Test of Aruba Networks APIN0214, APIN0215

To: FCC 47 CFR Part 15.247 & IC RSS-210

Test Report Serial No.: ARUB179-U3 Rev A

# TEST REPORT

FROM

Test of Aruba Networks APIN0214, APIN0215

to

To FCC 47 CFR Part 15.247 & IC RSS-210

Test Report Serial No.: ARUB179-U3 Rev A

Note: this report contains data with regard to the 2400-2483.5 MHz and 5725-5850 MHz operational modes of the Aruba Networks APIN0214 and APIN0215 Wireless Access Point. Test data for the non-DFS Bands 5,150 - 5,250 is reported in MiCOM Labs ARUB179-U6 and 5,250 – 5,350 and 5,470–5,725 MHz (DFS) data reported in MiCOM Labs test report ARUB179-U8

This report supersedes: NONE

Applicant: Aruba Networks
1344 Crossman Avenue
Sunnyvale
California 94089, USA

Product Function: Wireless LAN Access Point

Copy No: pdf Issue Date: 24th June 2014

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

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TESTING CERT #2381.01

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# ACCREDITATION, LISTINGS & RECOGNITION

## TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard EN ISO/IEC 17025. 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 American Association for Laboratory Accreditation

**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 28th day of February 2014.

President & CEO
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2015

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

## RECOGNITION

MiCOM Labs, Inc has widely recognized Electrical testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA** countries. Our test reports are widely accepted for global type approvals.

| Country | Recognition Body | Status | Phase | Identification No. |
|---|---|---|---|---|
| USA | Federal Communications Commission (FCC) | TCB | - | US0159 Listing #: 102167 |
| Canada | Industry Canada (IC) | FCB | APEC MRA 2 | US0159 Listing #: 4143A-2 |
| 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) Bureau of Standards, Metrology and Inspection (BSMI) | CAB | APEC MRA 1 | |
| Vietnam | Ministry of Communication (MIC) | CAB | APEC MRA 1 | |

**APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement.
Is a 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
N/A – Not Applicable

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American Association for Laboratory Accreditation

Accredited Product Certification Body

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for technical competence as a

Product Certification Body

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 quality management system.

Presented this 28th day of February 2014.

President & CEO
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2015

*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)**
TCB Identifier – US0159

**Industry Canada – Certification Body**
CAB Identifier – US0159

**Europe – Notified Body**
Notified Body Identifier - 2280

**Japan – Recognized Certification Body (RCB)**
RCB Identifier - 210

# DOCUMENT HISTORY

| Document History | | |
|---|---|---|
| Revision | Date | Comments |
| Draft | | |
| Rev A | 24th June 2014 | Initial release. |
| | | |
| | | |

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# TEST RESULT CERTIFICATE

| | | | |
|---|---|---|---|
| Manufacturer: | Aruba Networks<br>1344 Crossman Avenue<br>Sunnyvale<br>California 94089, USA | Tested By: | MiCOM Labs, Inc.<br>575 Boulder Court<br>Pleasanton<br>California, 94566, USA |
| EUT: | 802.11a/b/g/n/ac Wireless LAN Access Point | Telephone: | +1 925 462 0304 |
| Model(s): | APIN0214, APIN0215 | Fax: | +1 925 462 0306 |
| S/N's: | APIN0214: CK0000562,<br>APIN0215: CK0000823 | | |
| Test Date(s): | 12th May - 18th June 2014 | Website: | www.micomlabs.com |

| STANDARD(S) | TEST RESULTS |
|---|---|
| FCC 47 CFR Part 15.247 & IC RSS-210 | 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.

ACCREDITED
TESTING CERT #2381.01

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

Graeme Grieve
Quality Manager MiCOM Labs,

Gordon Hurst
President & CEO MiCOM Labs, Inc.

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# 1. REFERENCES AND MEASUREMENT UNCERTAINTY

## 1.1. Normative References

| REF. | PUBLICATION | YEAR | TITLE |
|---|---|---|---|
| i. | FCC 47 CFR Part 15, Subpart C | 2010 | Title 47: Telecommunication PART 15—RADIO FREQUENCY DEVICES Subpart C—Intentional Radiators |
| ii. | RSS-210 Annex 8 | 2010 | Radio Standards Specification 210, Issue 8, Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment |
| iii. | FCC OET KDB 662911 | 31st October 2013 | Emissions Testing of Transmitters with Multiple Outputs in the Same Band |
| iv. | RSS-GEN | 2010 | Radio Standards Specification-Gen, Issue 3, General Requirements and Information for the Certification of Radiocommunication Equipment |
| v. | FCC 47 CFR Part 15, Subpart B | 2010 | 47 CFR Part 15, SubPart B; Unintentional Radiators |
| vi. | ICES-003 | 31st August 2013 | Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard Digital Apparatus; Issue 5 |
| vii. | ANSI C63.4 | 2009 | 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/ EN 55022 | 2010 | Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment |
| ix. | M 3003 | Edition 1 Dec. 1997 | Expression of Uncertainty and Confidence in Measurements |
| x. | LAB34 | Edition 1 Aug 2002 | The expression of uncertainty in EMC Testing |
| xi. | ETSI TR 100 028 | 2001 | Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics |
| xii. | A2LA | July 2012 | Reference to A2LA Accreditation Status – A2LA Advertising Policy |

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## 1.2. Test and Uncertainty Procedures

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.

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# 2. PRODUCT DETAILS AND TEST CONFIGURATIONS

## 2.1. Technical Details

| Details | Description |
|---|---|
| Purpose: | Test of the Aruba Networks APIN0214, APIN0215 to FCC Part 15.247 and Industry Canada RSS-210 regulations. |
| Applicant: | Aruba Networks<br>1344 Crossman Avenue,<br>Sunnyvale, California 94089, USA |
| Manufacturer: | As applicant. |
| Laboratory performing the tests: | MiCOM Labs, Inc.<br>575 Boulder Court, Pleasanton, California 94566 USA |
| Test report reference number: | ARUB179-U3 Rev A |
| Date EUT received: | 5th May 2014 |
| Standard(s) applied: | FCC 47 CFR Part 15.247 & IC RSS-210 |
| Dates of test (from - to): | 12th May - 18th June 2014 |
| No of Units Tested: | Two APIN0214 and APIN0215 |
| Type of Equipment: | 802.11a/b/g/n/ac Wireless Access Point 3x3 Spatial Multiplexing MIMO configuration |
| Manufacturers Trade Name: | Wireless Access Point |
| Model(s): | APIN0214, APIN0215 |
| Location for use: | Indoor only |
| Declared Frequency Range(s): | 2400 - 2483.5 MHz; 5725 - 5850 MHz |
| Hardware Rev | Version P3 |
| Software Rev | AOS 6.4.1.0 |
| Type of Modulation: | Per 802.11 –CCK, BPSK, QPSK, DSSS, OFDM |
| EUT Modes of Operation: | Legacy 802.11a/b/g/n/ac |
| Declared Nominal Average Output Power: | 2.4 GHz Operation 802.11b/g/n: +23 dBm<br>5 GHz Operation 802.11a/n/ac: +23 dBm |
| System Beam Forming: | APIN0214, APIN0215 has no capability for antenna beam forming |
| Transmit/Receive Operation: | Time Division Duplex |
| Rated Input Voltage and Current: | POE 48 - 53 Vdc 350 mA<br>12 Vdc 1.5 A |
| Operating Temperature Range: | Declared range 0° to +50°. |
| ITU Emission Designator: | 2400 – 2483.5 MHz 802.11b 11M8G1D<br>2400 – 2483.5 MHz 802.11g 16M5D1D<br>2400 – 2483.5 MHz 802.11n – HT-20 16M5D1D<br>2400 – 2483.5 MHz 802.11n – HT-40 36M4D1D<br>5725 – 5850 MHz 802.11a 16M6D1D<br>5725 – 5850 MHz 802.11n – HT-20 16M5D1D<br>5725 – 5850 MHz 802.11n – HT-40 36M2D1D<br>5725 – 5850 MHz 802.11VHT-80 76M0D4D |
| Equipment Dimensions: | 170mm x 170mm x 45mm |
| Weight: | 1.3 lbs |
| Primary function of equipment: | Wireless Access Point for transmitting data and voice. |

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## 2.2. Scope of Test Program

**Aruba Networks APIN0214, APIN0215 Wireless Access Point**

The scope of the test program was to test the Aruba Networks APIN0214, APIN0215, 3x3 Spatial Multiplexing MIMO configurations in the frequency ranges 2400 - 2483.5 MHz and 5725 – 5850 MHz for compliance against FCC 47 CFR Part 15.247 and Industry Canada RSS-210 specifications.

**Model Identification**
APIN0214: External Antenna (Reverse SMA)
APIN0215: Integral Antenna

**APIN0214 and APIN0215 Operational Modes**
Client did not provide software capability for the following operational modes and claimed these were covered under 802.11n HT-20 and 802.11n HT-40.

i).. VHT-20
ii)..VHT-40

**FCC OET KDB Implementation**
This test program implements the following FCC KDB – 662911 31st October 2013; ***Emissions Testing of Transmitters with Multiple Outputs in the Same Band***

The KDB document provides guidance for measurements of conducted output emissions of devices that employ a single transmitter with multiple outputs in the same band, with the outputs occupying the same or overlapping frequency ranges. It applies to EMC compliance measurements on devices that transmit on multiple antennas simultaneously in the same or overlapping frequency ranges through a coordinated process. Examples include, but are not limited to, devices employing beam forming or multiple-input and multiple-output (MIMO.) This guidance applies to both licensed and unlicensed devices wherever the FCC rules call for conducted output measurements. Guidance is provided for in-band, out-of-band and spurious emission measurements.

This guidance does not apply to the multiple transmitters included in a composite device, such as a device that combines an 802.11 modem with a cell phone in one enclosure with each driving its own antenna.

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Aruba Networks Inc
APIN0214 External Antenna 802.11 a/b/g/n/ac Wireless Access Point

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Aruba Networks Inc
APIN0215 Integral Antenna 802.11 a/b/g/n/ac Wireless Access Point

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Aruba Networks Inc
802.11 a/b/g/n/ac Wireless Access Point (Rear)

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Aruba Networks Inc
802.11 a/b/g/n/ac Wireless Access Point Label

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

| Type (EUT/ Support) | Equipment Description (Including Brand Name) | Mfr | Model No. | Serial No. |
|---|---|---|---|---|
| EUT | Wireless LAN Access Point | Aruba Networks | APIN0214 | |
| EUT | Wireless LAN Access Point (Integral Antenna) | Aruba Networks | APIN0215 | |
| Support | Laptop PC | IBM | Thinkpad | None |

## 2.4. Antenna Details

**APIN0214 External Antennas**

| Model | Type | Gain | Freq. Band | Note |
|---|---|---|---|---|
| | | dBi | MHz | |
| AP-ANT-1B | Omni | 3.8 | 2400 - 2500 | |
| | | 5.8 | 4900 - 5875 | |
| AP-ANT-13B | Omni | 4.4 | 2400 - 2500 | |
| | | 3.3 | 4900 - 5900 | |
| AP-ANT-16 | Omni | 3.9 | 2400 - 2500 | |
| | | 4.7 | 4900 - 5900 | |
| AP-ANT-17 | Directional 120degr. | 6.0 | 2400 - 2500 | |
| | | 5.0 | 4900 - 5875 | |
| AP-ANT-18 | Directional 60degr. | 7.5 | 2400 - 2500 | |
| | | 7.5 | 5150 - 5875 | |
| AP-ANT-19 | Omni | 3.0 | 2400 - 2500 | |
| | | 6.0 | 5150 - 5875 | |
| AP-ANT-20 | Omni | 2.0 | 2400 - 2500 | |
| | | 2.0 | 5150 - 5875 | |

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**APIN0215 Integral Antennas**

| Model | Type | Gain | Freq. Band | Note |
|---|---|---|---|---|
| | | dBi | MHz | |
| metal sheet | Omni | 4.0 | 2400 - 2500 | |
| metal sheet | Omni | 4.5 | 5150 - 5875 | |

## 2.5. Cabling and I/O Ports

Number and type of I/O ports

1. 10/100/1000 Ethernet (POE) (maximum cable length 100m)
2. USB - Serial maintenance terminal
3. 12 Vdc, jack connector
4. RF Antenna Connectors (x3) – Reverse SMA (APIN0214 Only)

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## 2.6. Test Configurations

Testing was performed to determine the highest power level versus bit rate. The variant with the highest power was used to exercise the product.

| Operational Mode(s) (802.11a/b/g/n/ac) | Variant | Data Rate with Highest Power | Frequencies (MHz) |
|---|---|---|---|
| 2.4 GHz | | | |
| b | Legacy | 1 MBit/s | 2,412<br>2,437<br>2,462 |
| g | Legacy | 6 MBit/s | |
| n | HT-20 | 6.5 (MCS 0) | |
| | HT-40 | 45 (MCS 16) | 2,422<br>2,437<br>2,452 |
| 5.8 GHz | | | |
| a | Legacy | 6 MBit/s | 5,745<br>5,785<br>5,825 |
| n | HT-20 | 6.5 (MCS 0) | |
| | HT-40 | 45 (MCS 16) | 5,755<br>5,795 |
| ac | ac-80 | 29.3 (MCS 0) | 5,775 |

Legacy – data rates for 802.11abg products

Results for the above configurations are provided in this report

.

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**Antenna Test Configurations for Radiated Emissions**

Results for the following configurations are provided in this report.

Radiated emissions testing was performed for all possible configurations on the integral antenna, the table below identifies all radiated testing completed on the device.

2,400 – 2483.5 MHz

| 15.247 | |
|---|---|
| **802.11b,g, 802.11n HT-20** | SE 2412 |
| | SE 2437 |
| | SE 2462 |
| | BE 2390 |
| | BE 2483.5 |
| | |
| **802.11n HT-40** | SE 2412 |
| | SE 2437 |
| | SE 2462 |
| | BE 2390 |
| | BE 2483.5 |

5,725 – 5850 MHz

| 15.247 | |
|---|---|
| **802.11a 802.11n HT-20** | a SE 5745 |
| | a SE 5785 |
| | a SE 5825 |
| | |
| **802.11n HT-40** | SE 5755 |
| | SE 5795 |
| | BE 5460 |
| | |
| **802.11ac-80** | SE 5775 |
| | BE 5460 |

KEY;-

SE – Spurious Emission
BE – Band-Edge

## 2.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

1. NONE

## 2.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. NONE

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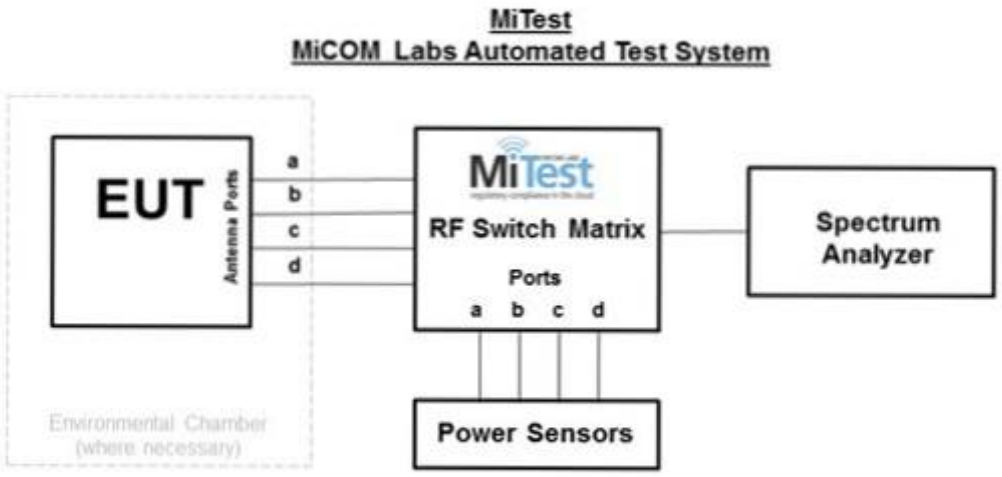
# 3. TEST EQUIPMENT CONFIGURATION(S)

## 3.1. Conducted RF Emission Test Set-up

The following tests were performed using the conducted test set-up shown in the diagram below.

1. Section 6.1.1.1. 6 dB and 99% Bandwidth
2. Section 6.1.1.2. Peak Output Power
3. Section 6.1.1.3. Power Spectral Density
4. Section 6.1.1.4. Conducted Spurious Emissions




Conducted Test Measurement Setup

**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'.

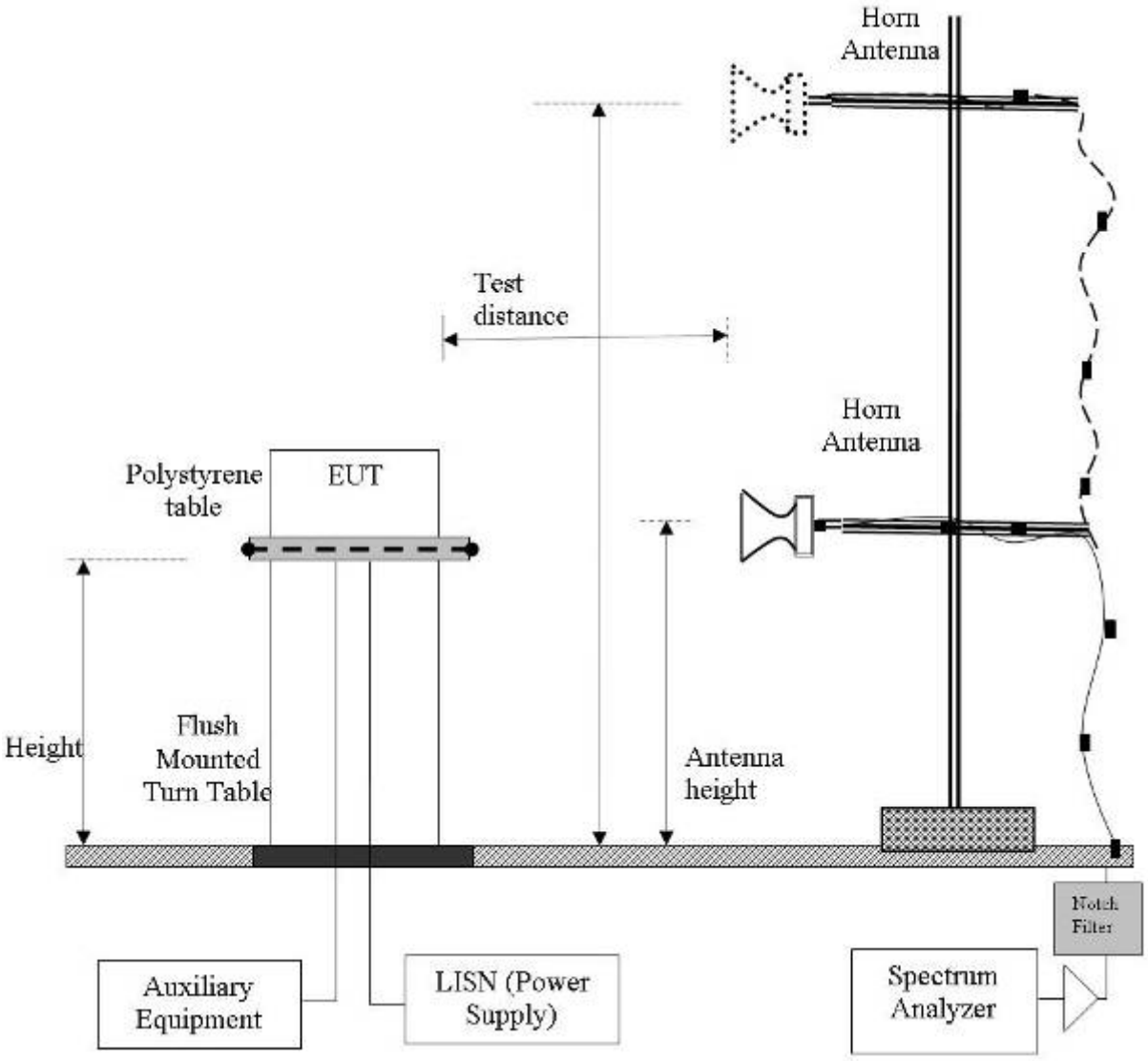
Test and report automation was performed by MiTest. MiTest is an automated test system developed by MiCOM Labs. MiTest is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for conducted RF testing.

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

## 3.2. Radiated Spurious Emission Test Set-up > 1 GHz

The following tests were performed using the conducted test set-up shown in the diagram below.

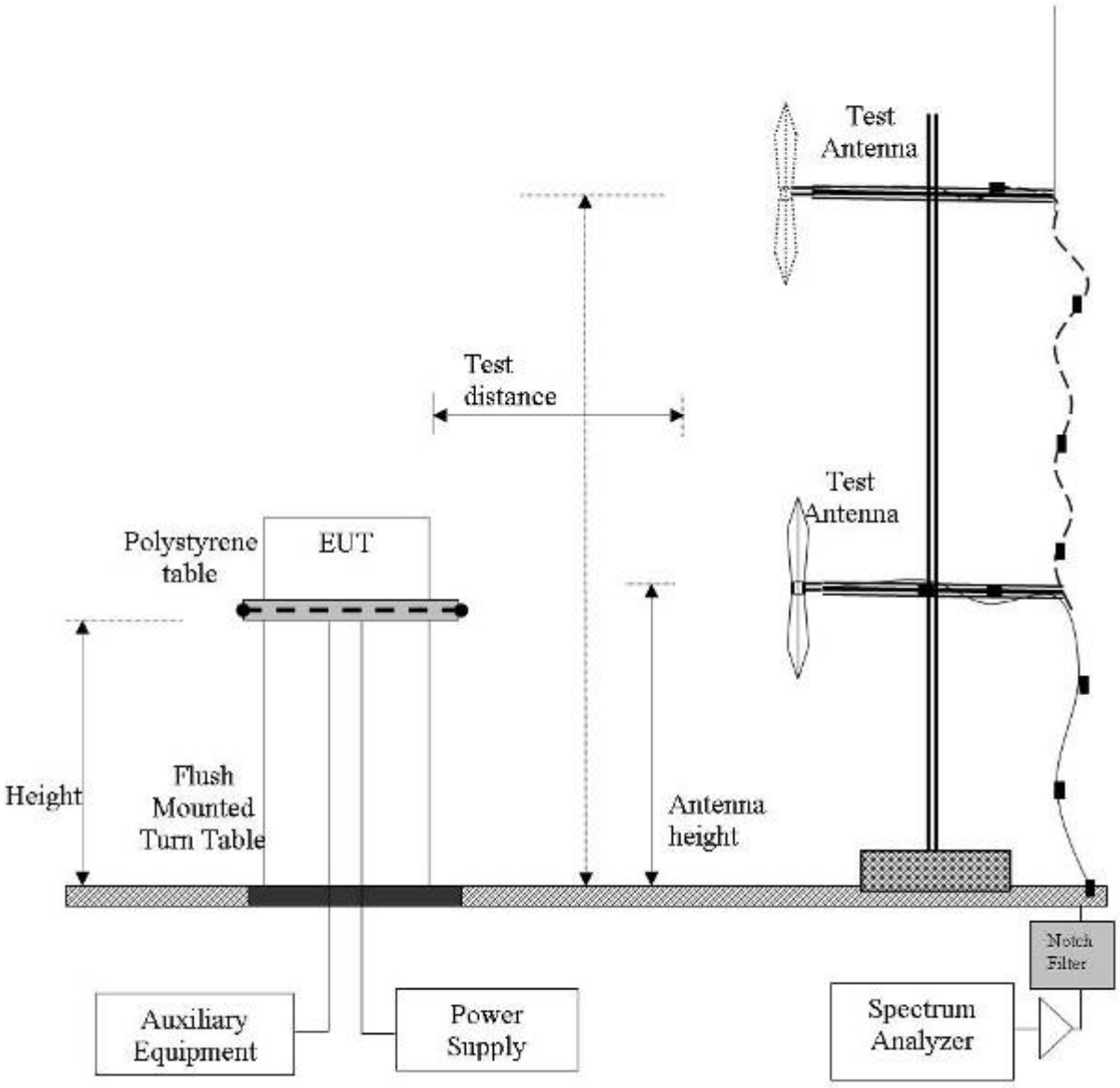
**Radiated Emission Measurement Setup – Above 1 GHz**



## 3.3. Digital Emissions Test Set-up (0.03 – 1 GHz)

The following tests were performed using the conducted test set-up shown in the diagram below.

**Digital Emission Measurement Setup – Below 1 GHz**

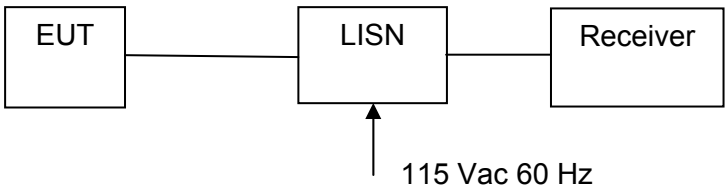


## 3.4. ac Wireline Emission Test Set-up

The following tests were performed using the conducted test set-up shown in the diagram below.

1. Section 5.1.3 ac Wireline Conducted Emissions

**Test Measurement Set up**




Measurement set up for AC Wireline Conducted Emissions Test

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# 4. TEST SUMMARY

## List of Measurements

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247** and **Industry Canada RSS-210** and **Industry Canada RSS-Gen.**

| Section(s) | Test Items | Description | Condition | Result | Test Report Section |
|---|---|---|---|---|---|
| **15.247(a)(2)**<br>**A8.2(1)**<br>**4.4** | 6 dB and 99 % Bandwidths | ≥500 kHz | Conducted | Complies | 5.1.1.1 |
| **15.247(b)(3)**<br>**15.31(e)**<br>**A8.4(4)** | Peak Output Power<br>Voltage Variation | Shall not exceed 1W<br>Variation of supply voltage 85 % -115 % | Conducted | Complies | 5.1.1.2 |
| **15.247(e)**<br>**A8.2** | Peak Power Spectral Density | Shall not be greater than +8 dBm in any 3 kHz band | Conducted | Complies | 5.1.1.3 |
| **15.247(d)**<br>**15.205 /**<br>**15.209**<br>**A8.5**<br>**2.2**<br>**4.7** | Spurious Emissions<br>(30MHz - 26 GHz b/g and 30 MHz – 40 GHz a) | The radiated emission in any 100 kHz of out-band shall be at least 20 dB below the highest in-band spectral density | Conducted | Complies | 5.1.1.4 |

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## List of Measurements (continued)

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247, Industry Canada RSS-210,** and **Industry Canada RSS-Gen.**

| Section(s) | Test Items | Description | Condition | Result | Test Report Section |
|---|---|---|---|---|---|
| **15.247(d)**<br>**15.205 /**<br>**15.209**<br>**A8.5**<br>**2.2**<br>**2.6**<br>**4.7** | Radiated Emissions | Restricted Bands | Radiated | Complies | 5.1.2 |
| | Transmitter Radiated Spurious Emissions | Emissions above 1 GHz | | Complies | |
| | Radiated Band Edge | Band-edge results<br>Peak Emissions | | Complies | |
| **15.205 /**<br>**15.209**<br>**2.2** | Radiated Spurious Emissions | Emissions <1 GHz (30M-1 GHz) | Radiated | Complies | *5.1.2.4* |
| **15.207**<br>**7.2.2** | AC Wireline Conducted<br>Emissions 150 kHz–30 MHz | Conducted Emissions | Conducted | N/A<br>EUT is POE powered - not shipped with equipment | *5.1.3* |

***Note 1:*** *Test results reported in this document relate only to the items tested*
***Note 2:*** *The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria*
***Note 3:*** *Section 3.7 Equipment Modifications highlights the equipment modifications that were required to bring the product into compliance with the above test matrix*

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# 5. TEST RESULTS

## 5.1. Device Characteristics

### 5.1.1. Conducted Testing

#### 5.1.1.1. 6 dB and 99 % Bandwidth

| Conducted Test Conditions for 6 dB and 99% Bandwidth | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.247 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | 6 dB and 99 % Bandwidth | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.247 (a)(2) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | KDB 558074 - D01 DTS Measurement Guidance v01: Section 5.1 Emission Bandwidth | | |

**Test Procedure for 6 dB and 99% Bandwidth Measurement**
The bandwidth at 6 dB and 99 % was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

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| Equipment Configuration for 6 dB & 99% Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11b | **Duty Cycle (%):** | 99 |
| **Data Rate:** | 1 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | CCK | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| **2412.0** | 9.218 | 9.218 | 9.218 | -- | 9.218 | 9.218 | ≥500.0 | -8.72 |
| **2437.0** | 8.737 | 8.737 | 8.257 | -- | 8.737 | 8.257 | ≥500.0 | -7.76 |
| **2462.0** | 8.657 | 8.737 | 8.737 | -- | 8.737 | 8.657 | ≥500.0 | -8.16 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| **2412.0** | 11.784 | 11.703 | 11.784 | -- | 11.784 | | |
| **2437.0** | 11.463 | 11.303 | 11.623 | -- | 11.623 | | |
| **2462.0** | 11.383 | 11.543 | 11.463 | -- | 11.543 | | |

| 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).

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

| | | | |
|---|---|---|---|
| **Variant:** | 802.11g | **Duty Cycle (%):** | 94 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| 2412.0 | 16.513 | 16.513 | 16.513 | -- | 16.513 | 16.513 | ≥500.0 | -16.01 |
| 2437.0 | 16.513 | 16.513 | 16.513 | -- | 16.513 | 16.513 | ≥500.0 | -16.01 |
| 2462.0 | 16.433 | 16.513 | 16.593 | -- | 16.593 | 16.433 | ≥500.0 | -15.93 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| 2412.0 | 16.513 | 16.513 | 16.513 | -- | 16.513 | | |
| 2437.0 | 16.513 | 16.513 | 16.513 | -- | 16.513 | | |
| 2462.0 | 16.513 | 16.513 | 16.513 | -- | 16.513 | | |

| 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).

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

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| 2412.0 | 16.273 | 15.872 | 16.192 | -- | 16.273 | 15.872 | ≥500.0 | -15.37 |
| 2437.0 | 16.433 | 16.513 | 16.433 | -- | 16.513 | 16.433 | ≥500.0 | -15.93 |
| 2462.0 | 15.872 | 15.872 | 15.872 | -- | 15.872 | 15.872 | ≥500.0 | -15.37 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| 2412.0 | 16.513 | 16.433 | 16.353 | -- | 16.513 | | |
| 2437.0 | 16.513 | 16.353 | 16.353 | -- | 16.513 | | |
| 2462.0 | 16.433 | 16.433 | 16.433 | -- | 16.433 | | |

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

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

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| **2422.0** | 36.072 | 35.591 | 35.431 | -- | 36.072 | 35.431 | ≥500.0 | -34.93 |
| **2437.0** | 36.713 | 35.752 | 36.393 | -- | 36.713 | 35.752 | ≥500.0 | -35.25 |
| **2452.0** | 36.393 | 36.713 | 36.072 | -- | 36.713 | 36.072 | ≥500.0 | -35.57 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| **2422.0** | 36.232 | 36.232 | 36.232 | -- | 36.232 | | |
| **2437.0** | 36.393 | 36.072 | 36.232 | -- | 36.393 | | |
| **2452.0** | 36.393 | 36.393 | 36.232 | -- | 36.393 | | |

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

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

| | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| **5745.0** | 16.513 | 16.513 | 16.513 | -- | 16.513 | 16.513 | ≥500.0 | -16.01 |
| **5785.0** | 16.513 | 16.513 | 16.513 | -- | 16.513 | 16.513 | ≥500.0 | -16.01 |
| **5825.0** | 16.513 | 16.513 | 16.513 | -- | 16.513 | 16.513 | ≥500.0 | -16.01 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| **5745.0** | 16.513 | 16.513 | 16.513 | -- | 16.513 | | |
| **5785.0** | 16.593 | 16.513 | 16.513 | -- | 16.593 | | |
| **5825.0** | 16.593 | 16.513 | 16.513 | -- | 16.593 | | |

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

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| Equipment Configuration for 6 dB & 99% Bandwidth | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| **5775.0** | 76.633 | 76.633 | 76.954 | -- | 76.954 | 76.633 | ≥500.0 | -76.13 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| **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 |

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

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| **5745.0** | 16.433 | 16.433 | 16.433 | -- | 16.433 | 16.433 | ≥500.0 | -15.93 |
| **5785.0** | 16.433 | 16.433 | 16.433 | -- | 16.433 | 16.433 | ≥500.0 | -15.93 |
| **5825.0** | 16.433 | 16.433 | 16.433 | -- | 16.433 | 16.433 | ≥500.0 | -15.93 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| **5745.0** | 16.513 | 16.353 | 16.433 | -- | 16.513 | | |
| **5785.0** | 16.513 | 16.433 | 16.433 | -- | 16.513 | | |
| **5825.0** | 16.513 | 16.433 | 16.433 | -- | 16.513 | | |

| **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).

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

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured 6 dB Bandwidth (MHz) Port(s) | | | | 6 dB Bandwidth (MHz) | | Limit | Lowest Margin |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | Highest | Lowest | KHz | MHz |
| **5755.0** | 36.713 | 36.232 | 35.912 | -- | 36.713 | 35.912 | ≥500.0 | -35.41 |
| **5795.0** | 36.713 | 36.232 | 35.591 | -- | 36.713 | 35.591 | ≥500.0 | -35.09 |

| Test Frequency | Measured 99% Bandwidth (MHz) Port(s) | | | | Maximum 99% Bandwidth (MHz) | | |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | | | |
| **5755.0** | 36.393 | 36.232 | 36.232 | -- | 36.393 | | |
| **5795.0** | 36.232 | 36.232 | 36.232 | -- | 36.232 | | |

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

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## Specification

### Limits

**§15.247 (a)(2) & RSS-210 §A8.2(1)**
The minimum 6 dB bandwidth shall be at least 500 kHz.

**§ IC RSS-Gen 4.4.1 Occupied Bandwidth** When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

**§ IC RSS-Gen 4.4.2 6 dB Bandwidth** Where indicated, the 6 dB bandwidth is measured at the points when the spectral density of the signal is 6 dB down from the in –band spectral density of the modulated signal, with the transmitter modulated by a representative signal.

### Traceability

| Test Equipment Used |
|---|
| 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117 |

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### 5.1.1.2. Peak Output Power

| Conducted Test Conditions for Fundamental Emission Output Power | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.247 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | Emission Output Power | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.247 (a)(2) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | KDB 558074 - D01 DTS Measurement Guidance v01: Section 5.2 Fundamental Emission Output Power<br><br>KDB 662911 was implemented for In-band power measurements. The measure and sum technique was implemented in all cases. | | |

**Test Procedure for Fundamental Emission Output Power Measurement**
The transmitter terminal of EUT was connected to the input of the spectrum analyzer set to measure peak power. The resolution filter bandwidth was set to 6 dB, peak detector selected and the analyzer built-in power function was used to integrate peak power over the 20 dB bandwidth.

**Supporting Information**
Calculated Power = A + G + 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,
x = Duty Cycle

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15.247 (c) Operation with directional antenna gains greater than 6 dBi.
If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Uncorrelated Operation**

**2.4 GHz Uncorrelated Operation (MIMO)**

| Antenna | Gain | Max. Allowable Conducted Peak Power (dBm) | | Maximum EIRP |
|---|---|---|---|---|
| (dB) | (dBi) | Uncorrelated | Max. Power Per Chain | (dBm) |
| Integral | 2.0 | +30.0 | +26.99 | +32.0 |

**5.8 GHz Uncorrelated Operation (MIMO)**

| Antenna | Gain | Max. Allowable Conducted Peak Power (dBm) | | Maximum EIRP |
|---|---|---|---|---|
| (dB) | (dBi) | Uncorrelated | Max. Power Per Chain | (dBm) |
| Integral | 2.0 | +30.0 | +26.99 | +32.0 |

**Correlated Operation**

**2.4 GHz Correlated Operation (Non-MIMO i.e. Legacy)**

| Antenna | Gain dBi | Antenna Gain Increase V's No. Antenna Ports | | Total Gain | Max. Allowable Conducted Peak Power | Maximum EIRP |
|---|---|---|---|---|---|---|
| (dB) | | Ports | dB | dBi | ∑ (dBm) | (dBm) |
| Integral | 2.0 | 2 | 3.01 | 5.01 | +30.0 | +32.0 |

**5.8 GHz Correlated Operation (Non-MIMO i.e. Legacy)**

| Antenna | Gain dBi | Antenna Gain Increase V's No. Antenna Ports | | Total Gain | Max. Allowable Conducted Peak Power | Maximum EIRP |
|---|---|---|---|---|---|---|
| (dB) | | Ports | dB | dBi | ∑ (dBm) | (dBm) |
| Integral | 2.0 | 2 | 3.01 | 5.01 | +30.0 | +32.0 |

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**Equipment Configuration for Average Output Power**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11b | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 1 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | CCK | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.04 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm | dBm | dB | |
| **2412.0** | 18.40 | 18.77 | 18.32 | -- | 23.32 | 30.00 | -6.68 | 19.00 |
| **2437.0** | 17.91 | 18.48 | 17.95 | -- | 22.94 | 30.00 | -7.06 | 19.00 |
| **2462.0** | 17.86 | 18.35 | 17.62 | -- | 22.77 | 30.00 | -7.23 | 19.00 |

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

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| Equipment Configuration for Average Output Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11g | **Duty Cycle (%):** | 94.0 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.27 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **dBm** | **dBm** | **dB** | |
| **2412.0** | 18.11 | 18.23 | 17.98 | -- | 23.15 | 30.00 | -6.85 | 19.00 |
| **2437.0** | 17.81 | 18.27 | 17.54 | -- | 22.92 | 30.00 | -7.08 | 19.00 |
| **2462.0** | 17.56 | 18.01 | 17.22 | -- | 22.65 | 30.00 | -7.35 | 19.00 |

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

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| Equipment Configuration for Average Output Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 92.5 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.32 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **dBm** | **dBm** | **dB** | |
| **2412.0** | 17.22 | 17.55 | 17.06 | -- | 22.39 | 30.00 | -7.61 | 19.00 |
| **2437.0** | 17.03 | 17.49 | 16.84 | -- | 22.24 | 30.00 | -7.76 | 19.00 |
| **2462.0** | 16.60 | 17.09 | 16.52 | -- | 21.85 | 30.00 | -8.15 | 19.00 |

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

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**Equipment Configuration for Average Output Power**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 84.6 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.71 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm | dBm | dB | |
| **2422.0** | 17.44 | 17.88 | 17.41 | -- | 23.08 | 30.00 | -6.92 | 19.00 |
| **2437.0** | 17.25 | 17.80 | 17.19 | -- | 22.92 | 30.00 | -7.08 | 19.00 |
| **2452.0** | 17.21 | 17.69 | 17.04 | -- | 22.82 | 30.00 | -7.18 | 19.00 |

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

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| Equipment Configuration for Average Output Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 93.2 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.32 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm | dBm | dB | |
| **5745.0** | 17.31 | 18.46 | 17.52 | -- | 22.87 | 30.00 | -7.13 | 19.00 |
| **5785.0** | 16.88 | 18.40 | 17.78 | -- | 22.81 | 30.00 | -7.19 | 19.00 |
| **5825.0** | 16.91 | 18.26 | 17.45 | -- | 22.65 | 30.00 | -7.35 | 19.00 |

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

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| Equipment Configuration for Average Output Power | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 90.0 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.46 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm | dBm | dB | |
| **5775.0** | 15.69 | 17.45 | 16.87 | -- | 21.96 | 30.00 | -8.04 | 23.00 |

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

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| Equipment Configuration for Average Output Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 89.9 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.46 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm | dBm | dB | |
| **5745.0** | 16.12 | 17.48 | 16.43 | -- | 21.95 | 30.00 | -8.05 | 18.00 |
| **5785.0** | 15.71 | 17.44 | 16.47 | -- | 21.83 | 30.00 | -8.17 | 18.00 |
| **5825.0** | 15.77 | 17.35 | 16.26 | -- | 21.74 | 30.00 | -8.26 | 18.00 |

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

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| Equipment Configuration for Average Output Power |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 84.6 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | 2.0 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Measured Output Power (dBm) Port(s) | | | | Calculated Total Power Σ Port(s) + Duty Cycle Correction Factor : +0.71 dB | Limit | Margin | EUT Power Setting |
|---|---|---|---|---|---|---|---|---|
| **MHz** | **a** | **b** | **c** | **d** | **dBm** | **dBm** | **dB** | |
| **5755.0** | 15.83 | 17.83 | 17.83 | -- | 22.76 | 30.00 | -7.24 | 23.00 |
| **5795.0** | 15.72 | 17.59 | 16.57 | -- | 22.19 | 30.00 | -7.81 | 23.00 |

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

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Antenna Type V's Power Setting

The following **Antenna Types V's Power Setting** tables consolidates the results of all tests performed on the APIN0214 and APIN0215 to finalize the power setting for each antenna's tested;

**Integral Antenna (APIN0215)**

| Channel | 2.4 GHz | | | | 5.8 GHz | | | |
|---|---|---|---|---|---|---|---|---|
| | b | g | HT-20 | HT-40 | a | HT-20 | HT-40 | ac-80 |
| Low | 19 | 17 | 17 | 11.5 | 19 | 19 | 19 | 19 |
| Mid | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| High | 17 | 14 | 17.5 | 13.5 | 19 | 19 | 19 | 19 |

**Antenna AP-ANT-1B (APIN0214)**

| Channel | 2.4 GHz | | | | 5.8 GHz | | | |
|---|---|---|---|---|---|---|---|---|
| | b | g | HT-20 | HT-40 | a | HT-20 | HT-40 | ac-80 |
| Low | 19 | 17 | 17.25 | 12 | 19 | 18 | 23 | 23 |
| Mid | 19 | 19 | 19 | 19 | 19 | 18 | 23 | 23 |
| High | 19 | 15.5 | 19 | 19 | 19 | 18 | 23 | 23 |

**Antenna AP-ANT-13B (APIN0214)**

| Channel | 2.4 GHz | | | | 5.8 GHz | | | |
|---|---|---|---|---|---|---|---|---|
| | b | g | HT-20 | HT-40 | a | HT-20 | HT-40 | ac-80 |
| Low | 19 | 16 | 16.5 | 10 | 19 | 18 | 23 | 23 |
| Mid | 19 | 19 | 19 | 19 | 19 | 18 | 23 | 23 |
| High | 15 | 13 | 17 | 17 | 19 | 18 | 23 | 23 |

**Antenna AP-ANT-16 (APIN0214)**

| Channel | 2.4 GHz | | | | 5.8 GHz | | | |
|---|---|---|---|---|---|---|---|---|
| | b | g | HT-20 | HT-40 | a | HT-20 | HT-40 | ac-80 |
| Low | 19 | 16 | 16.5 | 10 | 19 | 18 | 23 | 23 |
| Mid | 19 | 19 | 19 | 19 | 19 | 18 | 23 | 23 |
| High | 15 | 13 | 17 | 17 | 19 | 18 | 23 | 23 |

**Antenna AP-ANT-18 (APIN0214)**

| Channel | 2.4 GHz | | | | 5.8 GHz | | | |
|---|---|---|---|---|---|---|---|---|
| | b | g | HT-20 | HT-40 | a | HT-20 | HT-40 | ac-80 |
| Low | 19 | 16 | 16.5 | 10 | 19 | 18 | 23 | 23 |
| Mid | 19 | 19 | 19 | 19 | 19 | 18 | 23 | 23 |
| High | 16.25 | 12.5 | 17.5 | 17 | 19 | 18 | 23 | 23 |

**Antenna AP-ANT-19 (APIN0214)**

| Channel | 2.4 GHz | | | | 5.8 GHz | | | |
|---|---|---|---|---|---|---|---|---|
| | b | g | HT-20 | HT-40 | a | HT-20 | HT-40 | ac-80 |
| Low | 19 | 16.5 | 17 | 11.75 | 19 | 18 | 23 | 23 |
| Mid | 19 | 19 | 19 | 19 | 19 | 18 | 23 | 23 |
| High | 16.75 | 13.5 | 17.25 | 17.25 | 19 | 18 | 23 | 23 |

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## Specification

### Limits

**§15.247 (b)** The maximum peak output power of the intentional radiator shall not exceed the following:

**§15.247 (b) (3)** For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands: 1.0 watt.

**15.247 (b) (4)** The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

15.247 (c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

**§15.31 (e)** For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

**§ RSS-210 A8.4(4)** For systems employing digital modulation techniques operating in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands the maximum peak conducted power shall not exceed 1 watt.

### Traceability

| Method | Test Equipment Used |
|---|---|
| Measurements were made per work instruction WI-01 'Measuring RF Output Power' | 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117 |

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### 5.1.1.3. Power Spectral Density

| Conducted Test Conditions for Power Spectral Density | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.247 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | Power Spectral Density | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.247 (e) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | KDB 558074 - D01 DTS Measurement Guidance v01: Section 5.3 Maximum Power Spectral Density Level in the Emission Bandwidth | | |

**Test Procedure for Power Spectral Density**

The transmitter output was connected to a spectrum analyzer and the maximum level in a 3 kHz bandwidth was measured. A peak value was found over the full emission bandwidth and the frequency span reduced to obtain enhanced resolution. Sweep time ≥ span / 3 kHz with video averaging turned off. The Peak Power Spectral Density is the highest level found across the emission in a 3 kHz resolution bandwidth.

**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

Limit Line: KDB 662911 was implemented for In-band power spectral density (PSD) measurements - Option (2) measure and subtract 10 log (N) dB from the limit for devices with multiple RF ports

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11b | **Duty Cycle (%):** | 99.0 |
| **Data Rate:** | 1 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | CCK | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.04 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| 2412.0 | -14.334 | -13.713 | -14.294 | -- | -9.610 | 8.0 | -17.6 |
| 2437.0 | -14.374 | -13.419 | -14.620 | -- | -9.804 | 8.0 | -17.8 |
| 2462.0 | -14.496 | -13.540 | -14.634 | -- | -9.896 | 8.0 | -17.9 |

| 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).

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11g | **Duty Cycle (%):** | 94.0 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.27 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| 2412.0 | -17.520 | -17.142 | -16.886 | -- | -12.178 | 8.0 | -20.1 |
| 2437.0 | -17.540 | -16.815 | -17.520 | -- | -12.238 | 8.0 | -20.2 |
| 2462.0 | -17.579 | -17.367 | -17.796 | -- | -12.595 | 8.0 | -20.6 |

| 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).

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 92.5 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.34 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| **2412.0** | -15.342 | -14.083 | -14.579 | -- | -9.527 | 8.0 | -17.5 |
| **2437.0** | -16.329 | -15.193 | -15.402 | -- | -10.504 | 8.0 | -18.5 |
| **2462.0** | -16.063 | -14.428 | -15.524 | -- | -10.174 | 8.0 | -18.1 |

| 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).

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 84.6 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.73 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| **2422.0** | -19.610 | -18.310 | -19.512 | -- | -13.605 | 8.0 | -21.6 |
| **2437.0** | -18.970 | -19.367 | -19.016 | -- | -13.617 | 8.0 | -21.6 |
| **2452.0** | -18.018 | -17.998 | -18.183 | -- | -12.568 | 8.0 | -20.5 |

| 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).

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 93.2 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.31 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| **5745.0** | -17.916 | -16.245 | -17.618 | -- | -12.175 | 8.0 | -20.1 |
| **5785.0** | -18.163 | -16.414 | -16.977 | -- | -12.048 | 8.0 | -20.0 |
| **5825.0** | -18.059 | -16.448 | -17.443 | -- | -12.188 | 8.0 | -20.2 |

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

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 90.0 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.46 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| **5775.0** | -26.008 | -23.957 | -24.545 | -- | -19.525 | 8.0 | -27.5 |

| 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).

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 89.9 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.46 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| **5745.0** | -16.279 | -14.551 | -15.917 | -- | -10.284 | 8.0 | -18.3 |
| **5785.0** | -16.744 | -14.746 | -15.934 | -- | -10.496 | 8.0 | -18.5 |
| **5825.0** | -16.941 | -14.902 | -16.465 | -- | -10.779 | 8.0 | -18.7 |

| 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).

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| Equipment Configuration for Power Spectral Density - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 84.6 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | 2.00 |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | | | |

**Test Measurement Results**

| Test Frequency | Measured Power Spectral Density Port(s) (dBm/3KHz) | | | | Amplitude Summation + Duty Cycle Correction Factor : +0.73 dB | Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | a | b | c | d | dBm/3KHz | dBm/3KHz | dB |
| **5755.0** | -20.823 | -18.834 | -20.143 | -- | -14.563 | 8.0 | -22.5 |
| **5795.0** | -21.716 | -19.319 | -20.572 | -- | -14.928 | 8.0 | -22.9 |

| 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).

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**Specification**
**Peak Power Spectral Density Limits**

| |
|---|
| **§15.247(e)** For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission<br><br>**RSS-210** §**A8.2(2)** The transmitter power spectral density (into the antenna) shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0 second duration. |

**Traceability**

| Method | Test Equipment Used |
|---|---|
| Measurements were made per work instruction WI-01 'Measuring RF Output Power' | 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117 |

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### 5.1.1.4. Conducted Spurious Emissions

| Conducted Test Conditions for Transmitter Conducted Spurious and Band-Edge Emissions | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.247 | **Ambient Temp. (ºC):** | 24.0 - 27.5 |
| **Test Heading:** | Max Unwanted Emission Levels | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.247 (d) | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | KDB 558074 - D01 DTS Measurement Guidance v01: Section 5.4 Maximum Unwanted Emission Levels | | |

**Test Procedure for Transmitter Conducted Spurious and Band-Edge Emissions Measurement**
Transmitter Conducted Spurious and Band-Edge emissions were measured at a limit of 20 dB below the highest in-band spectral density measured with a spectrum analyzer connected to the antenna terminal. Measurements were made while EUT was operating in transmit mode of operation at the appropriate centre frequency closest to the band-edge. Emissions were maximized during the measurement and limits derived from the peak spectral power and drawn on each plot.

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| Equipment Configuration for Conducted Low Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11b | **Duty Cycle (%):** | 99 |
| **Data Rate:** | 1 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | CCK | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Channel Frequency:** | 2412.0 MHz | | | | | |
| **Band-Edge Frequency:** | 2400.0 MHz | | | | | |
| **Test Frequency Range:** | 2350.0 - 2422.0 MHz | | | | | |
| **Port(s)** | **Band-Edge Markers and Limit** | | | **Amended Limit** | | **Margin** |
| | **M1 Amplitude (dBm)** | **Plot Limit (dBm)** | **M2 Frequency (MHz)** | **Amplitude (dBm)** | **M2A Frequency (MHz)** | **(MHz)** |
| **a** | -55.46 | -29.05 | 2404.50 | -- | -- | -4.500 |
| **b** | -56.34 | -28.81 | 2404.50 | -- | -- | -4.500 |
| **c** | -55.56 | -29.14 | 2404.50 | -- | -- | -4.500 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted Low Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11g | **Duty Cycle (%):** | 94 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| **Channel Frequency:** | 2412.0 MHz | | | | | |
|---|---|---|---|---|---|---|
| **Band-Edge Frequency:** | 2400.0 MHz | | | | | |
| **Test Frequency Range:** | 2350.0 - 2422.0 MHz | | | | | |
| **Port(s)** | **Band-Edge Markers and Limit** | | | **Amended Limit** | | **Margin** |
| | **M1 Amplitude (dBm)** | **Plot Limit (dBm)** | **M2 Frequency (MHz)** | **Amplitude (dBm)** | **M2A Frequency (MHz)** | **(MHz)** |
| **a** | -39.48 | -32.74 | 2401.80 | -- | -- | -1.800 |
| **b** | -40.04 | -32.68 | 2401.80 | -- | -- | -1.800 |
| **c** | -40.80 | -32.78 | 2401.80 | -- | -- | -1.800 |

| **Traceability to Industry Recognized Test Methodologies** | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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**Equipment Configuration for Conducted Low Band-Edge Emissions - Average**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 2412.0 MHz |
| **Band-Edge Frequency:** | 2400.0 MHz |
| **Test Frequency Range:** | 2350.0 - 2422.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M1 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -45.42 | -31.91 | 2402.10 | -- | -- | -2.100 |
| b | -44.90 | -32.00 | 2402.20 | -- | -- | -2.200 |
| c | -46.91 | -31.87 | 2402.40 | -- | -- | -2.400 |

| **Traceability to Industry Recognized Test Methodologies** | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted Low Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Channel Frequency:** | 2422.0 MHz | | | | | |
| **Band-Edge Frequency:** | 2400.0 MHz | | | | | |
| **Test Frequency Range:** | 2292.0 - 2442.0 MHz | | | | | |
| **Port(s)** | **Band-Edge Markers and Limit** | | | **Amended Limit** | | **Margin** |
| | **M1 Amplitude (dBm)** | **Plot Limit (dBm)** | **M2 Frequency (MHz)** | **Amplitude (dBm)** | **M2A Frequency (MHz)** | **(MHz)** |
| **a** | -45.42 | -36.51 | 2402.30 | -- | -- | -2.300 |
| **b** | -45.55 | -36.20 | 2402.60 | -- | -- | -2.600 |
| **c** | -47.60 | -36.57 | 2402.60 | -- | -- | -2.600 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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| Equipment Configuration for Conducted Low Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 5745.0 MHz |
| **Band-Edge Frequency:** | 5725.0 MHz |
| **Test Frequency Range:** | 5683.0 - 5755.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M1 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -47.44 | -33.39 | 5734.90 | -- | -- | -9.900 |
| b | -51.16 | -32.09 | 5734.90 | -- | -- | -9.900 |
| c | -51.29 | -33.02 | 5734.80 | -- | -- | -9.800 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted Low Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 5775.0 MHz |
| **Band-Edge Frequency:** | 5725.0 MHz |
| **Test Frequency Range:** | 5600.0 - 5820.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M1 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -47.42 | -41.22 | 5734.90 | -- | -- | -9.900 |
| b | -48.41 | -39.54 | 5735.40 | -- | -- | -10.400 |
| c | -48.24 | -39.95 | 5735.80 | -- | -- | -10.800 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted Low Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Channel Frequency:** | 5745.0 MHz | | | | | |
| **Band-Edge Frequency:** | 5725.0 MHz | | | | | |
| **Test Frequency Range:** | 5683.0 - 5755.0 MHz | | | | | |
| **Port(s)** | **Band-Edge Markers and Limit** | | | **Amended Limit** | | **Margin** |
| | **M1 Amplitude (dBm)** | **Plot Limit (dBm)** | **M2 Frequency (MHz)** | **Amplitude (dBm)** | **M2A Frequency (MHz)** | **(MHz)** |
| **a** | -48.46 | -32.53 | 5735.20 | -- | -- | -10.200 |
| **b** | -53.99 | -31.05 | 5735.50 | -- | -- | -10.500 |
| **c** | -53.94 | -32.21 | 5735.20 | -- | -- | -10.200 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted Low Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Channel Frequency:** | 5755.0 MHz | | | | | |
| **Band-Edge Frequency:** | 5725.0 MHz | | | | | |
| **Test Frequency Range:** | 5625.0 - 5775.0 MHz | | | | | |
| **Port(s)** | **Band-Edge Markers and Limit** | | | **Amended Limit** | | **Margin** |
| | **M1 Amplitude (dBm)** | **Plot Limit (dBm)** | **M2 Frequency (MHz)** | **Amplitude (dBm)** | **M2A Frequency (MHz)** | **(MHz)** |
| **a** | -45.90 | -38.06 | 5735.30 | -- | -- | -10.300 |
| **b** | -48.21 | -35.57 | 5735.60 | -- | -- | -10.600 |
| **c** | -49.36 | -37.01 | 5735.60 | -- | -- | -10.600 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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| Equipment Configuration for Conducted High Band-Edge Emissions - Average |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11b | **Duty Cycle (%):** | 99 |
| **Data Rate:** | 1 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | CCK | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 2462.0 MHz |
| **Band-Edge Frequency:** | 2483.5 MHz |
| **Test Frequency Range:** | 2452.0 - 2524.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M3 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -65.99 | -29.79 | 2469.50 | -- | -- | -14.000 |
| b | -59.87 | -29.25 | 2469.50 | -- | -- | -14.000 |
| c | -60.37 | -29.70 | 2469.60 | -- | -- | -13.900 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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**Equipment Configuration for Conducted High Band-Edge Emissions - Average**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11g | **Duty Cycle (%):** | 94 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 2462.0 MHz |
| **Band-Edge Frequency:** | 2483.5 MHz |
| **Test Frequency Range:** | 2452.0 - 2524.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M3 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -49.34 | -33.79 | 2472.20 | -- | -- | -11.300 |
| b | -49.76 | -33.17 | 2472.20 | -- | -- | -11.300 |
| c | -51.42 | -33.67 | 2472.20 | -- | -- | -11.300 |

| **Traceability to Industry Recognized Test Methodologies** | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted High Band-Edge Emissions - Average |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 2462.0 MHz |
| **Band-Edge Frequency:** | 2483.5 MHz |
| **Test Frequency Range:** | 2452.0 - 2524.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M3 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -53.95 | -32.39 | 2471.80 | -- | -- | -11.700 |
| b | -54.76 | -31.89 | 2471.80 | -- | -- | -11.700 |
| c | -56.28 | -32.50 | 2471.80 | -- | -- | -11.700 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted High Band-Edge Emissions - Average |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 2452.0 MHz |
| **Band-Edge Frequency:** | 2483.5 MHz |
| **Test Frequency Range:** | 2432.0 - 2582.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M3 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -44.12 | -37.05 | 2471.70 | -- | -- | -11.800 |
| b | -45.06 | -36.60 | 2471.40 | -- | -- | -12.100 |
| c | -46.39 | -36.53 | 2471.70 | -- | -- | -11.800 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted High Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Channel Frequency:** | 5825.0 MHz | | | | | |
| **Band-Edge Frequency:** | 5850.0 MHz | | | | | |
| **Test Frequency Range:** | 5815.0 - 5887.0 MHz | | | | | |
| **Port(s)** | **Band-Edge Markers and Limit** | | | **Amended Limit** | | **Margin** |
| | **M3 Amplitude (dBm)** | **Plot Limit (dBm)** | **M2 Frequency (MHz)** | **Amplitude (dBm)** | **M2A Frequency (MHz)** | **(MHz)** |
| **a** | -50.69 | -33.92 | 5835.10 | -- | -- | -14.900 |
| **b** | -54.58 | -32.96 | 5835.10 | -- | -- | -14.900 |
| **c** | -52.36 | -33.43 | 5835.10 | -- | -- | -14.900 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted High Band-Edge Emissions - Average |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 5775.0 MHz |
| **Band-Edge Frequency:** | 5850.0 MHz |
| **Test Frequency Range:** | 5735.0 - 5955.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M3 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -49.13 | -41.68 | 5816.60 | -- | -- | -33.400 |
| b | -50.35 | -39.95 | 5815.70 | -- | -- | -34.300 |
| c | -49.63 | -40.23 | 5815.70 | -- | -- | -34.300 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted High Band-Edge Emissions - Average |
|---|

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | |
|---|---|
| **Channel Frequency:** | 5825.0 MHz |
| **Band-Edge Frequency:** | 5850.0 MHz |
| **Test Frequency Range:** | 5815.0 - 5887.0 MHz |

| Port(s) | Band-Edge Markers and Limit | | | Amended Limit | | Margin |
|---|---|---|---|---|---|---|
| | M3 Amplitude (dBm) | Plot Limit (dBm) | M2 Frequency (MHz) | Amplitude (dBm) | M2A Frequency (MHz) | (MHz) |
| a | -53.34 | -33.35 | 5834.90 | -- | -- | -15.100 |
| b | -59.26 | -31.59 | 5834.60 | -- | -- | -15.400 |
| c | -54.04 | -32.87 | 5834.80 | -- | -- | -15.200 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Conducted High Band-Edge Emissions - Average | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Channel Frequency:** | 5795.0 MHz | | | | | |
| **Band-Edge Frequency:** | 5850.0 MHz | | | | | |
| **Test Frequency Range:** | 5775.0 - 5925.0 MHz | | | | | |
| **Port(s)** | **Band-Edge Markers and Limit** | | | **Amended Limit** | | **Margin** |
| | **M3 Amplitude (dBm)** | **Plot Limit (dBm)** | **M2 Frequency (MHz)** | **Amplitude (dBm)** | **M2A Frequency (MHz)** | **(MHz)** |
| **a** | -52.64 | -37.65 | 5814.40 | -- | -- | -35.600 |
| **b** | -57.18 | -36.07 | 5814.40 | -- | -- | -35.600 |
| **c** | -61.20 | -37.24 | 5814.40 | -- | -- | -35.600 |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Transmitter Conducted Spurious Emissions | | | |
|---|---|---|---|
| **Variant:** | 802.11b | **Duty Cycle (%):** | 99 |
| **Data Rate:** | 1 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | CCK | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **2412.0** | 30 - 26000 | -66.480 | -45.65 | -66.480 | -45.09 | -67.504 | -45.45 | -- | -- |
| **2437.0** | 30 - 26000 | -66.480 | -46.16 | -66.480 | -45.60 | -67.504 | -46.36 | -- | -- |
| **2462.0** | 30 - 26000 | -66.480 | -46.47 | -66.480 | -46.03 | -67.504 | -46.65 | -- | -- |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Transmitter Conducted Spurious Emissions | | | |
|---|---|---|---|
| **Variant:** | 802.11g | **Duty Cycle (%):** | 94 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **2412.0** | 30 - 26000 | -66.480 | -44.69 | -66.480 | -44.41 | -67.504 | -44.85 | -- | -- |
| **2437.0** | 30 - 26000 | -66.480 | -44.57 | -66.480 | -44.52 | -67.504 | -44.86 | -- | -- |
| **2462.0** | 30 - 26000 | -66.480 | -45.07 | -66.480 | -44.87 | -67.504 | -45.36 | -- | -- |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Transmitter Conducted Spurious Emissions | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **2412.0** | 30 - 26000 | -66.480 | -46.45 | -66.480 | -46.29 | -67.504 | -46.61 | -- | -- |
| **2437.0** | 30 - 26000 | -66.480 | -46.19 | -66.480 | -46.08 | -67.504 | -46.59 | -- | -- |
| **2462.0** | 30 - 26000 | -66.480 | -46.82 | -66.480 | -46.51 | -67.504 | -47.02 | -- | -- |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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**Equipment Configuration for Transmitter Conducted Spurious Emissions**

| | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **2422.0** | 30 - 26000 | -66.480 | -48.14 | -66.480 | -47.19 | -67.504 | -48.20 | -- | -- |
| **2437.0** | 30 - 26000 | -66.480 | -43.21 | -66.480 | -42.74 | -67.504 | -43.41 | -- | -- |
| **2452.0** | 30 - 26000 | -66.480 | -43.37 | -66.480 | -42.86 | -67.504 | -43.51 | -- | -- |

| **Traceability to Industry Recognized Test Methodologies** | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Transmitter Conducted Spurious Emissions | | | |
|---|---|---|---|
| **Variant:** | 802.11a | **Duty Cycle (%):** | 93 |
| **Data Rate:** | 6 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **5745.0** | 30 - 26000 | -61.483 | -49.43 | -62.044 | -48.26 | -63.286 | -48.95 | -- | -- |
| **5785.0** | 30 - 26000 | -59.990 | -45.34 | -62.044 | -44.18 | -63.286 | -44.29 | -- | -- |
| **5825.0** | 30 - 26000 | -60.460 | -45.42 | -61.483 | -43.95 | -62.643 | -44.89 | -- | -- |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Transmitter Conducted Spurious Emissions | | | |
|---|---|---|---|
| **Variant:** | 802.11ac-80 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **5775.0** | 30 - 26000 | -63.286 | -45.28 | -63.286 | -43.50 | -63.286 | -44.00 | -- | -- |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Transmitter Conducted Spurious Emissions | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-20 | **Duty Cycle (%):** | 90 |
| **Data Rate:** | 6.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **5745.0** | 30 - 26000 | -62.643 | -51.59 | -62.643 | -50.34 | -63.982 | -51.25 | -- | -- |
| **5785.0** | 30 - 26000 | -60.956 | -47.42 | -62.643 | -46.16 | -63.286 | -46.81 | -- | -- |
| **5825.0** | 30 - 26000 | -61.483 | -47.53 | -62.643 | -46.12 | -63.286 | -47.23 | -- | -- |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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| Equipment Configuration for Transmitter Conducted Spurious Emissions | | | |
|---|---|---|---|
| **Variant:** | 802.11n HT-40 | **Duty Cycle (%):** | 85 |
| **Data Rate:** | 13.5 MBit/s | **Antenna Gain (dBi):** | Not Applicable |
| **Modulation:** | OFDM | **Beam Forming Gain (Y):** | Not Applicable |
| **TPC:** | Not Applicable | **Tested By:** | SB |
| **Engineering Test Notes:** | Image built 2014-05-07 at 04:01:39 EDT (gcc version 4.5.1) | | |

**Test Measurement Results**

| Test Frequency | Frequency Range | Transmitter Conducted Spurious Emissions (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Port a | | Port b | | Port c | | Port d | |
| MHz | MHz | SE | Limit | SE | Limit | SE | Limit | SE | Limit |
| **5755.0** | 30 - 26000 | -63.286 | -46.03 | -62.643 | -44.13 | -63.982 | -45.64 | -- | -- |
| **5795.0** | 30 - 26000 | -62.643 | -49.99 | -63.286 | -48.53 | -63.286 | -49.65 | -- | -- |

| Traceability to Industry Recognized Test Methodologies | |
|---|---|
| Work Instruction: | WI-05 MEASUREMENT OF SPURIOUS EMISSIONS |
| Measurement Uncertainty: | <=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB |

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

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## Specification

### Limits Band-Edge

| Lower Limit Band-edge | Upper Limit Band-edge | Limit below highest level of desired power |
|---|---|---|
| 2,400 MHz | 2,483.5 MHz | ≥ 20 dB |
| 5725 MHz | 5850 MHz | |

**§15.247(d) and RSS-210 §A8.5** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

**§15.247(d)**
If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section §15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(a)).

**RSS-210 §A8.5** If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

**RSS-Gen §4.7**
The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate of carrier frequency), or from 30 MHz , whichever is the lowest frequency, to the 5$^{th}$ harmonic of the highest frequency generated without exceeding 40 GHz.

### Laboratory Measurement Uncertainty for Conducted Spurious Emissions

| | |
|---|---|
| Measurement uncertainty | ±2.37 dB |

### Traceability

| Method | Test Equipment Used |
|---|---|
| Measurements were made per work instruction WI-05 'Measurement of Spurious Emissions' | 0088, 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117. |

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### 5.1.2. Radiated Emission Testing

**Transmitter Radiated Spurious Emissions (above 1 GHz); Peak Field Strength Measurements; and Radiated Band Edge Measurements – Restricted Bands**

**FCC, Part 15 Subpart C §15.247(d) 15.205; 15.209**
**Industry Canada RSS-210 §A8.5, §2.2, §2.6**
**Industry Canada RSS-Gen §4.7**

**Test Procedure**

Radiated emissions 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 and waveguide filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

All measurements on any frequency or frequencies over 1 MHz are based on the use of measurement instrumentation employing an average detector function. All measurements above 1 GHz were performed using a minimum resolution bandwidth of 1 MHz.

**Operational Modes**

Operational mode(s) tested for spurious emissions were the modes which delivered maximum spectral density 802.11b and 802.11a.

