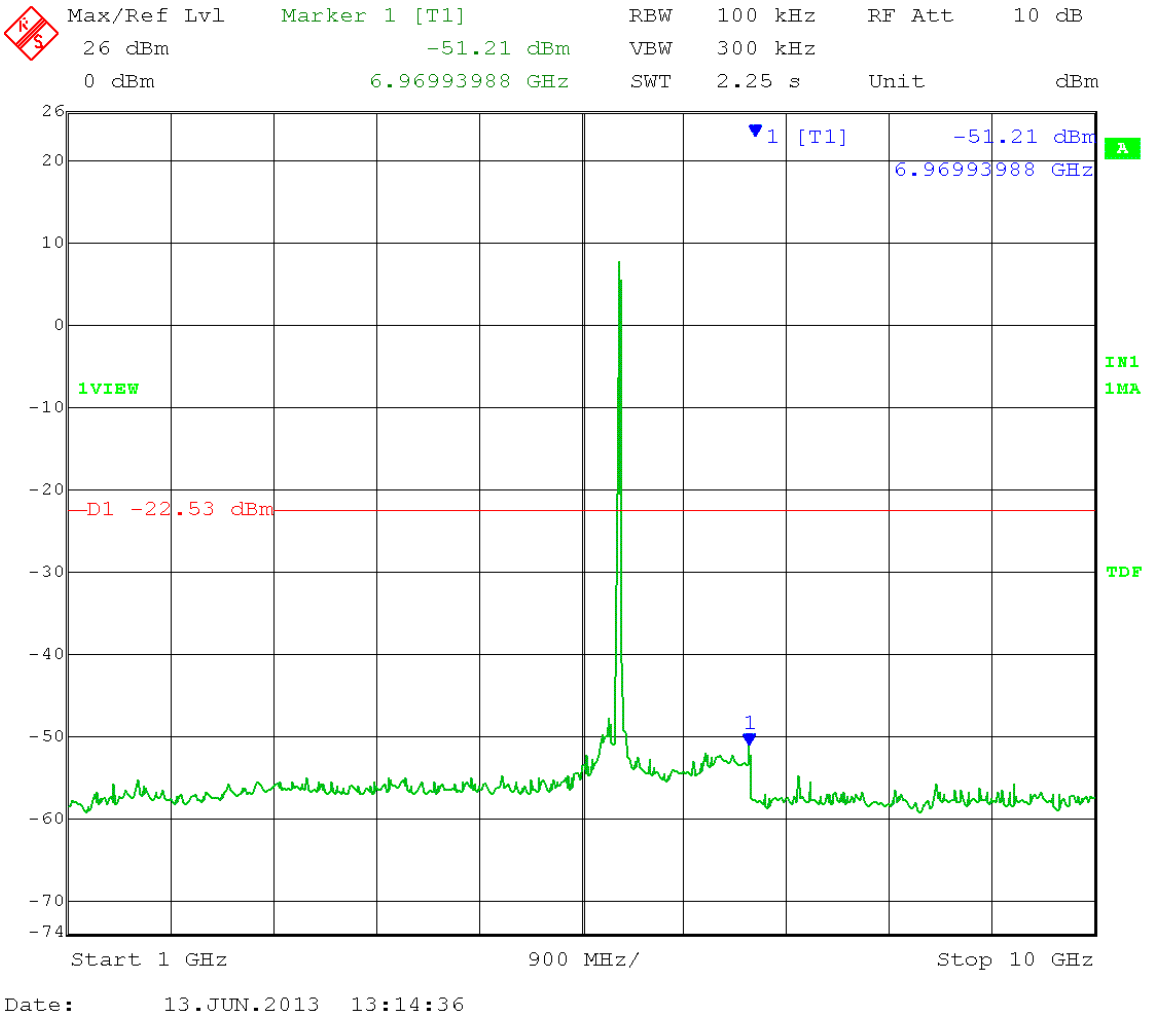
Limit = 7.47dBm - 30 dB = -22.53dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

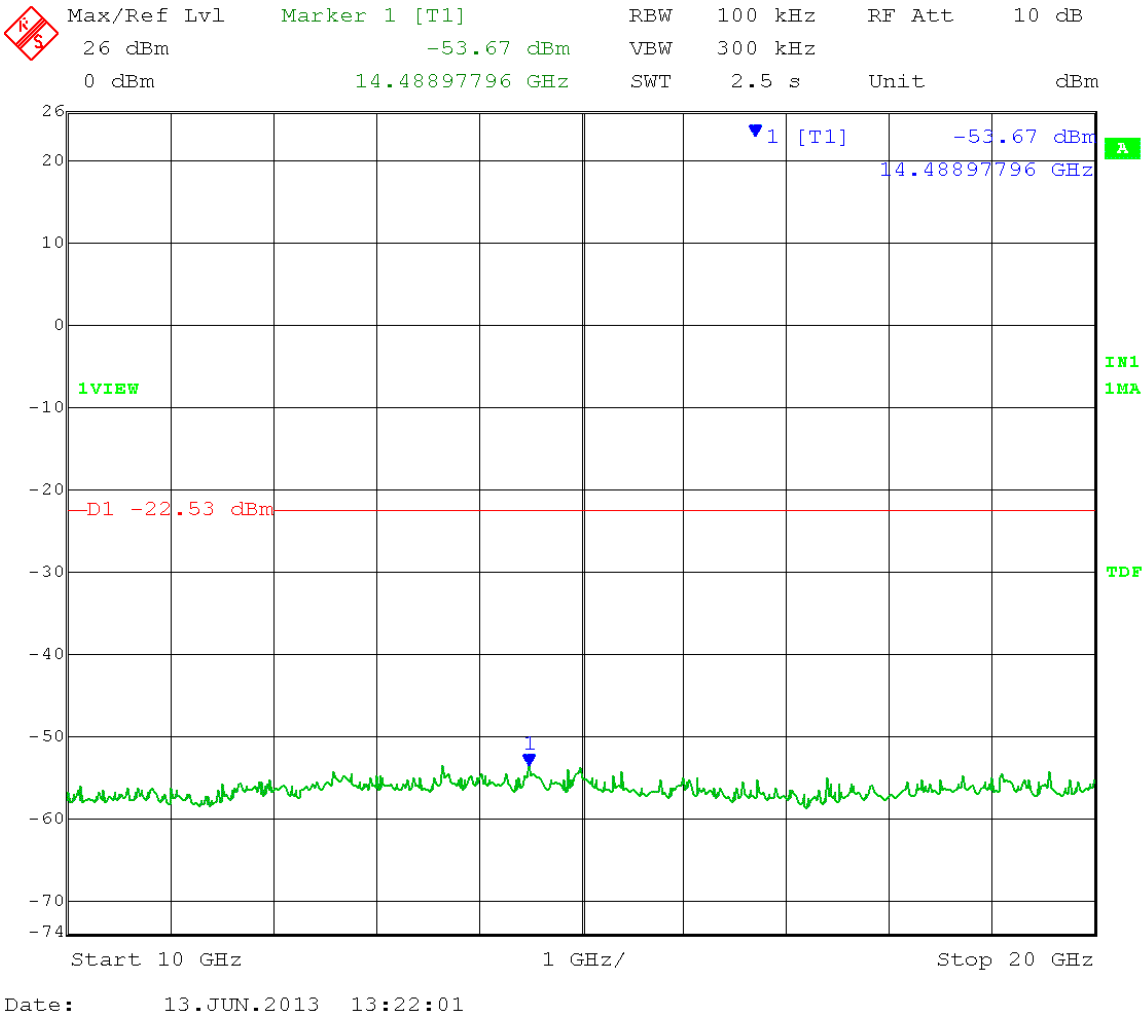
Limit = 7.47dBm - 30 dB = -22.53dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

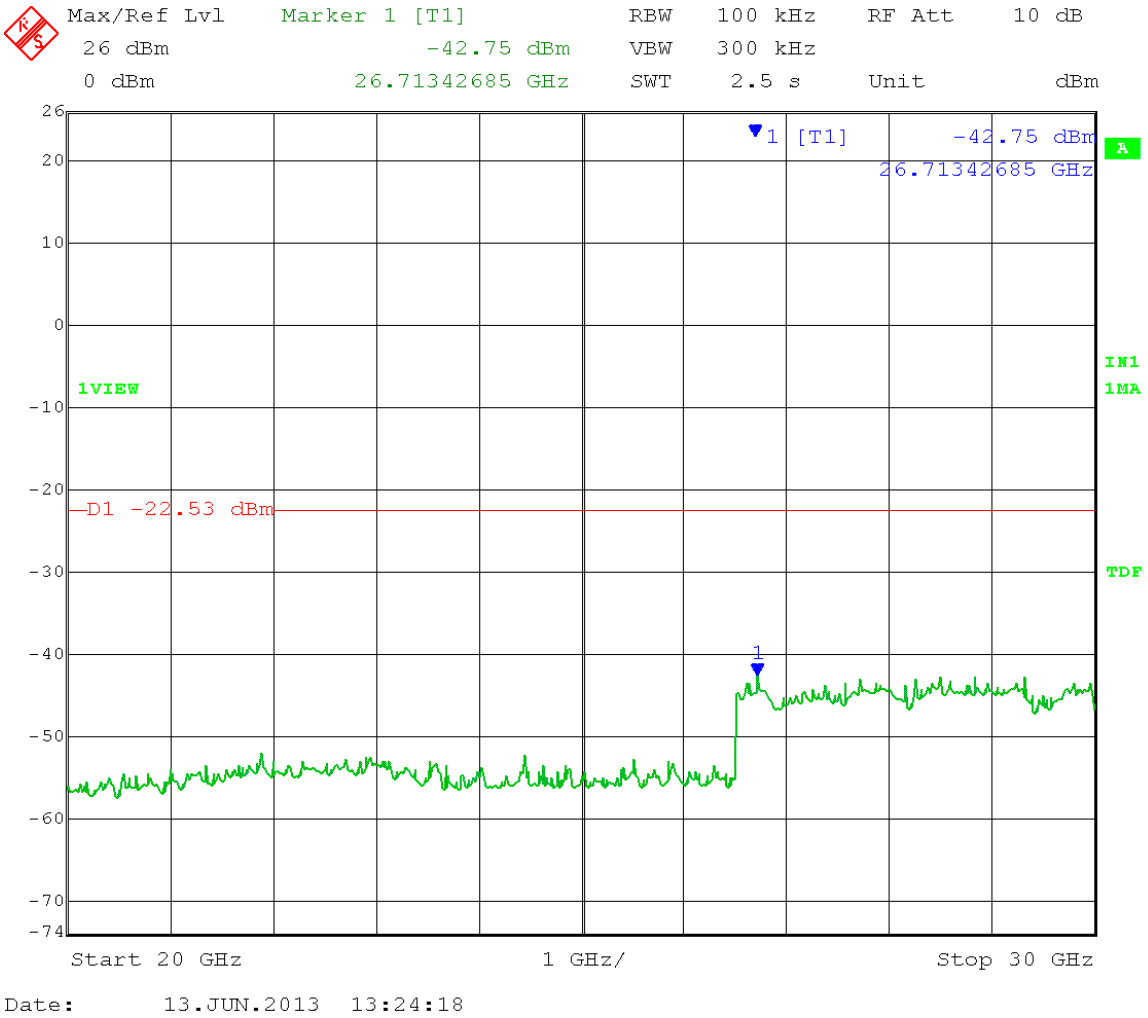
Limit = 7.47dBm - 30 dB = -22.53dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

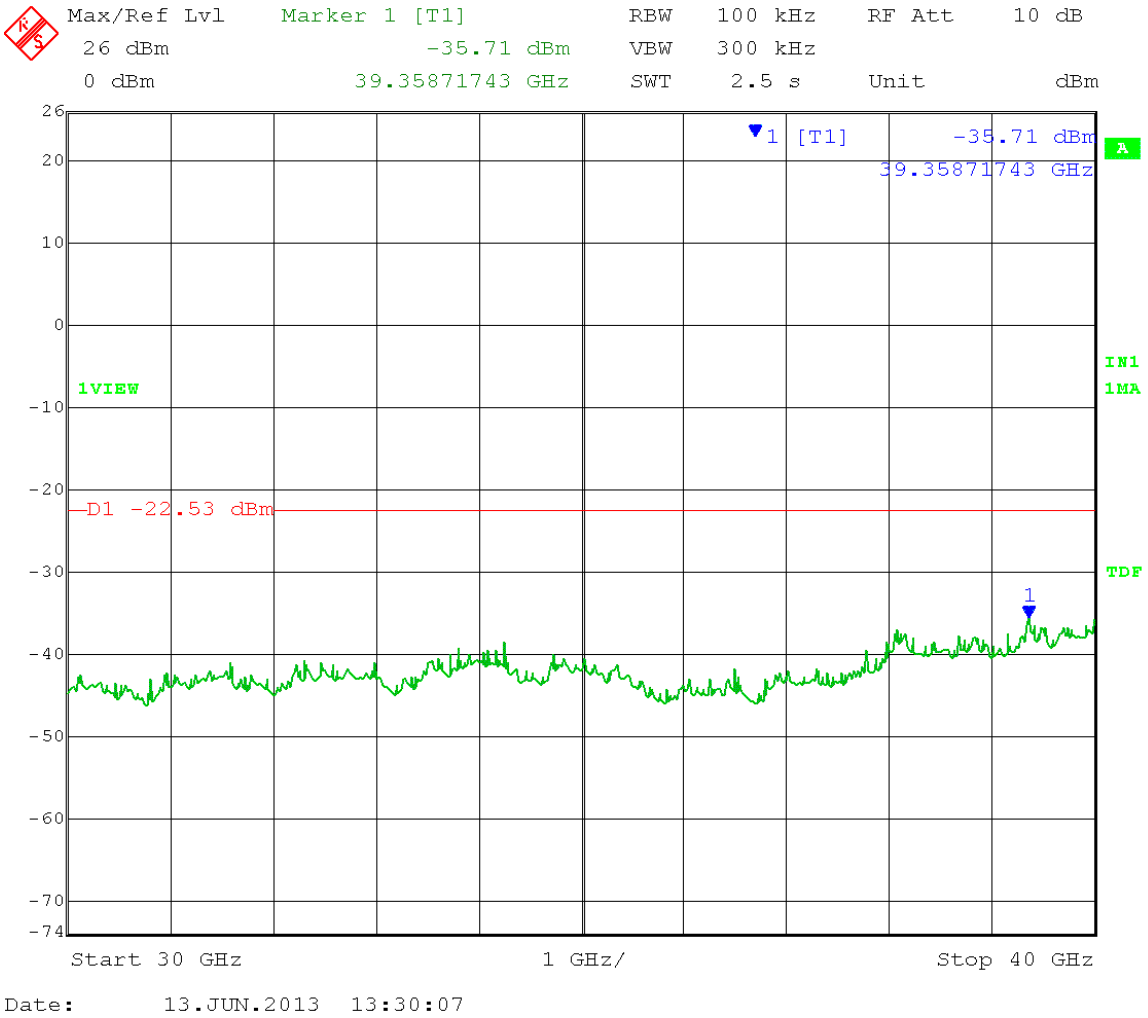
Limit = 7.47dBm - 30 dB = -22.53dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.835GHz |
| Output power setting 20dBm | 20MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

Limit = 7.47dBm - 30 dB = -22.53dBm

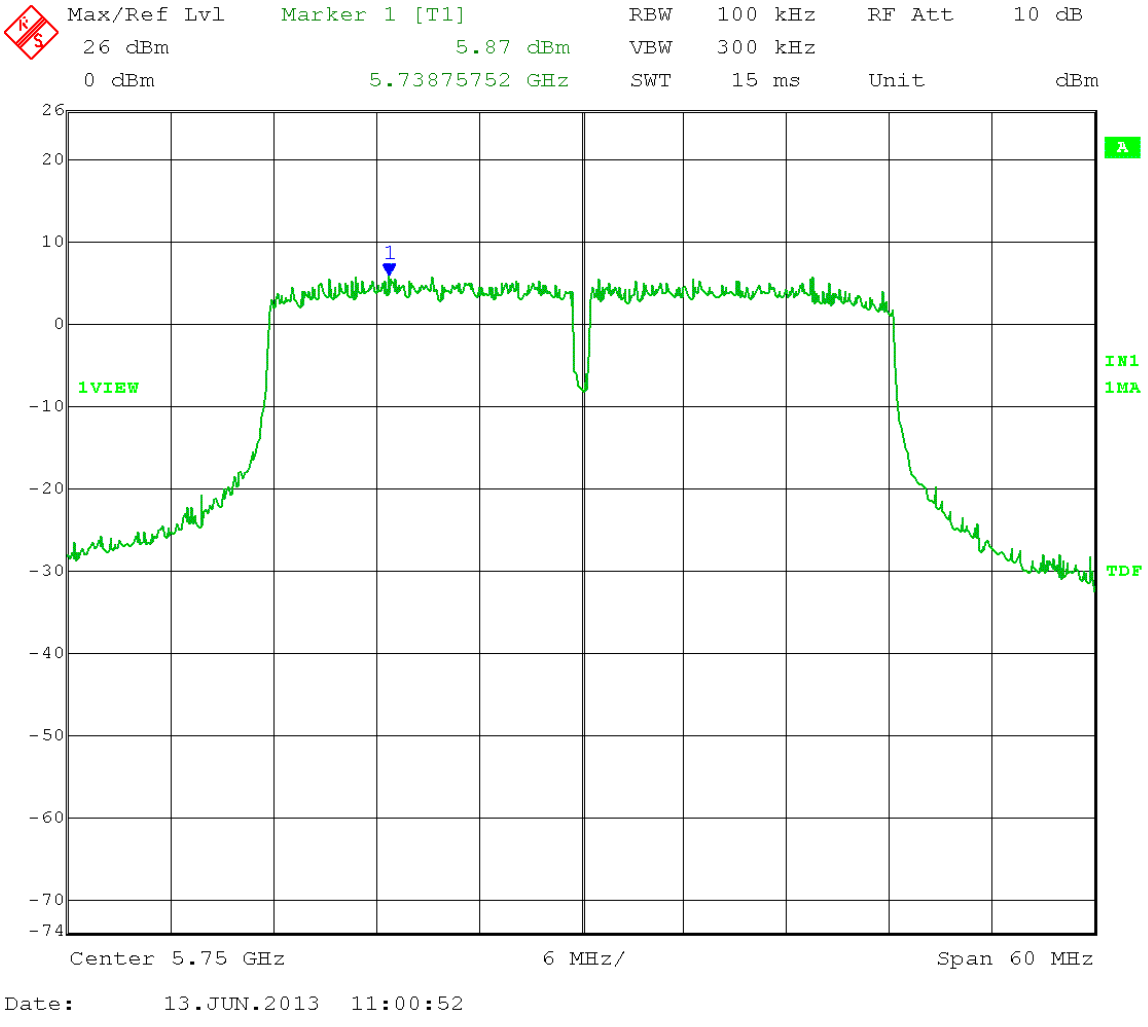



Date: 13.JUN.2013 13:30:07

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |

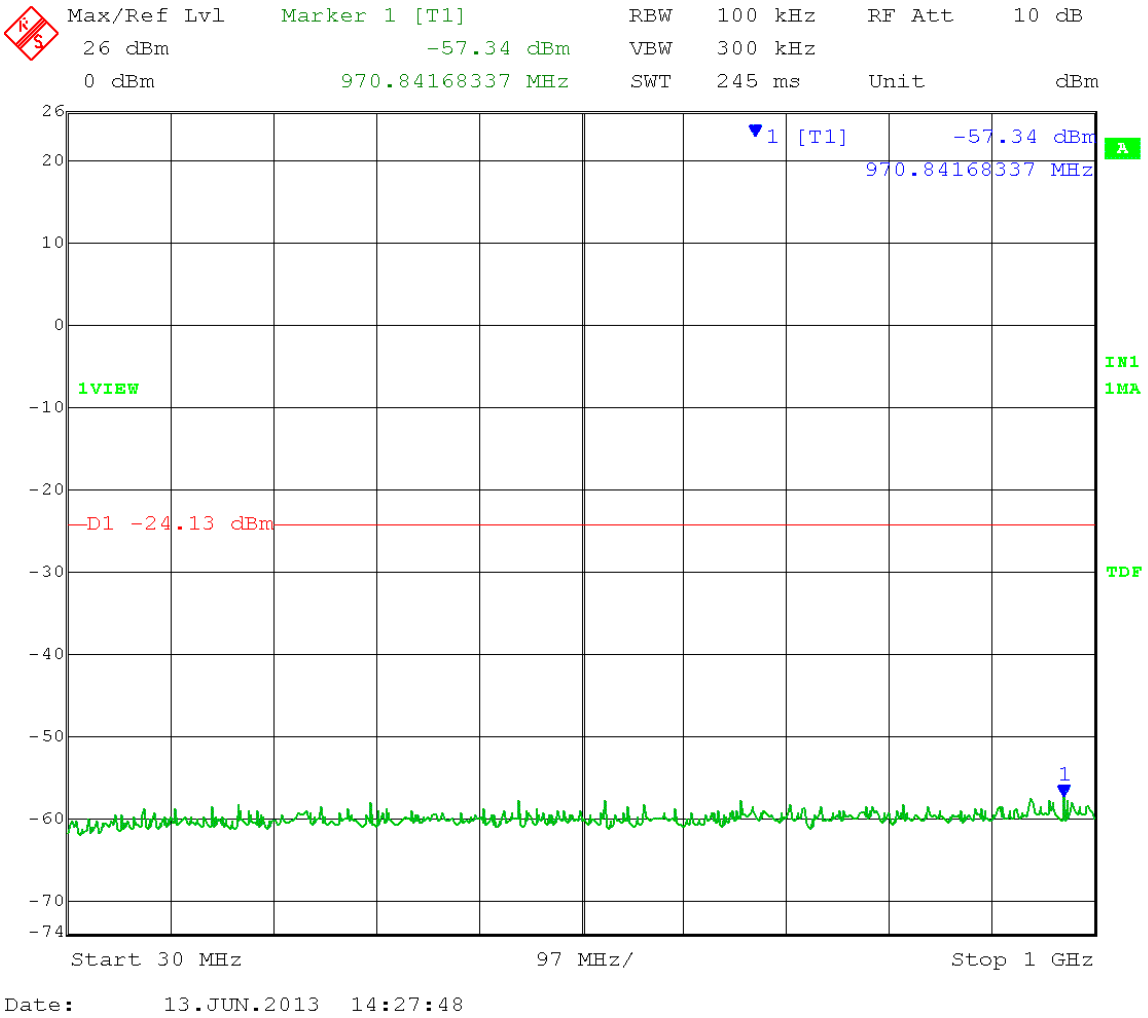
**Reference Level** measurement
Limit = 5.87dBm - 30 dB = -24.13dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

Limit = 5.87dBm - 30 dB = -24.13dBm

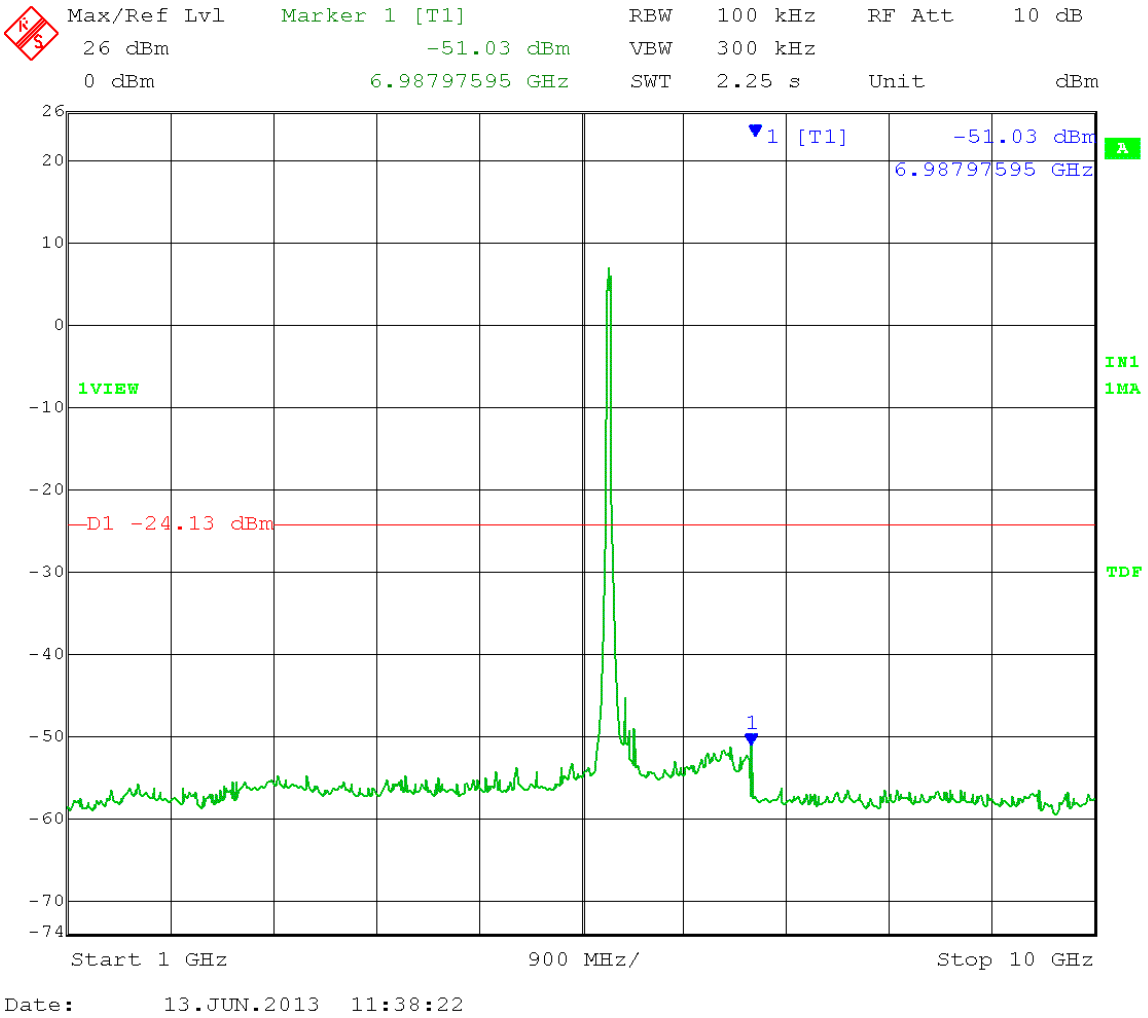



Date: 13.JUN.2013 14:27:48

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

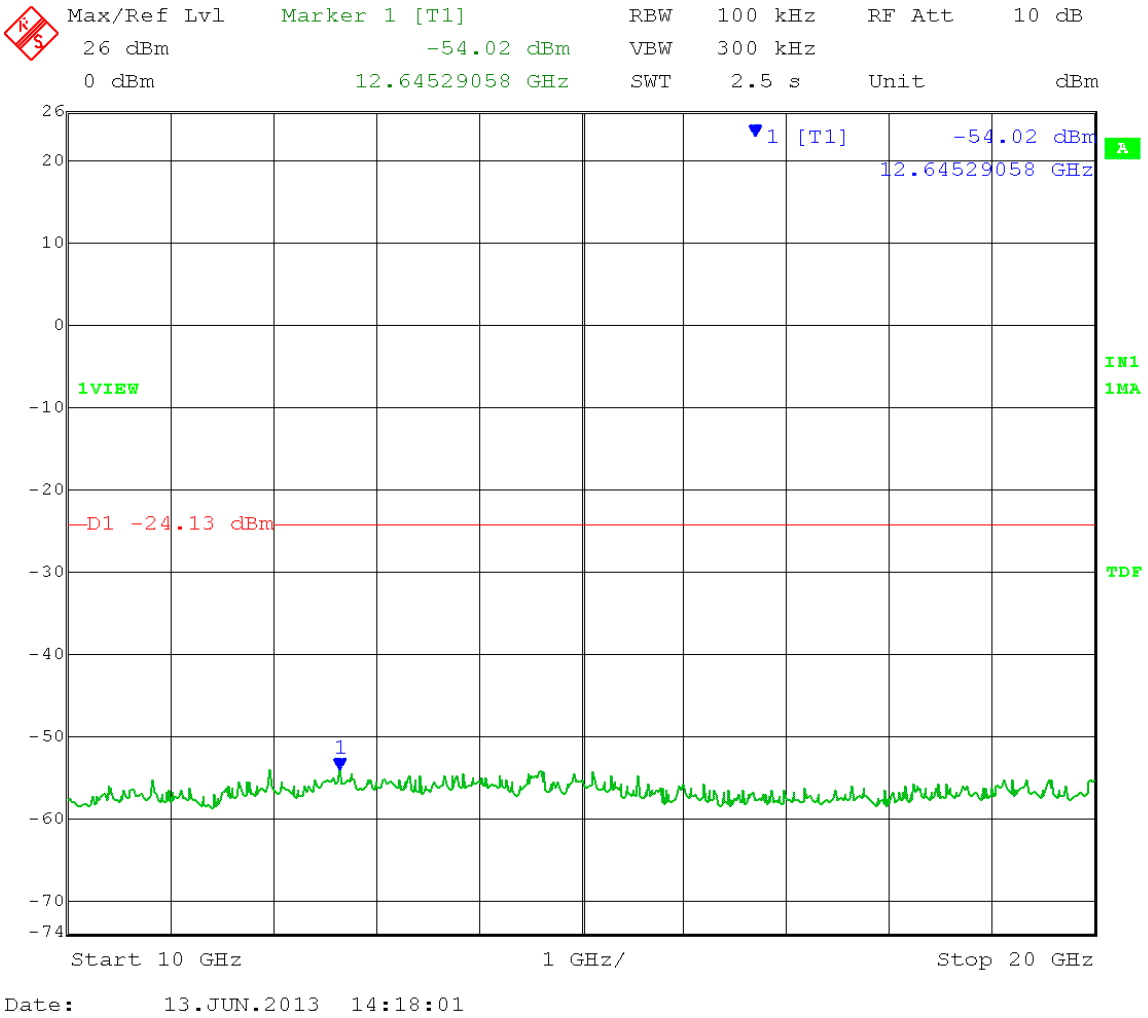
Limit = 5.87dBm - 30 dB = -24.13dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

Limit = 5.87dBm - 30 dB = -24.13dBm

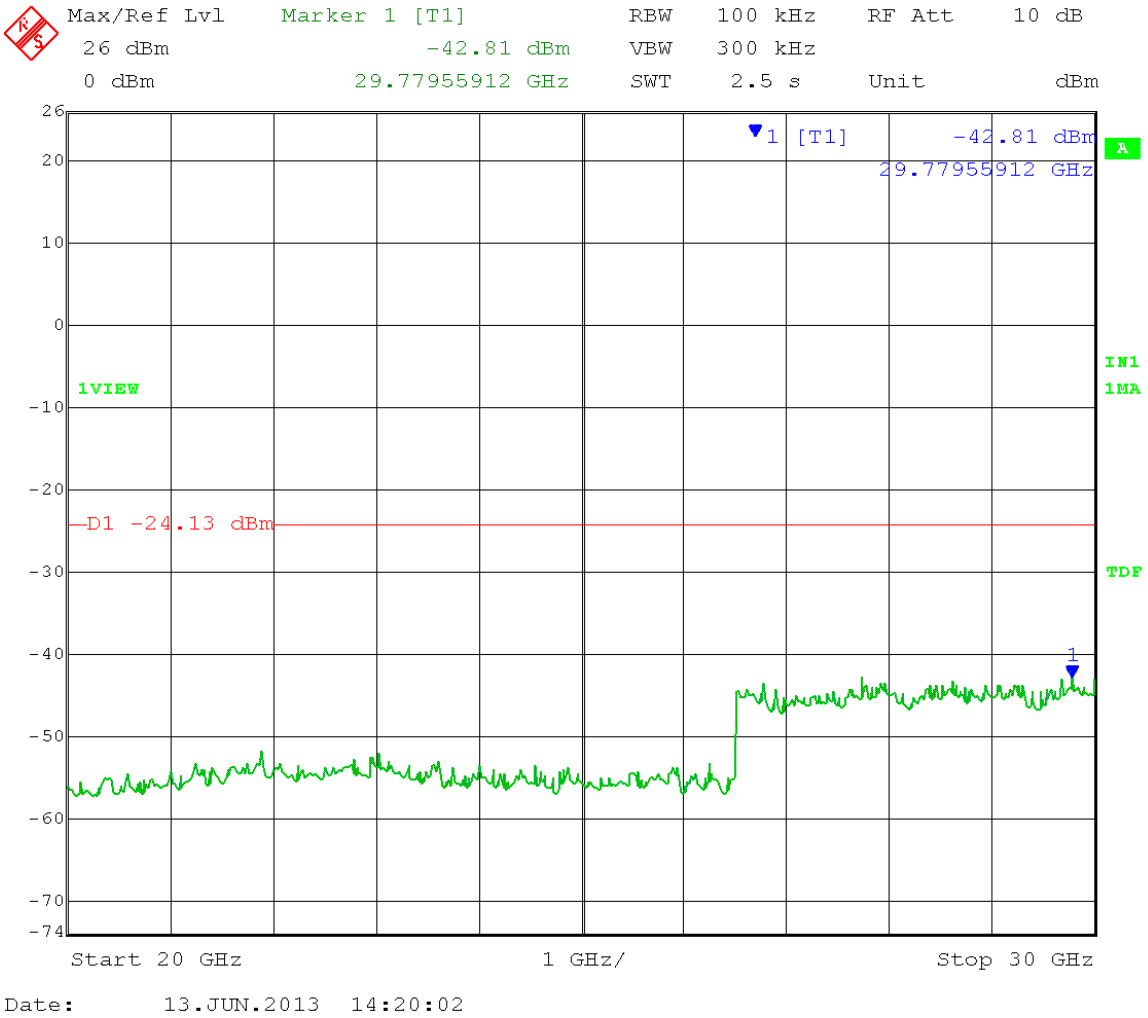



Date: 13.JUN.2013 14:18:01

| | |
|---|---|
| Test Date: | 06-13-2013 |
| Company: | Cambium Networks |
| EUT: | Avenger AP (5.7GHz: OFDM) |
| Test: | Maximum Unwanted Emission Levels – Conducted |
| Operator: | Jim O/Lillian Li |
| Comment: | 11.0 Emissions in Non-Restricted Frequency Bands - Conducted |
| | 11.3 Emission Level Measurement |

RBW = 100 kHz — VBW ≥ 300 kHz
Detector = Peak — Sweep = Auto Couple
Trace = Max Hold — Low Channel Transmit = 5.750GHz
Output power setting 20dBm — 40MHz BW
Channel 0 — ESN# 000456C005DE
Frequency Range 20-30GHz

Limit = 5.87dBm - 30 dB = -24.13dBm

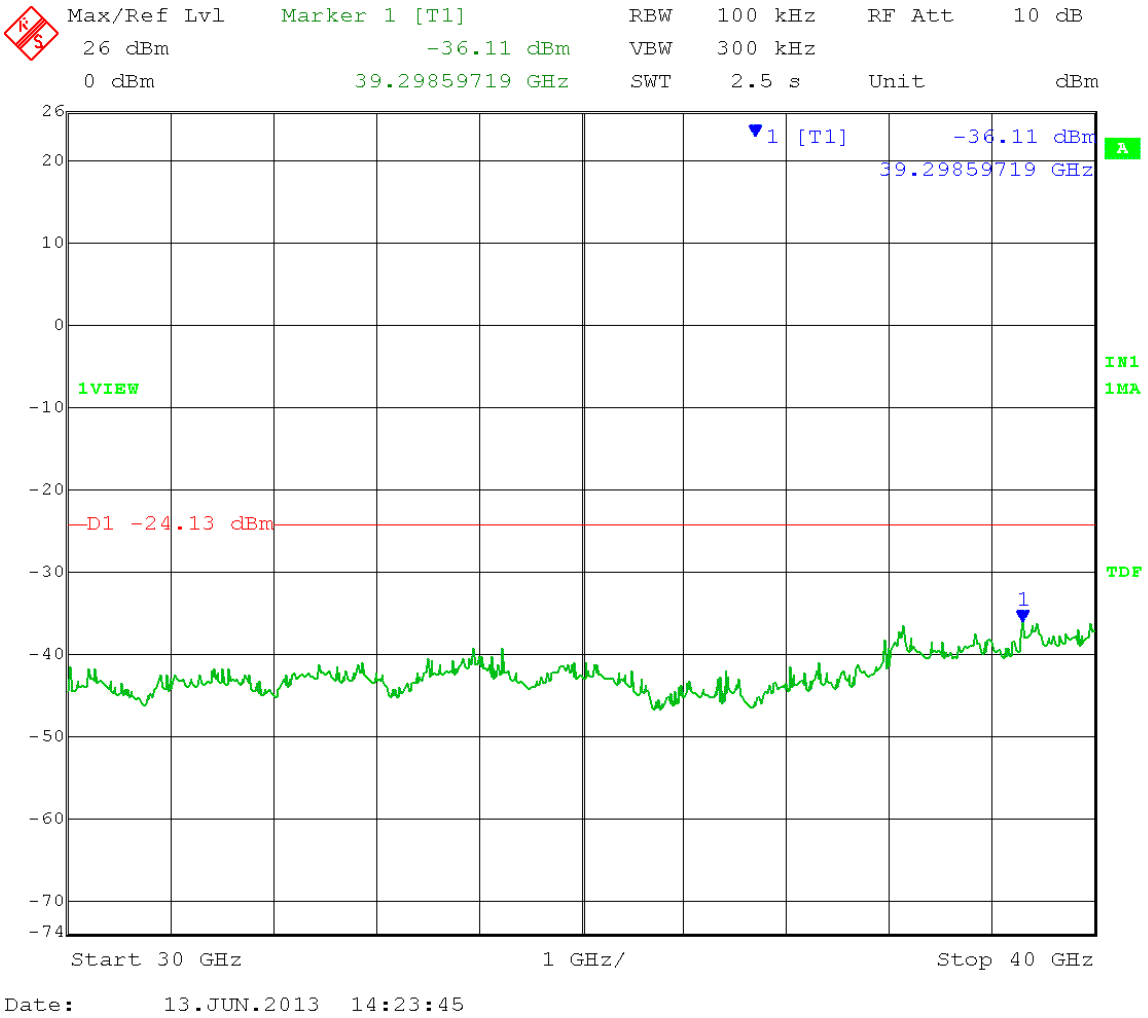



Date: 13.JUN.2013 14:20:02

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

Limit = 5.87dBm - 30 dB = -24.13dBm

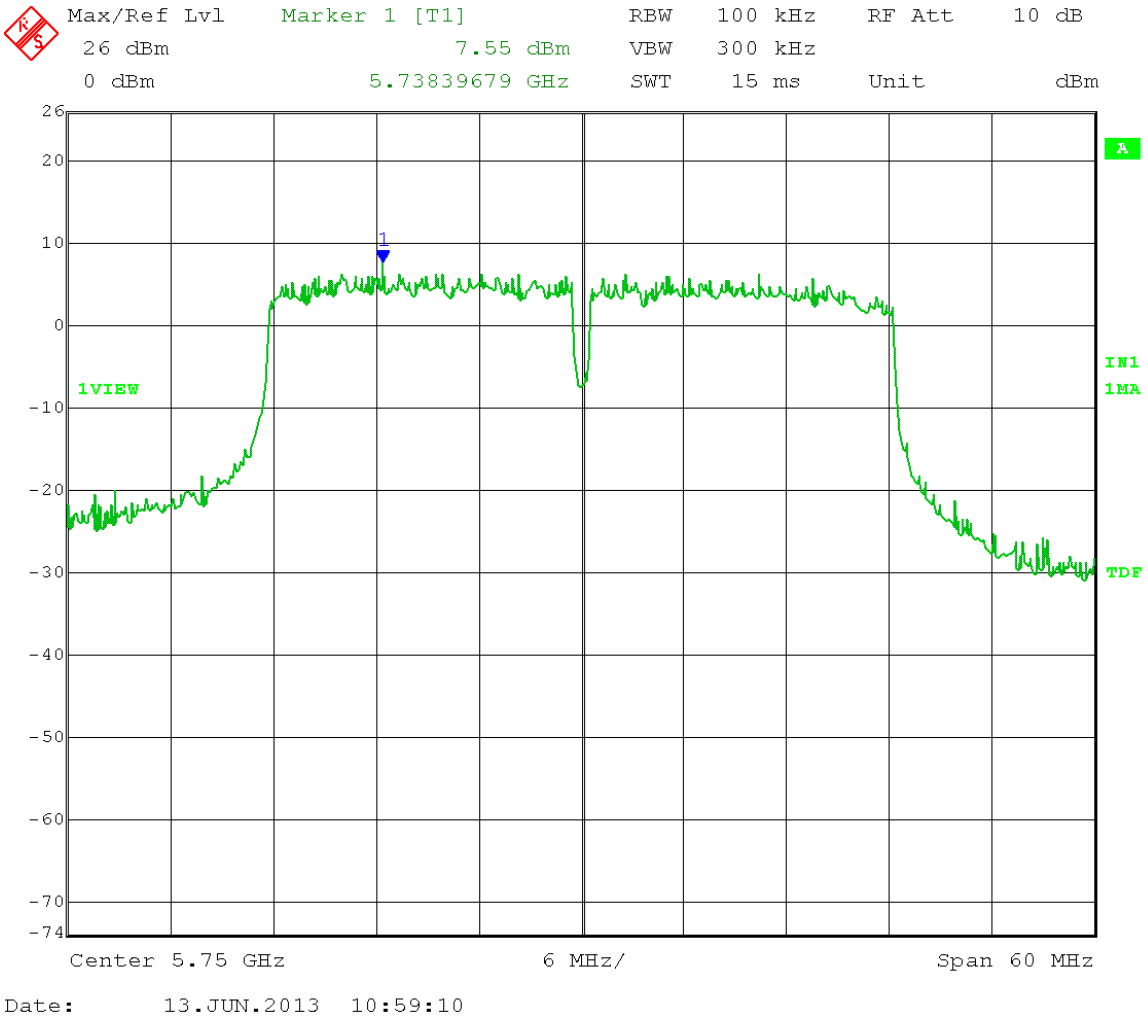



Date: 13.JUN.2013 14:23:45

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting = 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |

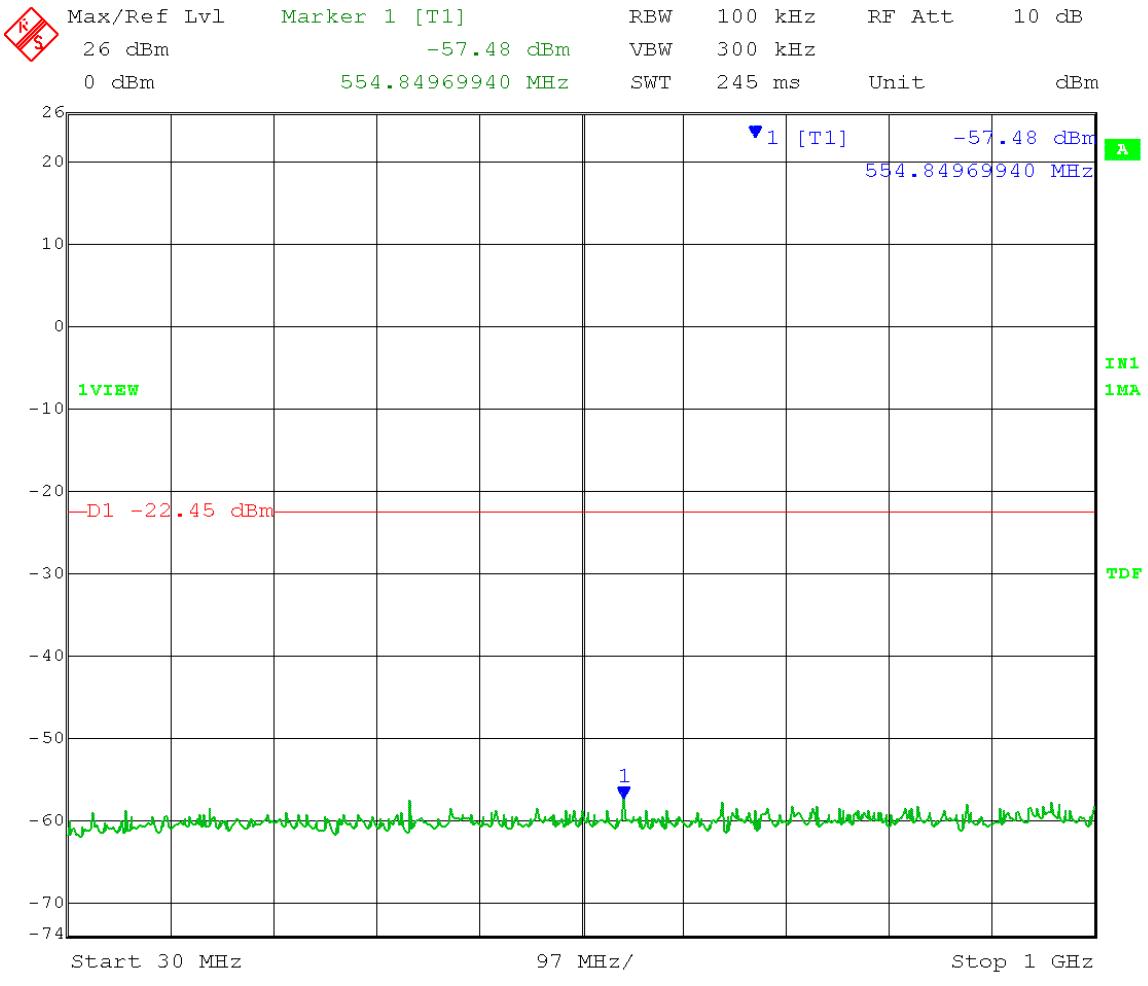
**Reference Level** measurement
Limit = 7.55dBm - 30 dB = -22.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

Limit = 7.55dBm - 30 dB = -22.45dBm

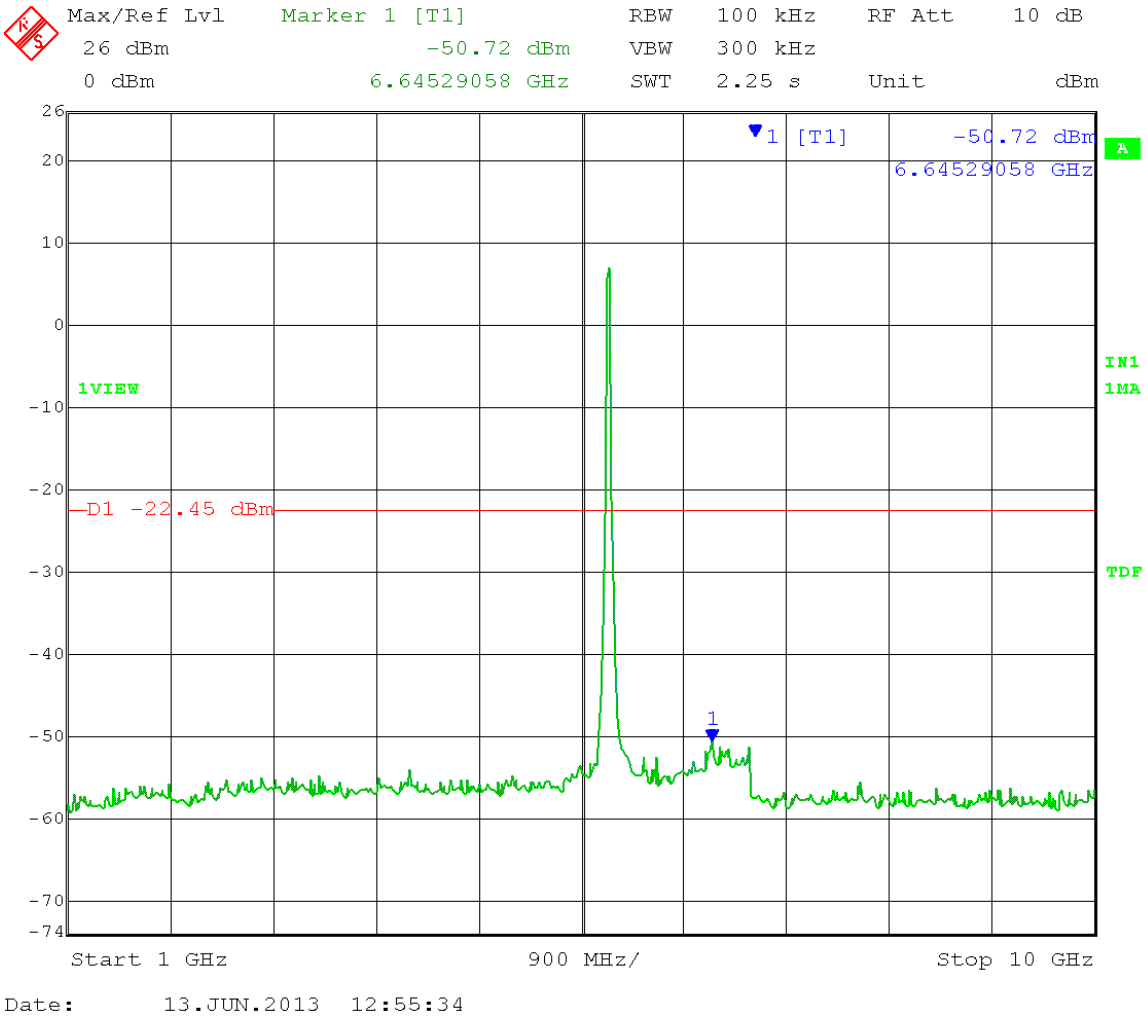



Date: 13.JUN.2013 14:26:38

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

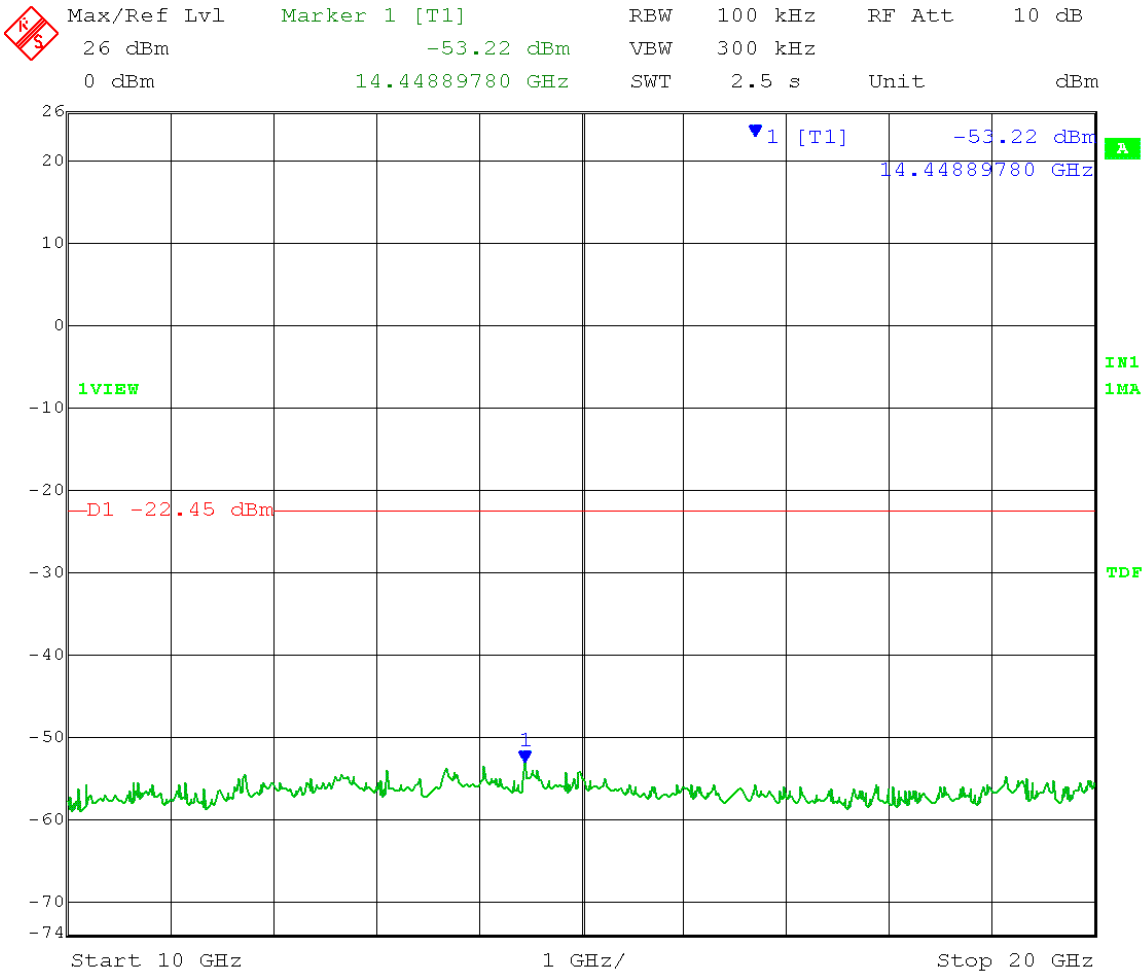
Limit = 7.55dBm - 30 dB = -22.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

Limit = 7.55dBm - 30 dB = -22.45dBm

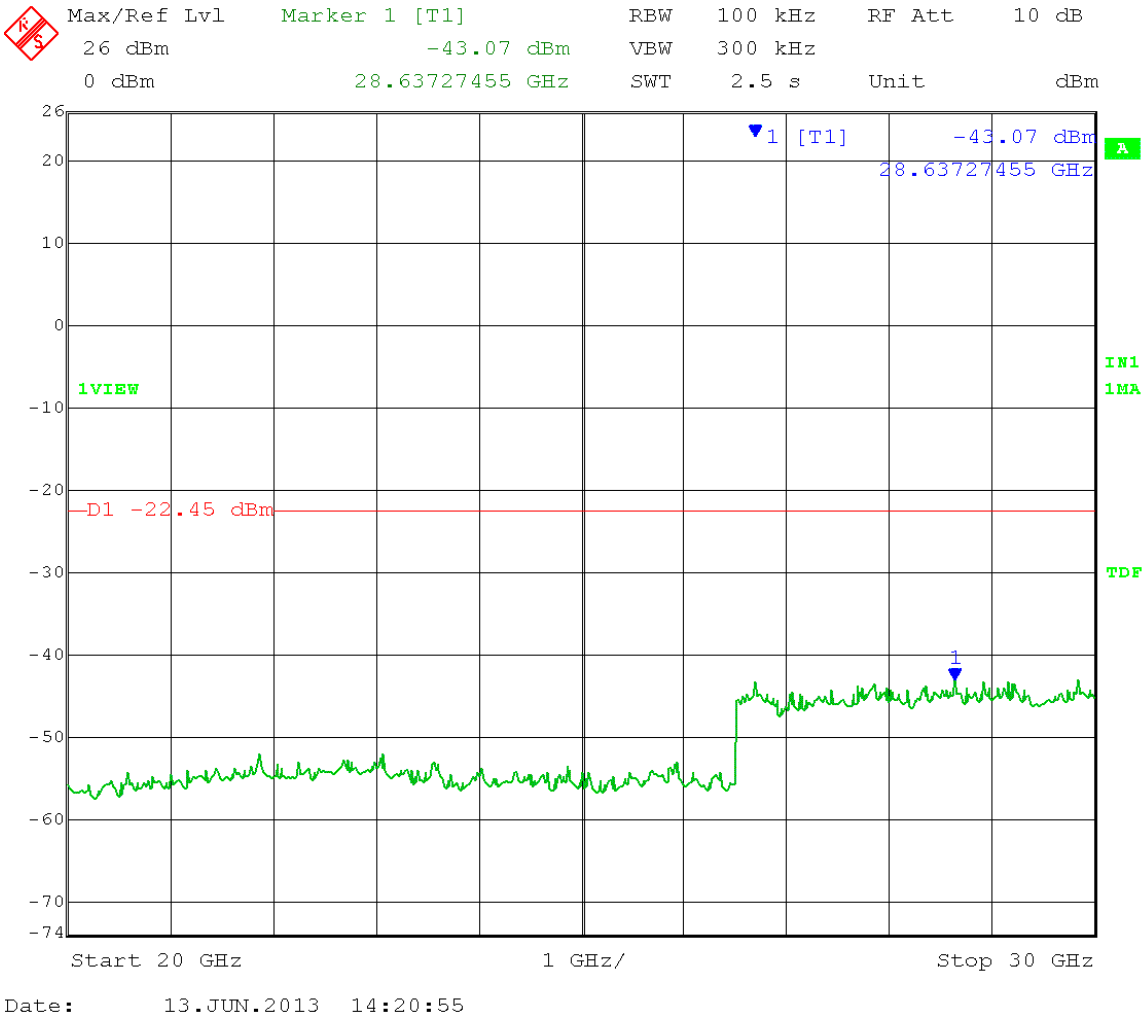



Date: 13.JUN.2013 14:15:19

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

Limit = 7.55dBm - 30 dB = -22.45dBm

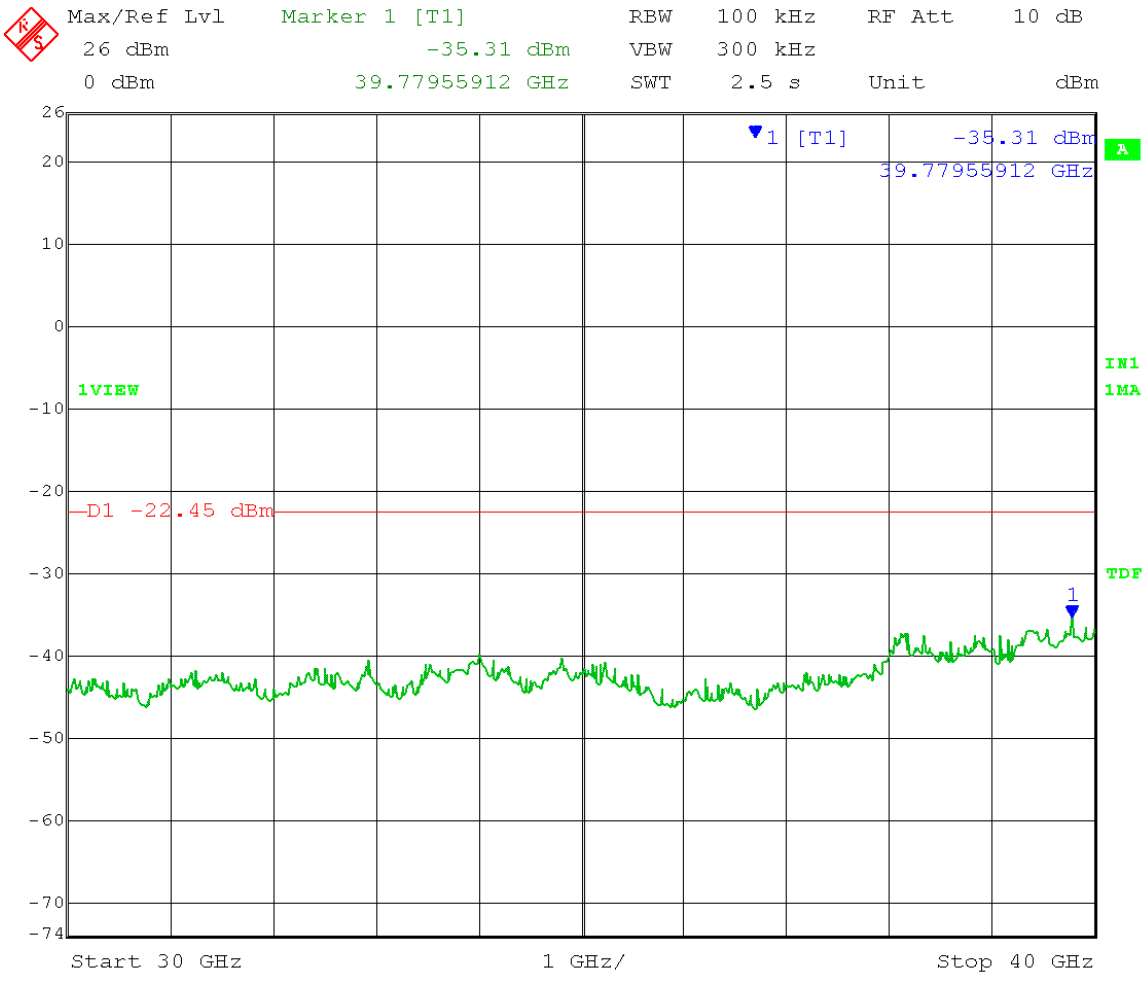



Date: 13.JUN.2013 14:20:55

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Low Channel Transmit = 5.750GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

Limit = 7.55dBm - 30 dB = -22.45dBm

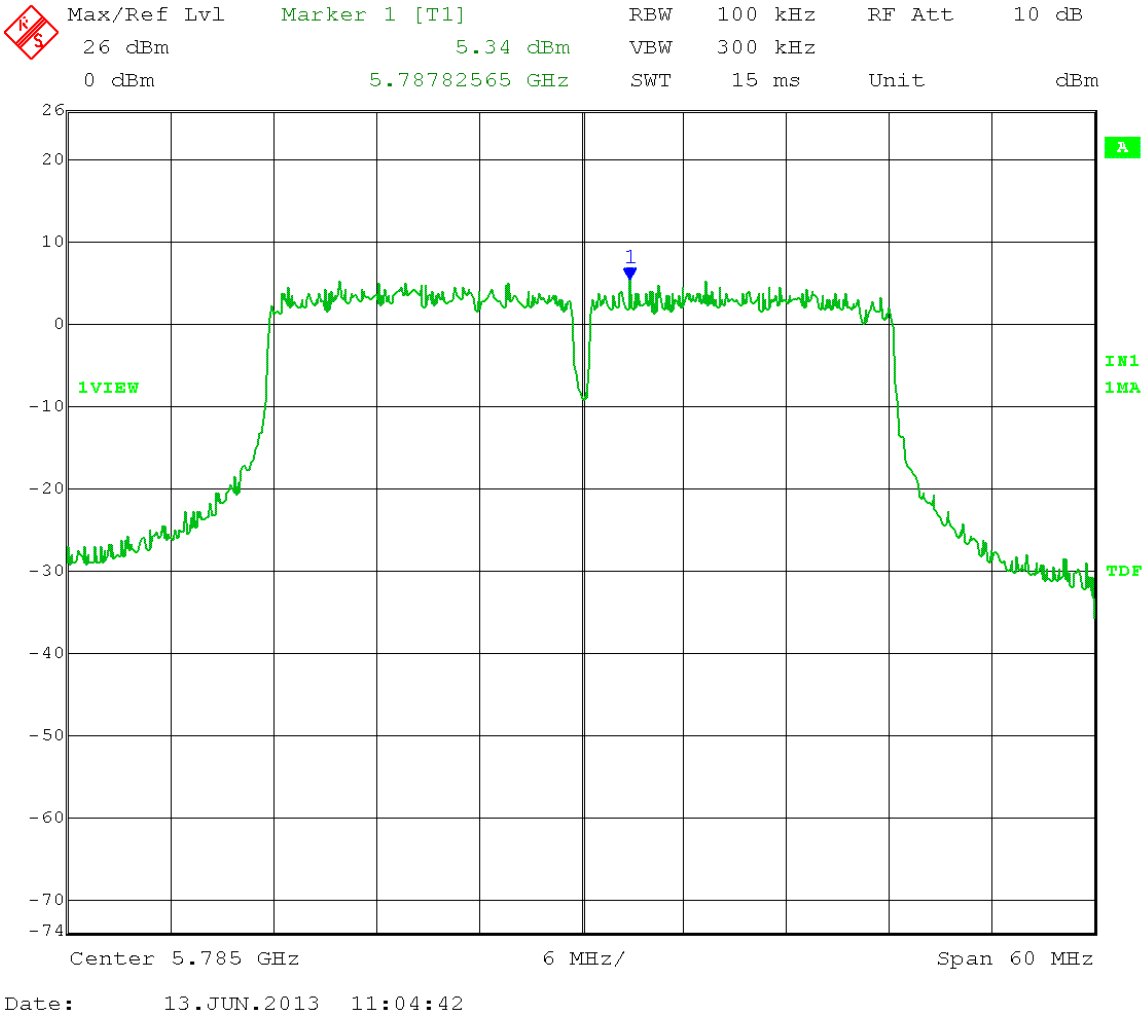



Date: 13.JUN.2013 14:24:58

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |

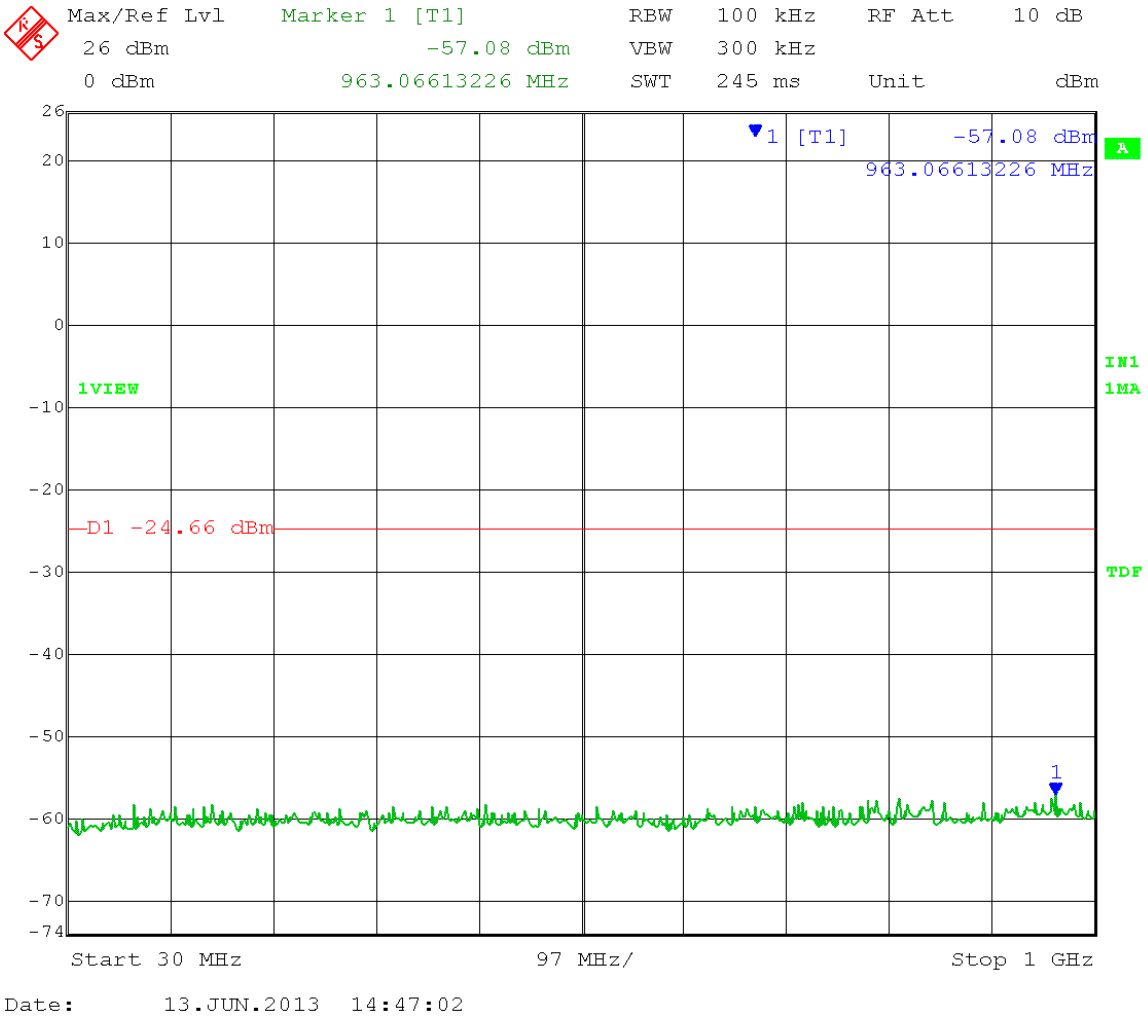
**Reference Level** measurement
Limit = 5.34dBm - 30 dB = -24.66dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

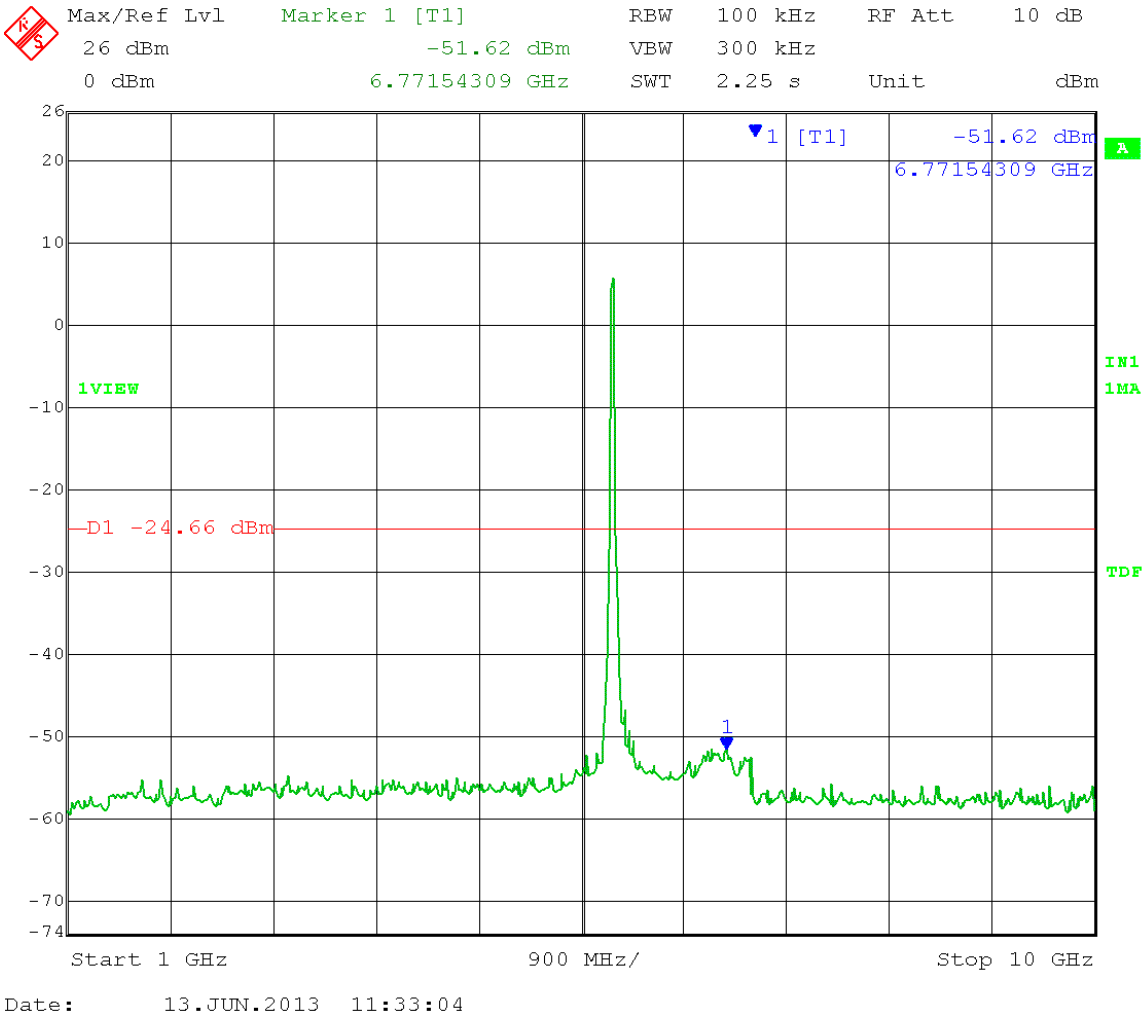
Limit = 5.34dBm - 30 dB = -24.66dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

Limit = 5.34dBm - 30 dB = -24.66dBm

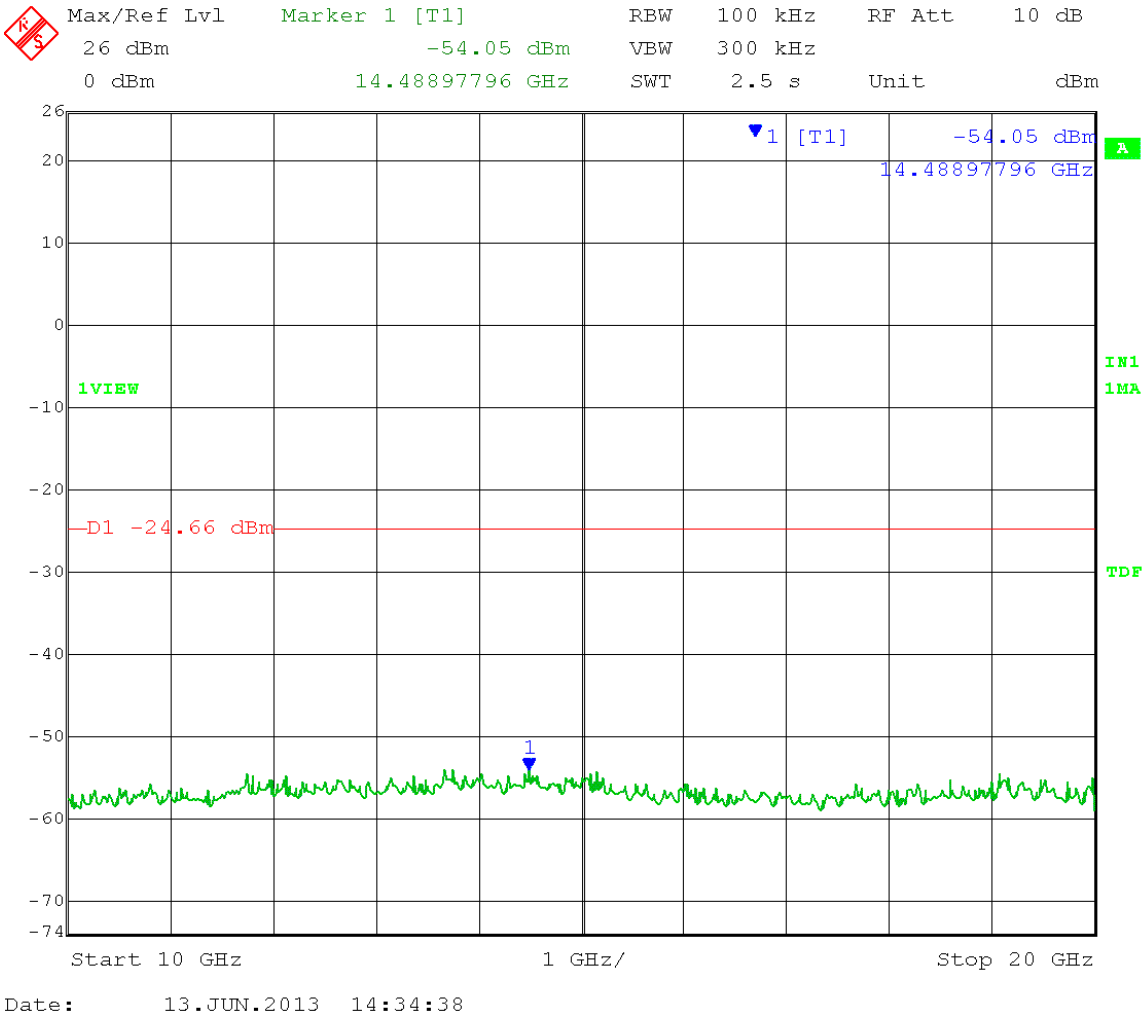



Date: 13.JUN.2013 11:33:04

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

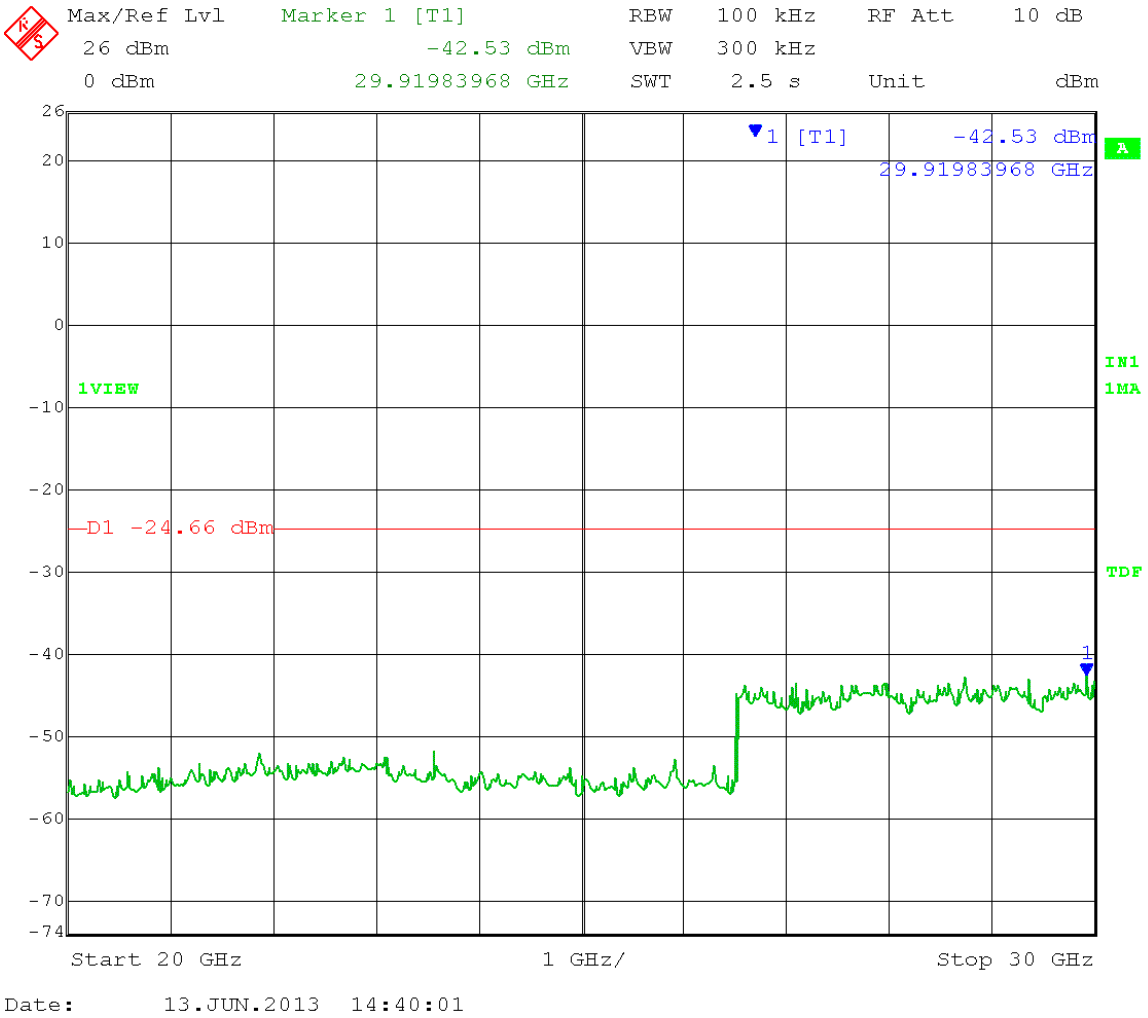
Limit = 5.34dBm - 30 dB = -24.66dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

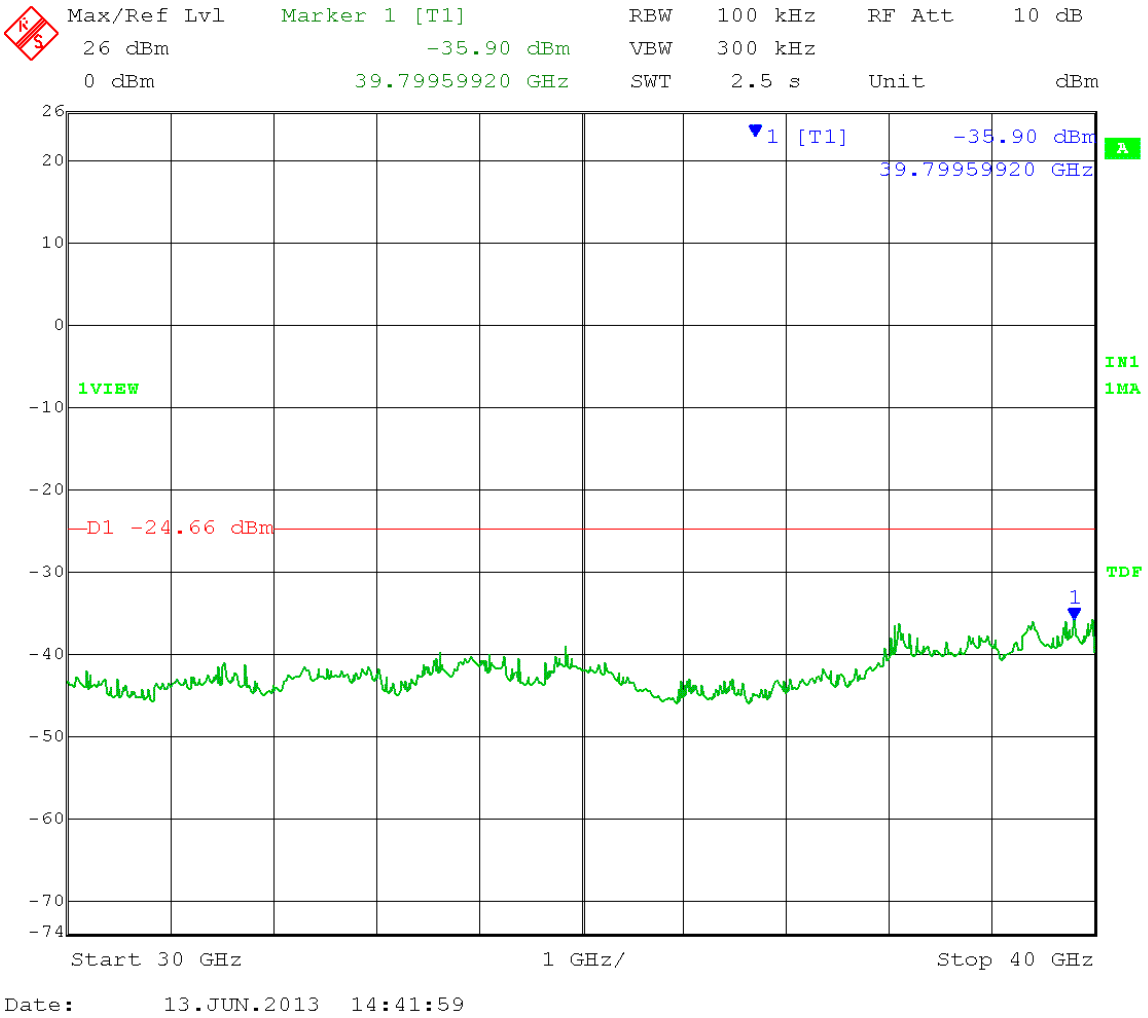
Limit = 5.34dBm - 30 dB = -24.66dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

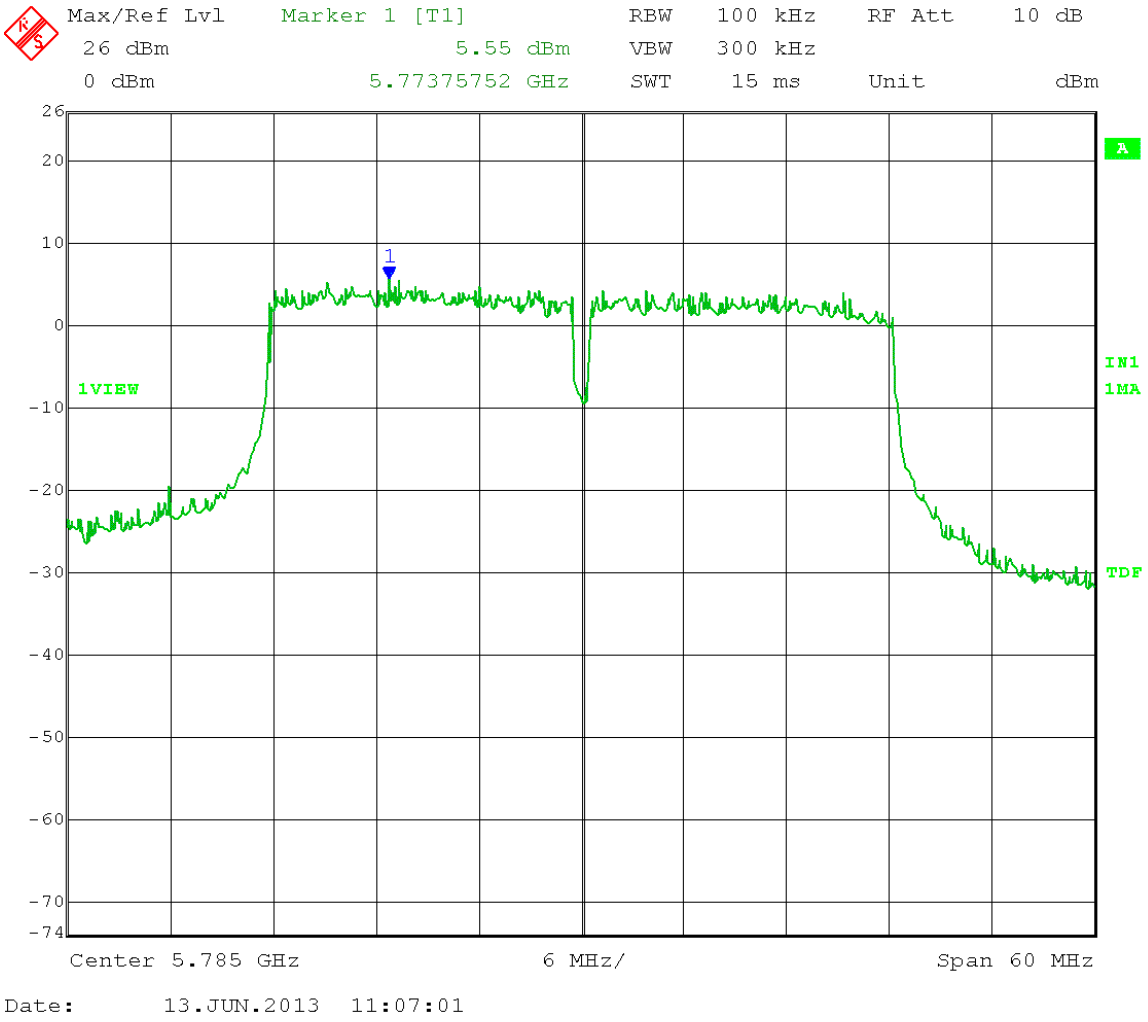
Limit = 5.34dBm - 30 dB = -24.66dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting = 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |

