Company: Mikrotikls SIA (MikroTik)

Test of: RBwAPGR-5HacD2HnD-US

To: FCC 15.247 & IC ISED RSS-247

Report No.: MIKO81-U13 Rev A

TEST REPORT

FROM

MiCOM Labs
opening wireless markets

Test of: Mikrotikls SIA (MikroTik) RBwAPGR-5HacD2HnD-US

To: FCC 15.247 & IC ISED RSS-247

Test Report Serial No.: MIKO81-U13 Rev A

This report supersedes: NONE

Applicant:	Mikrotikls SIA (MikroTik) Brivibas gatve 214i Riga, LV-1039 Latvia
Product Function:	802.11b/g/n WLAN access point
Issue Date:	10th April 2019

This Test Report is Issued Under the Authority of:

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

A2LA ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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

1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

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

Accredited Laboratory

A2LA has accredited

MiCOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 14th day of May 2018.

President and CEO
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2019

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

1.2. RECOGNITION

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

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 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	

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

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

1.3. PRODUCT CERTIFICATION

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

Accredited Product Certification Body

A2LA has accredited

MiCOM LABS

Pleasanton, CA

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC 17065:2012 *Requirements for bodies certifying products, processes and services*. This product certification body also meets the *A2LA R322 – Specific Requirements – Notified Body Accreditation Requirements* and *A2LA R308 - Specific Requirements - ISO-IEC 17065 - Telecommunication Certification Body Accreditation Program*. This accreditation demonstrates technical competence for a defined scope and the operation of a management system.

Presented this 14th day of May 2018

President and CEO
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2019

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

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

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	4th March 2019	Draft report for client review.
Rev A	10th April 2019	Initial release.
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In the above table the latest report revision will replace all earlier versions.

3. TEST RESULT CERTIFICATE

Manufacturer:	Mikrotikls SIA (MikroTik) Brivibas gatve 214i Riga, LV-1039 Latvia	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model:	RBwAPGR-5HacD2HnD-US	**Telephone:**	+1 925 462 0304
Type Of Equipment:	802.11b/g/n WLAN access point	**Fax:**	+1 925 462 0306
S/N's:	AD130A0DB485/905/r2		
Test Date(s):	19 - 26 February 2019	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC 15.247 & IC ISED RSS-247	EQUIPMENT COMPLIES

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

Notes:

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

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

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

A2LA ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911 D01 & D02	Oct 31 2013	Guidance for measurement of output emission of devices that employ single transmitter with multiple outputs or systems with multiple transmitters operating simultaneously in the same frequency band
II	KDB 558074 D01 v05	24th August 2018	Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices operating under section 15.247 of the FCC Rules.
III	A2LA	August 2018	R105 - Requirement's When Making Reference to A2LA Accreditation Status
IV	ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices
V	ANSI C63.4	2014	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
VI	CISPR 32	2015	Electromagnetic compatibility of multimedia equipment - Emission requirements
VII	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
VIII	FCC 47 CFR Part 15.247	2016	Radio Frequency Devices; Subpart C – Intentional Radiators
IX	ICES-003	Issue 6 Jan 2016; Updated April 2017	Information Technology Equipment (Including Digital Apparatus) – Limits and methods of measurement.
X	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
XI	RSS-247 Issue 2	Feb 2017	Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices
XII	RSS-Gen Issue 5	April 2018	General Requirements for Compliance of Radio Apparatus
XIII	FCC 47 CFR Part 2.1033	2016	FCC requirements and rules regarding photographs and test setup diagrams.
XIV	KDB 789033 D02 V02r01	14th December, 2017	Guidelines For Compliance Testing Of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E

4.2. Test and Uncertainty Procedure

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

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

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

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Mikrotikls SIA (MikroTik) RBwAPGR-5HacD2HnD-US to FCC 15.247 & IC ISED RSS-247. Radio Frequency Devices; Subpart C – Intentional Radiators
Applicant:	Mikrotikls SIA (MikroTik) Brivibas gatve 214i Riga, LV-1039 Latvia
Manufacturer:	Mikrotikls SIA (MikroTik)
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	MIKO81-U13 Rev A
Date EUT received:	18th February 2019
Standard(s) applied:	FCC 15.247 & IC ISED RSS-247
Dates of test (from - to):	19 - 26 February 2019
No of Units Tested:	2
Product Family Name:	RouterBOARD
Model(s):	RBwAPGR-5HacD2HnD-US
Location for use:	Both
Declared Frequency Range(s):	2400 - 2483.5 MHz;
Type of Modulation:	DSSS, OFDM
EUT Modes of Operation:	802.11b/g/HT-20/HT-40;
Declared Nominal Output Power:	23 dBm
Transmit/Receive Operation:	Duplex
Rated Input Voltage and Current:	18VDC – 57VDC
Operating Temperature Range:	-10 to +40 ^{o}C
ITU Emission Designator:	802.11b: 15M3G1D 802.11g: 18M8D1D 802.11n HT-20: 18M3D1D 802.11n HT-40: 39M5D1D
Equipment Dimensions:	7,3x3,4x1,2 inches (185 x 85 x 30 mm)
Weight:	13oz
Hardware Rev:	r2
Software Rev:	ROS v6.43.1

5.2. Scope Of Test Program

Mikrotikls SIA (MikroTik) RBwAPGR-5HacD2HnD-US

The scope of the test program was to test the Mikrotikls SIA (MikroTik) RBwAPGR-5HacD2HnD-US 802.11 configurations in the frequency range 2400 - 2483.5 MHz for compliance against the following specification:

FCC 15.247
Radio Frequency Devices; Subpart C – Intentional Radiators

IC ISED RSS-247
Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

Mikrotikls SIA (MikroTik) RBwAPGR-5HacD2HnD-US

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

Type (EUT/ Support)	Equipment Description	Mfr	Model No.	Serial No.
EUT	Access Point	Mikrotikls SIA	RBwAPGR-5HacD2HnD-US	AD130A0DB485/905/r2
Support	Laptop	Dell		

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
integral	integral	integral	Dipole	2.5	-	360	-	2400 - 2483.5

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

5.5. Cabling and I/O Ports

Port Type	Max Cable Length	# of Ports	Screened
Ethernet	3-10m	1	Yes
Ethernet (POE)	3-10m	1	Yes
DC Jack	< 3m	1	No

5.6. Test Configurations

Results for the following configurations are provided in this report:

Operational Mode(s) (802.11a/b/g)	Data Rate with Highest Power MBit/s	Channel Frequency (MHz)		
		Low	Mid	High
2400 - 2483.5 MHz				
b	1	2,412.00	2,437.00	2,462.00
g	6	2,412.00	2,437.00	2,462.00
HT-20	6.5	2,412.00	2,437.00	2,462.00
HT-40	13.5	2,422.00	2,437.00	2,452.00

5.7. Equipment Modifications

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

5.8. Deviations from the Test Standard

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

6. TEST SUMMARY

List of Measurements

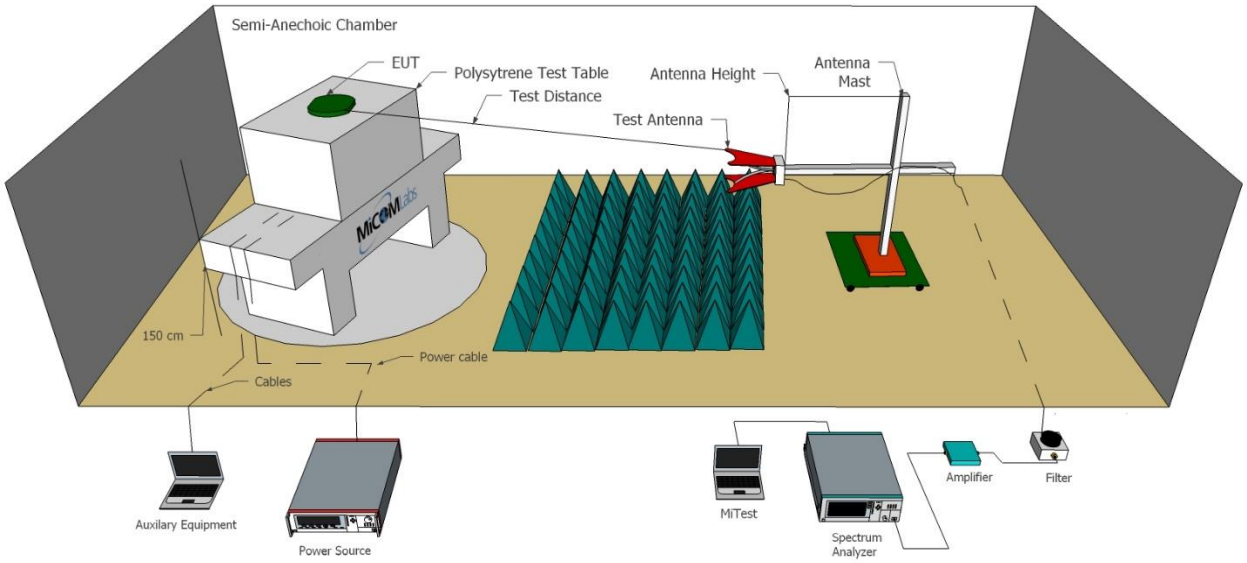
Test Header	Result	Data Link
6 dB & 99% Bandwidth	Complies	View Data
Conducted Output Power	Complies	View Data
Power Spectral Density	Complies	View Data
Emissions	Complies	-
(1) Conducted Emissions	Complies	-
(i) Conducted Spurious Emissions	Complies	View Data
(ii) Conducted Band-Edge Emissions	Complies	View Data
(2) Radiated Emissions	Complies	-
(i) TX Spurious & Restricted Band Emissions	Complies	View Data
(ii) Restricted Edge & Band-Edge Emissions	Complies	View Data

7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Radiated Emissions - 3m Chamber

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

Radiated Emissions Above 1GHz Test Setup

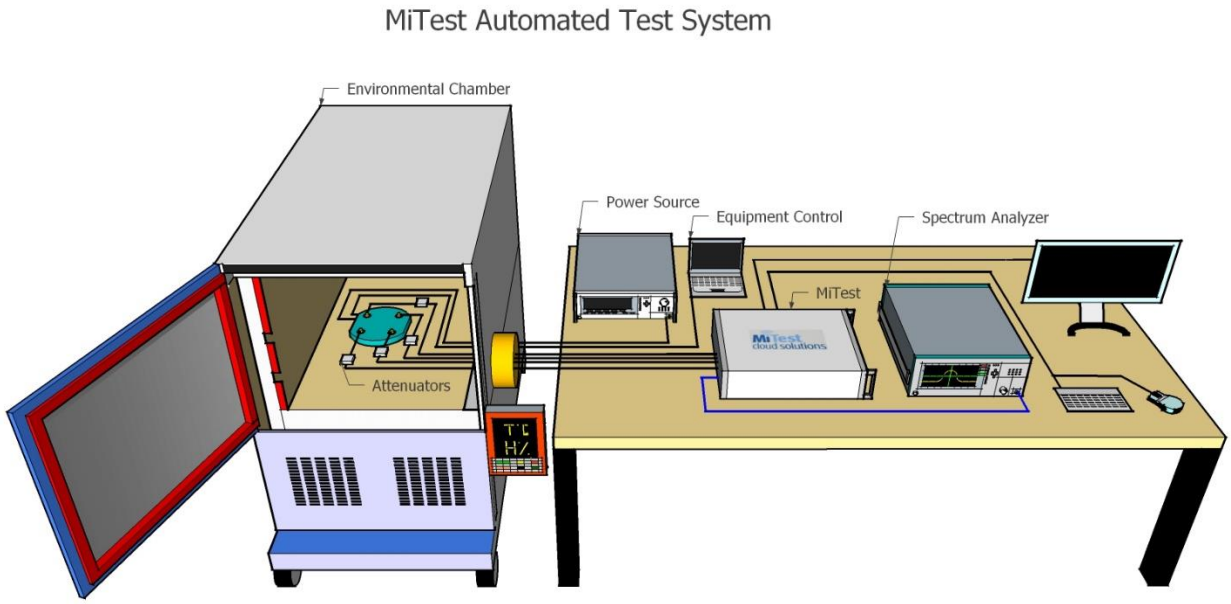


A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	21 Mar 2019
330	Variac 0-280 Vac	Staco Energy Co	3PN1020B	0546	Cal when used
336	Active loop Ant 10kHz to 30 MHz	EMCO	EMCO 6502	00060498	29 Nov 2019
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Apr 2019
342	2.4 GHz Notch Filter	EWT	EWT-14-0203	H1	8 Oct 2019
343	5.15 GHz Notch Filter	EWT	EWT-14-0200	H1	8 Oct 2019
373	26III RMS Multimeter	Fluke	Fluke 26 series III	76080720	21 Sep 2019
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	9 Oct 2019

378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2019
393	DC - 1050 MHz Low Pass Filter	Microcircuits	VLFX-1050	N/A	8 Oct 2019
396	2.4 GHz Notch Filter	Microtronics	BRM50701	001	8 Oct 2019
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	12 Apr 2019
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 Oct 2019
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	12 Apr 2019
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
414	DC Power Supply 0-60V	HP	6274	1029A01285	Cal when used
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
416	Gigabit ethernet filter	ETS-Lingren	Gigafoil 260366	None	Not Required
447	MiTest Rad Emissions Test Software	MiCOM	Rad Emissions Test Software Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	9 Oct 2019
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	9 Oct 2019
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	9 Oct 2019
465	Low Pass Filter DC-1000 MHz	Mini-Circuits	NLP-1200+	VUU01901402	9 Oct 2019
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	24 Aug 2019
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	24 Aug 2019
510	Barometer/Thermometer	Control Company	68000-49	170871375	11 Dec 2019
518	Cable - Amp to Antenna	SRC Haverhill	157-3051574	518	24 Aug 2019
87	Uninterruptible Power Supply	Falcon Electric	ED2000-1/2LC	F3471 02/01	Cal when used

7.2. Conducted



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

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	20 Mar 2019
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	20 Mar 2019
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	20 Mar 2019
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	20 Mar 2019
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	20 Mar 2019
249	Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	30 Oct 2019
361	Desktop for RF#1, Labview Software installed	Dell	Vostro 220	WS RF#1	Not Required
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2019
398	MiTest RF Conducted Test Software	MiCOM	MiTest ATS	Version 4.1	Not Required
405	DC Power Supply 0-60V	Agilent	6654A	MY4001826	Cal when used

408	USB to GPIB interface	National Instruments	GPIB-USB HS	14C0DE9	Not Required
436	USB Wideband Power Sensor	Boonton	55006	8731	14 Sep 2019
440	USB Wideband Power Sensor	Boonton	55006	9178	22 Sep 2019
441	USB Wideband Power Sensor	Boonton	55006	9179	20 Sep 2019
442	USB Wideband Power Sensor	Boonton	55006	9181	6 Oct 2019
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	20 Sep 2019
510	Barometer/Thermometer	Control Company	68000-49	170871375	11 Dec 2019
515	MiTest Cloud Solutions RF Test Box	MiCOM	2nd Gen with DFS	515	20 Mar 2019
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	24 Feb 2020

8. MEASUREMENT AND PRESENTATION OF TEST DATA

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

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

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

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

9. TEST RESULTS

9.1. 6 dB & 99% Bandwidth

Conducted Test Conditions for 6 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.247 ISED RSS-247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	6 dB and 99 % Bandwidth	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.247 (a)(2) RSS-247: 5.2	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

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

Testing was performed under ambient conditions at nominal voltage. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported.

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

Limits for 6 dB and 99% Bandwidth

(a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

(2) Systems using digital modulation techniques may operate in the 902-928 MHz and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Equipment Configuration for 6 dB & 99% Bandwidth			
Variant:	802.11b	**Duty Cycle (%):**	99
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2412.0	8.096	8.577			8.577	8.096	≥500.0	-7.60
2437.0	9.058	8.497			9.058	8.497	≥500.0	-8.00
2462.0	9.539	8.978			9.539	8.978	≥500.0	-8.48

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				Maximum 99% Bandwidth (MHz)		
MHz	a	b	c	d			
2412.0	12.986	12.906			12.986		
2437.0	14.669	13.547			14.669		
2462.0	15.311	14.028			15.311		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth			
Variant:	802.11g	**Duty Cycle (%):**	82
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2412.0	16.032	16.273			16.273	16.032	≥500.0	-15.53
2437.0	16.353	16.353			16.353	16.353	≥500.0	-15.85
2462.0	16.353	16.353			16.353	16.353	≥500.0	-15.85

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				Maximum 99% Bandwidth (MHz)		
MHz	a	b	c	d			
2412.0	16.433	16.433			16.433		
2437.0	18.597	16.513			18.597		
2462.0	18.838	16.914			18.838		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth			
Variant:	802.11n HT-20	**Duty Cycle (%):**	93
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2412.0	16.513	16.673			16.673	16.513	≥500.0	-16.01
2437.0	17.555	17.555			17.555	17.555	≥500.0	-17.06
2462.0	17.154	16.914			17.154	16.914	≥500.0	-16.41

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				Maximum 99% Bandwidth (MHz)		
MHz	a	b	c	d			
2412.0	17.555	17.555			17.555		
2437.0	18.277	17.715			18.277		
2462.0	17.796	17.715			17.796		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth			
Variant:	802.11n HT-40	**Duty Cycle (%):**	73
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2422.0	31.263	35.110			35.110	31.263	≥500.0	-30.76
2437.0	35.752	35.431			35.752	35.431	≥500.0	-34.93
2452.0	33.828	35.110			35.110	33.828	≥500.0	-33.33

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				Maximum 99% Bandwidth (MHz)		
MHz	a	b	c	d			
2422.0	39.439	36.393			39.439		
2437.0	42.325	36.393			42.325		
2452.0	50.661	36.553			50.661		

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

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

9.2. Conducted Output Power

Conducted Test Conditions for Fundamental Emission Output Power			
Standard:	FCC CFR 47:15.247 ISED RSS-247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Output Power	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.247 (b) & (c) RSS-247: 5.4 (d)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Fundamental Emission Output Power Measurement
In the case of average power measurements an average power sensor was utilized.

For peak power measurements the spectrum analyzer built-in power function was used to integrate peak power over the 20 dB bandwidth.

Testing was performed under ambient conditions at nominal voltage only. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured, summed (Σ) and reported.

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

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

Limits for Fundamental Emission Output Power
(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following for non-frequency hopping systems:

(3) For systems using digital modulation in the 902-928 MHz and 2400-2483.5 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

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

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

(iii) Fixed, point-to-point operation, as used in paragraphs (c)(1)(i) and (c)(1)(ii) of this section, excludes the use of point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum or digitally modulated intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

(2) In addition to the provisions in paragraphs (b)(3), (b)(4) and (c)(1)(i) of this section, transmitters operating in the 2400-2483.5

MHz band that emit multiple directional beams, simultaneously or sequentially, for the purpose of directing signals to individual receivers or to groups of receivers provided the emissions comply with the following:

(i) Different information must be transmitted to each receiver.

(ii) If the transmitter employs an antenna system that emits multiple directional beams but does not do emit multiple directional beams simultaneously, the total output power conducted to the array or arrays that comprise the device, i.e., the sum of the power supplied to all antennas, antenna elements, staves, etc. and summed across all carriers or frequency channels, shall not exceed the limit specified in paragraph (b)(1) or (b)(3) of this section, as applicable. However, the total conducted output power shall be reduced by 1 dB below the specified limits for each 3 dB that the directional gain of the antenna/antenna array exceeds 6 dBi. The directional antenna gain shall be computed as follows:

(A) The directional gain shall be calculated as the sum of 10 log (number of array elements or staves) plus the directional gain of the element or stave having the highest gain.

(B) A lower value for the directional gain than that calculated in paragraph (c)(2)(ii)(A) of this section will be accepted if sufficient evidence is presented, e.g., due to shading of the array or coherence loss in the beamforming.

(iii) If a transmitter employs an antenna that operates simultaneously on multiple directional beams using the same or different frequency channels, the power supplied to each emission beam is subject to the power limit specified in paragraph (c)(2)(ii) of this section. If transmitted beams overlap, the power shall be reduced to ensure that their aggregate power does not exceed the limit specified in paragraph (c)(2)(ii) of this section. In addition, the aggregate power transmitted simultaneously on all beams shall not exceed the limit specified in paragraph (c)(2)(ii) of this section by more than 8 dB.

(iv) Transmitters that emit a single directional beam shall operate under the provisions of paragraph (c)(1) of this section.

Equipment Configuration for Average Output Power			
Variant:	802.11b	**Duty Cycle (%):**	99.0
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	18.75	18.78			21.78	30.00	-8.22	23.00
2437.0	18.27	18.26			21.28	30.00	-8.72	23.00
2462.0	19.96	19.49			22.74	30.00	-7.26	23.00

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

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

Equipment Configuration for Average Output Power			
Variant:	802.11g	**Duty Cycle (%):**	82.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	17.23	16.75			20.01	30.00	-9.99	23.00
2437.0	16.95	17.12			20.05	30.00	-9.95	23.00
2462.0	17.96	17.49			20.74	30.00	-9.25	21.00

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

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

Equipment Configuration for Average Output Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	93.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	16.91	16.72			19.83	30.00	-10.17	23.00
2437.0	16.74	16.81			19.79	30.00	-10.21	23.00
2462.0	17.84	17.21			20.55	30.00	-9.45	23.00

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

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

Equipment Configuration for Average Output Power			
Variant:	802.11n HT-40	**Duty Cycle (%):**	73.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2422.0	15.90	15.53			18.73	30.00	-11.27	21.00
2437.0	17.76	17.75			20.77	30.00	-9.23	23.00
2452.0	15.72	15.43			18.59	30.00	-11.41	21.00

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

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

9.3. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.247 ISED RSS-247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Power Spectral Density	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.247 (e) RSS-247: 5.2 (b)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Power Spectral Density
The transmitter output was connected to a spectrum analyzer and the measured made in a 3 kHz resolution bandwidth using the analyzer auto-coupled sweep-time. A peak value was found over the full emission bandwidth and the spectrum downloaded for post processing purposes.

Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured separately. The Peak Power Spectral Density is the highest level found across the emission bandwidth. With multiple antenna port measurements the numerical analyzer data from each port is summed (å) and a link to this additional graphic is provided.

Testing was performed under ambient conditions at nominal voltage only.

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

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

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

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

Limits Power Spectral Density
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Equipment Configuration for Power Spectral Density - Average			
Variant:	802.11b	**Duty Cycle (%):**	99.0
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/3KHz)				Amplitude Summation + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/3KHz	dBm/3KHz	dB
2412.0	-15.020	-15.374			-12.437	8.0	-20.4
2437.0	-16.891	-15.860			-13.391	8.0	-21.4
2462.0	-14.234	-15.133			-12.052	8.0	-20.1

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average			
Variant:	802.11g	**Duty Cycle (%):**	82.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/3KHz)				Amplitude Summation + DCCF (+0.86 dB)	Limit	Margin
MHz	a	b	c	d	dBm/3KHz	dBm/3KHz	dB
2412.0	-19.444	-19.746			-16.226	8.0	-24.2
2437.0	-20.528	-20.263			-16.960	8.0	-25.0
2462.0	-18.784	-18.159			-15.172	8.0	-23.2

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average			
Variant:	802.11n HT-20	**Duty Cycle (%):**	93.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/3KHz)				Amplitude Summation + DCCF (+0.32 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-20.687	-19.811			-17.608	8.0	-25.6
2437.0	-21.608	-21.482			-18.308	8.0	-26.3
2462.0	-19.699	-20.354			-16.940	8.0	-25.0

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average			
Variant:	802.11n HT-40	**Duty Cycle (%):**	73.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	2.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/3KHz)				Amplitude Summation + DCCF (+1.37 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2422.0	-22.635	-23.006			-18.882	8.0	-26.9
2437.0	-24.573	-23.834			-19.909	8.0	-27.9
2452.0	-22.938	-22.576			-18.376	8.0	-26.4

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

DCCF - Duty Cycle Correction Factor

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

9.4. Emissions

9.4.1. Conducted Emissions

9.4.1.1. Conducted Spurious Emissions

Conducted Test Conditions for Transmitter Conducted Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47:15.247 ISED RSS-247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Max Unwanted Emission Levels	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.247 (d) RSS-247:5.5	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Transmitter Conducted Spurious and Band-Edge Emissions Measurement
Transmitter Conducted Spurious and Band-Edge emissions were measured at a limit of 30 dBc (average detector) or 20 dBc (peak detector) below the highest in-band spectral density measured with a spectrum analyzer connected to the antenna terminal. Measurements were made while EUT was operating in transmit mode of operation at the appropriate centre frequency closest to the band-edge. Emissions were maximized during the measurement and limits derived from the peak spectral power and drawn on each plot.

Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured separately. Testing was performed under ambient conditions at nominal voltage only.

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

Limits Transmitter Conducted Spurious and Band-Edge Emissions
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Equipment Configuration for Conducted Spurious Emissions - Average			
Variant:	802.11b	**Duty Cycle (%):**	99
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	CCK	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
2412.0	30.0 - 26000.0	-59.224	-47.03	-59.724	-48.66				
2437.0	30.0 - 26000.0	-58.724	-47.21	-59.324	-47.58				
2462.0	30.0 - 26000.0	-57.624	-46.21	-58.224	-46.22				

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

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

Equipment Configuration for Conducted Spurious Emissions - Average			
Variant:	802.11g	**Duty Cycle (%):**	82
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
2412.0	30.0 - 26000.0	-59.224	-48.38	-59.724	-49.04				
2437.0	30.0 - 26000.0	-58.724	-47.70	-59.324	-48.21				
2462.0	30.0 - 26000.0	-57.624	-46.11	-58.224	-46.11				

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

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

Equipment Configuration for Conducted Spurious Emissions - Average			
Variant:	802.11n HT-20	**Duty Cycle (%):**	93
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
2412.0	30.0 - 26000.0	-59.224	-48.14	-59.724	-48.32				
2437.0	30.0 - 26000.0	-58.724	-47.66	-59.324	-47.47				
2462.0	30.0 - 26000.0	-57.624	-47.02	-58.224	-47.12				

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

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

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Equipment Configuration for Conducted Spurious Emissions - Average			
Variant:	802.11n HT-40	**Duty Cycle (%):**	73
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
2422.0	30.0 - 26000.0	-59.124	-49.19	-59.624	-48.72				
2437.0	30.0 - 26000.0	-58.724	-45.16	-59.324	-44.95				
2452.0	30.0 - 26000.0	-57.824	-44.00	-58.424	-44.30				

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

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

9.4.1.2. Conducted Band-Edge Emissions

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

Variant:	802.11b	**Duty Cycle (%):**	99.0
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Channel Frequency:	2412.0 MHz					
Band-Edge Frequency:	2400.0 MHz					
Test Frequency Range:	2350.0 - 2422.0 MHz					
Port(s)	**Band-Edge Markers and Limit**			**Revised Limit**		**Margin**
	M1 Amplitude (dBm)	**Plot Limit (dBm)**	**M2 Frequency (MHz)**	**Amplitude (dBm)**	**M2A Frequency (MHz)**	**(MHz)**
a	-61.72	-30.18	2403.10			-3.100
b	-57.79	-30.41	2403.10			-3.100

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

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

Variant:	802.11g	**Duty Cycle (%):**	82.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-39.44	-35.78	2400.90			-0.900
b	-41.66	-35.74	2401.80			-1.800

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

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average			
Variant:	802.11n HT-20	**Duty Cycle (%):**	93.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Channel Frequency:	2412.0 MHz					
Band-Edge Frequency:	2400.0 MHz					
Test Frequency Range:	2350.0 - 2422.0 MHz					
Port(s)	**Band-Edge Markers and Limit**			**Revised Limit**		**Margin**
	M1 Amplitude (dBm)	**Plot Limit (dBm)**	**M2 Frequency (MHz)**	**Amplitude (dBm)**	**M2A Frequency (MHz)**	**(MHz)**
a	-38.80	-36.78	2400.90			-0.900
b	-41.66	-36.17	2401.70			-1.700

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

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

Variant:	802.11n HT-40	**Duty Cycle (%):**	73.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Channel Frequency:	2422.0 MHz
Band-Edge Frequency:	2400.0 MHz
Test Frequency Range:	2292.0 - 2442.0 MHz

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-46.56	-40.33	2402.00			-2.000
b	-50.08	-40.81	2402.00			-2.000

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

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average			
Variant:	802.11b	**Duty Cycle (%):**	99.0
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-52.76	-30.62	2472.30			-11.200
b	-58.22	-30.42	2471.30			-12.200

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

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

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Equipment Configuration for Conducted High Band-Edge Emissions - Average

Variant:	802.11g	**Duty Cycle (%):**	82.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-40.42	-34.97	2481.00			-2.500
b	-43.82	-34.86	2478.50			-5.000

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

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average

Variant:	802.11n HT-20	**Duty Cycle (%):**	93.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-42.43	-35.96	2477.50			-6.000
b	-46.74	-36.27	2473.80			-9.700

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

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average

Variant:	802.11n HT-40	**Duty Cycle (%):**	73.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-47.59	-41.19	2471.70			-11.800
b	-49.64	-41.67	2471.40			-12.100

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

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

9.4.2. Radiated Emissions

9.4.2.3. TX Spurious & Restricted Band Emissions

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions (Restricted Bands)			
Standard:	FCC CFR 47 Part 15.247 ISED RSS-247 ISED RSS-Gen	**Ambient Temp. (ºC):**	20.0 - 24.5
Test Heading:	Radiated Spurious and Band-Edge Emissions	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.205, 15.209 RSS-247:5.5 RSS Gen:6.13	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

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

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

Limits for Restricted Bands
Peak emission: 74 dBuV/m
Average emission: 54 dBuV/m

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

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

Example:
Given receiver input reading of 51.5 dBmV; 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 (FS) of the measured emission is:

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

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

40 dBmV/m = 100 mV/m
48 dBmV/m = 250 mV/m
Restricted Bands of Operation (15.205)
(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

Frequency Band			
MHz	**MHz**	**MHz**	**GHz**
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

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

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

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

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

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

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

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

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

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

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

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

(9) Devices operated in the 24.0-24.25 GHz band under §15.249 are exempt from complying with the requirements of this

section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, and shall not exceed the limits specified in §15.249(a).

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

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	integral	**Variant:**	802.11b
Antenna Gain (dBi):	2.50	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2412.00	**Data Rate:**	1.00 MBit/s
Power Setting:	23	**Tested By:**	JM

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3473.34	60.29	-2.12	-12.02	46.15	Peak (NRB)	Vertical	151	0	--	--	Pass
#2	9648.01	56.82	-3.77	-6.20	46.85	Peak (NRB)	Horizontal	151	0	--	--	Pass
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	integral	**Variant:**	802.11b
Antenna Gain (dBi):	2.50	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2437.00	**Data Rate:**	1.00 MBit/s
Power Setting:	23	**Tested By:**	JM

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2438.08	58.14	-1.78	-12.10	44.26	Fundamental	Horizontal	100	0	--	--	
#2	3473.25	60.68	-2.12	-12.02	46.54	Peak (NRB)	Vertical	200	0	--	--	Pass
#3	4874.00	65.91	-2.51	-12.61	50.79	Max Peak	Vertical	168	33	74.0	-23.2	Pass
#4	4874.00	60.71	-2.51	-12.61	45.59	Max Avg	Vertical	168	33	54.0	-8.4	Pass
#5	9747.98	57.99	-3.76	-6.02	48.21	Peak (NRB)	Vertical	200	0	--	--	Pass
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	integral	**Variant:**	802.11b
Antenna Gain (dBi):	2.50	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2462.00	**Data Rate:**	1.00 MBit/s
Power Setting:	23	**Tested By:**	JM

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2463.55	59.27	-1.79	-11.96	45.52	Fundamental	Horizontal	200	231	--	--	
#2	3473.35	60.70	-2.12	-12.02	46.56	Peak (NRB)	Vertical	200	164	--	--	Pass
#3	4924.00	65.87	-2.56	-12.35	50.96	Max Peak	Horizontal	197	353	74.0	-23.0	Pass
#4	4924.00	61.14	-2.56	-12.35	46.23	Max Avg	Horizontal	197	353	54.0	-7.8	Pass
#5	9847.88	59.96	-3.97	-6.33	49.66	Peak (NRB)	Horizontal	200	0	--	--	Pass
Test Notes: EUT powered by POE, connected to laptop outside chamber												

9.4.2.4. Restricted Edge & Band-Edge Emissions

integral		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11b	2412.00	2390.00	50.43	37.18	23
802.11g	2412.00	2390.00	63.09	45.64	23
802.11n HT-20	2412.00	2390.00	62.43	45.81	23
802.11n HT-40	2422.00	2390.00	68.21	50.80	22

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11b
Antenna Gain (dBi):	2.50	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2412.00	**Data Rate:**	1.00 MBit/s
Power Setting:	23	**Tested By:**	JM

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2390.00	6.99	-1.77	31.96	37.18	Max Avg	Horizontal	187	294	54.0	-16.8	Pass
#2	2390.00	20.24	-1.77	31.96	50.43	Max Peak	Horizontal	187	294	74.0	-23.6	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11g
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2412.00	**Data Rate:**	6.00 MBit/s
Power Setting:	23	**Tested By:**	JM

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2389.55	32.90	-1.77	31.96	63.09	Max Peak	Horizontal	187	294	74.0	-10.9	Pass
#2	2389.78	15.45	-1.77	31.96	45.64	Max Avg	Horizontal	187	294	54.0	-8.4	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2412.00	**Data Rate:**	6.50 MBit/s
Power Setting:	23	**Tested By:**	JM

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2390.00	15.62	-1.77	31.96	45.81	Max Avg	Horizontal	187	294	54.0	-8.2	Pass
#2	2390.00	32.24	-1.77	31.96	62.43	Max Peak	Horizontal	187	294	74.0	-11.6	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2422.00	**Data Rate:**	13.50 MBit/s
Power Setting:	22	**Tested By:**	JM

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2389.55	38.02	-1.77	31.96	68.21	Max Peak	Horizontal	187	294	74.0	-5.8	Pass
#2	2390.00	20.61	-1.77	31.96	50.80	Max Avg	Horizontal	187	294	54.0	-3.2	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

integral		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11b	2462.00	2483.50	58.55	51.80	23
802.11g	2462.00	2483.50	68.05	52.75	21
802.11n HT-20	2462.00	2483.50	71.85	52.44	22
802.11n HT-40	2452.00	2483.50	69.29	53.27	21

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11b
Antenna Gain (dBi):	Not Applicable	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2462.00	**Data Rate:**	1.00 MBit/s
Power Setting:	23	**Tested By:**	JM

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#2	2486.61	28.00	-1.78	32.33	58.55	Max Peak	Horizontal	100	332	74.0	-15.5	Pass
#3	2486.77	21.25	-1.78	32.33	51.80	Max Avg	Horizontal	100	332	54.0	-2.2	Pass
#1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11g
Antenna Gain (dBi):	2.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2462.00	**Data Rate:**	6.00 MBit/s
Power Setting:	21	**Tested By:**	JM

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#2	2483.64	22.20	-1.78	32.33	52.75	Max Avg	Horizontal	100	332	54.0	-1.3	Pass
#3	2484.30	37.50	-1.78	32.33	68.05	Max Peak	Horizontal	100	332	74.0	-6.0	Pass
#1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2462.00	**Data Rate:**	6.50 MBit/s
Power Setting:	22	**Tested By:**	JM

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2483.50	21.89	-1.78	32.33	52.44	Max Avg	Horizontal	100	332	54.0	-1.6	Pass
#3	2484.43	41.30	-1.78	32.33	71.85	Max Peak	Horizontal	100	332	74.0	-2.2	Pass
#2	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	integral	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2452.00	**Data Rate:**	13.50 MBit/s
Power Setting:	21	**Tested By:**	JM

Test Measurement Results

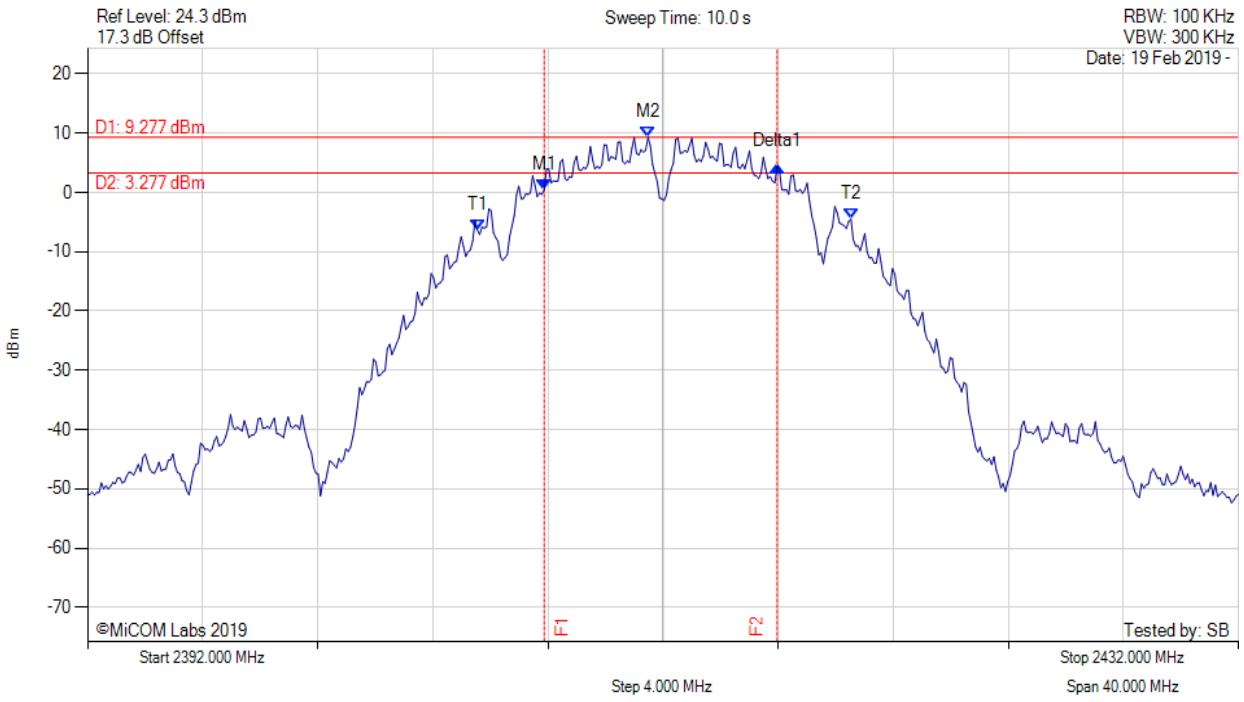
2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#2	2483.64	22.72	-1.78	32.33	53.27	Max Avg	Horizontal	100	332	54.0	-0.7	Pass
#3	2483.77	38.74	-1.78	32.33	69.29	Max Peak	Horizontal	100	332	74.0	-4.7	Pass
#1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

A. APPENDIX - GRAPHICAL IMAGES

A.1. 6 dB & 99% Bandwidth

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

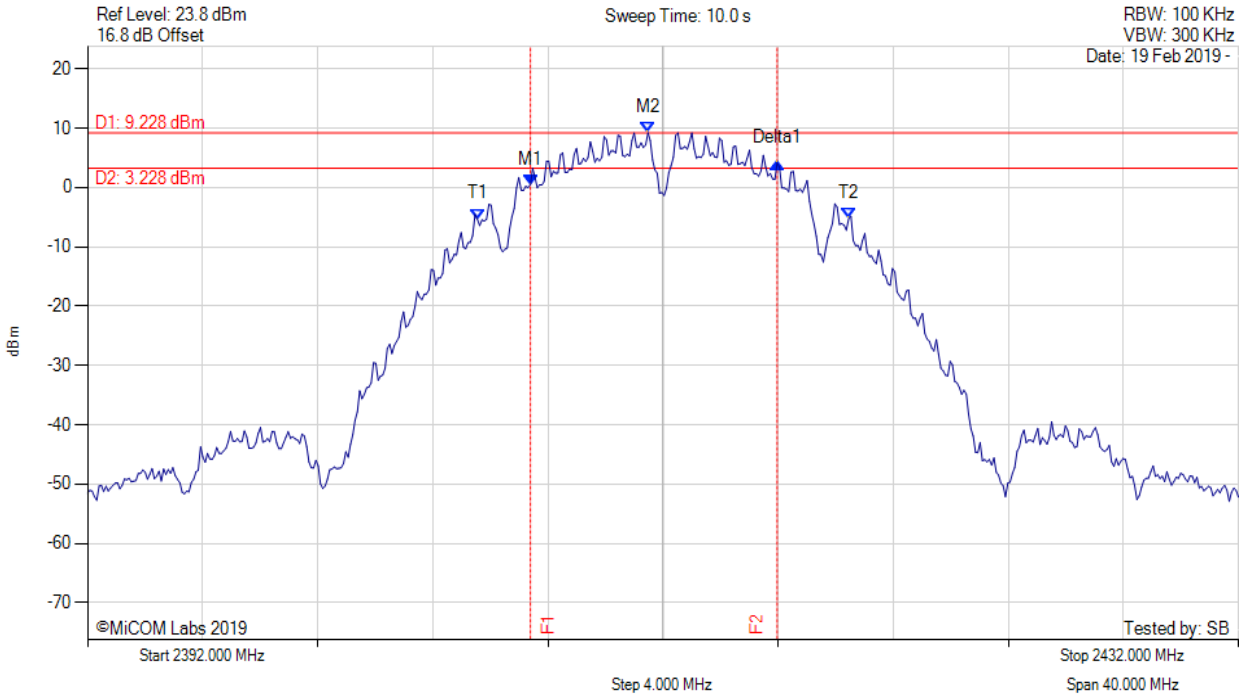


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.872 MHz : 0.452 dBm M2 : 2411.479 MHz : 9.277 dBm Delta1 : 8.096 MHz : 3.990 dB T1 : 2405.547 MHz : -6.330 dBm T2 : 2418.533 MHz : -4.486 dBm OBW : 12.986 MHz	Measured 6 dB Bandwidth: 8.096 MHz Limit: ≥500.0 kHz Margin: -7.60 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

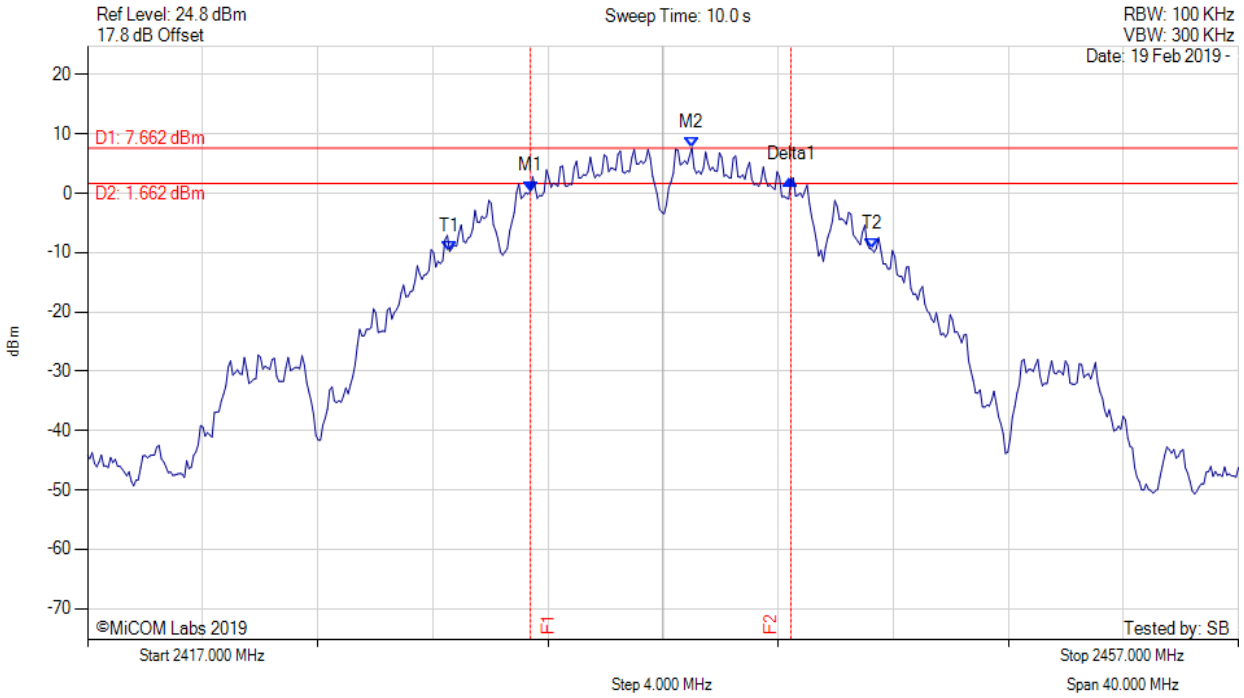


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.391 MHz : 0.487 dBm M2 : 2411.479 MHz : 9.228 dBm Delta1 : 8.577 MHz : 3.638 dB T1 : 2405.547 MHz : -5.323 dBm T2 : 2418.453 MHz : -5.232 dBm OBW : 12.906 MHz	Measured 6 dB Bandwidth: 8.577 MHz Limit: ≥500.0 kHz Margin: -8.08 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

