REGULATORY COMPLIANCE – MASTER TEST REPORT

FCC CFR 47 15.247, RSS-247 Issue 2

Report No.:
TUVR116-U4_Master Rev D (Wi-Fi)

Company: SONOS Inc.

Model Name: S23

REGULATORY COMPLIANCE TEST REPORT

Company: Sonos Inc.

Model Name: S23

To: FCC CFR47 Part 15 Subpart C 15.247 (DTS), RSS-247 Issue 2

Test Report Serial No.: TUVR116-U4 Master Rev D (Wi-Fi)

This report supersedes: NONE

Applicant: Sonos Inc
614 Chapala St.
Santa Barbara, California 93101
USA

Issue Date: 25th July 2019

Generated Reports	Document Number
Master:	☒TUVR116-U6_Master
Radiated:	☐ TUVR116-U6_Emissions Addendum

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
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Pleasanton California 94566
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A2LA ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

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

ilac-MRA A2LA

Accredited Laboratory

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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.

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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

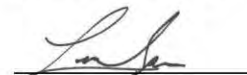## Accredited Product Certification Body

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

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2. <u>DOCUMENT HISTORY</u>

Released Document History			
Master Revision	**Addendum Revision**	**Date**	**Comments**
Draft	--	5th May 2019	Initial Draft
Rev A: 20th May 2019	Rev A_Emissions	20th May 2019	Initial Release
Rev B: 10th June 2019	Rev A_Emissions	20th May 2019	Client required modification to Section 5.1 Technical Details
Rev C: 16th July 2019	Rev B_Emissions	16th July 2019	Modifications to update EIRP power limits and provide peak spurious emission plots
Rev D: 25th July 2019	Rev B_Emissions	16th July 2019	Client requested change to Section 5.6 Cabling and I/O Ports

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

3. <u>TEST RESULT CERTIFICATE</u>

Manufacturer:	Sonos Inc 614 Chapala St. Santa Barbara California 93101 USA	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model:	S23	**Telephone:**	+1 925 462 0304
Equipment Type:	Home Audio Equipment	**Fax:**	+1 925 462 0306
S/N's:	48A6B820046C5, 48A6B820046E7		
Test Date(s):	22nd – 25th April 2019	**Website:**	www.micomlabs.com

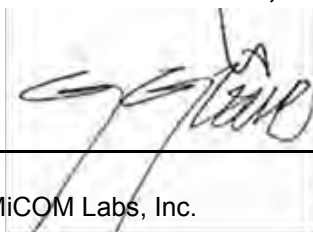| **STANDARD(S)**	**TEST RESULTS**
FCC CFR 47 Part 15 Subpart C 15.247 (DTS) **ISED RSS-247 Issue 2** **(Wi-Fi)**	**EQUIPMENT COMPLIES**

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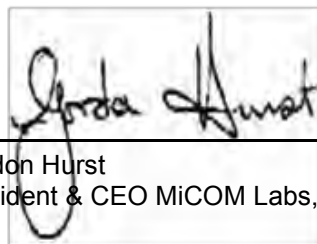
Notes:

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

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

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

Approved & Released for MiCOM Labs, Inc. by:

A2LA
ACCREDITED
TESTING CERT #2381.01

_____
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 5 March 2019	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	KDB 558074 D01 V05r02	2nd April 2019	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
XIII	RSS-Gen Issue 5	April 2018	General Requirements for Compliance of Radio Apparatus
XIV	FCC 47 CFR Part 2.1033	2016	FCC requirements and rules regarding photographs and test setup diagrams.
XV	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. <u>Test and Uncertainty Procedure</u>

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

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

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

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5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Sonos Inc S23 to: FCC CFR 47 Part 15 Subpart C 15.247 (DTS). Radio Frequency Devices; Subpart C – Intentional Radiators ISED RSS-247 Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices
Applicant:	Sonos Inc 614 Chapala St. Santa Barbara California 93101 USA
Manufacturer:	Sonos Inc
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	TUVR116-U4 (Wi-Fi)
Date EUT received:	22nd April 2019
Standard(s) applied:	FCC CFR 47 Part 15 Subpart C 15.247 (DTS)
Dates of test (from - to):	22nd – 25th April 2019
No of Units Tested:	2
Product Family Name:	N/A
Model(s):	S23
Location for use:	Indoors
Declared Frequency Range(s):	2400 - 2483.5 MHz;
Type of Modulation:	Per 802.11 – CCK, BPSK, QPSK, DSSS, OFDM
EUT Modes of Operation:	2400 - 2483.5 MHz: b; g; HT-20;
Declared Nominal Output Power (dBm):	+23 dBm
Number of Antennas:	4 x Wi-Fi, 1 x BLE
Transmit/Receive Operation:	4x4 transmit and receive antenna chains
Rated Input Voltage and Current:	12Vdc 1A
Operating Temperature Range:	0ºC - 40ºC
ITU Emission Designator:	802.11b (1 Mbit/s) 13M5G1D 802.11b (2 Mbit/s) 14M0G1D 802.11b (5.5 Mbit/s) 13M3G1D 802.11g 16M5D1D 802.11n – HT-20 17M7D1D
Hardware Rev:	A100
Firmware Ver:	See Software Rev.
Software Rev:	52.10-64150-1-29

5.2. Scope Of Test Program

The scope of the test program was to test the Sonos Inc S23, configurations in the frequency ranges 2400 - 2483.5 MHz; for compliance against the following specification(s):

FCC CFR 47 Part 15 Subpart C 15.247 (DTS)
Radio Frequency Devices; Subpart C – Intentional Radiators

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

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

Type (EUT/ Support)	Equipment Description	Mfr	Model No.	Serial No.
EUT	Home Audio Equipment	SONOS Inc.	S23	48A6B820046C5
EUT	Home Audio Equipment	SONOS Inc.	S23	48A6B820046E7
EUT	Power Supply	SONOS Inc	CPS012027U	
Support	Laptop	Lenovo	X230	

5.4. External A.C/D.C. Power Adaptor

AC/DC Adaptor
Manufacturer: SONOS
Model: CPS012027U
I: 100 – 240 V_{AC}, 50/60 Hz
0: +12 V_{DC} 1.00 A

5.5. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
integral	ICT	Custom A1	Inverted F-Type	2.0	-	360	-	2400 - 2483.5
integral	ICT	Custom A2	Inverted F-Type	2.6	-	360	-	2400 - 2483.5
integral	ICT	Custom A3	Inverted F-Type	3.6	-	360	-	2400 - 2483.5
integral	ICT	Custom A4	Inverted F-Type	2.2	-	360	-	2400 - 2483.5
BF Gain - Beamforming Gain Dir BW - Directional BeamWidth X-Pol - Cross Polarization								

Sonos Operational Description declares that three antennas are vertically polarized (Ch0, Ch2, Ch3), while the other (Ch1) is horizontal.

Confirmation from Sonos stated that transmissions on Ch0, Ch2, Ch3 are correlated and to be treated as per section F.2.d.i of FCC KDB 662911 D01 Multiple Transmitter Output v02r01-31Oct13.   Directional gains were calculated given the correlated equation provided in the KDB.   The directional gain was used to calculate the EIRP and PSD limits.

5.6. Cabling and I/O Ports

Port Type	Max Cable Length	# of Ports	Conn Type	Data Type	Bit Rate	Environment
ENET	>10m	2	No	Conn Type	10,100,1000	
DC	1m	1				
Other Port Type*		*	*	*		

*This port(s) is fully described in the technical documentation included in the related FCC and ISED filings.

5.7. Test Configurations

Results for the following configurations are provided in this report:

Operational Mode(s) (802.11a/b/g/n)	Data Rate MBit/s	Channel Frequency (MHz)		
		Low	Mid	High
2400 - 2483.5 MHz				
b	1, 2, 5.5	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

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5.8. Equipment Modifications

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

5.9. Deviations from the Test Standard

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

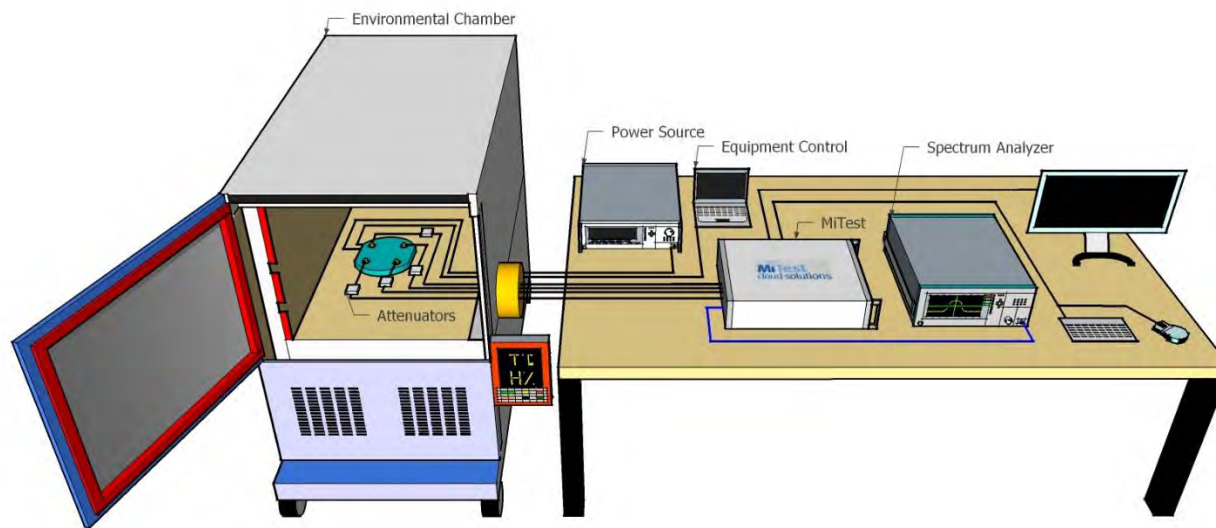## 6. TEST SUMMARY

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
(3) Digital Emissions (0.03 - 1 GHz)	Complies	View Data
(4) ac Wireline Emissions	Complies	View Data
RF Unique Connector	Complies (Integral Antennas)	-

NOTE: In this report antenna chains are reported as chains 'a' through 'd'. This is equivalent to CH0-CH3 on all Sonos documentation.

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7. TEST EQUIPMENT CONFIGURATION(S)

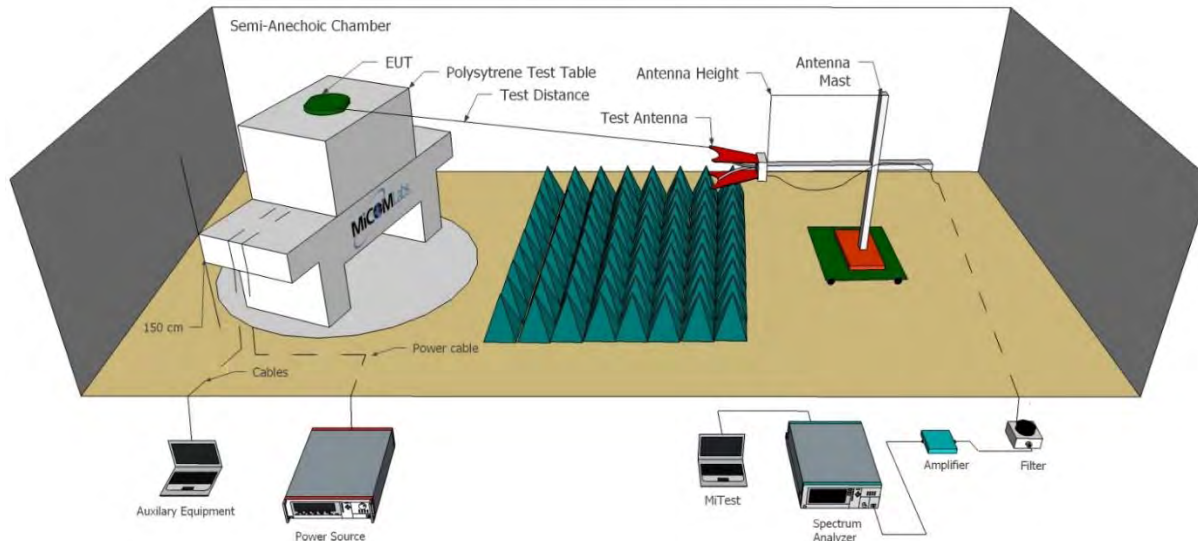### 7.1. Conducted Test Setup

MiTest Automated Test System

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

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
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
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
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
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	24 Feb 2020

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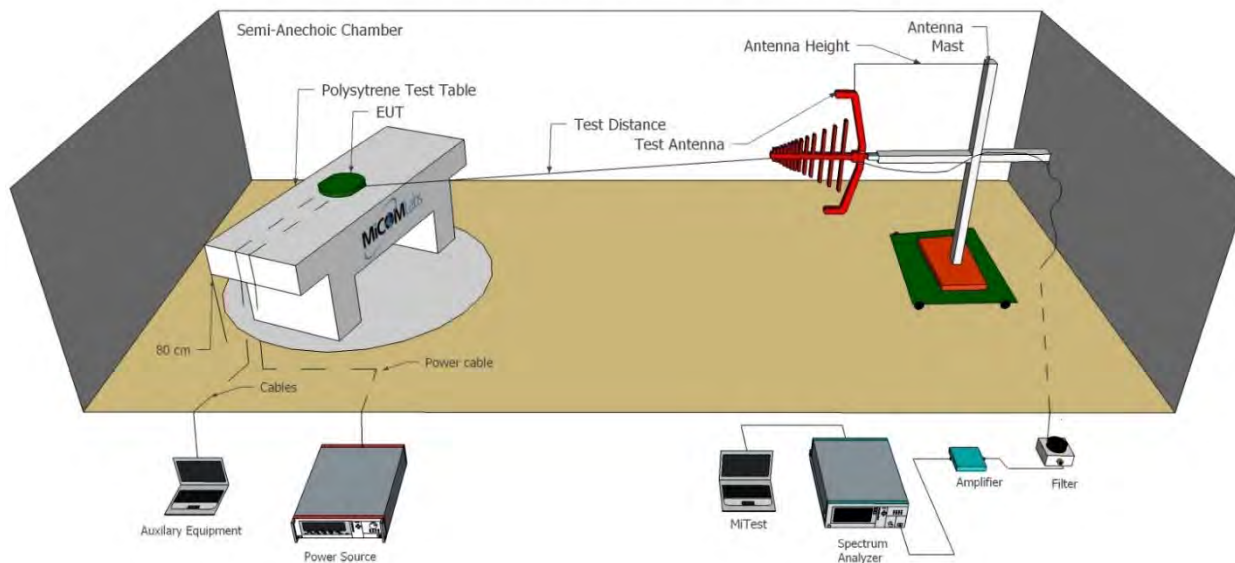
7.2. Radiated Emissions - 3m Chamber

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

Radiated Emissions Above 1GHz Test Setup

Radiated Emissions Below 1GHz Test Setup

A full system calibration was performed on the test station and any resulting system losses (or gains) were considered 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 Apr 2020
336	Active Loop Antenna	Emco	6502	00060498	29 Nov 2019
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Apr 2020
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2019
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	12 Apr 2020
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 2020
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
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

7.3. ac Wireline Emissions

Test Setup – Power Input / Output Port
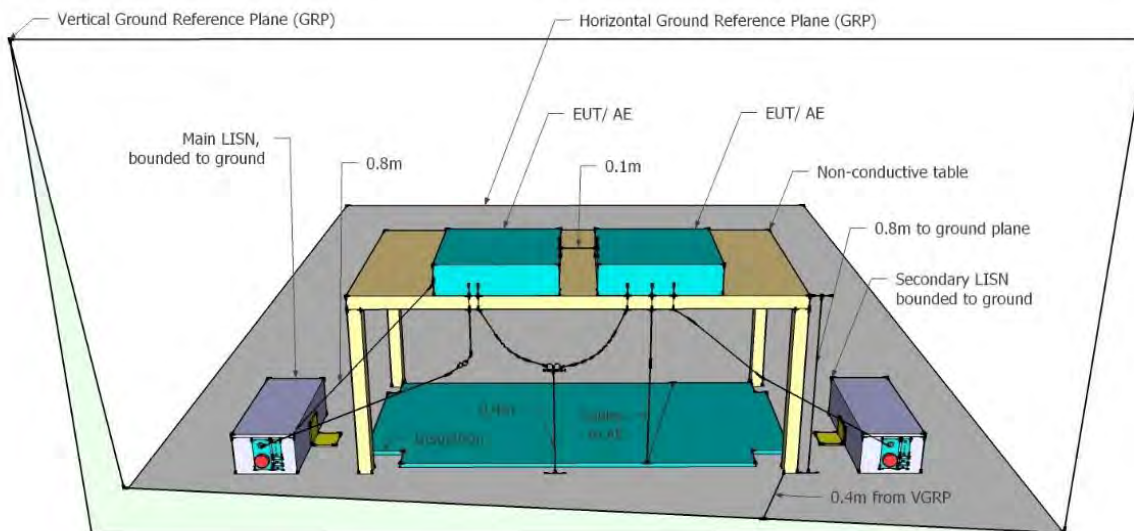
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
184	Pulse Limiter	Rhode & Schwarz	ESH3Z2	357.8810.52	6 Oct 2019
190	LISN (two-line V-network)	Rhode & Schwarz	ESH3Z5	836679/006	18 Oct 2019
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	2 Jul 2019
295	Conducted Emissions Chamber Maintenance Check	MiCOM	Conducted Emissions Chamber	295	19 Jun 2019
307	BNC-CABLE	Megaphase	1689 1GVT4	15F50B002	11 Jun 2019
316	Dell desktop computer workstation	Dell	Desktop	WS04	Not Required
372	AC Variable PS	California Instruments	1251P	L06951	Cal when used
388	LISN (3 Phase) 9kHz - 30MHz	Rohde & Schwarz	ESH2-Z5	892107/022	20 Oct 2019
496	MiTest Conducted Emissions test software.	MiCOM	Conducted Emissions Test Software Version 1.0	496	Not Required
510	Barometer/Thermometer	Control Company	68000-49	170871375	11 Dec 2019

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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. Control of Test Item

The EUT was controlled via the Sonos GUI. This gave access to operational channels, output power and antenna port activation. As the device was a 4x4 MIMO all the antenna ports were activated to operate simultaneously during conducted and radiated testing. Duty cycle was fixed as reported in Section 9.2.

The power setting reported in Section 9.4 Conducted Output Power is the final power setting found in order to prove compliance for radiated and conducted testing for the Sonos S23.

Output Power

In the case of average power measurements an average power sensor was utilized using connected to each antenna port. Power measurements on all ports were measured simultaneously, the EUT was set to transmit maximum power during the test program (compliant power setting logged for each test mode). As the Duty Cycle was constant (see Section 9.2 Operational Mode Duty Cycle) the duty cycle correction factor was used to correct the power reading.

The lowest data rate for each operational mode was used to exercise the test sample. Client requested that three data rates were tested for 802.11b:

802.11b – 1, 2, 5.5 Mbit/s

802.11g – 6 Mbit/s

802.11n HT-20 – 6.5 Mbit/s

9.2. Operational Mode Duty Cycle(s)

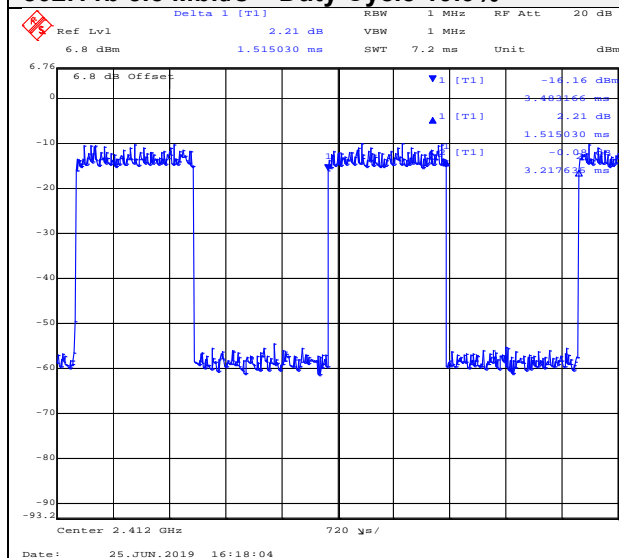Results for system Duty Cycle for the following configurations are measured and reported below:

| **802.11b 1 Mbit/s – Duty Cycle 48.3%** | **802.11b 2 Mbit/s – Duty Cycle 29.2%** |
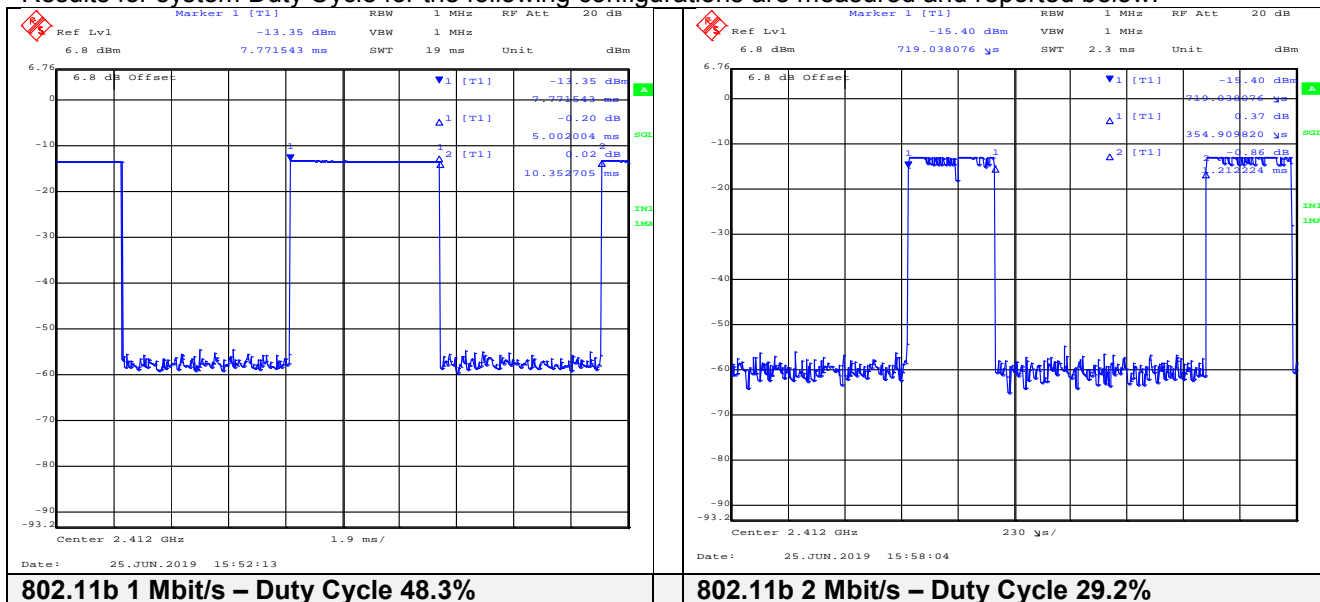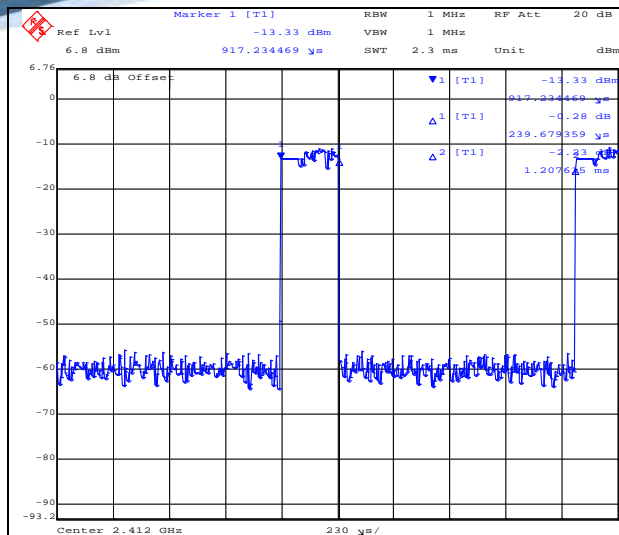
802.11b 5.5 Mbit/s – Duty Cycle 19.9%
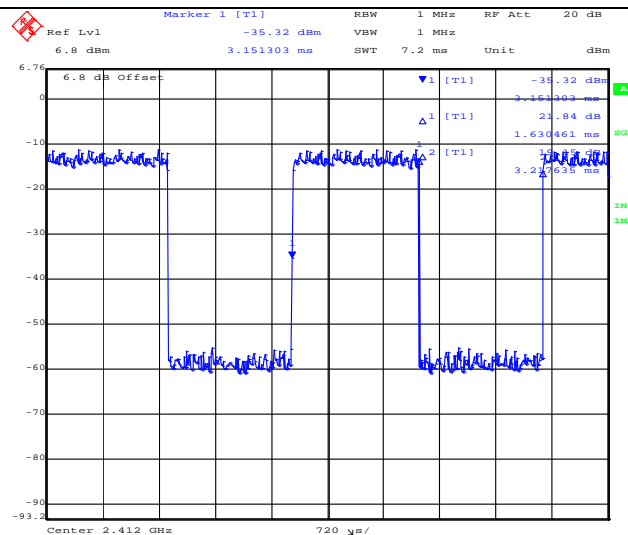
802.11g 6 Mbit/s – Duty Cycle 50.6%

802.11n HT-20 6.5 Mbit/s – Duty Cycle 46.9%

9.3. 6 dB & 99% Bandwidth

Conducted Test Conditions for 6 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.247 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 a	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for 6 dB and 99% Bandwidth Measurement
The bandwidth at 6 dB and 99 % 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 (%):**	48.3
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:**	GMH
Engineering Test Notes:	.		

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)							
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2412.0	8.577	7.615	8.016	8.016	8.577	7.615	≥500.0	-7.12
2437.0	8.497	8.016	8.096	8.016	8.497	8.016	≥500.0	-7.52
2462.0	8.016	8.577	8.016	8.016	8.577	8.016	≥500.0	-7.52

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)
	Port(s)				
MHz	a	b	c	d	
2412.0	13.307	13.226	13.226	13.307	13.307
2437.0	13.467	13.226	13.226	13.307	13.467
2462.0	13.387	13.307	13.146	13.307	13.387

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

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

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	Equipment Configuration for 6 dB & 99% Bandwidth	

Variant:	802.11b	Duty Cycle (%):	29.2
Data Rate:	2.00 MBit/s	Antenna Gain (dBi):	Not Applicable
Modulation:	CCK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)							
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2412.0	9.459	7.936	8.577	8.577	9.459	7.936	≥500.0	-7.44
2437.0	9.299	8.577	8.016	7.856	9.299	7.856	≥500.0	-7.36
2462.0	8.016	8.016	8.497	9.459	9.459	8.016	≥500.0	-7.52

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)
	Port(s)				
MHz	a	b	c	d	
2412.0	13.788	13.307	13.707	13.307	13.788
2437.0	14.028	13.387	13.627	13.467	14.028
2462.0	14.028	13.307	13.387	13.307	14.028

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:	802.11b	**Duty Cycle (%):**	19.9
Data Rate:	5.5 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)							
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2412.0	9.218	8.657	9.379	9.058	9.379	8.657	≥500.0	-8.16
2437.0	9.058	9.058	9.058	7.134	9.058	7.134	≥500.0	-6.63
2462.0	8.337	7.214	9.058	9.379	9.379	7.214	≥500.0	-6.71

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)
	Port(s)				
MHz	a	b	c	d	
2412.0	13.226	13.066	13.146	13.226	13.226
2437.0	13.307	13.146	13.146	13.066	13.307
2462.0	13.226	13.066	13.146	13.146	13.226

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 (%):**	50.6
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:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)							
MHz	a	b	c	d	Highest	Lowest	KHz	MHz
2412.0	15.150	15.150	15.311	15.150	15.311	15.150	≥500.0	-14.65
2437.0	16.273	16.273	16.273	15.711	16.273	15.711	≥500.0	-15.21
2462.0	15.150	15.150	15.150	15.311	15.311	15.150	≥500.0	-14.65

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

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

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

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Equipment Configuration for 6 dB & 99% Bandwidth	

Variant:	802.11n HT-20	**Duty Cycle (%):**	46.9
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:**	GMH
Engineering Test Notes:			

Test Measurement Results	

Test Frequency	Measured 6 dB Bandwidth (MHz)				6 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)							
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**	**KHz**	**MHz**
2412.0	15.150	16.273	15.150	15.711	16.273	15.150	≥500.0	-14.65
2437.0	17.555	17.154	17.315	17.555	17.555	17.154	≥500.0	-16.65
2462.0	15.711	15.711	15.150	15.150	15.711	15.150	≥500.0	-14.65

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)
	Port(s)				
MHz	**a**	**b**	**c**	**d**	
2412.0	17.555	17.475	17.555	17.555	17.555
2437.0	17.715	17.715	17.715	17.715	17.715
2462.0	17.555	17.475	17.555	17.555	17.555

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

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

9.4. Conducted Output Power

Conducted Test Conditions for Fundamental Emission Output Power			
Standard:	FCC CFR 47:15.247 RSS-247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Output Power	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.247 (b) & (c), ANSI 63.10 Section 11.9.2.3.1 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 using connected to each antenna port. Power measurements on all ports were measured simultaneously. As the Duty Cycle was constant a correction factor was used to correct the reading. EUT was always set to transmit constant power.

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

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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 (%):**	48.3
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	See below
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	8.51	7.98	7.13	7.46	18.09	28.60	-10.51	13.00
2437.0	8.63	8.09	7.20	8.07	18.32	28.60	-10.28	13.00
2462.0	8.25	7.48	7.33	7.26	17.89	28.60	-10.71	13.00

Traceability to Industry Recognized Test Methodologies

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

Duty Cycle Correction Factor: 3.16 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 4.27 dB

A Total Correction Factor of 4.27 dB was added to the Calculated Total Power Σ Port(s) to give the true output power

Above recorded powers incorporate any reduction in power levels brought about as a result of radiated spurious emissions and radiated band-edge testing.

The above power setting was utilized throughout the conducted and radiated testing

Antenna Gains for the 2400 -2483.5 MHz frequency band
Chain a = 2.0 dBi
Chain b = 2.6 dBi
Chain c = 3.6 dBi
Chain d = 2.2 dBi

Manufacturer declared correlation with antenna chains a, c, d.   As the antenna gains are unequal KDB 662911 DO1 was used to calculate the EIRP limit.

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Conducted Power Limit is calculated to be 30 – (7.4 – 6)) = 28.6 dBm

EIRP Limit 36.0 dBm

Calculated EIRP for 802.11b (1 Mbit/s)
Test Frequency 2412 = 20.68 dBm/EIRP
Test Frequency 2437 = 20.89 dBm/EIRP
Test Frequency 2462 = 20.50 dBm/EIRP

Equipment Configuration for Average Output Power			

Variant:	802.11b	**Duty Cycle (%):**	29.2
Data Rate:	2.00 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	See below
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	9.67	9.00	7.65	8.67	21.28	28.60	-7.32	16.00
2437.0	10.48	9.63	8.15	9.88	22.09	28.60	-6.51	16.50
2462.0	9.47	9.11	8.21	8.60	21.35	28.60	-7.25	16.50

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

Duty Cycle Correction Factor: 5.53 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 6.46 dB

A Total Correction Factor of 6.46 dB was added to the Calculated Total Power Σ Port(s) to give the true output power

Above recorded powers incorporate any reduction in power levels brought about as a result of radiated spurious emissions and radiated band-edge testing

The above power setting was utilized throughout the conducted and radiated testing

Antenna Gains for the 2400 -2483.5 MHz frequency band
Chain a = 2.0 dBi
Chain b = 2.6 dBi
Chain c = 3.6 dBi
Chain d = 2.2 dBi

Manufacturer declared correlation with antenna chains a, c, d. As the antenna gains are unequal KDB 662911 DO1 was used to calculate the EIRP limit.

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Conducted Power Limit is calculated to be 30 – (7.4 – 6)) = 28.6 dBm

EIRP Limit 36.0 dBm

Calculated EIRP for 802.11b (2 Mbit/s)
Test Frequency 2412 = 23.84 dBm/EIRP
Test Frequency 2437 = 24.62 dBm/EIRP
Test Frequency 2462 = 23.94 dBm/EIRP

Equipment Configuration for Average Output Power

Variant:	802.11b	**Duty Cycle (%):**	19.9
Data Rate:	5.5 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	See below
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	**a**	**b**	**c**	**d**	**dBm**	**dBm**	**dB**	
2412.0	10.24	9.26	8.03	9.06	23.36	28.60	-5.24	18.00
2437.0	10.52	9.45	8.14	9.83	23.71	28.60	-4.89	18.00
2462.0	9.53	9.13	8.08	8.39	22.96	28.60	-5.64	18.00

Traceability to Industry Recognized Test Methodologies

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

Duty Cycle Correction Factor: 7.01 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: <u>8.12 dB</u>

A Total Correction Factor of 8.12 dB was added to the Calculated Total Power Σ Port(s) to give the true output power

Above recorded powers incorporate any reduction in power levels brought about as a result of radiated spurious emissions and radiated band-edge testing

The above power setting was utilized throughout the conducted and radiated testing

Antenna Gains for the 2400 -2483.5 MHz frequency band
Chain a = 2.0 dBi
Chain b = 2.6 dBi
Chain c = 3.6 dBi
Chain d = 2.2 dBi

Manufacturer declared correlation with antenna chains a, c, d. As the antenna gains are unequal KDB 662911 DO1 was used to calculate the EIRP limit.

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Conducted Power Limit is calculated to be 30 – (7.4 – 6)) = 28.6 dBm

EIRP Limit 36.0 dBm

Calculated EIRP for 802.11b (5.5 Mbit/s)
Test Frequency 2412 = 25.90 dBm/EIRP
Test Frequency 2437 = 26.24 dBm/EIRP
Test Frequency 2462 = 25.55 dBm/EIRP

Equipment Configuration for Average Output Power

Variant:	802.11g	**Duty Cycle (%):**	50.6
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	See below
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	8.73	8.32	7.06	8.40	18.26	28.60	-10.34	13.00
2437.0	11.85	11.26	10.54	11.71	21.46	28.60	-7.14	16.00
2462.0	10.08	9.96	9.23	9.89	19.89	28.60	-8.71	15.00

Traceability to Industry Recognized Test Methodologies

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

Duty Cycle Correction Factor: 2.96 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 4.07 dB

A Total Correction Factor of 4.07 dB was added to the Calculated Total Power Σ Port(s) to give the true output power

Above recorded powers incorporate any reduction in power levels brought about as a result of radiated spurious emissions and radiated band-edge testing

The above power setting was utilized throughout the conducted and radiated testing

Antenna Gains for the 2400 -2483.5 MHz frequency band
Chain a = 2.0 dBi
Chain b = 2.6 dBi
Chain c = 3.6 dBi
Chain d = 2.2 dBi

Manufacturer declared correlation with antenna chains a, c, d.   As the antenna gains are unequal KDB 662911 DO1 was used to calculate the EIRP limit.

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Conducted Power Limit is calculated to be 30 – (7.4 – 6)) = 28.6 dBm

EIRP Limit 36.0 dBm

Calculated EIRP for 802.11g (6 Mbit/s)
Test Frequency 2412 = 20.82 dBm/EIRP
Test Frequency 2437 = 24.03 dBm/EIRP
Test Frequency 2462 = 22.49 dBm/EIRP

Equipment Configuration for Average Output Power

Variant:	802.11n HT-20	**Duty Cycle (%):**	46.9
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	See below
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	10.94	10.67	9.35	10.74	20.89	28.60	-7.71	15.50
2437.0	11.59	11.13	10.37	11.48	21.59	28.60	-7.01	16.00
2462.0	8.65	8.89	8.06	8.53	18.96	28.60	-9.64	14.00

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

Duty Cycle Correction Factor: 3.29 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 4.40 dB

A Total Correction Factor of 4.40 dB was added to the Calculated Total Power Σ Port(s) to give the true output power

Above recorded powers incorporate any reduction in power levels brought about as a result of radiated spurious emissions and radiated band-edge testing.

The above power setting was utilized throughout the conducted and radiated testing

Manufacturer declared correlation with antenna chains a, c, d. As the antenna gains are unequal KDB 662911 DO1 was used to calculate the EIRP limit.

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Conducted Power Limit is calculated to be 30 – (7.4 – 6)) = 28.6 dBm

EIRP Limit 36.0 dBm

Total Calculated EIRP
Test Frequency 2412 = 23.45 dBm/EIRP
Test Frequency 2437 = 24.16 dBm/EIRP
Test Frequency 2462 = 21.57 dBm/EIRP

9.5. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.247 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 (à) 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.

NOTE: Power settings for Power Spectral Density measurements were the settings provided in Section 9.4 Conducted Output Power for all operational modes

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Equipment Configuration for Power Spectral Density - Average

Variant:	802.11b	**Duty Cycle (%):**	48.3
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	2.0, 2.6, 3.6, 2.2
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + TCF* (+4.22 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-26.359	-26.788	-27.286	-26.967	-17.485	5.6	-23.09
2437.0	-26.395	-27.254	-26.958	-27.437	-17.379	5.6	-22.98
2462.0	-26.388	-27.704	-26.554	-27.327	-17.581	5.6	-23.18

Traceability to Industry Recognized Test Methodologies

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

*TCF = Total Correction Factor = Duty Cycle Correction Factor + Average Cable Loss
Duty Cycle Correction Factor: 3.11 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 4.22 dB

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

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Power Spectral Density Limit is calculated to be 8 – (7.4 – 6)) = 5.6 dBm

Equipment Configuration for Power Spectral Density - Average	

Variant:	802.11b	**Duty Cycle (%):**	29.2
Data Rate:	2.00 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	2.0, 2.6, 3.6, 2.2
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + TCF* (+6.64 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-24.605	-26.220	-25.986	-25.244	-12.952	5.6	-18.55
2437.0	-24.822	-25.072	-25.678	-25.788	-15.321	5.6	-20.92
2462.0	-25.578	-26.223	-25.843	-25.359	-15.50	5.6	-21.10

Traceability to Industry Recognized Test Methodologies

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

*TCF = Total Correction Factor = Duty Cycle Correction Factor + Average Cable Loss
Duty Cycle Correction Factor: 5.53 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 6.64 dB

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

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Power Spectral Density Limit is calculated to be 8 – (7.4 – 6)) = 5.6 dBm

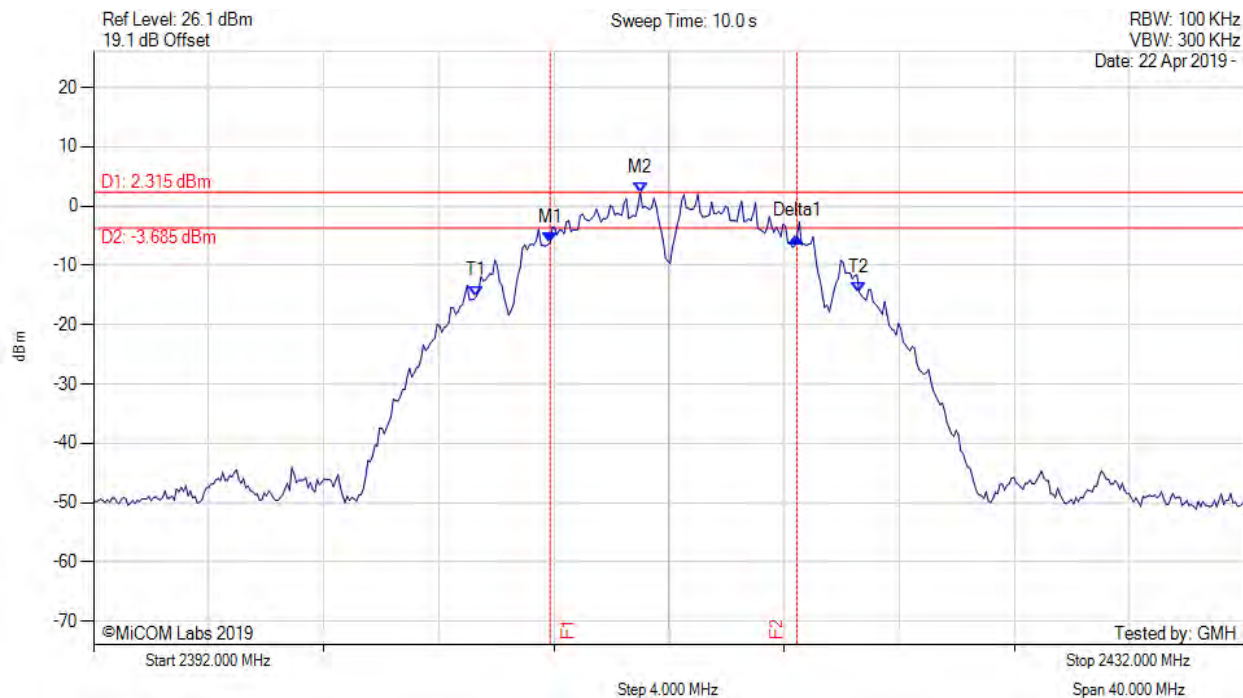**Issue Date:** 25th July 2019   **Page:** 38 of 178
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Equipment Configuration for Power Spectral Density - Average

Variant:	802.11b	**Duty Cycle (%):**	19.9
Data Rate:	5.50 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	2.0, 2.6, 3.6, 2.2
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + TCF* (+8.28 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-26.668	-26.659	-27.489	-26.689	-12.710	5.6	-18.31
2437.0	-26.786	-26.621	-28.297	-26.902	-12.805	5.6	-18.41
2462.0	-26.927	-27.328	-28.342	-26.597	-13.139	5.6	-18.74

Traceability to Industry Recognized Test Methodologies

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

*TCF = Total Correction Factor = Duty Cycle Correction Factor + Average Cable Loss
Duty Cycle Correction Factor: 7.17 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 8.28 dB

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

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Power Spectral Density Limit is calculated to be 8 – (7.4 – 6)) = 5.6 dBm

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Equipment Configuration for Power Spectral Density - Average

Variant:	802.11g	**Duty Cycle (%):**	50.6
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	2.0, 2.6, 3.6, 2.2
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + TCF* (+4.03 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	a	b	c	d	dBm/3KHz	dBm/3KHz	dB
2412.0	-25.772	-25.628	-26.459	-26.354	-16.529	5.6	-22.13
2437.0	-26.459	-27.038	-27.027	-26.538	-17.141	5.6	-22.74
2462.0	-26.068	-26.486	-26.420	-26.254	-16.709	5.6	-22.31

Traceability to Industry Recognized Test Methodologies

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

*TCF = Total Correction Factor = Duty Cycle Correction Factor + Average Cable Loss
Duty Cycle Correction Factor: 2.92 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 4.03 dB

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

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Power Spectral Density Limit is calculated to be 8 – (7.4 – 6)) = 5.6 dBm

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Equipment Configuration for Power Spectral Density - Average

Variant:	802.11n HT-20	**Duty Cycle (%):**	46.9
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi) (Chains a, b, c, d):**	2.0, 2.6, 3.6, 2.2
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	GMH
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + TCF* (+3.79 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-26.119	-26.343	-27.354	-26.897	-17.433	5.6	-23.03
2437.0	-27.776	-27.476	-27.751	-28.093	-18.225	5.6	-23.83
2462.0	-27.138	-27.182	-27.110	-26.882	-17.474	5.6	-23.07

Traceability to Industry Recognized Test Methodologies

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

*TCF = Total Correction Factor = Duty Cycle Correction Factor + Average Cable Loss
Duty Cycle Correction Factor: 2.68 dB
Average Additional Cable Loss: 1.11 dB
Total Correction: 3.79 dB

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

Limit Calculation
Based on FCC KDB 662911 Multiple Transmitter Output Section 2) d) (i) Unequal antenna gains, with equal transmit powers, for antenna gains given by G1, G2, …, GN dBi the Power Spectral Density Limit is calculated to be 8 – (7.4 – 6)) = 5.6 dBm

APPENDIX A - GRAPHICAL IMAGES

A.1. 6 dB & 99% Bandwidth

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
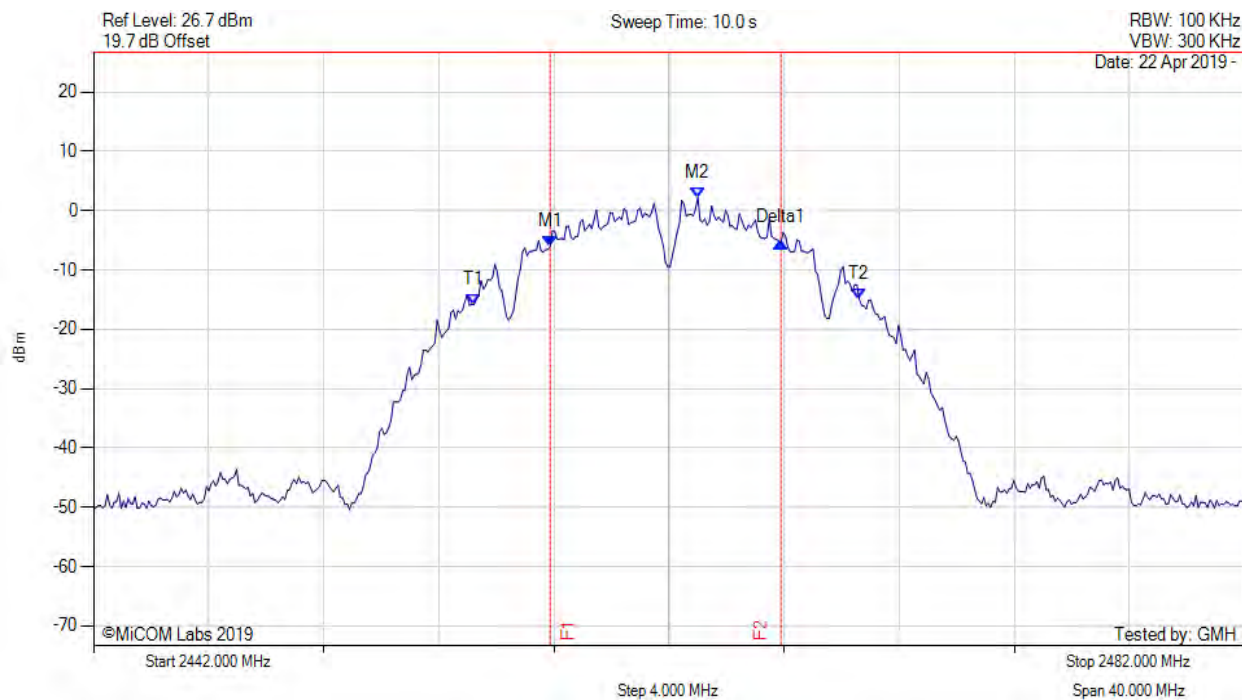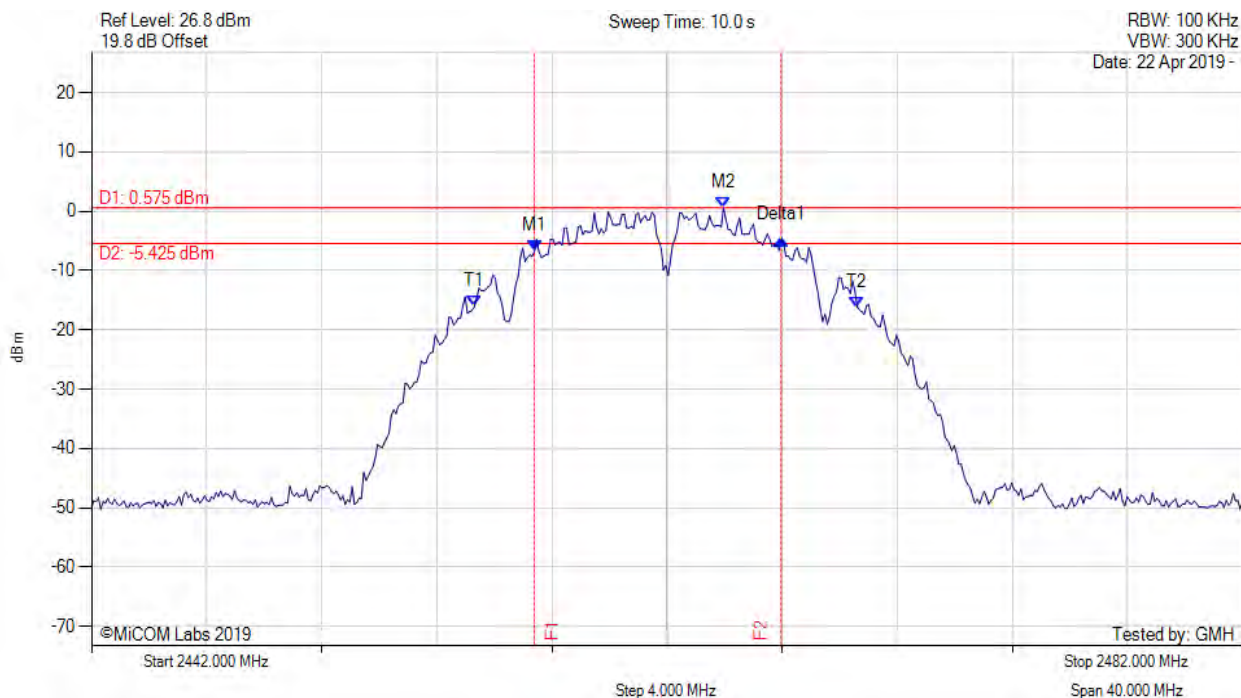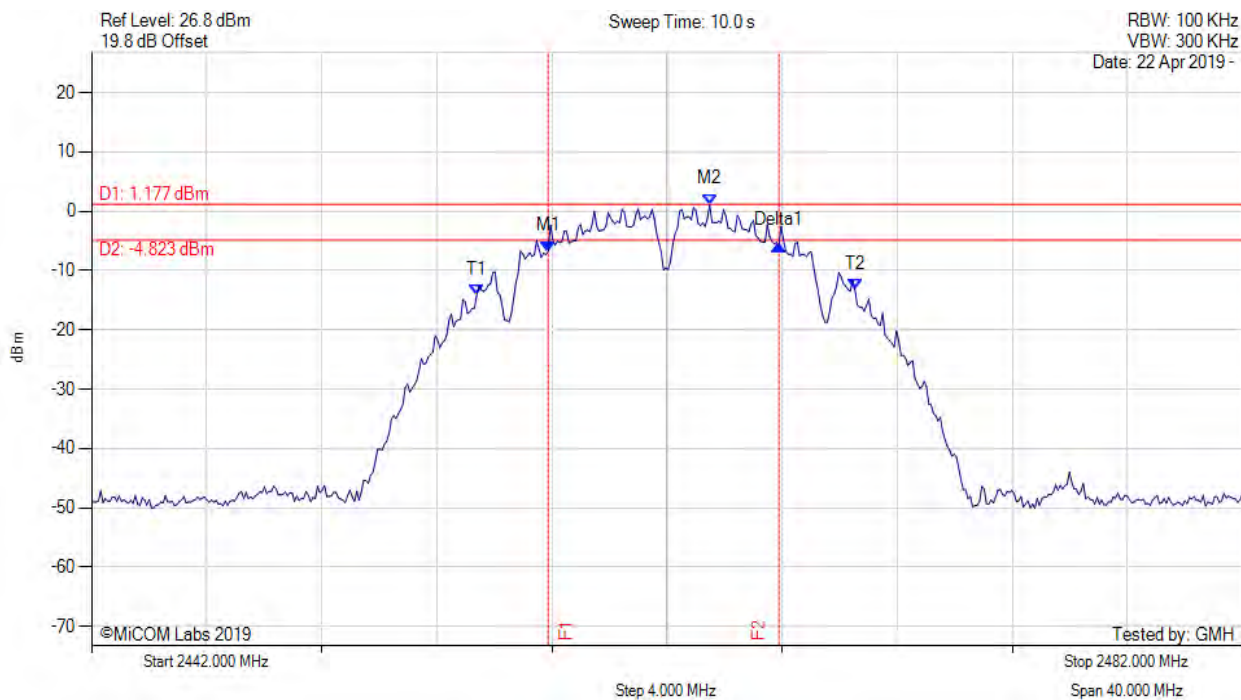
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.872 MHz : -6.194 dBm M2 : 2410.998 MHz : 2.315 dBm Delta1 : 8.577 MHz : 1.062 dB T1 : 2405.307 MHz : -15.187 dBm T2 : 2418.613 MHz : -14.528 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 8.577 MHz Limit: ≥500.0 kHz Margin: -8.08 MHz

back to matrix

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6 dB & 99% BANDWIDTH

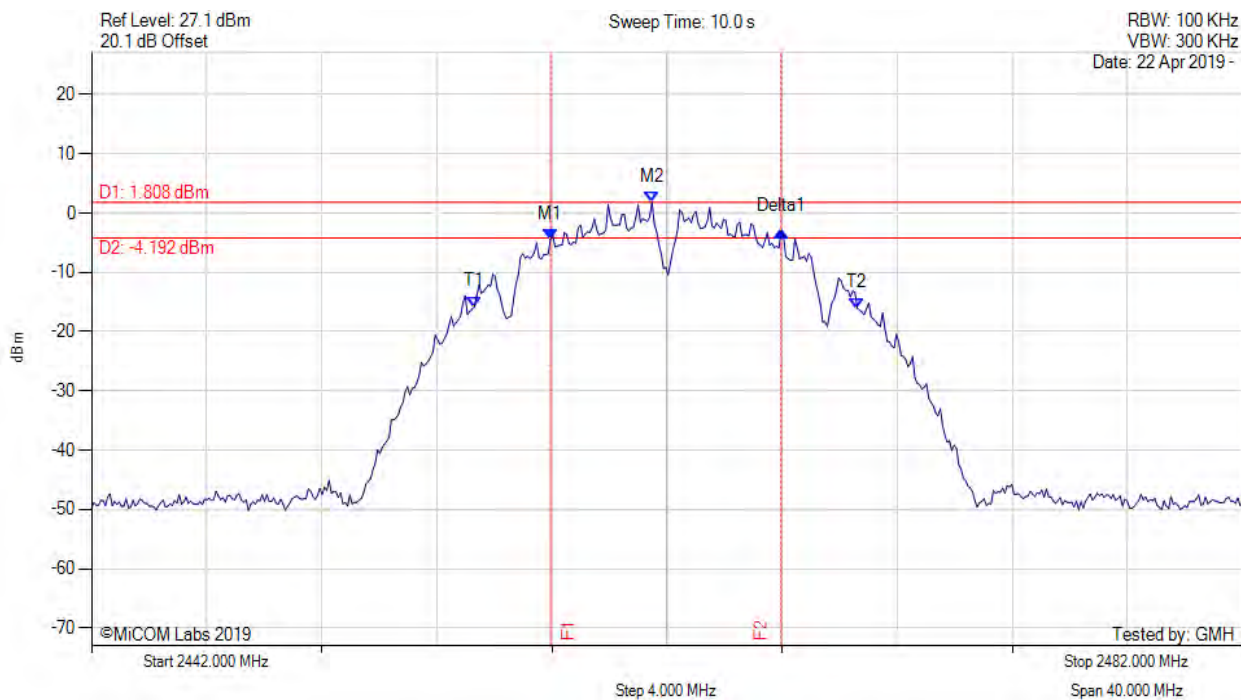Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2408.353 MHz : -4.987 dBm M2 : 2412.521 MHz : 1.976 dBm Delta1 : 7.615 MHz : 0.732 dB T1 : 2405.387 MHz : -14.517 dBm T2 : 2418.613 MHz : -15.552 dBm OBW : 13.226 MHz	Measured 6 dB Bandwidth: 7.615 MHz Limit: ≥500.0 kHz Margin: -7.12 MHz

back to matrix

6 dB & 99% BANDWIDTH

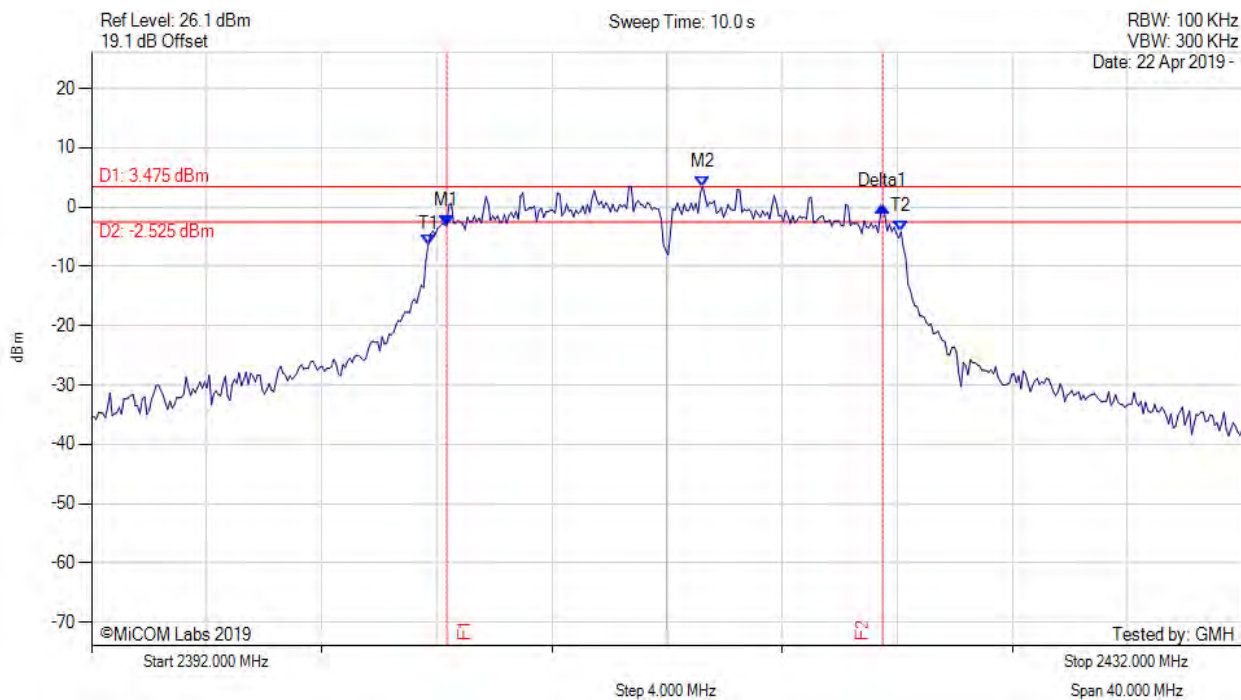Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.952 MHz : -4.950 dBm M2 : 2412.521 MHz : 1.178 dBm Delta1 : 8.016 MHz : 2.323 dB T1 : 2405.387 MHz : -15.810 dBm T2 : 2418.613 MHz : -15.588 dBm OBW : 13.226 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

