REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 Part 15 Subpart C 15.247 (DTS)
ISED RSS-247 Issue 2

Report No.: HPEN155-U7 Rev A (2.4 GHz Wi-Fi)

Company: Hewlett Packard Enterprise Company

Model Name: ASIN0304, ASIN0303

REGULATORY COMPLIANCE TEST REPORT

Company Name: Hewlett Packard Enterprise Company

Model Name: ASIN0304, ASIN0303

To: FCC CFR 47 Part 15 Subpart C 15.247 (DTS), ISED RSS-247 Issue 2

Test Report Serial No.: HPEN155-U7 Rev A (2.4 GHz Wi-Fi)

This report supersedes: NONE

Applicant:	Hewlett Packard Enterprise Company
	3333 Scott Blvd
	Santa Clara, California 95054
	USA

Issue Date: 24th July 2021

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
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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 17025:2017. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 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 24th day of February 2020.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2021

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

1.2. RECOGNITION

MiCOM Labs, Inc is widely recognized for its wireless testing and certification capabilities. In addition to being recognized for Testing and Certification under Phase 2 Mutual Recognition Agreements (MRA) with Canada, Europe, United Kingdom and Japan, our international recognition includes Conformity Assessment Body (CAB) designation status under agreements with Asia Pacific (APEC) MRA Phase 1 countries giving acceptance of MiCOM Labs test reports. MiCOM Labs test reports are accepted globally.

Country	Recognition Body	Status	MRA Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Test Firm Designation#: US1084
Canada	Industry Canada (ISED)	FCB	APEC MRA 2	US0159 ISED#: 4143A
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	Japan MRA 2	RCB 210
	Japan Approvals Institute for Telecommunication Equipment (JATE)			
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA 2	NB 2280
United Kingdom	Department for Business, Energy & Industrial Strategy (BEIS)	AB	UK MRA 2	AB 2280
Mexico	Instituto Federal de Telecomunicaciones (IFT)	CAB	Mexico MRA 1	US0159
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)			
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)			
Singapore	Infocomm Development Authority (IDA)			
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)			
Vietnam	Ministry of Communication (MIC)			

TCB – Telecommunications Certification Bodies (TCB)
FCB – Foreign Certification Body
CAB – Conformity Assessment Body
NB – Notified Body
AB – Approved Body

MRA – Mutual Recognition Agreement
MRA 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 24th day of February 2020

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2021

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
    UK – Approved Body (AB), AB Identifier - 2280
    Japan – Recognized Certification Body (RCB), RCB Identifier - 210

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2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	31st May 2021	Draft for Comment
Draft #2	16th May 2021	Additional Comments
Rev A	24th July 2021	Initial Release

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

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

Manufacturer: Hewlett Packard Enterprise Company 3333 Scott Blvd Santa Clara California 95054 USA	**Tested By:** MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model: ASIN0304	**Telephone:** +1 925 462 0304
Equipment Type: Mobile & Portable Client Device	**Fax:** +1 925 462 0306
S/N's: Conducted: CNLSKYV00J Radiated: CNLSKYV00D	
Test Date(s): 14th – 19th May 2021	**Website:** www.micomlabs.com

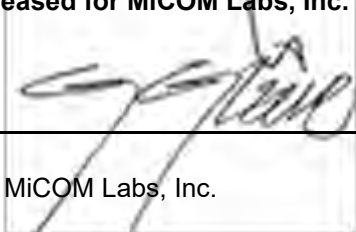| STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart C 15.247 (DTS) & ISED RSS-247 Issue 2 (2.4 GHz Wi-Fi)	**EQUIPMENT COMPLIES**

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.
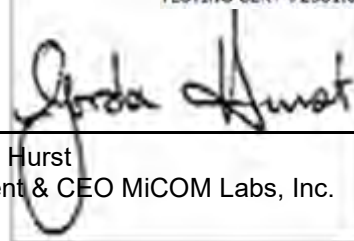
Notes:

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 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.
III	A2LA	5th October 2020	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	2020	Radio Frequency Devices; Subpart C – Intentional Radiators
IX	ICES-003	Issue 7; October 15,2020	Information Technology Equipment (Including Digital Apparatus) – Limits and methods of measurement.
X	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
XI	RSS-247 Issue 2	Feb 2017	Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices
XII	RSS-Gen Issue 5	2018	General Requirements for Compliance of Radio Apparatus. With Amendments 1: March 2019 and 2: Feb 2021.
XIII	FCC 47 CFR Part 2.1033	2020	FCC requirements and rules regarding photographs and test setup diagrams.
XIV	KDB 789033 D02 V02r01	14th December, 2017	Guidelines For Compliance Testing Of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E

4.2. Test and Uncertainty Procedure

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

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

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

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

Technical Details

Details	Description
Purpose:	Test of the Hewlett Packard Enterprise Company ASIN0304 to FCC CFR 47 Part 15 Subpart C 15.247 (DTS). Radio Frequency Devices; Subpart C – Intentional Radiators and ISED RSS247 Issue 2
Applicant:	Hewlett Packard Enterprise Company 3333 Scott Blvd Santa Clara California 95054 USA
Manufacturer:	Hewlett Packard Enterprise Company
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	HPEN155-U7
Date EUT received:	27th April 2021
Standard(s) applied:	FCC CFR 47 Part 15 Subpart C 15.247 (DTS) ISED RSS-247 Issue 2
Dates of test (from - to):	14th – 19th May 2021
No of Units Tested:	3
Product Family Name:	Aruba User Experience Insight
Model(s):	ASIN0304, ASIN0303
Marketing name:	UXI-G6C
Equipment Type:	Mobile & Portable Client Device
Declared Frequency Range(s):	2400 - 2483.5 MHz;
EUT Modes of Operation:	b, g, HT-20, HT-40, ax-20, ax-40
Declared Nominal Output Power (dBm):	+21.5 dBm
Rated Input Voltage and Current:	12Vdc, 1A
Operating Temperature Range:	0°C to + 40°C
ITU Emission Designator:	802.11b (1 Mbit/s) 13M5G1D 802.11g 17M1D1D 802.11n – HT-20 18M0D1D 802.11n – HT-40 36M6D1D 802.11ax-20 18M8D1D 802.11ax-40 37M4D1D
Equipment Dimensions:	67.7 / 265.75 / 42.3 mm
Weight:	0.5 Kg
Hardware Rev:	DP2
Software Rev:	2.0.0.75

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5.1. Scope Of Test Program

Hewlett Packard Enterprise Company ASIN0304
The scope of the test program was to test the Hewlett Packard Enterprise Company ASIN0304 configurations in the frequency ranges 2400 - 2483.5 MHz; for compliance against the following specification:

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

ISED RSS-247 Issue 2
Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices

Model Tested: Model number ASIN0303 is same essential layout without LTE radios. ASIN0304 can be assumed to be worst case configuration. Per the manufacturer and unless otherwise noted, the ASIN0304 was tested as representative of the ASIN303

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

Type (EUT/ Support)	Equipment Description	Manufacturer	Model No.	Serial No.
EUT Conducted	Mobile & Portable Client Device	Hewlett Packard Enterprise	ASIN0304	Conducted: CNLSKYV00J
EUT Radiated	Mobile & Portable Client Device	Hewlett Packard Enterprise	ASIN0304	Radiated: CNLSKYV00D
Support	Power Supply (12V 1A)	APDI	WB-12G12R	--

5.3. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
integral	Aruba	Wifi	PIFA	2.2	2.8	360	-	2400 - 2483.5
BF Gain - Beamforming Gain Dir BW - Directional BeamWidth X-Pol - Cross Polarization								

5.4. Cabling and I/O Ports

Port Type	Max Cable Length	# of Ports	Screened	Conn Type	Data Type	Bit Rate	Environment
dc Jack	<3m	1	No			N/A	Indoors
Ethernet PoE IN	>30m	1	No	RJ45	Digital	10, 100, 1000 MBits/s	Indoors
Micro USB	<3m	1	Yes				

5.5. Test Configurations

Results for the following configurations are provided in this report:

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

5.6. Equipment Modifications

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

5.7. 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
Digital Emissions (0.03 - 1 GHz)	Complies, see MiCOM Labs Report HPEN155-G3	
AC Wireline Emissions	Complies, see MiCOM Labs Report HPEN155-G3	