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**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 or Waveguide Loss

For example:
Given receiver input reading of 51.5 dBμV; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3 dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

**NOTE: KDB 662911 was implemented for Out-of-Band measurements. Where necessary Option (2) Measure and add 10 log (N) dB was implemented**

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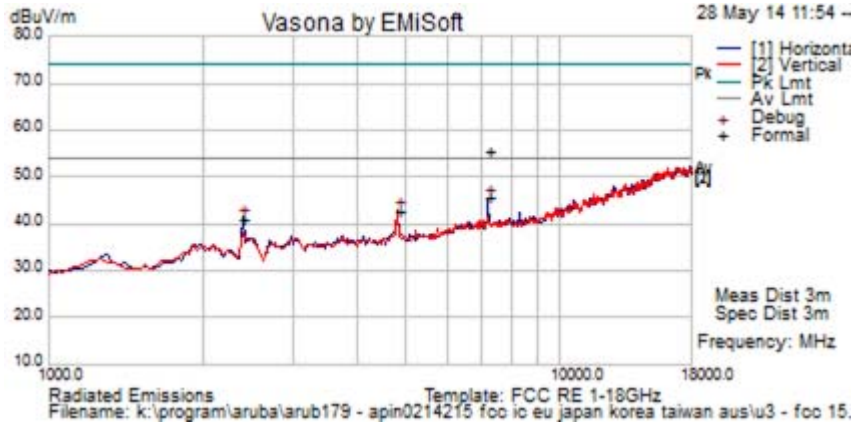
### 5.1.2.1. Integral antenna – Spurious and Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Test Freq.** | 2412 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | Integral | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP215 P302; EUT=Vertical; S/N : CK0000953; MAC: 24 DE C6 CF 5D 38; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7234.872 | 48.5 | 7.2 | -0.2 | 55.4 | Peak Max | H | 119 | 234 | 74.0 | -18.6 | Pass | RB |
| 7234.872 | 38.6 | 7.2 | -0.2 | 45.5 | Average Max | H | 119 | 234 | 54.0 | -8.5 | Pass | RB |
| 2400.753 | 42.3 | 3.9 | -5.5 | 40.7 | Peak [Scan] | H | 98 | | | | | FUND |
| 4816.550 | 39.5 | 5.7 | -2.3 | 42.8 | Peak [Scan] | H | 98 | 234 | 54.0 | -11.2 | Pass | RB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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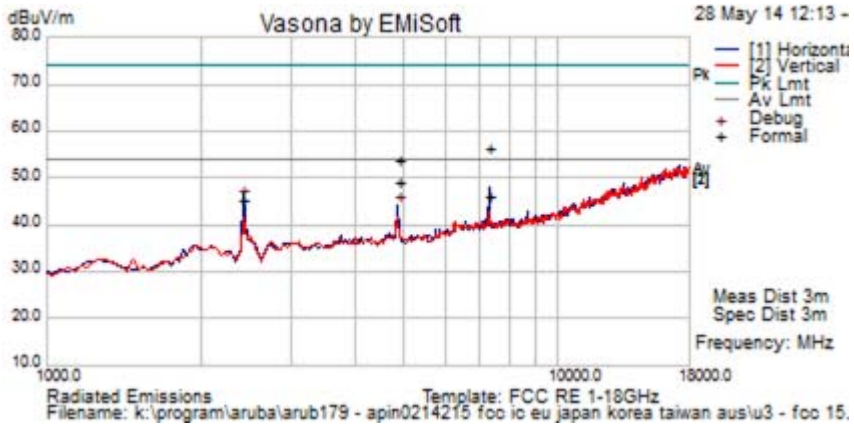
| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | Integral | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP215 P302; EUT=Vertical; S/N : CK0000953; MAC: 24 DE C6 CF 5D 38; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7310.949 | 49.4 | 7.2 | -0.3 | 56.4 | Peak Max | H | 110 | 99 | 74.0 | -17.6 | Pass | RB |
| 4874.008 | 50.4 | 5.7 | -2.3 | 53.8 | Peak Max | H | 117 | 225 | 74.0 | -20.2 | Pass | RB |
| 7310.949 | 38.9 | 7.2 | -0.3 | 45.9 | Average Max | H | 110 | 99 | 54 | -8.1 | Pass | RB |
| 4874.008 | 45.5 | 5.7 | -2.3 | 48.9 | Average Max | H | 117 | 225 | 54 | -5.1 | Pass | RB |
| 2425.163 | 46.5 | 3.9 | -5.3 | 45.1 | Peak [Scan] | V | 98 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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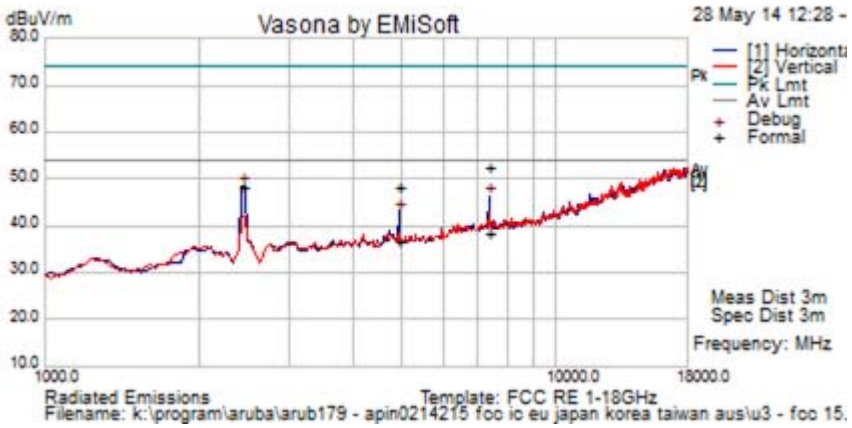
| | | | |
|---|---|---|---|
| **Test Freq.** | 2462 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | Integral | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP215 P302; EUT=Vertical; S/N : CK0000953; MAC: 24 DE C6 CF 5D 38; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7385.560 | 45.2 | 7.3 | -0.1 | 52.4 | Peak Max | V | 182 | 166 | 74.0 | -21.6 | Pass | RB |
| 4923.975 | 44.8 | 5.7 | -2.5 | 48.0 | Peak Max | V | 118 | 198 | 74.0 | -26.0 | Pass | RB |
| 7385.560 | 31.4 | 7.3 | -0.1 | 38.5 | Average Max | V | 182 | 166 | 54 | -15.5 | Pass | RB |
| 4923.975 | 33.3 | 5.7 | -2.5 | 36.5 | Average Max | V | 118 | 198 | 54 | -17.5 | Pass | RB |
| 2430.862 | 49.7 | 3.9 | -5.3 | 48.3 | Peak [Scan] | H | 200 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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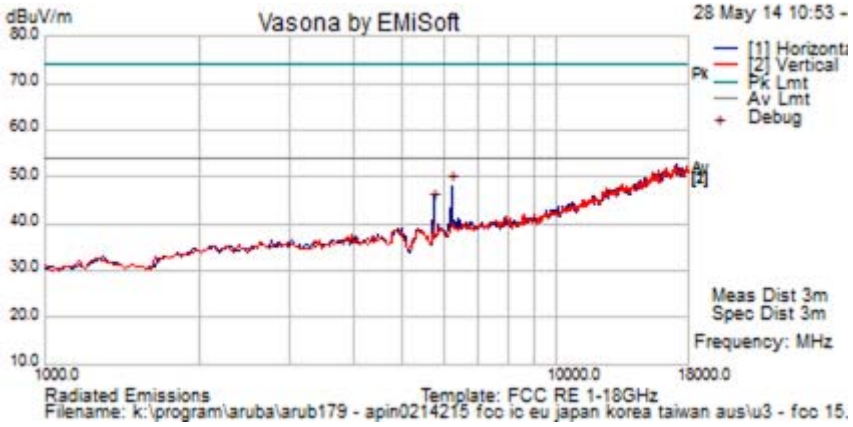
| | | | |
|---|---|---|---|
| **Test Freq.** | 5745 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.5 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | Integral | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP215 P302; EUT=Vertical; S/N : CK0000953; MAC: 24 DE C6 CF 5D 38; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6212.425 | 42.1 | 6.6 | -0.6 | 48.0 | Peak [Scan] | H | 150 | | | | | NRB |
| 5731.037 | 40.0 | 6.2 | -1.9 | 44.3 | Peak [Scan] | H | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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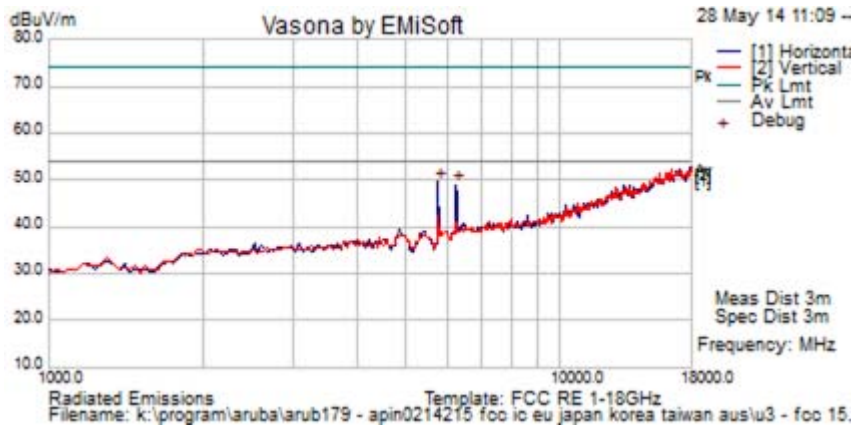
| | | | |
|---|---|---|---|
| **Test Freq.** | 5785 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.5 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | Integral | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP215 P302; EUT=Vertical; S/N : CK0000953; MAC: 24 DE C6 CF 5D 38; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5769.539 | 45.0 | 6.3 | -1.8 | 49.5 | Peak [Scan] | H | 100 | | | | | FUND |
| 6246.49299 | 42.9 | 6.6 | -0.6 | 48.9 | Peak [Scan] | H | 150 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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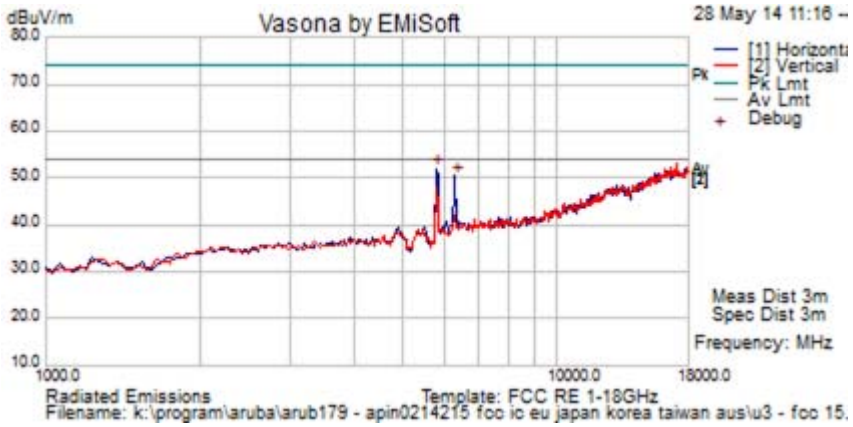
| | | | |
|---|---|---|---|
| **Test Freq.** | 5825 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.5 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | Integral | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP215 P302; EUT=Vertical; S/N : CK0000953; MAC: 24 DE C6 CF 5D 38; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5803.607 | 47.4 | 6.3 | -1.8 | 51.9 | Peak [Scan] | H | 100 | | | | | FUND |
| 6314.62926 | 44.4 | 6.6 | -0.6 | 50.5 | Peak [Scan] | H | 100 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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**Band-Edge Antenna Integral**

**Peak Limit 74.0 dBµV/m, Average Limit 54.0 dBµV/m**

**2.4 GHz Frequency Band**

| | Restricted Band 2390 MHz | | | Restricted Band 2483.5 MHz | | |
|---|---|---|---|---|---|---|
| | dBµV/m | | Power Setting | dBµV/m | | Power Setting |
| Operational Mode | Peak | Average | | Peak | Average | |
| b | 66.55 | 46.11 | 19 | 73.89 | 52.32 | 17 |
| g | 67.98 | 53.72 | 17 | 71.25 | 53.89 | 14 |
| n HT-20 | 67.67 | 52.72 | 17 | 70.82 | 53.30 | 17.5 |
| n HT-40 | 65.61 | 53.65 | 11.5 | 71.20 | 53.75 | 13.5 |

**5.8 GHz Frequency Band**

| | Restricted Band 5460 MHz | | |
|---|---|---|---|
| Operational Mode | Peak | Average | Power Setting |
| a | 53.86 | 40.88 | 19 |
| n HT-20 | 54.03 | 40.88 | 19 |
| n HT-40 | 54.03 | 40.88 | 19 |
| ac-80 | 54.03 | 40.88 | 19 |

All band-edge plots are kept on file by the laboratory

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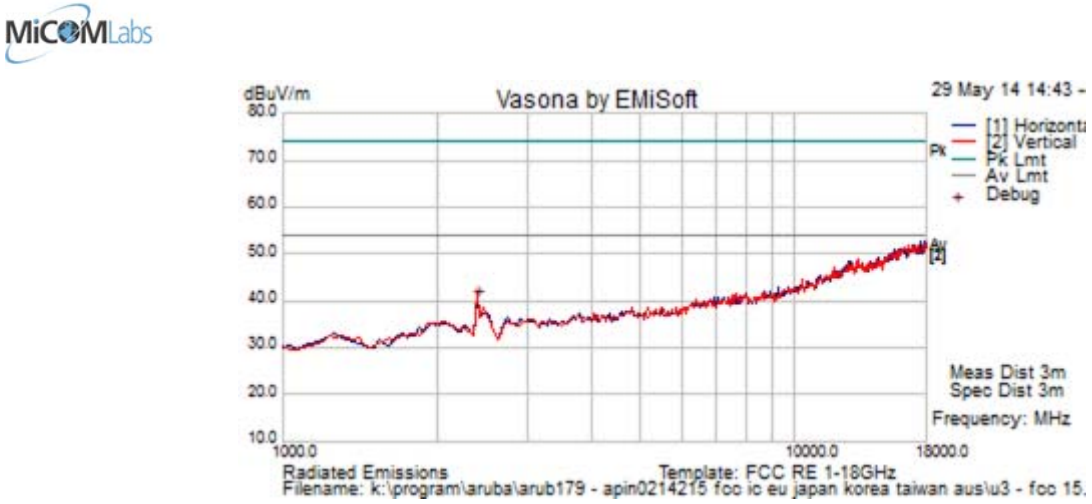
### 5.1.2.2. AP-ANT-1B – Spurious and Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Test Freq.** | 2412 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 1B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




**Formally measured emission peaks**

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2400.753 | 41.5 | 3.9 | -5.5 | 40.0 | Peak [Scan] | V | 98 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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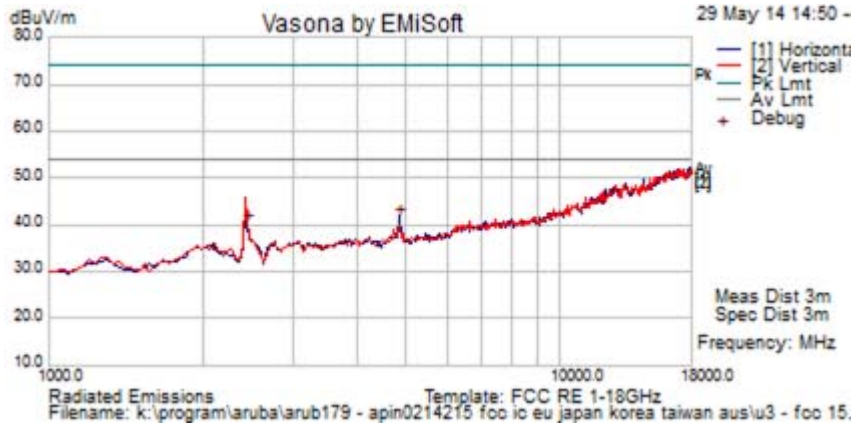
| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 1B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4845.948 | 38.0 | 5.7 | -2.3 | 41.4 | Peak [Scan] | V | 98 | -1 | 54.0 | -12.6 | Pass | RB |
| 2446.284 | 41.5 | 4.0 | -5.2 | 40.2 | Peak [Scan] | V | 98 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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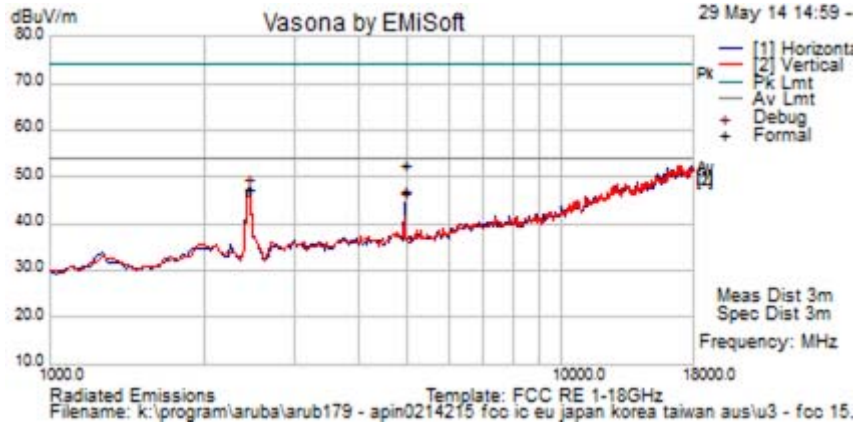
| | | | |
|---|---|---|---|
| **Test Freq.** | 2462 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 1B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4923.835 | 49.2 | 5.7 | -2.5 | 52.5 | Peak Max | H | 125 | 226 | 74.0 | -21.5 | Pass | RB |
| 4923.835 | 43.6 | 5.7 | -2.5 | 46.8 | Average Max | H | 125 | 226 | 54.0 | -7.2 | Pass | RB |
| 2446.284 | 48.6 | 4.0 | -5.2 | 47.3 | Peak [Scan] | V | 99 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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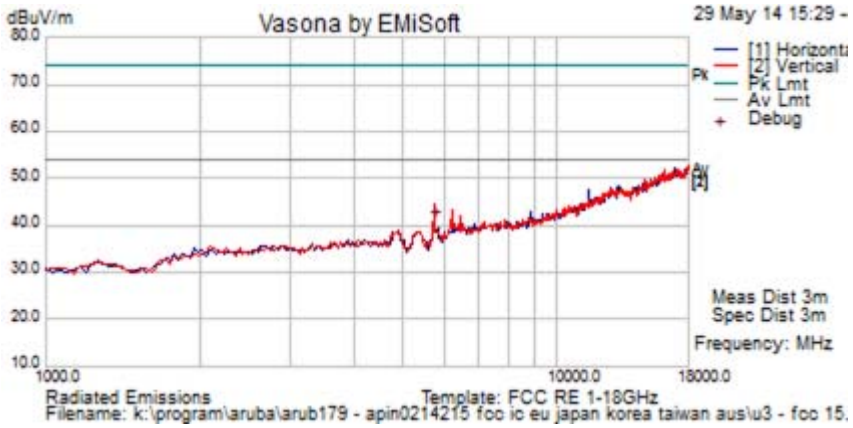
| | | | |
|---|---|---|---|
| **Test Freq.** | 5745 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 1B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5755.294 | 36.6 | 6.3 | -1.8 | 41.0 | Peak [Scan] | V | 98 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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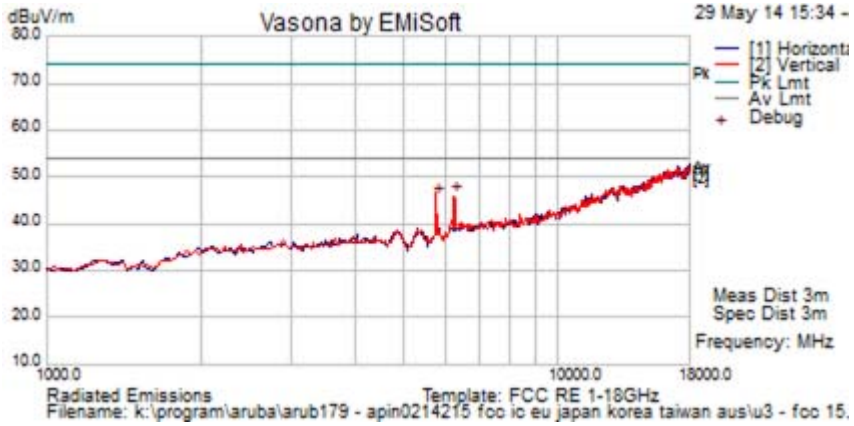
| | | | |
|---|---|---|---|
| **Test Freq.** | 5785 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 1B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5774.592 | 41.1 | 6.3 | -1.8 | 45.6 | Peak [Scan] | V | 98 | | | | | FUND |
| 6249.44 | 39.9 | 6.6 | -0.5 | 45.9 | Peak [Scan] | V | 98 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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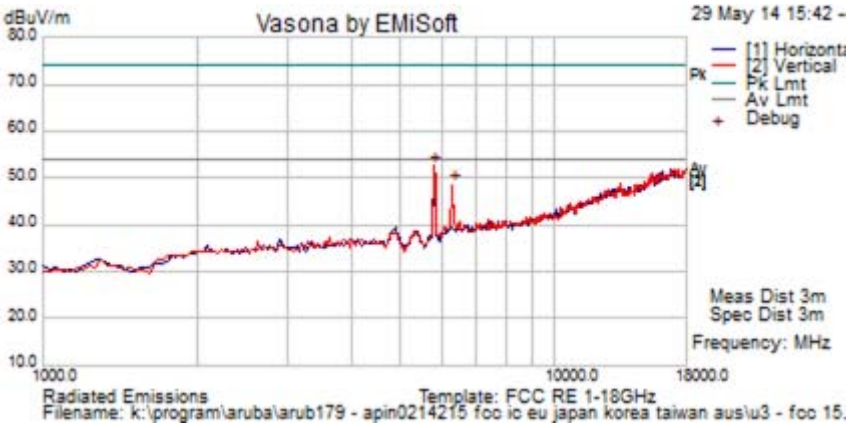
| | | | |
|---|---|---|---|
| **Test Freq.** | 5825 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 1B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5803.607 | 48.2 | 6.3 | -1.8 | 52.7 | Peak [Scan] | V | 100 | | | | | FUND |
| 6314.62926 | 42.5 | 6.6 | -0.6 | 48.5 | Peak [Scan] | V | 150 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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**Band-Edge Antenna AP-ANT-1B**

**Peak Limit 74.0 dBµV/m, Average Limit 54.0 dBµV/m**

**2.4 GHz Frequency Band**

| | Restricted Band 2390 MHz | | | Restricted Band 2483.5 MHz | | |
|---|---|---|---|---|---|---|
| | dBµV/m | | Power Setting | dBµV/m | | Power Setting |
| Operational Mode | Peak | Average | | Peak | Average | |
| b | 59.41 | 40.76 | 19 | 73.08 | 50.49 | 19 |
| g | 68.67 | 53.65 | 17 | 71.22 | 53.90 | 15.5 |
| n HT-20 | 69.17 | 53.27 | 17.25 | 67.33 | 49.06 | 19 |
| n HT-40 | 66.34 | 53.65 | 12 | 68.62 | 49.18 | 19 |

**5.8 GHz Frequency Band**

| | Restricted Band 5460 MHz | | |
|---|---|---|---|
| Operational Mode | Peak | Average | Power Setting |
| a | 54.86 | 41.99 | 20 |
| n HT-20 | 54.62 | 41.27 | 20 |
| n HT-40 | 54.54 | 41.99 | 23 |
| ac-80 | 54.78 | 41.27 | 23 |

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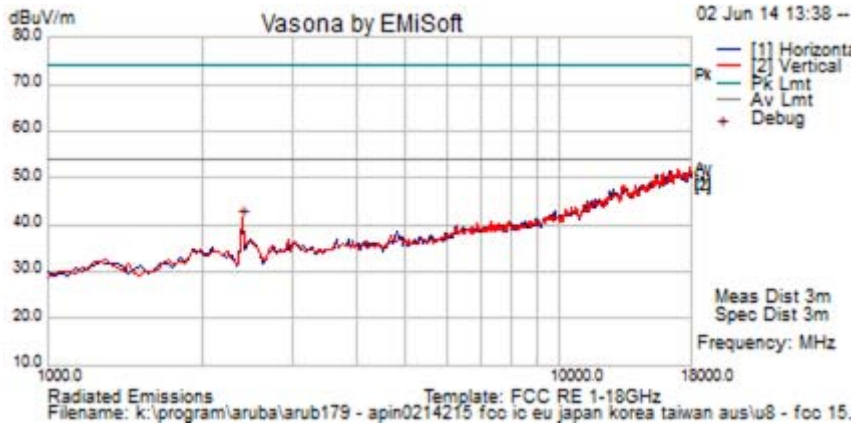
### 5.1.2.3. AP-ANT-13B – Spurious and Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Test Freq.** | 2412 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 13B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2397.261 | 42.5 | 3.9 | -5.5 | 40.9 | Peak [Scan] | V | 101 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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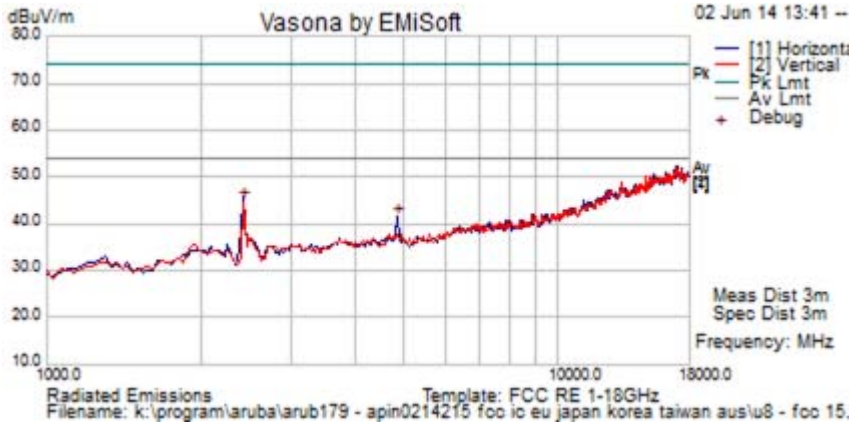
| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 13B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2425.744 | 46.1 | 3.9 | -5.3 | 44.7 | Peak [Scan] | V | 101 | | | | | FUND |
| 4847.653 | 37.8 | 5.7 | -2.3 | 41.2 | Peak [Scan] | H | 101 | -1 | 54.0 | -12.8 | Pass | RB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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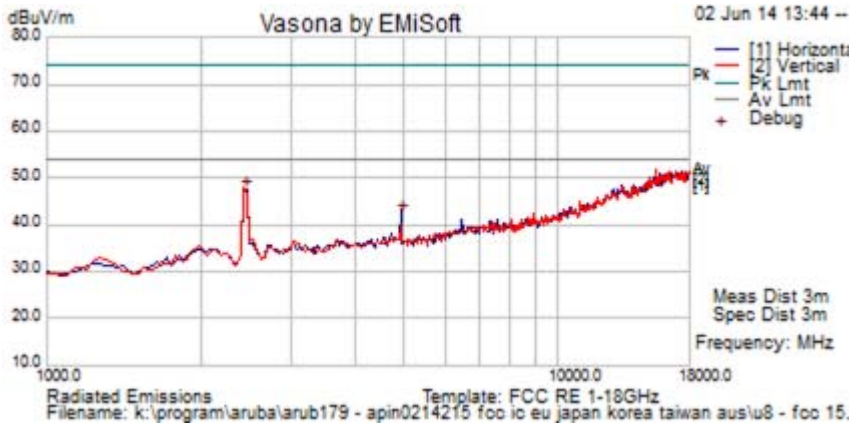
| | | | |
|---|---|---|---|
| **Test Freq.** | 2462 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 13B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2446.634 | 48.6 | 4.0 | -5.2 | 47.4 | Peak [Scan] | V | 101 | | | | | FUND |
| 4912.630 | 37.9 | 5.7 | -2.4 | 41.2 | Peak [Scan] | V | 101 | -1 | 54.0 | -12.8 | Pass | RB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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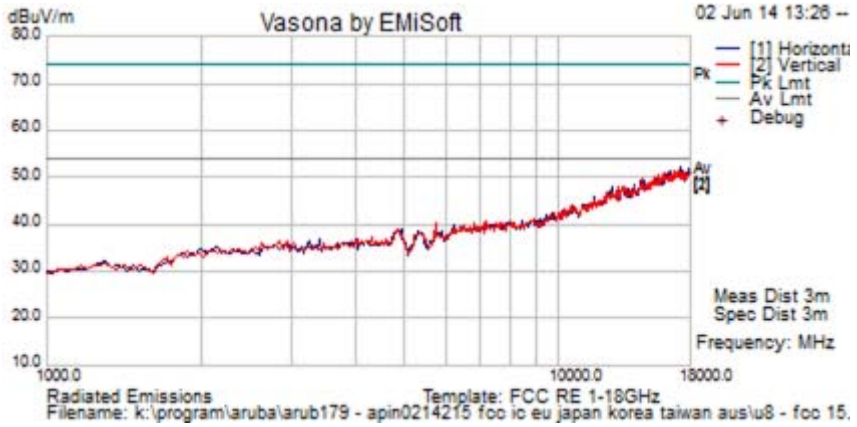
| | | | |
|---|---|---|---|
| **Test Freq.** | 5745 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 13B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5737.025 | 42.1 | 6.2 | -1.9 | 46.4 | Peak [Scan] | V | 101 | | | | | FUND |
| 6223.893 | 37.1 | 6.6 | -0.6 | 43.0 | Peak [Scan] | V | 101 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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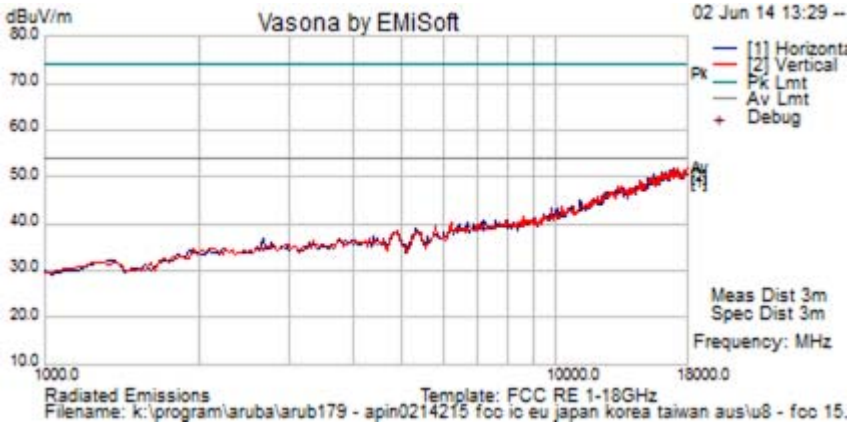
| | | | |
|---|---|---|---|
| **Test Freq.** | 5785 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 13B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Emissions observed within 6dB of the limit. | | | | | | | | | | | | |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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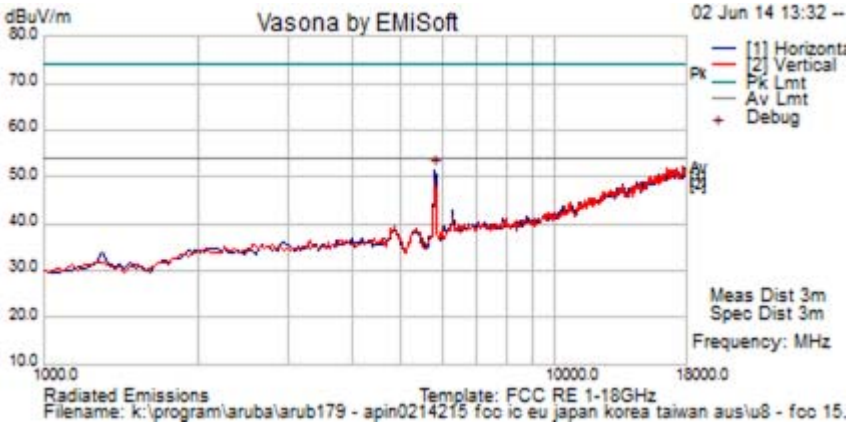
| | | | |
|---|---|---|---|
| **Test Freq.** | 5825 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 13B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5803.607 | 47.1 | 6.3 | -1.8 | 51.6 | Peak [Scan] | H | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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**Band-Edge Antenna AP-ANT-13B**

**Peak Limit 74.0 dBµV/m, Average Limit 54.0 dBµV/m**

**2.4 GHz Frequency Band**

| | Restricted Band 2390 MHz | | | Restricted Band 2483.5 MHz | | |
|---|---|---|---|---|---|---|
| | dBµV/m | | Power Setting | dBµV/m | | Power Setting |
| Operational Mode | Peak | Average | | Peak | Average | |
| b | 61.57 | 47.28 | 19 | 70.67 | 53.56 | 15 |
| g | 68.98 | 53.21 | 16 | 72.41 | 53.80 | 13 |
| n HT-20 | 69.02 | 53.02 | 16.5 | 71.96 | 52.90 | 17 |
| n HT-40 | 66.28 | 53.83 | 10 | 68.33 | 52.60 | 17 |

**5.8 GHz Frequency Band**

| | Restricted Band 5460 MHz | | |
|---|---|---|---|
| Operational Mode | Peak | Average | Power Setting |
| a | 55.55 | 42.72 | 23 |
| n HT-20 | 55.55 | 42.82 | 23 |
| n HT-40 | 55.88 | 42.83 | 23 |
| ac-80 | 55.54 | 42.72 | 23 |

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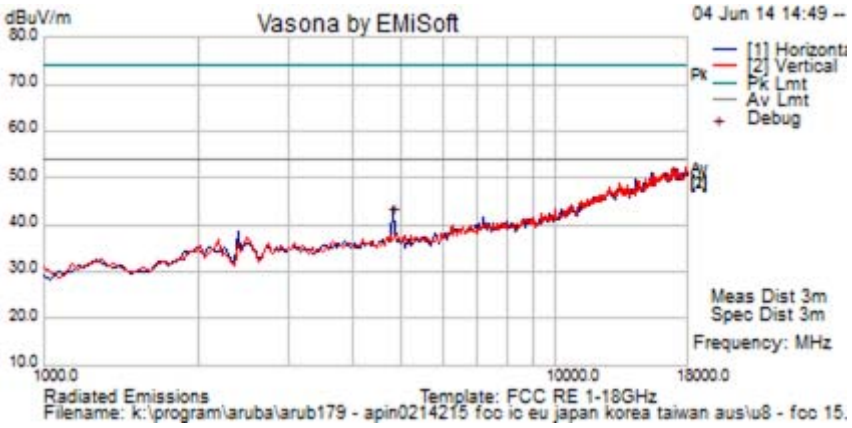
### 5.1.2.4. AP-ANT-16 – Spurious and Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Test Freq.** | 2412 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 16 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




**Formally measured emission peaks**

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4804.110 | 38.0 | 5.7 | -2.3 | 41.4 | Peak [Scan] | V | 99 | 361 | 54.0 | -12.6 | Pass | RB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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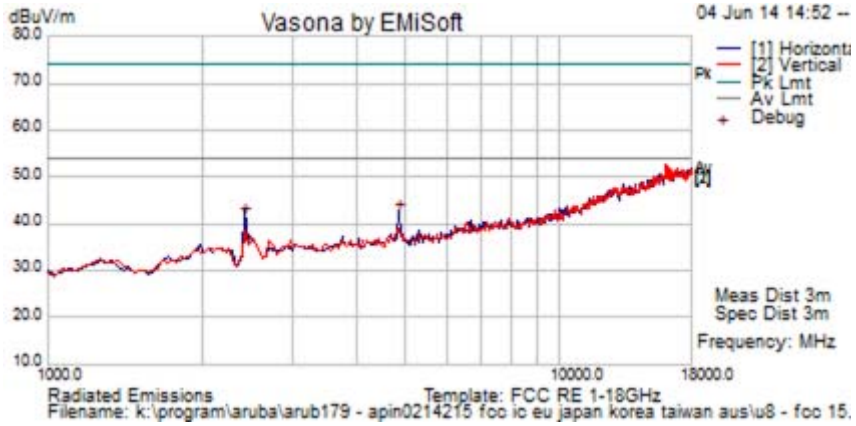
| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 16 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4845.948 | 38.6 | 5.7 | -2.3 | 42.0 | Peak [Scan] | H | 99 | 361 | 54.0 | -12.0 | Pass | RB |
| 2425.163 | 42.7 | 3.9 | -5.3 | 41.3 | Peak [Scan] | H | 99 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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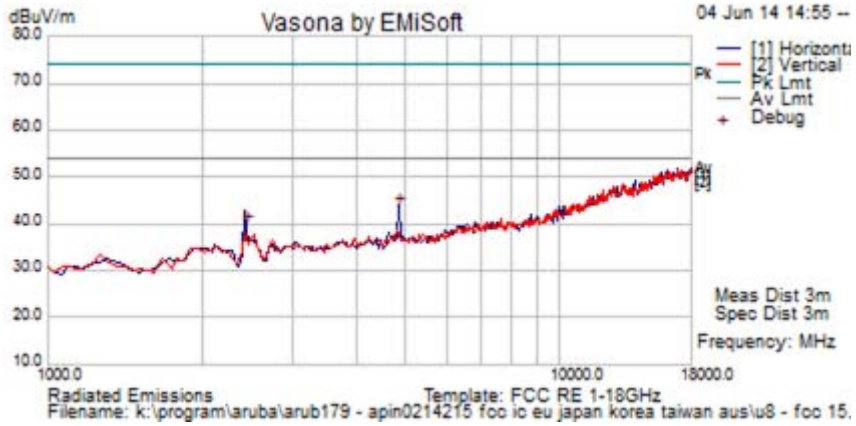
| | | | |
|---|---|---|---|
| **Test Freq.** | 2462 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 16 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4845.948 | 38.5 | 5.7 | -2.3 | 41.9 | Peak [Scan] | V | 99 | 361 | 54.0 | -12.1 | Pass | RB |
| 2446.284 | 41.0 | 4.0 | -5.2 | 39.8 | Peak [Scan] | V | 99 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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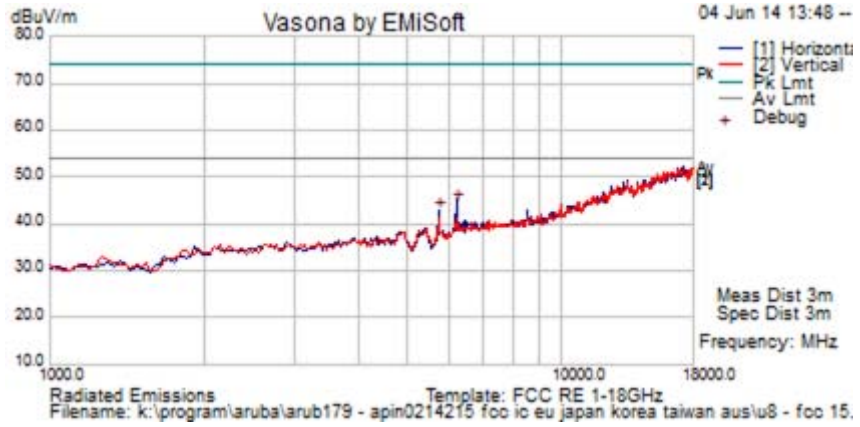
| | | | |
|---|---|---|---|
| **Test Freq.** | 5745 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 16 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6207.330 | 38.4 | 6.5 | -0.7 | 44.3 | Peak [Scan] | V | 99 | | | | | NRB |
| 5736.948 | 38.4 | 6.2 | -1.9 | 42.8 | Peak [Scan] | V | 99 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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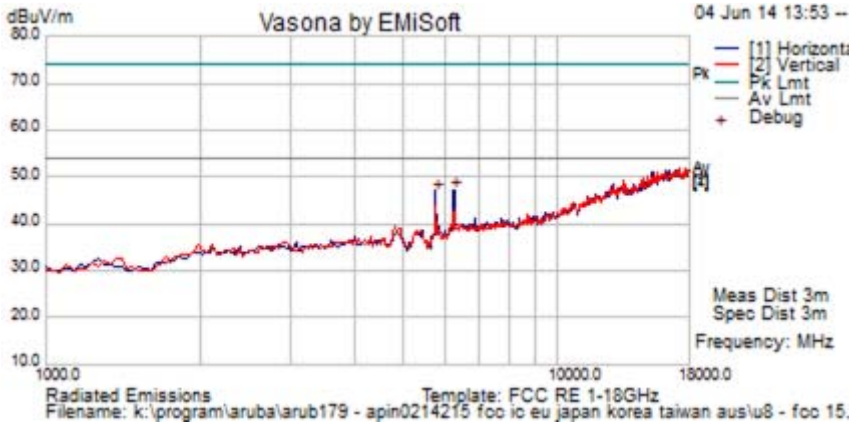
| | | | |
|---|---|---|---|
| **Test Freq.** | 5785 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 16 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5771.890 | 42.2 | 6.3 | -1.8 | 46.7 | Peak [Scan] | V | 99 | | | | | FUND |
| 6269.106 | 41.1 | 6.6 | -0.6 | 47.1 | Peak [Scan] | V | 99 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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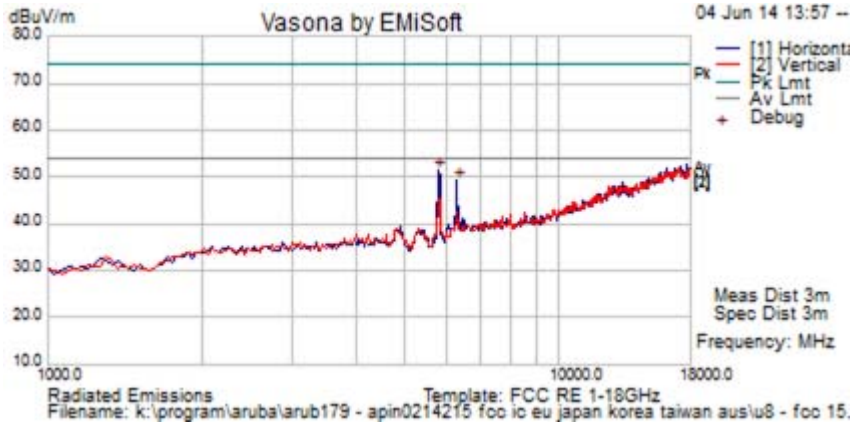
| | | | |
|---|---|---|---|
| **Test Freq.** | 5825 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 16 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5803.607 | 46.8 | 6.3 | -1.8 | 51.3 | Peak [Scan] | H | 100 | | | | | FUND |
| 6314.62926 | 43.2 | 6.6 | -0.6 | 49.3 | Peak [Scan] | H | 100 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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**Antenna AP-ANT-16**

**Peak Limit 74.0 dBµV/m, Average Limit 54.0 dBµV/m**

**2.4 GHz Frequency Band**

| | Restricted Band 2390 MHz | | | Restricted Band 2483.5 MHz | | |
|---|---|---|---|---|---|---|
| | dBµV/m | | Power Setting | dBµV/m | | Power Setting |
| Operational Mode | Peak | Average | | Peak | Average | |
| b | 54.84 | 41.01 | 19 | 67.70 | 48.57 | 15 |
| g | 68.07 | 53.27 | 16 | 72.05 | 53.13 | 13 |
| n HT-20 | 68.47 | 53.02 | 16.5 | 67.07 | 45.34 | 17 |
| n HT-40 | 67.46 | 53.82 | 10 | 63.94 | 45.42 | 17 |

**5.8 GHz Frequency Band**

| | Restricted Band 5460 MHz | | |
|---|---|---|---|
| Operational Mode | Peak | Average | Power Setting |
| a | 54.79 | 41.75 | 23 |
| n HT-20 | 54.61 | 41.75 | 23 |
| n HT-40 | 54.54 | 41.65 | 23 |
| ac-80 | 54.51 | 41.76 | 23 |

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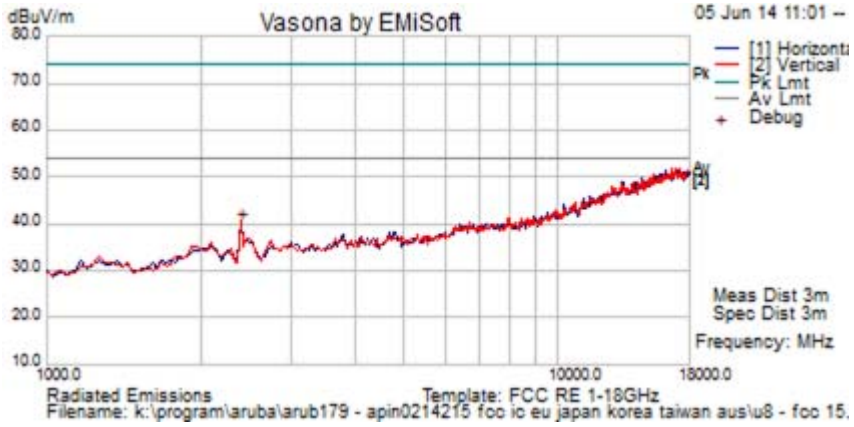
### 5.1.2.5. AP-ANT-18 – Spurious and Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Test Freq.** | 2412 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 18 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2401.063 | 41.5 | 3.9 | -5.5 | 39.9 | Peak [Scan] | V | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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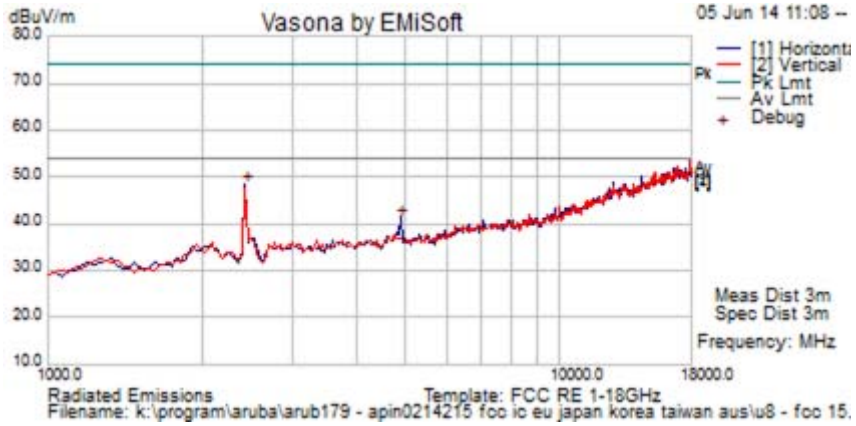
| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 18 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4881.506 | 37.7 | 5.7 | -2.3 | 41.1 | Peak [Scan] | V | 100 | 361 | 54.0 | -12.9 | Pass | RB |
| 2430.86172 | 49.8 | 3.9 | -5.3 | 48.4 | Peak [Scan] | H | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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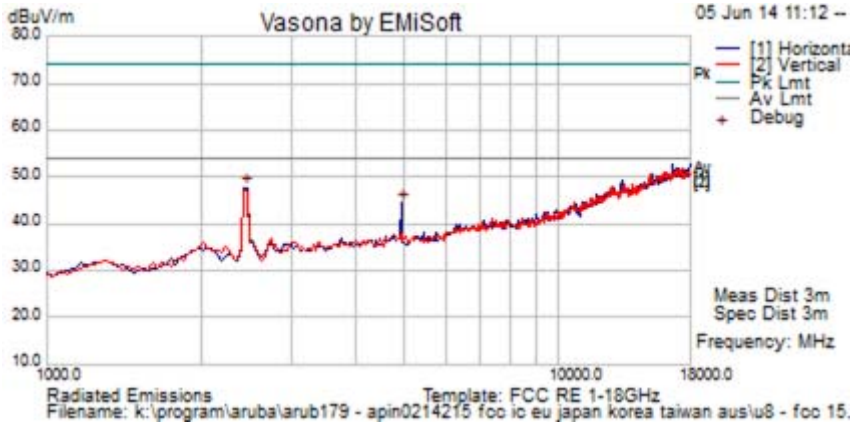
| | | | |
|---|---|---|---|
| **Test Freq.** | 2462 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 18 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4916.944 | 41.0 | 5.7 | -2.4 | 44.3 | Peak [Scan] | V | 100 | 361 | 54.0 | -9.7 | Pass | RB |
| 2447.504 | 48.9 | 4.0 | -5.2 | 47.6 | Peak [Scan] | V | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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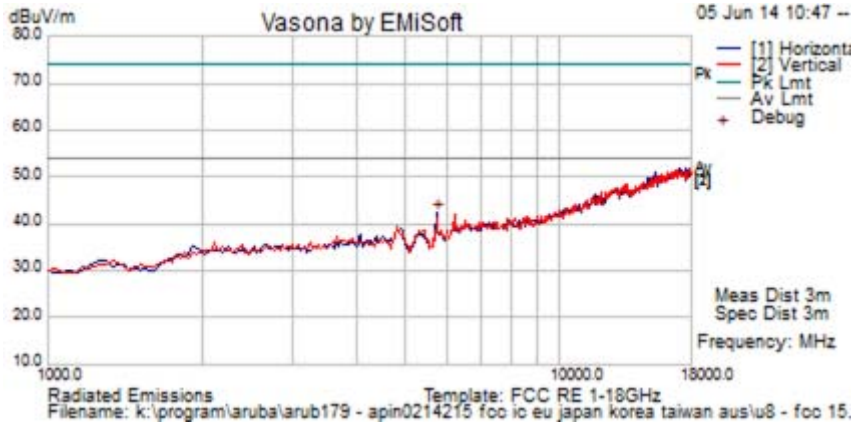
| | | | |
|---|---|---|---|
| **Test Freq.** | 5745 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 18 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5737.543 | 37.9 | 6.2 | -1.9 | 42.3 | Peak [Scan] | V | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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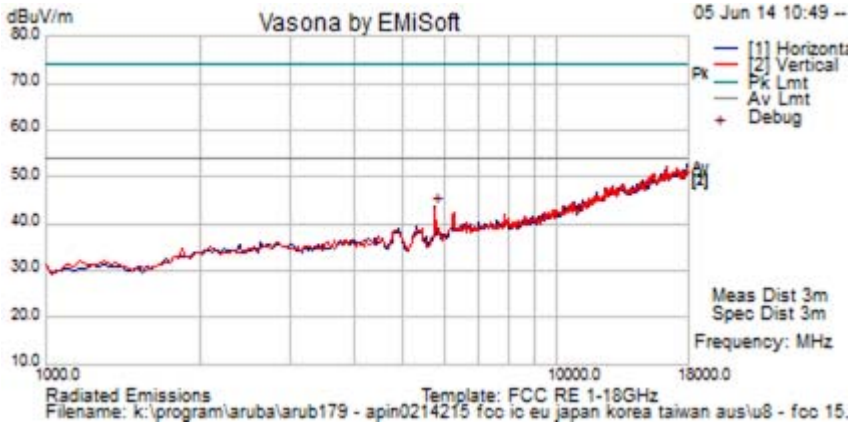
| | | | |
|---|---|---|---|
| **Test Freq.** | 5785 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 18 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5771.890 | 38.9 | 6.3 | -1.8 | 43.3 | Peak [Scan] | V | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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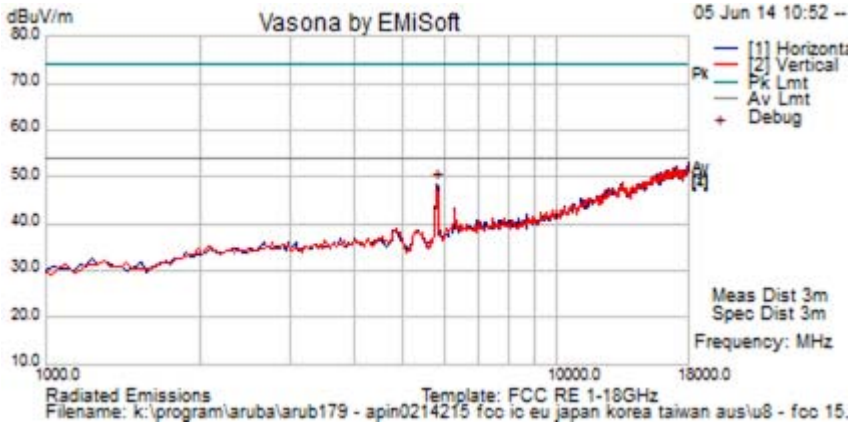
| | | | |
|---|---|---|---|
| **Test Freq.** | 5825 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 18 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5803.607 | 44.0 | 6.3 | -1.8 | 48.5 | Peak [Scan] | H | 100 | | | | | FUND |
| 6321.528 | 36.3 | 6.6 | -0.6 | 42.4 | Peak [Scan] | V | 100 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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**Antenna AP-ANT-18**

**Peak Limit 74.0 dBµV/m, Average Limit 54.0 dBµV/m**

**2.4 GHz Frequency Band**

| | Restricted Band 2390 MHz | | | Restricted Band 2483.5 MHz | | |
|---|---|---|---|---|---|---|
| | dBµV/m | | Power Setting | dBµV/m | | Power Setting |
| Operational Mode | Peak | Average | | Peak | Average | |
| b | 64.63 | 45.75 | 19 | 72.72 | 53.59 | 16.25 |
| g | 68.00 | 52.67 | 16 | 73.80 | 51.44 | 12.5 |
| n HT-20 | 70.17 | 53.42 | 16.5 | 71.45 | 53.13 | 17.5 |
| n HT-40 | 65.83 | 52.83 | 10 | 69.69 | 50.67 | 17 |

**5.8 GHz Frequency Band**

| | Restricted Band 5460 MHz | | |
|---|---|---|---|
| Operational Mode | Peak | Average | Power Setting |
| a | 54.69 | 42.09 | 23 |
| n HT-20 | 55.36 | 42.20 | 23 |
| n HT-40 | 55.81 | 42.20 | 23 |
| ac-80 | 54.89 | 42.31 | 23 |

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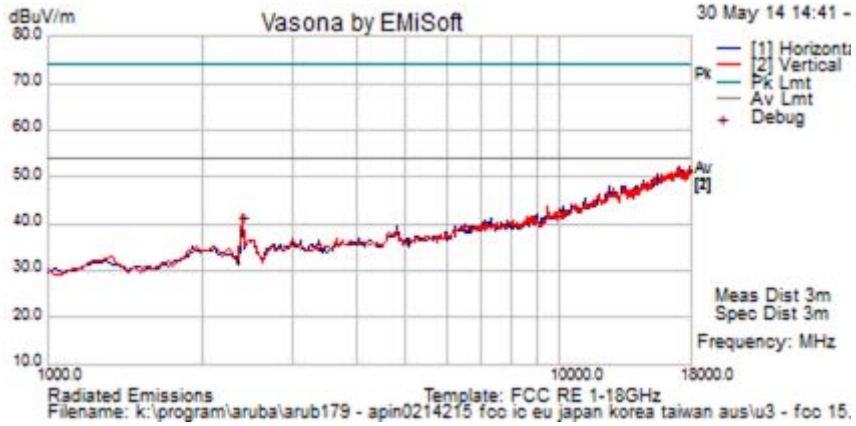
### 5.1.2.6. AP-ANT-19 – Spurious and Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Test Freq.** | 2412 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 19 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




#### Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2400.753 | 40.8 | 3.9 | -5.5 | 39.3 | Peak [Scan] | V | 101 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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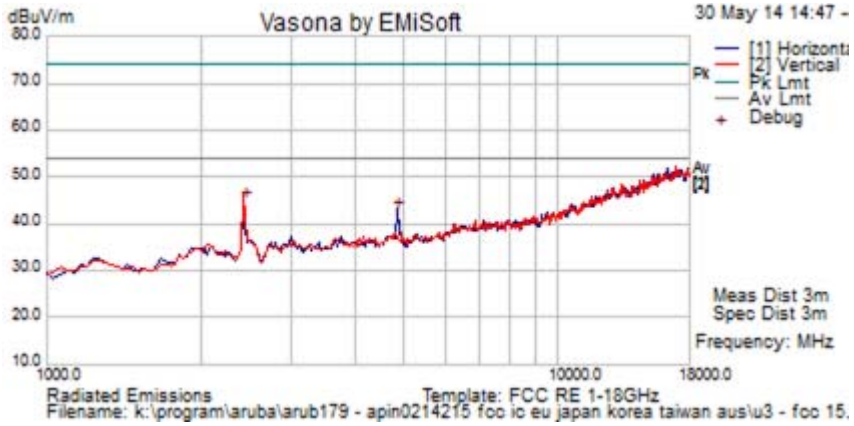
| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 19 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4847.697 | 38.5 | 5.7 | -2.3 | 41.9 | Peak [Scan] | V | 101 | 361 | 54.0 | -12.1 | Pass | RB |
| 2435.371 | 46.2 | 4.0 | -5.3 | 44.8 | Peak [Scan] | V | 101 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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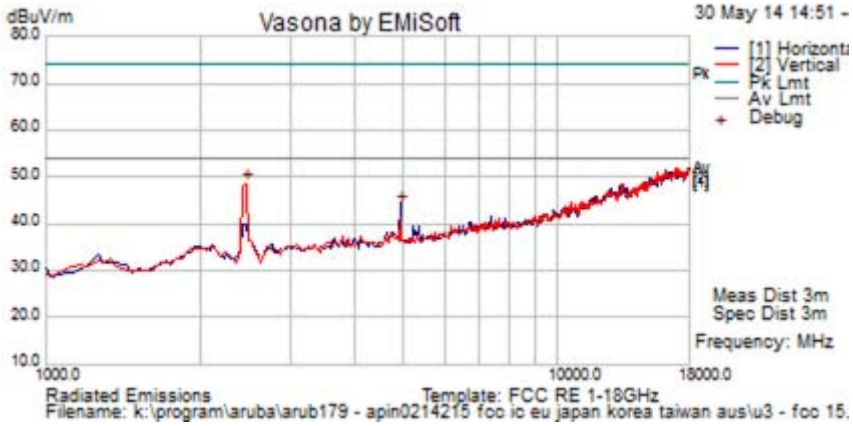
| | | | |
|---|---|---|---|
| **Test Freq.** | 2462 MHz | **Engineer** | SB |
| **Variant** | 802.11b; 1 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 20 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 19 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4913.957 | 38.6 | 5.7 | -2.4 | 41.8 | Peak [Scan] | V | 101 | 361 | 54.0 | -12.2 | Pass | RB |
| 2464.930 | 49.8 | 4.0 | -5.2 | 48.6 | Peak [Scan] | V | 100 | | | | | FUND |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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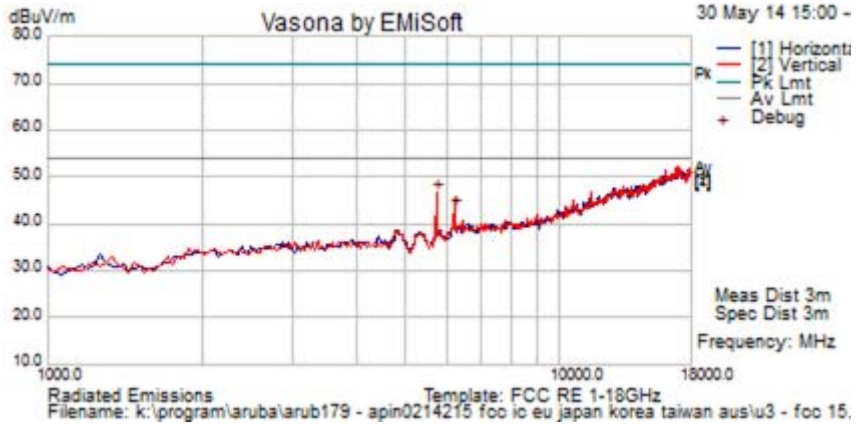
| | | | |
|---|---|---|---|
| **Test Freq.** | 5745 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 19 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5737.025 | 42.1 | 6.2 | -1.9 | 46.4 | Peak [Scan] | V | 101 | | | | | FUND |
| 6223.893 | 37.1 | 6.6 | -0.6 | 43.0 | Peak [Scan] | V | 101 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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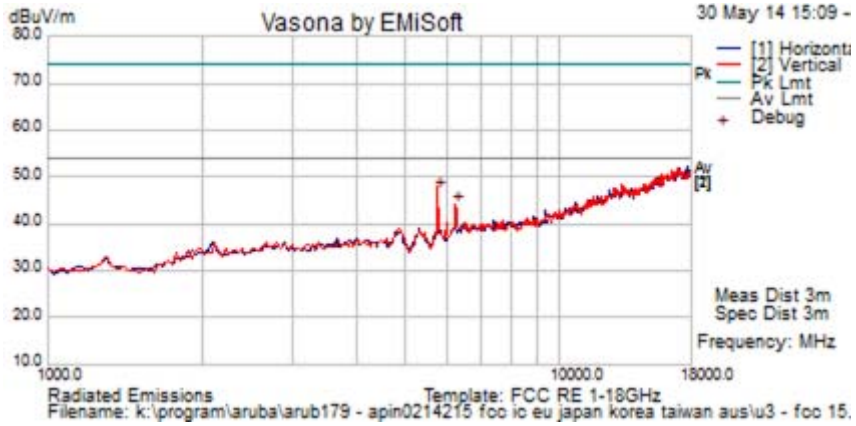
| | | | |
|---|---|---|---|
| **Test Freq.** | 5785 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 19 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5766.229 | 42.4 | 6.3 | -1.8 | 46.9 | Peak [Scan] | V | 101 | | | | | FUND |
| 6258.561 | 37.8 | 6.6 | -0.6 | 43.9 | Peak [Scan] | V | 101 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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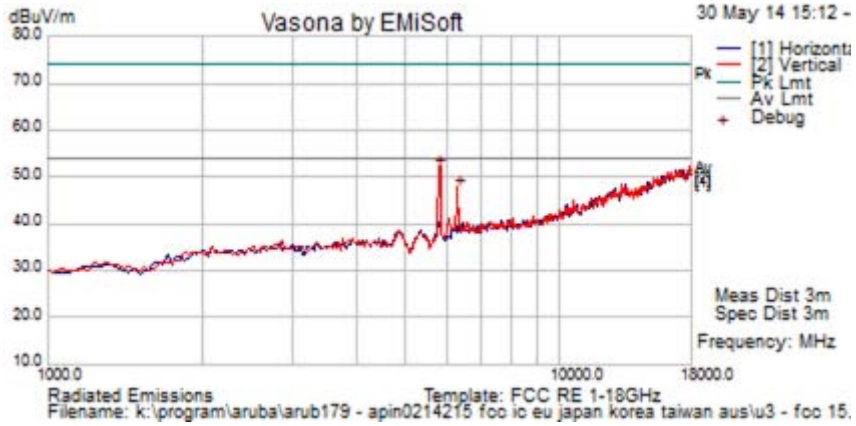
| | | | |
|---|---|---|---|
| **Test Freq.** | 5825 MHz | **Engineer** | SB |
| **Variant** | 802.11a; 6.0 Mbs | **Temp (ºC)** | 18.5 |
| **Freq. Range** | 1000 MHz - 18000 MHz | **Rel. Hum.(%)** | 34 |
| **Power Setting** | 23 | **Press. (mBars)** | 1004 |
| **Antenna** | AP ANT 19 | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5801.741 | 47.2 | 6.3 | -1.8 | 51.7 | Peak [Scan] | V | 101 | | | | | FUND |
| 6309.986 | 41.3 | 6.6 | -0.6 | 47.4 | Peak [Scan] | V | 101 | | | | | NRB |

| | |
|---|---|
| Legend: | TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission |
| | RB = Restricted Band (15.209 Limits); NRB = Non Restricted Band, Limit is 20dB below fundamental peak |

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**Antenna AP-ANT-19**

**Peak Limit 74.0 dBµV/m, Average Limit 54.0 dBµV/m**

**2.4 GHz Frequency Band**

| | Restricted Band 2390 MHz | | | Restricted Band 2483.5 MHz | | |
|---|---|---|---|---|---|---|
| | dBµV/m | | Power Setting | dBµV/m | | Power Setting |
| Operational Mode | Peak | Average | | Peak | Average | |
| b | 58.21 | 43.97 | 19 | 70.87 | 53.53 | 16.75 |
| g | 68.58 | 53.50 | 16.5 | 73.16 | 53.16 | 13.5 |
| n HT-20 | 69.35 | 53.48 | 17 | 71.89 | 53.53 | 17.25 |
| n HT-40 | 67.76 | 53.75 | 11.75 | 70.48 | 53.68 | 17.25 |

**5.8 GHz Frequency Band**

| | Restricted Band 5460 MHz | | |
|---|---|---|---|
| Operational Mode | Peak | Average | Power Setting |
| a | 56.28 | 43.22 | 19 |
| n HT-20 | 56.13 | 43.22 | 28 |
| n HT-40 | 56.61 | 43.08 | 23 |
| ac-80 | 56.98 | 43.31 | 23 |

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## Specification Limits

**FCC §15.247(d) and RSS-210 §A8.5** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

**FCC §15.247(d)**
If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section §15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(a)).

**IC RSS-210 §A8.5** If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

**IC RSS-Gen §4.7**
The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate of carrier frequency), or from 30 MHz , whichever is the lowest frequency, to the 5$^{th}$ harmonic of the highest frequency generated without exceeding 40 GHz.

**FCC §15.205 (a)** Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

**FCC §15.205 (a)** Except as shown 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 Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

**FCC §15.209 (a)** Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

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**§15.209 (a)** Limit Matrix

| Frequency(MHz) | Field Strength (μV/m) | Field Strength (dBμV/m) | Measurement Distance (meters) |
|---|---|---|---|
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

**Laboratory Measurement Uncertainty for Radiated Emissions**

| | |
|---|---|
| Measurement uncertainty | +5.6/ -4.5 dB |

**Traceability**

| Method | Test Equipment Used |
|---|---|
| Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions' | 0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312 |

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### 5.1.2.7. Digital Emissions (0.03-1 GHz)

**FCC, Part 15 Subpart C §15.205/ §15.209**
**Industry Canada RSS-210 §2.2**

**Test Procedure**

Testing 30M-1 GHz was performed in a 3-meter anechoic chamber using a CISPR compliant receiver. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. To further maximize emissions the receive antenna was varied between 1 and 4 meters. The emissions are recorded with receiver in peak hold mode. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed. The anechoic chamber test set-up is identified in Section 6 Test Set-Up Photographs.

The EUT had two methods of powering on ac/dc converter and Power over Ethernet (POE). Both modes were tested for emissions below 1GHz.

**Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver.

$$FS = R + AF + CORR$$

where:

FS = Field Strength
R = Measured Receiver Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain

For example:
Given a Receiver input reading of 51.5dBμV; Antenna Factor of 8.5dB; Cable Loss of 1.3dB; Falloff Factor of 0dB, an Amplifier Gain of 26dB and Notch Filter Loss of 1dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3dBμV/m

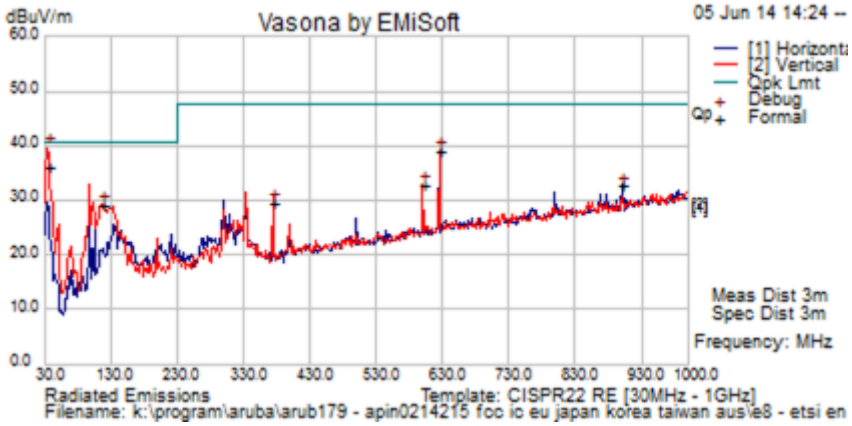
Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100μV/m
48 dBμV/m = 250μV/m

**APIN0214**

| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | SB |
| **Variant** | Digital Emissions | **Temp (ºC)** | 24 |
| **Freq. Range** | 30 MHz - 1000 MHz | **Rel. Hum.(%)** | 32 |
| **Power Setting** | 19 | **Press. (mBars)** | 997 |
| **Antenna** | AP ANT 1B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | Sunny Switching Adapter; Model: SYS1357-1812; 12VDC / 1/5A; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35.732 | 46.3 | 3.6 | -13.8 | 36.1 | Quasi Max | V | 97 | 361 | 40.5 | -4.4 | Pass | |
| 624.991 | 43.4 | 6.3 | -10.6 | 39.1 | Peak [Scan] | V | 98 | 361 | 47.5 | -8.4 | Pass | |
| 600.005 | 38.0 | 6.2 | -11.3 | 32.9 | Peak [Scan] | H | 98 | 361 | 47.5 | -14.6 | Pass | |
| 116.099 | 42.6 | 4.2 | -17.6 | 29.2 | Peak [Scan] | V | 98 | 361 | 40.5 | -11.3 | Pass | |
| 374.987 | 39.4 | 5.4 | -15.3 | 29.5 | Peak [Scan] | V | 98 | 361 | 47.5 | -18.0 | Pass | |
| 900.957 | 32.6 | 7.1 | -7.2 | 32.6 | Peak [Scan] | H | 98 | 361 | 47.5 | -14.9 | Pass | |

| | |
|---|---|
| Legend: | DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency |
| | NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band |

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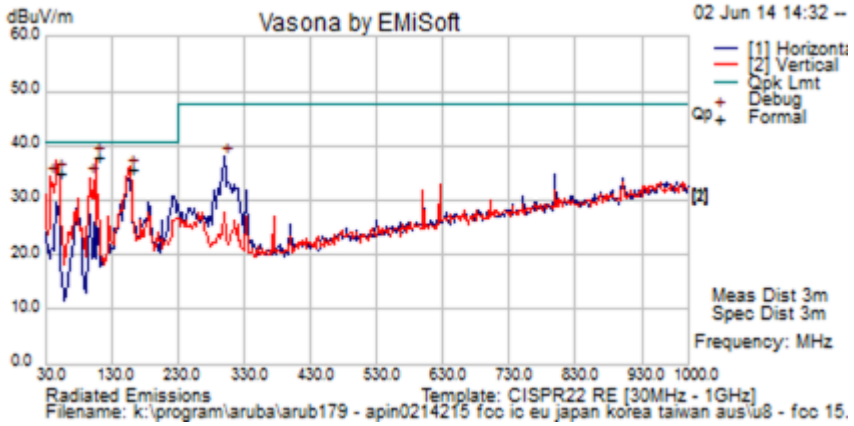
**APIN0214**

| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 MHz | **Engineer** | JMH |
| **Variant** | Digital Emissions | **Temp (ºC)** | 24 |
| **Freq. Range** | 30 MHz - 1000 MHz | **Rel. Hum.(%)** | 32 |
| **Power Setting** | 19 | **Press. (mBars)** | 997 |
| **Antenna** | AP ANT 13B | **Duty Cycle (%)** | 99 |
| **Test Notes 1** | AP214 P302; EUT=Vertical; S/N : CK0000634; MAC: 24 DE C6 CF 5A BA; | | |
| **Test Notes 2** | POE:PowerDSine 9001GR 55VDC / 350mA; | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.130 | 54.1 | 3.7 | -22.8 | 35.0 | Quasi Max | V | 109 | 95 | 40.5 | -5.5 | Pass | |
| 106.904 | 52.4 | 4.1 | -19.1 | 37.4 | Quasi Max | V | 106 | 112 | 40.5 | -3.1 | Pass | |
| 158.567 | 49.7 | 4.4 | -18.4 | 35.8 | Quasi Max | V | 99 | 108 | 40.5 | -4.7 | Pass | |
| 38.040 | 46.4 | 3.6 | -15.8 | 34.3 | Peak [Scan] | V | 98 | 0 | 40.5 | -6.3 | Pass | |
| 98.055 | 51.4 | 4.1 | -21.4 | 34.1 | Peak [Scan] | V | 98 | 0 | 40.5 | -6.4 | Pass | |
| 300.280 | 49.8 | 5.1 | -17.0 | 37.9 | Peak [Scan] | H | 98 | 0 | 47.5 | -9.6 | Pass | |

| | |
|---|---|
| Legend: | DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency |
| | NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band |

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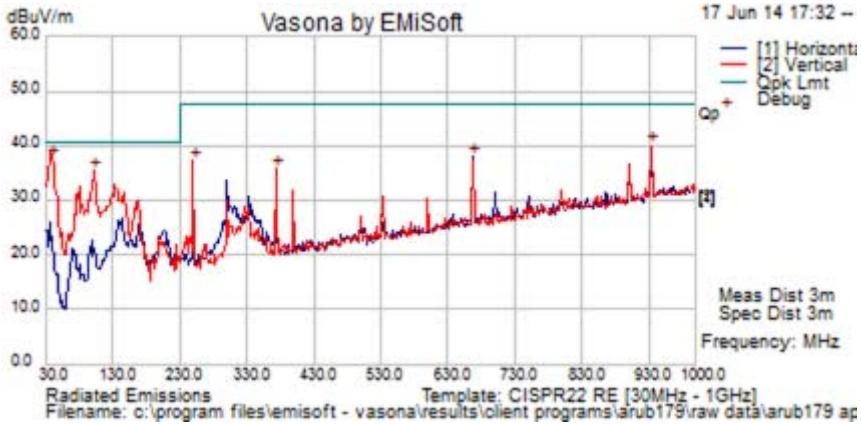
**APIN0215**

| | | | |
|---|---|---|---|
| **Test Freq.** | 2437 | **Engineer** | JMH |
| **Variant** | Digital Emissions | **Temp (ºC)** | 24 |
| **Freq. Range** | 30 MHz - 1000 MHz | **Rel. Hum.(%)** | 31 |
| **Power Setting** | 16 | **Press. (mBars)** | 999 |
| **Antenna** | Integral | | |
| **Test Notes 1** | Sunny PS (model# SYS1357-1812) Powered, AP215 SN# CK0000823 | | |
| **Test Notes 2** | Ethernet hub mounted underneath turntable and console cable removed | | |




## Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38.968 | 50.1 | 3.6 | -16.3 | 37.4 | Quasi Max | V | 131 | 179 | 40.5 | -3.1 | Pass | |
| 101.899 | 51.3 | 4.1 | -20.3 | 35.2 | Quasi Max | V | 98 | 346 | 40.5 | -5.3 | Pass | |
| 933.896 | 39.4 | 7.2 | -6.6 | 40.0 | Peak [Scan] | V | 98 | 361 | 47.5 | -7.5 | Pass | |
| 667.592 | 41.8 | 6.4 | -10.2 | 38.0 | Peak [Scan] | H | 98 | 361 | 47.5 | -9.5 | Pass | |
| 249.674 | 51.1 | 4.9 | -18.8 | 37.2 | Peak [Scan] | V | 98 | 361 | 47.5 | -10.3 | Pass | |
| 374.121 | 45.5 | 5.4 | -15.3 | 35.6 | Peak [Scan] | V | 98 | 361 | 47.5 | -12.0 | Pass | |

| | |
|---|---|
| Legend: | DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency |
| | NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band |

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## Specification

### Limits

**§15.205 (a)** Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

***§15.205 (a)*** *Except as shown 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 Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

**§15.209 (a)** Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

**§15.209 (a)** and **RSS-Gen §2.2** Limit Matrix

| Frequency(MHz) | Field Strength (μV/m) | Field Strength (dBμV/m) | Measurement Distance (meters) |
|---|---|---|---|
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

### Laboratory Measurement Uncertainty for Radiated Emissions

| | |
|---|---|
| Measurement uncertainty | +5.6/ -4.5 dB |

### Traceability

| Method | Test Equipment Used |
|---|---|
| Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions' | 0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312 |

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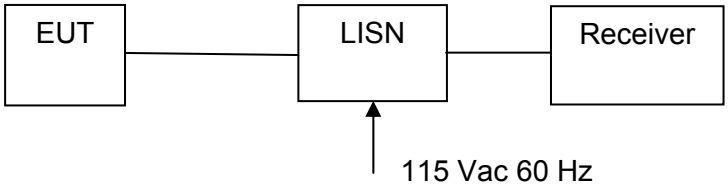
### 5.1.3. AC Wireline Conducted Emissions (150 kHz – 30 MHz)

**FCC, Part 15 Subpart C §15.207**
**Industry Canada RSS-Gen §7.2.2**

**Test Procedure**

The EUT is configured in accordance with ANSI C63.4. The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

**Test Measurement Set up**




Measurement set up for AC Wireline Conducted Emissions Test

**Measurement Results for AC Wireline Conducted Emissions (150 kHz – 30 MHz)**

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

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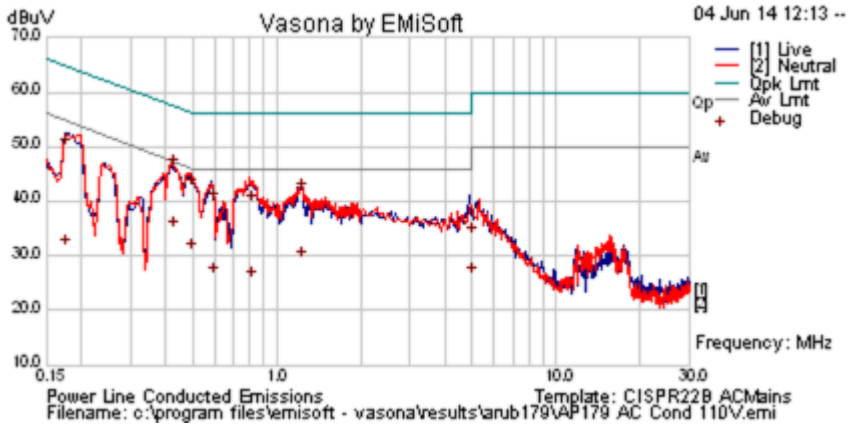
## ac Wireline Emissions

| | | | |
|---|---|---|---|
| **Test Freq.** | N/A | **Engineer** | JMH |
| **Variant** | AC Line Emissions | **Temp (ºC)** | 20 |
| **Freq. Range** | 0.150 MHz - 30 MHz | **Rel. Hum.(%)** | 35 |
| **Power Setting** | NA | **Press. (mBars)** | 999 |
| **Antenna** | N/A | | |
| **Test Notes 1** | POE Powered By 650 Controller AP Model# AP-214, SN# CK0000562 | | |
| **Test Notes 2** | 110VAC 60 Hz | | |




### Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | Factors dB | Level dBuV | Measurement Type | Line | Limit dBuV | Margin dB | Pass /Fail | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.175 | 21.4 | 9.9 | 0.1 | 31.4 | Average | Live | 54.7 | -23.3 | Pass | |
| 0.175 | 39.6 | 9.9 | 0.1 | 49.6 | Quasi Peak | Live | 64.7 | -15.2 | Pass | |
| 0.421 | 36.3 | 9.9 | 0.1 | 46.3 | Quasi Peak | Neutral | 57.4 | -11.2 | Pass | |
| 0.421 | 24.8 | 9.9 | 0.1 | 34.8 | Average | Neutral | 47.4 | -12.7 | Pass | |
| 0.488 | 20.7 | 9.9 | 0.1 | 30.7 | Average | Neutral | 46.2 | -15.5 | Pass | |
| 0.488 | 32.4 | 9.9 | 0.1 | 42.4 | Quasi Peak | Neutral | 56.2 | -13.8 | Pass | |
| 0.586 | 29.8 | 9.9 | 0.1 | 39.8 | Quasi Peak | Live | 56.0 | -16.2 | Pass | |
| 0.586 | 16.4 | 9.9 | 0.1 | 26.4 | Average | Live | 46.0 | -19.6 | Pass | |
| 0.803 | 29.5 | 10.0 | 0.1 | 39.5 | Quasi Peak | Neutral | 56.0 | -16.5 | Pass | |
| 0.803 | 15.6 | 10.0 | 0.1 | 25.6 | Average | Neutral | 46.0 | -20.4 | Pass | |
| 1.225 | 31.5 | 10.0 | 0.1 | 41.5 | Quasi Peak | Neutral | 56.0 | -14.5 | Pass | |
| 1.225 | 19.0 | 10.0 | 0.1 | 29.1 | Average | Neutral | 46.0 | -16.9 | Pass | |
| 4.954 | 23.2 | 10.2 | 0.2 | 33.5 | Quasi Peak | Live | 56.0 | -22.5 | Pass | |
| 4.954 | 15.7 | 10.2 | 0.2 | 26.1 | Average | Live | 46.0 | -19.9 | Pass | |

| | |
|---|---|
| Legend: | DIG = Digital Device Emission; TX = Transmitter Emission; FUND = Fundamental Frequency |
| | NRB = Non-Restricted Band, Limit is 20 dB below Fundamental; RB = Restricted Band |

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## Specification

### Limit

**§15.207 (a)** Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μΩ line impedance stabilization network (LISN), see §15.207 (a) matrix below. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

**RSS-Gen §7.2.2**
The radio frequency voltage that is conducted back into the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table below. The tighter limit applies at the frequency range boundaries.

