Company: Hewlett Packard Enterprise

Test of: APINR203 & APINP203

To: FCC CFR 47 Part 15 Subpart E 15.407

Report No.: HPEN96-U8 Rev A 2X2

**COMPLETE TEST REPORT**

# TEST REPORT

FROM

MiCOM Labs
opening wireless markets

Test of: Hewlett Packard Enterprise APINR203 & APINP203

to

To: FCC CFR 47 Part 15 Subpart E 15.407

Test Report Serial No.: HPEN96-U8 Rev A 2X2

This report supersedes: NONE

| | |
|---|---|
| Applicant: | Hewlett Packard Enterprise<br>3000 Hanover St.<br>Palo Alto, California 94034<br>USA |
| Product Function | Wireless LAN Acccess Point |
| Issue Date: | 23rd March 2017 |

**This Test Report is Issued Under the Authority of:**

**MiCOM Labs, Inc.**
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com

A2LA ACCREDITED
TESTING CERT #2381.01

**MiCOM Labs is an ISO 17025 Accredited Testing Laboratory**

# Table of Contents

# 1. ACCREDITATION, LISTINGS & RECOGNITION

## 1.1. TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2005. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

ilac-MRA A2LA

**Accredited Laboratory**

A2LA has accredited

**MICOM LABS**

*Pleasanton, CA*

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 4th day of February 2016.

Senior Director of Quality & Communications
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2017

*For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.*

## 1.2. RECOGNITION

MiCOM Labs, Inc has widely recognized wireless testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA countries. MiCOM Labs test reports are accepted globally.

| Country | Recognition Body | Status | Phase | Identification No. |
|---|---|---|---|---|
| USA | Federal Communications Commission (FCC) | TCB | - | US0159<br>Listing #: 102167 |
| Canada | Industry Canada (IC) | FCB | APEC MRA 2 | US0159<br>Listing #: 4143A-2<br>4143A-3 |
| Japan | MIC (Ministry of Internal Affairs and Communication) | CAB | APEC MRA 2 | RCB 210 |
| | VCCI | -- | -- | A-0012 |
| Europe | European Commission | NB | EU MRA | NB 2280 |
| Australia | Australian Communications and Media Authority (ACMA) | CAB | APEC MRA 1 | US0159 |
| Hong Kong | Office of the Telecommunication Authority (OFTA) | CAB | APEC MRA 1 | |
| Korea | Ministry of Information and Communication Radio Research Laboratory (RRL) | CAB | APEC MRA 1 | |
| Singapore | Infocomm Development Authority (IDA) | CAB | APEC MRA 1 | |
| Taiwan | National Communications Commission (NCC)<br>Bureau of Standards, Metrology and Inspection (BSMI) | CAB | APEC MRA 1 | |
| Vietnam | Ministry of Communication (MIC) | CAB | APEC MRA 1 | |

EU MRA – European Union Mutual Recognition Agreement.
NB – Notified Body
APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement. Recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries.

Phase I - recognition for product testing
Phase II – recognition for both product testing and certification

## 1.3. PRODUCT CERTIFICATION

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-02.pdf

Accredited Product Certification Body

A2LA has accredited

MICOM LABS

Pleasanton, CA

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC 17065:2012 *Requirements for bodies certifying products, processes and services*. This accreditation demonstrates technical competence for a defined scope and the operation of a management system.

Presented this 4th day of February 2016.

Senior Director of Quality & Communications
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2017

*For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation.*

United States of America – Telecommunication Certification Body (TCB)
Industry Canada – Certification Body, CAB Identifier – US0159
Europe – Notified Body (NB), NB Identifier - 2280
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

## 2. DOCUMENT HISTORY

| Document History | | |
|---|---|---|
| Revision | Date | Comments |
| Draft | 2nd March 2017 | |
| Rev A | 23rd March 2017 | Initial Release |
| | | |
| | | |
| | | |
| | | |
| | | |

In the above table the latest report revision will replace all earlier versions.

# 3. TEST RESULT CERTIFICATE

| | | | |
|---|---|---|---|
| **Manufacturer:** | Hewlett Packard Enterprise<br>3000 Hanover St.<br>Palo Alto<br>California 94034 USA | **Tested By:** | MiCOM Labs, Inc.<br>575 Boulder Court<br>Pleasanton<br>California 94566 USA |
| **Model:** | APINR203 & APINP203 | **Telephone:**<br>**Fax:** | +1 925 462 0304<br>+1 925 462 0306 |
| **Type Of Equipment:** | Wireless Access Point | | |
| **S/N's:** | CNCPK2T006, CNCPK2T00L | | |
| **Test Date(s):** | 26 January - 21 February 2017 | **Website:** | www.micomlabs.com |

| STANDARD(S) | TEST RESULTS |
|---|---|
| FCC CFR 47 Part 15 Subpart E 15.407 | EQUIPMENT COMPLIES |

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

**Notes:**

1. This document reports conditions under which testing was conducted and the results of testing performed.

2. Details of test methods used have been recorded and kept on file by the laboratory.

3. Test results apply only to the item(s) tested.

A2LA ACCREDITED
TESTING CERT #2381.01

**Approved & Released for MiCOM Labs, Inc. by**:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

# 4. REFERENCES AND MEASUREMENT UNCERTAINTY

## 4.1. Normative References

| REF. | PUBLICATION | YEAR | TITLE |
|---|---|---|---|
| I | KDB 662911 D01 & D02 | Oct 31 2013 | Guidance for measurement of output emission of devices that employ single transmitter with multiple outputs or systems with multiple transmitters operating simultaneously in the same frequency band |
| II | KDB 905462 D07 v02 | 22nd August 2016 | Test guidance to demonstrate compliance for U-NII devices subject to DFS requirements. |
| III | KDB 926956 D01 v02 | 22nd August 2016 | U-NII Device Transition Plan |
| IV | KDB 789033 D02 v01r03 | 22nd August 2016 | General UNII Test Procedures New Rules |
| V | A2LA | June 2015 | R105 - Requirement's When Making Reference to A2LA Accreditation Status |
| VI | ANSI C63.10 | 2013 | American National Standard for Testing Unlicensed Wireless Devices |
| VII | ANSI C63.4 | 2014 | American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz |
| VIII | CISPR 22 | 2008 | Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement |
| IX | ETSI TR 100 028 | 2001-12 | Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics |
| X | FCC 06-96 | Jun 30 2006 | Memorandum Opinion and Order |
| XI | FCC 47 CFR Part 15.407 | 2016 | Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices |
| XII | ICES-003 | Issue 6 Jan 2016 | Spectrum Management and Telecommunications; Interference-Causing Equipment Standard. Information Technology Equipment (Including Digital Apparatus) – Limits and methods of measurement. |
| XIII | M 3003 | Edition 3 Nov.2012 | Expression of Uncertainty and Confidence in Measurements |
| XIV | RSS-247 Issue 2 | Feb 2017 | Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices |
| XV | RSS-Gen Issue 4 | November 2014 | General Requirements and Information for the Certification of Radiocommunication Equipment |
| XVI | KDB 644545 D03 v01 | August 14th 2014 | Guidance for IEEE 802.11ac New Rules |
| XVII | FCC 47 CFR Part 2.1033 | 2016 | FCC requirements and rules regarding photographs and test setup diagrams. |

## 4.2. Test and Uncertainty Procedure

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

# 5. PRODUCT DETAILS AND TEST CONFIGURATIONS

## 5.1. Technical Details

| Details | Description |
|---|---|
| Purpose: | Test of the Hewlett Packard Enterprise Millstone 2x2 configuration in the frequency ranges 5150 - 5250 MHz, 5725 - 5850 MHz to FCC CFR 47 Part 15 Subpart E 15.407; Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices |
| Applicant: | Hewlett Packard Enterprise<br>3000 Hanover St.<br>Palo Alto California 94034 USA |
| Manufacturer: | Hewlett Packard Enterprise |
| Laboratory performing the tests: | MiCOM Labs, Inc.<br>575 Boulder Court<br>Pleasanton California 94566 USA |
| Test report reference number: | HPEN96-U8 Draft 2X2 |
| Date EUT received: | 26th January 2017 |
| Standard(s) applied: | FCC CFR 47 Part 15 Subpart E 15.407 |
| Dates of test (from - to): | 26 January - 21 February 2017 |
| No of Units Tested: | 2 |
| Product Family Name: | Access Point |
| Model(s): | APINR203 / APINP203 |
| Location for use: | Indoors |
| Declared Frequency Range(s): | 5150 - 5250 MHz; 5725 - 5850 MHz. |
| Type of Modulation: | OFDM |
| EUT Modes of Operation: | 5150 - 5250 MHz: 802.11a; ac-80; HT-20; HT-40;<br>5725 - 5850 MHz:802.11a; ac-80; HT-20; HT-40; |
| Declared Nominal Output Power | +20 dBm |
| Transmit/Receive Operation: | Transceiver - Full Duplex |
| Rated Input Voltage and Current: | AC 100-240V, APINR203: 0.3A, APINP203: 0.6A |
| Operating Temperature Range: | Nominal: 20 ºC Max: 40 ºC Min: 0 ºC |
| ITU Emission Designator: | 802.11a: 19M0D1D<br>802.11n HT-20: 18M0D1D<br>802.11n HT-40: 37M5D1D<br>802.11ac-80 76M3D1D |
| Equipment Dimensions: | 155mm x 50mm x 95mm |
| Weight: | 0.320 kg (AP-203R) & 0.340 kg (AP-203RP) |
| Hardware Rev: | 1 |
| Software Rev: | WNC RF Load Rev. 1.0 |

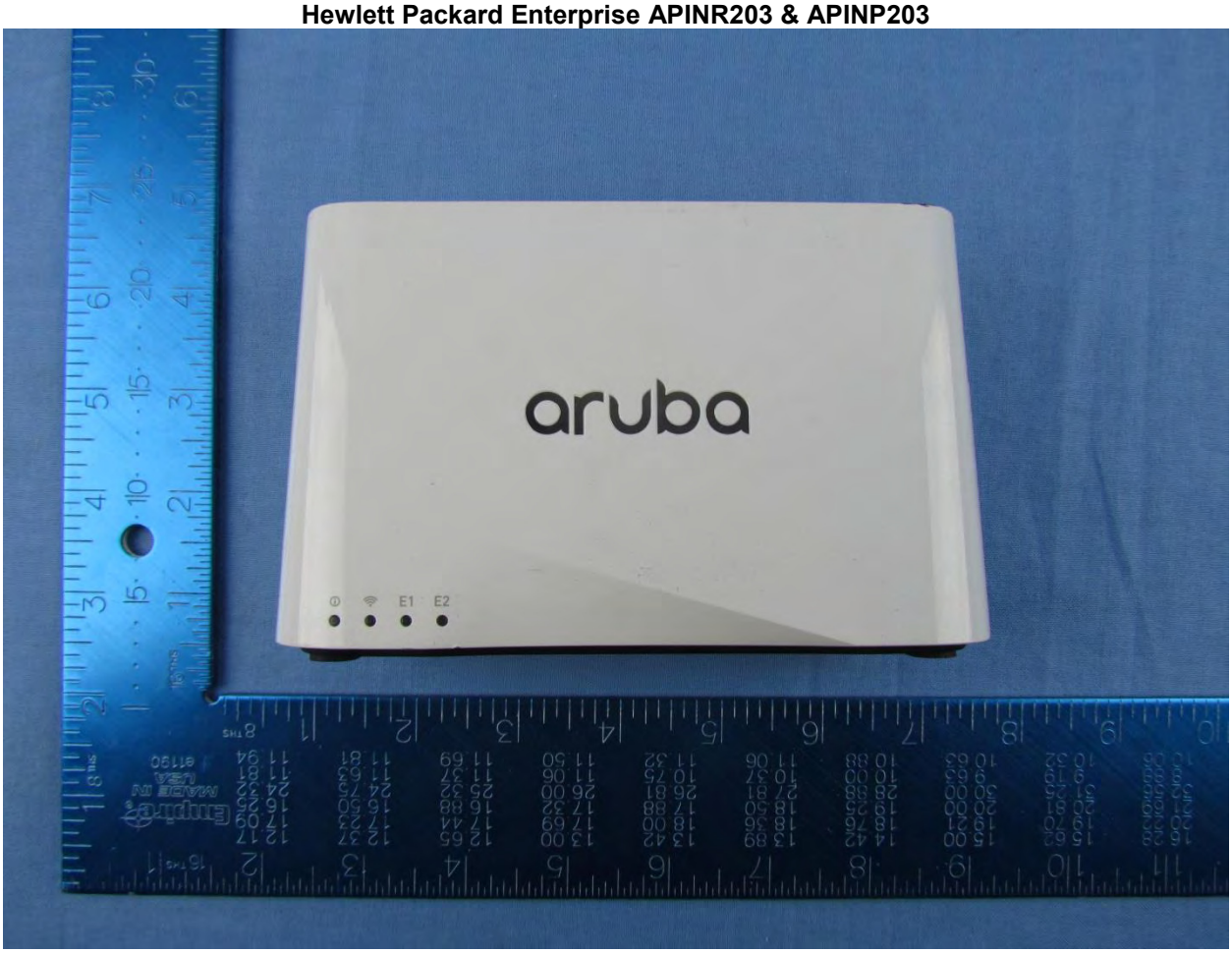
## 5.2. Scope Of Test Program

**Hewlett Packard Enterprise APINR203 & APINP203**

The scope of the test program was to test the Hewlett Packard Enterprise APINR203 & APINP203 2X2 configurations in the frequency ranges 5150 - 5250 MHz, 5725 - 5850 MHz; for compliance against the following specification:

**FCC CFR 47 Part 15 Subpart E 15.407**
Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices

**Hewlett Packard Enterprise APINR203 & APINP203**



## 5.3. Equipment Model(s) and Serial Number(s)

| Type (EUT/ Support) | Equipment Description (Including Brand Name) | Mfr | Model No. | Serial No. |
|---|---|---|---|---|
| EUT | 802.11a/b/g/n | Hewlett Packard Enterprises | APINP203 | CNCPK2T006 |
| EUT | 802.11a/b/g/n | Hewlett Packard Enterprises | APINP203 | CNCPK2T00L |
| Support | Laptop PC | Dell | E5550 | None |

## 5.4. Antenna Details

| Type | Manufacturer | Model | Family | Gain (dBi) | BF Gain | Dir BW | X-Pol | Frequency Band (MHz) |
|---|---|---|---|---|---|---|---|---|
| integral | HPE | Metal Sheet | 5 | 2.9 | 3.0 | 360 | - | 5150 - 5250 |
| integral | HPE | Metal Sheet | 5 | 2.9 | 3.0 | 360 | - | 5250 - 5350 |
| integral | HPE | Metal Sheet | 5 | 2.9 | 3.0 | 360 | - | 5470 - 5725 |
| integral | HPE | Metal Sheet | 5 | 2.9 | 3.0 | 360 | - | 5725 - 5850 |

BF Gain - Beamforming Gain
Dir BW - Directional BeamWidth
X-Pol - Cross Polarization

## 5.5. Cabling and I/O Ports

| Port Type | Max Cable Length | # Of Ports | Screened | Conn Type | Data Type |
|---|---|---|---|---|---|
| Ethernet | 100 | 3 | N | RJ45 | Packet Data |
| AC Input | N/A | 1 | N | AC Wire | -- |
| USB | Configuration | 1 | No | Micro USB | Data |
| USB | Mgmt only | 1 | No | USB | Data |

## 5.6. Test Configurations

Results for the following configurations are provided in this report:

| Operational Mode(s) (802.11a/b/g/n/ac) | Data Rate with Highest Power MBit/s | Channel Frequency (MHz) | | |
|---|---|---|---|---|
| | | Low | Mid | High |
| **5150 - 5250 MHz** | | | | |
| a | 6 | 5,180.00 | 5,200.00 | 5,240.00 |
| ac-80 | 29.3 | 5,210.00 | -- | -- |
| HT-20 | 6.5 | 5,180.00 | 5,200.00 | 5,240.00 |
| HT-40 | 13.5 | 5,190.00 | -- | 5,230.00 |
| **5725 - 5850 MHz** | | | | |
| a | 6 | 5,745.00 | 5,785.00 | 5,825.00 |
| ac-80 | 29.3 | 5,775.00 | -- | 5,775.00 |
| HT-20 | 6.5 | 5,745.00 | 5,785.00 | 5,825.00 |
| HT-40 | 13.5 | 5,755.00 | -- | 5,795.00 |

## 5.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:
1. NONE

## 5.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:
1. NONE

# 6. TEST SUMMARY

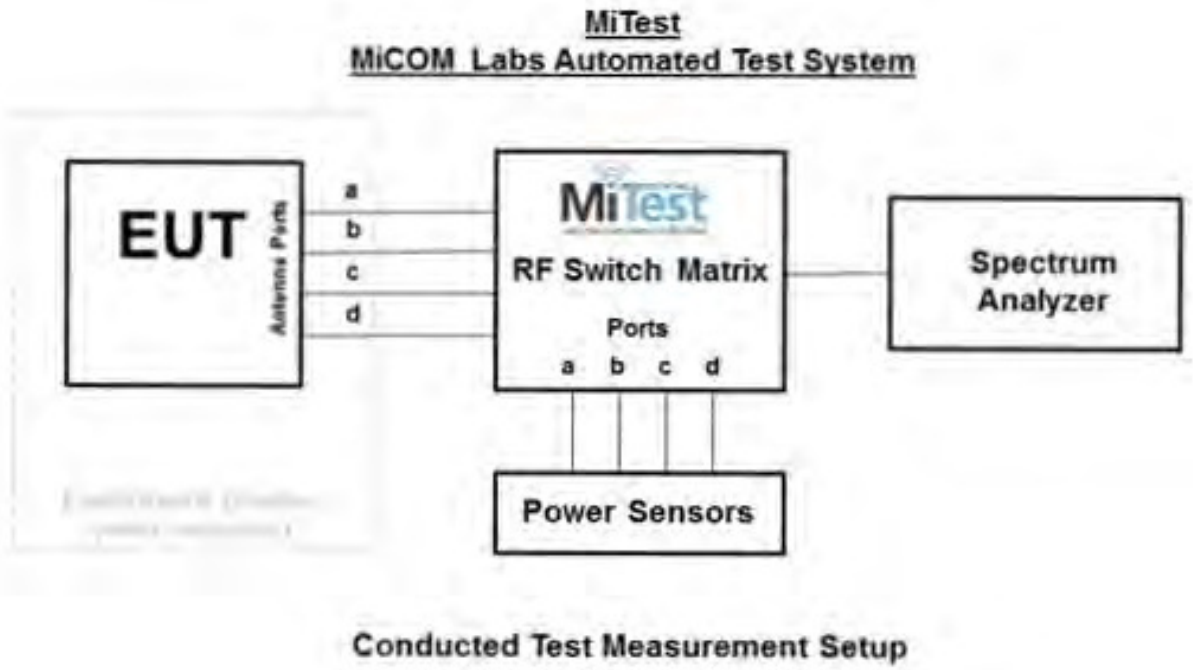
List of Measurements

| Test Header | Result | Data Link |
|---|---|---|
| Peak Transmit Power | Complies | View Data |
| 26 dB & 99% Bandwidth | Complies | View Data |
| 6 dB & 99% Bandwidth | Complies | View Data |
| Power Spectral Density | Complies | View Data |
| Radiated | Complies | - |
| TX Spurious & Restricted Band Emissions | Complies | View Data |
| Restricted Edge & Band-Edge Emissions | Complies | View Data |

# 7. TEST EQUIPMENT CONFIGURATION(S)

## 7.1. Conducted

Conducted RF Emission Test Set-up(s) The following tests were performed using the conducted test set-up shown in the diagram below.




Conducted Test Measurement Setup

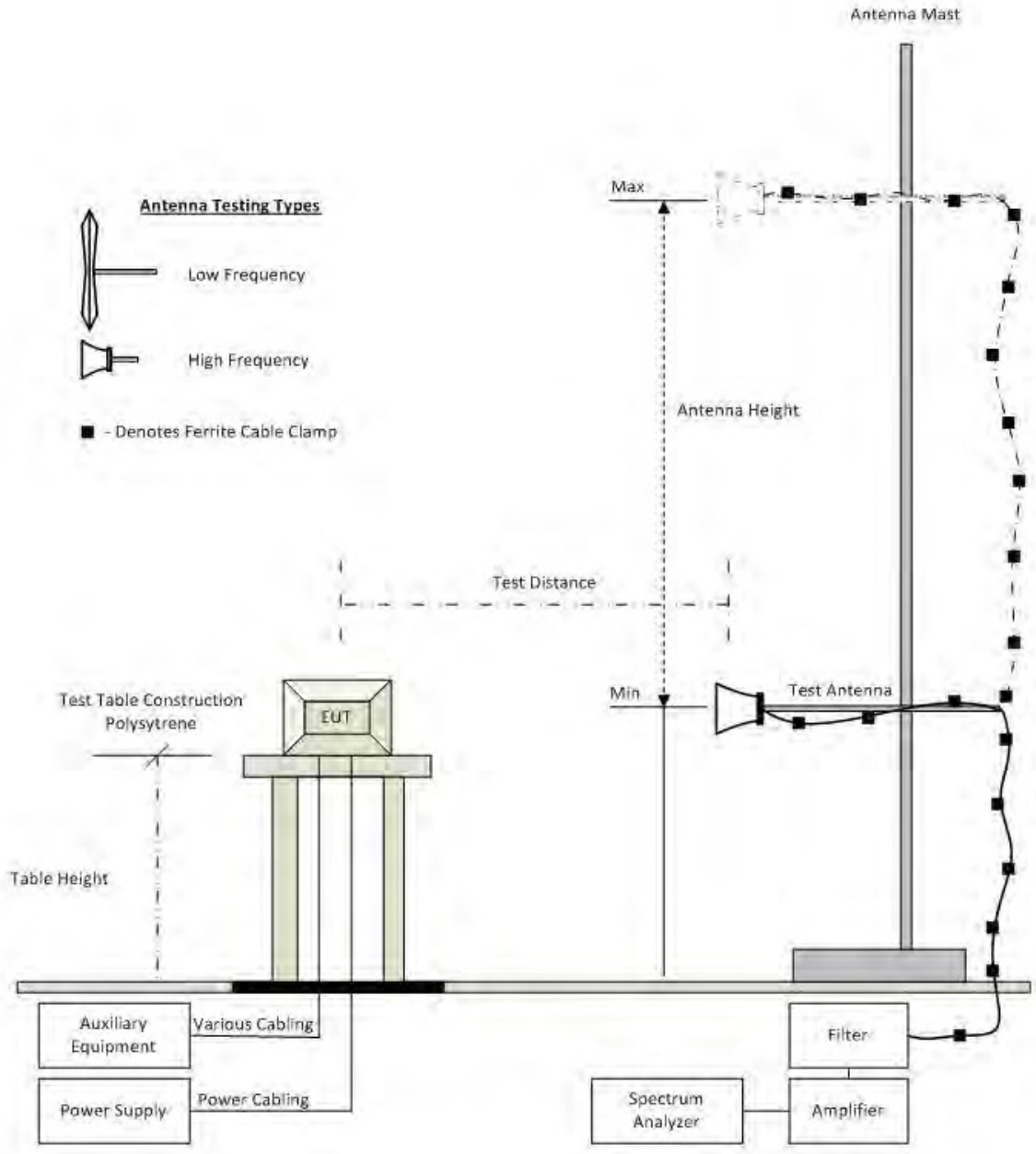
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

| Asset# | Description | Manufacturer | Model# | Serial# | Calibration Due Date |
|---|---|---|---|---|---|
| #3 SA | MiTest Box to SA | Fairview Microwave | SCA1814-0101-72 | #3 SA | 2 Jun 2017 |
| #3P1 | EUT to MiTest box port 1 | Fairview Microwave | SCA1814-0101-72 | #3P1 | 2 Jun 2017 |
| #3P2 | EUT to MiTest box port 2 | Fairview Microwave | SCA1814-0101-72 | #3P2 | 2 Jun 2017 |
| #3P3 | EUT to MiTest box port 3 | Fairview Microwave | SCA1814-0101-72 | #3P3 | 2 Jun 2017 |
| #3P4 | EUT to MiTest box port 4 | Fairview Microwave | SCA1812-0101-72 | #3P4 | 2 Jun 2017 |
| 158 | Barometer/Thermometer | Control Company | 4196 | E2846 | 30 Nov 2017 |
| 249 | Resistance Thermometer | Thermotronics | GR2105-02 | 9340 #2 | 23 Oct 2017 |
| 287 | Rohde & Schwarz 40 | Rhode & | ESIB40 | 100201 | 2 May 2017 |

| | | | | | |
|---|---|---|---|---|---|
| | GHz Receiver | Schwarz | | | |
| 361 | Desktop for RF#1, Labview Software installed | Dell | Vostro 220 | WS RF#1 | Not Required |
| 390 | USB Power Head 50MHz - 24GHz -60 to +20dBm | Agilent | U2002A | MY50000103 | 17 Oct 2017 |
| 398 | Test Software | MiCOM | MiTest ATS | Version 4.1.0.76 | Not Required |
| 405 | DC Power Supply 0-60V | Agilent | 6654A | MY4001826 | Cal when used |
| 408 | USB to GPIB interface | National Instruments | GPIB-USB HS | 14C0DE9 | Not Required |
| 441 | USB Wideband Power Sensor | Boonton | 55006 | 9179 | 25 Sep 2017 |
| 443 | 4x4 RF Switch Box | MiCOM Labs | MiTest 4X4 RF Switch Box | MIC003 | 2 Jun 2017 |
| 75 | Environmental Chamber | Thermatron | SE-300-2-2 | 27946 | 24 Nov 2017 |

## 7.2. Radiated Emissions - 3m Chamber

The following tests were performed using the radiated test set-up shown in the diagram below. Radiated emissions below 1GHz.Radiated Emissions above 1GHz.




**Radiated Emission Test Setup**

A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

| Asset# | Description | Manufacturer | Model# | Serial# | Calibration Due Date |
|---|---|---|---|---|---|
| 158 | Barometer/Thermometer | Control Company | 4196 | E2846 | 30 Nov 2017 |
| 170 | Video System Controller for Semi Anechoic Chamber | Panasonic | WV-CU101 | 04R08507 | Not Required |
| 301 | 5470 to 5725 MHz Notch Filter | Microtronics | RBC50704 | 001 | 16 Aug 2017 |
| 338 | Sunol 30 to 3000 MHz Antenna | Sunol | JB3 | A052907 | 15 Aug 2017 |
| 377 | Band Rejection Filter 5150 to 5880MHz | Microtronics | BRM50716 | 034 | 16 Aug 2017 |
| 378 | Rohde & Schwarz 40 GHz Receiver with Generator | Rhode & Schwarz | ESIB40 | 100107/040 | 4 Aug 2017 |
| 396 | 2.4 GHz Notch Filter | Microtronics | BRM50701 | 001 | 16 Aug 2017 |
| 397 | Amp 10 - 2500MHz | MiCOM Labs | Amp 10 - 2500 MHz | NA | 9 Jun 2017 |
| 399 | ETS 1-18 GHz Horn Antenna | ETS | 3117 | 00154575 | 10 Apr 2017 |
| 406 | Amplifier for Radiated Emissions | MiCOM Labs | 40dB 1 to 18GHz Amp | 0406 | 9 Jun 2017 |
| 410 | Desktop Computer | Dell | Inspiron 620 | WS38 | Not Required |
| 411 | Mast/Turntable Controller | Sunol Sciences | SC98V | 060199-1D | Not Required |
| 412 | USB to GPIB Interface | National Instruments | GPIB-USB HS | 11B8DC2 | Not Required |
| 413 | Mast Controller | Sunol Science | TWR95-4 | 030801-3 | Not Required |
| 414 | DC Power Supply 0-60V | HP | 6274 | 1029A01285 | Cal when used |
| 415 | Turntable Controller | Sunol Sciences | Turntable Controller | None | Not Required |
| 416 | Gigabit ethernet filter | ETS-Lingren | Gigafoil 260366 | None | Not Required |
| 447 | Rad Emissions Test Software | MiCOM | Rad Emissions Test Software Version 1.0.109 | 447 | Not Required |
| 462 | Schwarzbeck cable from Antenna to Amplifier. | Schwarzbeck | AK 9513 | 462 | 31 May 2017 |
| 463 | Schwarzbeck cable from Amplifier to Bulkhead. | Schwarzbeck | AK 9513 | 463 | 31 May 2017 |
| 464 | Schwarzbeck cable from Bulkhead to Receiver | Schwarzbeck | AK 9513 | 464 | 31 May 2017 |
| 465 | Low Pass Filter DC- | Mini-Circuits | NLP-1200+ | VUU01901402 | 2 Jun 2017 |

| | | | | | |
|---|---|---|---|---|---|
| | 1000 MHz | | | | |
| 466 | Low Pass Filter DC-1500 MHz | Mini-Circuits | NLP-1750+ | VUU10401438 | 2 Jun 2017 |
| 467 | 2495 to 2650 MHz notch filter | MicroTronics | BRM50709 | 011 | 16 Aug 2017 |
| 468 | Low pass filter | Mini Circuits | SLP-550 | None | 16 Aug 2017 |
| 469 | Low pass filter | Mini Circuit | SLP-1000 | None | 16 Aug 2017 |
| 470 | High Pass filter | Mini Circuits | SHP-700 | None | 16 Aug 2017 |
| 476 | Low Pass dc-2200MHz filter | Mini Circuits | 15542 NLP-2400+ | VUU13801345 | 16 Aug 2017 |
| 480 | Cable - Bulkhead to Amp | SRC Haverhill | 157-157-3050360 | 480 | 2 Jun 2017 |
| 481 | Cable - Bulkhead to Receiver | SRC Haverhill | 151-151-3050787 | 481 | 2 Jun 2017 |
| 482 | Cable - Amp to Antenna | SRC Haverhill | 157-157-3051574 | 482 | 2 Jun 2017 |
| 502 | Test Software for Radiated Emissions | EMISoft | Vasona | Version 5 Build 59 | Not Required |
| CC05 | Confidence Check | MiCOM | CC05 | None | 26 Apr 2017 |

# 8. MEASUREMENT AND PRESENTATION OF TEST DATA

The measurement and graphical data presented in this test report was generated automatically using state-of-the-art technology creating an easy to read report structure. Numerical measurement data is separated from supporting graphical data (plots) through hyperlinks. Numerical measurement data can be reviewed without scrolling through numerous graphical pages to arrive at the next data matrix.

Plots have been relegated into the Appendix 'Graphical Data'.

Test and report automation was performed by MiTest. MiTest is an automated test system developed by MiCOM Labs. MiTest is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for conducted RF testing.


The MiCOM Labs "MiTest" Automated Test System" (Patent Pending)

# 9. TEST RESULTS

## 9.1. Peak Transmit Power

| Conducted Test Conditions for Maximum Conducted Output Power | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.407 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | Maximum Conducted Output Power | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.407 (a) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | See Normative References | | |

**Test Procedure for Maximum Conducted Output Power Measurement**
Method PM (Measurement using an RF average power meter). KDB 789033 defines a methodology using an average wideband power meter. Measurements were made while the EUT was operating in a continuous transmission mode (100% duty cycle) at the appropriate center frequency. All operational modes and frequency bands were measured independently and the resultant calculated. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported separately. A summation (Σ) of each antenna port output power is provided which includes any offset due to Duty Cycle Correction Factor (DCCF). Testing was performed under ambient conditions at nominal voltage.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.
Supporting Information
Calculated Power = A + G + Y+ 10 log (1/x) dBm

A = Total Power [10*Log10 ($10^{a/10}$ + $10^{b/10}$ + $10^{c/10}$ + $10^{d/10}$)]
G = Antenna Gain
Y = Beamforming Gain
x = Duty Cycle (average power measurements only)

**Limits Maximum Conducted Output Power**

**Operating Frequency Band 5150-5250 MHz**

15. 407 (a)(1)
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band

of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Operating Frequency Band 5250-5350 and 5470 – 5725 MHz**

15. 407 (a)(2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Operating Frequency Band 5725 – 5850 MHz**

15. 407 (a)(3)
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

| Equipment Configuration for Peak Transmit Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 6.00 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | JMH |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5180.0** | 14.88 | 14.35 | | | 17.63 | -- | 30.00 | -12.37 | 63.00 |
| **5200.0** | 16.07 | 15.95 | | | 19.02 | -- | 30.00 | -10.98 | 72.00 |
| **5240.0** | 16.05 | 16.26 | | | 19.17 | -- | 30.00 | -10.83 | 72.00 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-01 MEASURING RF OUTPUT POWER |
| Measurement Uncertainty: | ±1.33 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

| Equipment Configuration for Peak Transmit Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 80.0 |
| **Data Rate:** | 29.30 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | JMH |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5210.0** | 14.80 | 14.09 | | | 17.47 | -- | 30.00 | -12.53 | 64.00 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-01 MEASURING RF OUTPUT POWER |
| Measurement Uncertainty: | ±1.33 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

| Equipment Configuration for Peak Transmit Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 81.0 |
| **Data Rate:** | 6.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5180.0** | 14.15 | 13.64 | | | 16.91 | -- | 30.00 | -13.09 | 72.00 |
| **5200.0** | 14.03 | 13.78 | | | 16.92 | -- | 30.00 | -13.08 | 72.00 |
| **5240.0** | 14.11 | 13.77 | | | 16.95 | -- | 30.00 | -13.05 | 72.00 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-01 MEASURING RF OUTPUT POWER |
| Measurement Uncertainty: | ±1.33 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

| Equipment Configuration for Peak Transmit Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 71.0 |
| **Data Rate:** | 13.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | JMH |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5190.0** | 11.80 | 10.64 | | | 14.27 | -- | 30.00 | -15.73 | 60.00 |
| **5230.0** | 14.65 | 13.76 | | | 17.24 | -- | 30.00 | -12.76 | 72.00 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-01 MEASURING RF OUTPUT POWER |
| Measurement Uncertainty: | ±1.33 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

| Equipment Configuration for Peak Transmit Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 6.00 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5745.0** | 16.94 | 16.29 | | | 19.64 | -- | 30.00 | -10.36 | 72.00 |
| **5785.0** | 16.15 | 15.69 | | | 18.94 | -- | 30.00 | -11.06 | 72.00 |
| **5825.0** | 16.03 | 15.62 | | | 18.84 | -- | 30.00 | -11.16 | 72.00 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

**Equipment Configuration for Peak Transmit Power**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 82.0 |
| **Data Rate:** | 29.30 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5775.0** | 12.90 | 8.80 | | | 14.33 | -- | 30.00 | -15.67 | 72.00 |

**Traceability to Industry Recognized Test Methodologies**

| | |
|---|---|
| Work Instruction: | WI-01 MEASURING RF OUTPUT POWER |
| Measurement Uncertainty: | ±1.33 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

| Equipment Configuration for Peak Transmit Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 81.0 |
| **Data Rate:** | 6.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5745.0** | 14.43 | 13.55 | | | 17.02 | -- | 30.00 | -12.98 | 72.00 |
| **5785.0** | 13.93 | 13.47 | | | 16.72 | -- | 30.00 | -13.28 | 72.00 |
| **5825.0** | 14.09 | 13.33 | | | 16.74 | -- | 30.00 | -13.26 | 72.00 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-01 MEASURING RF OUTPUT POWER |
| Measurement Uncertainty: | ±1.33 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

**Equipment Configuration for Peak Transmit Power**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 71.0 |
| **Data Rate:** | 13.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Conducted Output Power (dBm) Port(s) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dB | |
| **5755.0** | 15.14 | 13.95 | | | 17.60 | -- | 30.00 | -12.40 | 72.00 |
| **5795.0** | 14.93 | 13.84 | | | 17.43 | -- | 30.00 | -12.57 | 72.00 |

**Traceability to Industry Recognized Test Methodologies**

| | |
|---|---|
| Work Instruction: | WI-01 MEASURING RF OUTPUT POWER |
| Measurement Uncertainty: | ±1.33 dB |

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

## 9.2. 26 dB & 99% Bandwidth

| Conducted Test Conditions for 26 dB and 99% Bandwidth | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.407 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | 26 dB and 99 % Bandwidth | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.407 (a) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | See Normative References | | |

**Test Procedure for 26 dB and 99% Bandwidth Measurement**
The bandwidth at 26 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. The Resolution Bandwidth was set to approximately 1% of the emission bandwidth.
Testing was performed under ambient conditions at nominal voltage. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.

| Equipment Configuration for 26 dB & 99% Occupied Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 6.00 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 26 dB Bandwidth (MHz) Port(s) | | | | 26 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5180.0** | 30.862 | 32.866 | | | 32.866 | 30.862 | | |
| **5200.0** | 35.190 | 34.709 | | | 35.190 | 34.709 | | |
| **5240.0** | 34.790 | 35.431 | | | 35.431 | 34.790 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5180.0** | 17.234 | 17.555 | | | 17.555 | 17.234 | | |
| **5200.0** | 19.319 | 18.998 | | | 19.319 | 18.998 | | |
| **5240.0** | 18.998 | 18.918 | | | 18.998 | 18.918 | | |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for 26 dB & 99% Occupied Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 87.0 |
| **Data Rate:** | 29.30 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 26 dB Bandwidth (MHz) Port(s) | | | | 26 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5210.0** | 140.762 | 134.669 | | | 140.762 | 134.669 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5210.0** | 76.313 | 76.313 | | | 76.313 | 76.313 | | |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for 26 dB & 99% Occupied Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 81.0 |
| **Data Rate:** | 6.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 26 dB Bandwidth (MHz) Port(s) | | | | 26 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5180.0** | 21.242 | 17.715 | | | 21.242 | 17.715 | | |
| **5200.0** | 25.010 | 27.655 | | | 27.655 | 25.010 | | |
| **5240.0** | 26.693 | 24.289 | | | 26.693 | 24.289 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5180.0** | 17.796 | 18.116 | | | 18.116 | 17.796 | | |
| **5200.0** | 18.036 | 18.036 | | | 18.036 | 18.036 | | |
| **5240.0** | 17.956 | 18.036 | | | 18.036 | 17.956 | | |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for 26 dB & 99% Occupied Bandwidth |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 71.0 |
| **Data Rate:** | 13.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 26 dB Bandwidth (MHz) Port(s) | | | | 26 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5190.0** | 73.908 | 68.617 | | | 73.908 | 68.617 | | |
| **5230.0** | 76.313 | 76.313 | | | 76.313 | 76.313 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5190.0** | 37.836 | 37.515 | | | 37.836 | 37.515 | | |
| **5230.0** | 40.401 | 40.721 | | | 40.721 | 40.401 | | |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

## 9.3. 6 dB & 99% Bandwidth

| Conducted Test Conditions for 6 dB and 99% Bandwidth | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.407 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | 6 dB and 99 % Bandwidth | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.407 (a) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | See Normative References | | |

**Test Procedure for 6 dB and 99% Bandwidth Measurement**
The bandwidth at 6 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. The Resolution Bandwidth was set to 100 kHz.
Testing was performed under ambient conditions at nominal voltage. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.

| Equipment Configuration for 6 dB & 99% Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 6.00 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5745.0** | 16.353 | 16.353 | | | 16.353 | 16.353 | | |
| **5785.0** | 16.353 | 16.513 | | | 16.513 | 16.353 | | |
| **5825.0** | 16.353 | 16.353 | | | 16.353 | 16.353 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5745.0** | 18.036 | 18.357 | | | 18.357 | 18.036 | | |
| **5785.0** | 18.597 | 18.998 | | | 18.998 | 18.597 | | |
| **5825.0** | 18.437 | 19.158 | | | 19.158 | 18.437 | | |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for 6 dB & 99% Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 82.0 |
| **Data Rate:** | 29.30 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5775.0** | 75.351 | 75.351 | | | 75.351 | 75.351 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5775.0** | 75.992 | 75.992 | | | 75.992 | 75.992 | | |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

**Equipment Configuration for 6 dB & 99% Bandwidth**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 81.0 |
| **Data Rate:** | 6.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5745.0** | 17.074 | 17.635 | | | 17.635 | 17.074 | | |
| **5785.0** | 16.914 | 17.555 | | | 17.555 | 16.914 | | |
| **5825.0** | 16.914 | 17.635 | | | 17.635 | 16.914 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5745.0** | 17.796 | 17.796 | | | 17.796 | 17.796 | | |
| **5785.0** | 17.796 | 17.876 | | | 17.876 | 17.796 | | |
| **5825.0** | 17.796 | 17.796 | | | 17.796 | 17.796 | | |

**Traceability to Industry Recognized Test Methodologies**

| | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for 6 dB & 99% Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 71.0 |
| **Data Rate:** | 13.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5755.0** | 35.912 | 36.232 | | | 36.232 | 35.912 | | |
| **5795.0** | 36.072 | 36.232 | | | 36.232 | 36.072 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | 99% Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **Highest** | **Lowest** | | |
| **5755.0** | 37.355 | 40.882 | | | 40.882 | 37.355 | | |
| **5795.0** | 36.393 | 36.713 | | | 36.713 | 36.393 | | |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

Note: click the links in the above matrix to view the graphical image (plot).

## 9.4. Power Spectral Density

| Conducted Test Conditions for Power Spectral Density | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.407 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | Power Spectral Density | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.407 (a) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | See Normative References | | |

**Test Procedure for Power Spectral Density**
The in-band power spectral density was measured using the test technique specified in KDB 789033. A 1 MHz measurement bandwidth was implemented for the analyzer sweep. Once the sweep is complete the analyzer trace data is downloaded and used for post processing purposes.
Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured separately. The Peak Power Spectral Density is the highest level found across the emission bandwidth. With multiple antenna port measurements the numerical analyzer data from each port is summed (å) and a link to this additional graphic is provided.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.

Measure and sum the spectra across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The individual spectra are then summed mathematically in linear power units. Unlike in-band power measurements, in which the sum involves a single measured value (output power) from each output, measurements for compliance with PSD limits involve summing entire spectra across corresponding frequency bins on the various outputs. Consistency is maintained for any device with multiple transmitter outputs to be certain the individual outputs are all aligned with the same span and same number of points. In this instance, the linear power spectrum value within the first spectral bin of output 0 is summed with that in the first spectral bin of output 1, and the first spectral bin of output 2, and so on up to the Nth output to obtain the true value for the first frequency bin of the summed spectrum. The summed spectrum value for each frequency bin is computed in this fashion. These summed spectral values were post processed and the resulting numerical and graphical data presented.

NOTE: It may be observed that spectrum in some plots break the limit line however this in itself does NOT constitute a failure. In all cases a spectrum summation plot is provided in order to prove compliance. A failure occurs only after the summation of all spectrum plots have been summed and are found to be greater than the limit line.

Supporting Information
Calculated Power = A + 10 log (1/x) dBm
A = Total Power Spectral Density [10*Log10 ($10^{a/10}$ + $10^{b/10}$ + $10^{c/10}$ + $10^{d/10}$)]
x = Duty Cycle

**Limits Power Spectral Density**

**Operating Frequency Band 5150-5250 MHz**

15. 407 (a)(1)
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the

frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Operating Frequency Band 5250-5350 and 5470 – 5725 MHz**

15. 407 (a)(2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Operating Frequency Band 5725 – 5850 MHz**

15. 407 (a)(3)
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

| Equipment Configuration for Power Spectral Density |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 6.00 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/MHz) | | | | Summation Peak Marker + DCCF (+0.04 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| **5180.0** | 4.291 | 4.447 | | | 7.310 | 17.0 | -9.7 |
| **5200.0** | 4.140 | 4.150 | | | 7.025 | 17.0 | -10.0 |
| **5240.0** | 3.957 | 3.951 | | | 7.008 | 17.0 | -10.0 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for Power Spectral Density |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 87.0 |
| **Data Rate:** | 29.30 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/MHz) | | | | Summation Peak Marker + DCCF (+0.6 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| **5210.0** | -8.124 | -14.589 | | | -6.998 | 17.0 | -24.0 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for Power Spectral Density |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 81.0 |
| **Data Rate:** | 6.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/MHz) | | | | Summation Peak Marker + DCCF (+0.92 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5180.0 | -2.671 | -2.254 | | | 1.258 | 17.0 | -15.7 |
| 5200.0 | -1.441 | -1.818 | | | 0.937 | 17.0 | -16.1 |
| 5240.0 | -0.357 | -2.755 | | | 1.382 | 17.0 | -15.6 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for Power Spectral Density |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 71.0 |
| **Data Rate:** | 13.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/MHz) | | | | Summation Peak Marker + DCCF (+1.49 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| **5190.0** | -6.405 | -8.659 | | | -3.261 | 17.0 | -20.3 |
| **5230.0** | -4.768 | -7.213 | | | -2.678 | 17.0 | -19.7 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for Power Spectral Density |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 6.00 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/500 KHz) | | | | Summation Peak Marker + DCCF (+0.04 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/500 KHz | dBm/500 KHz | dB |
| 5745.0 | 1.261 | 0.700 | | | 3.849 | 30.0 | -26.2 |
| 5785.0 | 0.309 | -0.019 | | | 3.162 | 30.0 | -26.8 |
| 5825.0 | 0.740 | 0.413 | | | 3.502 | 30.0 | -26.5 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for Power Spectral Density | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 82.0 |
| **Data Rate:** | 29.30 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/500 KHz) | | | | Summation Peak Marker + DCCF (+0.86 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **dBm/500 KHz** | **dBm/500 KHz** | **dB** |
| **5775.0** | -9.106 | -16.754 | | | -8.058 | 30.0 | -38.1 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for Power Spectral Density | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 81.0 |
| **Data Rate:** | 6.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/500 KHz) | | | | Summation Peak Marker + DCCF (+0.92 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/500 KHz | dBm/500 KHz | dB |
| **5745.0** | -3.044 | -3.237 | | | -1.255 | 30.0 | -31.3 |
| **5785.0** | -4.097 | -5.912 | | | -1.690 | 30.0 | -31.7 |
| **5825.0** | -4.328 | -4.910 | | | -2.033 | 30.0 | -32.0 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

| Equipment Configuration for Power Spectral Density |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 71.0 |
| **Data Rate:** | 13.50 MBit/s | **Antenna Gain (dBi):** | 2.90 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y)(dB):** | 3.00 |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/500 KHz) | | | | Summation Peak Marker + DCCF (+1.49 dB) | Limit | Margin |
|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **dBm/500 KHz** | **dBm/500 KHz** | **dB** |
| **5755.0** | -7.948 | -9.615 | | | -5.021 | 30.0 | -35.0 |
| **5795.0** | -8.619 | -10.890 | | | -5.476 | 30.0 | -35.5 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-03 MEASURING RF SPECTRUM MASK |
| Measurement Uncertainty: | ±2.81 dB |

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

## 9.5. Radiated

| Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.407 | **Ambient Temp. (ºC):** | 20.0 - 24.5 |
| **Test Heading:** | Radiated Spurious and Band-Edge Emissions | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.407 (b), 15.205, 15.209 | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | See Normative References | | |

**Test Procedure for Radiated Spurious and Band-Edge Emissions**
Radiated emissions for restricted bands above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.
Measurements on any restricted band frequency or frequencies above 1 GHz are based on the use of measurement instrumentation employing peak and average detectors. All measurements were performed using a resolution bandwidth of 1 MHz.

Test configuration and setup for Undesirable Measurement were per the Radiated Test Set-up specified in this document.

15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

**Limits for Restricted Bands (15.205, 15.209)**
**Peak emission: 74 dBuV/m**
**Average emission: 54 dBuV/m**

**Field Strength Calculation**
**The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.**
**FS = R + AF + CORR - FO**

**where:**

**FS = Field Strength**
**R = Measured Spectrum analyzer Input Amplitude**
**AF = Antenna Factor**
**CORR = Correction Factor = CL – AG + NFL**
**CL = Cable Loss**
**AG = Amplifier Gain**
**FO = Distance Falloff Factor**
**NFL = Notch Filter Loss**

**Example:**
**The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength (dBµV/m);**

$$E = \frac{1000000 \times \sqrt{30P}}{3}$$ µV/m

where P is the EIRP in Watts

Therefore: -27 dBm/MHz equates to 68.23 dBuV/m

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are as follows:
Level (dBmV/m) = 20 * Log (level (mV/m))

40 dBmV/m = 100 mV/m
48 dBmV/m = 250 mV/m

**Restricted Bands of Operation (15.205)**
(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| Frequency Band | | | |
|---|---|---|---|
| **MHz** | **MHz** | **MHz** | **GHz** |
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| 0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | Above 38.6 |

| | | | |
|---|---|---|---|
| 13.36-13.41 | | | |

(b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e) of this section, regardless of the field strength limits specified elsewhere in this subpart, the provisions of this section apply to emissions from any intentional radiator.