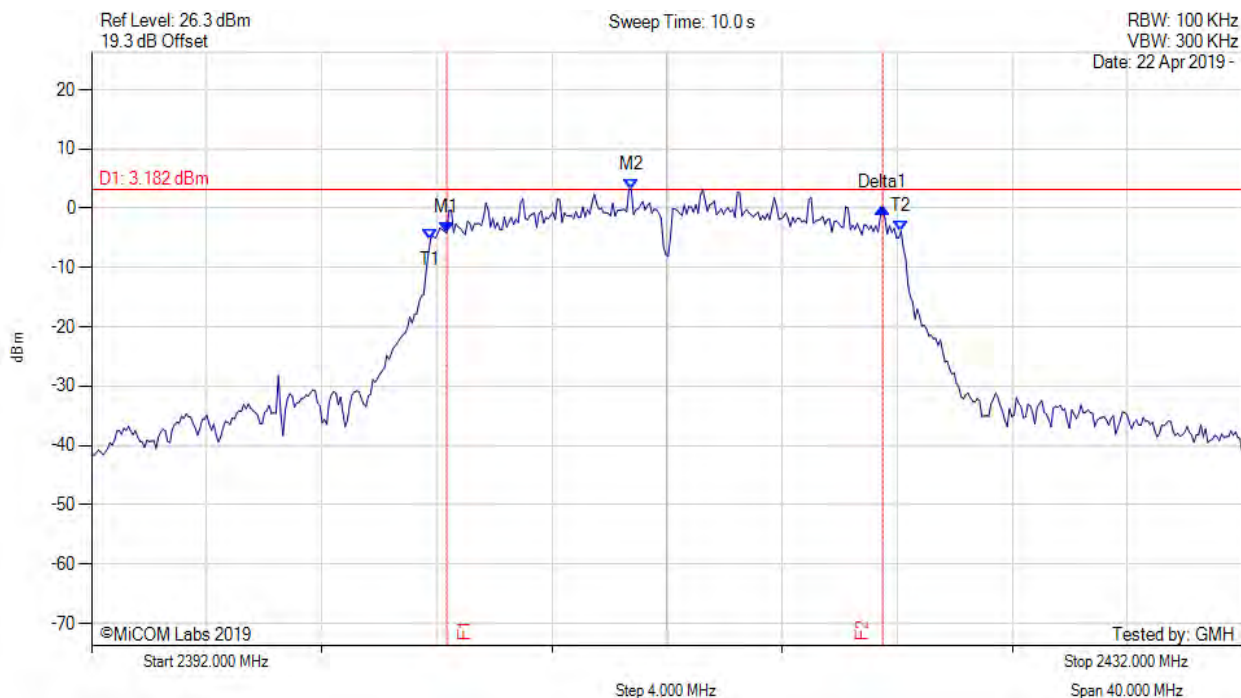Variant: 802.11b, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

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 : -6.600 dBm M2 : 2411.479 MHz : 1.441 dBm Delta1 : 8.016 MHz : 0.598 dB T1 : 2405.307 MHz : -15.770 dBm T2 : 2418.613 MHz : -15.685 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

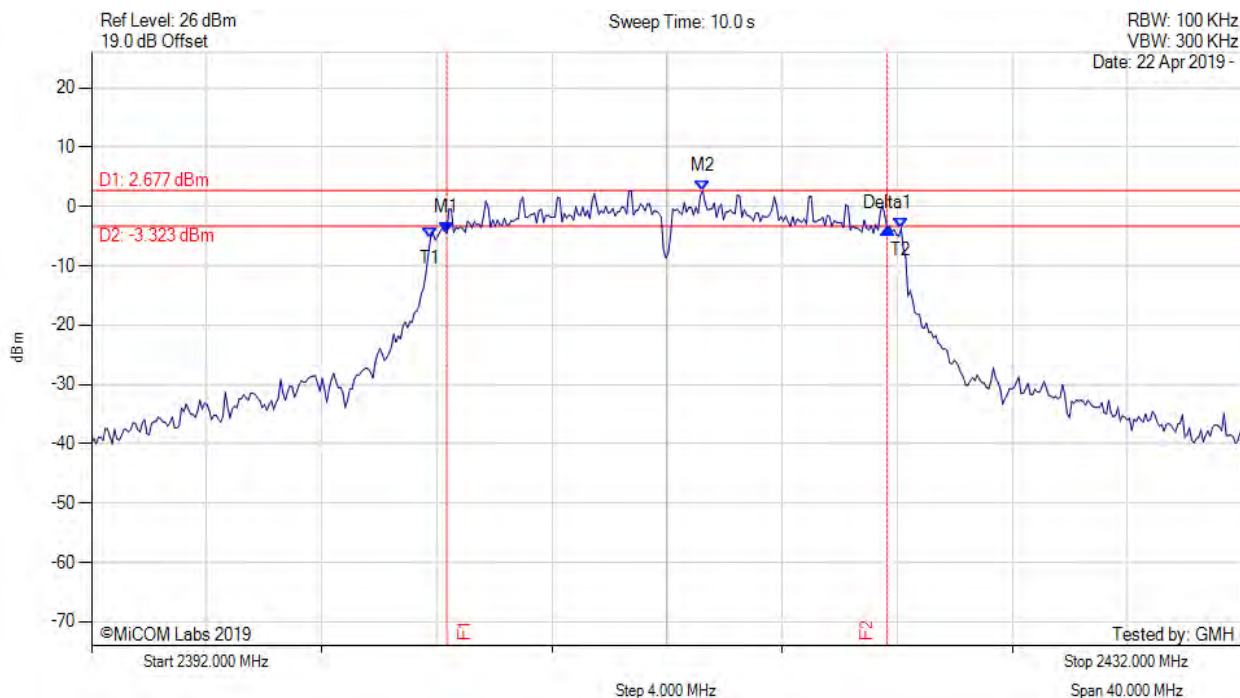Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.872 MHz : -5.832 dBm M2 : 2438.002 MHz : 2.136 dBm Delta1 : 8.497 MHz : -0.828 dB T1 : 2430.226 MHz : -15.574 dBm T2 : 2443.693 MHz : -15.283 dBm OBW : 13.467 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: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

Start 2417.000 MHz

Step 4.000 MHz

Stop 2457.000 MHz
Span 40.000 MHz

Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.872 MHz : -6.614 dBm M2 : 2435.998 MHz : 1.712 dBm Delta1 : 8.016 MHz : 0.846 dB T1 : 2430.387 MHz : -14.233 dBm T2 : 2443.613 MHz : -15.522 dBm OBW : 13.226 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

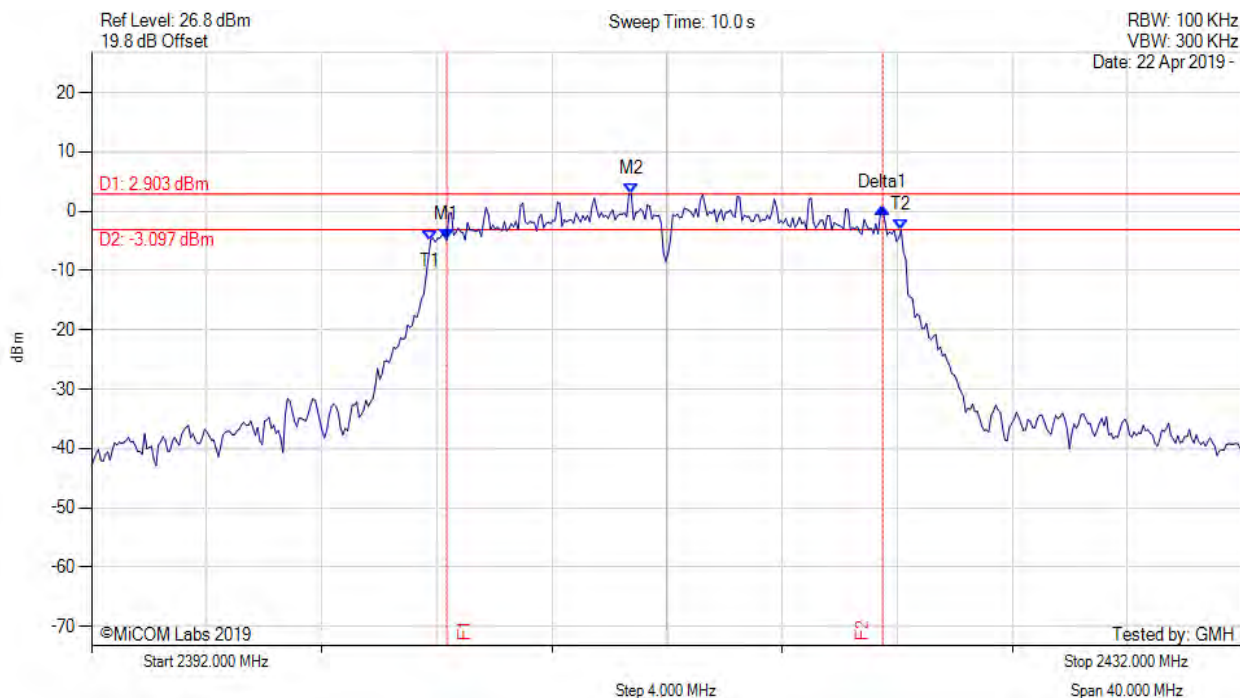### Variant: 802.11b, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.872 MHz : -6.680 dBm M2 : 2436.479 MHz : 1.201 dBm Delta1 : 8.096 MHz : 2.953 dB T1 : 2430.387 MHz : -15.539 dBm T2 : 2443.613 MHz : -15.659 dBm OBW : 13.226 MHz	Measured 6 dB Bandwidth: 8.096 MHz Limit: ≥500.0 kHz Margin: -7.60 MHz

back to matrix

6 dB & 99% BANDWIDTH

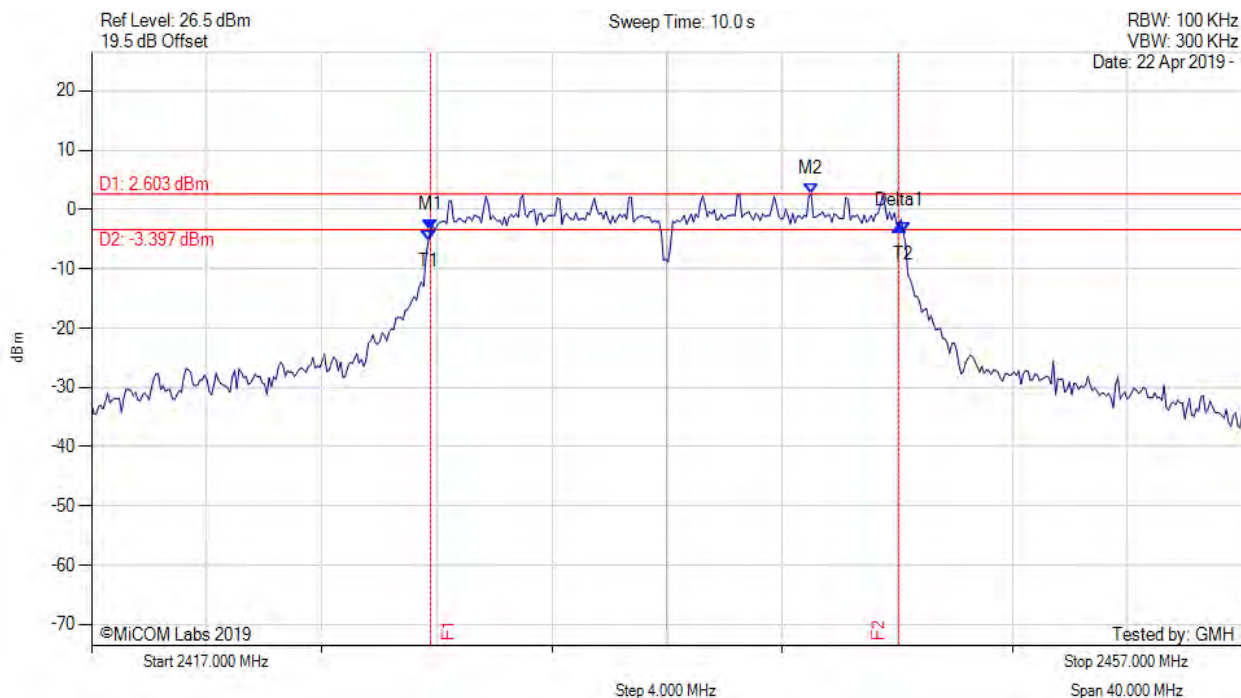Variant: 802.11b, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.872 MHz : -6.605 dBm M2 : 2435.998 MHz : 1.905 dBm Delta1 : 8.016 MHz : 0.490 dB T1 : 2430.307 MHz : -15.413 dBm T2 : 2443.613 MHz : -15.665 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
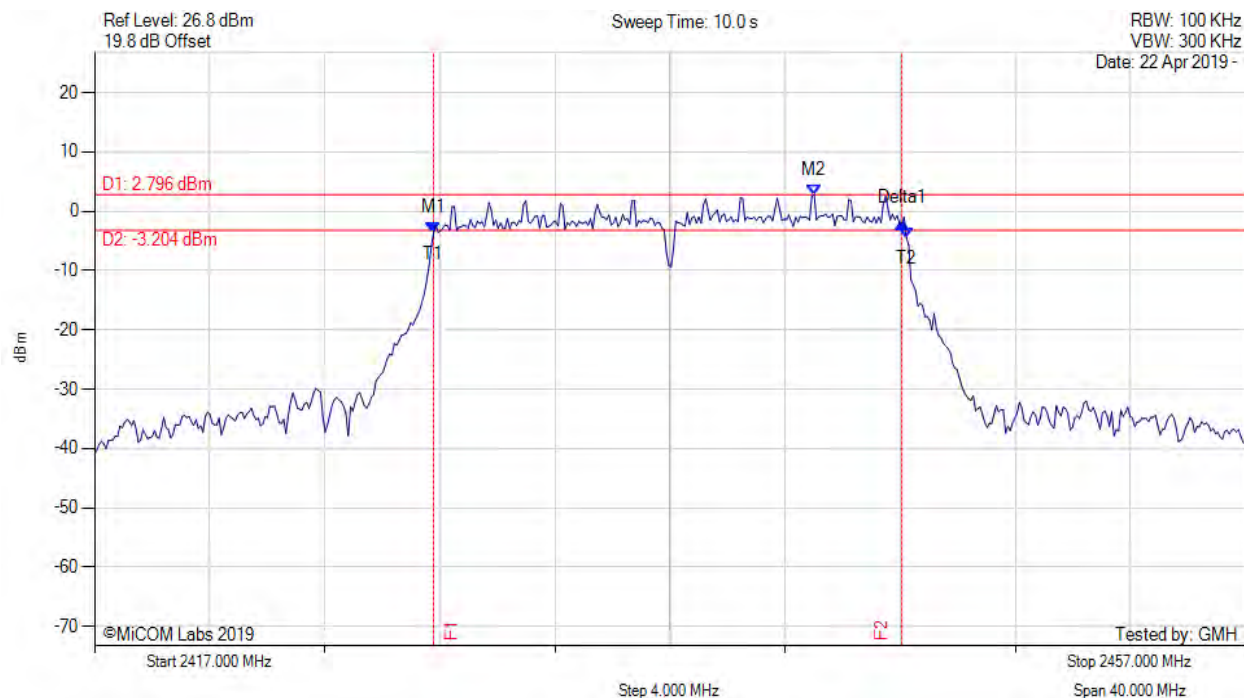
Ref Level: 26.7 dBm
19.7 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

Start 2442.000 MHz

Step 4.000 MHz

Stop 2482.000 MHz
Span 40.000 MHz

Tested by: GMH

©MiCOM Labs 2019

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.872 MHz : -6.056 dBm M2 : 2463.002 MHz : 2.195 dBm Delta1 : 8.016 MHz : 0.616 dB T1 : 2455.226 MHz : -15.846 dBm T2 : 2468.613 MHz : -14.980 dBm OBW : 13.387 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

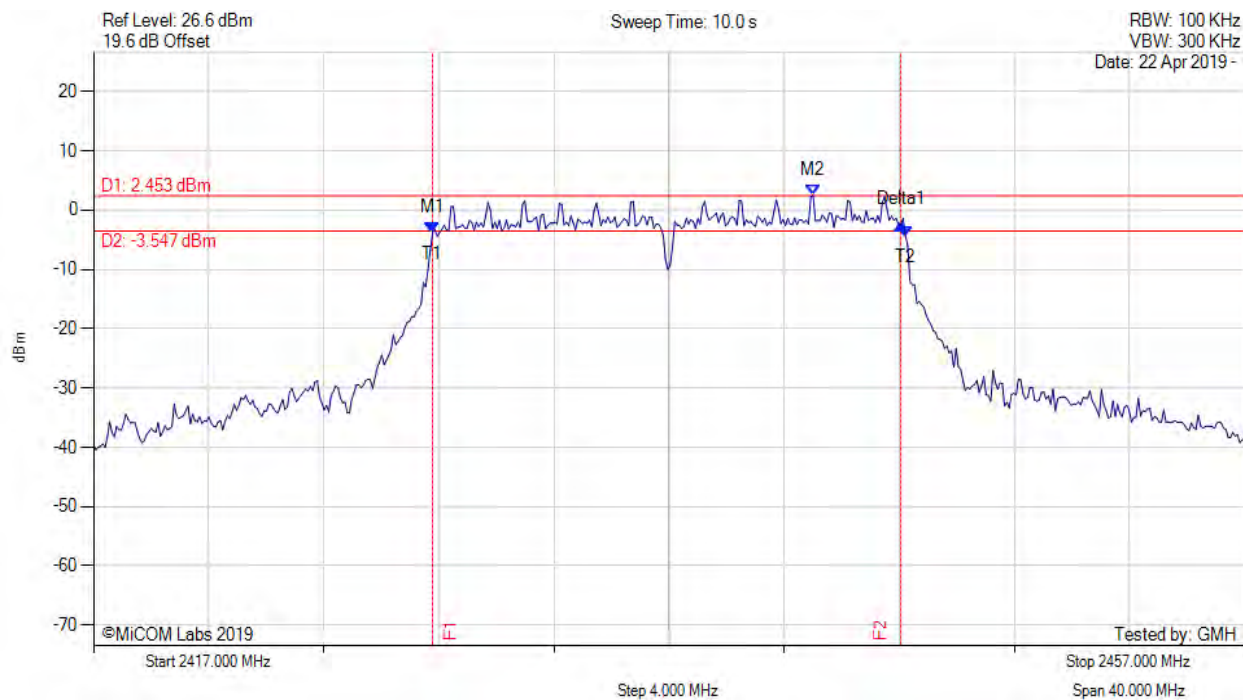Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 0.575 dBm
D2: -5.425 dBm

Start 2442.000 MHz
Stop 2482.000 MHz
Step 4.000 MHz
Span 40.000 MHz

Tested by: GMH

©MiCOM Labs 2019

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 : -6.694 dBm M2 : 2463.964 MHz : 0.575 dBm Delta1 : 8.577 MHz : 1.855 dB T1 : 2455.307 MHz : -16.096 dBm T2 : 2468.613 MHz : -16.128 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 8.577 MHz Limit: ≥500.0 kHz Margin: -8.08 MHz

back to matrix

6 dB & 99% BANDWIDTH

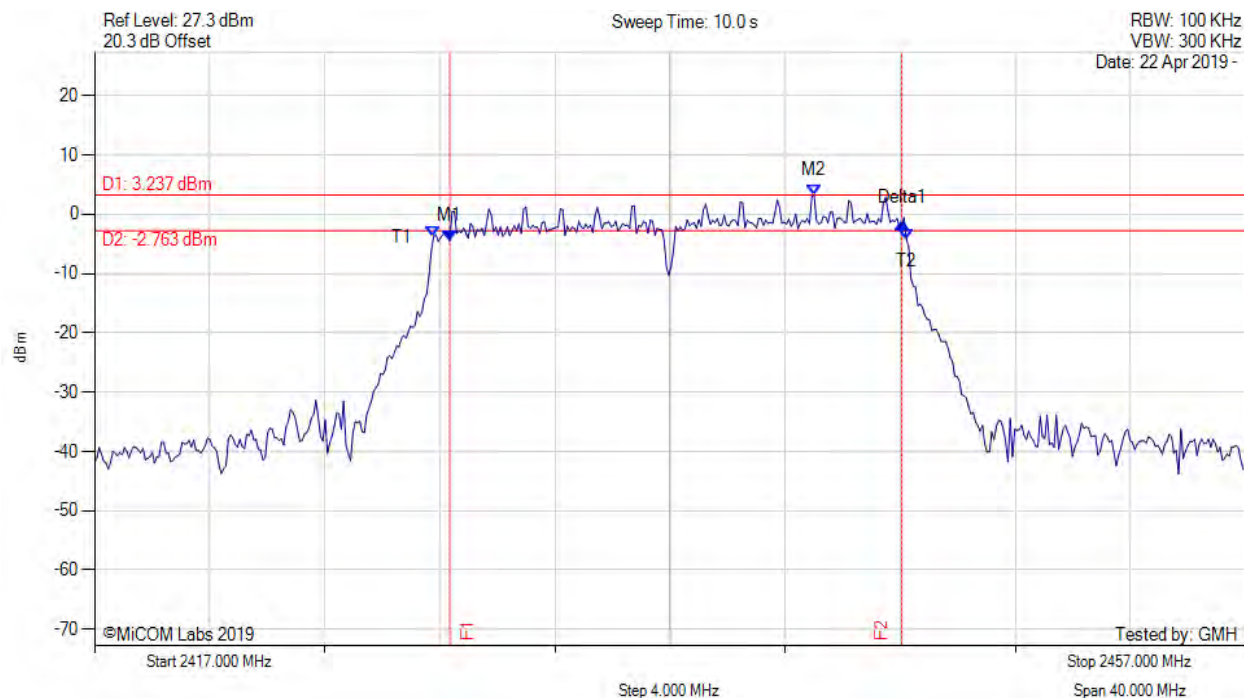Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.872 MHz : -6.765 dBm M2 : 2463.483 MHz : 1.177 dBm Delta1 : 8.016 MHz : 0.988 dB T1 : 2455.387 MHz : -14.221 dBm T2 : 2468.533 MHz : -13.165 dBm OBW : 13.146 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

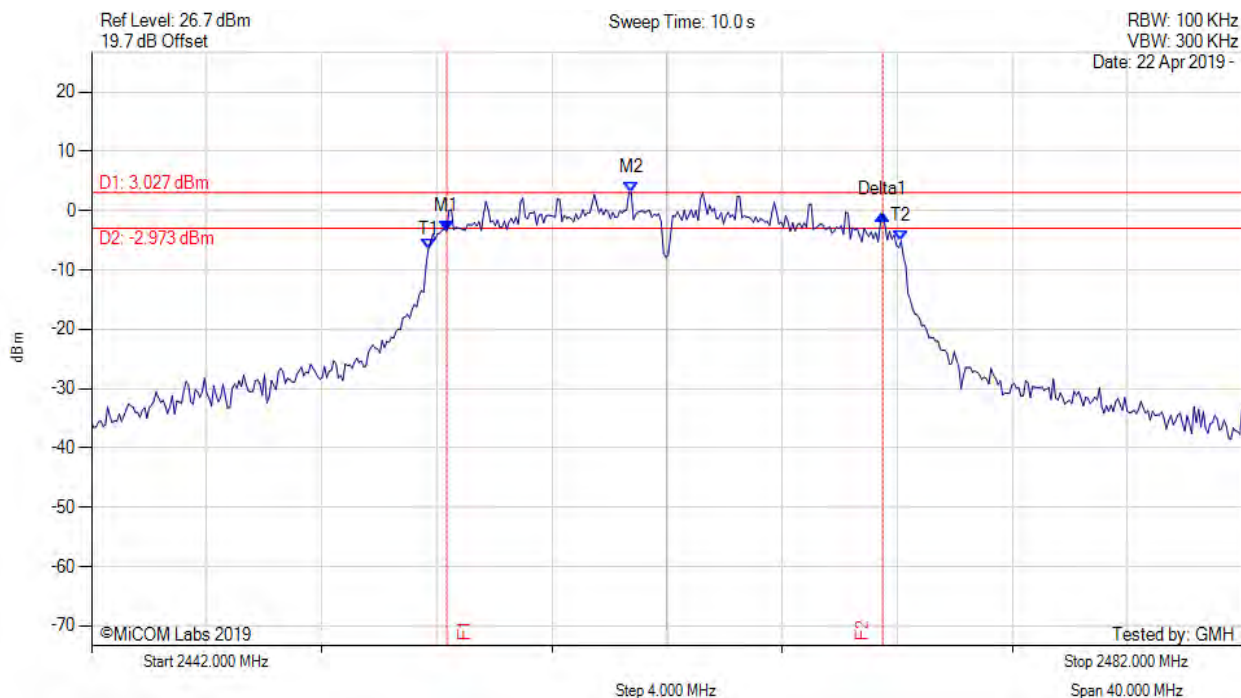Variant: 802.11b, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.952 MHz : -4.395 dBm M2 : 2461.479 MHz : 1.808 dBm Delta1 : 8.016 MHz : 1.354 dB T1 : 2455.307 MHz : -15.812 dBm T2 : 2468.613 MHz : -16.038 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

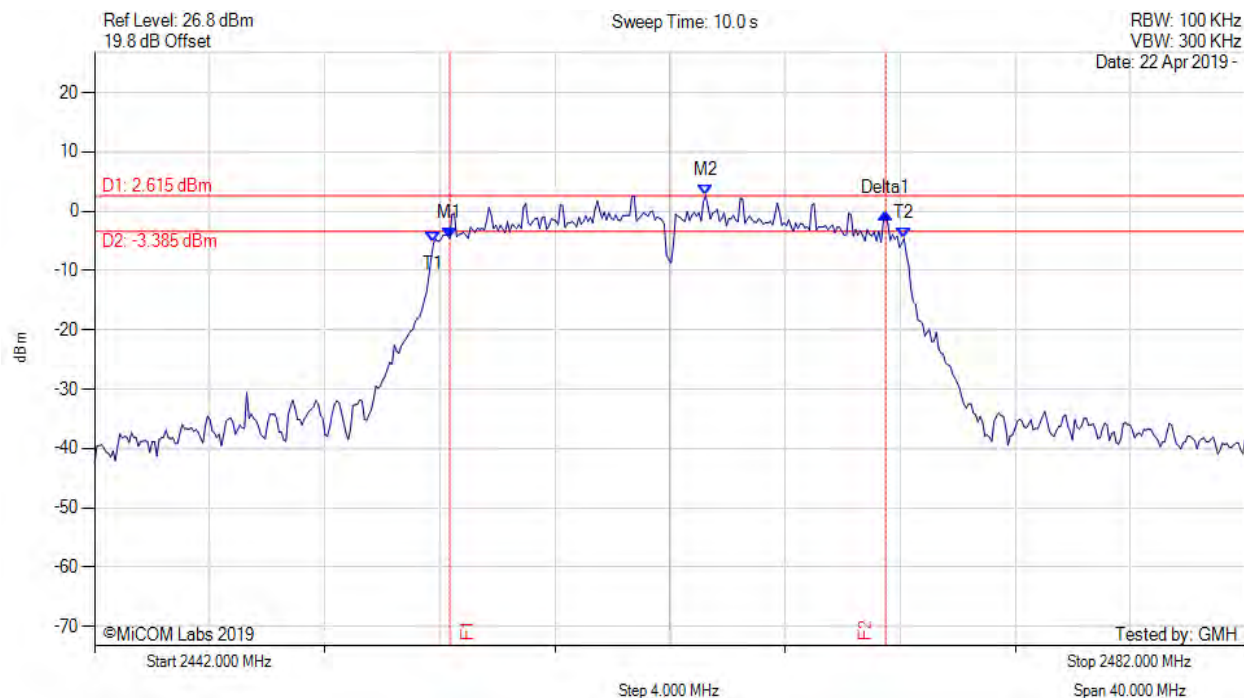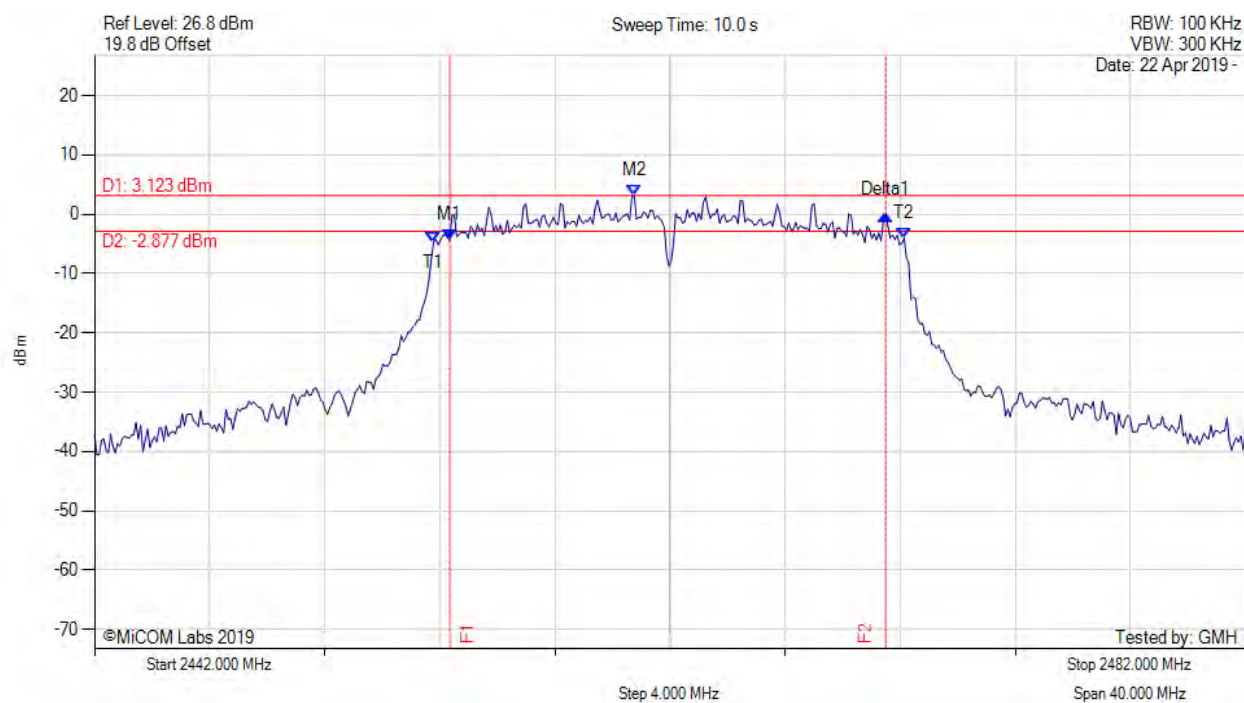Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.345 MHz : -3.044 dBm M2 : 2413.242 MHz : 3.475 dBm Delta1 : 15.150 MHz : 3.246 dB T1 : 2403.703 MHz : -6.308 dBm T2 : 2420.136 MHz : -4.138 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

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6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.3 dBm
19.3 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 3.182 dBm

M2

M1

Delta1
T2

T1

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Start 2392.000 MHz

Step 4.000 MHz

Stop 2432.000 MHz
Span 40.000 MHz

Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.345 MHz : -4.066 dBm M2 : 2410.758 MHz : 3.182 dBm Delta1 : 15.150 MHz : 4.165 dB T1 : 2403.784 MHz : -5.201 dBm T2 : 2420.136 MHz : -3.854 dBm OBW : 16.353 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

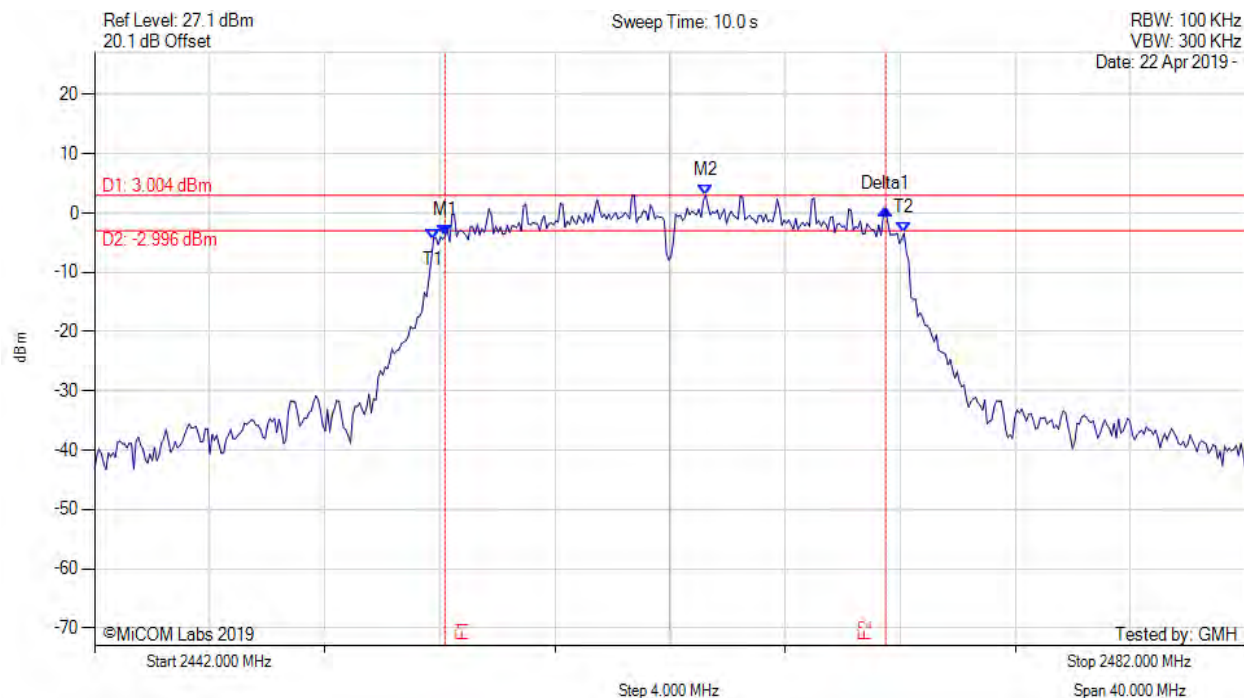Variant: 802.11g, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26 dBm
19.0 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 2.677 dBm
D2: -3.323 dBm

Start 2392.000 MHz
Step 4.000 MHz
Stop 2432.000 MHz
Span 40.000 MHz

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Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.345 MHz : -4.447 dBm M2 : 2413.242 MHz : 2.677 dBm Delta1 : 15.311 MHz : 0.783 dB T1 : 2403.784 MHz : -5.244 dBm T2 : 2420.136 MHz : -3.676 dBm OBW : 16.353 MHz	Measured 6 dB Bandwidth: 15.311 MHz Limit: ≥500.0 kHz Margin: -14.81 MHz

back to matrix

6 dB & 99% BANDWIDTH

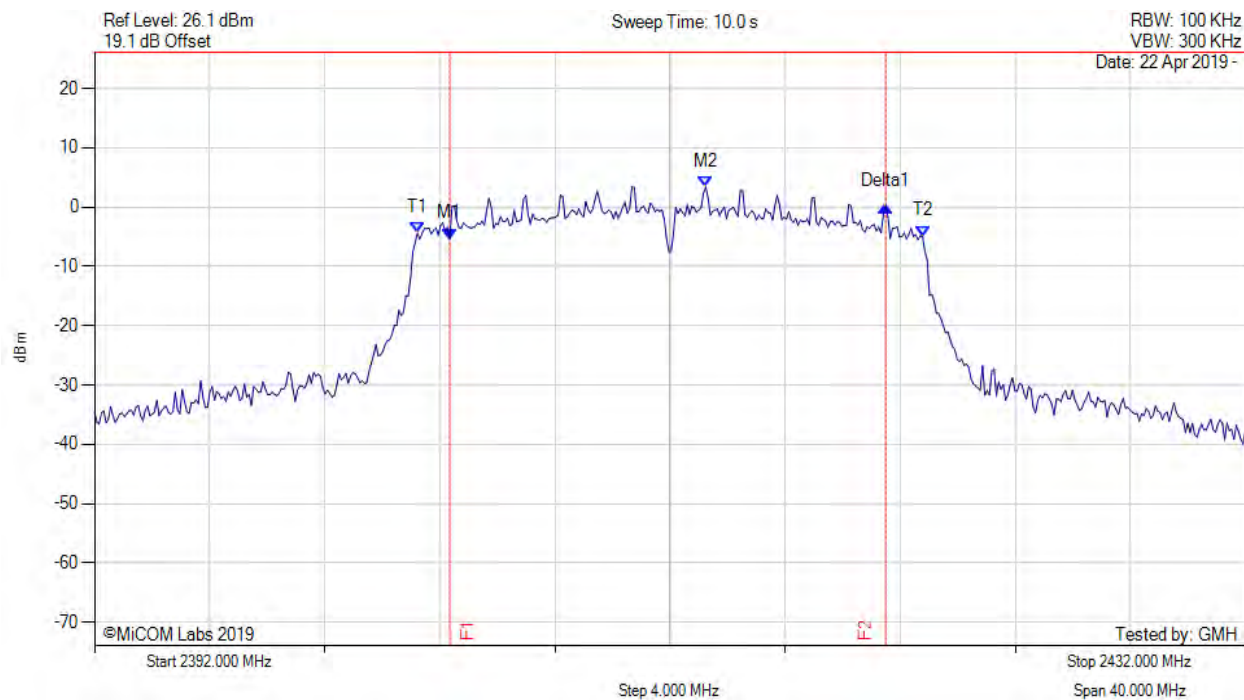Variant: 802.11g, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 2.903 dBm
D2: -3.097 dBm

M1 : 2404.345 MHz
M2 : 2410.758 MHz
Delta1 : 15.150 MHz
T1 : 2403.784 MHz
T2 : 2420.136 MHz

Tested by: GMH

Start 2392.000 MHz
Stop 2432.000 MHz
Step 4.000 MHz
Span 40.000 MHz

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.345 MHz : -4.872 dBm M2 : 2410.758 MHz : 2.903 dBm Delta1 : 15.150 MHz : 5.430 dB T1 : 2403.784 MHz : -4.924 dBm T2 : 2420.136 MHz : -3.139 dBm OBW : 16.353 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
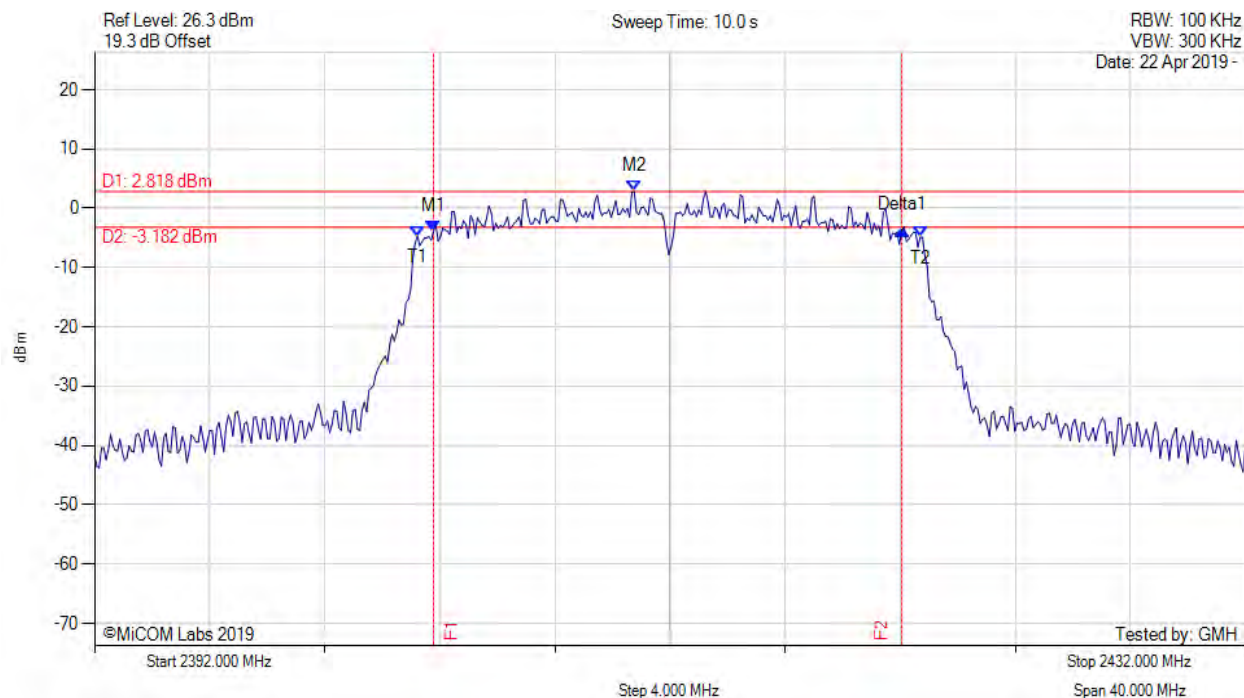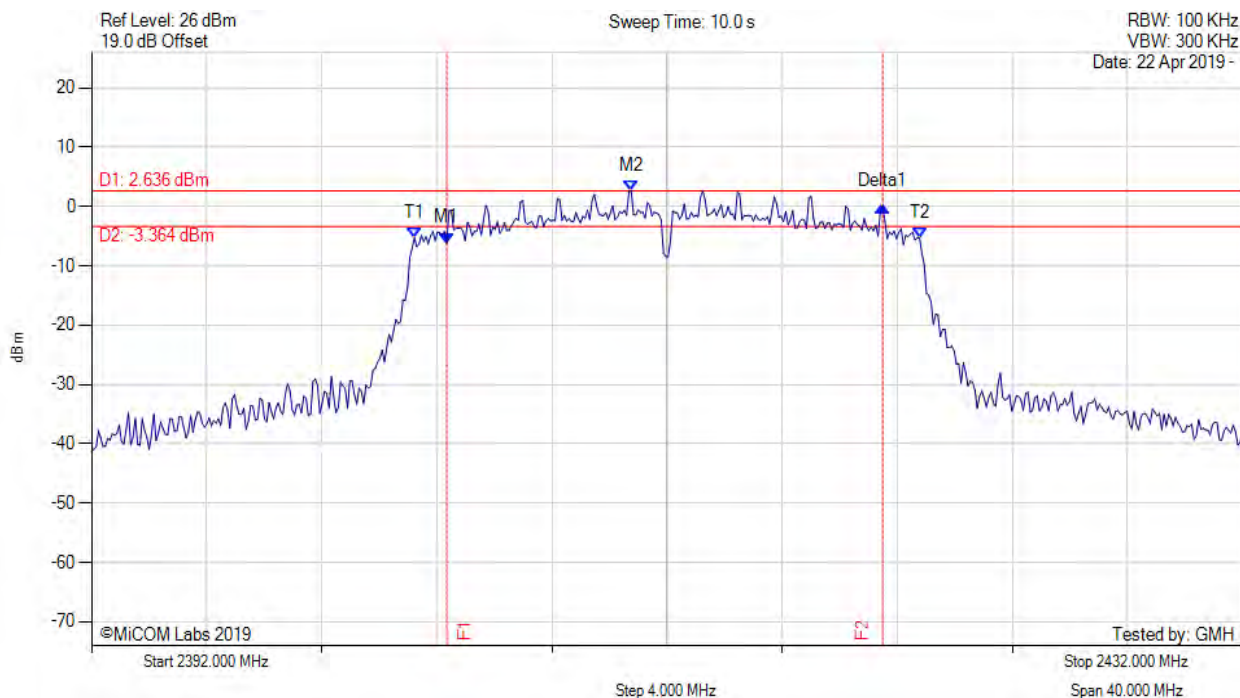

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.784 MHz : -3.451 dBm M2 : 2442.010 MHz : 2.003 dBm Delta1 : 16.273 MHz : 0.752 dB T1 : 2428.703 MHz : -5.216 dBm T2 : 2445.216 MHz : -3.927 dBm OBW : 16.513 MHz	Measured 6 dB Bandwidth: 16.273 MHz Limit: ≥500.0 kHz Margin: -15.77 MHz

back to matrix

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6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 2.796 dBm
D2: -3.204 dBm

M2
M1
Delta1
T1
T2

©MiCOM Labs 2019

Tested by: GMH

Start 2417.000 MHz
Stop 2457.000 MHz
Step 4.000 MHz
Span 40.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.784 MHz : -3.692 dBm M2 : 2442.010 MHz : 2.796 dBm Delta1 : 16.273 MHz : 1.731 dB T1 : 2428.784 MHz : -3.692 dBm T2 : 2445.216 MHz : -4.455 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

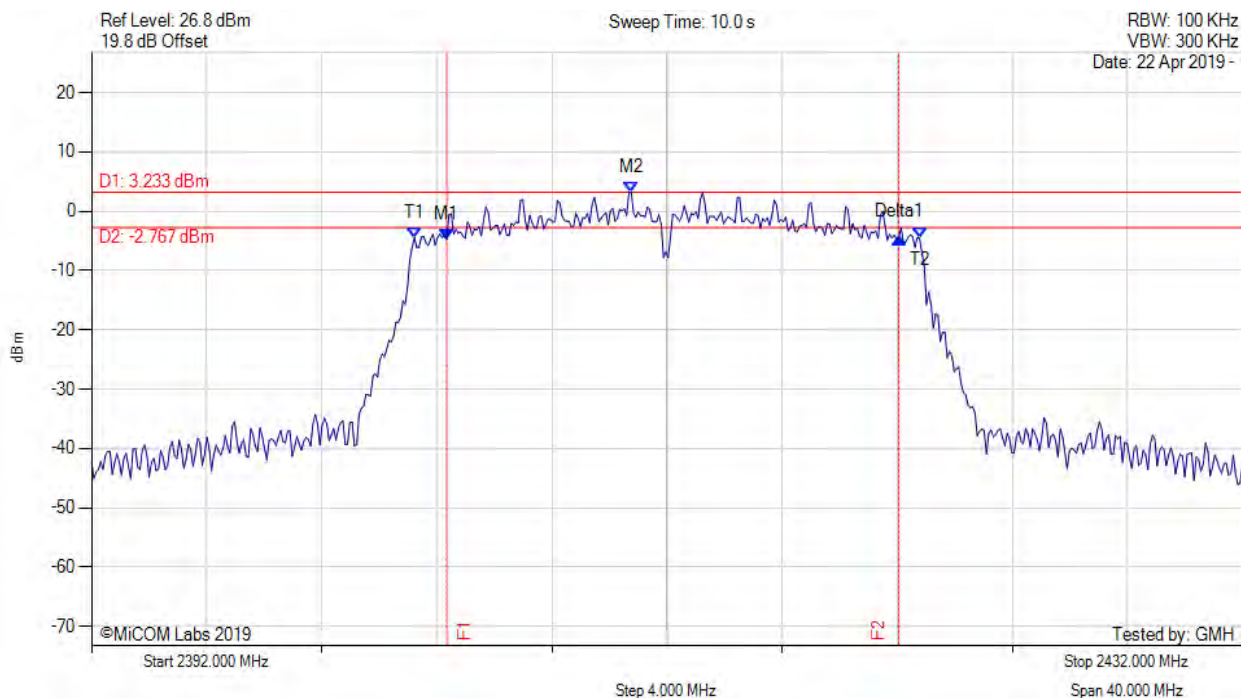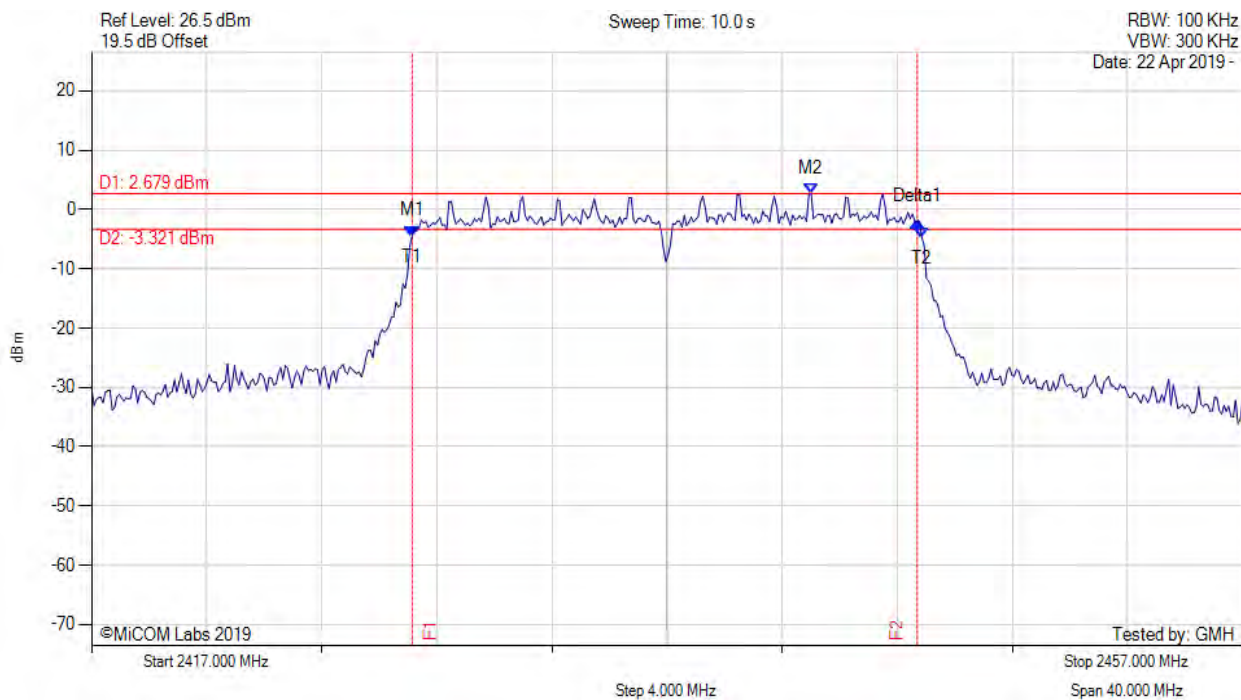### Variant: 802.11g, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.784 MHz : -3.825 dBm M2 : 2442.010 MHz : 2.453 dBm Delta1 : 16.273 MHz : 1.440 dB T1 : 2428.784 MHz : -3.825 dBm T2 : 2445.216 MHz : -4.382 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