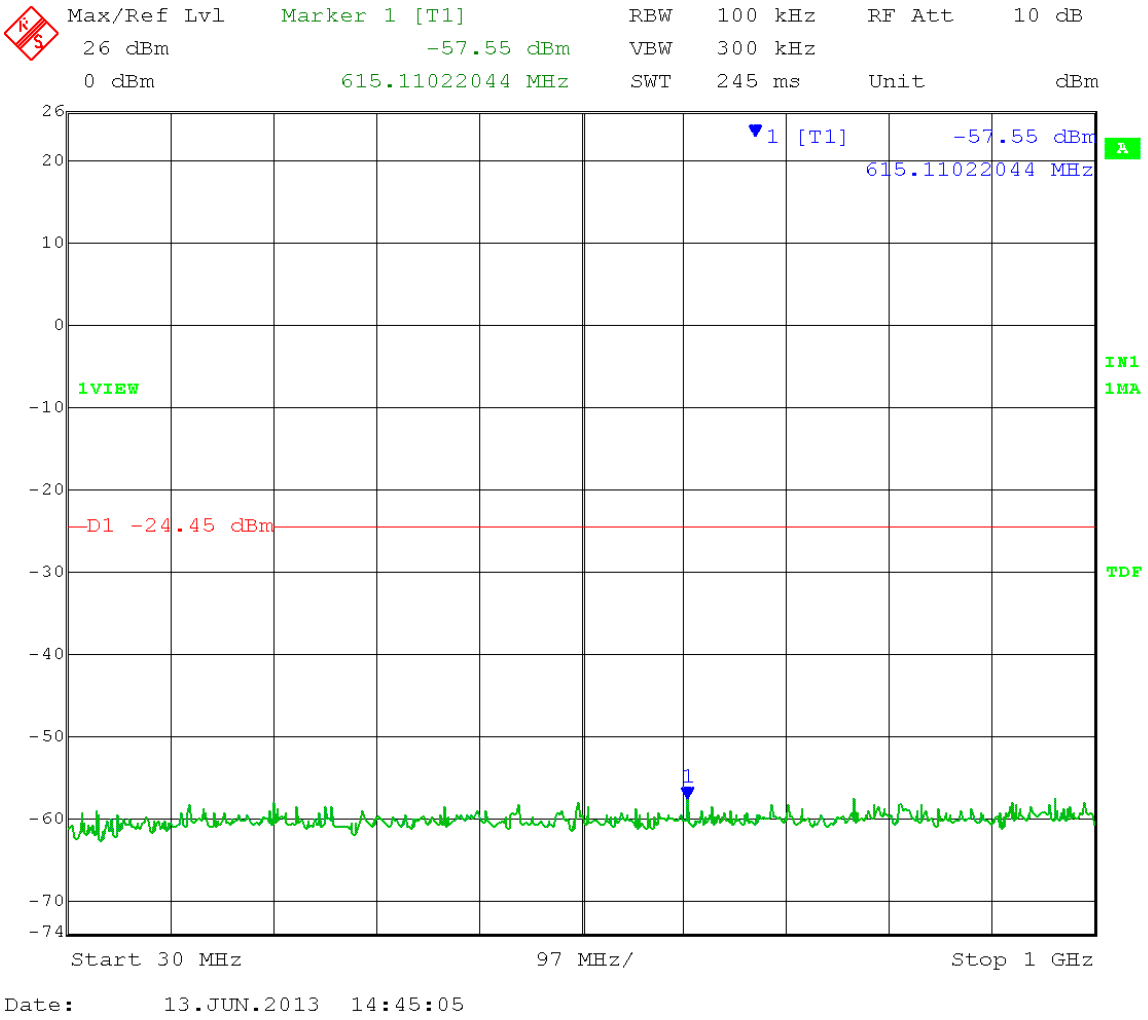
**Reference Level** measurement
Limit = 5.55dBm - 30 dB = -24.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

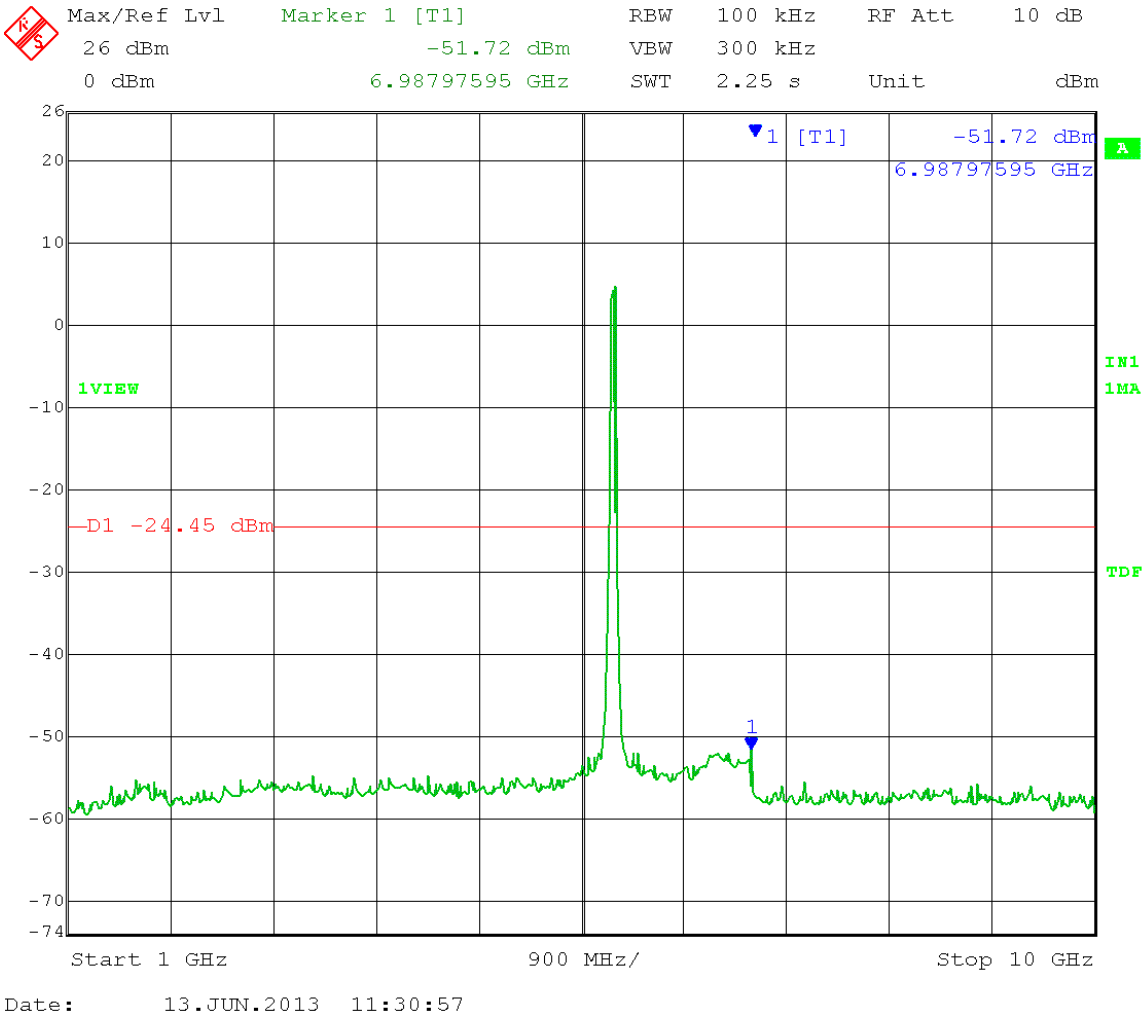
Limit = 5.55dBm - 30 dB = -24.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

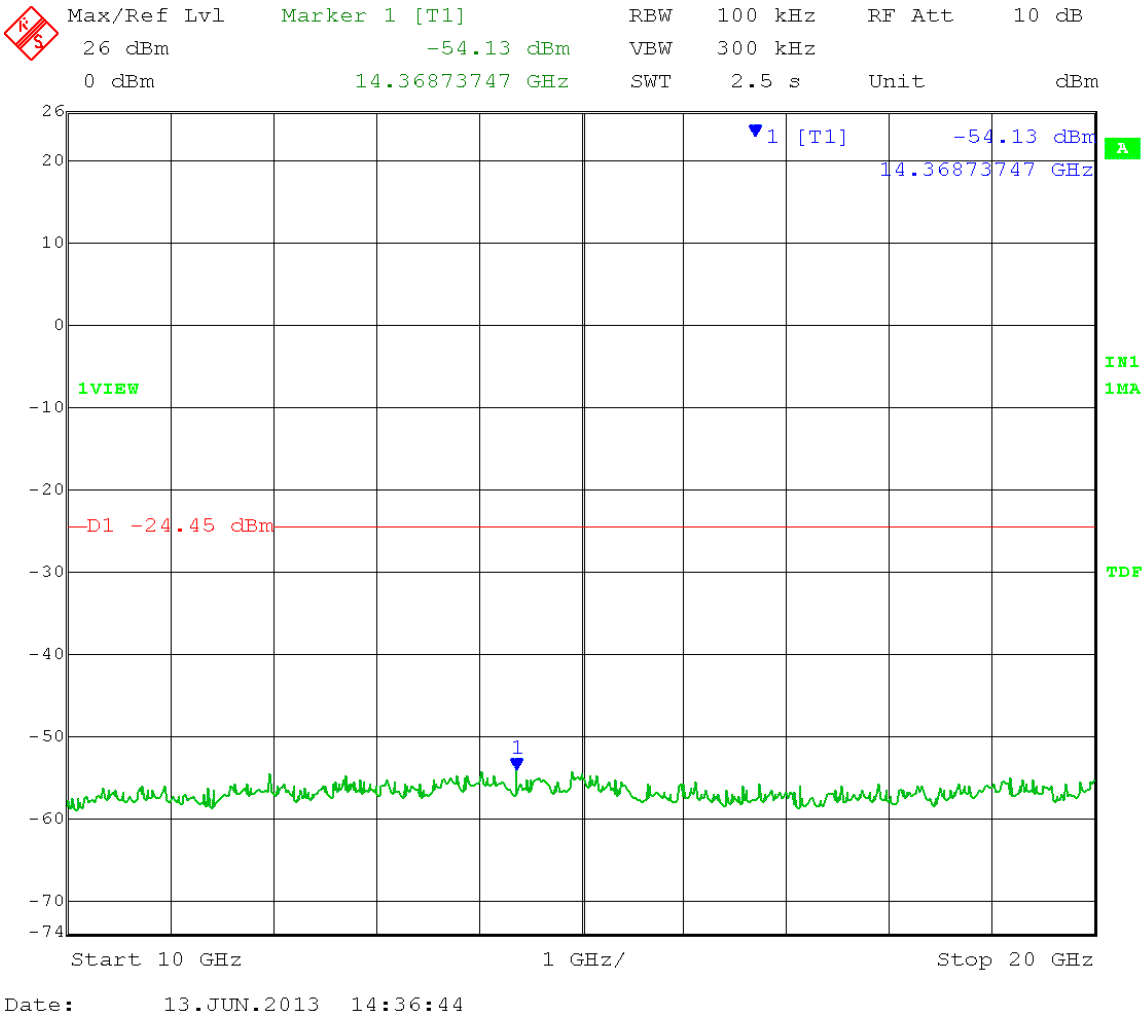
Limit = 5.55dBm - 30 dB = -24.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

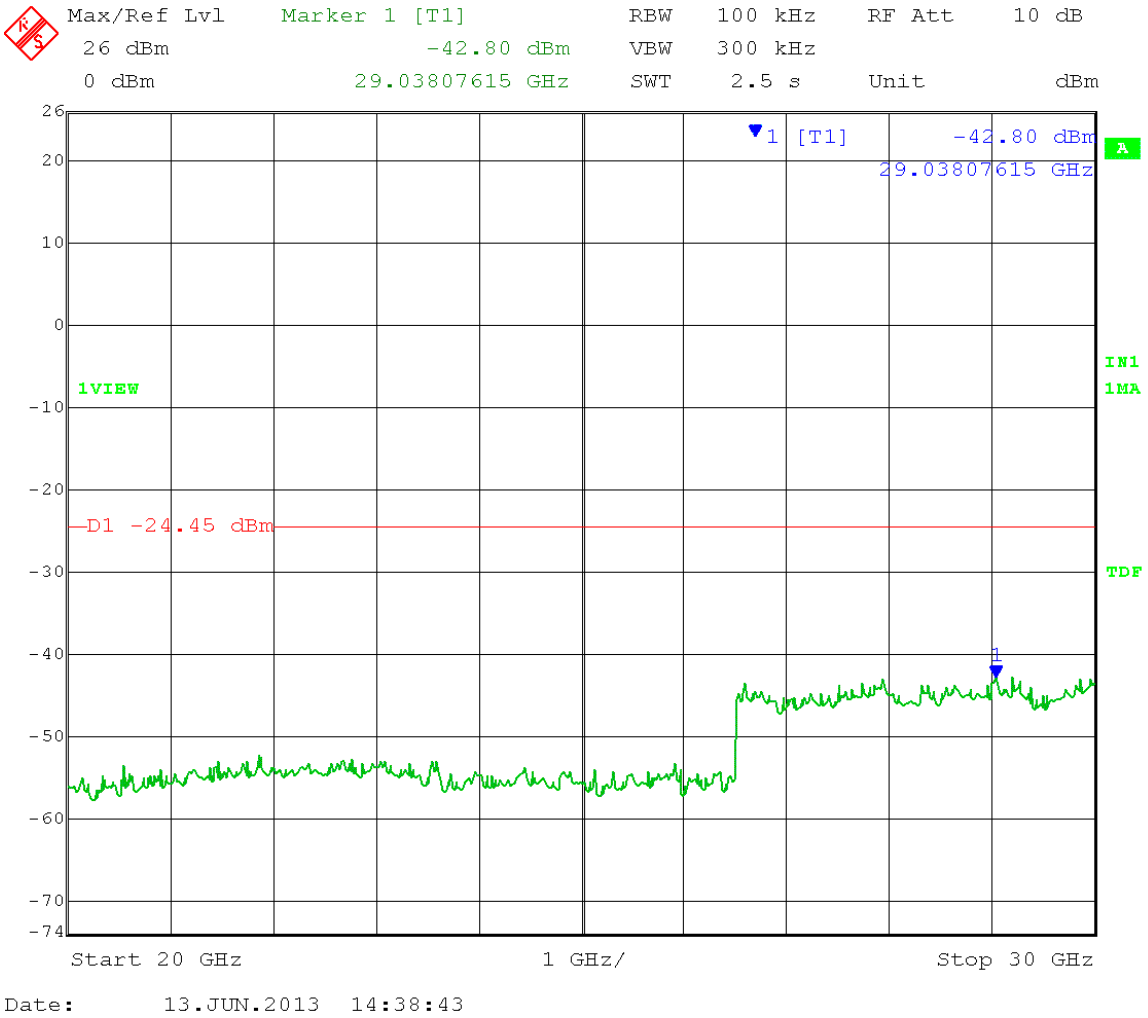
Limit = 5.55dBm - 30 dB = -24.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

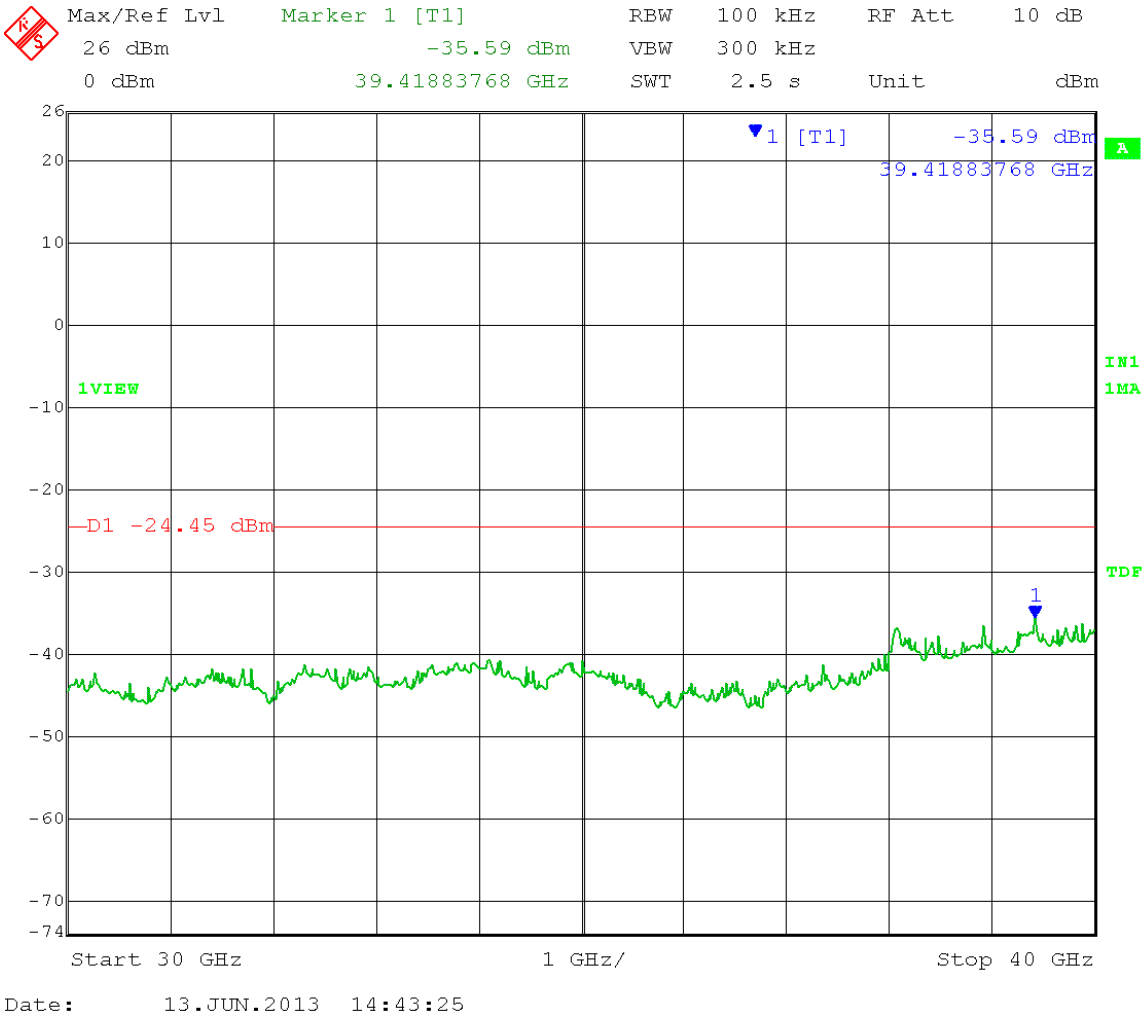
Limit = 5.55dBm - 30 dB = -24.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | Mid Channel Transmit = 5.785GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

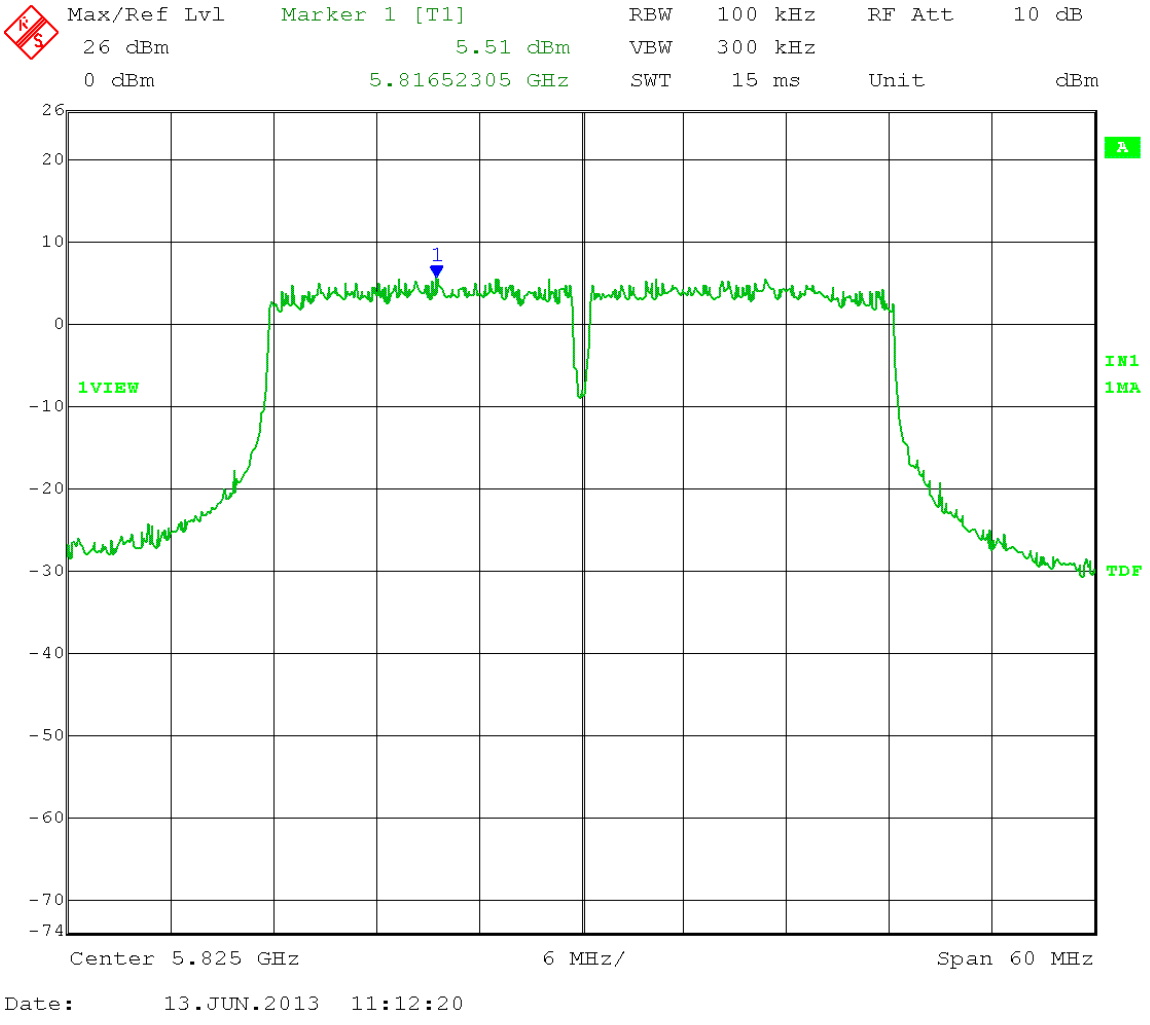
Limit = 5.55dBm - 30 dB = -24.45dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |

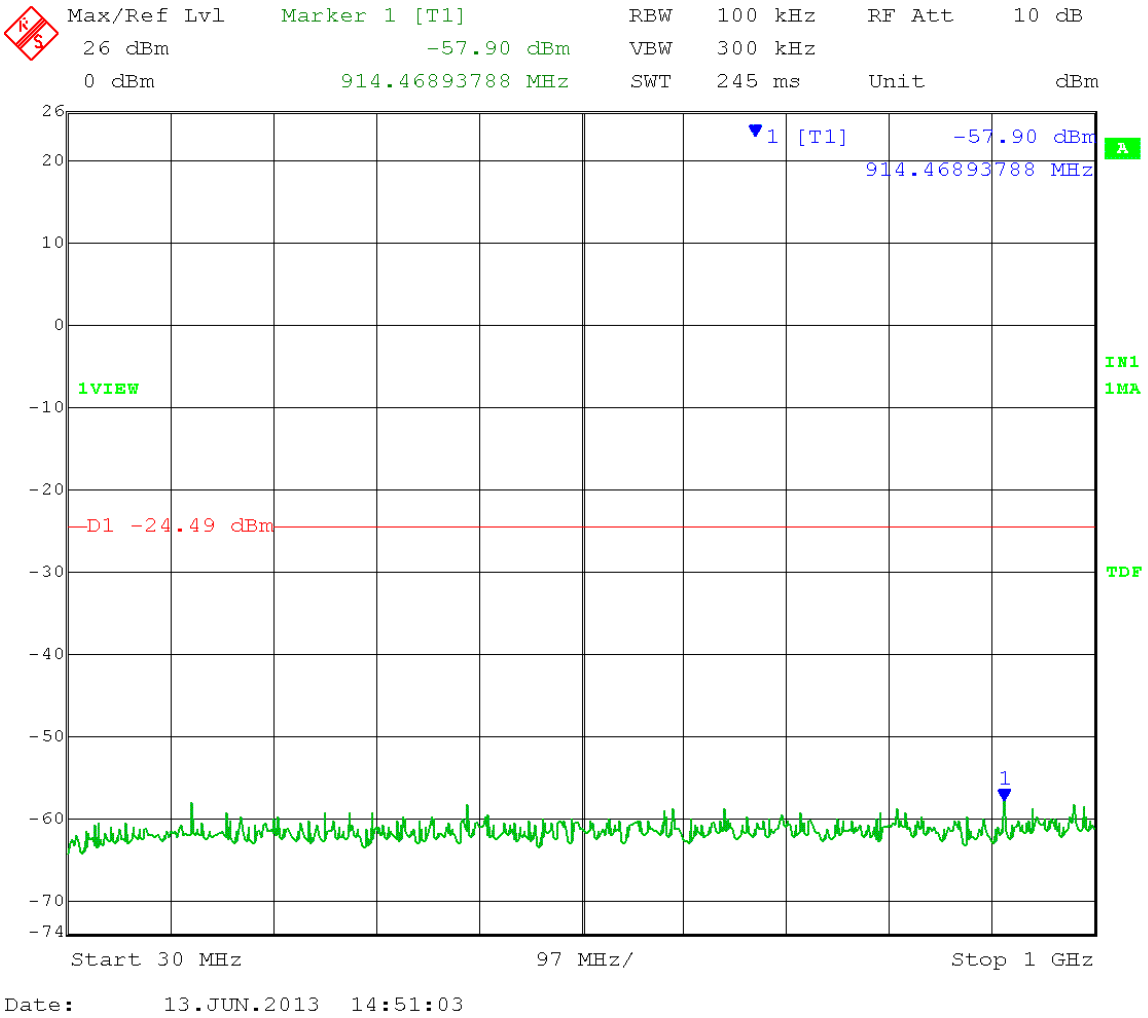
**Reference Level** measurement
Limit = 5.51dBm - 30 dB = -24.49dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

Limit = 5.51dBm - 30 dB = -24.49dBm

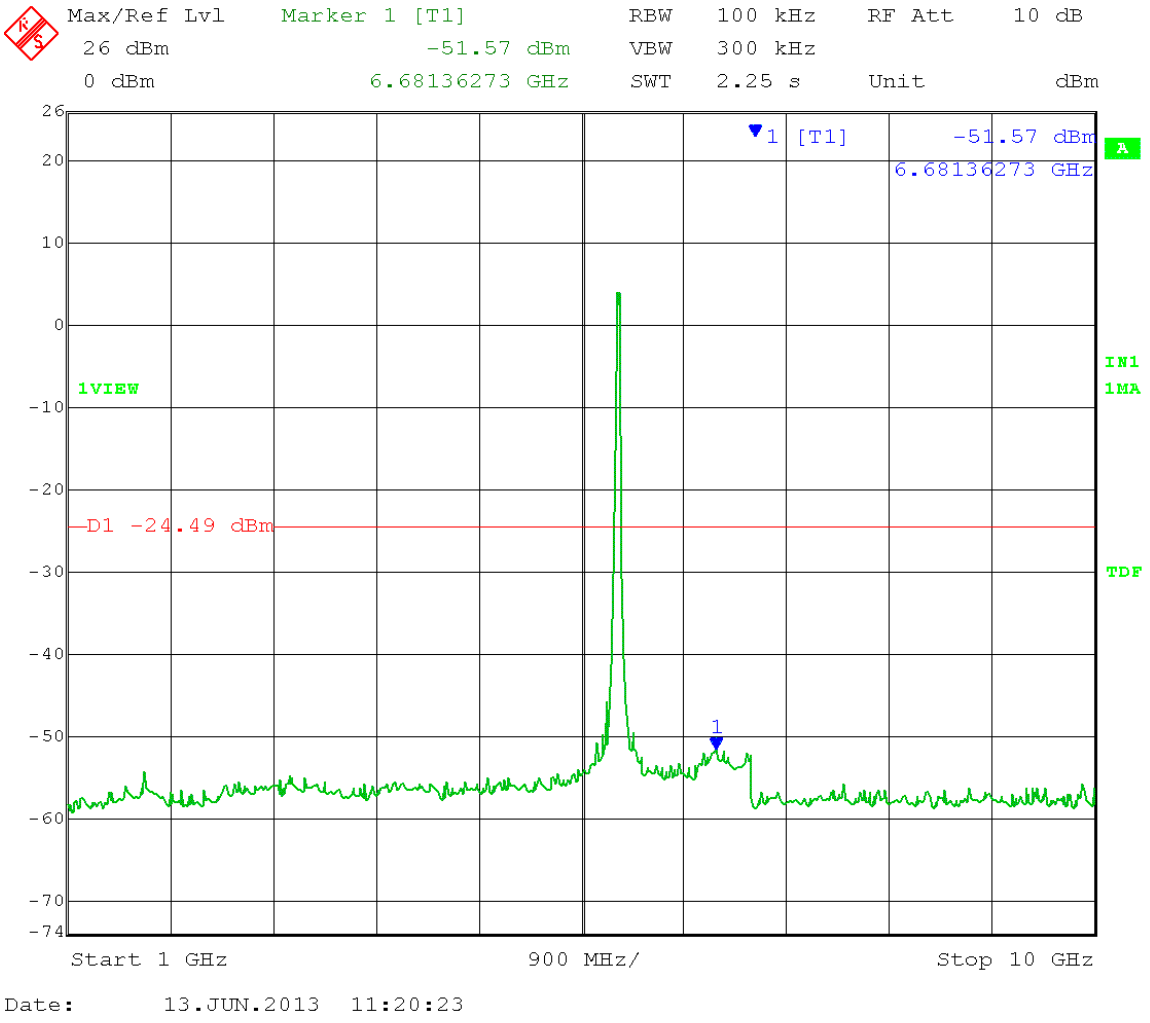



Date: 13.JUN.2013 14:51:03

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

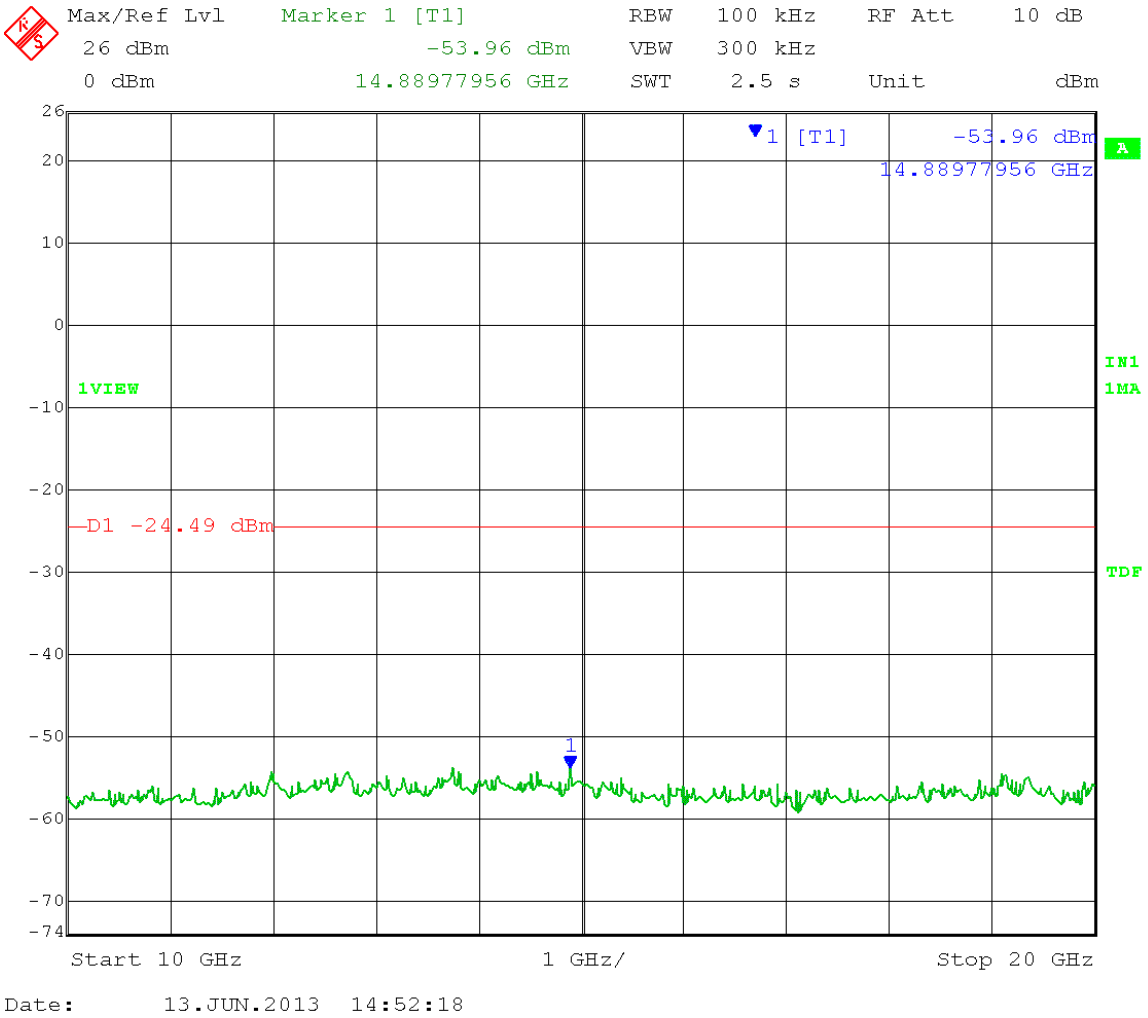
Limit = 5.51dBm - 30 dB = -24.49dBm



| | |
|---|---|
| Test Date: | 06-13-2013 |
| Company: | Cambium Networks |
| EUT: | Avenger AP (5.7GHz: OFDM) |
| Test: | Maximum Unwanted Emission Levels – Conducted |
| Operator: | Jim O/Lillian Li |
| Comment: | 11.0 Emissions in Non-Restricted Frequency Bands - Conducted |
| | 11.3 Emission Level Measurement |

RBW = 100 kHz — VBW ≥ 300 kHz
Detector = Peak — Sweep = Auto Couple
Trace = Max Hold — High Channel Transmit = 5.825GHz
Output power setting 20dBm — 40MHz BW
Channel 0 — ESN# 000456C005DE
Frequency Range 10-20GHz

Limit = 5.51dBm - 30 dB = -24.49dBm

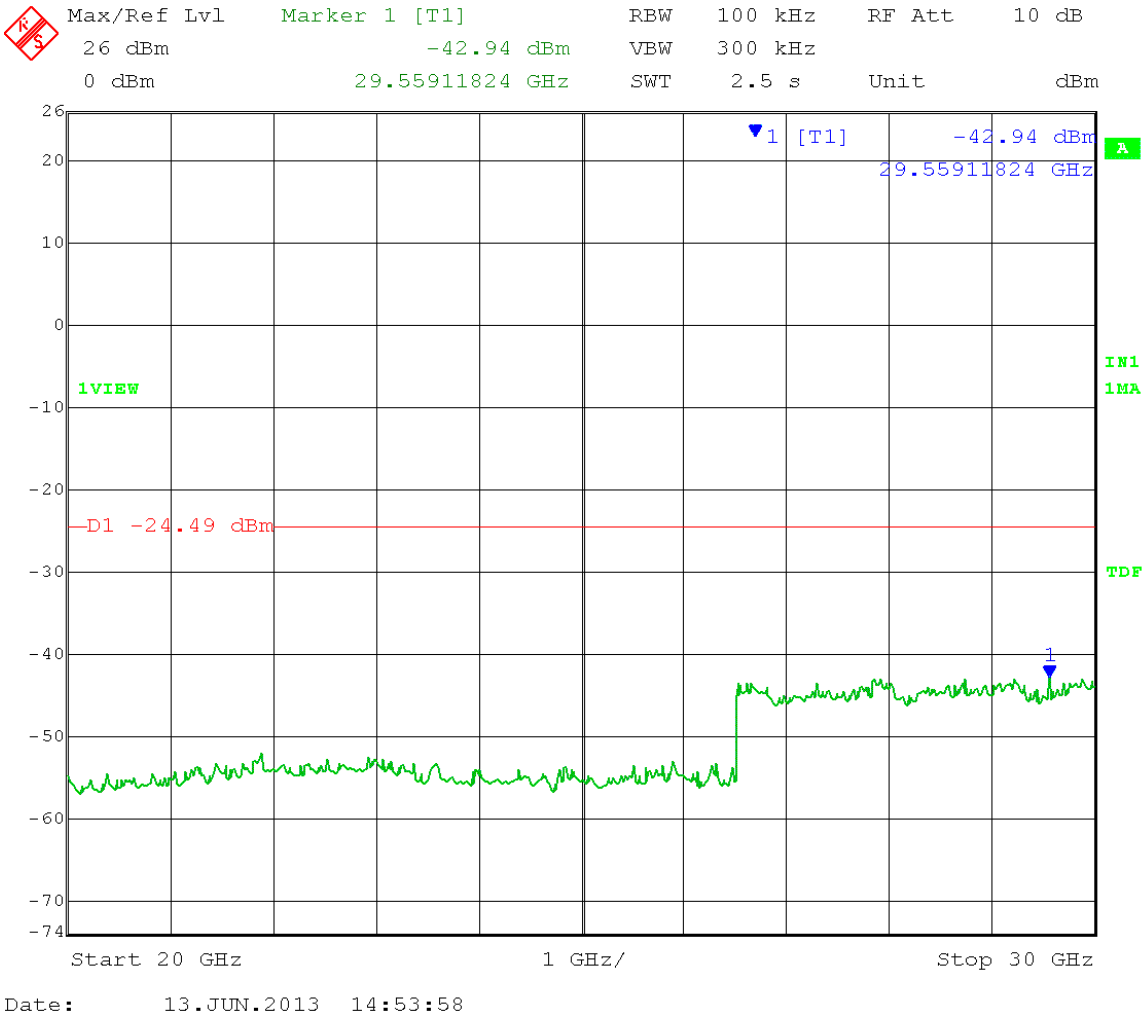



Date: 13.JUN.2013 14:52:18

Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

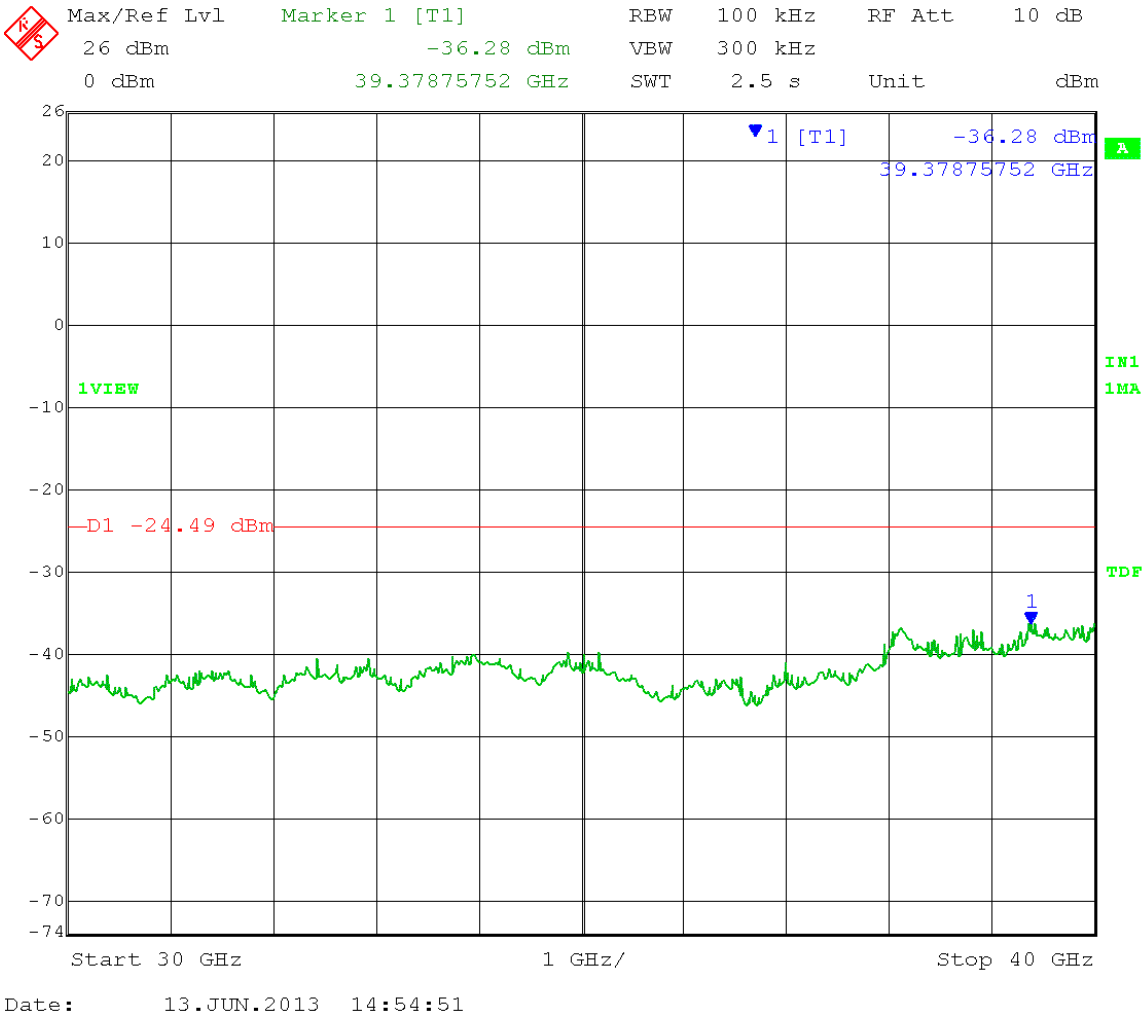
Limit = 5.51dBm - 30 dB = -24.49dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels – Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 0 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

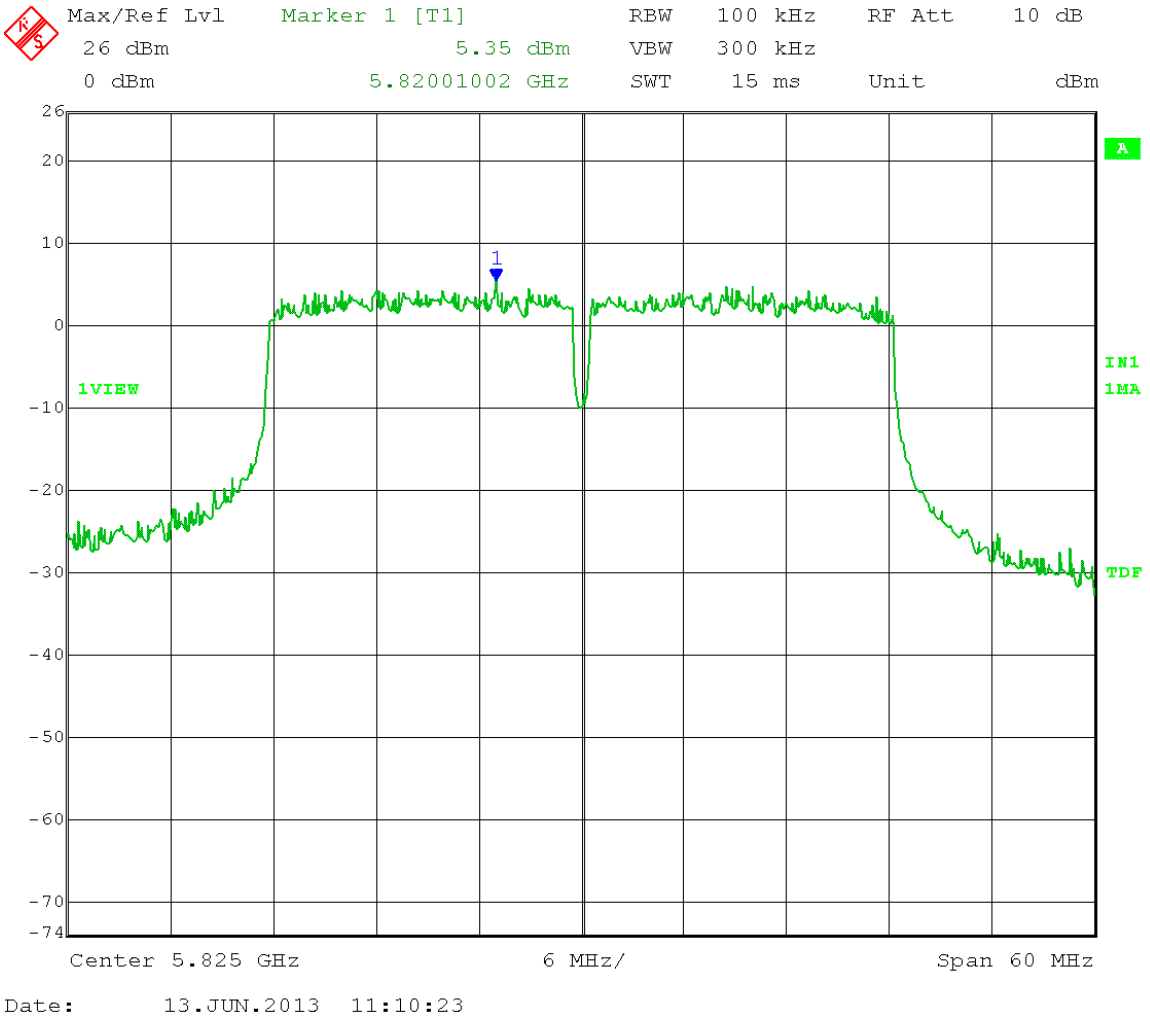
Limit = 5.51dBm - 30 dB = -24.49dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.2 Reference Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting = 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |

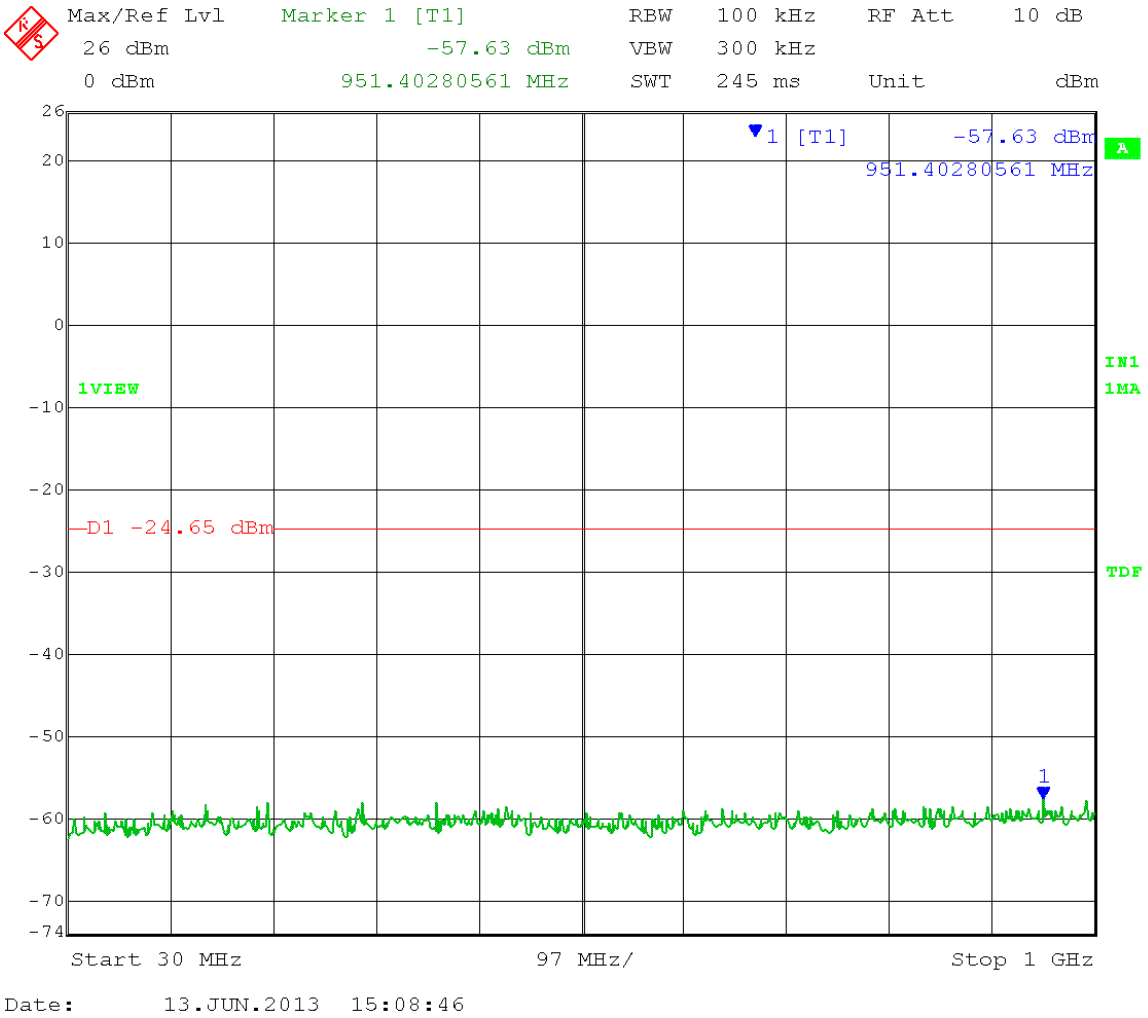
**Reference Level** measurement
Limit = 5.35dBm - 30 dB = -24.65dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30M-1GHz | |

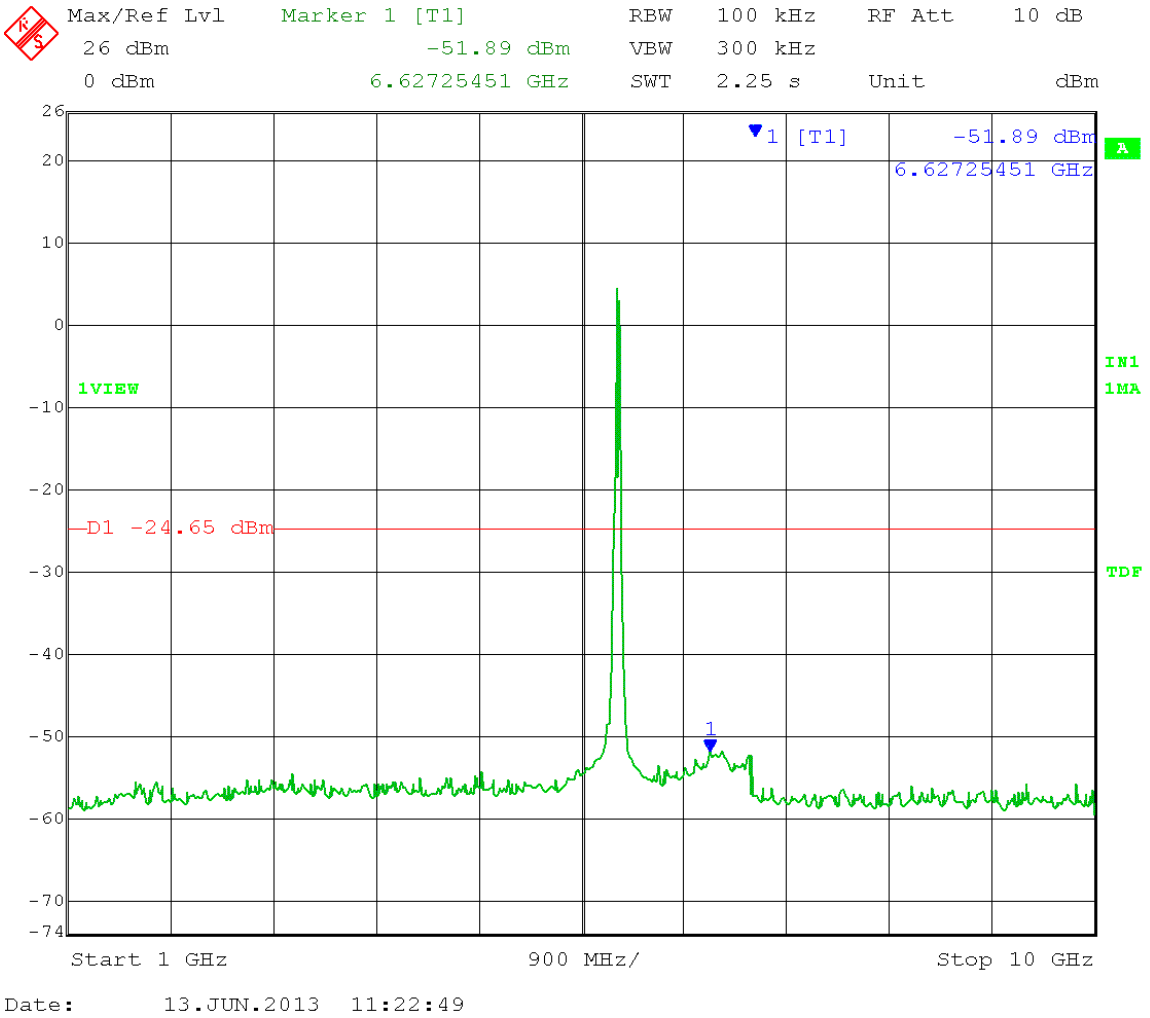
Limit = 5.35dBm - 30 dB = -24.65dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 1-10GHz | |

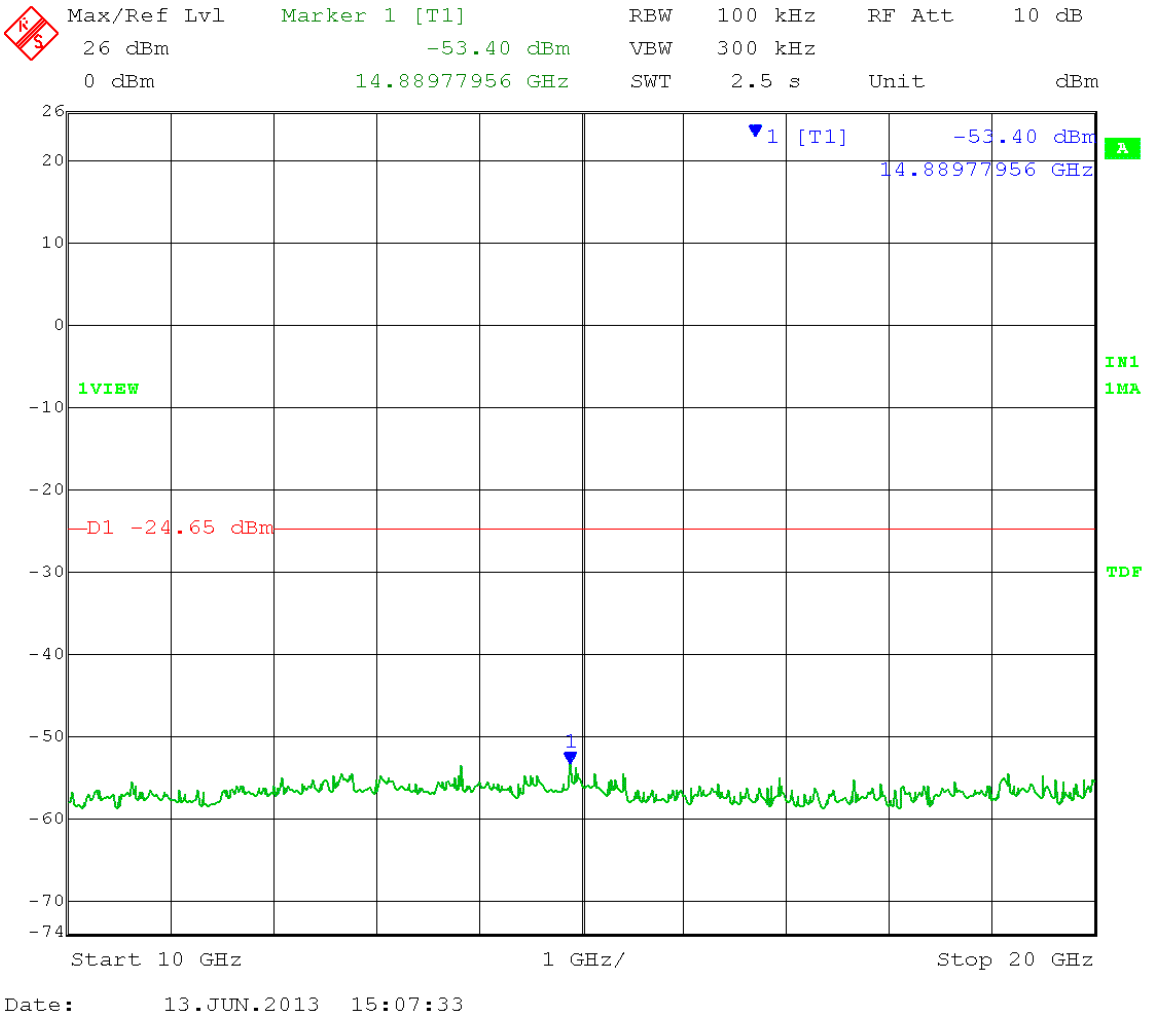
Limit = 5.35dBm - 30 dB = -24.65dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 10-20GHz | |

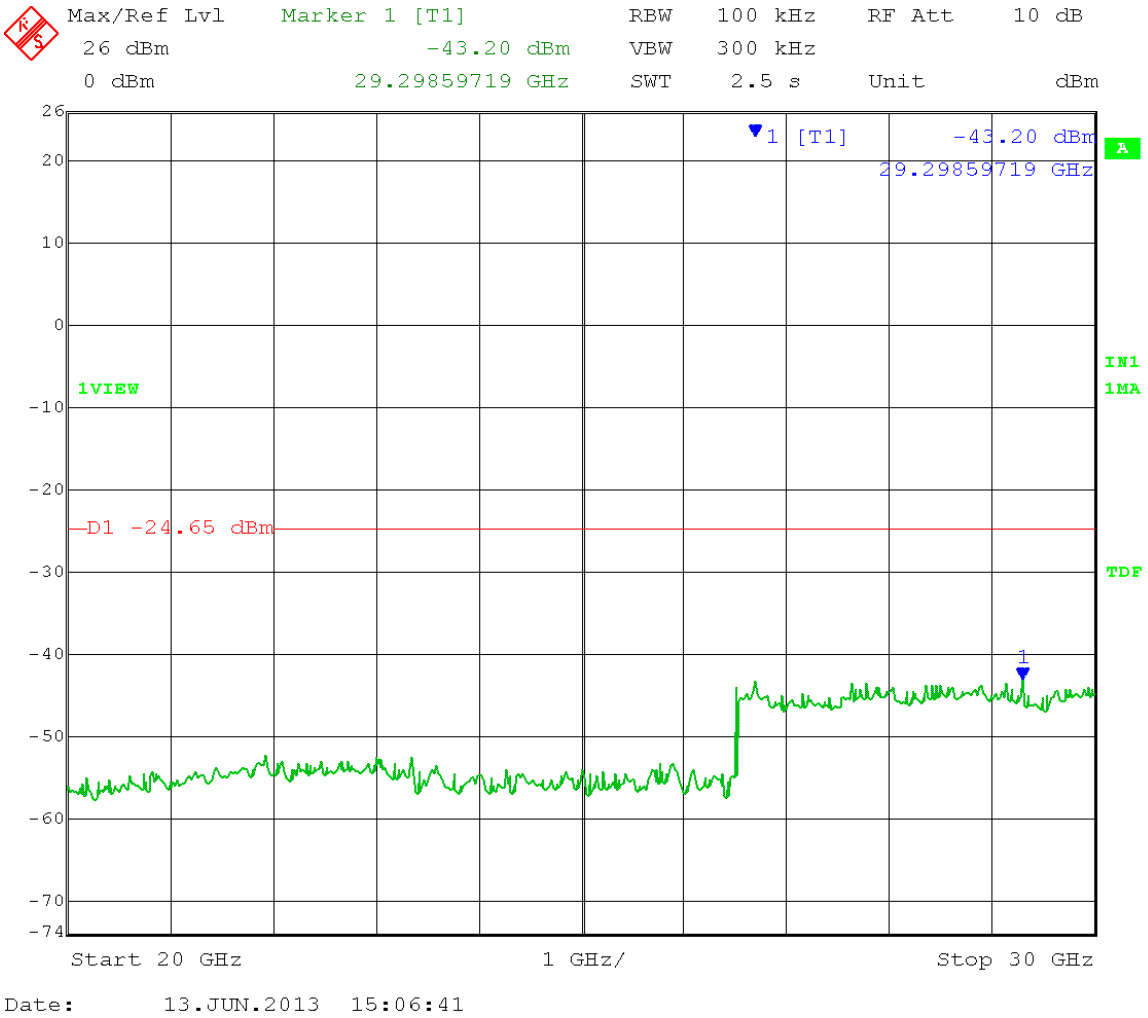
Limit = 5.35dBm - 30 dB = -24.65dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 20-30GHz | |

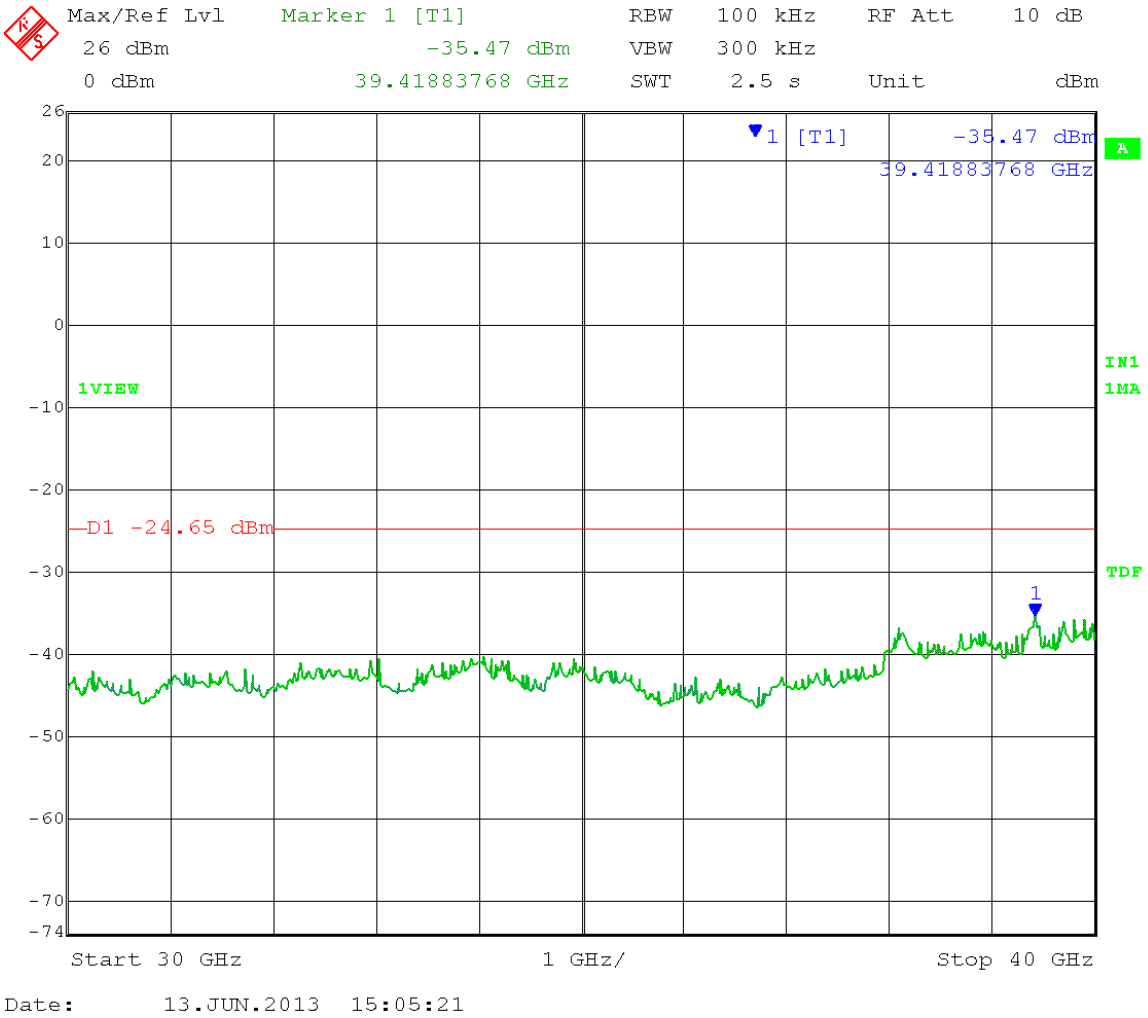
Limit = 5.35dBm - 30 dB = -24.65dBm



Test Date: 06-13-2013
Company: Cambium Networks
EUT: Avenger AP (5.7GHz: OFDM)
Test: Maximum Unwanted Emission Levels - Conducted
Operator: Jim O/Lillian Li
Comment: 11.0 Emissions in Non-Restricted Frequency Bands - Conducted
11.3 Emission Level Measurement

| | |
|---|---|
| RBW = 100 kHz | VBW ≥ 300 kHz |
| Detector = Peak | Sweep = Auto Couple |
| Trace = Max Hold | High Channel Transmit = 5.825GHz |
| Output power setting 20dBm | 40MHz BW |
| Channel 1 | ESN# 000456C005DE |
| Frequency Range 30-40GHz | |

Limit = 5.35dBm - 30 dB = -24.65dBm



**Appendix B – Measurement Data**

## B5.0 Band-Edge Measurements - Conducted

**Rule Section**: Section 15.247(d)

FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

**13.0 Band-edge Measurements**

**Test Procedure**:
RBW = 100 kHz
VBW ≥ 300 kHz
Span = spectrum to be examined
Detector = peak
Sweep = auto couple
Trace mode = max hold

Measurements were taken for an OFDM modulation over a 20MHz and 40MHz modulation bandwidth at the low and high channels and on outputs of CH0 and CH1 of operation. EUT was set to transmit continuously over various low and high channel frequencies and maximum power settings.

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

**Results:** Passed

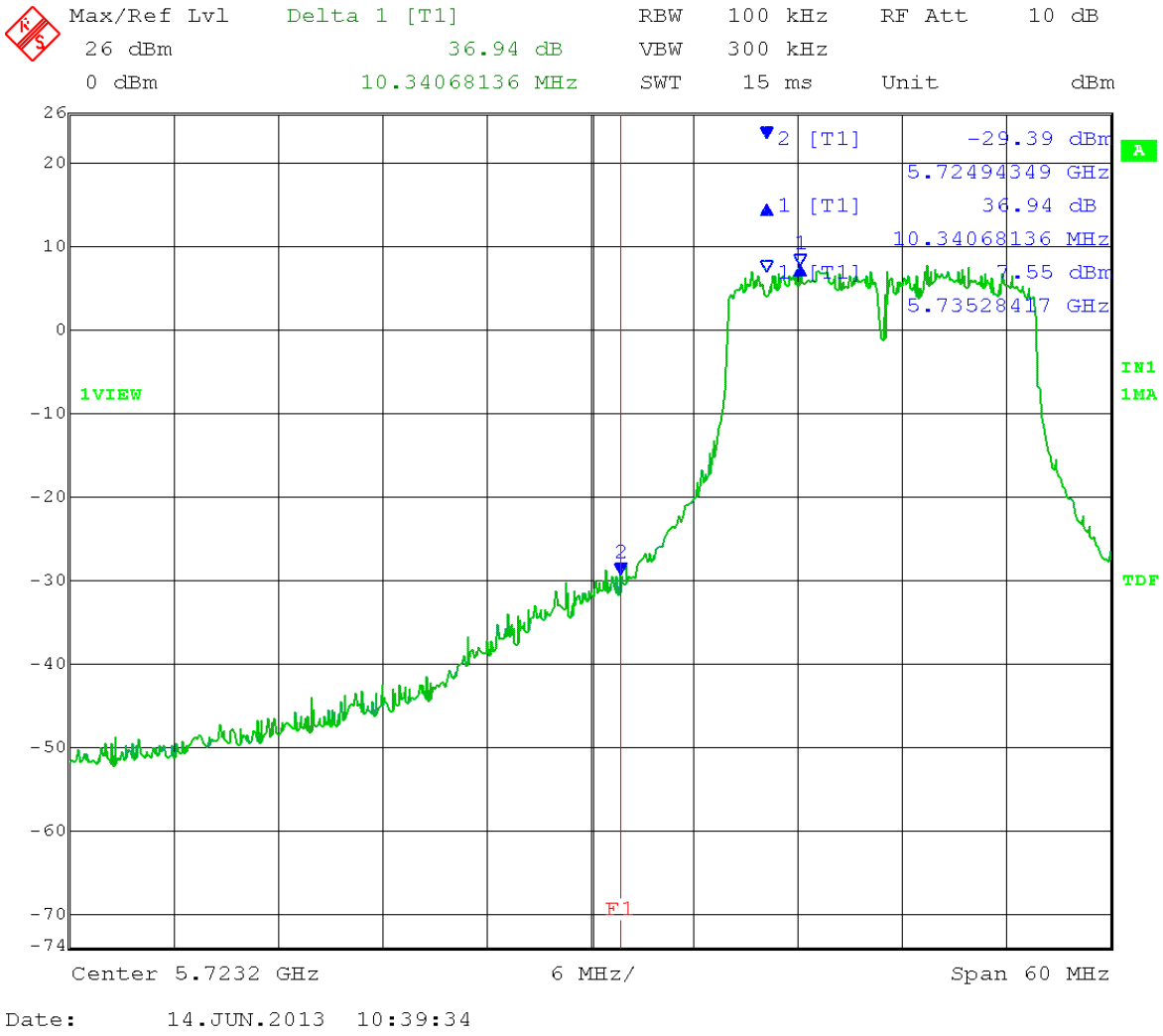
166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Trace = Max Hold
Channel 0
ESN# 000456C005DE
Low Channel Transmit = 5.740GHz
Output power setting: 20
20MHz BW
Band-edge (**F1**) = 5.725GHz
Marker Delta Limit > 30dB

**Band-edge Measurement: 36.94dB = Pass**



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

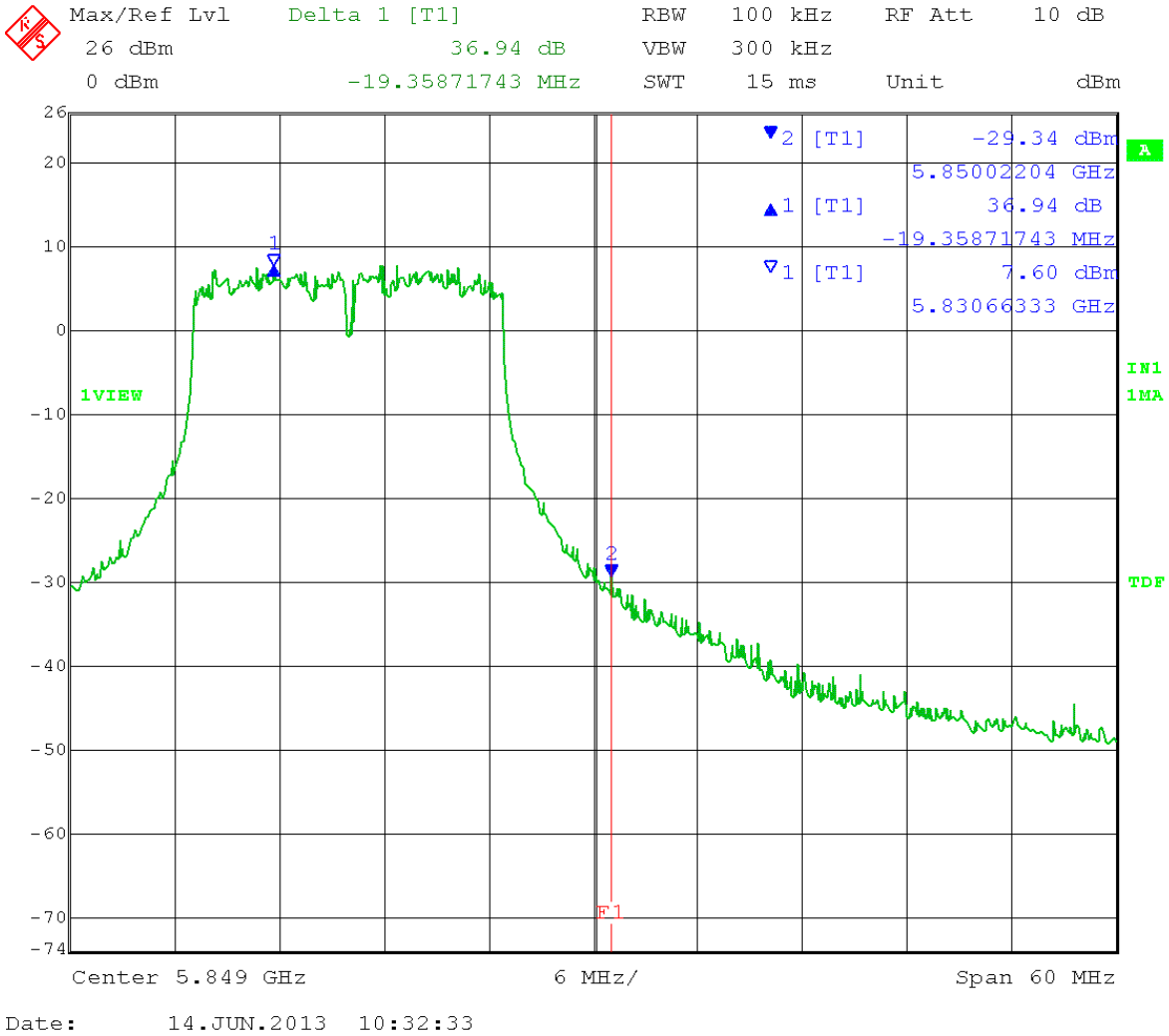
Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
Detector = Peak
Channel 0
High Channel Transmit = 5.835GHz
20MHz BW
Marker Delta Limit > 30dB

VBW ≥ 300 kHz
Trace = Max Hold
ESN# 000456C005DE
Output power setting: 20
Band-edge (**F1**) = 5.850GHz

**Band-edge Measurement: 36.94dB = Pass**



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

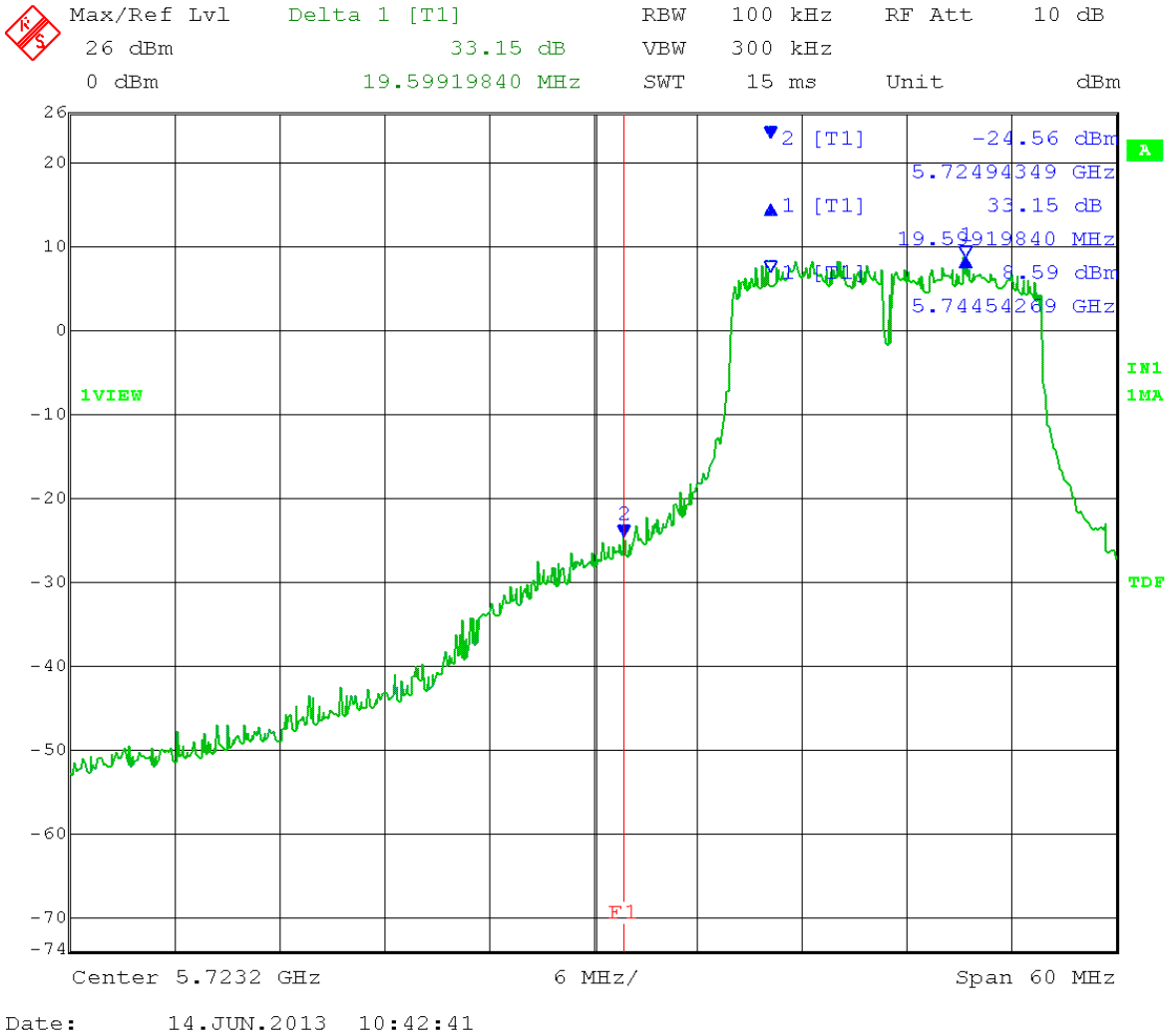
Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
Detector = Peak
Channel 1
Low Channel Transmit = 5.740GHz
20MHz BW
Marker Delta Limit > 30dB

VBW ≥ 300 kHz
Trace = Max Hold
ESN# 000456C005DE
Output power setting: 20
Band-edge (**F1**) = 5.725GHz

**Band-edge Measurement: 33.15dB = Pass**



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

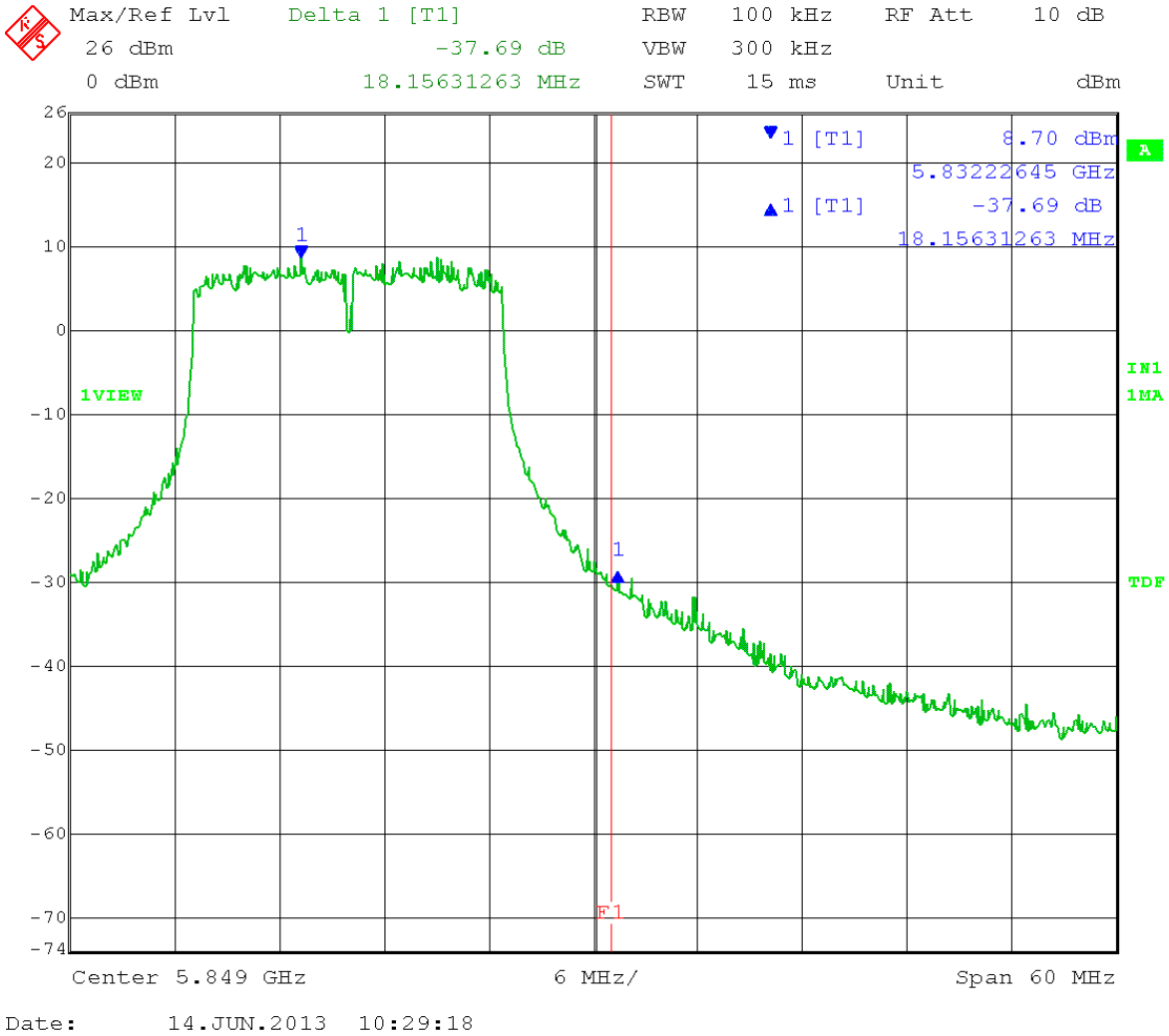
Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
Detector = Peak
Channel 1
High Channel Transmit = 5.835GHz
20MHz BW
Marker Delta Limit > 30dB

VBW ≥ 300 kHz
Trace = Max Hold
ESN# 000456C005DE
Output power setting: 20
Band-edge (**F1**) = 5.850GHz

**Band-edge Measurement: 37.69dB = Pass**



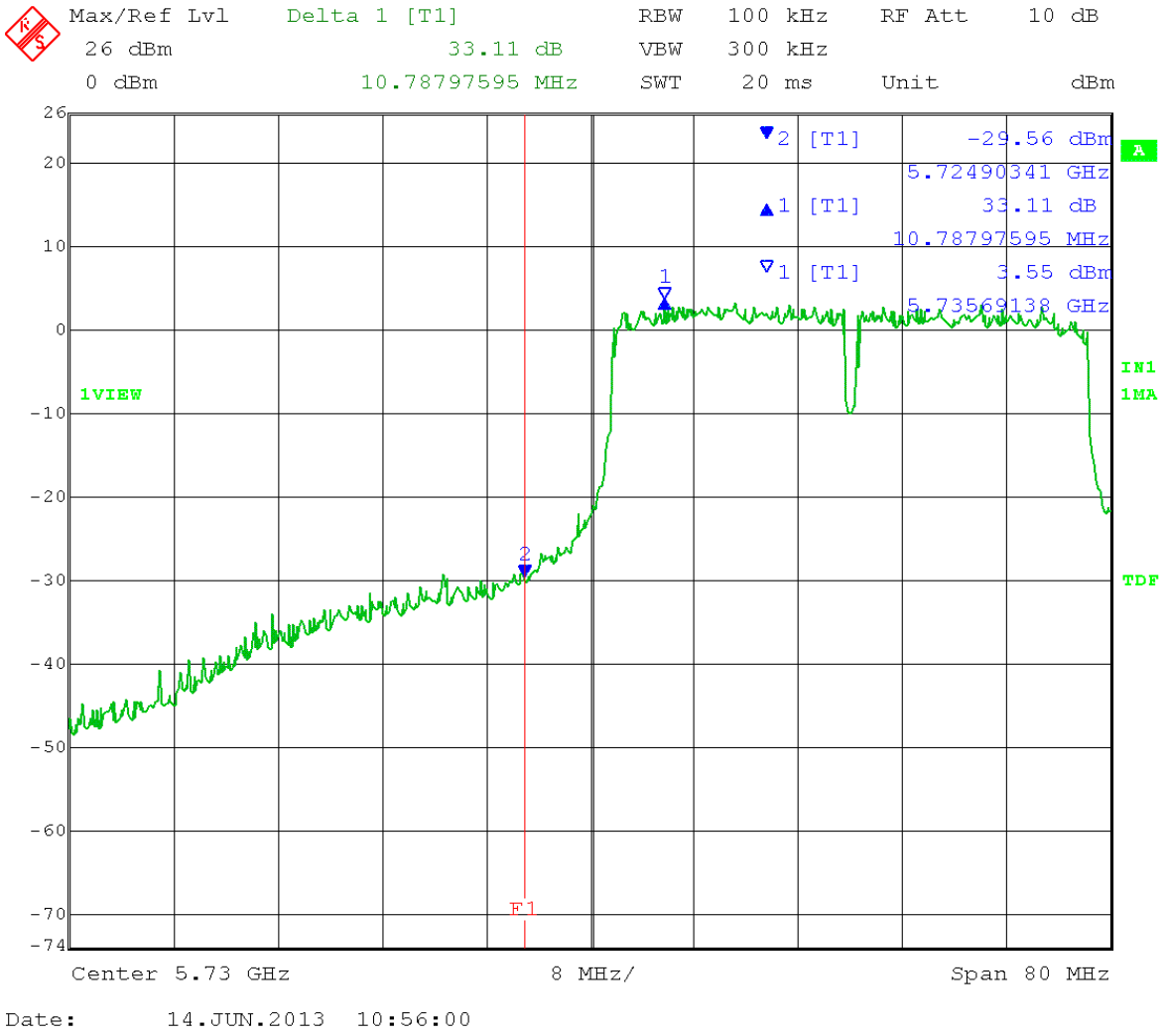
166 South Carter, Genoa City, WI 53128

Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Trace = Max Hold
Channel 0
ESN# 000456C005DE
Low Channel Transmit = 5.750GHz
Output power setting: 20
40MHz BW
Band-edge (**F1**) = 5.725GHz
Marker Delta Limit > 30dB