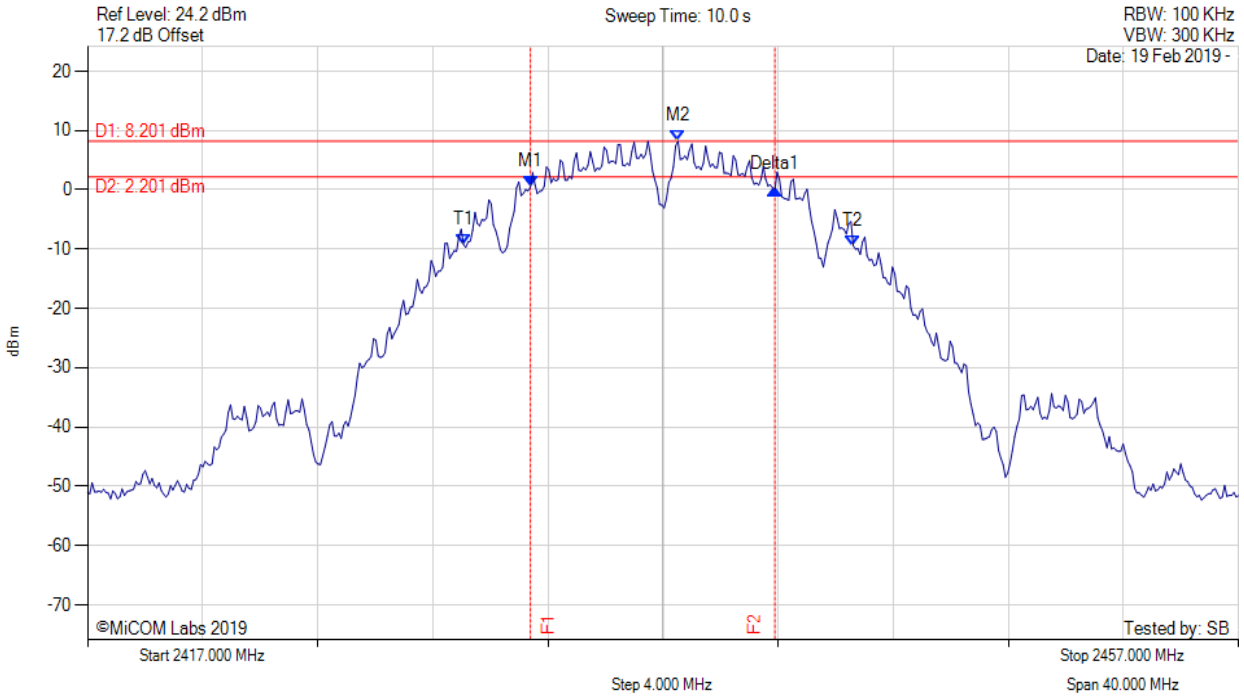


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.391 MHz : 0.348 dBm M2 : 2438.002 MHz : 7.662 dBm Delta1 : 9.058 MHz : 2.052 dB T1 : 2429.585 MHz : -9.782 dBm T2 : 2444.255 MHz : -9.395 dBm OBW : 14.669 MHz	Measured 6 dB Bandwidth: 9.058 MHz Limit: ≥500.0 kHz Margin: -8.56 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

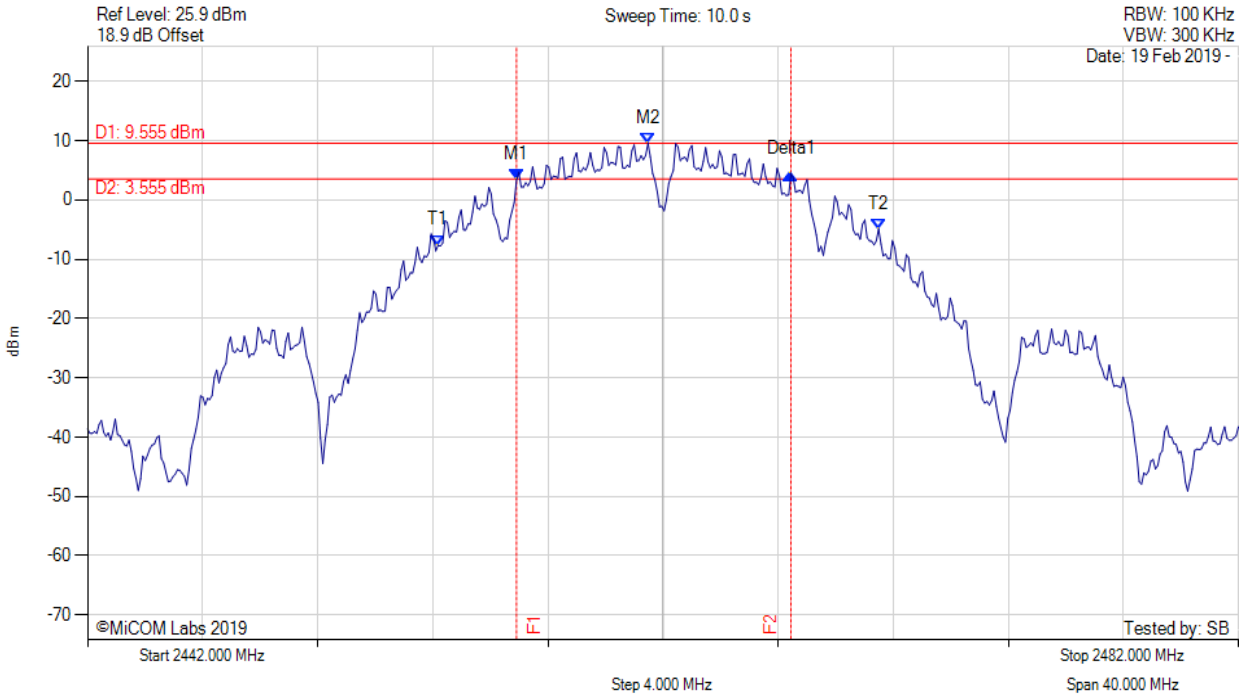


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.391 MHz : 0.513 dBm M2 : 2437.521 MHz : 8.201 dBm Delta1 : 8.497 MHz : -0.415 dB T1 : 2430.066 MHz : -9.245 dBm T2 : 2443.613 MHz : -9.420 dBm OBW : 13.547 MHz	Measured 6 dB Bandwidth: 8.497 MHz Limit: ≥500.0 kHz Margin: -8.00 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

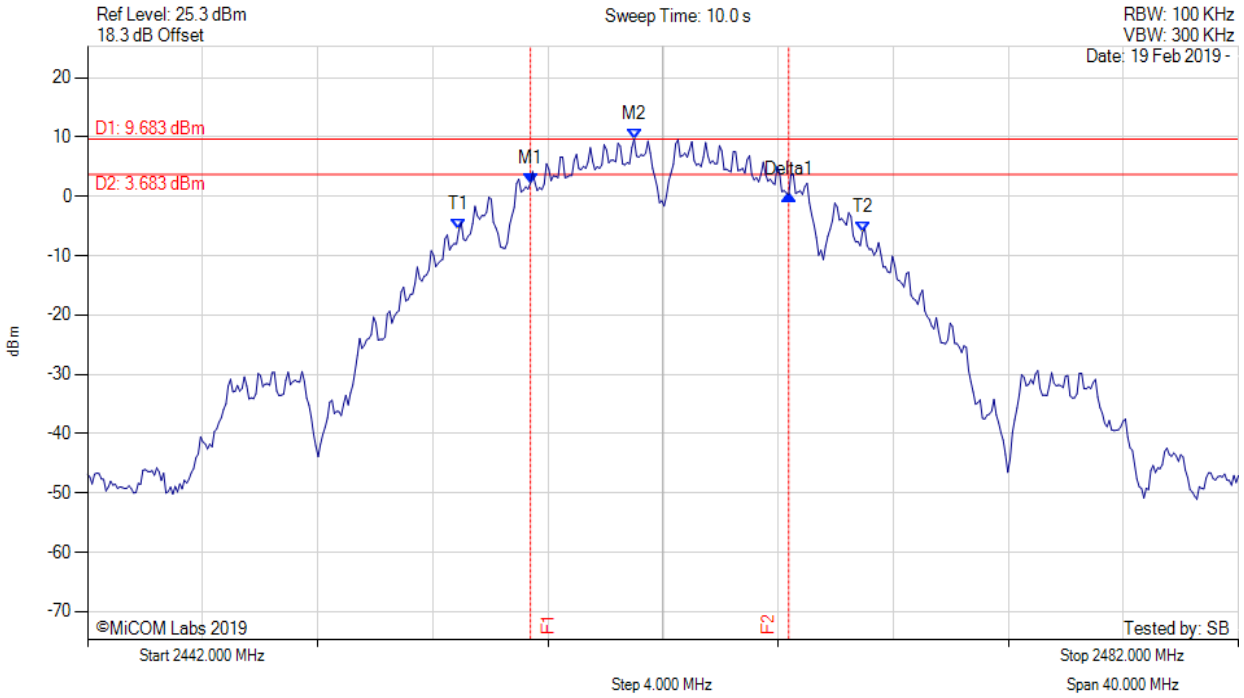


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2456.910 MHz : 3.384 dBm M2 : 2461.479 MHz : 9.555 dBm Delta1 : 9.539 MHz : 1.053 dB T1 : 2454.184 MHz : -7.665 dBm T2 : 2469.495 MHz : -4.895 dBm OBW : 15.311 MHz	Measured 6 dB Bandwidth: 9.539 MHz Limit: ≥500.0 kHz Margin: -9.04 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

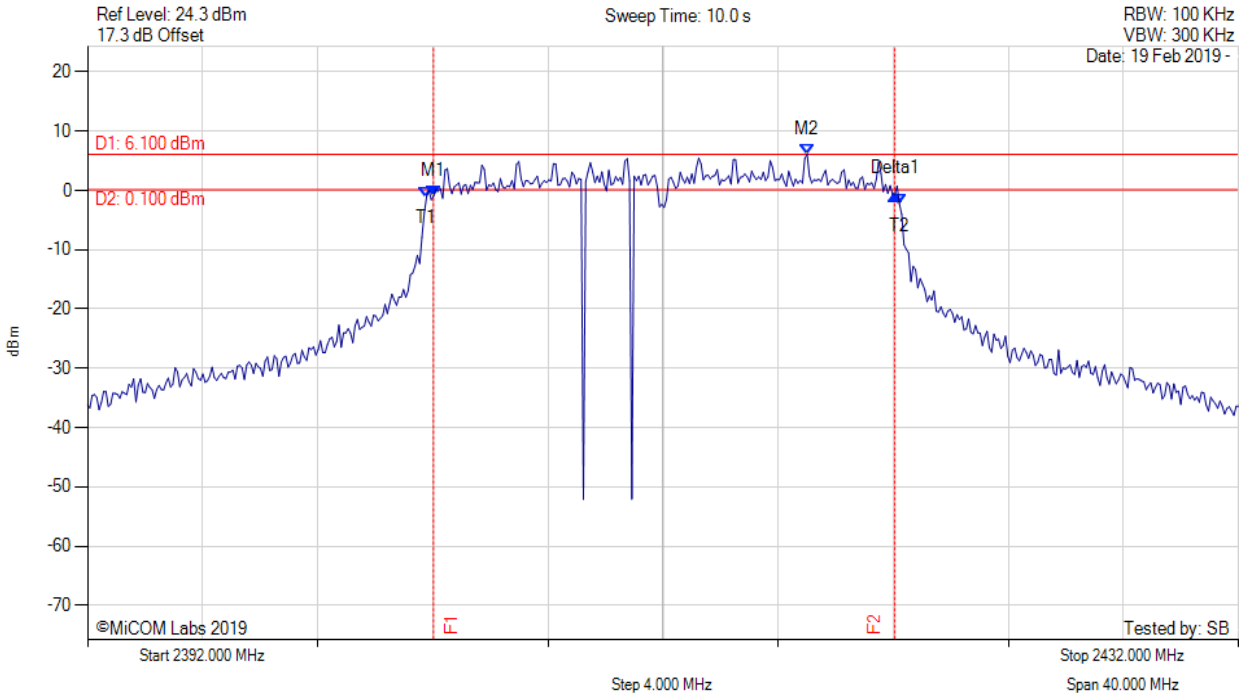


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.391 MHz : 2.213 dBm M2 : 2460.998 MHz : 9.683 dBm Delta1 : 8.978 MHz : -1.952 dB T1 : 2454.906 MHz : -5.666 dBm T2 : 2468.934 MHz : -6.056 dBm OBW : 14.028 MHz	Measured 6 dB Bandwidth: 8.978 MHz Limit: ≥500.0 kHz Margin: -8.48 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

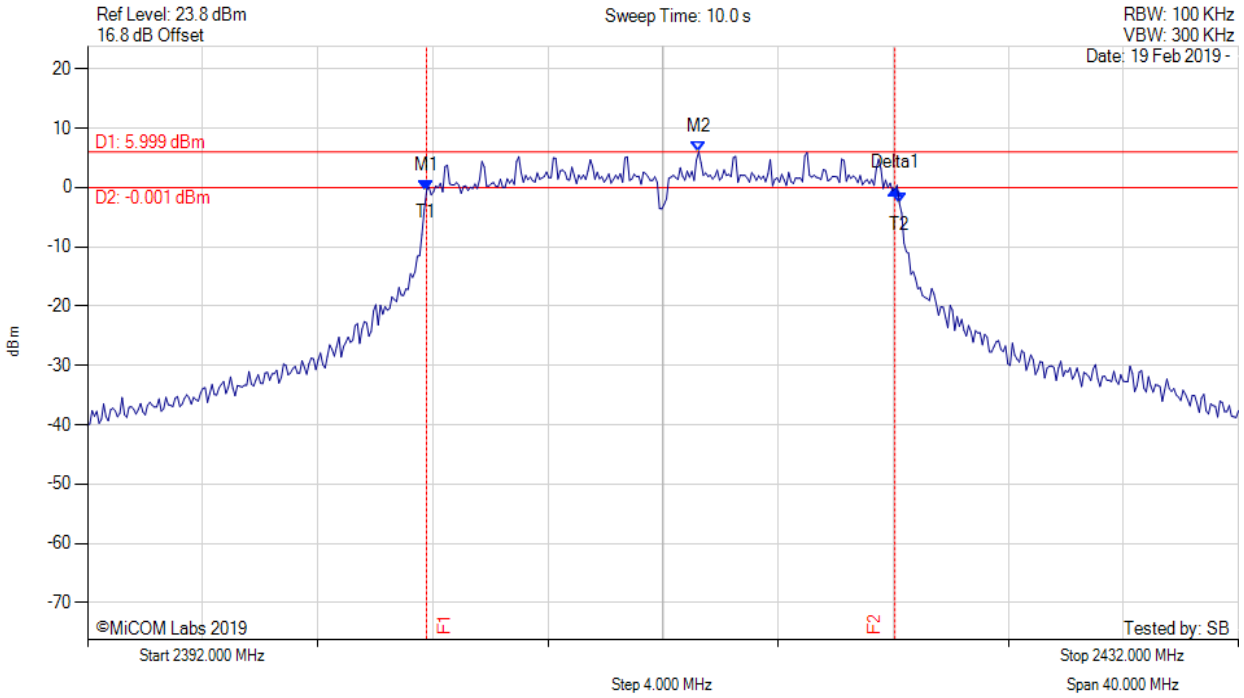


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.024 MHz : -0.984 dBm M2 : 2417.010 MHz : 6.100 dBm Delta1 : 16.032 MHz : 0.352 dB T1 : 2403.784 MHz : -1.079 dBm T2 : 2420.216 MHz : -2.340 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 16.032 MHz Limit: ≥500.0 kHz Margin: -15.53 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

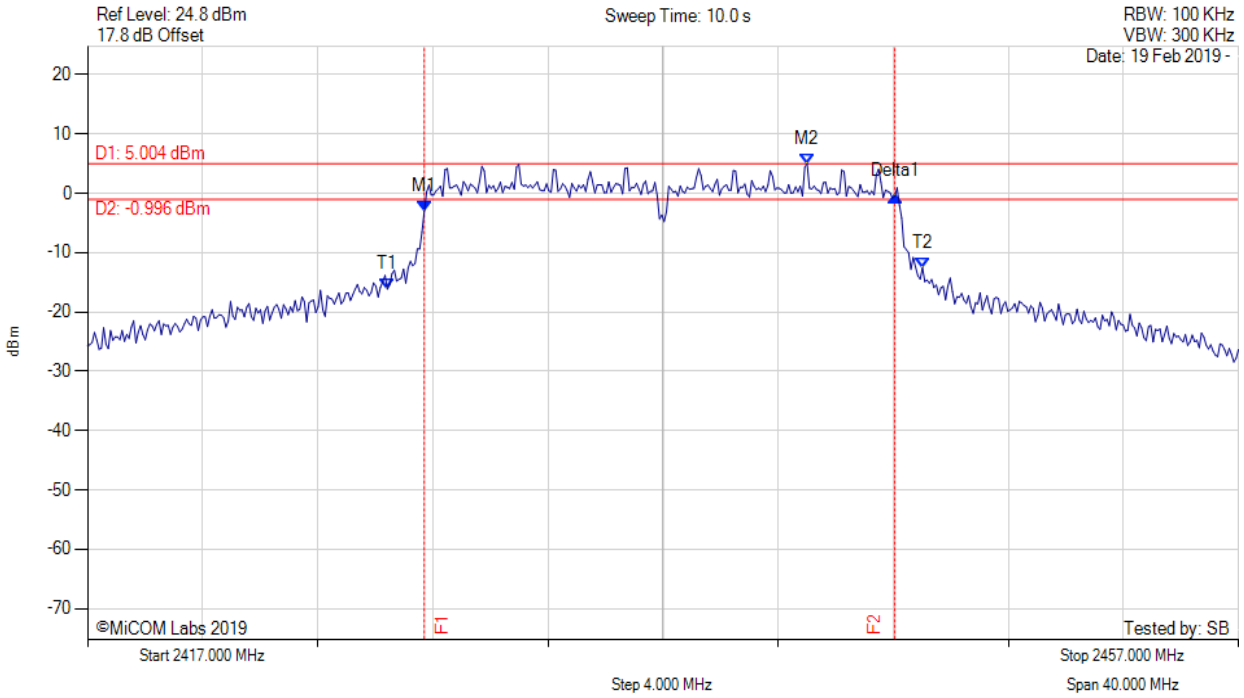


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2403.784 MHz : -0.572 dBm M2 : 2413.242 MHz : 5.999 dBm Delta1 : 16.273 MHz : 0.382 dB T1 : 2403.784 MHz : -0.572 dBm T2 : 2420.216 MHz : -2.690 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 16.273 MHz Limit: ≥500.0 kHz Margin: -15.77 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

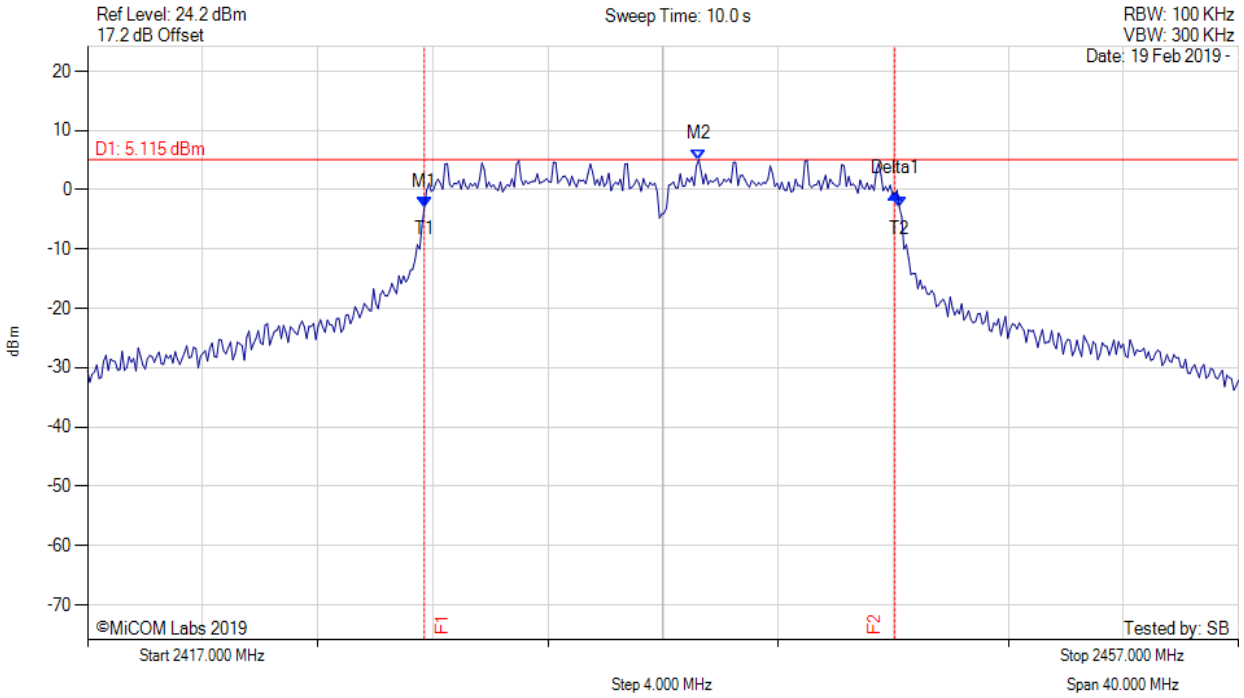


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.703 MHz : -2.961 dBm M2 : 2442.010 MHz : 5.004 dBm Delta1 : 16.353 MHz : 2.451 dB T1 : 2427.421 MHz : -16.143 dBm T2 : 2446.018 MHz : -12.546 dBm OBW : 18.597 MHz	Measured 6 dB Bandwidth: 16.353 MHz Limit: ≥500.0 kHz Margin: -15.85 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

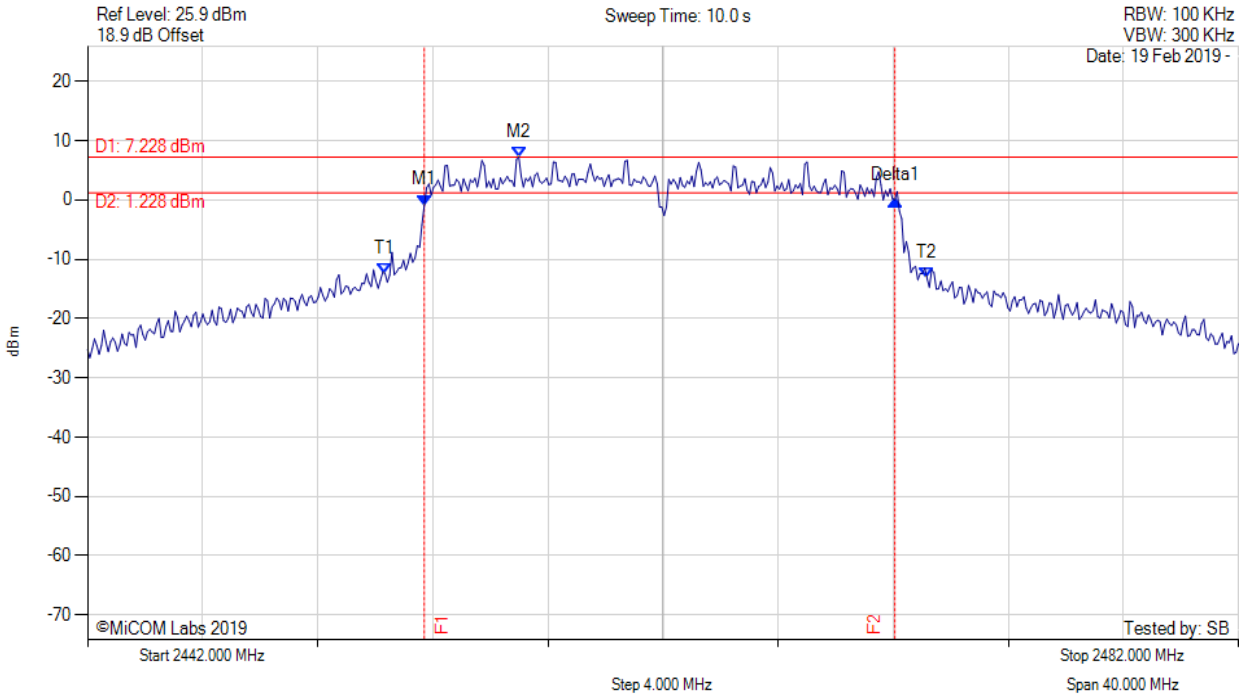


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.703 MHz : -2.932 dBm M2 : 2438.242 MHz : 5.115 dBm Delta1 : 16.353 MHz : 2.318 dB T1 : 2428.703 MHz : -2.932 dBm T2 : 2445.216 MHz : -3.005 dBm OBW : 16.513 MHz	Measured 6 dB Bandwidth: 16.353 MHz Limit: ≥500.0 kHz Margin: -15.85 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

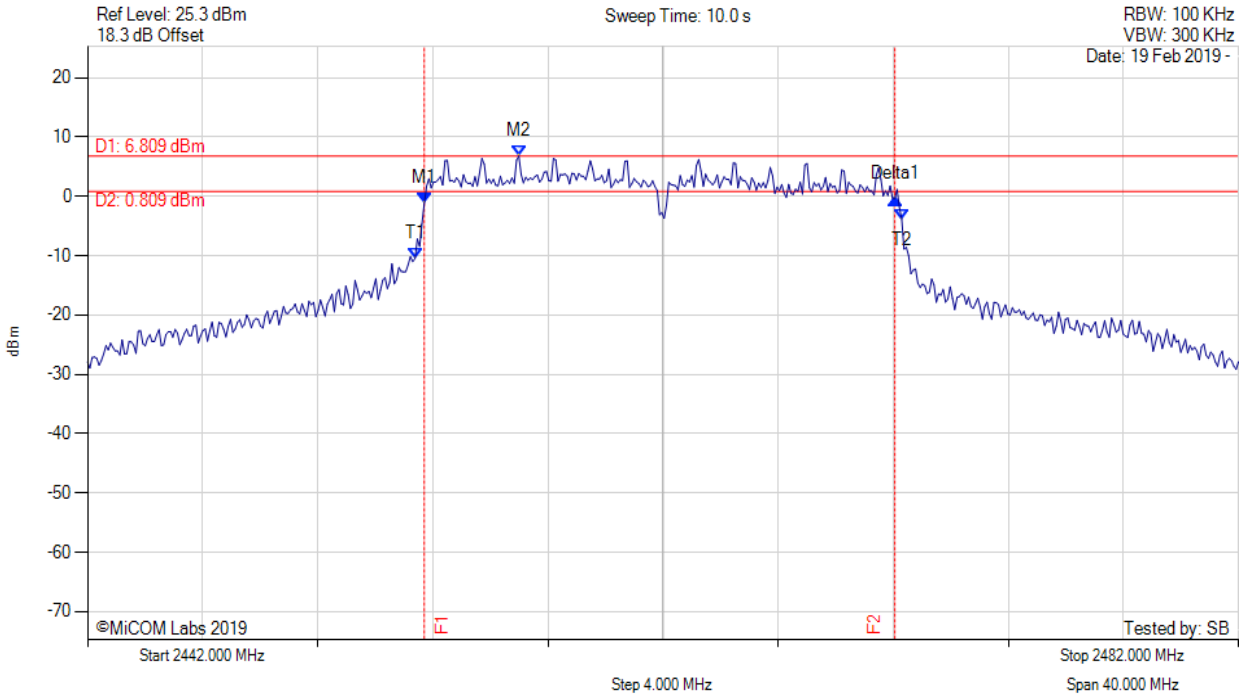


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2453.703 MHz : -0.901 dBm M2 : 2456.990 MHz : 7.228 dBm Delta1 : 16.353 MHz : 0.915 dB T1 : 2452.341 MHz : -12.404 dBm T2 : 2471.178 MHz : -13.233 dBm OBW : 18.838 MHz	Measured 6 dB Bandwidth: 16.353 MHz Limit: ≥500.0 kHz Margin: -15.85 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

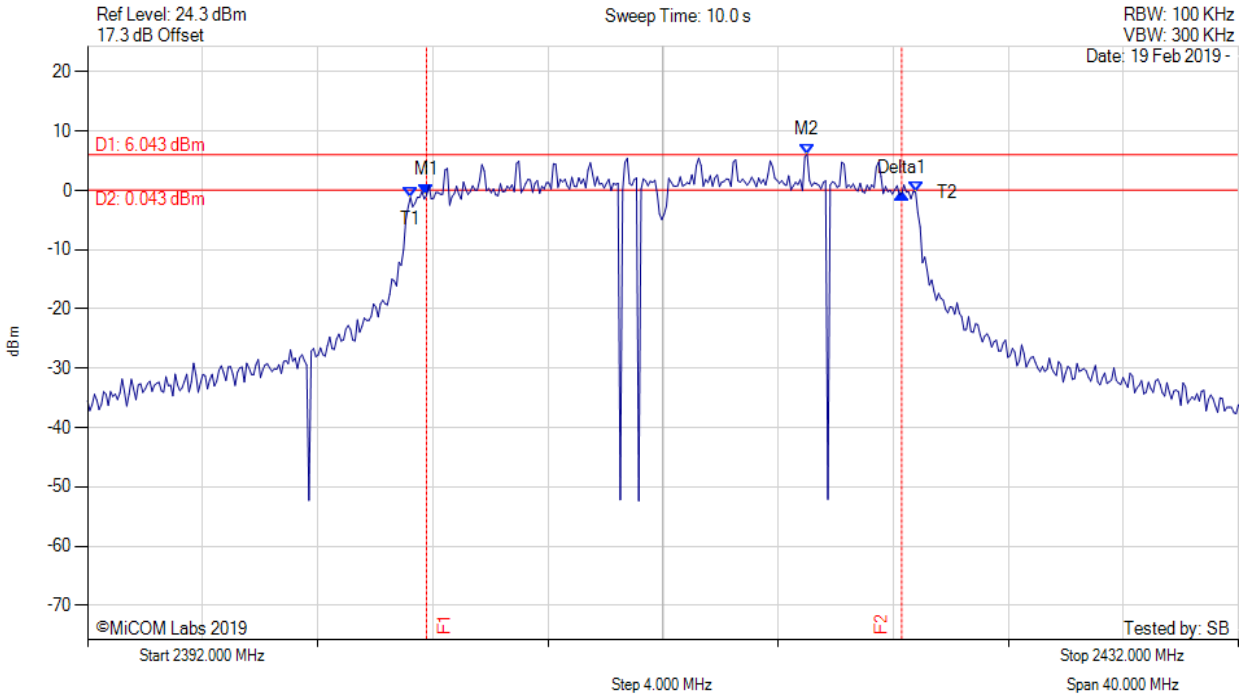


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2453.703 MHz : -1.161 dBm M2 : 2456.990 MHz : 6.809 dBm Delta1 : 16.353 MHz : 0.818 dB T1 : 2453.383 MHz : -10.457 dBm T2 : 2470.297 MHz : -3.817 dBm OBW : 16.914 MHz	Measured 6 dB Bandwidth: 16.353 MHz Limit: ≥500.0 kHz Margin: -15.85 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

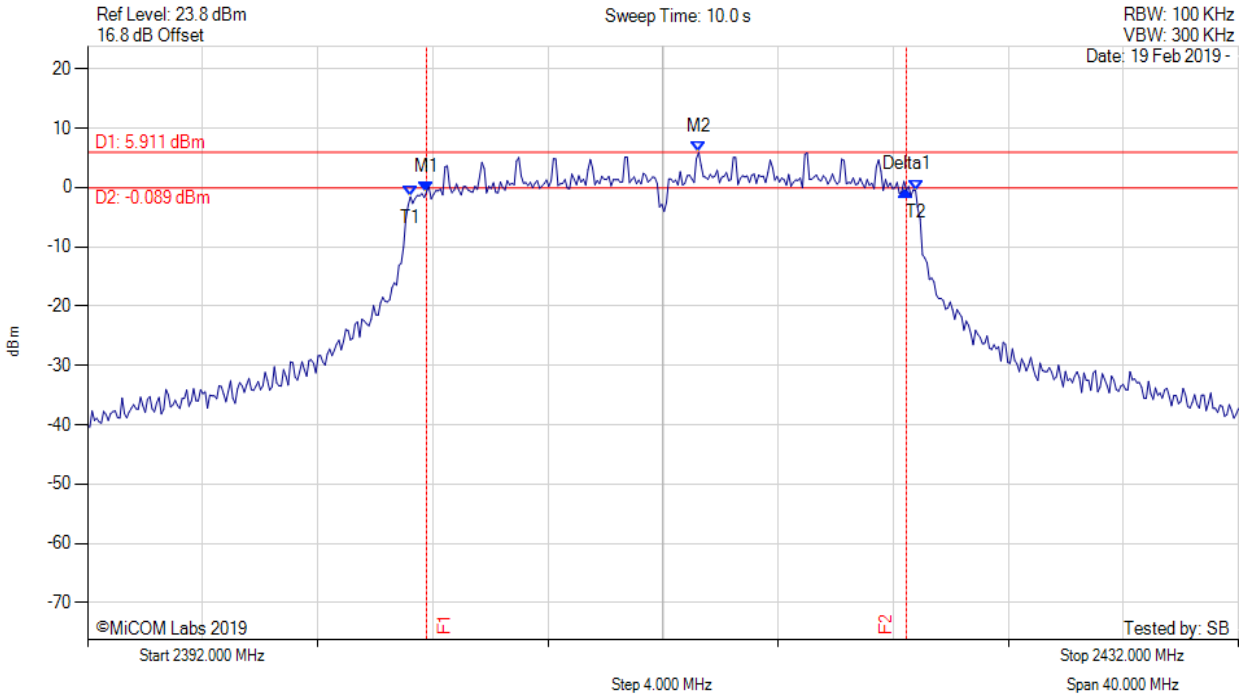


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2403.784 MHz : -0.800 dBm M2 : 2417.010 MHz : 6.043 dBm Delta1 : 16.513 MHz : 0.275 dB T1 : 2403.222 MHz : -1.183 dBm T2 : 2420.778 MHz : -0.282 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 16.513 MHz Limit: ≥500.0 kHz Margin: -16.01 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

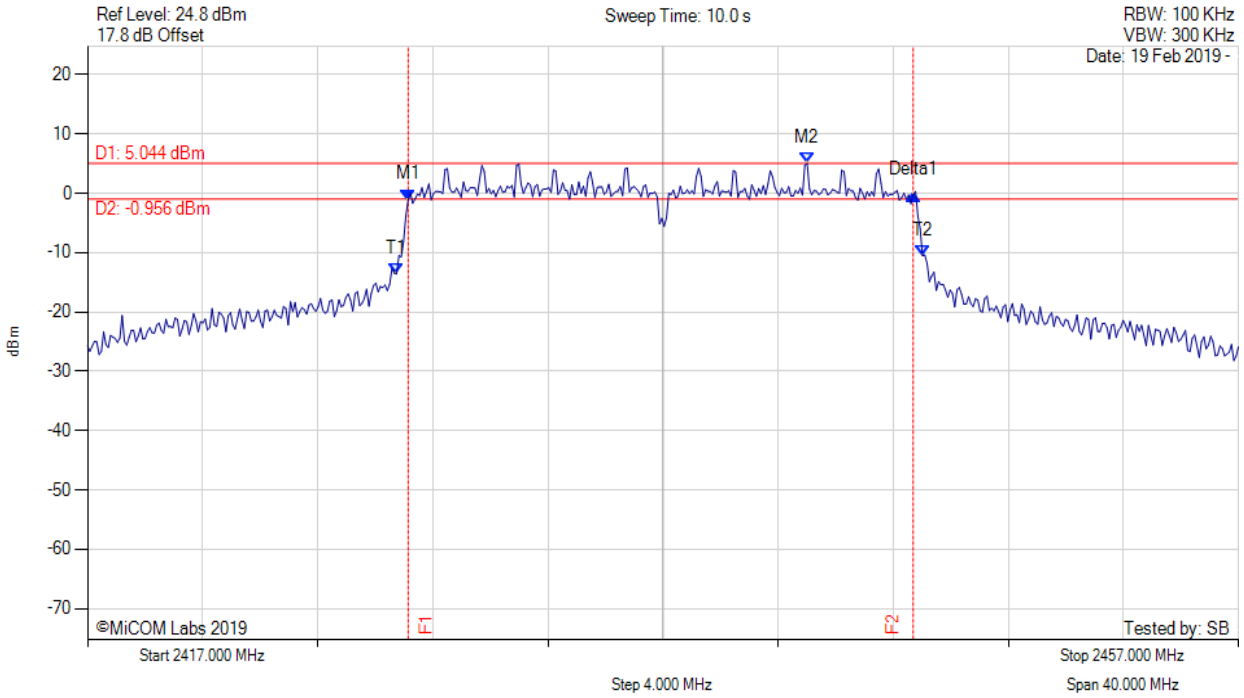


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2403.784 MHz : -0.709 dBm M2 : 2413.242 MHz : 5.911 dBm Delta1 : 16.673 MHz : 0.303 dB T1 : 2403.222 MHz : -1.569 dBm T2 : 2420.778 MHz : -0.497 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 16.673 MHz Limit: ≥500.0 kHz Margin: -16.17 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

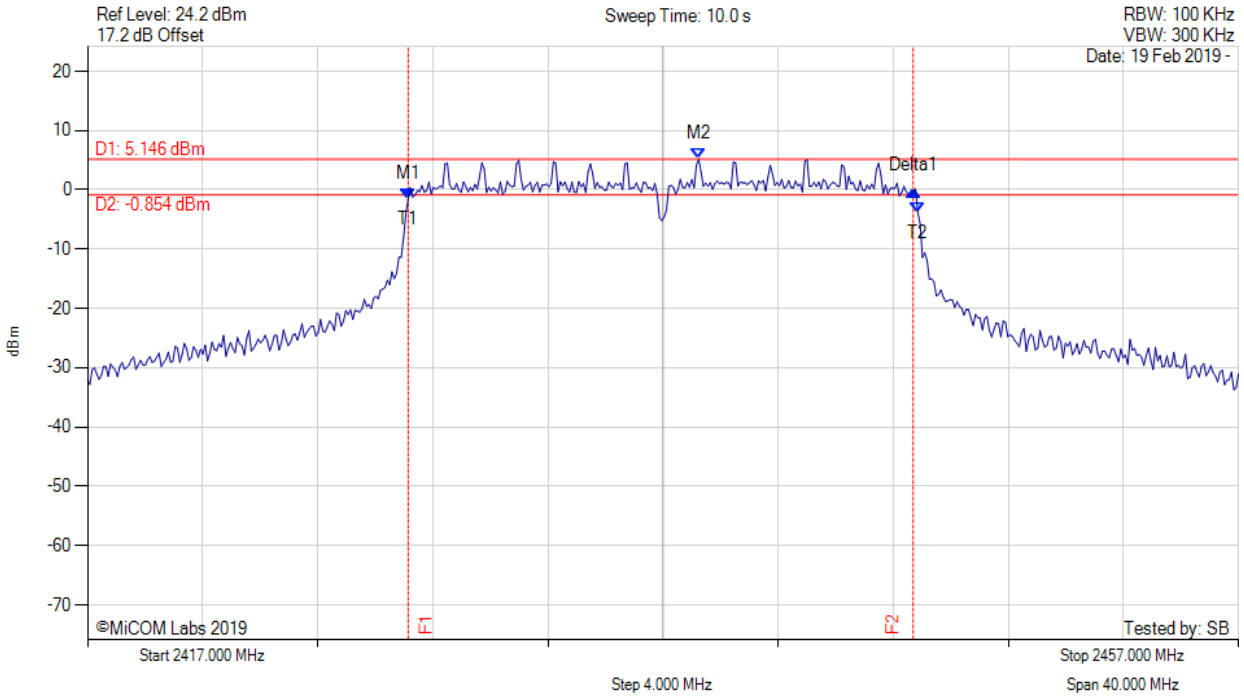


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.142 MHz : -1.065 dBm M2 : 2442.010 MHz : 5.044 dBm Delta1 : 17.555 MHz : 0.903 dB T1 : 2427.741 MHz : -13.563 dBm T2 : 2446.018 MHz : -10.500 dBm OBW : 18.277 MHz	Measured 6 dB Bandwidth: 17.555 MHz Limit: ≥500.0 kHz Margin: -17.06 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

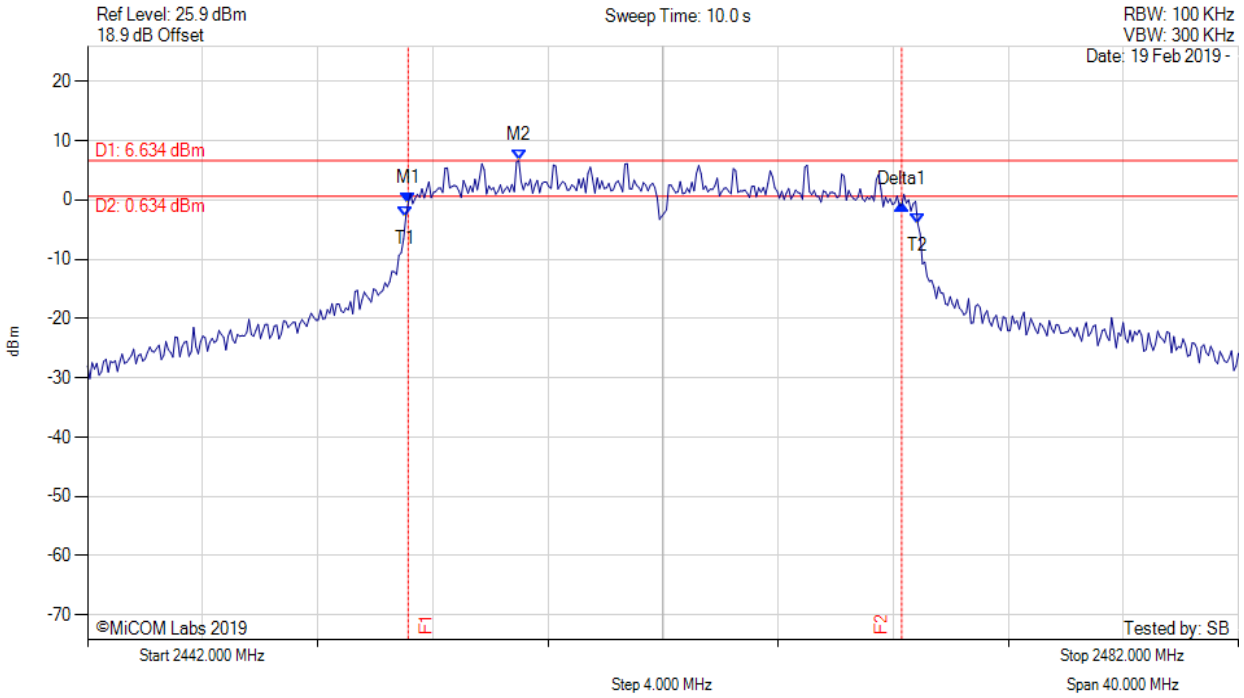


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.142 MHz : -1.488 dBm M2 : 2438.242 MHz : 5.146 dBm Delta1 : 17.555 MHz : 1.316 dB T1 : 2428.142 MHz : -1.488 dBm T2 : 2445.858 MHz : -3.772 dBm OBW : 17.715 MHz	Measured 6 dB Bandwidth: 17.555 MHz Limit: ≥500.0 kHz Margin: -17.06 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

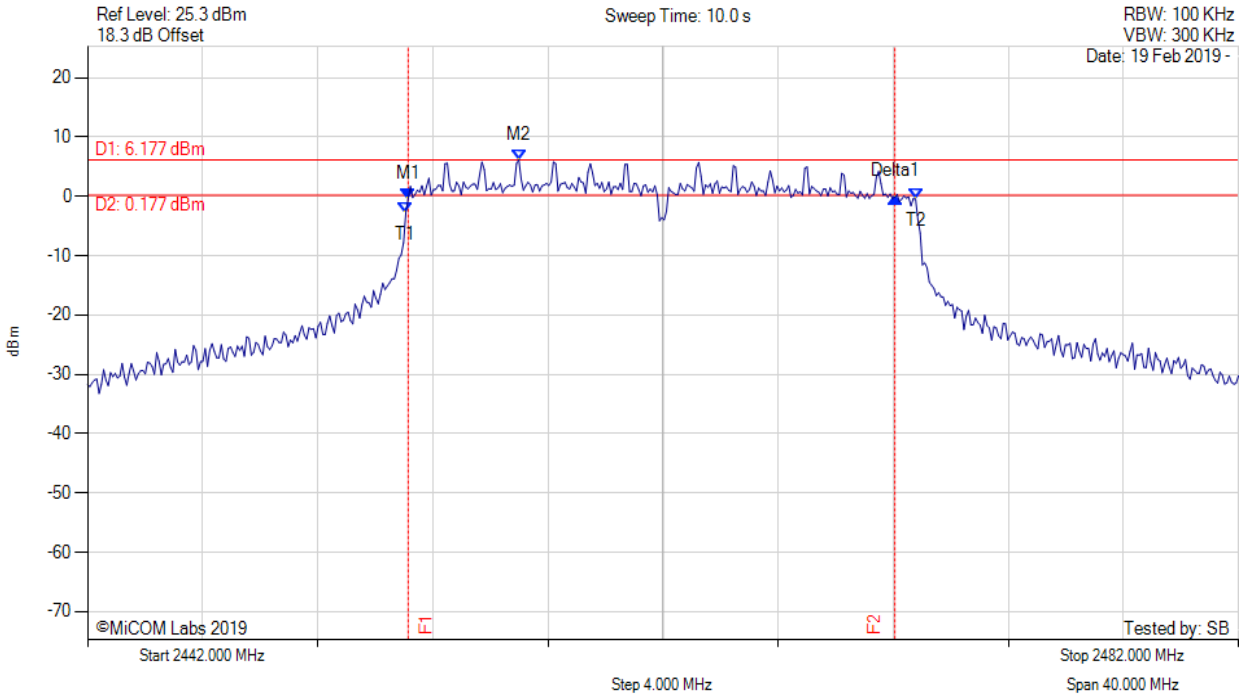


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2453.142 MHz : -0.594 dBm M2 : 2456.990 MHz : 6.634 dBm Delta1 : 17.154 MHz : -0.275 dB T1 : 2453.062 MHz : -2.918 dBm T2 : 2470.858 MHz : -4.045 dBm OBW : 17.796 MHz	Measured 6 dB Bandwidth: 17.154 MHz Limit: ≥500.0 kHz Margin: -16.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