**§15.207 (a)** and **RSS-Gen §7.2.2** Limit Matrix
The lower limit applies at the boundary between frequency ranges

| Frequency of Emission (MHz) | Conducted Limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency

### Laboratory Measurement Uncertainty for Conducted Emissions

| | |
|---|---|
| Measurement uncertainty | ±2.64 dB |

### Traceability

| Method | Test Equipment Used |
|---|---|
| Measurements were made per work instruction WI-EMC-01 'Measurement of Conducted Emissions' | 0158, 0184, 0287, 0190, 0293, 0307 |

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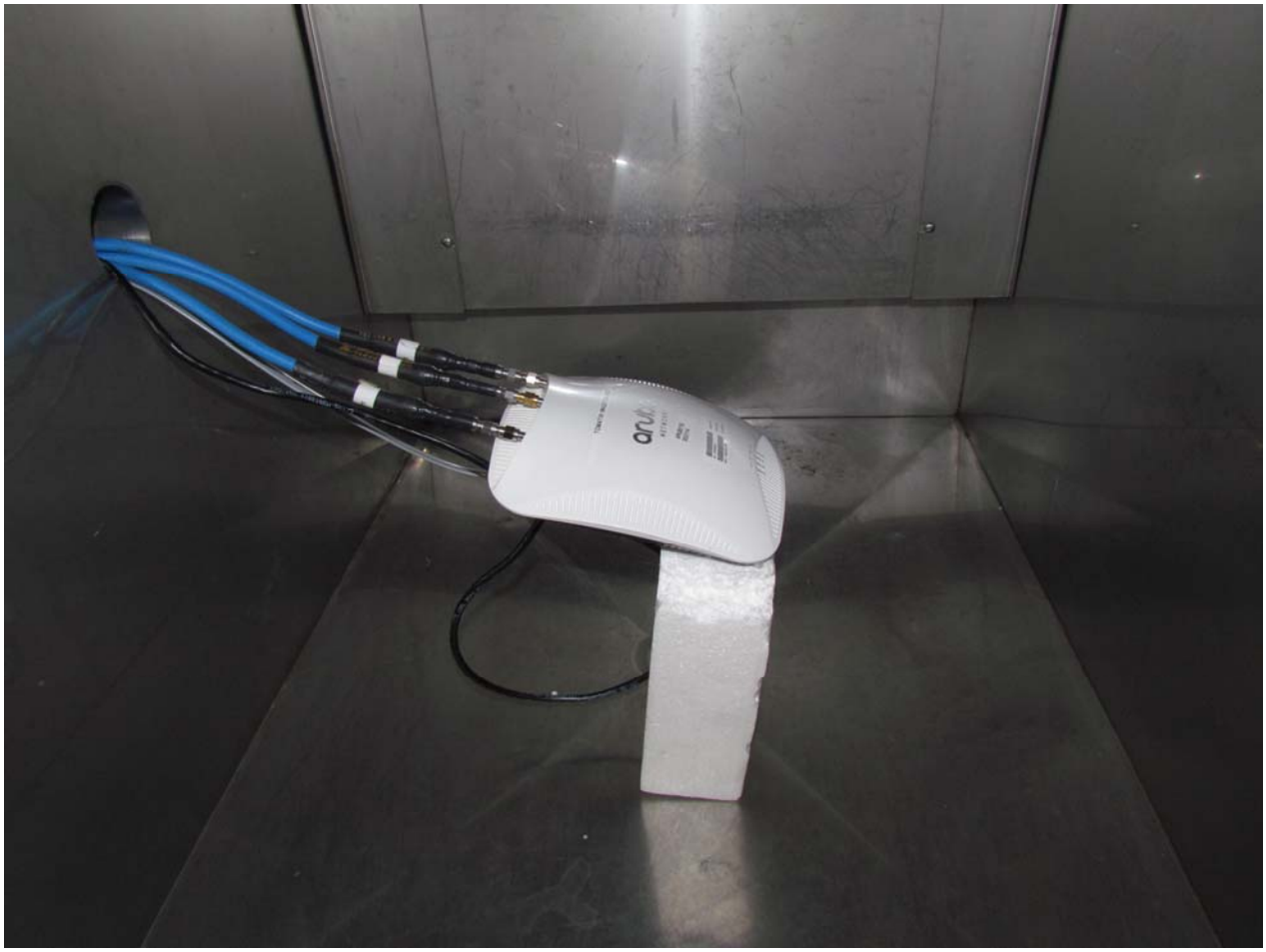
# 6. PHOTOGRAPHS

## 6.1. Conducted Test Setup



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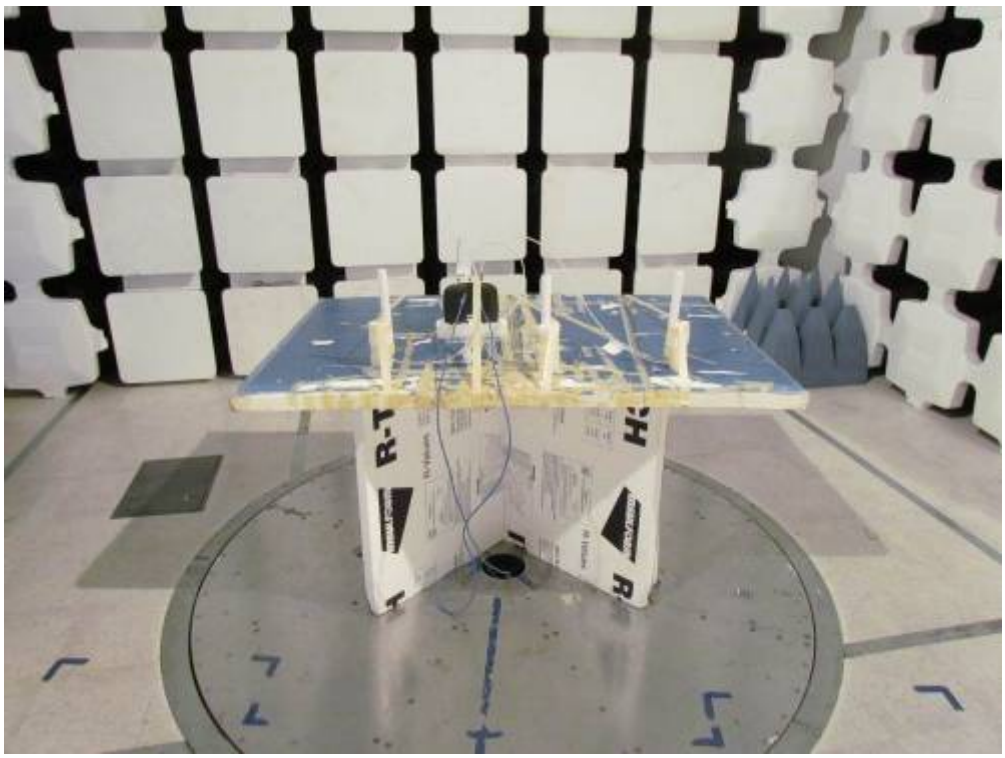
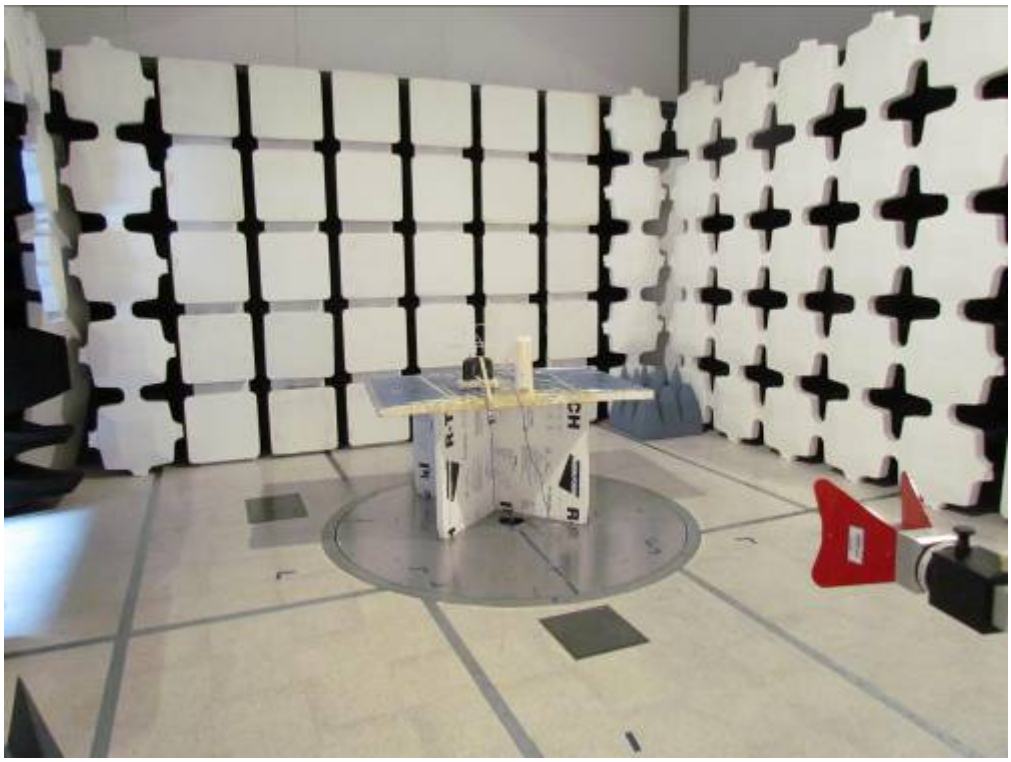
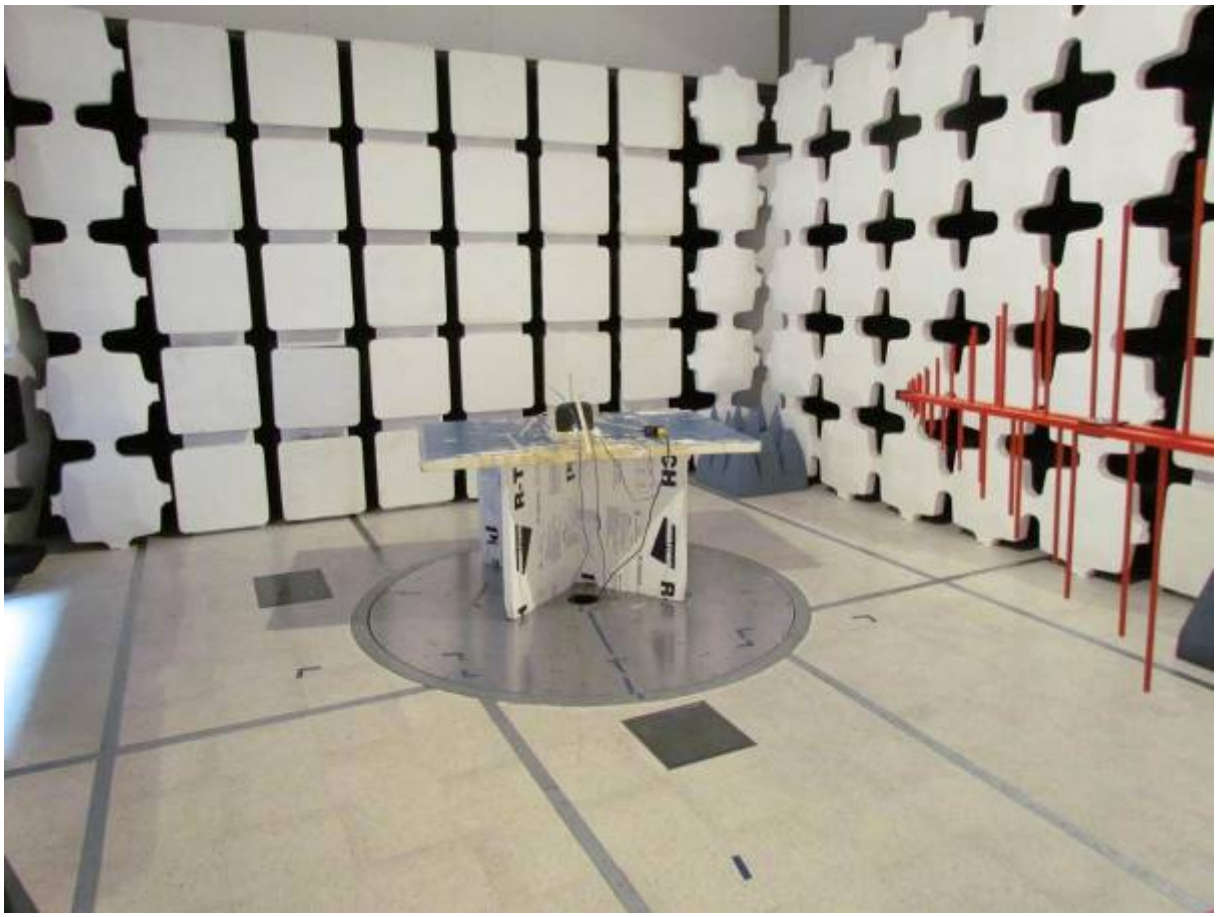
## 6.2. Test Setup - Digital Emissions > 1 GHz





## 6.3. Radiated Emissions Test Setup <1 GHz



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## 6.4. ac Wireline Test Setup >1 GHz

# 7. TEST EQUIPMENT

| Asset # | Instrument | Manufacturer | Part # | Serial # | Calibration Due Date |
|---|---|---|---|---|---|
| 0117 | Power Sensor | Hewlett Packard | 8487D | 3318A00371 | 18th Oct 14 |
| 0223 | Power Meter | Hewlett Packard | EPM-442A | US37480256 | 18th Oct 14 |
| 0376 | Power Sensor | Agilent | U2000A | MY51440005 | 28th Oct 14 |
| 0390 | Power Sensor | Agilent | U2002A | MY50000103 | 17th Oct 14 |
| 0158 | Barometer /Thermometer | Control Co. | 4196 | E2846 | 6th Dec 14 |
| 0287 | EMI Receiver | Rhode & Schwartz | ESIB40 | 100201 | 31st Jul 14 |
| 0378 | EMI Receiver | Rhode & Schwartz | ESIB40 | 100107/040 | 17th Jul 14 |
| 0338 | 30 - 3000 MHz Antenna | Sunol | JB3 | A052907 | 14th Aug 14 |
| 0399 | 1-18 GHz Horn Antenna | EMCO | 3117 | 00154575 | 10th Oct 14 |
| 0252 | SMA Cable | Megaphase | Sucoflex 104 | None | N/A |
| 0310 | 2m SMA Cable | Micro-Coax | UFA210A-0-0787-3G03G0 | 209089-001 | N/A |
| 0312 | 3m SMA Cable | Micro-Coax | UFA210A-1-1181-3G0300 | 209092-001 | N/A |
| 0314 | 30dB N-Type Attenuator | ARRA | N9444-30 | 1623 | N/A |
| 0359 | DFS Test System | Aeroflex | PXI-1042 | 300001/004 | 21st Oct 14 |
| 0299 | DFS Test Software | Aeroflex | PXIModule | Version 7.1.0 | N/A |
| 0502 | EMC Test Software | EMISoft | Vasona | 5.0051 | N/A |
| 0503 | RF Conducted Test Software | National Instruments | Labview | Version 8.2 | N/A |
| 0398 | RF Conducted Test Software | MiCOM Labs ATS | -- | Version 1.8 | N/A |
| 0380 | RF Switch | MiCOM Labs | MIC001 | MIC001 | 20th March 14 |

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# APPENDIX

# A. SUPPORTING INFORMATION

## A.1. CONDUCTED TEST PLOTS

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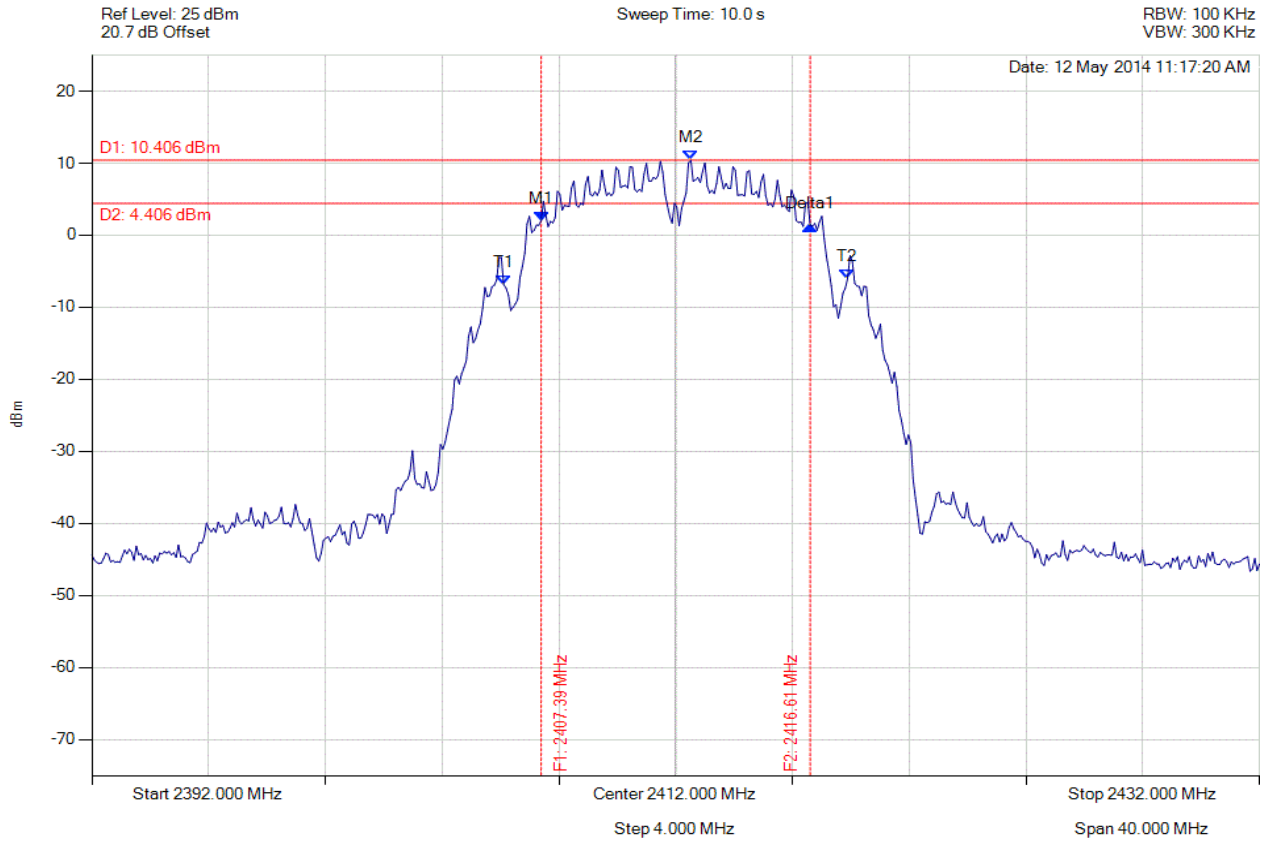
## A.1.1. 6 dB & 99% Bandwidth

**6 dB & 99% BANDWIDTH**

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2407.391 MHz : 2.023 dBm<br>M2 : 2412.521 MHz : 10.406 dBm<br>Delta1 : 9.218 MHz : -0.704 dB<br>T1 : 2406.108 MHz : -6.869 dBm<br>T2 : 2417.892 MHz : -6.029 dBm<br>OBW : 11.784 MHz | Measured 6 dB Bandwidth: 9.218 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.72 MHz |

Back to the Matrix

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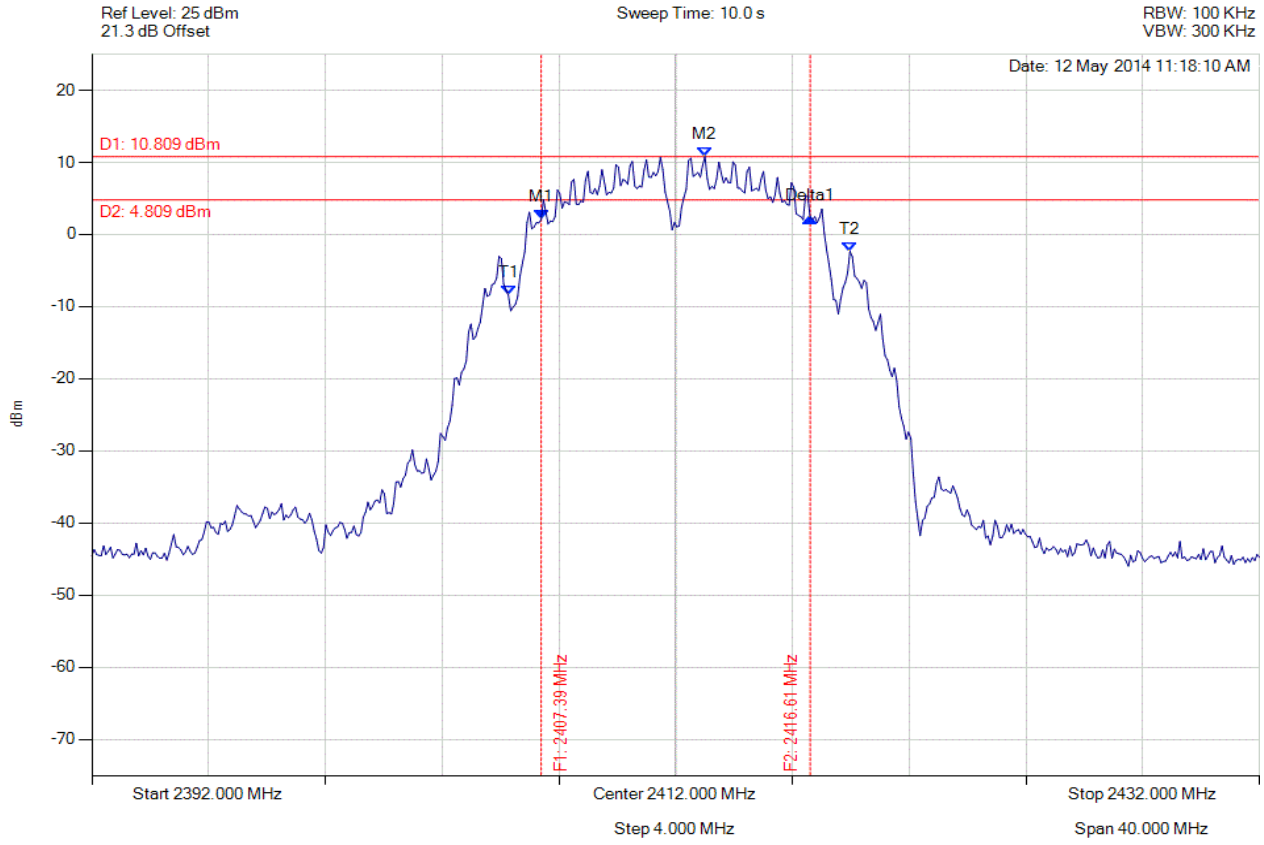
## 6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2407.391 MHz : 2.067 dBm<br>M2 : 2413.002 MHz : 10.809 dBm<br>Delta1 : 9.218 MHz : 0.246 dB<br>T1 : 2406.269 MHz : -8.398 dBm<br>T2 : 2417.972 MHz : -2.334 dBm<br>OBW : 11.703 MHz | Measured 6 dB Bandwidth: 9.218 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.72 MHz |

Back to the Matrix

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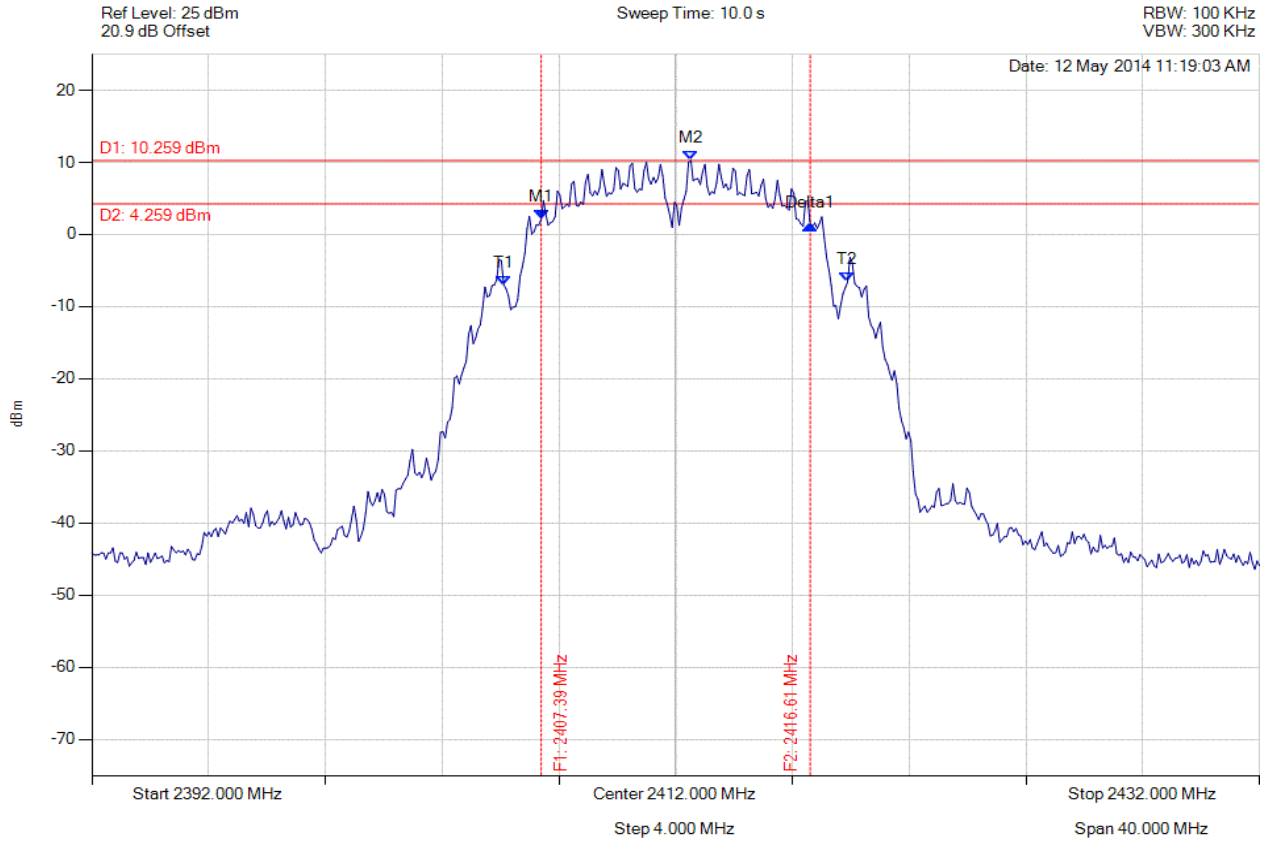
**6 dB & 99% BANDWIDTH**

Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2407.391 MHz : 2.120 dBm<br>M2 : 2412.521 MHz : 10.259 dBm<br>Delta1 : 9.218 MHz : -0.752 dB<br>T1 : 2406.108 MHz : -6.979 dBm<br>T2 : 2417.892 MHz : -6.582 dBm<br>OBW : 11.784 MHz | Measured 6 dB Bandwidth: 9.218 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.72 MHz |

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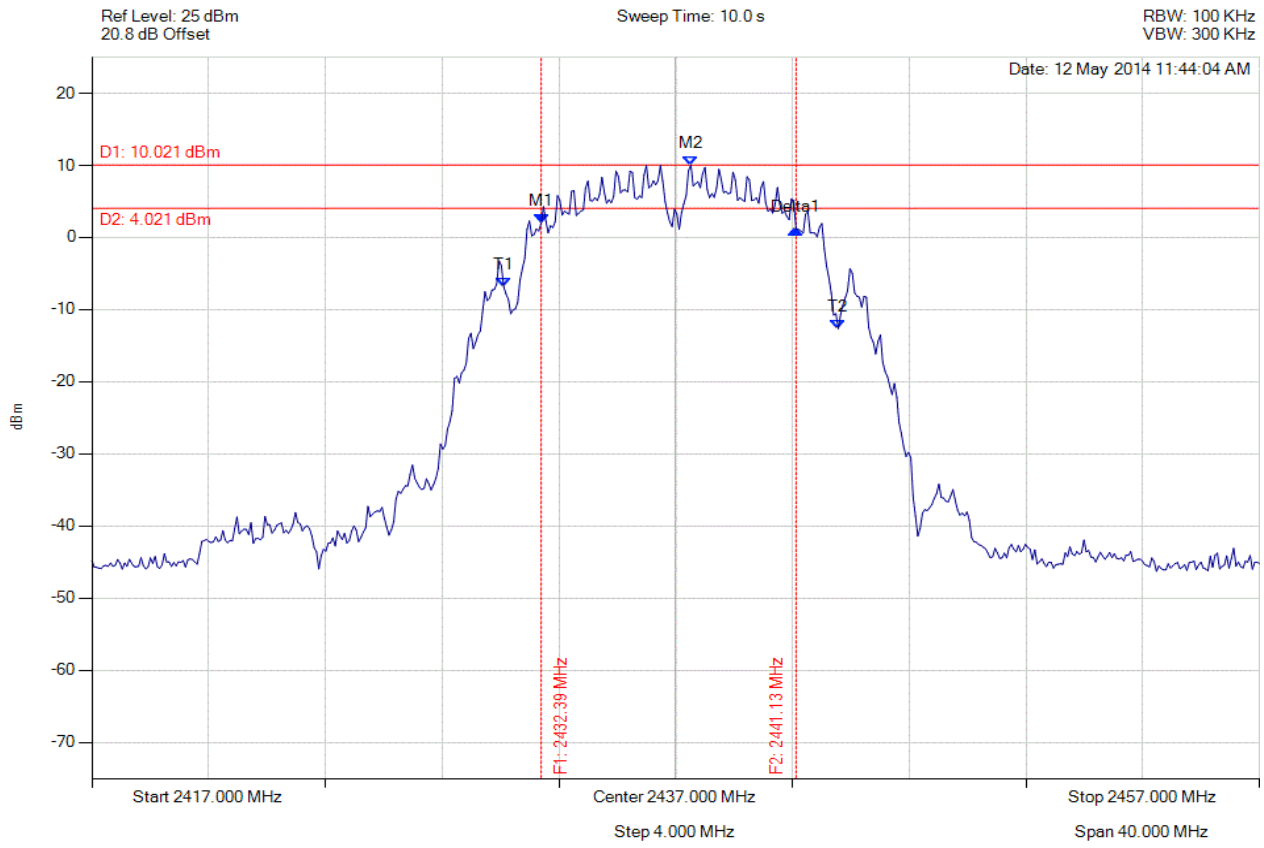
**6 dB & 99% BANDWIDTH**

Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2432.391 MHz : 1.992 dBm<br>M2 : 2437.521 MHz : 10.021 dBm<br>Delta1 : 8.737 MHz : -0.858 dB<br>T1 : 2431.108 MHz : -6.834 dBm<br>T2 : 2442.571 MHz : -12.649 dBm<br>OBW : 11.463 MHz | Measured 6 dB Bandwidth: 8.737 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.24 MHz |

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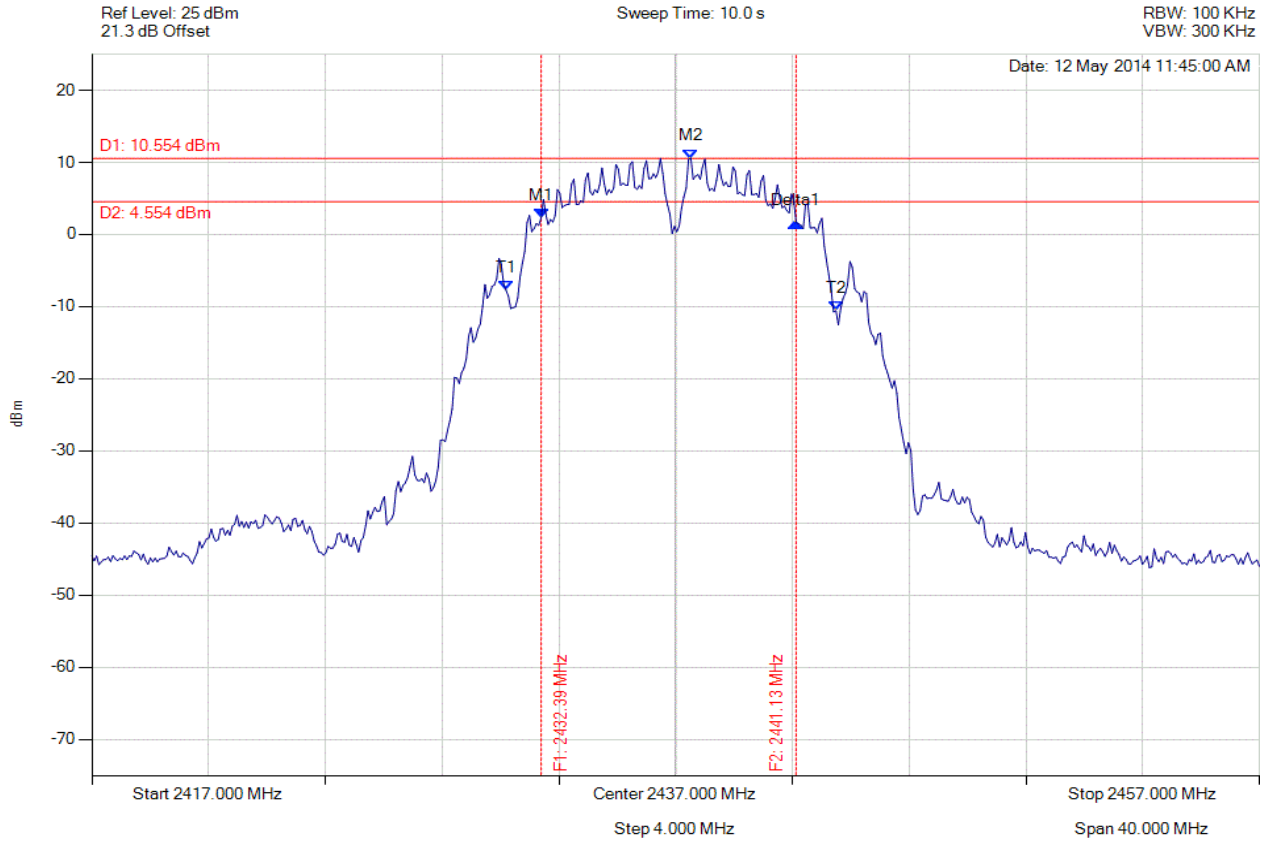
## 6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2432.391 MHz : 2.324 dBm<br>M2 : 2437.521 MHz : 10.554 dBm<br>Delta1 : 8.737 MHz : -0.667 dB<br>T1 : 2431.188 MHz : -7.735 dBm<br>T2 : 2442.491 MHz : -10.572 dBm<br>OBW : 11.303 MHz | Measured 6 dB Bandwidth: 8.737 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.24 MHz |

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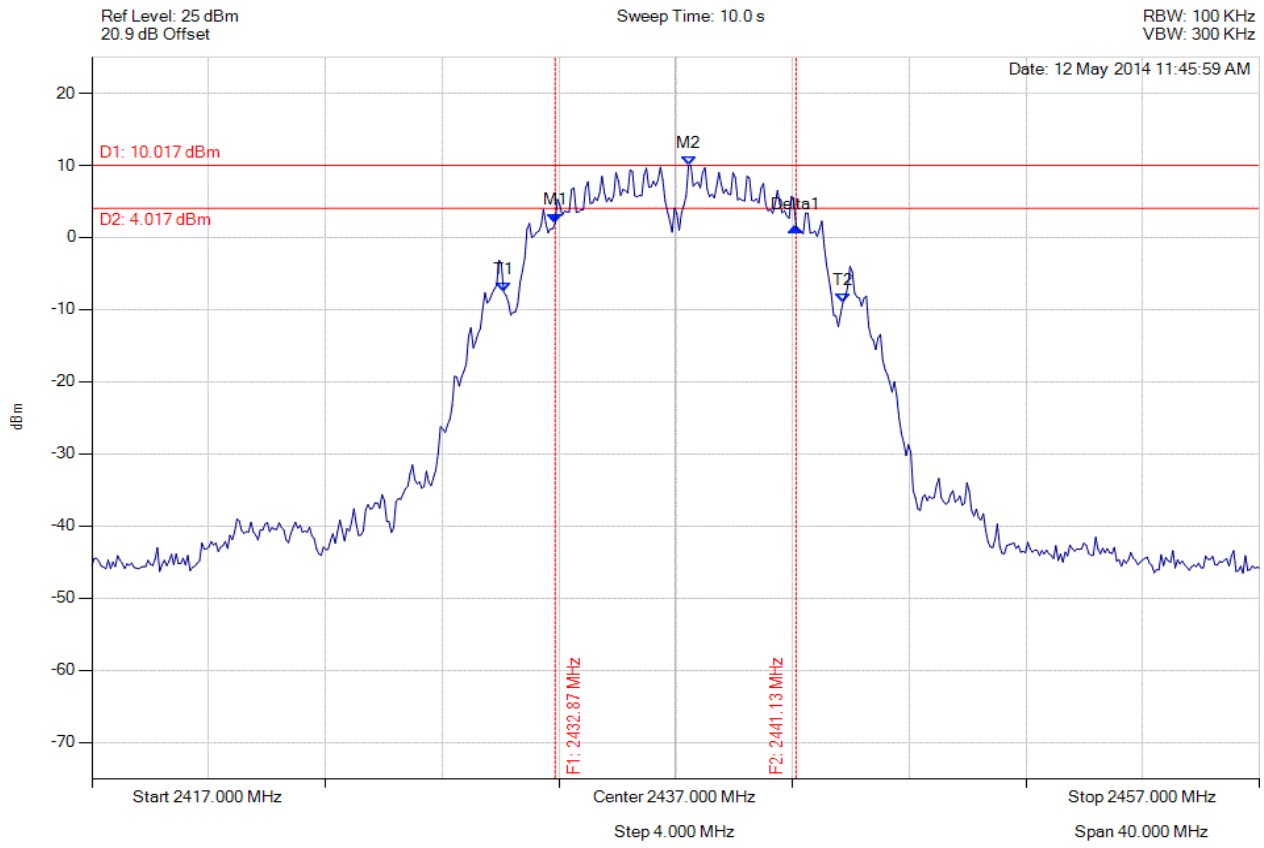
**6 dB & 99% BANDWIDTH**

Variant: 802.11b, Channel: 2437.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2432.872 MHz : 2.043 dBm<br>M2 : 2437.441 MHz : 10.017 dBm<br>Delta1 : 8.257 MHz : -0.622 dB<br>T1 : 2431.108 MHz : -7.499 dBm<br>T2 : 2442.731 MHz : -8.976 dBm<br>OBW : 11.623 MHz | Measured 6 dB Bandwidth: 8.257 MHz<br>Limit: ≥500.0 kHz<br>Margin: -7.76 MHz |

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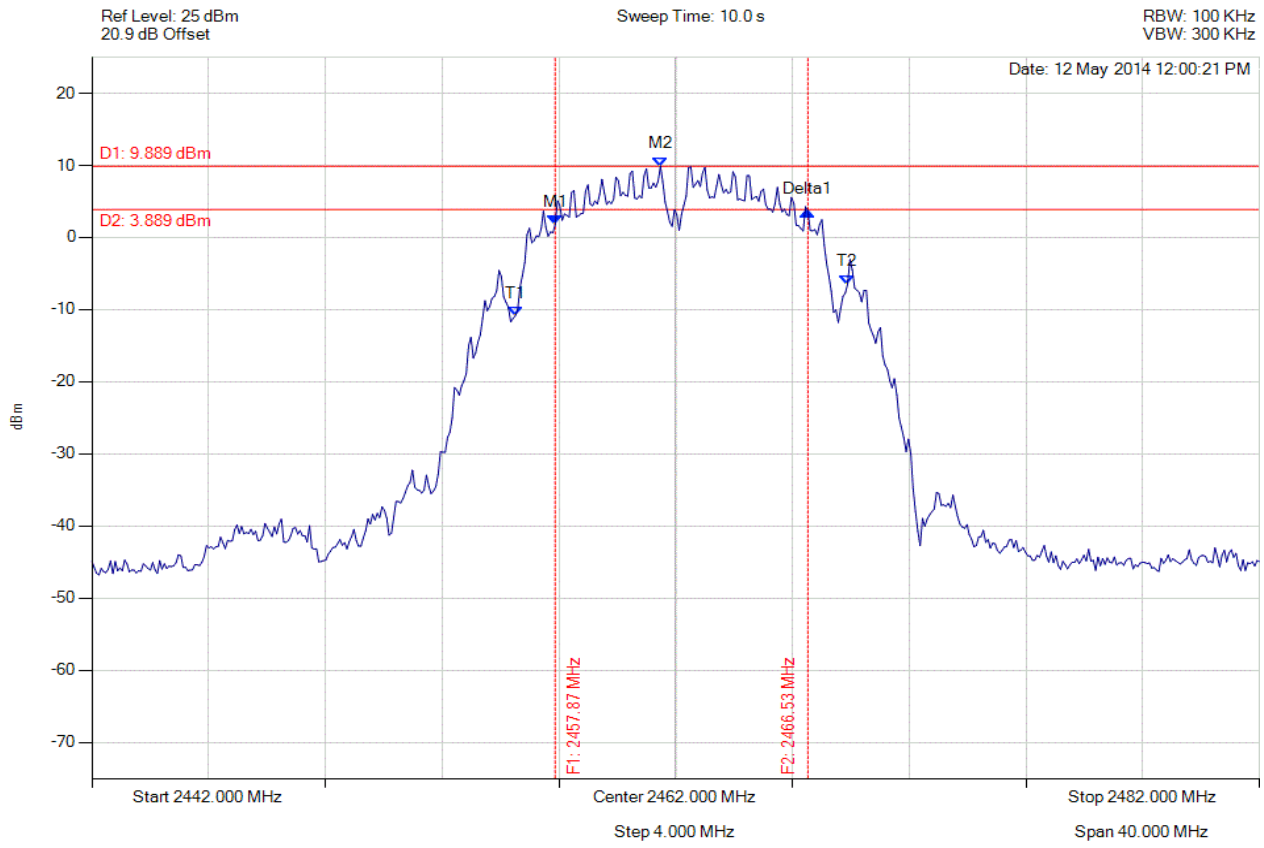
**6 dB & 99% BANDWIDTH**

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2457.872 MHz : 1.740 dBm<br>M2 : 2461.479 MHz : 9.889 dBm<br>Delta1 : 8.657 MHz : 1.920 dB<br>T1 : 2456.509 MHz : -10.820 dBm<br>T2 : 2467.892 MHz : -6.460 dBm<br>OBW : 11.383 MHz | Measured 6 dB Bandwidth: 8.657 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.16 MHz |

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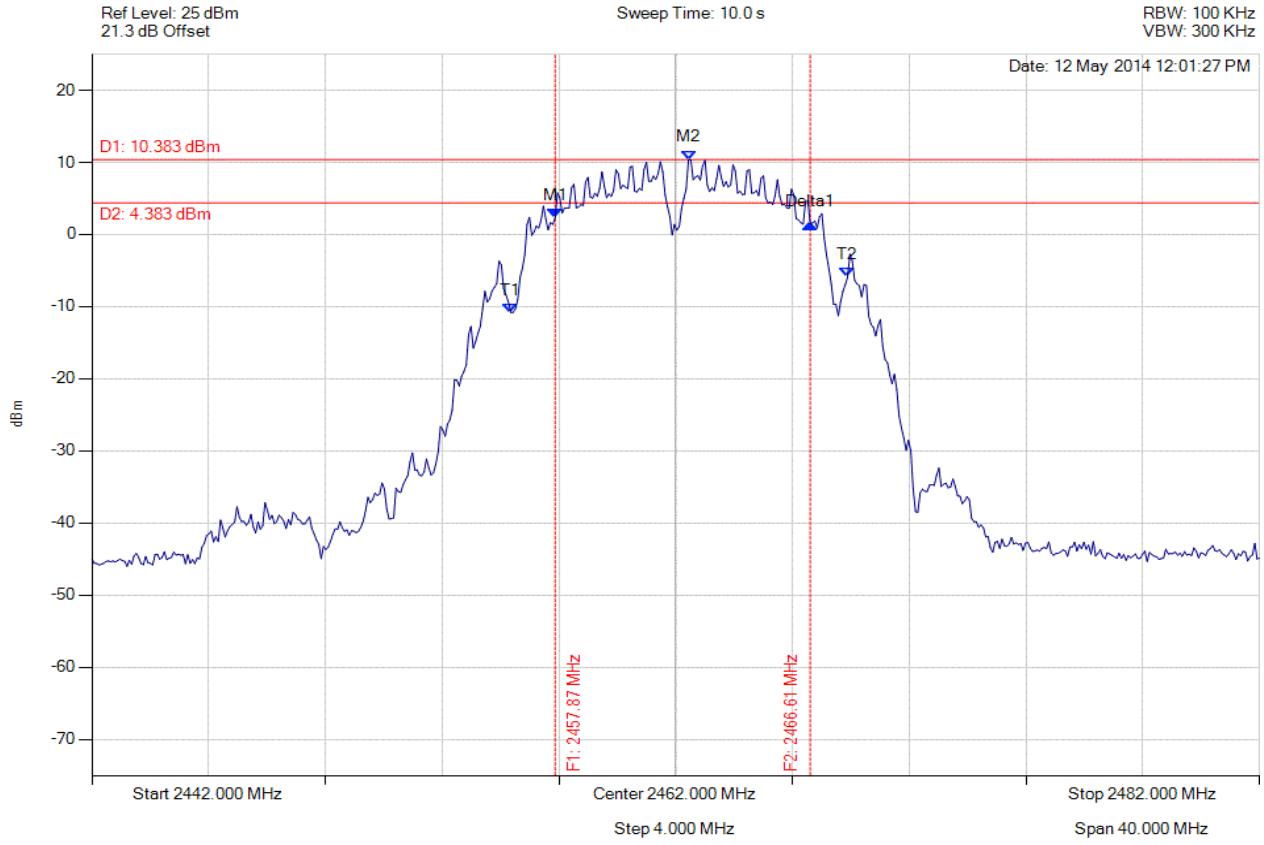
**6 dB & 99% BANDWIDTH**

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2457.872 MHz : 2.336 dBm<br>M2 : 2462.441 MHz : 10.383 dBm<br>Delta1 : 8.737 MHz : -0.795 dB<br>T1 : 2456.349 MHz : -10.818 dBm<br>T2 : 2467.892 MHz : -5.941 dBm<br>OBW : 11.543 MHz | Measured 6 dB Bandwidth: 8.737 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.24 MHz |

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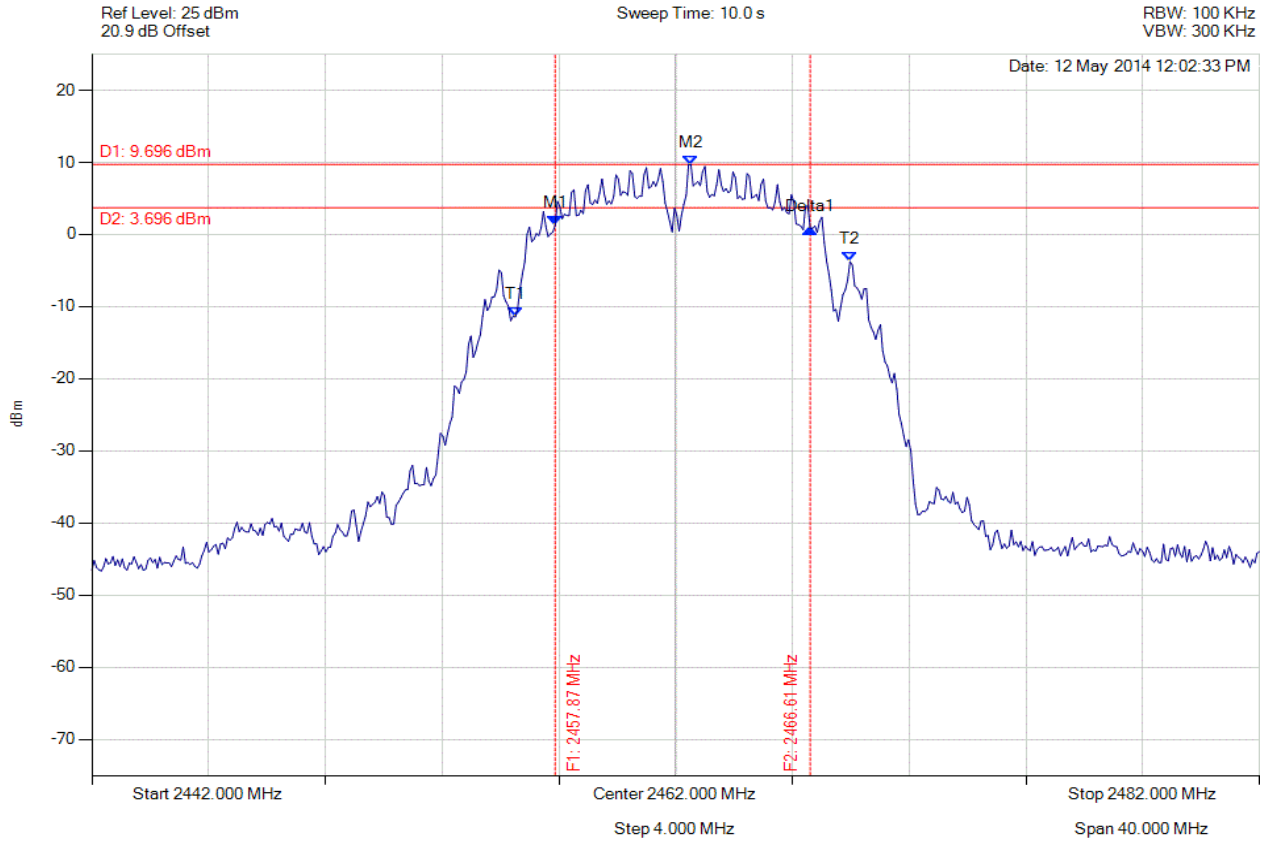
## 6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2457.872 MHz : 1.272 dBm<br>M2 : 2462.521 MHz : 9.696 dBm<br>Delta1 : 8.737 MHz : -0.427 dB<br>T1 : 2456.509 MHz : -11.414 dBm<br>T2 : 2467.972 MHz : -3.763 dBm<br>OBW : 11.463 MHz | Measured 6 dB Bandwidth: 8.737 MHz<br>Limit: ≥500.0 kHz<br>Margin: -8.24 MHz |

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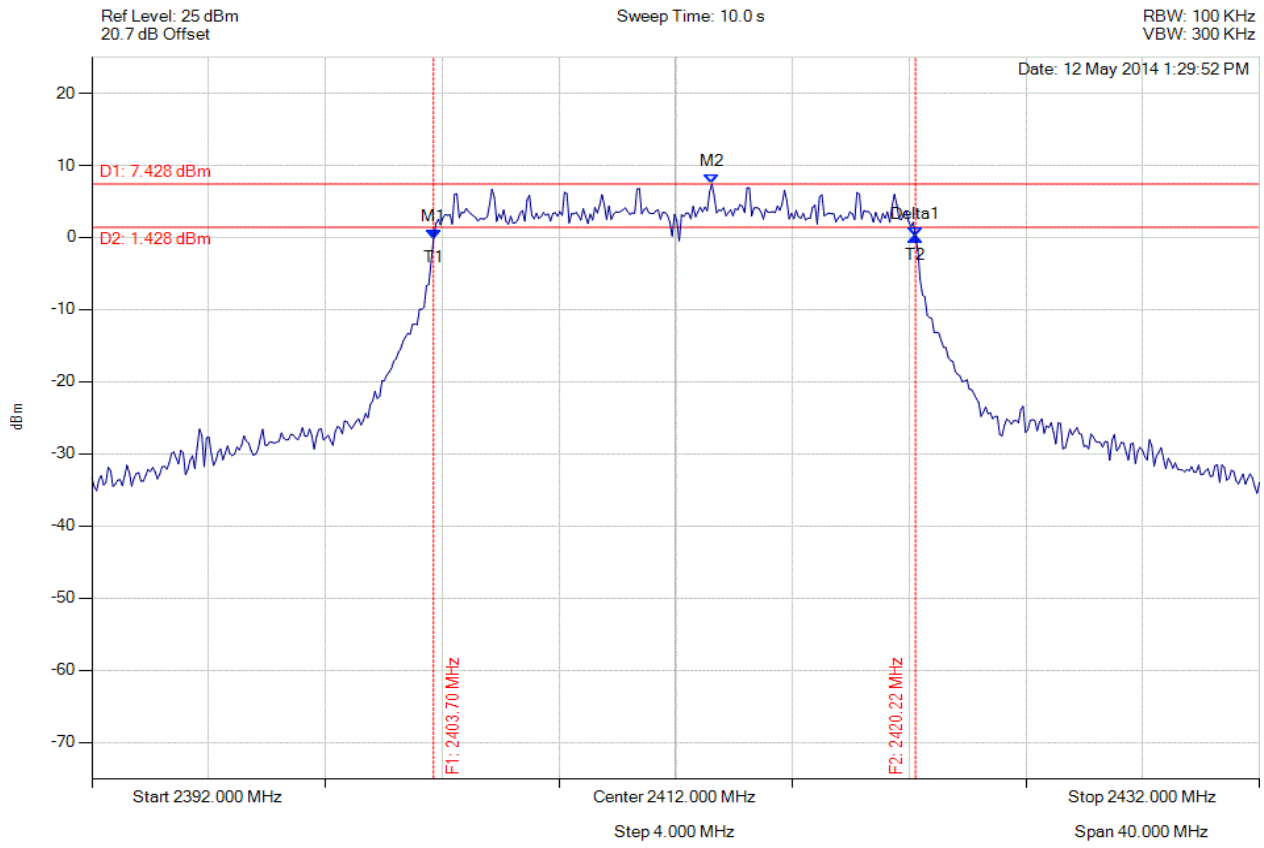
## 6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2403.703 MHz : -0.202 dBm<br>M2 : 2413.242 MHz : 7.428 dBm<br>Delta1 : 16.513 MHz : 0.313 dB<br>T1 : 2403.703 MHz : -0.202 dBm<br>T2 : 2420.216 MHz : 0.111 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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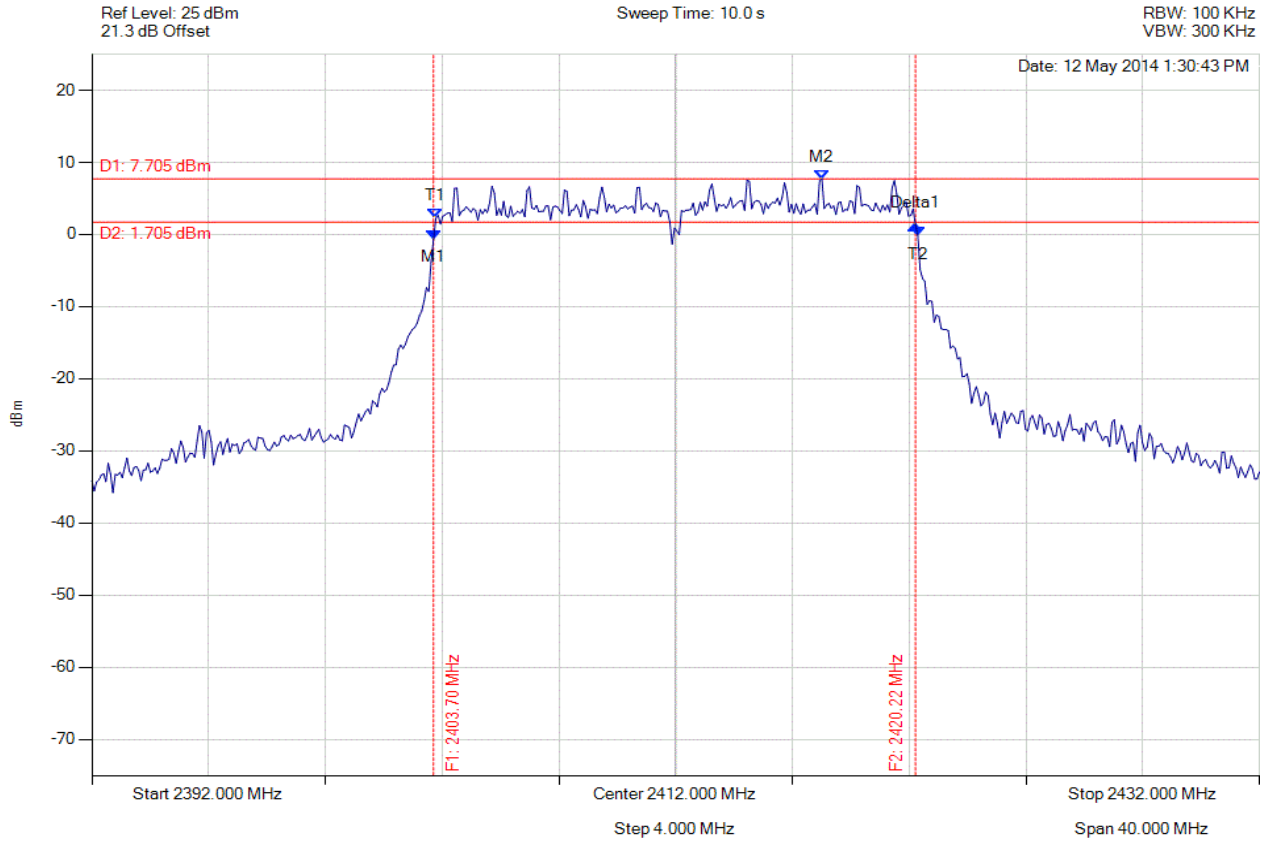
## 6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2403.703 MHz : -0.631 dBm<br>M2 : 2417.010 MHz : 7.705 dBm<br>Delta1 : 16.513 MHz : 1.879 dB<br>T1 : 2403.784 MHz : 2.236 dBm<br>T2 : 2420.297 MHz : -0.204 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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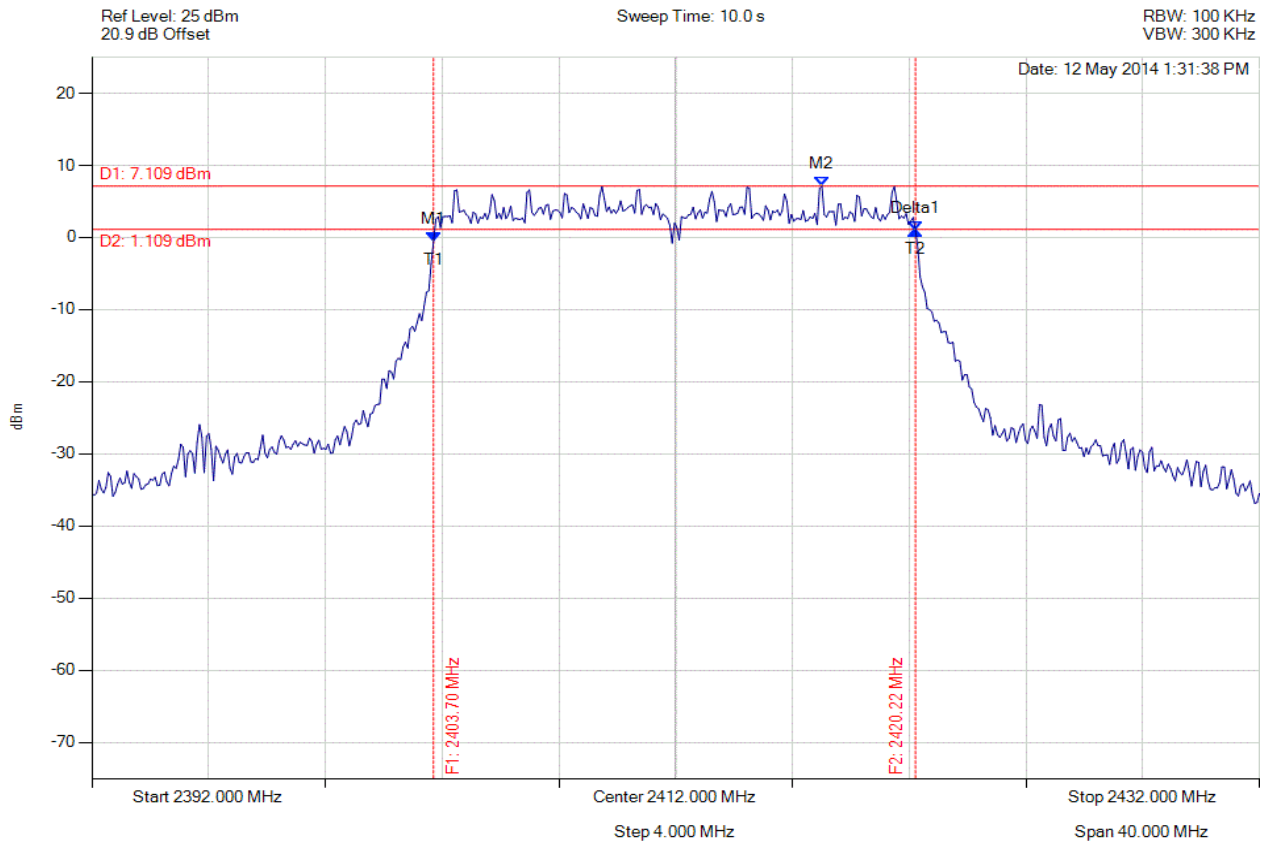
## 6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2412.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2403.703 MHz : -0.568 dBm<br>M2 : 2417.010 MHz : 7.109 dBm<br>Delta1 : 16.513 MHz : 1.523 dB<br>T1 : 2403.703 MHz : -0.568 dBm<br>T2 : 2420.216 MHz : 0.955 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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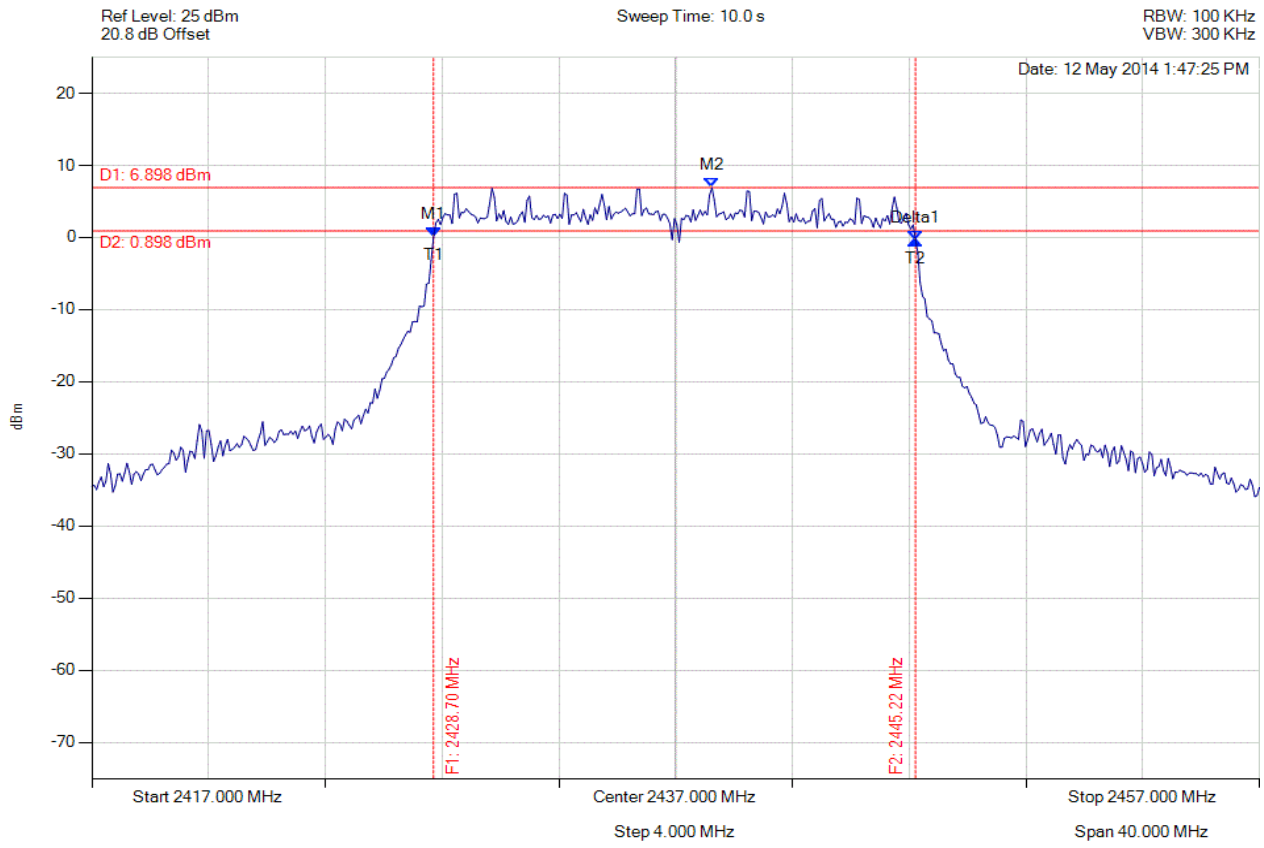
## 6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2437.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2428.703 MHz : 0.070 dBm<br>M2 : 2438.242 MHz : 6.898 dBm<br>Delta1 : 16.513 MHz : -0.445 dB<br>T1 : 2428.703 MHz : 0.070 dBm<br>T2 : 2445.216 MHz : -0.375 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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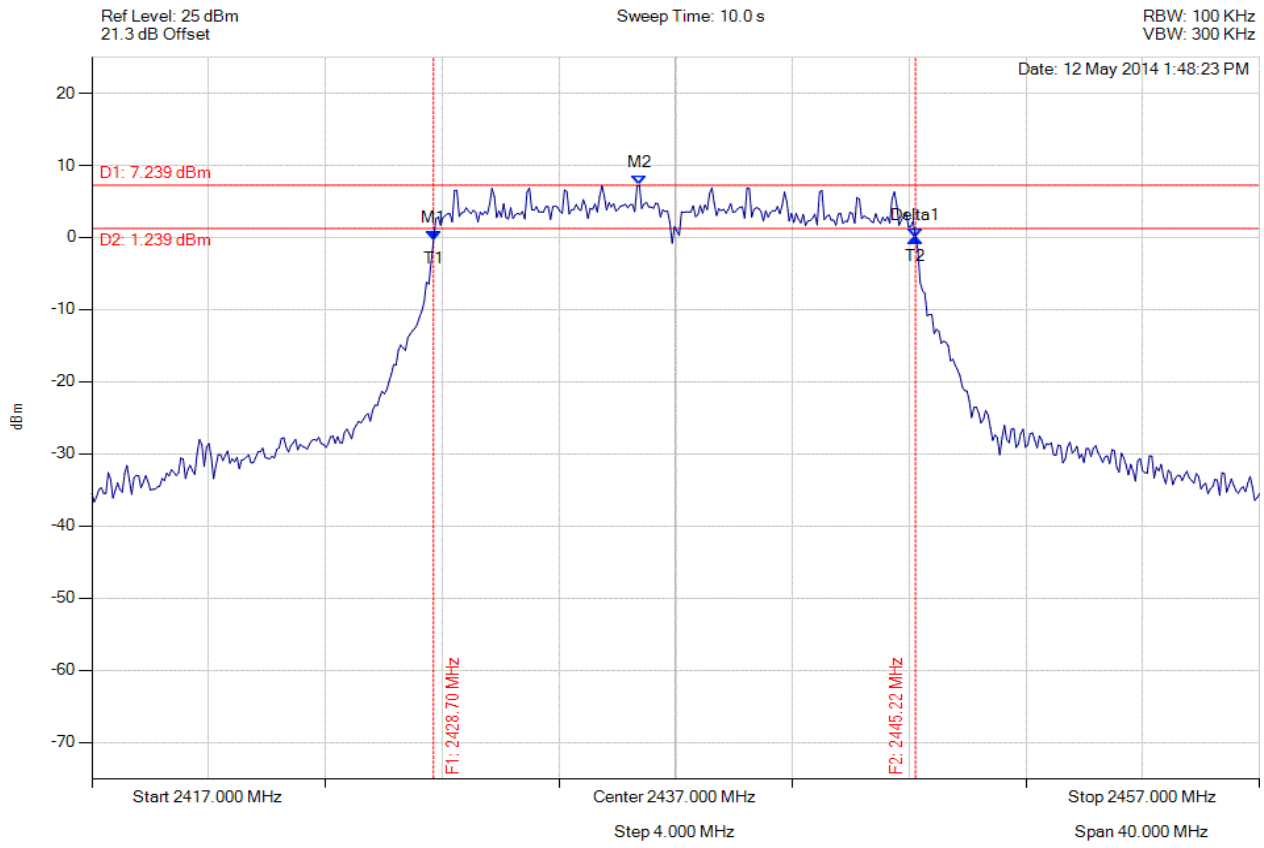
**6 dB & 99% BANDWIDTH**