**Band-edge Measurement: 36.94dB = Pass**



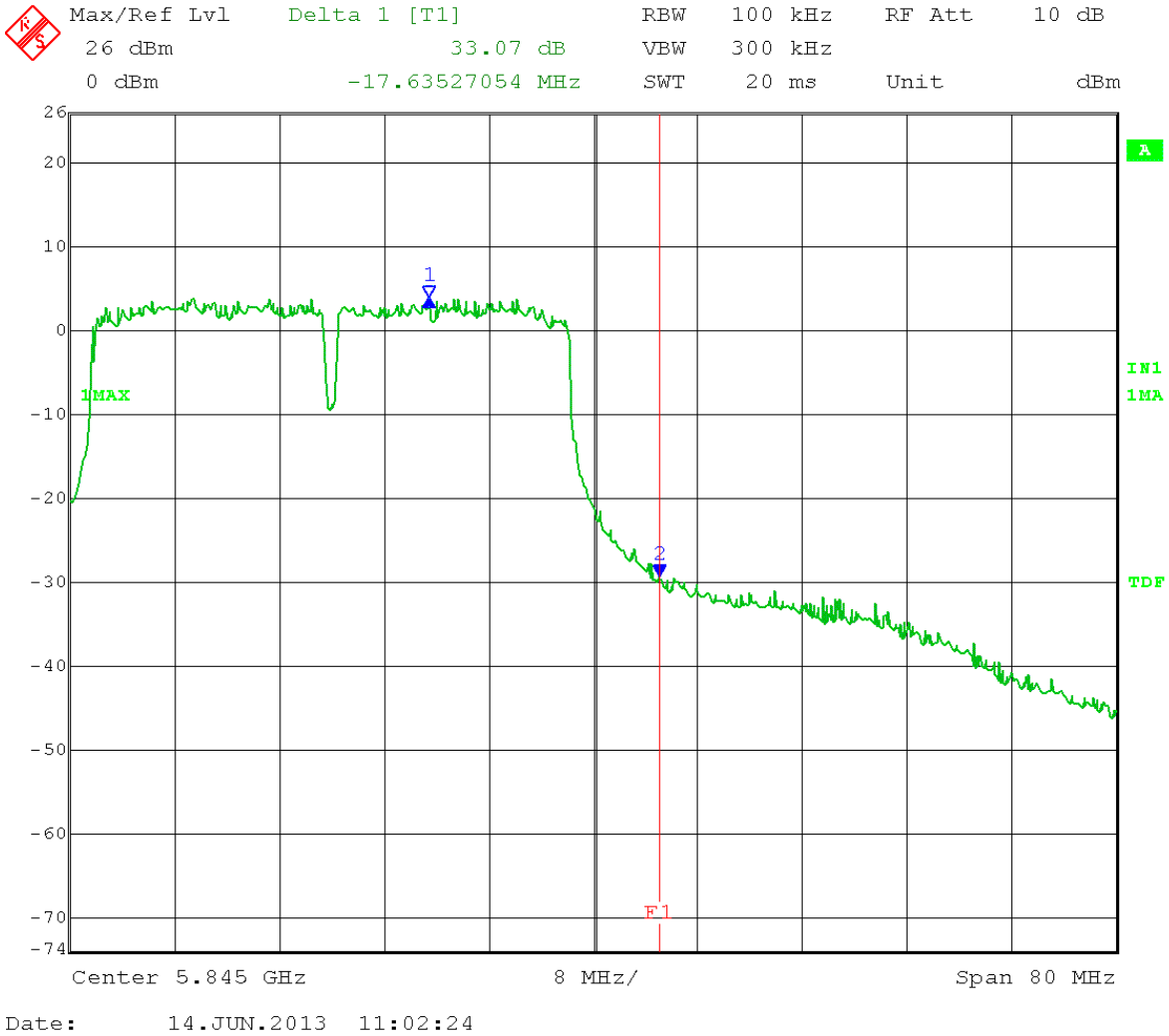
ELECTRONIC SYSTEMS, INC.
**166 South Carter, Genoa City, WI 53128**

Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Trace = Max Hold
Channel 0
ESN# 000456C005DE
High Channel Transmit = 5.825GHz
Output power setting: 20
40MHz BW
Band-edge (**F1**) = 5.850GHz
Marker Delta Limit > 30dB

**Band-edge Measurement: 33.07dB = Pass**



166 South Carter, Genoa City, WI 53128

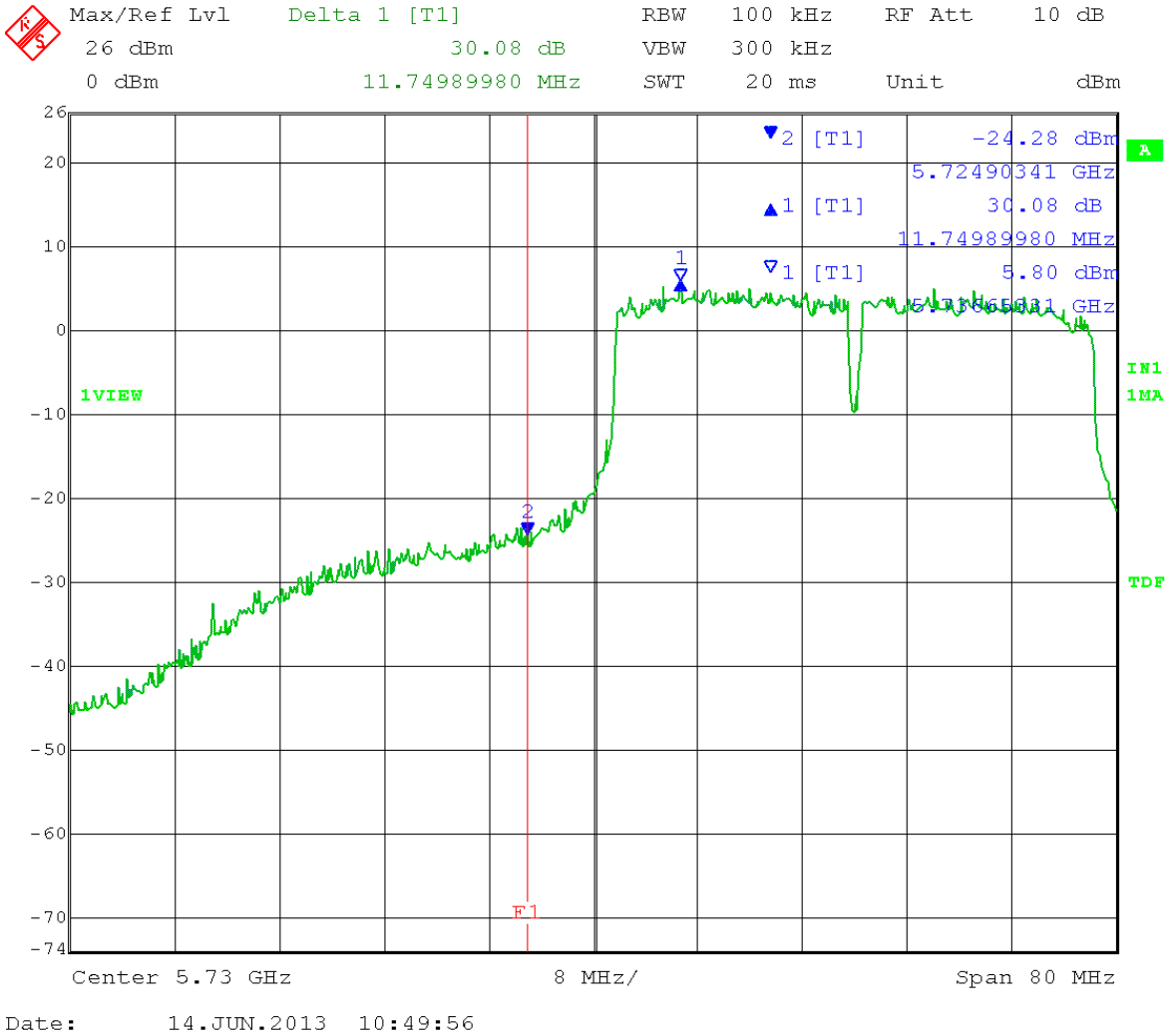
Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
Detector = Peak
Channel 1
Low Channel Transmit = 5.750GHz
40MHz BW
Limit > 30dB

VBW ≥ 300 kHz
Trace = Max Hold
ESN# 000456C005DE
Output power setting: 20
Band-edge (**F1**) = 5.725GHz Marker Delta

**Band-edge Measurement: 33.15dB = Pass**



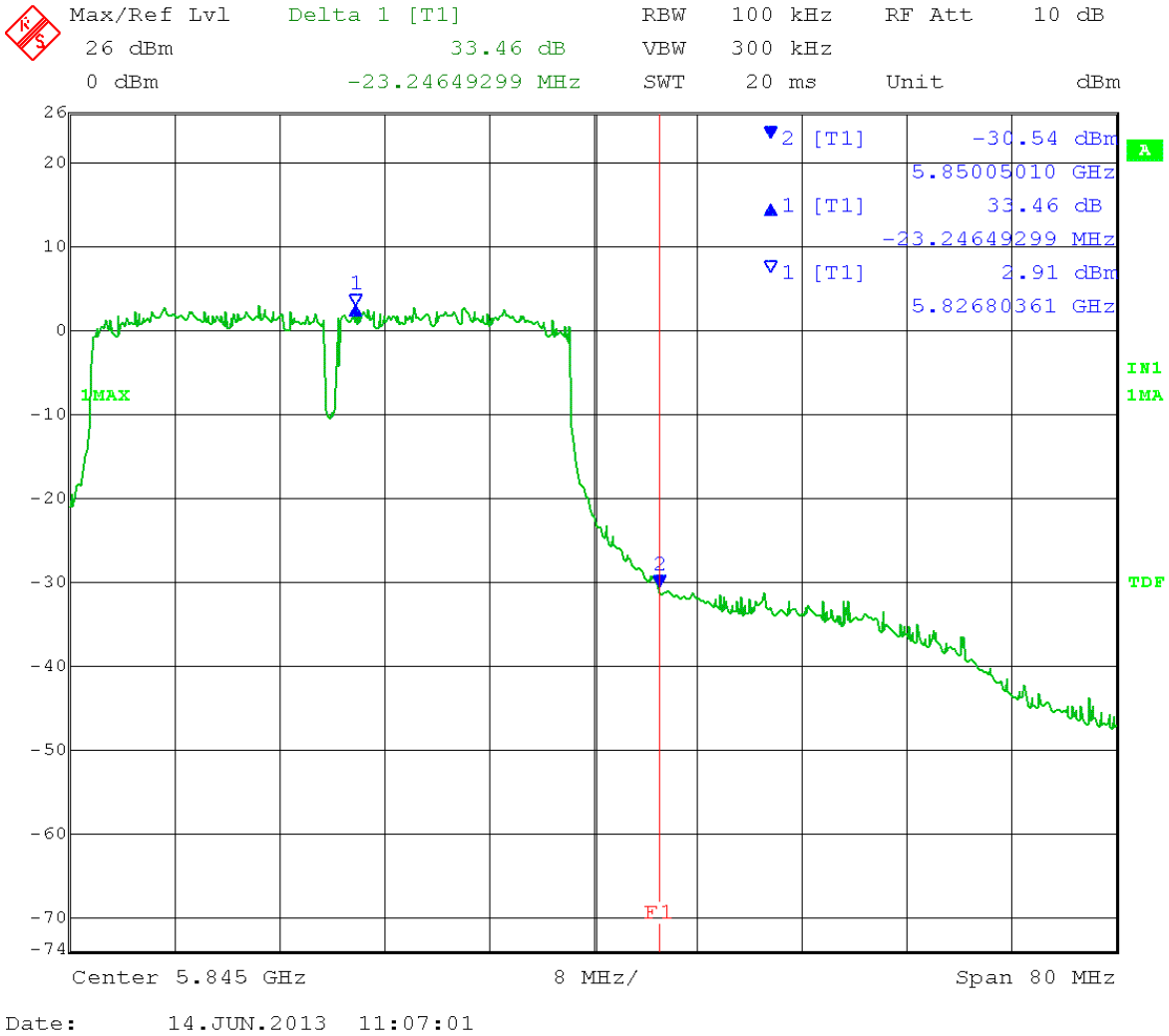
ELECTRONIC SYSTEMS, INC.
**166 South Carter, Genoa City, WI 53128**

Company: Cambium Networks
Model Tested: C050900P12A
Report Number: 19128
DLS Project: 5941

Test Date: 06-14-2013
Company: Cambium Networks
EUT: Avenger AP (5.7 GHz: OFDM)
Test: 13.0 Band-edge Measurement - Conducted

Operator: Jim O/Lillian Li
Comment: RBW = 100 kHz
VBW ≥ 300 kHz
Detector = Peak
Trace = Max Hold
Channel 1
ESN# 000456C005DE
High Channel Transmit = 5.825GHz
Output power setting: 20
40MHz BW
Band-edge (**F1**) = 5.850GHz
Marker Delta Limit > 30dB

**Band-edge Measurement: 33.46dB = Pass**



## Appendix B – Measurement Data

### B6.0 Max Unwanted Emission Levels into Restricted Frequency Bands - RF Conducted

**Rule Section**: Sections 15.247(d) and 15.205

**Test Procedure**: FCC KDB 558074 D01 DTS Meas Guidance v03r01 –
*Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*
12.0 Emissions in restricted frequency bands
12.2 Antenna-port conducted measurements

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

Peak measurements above 1000 MHz
RBW = 1 MHz
VBW ≥ 3 MHz
Detector = peak
Sweep time = auto; increased by a factor of (1 / duty cycle)
Trace mode = max hold

Average measurements above 1000 MHz (required for peak emissions that are above the average limits) – Method AD (Average Detection)
RBW = 1 MHz
VBW ≥ 3 MHz
Detector = RMS (span/(# of points in sweep) ≤ RBW/2)
Averaging type = power
Sweep time = auto; increased by a factor of (1 / duty cycle)
Trace mode = trace average 100 sweeps; increased by a factor of (1 / duty cycle)
For a duty cycle less than 98%, add 10 log (1/duty cycle)

EIRP calculation:
Add upper bound on out-of-band antenna gain to measured antenna port conducted emission power. (This is the maximum in-band gain or 2 dBi, whichever is greater)
For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (*e.g.*, Watts, mW)

Field strength calculation:
Above 1 GHz:
E (dBµV/m) = EIRP (dBm) – 20 log (d{meters}) + 104.8
Below 1 GHz:
E (dBµV/m) = EIRP (dBm) – 20 log (d{meters}) + 104.8 + 4.7 dB

**Limits:** Peak and Average limits of FCC Part 15.209

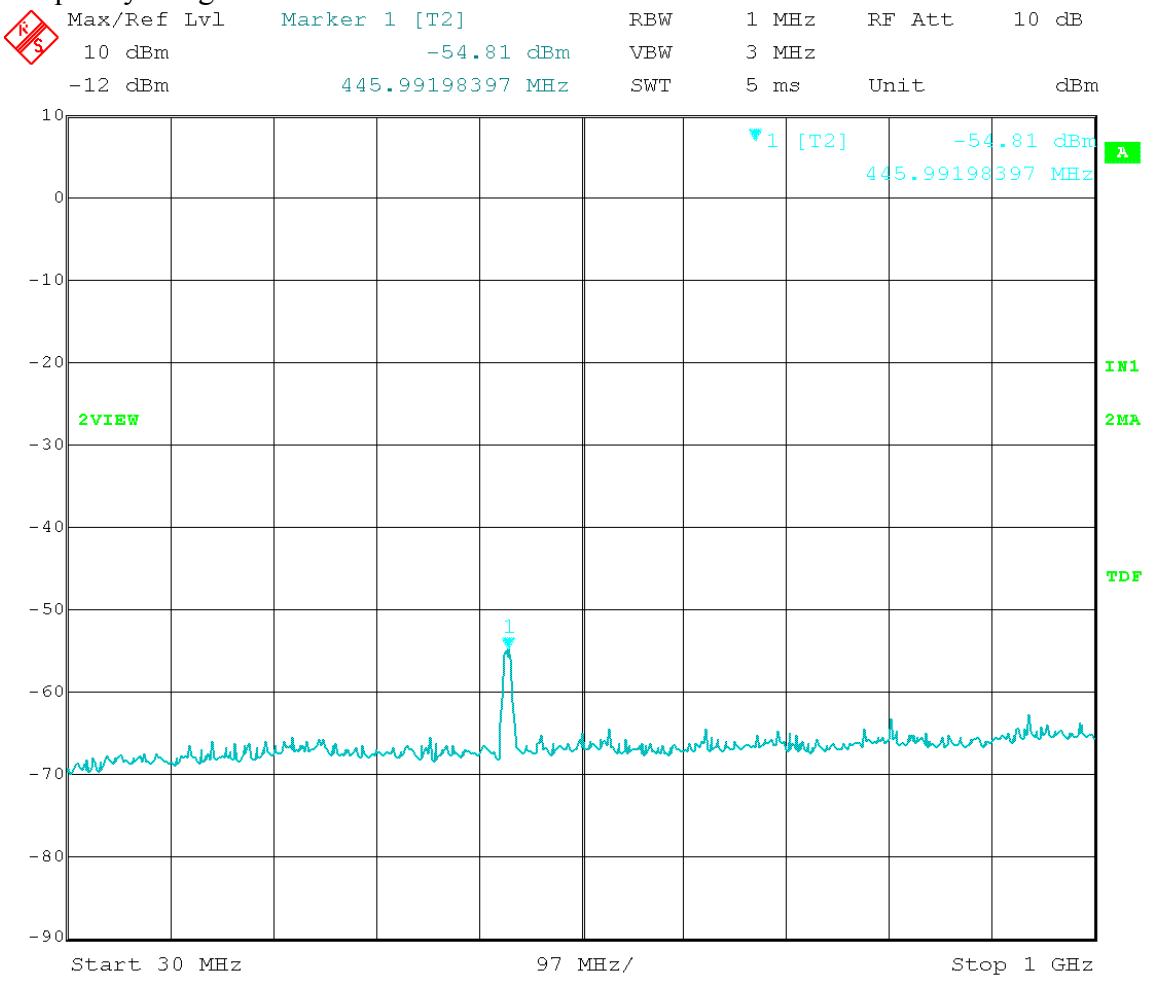
**Notes:** Measurements were taken for MCS15 OFDM modulation at the lowest, middle, and highest channels of operation. EUT was set to transmit continuously with 100% duty cycle.

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



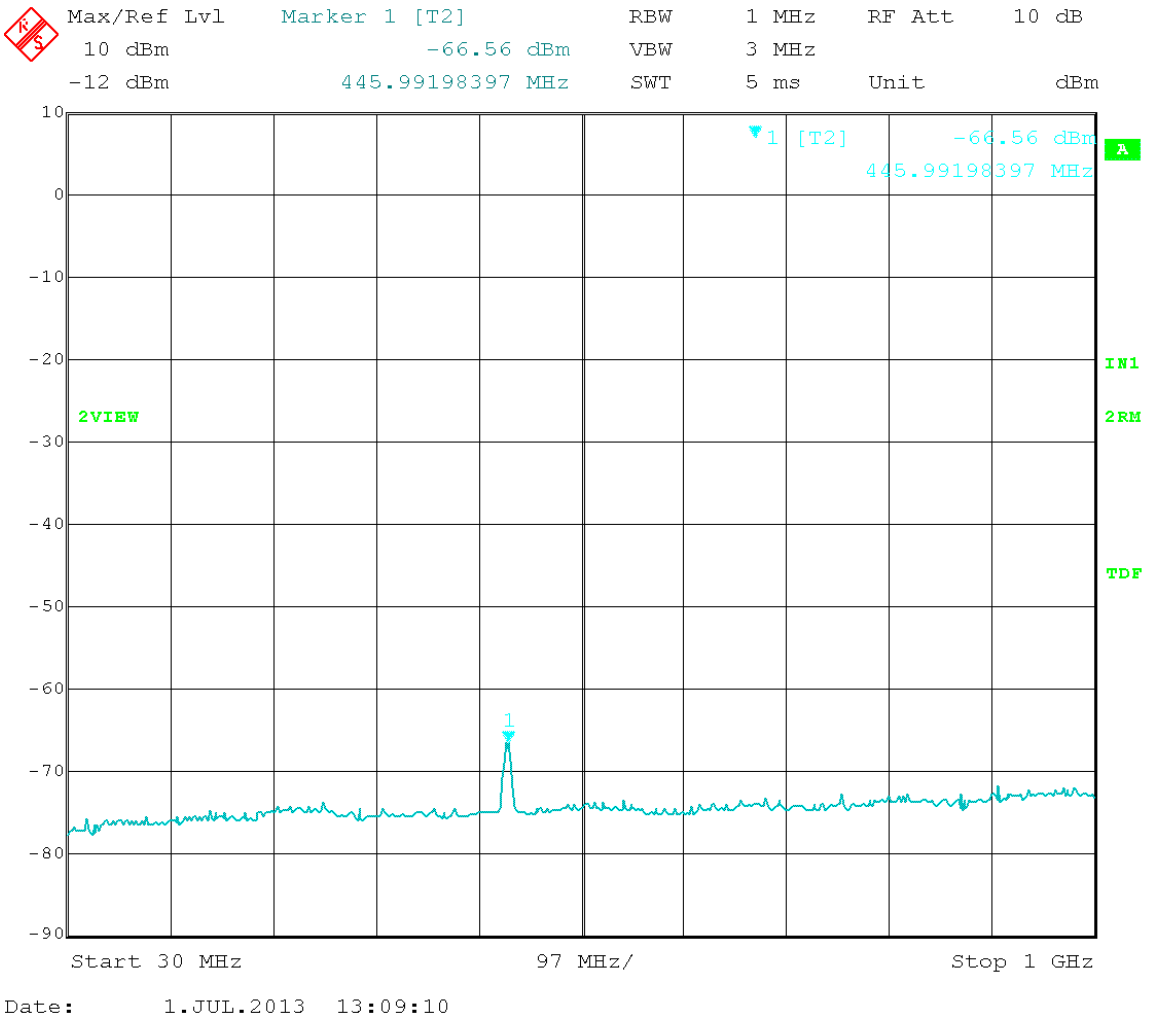

Marker 1: Calculated Field Strength (Restricted Band) = -54.81 + 16dBi antenna gain
+ 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 59.42dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



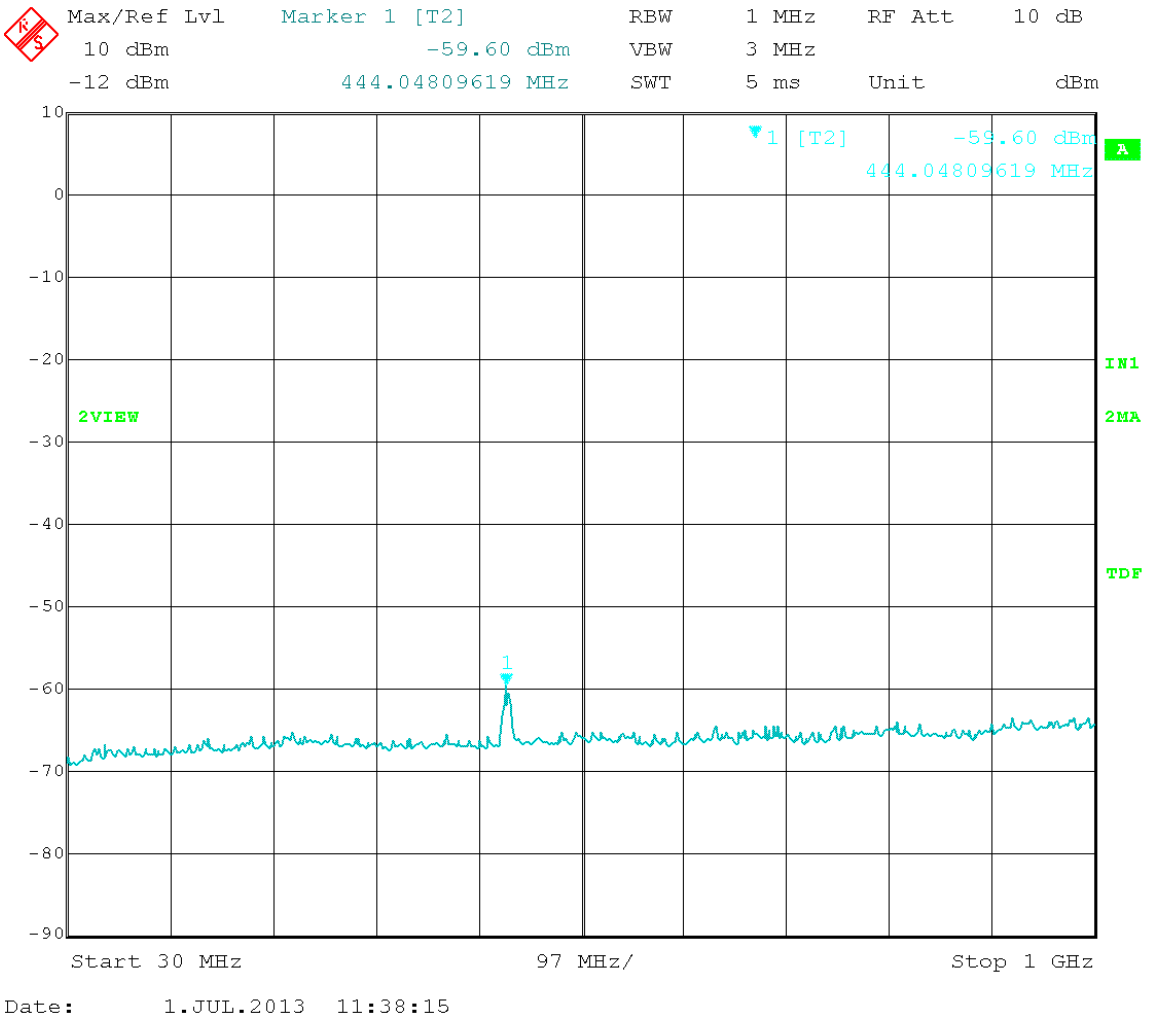

Marker 1: Calculated Field Strength (Restricted Band) = -66.56+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.67dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



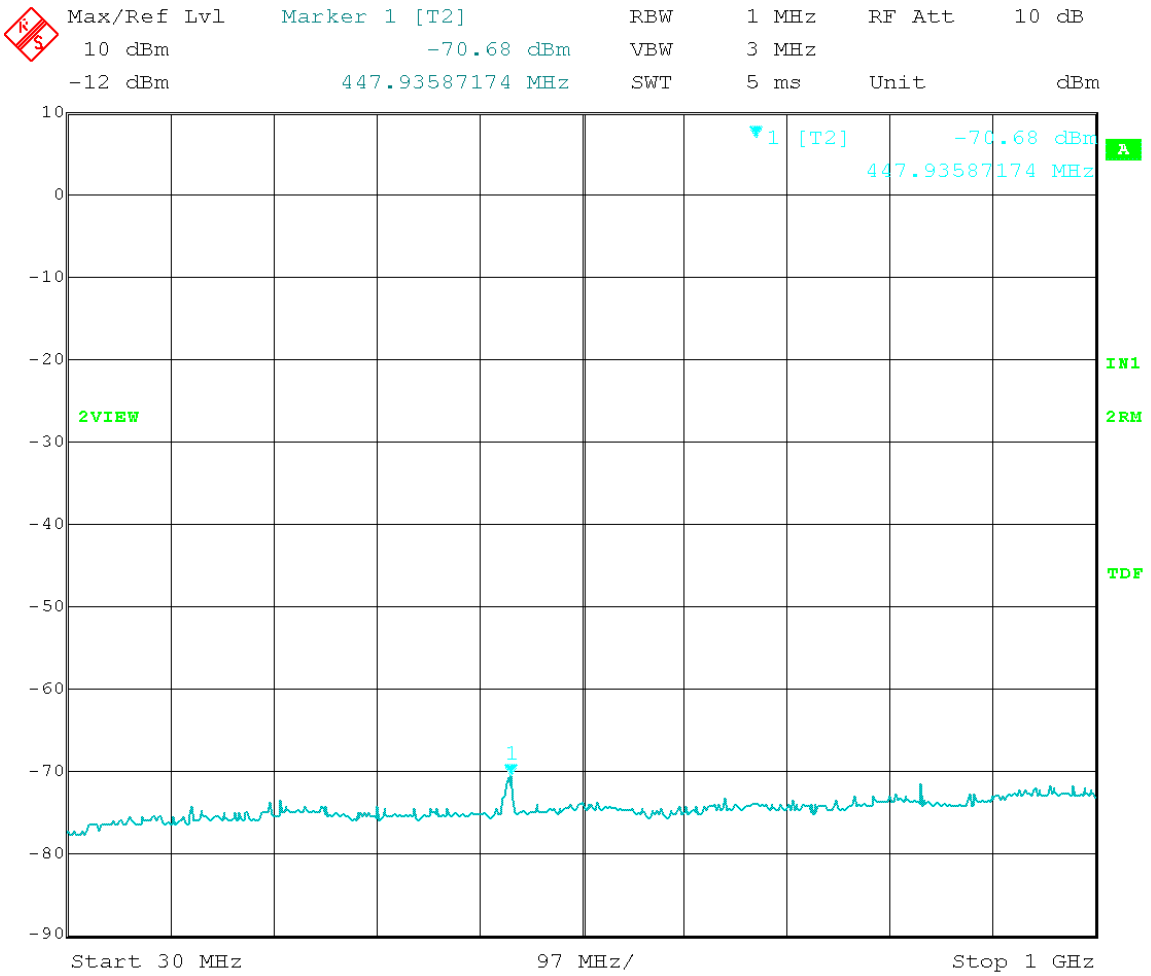

Marker 1: Calculated Field Strength (Restricted Band) = -59.60 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 54.63dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz




Date: 1.JUL.2013 11:41:01

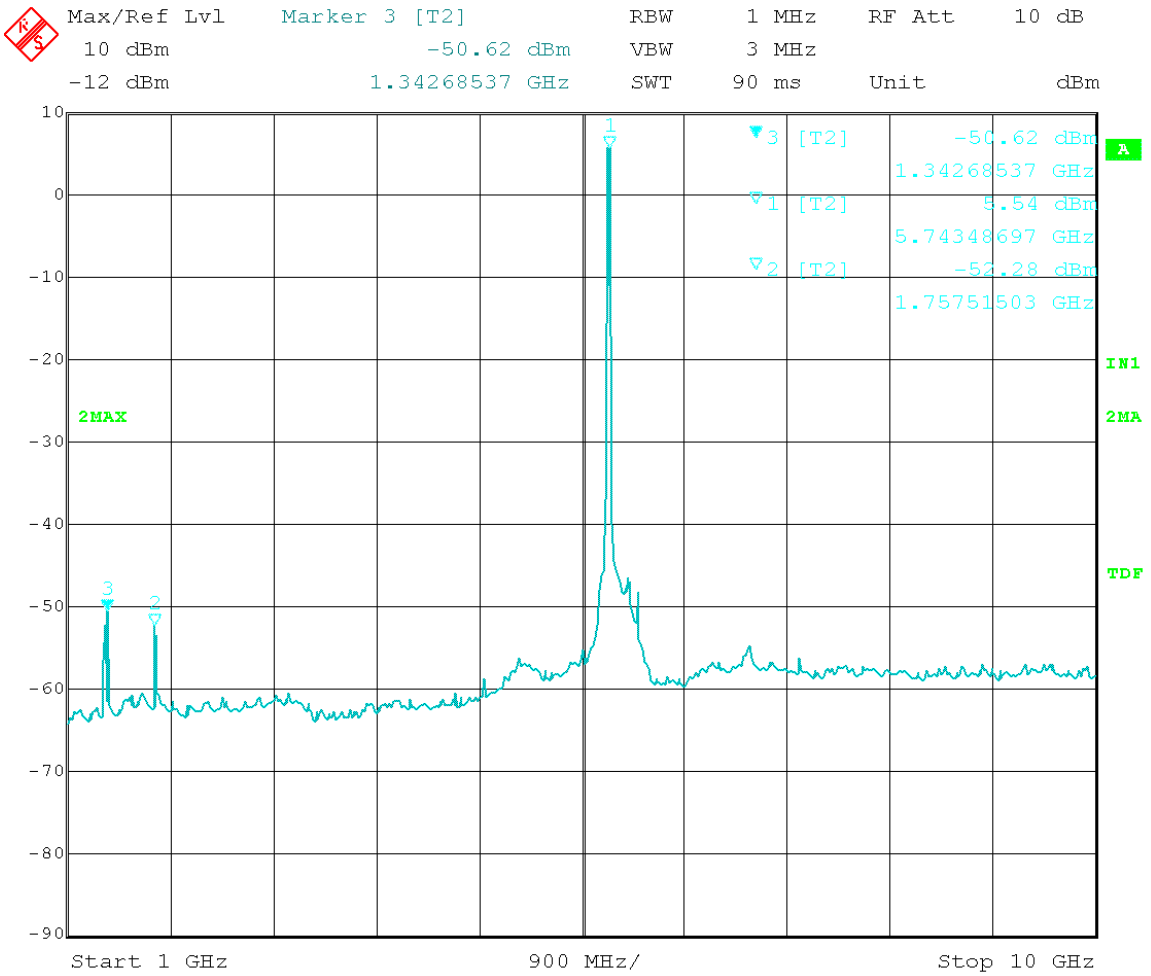
Marker 1: Calculated Field Strength (Restricted Band) = -70.68+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 43.55dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Marker 2: Calculated Field Strength (Restricted Band) = -52.28 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 61.98dBµV/m Peak

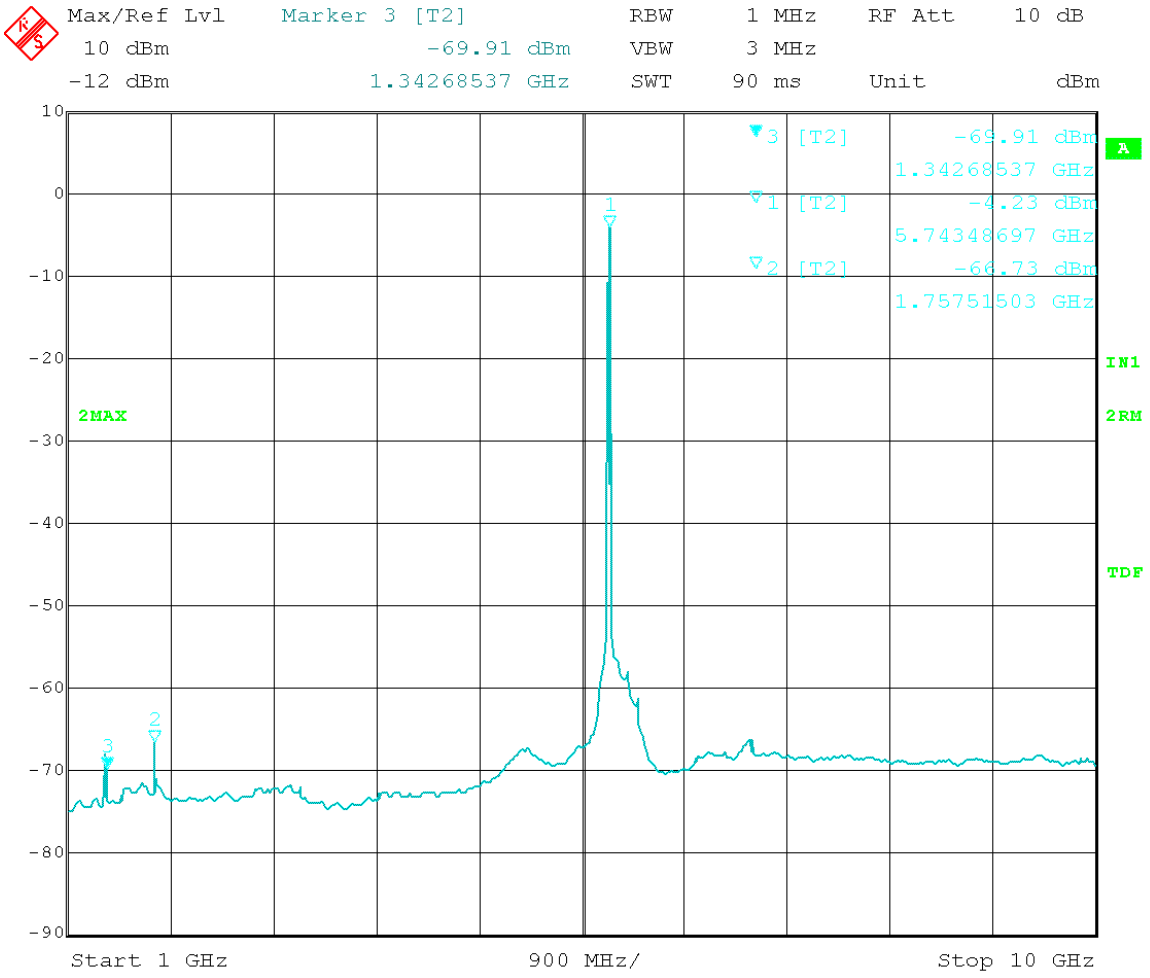
Marker 3: Calculated Field Strength (Restricted Band) = -50.62 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 63.61dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Date: 1.JUL.2013 10:42:27

Marker 2: Calculated Field Strength (Restricted Band) = -66.73+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.5dBµV/m Average

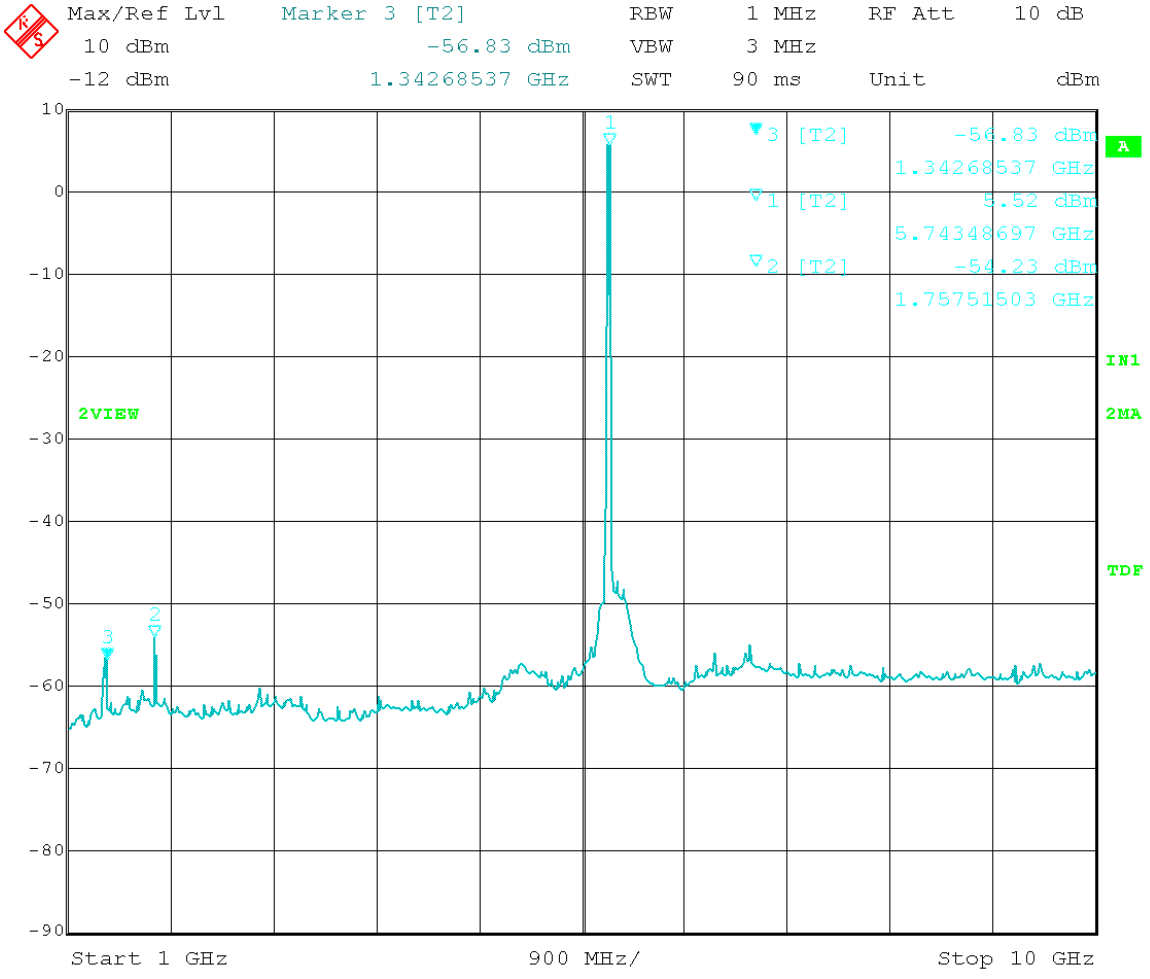
Marker 3: Calculated Field Strength (Restricted Band) = -69.65 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 44.58dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Date: 1.JUL.2013 11:18:38

Marker 2: Calculated Field Strength (Restricted Band) = -54.23 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 60.0dBµV/m Peak

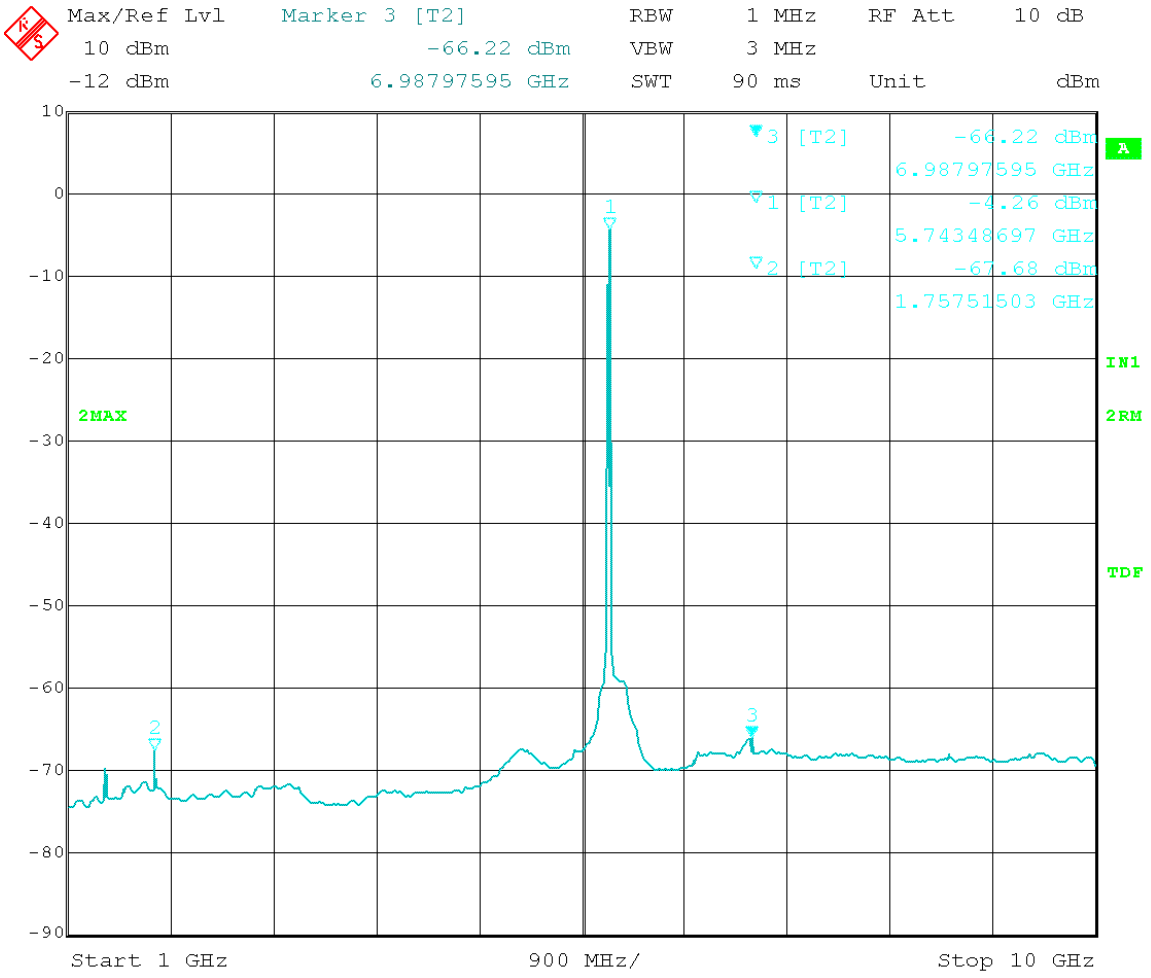
Marker 3: Calculated Field Strength (Restricted Band) = -56.83 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.4dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Date: 1.JUL.2013 11:26:10

Marker 2: Calculated Field Strength (Restricted Band) = -67.68+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 46.55dBµV/m Average

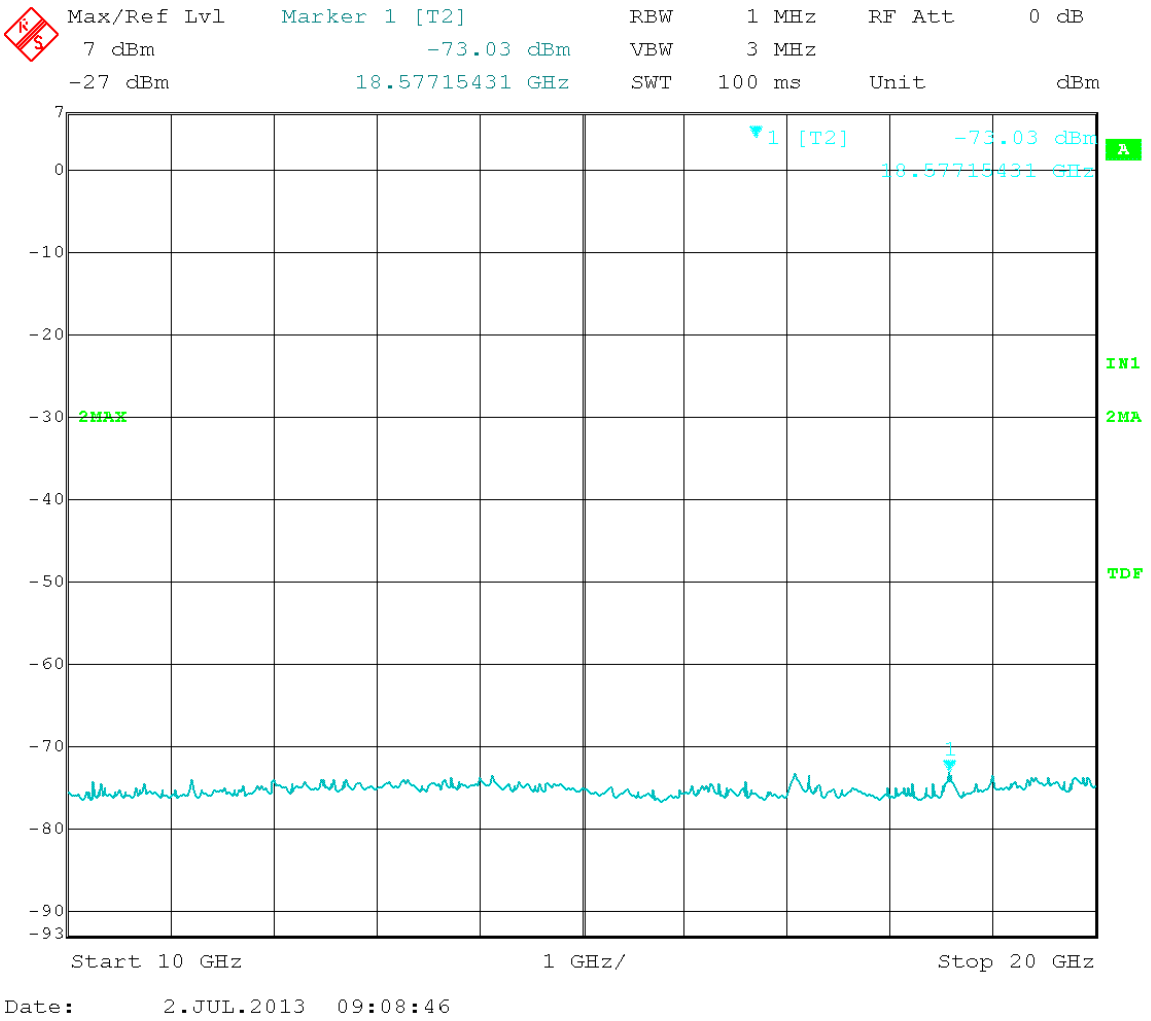
Marker 3: Calculated Field Strength (Restricted Band) = -66.22 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 48.01dBµV/m Average

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



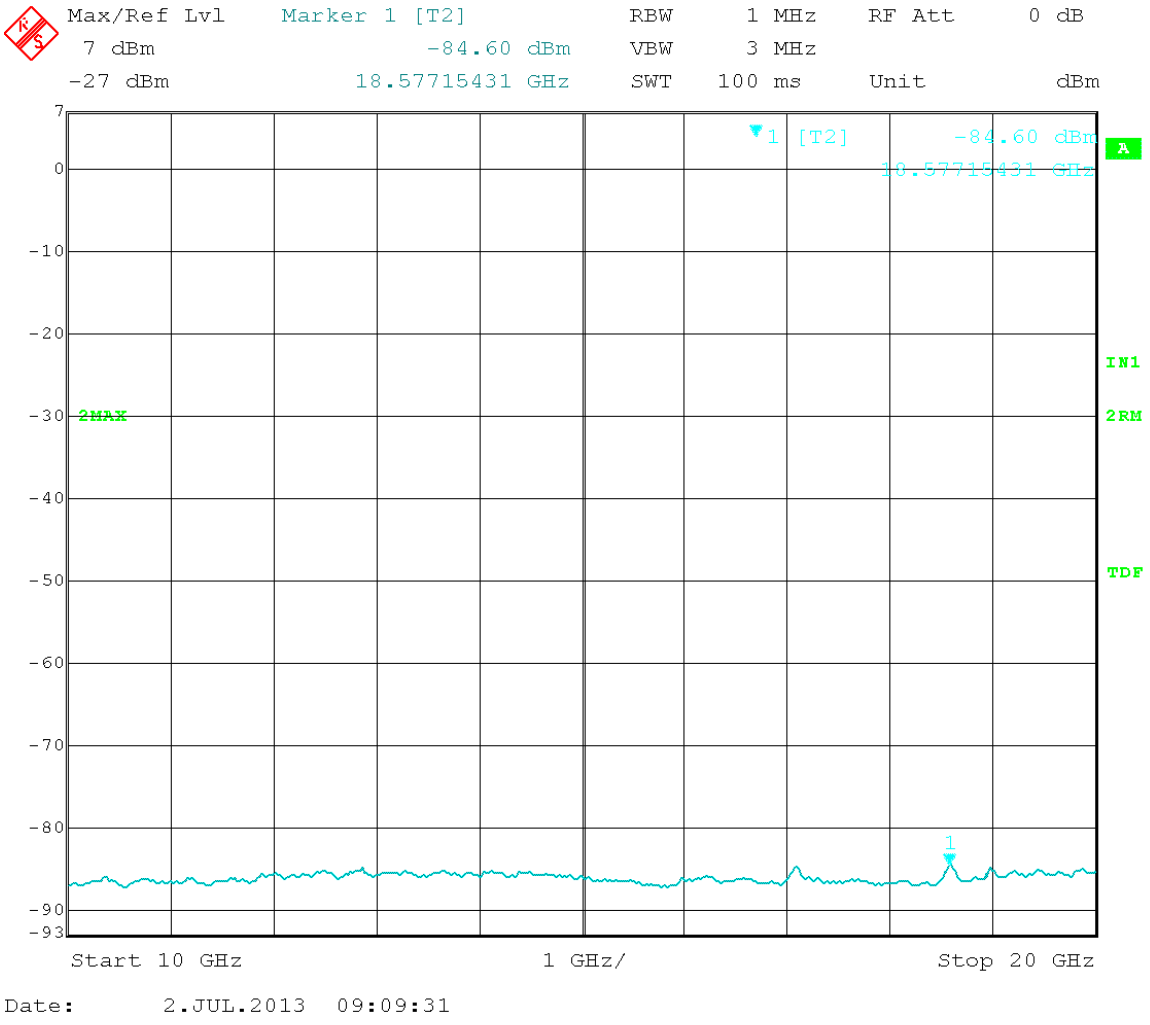

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



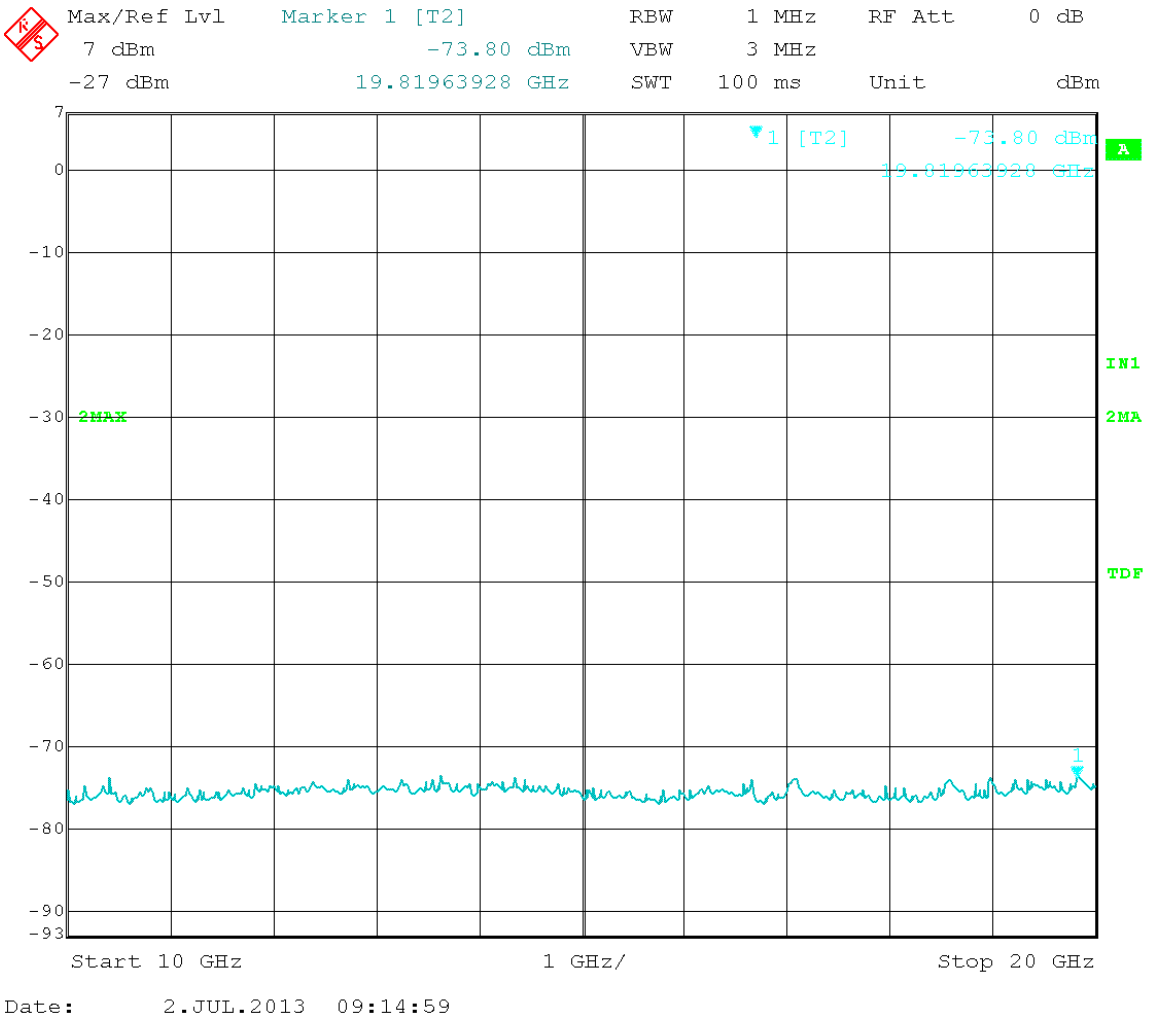

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



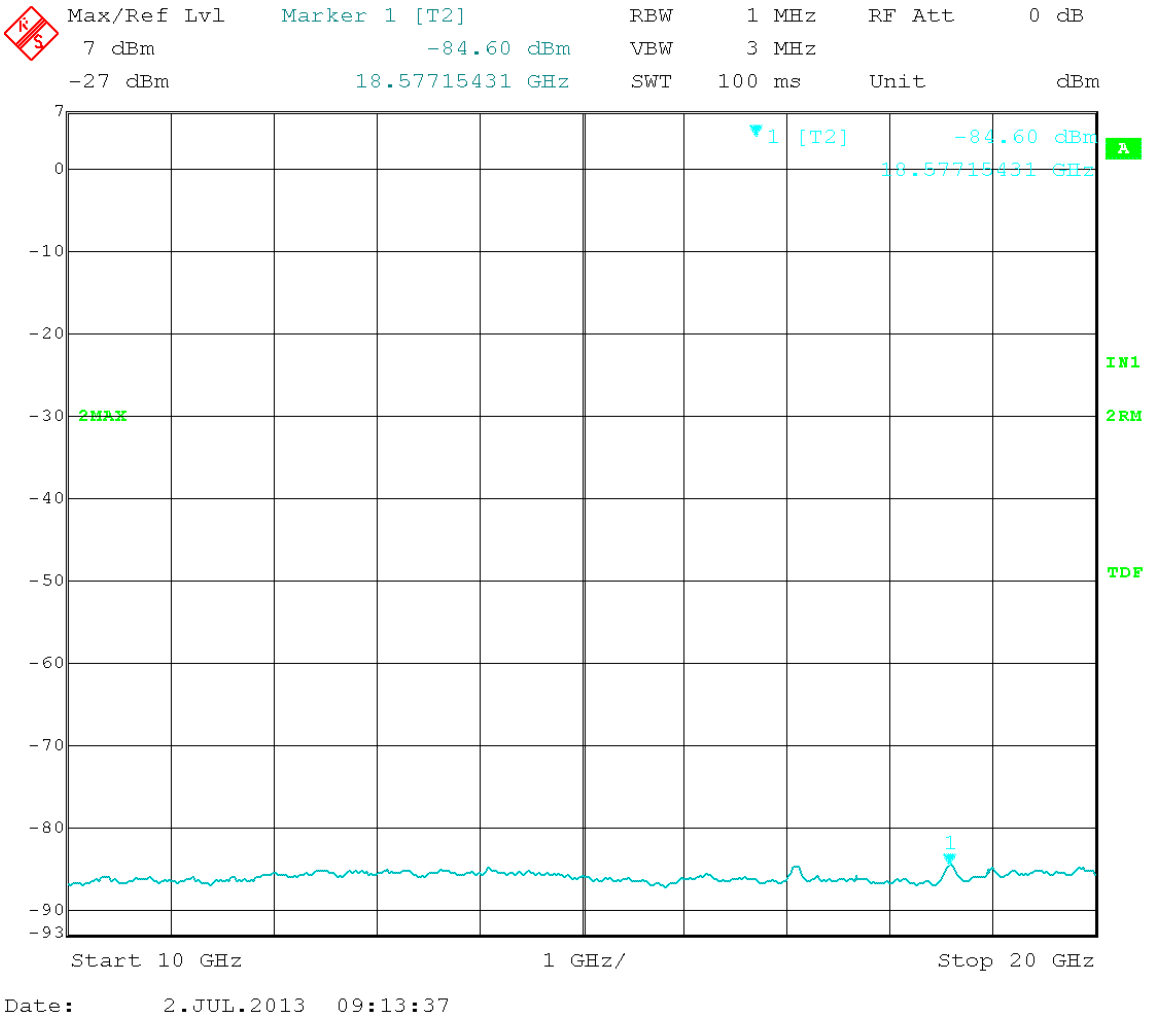

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



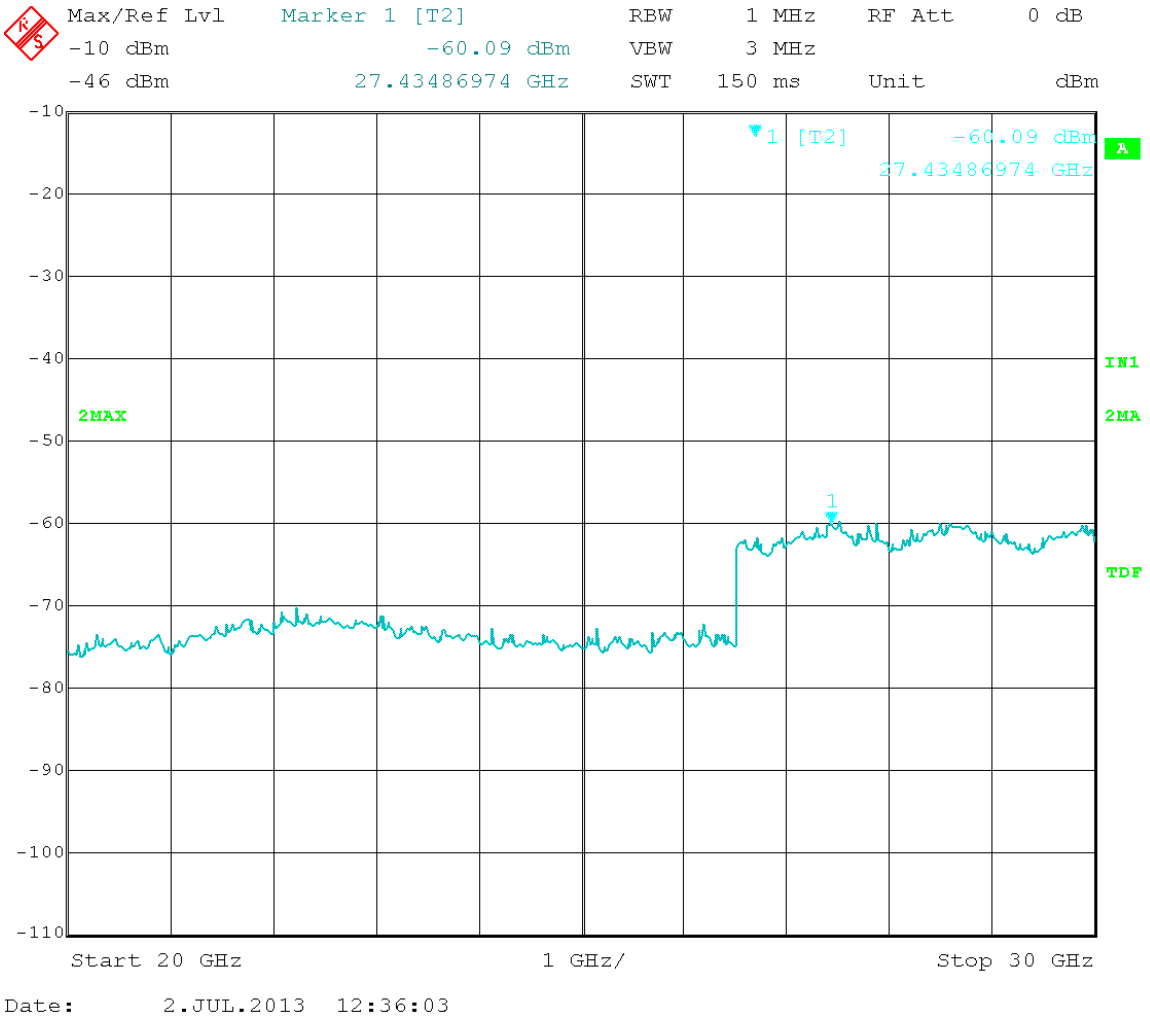

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



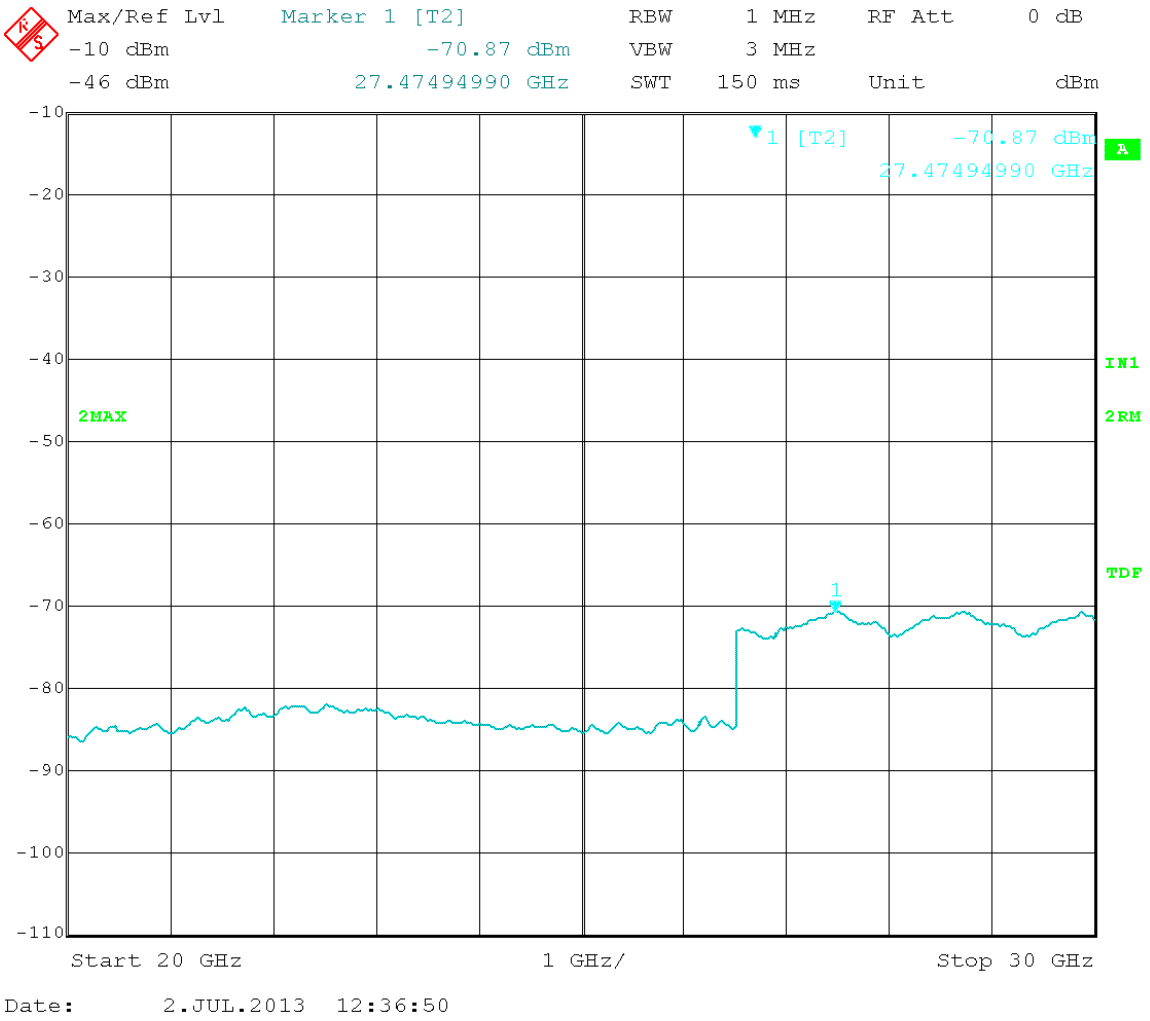

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



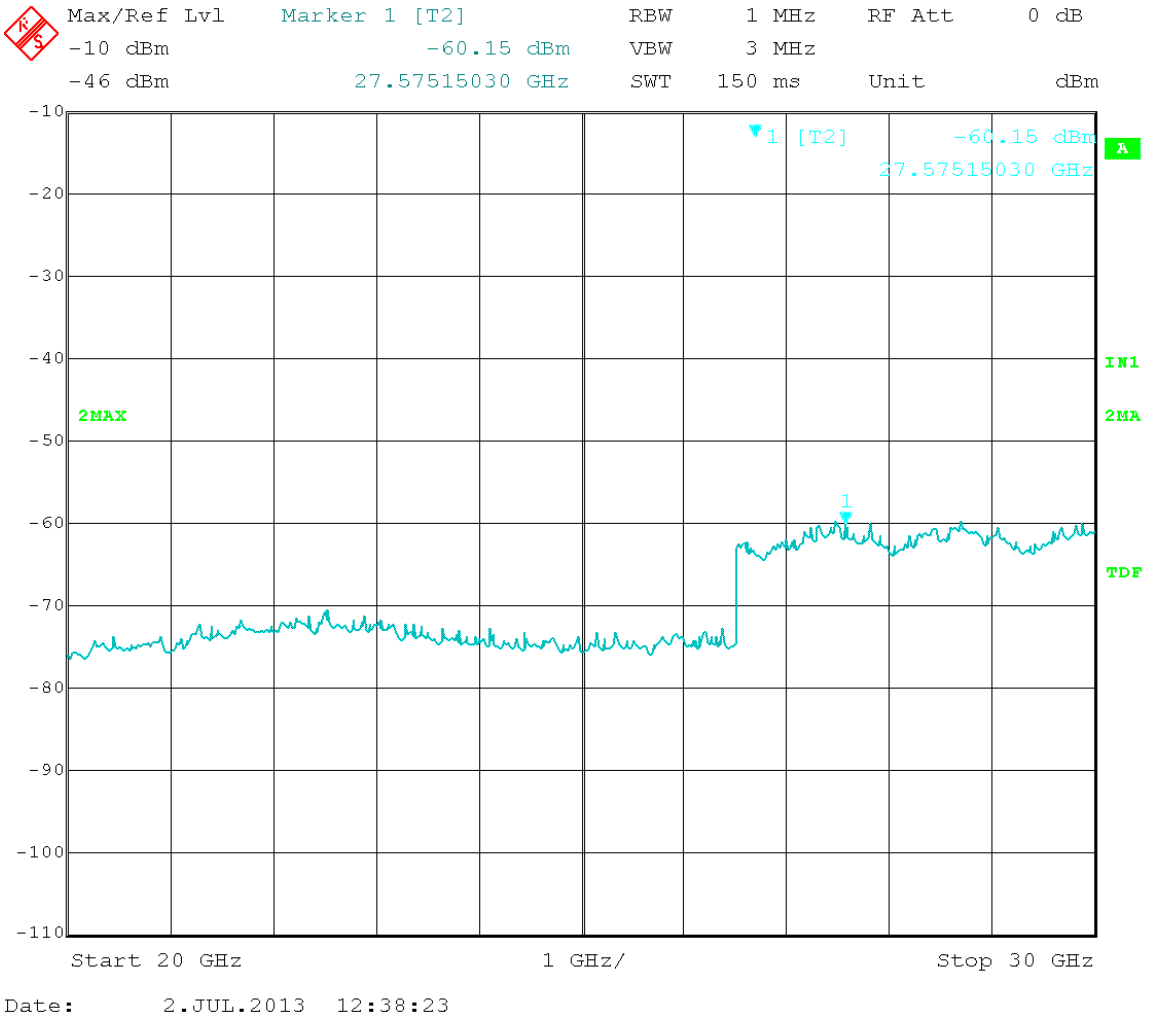

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



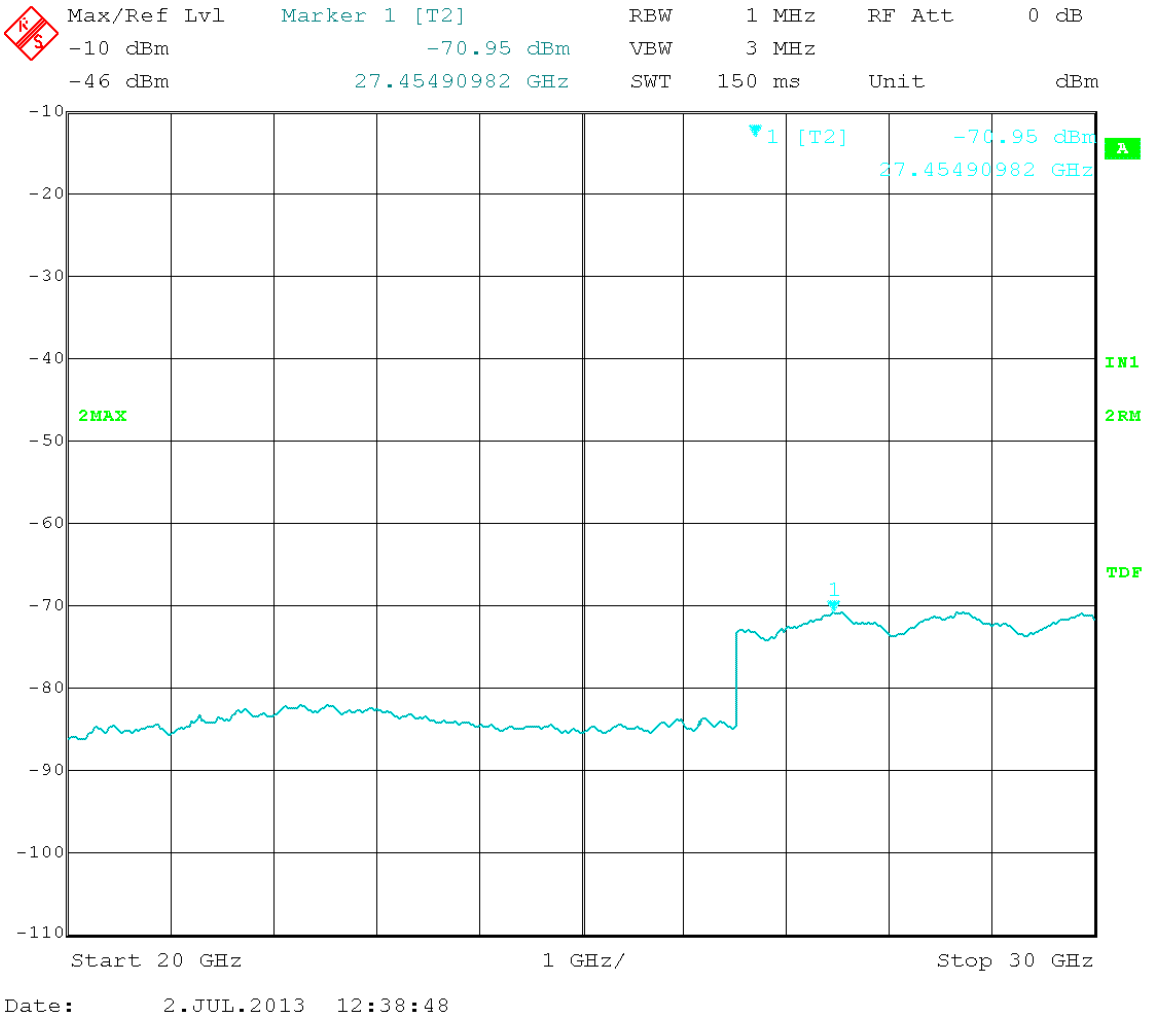

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



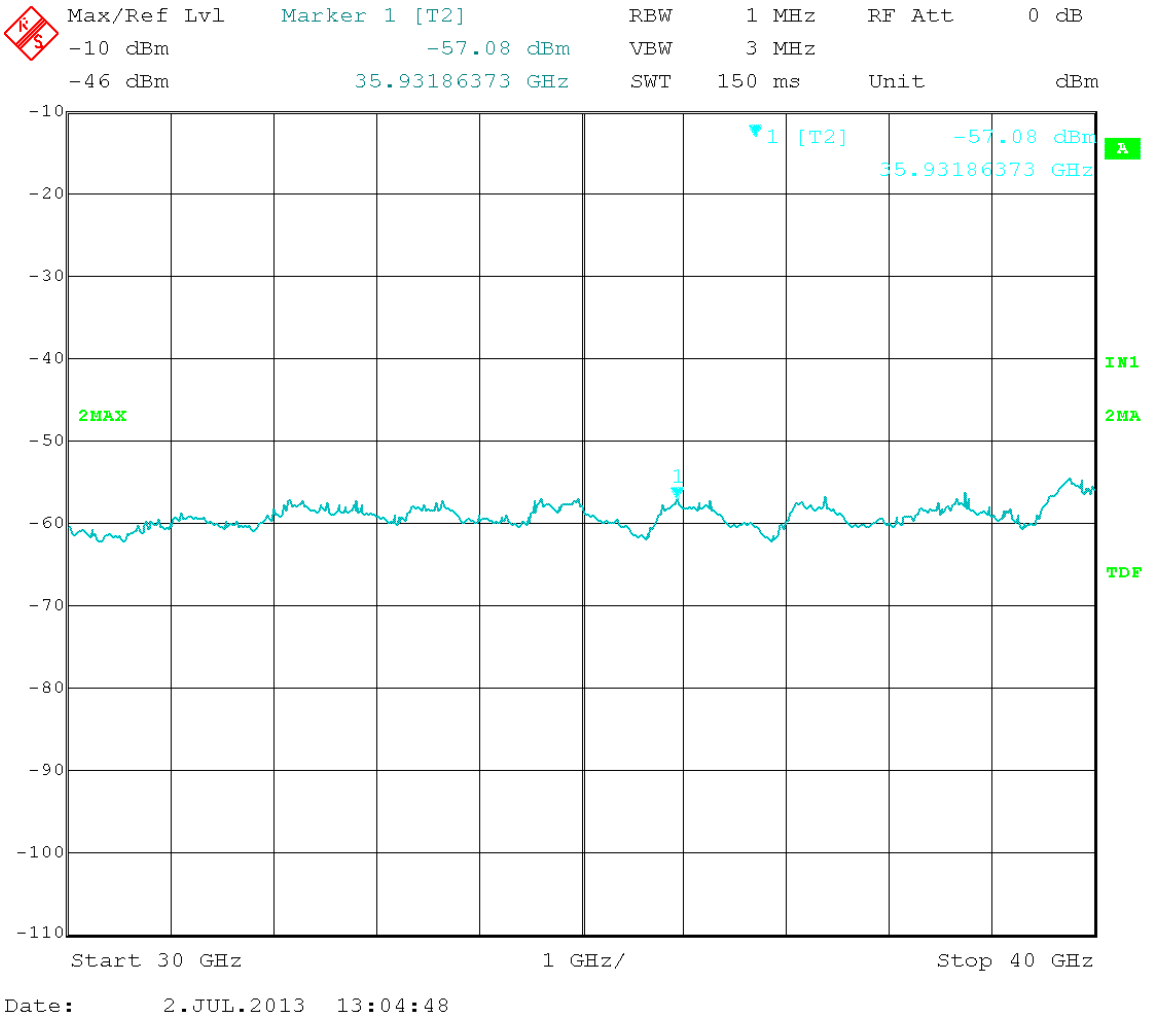

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



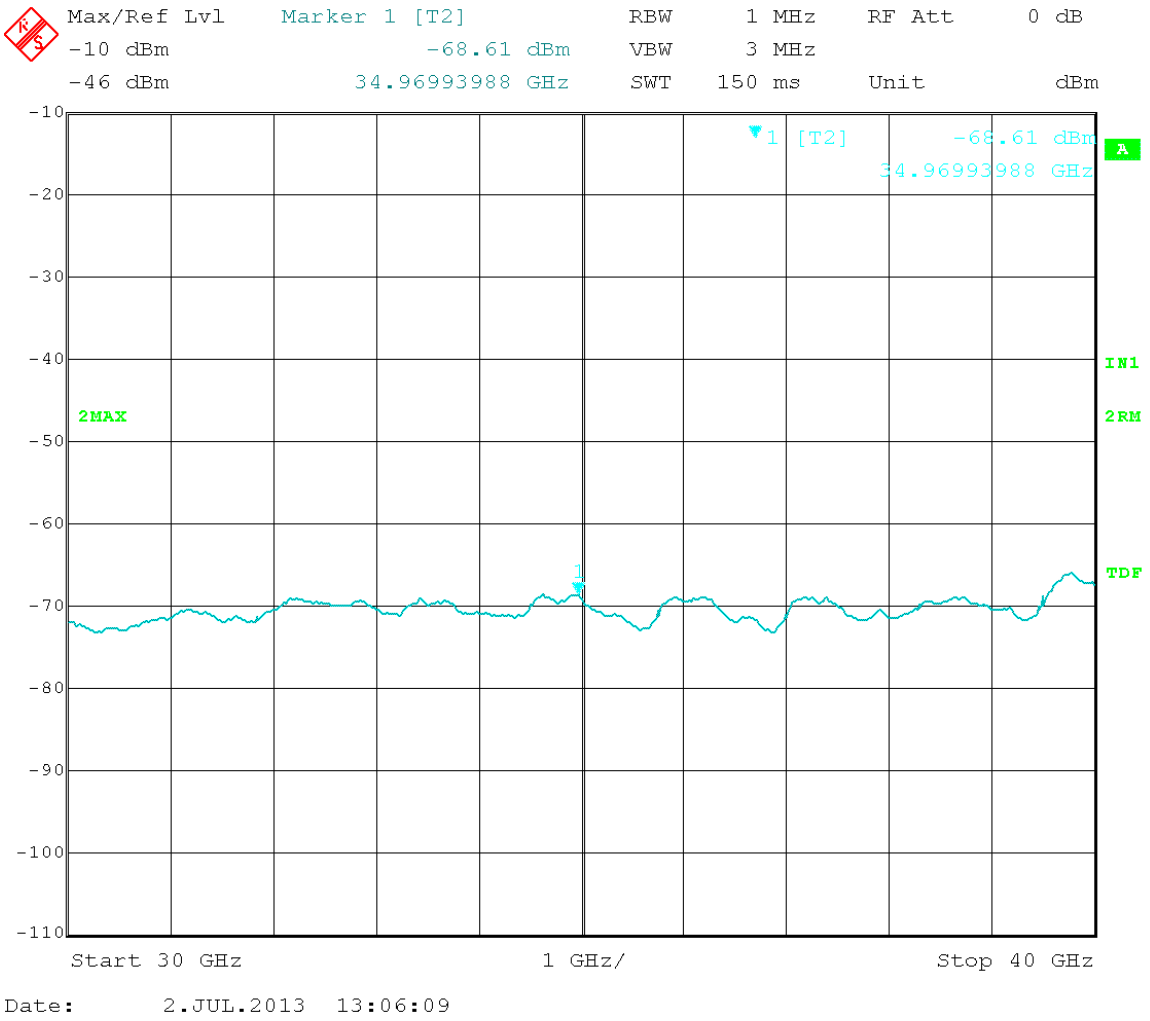

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



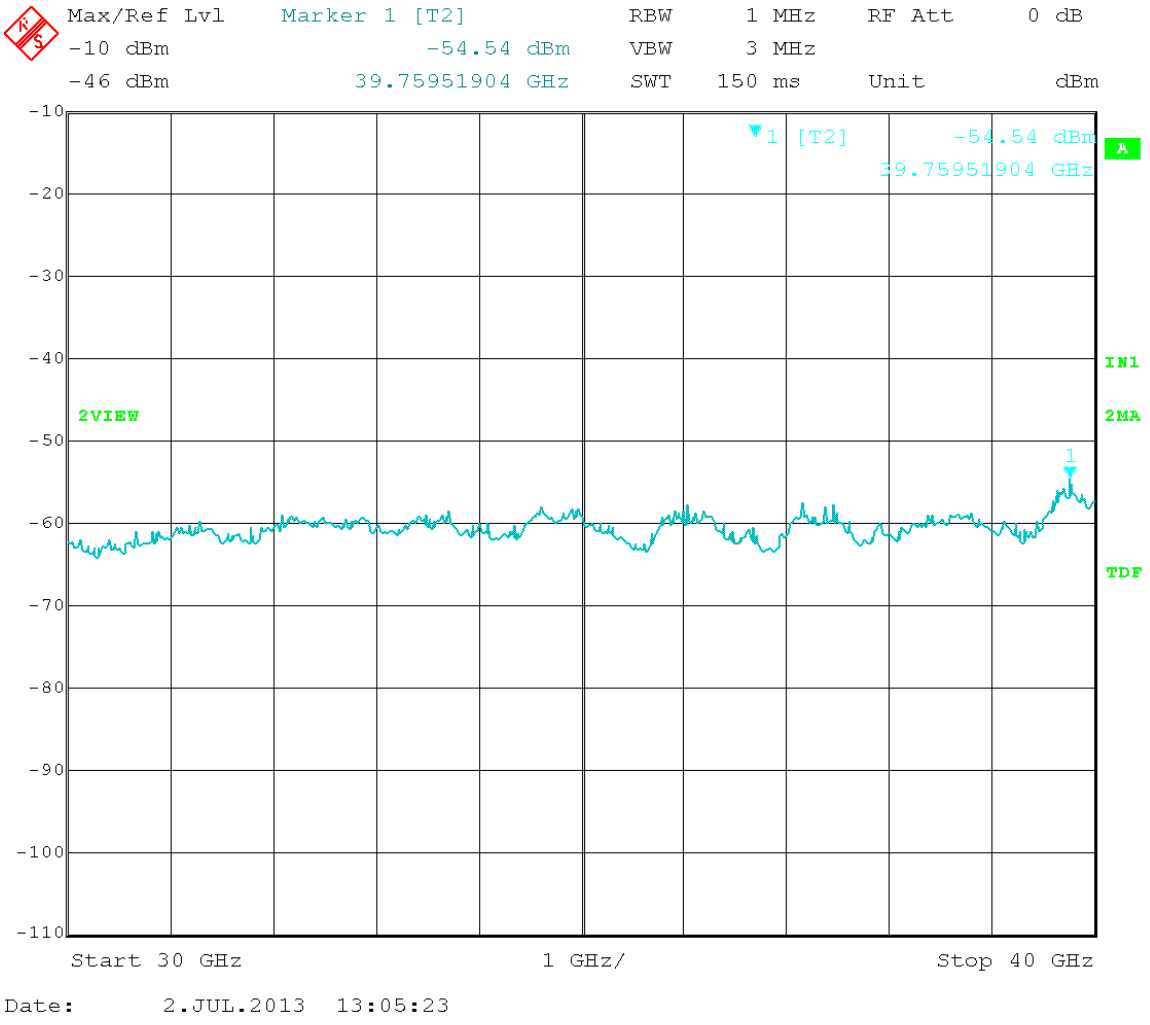

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



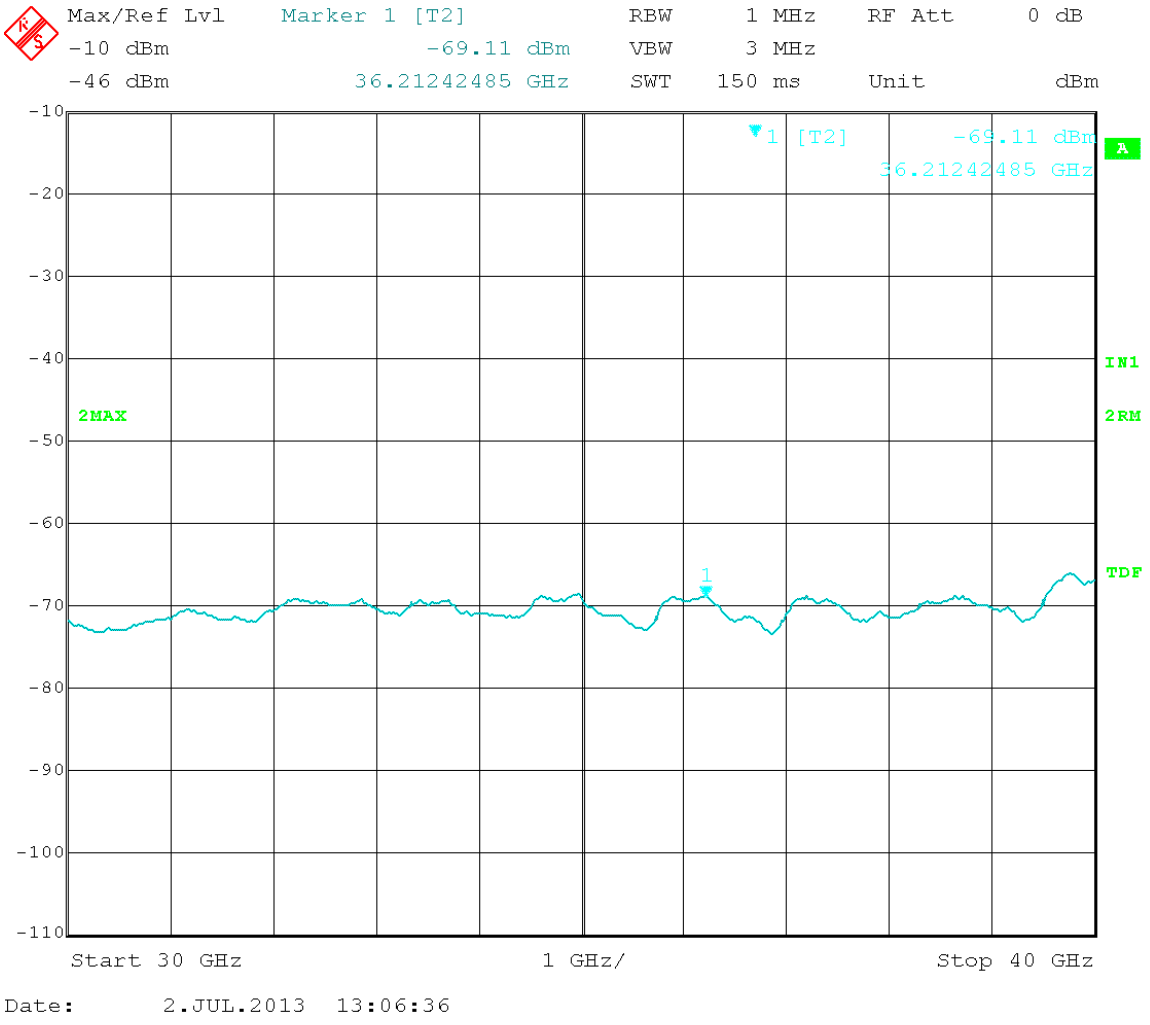

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.740 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



