

Test of Fluke Networks BCM43460 Enterprise Radio
module

To: FCC 47 CFR Part 15.407 & IC RSS-210

Test Report Serial No.: FLUK14-U6 Rev B





Test of Fluke Networks BCM43460 Enterprise Radio module
to

To FCC 47 CFR Part 15.407 & IC RSS-210

Test Report Serial No.: FLUK14-U6 Rev B

Note: this report contains data with regard to the 5,150 – 5,350 MHz; 5,250 - 5,350 MHz and 5,470 – 5,725 MHz (DFS) bands. 2.4 GHz and 5.8 GHz test data are reported in MiCOM Labs test report FLUK14-U3

This report supersedes FLUK14-U6 Rev A

Applicant: Fluke Networks
6920 Seaway Blvd
Everett
WA 98203, USA

Product Function: 802.11 a/b/g/n/ac wireless module

Copy No: pdf Issue Date: 6th August 2014

This Test Report is Issued Under the Authority of;

MiCOM Labs, Inc.
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TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 3 of 432

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 4 of 432

TABLE OF CONTENTS

| | |
|---|------------|
| ACCREDITATION, LISTINGS & RECOGNITION..... | 6 |
| TESTING ACCREDITATION | 6 |
| RECOGNITION | 7 |
| PRODUCT CERTIFICATION | 8 |
| 1. TEST RESULT CERTIFICATE..... | 10 |
| 2. REFERENCES AND MEASUREMENT UNCERTAINTY | 11 |
| 2.1. Normative References..... | 11 |
| 2.2. Test and Uncertainty Procedures..... | 12 |
| 3. PRODUCT DETAILS AND TEST CONFIGURATIONS..... | 13 |
| 3.1. Technical Details | 13 |
| 3.2. Scope of Test Program | 14 |
| 3.3. Equipment Model(s) and Serial Number(s) | 17 |
| 3.4. Antenna Details | 17 |
| 3.5. Cabling and I/O Ports | 18 |
| 3.6. Test Configurations | 19 |
| 3.7. Equipment Modifications | 21 |
| 3.8. Deviations from the Test Standard..... | 21 |
| 3.9. Subcontracted Testing or Third Party Data | 21 |
| 4. TESTING EQUIPMENT CONFIGURATION(S) | 22 |
| 4.1. Conducted RF Emission Test Set-up | 22 |
| 4.2. Radiated Spurious Emission Test Set-up > 1 GHz | 23 |
| 4.3. Digital Emissions Test Set-up (0.03 – 1 GHz)..... | 24 |
| 4.4. ac Wireline Emission Test Set-up | 25 |
| 5. TEST SUMMARY..... | 26 |
| 6. TEST RESULTS | 29 |
| 6.1. Device Characteristics..... | 29 |
| 6.1.1. Conducted Testing..... | 29 |
| 6.1.2. Radiated Emission Testing | 100 |
| 6.1.3. AC Wireline Conducted Emissions (150 kHz – 30 MHz) | 155 |
| 6.1.4. Dynamic Frequency Selection (DFS)..... | 158 |
| 6.1.5. 30 Minute Non-Occupancy Period | 167 |
| 7. PHOTOGRAPHS | 169 |
| 7.1. Conducted Test Setup | 169 |
| 7.2. Radiated Emissions < 1 GHz | 170 |
| 7.3. Radiated Emissions > 1 GHz | 171 |
| 7.4. Dynamic Frequency Selection Test Set-Up | 172 |
| 8. TEST EQUIPMENT | 173 |
| APPENDIX | 174 |
| A. SUPPORTING INFORMATION..... | 174 |
| A.1. CONDUCTED TEST PLOTS | 174 |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 5 of 432

| | | |
|--------|-----------------------------------|-----|
| A.1.1. | Peak Power Spectral Density | 175 |
| A.1.2. | 26 dB & 99% Bandwidth | 310 |
| A.1.3. | Peak Excursion Ration..... | 418 |

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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>



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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 7 of 432

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 4143A-3 |
| Japan | MIC (Ministry of Internal Affairs and Communication) | CAB | APEC MRA 2 | RCB 210 |
| | VCCI | -- | -- | A-0012 |
| Europe | European Commission | NB | EU MRA | NB 2280 |
| Australia | Australian Communications and Media Authority (ACMA) | CAB | APEC MRA 1 | US0159 |
| Hong Kong | Office of the Telecommunication Authority (OFTA) | CAB | APEC MRA 1 | |
| Korea | Ministry of Information and Communication Radio Research Laboratory (RRL) | CAB | APEC MRA 1 | |
| Singapore | Infocomm Development Authority (IDA) | CAB | APEC MRA 1 | |
| Taiwan | National Communications Commission (NCC) 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

**EU MRA – European Union Mutual Recognition Agreement.

Is a recognition agreement under which test lab is accredited to regulatory standards of the EU member countries.

**NB – Notified Body

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PRODUCT CERTIFICATION

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



American Association for Laboratory Accreditation

Accredited Product Certification Body

A2LA has accredited

MICOM LABS

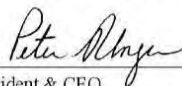
Pleasanton, CA

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

USA Telecommunication Certification Body (TCB) - TCB Identifier – US0159

Industry Canada Certification Body - CAB Identifier – US0159

European Notified Body - Notified Body Identifier - 2280

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 9 of 432

DOCUMENT HISTORY

| Document History | | |
|------------------|-----------------------------|-----------------------------|
| Revision | Date | Comments |
| Draft | | |
| Rev A | 14 th July 2014 | Initial release |
| Rev B | 6 th August 2014 | EUT model number corrected. |
| | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 10 of 432

1. TEST RESULT CERTIFICATE

| | | | |
|---------------|--|------------|---|
| Applicant: | Fluke Networks 6920 Seaway Blvd Everett WA 98203, USA | Tested By: | MiCOM Labs, Inc. 575 Boulder Court Pleasanton California, 94566, USA |
| EUT: | 802.11 a/b/g/n/ac wireless module | Tel: | +1 925 462 0304 |
| Model: | BCM43460 | Fax: | +1 925 462 0306 |
| S/N: | 000E8E38271E | | |
| Test Date(s): | 29th April - 8th July 2014 | Website: | www.micomlabs.com |

| STANDARD(S) | TEST RESULTS |
|-------------------------------------|--------------------|
| FCC 47 CFR Part 15.407 & 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.

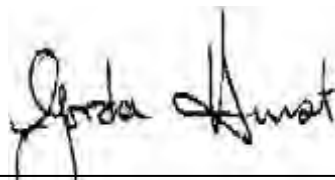
Approved & Released for MiCOM Labs, Inc. by:



TESTING CERT #2381.01



Graeme Grieve
Quality Manager MiCOM Labs,



Gordon Hurst
President & CEO MiCOM Labs, Inc.

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2. REFERENCES AND MEASUREMENT UNCERTAINTY

2.1. Normative References

| Ref. | Publication | Year | Title |
|---------------|--------------------------------|----------------------------|--|
| (i) | FCC 47 CFR Part 15.407 | 2014 | Code of Federal Regulations |
| (ii) | FCC 06-96 | June 2006 | Memorandum Opinion and Order |
| (iii) | FCC OET KDB 662911 | 4 th April 2011 | Emissions Testing of Transmitters with Multiple Outputs in the Same Band |
| (iv) | Industry Canada RSS-210 | 2010 | Low Power License-Exempt Radiocommunication Devices (All Frequency Bands): Category 1 Equipment |
| (v) | Industry Canada RSS-Gen | 2010 | General Requirements and Information for the Certification of Radiocommunication Equipment |
| (vi) | 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 |
| (vii) | CISPR 22/ EN 55022 | 2008 2006+A1:2007 | Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment |
| (viii) | M 3003 | Edition 1 Dec. 1997 | Expression of Uncertainty and Confidence in Measurements |
| (ix) | LAB34 | Edition 1 Aug 2002 | The expression of uncertainty in EMC Testing |
| (x) | 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 |
| (xi) | A2LA | April 2014 | Reference to A2LA Accreditation Status – A2LA Advertising Policy |
| (xii) | FCC Public Notice – DA 02-2138 | 2002 | Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices |



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 12 of 432

2.2. 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.

3. PRODUCT DETAILS AND TEST CONFIGURATIONS

3.1. Technical Details

| Details | Description |
|---|--|
| Purpose: | Test of the Fluke Networks BCM43460 Enterprise Radio module in the frequency ranges 5150 – 5250 MHz; 5,250 - 5,350 MHz and 5,470 – 5,725 MHz to FCC Part 15.407 and Industry Canada RSS-210 regulations. |
| Applicant: | Fluke Networks 6920 Seaway Blvd Everett, WA 98203, USA |
| Manufacturer: | USI Universal Scientific Industry Ltd, Taiwan. |
| Laboratory performing the tests: | MiCOM Labs, Inc. 575 Boulder Court, Pleasanton, California 94566 USA |
| Test report reference number: | FLUK14-U6 Rev B |
| Date EUT received: | 20 th April 2014 |
| Standard(s) applied: | FCC 47 CFR Part 15.407 & IC RSS-210 |
| Dates of test (from - to): | 29th April - 8th July 2014 |
| No of Units Tested: | One |
| Type of Equipment: | 802.11a/b/g/n/ac Wireless module 3x3 MIMO |
| Applicants Trade Name: | Fluke Networks |
| Model(s): | BCM43460 |
| Location for use: | Indoor only |
| Declared Frequency Range(s): | 5150 - 5250 MHz; 5,250 - 5,350 MHz & 5470 – 5725 MHz |
| Hardware Rev | 303 |
| Software Rev | mtool 1.0 |
| Type of Modulation: | Per 802.11 – OFDM |
| EUT Modes of Operation: | 802.11a/n/ac |
| Declared Nominal Output Power: (Average Power) | 5150 – 5250 MHz 802.11a/n/ac: +17 dBm 5250 – 5350 MHz 802.11a/n/ac: +23 dBm 5250 – 5350 MHz 802.11a/n/ac: +23 dBm |
| Transmit/Receive Operation: | Time Division Duplex |
| System Beam Forming: | BCM43460 has no capability for antenna beam forming |
| Rated Input Voltage and Current: | 3.3Vdc 1.5 A |
| Operating Temperature Range: | Declared range 0° to +40°C |
| ITU Emission Designator: | 802.11a 17M1D1D 802.11n HT-20 18M0D1D 802.11n HT-40 36M3D1D 802.11ac-40 36M4D1D 802.11ac-80 75M8D1D |
| Equipment Dimensions: | 29.9mm x 50.8mm x 3.3mm |
| Weight: | Less than 12 grams |
| Primary function of equipment: | Wireless network test |



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 14 of 432

3.2. Scope of Test Program

Fluke Networks BCM43460 RF Testing

The scope of the test program was to test the Fluke Networks BCM43460 Enterprise Radio module, 3x3 Spatial Multiplexing MIMO configurations in the frequency range 5150 – 5250 MHz; 5,250 - 5,350 MHz and 5,470 – 5,725 MHz for compliance against FCC 47 CFR Part 15.407 and Industry Canada RSS-210 specifications.

FCC OET KDB Implementation

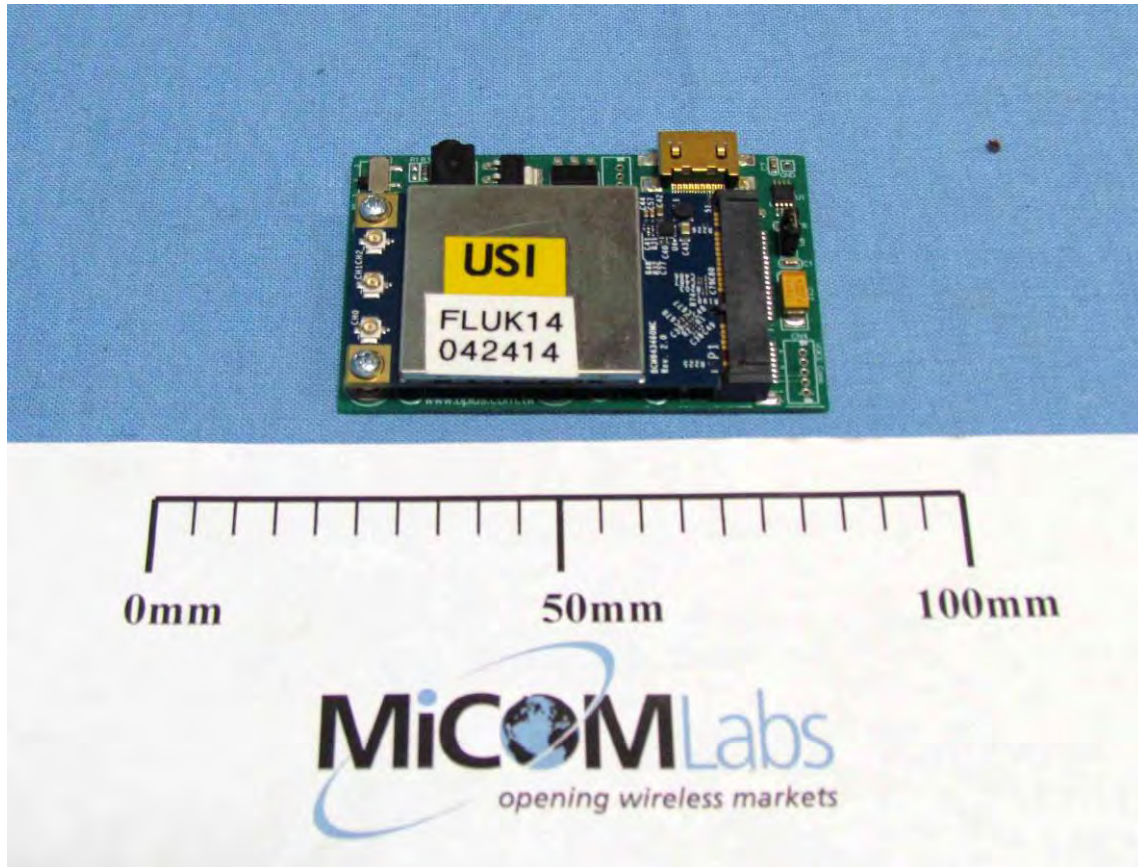
This test program implements the following FCC KDB – 662911 4/4/2011;

Emissions Testing of Transmitters with Multiple Outputs in the Same Band

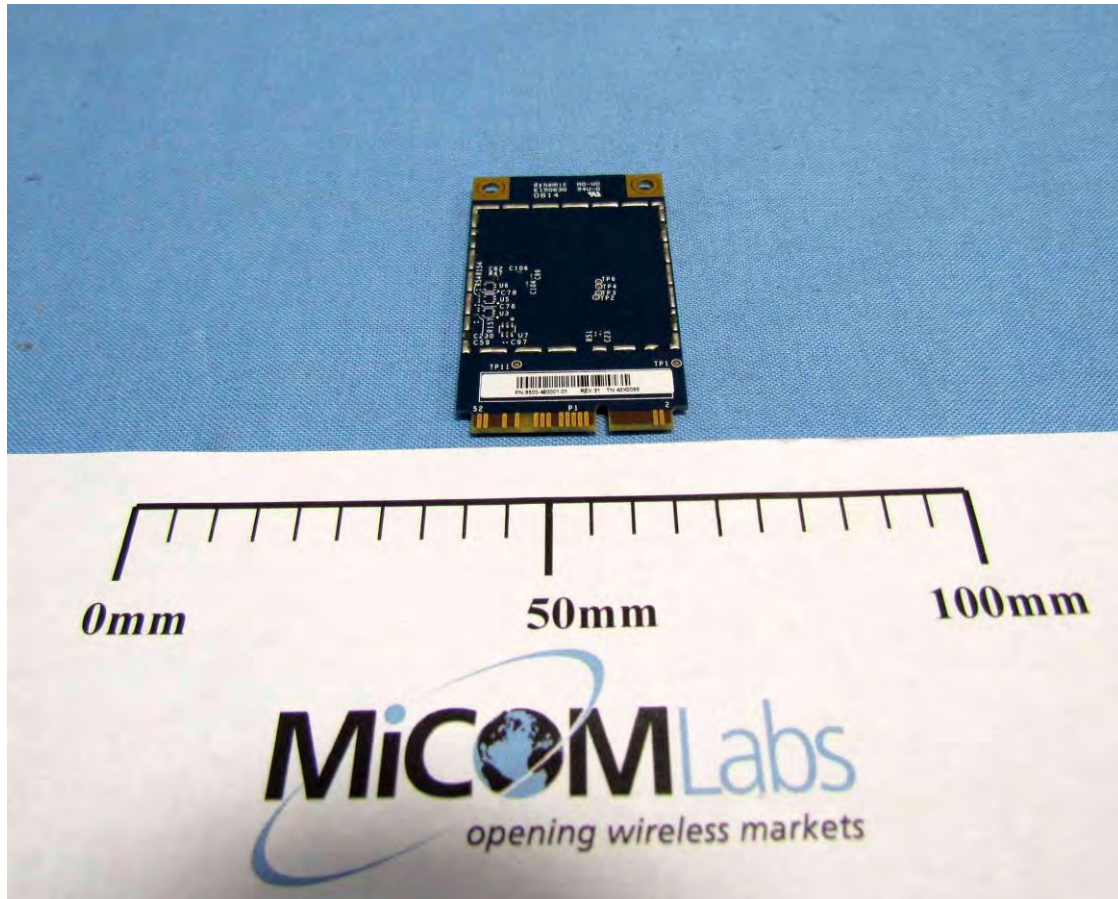
The KDB document provides guidance for measurements of conducted output emissions of devices that employ a single transmitter with multiple outputs in the same band, with the outputs occupying the same or overlapping frequency ranges. It applies to EMC compliance measurements on devices that transmit 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.

Fluke Networks BCM43460 Enterprise Radio module



Fluke Networks BCM43460 Enterprise Radio module





Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 17 of 432

3.3. Equipment Model(s) and Serial Number(s)

| Type (EUT/Support) | Equipment Description (Including Brand Name) | Mfr | Model No. | Serial No. |
|--------------------|--|----------------|-----------|--------------|
| EUT | 802.11 a/b/g/n/ac wireless module | Fluke Networks | BCM43460 | 000E8E38271E |
| Support | Laptop PC | IBM | Thinkpad | None |

3.4. Antenna Details

| Manufacturer | Model | Type | Gain | Freq. Band |
|---------------------|--------------------------|-----------------------------|------|-------------|
| | | | dBi | MHz |
| Ethertronics | M830510 | Chip – Omni (Internal) | 1.1 | 2400 - 2500 |
| | | | 3.2 | 4900 - 5875 |
| Centurion | WTS2450RPS MA | Dipole – Omni (External) | 2.1 | 2400 - 2500 |
| | | | 2.6 | 5150 - 5350 |
| | | | 2.5 | 5470 - 5875 |
| NanoGreen | IP04 | PCB – Omni (Internal) | 0.9 | 2400 - 2500 |
| | | | 3.1 | 5150 - 5350 |
| | | | 4.8 | 5470 - 5875 |
| Wanshih Electric Co | WSS013 Dual Band Antenna | Dipole – Omni (External) | 2.0 | 2400 - 2500 |
| | | | 2.0 | 4900 - 5875 |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 18 of 432

3.5. Cabling and I/O Ports

Number and type of I/O ports

1. Mini PCIe connector
2. RF Antenna Connectors (x3) – UFL

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 19 of 432

3.6. 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.

Matrix of test configurations

| Bands (MHz) | Operational Mode(s) (802.11) | Data Rates with Highest Power | Frequencies (MHz) |
|---|------------------------------|-------------------------------|--|
| 5150 - 5250 5250 - 5350 5470 - 5725 | Legacy | 6 MBit/s | 5180, 5200, 5240 5260, 5300, 5320 5500, 5580, 5700 |
| | HT-20, ac-20 | 6.5 MBit/s | |
| | HT-40, ac-40 | 13.5 MBit/s | 5190, 5230 5270, 5310 5510, 5550, 5670 |
| | ac-80 | 29.3 MBit/s | 5210, 5290, 5530, 5690 |

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Test Configurations (continued)

Spurious Emission and Band-Edge Test Strategy, Bands 5,150 – 5250

| 11a | 11n HT-20 | 11n HT-40 | 11n ac-40 | 11n ac-80 |
|---------|-----------|-----------|-----------|-----------|
| SE 5180 | SE 5180 | SE 5190 | SE 5190 | SE 5210 |
| SE 5200 | SE 5200 | | | |
| SE 5240 | SE 5240 | SE 5230 | SE 5230 | |
| BE 5150 | BE 5150 | BE 5150 | BE 5150 | BE 5150 |

Spurious Emission and Band-Edge Test Strategy, Bands 5,250 – 5250

| 11a | 11n HT-20 | 11n HT-40 | 11n ac-40 | 11n ac-80 |
|---------|-----------|-----------|-----------|-----------|
| SE 5260 | SE 5260 | SE 5270 | SE 5270 | SE 5290 |
| SE 5300 | SE 5300 | | | |
| SE 5320 | SE 5320 | SE 5310 | SE 5310 | |
| BE 5350 | BE 5350 | BE 5350 | BE 5350 | BE 5350 |

Spurious Emission and Band-Edge Test Strategy, Bands 5,470 – 5725

| 11a | 11n HT-20 | 11n HT-40 | 11n ac-40 | 11n ac-80 |
|---------|-----------|-----------|-----------|-----------|
| SE 5500 | SE 5500 | SE 5510 | SE 5510 | SE 5530 |
| SE 5580 | SE 5580 | SE 5550 | SE 5550 | |
| SE 5700 | SE 5700 | SE 5670 | SE 5670 | SE 5690 |
| BE 5470 | BE 5470 | BE 5470 | BE 5470 | BE 5470 |

KEY:-

SE – Spurious Emissions

BE – Band-Edge



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 21 of 432

3.7. Equipment Modifications

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

1. NONE

3.8. Deviations from the Test Standard

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

1. NONE

3.9. Subcontracted Testing or Third Party Data

1. NONE

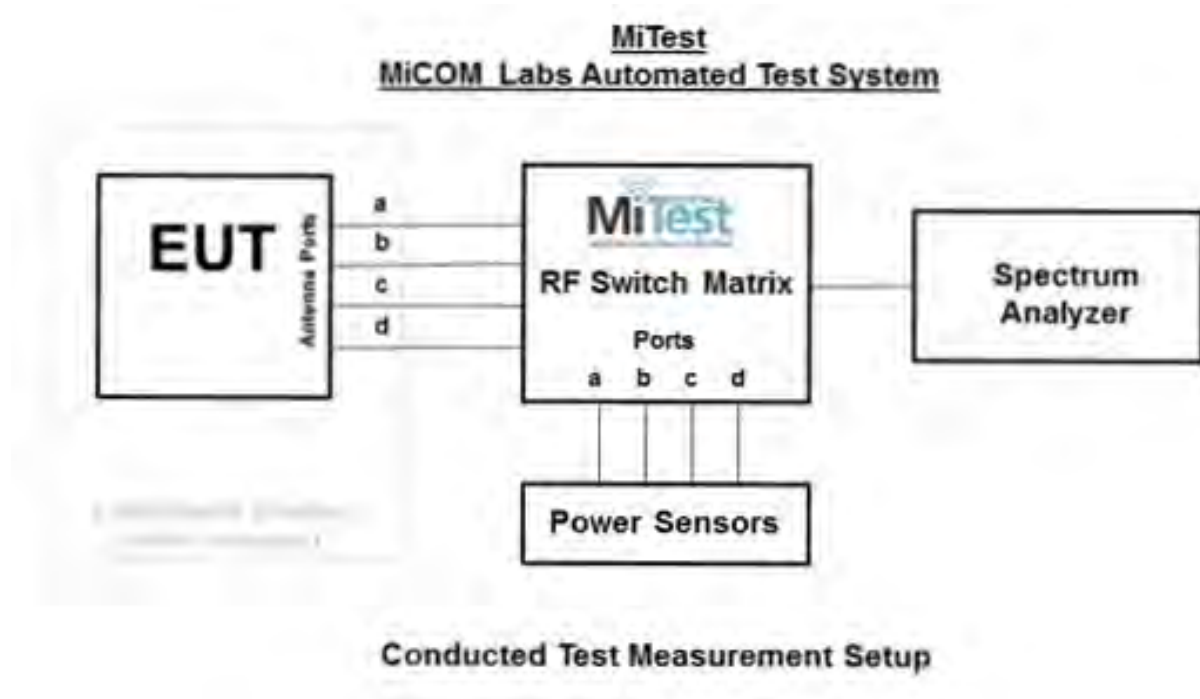
4. TESTING EQUIPMENT CONFIGURATION(S)

4.1. 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. 26 dB and 99% Bandwidth
2. Section 6.1.1.2. Maximum Conducted Output Power
3. Section 6.1.1.3. Peak Power Spectral Density
4. Section 6.1.1.4. Peak Excursion Ratio

Conducted Test Set-Up Pictorial Representation

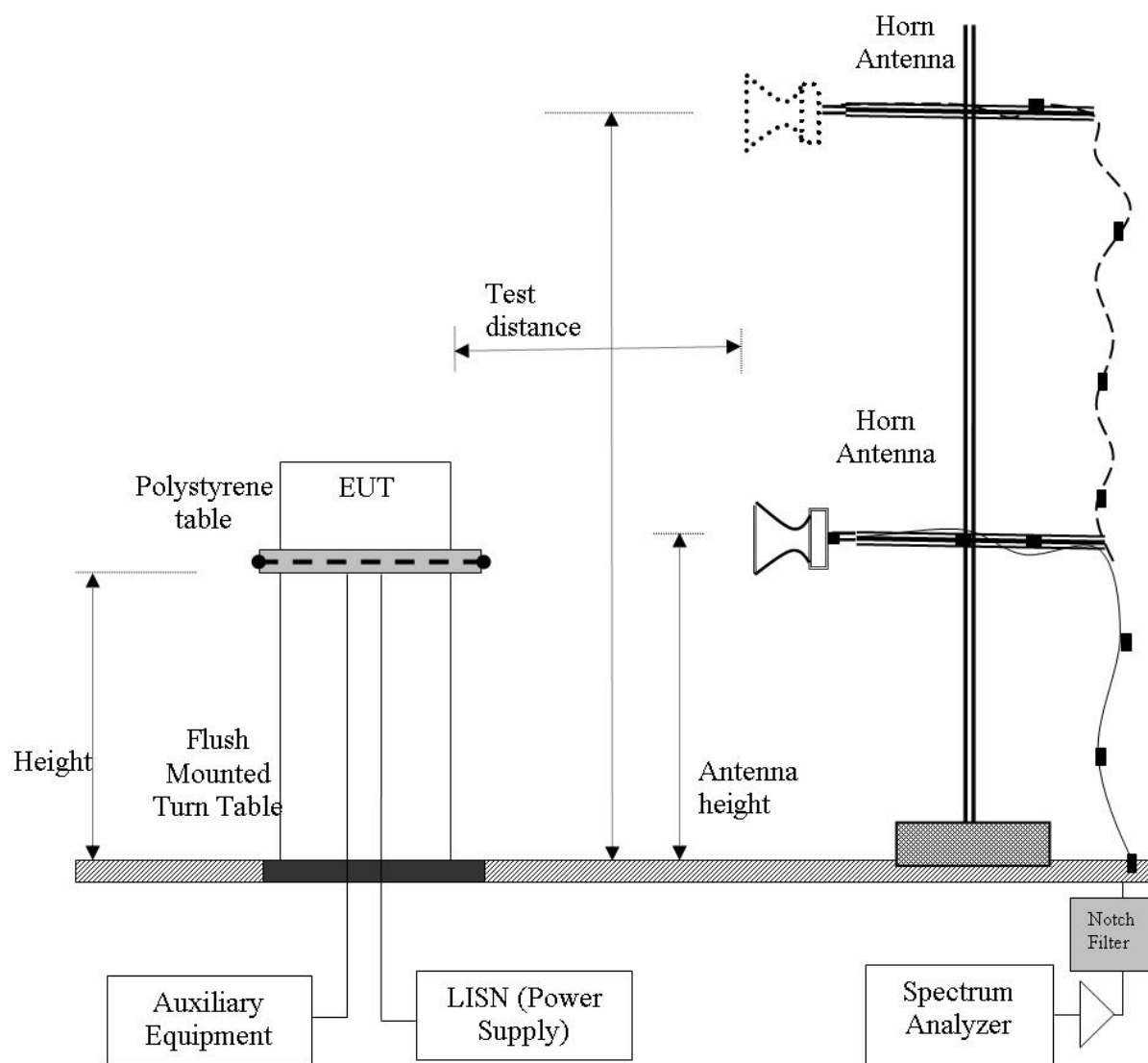


4.2. Radiated Spurious Emission Test Set-up > 1 GHz

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

1. Section 6.1.2.1 through 12

Radiated Emission Measurement Setup – Above 1 GHz

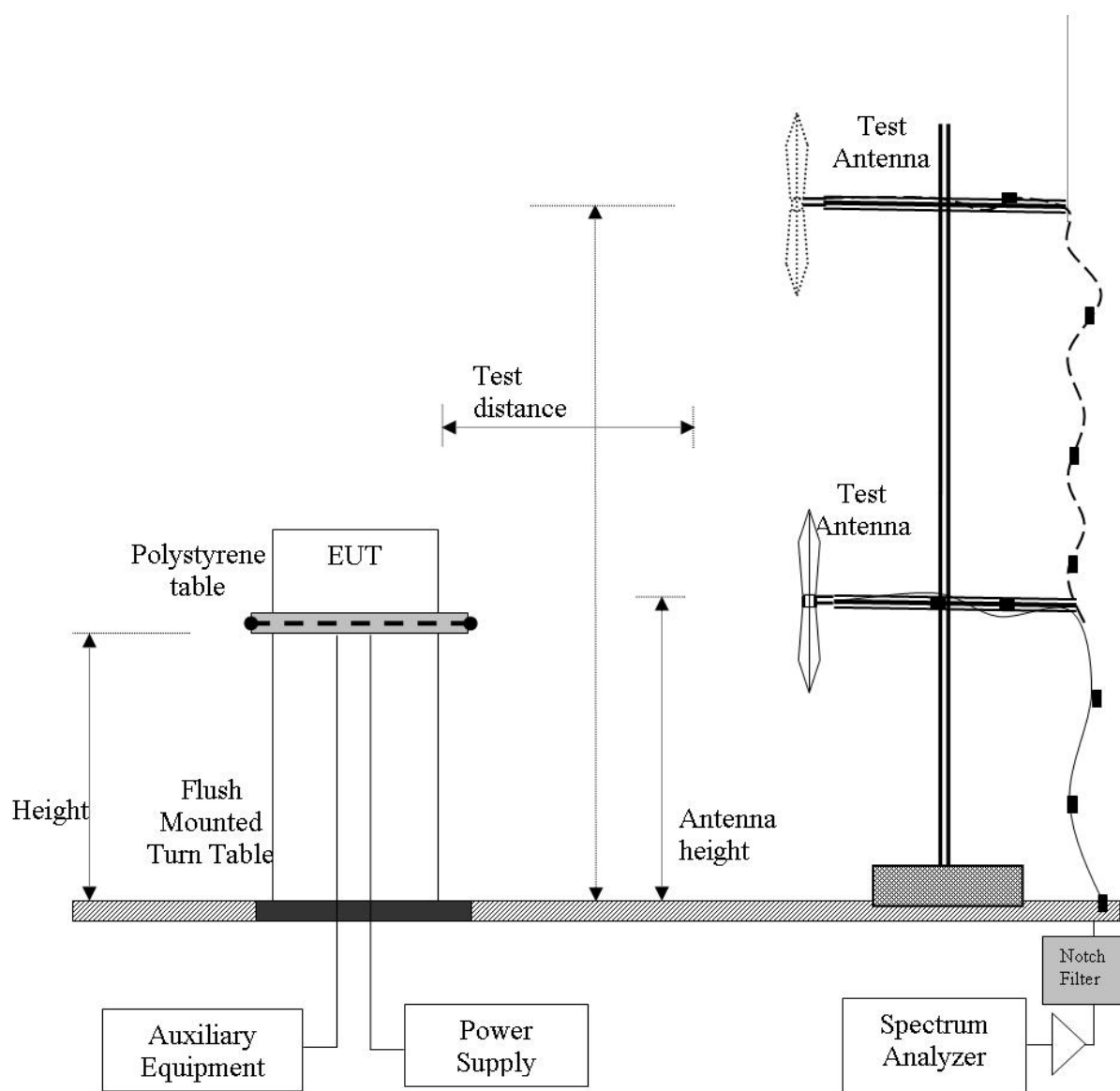


4.3. Digital Emissions Test Set-up (0.03 – 1 GHz)

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

2. Section 6.1.2.13

Digital Emission Measurement Setup – Below 1 GHz



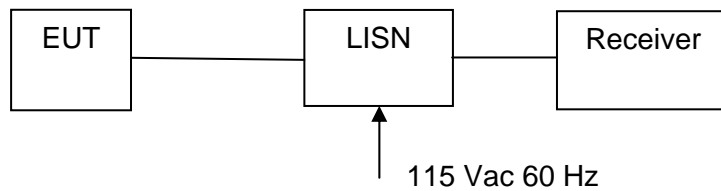
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4.4. ac Wireline Emission Test Set-up

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

1. Section 6.1.3 ac Wireline Conducted Emissions

Conducted Test Set-Up Pictorial Representation



Measurement set up for ac Wireline Conducted Emissions Test



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 26 of 432

5. TEST SUMMARY

List of Measurements

The following table represents the list of measurements required under the **FCC CFR47 Part 15.407** and **Industry Canada RSS-210** and **Industry Canada RSS-Gen**.

| Section(s) | Test Items | Description | Condition | Result | Test Report Section |
|--|--------------------------------|--|-----------------------|----------|---------------------|
| 15.407(a) A9.2(2) 4.6 | Maximum Conducted Output Power | Power Measurement | Conducted | Complies | 6.1.1.2 |
| 15.407(a) A9.2(2) 4.4 | 26dB and 99% Emission BW | Emission bandwidth measurement | Conducted | Complies | 6.1.1.1 A.1.1 |
| 15.407(a) A9.2(2) | Peak Power Spectral Density | PPSD | Conducted | Complies | 6.1.1.3 A.1.2 |
| 15.407(a)(6) | Peak Excursion Ratio | <13dB in any 1MHz bandwidth | Conducted | Complies | 6.1.1.4 A.1.3 |
| 15.407(g) 15.31 2.1 4.5 | Frequency Stability | Limits: contained within band of operation at all times. | Applicant declaration | Complies | 6.1.1.5 |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 27 of 432

List of Measurements (continued)

The following table represents the list of measurements required under the **FCC CFR47 Part 15.407** and **Industry Canada RSS-210** and **Industry Canada RSS-Gen**.

| Section(s) | Test Items | Description | Condition | Result | Test Report Section |
|---|--|------------------------------|-----------|----------|---------------------|
| 15.407(b)(2) 15.205(a) 15.209(a) 2.2 2.6 A9.3(2) 4.7 | Radiated Emissions | | Radiated | | 6.1.2 |
| | Transmitter Radiated Spurious Emissions | Emissions above 1 GHz | | Complies | |
| | Radiated Band Edge | Band edge results | | Complies | |
| 15.407(b)(6) 15.205(a) 15.209(a) 2.2 | Radiated Emissions | Emissions <1 GHz (30M-1 GHz) | | Complies | 6.1.2.4 |
| 15.407(b)(6) 15.207 7.2.2 | AC Wireline Conducted Emissions 150 kHz–30 MHz | Conducted Emissions | Conducted | Complies | 6.1.3 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 28 of 432

List of Measurements (cont'd)

Dynamic Frequency Selection (DFS)

The following table represents the list of measurements required under the **FCC CFR47 Part 15.407(h)(2)** and **FCC Memorandum Opinion and Order FCC 06-96 (Compliance Measurement procedures for Unlicensed National Information Infrastructure devices operating in the 5250-5350 MHz and 5470-5725 MHz bands incorporating dynamic frequency selection)**.

Tests performed on Client Device with no radar detection

| Section | Test Items | Description | Condition | Result | Test Report Section |
|---------|--------------------------------|---|-----------|----------------|---------------------|
| | DFS | Dynamic Frequency Selection | Conducted | Complies | 6.1.4 |
| 7.8.1 | Detection Bandwidth | UNII Detection Bandwidth | Conducted | Not Applicable | |
| 7.8.2.1 | Performance Requirements Check | Initial Channel Availability Check Time | Conducted | Not Applicable | |
| 7.8.2.2 | | Radar Burst at the Beginning of the Channel Availability Check Time | Conducted | Not Applicable | |
| 7.8.2.3 | | Radar Burst at the End of the Channel Availability Check Time | Conducted | Not Applicable | |
| 7.8.3 | In-Service Monitoring | In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period | Conducted | Complies | |
| 7.8.4 | Radar Detection | Statistical Performance Check | Conducted | Not Applicable | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 29 of 432

6. TEST RESULTS

6.1. Device Characteristics

6.1.1. Conducted Testing

6.1.1.1. Maximum Conducted Output Power

| Conducted Test Conditions for Maximum Conducted Output Power | | | |
|---|---|---------------------|-------------|
| Standard: | FCC CFR 47:15.407 | Ambient Temp. (°C): | 24.0 - 27.5 |
| Test Heading: | Maximum Conducted Output Power | Rel. Humidity (%): | 32 - 45 |
| Standard Section(s): | 15.407 (a) | Pressure (mBars): | 999 - 1001 |
| Reference Document(s): | KDB 789033 - D01 DTS General UNII Test Procedures v01 | | |
| Test Procedure for Maximum Conducted Output Power Measurement | | | |
| <u>Method PM (Measurement using an RF average power meter).</u> Section C) 4) of KDB 789033 defines a methodology using an average wideband power meter. Measurements were made while the EUT was operating in a continuous transmission mode (100% duty cycle) at the appropriate center frequency. All cable losses and offsets were taken into consideration in the measured result. All operational modes and frequency bands were measured independently and the resultant calculated. For multiple outputs, the measurements were made simultaneously on each output port and summed in a linear fashion. This technique was used in order to prove compliance. | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 30 of 432

Antenna Beam and Non-Beam Forming Power Levels

15. 407 (a)(1), (a) (2) 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. Further FCC KDB 662911 D01 Multiple Transmitter Output v01 requires that the gain of antennas transmitting the same data (legacy 802.11a mode) must be increased by $10 * \log(N)$ when N is the number of antenna elements.

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 31 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11a | Duty Cycle (%): | 94 |
| Data Rate: | 6 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5180.0 | 10.62 | 11.26 | 10.43 | | 15.56 | 20.441 | 17.00 | -1.44 | |
| 5200.0 | 10.20 | 10.98 | 10.25 | | 15.26 | 20.441 | 17.00 | -1.74 | |
| 5240.0 | 10.24 | 10.96 | 10.10 | | 15.22 | 20.441 | 17.00 | -1.78 | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 32 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5190.0 | 11.32 | 12.34 | 11.43 | | 16.49 | 39.279 | 17.00 | -0.51 | 50.00 |
| 5230.0 | 11.29 | 11.29 | 11.46 | | 16.12 | 39.479 | 17.00 | -0.88 | 50.00 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 33 of 432

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5210.0 | 11.69 | 12.38 | 11.45 | | 16.63 | 80.561 | 17.00 | -0.37 | |
| 50.00 | | | | | | | | | |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 34 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5180.0 | 10.56 | 11.35 | 10.56 | | 15.61 | 20.441 | 17.00 | -1.39 | 48.00 |
| 5200.0 | 10.62 | 11.41 | 10.37 | | 15.59 | 20.541 | 17.00 | -1.41 | 48.00 |
| 5240.0 | 10.36 | 11.36 | 10.61 | | 15.56 | 20.441 | 17.00 | -1.44 | 48.00 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 35 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Post Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5190.0 | 11.30 | 12.23 | 11.34 | | 16.42 | 39.279 | 17.00 | -0.58 | |
| 5230.0 | 11.37 | 12.02 | 11.35 | | 16.37 | 39.279 | 17.00 | -0.63 | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 36 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11a | Duty Cycle (%): | 94 |
| Data Rate: | 6 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5260.0 | 17.83 | 17.89 | 16.96 | | 22.35 | 41.884 | 24.00 | -1.65 | |
| 5300.0 | 17.96 | 17.87 | 17.08 | | 22.43 | 41.583 | 24.00 | -1.57 | |
| 5320.0 | 18.02 | 17.76 | 17.14 | | 22.43 | 40.982 | 24.00 | -1.57 | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 37 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|----------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5270.0 | 18.03 | 18.34 | 17.82 | | 22.84 | 90.581 | 24.00 | -1.16 | |
| 5310.0 | 18.28 | 18.36 | 17.84 | | 22.94 | 91.383 | 24.00 | -1.06 | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 38 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5290.0 | 18.63 | 18.63 | 17.14 | | 22.96 | 195.992 | 24.00 | -1.04 | |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 39 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5260.0 | 19.15 | 17.58 | 17.95 | | 23.05 | 42.385 | 24.00 | -0.95 | |
| 5300.0 | 19.59 | 17.51 | 17.01 | | 22.95 | 44.389 | 24.00 | -1.05 | |
| 5320.0 | 19.75 | 17.58 | 16.99 | | 23.04 | 19.940 | 24.00 | -0.96 | |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 40 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5270.0 | 19.15 | 18.35 | 18.21 | | 23.36 | 45.691 | 24.00 | -0.64 | 84.00 |
| 5310.0 | 19.23 | 18.41 | 18.12 | | 23.39 | 45.691 | 24.00 | -0.61 | 84.00 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 41 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11a | Duty Cycle (%): | 94 |
| Data Rate: | 6 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5500.0 | 17.82 | 17.58 | 18.85 | | 22.89 | 34.369 | 24.00 | -1.11 | 80.00 |
| 5580.0 | 17.24 | 17.49 | 18.09 | | 22.39 | 35.972 | 24.00 | -1.61 | 80.00 |
| 5720.0 | 16.87 | 16.85 | 17.52 | | 21.86 | 36.072 | 24.00 | -2.14 | 80.00 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 42 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5510.0 | 18.20 | 18.44 | 17.62 | | 22.87 | 82.565 | 24.00 | -1.13 | |
| 5550.0 | 17.81 | 18.41 | 17.46 | | 22.68 | 84.970 | 24.00 | -1.32 | |
| 5710.0 | 17.24 | 18.03 | 16.78 | | 22.15 | 82.966 | 24.00 | -1.85 | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 43 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5530.0 | 17.67 | 18.28 | 17.04 | | 22.46 | 177.154 | 24.00 | -1.54 | 82.00 |
| 5690.0 | 16.73 | 17.52 | 16.30 | | 21.65 | 187.174 | 24.00 | -2.35 | 82.00 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 44 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Measurement Results | | | | | | | | | |
|--------------------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5500.0 | 19.29 | 17.22 | 18.75 | | 23.27 | 38.277 | 24.00 | -0.73 | |
| 5580.0 | 18.68 | 17.11 | 18.07 | | 22.77 | 38.377 | 24.00 | -1.23 | |
| 5720.0 | 18.22 | 16.50 | 17.79 | | 22.33 | 37.876 | 24.00 | -1.67 | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 45 of 432

Equipment Configuration for Peak Transmit Power

| | | | |
|--------------------------------|----------------|-------------------------------|------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | N/A |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Conducted Output Power (dBm) | | | | Calculated Total Power | Minimum 26 dB Bandwidth | Limit | Margin | EUT Power Setting |
|----------------|---------------------------------------|-------|-------|---|------------------------|-------------------------|-------|--------|-------------------|
| | Port(s) | | | | | | | | |
| MHz | a | b | c | d | Σ Port(s) dBm | MHz | dBm | dBm | |
| 5510.0 | 18.68 | 18.40 | 18.05 | | 23.16 | 89.379 | 24.00 | -0.84 | |
| 5550.0 | 18.43 | 18.49 | 18.03 | | 23.10 | 88.778 | 24.00 | -0.90 | |
| 5710.0 | 17.83 | 18.15 | 17.32 | | 22.55 | 87.375 | 24.00 | -1.45 | |

Traceability to Industry Recognized Test Methodologies

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

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Antenna Type V's Power Setting

The following **Antenna Types V's Power Setting** tables consolidate the results of all tests performed on the Fluke Networks BCM43460 module to finalize the power setting for each antenna tested;

M830510 Chip Antenna

| Channel | 5150 – 5250 MHz | | | | | 5250 – 5350 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 46 | 48 | 50 | 50 | | 80 | 82 | 84 | 82 | |
| Mid | 46 | 48 | | | 50 | 80 | 80 | | | 60 |
| High | 46 | 48 | 50 | 50 | | 80 | 75 | 63 | 63 | |

| Channel | 5470 – 5725 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 80 | 80 | 75 | 75 | 60 |
| Mid | 80 | 80 | 84 | 82 | |
| High | 80 | 80 | 84 | 82 | 82 |

NANO PCB Antenna

| Channel | 5150 – 5250 MHz | | | | | 5250 – 5350 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 46 | 48 | 48 | 50 | | 80 | 82 | 84 | 82 | |
| Mid | 46 | 48 | | | 50 | 80 | 80 | | | 57 |
| High | 46 | 48 | 50 | 50 | | 74 | 57 | 54 | 70 | |

| Channel | 5470 – 5725 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 66 | 66 | 57 | 62 | 50 |
| Mid | 80 | 80 | 84 | 82 | |
| High | 80 | 80 | 84 | 82 | 82 |



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 47 of 432

WSS013 Antenna

| Channel | 5150 – 5250 MHz | | | | | 5250 – 5350 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 46 | 48 | 50 | 50 | | 80 | 82 | 84 | 82 | |
| Mid | 46 | 48 | | | 50 | 80 | 80 | | | 50 |
| High | 46 | 48 | 50 | 50 | | 74 | 78 | 60 | 60 | |

| Channel | 5470 – 5725 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 80 | 80 | 68 | 68 | 57 |
| Mid | 80 | 80 | 84 | 82 | |
| High | 80 | 80 | 84 | 82 | 82 |

WTS2450RPSMA Antenna

| Channel | 5150 – 5250 MHz | | | | | 5250 – 5350 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 46 | 48 | 50 | 50 | | 80 | 82 | 84 | 82 | |
| Mid | 46 | 48 | | | 50 | 80 | 80 | | | 60 |
| High | 46 | 48 | 50 | 50 | | 78 | 78 | 60 | 78 | |

| Channel | 5470 – 5725 MHz | | | | |
|---------|-----------------|-------|-------|-------|-------|
| | a | HT-20 | HT-40 | ac-40 | ac-80 |
| Low | 80 | 80 | 68 | 68 | 56 |
| Mid | 80 | 80 | 84 | 82 | |
| High | 80 | 80 | 84 | 82 | 82 |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 48 of 432

Specification Limits

FCC, Part 15 §15.407 (a)(1), (a)(2) and Industry Canada RSS-210 § A9.2(2)

(a)(1) For the band 5.15-5.25 GHz the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $+4 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +4 dBm in any 1 megahertz band.

(a)(2) For the 5.25-5.35 and 5470-5725 MHz GHz band the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $+11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +11 dBm in any 1 megahertz band.

Industry Canada RSS-210 §A9.2(2)

For the band 5150-5250 MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the band 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 49 of 432

6.1.1.2. Peak Power Spectral Density

| Conducted Test Conditions for Power Spectral Density | | | |
|---|---|---------------------|-------------|
| Standard: | FCC CFR 47:15.407 | Ambient Temp. (°C): | 24.0 - 27.5 |
| Test Heading: | Power Spectral Density | Rel. Humidity (%): | 32 - 45 |
| Standard Section(s): | 15.247 (a) | Pressure (mBars): | 999 - 1001 |
| Reference Document(s): | KDB 789033 - D01 DTS General UNII Test Procedures v01 | | |
| Test Procedure for Power Spectral Density | | | |
| The In-Band power spectral density was measured using the measure and sum approach per FCC KDB 662911 (D01 Multiple Transmitter Output v01.) | | | |
| <u>Measure and sum the spectra across the outputs.</u> With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The individual spectra are then summed mathematically in linear power units. Unlike in-band power measurements, in which the sum involves a single measured value (output power) from each output, measurements for compliance with PSD limits involve summing entire spectra across corresponding frequency bins on the various outputs. Consistency is maintained for any device with N transmitter outputs to be certain the individual outputs are all aligned with the same span and same number of points. In this instance, the linear power spectrum value within the first spectral bin of output 0 is summed with that in the first spectral bin of output 1, and the first spectral bin of output 2, and so on up to the Nth output to obtain the true value for the first frequency bin of the summed spectrum. The summed spectrum value for each frequency bin is computed in this fashion. These summed spectral values were calculated on a computer, and the results read back into the spectrum analyzer as a data file to produce a representative plot of total spectral power density. | | | |
| <u>NOTE:</u> | | | |
| It may be observed that spectrum in some plots break the limit line however this in itself does NOT constitute a failure. In this case a summation plot for all spectrum plots is provided to prove compliance. A failure occurs only after the summation of all spectrum plots have been summed and are found to be greater than the limit line. | | | |
| <u>Supporting Information</u> | | | |
| Calculated Power = A + 10 log (1/x) dBm | | | |
| A = Total Power Spectral Density [10 Log10 (10a/10 + 10 b/10 + 10c/10 + 10d/10)] | | | |
| x = Duty Cycle | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 50 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|------------------------|------------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5180.0 | -0.923 | -0.136 | -0.668 | | 3.200 | 4.0 | -0.8 |
| 5200.0 | -1.224 | -0.081 | -0.856 | | 3.275 | 4.0 | -0.7 |
| 5240.0 | -0.415 | -1.005 | -1.517 | | 3.139 | 4.0 | -0.9 |

| 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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 51 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 93.9 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|------------------------|------------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5190.0 | -1.977 | -1.060 | -1.768 | | 2.750 | 4.0 | -1.3 |
| 5230.0 | -2.558 | -1.362 | -2.383 | | 2.032 | 4.0 | -2.0 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 52 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 83.8 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|------------------------|------------------------|---|------------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5210.0 | -5.378 | -4.445 | -5.431 | | -1.535 | 4.0 | -5.5 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 53 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 94.5 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|------------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5180.0 | -0.994 | 0.133 | -0.745 | | 3.362 | 4.0 | -0.6 |
| 5200.0 | -1.035 | 0.056 | -0.780 | | 3.073 | 4.0 | -0.9 |
| 5240.0 | -0.882 | 0.039 | -1.171 | | 3.247 | 4.0 | -0.8 |

| 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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 54 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 86.6 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|------------------------|------------------------|---|------------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5190.0 | -2.881 | -1.974 | -3.338 | | 1.227 | 4.0 | -2.8 |
| 5230.0 | -4.263 | -3.219 | -4.158 | | -0.553 | 4.0 | -4.6 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 55 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|------------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5260.0 | 6.909 | 6.864 | 6.067 | | 10.378 | 11.0 | -0.6 |
| 5300.0 | 6.735 | 6.906 | 5.717 | | 9.888 | 11.0 | -1.1 |
| 5320.0 | 6.502 | 6.542 | 6.087 | | 10.309 | 11.0 | -0.7 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 56 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 93.9 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5270.0 | 4.506 | 4.773 | 4.011 | | 8.597 | 11.0 | -2.4 |
| 5310.0 | 4.597 | 4.641 | 3.969 | | 8.685 | 11.0 | -2.3 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 57 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 83.8 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-------|--------|---|---------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5290.0 | 1.250 | 1.168 | -0.290 | | 4.117 | 11.0 | -6.9 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 58 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 94.5 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|------------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5260.0 | 7.458 | 6.058 | 6.436 | | 10.175 | 11.0 | -0.8 |
| 5300.0 | 8.559 | 6.326 | 6.267 | | 10.813 | 11.0 | -0.2 |
| 5320.0 | 7.847 | 6.708 | 5.126 | | 10.730 | 11.0 | -0.3 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 59 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 86.6 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5270.0 | 3.249 | 4.326 | 2.685 | | 6.483 | 11.0 | -4.5 |
| 5310.0 | 3.919 | 3.116 | 2.504 | | 6.521 | 11.0 | -4.5 |

| 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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 60 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|------------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5500.0 | 6.664 | 6.183 | 7.629 | | 10.455 | 11.0 | -0.5 |
| 5580.0 | 6.293 | 7.016 | 6.746 | | 10.607 | 11.0 | -0.4 |
| 5720.0 | 6.046 | 6.150 | 6.669 | | 9.557 | 11.0 | -1.4 |

| 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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 61 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 93.9 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5510.0 | 4.421 | 4.937 | 4.084 | | 8.619 | 11.0 | -2.4 |
| 5550.0 | 3.914 | 4.436 | 3.745 | | 8.366 | 11.0 | -2.6 |
| 5710.0 | 3.103 | 4.109 | 3.277 | | 7.615 | 11.0 | -3.4 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 62 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 83.8 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|------------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5530.0 | 0.612 | 1.313 | -0.005 | | 4.150 | 11.0 | -6.9 |
| 5690.0 | -0.559 | 0.172 | -0.927 | | 2.986 | 11.0 | -8.0 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 63 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 94.5 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|------------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5500.0 | 7.697 | 6.229 | 8.138 | | 10.843 | 11.0 | -0.2 |
| 5580.0 | 7.509 | 6.036 | 6.506 | | 10.853 | 11.0 | -0.1 |
| 5720.0 | 7.128 | 5.059 | 6.228 | | 10.055 | 11.0 | -0.9 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 64 of 432

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

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 86.6 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | 2.00 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | |
|--------------------------|---------------------------------|-----------------------|-----------------------|---|-----------------------|---------|--------|
| Test Frequency | Measured Power Spectral Density | | | | Amplitude Summation | Limit | Margin |
| | Port(s) (dBm/MHz) | | | | | | |
| MHz | a | b | c | d | dBm/MHz | dBm/MHz | dB |
| 5510.0 | 3.141 | 3.207 | 3.931 | | 6.675 | 11.0 | -4.3 |
| 5550.0 | 2.511 | 3.009 | 2.739 | | 6.002 | 11.0 | -5.0 |
| 5710.0 | 2.558 | 3.001 | 2.437 | | 6.004 | 11.0 | -5.0 |

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 65 of 432

Specification

FCC, Part 15 §15.407 (a)(1), (a)(2)
5150 – 5250 MHz

(a)(1) The peak power spectral density shall not exceed +4 dBm in any 1 megahertz band.

5250 – 5350 MHz & 5470 – 5725 MHz

(a)(2) The peak power spectral density shall not exceed +11 dBm in any 1 megahertz band.

Industry Canada RSS-210 § A9.2(1), A9.2(2)
5150 – 5250 MHz

§ **A9.2(1)** The eirp spectral density shall not exceed +10 dBm in any 1 MHz band

5250 – 5350 MHz & 5470 – 5725 MHz

§ **A9.2(2)** The power spectral density shall not exceed +11 dBm in any 1 MHz band

Traceability

| Test Equipment Used |
|---------------------|
|---------------------|

| |
|--|
| 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117 |
|--|

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 66 of 432

6.1.1.3. 26 dB and 99 % Bandwidth

| Conducted Test Conditions for 26 dB and 99% Bandwidth | | | |
|---|---|---------------------|-------------|
| Standard: | FCC CFR 47:15.407 | Ambient Temp. (°C): | 24.0 - 27.5 |
| Test Heading: | 26 dB and 99 % Bandwidth | Rel. Humidity (%): | 32 - 45 |
| Standard Section(s): | 15.407 (a) | Pressure (mBars): | 999 - 1001 |
| Reference Document(s): | KDB 789033 - D01 DTS General UNII Test Procedures v01 | | |
| Test Procedure for 26 dB and 99% Bandwidth Measurement | | | |
| The bandwidth at 26 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. KDB 789033 Section 5.1 Emission Bandwidth was used in order to prove compliance. The Resolution Bandwidth was set to approximately 1% of the emission bandwidth. | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 67 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5180.0 | 20.641 | 20.441 | 20.441 | | 20.641 | 20.441 | | |
| 5200.0 | 20.441 | 20.541 | 20.441 | | 20.541 | 20.441 | | |
| 5240.0 | 20.641 | 20.441 | 20.441 | | 20.641 | 20.441 | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5180.0 | 17.836 | 17.635 | 17.735 | | 17.836 | 17.635 | | |
| 5200.0 | 17.836 | 17.735 | 17.836 | | 17.836 | 17.735 | | |
| 5240.0 | 17.836 | 17.735 | 17.836 | | 17.836 | 17.735 | | |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 68 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5190.0 | 39.679 | 39.279 | 39.479 | | 39.679 | 39.279 | | |
| 5230.0 | 39.679 | 39.479 | 39.479 | | 39.679 | 39.479 | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5190.0 | 36.273 | 36.273 | 36.273 | | 36.273 | 36.273 | | |
| 5230.0 | 36.273 | 36.273 | 36.273 | | 36.273 | 36.273 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 69 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5210.0 | 80.962 | 80.561 | 80.561 | | 80.962 | 80.561 | | |
| | | | | | | | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5210.0 | 75.752 | 75.752 | 75.752 | | 75.752 | 75.752 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 70 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5180.0 | 20.541 | 20.441 | 20.441 | | 20.541 | 20.441 | | |
| 5200.0 | 20.641 | 20.541 | 20.541 | | 20.641 | 20.541 | | |
| 5240.0 | 20.541 | 20.441 | 20.441 | | 20.541 | 20.441 | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5180.0 | 17.836 | 17.735 | 17.735 | | 17.836 | 17.735 | | |
| 5200.0 | 17.836 | 17.735 | 17.735 | | 17.836 | 17.735 | | |
| 5240.0 | 17.836 | 17.735 | 17.735 | | 17.836 | 17.735 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 71 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5190.0 | 39.479 | 39.279 | 39.479 | | 39.479 | 39.279 | | |
| 5230.0 | 39.679 | 39.279 | 39.279 | | 39.679 | 39.279 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
|----------------|------------------------------|------------------------|------------------------|---|---------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5190.0 | 36.273 | 36.273 | 36.273 | | 36.273 | 36.273 | | |
| 5230.0 | 36.273 | 36.273 | 36.273 | | 36.273 | 36.273 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 72 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5260.0 | 44.188 | 44.389 | 41.884 | | 44.389 | 41.884 | | |
| 5300.0 | 43.587 | 43.487 | 41.583 | | 43.587 | 41.583 | | |
| 5320.0 | 42.285 | 41.784 | 40.982 | | 42.285 | 40.982 | | |
| | | | | | | | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5260.0 | 28.557 | 27.555 | 26.954 | | 28.557 | 26.954 | | |
| 5300.0 | 27.555 | 26.954 | 25.852 | | 27.555 | 25.852 | | |
| 5320.0 | 27.355 | 26.453 | 26.653 | | 27.355 | 26.453 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 73 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5270.0 | 93.788 | 90.581 | 92.385 | | 93.788 | 90.581 | | |
| 5310.0 | 92.385 | 91.383 | 92.786 | | 92.786 | 91.383 | | |
| | | | | | | | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5270.0 | 65.932 | 64.729 | 64.930 | | 65.932 | 64.729 | | |
| 5310.0 | 65.331 | 63.928 | 64.128 | | 65.331 | 63.928 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 74 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|-------------------------|-------------------------|---|-----------------------|---------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5290.0 | 195.992 | 195.992 | 195.992 | | 195.992 | 195.992 | | |
| | | | | | | | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5290.0 | 127.455 | 121.042 | 107.014 | | 127.455 | 107.014 | | |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 75 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5260.0 | 43.988 | 43.487 | 42.385 | | 43.988 | 42.385 | | |
| 5300.0 | 43.487 | 41.884 | 41.683 | | 43.487 | 41.683 | | |
| 5320.0 | 41.884 | 43.788 | 42.986 | | 43.788 | 41.884 | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5260.0 | 27.956 | 27.555 | 27.154 | | 27.956 | 27.154 | | |
| 5300.0 | 25.651 | 26.152 | 25.752 | | 26.152 | 25.651 | | |
| 5320.0 | 25.952 | 27.054 | 26.353 | | 27.054 | 25.952 | | |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 76 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5270.0 | 91.383 | 92.585 | 89.178 | | 92.585 | 89.178 | | |
| 5310.0 | 89.178 | 90.581 | 87.976 | | 90.581 | 87.976 | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5270.0 | 63.327 | 63.727 | 63.727 | | 63.727 | 63.327 | | |
| 5310.0 | 62.725 | 62.525 | 62.124 | | 62.725 | 62.124 | | |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 77 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5500.0 | 35.972 | 34.369 | 38.577 | | 38.577 | 34.369 | | |
| 5580.0 | 36.072 | 35.972 | 38.778 | | 38.778 | 35.972 | | |
| 5720.0 | 36.072 | 36.072 | 37.776 | | 37.776 | 36.072 | | |
| | | | | | | | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5500.0 | 21.643 | 21.042 | 28.156 | | 28.156 | 21.042 | | |
| 5580.0 | 21.944 | 20.541 | 28.056 | | 28.056 | 20.541 | | |
| 5720.0 | 22.144 | 21.443 | 27.255 | | 27.255 | 21.443 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 78 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5510.0 | 86.774 | 88.176 | 82.565 | | 88.176 | 82.565 | | |
| 5550.0 | 86.573 | 90.982 | 84.970 | | 90.982 | 84.970 | | |
| 5710.0 | 84.569 | 84.970 | 82.966 | | 84.970 | 82.966 | | |
| | | | | | | | | |
| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5510.0 | 61.924 | 64.329 | 58.517 | | 64.329 | 58.517 | | |
| 5550.0 | 61.723 | 64.329 | 58.918 | | 64.329 | 58.918 | | |
| 5710.0 | 58.717 | 62.325 | 57.515 | | 62.325 | 57.515 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 79 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|-------------------------|-------------------------|---|-----------------------|---------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5530.0 | 195.992 | 195.992 | 177.154 | | 195.992 | 177.154 | | |
| 5690.0 | 187.174 | 187.174 | 187.174 | | 187.174 | 187.174 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
|----------------|------------------------------|-------------------------|------------------------|---|---------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5530.0 | 104.609 | 111.824 | 96.994 | | 111.824 | 96.994 | | |
| 5690.0 | 95.391 | 105.010 | 93.788 | | 105.010 | 93.788 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 80 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5500.0 | 46.593 | 38.277 | 43.687 | | 46.593 | 38.277 | | |
| 5580.0 | 45.992 | 38.377 | 44.790 | | 45.992 | 38.377 | | |
| 5720.0 | 45.291 | 37.876 | 44.489 | | 45.291 | 37.876 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
|----------------|------------------------------|------------------------|------------------------|---|---------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5500.0 | 31.663 | 24.048 | 30.661 | | 31.663 | 24.048 | | |
| 5580.0 | 30.962 | 23.347 | 30.862 | | 30.962 | 23.347 | | |
| 5720.0 | 30.661 | 23.246 | 30.261 | | 30.661 | 23.246 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 81 of 432

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured 26 dB Bandwidth (MHz) | | | | 26 dB Bandwidth (MHz) | | | |
|----------------|--------------------------------|------------------------|------------------------|---|-----------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5510.0 | 91.182 | 91.182 | 89.379 | | 91.182 | 89.379 | | |
| 5550.0 | 91.784 | 88.778 | 89.379 | | 91.784 | 88.778 | | |
| 5710.0 | 89.780 | 87.375 | 89.780 | | 89.780 | 87.375 | | |

| Test Frequency | Measured 99% Bandwidth (MHz) | | | | 99% Bandwidth (MHz) | | | |
|----------------|------------------------------|------------------------|------------------------|---|---------------------|--------|--|--|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | | |
| 5510.0 | 66.733 | 65.731 | 66.132 | | 66.733 | 65.731 | | |
| 5550.0 | 65.731 | 65.731 | 65.331 | | 65.731 | 65.331 | | |
| 5710.0 | 64.729 | 65.731 | 64.729 | | 65.731 | 64.729 | | |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 82 of 432

Specification

Limits

FCC, Part 15 §15.407 (a)(1), (a)(2) and Industry Canada RSS-210 § A9.2(2)

(a)(1) For the band 5.15-5.25 GHz the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $+4 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +4 dBm in any 1 megahertz band.

(a)(2) For the 5.25-5.35 GHz band the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $+11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed +11 dBm in any 1 megahertz band.

Industry Canada RSS-Gen 4.4

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.

Traceability

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



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 83 of 432

6.1.1.4. Peak Excursion Ratio

| Conducted Test Conditions for Peak Excursion Ratio | | | |
|---|---|---------------------|-------------|
| Standard: | FCC CFR 47:15.407 | Ambient Temp. (°C): | 24.0 - 27.5 |
| Test Heading: | Peak Excursion Ratio | Rel. Humidity (%): | 32 - 45 |
| Standard Section(s): | 15.407 (a)(6) | Pressure (mBars): | 999 - 1001 |
| Reference Document(s): | KDB 789033 - D01 DTS General UNII Test Procedures v01 | | |
| Test Procedure for Peak Excursion Ratio | | | |
| Compliance with the peak excursion requirement is demonstrated by confirming the ratio of the maximum of the peak-hold spectrum to the maximum of the average spectrum during continuous transmission. Section F) of KDB 789033 was used in order to prove compliance. This is a conducted measurement using a spectrum analyzer using dual traces. Peak Excursion Ratio is the difference in amplitude (dB) between both traces; The following identifies two spectrum traces on the same plot. <u>Trace 1</u> is the max hold Peak detector, and <u>Trace 2</u> is the recalled trace data from Peak Power Spectral Density measurements. Each frequency and operational mode is recalled in order to prove compliance. | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 84 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | dB | MHz |
| 5180.0 | 9.72 | | | | 9.72 | 9.72 | 13.0 | -3.28 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 85 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5190.0 | 9.53 | | | | 9.53 | 9.53 | 13.0 | -3.47 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 86 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5180.0 | 9.83 | | | | 9.83 | 9.83 | 13.0 | -3.17 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 87 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5190.0 | 10.53 | | | | 10.53 | 10.53 | 13.0 | -2.47 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 88 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | dB | MHz |
| 5260.0 | 9.44 | | | | 9.44 | 9.44 | 13.0 | -3.56 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 89 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

| Test Measurement Results | | | | | | | | |
|--------------------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
| | Port(s) | | | | | | | |
| MHz | a | b | c | d | Highest | Lowest | dB | MHz |
| 5270.0 | 9.31 | | | | 9.31 | 9.31 | 13.0 | -3.69 |

| 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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 90 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5290.0 | 9.70 | | | | 9.70 | 9.70 | 13.0 | -3.30 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 91 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5260.0 | 10.46 | | | | 10.46 | 10.46 | 13.0 | -2.54 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 92 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5270.0 | 12.43 | | | | 12.43 | 12.43 | 13.0 | -0.57 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 93 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11a | 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: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5500.0 | 9.85 | | | | 9.85 | 9.85 | 13.0 | -3.15 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 94 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-40 | Duty Cycle (%): | 94 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5510.0 | 9.41 | | | | 9.41 | 9.41 | 13.0 | -3.59 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 95 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11ac-80 | Duty Cycle (%): | 84 |
| Data Rate: | 29.3 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5530.0 | 9.37 | | | | 9.37 | 9.37 | 13.0 | -3.63 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 96 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-20 | Duty Cycle (%): | 95 |
| Data Rate: | 6.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | | |
| MHz | a | b | c | d | | | dB | MHz |
| 5500.0 | 10.60 | | | | 10.60 | 10.60 | 13.0 | -2.40 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 97 of 432

Equipment Configuration for Peak Excursion Ratio

| | | | |
|--------------------------------|----------------|-------------------------------|----------------|
| Variant: | 802.11n HT-40 | Duty Cycle (%): | 87 |
| Data Rate: | 13.5 MBit/s | Antenna Gain (dBi): | Not Applicable |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | CC |
| Engineering Test Notes: | | | |

Test Measurement Results

| Test Frequency | Measured Peak Excursion (dB) | | | | Ratio (dB) | | Limit | Lowest Margin |
|----------------|------------------------------|---|---|---|------------|--------|-------|---------------|
| | Port(s) | | | | Highest | Lowest | dB | MHz |
| MHz | a | b | c | d | | | | |
| 5510.0 | 12.12 | | | | 12.12 | 12.12 | 13.0 | -0.88 |

Traceability to Industry Recognized Test Methodologies

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

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 98 of 432

Specification

Limits

§15.407 (a)(6) The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified in this paragraph) shall not exceed 13dB across any 1MHz bandwidth or the emission bandwidth whichever is less

Traceability

| Test Equipment Used |
|---------------------|
|---------------------|

| |
|--|
| 0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117 |
|--|

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 99 of 432

6.1.1.5. Frequency Stability

FCC, Part 15 Subpart C §15.407(g)
Industry Canada RSS-210 §2.1

Test Procedure

The manufacturer of the equipment is responsible for ensuring that the frequency stability is such that emissions are always maintained within the band of operation under all conditions.

Manufacturer Declaration

The frequency stability of the reference oscillator sets the frequency stability of the RF transceiver signals. Therefore all of the RF signals should have ± 20 ppm stability.

This stability accounts for room temp tolerance of the crystal oscillator circuit, frequency variation across temperature, and crystal ageing.

± 20 ppm at 5.250 GHz translates to a maximum frequency shift of ± 105 KHz. As the edge of the channels is at least one MHz from either of the band edges, ± 105 KHz is more than sufficient to guarantee that the intentional emission will remain in the band over the entire operating range of the EUT.

Specification

Limits

§15.407 (g) Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 100 of 432

6.1.2. Radiated Emission Testing

FCC, Part 15 Subpart C §15.407(b)(2), §15.205(a)/15.209(a)
Industry Canada RSS-210 §A9.3(2); §2.2; §2.6; RSS-Gen §4.7

Test Procedure

Testing was performed in a 3-meter anechoic chamber. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. Preliminary emissions were recorded with in Spectrum Analyzer mode, using a maximum peak detector while in peak hold mode. Depending on the frequency band spanned a notch filter and/or waveguide filter was used to remove the fundamental frequency.

Emissions nearest the limits were chosen for maximization and formal measurement using a CISPR compliant receiver. Emissions above 1000 MHz are measured utilizing a CISPR compliant average detector with a tuned receiver, using a bandwidth of 1 MHz. Emissions from 30 MHz – 1000 MHz are measured utilizing a CISPR compliant quasi-peak detector with a tuned receiver, using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed.

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.

$$FS = R + AF + CORR - FO$$

FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor

$$CORR = \text{Correction Factor} = CL - AG + NFL$$

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss or Waveguide Loss

Field Strength Calculation Example:

Given receiver input reading of 51.5 dB μ V; 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:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3 \text{ dB}\mu\text{V/m}$$

Conversion between dB μ V/m (or dB μ V) and μ V/m (or μ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log (level (\mu V/m))}$$

$$40 \text{ dB}\mu\text{V/m} = 100 \mu\text{V/m}$$

$$48 \text{ dB}\mu\text{V/m} = 250 \mu\text{V/m}$$

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 101 of 432

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

$$E = 1000000 \times \sqrt{30P} / 3 \text{ } \mu\text{V/m}$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz = 68.23 dBμV/m

Note: The data in this Section identifies that the EUT is in compliance with the -27dBm/MHz EIRP limit (68.23 dBμV/m) for out of band emissions. All out of band emissions are less than 68.23 dB μV/m.

Specification

Radiated Spurious Emissions

15.407 (b)(2). All emissions outside of the 5,150-5,350MHz band shall not exceed an EIRP of -27dBm/MHz.

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.

RSS-210 §A9.3(2) For transmitters operating in the 5250-5350 MHz band, all emissions outside the 5150-5350 MHz band shall not exceed -27 dBm/MHz e.i.r.p. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band shall not exceed out of band emission limit of 27 dBm/MHz e.i.r.p. in the 5150-5250 MHz band in order to operate indoor/outdoor, or alternatively shall comply with the spectral power density for operation within the 5150-5250 MHz band and shall be labeled "for indoor use only".

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 5th harmonic of the highest frequency generated without exceeding 40 GHz.