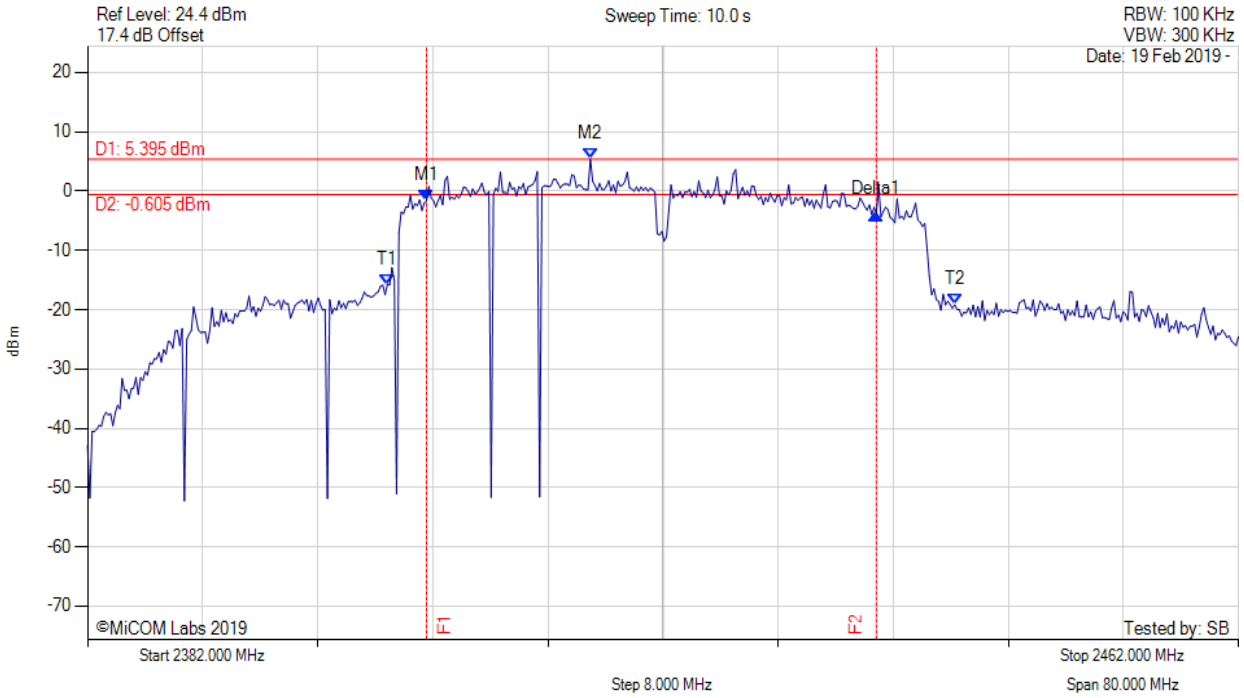


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2453.142 MHz : -0.374 dBm M2 : 2456.990 MHz : 6.177 dBm Delta1 : 16.914 MHz : 0.279 dB T1 : 2453.062 MHz : -2.747 dBm T2 : 2470.778 MHz : -0.453 dBm OBW : 17.715 MHz	Measured 6 dB Bandwidth: 16.914 MHz Limit: ≥500.0 kHz Margin: -16.41 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

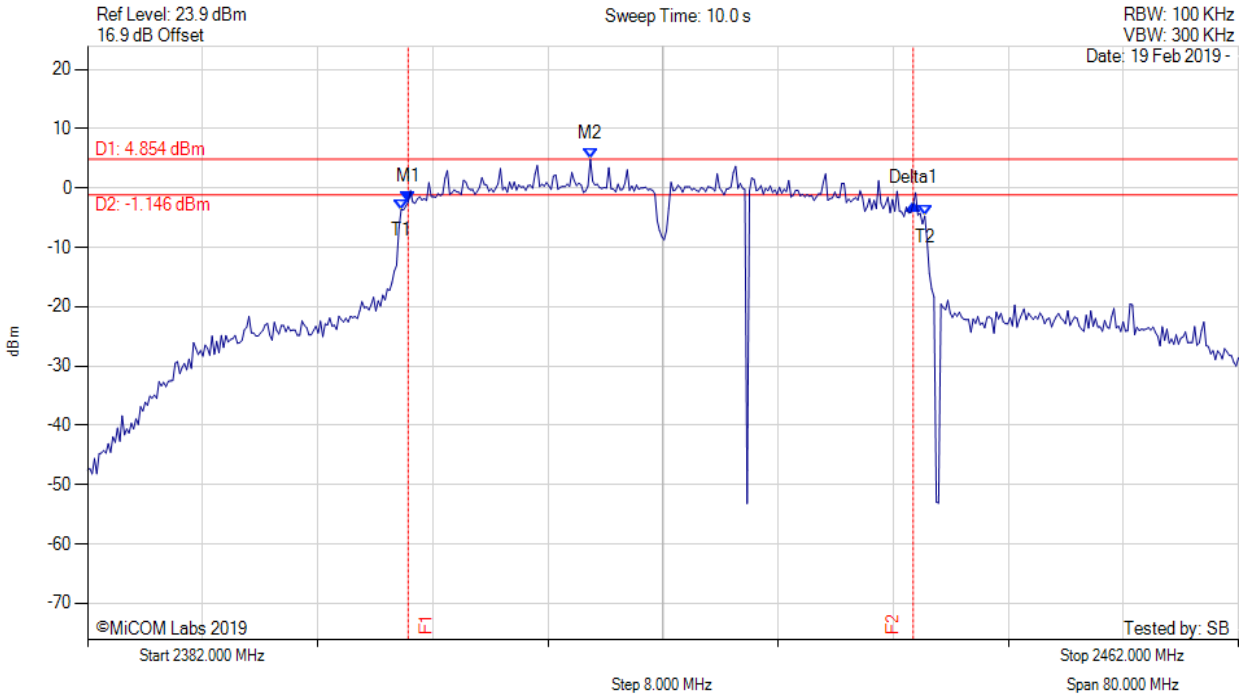


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2405.567 MHz : -1.597 dBm M2 : 2416.950 MHz : 5.395 dBm Delta1 : 31.263 MHz : -2.211 dB T1 : 2402.842 MHz : -15.732 dBm T2 : 2442.281 MHz : -19.185 dBm OBW : 39.439 MHz	Measured 6 dB Bandwidth: 31.263 MHz Limit: ≥500.0 kHz Margin: -30.76 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

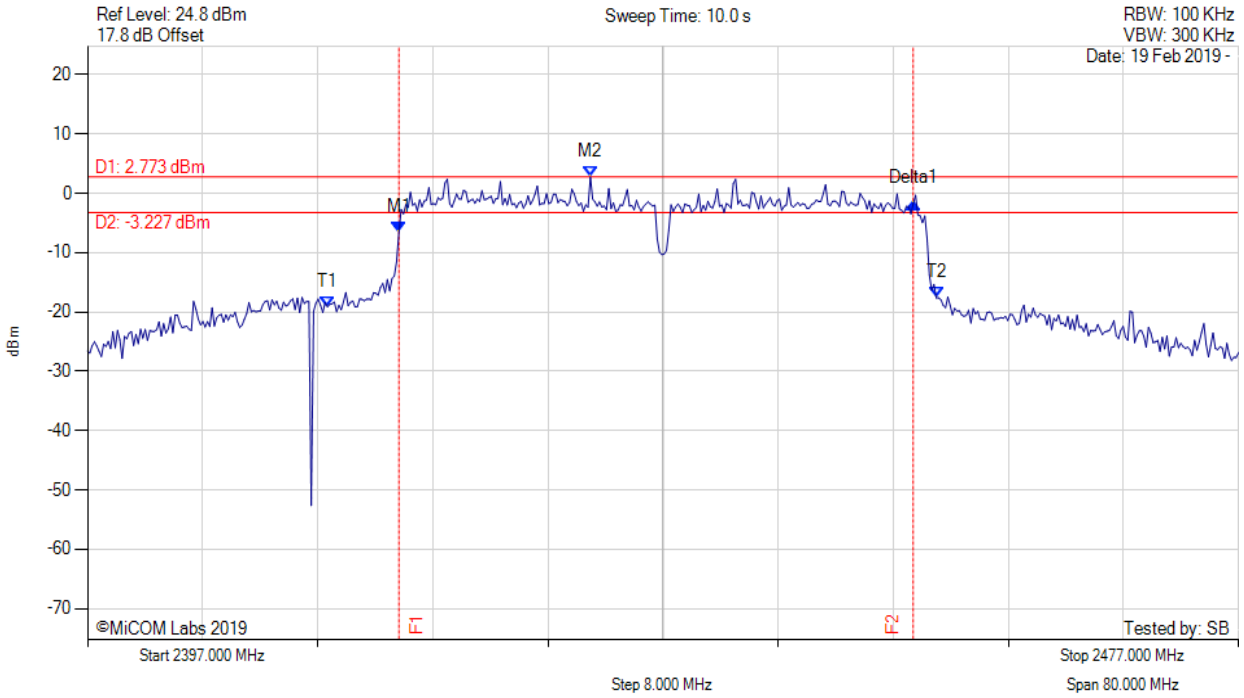


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.285 MHz : -2.372 dBm M2 : 2416.950 MHz : 4.854 dBm Delta1 : 35.110 MHz : -0.291 dB T1 : 2403.804 MHz : -3.639 dBm T2 : 2440.196 MHz : -4.723 dBm OBW : 36.393 MHz	Measured 6 dB Bandwidth: 35.110 MHz Limit: ≥500.0 kHz Margin: -34.61 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

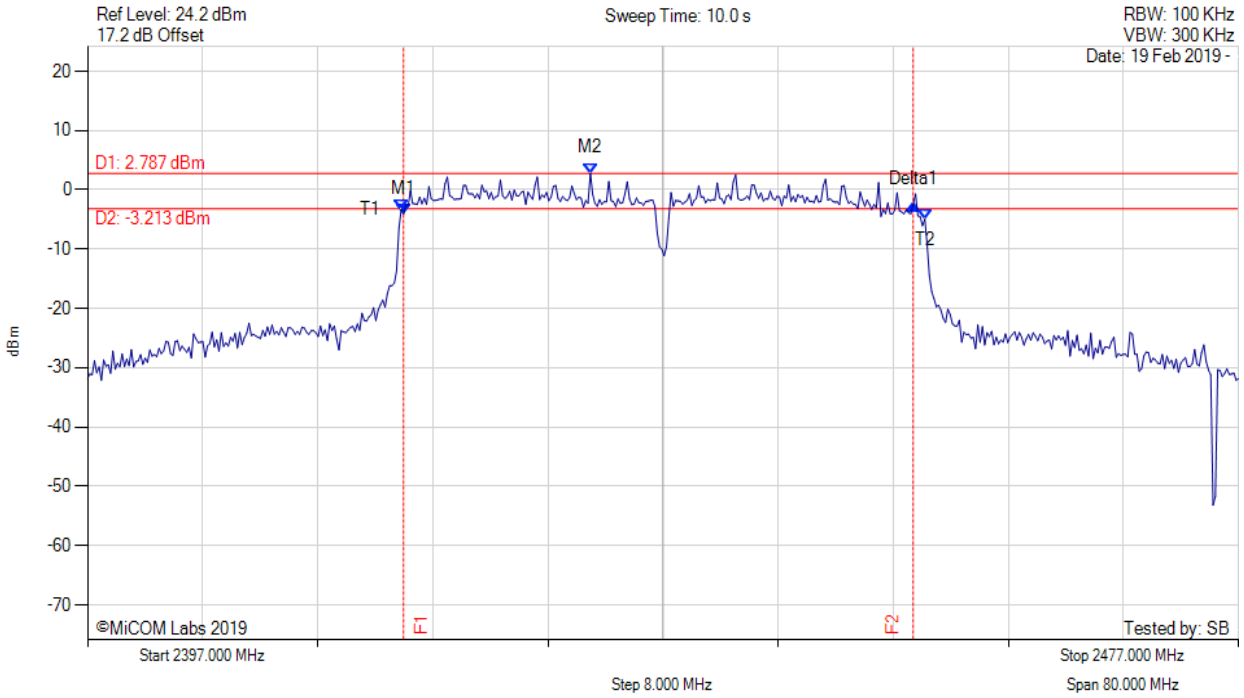


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2418.643 MHz : -6.526 dBm M2 : 2431.950 MHz : 2.773 dBm Delta1 : 35.752 MHz : 4.789 dB T1 : 2413.673 MHz : -19.111 dBm T2 : 2455.998 MHz : -17.612 dBm OBW : 42.325 MHz	Measured 6 dB Bandwidth: 35.752 MHz Limit: ≥500.0 kHz Margin: -35.25 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

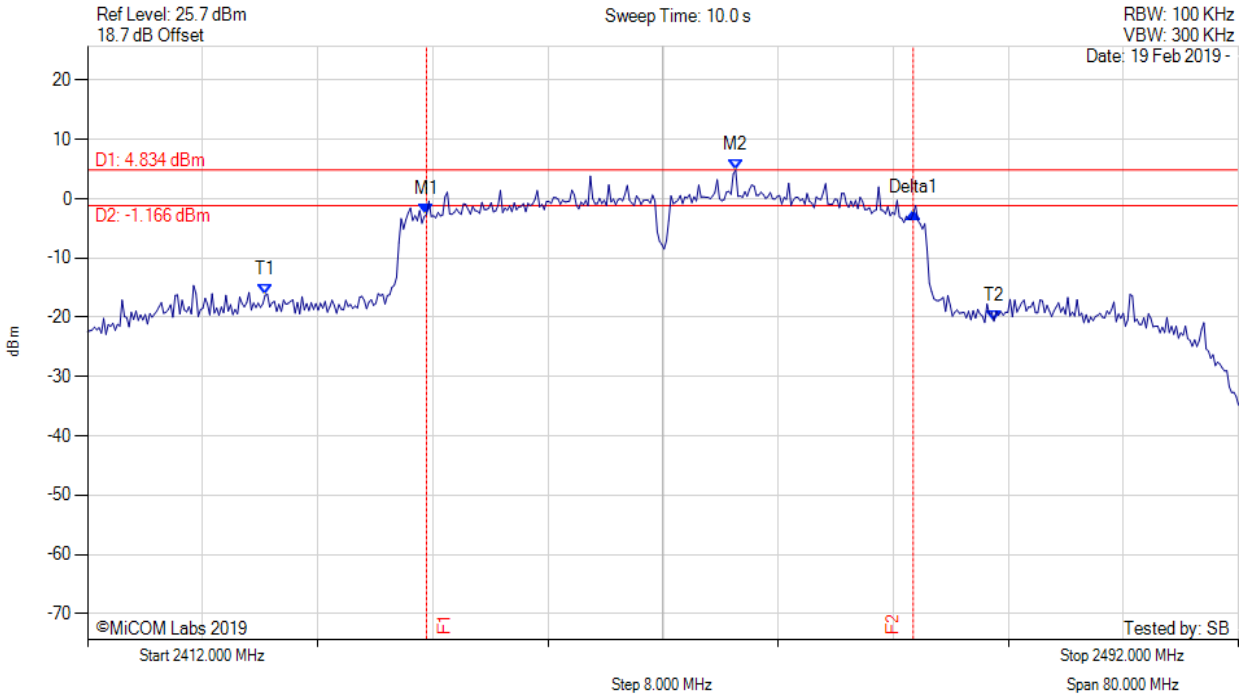


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2418.964 MHz : -4.071 dBm M2 : 2431.950 MHz : 2.787 dBm Delta1 : 35.431 MHz : 1.678 dB T1 : 2418.804 MHz : -3.333 dBm T2 : 2455.196 MHz : -4.925 dBm OBW : 36.393 MHz	Measured 6 dB Bandwidth: 35.431 MHz Limit: ≥500.0 kHz Margin: -34.93 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

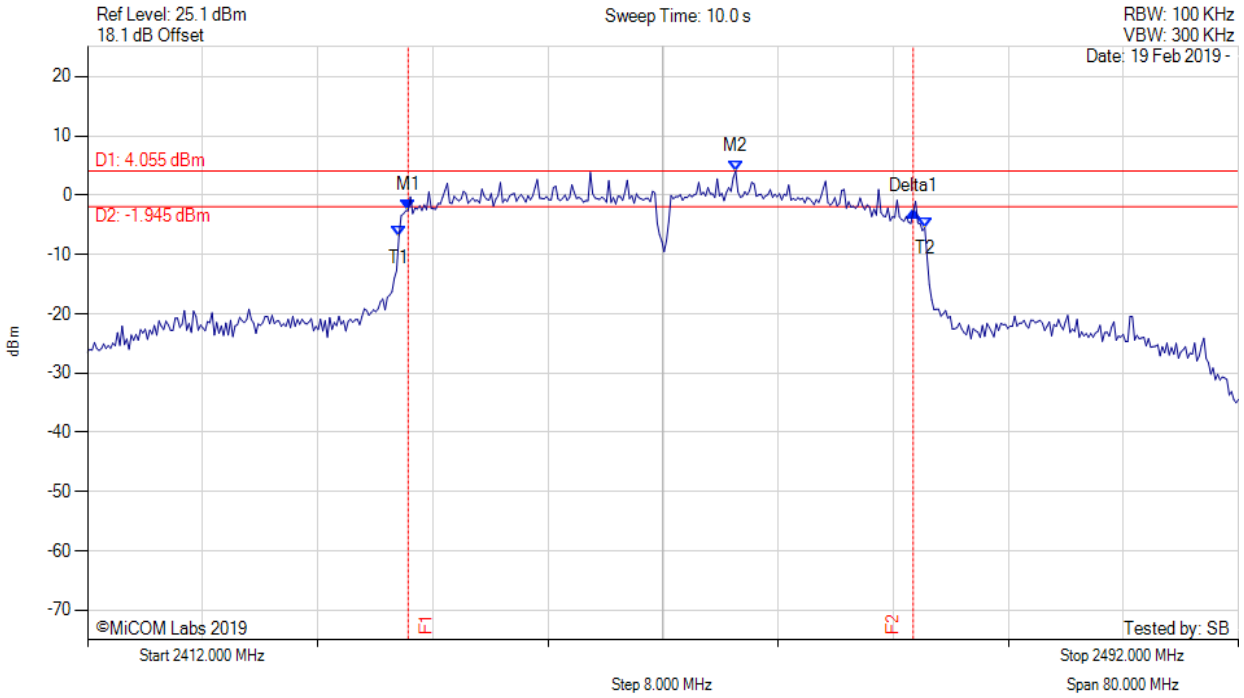


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2435.567 MHz : -2.630 dBm M2 : 2457.050 MHz : 4.834 dBm Delta1 : 33.828 MHz : 0.167 dB T1 : 2424.345 MHz : -16.258 dBm T2 : 2475.006 MHz : -20.633 dBm OBW : 50.661 MHz	Measured 6 dB Bandwidth: 33.828 MHz Limit: ≥500.0 kHz Margin: -33.33 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc



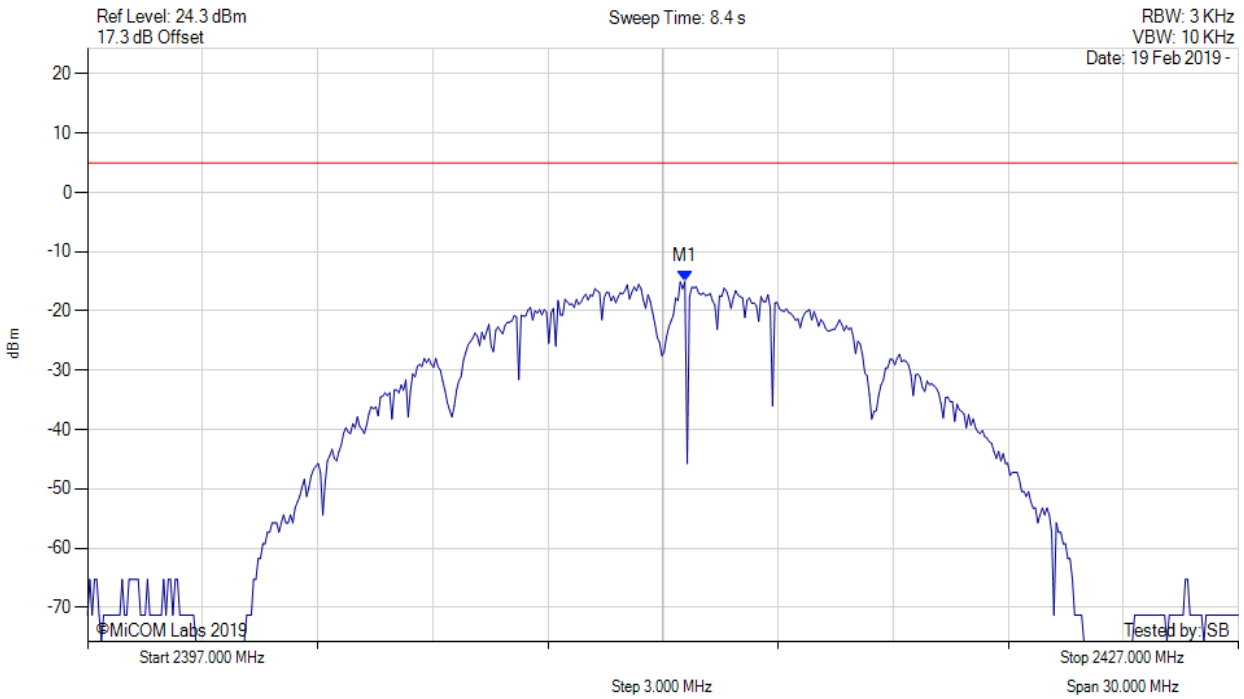
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2434.285 MHz : -2.575 dBm M2 : 2457.050 MHz : 4.055 dBm Delta1 : 35.110 MHz : -0.175 dB T1 : 2433.643 MHz : -6.919 dBm T2 : 2470.196 MHz : -5.492 dBm OBW : 36.553 MHz	Measured 6 dB Bandwidth: 35.110 MHz Limit: ≥500.0 kHz Margin: -34.61 MHz

back to matrix

A.2. Power Spectral Density

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

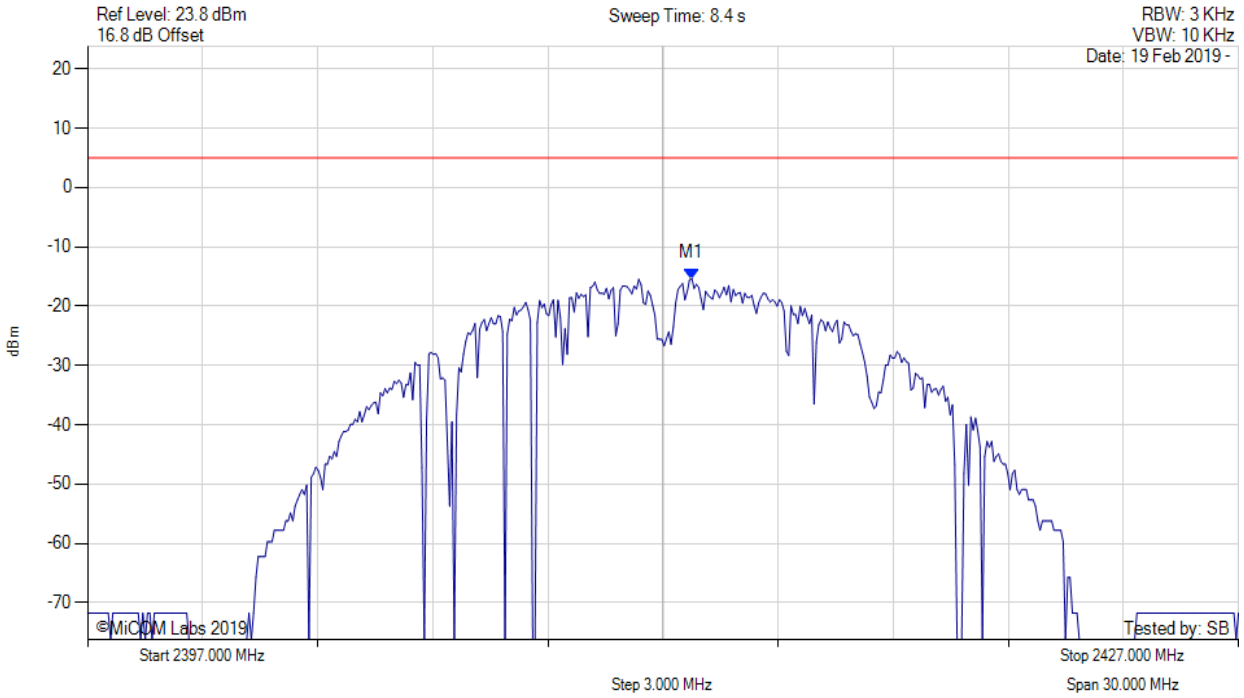


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.571 MHz : -15.020 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

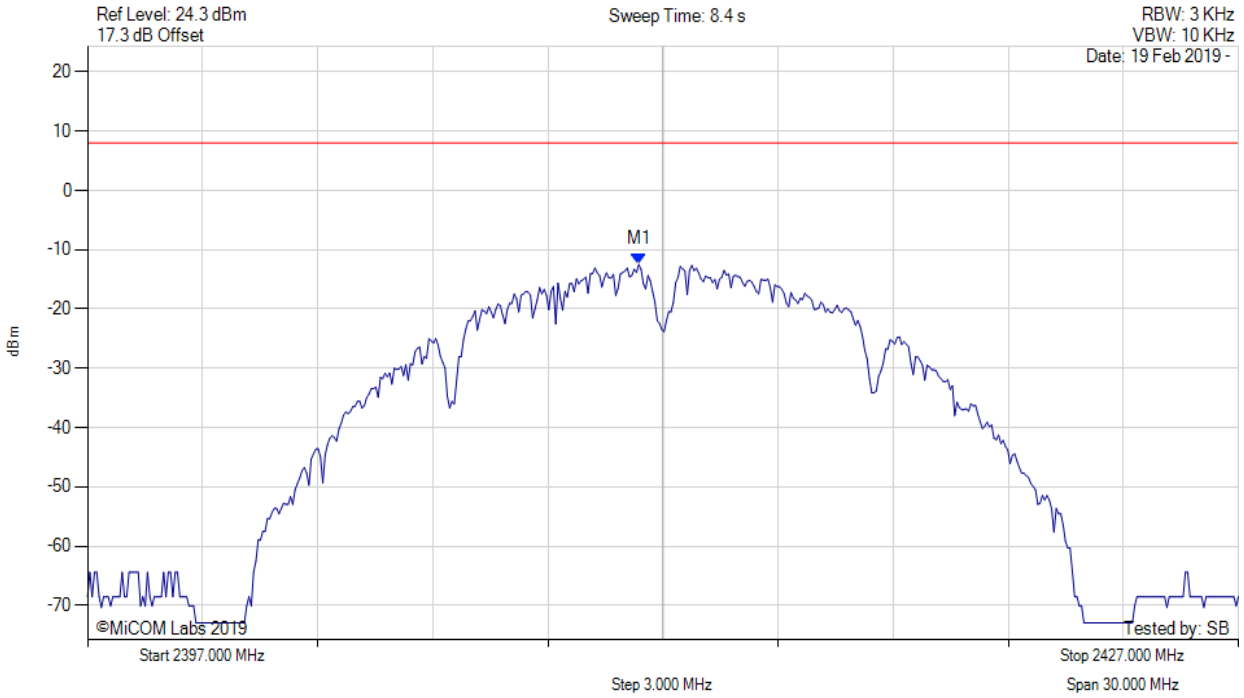


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.752 MHz : -15.374 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

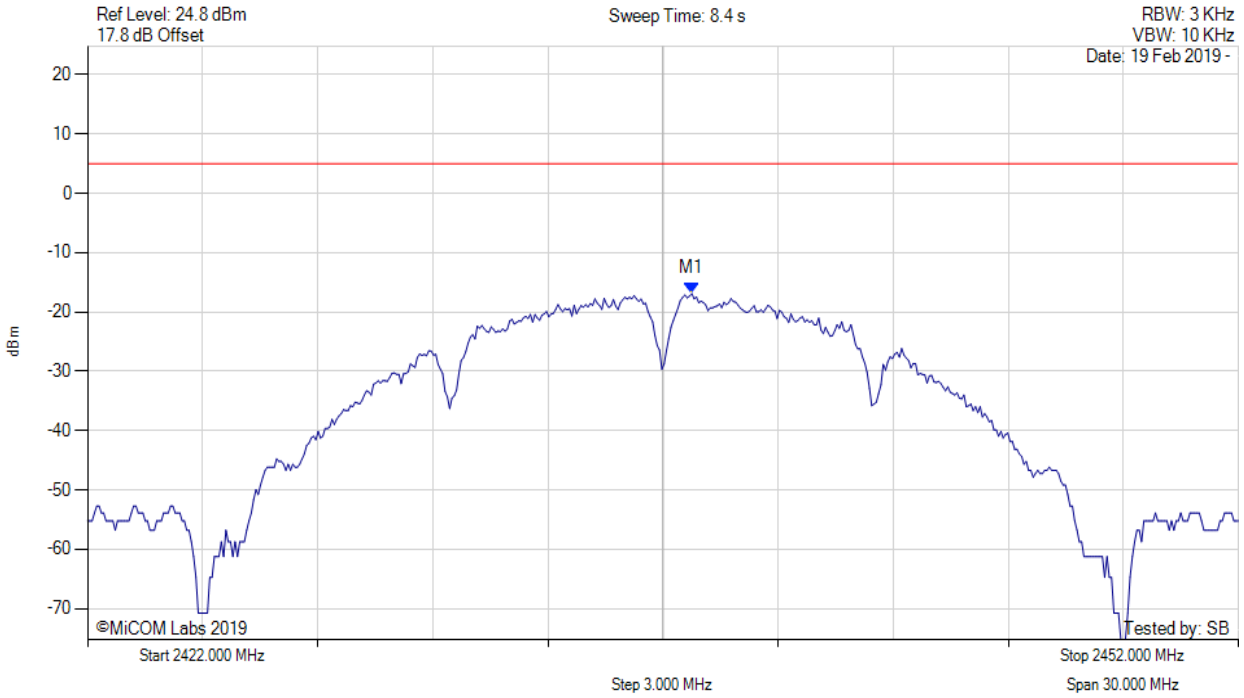


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.400 MHz : -12.481 dBm M1 + DCCF : 2411.400 MHz : -12.437 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -20.4 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

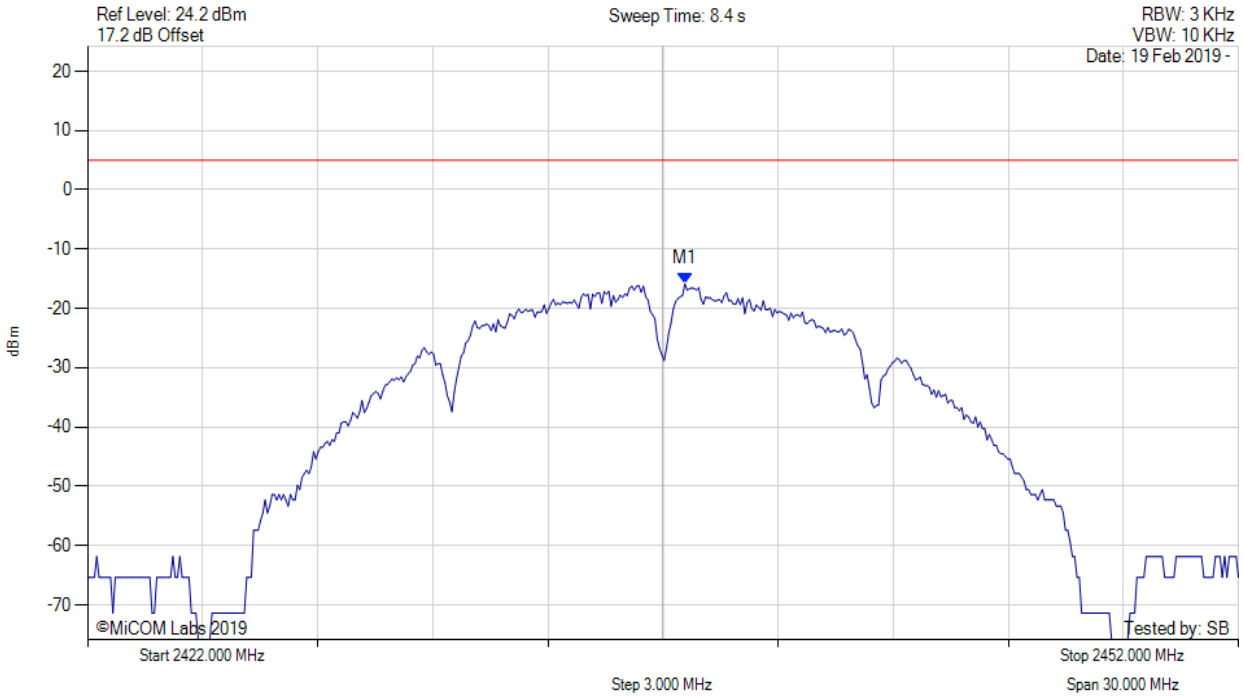


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.752 MHz : -16.891 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

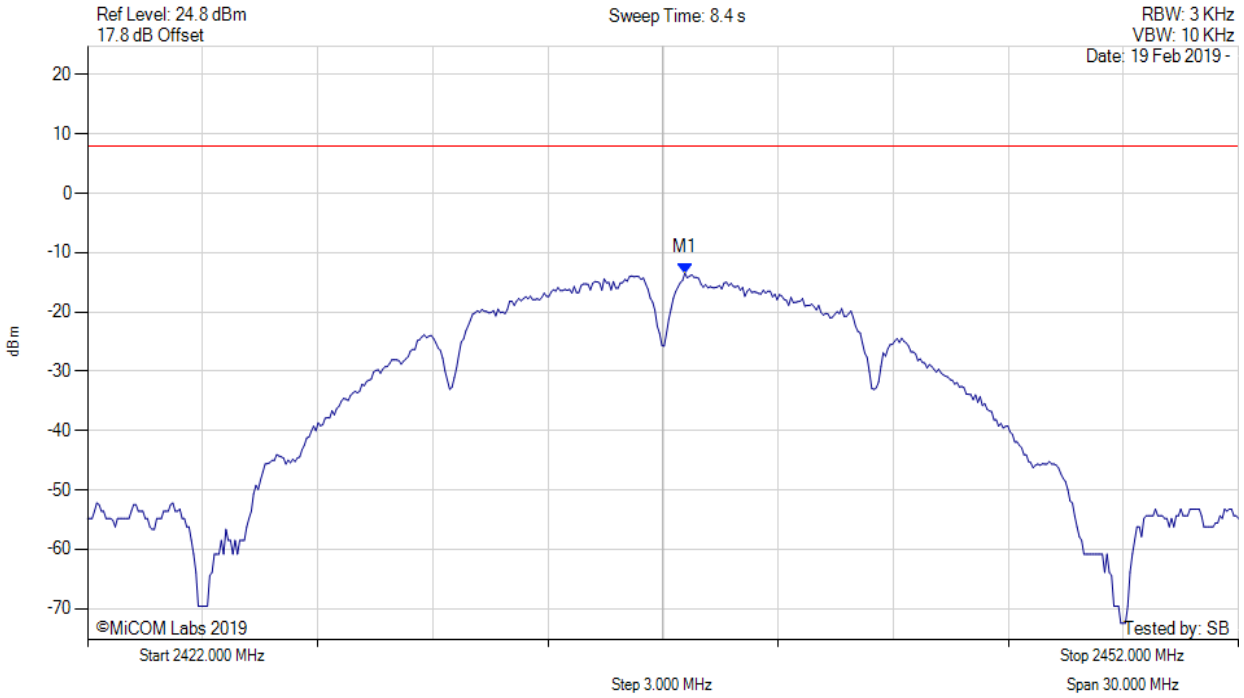


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.571 MHz : -15.860 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

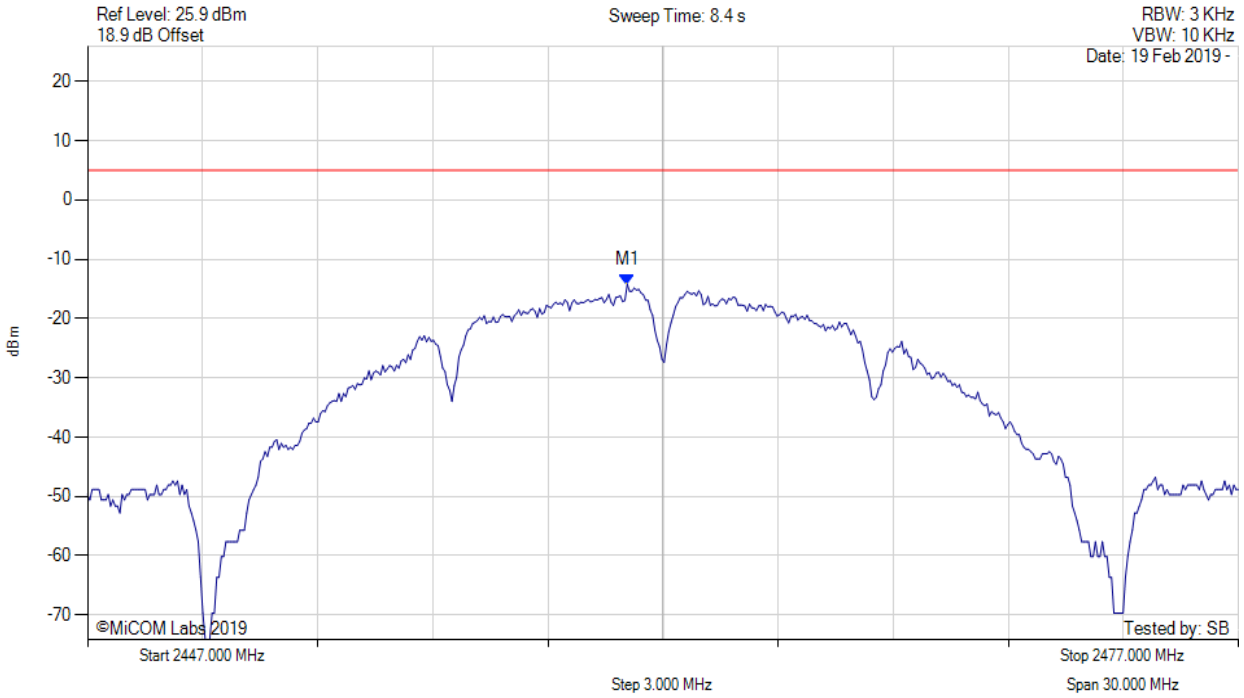


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.600 MHz : -13.435 dBm M1 + DCCF : 2437.600 MHz : -13.391 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -21.4 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

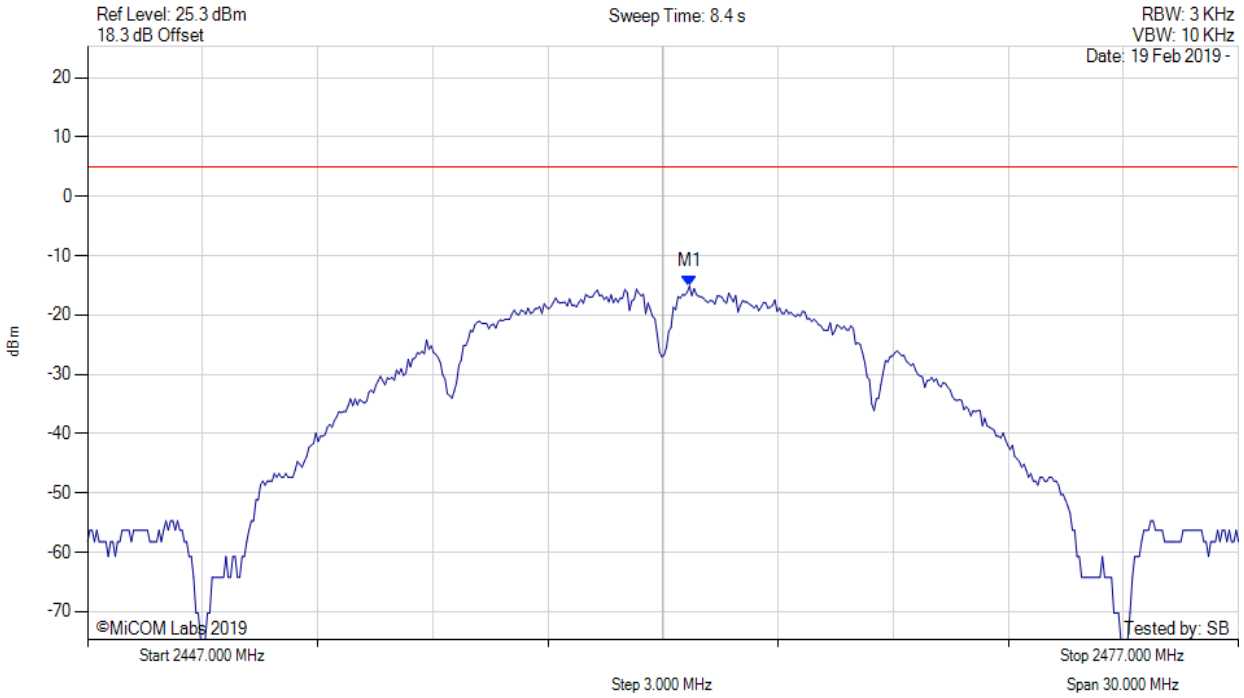


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.068 MHz : -14.234 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

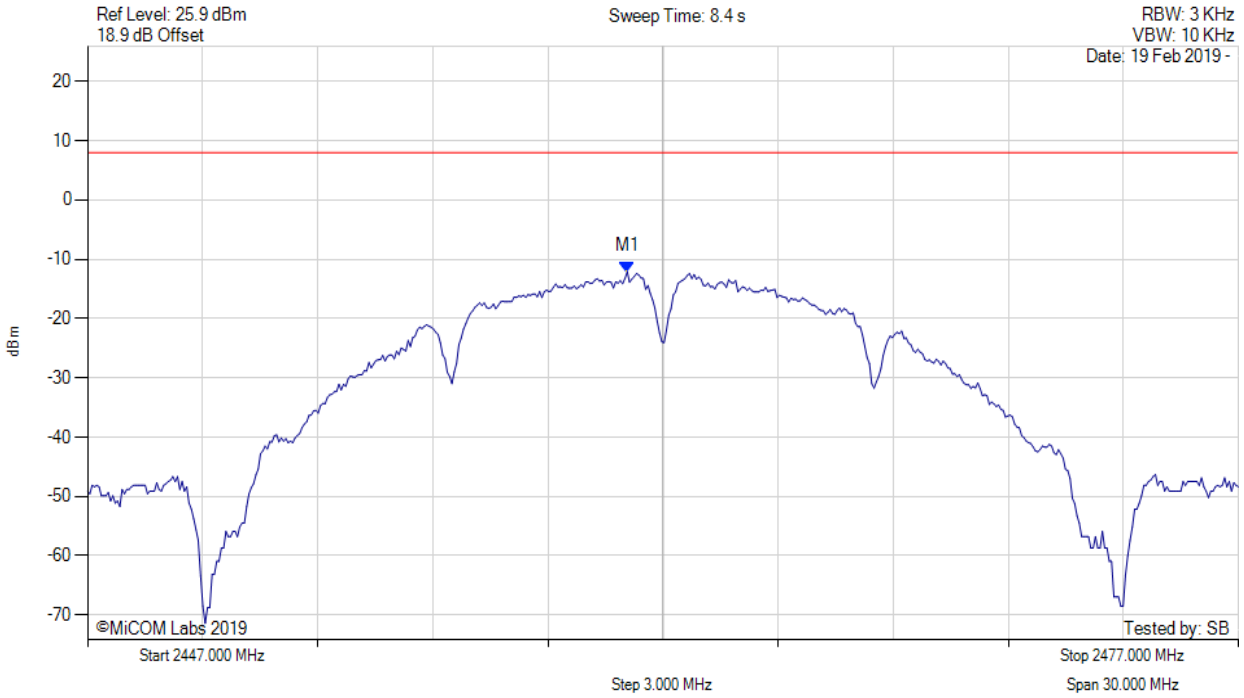


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.691 MHz : -15.133 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