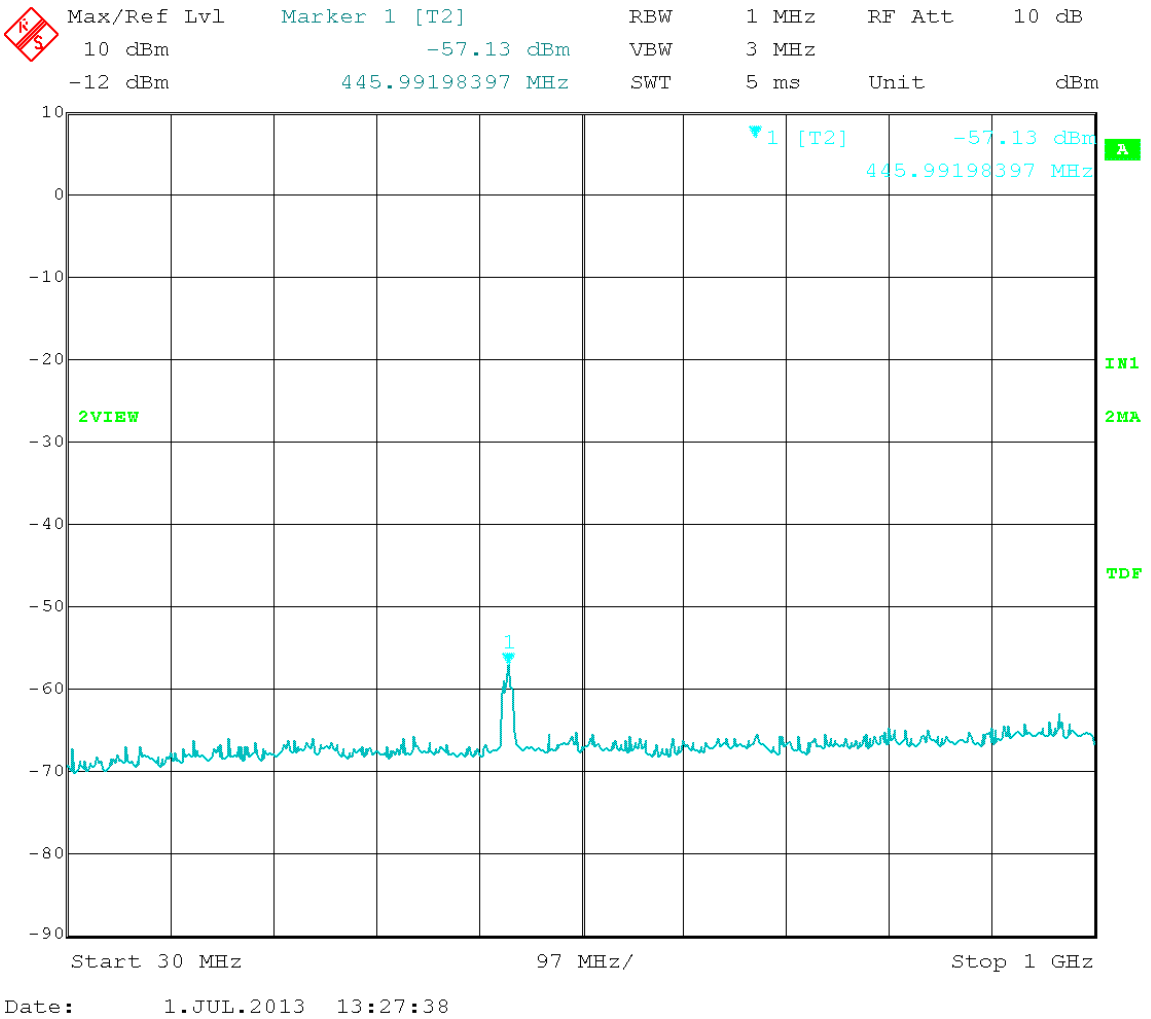

Marker 1: Greater than 20dB below limit

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



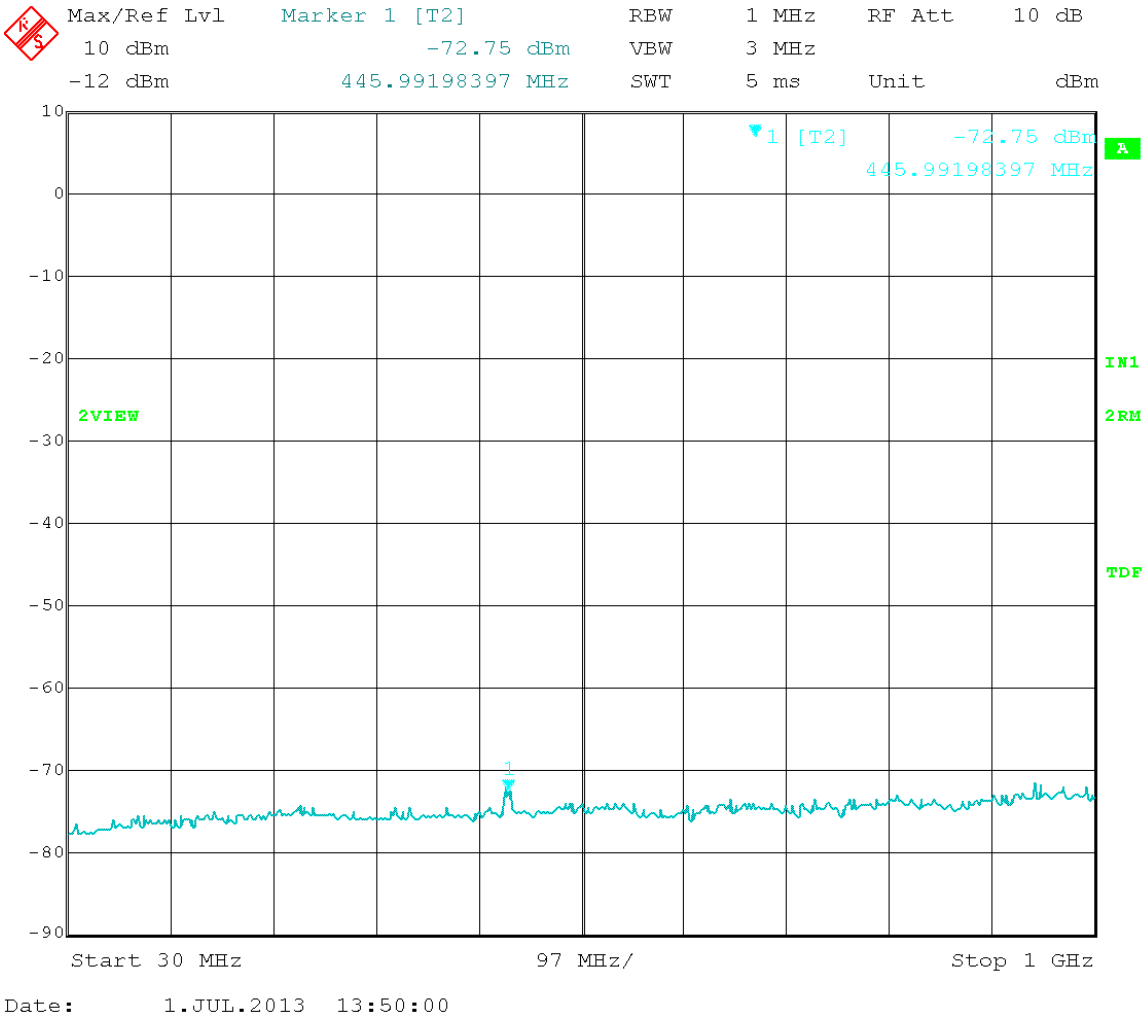

Marker 1: Calculated Field Strength (Restricted Band) = -54.81 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.1dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



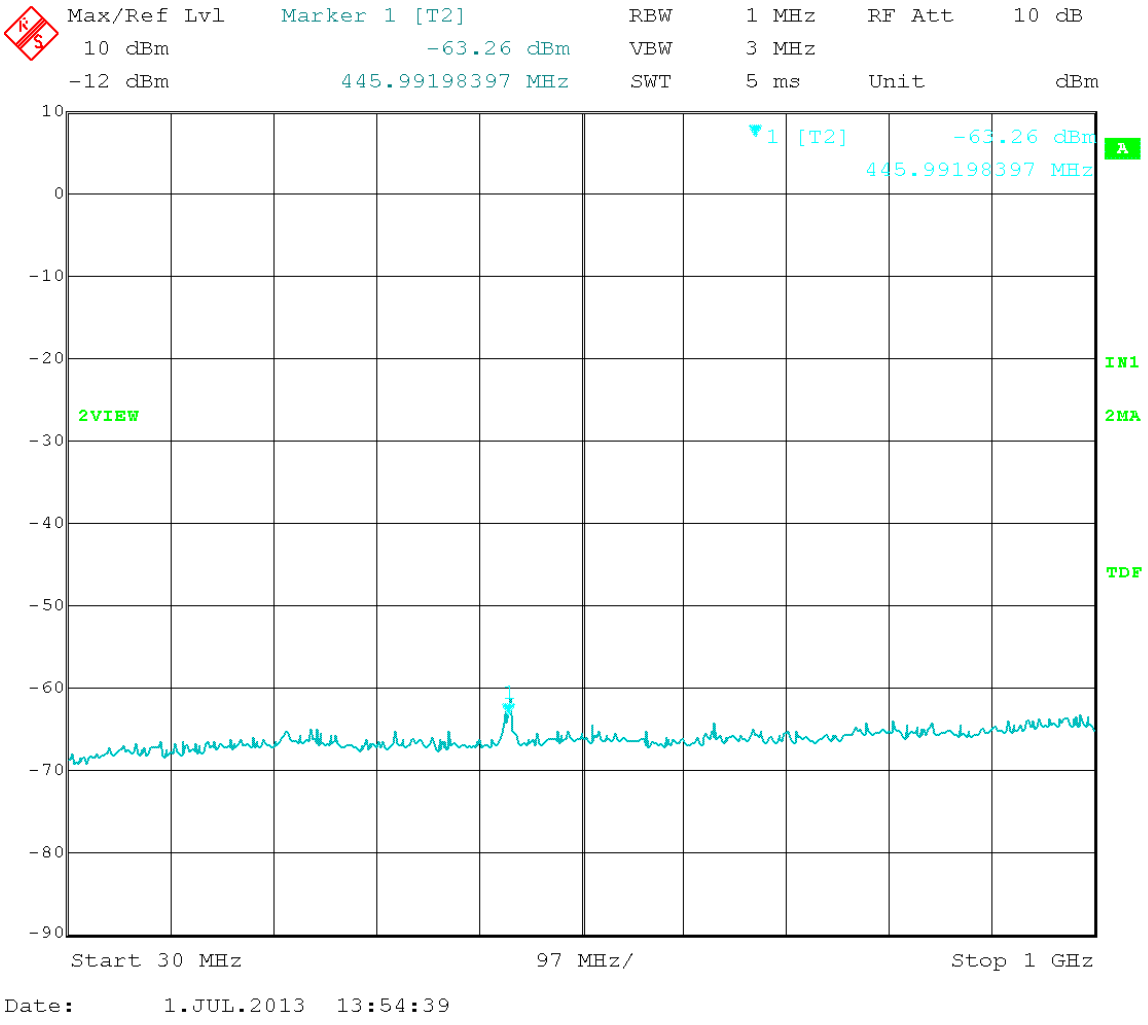

Marker 1: Calculated Field Strength (Restricted Band) = -72.75+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 41.48dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



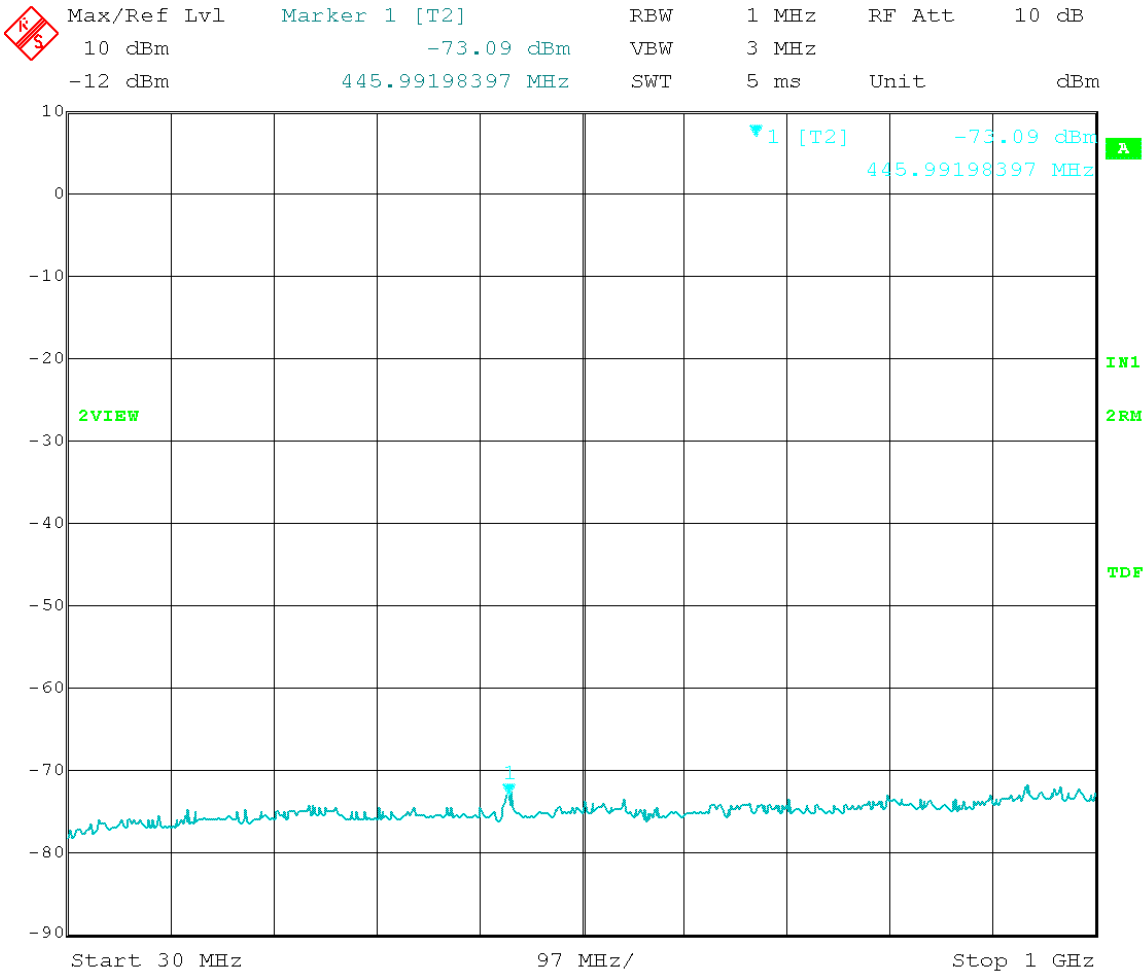

Marker 1: Calculated Field Strength (Restricted Band) = -63.26 + 16dBi antenna gain
+ 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 50.97dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz




Date: 1.JUL.2013 13:52:17

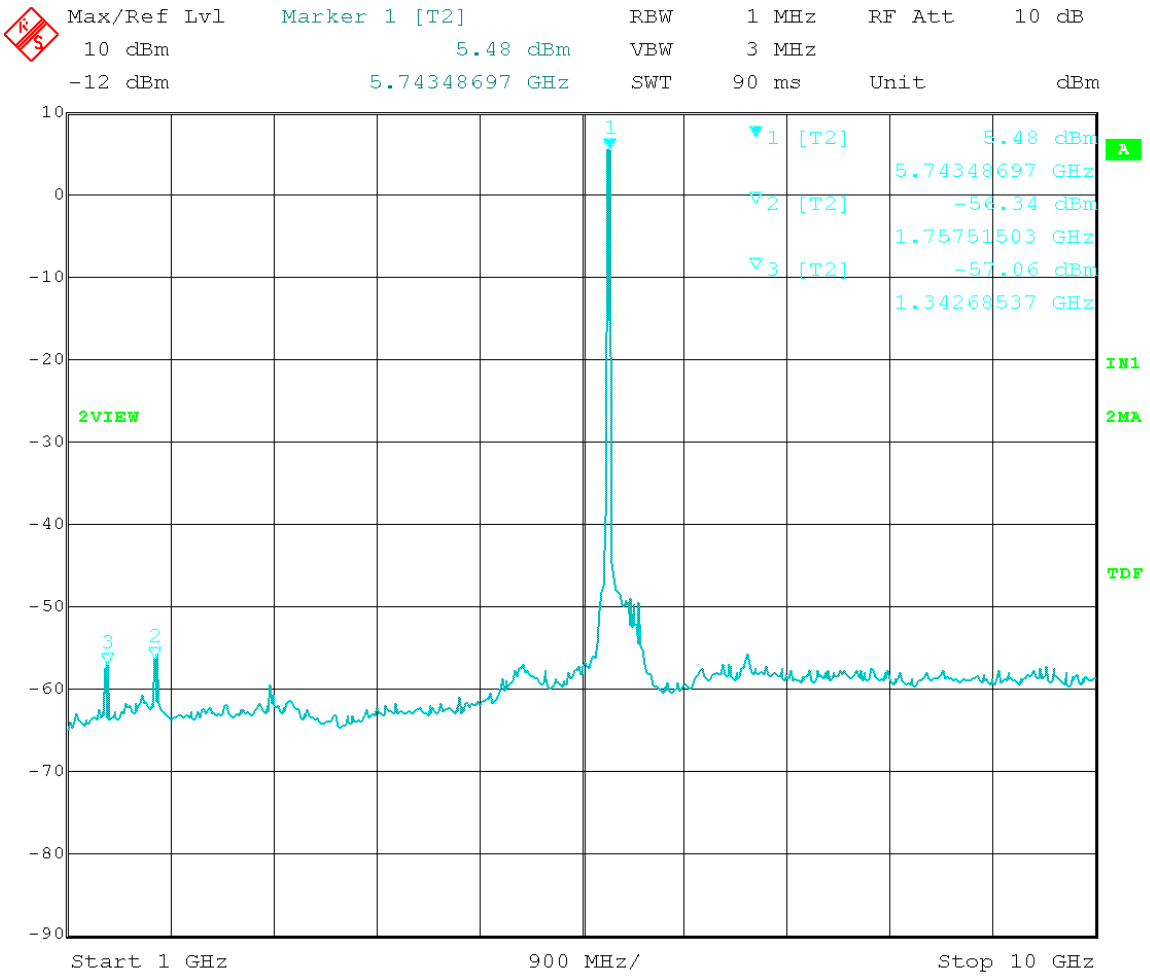
Marker 1: Calculated Field Strength (Restricted Band) = -73.09+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 41.14dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Date: 1.JUL.2013 14:11:03

Marker 2: Calculated Field Strength (Restricted Band) = -56.34 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.89dBµV/m Peak

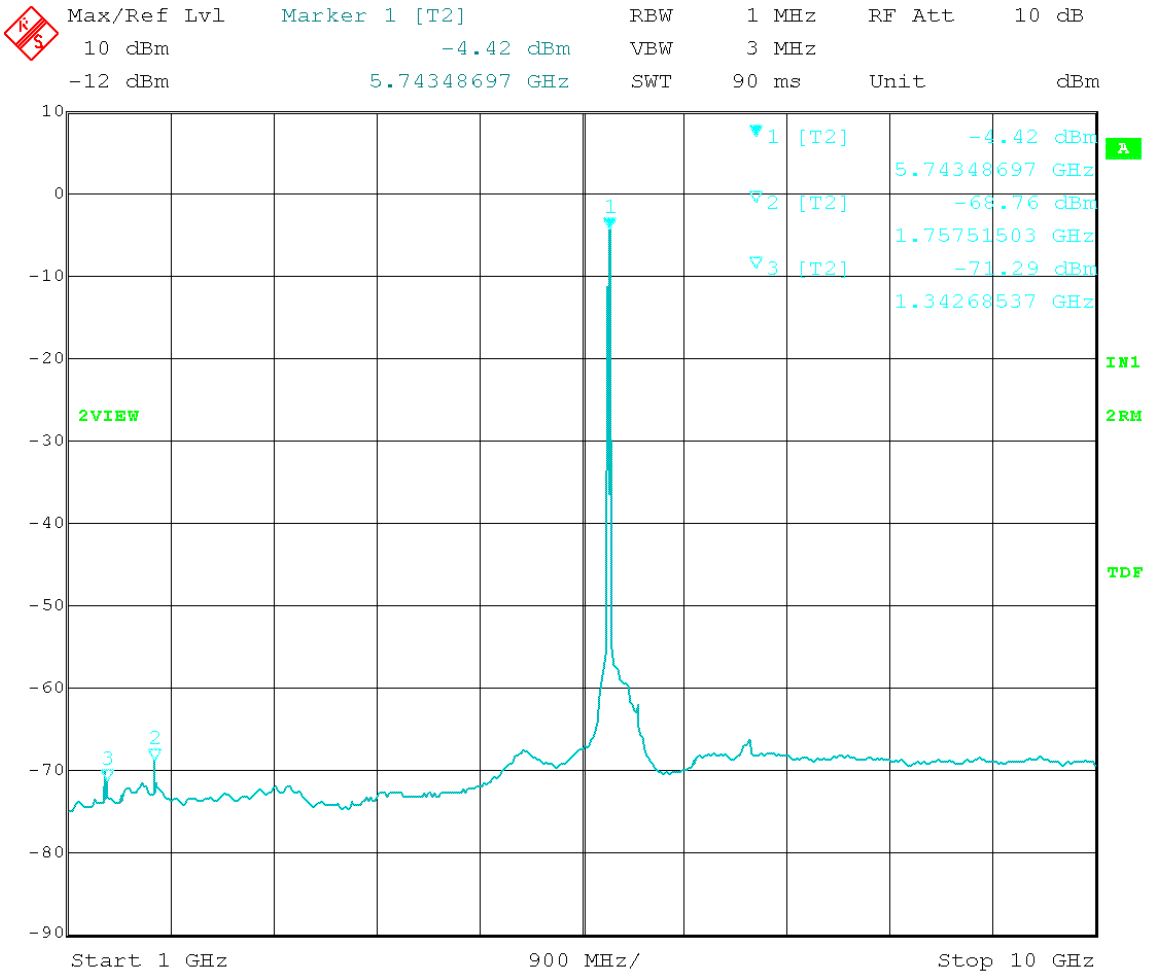
Marker 3: Calculated Field Strength (Restricted Band) = -57.06 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 56.63dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Date: 1.JUL.2013 14:09:31

Marker 2: Calculated Field Strength (Restricted Band) = -68.76+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.47dBµV/m Average

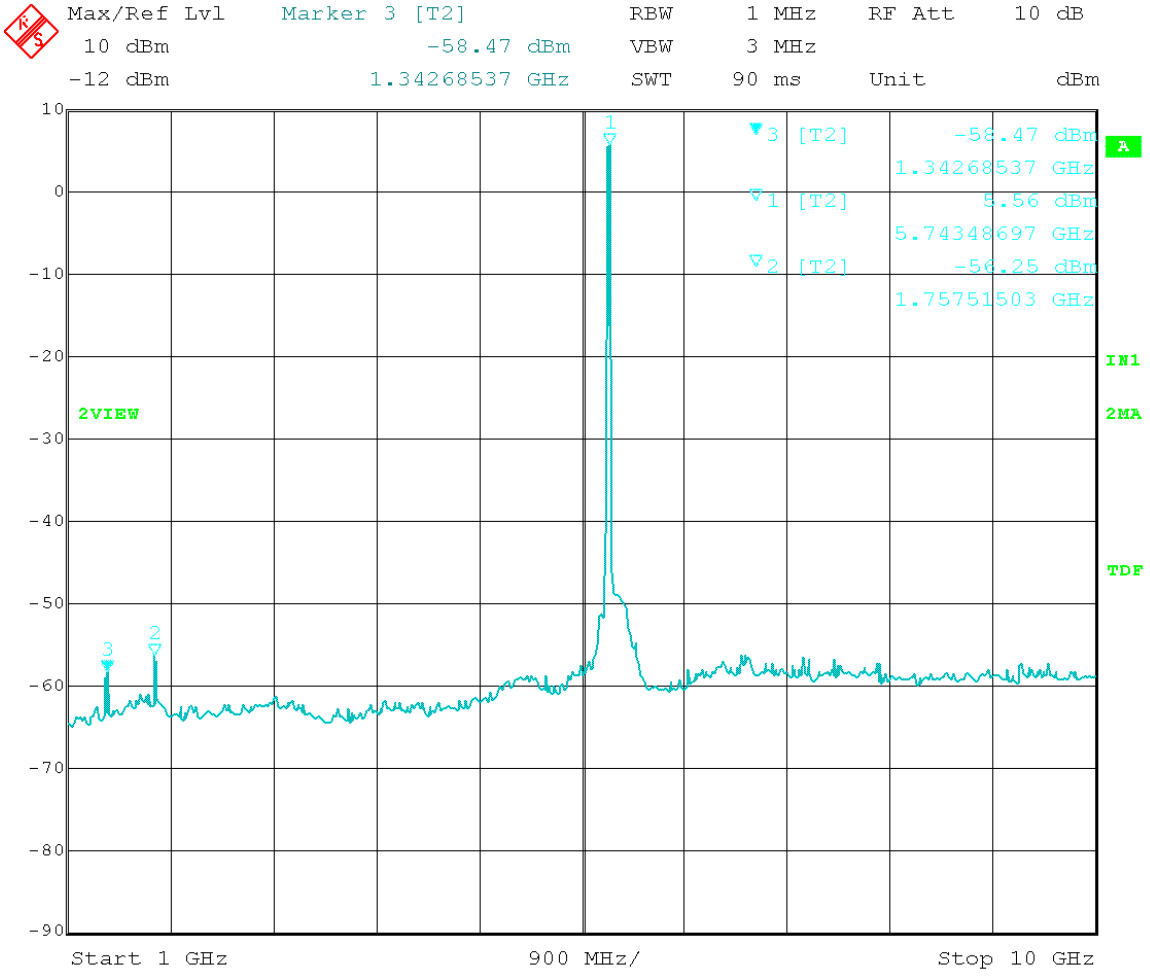
Marker 3: Calculated Field Strength (Restricted Band) = -71.29 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 42.94dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Date: 1.JUL.2013 13:59:38

Marker 2: Calculated Field Strength (Restricted Band) = -56.25 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.98dBµV/m Peak

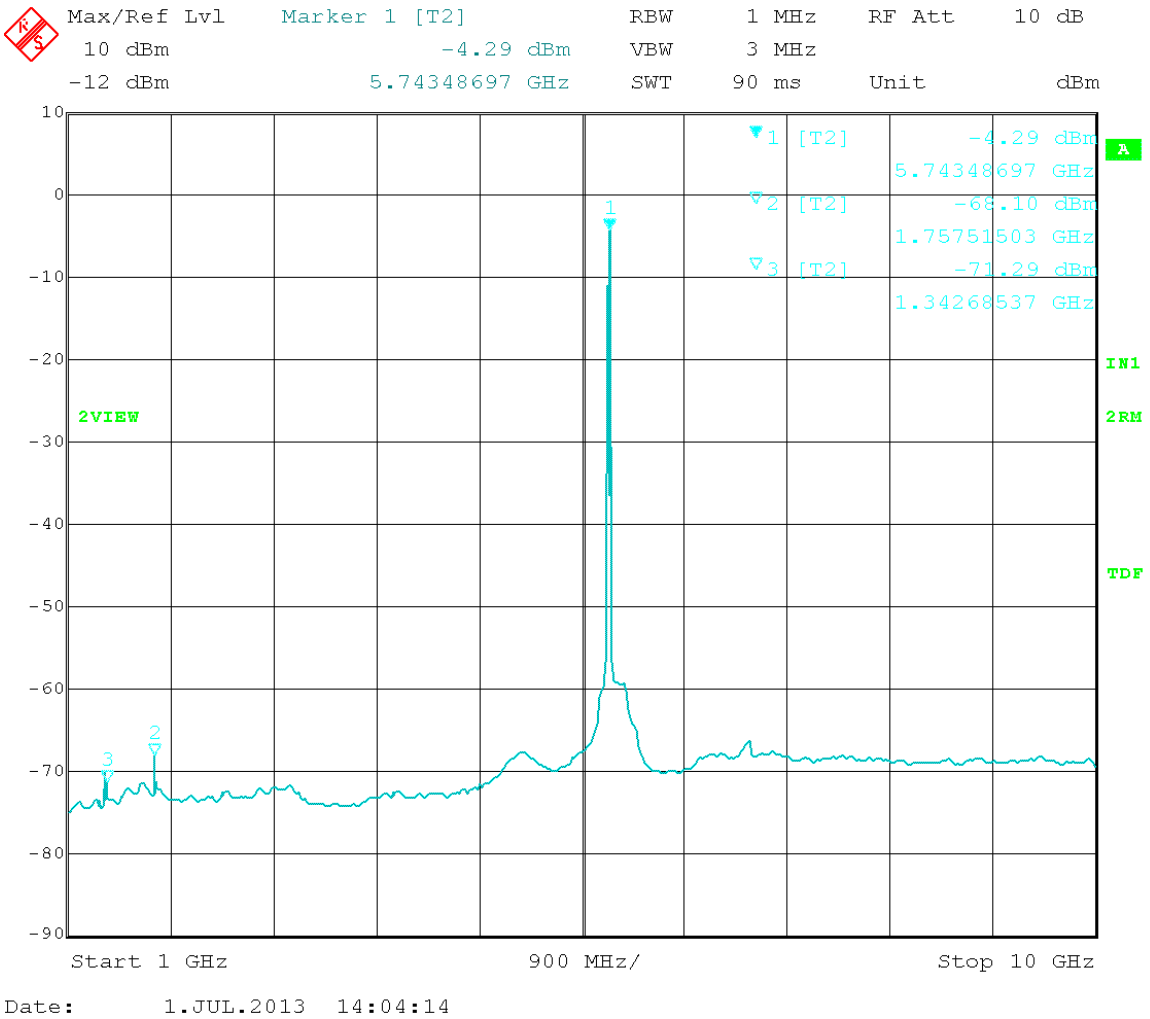
Marker 3: Calculated Field Strength (Restricted Band) = -58.47 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 55.76dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



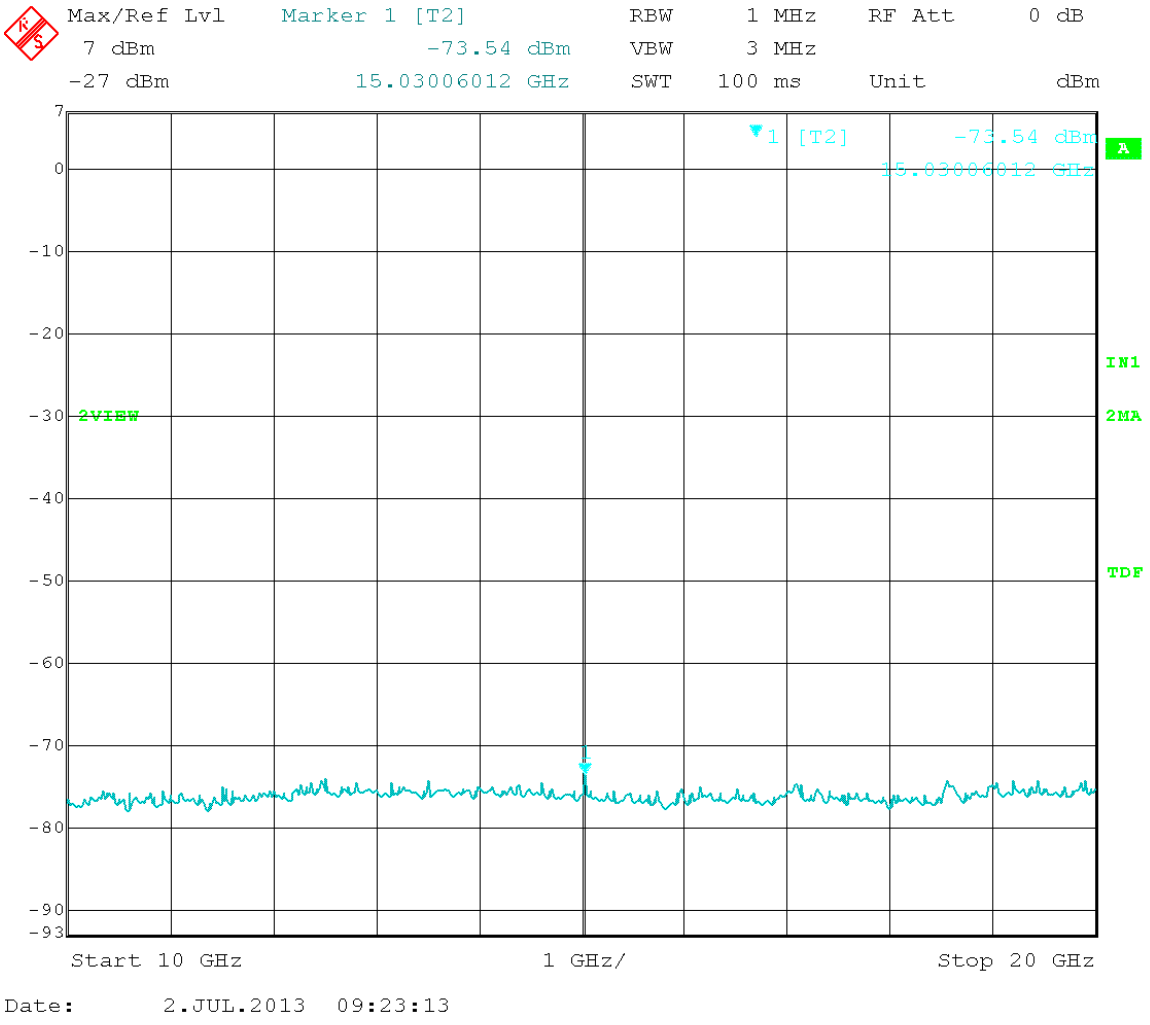

Marker 2: Calculated Field Strength (Restricted Band) = -68.10 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 46.13dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -71.29 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 42.94dBµV/m Average

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



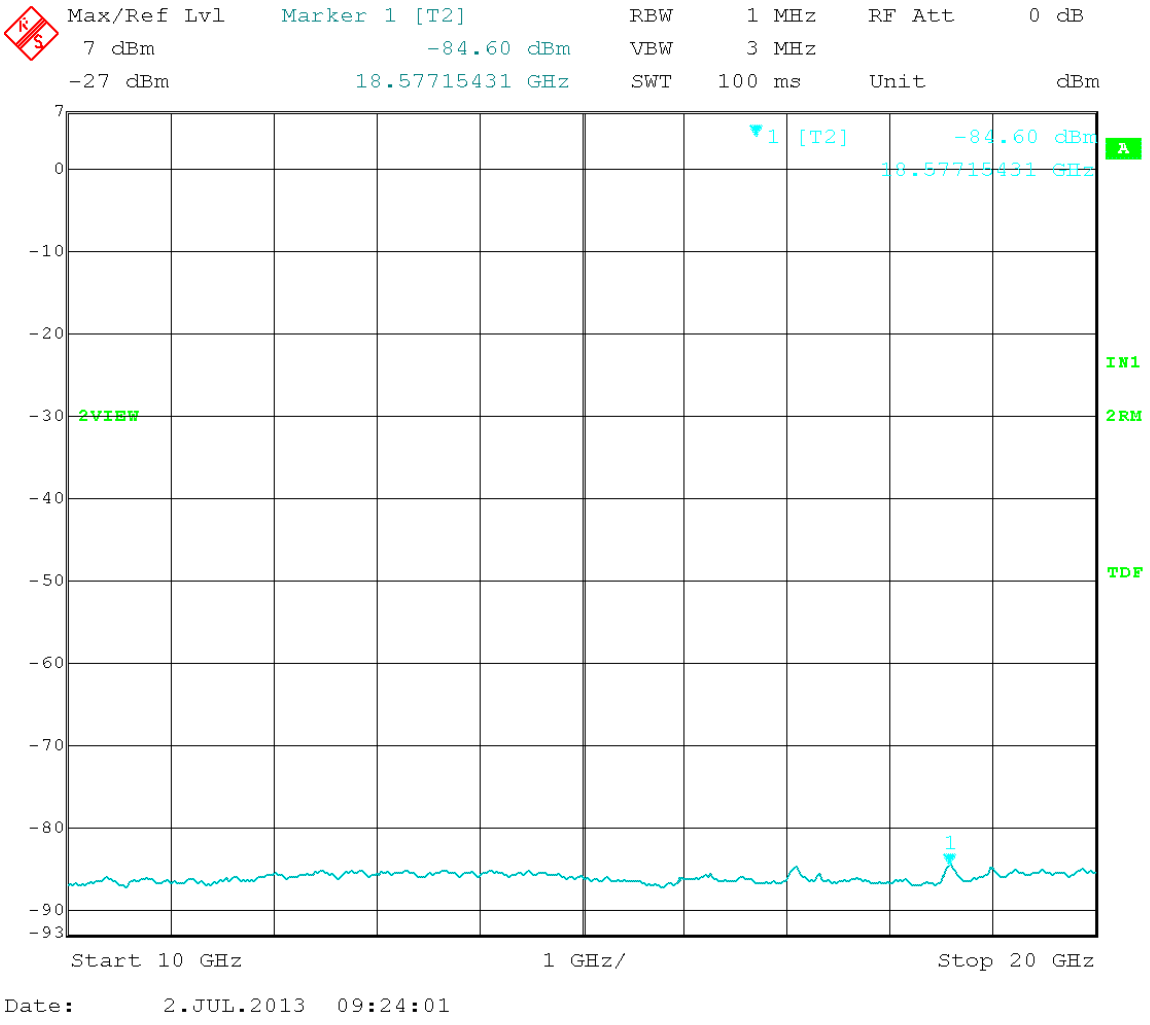

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



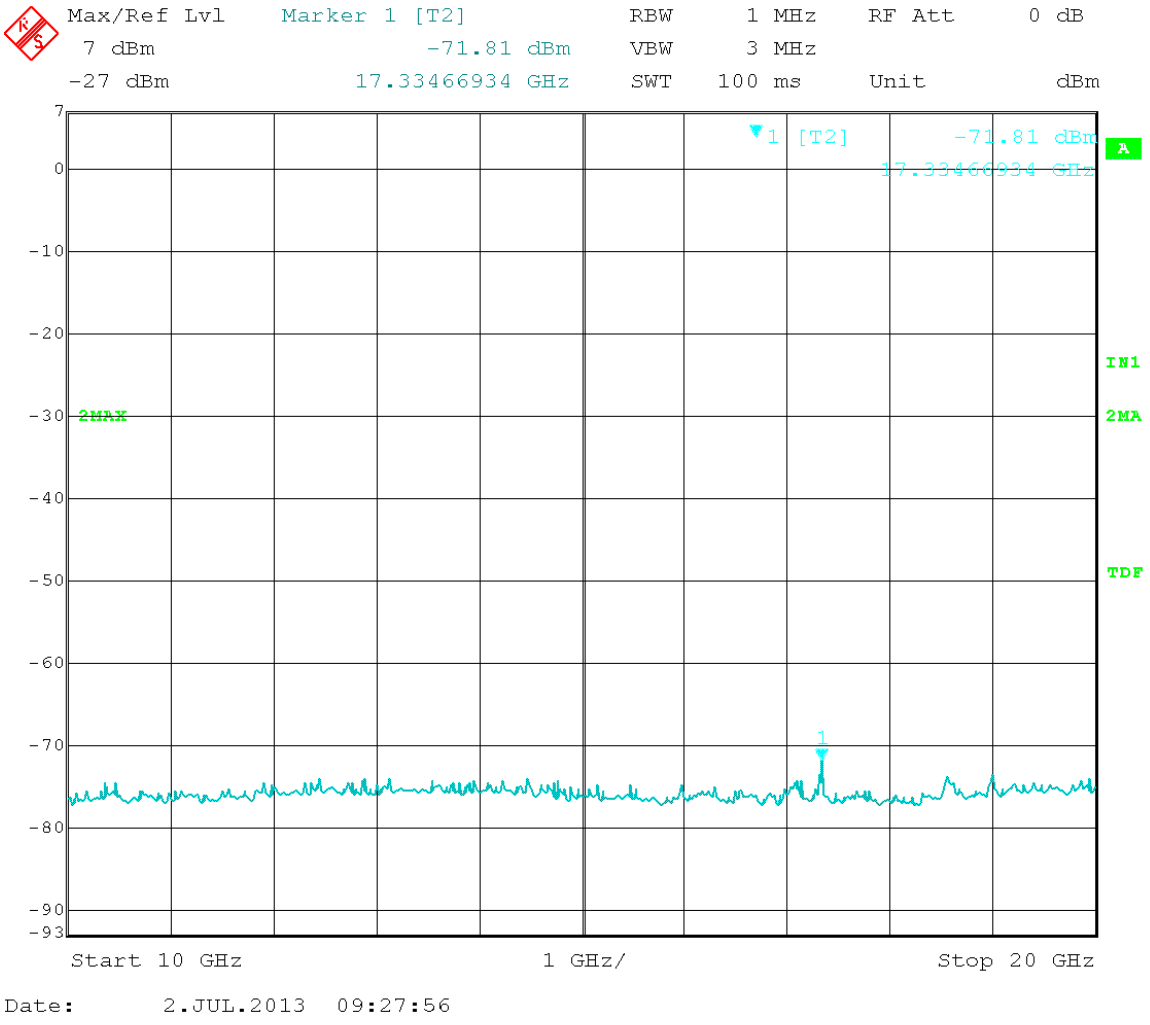

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



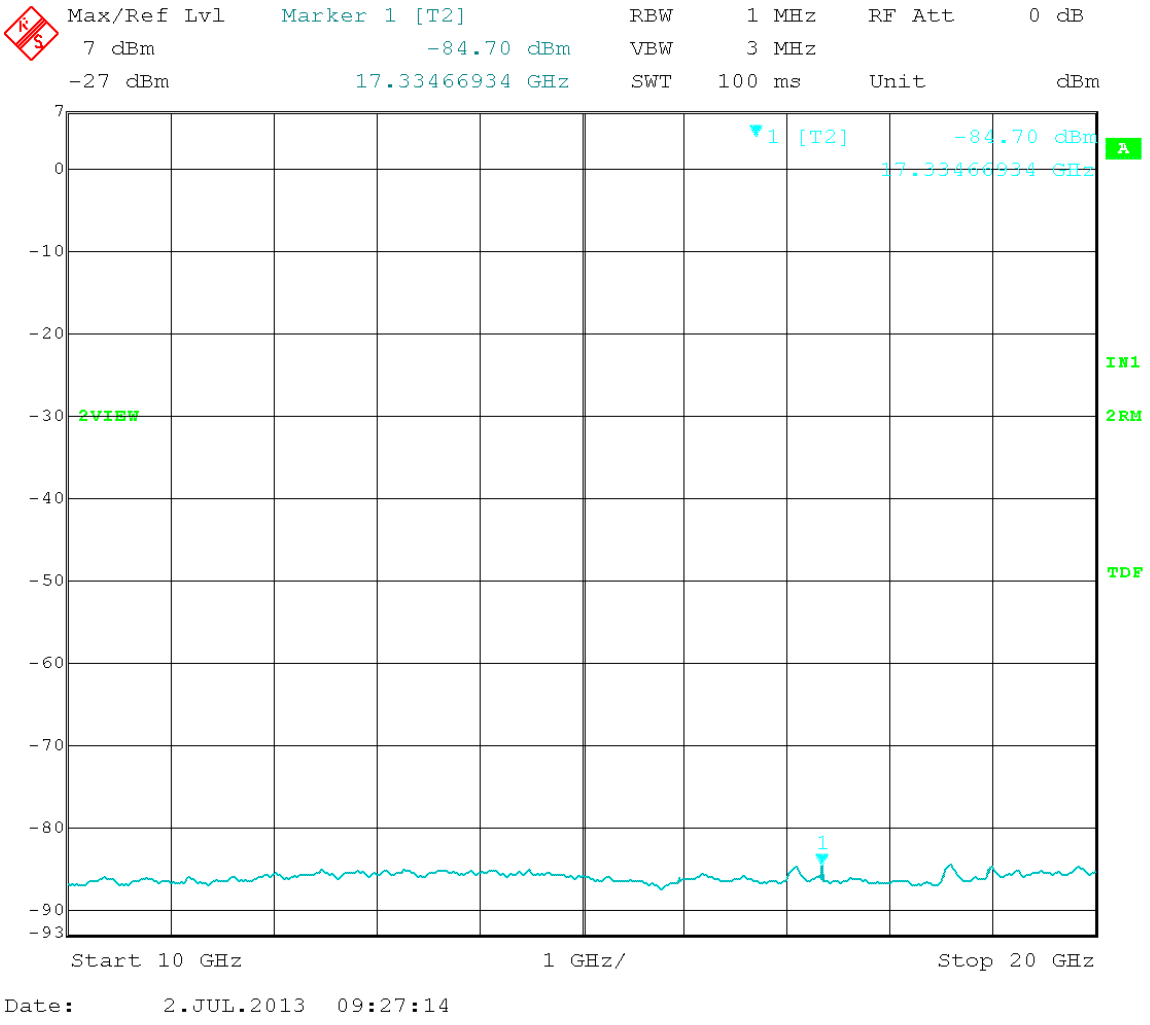

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



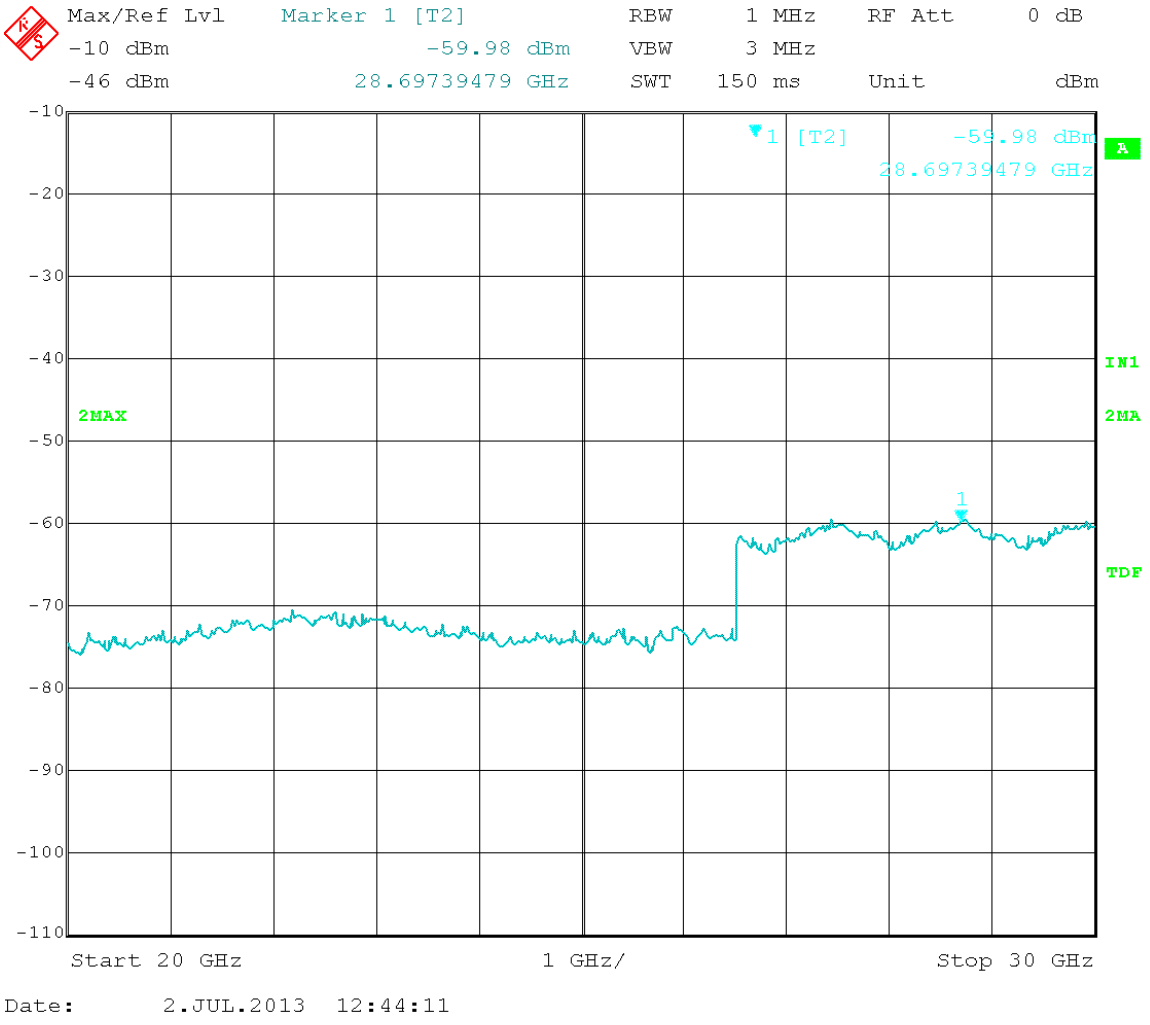

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



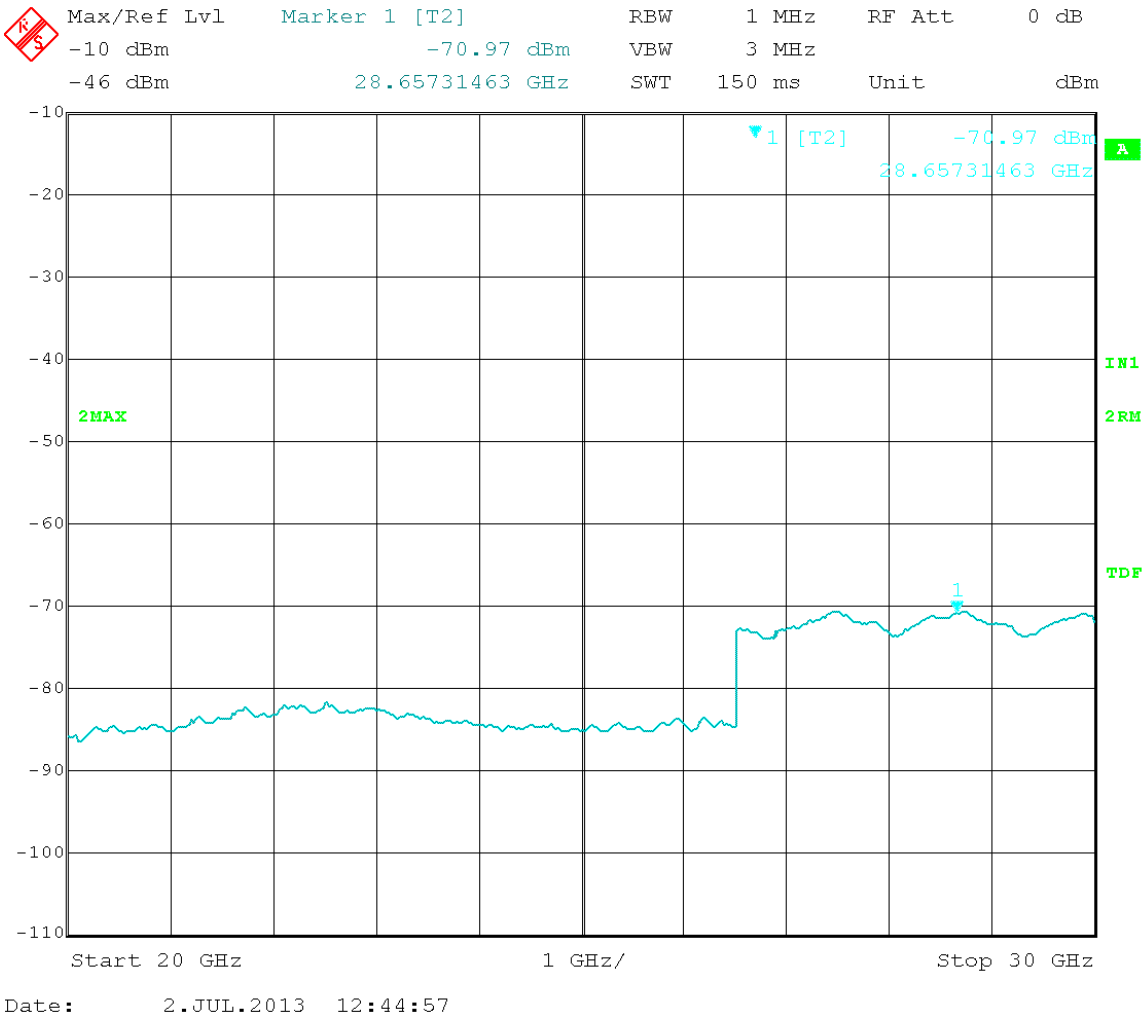

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



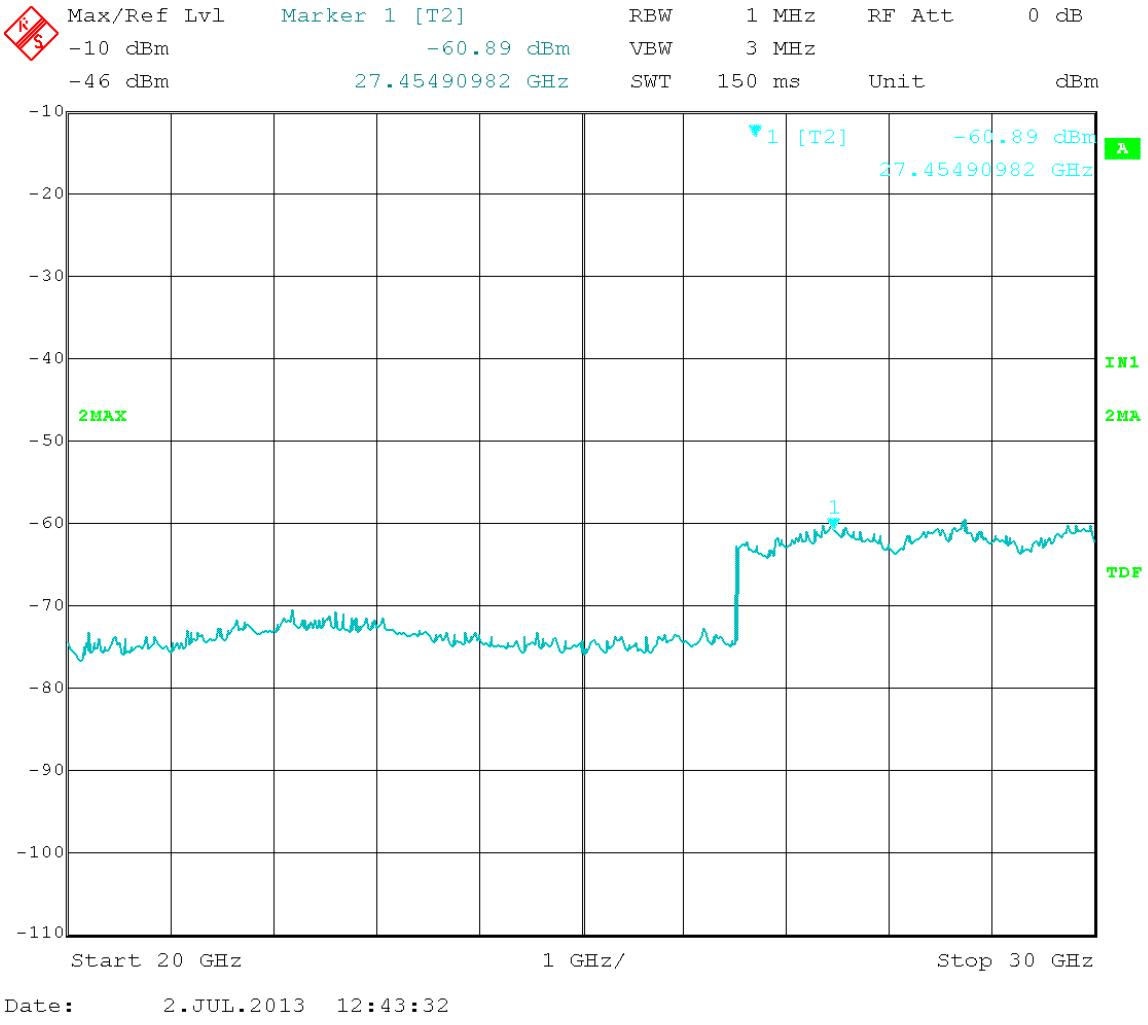

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



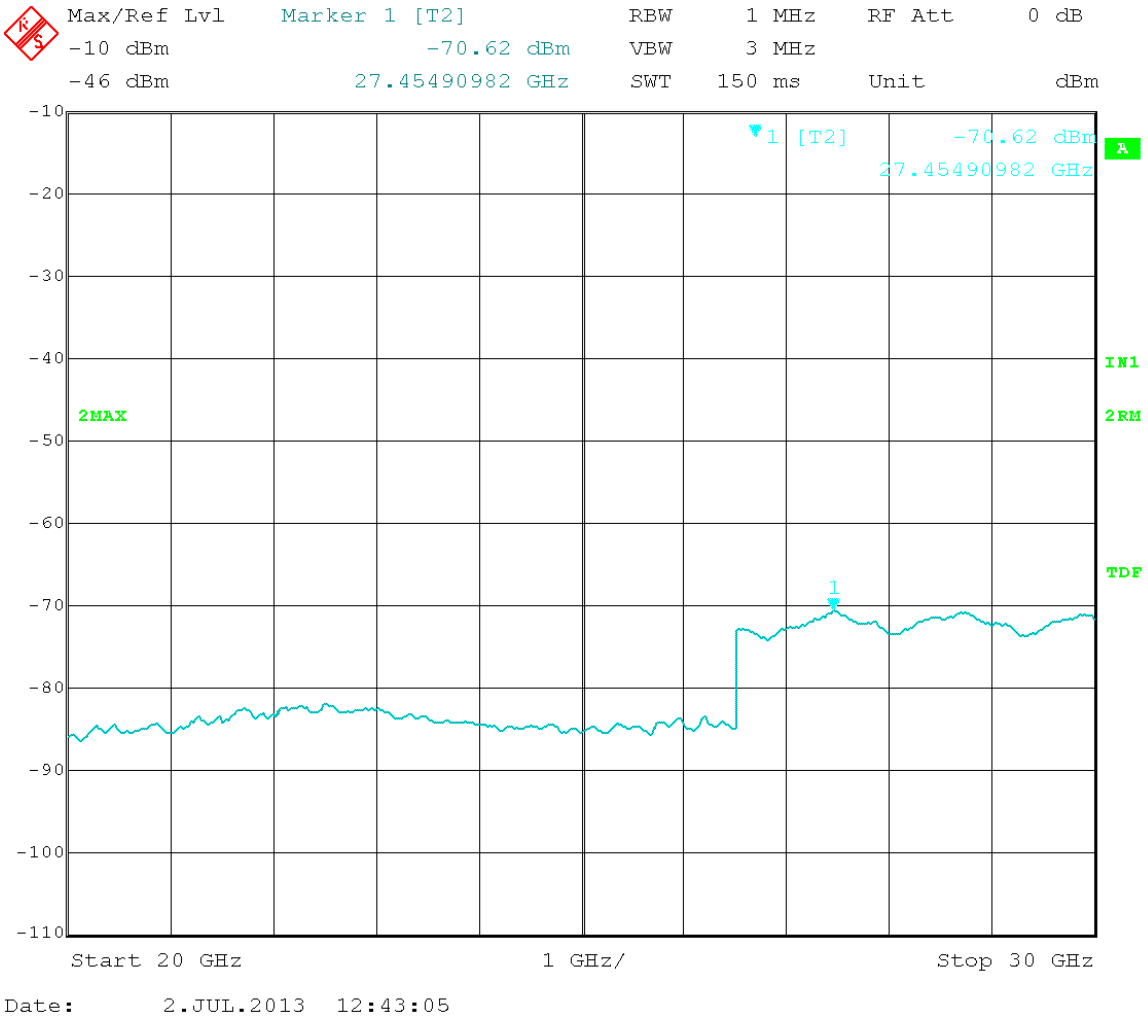

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



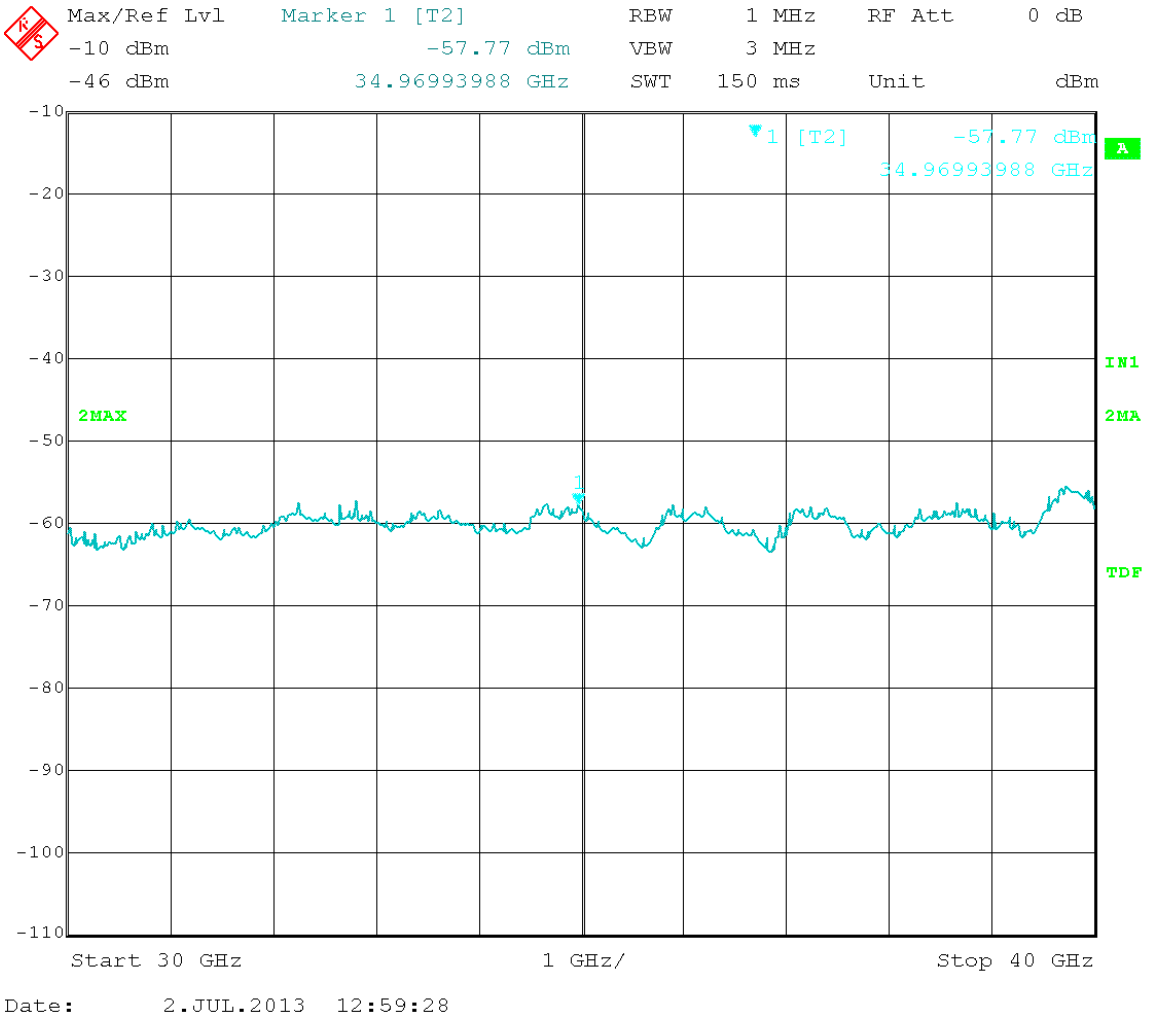

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



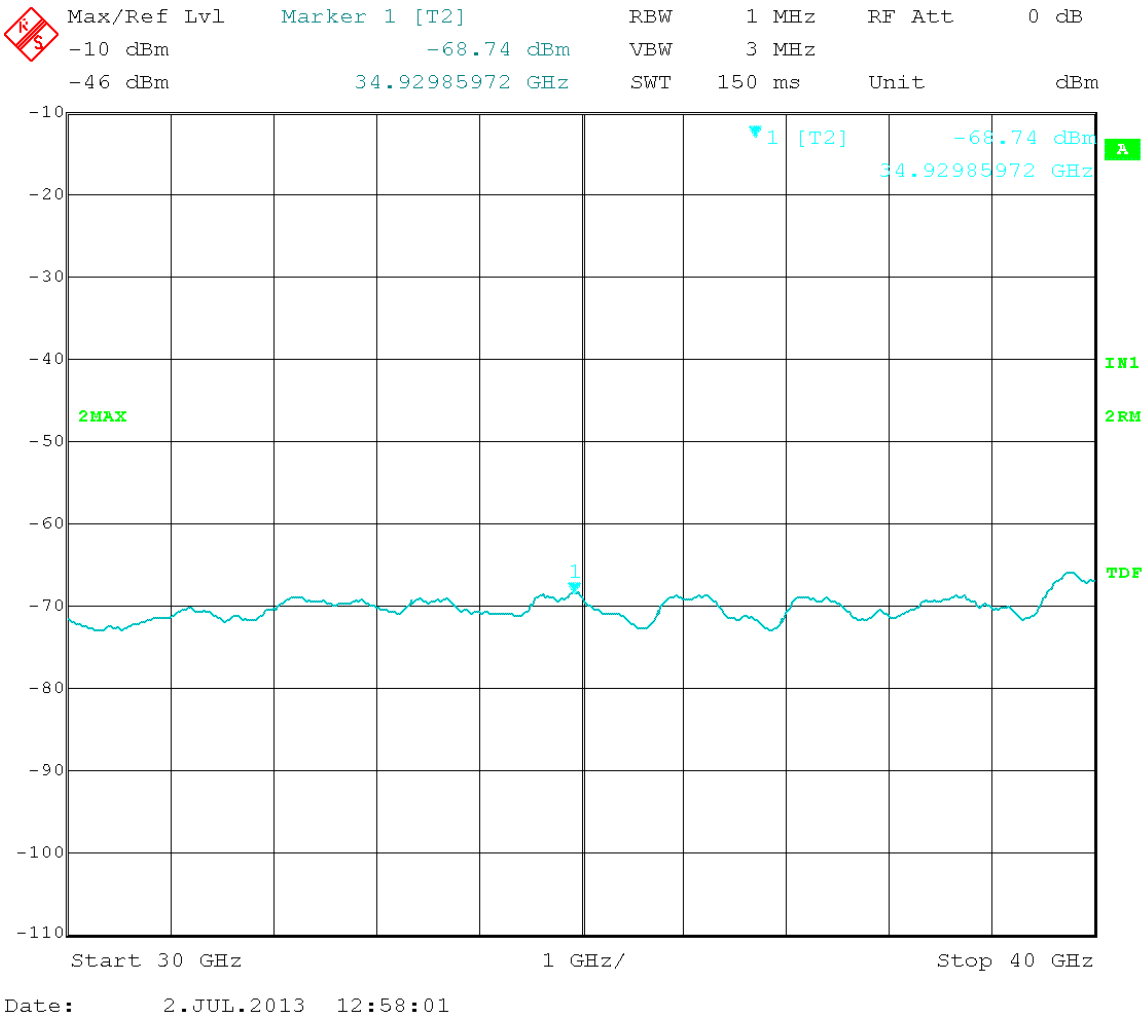

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



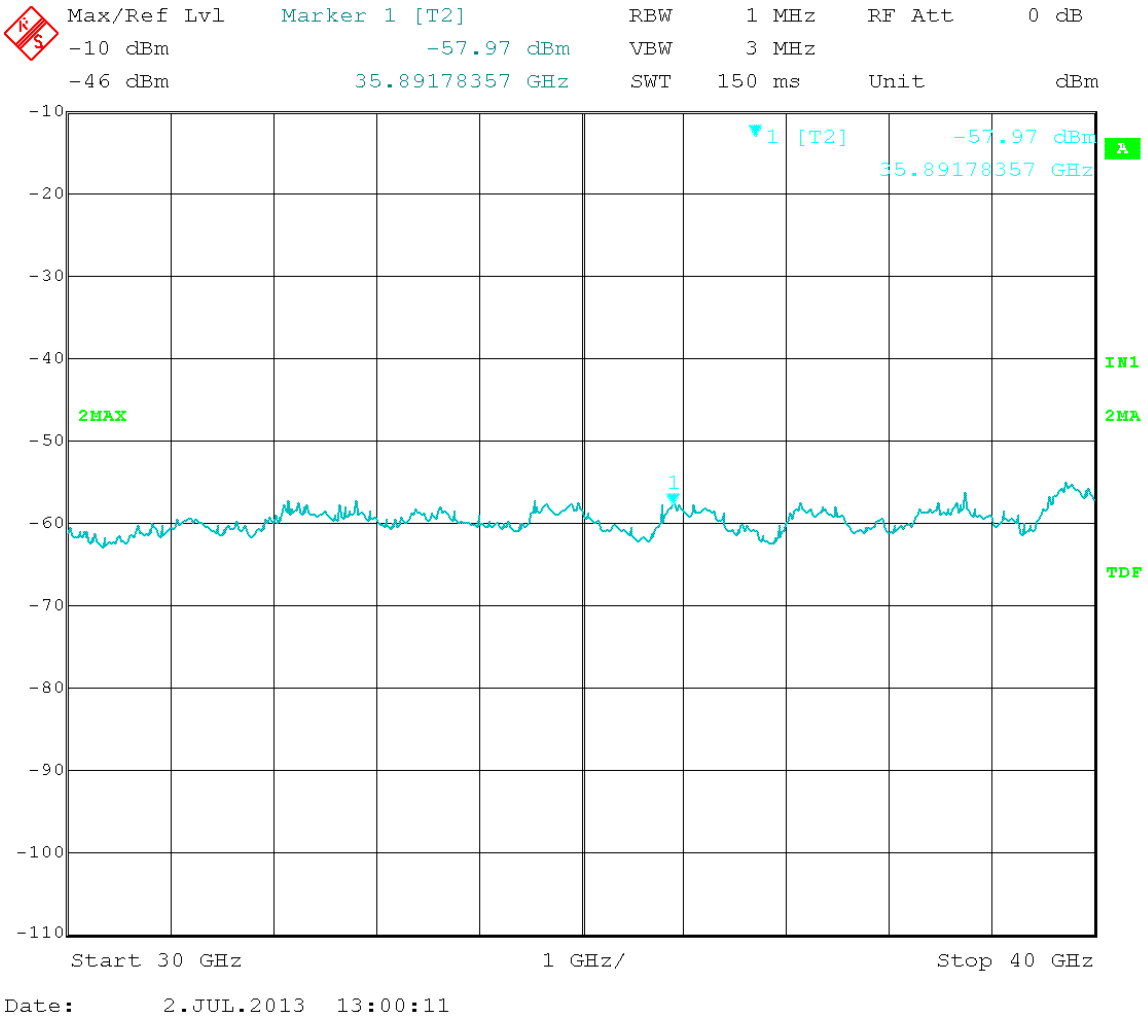

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



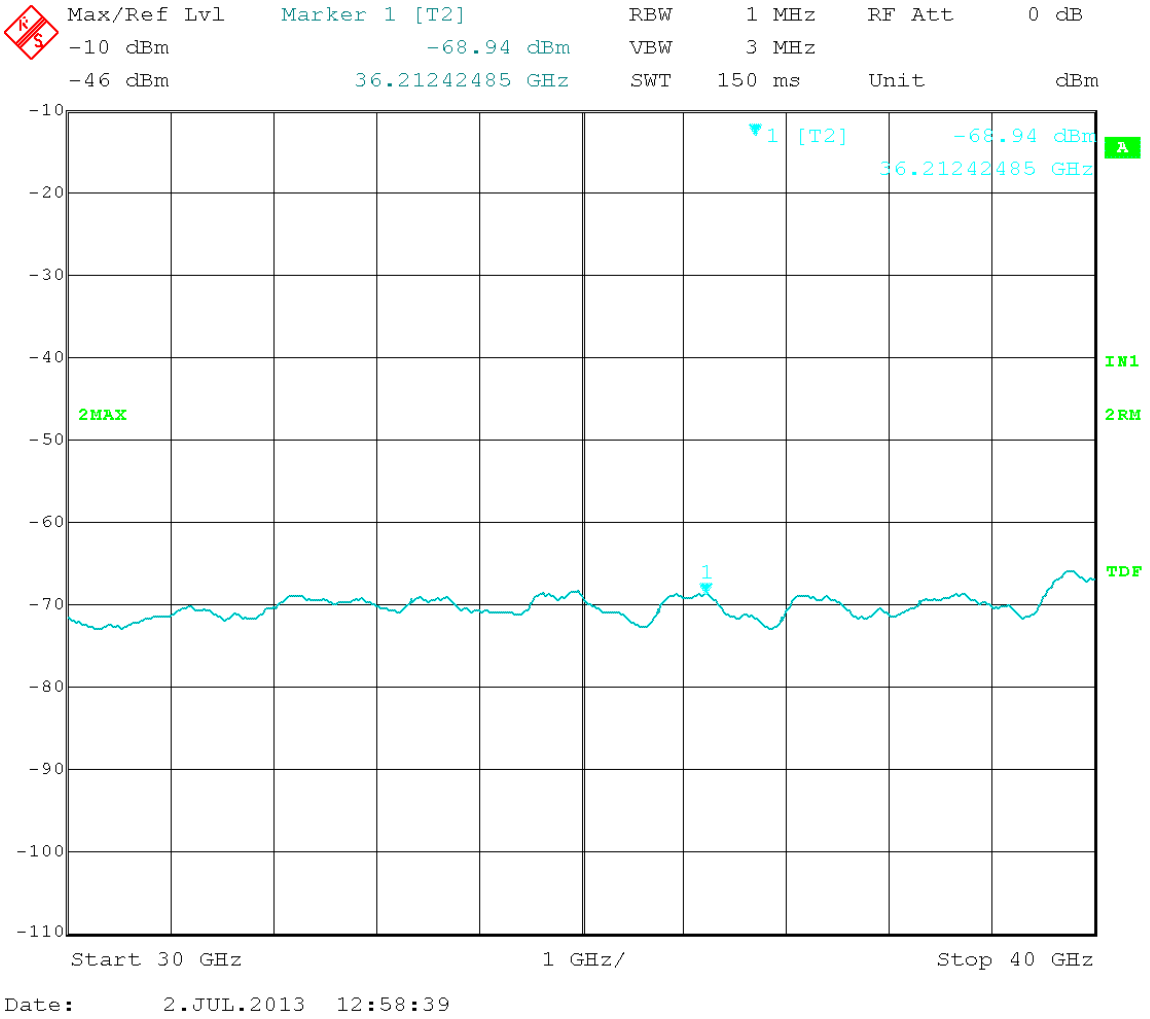

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.775 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



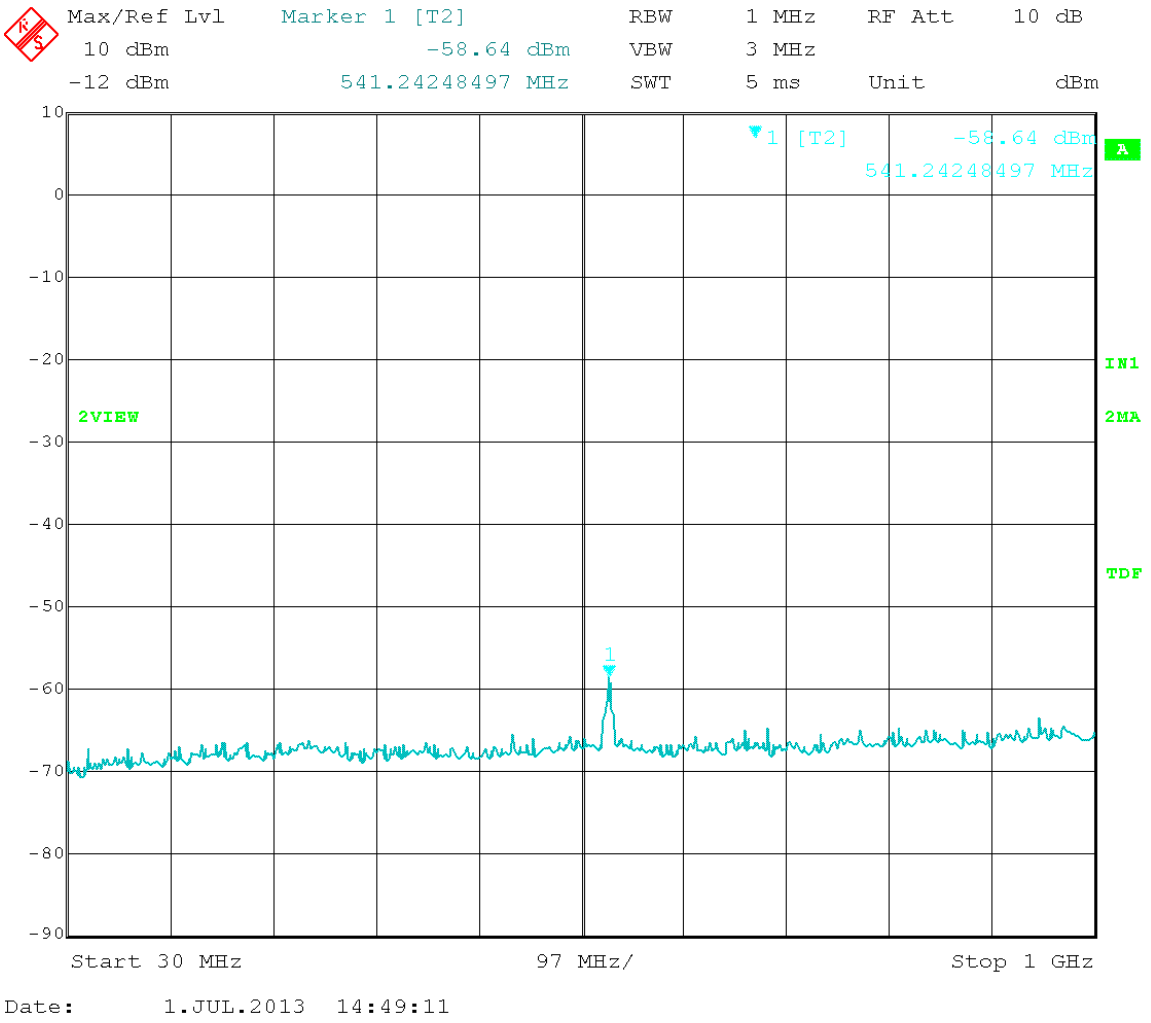

Marker 1: Greater than 20dB below limit

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



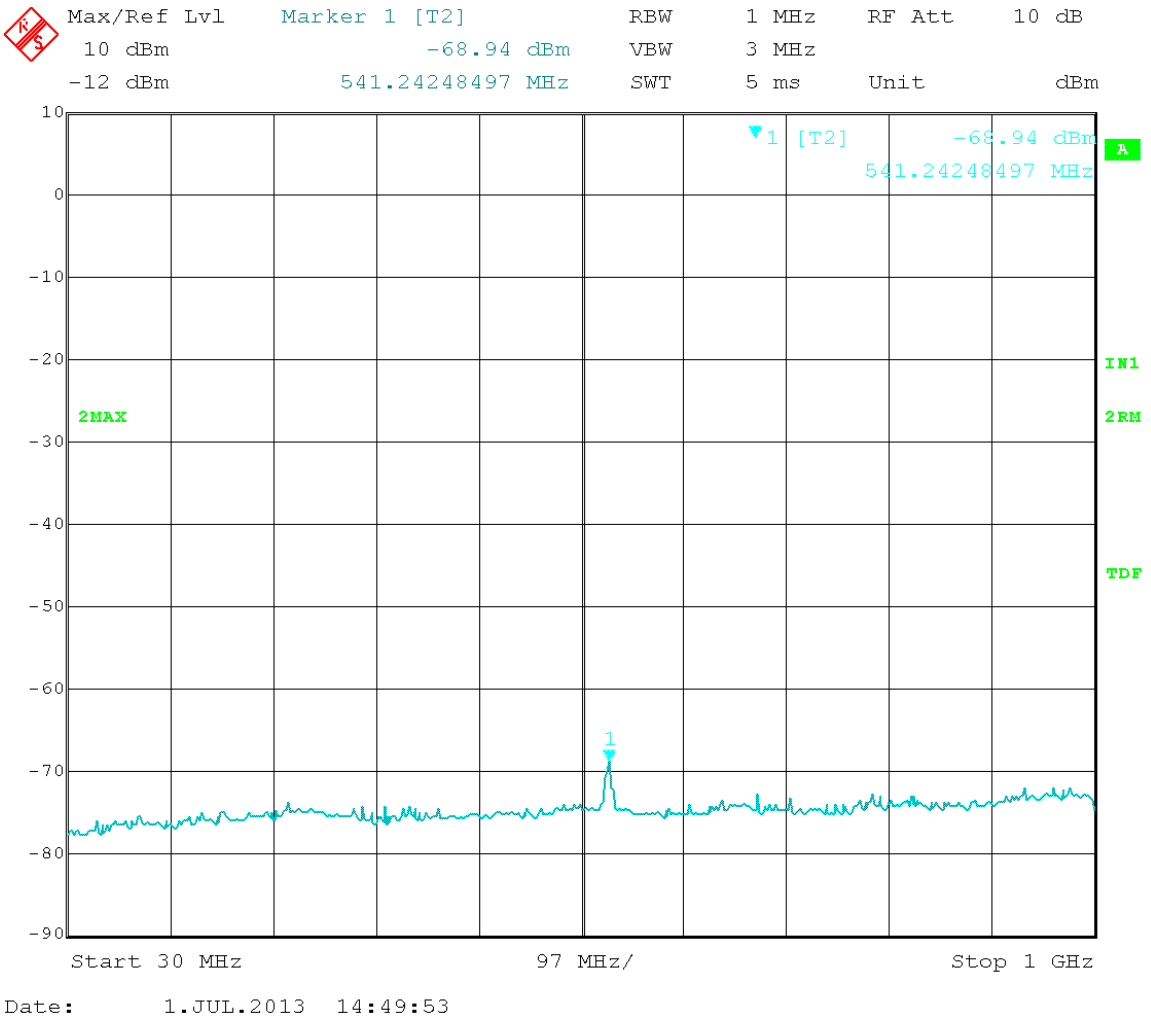

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



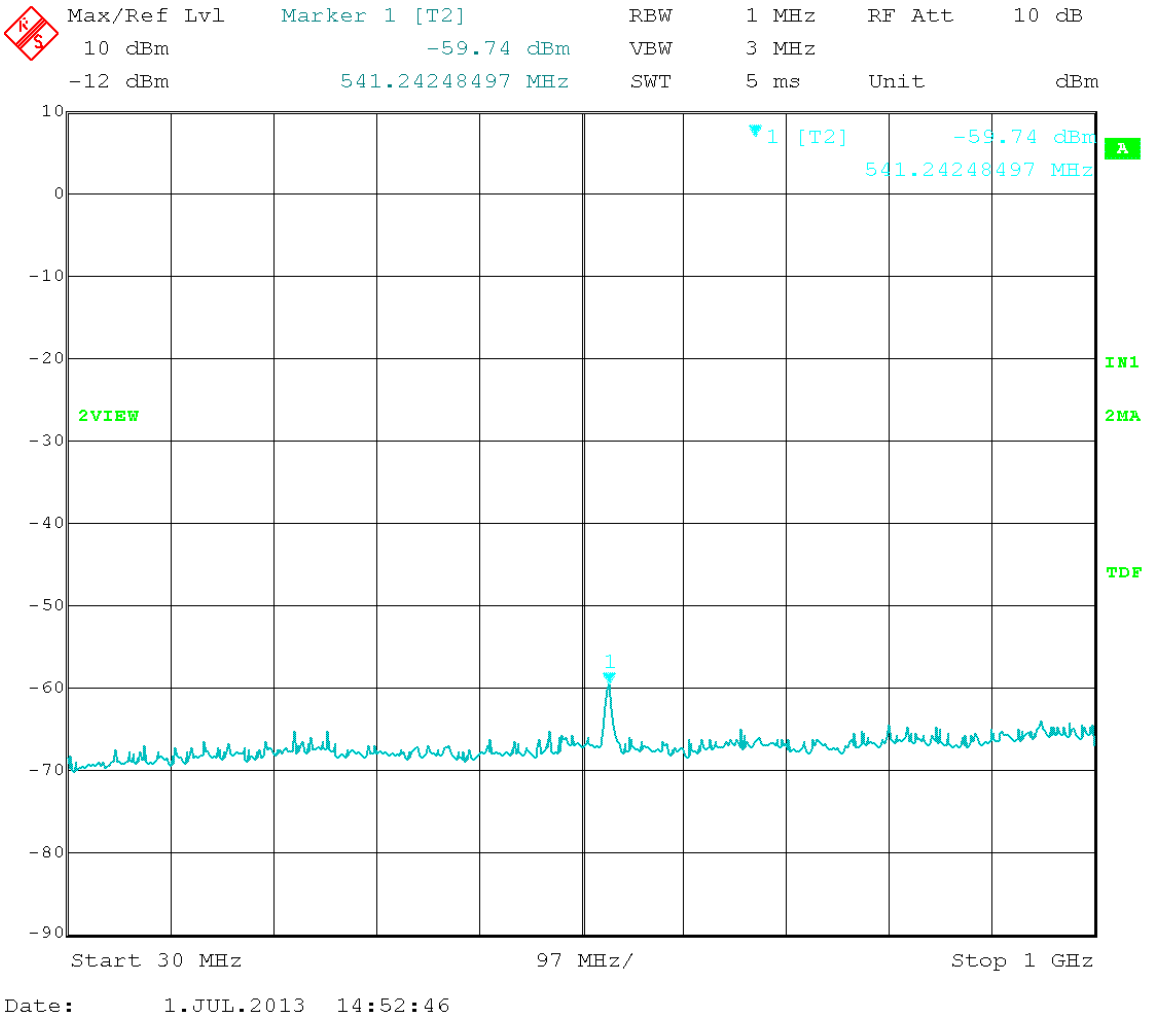

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



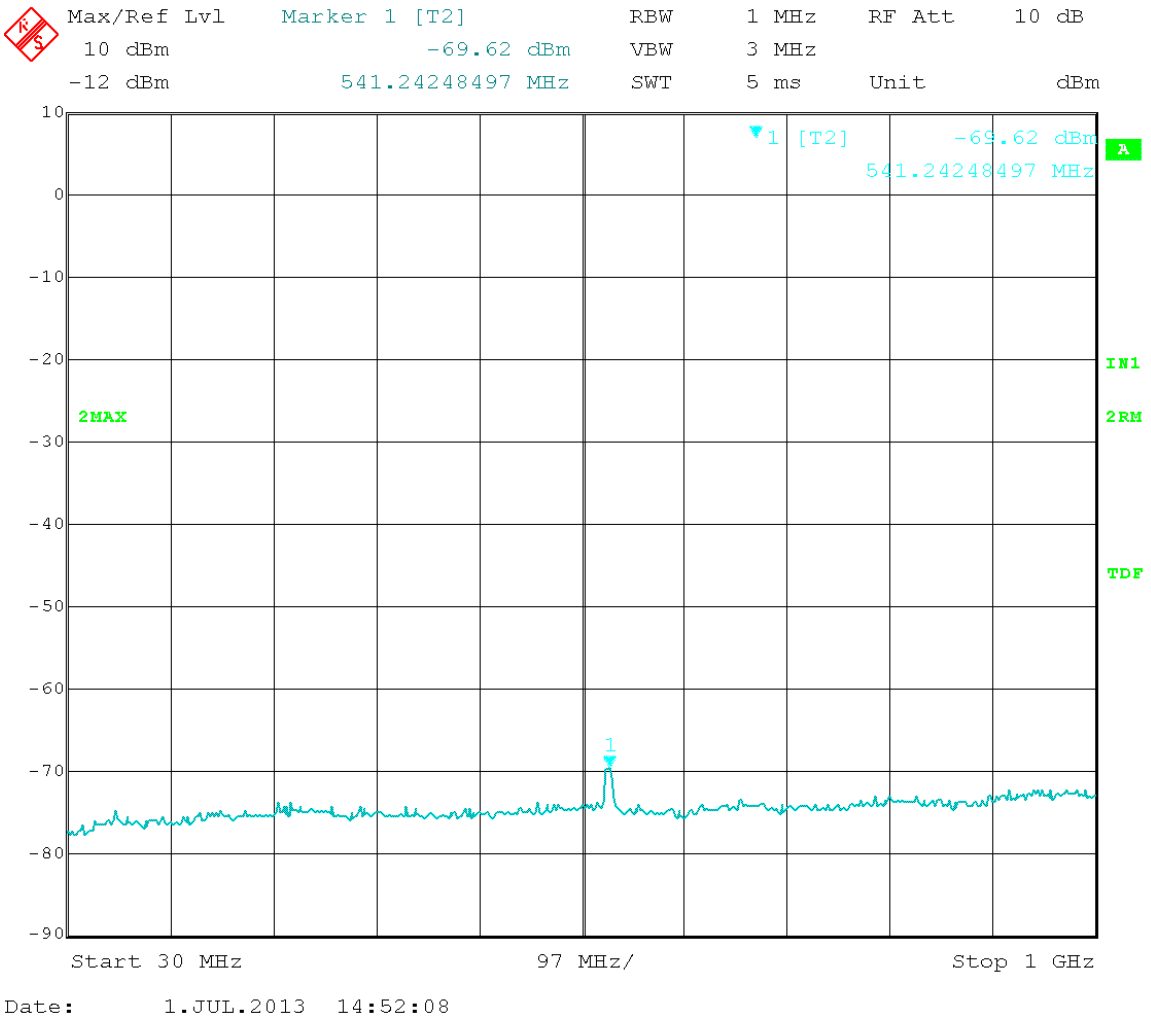

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



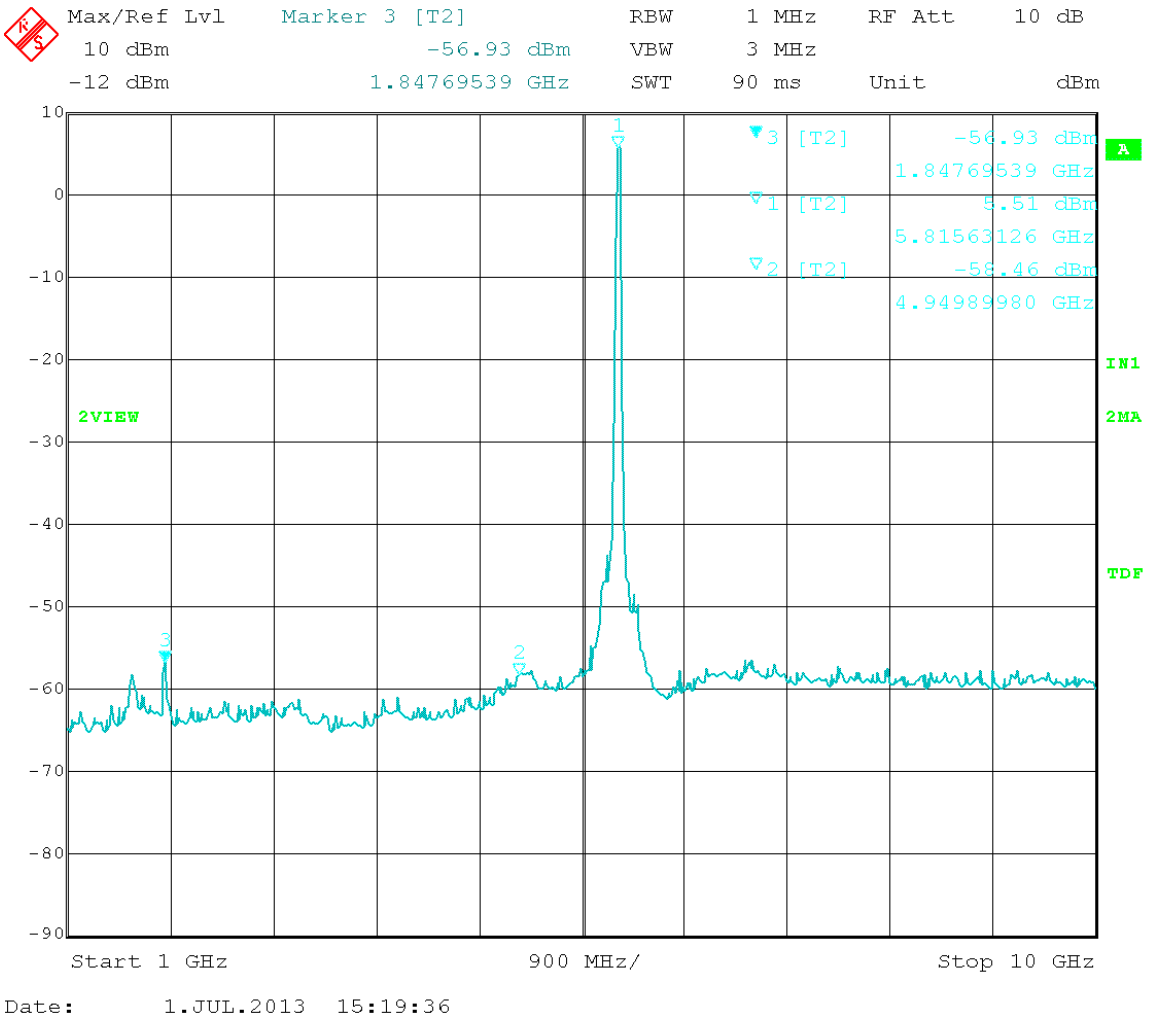

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



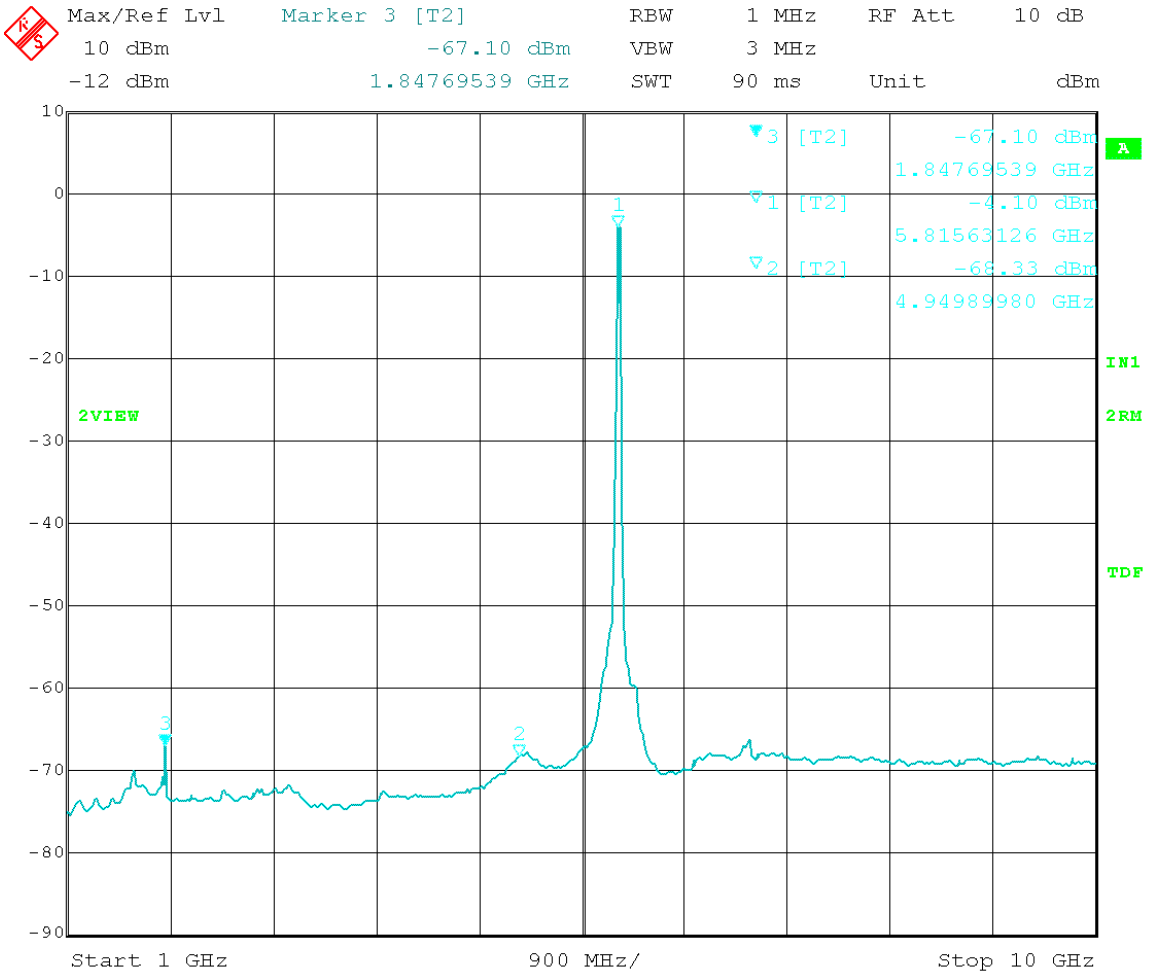

Marker 2: Calculated Field Strength (Restricted Band) = -58.46 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 55.77dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -56.93 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.3dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz