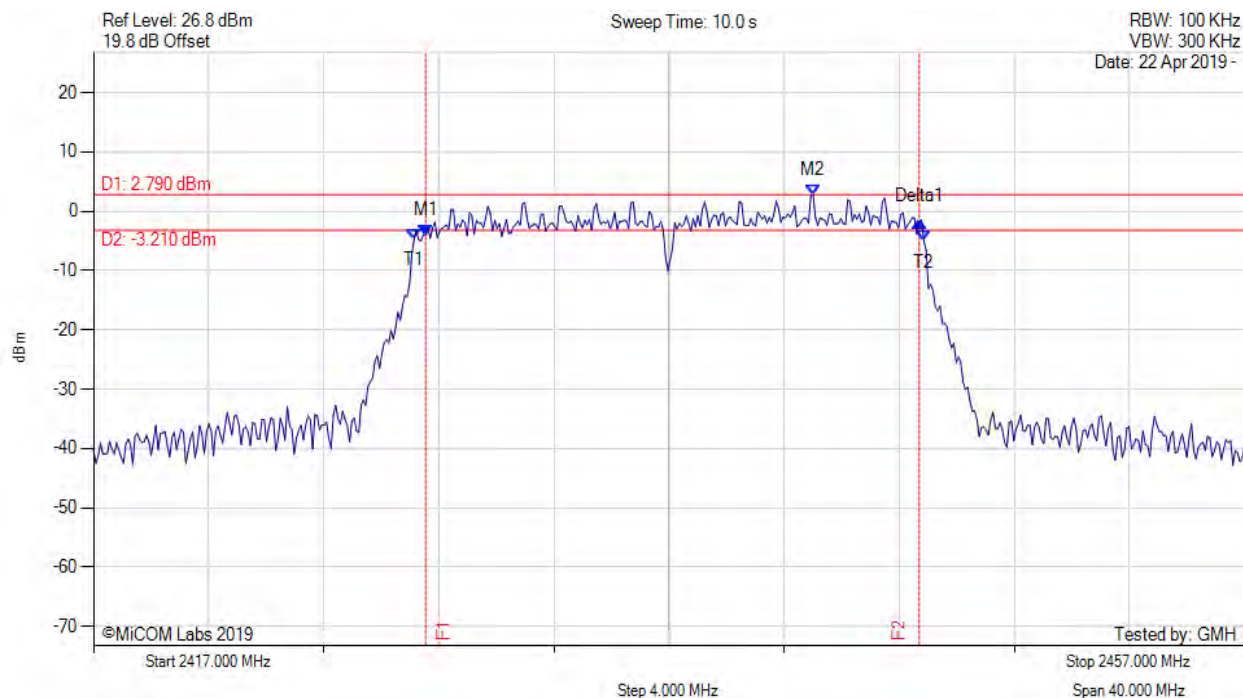Variant: 802.11g, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 27.3 dBm
20.3 dB Offset
Sweep Time: 10.0 s
RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 3.237 dBm
D2: -2.763 dBm

Start 2417.000 MHz
Stop 2457.000 MHz
Step 4.000 MHz
Span 40.000 MHz
Tested by: GMH
©MiCOM Labs 2019

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2429.345 MHz : -4.500 dBm M2 : 2442.010 MHz : 3.237 dBm Delta1 : 15.711 MHz : 2.986 dB T1 : 2428.784 MHz : -3.784 dBm T2 : 2445.216 MHz : -4.280 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 15.711 MHz Limit: ≥500.0 kHz Margin: -15.21 MHz

back to matrix

6 dB & 99% BANDWIDTH

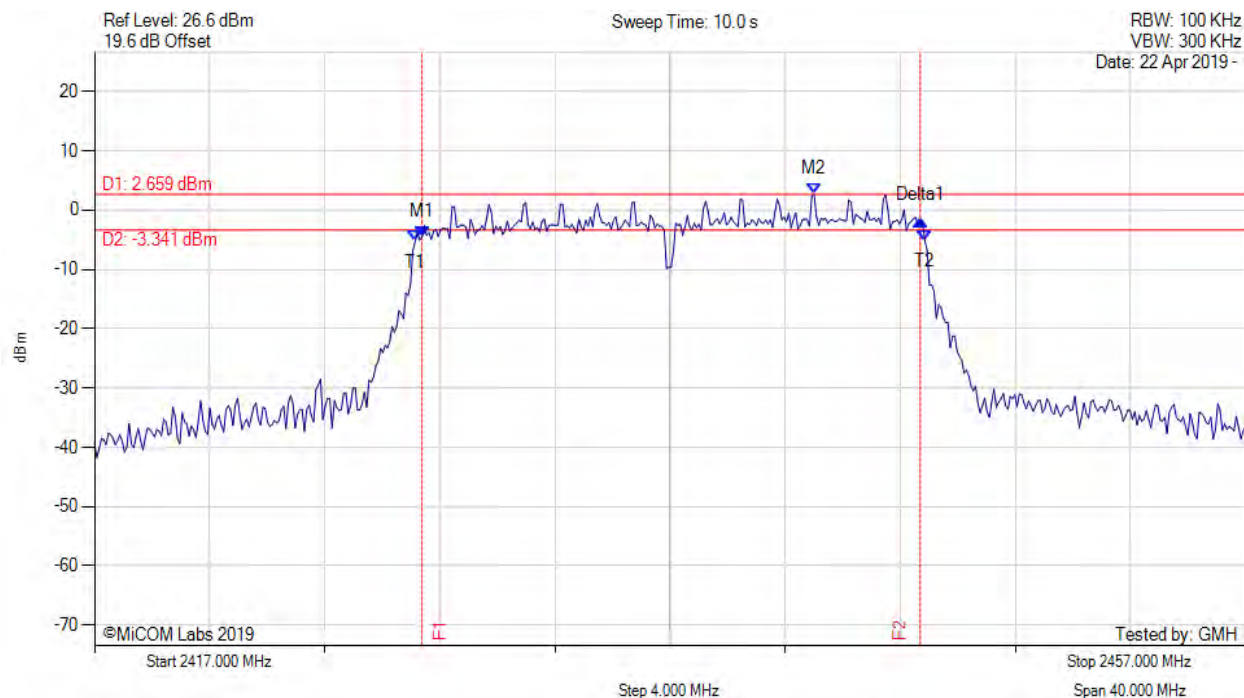Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2454.345 MHz : -3.408 dBm M2 : 2460.758 MHz : 3.027 dBm Delta1 : 15.150 MHz : 2.784 dB T1 : 2453.703 MHz : -6.474 dBm T2 : 2470.136 MHz : -5.102 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2454.345 MHz : -4.552 dBm M2 : 2463.242 MHz : 2.615 dBm Delta1 : 15.150 MHz : 4.139 dB T1 : 2453.784 MHz : -5.321 dBm T2 : 2470.136 MHz : -4.597 dBm OBW : 16.353 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc
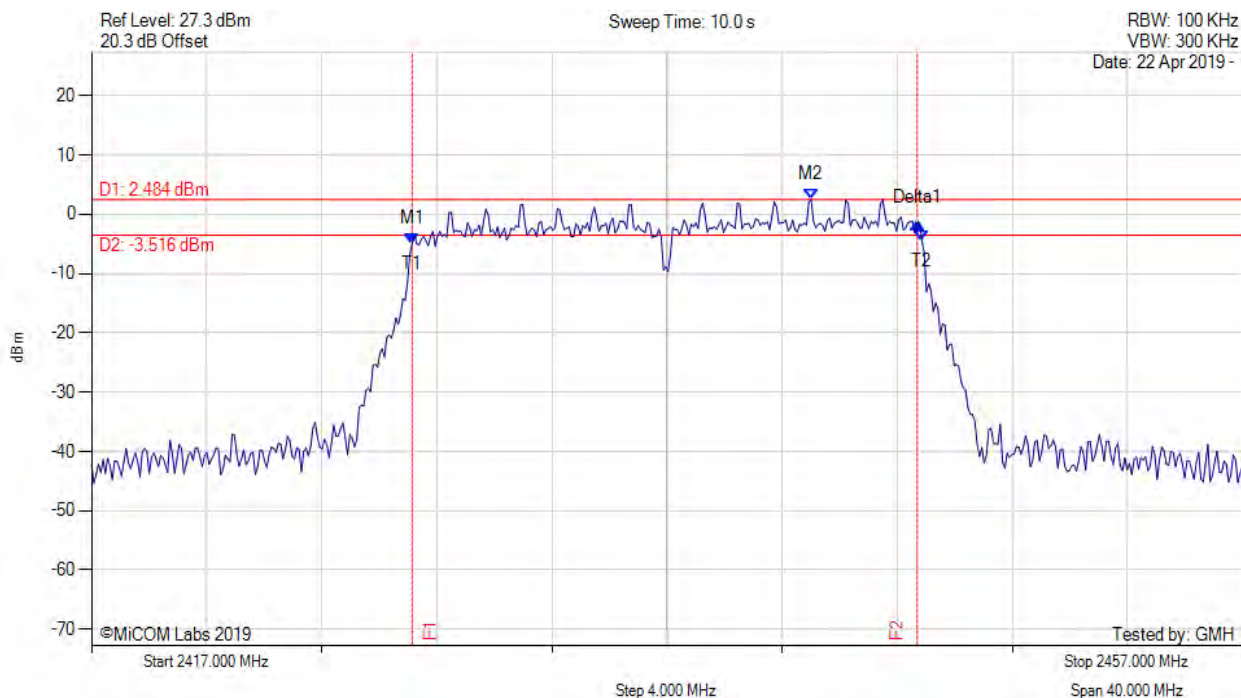

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2454.345 MHz : -4.398 dBm M2 : 2460.758 MHz : 3.123 dBm Delta1 : 15.150 MHz : 4.340 dB T1 : 2453.784 MHz : -4.711 dBm T2 : 2470.136 MHz : -3.985 dBm OBW : 16.353 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11g, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc
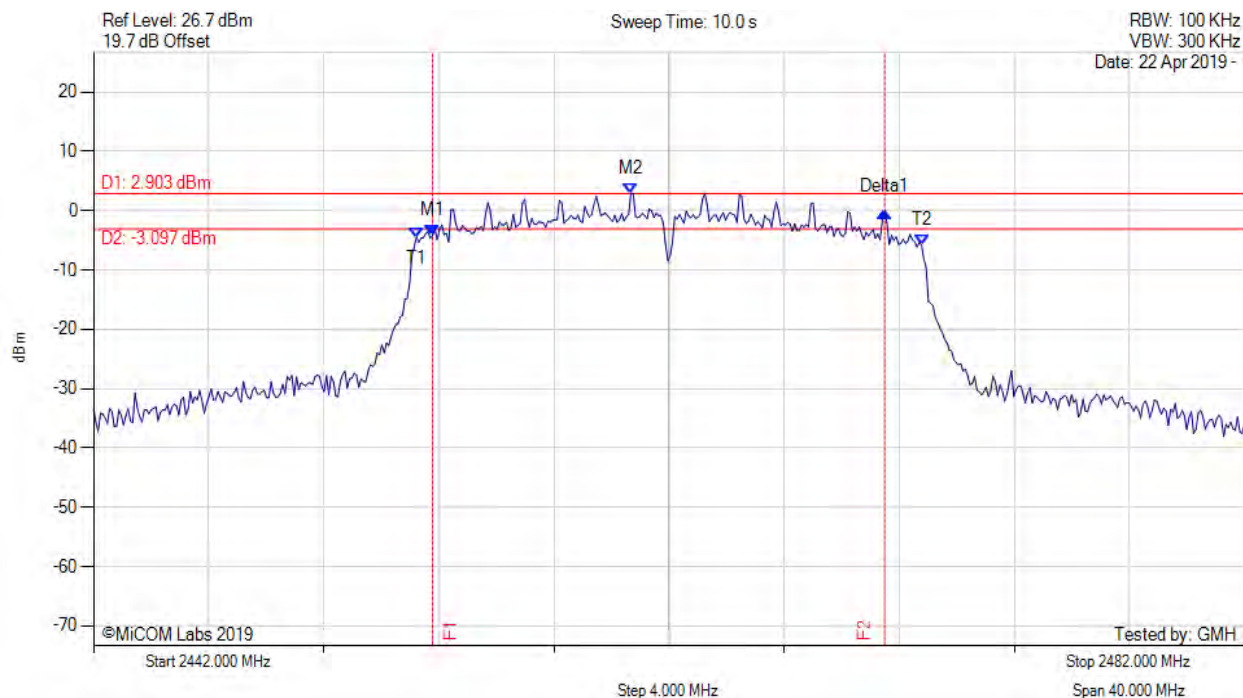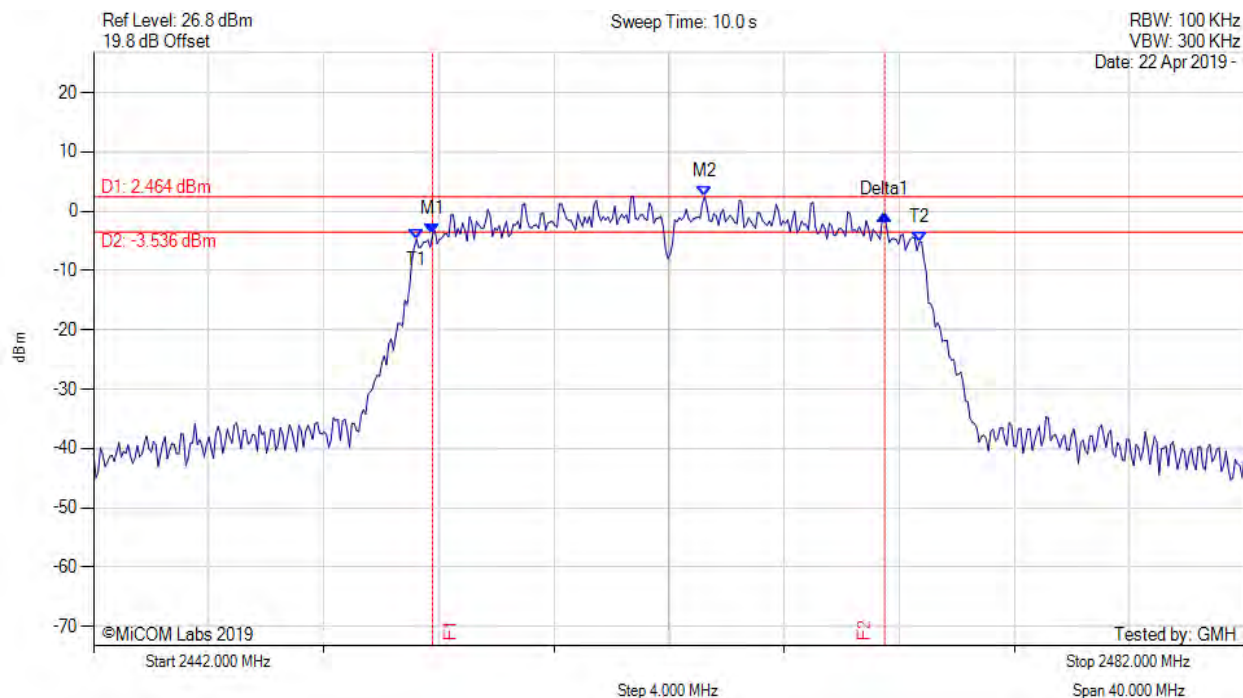

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK	M1 : 2454.184 MHz : -3.870 dBm	Measured 6 dB Bandwidth: 15.311 MHz
Sweep Count = 0	M2 : 2463.242 MHz : 3.004 dBm	Limit: ≥500.0 kHz
RF Atten (dB) = 20	Delta1 : 15.311 MHz : 4.474 dB	Margin: -14.81 MHz
Trace Mode = MAX HOLD	T1 : 2453.784 MHz : -4.360 dBm	
	T2 : 2470.136 MHz : -3.398 dBm	
	OBW : 16.353 MHz	

6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.345 MHz : -5.364 dBm M2 : 2413.242 MHz : 3.399 dBm Delta1 : 15.150 MHz : 5.564 dB T1 : 2403.222 MHz : -4.363 dBm T2 : 2420.778 MHz : -4.906 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

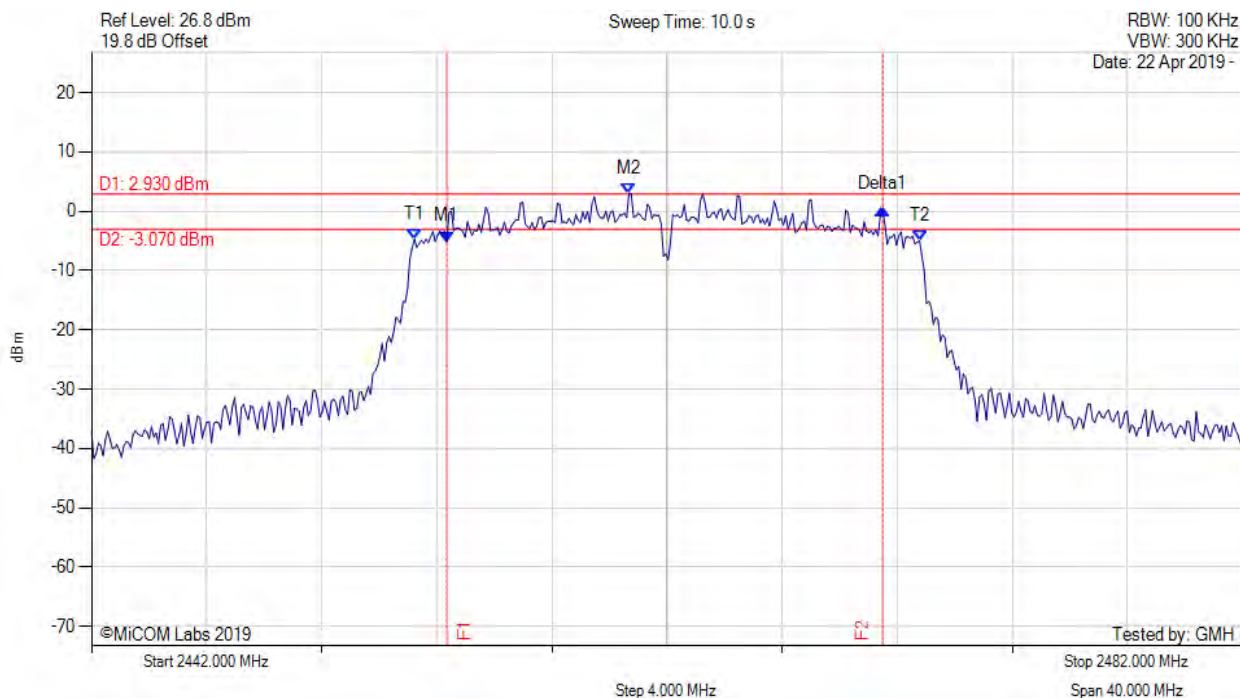Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

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 : -3.808 dBm M2 : 2410.758 MHz : 2.818 dBm Delta1 : 16.273 MHz : 0.122 dB T1 : 2403.222 MHz : -4.727 dBm T2 : 2420.697 MHz : -4.885 dBm OBW : 17.475 MHz	Measured 6 dB Bandwidth: 16.273 MHz Limit: ≥500.0 kHz Margin: -15.77 MHz

back to matrix

6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.345 MHz : -6.162 dBm M2 : 2410.758 MHz : 2.636 dBm Delta1 : 15.150 MHz : 6.284 dB T1 : 2403.222 MHz : -5.316 dBm T2 : 2420.778 MHz : -5.253 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

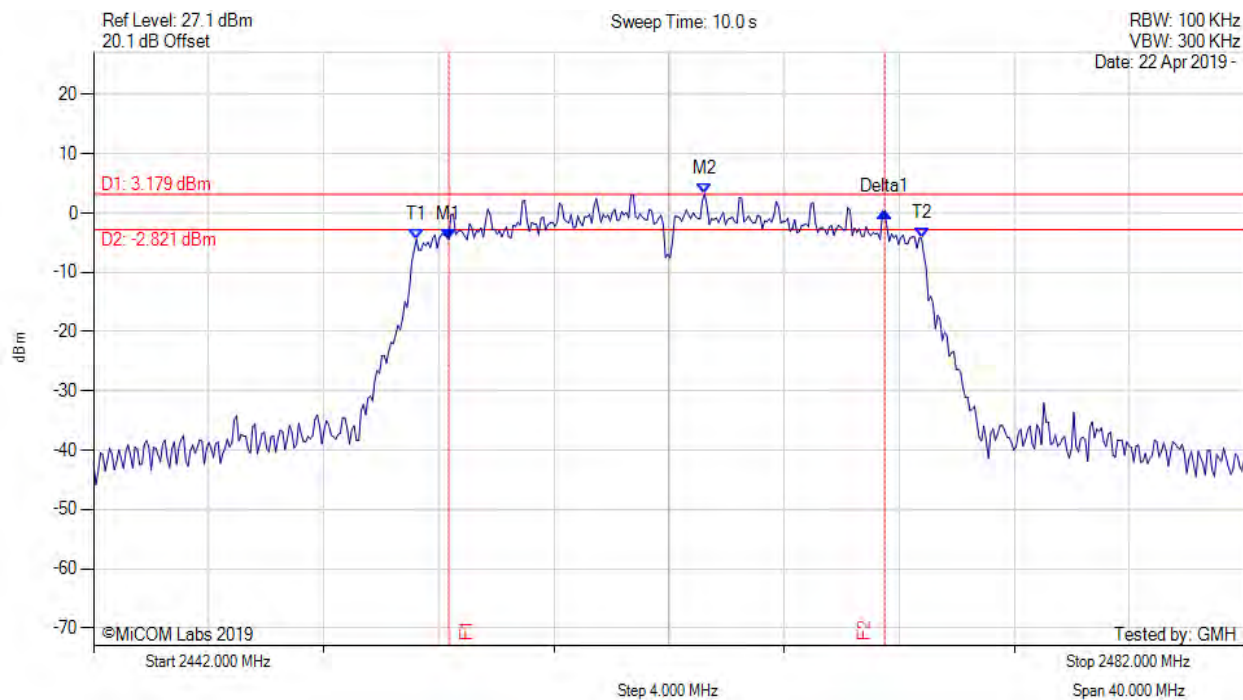Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2404.345 MHz : -4.703 dBm M2 : 2410.758 MHz : 3.233 dBm Delta1 : 15.711 MHz : 0.285 dB T1 : 2403.222 MHz : -4.459 dBm T2 : 2420.778 MHz : -4.558 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 15.711 MHz Limit: ≥500.0 kHz Margin: -15.21 MHz

back to matrix

6 dB & 99% BANDWIDTH

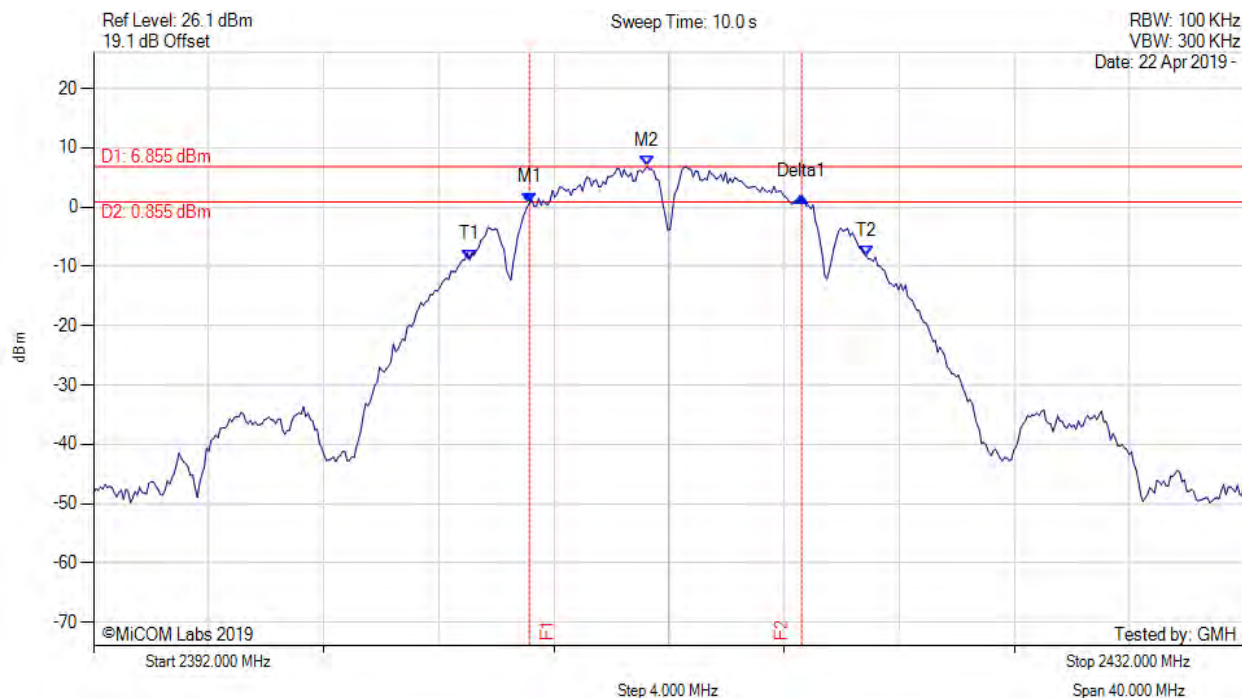Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

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 : -4.484 dBm M2 : 2442.010 MHz : 2.679 dBm Delta1 : 17.555 MHz : 2.475 dB T1 : 2428.142 MHz : -4.484 dBm T2 : 2445.858 MHz : -4.728 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

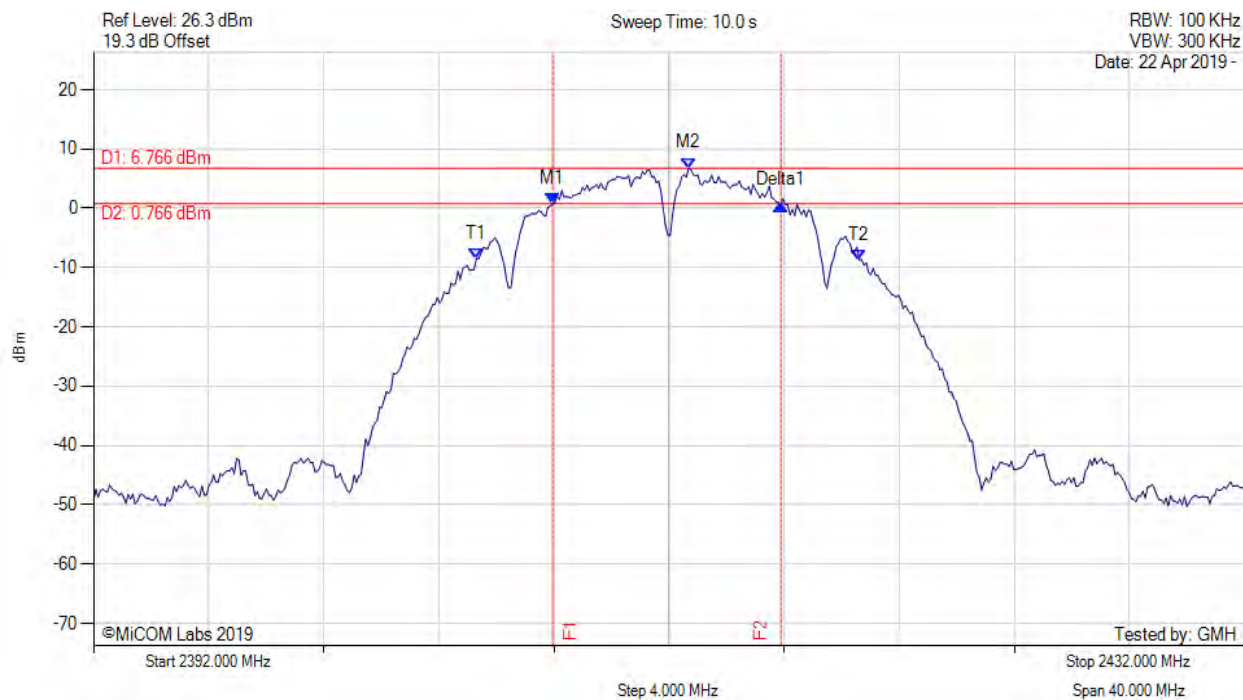Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 2.790 dBm
D2: -3.210 dBm

Start 2417.000 MHz
Stop 2457.000 MHz
Step 4.000 MHz
Span 40.000 MHz

Tested by: GMH

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.543 MHz : -3.987 dBm M2 : 2442.010 MHz : 2.790 dBm Delta1 : 17.154 MHz : 2.160 dB T1 : 2428.142 MHz : -4.658 dBm T2 : 2445.858 MHz : -5.026 dBm OBW : 17.715 MHz	Measured 6 dB Bandwidth: 17.154 MHz Limit: ≥500.0 kHz Margin: -16.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

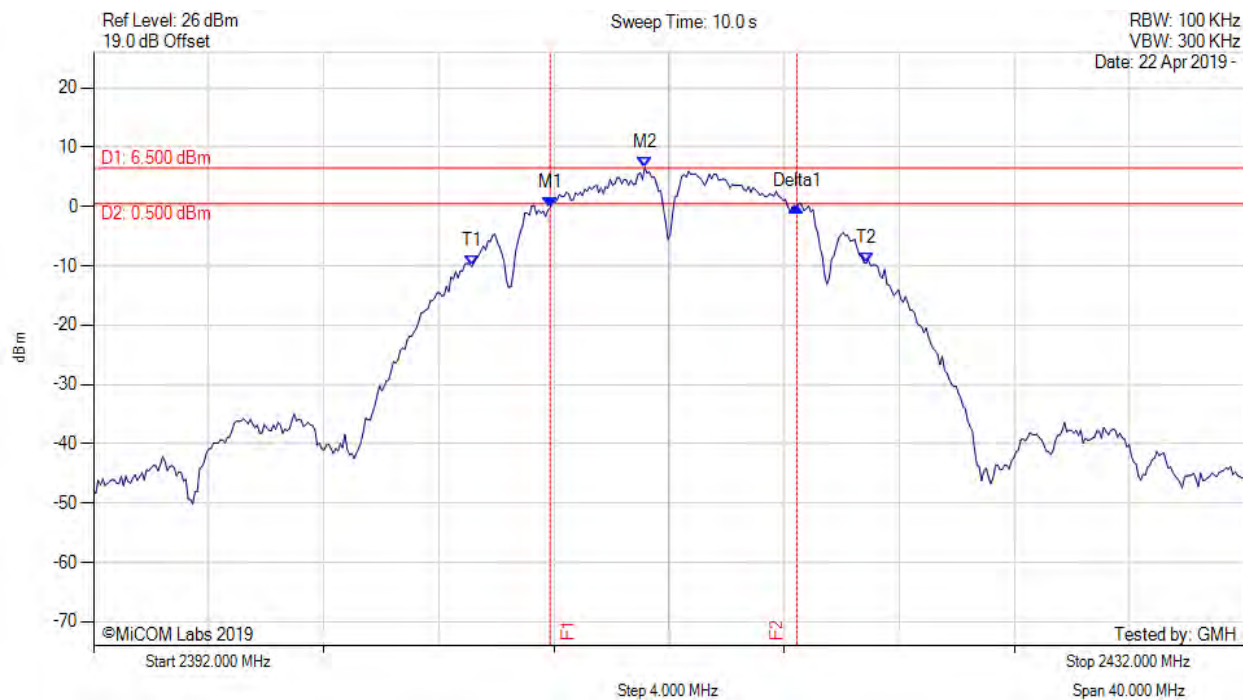Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2428.383 MHz : -4.449 dBm M2 : 2442.010 MHz : 2.659 dBm Delta1 : 17.315 MHz : 2.792 dB T1 : 2428.142 MHz : -5.255 dBm T2 : 2445.858 MHz : -5.130 dBm OBW : 17.715 MHz	Measured 6 dB Bandwidth: 17.315 MHz Limit: ≥500.0 kHz Margin: -16.82 MHz

back to matrix

6 dB & 99% BANDWIDTH

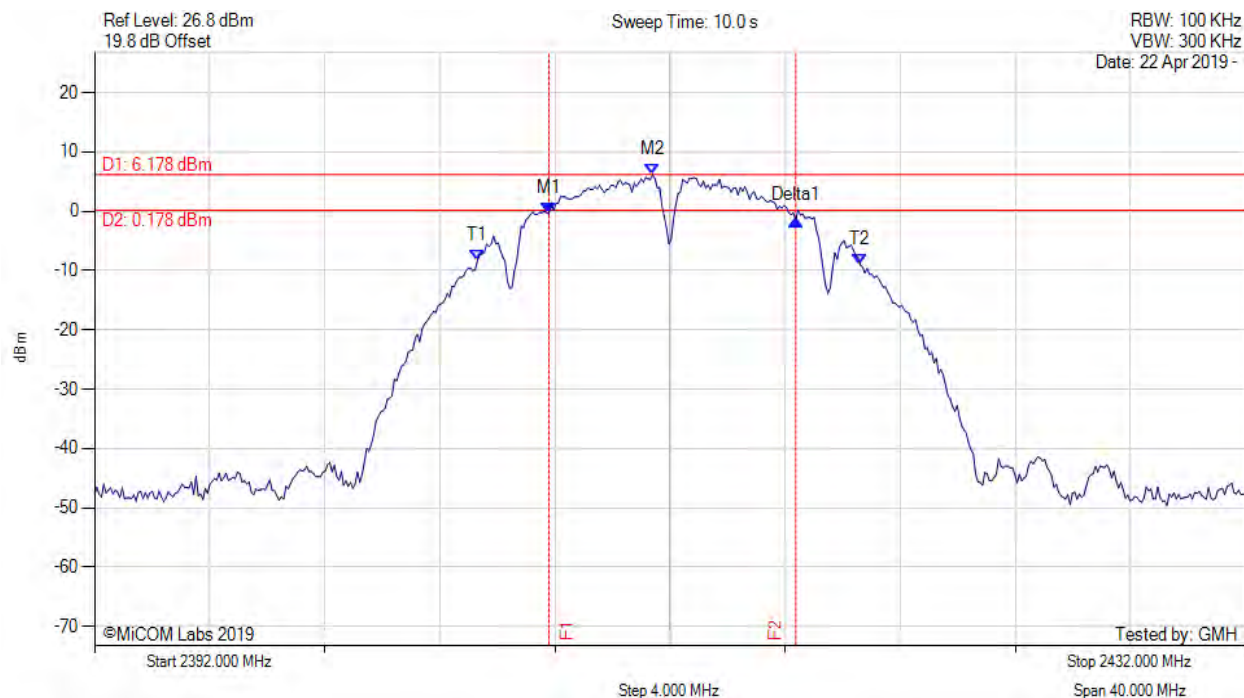Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

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 : -4.882 dBm M2 : 2442.010 MHz : 2.484 dBm Delta1 : 17.555 MHz : 3.480 dB T1 : 2428.142 MHz : -4.882 dBm T2 : 2445.858 MHz : -4.443 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: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2453.784 MHz : -4.197 dBm M2 : 2460.677 MHz : 2.903 dBm Delta1 : 15.711 MHz : 3.921 dB T1 : 2453.222 MHz : -4.518 dBm T2 : 2470.778 MHz : -5.818 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 15.711 MHz Limit: ≥500.0 kHz Margin: -15.21 MHz

back to matrix

6 dB & 99% BANDWIDTH

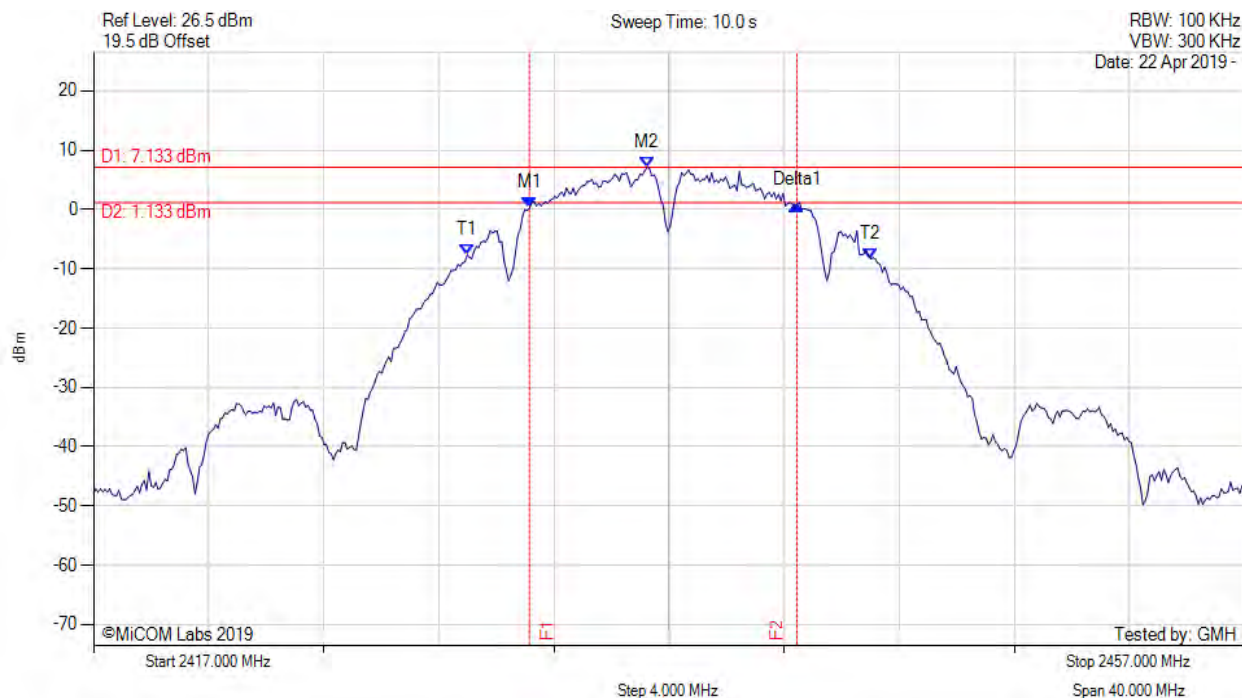Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 2.464 dBm
D2: -3.536 dBm

Start 2442.000 MHz
Step 4.000 MHz
Stop 2482.000 MHz
Span 40.000 MHz

Tested by: GMH

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2453.784 MHz : -3.910 dBm M2 : 2463.242 MHz : 2.464 dBm Delta1 : 15.711 MHz : 3.431 dB T1 : 2453.222 MHz : -4.733 dBm T2 : 2470.697 MHz : -5.244 dBm OBW : 17.475 MHz	Measured 6 dB Bandwidth: 15.711 MHz Limit: ≥500.0 kHz Margin: -15.21 MHz

back to matrix

6 dB & 99% BANDWIDTH

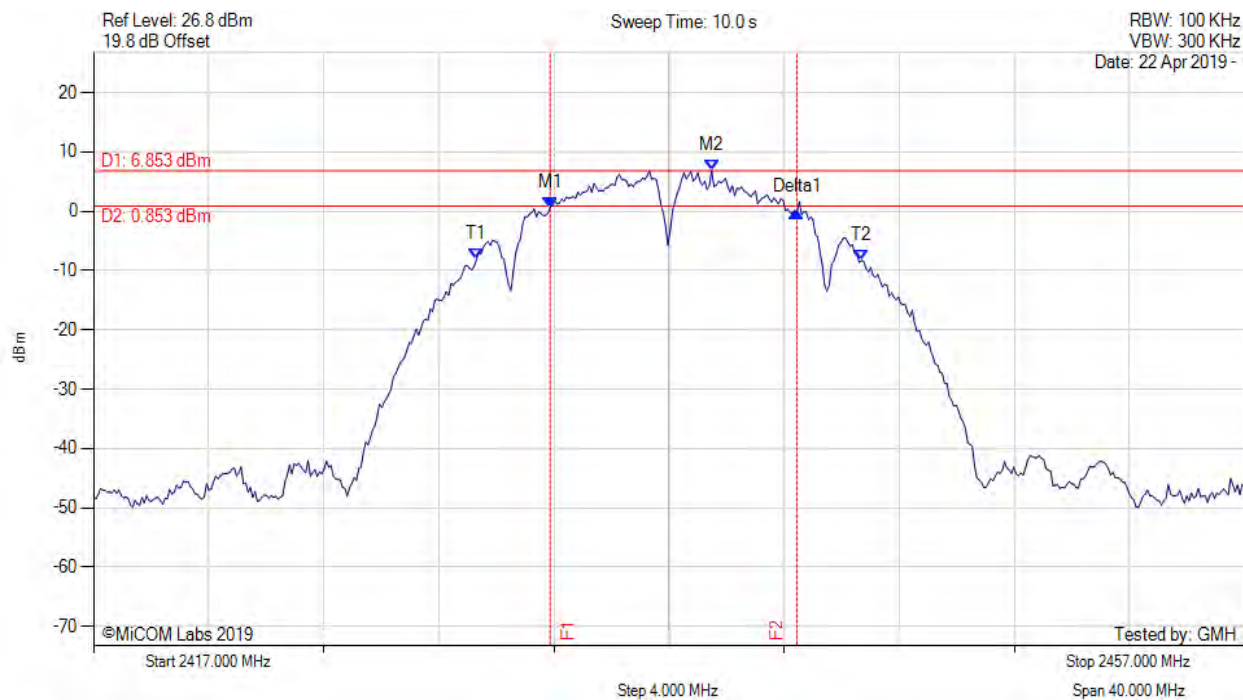Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2454.345 MHz : -5.130 dBm M2 : 2460.677 MHz : 2.930 dBm Delta1 : 15.150 MHz : 5.424 dB T1 : 2453.222 MHz : -4.723 dBm T2 : 2470.778 MHz : -4.951 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

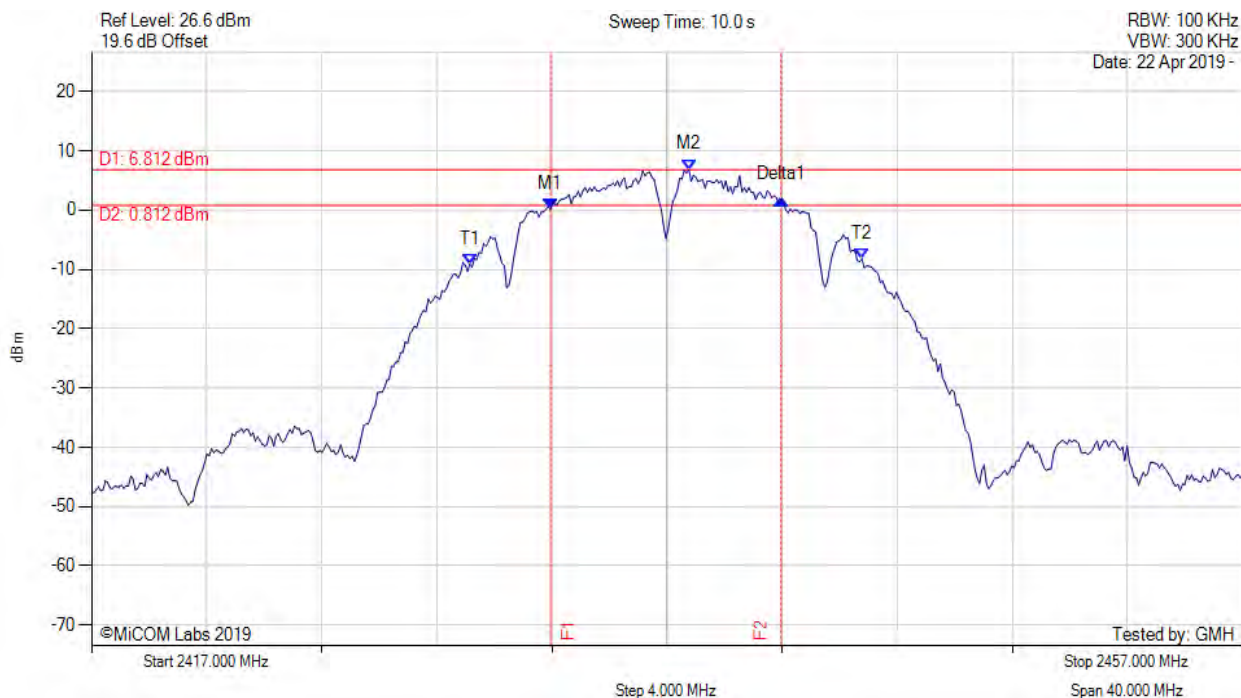Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2454.345 MHz : -4.431 dBm M2 : 2463.242 MHz : 3.179 dBm Delta1 : 15.150 MHz : 4.657 dB T1 : 2453.222 MHz : -4.433 dBm T2 : 2470.778 MHz : -4.285 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 15.150 MHz Limit: ≥500.0 kHz Margin: -14.65 MHz

back to matrix

6 dB & 99% BANDWIDTH

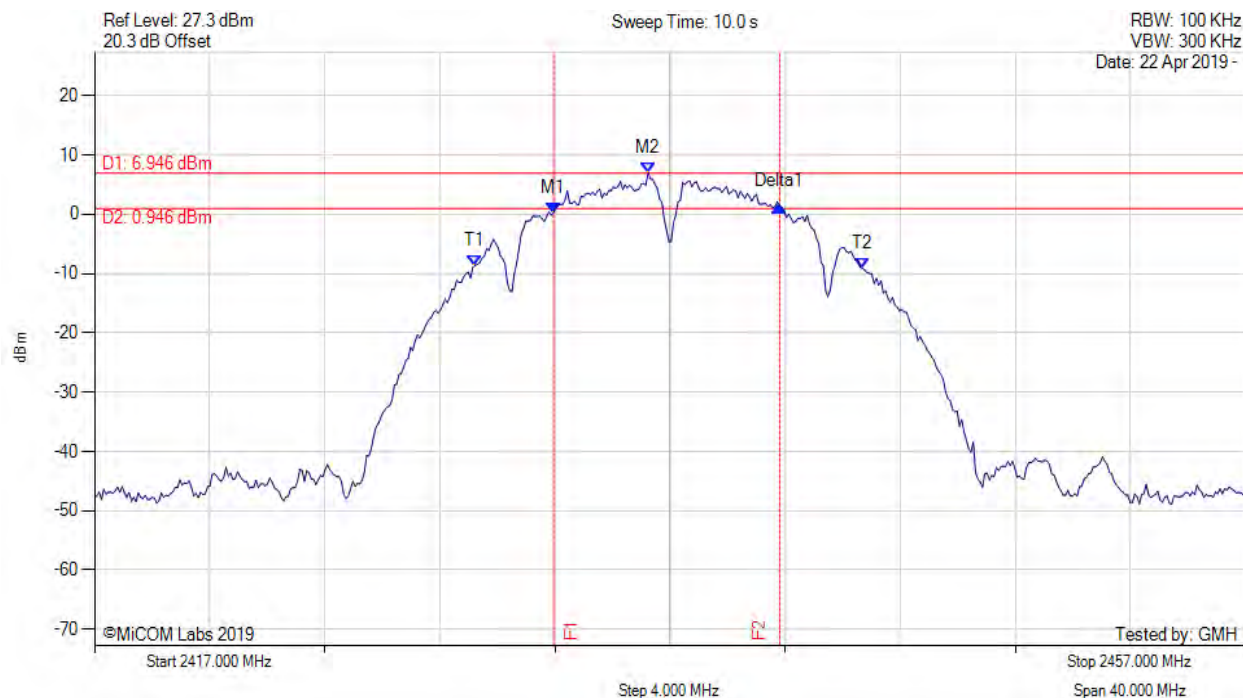Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.150 MHz : 0.711 dBm M2 : 2411.238 MHz : 6.855 dBm Delta1 : 9.459 MHz : 1.082 dB T1 : 2405.066 MHz : -8.862 dBm T2 : 2418.854 MHz : -8.252 dBm OBW : 13.788 MHz	Measured 6 dB Bandwidth: 9.459 MHz Limit: ≥500.0 kHz Margin: -8.96 MHz

back to matrix

6 dB & 99% BANDWIDTH

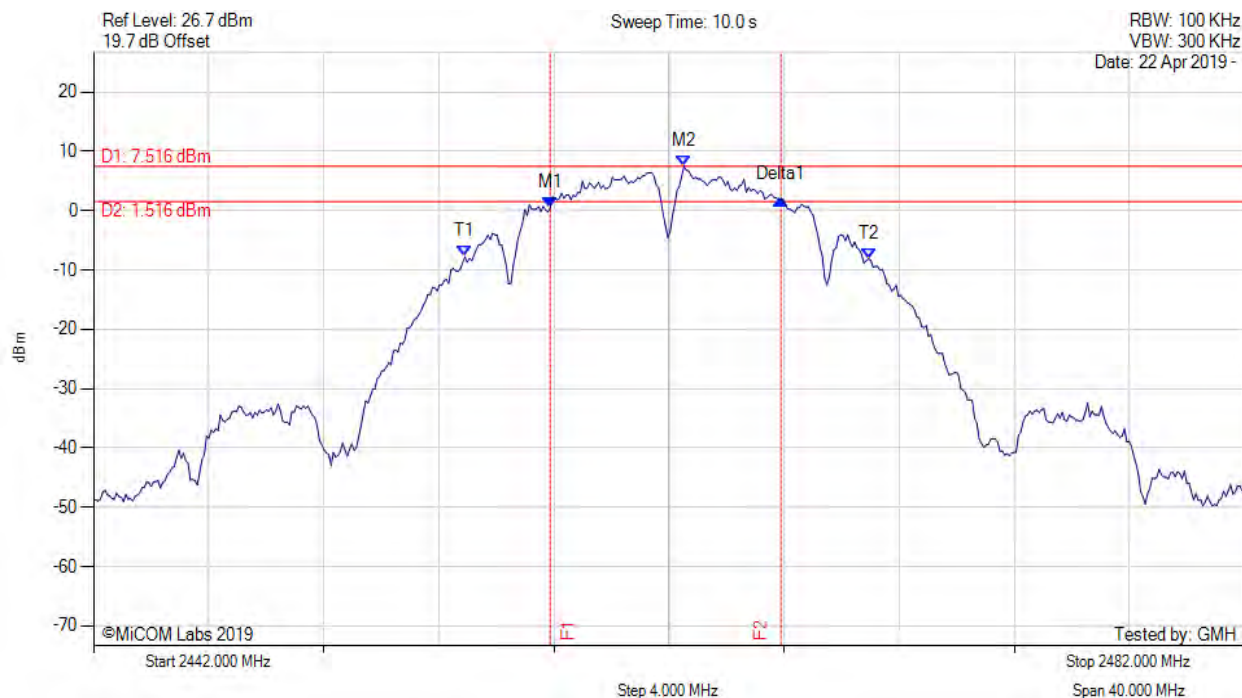Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.952 MHz : 0.756 dBm M2 : 2412.681 MHz : 6.766 dBm Delta1 : 7.936 MHz : -0.110 dB T1 : 2405.307 MHz : -8.481 dBm T2 : 2418.613 MHz : -8.691 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 7.936 MHz Limit: ≥500.0 kHz Margin: -7.44 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