RSS-Gen §6 Receiver Spurious Emission Standard

If a radiated measurement is made, all spurious emissions shall comply with the limits of the following Table. The resolution bandwidth of the spectrum analyzer shall be 100 kHz for spurious emission measurements below 1.0 GHz and 1.0 MHz for measurements above 1.0 GHz



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 103 of 432

Table 1: FCC 15.209 Spurious Emissions Limits

| Frequency (MHz) | Field Strength ($\mu\text{V/m}$) | Field Strength ($\text{dB}\mu\text{V/m}$) | 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 |

Traceability:

| Test Equipment Used |
|--|
| 0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312 |

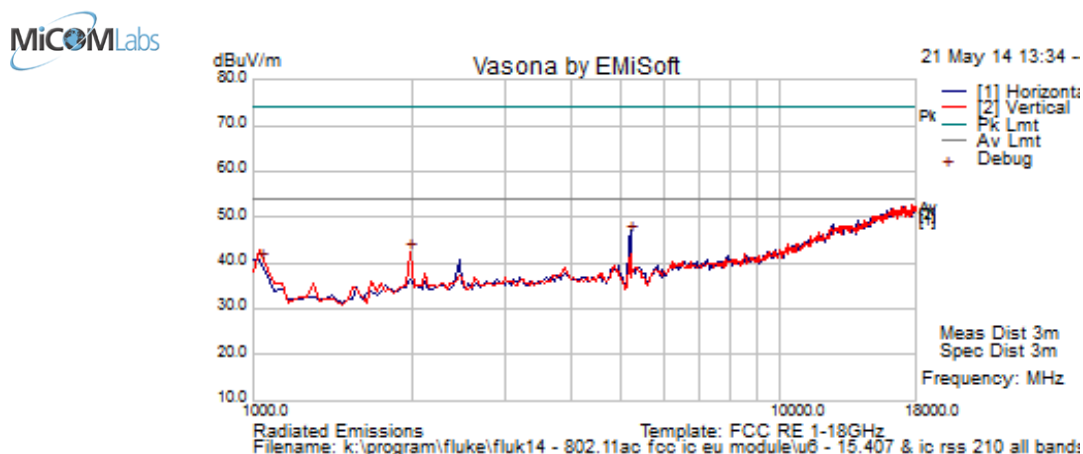
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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 104 of 432

6.1.2.1. M830510 Chip antenna – Spurious and Band-Edge Emissions

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5180 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 46 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

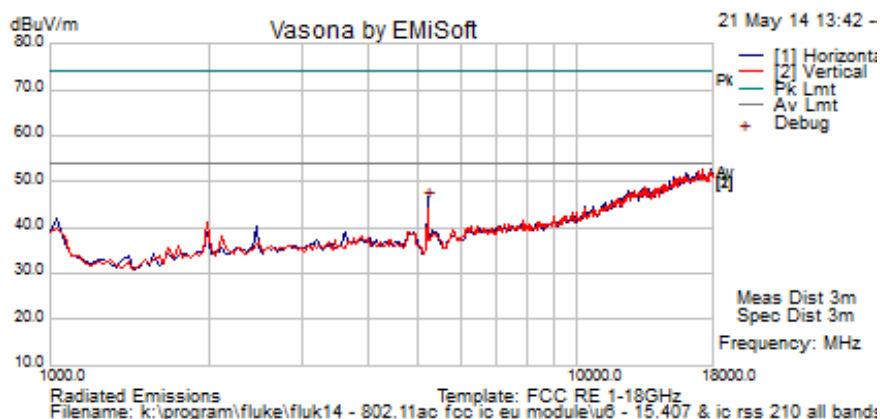
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5174.792 | 42.4 | 5.9 | -2.4 | 45.9 | Peak [Scan] | H | 98 | | | | | FUND |
| 1039.791 | 46.9 | 2.5 | -9.4 | 40.1 | Peak [Scan] | V | 98 | 361 | 54.0 | -13.9 | Pass | RB |
| 1987.247 | 44.7 | 3.5 | -6.1 | 42.2 | Peak [Scan] | V | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 105 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5200 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 46 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

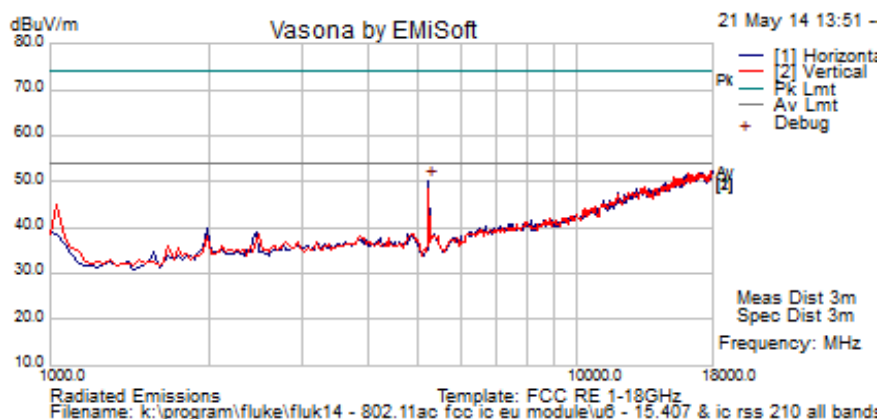
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5187.735 | 42.2 | 5.9 | -2.3 | 45.7 | Peak [Scan] | V | 98 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 106 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5240 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 46 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

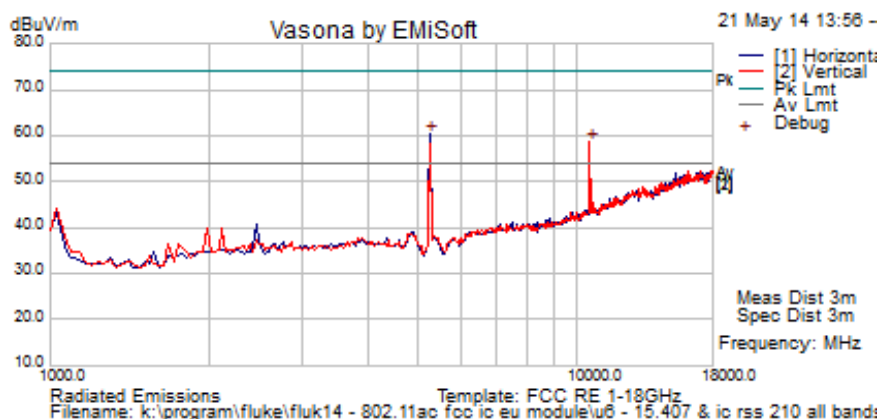
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5224.449 | 46.6 | 5.9 | -2.3 | 50.2 | Peak [Scan] | H | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 107 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5260 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

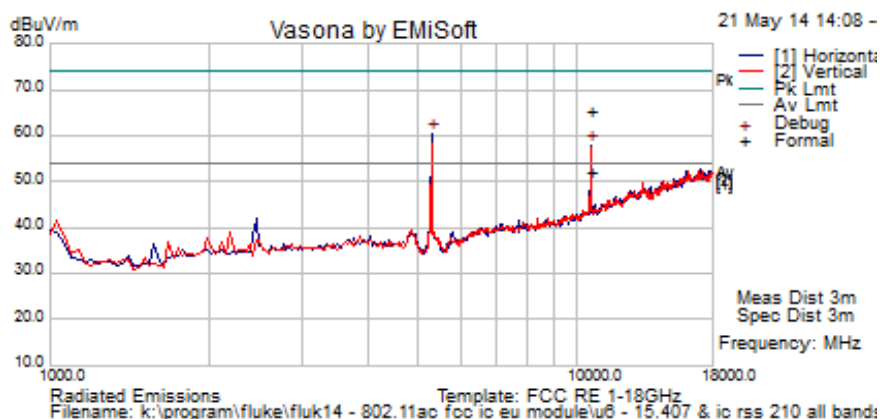
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5258.517 | 56.7 | 5.9 | -2.2 | 60.4 | Peak [Scan] | H | 150 | | | | | FUND |
| 10539.078 | 45.9 | 9.0 | 3.7 | 58.7 | Peak [Scan] | V | 150 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 108 of 432

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 5300 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |

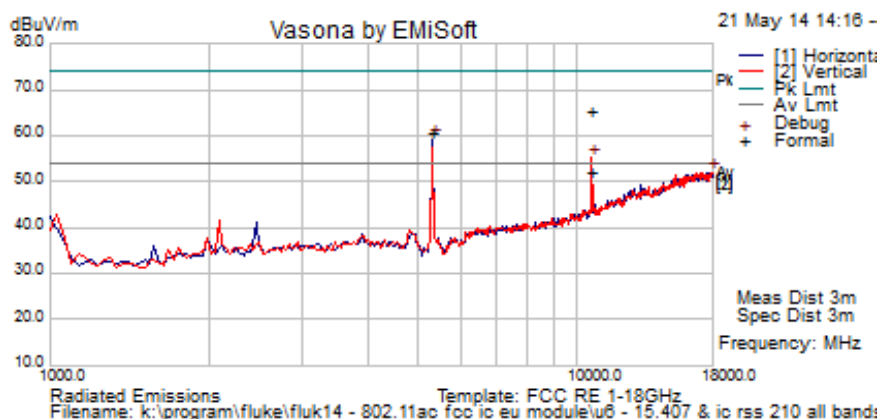


Formally measured emission peaks

| 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 |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10602.955 | 52.5 | 9.0 | 3.9 | 65.4 | Peak Max | H | 112 | 308 | 74.0 | -8.6 | Pass | RB |
| 10602.955 | 39.0 | 9.0 | 3.9 | 51.9 | Average Max | H | 112 | 308 | 54.0 | -2.1 | Pass | RB |
| 5292.585 | 56.8 | 6.0 | -2.1 | 60.6 | Peak [Scan] | H | 150 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5320 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



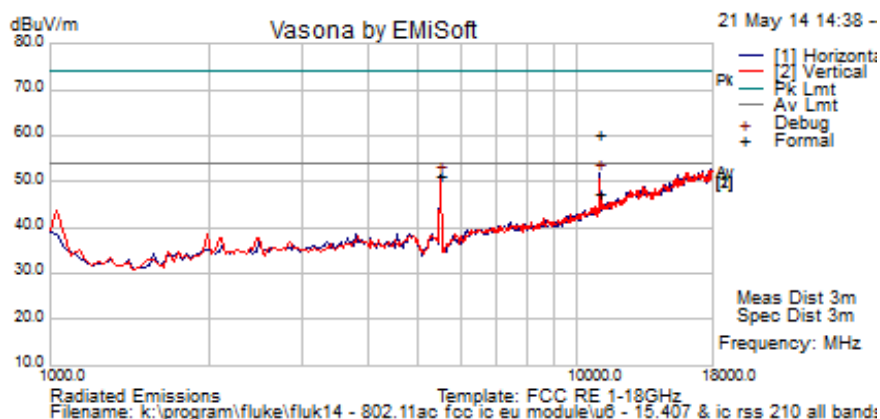
Formally measured emission peaks

| 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 |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10639.529 | 48.1 | 9.0 | 4.0 | 61.1 | Peak Max | V | 99 | 284 | 74.0 | -12.9 | Pass | RB |
| 10639.529 | 35.1 | 9.0 | 4.0 | 48.1 | Average Max | V | 99 | 284 | 54.0 | -5.9 | Pass | RB |
| 5326.653 | 55.2 | 6.0 | -1.9 | 59.2 | Peak [Scan] | H | 150 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 110 of 432

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 5500 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

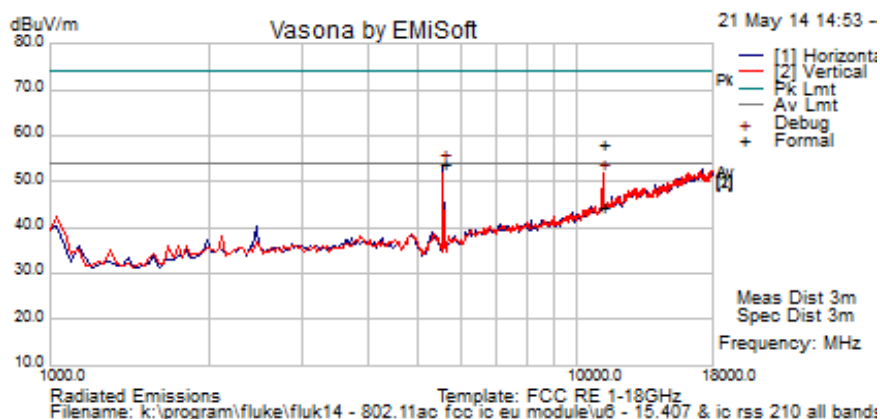
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10996.743 | 46.8 | 9.1 | 4.1 | 60.0 | Peak Max | H | 162 | 302 | 74.0 | -14.0 | Pass | |
| 10996.743 | 33.9 | 9.1 | 4.1 | 47.2 | Average Max | H | 162 | 302 | 54.0 | -6.9 | Pass | |
| 5496.994 | 47.2 | 6.1 | -2.0 | 51.3 | Peak [Scan] | H | 150 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 111 of 432

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 5580 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

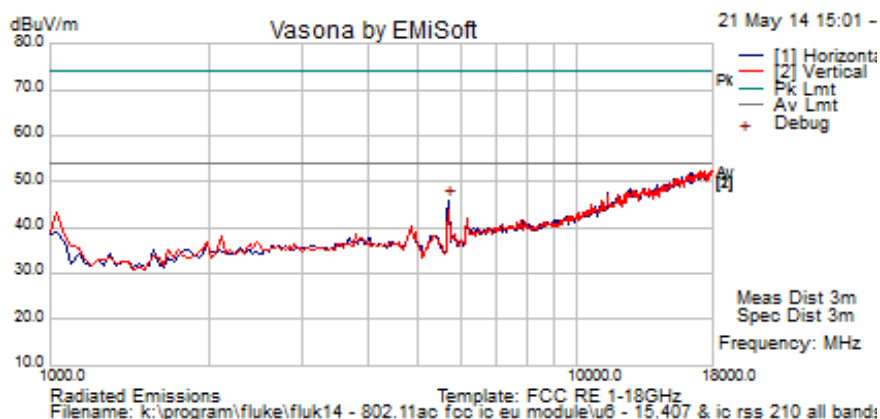
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11152.305 | 44.4 | 9.2 | 4.4 | 58.1 | Peak Max | V | 183 | 162 | 74 | -15.9 | Pass | RB |
| 11152.305 | 30.5 | 9.2 | 4.4 | 44.1 | Average Max | V | 183 | 162 | 54.0 | -9.9 | Pass | RB |
| 5565.130 | 49.8 | 6.1 | -2.1 | 53.9 | Peak [Scan] | H | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 112 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5700 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | BT Dongle | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



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 |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5701.704 | 41.6 | 6.2 | -2.0 | 45.9 | Peak [Scan] | H | 98 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 113 of 432

Band-Edge Results - M830510 Chip Antenna

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 3.2 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | BT Dongle | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5180, 5190, 5210 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5150 MHz | | | | | | | | |
| Test Frequency Range: | 4500 - 5150 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 52.53 | 74 | -21.47 | 5101.8 | 41.34 | 54 | -12.66 | 5099.19 | 46 |
| HT20 | 52.83 | 74 | -21.17 | 5101.18 | 41.58 | 54 | -12.42 | 5099.19 | 48 |
| HT40 | 58.15 | 74 | -15.85 | 5147.39 | 41.21 | 54 | -12.79 | 5150 | 50 |
| AC40 | 58.57 | 74 | -15.43 | 5148.69 | 41.58 | 54 | -12.42 | 5150 | 50 |
| AC80 | 60.8 | 74 | -13.2 | 5150 | 44.86 | 54 | -9.14 | 5146.09 | 50 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 114 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 3.2 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | BT Dongle | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5320, 5310, 5290 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5350 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 71.81 | 74 | -2.19 | 5351.54 | 53.4 | 54 | -0.6 | 5350 | 80 |
| HT20 | 72.99 | 74 | -1.01 | 5350.44 | 48.74 | 54 | -5.26 | 5350 | 75 |
| HT40 | 73.65 | 74 | -0.35 | 5350.44 | 53.85 | 54 | -0.15 | 5350.44 | 63 |
| AC40 | 73.91 | 74 | -0.09 | 5350.88 | 53.27 | 54 | -0.73 | 5350 | 63 |
| AC80 | 71.03 | 74 | -2.97 | 5351.54 | 53.46 | 54 | -0.54 | 5353.52 | 60 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 115 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 3.2 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | BT Dongle | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5500, 5510, 5530 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5460 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| g | 61.02 | 74 | -12.98 | 5414.14 | 50.6 | 54 | -3.4 | 5418.55 | 80 |
| HT20 | 65.1 | 74 | -8.9 | 5457.57 | 50.28 | 54 | -3.72 | 5418.55 | 80 |
| HT40 | 72.89 | 74 | -1.11 | 5459.77 | 53.94 | 54 | -0.06 | 5460 | 75 |
| AC40 | 73.48 | 74 | -0.52 | 5459.77 | 54 | 54 | 0 | 5460 | 75 |
| AC80 | 69.26 | 74 | -4.74 | 5460 | 53.17 | 54 | -0.83 | 5458.89 | 60 |

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 |

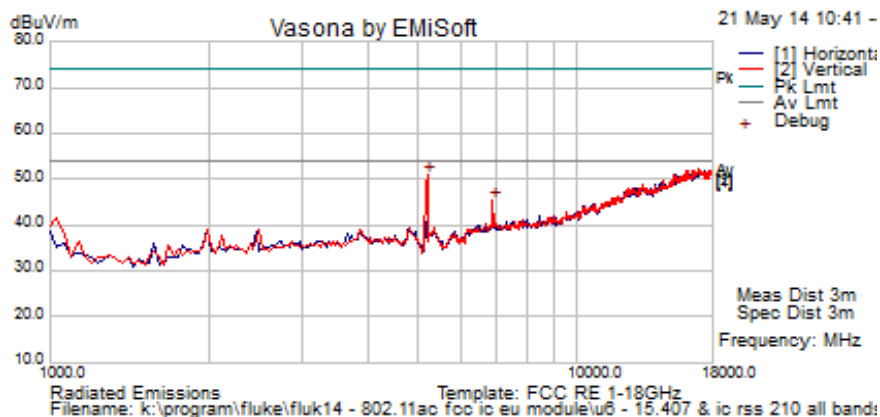
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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 116 of 432

6.1.2.2. Nano PCB antenna – Spurious and Band-Edge Emissions

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5180 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 46 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

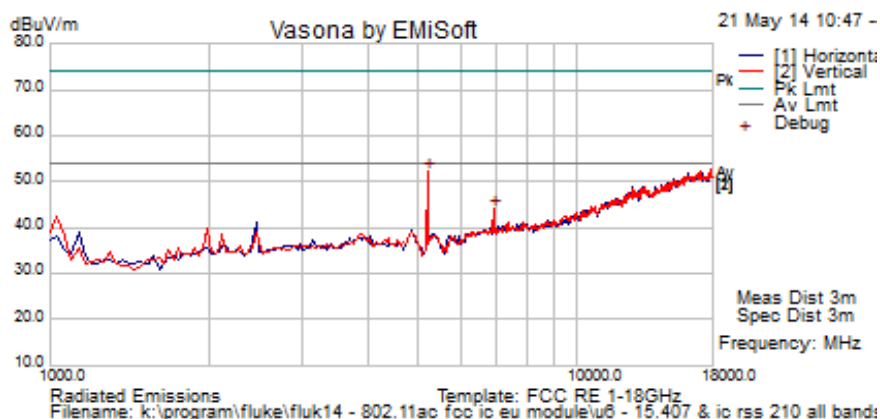
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 1068.738 | 45.6 | 2.6 | -9.4 | 38.7 | Peak [Scan] | V | 98 | -1 | 54.0 | -15.3 | Pass | RB |
| 1753.629 | 41.4 | 3.3 | -7.8 | 37.0 | Peak [Scan] | V | 98 | | | | | NRB |
| 1989.583 | 40.8 | 3.5 | -6.1 | 38.3 | Peak [Scan] | V | 98 | | | | | NRB |
| 5190.381 | 47.4 | 5.9 | -2.3 | 50.9 | Peak [Scan] | V | 150 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 117 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5200 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 46 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

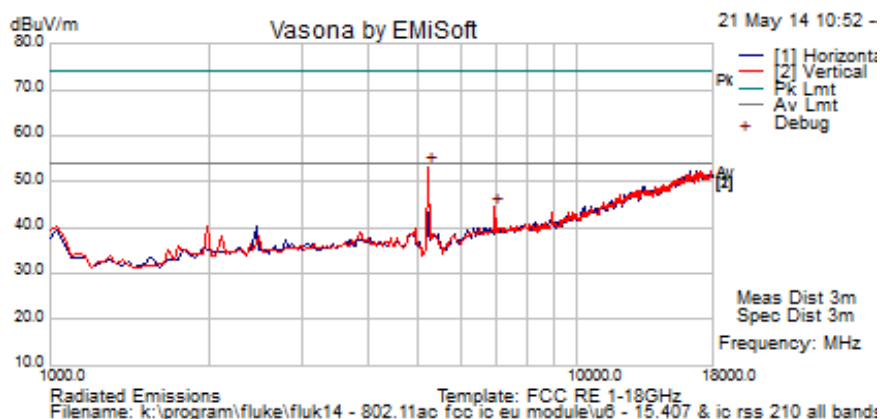
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5190.381 | 48.5 | 5.9 | -2.3 | 52.1 | Peak [Scan] | V | 150 | | | | | FUND |
| 6929.93 | 37.3 | 7.0 | -0.4 | 43.9 | Peak [Scan] | V | 100 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 118 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5240 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 46 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

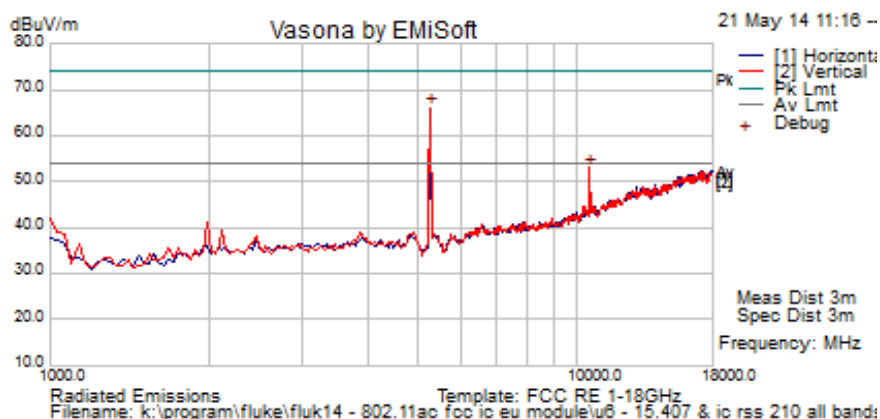
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5234.449 | 49.6 | 5.9 | -2.3 | 53.2 | Peak [Scan] | V | 100 | | | | | FUND |
| 6963.951 | 37.7 | 7.0 | -0.4 | 44.3 | Peak [Scan] | V | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 119 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5260 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

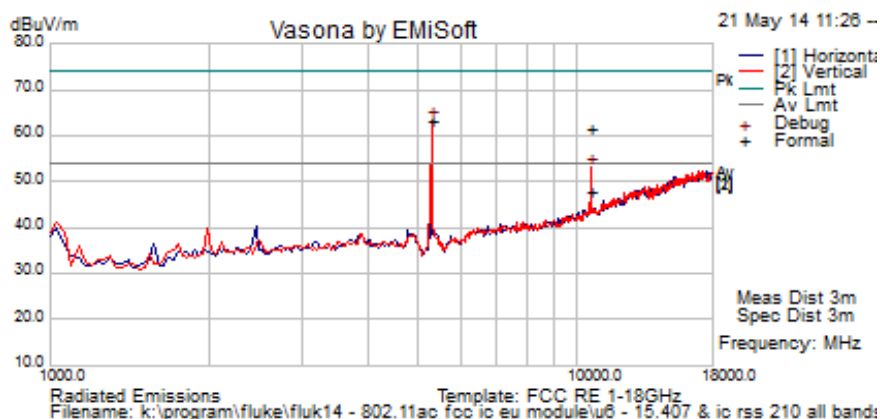
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5258.517 | 62.4 | 5.9 | -2.2 | 66.1 | Peak [Scan] | V | 150 | | | | | FUND |
| 10505.01 | 40.5 | 9.0 | 3.7 | 53.2 | Peak [Scan] | V | 150 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 120 of 432

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 5300 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

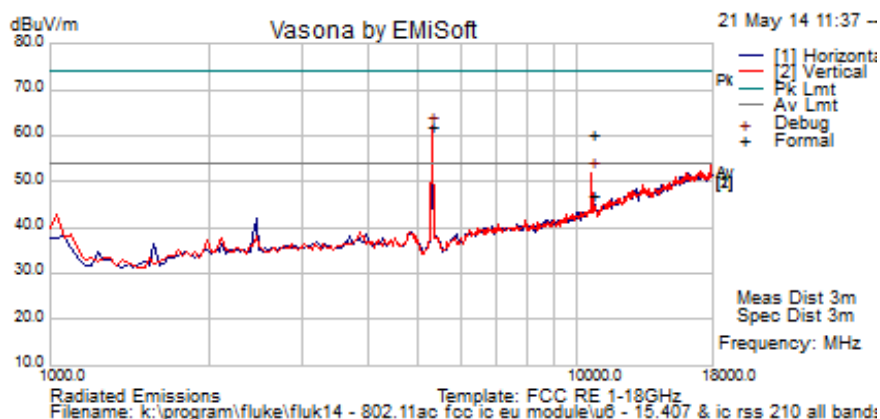
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10601.953 | 48.4 | 9.0 | 3.9 | 61.3 | Peak Max | V | 160 | 137 | 74.0 | -12.7 | Pass | RB |
| 10601.953 | 35.0 | 9.0 | 3.9 | 47.9 | Average Max | V | 160 | 137 | 54.0 | -6.2 | Pass | RB |
| 5292.585 | 59.5 | 6.0 | -2.1 | 63.4 | Peak [Scan] | V | 150 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 121 of 432

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 5320 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

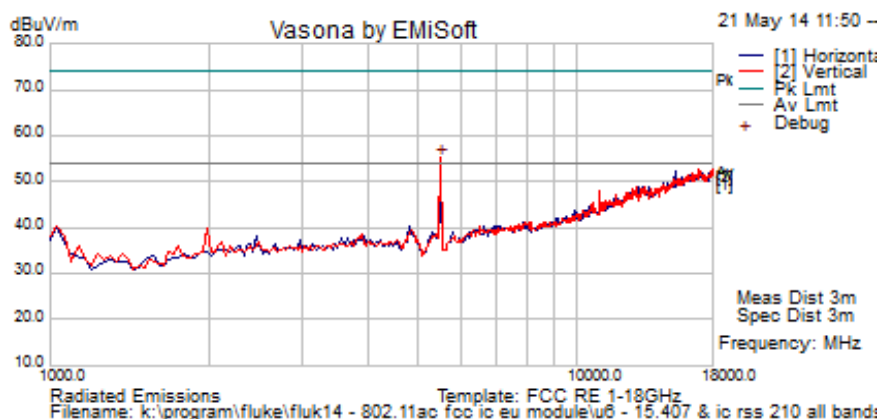
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10640.531 | 47.4 | 9.0 | 4.0 | 60.4 | Peak Max | V | 200 | 17 | 74.0 | -13.6 | Pass | RB |
| 10640.531 | 33.8 | 9.0 | 4.0 | 46.8 | Average Max | V | 200 | 17 | 54.0 | -7.2 | Pass | RB |
| 5292.585 | 58.2 | 6.0 | -2.1 | 62.1 | Peak [Scan] | V | 150 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 122 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5500 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

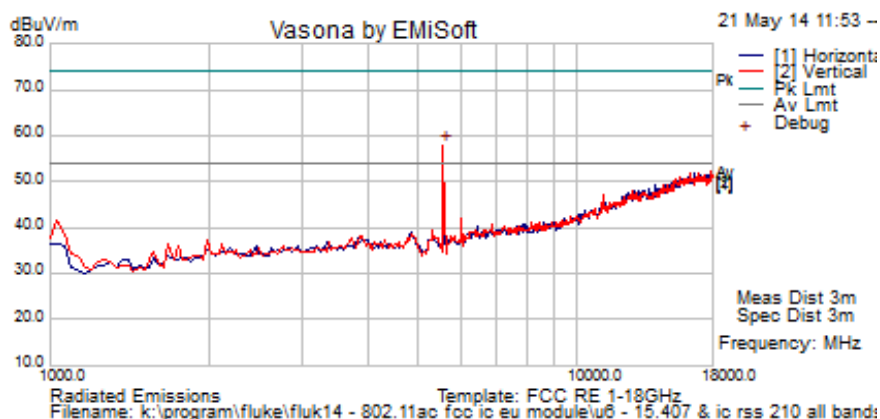
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5496.994 | 51.2 | 6.1 | -2.0 | 55.3 | Peak [Scan] | V | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 123 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5580 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

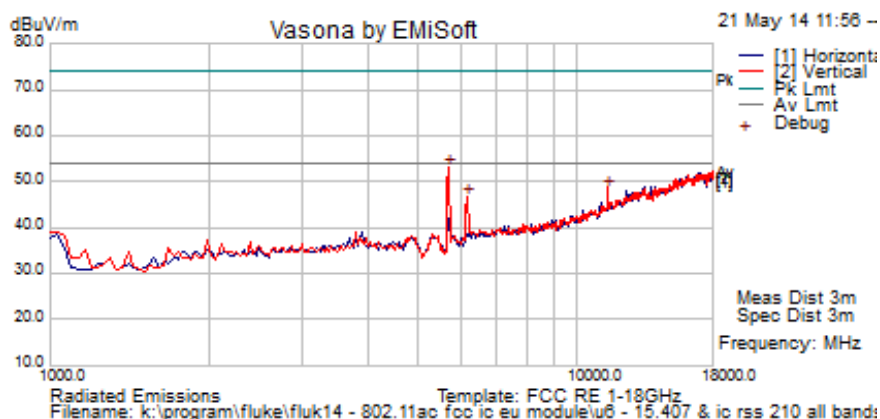
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5565.130 | 54.0 | 6.1 | -2.1 | 58.0 | Peak [Scan] | V | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 124 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5700 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 46 |
| Power Setting | 80 | Press. (mBars) | 1001 |
| Antenna | Nano PCB | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



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 |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11863.099 | 42.6 | 9.4 | 5.5 | 57.6 | Peak Max | V | 172 | 355 | 74.0 | -16.4 | Pass | RB |
| 11863.099 | 29.5 | 9.4 | 5.5 | 44.4 | Average Max | V | 172 | 355 | 54.0 | -9.6 | Pass | RB |
| 5701.403 | 48.8 | 6.2 | -2.0 | 53.0 | Peak [Scan] | V | 100 | | | | | FUND |
| 6176.337 | 40.8 | 6.5 | -0.8 | 46.6 | Peak [Scan] | V | 98 | | | | | NRB |

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 125 of 432

Band-Edge Results – NANO PCB Antenna

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 3.1 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | Nano Green PCB | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5180, 5190, 5210 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5150 MHz | | | | | | | | |
| Test Frequency Range: | 4500 - 5150 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 56.7 | 74 | -17.3 | 5103.1 | 46.28 | 54 | -7.72 | 5418.55 | 46 |
| HT20 | 57.56 | 74 | -16.44 | 5100.5 | 46.28 | 54 | -7.72 | 5099.19 | 48 |
| HT40 | 64.91 | 74 | -9.09 | 5146.09 | 45.8 | 54 | -8.2 | 5150 | 48 |
| AC40 | 64.91 | 74 | -9.09 | 5146.09 | 45.8 | 54 | -8.2 | 5150 | 50 |
| AC80 | 66.73 | 74 | -7.27 | 5143.48 | 50.04 | 54 | -3.96 | 5143.48 | 50 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 126 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|---------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20, HT40, AC40, AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 3.1 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | Nano Green PCB | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5320, 5310, 5290 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5350 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 69.72 | 74 | -4.28 | 5351.54 | 53.53 | 54 | -0.47 | 5401.36 | 74 |
| HT20 | 73.18 | 74 | -0.82 | 5350 | 52.53 | 54 | -1.47 | 5402.02 | 57 |
| HT40 | 72.79 | 74 | -1.21 | 5350.22 | 50.37 | 54 | -3.63 | 5350 | 54 |
| AC40 | 71.82 | 74 | -2.18 | 5350.22 | 50.54 | 54 | -3.46 | 5350 | 70 |
| AC80 | 71.75 | 74 | -2.25 | 5351.32 | 52.43 | 54 | -1.57 | 5352.2 | 57 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 127 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|---------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20, HT40, AC40, AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 3.1 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | Nano Green PCB | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5500, 5510, 5530 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5460 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 63.68 | 74 | -10.32 | 5418.11 | 53.22 | 54 | -0.78 | 5418.77 | 66 |
| HT20 | 64.13 | 74 | -9.87 | 5417.67 | 53.83 | 54 | -0.17 | 5418.55 | 66 |
| HT40 | 72.66 | 74 | -1.34 | 5459.77 | 50.8 | 54 | -3.2 | 5460 | 57 |
| AC40 | 71.58 | 74 | -2.42 | 5460 | 51 | 54 | -3 | 5460 | 62 |
| AC80 | 70.11 | 74 | -3.89 | 5452.94 | 53.03 | 54 | -0.97 | 5458.67 | 50 |

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 |

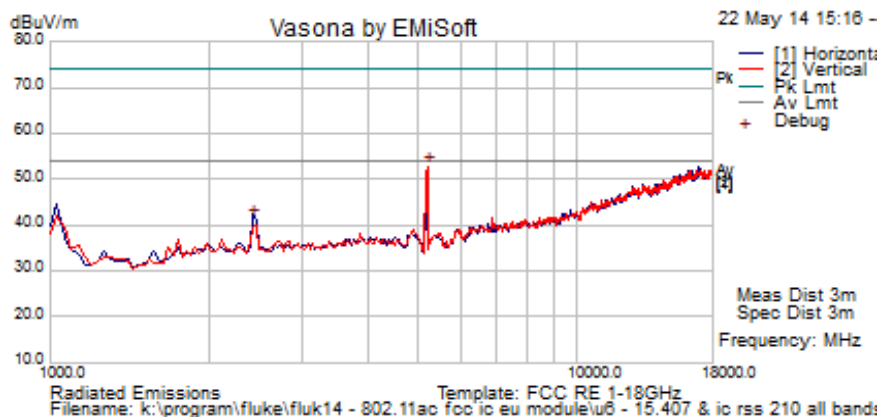
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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 128 of 432

6.1.2.3. WSS013 Dual band antenna – Spurious and Band-Edge Emissions

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5180 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 46 | Press. (mBars) | 1000 |
| Antenna | WSS013 | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

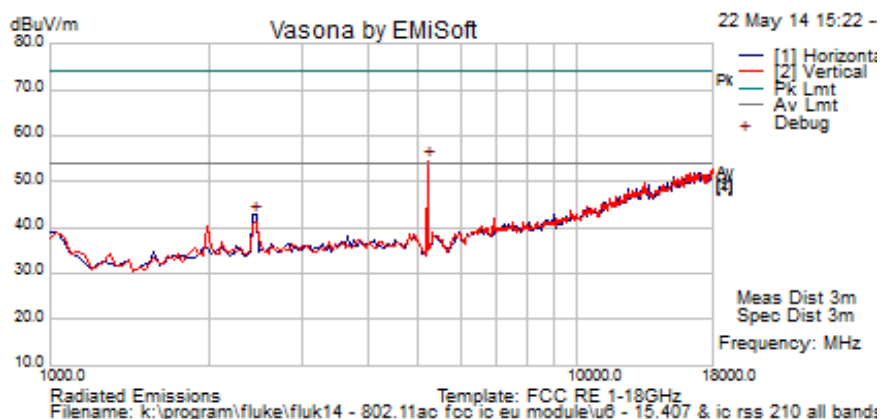
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5190.381 | 49.3 | 5.9 | -2.3 | 52.8 | Peak [Scan] | V | 100 | | | | | FUND |
| 2425.163 | 42.7 | 3.9 | -5.3 | 41.3 | Peak [Scan] | V | 100 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 129 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5200 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 46 | Press. (mBars) | 1000 |
| Antenna | WSS013 | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

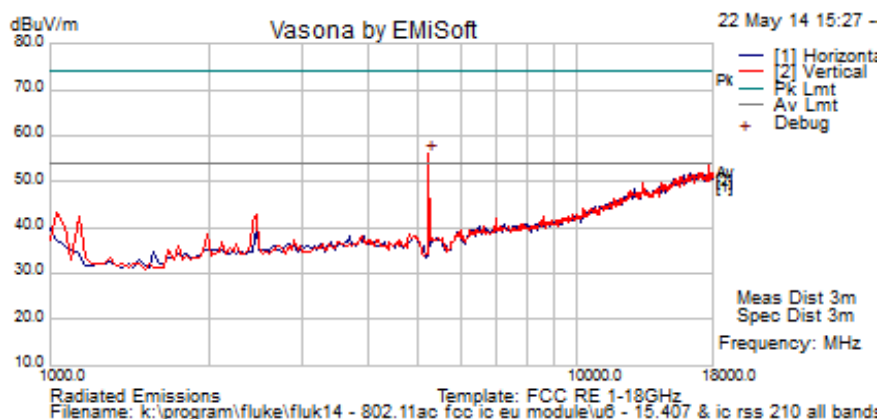
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5190.381 | 50.9 | 5.9 | -2.3 | 54.5 | Peak [Scan] | V | 150 | | | | | FUND |
| 2446.284 | 44.0 | 4.0 | -5.2 | 42.8 | Peak [Scan] | V | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 130 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5240 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 46 | Press. (mBars) | 1000 |
| Antenna | WSS013 | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

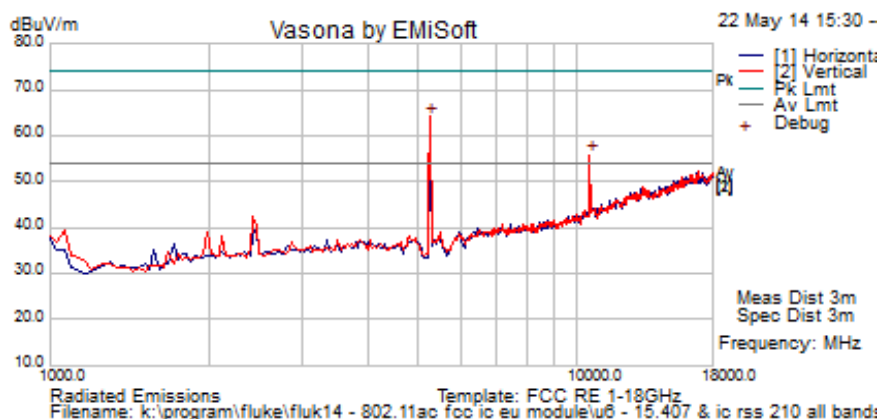
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5224.449 | 52.3 | 5.9 | -2.3 | 55.9 | Peak [Scan] | V | 150 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 131 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5260 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

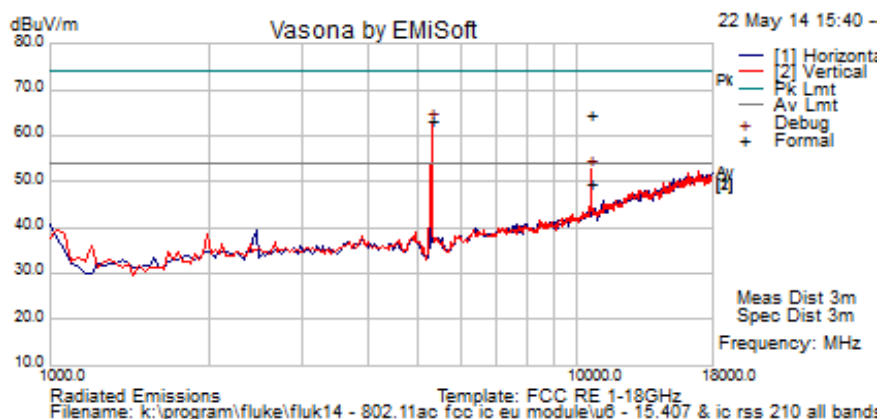
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5258.517 | 60.4 | 5.9 | -2.2 | 64.1 | Peak [Scan] | V | 100 | | | | | FUND |
| 10539.078 | 43.0 | 9.0 | 3.7 | 55.7 | Peak [Scan] | V | 100 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 132 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5300 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

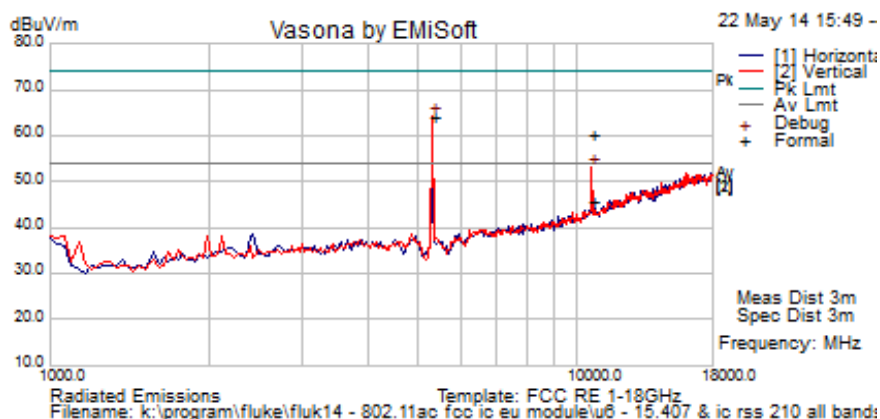
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10602.955 | 51.7 | 9.0 | 3.9 | 64.6 | Peak Max | V | 106 | 197 | 74.0 | -9.4 | Pass | RB |
| 10602.955 | 36.7 | 9.0 | 3.9 | 49.6 | Average Max | V | 106 | 197 | 54.0 | -4.4 | Pass | RB |
| 5292.585 | 59.1 | 6.0 | -2.1 | 63.0 | Peak [Scan] | V | 100 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 133 of 432

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 5320 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

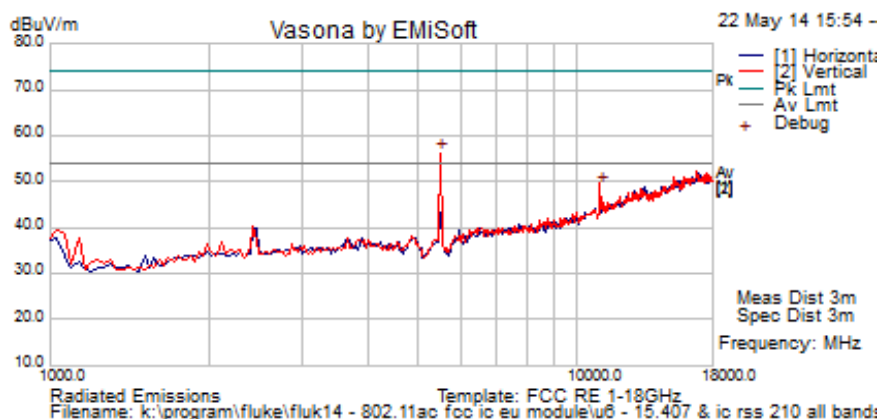
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10638.527 | 47.1 | 9.0 | 4.0 | 60.1 | Peak Max | V | 99 | 337 | 74.0 | -13.9 | Pass | RB |
| 10638.527 | 32.7 | 9.0 | 4.0 | 45.7 | Average Max | V | 99 | 337 | 54.0 | -8.3 | Pass | RB |
| 5326.653 | 60.0 | 6.0 | -1.9 | 64.1 | Peak [Scan] | V | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 134 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5500 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

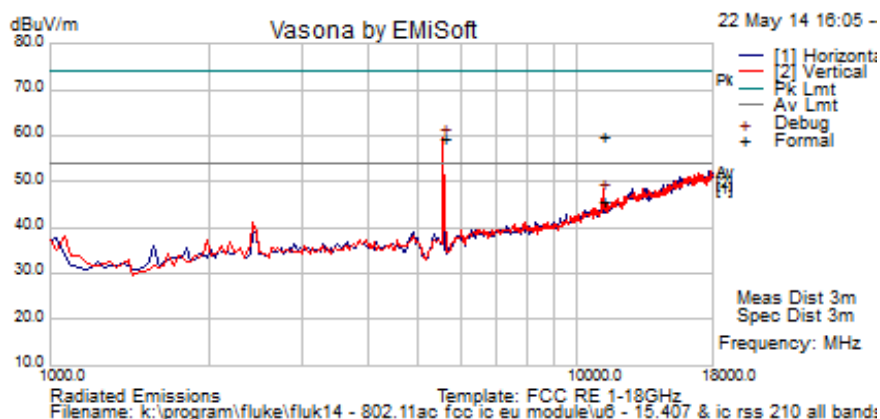
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10999.737 | 47.8 | 9.1 | 4.2 | 61.0 | Peak Max | V | 99 | 361 | 74.0 | -13.0 | Pass | RB |
| 10999.737 | 33.6 | 9.1 | 4.2 | 46.8 | Average Max | V | 99 | 361 | 54.0 | -7.2 | Pass | RB |
| 5496.994 | 52.2 | 6.1 | -2.0 | 56.2 | Peak [Scan] | V | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 135 of 432

| | | | |
|----------------------|---|-----------------------|------|
| Test Freq. | 5580 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

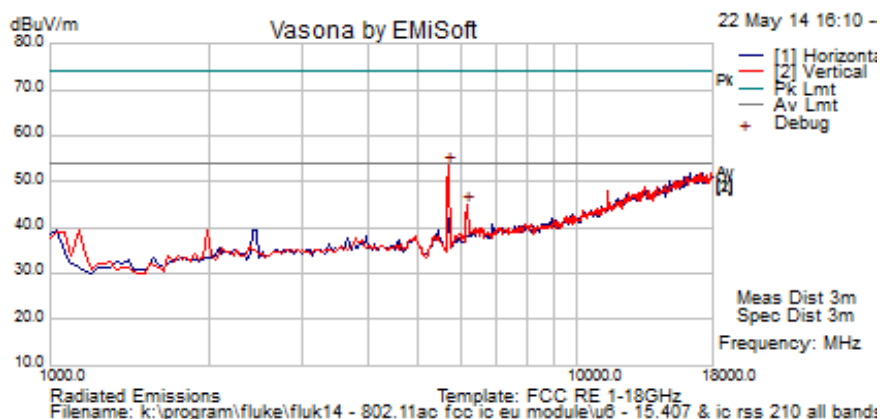
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11160.559 | 46.3 | 9.2 | 4.5 | 60.0 | Peak Max | V | 112 | 46 | 74.0 | -14.0 | Pass | RB |
| 11160.559 | 32.1 | 9.2 | 4.5 | 45.8 | Average Max | V | 112 | 46 | 54.0 | -8.3 | Pass | RB |
| 5565.130 | 55.4 | 6.1 | -2.1 | 59.4 | Peak [Scan] | V | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 136 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5700 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



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 |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5701.403 | 49.3 | 6.2 | -2.0 | 53.5 | Peak [Scan] | V | 100 | | | | | FUND |
| 6174.725 | 38.9 | 6.5 | -0.8 | 44.7 | Peak [Scan] | V | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 137 of 432

Band-Edge Results – WSS013 Antenna

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 2 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | WSS013 Dual Band Antenna | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5180, 5190, 5210 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5150 MHz | | | | | | | | |
| Test Frequency Range: | 4500 - 5150 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 61.85 | 74 | -12.15 | 5093.98 | 49.18 | 54 | -4.82 | 5101.8 | 46 |
| HT20 | 61.48 | 74 | -12.52 | 4708.41 | 48.96 | 54 | -5.04 | 5092.68 | 48 |
| HT40 | 61.9 | 74 | -12.1 | 5100.5 | 49.39 | 54 | -4.61 | 5148.69 | 50 |
| AC40 | 63.86 | 74 | -10.14 | 5150 | 49.6 | 54 | -4.4 | 5150 | 50 |
| AC80 | 66.02 | 74 | -7.98 | 5147.39 | 50.76 | 54 | -3.24 | 5142.18 | 50 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 138 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|---------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20, HT40, AC40, AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 2 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | WSS013 Dual Band Antenna | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5320, 5310, 5290 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5350 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 73.02 | 74 | -0.98 | 5350.22 | 50.3 | 54 | -3.7 | 5350 | 74 |
| HT20 | 66.64 | 74 | -7.36 | 5351.54 | 49 | 54 | -5 | 5350 | 78 |
| HT40 | 73.44 | 74 | -0.56 | 5350.88 | 52.9 | 54 | -1.1 | 5350 | 60 |
| AC40 | 72.54 | 74 | -1.46 | 5350.66 | 53.34 | 54 | -0.66 | 5350 | 60 |
| AC80 | 70.98 | 74 | -3.02 | 5351.32 | 52.9 | 54 | -1.1 | 5350 | 50 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 139 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 2 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | WSS013 Dual Band Antenna | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5500, 5510, 5530 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5460 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 62.14 | 74 | -11.86 | 5460 | 51.61 | 54 | -2.39 | 5417.23 | 80 |
| HT20 | 69.09 | 74 | -4.91 | 5456.91 | 51.44 | 54 | -2.56 | 5417.23 | 80 |
| HT40 | 73.04 | 74 | -0.96 | 5460 | 52.44 | 54 | -1.56 | 5460 | 68 |
| AC40 | 71.82 | 74 | -2.18 | 5460 | 53.05 | 54 | -0.95 | 5460 | 68 |
| AC80 | 69.54 | 74 | -4.46 | 5456.47 | 53.62 | 54 | -0.38 | 5459.11 | 57 |

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 |

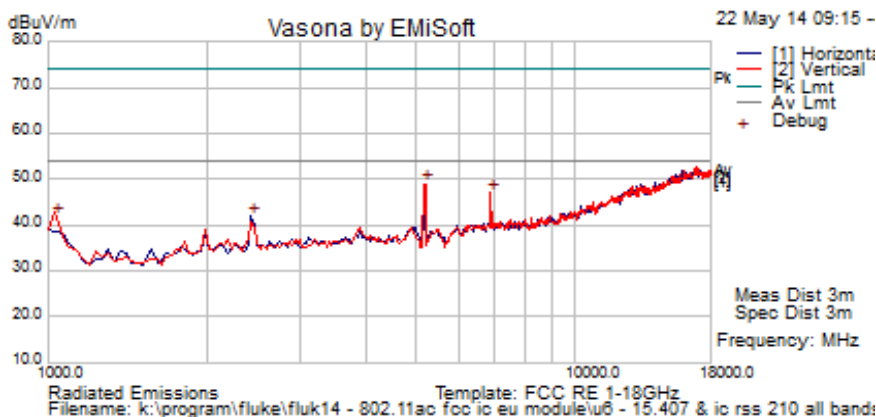
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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 140 of 432

6.1.2.4. WTS2450RPSMA antenna – Spurious and Band-Edge Emissions

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5180 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 46 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

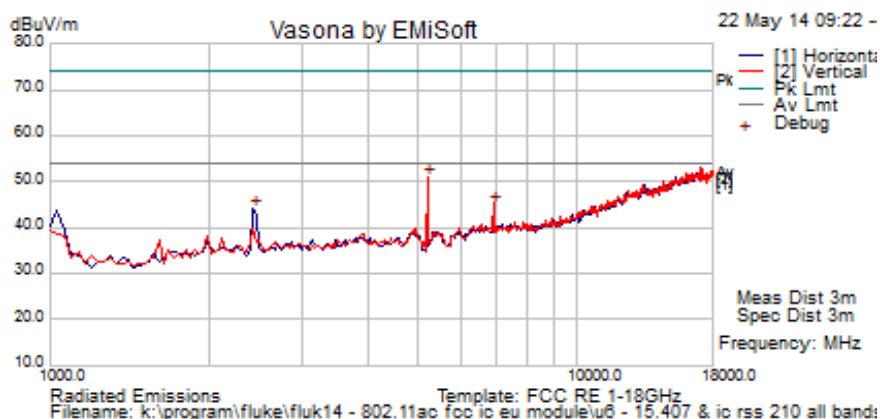
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5190.381 | 45.5 | 5.9 | -2.3 | 49.0 | Peak [Scan] | V | 150 | | | | | FUND |
| 2434.188 | 43.0 | 3.9 | -5.3 | 41.6 | Peak [Scan] | H | 98 | | | | | NRB |
| 6894.211 | 40.3 | 7.0 | -0.3 | 47.0 | Peak [Scan] | V | 98 | | | | | NRB |
| 1039.791 | 48.9 | 2.5 | -9.4 | 42.0 | Peak [Scan] | V | 98 | 361 | 54 | -12.0 | Pass | RB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 141 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5200 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 46 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

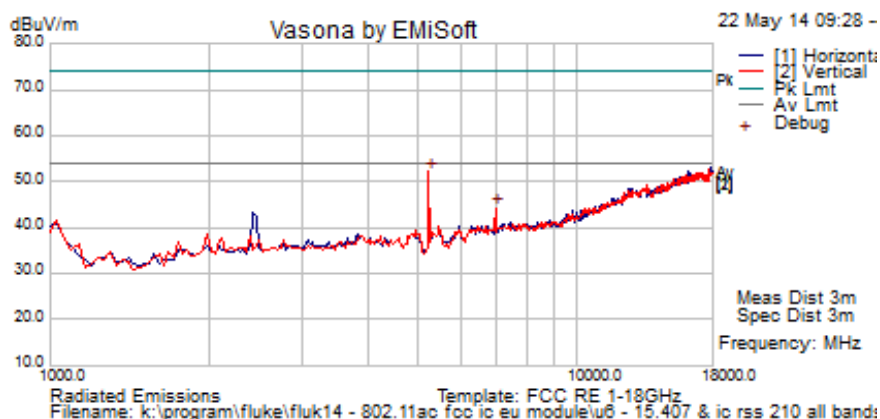
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5190.381 | 47.5 | 5.9 | -2.3 | 51.0 | Peak [Scan] | V | 100 | | | | | FUND |
| 6930.273 | 38.3 | 7.0 | -0.4 | 44.9 | Peak [Scan] | V | 98 | | | | | NRB |
| 2432.830 | 45.3 | 3.9 | -5.3 | 44.0 | Peak [Scan] | H | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 142 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5240 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 46 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

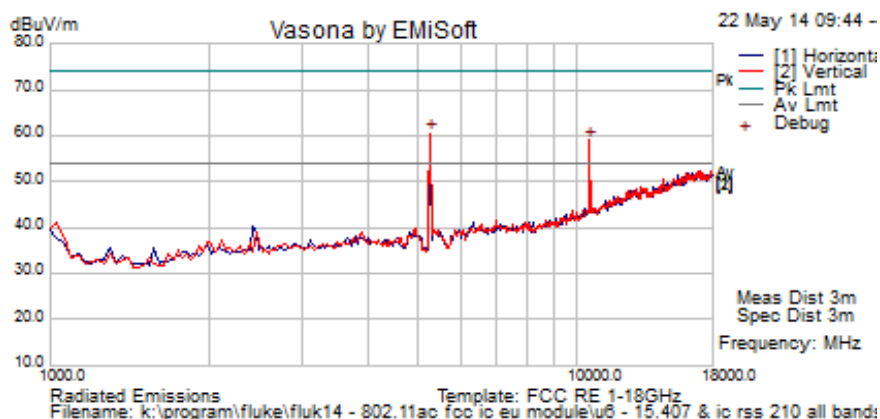
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5224.449 | 48.6 | 5.9 | -2.3 | 52.3 | Peak [Scan] | V | 150 | | | | | FUND |
| 6994.802 | 37.5 | 7.0 | -0.4 | 44.2 | Peak [Scan] | V | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 143 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5260 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

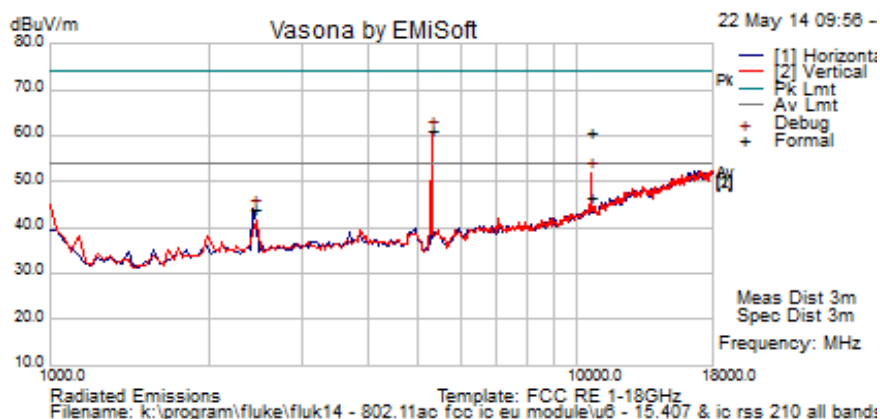
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5258.517 | 56.8 | 5.9 | -2.2 | 60.6 | Peak [Scan] | V | 100 | | | | | FUND |
| 10518.788 | 46.3 | 9.0 | 3.7 | 59.0 | Peak [Scan] | V | 150 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 144 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5300 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



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 |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10603.456 | 47.8 | 9.0 | 3.9 | 60.7 | Peak Max | V | 99 | 101 | 74.0 | -13.3 | Pass | RB |
| 10603.456 | 33.6 | 9.0 | 3.9 | 46.6 | Average Max | V | 99 | 101 | 54.0 | -7.5 | Pass | RB |
| 5292.585 | 57.1 | 6.0 | -2.1 | 60.9 | Peak [Scan] | V | 100 | | | | | FUND |
| 2433.443 | 45.1 | 3.9 | -5.3 | 43.8 | Peak [Scan] | H | 98 | | | | | NRB |

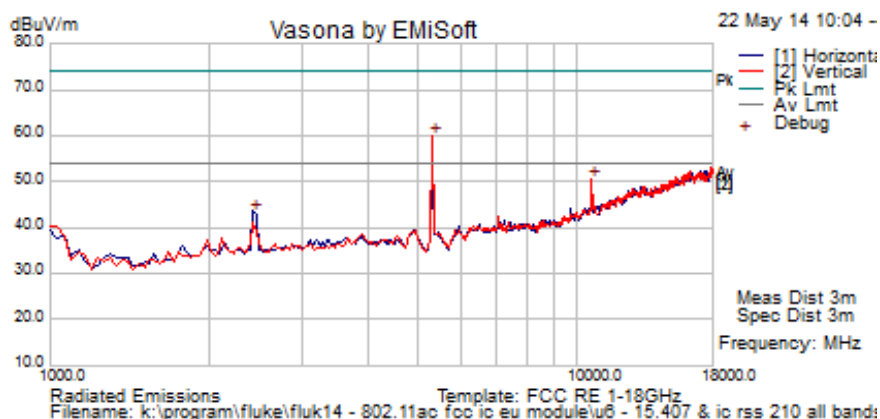
Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 145 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5320 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

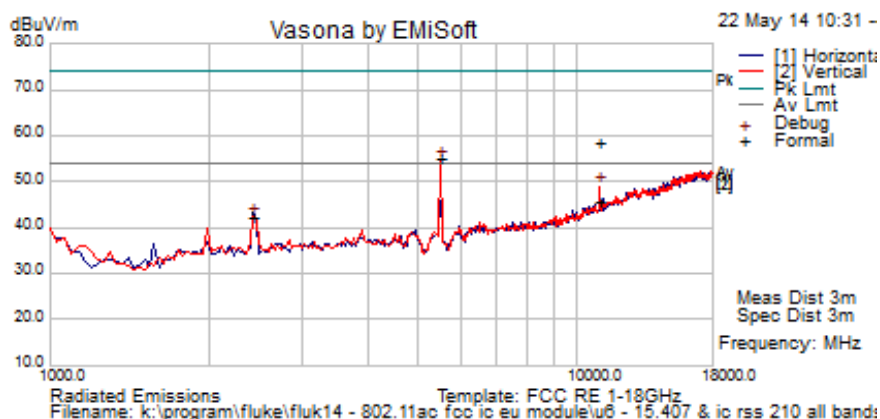
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 10641.283 | 46.6 | 9.0 | 4.0 | 59.6 | Peak Max | V | 112 | 165 | 74.0 | -14.4 | Pass | RB |
| 10641.283 | 33.3 | 9.0 | 4.0 | 46.3 | Average Max | V | 112 | 165 | 54.0 | -7.7 | Pass | RB |
| 5326.653 | 56.7 | 6.0 | -1.9 | 60.8 | Peak [Scan] | V | 100 | | | | | FUND |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 146 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5500 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



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 |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 11001.270 | 45.3 | 9.1 | 4.2 | 58.6 | Peak Max | V | 105 | 124 | 74.0 | -15.4 | Pass | RB |
| 11001.27 | 32.2 | 9.1 | 4.2 | 45.4 | Average Max | V | 105 | 124 | 54.0 | -8.6 | Pass | RB |
| 5496.994 | 50.8 | 6.1 | -2.0 | 54.9 | Peak [Scan] | V | 100 | | | | | FUND |
| 2425.163 | 43.5 | 3.9 | -5.3 | 42.1 | Peak [Scan] | V | 98 | | | | | NRB |

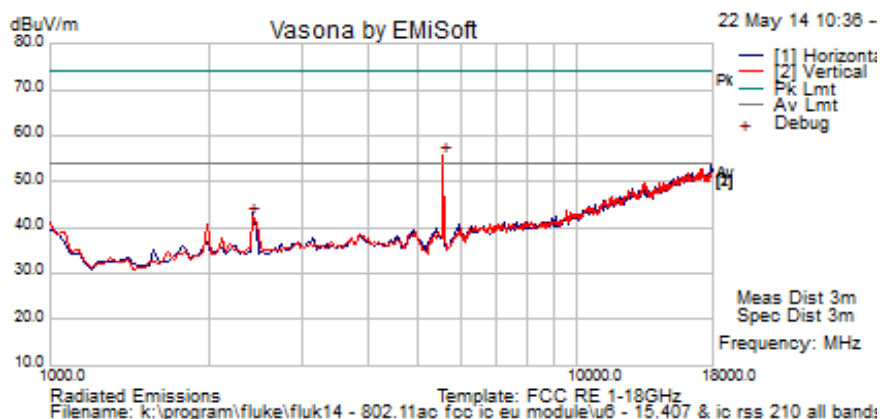
Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
 NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 147 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5580 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



Formally measured emission peaks

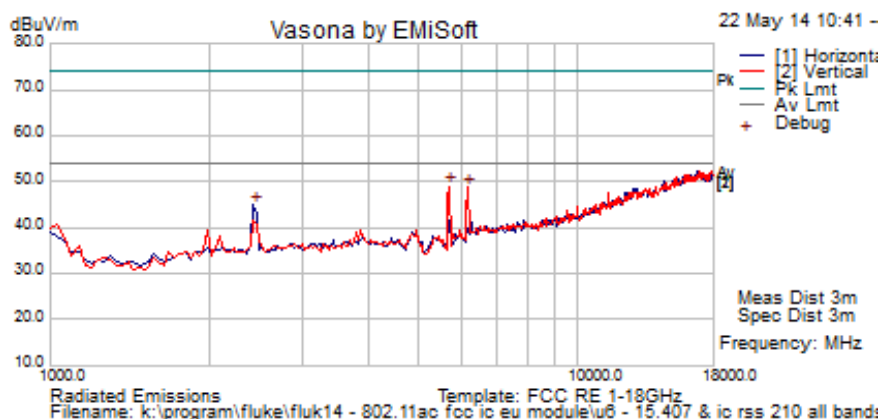
| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5565.130 | 51.7 | 6.1 | -2.1 | 55.7 | Peak [Scan] | V | 100 | | | | | FUND |
| 2425.163 | 43.5 | 3.9 | -5.3 | 42.1 | Peak [Scan] | V | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 148 of 432

| | | | |
|---------------|---|----------------|------|
| Test Freq. | 5700 MHz | Engineer | SB |
| Variant | 802.11a; 6 Mbs | Temp (°C) | 20.5 |
| Freq. Range | 1000 MHz - 18000 MHz | Rel. Hum.(%) | 45 |
| Power Setting | 80 | Press. (mBars) | 1000 |
| Antenna | WTS2450RPSMA | Duty Cycle (%) | 100 |
| Test Notes 1 | Laptop w/ PCMCIA Adapter mini HDMI cable to radio module; | | |
| Test Notes 2 | | | |



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 |
|---|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 5701.403 | 44.7 | 6.2 | -2.0 | 49.0 | Peak [Scan] | V | 100 | | | | | FUND |
| 6178.356713 | 43.1 | 6.5 | -0.8 | 48.8 | Peak [Scan] | V | 100 | | | | | NRB |
| 2430.170 | 46.3 | 3.9 | -5.3 | 44.9 | Peak [Scan] | V | 98 | | | | | NRB |
| Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission | | | | | | | | | | | | |
| NRB = Non-Restricted Band. Limit = 68.23 dBuV/m; RB = Restricted Band. Limits per 15.205 | | | | | | | | | | | | |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 149 of 432

Band-Edge Results – WTS2450RPSMA Antenna

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 2.6 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | WTS2450RPSMA | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5180, 5190, 5210 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5150 MHz | | | | | | | | |
| Test Frequency Range: | 4500 - 5150 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 55.41 | 74 | -18.59 | 5101.8 | 44.37 | 54 | -9.63 | 5093.98 | 46 |
| HT20 | 55.52 | 74 | -18.48 | 5104.4 | 44.37 | 54 | -9.63 | 5097.89 | 48 |
| HT40 | 60.77 | 74 | -13.23 | 5148.69 | 42.71 | 54 | -11.29 | 5150 | 50 |
| AC40 | 57.96 | 74 | -16.04 | 5147.39 | 42.71 | 54 | -11.29 | 5105.71 | 50 |
| AC80 | 61.54 | 74 | -12.46 | 5139.57 | 45.08 | 54 | -8.92 | 5139.57 | 50 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 150 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 2.6 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | WTS2450RPSMA | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5320, 5310, 5290 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5350 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 70.12 | 74 | -3.88 | 5351.76 | 51.79 | 54 | -2.21 | 5350 | 78 |
| HT20 | 72.81 | 74 | -1.19 | 5350.22 | 50.3 | 54 | -3.7 | 5350 | 78 |
| HT40 | 72.93 | 74 | -1.07 | 5350.44 | 51.79 | 54 | -2.21 | 5350 | 60 |
| AC40 | 72.54 | 74 | -1.46 | 5351.1 | 51.95 | 54 | -2.05 | 5350 | 78 |
| AC80 | 70.54 | 74 | -3.46 | 5351.32 | 52.12 | 54 | -1.88 | 5343.3 | 60 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 151 of 432

Equipment Configuration for Radiated High Band-Edge Emissions

| | | | |
|--------------------------------|------------------------------|-------------------------------|----------------|
| Variant: | 802.11a, HT20,HT40,AC40,AC80 | Duty Cycle (%): | 100 |
| Data Rate: | 6-28.5 Mbit/s | Antenna Gain (dBi): | 2.6 |
| Modulation: | OFDM | Beam Forming Gain (Y): | Not Applicable |
| TPC: | Not Applicable | Tested By: | SB |
| Antenna: | WTS2450RPSMA | | |
| Engineering Test Notes: | | | |

Test Measurement Results

| Channel Frequency: | 5500, 5510, 5530 MHz | | | | | | | | |
|------------------------------|-----------------------------|-------------------|----------------|----------------------|----------------------|------------------|---------------|---------------------|---------------|
| Band-Edge Frequency: | 5460 MHz | | | | | | | | |
| Test Frequency Range: | 5350 - 5460 MHz | | | | | | | | |
| modes | Band-Edge Markers and Limit | | | | | | | | |
| | Peak Amplitude (dBuV) | Peak Limit (dBuV) | Peak Margin dB | Peak Frequency (MHz) | AVG Amplitude (dBuV) | AVG Limit (dBuV) | AVG Margin dB | AVG Frequency (MHz) | Power Setting |
| a | 63.12 | 74 | -10.88 | 5426.71 | 52.44 | 54 | -1.56 | 5418.55 | 80 |
| HT20 | 66.73 | 74 | -7.27 | 5458.67 | 52.44 | 54 | -1.56 | 5418.77 | 80 |
| HT40 | 70.89 | 74 | -3.11 | 5460 | 51.44 | 54 | -2.56 | 5460 | 68 |
| AC40 | 70.22 | 74 | -3.78 | 5459.77 | 51.26 | 54 | -2.74 | 5460 | 68 |
| AC80 | 68.16 | 74 | -5.84 | 5450.96 | 51.79 | 54 | -2.21 | 5457.57 | 56 |

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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 152 of 432

6.1.2.5. Digital Emissions (30M-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 51.5dB μ V; 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:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3\text{dB}\mu\text{V/m}$$

Conversion between dB μ V/m (or dB μ V) and μ V/m (or μ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log (level (}\mu\text{V/m))}$$

$$40 \text{ dB}\mu\text{V/m} = 100\mu\text{V/m}$$

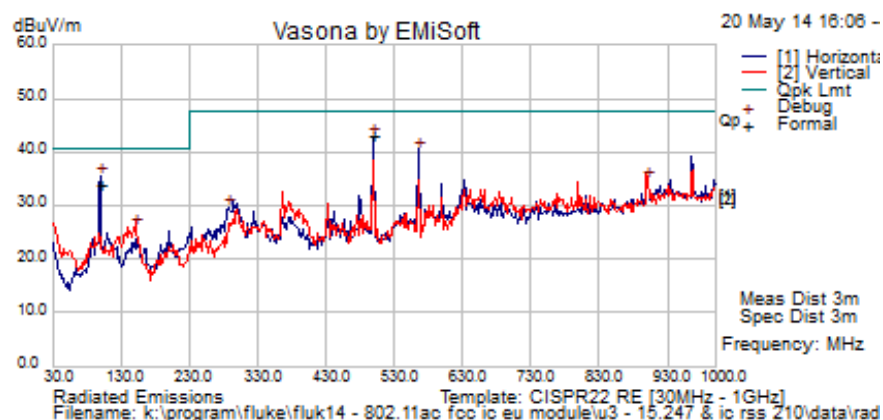
$$48 \text{ dB}\mu\text{V/m} = 250\mu\text{V/m}$$

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 153 of 432

| | | | |
|----------------------|--------------------|-----------------------|------|
| Test Freq. | N/A | Engineer | SB |
| Variant | Digital Emissions | Temp (°C) | 21.5 |
| Freq. Range | 30 MHz - 1000 MHz | Rel. Hum.(%) | 41 |
| Power Setting | 90 | Press. (mBars) | 1002 |
| Antenna | Nano Green PCB | | |
| Test Notes 1 | Laptop on battery; | | |
| Test Notes 2 | | | |



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 |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|----------|
| 99.875 | 50.6 | 4.1 | -20.9 | 33.9 | Quasi Max | H | 168 | 346 | 40.5 | -6.6 | Pass | |
| 498.753 | 49.8 | 5.8 | -12.7 | 42.9 | Quasi Max | H | 176 | 329 | 47.5 | -4.6 | Pass | |
| 288.020 | 41.9 | 5.0 | -17.2 | 29.6 | Peak [Scan] | H | 148 | 361 | 47.5 | -17.9 | Pass | |
| 565.626 | 45.8 | 6.1 | -11.6 | 40.3 | Peak [Scan] | H | 148 | 361 | 47.5 | -7.2 | Pass | |
| 151.735 | 39.9 | 4.4 | -18.5 | 25.8 | Peak [Scan] | V | 148 | 361 | 40.5 | -14.7 | Pass | |
| 901.060 | 34.7 | 7.1 | -7.2 | 34.6 | Peak [Scan] | V | 148 | 361 | 47.5 | -12.9 | 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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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 154 of 432

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 ($\mu\text{V/m}$) | Field Strength (dB $\mu\text{V/m}$) | 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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6.1.3. 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.

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

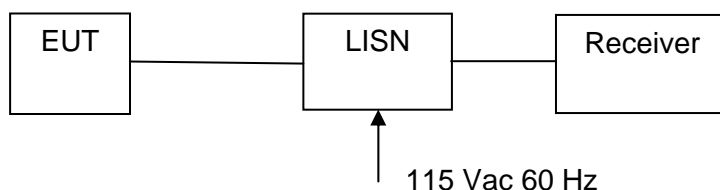
Ambient conditions.

Temperature: 17 to 23 °C

Relative humidity: 31 to 57 %

Pressure: 999 to 1012 mbar

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 %

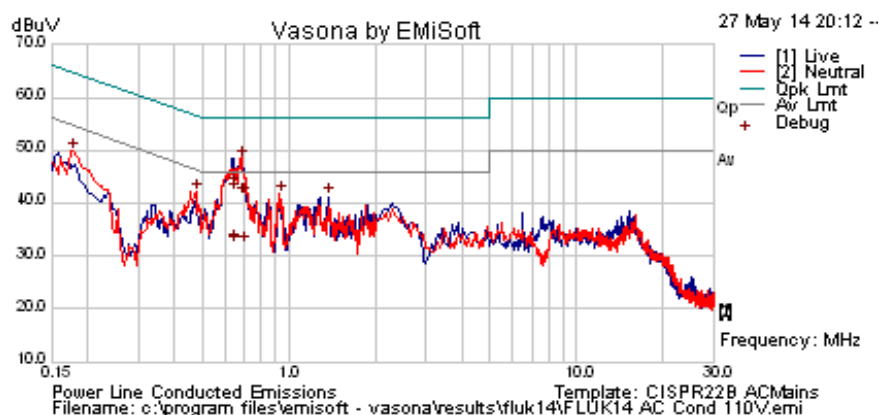
Pressure: 999 to 1012 mbar



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 156 of 432

ac/dc Adaptor Wireline Emissions

| | | | |
|----------------------|--------------------|-----------------------|------|
| Test Freq. | N/A | Engineer | JMH |
| Variant | AC Line Emissions | Temp (°C) | 18 |
| Freq. Range | 0.150 MHz - 30 MHz | Rel. Hum.(%) | 35 |
| Power Setting | NA | Press. (mBars) | 1004 |
| Antenna | N/A | | |
| Test Notes 1 | 115VAC | | |



Formally measured emission peaks

| Frequency MHz | Raw dBuV | Cable Loss | Factors dB | Level dBuV | Measurement Type | Line | Limit dBuV | Margin dB | Pass /Fail | Comments |
|---------------|----------|------------|------------|------------|------------------|---------|------------|-----------|------------|----------|
| 0.643 | 32.1 | 10.0 | 0.1 | 42.2 | Quasi Peak | Neutral | 56 | -13.8 | Pass | |
| 0.643 | 22.3 | 10.0 | 0.1 | 32.3 | Average | Neutral | 46 | -13.7 | Pass | |
| 0.645 | 33.1 | 10.0 | 0.1 | 43.1 | Quasi Peak | Live | 56 | -12.9 | Pass | |
| 0.645 | 22.5 | 10.0 | 0.1 | 32.5 | Average | Live | 46 | -13.5 | Pass | |
| 0.685 | 31.4 | 10.0 | 0.1 | 41.4 | Average | Live | 46 | -4.6 | Pass | |
| 0.685 | 38.1 | 10.0 | 0.1 | 48.1 | Quasi Peak | Live | 56 | -7.9 | Pass | |
| 0.699 | 22.2 | 10.0 | 0.1 | 32.3 | Average | Neutral | 46 | -13.7 | Pass | |
| 0.699 | 31.4 | 10.0 | 0.1 | 41.4 | Quasi Peak | Neutral | 56 | -14.6 | Pass | |
| 0.476 | 32.2 | 9.9 | 0.1 | 42.2 | Peak [Scan] | Neutral | 46.4 | -4.2 | Pass | |
| 0.929 | 31.6 | 9.9 | 0.1 | 41.7 | Peak [Scan] | Neutral | 46 | -4.4 | Pass | |
| 1.373 | 31.2 | 10.0 | 0.1 | 41.3 | Peak [Scan] | Live | 46 | -4.8 | Pass | |
| 0.176 | 39.9 | 9.9 | 0.1 | 49.9 | Peak [Scan] | Neutral | 54.67 | -4.8 | 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 $\mu\Omega$ 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 (dB μ V) | |
|-----------------------------|------------------------------|-----------|
| | 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 |



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 158 of 432

6.1.4. Dynamic Frequency Selection (DFS)

FCC, Part 15 Subpart C §15.407(h)
FCC 06-96 Memorandum Opinion and Order
Industry Canada RSS-210 A9.4

6.1.4.1. Interference Threshold values, Master or Client incorporating In-Service Monitoring

| Maximum Transmit Power | Value (see note) |
|---|---------------------|
| ≥ 200 milliwatt | -64 dBm |
| < 200 milliwatt | -62 dBm |
| Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna | |

DFS Response requirement values

| Parameter | Value |
|--|---|
| <i>Non-occupancy period</i> | Minimum 30 minutes |
| <i>Channel Availability Check Time</i> | 60 seconds |
| <i>Channel Move Time</i> | 10 seconds See Note 1. |
| <i>Channel Closing Transmission Time</i> | 200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2. |
| <i>U-NII Detection Bandwidth</i> | Minimum 80% of the 99% power bandwidth See Note 3. |

Note 1: The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:

- For the Short pulse radar Test Signals this instant is the end of the *Burst*.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar *Burst* generated.
- For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate *Channel* changes (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.



6.1.4.2. Radar Test Waveforms

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Short Pulse Radar Test Waveforms

| Radar Type | Pulse Width (µsec) | PRI (µsec) | Number of Pulses | Minimum Percentage of Successful Detection | Minimum Trials |
|-----------------------------|--------------------|------------|------------------|--|----------------|
| 1 | 1 | 1428 | 18 | 60% | 30 |
| 2 | 1-5 | 150-230 | 23-29 | 60% | 30 |
| 3 | 6-10 | 200-500 | 16-18 | 60% | 30 |
| 4 | 11-20 | 200-500 | 12-16 | 60% | 30 |
| Aggregate (Radar Types 1-4) | | | | 80% | 120 |

A minimum of 30 unique waveforms are required for each of the short pulse radar types 2 through 4. For short pulse radar type 1, the same waveform is used a minimum of 30 times. If more than 30 waveforms are used for short pulse radar types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

Long Pulse Radar Test Waveform

| Radar Type | Pulse Width (µsec) | Chirp Width (MHz) | PRI (µsec) | Number of Pulses per Burst | Number of Bursts | Minimum Percentage of Successful Detection | Minimum Trials |
|------------|--------------------|-------------------|------------|----------------------------|------------------|--|----------------|
| 5 | 50-100 | 5-20 | 1000-2000 | 1-3 | 8-20 | 80% | 30 |

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse radar test signal. If more than 30 waveforms are used for the Long Pulse radar test signal, then each additional waveform must also be unique and not repeated from the previous waveforms.



Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 160 of 432

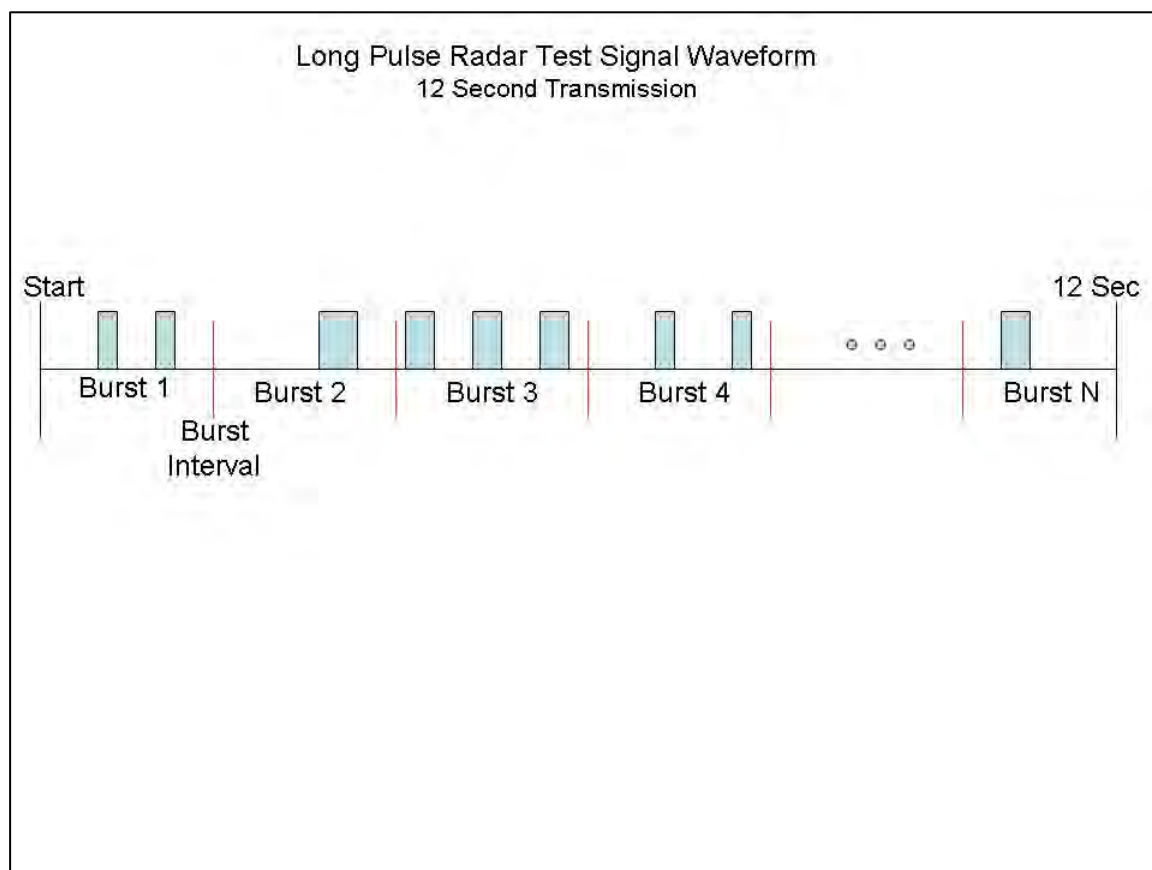
Each waveform is defined as follows:

- 1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
- 2) There are a total of 8 to 20 *Bursts* in the 12 second period, with the number of *Bursts* being randomly chosen. This number is *Burst Count*.
- 3) Each *Burst* consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each *Burst* within the 12 second sequence may have a different number of pulses.
- 4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a *Burst* will have the same pulse width. Pulses in different *Bursts* may have different pulse widths.
- 5) Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a *Burst* will have the same chirp width. Pulses in different *Bursts* may have different chirp widths. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
- 6) If more than one pulse is present in a *Burst*, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a *Burst*, the time between the first and second pulses is chosen independently of the time between the second and third pulses.
- 7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to *Burst_Count*. Each interval is of length $(12,000,000 / \text{Burst_Count})$ microseconds. Each interval contains one *Burst*. The start time for the *Burst*, relative to the beginning of the interval, is between 1 and $[(12,000,000 / \text{Burst_Count}) - (\text{Total Burst Length}) + (\text{One Random PRI Interval})]$ microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each *Burst* is chosen independently.

A representative example of a Long Pulse radar test waveform:

- 1) The total test signal length is 12 seconds.
- 2) 8 *Bursts* are randomly generated for the *Burst_Count*.
- 3) *Burst* 1 has 2 randomly generated pulses.
- 4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.
- 5) The PRI is randomly selected to be at 1213 microseconds.
- 6) *Bursts* 2 through 8 are generated using steps 3 – 5.
- 7) Each *Burst* is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, *Burst* 1 is randomly generated (1 to 1,500,000 minus the total *Burst* 1 length + 1 random PRI interval) at the 325,001 microsecond step. *Bursts* 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. *Burst* 2 falls in the 1,500,001 – 3,000,000 microsecond range).

Graphical representation of the Long Pulse radar Test Waveform.



6.1.4.3. Frequency Hopping Radar Test Waveform

Frequency Hopping Radar Test Waveform

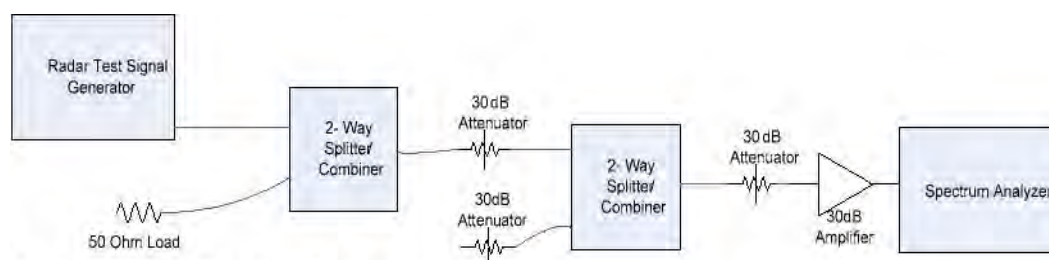
| Radar Type | Pulse Width (μsec) | PRI (μsec) | Pulses per Hop | Hopping Rate (kHz) | Hopping Sequence Length (msec) | Minimum Percentage of Successful Detection | Minimum Trials |
|------------|--------------------|------------|----------------|--------------------|--------------------------------|--|----------------|
| 6 | 1 | 333 | 9 | .333 | 300 | 70% | 30 |

For the Frequency Hopping Radar Type, the same *Burst* parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

6.1.4.4. Radar Waveform Calibration

The following equipment setup was used to calibrate the conducted Radar Waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were no transmissions by either the Master or Client Device. The spectrum analyzer was switched to the zero span (Time Domain) mode at the frequency of the Radar Waveform generator. Peak detection was utilized. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz.

The signal generator amplitude was set so that the power level measured at the spectrum analyzer was -61dBm (Ref Section 5.1). The 30dB amplifier gain was entered as an amplitude offset on the spectrum analyzer.

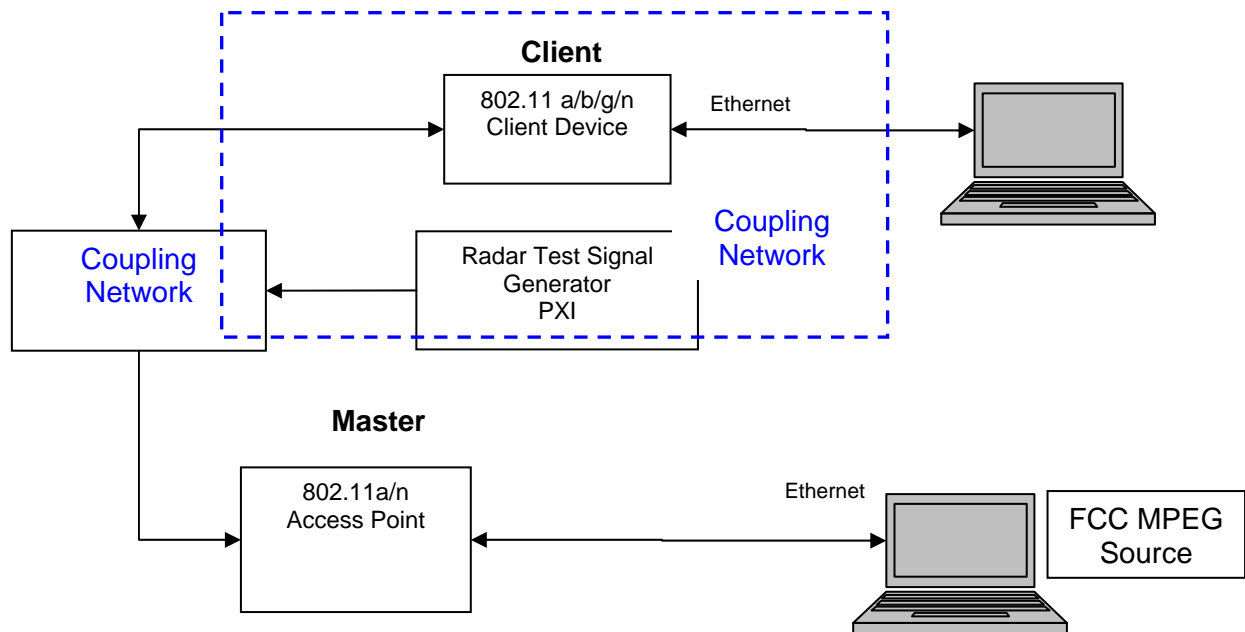


Conducted Calibration Setup

6.1.4.5. DFS Test Set Up

Setup for Conducted Measurements where the EUT is the Client device with injection of Radar Test Waveforms at the Master.

Support Equipment Configuration





Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 164 of 432

The EUT is a Client Device without radar detection.

Applicability of DFS Requirements Prior to Use of a Channel
(Ref Table 1 of FCC 06-96)

| Requirement | Operational Mode | | |
|--|------------------|--------------------------------|-----------------------------|
| | Master | Client Without Radar Detection | Client With Radar Detection |
| <i>Non-Occupancy Period</i> | Yes | Not required | Yes |
| <i>DFS Detection Threshold</i> | Yes | Not required | Yes |
| <i>Channel Availability Check Time</i> | Yes | Not required | Not required |
| <i>Uniform Spreading</i> | Yes | Not required | Not required |
| <i>U-NII Detection Bandwidth</i> | Yes | Not required | Yes |

Applicability of DFS requirements during normal operation
(Ref Table 2 of FCC 06-96)

| Requirement | Operational Mode | | |
|--|------------------|--------------------------------|-----------------------------|
| | Master | Client Without Radar Detection | Client With Radar Detection |
| <i>DFS Detection Threshold</i> | Yes | Not required | Yes |
| <i>Channel Closing Transmission Time</i> | Yes | Yes | Yes |
| <i>Channel Move Time</i> | Yes | Yes | Yes |
| <i>U-NII Detection Bandwidth</i> | Yes | Not required | Yes |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 165 of 432

6.1.4.6. DFS Test Results

6.1.4.6.1. In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

FCC §15.407(h)(2)(iii)

The steps below define the procedure to determine the above mentioned parameters when a radar Burst with a level equal to the DFS Detection Threshold is generated on the Operating Channel of the U-NII device.