Marker 2: Calculated Field Strength (Restricted Band) = -68.33+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.9dBµV/m Average

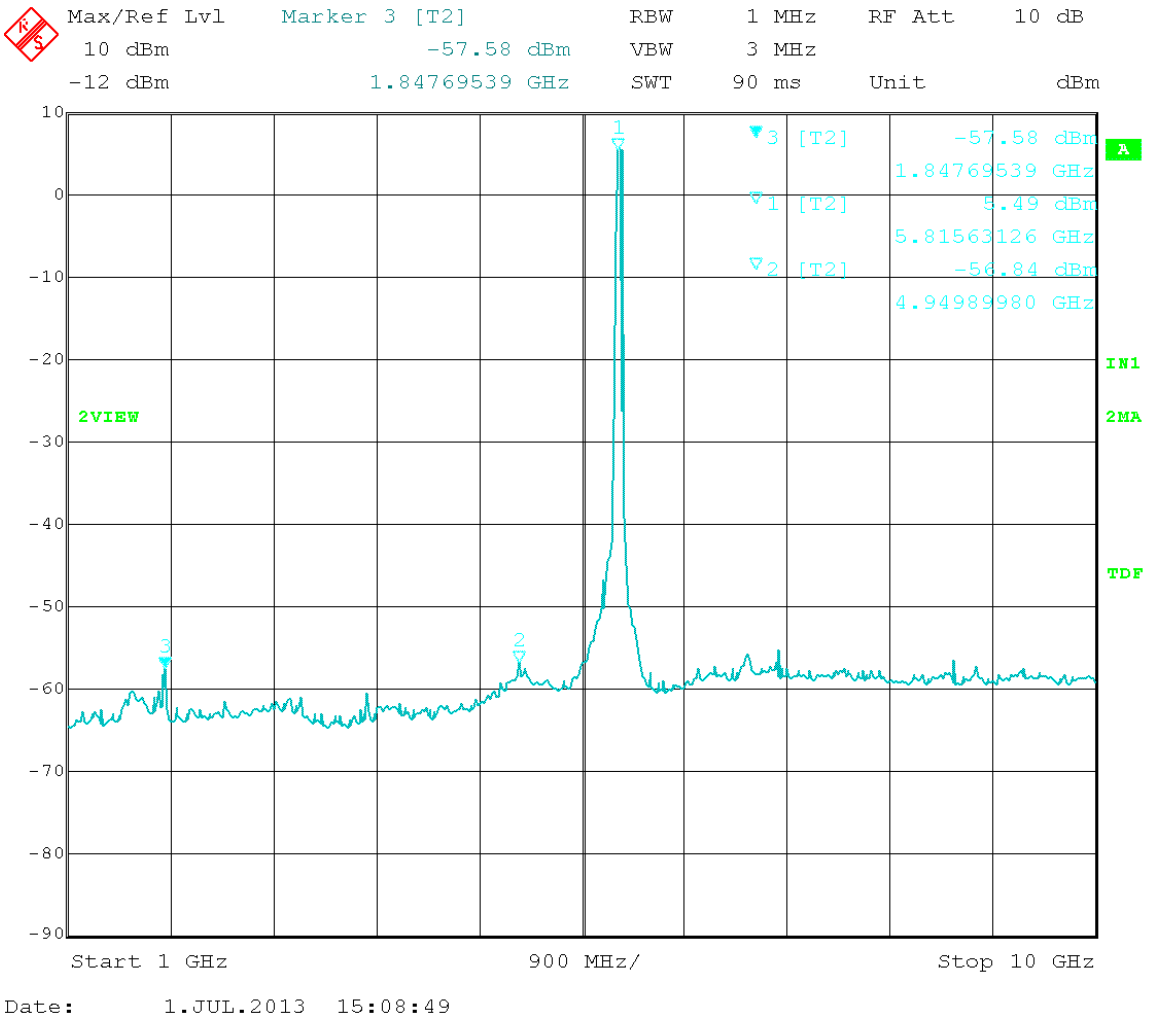
Marker 3: Calculated Field Strength (Restricted Band) = -67.10 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.13dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



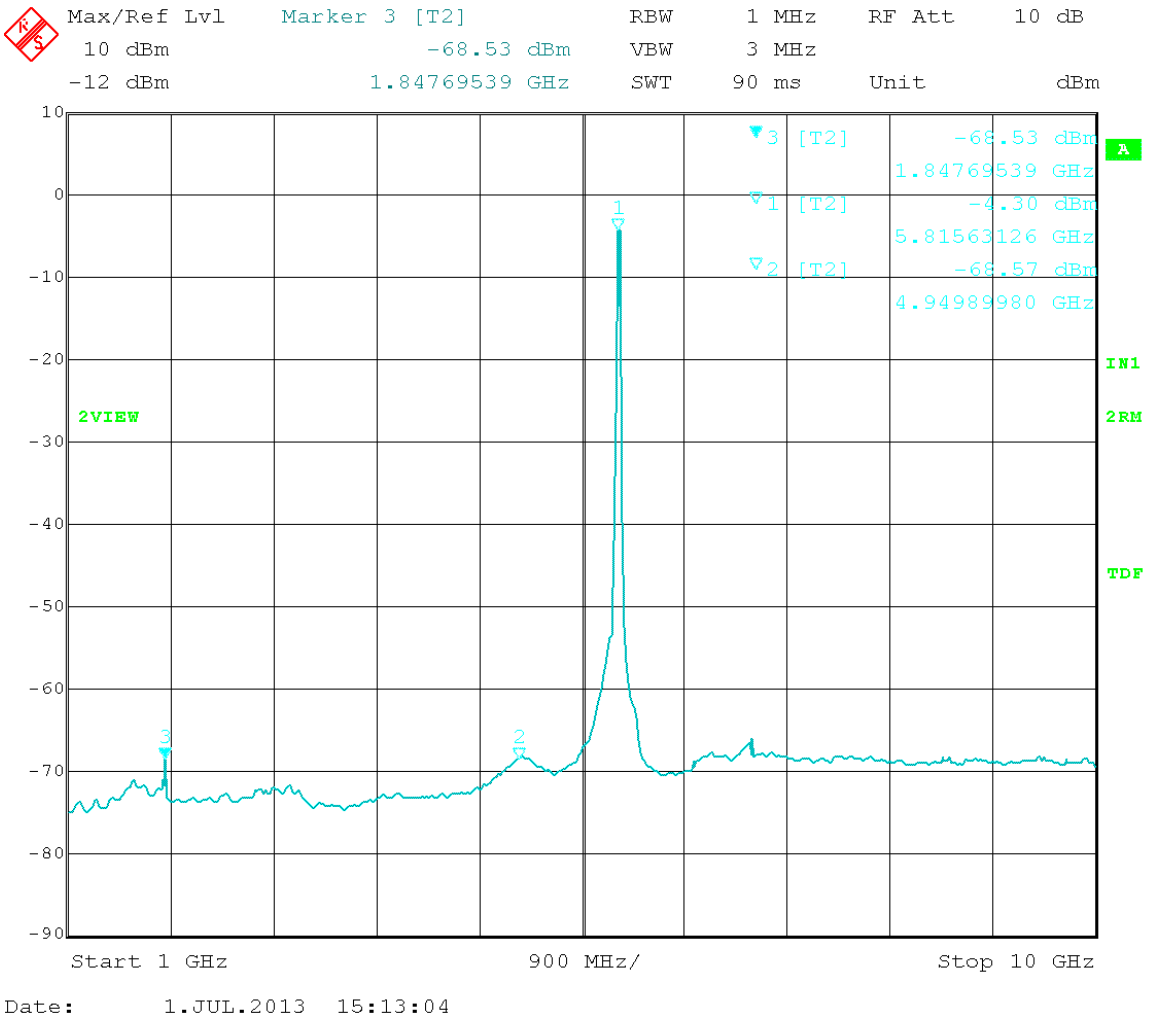

Marker 2: Calculated Field Strength (Restricted Band) = -56.84 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.39dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -57.58 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 56.65dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 20 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



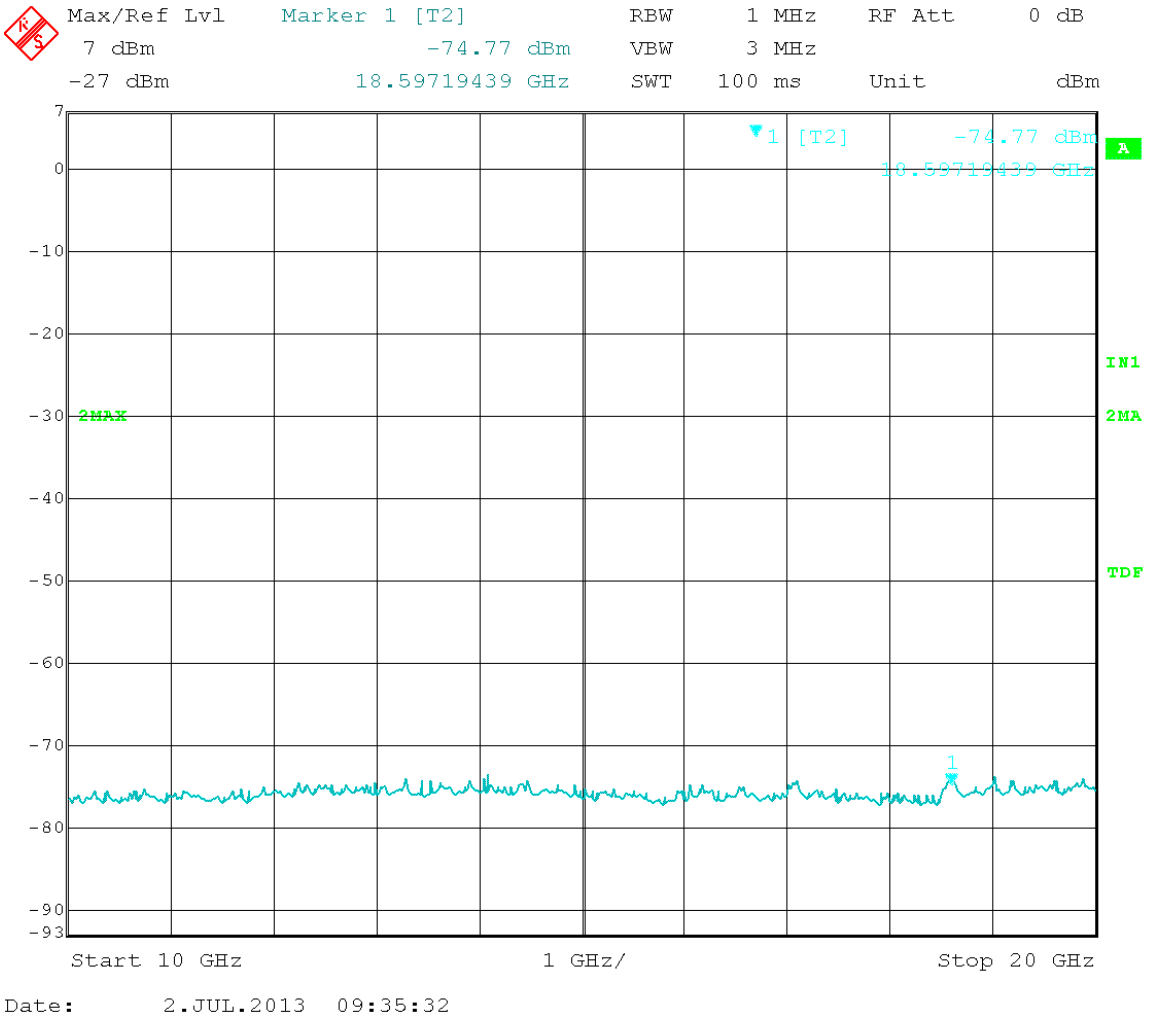

Marker 2: Calculated Field Strength (Restricted Band) = -68.57 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.66dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -68.53 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.62dBµV/m Average

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



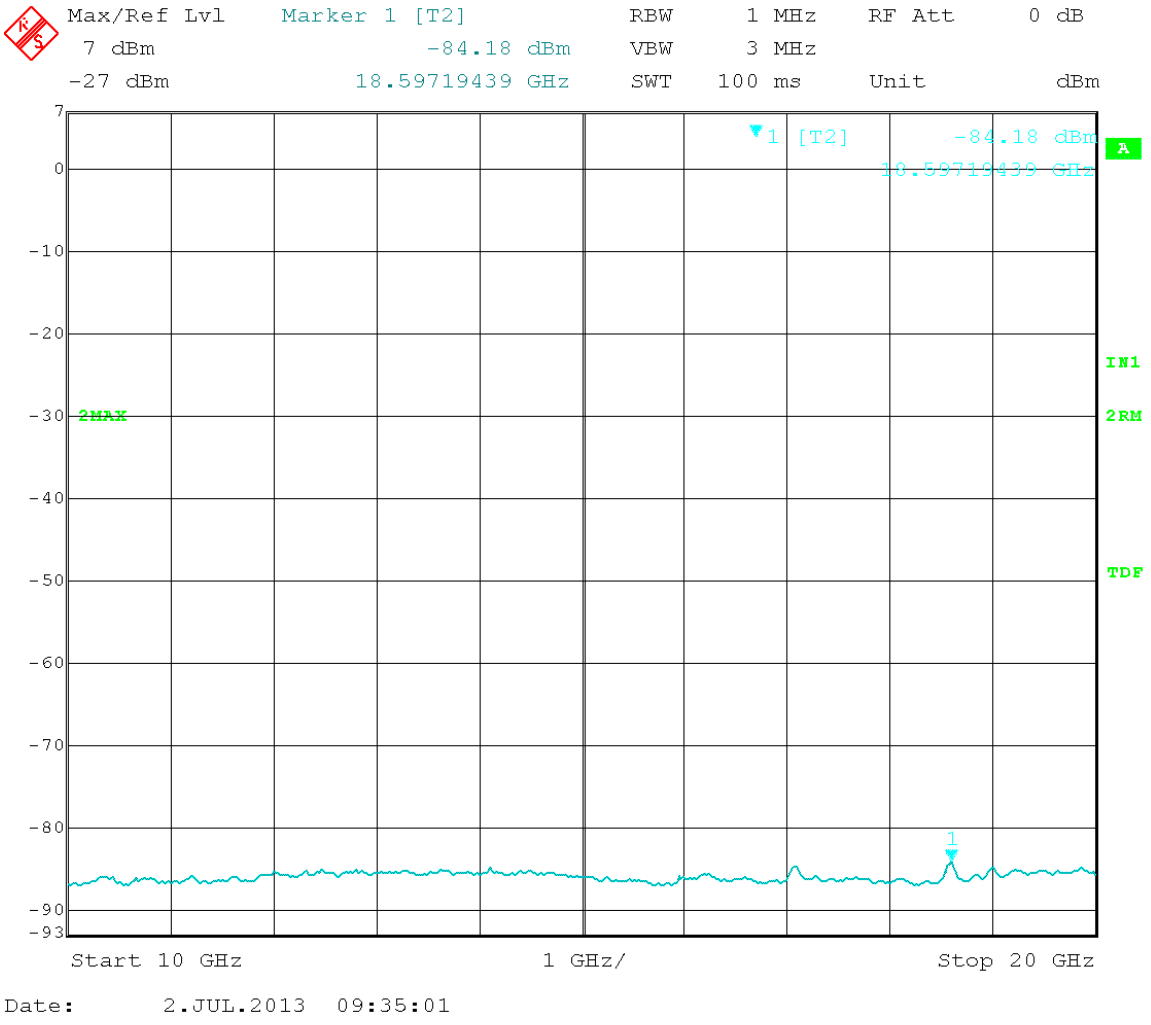

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



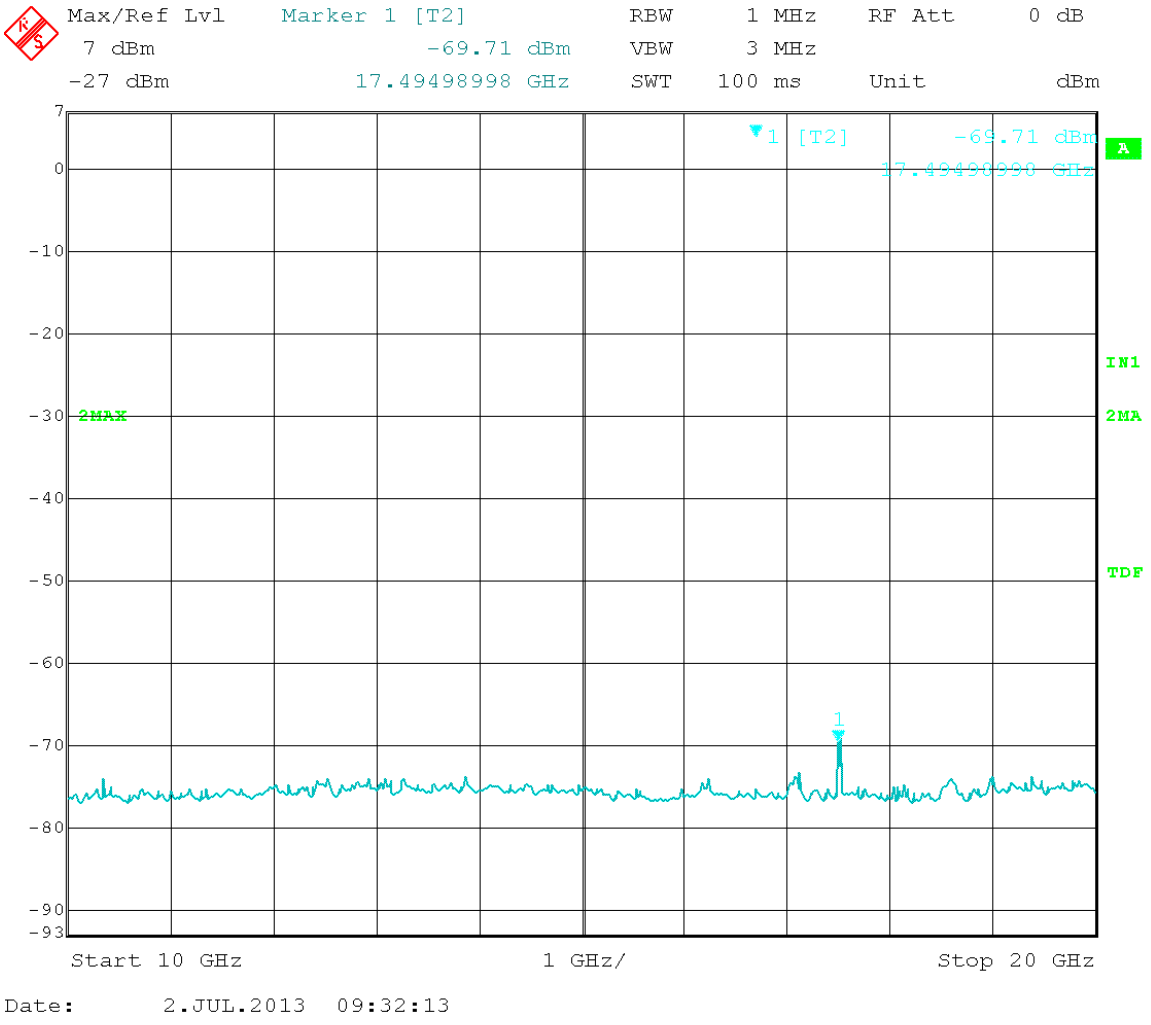

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



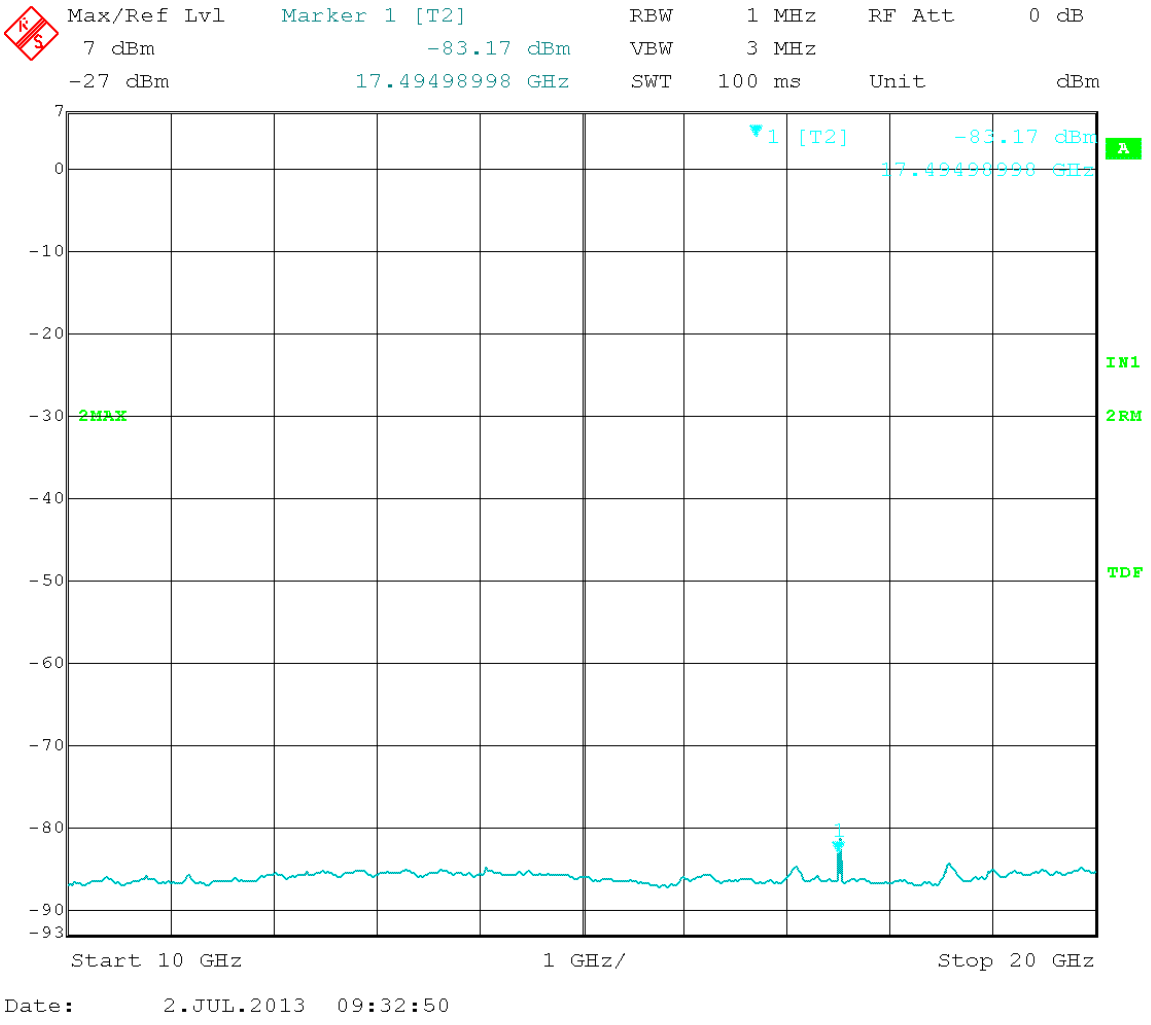

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



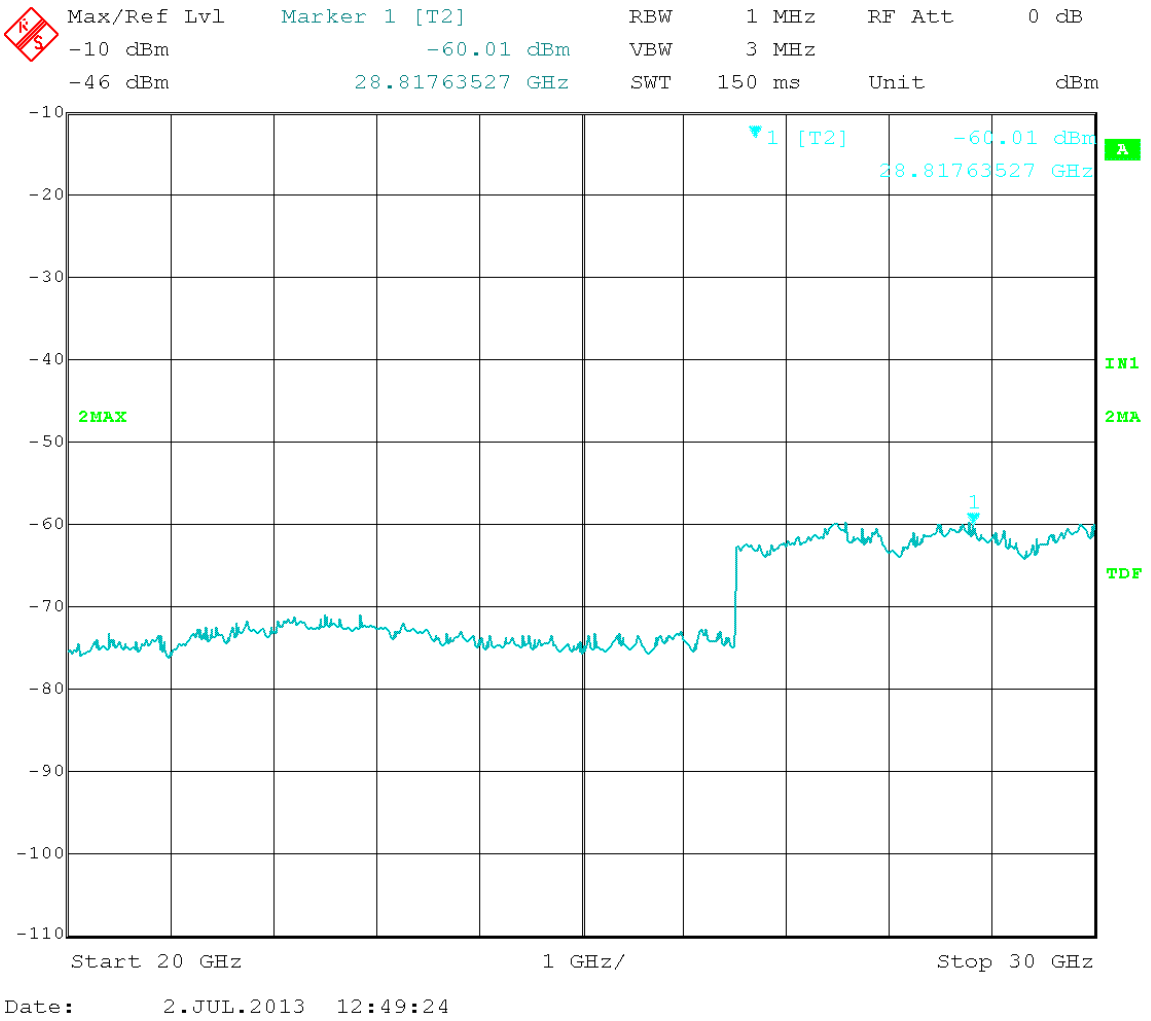

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



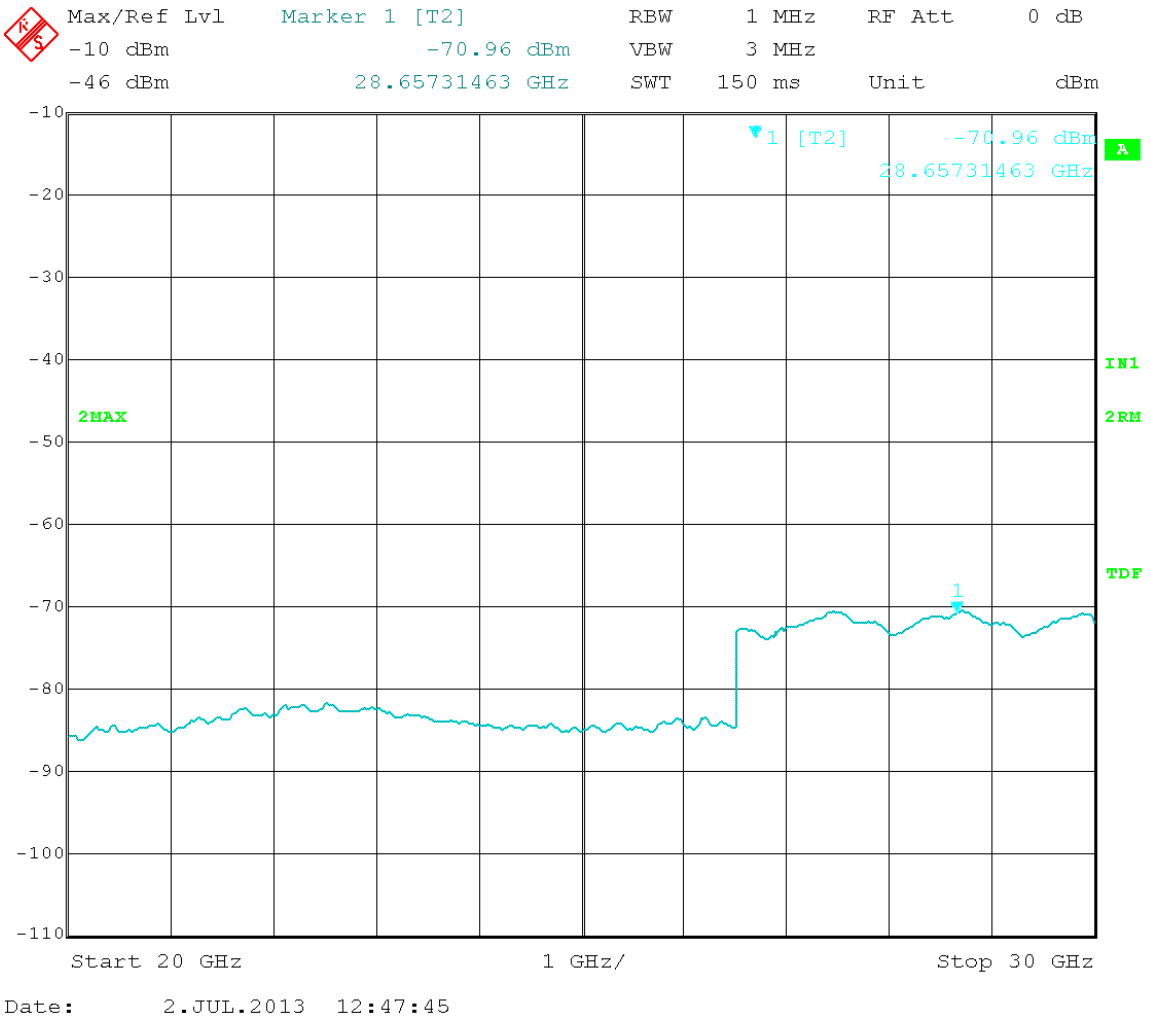

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



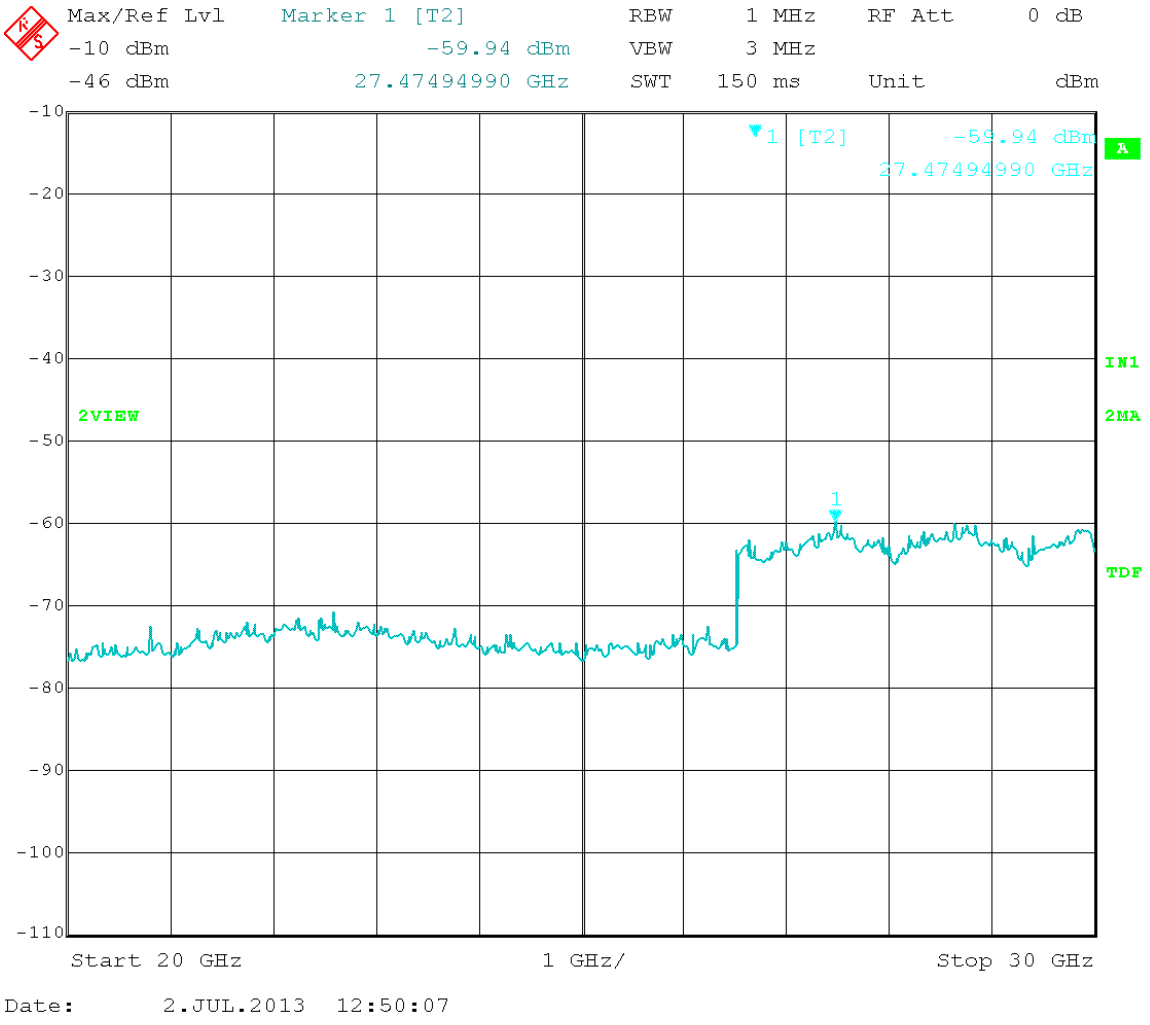

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



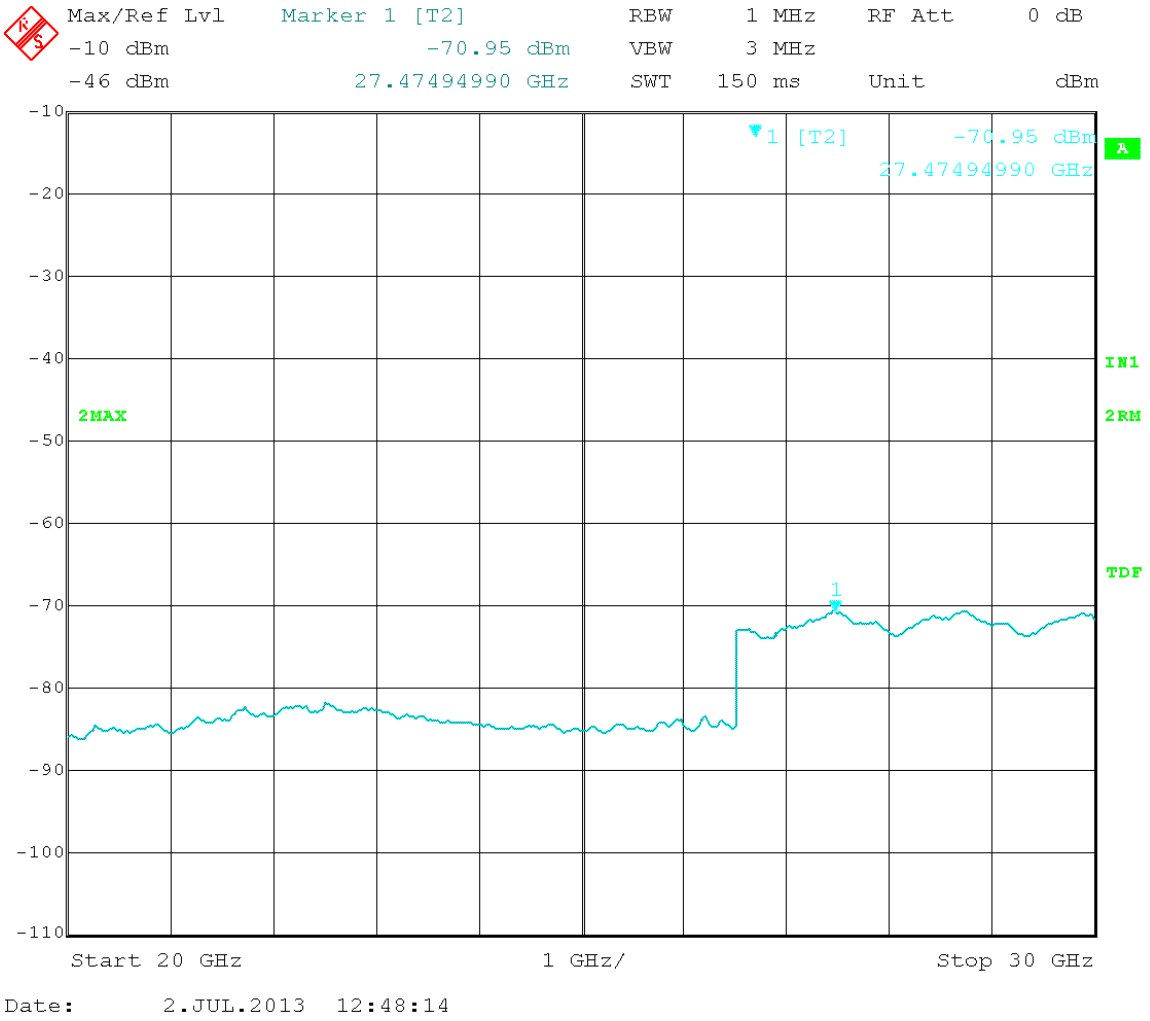

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



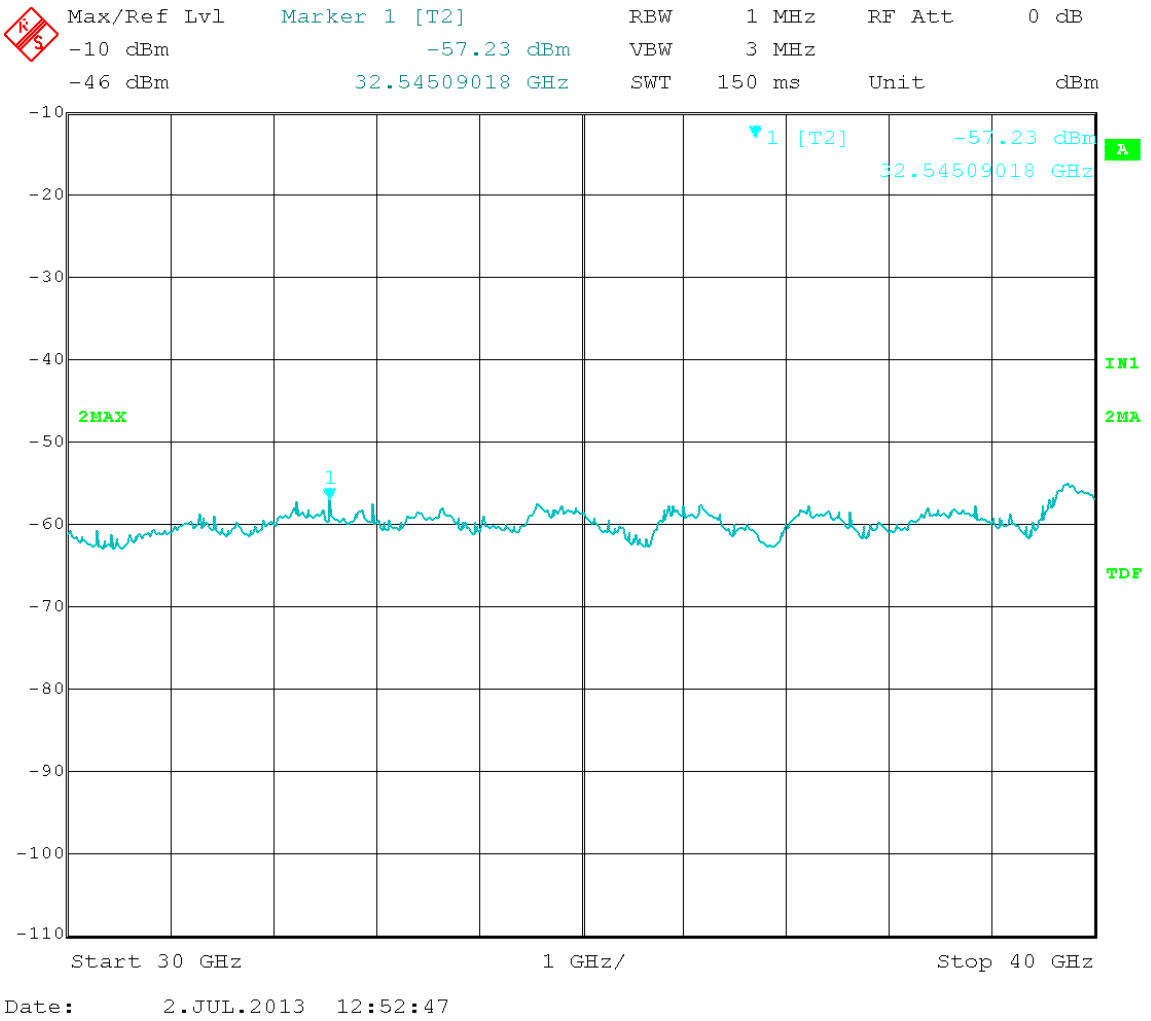

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



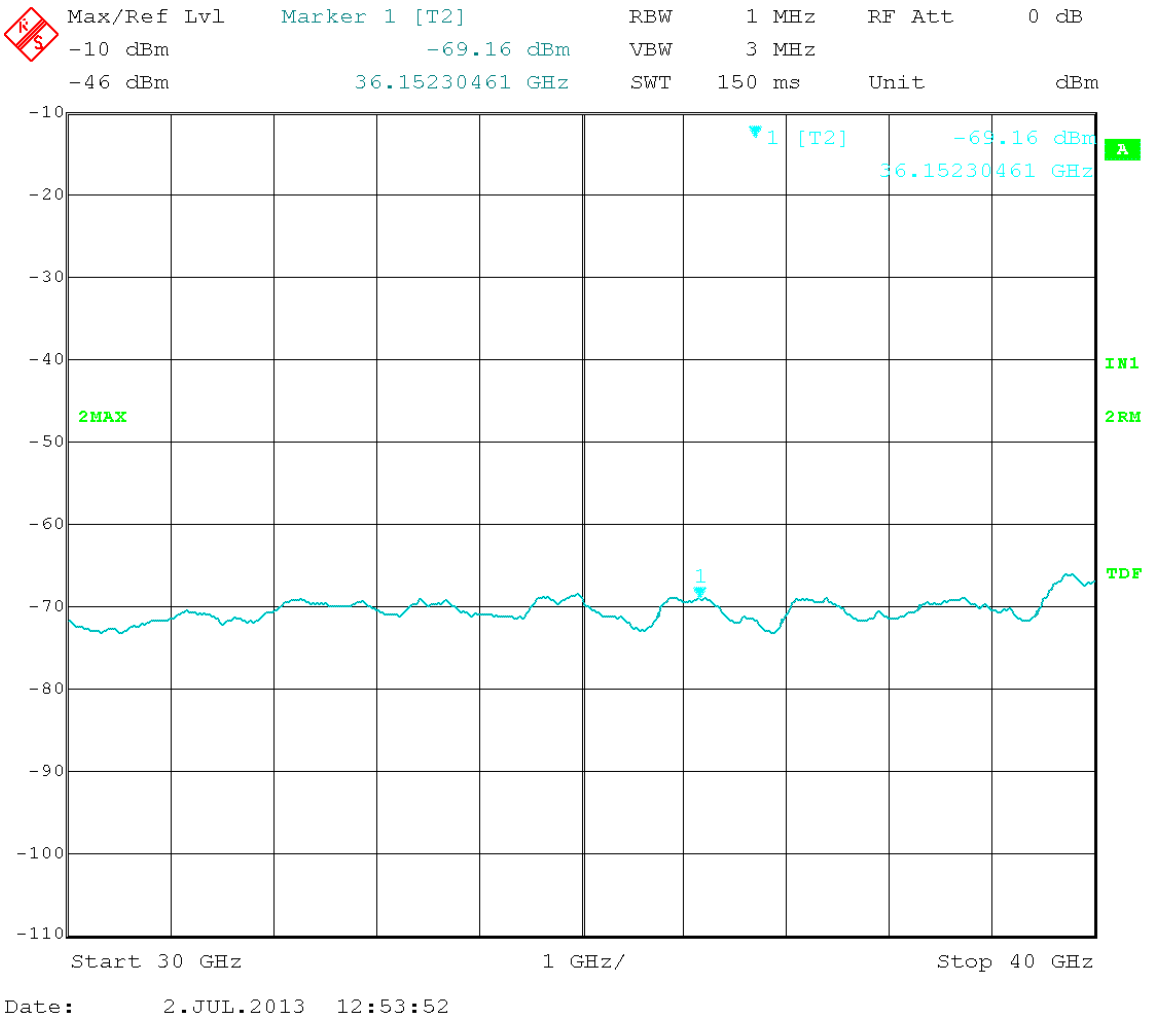

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



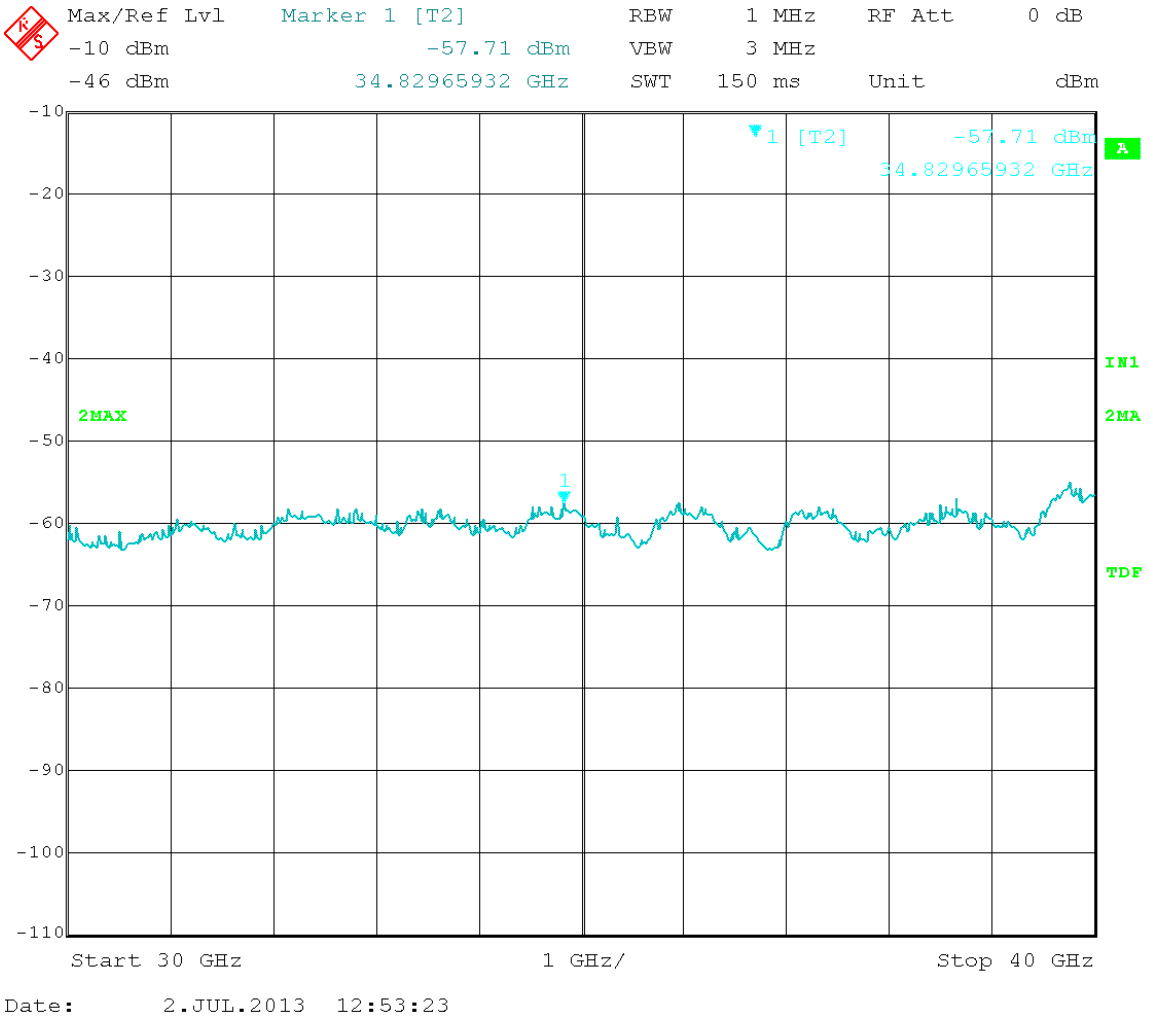

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



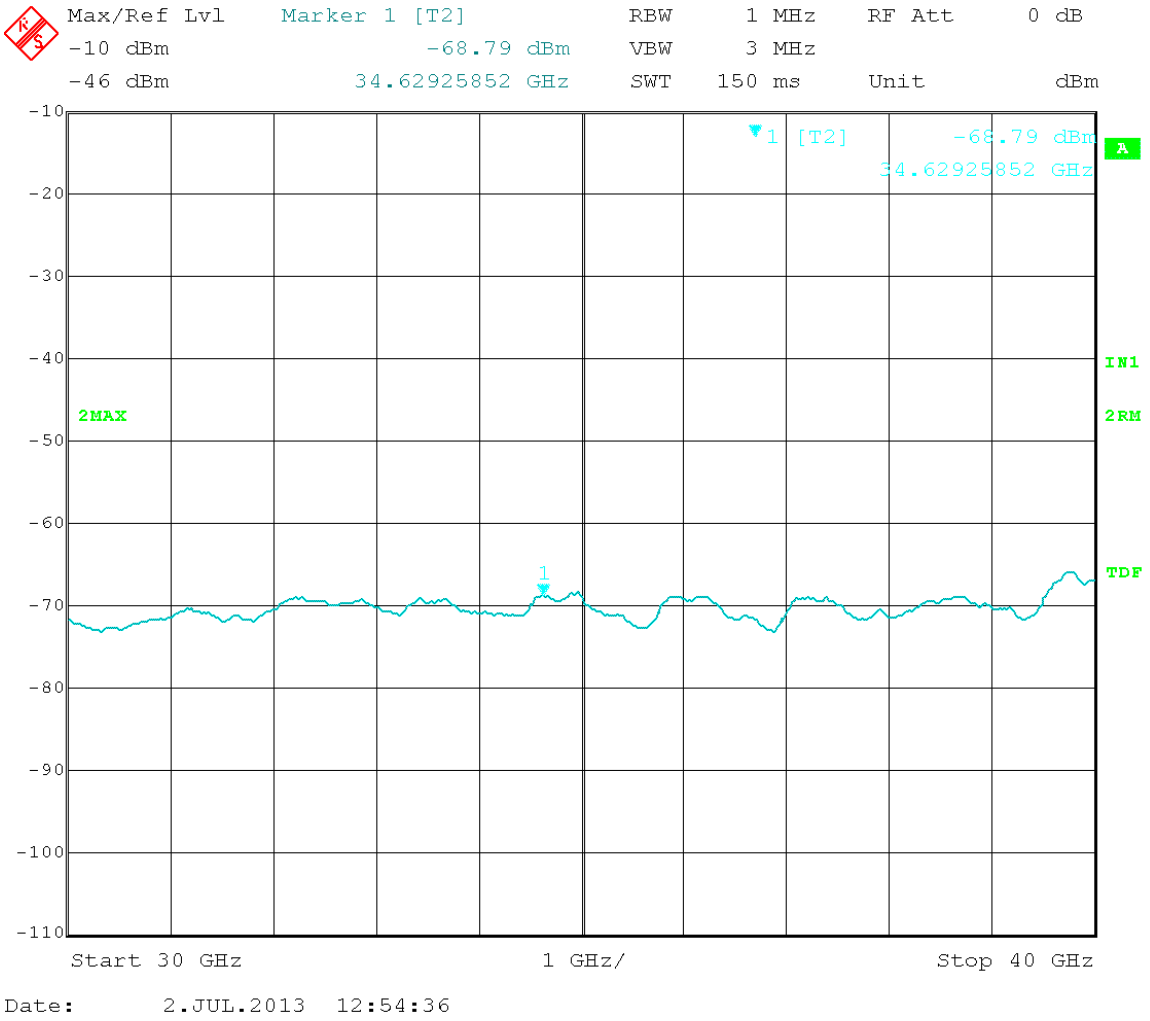

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 20 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.835 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



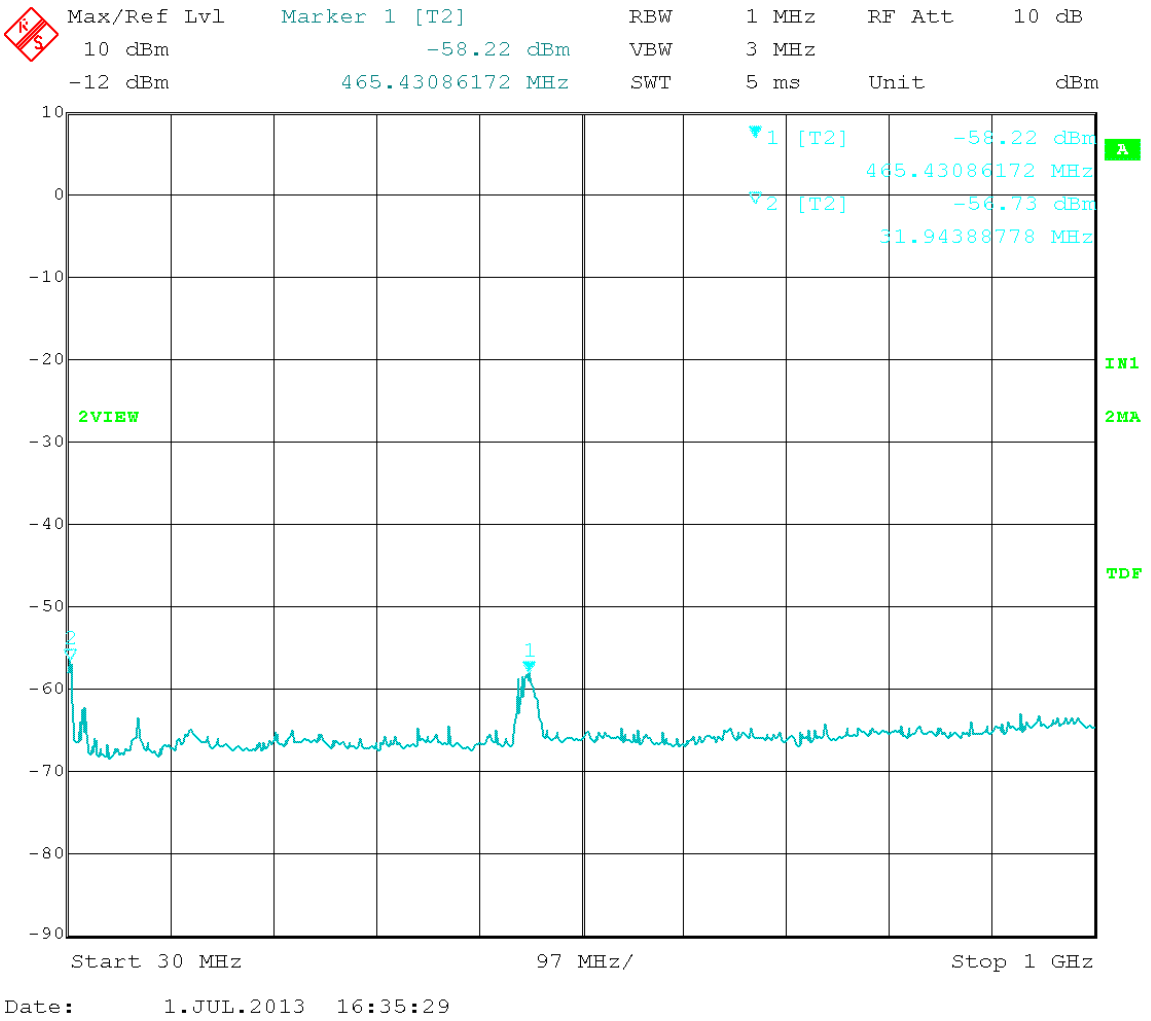

Marker 1: Greater than 20dB below limit

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



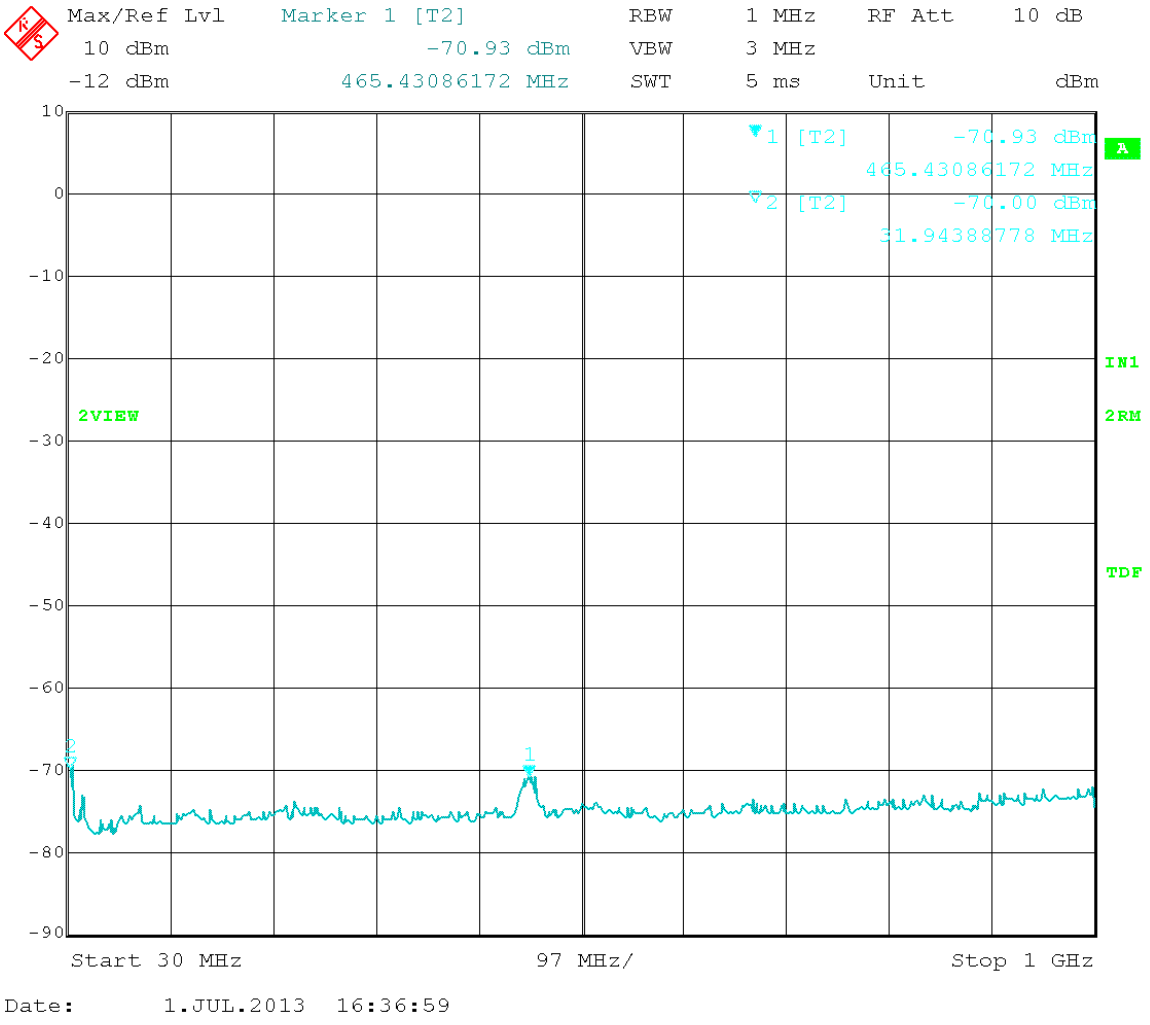

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



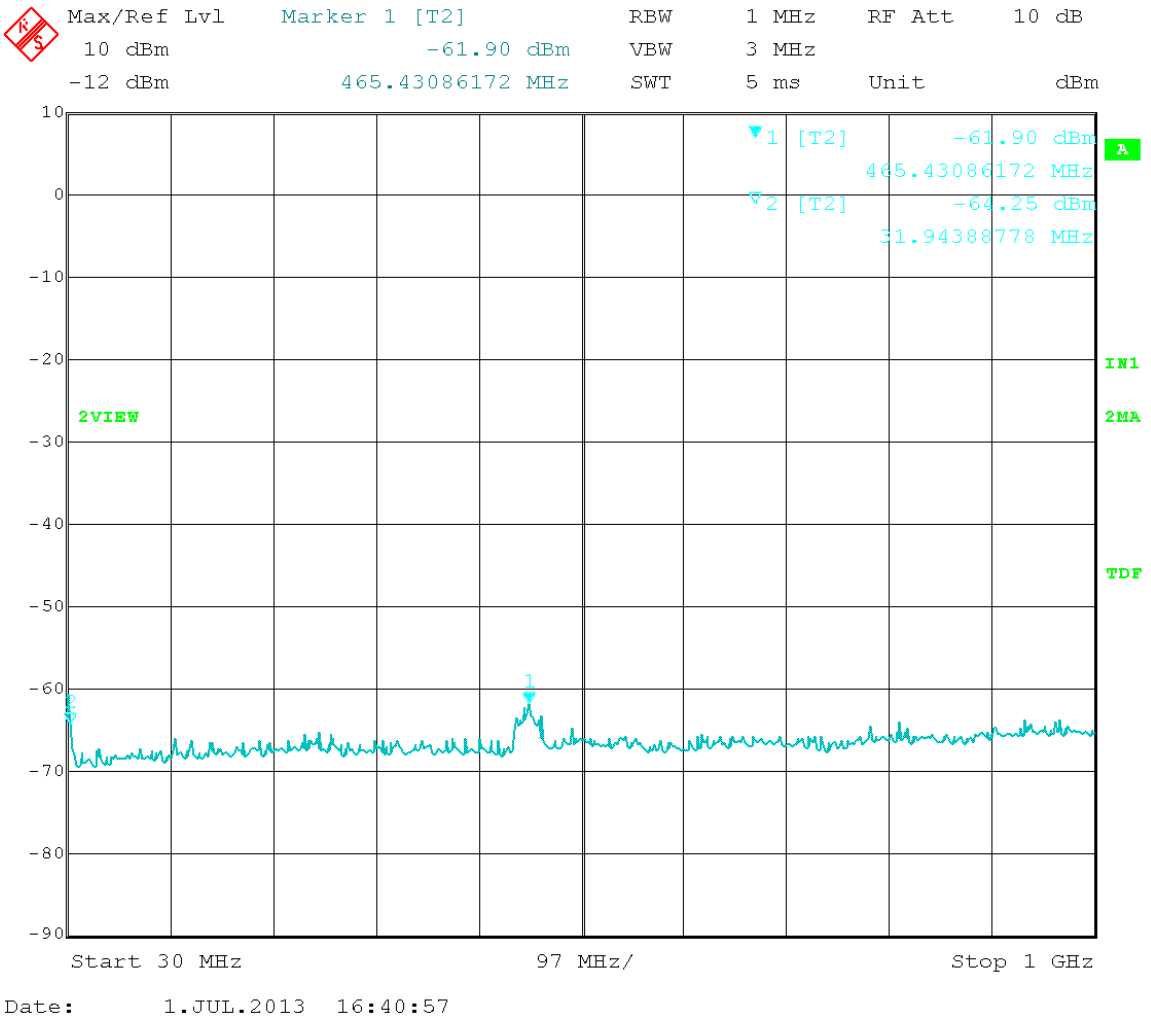

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



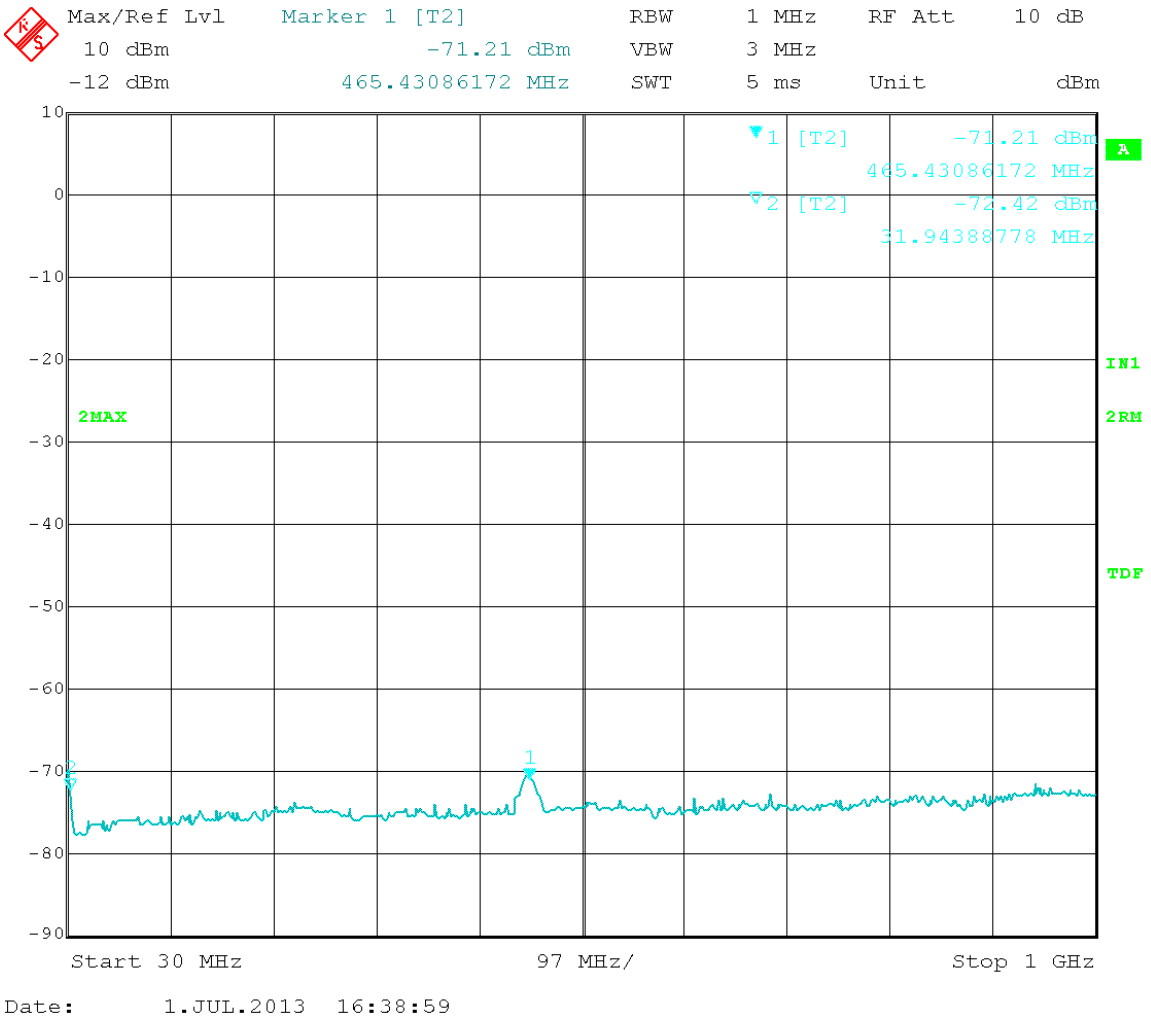

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



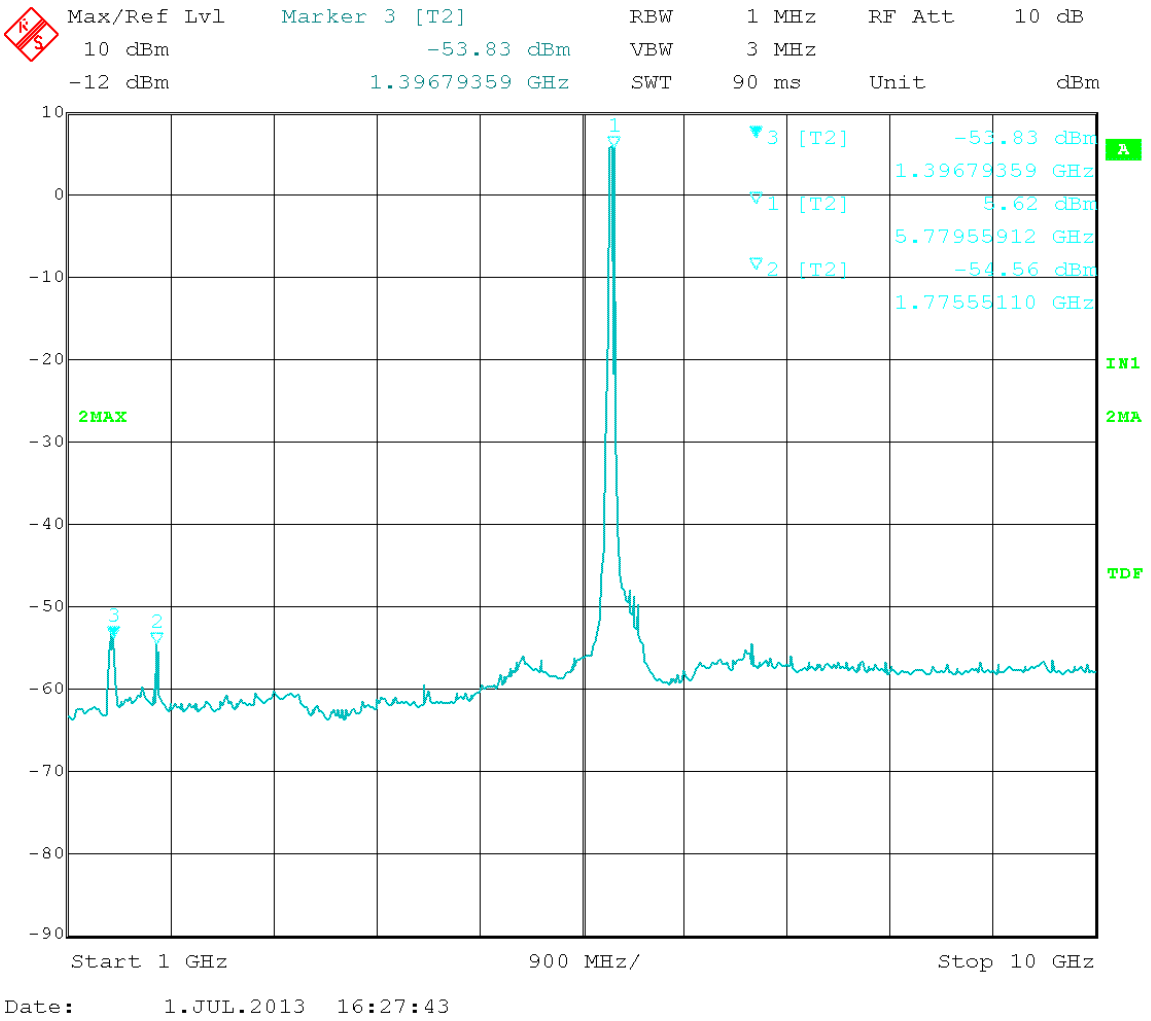

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



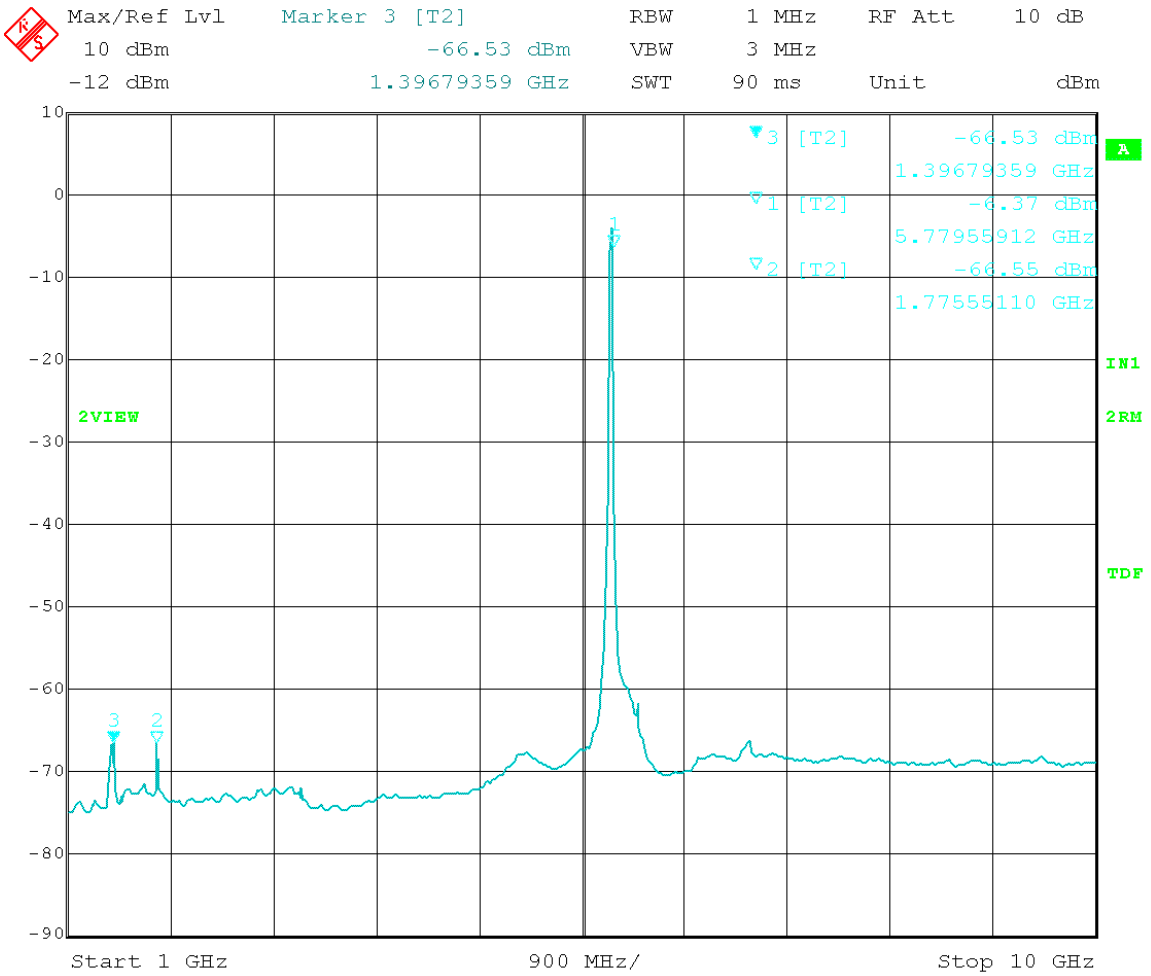

Marker 2: Calculated Field Strength (Restricted Band) = -53.83 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 60.44dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -54.56 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 59.67dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