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 : -0.215 dBm M2 : 2411.158 MHz : 6.500 dBm Delta1 : 8.577 MHz : 0.212 dB T1 : 2405.146 MHz : -10.113 dBm T2 : 2418.854 MHz : -9.568 dBm OBW : 13.707 MHz	Measured 6 dB Bandwidth: 8.577 MHz Limit: ≥500.0 kHz Margin: -8.08 MHz

back to matrix

6 dB & 99% BANDWIDTH

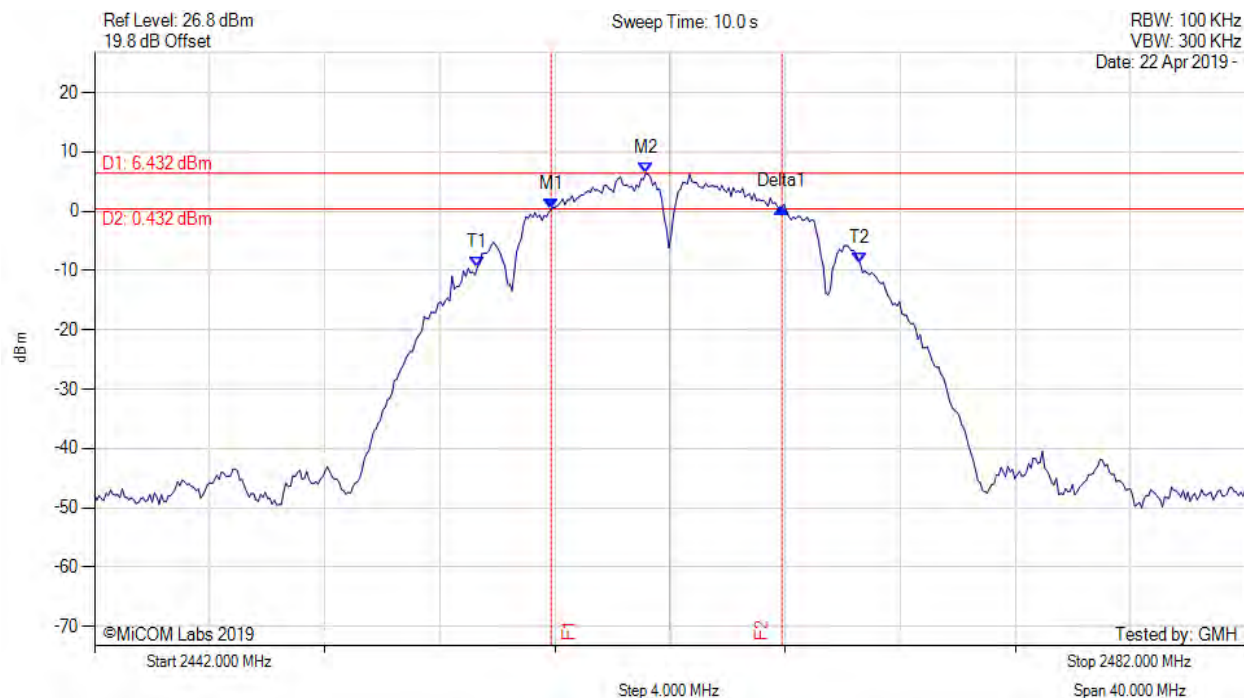Variant: 802.11b, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 6.178 dBm
D2: 0.178 dBm

M1
M2
Delta1
T1
T2

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Tested by: GMH

Start 2392.000 MHz
Stop 2432.000 MHz

Step 4.000 MHz
Span 40.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.792 MHz : -0.436 dBm M2 : 2411.399 MHz : 6.178 dBm Delta1 : 8.577 MHz : -1.117 dB T1 : 2405.307 MHz : -8.376 dBm T2 : 2418.613 MHz : -9.049 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 8.577 MHz Limit: ≥500.0 kHz Margin: -8.08 MHz

back to matrix

6 dB & 99% BANDWIDTH

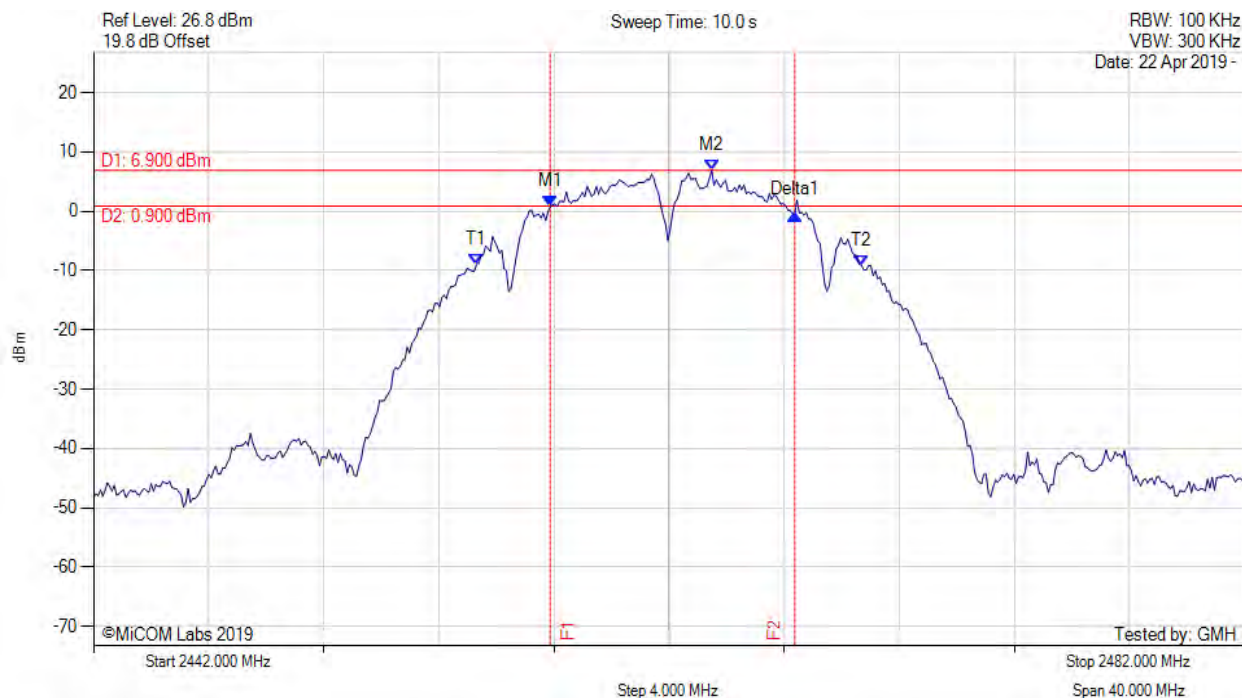Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.150 MHz : 0.200 dBm M2 : 2436.238 MHz : 7.133 dBm Delta1 : 9.299 MHz : 0.620 dB T1 : 2429.986 MHz : -7.663 dBm T2 : 2444.014 MHz : -8.336 dBm OBW : 14.028 MHz	Measured 6 dB Bandwidth: 9.299 MHz Limit: ≥500.0 kHz Margin: -8.80 MHz

back to matrix

6 dB & 99% BANDWIDTH

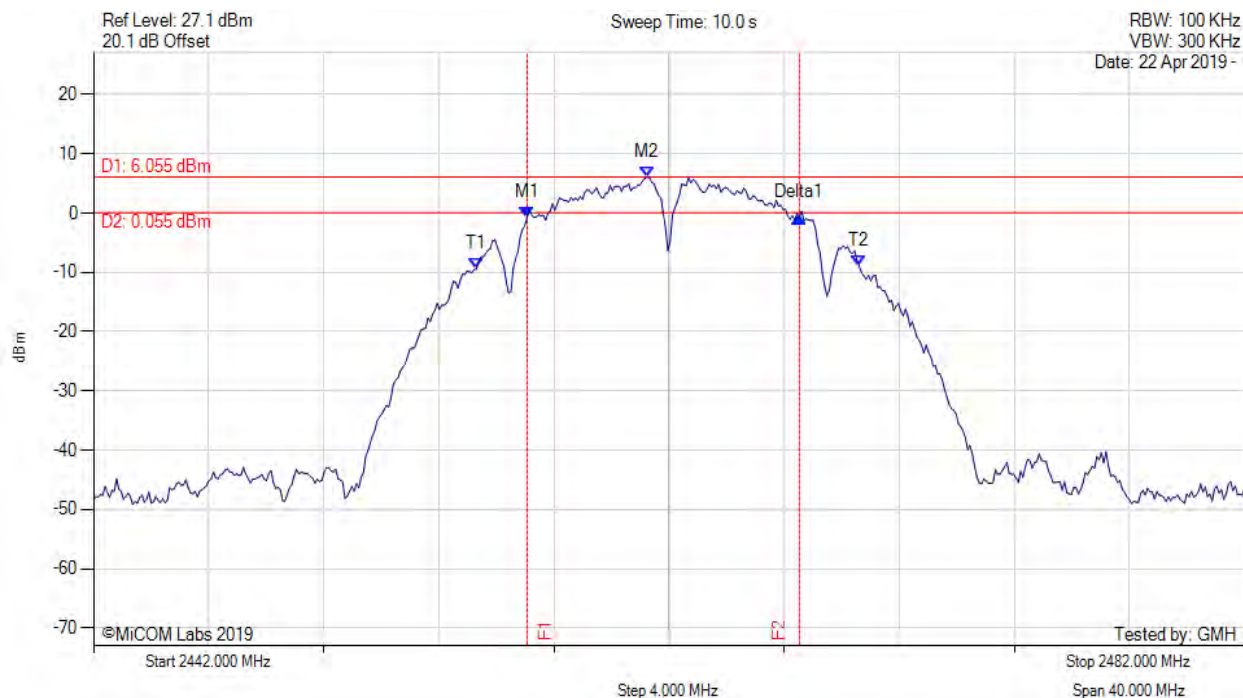Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset
Sweep Time: 10.0 s
RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 6.853 dBm
D2: 0.853 dBm

Start 2417.000 MHz
Stop 2457.000 MHz
Step 4.000 MHz
Span 40.000 MHz
Tested by: GMH
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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.872 MHz : 0.693 dBm M2 : 2438.483 MHz : 6.853 dBm Delta1 : 8.577 MHz : -0.872 dB T1 : 2430.307 MHz : -8.146 dBm T2 : 2443.693 MHz : -8.290 dBm OBW : 13.387 MHz	Measured 6 dB Bandwidth: 8.577 MHz Limit: ≥500.0 kHz Margin: -8.08 MHz

back to matrix

6 dB & 99% BANDWIDTH

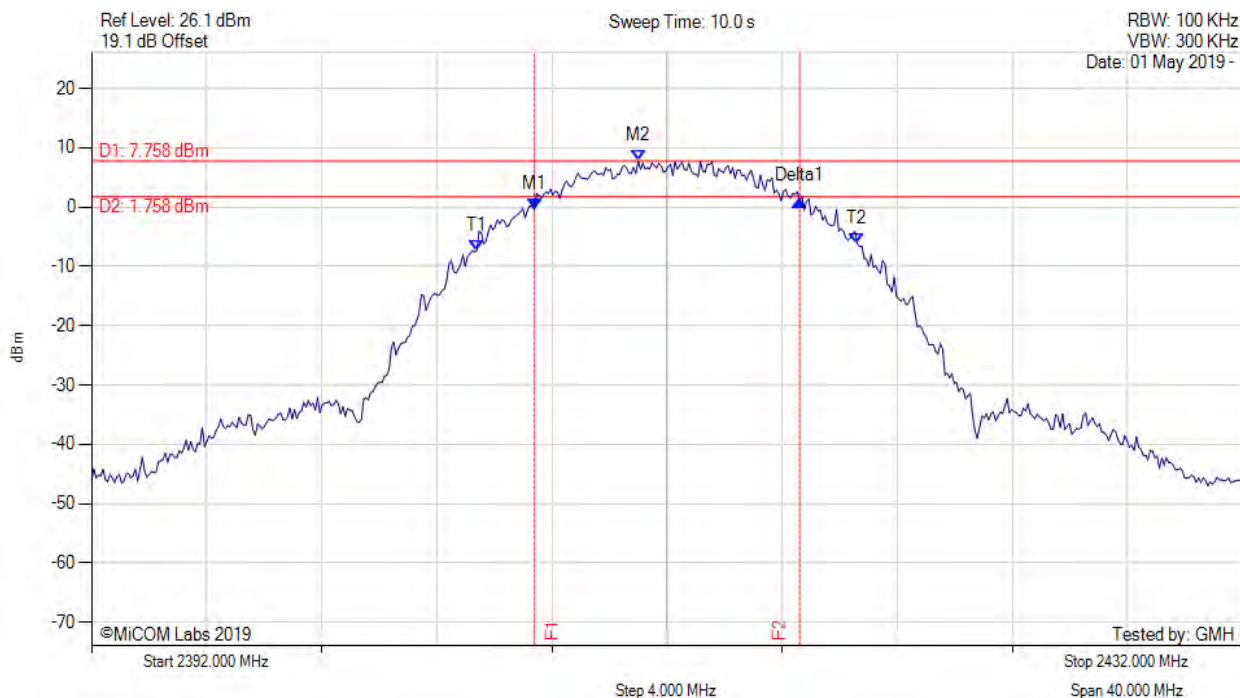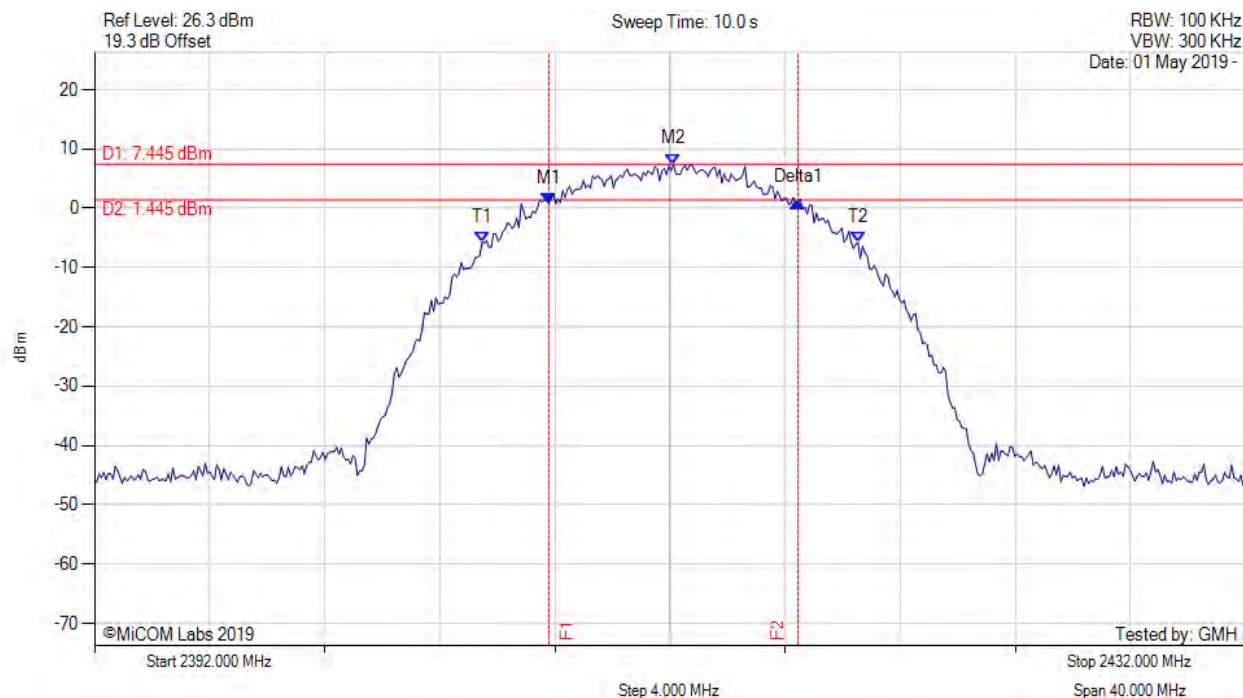Variant: 802.11b, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.6 dBm
19.6 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 22 Apr 2019 -

D1: 6.812 dBm
D2: 0.812 dBm

Start 2417.000 MHz
Stop 2457.000 MHz
Step 4.000 MHz
Span 40.000 MHz
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Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK	M1 : 2432.952 MHz : 0.161 dBm	Measured 6 dB Bandwidth: 8.016 MHz
Sweep Count = 0	M2 : 2437.762 MHz : 6.812 dBm	Limit: ≥500.0 kHz
RF Atten (dB) = 20	Delta1 : 8.016 MHz : 1.660 dB	Margin: -7.52 MHz
Trace Mode = MAX HOLD	T1 : 2430.146 MHz : -9.092 dBm	
	T2 : 2443.774 MHz : -8.234 dBm	
	OBW : 13.627 MHz	

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc
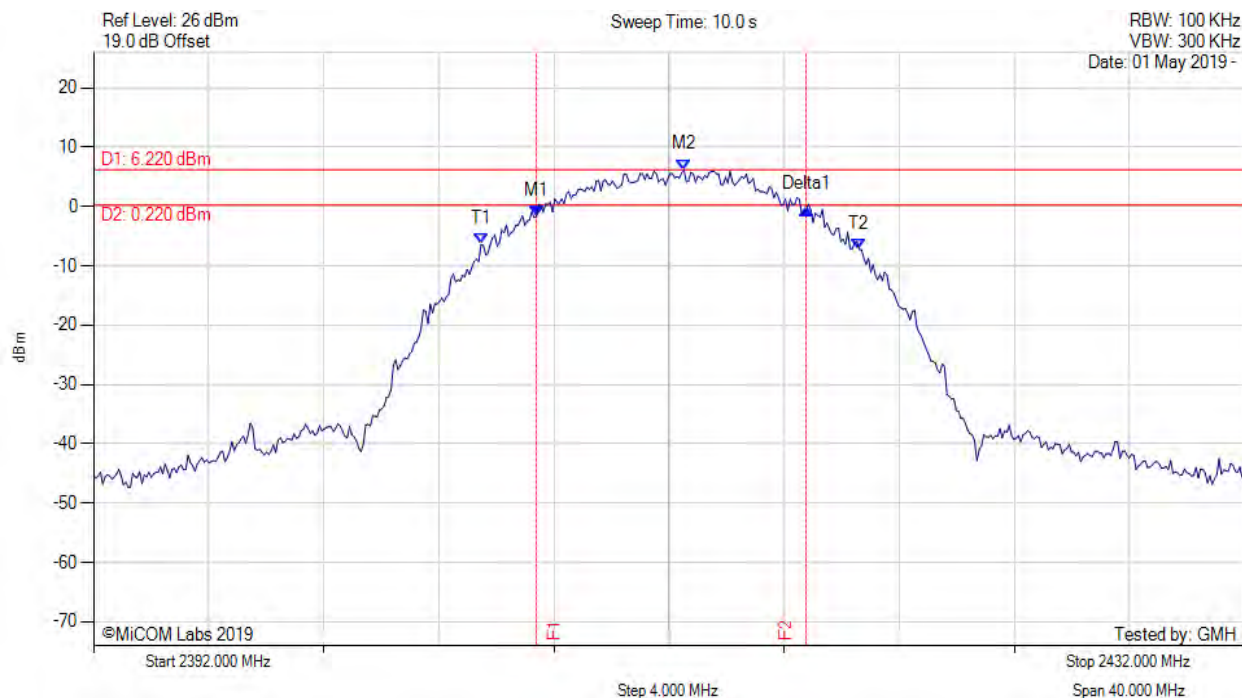

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.952 MHz : 0.247 dBm M2 : 2436.238 MHz : 6.946 dBm Delta1 : 7.856 MHz : 1.157 dB T1 : 2430.226 MHz : -8.618 dBm T2 : 2443.693 MHz : -9.106 dBm OBW : 13.467 MHz	Measured 6 dB Bandwidth: 7.856 MHz Limit: ≥500.0 kHz Margin: -7.36 MHz

back to matrix

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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

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.872 MHz : 0.455 dBm M2 : 2462.521 MHz : 7.516 dBm Delta1 : 8.016 MHz : 1.501 dB T1 : 2454.906 MHz : -7.784 dBm T2 : 2468.934 MHz : -8.134 dBm OBW : 14.028 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

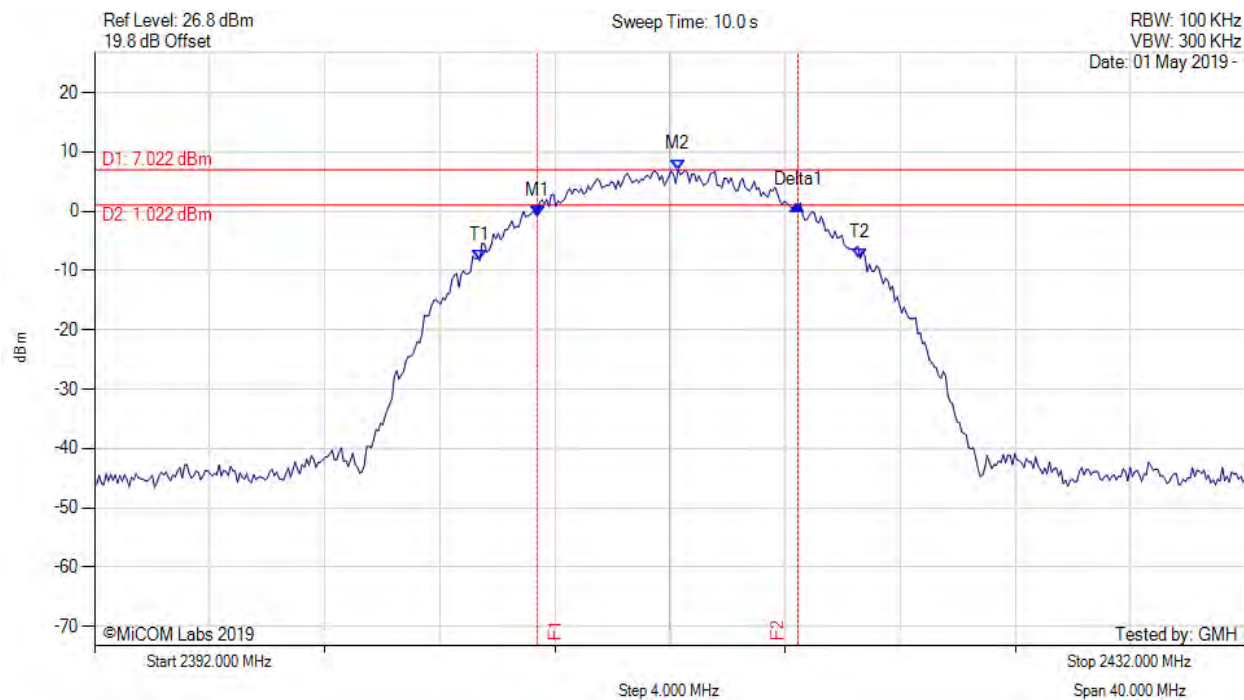Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.872 MHz : 0.376 dBm M2 : 2461.158 MHz : 6.432 dBm Delta1 : 8.016 MHz : 0.346 dB T1 : 2455.307 MHz : -9.391 dBm T2 : 2468.613 MHz : -8.795 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 8.016 MHz Limit: ≥500.0 kHz Margin: -7.52 MHz

back to matrix

6 dB & 99% BANDWIDTH

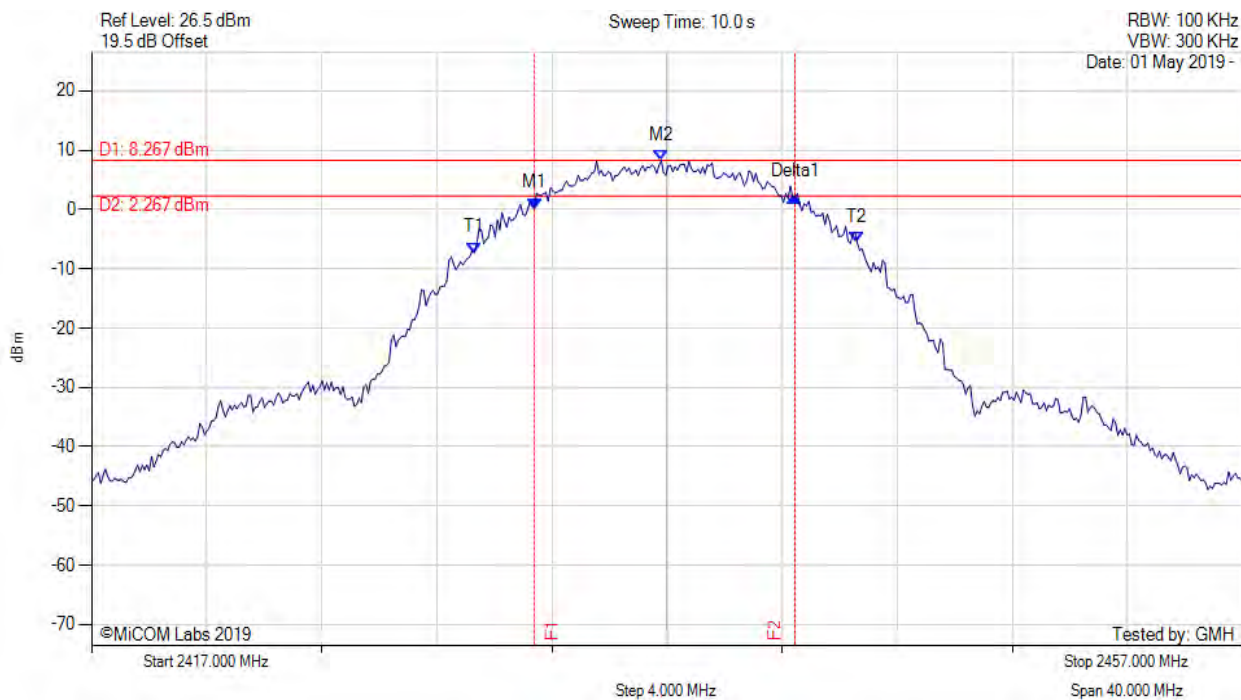Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.872 MHz : 0.731 dBm M2 : 2463.483 MHz : 6.900 dBm Delta1 : 8.497 MHz : -1.222 dB T1 : 2455.307 MHz : -9.020 dBm T2 : 2468.693 MHz : -9.132 dBm OBW : 13.387 MHz	Measured 6 dB Bandwidth: 8.497 MHz Limit: ≥500.0 kHz Margin: -8.00 MHz

back to matrix

6 dB & 99% BANDWIDTH

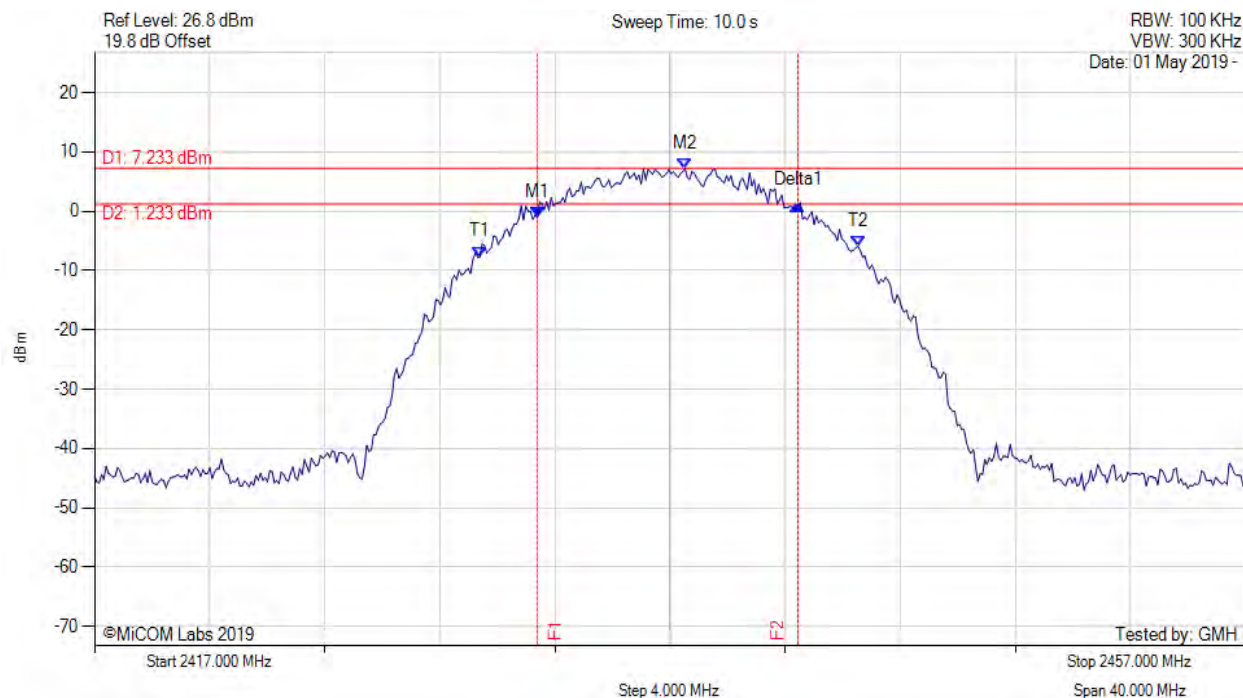Variant: 802.11b, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.070 MHz : -0.691 dBm M2 : 2461.238 MHz : 6.055 dBm Delta1 : 9.459 MHz : 0.024 dB T1 : 2455.307 MHz : -9.387 dBm T2 : 2468.613 MHz : -8.981 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 9.459 MHz Limit: ≥500.0 kHz Margin: -8.96 MHz

back to matrix

6 dB & 99% BANDWIDTH

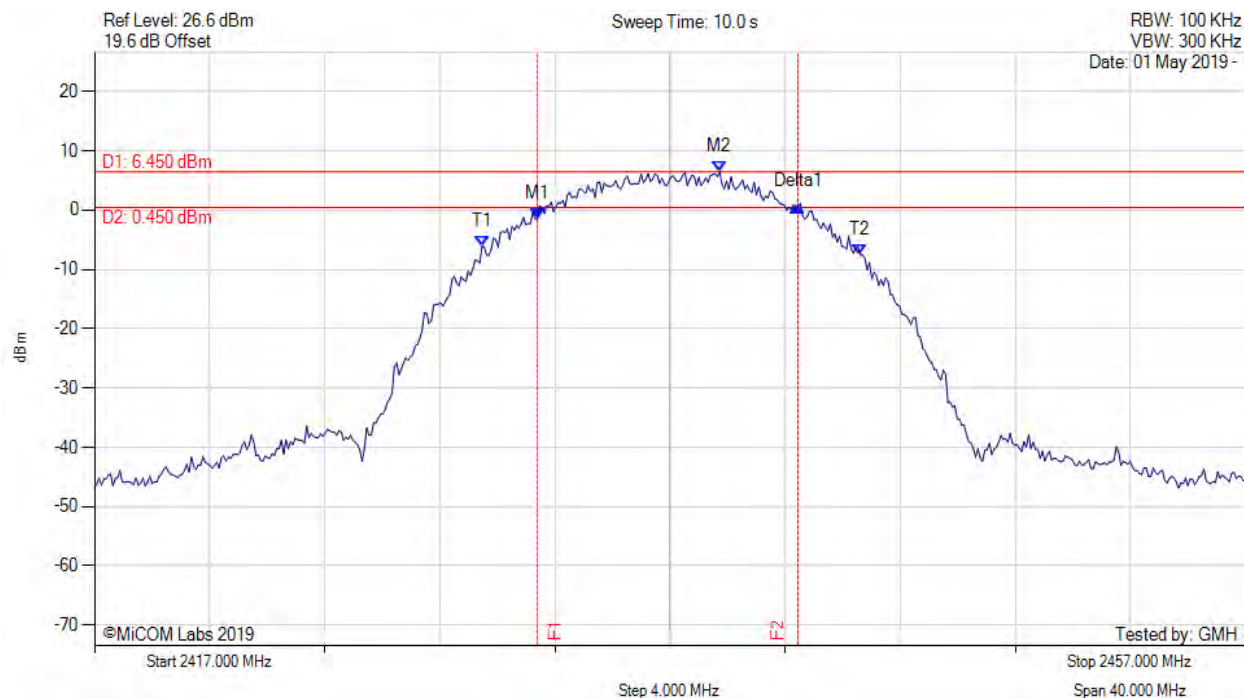Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.1 dBm
19.1 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 01 May 2019 -

D1: 7.758 dBm
D2: 1.758 dBm

Start 2392.000 MHz
Stop 2432.000 MHz
Step 4.000 MHz
Span 40.000 MHz

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Tested by: GMH

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 : -0.406 dBm M2 : 2410.998 MHz : 7.758 dBm Delta1 : 9.218 MHz : 1.444 dB T1 : 2405.387 MHz : -7.359 dBm T2 : 2418.613 MHz : -6.129 dBm OBW : 13.226 MHz	Measured 6 dB Bandwidth: 9.218 MHz Limit: ≥500.0 kHz Margin: -8.72 MHz

back to matrix

6 dB & 99% BANDWIDTH

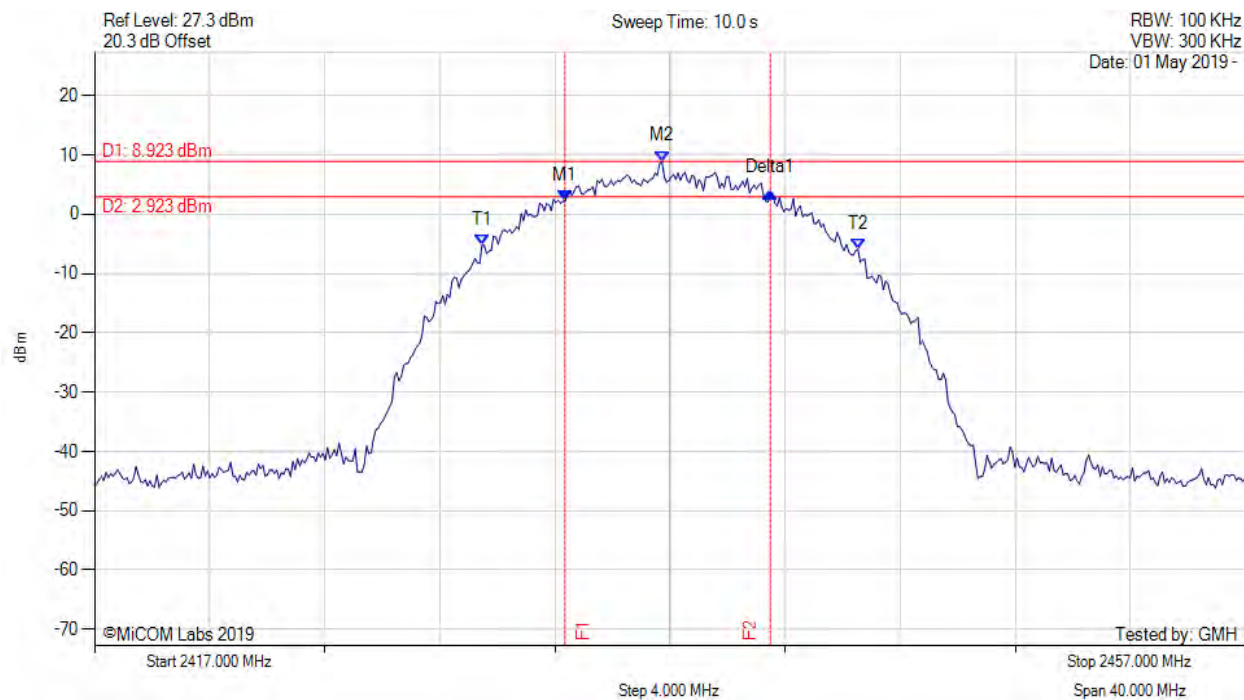Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.3 dBm
19.3 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 01 May 2019 -

D1: 7.445 dBm
D2: 1.445 dBm

M1
M2
Delta1
T1
T2

F1
F2

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Tested by: GMH

Start 2392.000 MHz
Step 4.000 MHz
Stop 2432.000 MHz
Span 40.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2407.792 MHz : 0.756 dBm M2 : 2412.120 MHz : 7.445 dBm Delta1 : 8.657 MHz : 0.342 dB T1 : 2405.467 MHz : -5.709 dBm T2 : 2418.533 MHz : -5.778 dBm OBW : 13.066 MHz	Measured 6 dB Bandwidth: 8.657 MHz Limit: ≥500.0 kHz Margin: -8.16 MHz

back to matrix

6 dB & 99% BANDWIDTH

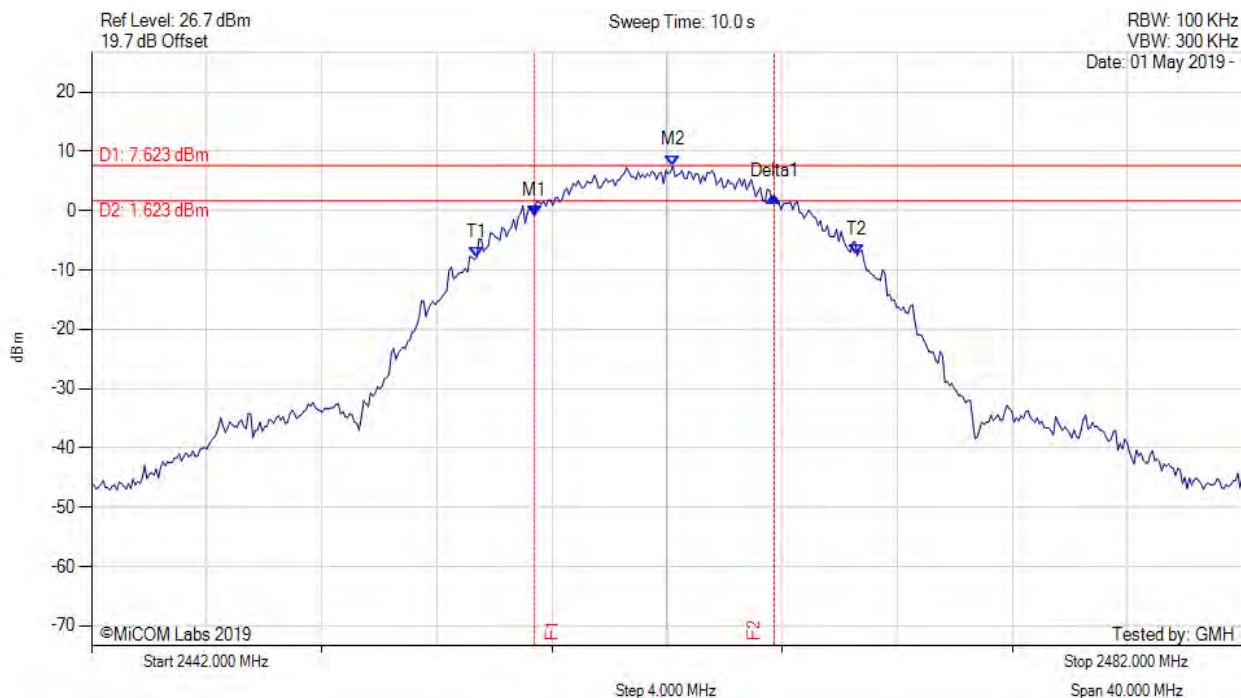### Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

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 : -1.633 dBm M2 : 2412.521 MHz : 6.220 dBm Delta1 : 9.379 MHz : 1.186 dB T1 : 2405.467 MHz : -6.379 dBm T2 : 2418.613 MHz : -7.240 dBm OBW : 13.146 MHz	Measured 6 dB Bandwidth: 9.379 MHz Limit: ≥500.0 kHz Margin: -8.88 MHz

back to matrix

6 dB & 99% BANDWIDTH

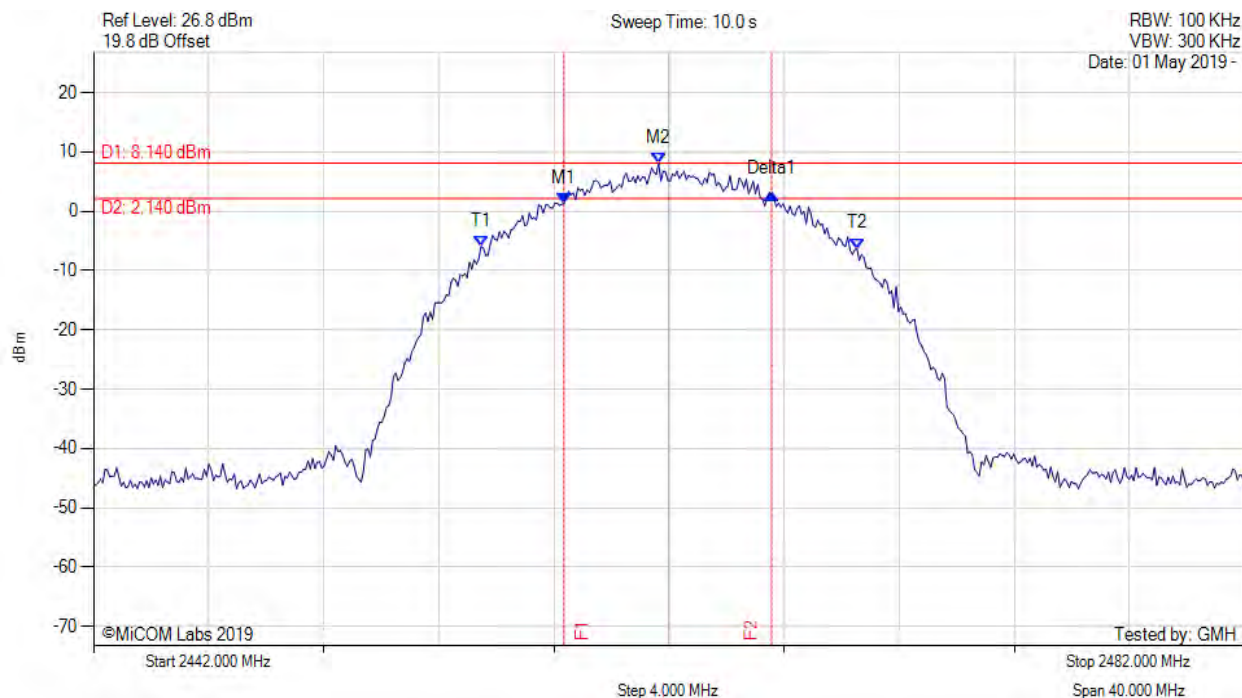Variant: 802.11b, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 01 May 2019 -

D1: 7.022 dBm
D2: 1.022 dBm

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Tested by: GMH

Start 2392.000 MHz
Step 4.000 MHz
Stop 2432.000 MHz
Span 40.000 MHz

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 : -0.802 dBm M2 : 2412.281 MHz : 7.022 dBm Delta1 : 9.058 MHz : 1.780 dB T1 : 2405.387 MHz : -8.351 dBm T2 : 2418.613 MHz : -7.932 dBm OBW : 13.226 MHz	Measured 6 dB Bandwidth: 9.058 MHz Limit: ≥500.0 kHz Margin: -8.56 MHz

back to matrix

6 dB & 99% BANDWIDTH

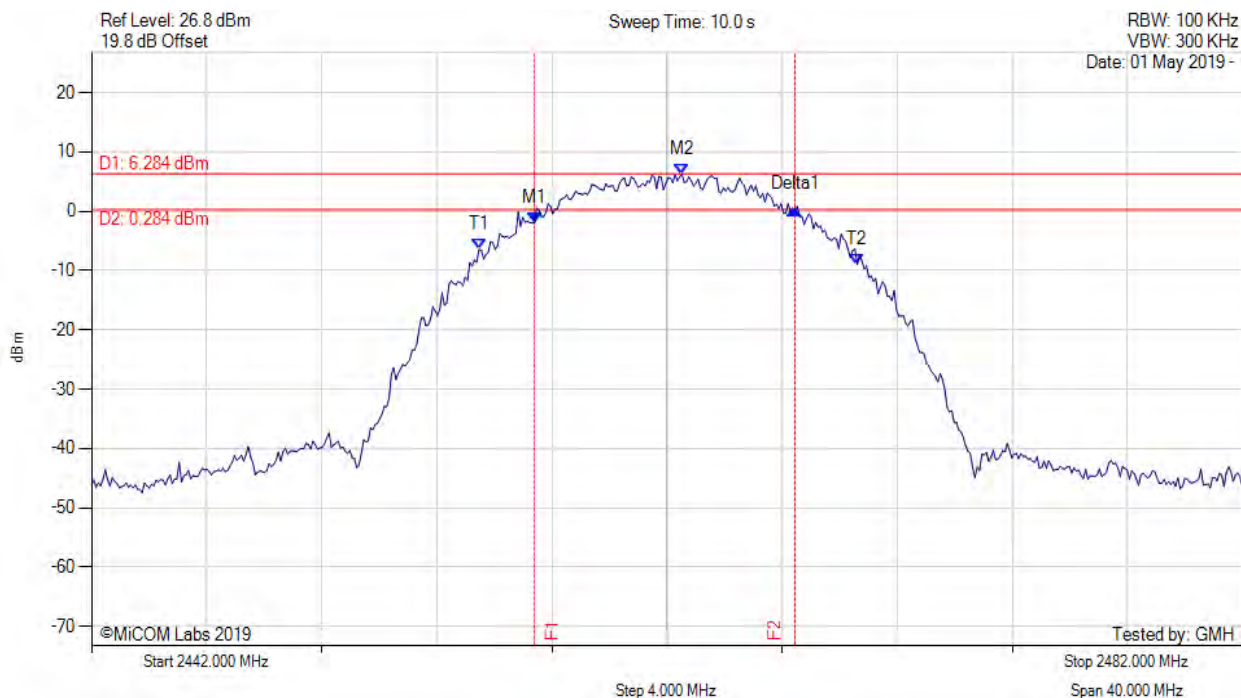Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

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 : 0.179 dBm M2 : 2436.800 MHz : 8.267 dBm Delta1 : 9.058 MHz : 1.997 dB T1 : 2430.307 MHz : -7.301 dBm T2 : 2443.613 MHz : -5.607 dBm OBW : 13.307 MHz	Measured 6 dB Bandwidth: 9.058 MHz Limit: ≥500.0 kHz Margin: -8.56 MHz

back to matrix

6 dB & 99% BANDWIDTH

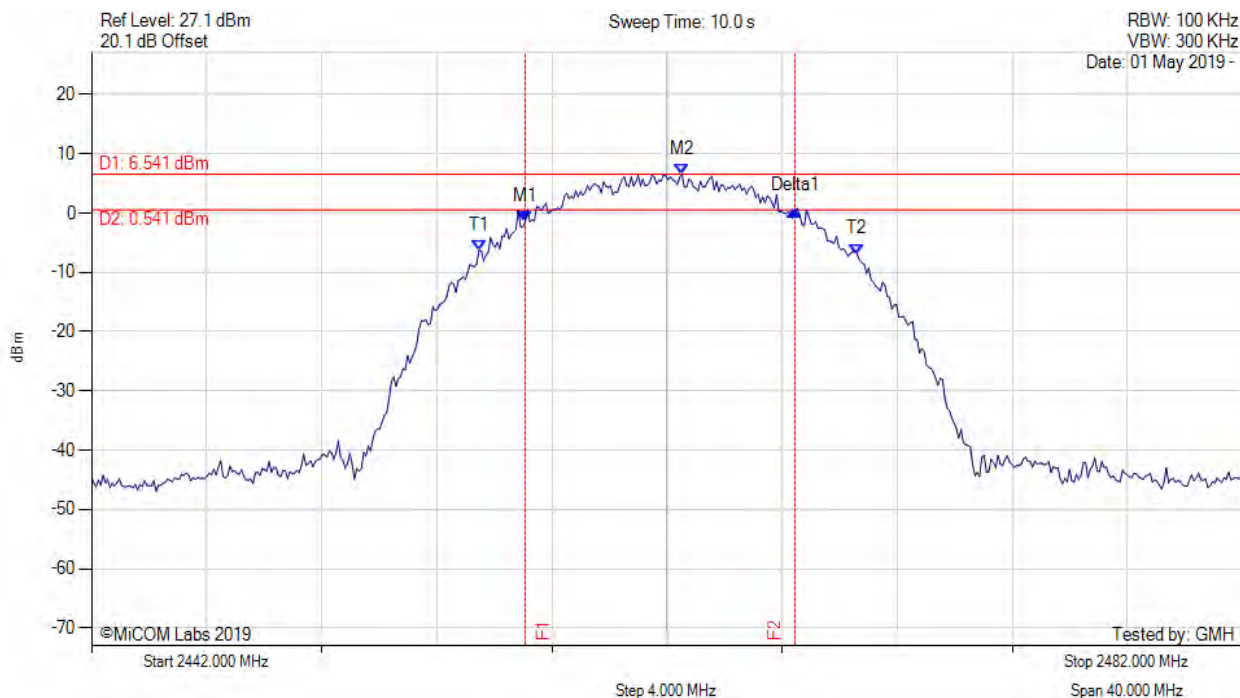Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

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 : -1.058 dBm M2 : 2437.521 MHz : 7.233 dBm Delta1 : 9.058 MHz : 2.054 dB T1 : 2430.387 MHz : -7.698 dBm T2 : 2443.533 MHz : -5.897 dBm OBW : 13.146 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 c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.6 dBm
19.6 dB Offset

Sweep Time: 10.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 01 May 2019 -

Start 2417.000 MHz
Step 4.000 MHz
Stop 2457.000 MHz
Span 40.000 MHz

Tested by: GMH

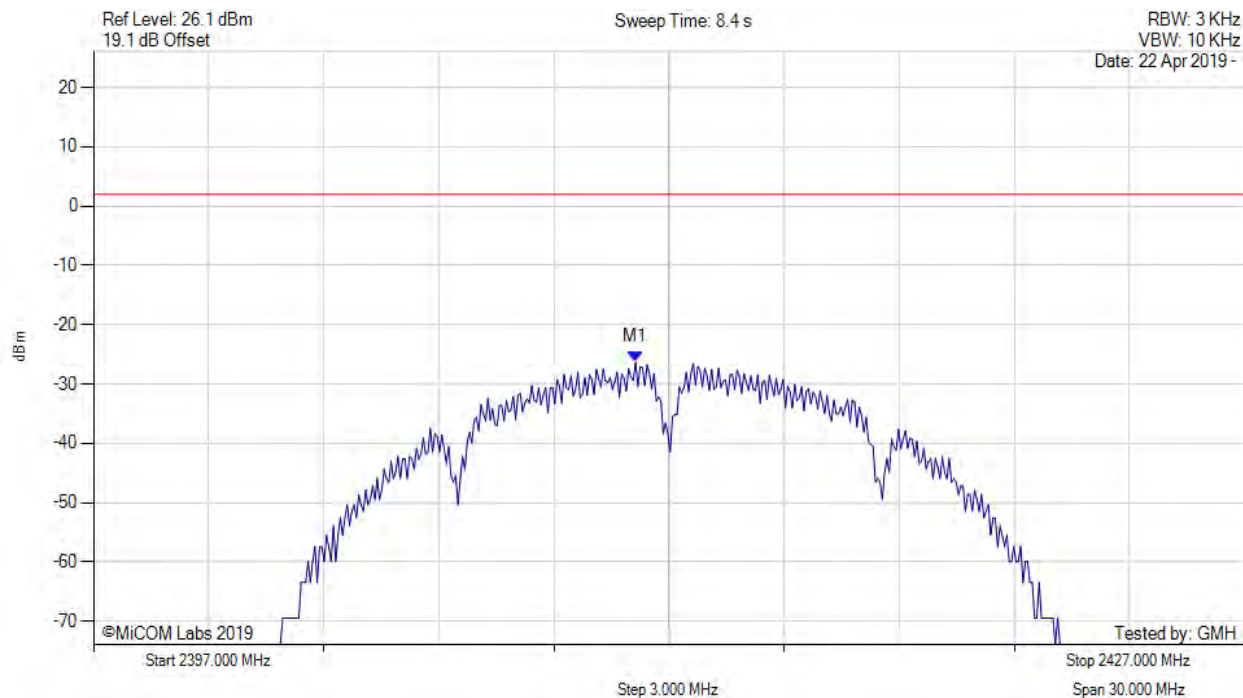| Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2432.391 MHz : -1.529 dBm M2 : 2438.723 MHz : 6.450 dBm Delta1 : 9.058 MHz : 2.117 dB T1 : 2430.467 MHz : -6.070 dBm T2 : 2443.613 MHz : -7.545 dBm OBW : 13.146 MHz	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 d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2433.353 MHz : 2.197 dBm M2 : 2436.719 MHz : 8.923 dBm Delta1 : 7.134 MHz : 1.481 dB T1 : 2430.467 MHz : -5.197 dBm T2 : 2443.533 MHz : -5.879 dBm OBW : 13.066 MHz	Measured 6 dB Bandwidth: 7.134 MHz Limit: ≥500.0 kHz Margin: -6.63 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

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 : -0.823 dBm M2 : 2462.200 MHz : 7.623 dBm Delta1 : 8.337 MHz : 3.167 dB T1 : 2455.387 MHz : -7.843 dBm T2 : 2468.613 MHz : -7.524 dBm OBW : 13.226 MHz	Measured 6 dB Bandwidth: 8.337 MHz Limit: ≥500.0 kHz Margin: -7.84 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset
Sweep Time: 10.0 s
RBW: 100 KHz
VBW: 300 KHz
Date: 01 May 2019 -

D1: 8.140 dBm
D2: 2.140 dBm

Start 2442.000 MHz
Stop 2482.000 MHz
Step 4.000 MHz
Span 40.000 MHz
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Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2458.353 MHz : 1.325 dBm M2 : 2461.639 MHz : 8.140 dBm Delta1 : 7.214 MHz : 1.544 dB T1 : 2455.467 MHz : -5.978 dBm T2 : 2468.533 MHz : -6.285 dBm OBW : 13.066 MHz	Measured 6 dB Bandwidth: 7.214 MHz Limit: ≥500.0 kHz Margin: -6.71 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset
Sweep Time: 10.0 s
RBW: 100 KHz
VBW: 300 KHz
Date: 01 May 2019 -