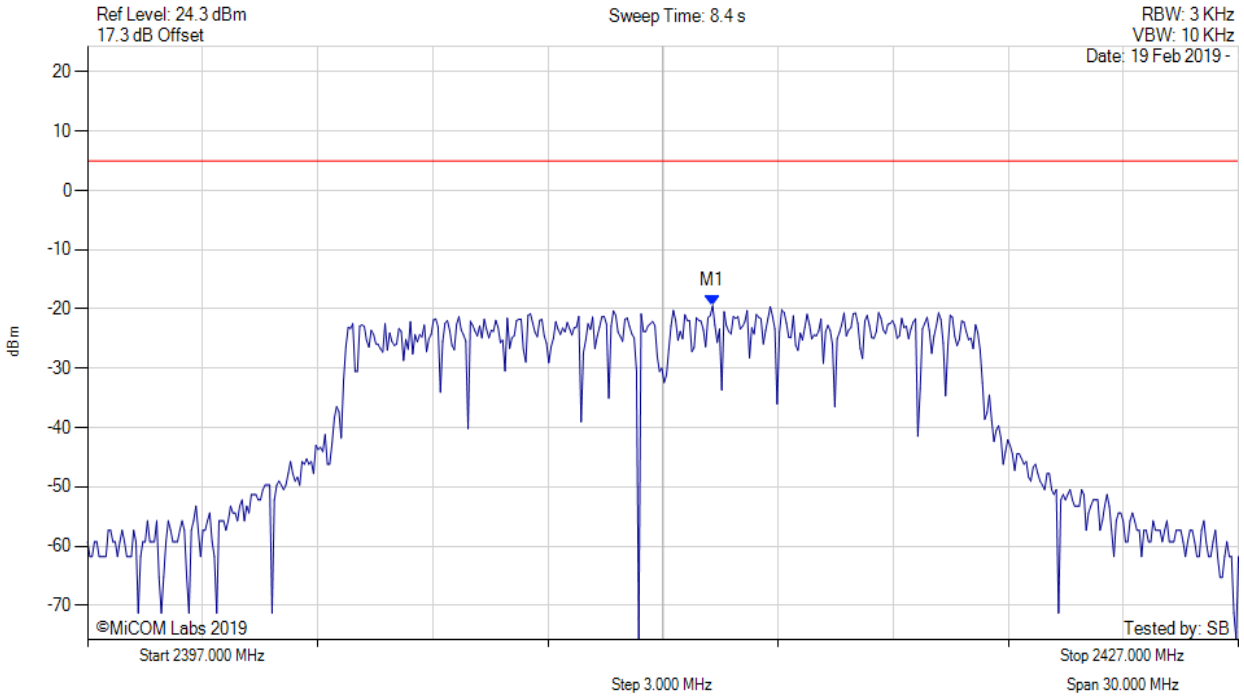


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.100 MHz : -12.096 dBm M1 + DCCF : 2461.100 MHz : -12.052 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -20.1 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

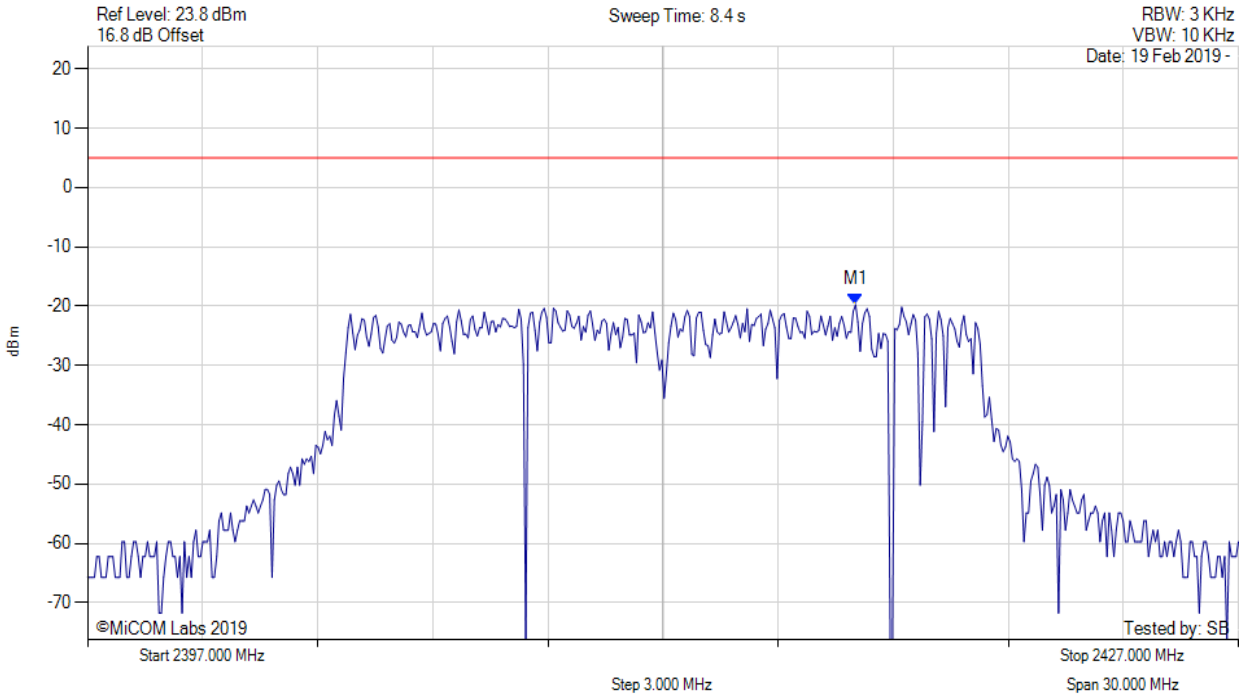


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2413.293 MHz : -19.444 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

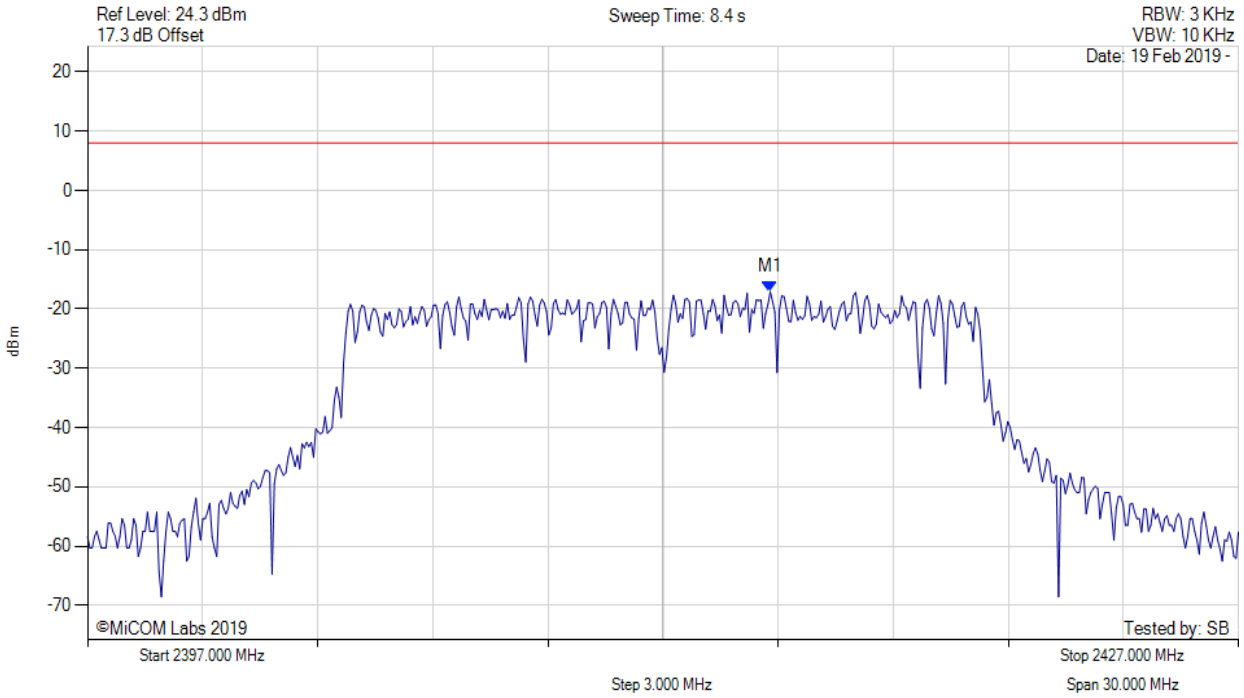


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2417.020 MHz : -19.746 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

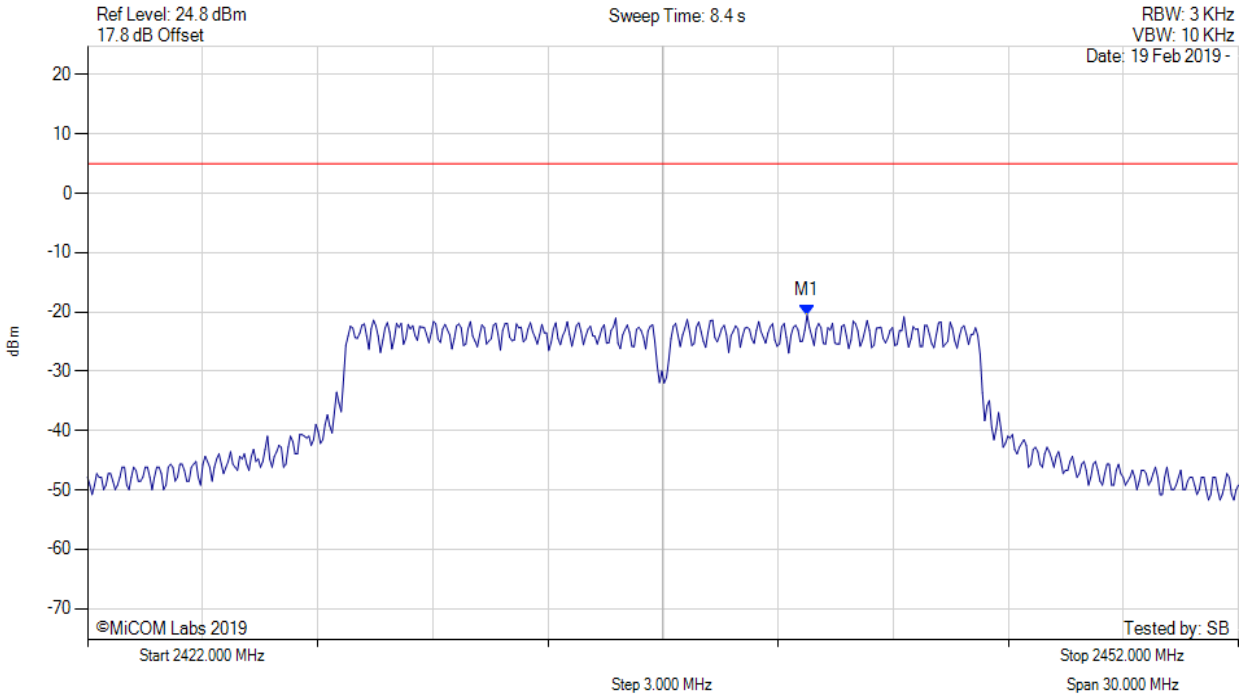


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2414.800 MHz : -17.088 dBm M1 + DCCF : 2414.800 MHz : -16.226 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 8.0 dBm Margin: -24.2 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

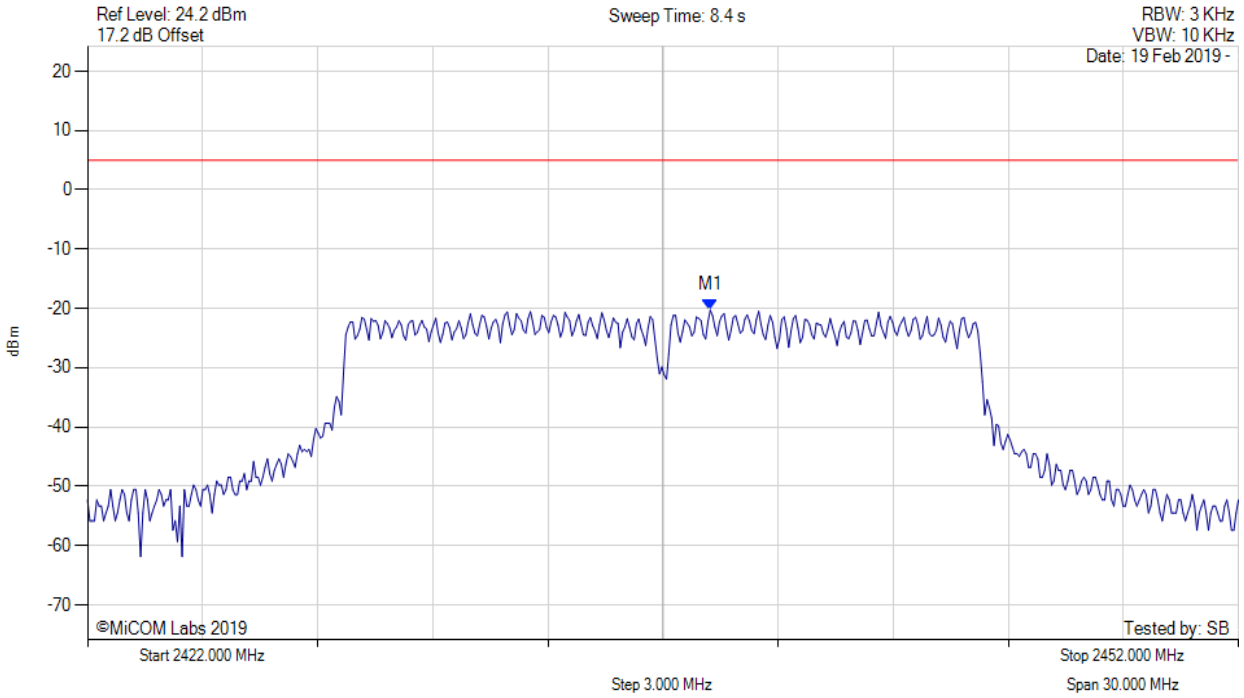


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2440.758 MHz : -20.528 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

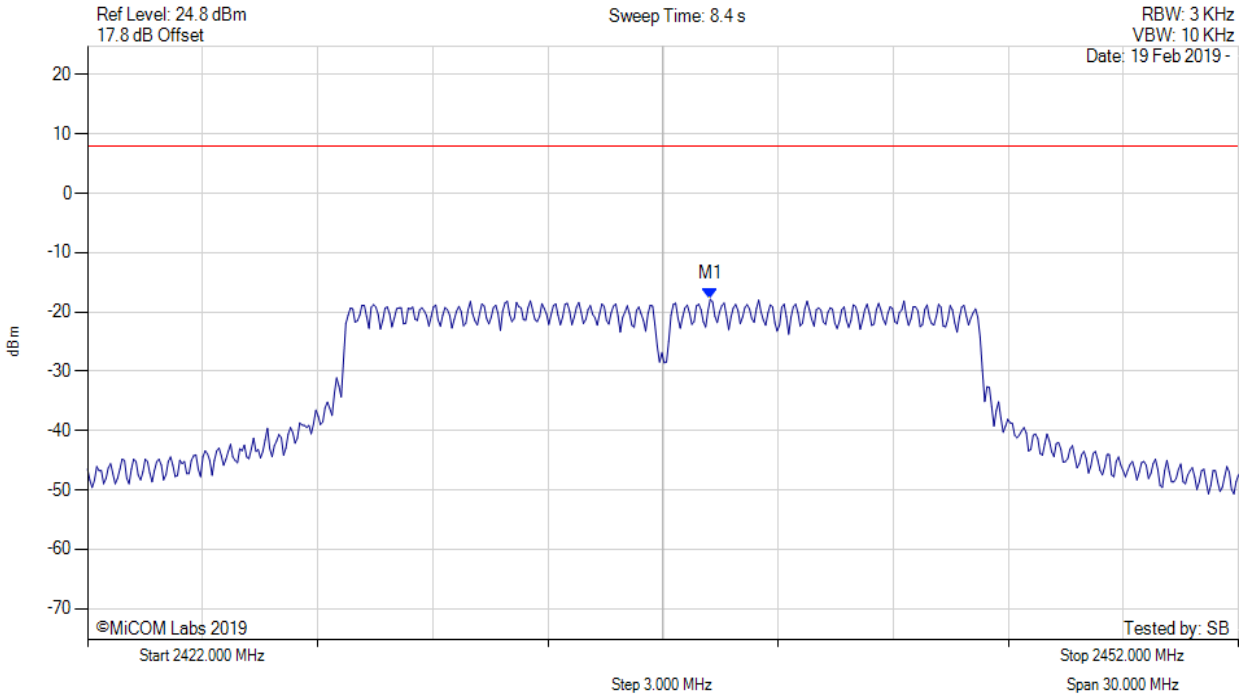


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2438.232 MHz : -20.263 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

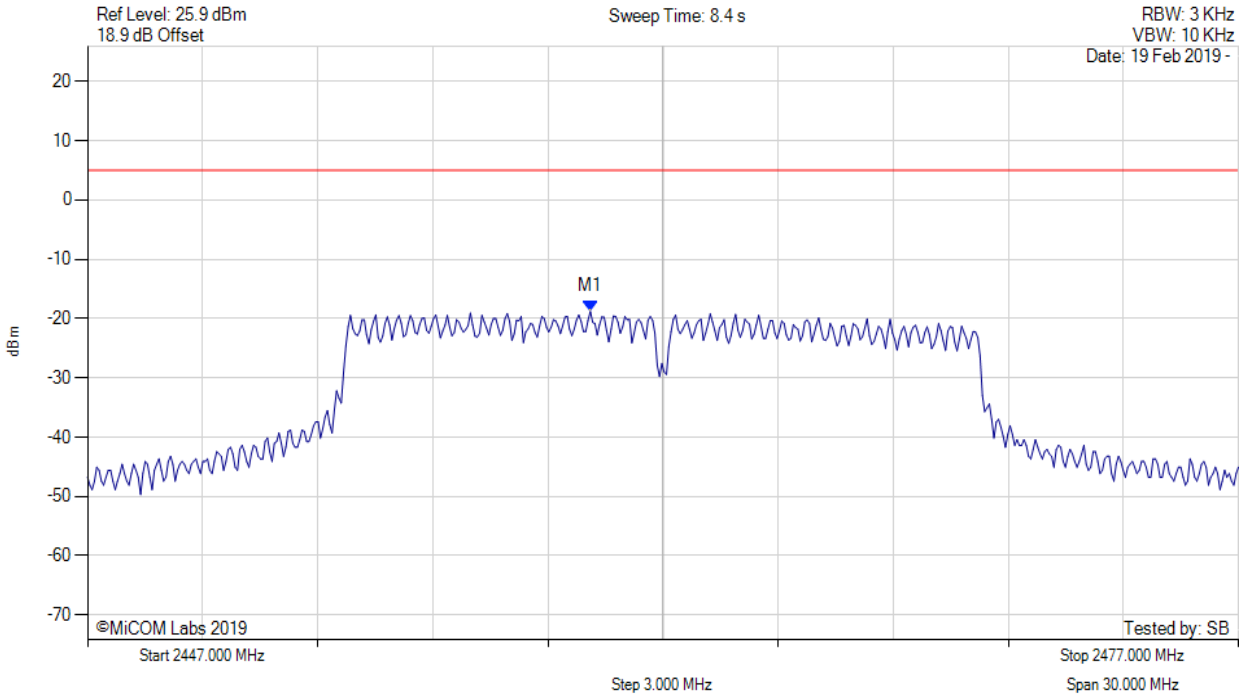


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2438.200 MHz : -17.822 dBm M1 + DCCF : 2438.200 MHz : -16.960 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 8.0 dBm Margin: -25.0 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

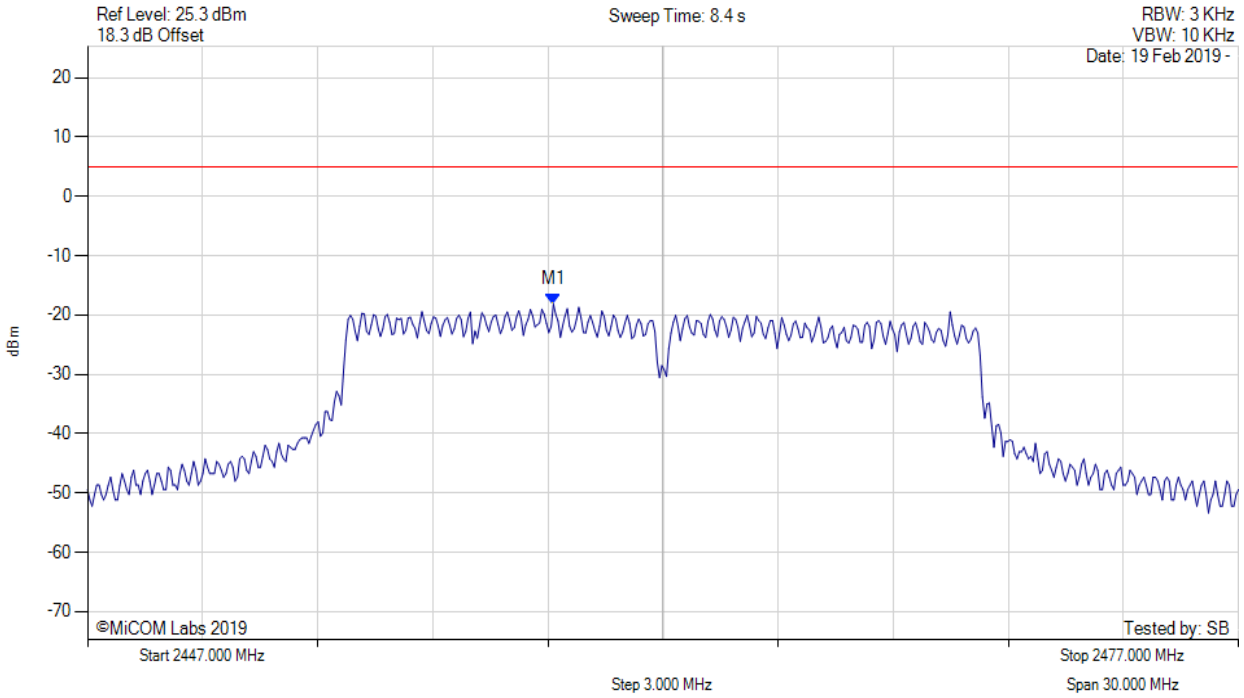


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2460.106 MHz : -18.784 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

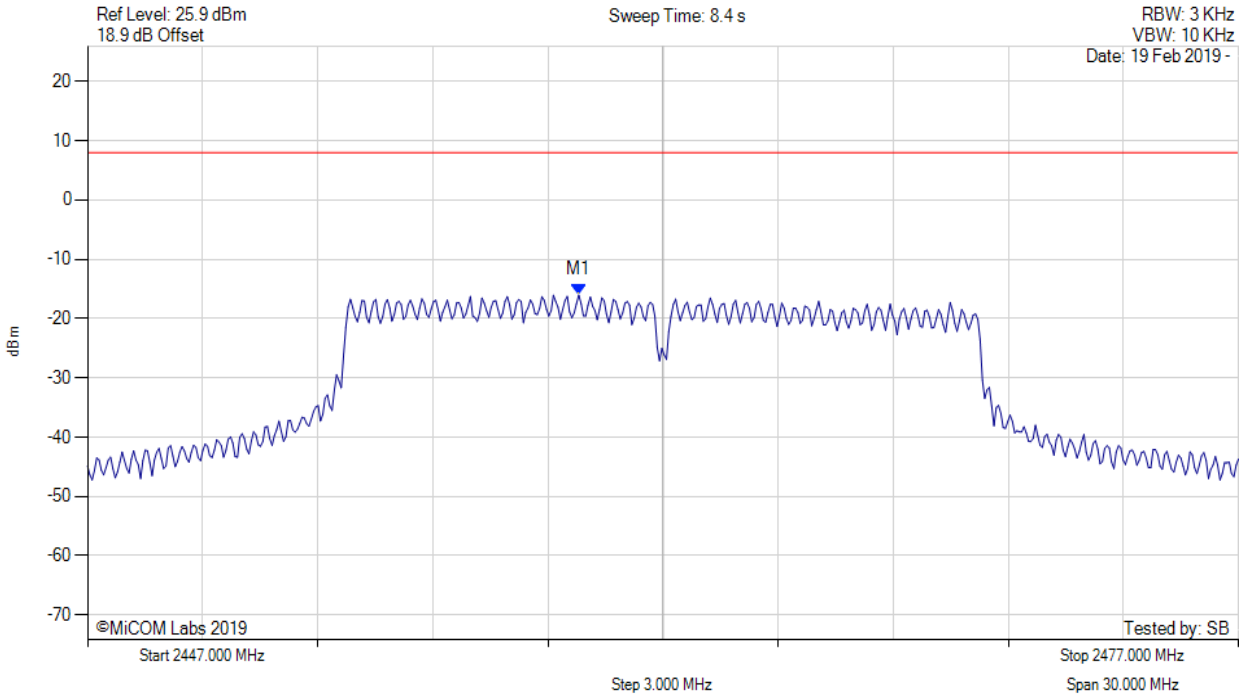


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2459.144 MHz : -18.159 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

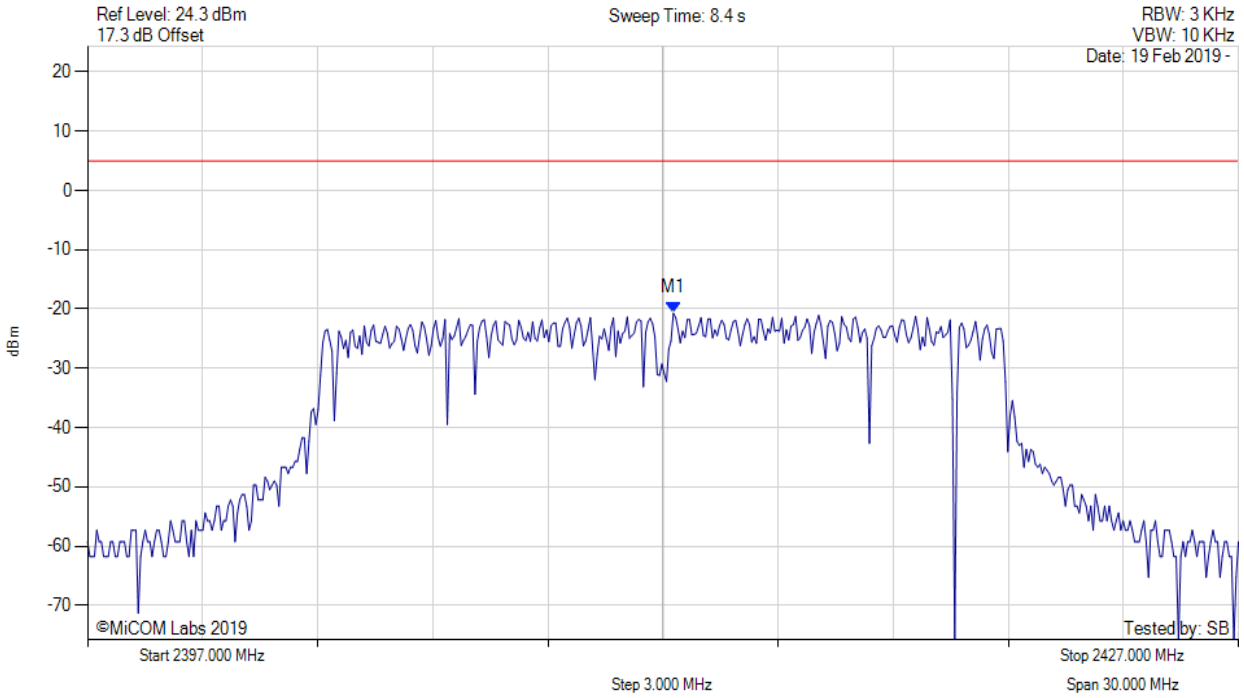


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2459.800 MHz : -16.034 dBm M1 + DCCF : 2459.800 MHz : -15.172 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 8.0 dBm Margin: -23.2 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

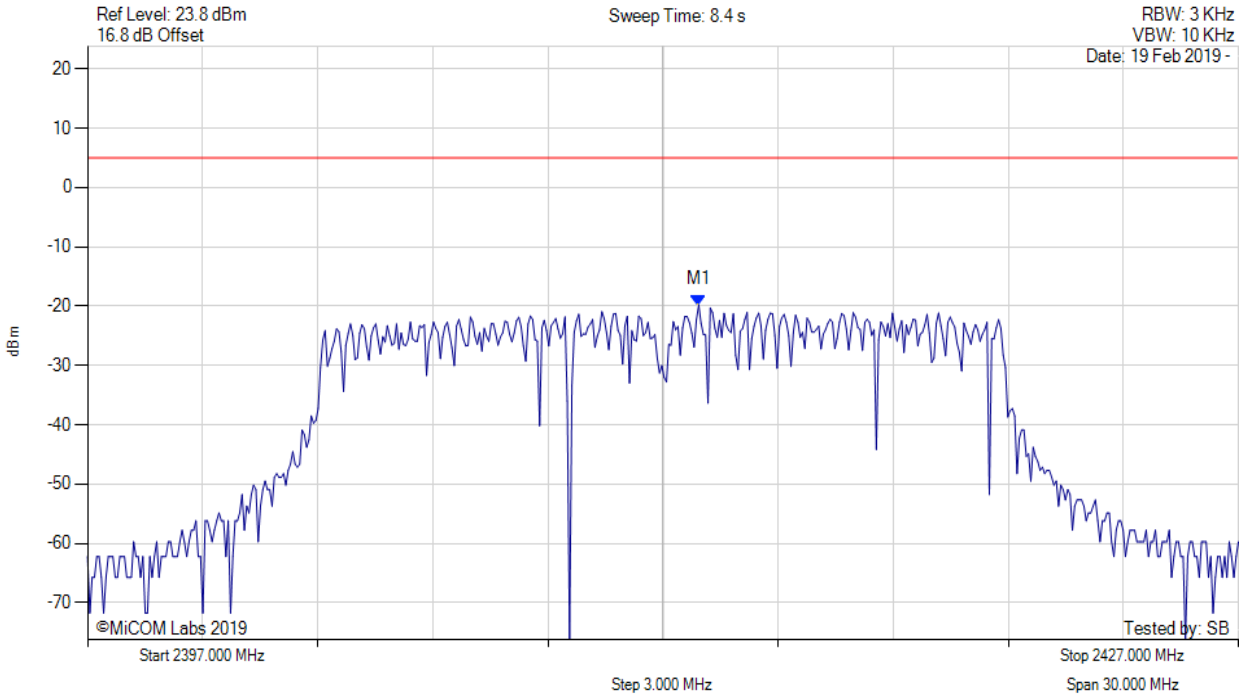


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.271 MHz : -20.687 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

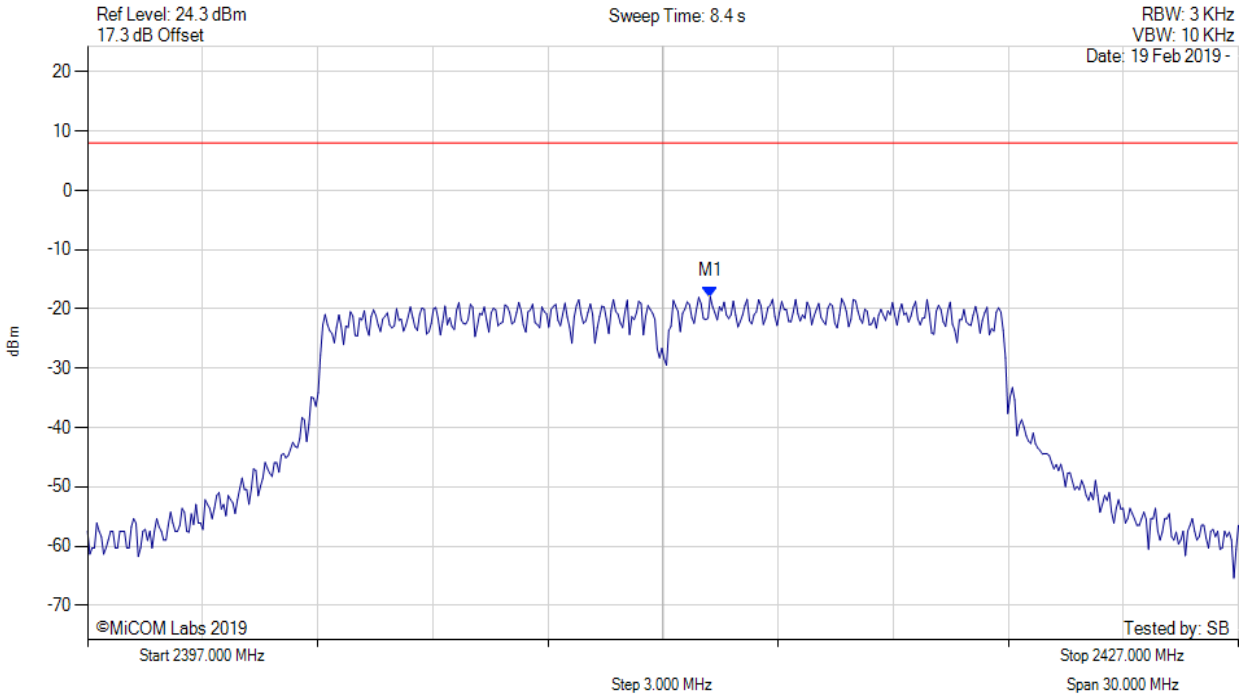


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.932 MHz : -19.811 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

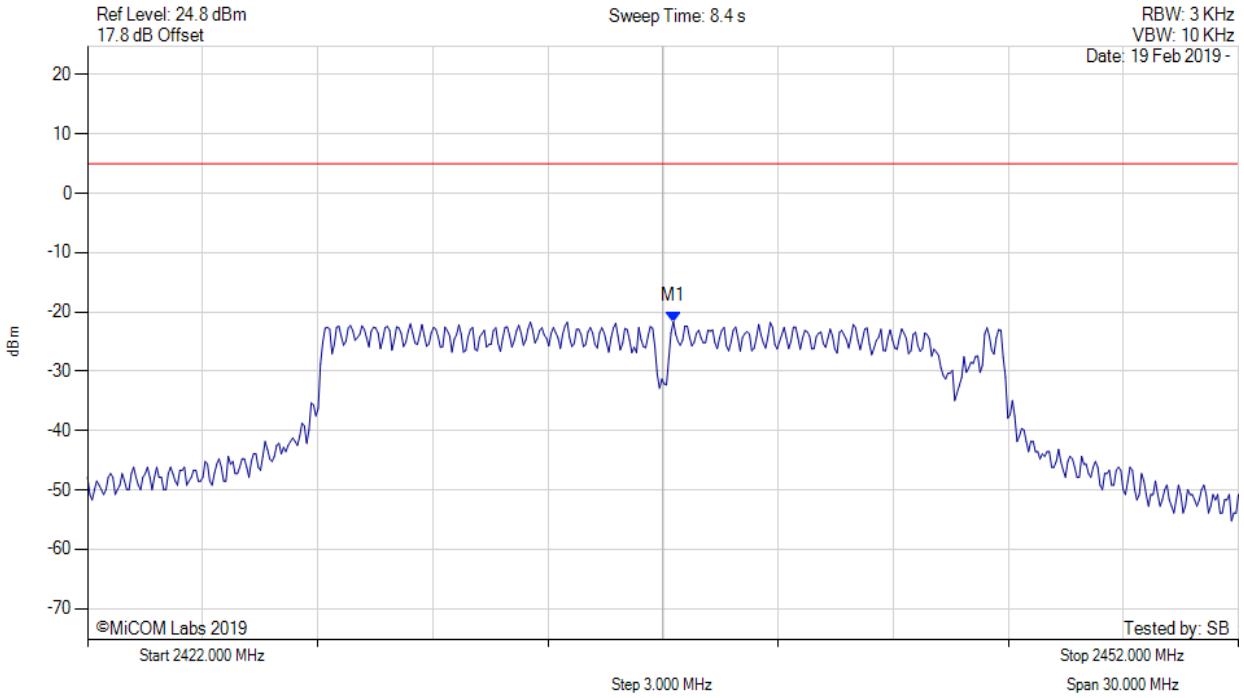


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2413.200 MHz : -17.923 dBm M1 + DCCF : 2413.200 MHz : -17.608 dBm Duty Cycle Correction Factor : +0.32 dB	Limit: ≤ 8.0 dBm Margin: -25.6 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

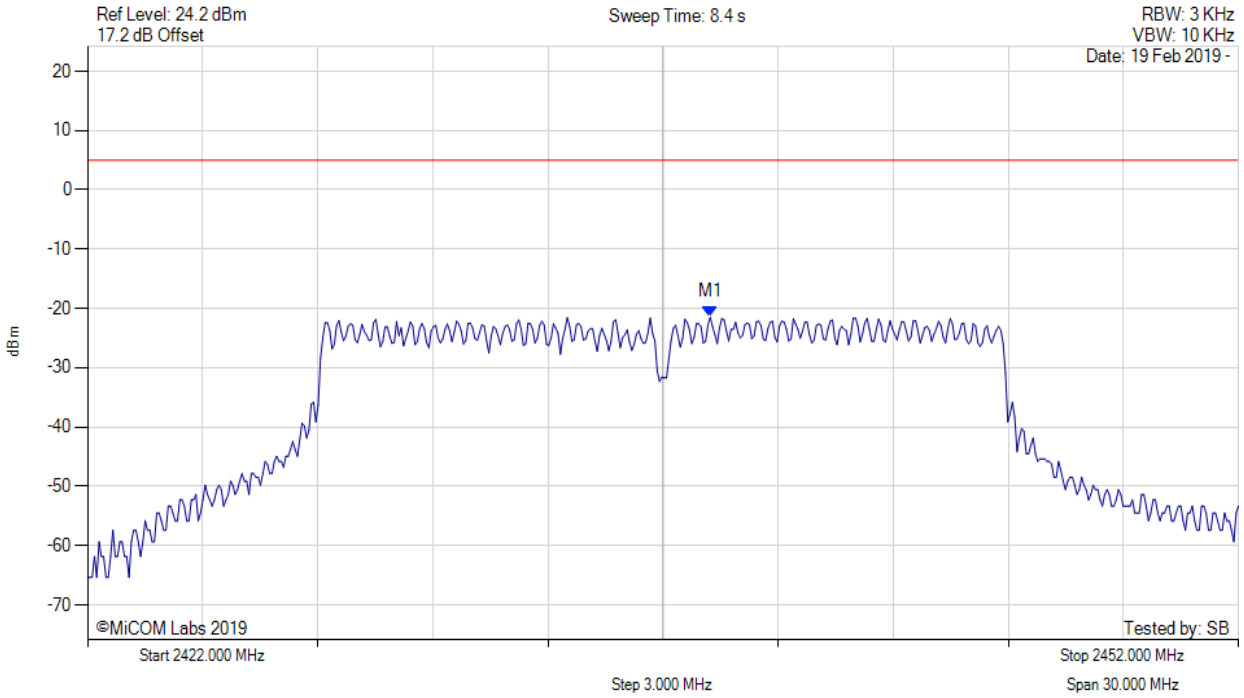


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.271 MHz : -21.608 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

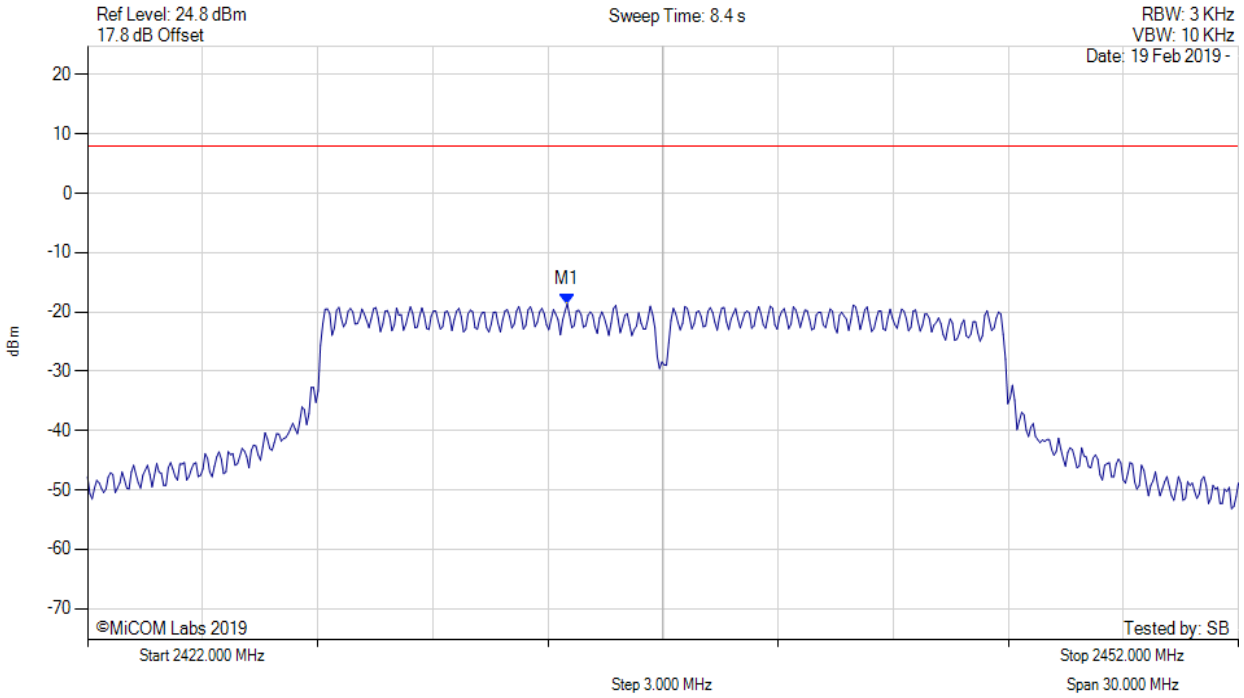


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2438.232 MHz : -21.482 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

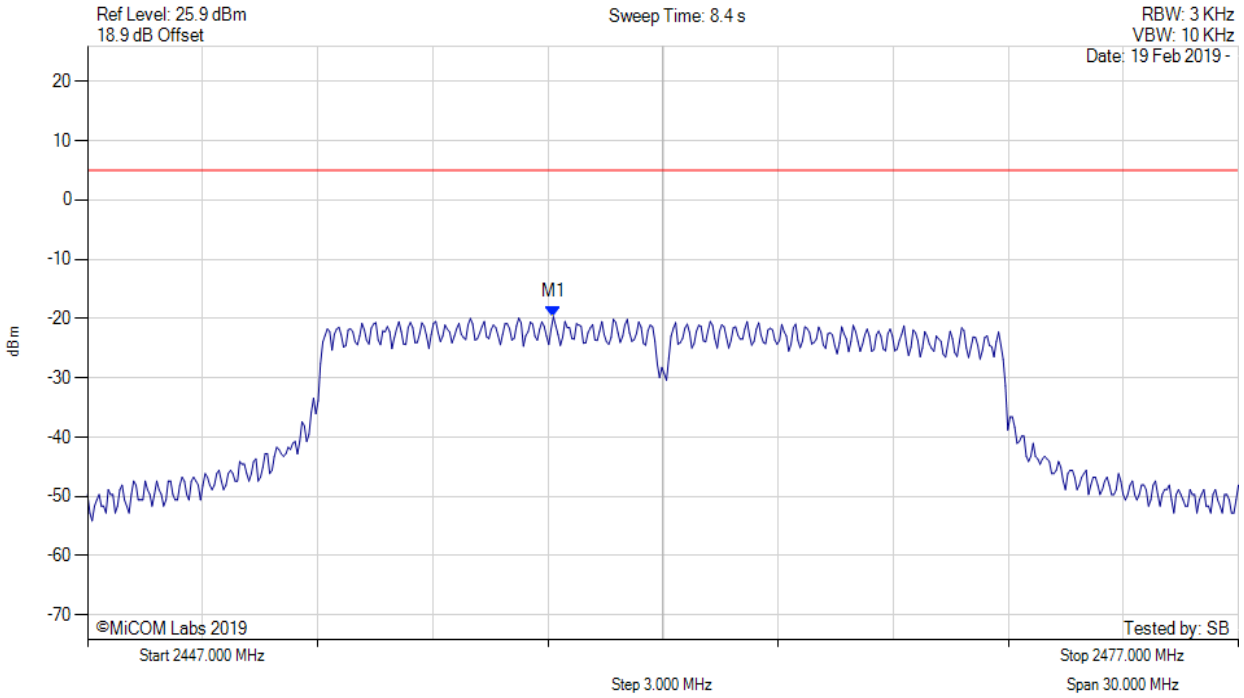


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2434.500 MHz : -18.623 dBm M1 + DCCF : 2434.500 MHz : -18.308 dBm Duty Cycle Correction Factor : +0.32 dB	Limit: ≤ 8.0 dBm Margin: -26.3 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