# 7. TEST EQUIPMENT CONFIGURATION(S)

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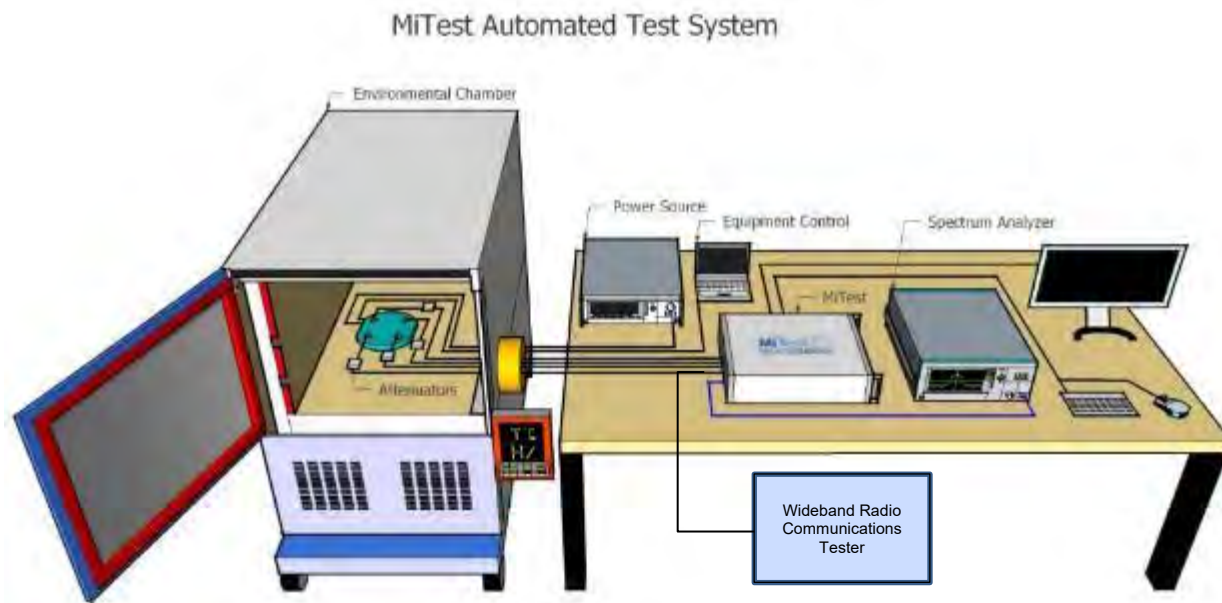
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

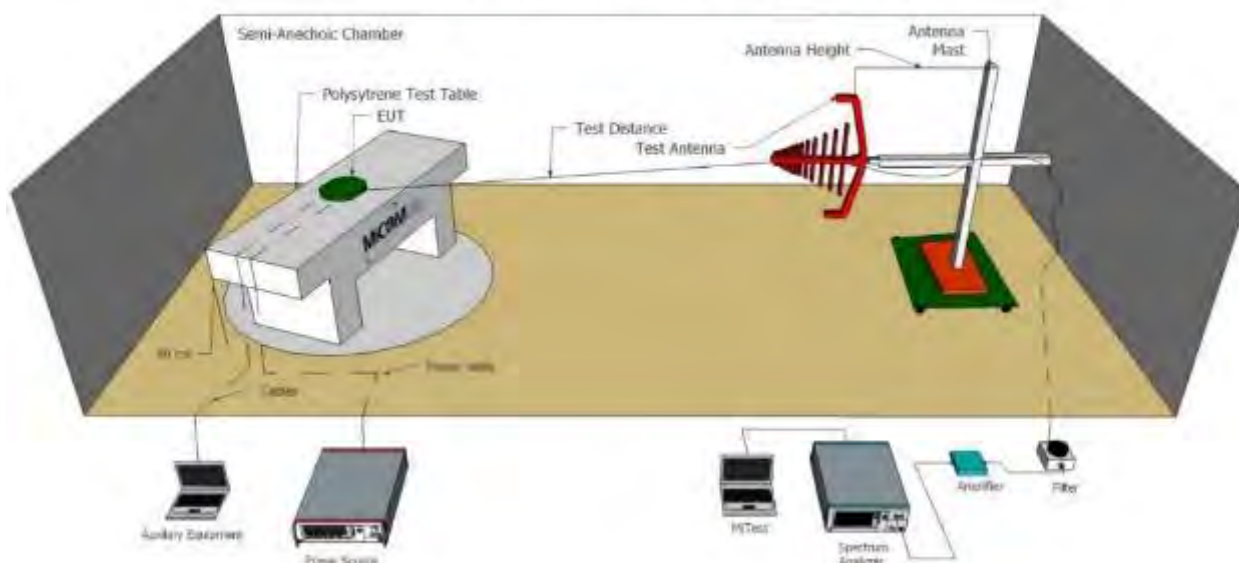| Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	4 Jun 2021
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	4 Jun 2021
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	4 Jun 2021
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	4 Jun 2021
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	4 Jun 2021
249	Thermocouple; Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	30 Oct 2021
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2021
398	MiTest RF Conducted Test Software	MiCOM	MiTest ATS	Version 4.2.3.0	Not Required
405	DC Power Supply 0-60V	Agilent	6654A	MY4001826	Cal when used
408	USB to GPIB interface	National Instruments	GPIB-USB HS	14C0DE9	Not Required
440	USB Wideband Power Sensor	Boonton	55006	9178	22 Jun 2021
441	USB Wideband Power Sensor	Boonton	55006	9179	20 Jun 2021
442	USB Wideband Power Sensor	Boonton	55006	9181	19 Jun 2021
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	20 Jun 2021
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2021
515	MiTest Cloud Solutions RF Test Box	MiCOM	2nd Gen with DFS	515	4 Jun 2021
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	20 Feb 2022