Variant: 802.11g, Channel: 2437.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2428.703 MHz : -0.377 dBm<br>M2 : 2435.758 MHz : 7.239 dBm<br>Delta1 : 16.513 MHz : 0.299 dB<br>T1 : 2428.703 MHz : -0.377 dBm<br>T2 : 2445.216 MHz : -0.078 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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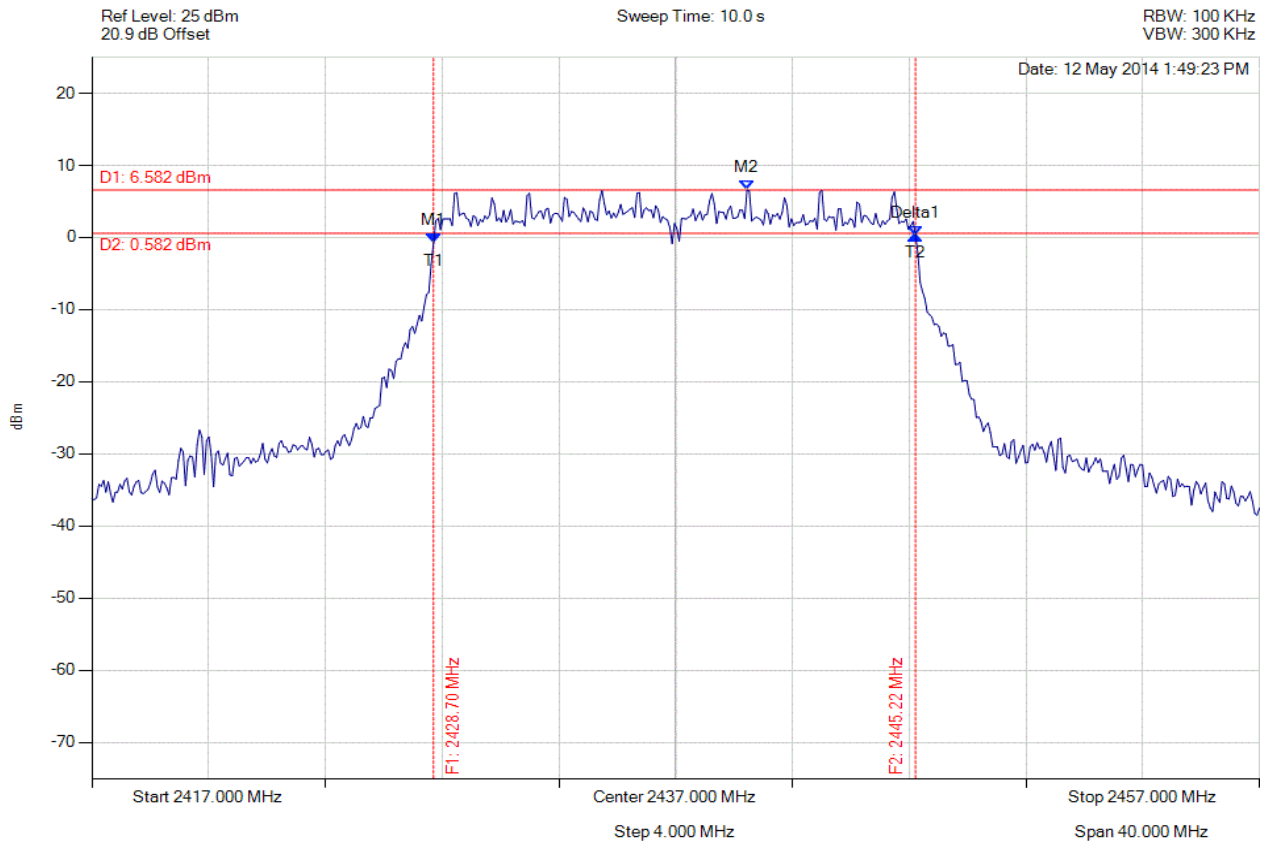
## 6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2437.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2428.703 MHz : -0.759 dBm<br>M2 : 2439.445 MHz : 6.582 dBm<br>Delta1 : 16.513 MHz : 1.098 dB<br>T1 : 2428.703 MHz : -0.759 dBm<br>T2 : 2445.216 MHz : 0.339 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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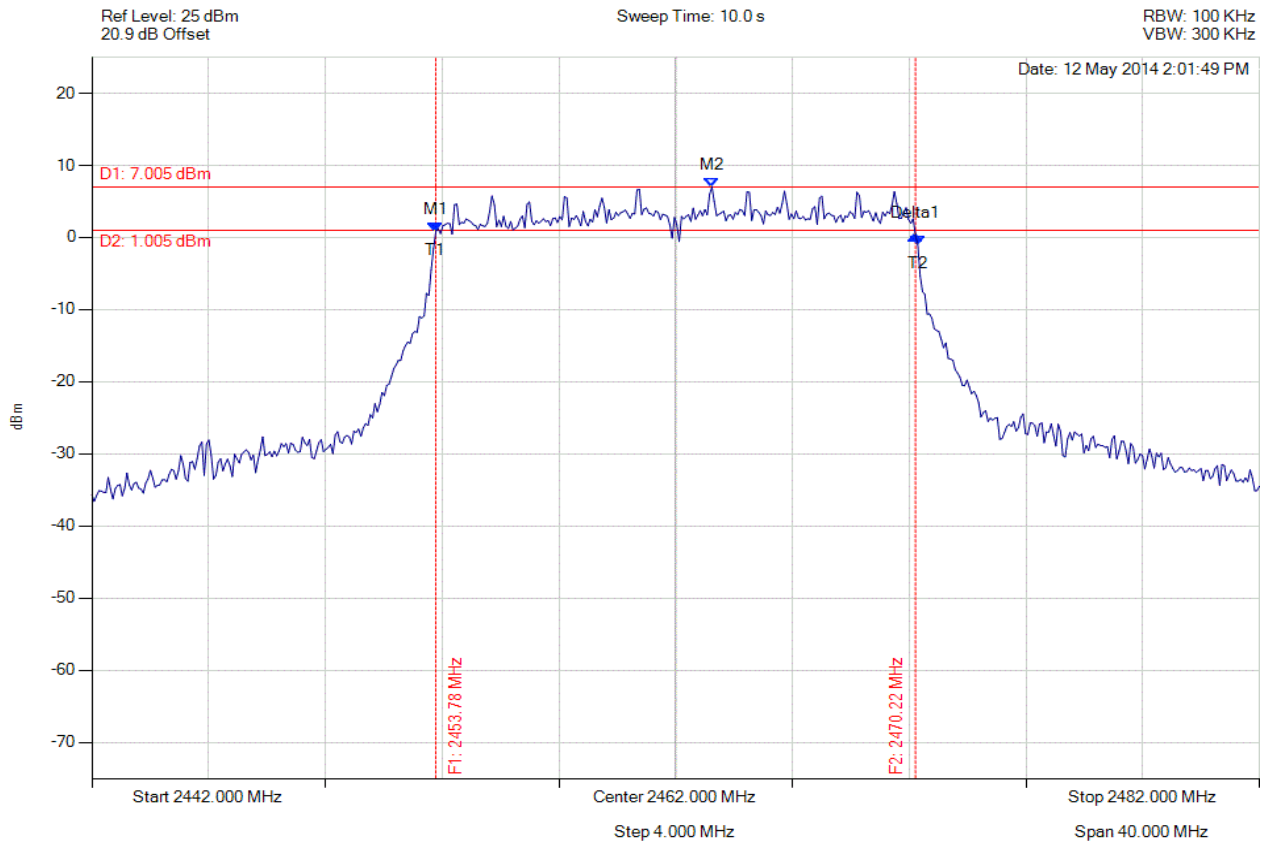
**6 dB & 99% BANDWIDTH**

Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2453.784 MHz : 0.772 dBm<br>M2 : 2463.242 MHz : 7.005 dBm<br>Delta1 : 16.433 MHz : -0.519 dB<br>T1 : 2453.784 MHz : 0.772 dBm<br>T2 : 2470.297 MHz : -1.067 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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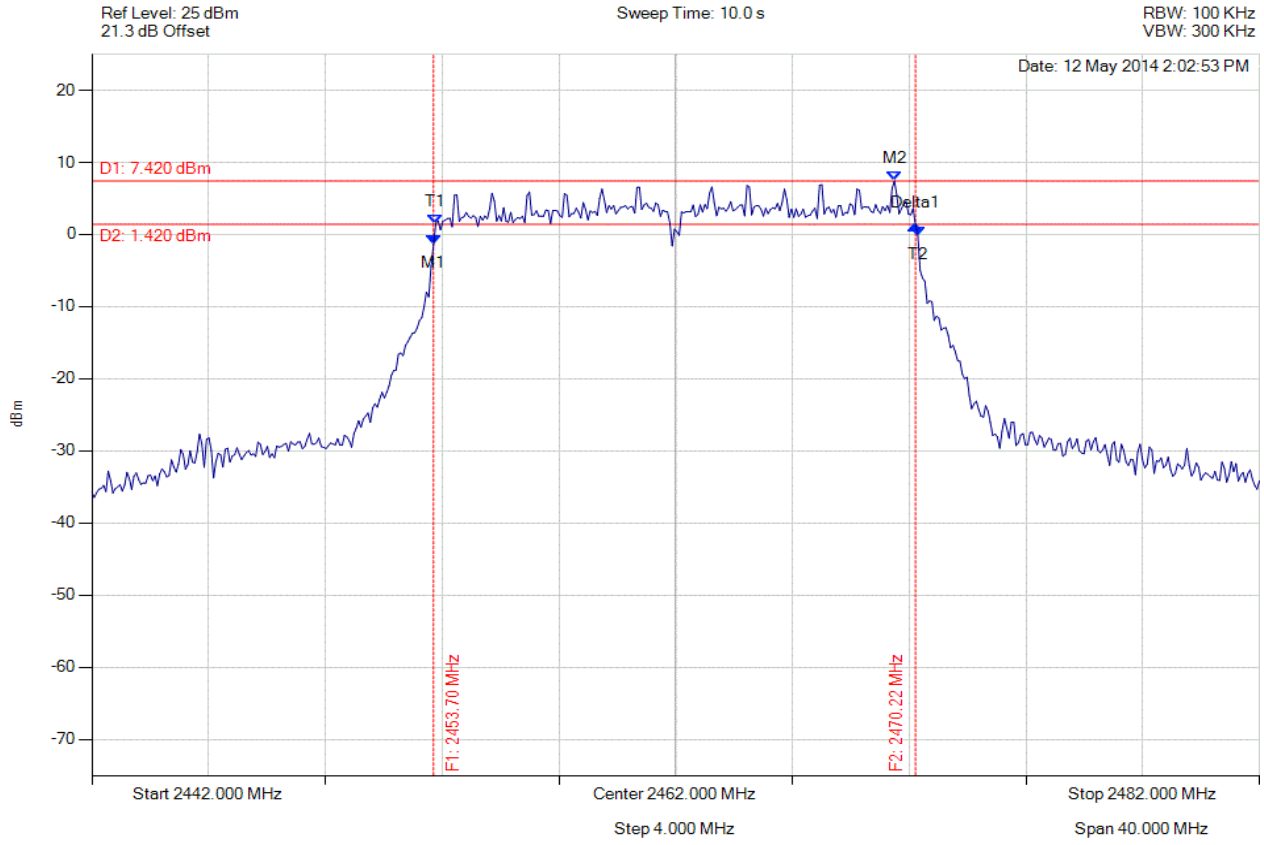
## 6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2453.703 MHz : -1.433 dBm<br>M2 : 2469.495 MHz : 7.420 dBm<br>Delta1 : 16.513 MHz : 2.699 dB<br>T1 : 2453.784 MHz : 1.527 dBm<br>T2 : 2470.297 MHz : -0.194 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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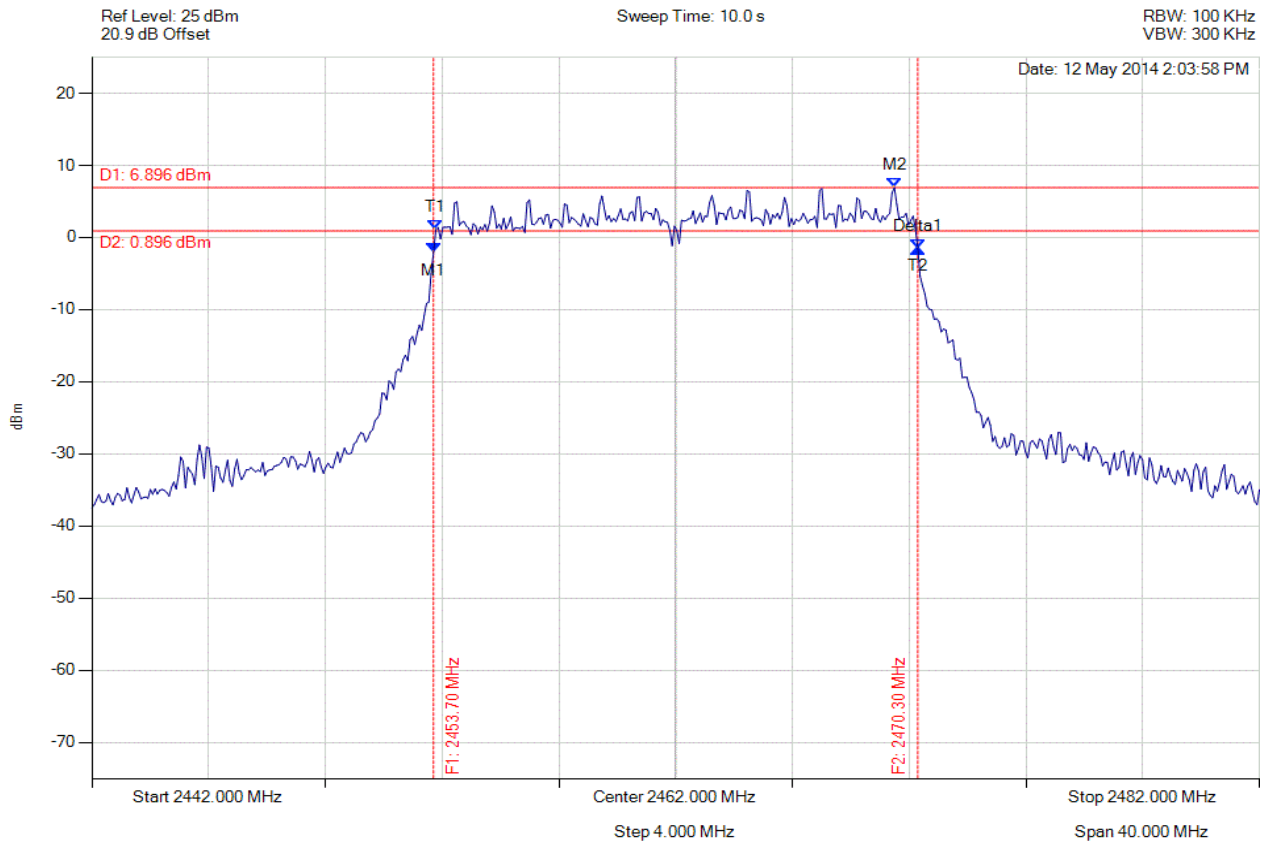
## 6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2462.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2453.703 MHz : -2.100 dBm<br>M2 : 2469.495 MHz : 6.896 dBm<br>Delta1 : 16.593 MHz : 0.596 dB<br>T1 : 2453.784 MHz : 1.097 dBm<br>T2 : 2470.297 MHz : -1.504 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.593 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.09 MHz |

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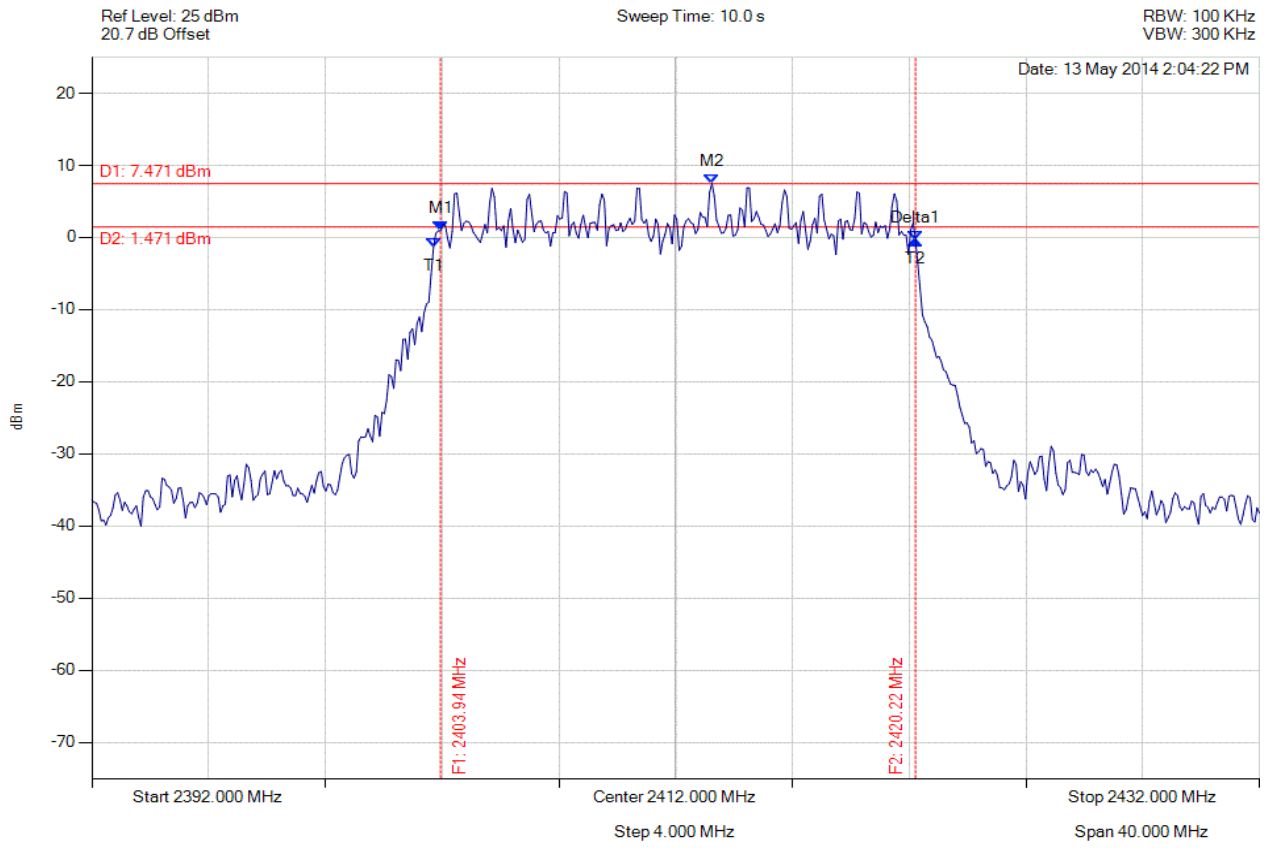
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2403.944 MHz : 0.927 dBm<br>M2 : 2413.242 MHz : 7.471 dBm<br>Delta1 : 16.273 MHz : -1.281 dB<br>T1 : 2403.703 MHz : -1.355 dBm<br>T2 : 2420.216 MHz : -0.355 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.273 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.77 MHz |

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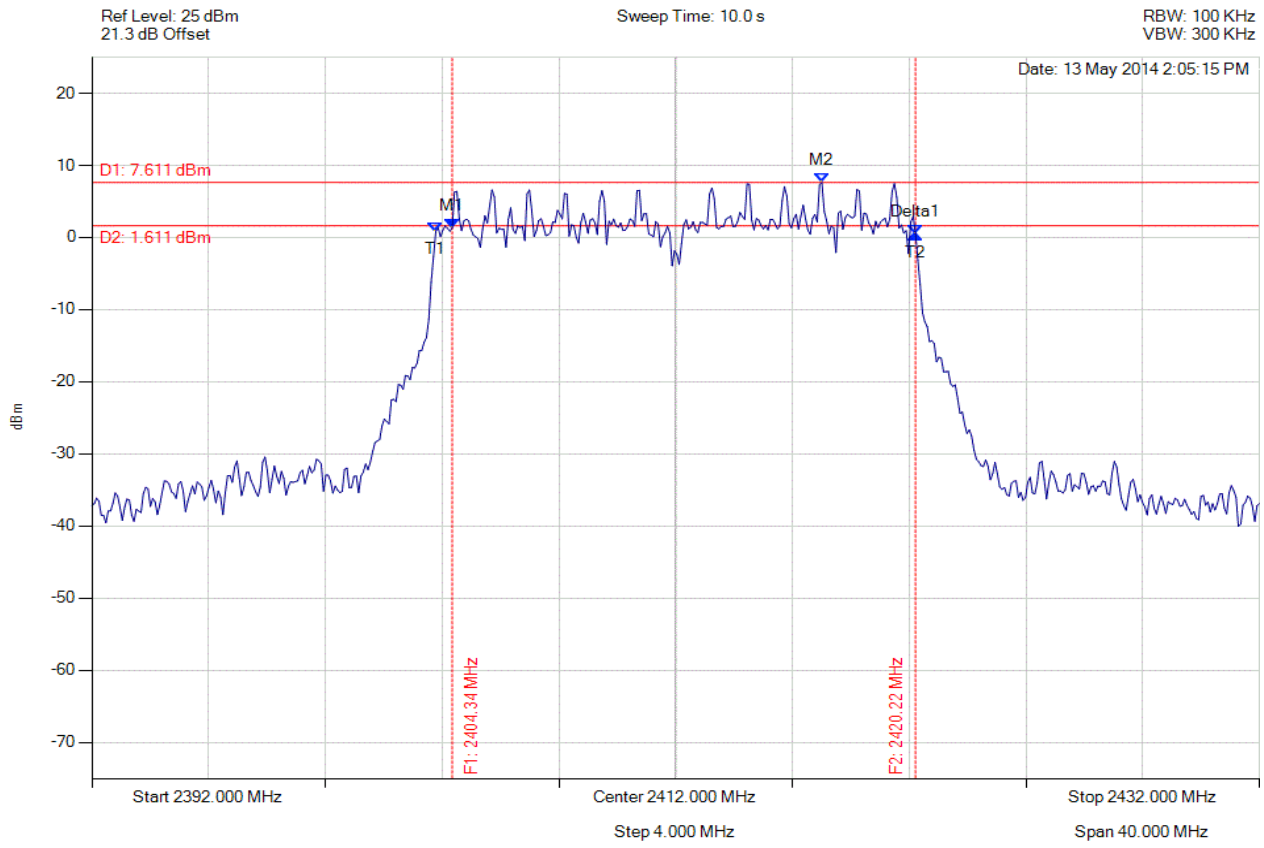
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2404.345 MHz : 1.335 dBm<br>M2 : 2417.010 MHz : 7.611 dBm<br>Delta1 : 15.872 MHz : -0.870 dB<br>T1 : 2403.784 MHz : 0.882 dBm<br>T2 : 2420.216 MHz : 0.465 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 15.872 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.37 MHz |

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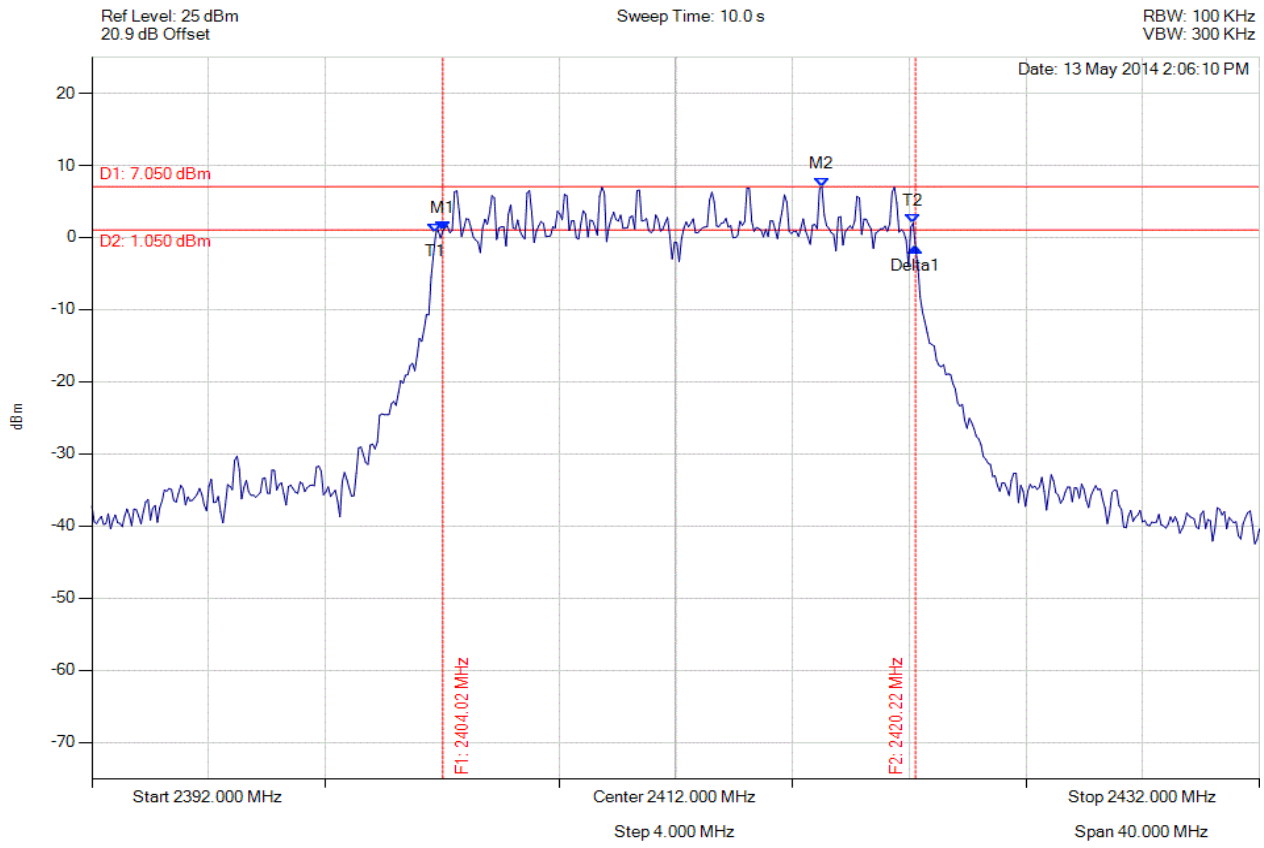
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2404.024 MHz : 0.922 dBm<br>M2 : 2417.010 MHz : 7.050 dBm<br>Delta1 : 16.192 MHz : -2.331 dB<br>T1 : 2403.784 MHz : 0.587 dBm<br>T2 : 2420.136 MHz : 2.002 dBm<br>OBW : 16.353 MHz | Measured 6 dB Bandwidth: 16.192 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.69 MHz |

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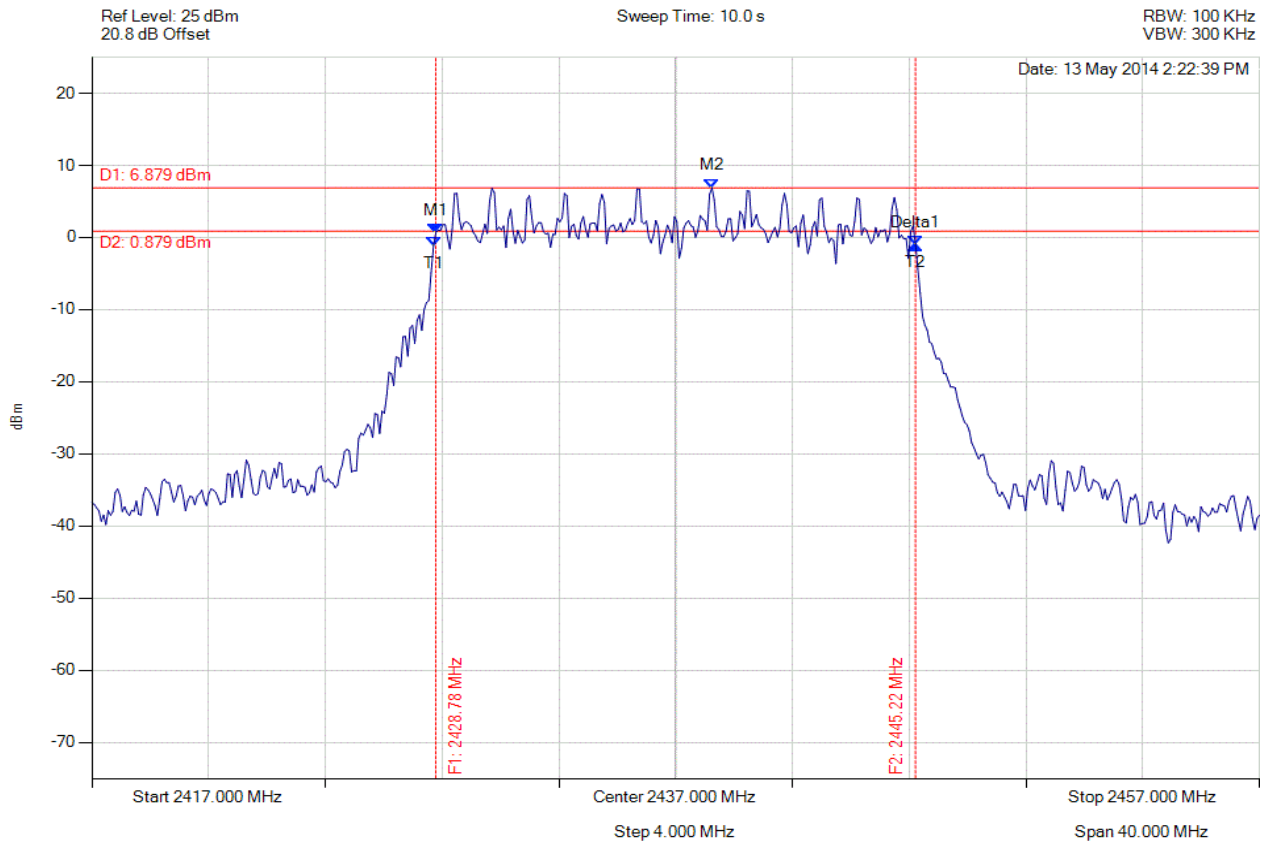
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2428.784 MHz : 0.670 dBm<br>M2 : 2438.242 MHz : 6.879 dBm<br>Delta1 : 16.433 MHz : -1.639 dB<br>T1 : 2428.703 MHz : -1.150 dBm<br>T2 : 2445.216 MHz : -0.969 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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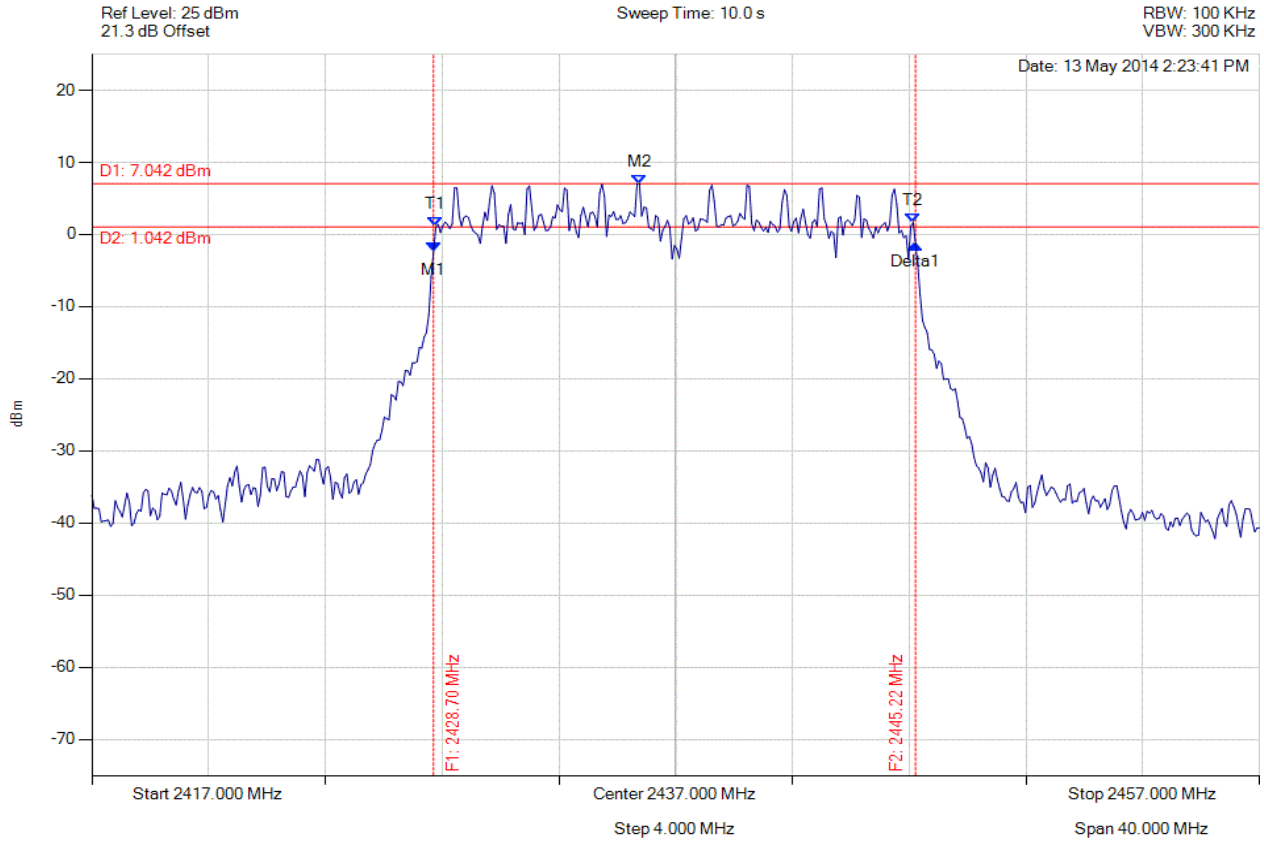
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2428.703 MHz : -2.395 dBm<br>M2 : 2435.758 MHz : 7.042 dBm<br>Delta1 : 16.513 MHz : 1.094 dB<br>T1 : 2428.784 MHz : 1.061 dBm<br>T2 : 2445.136 MHz : 1.663 dBm<br>OBW : 16.353 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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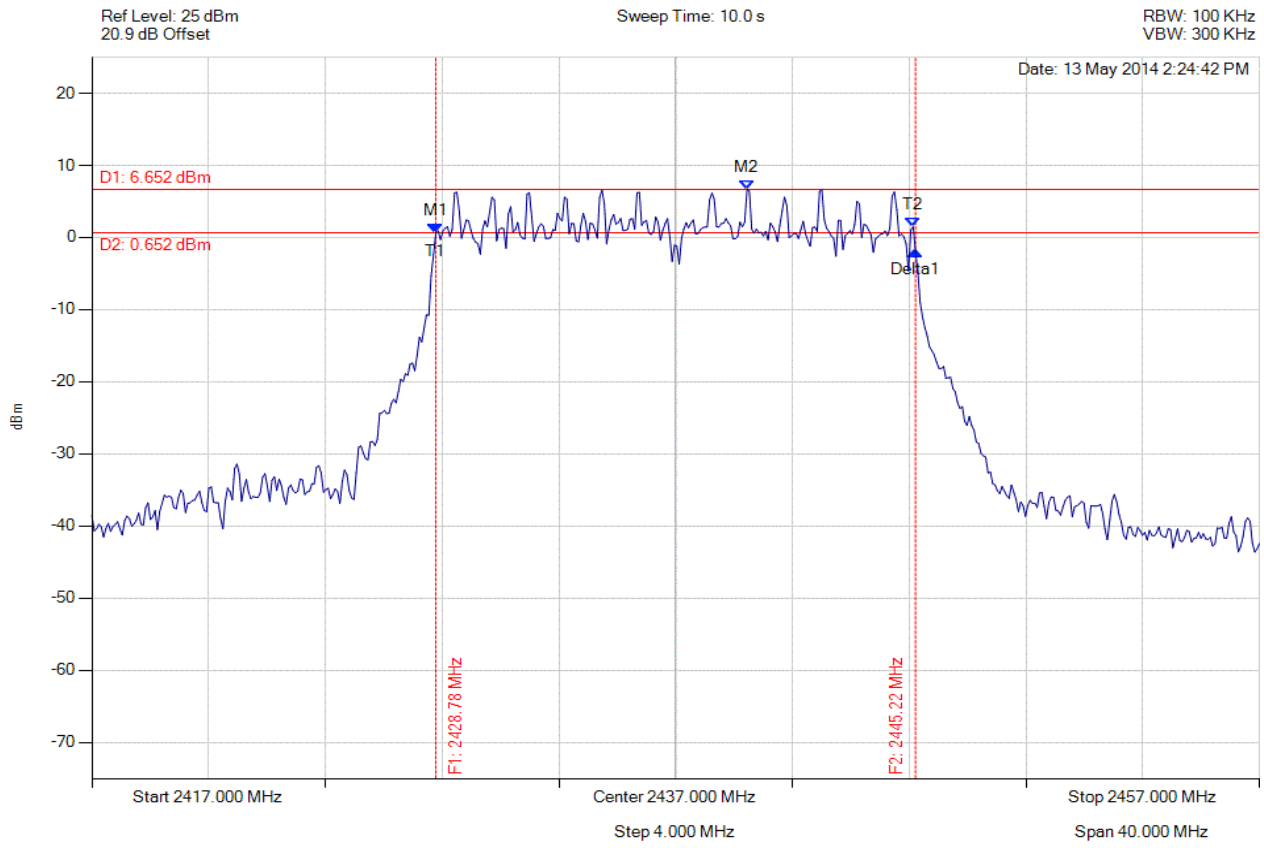
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2428.784 MHz : 0.587 dBm<br>M2 : 2439.445 MHz : 6.652 dBm<br>Delta1 : 16.433 MHz : -2.520 dB<br>T1 : 2428.784 MHz : 0.587 dBm<br>T2 : 2445.136 MHz : 1.492 dBm<br>OBW : 16.353 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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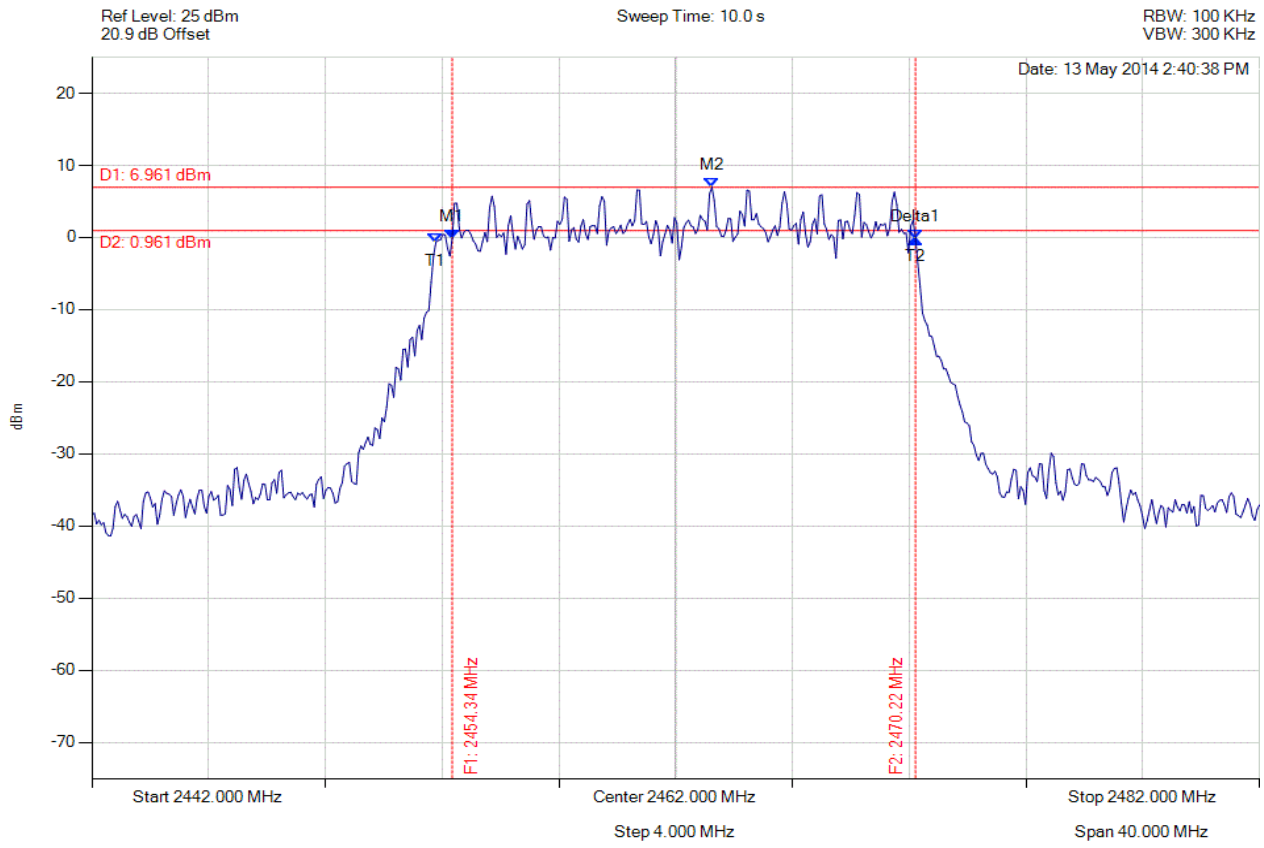
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2454.345 MHz : -0.147 dBm<br>M2 : 2463.242 MHz : 6.961 dBm<br>Delta1 : 15.872 MHz : 0.012 dB<br>T1 : 2453.784 MHz : -0.682 dBm<br>T2 : 2470.216 MHz : -0.135 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 15.872 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.37 MHz |

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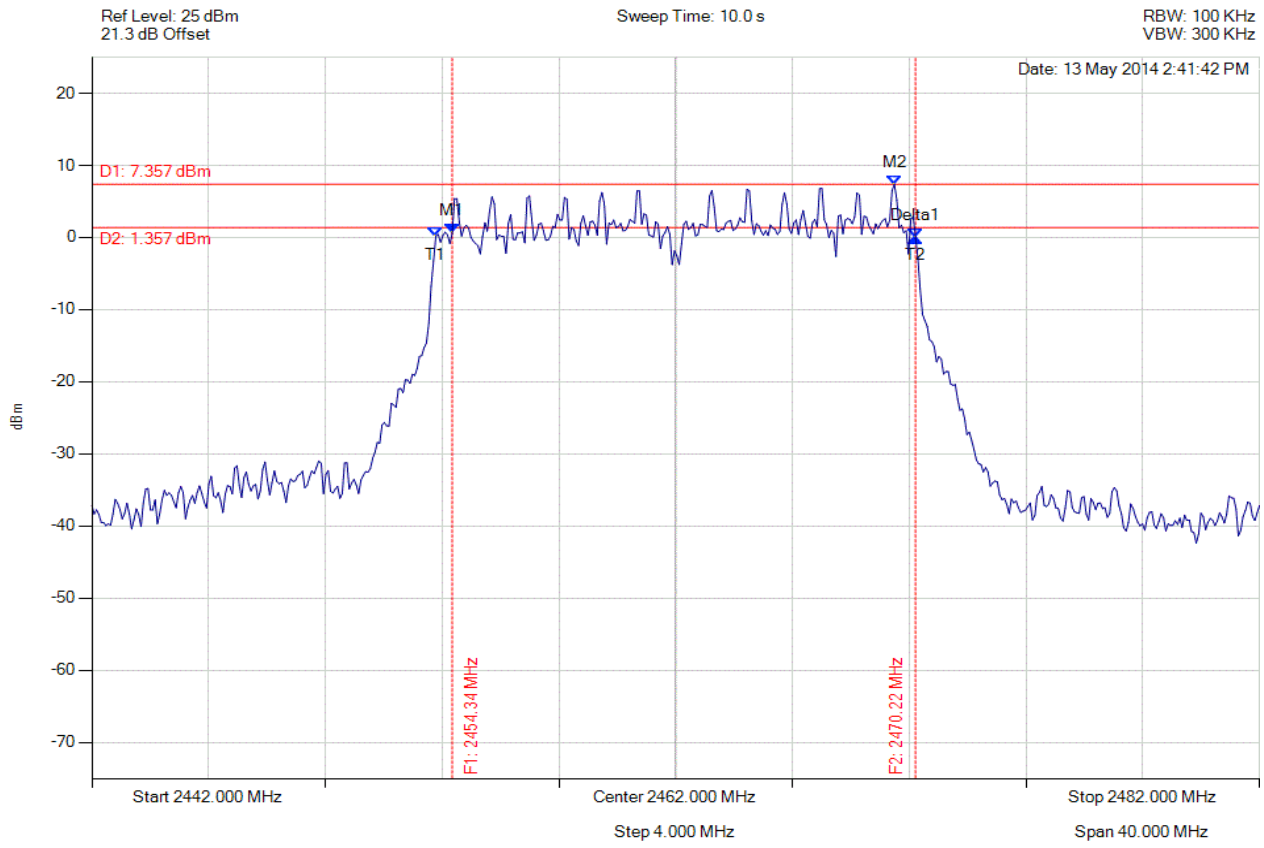
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2454.345 MHz : 0.567 dBm<br>M2 : 2469.495 MHz : 7.357 dBm<br>Delta1 : 15.872 MHz : -0.547 dB<br>T1 : 2453.784 MHz : 0.144 dBm<br>T2 : 2470.216 MHz : 0.019 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 15.872 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.37 MHz |

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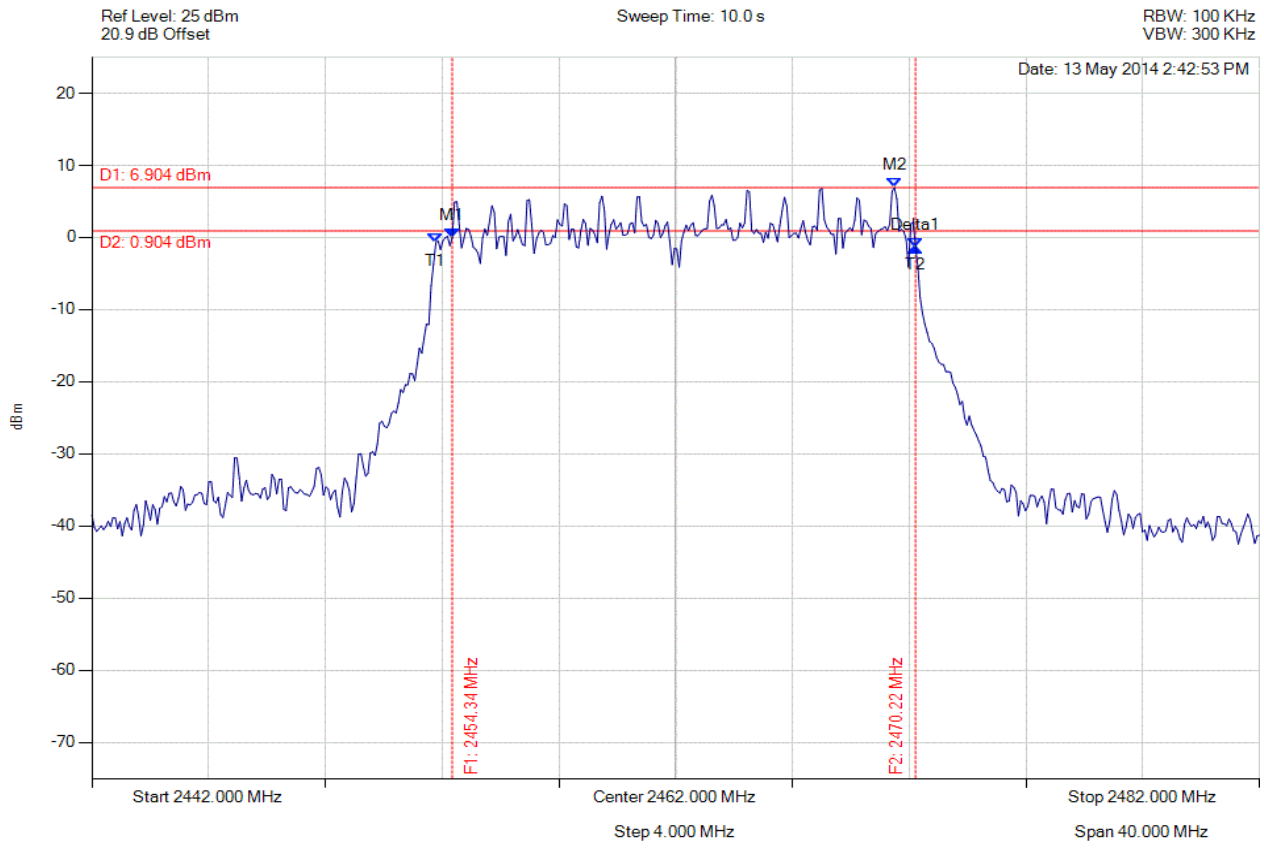
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2454.345 MHz : -0.046 dBm<br>M2 : 2469.495 MHz : 6.904 dBm<br>Delta1 : 15.872 MHz : -1.255 dB<br>T1 : 2453.784 MHz : -0.719 dBm<br>T2 : 2470.216 MHz : -1.300 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 15.872 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.37 MHz |

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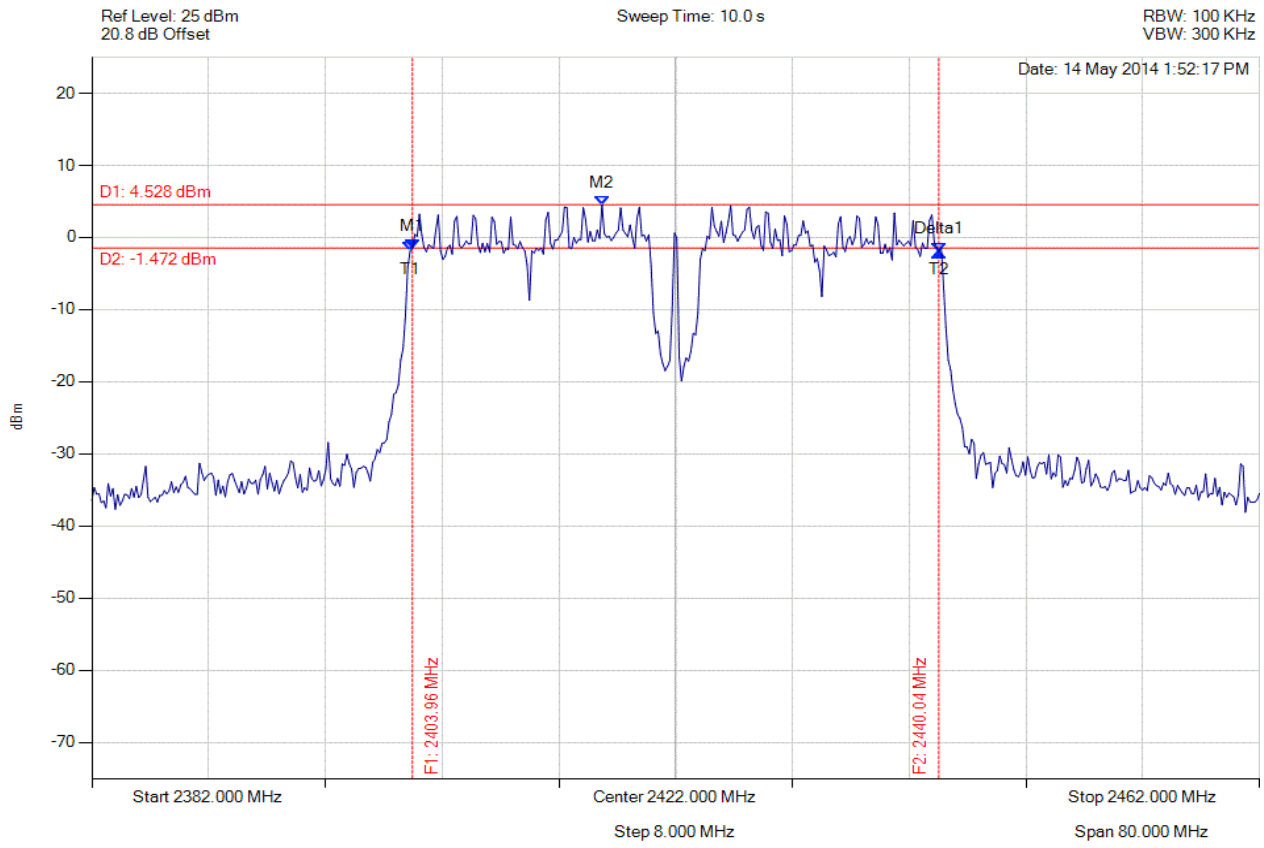
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2403.964 MHz : -1.593 dBm<br>M2 : 2416.950 MHz : 4.528 dBm<br>Delta1 : 36.072 MHz : -0.354 dB<br>T1 : 2403.804 MHz : -1.904 dBm<br>T2 : 2440.036 MHz : -1.947 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 36.072 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.57 MHz |

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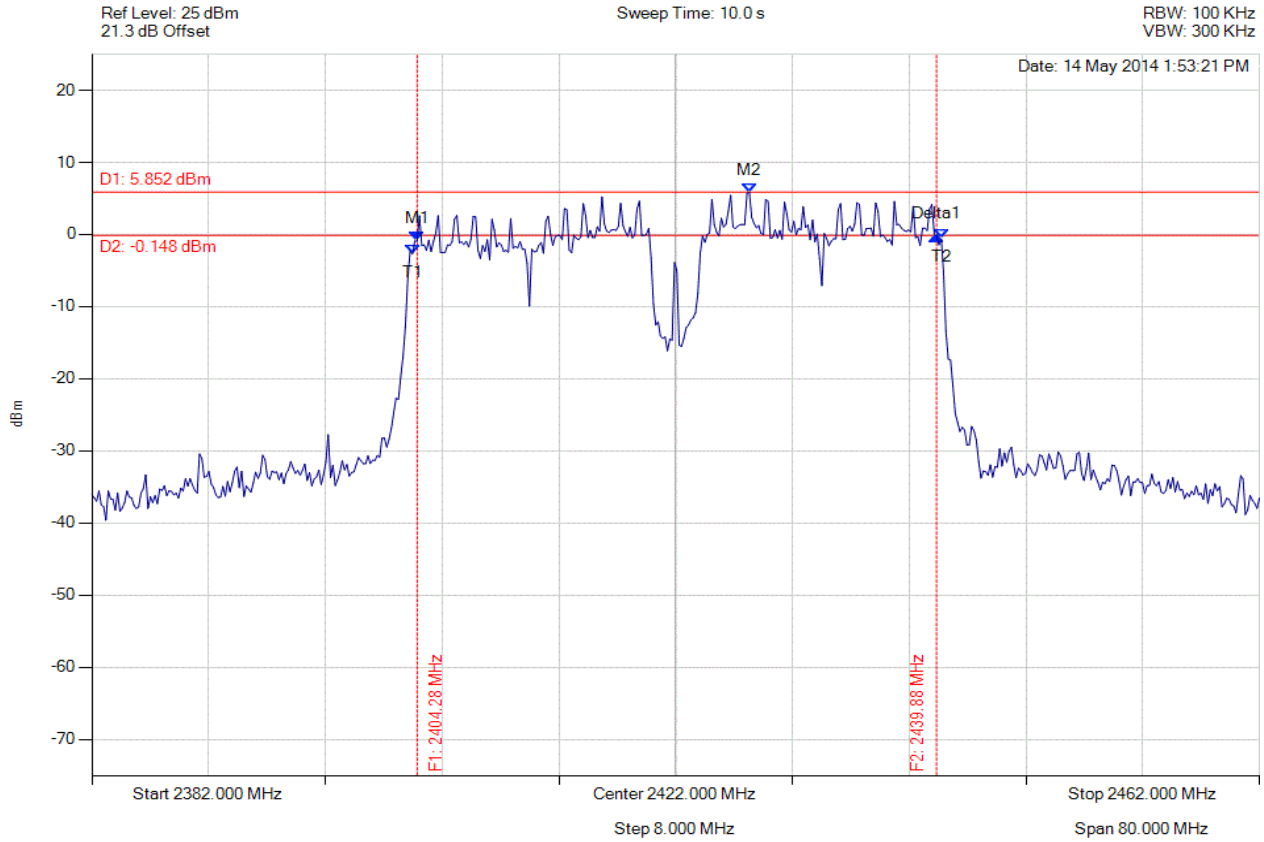
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2404.285 MHz : -0.930 dBm<br>M2 : 2427.050 MHz : 5.852 dBm<br>Delta1 : 35.591 MHz : 0.667 dB<br>T1 : 2403.964 MHz : -2.714 dBm<br>T2 : 2440.196 MHz : -0.605 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 35.591 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.09 MHz |

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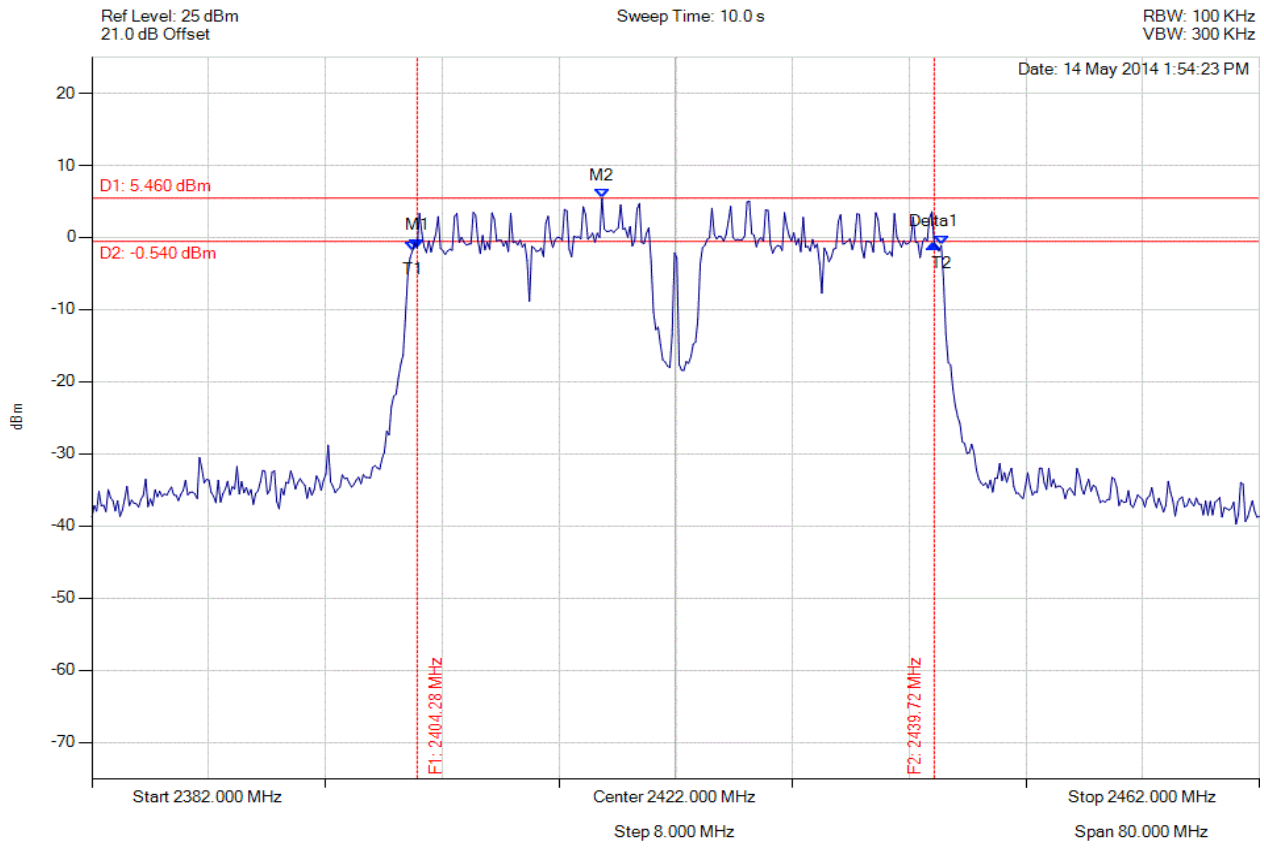
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2404.285 MHz : -1.449 dBm<br>M2 : 2416.950 MHz : 5.460 dBm<br>Delta1 : 35.431 MHz : 0.639 dB<br>T1 : 2403.964 MHz : -1.850 dBm<br>T2 : 2440.196 MHz : -1.099 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 35.431 MHz<br>Limit: ≥500.0 kHz<br>Margin: -34.93 MHz |

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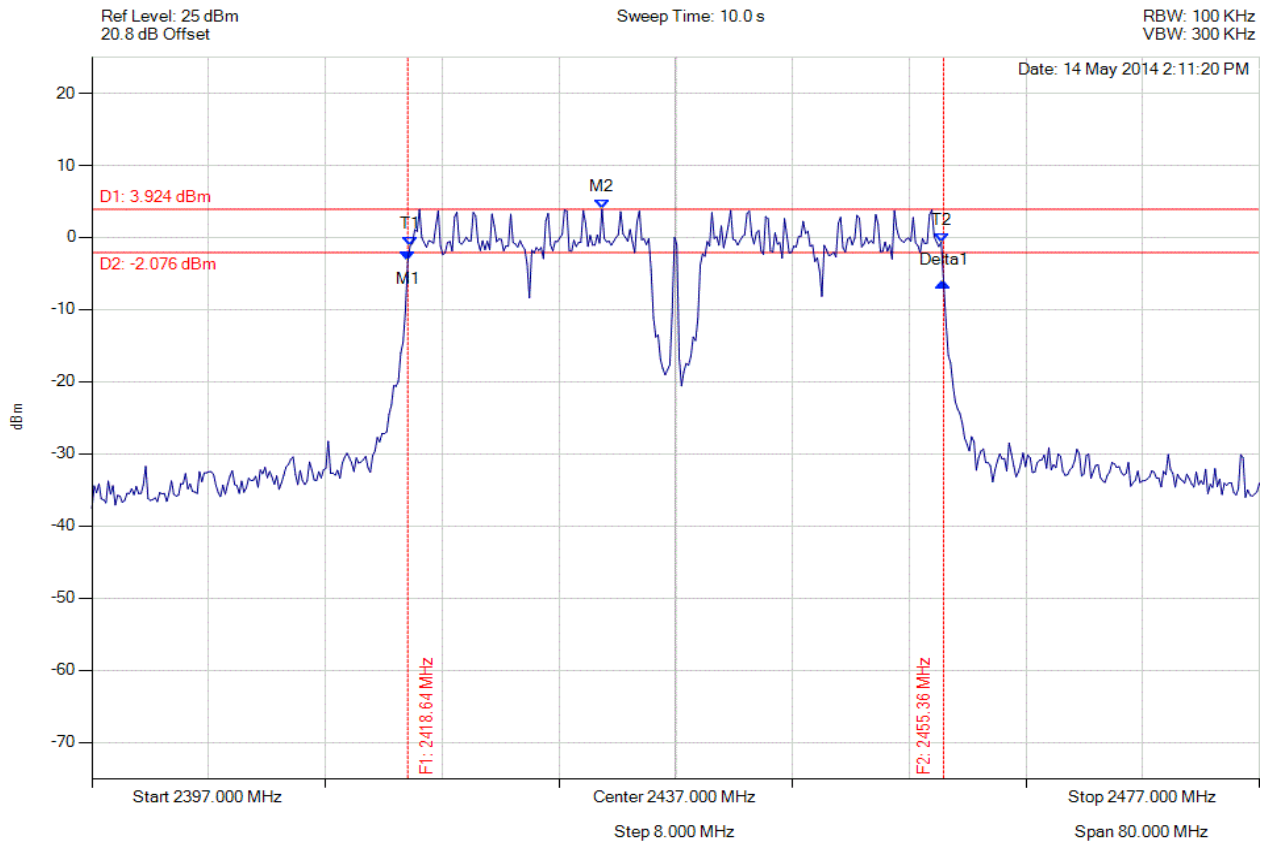
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2418.643 MHz : -3.194 dBm<br>M2 : 2431.950 MHz : 3.924 dBm<br>Delta1 : 36.713 MHz : -2.967 dB<br>T1 : 2418.804 MHz : -1.154 dBm<br>T2 : 2455.196 MHz : -0.631 dBm<br>OBW : 36.393 MHz | Measured 6 dB Bandwidth: 36.713 MHz<br>Limit: ≥500.0 kHz<br>Margin: -36.21 MHz |

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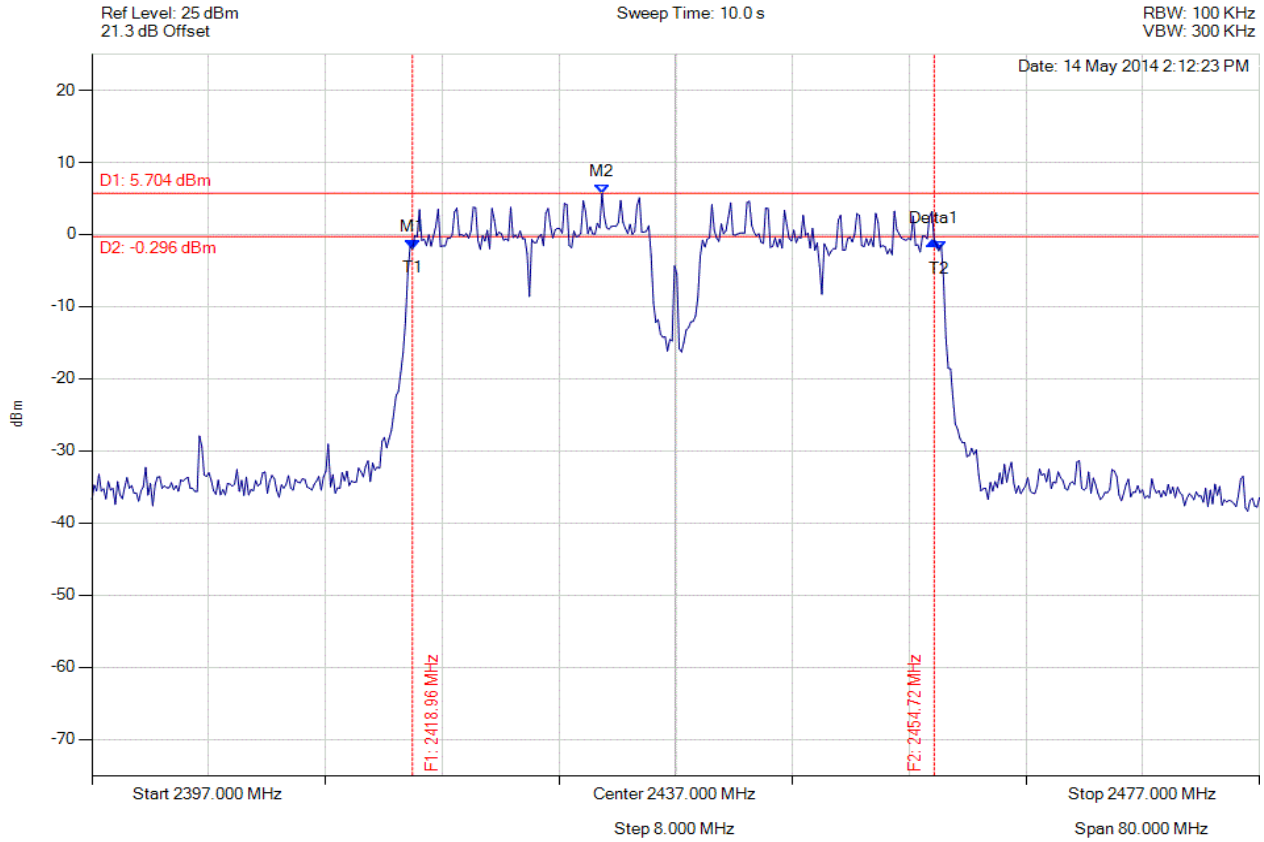
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2418.964 MHz : -2.010 dBm<br>M2 : 2431.950 MHz : 5.704 dBm<br>Delta1 : 35.752 MHz : 1.155 dB<br>T1 : 2418.964 MHz : -2.010 dBm<br>T2 : 2455.036 MHz : -2.258 dBm<br>OBW : 36.072 MHz | Measured 6 dB Bandwidth: 35.752 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.25 MHz |

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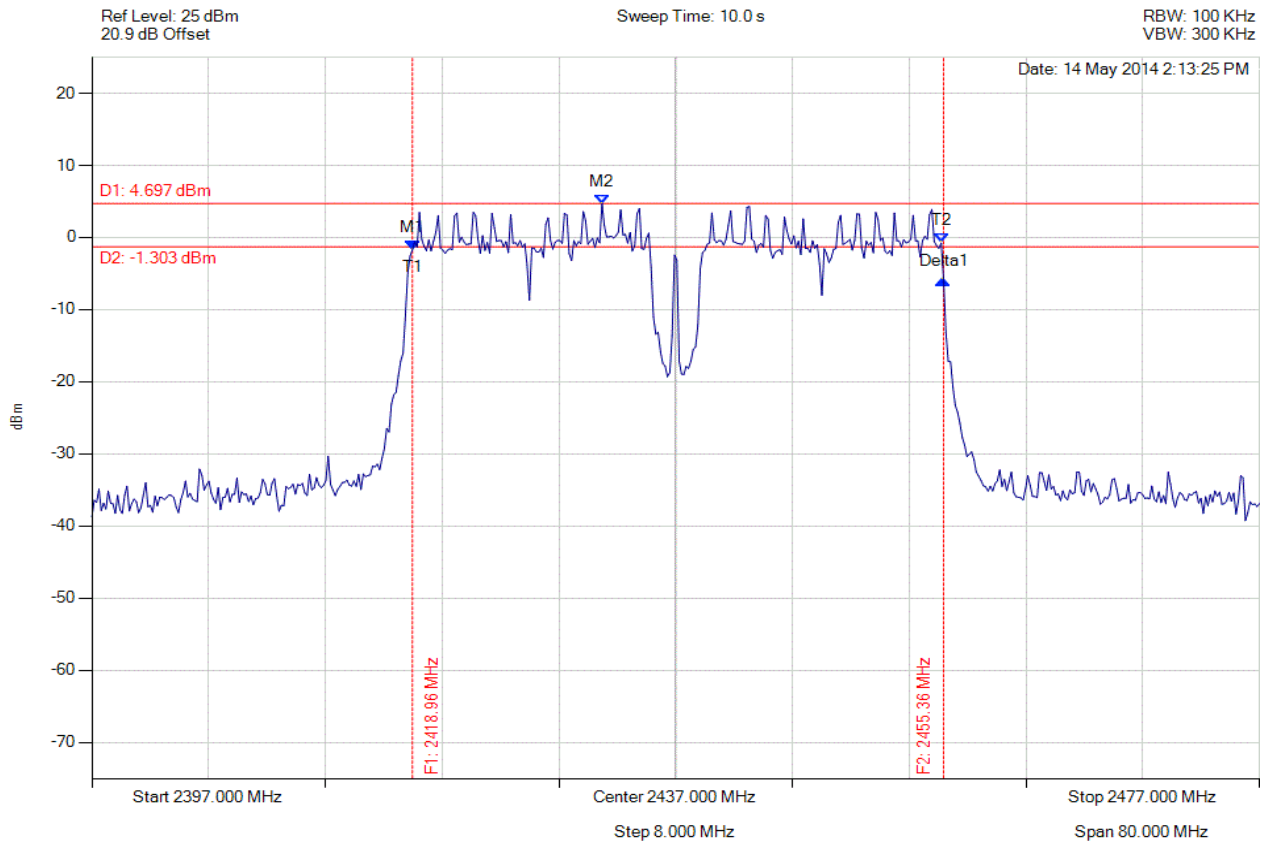
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2418.964 MHz : -1.636 dBm<br>M2 : 2431.950 MHz : 4.697 dBm<br>Delta1 : 36.393 MHz : -4.179 dB<br>T1 : 2418.964 MHz : -1.636 dBm<br>T2 : 2455.196 MHz : -0.770 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 36.393 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.89 MHz |