A U-NII device operating as a Client Device will associate with the EUT (Master). The requisite MPEG video file ("TestFile.mpg" available on the NTIA website at the following link <http://ntiacsd.ntia.doc.gov/dfs/>) is streamed from the master device (AP) to the client.

Channel Closing Transmission Time - Measurement

The test system was set-up to capture all transmission data for access point events above a threshold level of -50 dBm. The test equipment time stamps all captured events.

A Type 1 waveform was introduced to the EUT, from which a 12 second transmission record was digitally captured. The start of the Type 1 radar waveform is indicated in the test result plot as "Start Waveform", the end of the waveform is indicated as "End waveform".

Channel Closing Transmission Time, and the Channel Move Time start immediately after the last radar pulse is transmitted.

The aggregate of all pulses seen after the end of the radar injection are measured as the "Channel Closing Transmission time".

The last EUT activity after the end of the radar pulse is identified and used to determine the "Channel Mode Time"



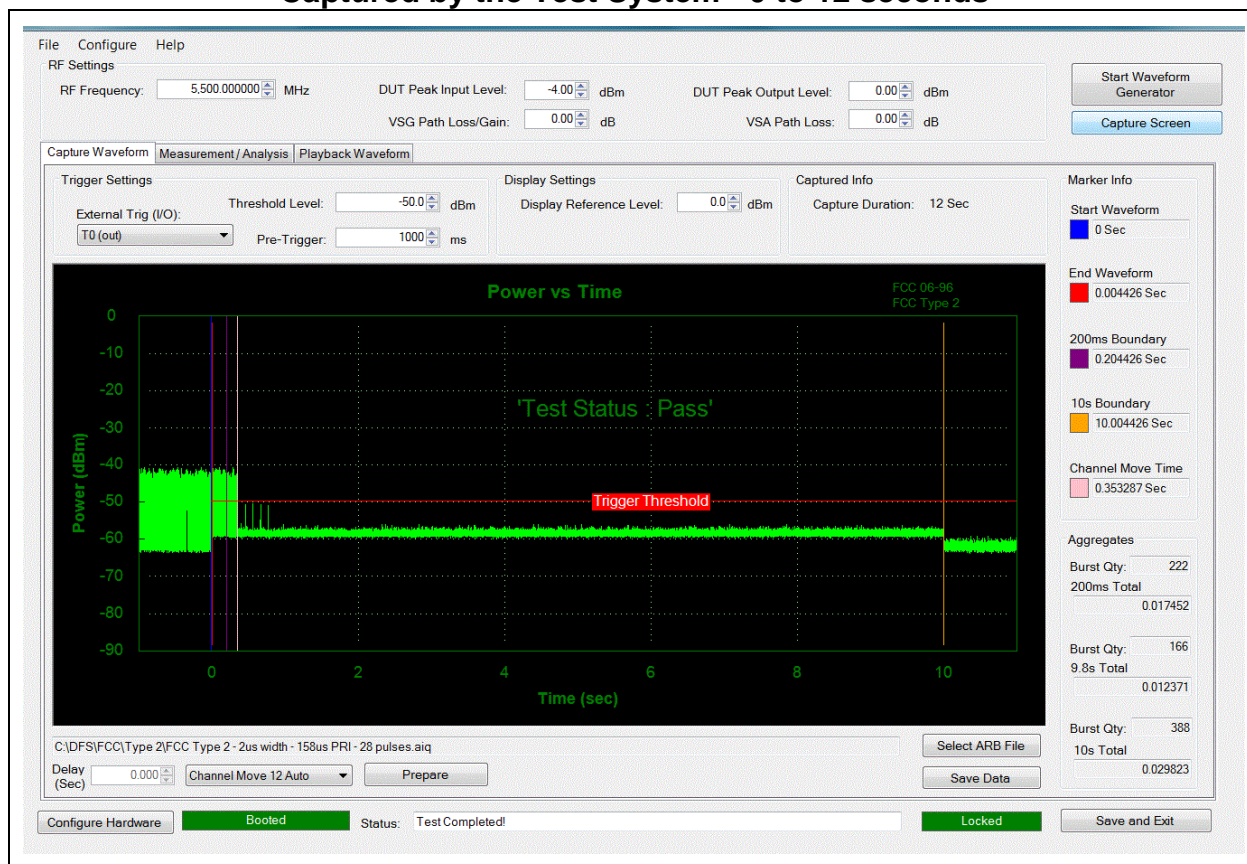
Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 166 of 432

5,500 MHz (802.11a)

Channel Closing Transmission Time = 29.83 mSecs (limit 260 mSecs)

Channel Move Time = 353.28 mSecs (limit 10 Secs)

**Channel Move Time, Channel Closing Transmission Time for Type 1 Radar
Captured by the Test System - 0 to 12 seconds**



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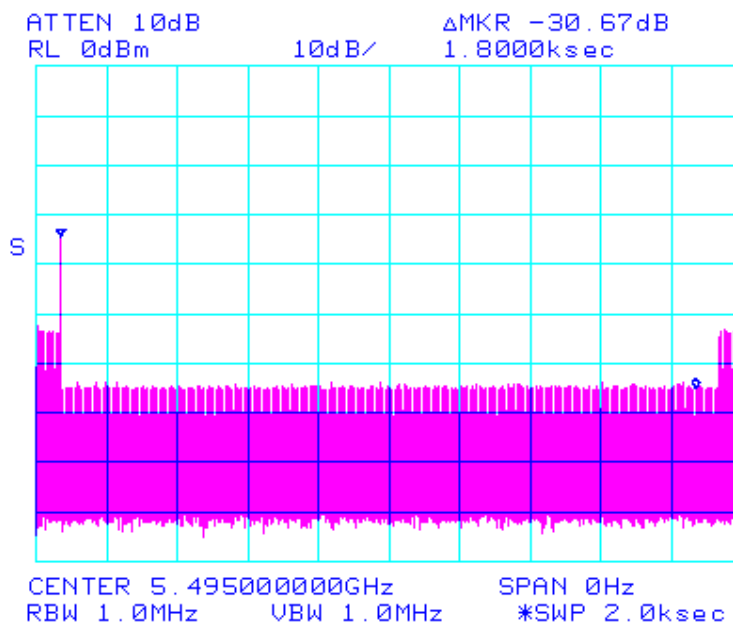


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 167 of 432

6.1.5. 30 Minute Non-Occupancy Period

The EUT is monitored for more than 30 minutes following the channel close/move time to verify no transmissions resume on this Channel.

30 Minute Non-Occupancy Period Type 1 Radar 5,500MHz 802.11a



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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 168 of 432

Measurement Uncertainty Time/Power

| | |
|-------------------------|--------|
| Measurement uncertainty | |
| - Time | 4% |
| - Power | 1.33dB |

Traceability

Test Equipment Used

0072, 0083, 0098, 0116, 0132, 0158, 0313, 0314, 0193, 0223, 0252, 0253, 0251, 0256, 0328, 0329

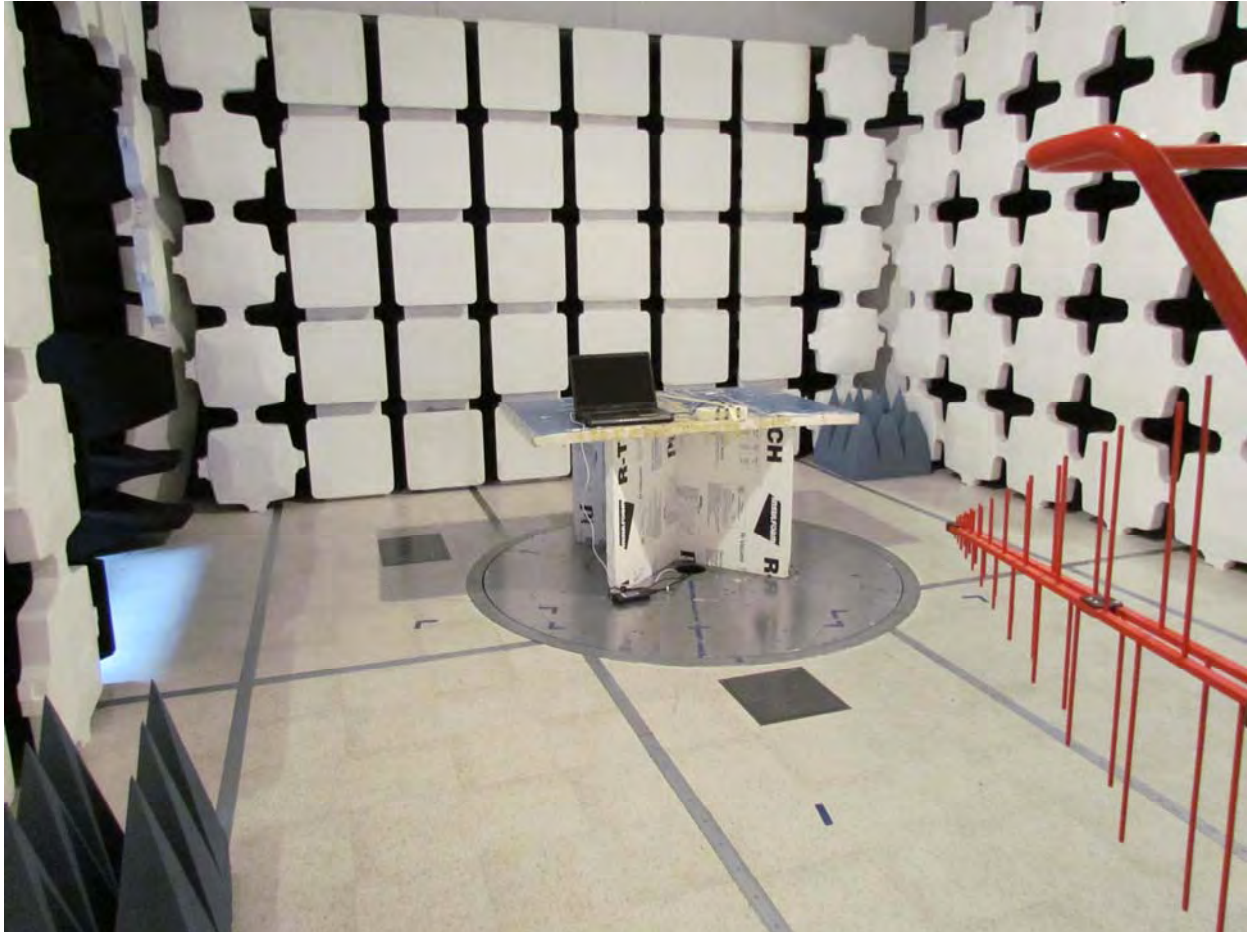
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7. PHOTOGRAPHS

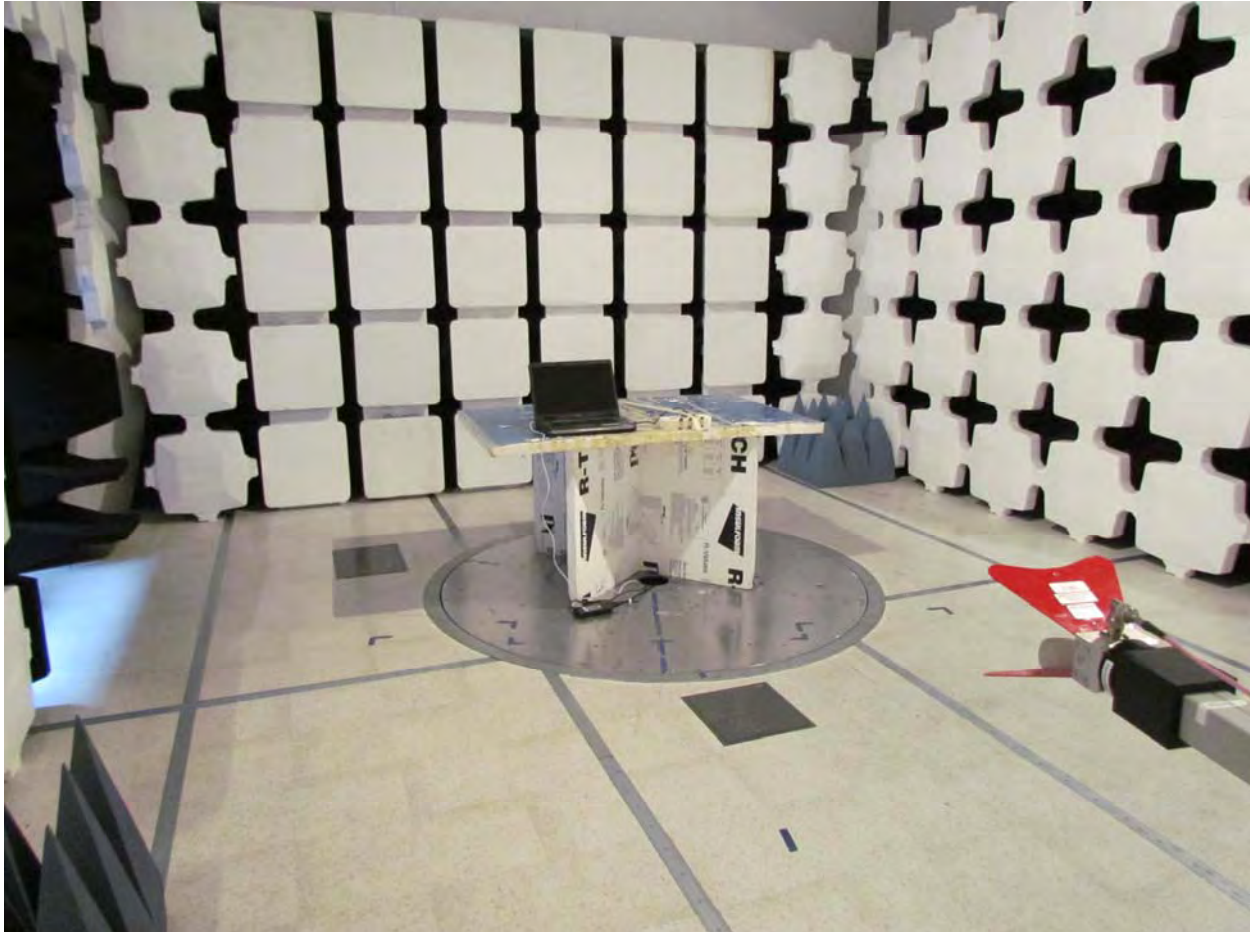
7.1. Conducted Test Setup



7.2. Radiated Emissions < 1 GHz

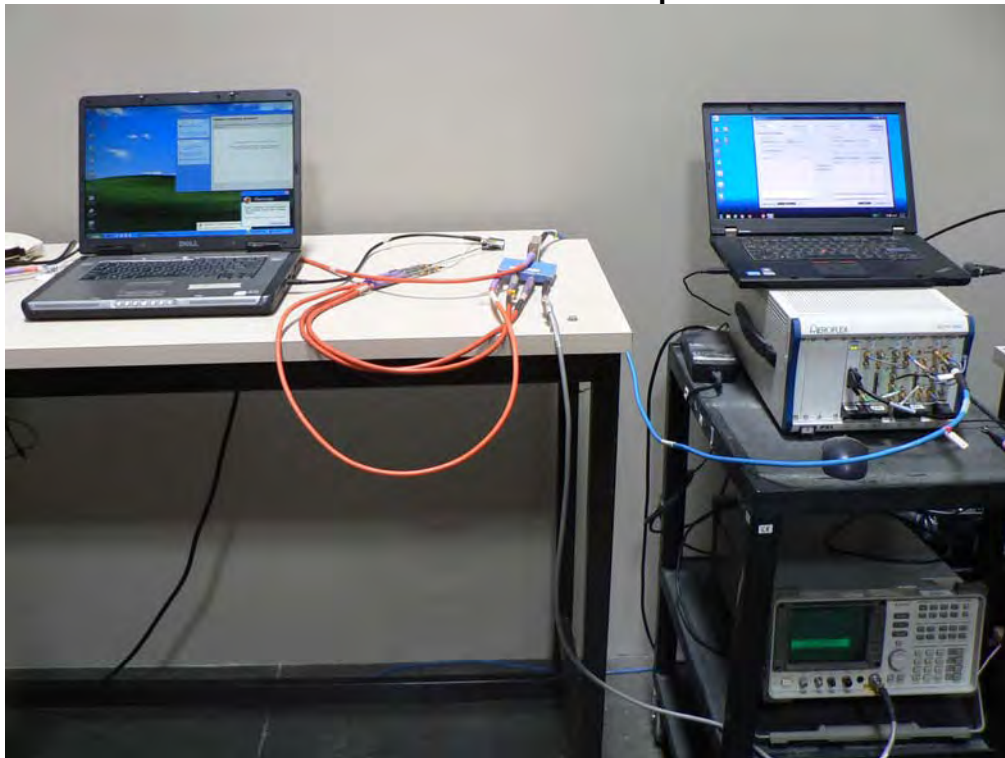


7.3. Radiated Emissions > 1 GHz



7.4. Dynamic Frequency Selection Test Set-Up

General DFS Test Setup





Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 173 of 432

8. TEST EQUIPMENT

| Asset # | Instrument | Manufacturer | Part # | Serial # | Calibration Due Date |
|---------|----------------------------|----------------------|-----------------------|---------------|--------------------------|
| 0117 | Power Sensor | Hewlett Packard | 8487D | 3318A00371 | 18 th Oct 14 |
| 0223 | Power Meter | Hewlett Packard | EPM-442A | US37480256 | 18 th Oct 14 |
| 0376 | Power Sensor | Agilent | U2000A | MY51440005 | 28 th Oct 14 |
| 0390 | Power Sensor | Agilent | U2002A | MY50000103 | 17 th Oct 14 |
| 0158 | Barometer /Thermometer | Control Co. | 4196 | E2846 | 6 th Dec 14 |
| 0287 | EMI Receiver | Rhode & Schwartz | ESIB40 | 100201 | 31 st Jul 14 |
| 0378 | EMI Receiver | Rhode & Schwartz | ESIB40 | 100107/040 | 17 th Jul 14 |
| 0338 | 30 - 3000 MHz Antenna | Sunol | JB3 | A052907 | 14 th Aug 14 |
| 0399 | 1-18 GHz Horn Antenna | EMCO | 3117 | 00154575 | 10 th 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 | 21 st 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 | 20 th Sept 14 |

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Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 174 of 432

APPENDIX

A. SUPPORTING INFORMATION

A.1. CONDUCTED TEST PLOTS

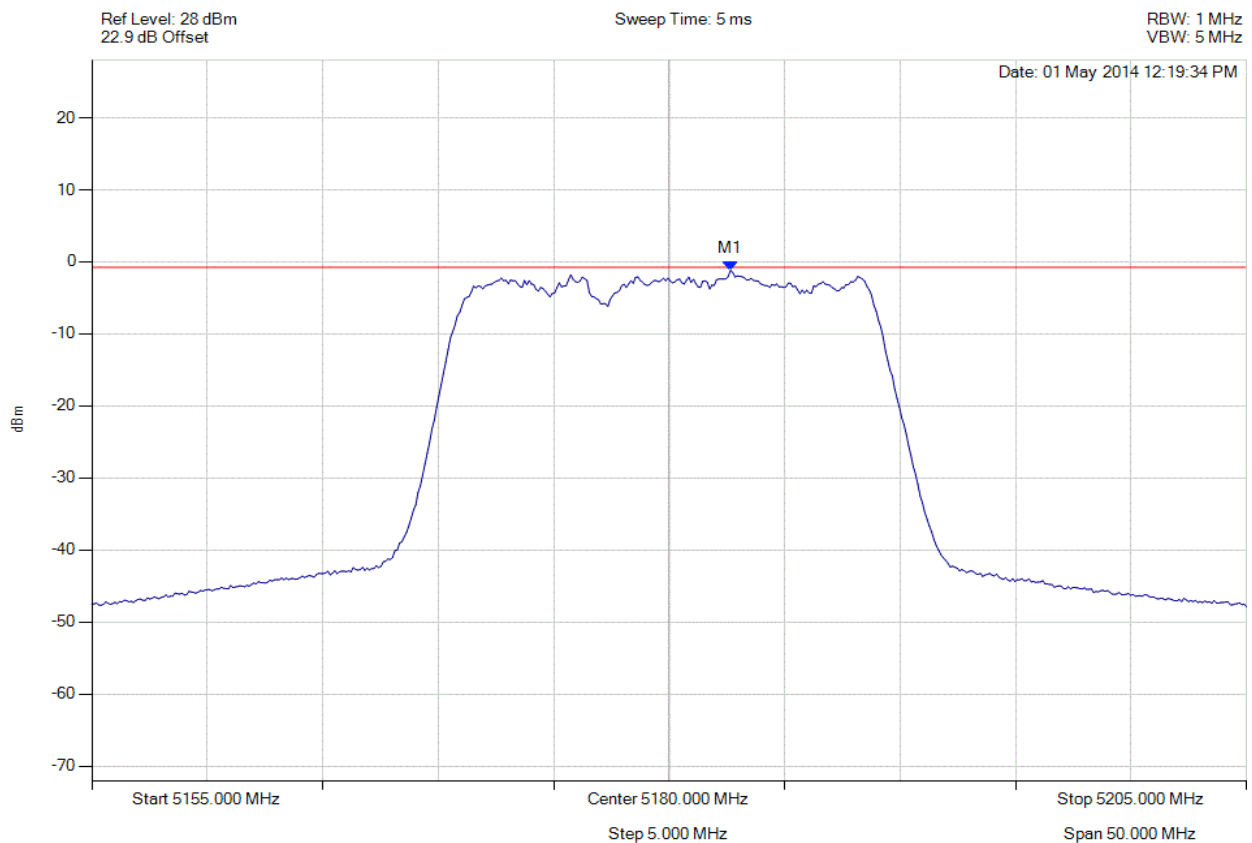
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A.1.1. Peak Power Spectral Density



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5182.655 MHz : -1.193 dBm | Limit: ≤ -0.771 dBm Margin: 0.15 dB |

[Back to the Matrix](#)

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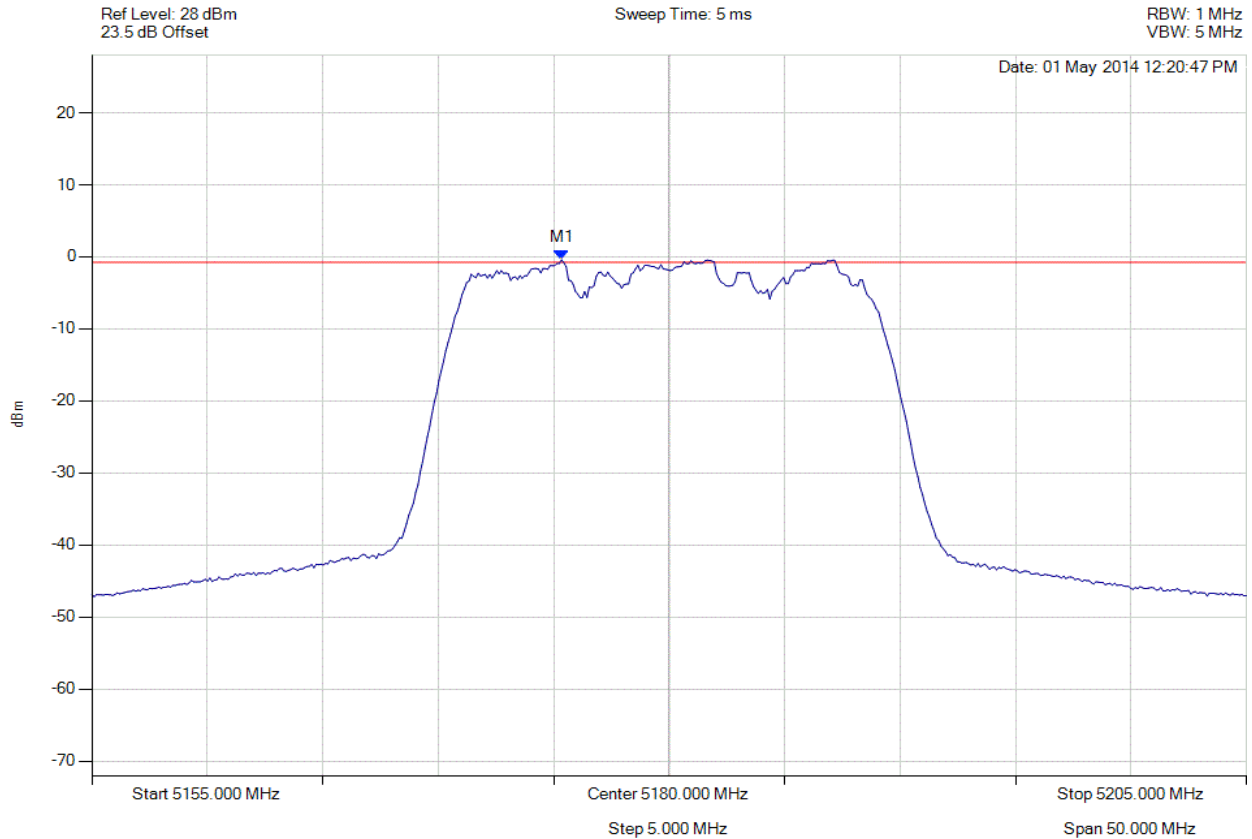


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 176 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5175.341 MHz : -0.406 dBm | Limit: ≤ -0.771 dBm Margin: -0.63 dB |

[Back to the Matrix](#)

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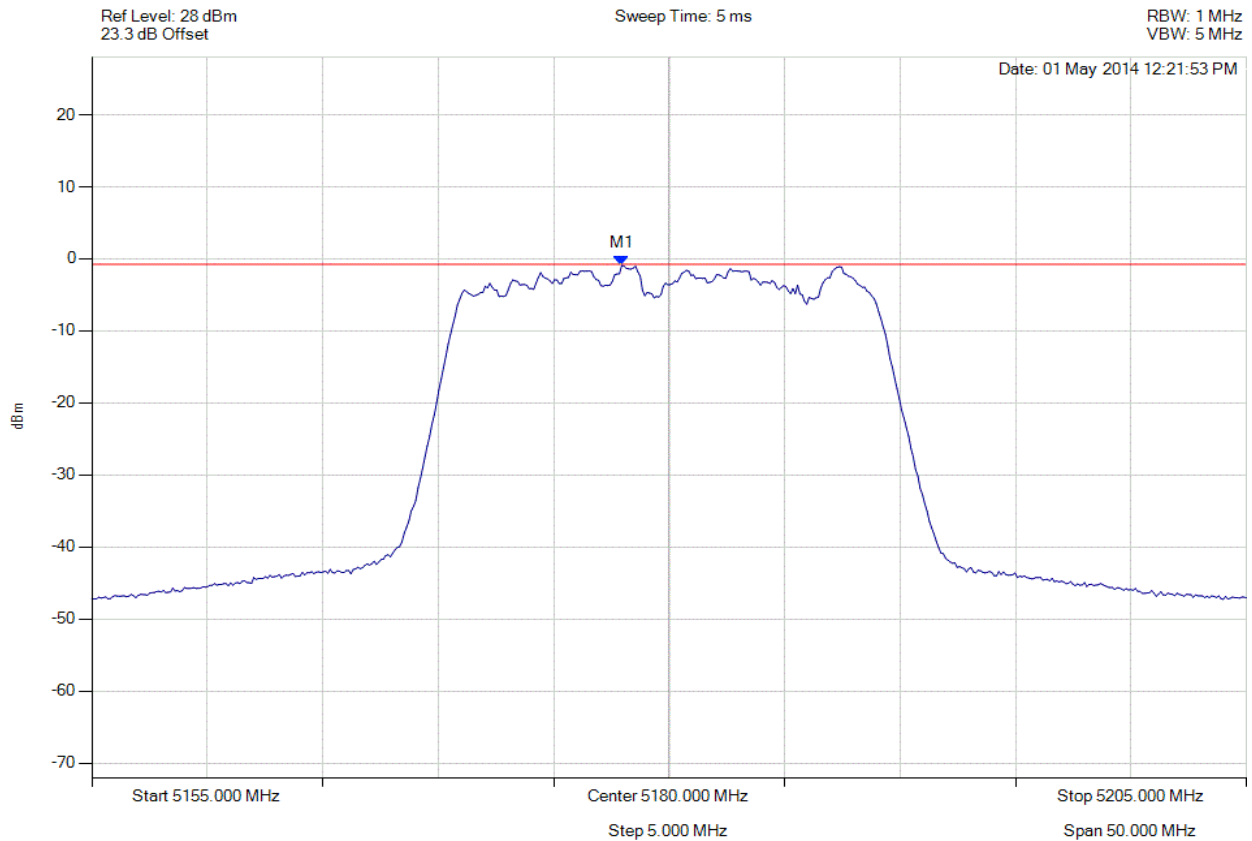


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 177 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5177.946 MHz : -0.938 dBm | Limit: ≤ -0.771 dBm Margin: -0.10 dB |

[Back to the Matrix](#)

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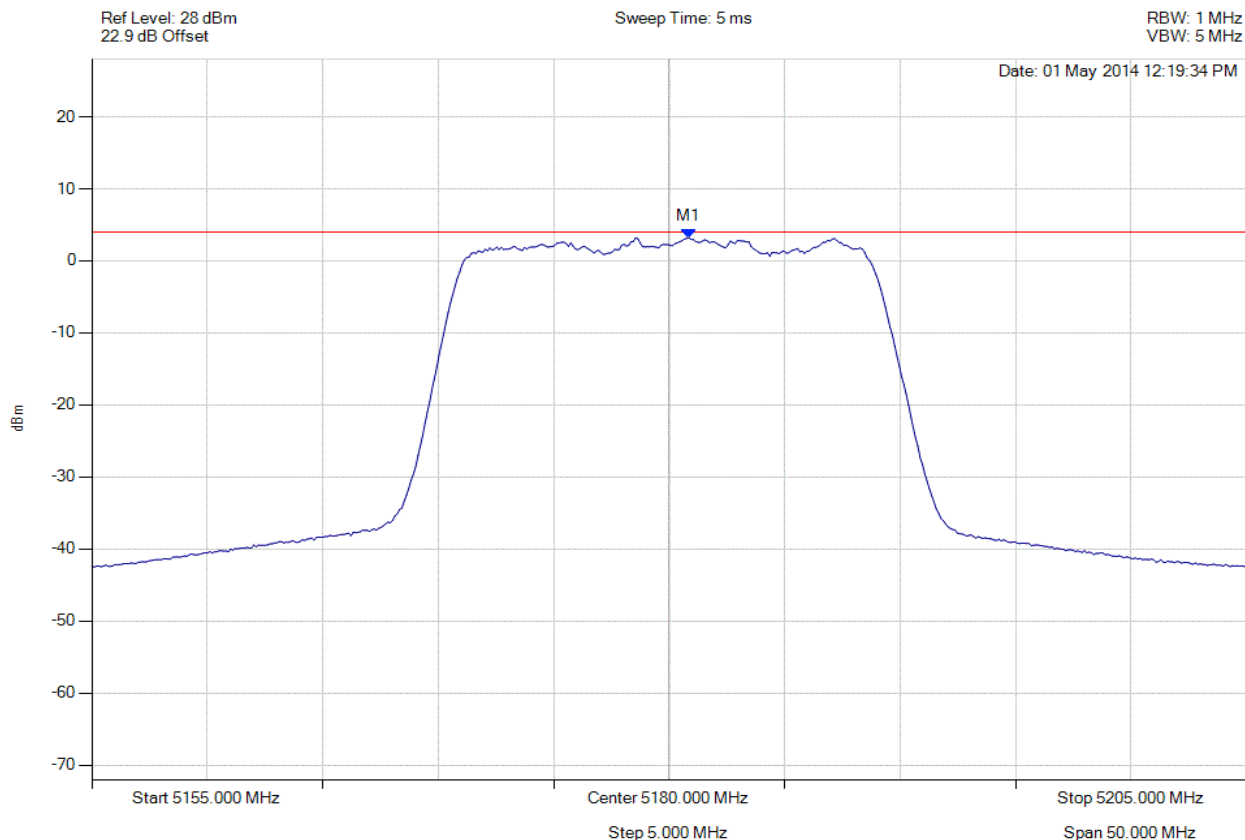


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 178 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5180.852 MHz : 3.200 dBm | Limit: ≤ 4.0 dBm Margin: -0.8 dB |

[Back to the Matrix](#)

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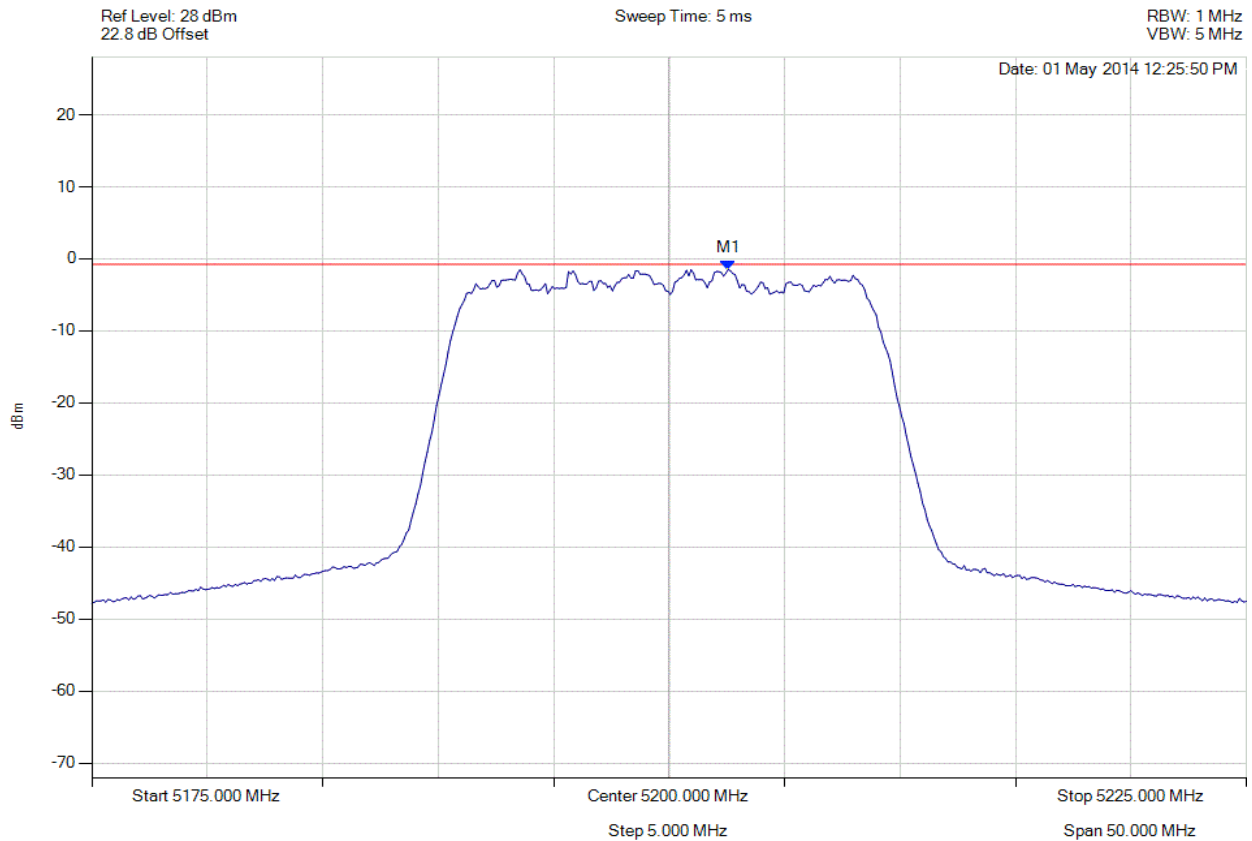


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 179 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5202.555 MHz : -1.494 dBm | Limit: ≤ -0.771 dBm Margin: 0.45 dB |

[Back to the Matrix](#)

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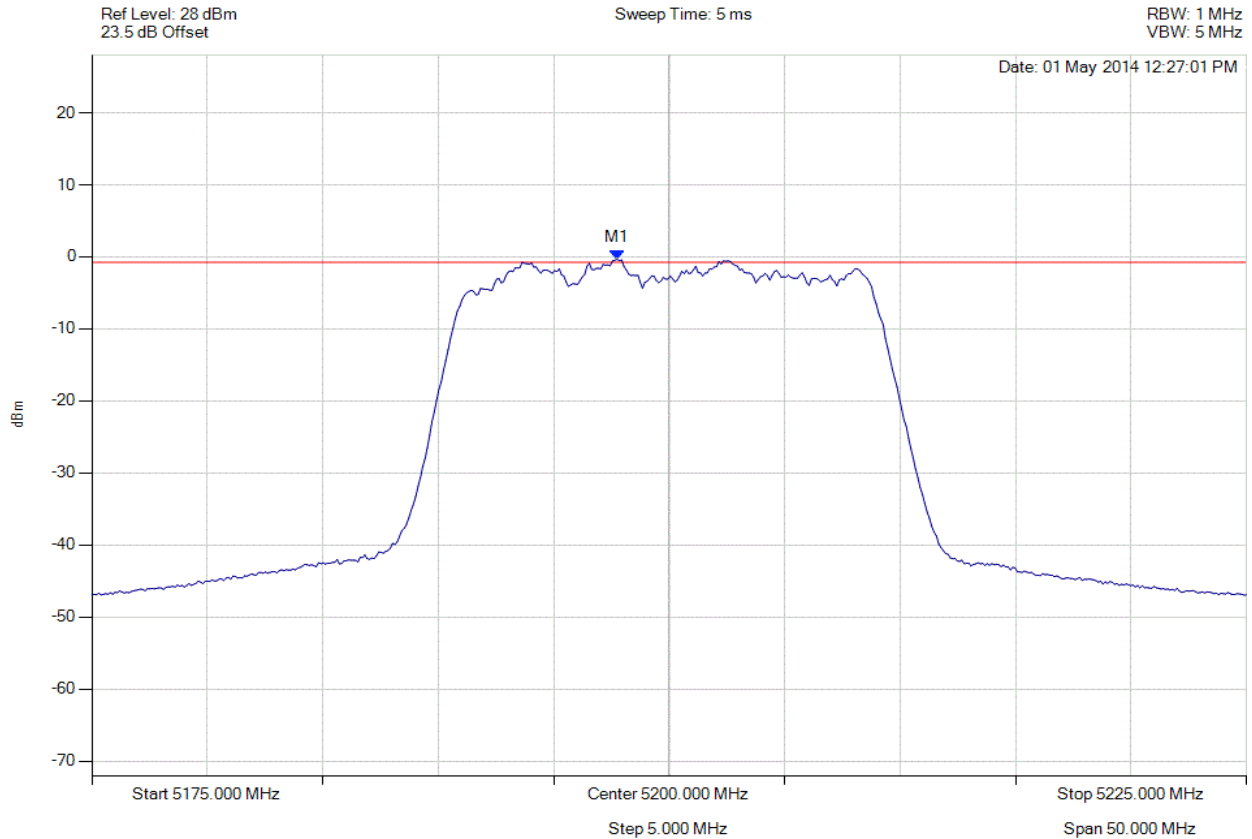


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 180 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5197.745 MHz : -0.351 dBm | Limit: ≤ -0.771 dBm Margin: -0.69 dB |

[Back to the Matrix](#)

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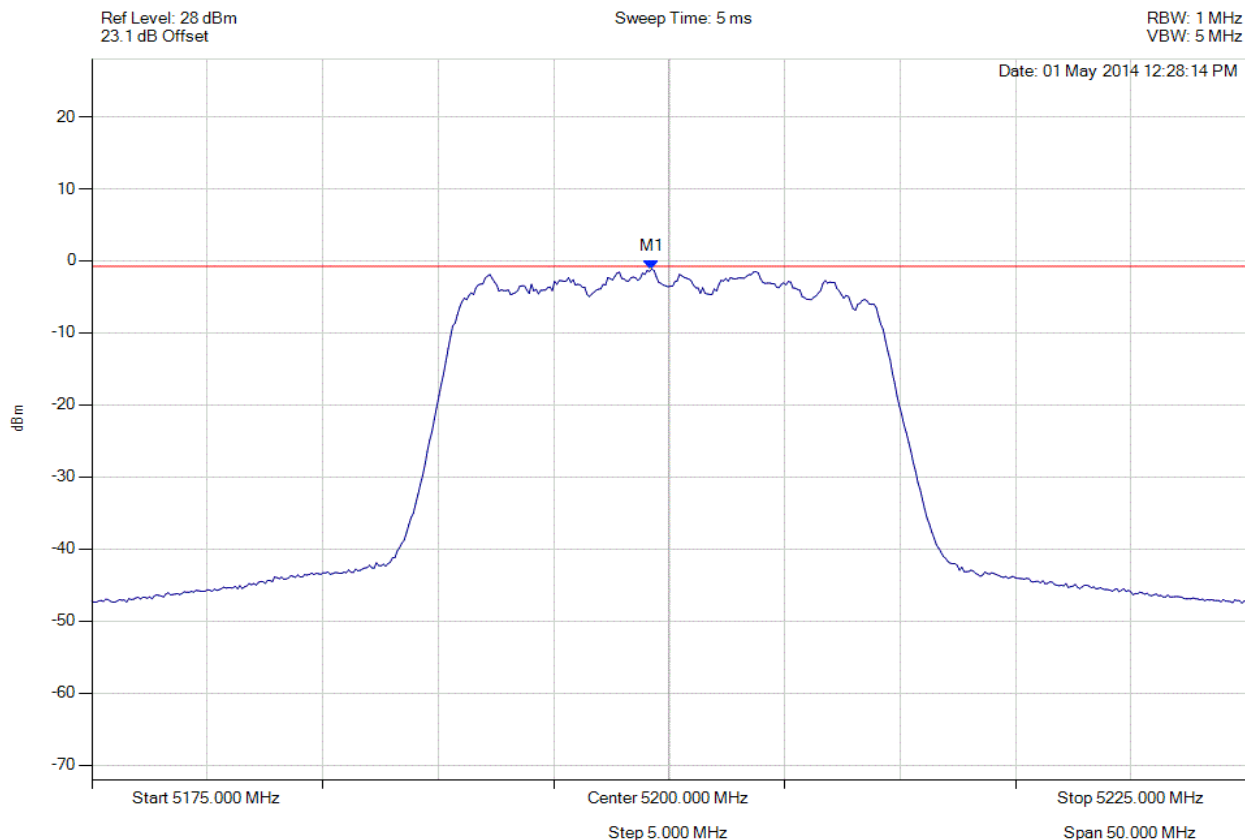


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 181 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5199.248 MHz : -1.126 dBm | Limit: ≤ -0.771 dBm Margin: 0.09 dB |

[Back to the Matrix](#)

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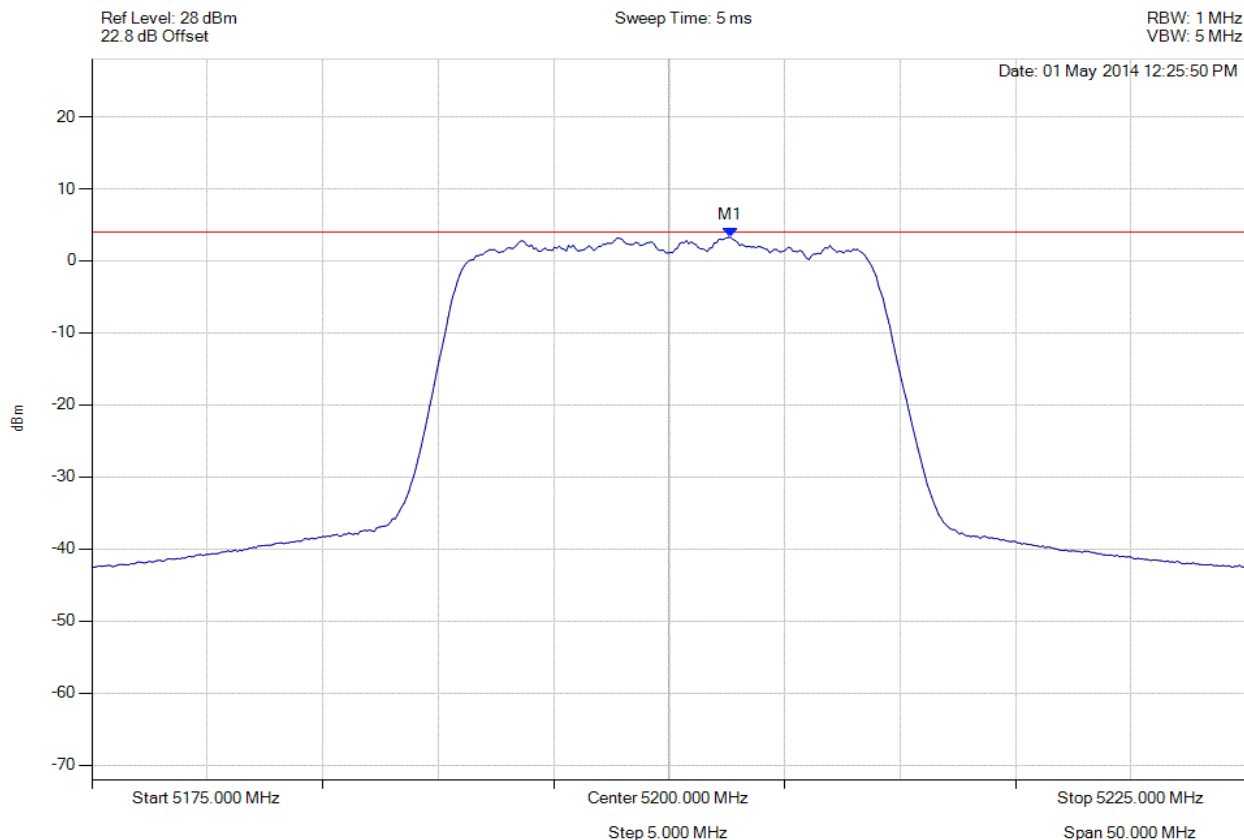


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 182 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5202.655 MHz : 3.275 dBm | Limit: ≤ 4.0 dBm Margin: -0.7 dB |

[Back to the Matrix](#)

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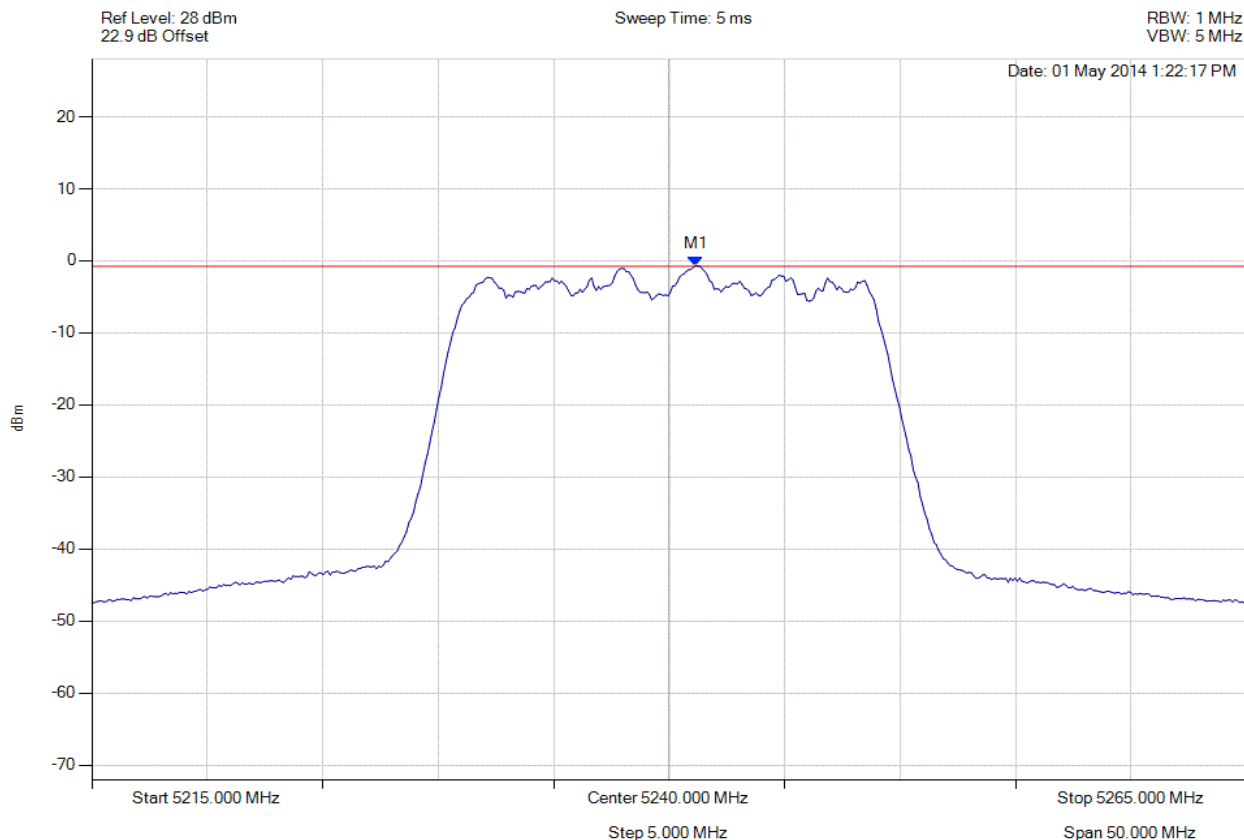


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 183 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5241.152 MHz : -0.685 dBm | Limit: ≤ -0.771 dBm Margin: -0.36 dB |

[Back to the Matrix](#)

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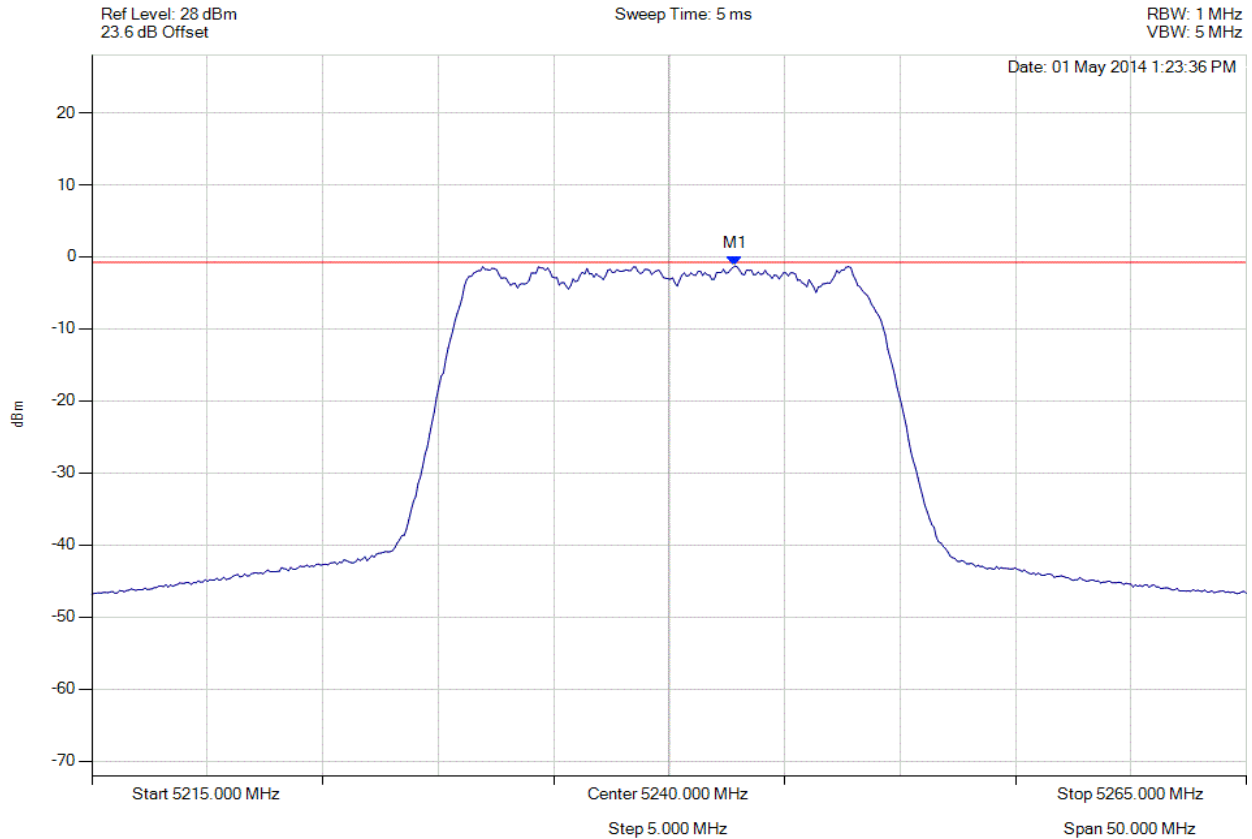


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 184 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5242.856 MHz : -1.275 dBm | Limit: ≤ -0.771 dBm Margin: 0.23 dB |

[Back to the Matrix](#)

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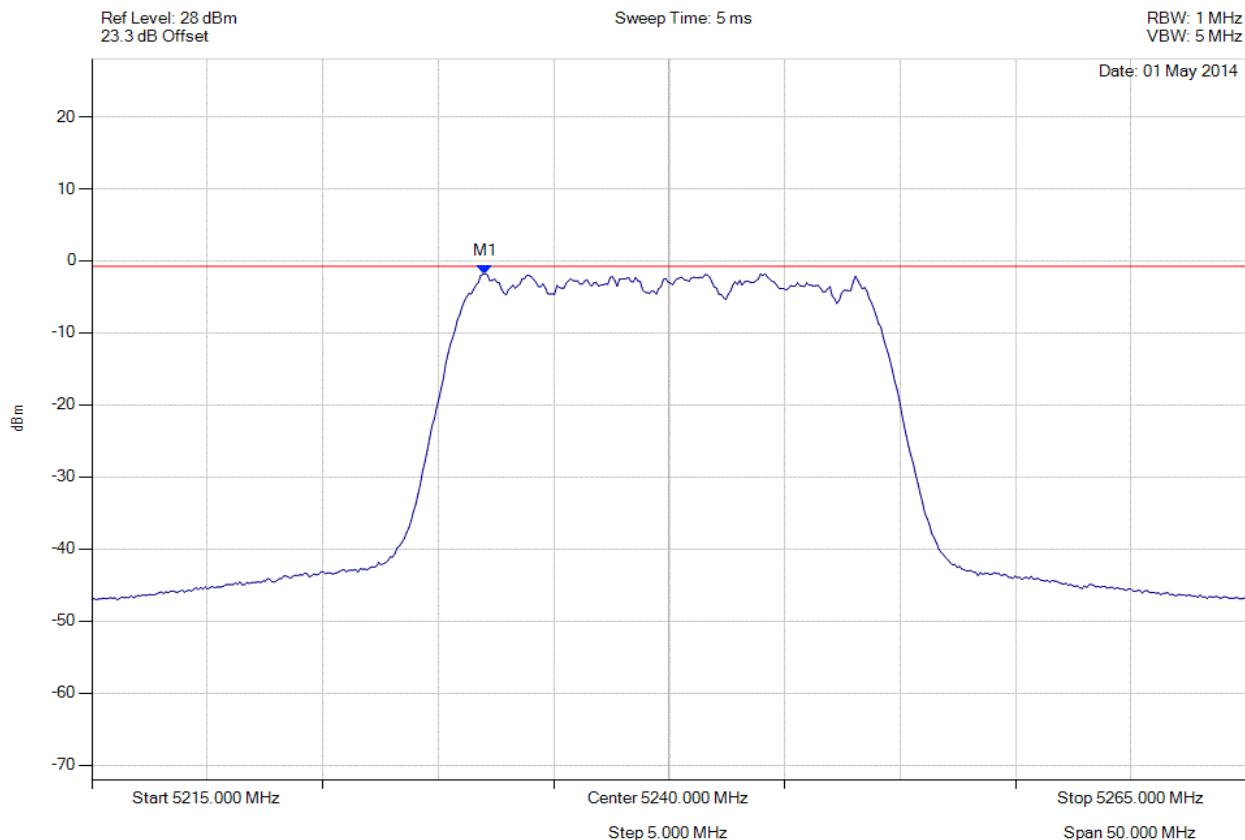


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 185 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5232.034 MHz : -1.787 dBm | Limit: ≤ -0.771 dBm Margin: 0.75 dB |

[Back to the Matrix](#)

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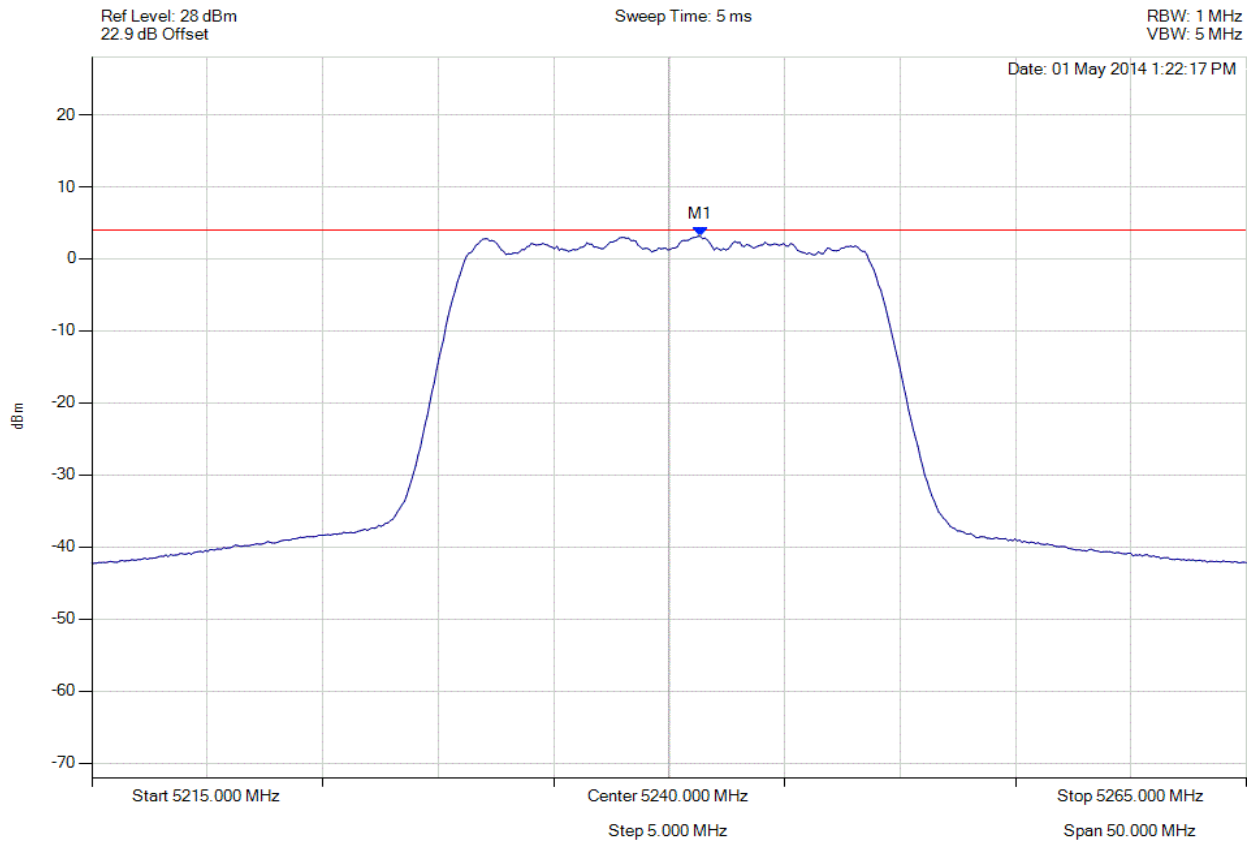


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 186 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5241.353 MHz : 3.139 dBm | Limit: ≤ 4.0 dBm Margin: -0.9 dB |

[Back to the Matrix](#)

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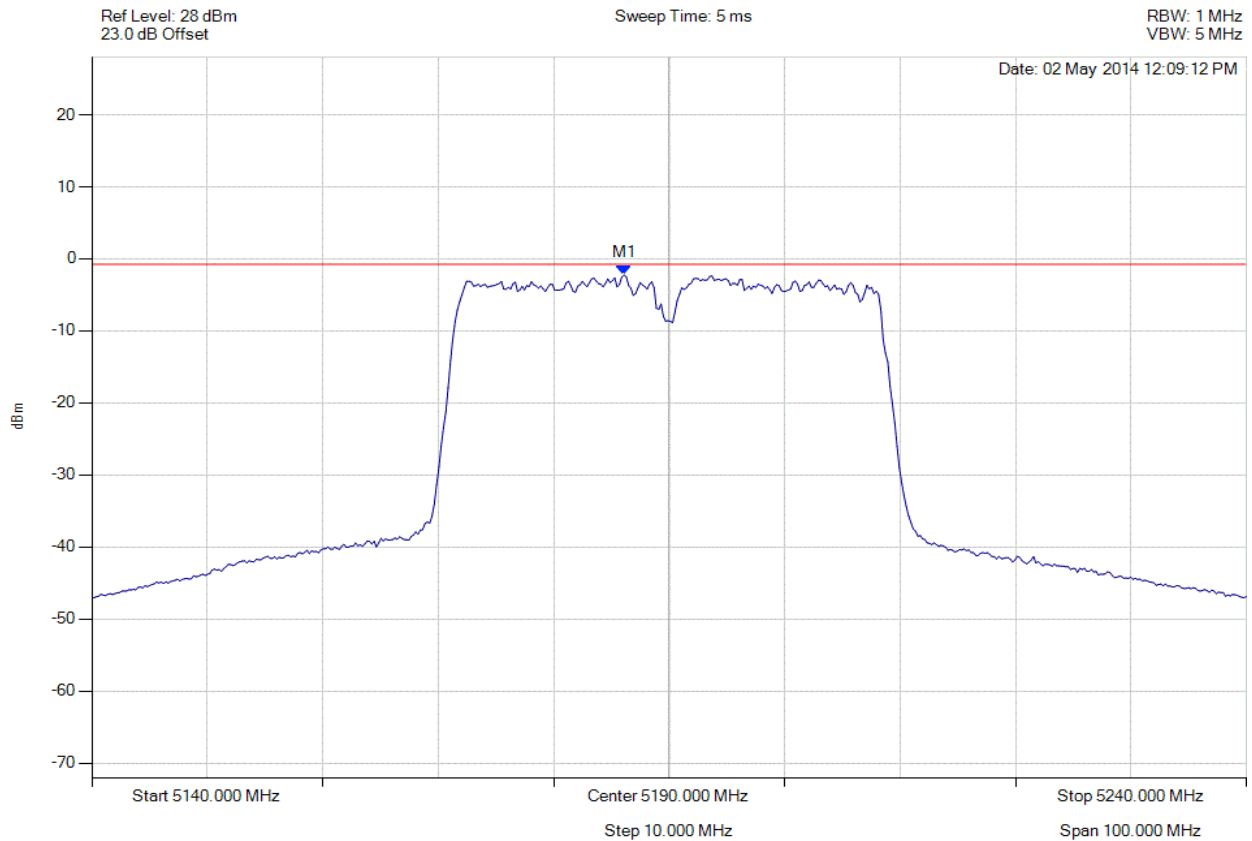


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 187 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5190.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



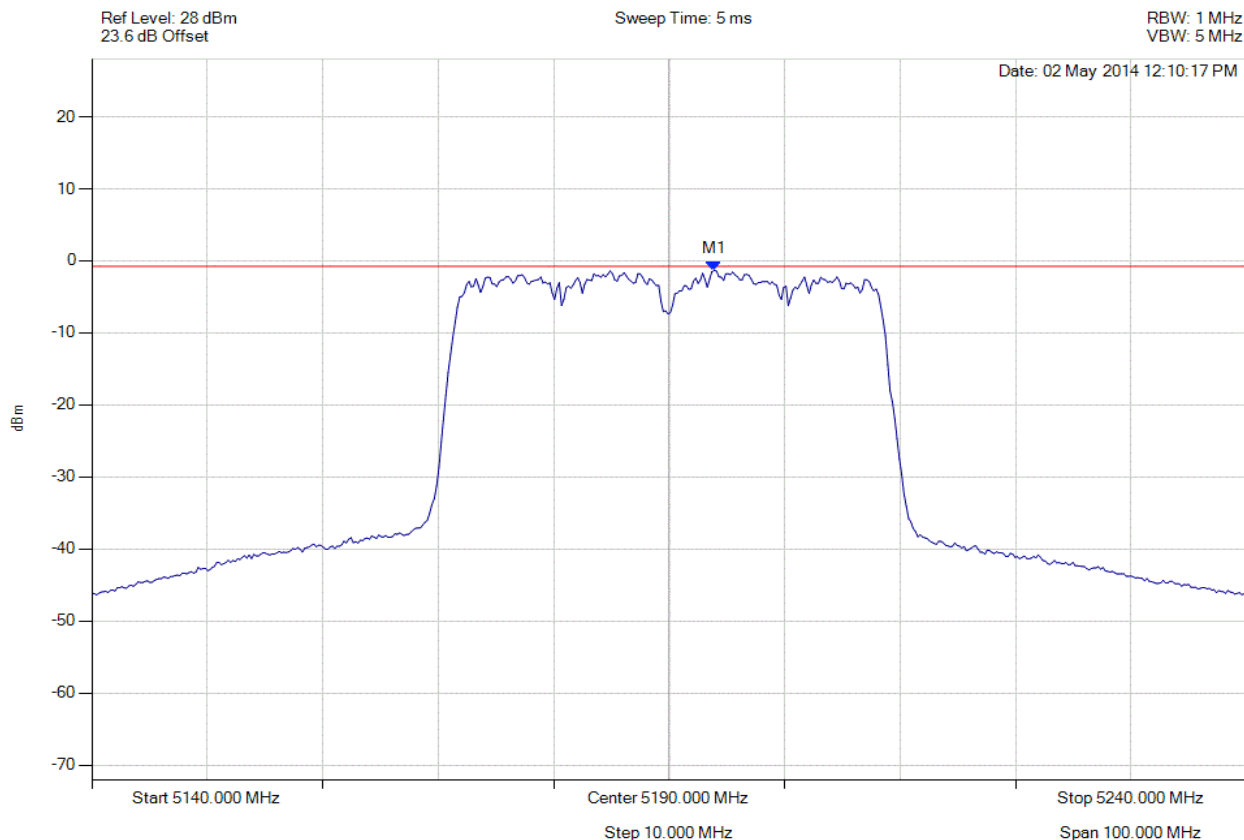
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5186.092 MHz : -2.248 dBm | Limit: ≤ -0.771 dBm Margin: 1.21 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5190.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc

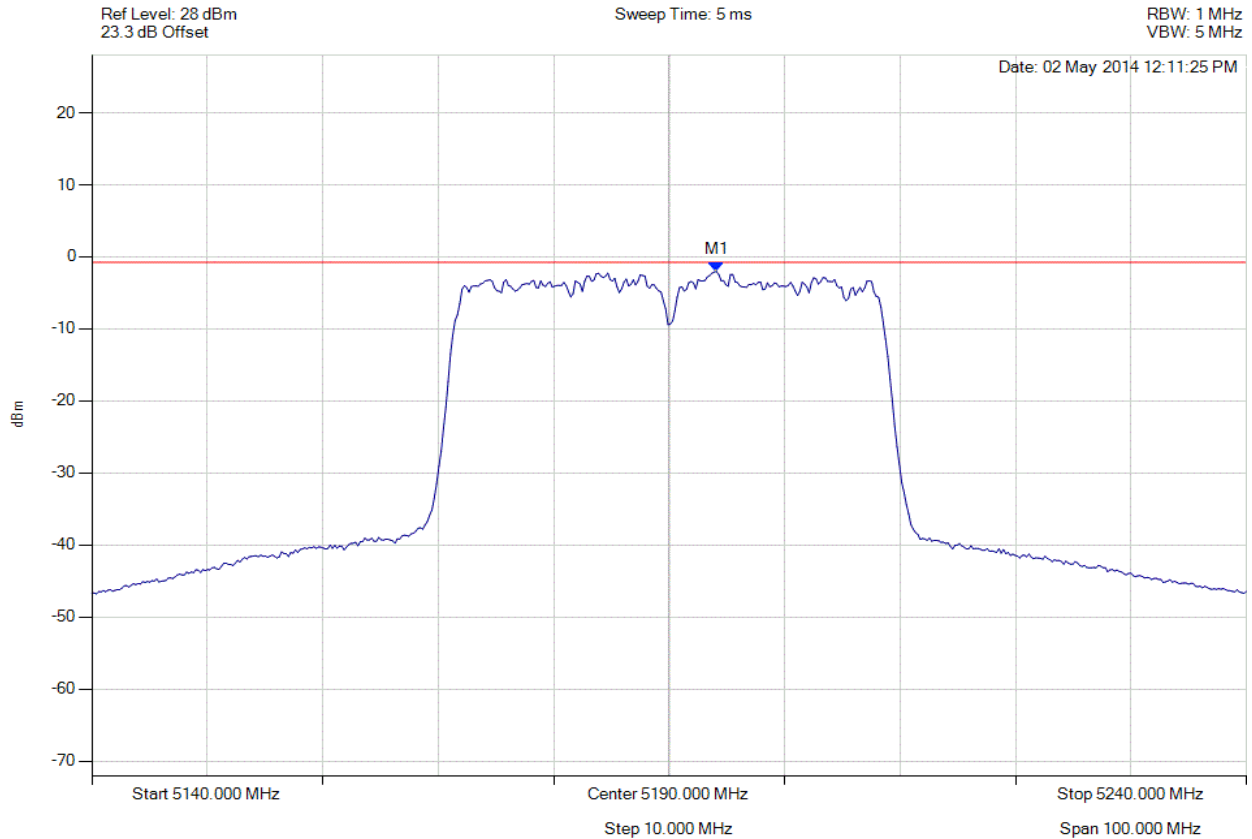


| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5193.908 MHz : -1.331 dBm | Limit: ≤ -0.771 dBm Margin: 0.29 dB |

[Back to the Matrix](#)

PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5190.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5194.108 MHz : -2.039 dBm | Limit: ≤ -0.771 dBm Margin: 1.00 dB |

[Back to the Matrix](#)

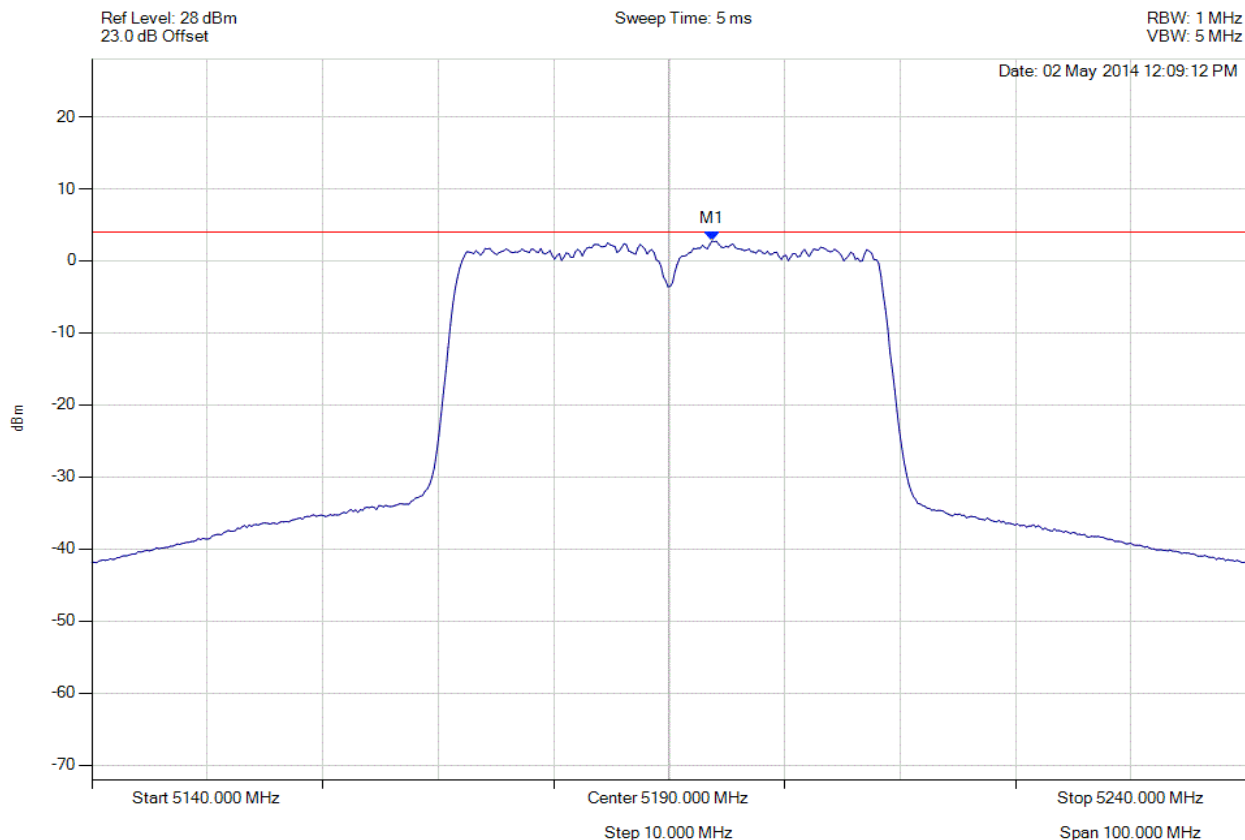


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 190 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5190.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5193.707 MHz : 2.750 dBm | Limit: ≤ 4.0 dBm Margin: -1.3 dB |

[Back to the Matrix](#)

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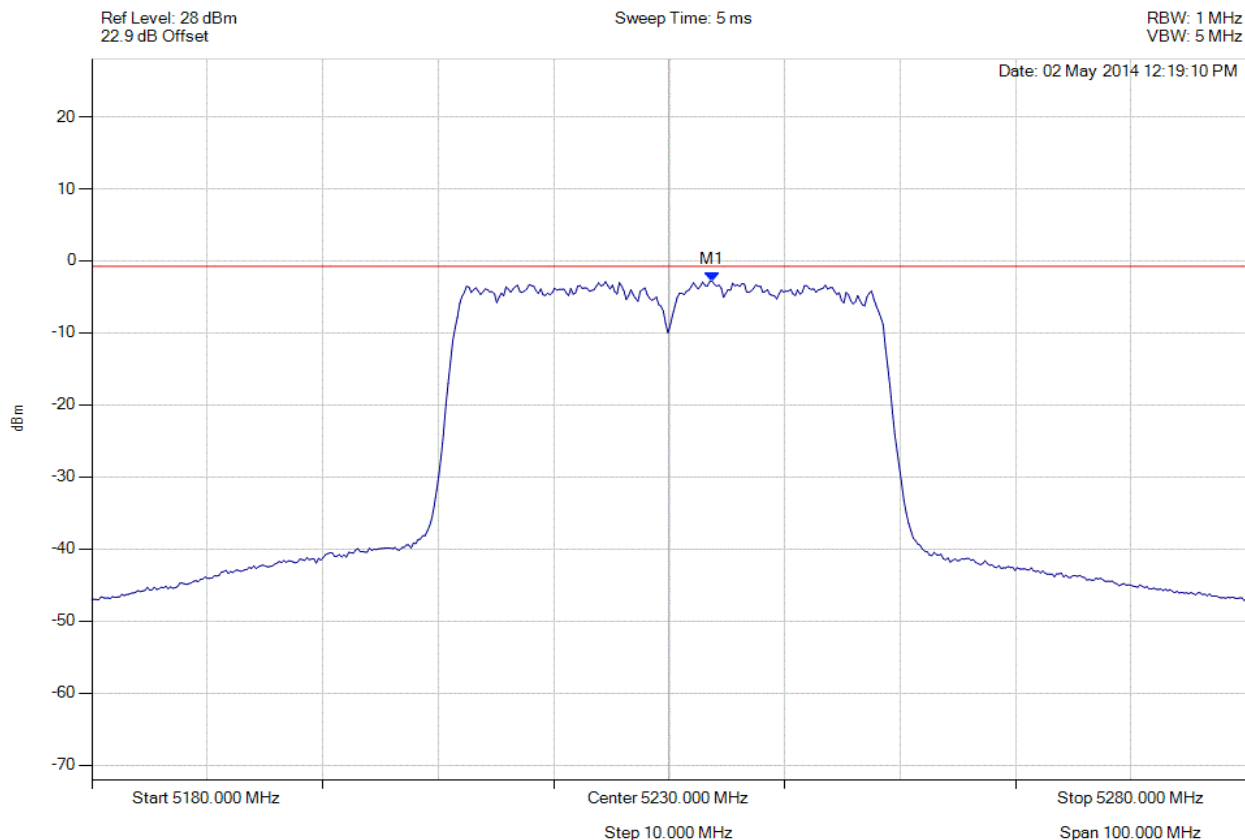


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 191 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5230.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



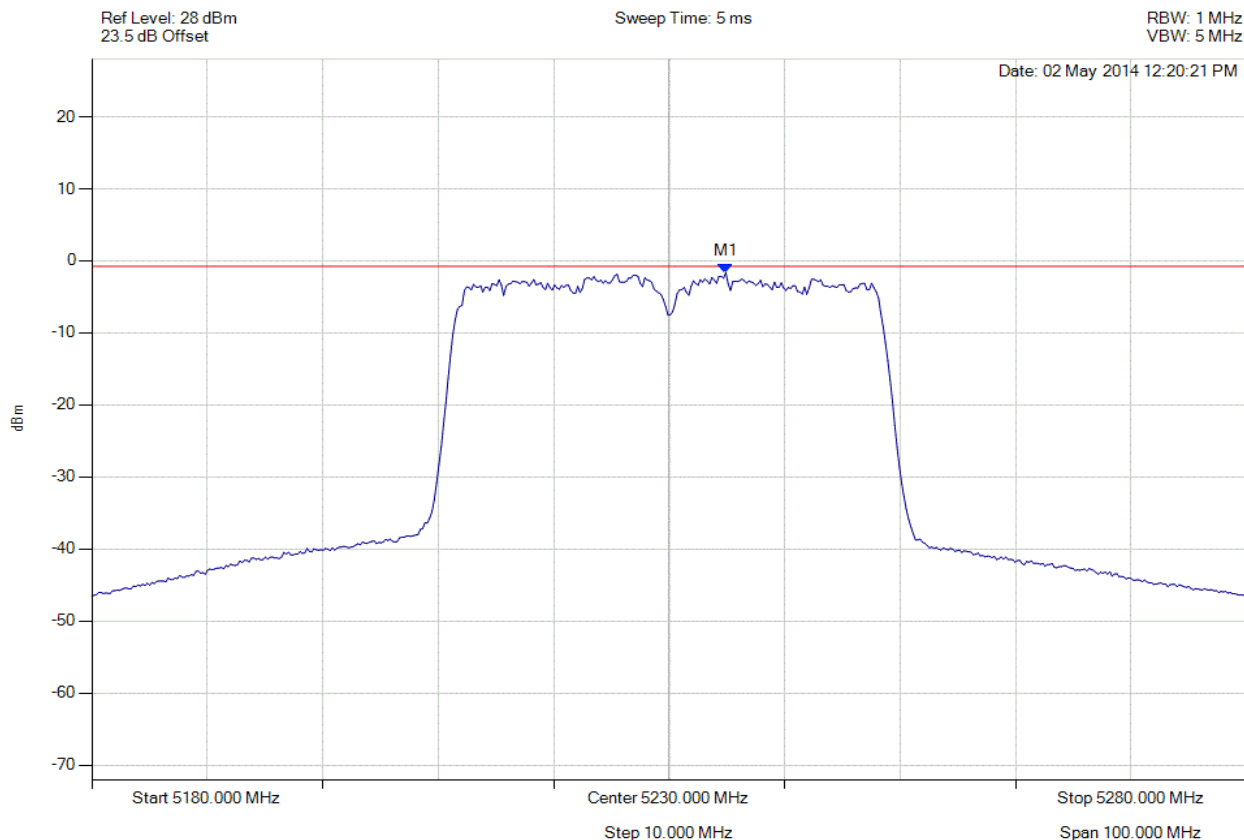
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5233.707 MHz : -2.829 dBm | Limit: ≤ -0.771 dBm Margin: 1.79 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5230.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5234.910 MHz : -1.633 dBm | Limit: ≤ -0.771 dBm Margin: 0.59 dB |

[Back to the Matrix](#)