(d) The following devices are exempt from the requirements of this section:

(1) Swept frequency field disturbance sensors operating between 1.705 and 37 MHz provided their emissions only sweep through the bands listed in paragraph (a) of this section, the sweep is never stopped with the fundamental emission within the bands listed in paragraph (a) of this section, and the fundamental emission is outside of the bands listed in paragraph (a) of this section more than 99% of the time the device is actively transmitting, without compensation for duty cycle.

(2) Transmitters used to detect buried electronic markers at 101.4 kHz which are employed by telephone companies.

(3) Cable locating equipment operated pursuant to §15.213.

(4) Any equipment operated under the provisions of §15.253, 15.255, and 15.256 in the frequency band 75-85 GHz, or §15.257 of this part.

(5) Biomedical telemetry devices operating under the provisions of §15.242 of this part are not subject to the restricted band 608-614 MHz but are subject to compliance within the other restricted bands.

(6) Transmitters operating under the provisions of subparts D or F of this part.

(7) Devices operated pursuant to §15.225 are exempt from complying with this section for the 13.36-13.41 MHz band only.

(8) Devices operated in the 24.075-24.175 GHz band under §15.245 are exempt from complying with the requirements of this section for the 48.15-48.35 GHz and 72.225-72.525 GHz bands only, and shall not exceed the limits specified in §15.245(b).

(9) Devices operated in the 24.0-24.25 GHz band under §15.249 are exempt from complying with the requirements of this section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, and shall not exceed the limits specified in §15.249(a).

(e) Harmonic emissions appearing in the restricted bands above 17.7 GHz from field disturbance sensors operating under the provisions of §15.245 shall not exceed the limits specified in §15.245(b).

### 9.5.1. TX Spurious & Restricted Band Emissions

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | HPE Metal Sheet | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | 3.0 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5180.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5177.87 | 66.06 | 3.69 | -11.51 | 58.24 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| #2 | 10362.62 | 50.56 | 5.58 | -5.25 | 50.89 | Peak (NRB) | Vertical | 100 | 118 | -- | -- | Pass |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | HPE Metal Sheet | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | 3.0 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5200.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5198.81 | 69.14 | 3.66 | -11.47 | 61.33 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| #2 | 10398.45 | 52.07 | 5.39 | -5.05 | 52.41 | Peak (NRB) | Vertical | 100 | 306 | -- | -- | Pass |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | HPE Metal Sheet | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | 3.0 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5240.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5233.87 | 71.50 | 3.63 | -11.38 | 63.75 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| #2 | 10485.99 | 50.98 | 5.42 | -4.42 | 51.98 | Peak (NRB) | Vertical | 100 | 215 | -- | -- | Pass |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | HPE Metal Sheet | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | 3.0 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5745.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5744.01 | 54.45 | 3.84 | -10.66 | 47.63 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| #2 | 11493.47 | 51.56 | 5.44 | -4.84 | 52.16 | Max Peak | Vertical | 134 | 1 | 74.0 | -21.8 | Pass |
| #3 | 11493.47 | 38.25 | 5.44 | -4.84 | 38.85 | Max Avg | Vertical | 134 | 1 | 54.0 | -15.2 | Pass |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | HPE Metal Sheet | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | 3.0 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5785.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5791.21 | 56.52 | 3.79 | -10.41 | 49.90 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| #2 | 11566.31 | 52.33 | 5.52 | -4.65 | 53.20 | Max Peak | Horizontal | 147 | 143 | 74.0 | -20.8 | Pass |
| #3 | 11566.31 | 38.01 | 5.52 | -4.65 | 38.88 | Max Avg | Horizontal | 147 | 143 | 54.0 | -15.1 | Pass |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | HPE Metal Sheet | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | 3.0 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5825.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5830.56 | 56.14 | 3.84 | -10.22 | 49.76 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| #2 | 11649.93 | 53.70 | 5.44 | -4.47 | 54.67 | Max Peak | Vertical | 162 | 347 | 74.0 | -19.3 | Pass |
| #3 | 11649.93 | 42.94 | 5.44 | -4.47 | 43.91 | Max Avg | Vertical | 162 | 347 | 54.0 | -10.1 | Pass |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

### 9.5.2. Restricted Edge & Band-Edge Emissions

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

| HPE Metal Sheet | | Band-Edge Freq | Limit 74.0dBµV/m | Limit 54.0dBµV/m | Power Setting |
|---|---|---|---|---|---|
| Operational Mode | Operating Frequency (MHz) | MHz | dBµV/m | dBµV/m | |
| 802.11a | 5180.00 | 5150.00 | 71.54 | 52.95 | 63 |
| 802.11ac-80 | 5210.00 | 5150.00 | 73.61 | 48.58 | 64 |
| 802.11n HT-20 | 5180.00 | 5150.00 | 72.86 | 50.91 | 72 |
| 802.11n HT-40 | 5190.00 | 5150.00 | 70.47 | 52.95 | 60 |

5725 MHz Radiated Lower Band-Edge Emissions

| HPE Metal Sheet | | Band-Edge Freq | Limit 110.8dBµV/m | Limit 122.2dBµV/m | Power Setting |
|---|---|---|---|---|---|
| Operational Mode | Operating Frequency (MHz) | MHz | dBµV/m | dBµV/m | |
| 802.11a | 5745.00 | 5725.00 | 64.38 | 71.73 | 72 |
| 802.11ac-80 | 5775.00 | 5725.00 | 59.10 | 61.18 | 72 |
| 802.11n HT-20 | 5745.00 | 5725.00 | 58.20 | 64.07 | 72 |
| 802.11n HT-40 | 5755.00 | 5725.00 | 70.56 | 70.33 | 72 |

5850 MHz Radiated Higher Band-Edge Emissions

| HPE Metal Sheet | | Band-Edge Freq | Limit 122.2dBµV/m | Limit 110.8dBµV/m | Power Setting |
|---|---|---|---|---|---|
| Operational Mode | Operating Frequency (MHz) | MHz | dBµV/m | dBµV/m | |
| 802.11a | 5825.00 | 5850.00 | 67.18 | 59.51 | 72 |
| 802.11ac-80 | 5775.00 | 5850.00 | 58.86 | 57.56 | 72 |
| 802.11n HT-20 | 5825.00 | 5850.00 | 57.15 | 55.04 | 72 |
| 802.11n HT-40 | 5795.00 | 5850.00 | 59.46 | 57.55 | 72 |

Click on the links to view the data.

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5180.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 63 | **Tested By:** | JMH |

**Test Measurement Results**

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5146.99 | 33.75 | 3.68 | 34.11 | 71.54 | Max Peak | Horizontal | 183 | 2 | 74.0 | -2.5 | Pass |
| #2 | 5150.00 | 15.17 | 3.67 | 34.11 | 52.95 | Max Avg | Horizontal | 183 | 2 | 54.0 | -1.1 | Pass |
| #3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC. Power reduced to 63 to meet band edge limits. | | | | | | | | | | | | |

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11ac-80 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5210.00 | **Data Rate:** | 29.30 MBit/s |
| **Power Setting:** | 64 | **Tested By:** | JMH |

**Test Measurement Results**

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5139.48 | 35.79 | 3.70 | 34.12 | 73.61 | Max Peak | Horizontal | 183 | 2 | 74.0 | -0.4 | Pass |
| #2 | 5150.00 | 10.80 | 3.67 | 34.11 | 48.58 | Max Avg | Horizontal | 183 | 2 | 54.0 | -5.4 | Pass |
| #3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC. Power reduced to 64 to meet band edge limits. | | | | | | | | | | | | |

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11n HT-20 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5180.00 | **Data Rate:** | 6.50 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5146.99 | 35.07 | 3.68 | 34.11 | 72.86 | Max Peak | Horizontal | 183 | 2 | 74.0 | -1.1 | Pass |
| #2 | 5150.00 | 13.13 | 3.67 | 34.11 | 50.91 | Max Avg | Horizontal | 183 | 2 | 54.0 | -3.1 | Pass |
| #3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11n HT-40 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5190.00 | **Data Rate:** | 13.50 MBit/s |
| **Power Setting:** | 60 | **Tested By:** | JMH |

**Test Measurement Results**

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5146.99 | 15.16 | 3.68 | 34.11 | 52.95 | Max Avg | Horizontal | 183 | 2 | 54.0 | -1.1 | Pass |
| #2 | 5148.50 | 32.68 | 3.68 | 34.11 | 70.47 | Max Peak | Horizontal | 183 | 2 | 74.0 | -3.5 | Pass |
| #3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC. Power reduced to 60 to meet band edge limits. | | | | | | | | | | | | |

**Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5745.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5715.36 | 26.23 | 3.81 | 34.34 | 64.38 | Max Avg | Horizontal | 161 | 353 | 109.4 | -45.0 | Pass |
| #2 | 5725.00 | 33.59 | 3.79 | 34.35 | 71.73 | Max Avg | Horizontal | 161 | 353 | 122.2 | -50.5 | Pass |
| #3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11ac-80 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5775.00 | **Data Rate:** | 29.30 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5702.74 | 20.90 | 3.87 | 34.33 | 59.10 | Max Avg | Horizontal | 161 | 353 | 106.0 | -46.9 | Pass |
| #2 | 5722.84 | 23.03 | 3.80 | 34.35 | 61.18 | Max Avg | Horizontal | 161 | 353 | 117.6 | -56.5 | Pass |
| #3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11n HT-20 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5745.00 | **Data Rate:** | 6.50 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5713.92 | 20.04 | 3.82 | 34.34 | 58.20 | Max Avg | Horizontal | 161 | 353 | 109.1 | -50.9 | Pass |
| #2 | 5725.00 | 25.93 | 3.79 | 34.35 | 64.07 | Max Avg | Horizontal | 161 | 353 | 122.2 | -58.1 | Pass |
| #3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11n HT-40 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5755.00 | **Data Rate:** | 13.50 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5717.89 | 32.41 | 3.81 | 34.34 | 70.56 | Max Avg | Horizontal | 161 | 353 | 110.2 | -39.7 | Pass |
| #2 | 5722.84 | 32.18 | 3.80 | 34.35 | 70.33 | Max Avg | Horizontal | 161 | 353 | 117.6 | -47.3 | Pass |
| #3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11a |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5825.00 | **Data Rate:** | 6.00 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5850.00 | 28.74 | 3.81 | 34.63 | 67.18 | Max Avg | Horizontal | 165 | 355 | 122.2 | -55.0 | Pass |
| #3 | 5875.67 | 21.00 | 3.81 | 34.70 | 59.51 | Max Avg | Horizontal | 165 | 355 | 104.5 | -45.0 | Pass |
| #2 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11ac-80 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5775.00 | **Data Rate:** | 29.30 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #2 | 5851.38 | 20.42 | 3.81 | 34.63 | 58.86 | Max Avg | Horizontal | 165 | 355 | 119.9 | -61.1 | Pass |
| #3 | 5871.98 | 19.07 | 3.80 | 34.69 | 57.56 | Max Avg | Horizontal | 165 | 355 | 106.0 | -48.5 | Pass |
| #1 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11n HT-20 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5825.00 | **Data Rate:** | 6.50 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #2 | 5851.84 | 18.70 | 3.82 | 34.63 | 57.15 | Max Avg | Horizontal | 165 | 355 | 117.6 | -60.5 | Pass |
| #3 | 5860.00 | 16.53 | 3.86 | 34.65 | 55.04 | Max Avg | Horizontal | 165 | 355 | 109.4 | -54.4 | Pass |
| #1 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

**Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | Not Applicable | **Variant:** | 802.11n HT-40 |
| **Antenna Gain (dBi):** | 2.90 | **Modulation:** | 2 |
| **Beam Forming Gain (Y):** | 3 | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5795.00 | **Data Rate:** | 13.50 MBit/s |
| **Power Setting:** | 72 | **Tested By:** | JMH |

**Test Measurement Results**

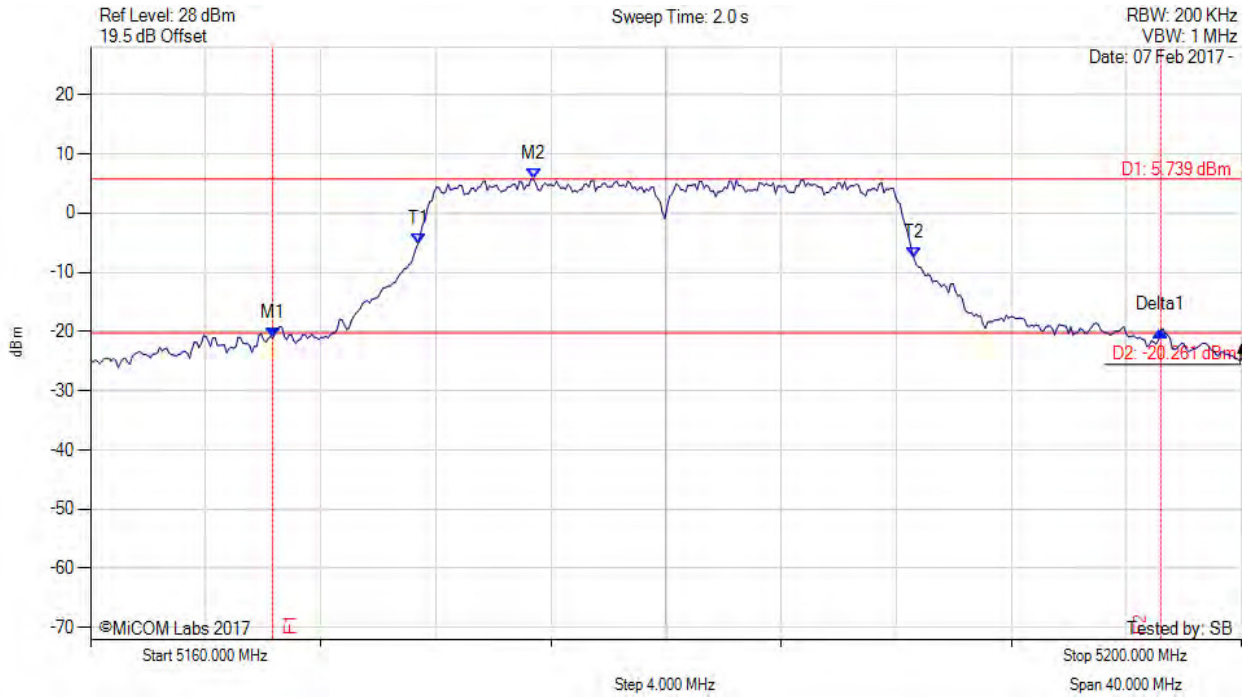
| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5850.00 | 21.02 | 3.81 | 34.63 | 59.46 | Max Avg | Horizontal | 165 | 355 | 122.2 | -62.7 | Pass |
| #3 | 5865.53 | 19.05 | 3.83 | 34.67 | 57.55 | Max Avg | Horizontal | 165 | 355 | 107.7 | -50.2 | Pass |
| #2 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: AP203RP SN# CNCPK2T00L on 150cm table powered by AC. | | | | | | | | | | | | |

# A. APPENDIX - GRAPHICAL IMAGES

## A.1. 26 dB & 99% Bandwidth

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

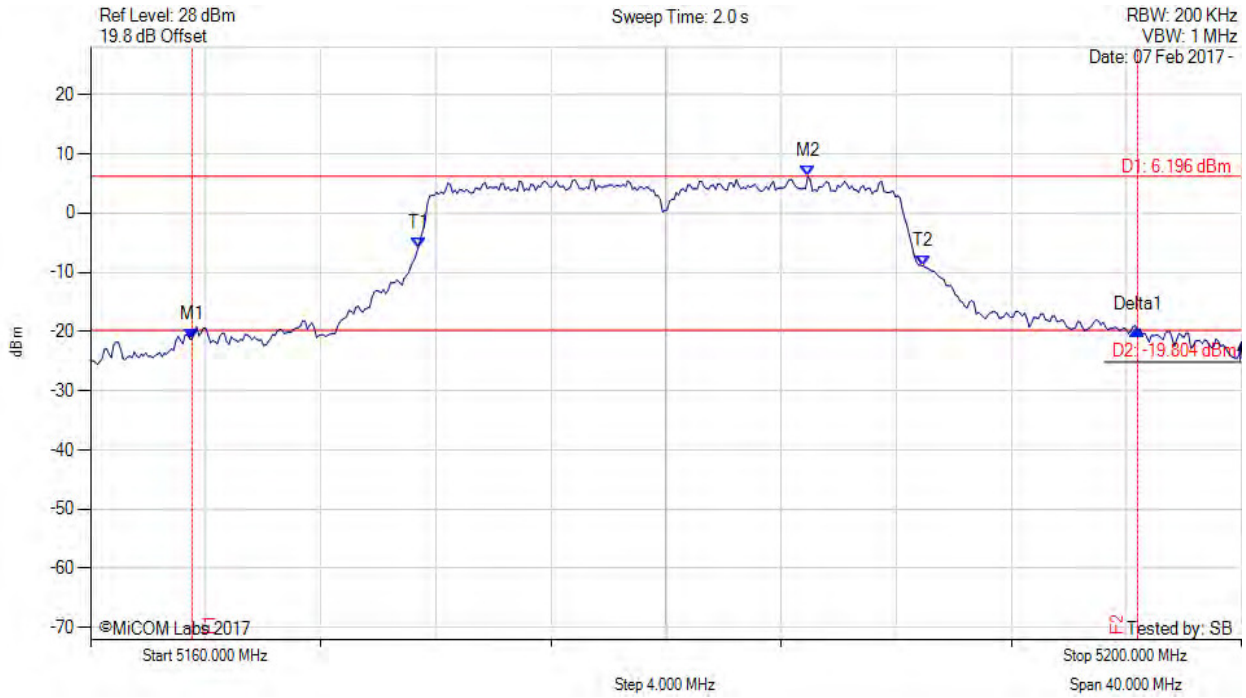



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5166.333 MHz : -21.080 dBm<br>M2 : 5175.391 MHz : 5.739 dBm<br>Delta1 : 30.862 MHz : 1.269 dB<br>T1 : 5171.383 MHz : -5.179 dBm<br>T2 : 5188.617 MHz : -7.647 dBm<br>OBW : 17.234 MHz | Measured 26 dB Bandwidth: 30.862 MHz<br>Measured 99% Bandwidth: 17.234 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

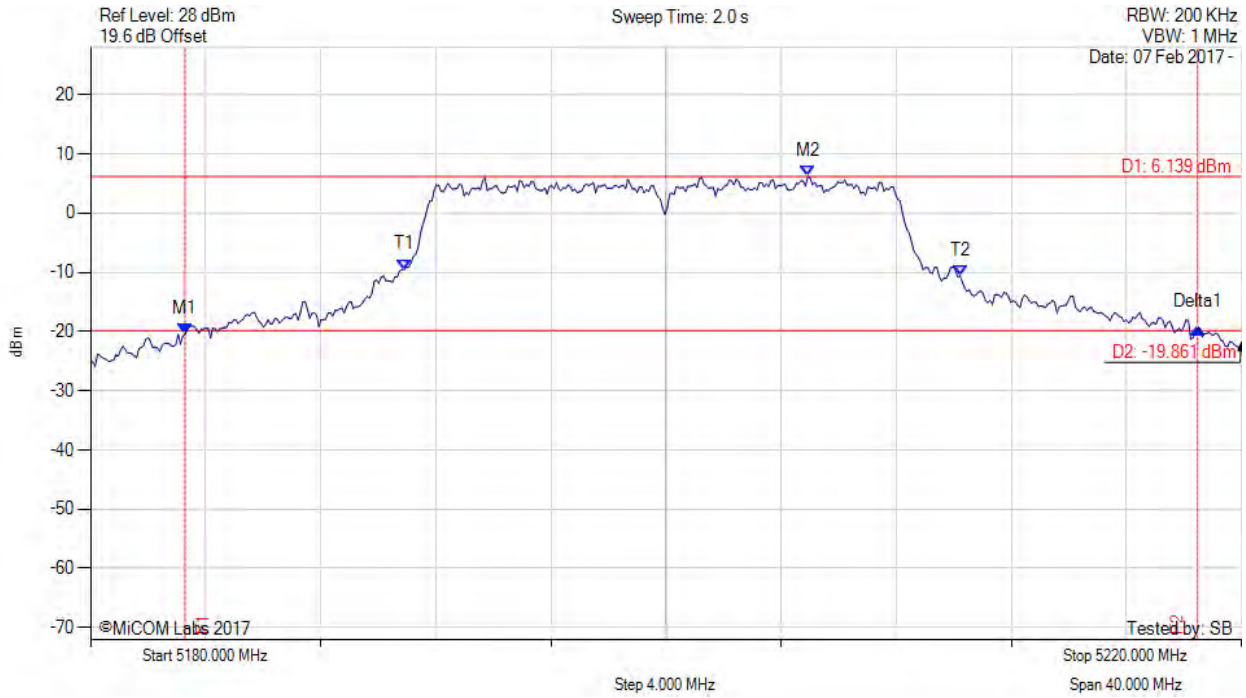



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5163.527 MHz : -21.357 dBm<br>M2 : 5184.930 MHz : 6.196 dBm<br>Delta1 : 32.866 MHz : 1.564 dB<br>T1 : 5171.383 MHz : -5.850 dBm<br>T2 : 5188.938 MHz : -8.947 dBm<br>OBW : 17.555 MHz | Measured 26 dB Bandwidth: 32.866 MHz<br>Measured 99% Bandwidth: 17.555 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

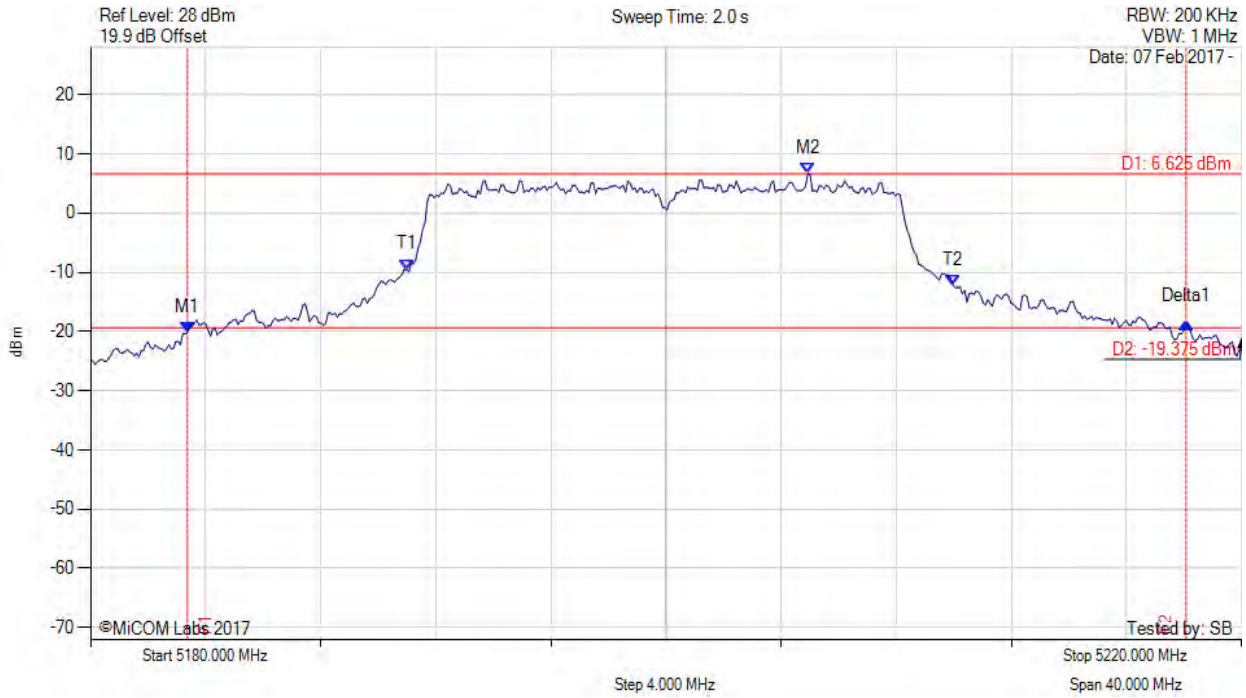



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5183.287 MHz : -20.448 dBm<br>M2 : 5204.930 MHz : 6.139 dBm<br>Delta1 : 35.190 MHz : 1.100 dB<br>T1 : 5190.902 MHz : -9.543 dBm<br>T2 : 5210.220 MHz : -10.586 dBm<br>OBW : 19.319 MHz | Measured 26 dB Bandwidth: 35.190 MHz<br>Measured 99% Bandwidth: 19.319 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

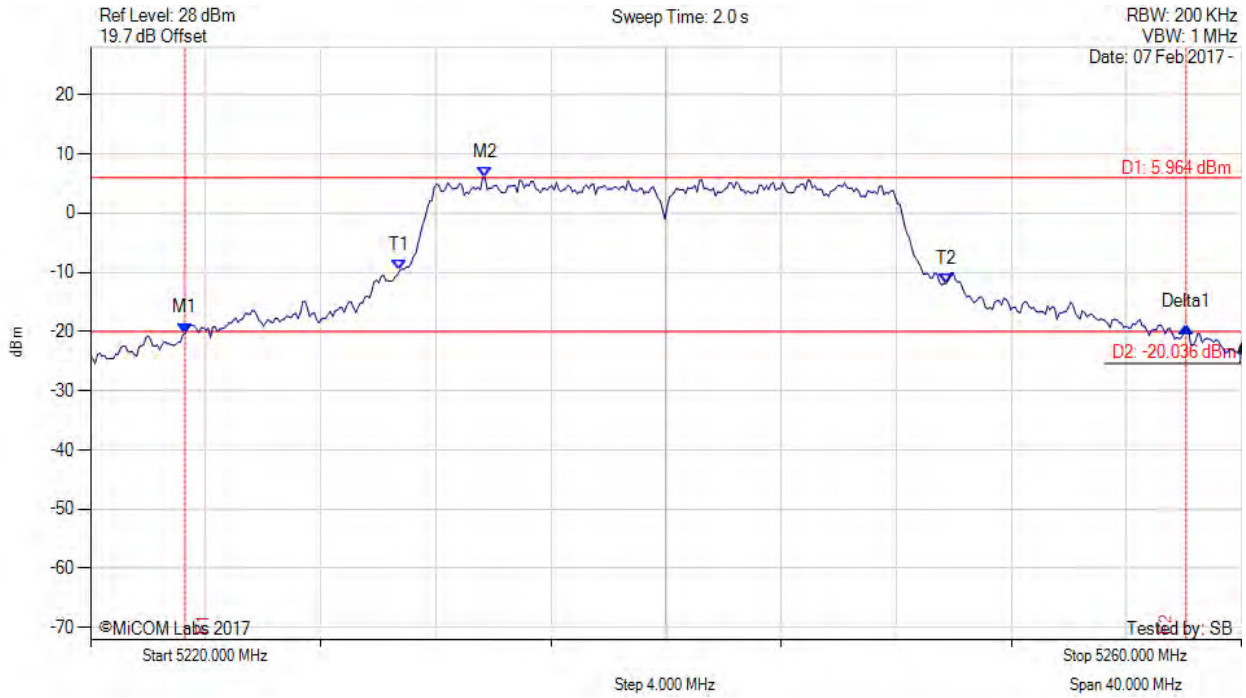



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5183.367 MHz : -20.096 dBm<br>M2 : 5204.930 MHz : 6.625 dBm<br>Delta1 : 34.709 MHz : 1.674 dB<br>T1 : 5190.982 MHz : -9.545 dBm<br>T2 : 5209.980 MHz : -12.169 dBm<br>OBW : 18.998 MHz | Measured 26 dB Bandwidth: 34.709 MHz<br>Measured 99% Bandwidth: 18.998 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

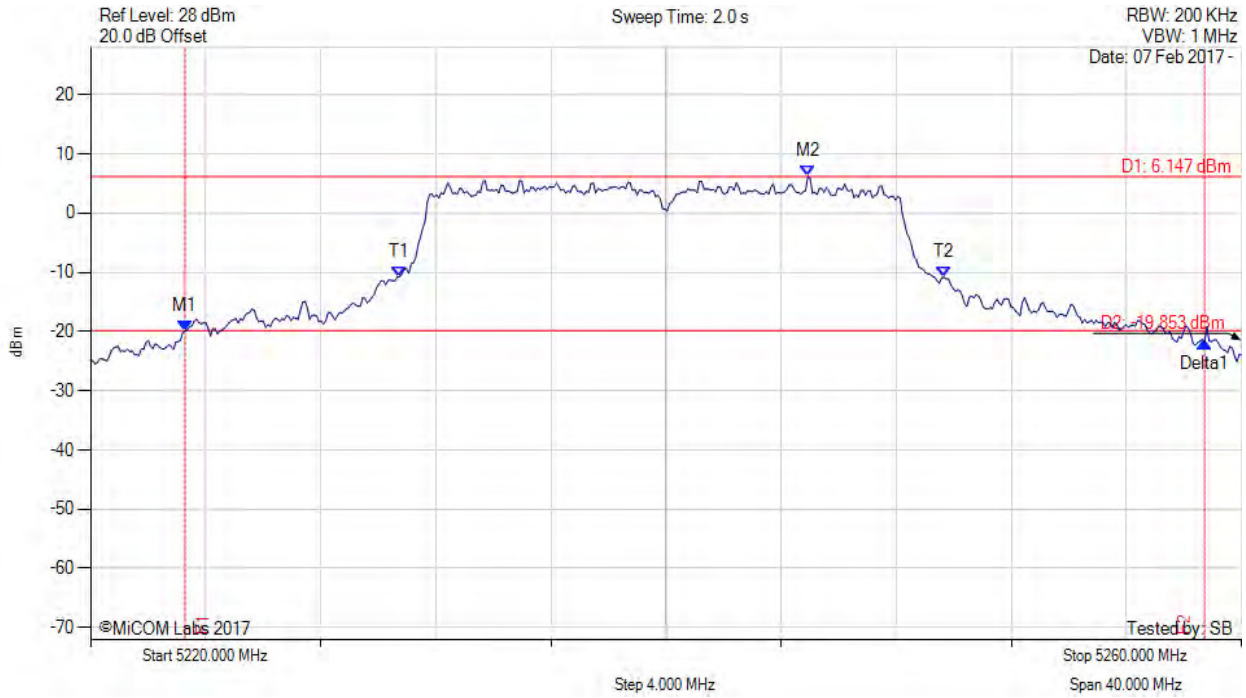



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5223.287 MHz : -20.285 dBm<br>M2 : 5233.707 MHz : 5.964 dBm<br>Delta1 : 34.790 MHz : 1.029 dB<br>T1 : 5230.741 MHz : -9.732 dBm<br>T2 : 5249.739 MHz : -11.916 dBm<br>OBW : 18.998 MHz | Measured 26 dB Bandwidth: 34.790 MHz<br>Measured 99% Bandwidth: 18.998 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

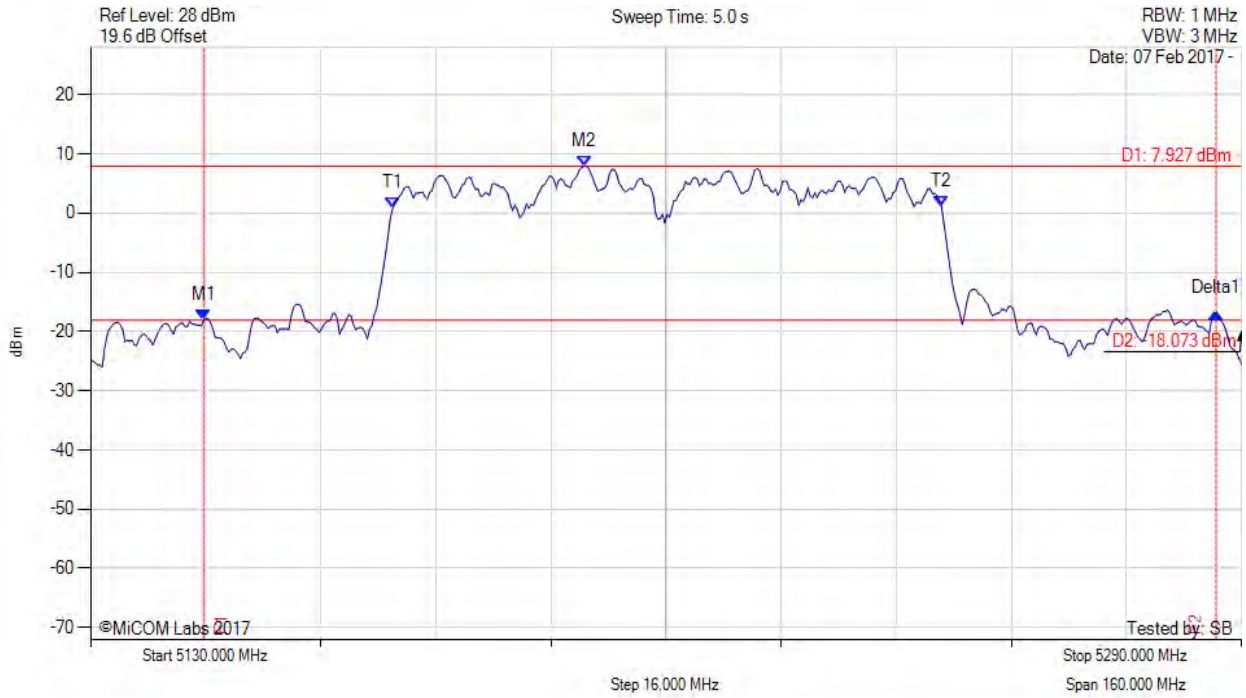



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5223.287 MHz : -19.895 dBm<br>M2 : 5244.930 MHz : 6.147 dBm<br>Delta1 : 35.431 MHz : -1.950 dB<br>T1 : 5230.741 MHz : -10.733 dBm<br>T2 : 5249.659 MHz : -10.824 dBm<br>OBW : 18.918 MHz | Measured 26 dB Bandwidth: 35.431 MHz<br>Measured 99% Bandwidth: 18.918 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

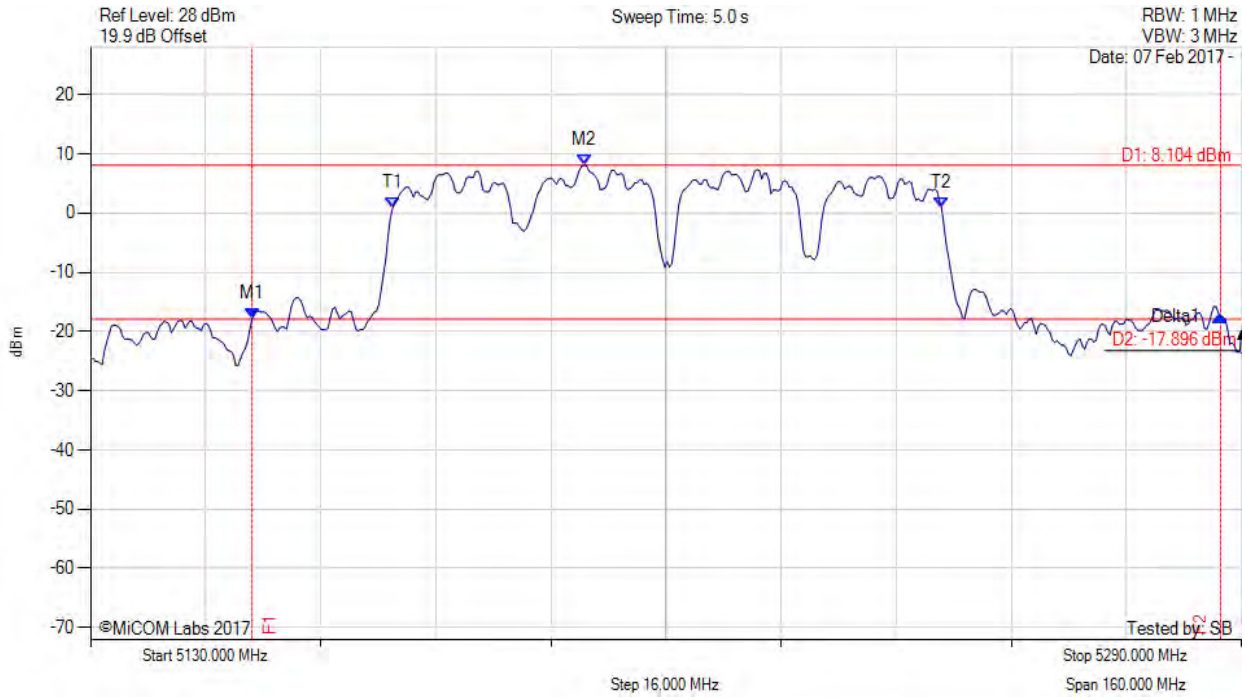



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5145.711 MHz : -18.109 dBm<br>M2 : 5198.617 MHz : 7.927 dBm<br>Delta1 : 140.762 MHz : 1.188 dB<br>T1 : 5172.004 MHz : 0.805 dBm<br>T2 : 5248.317 MHz : 0.992 dBm<br>OBW : 76.313 MHz | Measured 26 dB Bandwidth: 140.762 MHz<br>Measured 99% Bandwidth: 76.313 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

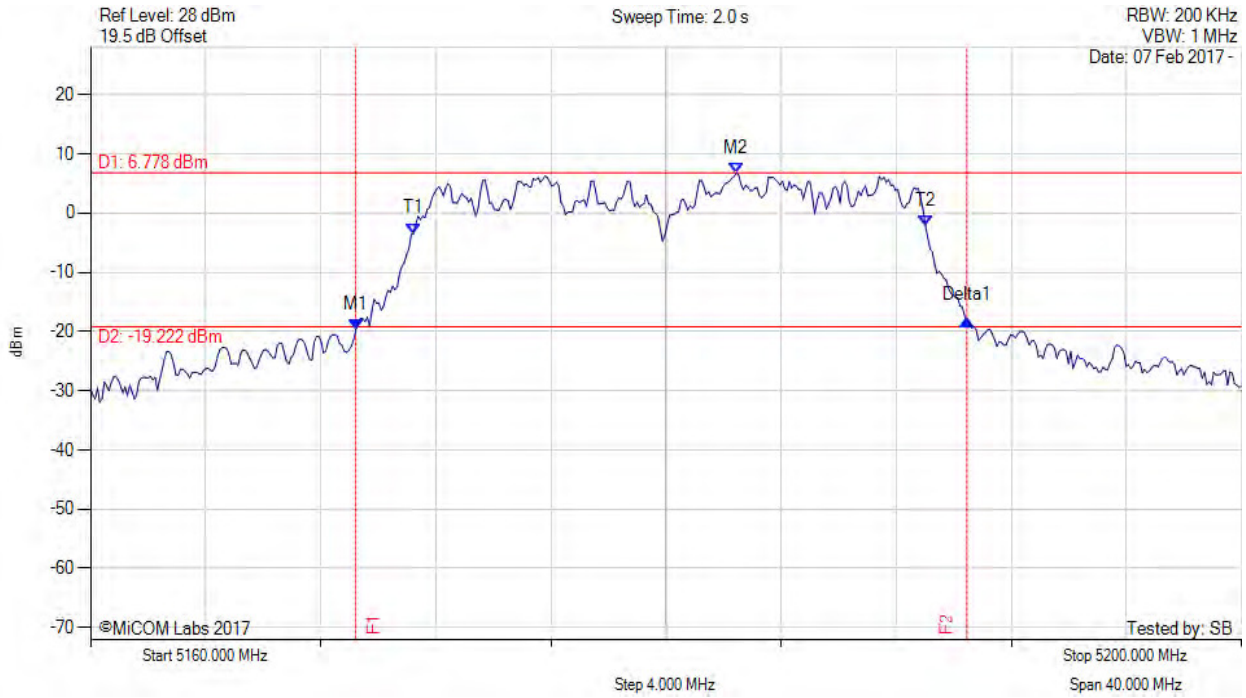



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5152.445 MHz : -17.908 dBm<br>M2 : 5198.617 MHz : 8.104 dBm<br>Delta1 : 134.669 MHz : 0.449 dB<br>T1 : 5172.004 MHz : 0.888 dBm<br>T2 : 5248.317 MHz : 0.839 dBm<br>OBW : 76.313 MHz | Measured 26 dB Bandwidth: 134.669 MHz<br>Measured 99% Bandwidth: 76.313 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

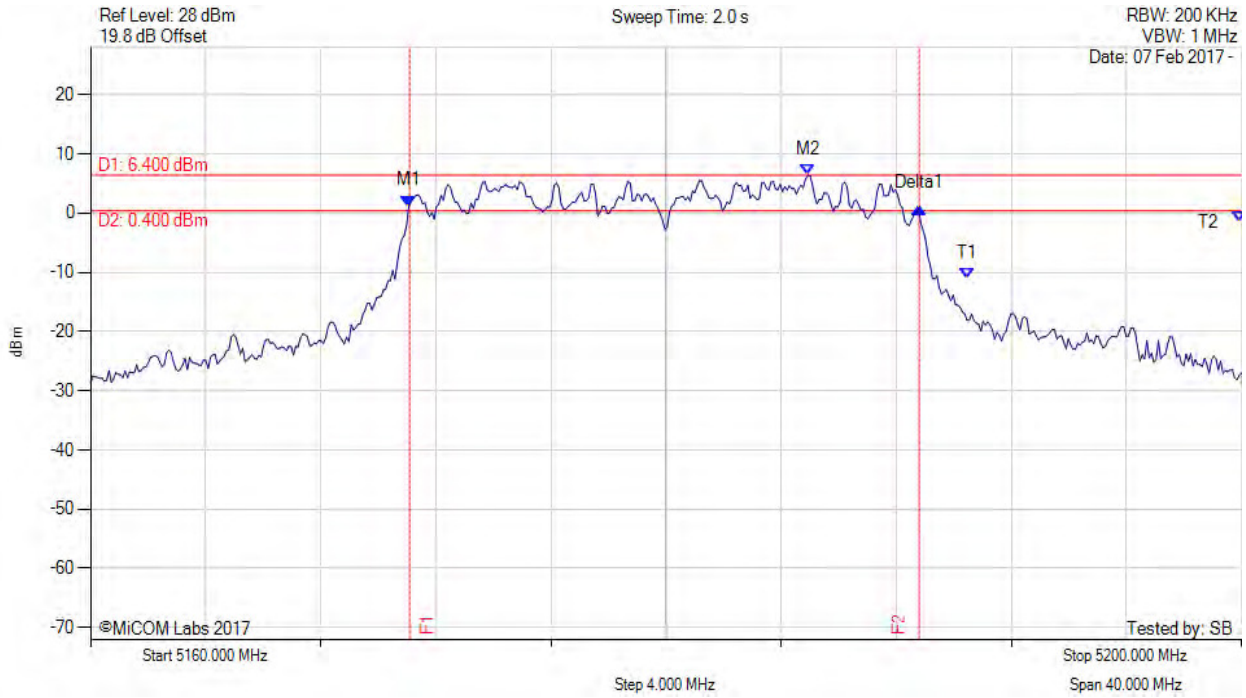



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5169.218 MHz : -19.742 dBm<br>M2 : 5182.445 MHz : 6.778 dBm<br>Delta1 : 21.242 MHz : 1.765 dB<br>T1 : 5171.222 MHz : -3.470 dBm<br>T2 : 5189.018 MHz : -2.150 dBm<br>OBW : 17.796 MHz | Measured 26 dB Bandwidth: 21.242 MHz<br>Measured 99% Bandwidth: 17.796 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

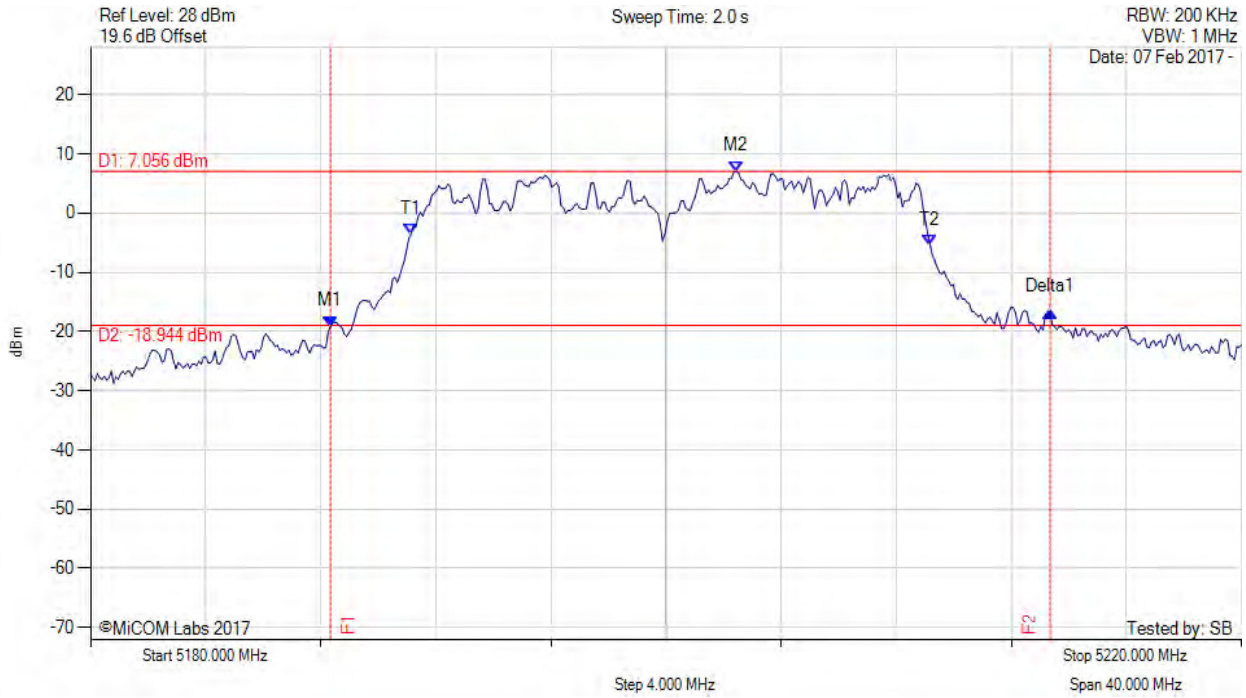



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5171.062 MHz : 1.220 dBm<br>M2 : 5184.930 MHz : 6.396 dBm<br>Delta1 : 17.715 MHz : -0.423 dB<br>T1 : 5190.461 MHz : -11.101 dBm<br>T2 : 5199.920 MHz : -1.534 dBm<br>OBW : 18.116 MHz | Measured 26 dB Bandwidth: 17.715 MHz<br>Measured 99% Bandwidth: 18.116 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