Start 2442.000 MHz
Step 4.000 MHz
Stop 2482.000 MHz
Span 40.000 MHz

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 : -2.014 dBm M2 : 2462.521 MHz : 6.284 dBm Delta1 : 9.058 MHz : 2.304 dB T1 : 2455.467 MHz : -6.446 dBm T2 : 2468.613 MHz : -8.923 dBm OBW : 13.146 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: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 2457.070 MHz : -1.488 dBm M2 : 2462.521 MHz : 6.541 dBm Delta1 : 9.379 MHz : 1.906 dB T1 : 2455.467 MHz : -6.260 dBm T2 : 2468.613 MHz : -6.931 dBm OBW : 13.146 MHz	Measured 6 dB Bandwidth: 9.379 MHz Limit: ≥500.0 kHz Margin: -8.88 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: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.128 MHz : -26.359 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

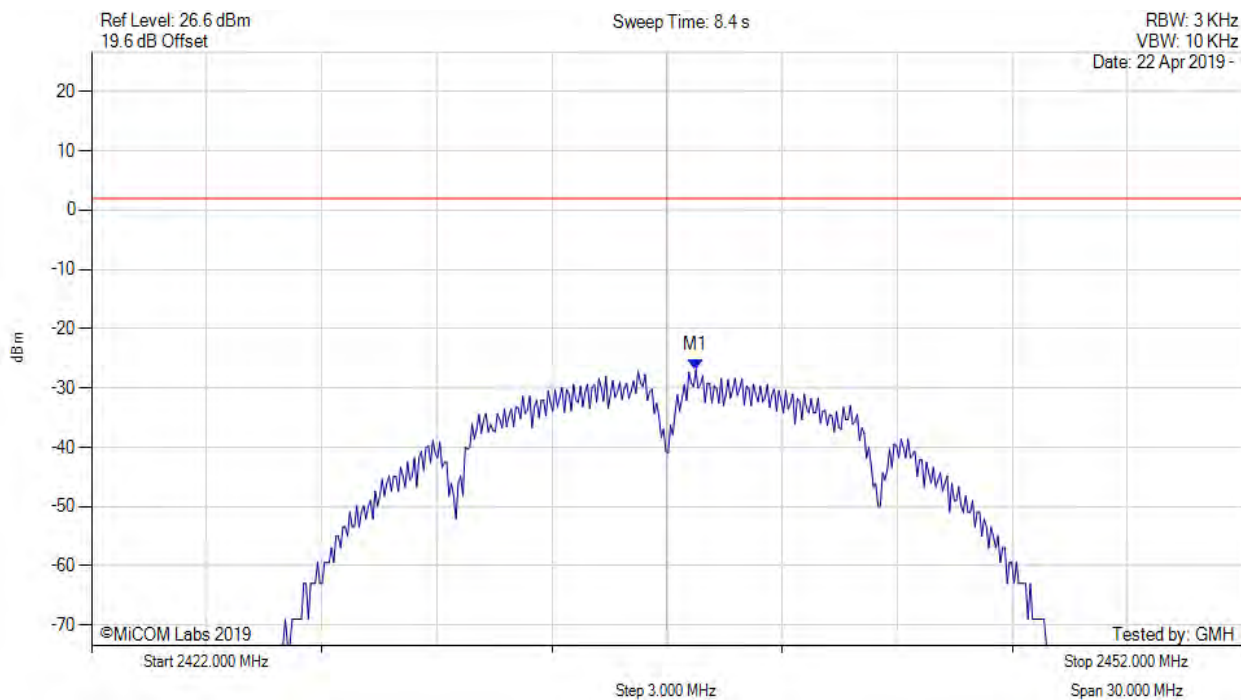Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
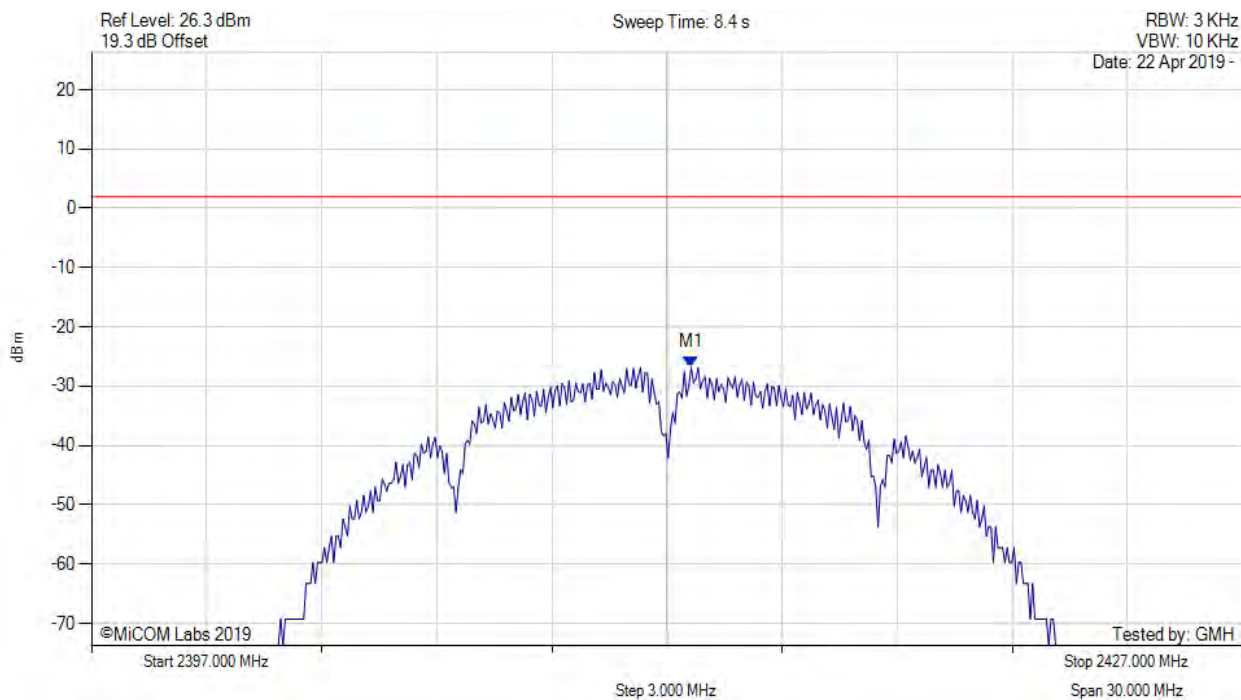
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.631 MHz : -26.788 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

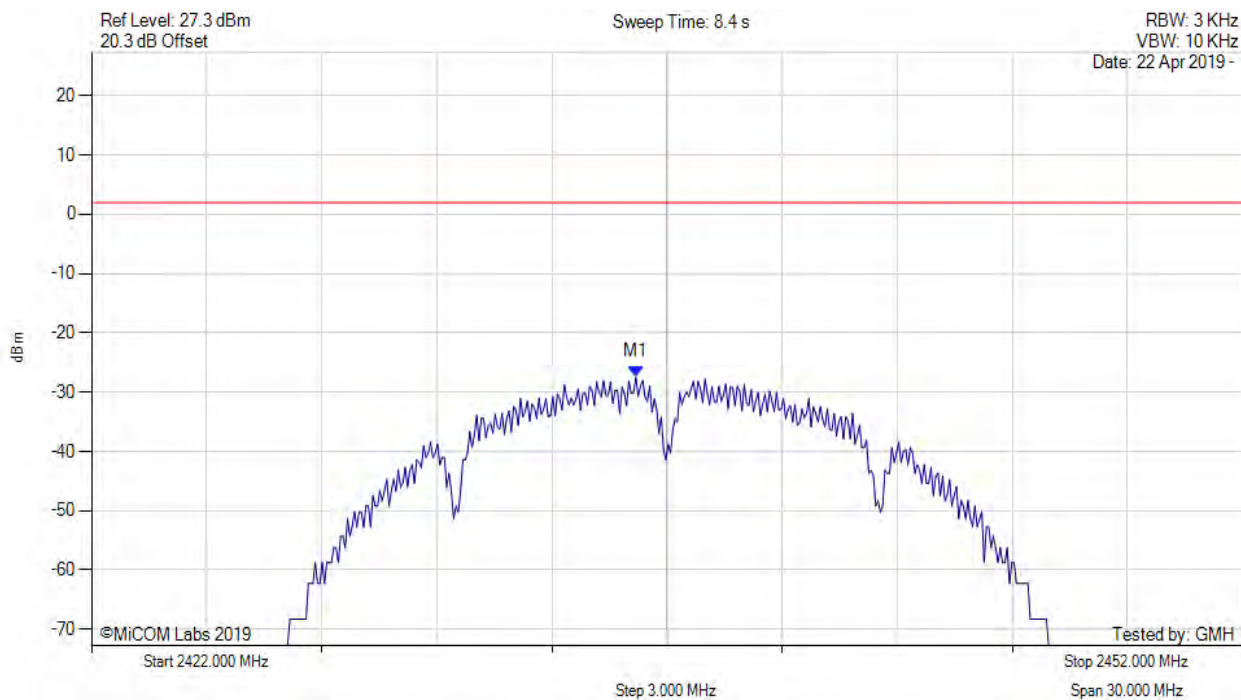Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26 dBm
19.0 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2397.000 MHz

Step 3.000 MHz

Stop 2427.000 MHz
Span 30.000 MHz

Tested by: GMH

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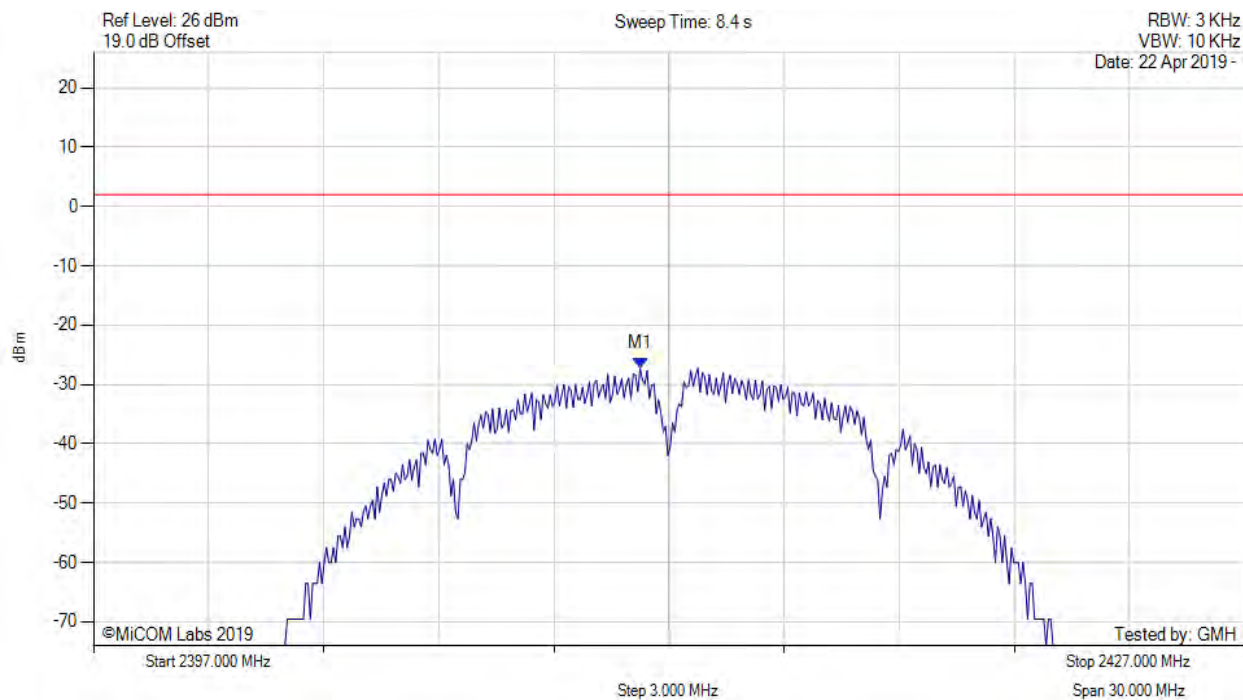
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.248 MHz : -27.286 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

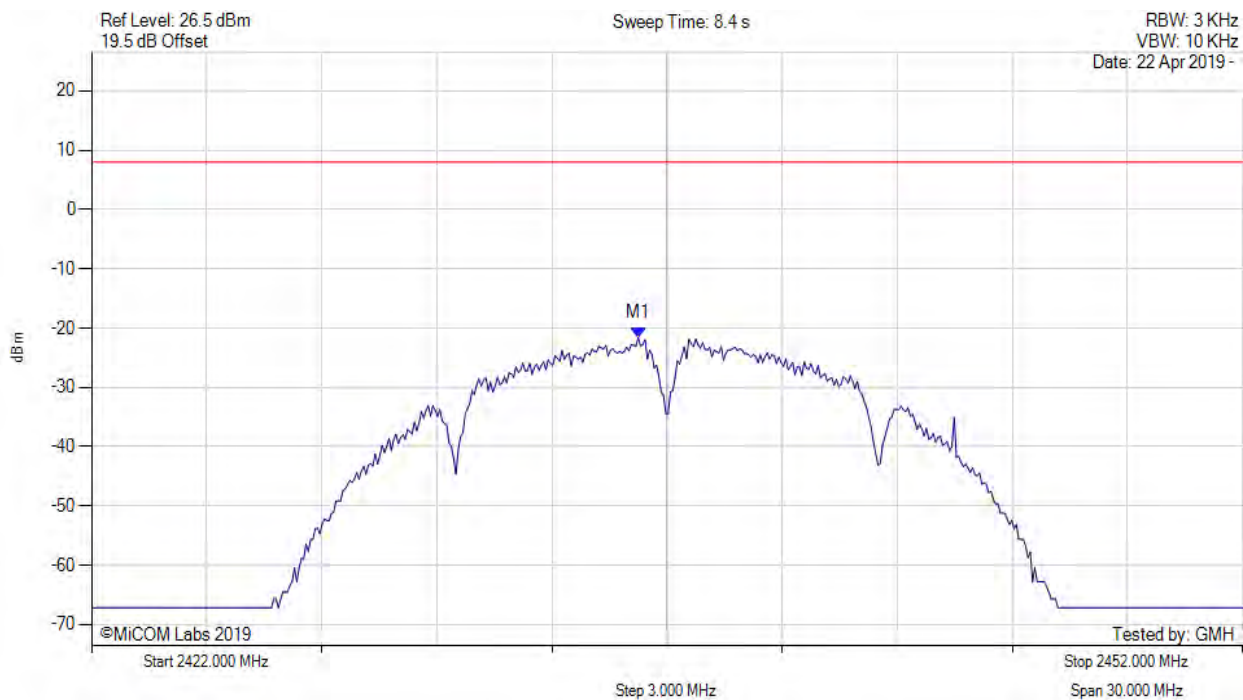Variant: 802.11b, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

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Tested by: GMH

Start 2397.000 MHz
Stop 2427.000 MHz
Step 3.000 MHz
Span 30.000 MHz
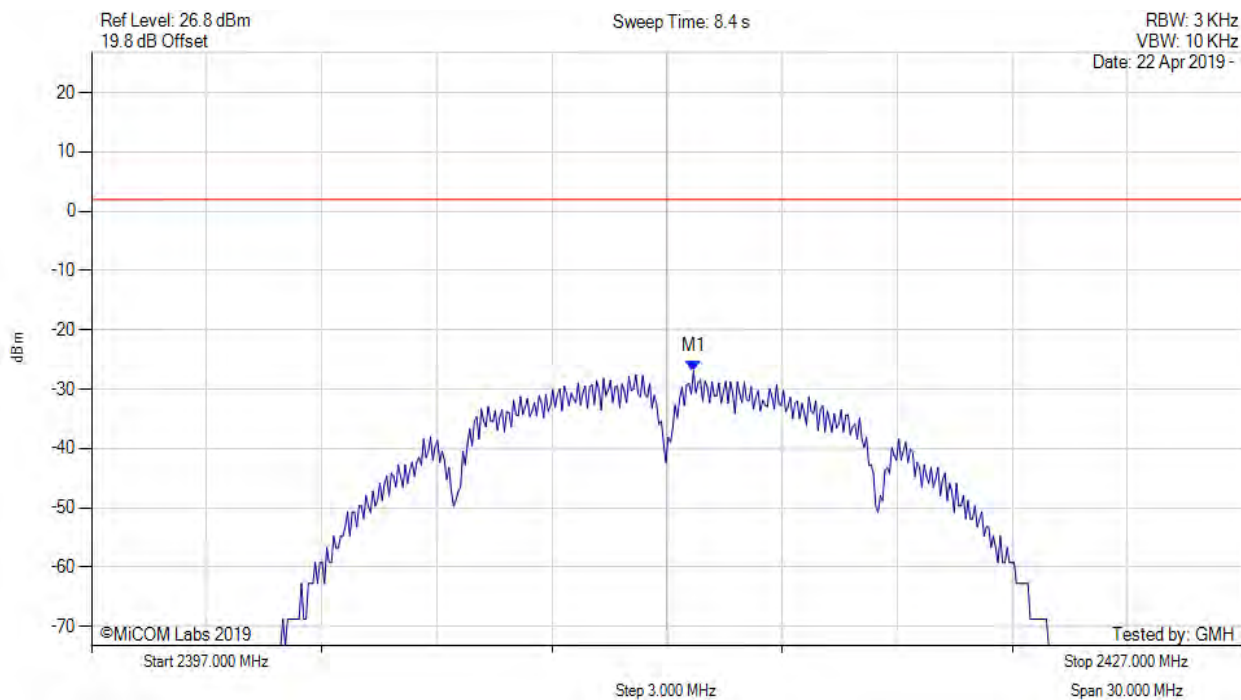
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.691 MHz : -26.967 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

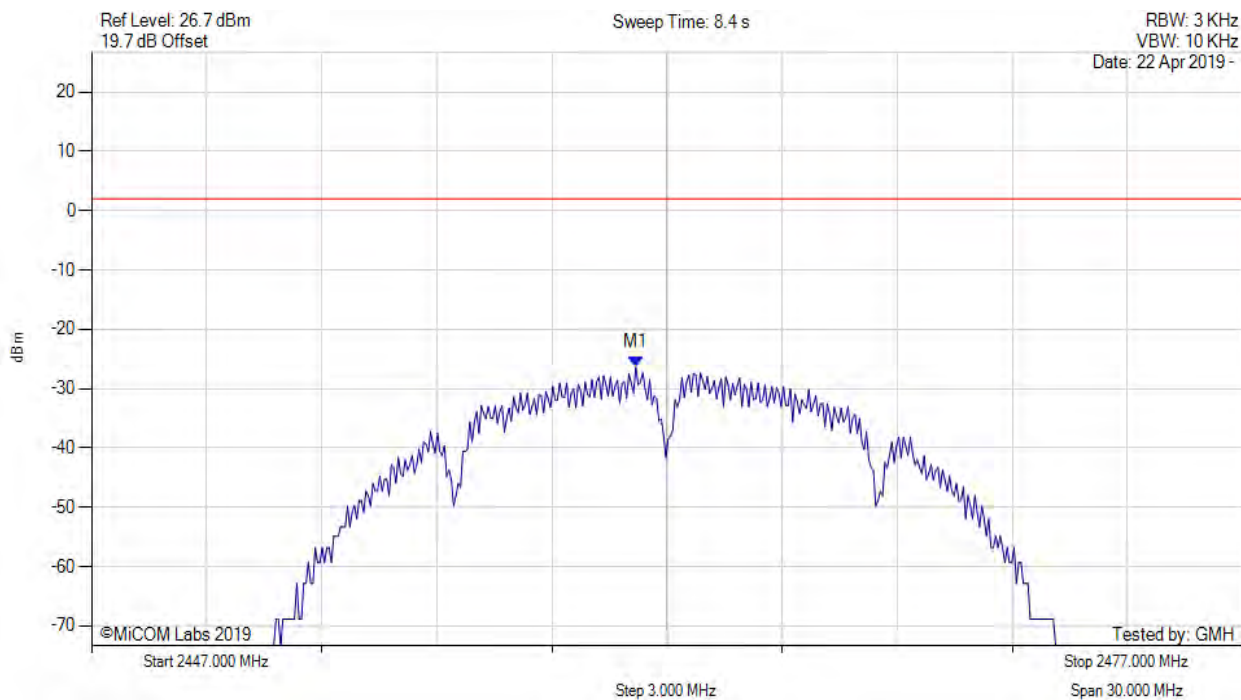Variant: 802.11b, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
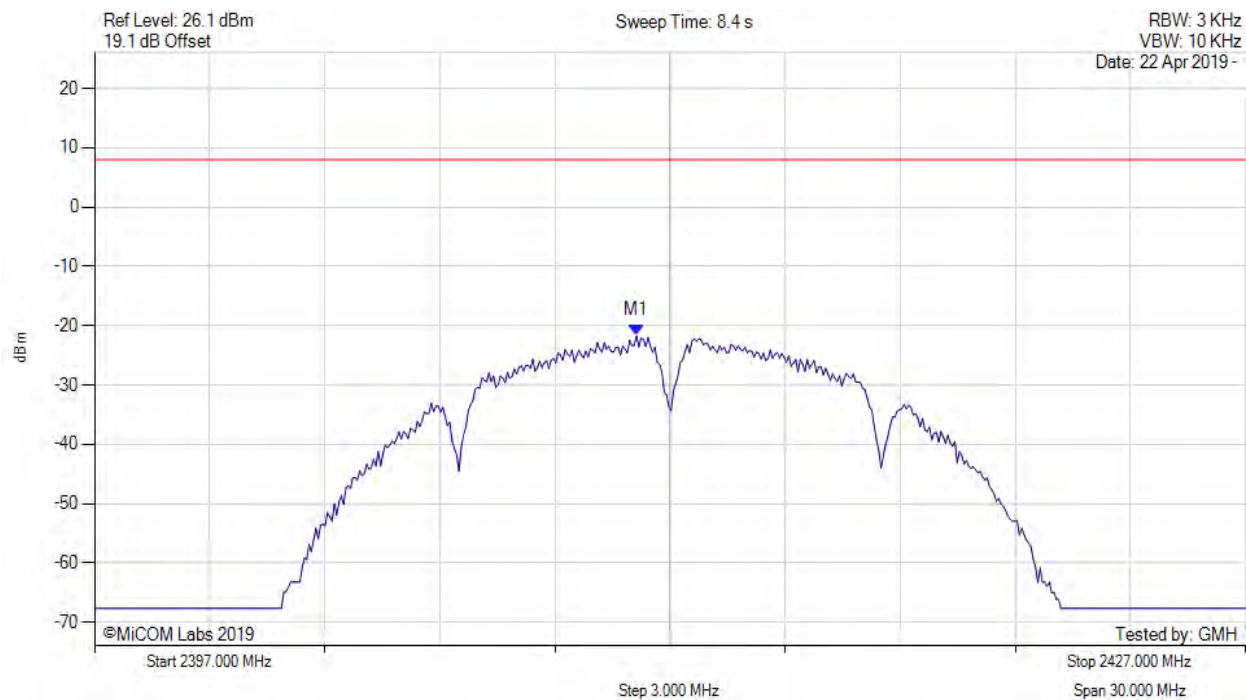
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.100 MHz : -21.703 dBm M1 + DCCF : 2411.100 MHz : -18.595 dBm Duty Cycle Correction Factor : +3.11 dB	Limit: ≤ 8.0 dBm Margin: -26.6 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
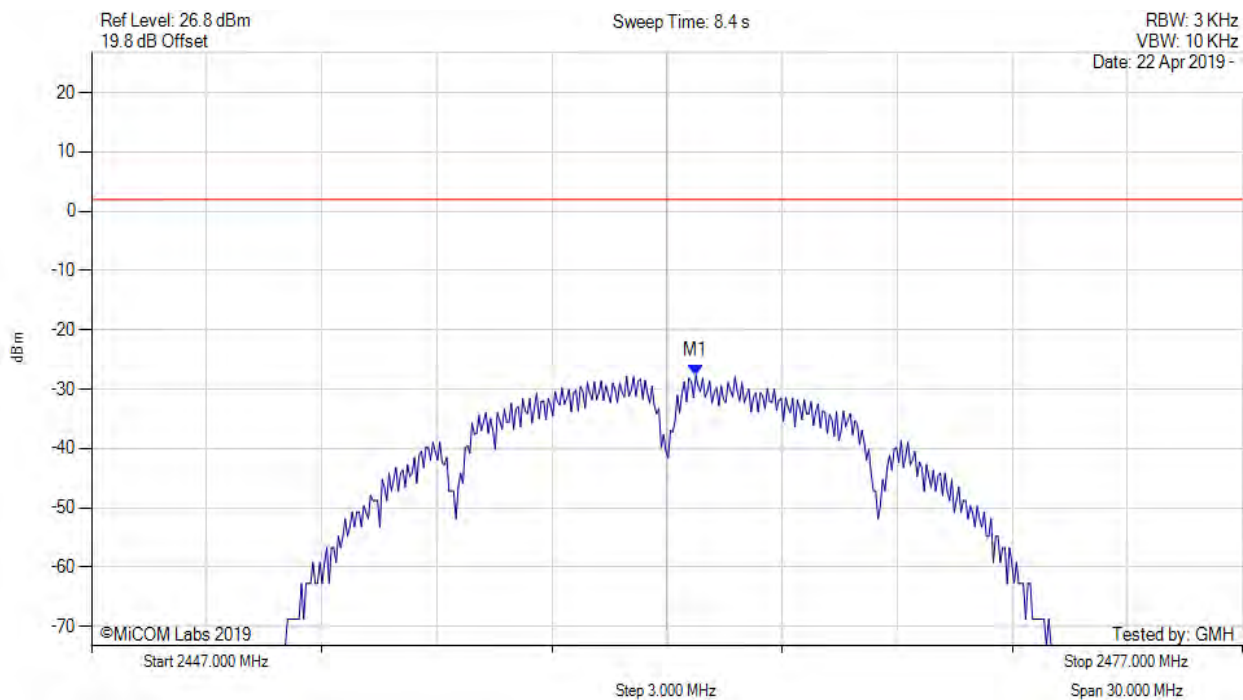
Ref Level: 26.5 dBm
19.5 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz

Step 3.000 MHz

Stop 2452.000 MHz
Span 30.000 MHz

Tested by: GMH

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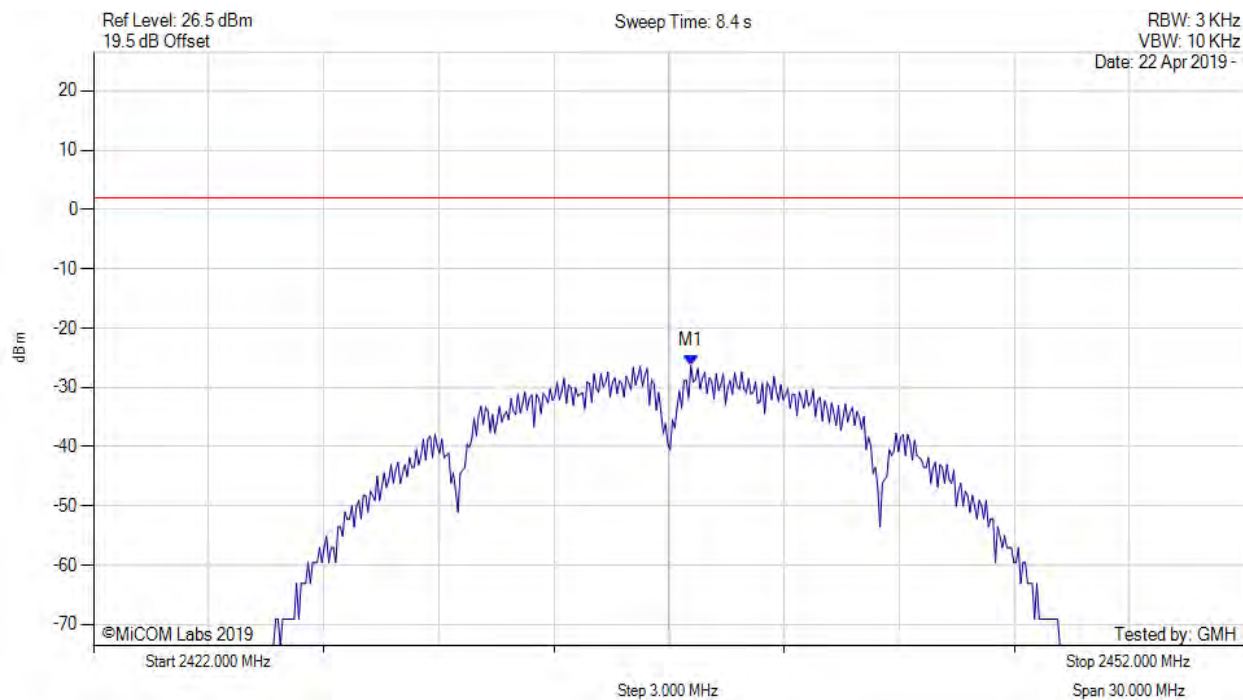
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.571 MHz : -26.395 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
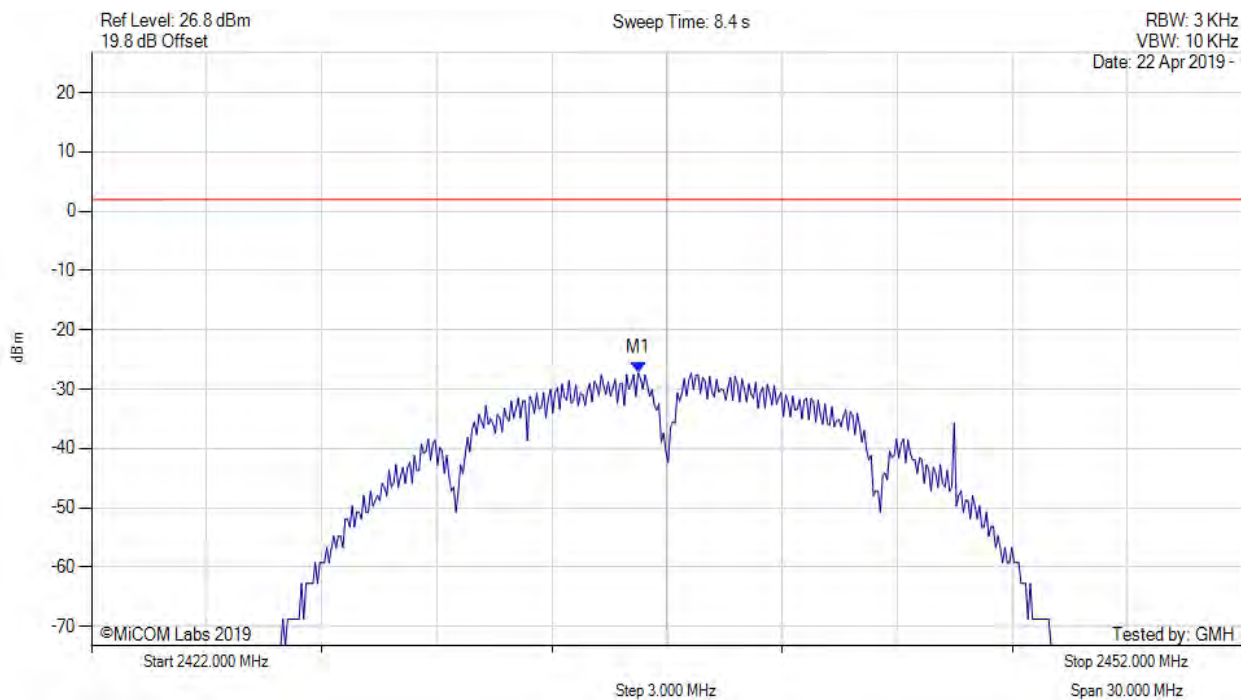
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2436.248 MHz : -27.254 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

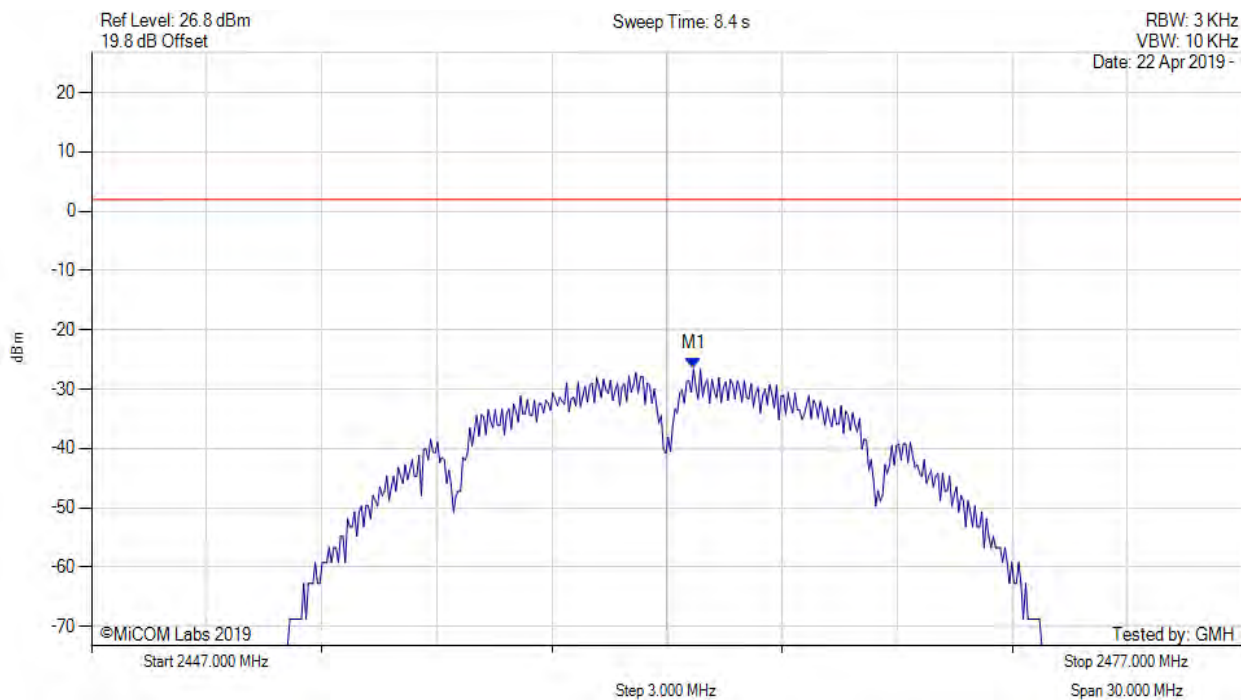Variant: 802.11b, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.752 MHz : -26.958 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

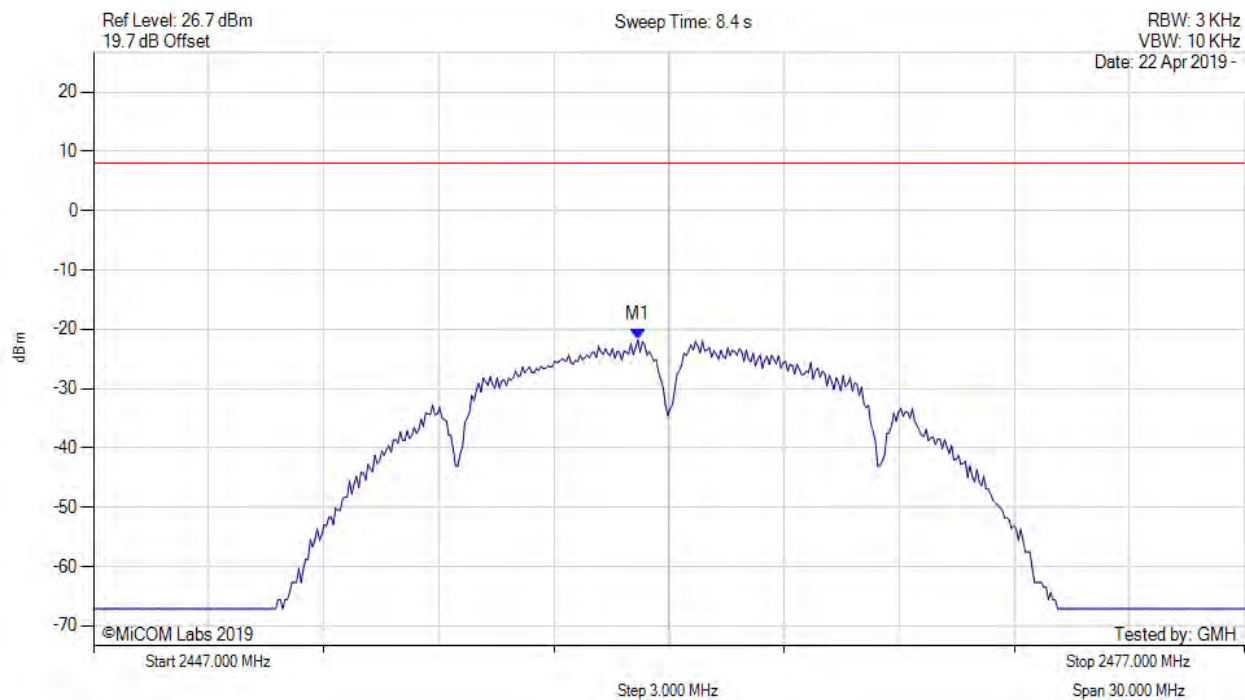Variant: 802.11b, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 27.3 dBm
20.3 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz
Stop 2452.000 MHz
Step 3.000 MHz
Span 30.000 MHz
Tested by: GMH
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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2436.188 MHz : -27.437 dBm	Limit: ≤ 1.980 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.5 dBm
19.5 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz
Step 3.000 MHz
Stop 2452.000 MHz
Span 30.000 MHz
Tested by: GMH
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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2436.200 MHz : -21.597 dBm M1 + DCCF : 2436.200 MHz : -18.489 dBm Duty Cycle Correction Factor : +3.11 dB	Limit: ≤ 8.0 dBm Margin: -26.5 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

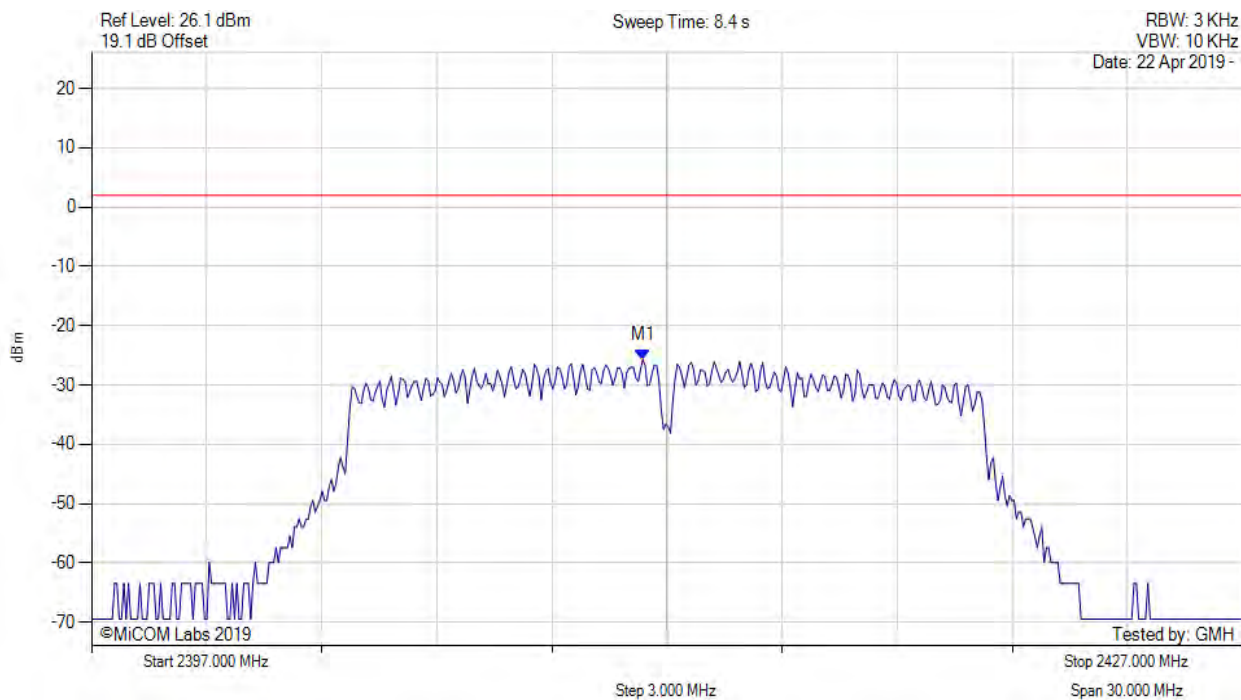Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
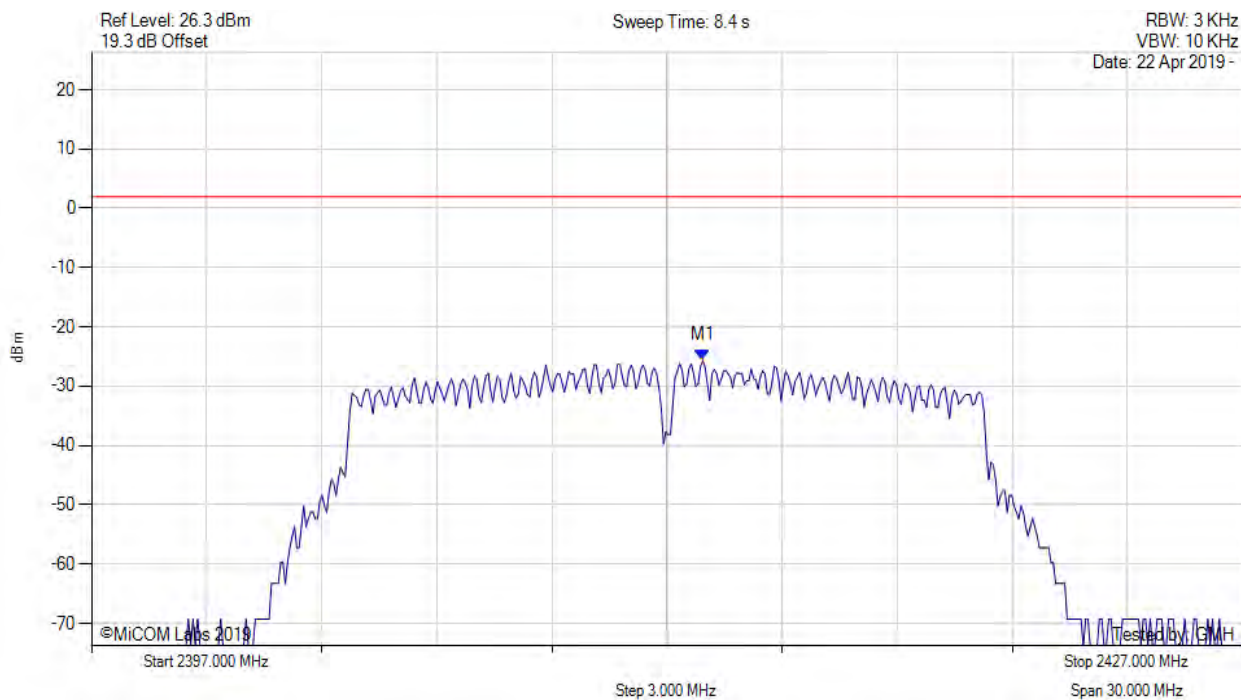

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.188 MHz : -26.388 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2447.000 MHz
Stop 2477.000 MHz
Step 3.000 MHz
Span 30.000 MHz

Tested by: GMH

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -27.704 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

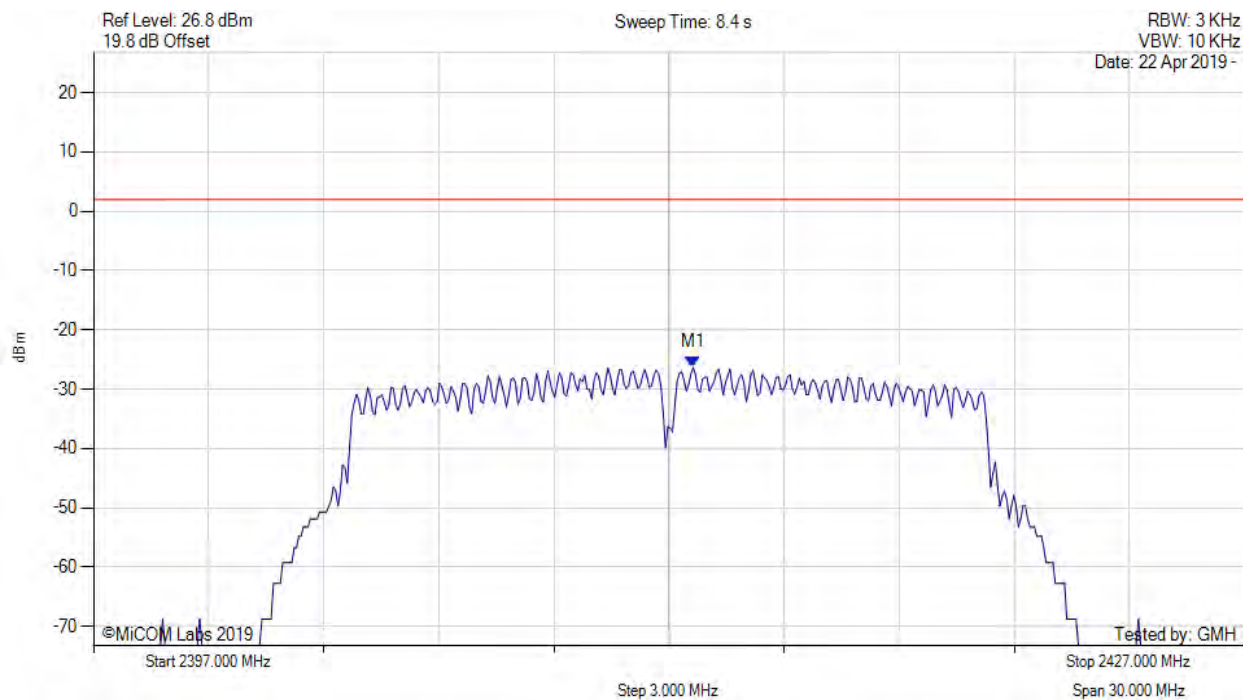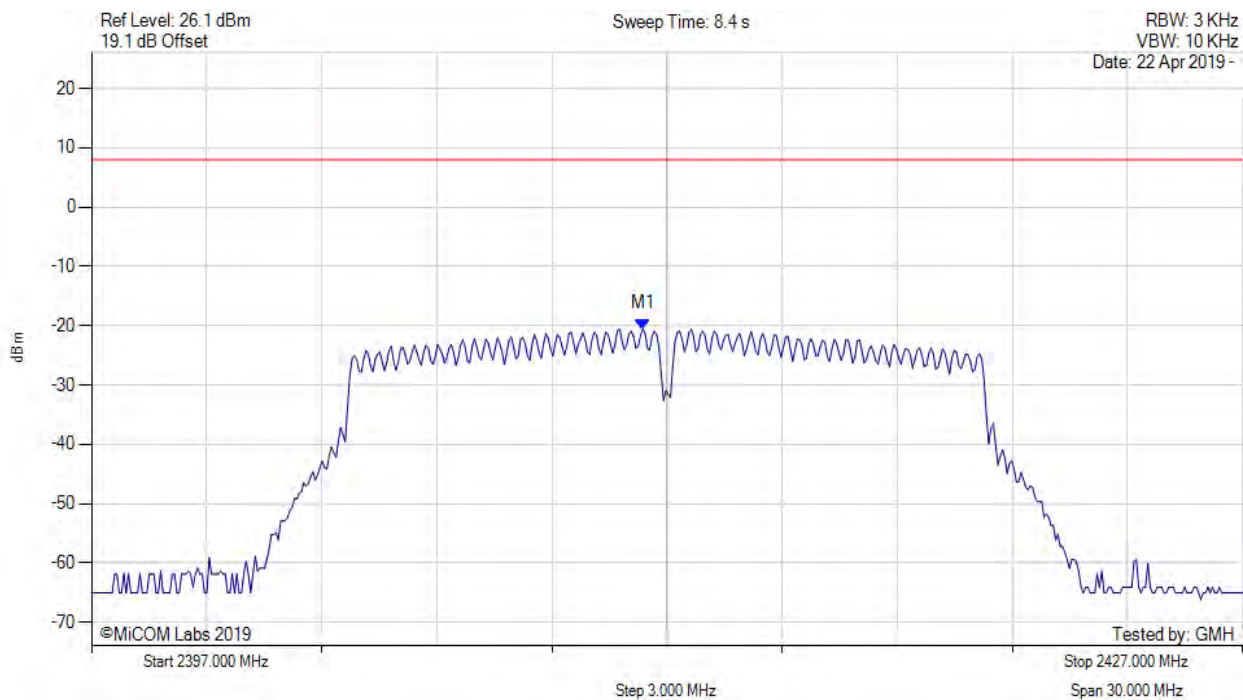Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.691 MHz : -26.554 dBm	Limit: ≤ 1.980 dBm

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc
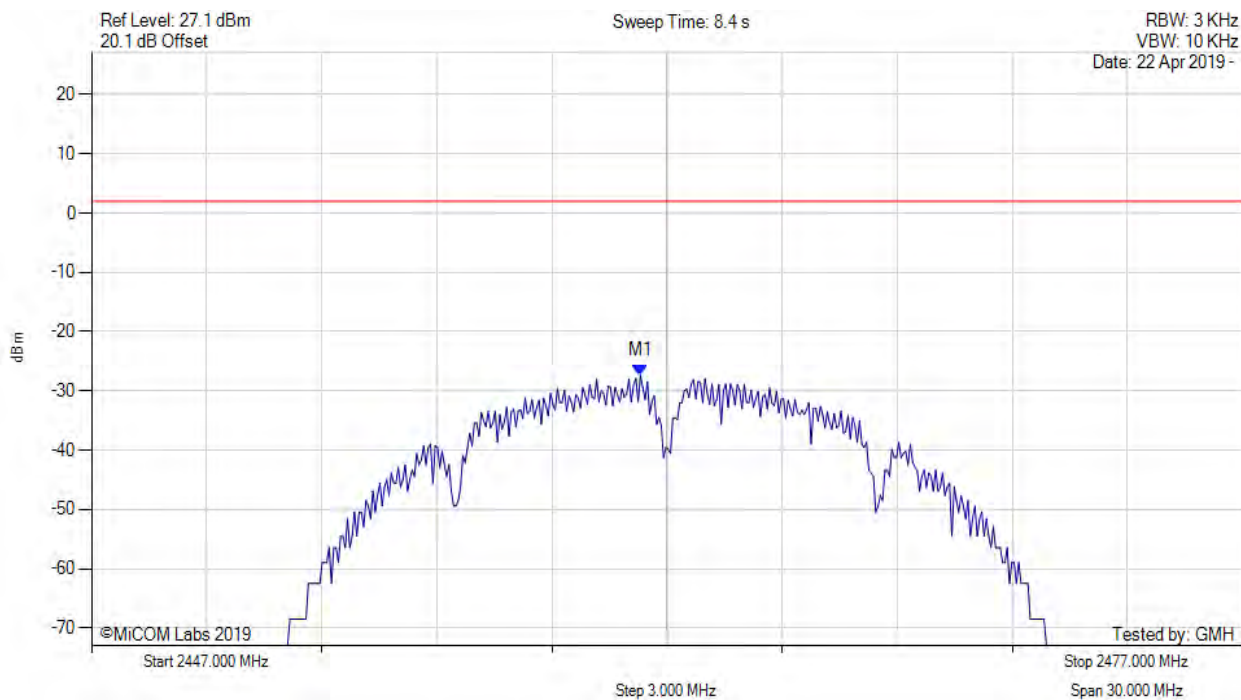
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.309 MHz : -27.327 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

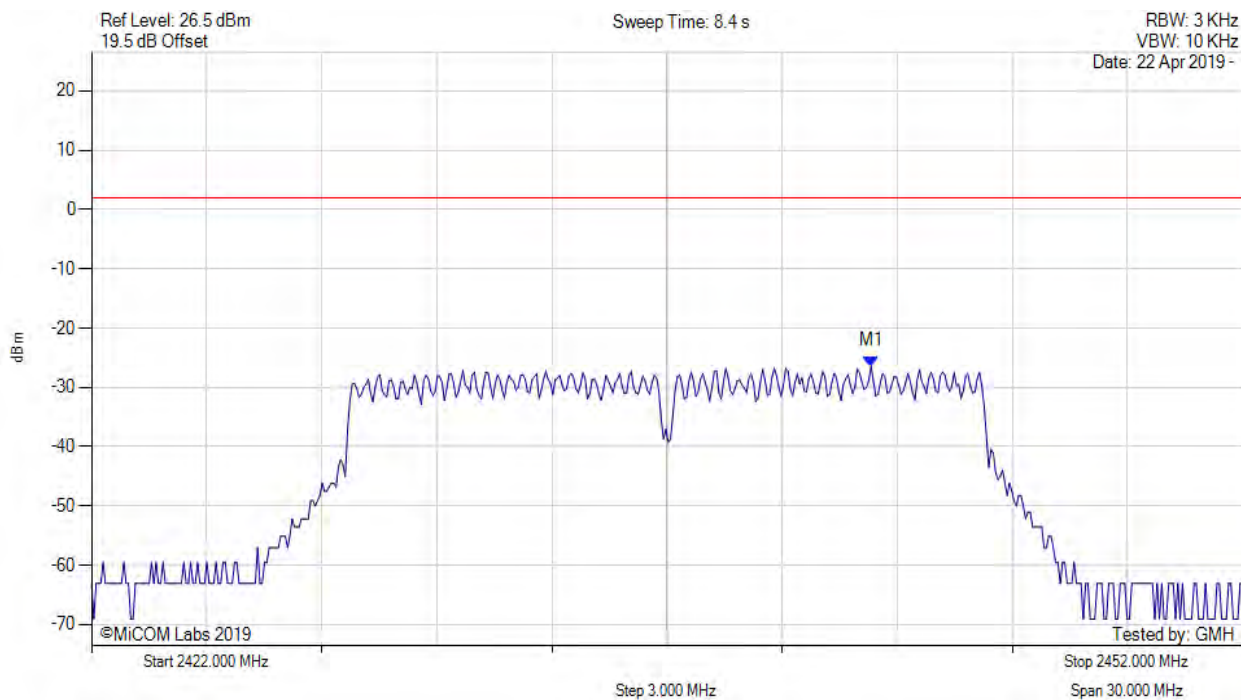Variant: 802.11b, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.7 dBm
19.7 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2447.000 MHz