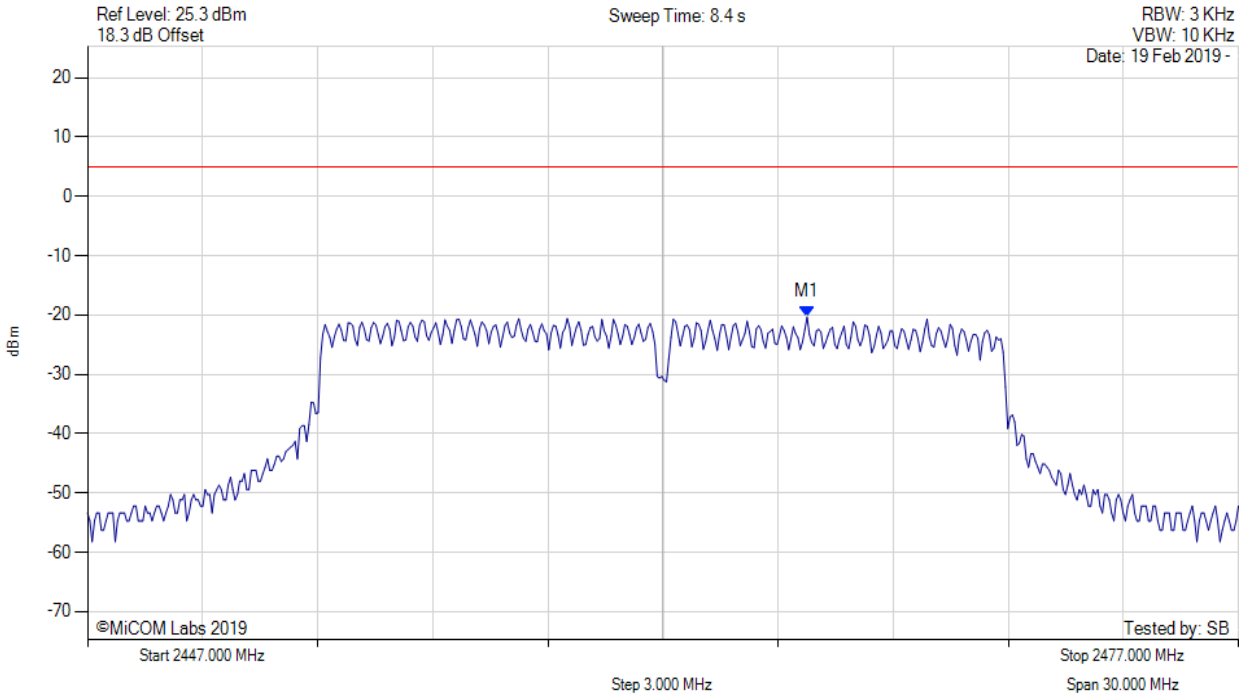


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2459.144 MHz : -19.699 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

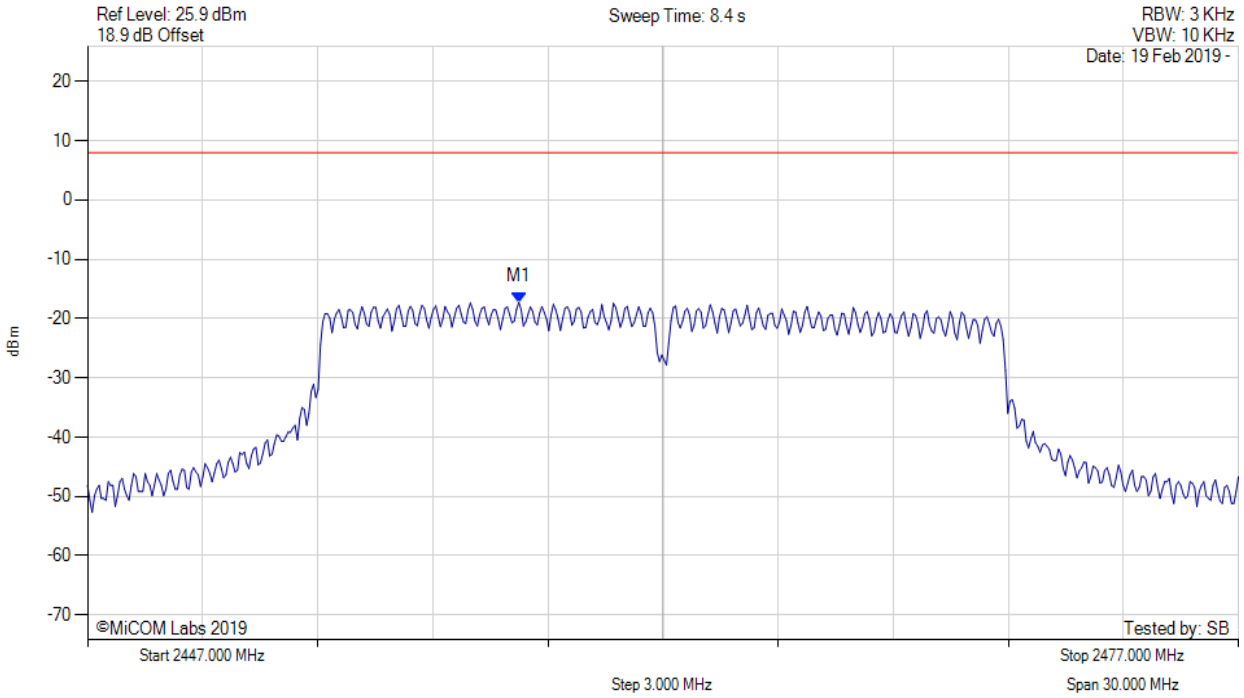


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2465.758 MHz : -20.354 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

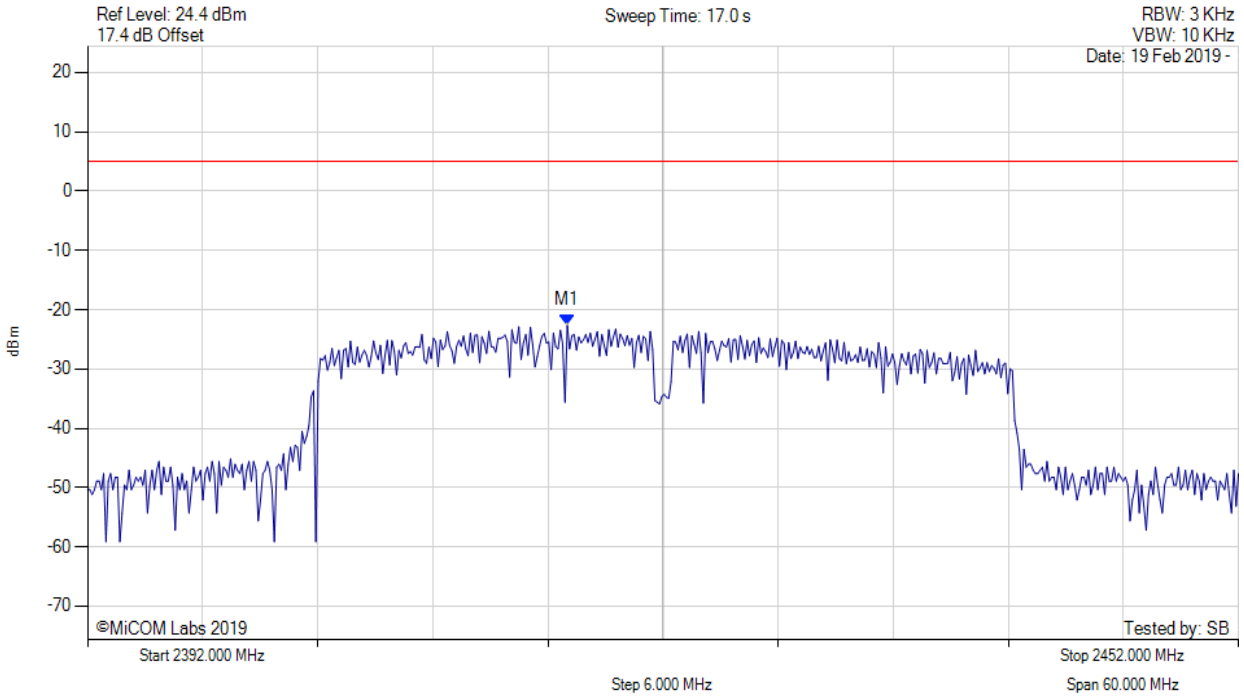


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2458.200 MHz : -17.255 dBm M1 + DCCF : 2458.200 MHz : -16.940 dBm Duty Cycle Correction Factor : +0.32 dB	Limit: ≤ 8.0 dBm Margin: -25.0 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

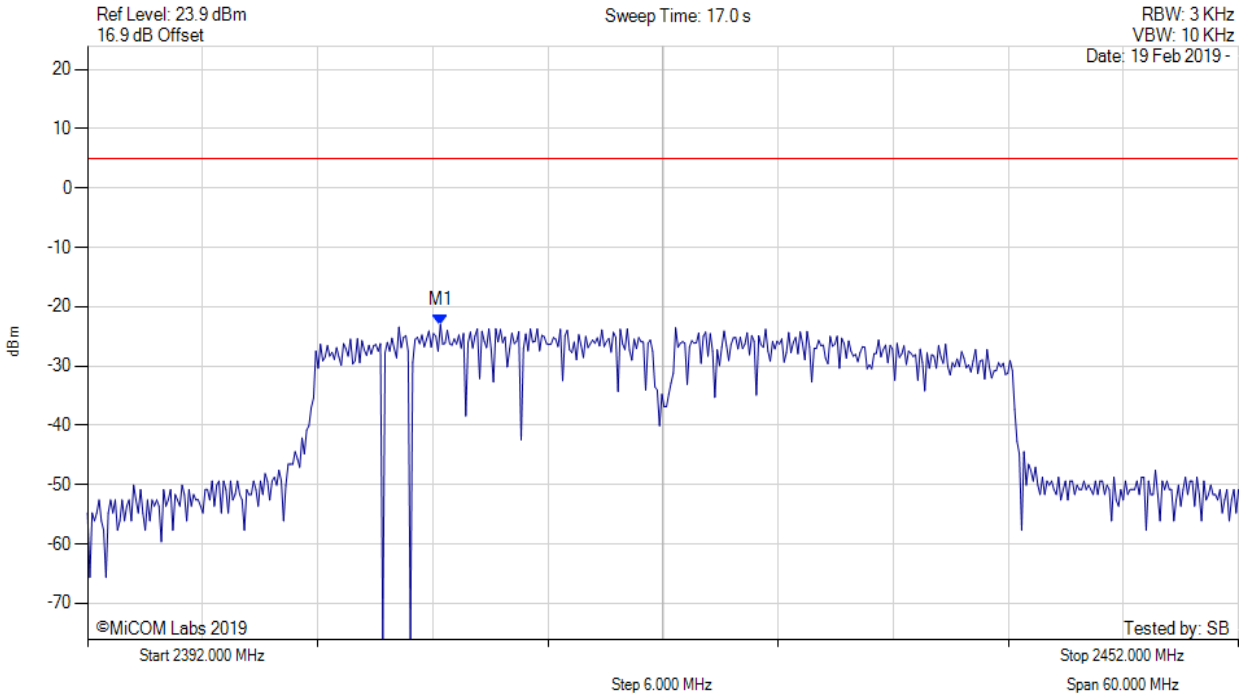


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2417.010 MHz : -22.635 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

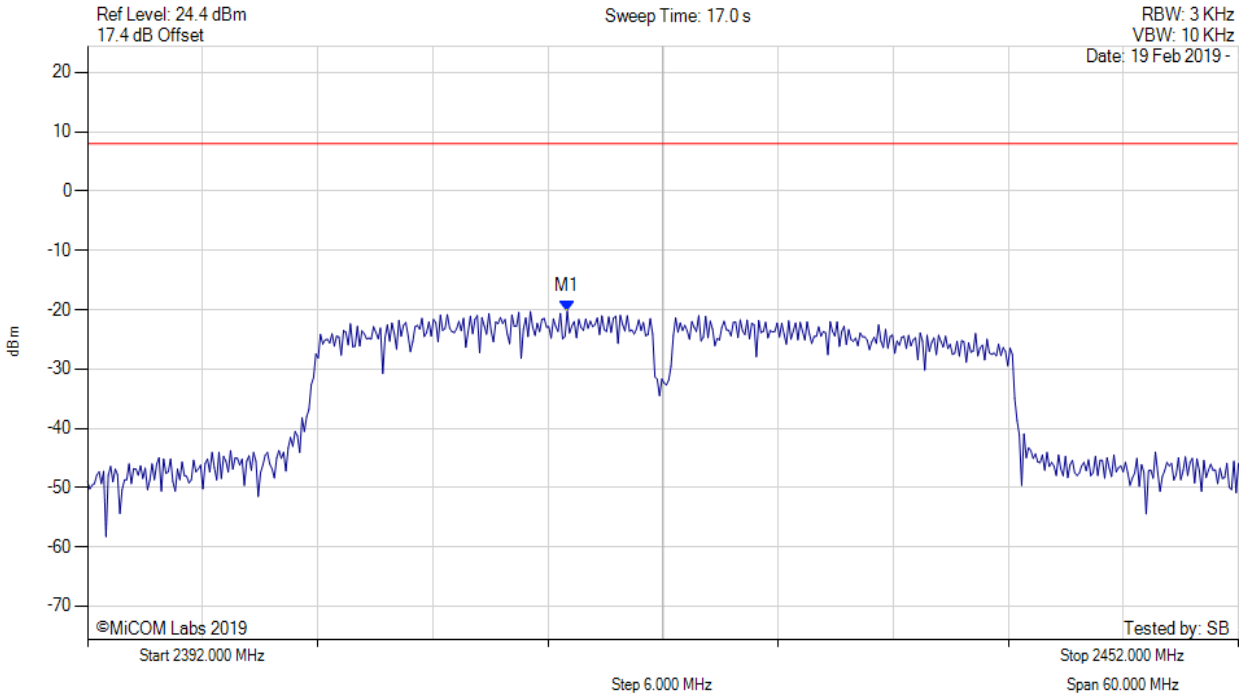


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.397 MHz : -23.006 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

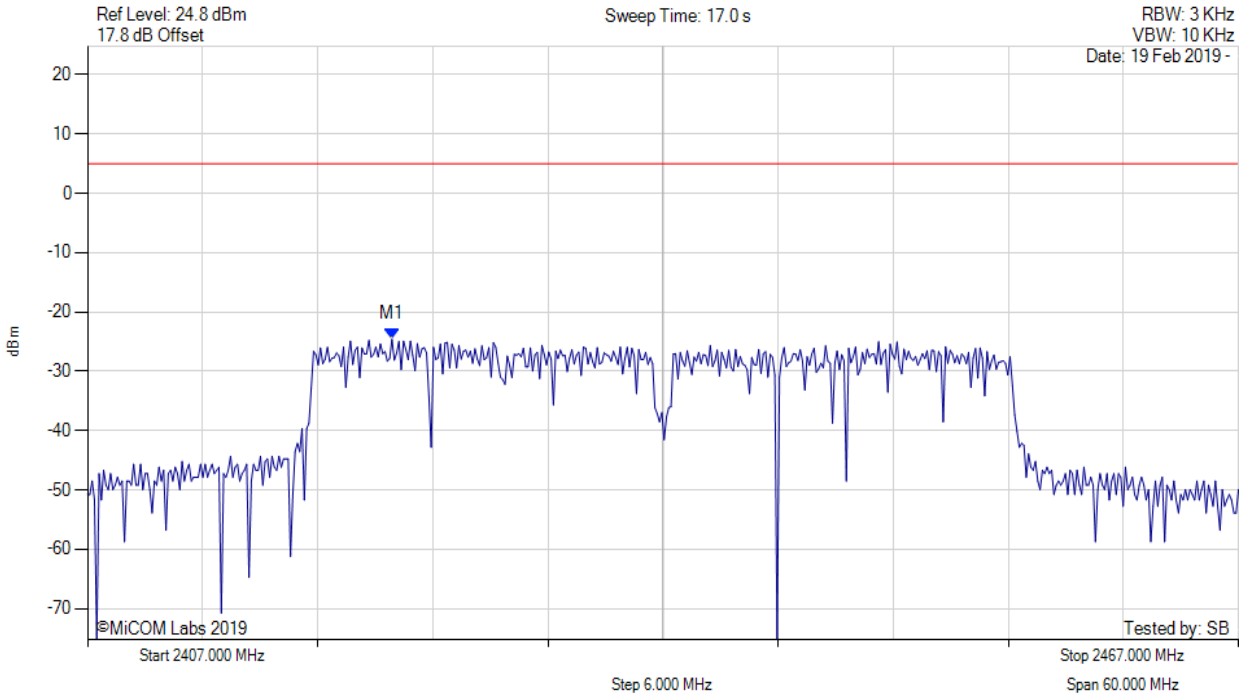


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2417.000 MHz : -20.249 dBm M1 + DCCF : 2417.000 MHz : -18.882 dBm Duty Cycle Correction Factor : +1.37 dB	Limit: ≤ 8.0 dBm Margin: -26.9 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

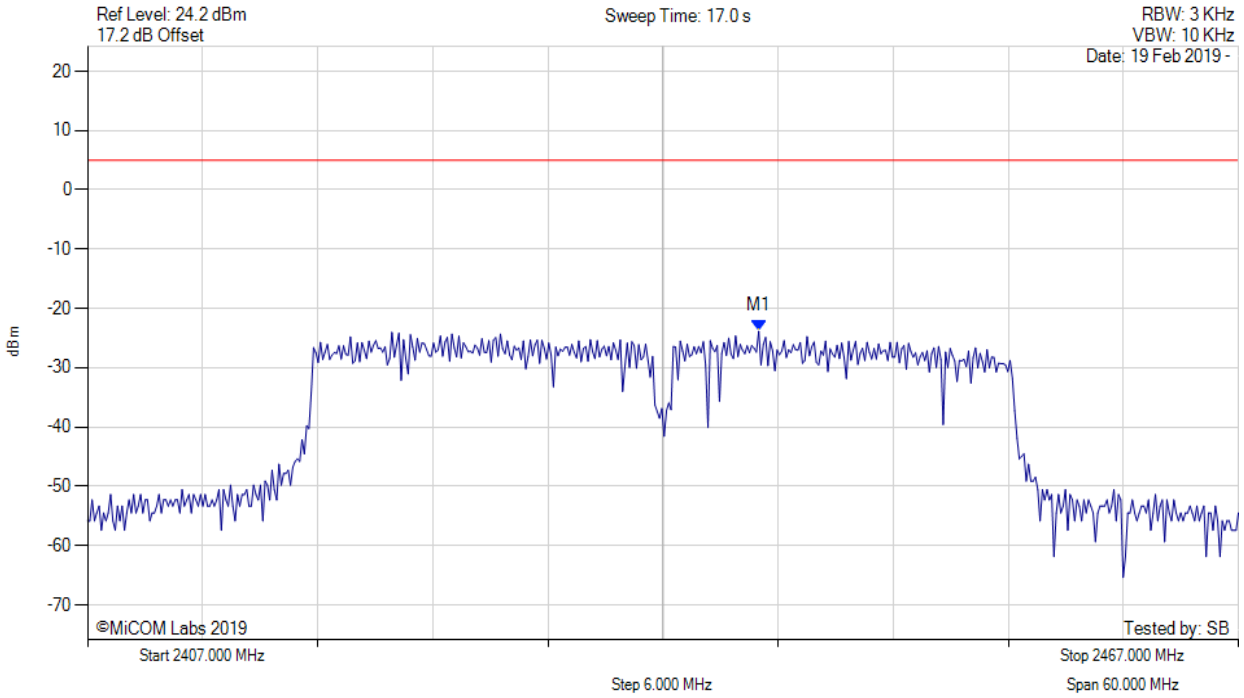


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2422.872 MHz : -24.573 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

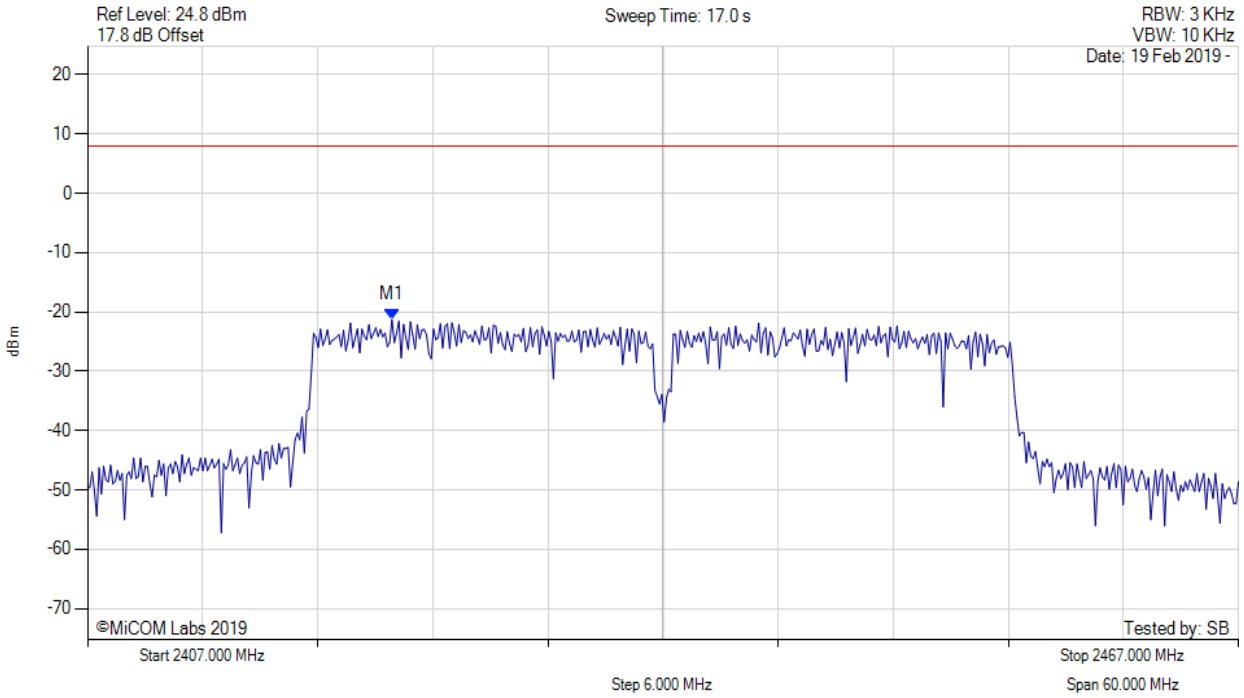


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2441.990 MHz : -23.834 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 24Vdc

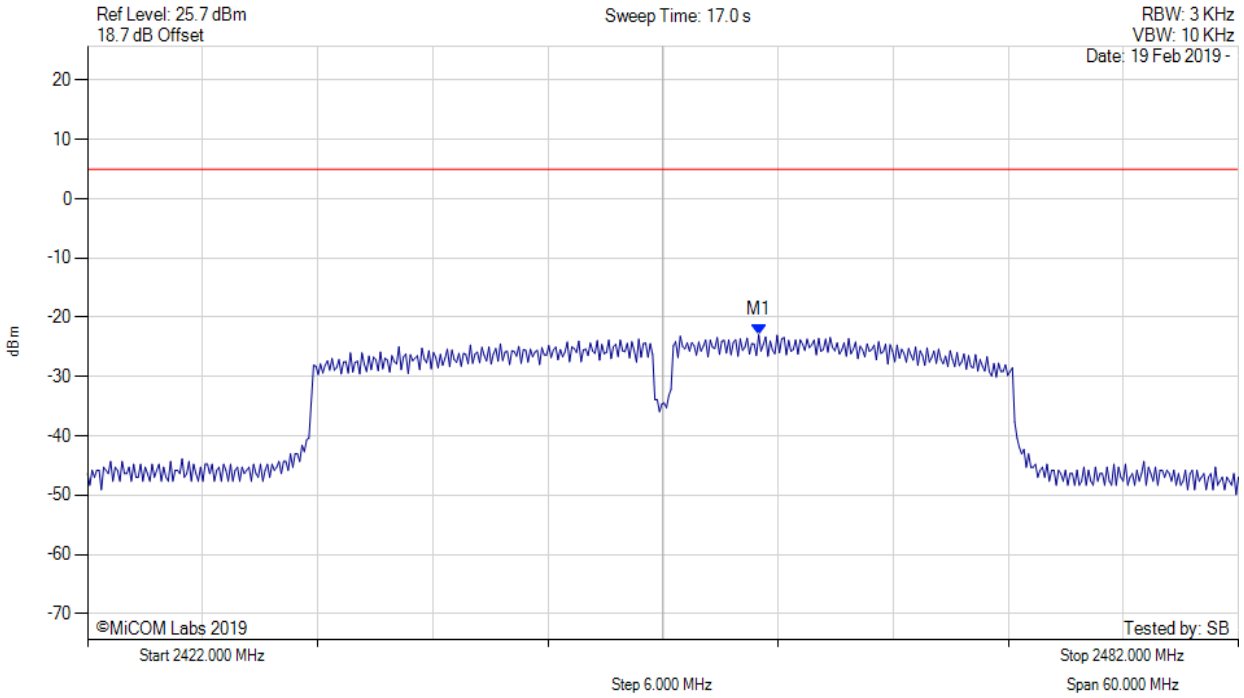


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2422.900 MHz : -21.276 dBm M1 + DCCF : 2422.900 MHz : -19.909 dBm Duty Cycle Correction Factor : +1.37 dB	Limit: ≤ 8.0 dBm Margin: -27.9 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

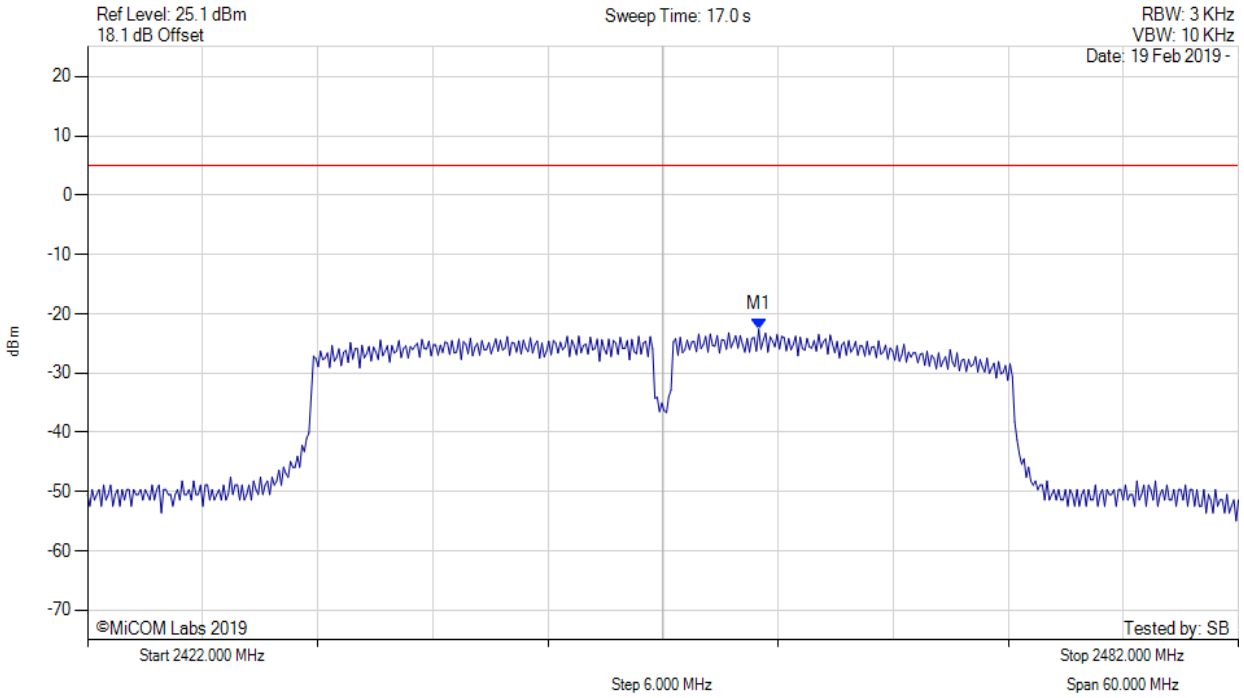


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2456.990 MHz : -22.938 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

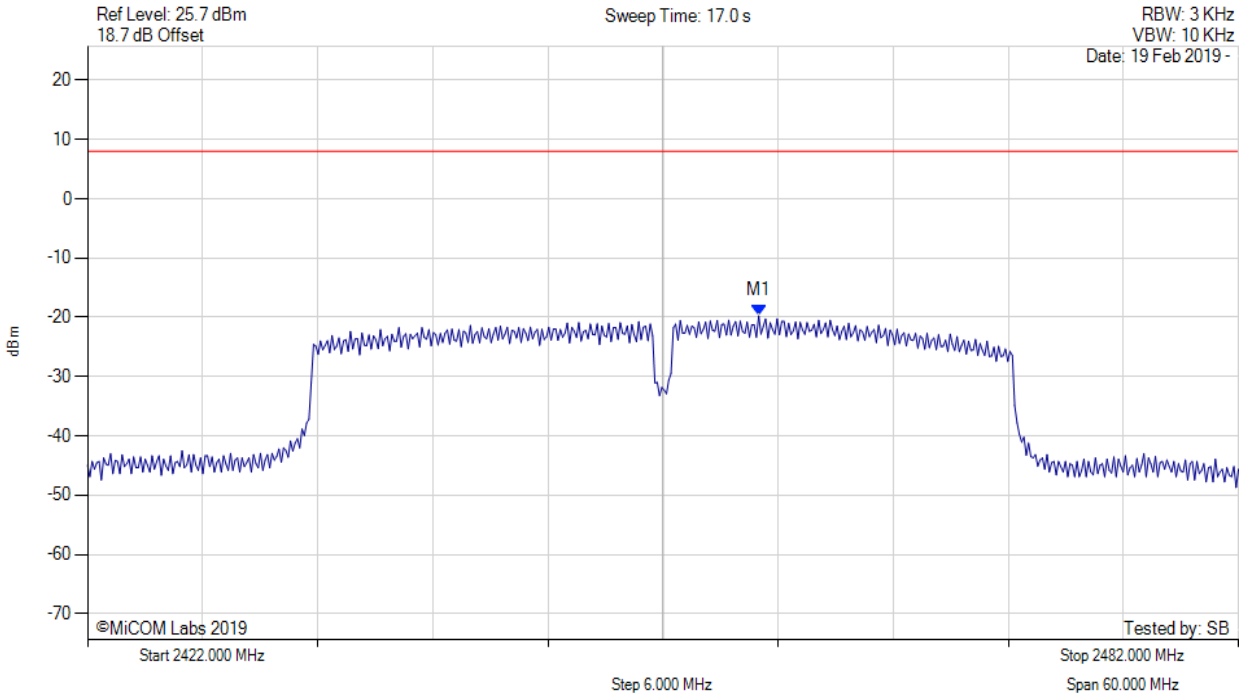


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2456.990 MHz : -22.576 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, SUM, Temp: 20, Voltage: 24Vdc



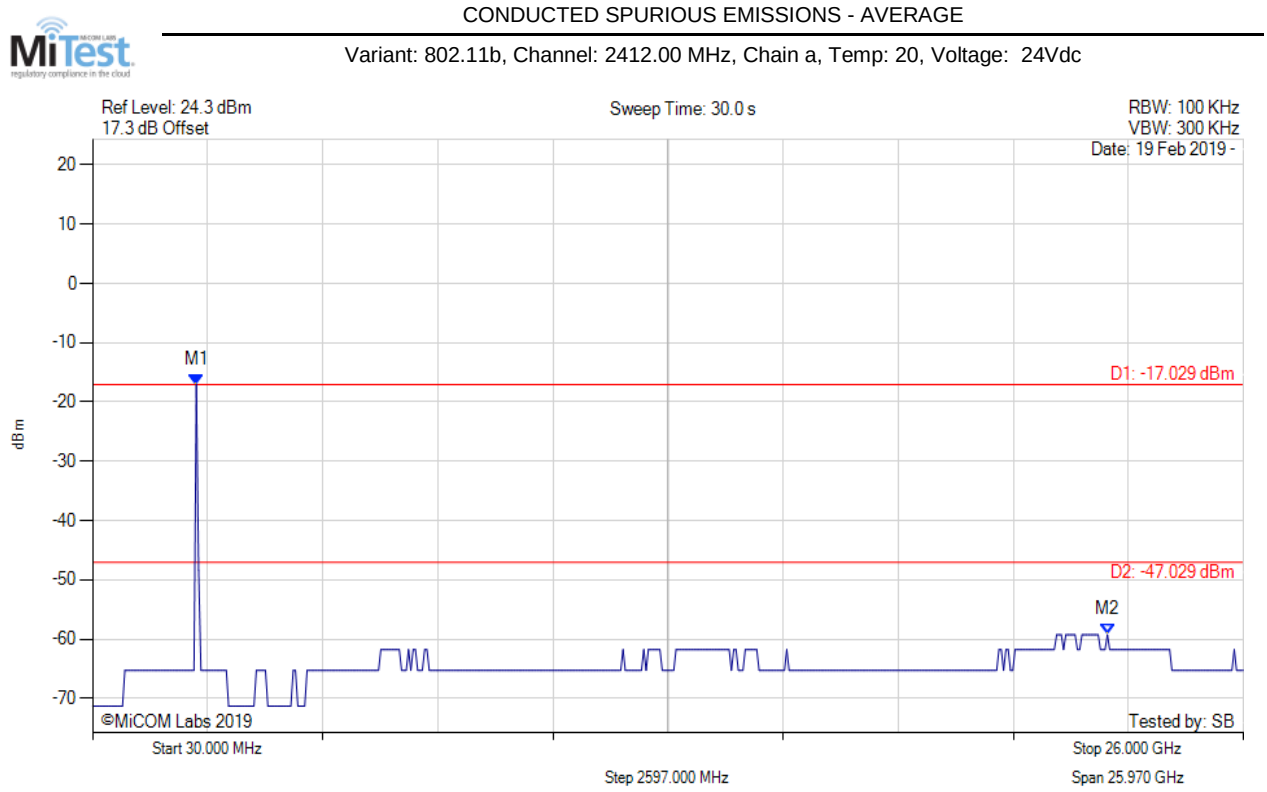
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2457.000 MHz : -19.743 dBm M1 + DCCF : 2457.000 MHz : -18.376 dBm Duty Cycle Correction Factor : +1.37 dB	Limit: ≤ 8.0 dBm Margin: -26.4 dB

back to matrix

A.3. Emissions

A.3.1. Conducted Emissions

A.3.1.1. Conducted Spurious Emissions

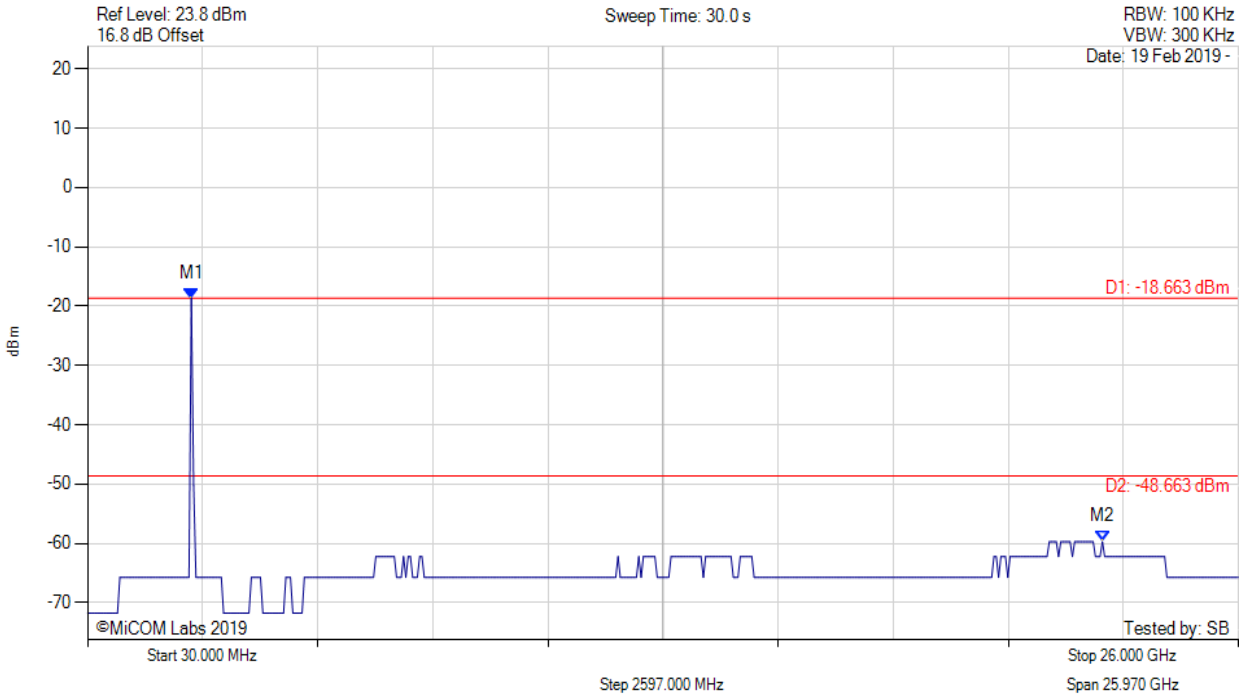


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2371.984 MHz : -17.029 dBm M2 : 22.929 GHz : -59.224 dBm	Limit: -47.03 dBm Margin: -12.19 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

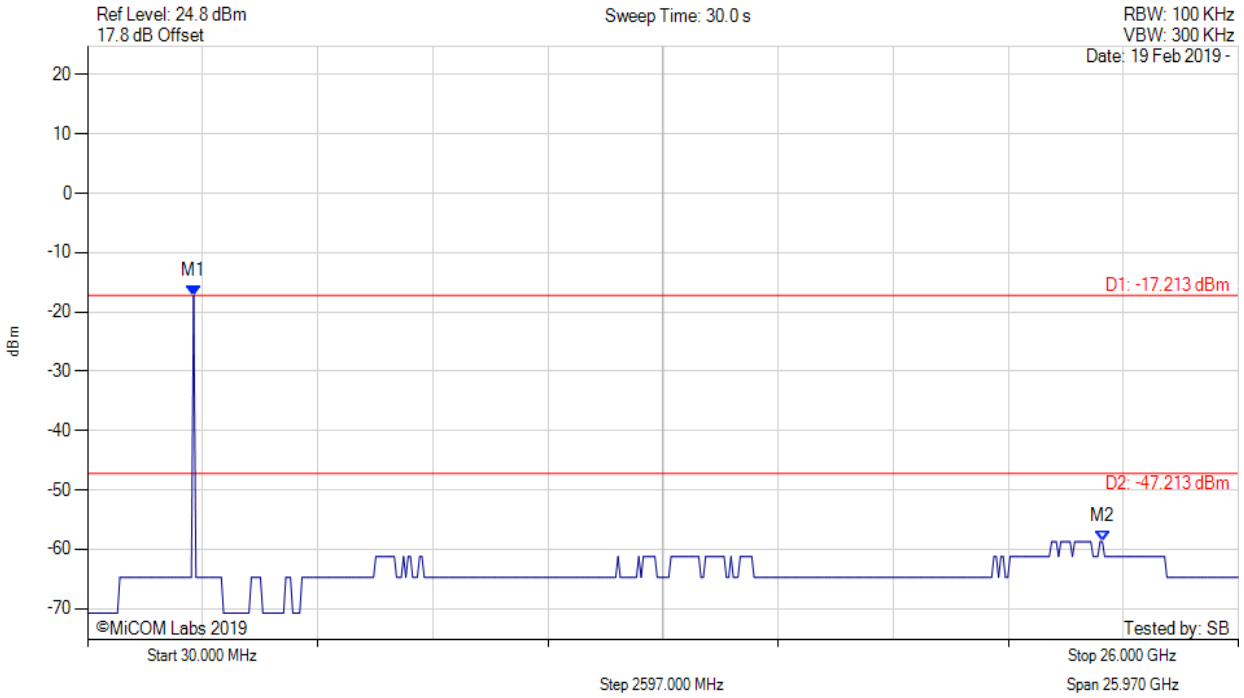


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2371.984 MHz : -18.663 dBm M2 : 22.929 GHz : -59.724 dBm	Limit: -48.66 dBm Margin: -11.06 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

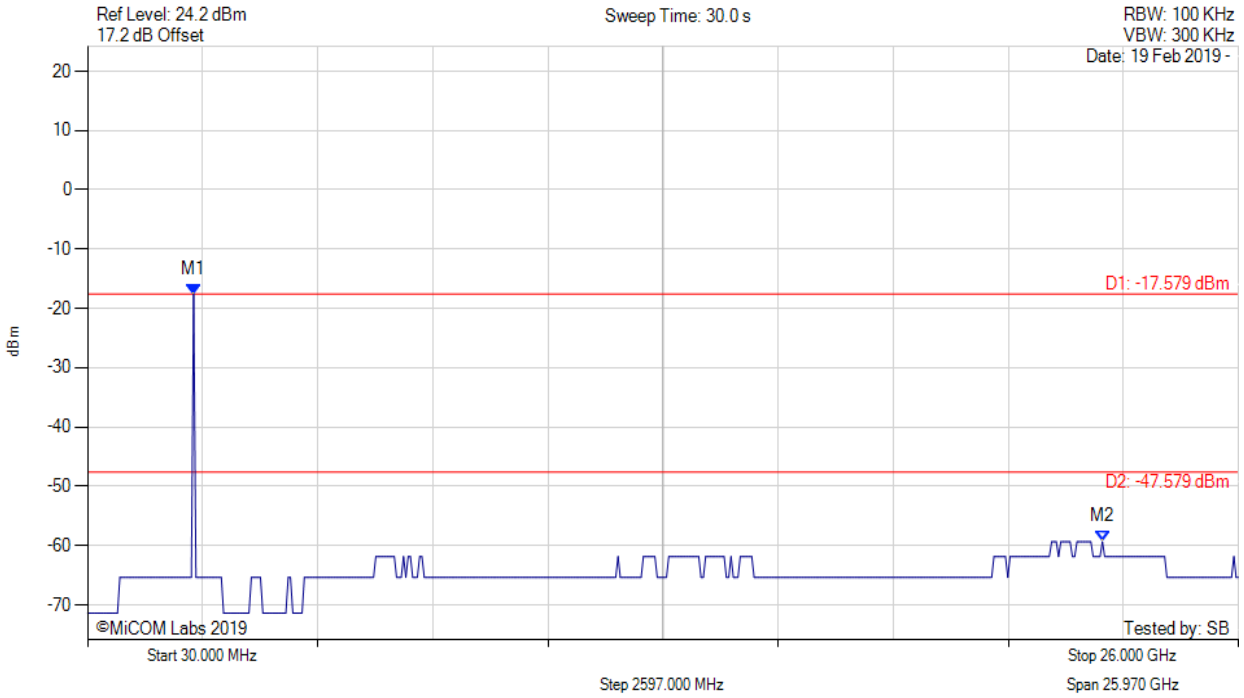


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -17.213 dBm M2 : 22.929 GHz : -58.724 dBm	Limit: -47.21 dBm Margin: -11.51 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

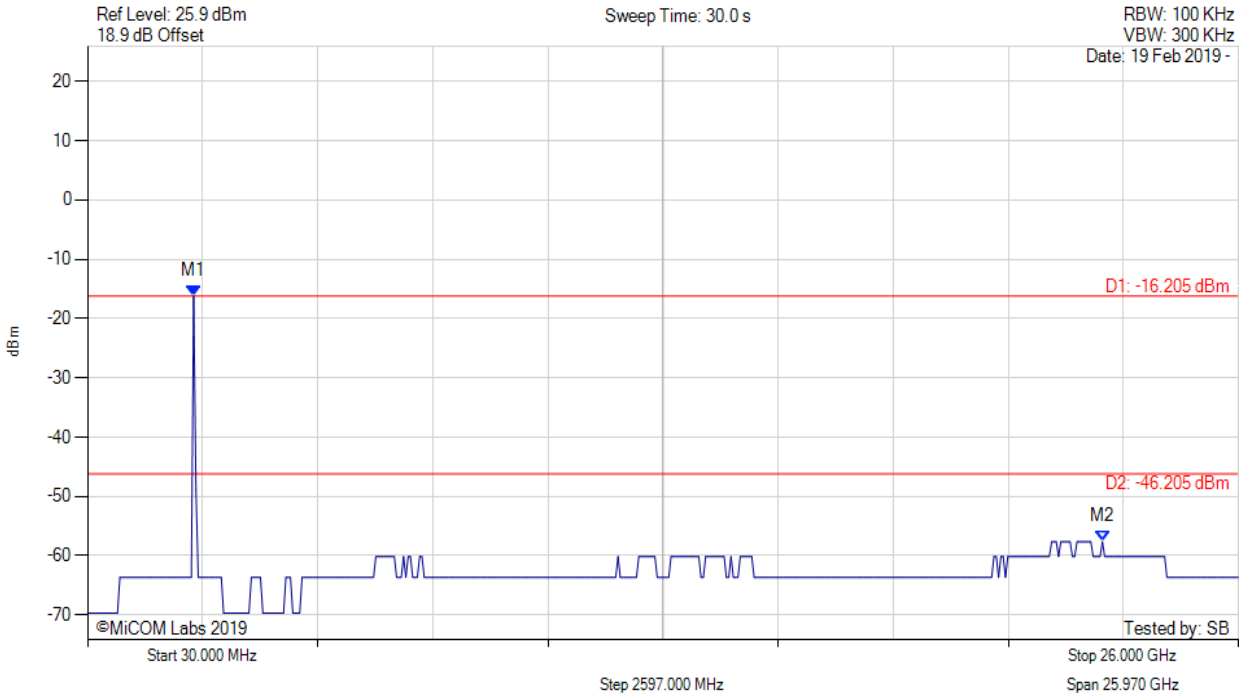


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -17.579 dBm M2 : 22.929 GHz : -59.324 dBm	Limit: -47.58 dBm Margin: -11.74 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