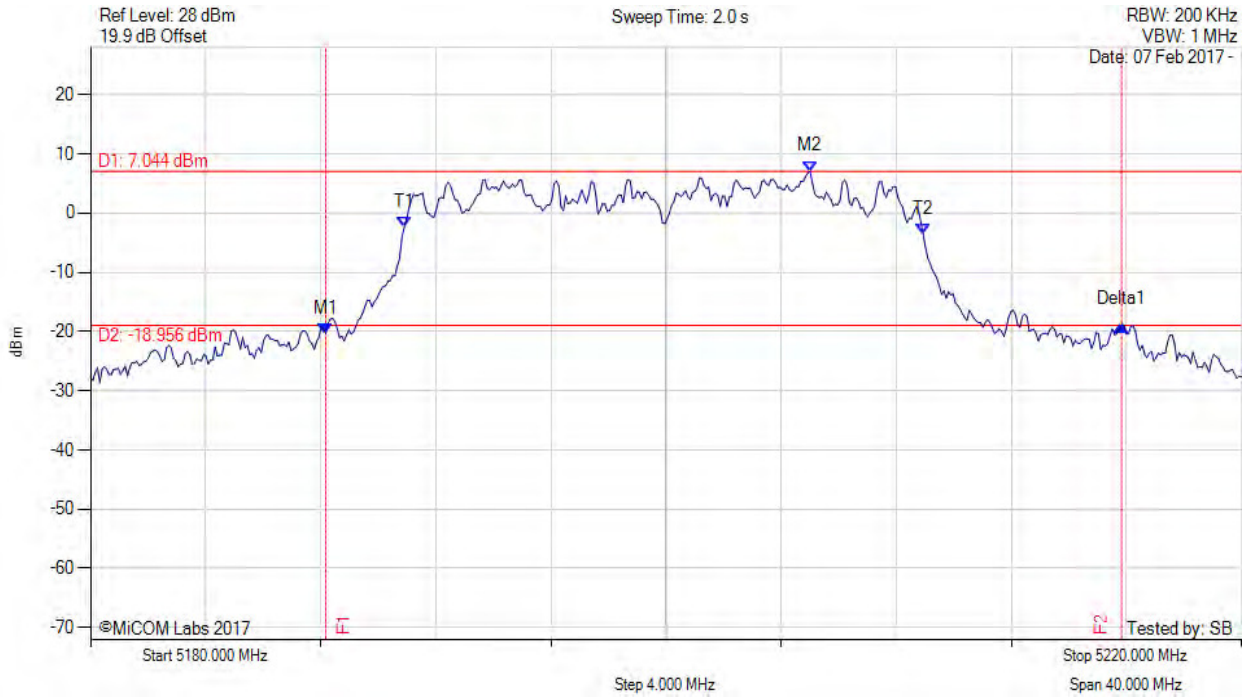



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5188.337 MHz : -19.116 dBm<br>M2 : 5202.445 MHz : 7.056 dBm<br>Delta1 : 25.010 MHz : 2.534 dB<br>T1 : 5191.142 MHz : -3.547 dBm<br>T2 : 5209.178 MHz : -5.392 dBm<br>OBW : 18.036 MHz | Measured 26 dB Bandwidth: 25.010 MHz<br>Measured 99% Bandwidth: 18.036 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

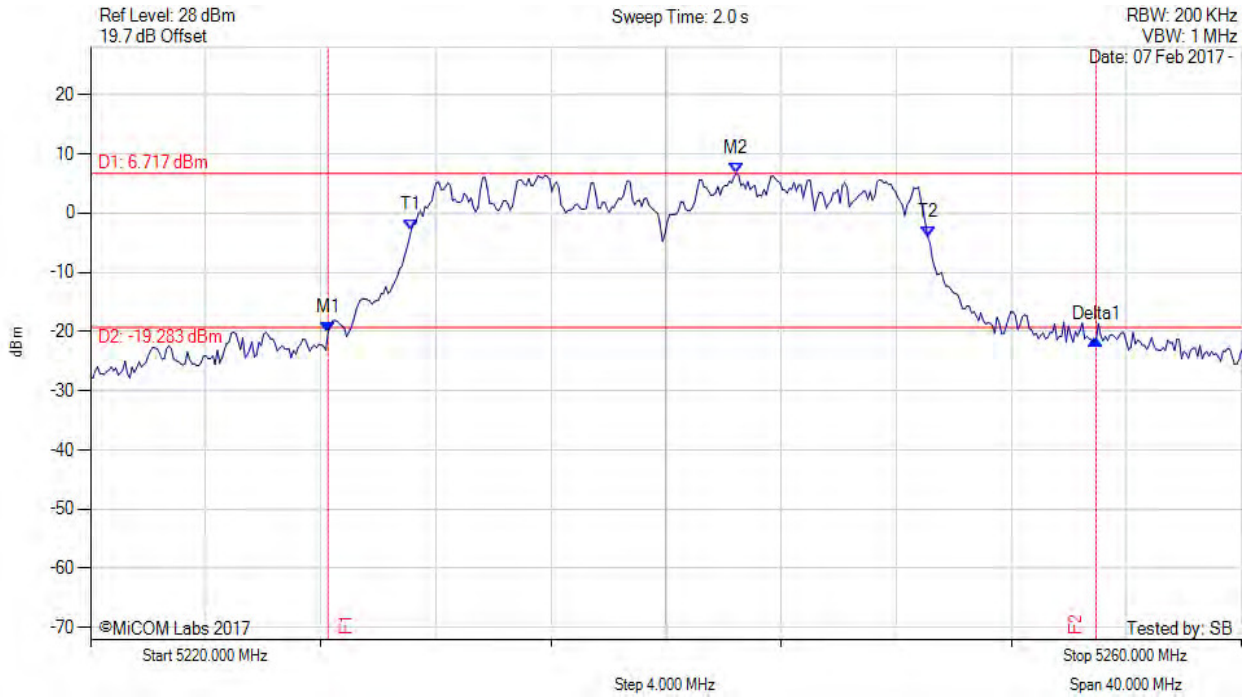



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5188.176 MHz : -20.318 dBm<br>M2 : 5205.010 MHz : 7.044 dBm<br>Delta1 : 27.655 MHz : 1.422 dB<br>T1 : 5190.902 MHz : -2.437 dBm<br>T2 : 5208.938 MHz : -3.576 dBm<br>OBW : 18.036 MHz | Measured 26 dB Bandwidth: 27.655 MHz<br>Measured 99% Bandwidth: 18.036 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

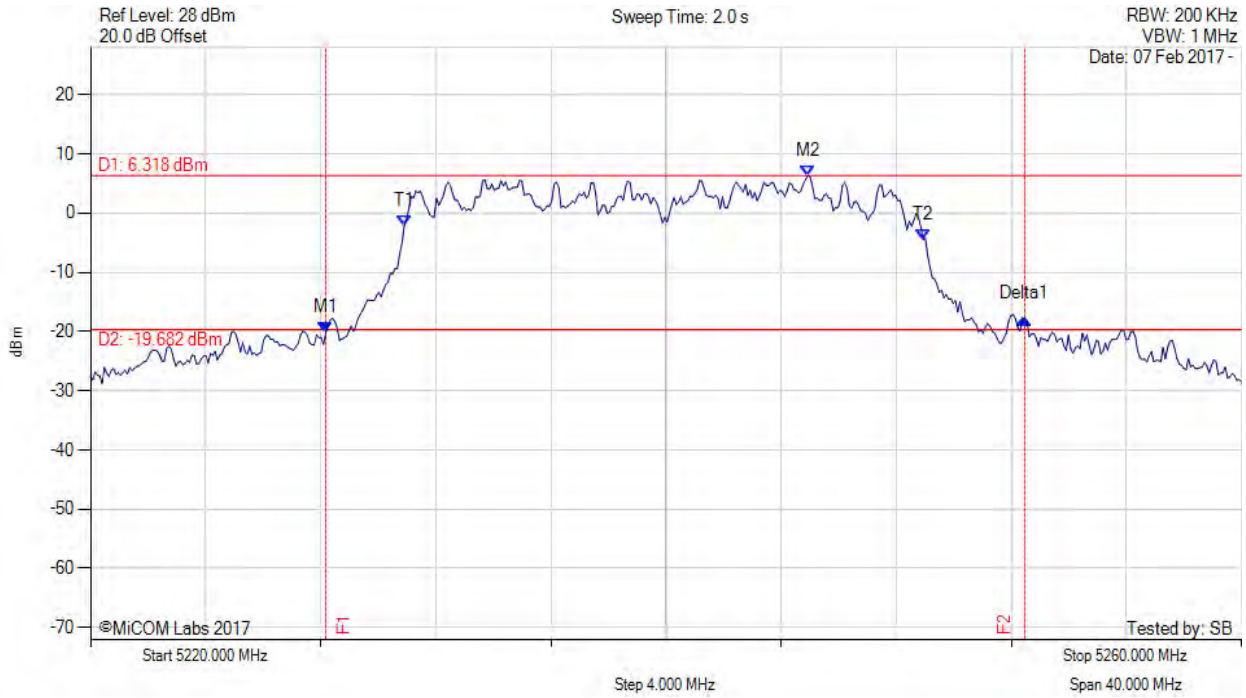



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5228.257 MHz : -20.125 dBm<br>M2 : 5242.445 MHz : 6.717 dBm<br>Delta1 : 26.693 MHz : -1.224 dB<br>T1 : 5231.142 MHz : -2.909 dBm<br>T2 : 5249.098 MHz : -4.048 dBm<br>OBW : 17.956 MHz | Measured 26 dB Bandwidth: 26.693 MHz<br>Measured 99% Bandwidth: 17.956 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

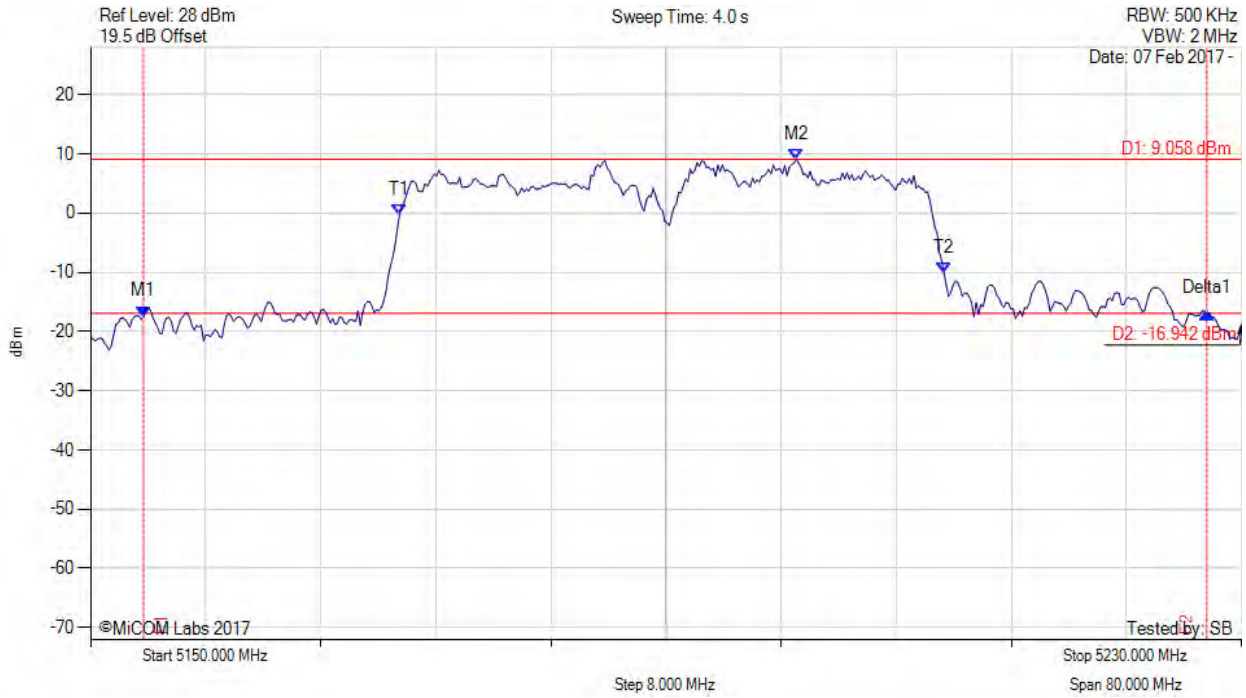



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5228.176 MHz : -20.265 dBm<br>M2 : 5244.930 MHz : 6.318 dBm<br>Delta1 : 24.289 MHz : 2.434 dB<br>T1 : 5230.902 MHz : -2.187 dBm<br>T2 : 5248.938 MHz : -4.461 dBm<br>OBW : 18.036 MHz | Measured 26 dB Bandwidth: 24.289 MHz<br>Measured 99% Bandwidth: 18.036 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

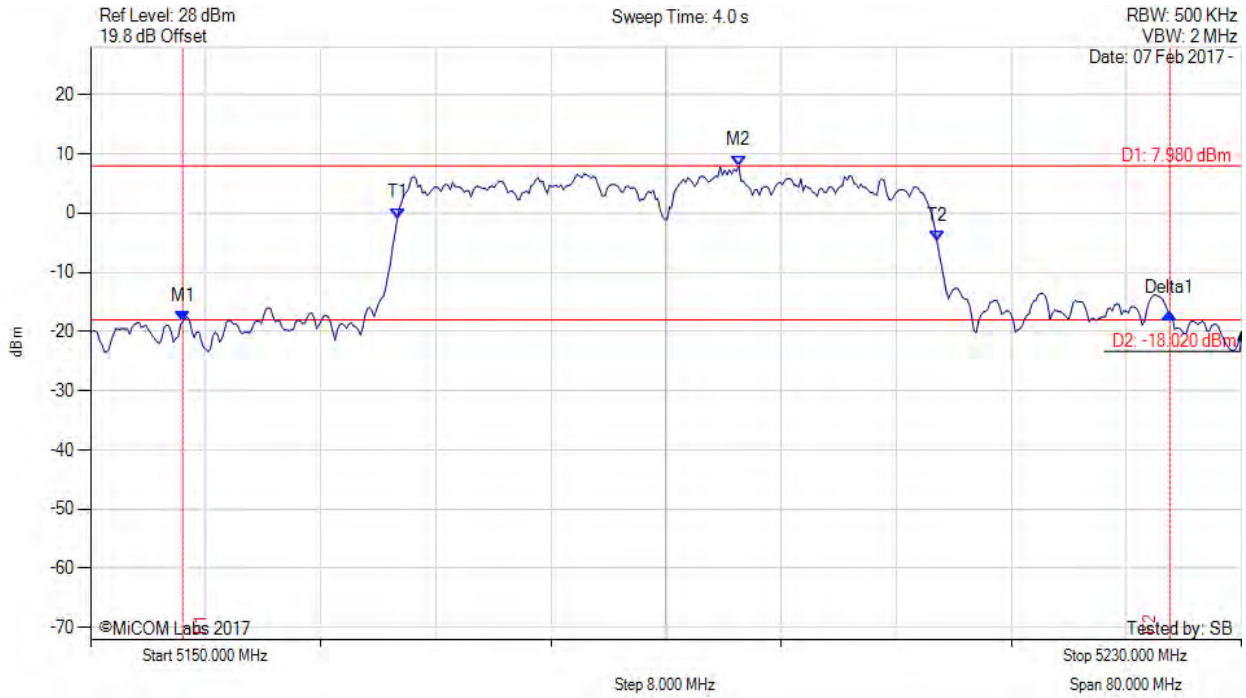



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5153.687 MHz : -17.495 dBm<br>M2 : 5199.058 MHz : 9.058 dBm<br>Delta1 : 73.908 MHz : 0.563 dB<br>T1 : 5171.483 MHz : -0.287 dBm<br>T2 : 5209.319 MHz : -10.057 dBm<br>OBW : 37.836 MHz | Measured 26 dB Bandwidth: 73.908 MHz<br>Measured 99% Bandwidth: 37.836 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

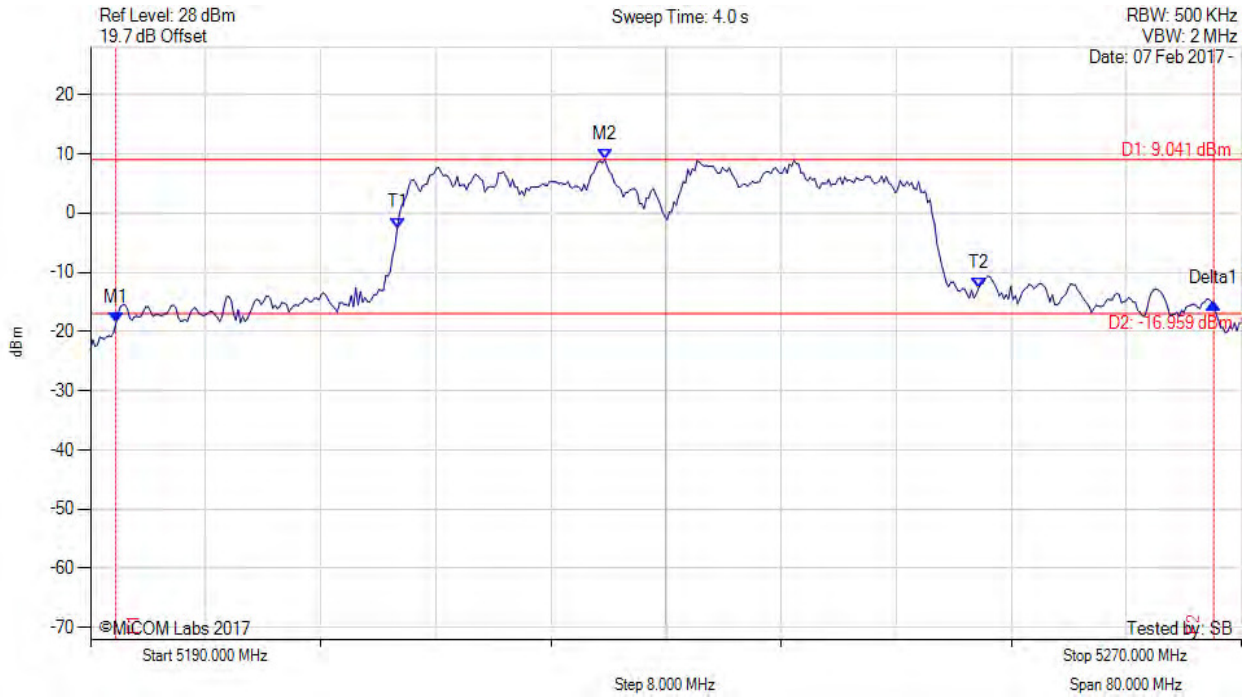



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5156.413 MHz : -18.258 dBm<br>M2 : 5195.050 MHz : 7.980 dBm<br>Delta1 : 68.617 MHz : 1.318 dB<br>T1 : 5171.323 MHz : -0.879 dBm<br>T2 : 5208.838 MHz : -4.786 dBm<br>OBW : 37.515 MHz | Measured 26 dB Bandwidth: 68.617 MHz<br>Measured 99% Bandwidth: 37.515 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

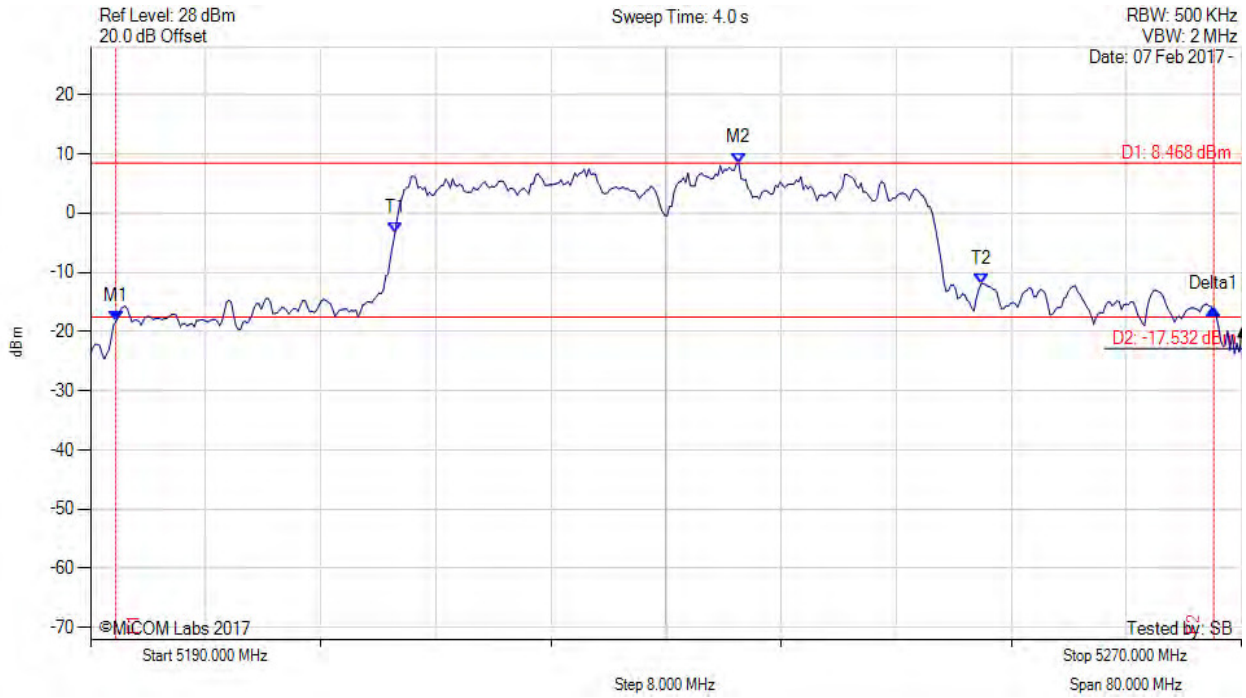



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5191.764 MHz : -18.605 dBm<br>M2 : 5225.752 MHz : 9.041 dBm<br>Delta1 : 76.313 MHz : 3.421 dB<br>T1 : 5211.323 MHz : -2.527 dBm<br>T2 : 5251.723 MHz : -12.669 dBm<br>OBW : 40.401 MHz | Measured 26 dB Bandwidth: 76.313 MHz<br>Measured 99% Bandwidth: 40.401 MHz |

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac



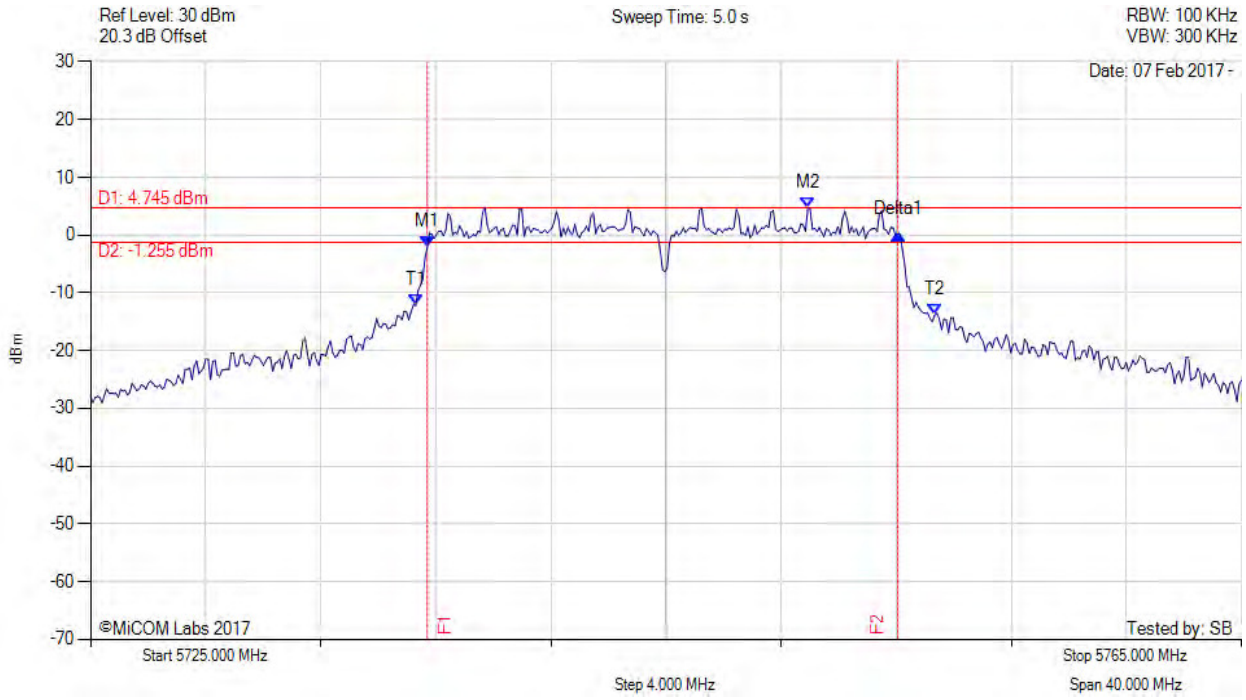

| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5191.764 MHz : -18.319 dBm<br>M2 : 5235.050 MHz : 8.468 dBm<br>Delta1 : 76.313 MHz : 2.044 dB<br>T1 : 5211.162 MHz : -3.391 dBm<br>T2 : 5251.884 MHz : -12.042 dBm<br>OBW : 40.721 MHz | Measured 26 dB Bandwidth: 76.313 MHz<br>Measured 99% Bandwidth: 40.721 MHz |

back to matrix

## A.2. 6 dB & 99% Bandwidth

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

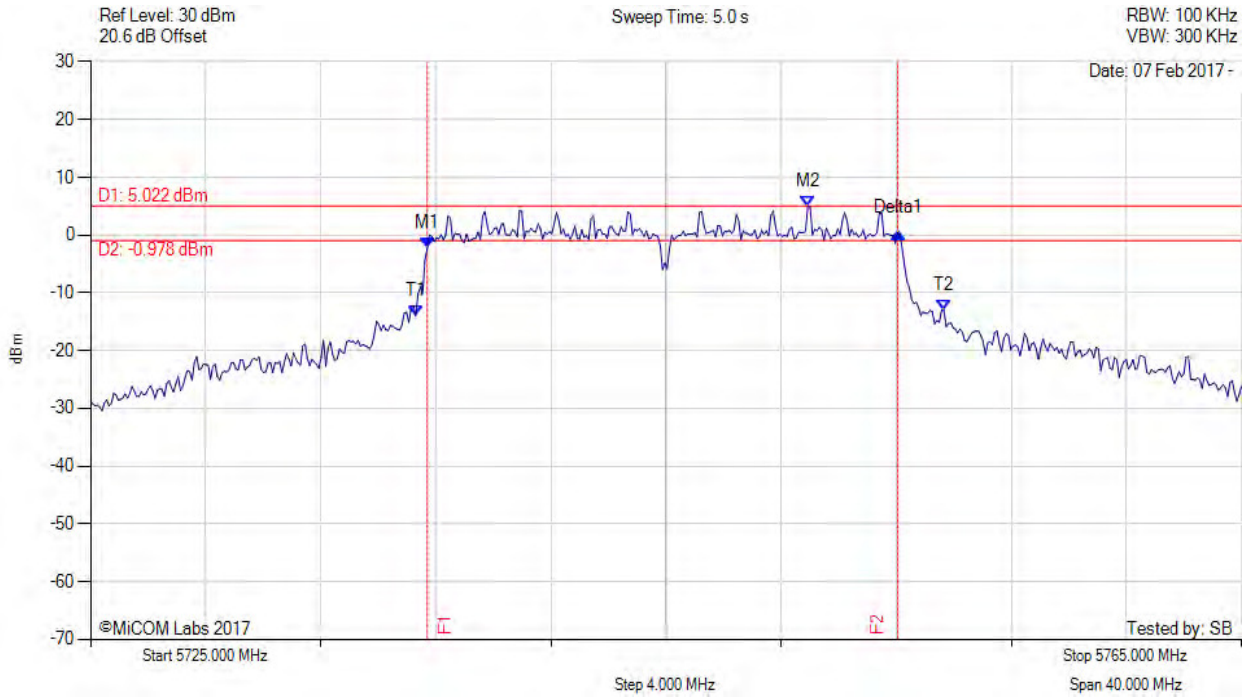



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5736.703 MHz : -2.060 dBm<br>M2 : 5749.930 MHz : 4.745 dBm<br>Delta1 : 16.353 MHz : 2.296 dB<br>T1 : 5736.303 MHz : -12.151 dBm<br>T2 : 5754.339 MHz : -13.850 dBm<br>OBW : 18.036 MHz | Measured 6 dB Bandwidth: 16.353 MHz<br>Measured 99% Bandwidth: 18.036 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

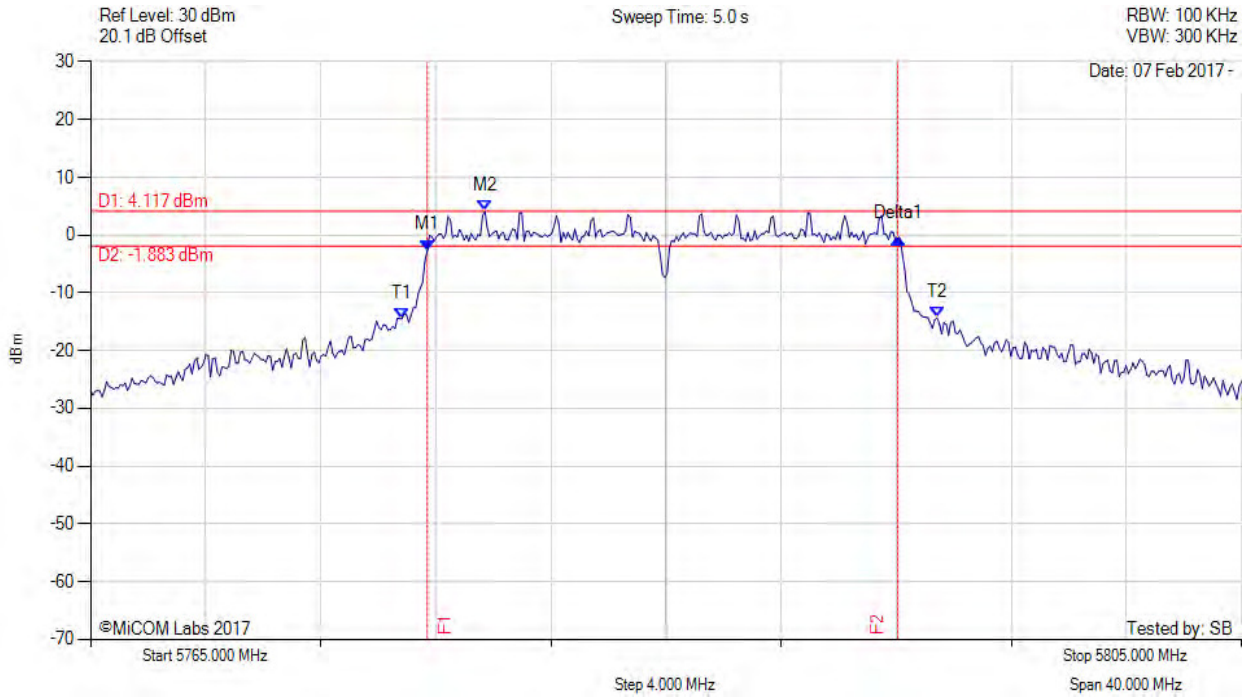



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5736.703 MHz : -2.217 dBm<br>M2 : 5749.930 MHz : 5.022 dBm<br>Delta1 : 16.353 MHz : 2.520 dB<br>T1 : 5736.303 MHz : -13.972 dBm<br>T2 : 5754.659 MHz : -13.042 dBm<br>OBW : 18.357 MHz | Measured 6 dB Bandwidth: 16.353 MHz<br>Measured 99% Bandwidth: 18.357 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

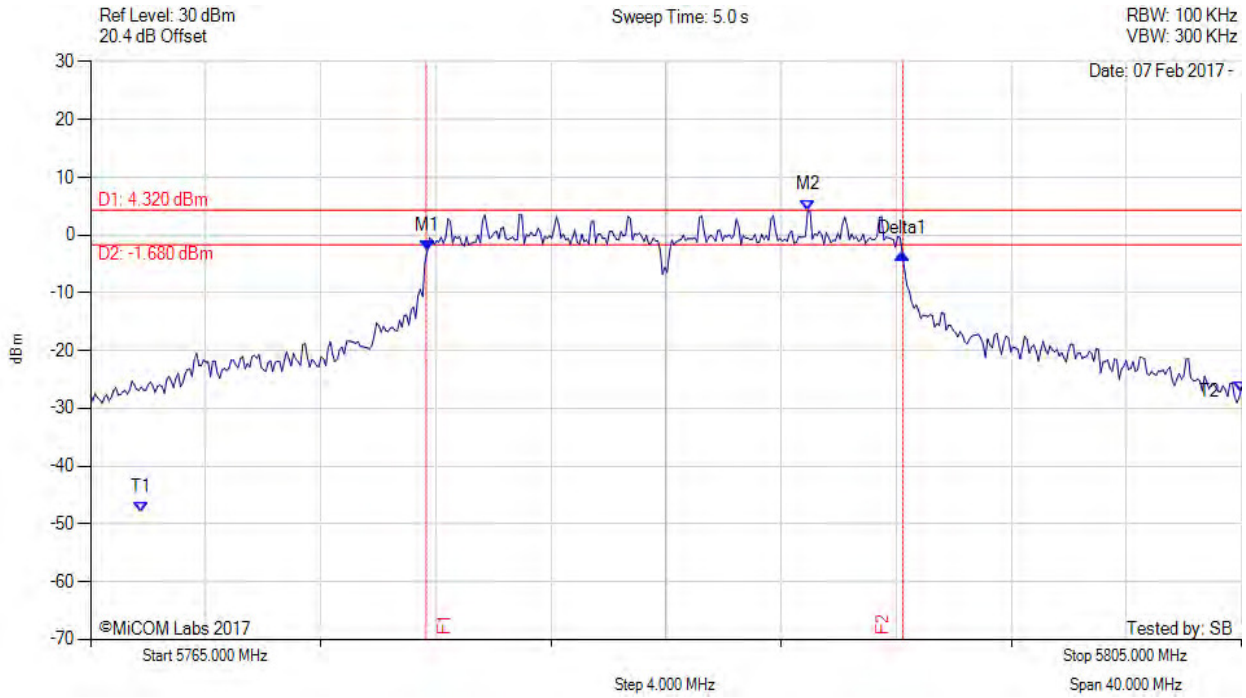



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5776.703 MHz : -2.619 dBm<br>M2 : 5778.707 MHz : 4.117 dBm<br>Delta1 : 16.353 MHz : 2.036 dB<br>T1 : 5775.822 MHz : -14.466 dBm<br>T2 : 5794.419 MHz : -14.315 dBm<br>OBW : 18.597 MHz | Measured 6 dB Bandwidth: 16.353 MHz<br>Measured 99% Bandwidth: 18.597 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

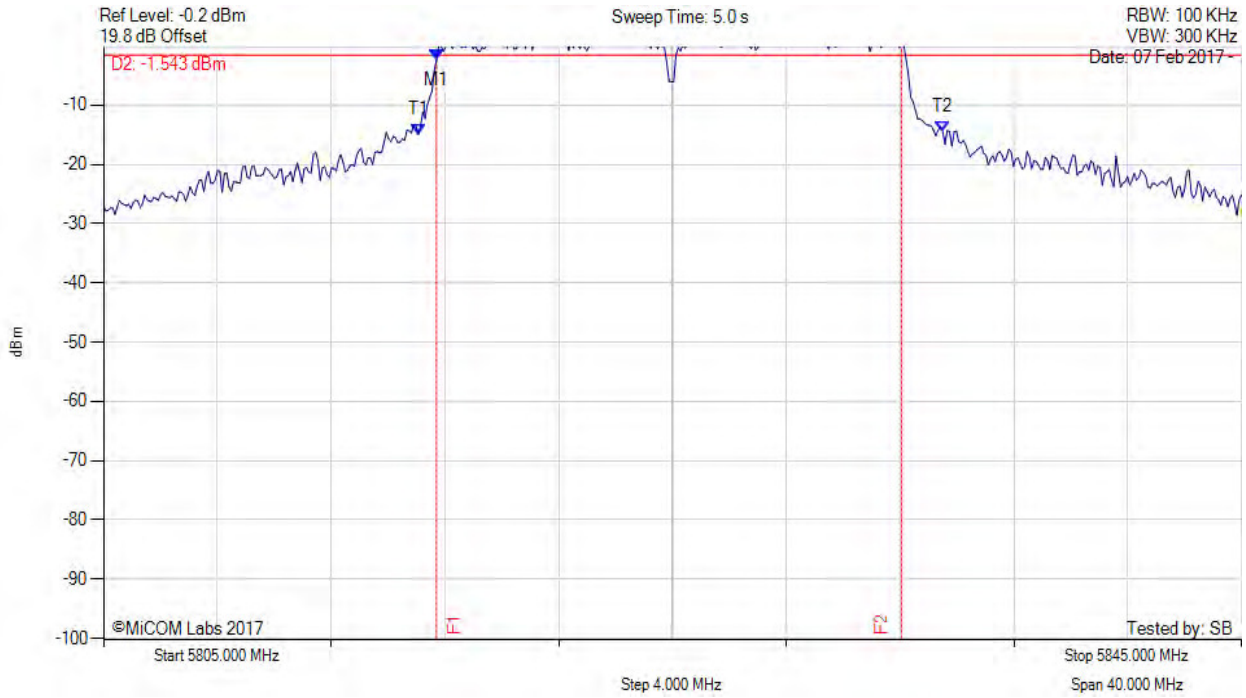



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5776.703 MHz : -2.794 dBm<br>M2 : 5789.930 MHz : 4.322 dBm<br>Delta1 : 16.513 MHz : -0.484 dB<br>T1 : 5766.764 MHz : -48.029 dBm<br>T2 : 5805.000 MHz : -27.118 dBm<br>OBW : 18.998 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Measured 99% Bandwidth: 18.998 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

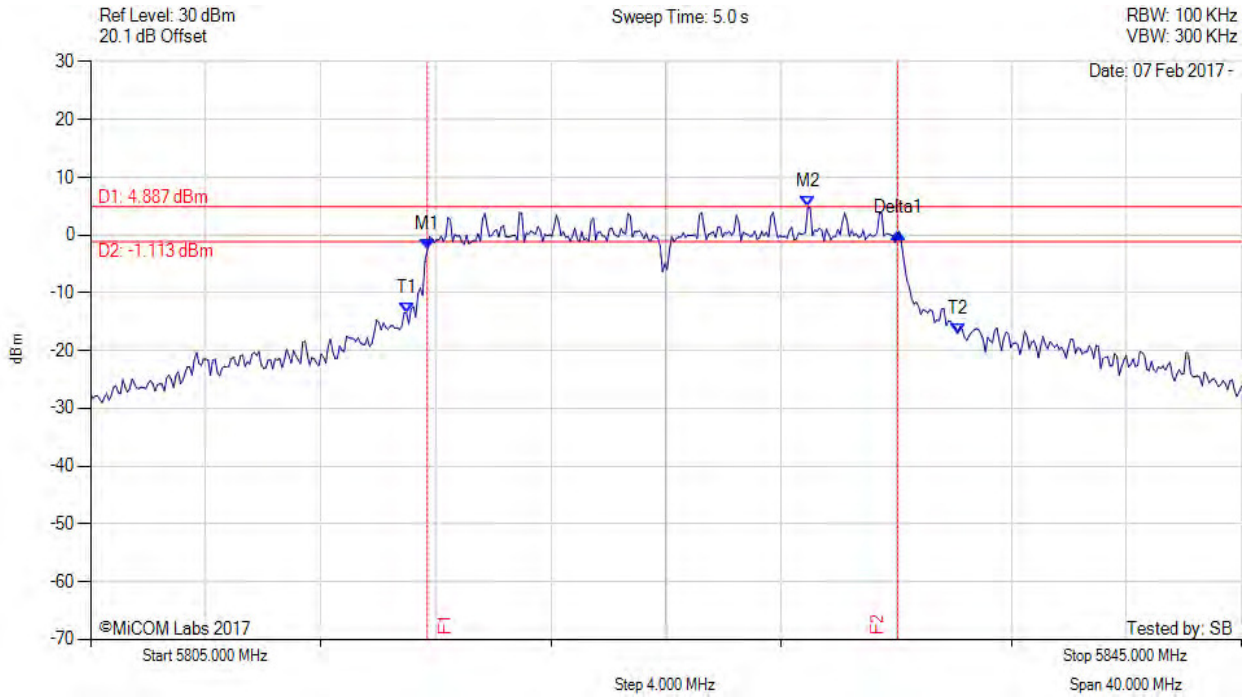



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5816.703 MHz : -2.246 dBm<br>M2 : 5829.930 MHz : 4.457 dBm<br>Delta1 : 16.353 MHz : 2.379 dB<br>T1 : 5816.062 MHz : -14.912 dBm<br>T2 : 5834.499 MHz : -14.385 dBm<br>OBW : 18.437 MHz | Measured 6 dB Bandwidth: 16.353 MHz<br>Measured 99% Bandwidth: 18.437 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

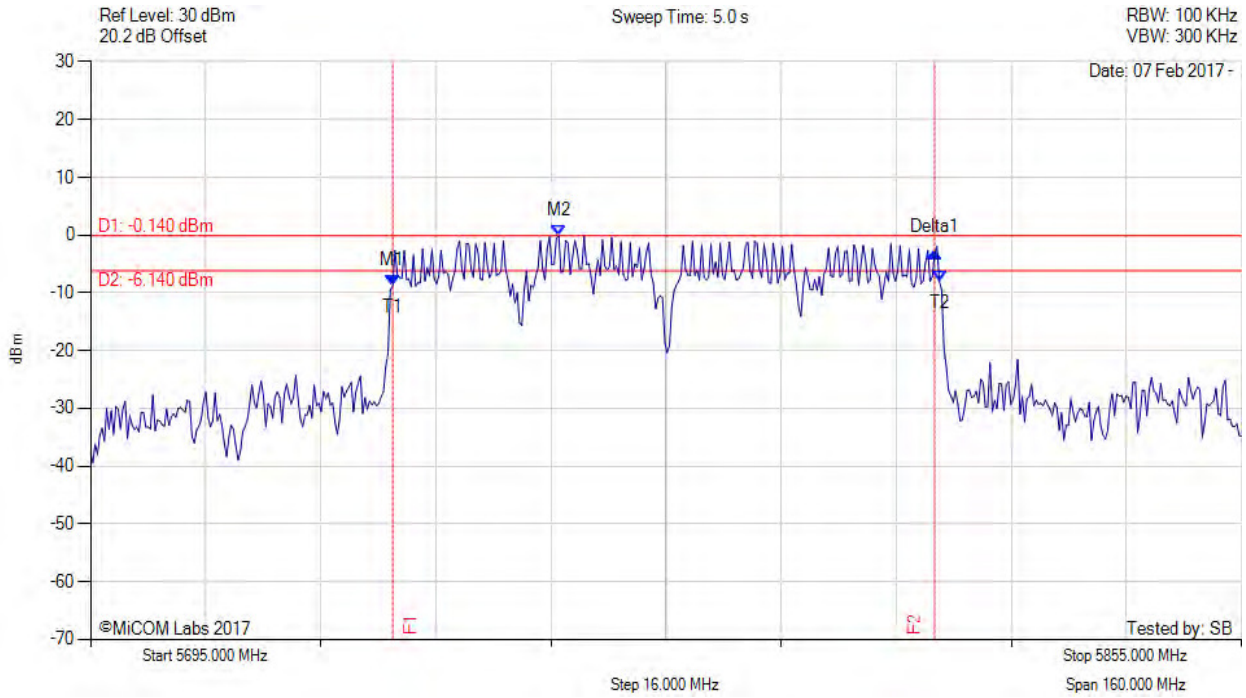



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5816.703 MHz : -2.546 dBm<br>M2 : 5829.930 MHz : 4.887 dBm<br>Delta1 : 16.353 MHz : 2.864 dB<br>T1 : 5815.982 MHz : -13.536 dBm<br>T2 : 5835.140 MHz : -17.022 dBm<br>OBW : 19.158 MHz | Measured 6 dB Bandwidth: 16.353 MHz<br>Measured 99% Bandwidth: 19.158 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

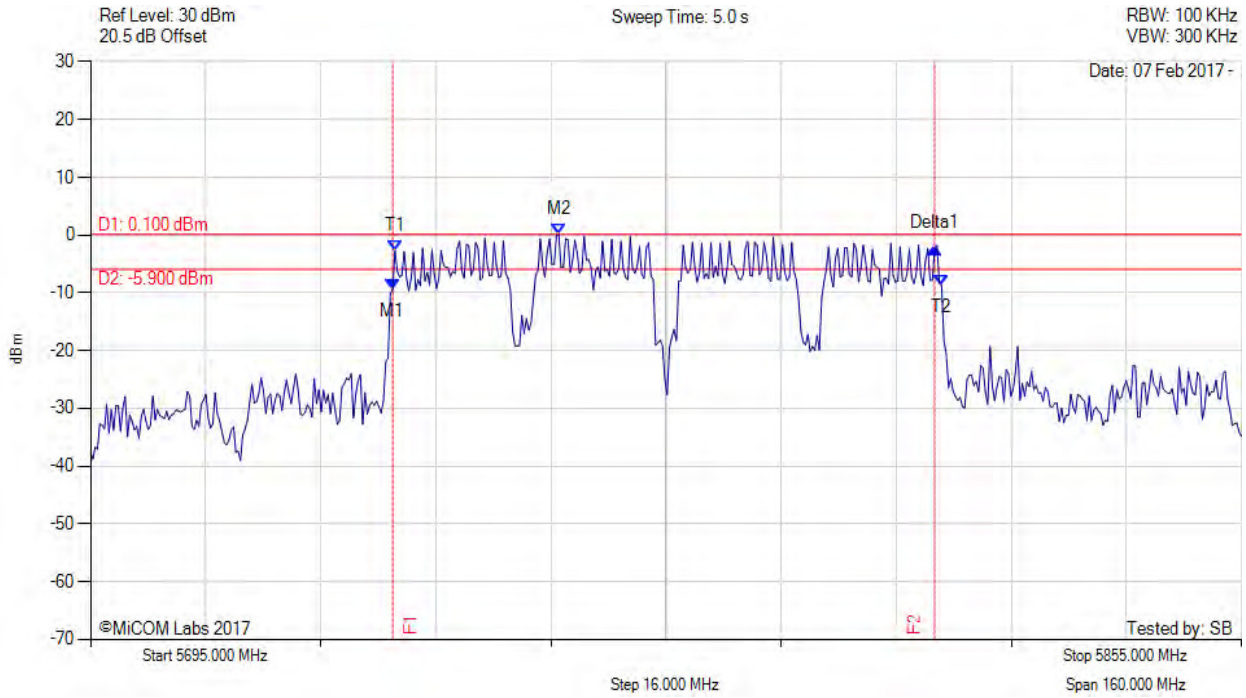



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5737.004 MHz : -8.806 dBm<br>M2 : 5760.090 MHz : -0.140 dBm<br>Delta1 : 75.351 MHz : 5.784 dB<br>T1 : 5737.004 MHz : -8.806 dBm<br>T2 : 5812.996 MHz : -7.976 dBm<br>OBW : 75.992 MHz | Measured 6 dB Bandwidth: 75.351 MHz<br>Measured 99% Bandwidth: 75.992 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

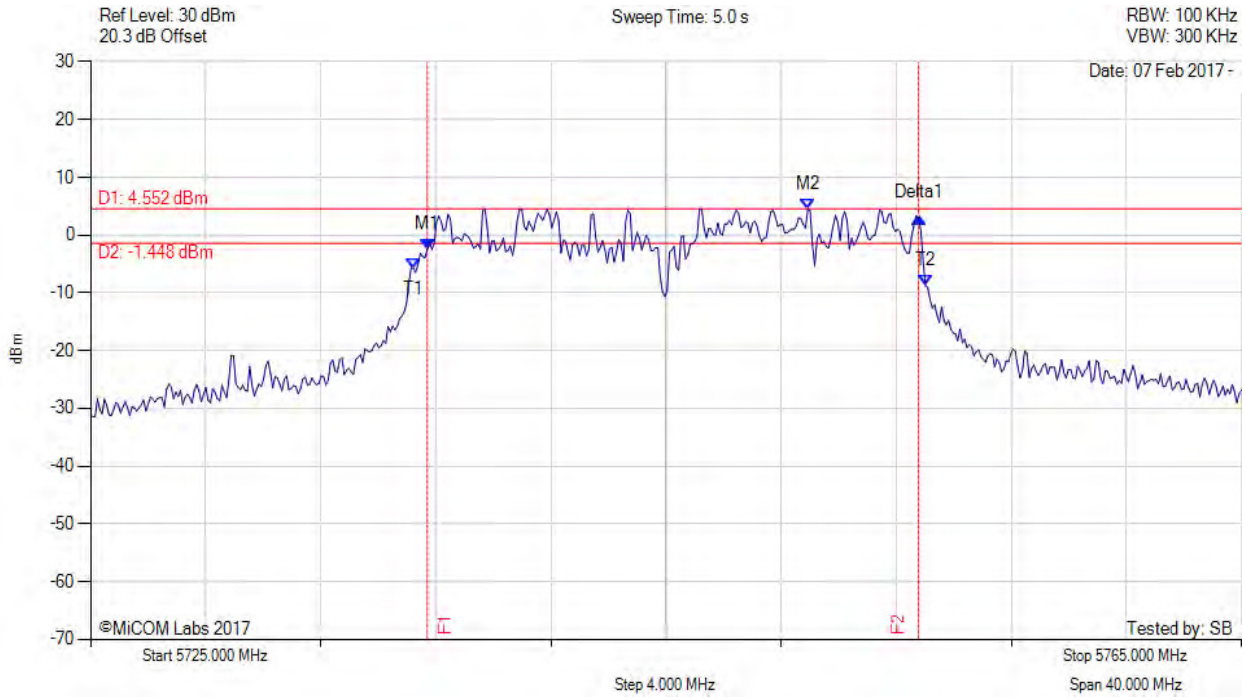



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5737.004 MHz : -9.491 dBm<br>M2 : 5760.090 MHz : 0.100 dBm<br>Delta1 : 75.351 MHz : 7.177 dB<br>T1 : 5737.325 MHz : -2.676 dBm<br>T2 : 5813.317 MHz : -8.710 dBm<br>OBW : 75.992 MHz | Measured 6 dB Bandwidth: 75.351 MHz<br>Measured 99% Bandwidth: 75.992 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