Stop 2477.000 MHz

Step 3.000 MHz

Span 30.000 MHz

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Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE	M1 : 2461.200 MHz : -21.799 dBm	Limit: ≤ 8.0 dBm
Sweep Count = 0	M1 + DCCF : 2461.200 MHz : -18.691 dBm	Margin: -26.7 dB
RF Atten (dB) = 20	Duty Cycle Correction Factor : +3.11 dB	
Trace Mode = VIEW		

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

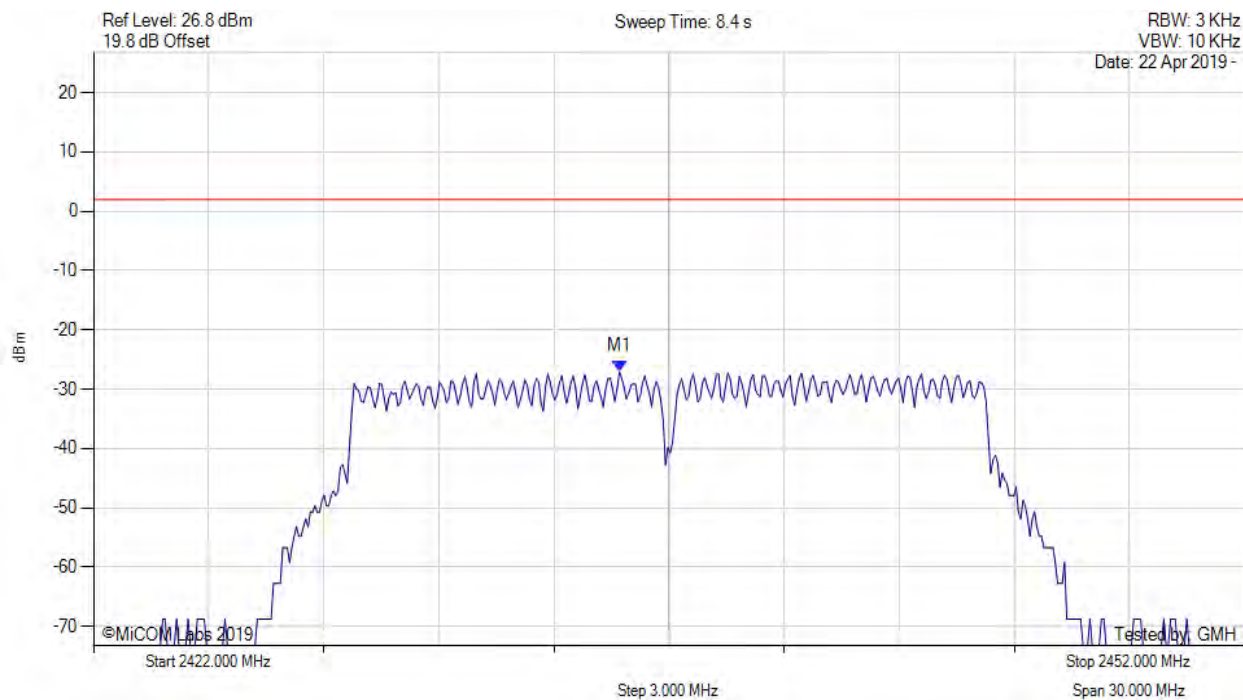Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.1 dBm
19.1 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2397.000 MHz
Step 3.000 MHz
Stop 2427.000 MHz
Span 30.000 MHz

Tested by: GMH

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.369 MHz : -25.772 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

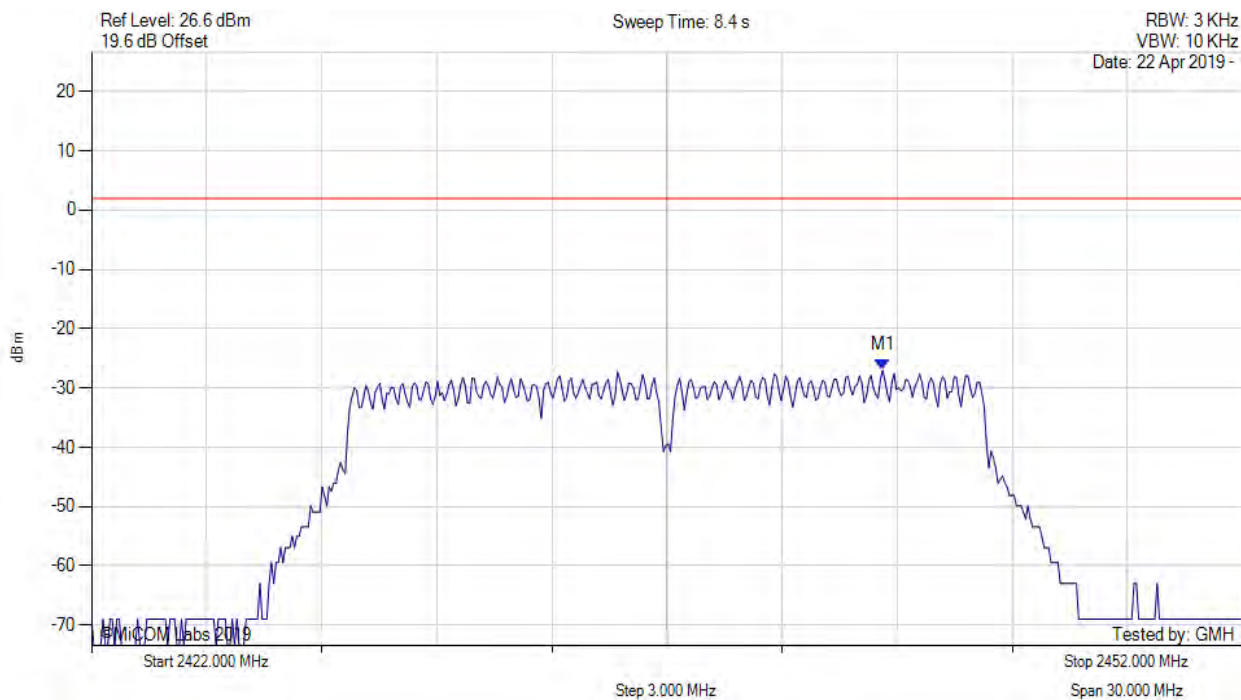Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.3 dBm
19.3 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2397.000 MHz
Stop 2427.000 MHz
Step 3.000 MHz
Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.932 MHz : -25.628 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

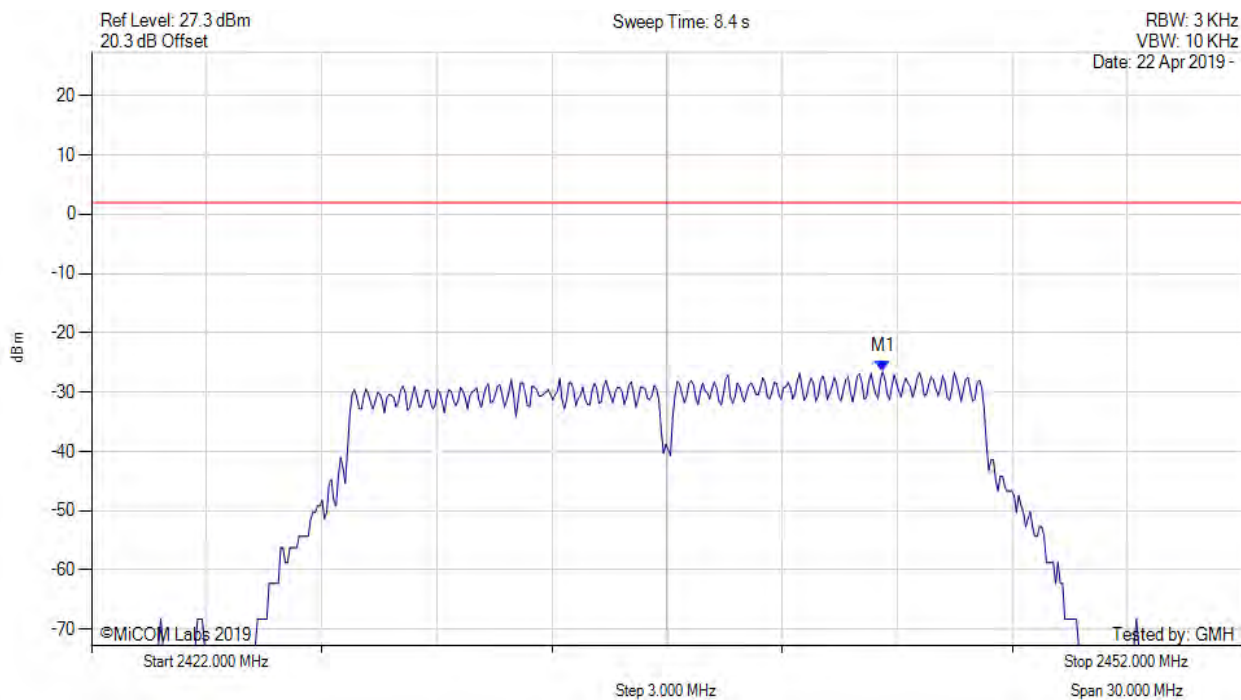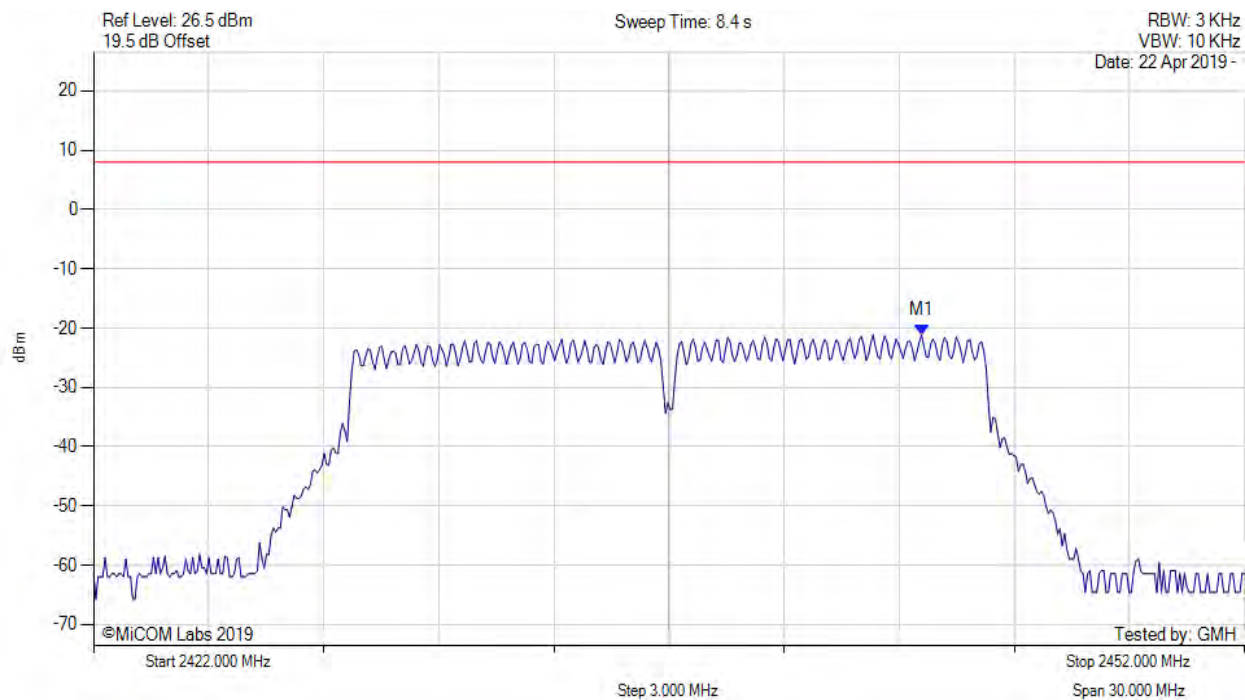Variant: 802.11g, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc
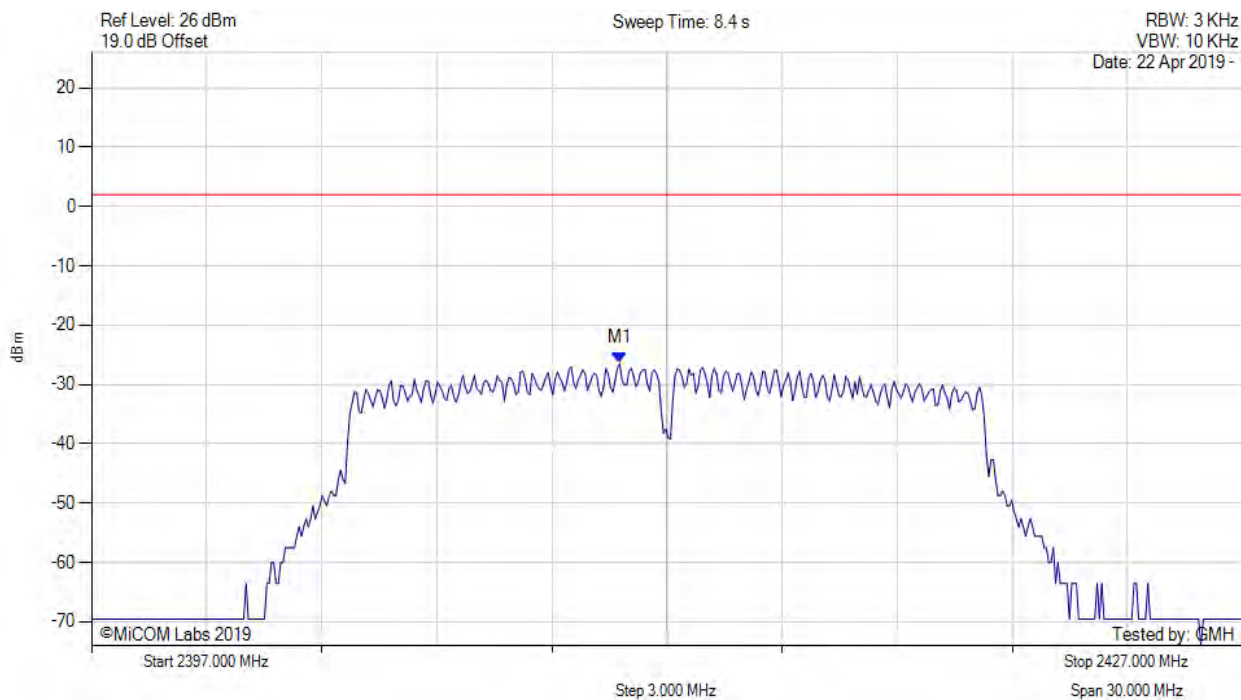
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.768 MHz : -26.459 dBm	Limit: ≤ 1.980 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.631 MHz : -26.354 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

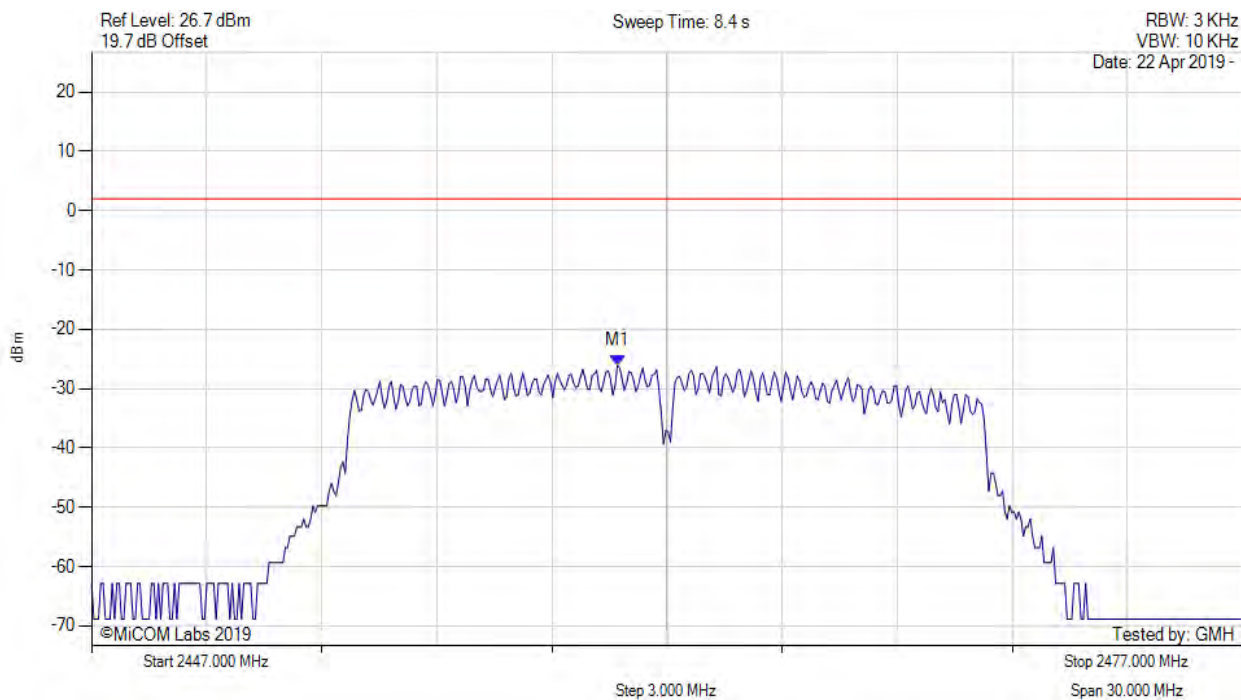Variant: 802.11g, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE	M1 : 2411.400 MHz : -20.555 dBm	Limit: ≤ 8.0 dBm
Sweep Count = 0	M1 + DCCF : 2411.400 MHz : -17.639 dBm	Margin: -25.7 dB
RF Atten (dB) = 20	Duty Cycle Correction Factor : +2.92 dB	
Trace Mode = VIEW		

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2442.321 MHz : -26.459 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset
Sweep Time: 8.4 s
RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz
Step 3.000 MHz
Stop 2452.000 MHz
Span 30.000 MHz

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2435.707 MHz : -27.038 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

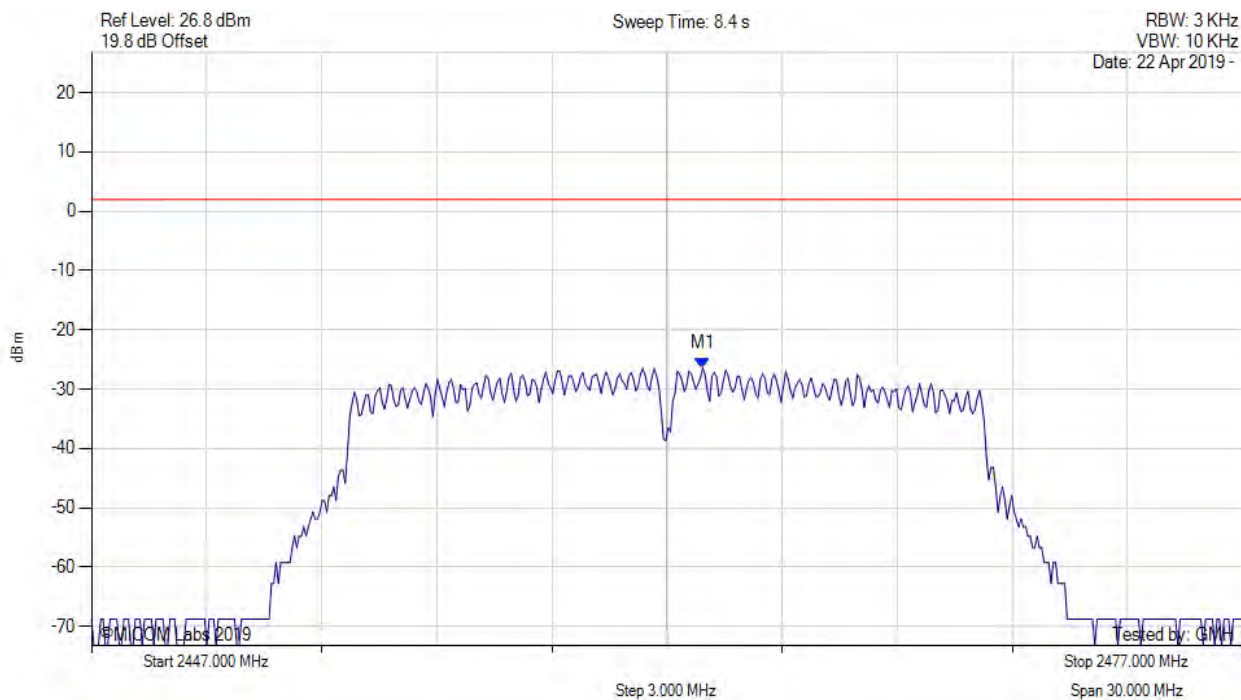Variant: 802.11g, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.6 dBm
19.6 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

M1

Tested by: GMH

Start 2422.000 MHz

Stop 2452.000 MHz

Step 3.000 MHz

Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2442.621 MHz : -27.027 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 27.3 dBm
20.3 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz
Stop 2452.000 MHz
Step 3.000 MHz
Span 30.000 MHz
Tested by: GMH
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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2442.621 MHz : -26.538 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

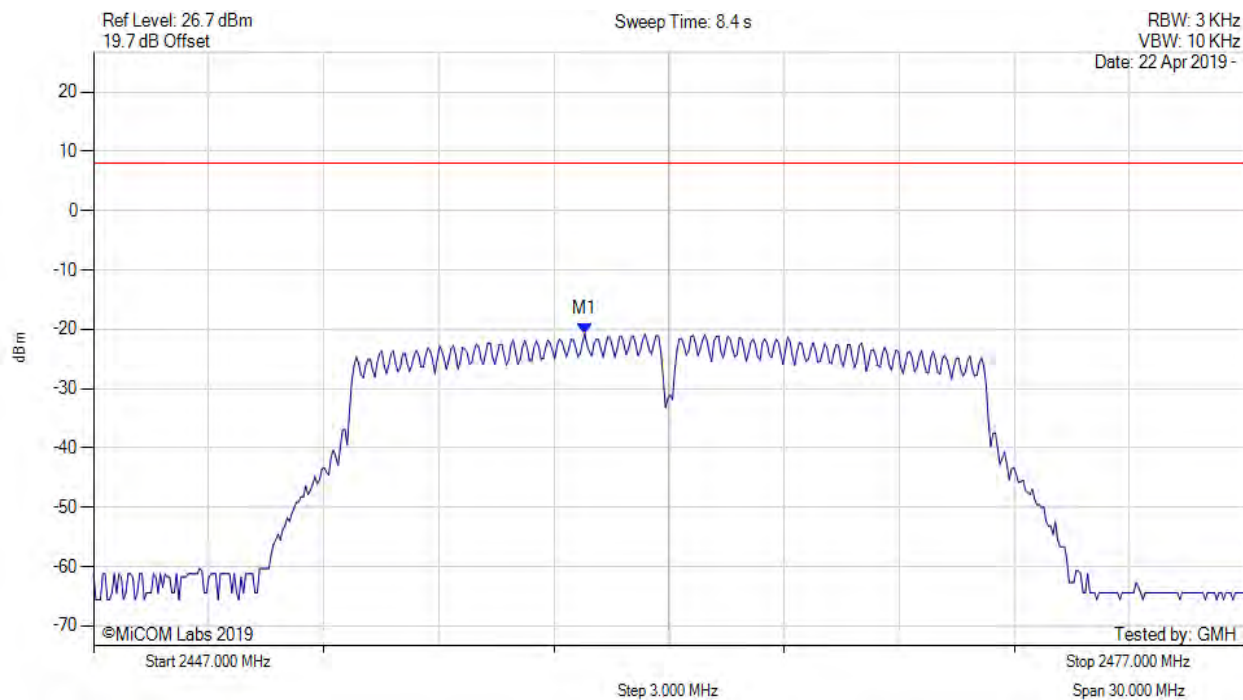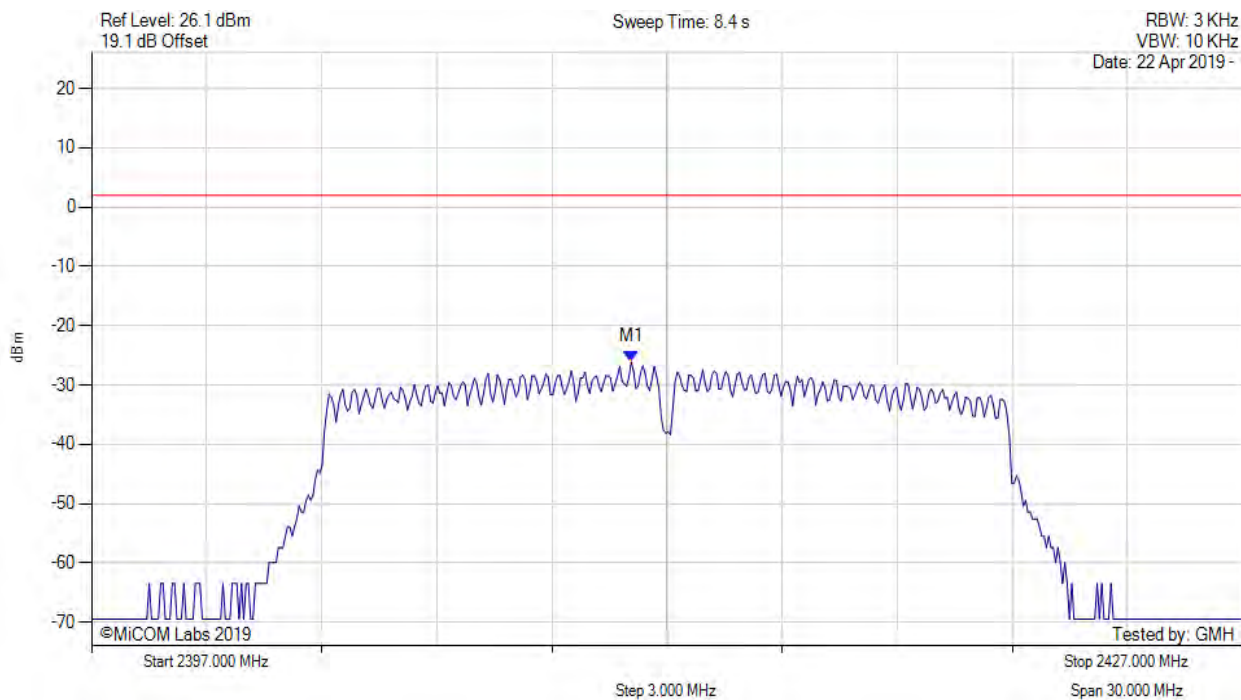Variant: 802.11g, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2443.600 MHz : -21.167 dBm M1 + DCCF : 2443.600 MHz : -18.251 dBm Duty Cycle Correction Factor : +2.92 dB	Limit: ≤ 8.0 dBm Margin: -26.3 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2460.707 MHz : -26.068 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

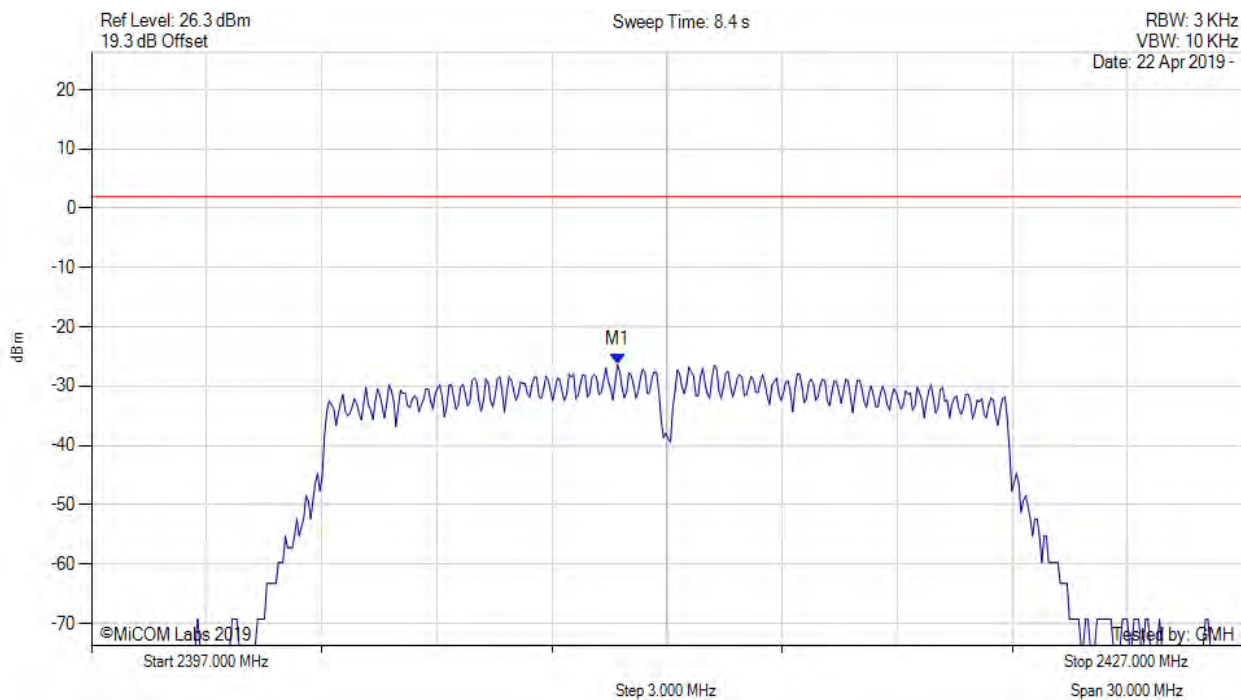Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
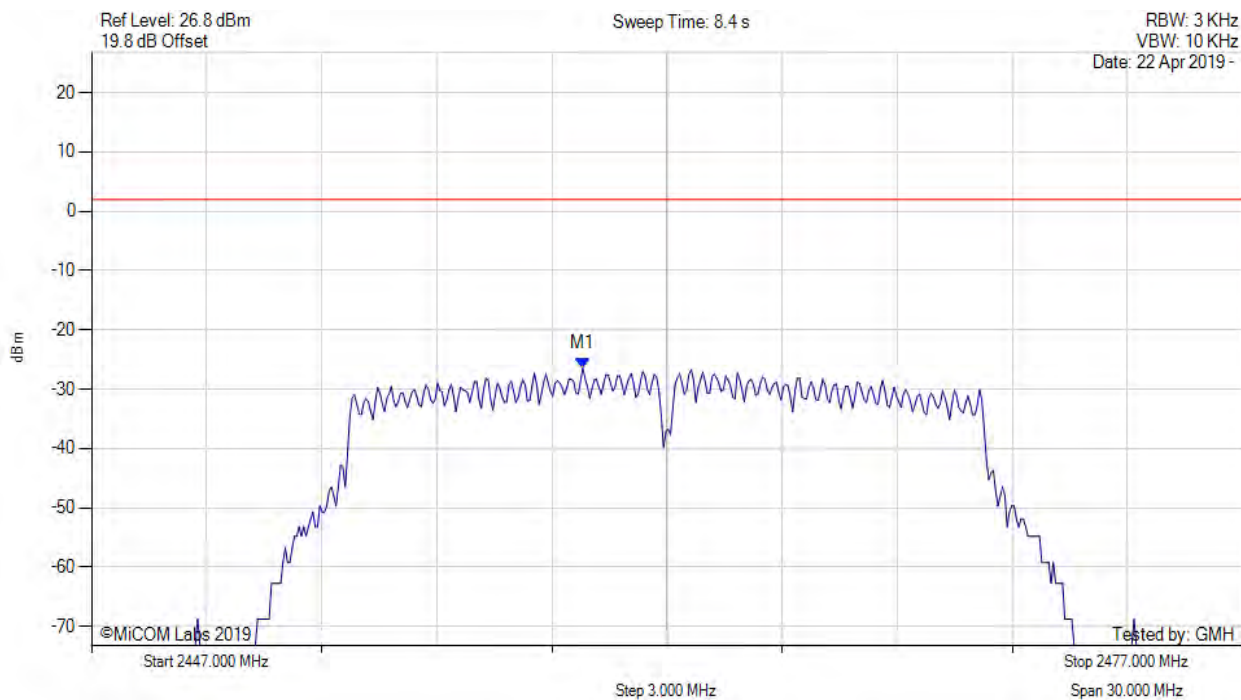
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2459.806 MHz : -26.486 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.932 MHz : -26.420 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

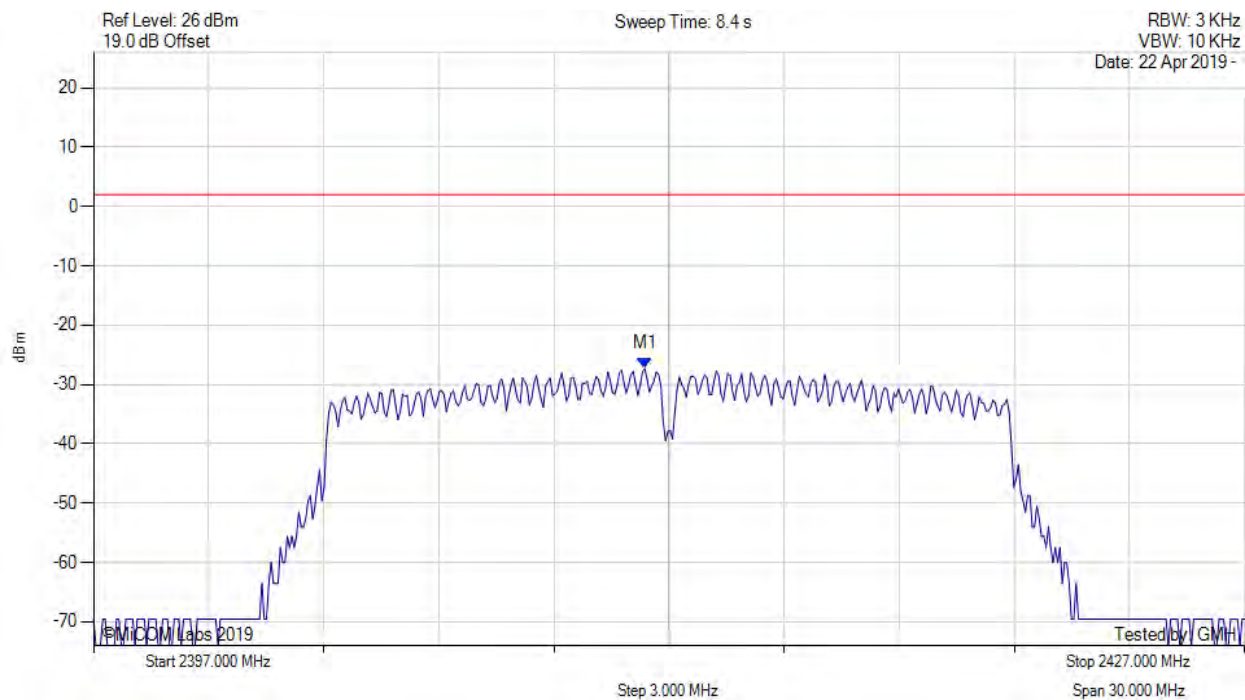Variant: 802.11g, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc
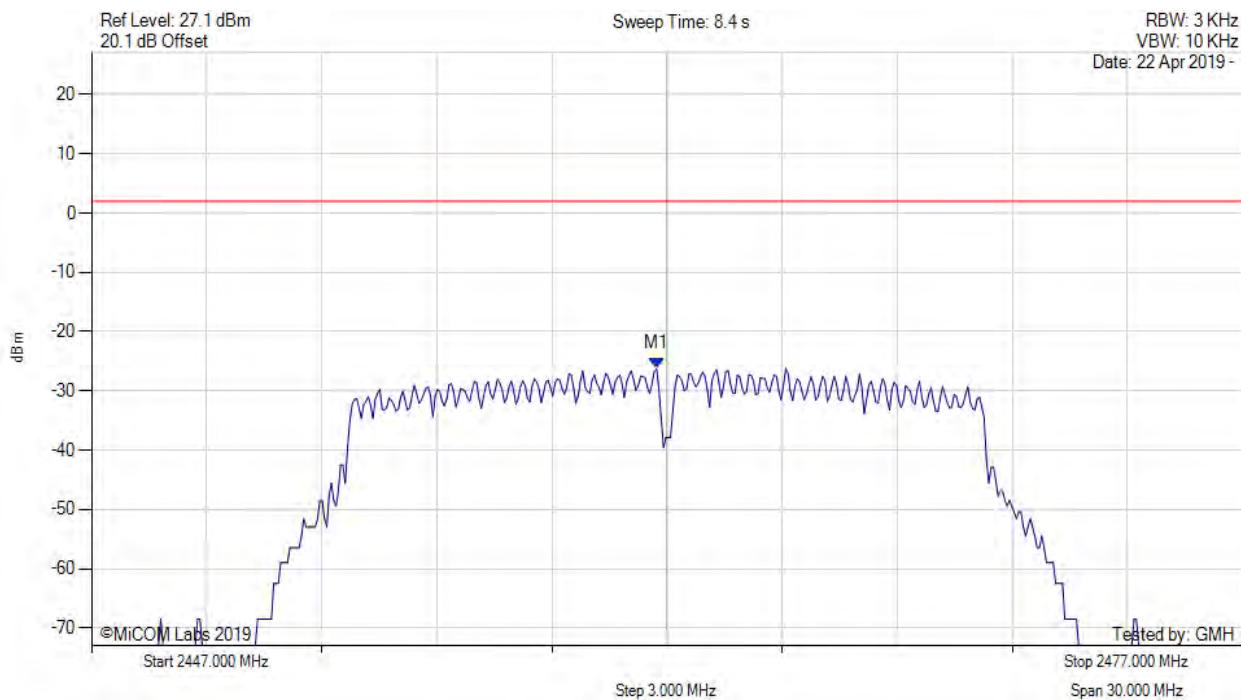
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.729 MHz : -26.254 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

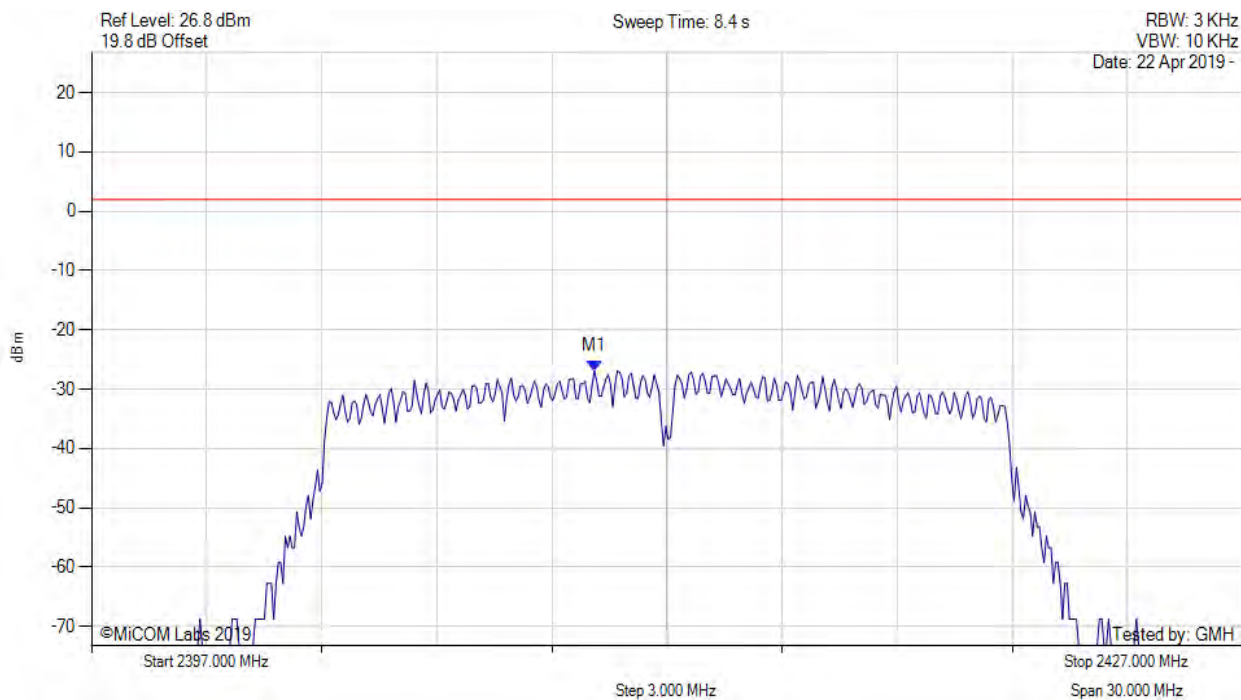Variant: 802.11g, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE	M1 : 2459.800 MHz : -20.735 dBm	Limit: ≤ 8.0 dBm
Sweep Count = 0	M1 + DCCF : 2459.800 MHz : -17.819 dBm	Margin: -25.8 dB
RF Atten (dB) = 20	Duty Cycle Correction Factor : +2.92 dB	
Trace Mode = VIEW		

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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

Ref Level: 26.1 dBm
19.1 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

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Tested by: GMH

Start 2397.000 MHz
Stop 2427.000 MHz
Step 3.000 MHz
Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.068 MHz : -26.119 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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


Ref Level: 26.3 dBm
19.3 dB Offset
Sweep Time: 8.4 s
RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2397.000 MHz
Stop 2427.000 MHz
Step 3.000 MHz
Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.707 MHz : -26.343 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.369 MHz : -27.354 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

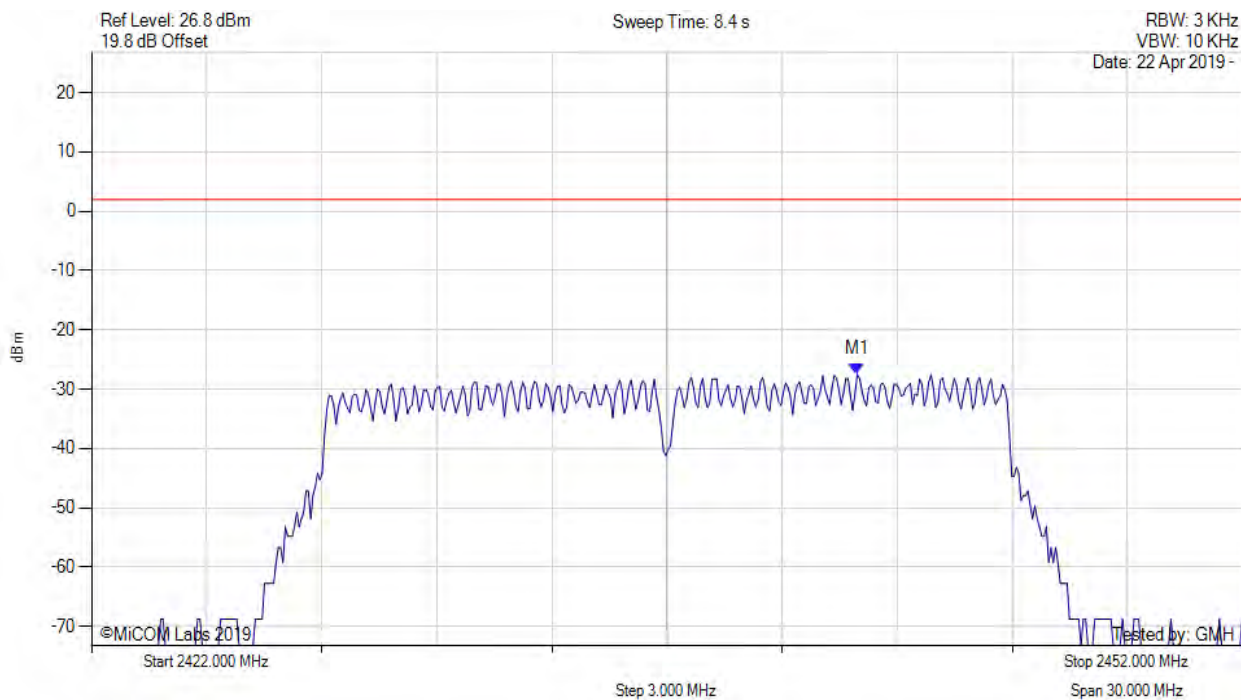Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc
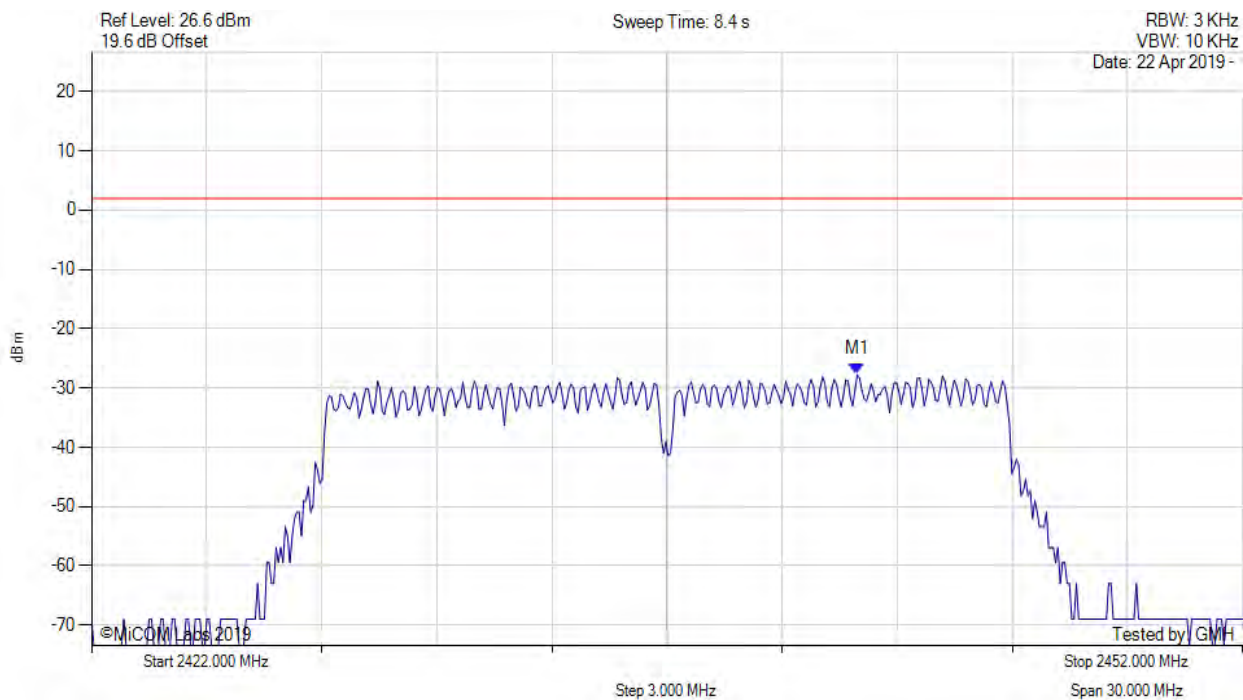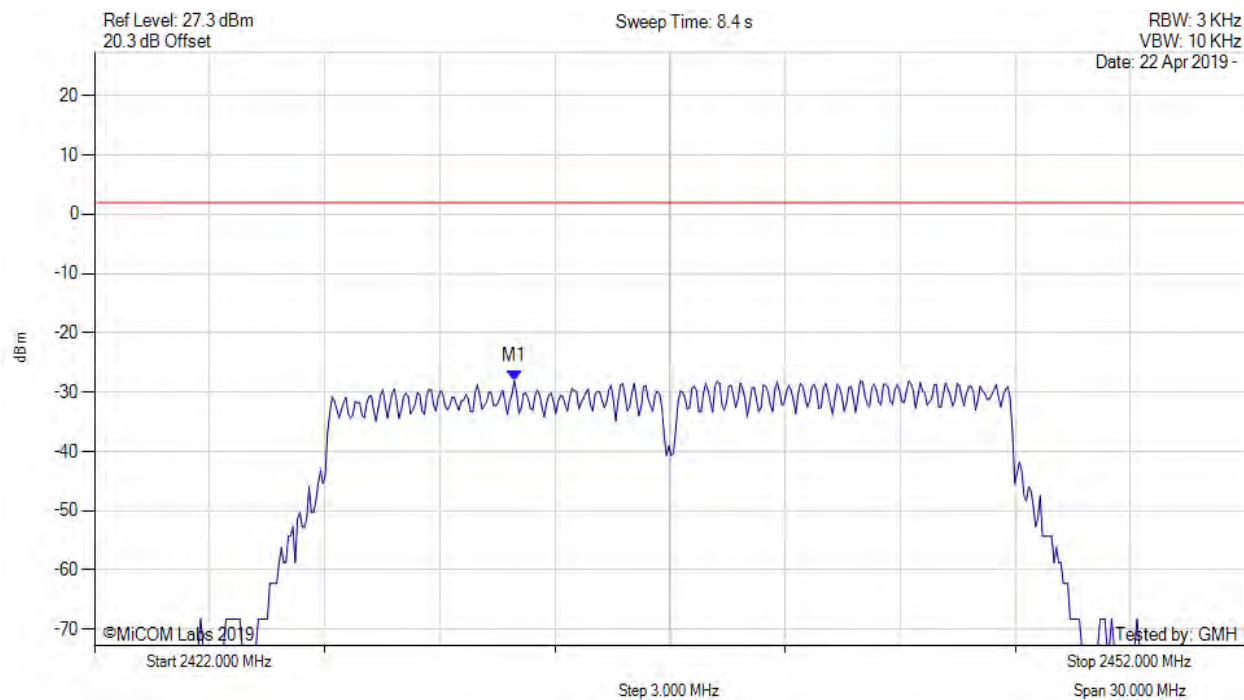

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.106 MHz : -26.897 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
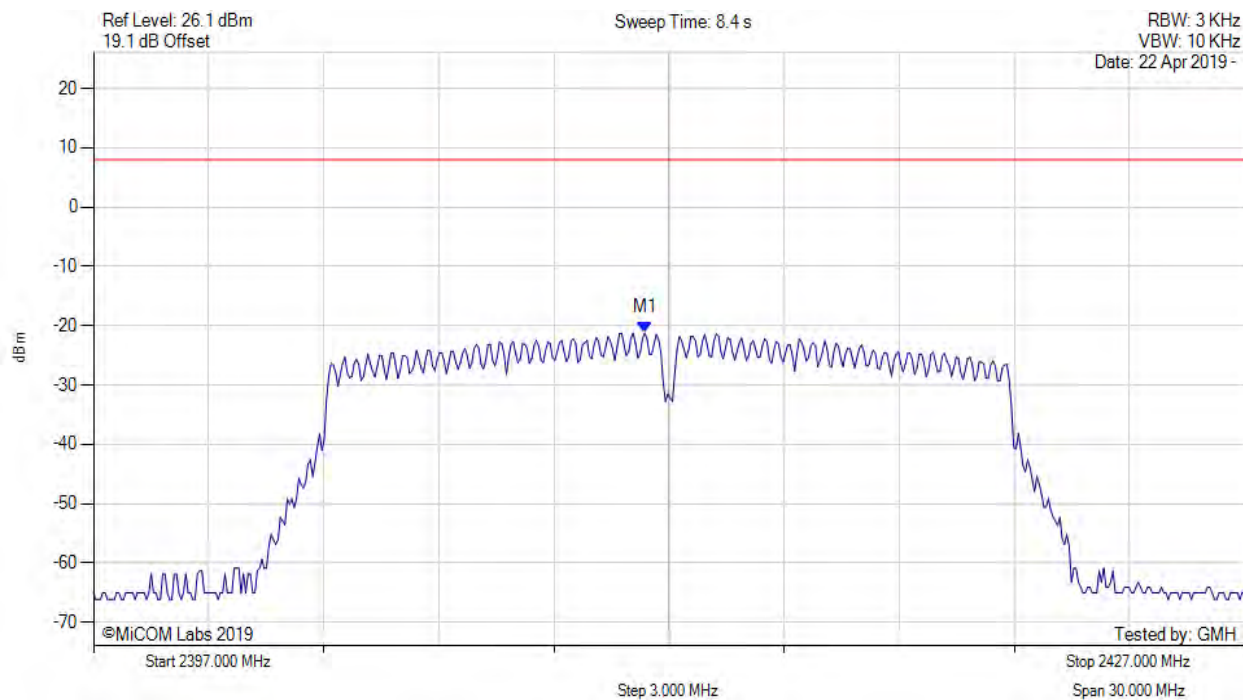
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.400 MHz : -21.227 dBm M1 + DCCF : 2411.400 MHz : -18.543 dBm Duty Cycle Correction Factor : +2.68 dB	Limit: ≤ 8.0 dBm Margin: -26.6 dB