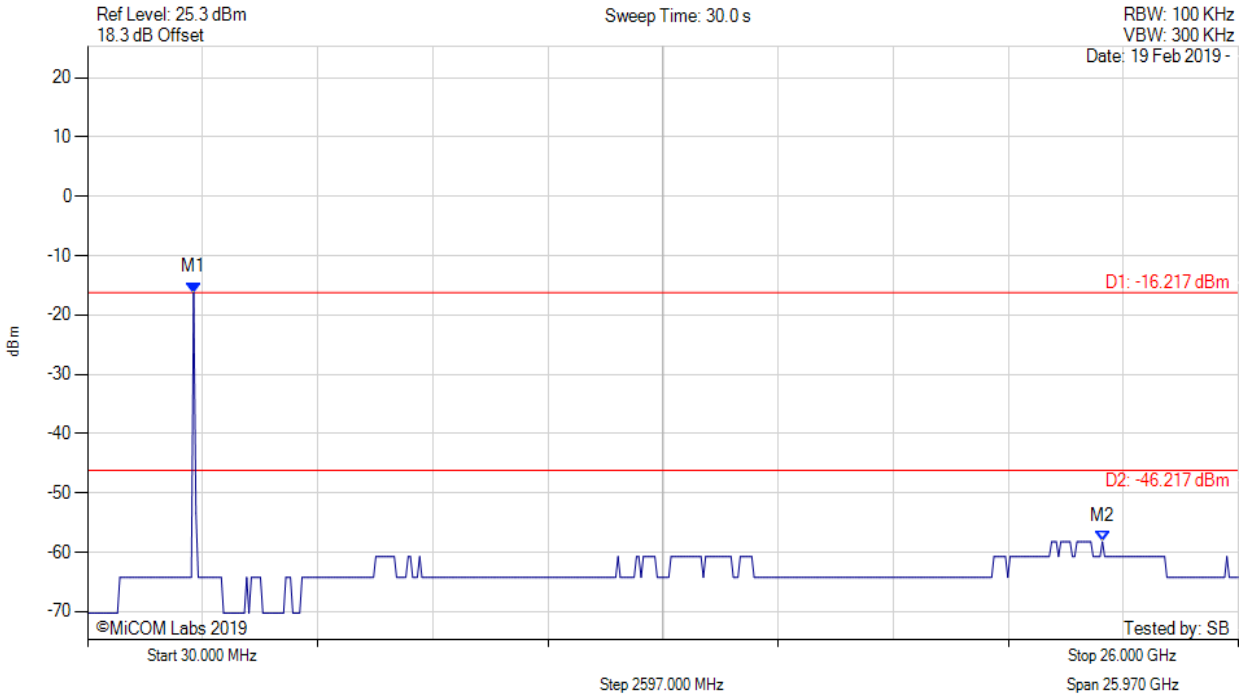


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -16.205 dBm M2 : 22.929 GHz : -57.624 dBm	Limit: -46.21 dBm Margin: -11.41 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

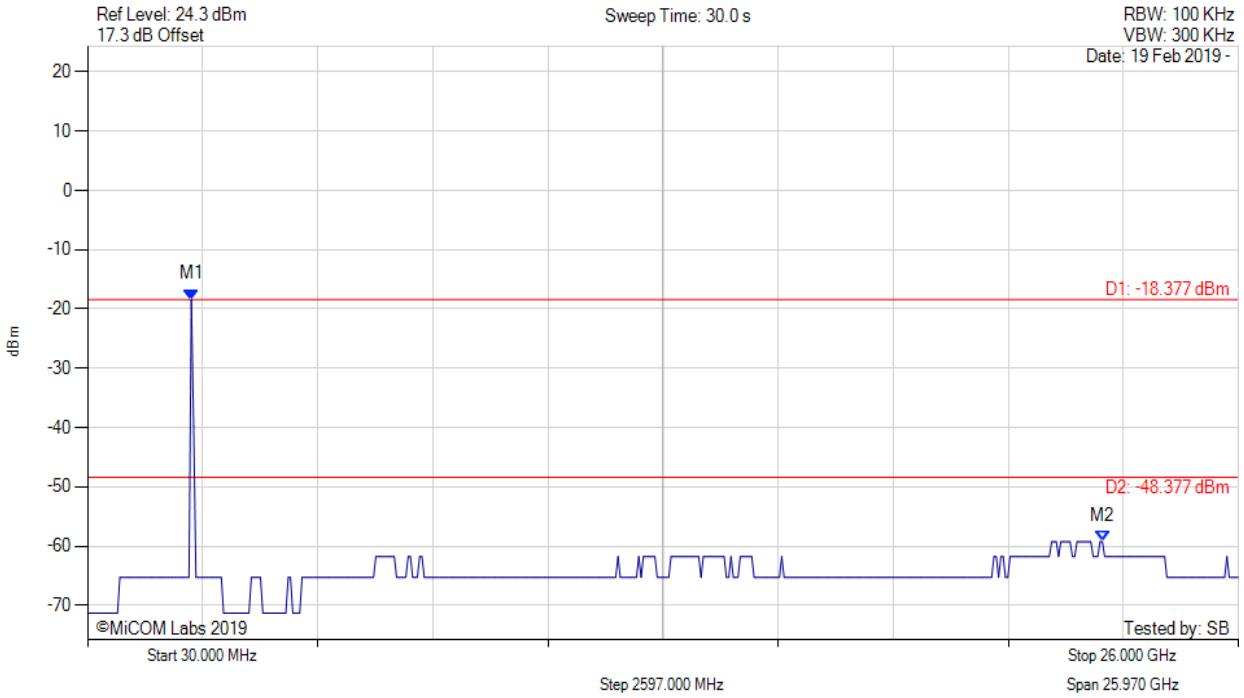


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -16.217 dBm M2 : 22.929 GHz : -58.224 dBm	Limit: -46.22 dBm Margin: -12.00 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

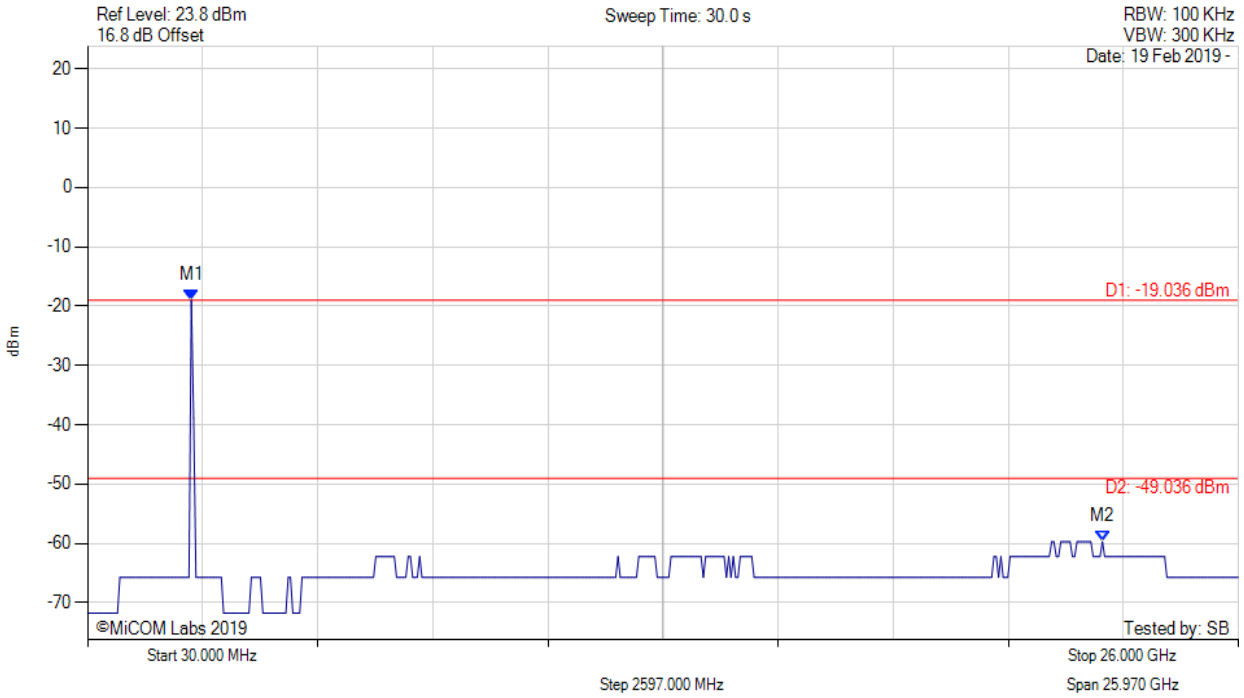


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2371.984 MHz : -18.377 dBm M2 : 22.929 GHz : -59.224 dBm	Limit: -48.38 dBm Margin: -10.84 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

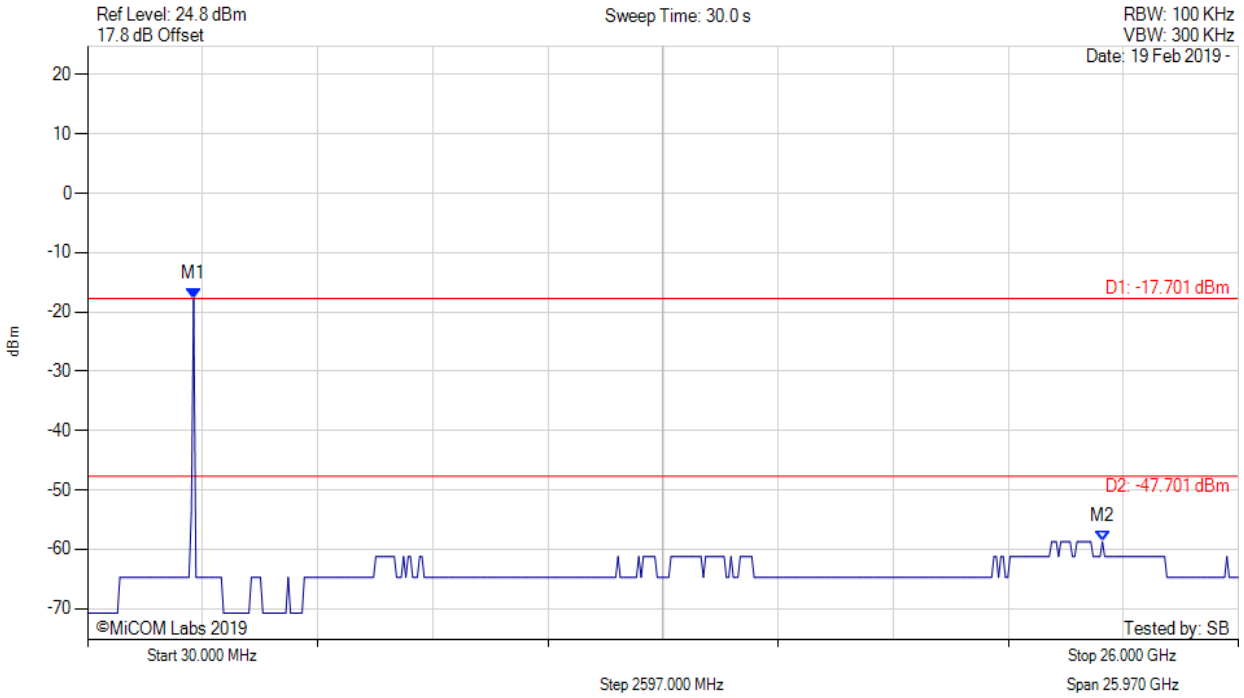


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2371.984 MHz : -19.036 dBm M2 : 22.929 GHz : -59.724 dBm	Limit: -49.04 dBm Margin: -10.68 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

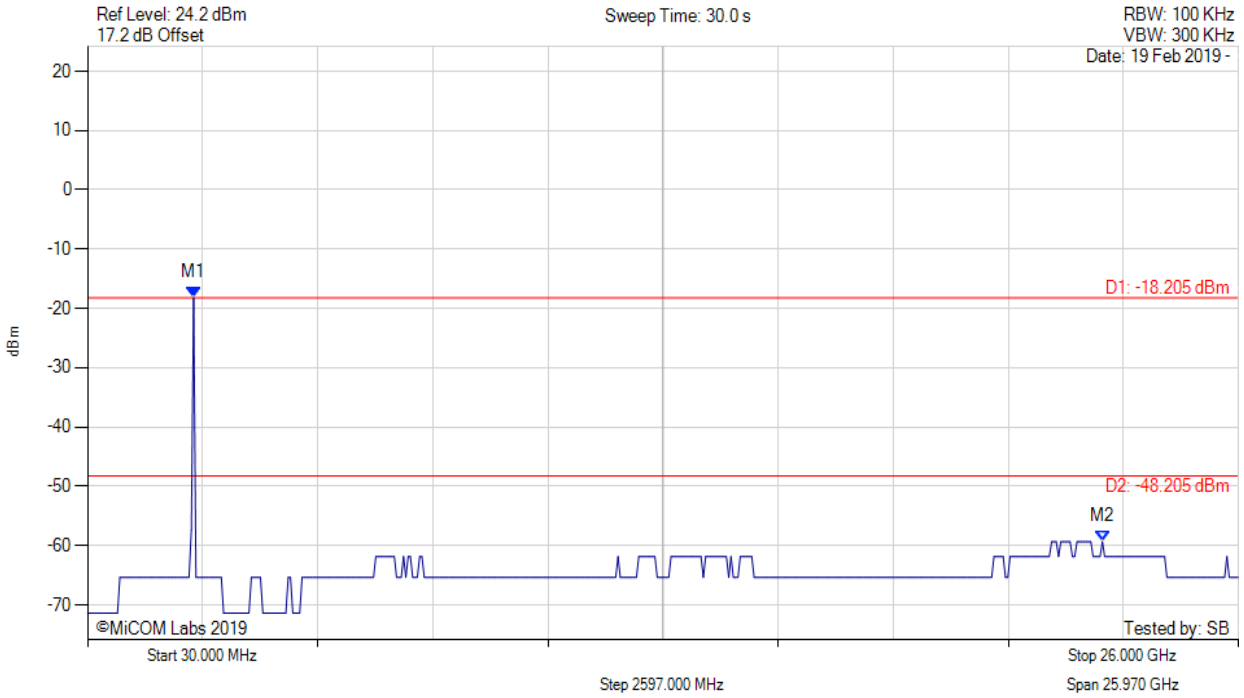


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -17.701 dBm M2 : 22.929 GHz : -58.724 dBm	Limit: -47.70 dBm Margin: -11.02 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

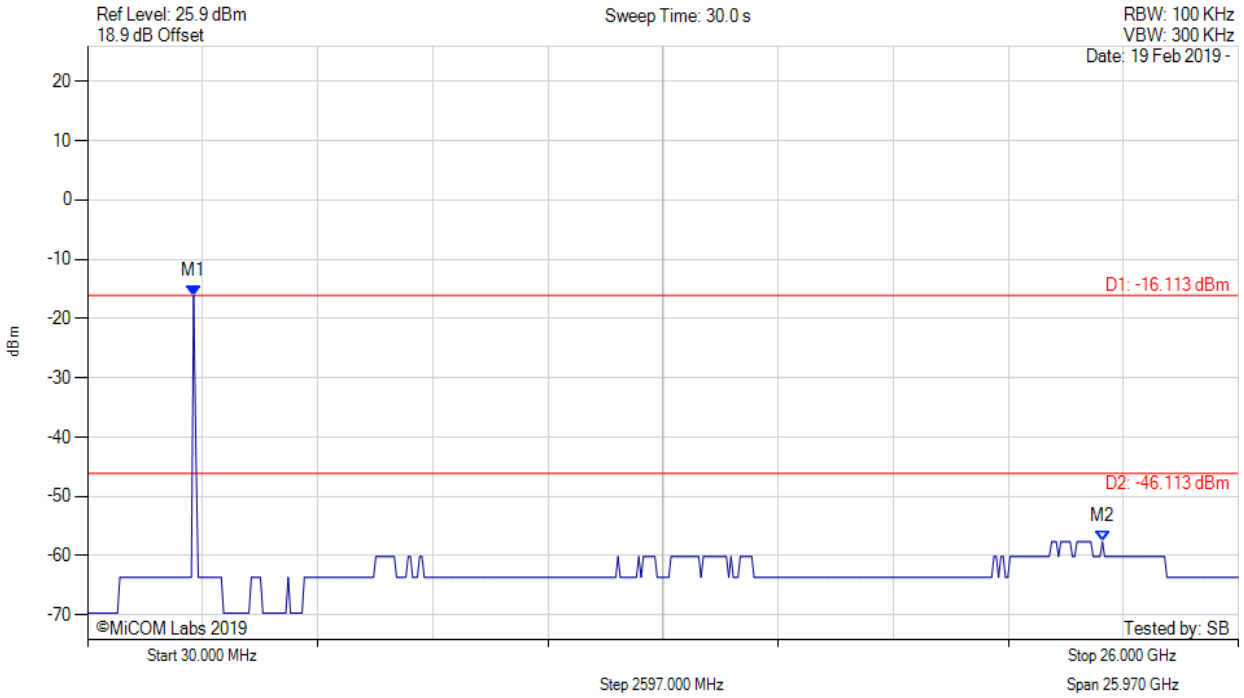


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -18.205 dBm M2 : 22.929 GHz : -59.324 dBm	Limit: -48.21 dBm Margin: -11.11 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

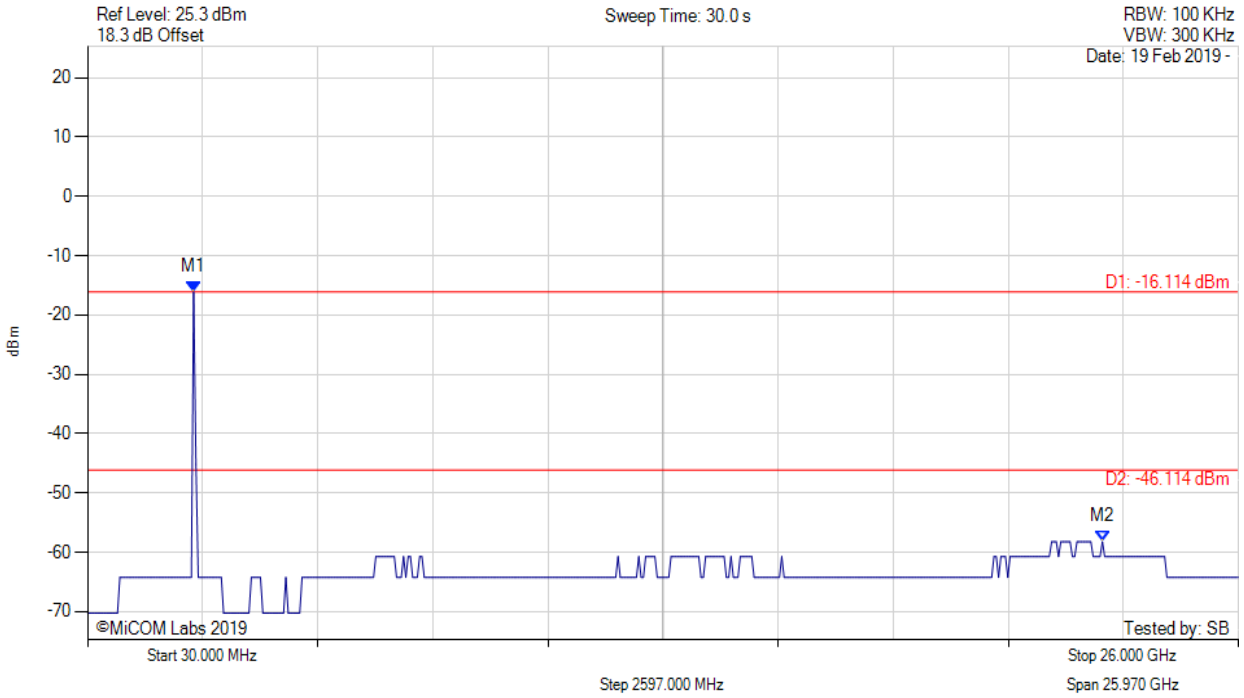


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -16.113 dBm M2 : 22.929 GHz : -57.624 dBm	Limit: -46.11 dBm Margin: -11.51 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

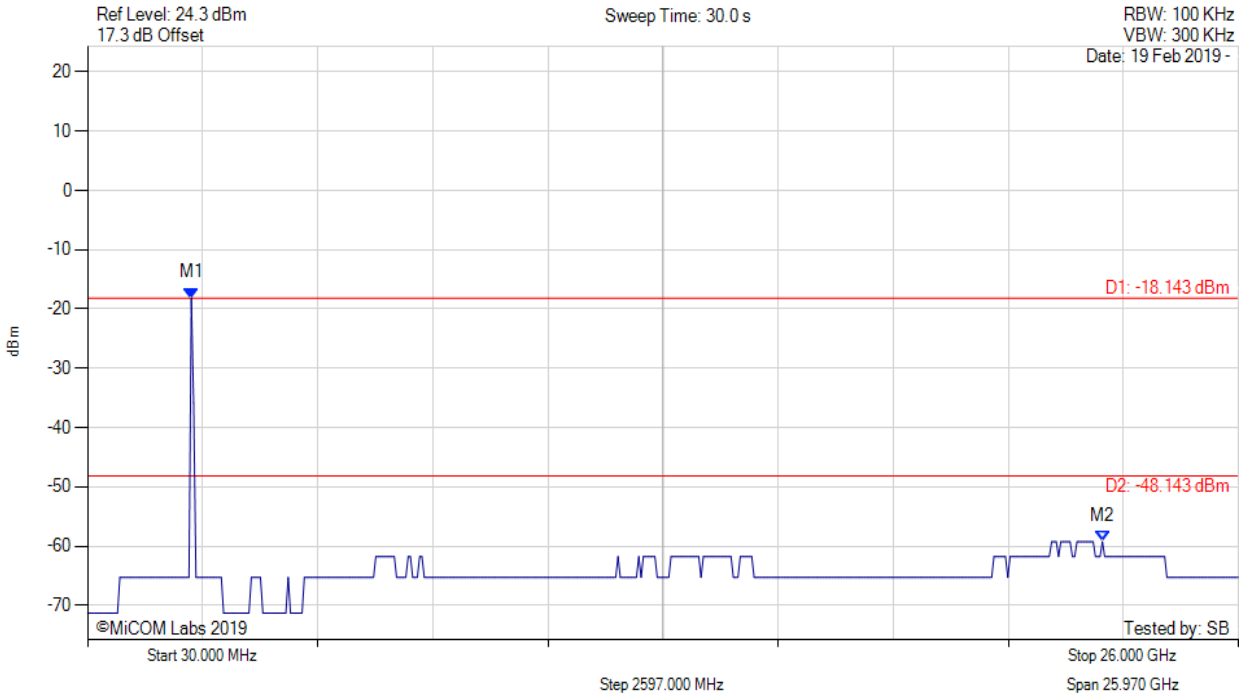


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -16.114 dBm M2 : 22.929 GHz : -58.224 dBm	Limit: -46.11 dBm Margin: -12.11 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

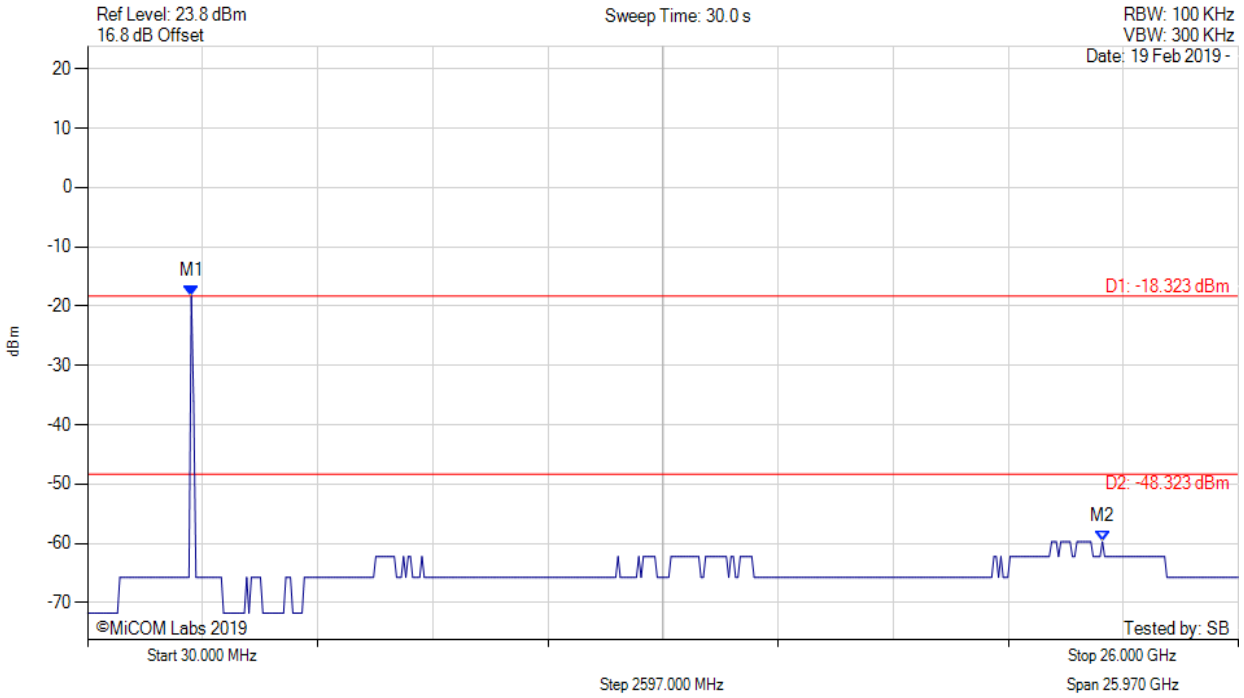


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2371.984 MHz : -18.143 dBm M2 : 22.929 GHz : -59.224 dBm	Limit: -48.14 dBm Margin: -11.08 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

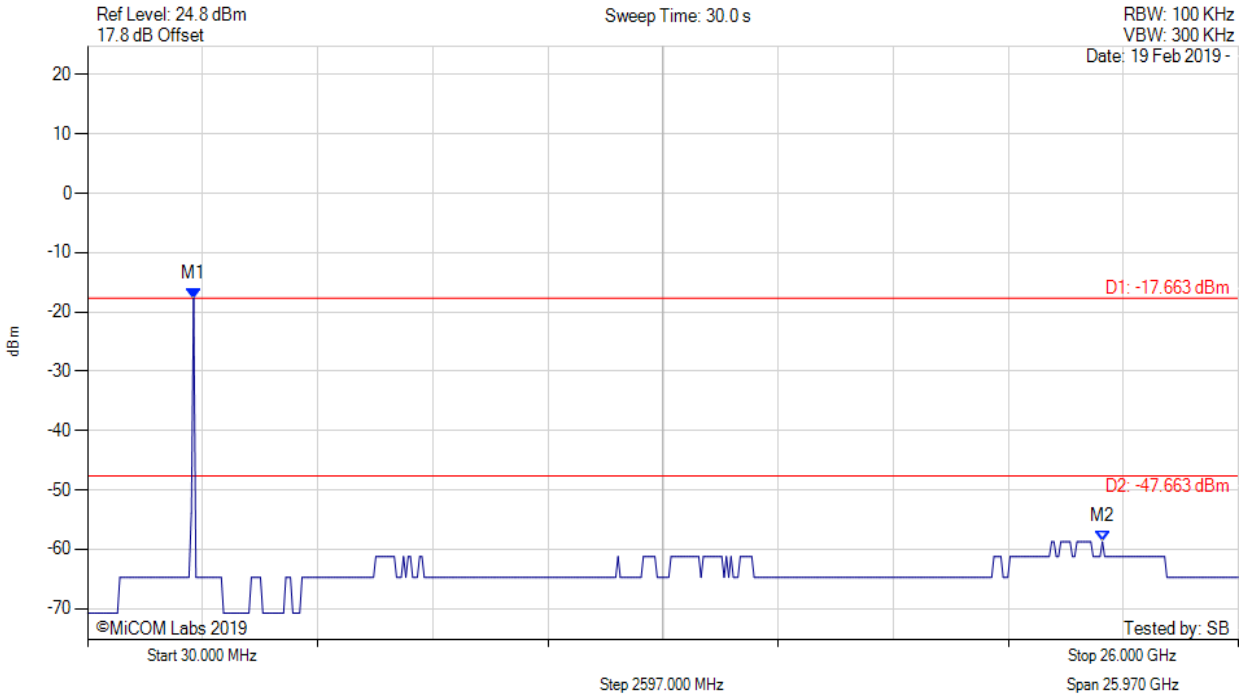


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2371.984 MHz : -18.323 dBm M2 : 22.929 GHz : -59.724 dBm	Limit: -48.32 dBm Margin: -11.40 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

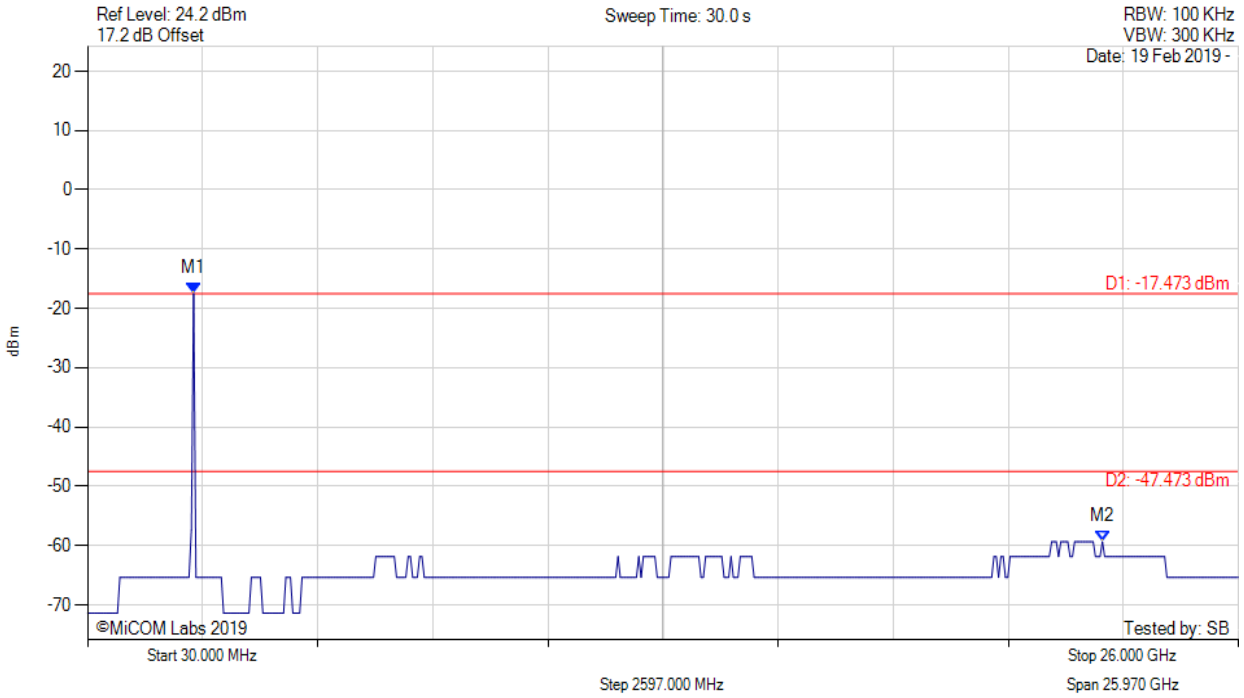


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -17.663 dBm M2 : 22.929 GHz : -58.724 dBm	Limit: -47.66 dBm Margin: -11.06 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

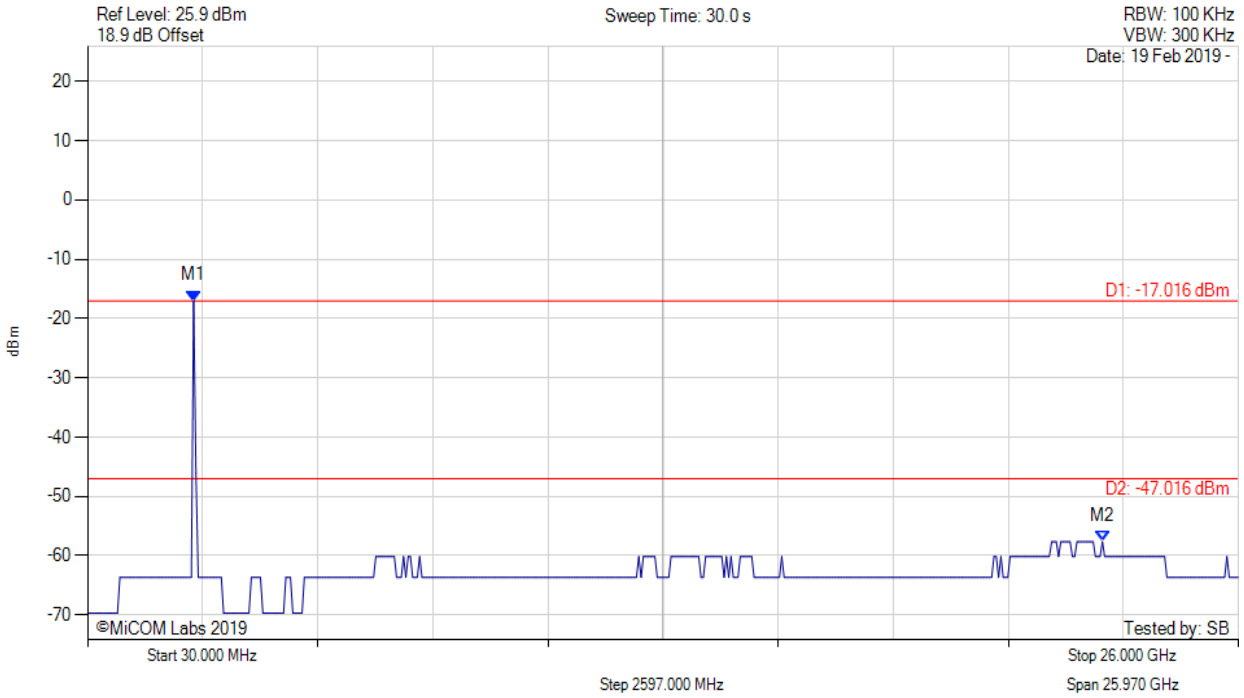


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -17.473 dBm M2 : 22.929 GHz : -59.324 dBm	Limit: -47.47 dBm Margin: -11.85 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

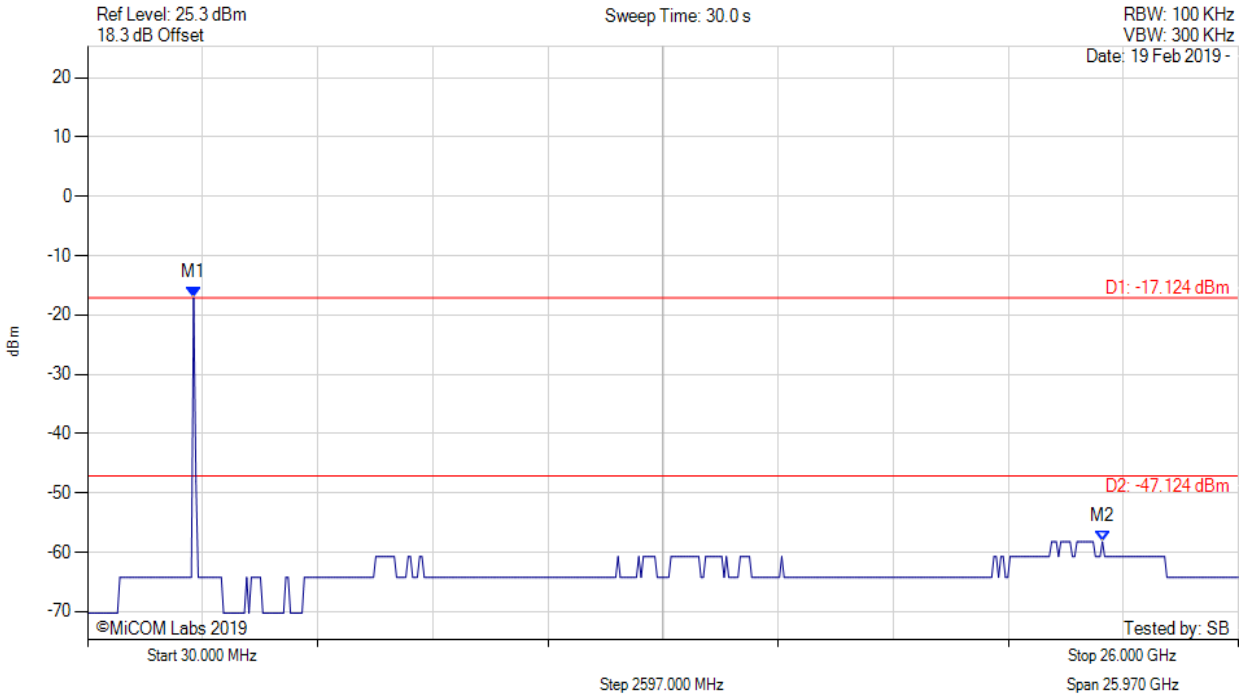


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -17.016 dBm M2 : 22.929 GHz : -57.624 dBm	Limit: -47.02 dBm Margin: -10.60 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

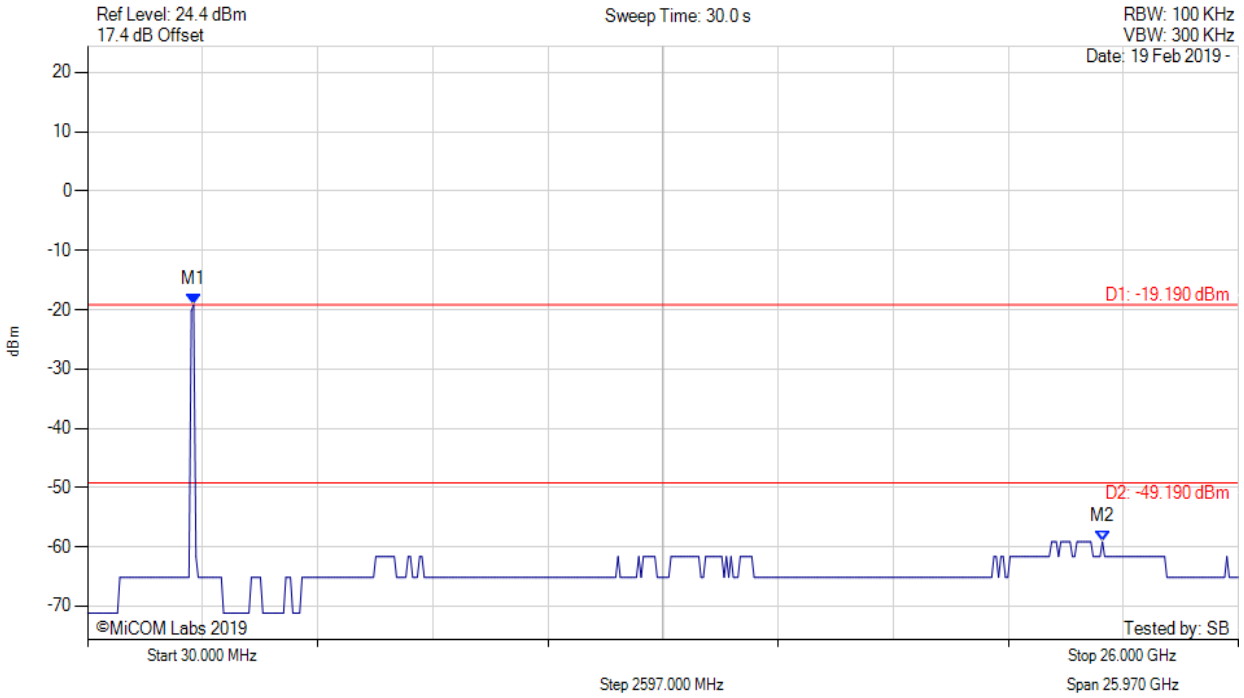


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -17.124 dBm M2 : 22.929 GHz : -58.224 dBm	Limit: -47.12 dBm Margin: -11.10 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

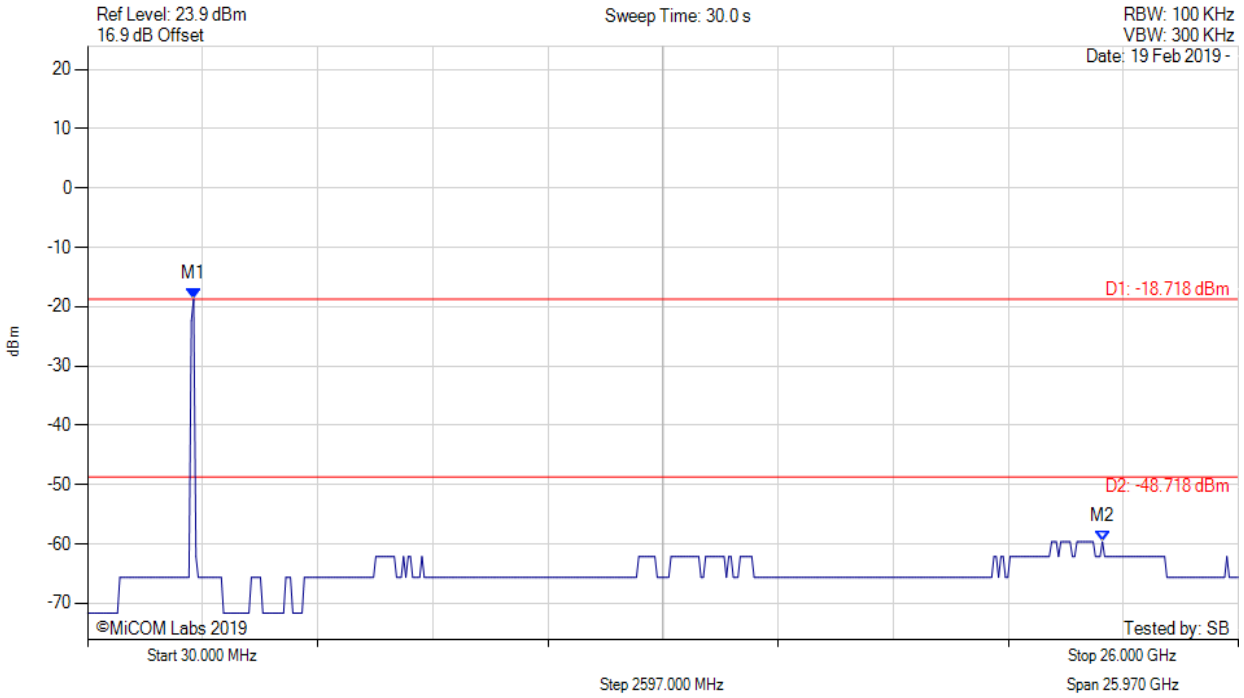


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -19.190 dBm M2 : 22.929 GHz : -59.124 dBm	Limit: -49.19 dBm Margin: -9.93 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

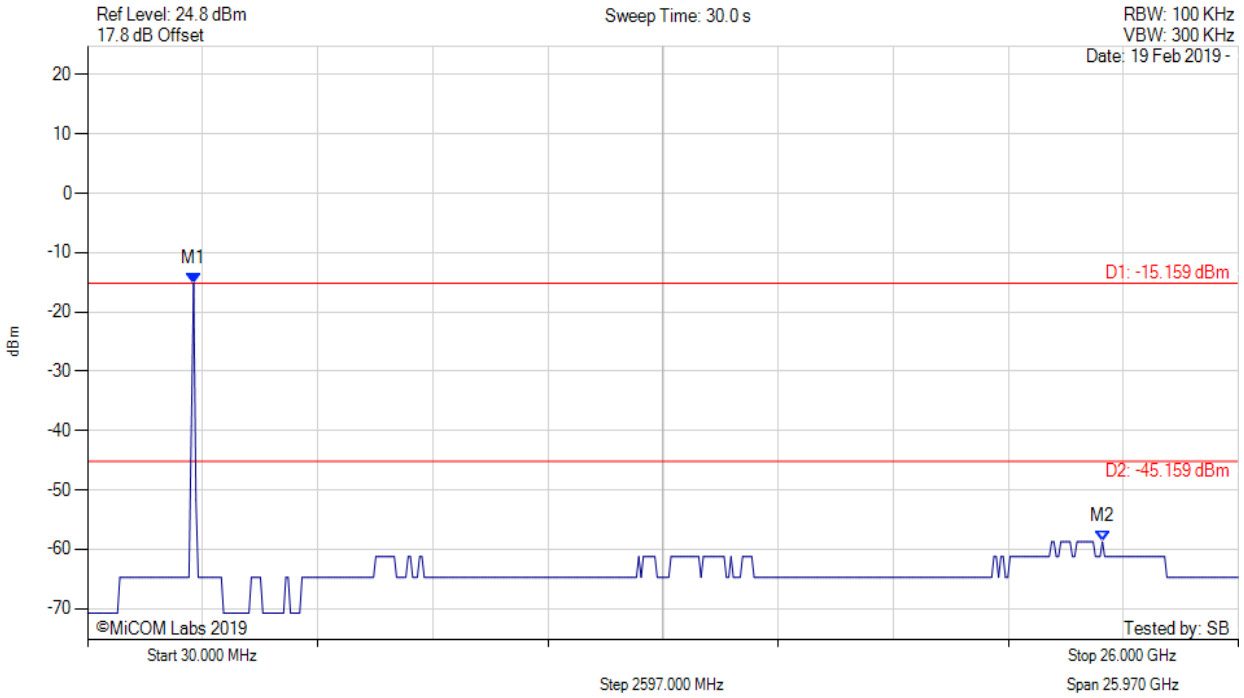


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -18.718 dBm M2 : 22.929 GHz : -59.624 dBm	Limit: -48.72 dBm Margin: -10.90 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