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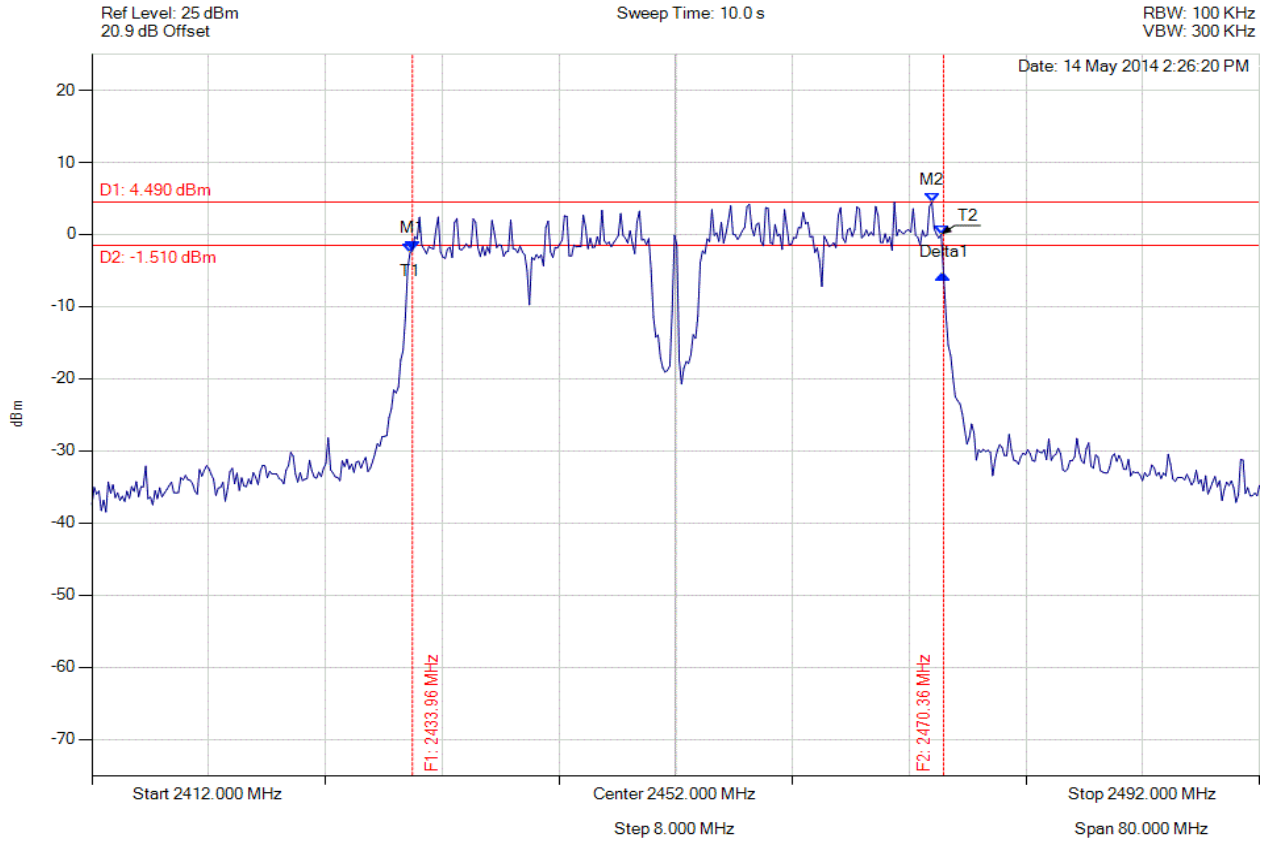
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2433.964 MHz : -2.266 dBm<br>M2 : 2469.555 MHz : 4.490 dBm<br>Delta1 : 36.393 MHz : -3.213 dB<br>T1 : 2433.804 MHz : -2.553 dBm<br>T2 : 2470.196 MHz : 0.005 dBm<br>OBW : 36.393 MHz | Measured 6 dB Bandwidth: 36.393 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.89 MHz |

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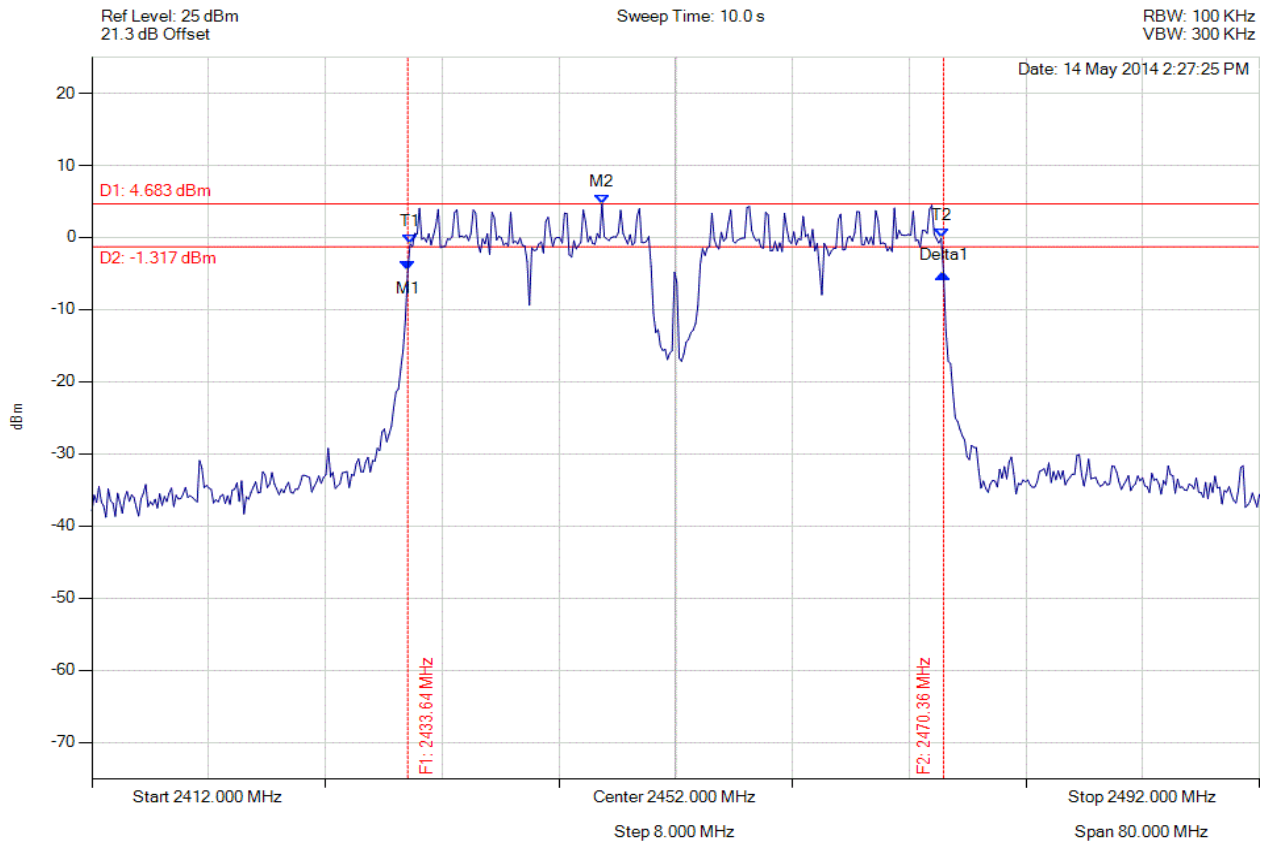
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2433.643 MHz : -4.530 dBm<br>M2 : 2446.950 MHz : 4.683 dBm<br>Delta1 : 36.713 MHz : -0.437 dB<br>T1 : 2433.804 MHz : -0.898 dBm<br>T2 : 2470.196 MHz : -0.103 dBm<br>OBW : 36.393 MHz | Measured 6 dB Bandwidth: 36.713 MHz<br>Limit: ≥500.0 kHz<br>Margin: -36.21 MHz |

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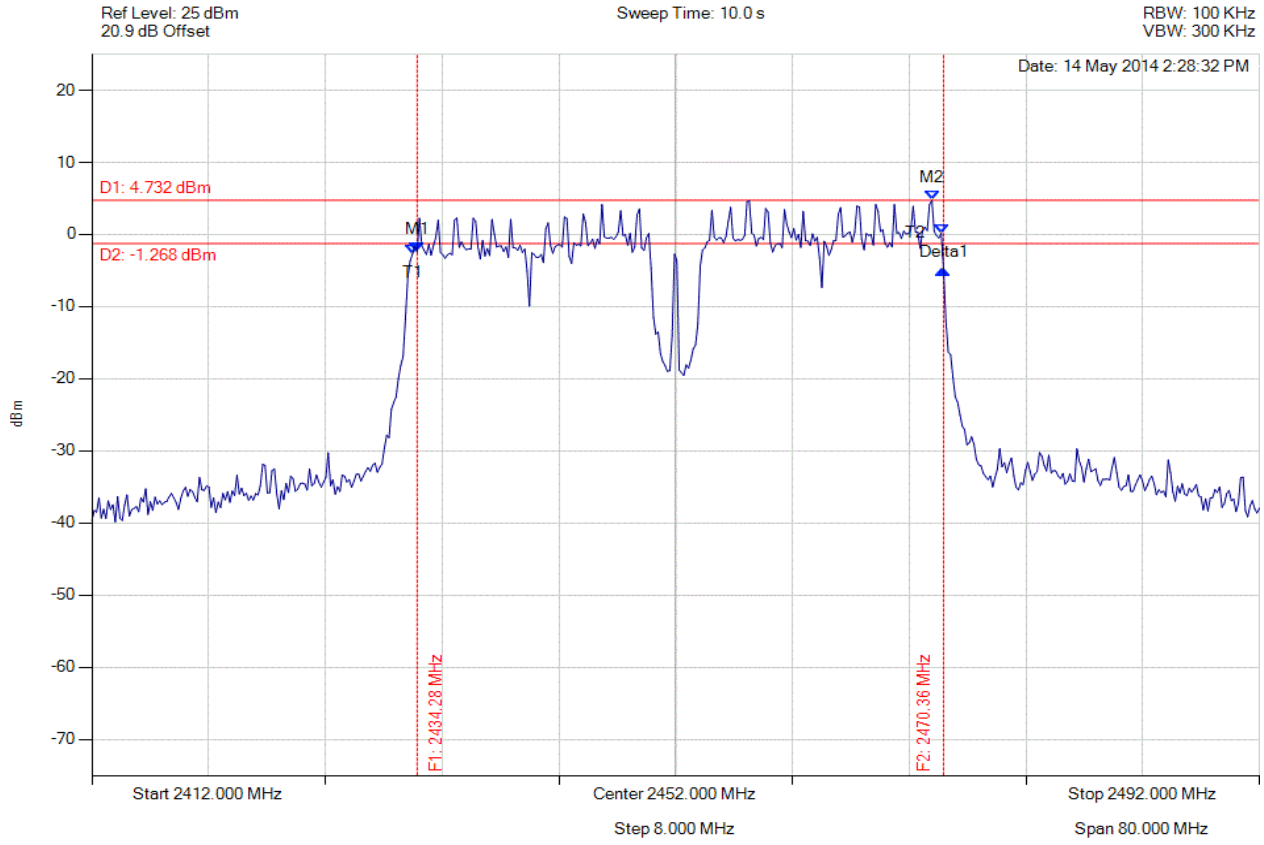
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2434.285 MHz : -2.427 dBm<br>M2 : 2469.555 MHz : 4.732 dBm<br>Delta1 : 36.072 MHz : -2.481 dB<br>T1 : 2433.964 MHz : -2.698 dBm<br>T2 : 2470.196 MHz : 0.196 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 36.072 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.57 MHz |

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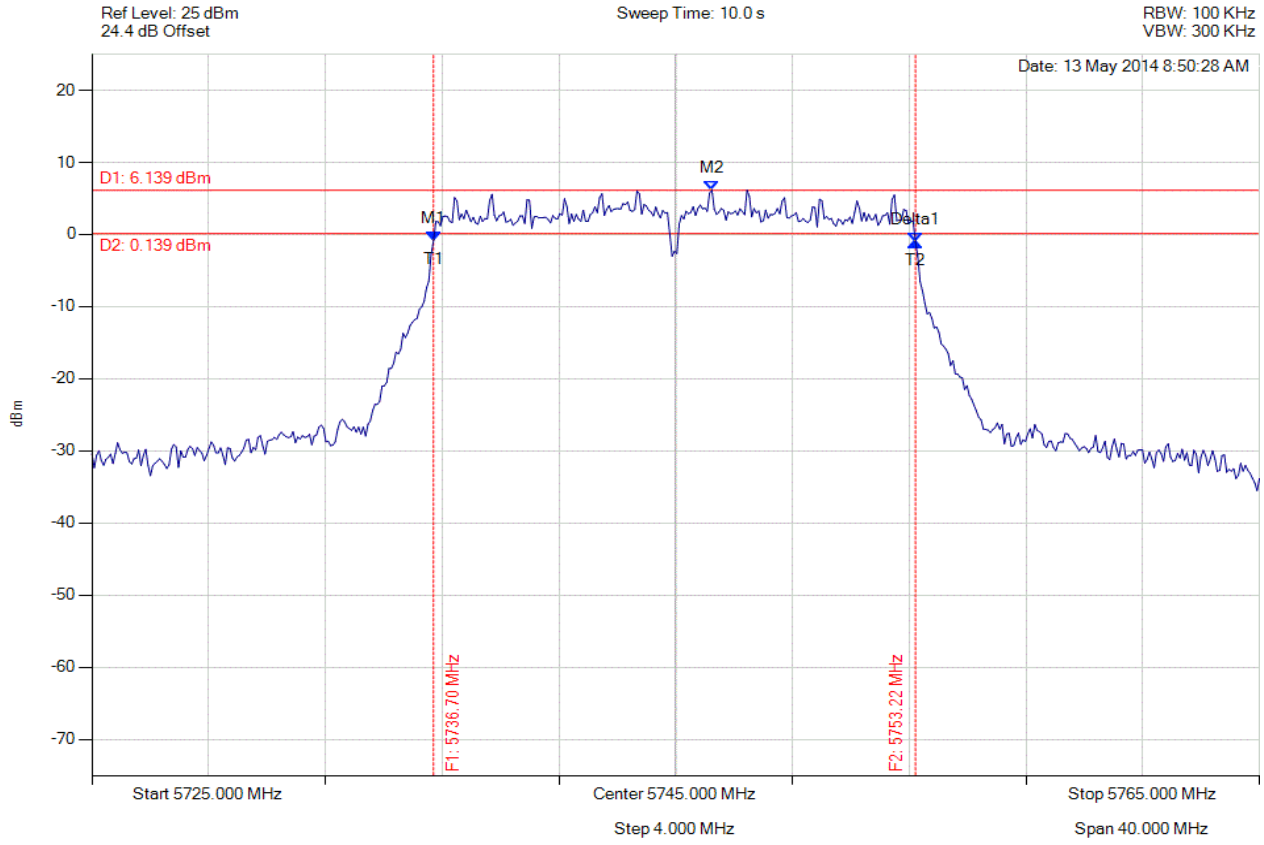
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.703 MHz : -0.847 dBm<br>M2 : 5746.242 MHz : 6.139 dBm<br>Delta1 : 16.513 MHz : -0.187 dB<br>T1 : 5736.703 MHz : -0.847 dBm<br>T2 : 5753.216 MHz : -1.034 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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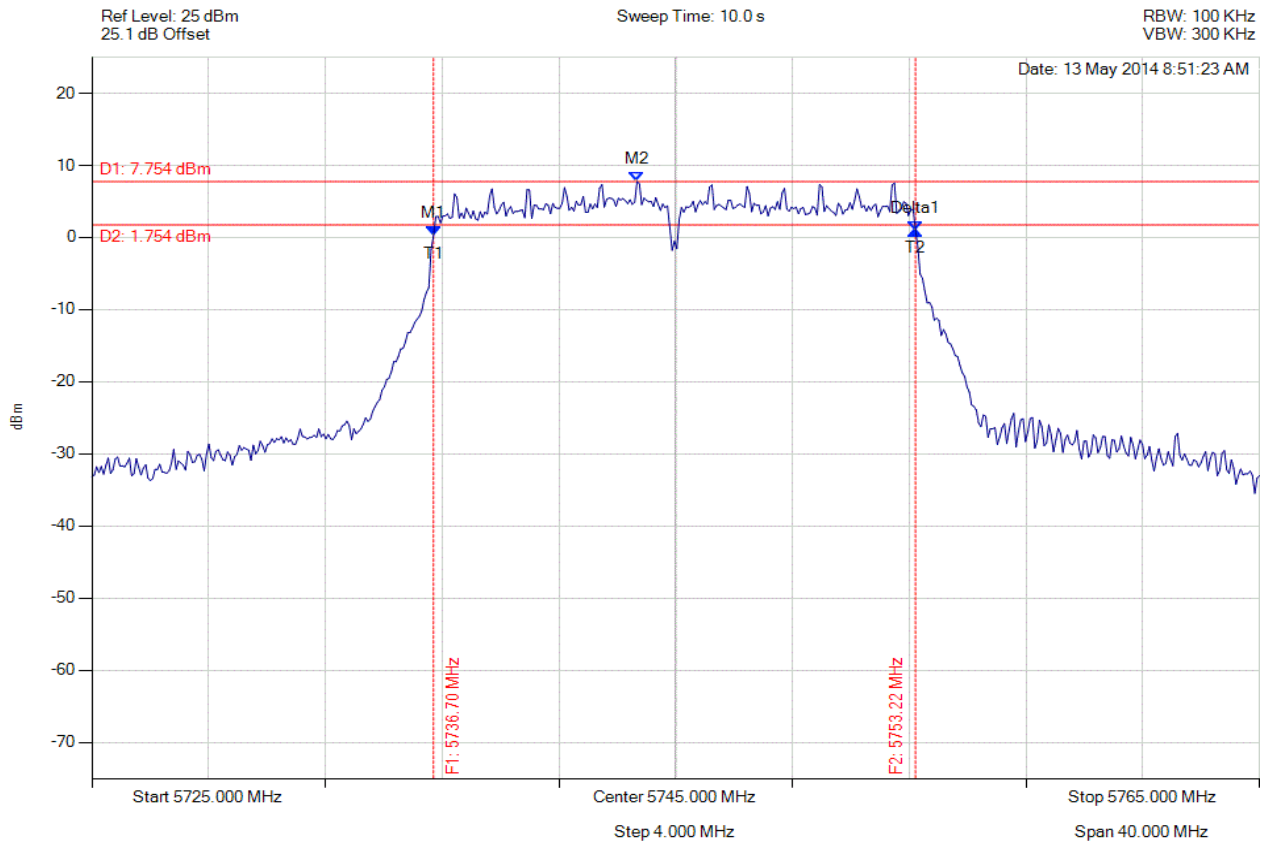
**6 dB & 99% BANDWIDTH**

Variant: 802.11a, Channel: 5745.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.703 MHz : 0.268 dBm<br>M2 : 5743.677 MHz : 7.754 dBm<br>Delta1 : 16.513 MHz : 0.757 dB<br>T1 : 5736.703 MHz : 0.268 dBm<br>T2 : 5753.216 MHz : 1.024 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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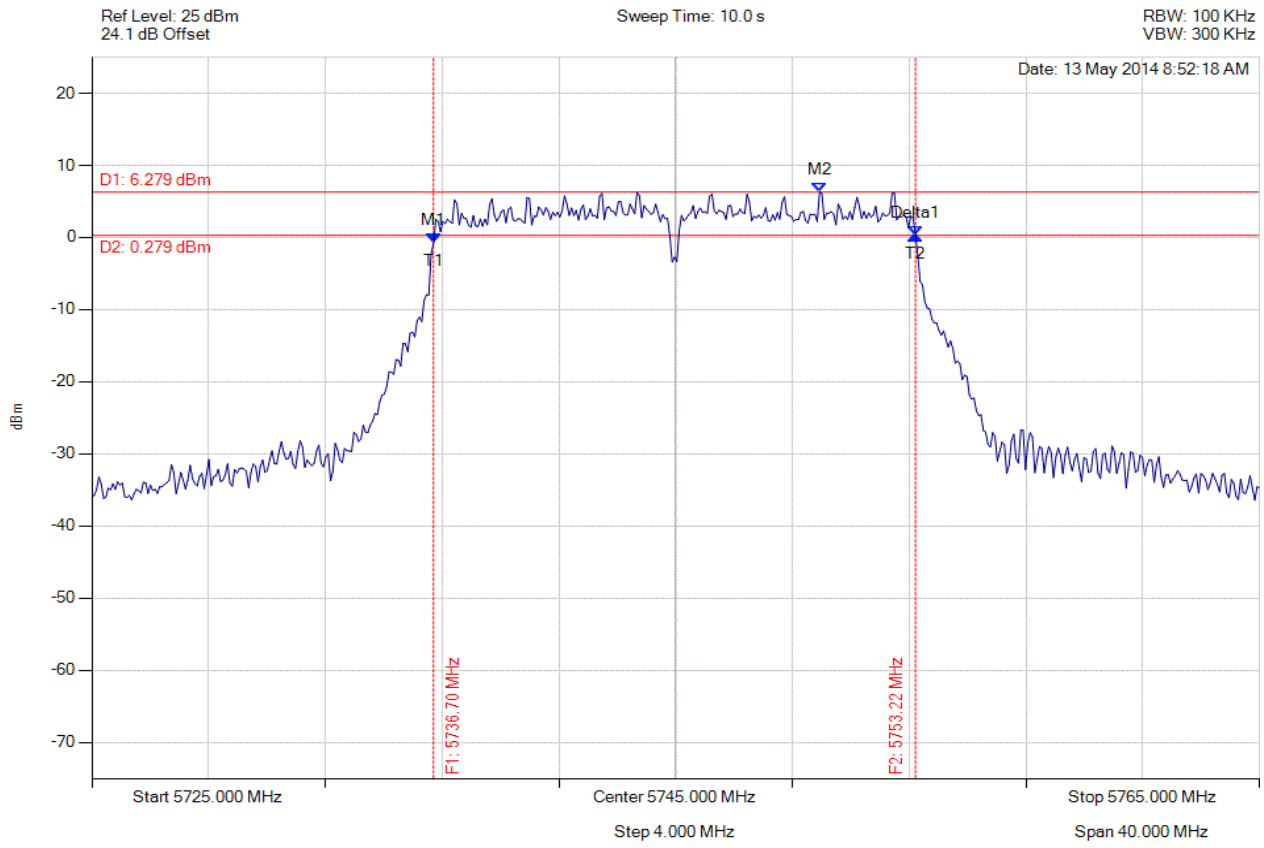
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5745.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.703 MHz : -0.751 dBm<br>M2 : 5749.930 MHz : 6.279 dBm<br>Delta1 : 16.513 MHz : 0.997 dB<br>T1 : 5736.703 MHz : -0.751 dBm<br>T2 : 5753.216 MHz : 0.245 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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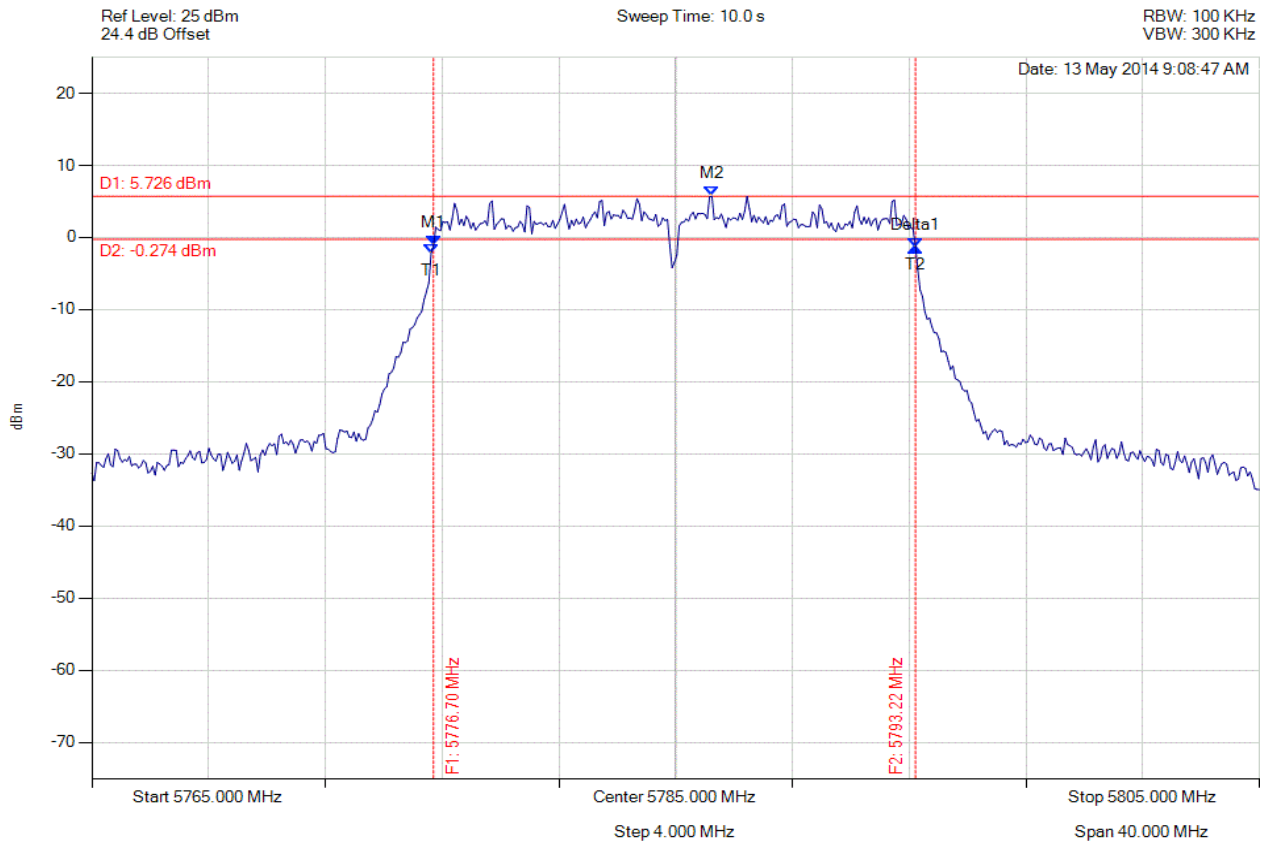
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5776.703 MHz : -1.050 dBm<br>M2 : 5786.242 MHz : 5.726 dBm<br>Delta1 : 16.513 MHz : -0.268 dB<br>T1 : 5776.623 MHz : -2.167 dBm<br>T2 : 5793.216 MHz : -1.319 dBm<br>OBW : 16.593 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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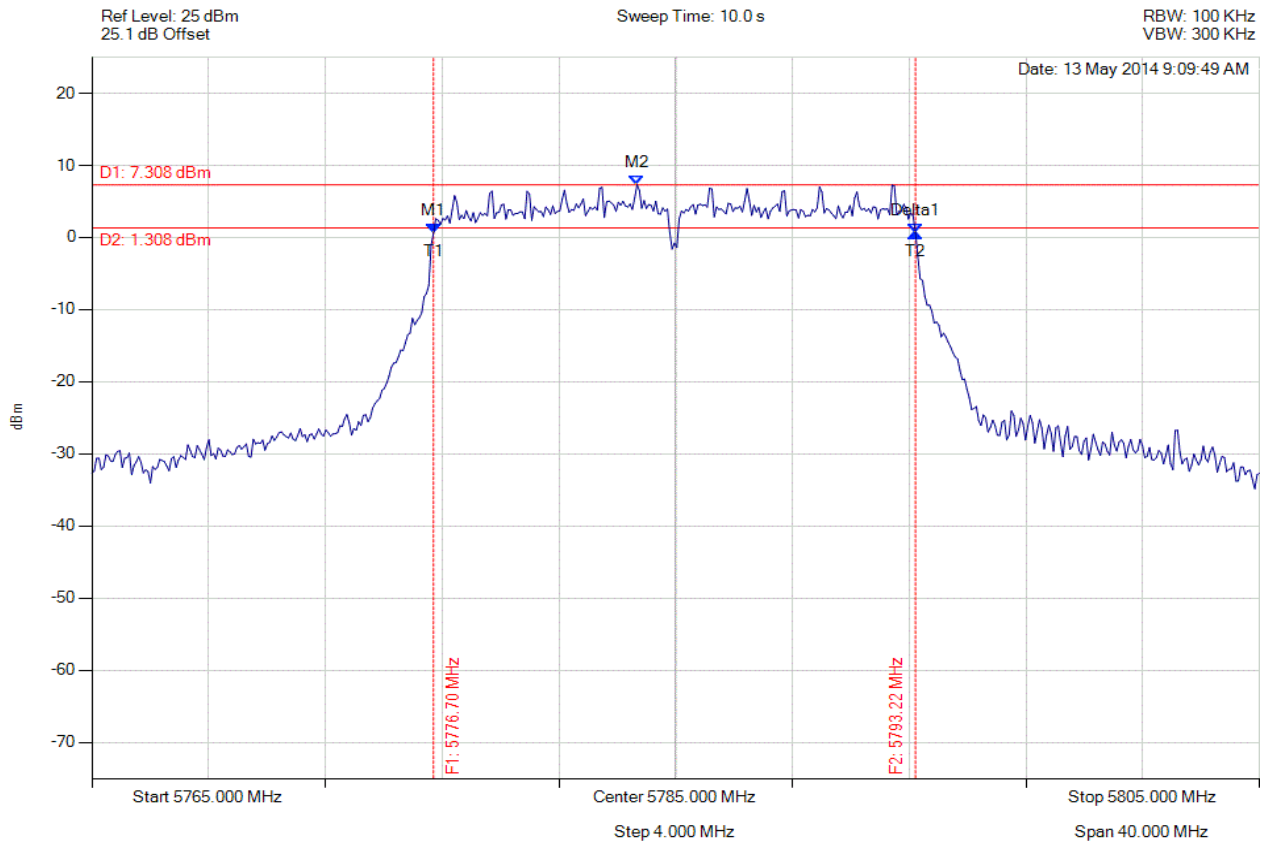
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5776.703 MHz : 0.607 dBm<br>M2 : 5783.677 MHz : 7.308 dBm<br>Delta1 : 16.513 MHz : 0.010 dB<br>T1 : 5776.703 MHz : 0.607 dBm<br>T2 : 5793.216 MHz : 0.617 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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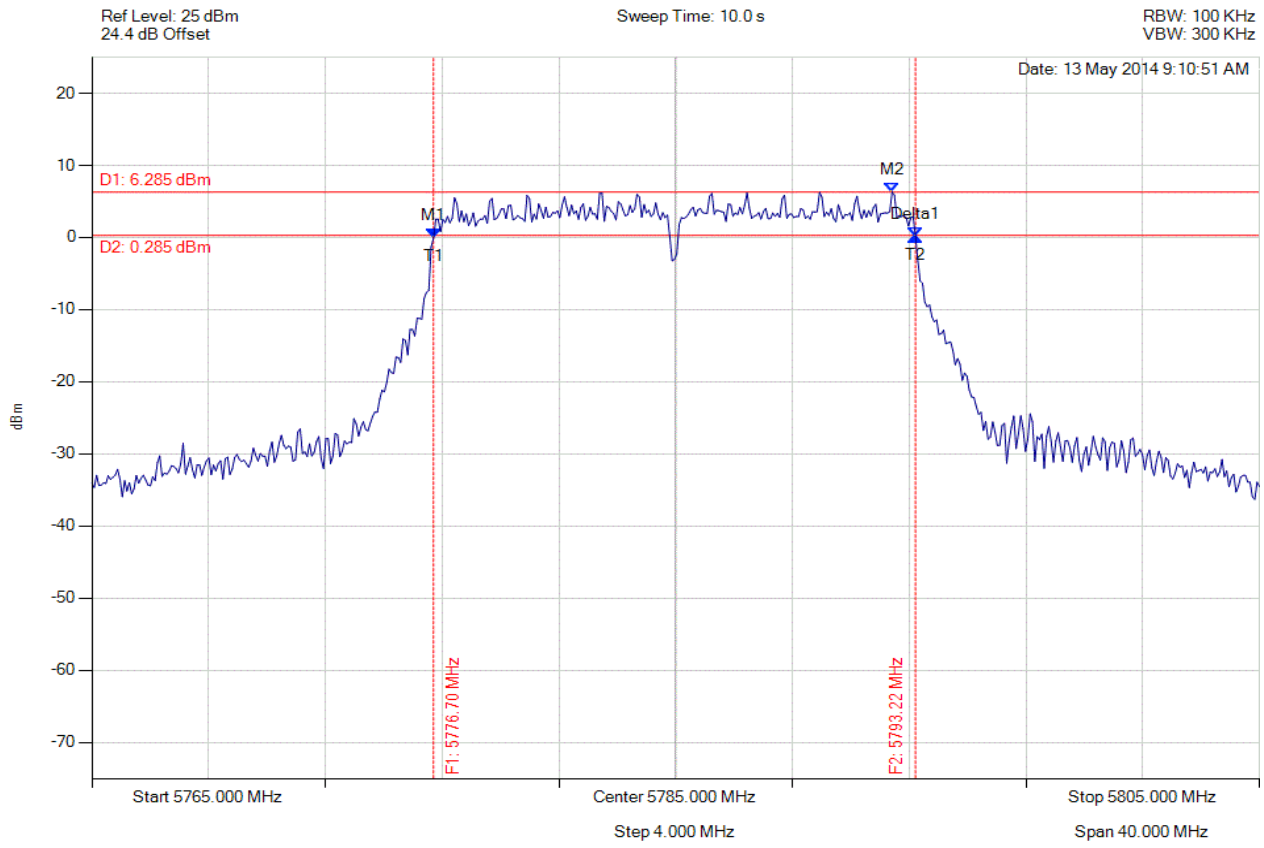
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5776.703 MHz : -0.090 dBm<br>M2 : 5792.415 MHz : 6.285 dBm<br>Delta1 : 16.513 MHz : 0.177 dB<br>T1 : 5776.703 MHz : -0.090 dBm<br>T2 : 5793.216 MHz : 0.087 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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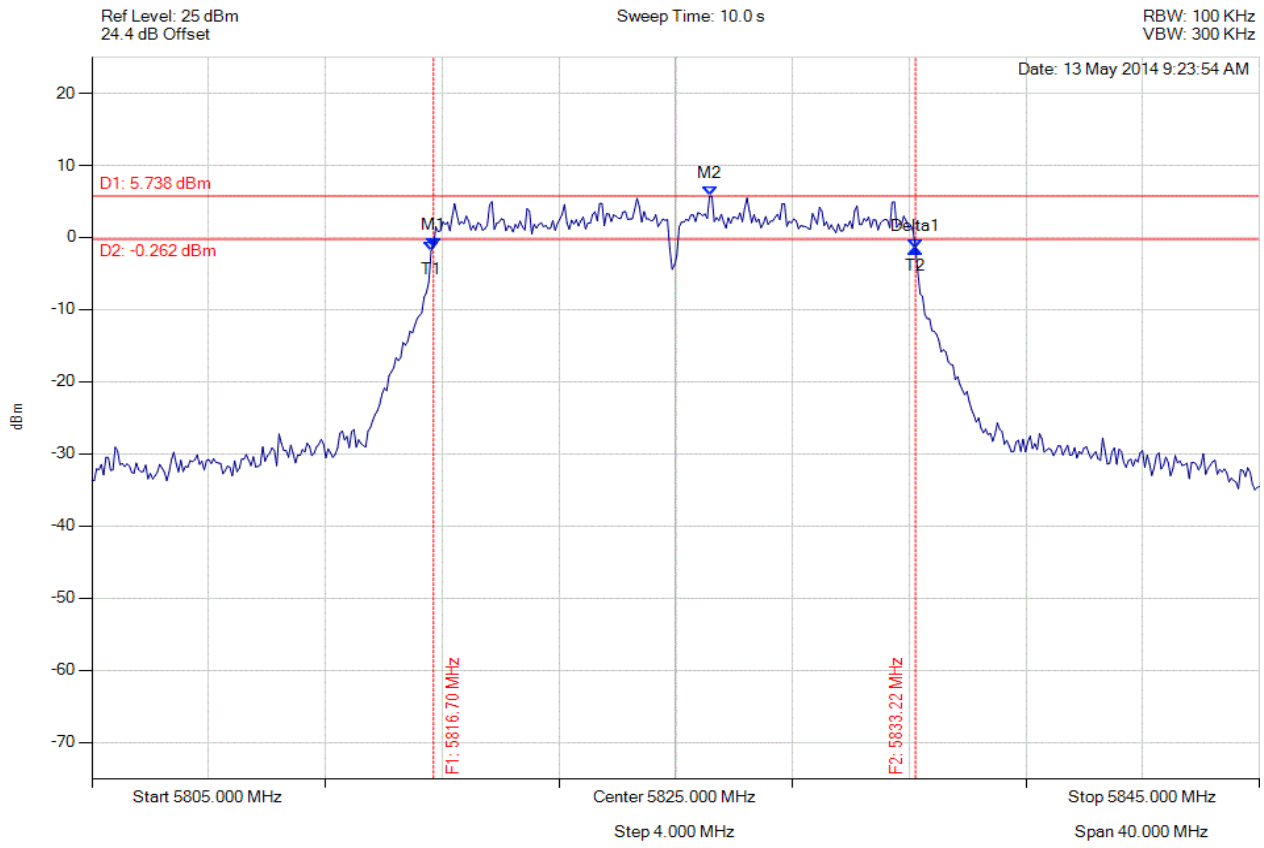
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5816.703 MHz : -1.300 dBm<br>M2 : 5826.162 MHz : 5.738 dBm<br>Delta1 : 16.513 MHz : -0.177 dB<br>T1 : 5816.623 MHz : -1.860 dBm<br>T2 : 5833.216 MHz : -1.477 dBm<br>OBW : 16.593 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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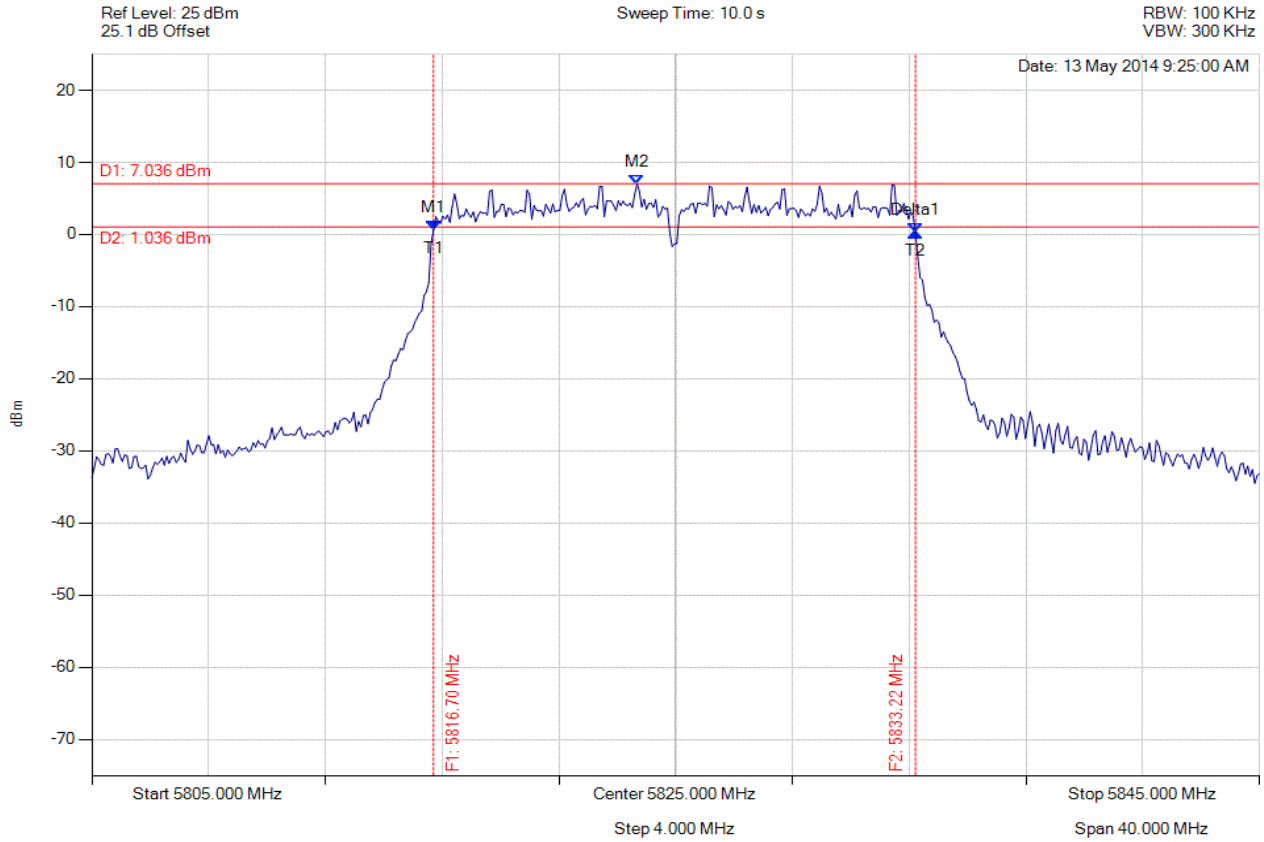
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5816.703 MHz : 0.569 dBm<br>M2 : 5823.677 MHz : 7.036 dBm<br>Delta1 : 16.513 MHz : -0.270 dB<br>T1 : 5816.703 MHz : 0.569 dBm<br>T2 : 5833.216 MHz : 0.298 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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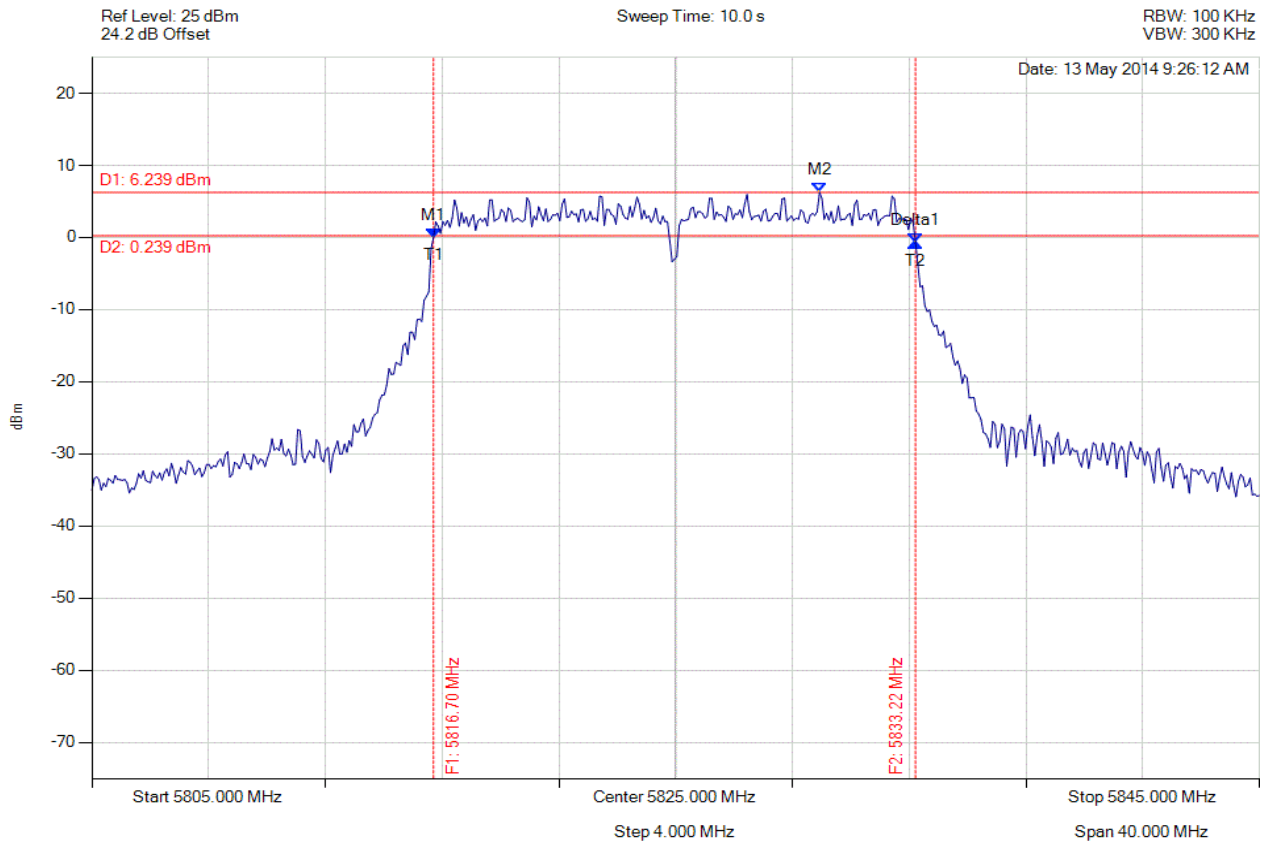
## 6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5816.703 MHz : -0.001 dBm<br>M2 : 5829.930 MHz : 6.239 dBm<br>Delta1 : 16.513 MHz : -0.673 dB<br>T1 : 5816.703 MHz : -0.001 dBm<br>T2 : 5833.216 MHz : -0.674 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.513 MHz<br>Limit: ≥500.0 kHz<br>Margin: -16.01 MHz |

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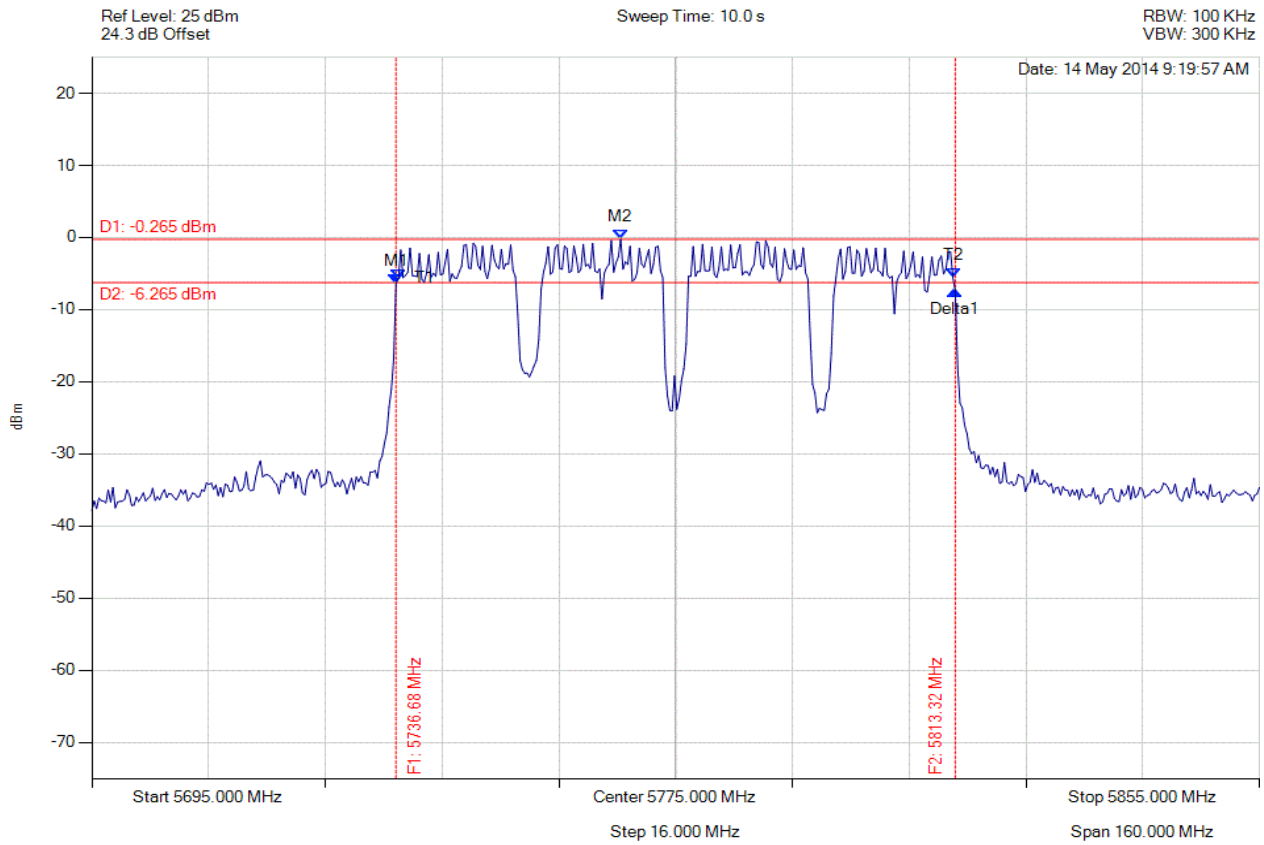
## 6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.683 MHz : -6.312 dBm<br>M2 : 5767.465 MHz : -0.265 dBm<br>Delta1 : 76.633 MHz : -1.127 dB<br>T1 : 5737.004 MHz : -5.661 dBm<br>T2 : 5812.996 MHz : -5.547 dBm<br>OBW : 75.992 MHz | Measured 6 dB Bandwidth: 76.633 MHz<br>Limit: ≥500.0 kHz<br>Margin: -76.13 MHz |

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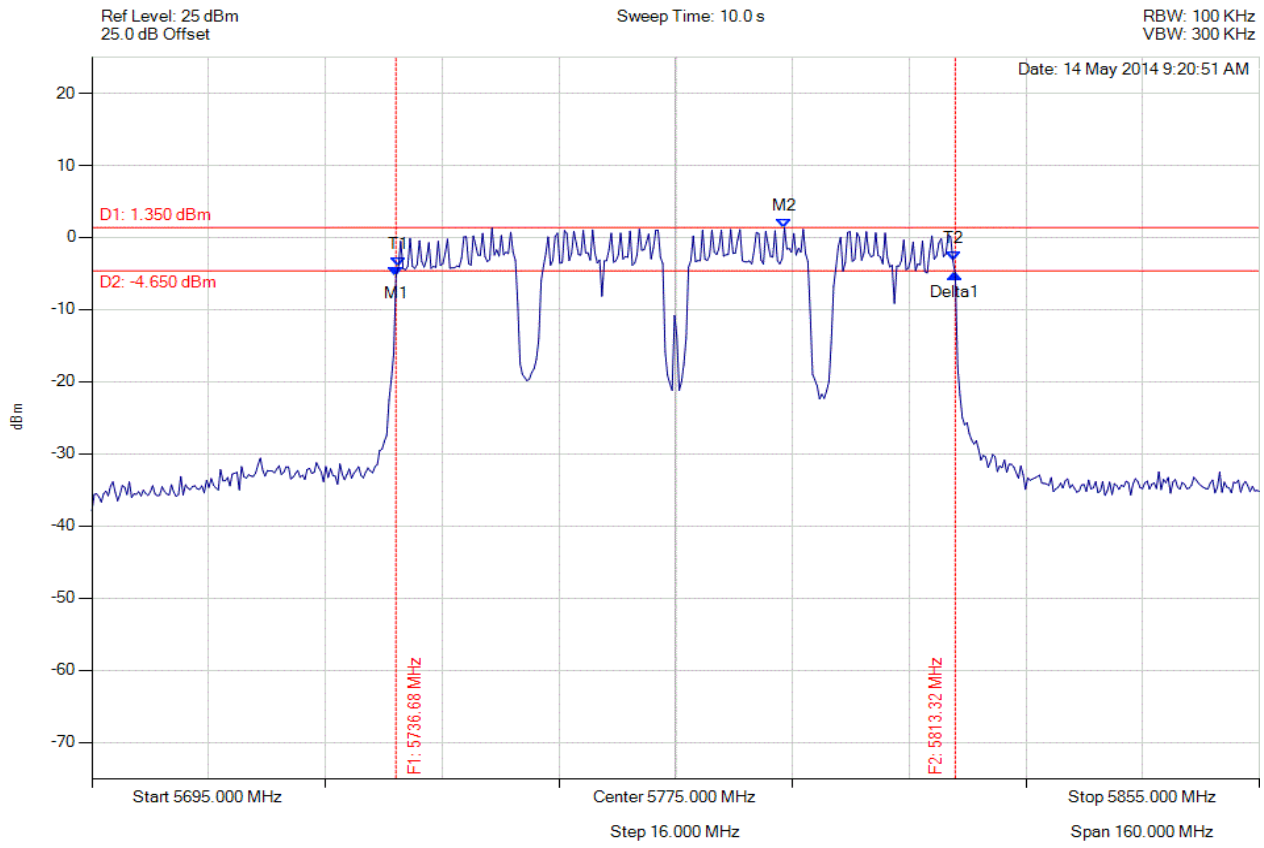
## 6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.683 MHz : -5.293 dBm<br>M2 : 5789.910 MHz : 1.350 dBm<br>Delta1 : 76.633 MHz : 0.228 dB<br>T1 : 5737.004 MHz : -4.105 dBm<br>T2 : 5812.996 MHz : -3.237 dBm<br>OBW : 75.992 MHz | Measured 6 dB Bandwidth: 76.633 MHz<br>Limit: ≥500.0 kHz<br>Margin: -76.13 MHz |

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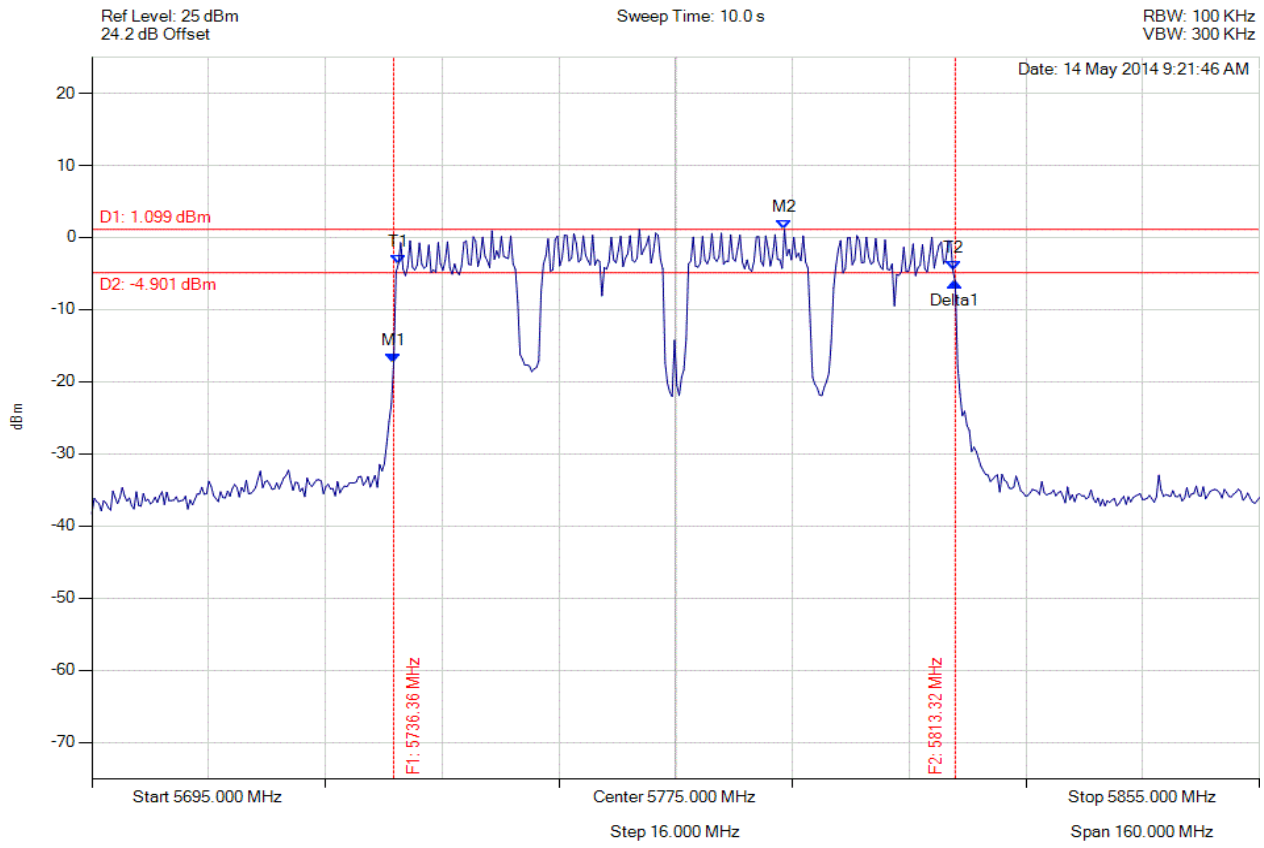
## 6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.363 MHz : -17.336 dBm<br>M2 : 5789.910 MHz : 1.099 dBm<br>Delta1 : 76.954 MHz : 11.066 dB<br>T1 : 5737.004 MHz : -3.629 dBm<br>T2 : 5812.996 MHz : -4.499 dBm<br>OBW : 75.992 MHz | Measured 6 dB Bandwidth: 76.954 MHz<br>Limit: ≥500.0 kHz<br>Margin: -76.45 MHz |