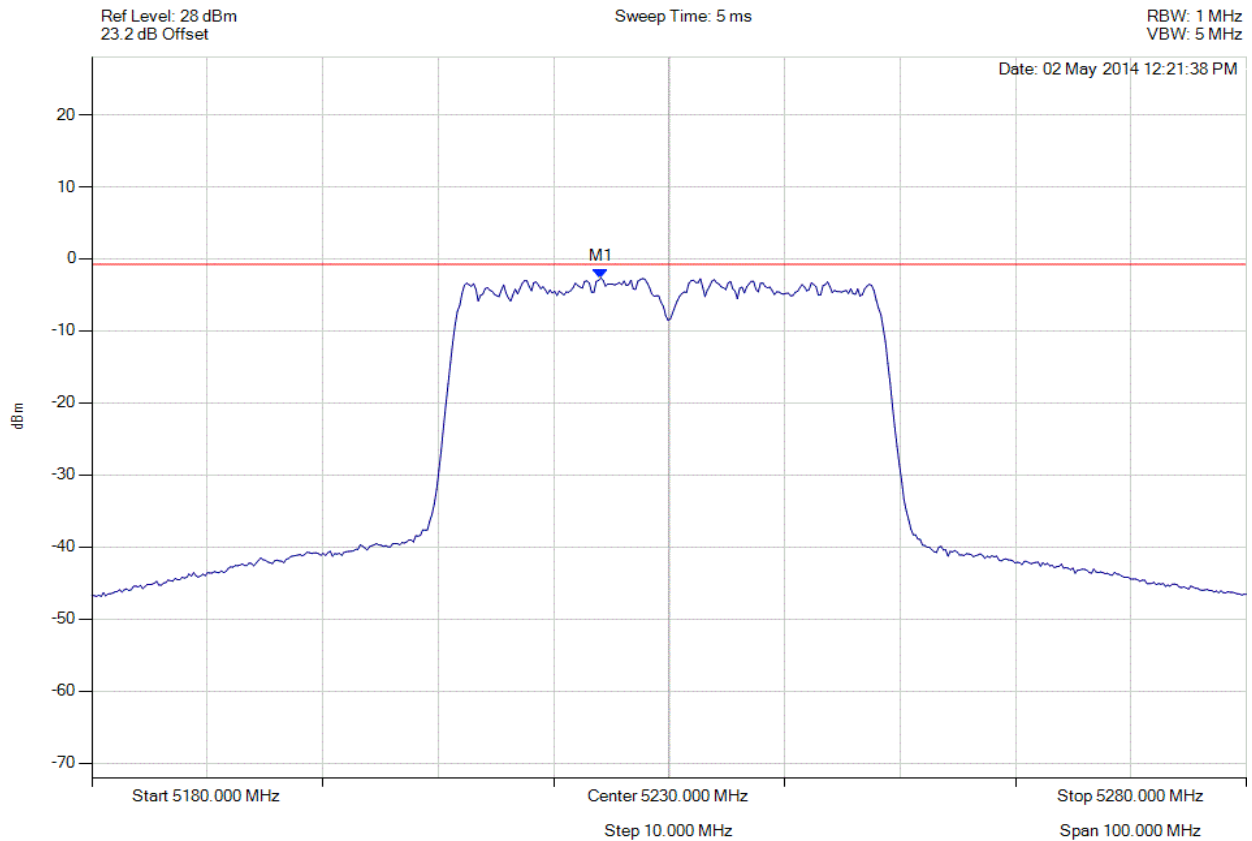


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 193 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5230.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5224.088 MHz : -2.654 dBm | Limit: ≤ -0.771 dBm Margin: 1.61 dB |

[Back to the Matrix](#)

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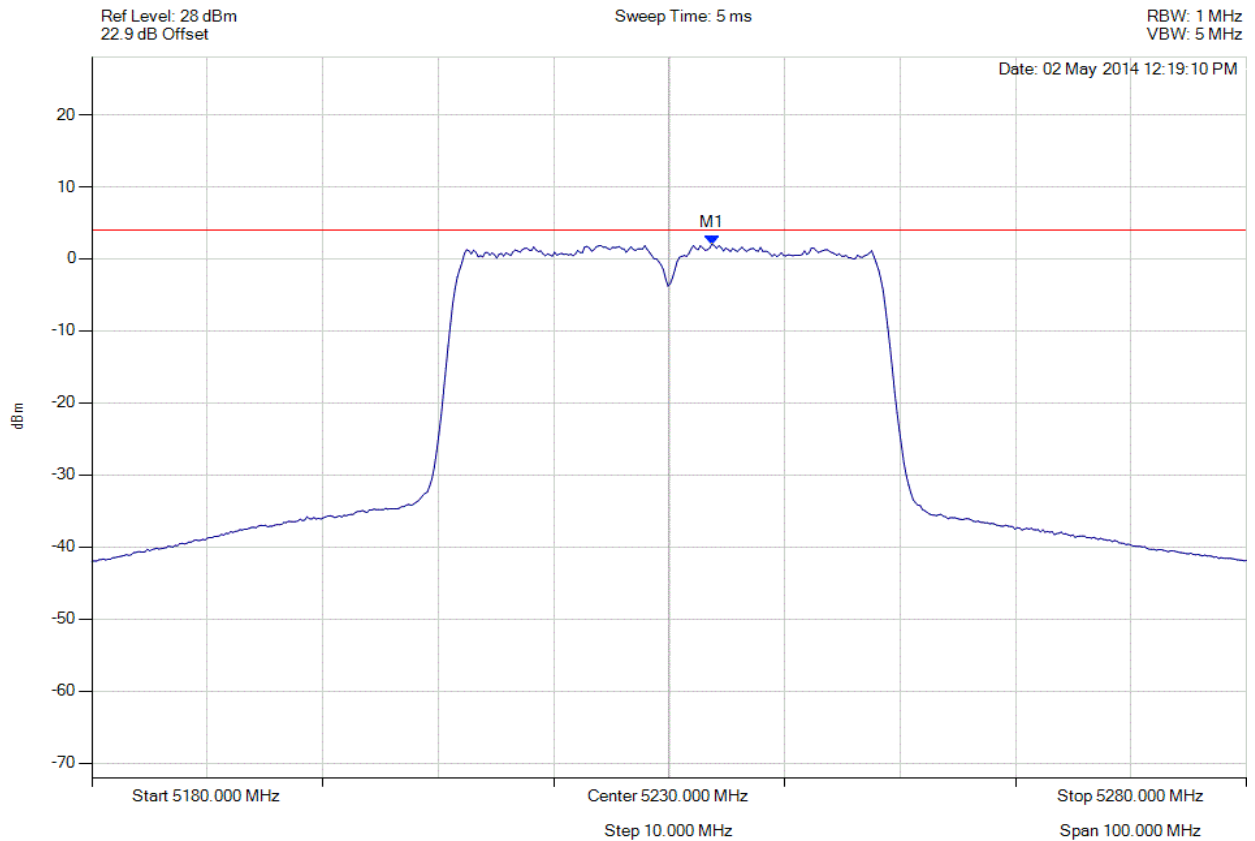


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 194 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5230.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



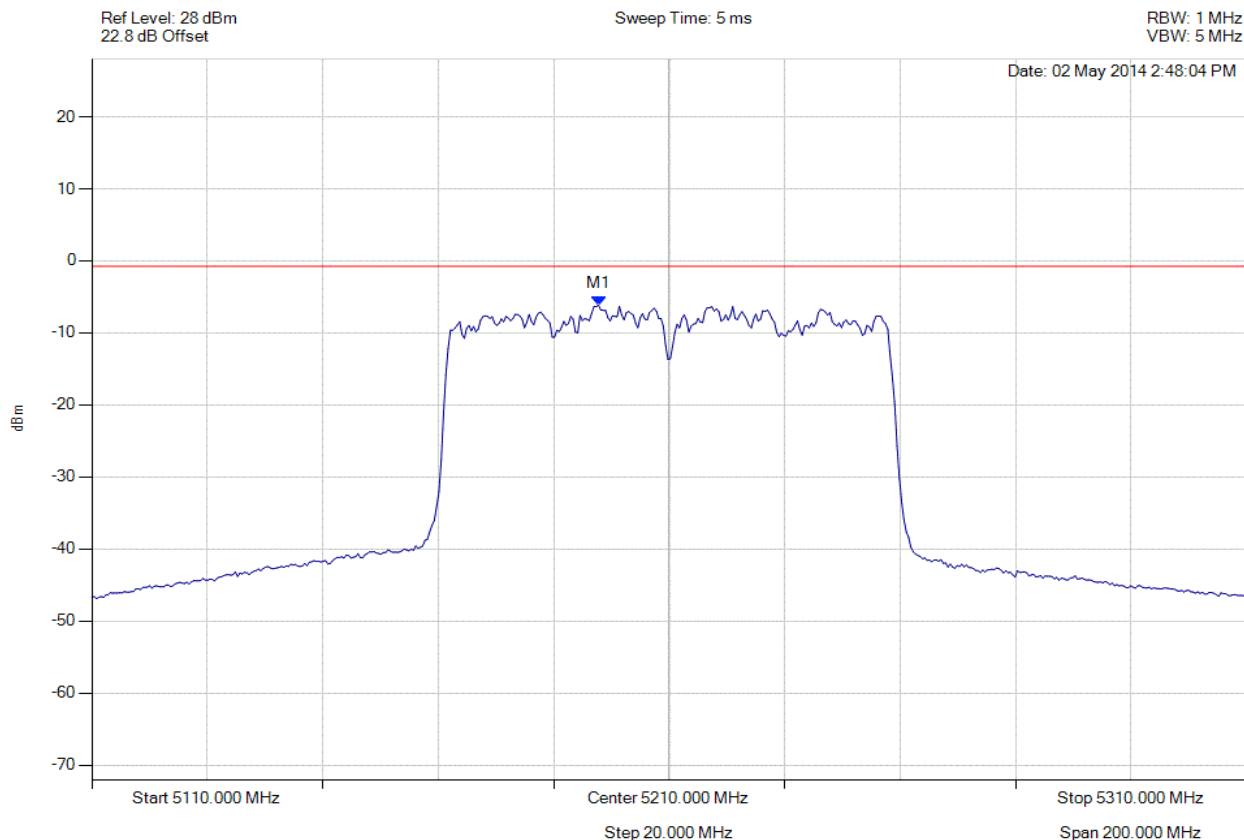
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5233.707 MHz : 2.032 dBm | Limit: ≤ 4.0 dBm Margin: -2.0 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc

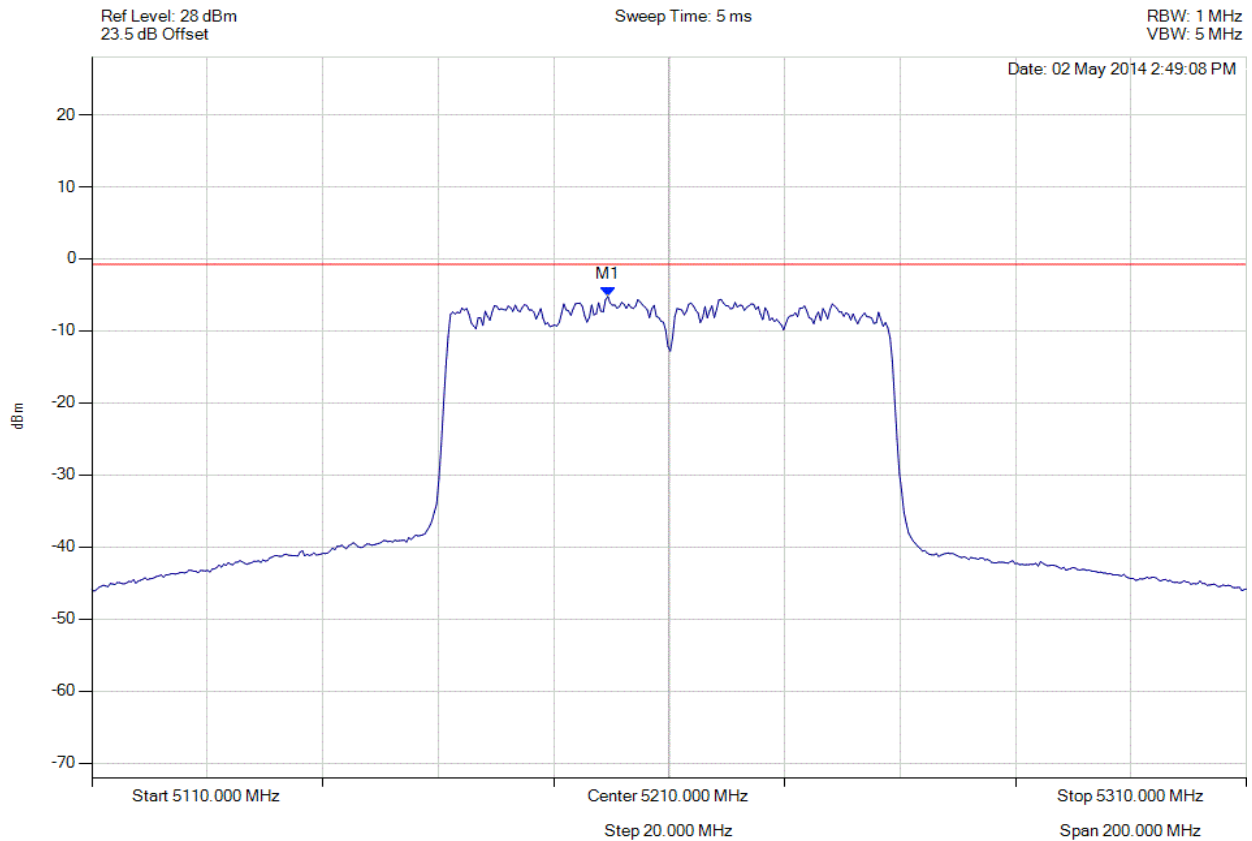


| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5197.776 MHz : -6.144 dBm | Limit: ≤ -0.771 dBm Margin: 4.61 dB |

[Back to the Matrix](#)

PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5199.379 MHz : -5.211 dBm | Limit: ≤ -0.771 dBm Margin: 3.67 dB |

[Back to the Matrix](#)

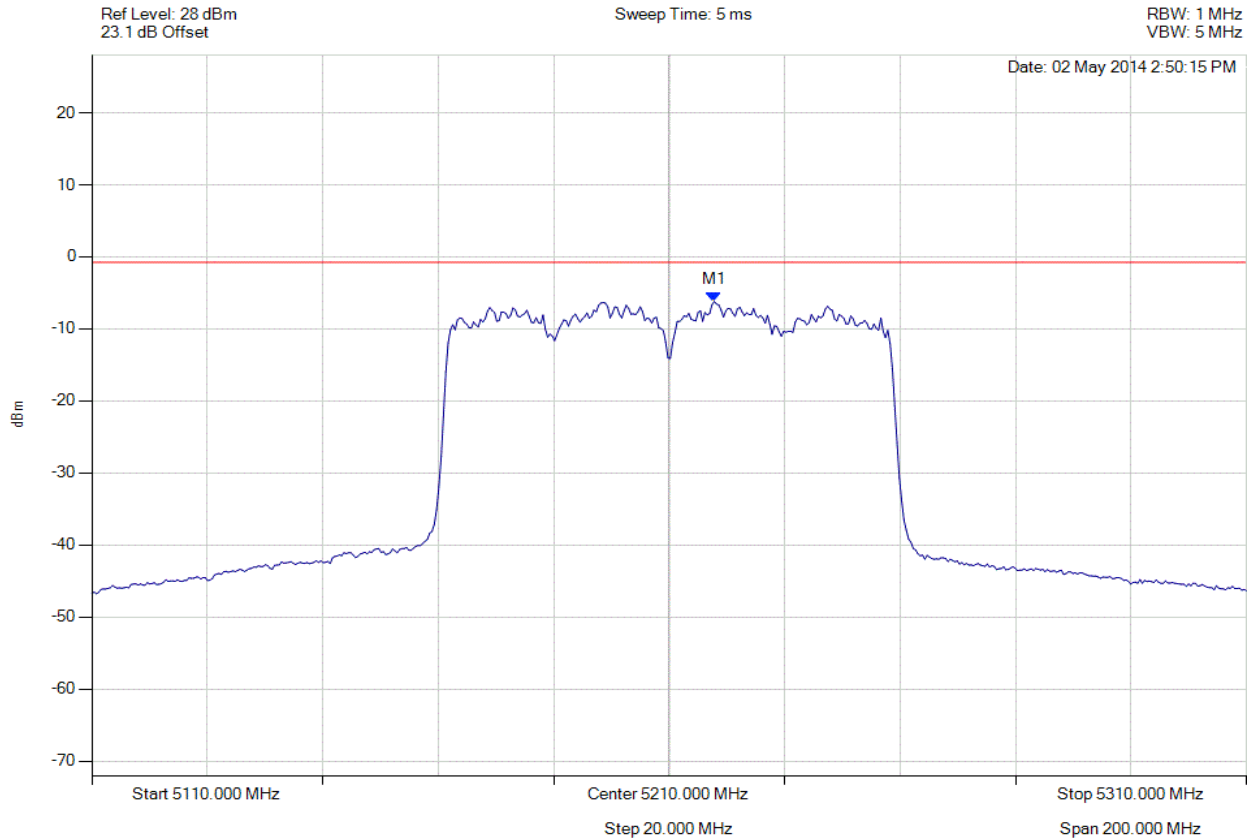


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 197 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



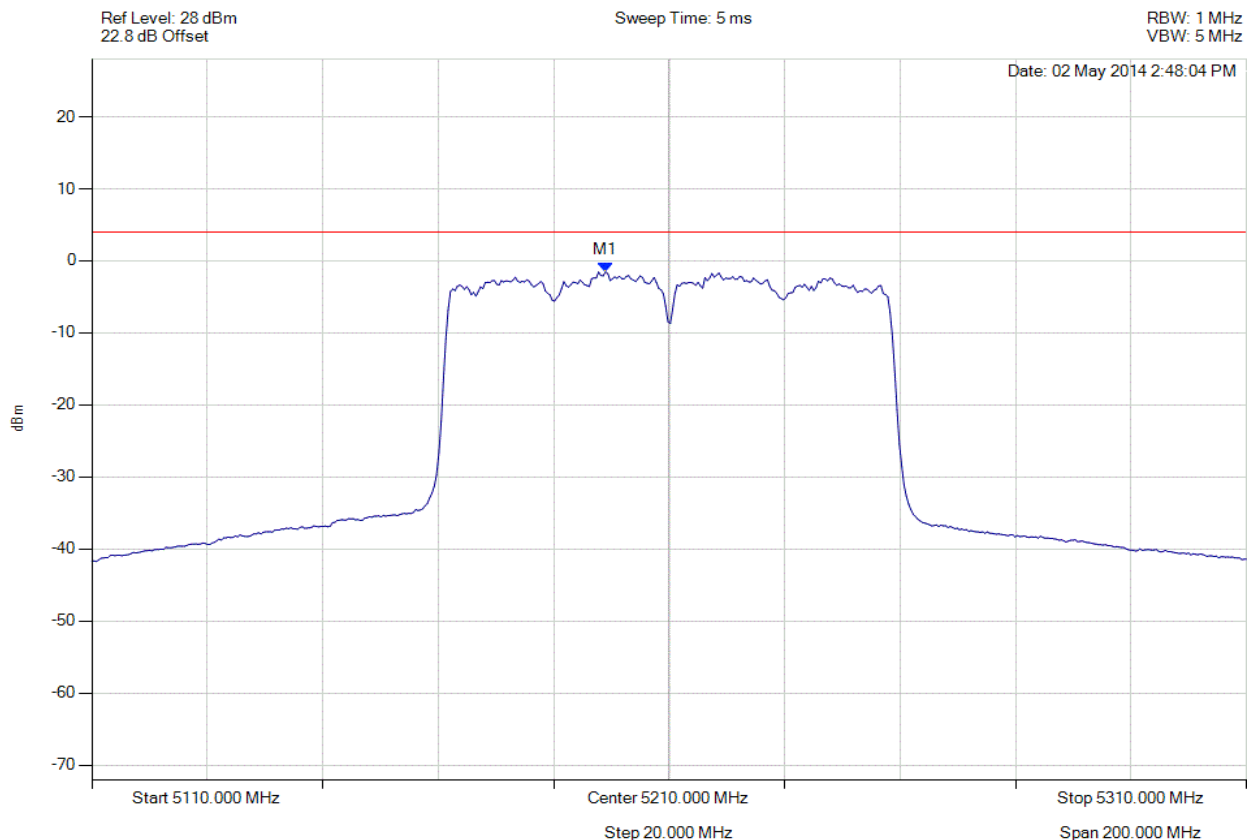
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5217.816 MHz : -6.197 dBm | Limit: ≤ -0.771 dBm Margin: 4.66 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5198.978 MHz : -1.535 dBm | Limit: ≤ 4.0 dBm Margin: -5.5 dB |

[Back to the Matrix](#)

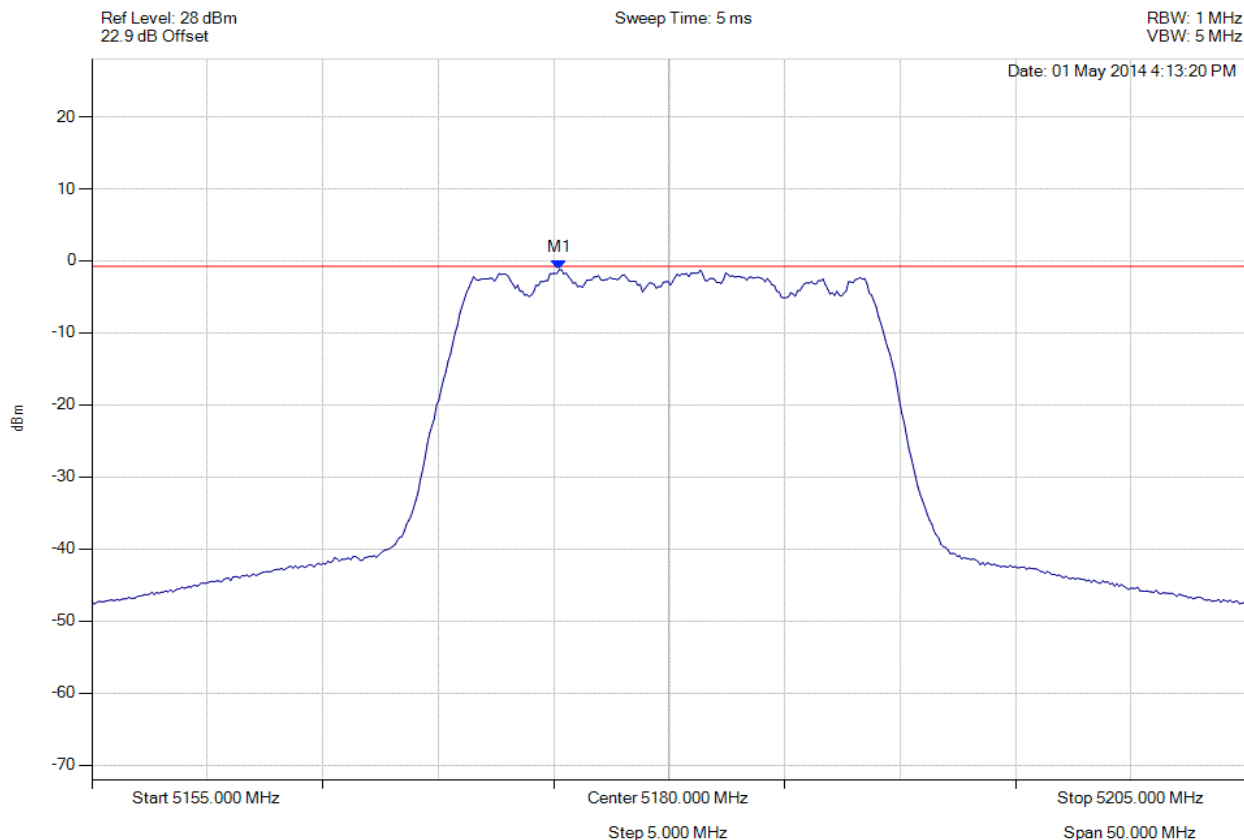


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 199 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5175.240 MHz : -1.239 dBm | Limit: ≤ -0.771 dBm Margin: 0.22 dB |

[Back to the Matrix](#)

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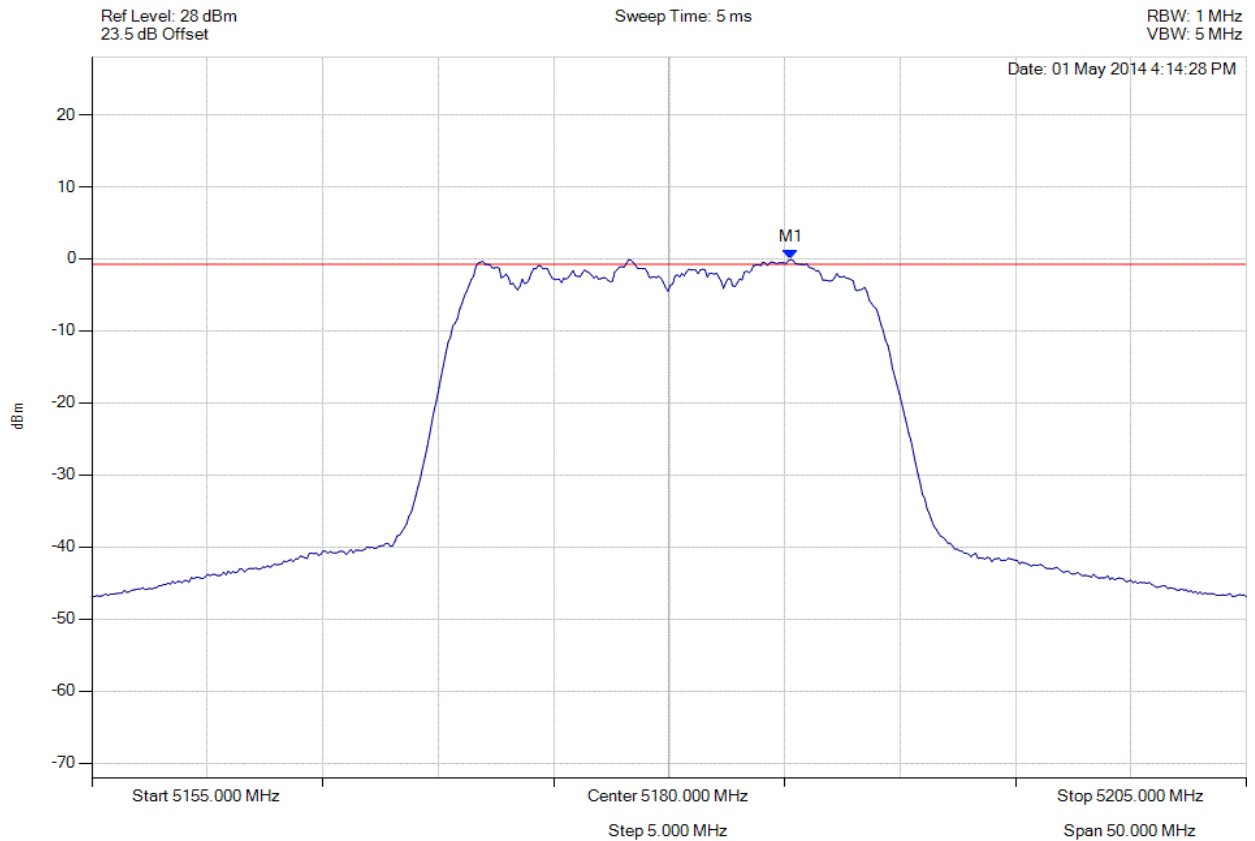


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 200 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5185.261 MHz : -0.112 dBm | Limit: ≤ -0.771 dBm Margin: 0.90 dB |

[Back to the Matrix](#)

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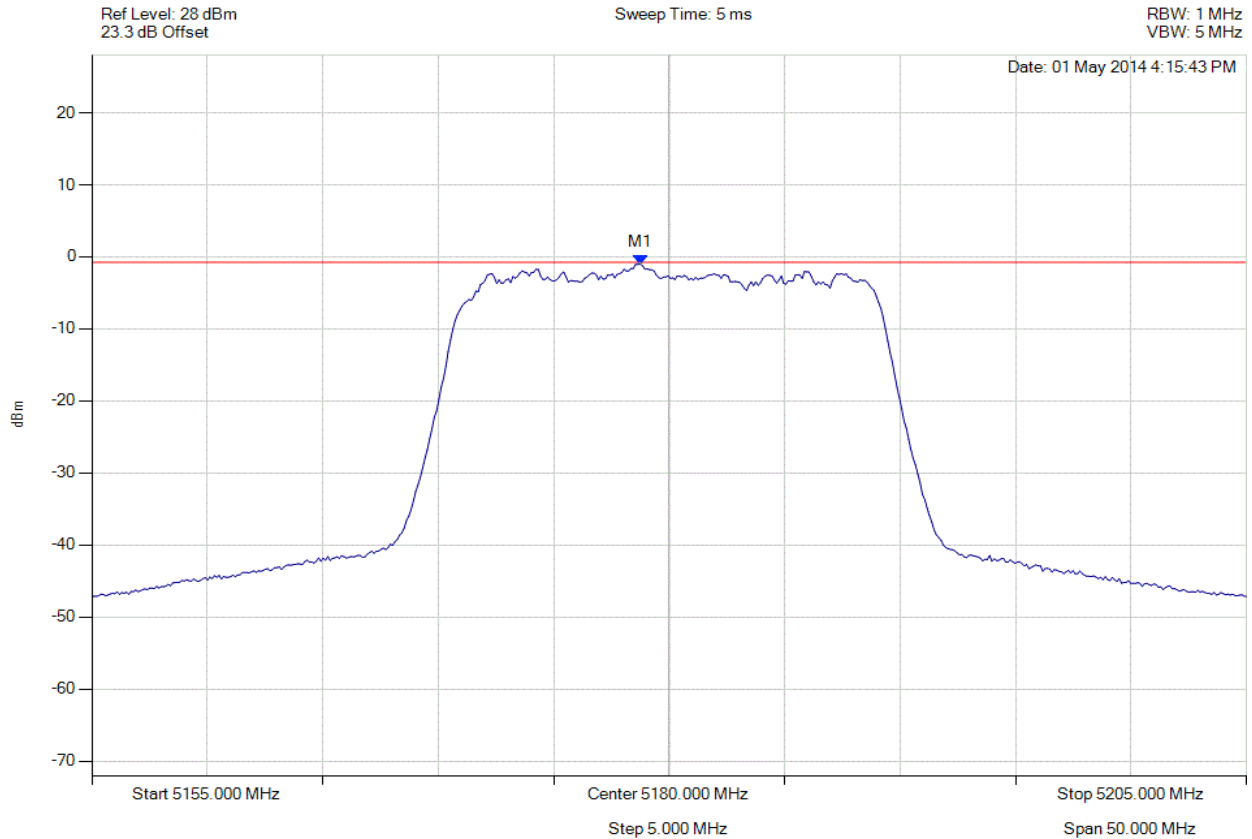


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 201 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5178.747 MHz : -0.990 dBm | Limit: ≤ -0.771 dBm Margin: -0.03 dB |

[Back to the Matrix](#)

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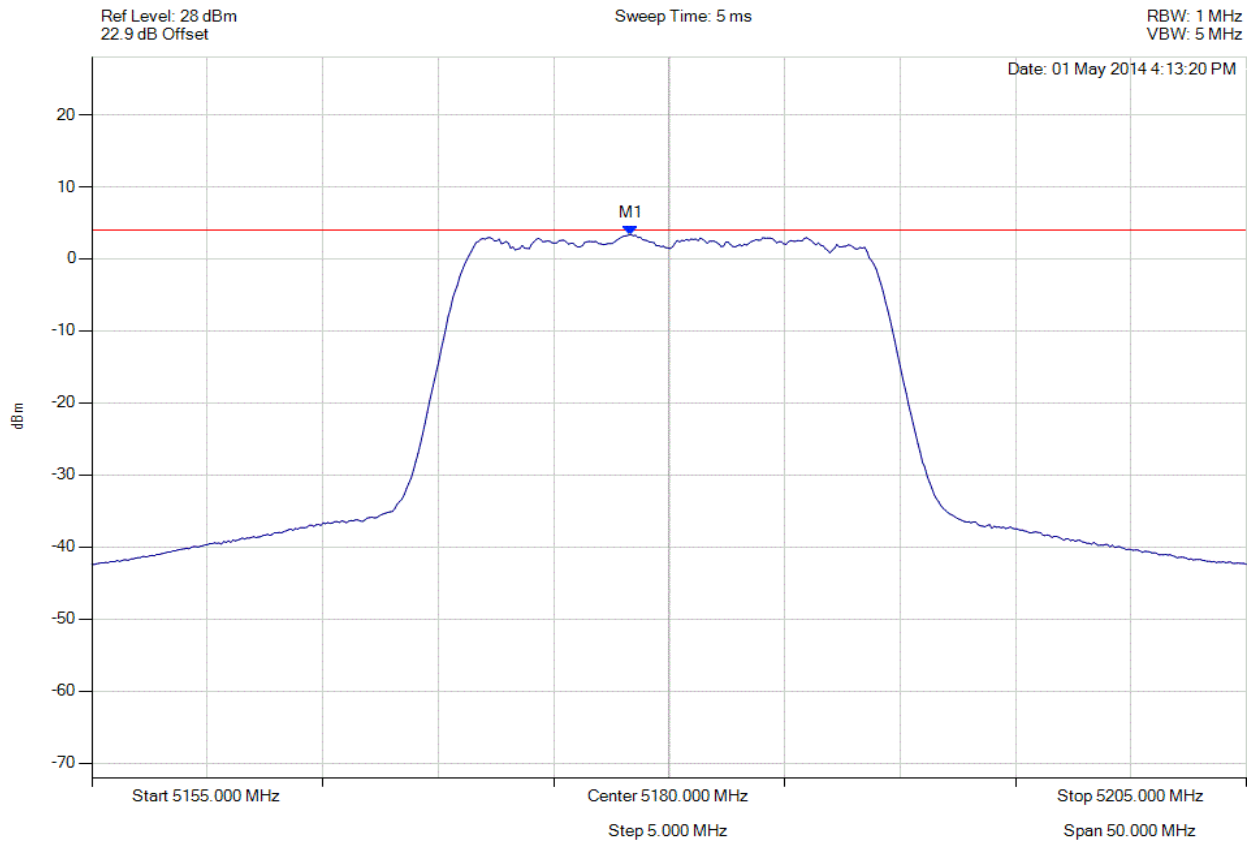


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 202 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5178.347 MHz : 3.362 dBm | Limit: ≤ 4.0 dBm Margin: -0.6 dB |

[Back to the Matrix](#)

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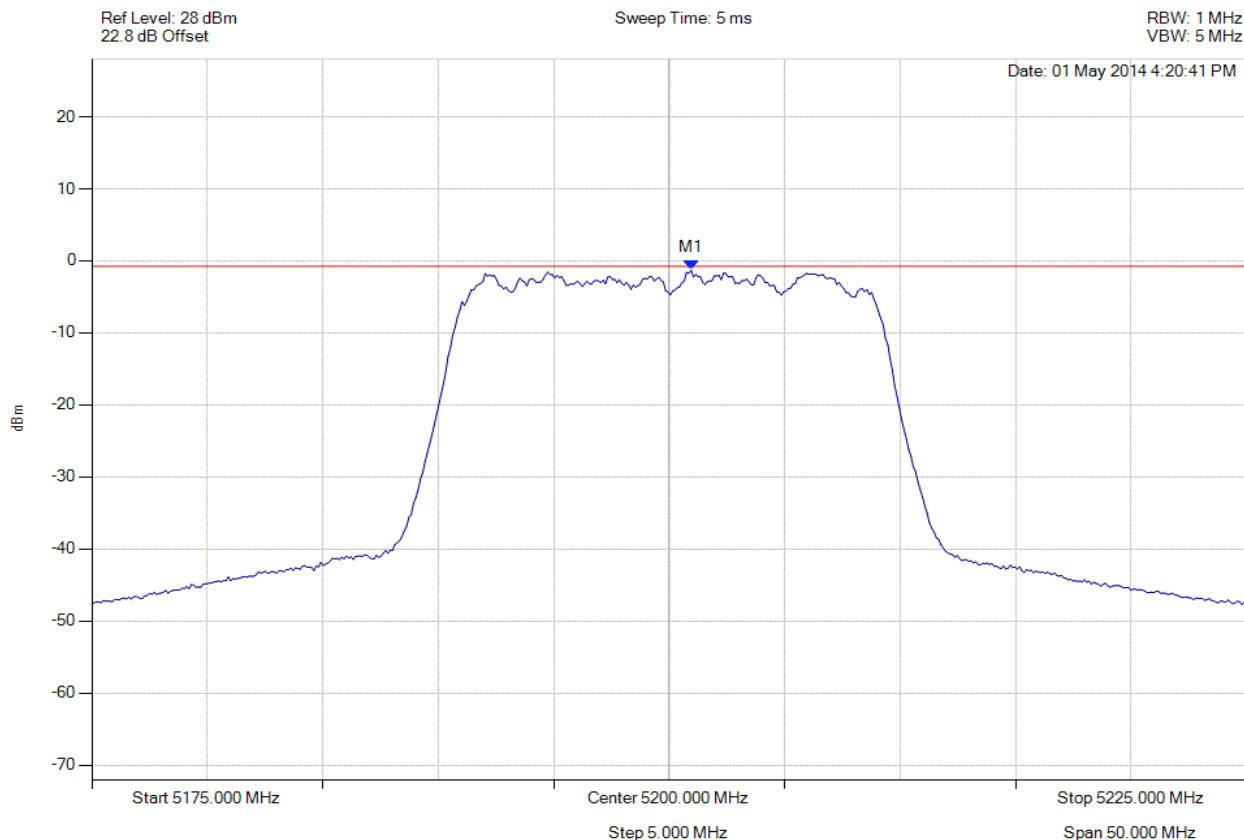


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 203 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5200.952 MHz : -1.280 dBm | Limit: ≤ -0.771 dBm Margin: 0.26 dB |

[Back to the Matrix](#)

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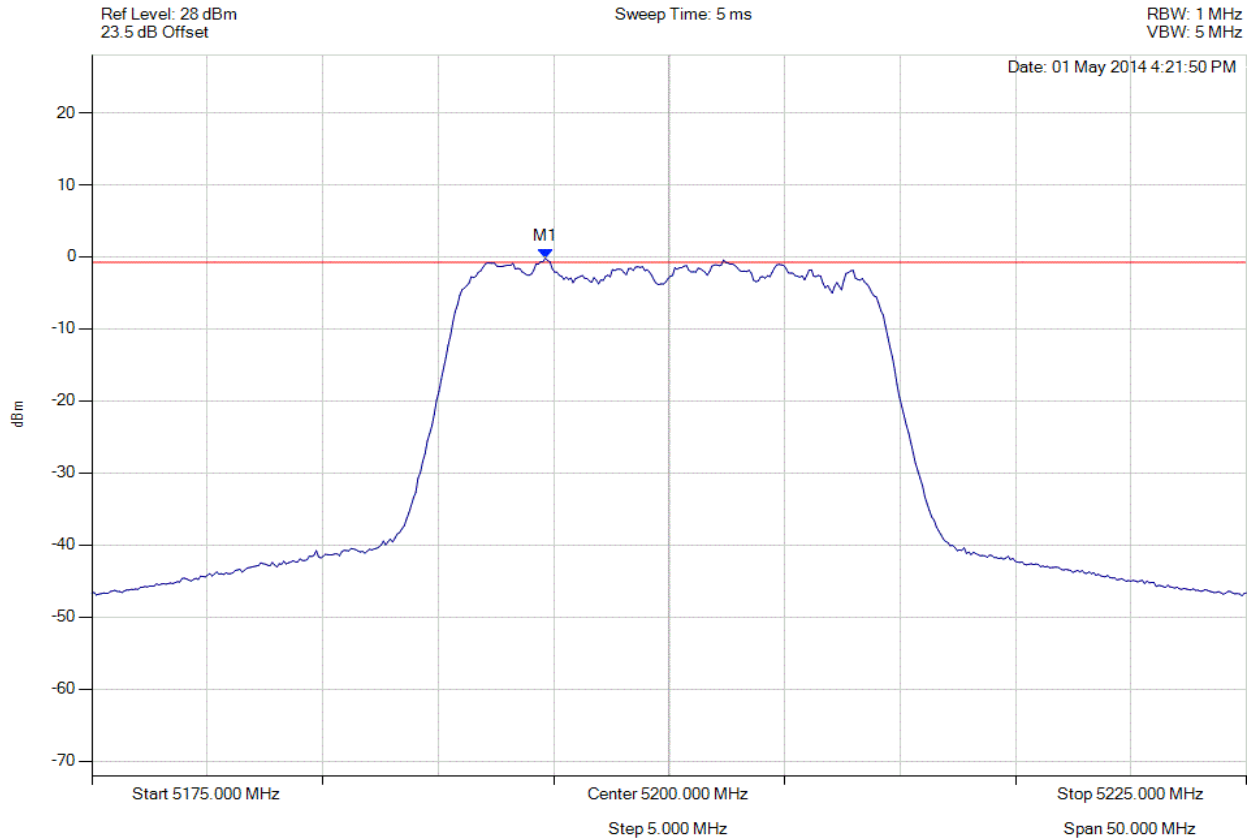


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 204 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5194.639 MHz : -0.189 dBm | Limit: ≤ -0.771 dBm Margin: 0.83 dB |

[Back to the Matrix](#)

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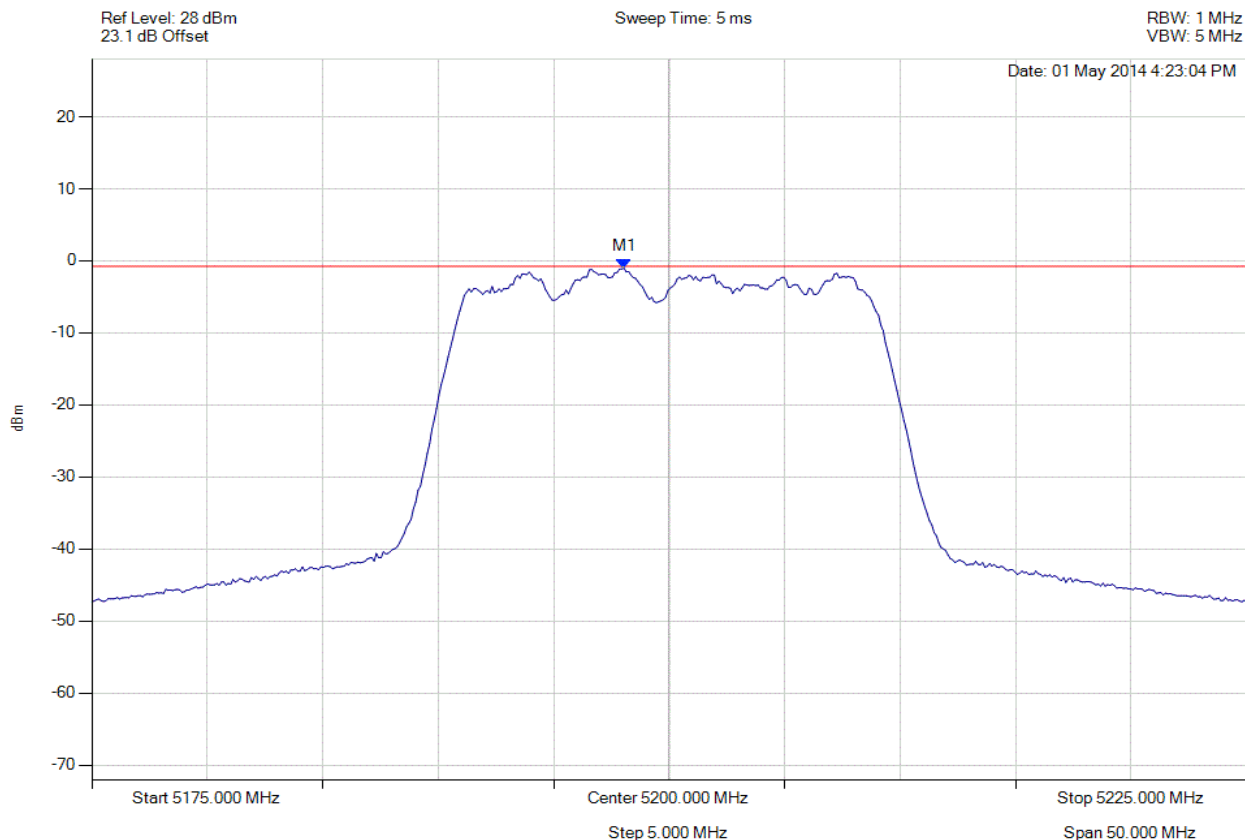


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 205 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5198.046 MHz : -1.025 dBm | Limit: ≤ -0.771 dBm Margin: 0.01 dB |

[Back to the Matrix](#)

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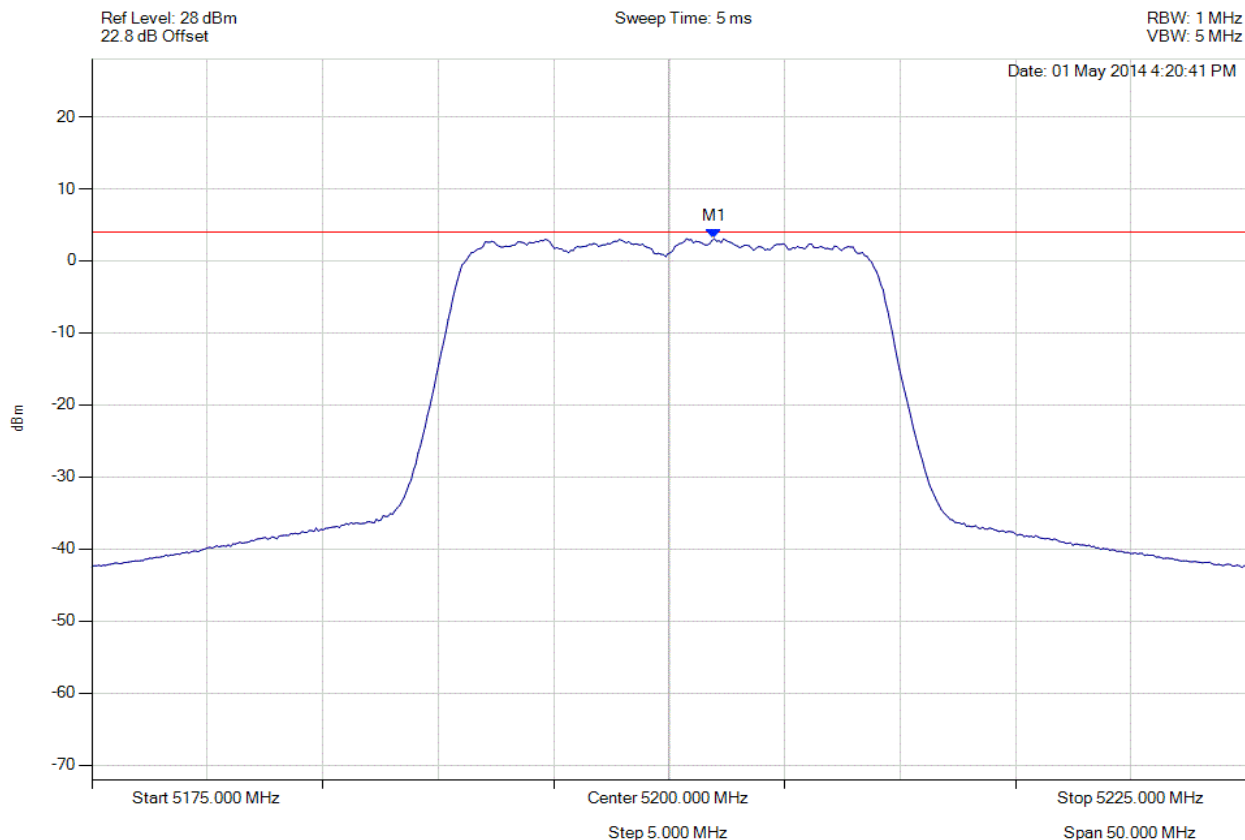


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 206 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5201.954 MHz : 3.073 dBm | Limit: ≤ 4.0 dBm Margin: -0.9 dB |

[Back to the Matrix](#)

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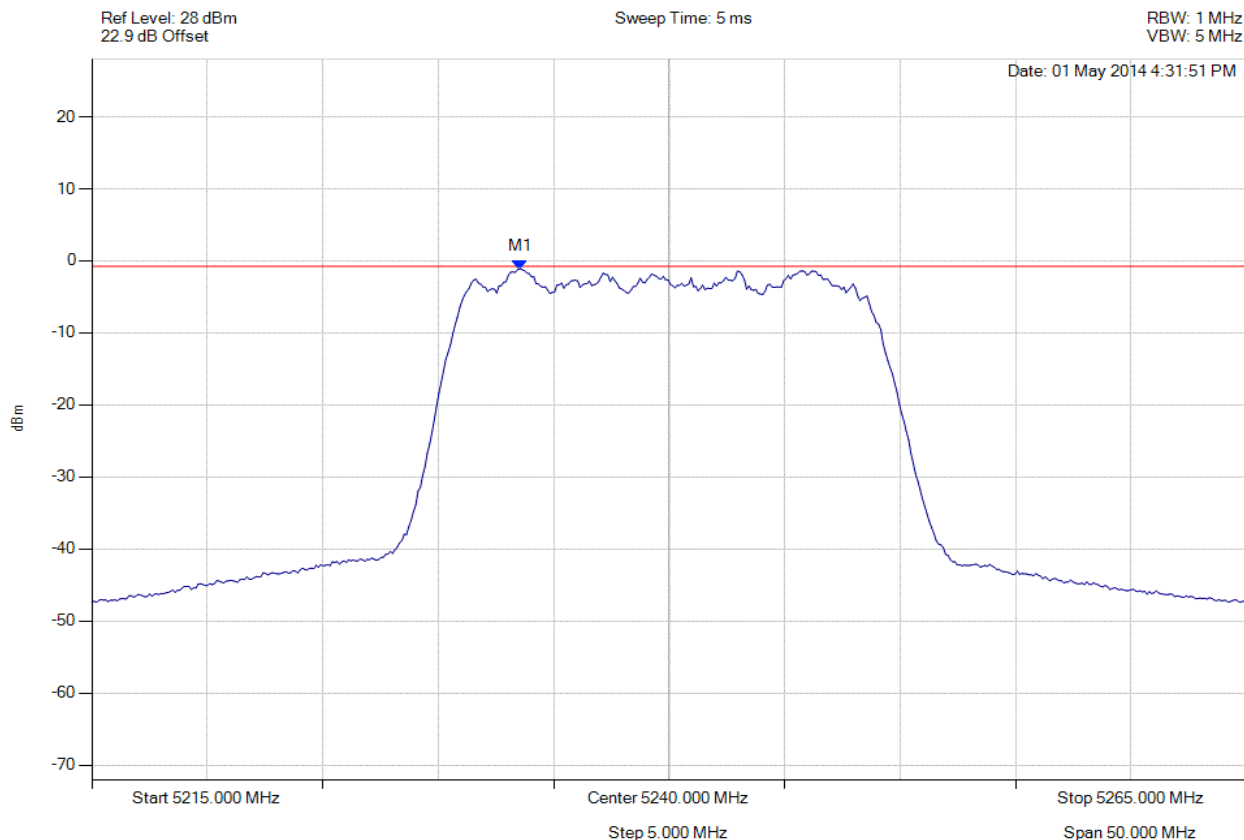


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 207 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



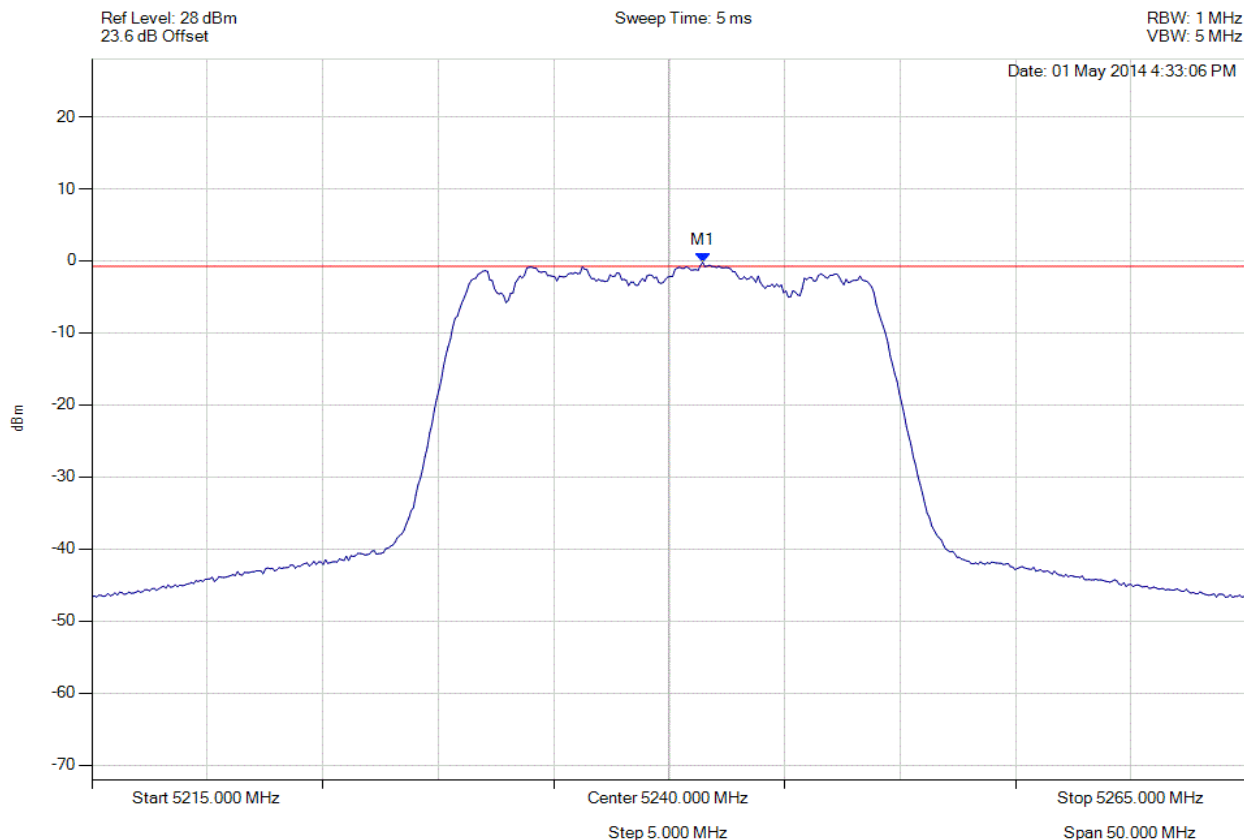
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5233.537 MHz : -1.127 dBm | Limit: ≤ -0.771 dBm Margin: 0.11 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5241.453 MHz : -0.206 dBm | Limit: ≤ -0.771 dBm Margin: 0.81 dB |

[Back to the Matrix](#)

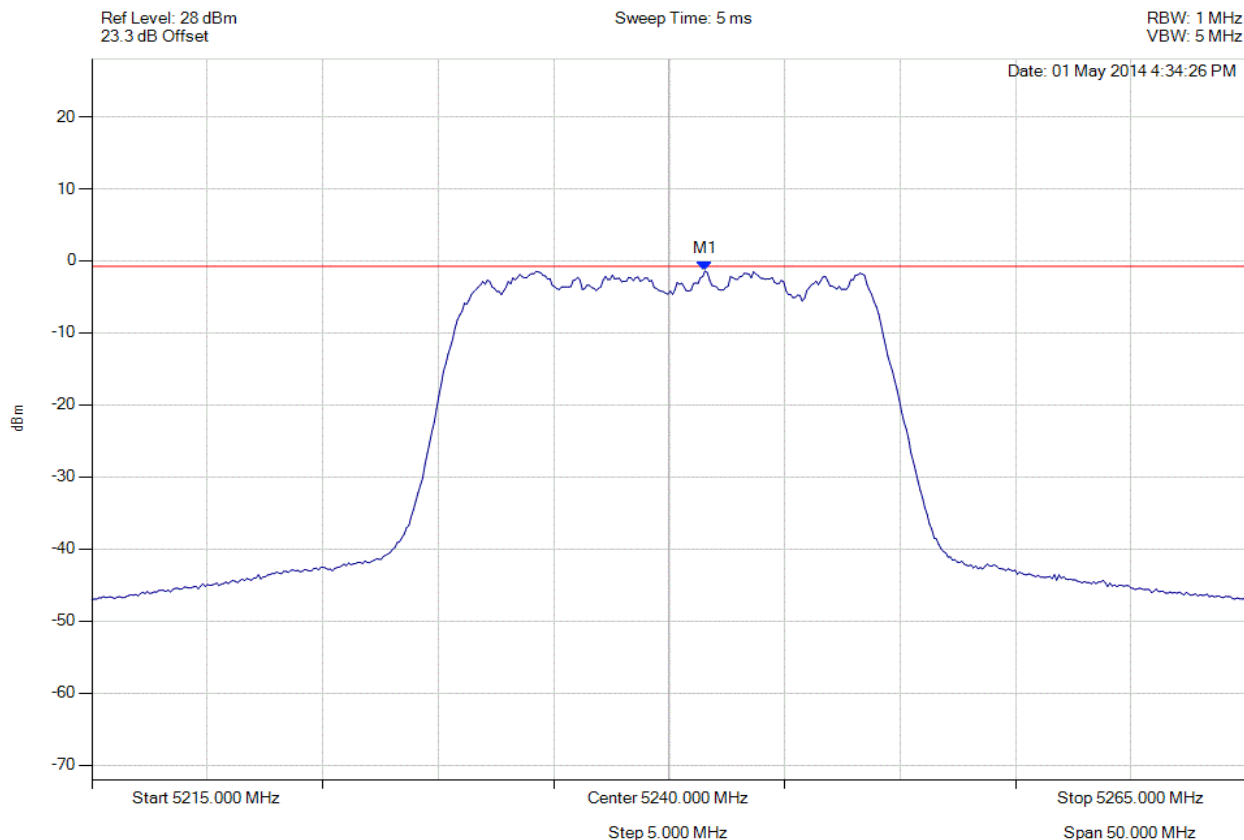


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 209 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5241.553 MHz : -1.416 dBm | Limit: ≤ -0.771 dBm Margin: 0.40 dB |

[Back to the Matrix](#)

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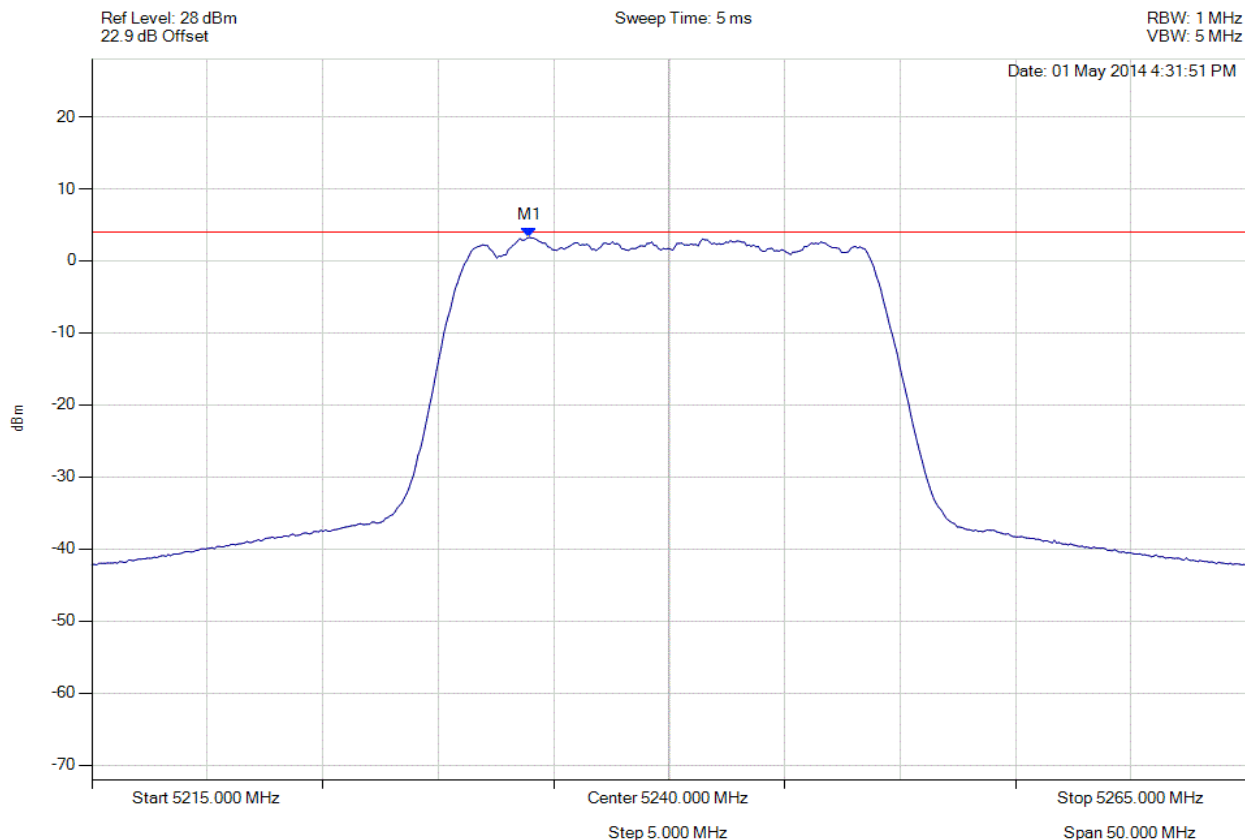


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 210 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5233.938 MHz : 3.247 dBm | Limit: ≤ 4.0 dBm Margin: -0.8 dB |

[Back to the Matrix](#)

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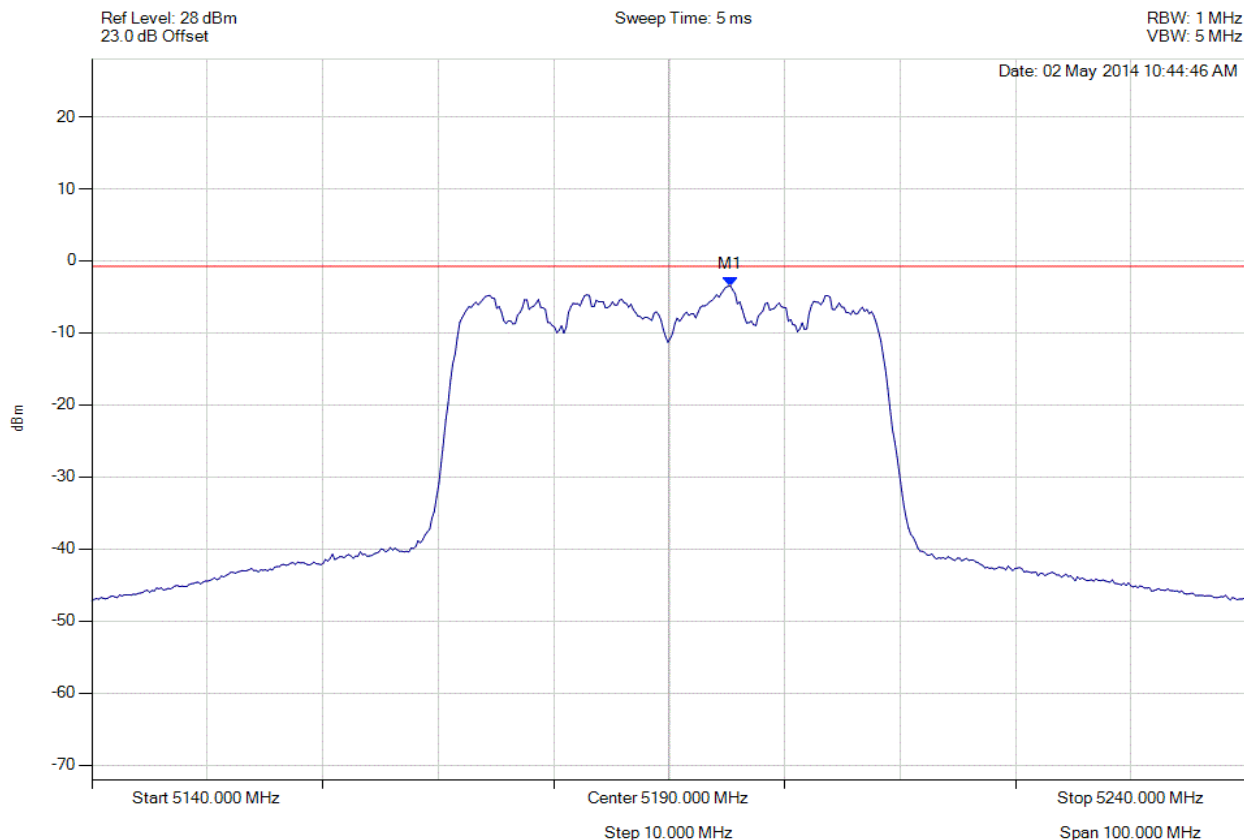


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 211 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



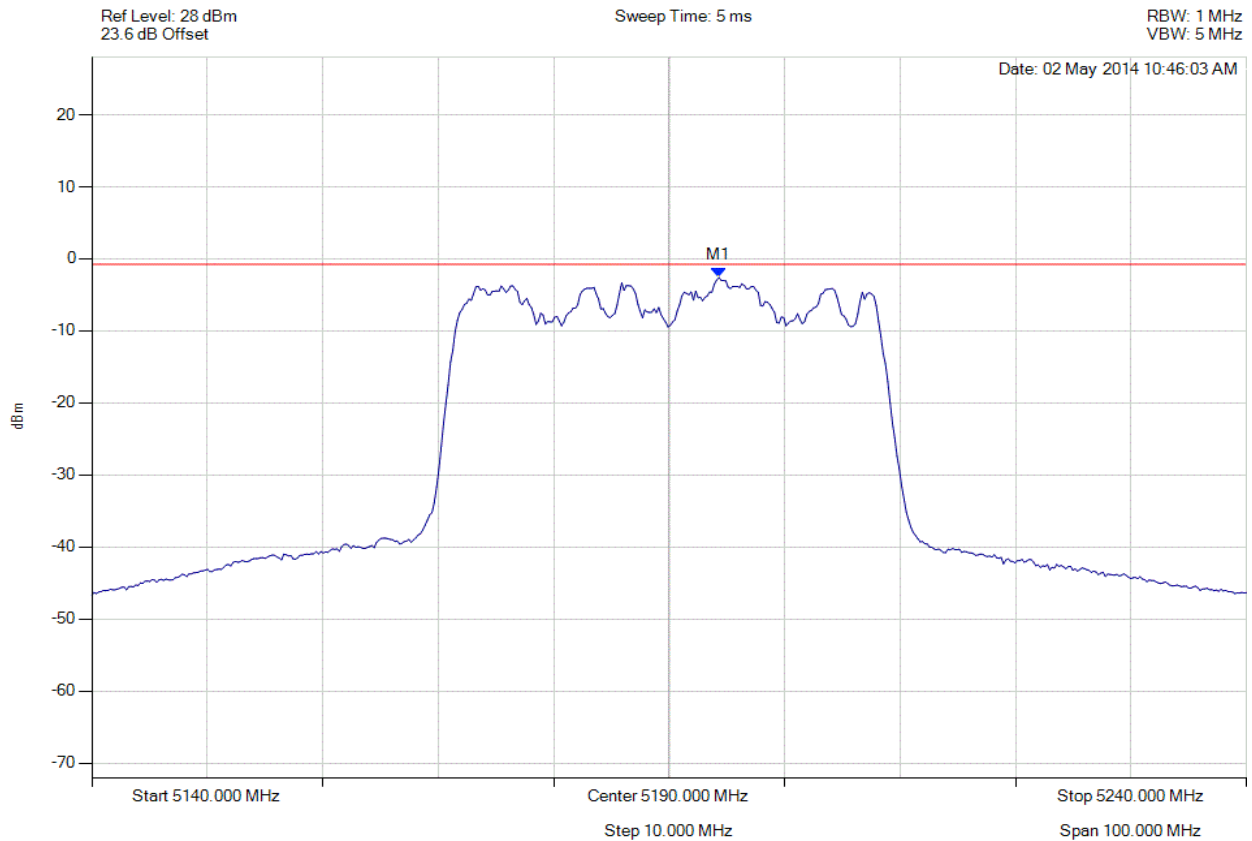
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5195.311 MHz : -3.504 dBm | Limit: ≤ -0.771 dBm Margin: 2.11 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5194.309 MHz : -2.597 dBm | Limit: ≤ -0.771 dBm Margin: 1.20 dB |

[Back to the Matrix](#)

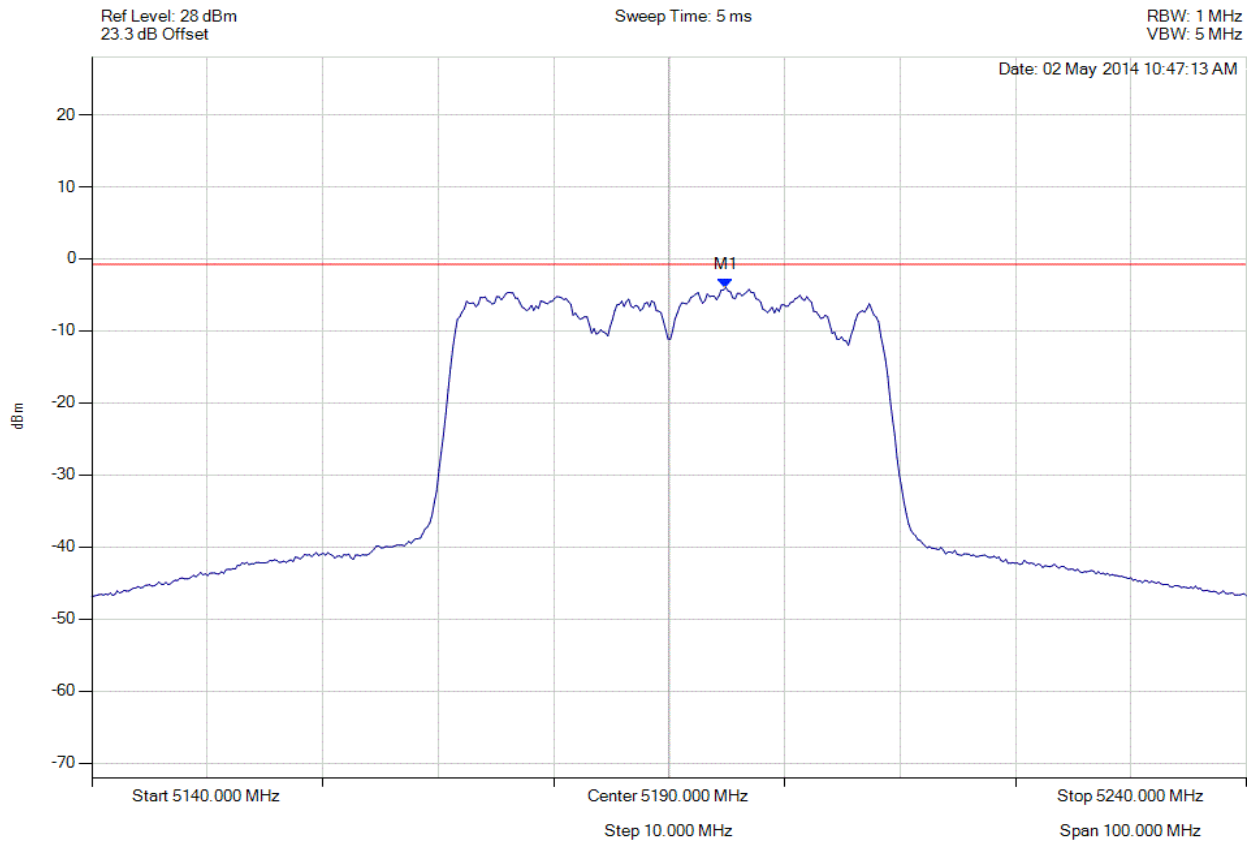


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 213 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5194.910 MHz : -3.961 dBm | Limit: ≤ -0.771 dBm Margin: 2.57 dB |

[Back to the Matrix](#)

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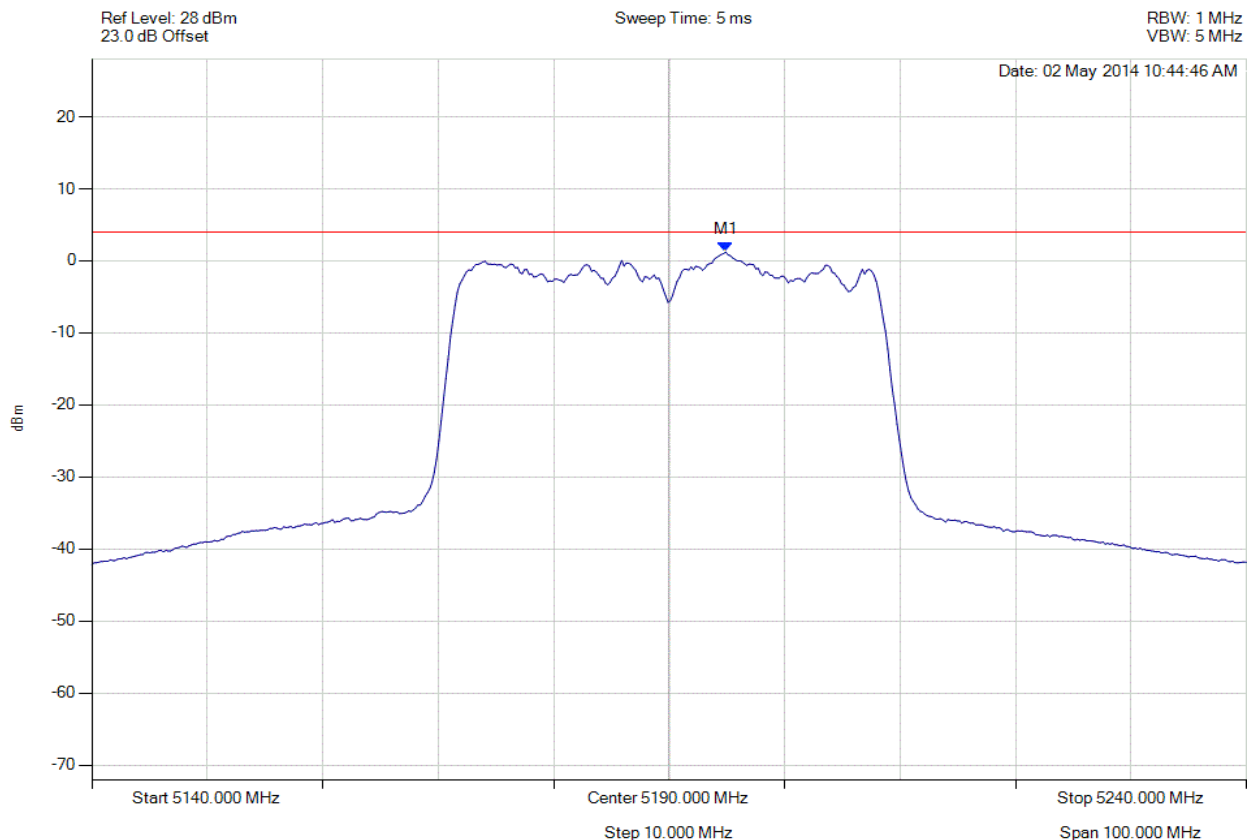


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 214 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5194.910 MHz : 1.227 dBm | Limit: ≤ 4.0 dBm Margin: -2.8 dB |

[Back to the Matrix](#)

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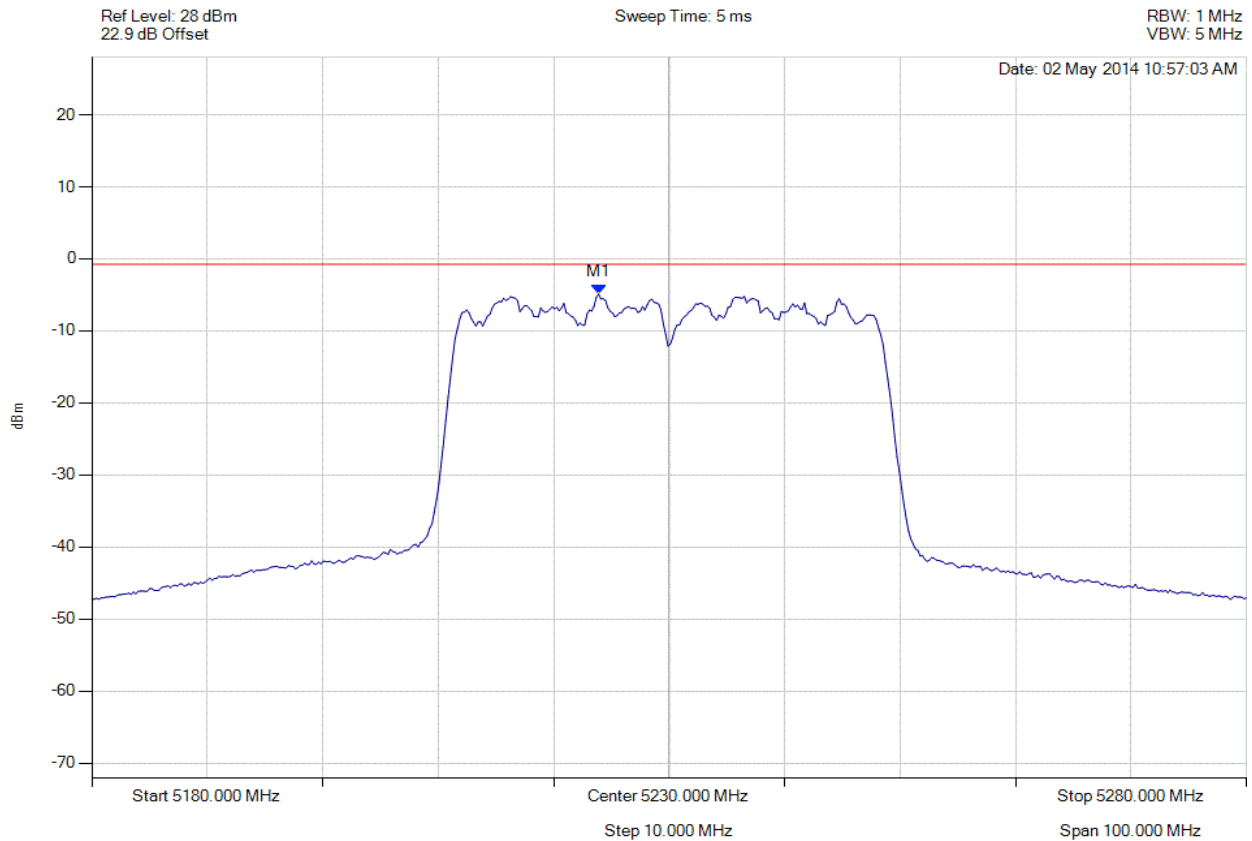


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 215 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5223.888 MHz : -4.886 dBm | Limit: ≤ -0.771 dBm Margin: 3.49 dB |

[Back to the Matrix](#)

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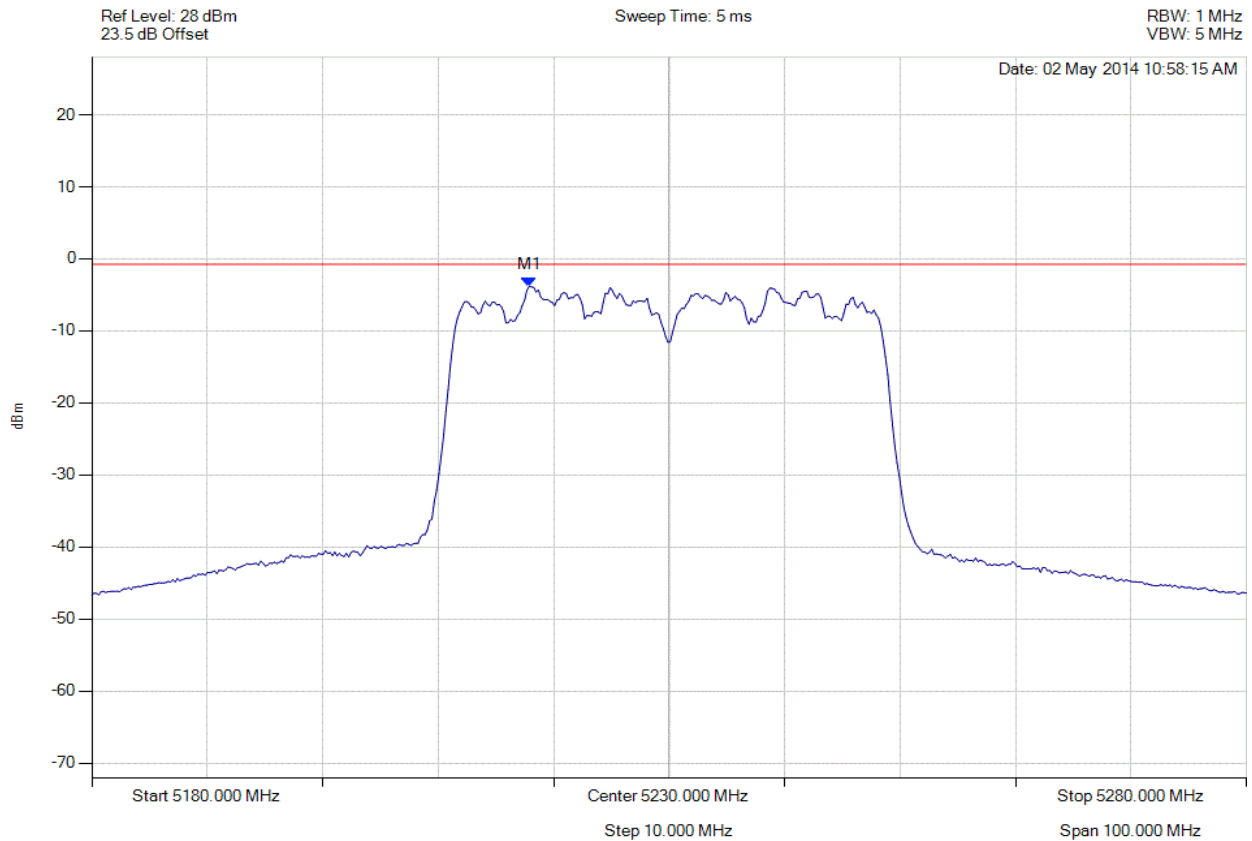