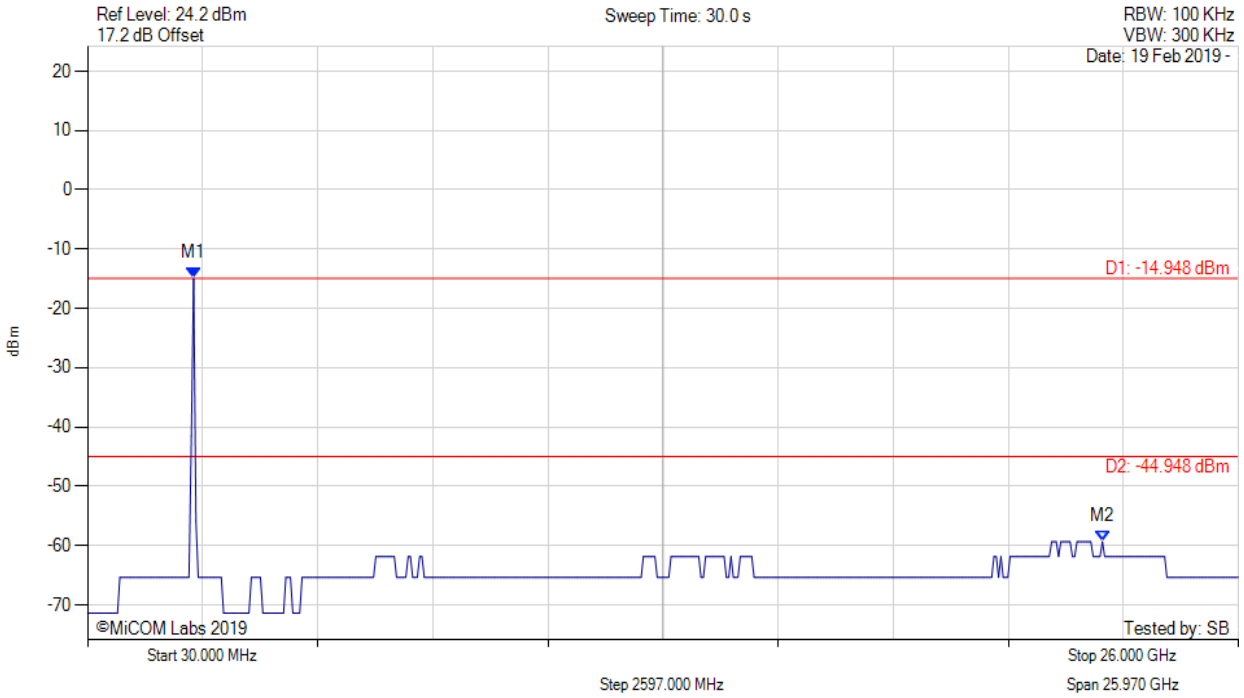


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -15.159 dBm M2 : 22.929 GHz : -58.724 dBm	Limit: -45.16 dBm Margin: -13.56 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

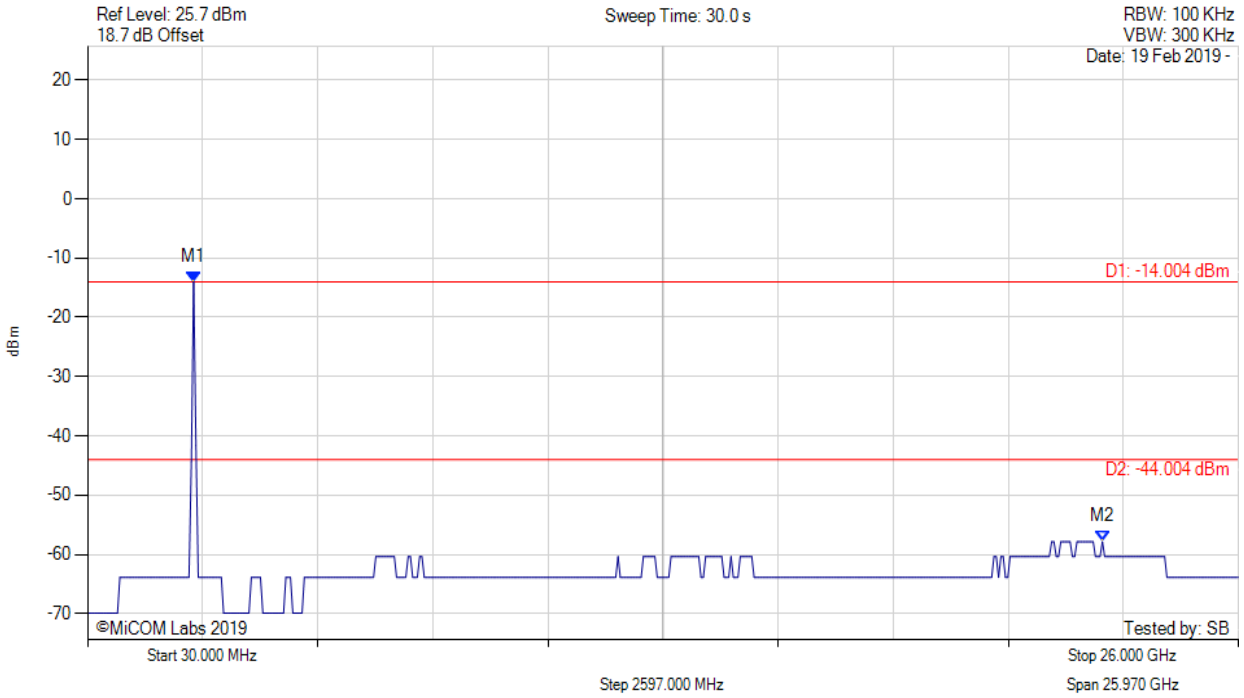


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -14.948 dBm M2 : 22.929 GHz : -59.324 dBm	Limit: -44.95 dBm Margin: -14.37 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

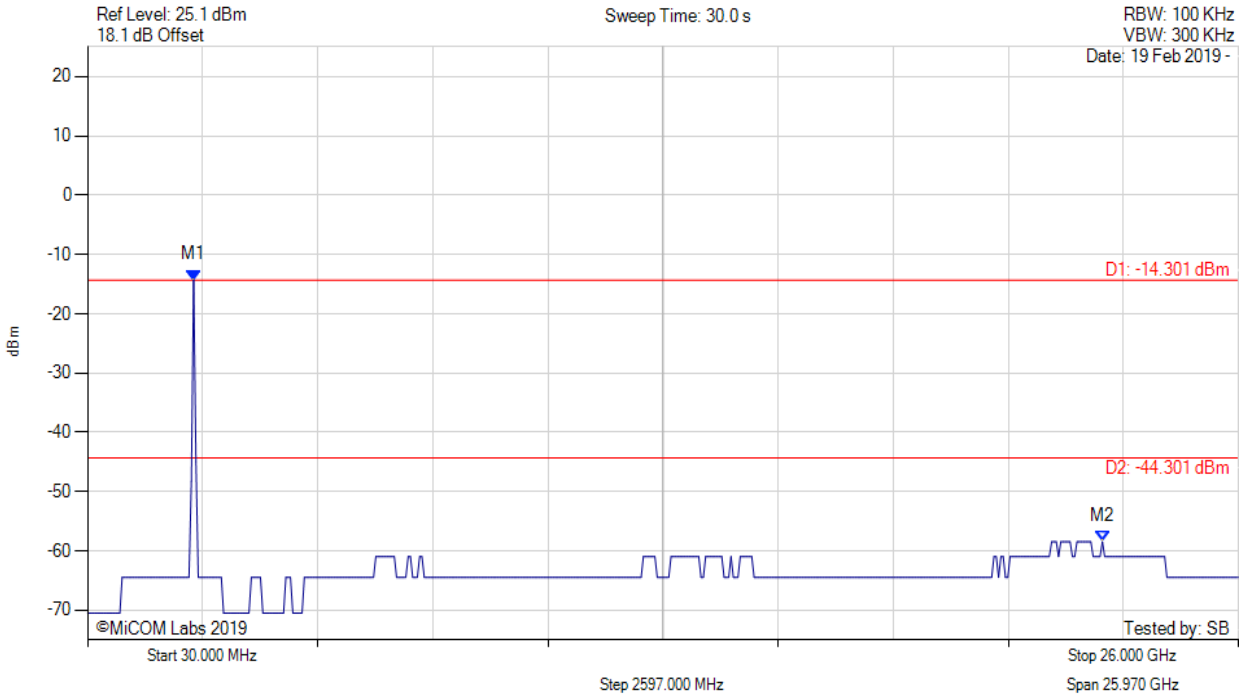


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -14.004 dBm M2 : 22.929 GHz : -57.824 dBm	Limit: -44.00 dBm Margin: -13.82 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc



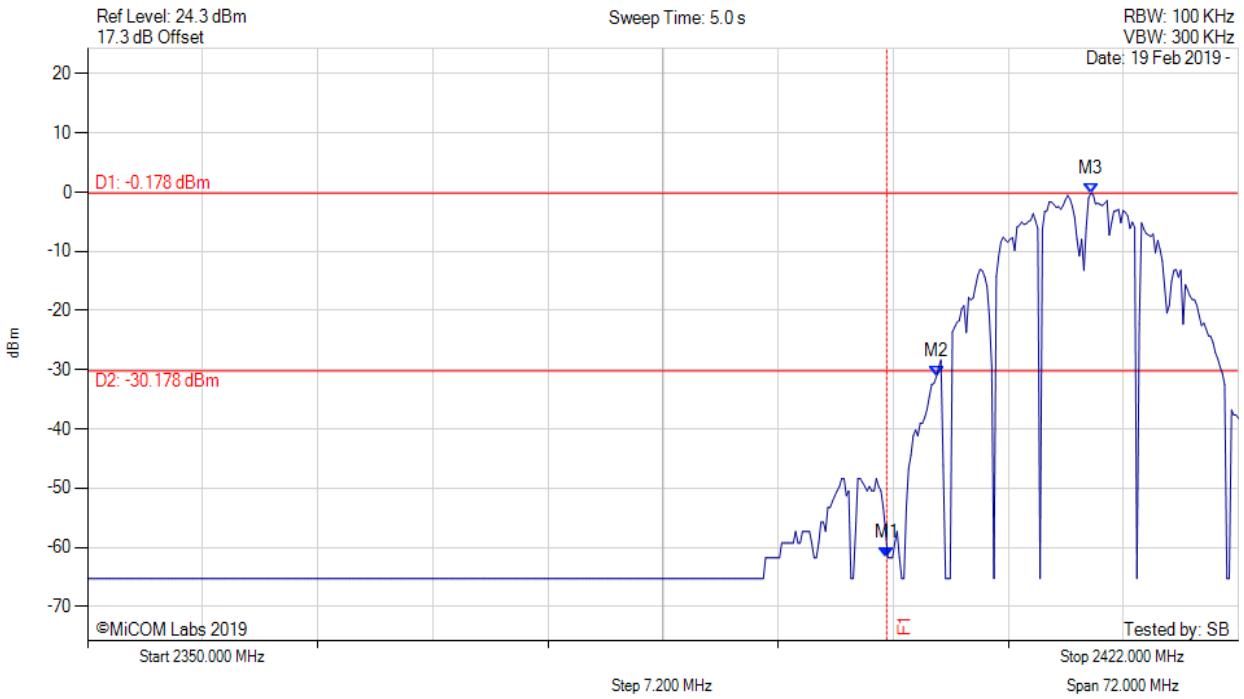
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2424.028 MHz : -14.301 dBm M2 : 22.929 GHz : -58.424 dBm	Limit: -44.30 dBm Margin: -14.12 dB

back to matrix

A.3.1.2. Conducted Band-Edge Emissions

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

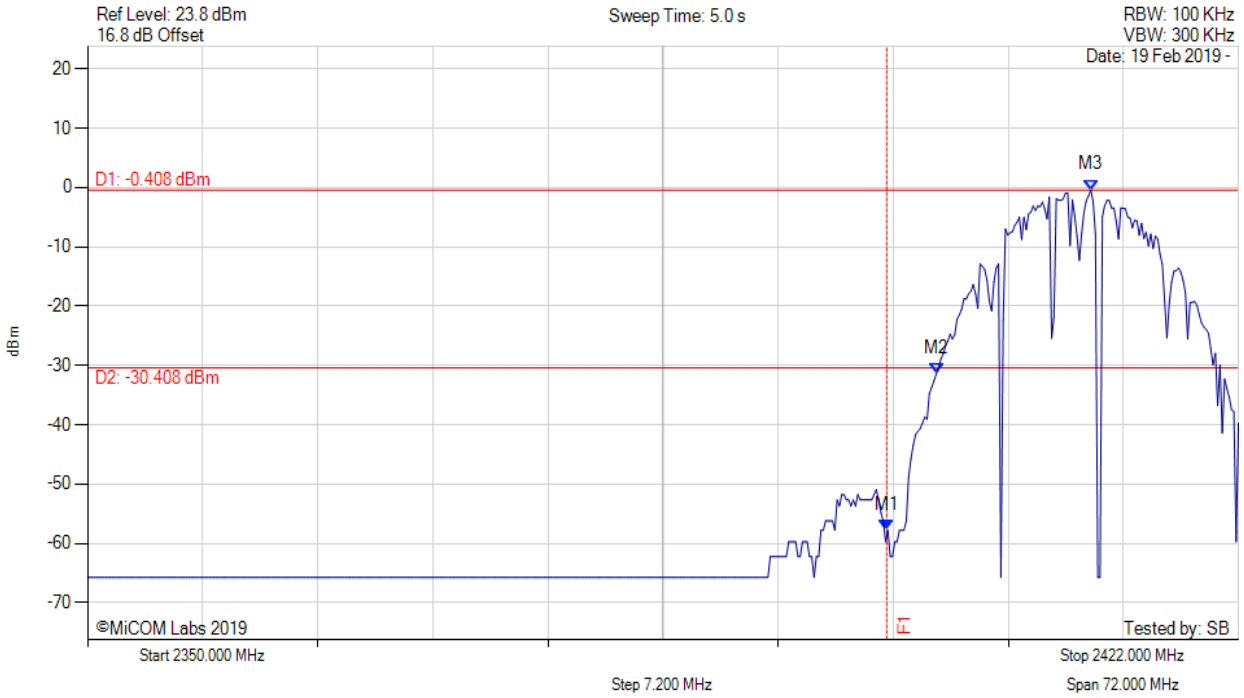


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -61.723 dBm M2 : 2403.098 MHz : -31.179 dBm M3 : 2412.766 MHz : -0.178 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

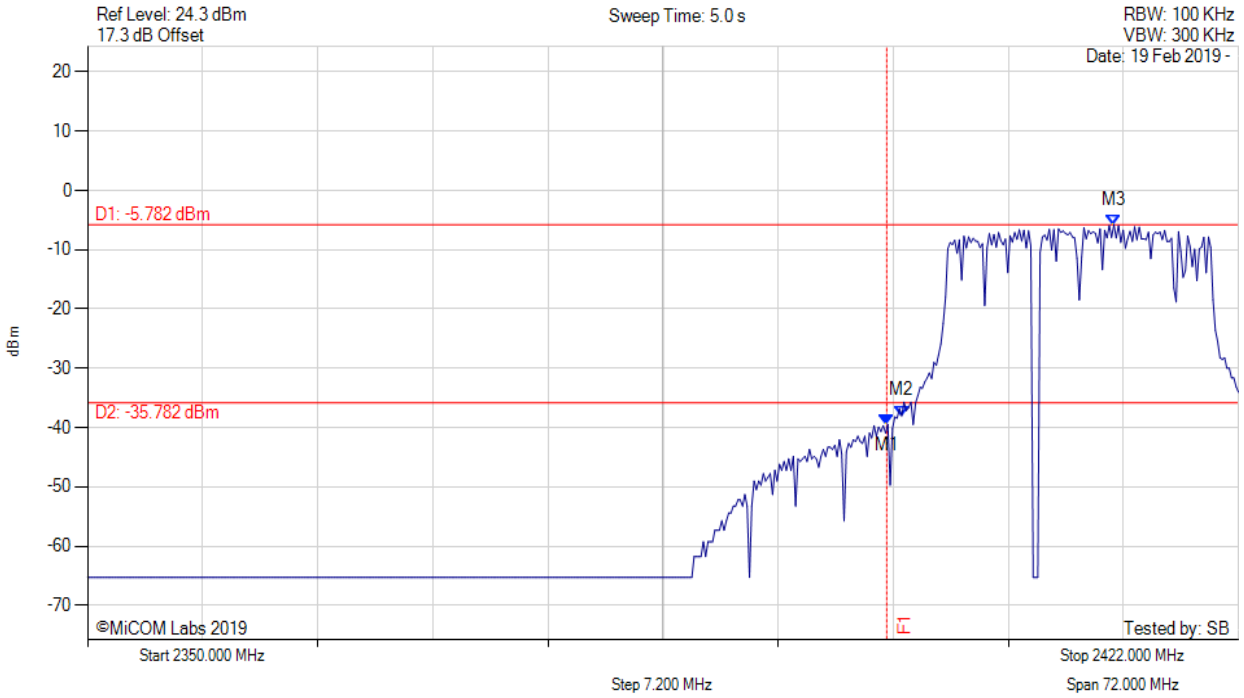


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -57.786 dBm M2 : 2403.098 MHz : -31.425 dBm M3 : 2412.766 MHz : -0.408 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

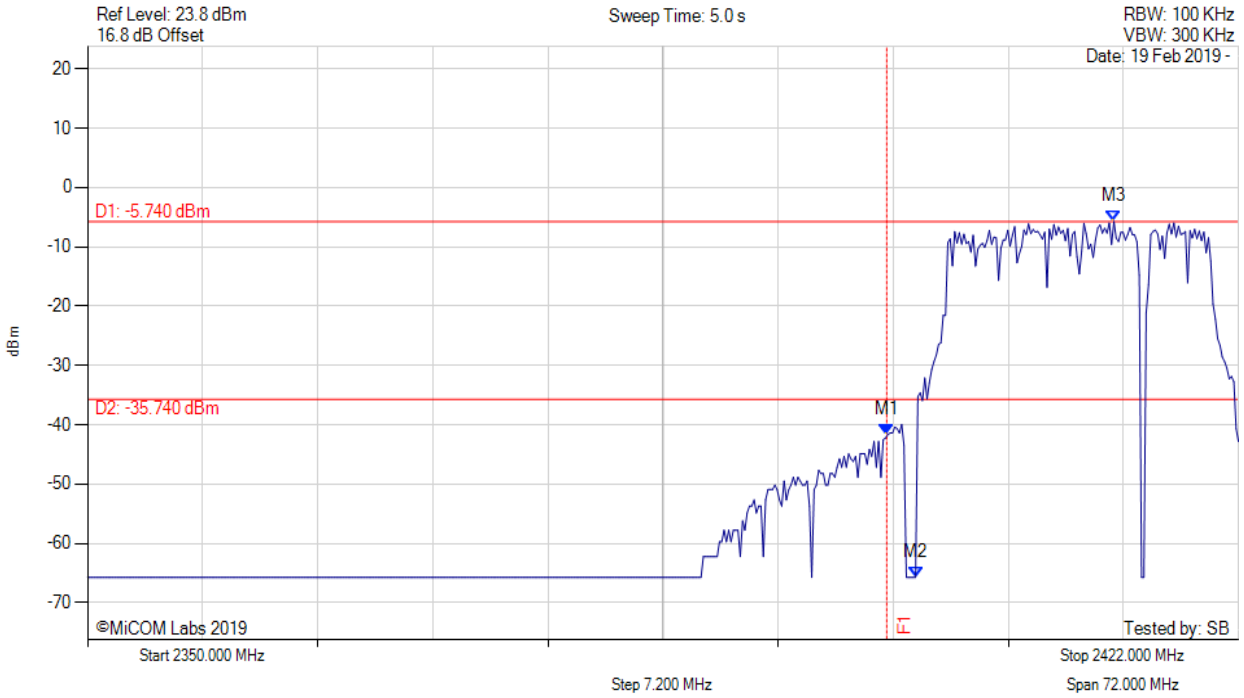


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -39.444 dBm M2 : 2400.934 MHz : -38.010 dBm M3 : 2414.208 MHz : -5.782 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

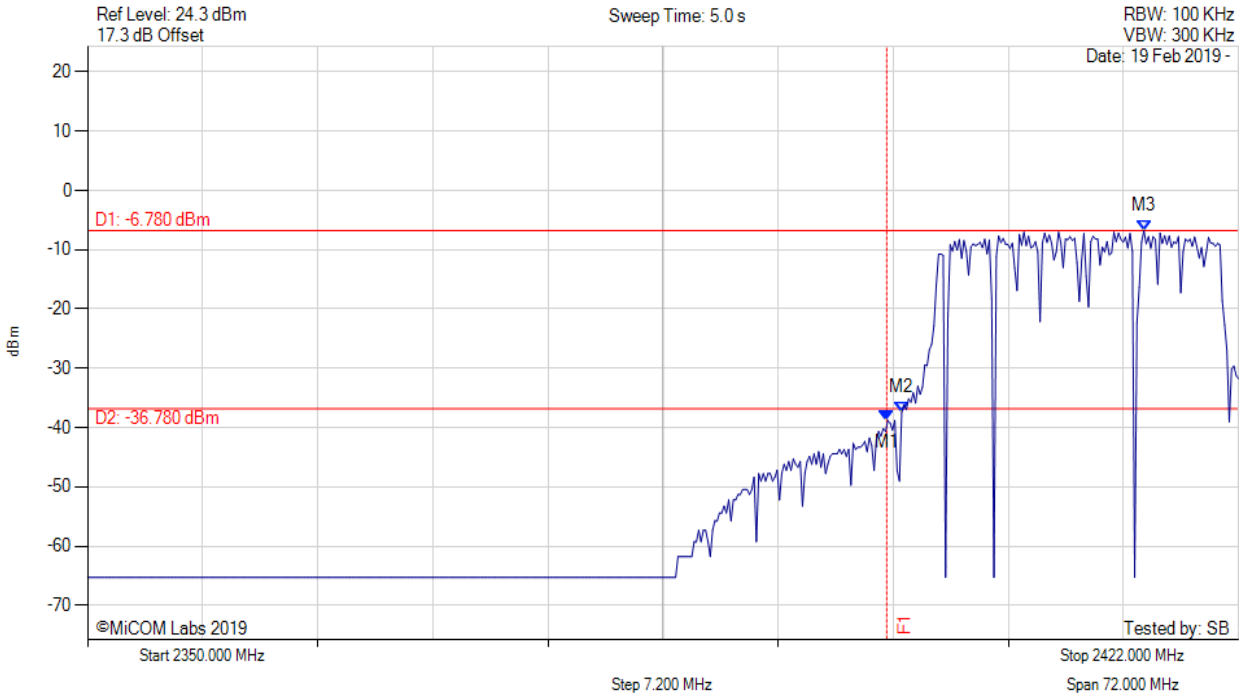


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -41.662 dBm M2 : 2401.800 MHz : -65.745 dBm M3 : 2414.208 MHz : -5.740 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

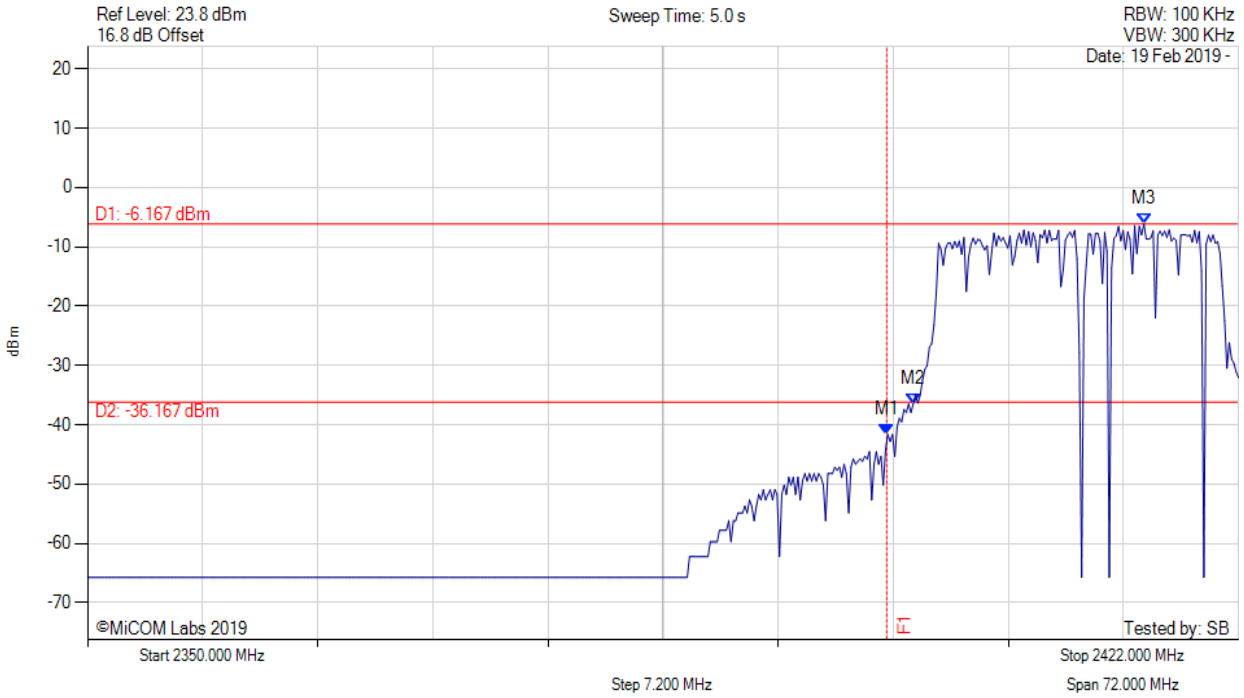


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -38.800 dBm M2 : 2400.934 MHz : -37.461 dBm M3 : 2416.084 MHz : -6.780 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

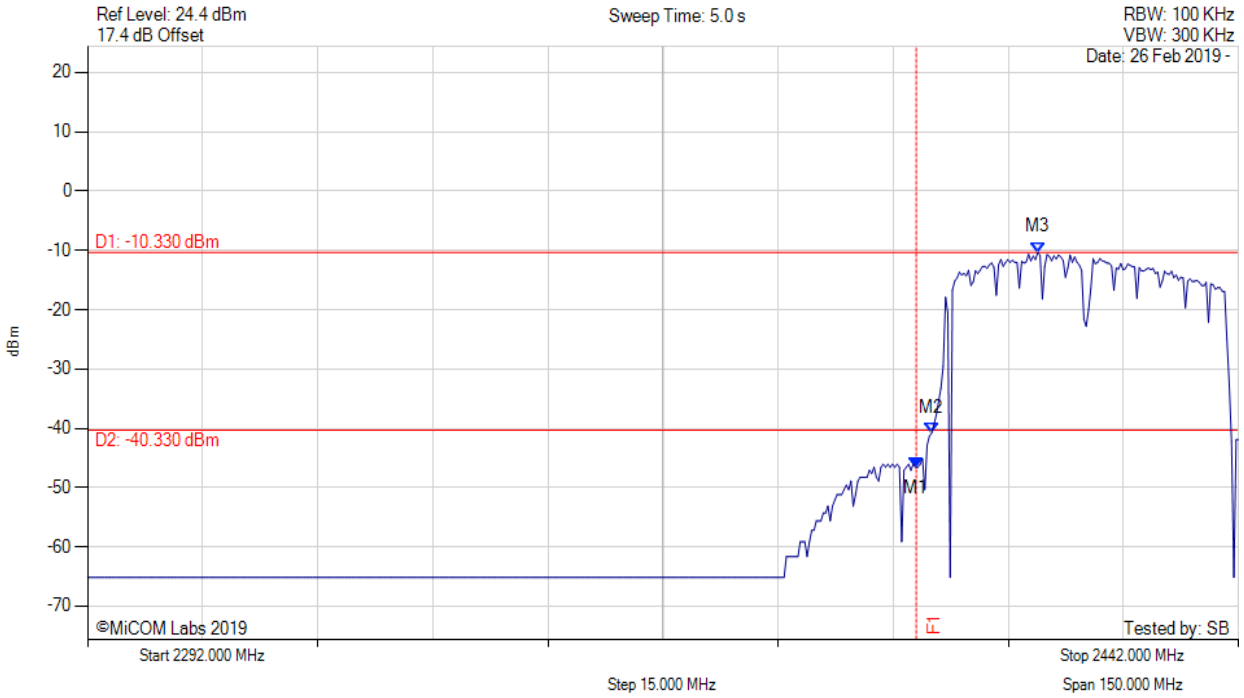


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -41.662 dBm M2 : 2401.655 MHz : -36.497 dBm M3 : 2416.084 MHz : -6.167 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

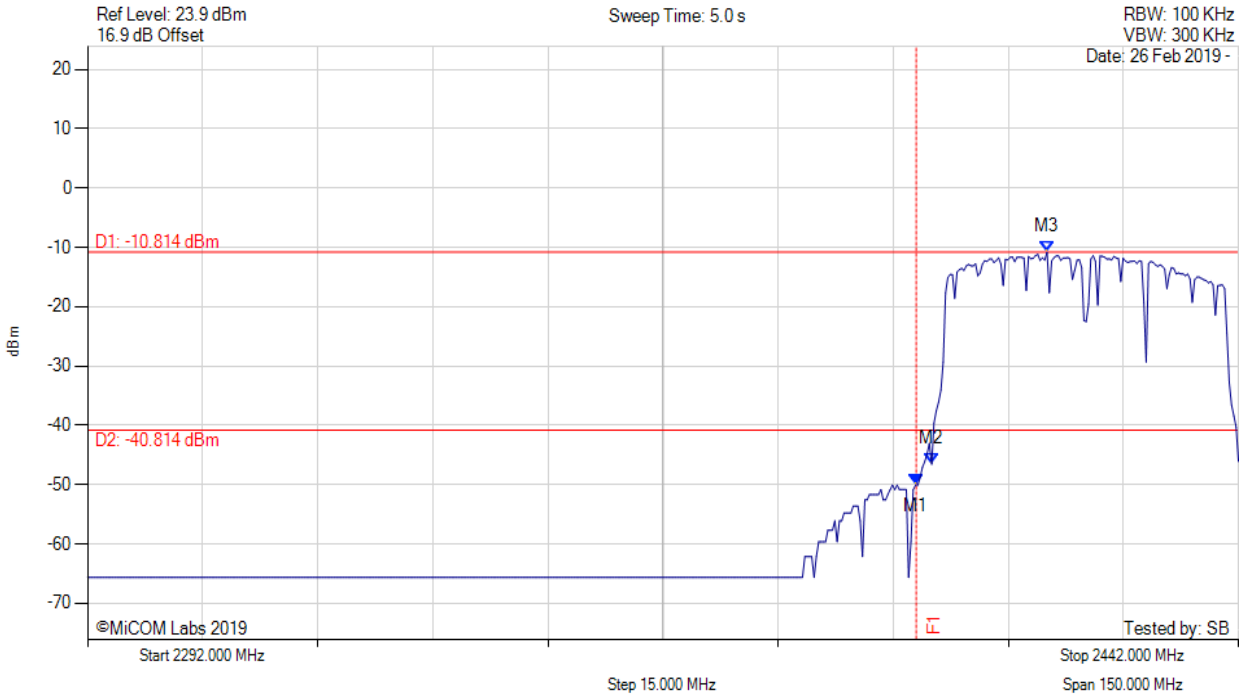


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -46.556 dBm M2 : 2402.020 MHz : -40.795 dBm M3 : 2415.848 MHz : -10.330 dBm	Channel Frequency: 2422.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

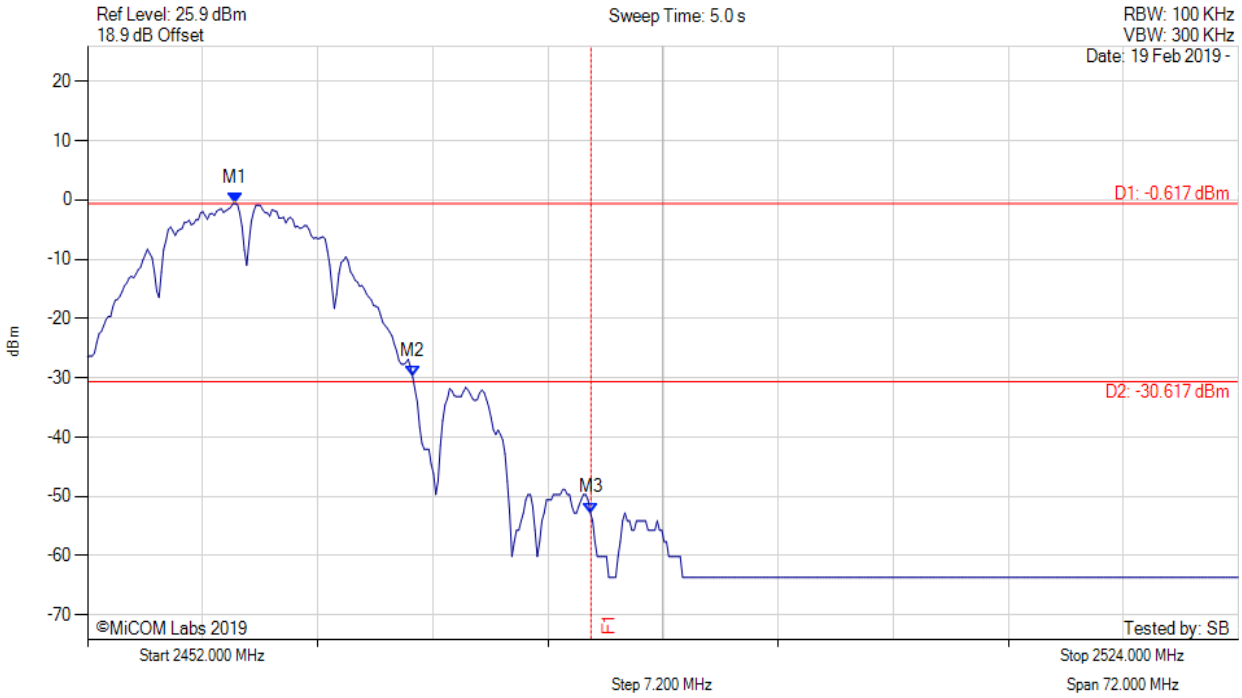


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -50.082 dBm M2 : 2402.020 MHz : -46.560 dBm M3 : 2417.050 MHz : -10.814 dBm	Channel Frequency: 2422.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

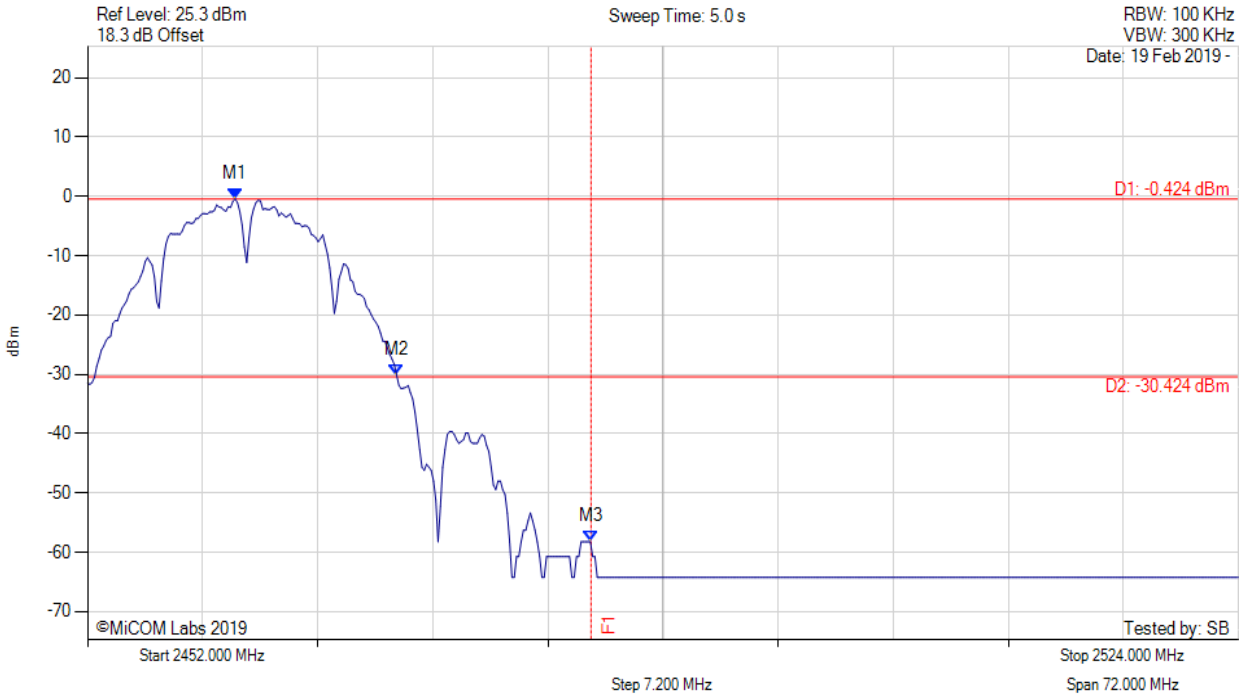


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.234 MHz : -0.617 dBm M2 : 2472.345 MHz : -29.841 dBm M3 : 2483.500 MHz : -52.763 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

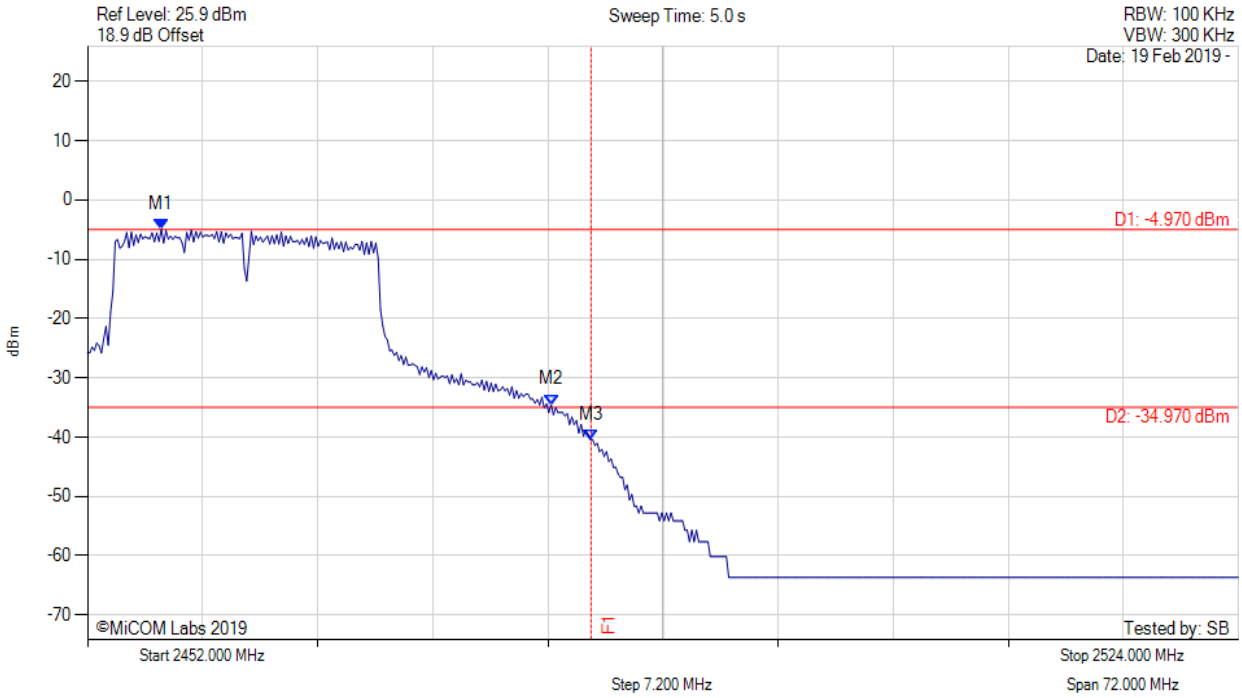


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.234 MHz : -0.424 dBm M2 : 2471.335 MHz : -30.093 dBm M3 : 2483.500 MHz : -58.224 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

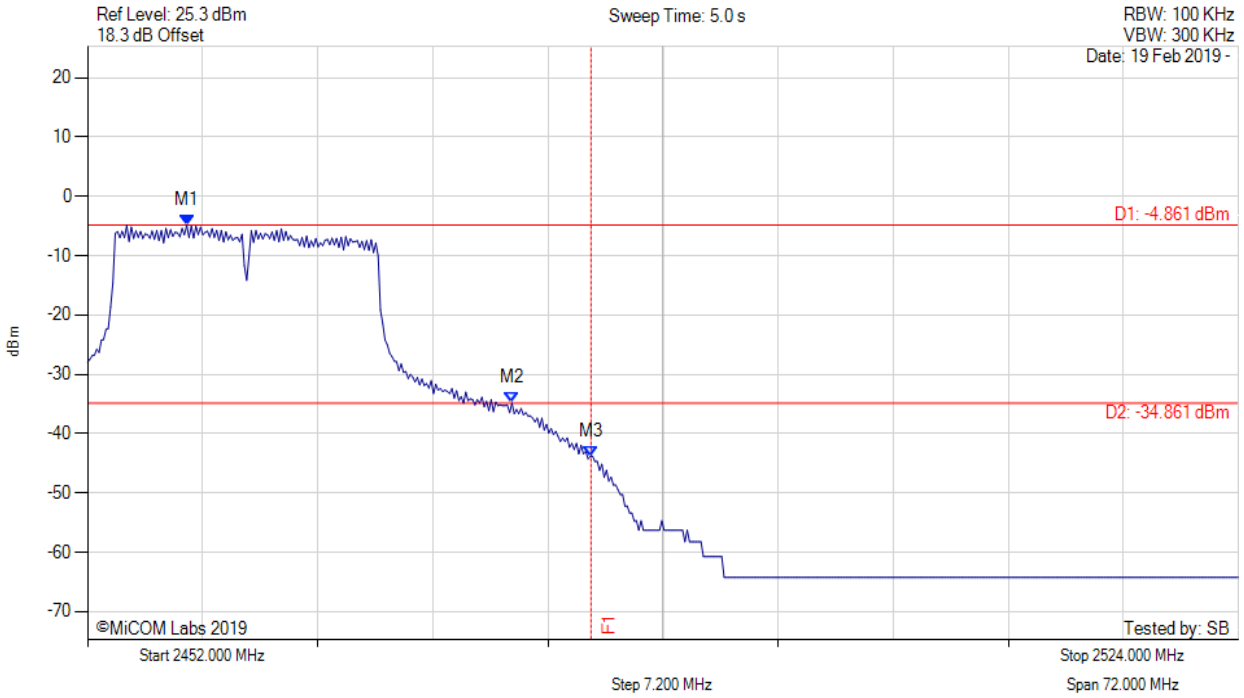


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2456.617 MHz : -4.970 dBm M2 : 2481.002 MHz : -34.548 dBm M3 : 2483.500 MHz : -40.417 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

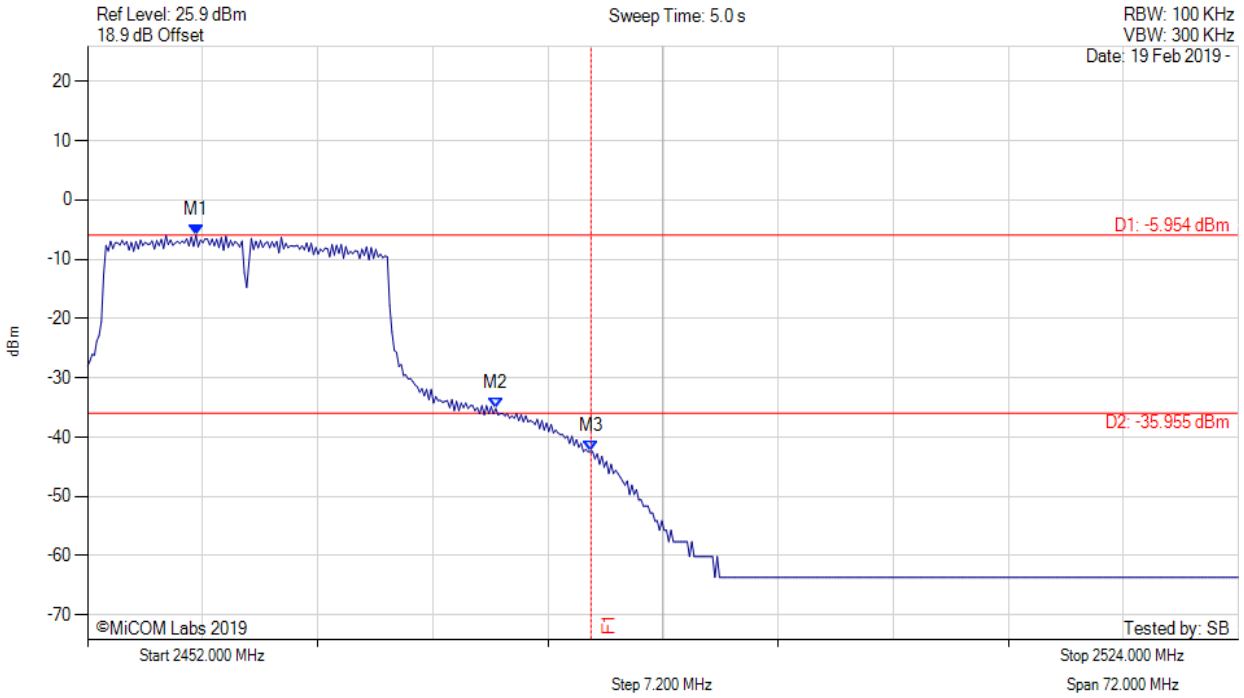


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2458.204 MHz : -4.861 dBm M2 : 2478.549 MHz : -34.848 dBm M3 : 2483.500 MHz : -43.821 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