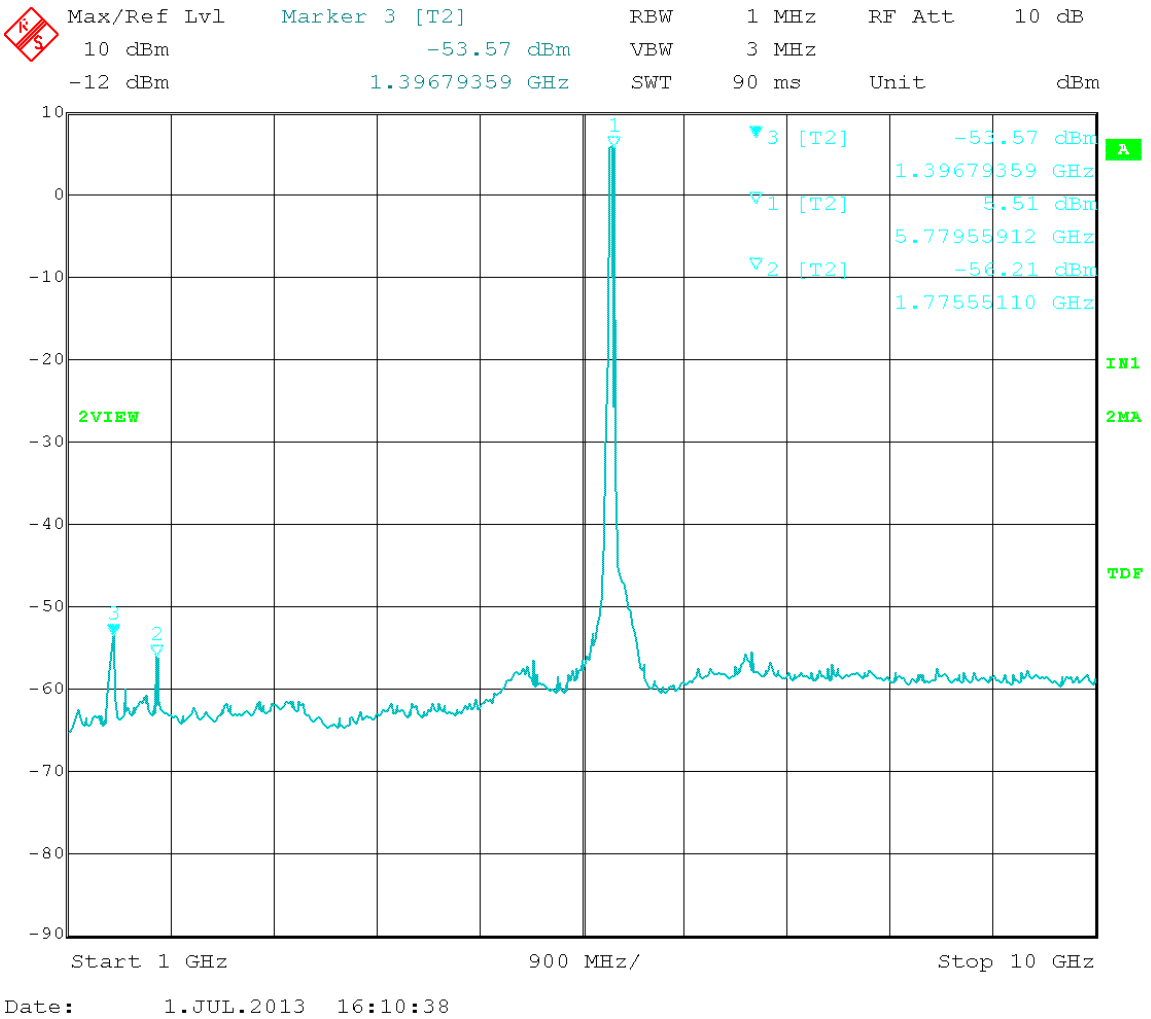

Marker 2: Calculated Field Strength (Restricted Band) = -66.53+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.7dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -66.55 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.9dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



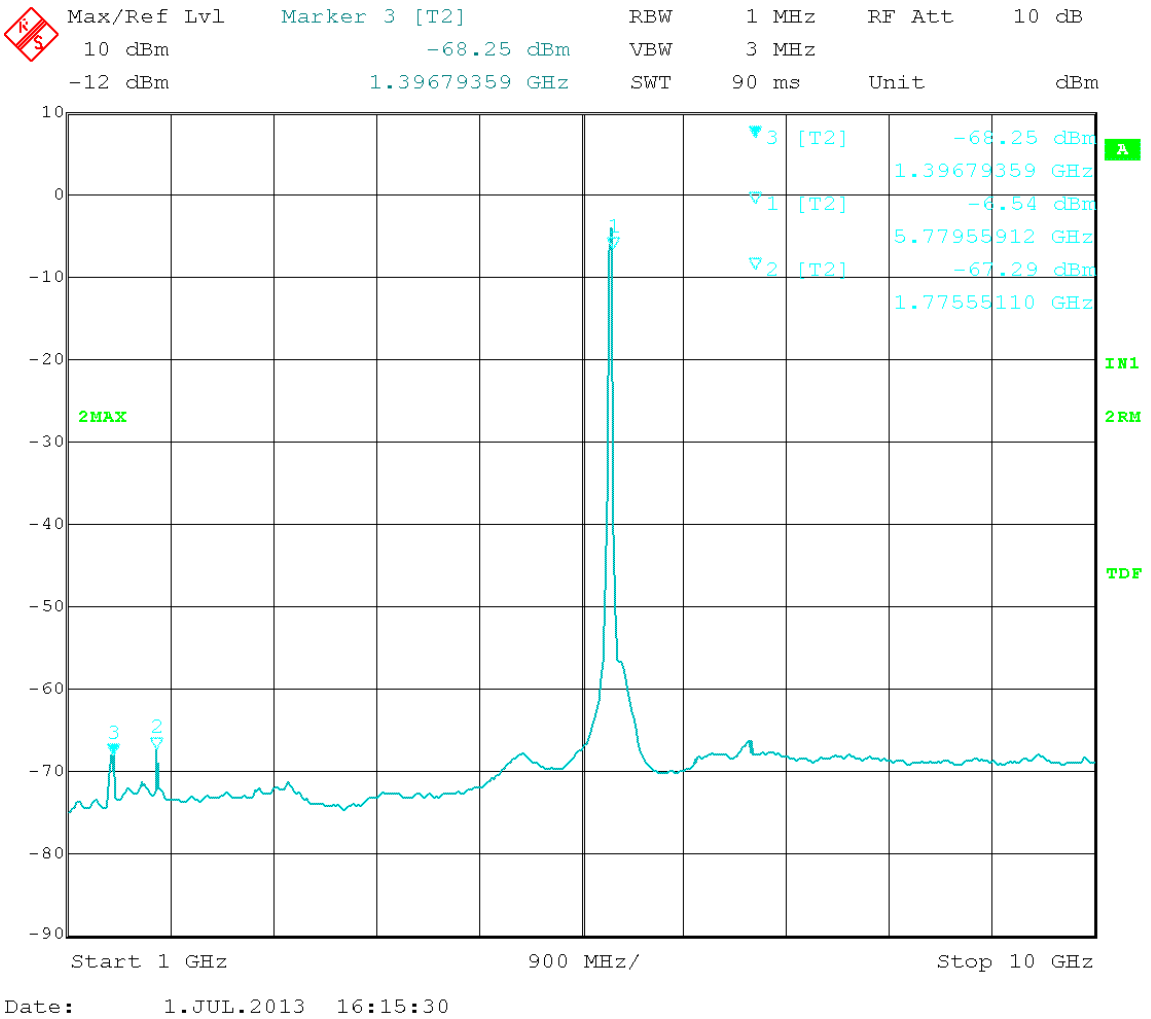

Marker 2: Calculated Field Strength (Restricted Band) = -56.21 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 58.02dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -53.57 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 60.66dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



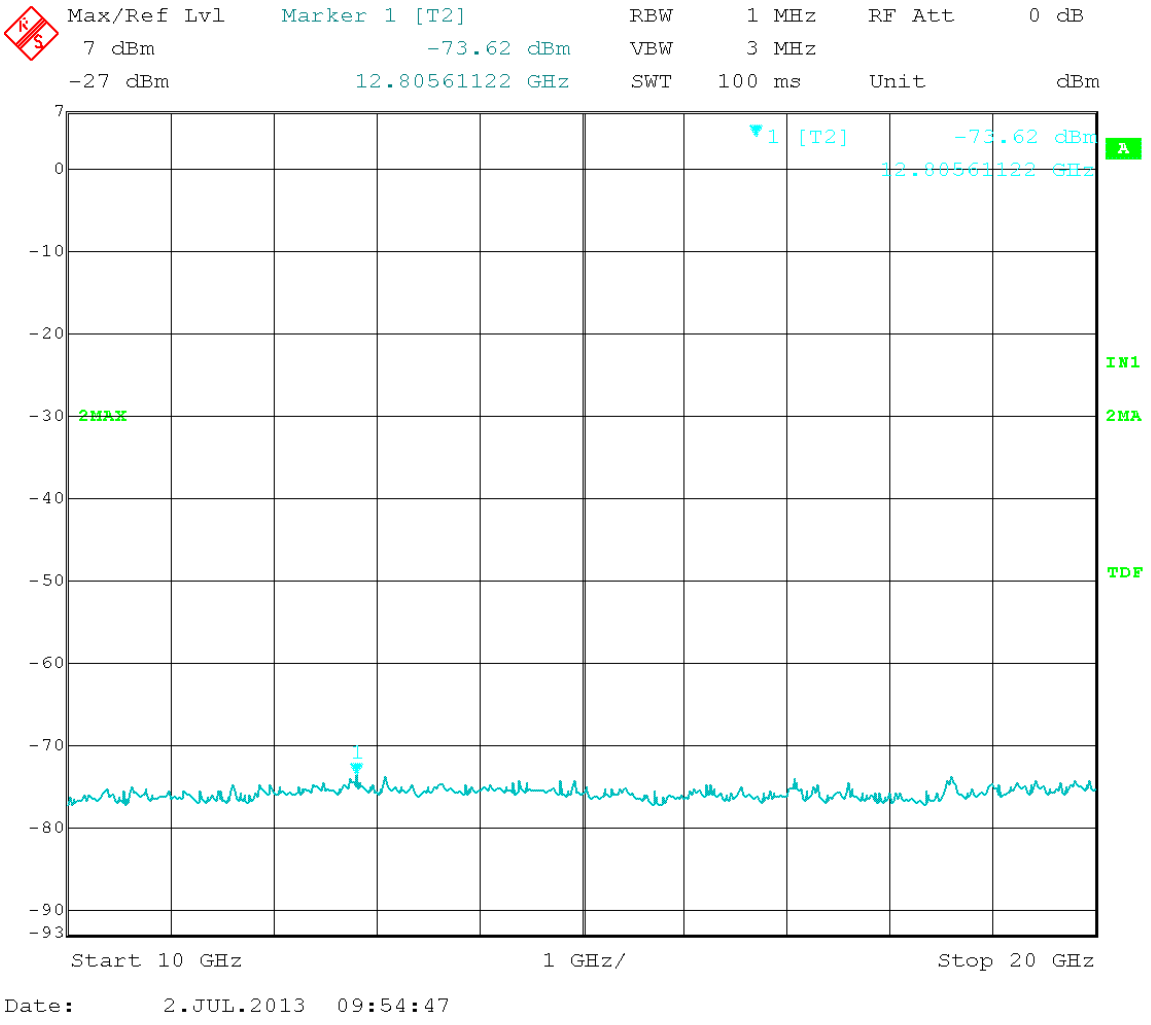

Marker 2: Calculated Field Strength (Restricted Band) = -67.29 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 46.94dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -68.25 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.98dBµV/m Average

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



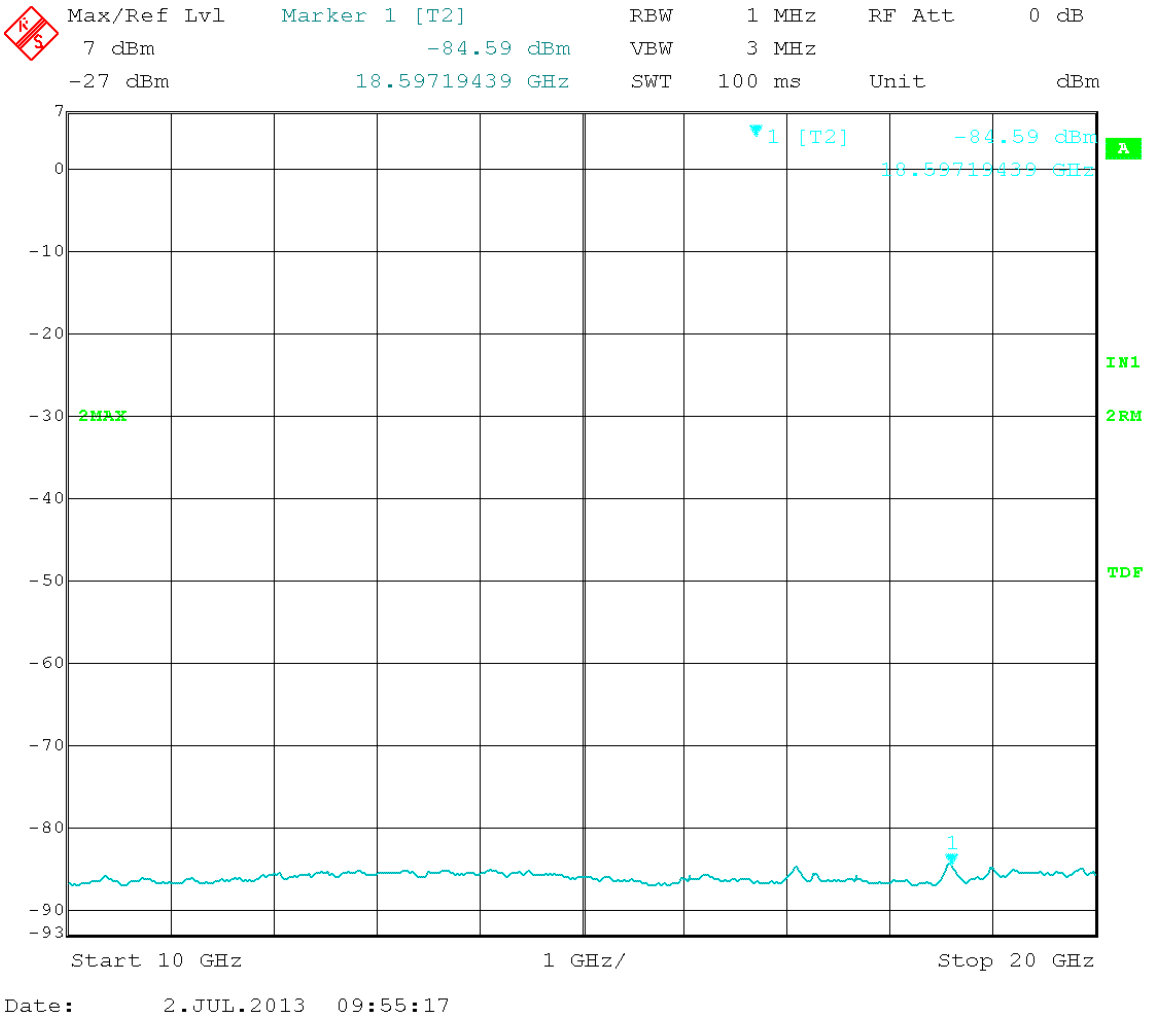

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



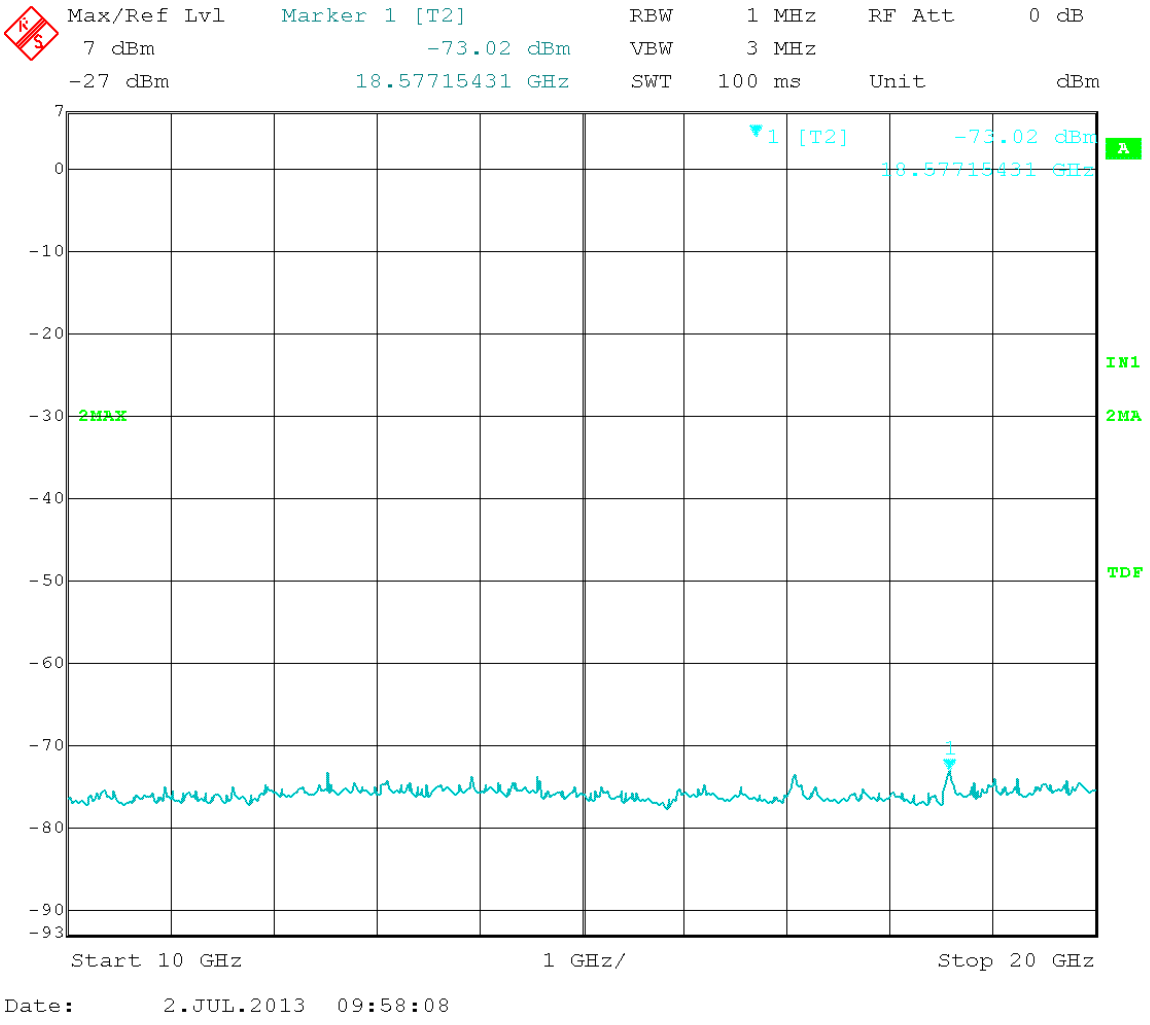

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



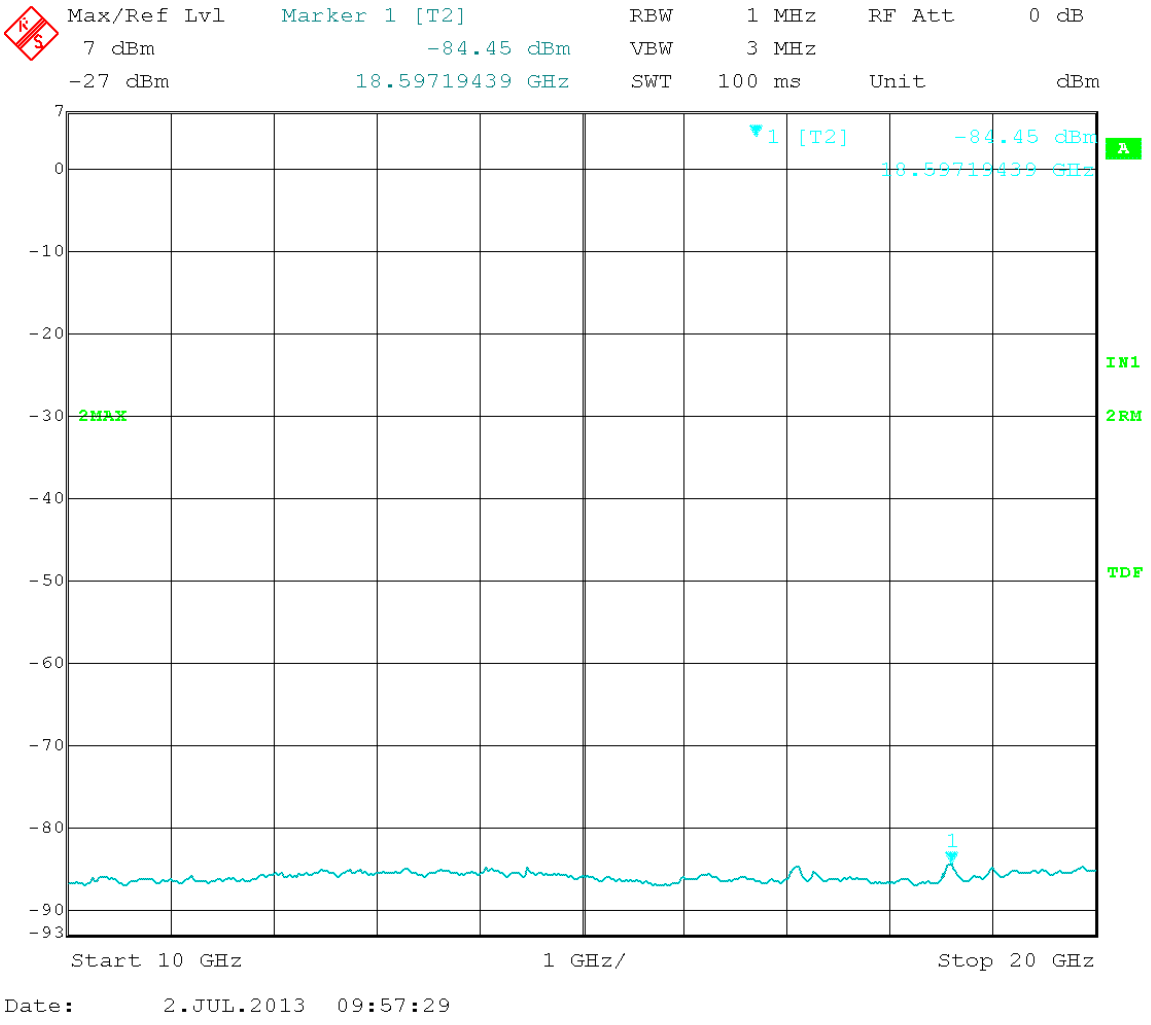

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



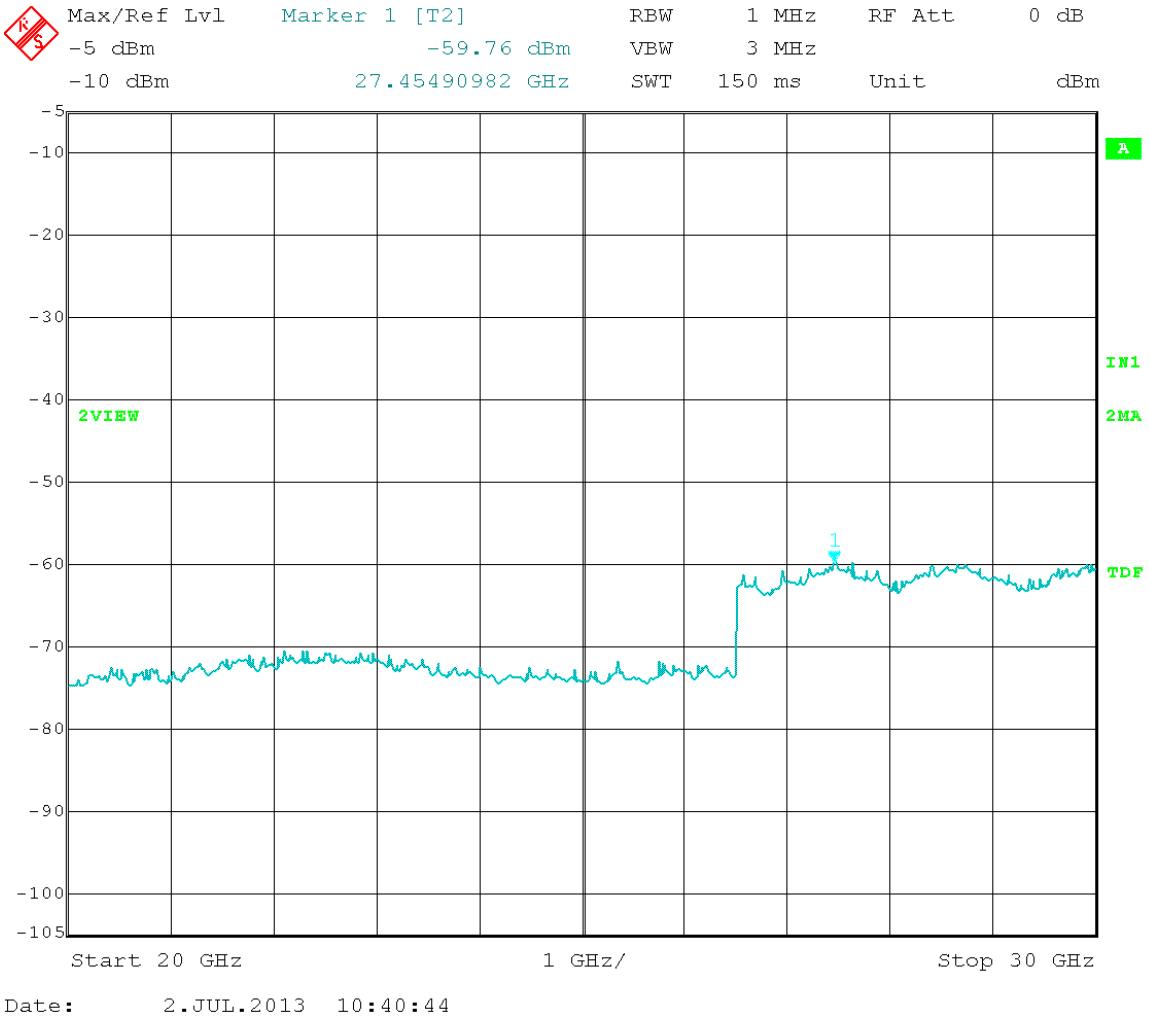

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



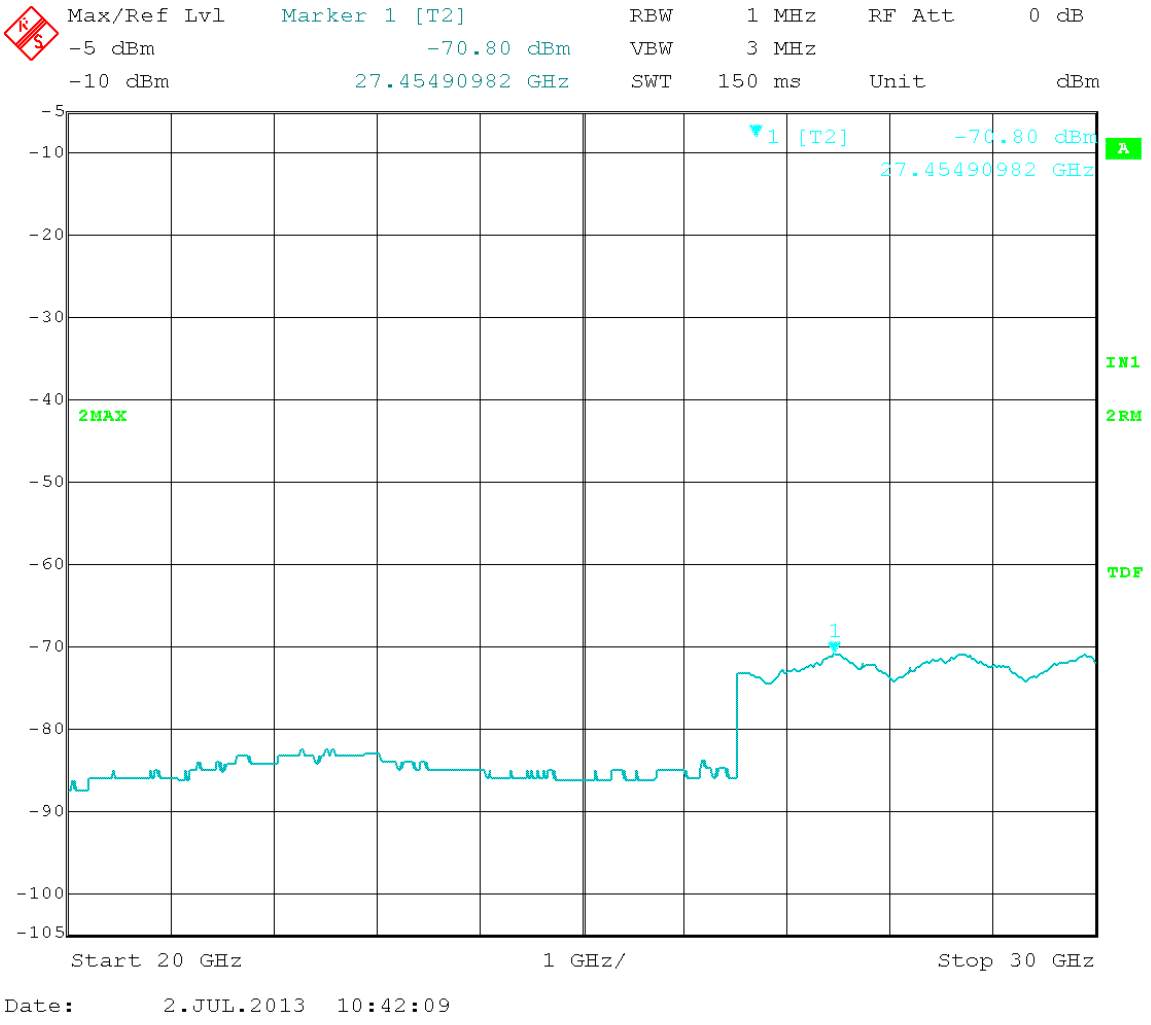

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



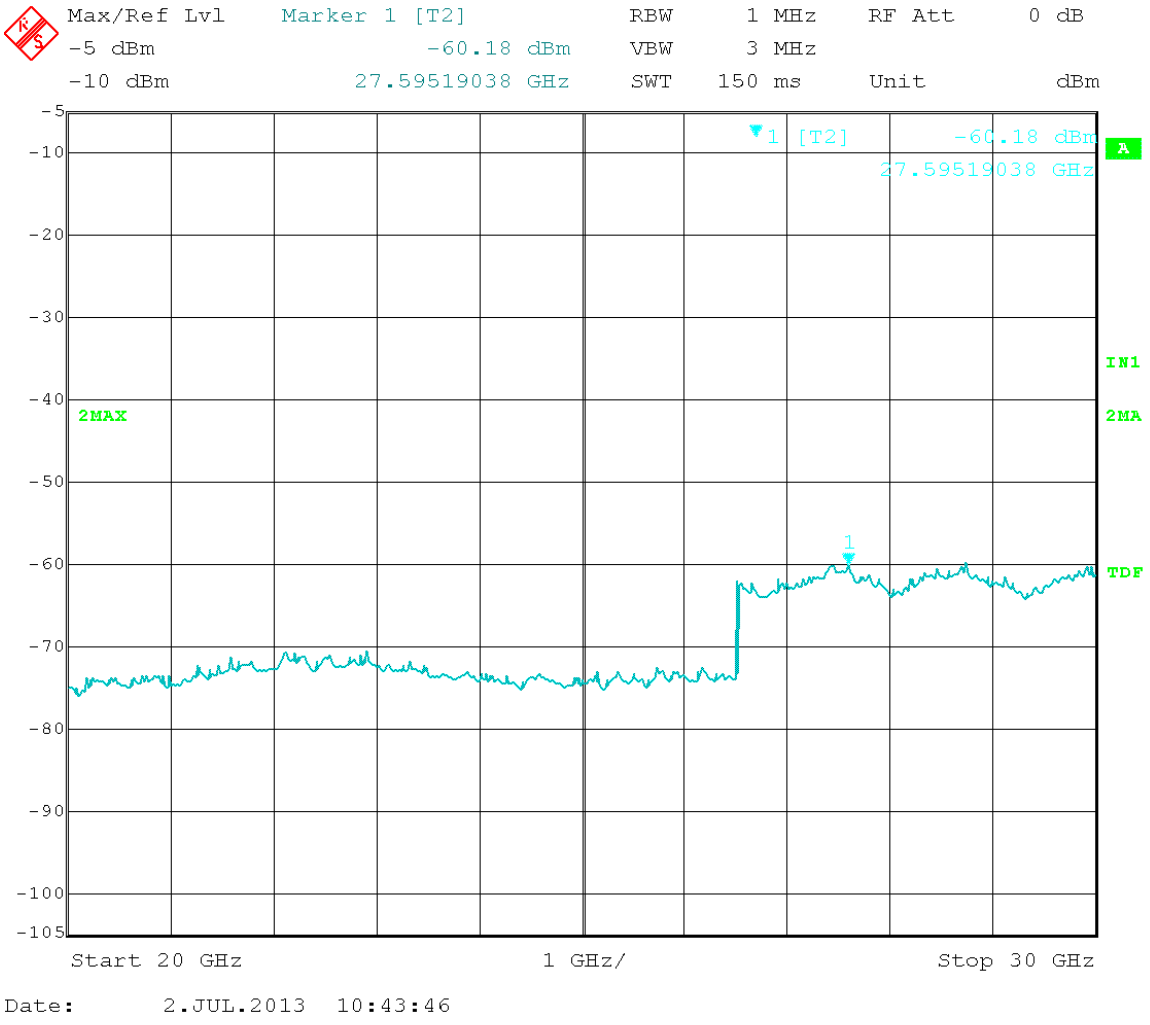

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



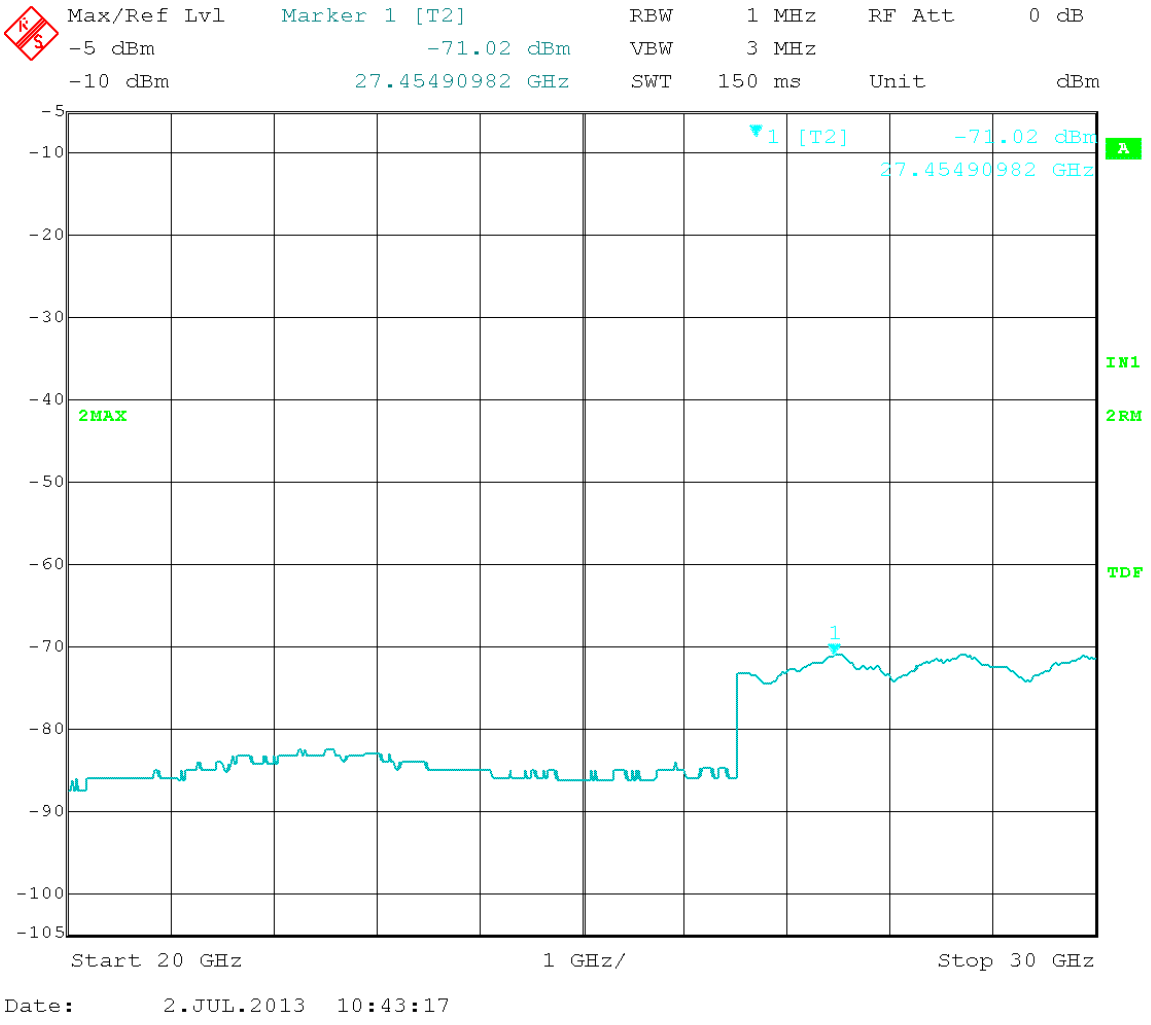

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



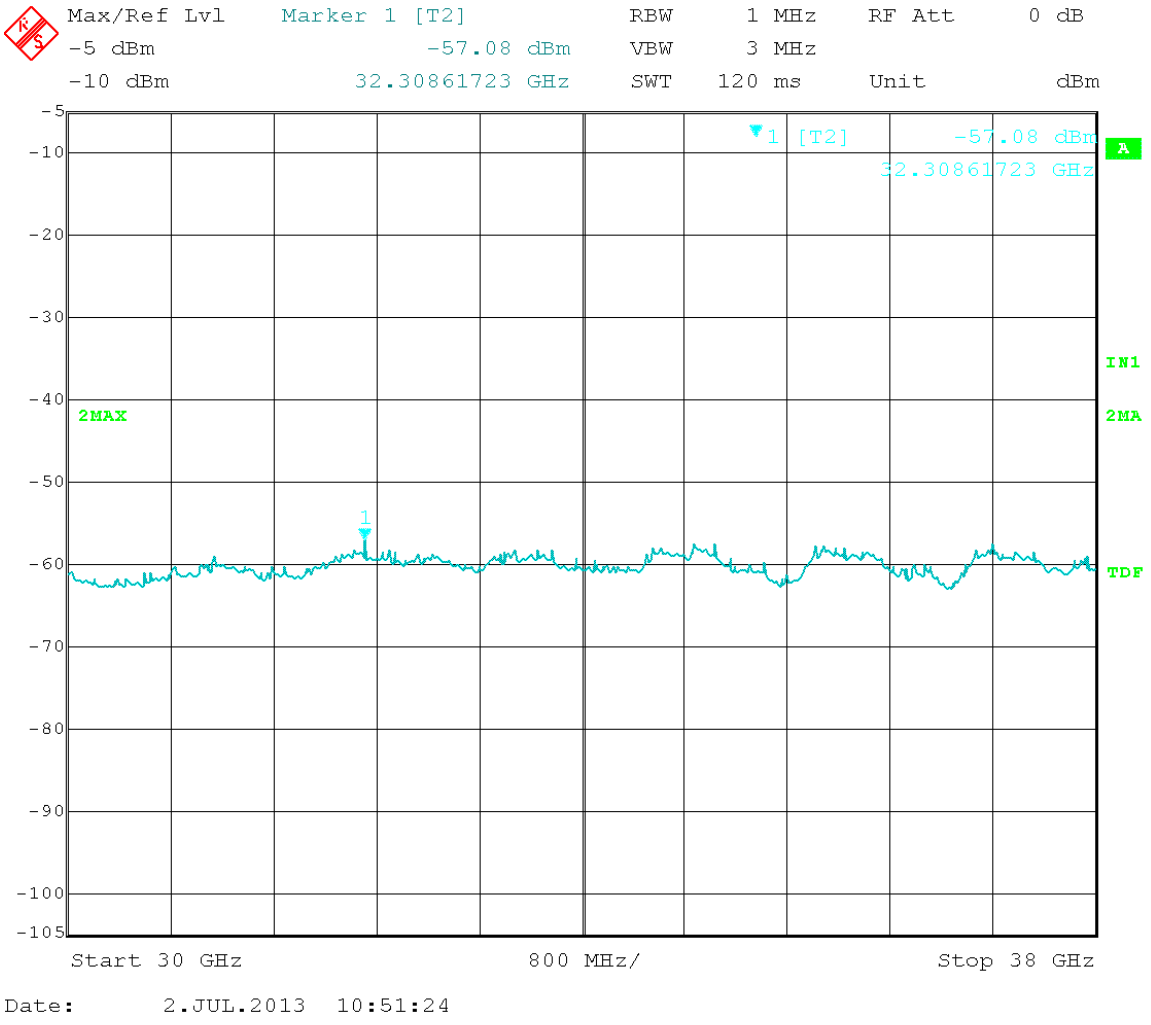

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



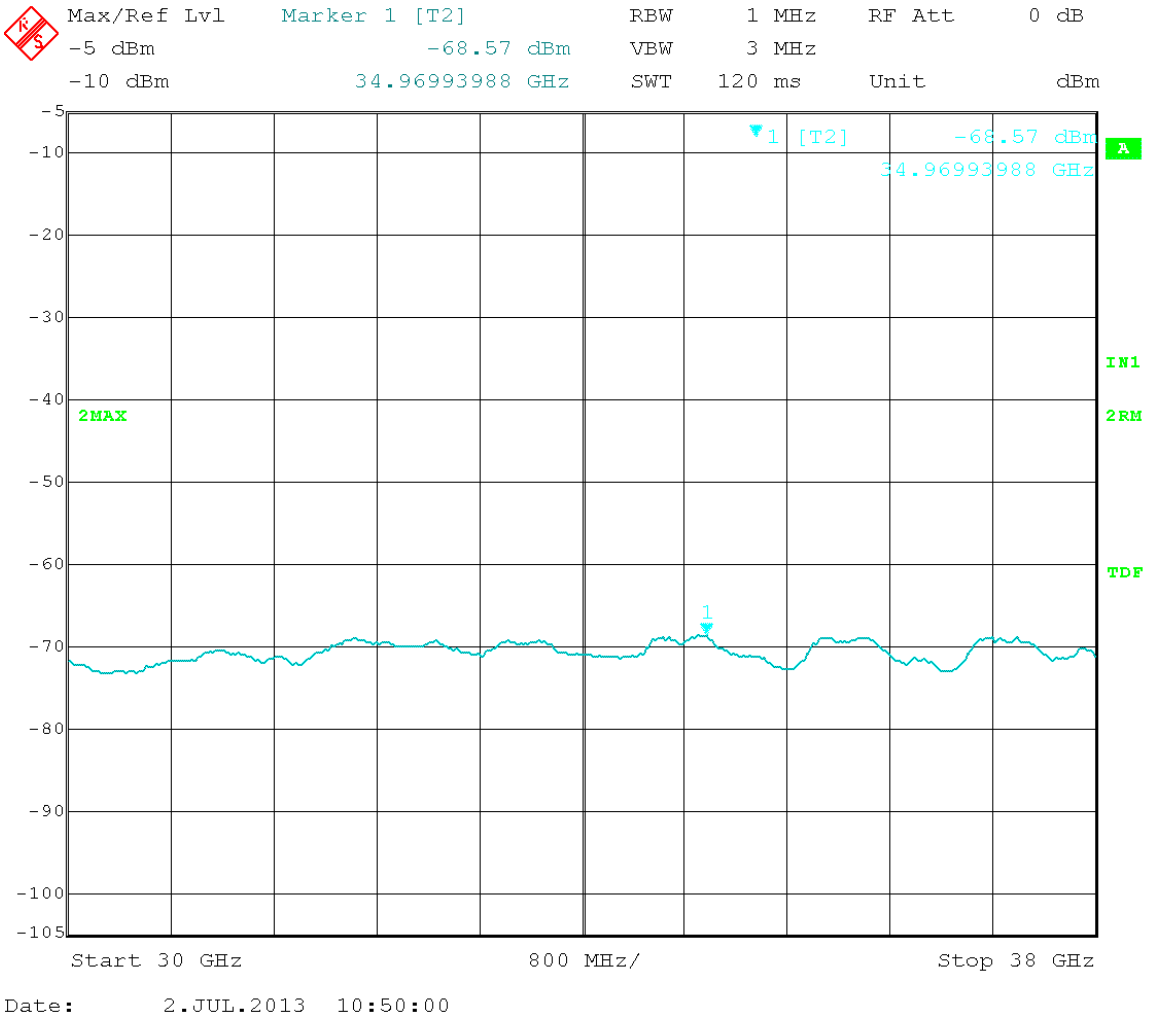

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



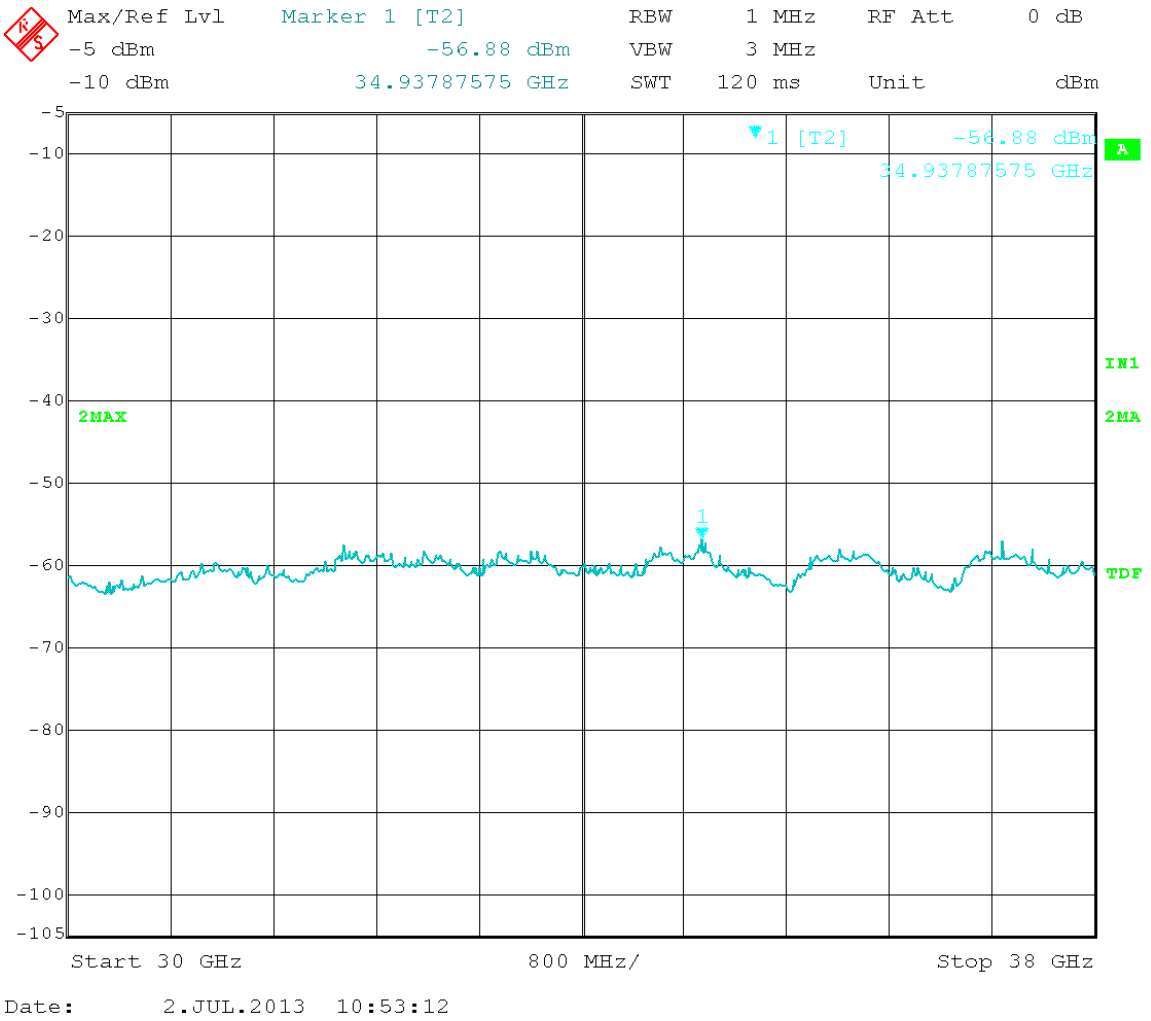

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



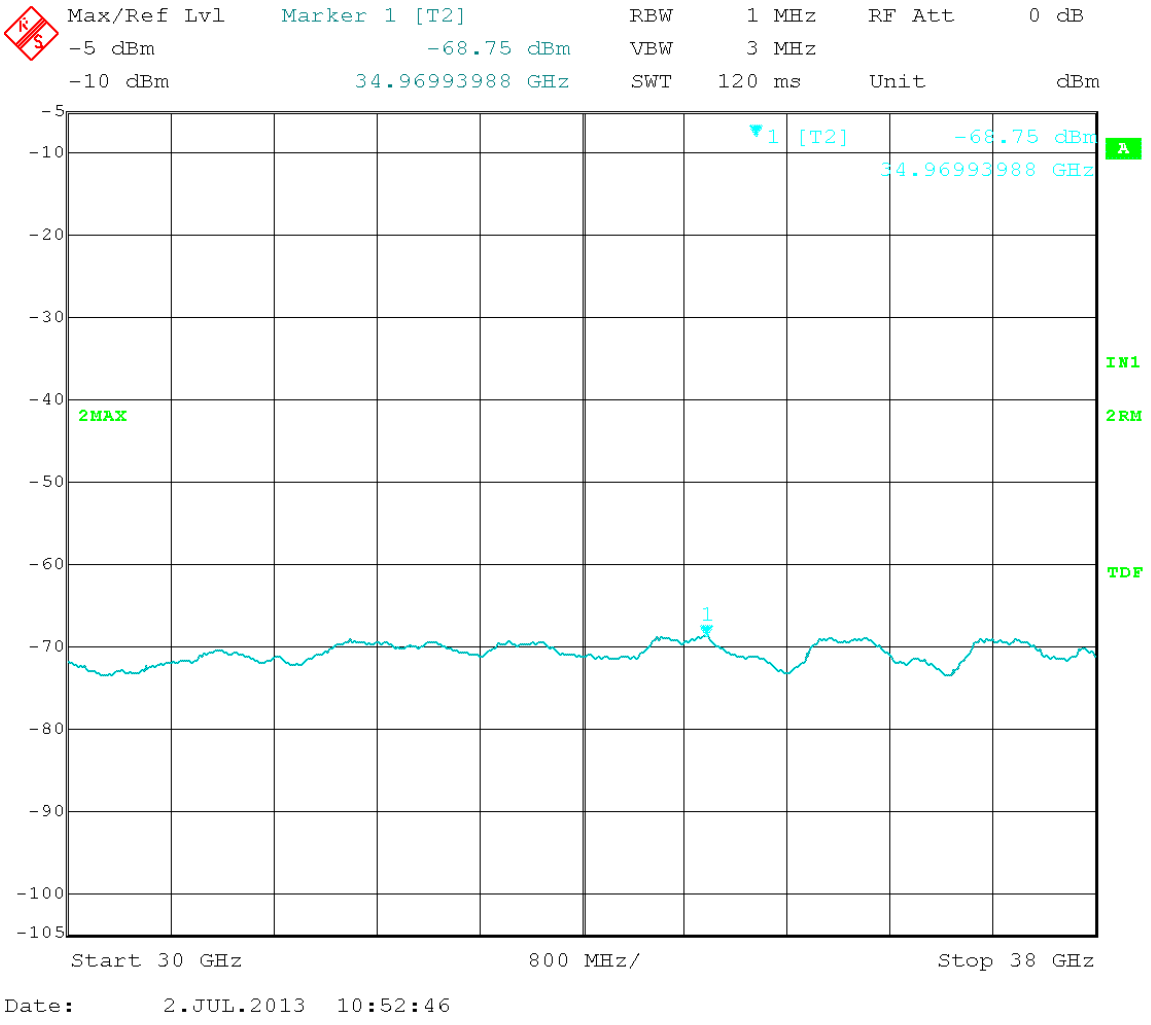

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Low Channel Frequency: 5.750 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



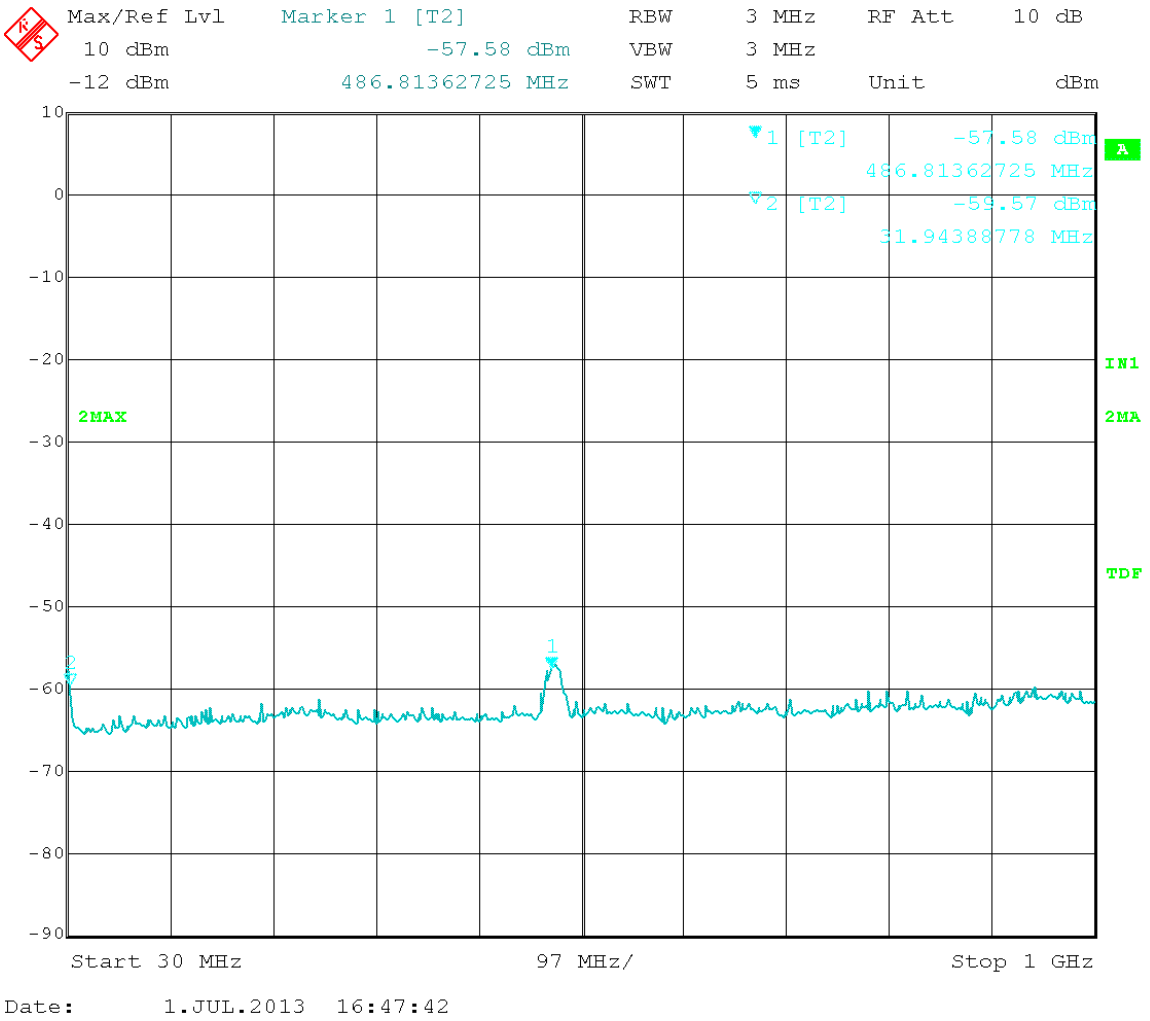

Marker 1: Greater than 20dB below limit

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



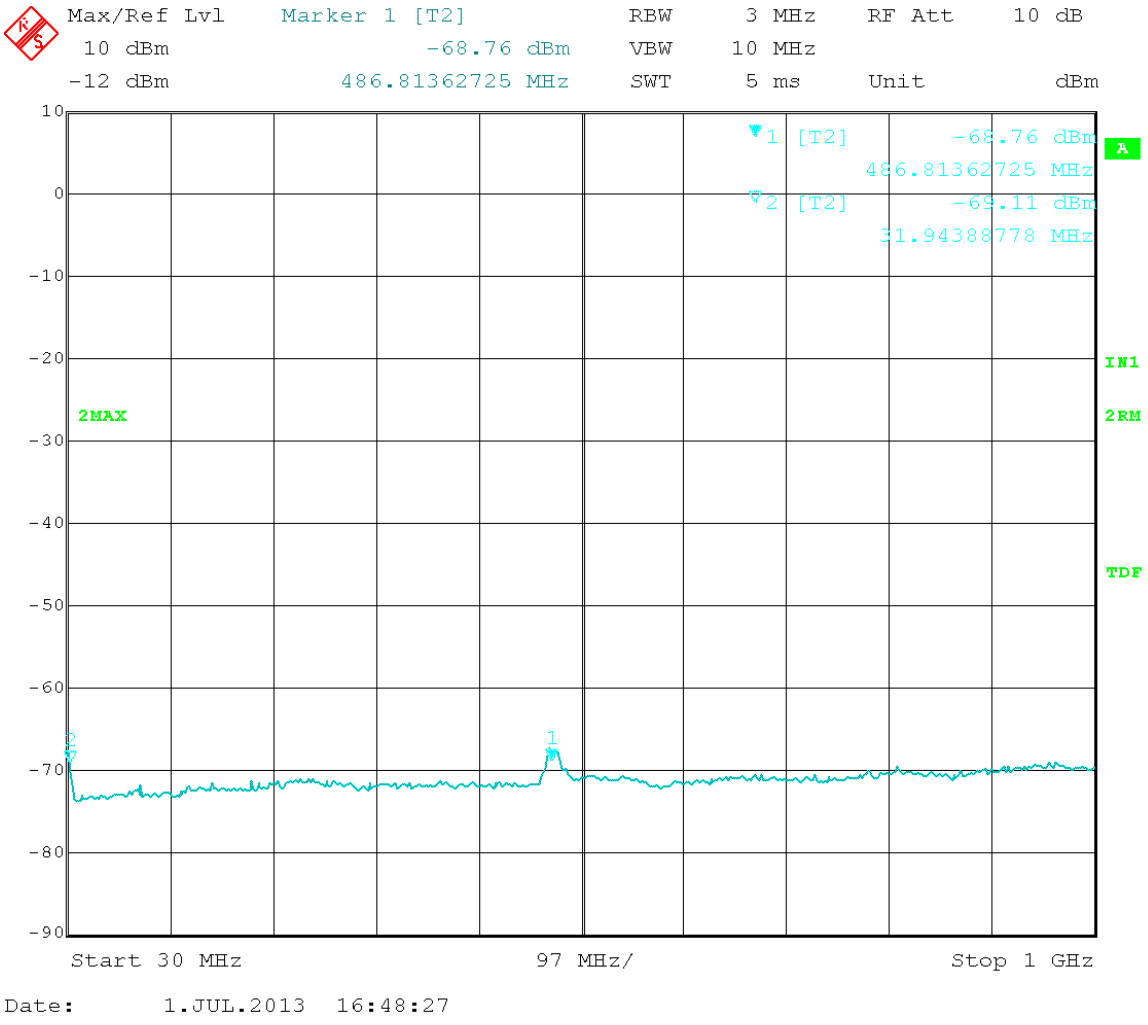

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



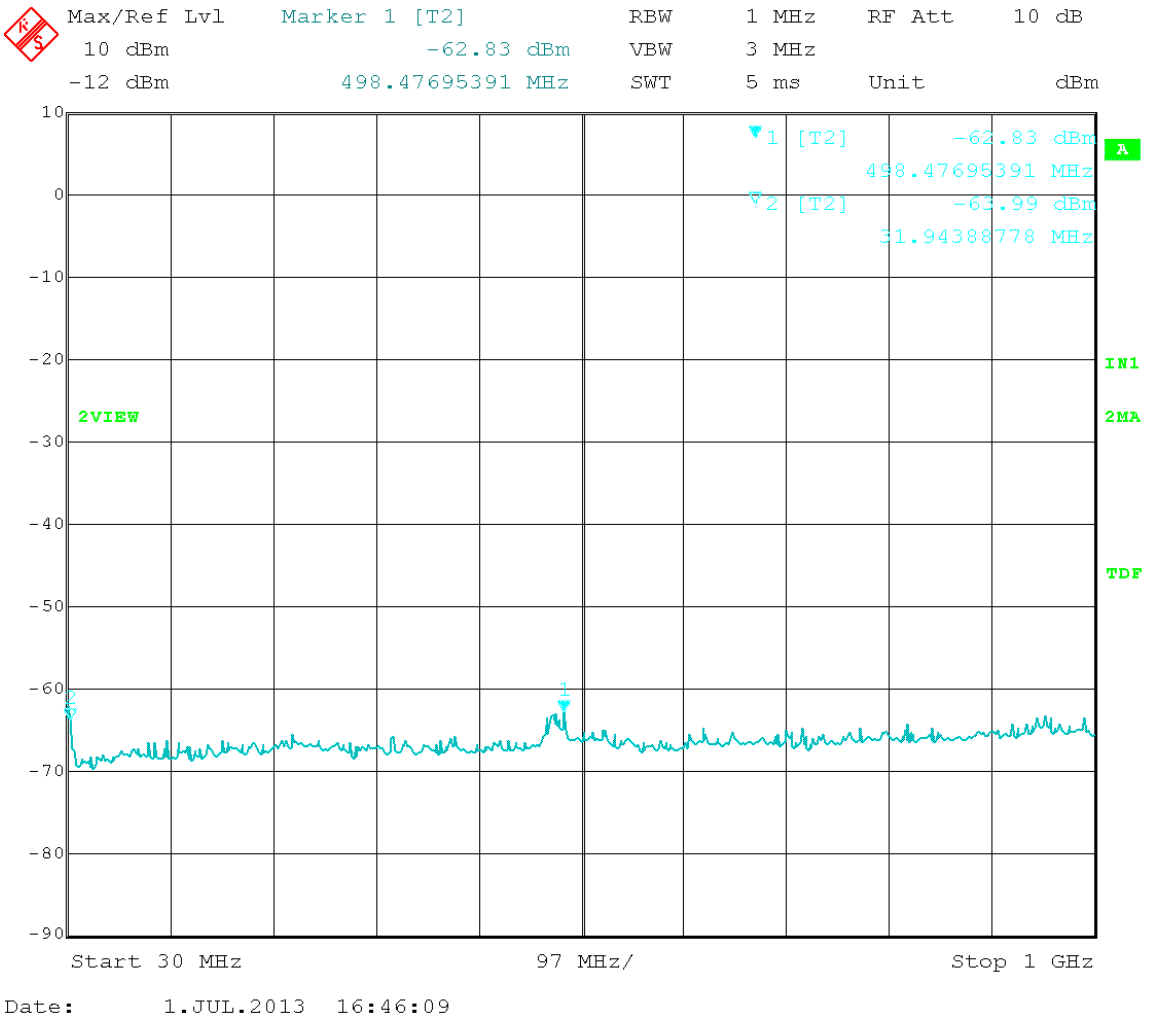

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



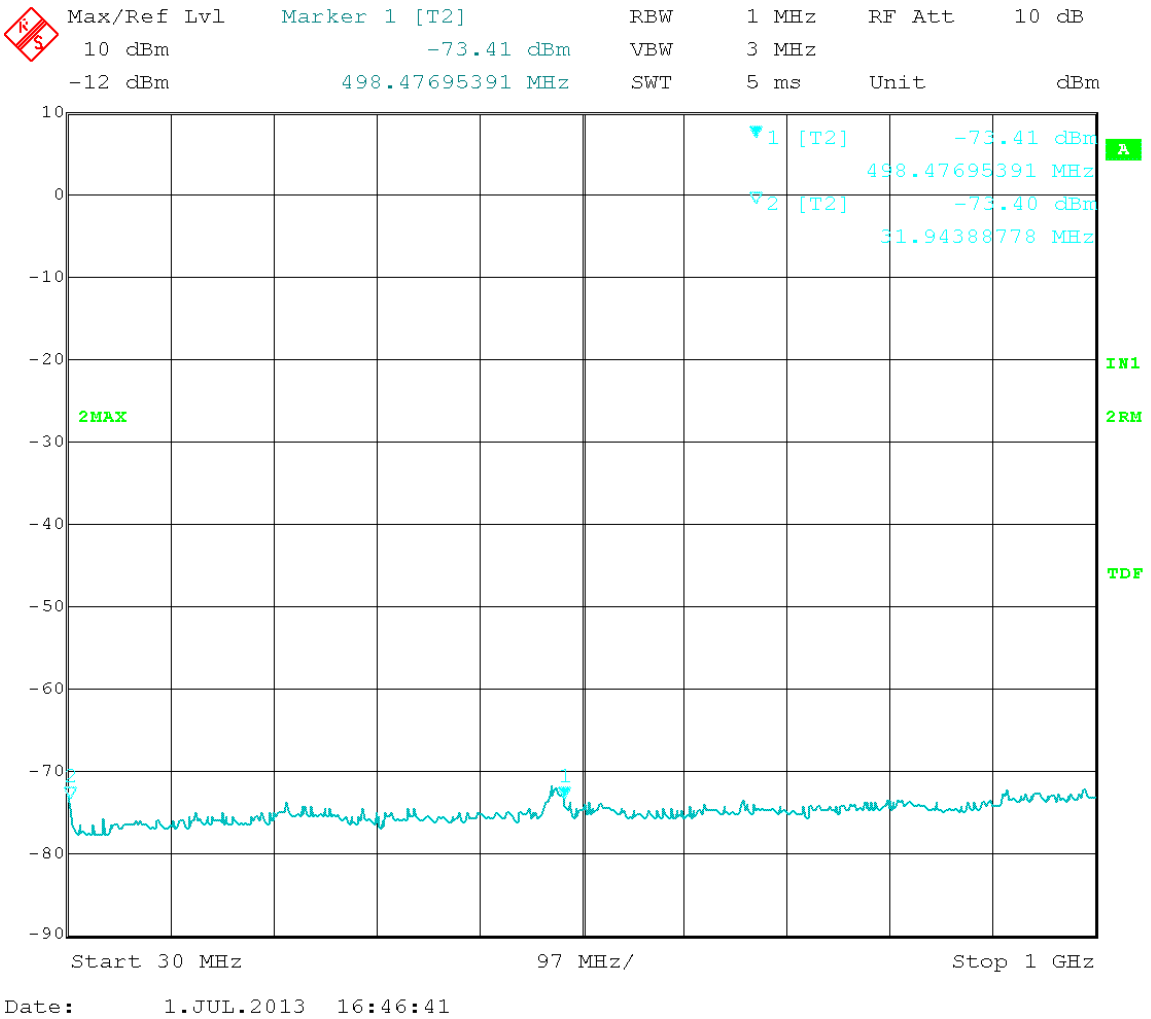

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



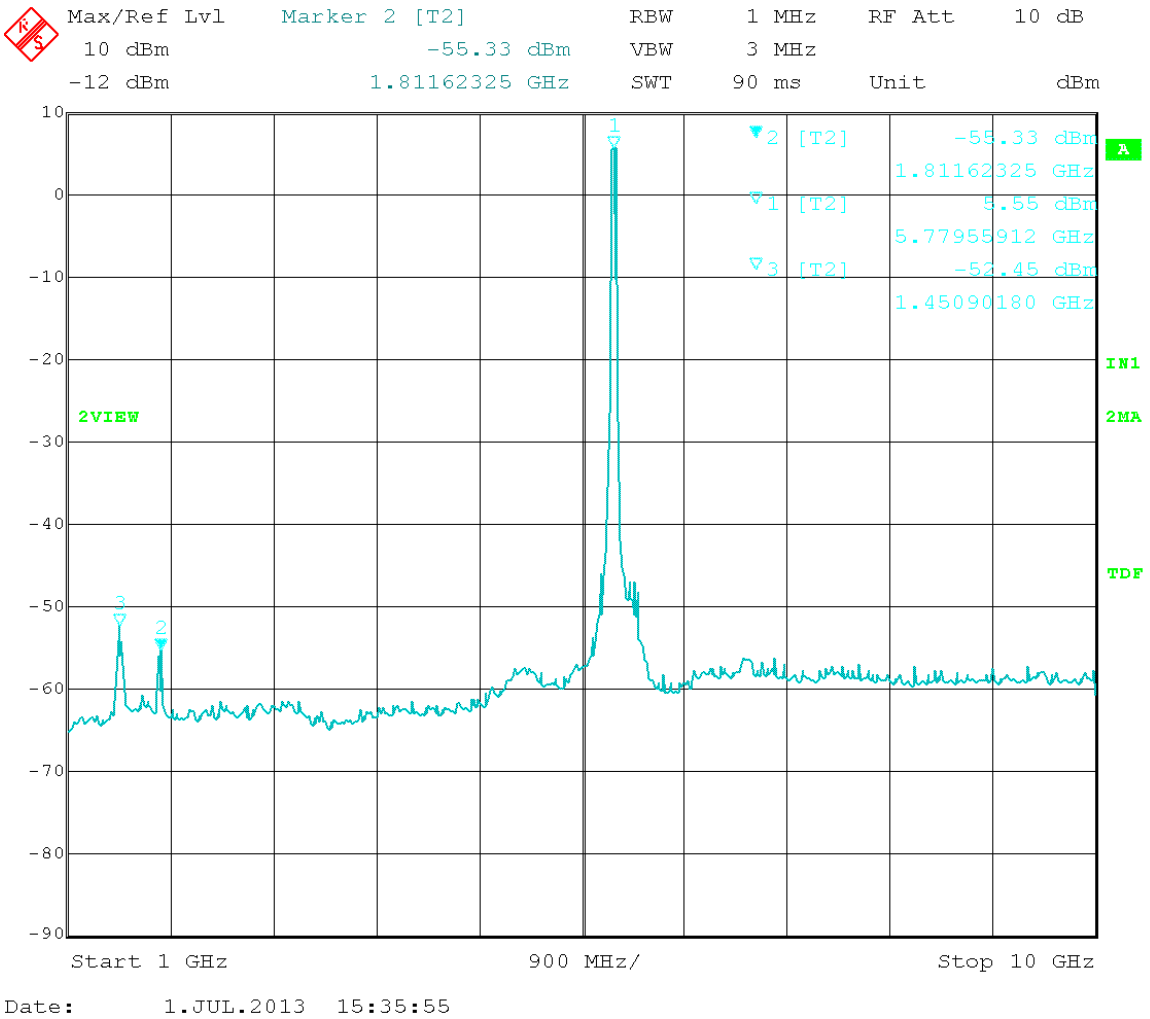

Marker 1: Non-Restricted Band
Marker 2: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



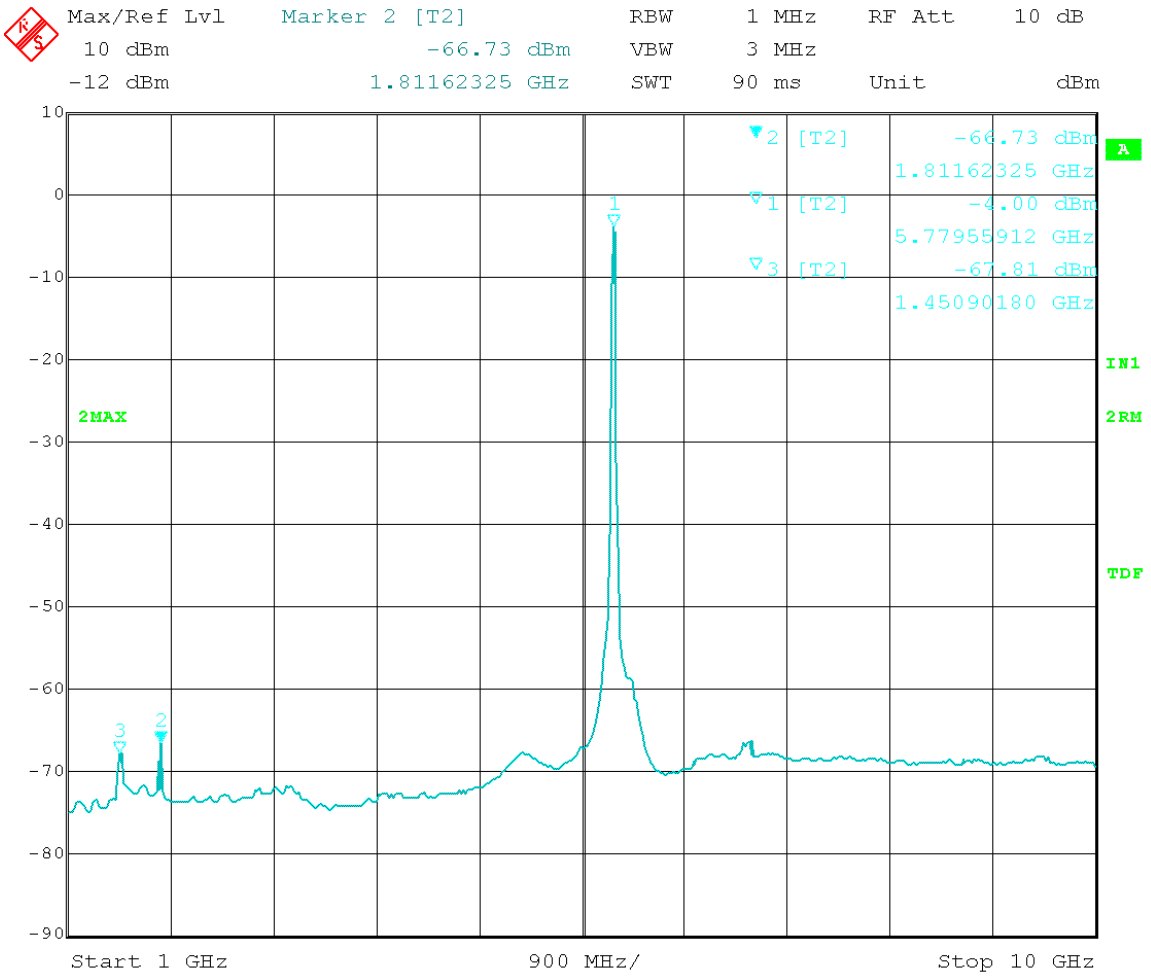

Marker 2: Calculated Field Strength (Restricted Band) = -55.33 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 58.9dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -52.45 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 61.78dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



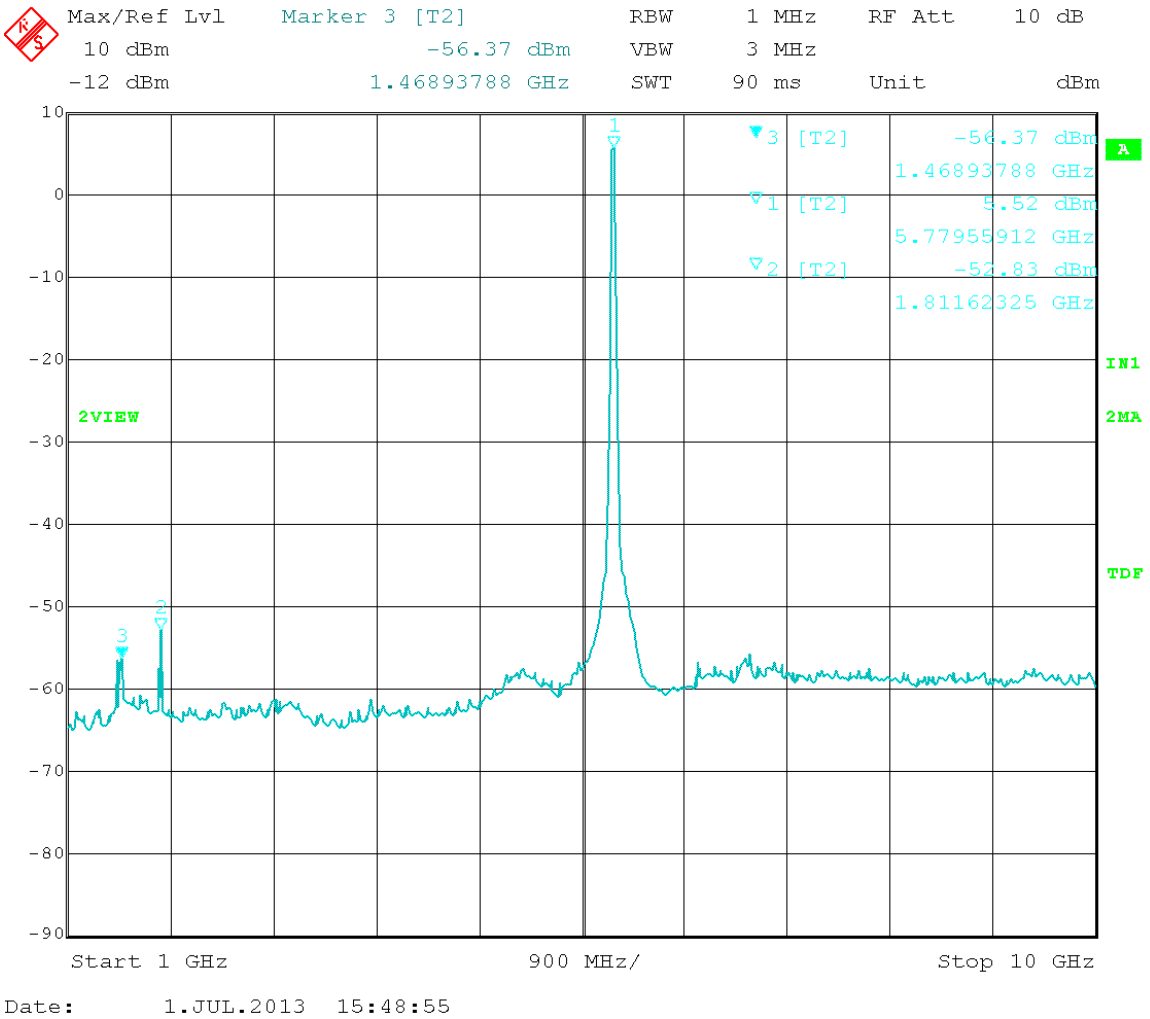

Marker 2: Calculated Field Strength (Restricted Band) = -66.73+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.5dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -67.81 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 46.42dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



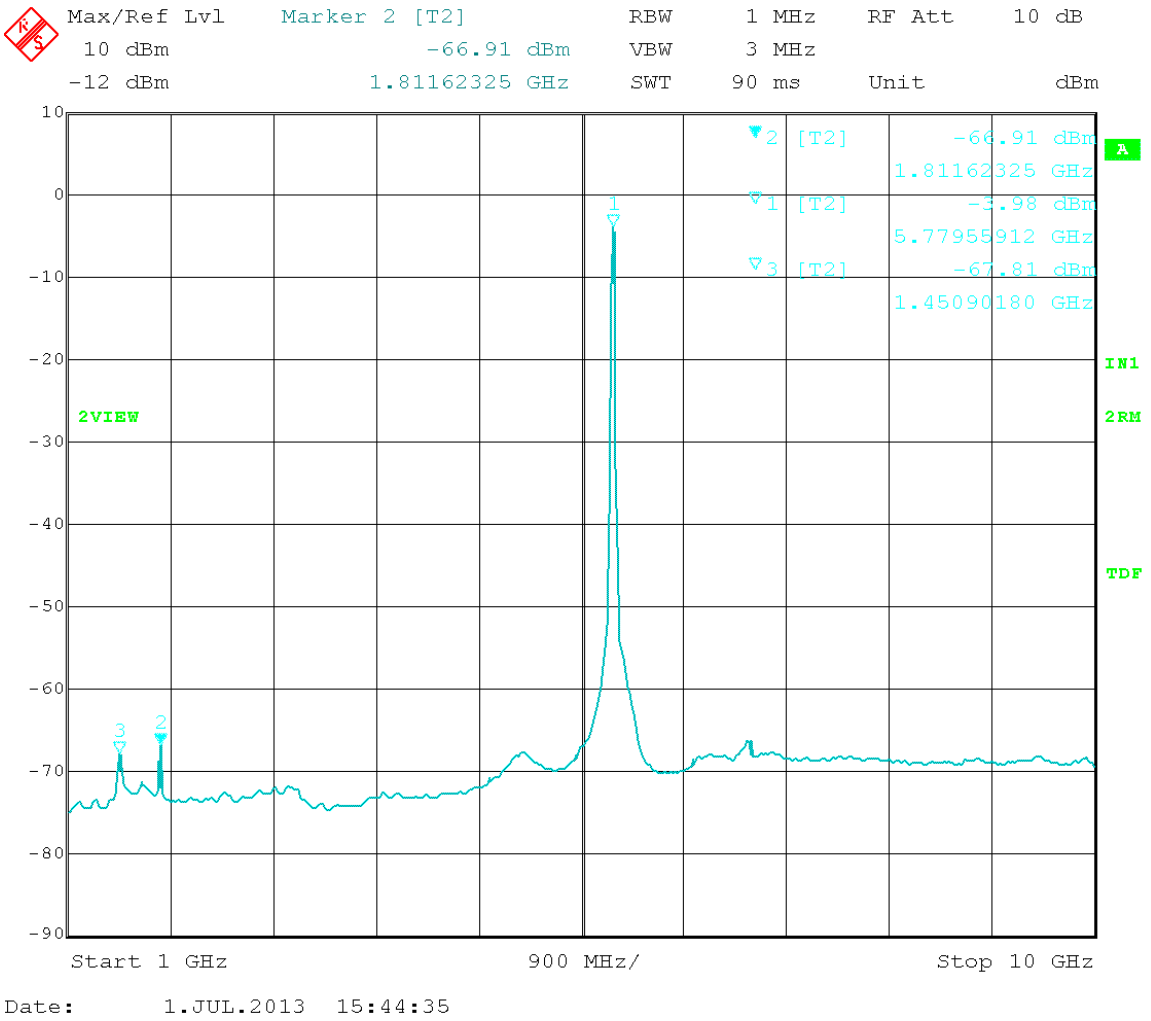

Marker 2: Calculated Field Strength (Restricted Band) = -52.83 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 61.4dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -56.37 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.86dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



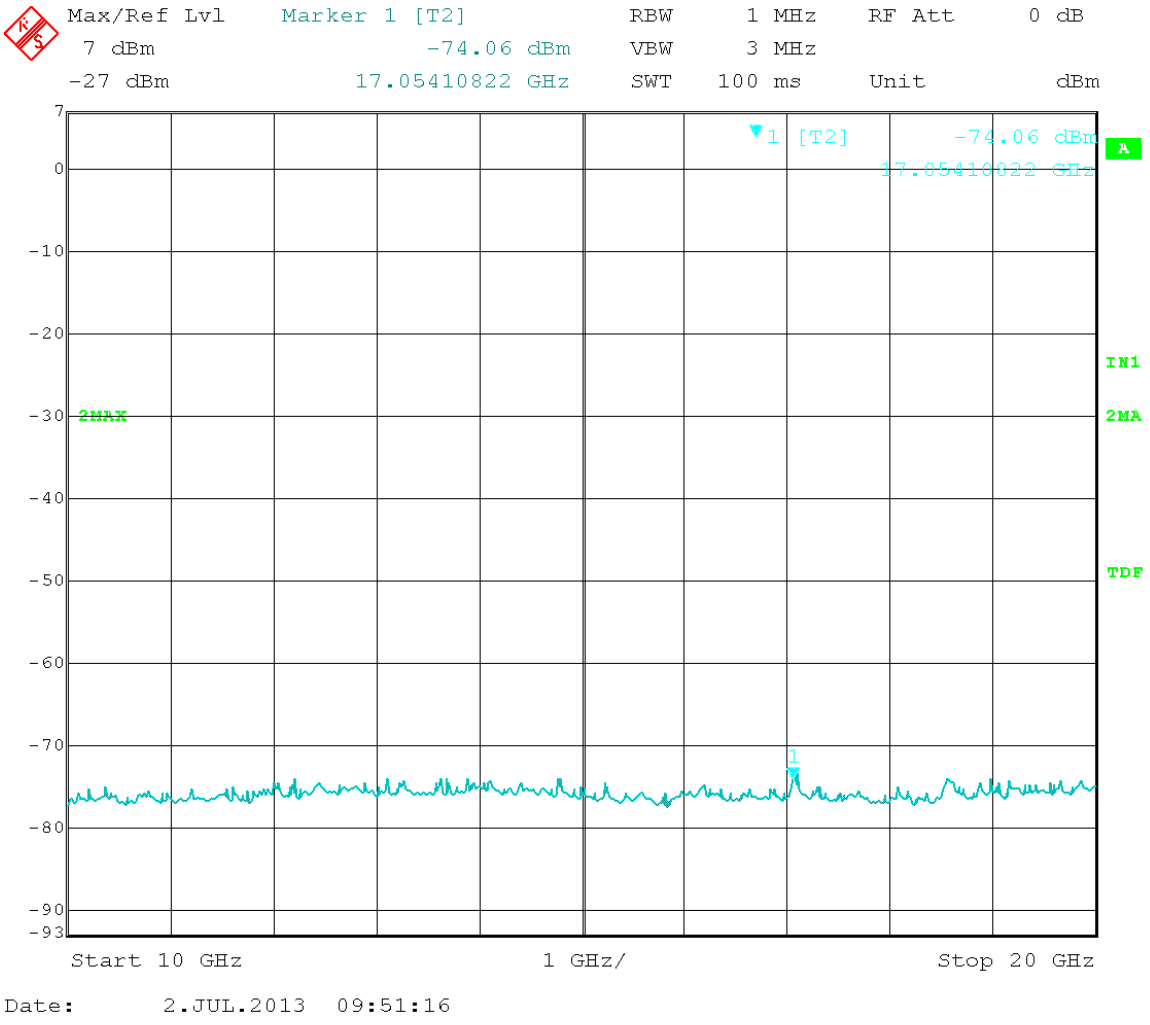

Marker 2: Calculated Field Strength (Restricted Band) = -66.91 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.32dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -67.81 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 46.42dBµV/m Average