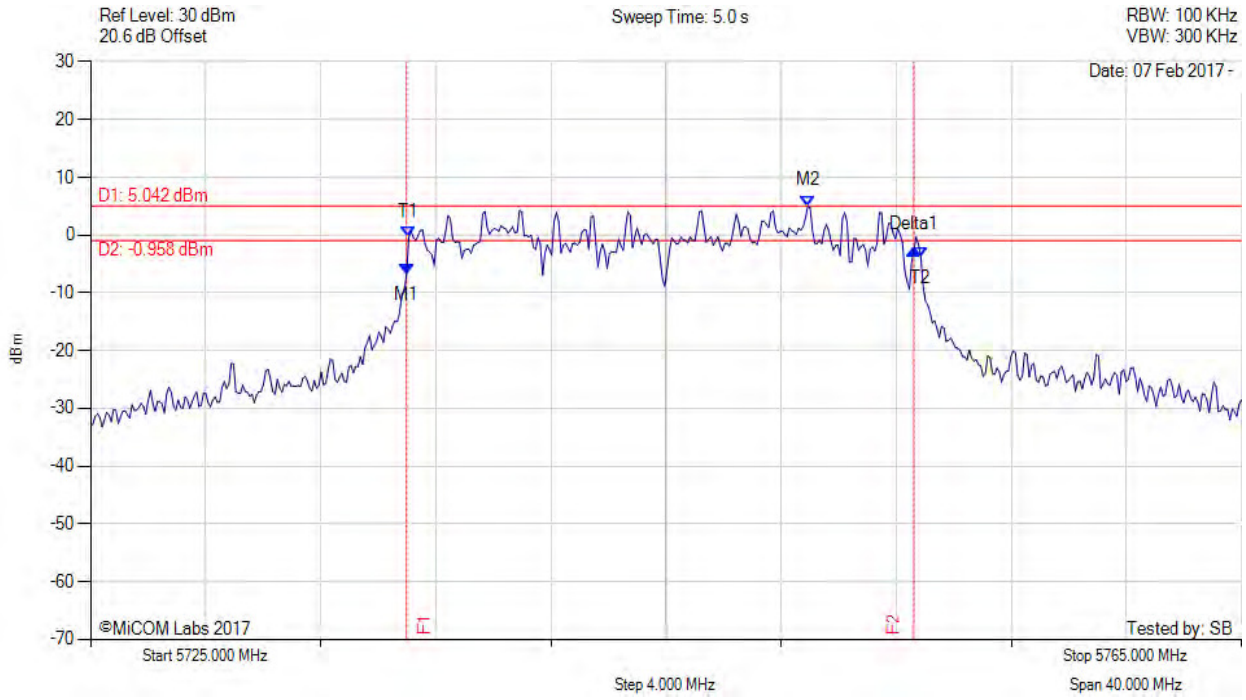



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5736.703 MHz : -2.483 dBm<br>M2 : 5749.930 MHz : 4.552 dBm<br>Delta1 : 17.074 MHz : 5.522 dB<br>T1 : 5736.222 MHz : -5.747 dBm<br>T2 : 5754.018 MHz : -8.757 dBm<br>OBW : 17.796 MHz | Measured 6 dB Bandwidth: 17.074 MHz<br>Measured 99% Bandwidth: 17.796 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

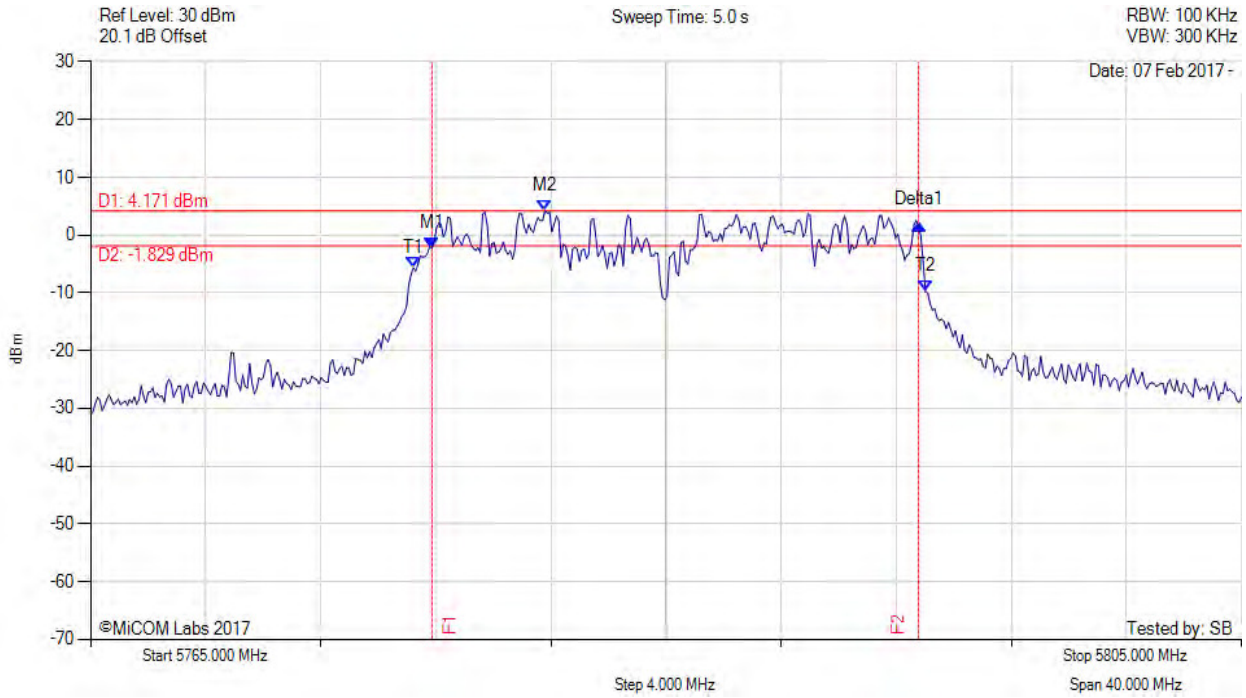



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5735.982 MHz : -6.683 dBm<br>M2 : 5749.930 MHz : 5.042 dBm<br>Delta1 : 17.635 MHz : 4.088 dB<br>T1 : 5736.062 MHz : -0.398 dBm<br>T2 : 5753.858 MHz : -3.864 dBm<br>OBW : 17.796 MHz | Measured 6 dB Bandwidth: 17.635 MHz<br>Measured 99% Bandwidth: 17.796 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

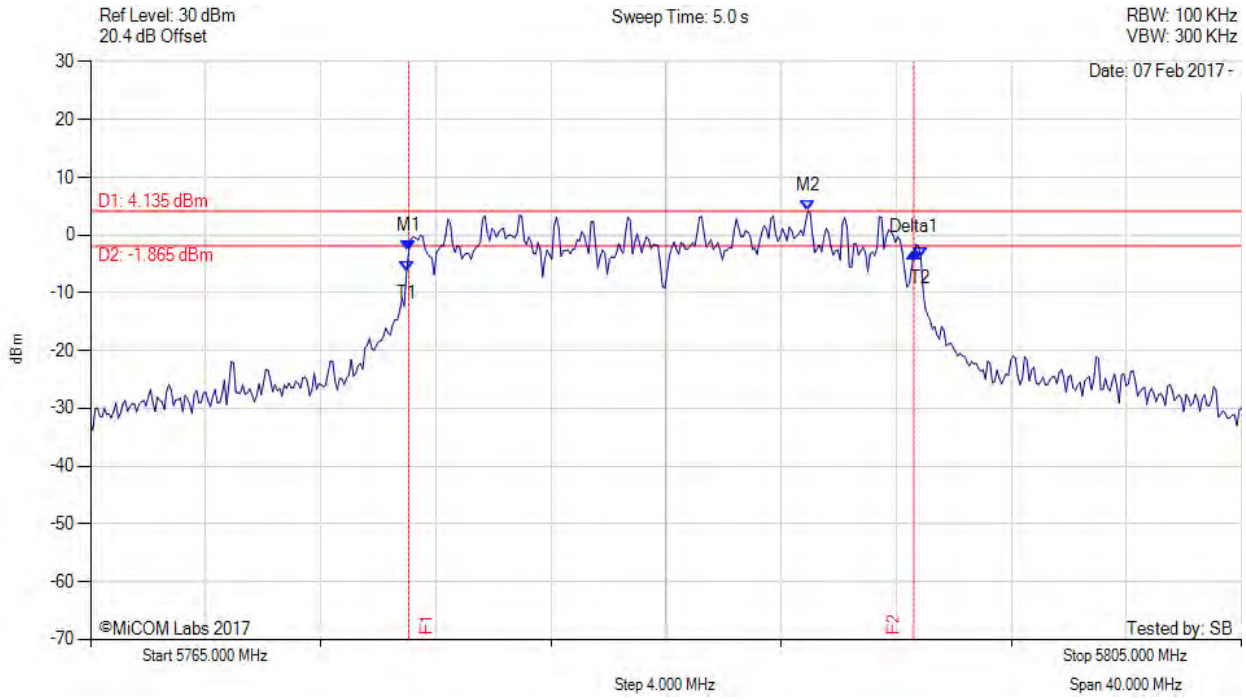



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5776.864 MHz : -2.174 dBm<br>M2 : 5780.792 MHz : 4.171 dBm<br>Delta1 : 16.914 MHz : 3.958 dB<br>T1 : 5776.222 MHz : -5.666 dBm<br>T2 : 5794.018 MHz : -9.756 dBm<br>OBW : 17.796 MHz | Measured 6 dB Bandwidth: 16.914 MHz<br>Measured 99% Bandwidth: 17.796 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

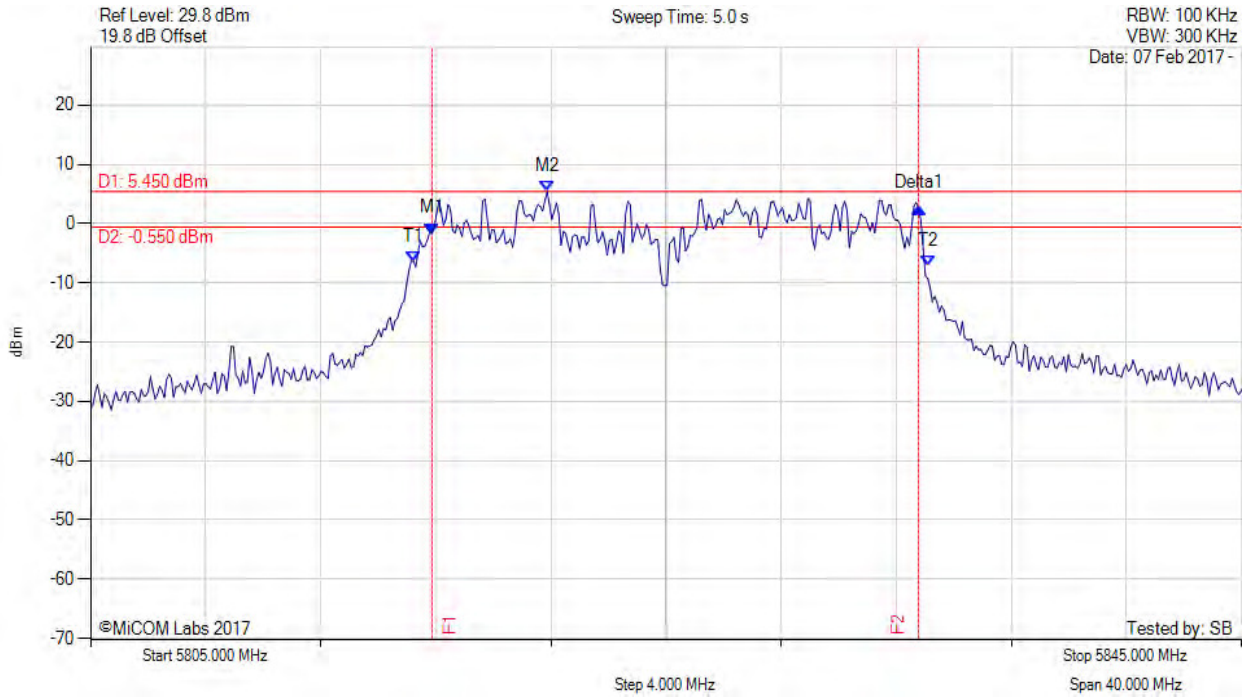



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5776.062 MHz : -2.690 dBm<br>M2 : 5789.930 MHz : 4.135 dBm<br>Delta1 : 17.555 MHz : -0.203 dB<br>T1 : 5775.982 MHz : -6.308 dBm<br>T2 : 5793.858 MHz : -3.866 dBm<br>OBW : 17.876 MHz | Measured 6 dB Bandwidth: 17.555 MHz<br>Measured 99% Bandwidth: 17.876 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

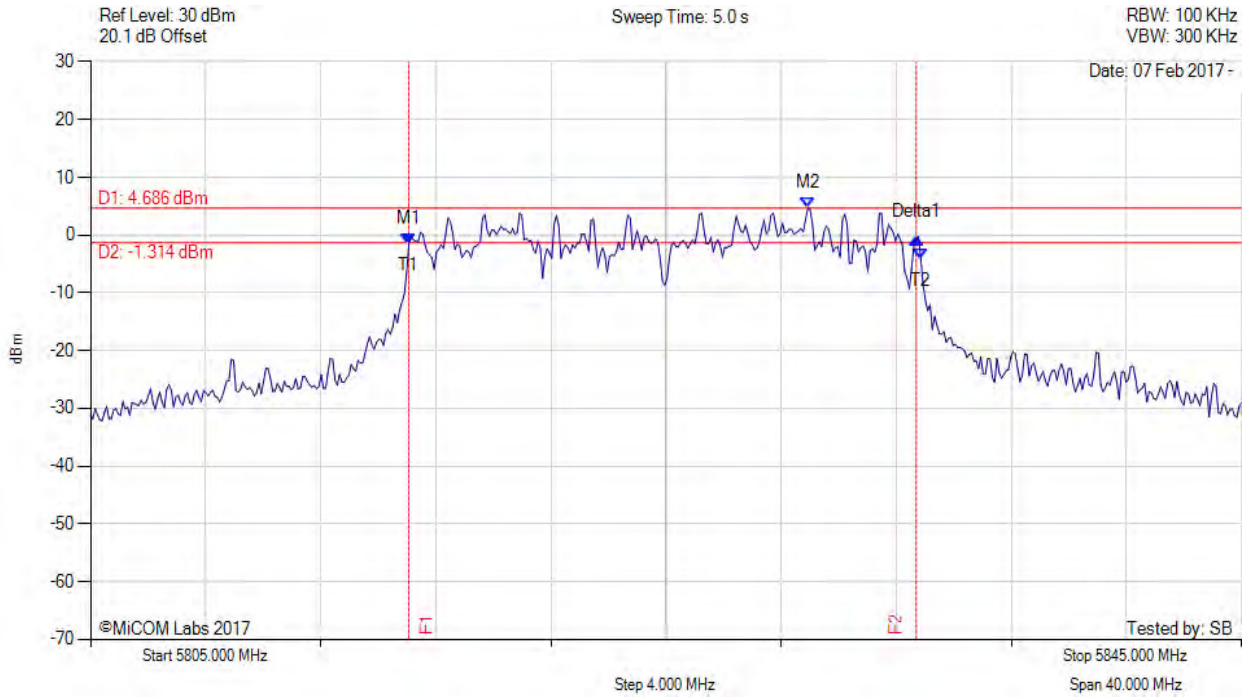



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5816.864 MHz : -1.660 dBm<br>M2 : 5820.872 MHz : 5.450 dBm<br>Delta1 : 16.914 MHz : 4.344 dB<br>T1 : 5816.222 MHz : -6.403 dBm<br>T2 : 5834.098 MHz : -7.200 dBm<br>OBW : 17.796 MHz | Measured 6 dB Bandwidth: 16.914 MHz<br>Measured 99% Bandwidth: 17.796 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

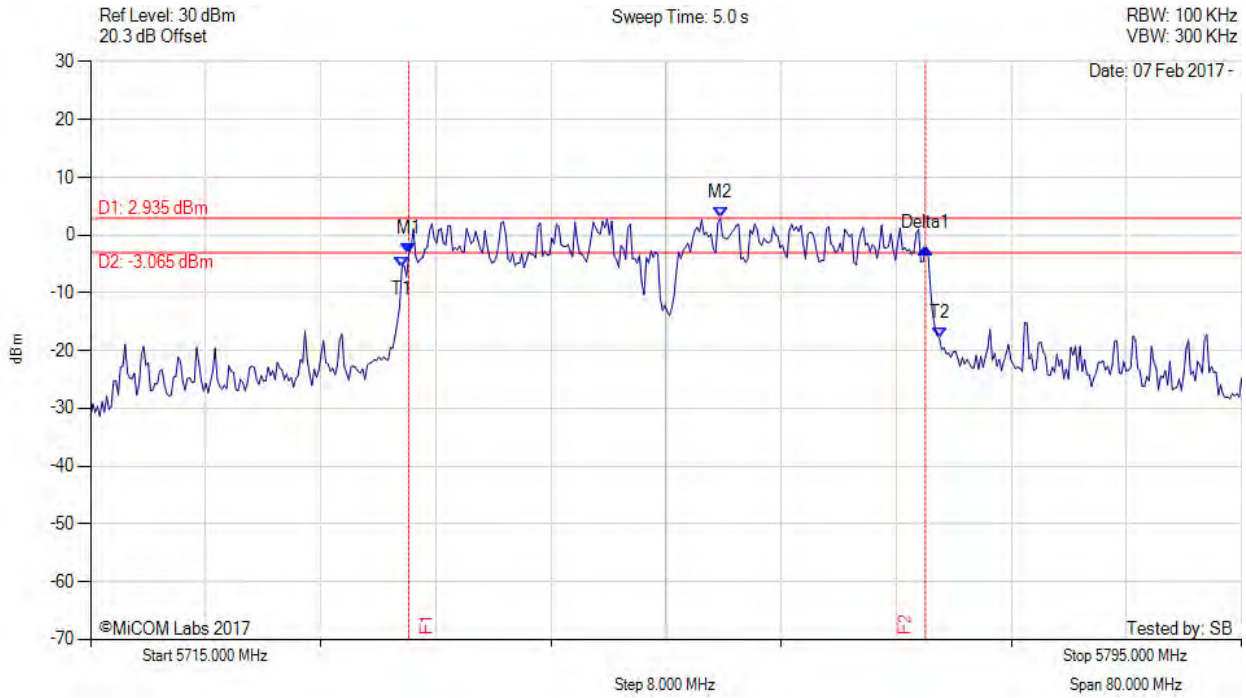



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5816.062 MHz : -1.623 dBm<br>M2 : 5829.930 MHz : 4.686 dBm<br>Delta1 : 17.635 MHz : 1.171 dB<br>T1 : 5816.062 MHz : -1.623 dBm<br>T2 : 5833.858 MHz : -4.136 dBm<br>OBW : 17.796 MHz | Measured 6 dB Bandwidth: 17.635 MHz<br>Measured 99% Bandwidth: 17.796 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

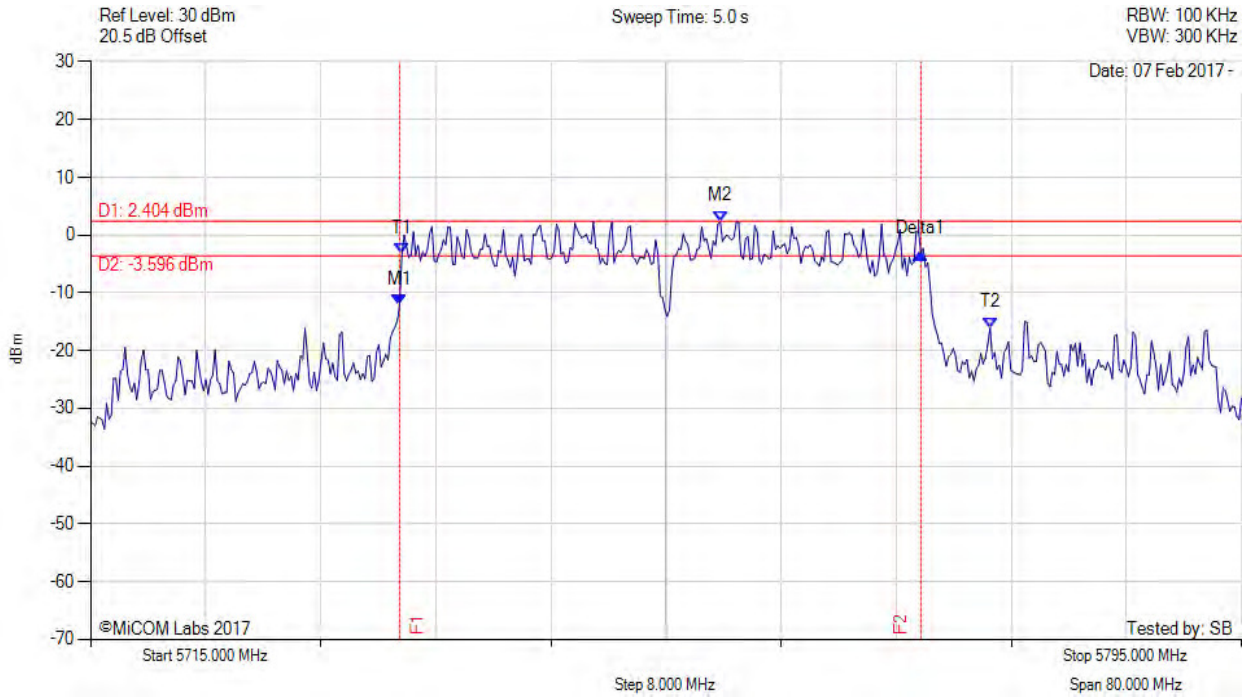



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5737.124 MHz : -3.284 dBm<br>M2 : 5758.768 MHz : 2.935 dBm<br>Delta1 : 35.912 MHz : 1.072 dB<br>T1 : 5736.643 MHz : -5.578 dBm<br>T2 : 5773.998 MHz : -17.828 dBm<br>OBW : 37.355 MHz | Measured 6 dB Bandwidth: 35.912 MHz<br>Measured 99% Bandwidth: 37.355 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

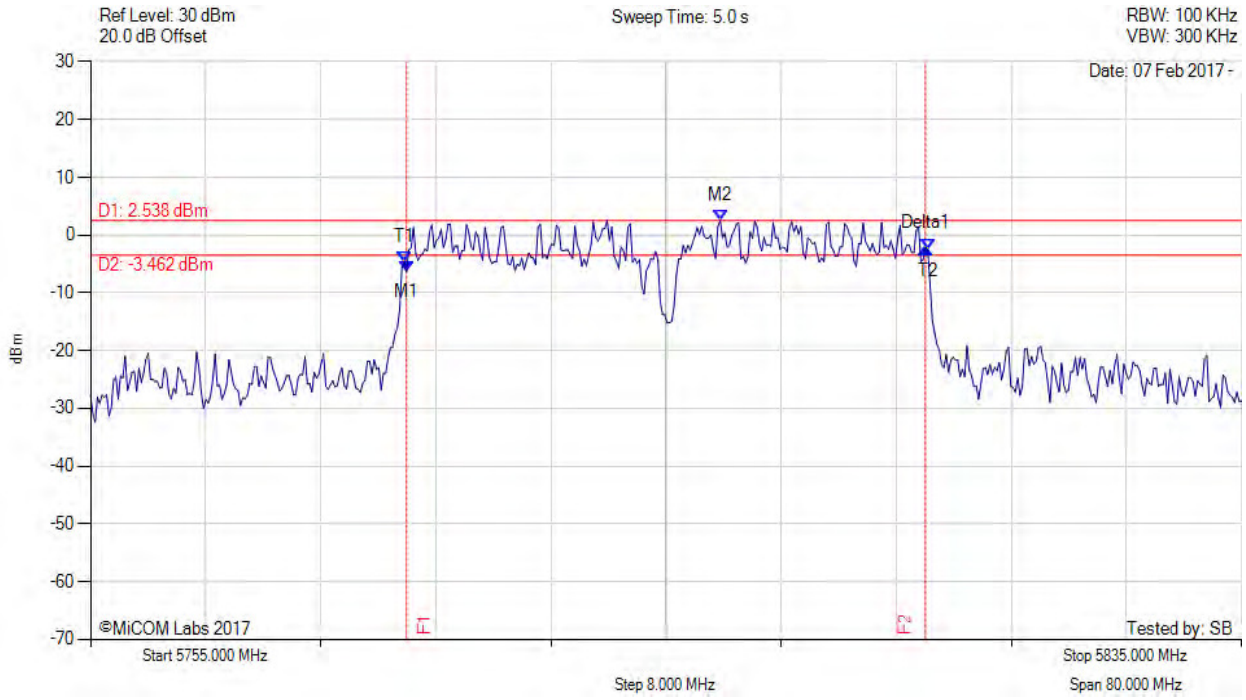



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5736.483 MHz : -12.153 dBm<br>M2 : 5758.768 MHz : 2.404 dBm<br>Delta1 : 36.232 MHz : 8.912 dB<br>T1 : 5736.643 MHz : -3.244 dBm<br>T2 : 5777.525 MHz : -16.042 dBm<br>OBW : 40.882 MHz | Measured 6 dB Bandwidth: 36.232 MHz<br>Measured 99% Bandwidth: 40.882 MHz |

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

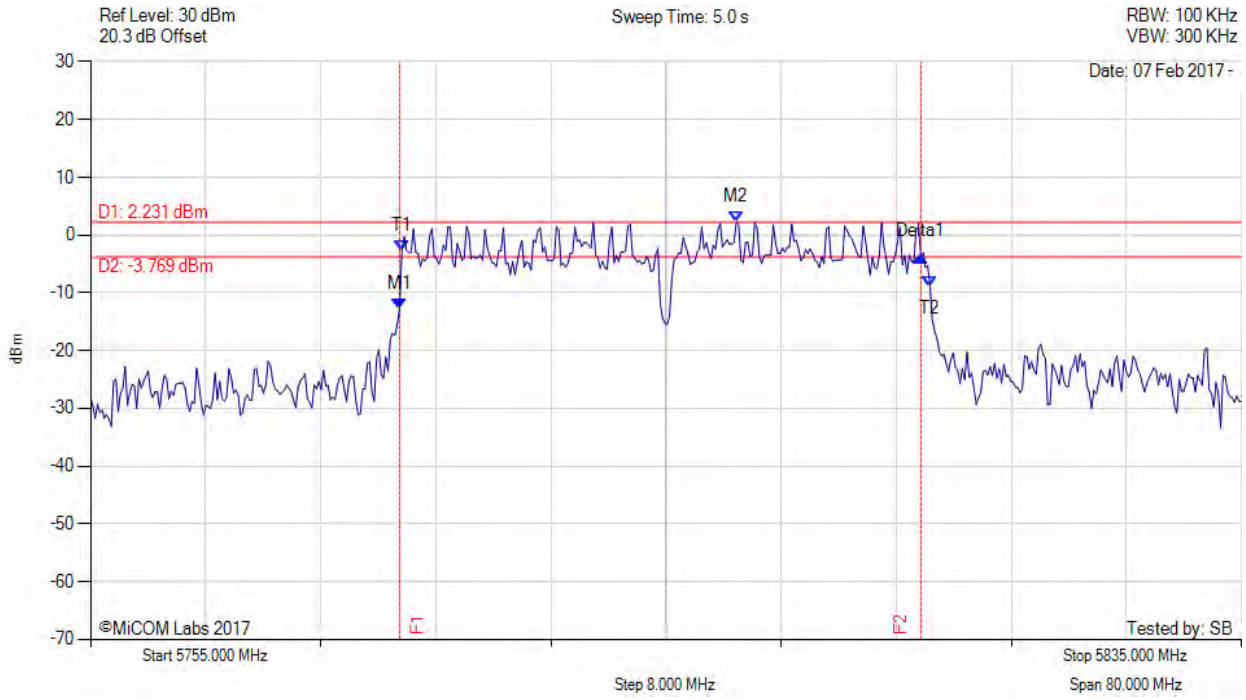



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5776.964 MHz : -6.282 dBm<br>M2 : 5798.768 MHz : 2.538 dBm<br>Delta1 : 36.072 MHz : 4.112 dB<br>T1 : 5776.804 MHz : -4.574 dBm<br>T2 : 5813.196 MHz : -2.558 dBm<br>OBW : 36.393 MHz | Measured 6 dB Bandwidth: 36.072 MHz<br>Measured 99% Bandwidth: 36.393 MHz |

back to matrix

6 dB & 99% BANDWIDTH

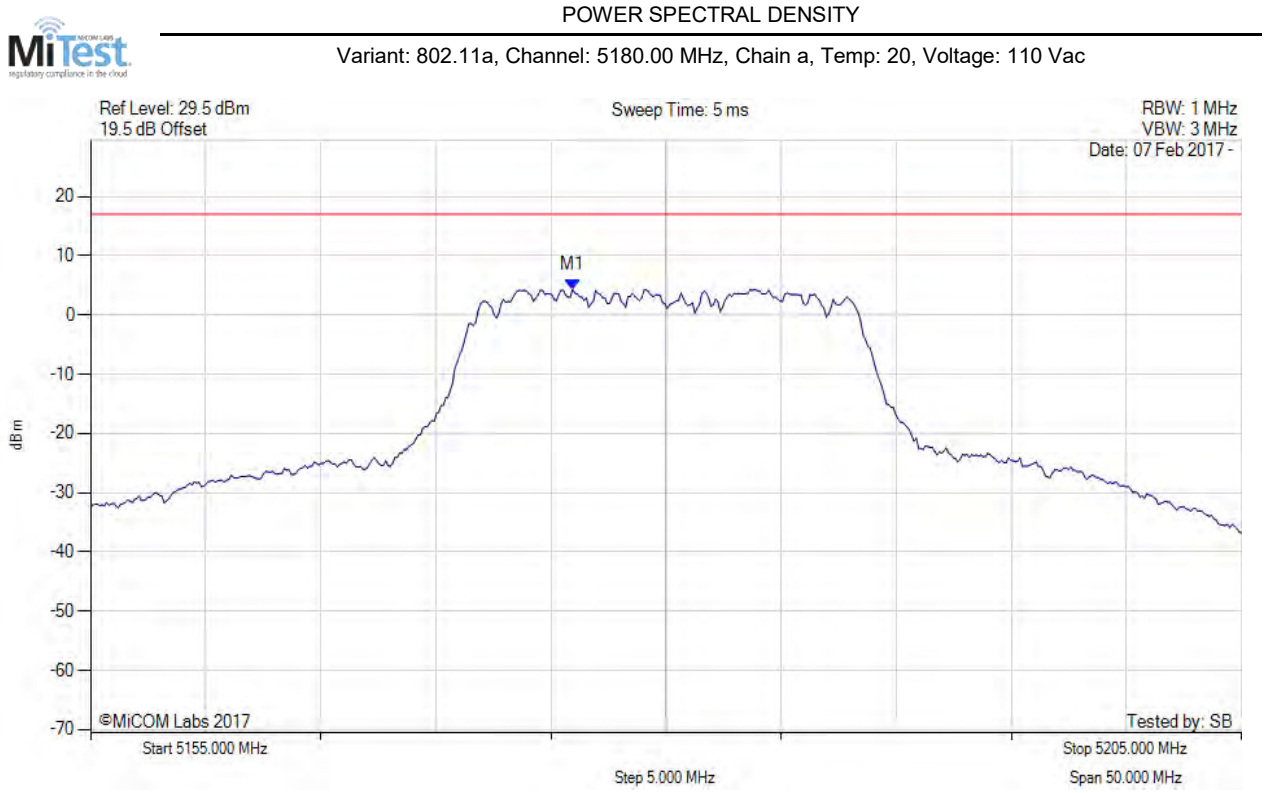
Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac




| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = MAX HOLD | M1 : 5776.483 MHz : -12.784 dBm<br>M2 : 5799.890 MHz : 2.231 dBm<br>Delta1 : 36.232 MHz : 9.140 dB<br>T1 : 5776.643 MHz : -2.660 dBm<br>T2 : 5813.357 MHz : -8.975 dBm<br>OBW : 36.713 MHz | Measured 6 dB Bandwidth: 36.232 MHz<br>Measured 99% Bandwidth: 36.713 MHz |

back to matrix

## A.3. Power Spectral Density

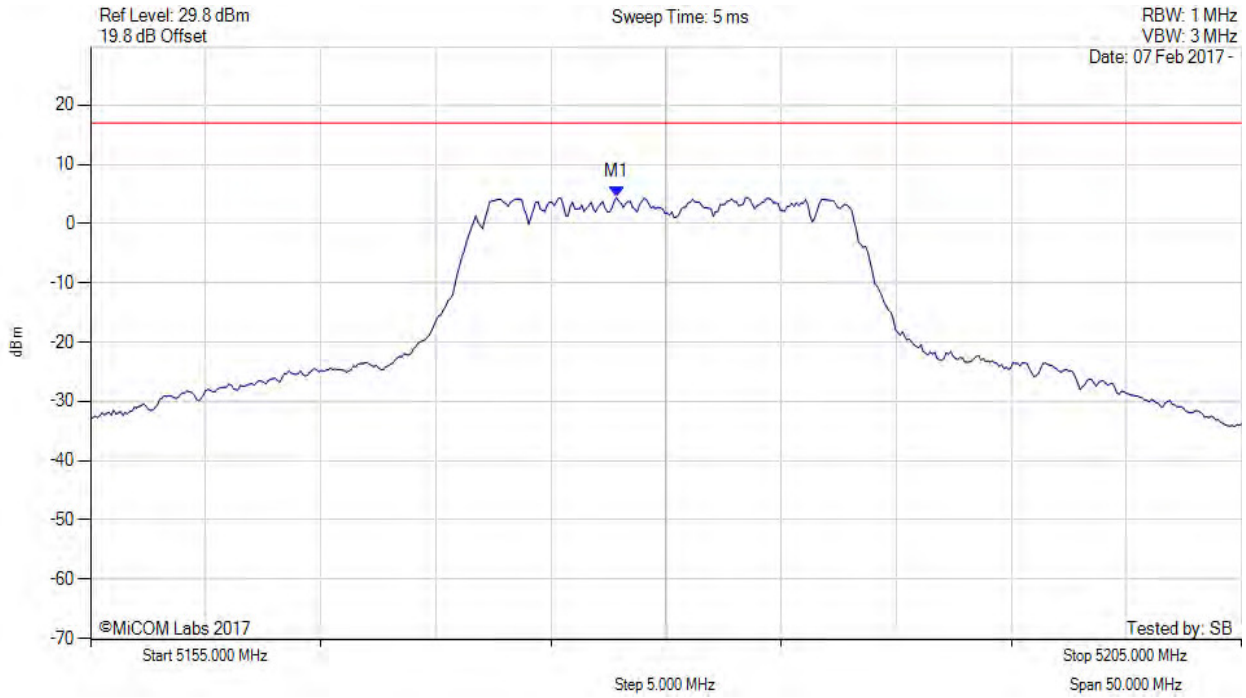



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = AVERAGE | M1 : 5175.942 MHz : 4.291 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

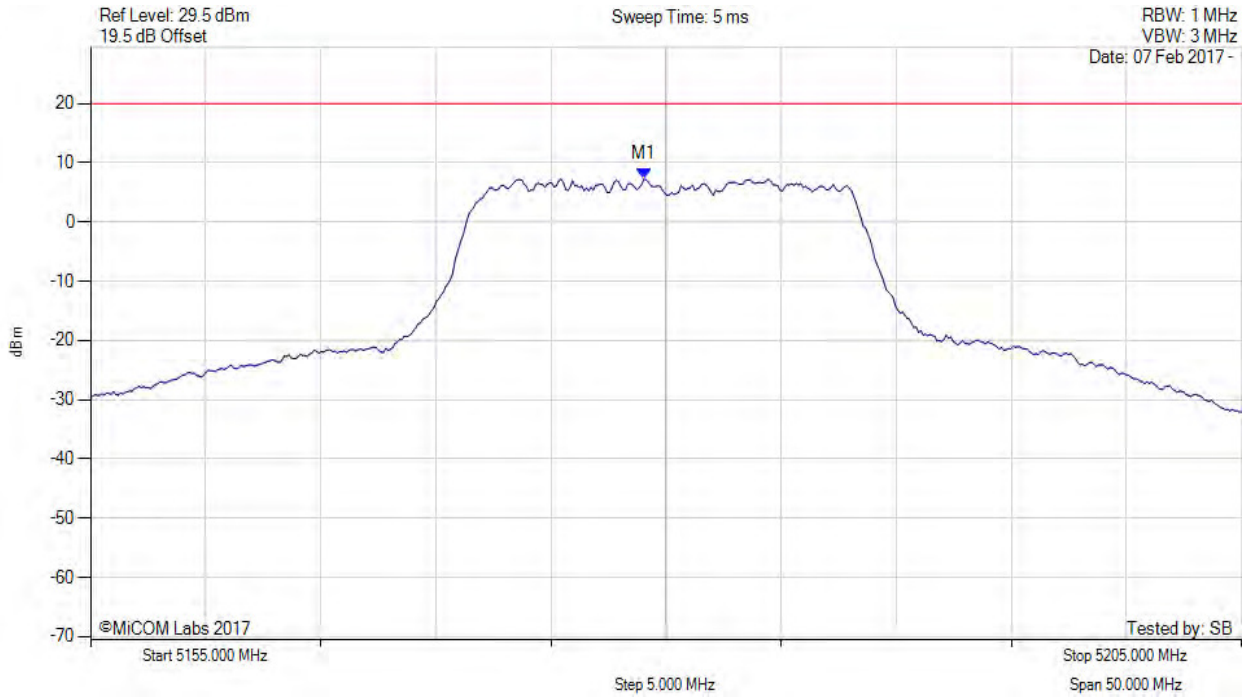



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5177.846 MHz : 4.447 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

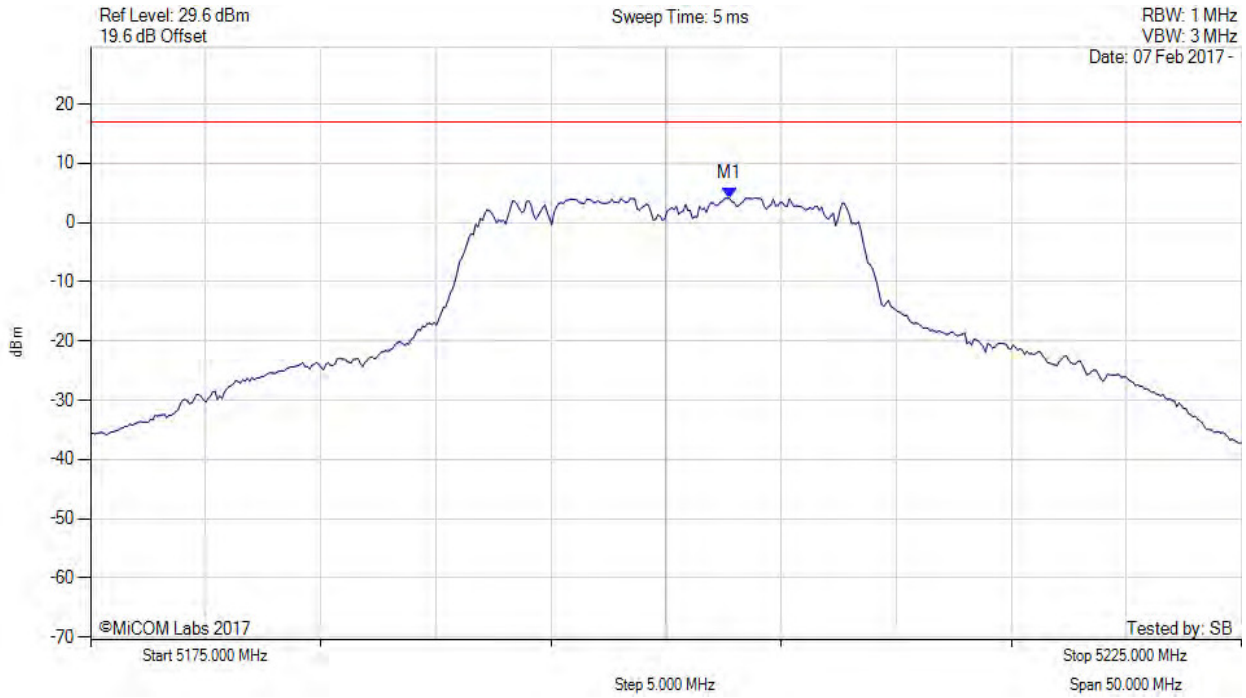



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = AVERAGE | M1 : 5179.000 MHz : 7.266 dBm<br>M1 + DCCF : 5179.000 MHz : 7.310 dBm<br>Duty Cycle Correction Factor : +0.04 dB | Limit: ≤ 17.000 dBm<br>Margin: -9.7 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

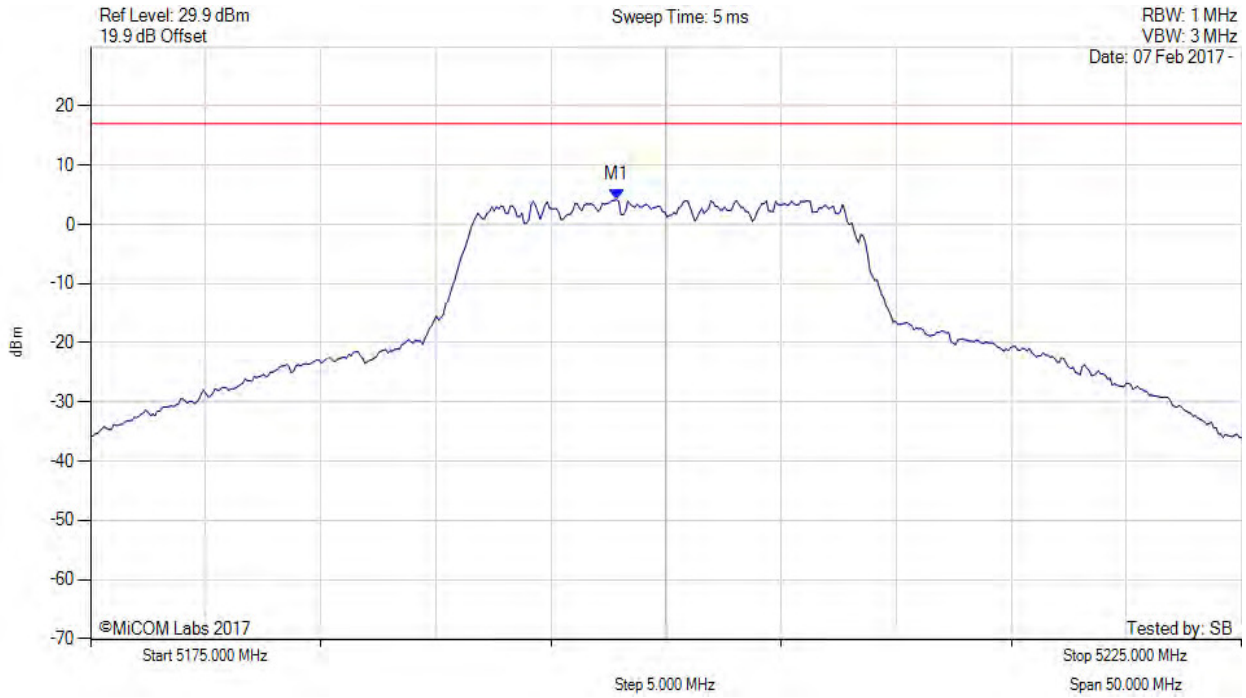



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = AVERAGE | M1 : 5202.756 MHz : 4.140 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

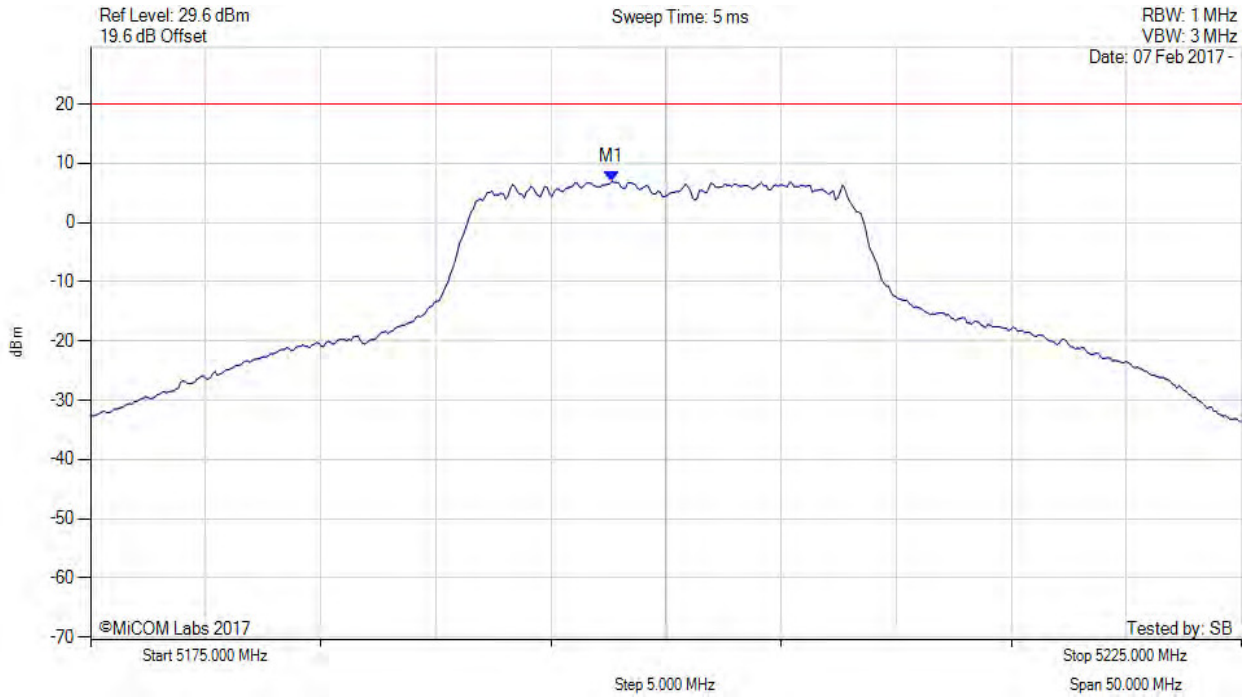



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5197.846 MHz : 4.150 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