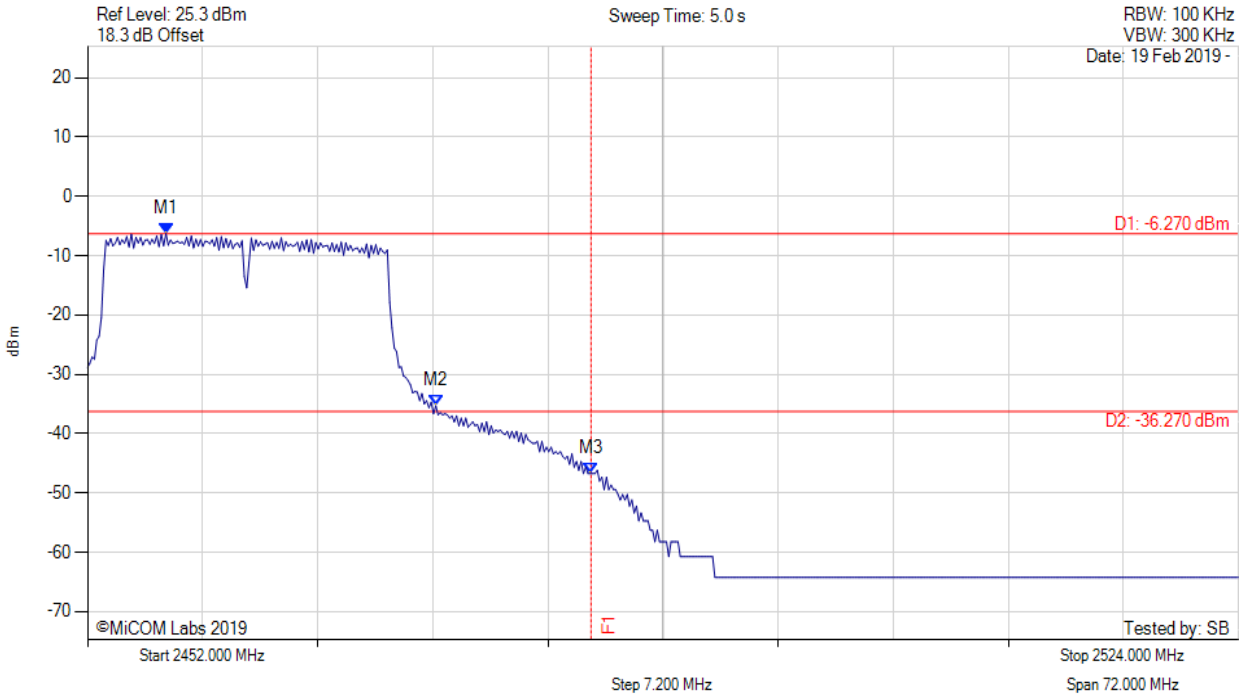


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2458.782 MHz : -5.954 dBm M2 : 2477.539 MHz : -35.180 dBm M3 : 2483.500 MHz : -42.431 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

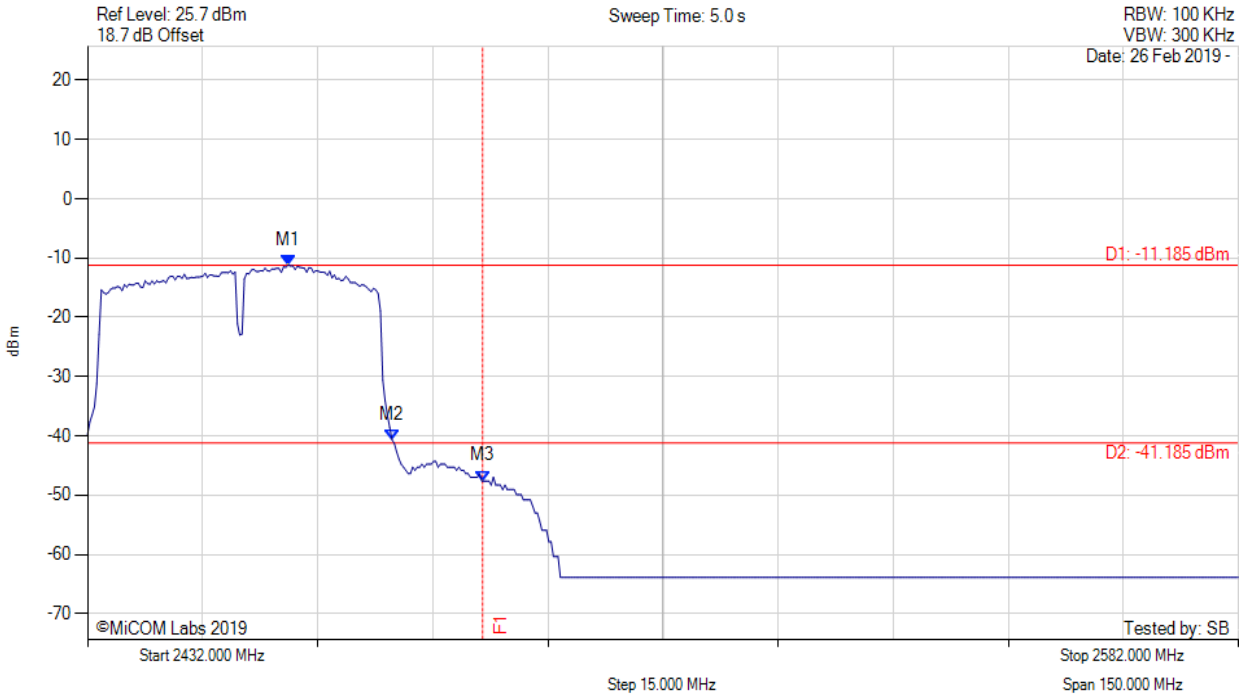


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2456.906 MHz : -6.270 dBm M2 : 2473.788 MHz : -35.302 dBm M3 : 2483.500 MHz : -46.744 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 24Vdc

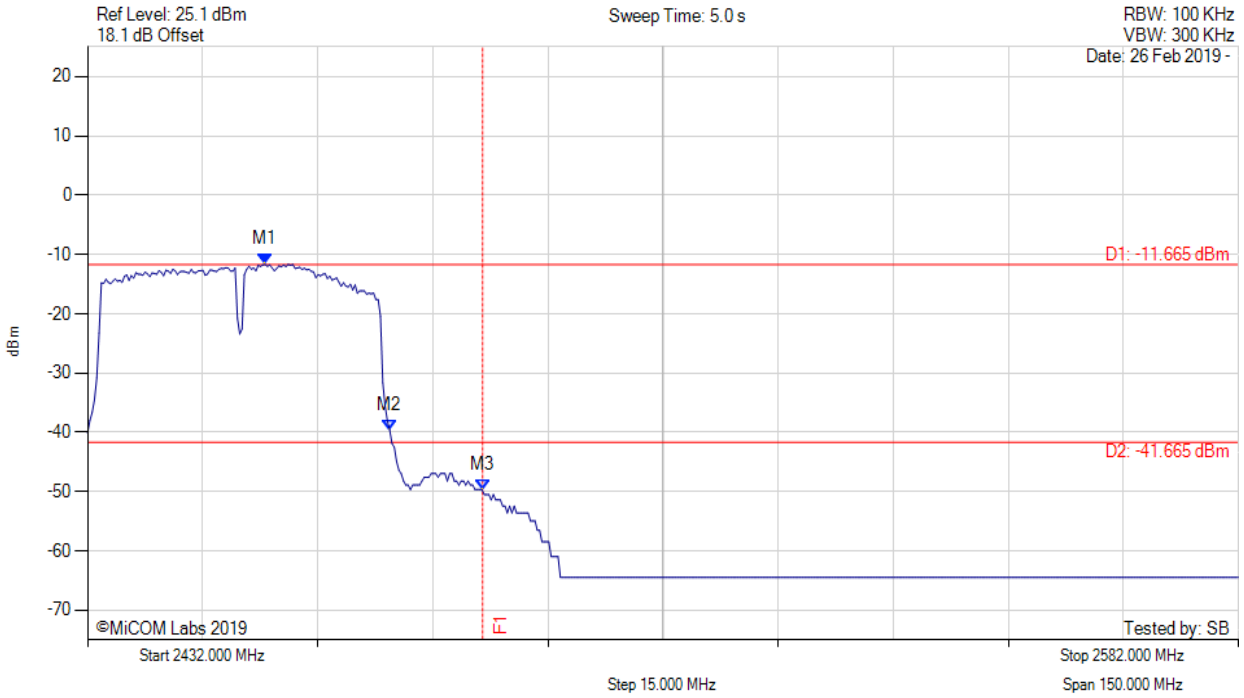


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2458.152 MHz : -11.185 dBm M2 : 2471.679 MHz : -40.617 dBm M3 : 2483.500 MHz : -47.586 dBm	Channel Frequency: 2452.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 24Vdc

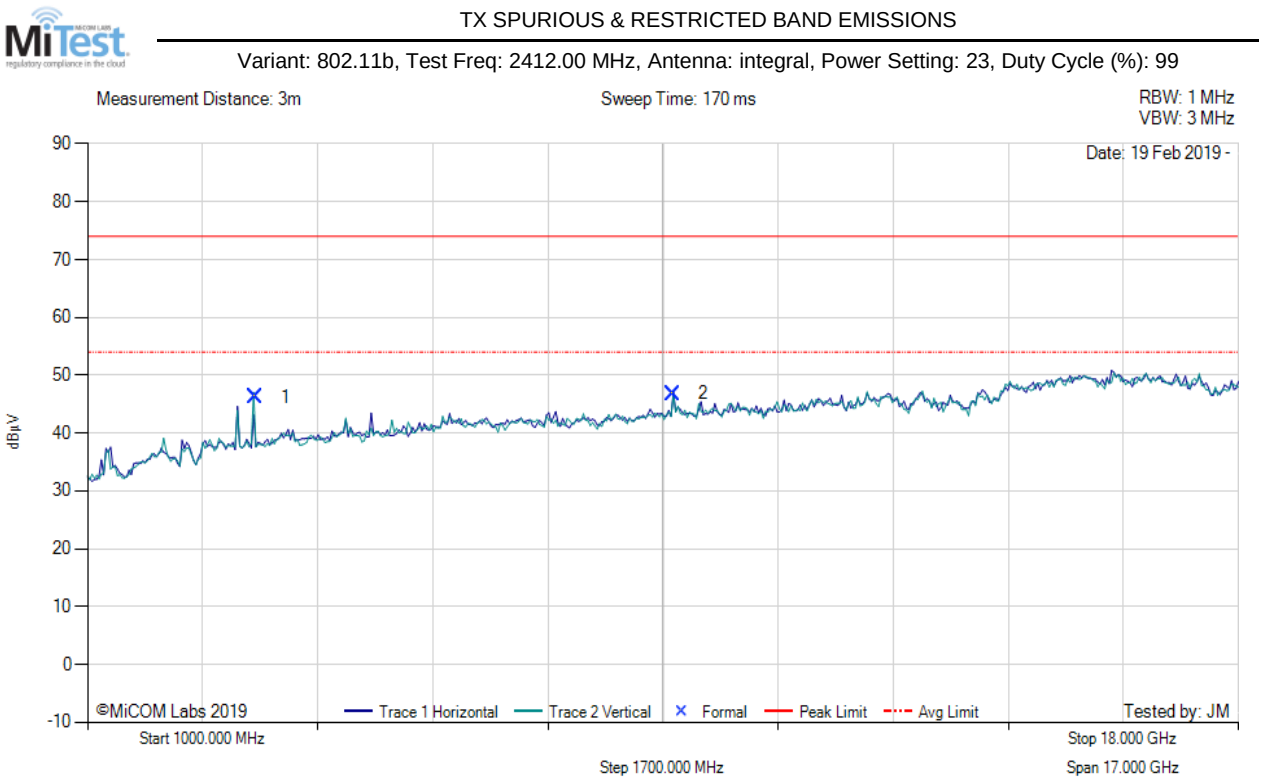


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2455.146 MHz : -11.665 dBm M2 : 2471.379 MHz : -39.584 dBm M3 : 2483.500 MHz : -49.637 dBm	Channel Frequency: 2452.00 MHz

back to matrix

A.3.2. Radiated Emissions

A.3.2.3. TX Spurious & Restricted Band Emissions



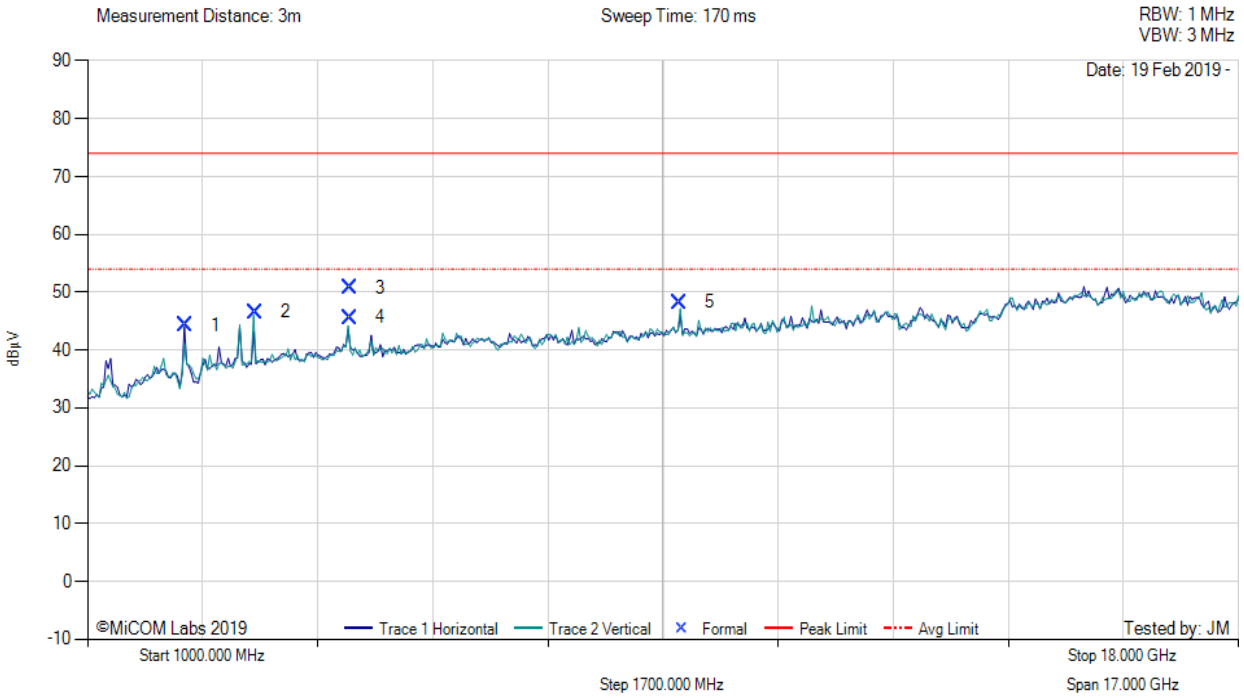
1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	3473.34	60.29	-2.12	-12.02	46.15	Peak (NRB)	Vertical	151	0	--	--	Pass
2	9648.01	56.82	-3.77	-6.20	46.85	Peak (NRB)	Horizontal	151	0	--	--	Pass

Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11b, Test Freq: 2437.00 MHz, Antenna: integral, Power Setting: 23, Duty Cycle (%): 99



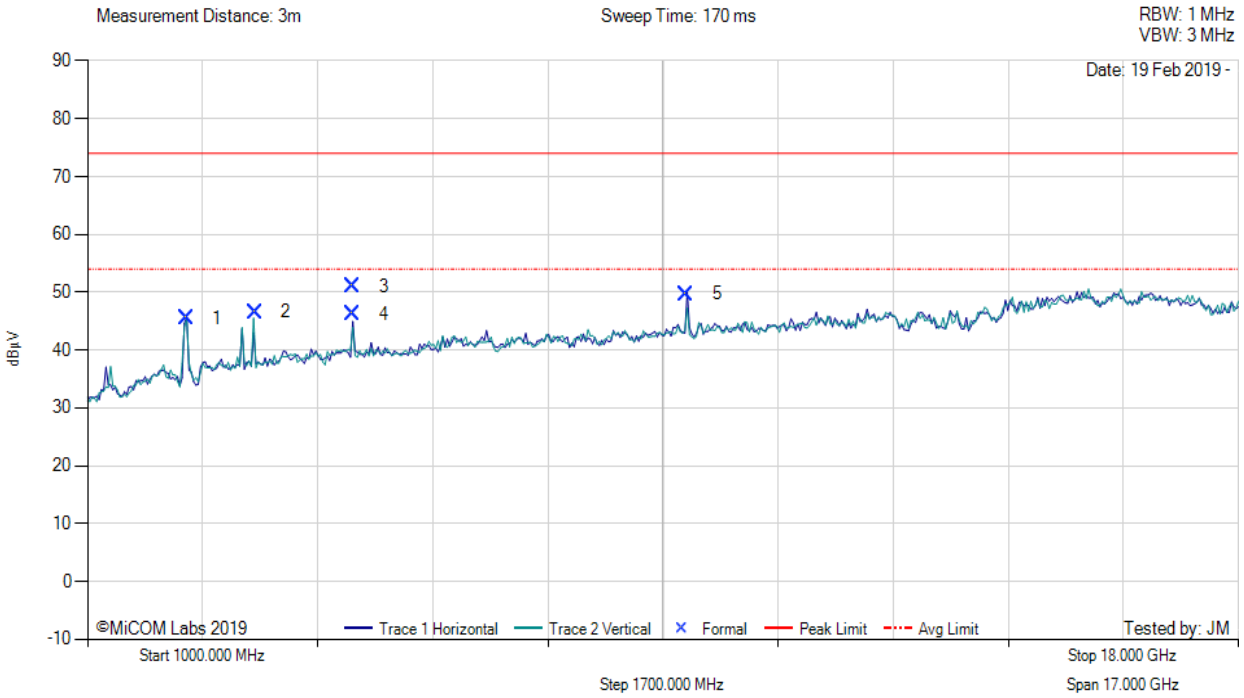
1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2438.08	58.14	-1.78	-12.10	44.26	Fundamental	Horizontal	100	0	--	--	
2	3473.25	60.68	-2.12	-12.02	46.54	Peak (NRB)	Vertical	200	0	--	--	Pass
3	4874.00	65.91	-2.51	-12.61	50.79	Max Peak	Vertical	168	33	74.0	-23.2	Pass
4	4874.00	60.71	-2.51	-12.61	45.59	Max Avg	Vertical	168	33	54.0	-8.4	Pass
5	9747.98	57.99	-3.76	-6.02	48.21	Peak (NRB)	Vertical	200	0	--	--	Pass

Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11b, Test Freq: 2462.00 MHz, Antenna: integral, Power Setting: 23, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2463.55	59.27	-1.79	-11.96	45.52	Fundamental	Horizontal	200	231	--	--	
2	3473.35	60.70	-2.12	-12.02	46.56	Peak (NRB)	Vertical	200	164	--	--	Pass
3	4924.00	65.87	-2.56	-12.35	50.96	Max Peak	Horizontal	197	353	74.0	-23.0	Pass
4	4924.00	61.14	-2.56	-12.35	46.23	Max Avg	Horizontal	197	353	54.0	-7.8	Pass
5	9847.88	59.96	-3.97	-6.33	49.66	Peak (NRB)	Horizontal	200	0	--	--	Pass

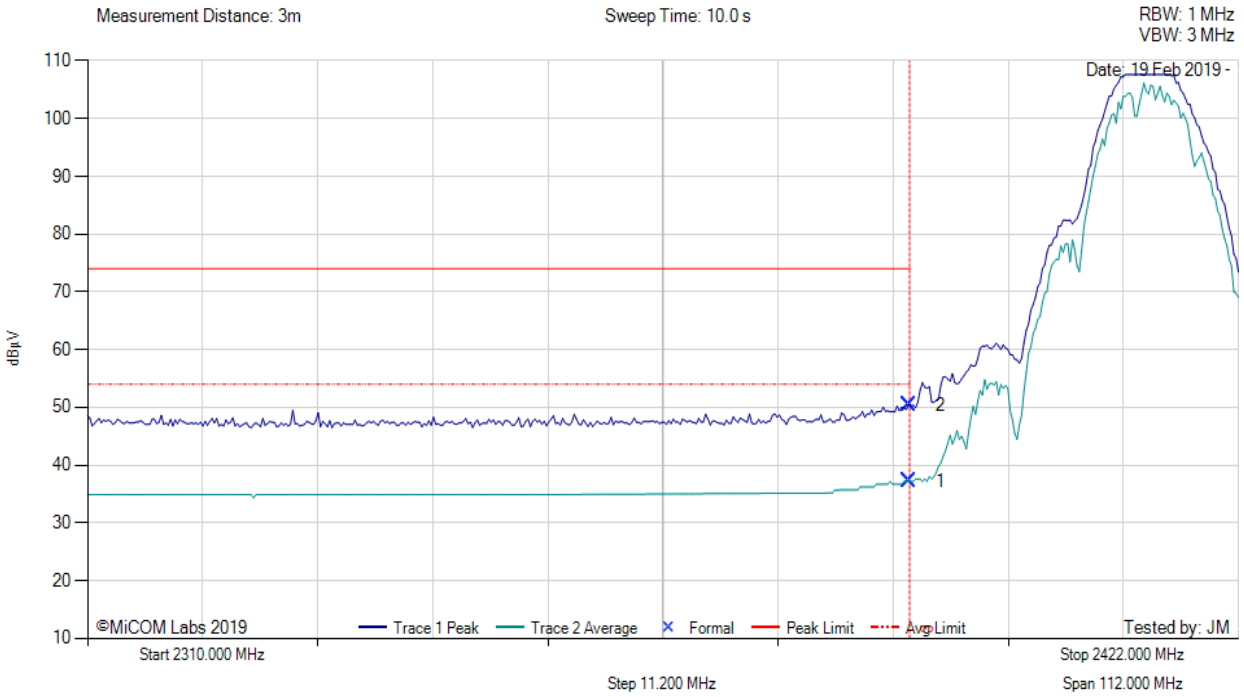
Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

A.3.2.4. Restricted Edge & Band-Edge Emissions

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11b, Test Freq: 2412.00 MHz, Antenna: integral, Power Setting: 23, Duty Cycle (%): 99



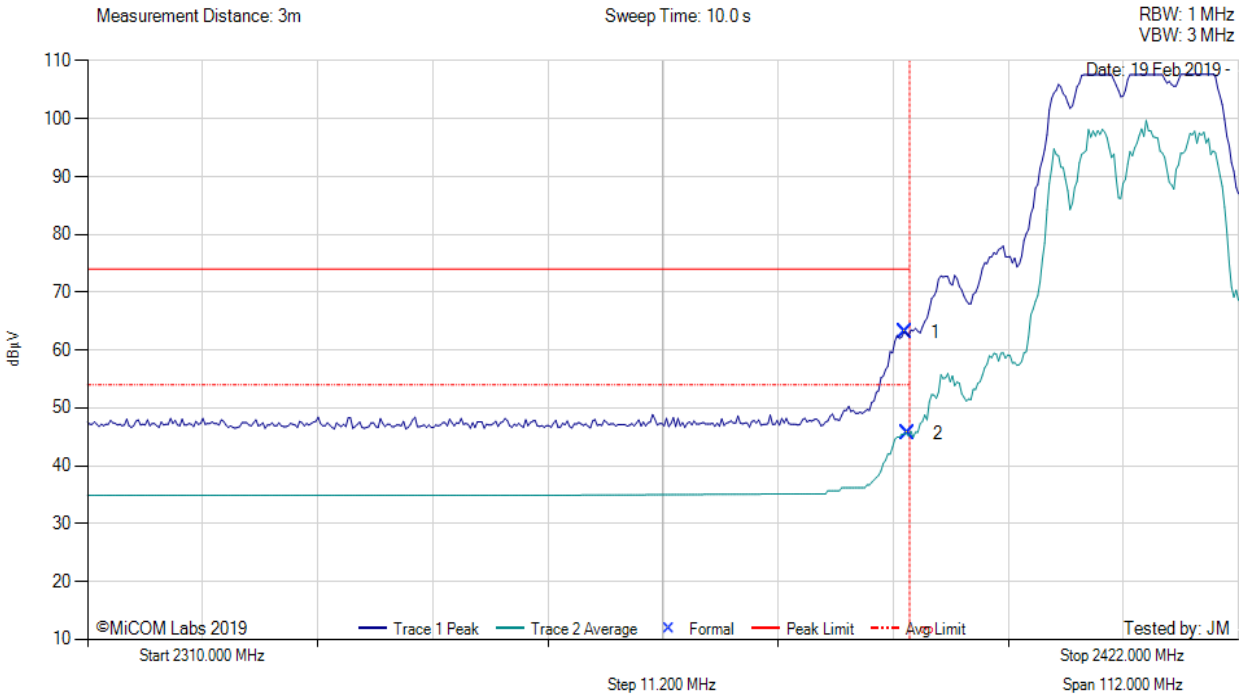
2310.00 - 2422.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2390.00	6.99	-1.77	31.96	37.18	Max Avg	Horizontal	187	294	54.0	-16.8	Pass
2	2390.00	20.24	-1.77	31.96	50.43	Max Peak	Horizontal	187	294	74.0	-23.6	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11g, Test Freq: 2412.00 MHz, Antenna: integral, Power Setting: 23, Duty Cycle (%): 99



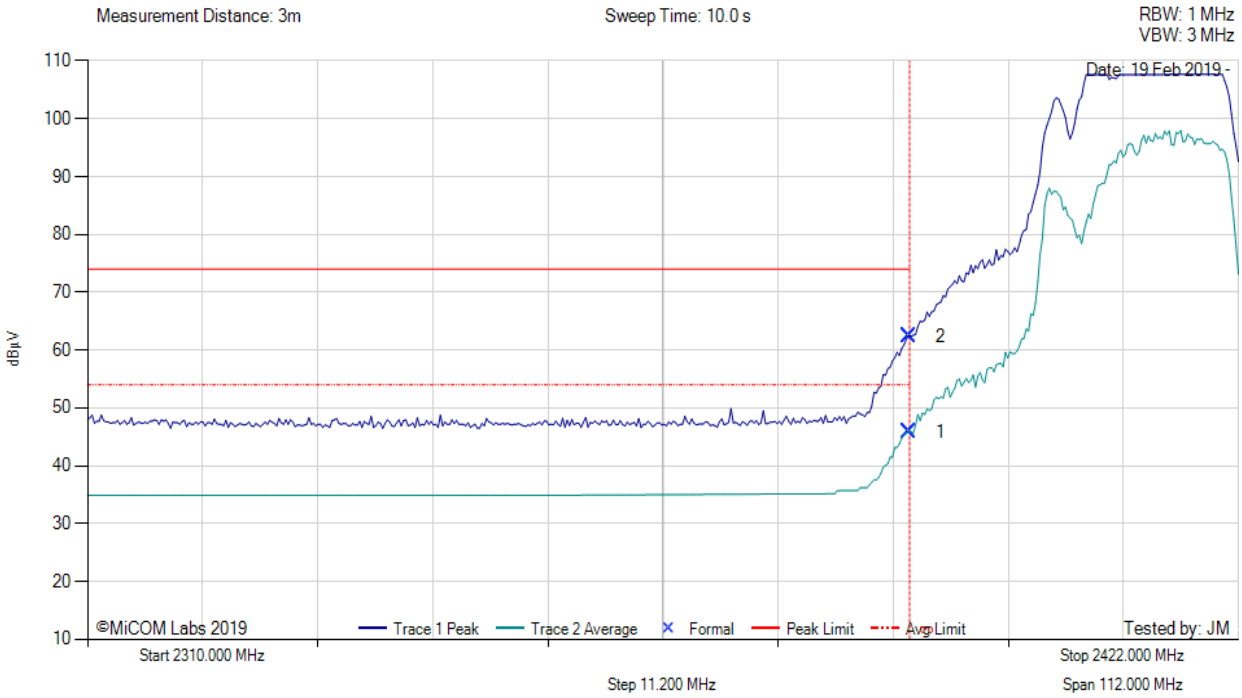
2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2389.55	32.90	-1.77	31.96	63.09	Max Peak	Horizontal	187	294	74.0	-10.9	Pass
2	2389.78	15.45	-1.77	31.96	45.64	Max Avg	Horizontal	187	294	54.0	-8.4	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 2412.00 MHz, Antenna: integral, Power Setting: 23, Duty Cycle (%): 99



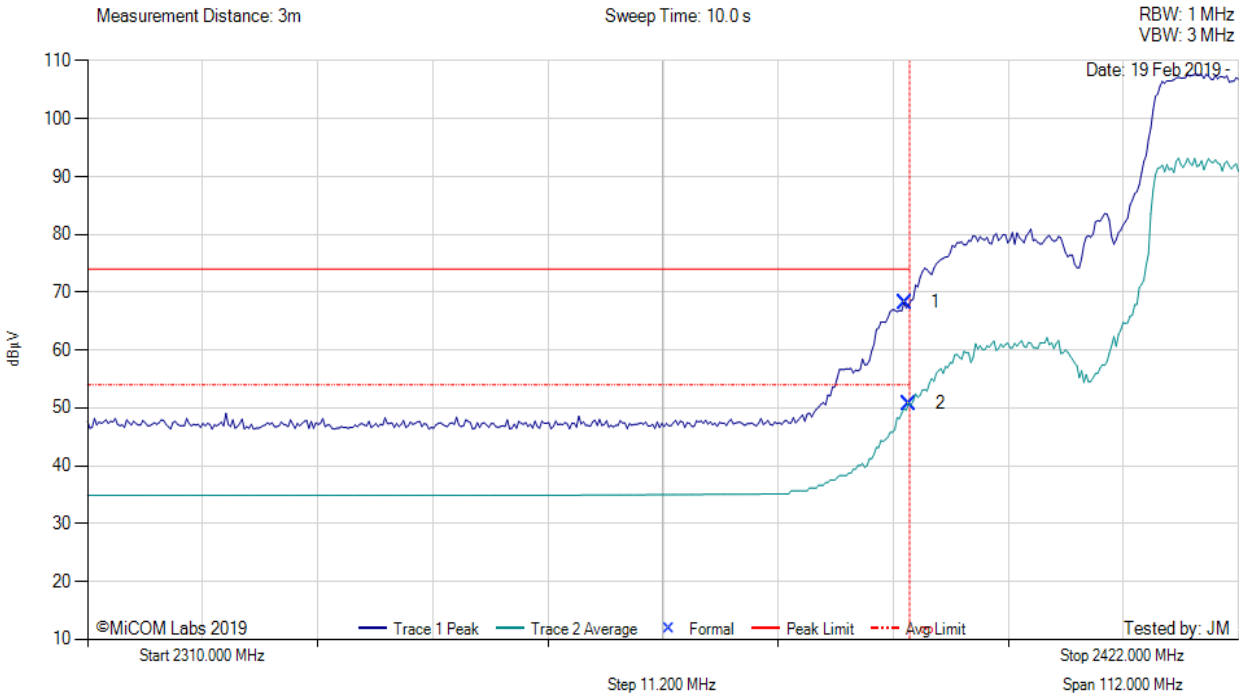
2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2390.00	15.62	-1.77	31.96	45.81	Max Avg	Horizontal	187	294	54.0	-8.2	Pass
2	2390.00	32.24	-1.77	31.96	62.43	Max Peak	Horizontal	187	294	74.0	-11.6	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 2422.00 MHz, Antenna: integral, Power Setting: 22, Duty Cycle (%): 99



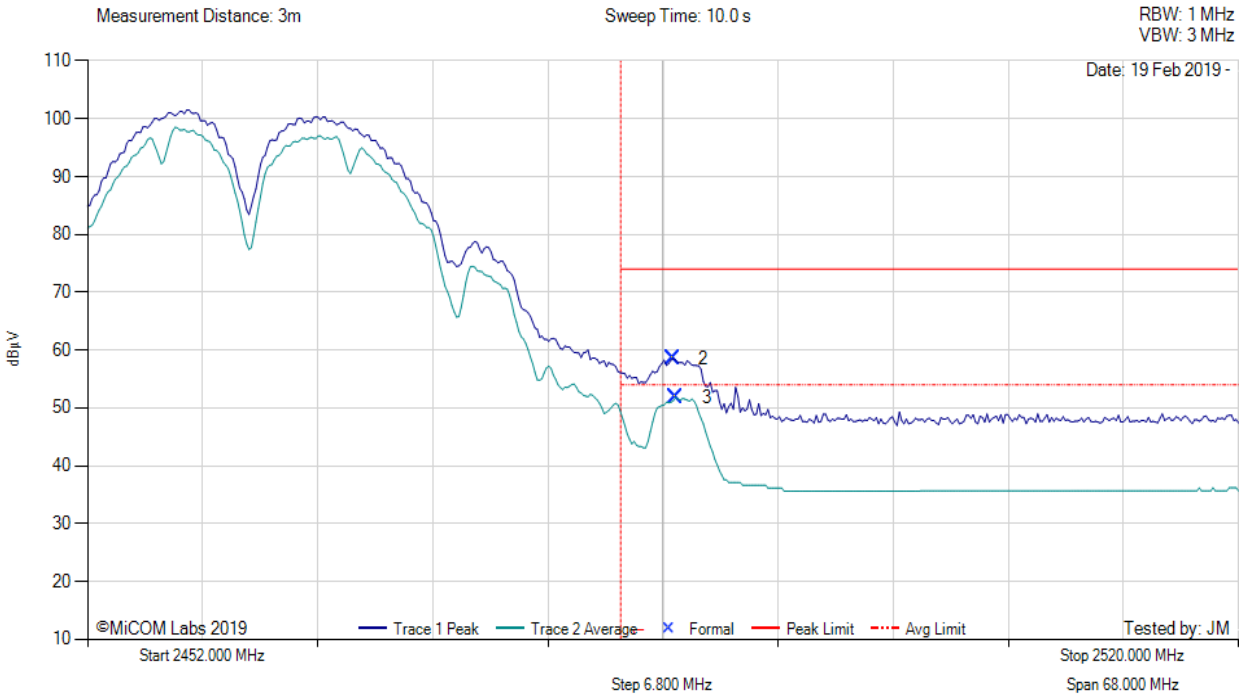
2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2389.55	38.02	-1.77	31.96	68.21	Max Peak	Horizontal	187	294	74.0	-5.8	Pass
2	2390.00	20.61	-1.77	31.96	50.80	Max Avg	Horizontal	187	294	54.0	-3.2	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11b, Test Freq: 2462.00 MHz, Antenna: integral, Power Setting: 23, Duty Cycle (%): 99



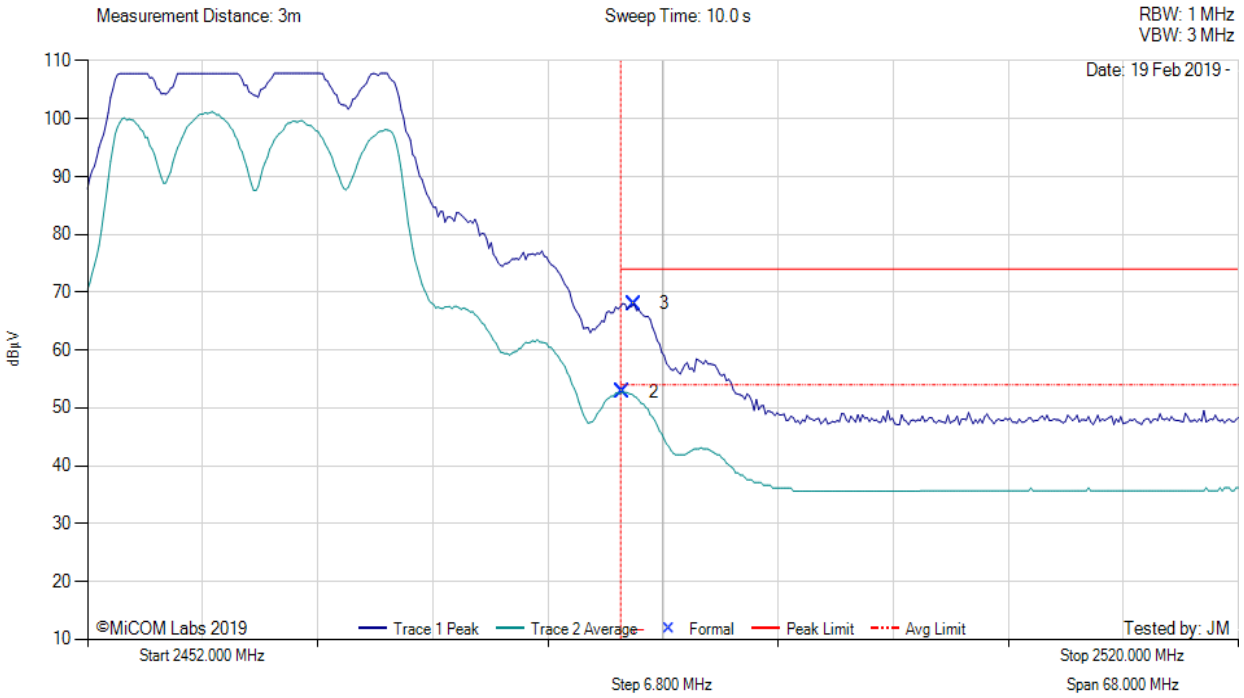
2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
2	2486.61	28.00	-1.78	32.33	58.55	Max Peak	Horizontal	100	332	74.0	-15.5	Pass
3	2486.77	21.25	-1.78	32.33	51.80	Max Avg	Horizontal	100	332	54.0	-2.2	Pass
1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11g, Test Freq: 2462.00 MHz, Antenna: integral, Power Setting: 21, Duty Cycle (%): 99



2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
2	2483.64	22.20	-1.78	32.33	52.75	Max Avg	Horizontal	100	332	54.0	-1.3	Pass
3	2484.30	37.50	-1.78	32.33	68.05	Max Peak	Horizontal	100	332	74.0	-6.0	Pass
1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

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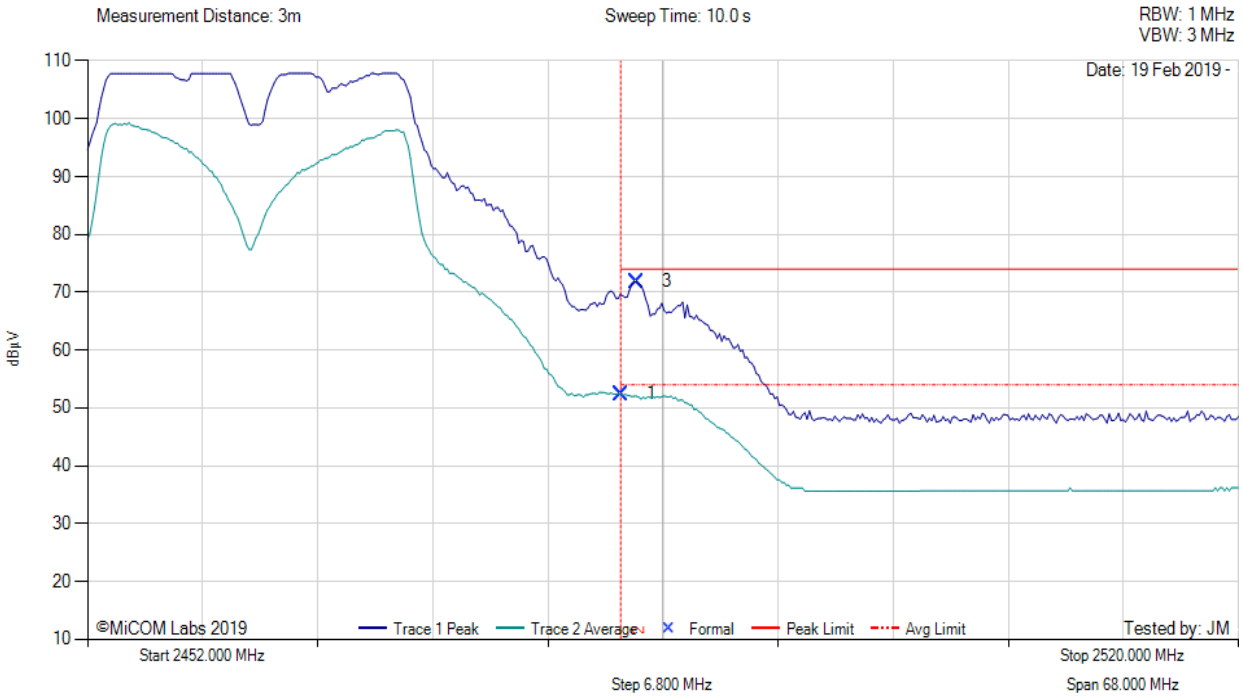
RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 2462.00 MHz, Antenna: integral, Power Setting: 22, Duty Cycle (%): 99



2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2483.50	21.89	-1.78	32.33	52.44	Max Avg	Horizontal	100	332	54.0	-1.6	Pass
3	2484.43	41.30	-1.78	32.33	71.85	Max Peak	Horizontal	100	332	74.0	-2.2	Pass
2	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

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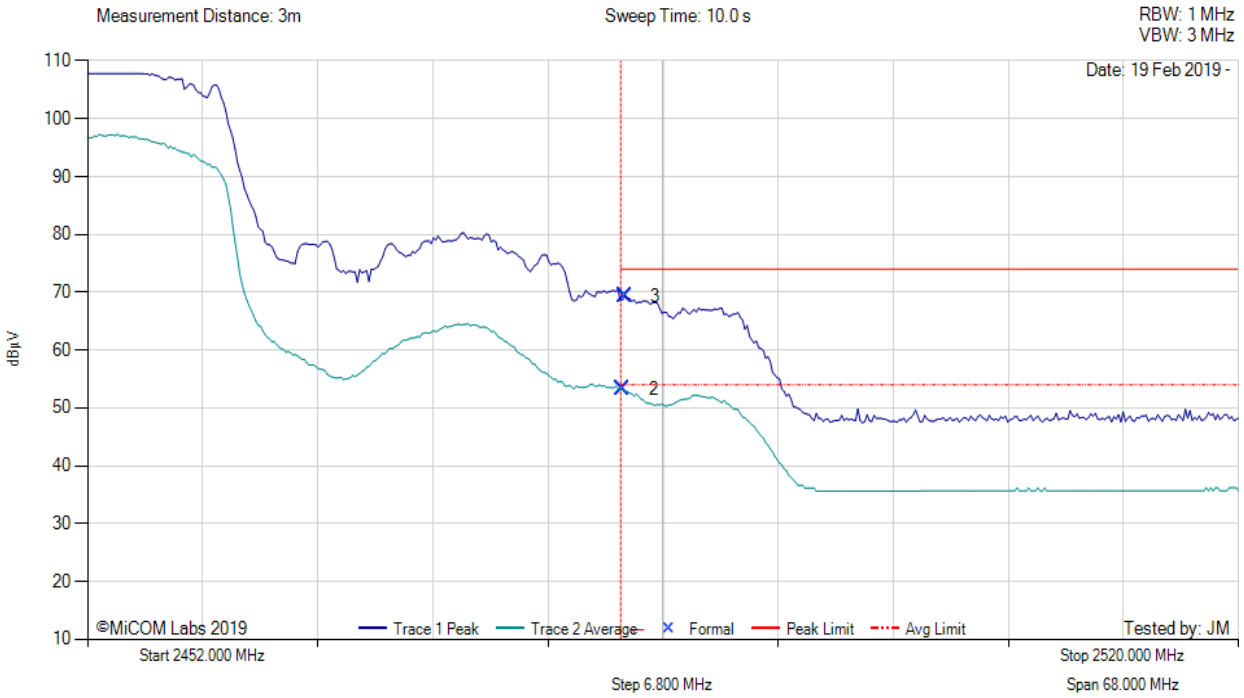
RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 2452.00 MHz, Antenna: integral, Power Setting: 21, Duty Cycle (%): 99



2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
2	2483.64	22.72	-1.78	32.33	53.27	Max Avg	Horizontal	100	332	54.0	-0.7	Pass
3	2483.77	38.74	-1.78	32.33	69.29	Max Peak	Horizontal	100	332	74.0	-4.7	Pass
1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE, connected to laptop outside chamber

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