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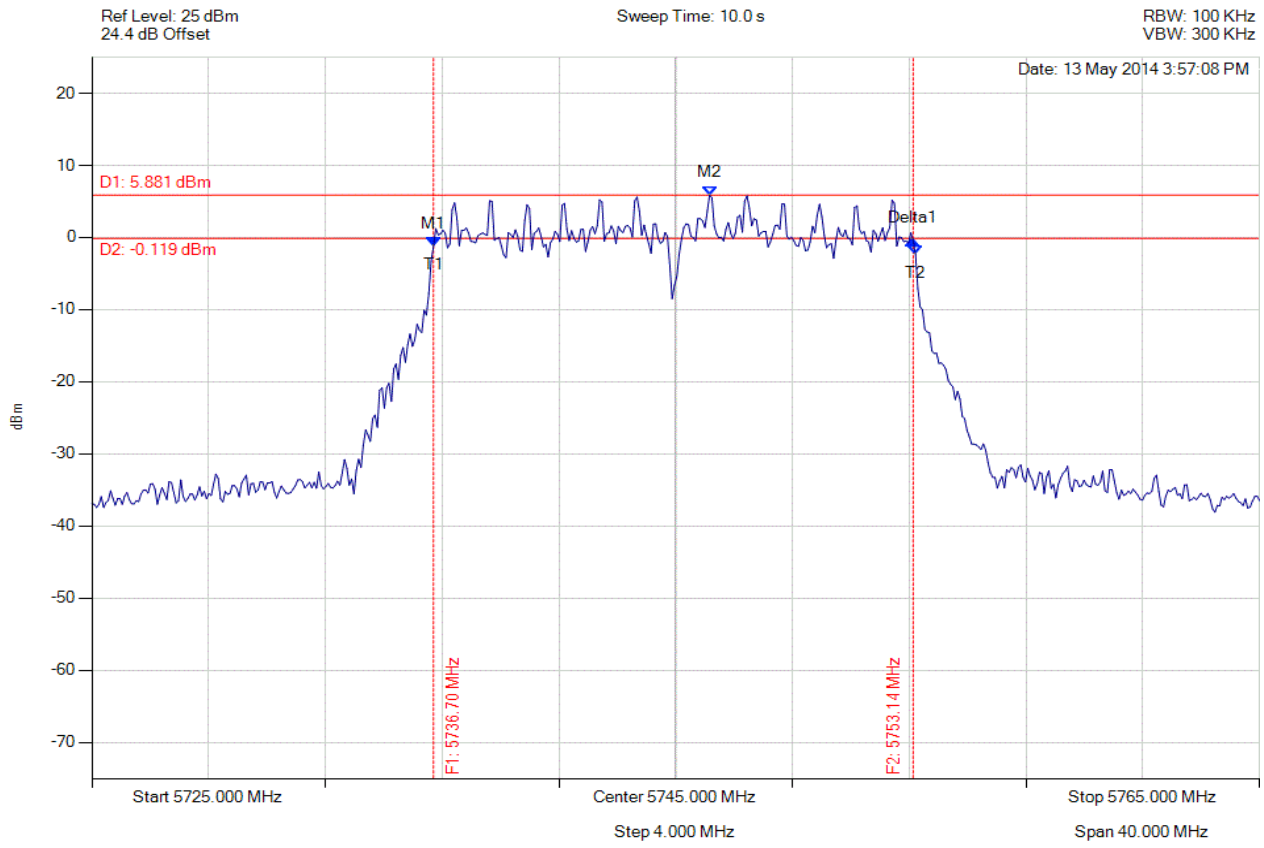
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.703 MHz : -1.180 dBm<br>M2 : 5746.162 MHz : 5.881 dBm<br>Delta1 : 16.433 MHz : 0.744 dB<br>T1 : 5736.703 MHz : -1.180 dBm<br>T2 : 5753.216 MHz : -2.384 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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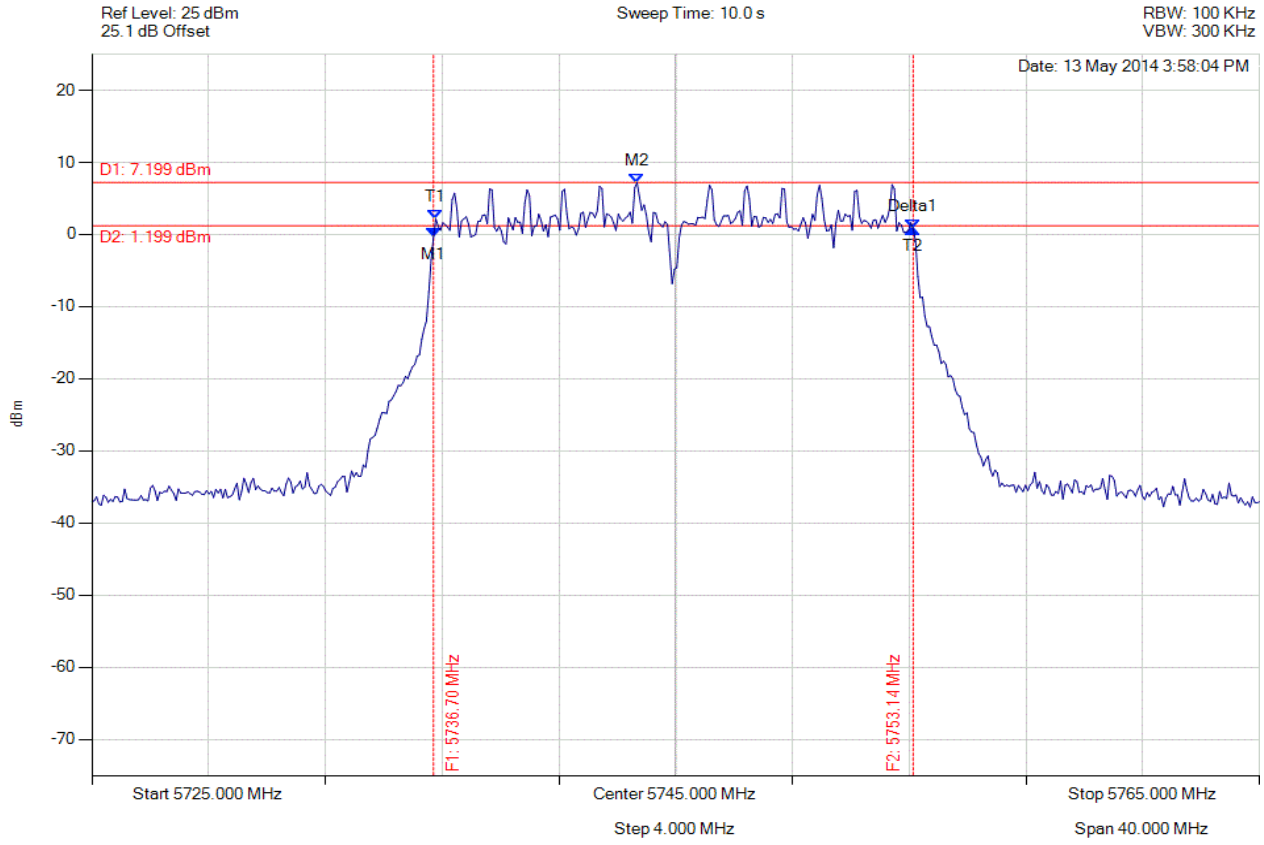
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.703 MHz : -0.296 dBm<br>M2 : 5743.677 MHz : 7.199 dBm<br>Delta1 : 16.433 MHz : 1.135 dB<br>T1 : 5736.784 MHz : 2.151 dBm<br>T2 : 5753.136 MHz : 0.839 dBm<br>OBW : 16.353 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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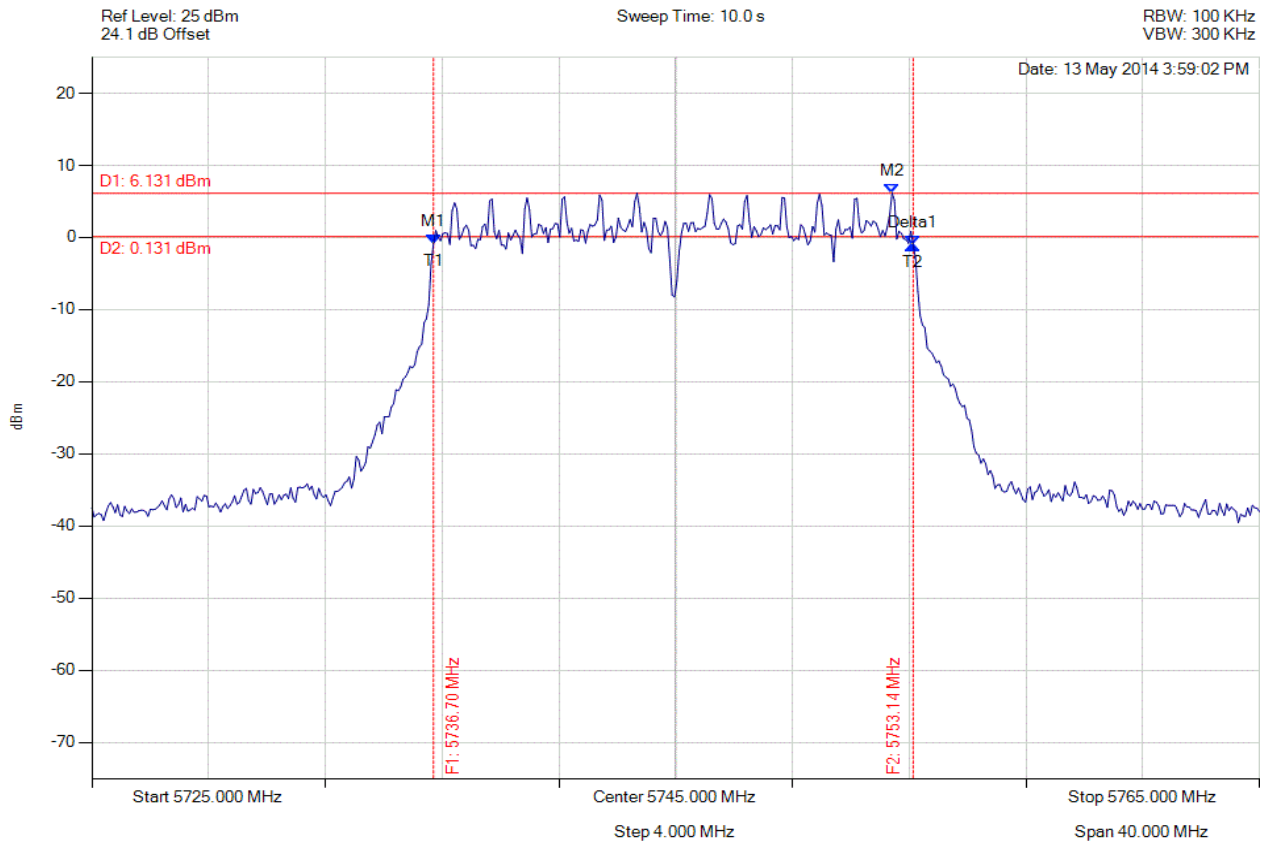
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.703 MHz : -0.831 dBm<br>M2 : 5752.415 MHz : 6.131 dBm<br>Delta1 : 16.433 MHz : -0.138 dB<br>T1 : 5736.703 MHz : -0.831 dBm<br>T2 : 5753.136 MHz : -0.969 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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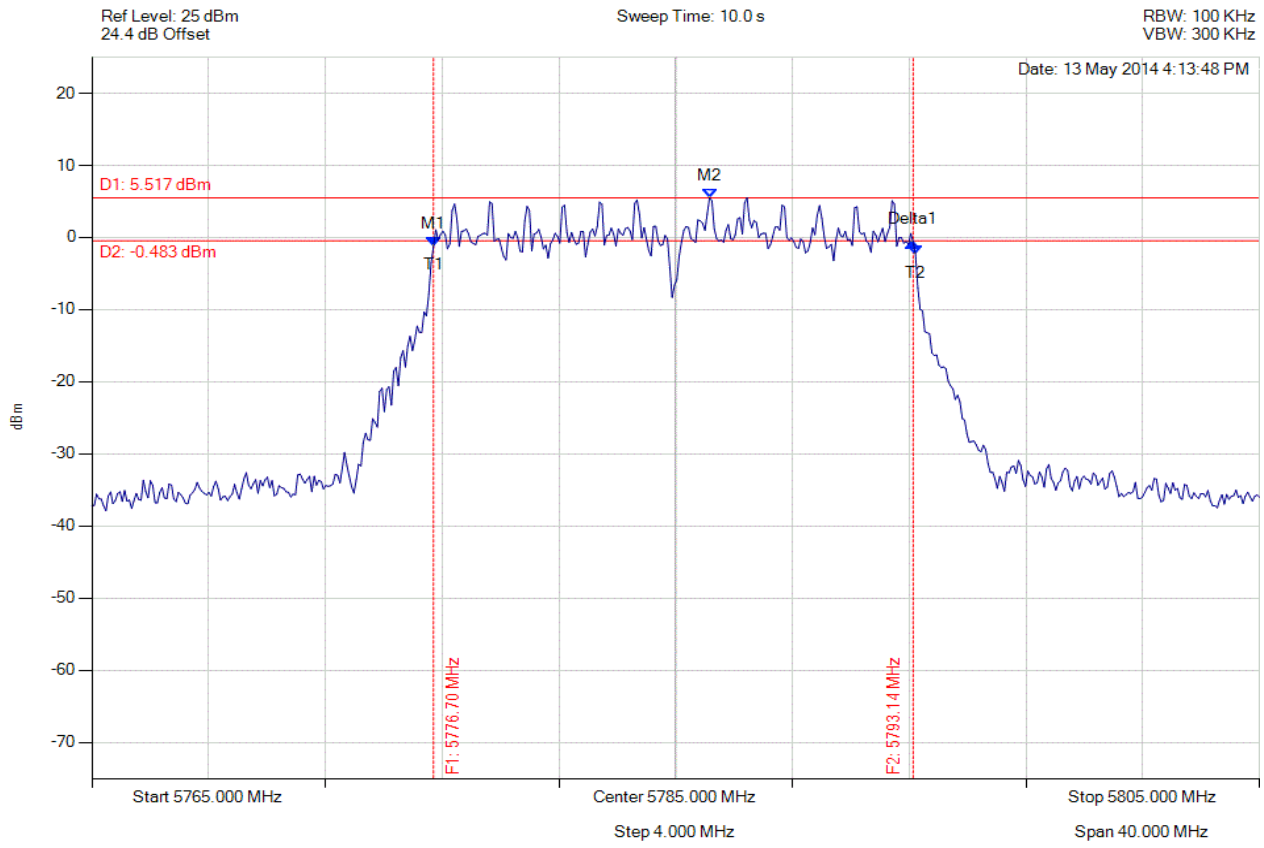
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5776.703 MHz : -1.254 dBm<br>M2 : 5786.162 MHz : 5.517 dBm<br>Delta1 : 16.433 MHz : 0.632 dB<br>T1 : 5776.703 MHz : -1.254 dBm<br>T2 : 5793.216 MHz : -2.409 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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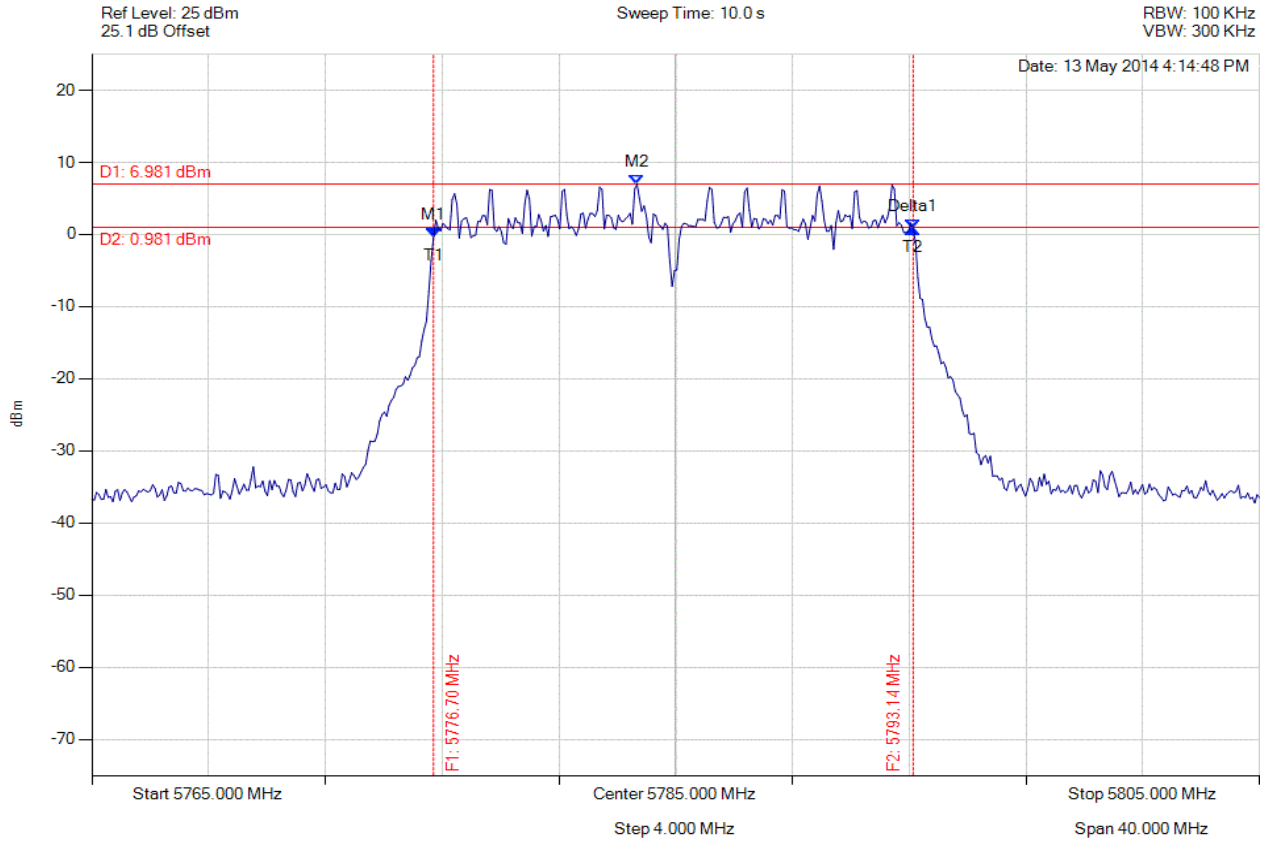
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5776.703 MHz : -0.391 dBm<br>M2 : 5783.677 MHz : 6.981 dBm<br>Delta1 : 16.433 MHz : 1.173 dB<br>T1 : 5776.703 MHz : -0.391 dBm<br>T2 : 5793.136 MHz : 0.782 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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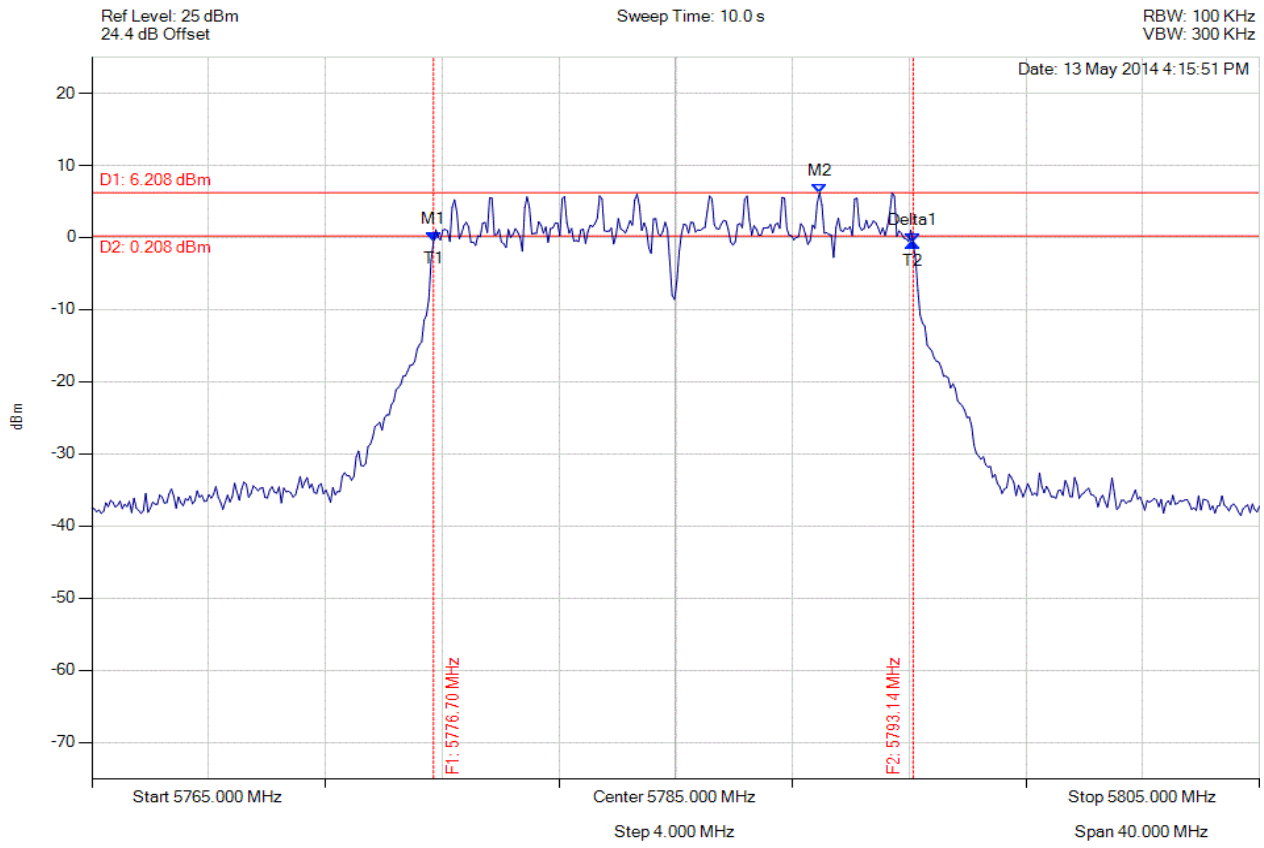
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5776.703 MHz : -0.462 dBm<br>M2 : 5789.930 MHz : 6.208 dBm<br>Delta1 : 16.433 MHz : -0.295 dB<br>T1 : 5776.703 MHz : -0.462 dBm<br>T2 : 5793.136 MHz : -0.757 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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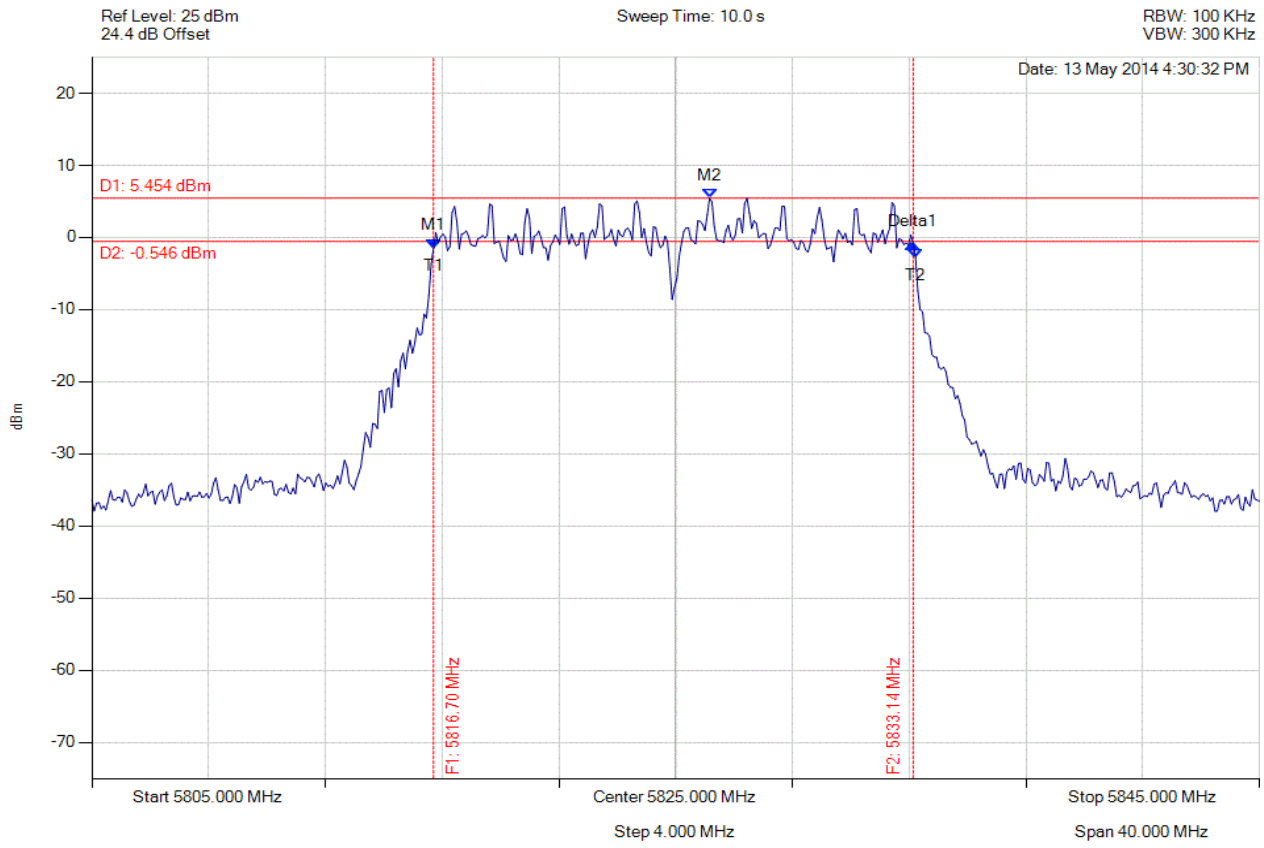
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5816.703 MHz : -1.447 dBm<br>M2 : 5826.162 MHz : 5.454 dBm<br>Delta1 : 16.433 MHz : 0.594 dB<br>T1 : 5816.703 MHz : -1.447 dBm<br>T2 : 5833.216 MHz : -2.783 dBm<br>OBW : 16.513 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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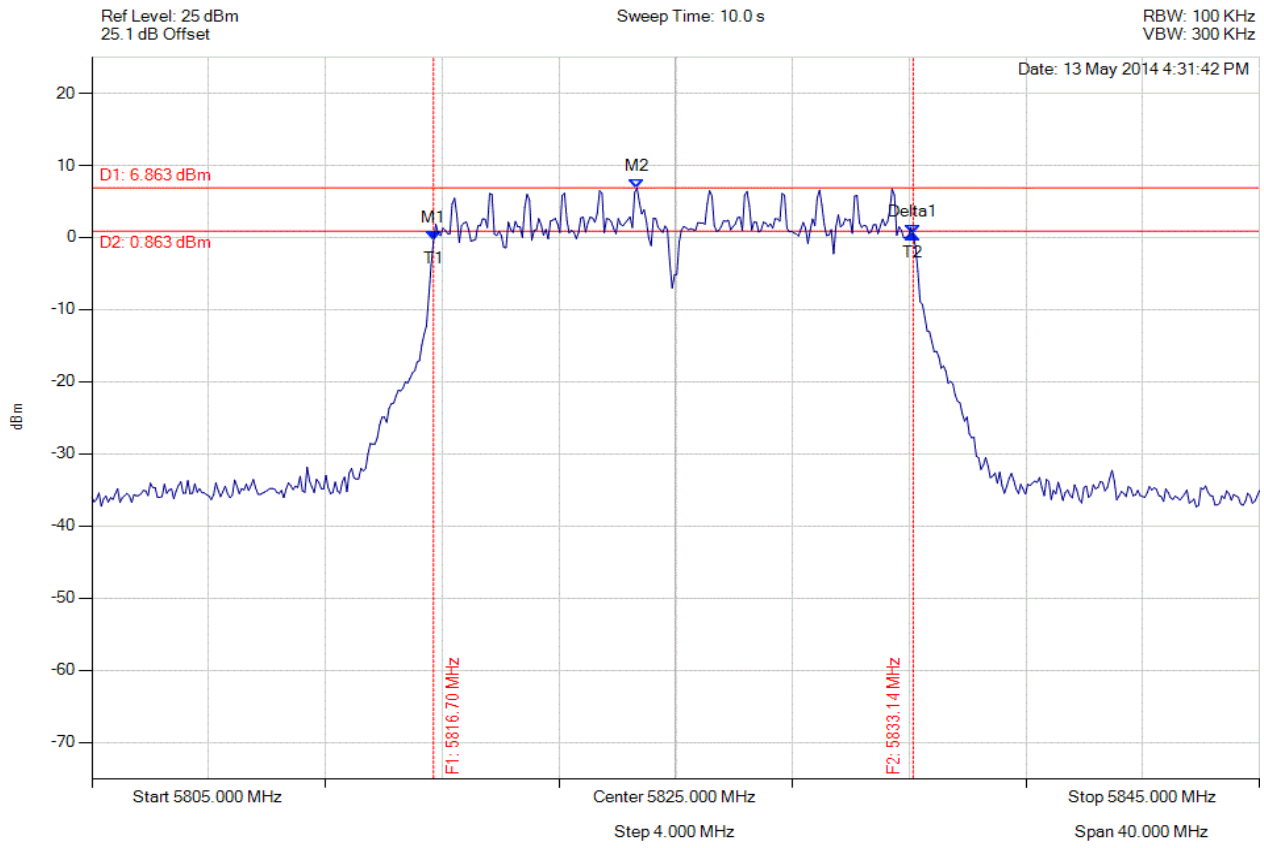
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5816.703 MHz : -0.440 dBm<br>M2 : 5823.677 MHz : 6.863 dBm<br>Delta1 : 16.433 MHz : 0.895 dB<br>T1 : 5816.703 MHz : -0.440 dBm<br>T2 : 5833.136 MHz : 0.455 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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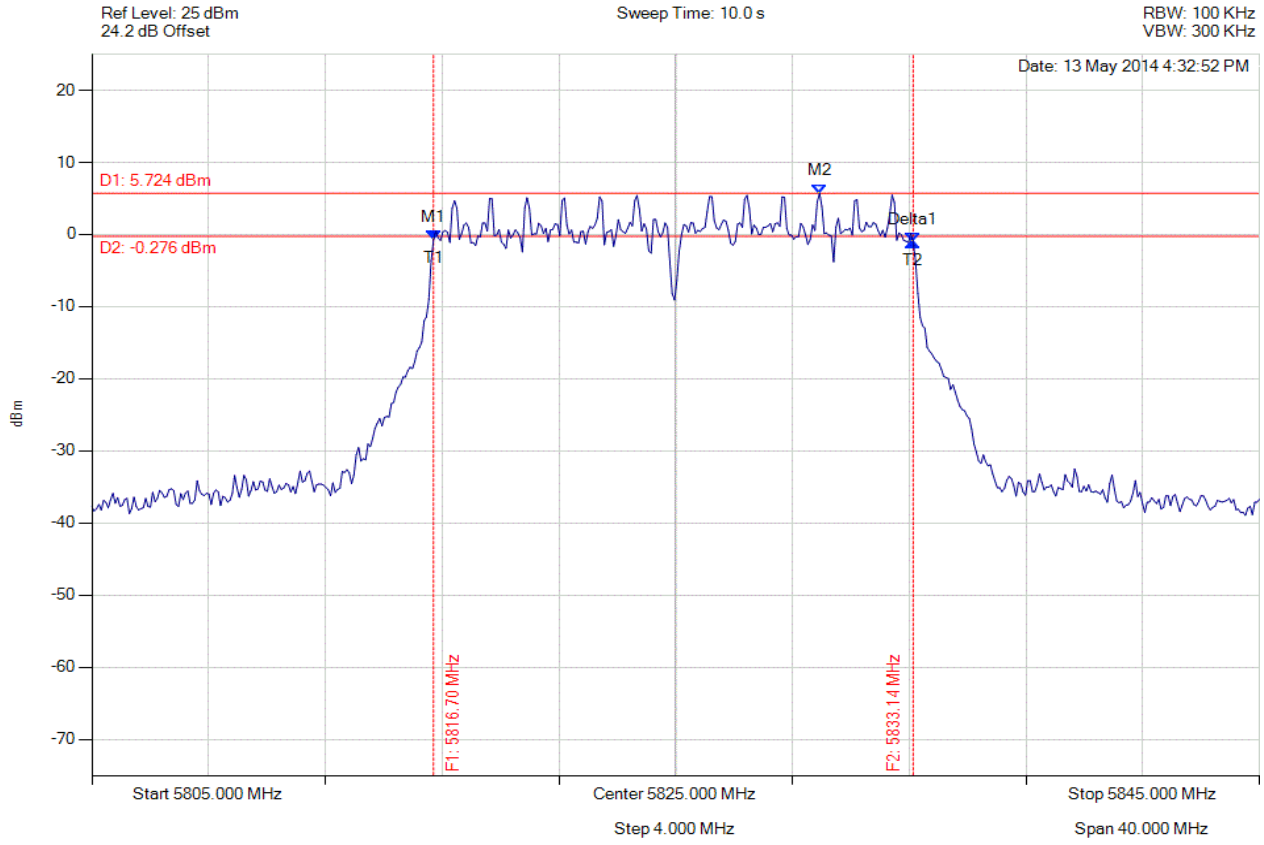
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5816.703 MHz : -0.761 dBm<br>M2 : 5829.930 MHz : 5.724 dBm<br>Delta1 : 16.433 MHz : -0.252 dB<br>T1 : 5816.703 MHz : -0.761 dBm<br>T2 : 5833.136 MHz : -1.014 dBm<br>OBW : 16.433 MHz | Measured 6 dB Bandwidth: 16.433 MHz<br>Limit: ≥500.0 kHz<br>Margin: -15.93 MHz |

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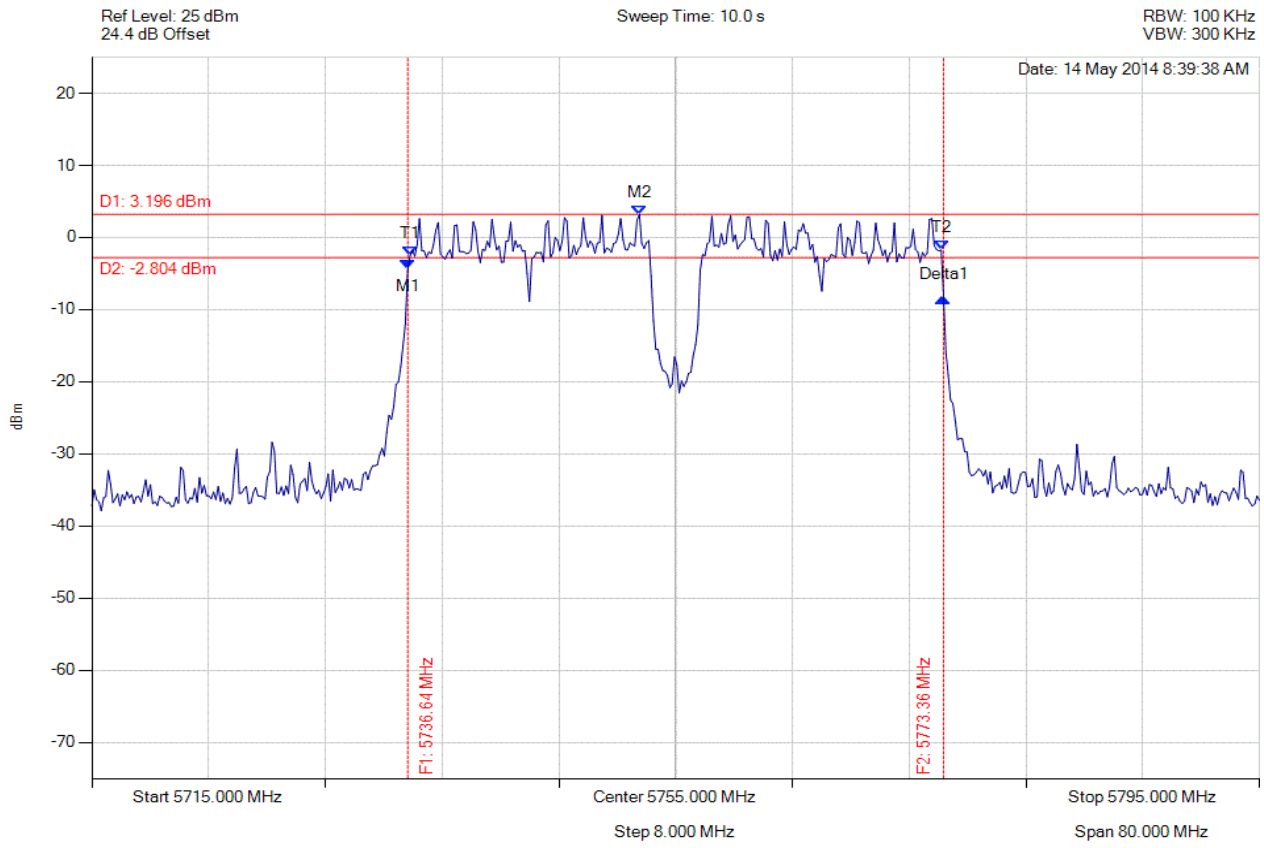
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.643 MHz : -4.331 dBm<br>M2 : 5752.515 MHz : 3.196 dBm<br>Delta1 : 36.713 MHz : -3.960 dB<br>T1 : 5736.804 MHz : -2.506 dBm<br>T2 : 5773.196 MHz : -1.717 dBm<br>OBW : 36.393 MHz | Measured 6 dB Bandwidth: 36.713 MHz<br>Limit: ≥500.0 kHz<br>Margin: -36.21 MHz |

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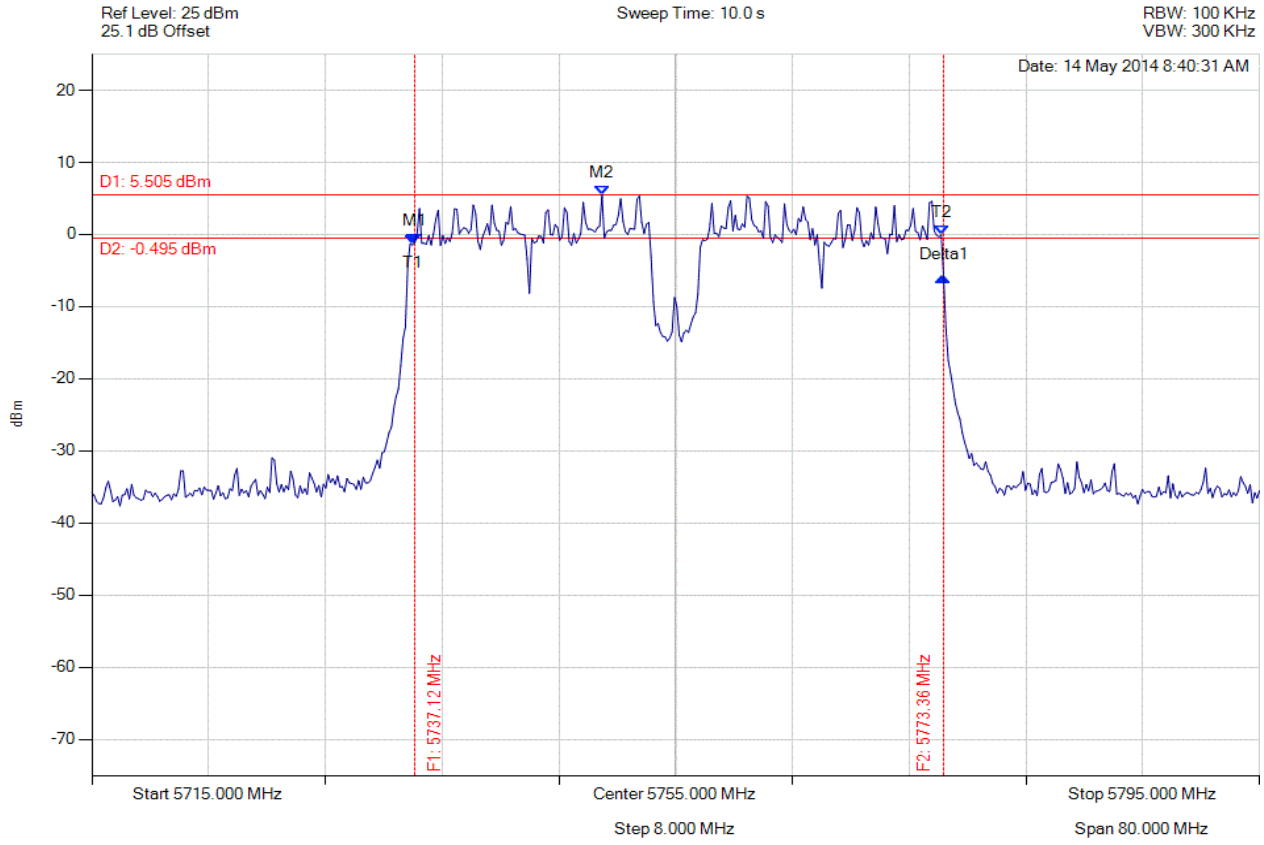
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5737.124 MHz : -1.156 dBm<br>M2 : 5749.950 MHz : 5.505 dBm<br>Delta1 : 36.232 MHz : -4.669 dB<br>T1 : 5736.964 MHz : -1.445 dBm<br>T2 : 5773.196 MHz : -0.017 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 36.232 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.73 MHz |

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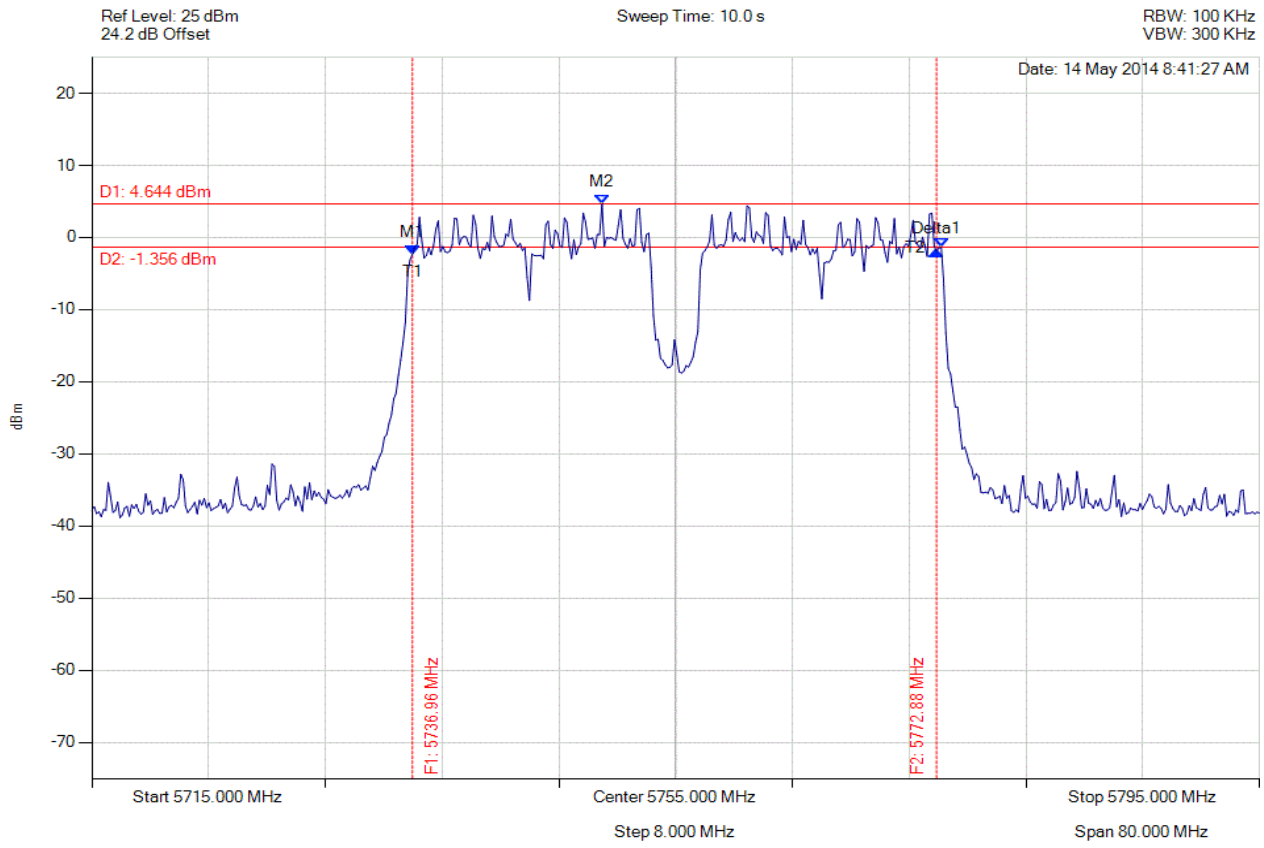
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5736.964 MHz : -2.311 dBm<br>M2 : 5749.950 MHz : 4.644 dBm<br>Delta1 : 35.912 MHz : 0.370 dB<br>T1 : 5736.964 MHz : -2.311 dBm<br>T2 : 5773.196 MHz : -1.443 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 35.912 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.41 MHz |

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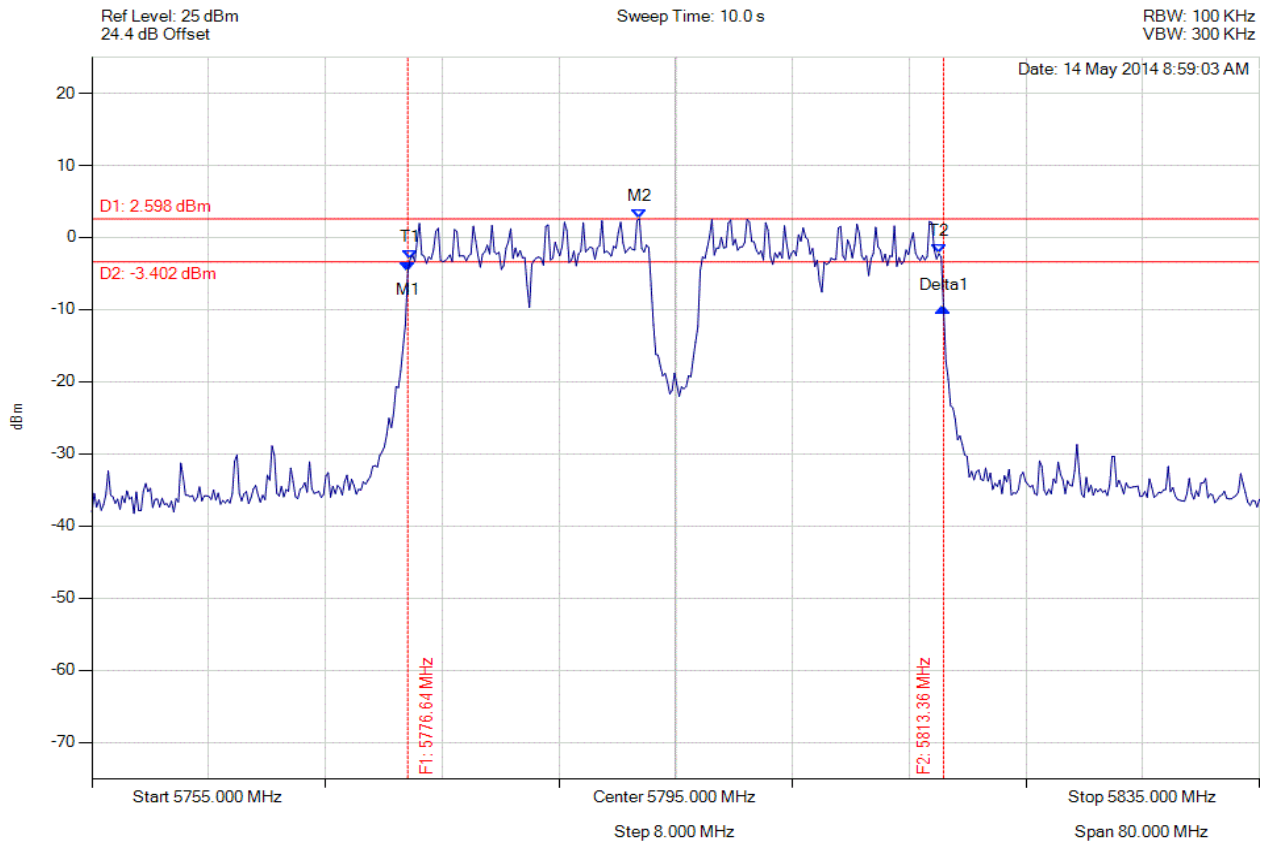
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5776.643 MHz : -4.744 dBm<br>M2 : 5792.515 MHz : 2.598 dBm<br>Delta1 : 36.713 MHz : -5.031 dB<br>T1 : 5776.804 MHz : -3.070 dBm<br>T2 : 5813.036 MHz : -2.230 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 36.713 MHz<br>Limit: ≥500.0 kHz<br>Margin: -36.21 MHz |

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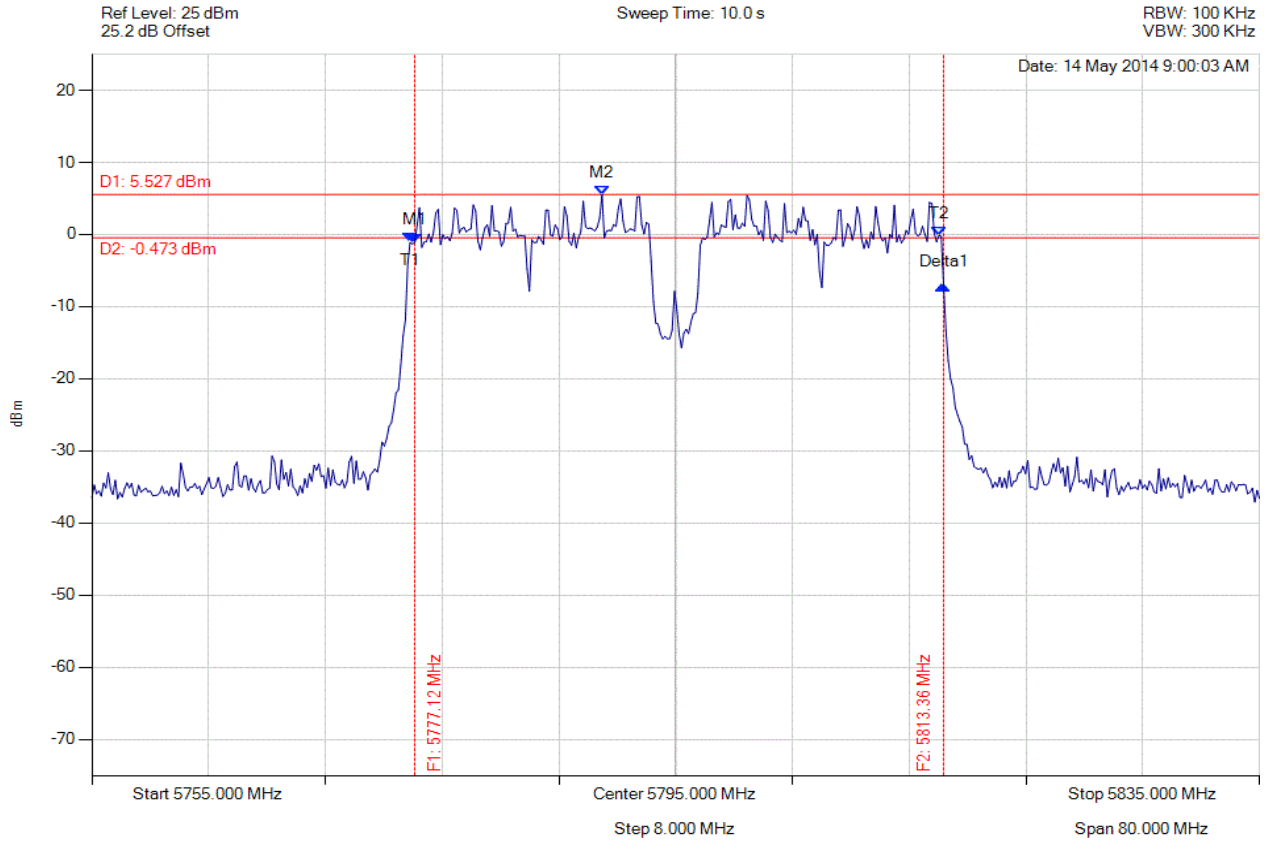
## 6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5777.124 MHz : -1.115 dBm<br>M2 : 5789.950 MHz : 5.527 dBm<br>Delta1 : 36.232 MHz : -5.835 dB<br>T1 : 5776.804 MHz : -1.103 dBm<br>T2 : 5813.036 MHz : -0.168 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 36.232 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.73 MHz |

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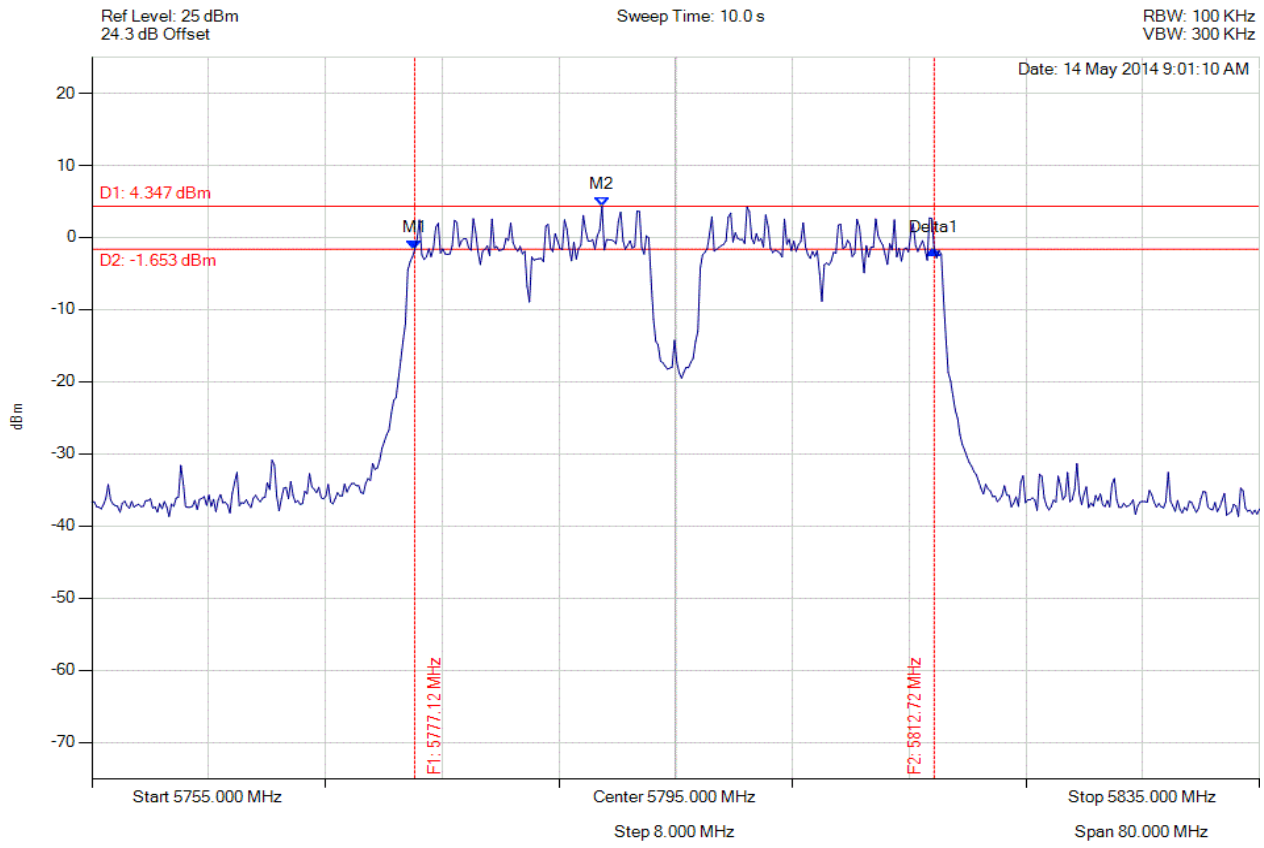
**6 dB & 99% BANDWIDTH**

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = MAX PEAK<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5777.124 MHz : -1.654 dBm<br>M2 : 5789.950 MHz : 4.347 dBm<br>Delta1 : 35.591 MHz : -0.098 dB<br>T1 : 0 Hz : 500.000 dBm<br>T2 : 0 Hz : 500.000 dBm<br>OBW : 36.232 MHz | Measured 6 dB Bandwidth: 35.591 MHz<br>Limit: ≥500.0 kHz<br>Margin: -35.09 MHz |

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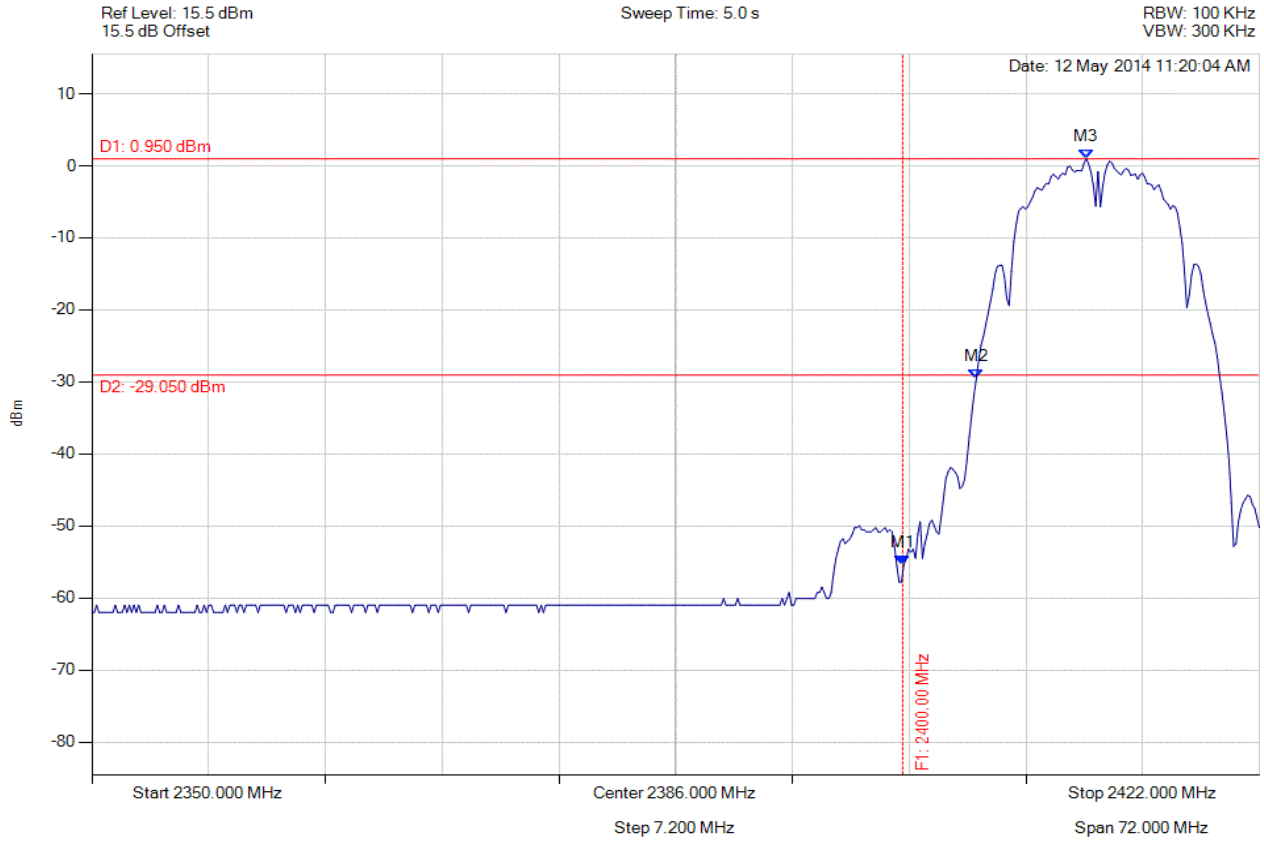
## A.1.2. Conducted Spurious Emissions

**CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE**

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -55.456 dBm<br>M2 : 2404.541 MHz : -29.590 dBm<br>M3 : 2411.323 MHz : 0.950 dBm | Channel Frequency: 2412.00 MHz |

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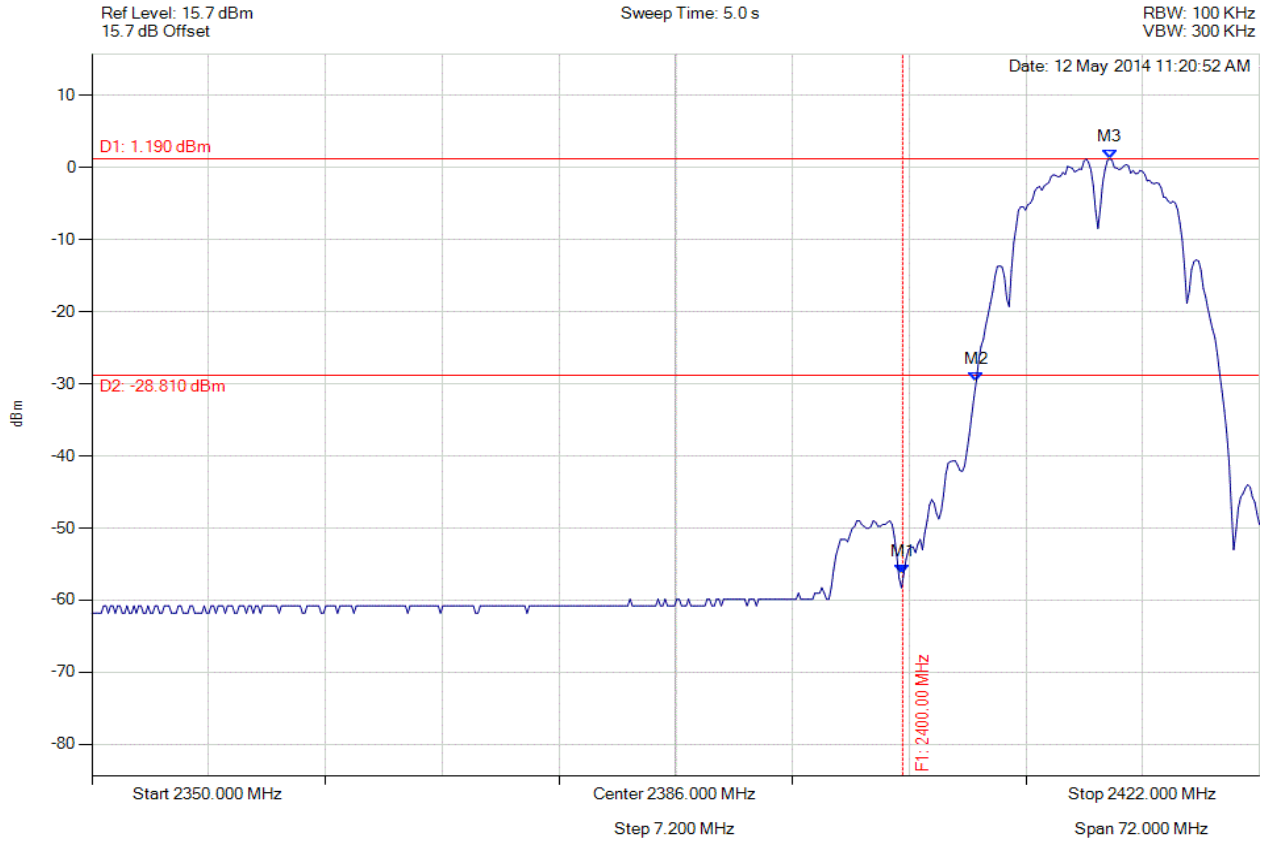
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -56.344 dBm<br>M2 : 2404.541 MHz : -29.654 dBm<br>M3 : 2412.766 MHz : 1.190 dBm | Channel Frequency: 2412.00 MHz |

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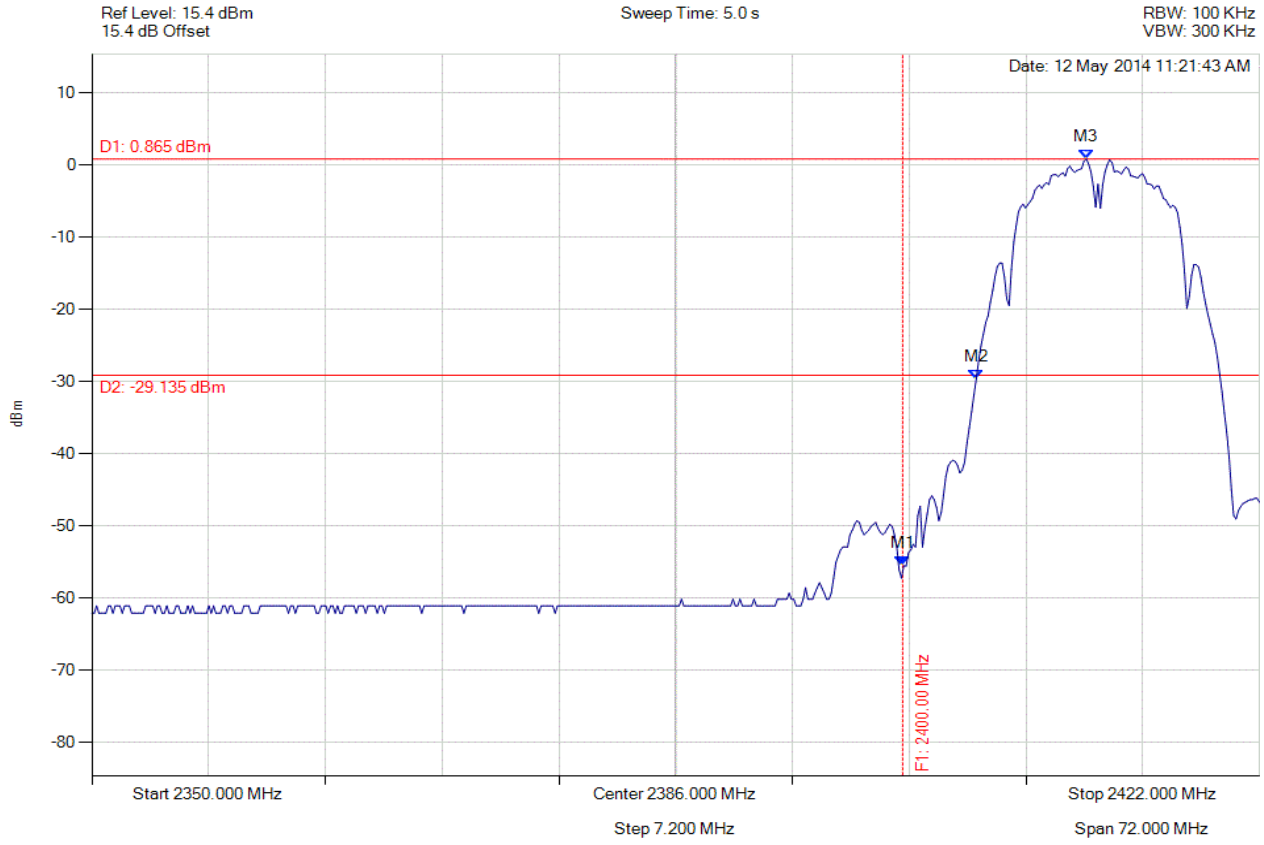
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -55.556 dBm<br>M2 : 2404.541 MHz : -29.587 dBm<br>M3 : 2411.323 MHz : 0.865 dBm | Channel Frequency: 2412.00 MHz |

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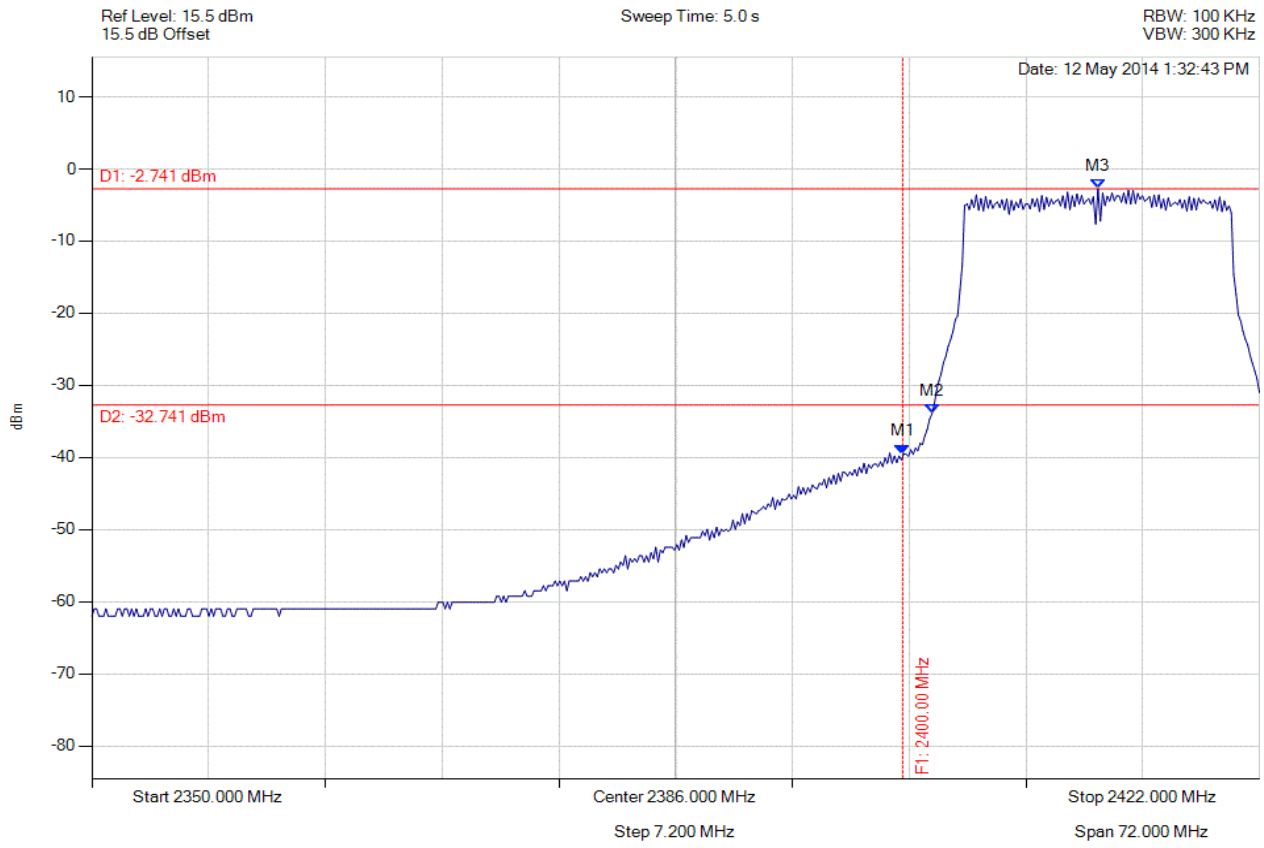
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -39.478 dBm<br>M2 : 2401.800 MHz : -33.958 dBm<br>M3 : 2412.044 MHz : -2.741 dBm | Channel Frequency: 2412.00 MHz |

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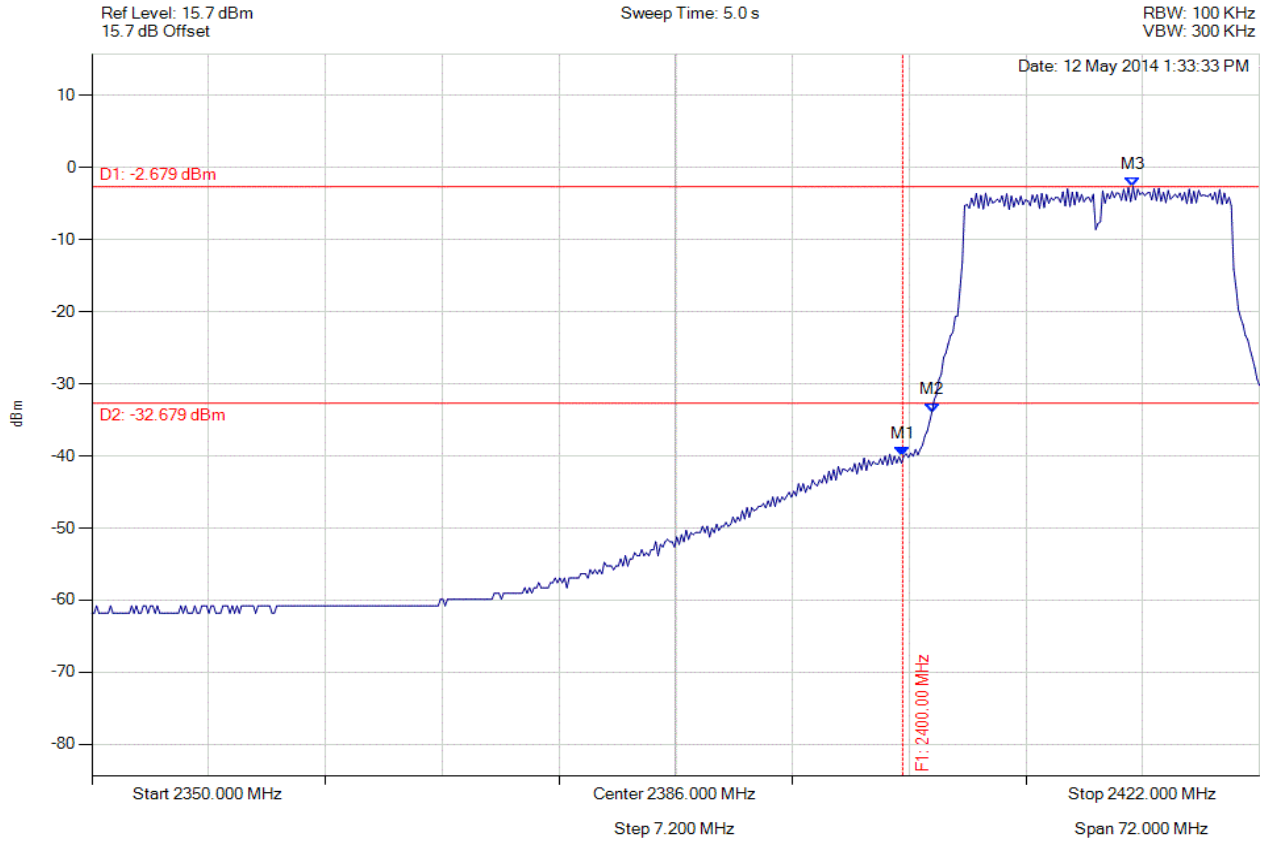
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -40.041 dBm<br>M2 : 2401.800 MHz : -33.932 dBm<br>M3 : 2414.208 MHz : -2.679 dBm | Channel Frequency: 2412.00 MHz |

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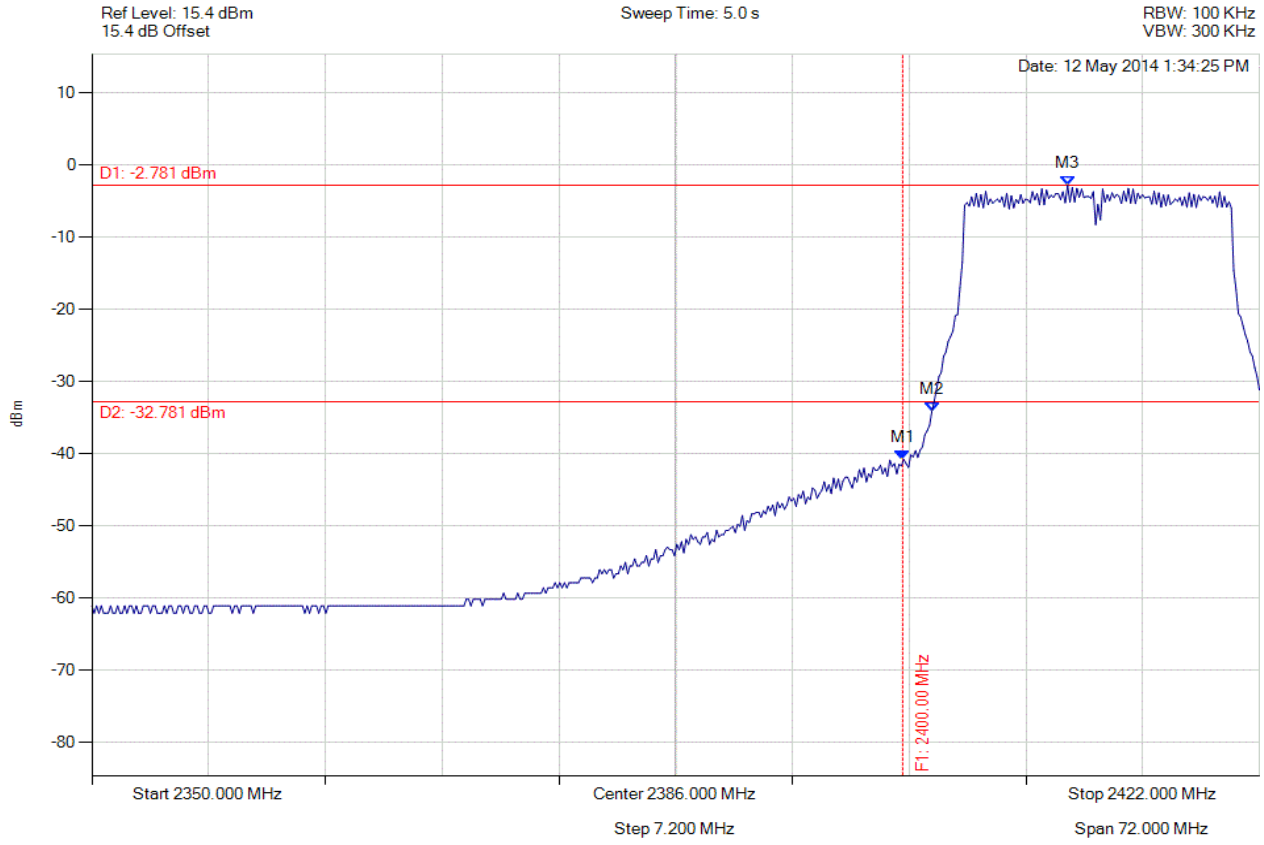
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -40.796 dBm<br>M2 : 2401.800 MHz : -34.101 dBm<br>M3 : 2410.168 MHz : -2.781 dBm | Channel Frequency: 2412.00 MHz |

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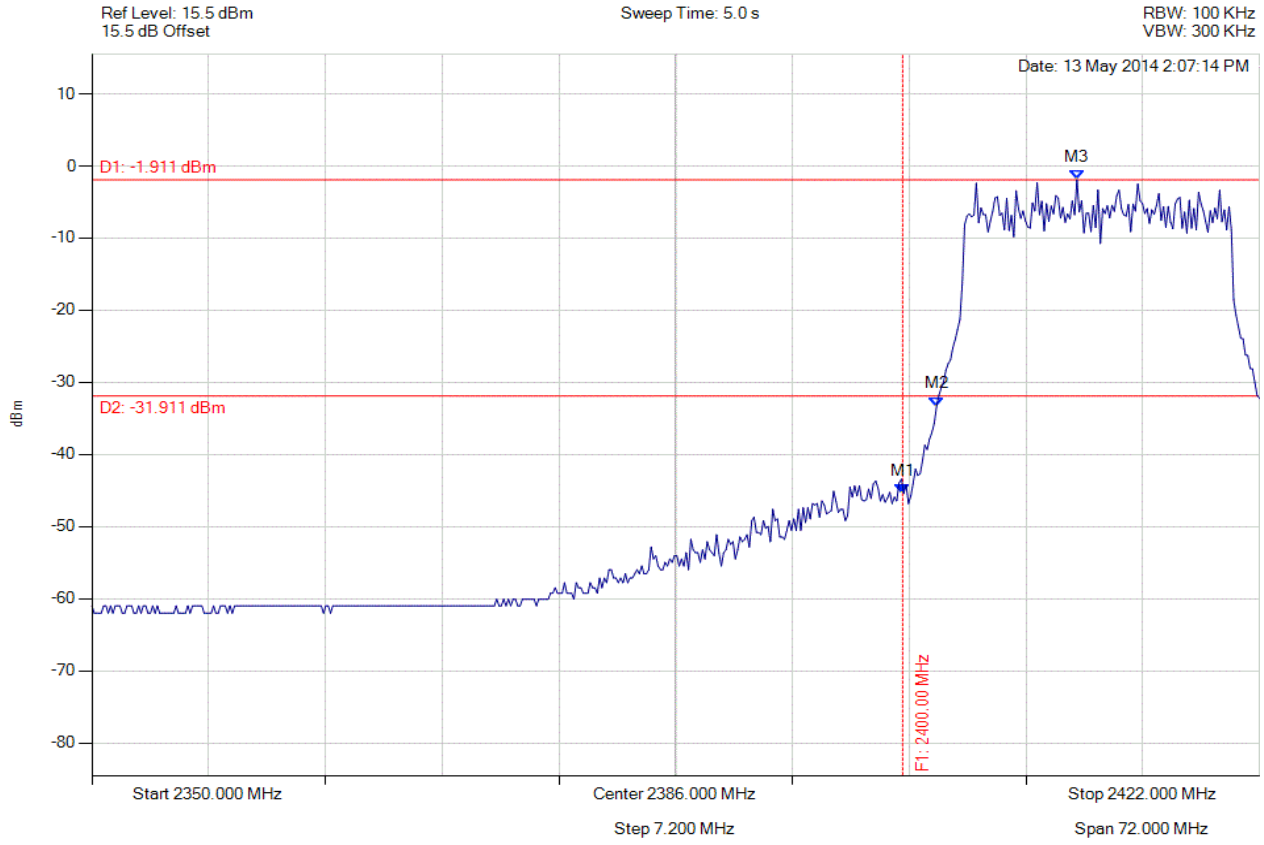
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -45.417 dBm<br>M2 : 2402.088 MHz : -33.296 dBm<br>M3 : 2410.745 MHz : -1.911 dBm | Channel Frequency: 2412.00 MHz |

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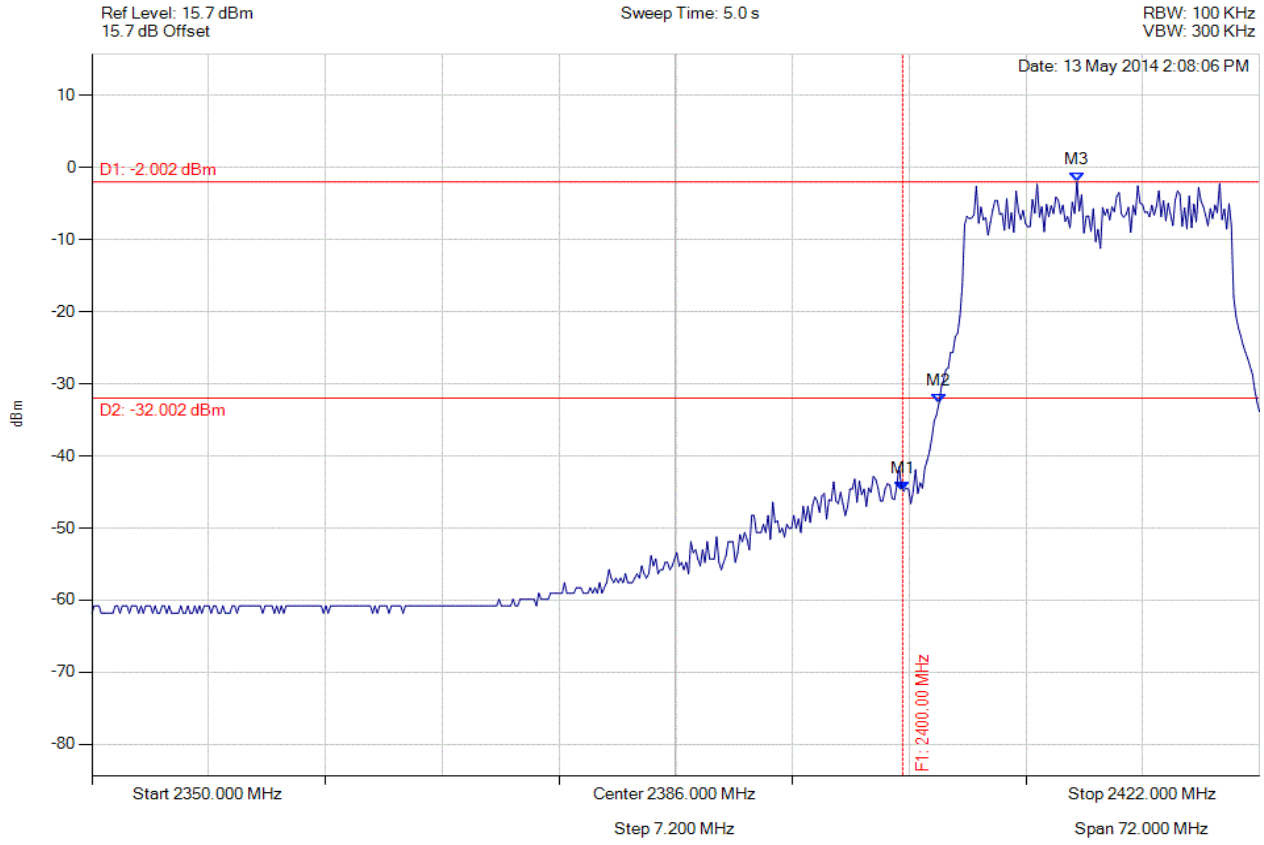
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -44.902 dBm<br>M2 : 2402.232 MHz : -32.745 dBm<br>M3 : 2410.745 MHz : -2.002 dBm | Channel Frequency: 2412.00 MHz |