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



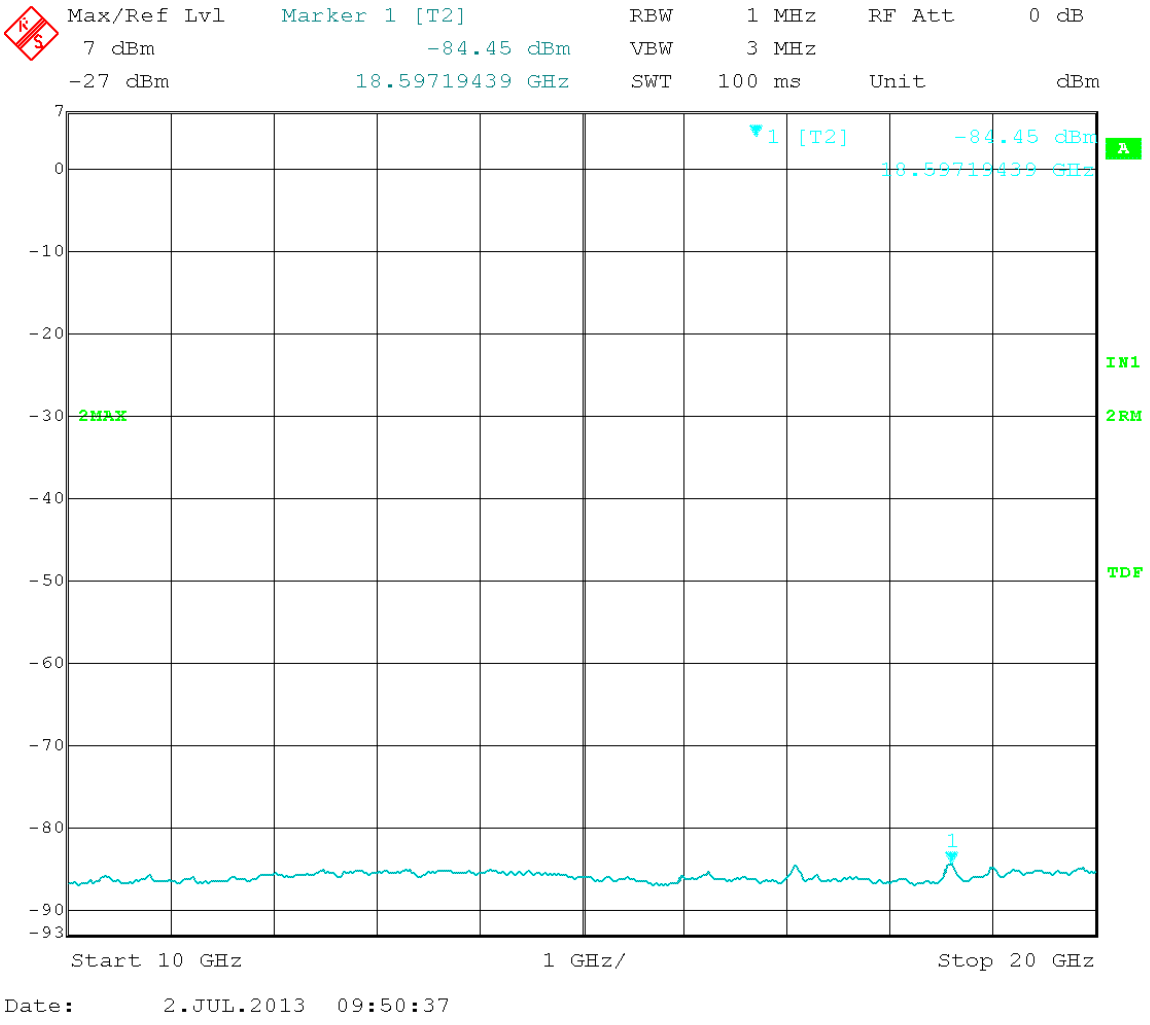

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



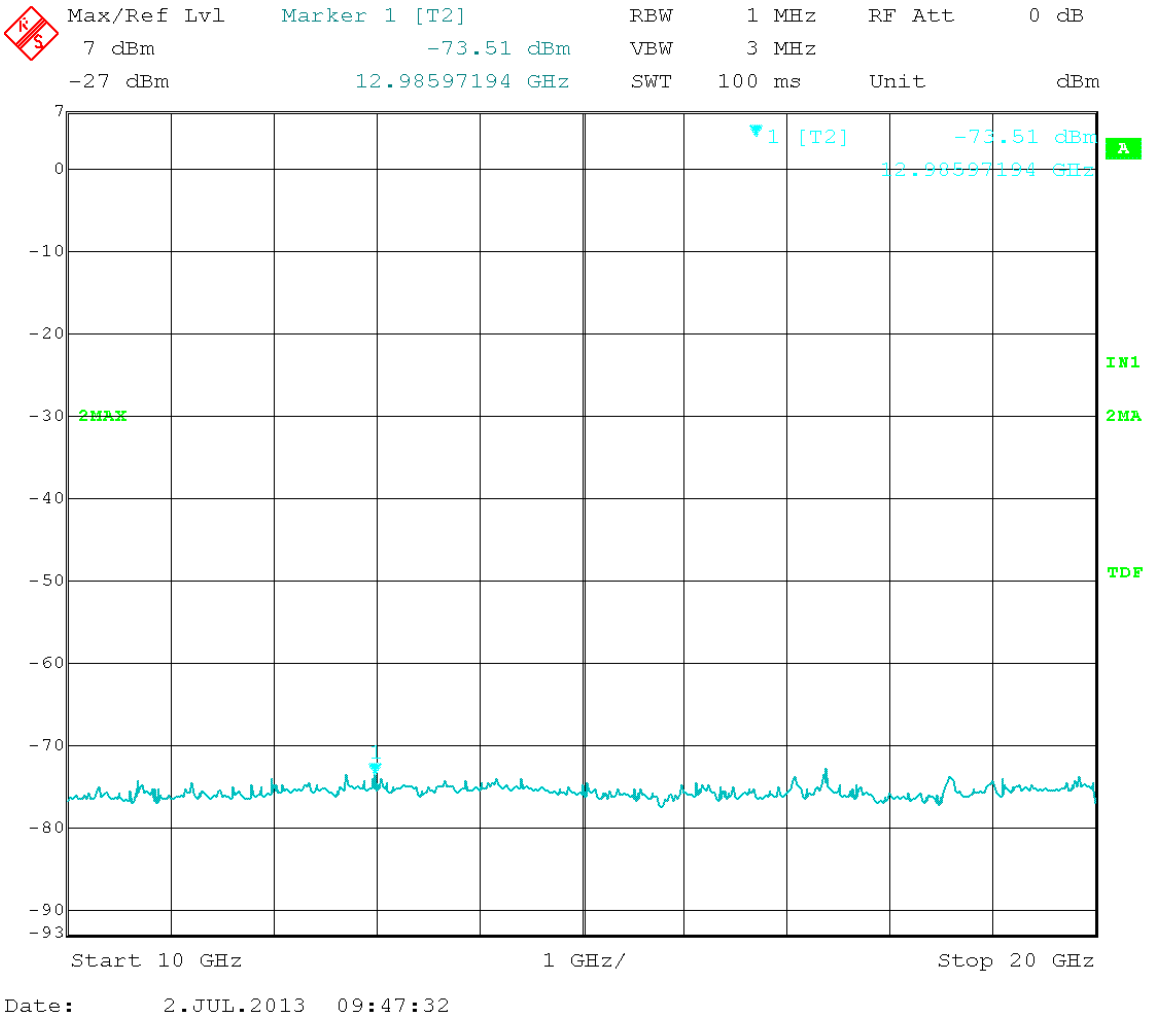

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



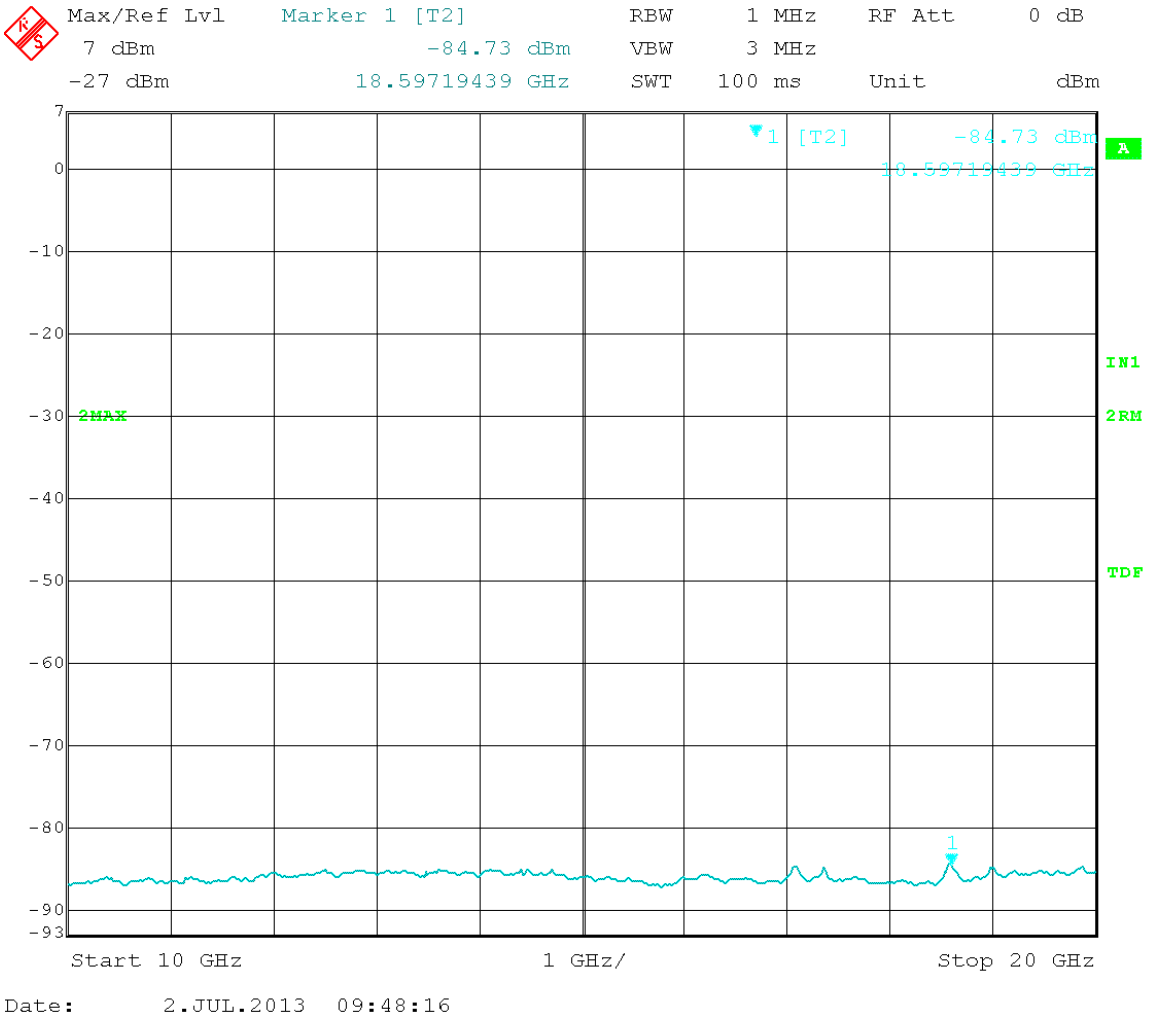

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



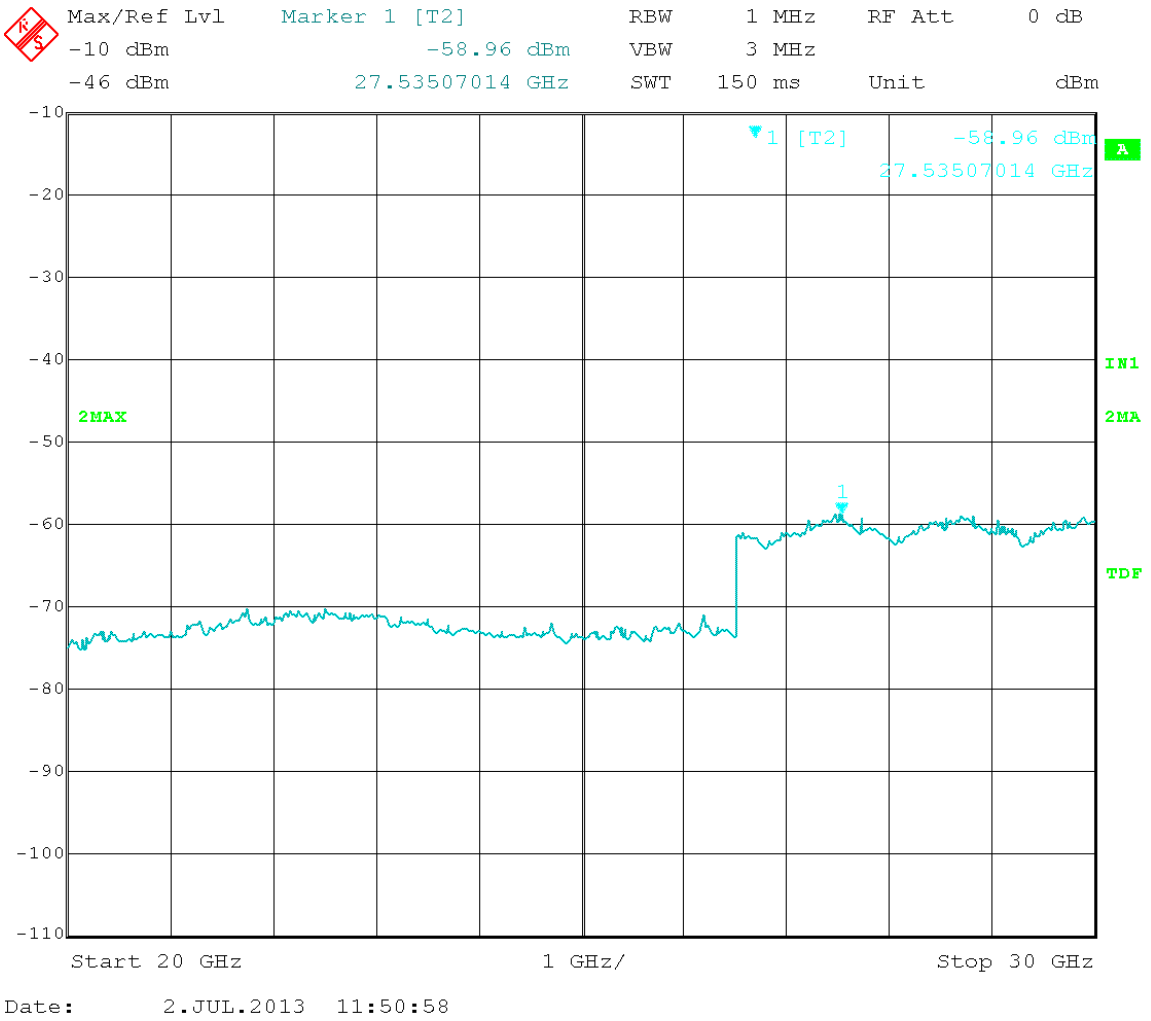

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



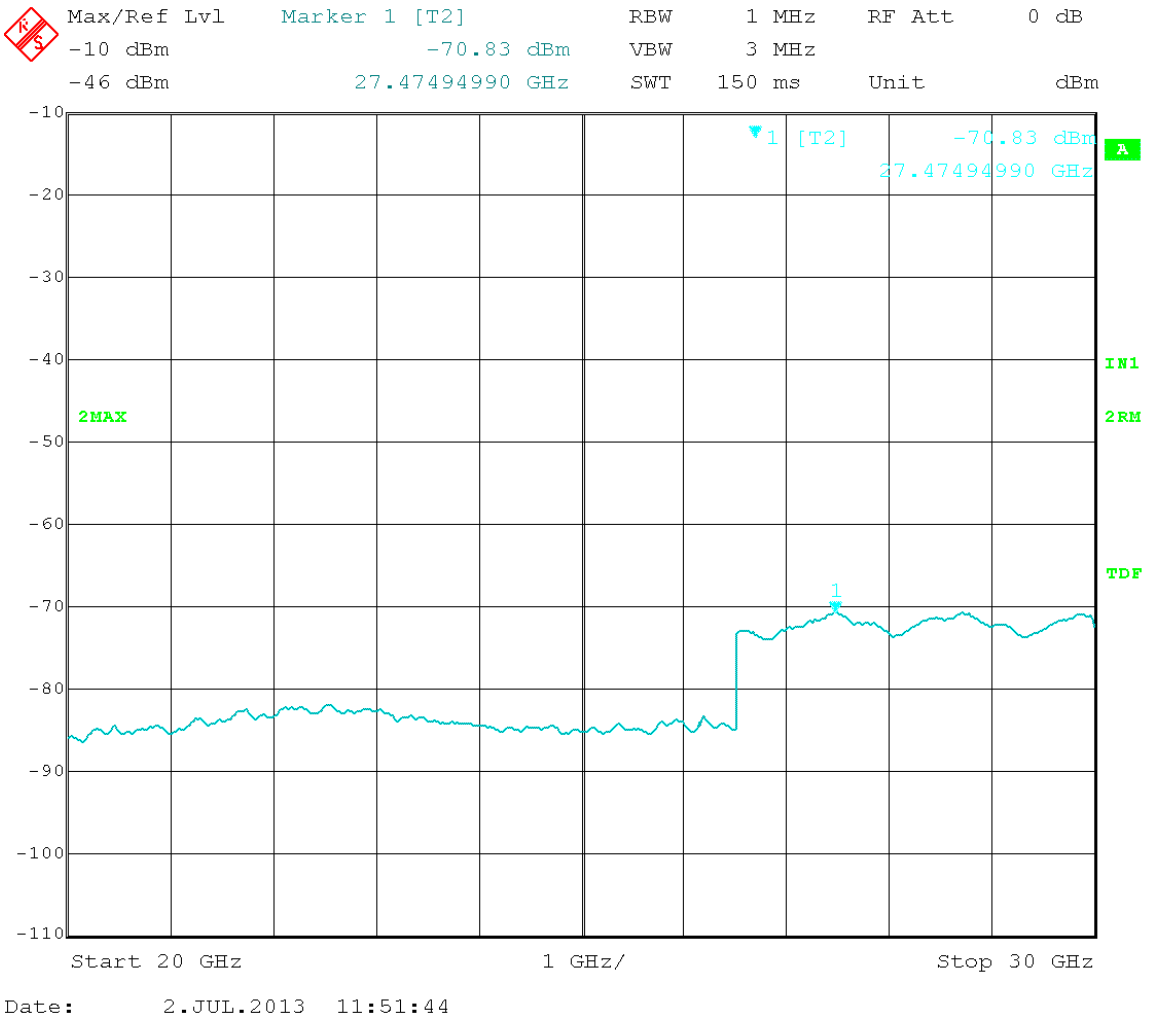

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



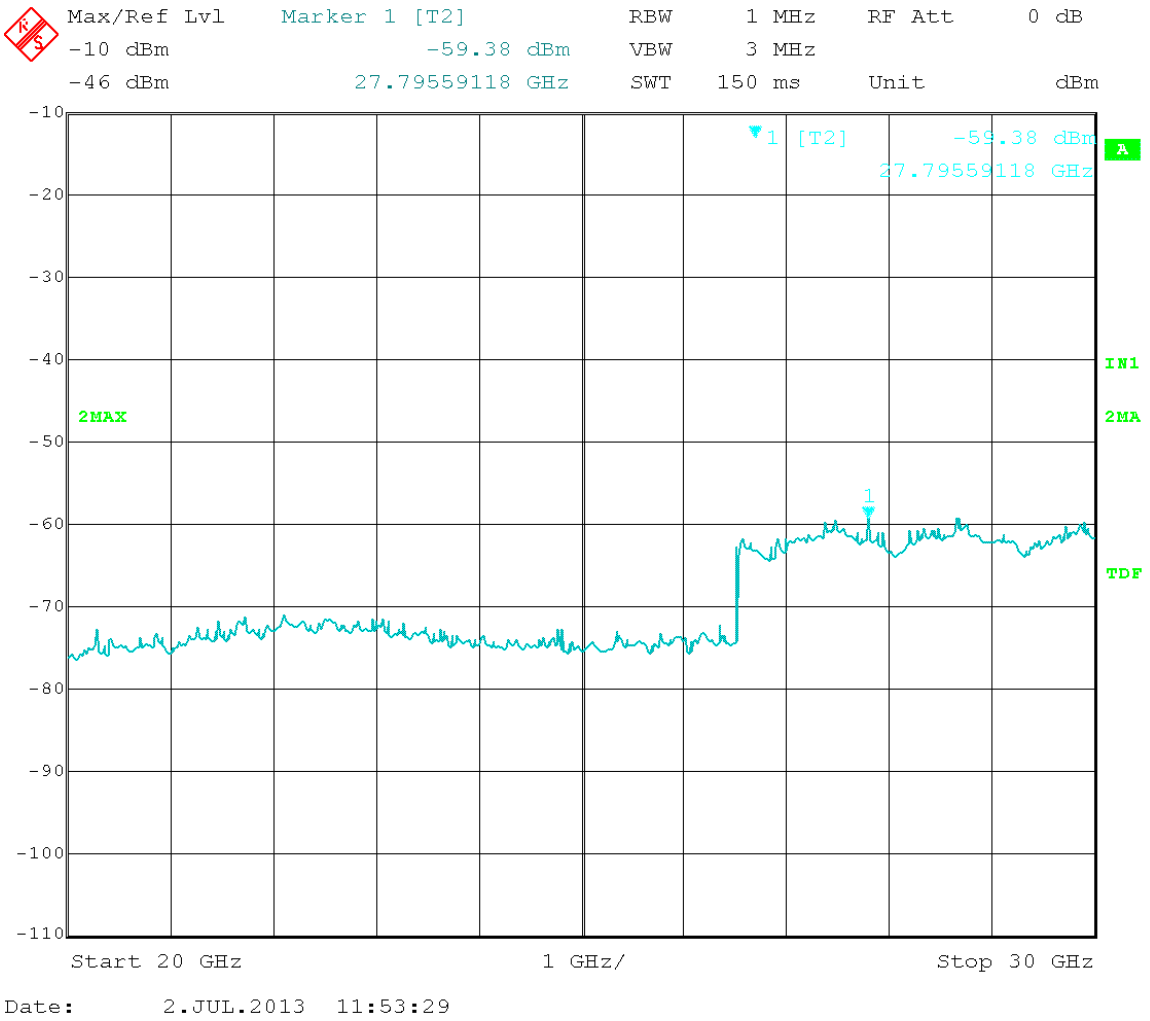

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



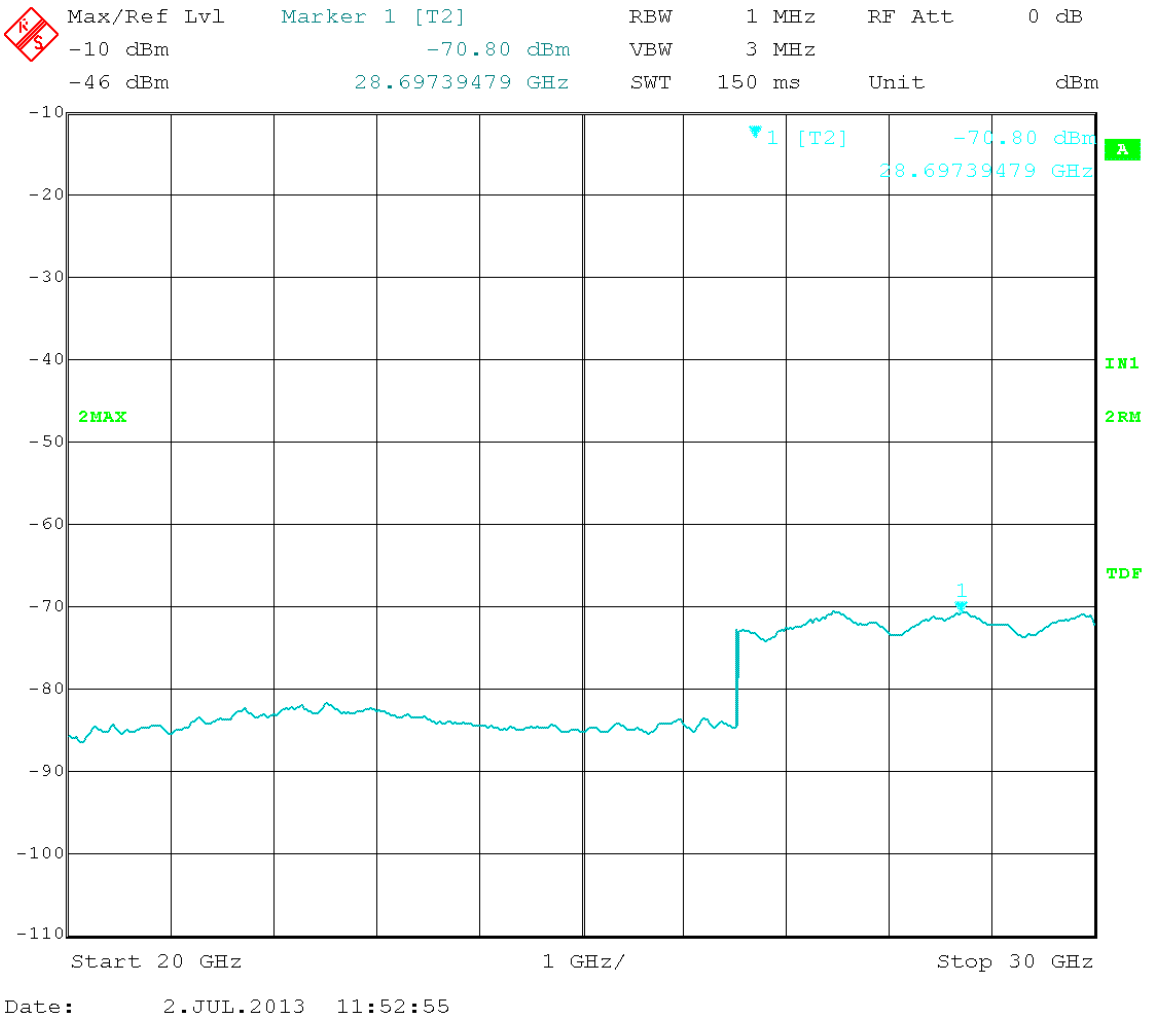

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



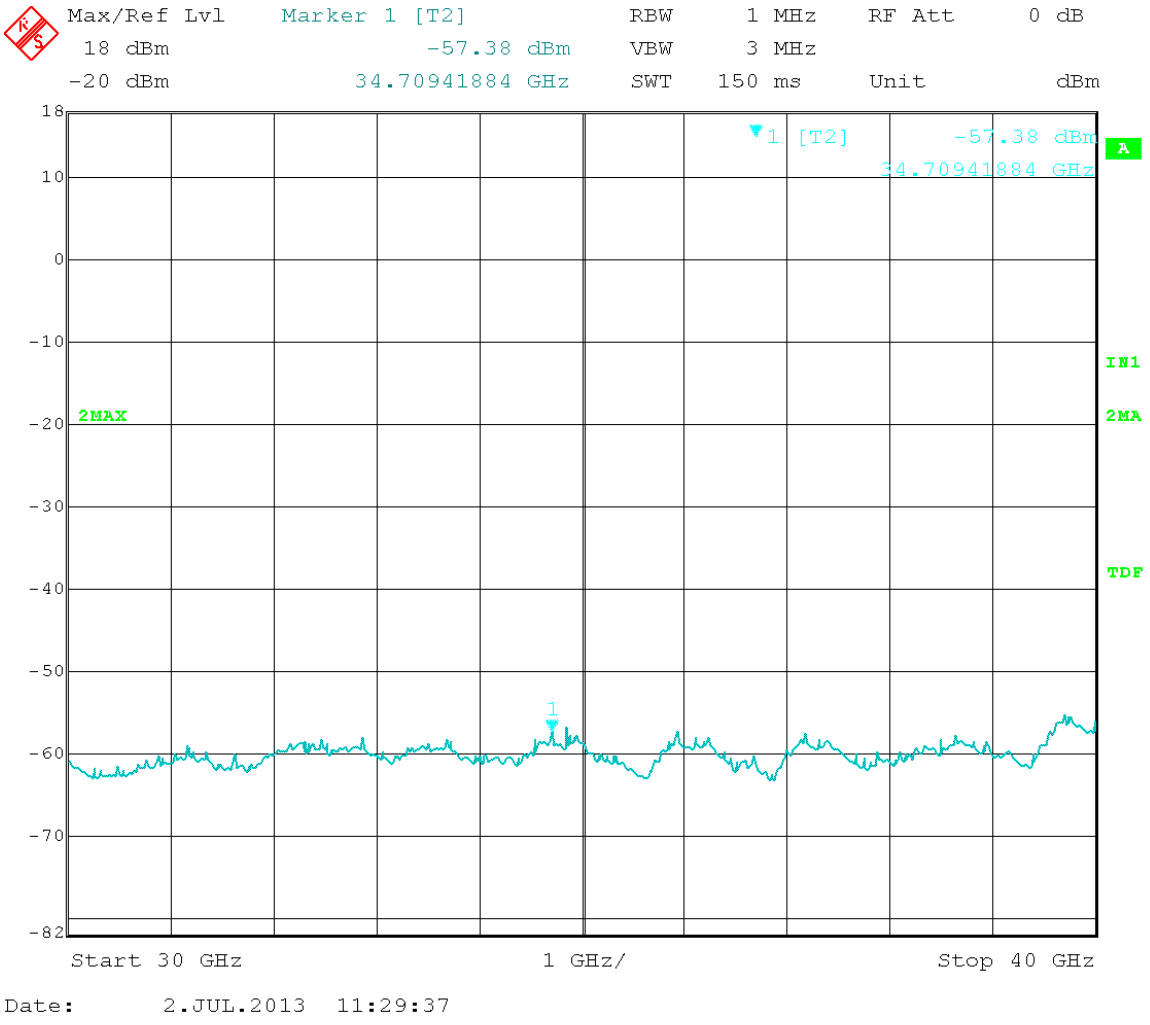

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



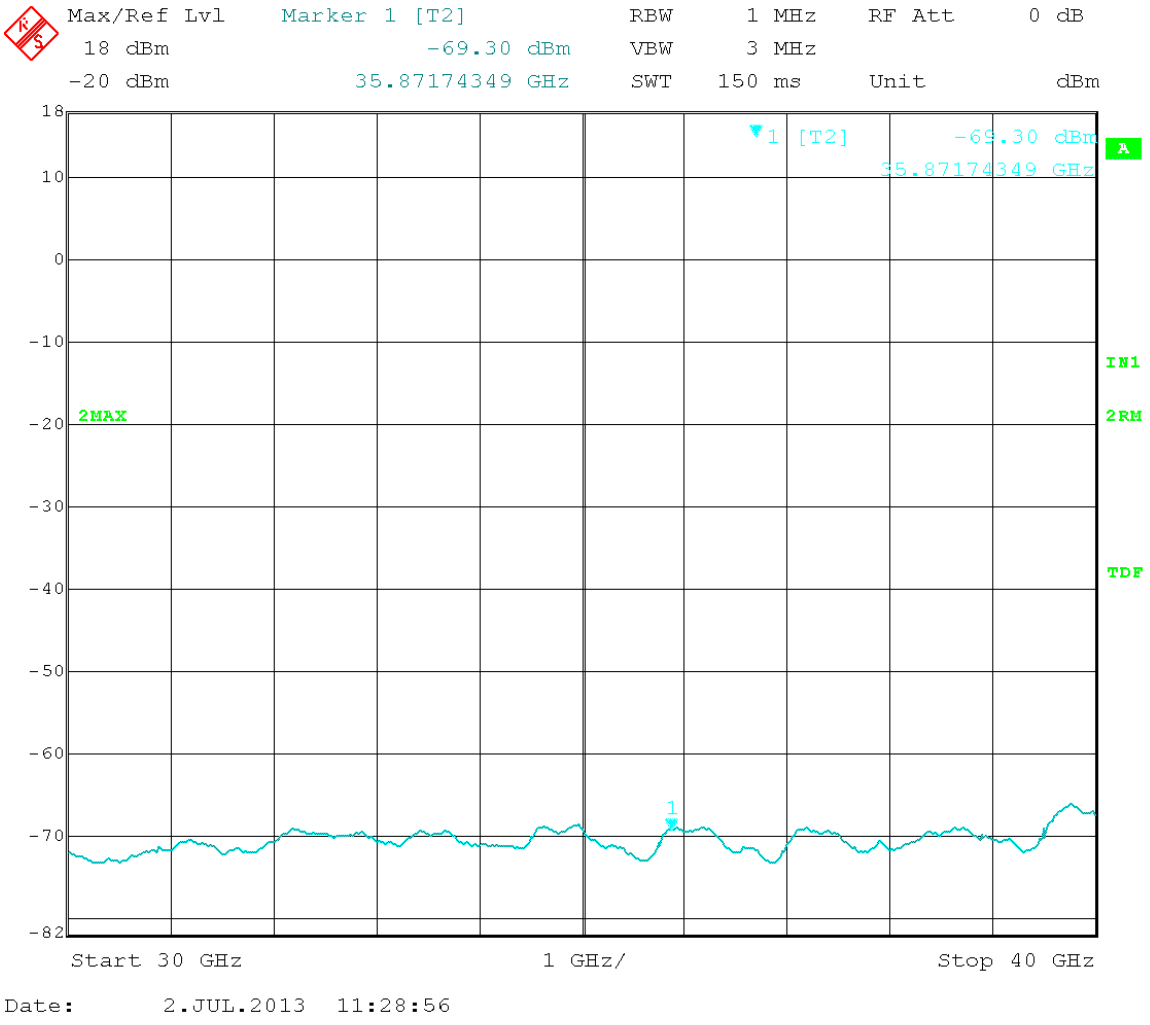

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



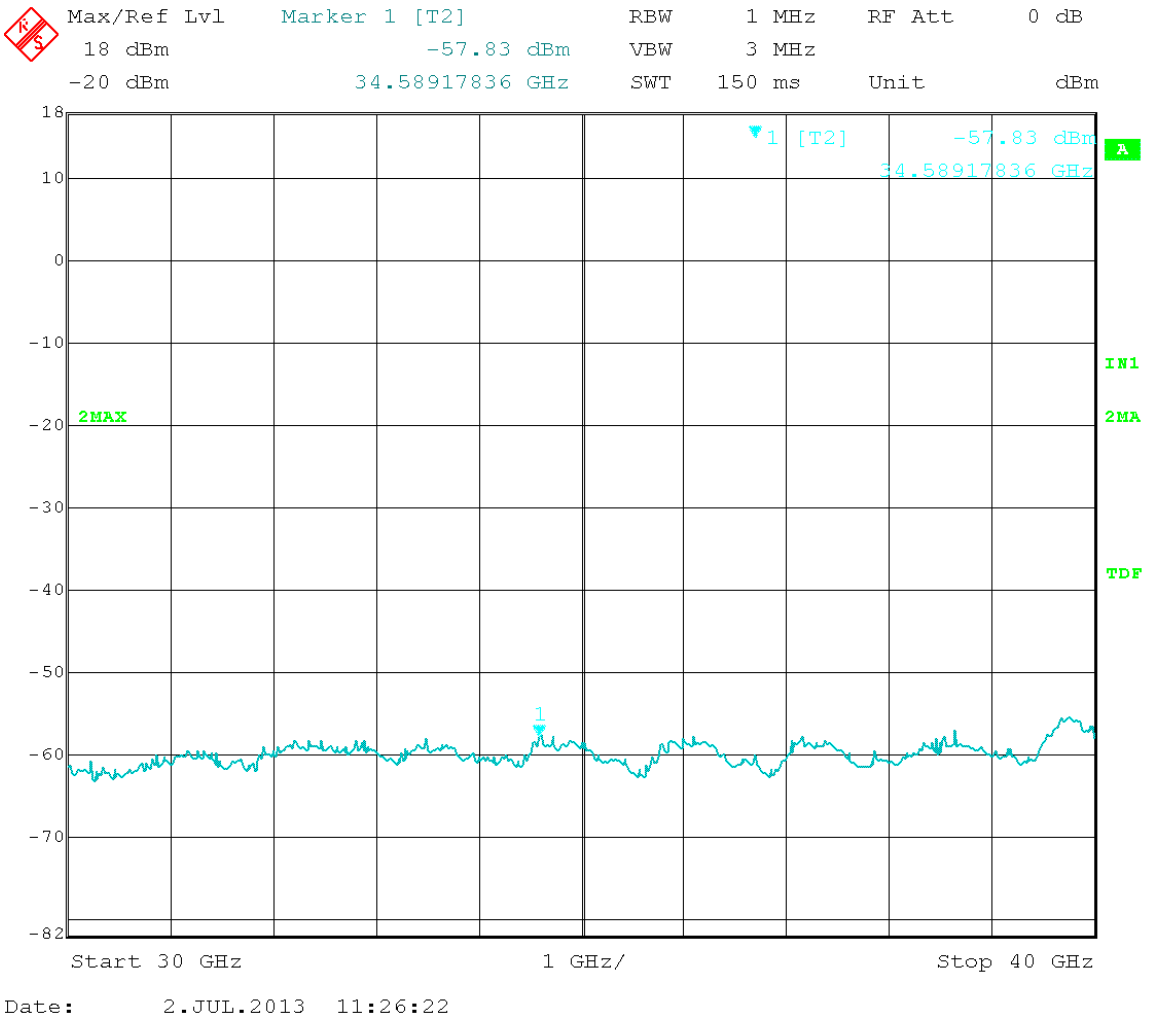

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



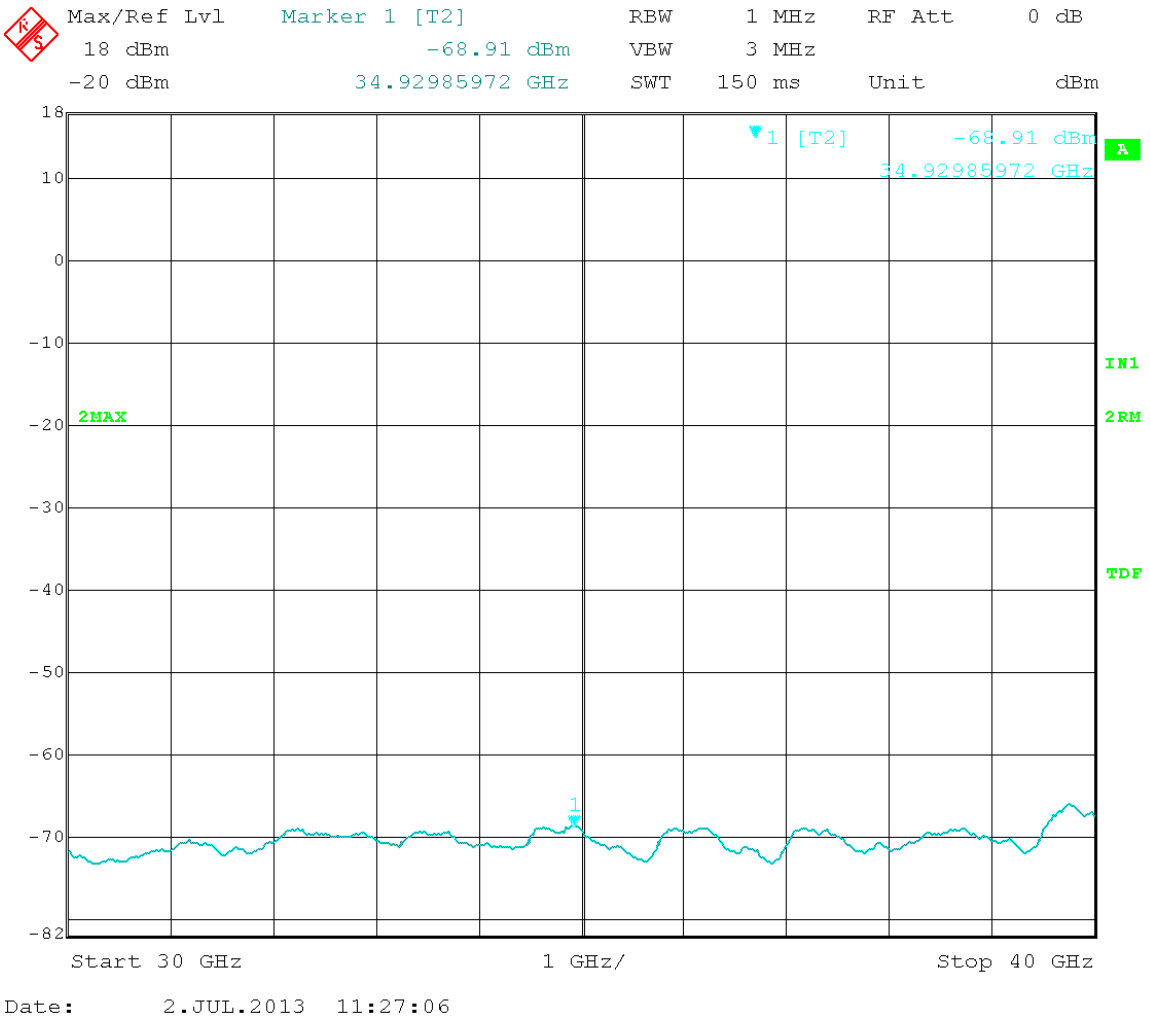

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
Mid Channel Frequency: 5.785 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



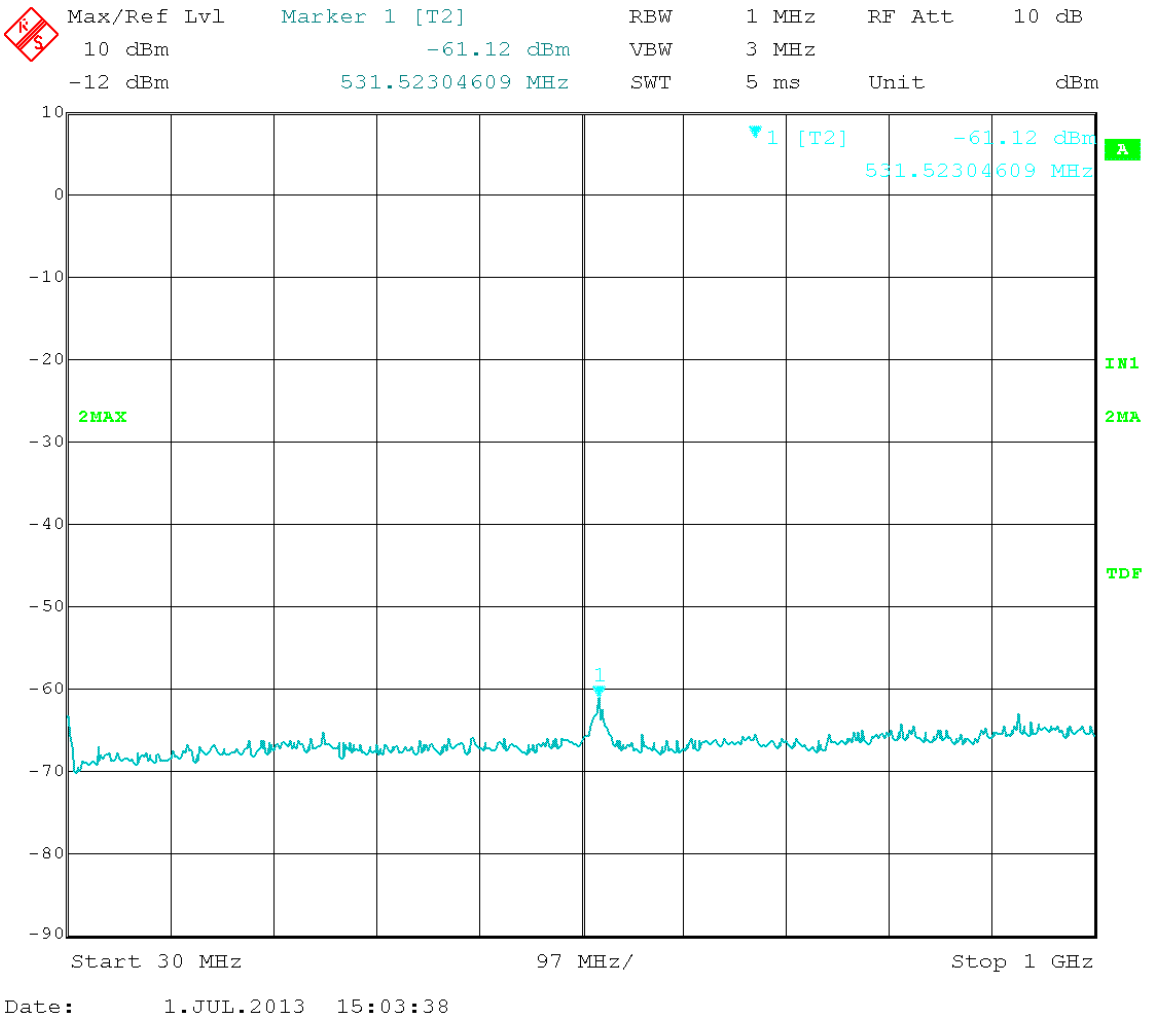

Marker 1: Greater than 20dB below limit

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



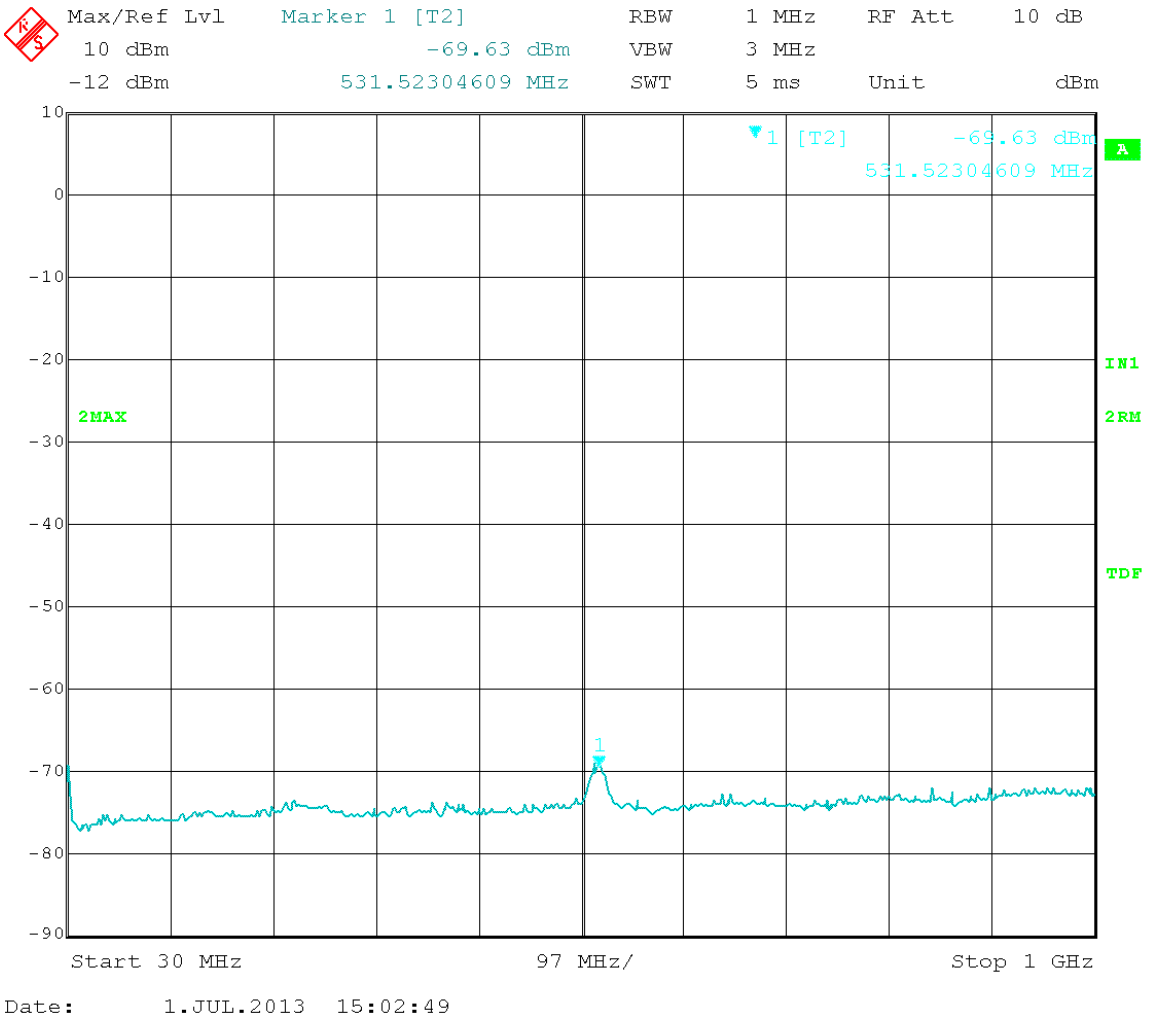

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



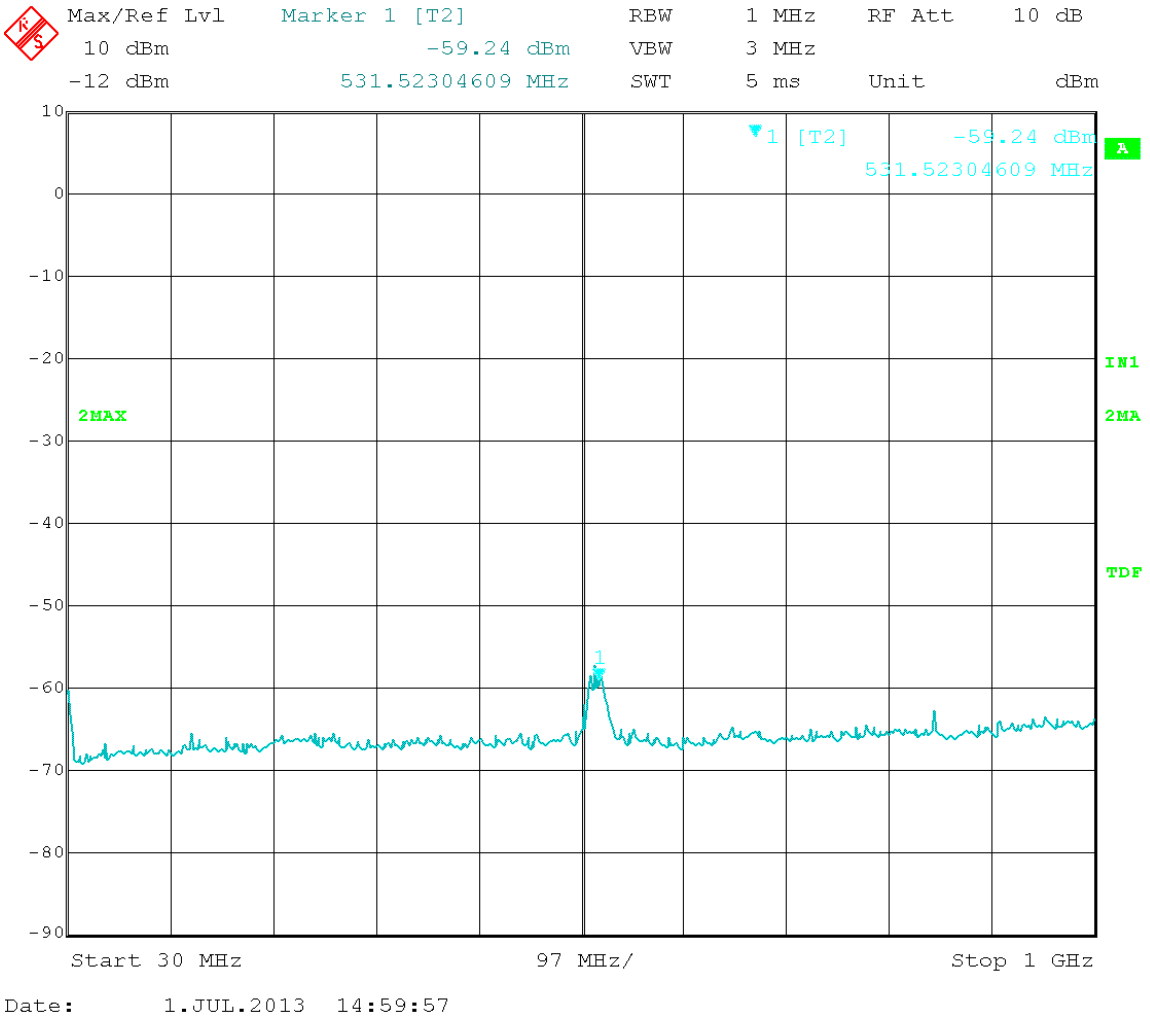

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



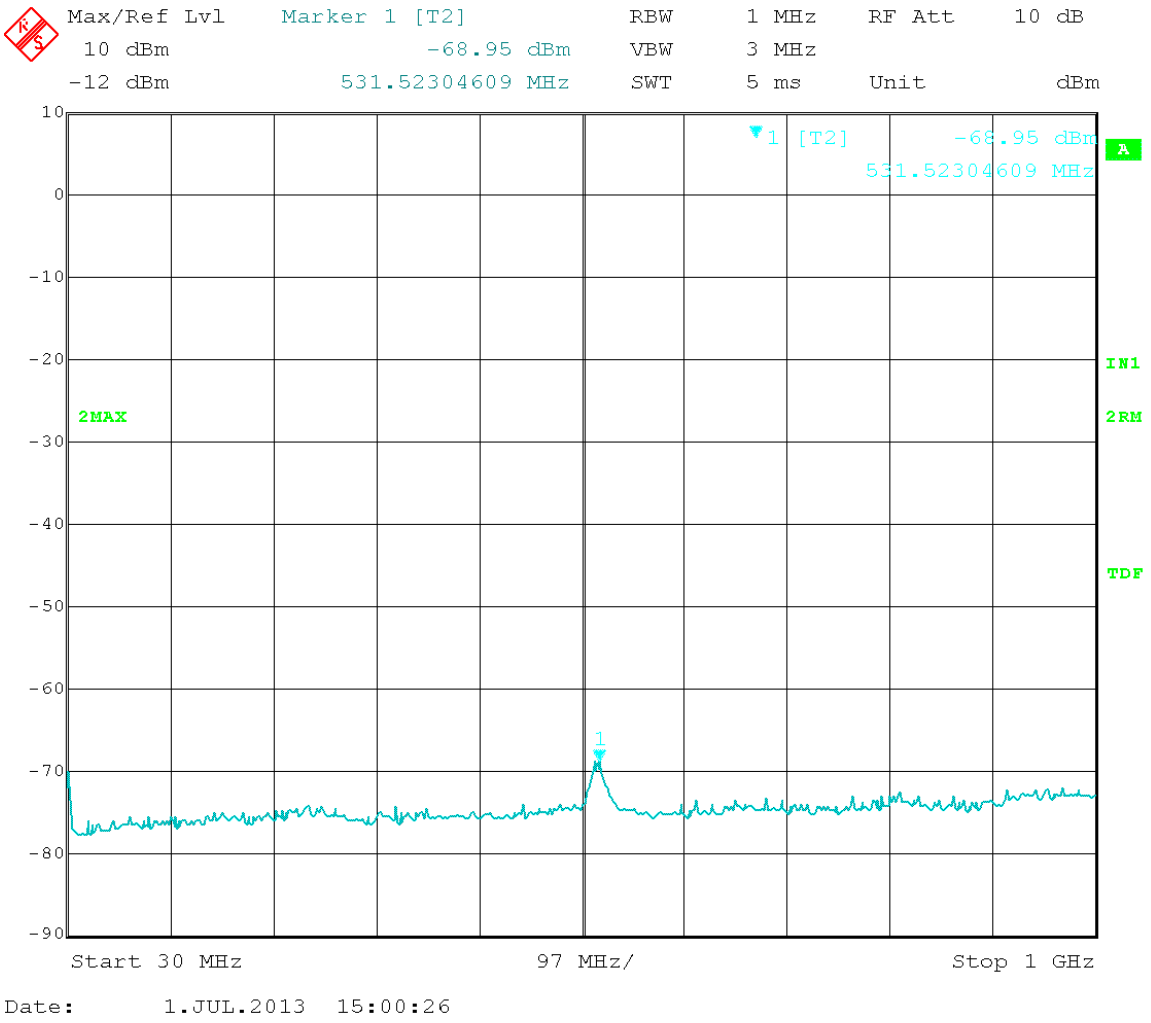

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30MHz to 1GHz



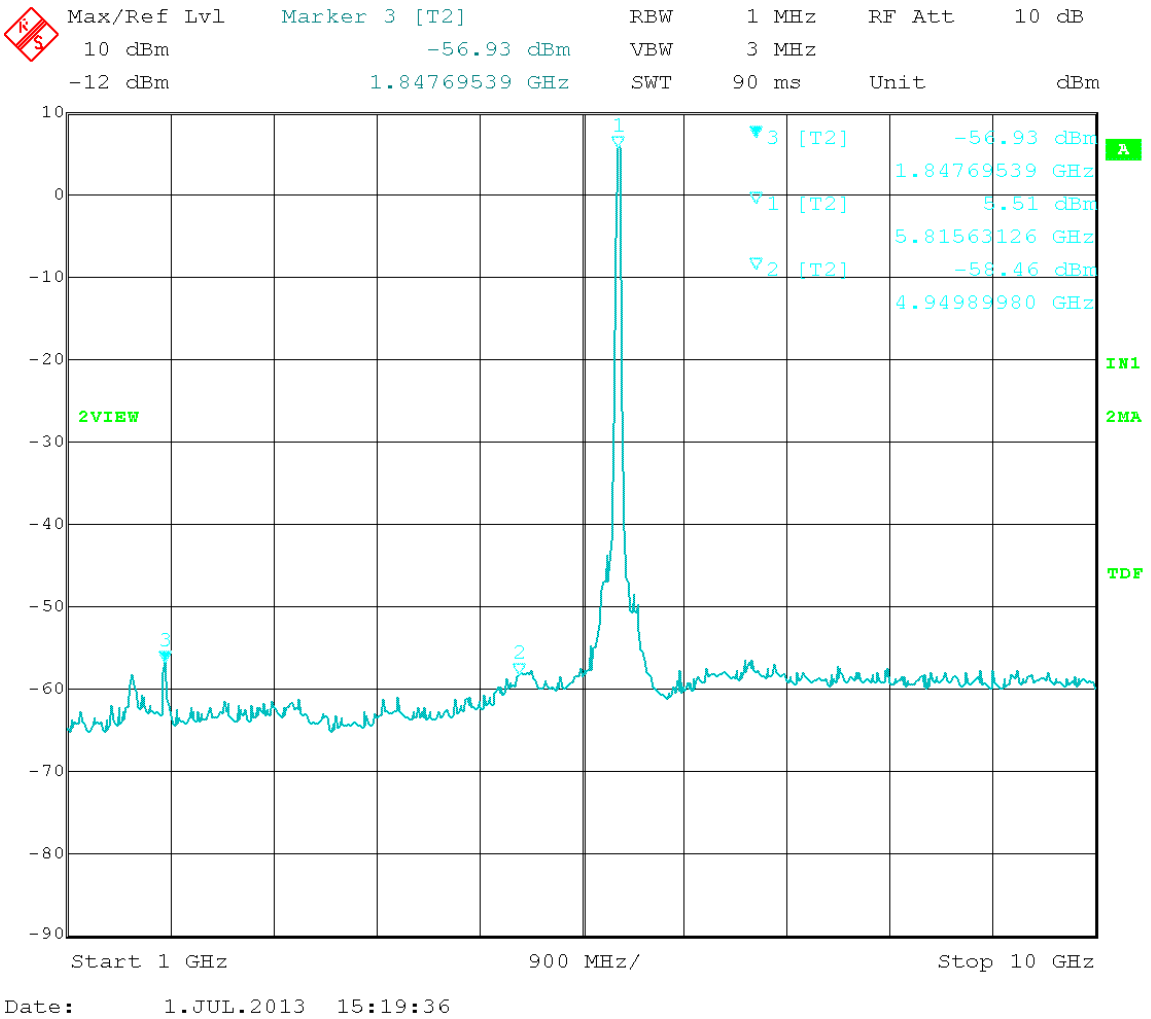

Marker 1: Non-Restricted Band

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



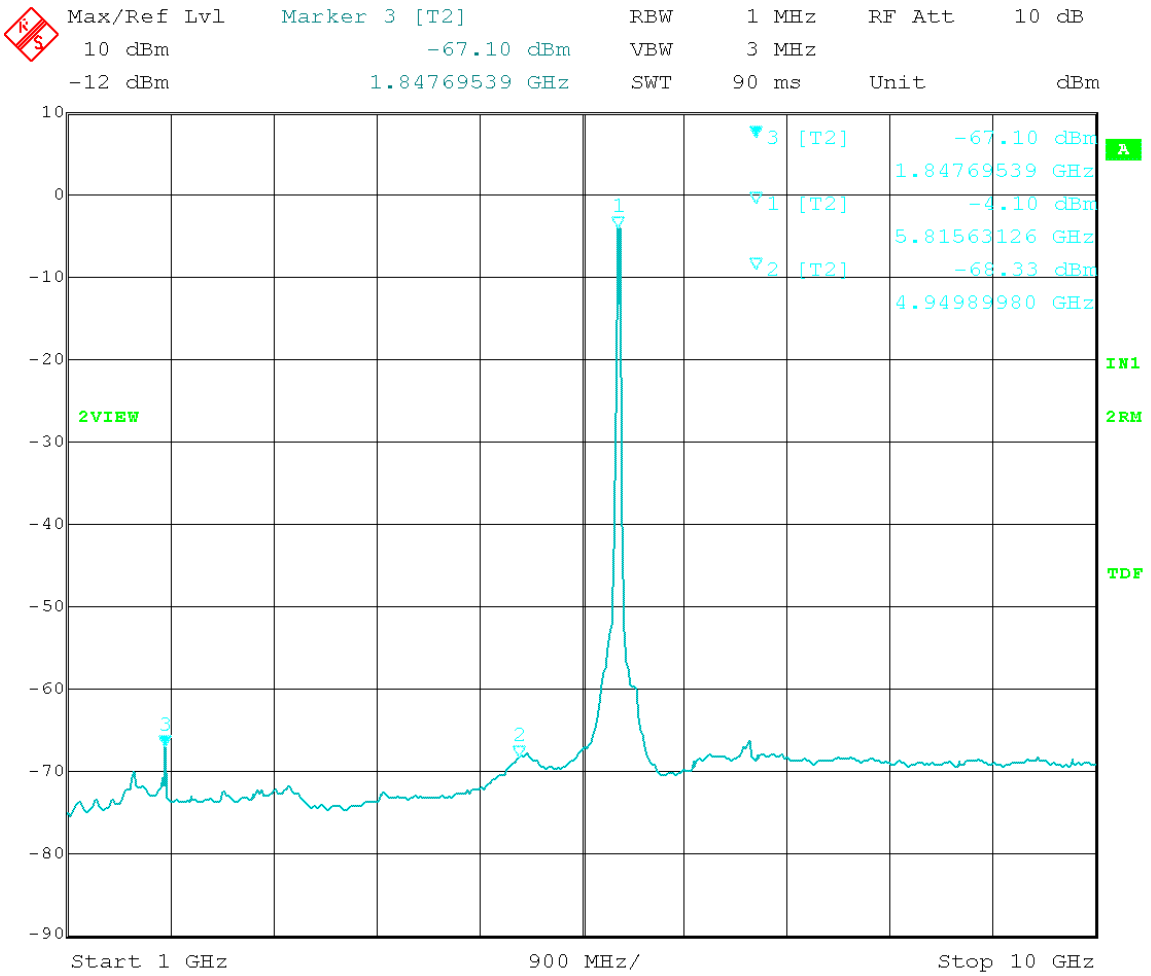

Marker 2: Calculated Field Strength (Restricted Band) = -58.46 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 55.77dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -56.93 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.3dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 0
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



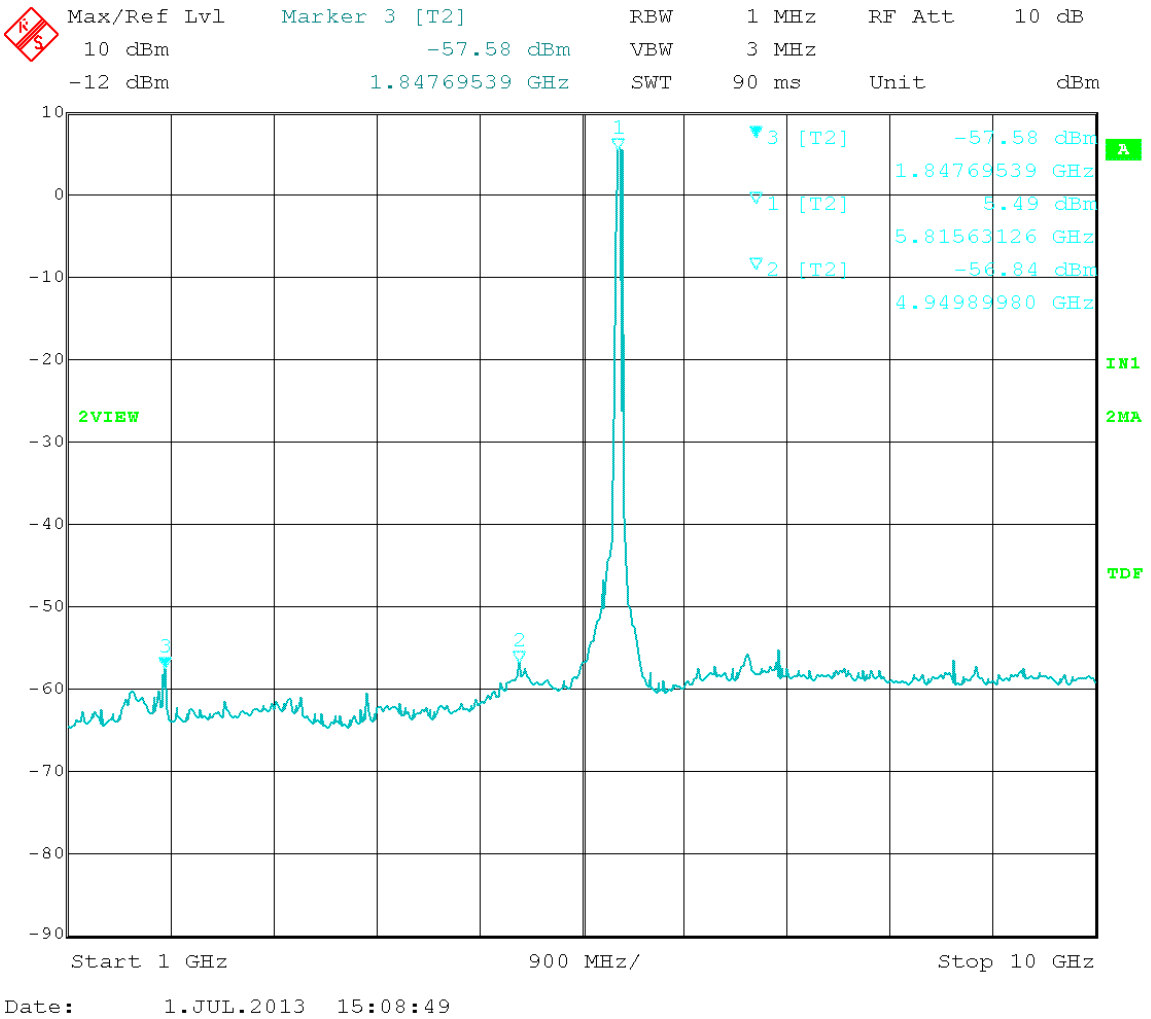

Marker 2: Calculated Field Strength (Restricted Band) = -68.33+ 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.9dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -67.10 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 47.13dBµV/m Average

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



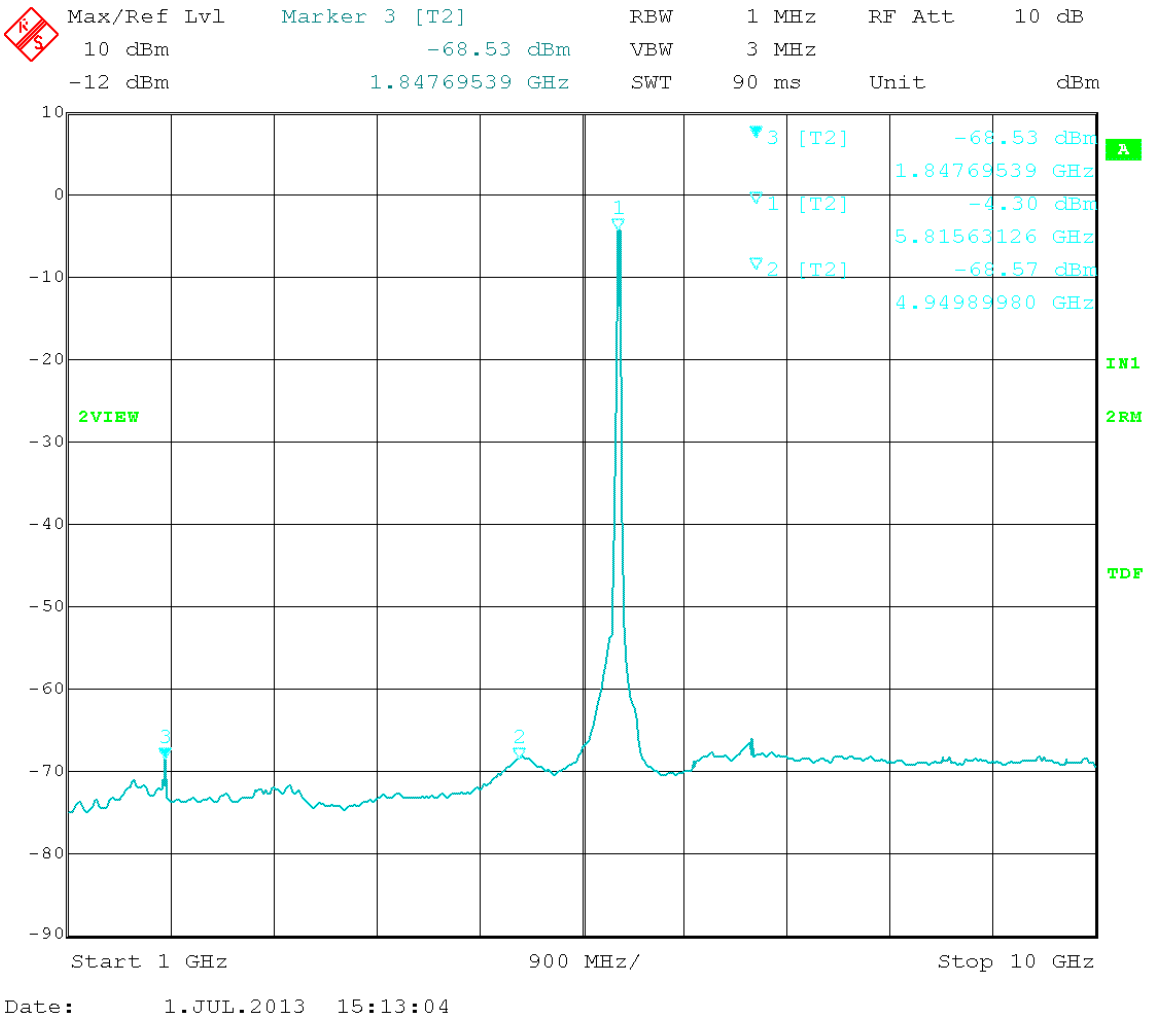

Marker 2: Calculated Field Strength (Restricted Band) = -56.84 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 57.39dBµV/m Peak
Marker 3: Calculated Field Strength (Restricted Band) = -57.58 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 56.65dBµV/m Peak

Test Date: 07-01-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter unwanted emissions – RF conducted
Operator: Jim O

EUT nominal channel bandwidth: 40 MHz
Output port: Channel 1
Output power setting: 17
Antenna gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 1 GHz to 10 GHz



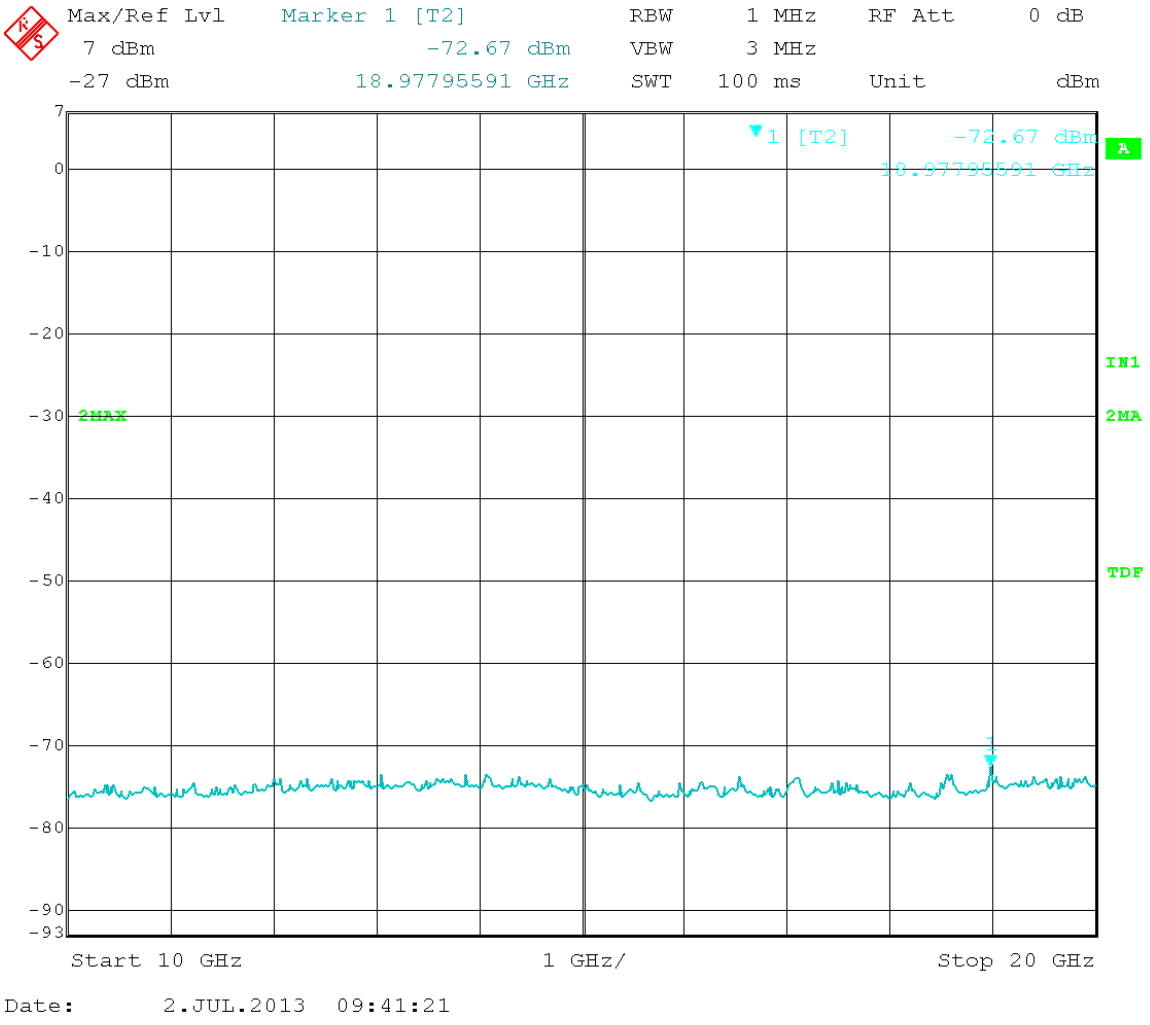

Marker 2: Calculated Field Strength (Restricted Band) = -68.57 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.66dBµV/m Average
Marker 3: Calculated Field Strength (Restricted Band) = -68.53 + 16dBi antenna gain + 3 dB (MIMO) – 20 log (3 meters) + 104.77 = 45.62dBµV/m Average