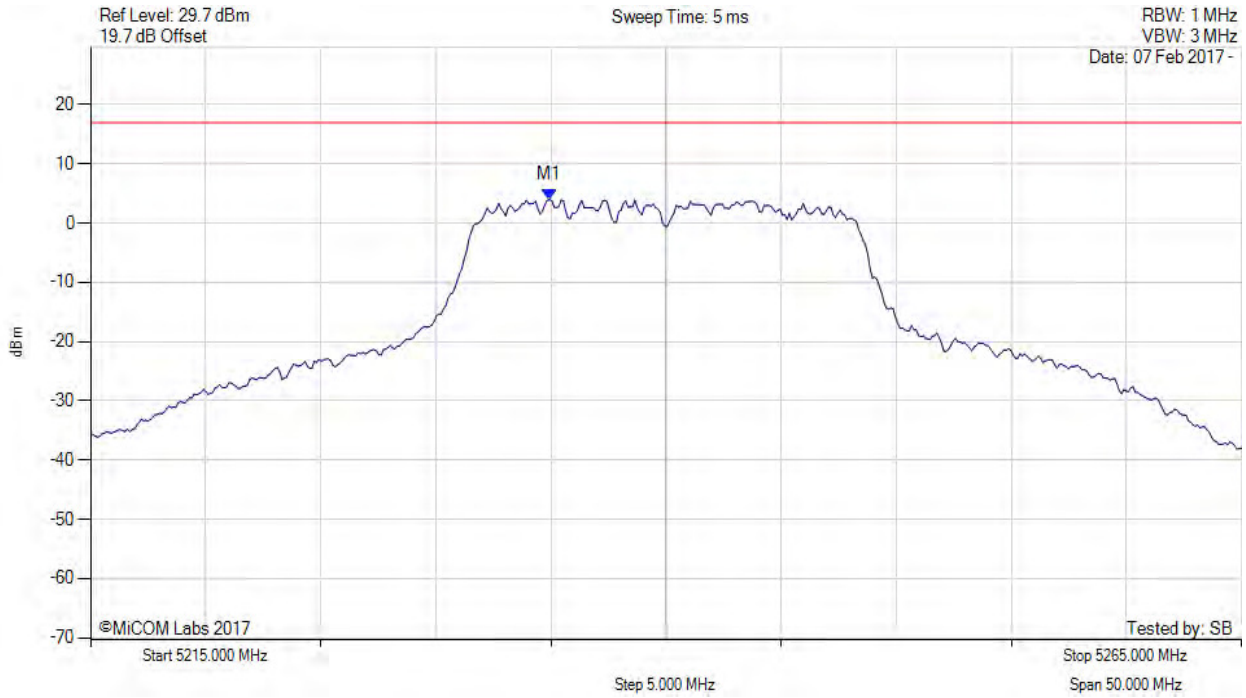



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = AVERAGE | M1 : 5197.600 MHz : 6.981 dBm<br>M1 + DCCF : 5197.600 MHz : 7.025 dBm<br>Duty Cycle Correction Factor : +0.04 dB | Limit: ≤ 17.0 dBm<br>Margin: -10.0 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

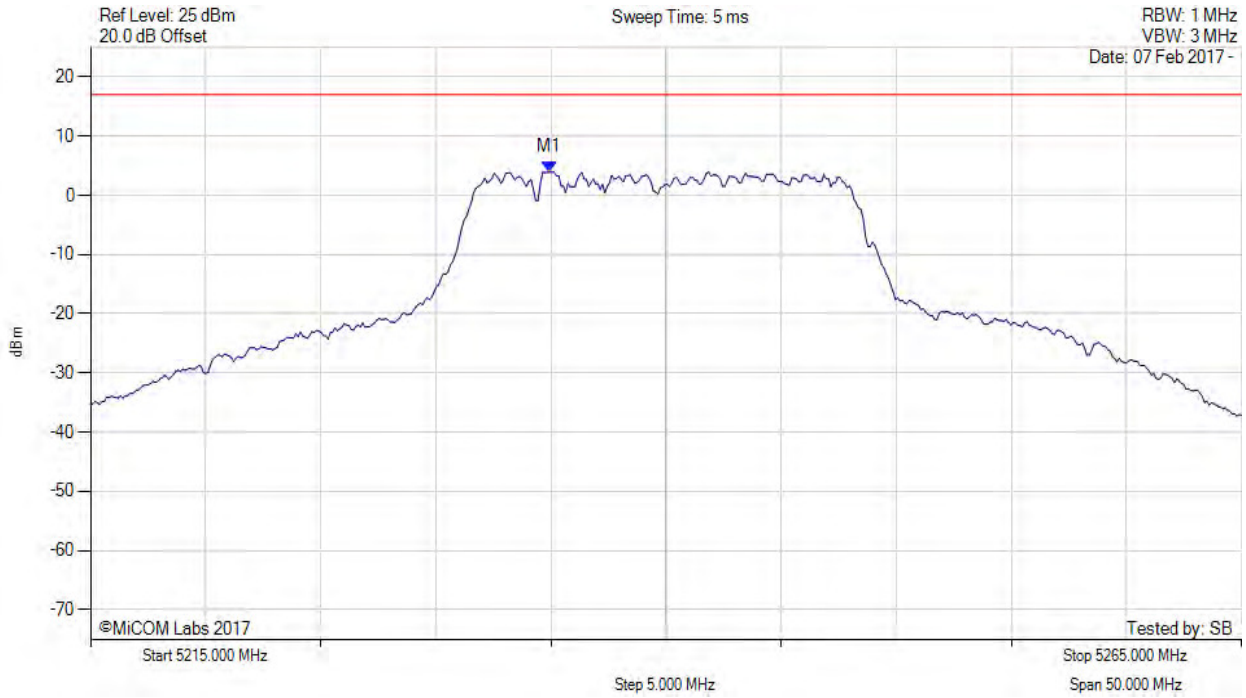



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5234.940 MHz : 3.957 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

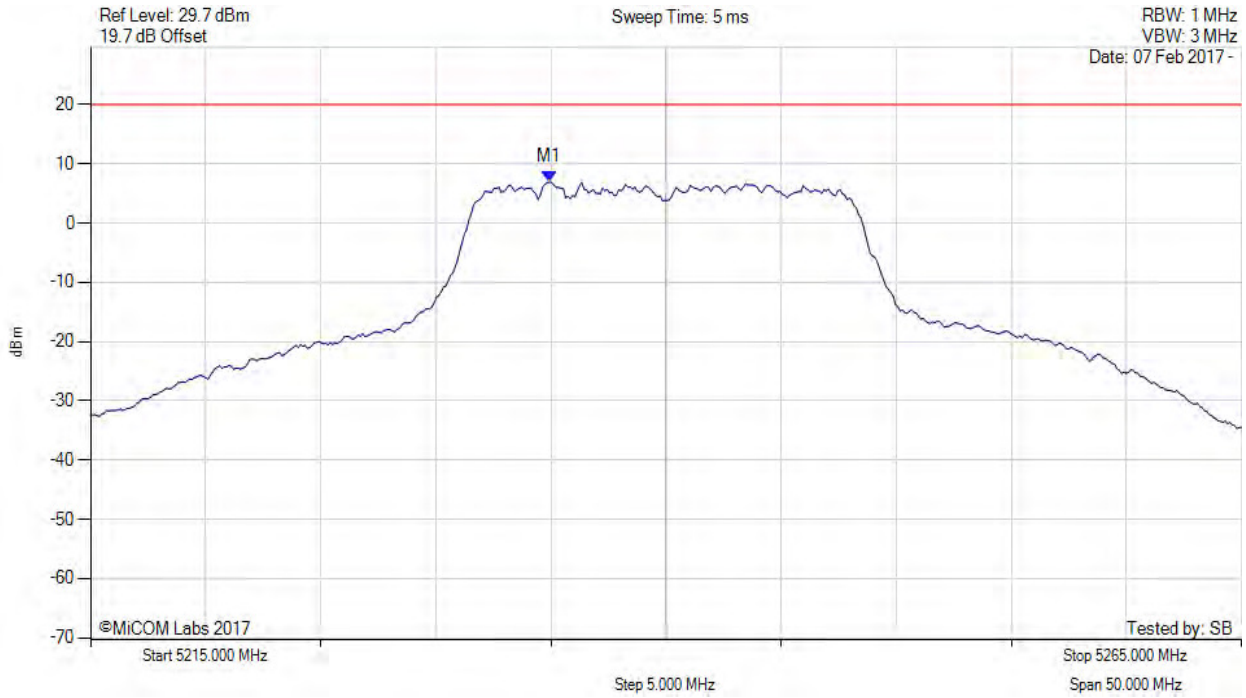



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5234.940 MHz : 3.951 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

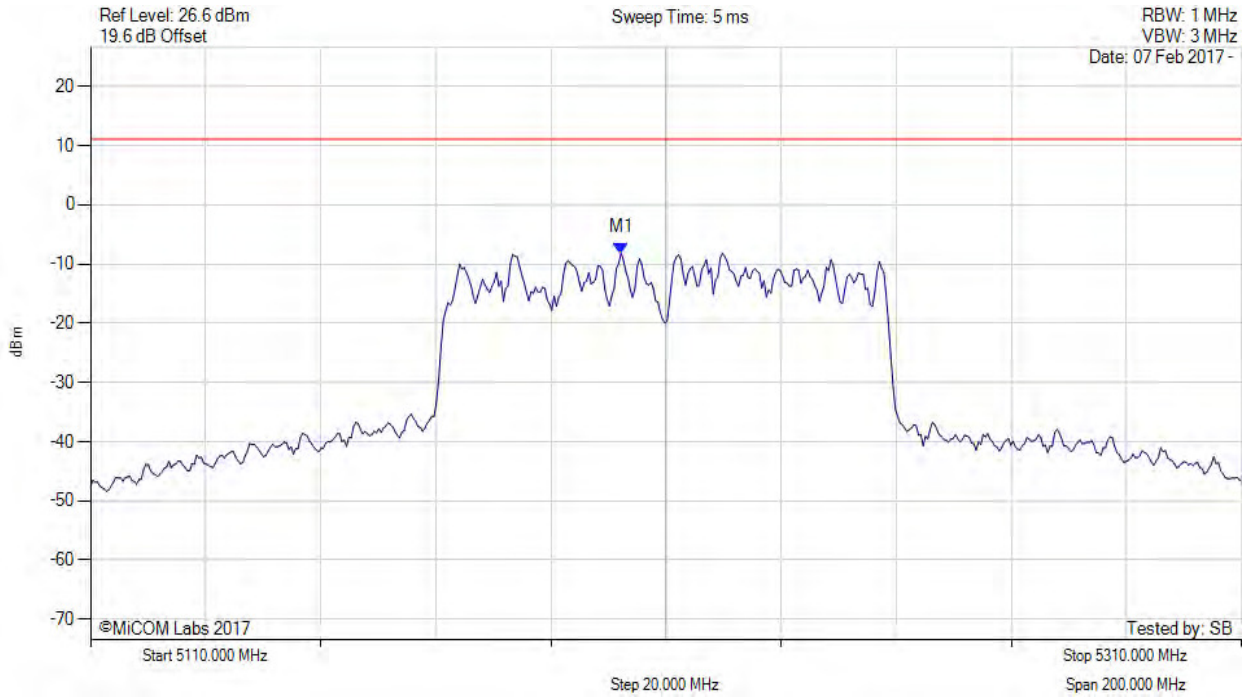



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5234.900 MHz : 6.964 dBm<br>M1 + DCCF : 5234.900 MHz : 7.008 dBm<br>Duty Cycle Correction Factor : +0.04 dB | Limit: ≤ 17.0 dBm<br>Margin: -10.0 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

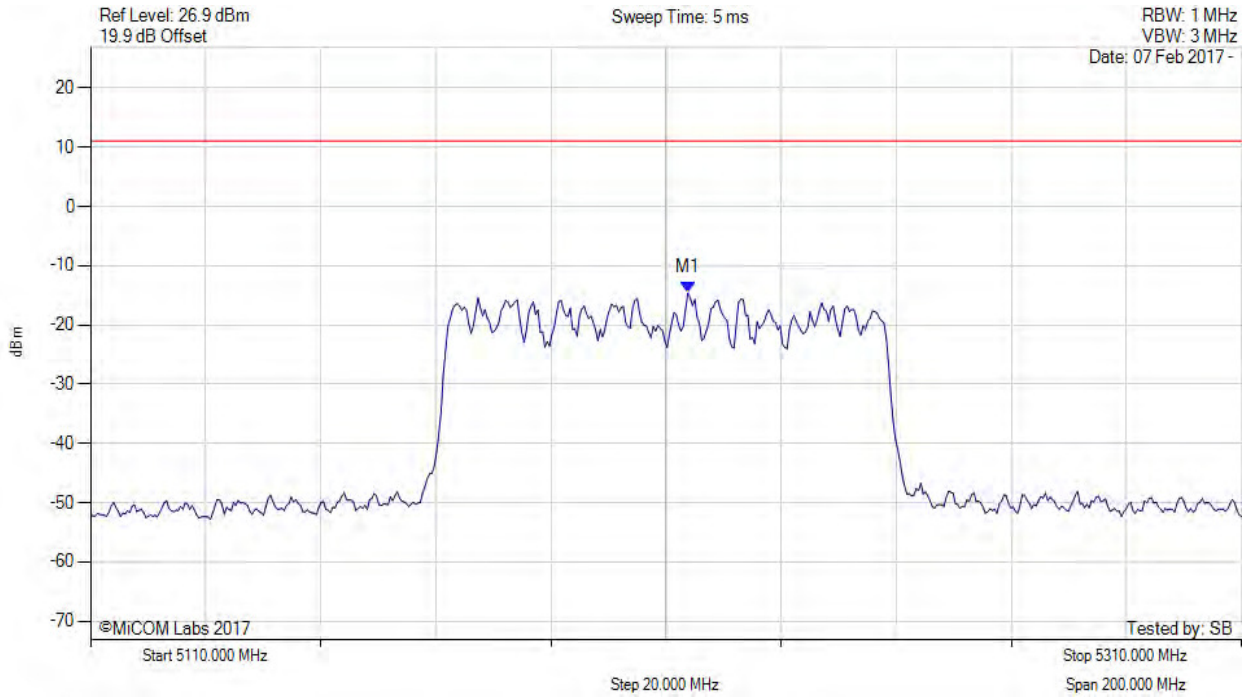



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5202.184 MHz : -8.124 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

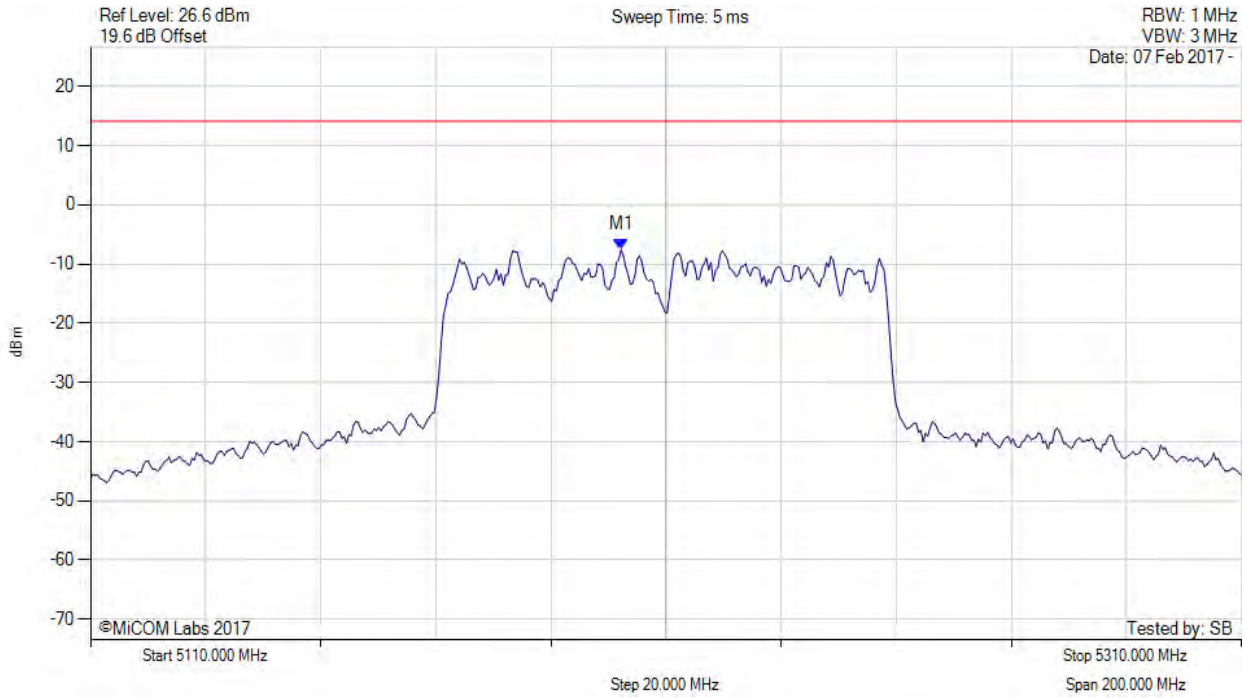



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5213.808 MHz : -14.589 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

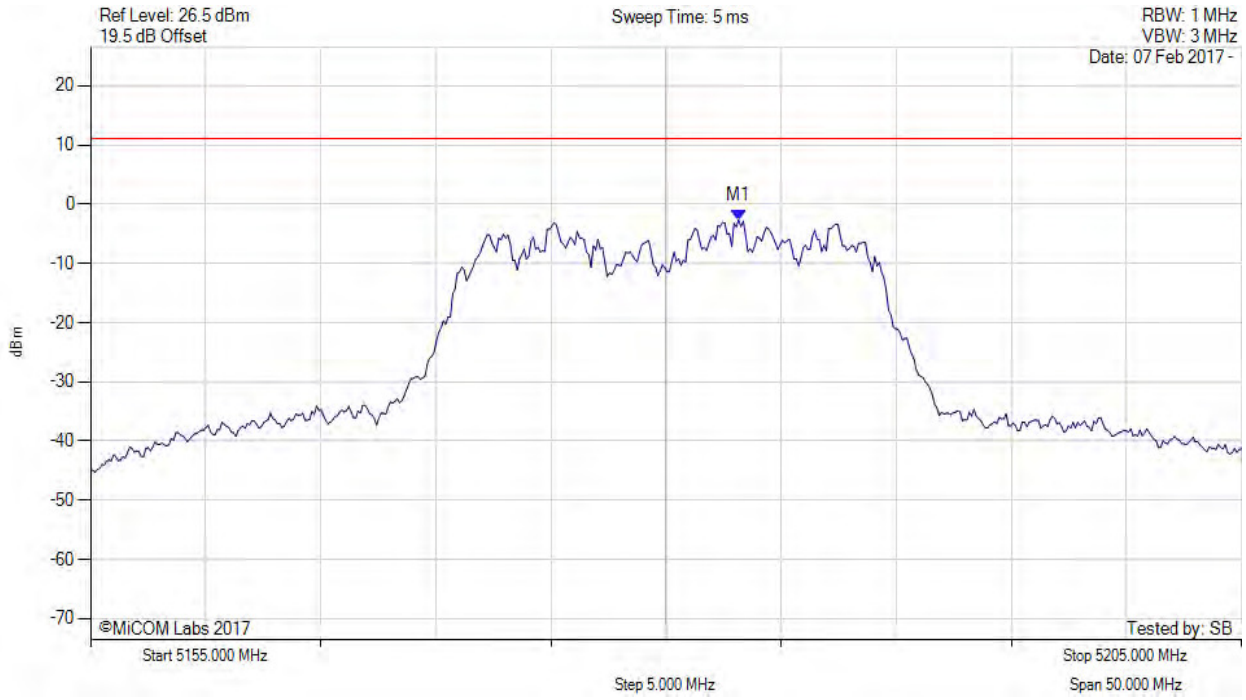



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5202.200 MHz : -7.603 dBm<br>M1 + DCCF : 5202.200 MHz : -6.998 dBm<br>Duty Cycle Correction Factor : +0.6 dB | Limit: ≤ 17.0 dBm<br>Margin: -24.0 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

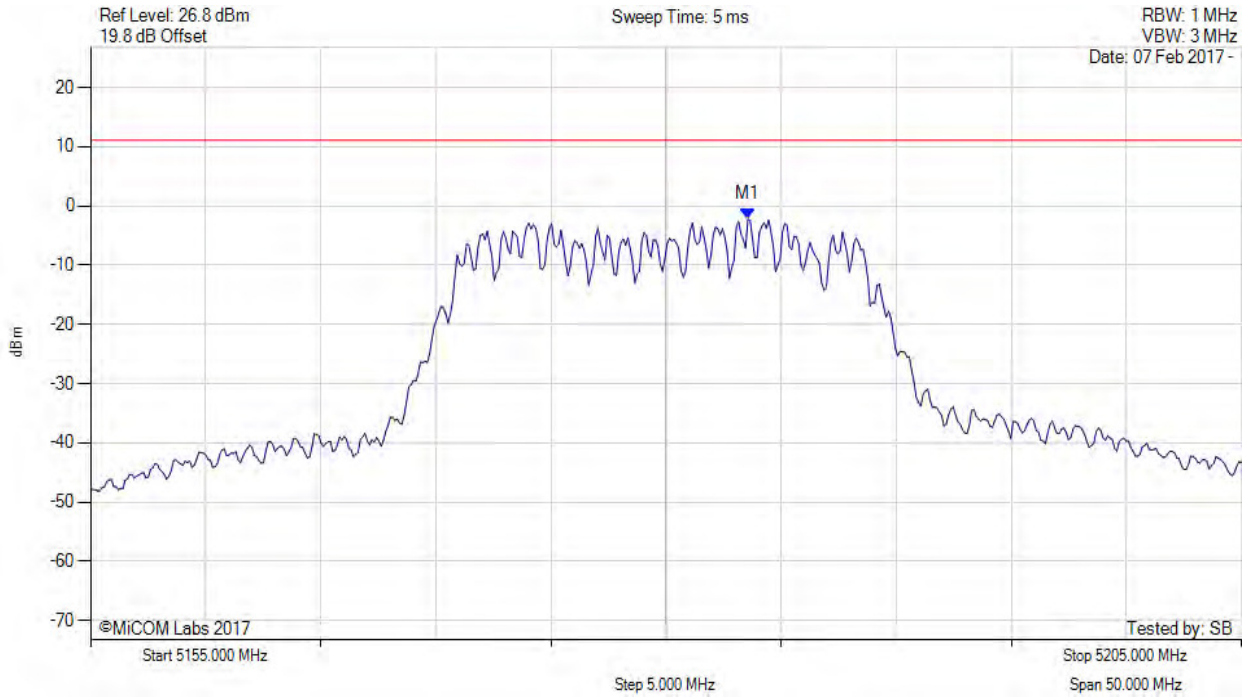



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5183.156 MHz : -2.671 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

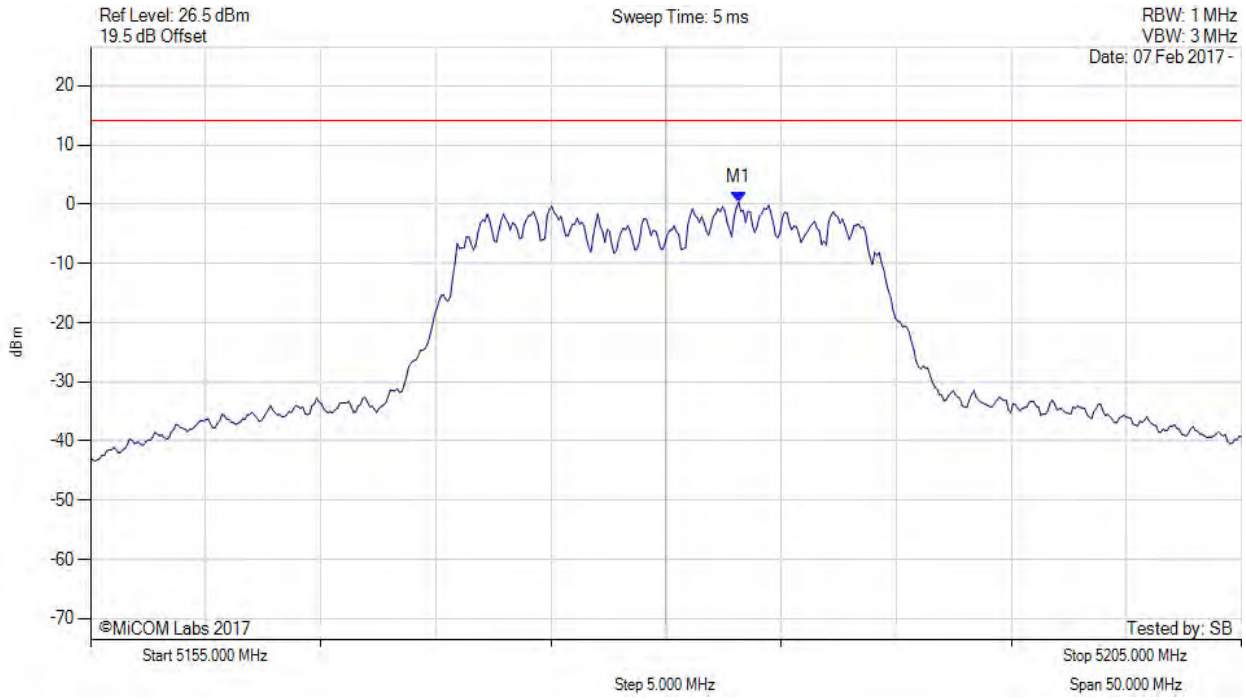



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5183.557 MHz : -2.254 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

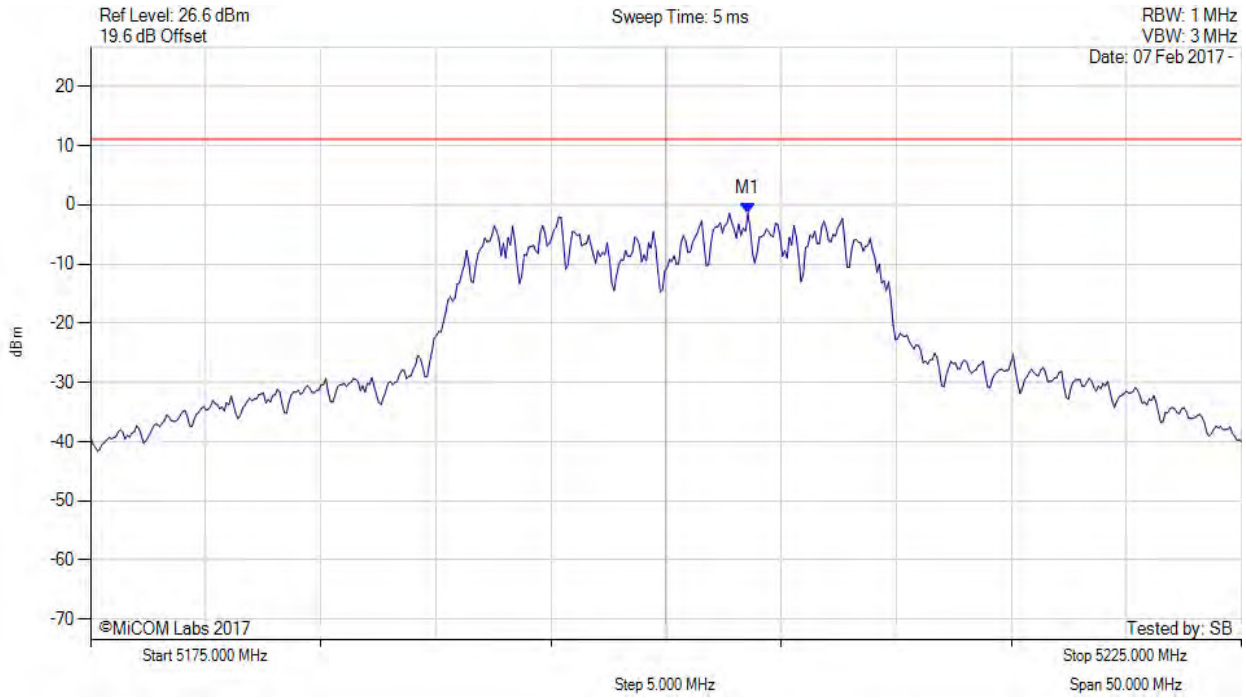



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5183.200 MHz : 0.343 dBm<br>M1 + DCCF : 5183.200 MHz : 1.258 dBm<br>Duty Cycle Correction Factor : +0.92 dB | Limit: ≤ 17.0 dBm<br>Margin: -15.7 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

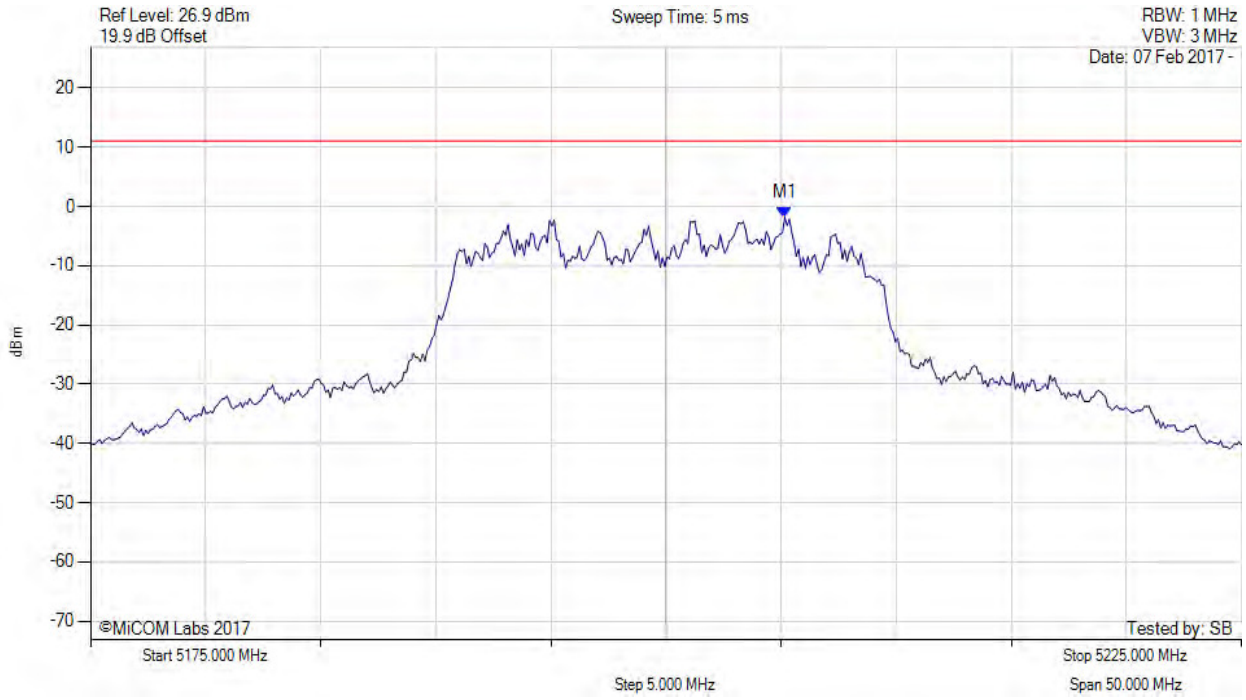



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5203.557 MHz : -1.441 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

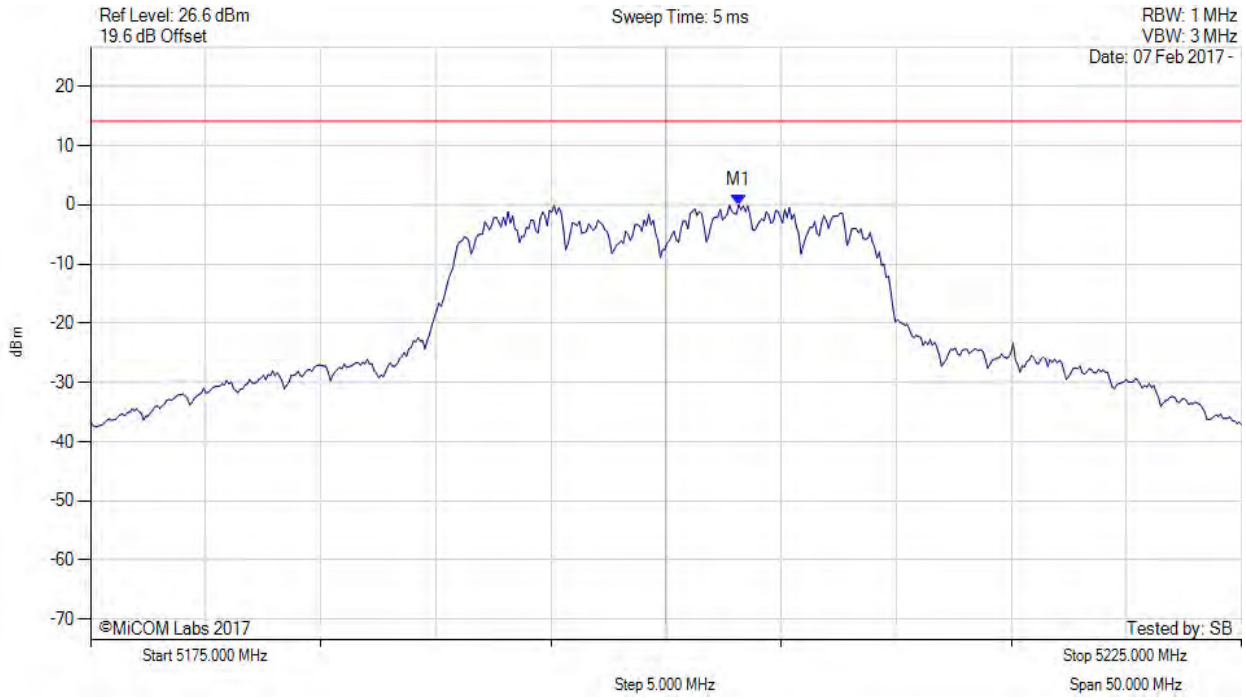



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5205.160 MHz : -1.818 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

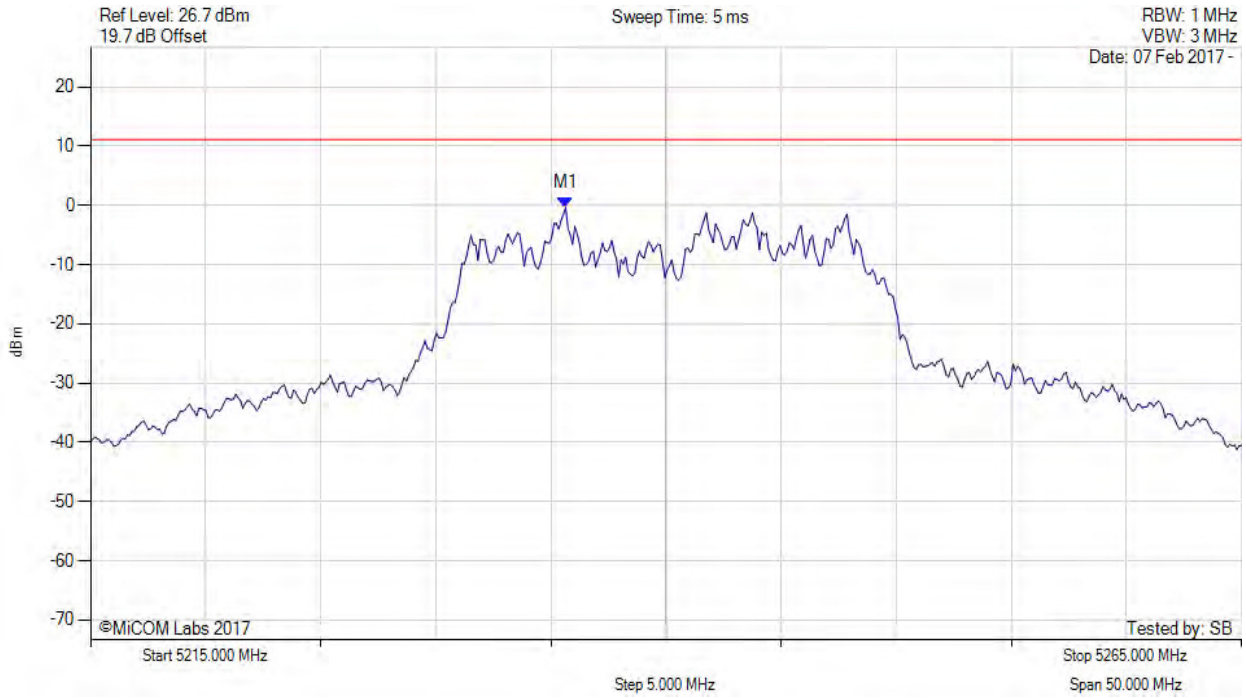



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5203.200 MHz : 0.022 dBm<br>M1 + DCCF : 5203.200 MHz : 0.937 dBm<br>Duty Cycle Correction Factor : +0.92 dB | Limit: ≤ 17.0 dBm<br>Margin: -15.1 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

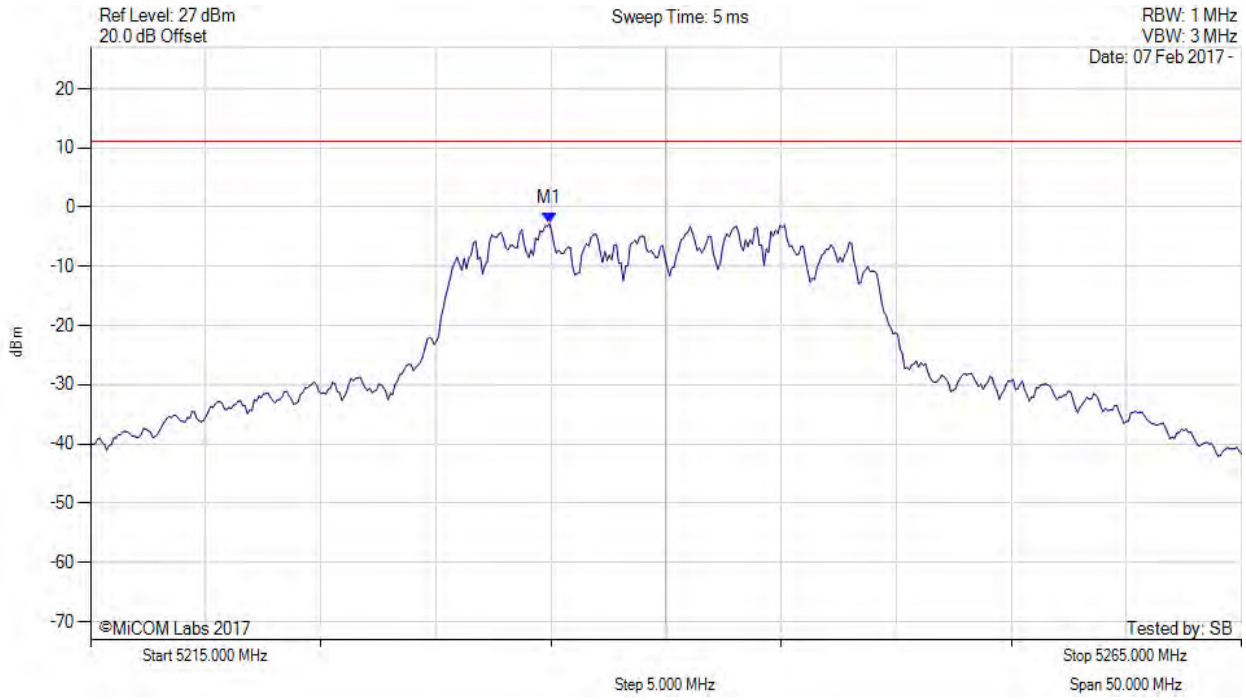



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5235.641 MHz : -0.357 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

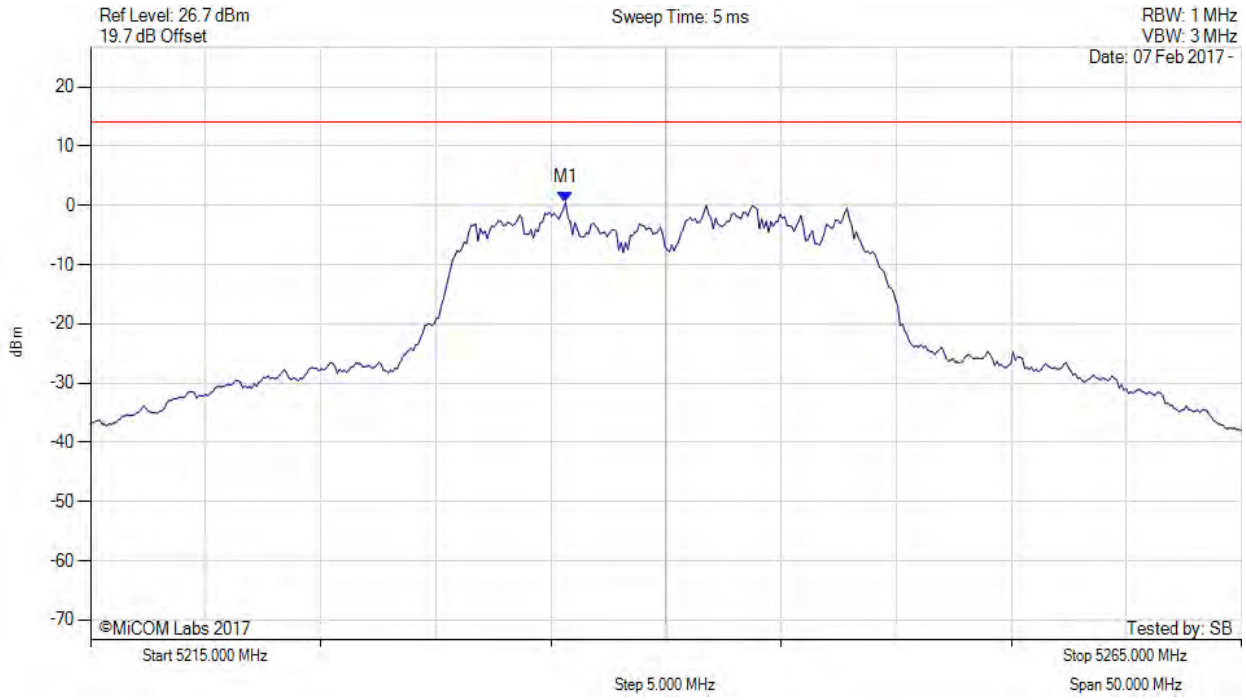



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5234.940 MHz : -2.755 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

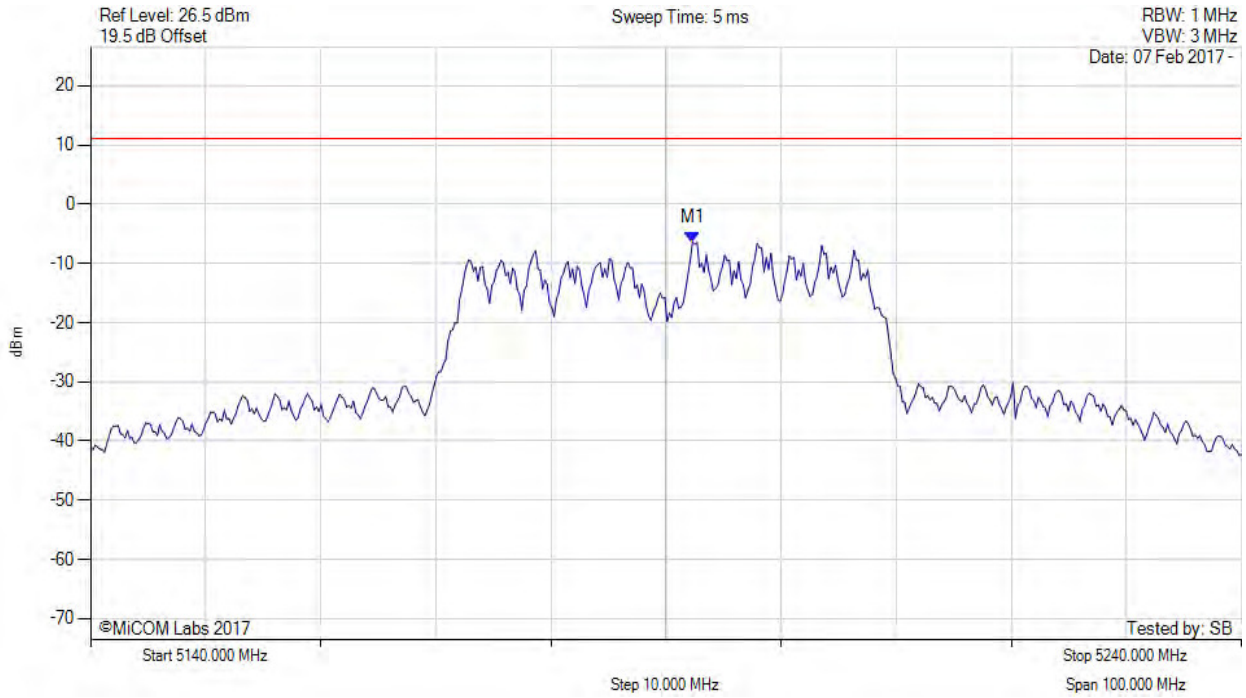



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5235.600 MHz : 0.467 dBm<br>M1 + DCCF : 5235.600 MHz : 1.382 dBm<br>Duty Cycle Correction Factor : +0.92 dB | Limit: ≤ 17.0 dBm<br>Margin: -15.6 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

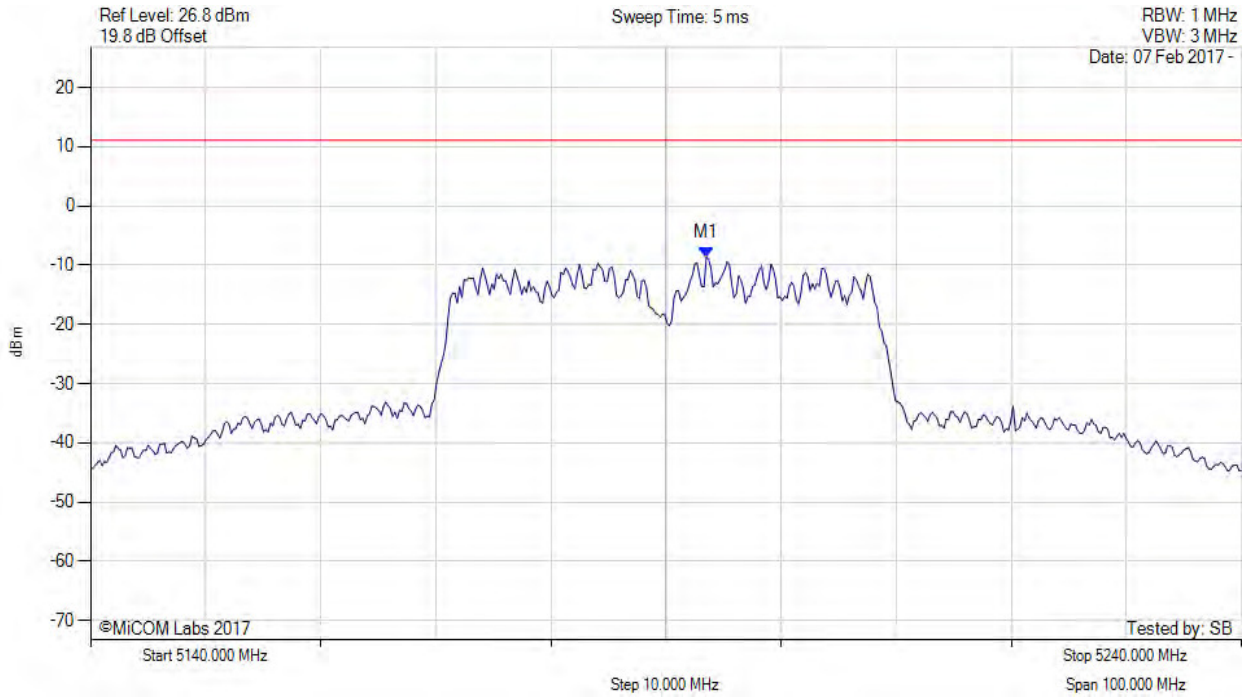



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5192.305 MHz : -6.405 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