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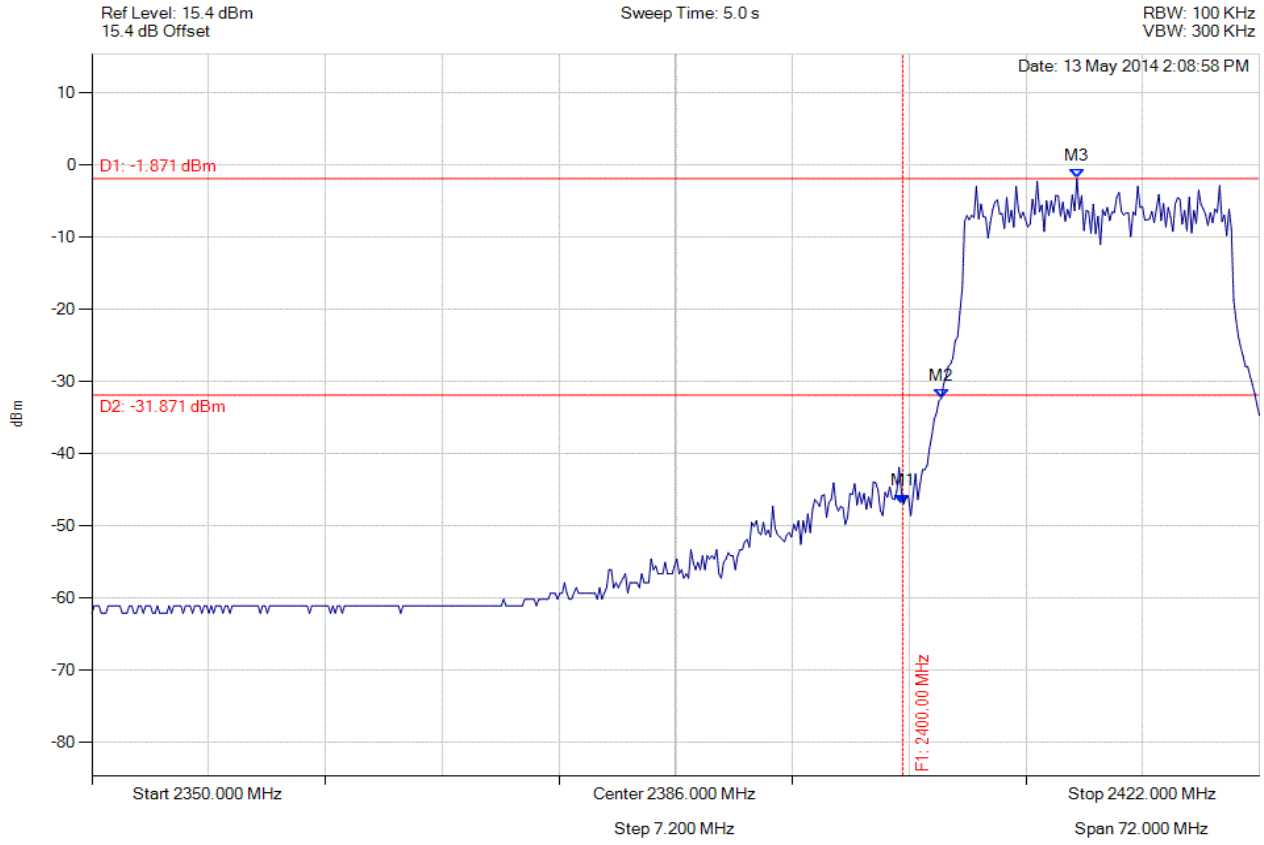
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -46.910 dBm<br>M2 : 2402.377 MHz : -32.382 dBm<br>M3 : 2410.745 MHz : -1.871 dBm | Channel Frequency: 2412.00 MHz |

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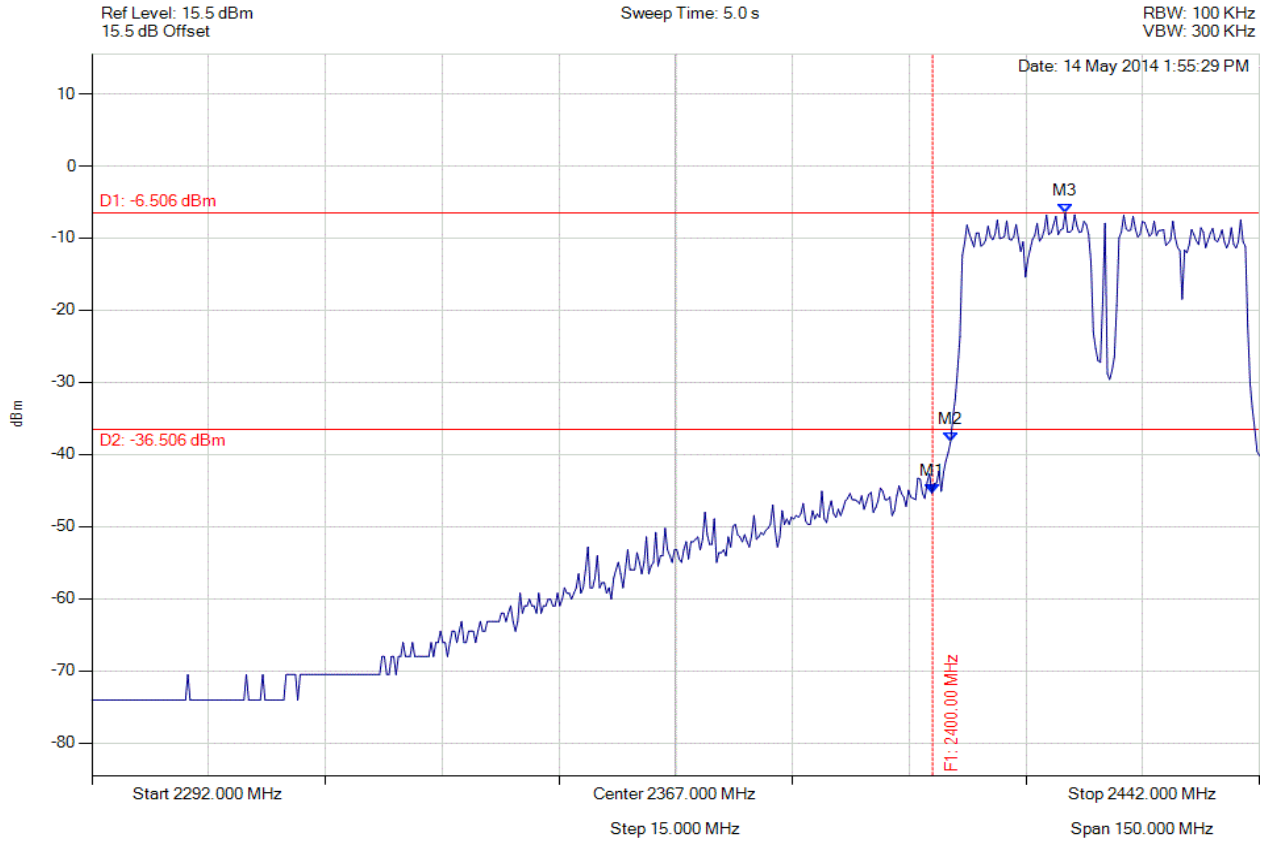
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -45.417 dBm<br>M2 : 2402.321 MHz : -38.267 dBm<br>M3 : 2417.050 MHz : -6.506 dBm | Channel Frequency: 2422.00 MHz |

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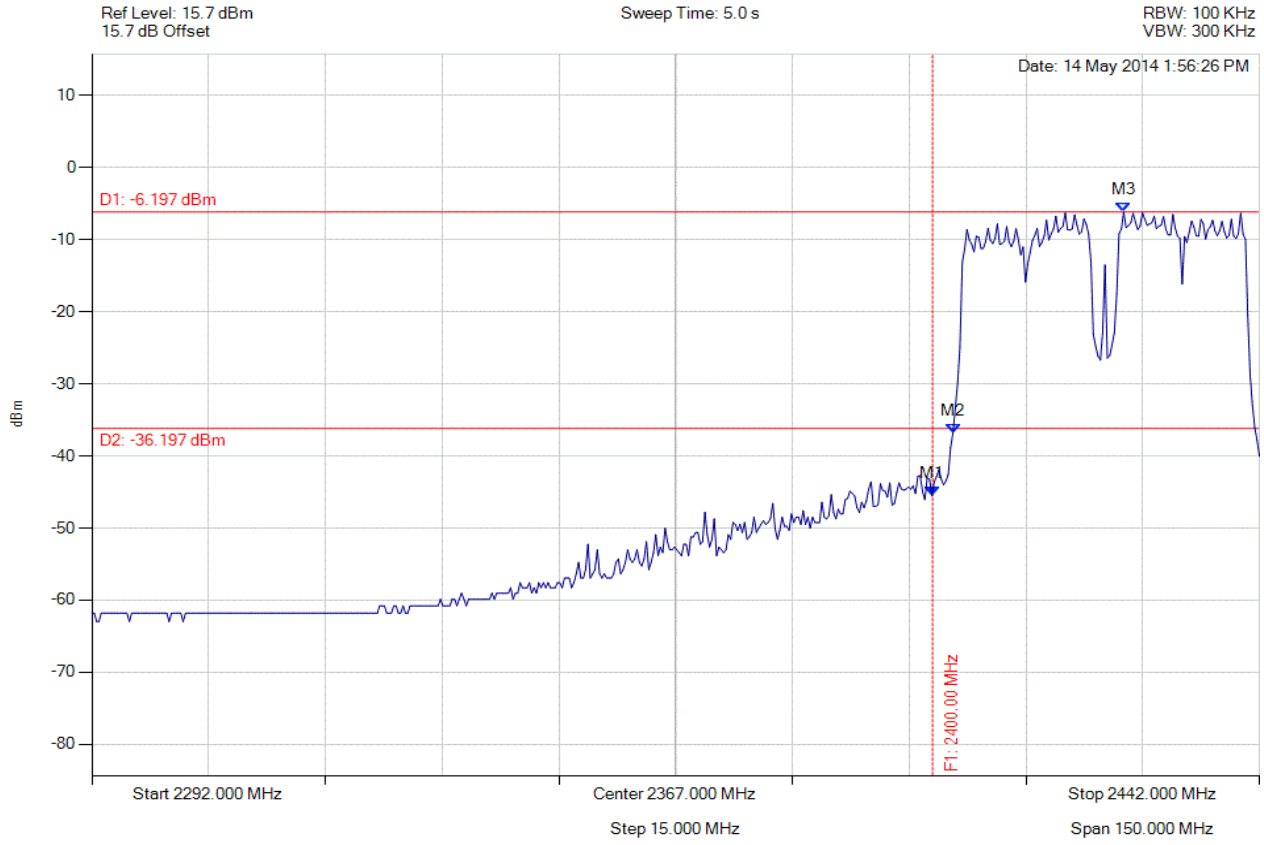
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -45.545 dBm<br>M2 : 2402.621 MHz : -36.820 dBm<br>M3 : 2424.565 MHz : -6.197 dBm | Channel Frequency: 2422.00 MHz |

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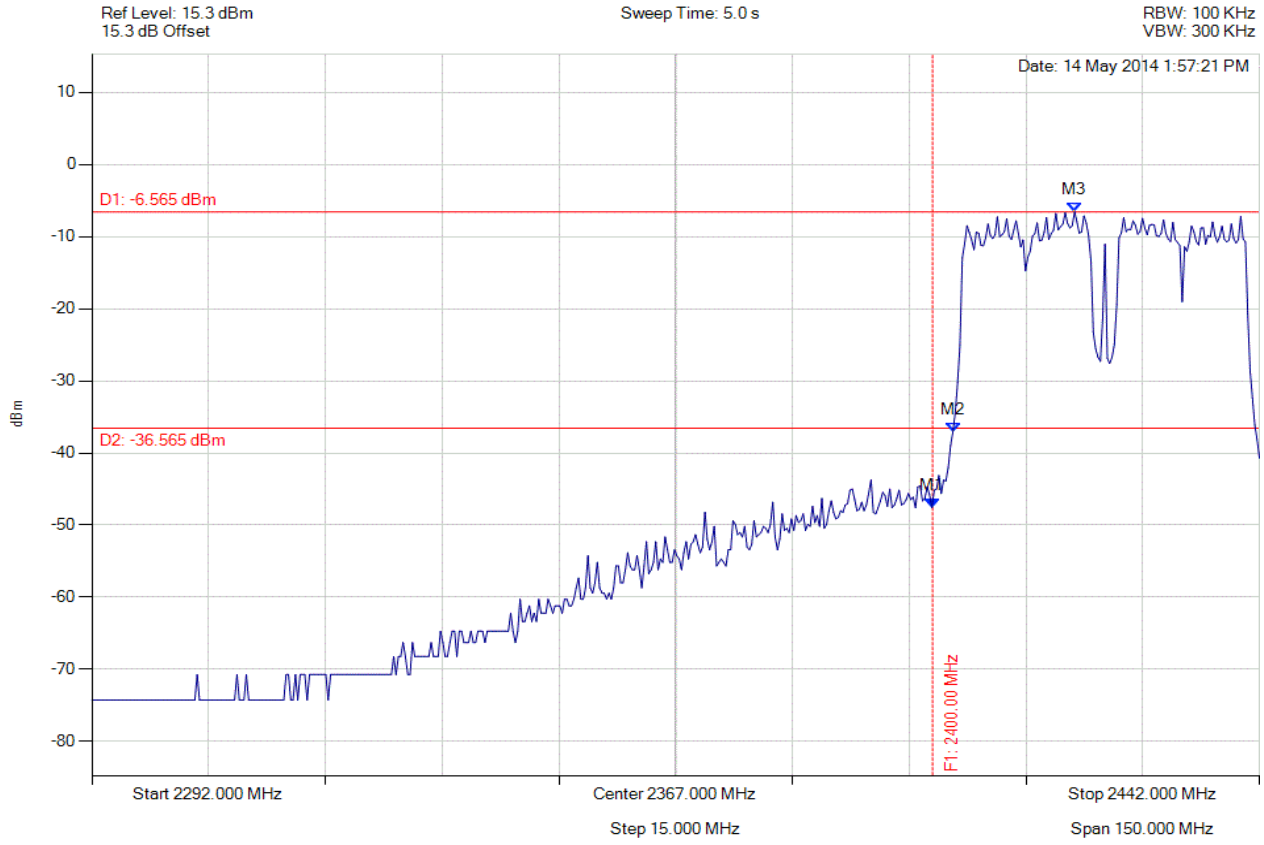
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 2400.000 MHz : -47.596 dBm<br>M2 : 2402.621 MHz : -37.038 dBm<br>M3 : 2418.253 MHz : -6.565 dBm | Channel Frequency: 2422.00 MHz |

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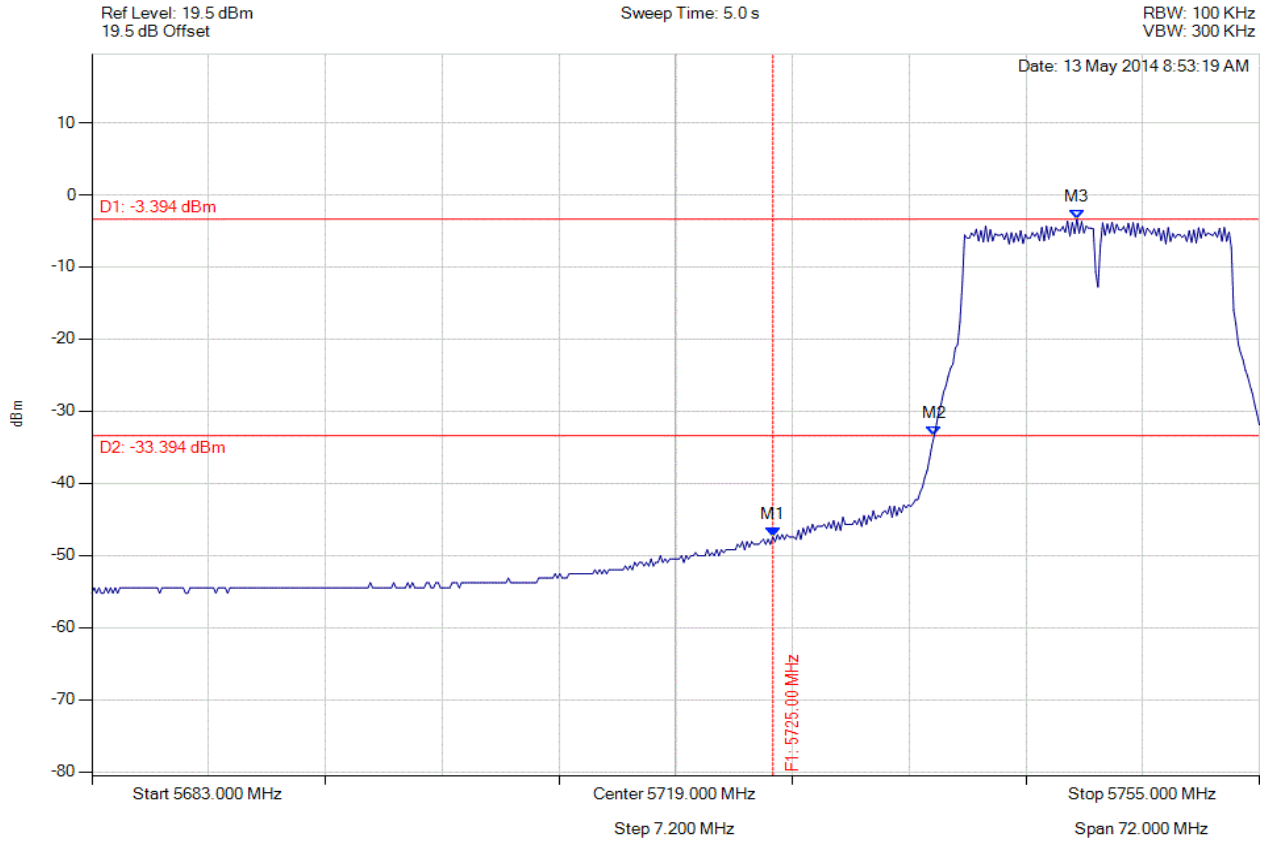
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -47.438 dBm<br>M2 : 5734.944 MHz : -33.395 dBm<br>M3 : 5743.745 MHz : -3.394 dBm | Channel Frequency: 5745.00 MHz |

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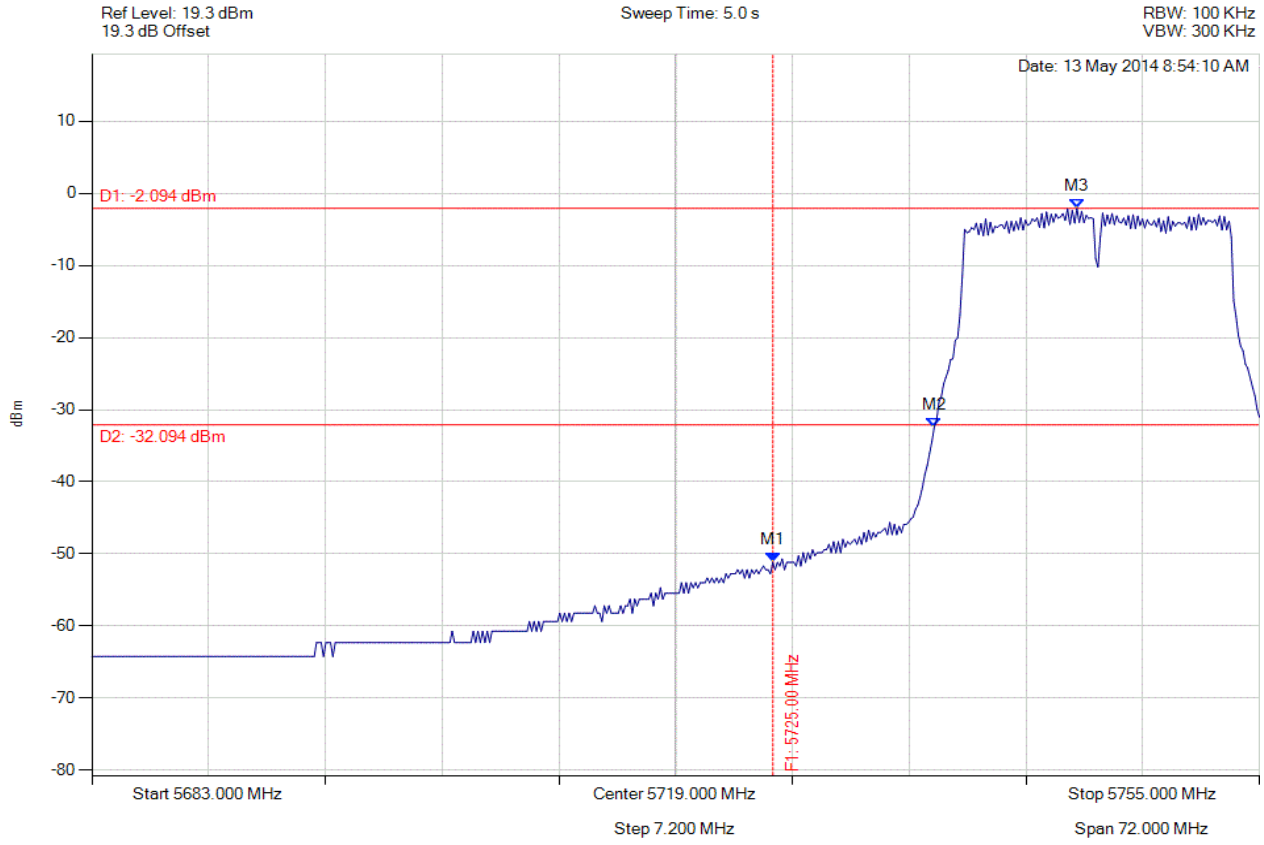
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11a, Channel: 5745.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -51.160 dBm<br>M2 : 5734.944 MHz : -32.459 dBm<br>M3 : 5743.745 MHz : -2.094 dBm | Channel Frequency: 5745.00 MHz |

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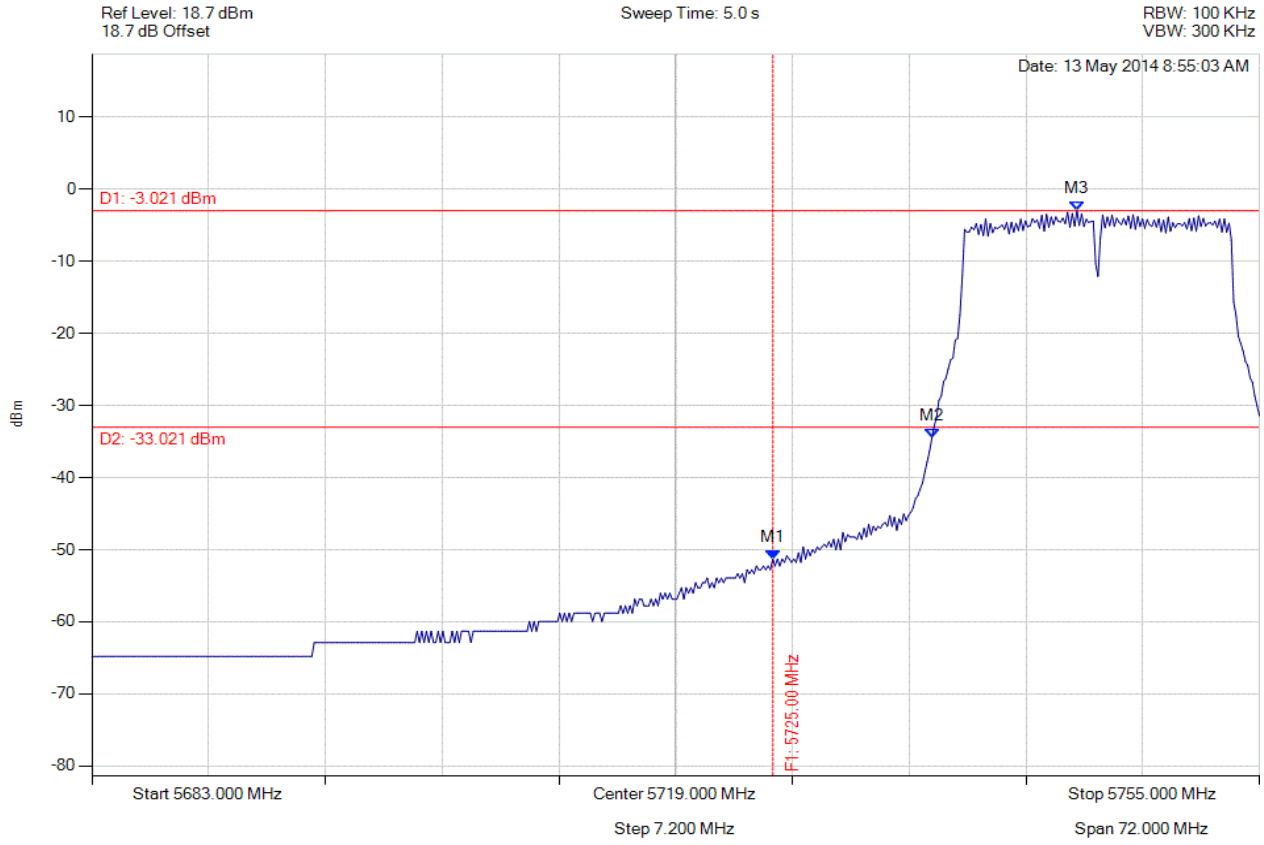
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11a, Channel: 5745.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -51.290 dBm<br>M2 : 5734.800 MHz : -34.520 dBm<br>M3 : 5743.745 MHz : -3.021 dBm | Channel Frequency: 5745.00 MHz |

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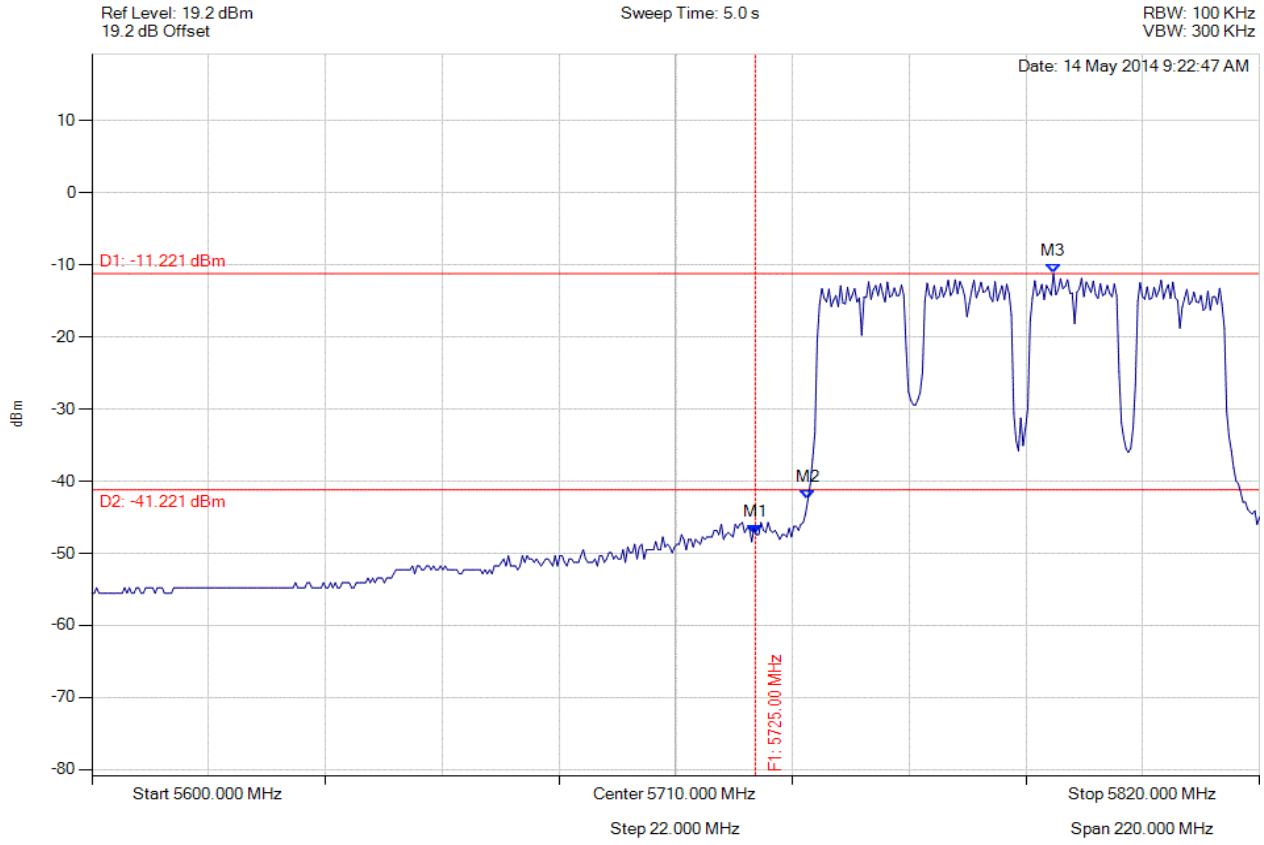
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -47.422 dBm<br>M2 : 5734.910 MHz : -42.561 dBm<br>M3 : 5781.202 MHz : -11.221 dBm | Channel Frequency: 5775.00 MHz |

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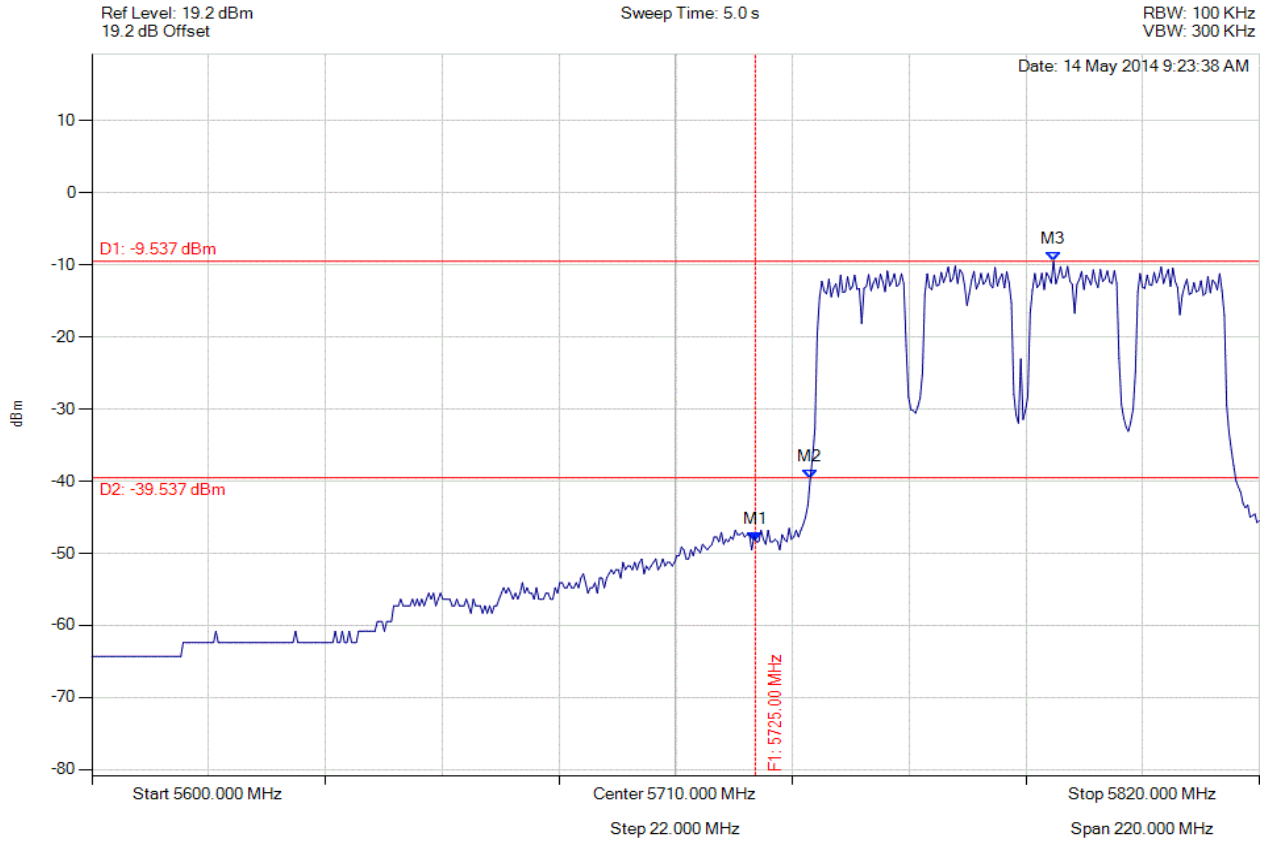
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -48.407 dBm<br>M2 : 5735.351 MHz : -39.715 dBm<br>M3 : 5781.202 MHz : -9.537 dBm | Channel Frequency: 5775.00 MHz |

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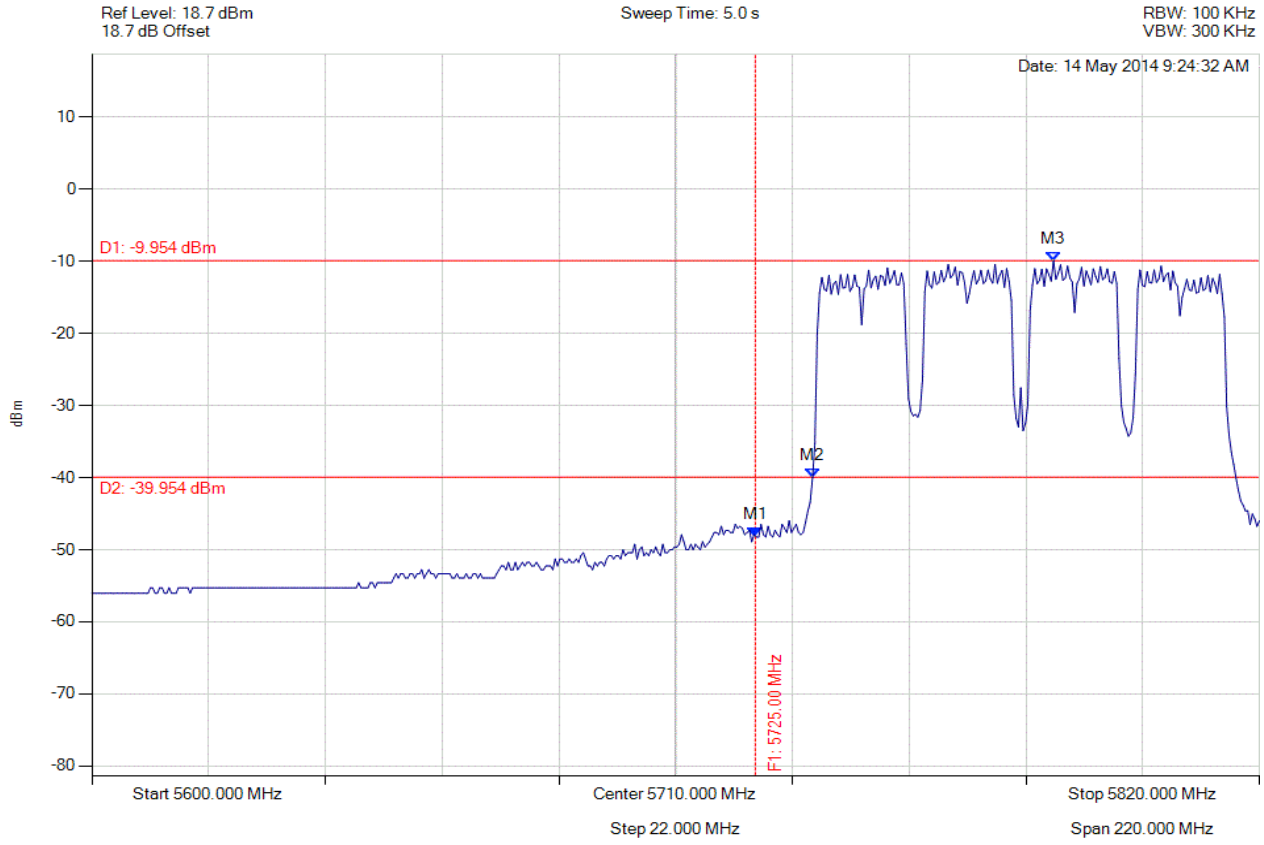
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -48.238 dBm<br>M2 : 5735.792 MHz : -39.963 dBm<br>M3 : 5781.202 MHz : -9.954 dBm | Channel Frequency: 5775.00 MHz |

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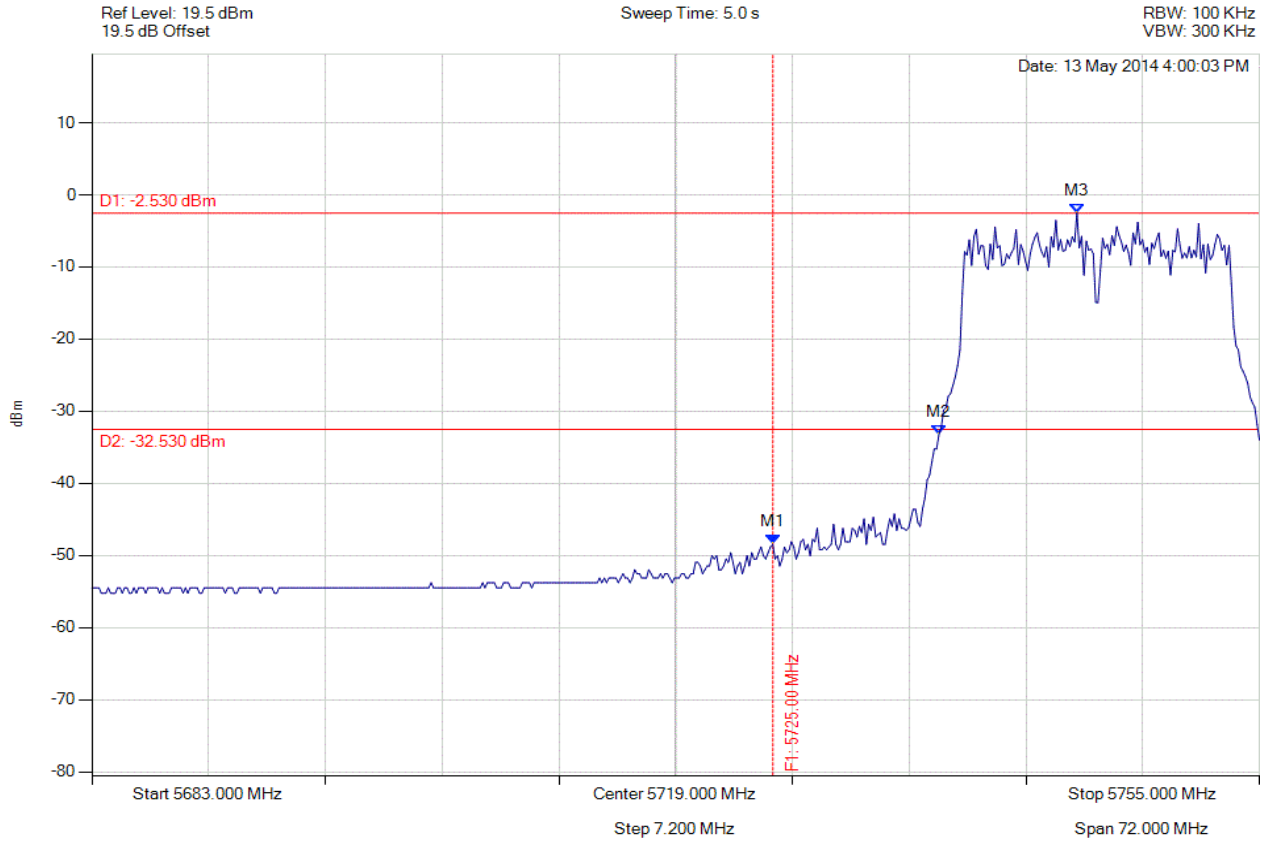
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -48.461 dBm<br>M2 : 5735.232 MHz : -33.268 dBm<br>M3 : 5743.745 MHz : -2.530 dBm | Channel Frequency: 5745.00 MHz |

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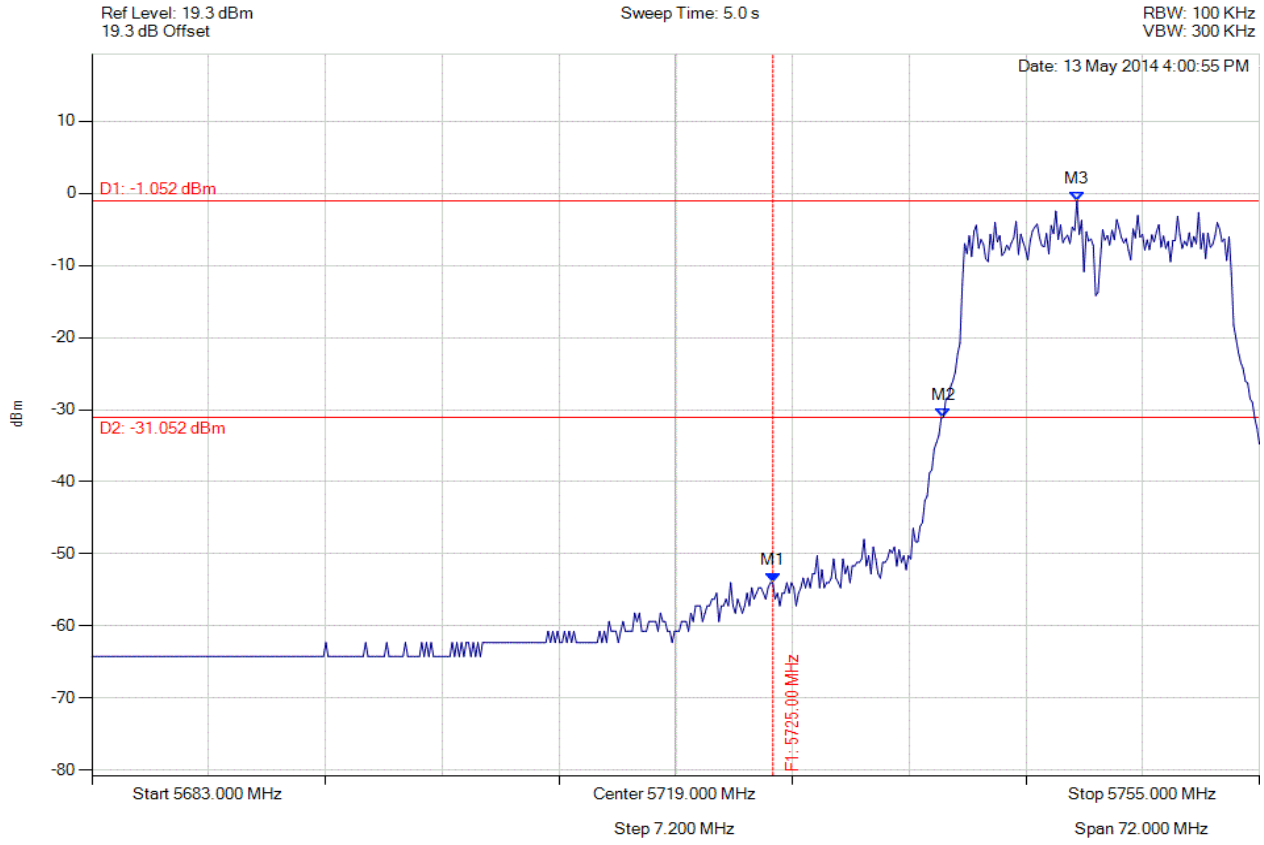
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -53.986 dBm<br>M2 : 5735.521 MHz : -31.064 dBm<br>M3 : 5743.745 MHz : -1.052 dBm | Channel Frequency: 5745.00 MHz |

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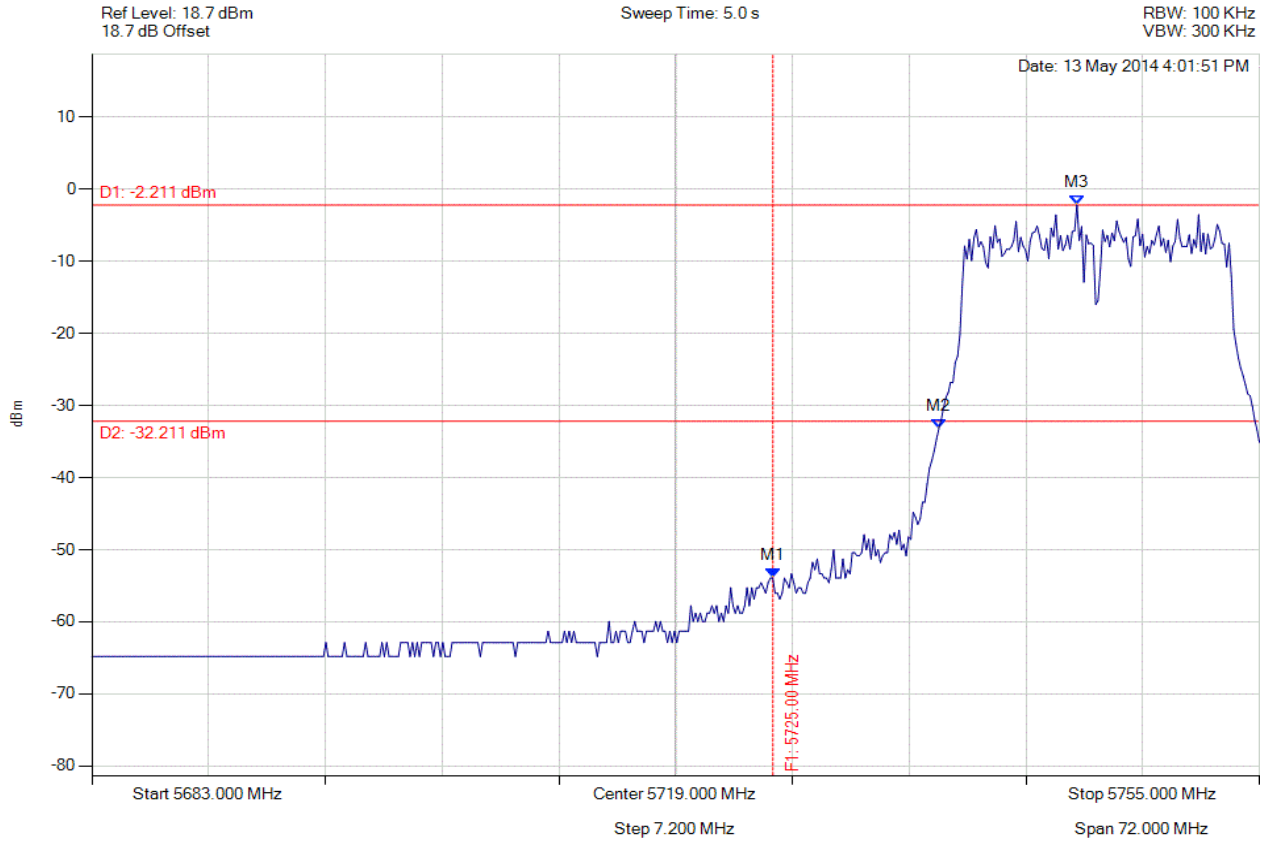
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -53.943 dBm<br>M2 : 5735.232 MHz : -33.172 dBm<br>M3 : 5743.745 MHz : -2.211 dBm | Channel Frequency: 5745.00 MHz |

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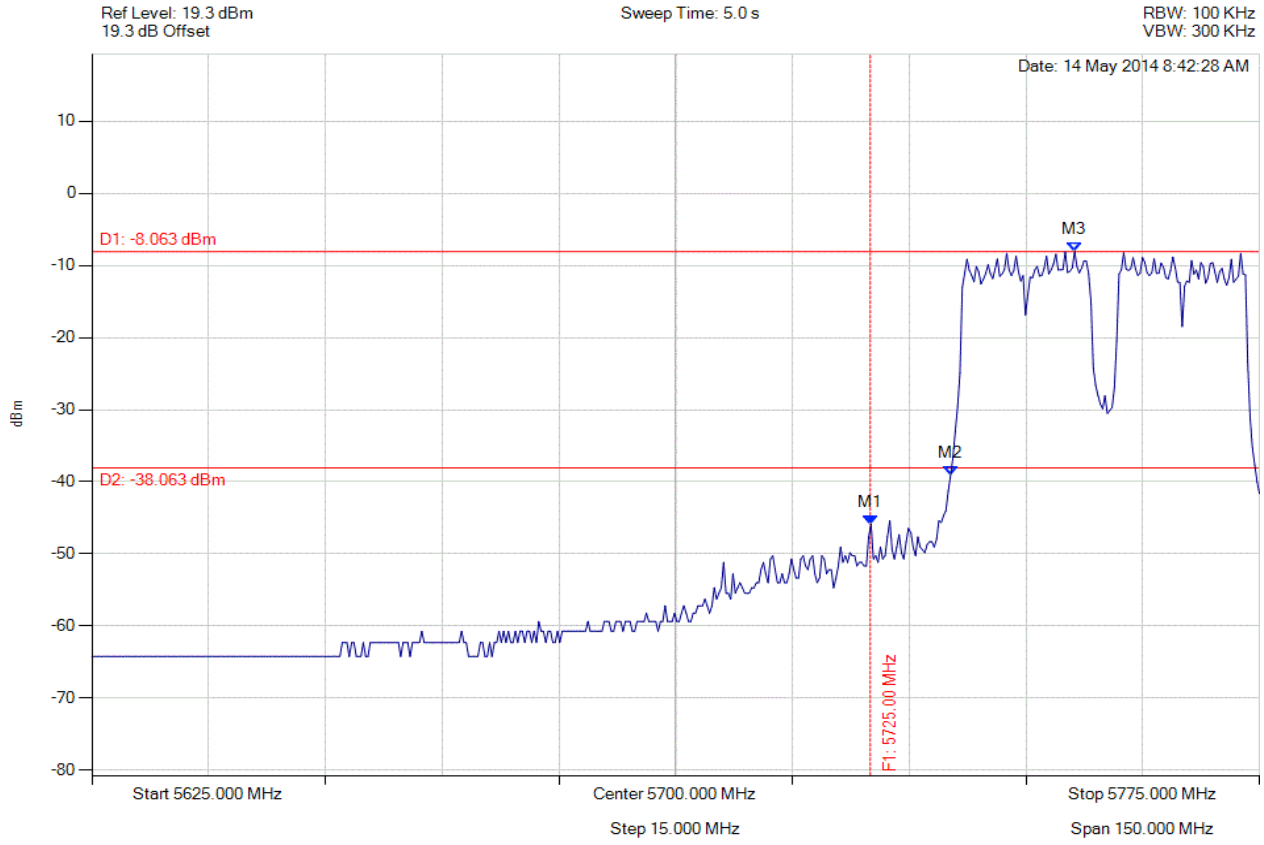
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -45.895 dBm<br>M2 : 5735.321 MHz : -39.119 dBm<br>M3 : 5751.253 MHz : -8.063 dBm | Channel Frequency: 5755.00 MHz |

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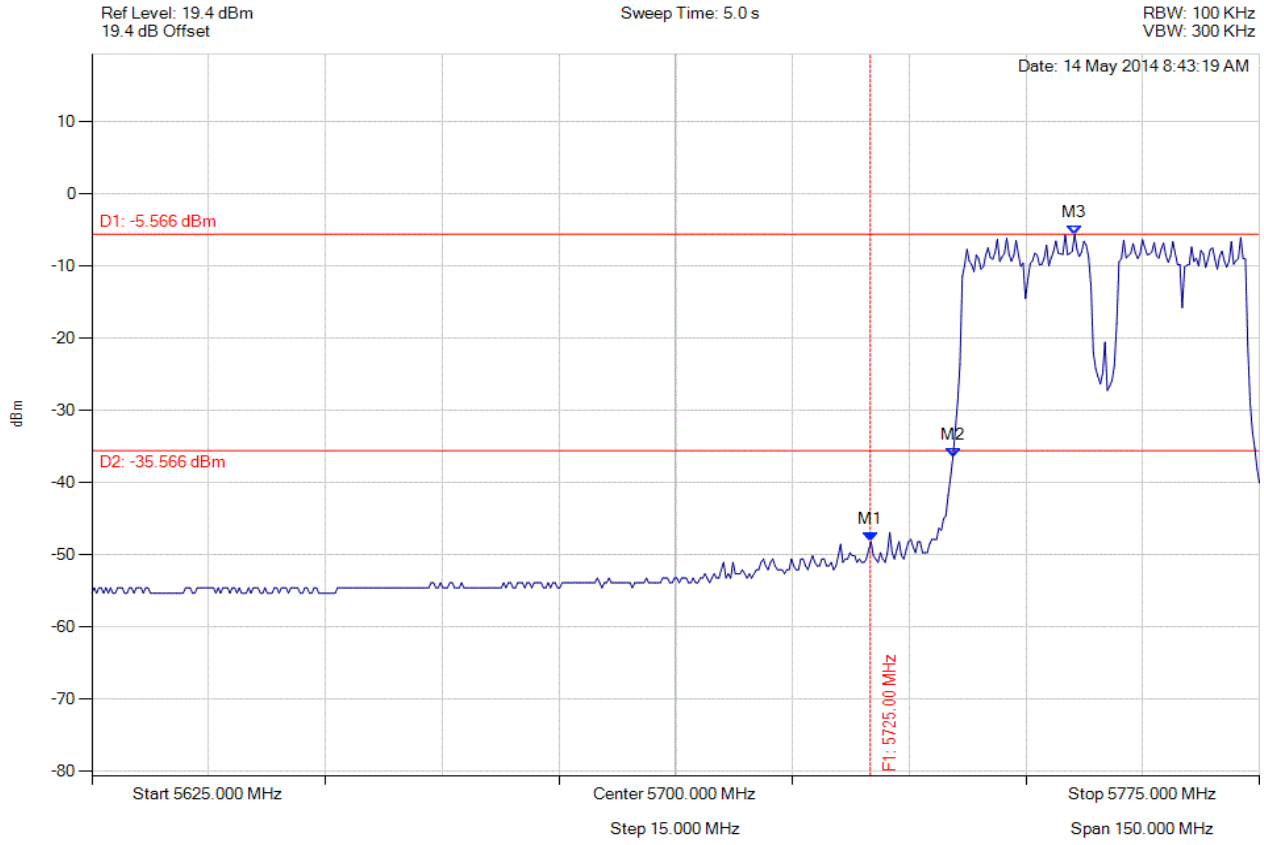
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -48.207 dBm<br>M2 : 5735.621 MHz : -36.430 dBm<br>M3 : 5751.253 MHz : -5.566 dBm | Channel Frequency: 5755.00 MHz |

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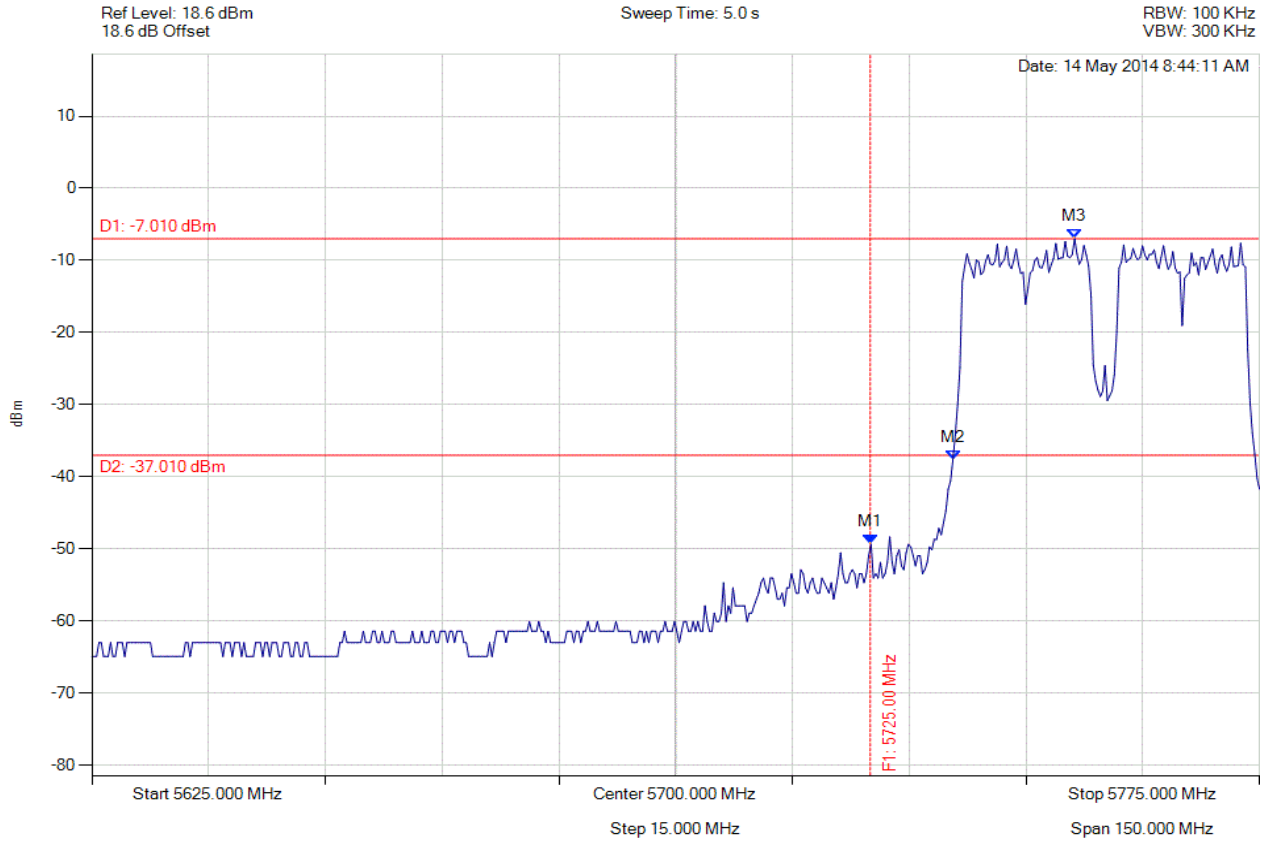
## CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5725.000 MHz : -49.361 dBm<br>M2 : 5735.621 MHz : -37.596 dBm<br>M3 : 5751.253 MHz : -7.010 dBm | Channel Frequency: 5755.00 MHz |

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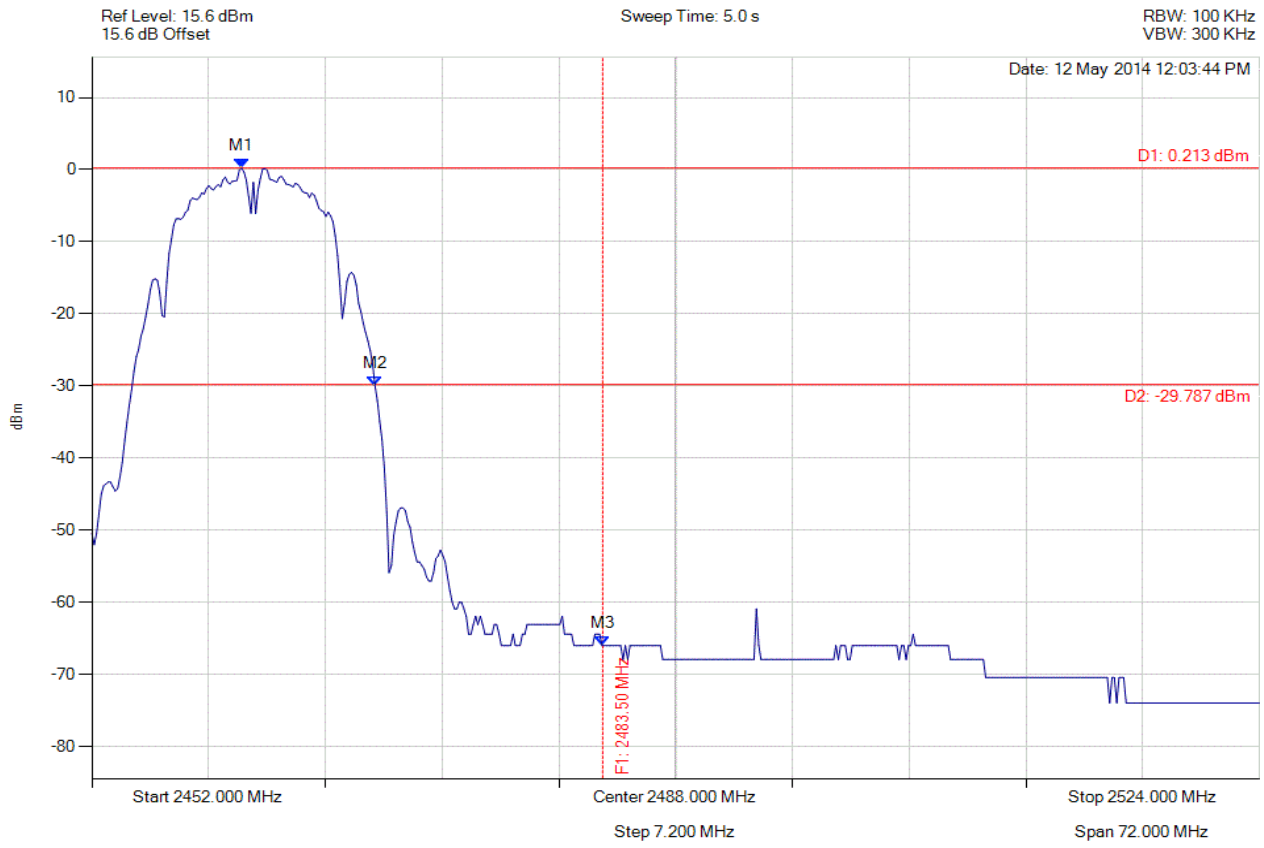
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 2461.234 MHz : 0.213 dBm<br>M2 : 2469.459 MHz : -29.972 dBm<br>M3 : 2483.500 MHz : -65.986 dBm | Channel Frequency: 2462.00 MHz |

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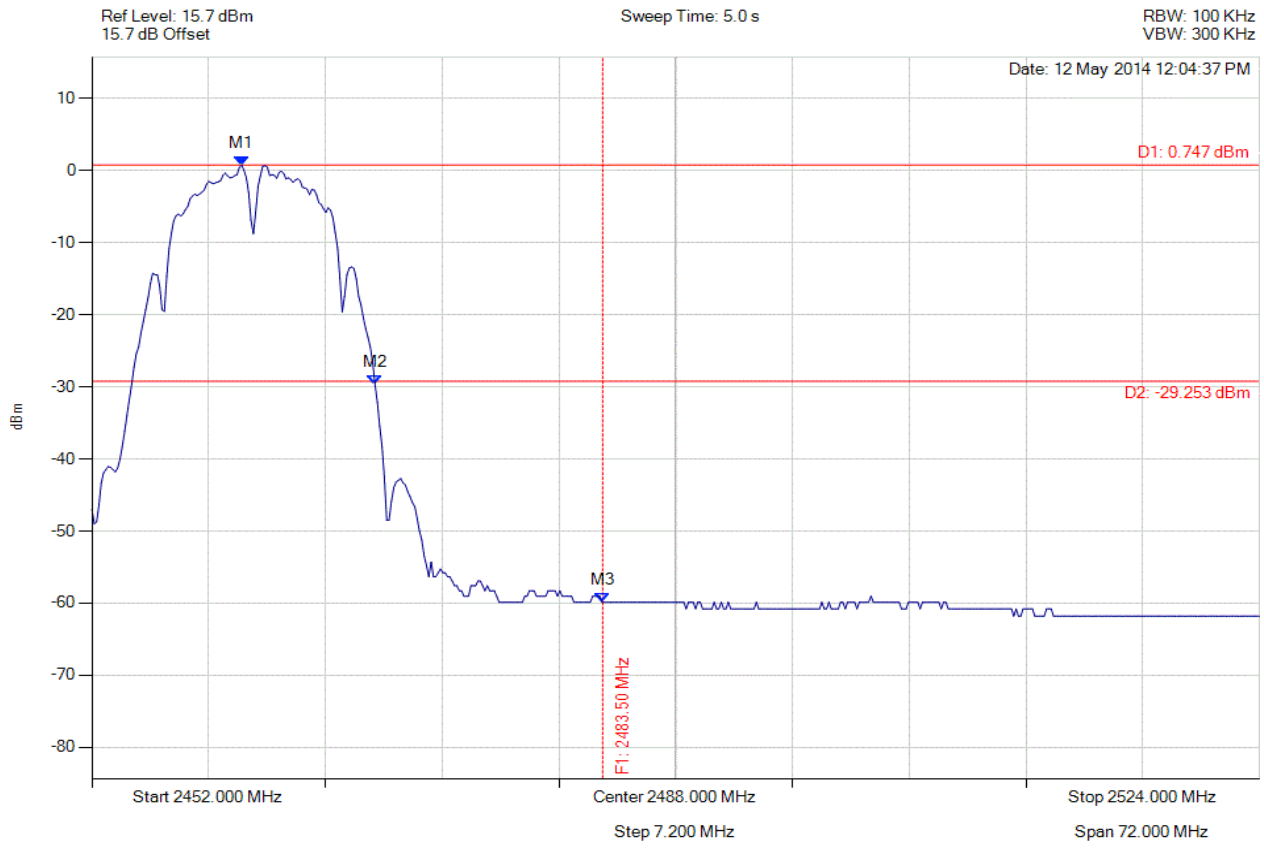
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2461.234 MHz : 0.747 dBm<br>M2 : 2469.459 MHz : -29.681 dBm<br>M3 : 2483.500 MHz : -59.865 dBm | Channel Frequency: 2462.00 MHz |

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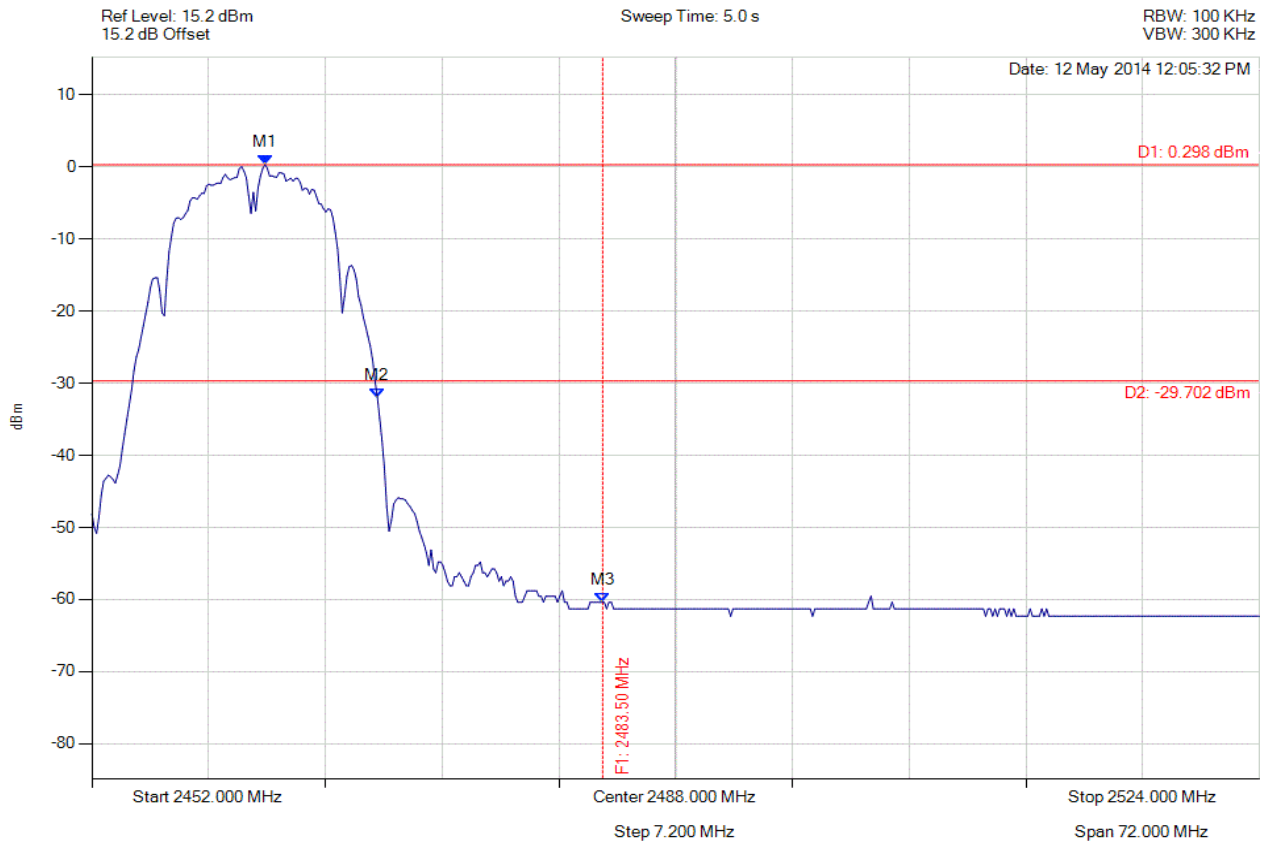
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2462.677 MHz : 0.298 dBm<br>M2 : 2469.603 MHz : -31.966 dBm<br>M3 : 2483.500 MHz : -60.365 dBm | Channel Frequency: 2462.00 MHz |

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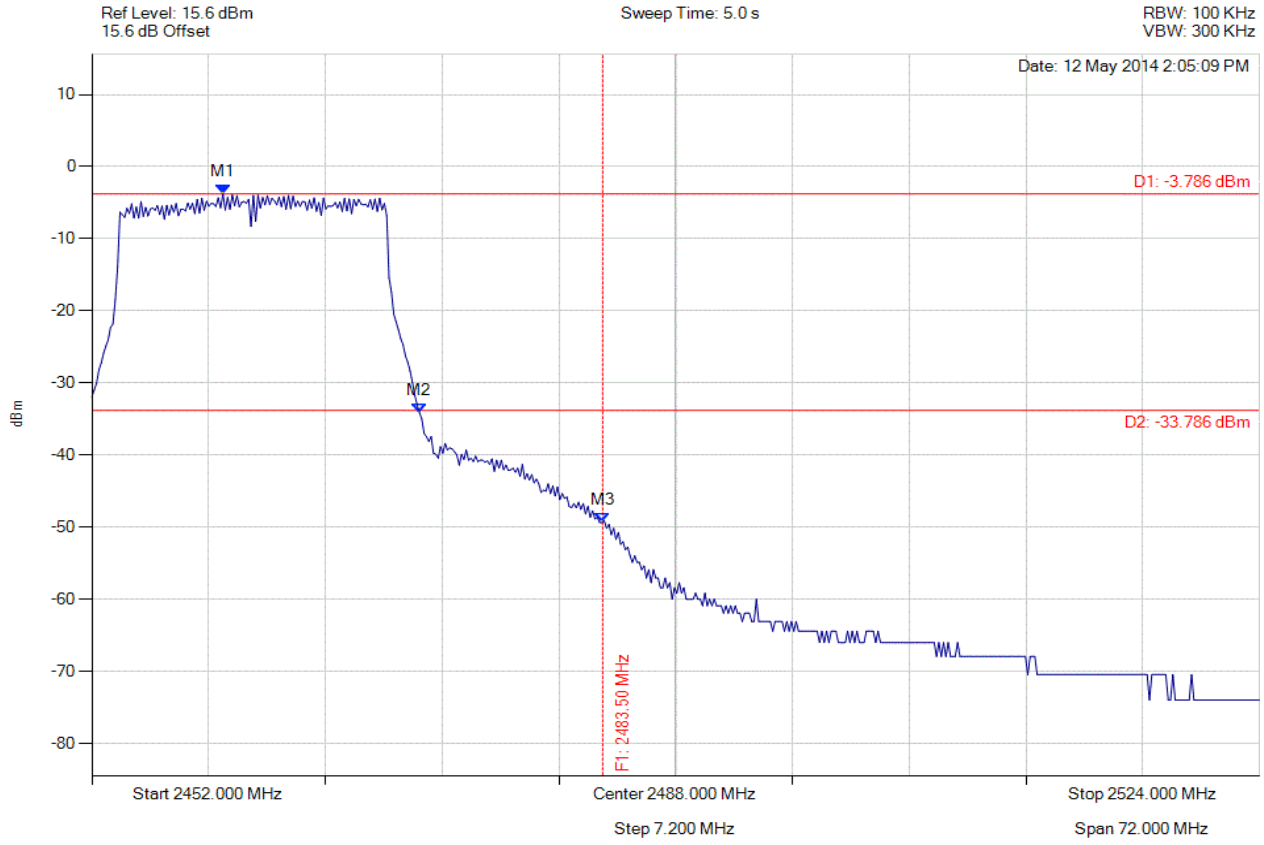
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 2460.080 MHz : -3.786 dBm<br>M2 : 2472.200 MHz : -34.120 dBm<br>M3 : 2483.500 MHz : -49.336 dBm | Channel Frequency: 2462.00 MHz |