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 216 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5217.876 MHz : -3.842 dBm | Limit: ≤ -0.771 dBm Margin: 2.45 dB |

[Back to the Matrix](#)

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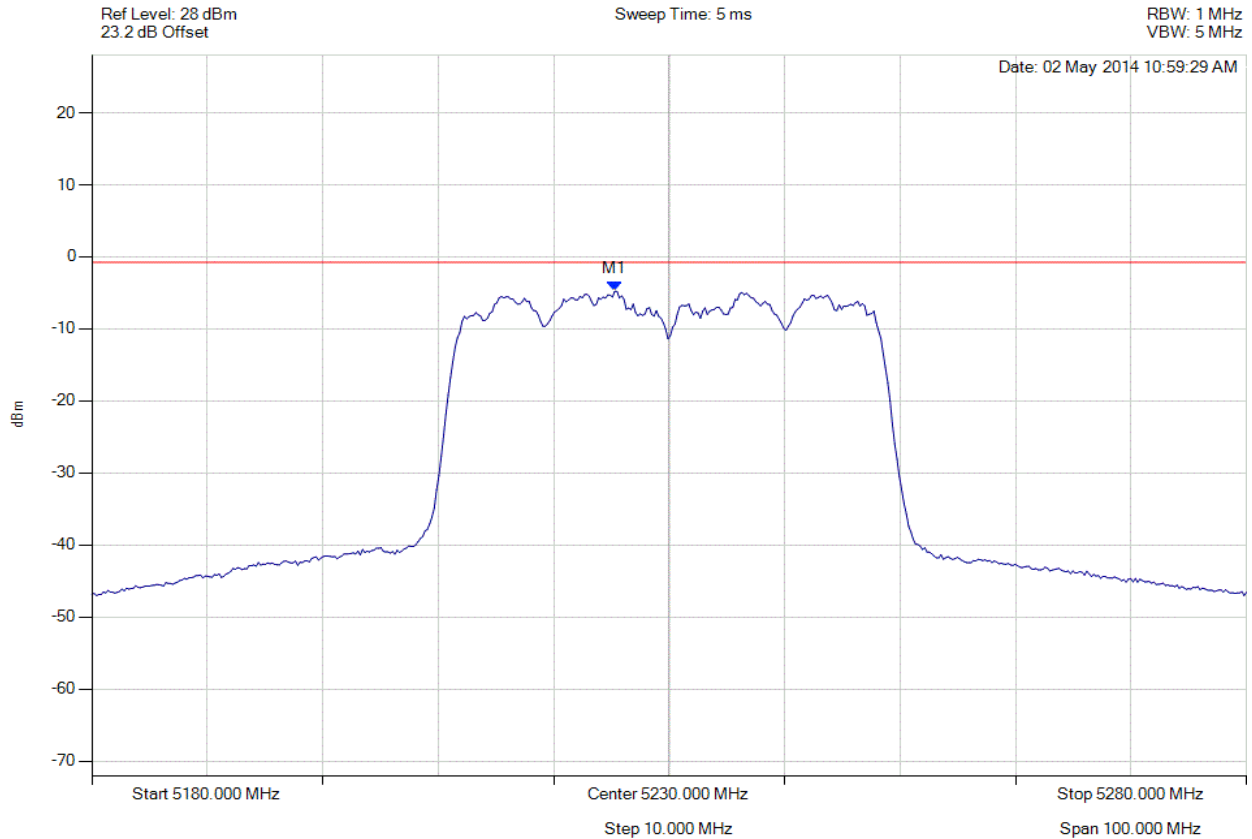


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 217 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5225.291 MHz : -4.781 dBm | Limit: ≤ -0.771 dBm Margin: 3.39 dB |

[Back to the Matrix](#)

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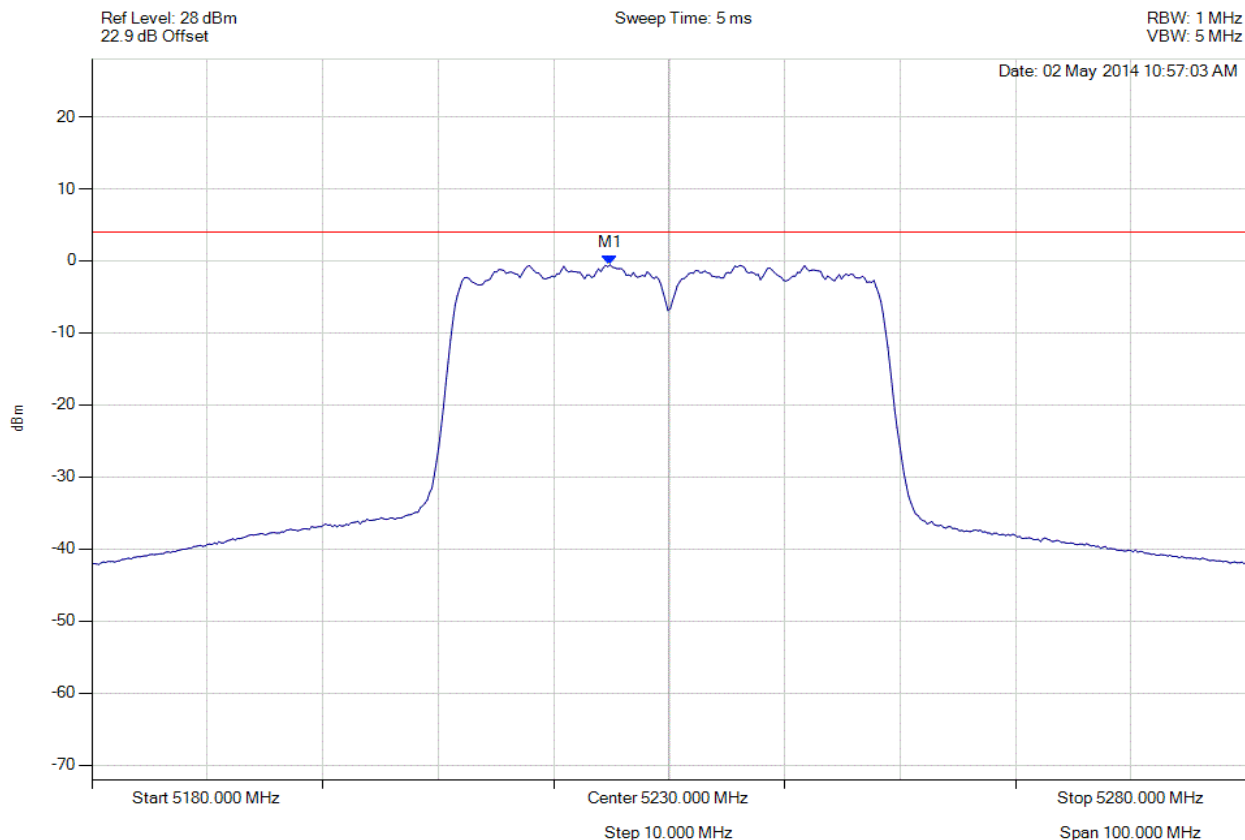


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 218 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5224.890 MHz : -0.553 dBm | Limit: ≤ 4.0 dBm Margin: -4.6 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

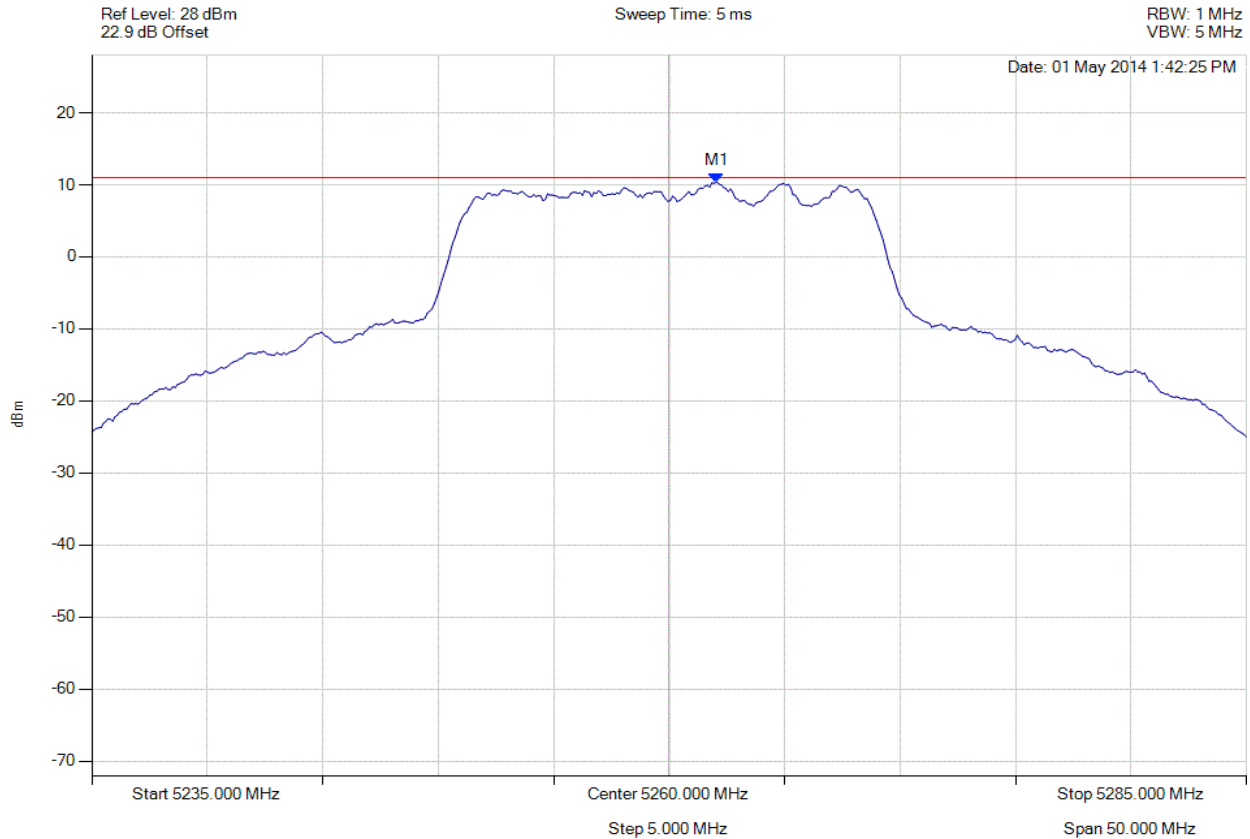


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 219 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5260.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5262.054 MHz : 10.378 dBm | Limit: ≤ 11.0 dBm Margin: -0.6 dB |

[Back to the Matrix](#)

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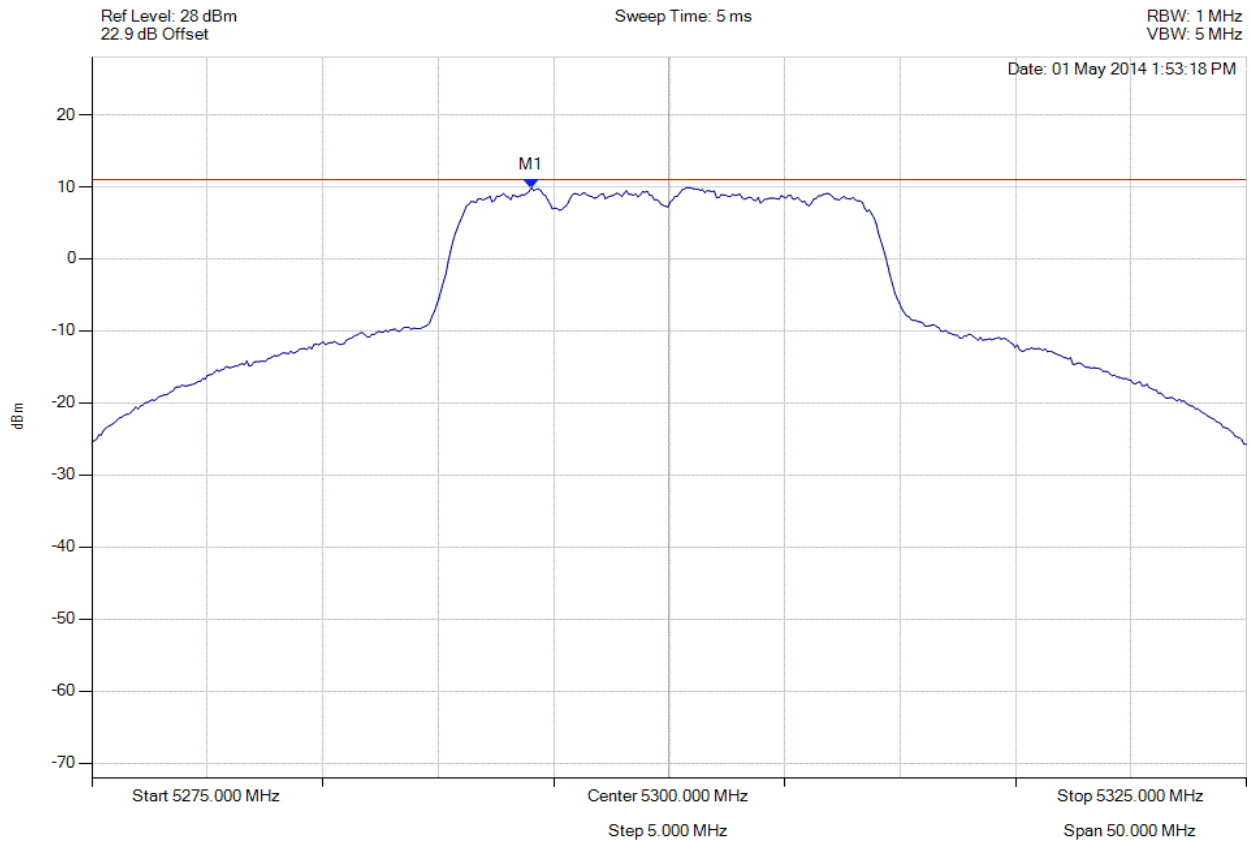


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 220 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5300.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5294.038 MHz : 9.888 dBm | Limit: ≤ 11.0 dBm Margin: -1.1 dB |

[Back to the Matrix](#)

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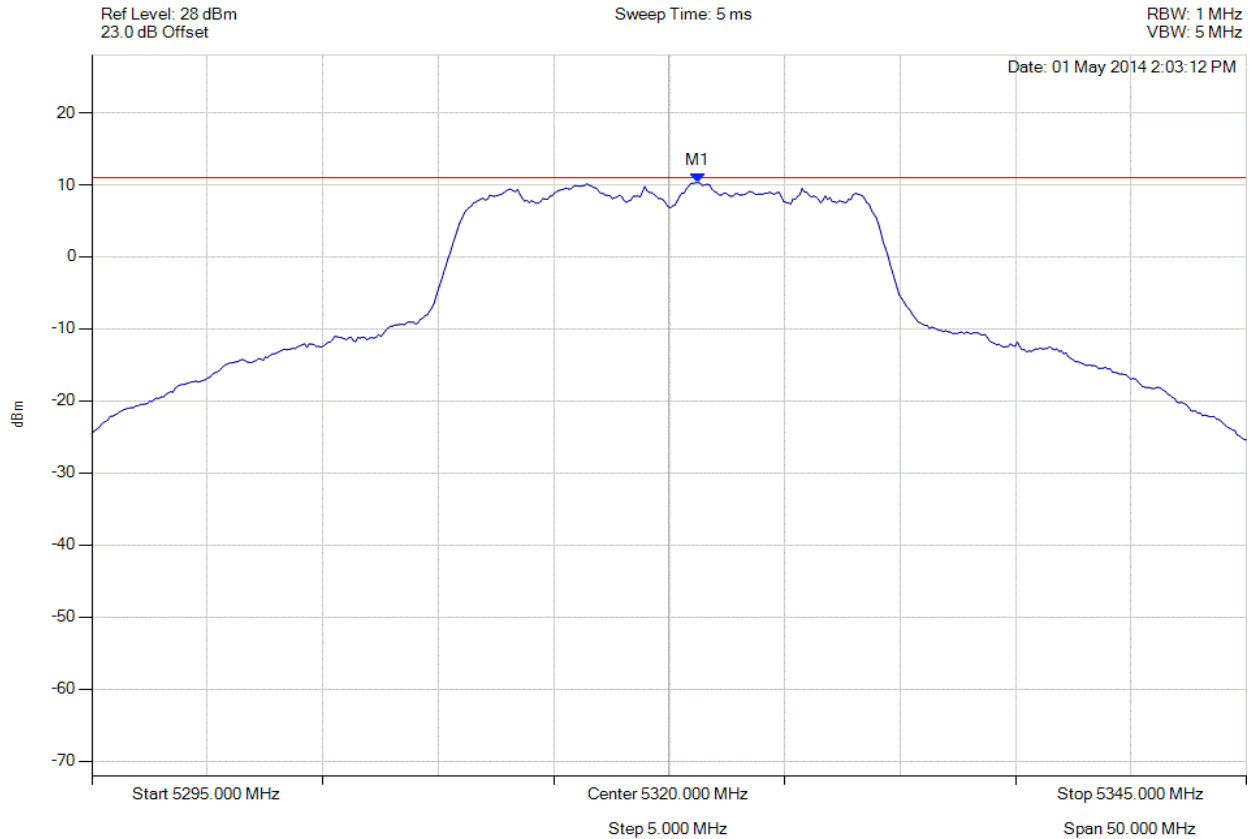


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 221 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5320.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5321.253 MHz : 10.309 dBm | Limit: ≤ 11.0 dBm Margin: -0.7 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

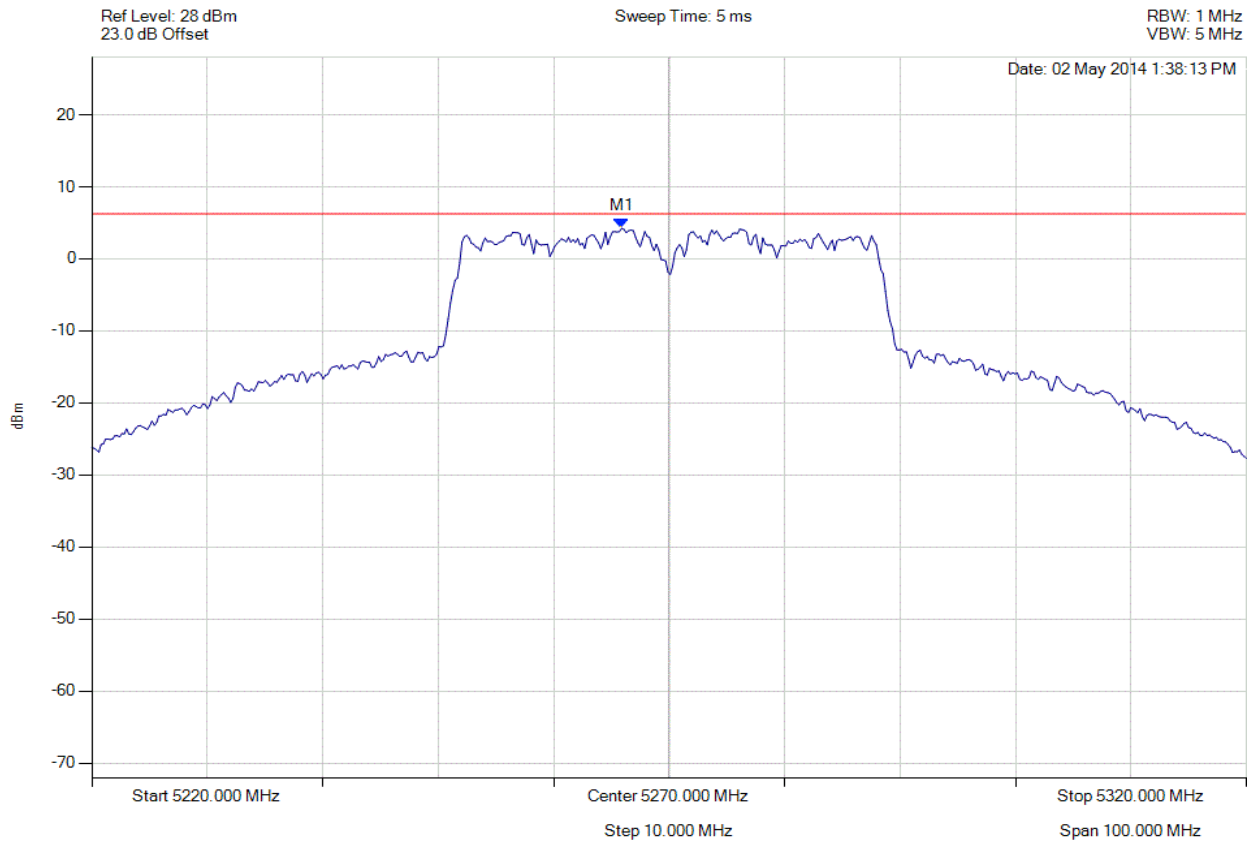


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 222 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5270.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5265.892 MHz : 4.235 dBm | Limit: ≤ 6.229 dBm Margin: -1.72 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

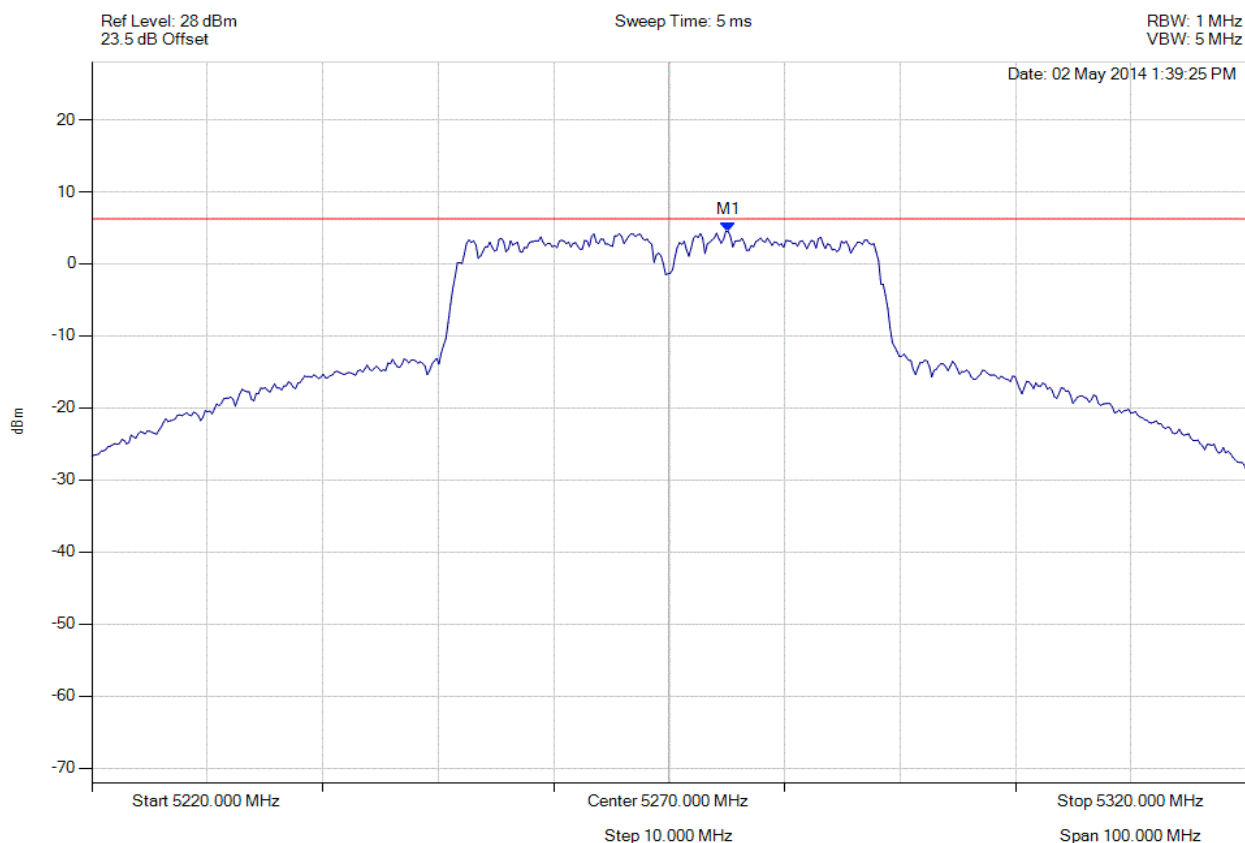


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 223 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5270.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5275.110 MHz : 4.502 dBm | Limit: ≤ 6.229 dBm Margin: -1.46 dB |

[Back to the Matrix](#)

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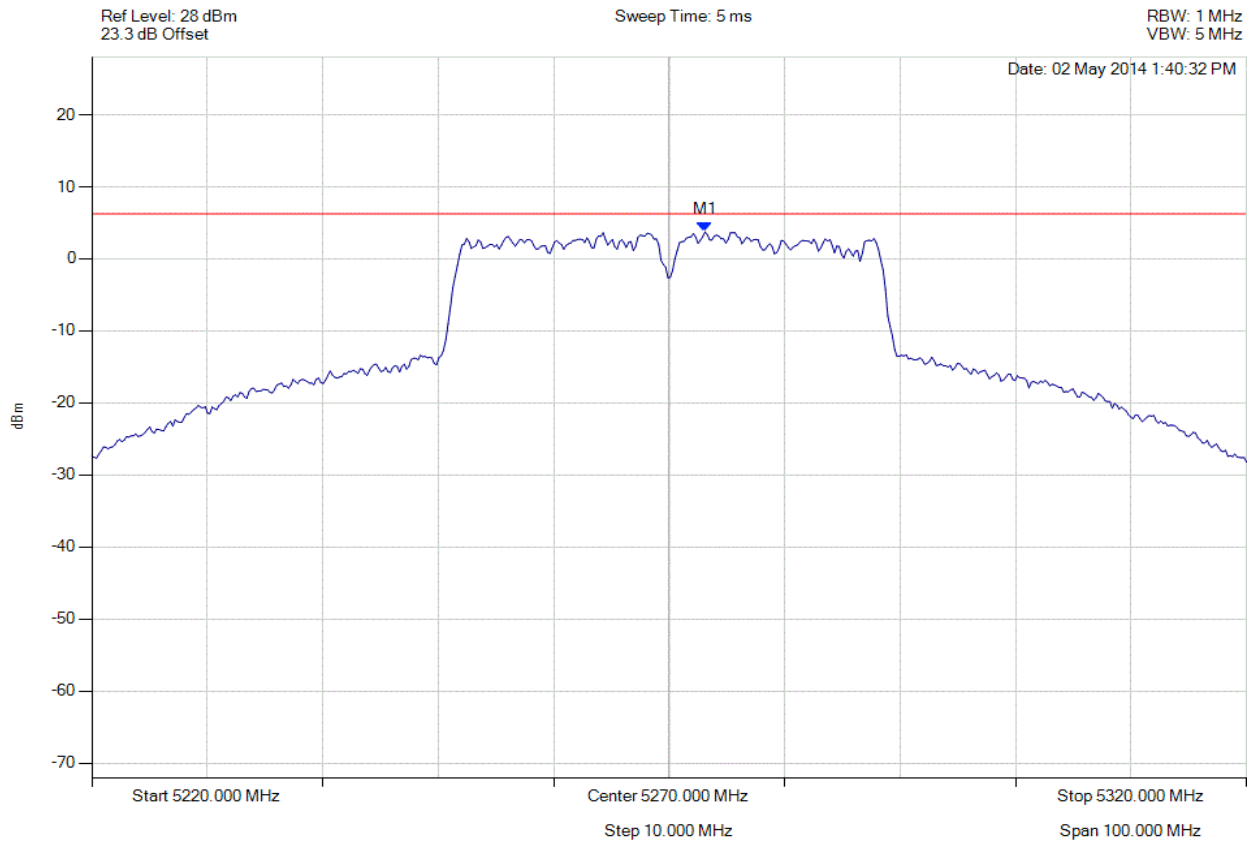


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 224 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5270.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5273.106 MHz : 3.740 dBm | Limit: ≤ 6.229 dBm Margin: -2.22 dB |

[Back to the Matrix](#)

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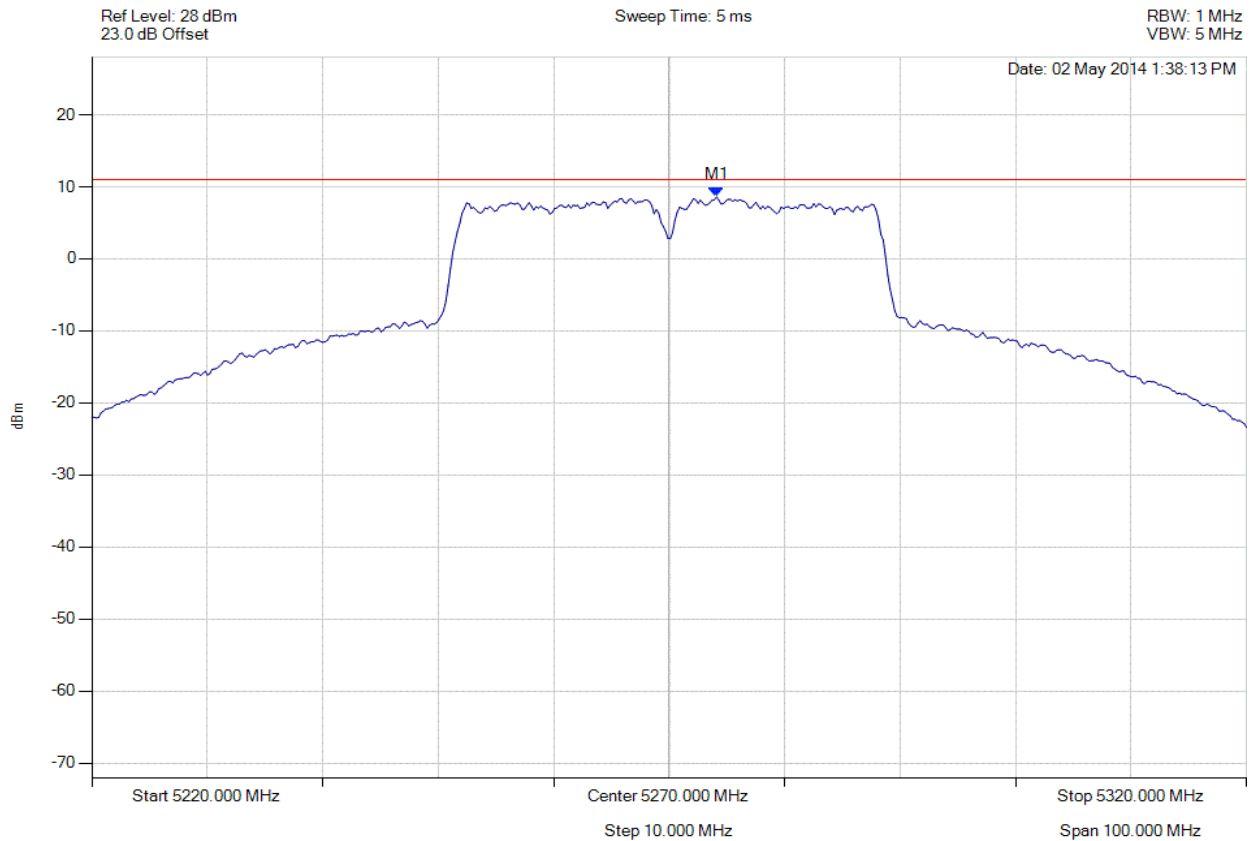


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 225 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5270.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5274.108 MHz : 8.597 dBm | Limit: ≤ 11.0 dBm Margin: -2.4 dB |

[Back to the Matrix](#)

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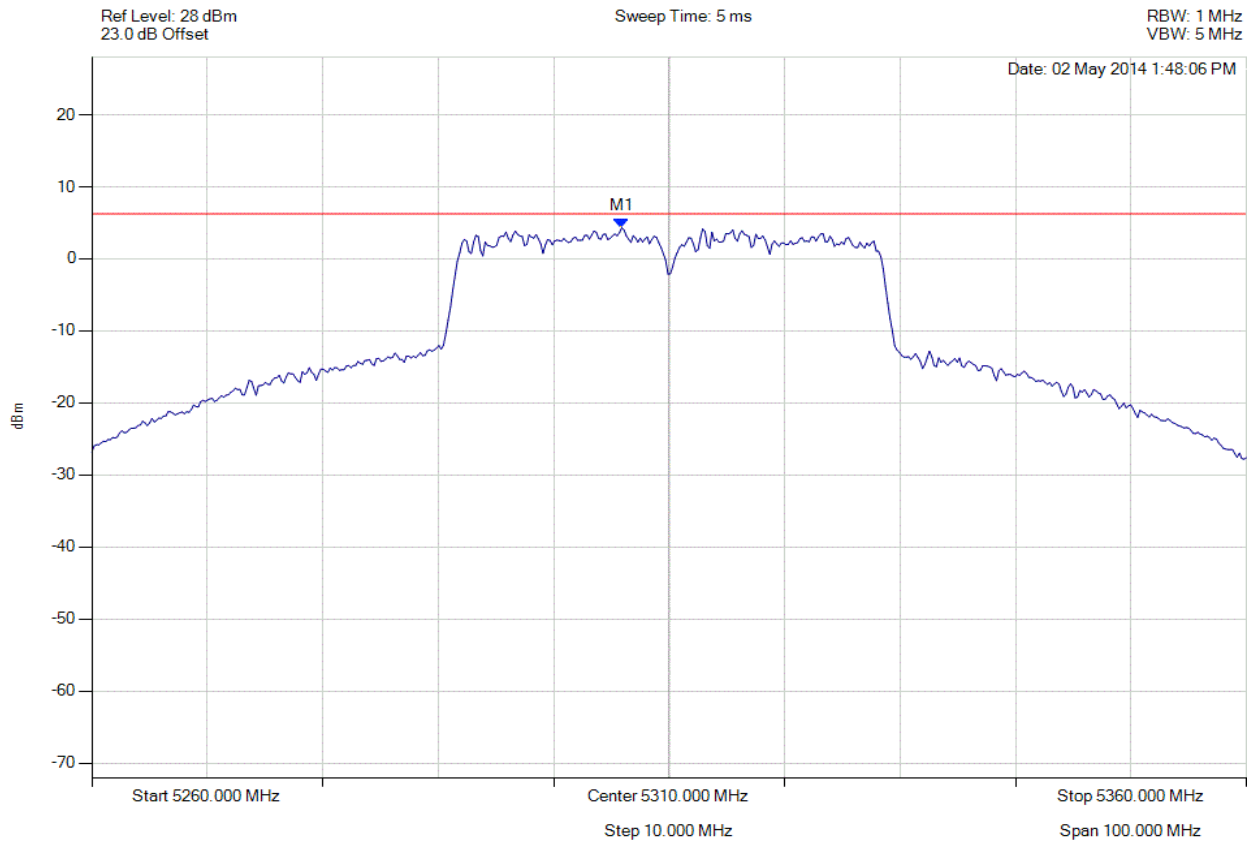


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 226 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5310.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5305.892 MHz : 4.326 dBm | Limit: ≤ 6.229 dBm Margin: -1.63 dB |

[Back to the Matrix](#)

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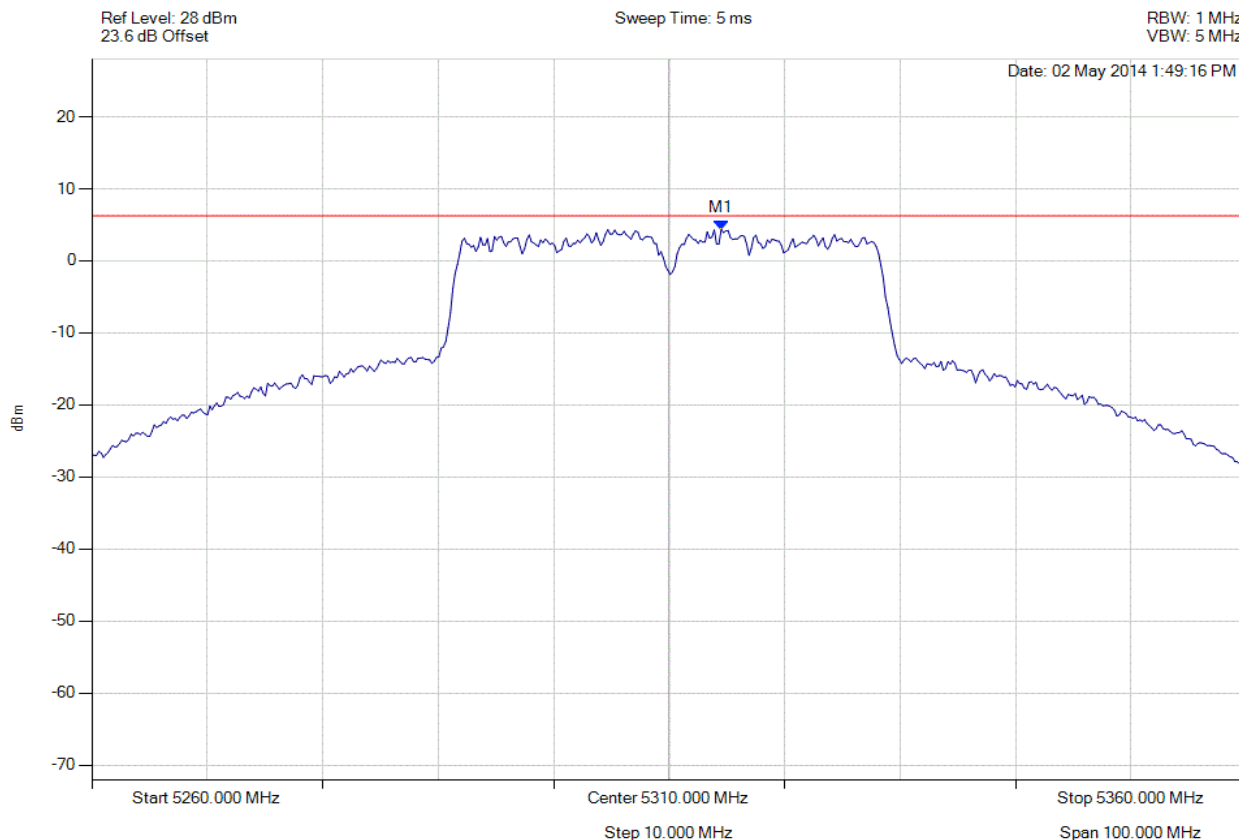


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 227 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5310.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5314.509 MHz : 4.370 dBm | Limit: ≤ 6.229 dBm Margin: -1.59 dB |

[Back to the Matrix](#)

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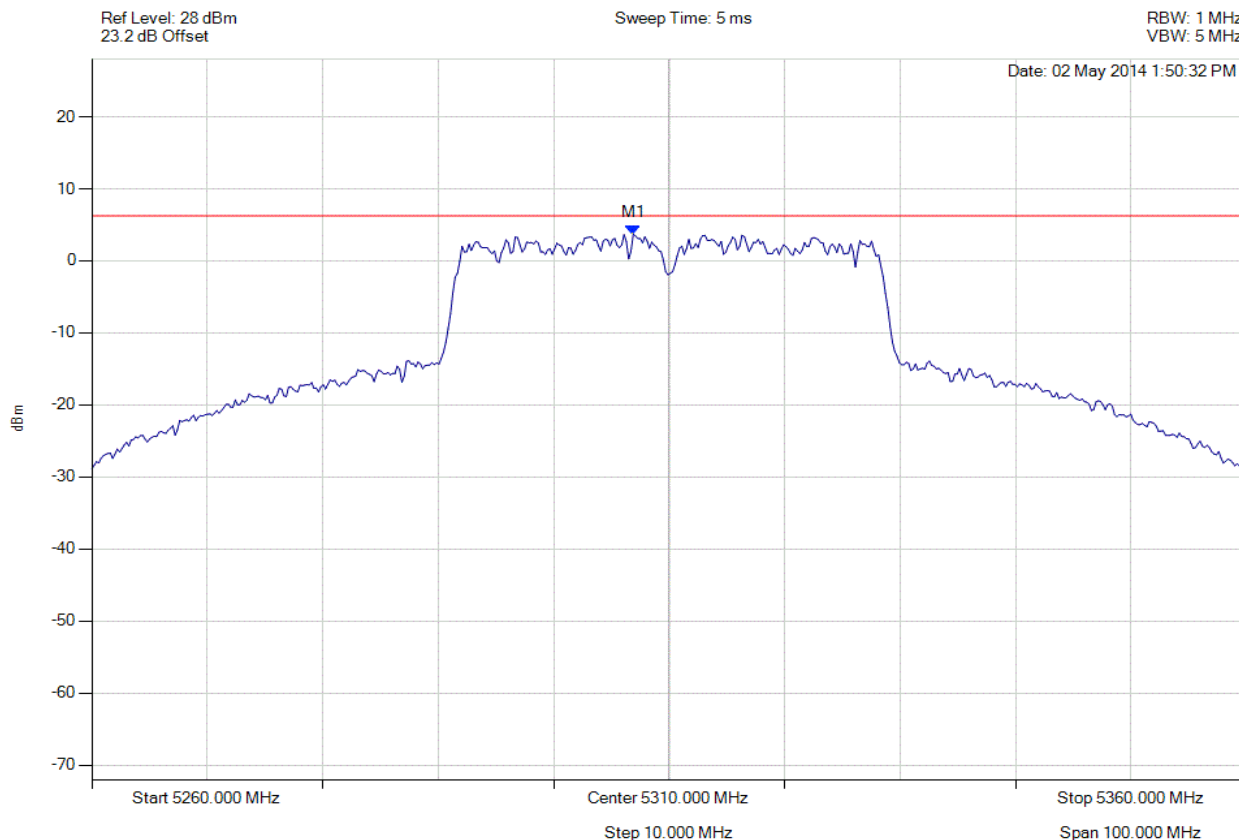


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 228 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5310.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5306.894 MHz : 3.698 dBm | Limit: ≤ 6.229 dBm Margin: -2.26 dB |

[Back to the Matrix](#)

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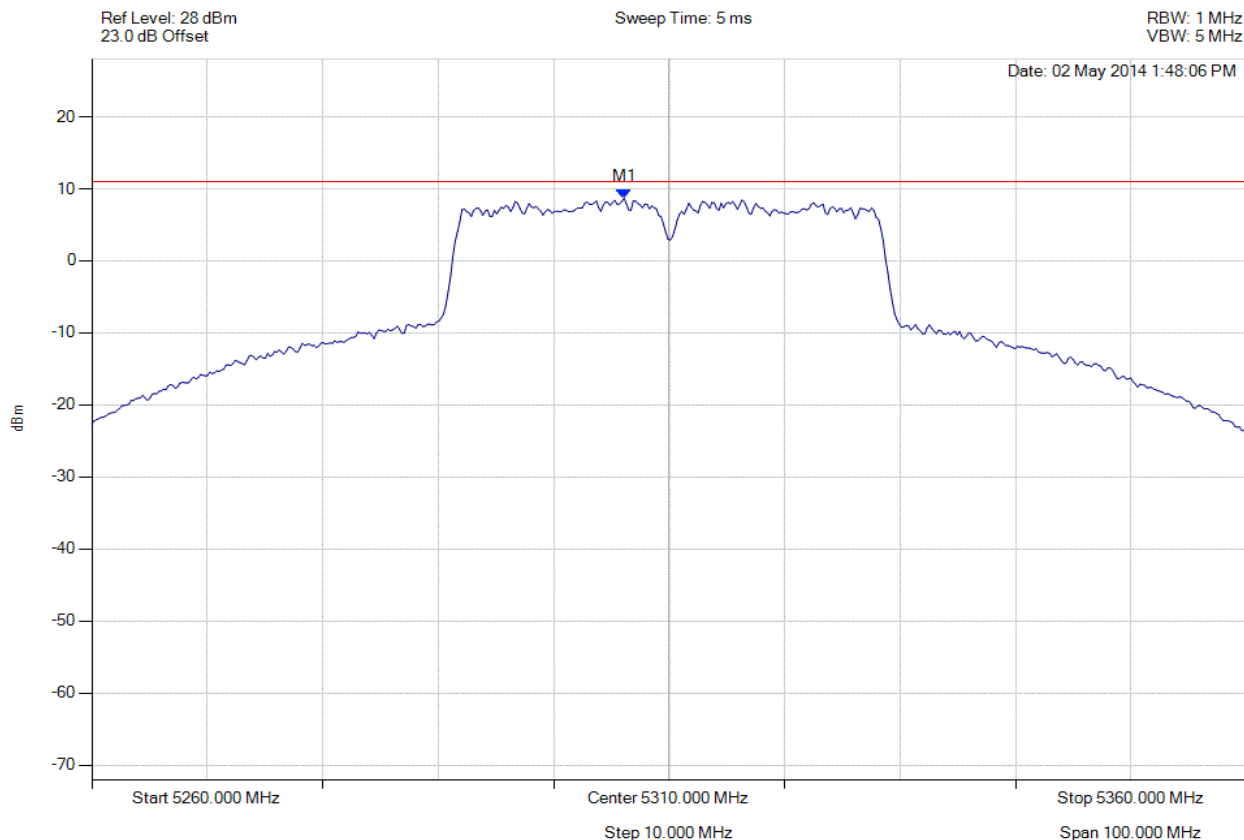


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 229 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5310.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5306.092 MHz : 8.685 dBm | Limit: ≤ 11.0 dBm Margin: -2.3 dB |

[Back to the Matrix](#)

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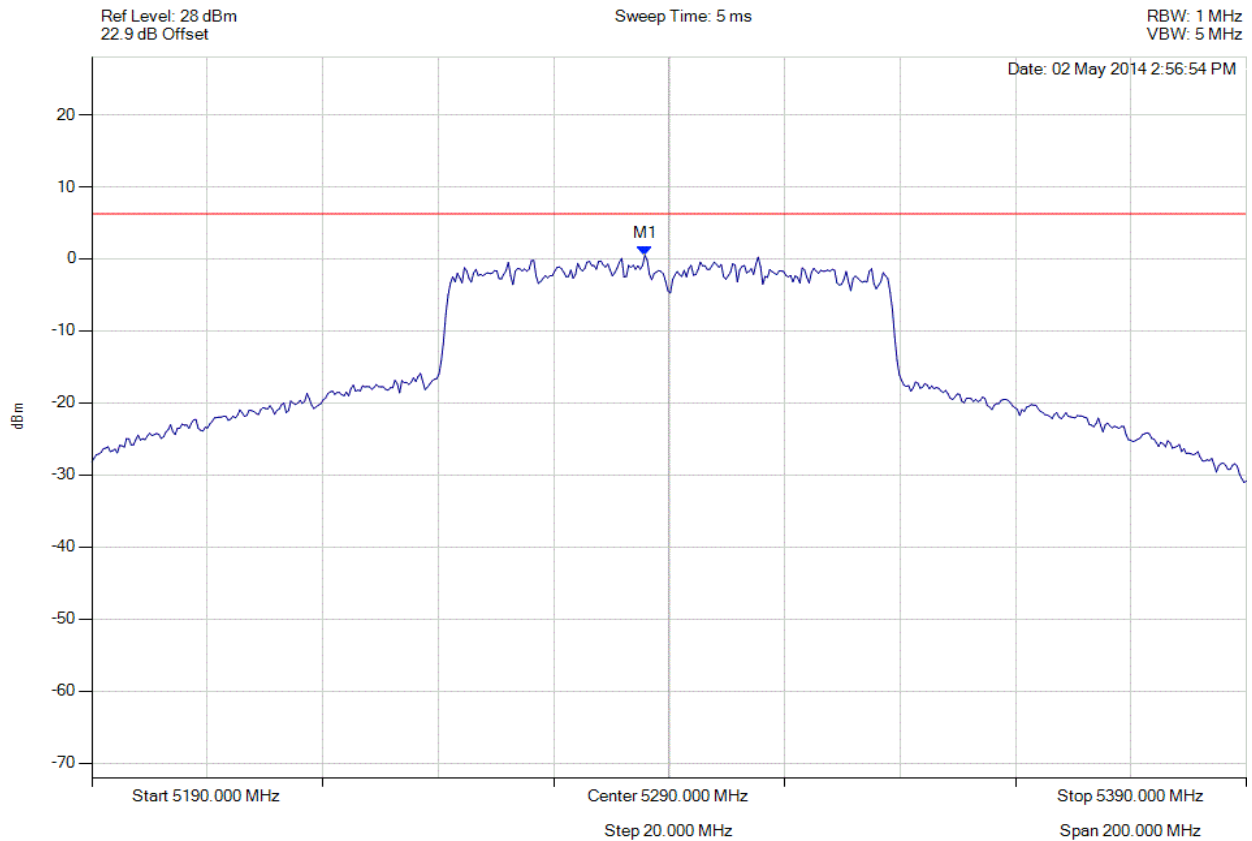


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 230 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5285.792 MHz : 0.484 dBm | Limit: ≤ 6.229 dBm Margin: -4.98 dB |

[Back to the Matrix](#)

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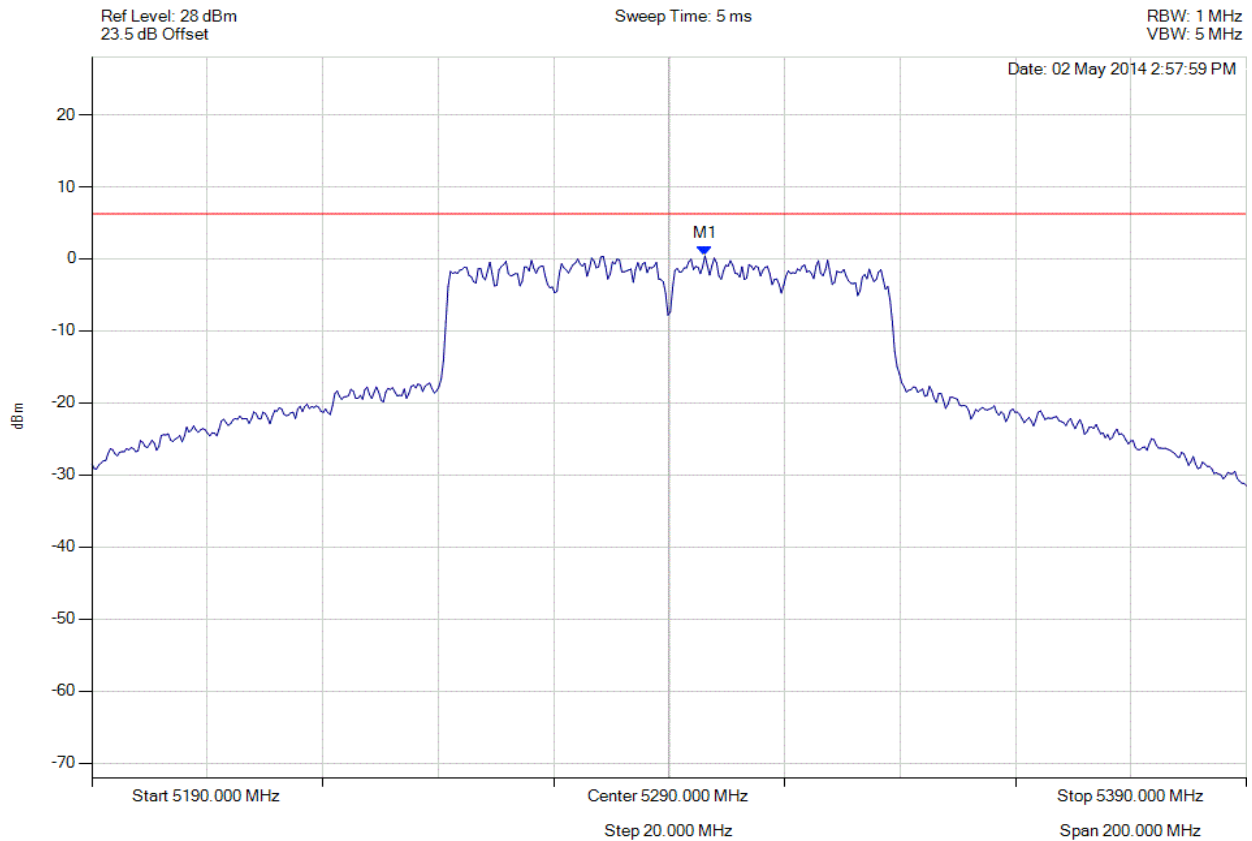


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 231 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5296.212 MHz : 0.402 dBm | Limit: ≤ 6.229 dBm Margin: -5.06 dB |

[Back to the Matrix](#)

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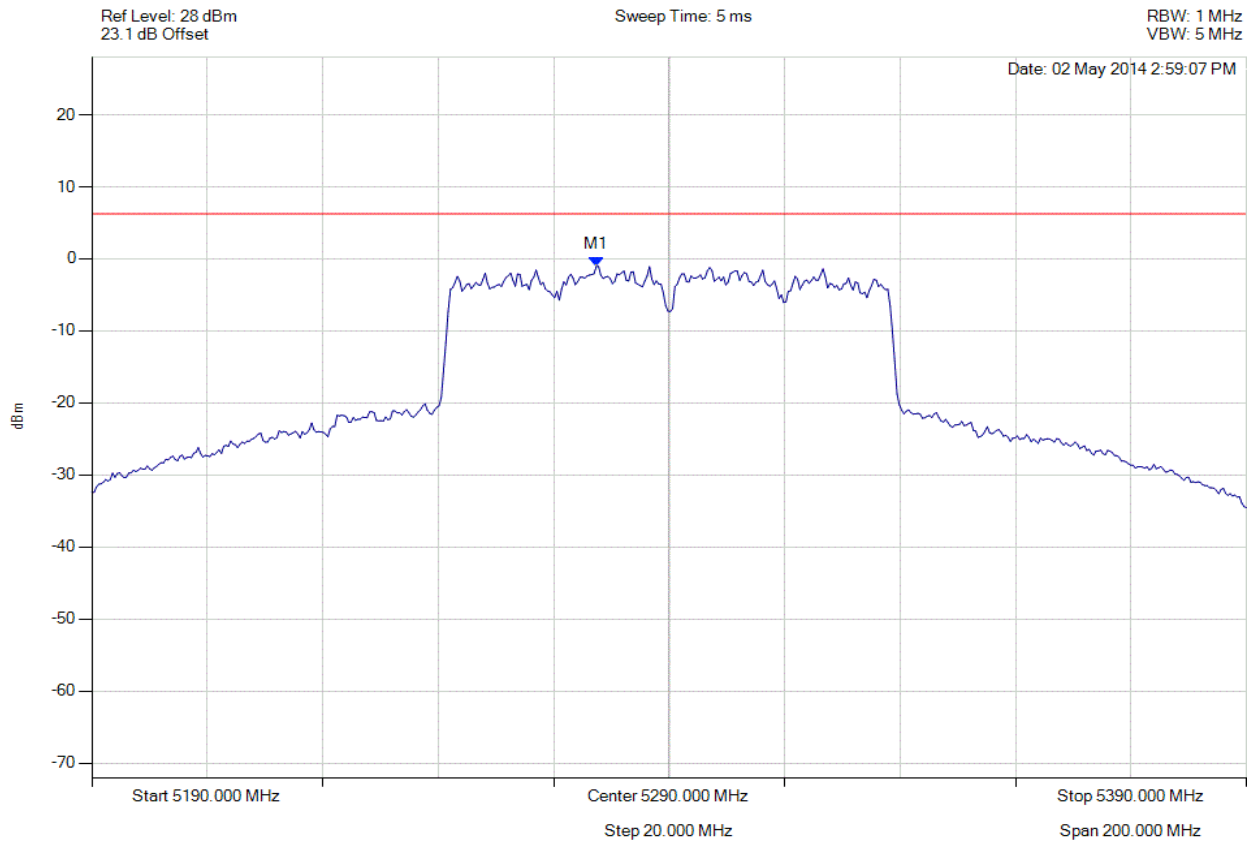


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 232 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5277.375 MHz : -1.056 dBm | Limit: ≤ 6.229 dBm Margin: 6.52 dB |

[Back to the Matrix](#)

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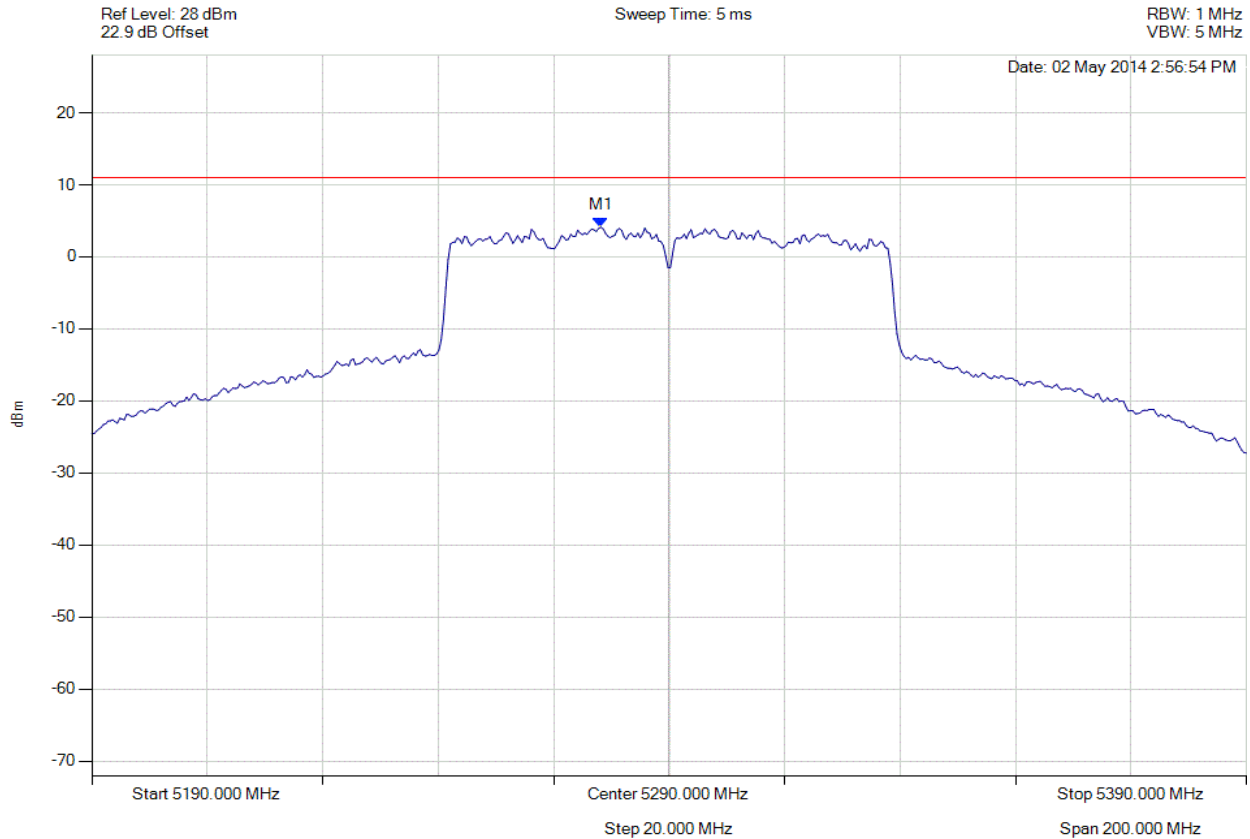


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 233 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5290.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5278.176 MHz : 4.117 dBm | Limit: ≤ 11.0 dBm Margin: -6.9 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

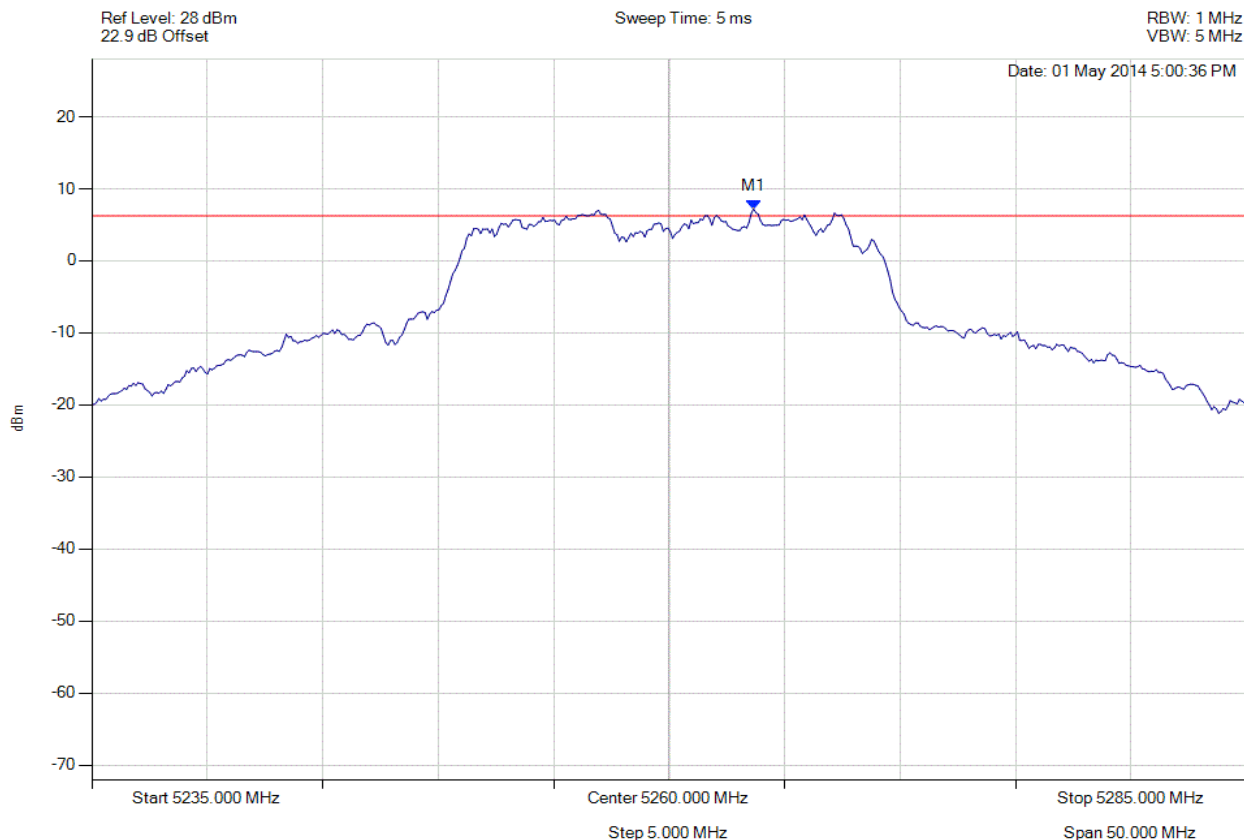


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 234 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5263.657 MHz : 7.213 dBm | Limit: ≤ 6.229 dBm Margin: 1.23 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

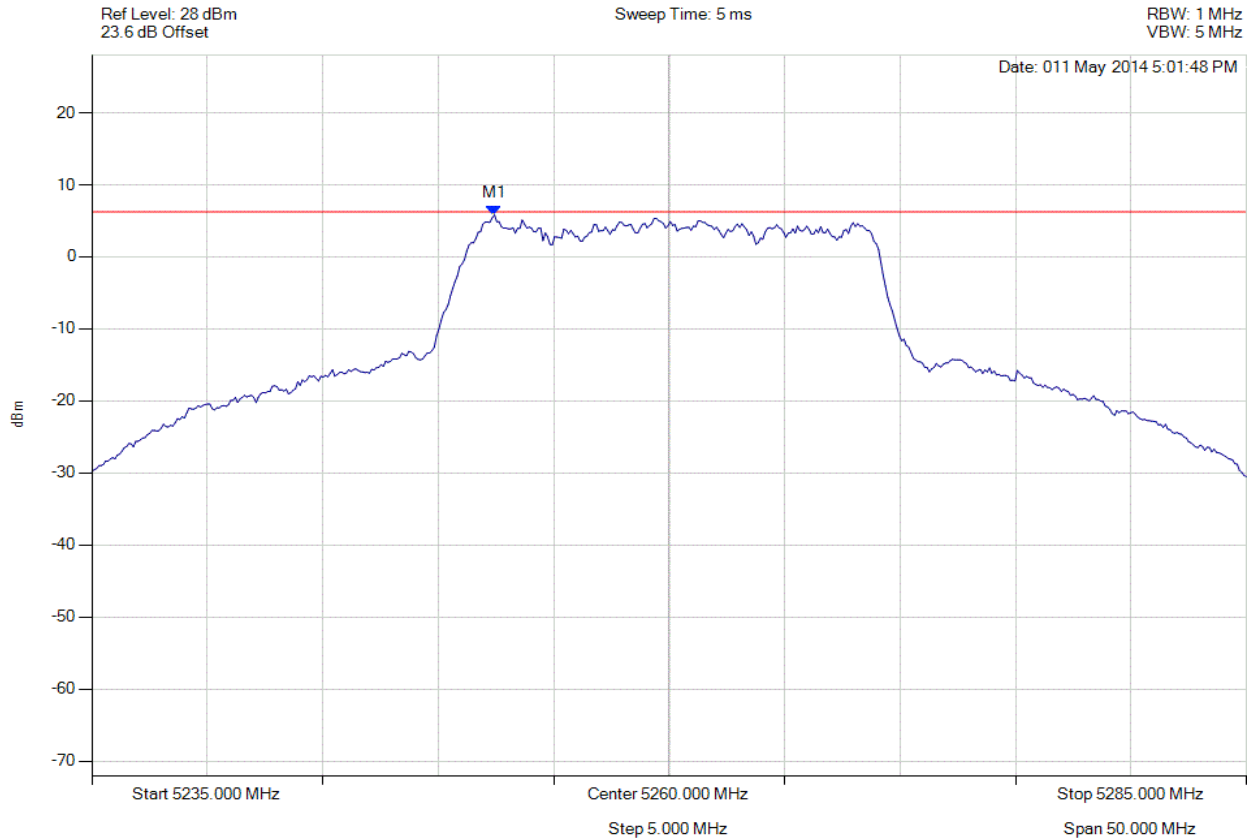


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 235 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5252.435 MHz : 5.813 dBm | Limit: ≤ 6.229 dBm Margin: -0.17 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

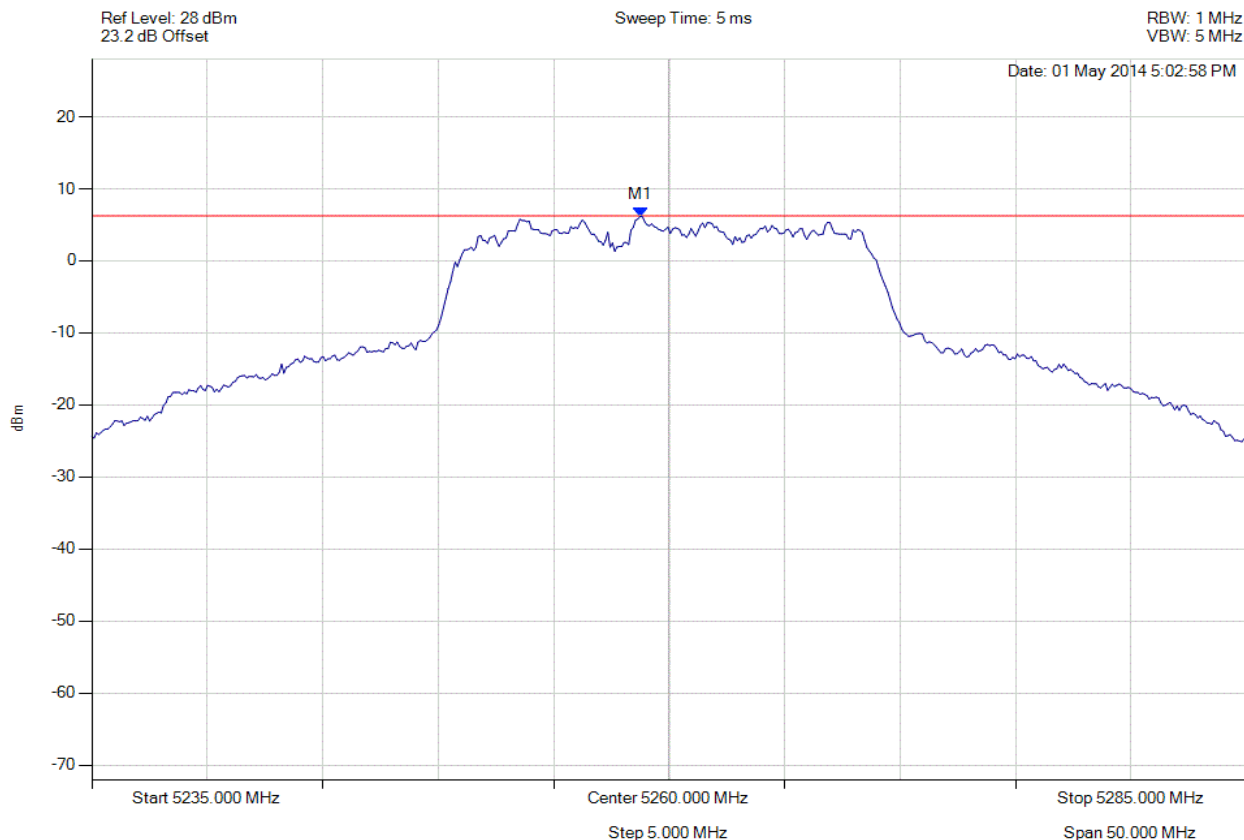


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 236 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5258.747 MHz : 6.191 dBm | Limit: ≤ 6.229 dBm Margin: 0.21 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

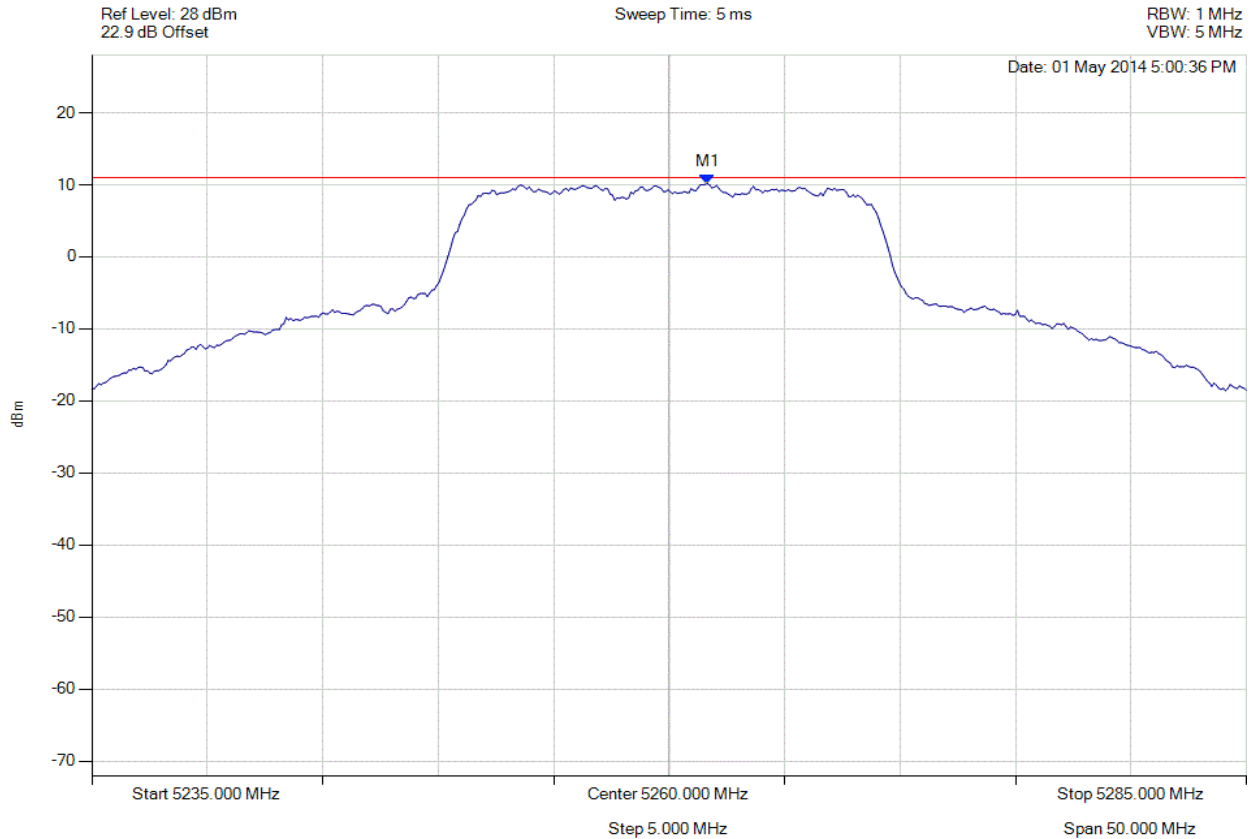


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 237 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5260.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5261.653 MHz : 10.175 dBm | Limit: ≤ 11.0 dBm Margin: -0.8 dB |

[Back to the Matrix](#)

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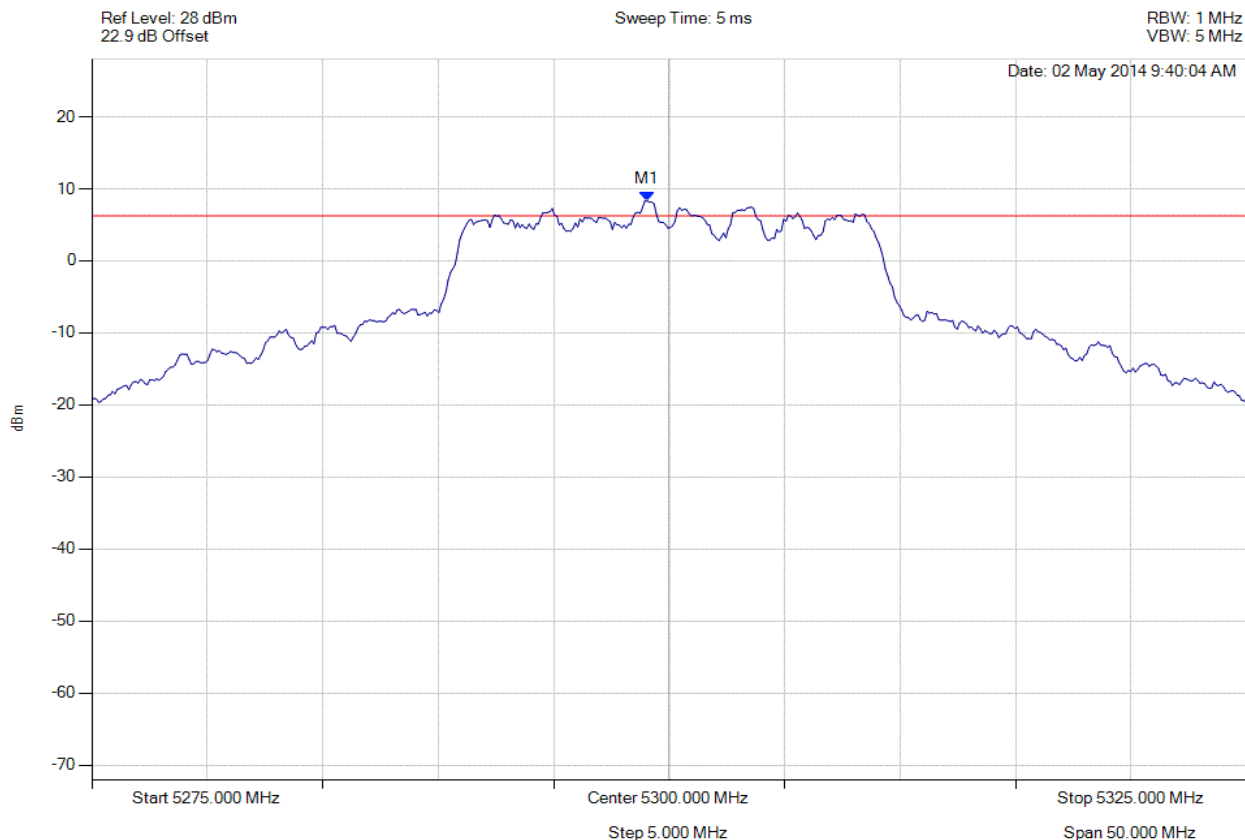


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 238 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5299.048 MHz : 8.314 dBm | Limit: ≤ 6.229 dBm Margin: 2.33 dB |

[Back to the Matrix](#)

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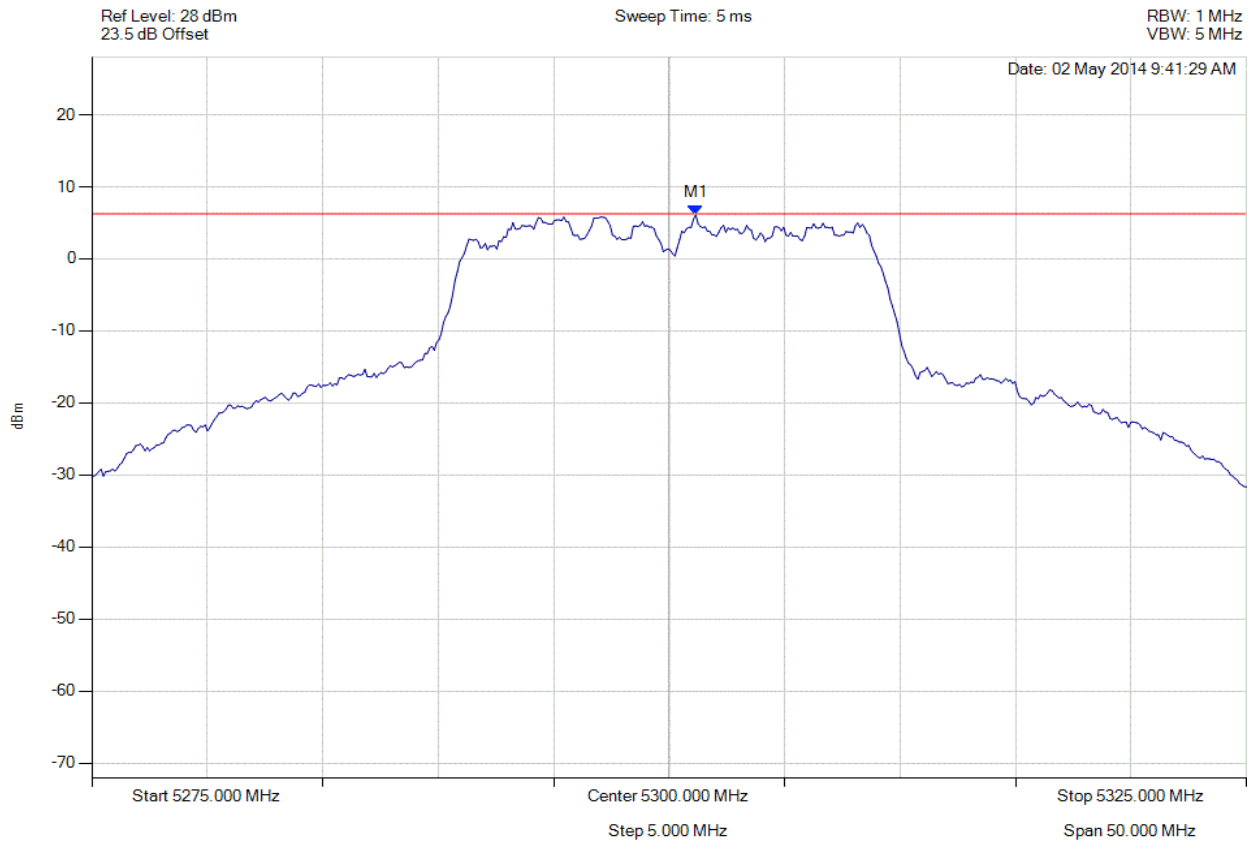