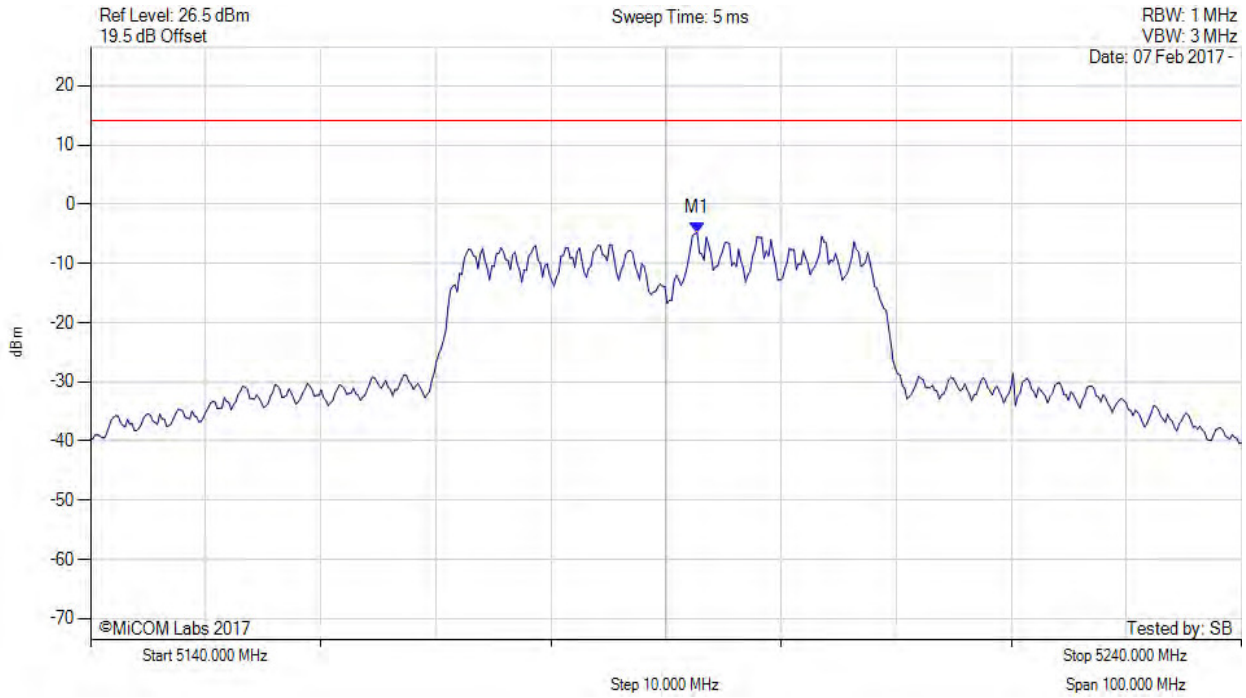



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5193.507 MHz : -8.659 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

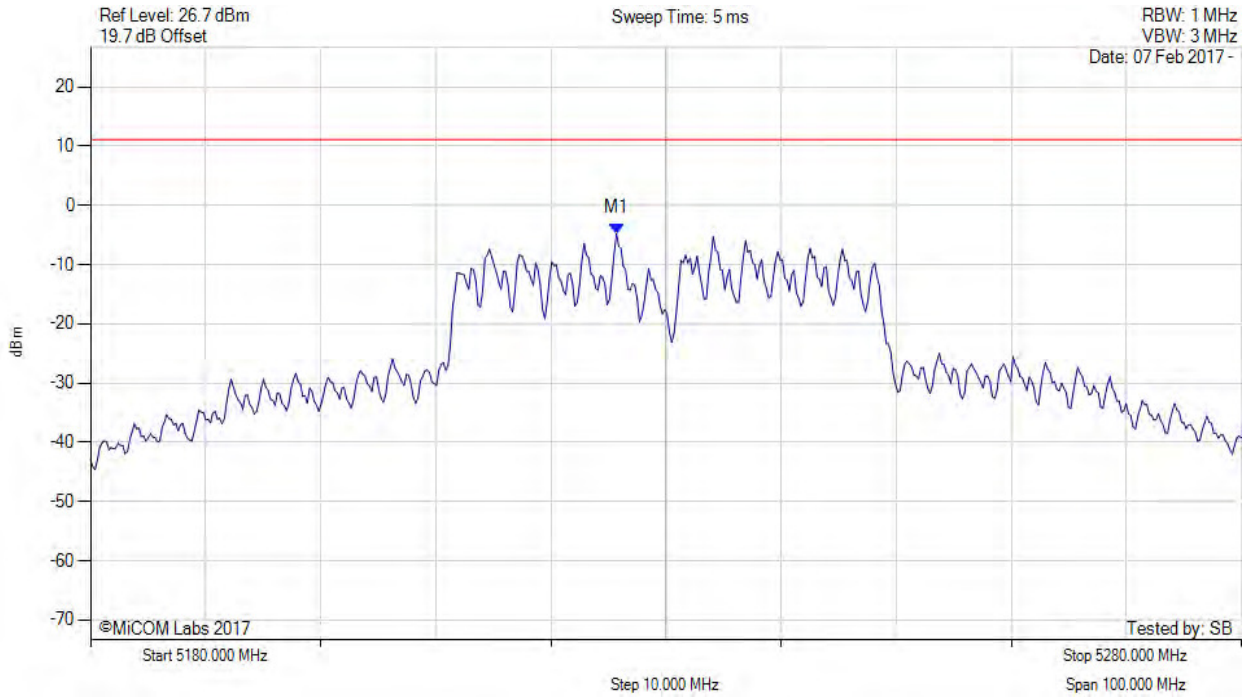



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5192.700 MHz : -4.748 dBm<br>M1 + DCCF : 5192.700 MHz : -3.261 dBm<br>Duty Cycle Correction Factor : +1.49 dB | Limit: ≤ 17.0 dBm<br>Margin: -20.3 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

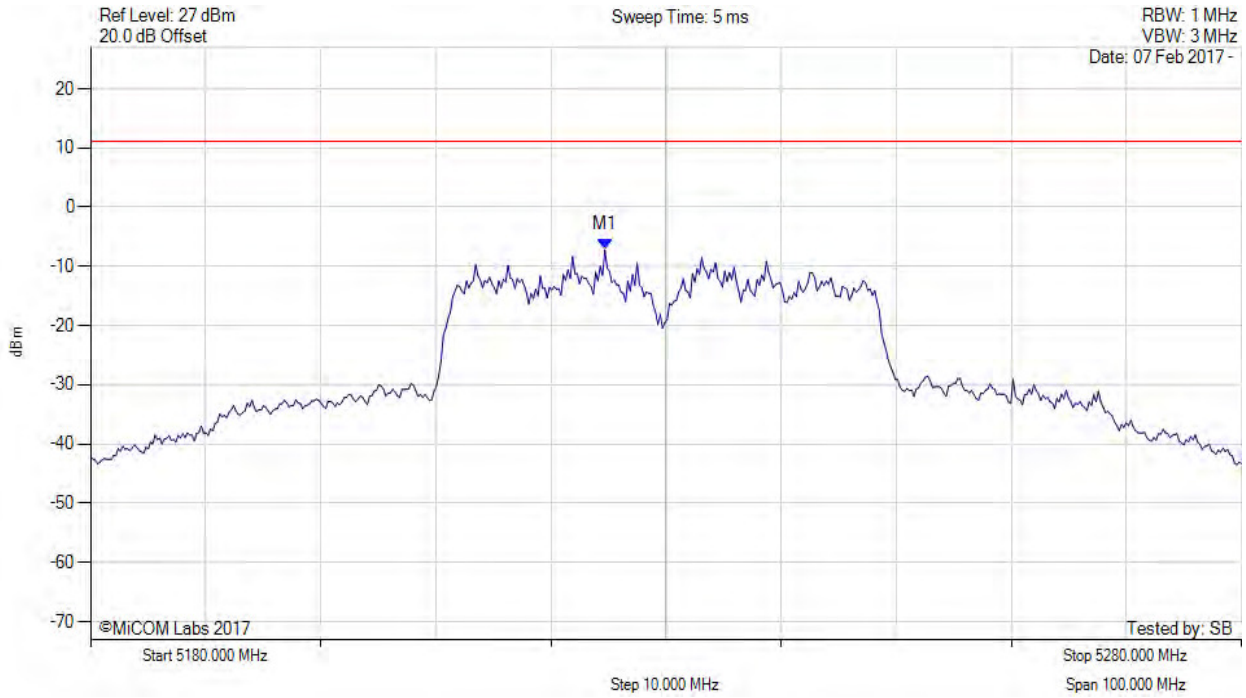



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5225.691 MHz : -4.768 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

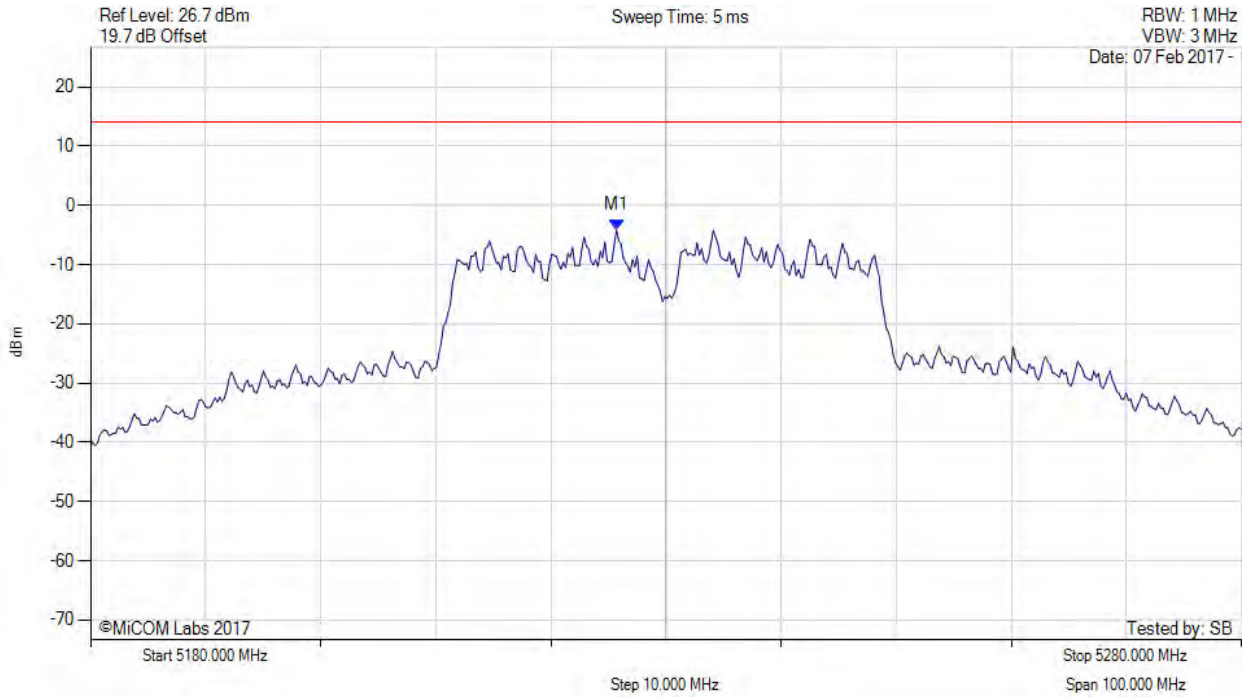



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5224.689 MHz : -7.213 dBm | Limit: ≤ 13.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

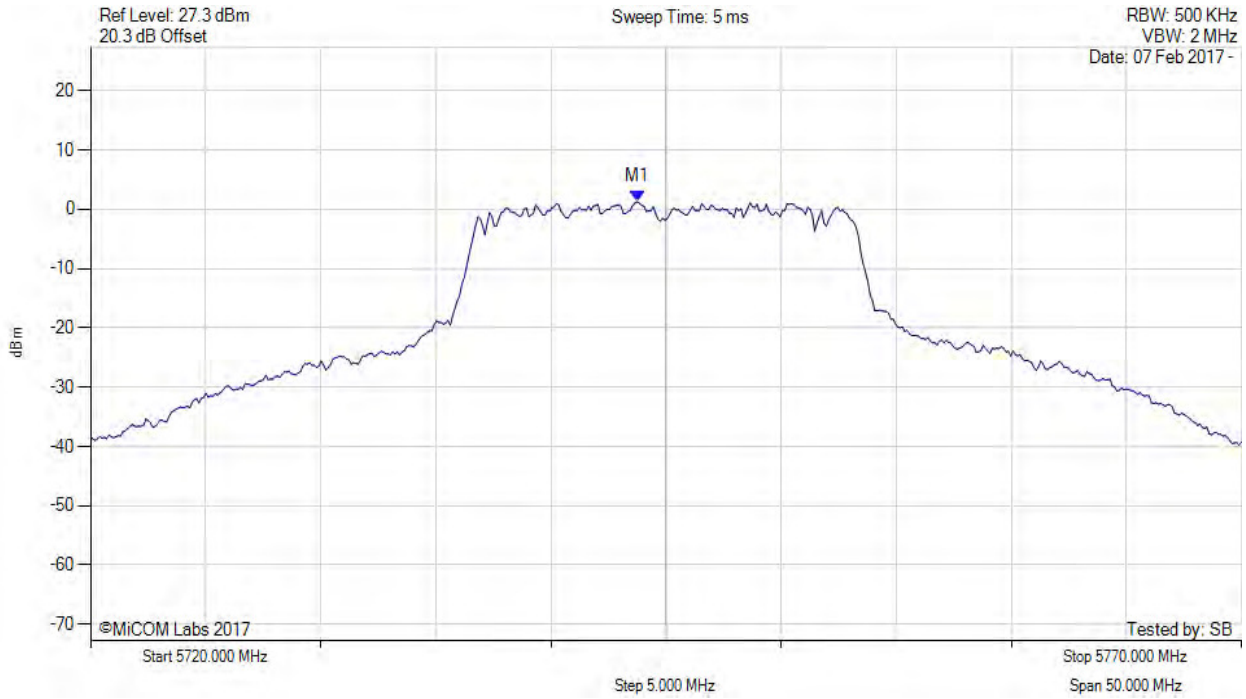



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5225.700 MHz : -4.165 dBm<br>M1 + DCCF : 5225.700 MHz : -2.678 dBm<br>Duty Cycle Correction Factor : +1.49 dB | Limit: ≤ 17.0 dBm<br>Margin: -19.7 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

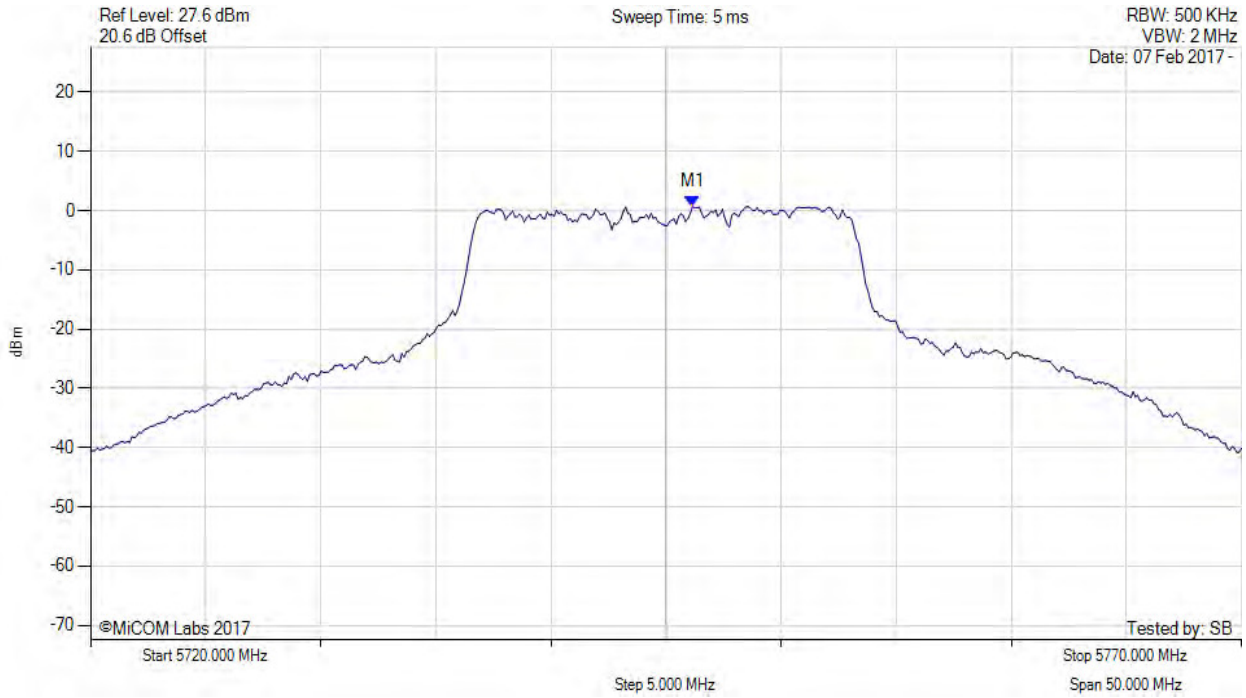



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5743.747 MHz : 1.261 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

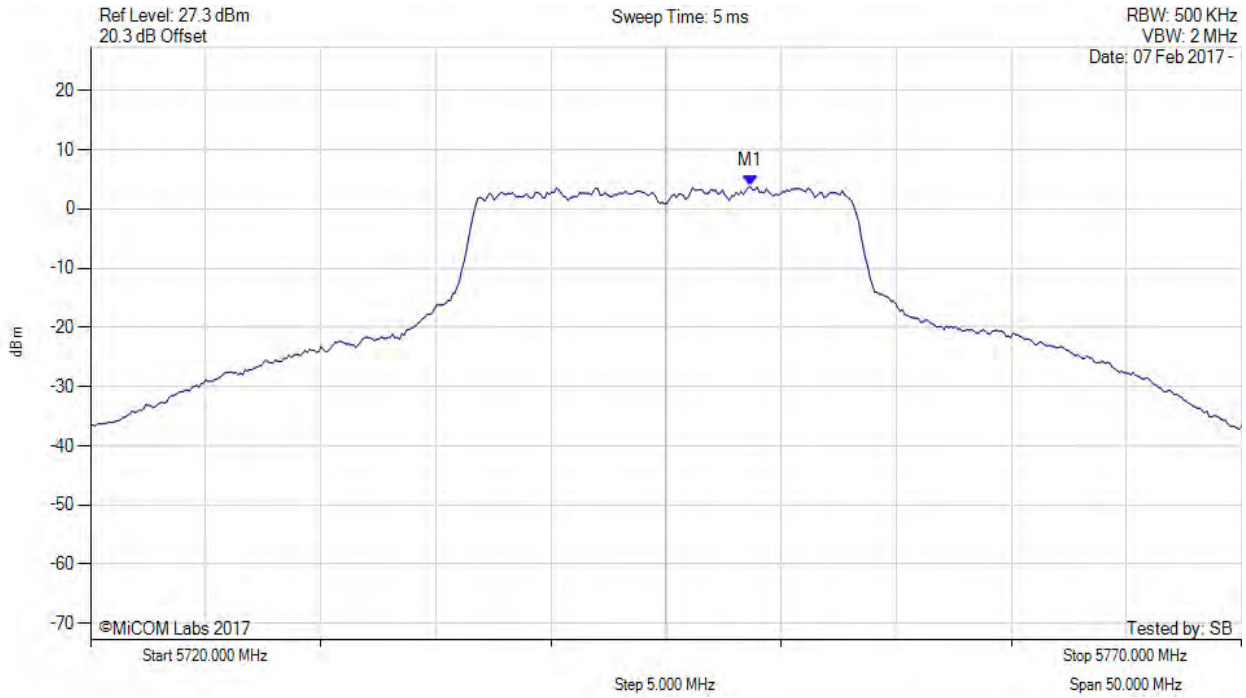



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5746.152 MHz : 0.700 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

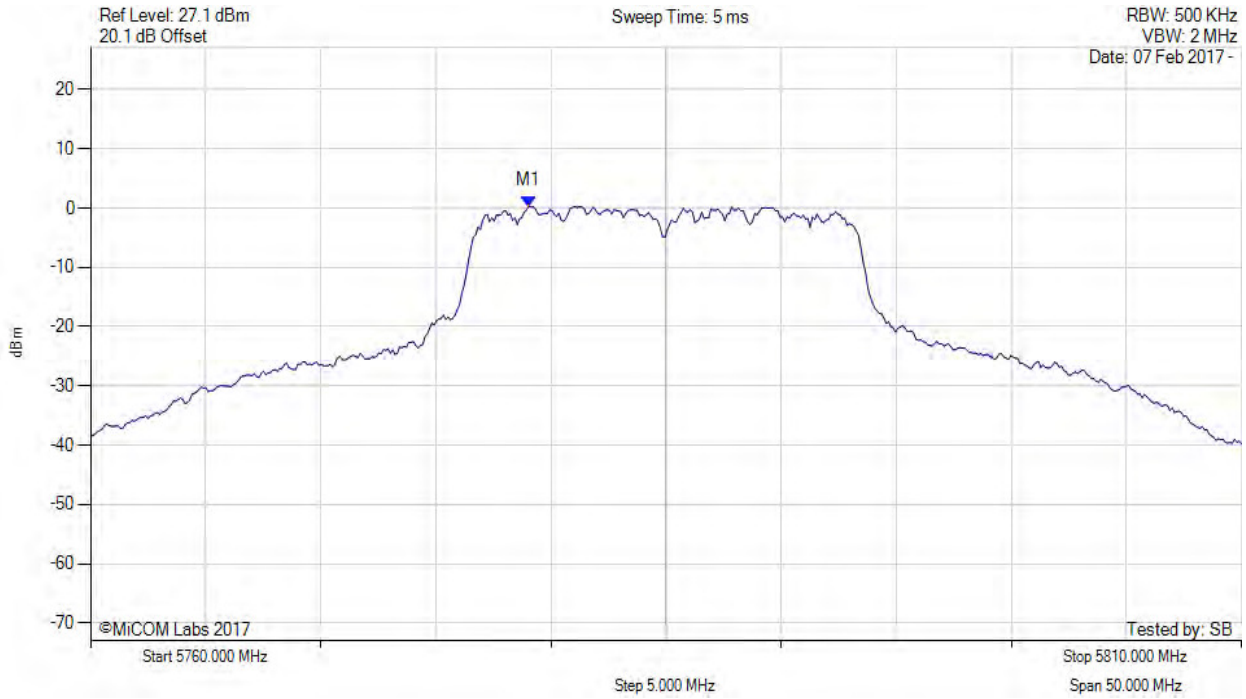



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5748.700 MHz : 3.805 dBm<br>M1 + DCCF : 5748.700 MHz : 3.849 dBm<br>Duty Cycle Correction Factor : +0.04 dB | Limit: ≤ 30.0 dBm<br>Margin: -26.2 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

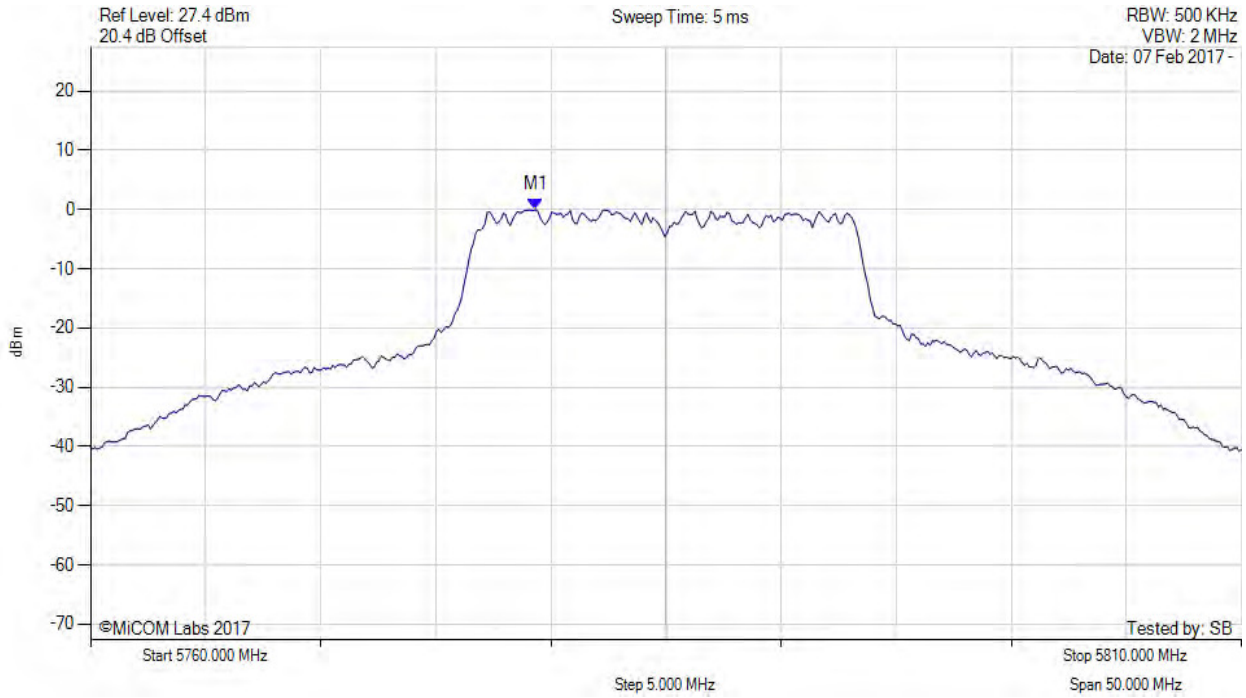



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5779.038 MHz : 0.309 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

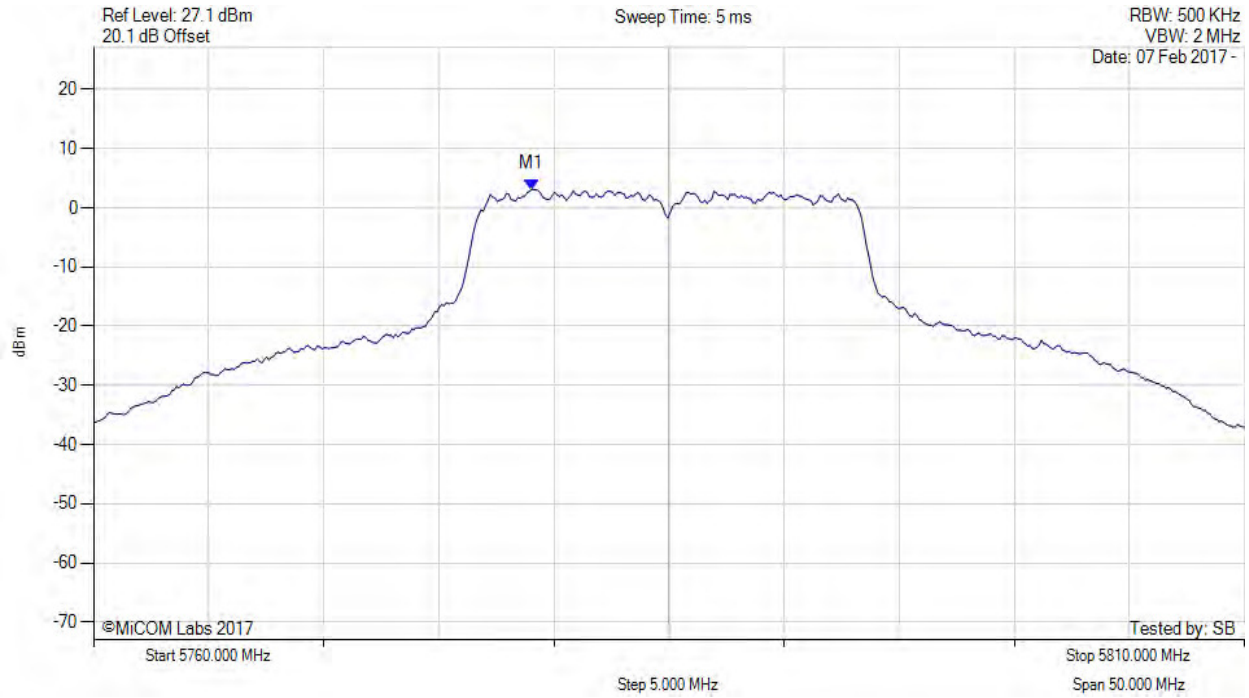



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5779.339 MHz : -0.019 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

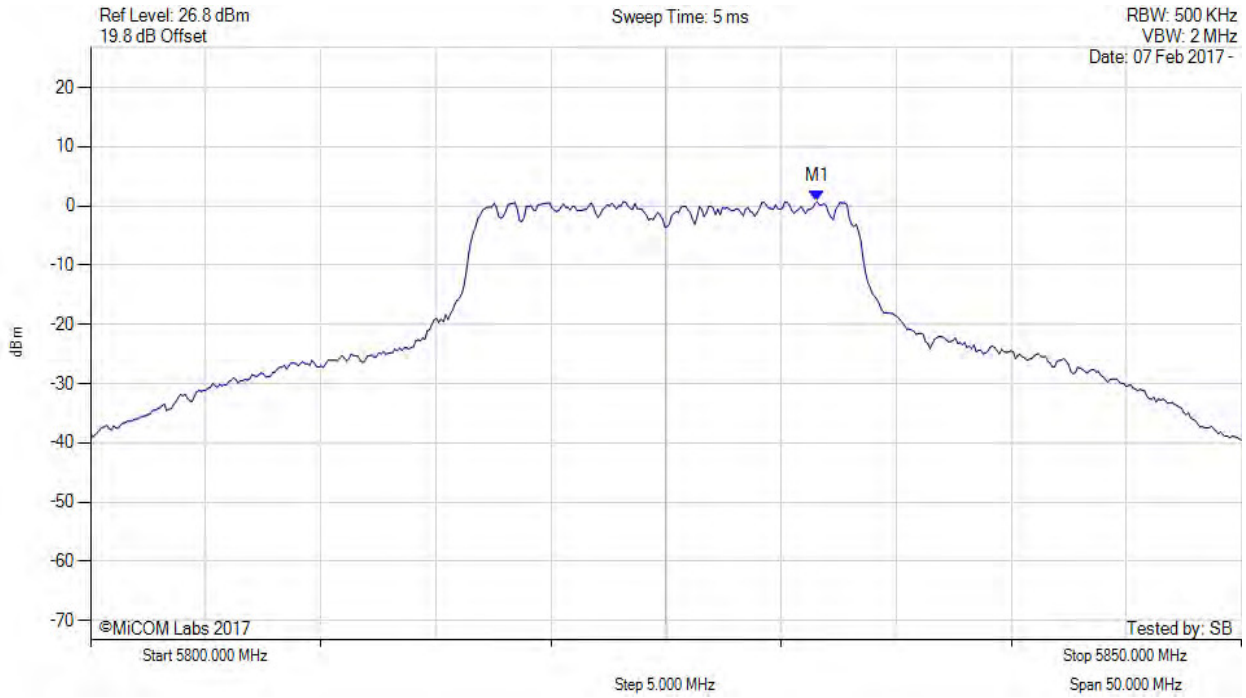



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5779.000 MHz : 3.118 dBm<br>M1 + DCCF : 5779.000 MHz : 3.162 dBm<br>Duty Cycle Correction Factor : +0.04 dB | Limit: ≤ 30.0 dBm<br>Margin: -26.8 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

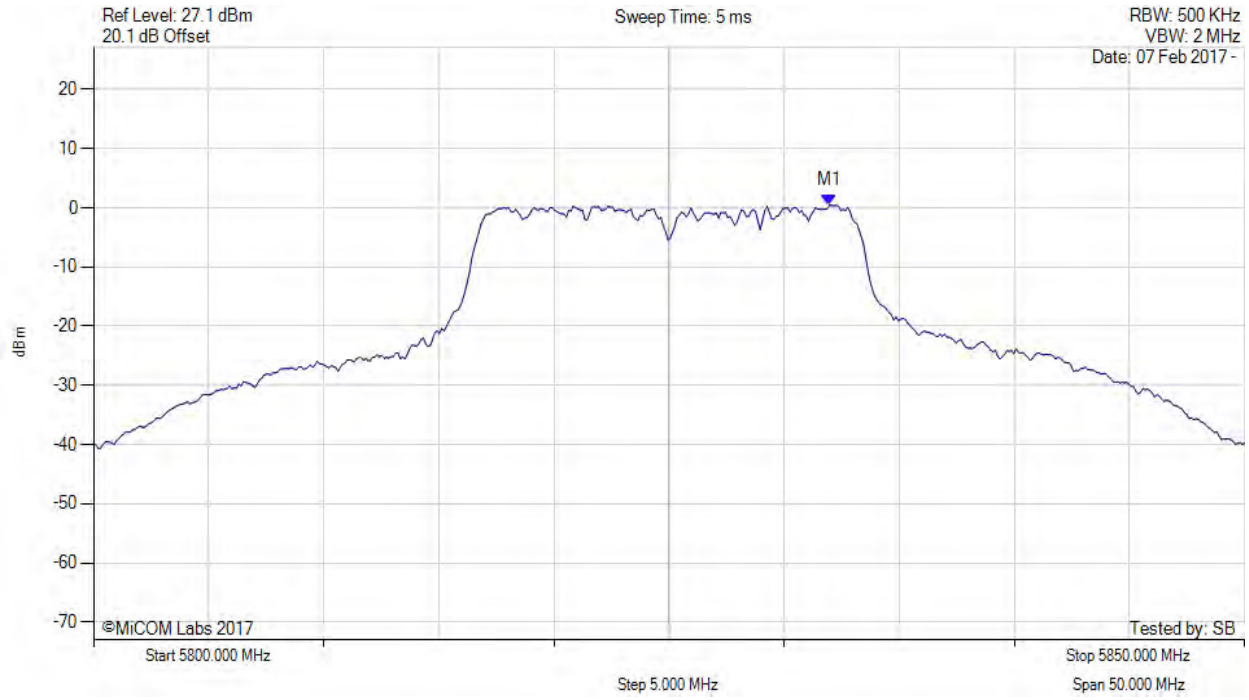



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5831.563 MHz : 0.740 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

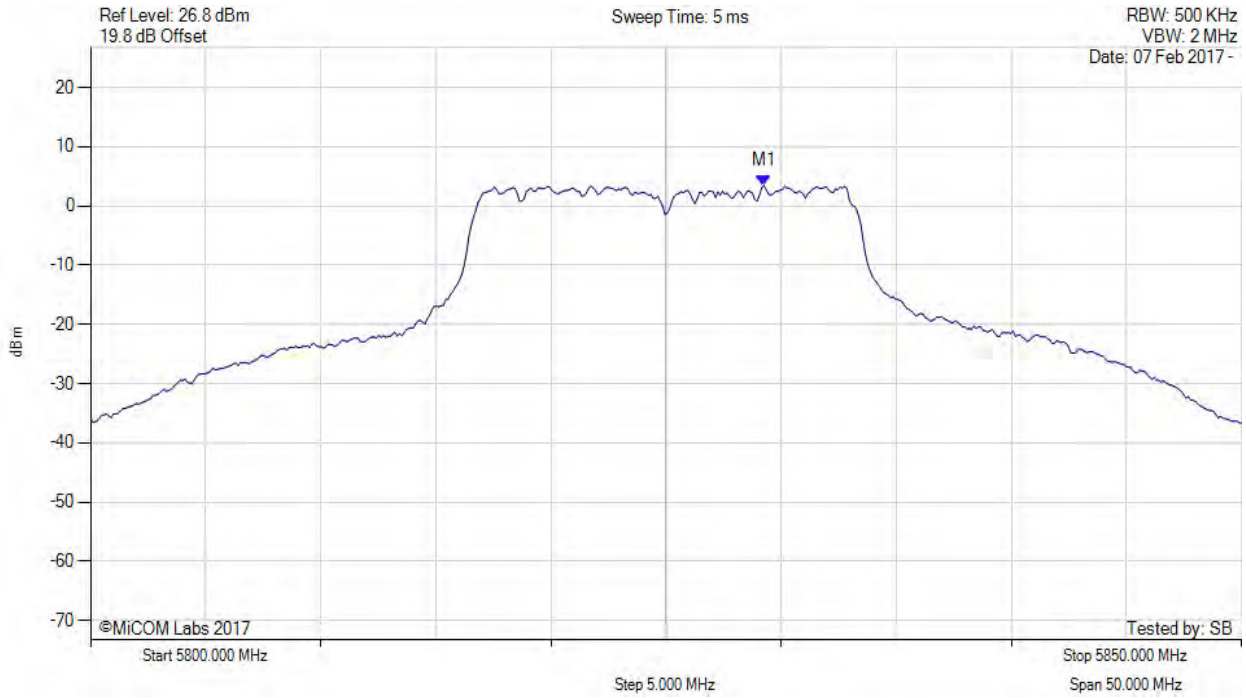



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5831.964 MHz : 0.413 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

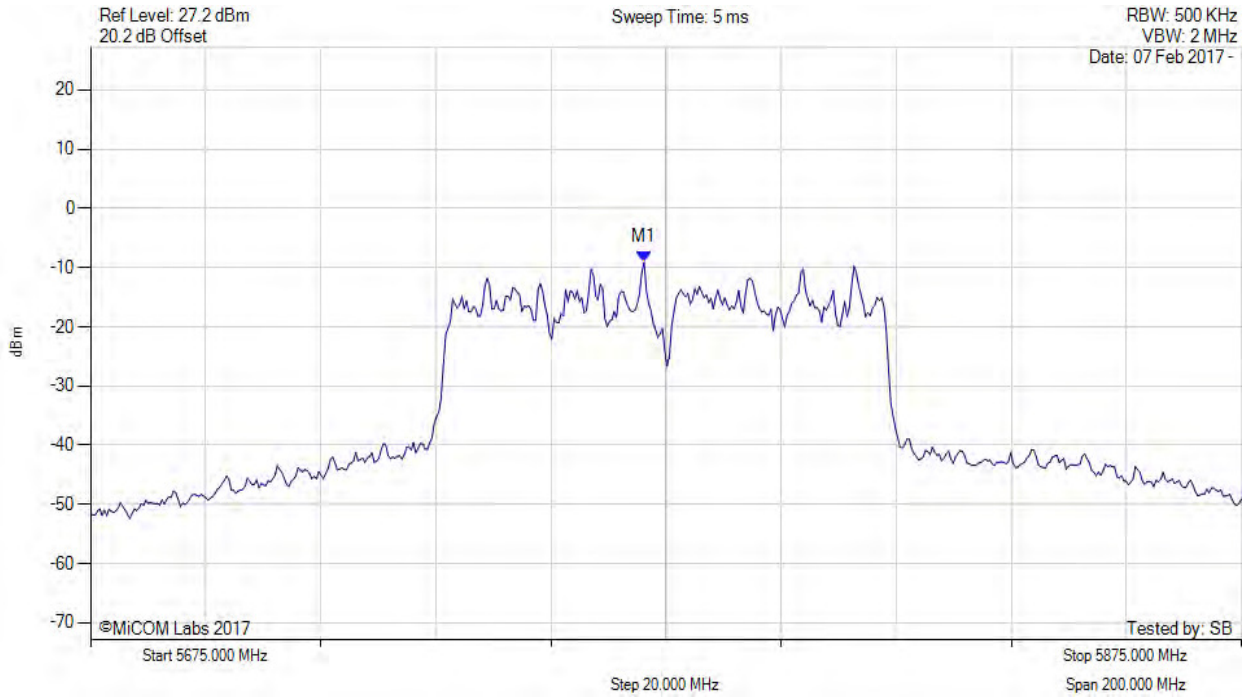



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5829.300 MHz : 3.458 dBm<br>M1 + DCCF : 5829.300 MHz : 3.502 dBm<br>Duty Cycle Correction Factor : +0.04 dB | Limit: ≤ 30.0 dBm<br>Margin: -26.5 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

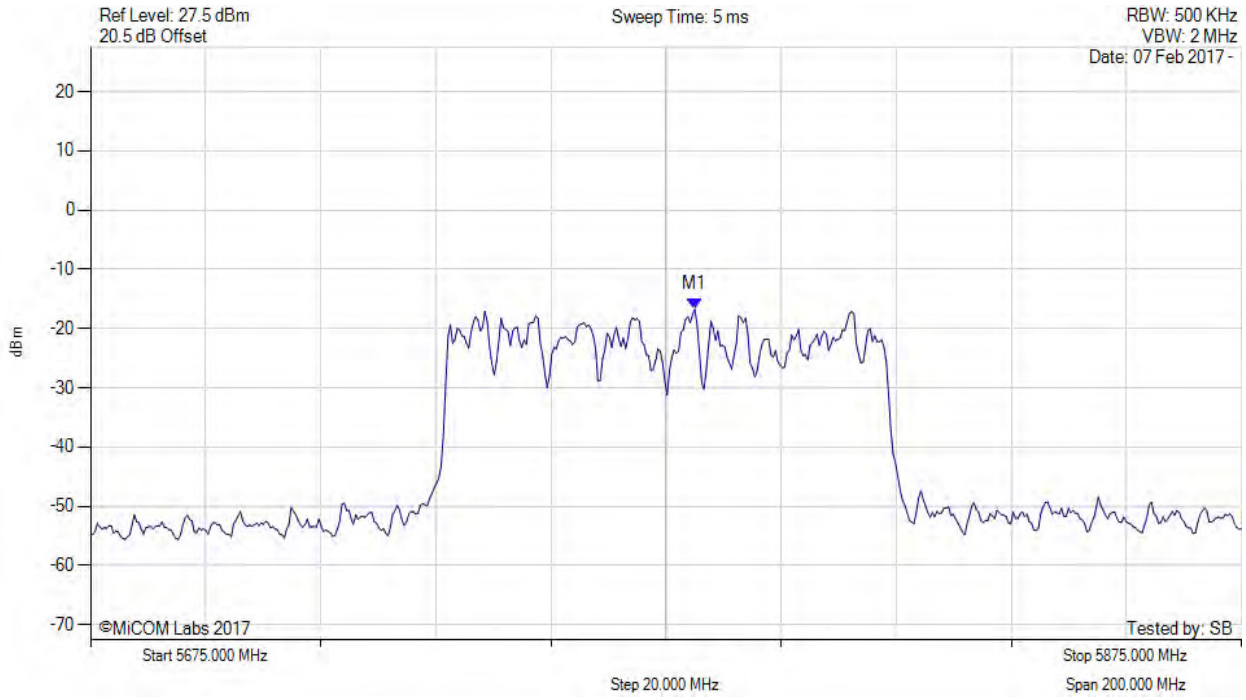



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5771.192 MHz : -9.106 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

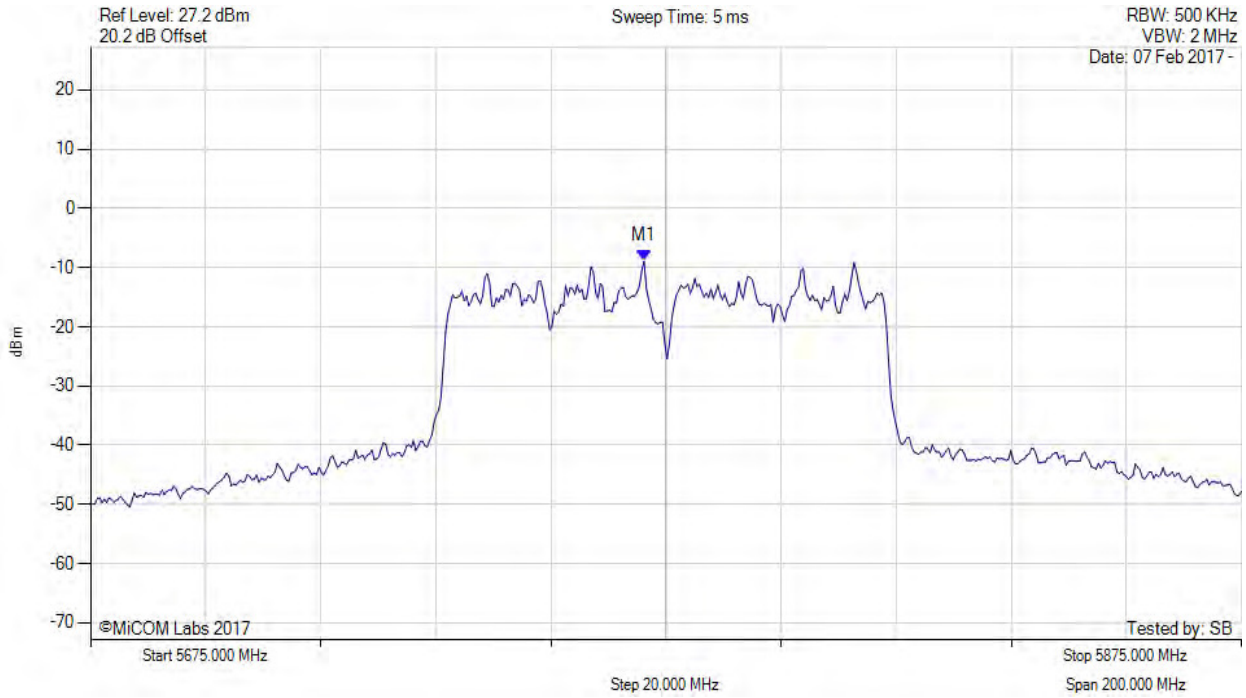



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5780.010 MHz : -16.754 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

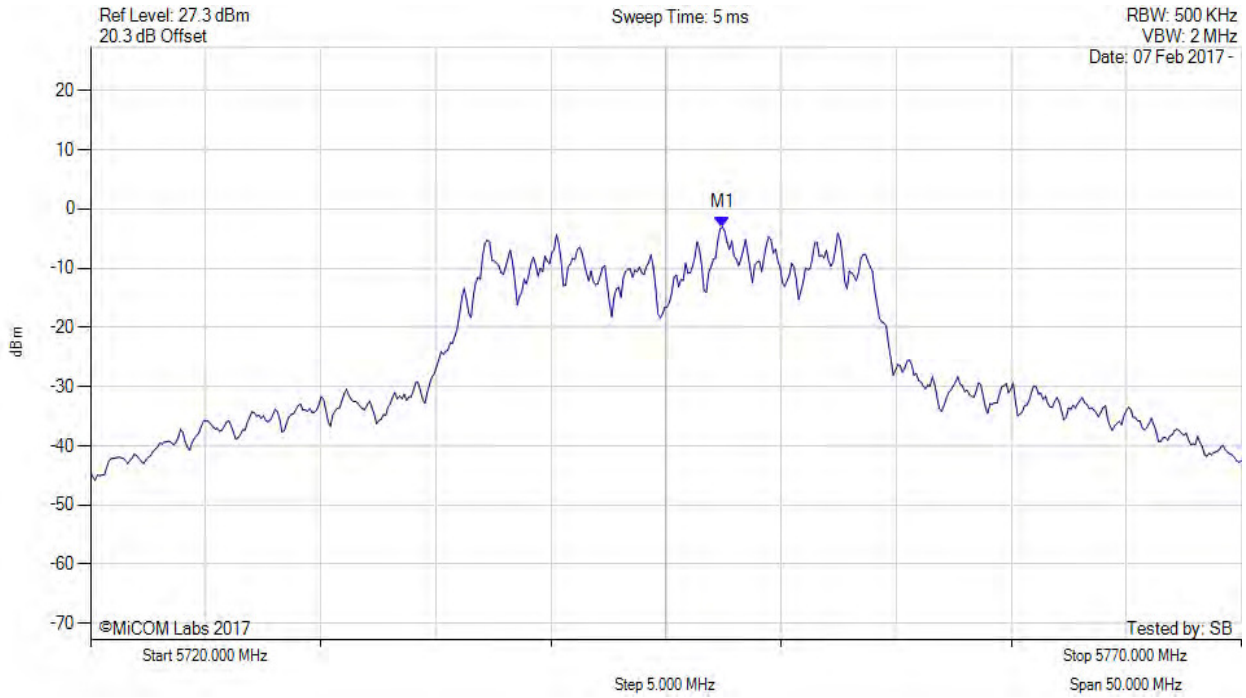



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5771.200 MHz : -8.920 dBm<br>M1 + DCCF : 5771.200 MHz : -8.058 dBm<br>Duty Cycle Correction Factor : +0.86 dB | Limit: ≤ 30.0 dBm<br>Margin: -38.1 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