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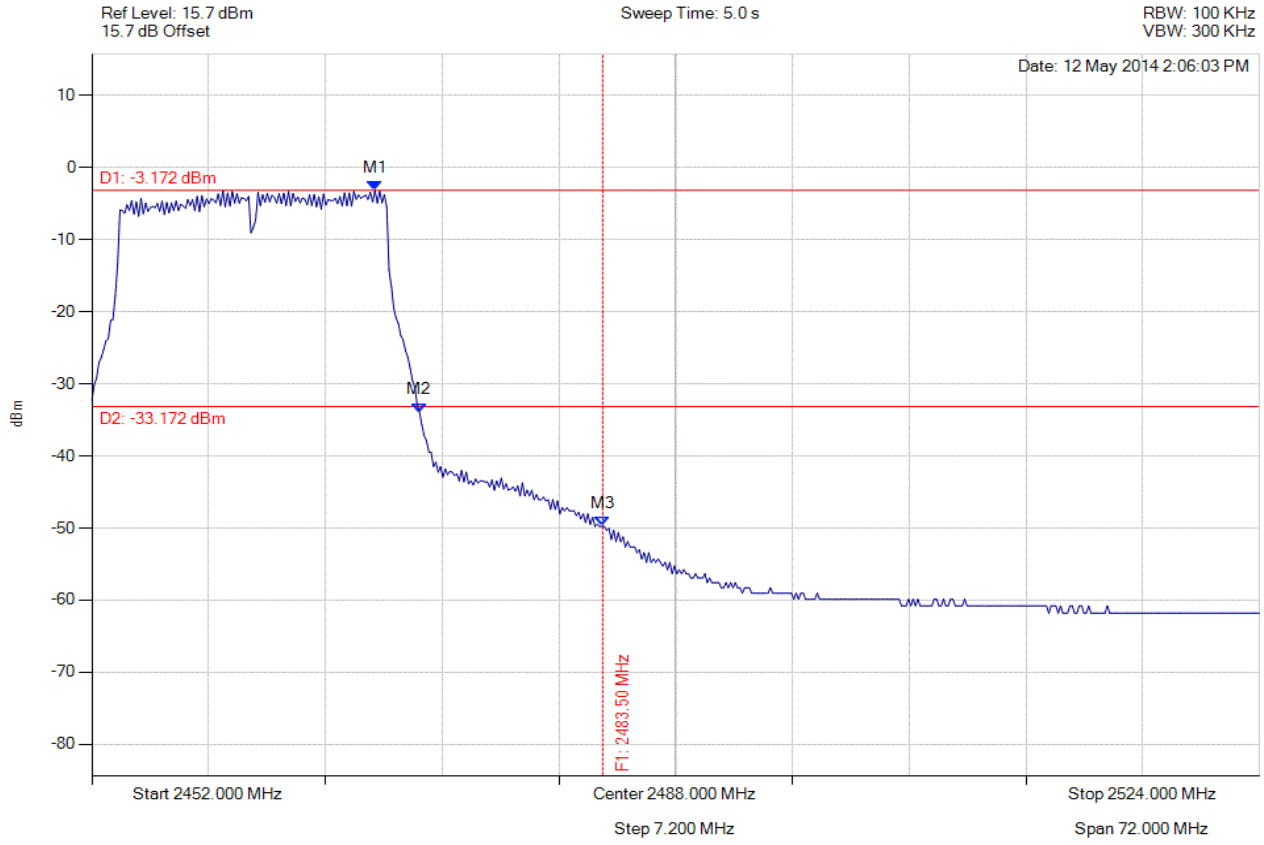
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2469.459 MHz : -3.172 dBm<br>M2 : 2472.200 MHz : -33.932 dBm<br>M3 : 2483.500 MHz : -49.762 dBm | Channel Frequency: 2462.00 MHz |

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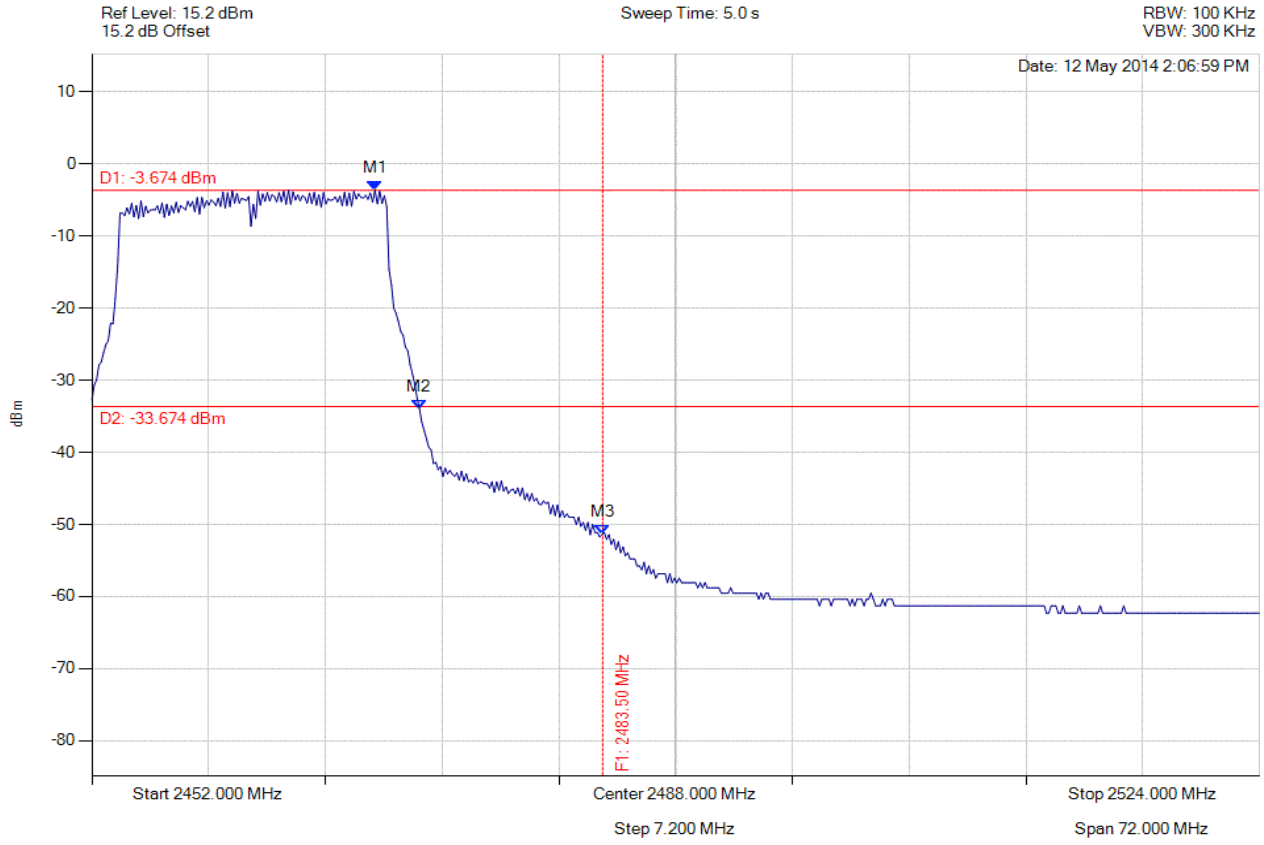
**CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE**

Variant: 802.11g, Channel: 2462.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2469.459 MHz : -3.674 dBm<br>M2 : 2472.200 MHz : -33.962 dBm<br>M3 : 2483.500 MHz : -51.422 dBm | Channel Frequency: 2462.00 MHz |

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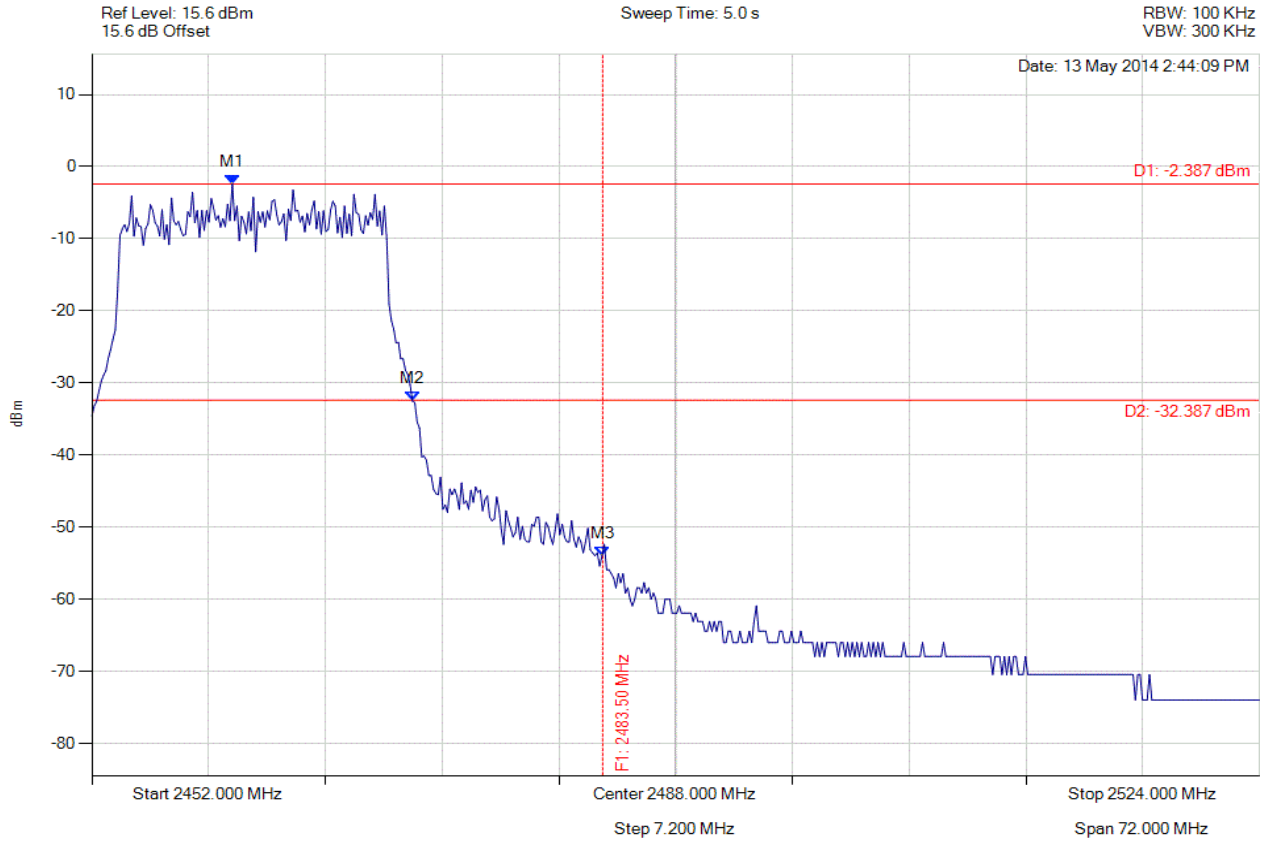
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 2460.657 MHz : -2.387 dBm<br>M2 : 2471.768 MHz : -32.507 dBm<br>M3 : 2483.500 MHz : -53.945 dBm | Channel Frequency: 2462.00 MHz |

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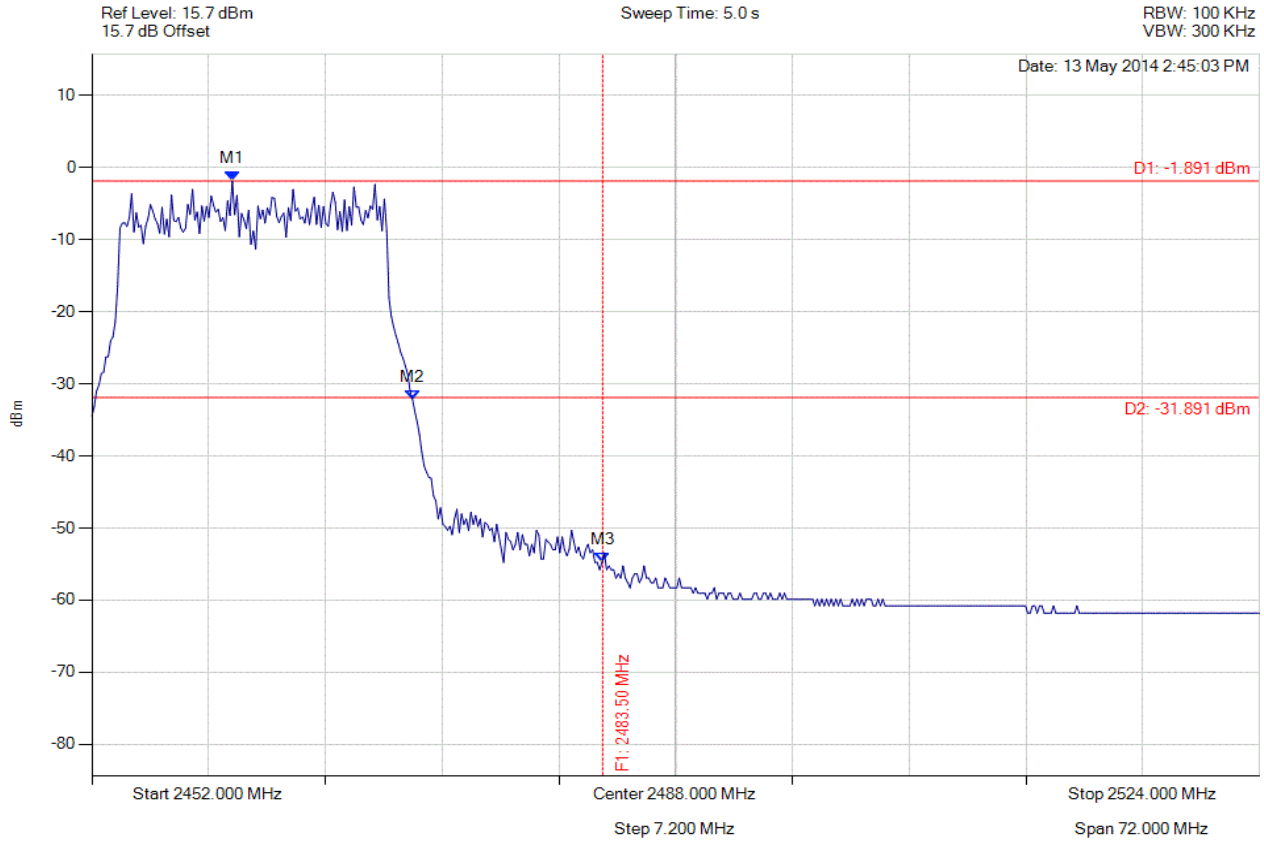
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2460.657 MHz : -1.891 dBm<br>M2 : 2471.768 MHz : -32.153 dBm<br>M3 : 2483.500 MHz : -54.760 dBm | Channel Frequency: 2462.00 MHz |

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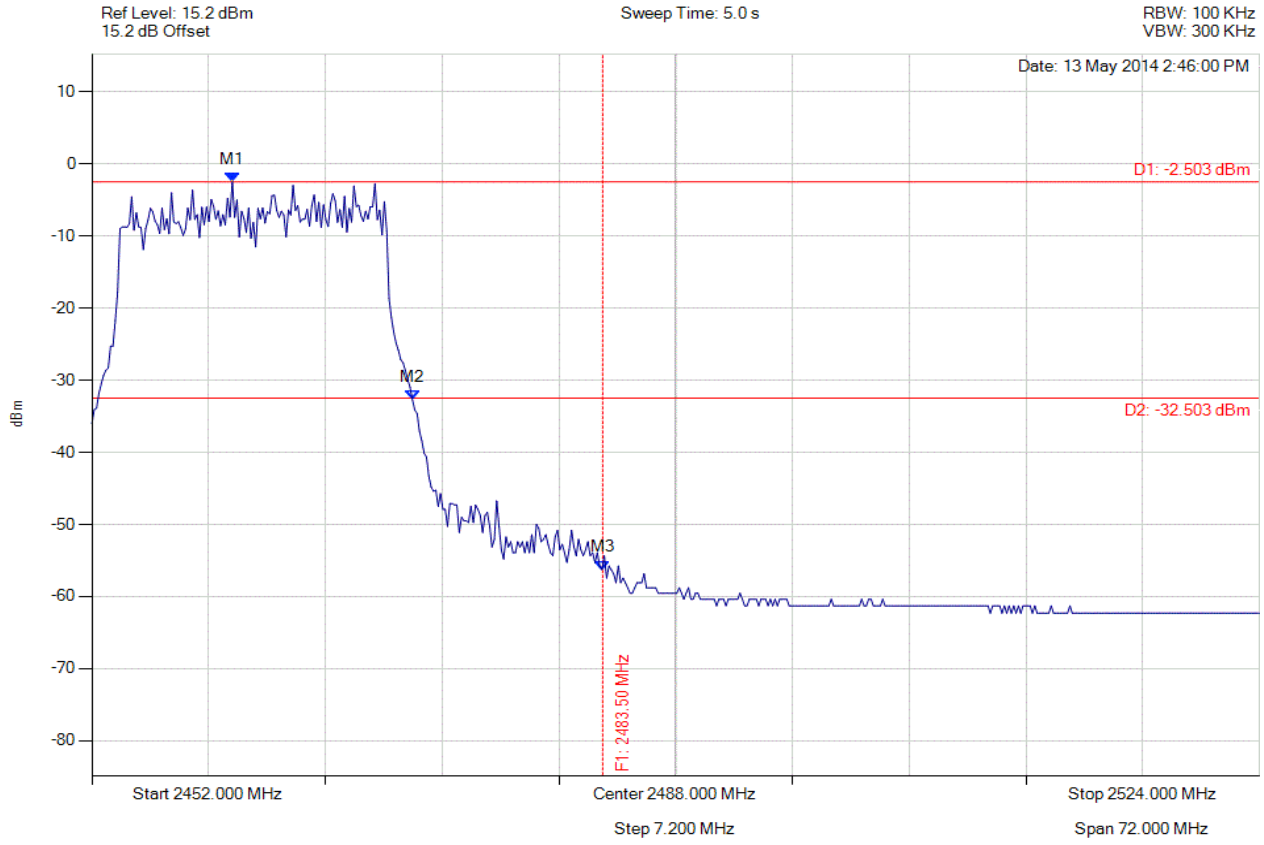
**CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE**

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2460.657 MHz : -2.503 dBm<br>M2 : 2471.768 MHz : -32.725 dBm<br>M3 : 2483.500 MHz : -56.283 dBm | Channel Frequency: 2462.00 MHz |

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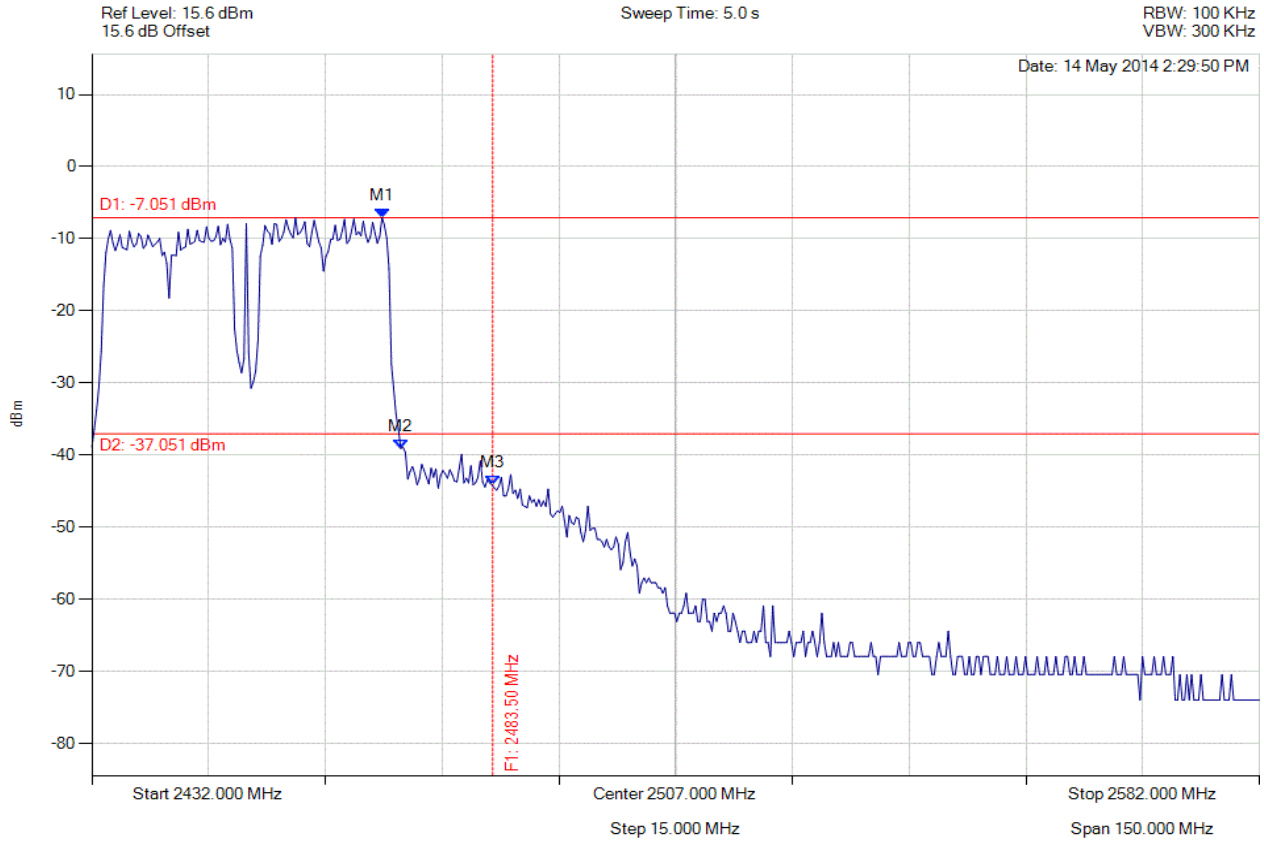
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 2469.275 MHz : -7.051 dBm<br>M2 : 2471.679 MHz : -39.059 dBm<br>M3 : 2483.500 MHz : -44.118 dBm | Channel Frequency: 2452.00 MHz |

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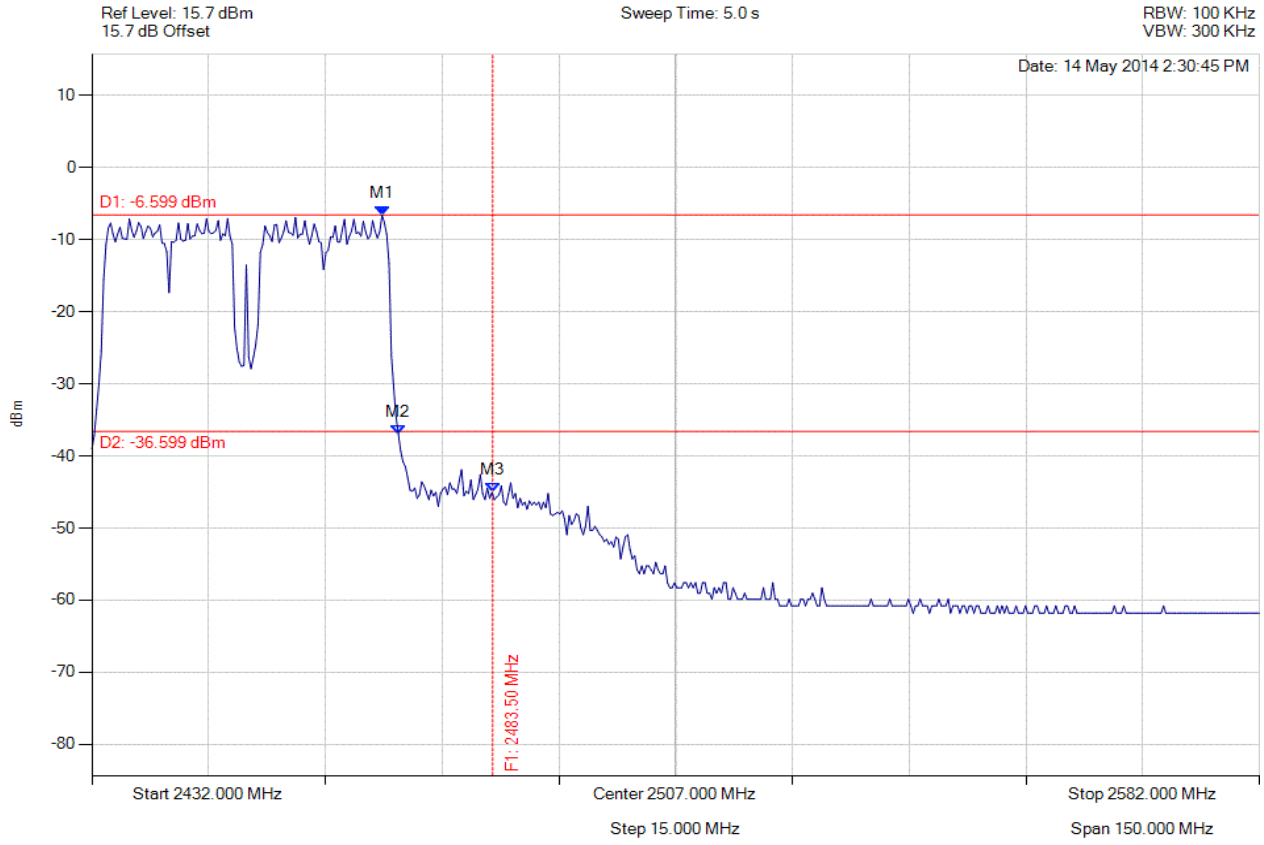
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2469.275 MHz : -6.599 dBm<br>M2 : 2471.379 MHz : -37.005 dBm<br>M3 : 2483.500 MHz : -45.058 dBm | Channel Frequency: 2452.00 MHz |

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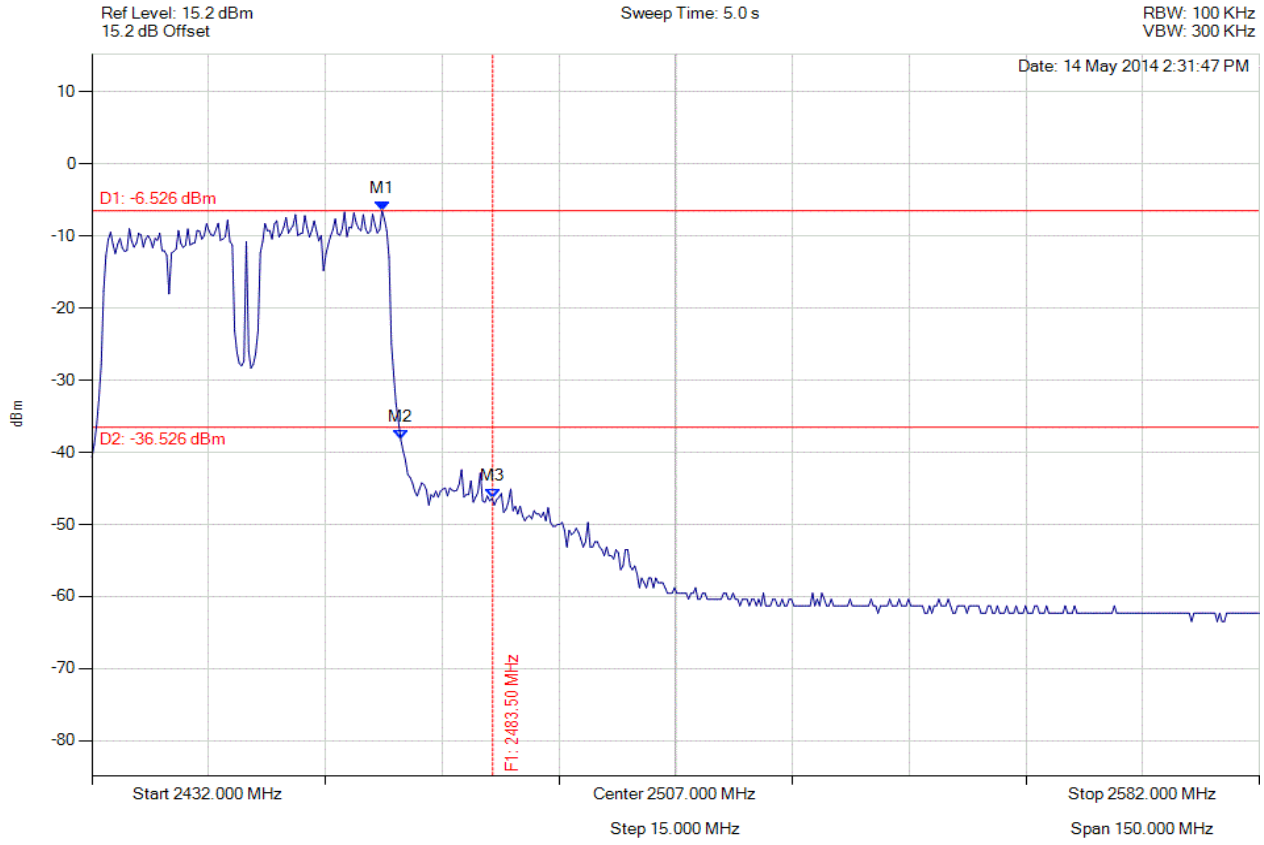
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 2469.275 MHz : -6.526 dBm<br>M2 : 2471.679 MHz : -38.221 dBm<br>M3 : 2483.500 MHz : -46.386 dBm | Channel Frequency: 2452.00 MHz |

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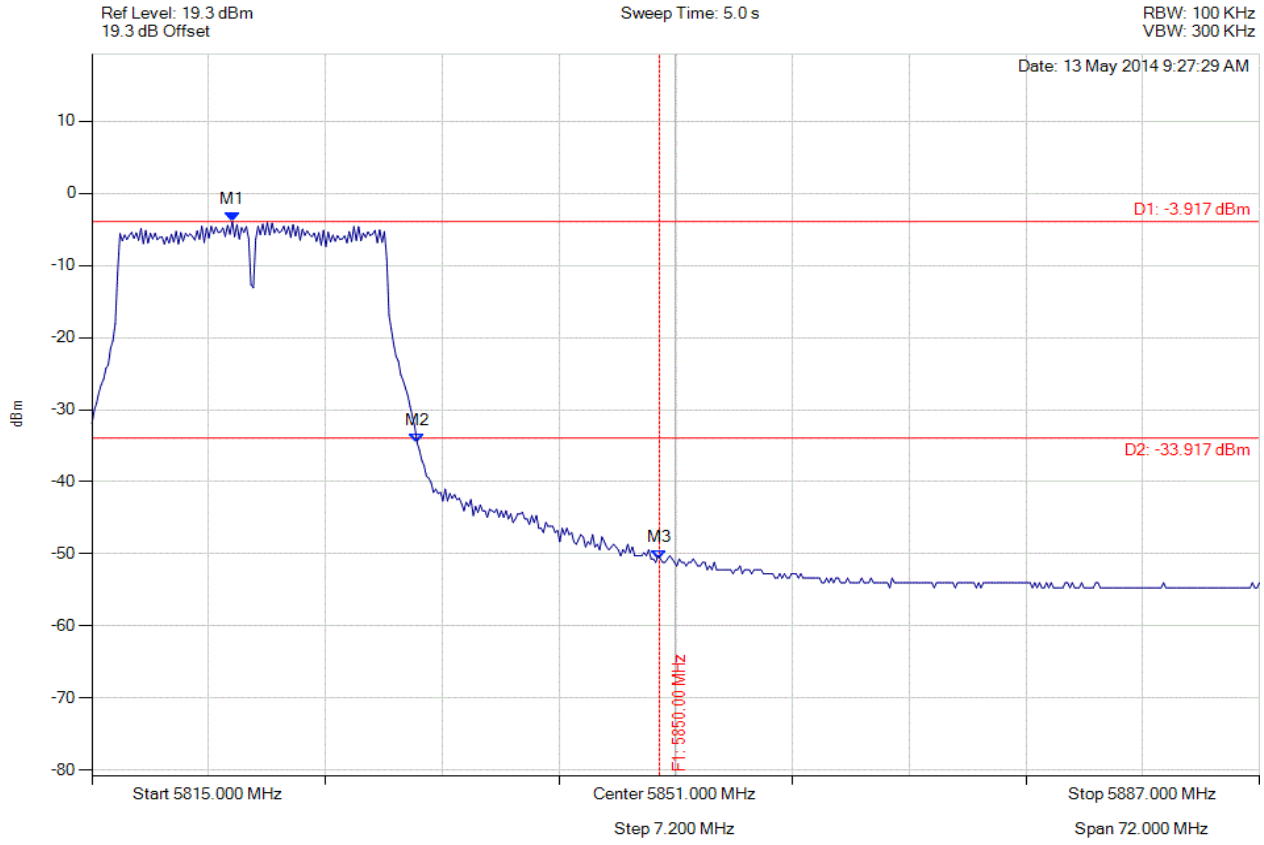
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5823.657 MHz : -3.917 dBm<br>M2 : 5835.056 MHz : -34.610 dBm<br>M3 : 5850.000 MHz : -50.690 dBm | Channel Frequency: 5825.00 MHz |

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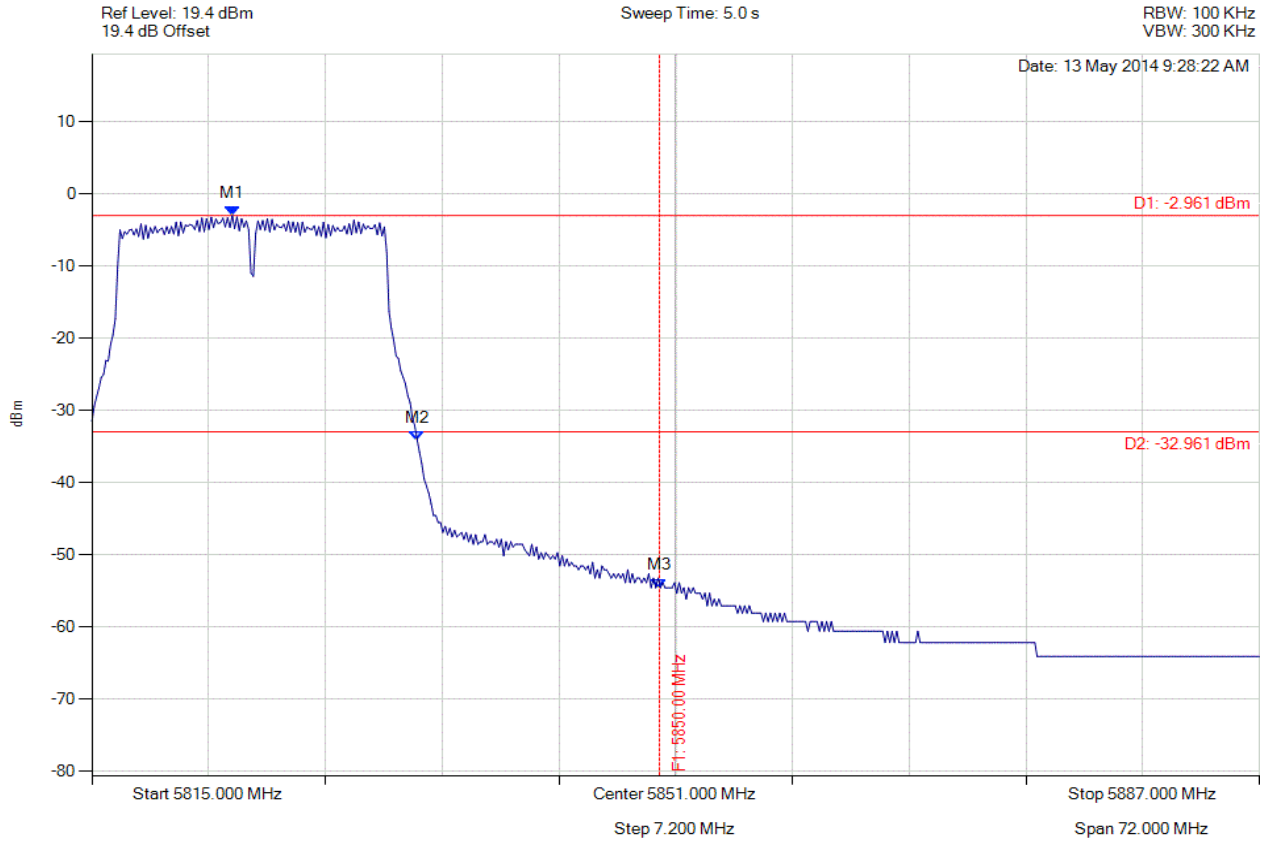
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11a, Channel: 5825.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5823.657 MHz : -2.961 dBm<br>M2 : 5835.056 MHz : -34.089 dBm<br>M3 : 5850.000 MHz : -54.582 dBm | Channel Frequency: 5825.00 MHz |

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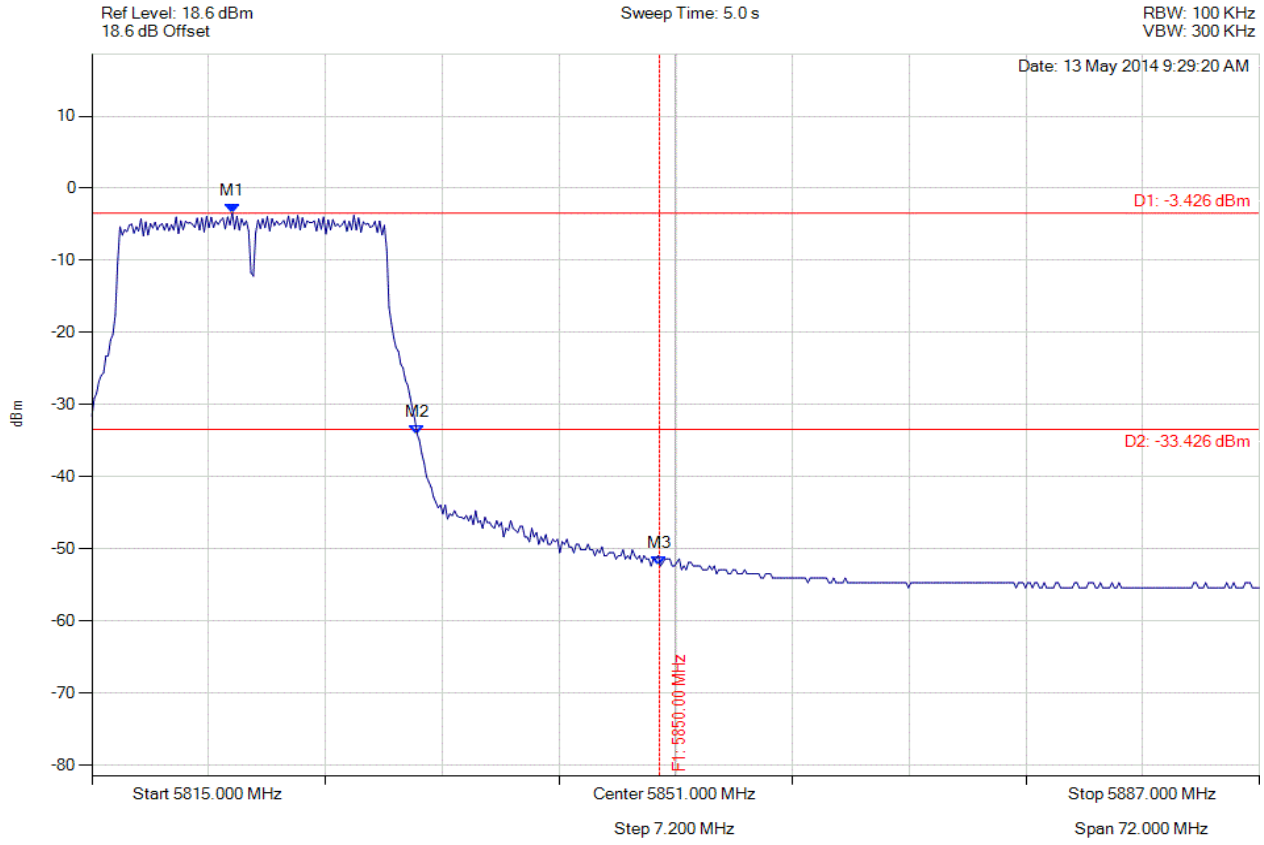
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11a, Channel: 5825.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5823.657 MHz : -3.426 dBm<br>M2 : 5835.056 MHz : -34.105 dBm<br>M3 : 5850.000 MHz : -52.356 dBm | Channel Frequency: 5825.00 MHz |

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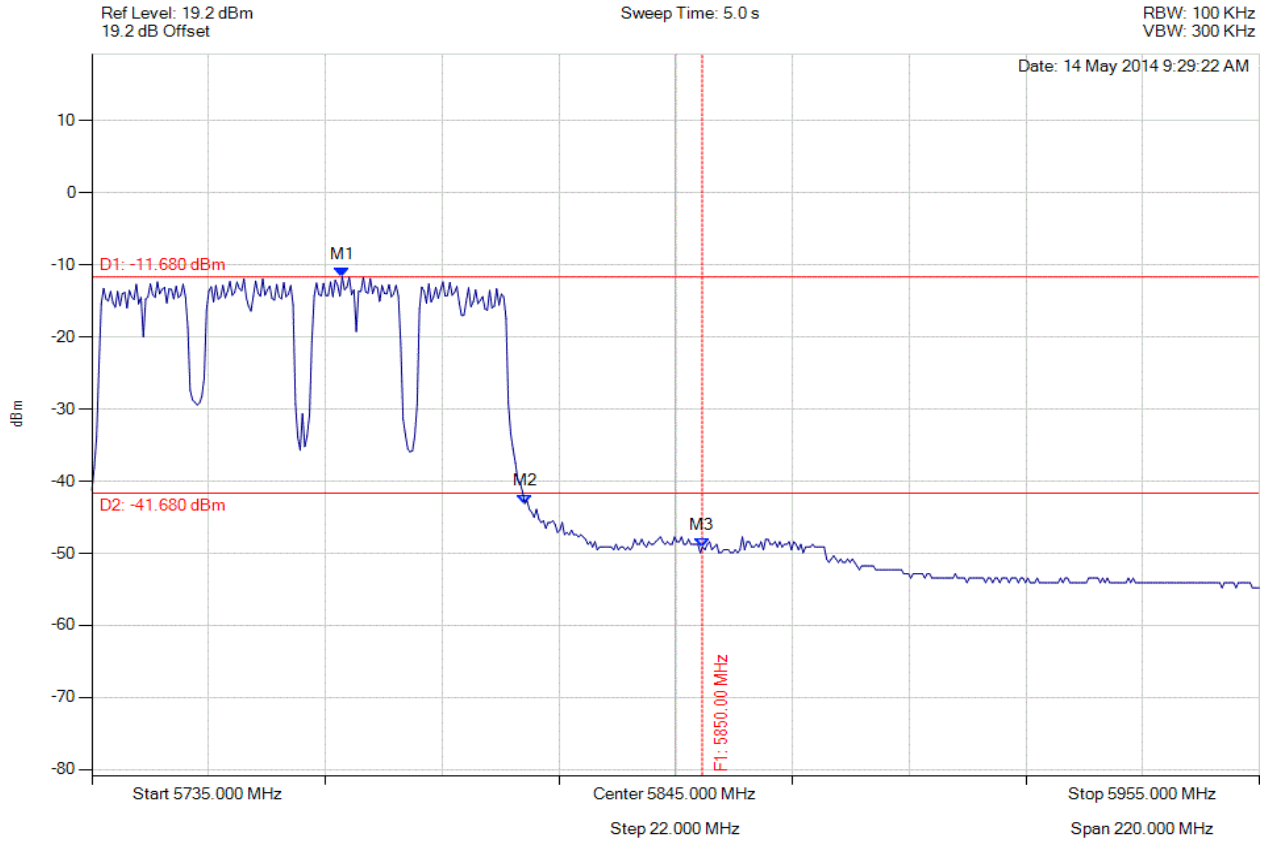
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5782.174 MHz : -11.680 dBm<br>M2 : 5816.563 MHz : -43.110 dBm<br>M3 : 5850.000 MHz : -49.131 dBm | Channel Frequency: 5775.00 MHz |

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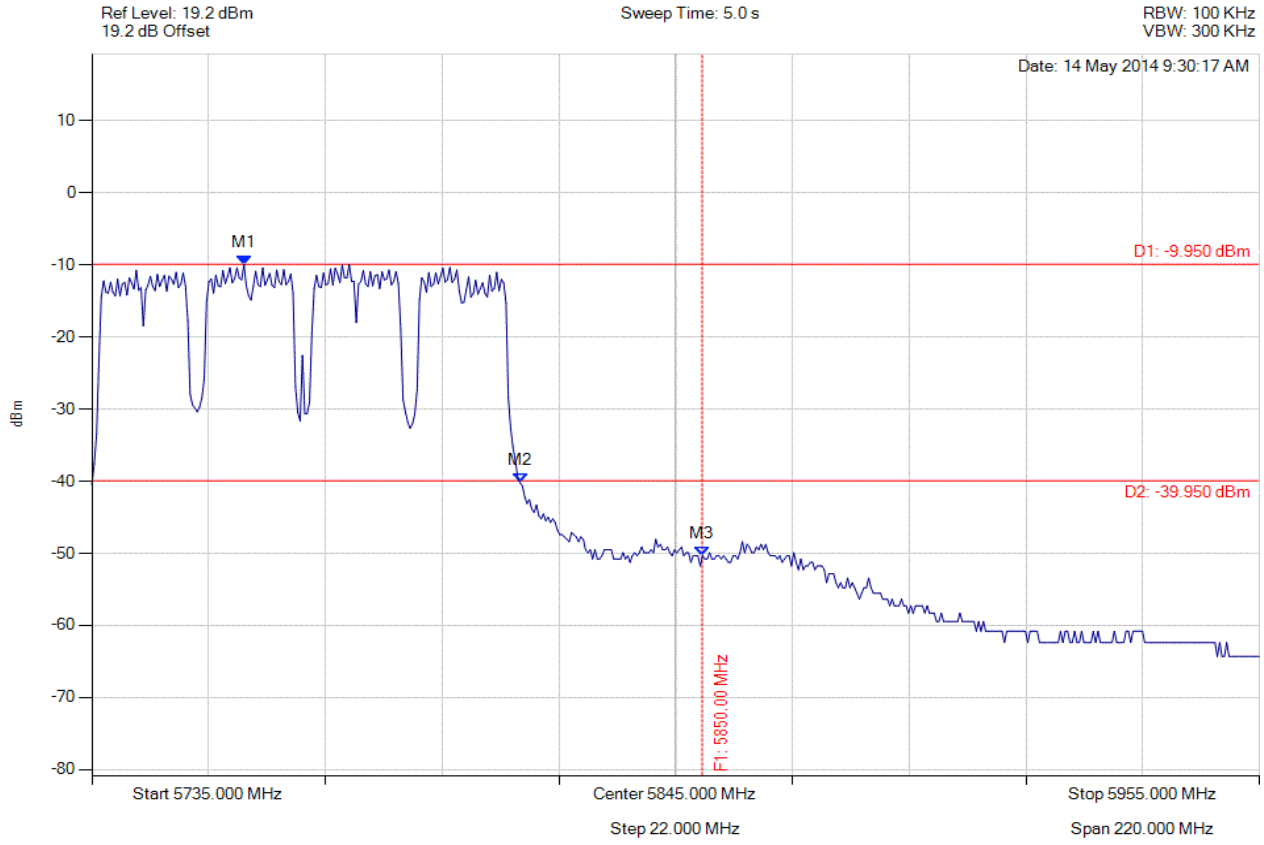
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5763.657 MHz : -9.950 dBm<br>M2 : 5815.681 MHz : -40.242 dBm<br>M3 : 5850.000 MHz : -50.345 dBm | Channel Frequency: 5775.00 MHz |

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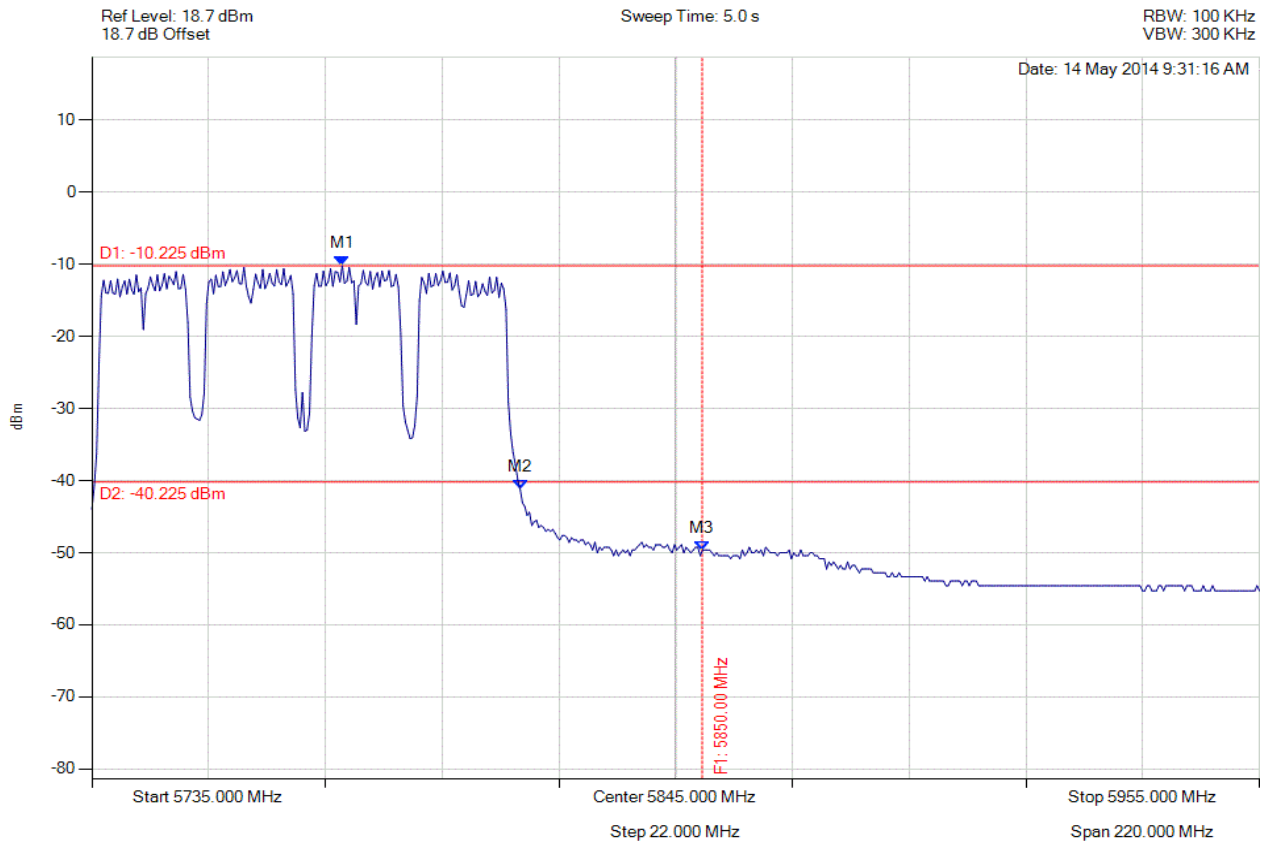
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5782.174 MHz : -10.225 dBm<br>M2 : 5815.681 MHz : -41.159 dBm<br>M3 : 5850.000 MHz : -49.631 dBm | Channel Frequency: 5775.00 MHz |

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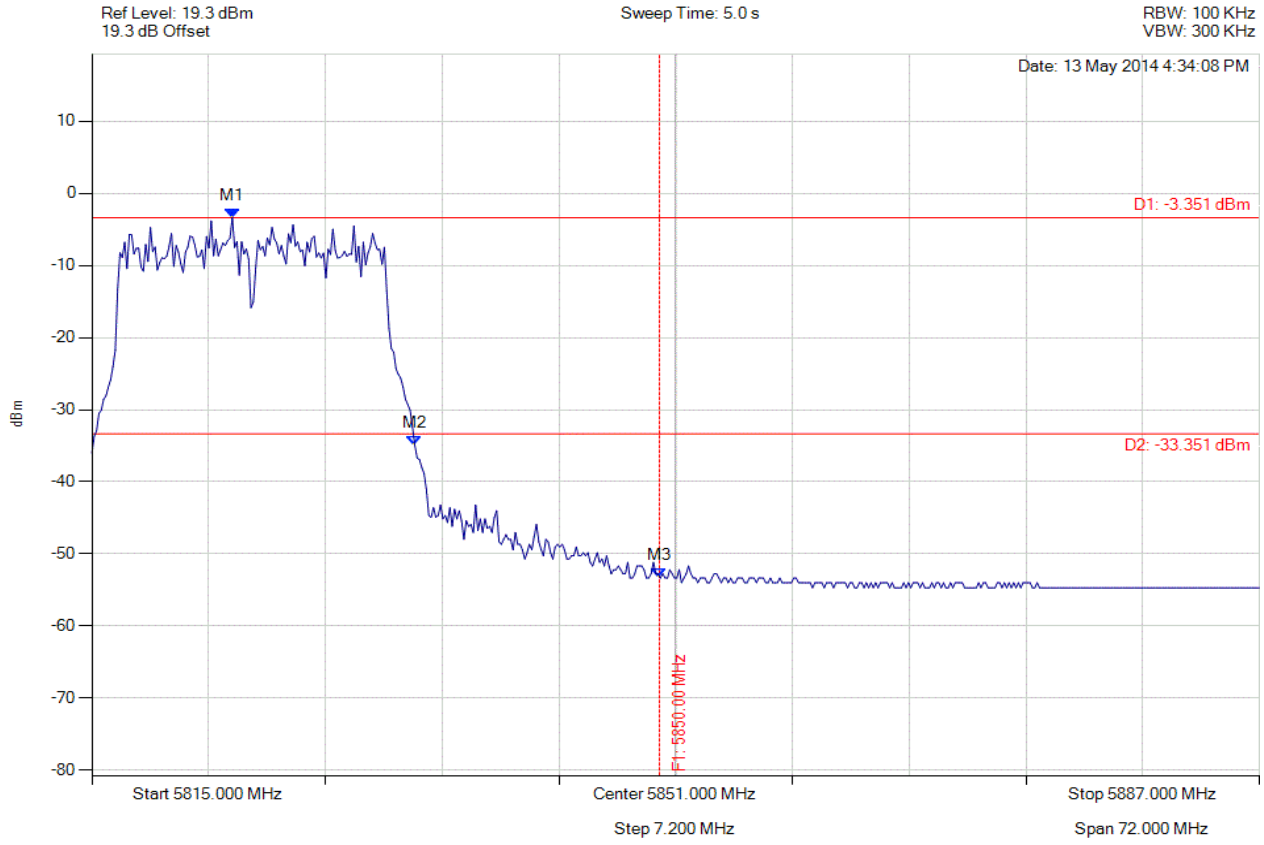
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5823.657 MHz : -3.351 dBm<br>M2 : 5834.912 MHz : -34.902 dBm<br>M3 : 5850.000 MHz : -53.343 dBm | Channel Frequency: 5825.00 MHz |

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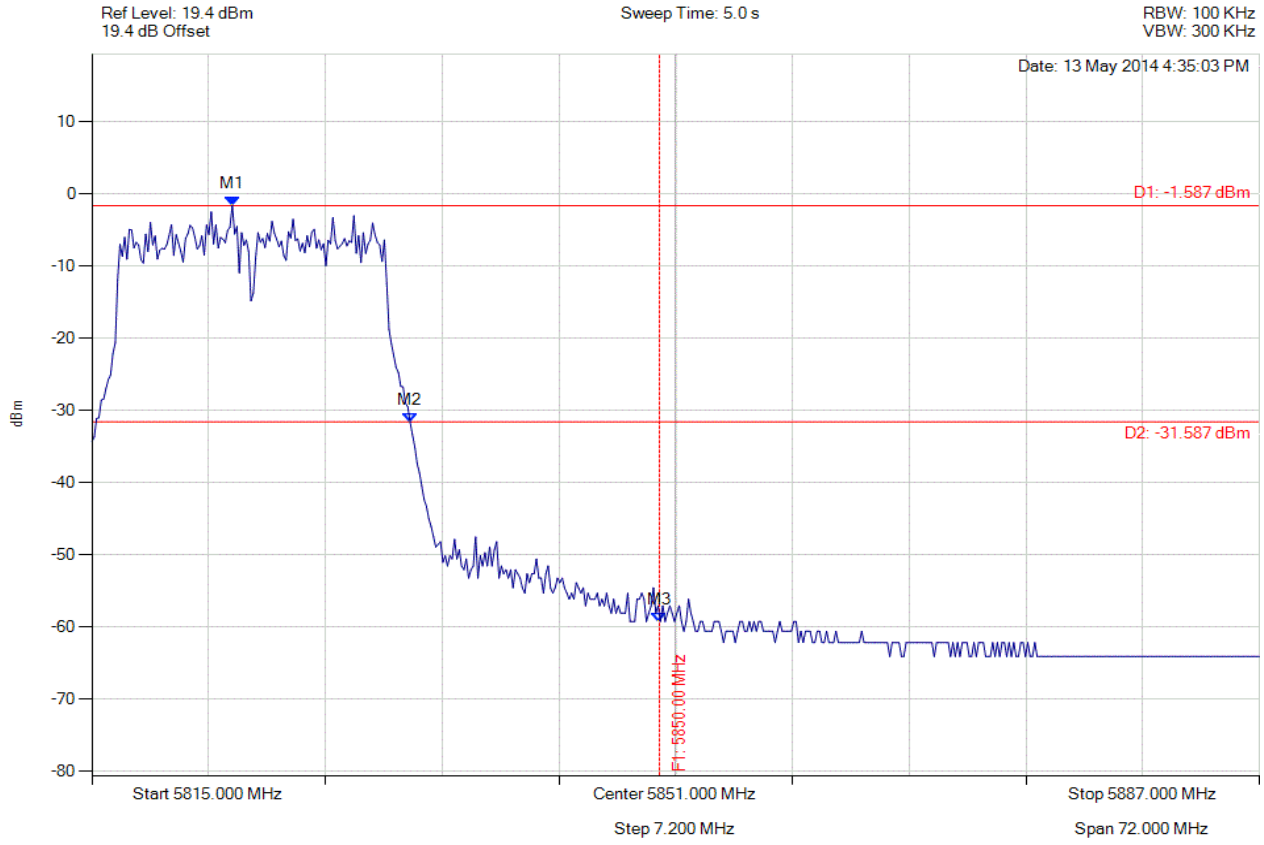
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5823.657 MHz : -1.587 dBm<br>M2 : 5834.623 MHz : -31.608 dBm<br>M3 : 5850.000 MHz : -59.263 dBm | Channel Frequency: 5825.00 MHz |

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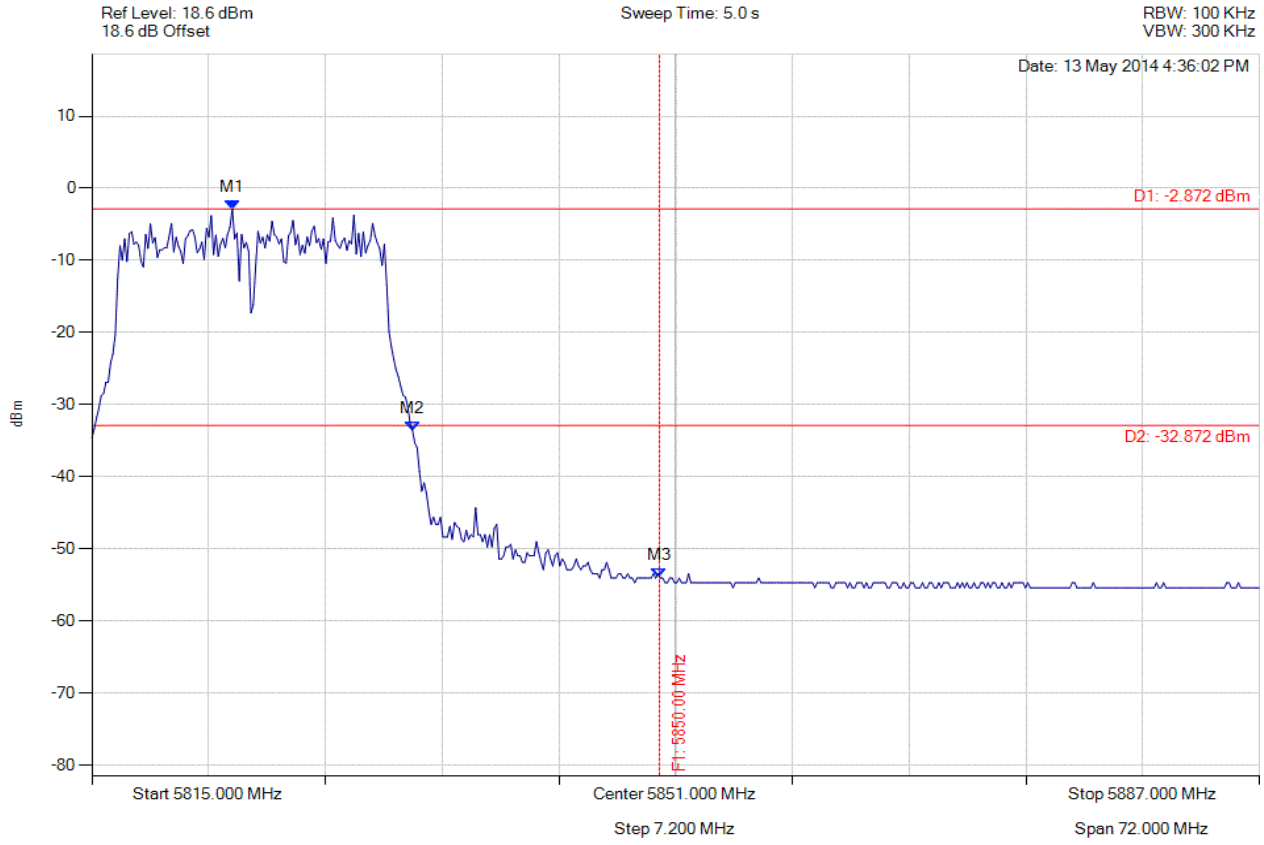
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5823.657 MHz : -2.872 dBm<br>M2 : 5834.768 MHz : -33.560 dBm<br>M3 : 5850.000 MHz : -54.043 dBm | Channel Frequency: 5825.00 MHz |

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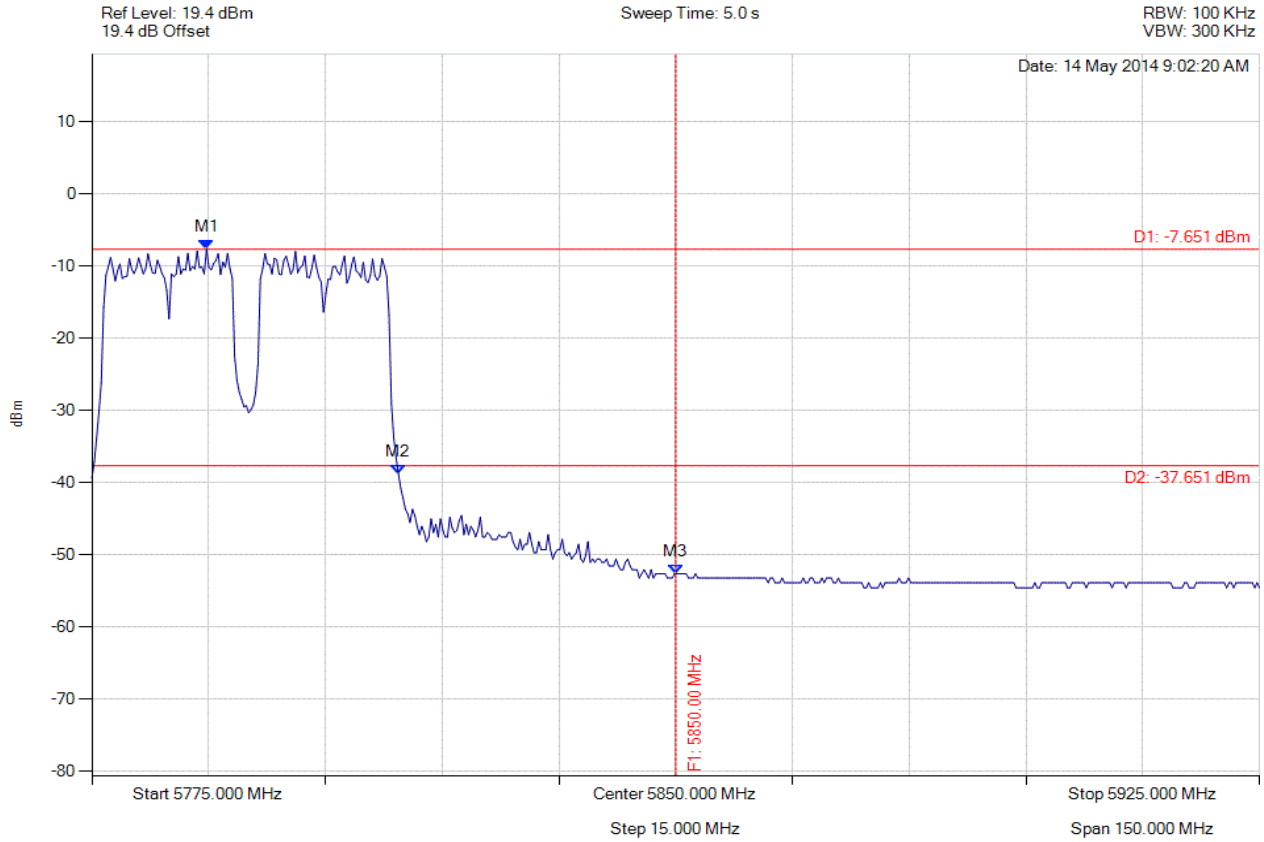
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 20<br>Trace Mode = VIEW | M1 : 5789.729 MHz : -7.651 dBm<br>M2 : 5814.379 MHz : -38.781 dBm<br>M3 : 5850.000 MHz : -52.644 dBm | Channel Frequency: 5795.00 MHz |

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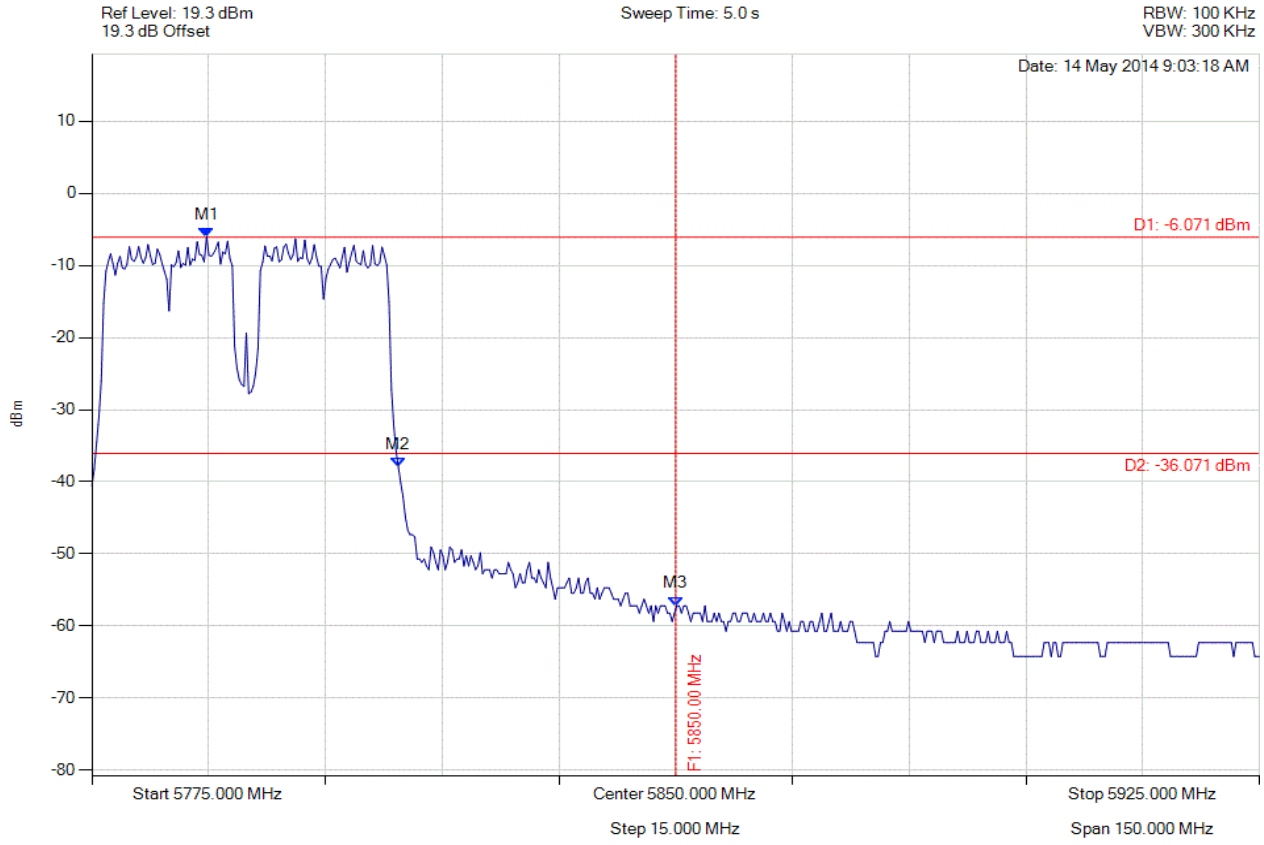
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain b, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5789.729 MHz : -6.071 dBm<br>M2 : 5814.379 MHz : -37.989 dBm<br>M3 : 5850.000 MHz : -57.180 dBm | Channel Frequency: 5795.00 MHz |

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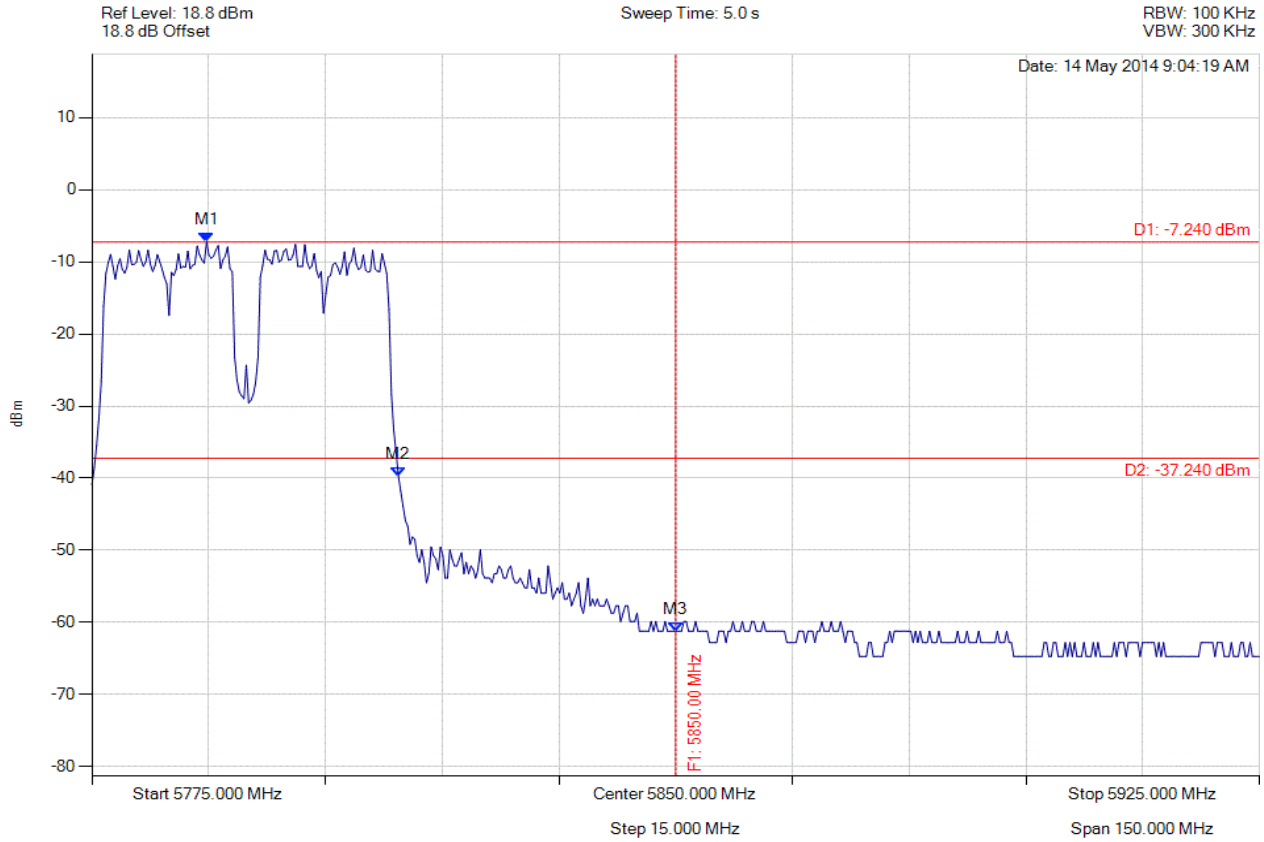
## CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain c, Temp: Ambient, Voltage: 12 Vdc




| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|---|---|---|
| Detector = AVERAGE<br>Sweep Count = 0<br>RF Atten (dB) = 10<br>Trace Mode = VIEW | M1 : 5789.729 MHz : -7.240 dBm<br>M2 : 5814.379 MHz : -39.740 dBm<br>M3 : 5850.000 MHz : -61.202 dBm | Channel Frequency: 5795.00 MHz |

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