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
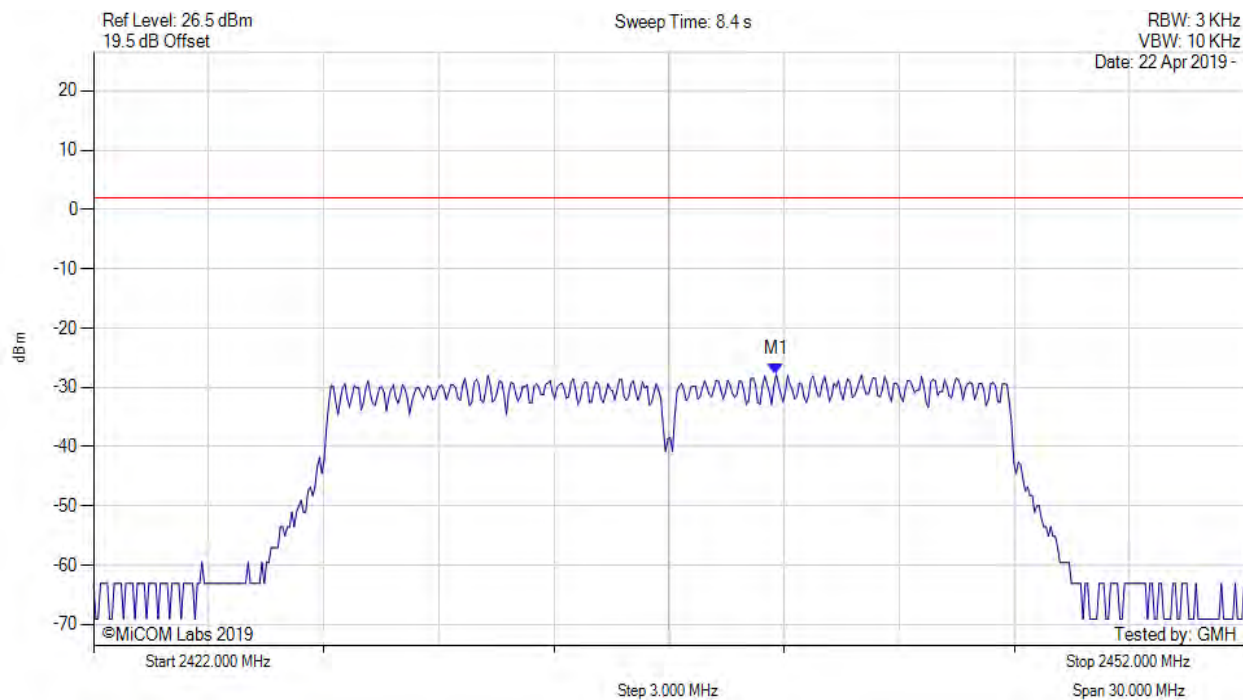
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2439.796 MHz : -27.776 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

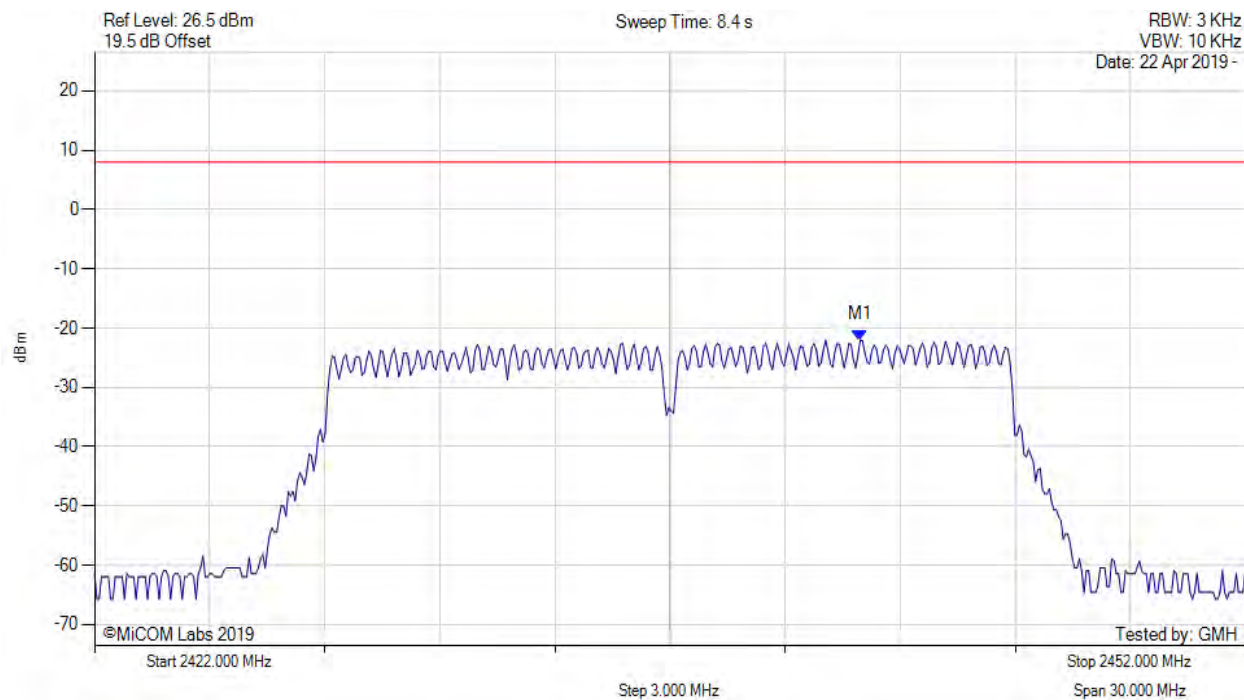Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2441.960 MHz : -27.476 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

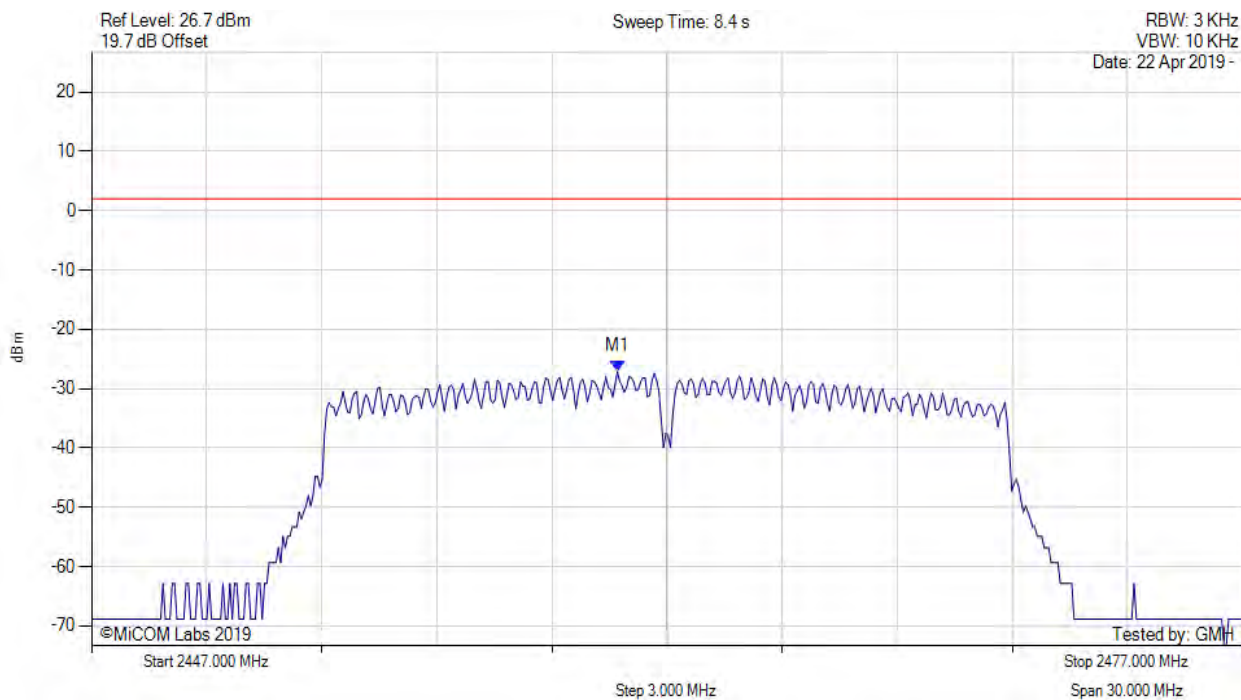Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2441.960 MHz : -27.751 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2432.942 MHz : -28.093 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

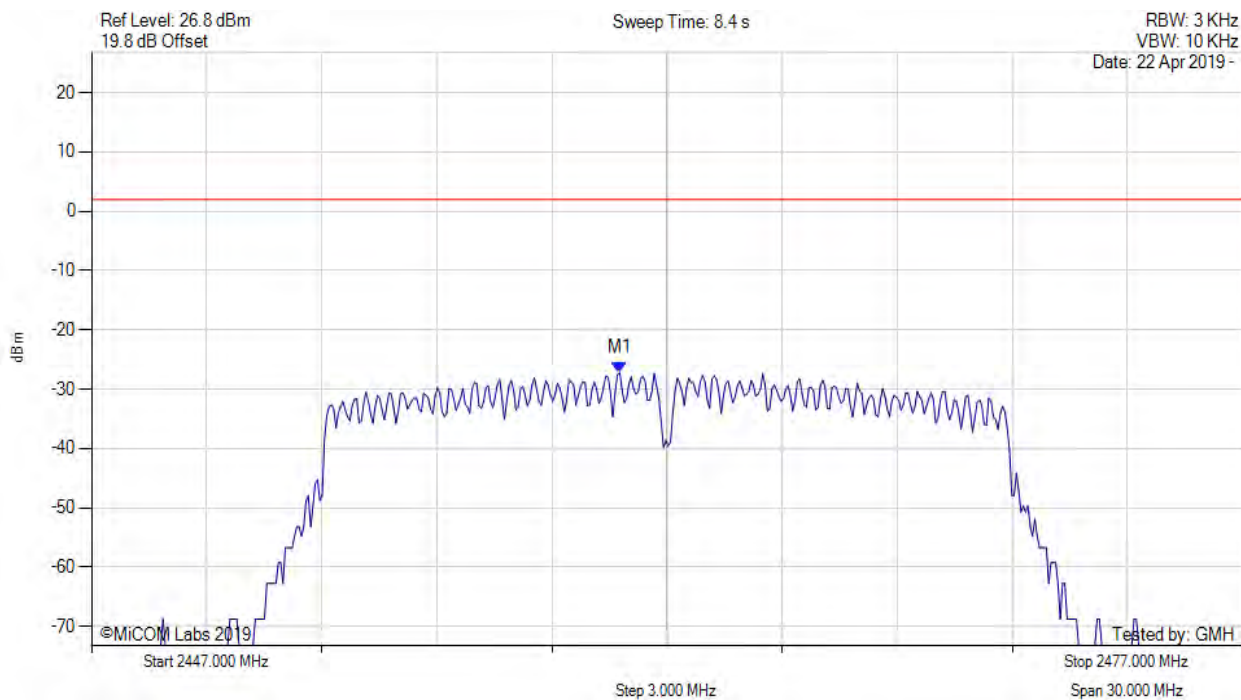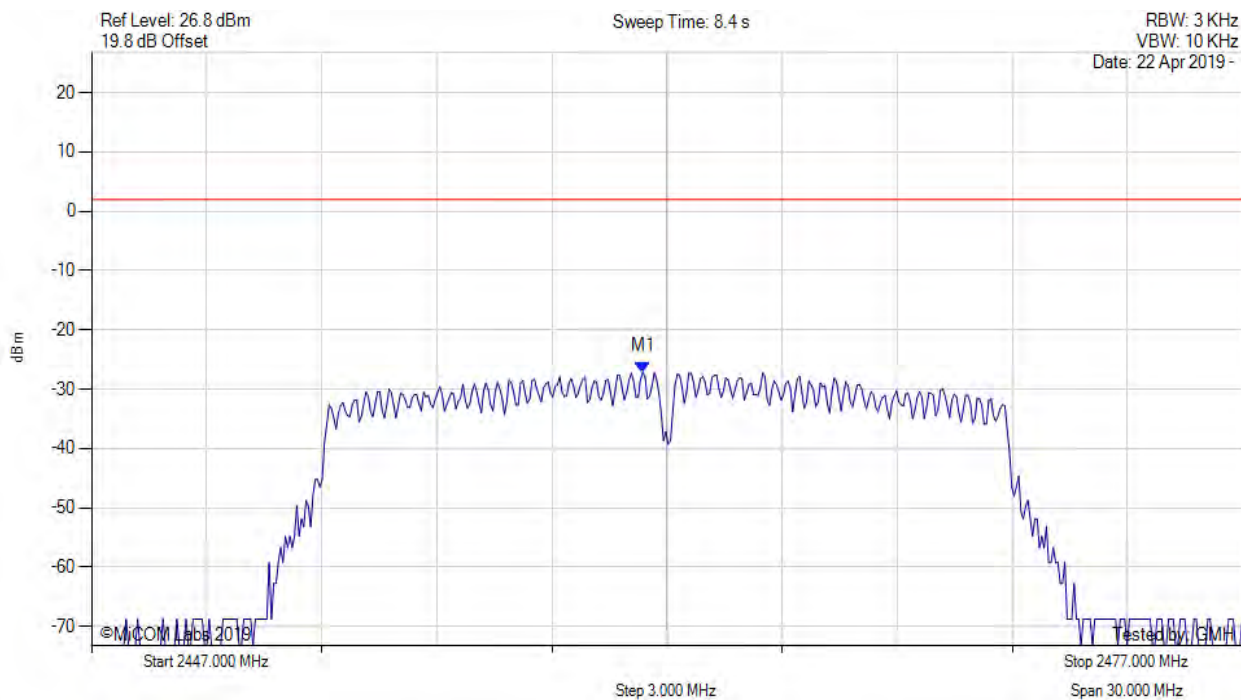Variant: 802.11n HT-20, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2442.000 MHz : -22.019 dBm M1 + DCCF : 2442.000 MHz : -19.335 dBm Duty Cycle Correction Factor : +2.68 dB	Limit: ≤ 8.0 dBm Margin: -27.4 dB

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POWER SPECTRAL DENSITY - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2460.707 MHz : -27.138 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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


Ref Level: 26.8 dBm
19.8 dB Offset
Sweep Time: 8.4 s
RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2447.000 MHz
Stop 2477.000 MHz
Step 3.000 MHz
Span 30.000 MHz
Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2460.768 MHz : -27.182 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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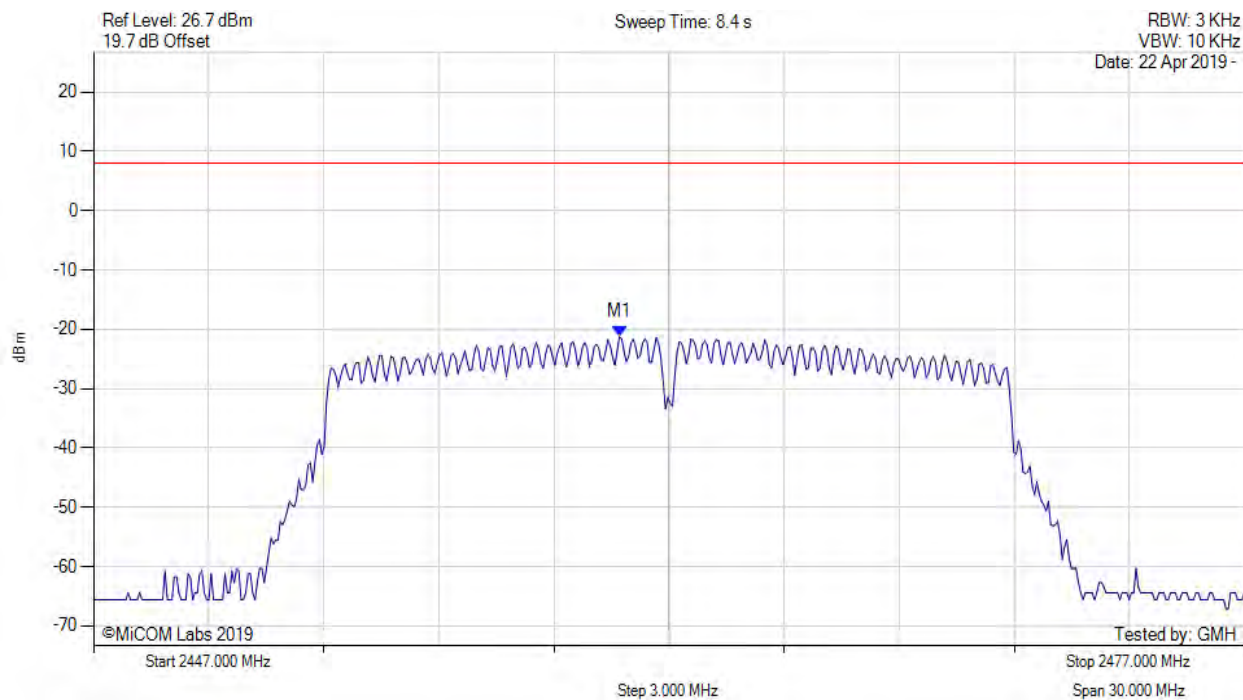

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.369 MHz : -27.110 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

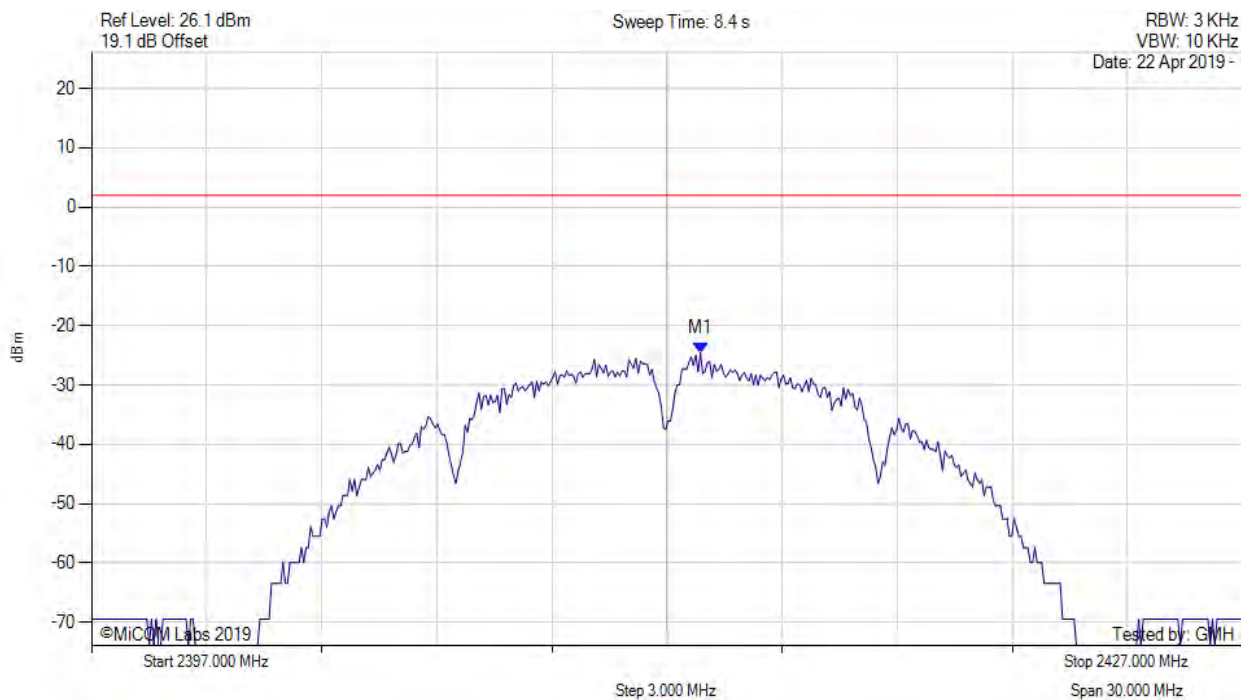Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc
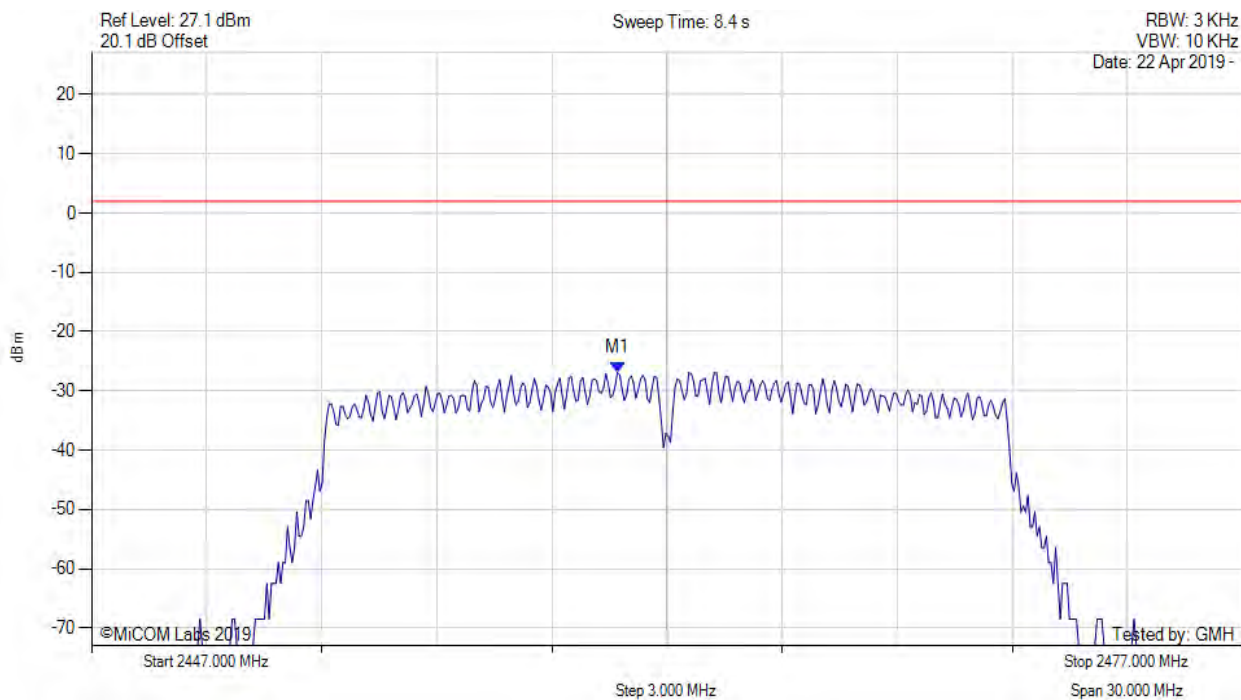
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2460.707 MHz : -26.882 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2460.700 MHz : -21.268 dBm M1 + DCCF : 2460.700 MHz : -18.584 dBm Duty Cycle Correction Factor : +2.68 dB	Limit: ≤ 8.0 dBm Margin: -26.6 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
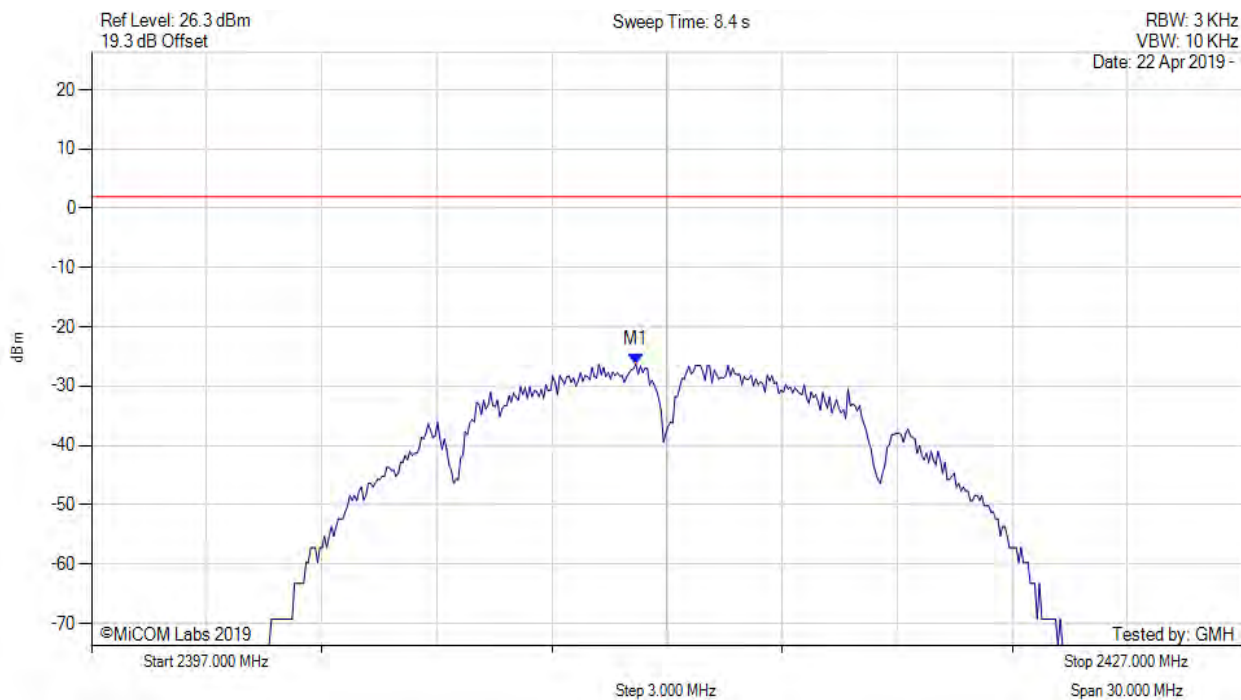

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.872 MHz : -24.605 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

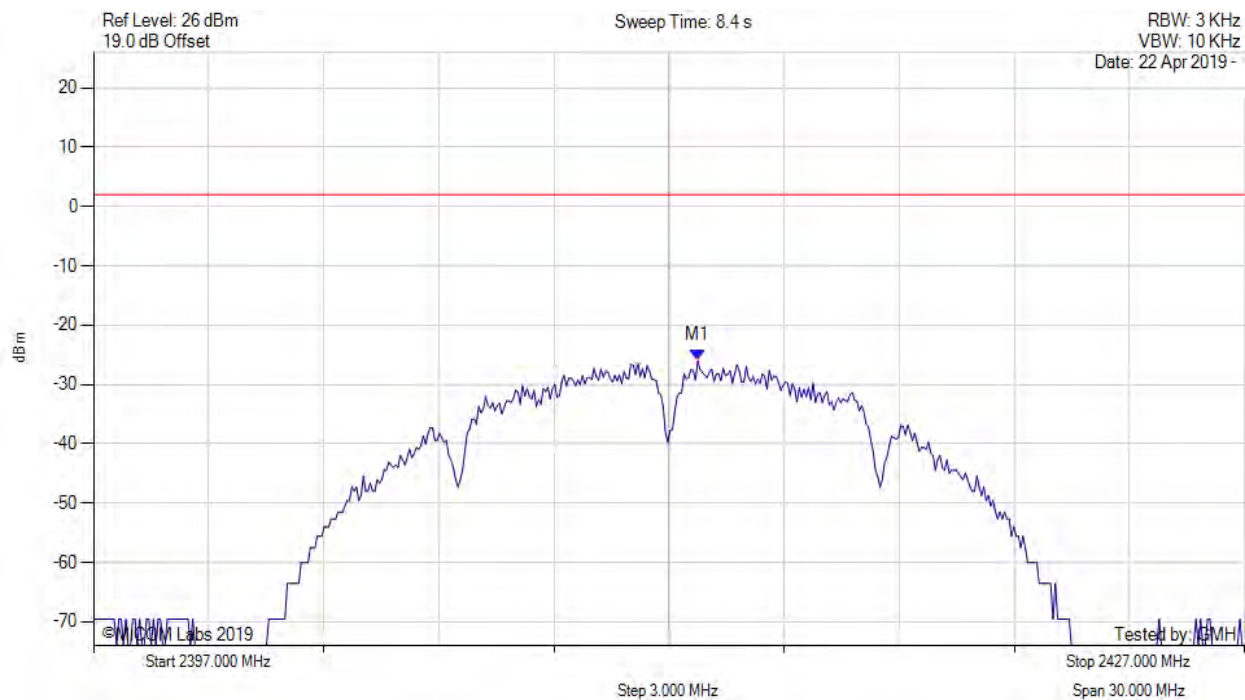Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.188 MHz : -26.220 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

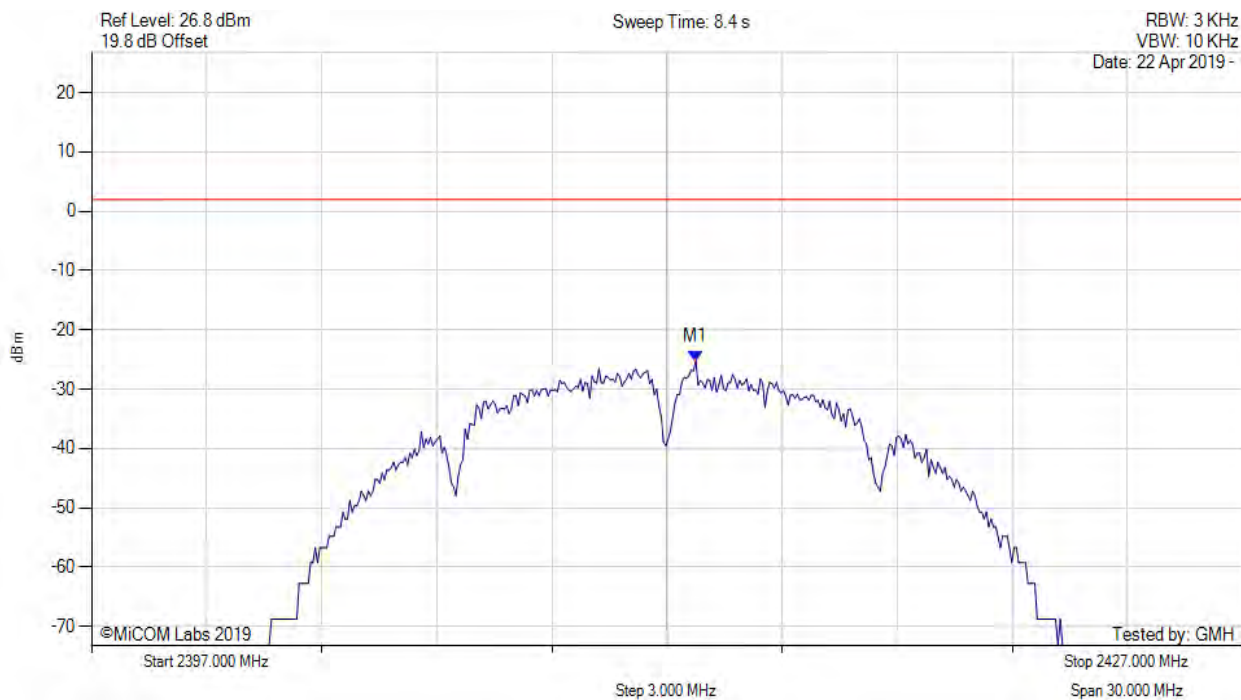Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.752 MHz : -25.986 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.752 MHz : -25.244 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

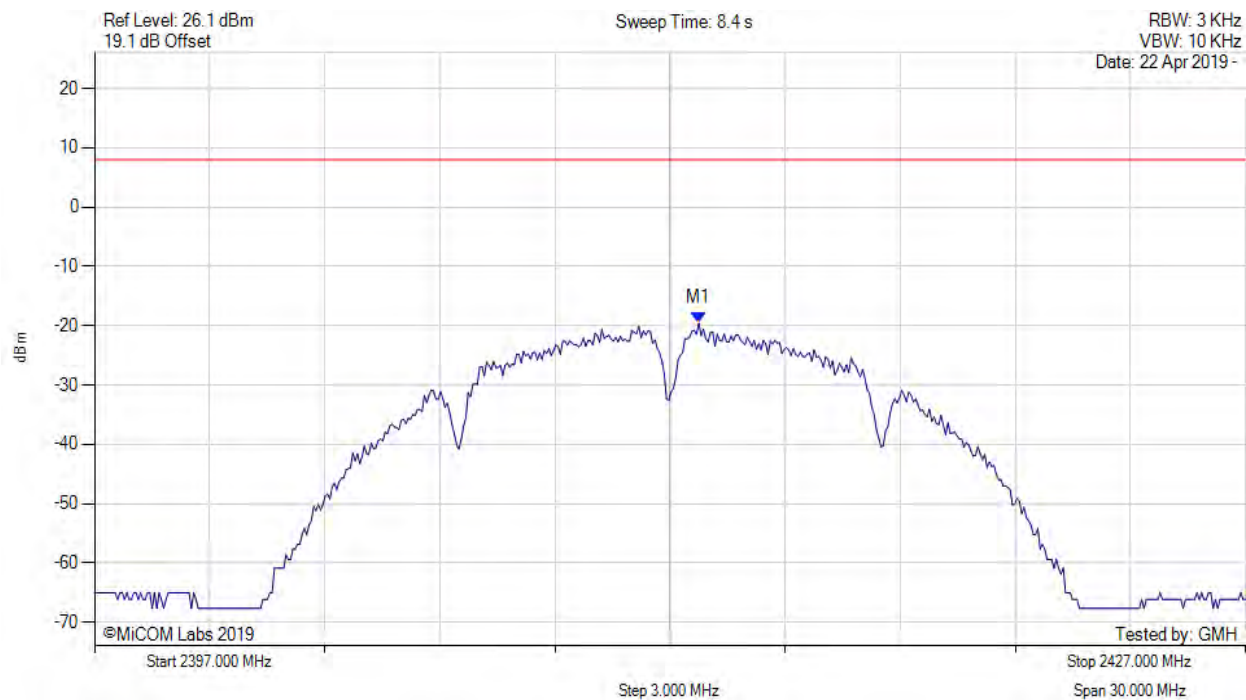Variant: 802.11b, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.1 dBm
19.1 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2397.000 MHz
Step 3.000 MHz
Stop 2427.000 MHz
Span 30.000 MHz

©MiCOM Labs 2019
Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.800 MHz : -19.590 dBm M1 + DCCF : 2412.800 MHz : -14.062 dBm Duty Cycle Correction Factor : +5.53 dB	Limit: ≤ 8.0 dBm Margin: -22.1 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
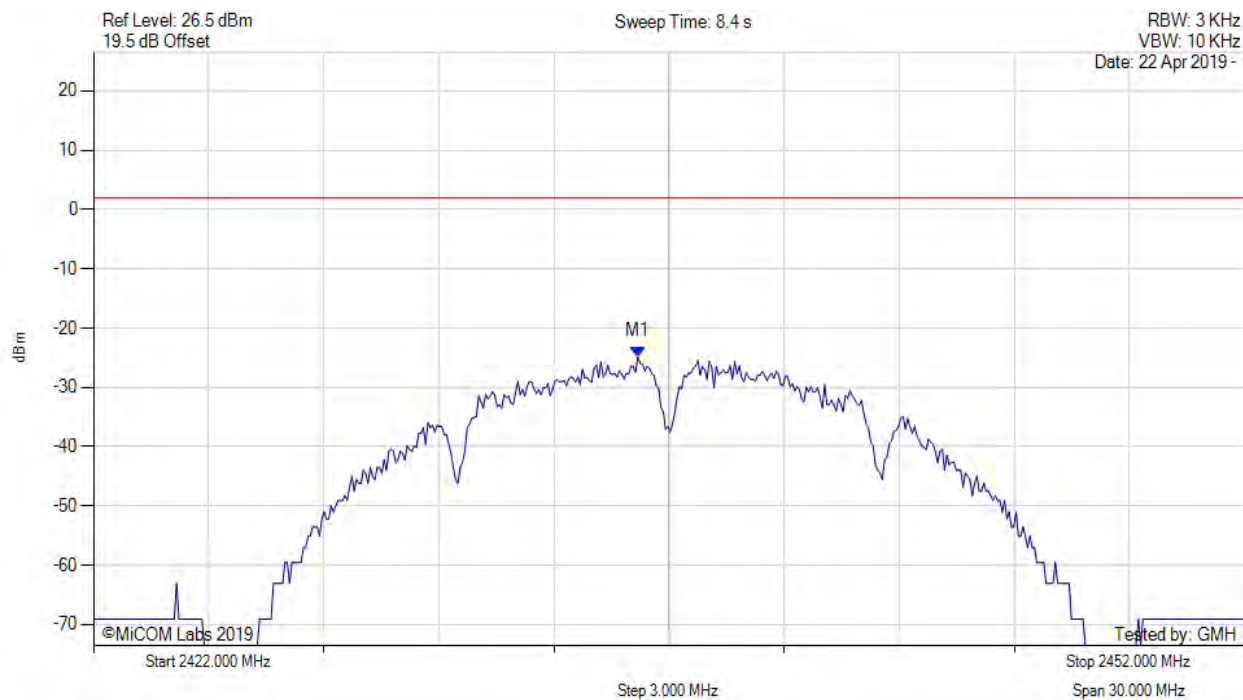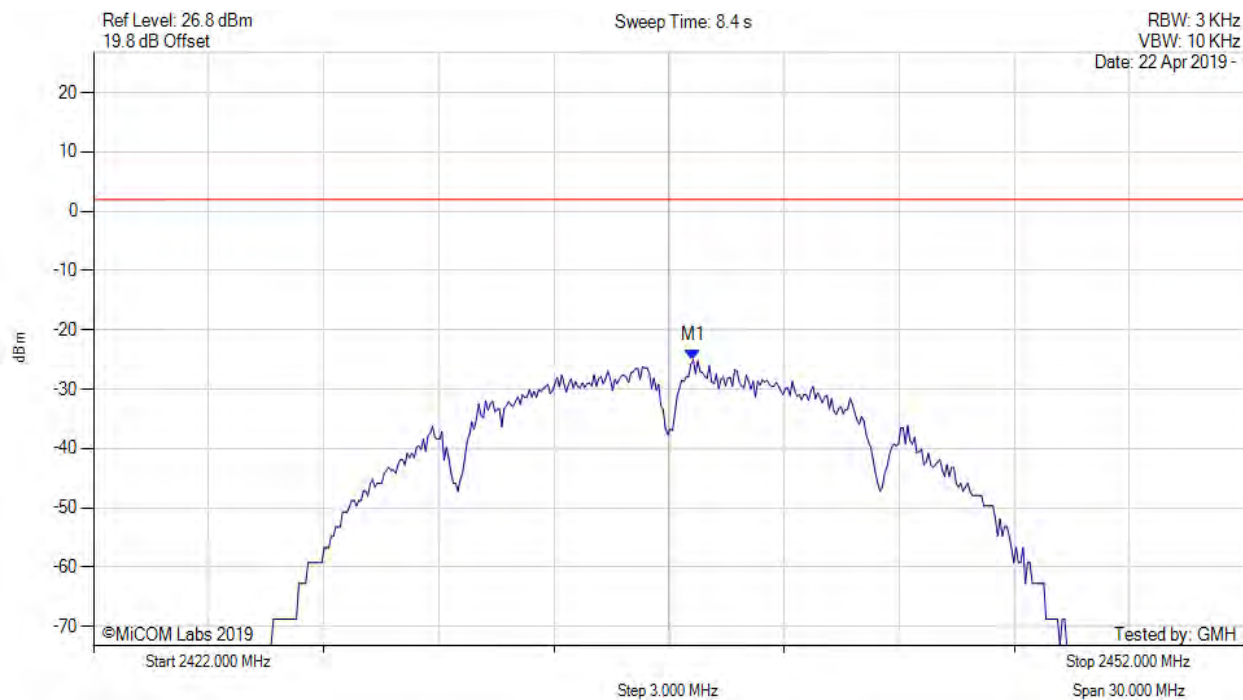

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2436.188 MHz : -24.822 dBm	Limit: ≤ 1.980 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz

Step 3.000 MHz

Stop 2452.000 MHz

Span 30.000 MHz

Tested by: GMH

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.631 MHz : -25.072 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

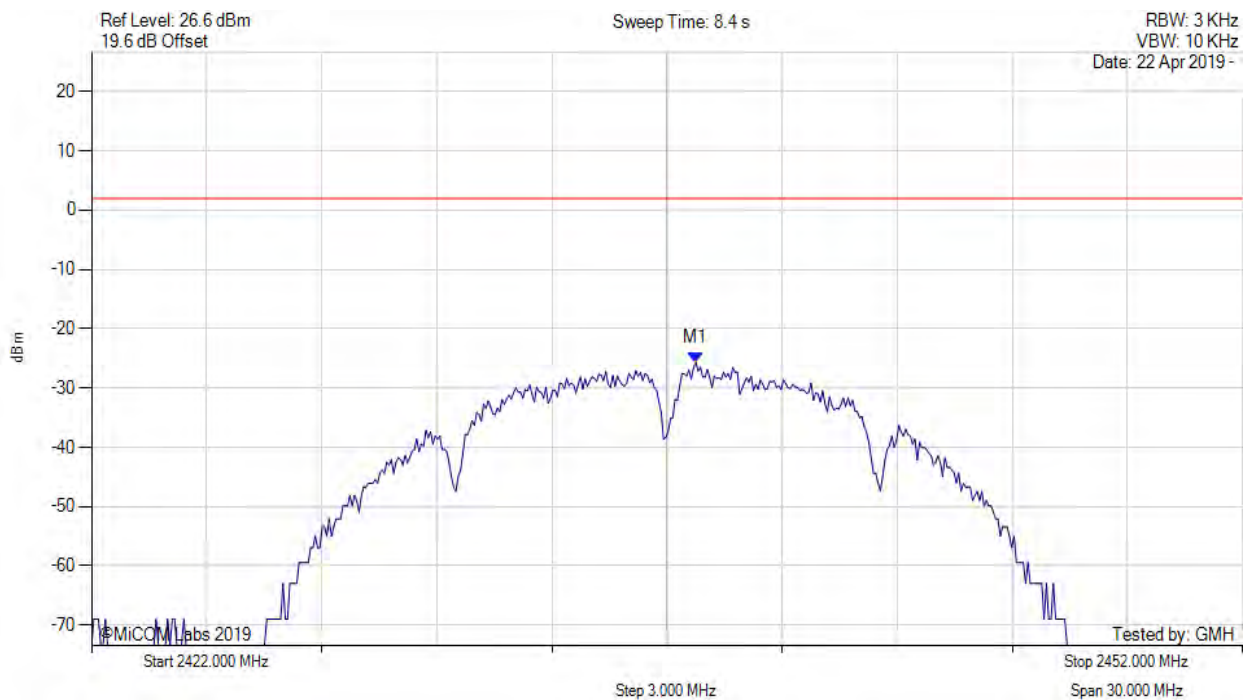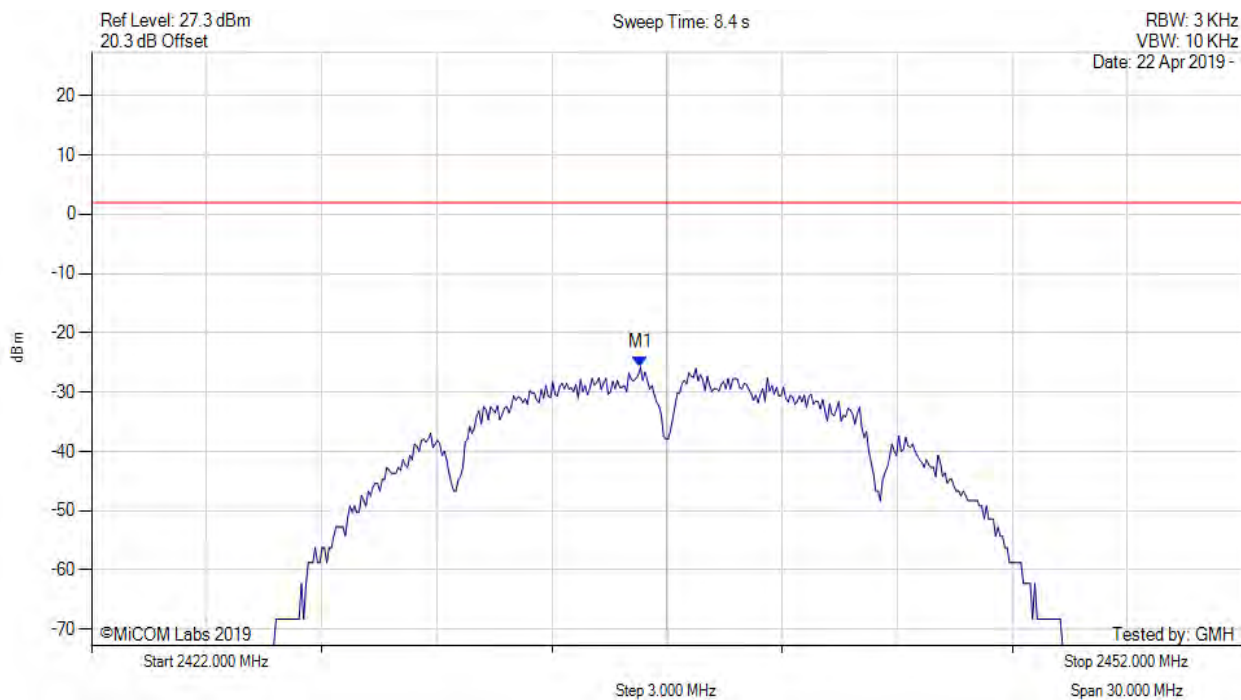Variant: 802.11b, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.6 dBm
19.6 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz

Stop 2452.000 MHz

Step 3.000 MHz

Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.752 MHz : -25.678 dBm	Limit: ≤ 1.980 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 27.3 dBm
20.3 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2422.000 MHz
Stop 2452.000 MHz
Step 3.000 MHz
Span 30.000 MHz

Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2436.309 MHz : -25.788 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

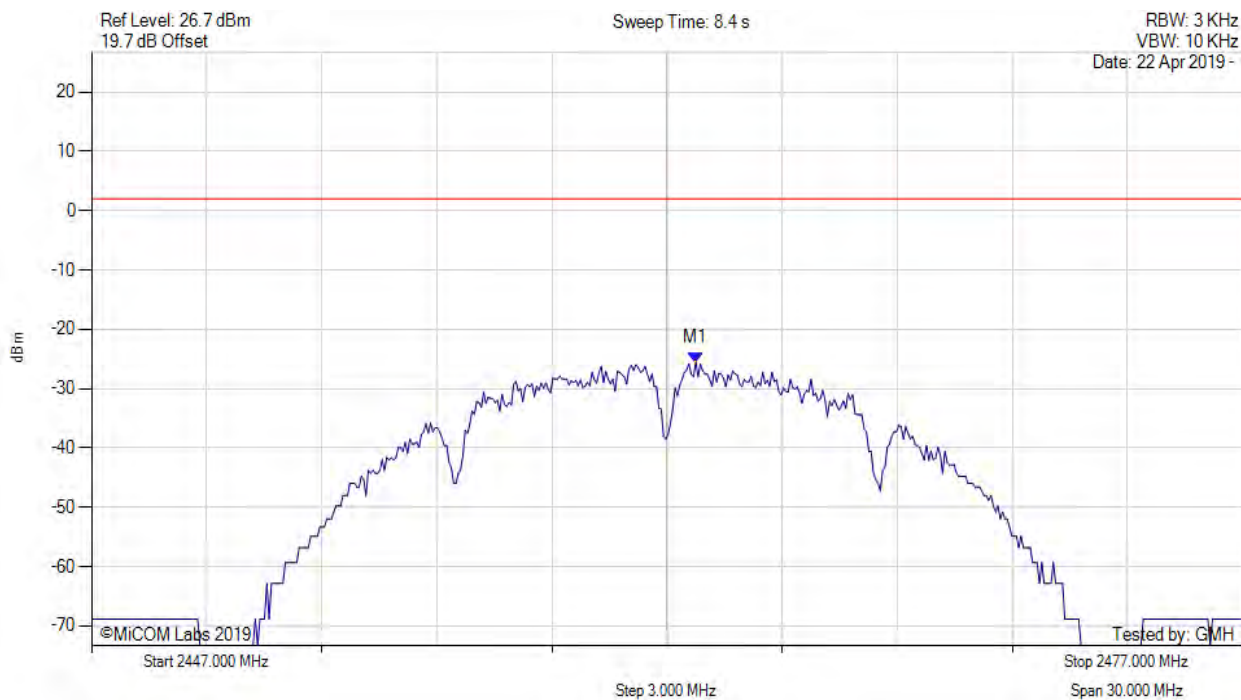Variant: 802.11b, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
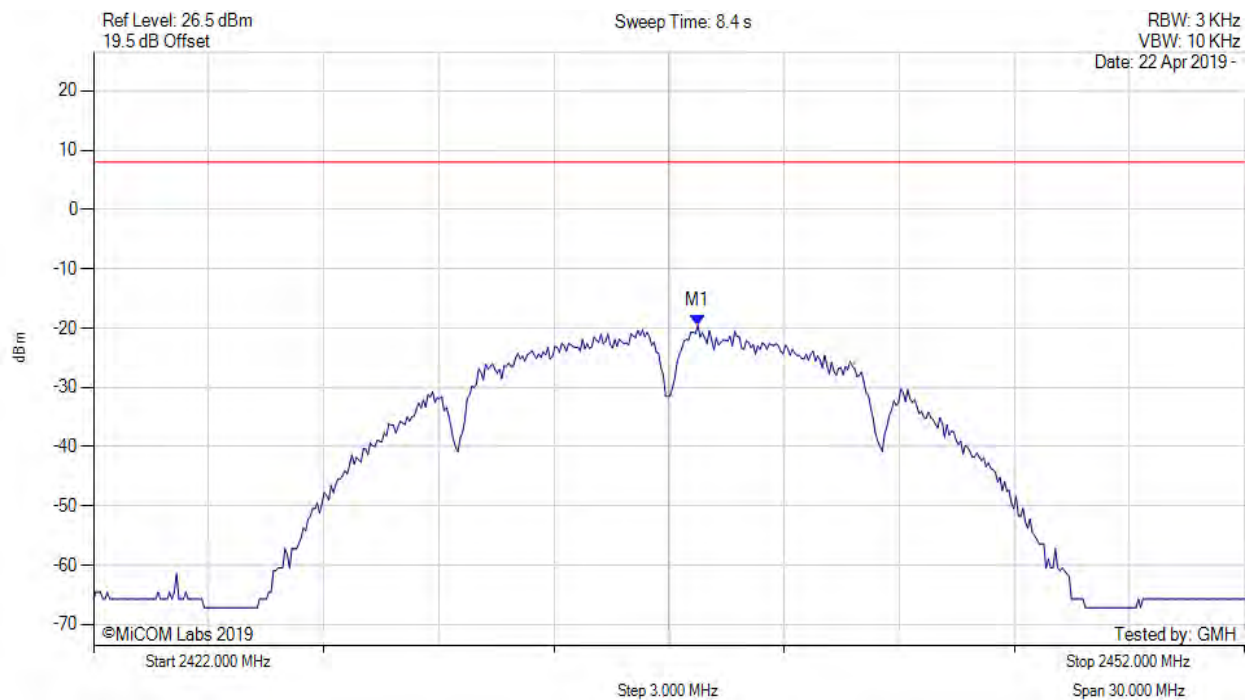
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.800 MHz : -19.539 dBm M1 + DCCF : 2437.800 MHz : -16.431 dBm Duty Cycle Correction Factor : +5.53 dB	Limit: ≤ 8.0 dBm Margin: -24.5 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