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
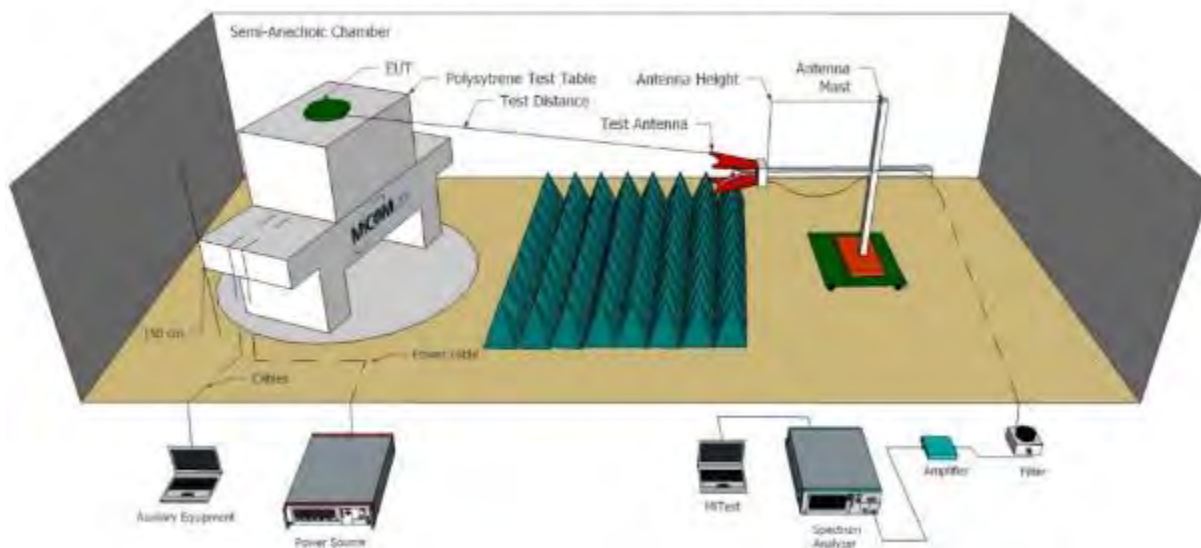
Radiated Emissions Below 1GHz Test Setup