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



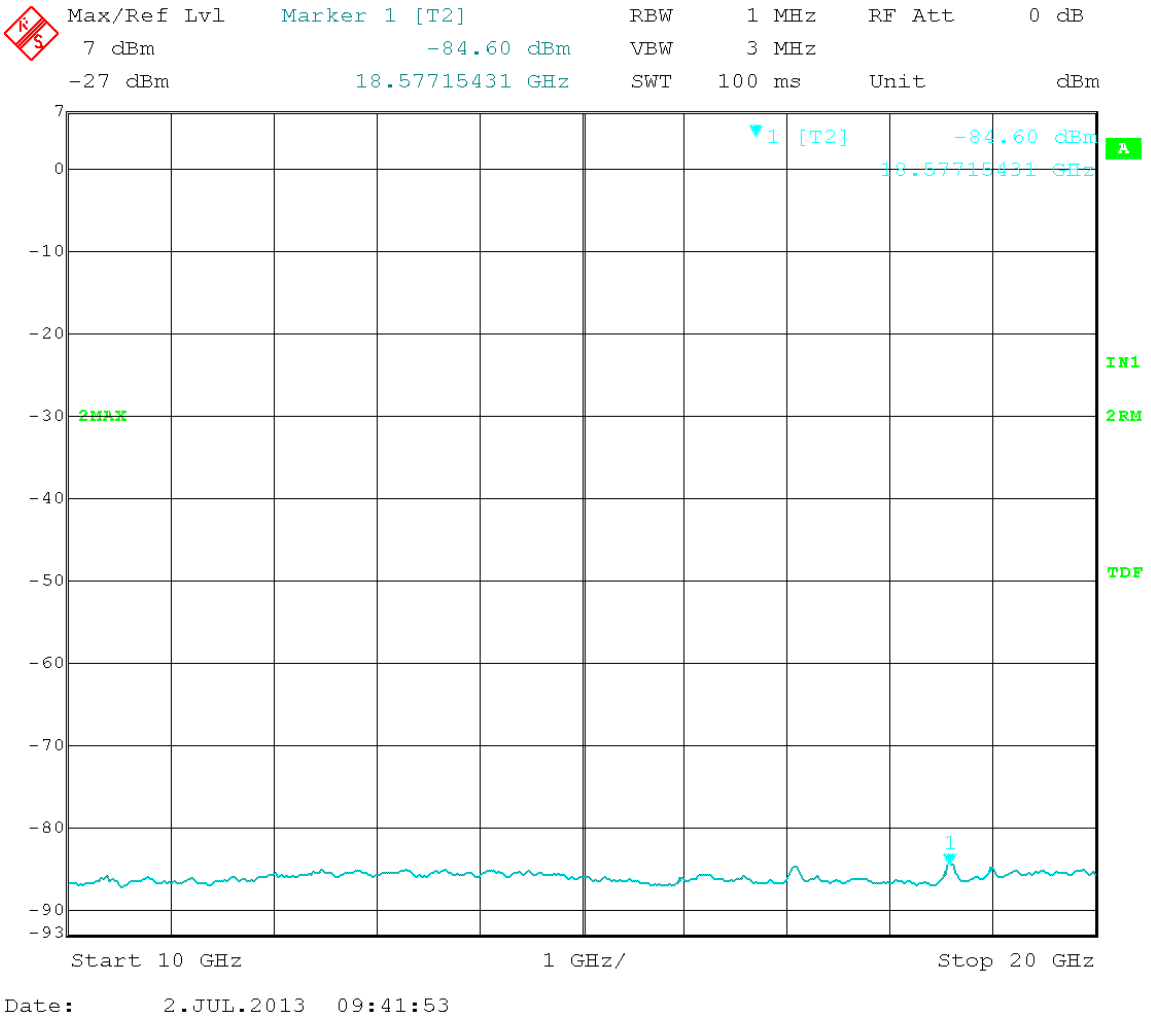

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



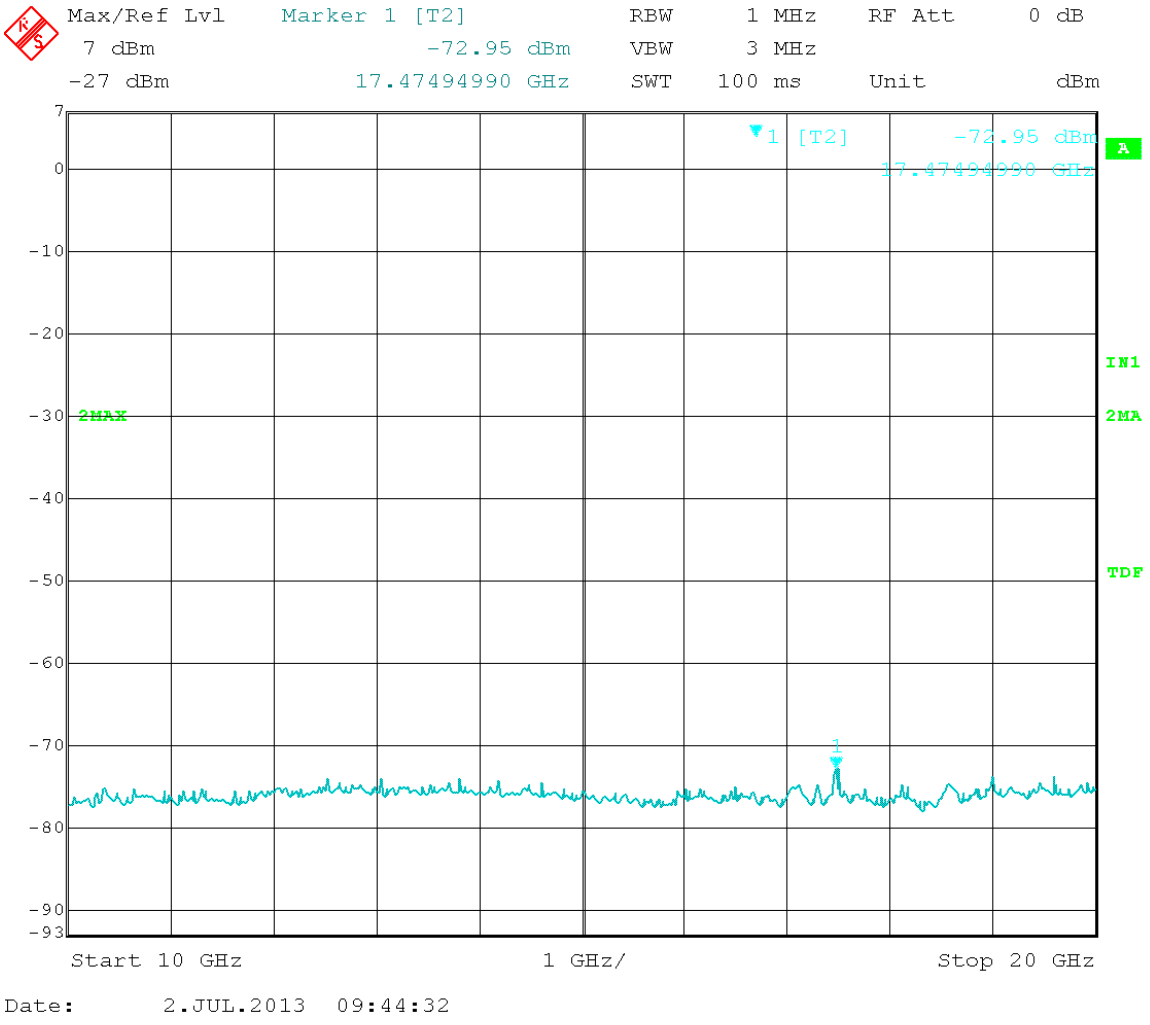

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



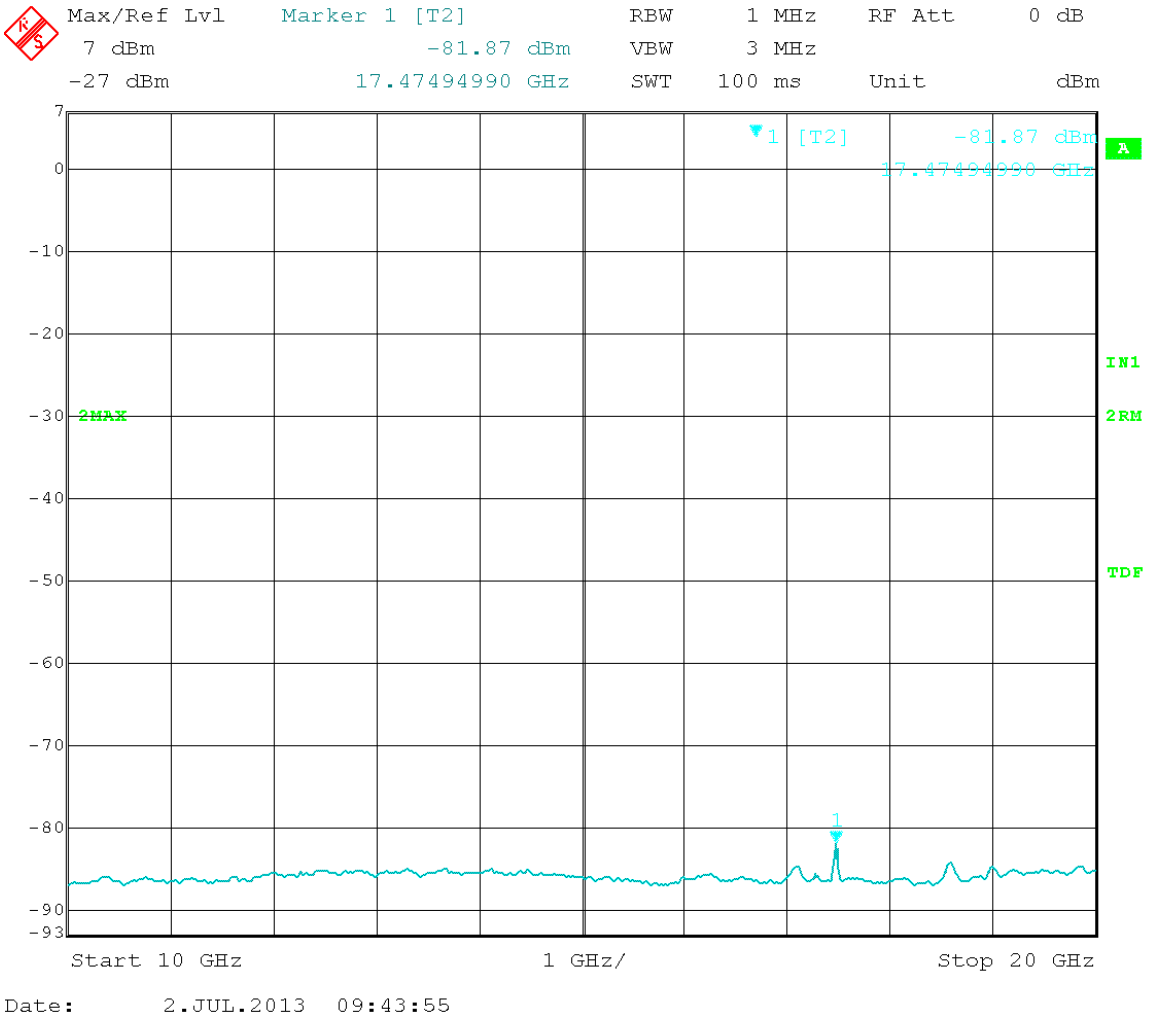

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 10 GHz to 20 GHz



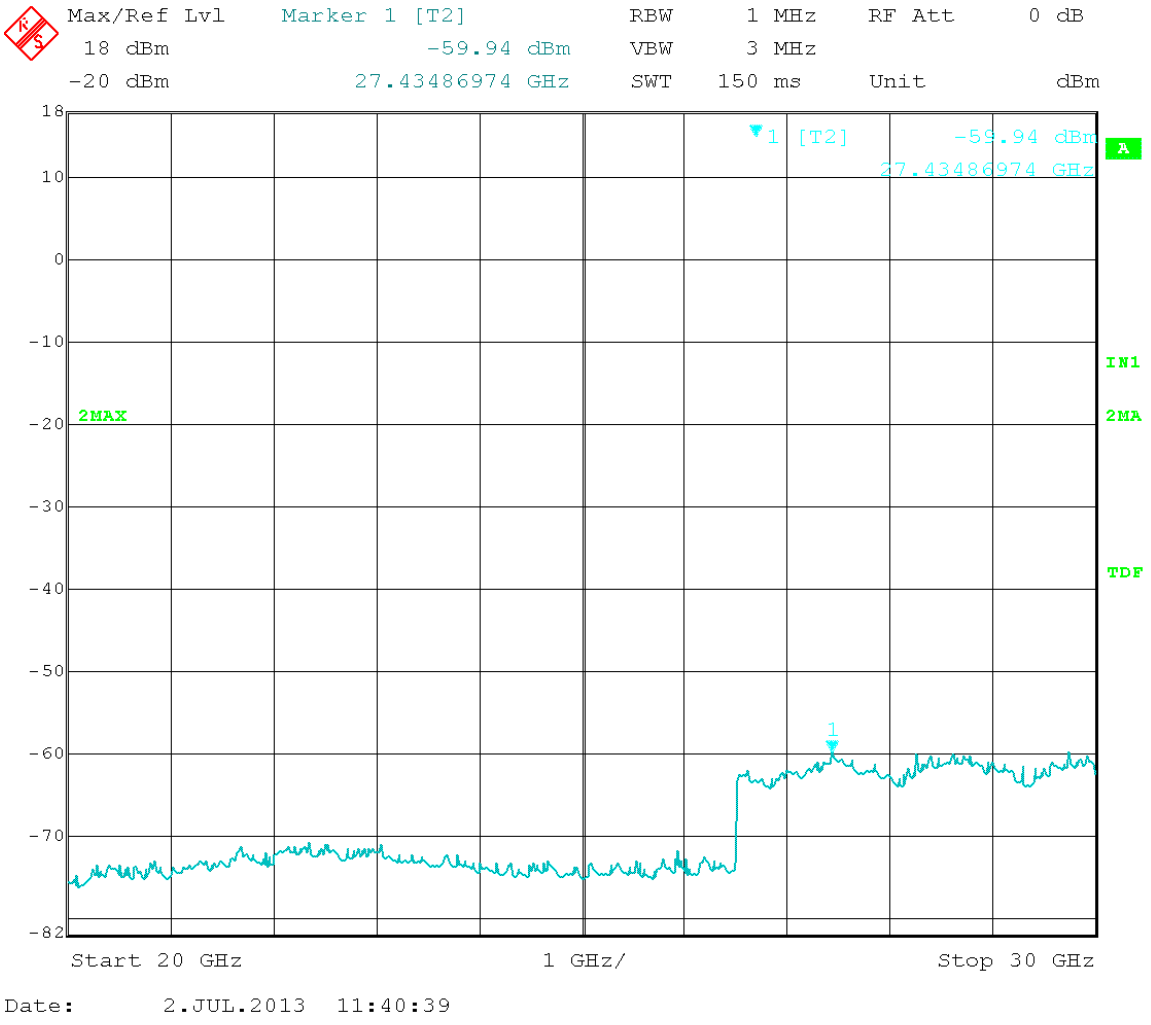

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



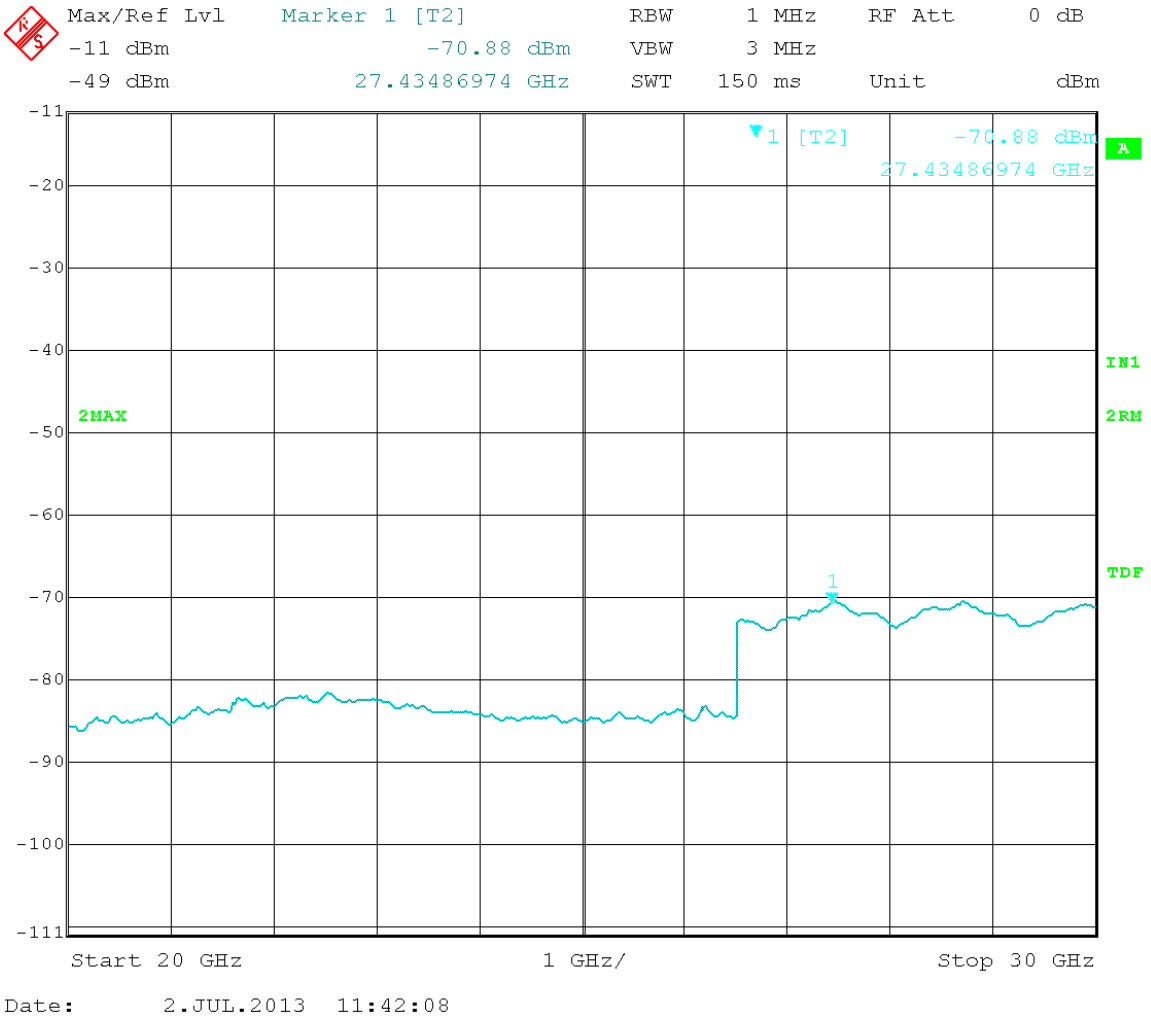

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



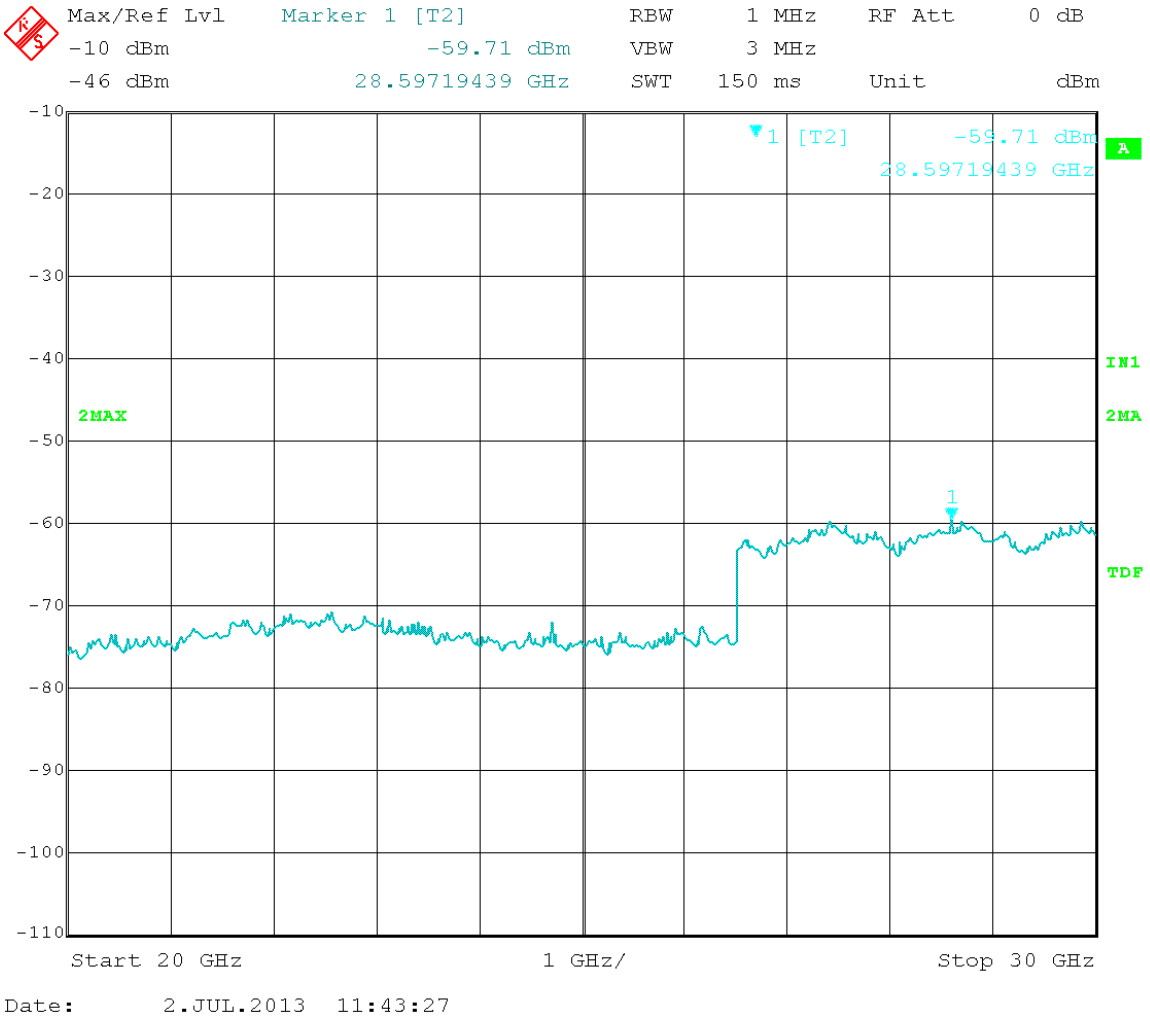

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



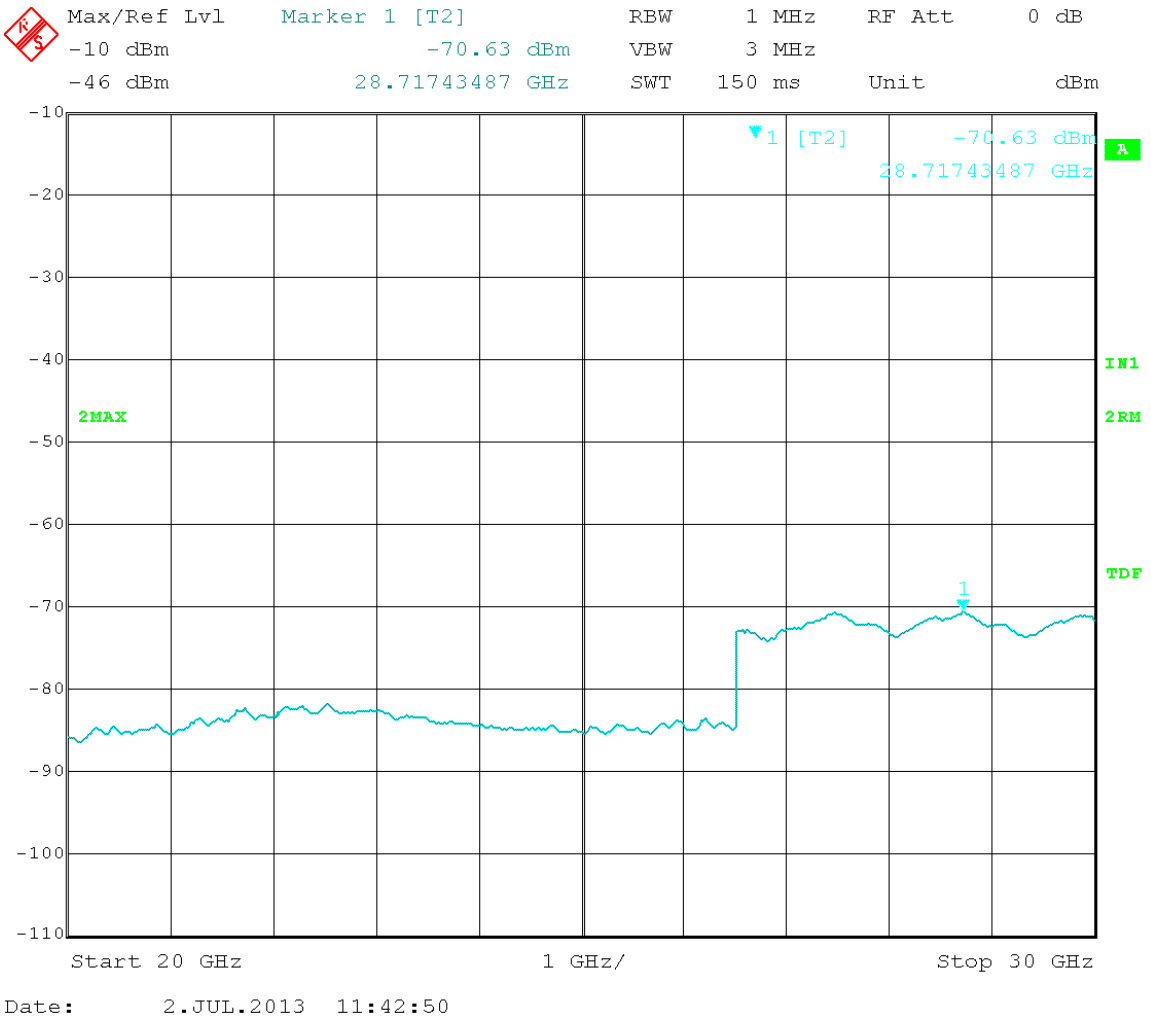

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 20 GHz to 30 GHz



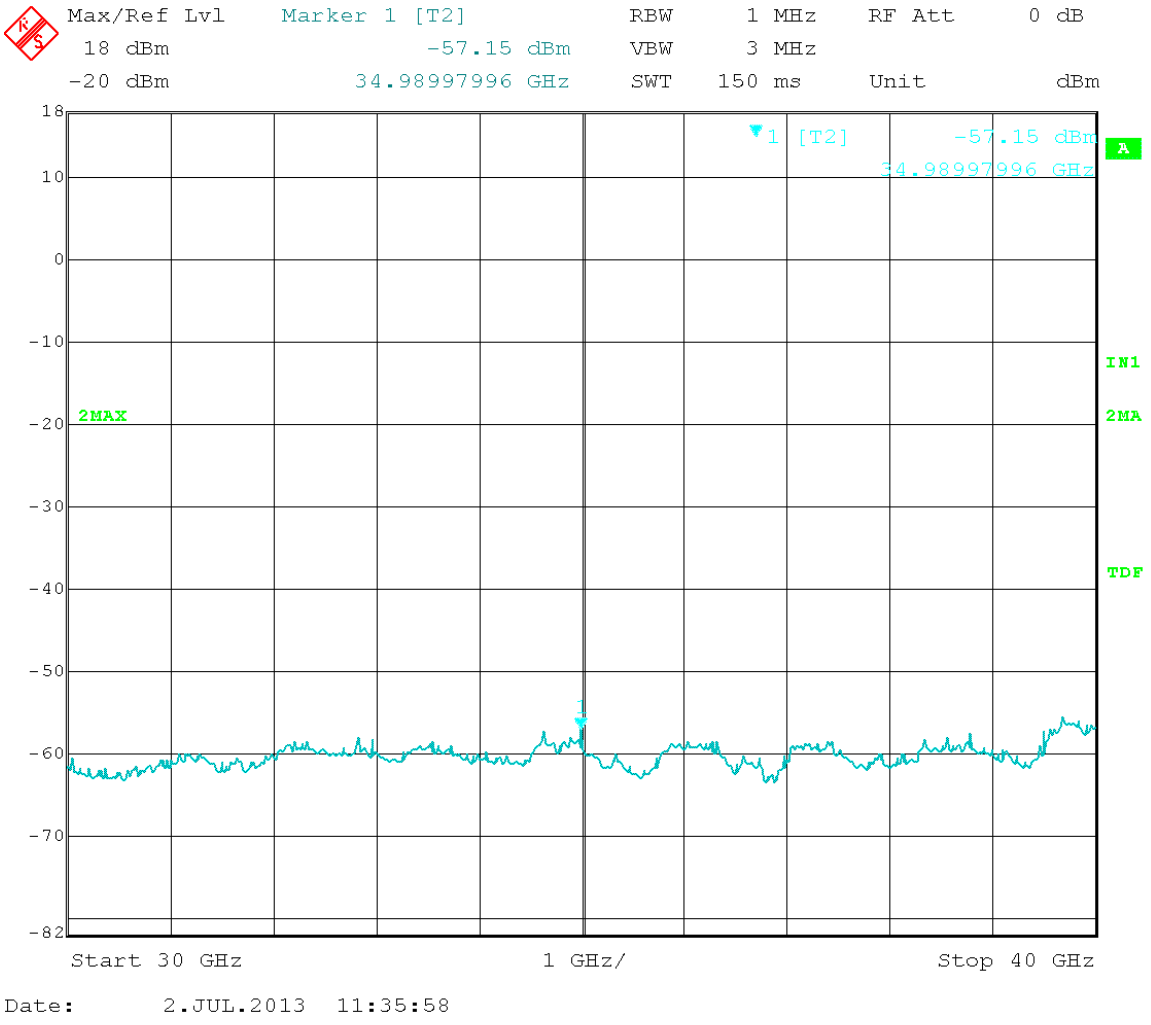

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



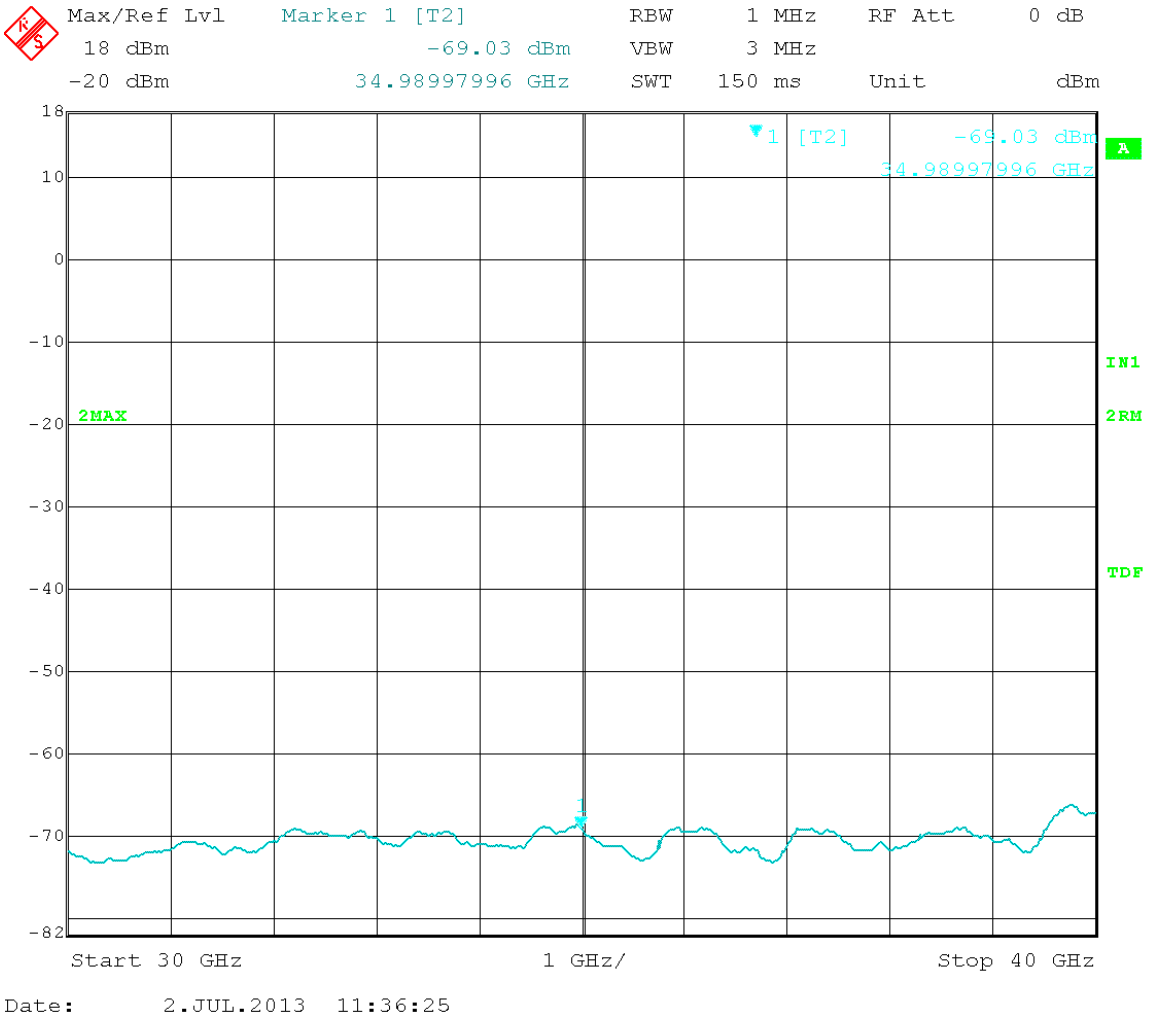

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 0
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



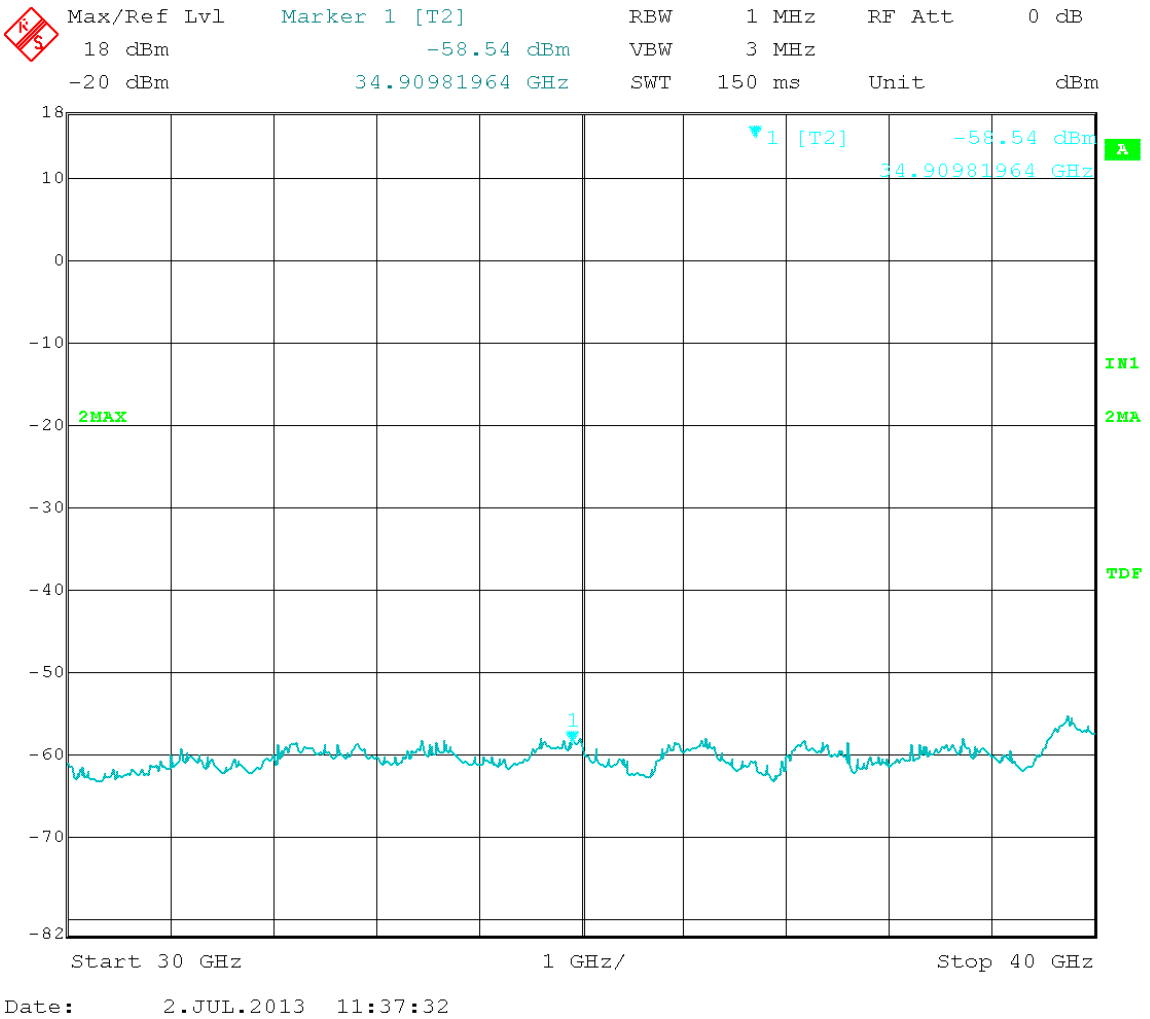

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

Peak Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz



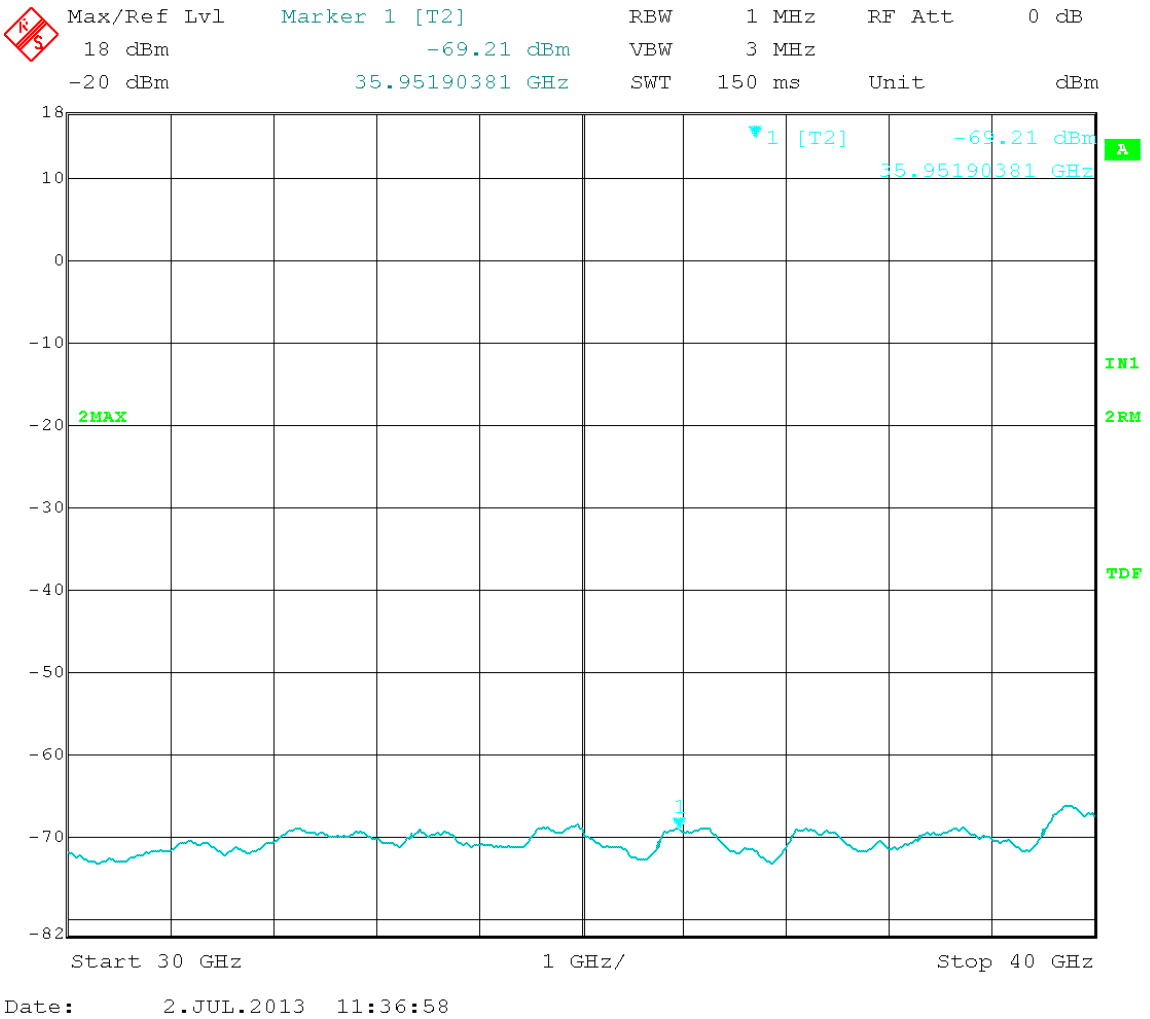

Marker 1: Greater than 20dB below limit

Test Date: 07-02-2013
Company: Cambium Networks
EUT: Avenger AP 5.7 GHz (Pont-to-Multipoint)
Test: Transmitter Unwanted Emissions – RF Conducted
Operator: Jim O

EUT Nominal Channel Bandwidth: 40 MHz
Output Port: Channel 1
Output Power Setting: 17
Antenna Gain: 16dBi

RMS Detector
High Channel Frequency: 5.825 GHz
Modulation Type: OFDM

Field strength limit (3 meters; Restricted Bands): 74dBµV/m Peak, 54dBµV/m Average
Corrected for external attenuation, cable and connector to antenna interface on radio.
Frequency Range: 30 GHz to 40 GHz




Marker 1: Greater than 20dB below limit

166 South Carter, Genoa City, WI 53128

## Appendix B – Measurement Data

### B7.0 Max Unwanted Emission Levels into Restricted Frequency Bands - Radiated with Cabinet

**Rule Section**: Section 15.247(d)
Section 15.205

**Test Procedure**: FCC KDB 558074 D01 DTS Meas Guidance v03r01 – *Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247*

ANSI C63.10:2009 – Sections 6.5 and 6.6

**12.0 Emissions in restricted frequency bands**
**12.1 Radiated emission measurements**

**Description**: This test applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. These are radiated emission measurements with the cabinet. The antenna ports were terminated with 50 Ohm terminations.

Measurements were taken for an OFDM modulation over a 20MHz and 40MHz modulation bandwidth at the low, mid and high channels. EUT was set to transmit continuously at their maximum power settings. Radiated measurements were taken both vertically and horizontally. All other restricted band emissions were at least 20 dB under the limit.

**Limit:** FCC Part 15.209

**Results:** Passed

**Results:** Passed

## *FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands*

## *Electric Field Strength*

EUT: 5.7 GHz Avenger AP
Manufacturer: Cambium Networks
Operating Condition: 73 deg. F; 64% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: 29.5 V DC (POE); L, M, and H channles
Comment: 20 & 40 MHz ch BW's; both chains active at 20 dBm, MCS15
Date: 06-13-2013

### *TEXT: "Horz 3 meters"*

Short Description: Test Set-up

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

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

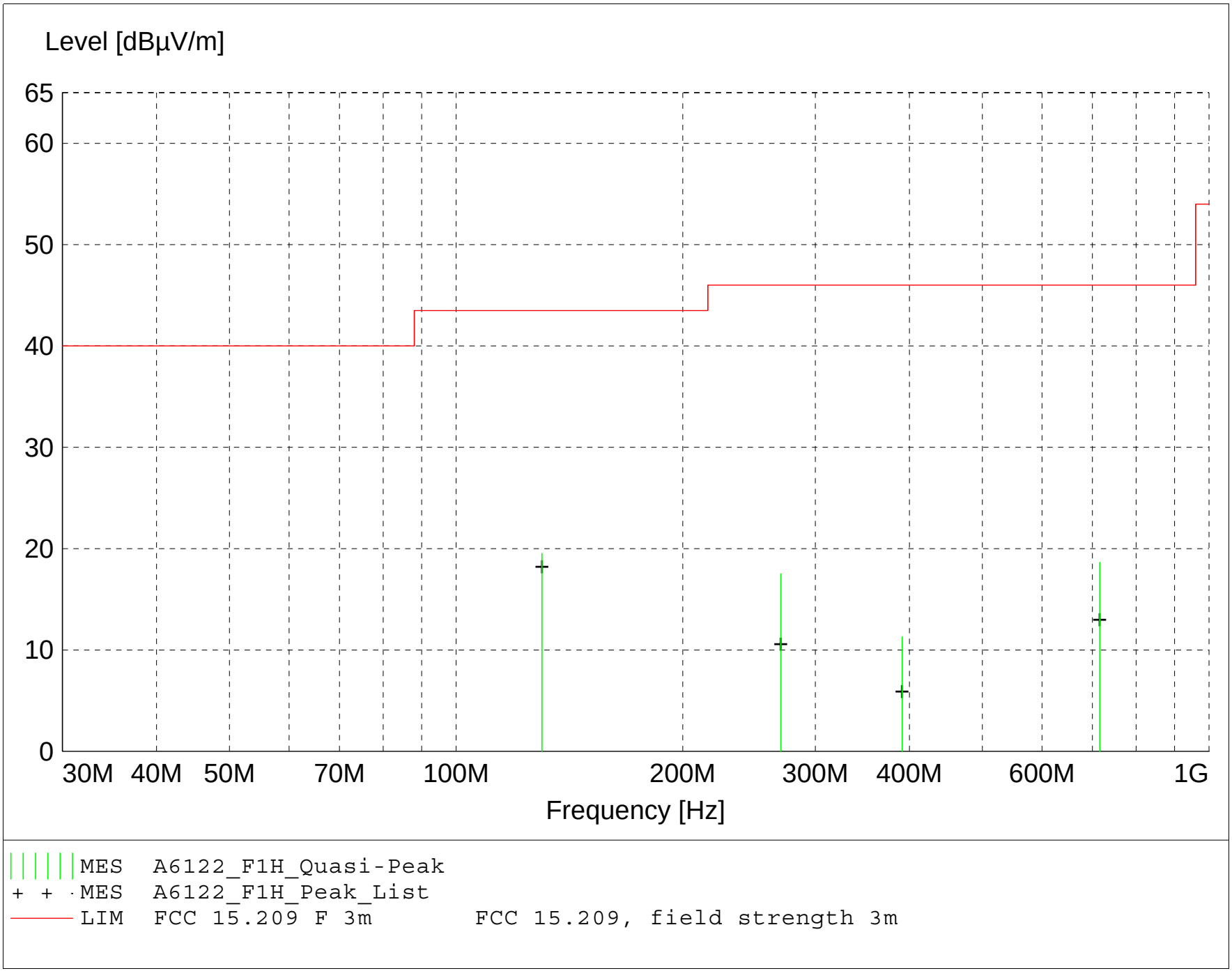
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

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

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

# Final maximized level using Peak detector


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES A6122_F1H_Quasi-Peak
MES A6122_F1H_Peak_List
LIM FCC 15.209 F 3m
FCC 15.209, field strength 3m

***MEASUREMENT RESULT: "A6122_F1H_Final"***

6/13/2013 10:03AM

| Frequency | Level | Antenna Factor | System Loss | Total Level | Limit | Margin | Height Ant. | EuT Angle | Final Detector | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| MHz | dBµV | dBµV/m | dB | dBµV/m | dBµV/m | dB | m | deg | | |
| 130.000000 | 29.07 | 12.90 | -22.4 | 19.5 | 43.5 | 24.0 | 1.30 | 250 | QUASI-PEAK | broadband |
| 715.970000 | 16.37 | 21.04 | -18.8 | 18.6 | 46.0 | 27.4 | 1.50 | 45 | QUASI-PEAK | noise floor |
| 269.970000 | 25.44 | 13.40 | -21.3 | 17.5 | 46.0 | 28.5 | 3.10 | 290 | QUASI-PEAK | None |
| 391.250000 | 16.10 | 15.83 | -20.6 | 11.3 | 46.0 | 34.7 | 1.00 | 0 | QUASI-PEAK | noise floor |

## *FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands*

## *Electric Field Strength*

EUT: 5.7 GHz Avenger AP
Manufacturer: Cambium Networks
Operating Condition: 73 deg. F; 64% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: 29.5 V DC (POE); L, M, and H channles
Comment: 20 & 40 MHz ch BW's; both chains active at 20 dBm, MCS15
Date: 06-13-2013

### *TEXT: "Vert 3 meters"*

Short Description: Test Set-up

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

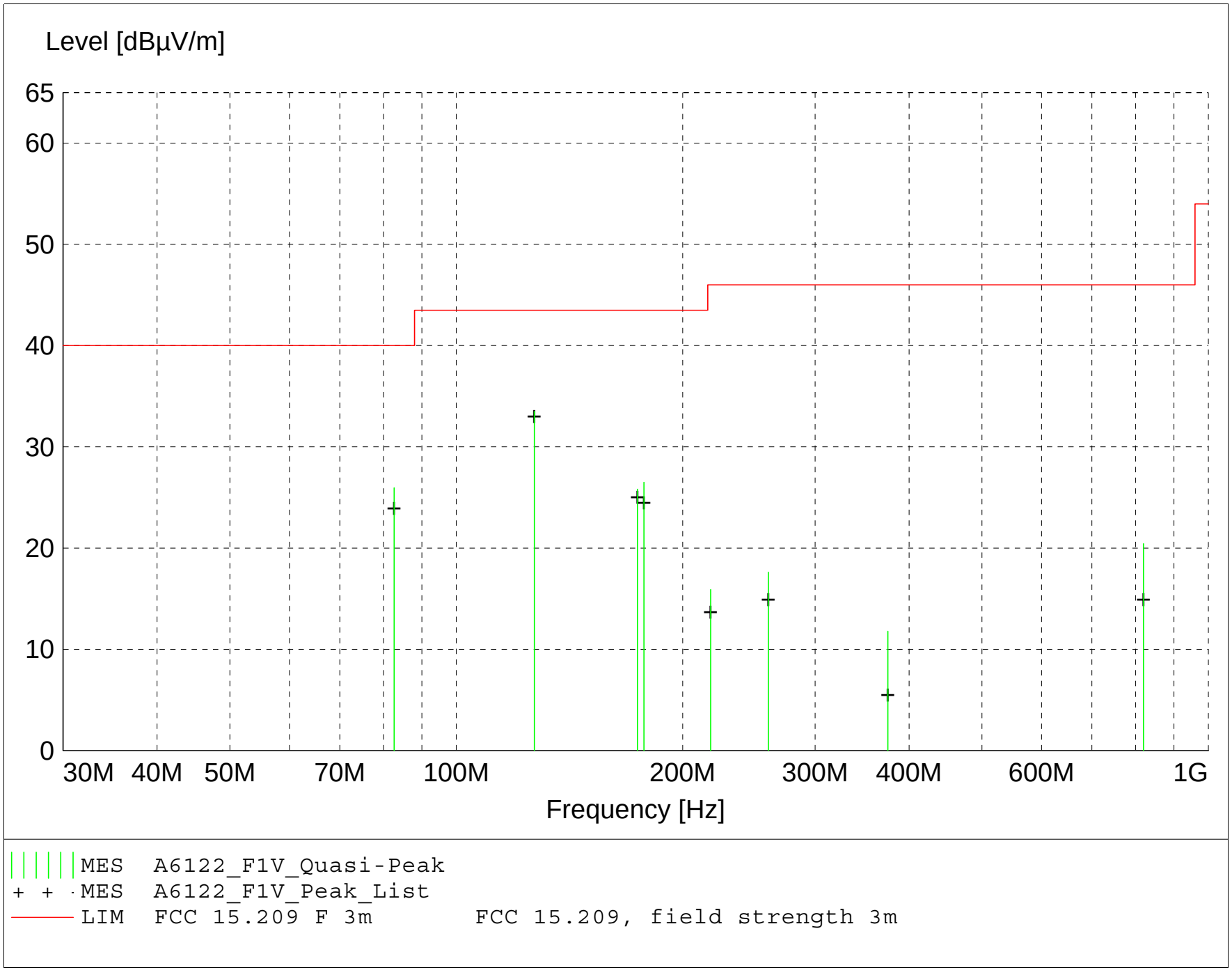
Sample Equations:

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

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

Graph Markers:

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


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES A6122_F1V_Quasi-Peak
MES A6122_F1V_Peak_List
LIM FCC 15.209 F 3m
FCC 15.209, field strength 3m

***MEASUREMENT RESULT: "A6122_F1V_Final"***

6/13/2013 10:09AM

| Frequency | Level | Antenna Factor | System Loss | Total Level | Limit | Margin | Height Ant. | EuT Angle | Final Detector | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| MHz | dBµV | dBµV/m | dB | dBµV/m | dBµV/m | dB | m | deg | | |
| 127.005000 | 42.95 | 13.00 | -22.5 | 33.5 | 43.5 | 10.0 | 1.00 | 260 | QUASI-PEAK | broadband |
| 82.675000 | 42.46 | 6.67 | -23.2 | 25.9 | 40.0 | 14.1 | 1.20 | 315 | QUASI-PEAK | broadband |
| 177.640000 | 32.58 | 16.03 | -22.1 | 26.5 | 43.5 | 17.0 | 1.00 | 290 | QUASI-PEAK | broadband |
| 174.135000 | 32.44 | 15.51 | -22.1 | 25.8 | 43.5 | 17.7 | 1.00 | 270 | QUASI-PEAK | broadband |
| 819.980000 | 16.54 | 22.30 | -18.4 | 20.4 | 46.0 | 25.6 | 1.00 | 0 | QUASI-PEAK | noise floor |
| 260.000000 | 26.13 | 13.00 | -21.5 | 17.6 | 46.0 | 28.4 | 2.00 | 90 | QUASI-PEAK | None |
| 217.860000 | 26.11 | 11.54 | -21.8 | 15.9 | 46.0 | 30.1 | 2.20 | 90 | QUASI-PEAK | boradband |
| 374.820000 | 17.14 | 15.29 | -20.7 | 11.8 | 46.0 | 34.2 | 1.00 | 0 | QUASI-PEAK | noise floor |

## *FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands*

## *Electric Field Strength*

EUT: Avenger AP (5.7GHz OFDM)
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O/Lillian Li
Test Specification: Continuous TX : 20 & 40MHz BW: outputs terminated
Comment: Low, Mid and High Channel
Date: 06-14-2013

### *TEXT: "Horz 3 meters"*

Short Description: Test Set-up

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

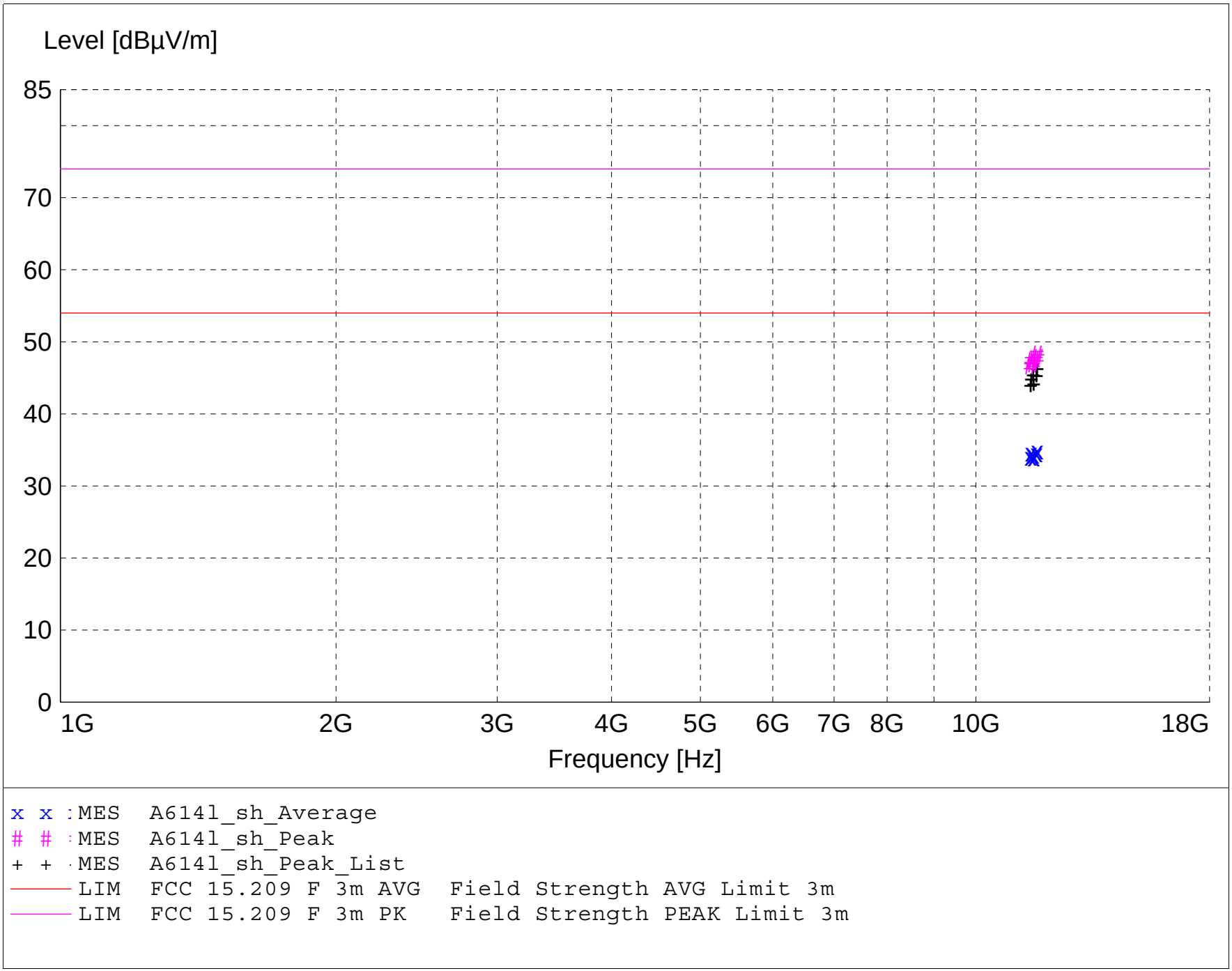
Sample Equations:

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

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

Graph Markers:

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




x x : MES A614l_sh_Average
# # : MES A614l_sh_Peak
+ + : MES A614l_sh_Peak_List
——— LIM FCC 15.209 F 3m AVG Field Strength AVG Limit 3m
——— LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

***MEASUREMENT RESULT: "A614l_sh_Final"***

6/14/2013 3:04PM

| Frequency | Level | Antenna Factor | System Loss | Total Level | Limit | Margin | Height Ant. | EuT Angle | Final Detector | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| MHz | dBµV | dBµV/m | dB | dBµV/m | dBµV/m | dB | m | deg | | |
| 11670.060000 | 31.46 | 38.92 | -35.5 | 34.9 | 54.0 | 19.1 | 1.00 | 0 | AVERAGE | 20M HCH 2nd NF |
| 11500.480000 | 31.08 | 38.71 | -35.2 | 34.6 | 54.0 | 19.4 | 1.00 | 0 | AVERAGE | 40M LCH 2nd NF |
| 11649.800000 | 31.21 | 38.89 | -35.6 | 34.6 | 54.0 | 19.4 | 1.00 | 0 | AVERAGE | 40M HCH 2nd NF |
| 11550.020000 | 30.96 | 38.78 | -35.4 | 34.3 | 54.0 | 19.7 | 1.00 | 0 | AVERAGE | 20M MCH 2nd NF |
| 11480.140000 | 30.69 | 38.67 | -35.3 | 34.1 | 54.0 | 19.9 | 1.00 | 0 | AVERAGE | 20M LCH 2nd NF |
| 11569.880000 | 30.69 | 38.80 | -35.5 | 34.0 | 54.0 | 20.0 | 1.00 | 0 | AVERAGE | 40M MCH 2nd NF |
| 11649.800000 | 44.94 | 38.89 | -35.6 | 48.3 | 74.0 | 25.7 | 1.00 | 0 | MAX PEAK | 40M HCH 2nd NF |
| 11670.060000 | 44.40 | 38.92 | -35.5 | 47.8 | 74.0 | 26.2 | 1.00 | 0 | MAX PEAK | 20M HCH 2nd NF |
| 11500.480000 | 43.86 | 38.71 | -35.2 | 47.3 | 74.0 | 26.7 | 1.00 | 0 | MAX PEAK | 40M LCH 2nd NF |
| 11550.020000 | 44.00 | 38.78 | -35.4 | 47.3 | 74.0 | 26.7 | 1.00 | 0 | MAX PEAK | 20M MCH 2nd NF |
| 11569.880000 | 43.73 | 38.80 | -35.5 | 47.0 | 74.0 | 27.0 | 1.00 | 0 | MAX PEAK | 40M MCH 2nd NF |
| 11480.140000 | 43.32 | 38.67 | -35.3 | 46.7 | 74.0 | 27.3 | 1.00 | 0 | MAX PEAK | 20M LCH 2nd NF |

## *FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands*

## *Electric Field Strength*

EUT: Avenger AP (5.7GHz OFDM)
Manufacturer: Cambium Networks
Operating Condition: 68 deg C 27% R.H.
Test Site: DLS O.F. G1
Operator: Jim O/Lillian Li
Test Specification: Continuous TX : 20 & 40MHz BW: outputs terminated
Comment: Low, Mid and High Channel
Date: 06-14-2013

### *TEXT: "Vert 3 meters"*

Short Description: Test Set-up

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

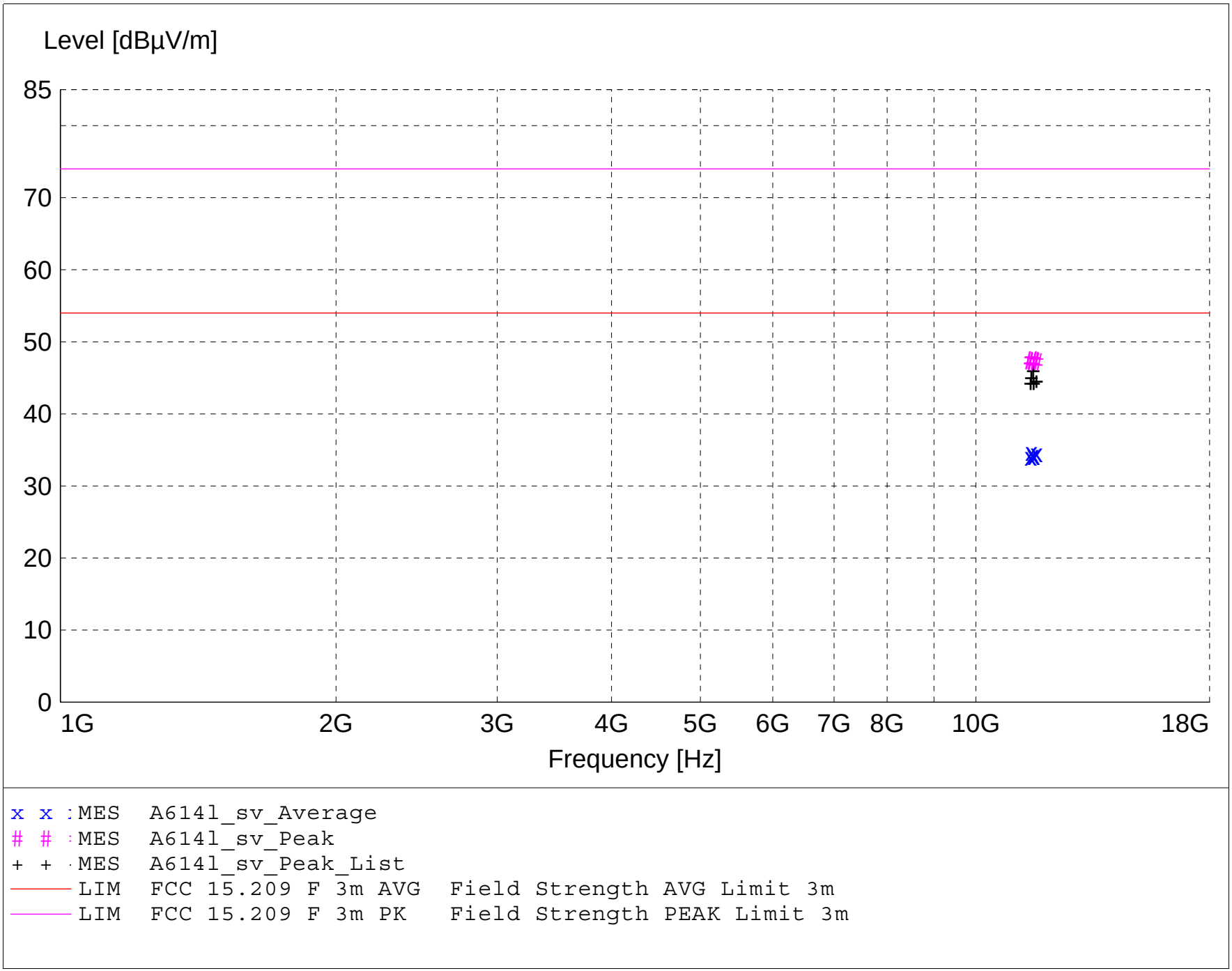
Sample Equations:

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

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

Graph Markers:

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




x x : MES A614l_sv_Average
# # : MES A614l_sv_Peak
+ + : MES A614l_sv_Peak_List
——— LIM FCC 15.209 F 3m AVG Field Strength AVG Limit 3m
——— LIM FCC 15.209 F 3m PK Field Strength PEAK Limit 3m

***MEASUREMENT RESULT: "A614l_sv_Final"***

6/14/2013 2:43PM

| Frequency | Level | Antenna Factor | System Loss | Total Level | Limit | Margin | Height Ant. | EuT Angle | Final Detector | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| MHz | dBµV | dBµV/m | dB | dBµV/m | dBµV/m | dB | m | deg | | |
| 11500.020000 | 31.21 | 38.71 | -35.2 | 34.7 | 54.0 | 19.3 | 1.00 | 0 | AVERAGE | 20M MCH 2nd NF |
| 11650.100000 | 31.21 | 38.89 | -35.6 | 34.6 | 54.0 | 19.4 | 1.00 | 0 | AVERAGE | 40M HCH 2nd NF |
| 11550.120000 | 30.96 | 38.78 | -35.4 | 34.3 | 54.0 | 19.7 | 1.00 | 0 | AVERAGE | 40M LCH 2nd NF |
| 11569.800000 | 30.83 | 38.80 | -35.5 | 34.1 | 54.0 | 19.9 | 1.00 | 0 | AVERAGE | 40M MCH 2nd NF |
| 11479.860000 | 30.69 | 38.67 | -35.3 | 34.1 | 54.0 | 19.9 | 1.00 | 0 | AVERAGE | 20M LCH 2nd NF |
| 11500.020000 | 44.00 | 38.71 | -35.2 | 47.5 | 74.0 | 26.5 | 1.00 | 0 | MAX PEAK | 20M MCH 2nd NF |
| 11479.860000 | 44.00 | 38.67 | -35.3 | 47.4 | 74.0 | 26.6 | 1.00 | 0 | MAX PEAK | 20M LCH 2nd NF |
| 11550.120000 | 44.00 | 38.78 | -35.4 | 47.3 | 74.0 | 26.7 | 1.00 | 0 | MAX PEAK | 40M LCH 2nd NF |
| 11569.800000 | 44.00 | 38.80 | -35.5 | 47.3 | 74.0 | 26.7 | 1.00 | 0 | MAX PEAK | 40M MCH 2nd NF |
| 11650.100000 | 43.86 | 38.89 | -35.6 | 47.2 | 74.0 | 26.8 | 1.00 | 0 | MAX PEAK | 40M HCH 2nd NF |

## *FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands*

## *Electric Field Strength*

EUT: 5.7 GHz Avenger AP
Manufacturer: Cambium Networks
Operating Condition: 70 deg. F; 57% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: 29.5 V DC (POE); 20 and 40 MHz channel BW; MCS15
Comment: Transmitter emissions in Restricted Bands; L,M,H ch
Date: 06-14-2013

### *TEXT: "Horz 1 meters"*

Short Description: Test Set-up

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

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

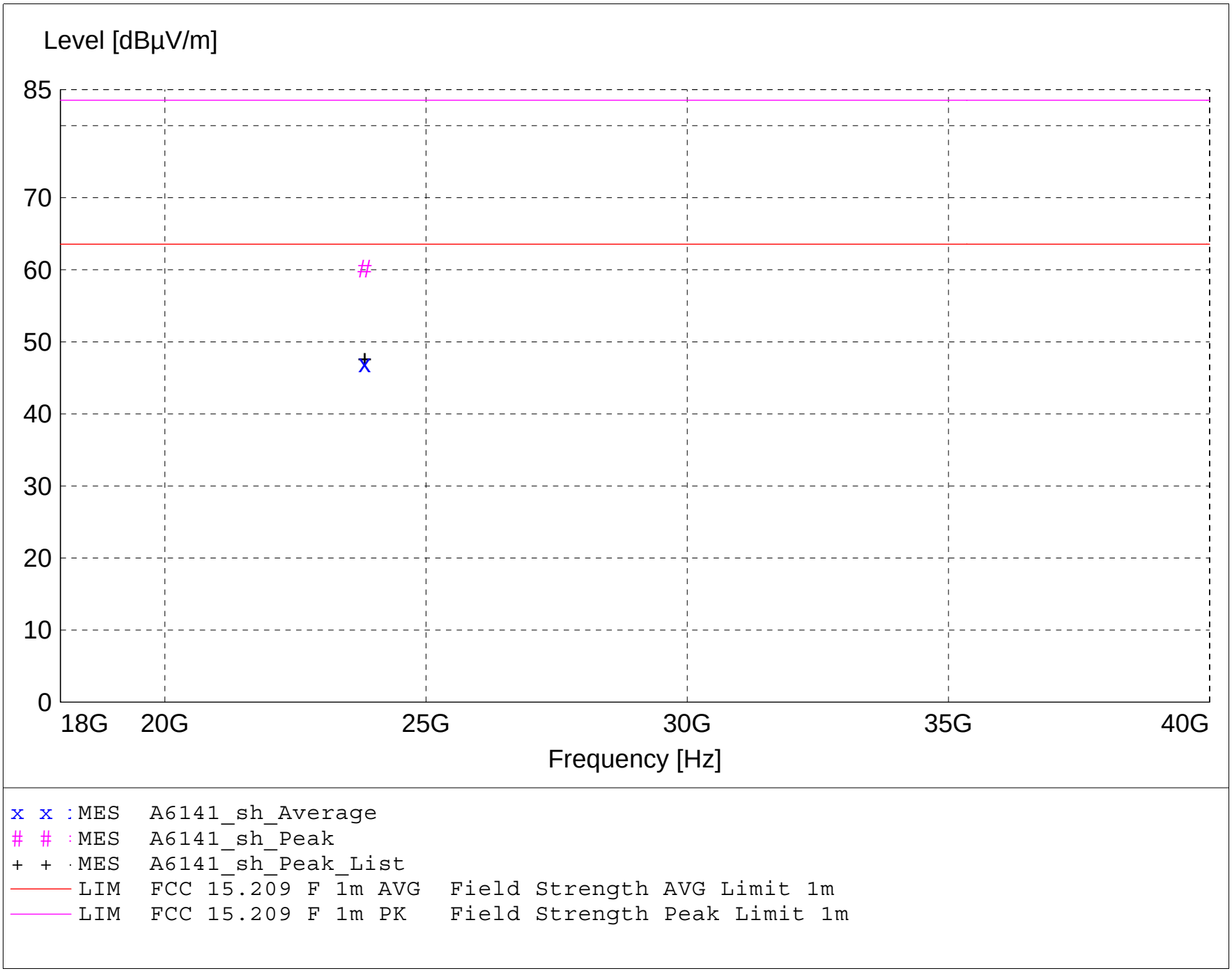
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

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

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

# Final maximized level using Peak detector




x x : MES A6141_sh_Average
# # : MES A6141_sh_Peak
+ + : MES A6141_sh_Peak_List
——— LIM FCC 15.209 F 1m AVG Field Strength AVG Limit 1m
——— LIM FCC 15.209 F 1m PK Field Strength Peak Limit 1m

***MEASUREMENT RESULT: "A6141_sh_Final"***

6/14/2013 11:08AM

| Frequency | Level | Antenna Factor | System Loss | Total Level | Limit | Margin | Height Ant. | EuT Angle | Final Detector | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| MHz | dBµV | dBµV/m | dB | dBµV/m | dBµV/m | dB | m | deg | | |
| 23826.200000 | 47.56 | 46.06 | -46.7 | 46.9 | 63.5 | 16.6 | 1.00 | 0 | AVERAGE | noise floor |
| 23826.200000 | 60.78 | 46.06 | -46.7 | 60.2 | 83.5 | 23.4 | 1.00 | 0 | MAX PEAK | noise floor |

## *FCC Part 15.205/15.209 Spurious Emissions in Restricted Bands*

## *Electric Field Strength*

EUT: 5.7 GHz Avenger AP
Manufacturer: Cambium Networks
Operating Condition: 70 deg. F; 57% R.H.
Test Site: DLS O.F. Site 3
Operator: Craig B
Test Specification: 29.5 V DC (POE); 20 and 40 MHz channel BW; MCS15
Comment: Transmitter emissions in Restricted Bands; L,M,H ch
Date: 06-14-2013

### *TEXT: "Vert 1 meters"*

Short Description: Test Set-up

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

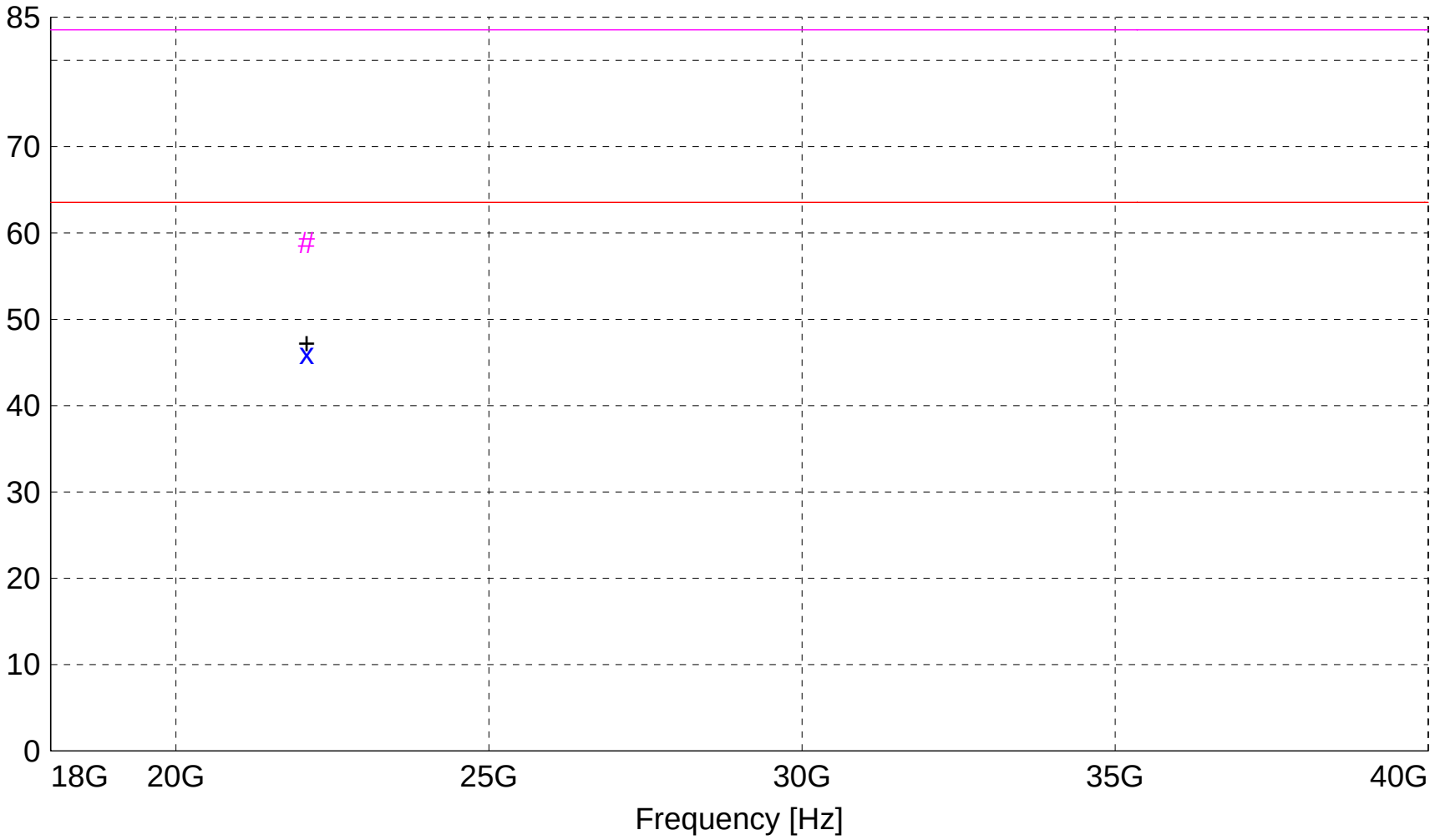
Sample Equations:

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

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

Graph Markers:

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




x x : MES A6141_sv_Average
# # : MES A6141_sv_Peak
+ + : MES A6141_sv_Peak_List
——— LIM FCC 15.209 F 1m AVG Field Strength AVG Limit 1m
——— LIM FCC 15.209 F 1m PK Field Strength Peak Limit 1m

***MEASUREMENT RESULT: "A6141_sv_Final"***

6/14/2013 11:04AM

| Frequency | Level | Antenna Factor | System Loss | Total Level | Limit | Margin | Height Ant. | EuT Angle | Final Detector | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| MHz | dBµV | dBµV/m | dB | dBµV/m | dBµV/m | dB | m | deg | | |
| 22087.000000 | 49.76 | 46.35 | -50.1 | 46.0 | 63.5 | 17.5 | 1.00 | 0 | AVERAGE | noise floor |
| 22087.000000 | 62.63 | 46.35 | -50.1 | 58.9 | 83.5 | 24.7 | 1.00 | 0 | MAX PEAK | noise floor |

## Appendix B – Measurement Data

### B8.0 Duty Cycle of Test Unit

**Rule Part:** FCC Section 15.35(c)

**Test Procedure:** **6.0 Duty cycle, transmission duration**

ANSI C63.10-2009 Section 7.5

**Limits:** Informative

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

**Sample Equations:** None

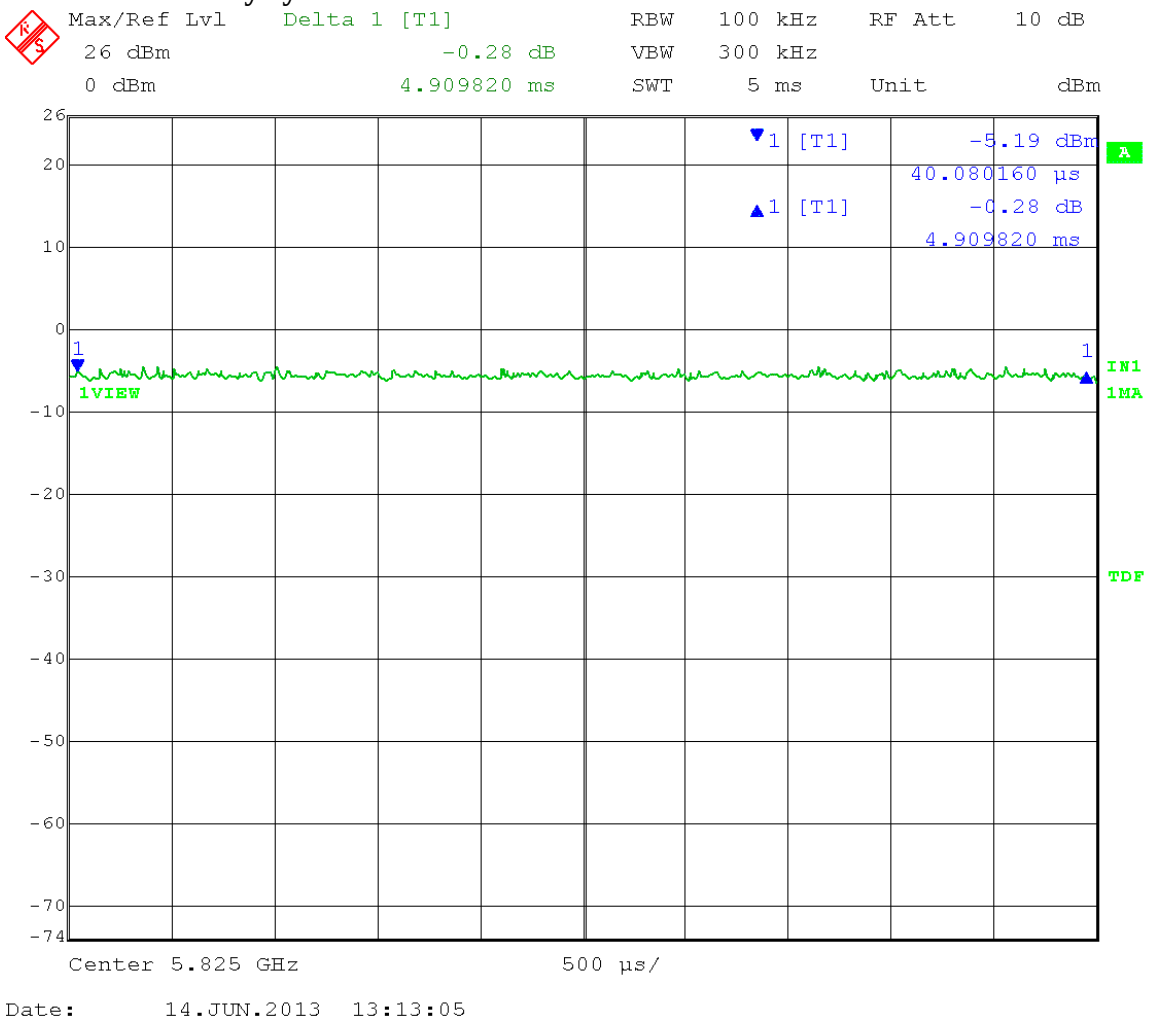
**Notes:** No Duty cycle correction factor was applied to measurements for this device.

The EUT was transmitting above the minimum duty cycle of 98%.

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

| | |
|---|---|
| Company: | Cambium Networks |
| Model Tested: | C050900P12A |
| Report Number: | 19128 |
| DLS Project: | 5941 |

| | |
|---|---|
| Test Date: | 6-14-2013 |
| Company: | Cambium Networks |
| EUT: | Avenger AP 5.7GHz OFDM |
| Test: | Duty Cycle during testing |
| Operator: | Jim O |
| | 40 MHz channel bandwidth; OFDM |
| Comment: | Total on Time = 4.91 ms = 4.91 ms sweep |
| | X = 4.91 / 4.91 |
| | **Duty cycle factor x = 1.00** |



## Appendix B – Measurement Data

### B9.0 AC Line Conducted Emissions

**Rule Part:** FCC Part 15.207

**Test Procedure:** ANSI C63.10-2009
Section 6.2

**Limit:** FCC Part 15.207(a)

**Results:** Compliant

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

***FCC Part 15.207***

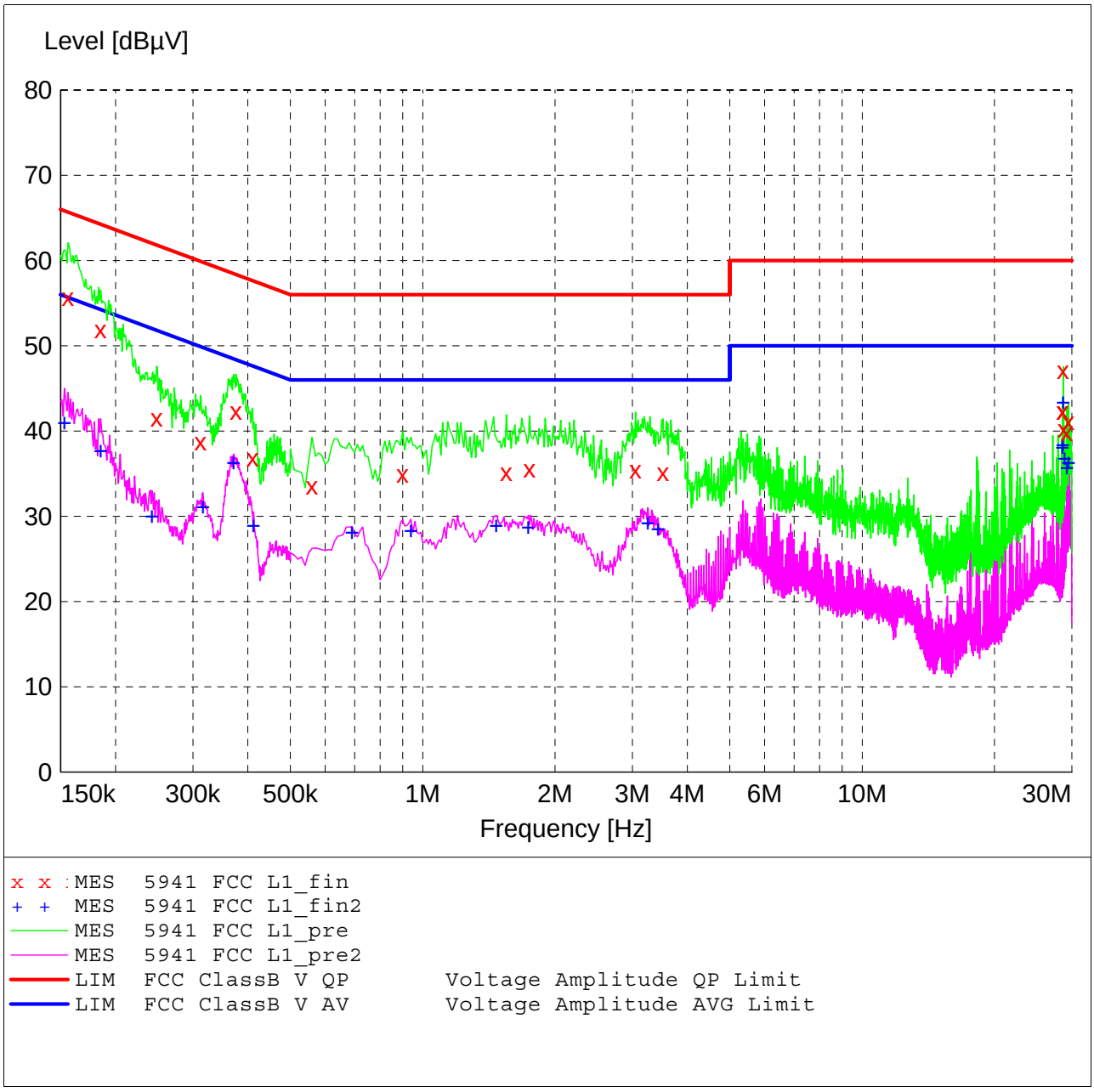
***Voltage Mains Test***

| | |
|---|---|
| EUT: | Avenger AP Radio 5.7GHz |
| Manufacturer: | Cambium Networks |
| Operating Condition: | 70 deg. F, 34% R.H. |
| Test Site: | DLS O.F. Screen Room |
| Operator: | Jim O/Lillian Li |
| Test Specification: | 120V, 60Hz |
| Comment: | Continious TX; Line 1 |
| | 6-17-2013 |

***SCAN TABLE: "Line Cond SR Final"***

Short Description: Line Conducted Emissions

| Start Frequency | Stop Frequency | Step Width | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|---|
| 150.0 kHz | 30.0 MHz | 4.0 kHz | QuasiPeak<br>CISPR AV | 5.0 s | 9 kHz | LISN DLS#128 |



***MEASUREMENT RESULT: "5941 FCC L1_fin"***

6/17/2013 9:06AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|---|---|---|---|---|---|
| 0.156000 | 55.70 | 13.6 | 66 | 10.0 | QP |
| 0.185000 | 51.90 | 12.9 | 64 | 12.4 | QP |
| 0.248000 | 41.50 | 12.1 | 62 | 20.3 | QP |
| 0.312000 | 38.80 | 11.8 | 60 | 21.1 | QP |
| 0.376000 | 42.40 | 11.5 | 58 | 16.0 | QP |
| 0.410000 | 36.90 | 11.4 | 58 | 20.7 | QP |
| 0.560000 | 33.60 | 11.1 | 56 | 22.4 | QP |
| 0.900000 | 35.00 | 10.7 | 56 | 21.0 | QP |
| 1.550000 | 35.20 | 10.6 | 56 | 20.8 | QP |
| 1.750000 | 35.60 | 10.6 | 56 | 20.4 | QP |
| 3.050000 | 35.50 | 10.7 | 56 | 20.5 | QP |
| 3.520000 | 35.20 | 10.7 | 56 | 20.8 | QP |
| 28.565000 | 42.30 | 11.7 | 60 | 17.7 | QP |
| 28.625000 | 42.40 | 11.7 | 60 | 17.6 | QP |
| 28.685000 | 47.10 | 11.7 | 60 | 12.9 | QP |
| 28.745000 | 40.20 | 11.7 | 60 | 19.8 | QP |
| 29.240000 | 39.90 | 11.8 | 60 | 20.1 | QP |
| 29.480000 | 41.20 | 11.8 | 60 | 18.8 | QP |

***MEASUREMENT RESULT: "5941 FCC L1_fin2"***

6/17/2013 9:06AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|---|---|---|---|---|---|
| 0.153000 | 41.00 | 13.7 | 56 | 14.8 | CAV |
| 0.185000 | 37.70 | 12.9 | 54 | 16.6 | CAV |
| 0.242000 | 30.00 | 12.2 | 52 | 22.0 | CAV |
| 0.316000 | 31.10 | 11.8 | 50 | 18.7 | CAV |
| 0.371000 | 36.30 | 11.5 | 49 | 12.2 | CAV |
| 0.412000 | 28.90 | 11.4 | 48 | 18.7 | CAV |
| 0.690000 | 28.10 | 10.8 | 46 | 17.9 | CAV |
| 0.940000 | 28.30 | 10.7 | 46 | 17.7 | CAV |
| 1.470000 | 28.90 | 10.6 | 46 | 17.1 | CAV |
| 1.740000 | 28.70 | 10.6 | 46 | 17.3 | CAV |
| 3.250000 | 29.20 | 10.7 | 46 | 16.8 | CAV |
| 3.430000 | 28.50 | 10.7 | 46 | 17.5 | CAV |
| 28.565000 | 38.10 | 11.7 | 50 | 11.9 | CAV |
| 28.625000 | 38.30 | 11.7 | 50 | 11.7 | CAV |
| 28.685000 | 43.30 | 11.7 | 50 | 6.7 | CAV |
| 28.865000 | 36.80 | 11.7 | 50 | 13.2 | CAV |
| 29.240000 | 35.70 | 11.8 | 50 | 14.3 | CAV |
| 29.480000 | 36.30 | 11.8 | 50 | 13.7 | CAV |

***FCC Part 15.207***

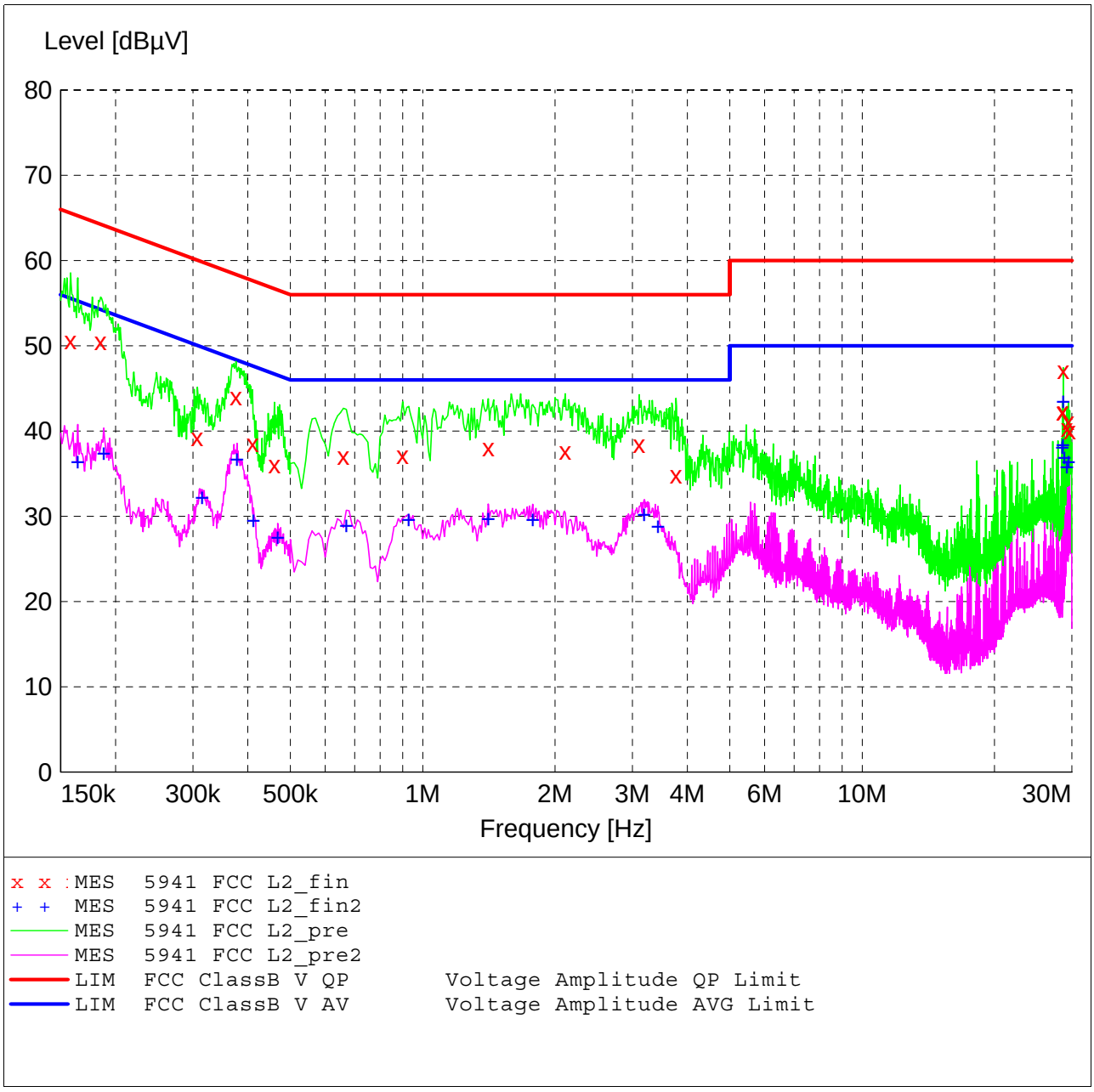
***Voltage Mains Test***

| | |
|---|---|
| EUT: | Avenger AP Radio 5.7GHz |
| Manufacturer: | Cambium Networks |
| Operating Condition: | 70 deg. F, 34% R.H. |
| Test Site: | DLS O.F. Screen Room |
| Operator: | Jim O/Lillian Li |
| Test Specification: | 120V, 60Hz |
| Comment: | Continious TX; Line 2 |
| | 6-17-2013 |

***SCAN TABLE: "Line Cond SR Final"***

Short Description: Line Conducted Emissions

| Start Frequency | Stop Frequency | Step Width | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|---|
| 150.0 kHz | 30.0 MHz | 4.0 kHz | QuasiPeak<br>CISPR AV | 5.0 s | 9 kHz | LISN DLS#128 |



***MEASUREMENT RESULT: "5941 FCC L2_fin"***

6/17/2013 9:17AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|---|---|---|---|---|---|
| 0.158000 | 50.60 | 13.6 | 66 | 15.0 | QP |
| 0.185000 | 50.50 | 12.9 | 64 | 13.8 | QP |
| 0.307000 | 39.30 | 11.8 | 60 | 20.8 | QP |
| 0.376000 | 44.00 | 11.5 | 58 | 14.4 | QP |
| 0.410000 | 38.60 | 11.4 | 58 | 19.0 | QP |
| 0.460000 | 36.10 | 11.3 | 57 | 20.6 | QP |
| 0.660000 | 37.10 | 10.9 | 56 | 18.9 | QP |
| 0.900000 | 37.20 | 10.7 | 56 | 18.8 | QP |
| 1.410000 | 38.10 | 10.6 | 56 | 17.9 | QP |
| 2.110000 | 37.60 | 10.6 | 56 | 18.4 | QP |
| 3.110000 | 38.50 | 10.7 | 56 | 17.5 | QP |
| 3.770000 | 34.90 | 10.7 | 56 | 21.1 | QP |
| 28.565000 | 42.20 | 11.7 | 60 | 17.8 | QP |
| 28.625000 | 42.30 | 11.7 | 60 | 17.7 | QP |
| 28.685000 | 47.10 | 11.7 | 60 | 12.9 | QP |
| 29.240000 | 40.30 | 11.8 | 60 | 19.7 | QP |
| 29.480000 | 41.10 | 11.8 | 60 | 18.9 | QP |
| 29.660000 | 40.00 | 11.8 | 60 | 20.0 | QP |

***MEASUREMENT RESULT: "5941 FCC L2_fin2"***

6/17/2013 9:17AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector |
|---|---|---|---|---|---|
| 0.164000 | 36.40 | 13.4 | 55 | 18.9 | CAV |
| 0.188000 | 37.40 | 12.9 | 54 | 16.7 | CAV |
| 0.315000 | 32.20 | 11.8 | 50 | 17.6 | CAV |
| 0.378000 | 36.70 | 11.5 | 48 | 11.6 | CAV |
| 0.412000 | 29.50 | 11.4 | 48 | 18.1 | CAV |
| 0.468000 | 27.50 | 11.3 | 47 | 19.0 | CAV |
| 0.670000 | 28.90 | 10.8 | 46 | 17.1 | CAV |
| 0.930000 | 29.60 | 10.7 | 46 | 16.4 | CAV |
| 1.410000 | 29.70 | 10.6 | 46 | 16.3 | CAV |
| 1.780000 | 29.60 | 10.6 | 46 | 16.4 | CAV |
| 3.190000 | 30.20 | 10.7 | 46 | 15.8 | CAV |
| 3.430000 | 28.80 | 10.7 | 46 | 17.2 | CAV |
| 28.565000 | 38.10 | 11.7 | 50 | 11.9 | CAV |
| 28.625000 | 38.30 | 11.7 | 50 | 11.7 | CAV |
| 28.685000 | 43.40 | 11.7 | 50 | 6.6 | CAV |
| 28.865000 | 36.90 | 11.7 | 50 | 13.1 | CAV |
| 29.240000 | 35.80 | 11.8 | 50 | 14.2 | CAV |
| 29.480000 | 36.40 | 11.8 | 50 | 13.6 | CAV |

# END OF REPORT

| Revision # | Date | Comments | By |
|---|---|---|---|
| 1.0 | 06-24-2013 | Preliminary Release | JS |
| 1.1 | 06-28-2013 | Added Part A info from client | JS |
| 1.2 | 07-08-2013 | Added Section 6.0 & minor edits | JS |
| | | | |
| | | | |
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| | | | |