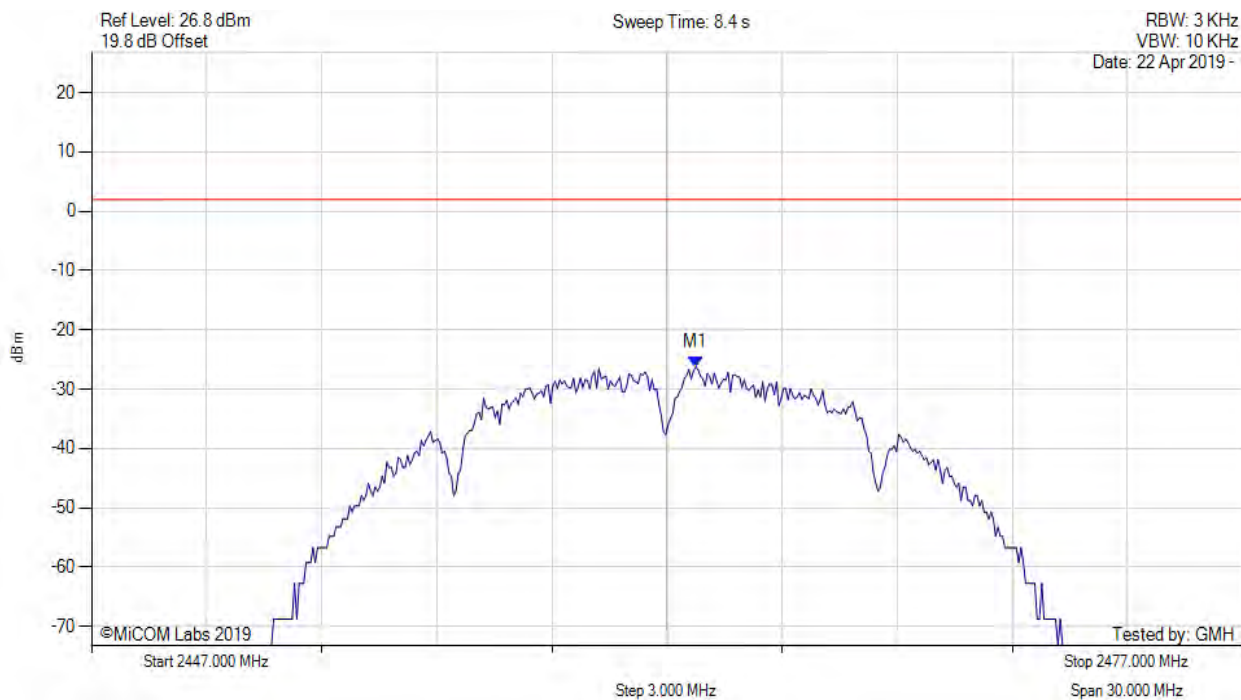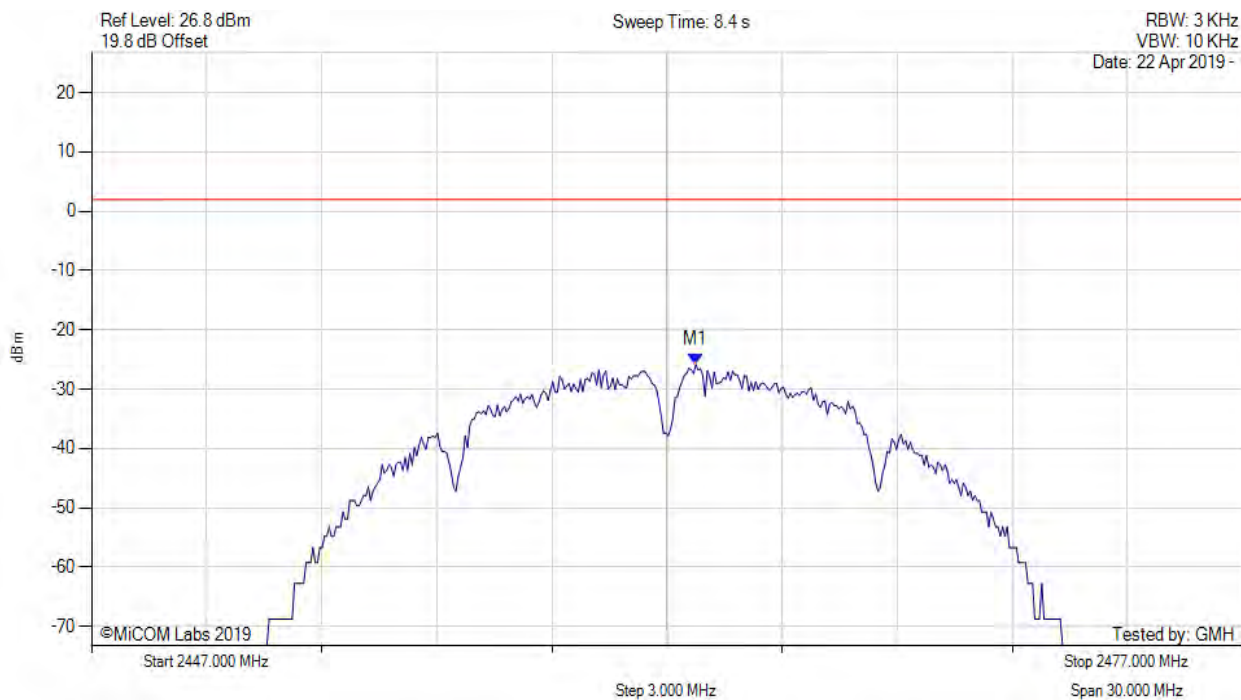Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -25.578 dBm	Limit: ≤ 1.980 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Start 2447.000 MHz
Step 3.000 MHz
Stop 2477.000 MHz
Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -26.223 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

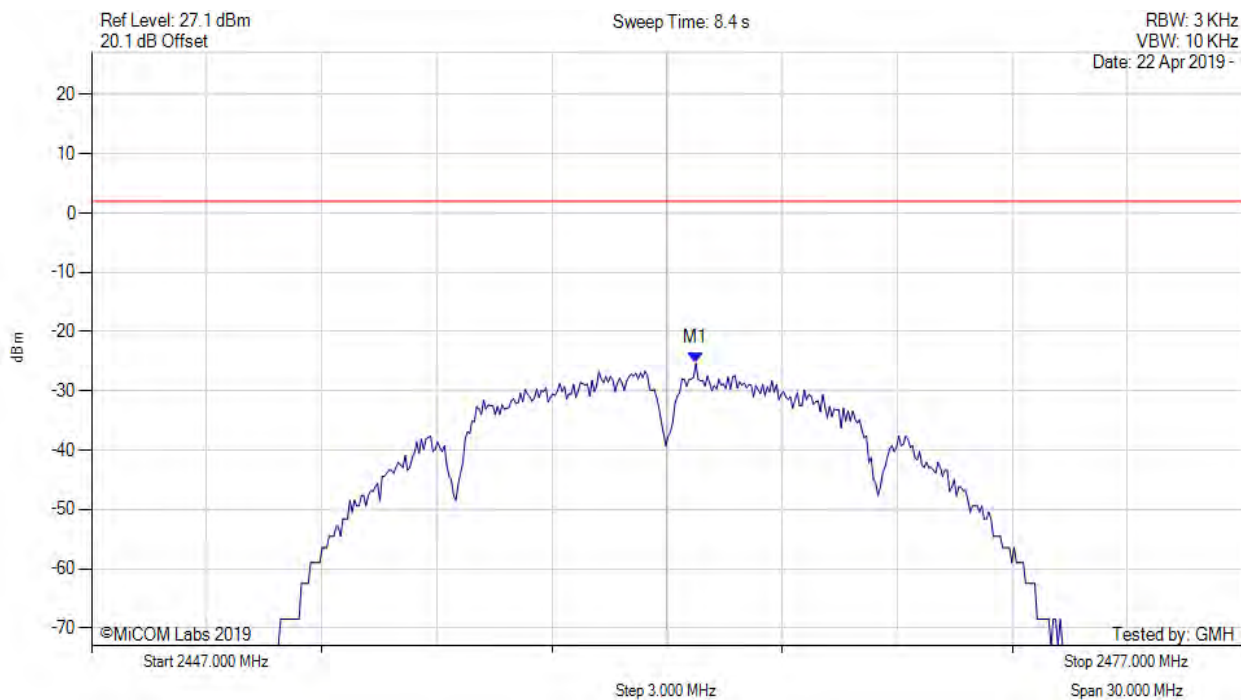Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 22 Apr 2019 -

Tested by: GMH

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Start 2447.000 MHz

Step 3.000 MHz

Stop 2477.000 MHz
Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -25.843 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

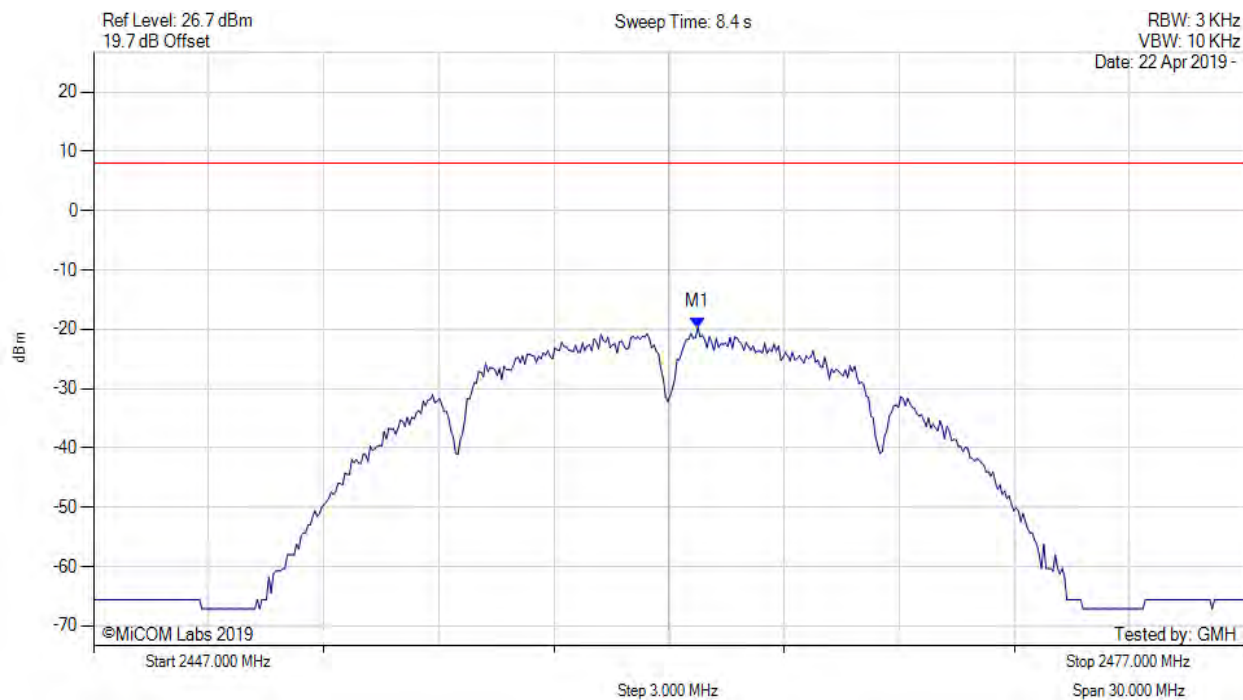Variant: 802.11b, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -25.359 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

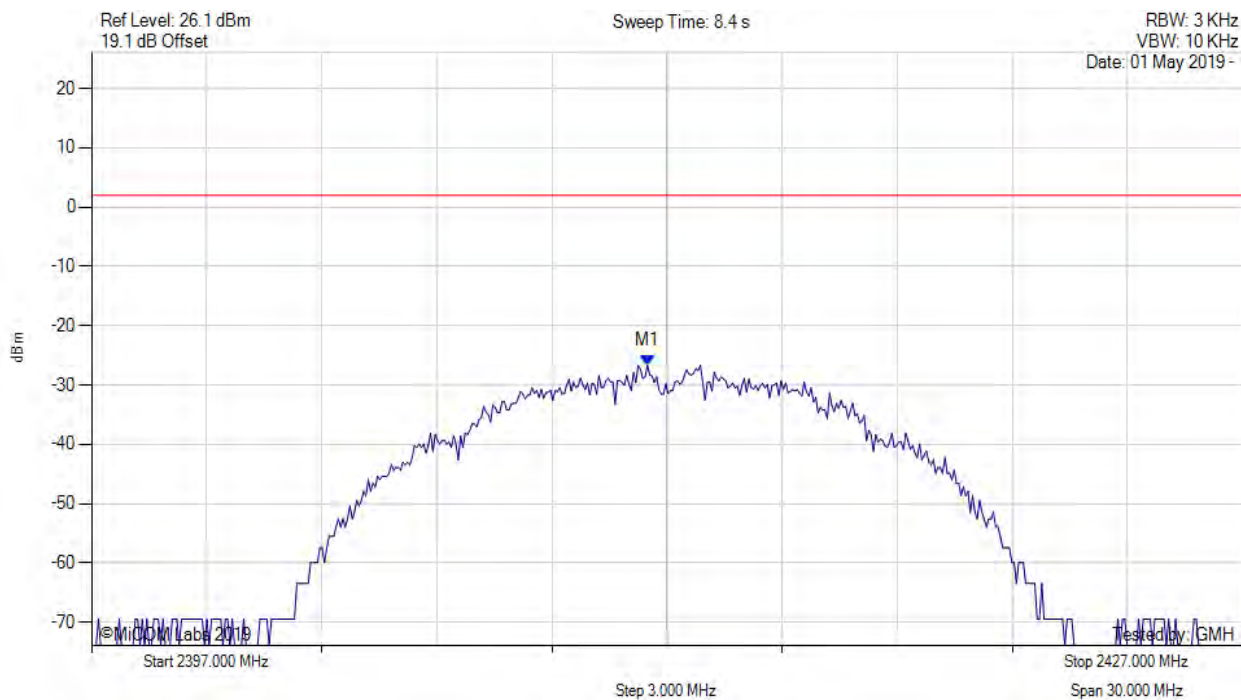Variant: 802.11b, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.800 MHz : -19.718 dBm M1 + DCCF : 2462.800 MHz : -16.610 dBm Duty Cycle Correction Factor : +5.53 dB	Limit: ≤ 8.0 dBm Margin: -24.6 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.1 dBm
19.1 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

M1

Start 2397.000 MHz
Step 3.000 MHz
Stop 2427.000 MHz
Span 30.000 MHz

Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.489 MHz : -26.668 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

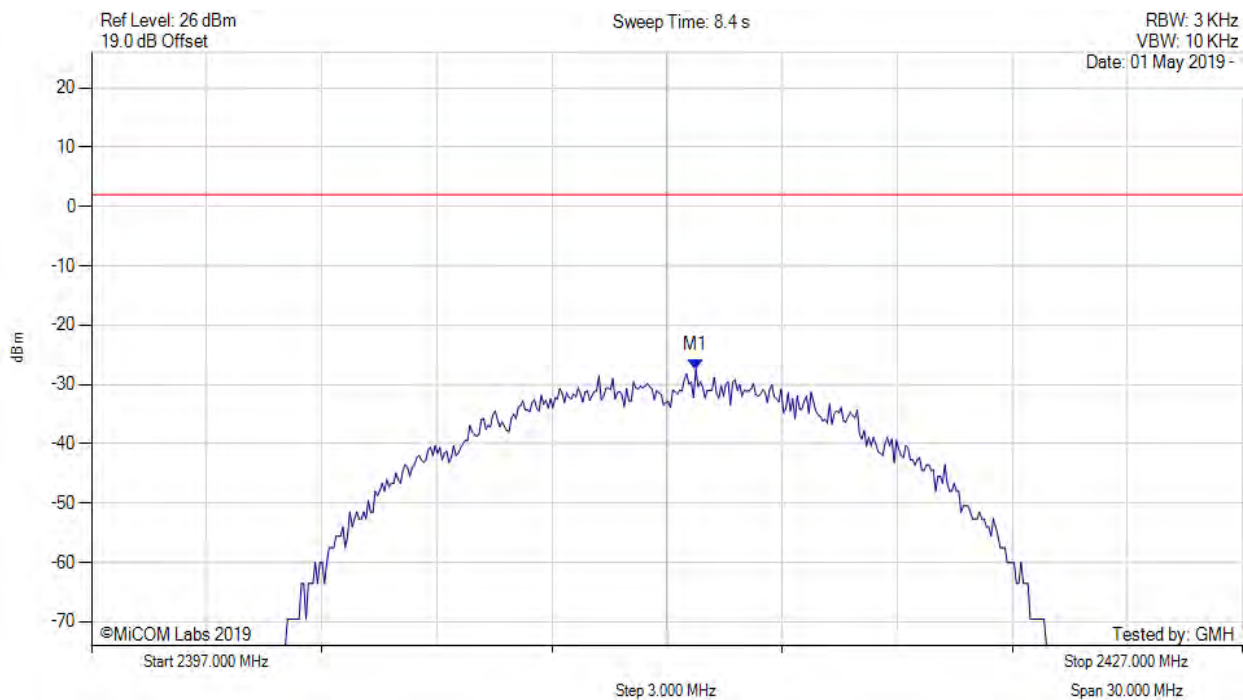Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
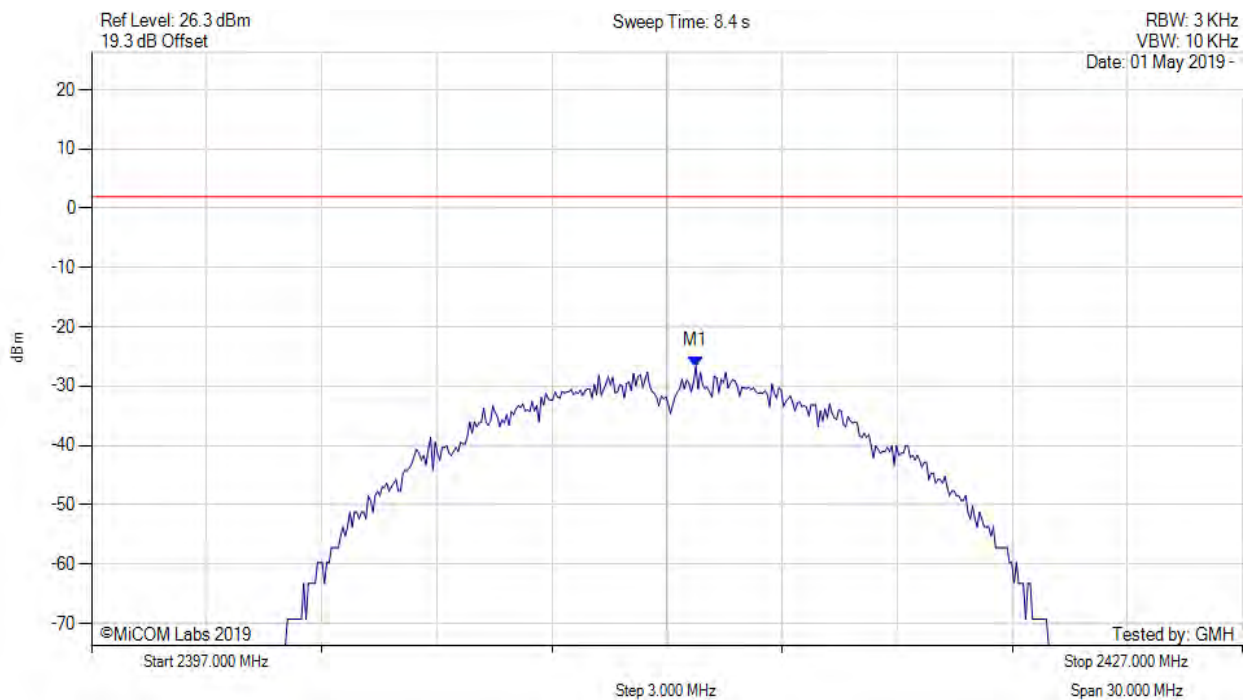
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.752 MHz : -26.659 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2412.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26 dBm
19.0 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

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Tested by: GMH

Start 2397.000 MHz

Stop 2427.000 MHz

Step 3.000 MHz

Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.752 MHz : -27.489 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

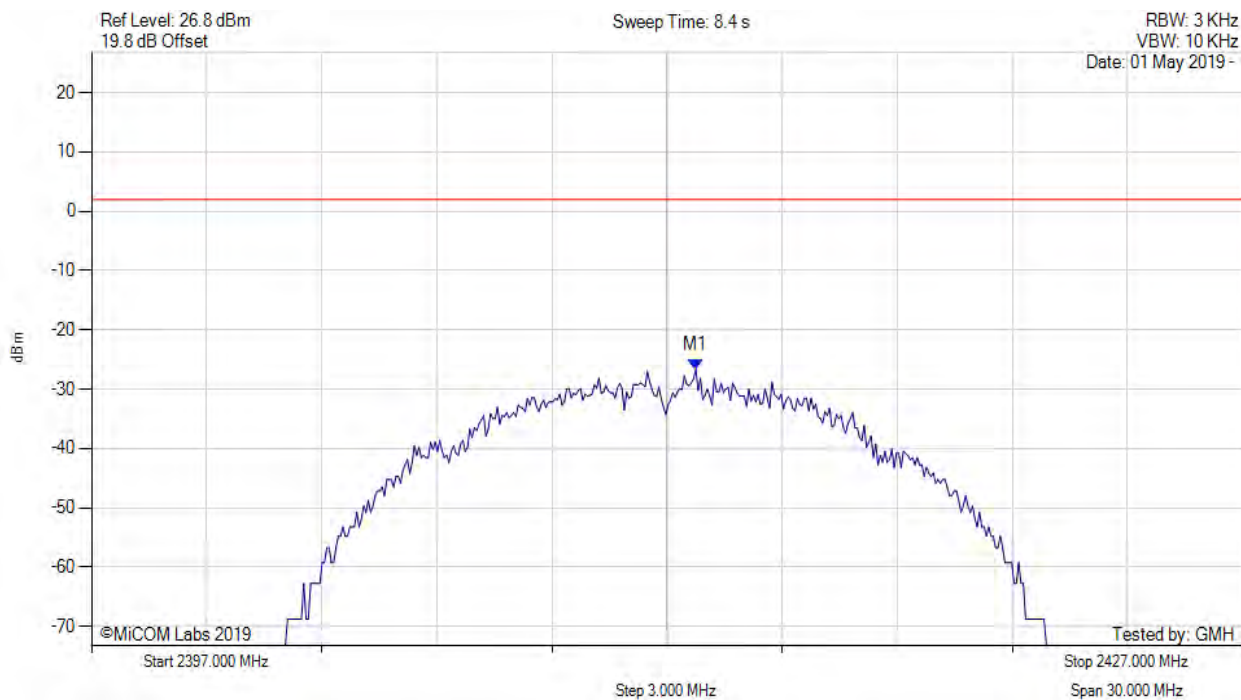Variant: 802.11b, Channel: 2412.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

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Tested by: GMH

Start 2397.000 MHz

Stop 2427.000 MHz

Step 3.000 MHz

Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.752 MHz : -26.689 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

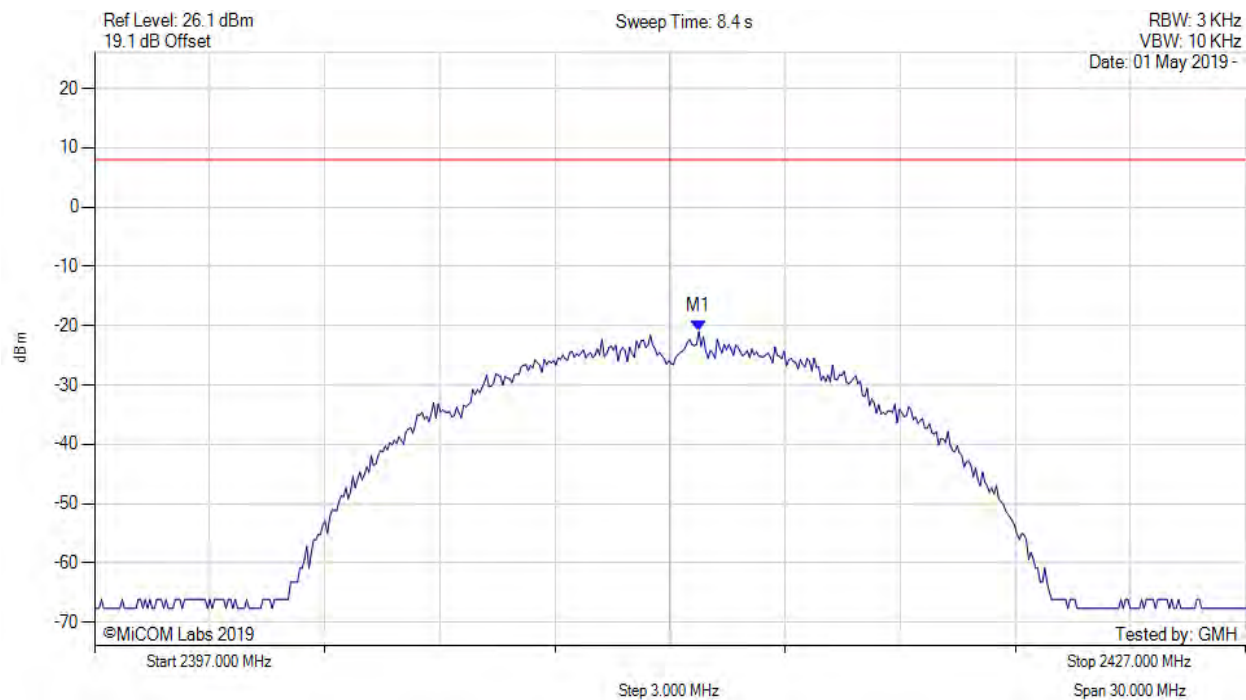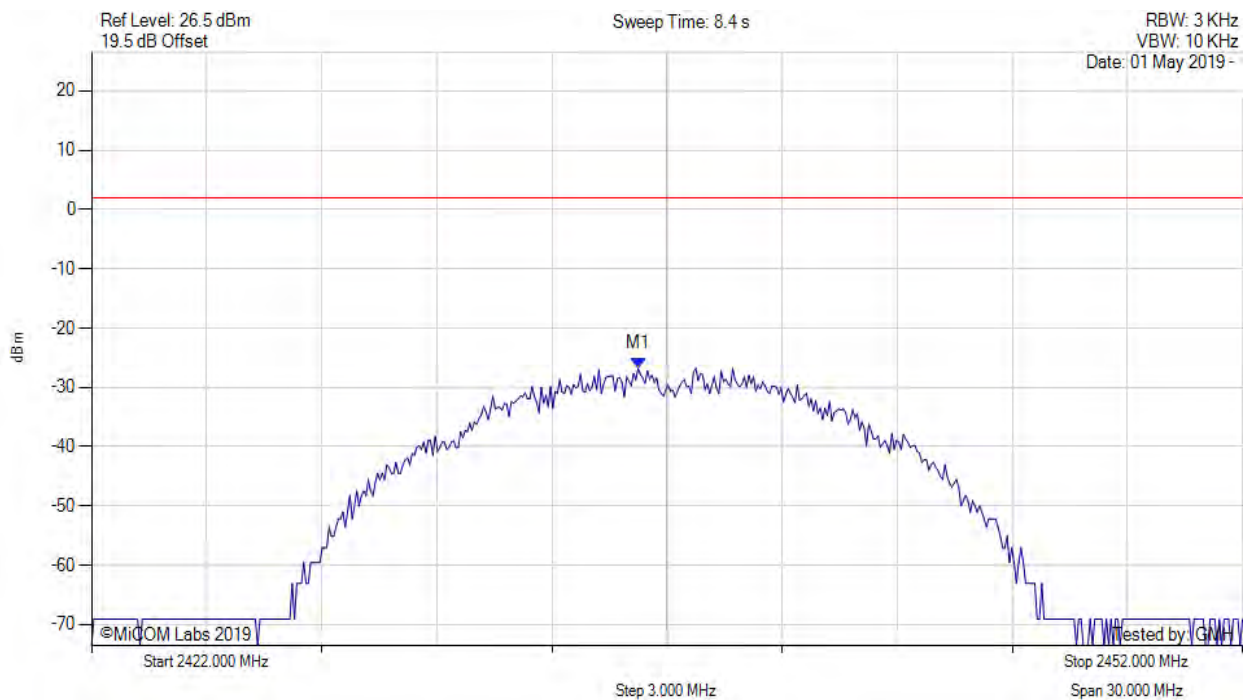Variant: 802.11b, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.800 MHz : -20.987 dBm M1 + DCCF : 2412.800 MHz : -13.820 dBm Duty Cycle Correction Factor : +7.17 dB	Limit: ≤ 8.0 dBm Margin: -21.8 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
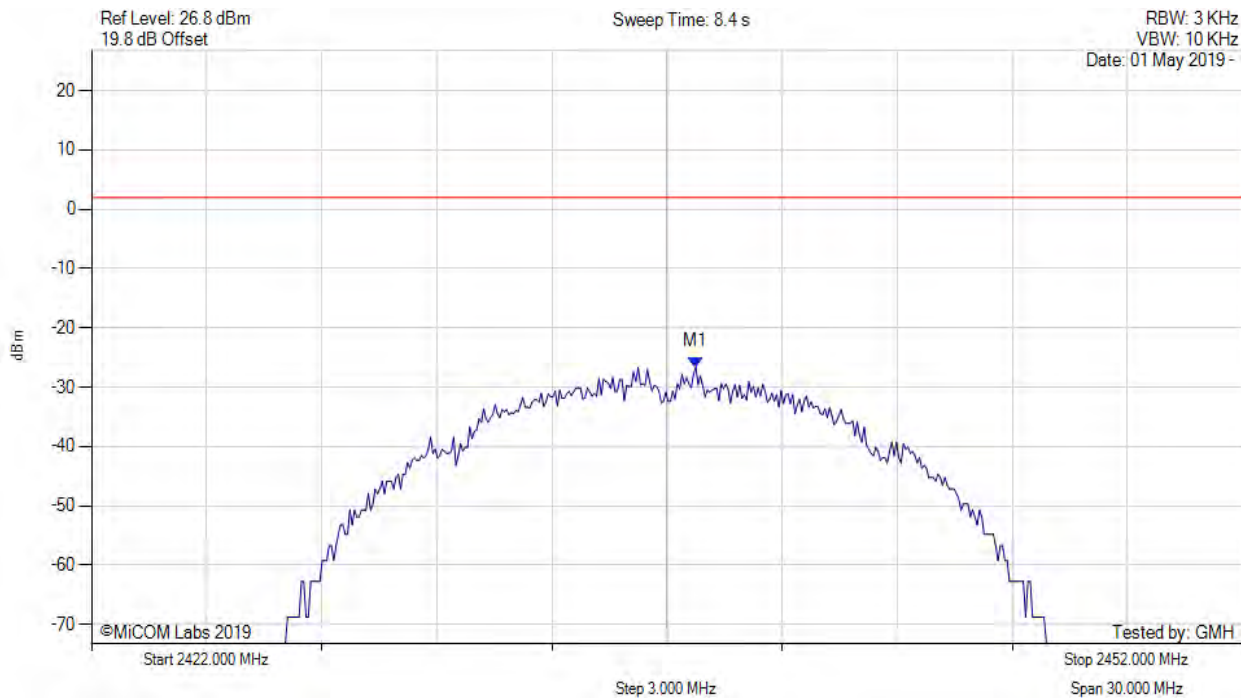

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2436.248 MHz : -26.786 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.752 MHz : -26.621 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

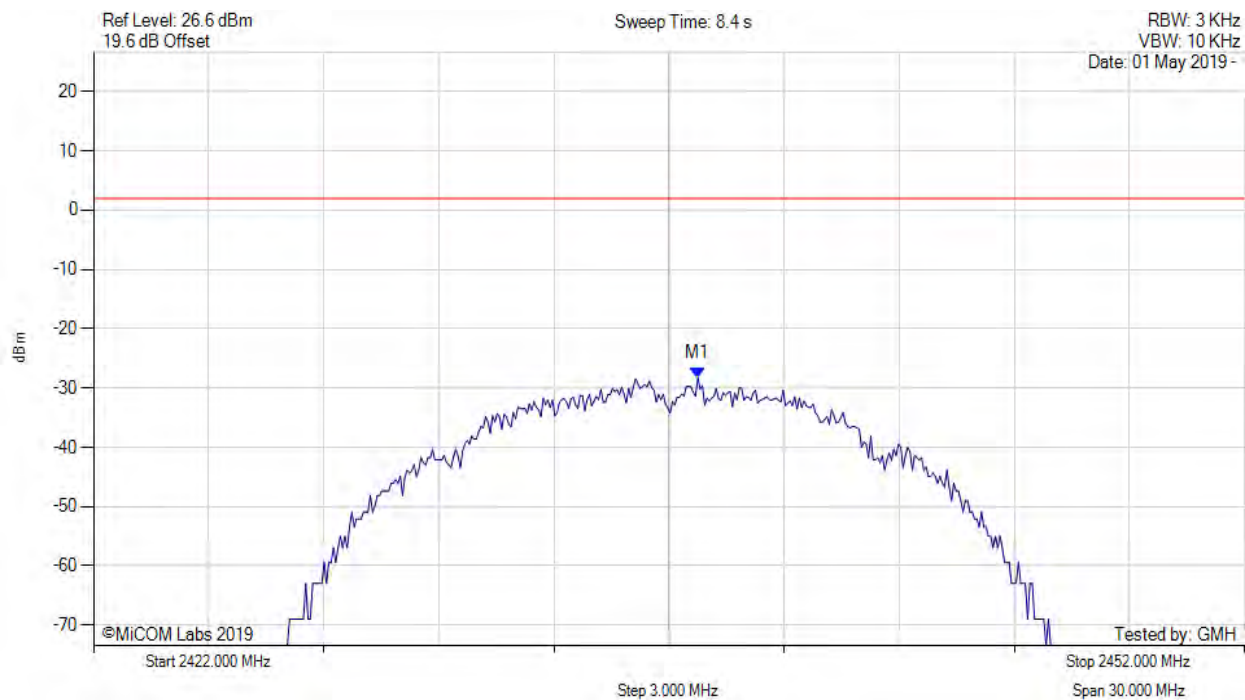Variant: 802.11b, Channel: 2437.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.752 MHz : -28.297 dBm	Limit: ≤ 1.980 dBm

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Ref Level: 27.3 dBm
20.3 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

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Tested by: GMH

Start 2422.000 MHz

Stop 2452.000 MHz

Step 3.000 MHz

Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.752 MHz : -26.902 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

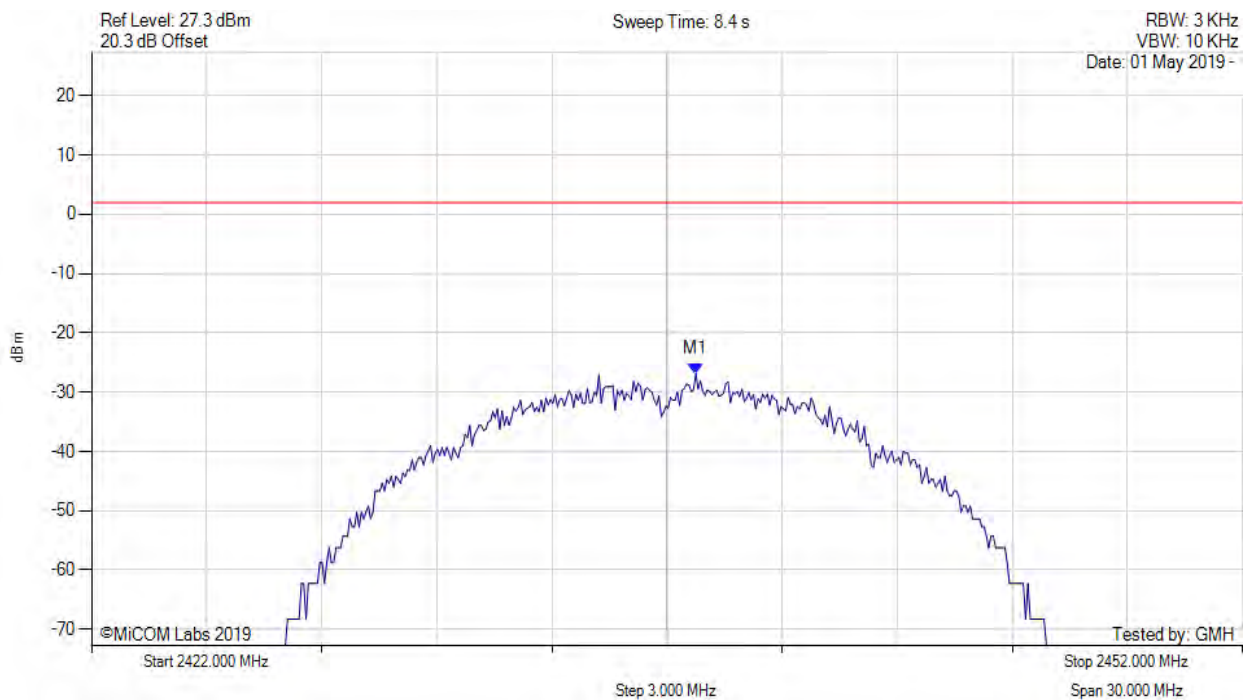Variant: 802.11b, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.800 MHz : -21.082 dBm M1 + DCCF : 2437.800 MHz : -13.915 dBm Duty Cycle Correction Factor : +7.17 dB	Limit: ≤ 8.0 dBm Margin: -21.9 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

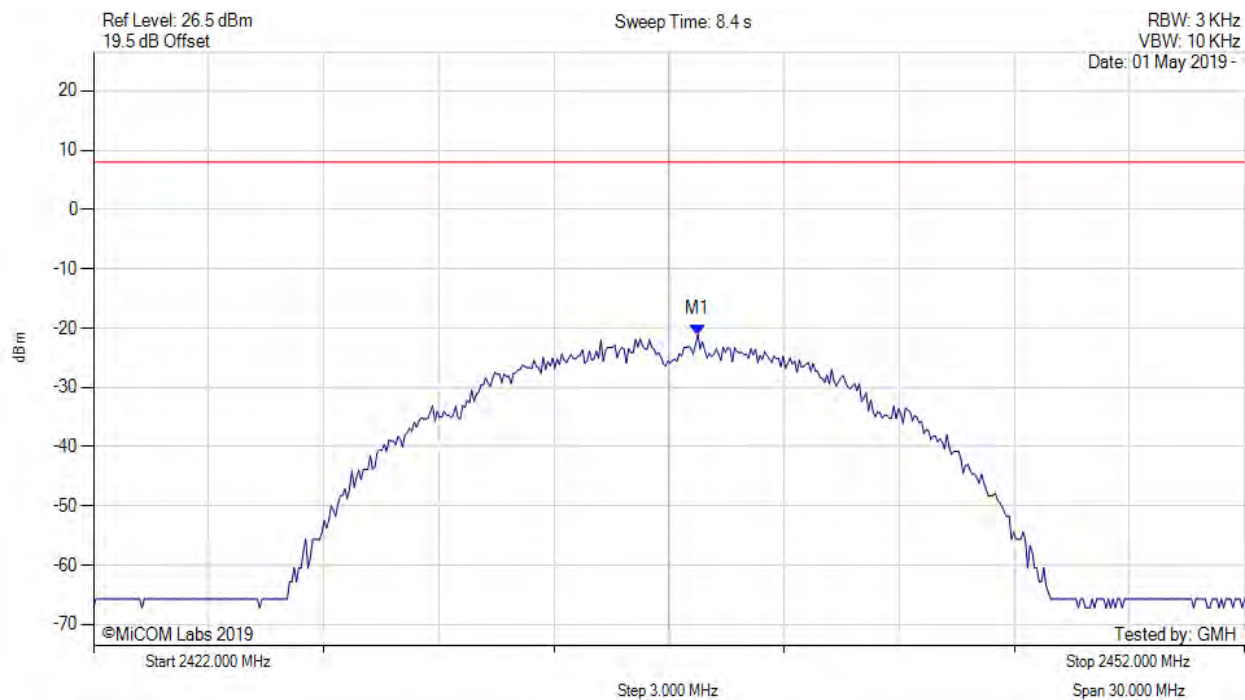Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.7 dBm
19.7 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

Start 2447.000 MHz
Stop 2477.000 MHz
Step 3.000 MHz
Span 30.000 MHz

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Tested by: GMH

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -26.927 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

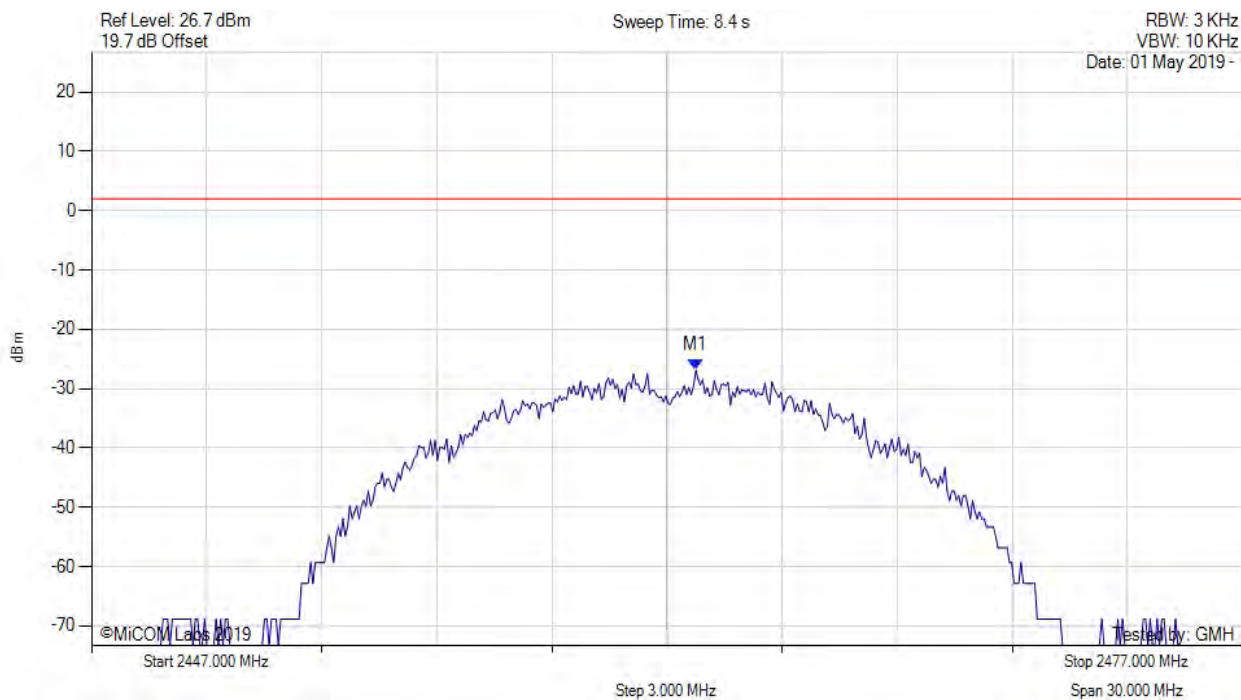Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

Tested by: GMH

Start 2447.000 MHz   Stop 2477.000 MHz
Step 3.000 MHz   Span 30.000 MHz

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -27.328 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain c, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.8 dBm
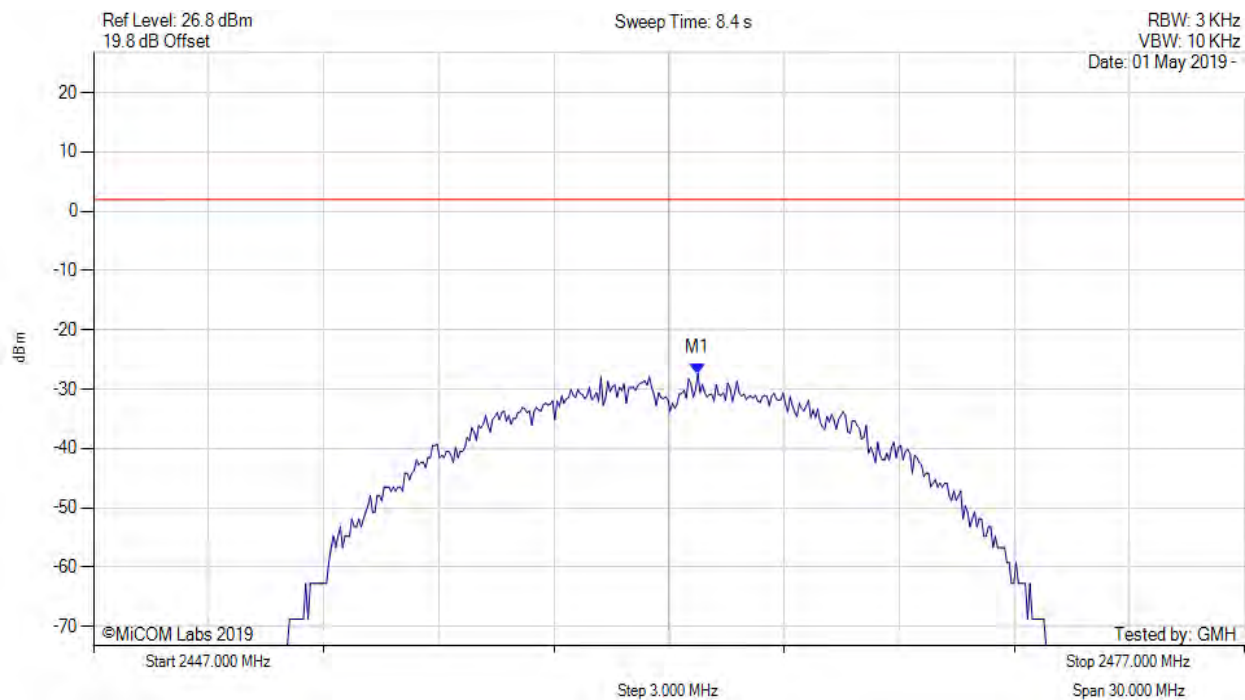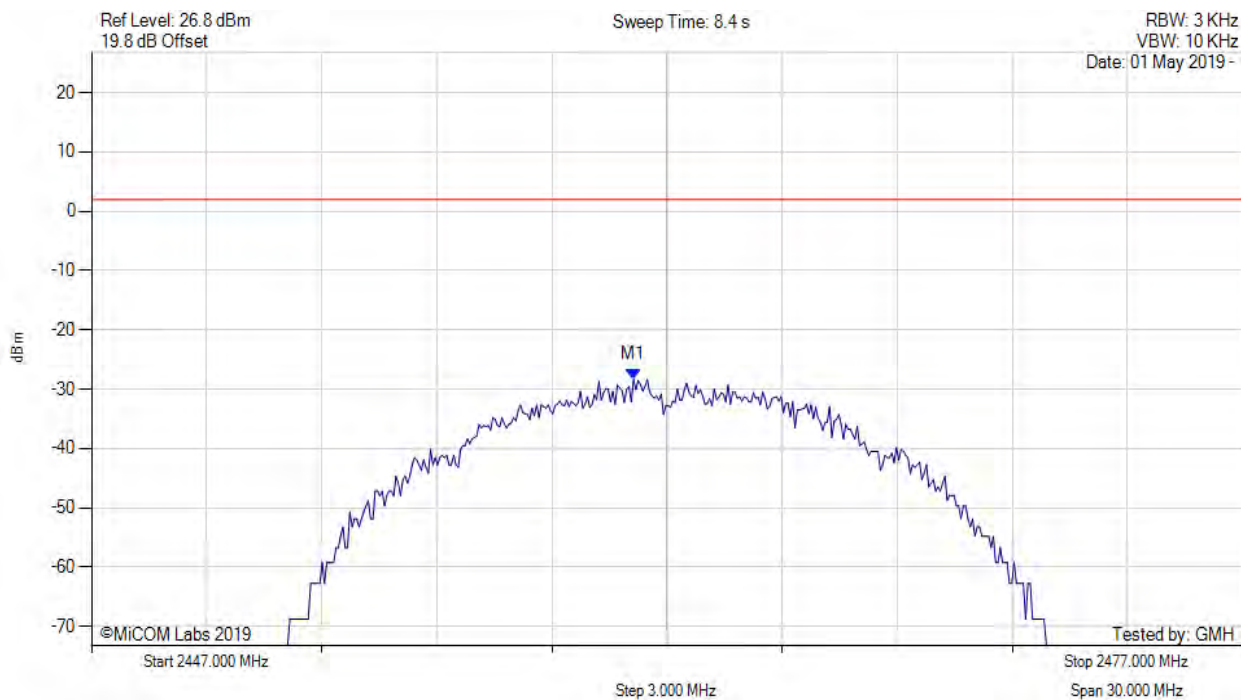19.8 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

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Tested by: GMH

Start 2447.000 MHz
Stop 2477.000 MHz

Step 3.000 MHz
Span 30.000 MHz

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.128 MHz : -28.342 dBm	Limit: ≤ 1.980 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain d, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.752 MHz : -26.597 dBm	Limit: ≤ 1.980 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

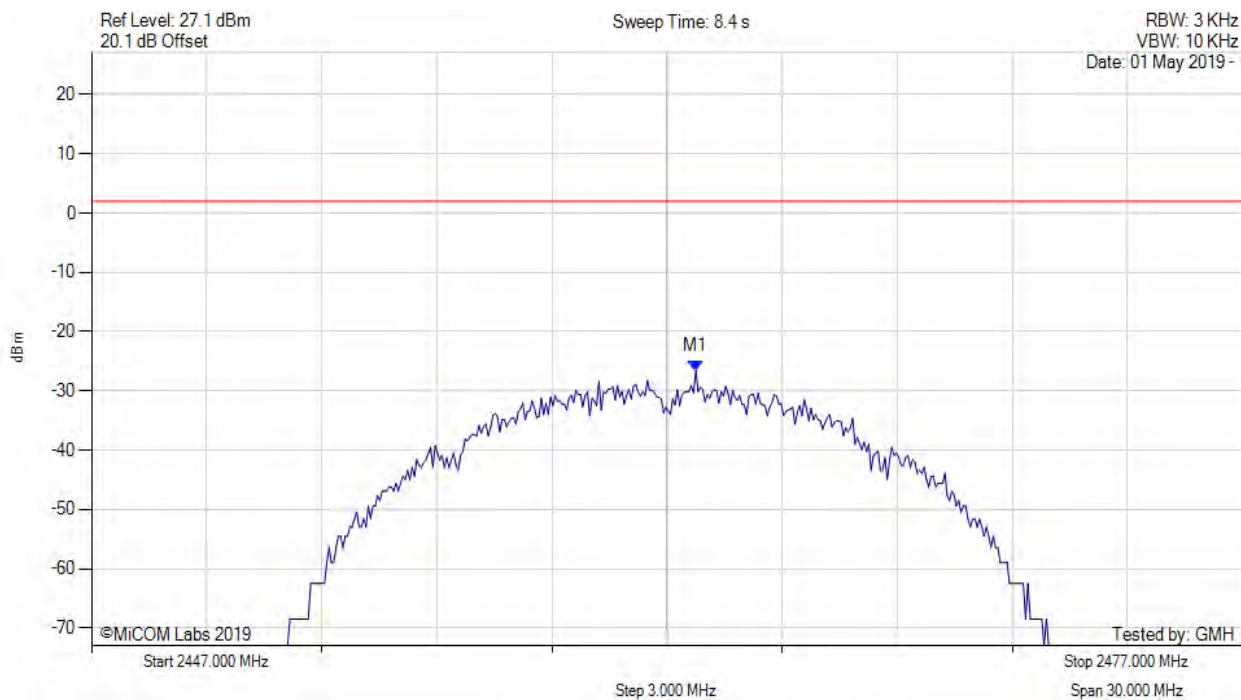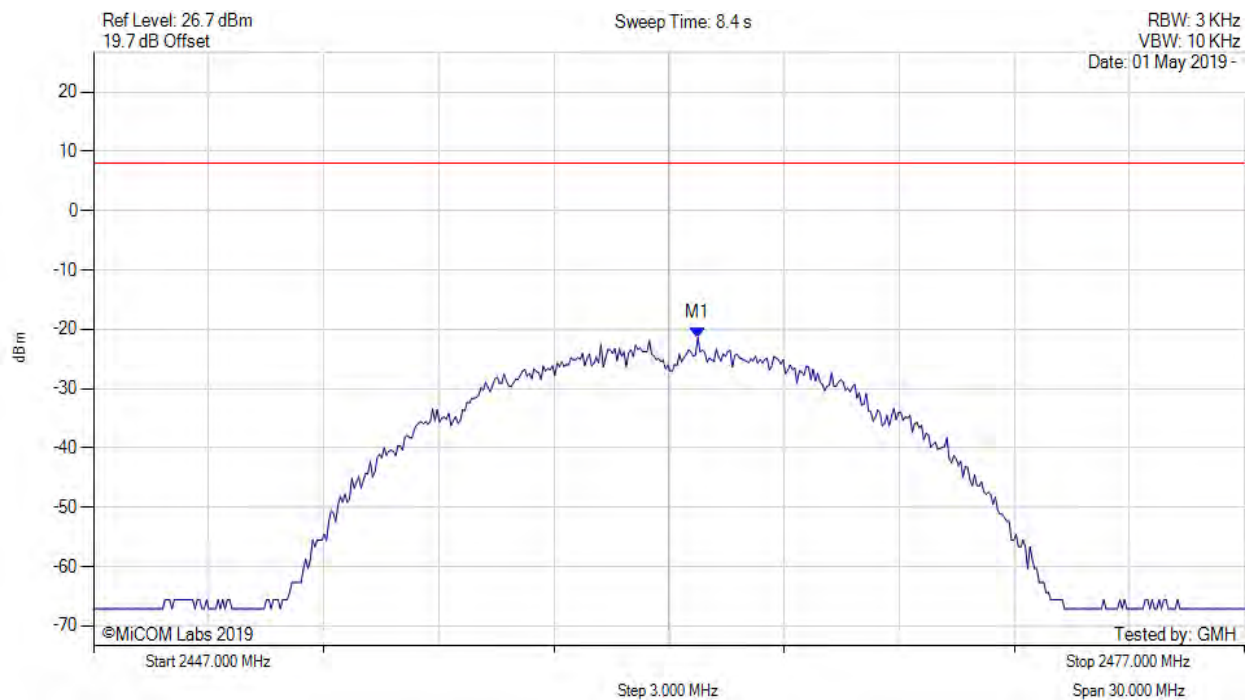Variant: 802.11b, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Ref Level: 26.7 dBm
19.7 dB Offset

Sweep Time: 8.4 s

RBW: 3 KHz
VBW: 10 KHz
Date: 01 May 2019 -

Start 2447.000 MHz

Stop 2477.000 MHz

Step 3.000 MHz

Span 30.000 MHz

Tested by: GMH

©MiCOM Labs 2019

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVERAGE Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.800 MHz : -21.416 dBm M1 + DCCF : 2462.800 MHz : -14.249 dBm Duty Cycle Correction Factor : +7.17 dB	Limit: ≤ 8.0 dBm Margin: -22.3 dB

back to matrix

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