Test Equipment Utilized

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2021
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	26 Sep 2021
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Oct 2021
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	9 Sep 2021
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 Sep 2021
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	9 Sep 2021
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
447	MiTest Rad Emissions Test Software	MiCOM	Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	4 Sep 2021
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	4 Sep 2021
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	4 Sep 2021
466	Low Pass Filter DC-1500 MHz	Mini-Circuits	NLP-1750+	VUU10401438	4 Sep 2021
476	Low Pass dc-2200MHz filter	Mini Circuits	15542 NLP-2400+	VUU13801345	4 Sep 2021
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	4 Sep 2021
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	4 Sep 2021
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2021
518	Cable - Amp to Antenna	SRC Haverhill	157-3051574	518	4 Sep 2021
CC05	Confidence Check	MiCOM	CC05	None	4 Sep 2021

8. MEASUREMENT AND PRESENTATION OF TEST DATA

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

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

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

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

9. TEST RESULTS

9.1. 6 dB & 99% Bandwidth

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

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

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

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

Limits for 6 dB and 99% Bandwidth
    (a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:
        (2) Systems using digital modulation techniques may operate in the 902-928 MHz and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Equipment Configuration for 6 dB & 99% Bandwidth

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

Test Measurement Results

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	10.200	10.200	--	--	10.200	10.200	≥500.0	-9.70
2437.0	10.130	10.200	--	--	10.200	10.130	≥500.0	-9.63
2462.0	10.130	10.270	--	--	10.270	10.130	≥500.0	-9.63

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
MHz	**a**	**b**	**c**	**d**			
2412.0	13.336	13.318	--	--	13.336		
2437.0	13.364	13.329	--	--	13.364		
2462.0	13.443	13.402	--	--	13.443		

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

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

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Equipment Configuration for 6 dB & 99% Bandwidth

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

Test Measurement Results

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	16.470	16.400	--	--	16.470	16.400	≥500.0	-15.90
2437.0	16.530	16.400	--	--	16.530	16.400	≥500.0	-15.90
2462.0	16.470	16.400	--	--	16.470	16.400	≥500.0	-15.90

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
MHz	a	b	c	d			
2412.0	16.808	17.007	--	--	17.007		
2437.0	16.805	17.023	--	--	17.023		
2462.0	16.853	17.069	--	--	17.069		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth		

Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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	17.530	17.530	--	--	17.530	17.530	≥500.0	-17.03
2437.0	17.530	17.530	--	--	17.530	17.530	≥500.0	-17.03
2462.0	17.600	17.600	--	--	17.600	17.600	≥500.0	-17.10

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
MHz	**a**	**b**	**c**	**d**			
2412.0	17.744	17.869	--	--	17.869		
2437.0	17.758	17.905	--	--	17.905		
2462.0	17.802	17.909	--	--	17.909		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth

Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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
2422.0	35.730	35.870	--	--	35.870	35.730	≥500.0	-35.23
2437.0	35.870	35.870	--	--	35.870	35.870	≥500.0	-35.37
2452.0	36.130	35.730	--	--	36.130	35.730	≥500.0	-35.23

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
MHz	a	b	c	d			
2422.0	36.238	36.492	--	--	36.492		
2437.0	36.279	36.526	--	--	36.526		
2452.0	36.400	36.610	--	--	36.610		

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:	802.11ax-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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	18.330	18.330	--	--	18.330	18.330		
2437.0	18.330	18.270	--	--	18.330	18.270		
2462.0	18.270	18.330	--	--	18.330	18.270		

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
MHz	a	b	c	d			
2412.0	18.717	18.685	--	--	18.717		
2437.0	18.721	18.715	--	--	18.721		
2462.0	18.730	18.719	--	--	18.730		

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:	802.11ax-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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
2422.0	36.000	36.800	--	--	36.800	36.000		
2437.0	36.270	36.400	--	--	36.400	36.270		
2452.0	36.270	36.000	--	--	36.270	36.000		

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
MHz	a	b	c	d			
2422.0	37.319	37.259	--	--	37.319		
2437.0	37.301	37.291	--	--	37.301		
2452.0	37.365	37.305	--	--	37.365		

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

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

9.2. Conducted Output Power

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Equipment Configuration for Average Output Power		

Variant:	802.11b	**Duty Cycle (%):**	99.0
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	**a**	**b**	**c**	**d**	**dBm**	**dBm**	**dB**	
2412.0	17.22	17.74	--	--	20.50	30.00	-9.50	18.00
2437.0	17.60	18.06	--	--	20.85	30.00	-9.15	18.00
2462.0	17.08	17.84	--	--	20.49	30.00	-9.51	18.00