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 239 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5301.152 MHz : 6.081 dBm | Limit: ≤ 6.229 dBm Margin: 0.10 dB |

[Back to the Matrix](#)

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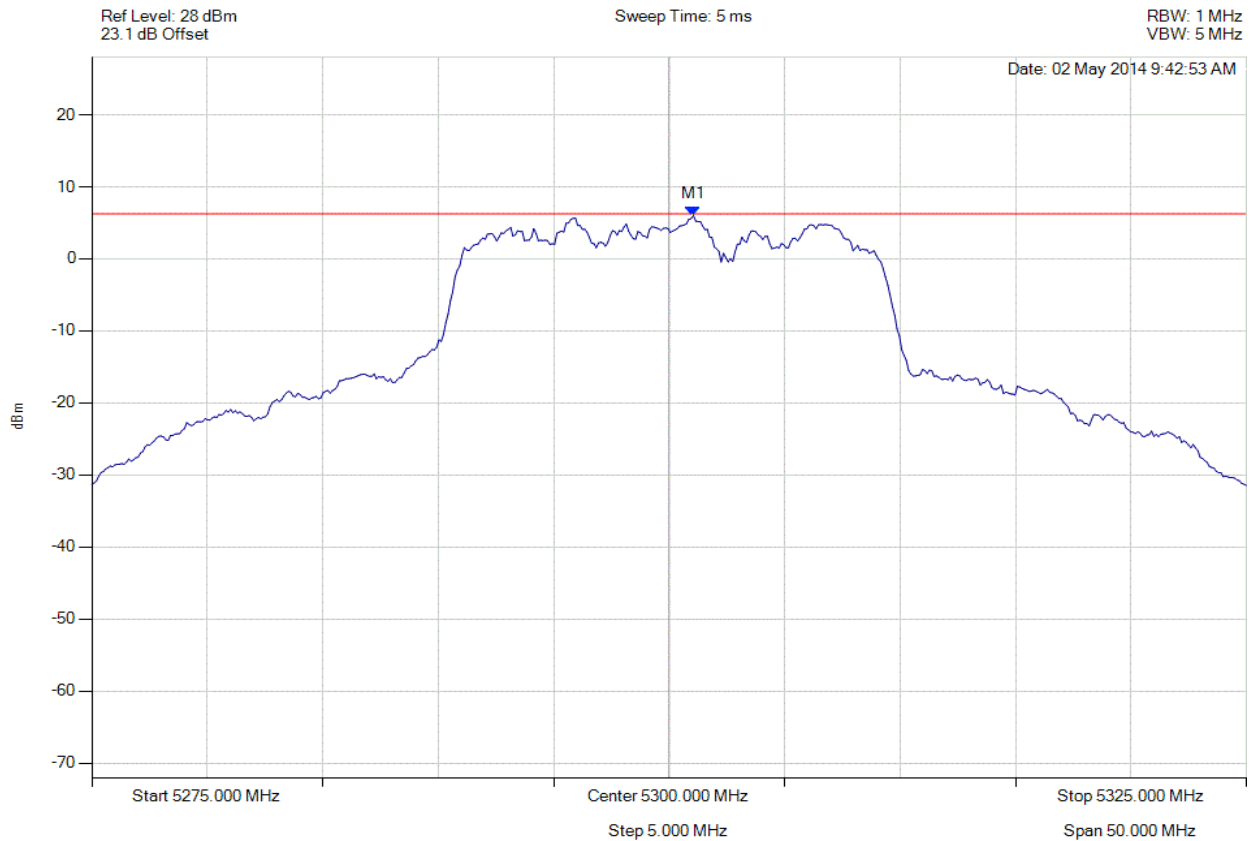


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 240 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5301.052 MHz : 6.022 dBm | Limit: ≤ 6.229 dBm Margin: 0.04 dB |

[Back to the Matrix](#)

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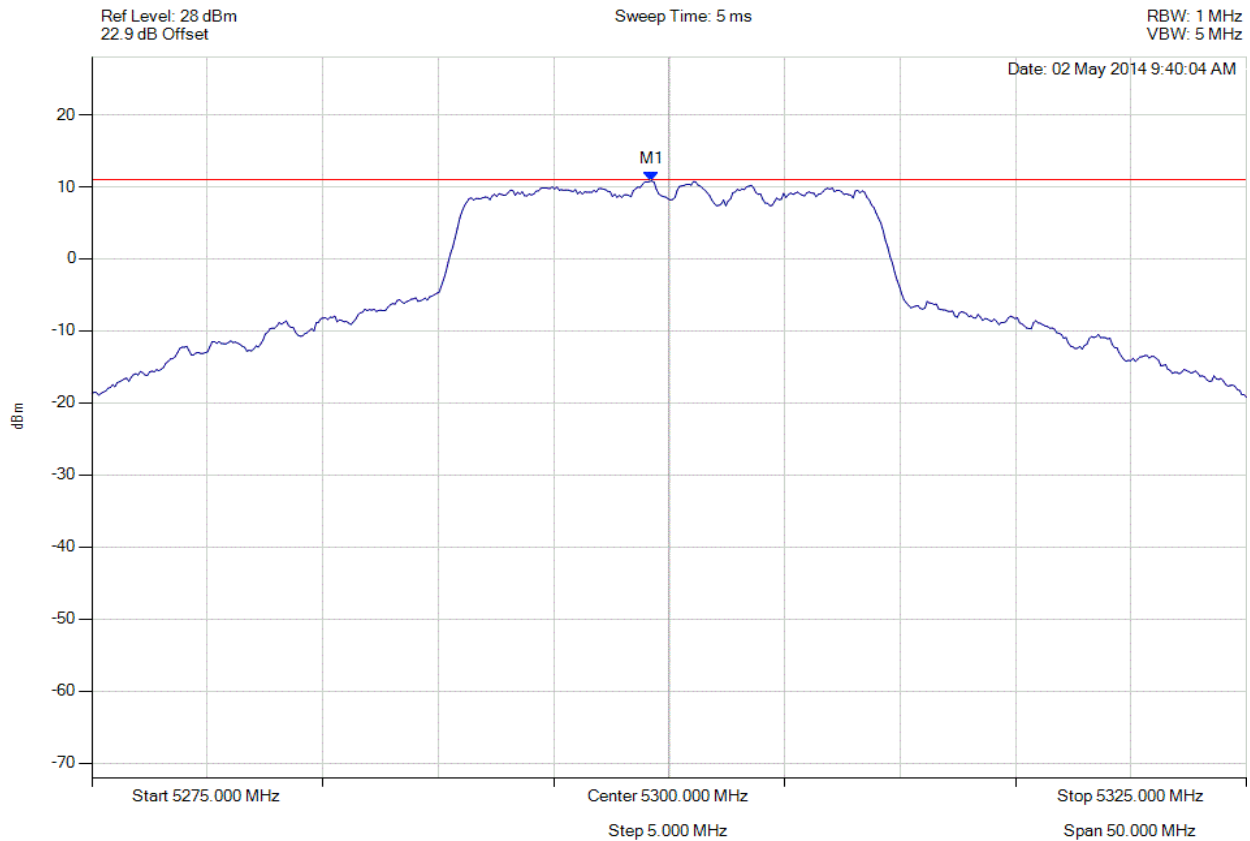


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 241 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5300.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5299.248 MHz : 10.813 dBm | Limit: ≤ 11.0 dBm Margin: -0.2 dB |

[Back to the Matrix](#)

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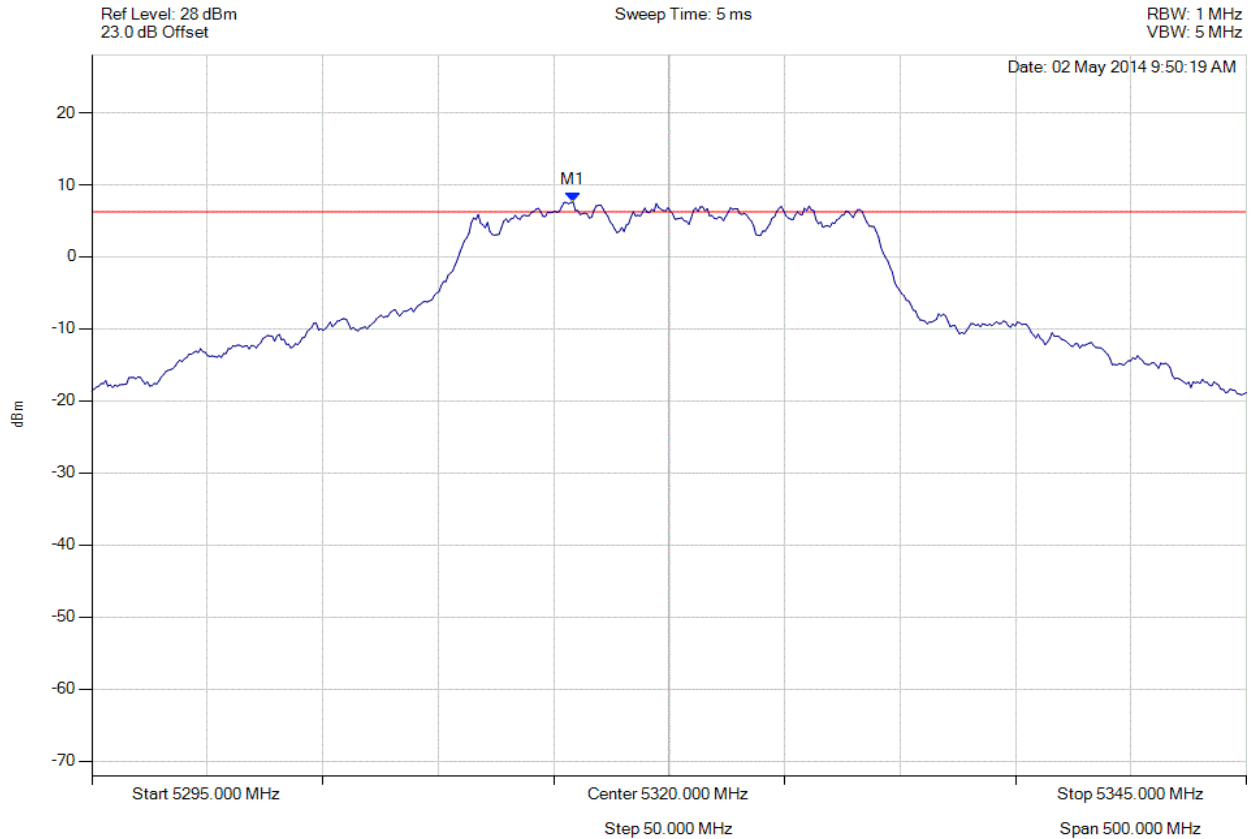


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 242 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



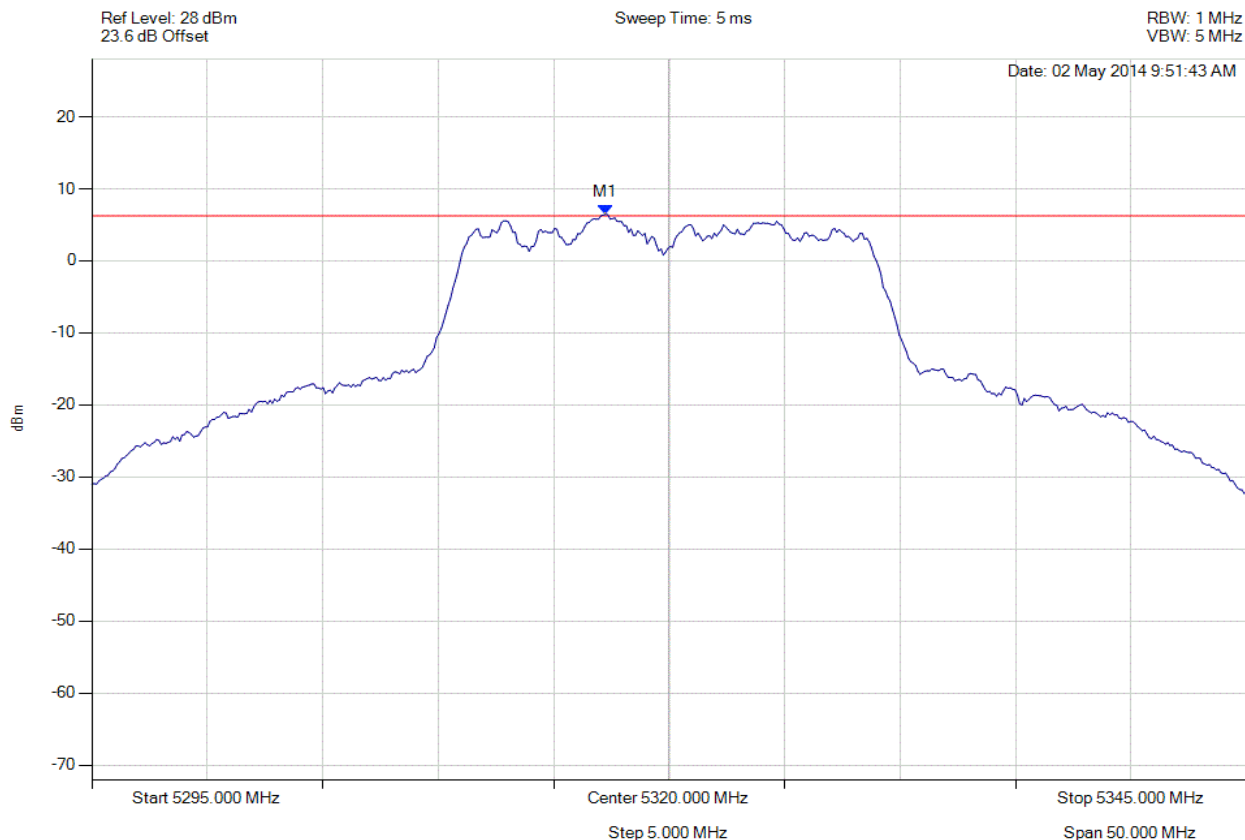
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5315.842 MHz : 7.602 dBm | Limit: ≤ 6.229 dBm Margin: 1.62 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5317.244 MHz : 6.463 dBm | Limit: ≤ 6.229 dBm Margin: 0.48 dB |

[Back to the Matrix](#)

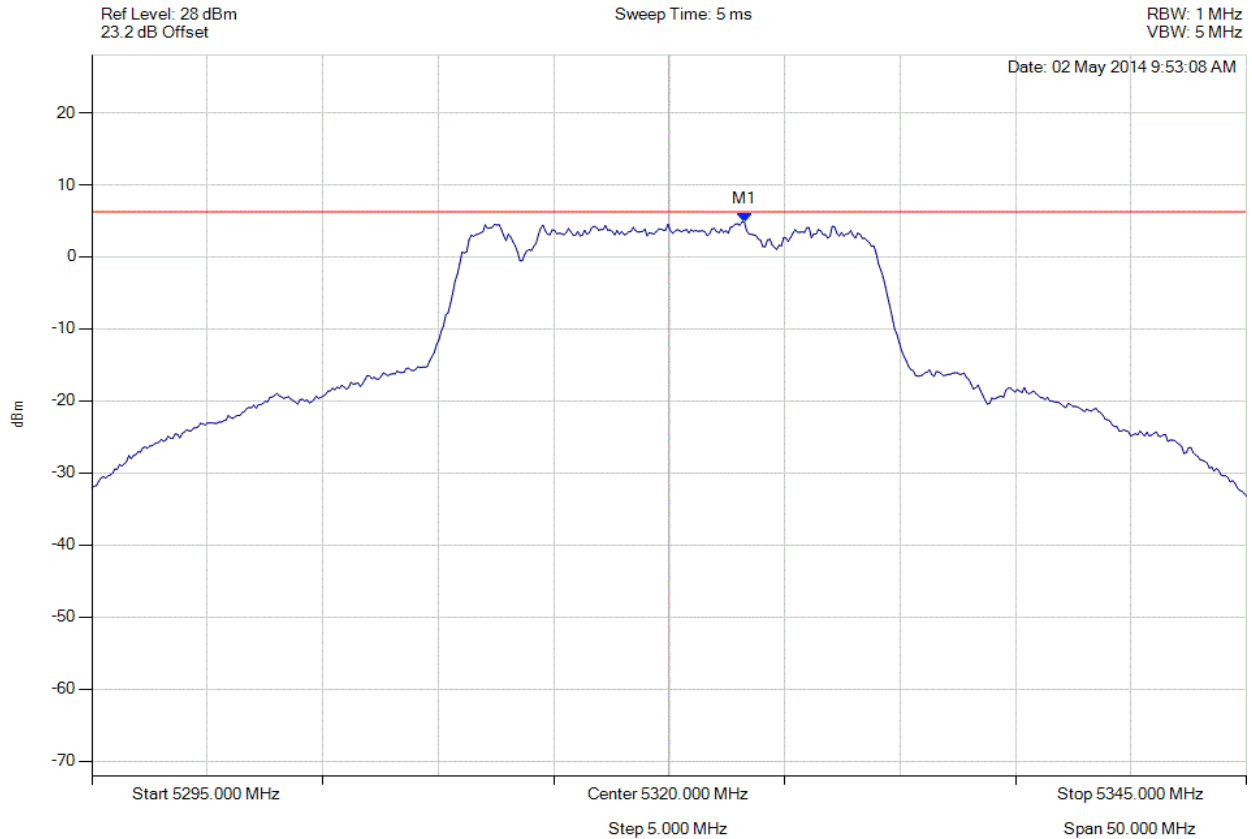


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 244 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5323.257 MHz : 4.881 dBm | Limit: ≤ 6.229 dBm Margin: -1.10 dB |

[Back to the Matrix](#)

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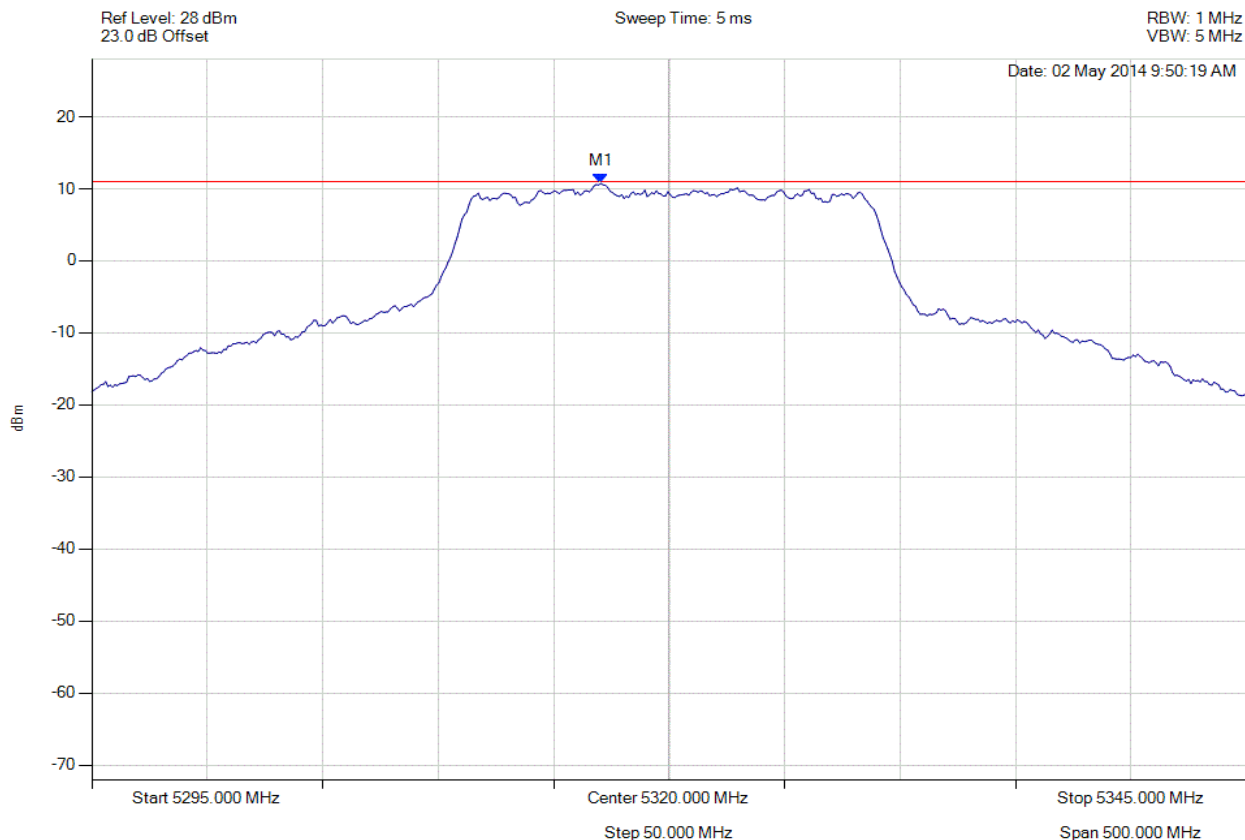


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 245 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5320.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5317.044 MHz : 10.730 dBm | Limit: ≤ 11.0 dBm Margin: -0.3 dB |

[Back to the Matrix](#)

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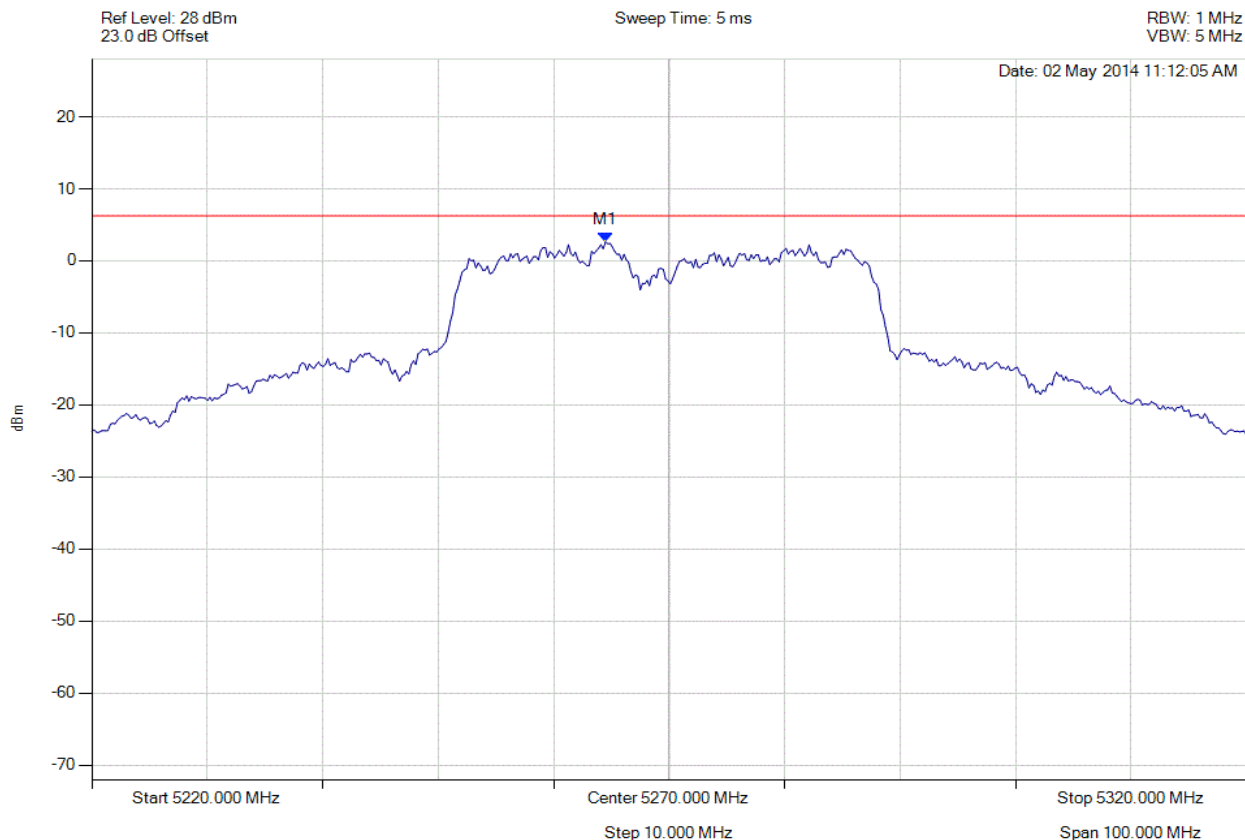


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 246 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5264.489 MHz : 2.626 dBm | Limit: ≤ 6.229 dBm Margin: -2.98 dB |

[Back to the Matrix](#)

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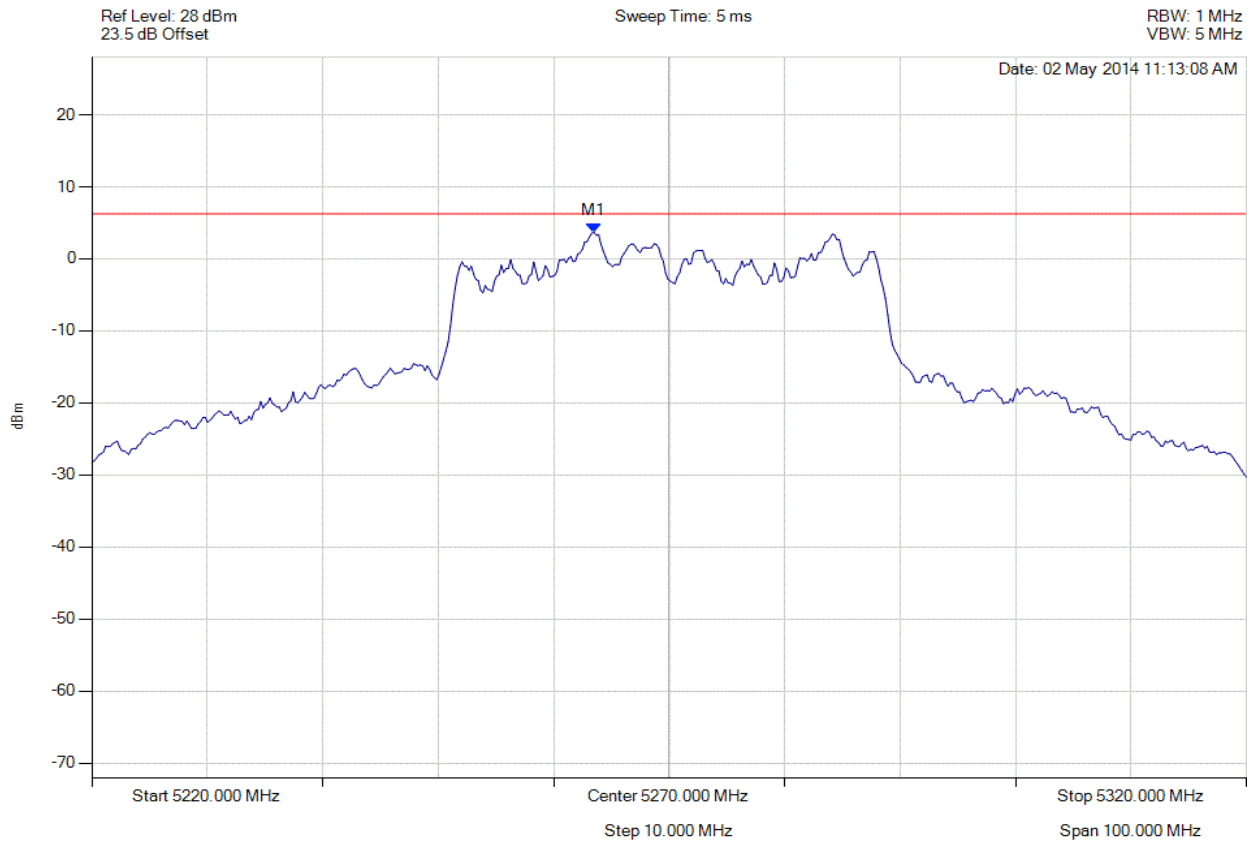


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 247 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5263.487 MHz : 3.703 dBm | Limit: ≤ 6.229 dBm Margin: -1.90 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

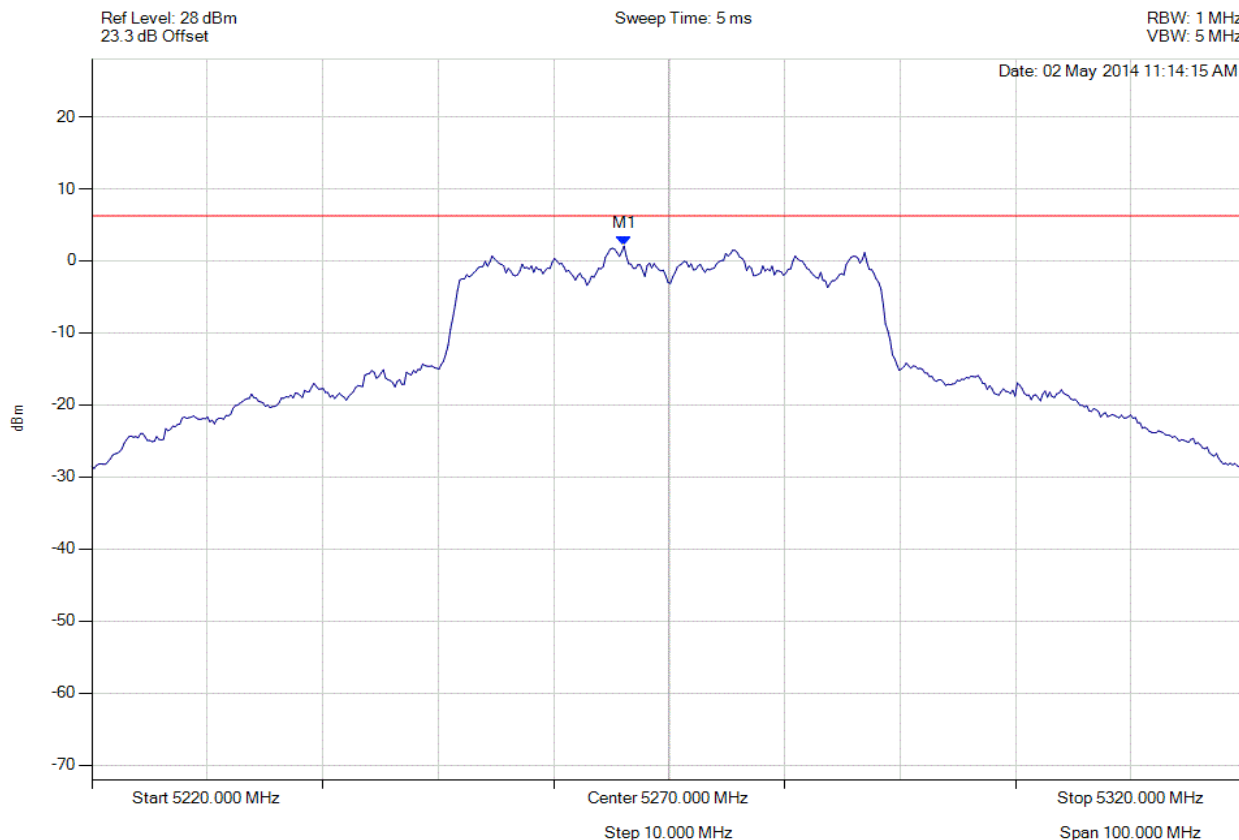


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 248 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5266.092 MHz : 2.062 dBm | Limit: ≤ 6.229 dBm Margin: -3.54 dB |

[Back to the Matrix](#)

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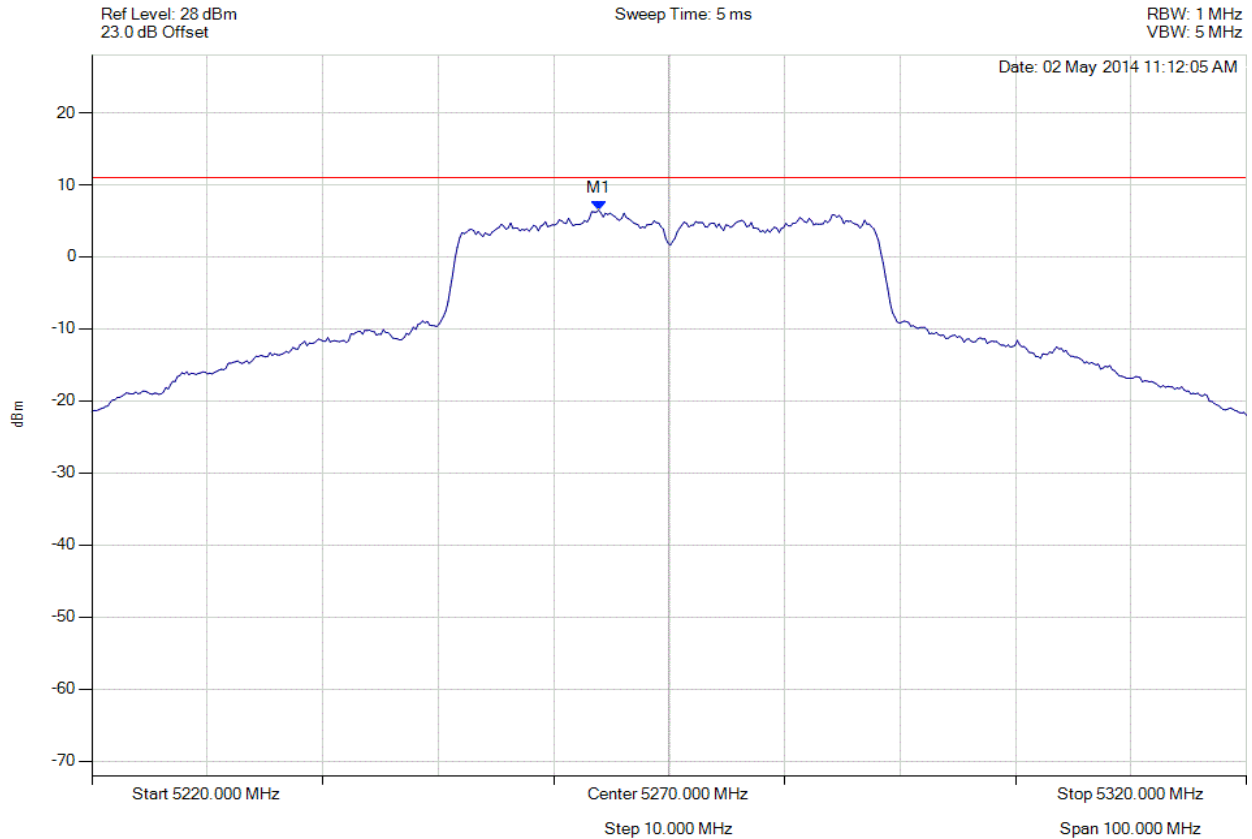


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 249 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5270.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5263.888 MHz : 6.483 dBm | Limit: ≤ 11.0 dBm Margin: -4.5 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

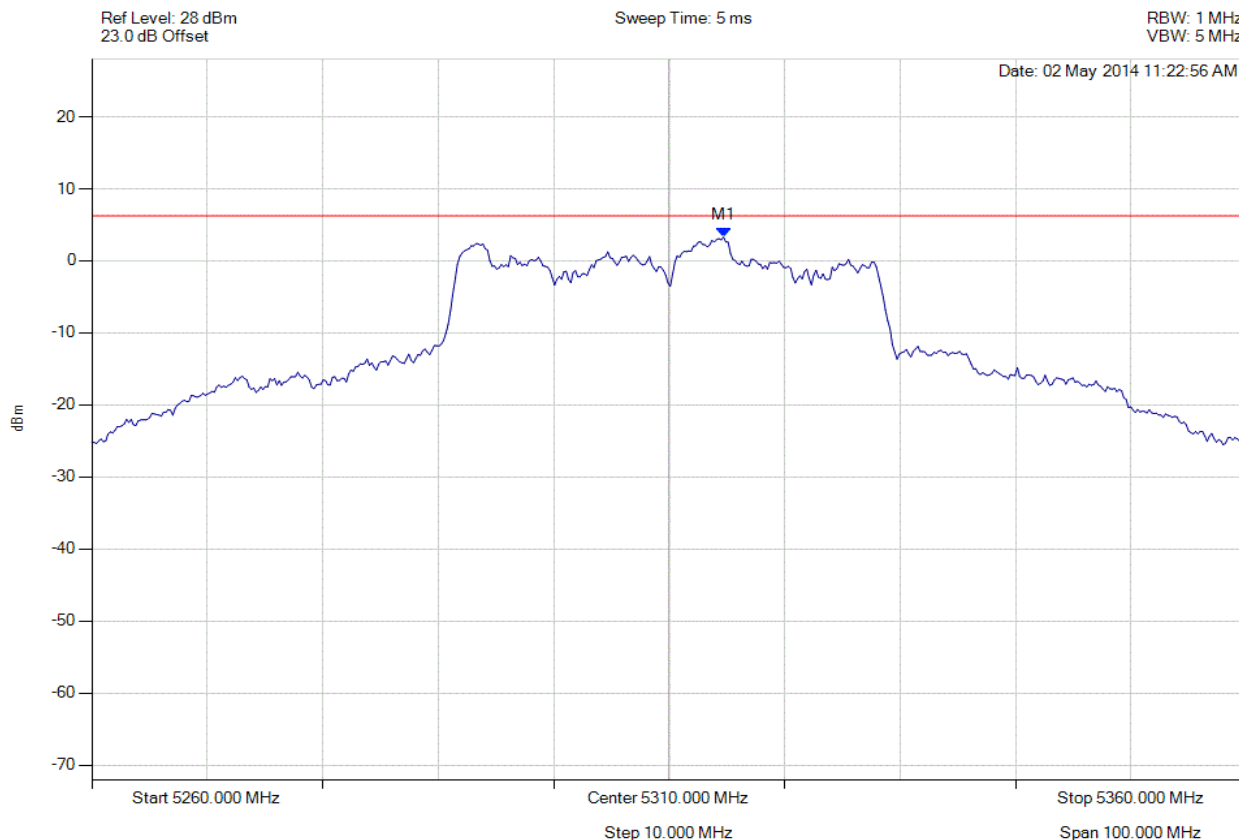


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 250 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5314.709 MHz : 3.296 dBm | Limit: ≤ 6.229 dBm Margin: -2.31 dB |

[Back to the Matrix](#)

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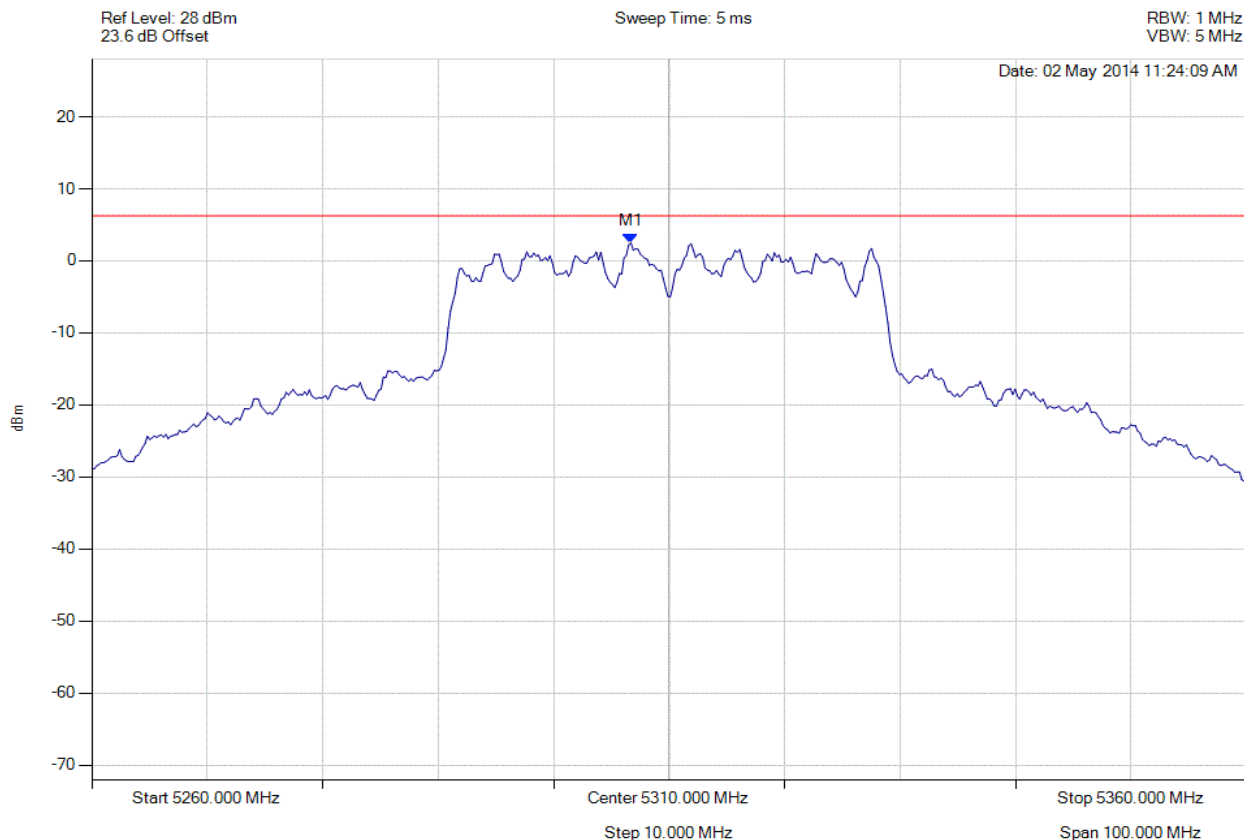


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 251 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5306.693 MHz : 2.493 dBm | Limit: ≤ 6.229 dBm Margin: -3.11 dB |

[Back to the Matrix](#)

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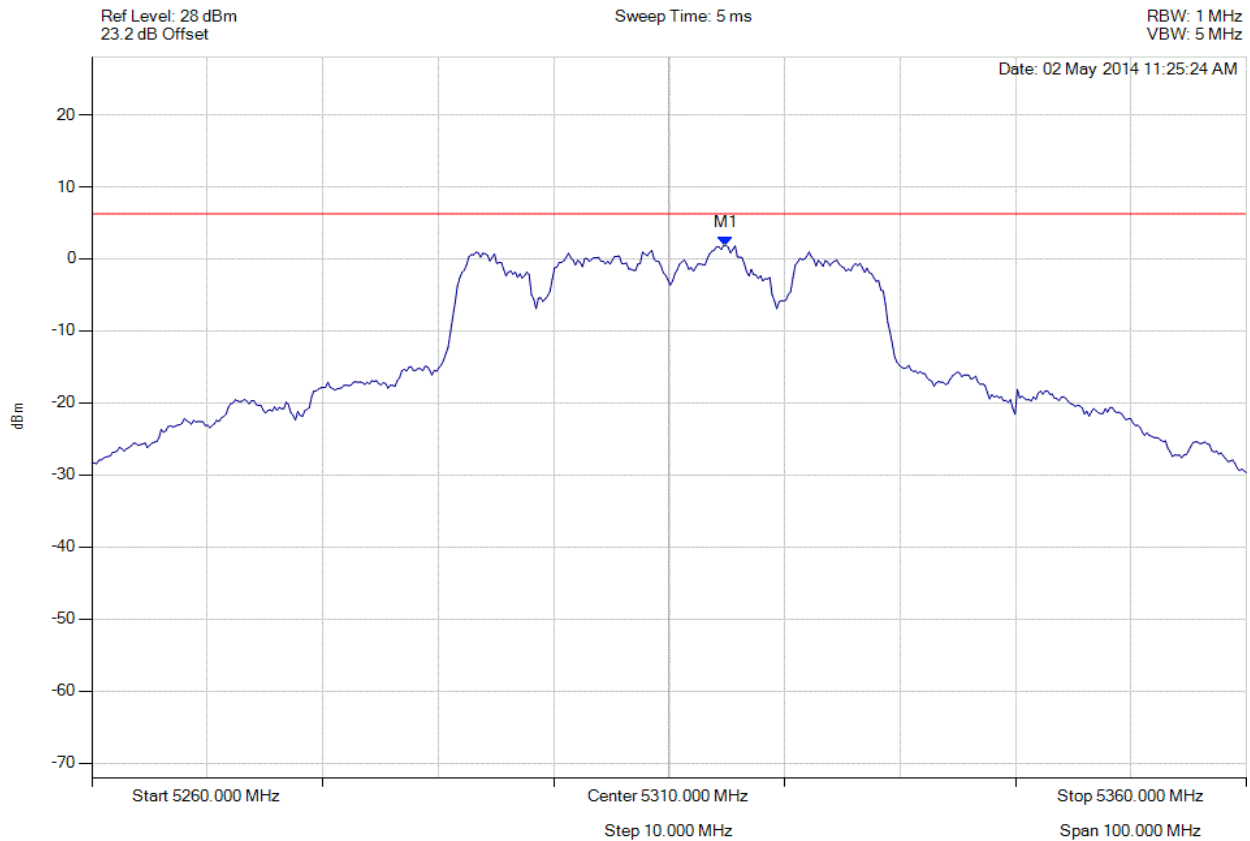


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 252 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5314.910 MHz : 1.881 dBm | Limit: ≤ 6.229 dBm Margin: -3.72 dB |

[Back to the Matrix](#)

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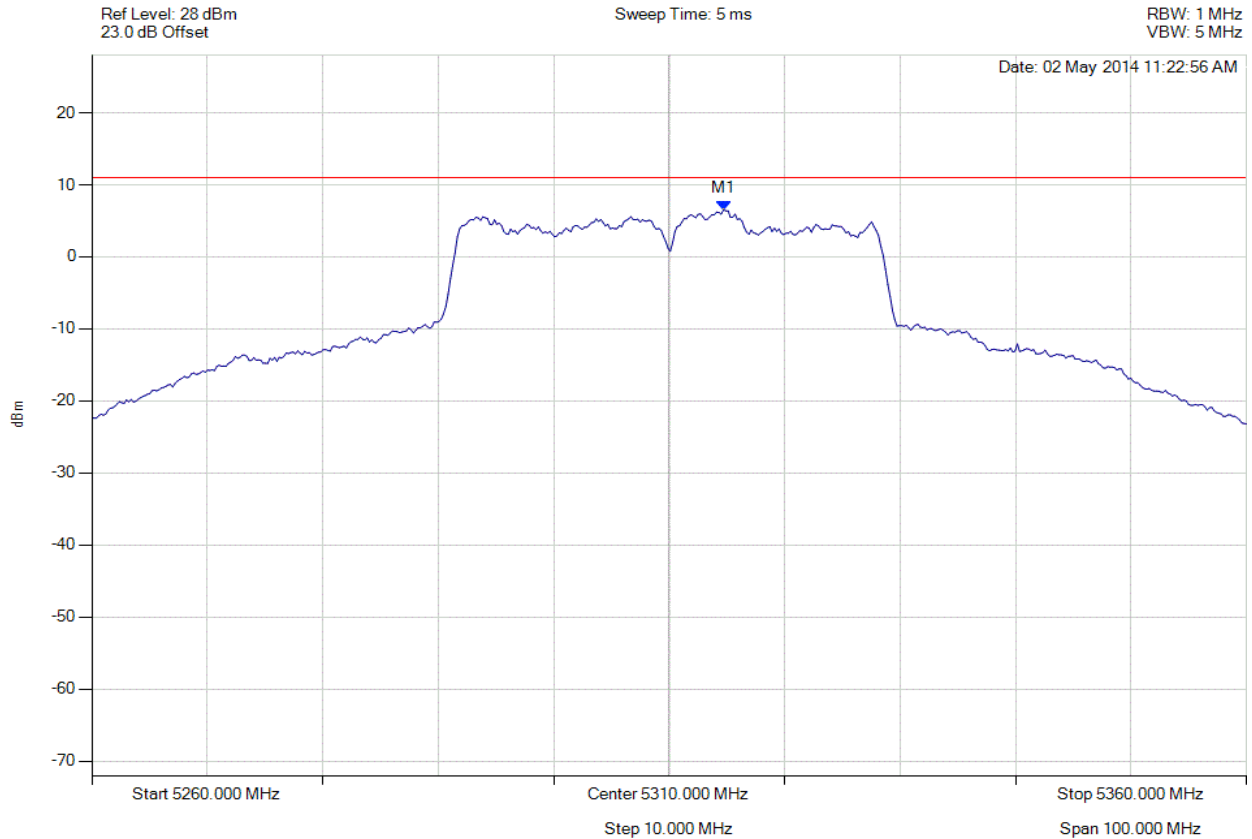


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 253 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5310.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5314.709 MHz : 6.521 dBm | Limit: ≤ 11.0 dBm Margin: -4.5 dB |

[Back to the Matrix](#)

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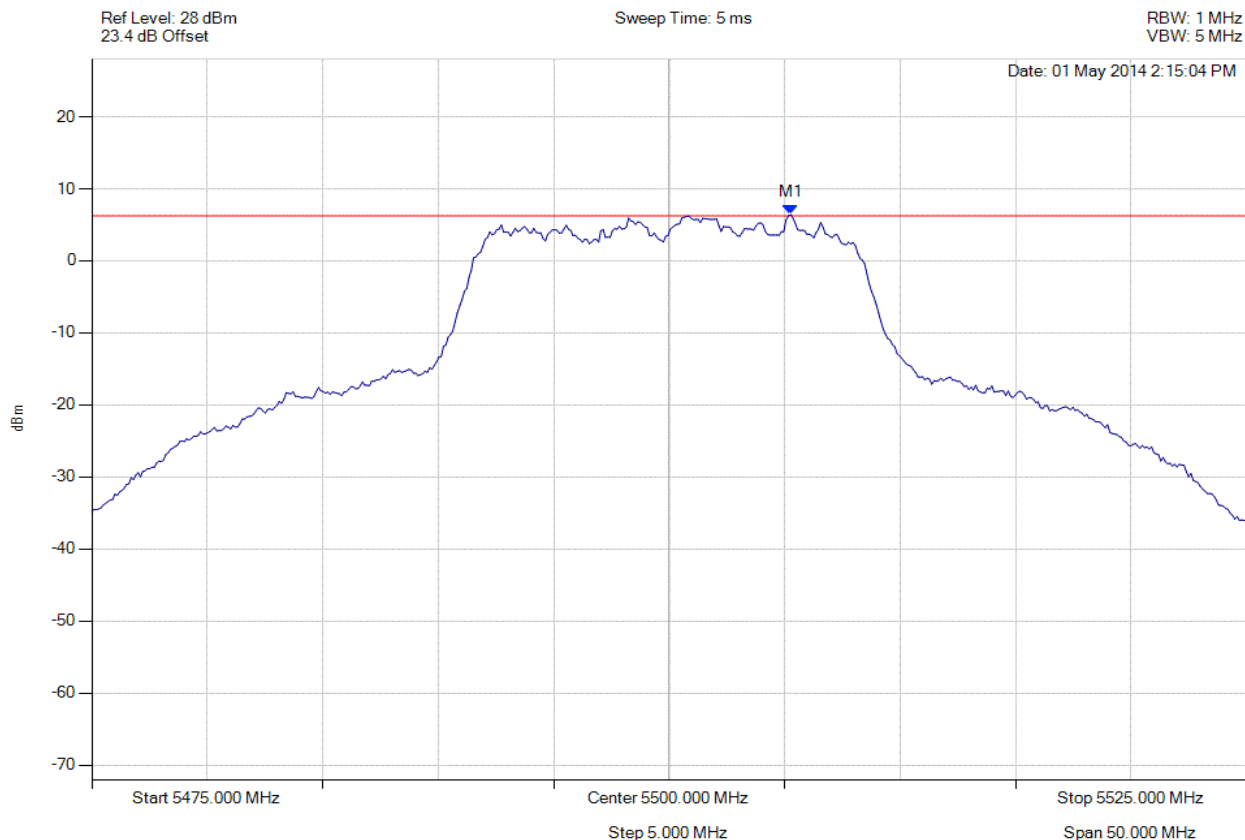


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 254 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5505.261 MHz : 6.394 dBm | Limit: ≤ 6.229 dBm Margin: 0.43 dB |

[Back to the Matrix](#)

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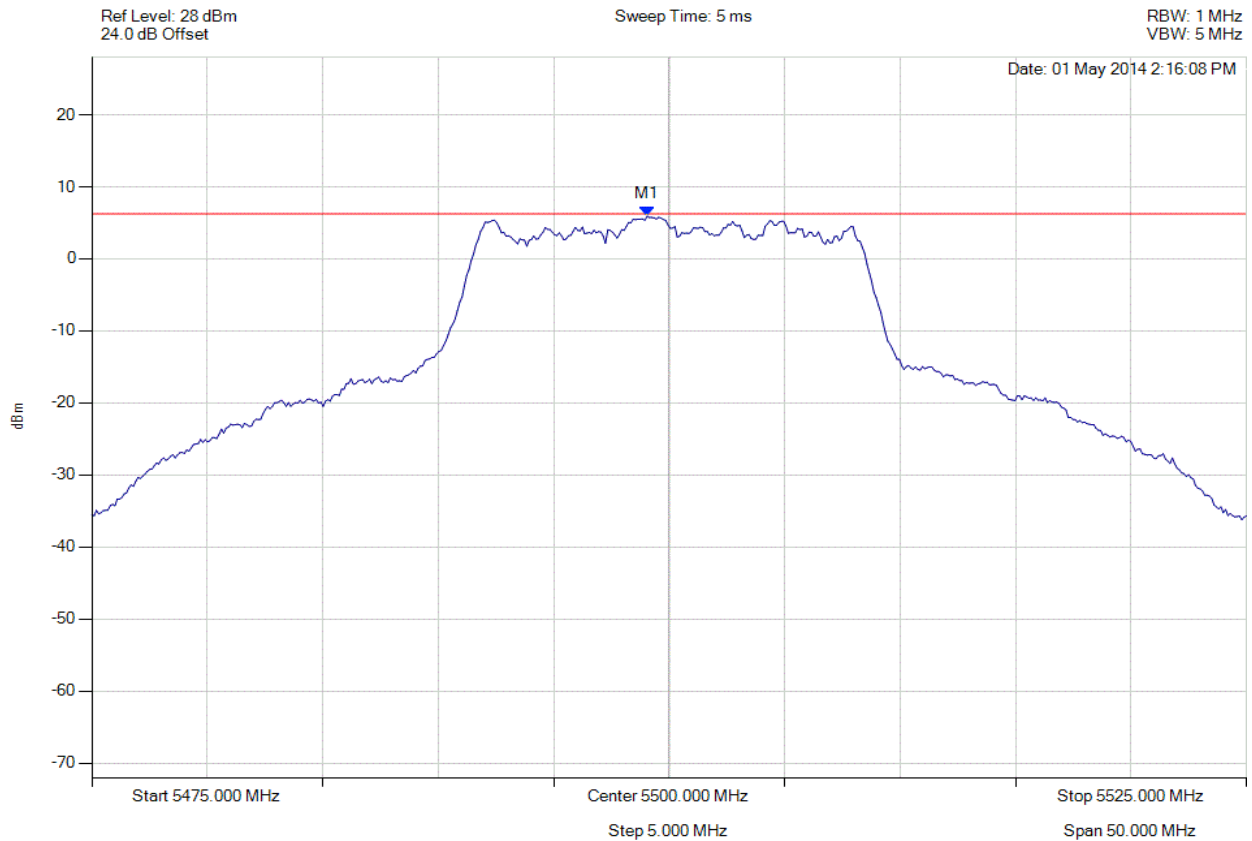


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 255 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5500.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5499.048 MHz : 5.913 dBm | Limit: ≤ 6.229 dBm Margin: -0.05 dB |

[Back to the Matrix](#)

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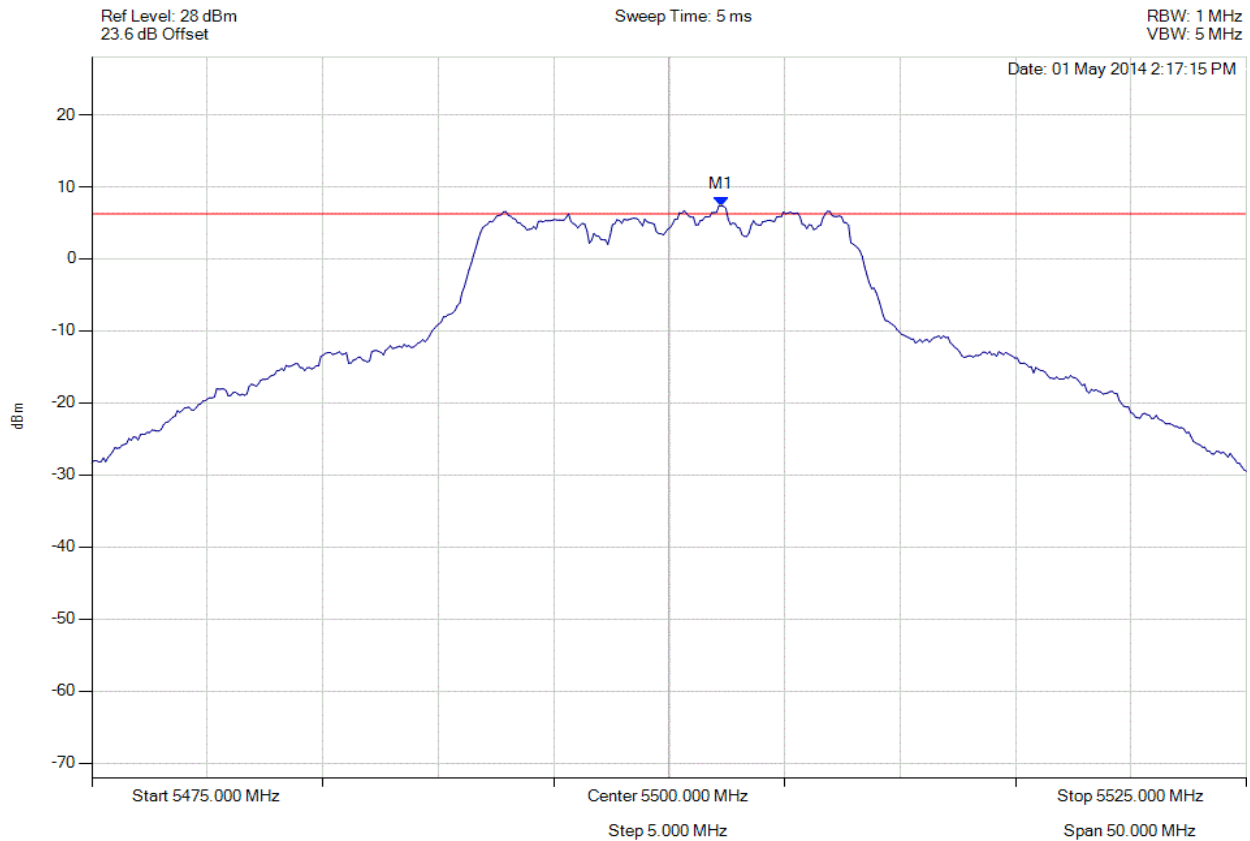


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 256 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5500.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5502.255 MHz : 7.359 dBm | Limit: ≤ 6.229 dBm Margin: 1.40 dB |

[Back to the Matrix](#)

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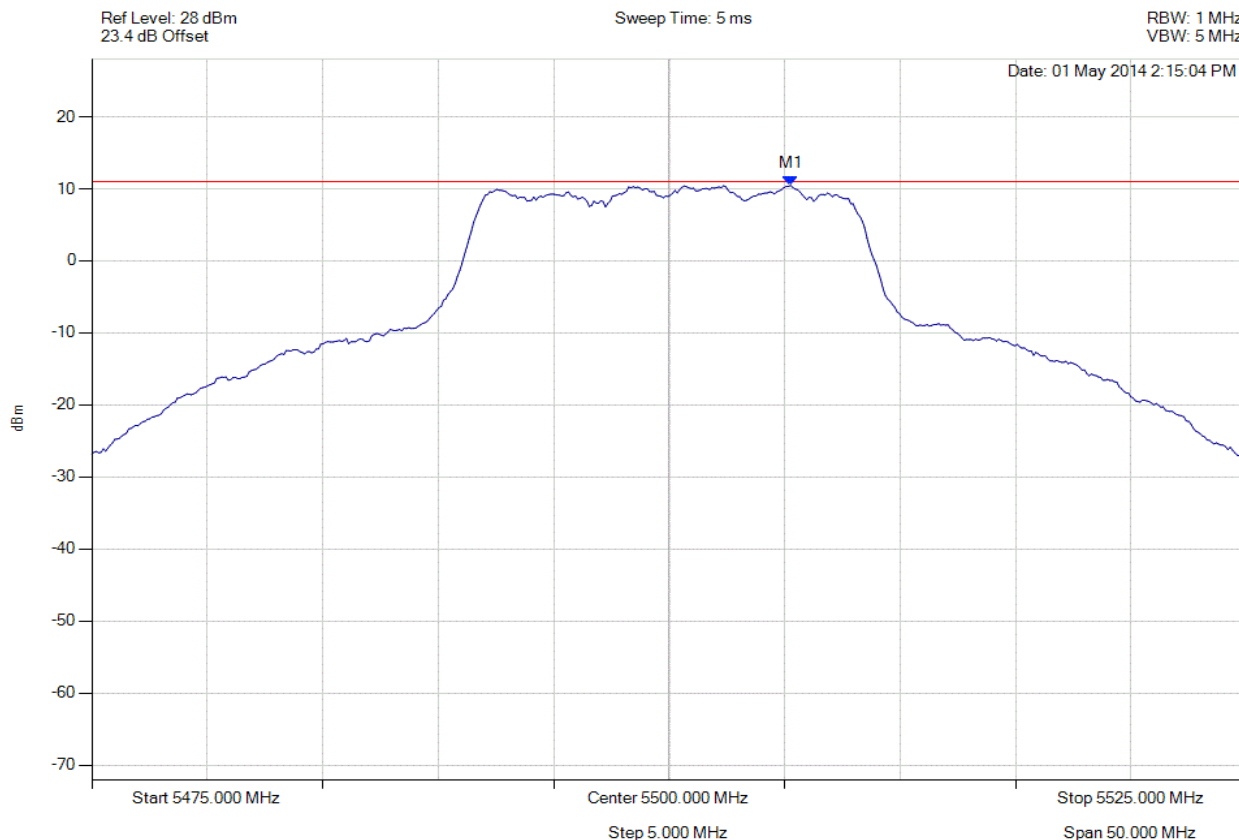


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 257 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5500.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5505.261 MHz : 10.455 dBm | Limit: ≤ 11.0 dBm Margin: -0.5 dB |

[Back to the Matrix](#)

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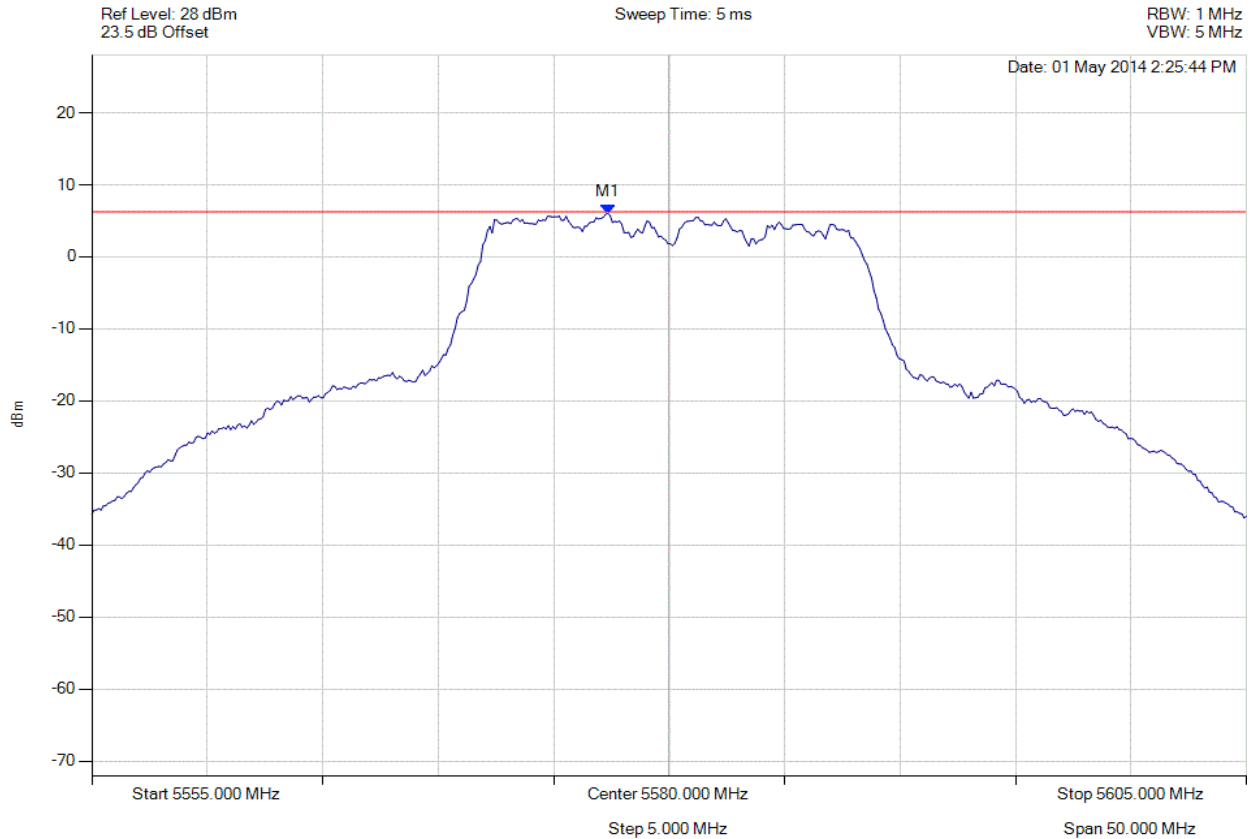


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 258 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5577.345 MHz : 6.023 dBm | Limit: ≤ 6.229 dBm Margin: 0.06 dB |

[Back to the Matrix](#)

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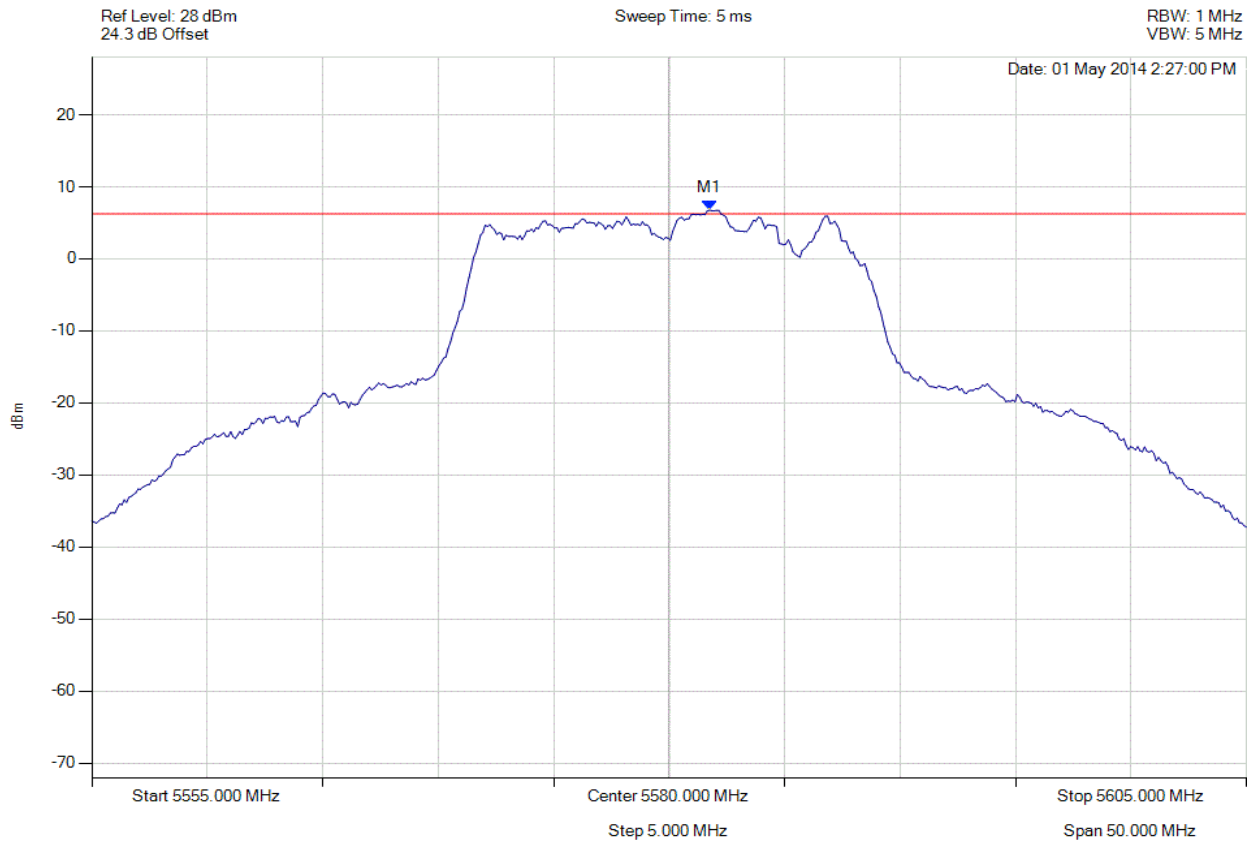


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 259 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5580.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5581.754 MHz : 6.746 dBm | Limit: ≤ 6.229 dBm Margin: 0.79 dB |

[Back to the Matrix](#)

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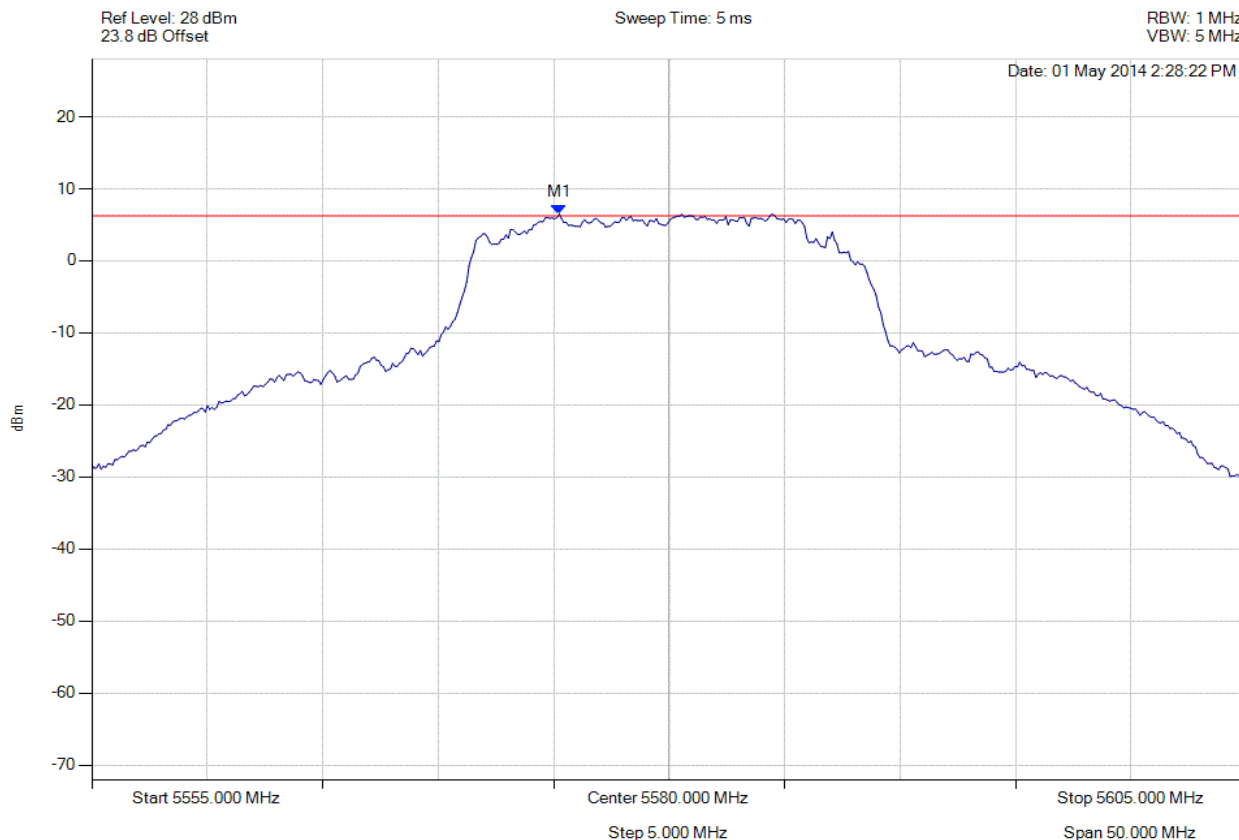


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 260 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5580.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5575.240 MHz : 6.476 dBm | Limit: ≤ 6.229 dBm Margin: 0.52 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

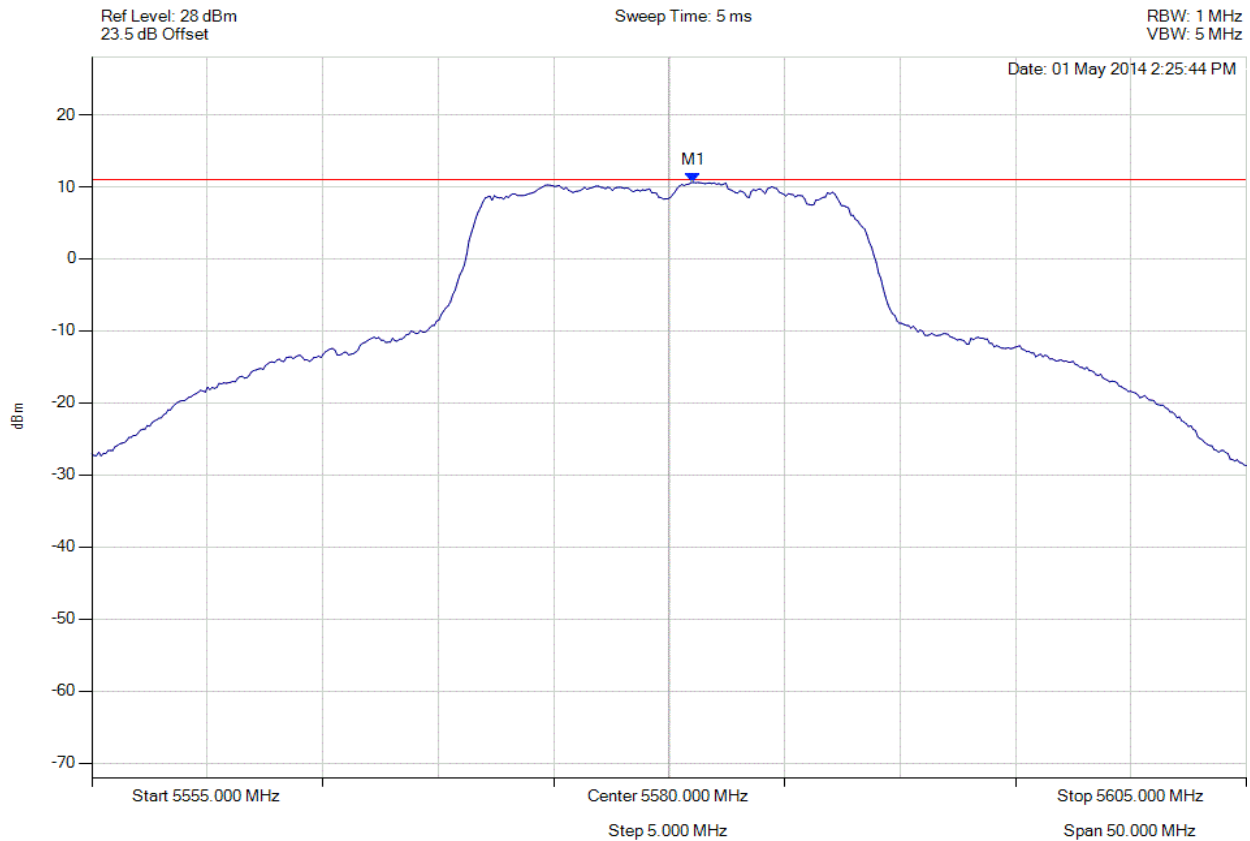


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 261 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5580.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5581.052 MHz : 10.607 dBm | Limit: ≤ 11.0 dBm Margin: -0.4 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

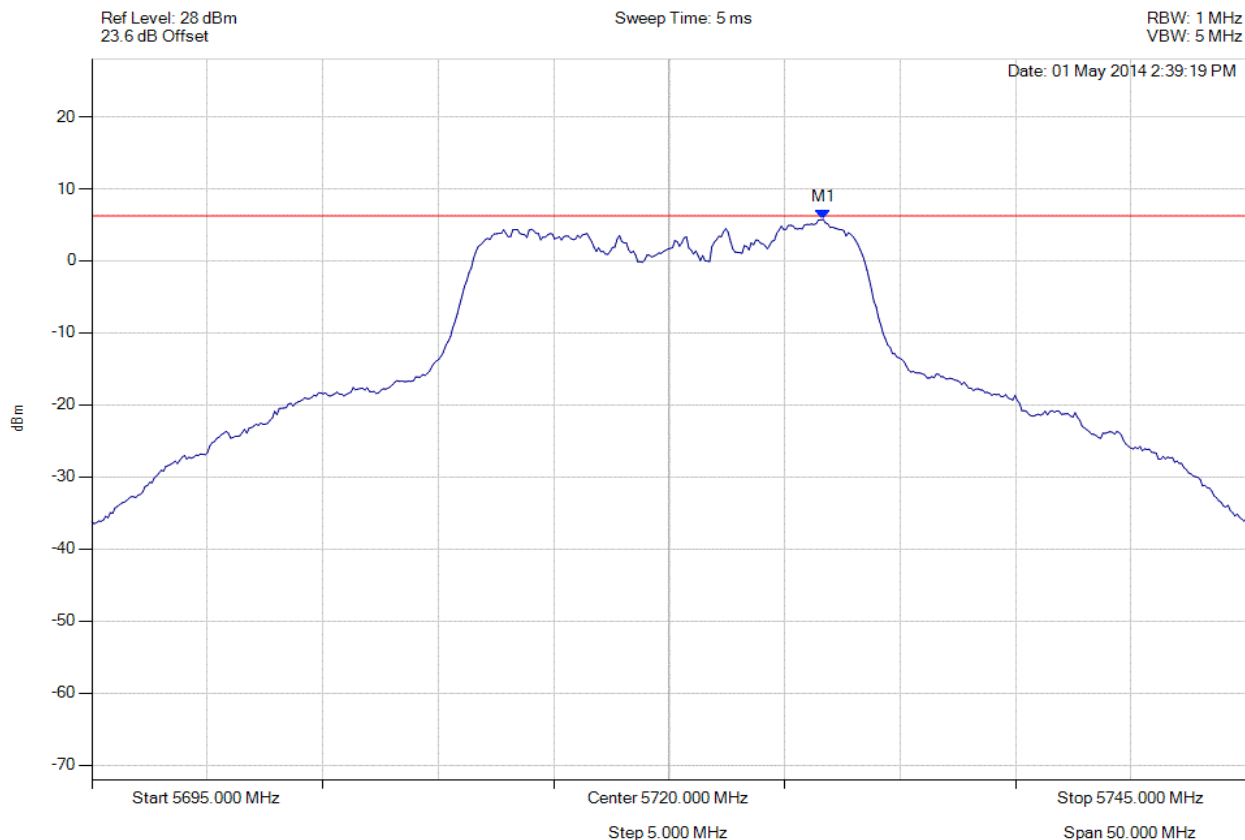


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 262 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5720.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5726.663 MHz : 5.776 dBm | Limit: ≤ 6.229 dBm Margin: -0.18 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