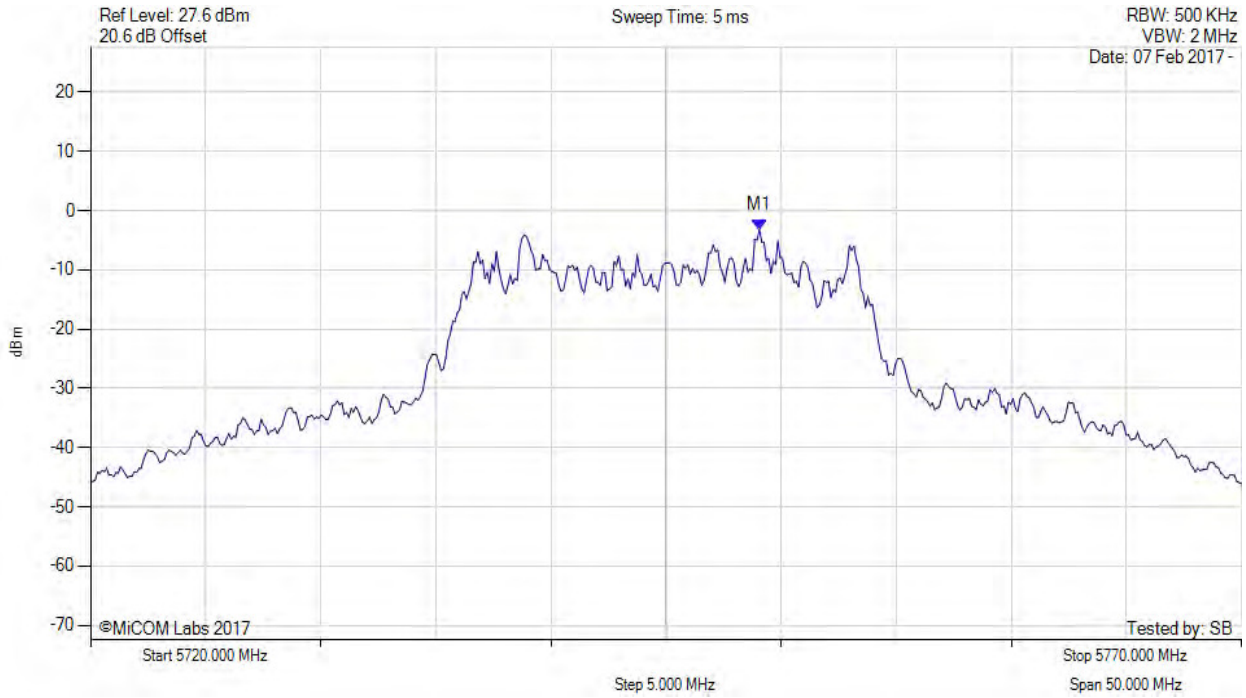



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5747.455 MHz : -3.044 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

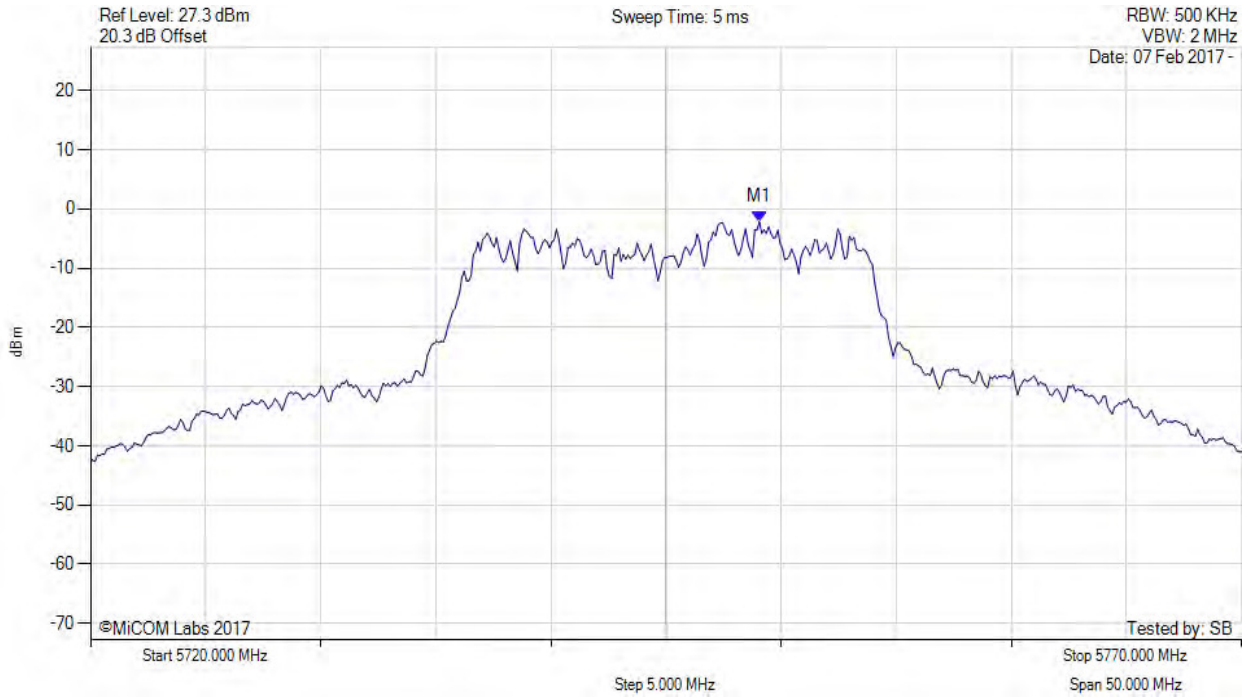



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5749.058 MHz : -3.237 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

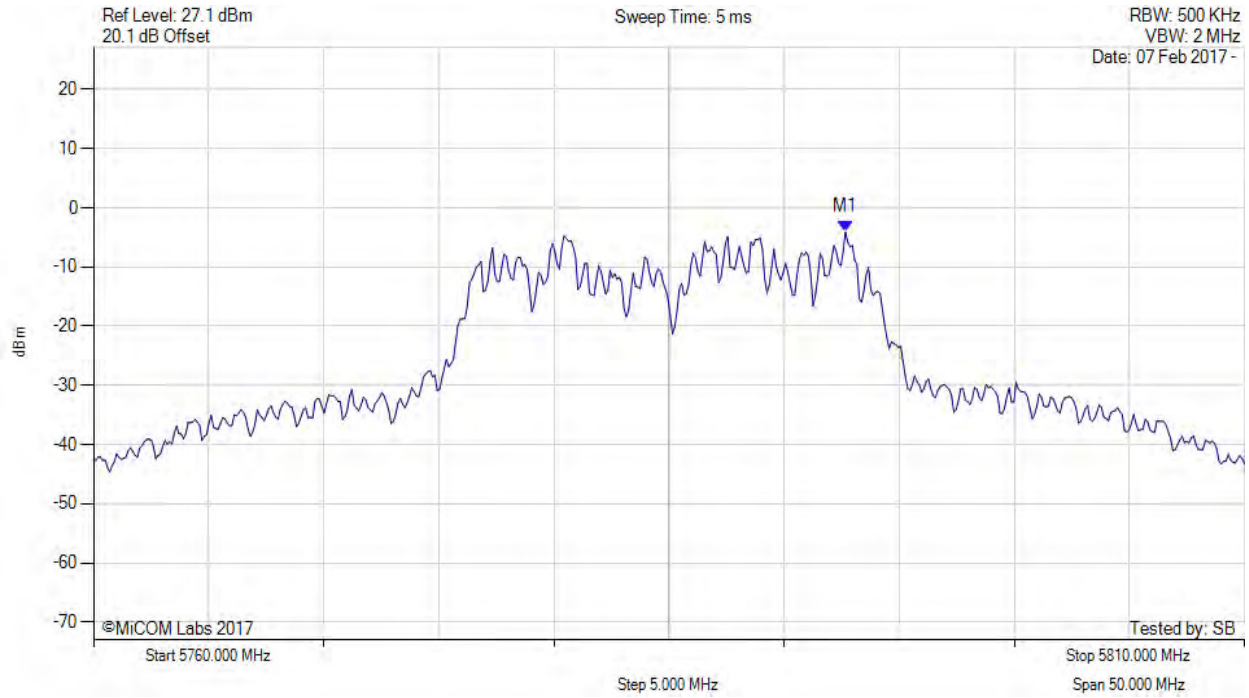



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5749.100 MHz : -2.170 dBm<br>M1 + DCCF : 5749.100 MHz : -1.255 dBm<br>Duty Cycle Correction Factor : +0.92 dB | Limit: ≤ 30.0 dBm<br>Margin: -31.3 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

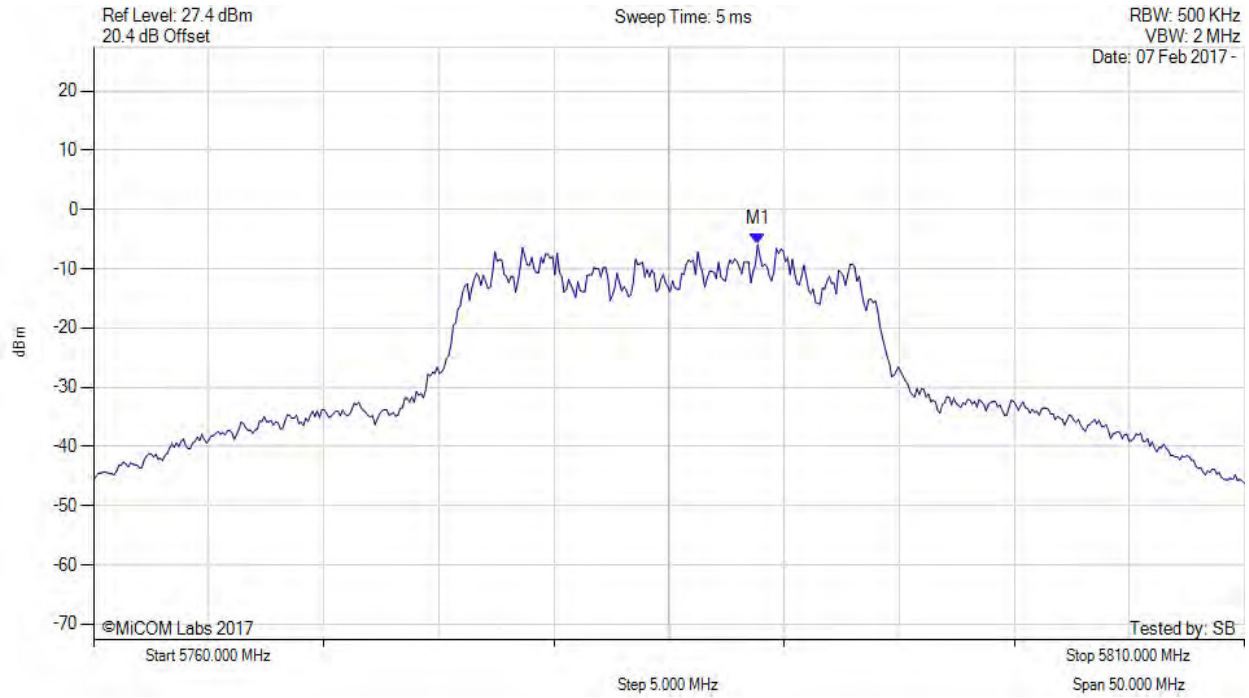



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5792.665 MHz : -4.097 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

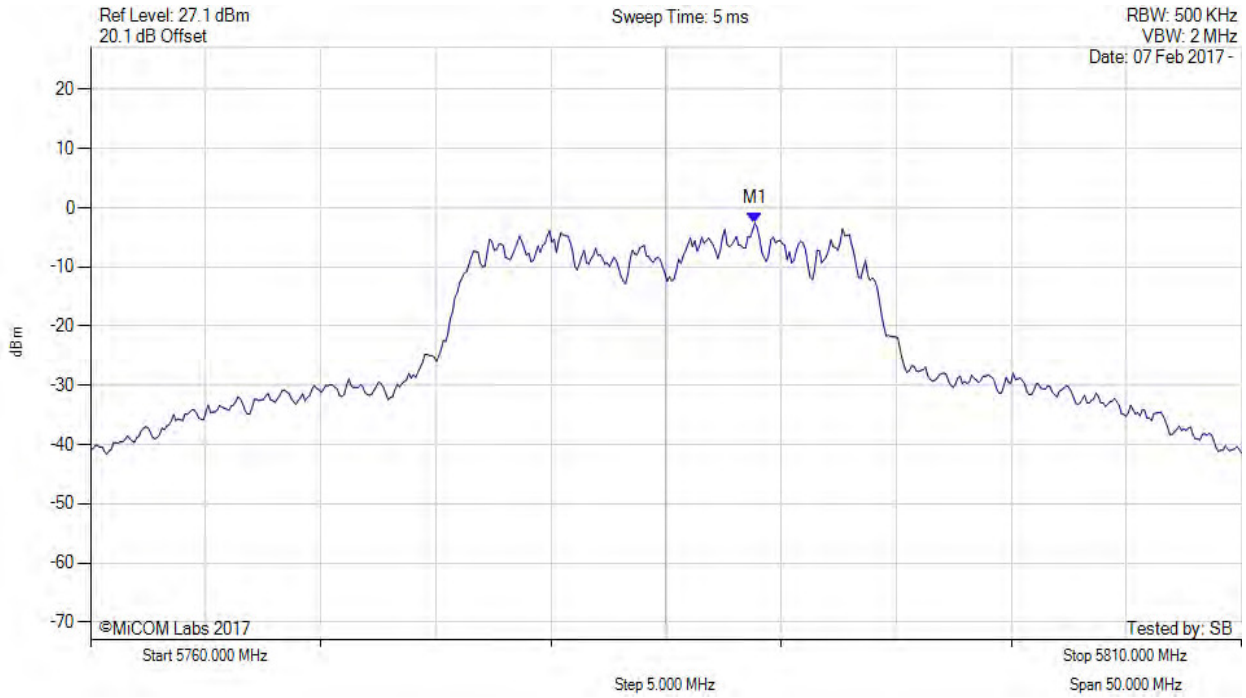



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5788.858 MHz : -5.912 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

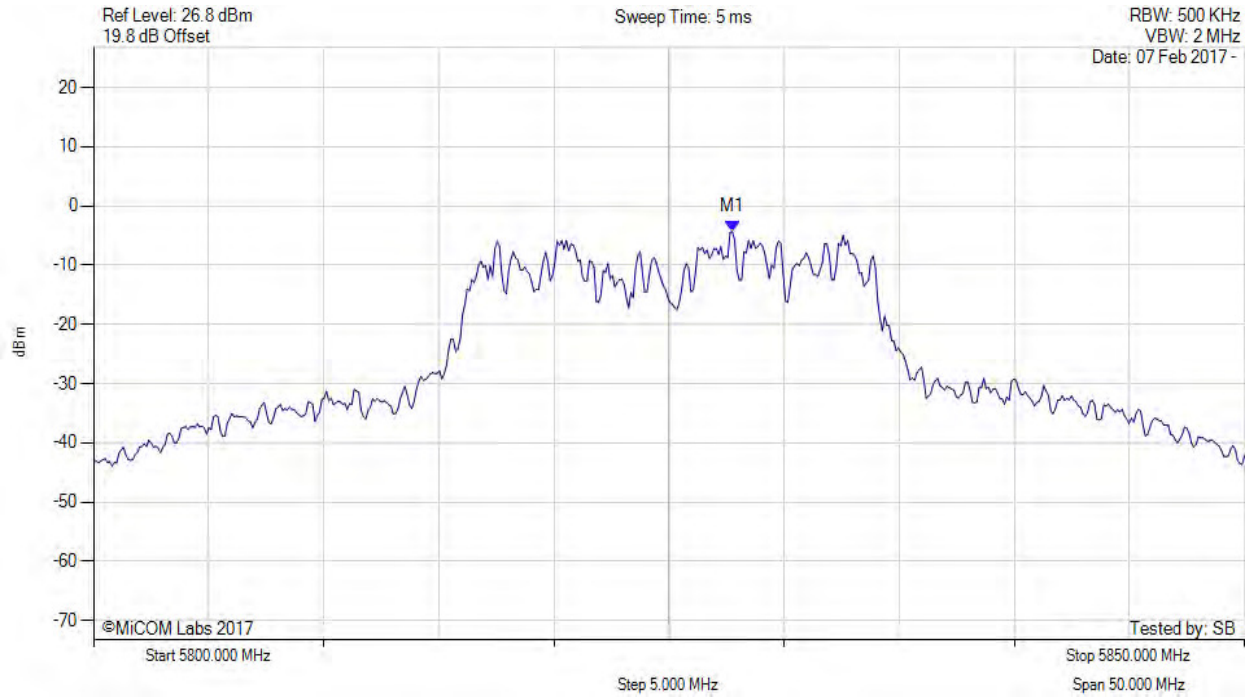



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5788.900 MHz : -2.605 dBm<br>M1 + DCCF : 5788.900 MHz : -1.690 dBm<br>Duty Cycle Correction Factor : +0.92 dB | Limit: ≤ 30.0 dBm<br>Margin: -31.7 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

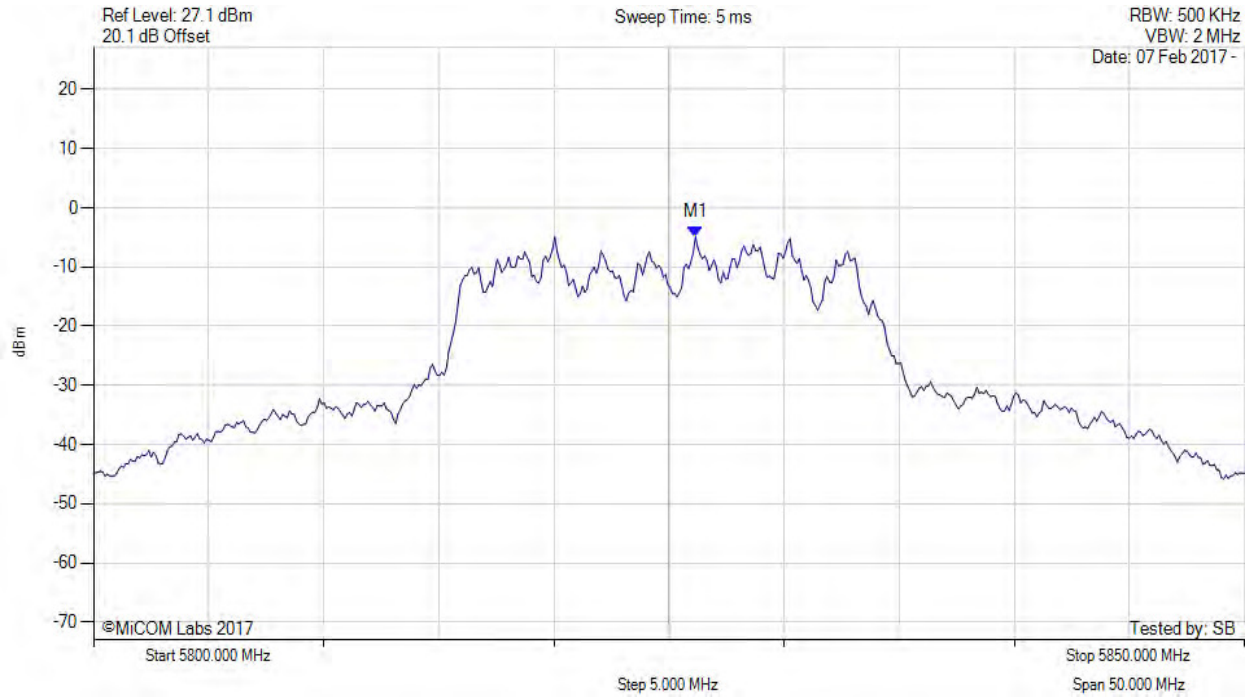



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5827.756 MHz : -4.328 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

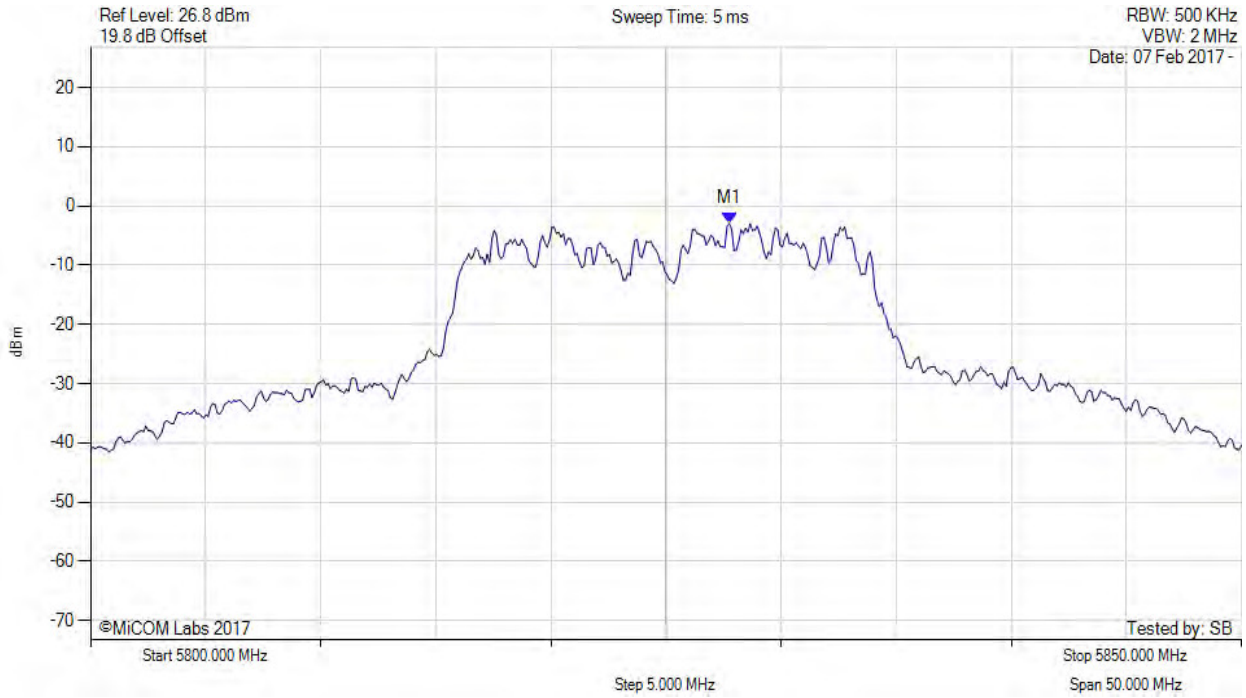



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5826.152 MHz : -4.910 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

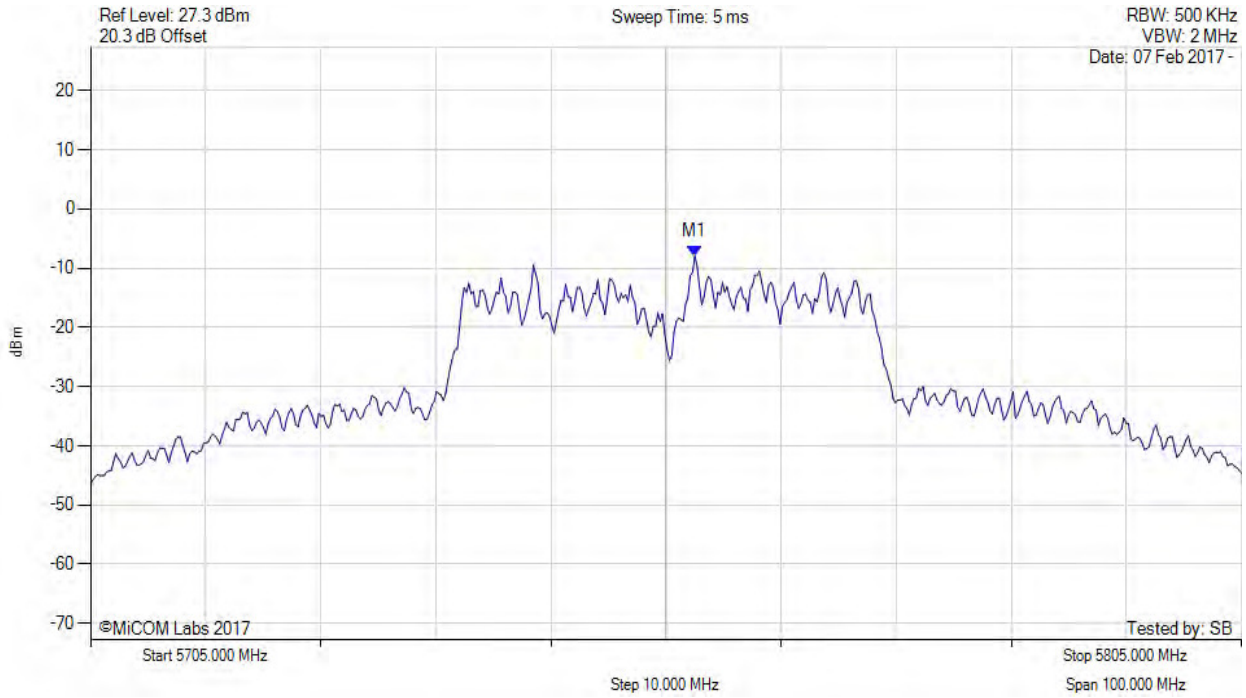



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5827.800 MHz : -2.948 dBm<br>M1 + DCCF : 5827.800 MHz : -2.033 dBm<br>Duty Cycle Correction Factor : +0.92 dB | Limit: ≤ 30.0 dBm<br>Margin: -32.0 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

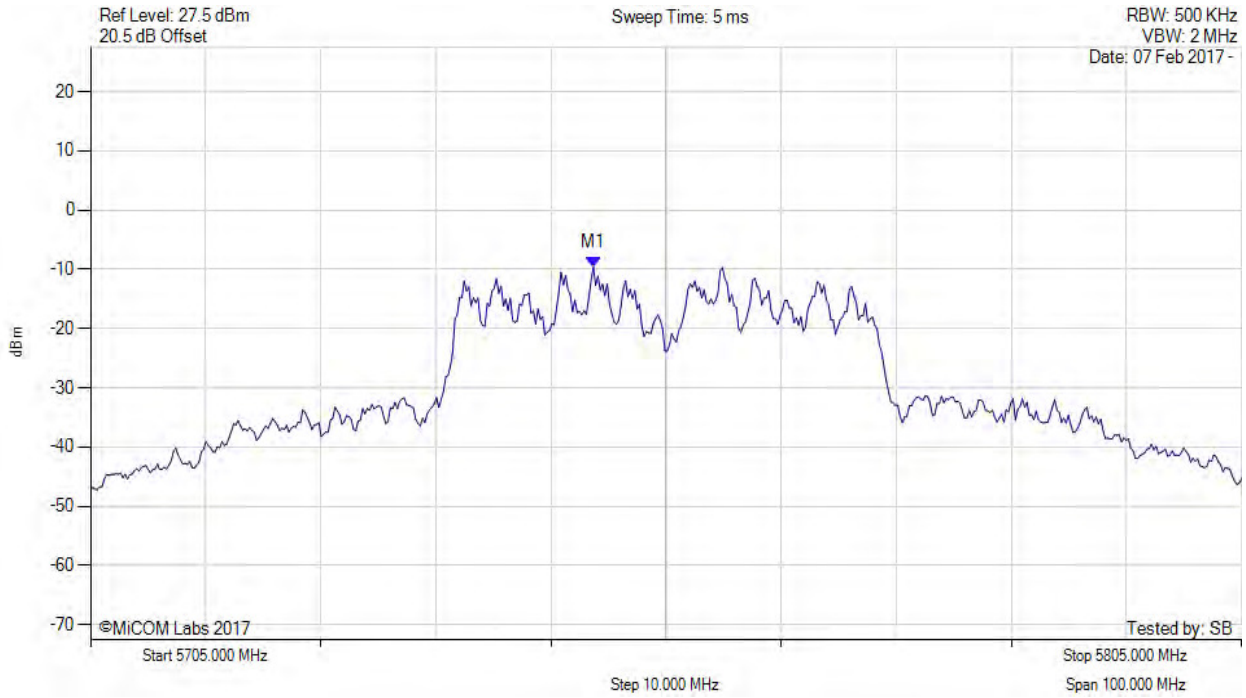



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5757.505 MHz : -7.948 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

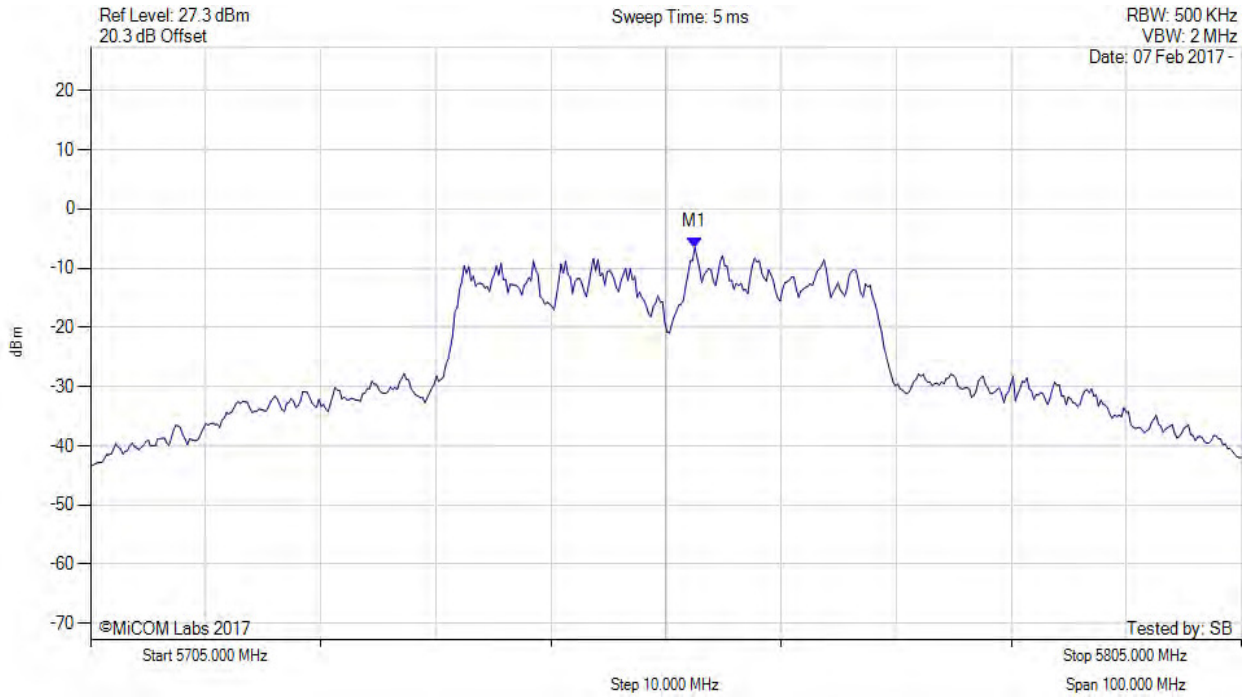



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5748.687 MHz : -9.615 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

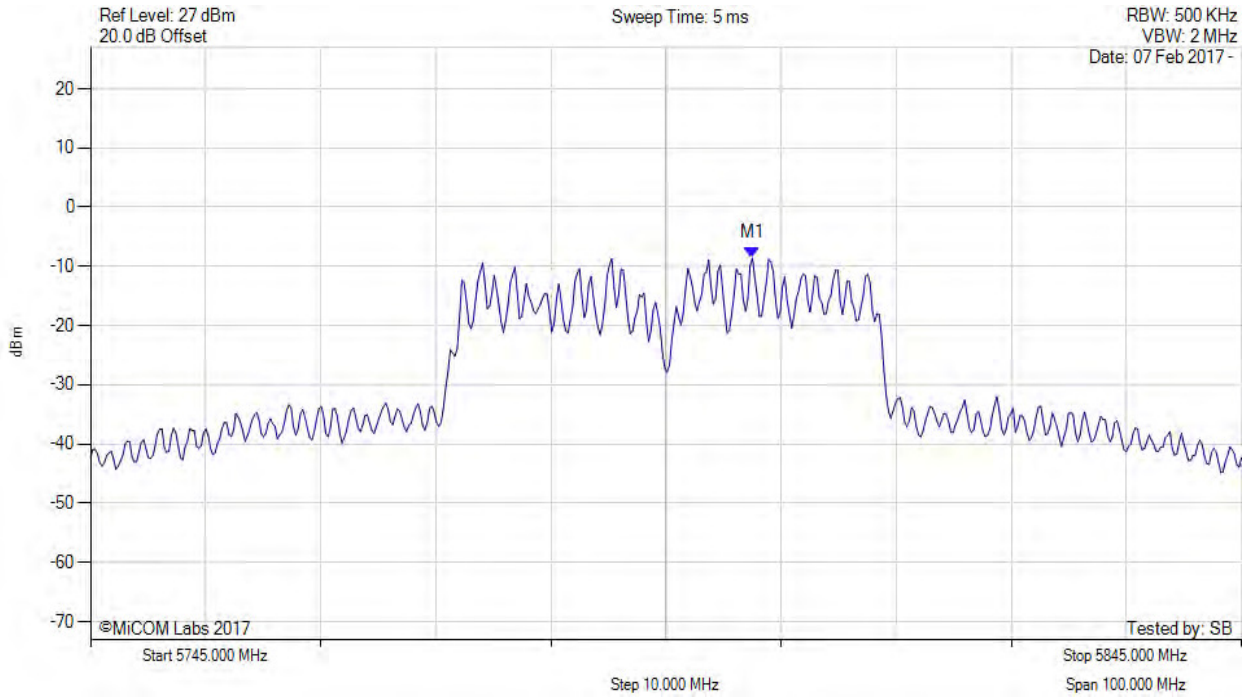



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5757.500 MHz : -6.508 dBm<br>M1 + DCCF : 5757.500 MHz : -5.021 dBm<br>Duty Cycle Correction Factor : +1.49 dB | Limit: ≤ 30.0 dBm<br>Margin: -35.0 dB |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: 20, Voltage: 110 Vac

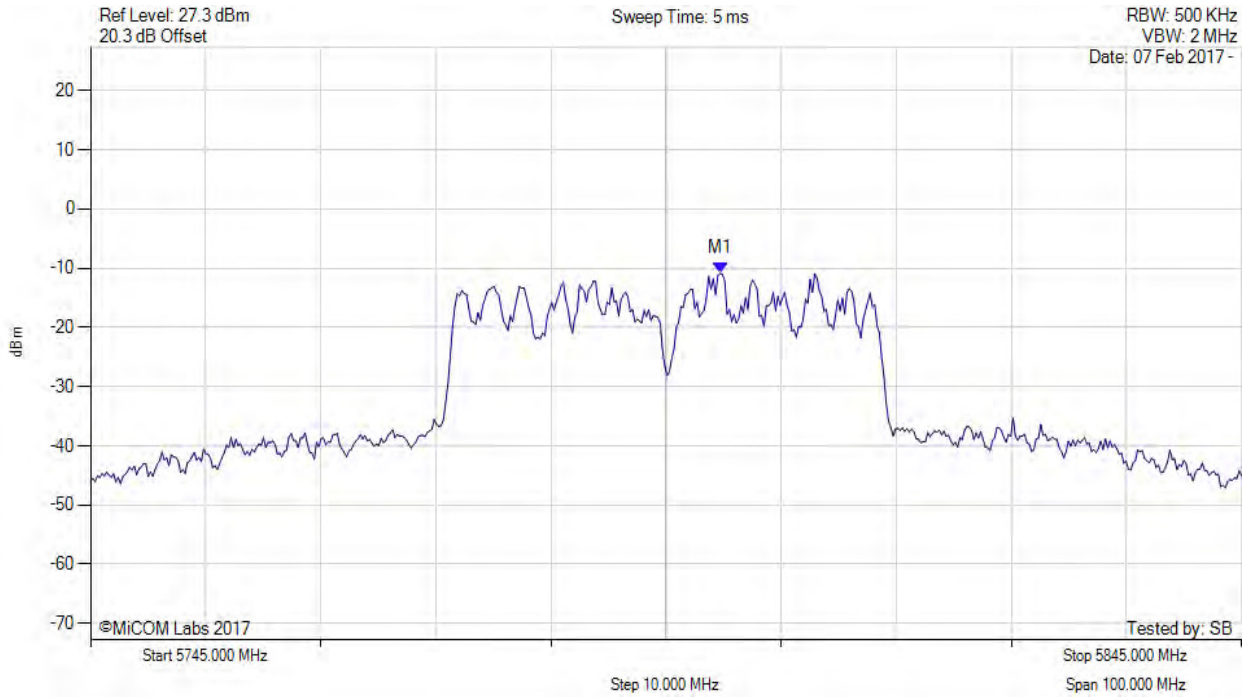



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5802.515 MHz : -8.619 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain b, Temp: 20, Voltage: 110 Vac

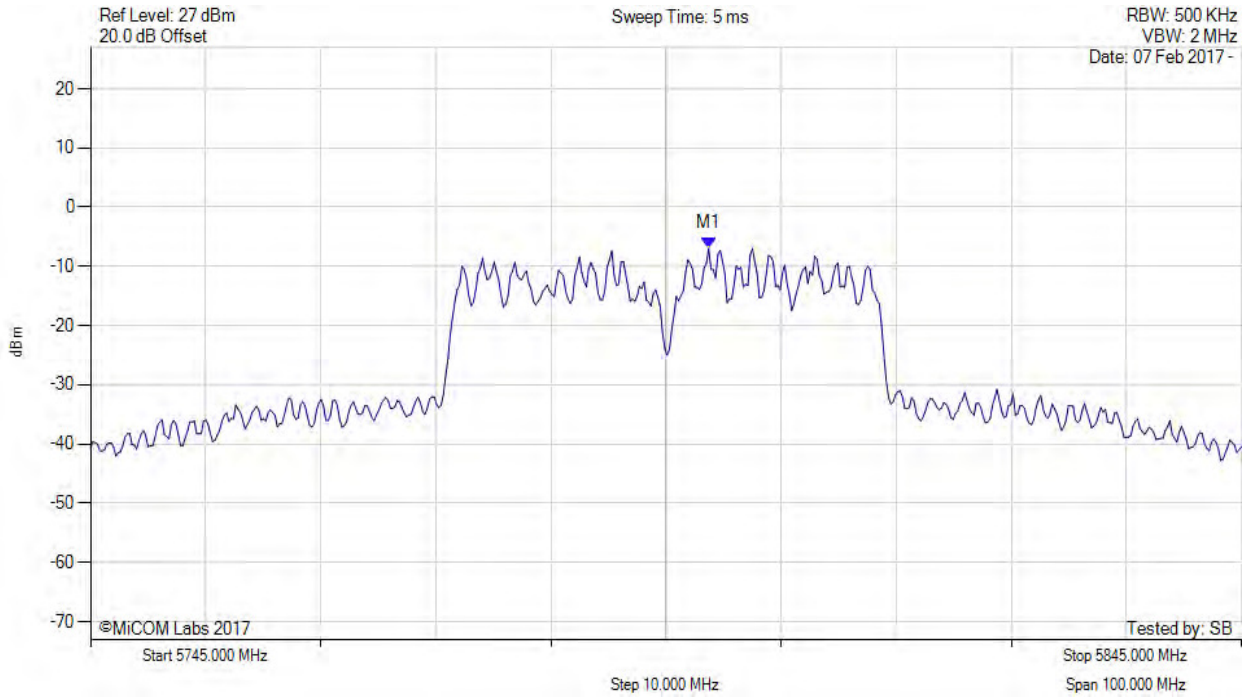



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5799.709 MHz : -10.890 dBm | Limit: ≤ 26.990 dBm |

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, SUM, Temp: 20, Voltage: 110 Vac

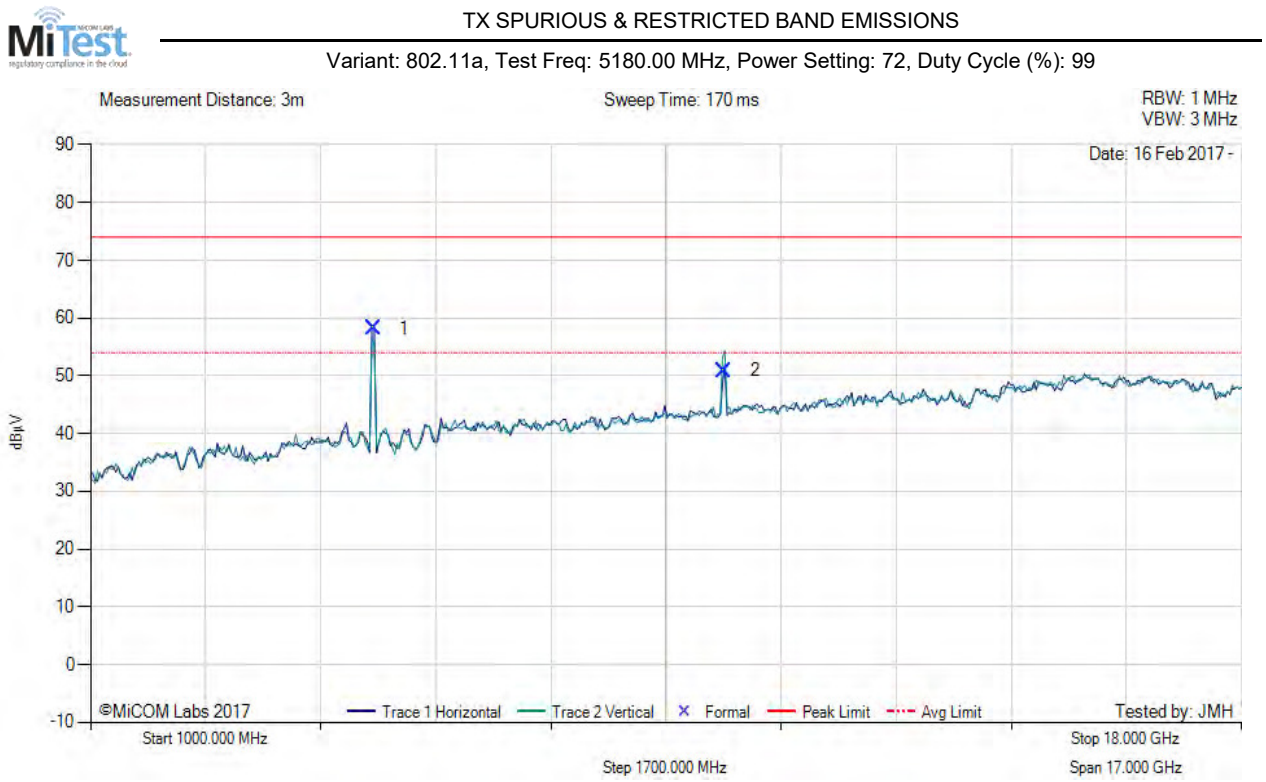



| Analyzer Setup | Marker:Frequency:Amplitude | Test Results |
|---|---|---|
| Detector = RMS<br>Sweep Count = 100<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5798.700 MHz : -6.963 dBm<br>M1 + DCCF : 5798.700 MHz : -5.476 dBm<br>Duty Cycle Correction Factor : +1.49 dB | Limit: ≤ 30.0 dBm<br>Margin: -35.5 dB |

back to matrix

## A.4. Radiated

### A.4.1. TX Spurious & Restricted Band Emissions



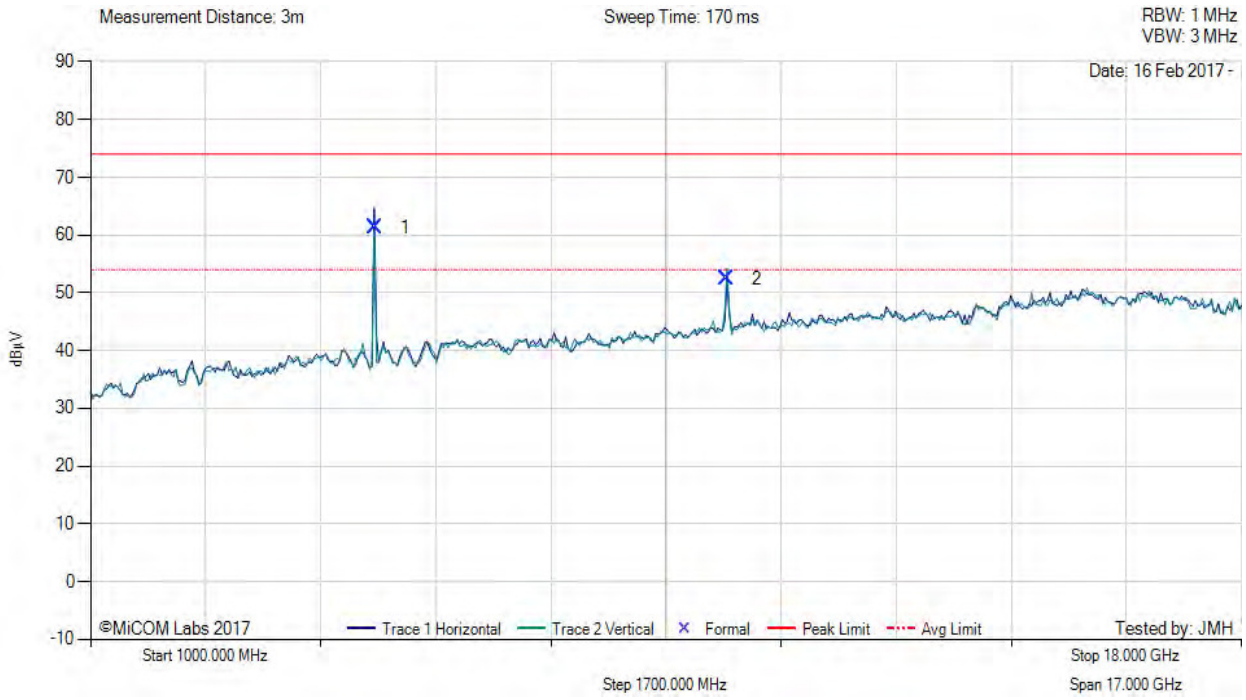

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5177.87 | 66.06 | 3.69 | -11.51 | 58.24 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| 2 | 10362.62 | 50.56 | 5.58 | -5.25 | 50.89 | Peak (NRB) | Vertical | 100 | 118 | -- | -- | Pass |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5200.00 MHz, Power Setting: 72, Duty Cycle (%): 99



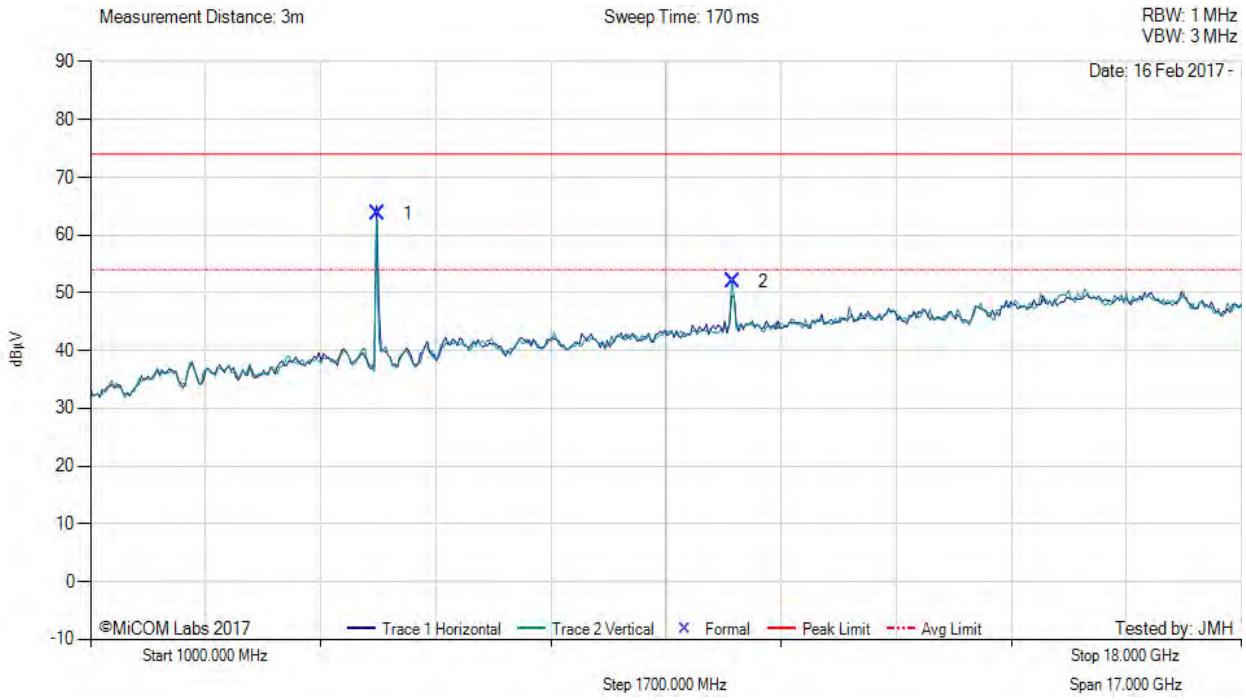

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5198.81 | 69.14 | 3.66 | -11.47 | 61.33 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| 2 | 10398.45 | 52.07 | 5.39 | -5.05 | 52.41 | Peak (NRB) | Vertical | 100 | 306 | -- | -- | Pass |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5240.00 MHz, Power Setting: 72, Duty Cycle (%): 99