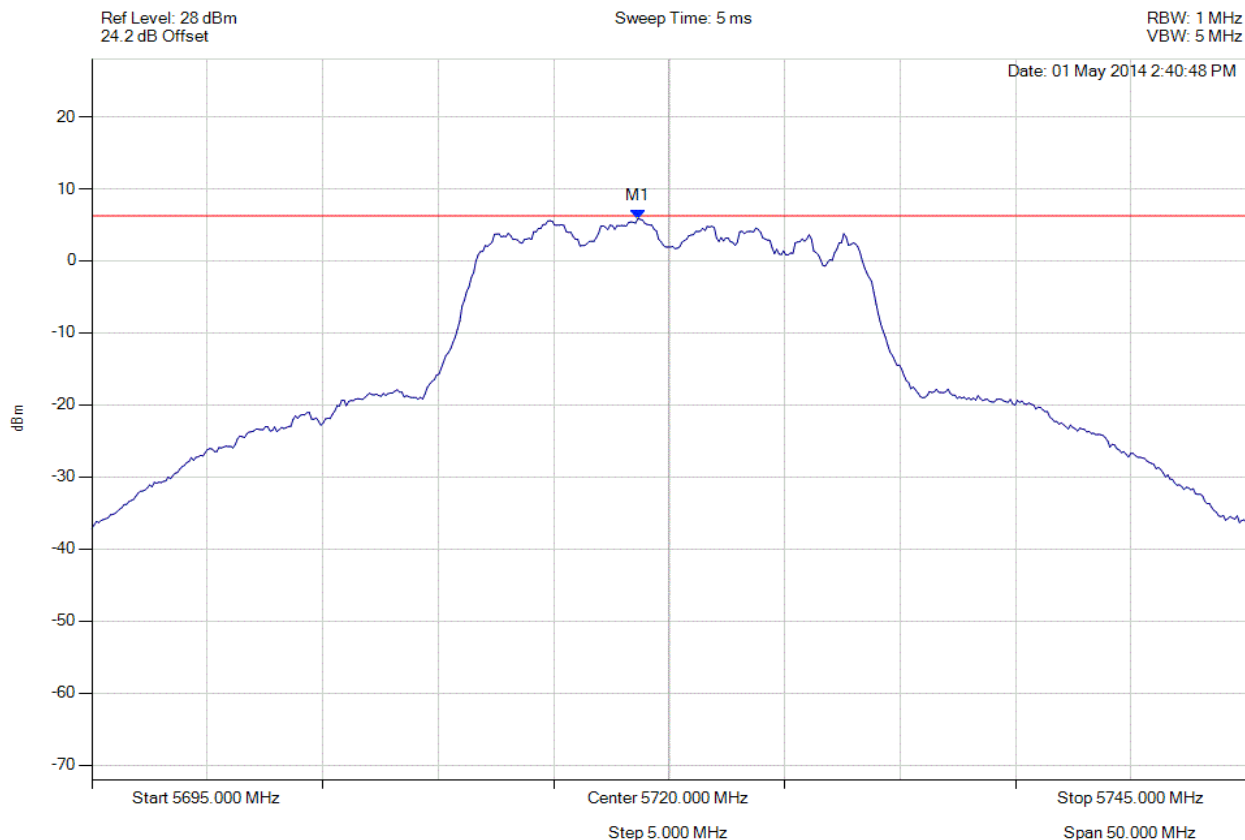


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 263 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5720.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5718.647 MHz : 5.880 dBm | Limit: ≤ 6.229 dBm Margin: -0.08 dB |

[Back to the Matrix](#)

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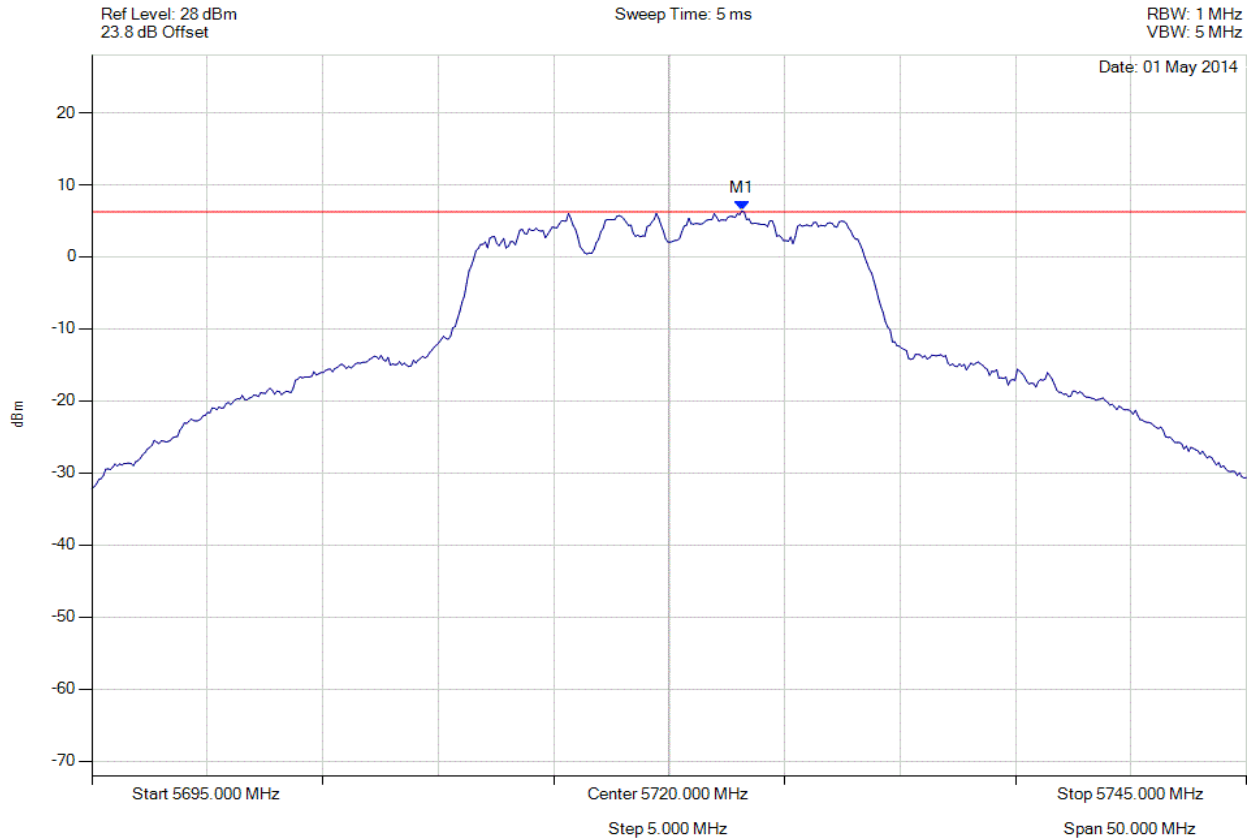


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 264 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5720.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5723.156 MHz : 6.399 dBm | Limit: ≤ 6.229 dBm Margin: 0.44 dB |

[Back to the Matrix](#)

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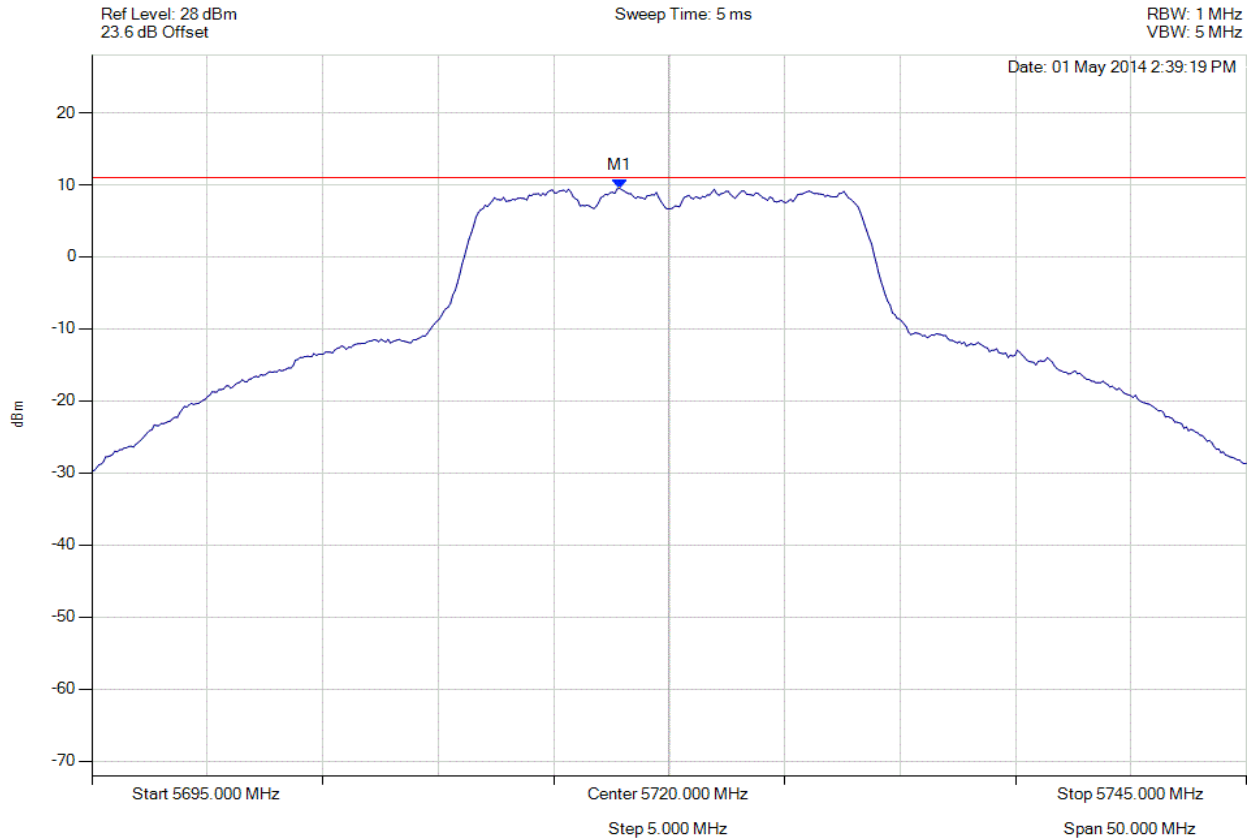


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 265 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5720.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



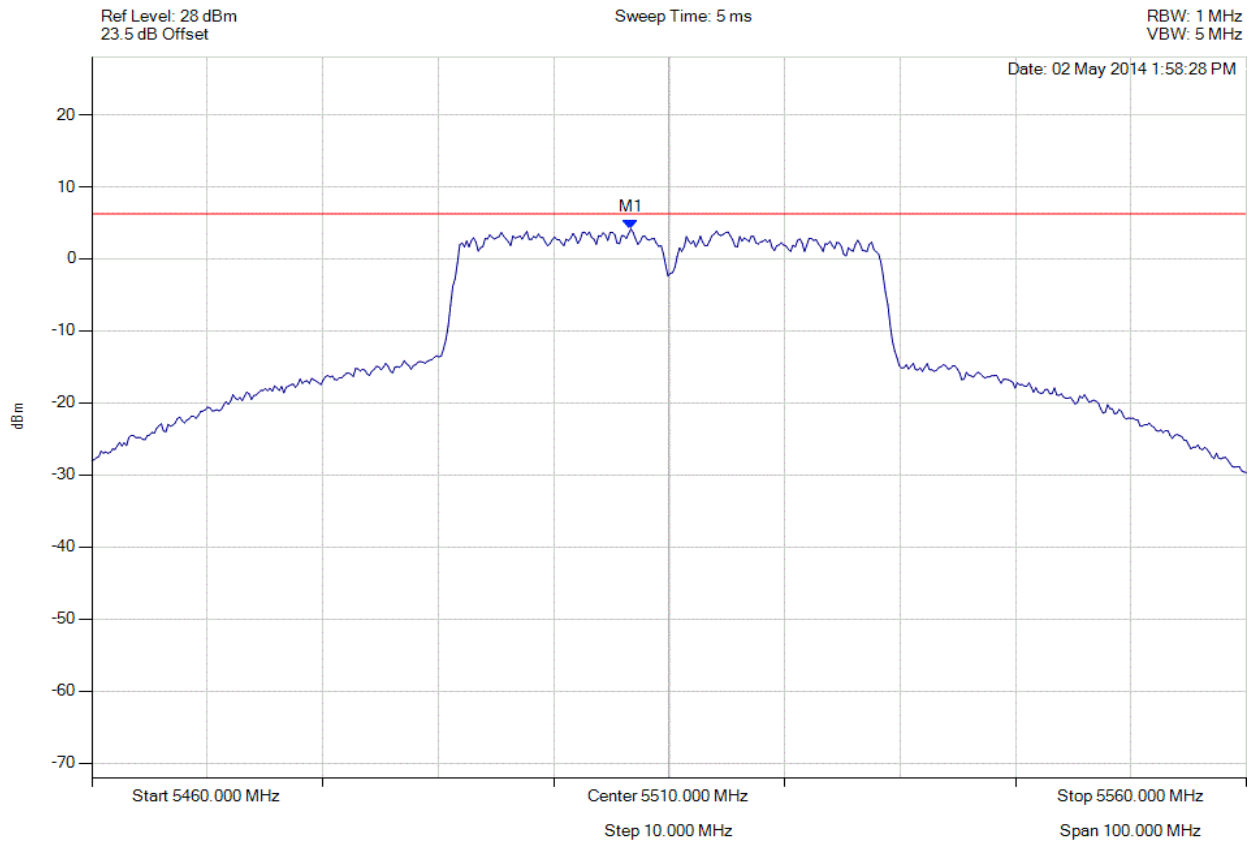
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5717.846 MHz : 9.557 dBm | Limit: ≤ 11.0 dBm Margin: -1.4 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5510.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5506.693 MHz : 4.150 dBm | Limit: ≤ 6.229 dBm Margin: -1.81 dB |

[Back to the Matrix](#)

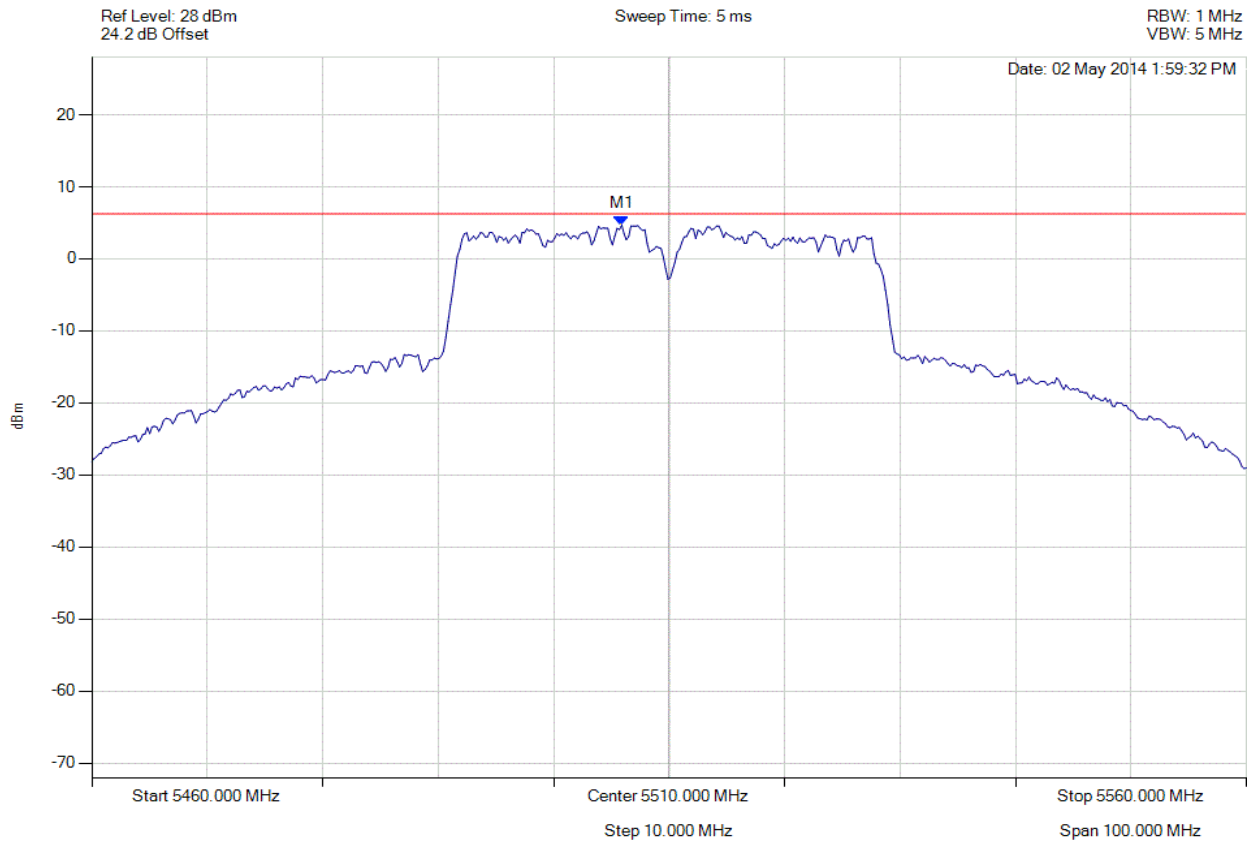


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 267 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5510.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5505.892 MHz : 4.666 dBm | Limit: ≤ 6.229 dBm Margin: -1.29 dB |

[Back to the Matrix](#)

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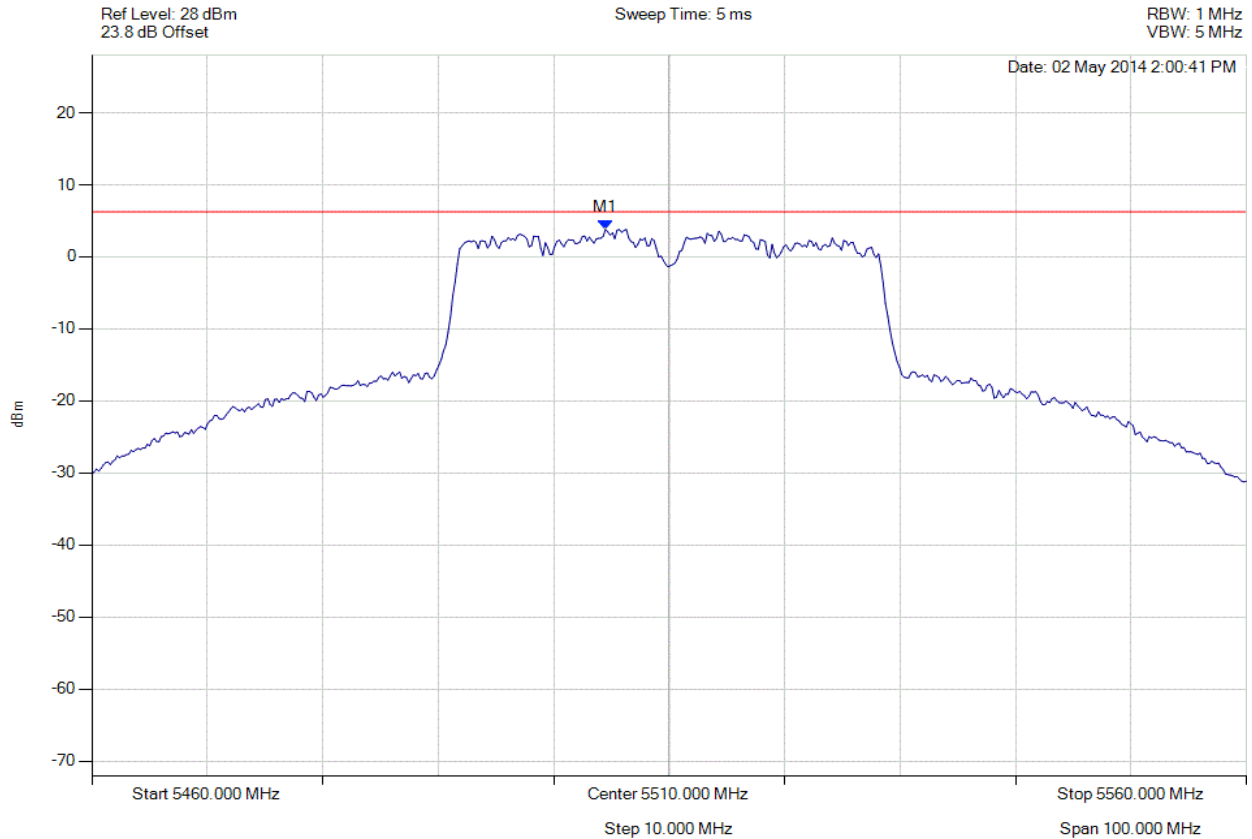


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 268 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5510.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5504.489 MHz : 3.813 dBm | Limit: ≤ 6.229 dBm Margin: -2.14 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

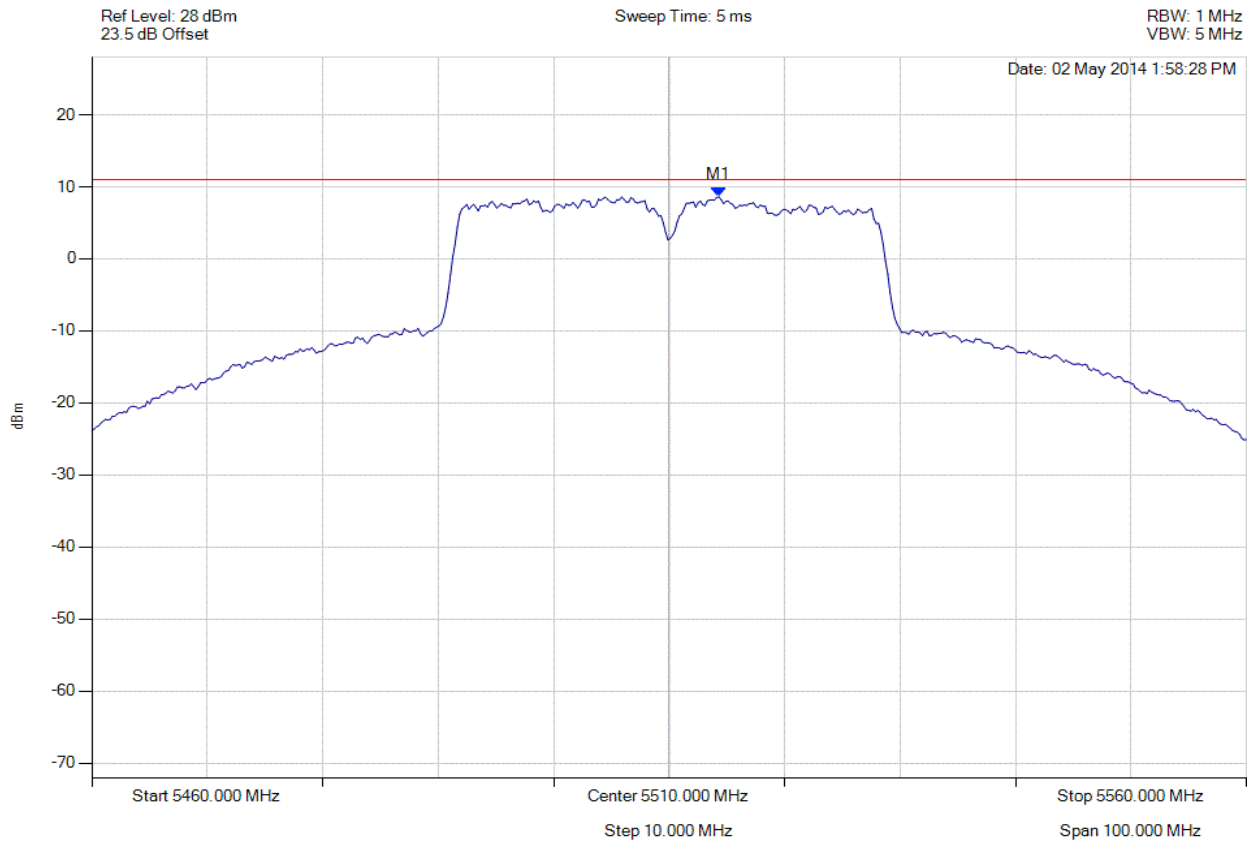


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 269 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5510.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5514.309 MHz : 8.619 dBm | Limit: ≤ 11.0 dBm Margin: -2.4 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

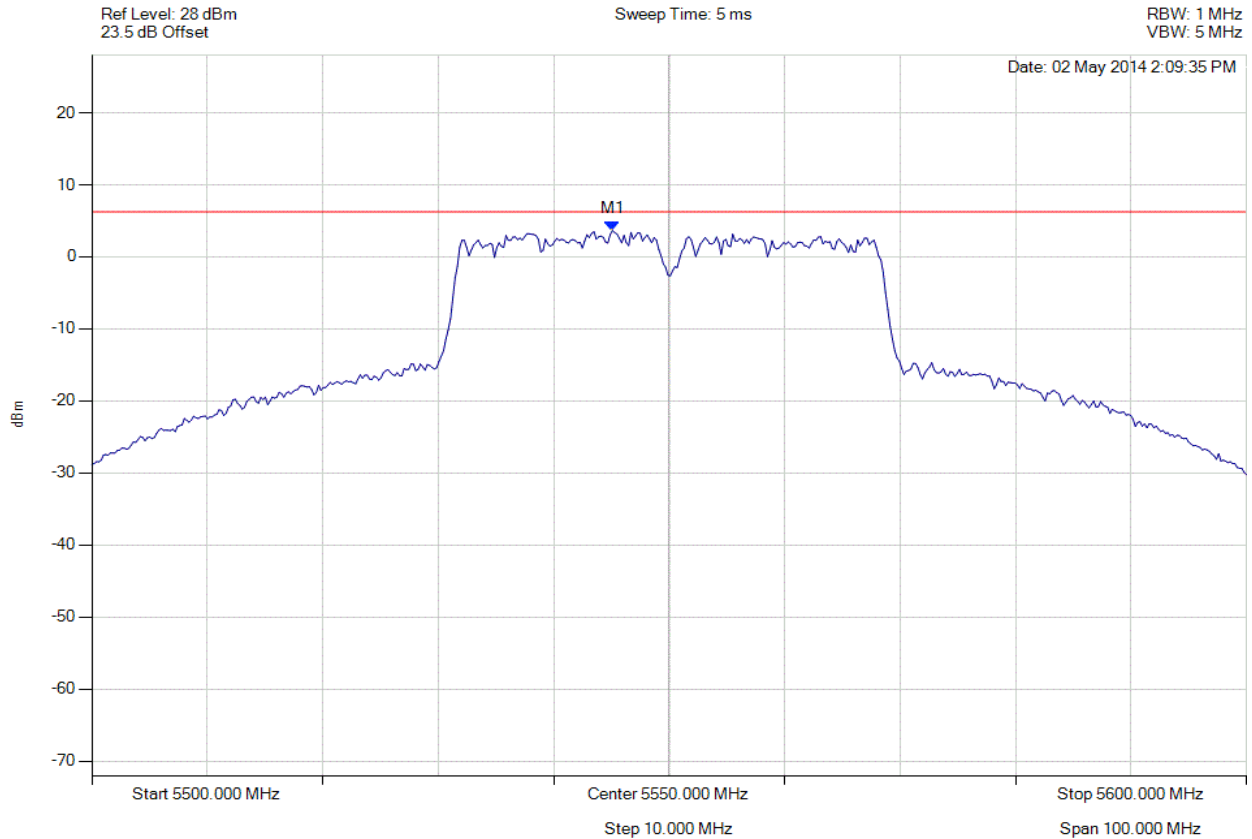


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 270 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5550.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5545.090 MHz : 3.643 dBm | Limit: ≤ 6.229 dBm Margin: -2.31 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

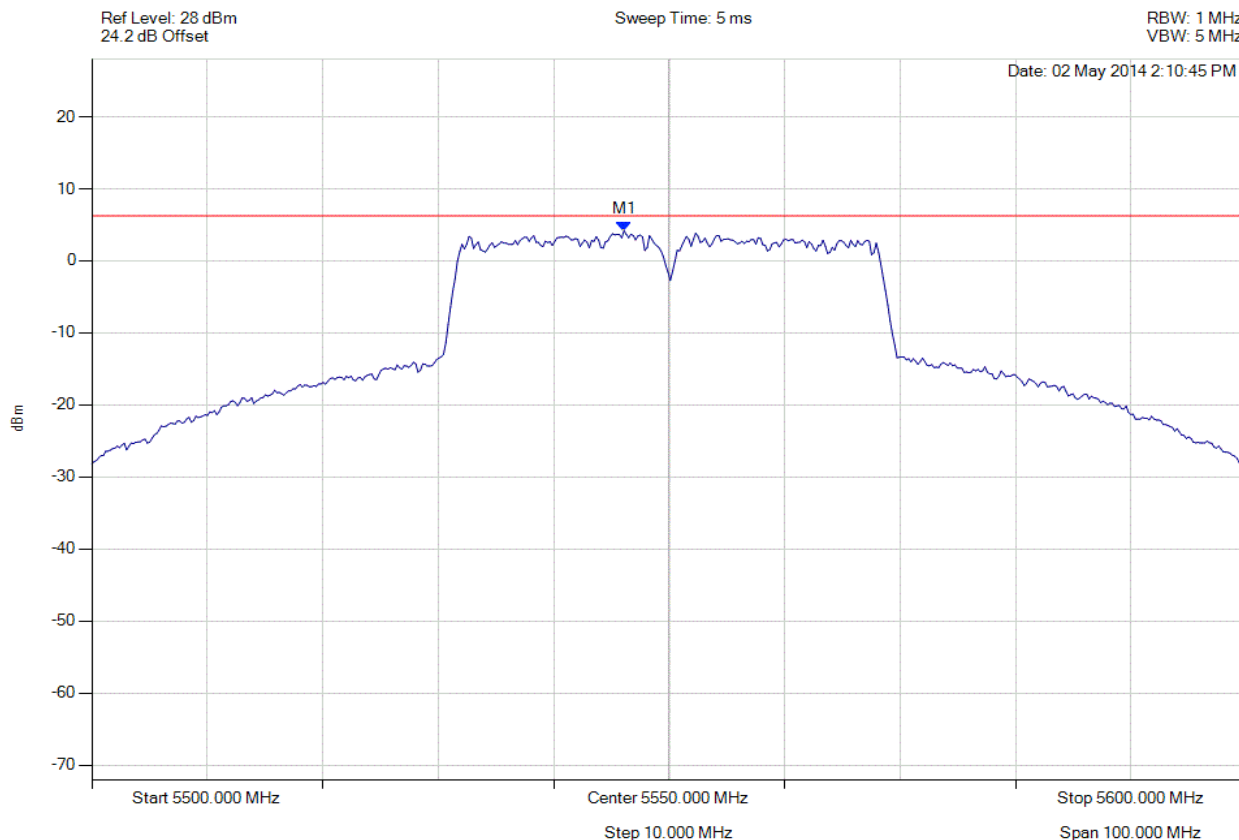


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 271 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5550.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5546.092 MHz : 4.165 dBm | Limit: ≤ 6.229 dBm Margin: -1.79 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

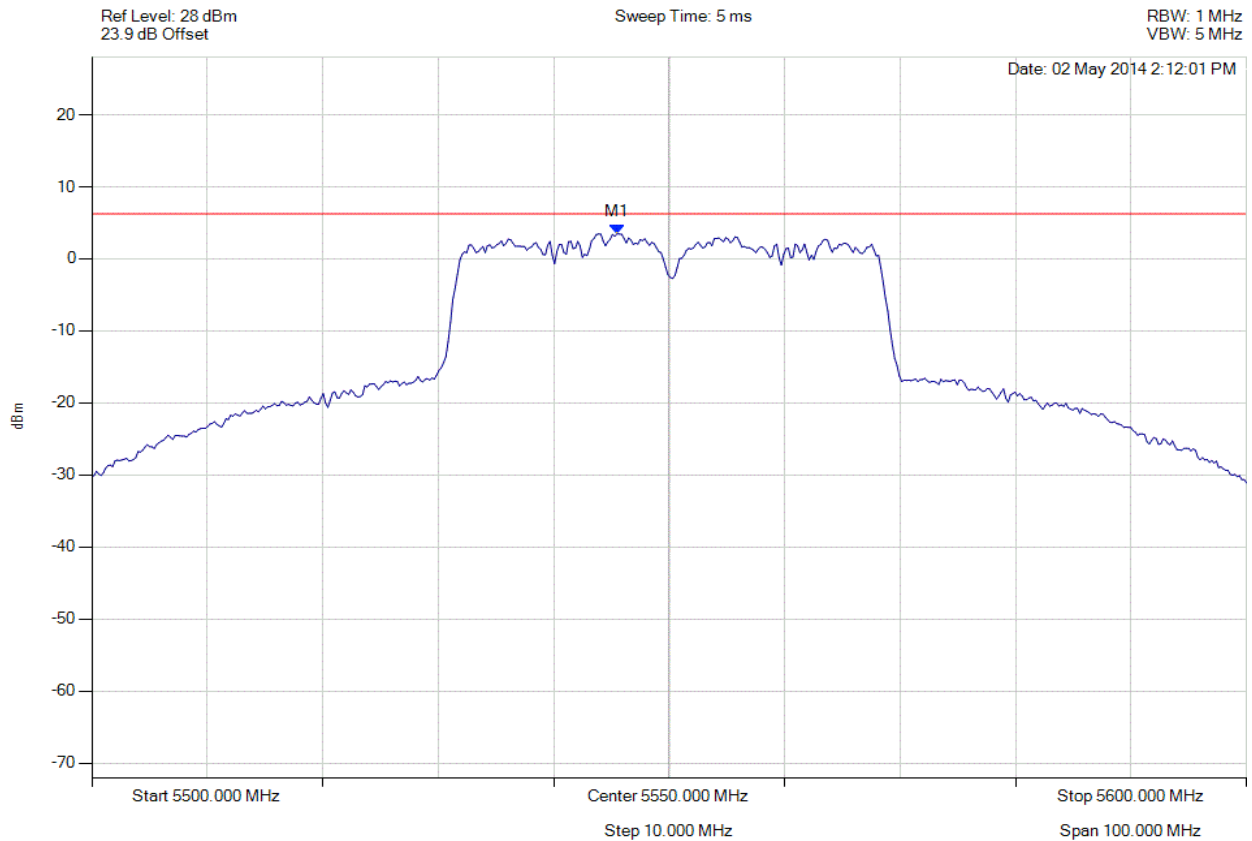


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 272 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5550.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5545.491 MHz : 3.474 dBm | Limit: ≤ 6.229 dBm Margin: -2.48 dB |

[Back to the Matrix](#)

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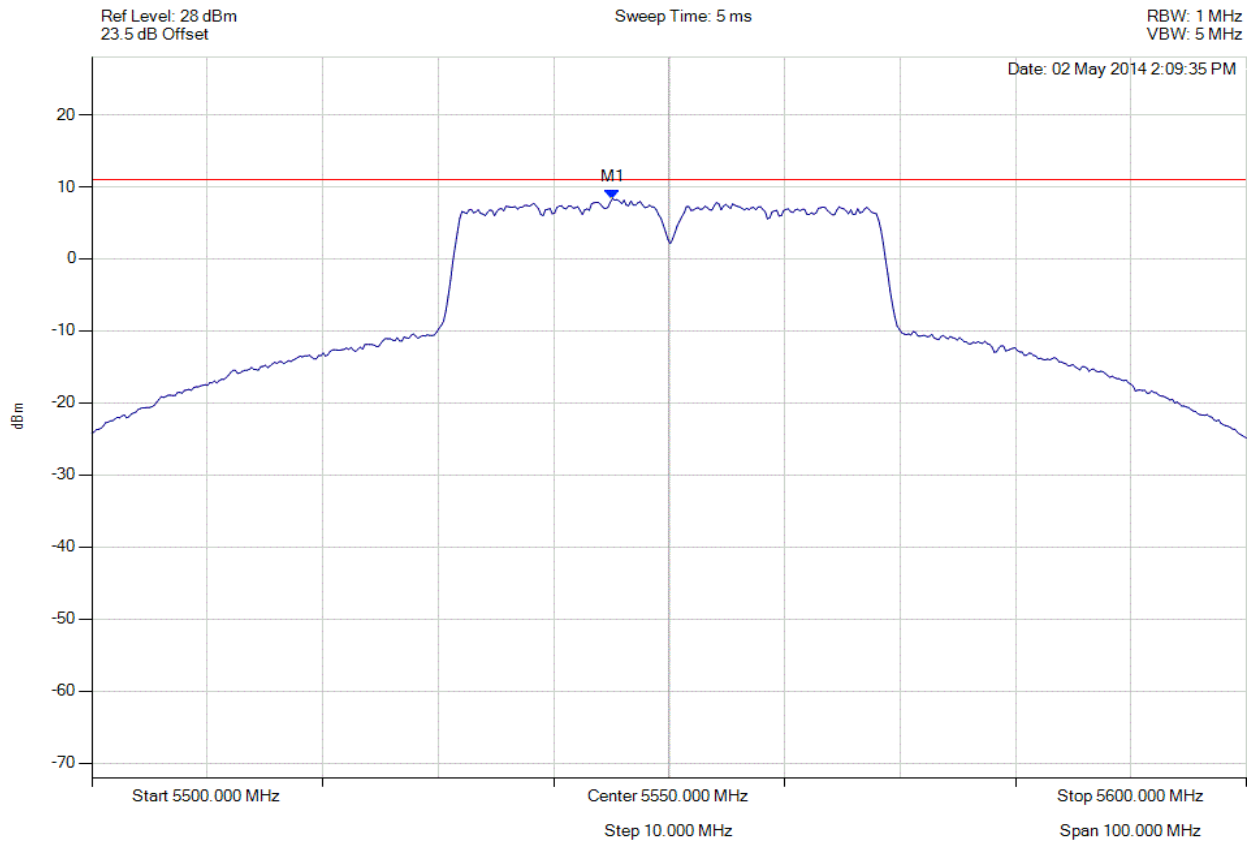


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 273 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5550.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5545.090 MHz : 8.366 dBm | Limit: ≤ 11.0 dBm Margin: -2.6 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

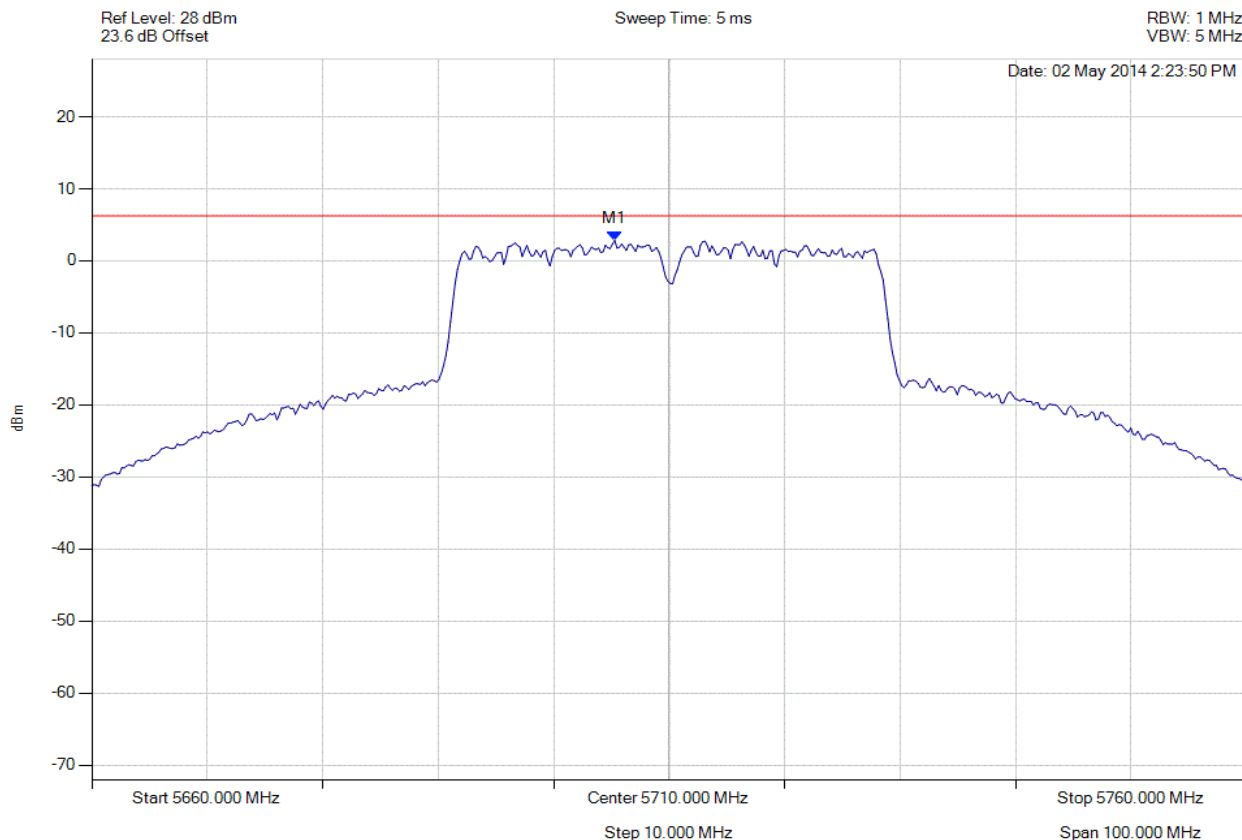


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 274 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5710.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5705.291 MHz : 2.832 dBm | Limit: ≤ 6.229 dBm Margin: -3.13 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

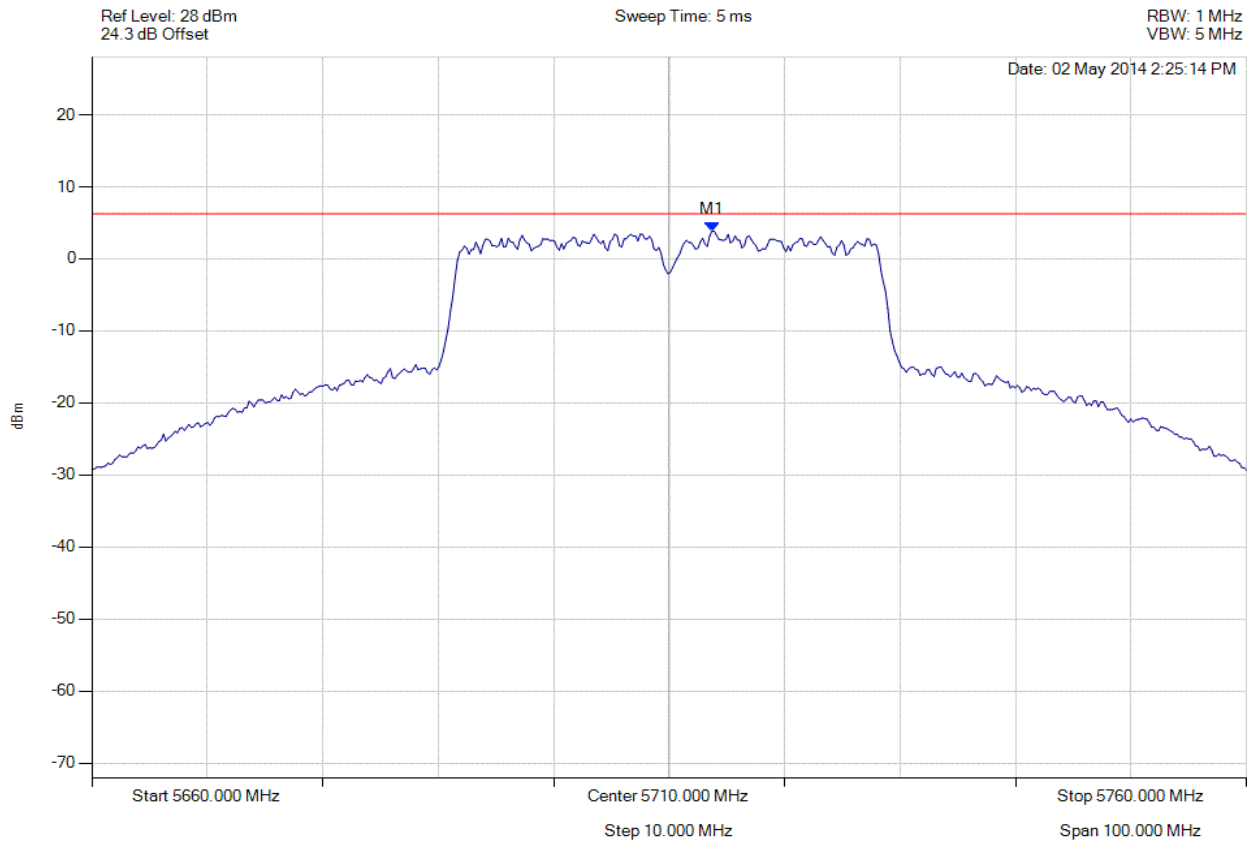


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 275 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5710.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5713.707 MHz : 3.838 dBm | Limit: ≤ 6.229 dBm Margin: -2.12 dB |

[Back to the Matrix](#)

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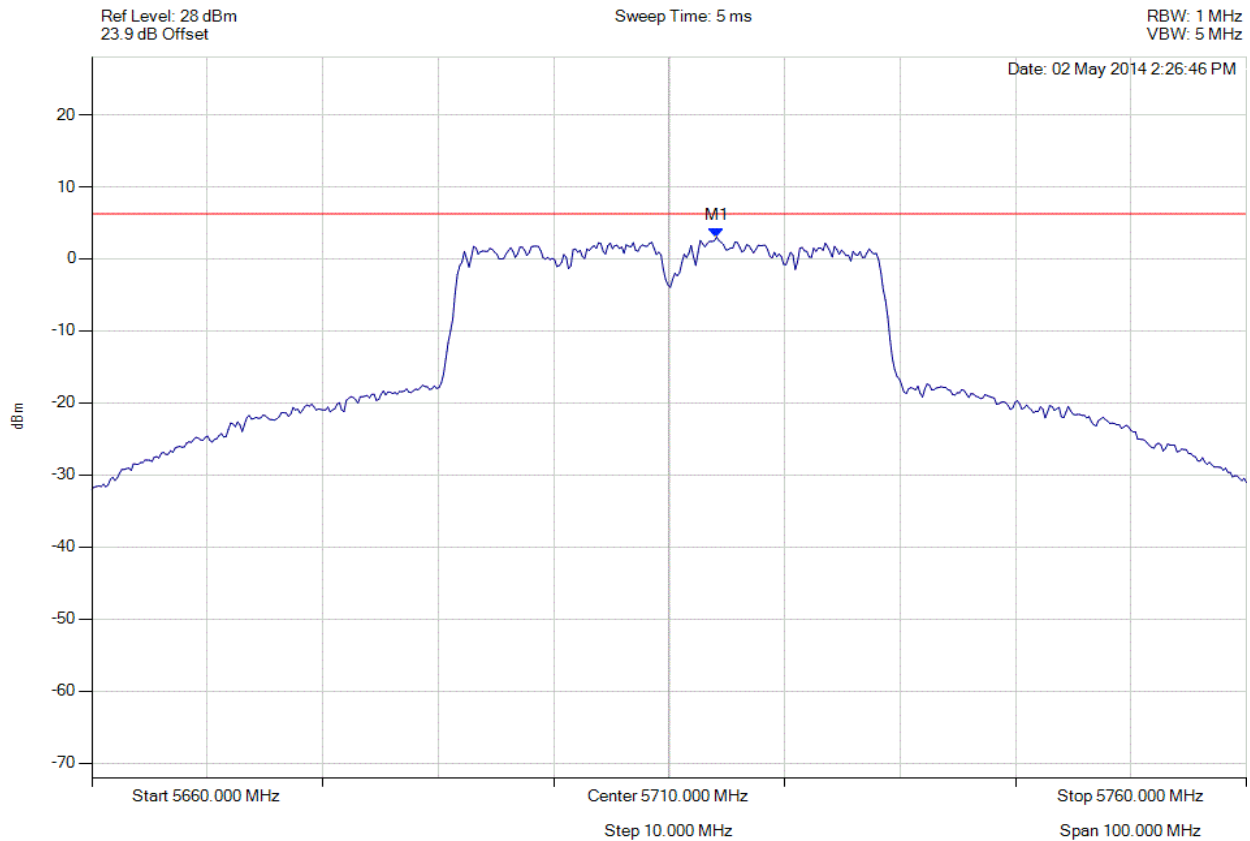


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 276 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5710.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5714.108 MHz : 3.006 dBm | Limit: ≤ 6.229 dBm Margin: -2.95 dB |

[Back to the Matrix](#)

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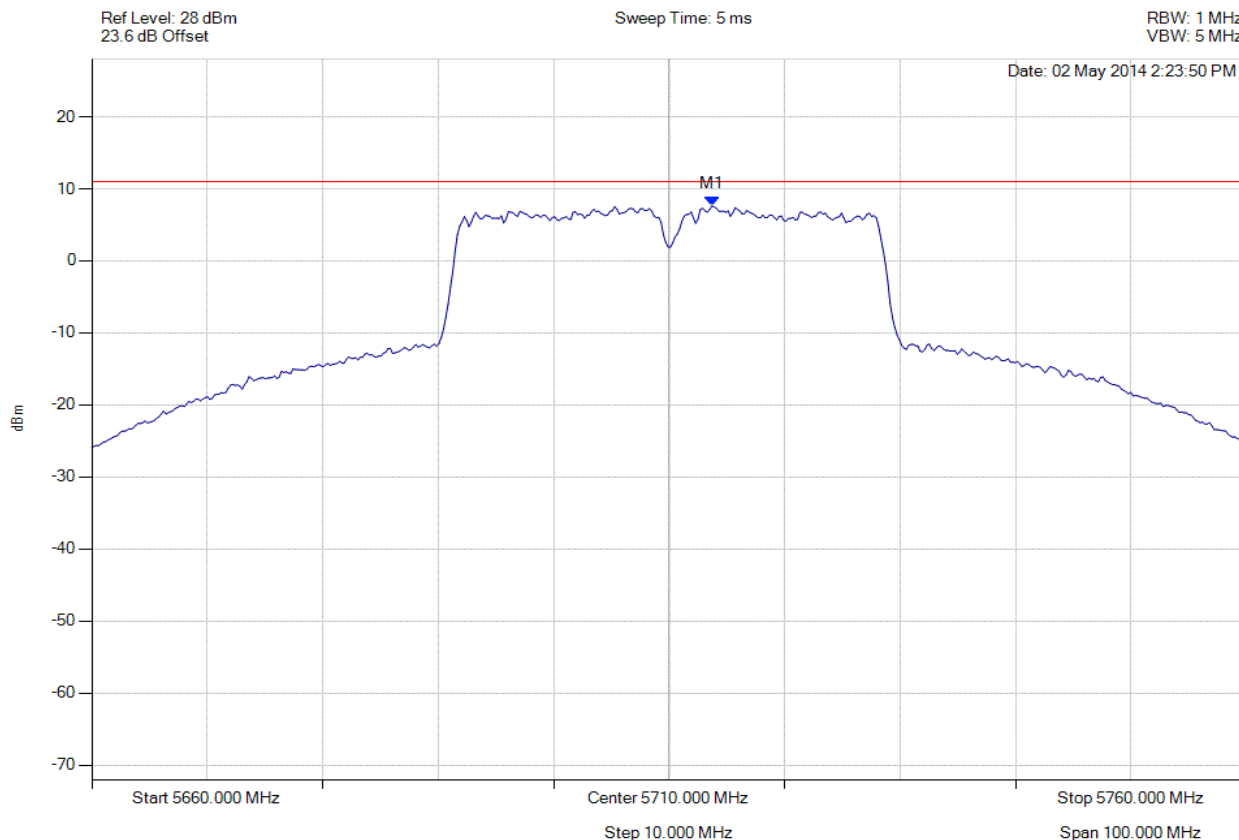


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 277 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-40, Channel: 5710.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5713.707 MHz : 7.615 dBm | Limit: ≤ 11.0 dBm Margin: -3.4 dB |

[Back to the Matrix](#)

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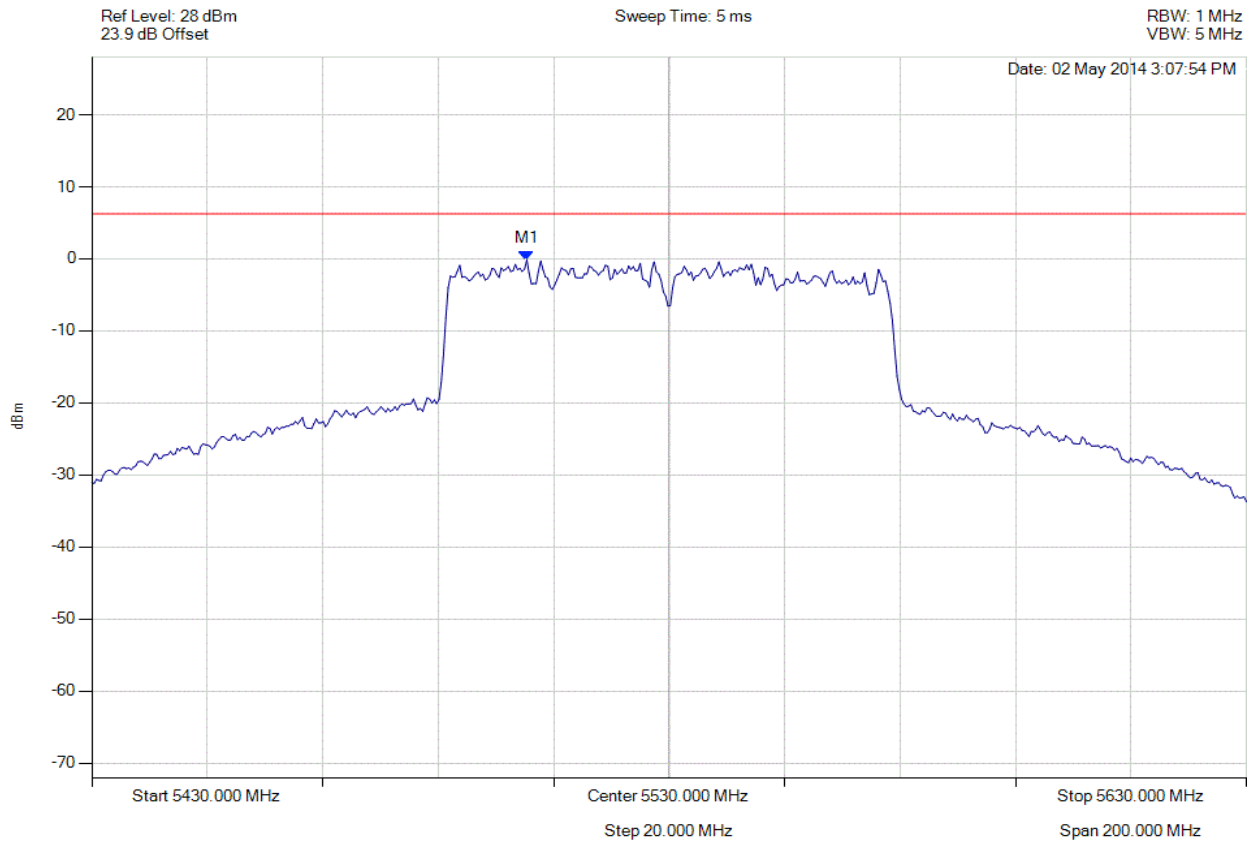


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 278 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5505.351 MHz : -0.154 dBm | Limit: ≤ 6.229 dBm Margin: -5.62 dB |

[Back to the Matrix](#)

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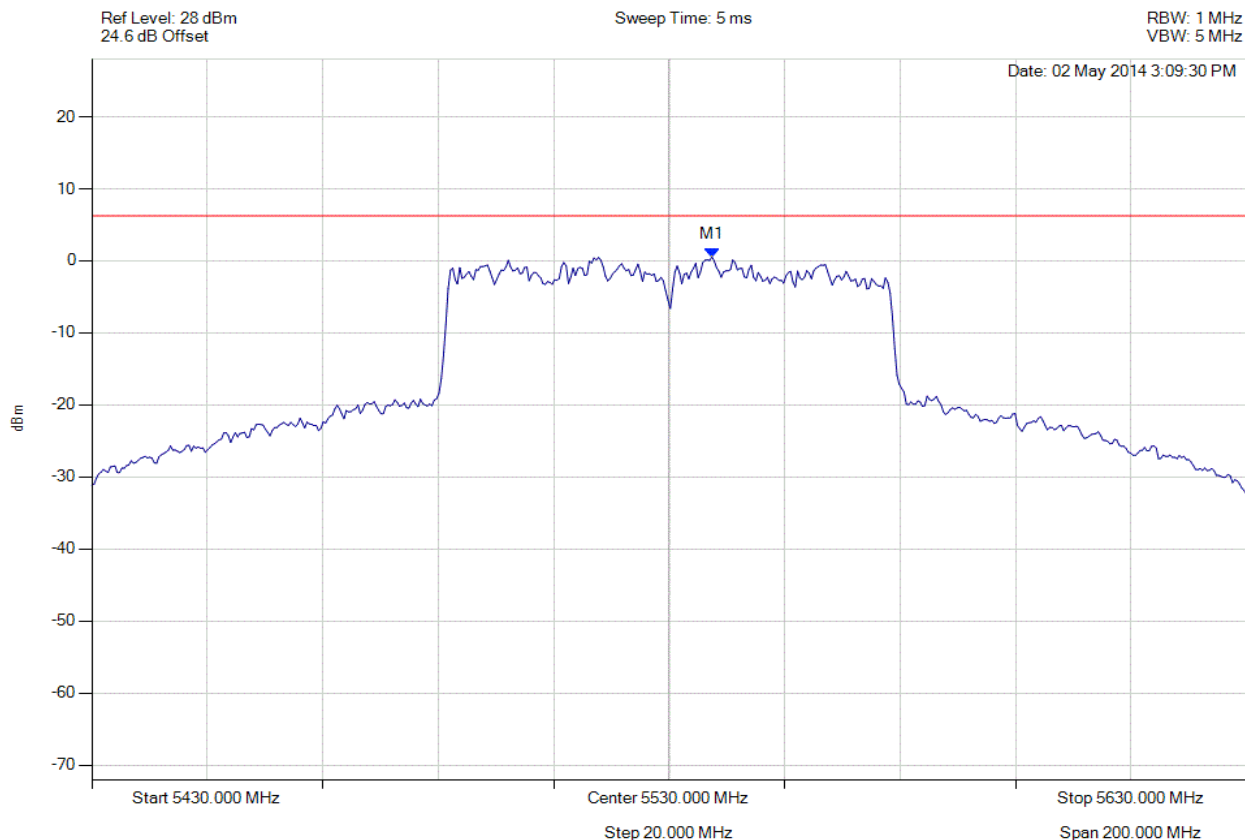


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 279 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5537.415 MHz : 0.547 dBm | Limit: ≤ 6.229 dBm Margin: -4.92 dB |

[Back to the Matrix](#)

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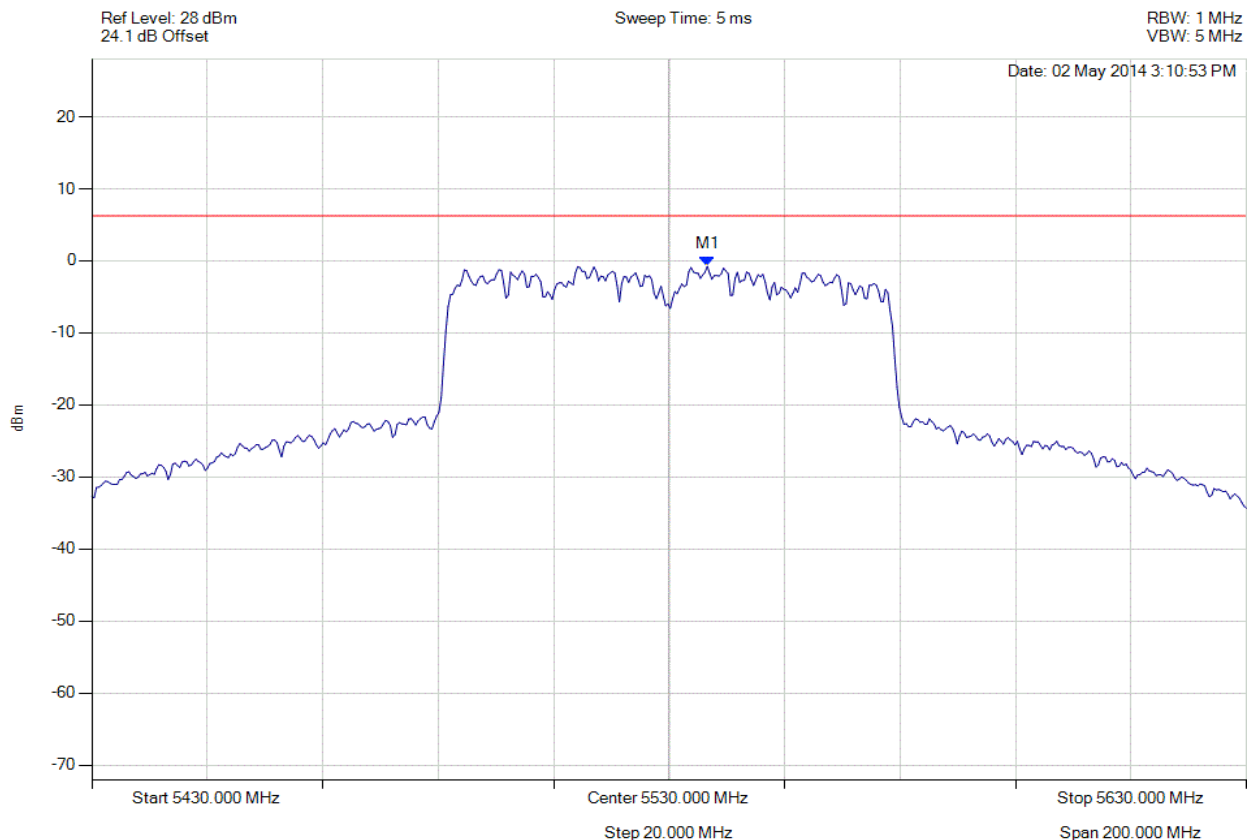


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 280 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5536.613 MHz : -0.771 dBm | Limit: ≤ 6.229 dBm Margin: 6.23 dB |

[Back to the Matrix](#)

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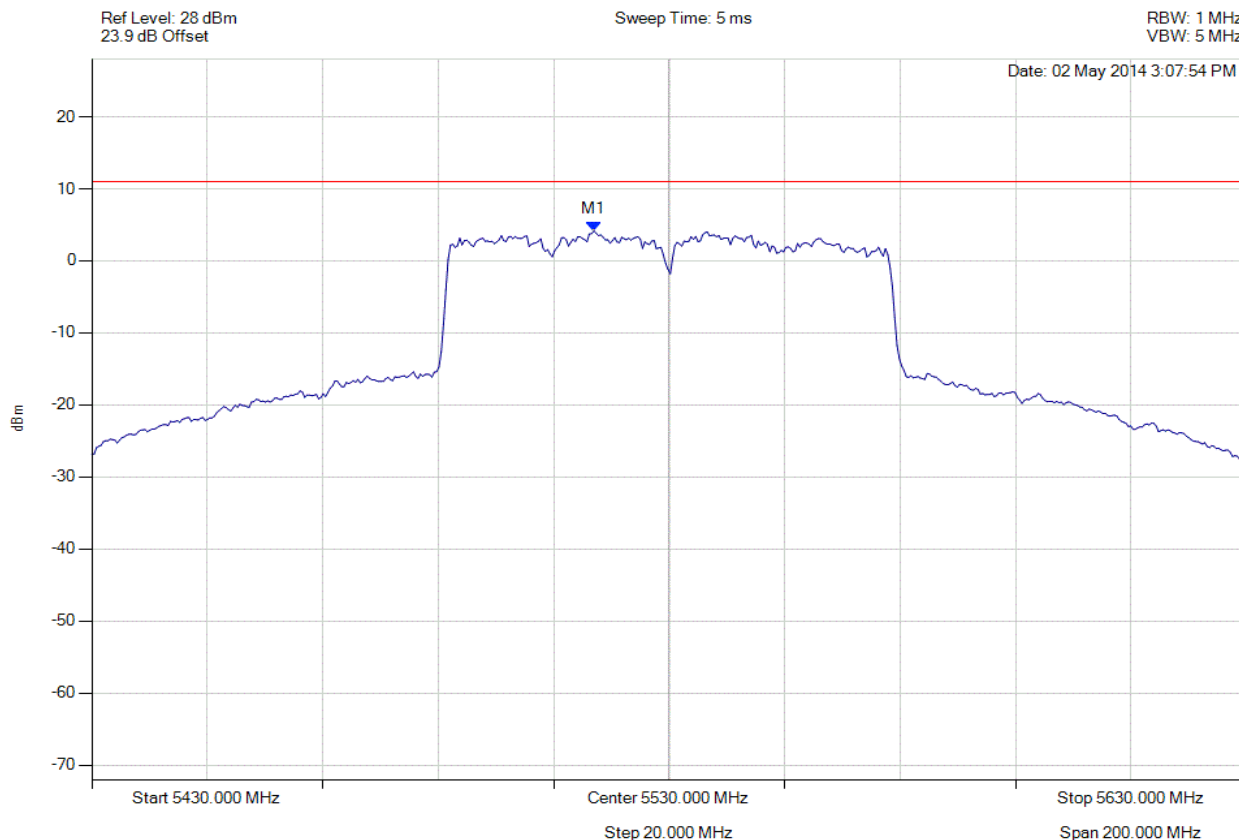


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 281 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5530.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5516.974 MHz : 4.150 dBm | Limit: ≤ 11.0 dBm Margin: -6.9 dB |

[Back to the Matrix](#)

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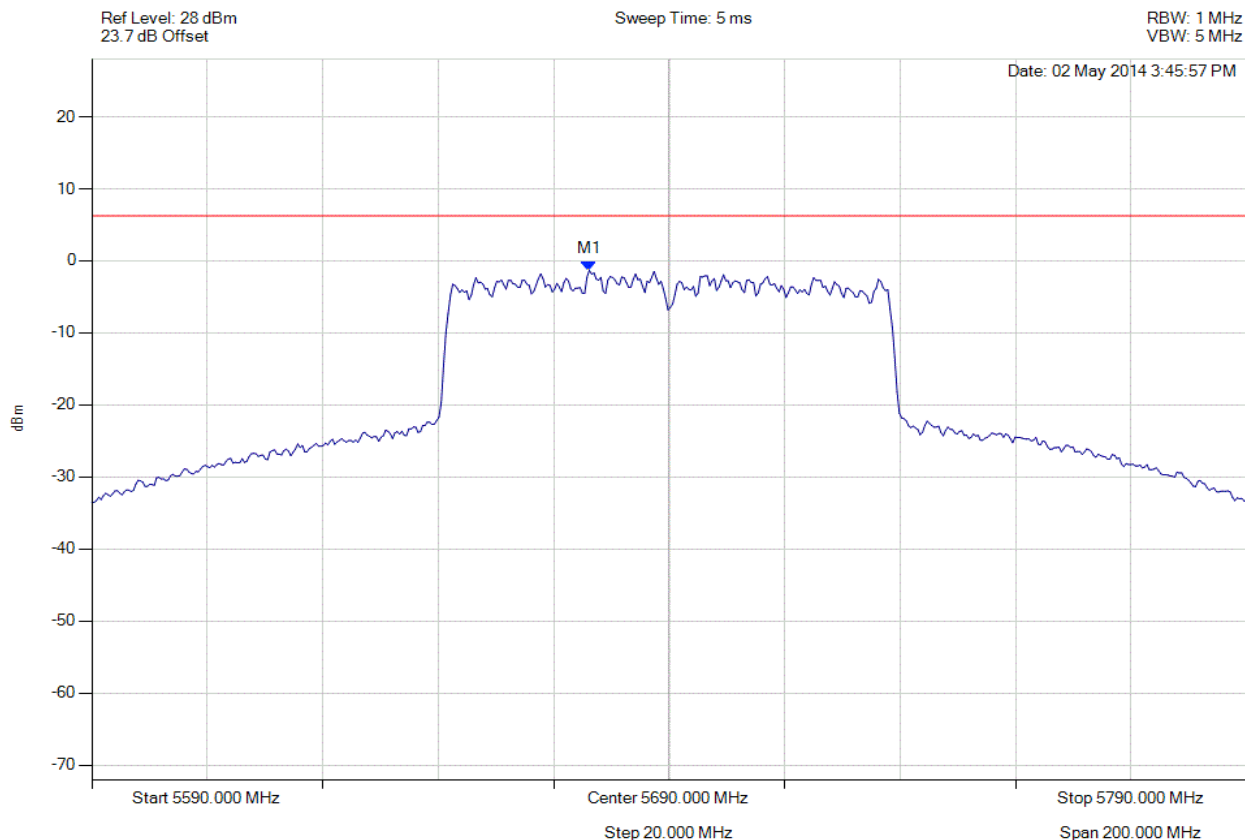


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 282 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5676.172 MHz : -1.325 dBm | Limit: ≤ 6.229 dBm Margin: 6.79 dB |

[Back to the Matrix](#)

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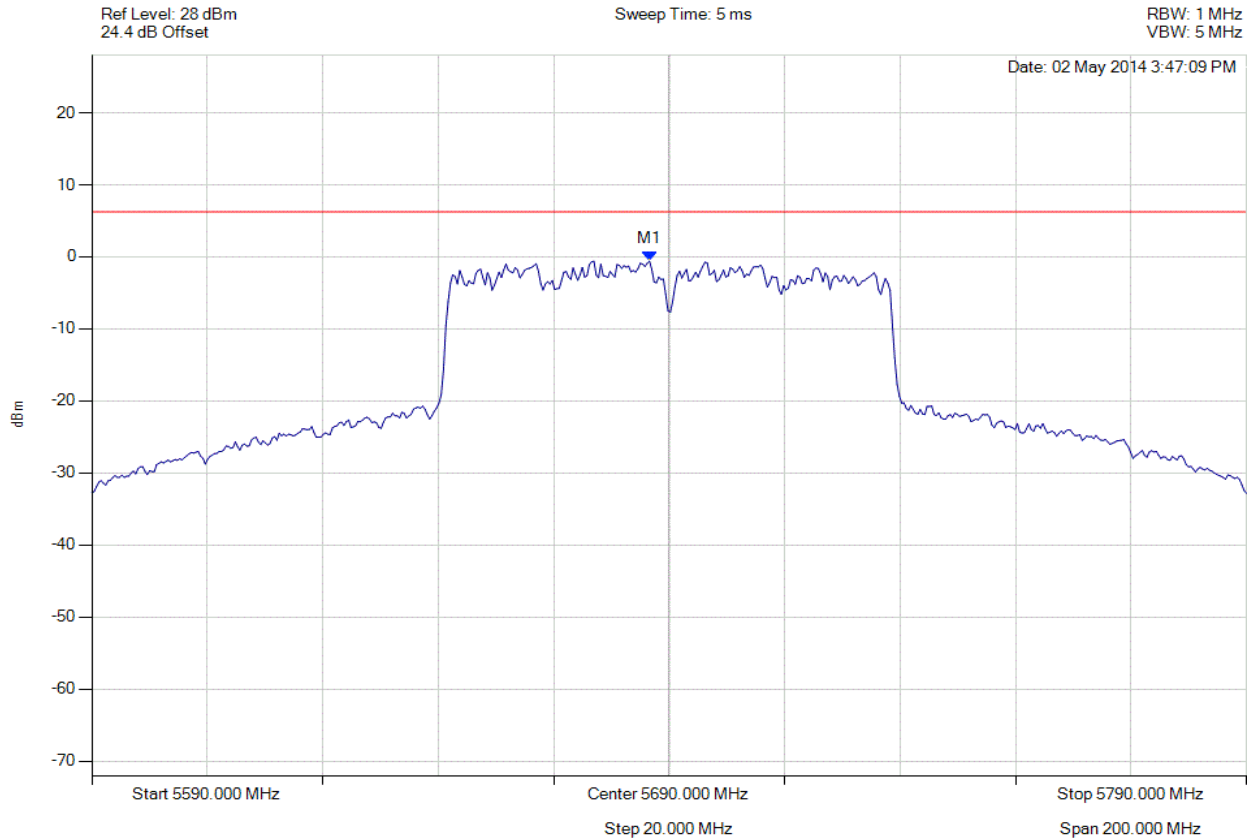


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 283 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5686.593 MHz : -0.594 dBm | Limit: ≤ 6.229 dBm Margin: -6.06 dB |

[Back to the Matrix](#)

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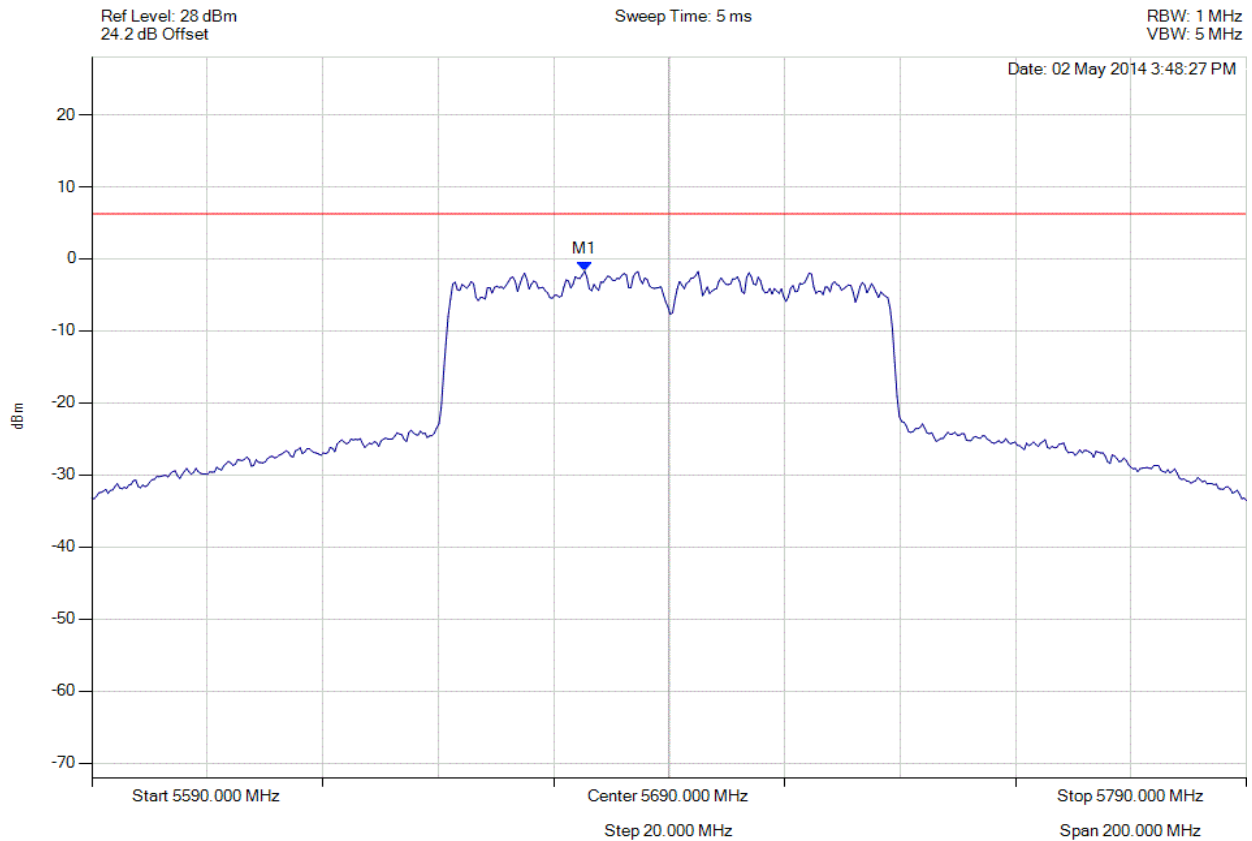


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 284 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



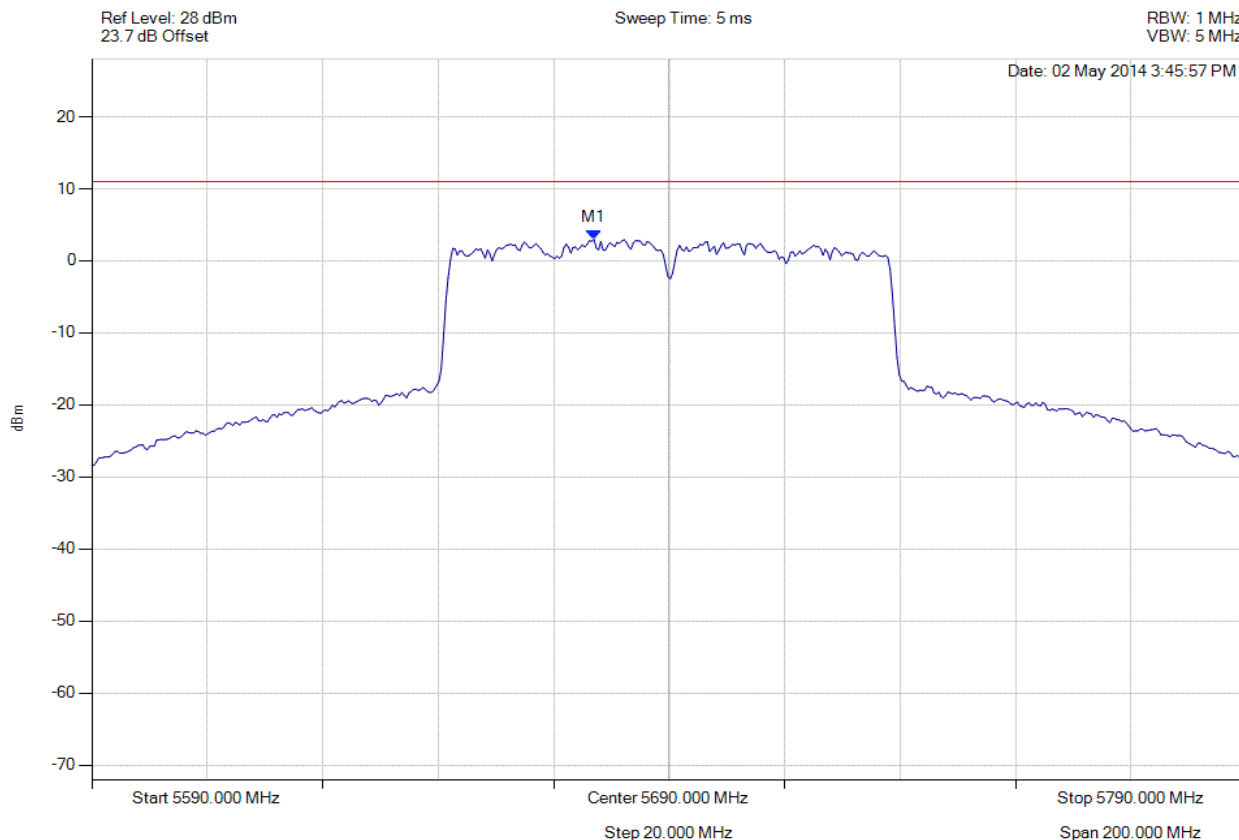
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5675.371 MHz : -1.693 dBm | Limit: ≤ 6.229 dBm Margin: 7.16 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PEAK POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5690.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5676.974 MHz : 2.986 dBm | Limit: ≤ 11.0 dBm Margin: -8.0 dB |

[Back to the Matrix](#)

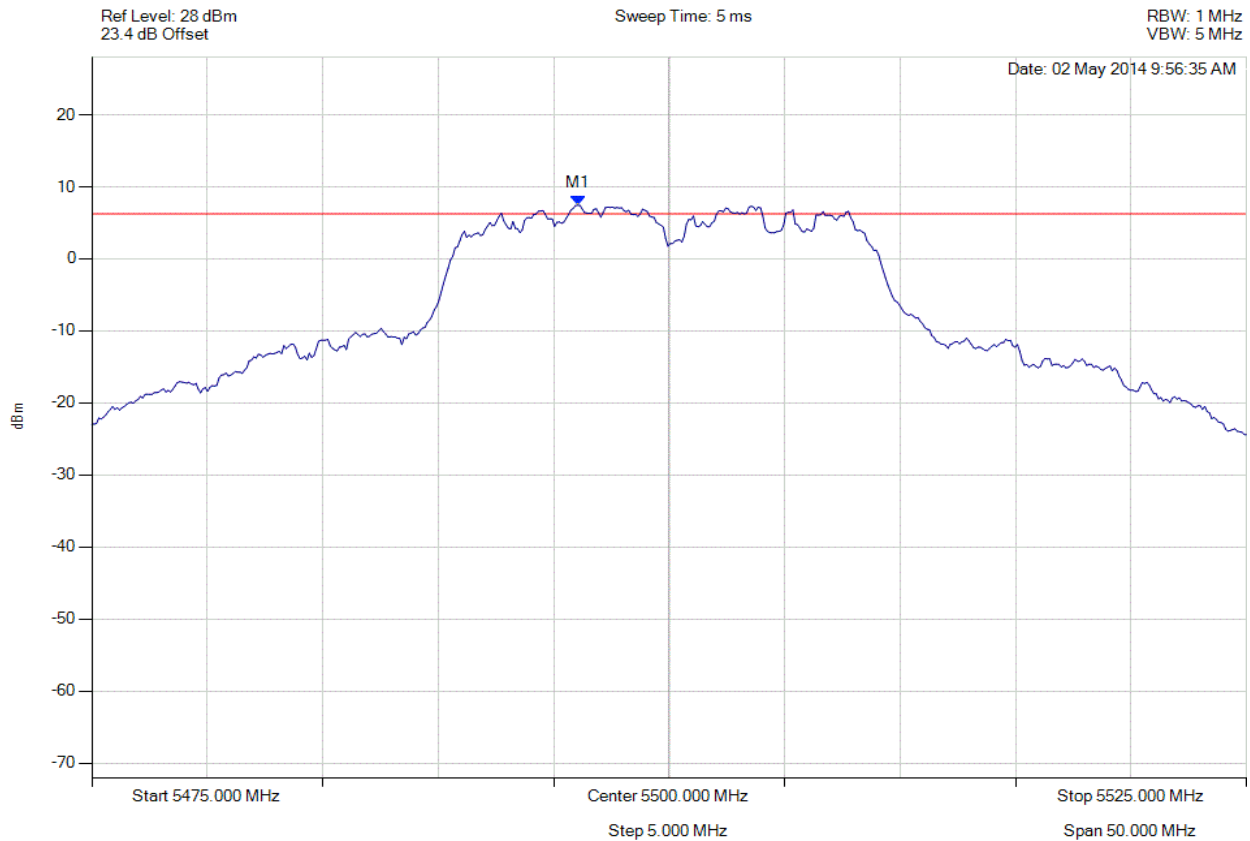


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 286 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5496.042 MHz : 7.452 dBm | Limit: ≤ 6.229 dBm Margin: 1.47 dB |

[Back to the Matrix](#)

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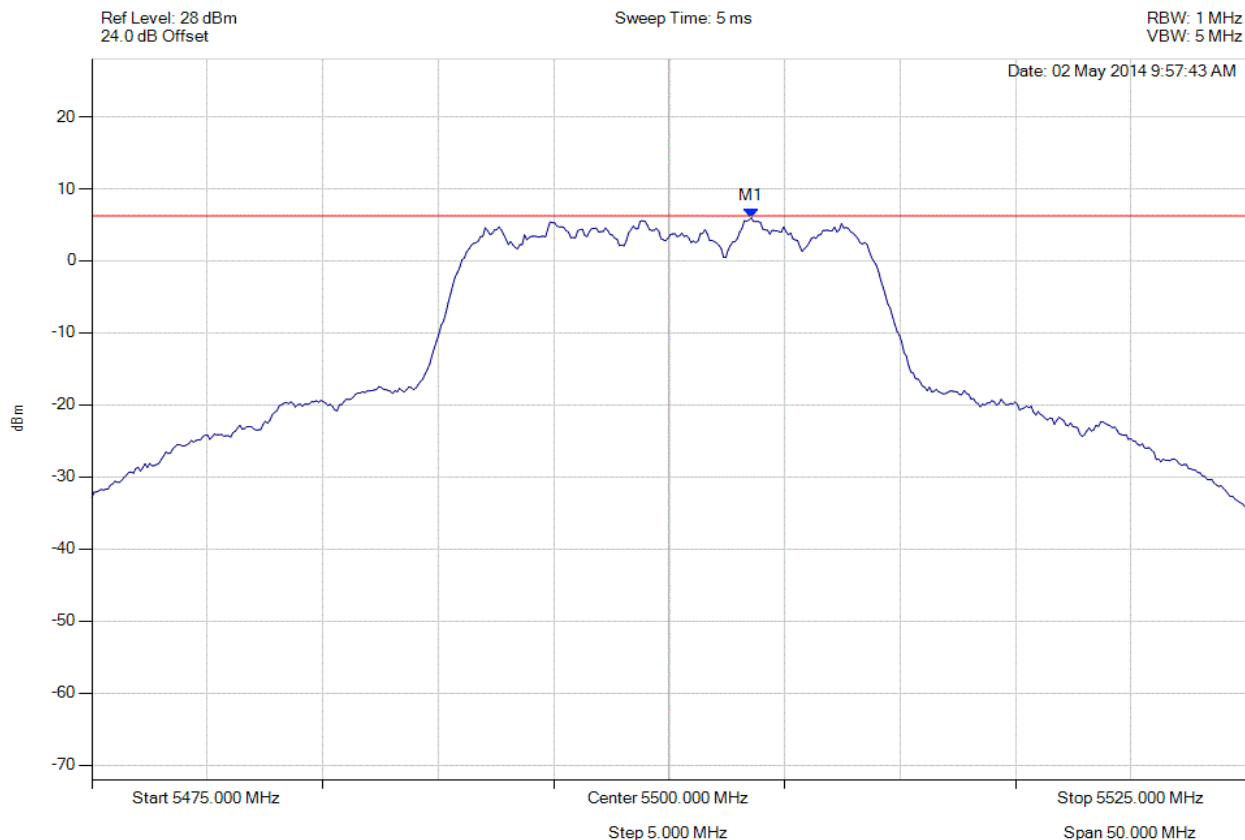


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 287 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5503.557 MHz : 5.984 dBm | Limit: ≤ 6.229 dBm Margin: 0.00 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

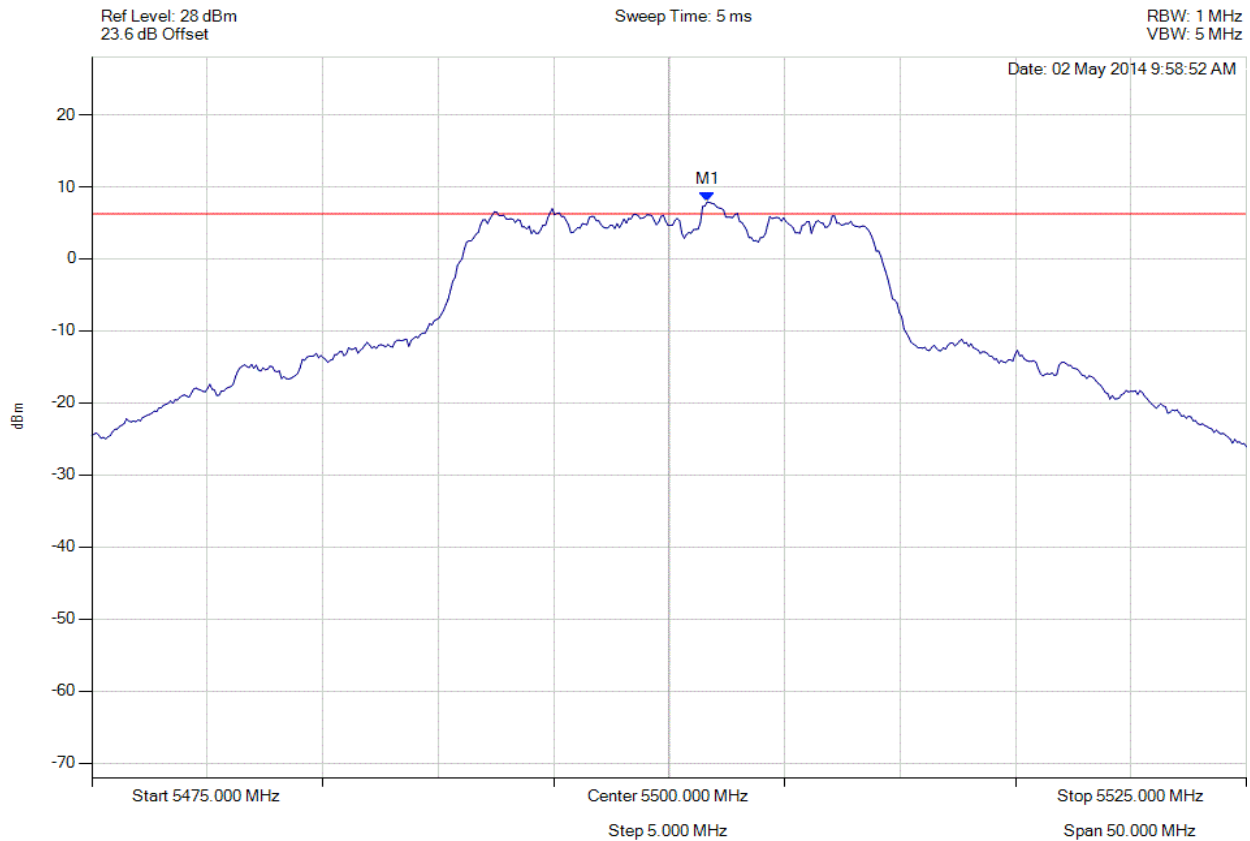


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 288 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5501.653 MHz : 7.893 dBm | Limit: ≤ 6.229 dBm Margin: 1.91 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

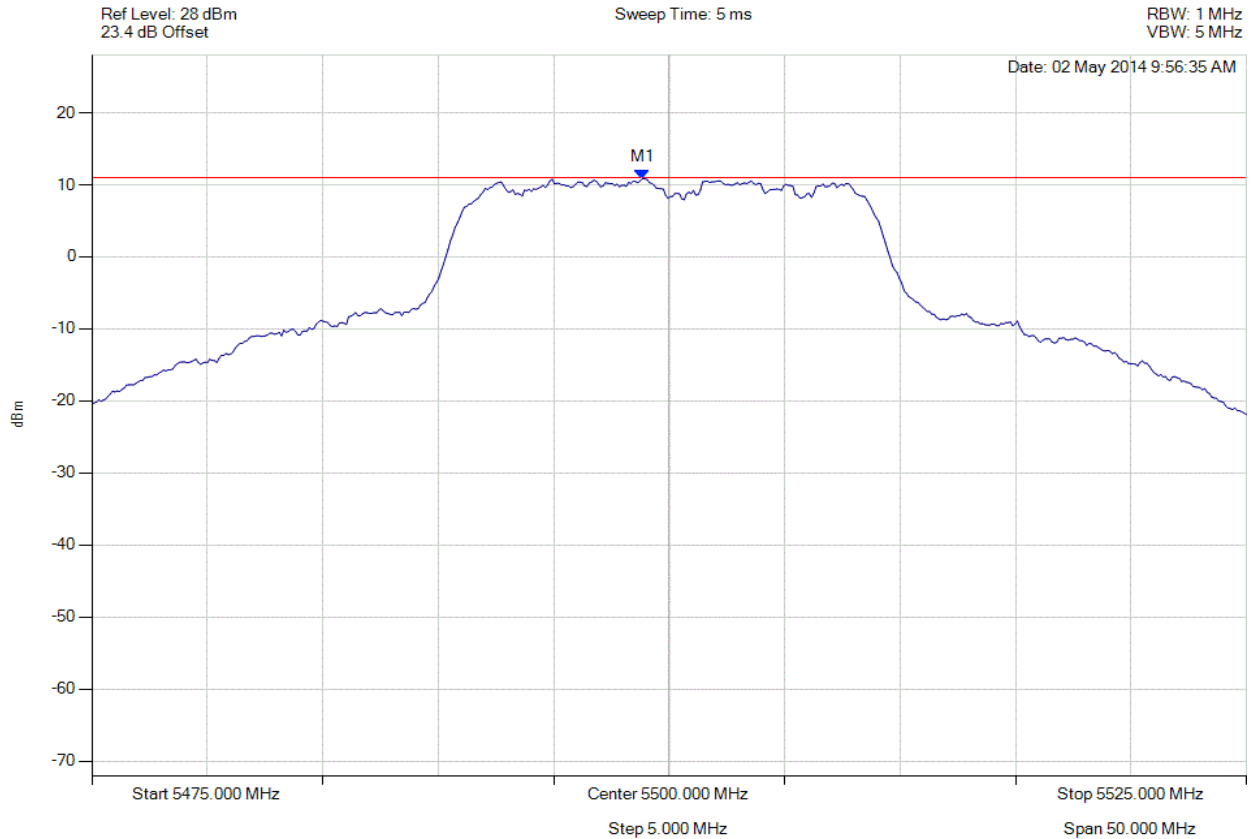


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 289 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5500.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



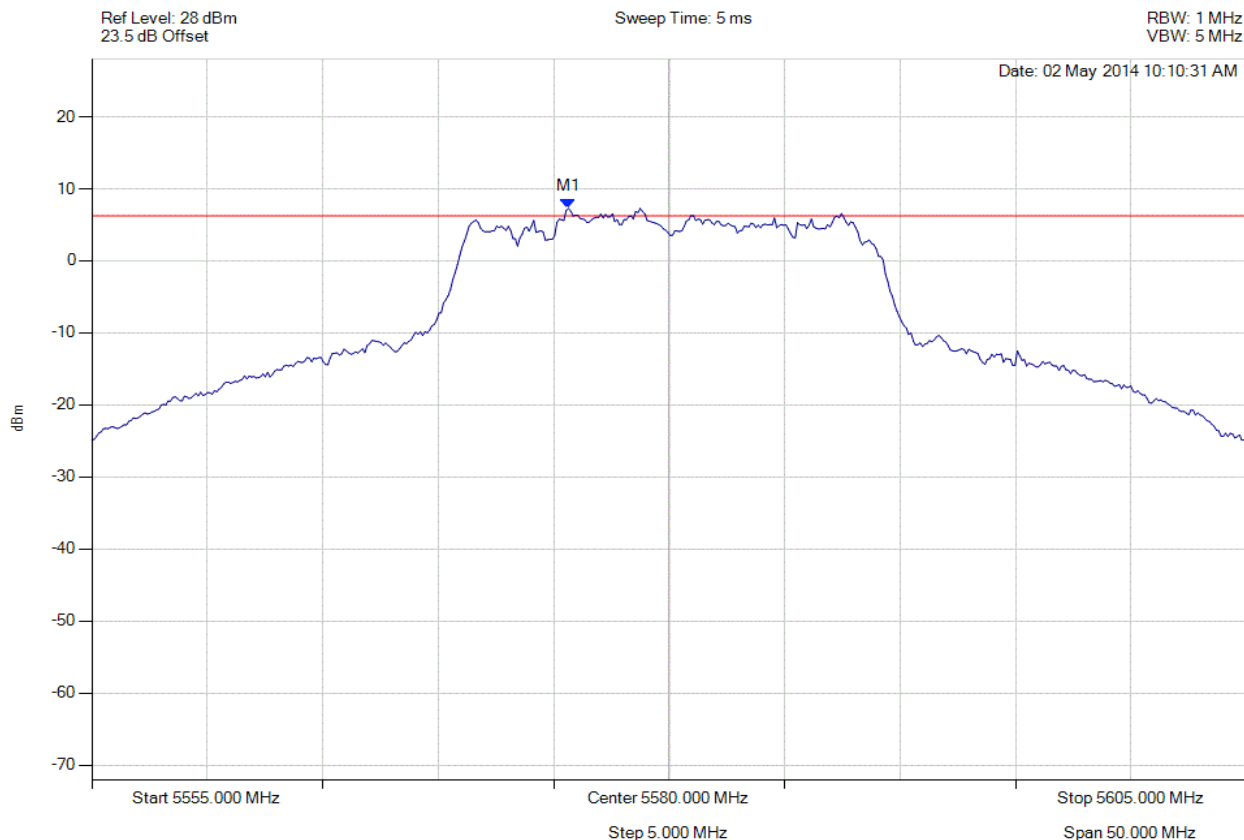
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5498.848 MHz : 10.843 dBm | Limit: ≤ 11.0 dBm Margin: -0.2 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5575.641 MHz : 7.264 dBm | Limit: ≤ 6.229 dBm Margin: 1.28 dB |

[Back to the Matrix](#)

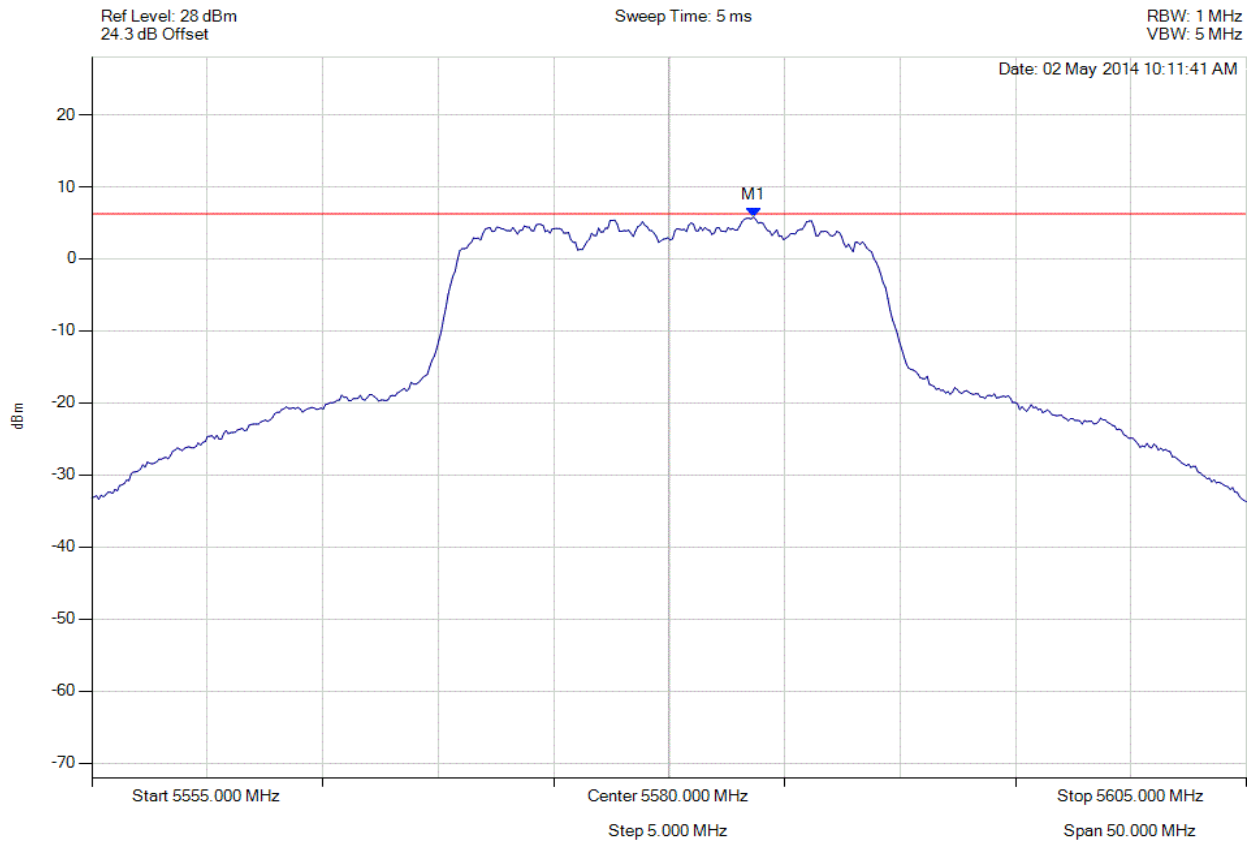


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 291 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



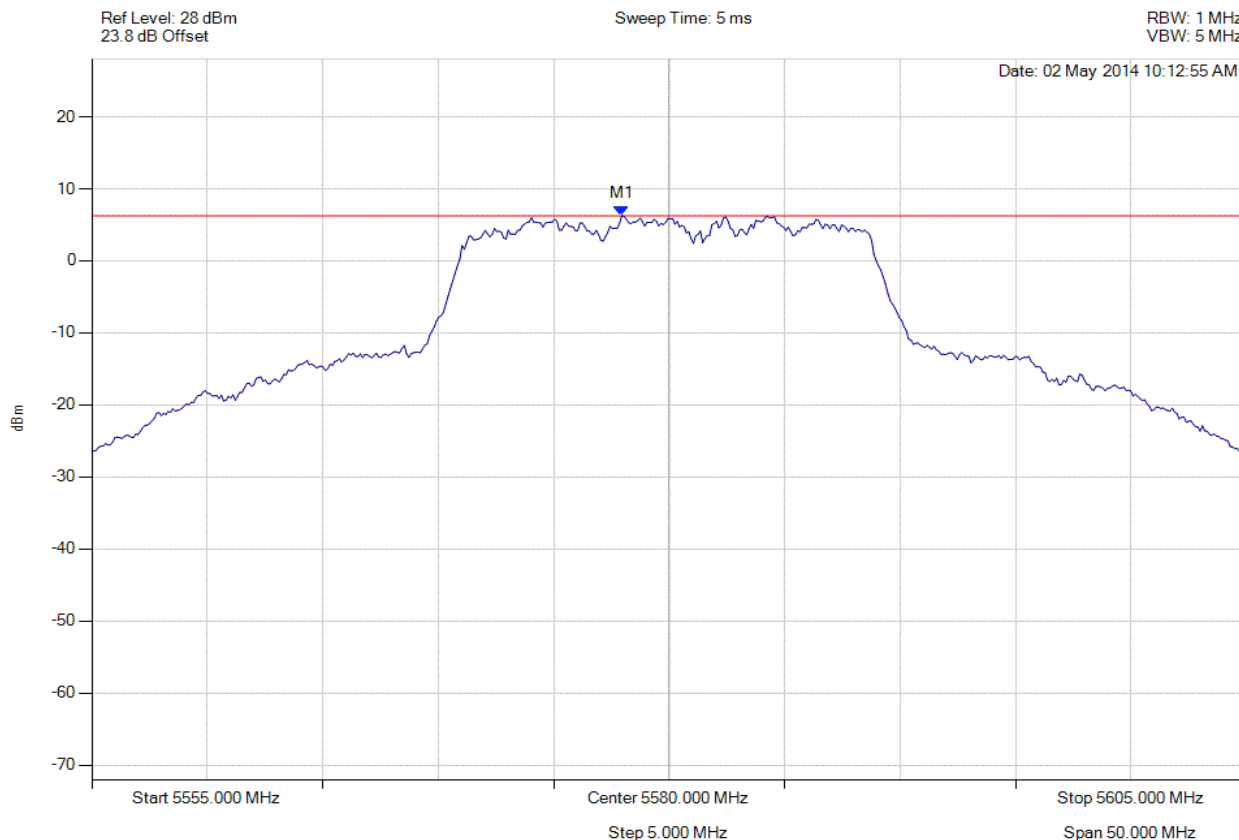
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5583.657 MHz : 5.791 dBm | Limit: ≤ 6.229 dBm Margin: -0.19 dB |

[Back to the Matrix](#)

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PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5577.946 MHz : 6.261 dBm | Limit: ≤ 6.229 dBm Margin: 0.28 dB |

[Back to the Matrix](#)

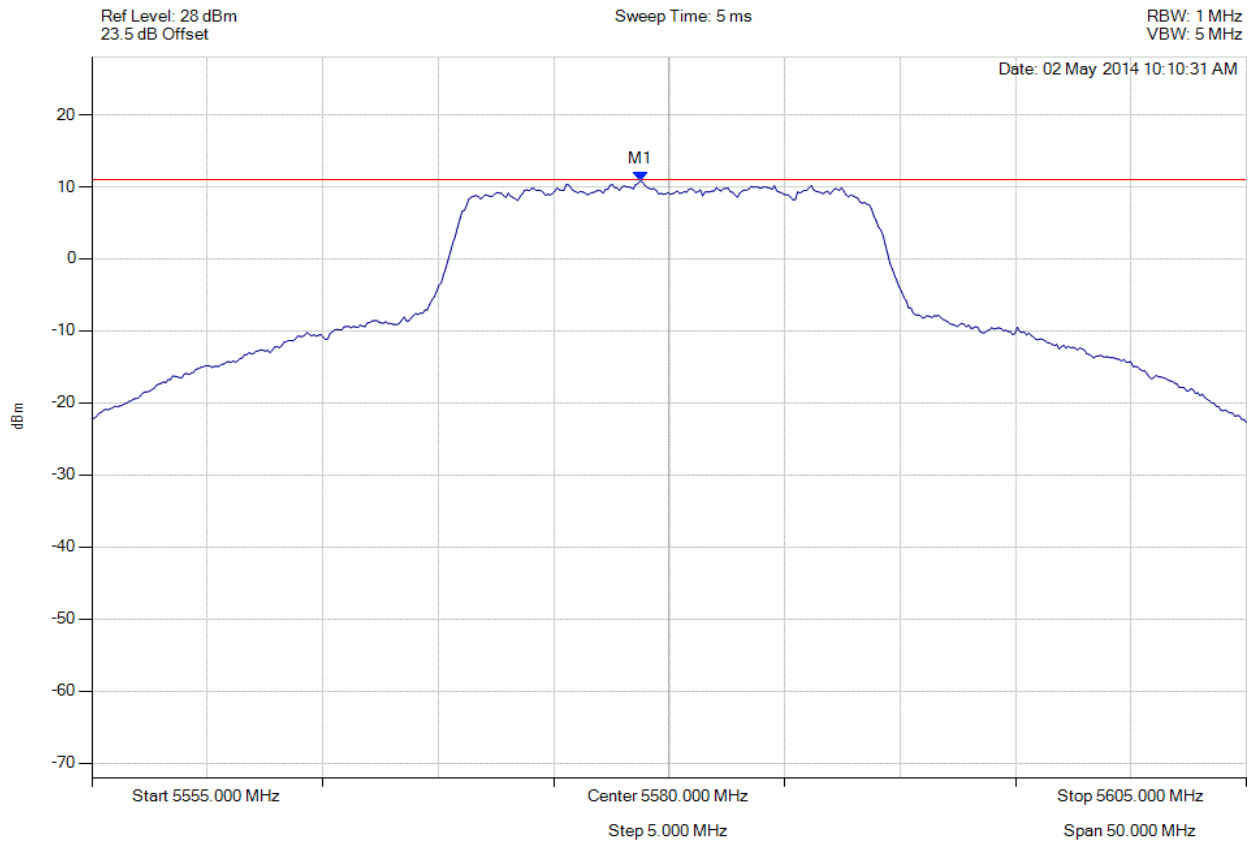


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 293 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5580.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5578.747 MHz : 10.853 dBm | Limit: ≤ 11.0 dBm Margin: -0.1 dB |

[Back to the Matrix](#)

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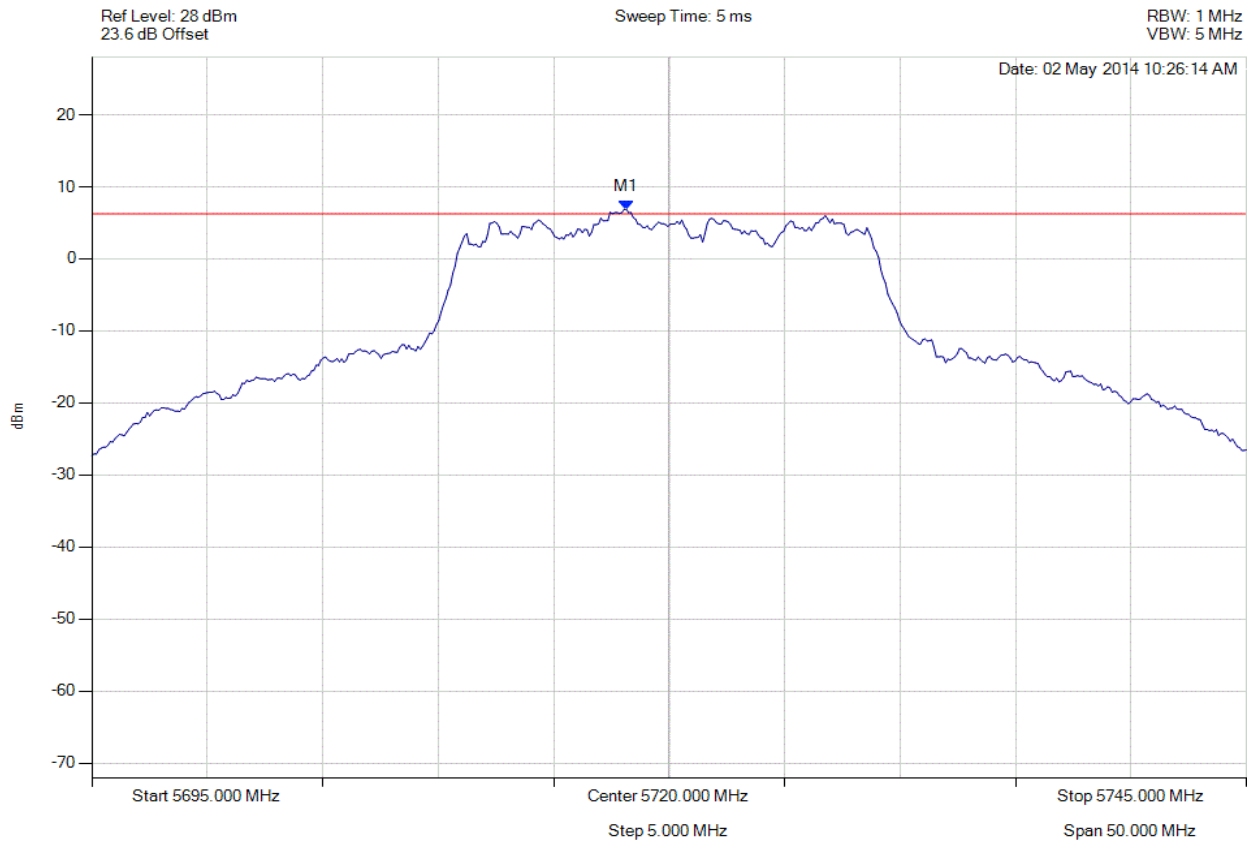


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 294 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5718.146 MHz : 6.883 dBm | Limit: ≤ 6.229 dBm Margin: 0.90 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

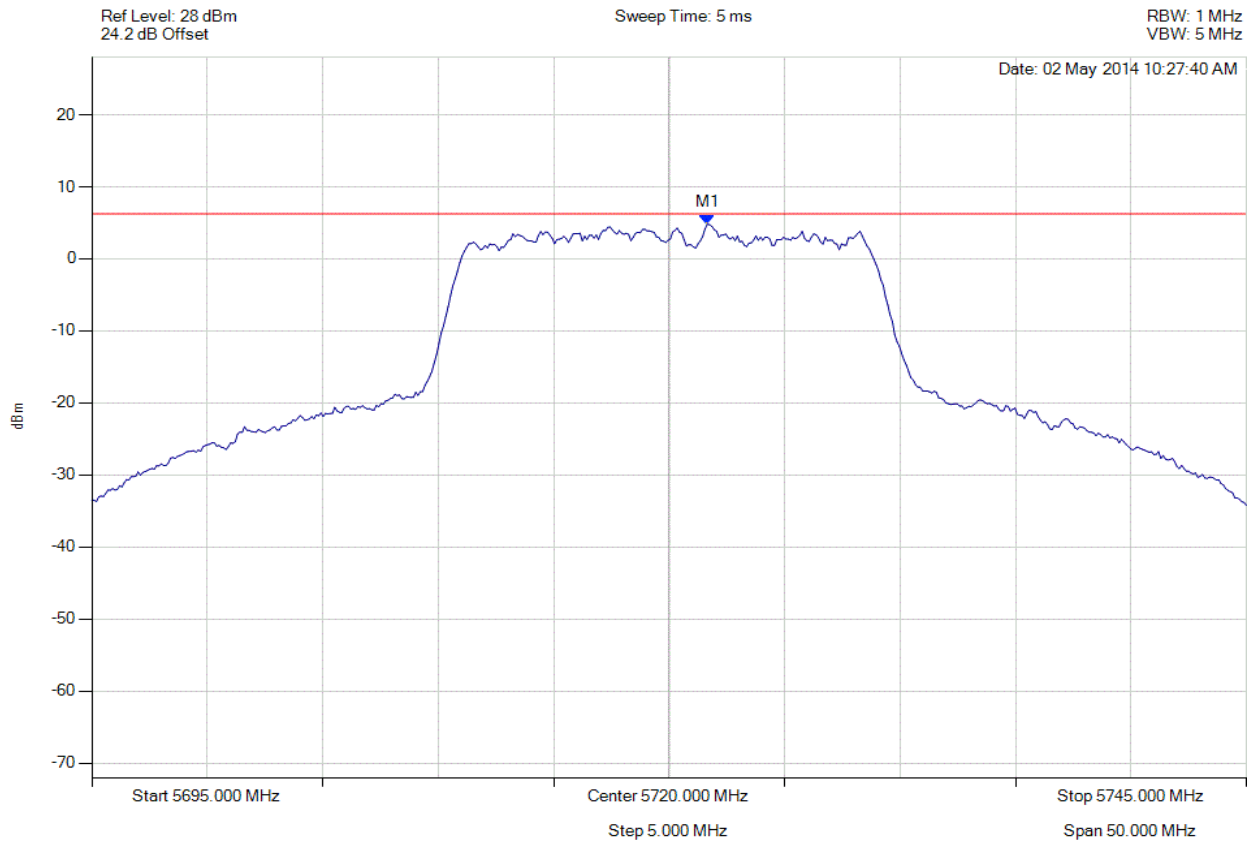


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 295 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5721.653 MHz : 4.814 dBm | Limit: ≤ 6.229 dBm Margin: -1.17 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

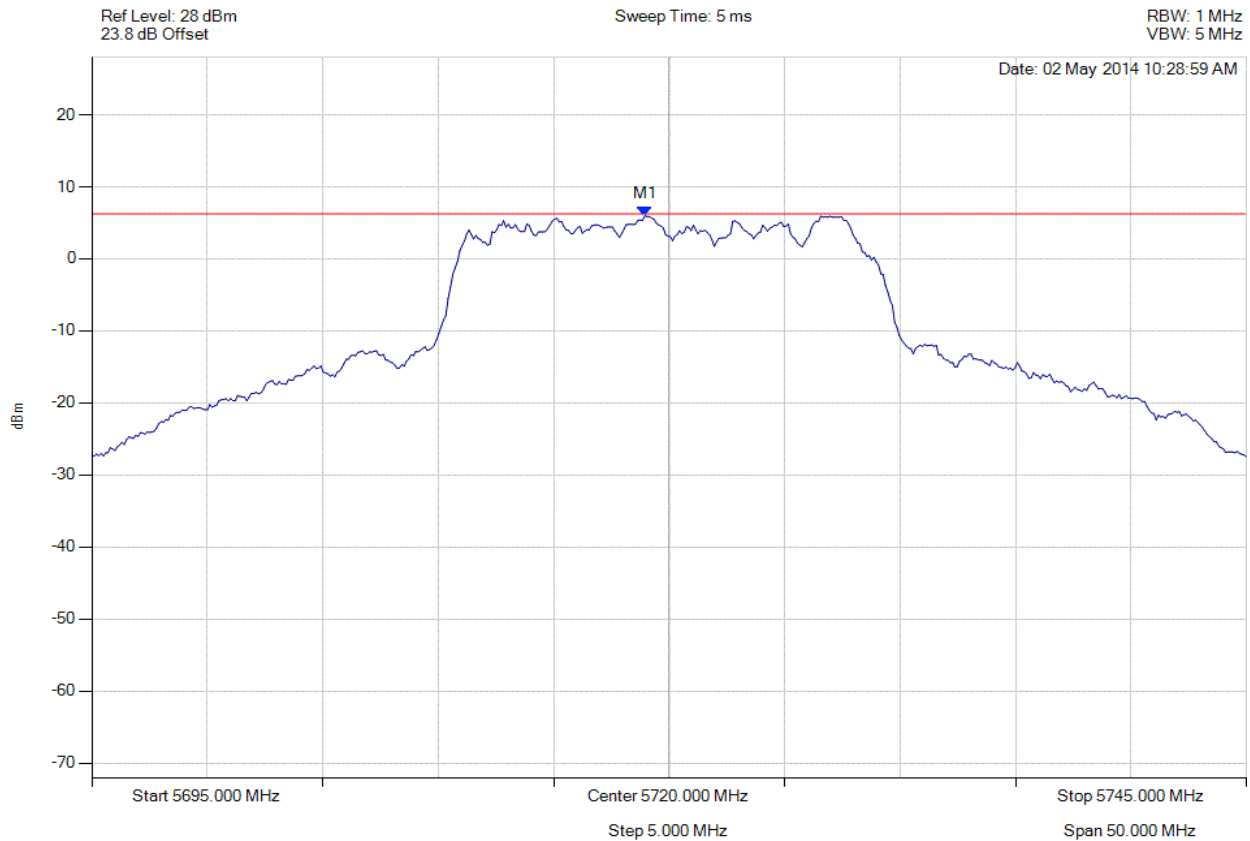


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 296 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|--|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5718.948 MHz : 5.983 dBm | Limit: ≤ 6.229 dBm Margin: 0.00 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

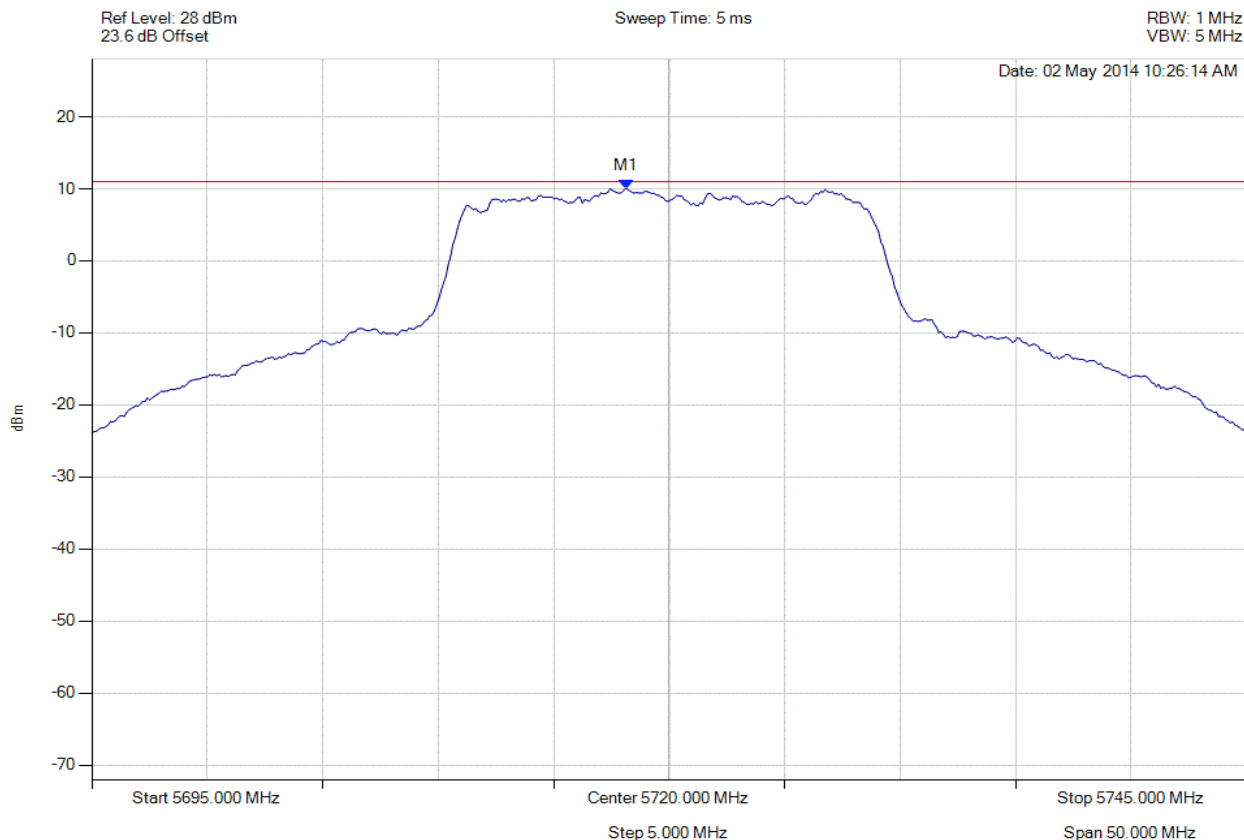


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 297 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5720.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



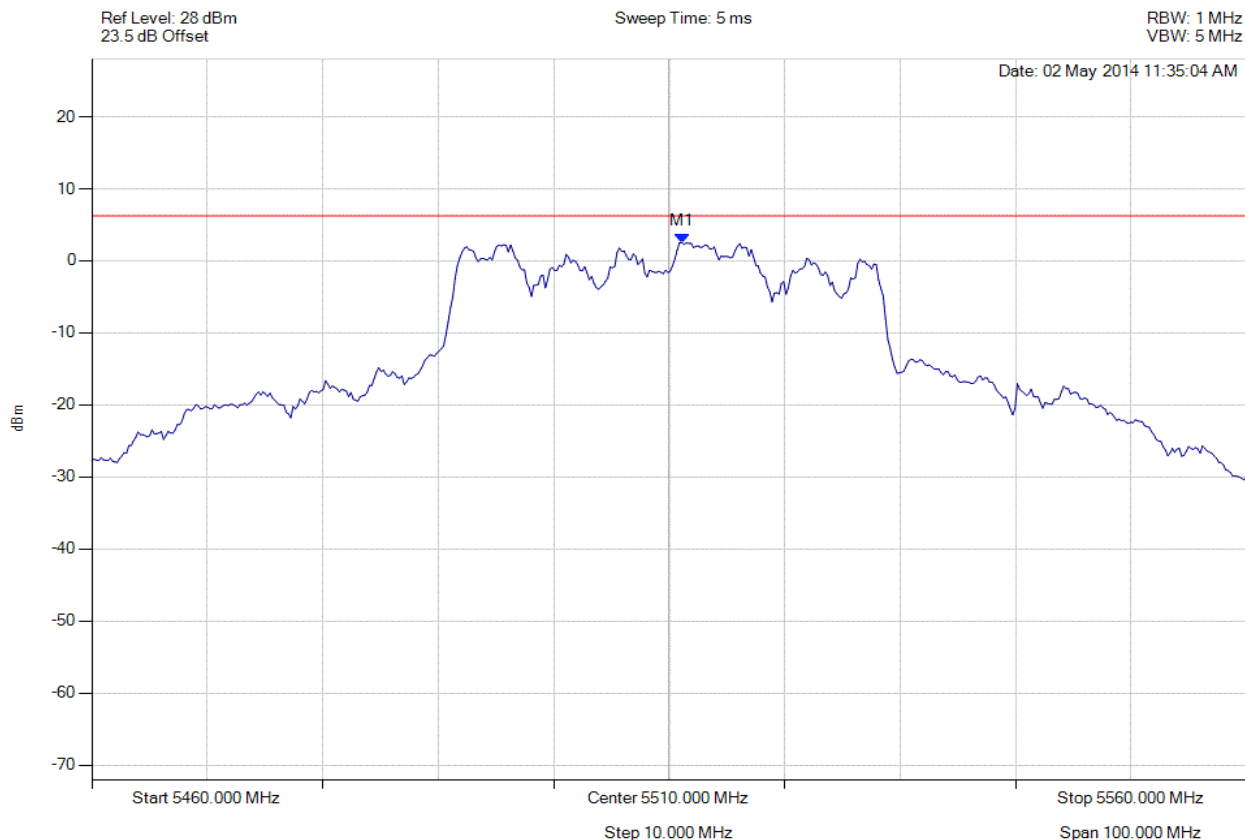
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5718.146 MHz : 10.055 dBm | Limit: ≤ 11.0 dBm Margin: -0.9 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5511.102 MHz : 2.518 dBm | Limit: ≤ 6.229 dBm Margin: -3.09 dB |

[Back to the Matrix](#)

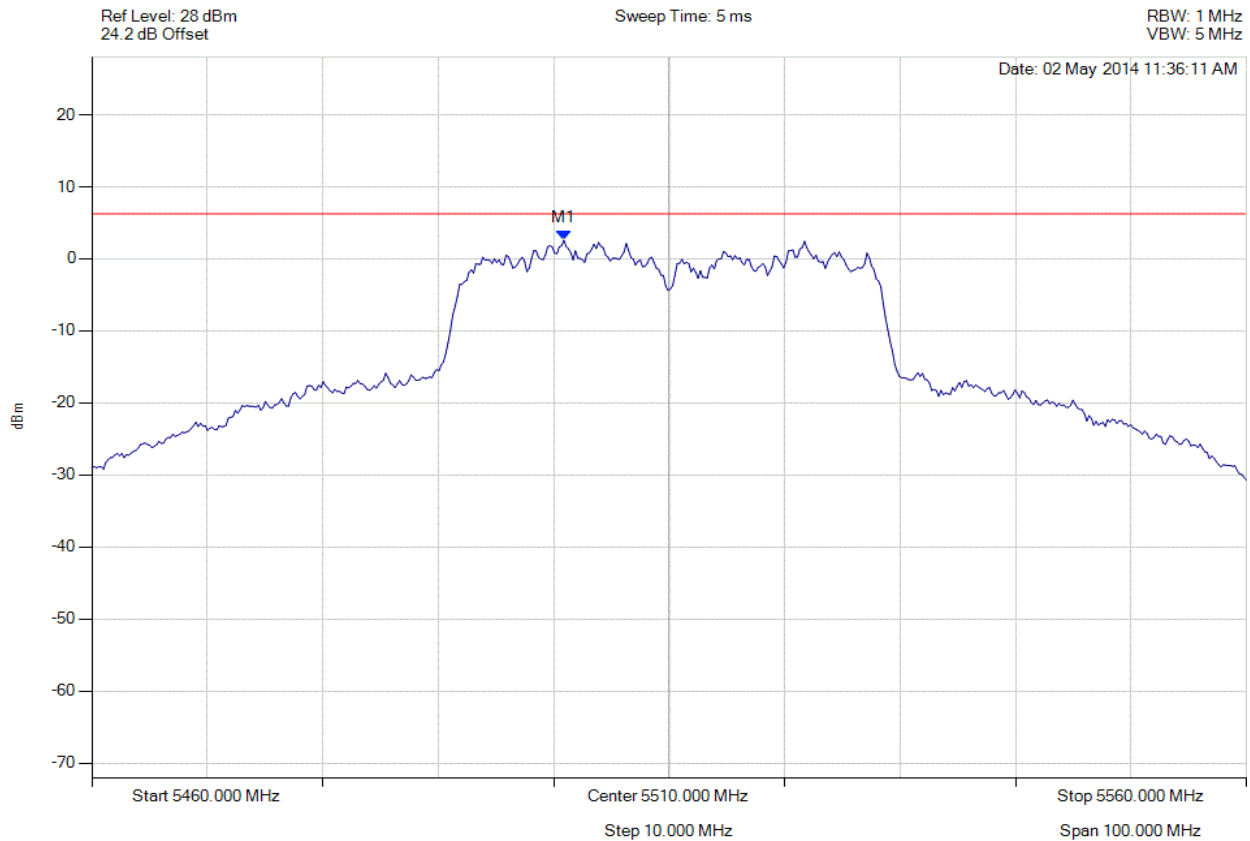


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 299 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



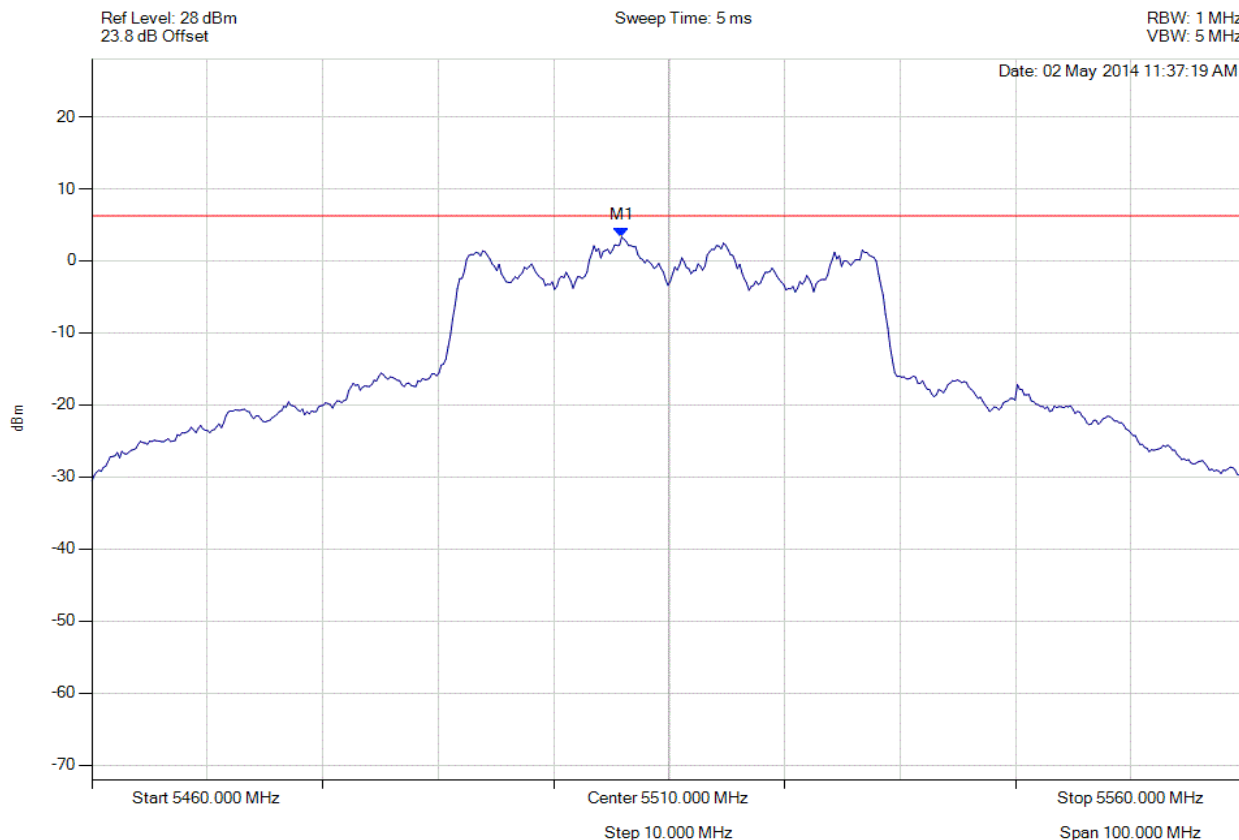
| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5500.882 MHz : 2.584 dBm | Limit: ≤ 6.229 dBm Margin: -3.02 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5505.892 MHz : 3.308 dBm | Limit: ≤ 6.229 dBm Margin: -2.30 dB |

[Back to the Matrix](#)

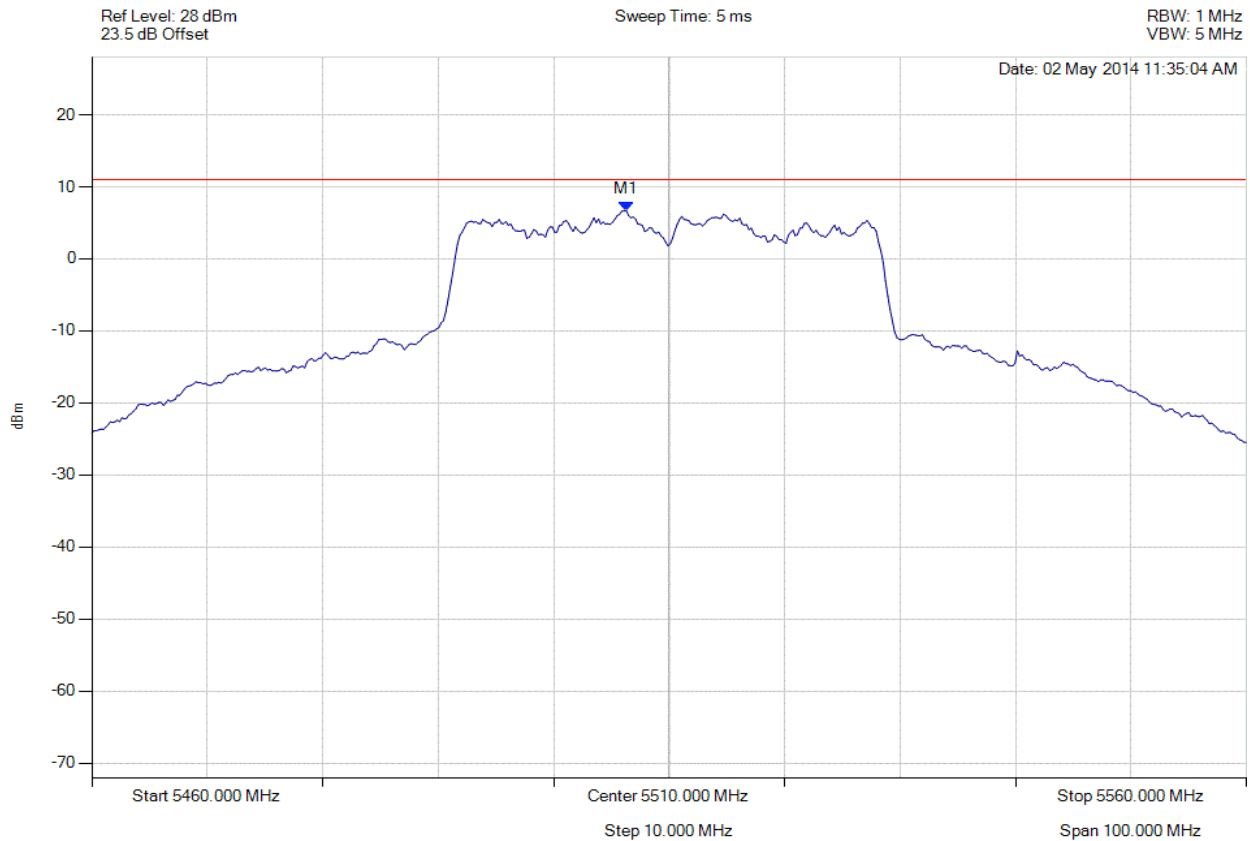


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 301 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5510.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5506.293 MHz : 6.675 dBm | Limit: ≤ 11.0 dBm Margin: -4.3 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

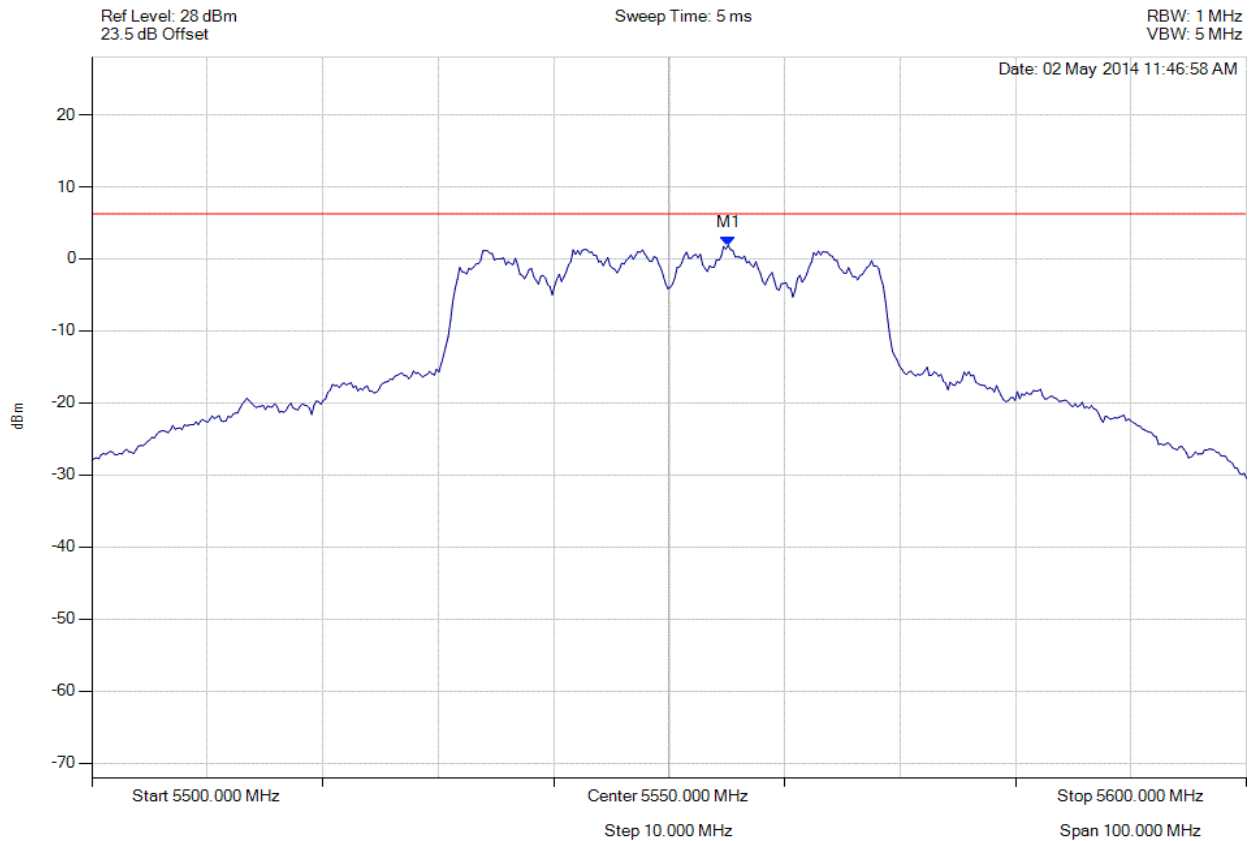


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 302 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5555.110 MHz : 1.888 dBm | Limit: ≤ 6.229 dBm Margin: -3.72 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

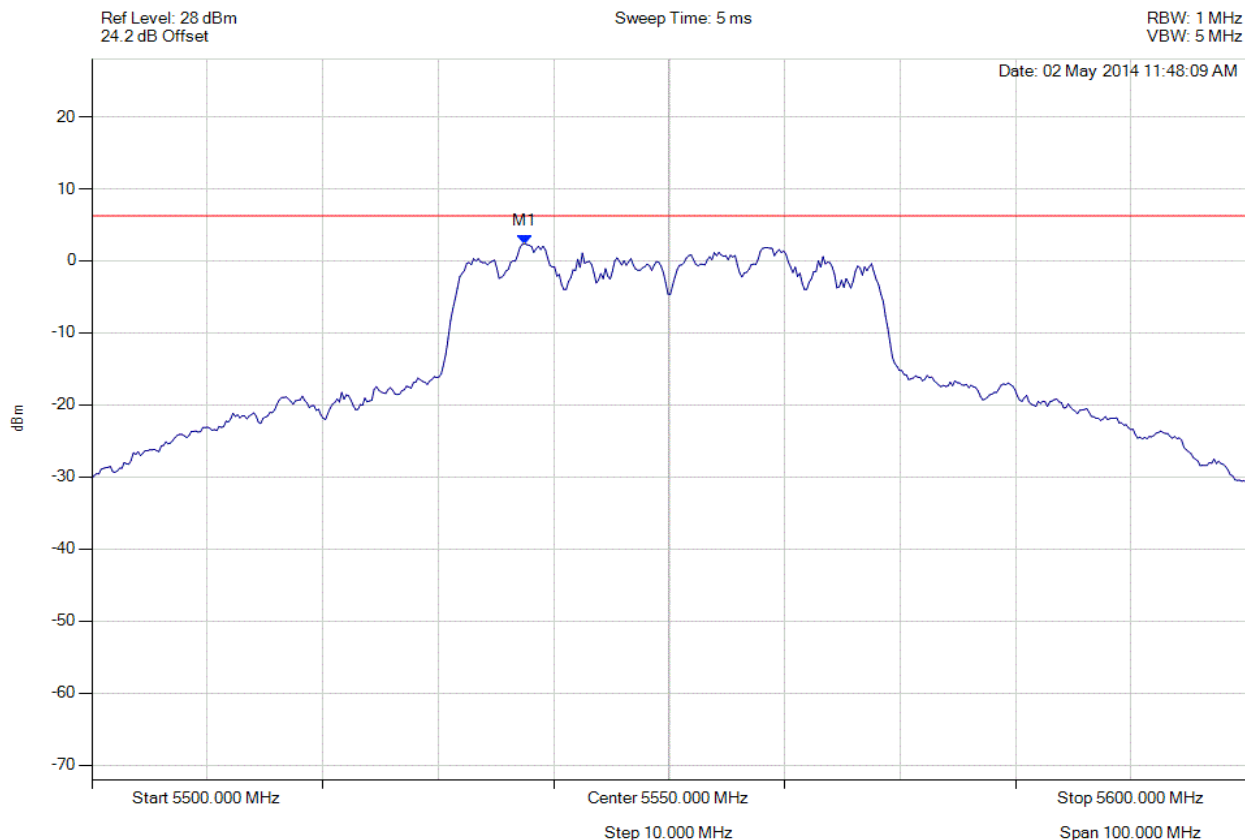


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 303 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5537.475 MHz : 2.386 dBm | Limit: ≤ 6.229 dBm Margin: -3.22 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

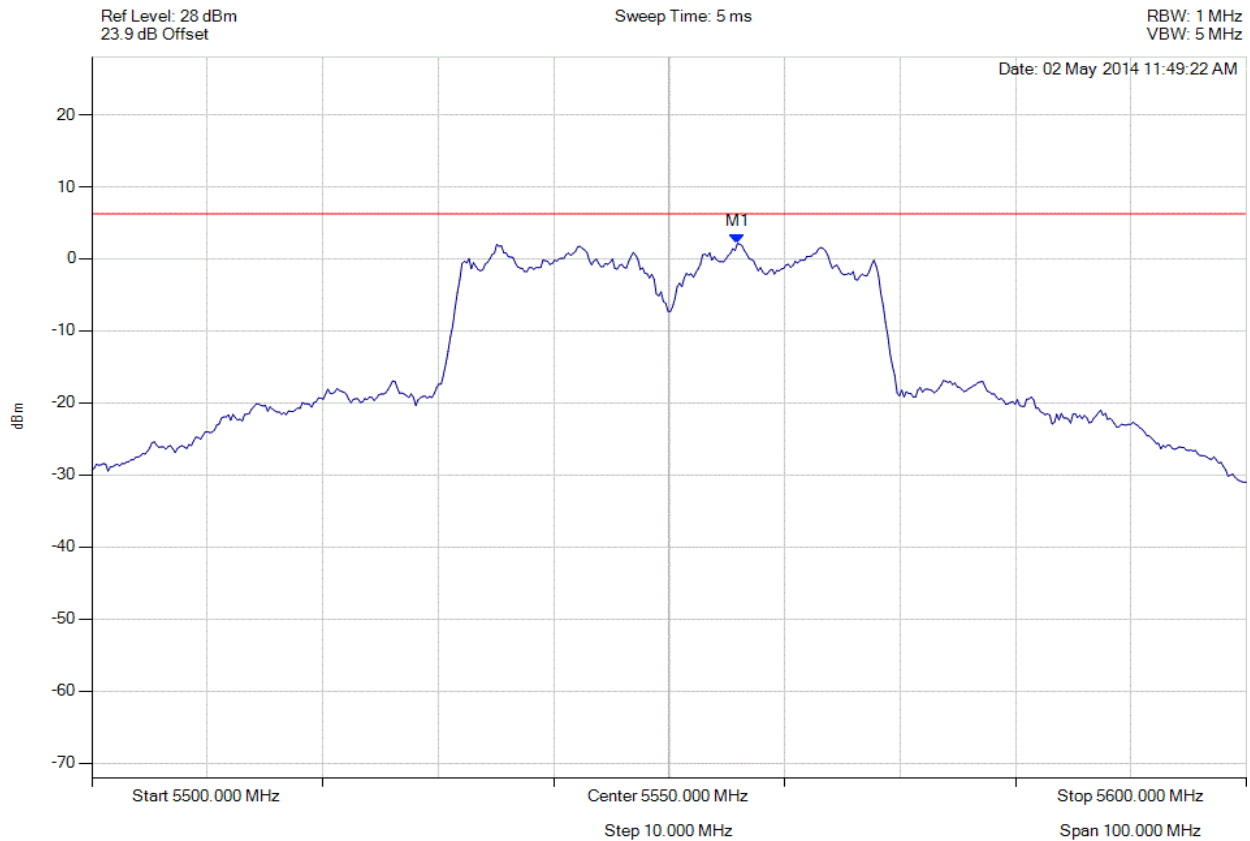


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 304 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5555.912 MHz : 2.116 dBm | Limit: ≤ 6.229 dBm Margin: -3.49 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

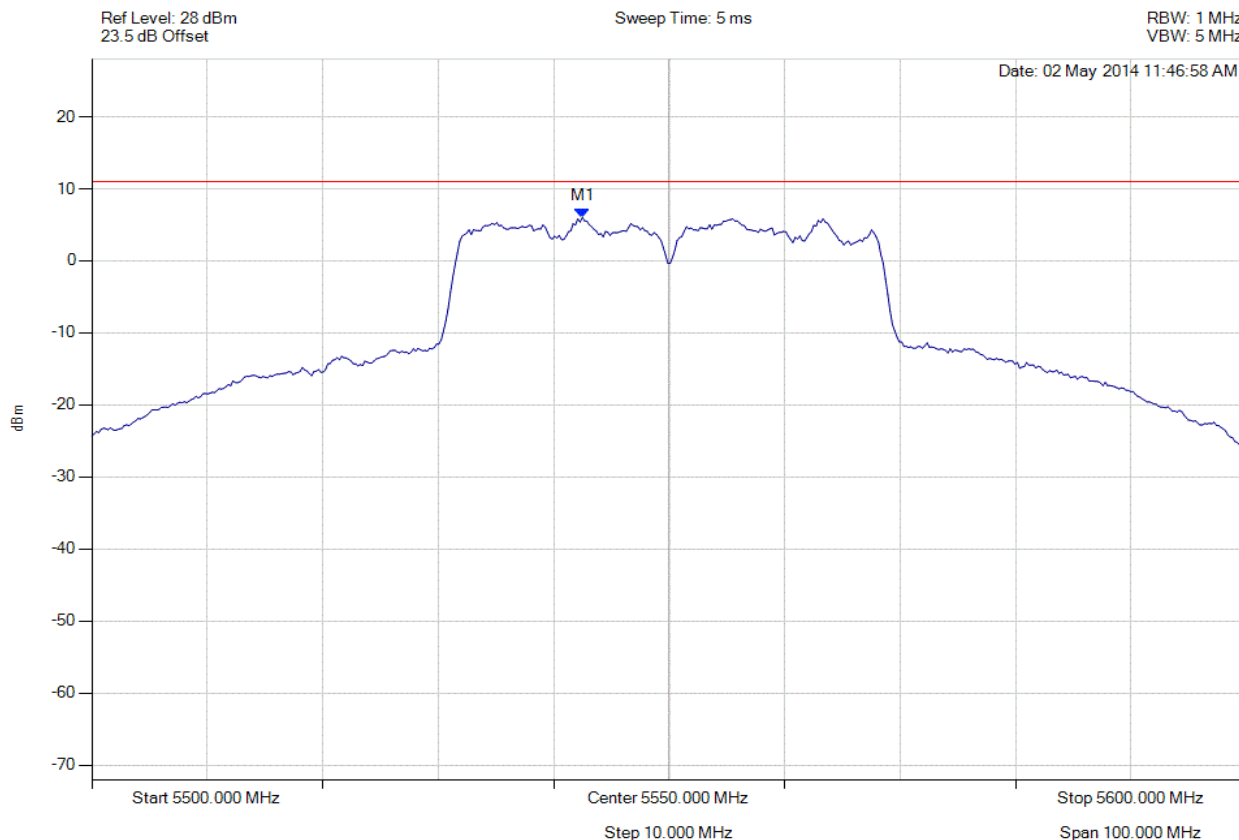


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 305 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5550.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5542.485 MHz : 6.002 dBm | Limit: ≤ 11.0 dBm Margin: -5.0 dB |

[Back to the Matrix](#)

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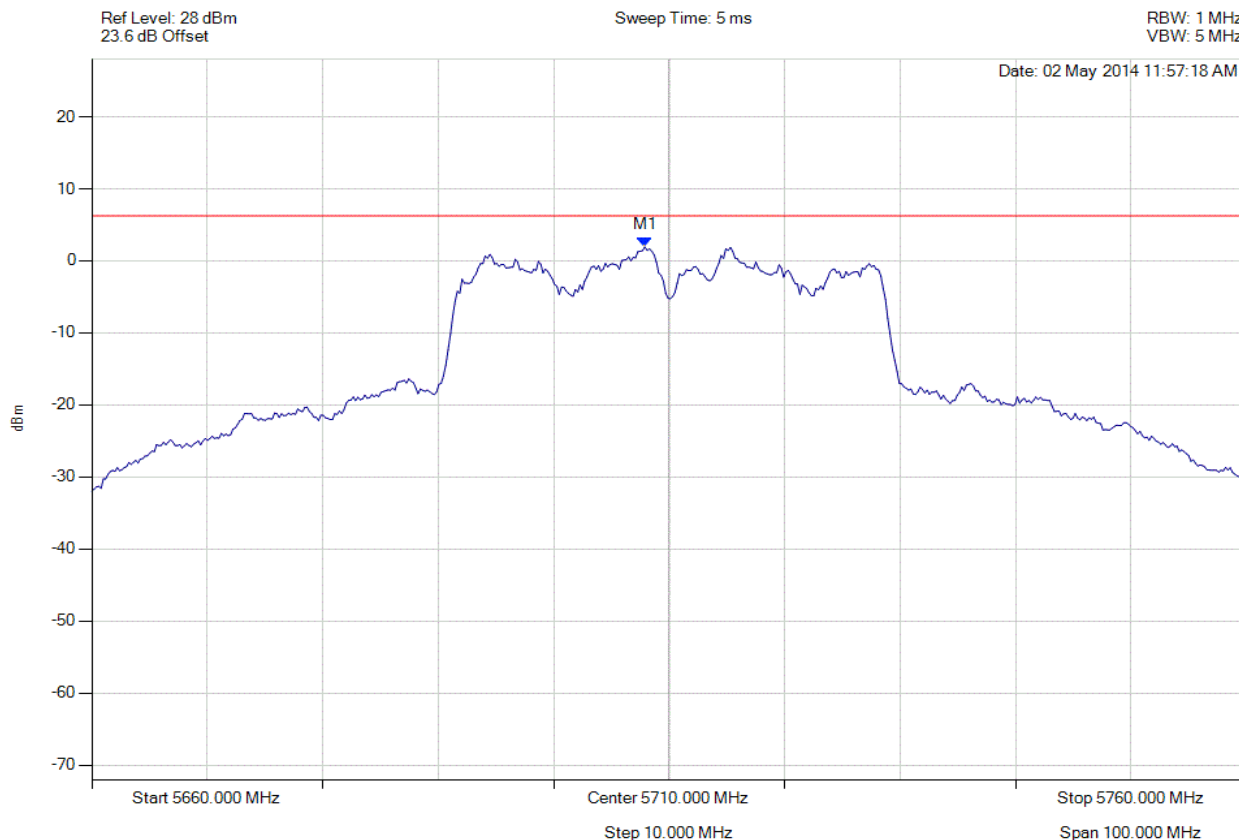


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 306 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain a, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5707.896 MHz : 1.935 dBm | Limit: ≤ 6.229 dBm Margin: -3.67 dB |

[Back to the Matrix](#)

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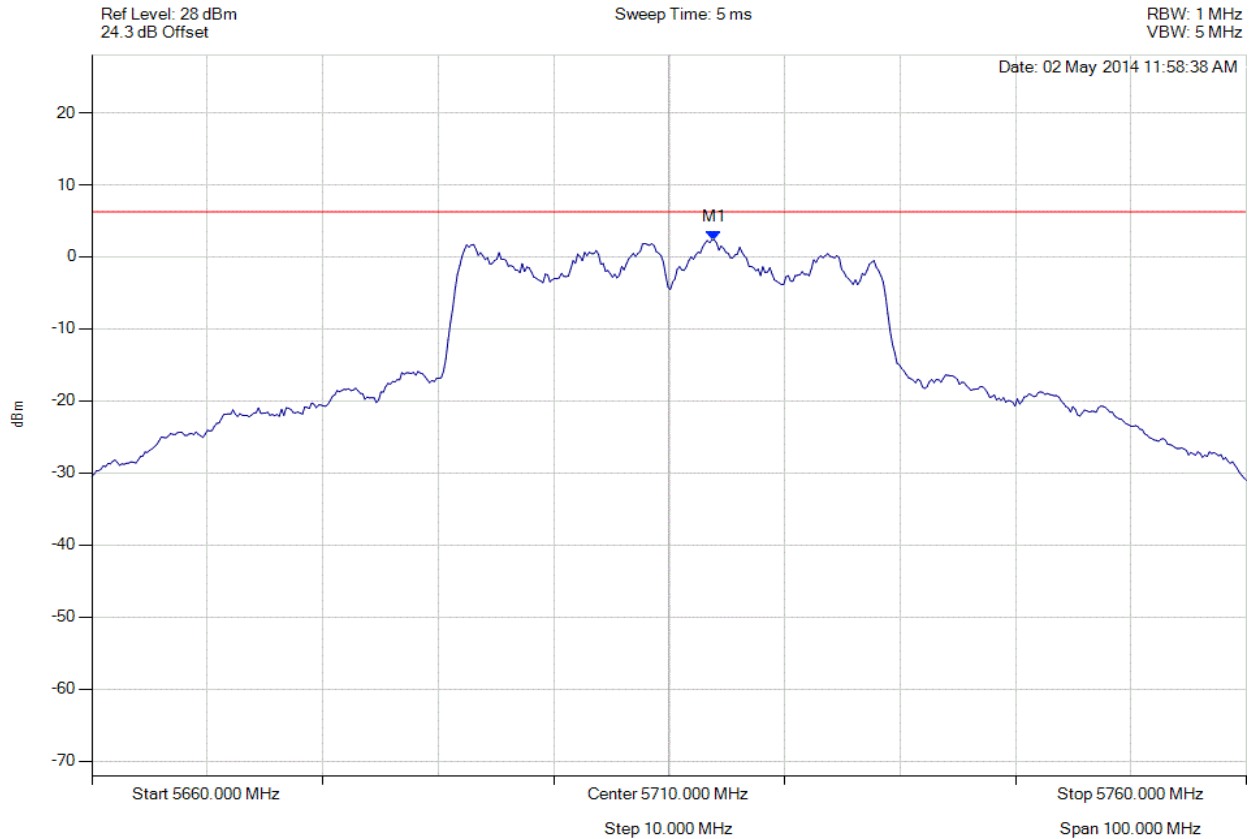


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 307 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain b, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5713.908 MHz : 2.378 dBm | Limit: ≤ 6.229 dBm Margin: -3.23 dB |

[Back to the Matrix](#)

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

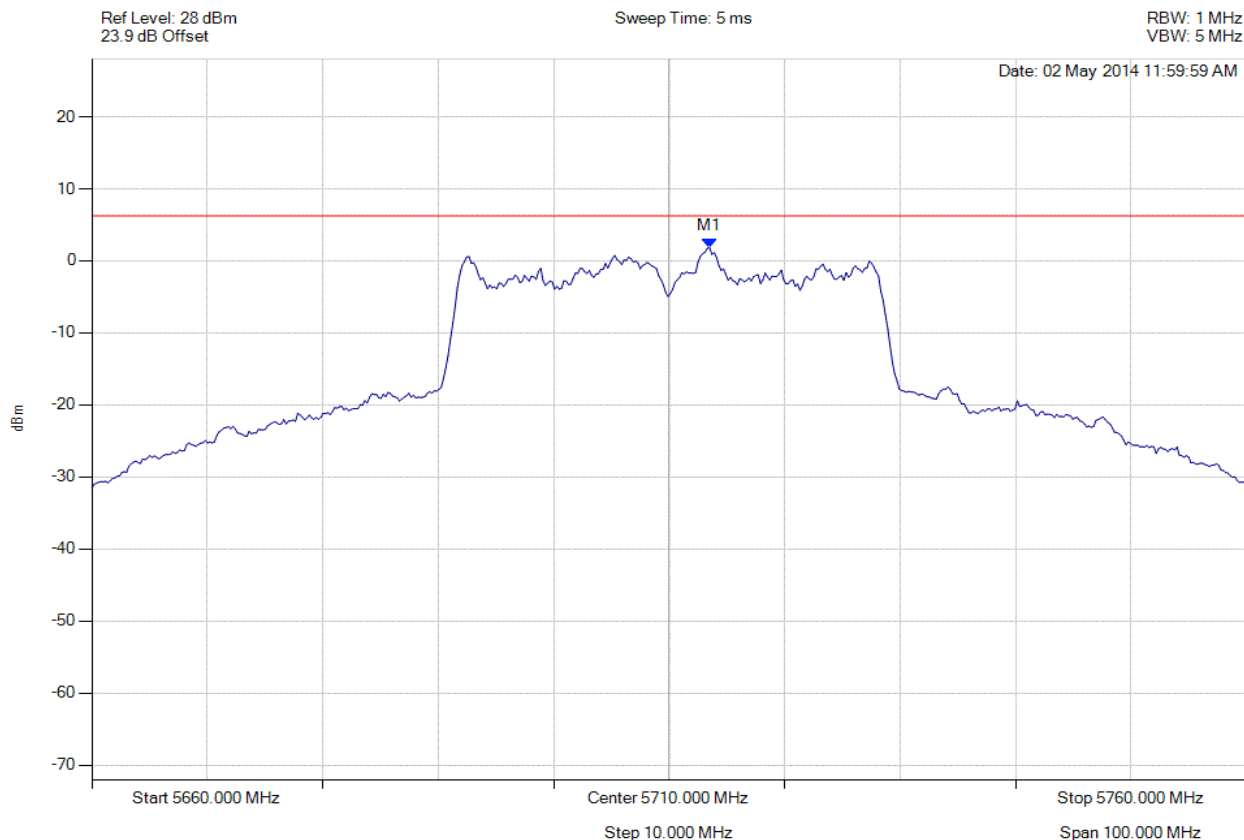


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 308 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain c, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5713.507 MHz : 1.814 dBm | Limit: ≤ 6.229 dBm Margin: -3.79 dB |

[Back to the Matrix](#)

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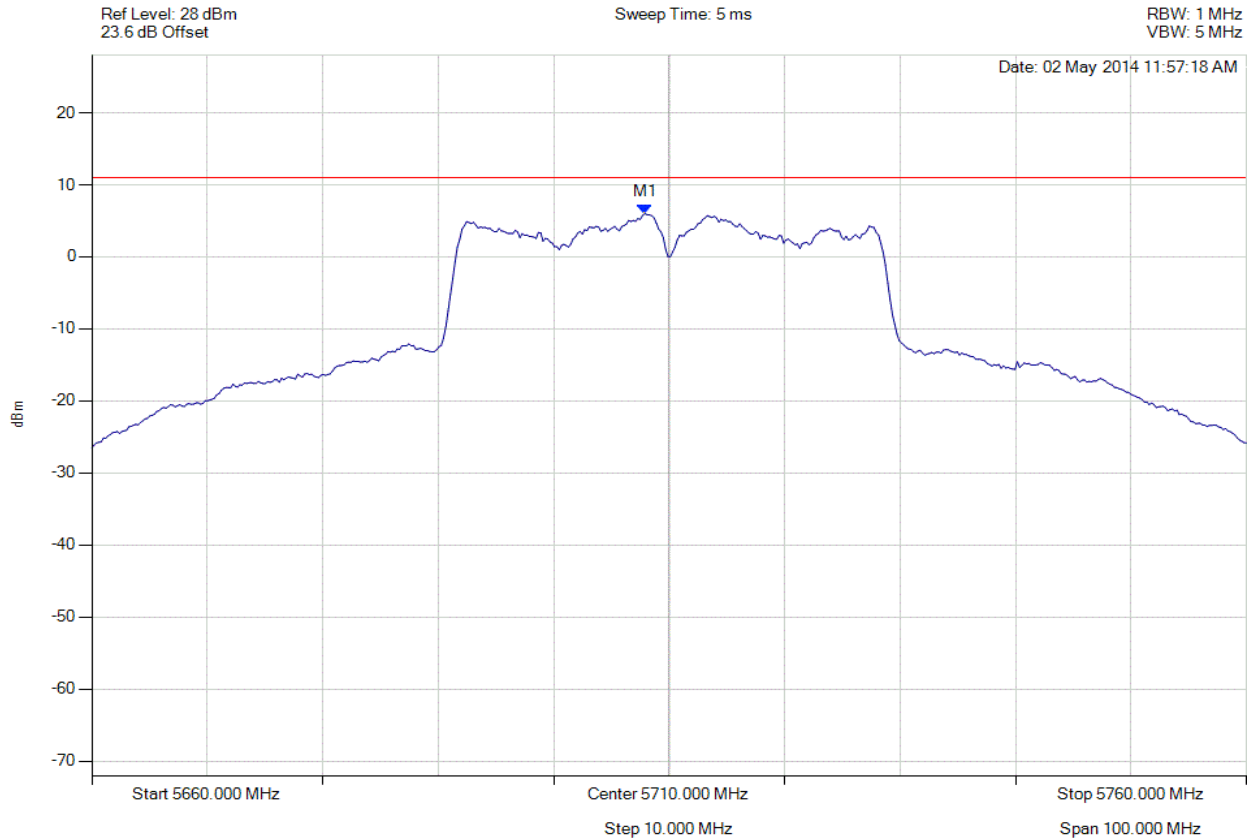


Title: Fluke Networks BCM43460
To: FCC 47 CFR Part 15.407 & IC RSS-210
Serial #: FLUK14-U6 Rev B
Issue Date: 6th August 2014
Page: 309 of 432



PEAK POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5710.00 MHz, SUM, Temp: Ambient, Voltage: 3.3 Vdc



| Analyser Setup | Marker : Frequency : Amplitude | Test Results |
|--|--------------------------------|---|
| Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW | M1 : 5707.896 MHz : 6.004 dBm | Limit: ≤ 11.0 dBm Margin: -5.0 dB |

[Back to the Matrix](#)

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