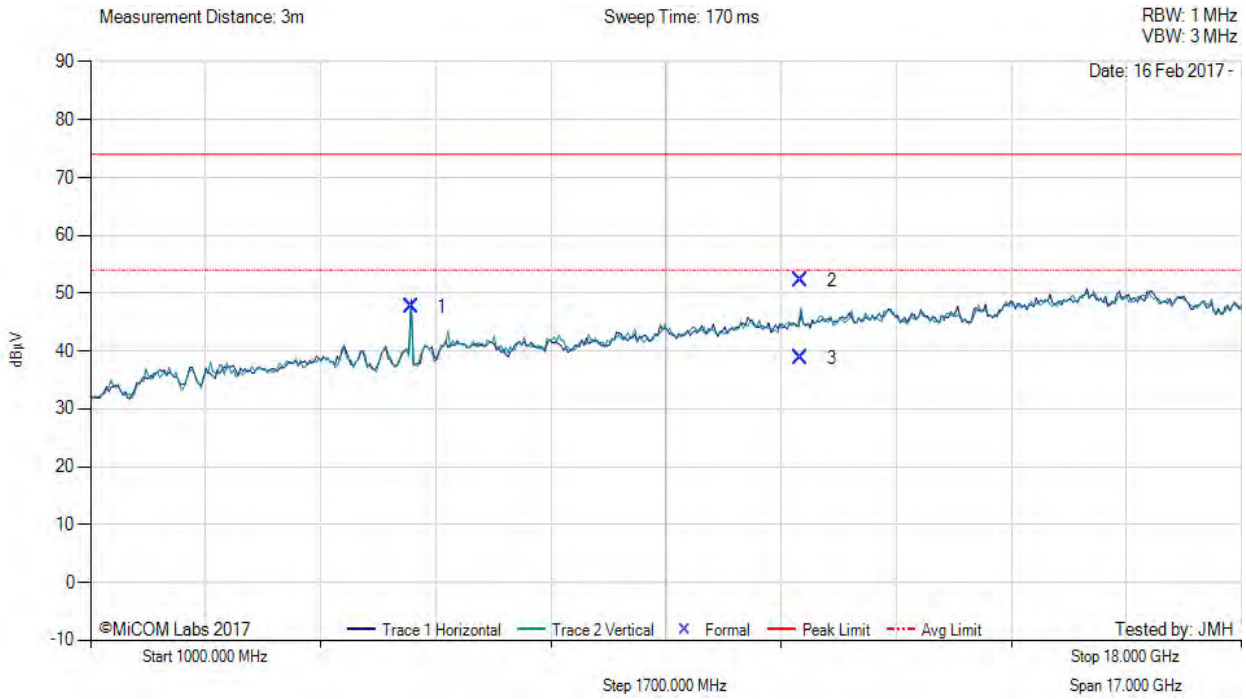

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5233.87 | 71.50 | 3.63 | -11.38 | 63.75 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| 2 | 10485.99 | 50.98 | 5.42 | -4.42 | 51.98 | Peak (NRB) | Vertical | 100 | 215 | -- | -- | Pass |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Power Setting: 72, Duty Cycle (%): 99



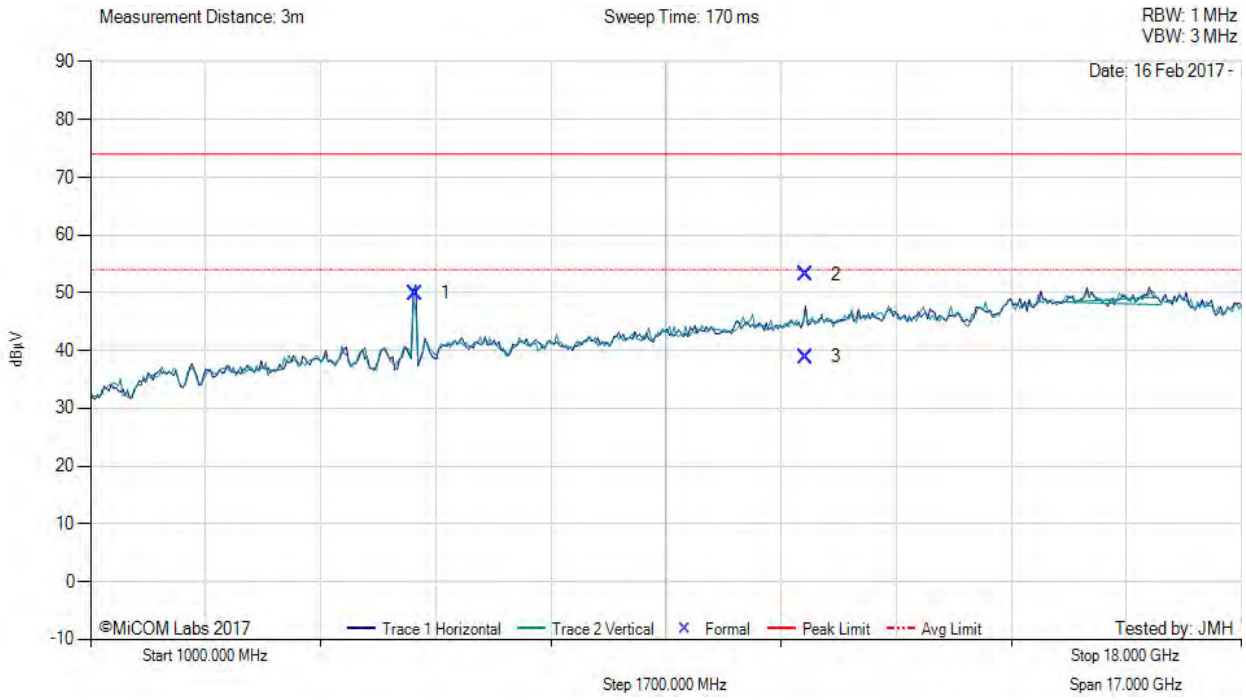

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5744.01 | 54.45 | 3.84 | -10.66 | 47.63 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| 2 | 11493.47 | 51.56 | 5.44 | -4.84 | 52.16 | Max Peak | Vertical | 134 | 1 | 74.0 | -21.8 | Pass |
| 3 | 11493.47 | 38.25 | 5.44 | -4.84 | 38.85 | Max Avg | Vertical | 134 | 1 | 54.0 | -15.2 | Pass |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5785.00 MHz, Power Setting: 72, Duty Cycle (%): 99



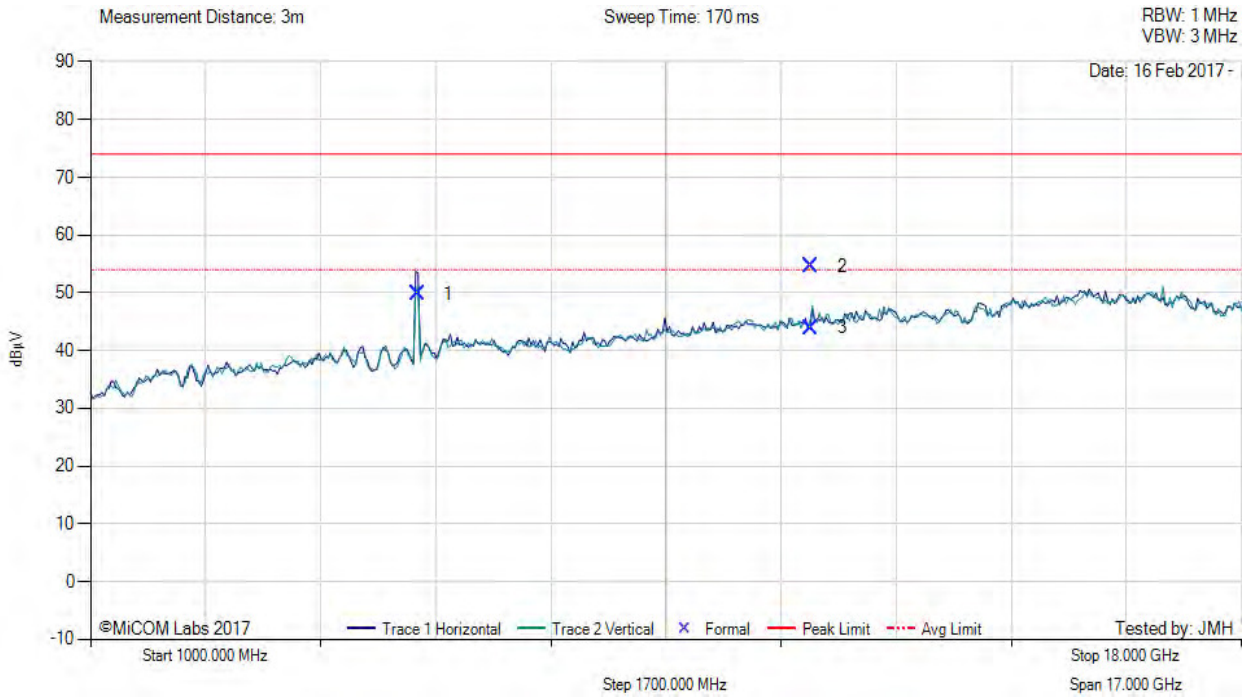

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5791.21 | 56.52 | 3.79 | -10.41 | 49.90 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| 2 | 11566.31 | 52.33 | 5.52 | -4.65 | 53.20 | Max Peak | Horizontal | 147 | 143 | 74.0 | -20.8 | Pass |
| 3 | 11566.31 | 38.01 | 5.52 | -4.65 | 38.88 | Max Avg | Horizontal | 147 | 143 | 54.0 | -15.1 | Pass |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Power Setting: 72, Duty Cycle (%): 99




| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5830.56 | 56.14 | 3.84 | -10.22 | 49.76 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| 2 | 11649.93 | 53.70 | 5.44 | -4.47 | 54.67 | Max Peak | Vertical | 162 | 347 | 74.0 | -19.3 | Pass |
| 3 | 11649.93 | 42.94 | 5.44 | -4.47 | 43.91 | Max Avg | Vertical | 162 | 347 | 54.0 | -10.1 | Pass |

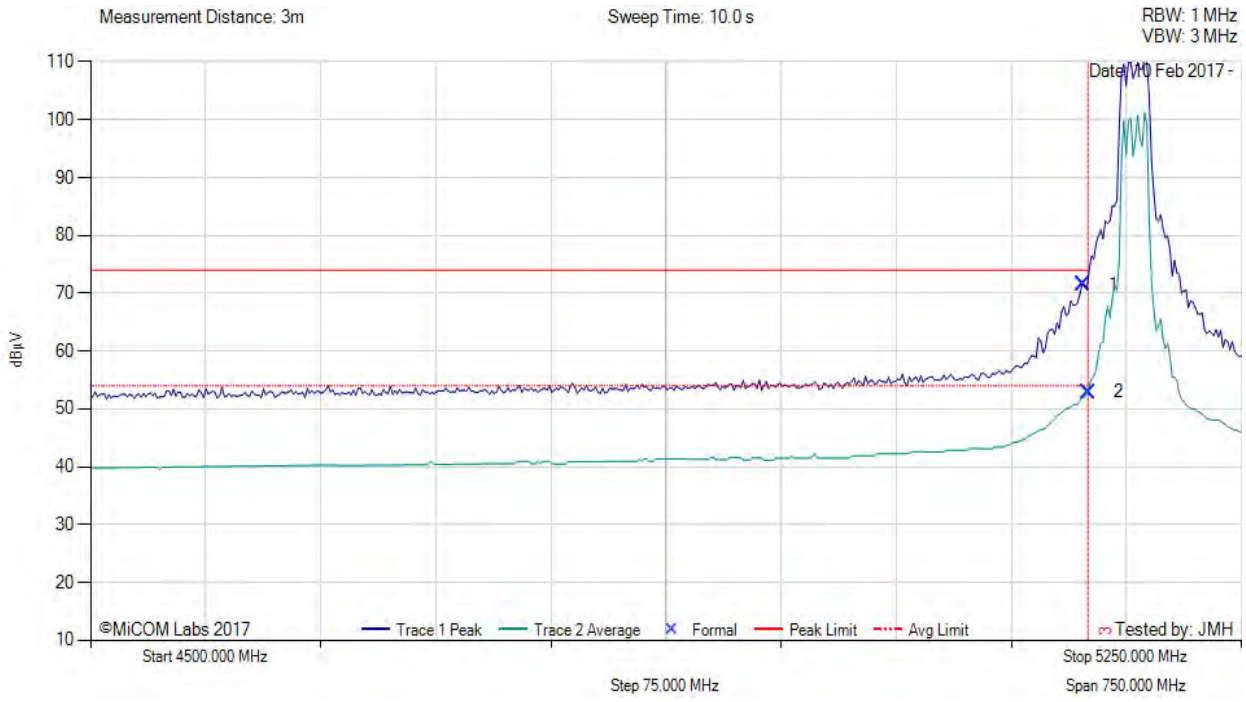
**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

## A.4.2. Restricted Edge & Band-Edge Emissions

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5180.00 MHz, Power Setting: 63, Duty Cycle (%): 99



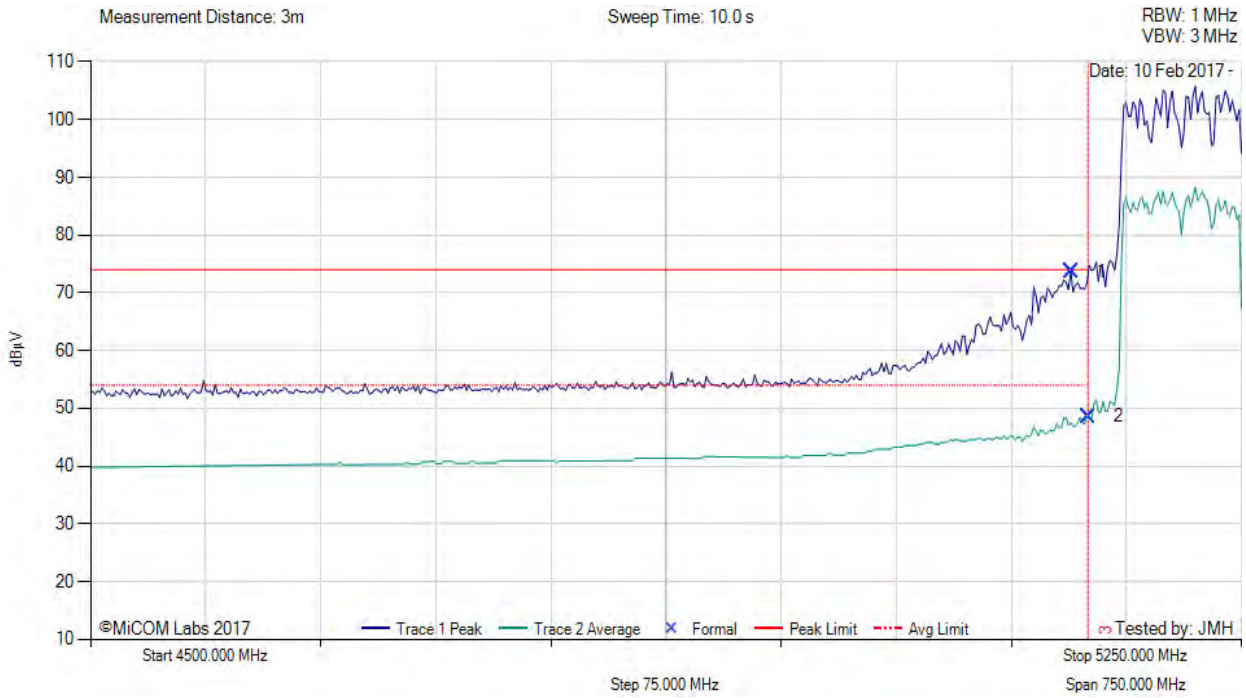

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5146.99 | 33.75 | 3.68 | 34.11 | 71.54 | Max Peak | Horizontal | 183 | 2 | 74.0 | -2.5 | Pass |
| 2 | 5150.00 | 15.17 | 3.67 | 34.11 | 52.95 | Max Avg | Horizontal | 183 | 2 | 54.0 | -1.1 | Pass |
| 3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC. Power reduced to 63 to meet band edge limits.

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5210.00 MHz, Power Setting: 64, Duty Cycle (%): 99



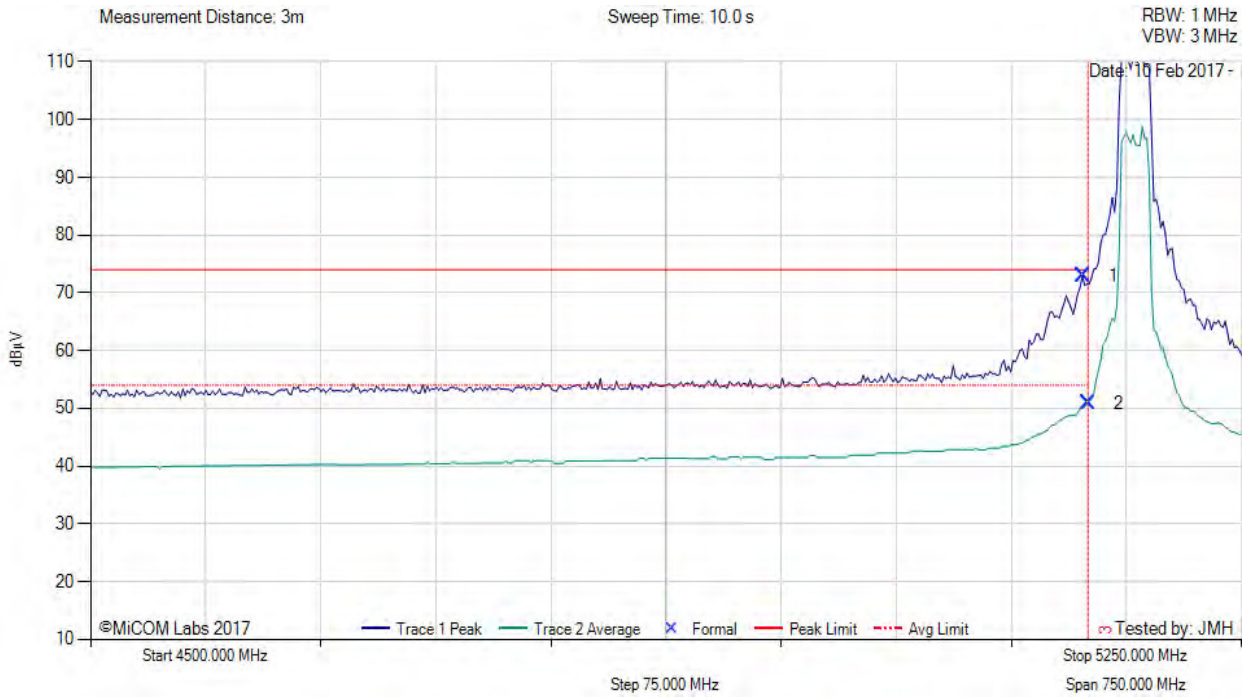

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5139.48 | 35.79 | 3.70 | 34.12 | 73.61 | Max Peak | Horizontal | 183 | 2 | 74.0 | -0.4 | Pass |
| 2 | 5150.00 | 10.80 | 3.67 | 34.11 | 48.58 | Max Avg | Horizontal | 183 | 2 | 54.0 | -5.4 | Pass |
| 3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC. Power reduced to 64 to meet band edge limits.

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5180.00 MHz, Power Setting: 72, Duty Cycle (%): 99



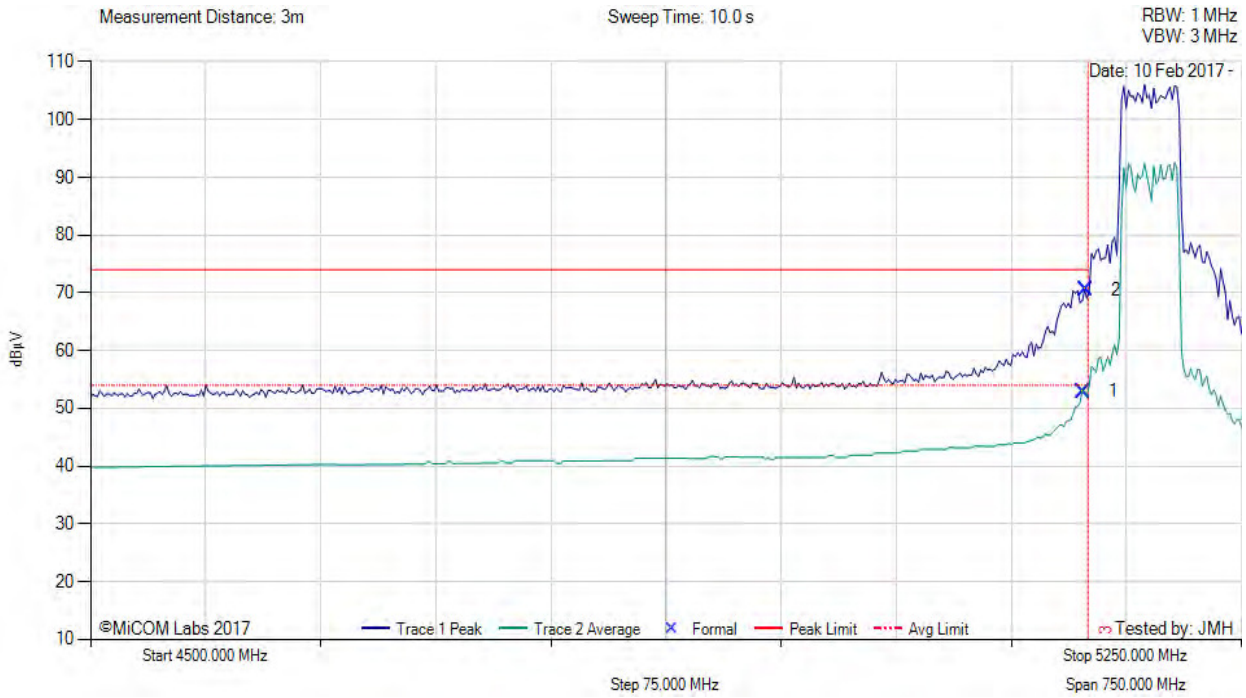

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5146.99 | 35.07 | 3.68 | 34.11 | 72.86 | Max Peak | Horizontal | 183 | 2 | 74.0 | -1.1 | Pass |
| 2 | 5150.00 | 13.13 | 3.67 | 34.11 | 50.91 | Max Avg | Horizontal | 183 | 2 | 54.0 | -3.1 | Pass |
| 3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5190.00 MHz, Power Setting: 60, Duty Cycle (%): 99



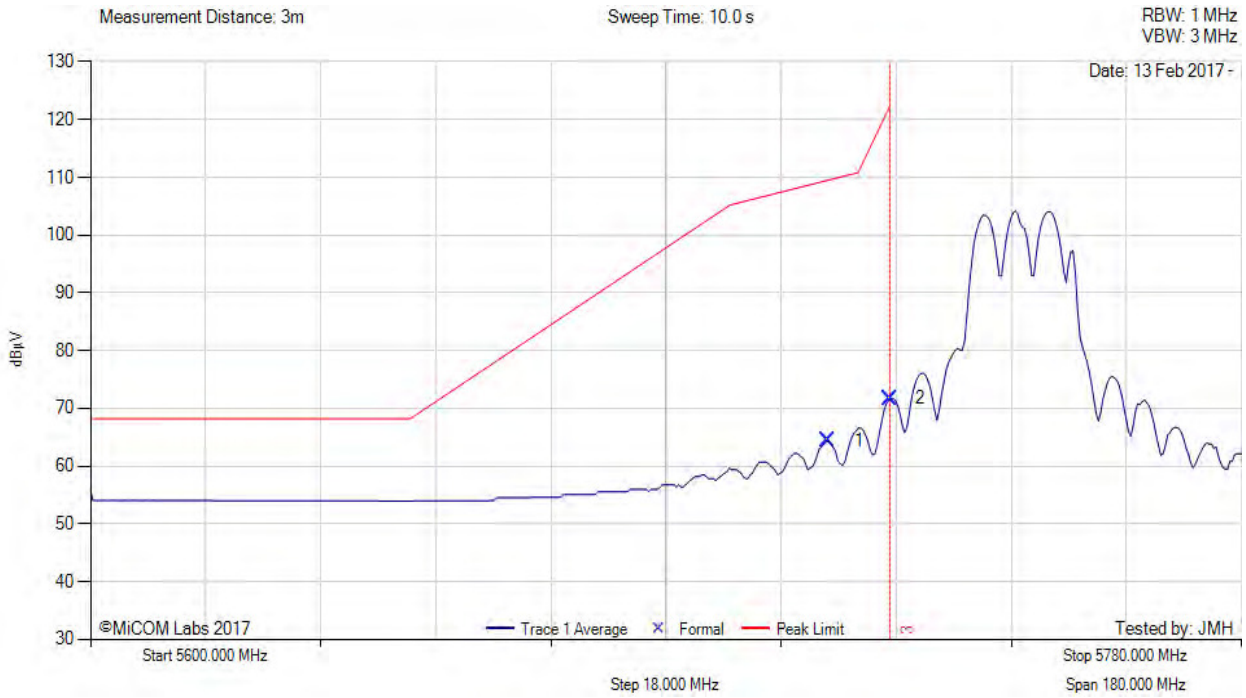

| 4500.00 - 5250.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5146.99 | 15.16 | 3.68 | 34.11 | 52.95 | Max Avg | Horizontal | 183 | 2 | 54.0 | -1.1 | Pass |
| 2 | 5148.50 | 32.68 | 3.68 | 34.11 | 70.47 | Max Peak | Horizontal | 183 | 2 | 74.0 | -3.5 | Pass |
| 3 | 5150.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT AP203Rp SN# CNCPK2T00L on 150cm table powered by AC. Power reduced to 60 to meet band edge limits.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Power Setting: 72, Duty Cycle (%): 99



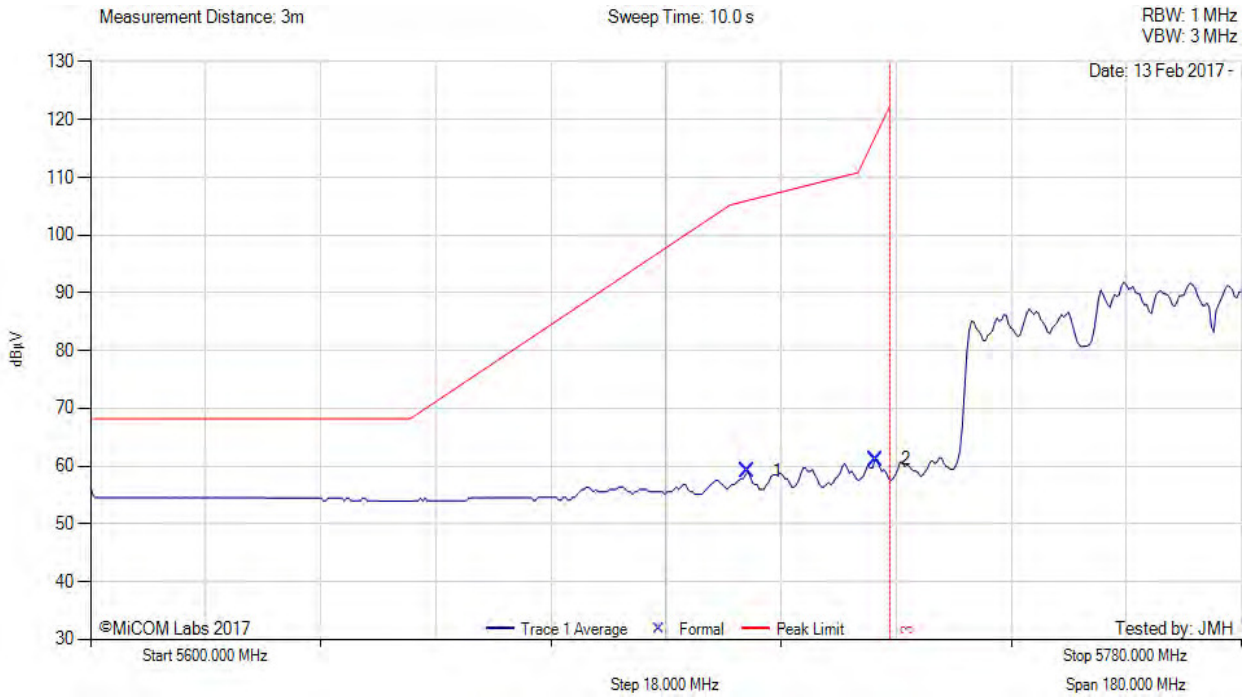

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5715.36 | 26.23 | 3.81 | 34.34 | 64.38 | Max Avg | Horizontal | 161 | 353 | 109.4 | -45.0 | Pass |
| 2 | 5725.00 | 33.59 | 3.79 | 34.35 | 71.73 | Max Avg | Horizontal | 161 | 353 | 122.2 | -50.5 | Pass |
| 3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5775.00 MHz, Power Setting: 72, Duty Cycle (%): 99



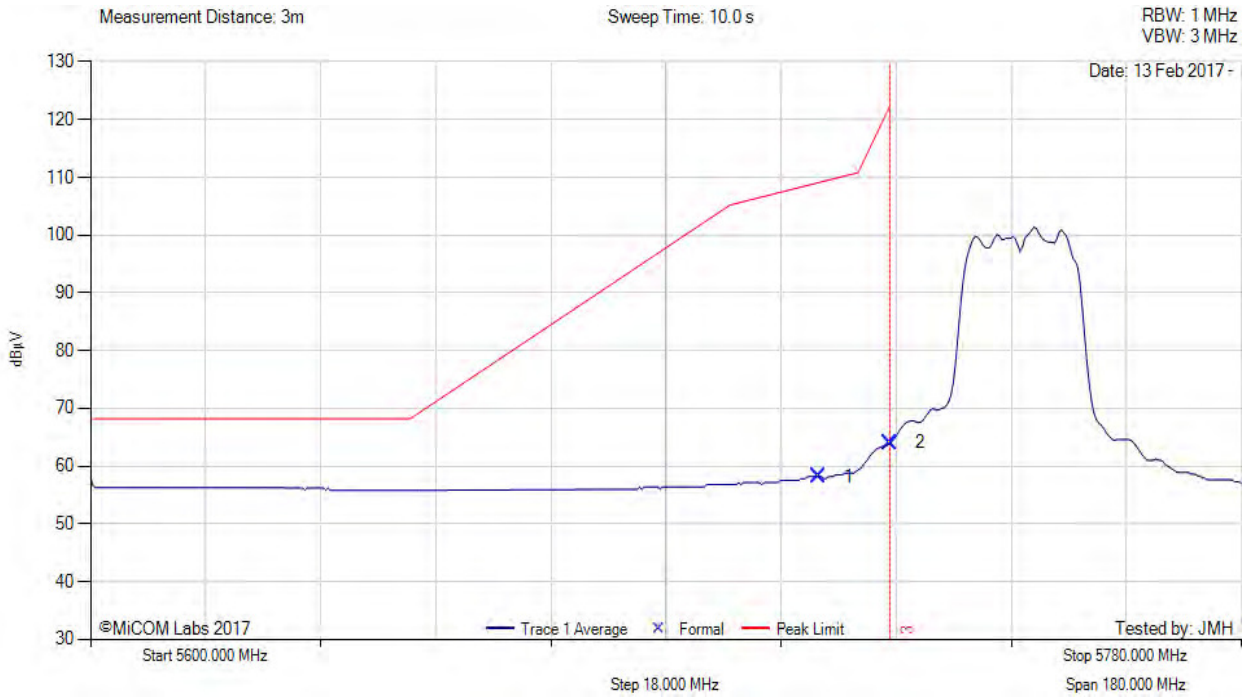

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5702.74 | 20.90 | 3.87 | 34.33 | 59.10 | Max Avg | Horizontal | 161 | 353 | 106.0 | -46.9 | Pass |
| 2 | 5722.84 | 23.03 | 3.80 | 34.35 | 61.18 | Max Avg | Horizontal | 161 | 353 | 117.6 | -56.5 | Pass |
| 3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5745.00 MHz, Power Setting: 72, Duty Cycle (%): 99



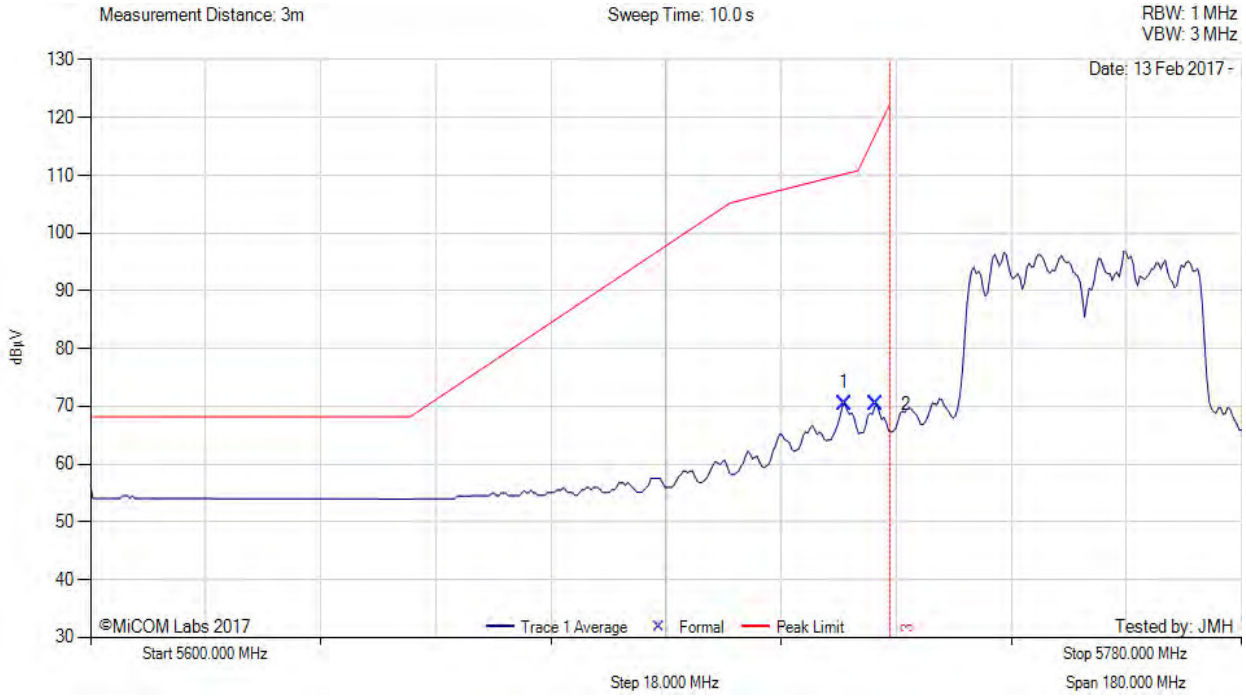

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5713.92 | 20.04 | 3.82 | 34.34 | 58.20 | Max Avg | Horizontal | 161 | 353 | 109.1 | -50.9 | Pass |
| 2 | 5725.00 | 25.93 | 3.79 | 34.35 | 64.07 | Max Avg | Horizontal | 161 | 353 | 122.2 | -58.1 | Pass |
| 3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5755.00 MHz, Power Setting: 72, Duty Cycle (%): 99



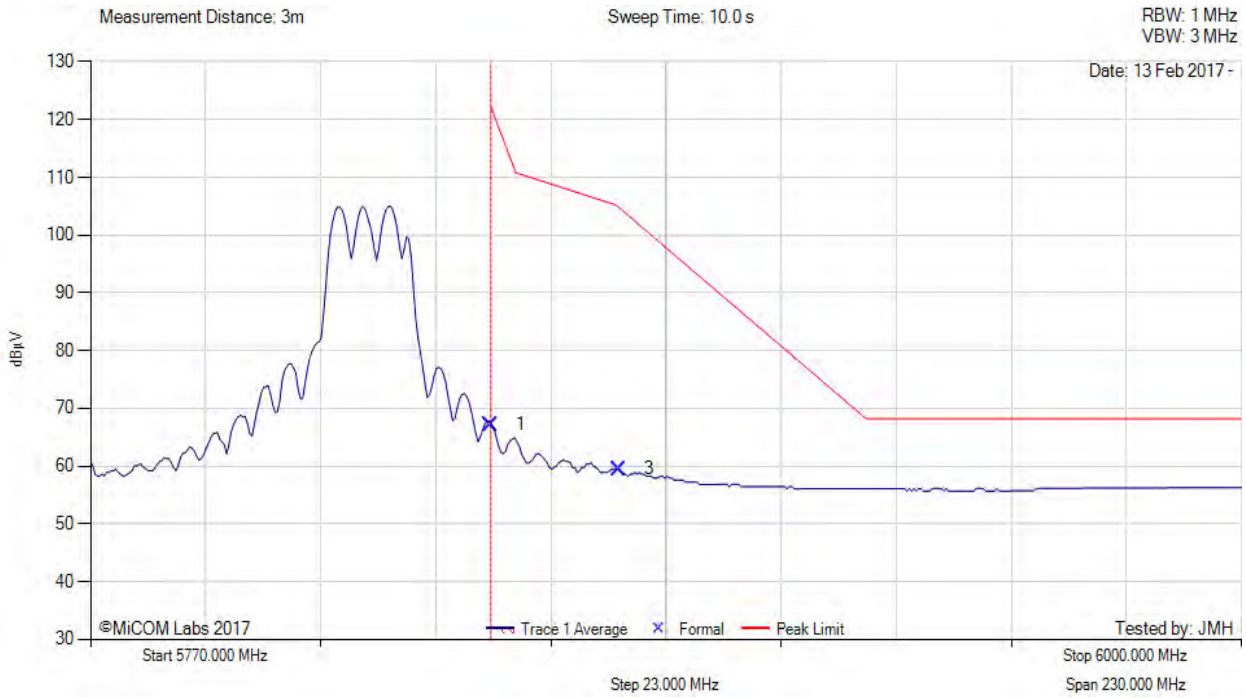

| 5600.00 - 5780.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5717.89 | 32.41 | 3.81 | 34.34 | 70.56 | Max Avg | Horizontal | 161 | 353 | 110.2 | -39.7 | Pass |
| 2 | 5722.84 | 32.18 | 3.80 | 34.35 | 70.33 | Max Avg | Horizontal | 161 | 353 | 117.6 | -47.3 | Pass |
| 3 | 5725.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Power Setting: 72, Duty Cycle (%): 99



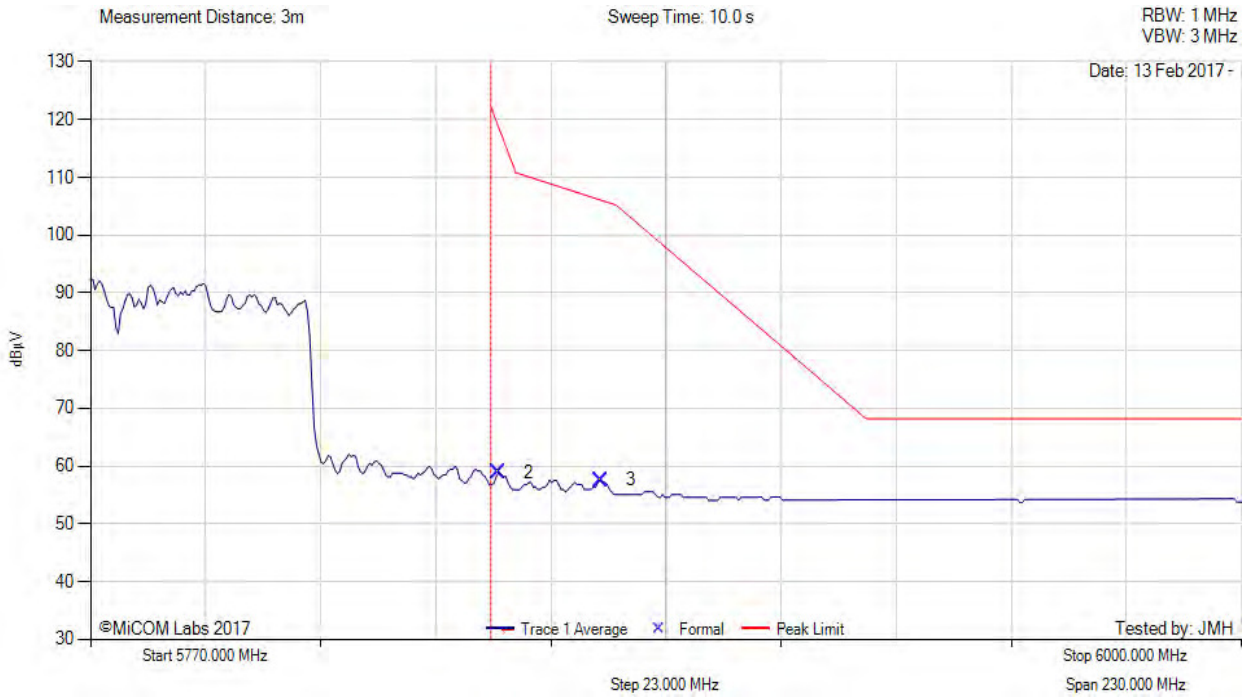

| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5850.00 | 28.74 | 3.81 | 34.63 | 67.18 | Max Avg | Horizontal | 165 | 355 | 122.2 | -55.0 | Pass |
| 3 | 5875.67 | 21.00 | 3.81 | 34.70 | 59.51 | Max Avg | Horizontal | 165 | 355 | 104.5 | -45.0 | Pass |
| 2 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5775.00 MHz, Power Setting: 72, Duty Cycle (%): 99



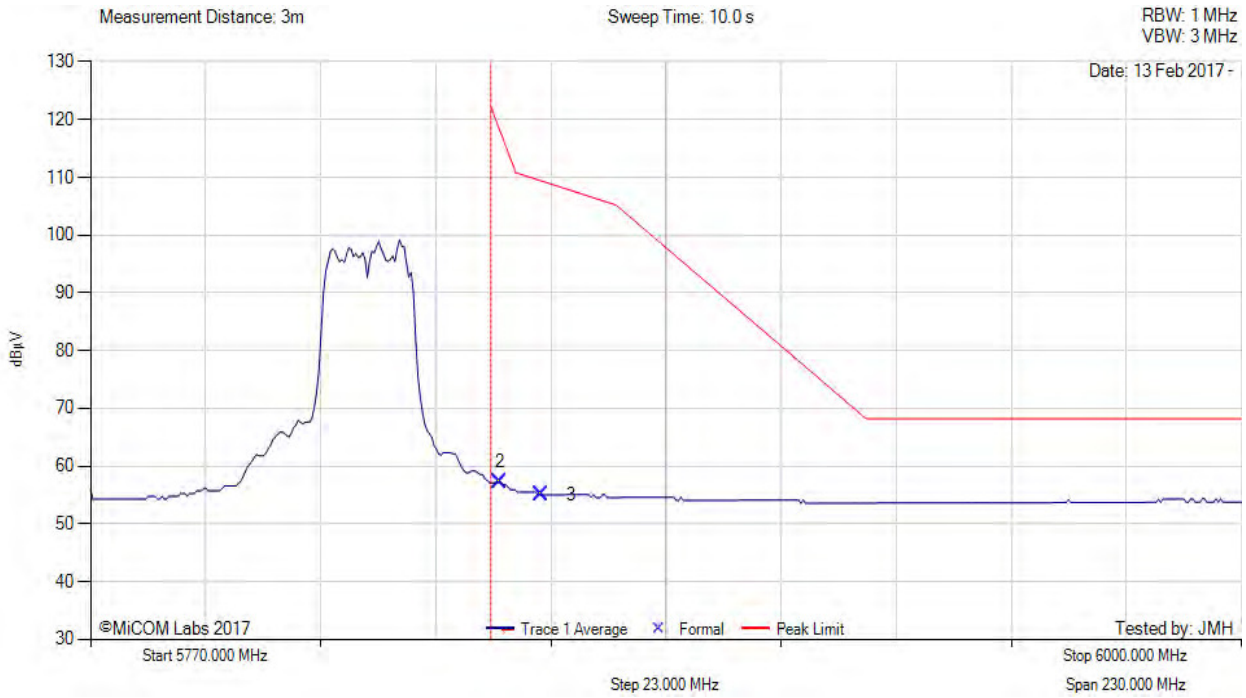

| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 2 | 5851.38 | 20.42 | 3.81 | 34.63 | 58.86 | Max Avg | Horizontal | 165 | 355 | 119.9 | -61.1 | Pass |
| 3 | 5871.98 | 19.07 | 3.80 | 34.69 | 57.56 | Max Avg | Horizontal | 165 | 355 | 106.0 | -48.5 | Pass |
| 1 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5825.00 MHz, Power Setting: 72, Duty Cycle (%): 99



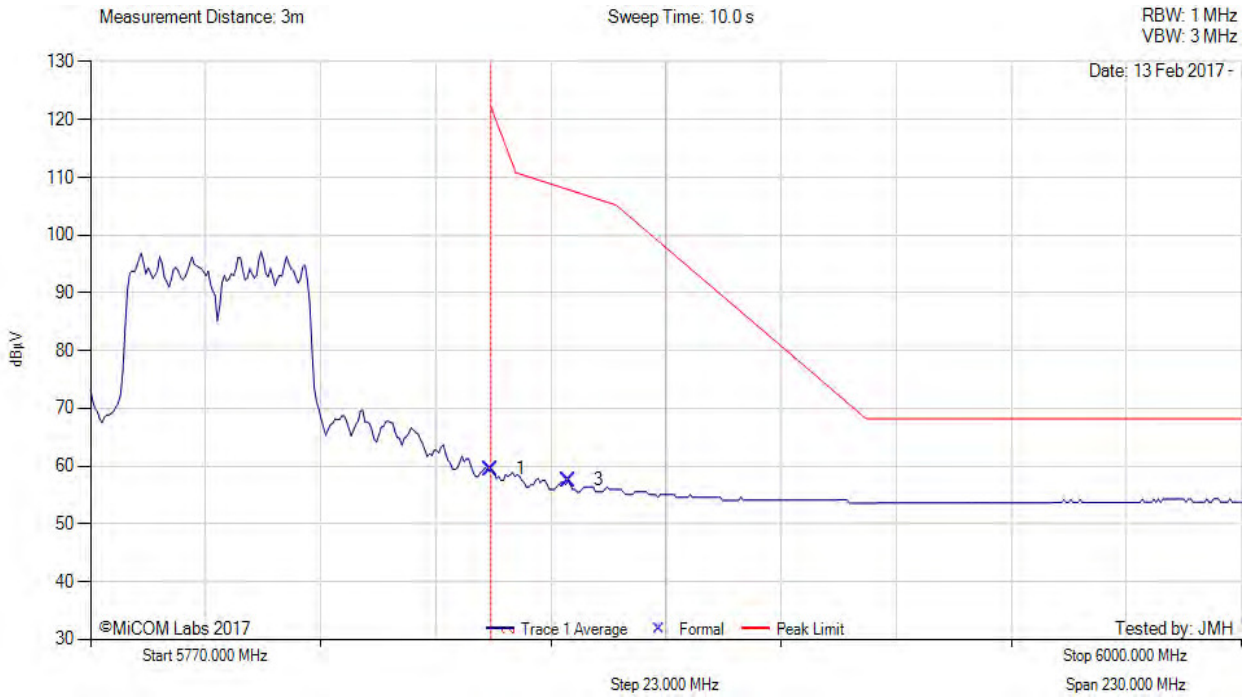

| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 2 | 5851.84 | 18.70 | 3.82 | 34.63 | 57.15 | Max Avg | Horizontal | 165 | 355 | 117.6 | -60.5 | Pass |
| 3 | 5860.00 | 16.53 | 3.86 | 34.65 | 55.04 | Max Avg | Horizontal | 165 | 355 | 109.4 | -54.4 | Pass |
| 1 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5795.00 MHz, Power Setting: 72, Duty Cycle (%): 99




| 5770.00 - 6000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5850.00 | 21.02 | 3.81 | 34.63 | 59.46 | Max Avg | Horizontal | 165 | 355 | 122.2 | -62.7 | Pass |
| 3 | 5865.53 | 19.05 | 3.83 | 34.67 | 57.55 | Max Avg | Horizontal | 165 | 355 | 107.7 | -50.2 | Pass |
| 2 | 5850.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** AP203RP SN# CNCPK2T00L on 150cm table powered by AC.

back to matrix


575 Boulder Court
Pleasanton, California 94566, USA
Tel: +1 (925) 462 0304
Fax: +1 (925) 462 0306
www.micomlabs.com