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

Equipment Configuration for Average Output Power

Variant:	802.11g	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2412.0	17.82	17.97	--	--	20.91	30.00	-9.09	18.00
2437.0	18.20	18.29	--	--	21.26	30.00	-8.74	18.00
2462.0	17.78	17.57	--	--	20.69	30.00	-9.31	18.00

Traceability to Industry Recognized Test Methodologies

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

Equipment Configuration for Average Output Power	

Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
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	17.82	18.01	--	--	20.93	30.00	-9.07	18.00
2437.0	18.20	18.36	--	--	21.29	30.00	-8.71	18.00
2462.0	17.79	17.71	--	--	20.76	30.00	-9.24	18.00

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

Equipment Configuration for Average Output Power			

Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
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	
2422.0	17.98	18.15	--	--	21.08	30.00	-8.92	18.00
2437.0	18.10	18.23	--	--	21.18	30.00	-8.82	18.00
2452.0	17.90	17.93	--	--	20.93	30.00	-9.07	18.00

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

Equipment Configuration for Average Output Power

Variant:	802.11ax-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
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	18.08	18.17	--	--	21.14	30.00	-8.86	18.00
2437.0	18.41	18.41	--	--	21.42	30.00	-8.58	18.00
2462.0	17.98	17.98	--	--	20.99	30.00	-9.01	18.00

Traceability to Industry Recognized Test Methodologies

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

Equipment Configuration for Average Output Power	

Variant:	802.11ax-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
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**	
2422.0	18.26	18.39	--	--	21.34	30.00	-8.66	18.00
2437.0	18.38	18.41	--	--	21.41	30.00	-8.59	18.00
2452.0	18.09	18.17	--	--	21.14	30.00	-8.86	18.00

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

9.3. Power Spectral Density

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

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

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

Testing was performed under ambient conditions at nominal voltage only.

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

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

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

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

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

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Equipment Configuration for Power Spectral Density - Average

Variant:	802.11ax-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-18.107	-18.539	--	--	-15.343	8.0	-23.4
2437.0	-17.705	-18.095	--	--	-15.200	8.0	-23.2
2462.0	-18.470	-18.503	--	--	-15.743	8.0	-23.8

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average

Variant:	802.11ax-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2422.0	-20.956	-21.342	--	--	-18.254	8.0	-26.3
2437.0	-20.472	-20.818	--	--	-17.806	8.0	-25.8
2452.0	-20.883	-20.523	--	--	-17.679	8.0	-25.7

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average

Variant:	802.11b	**Duty Cycle (%):**	99.0
Data Rate:	1.00 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	CCK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-16.295	-16.056	--	--	-13.192	8.0	-21.2
2437.0	-15.838	-13.228	--	--	-11.665	8.0	-19.7
2462.0	-14.519	-14.322	--	--	-12.452	8.0	-20.5

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average

Variant:	802.11g	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	a	b	c	d	dBm/3KHz	dBm/3KHz	dB
2412.0	-17.355	-17.383	--	--	-14.717	8.0	-22.7
2437.0	-16.826	-16.859	--	--	-13.887	8.0	-21.9
2462.0	-17.321	-17.677	--	--	-14.441	8.0	-22.5

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average	

Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Amplitude Summation + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/3KHz)						
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2412.0	-17.666	-17.612	--	--	-14.852	8.0	-22.9
2437.0	-16.849	-16.389	--	--	-13.783	8.0	-21.8
2462.0	-17.234	-17.308	--	--	-14.473	8.0	-22.5

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density - Average

Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	2.20
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	2.80
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/3KHz)				Amplitude Summation + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/3KHz**	**dBm/3KHz**	**dB**
2422.0	-20.475	-20.583	--	--	-17.706	8.0	-25.7
2437.0	-20.013	-20.250	--	--	-17.218	8.0	-25.2
2452.0	-19.511	-19.985	--	--	-16.756	8.0	-24.8

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

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

9.4. Emissions

9.4.1. Conducted Emissions

9.4.1.1. Conducted Spurious Emissions

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

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

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

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

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

Equipment Configuration for Conducted Spurious Emissions - Average

Variant:	802.11ax-20	**Duty Cycle (%):**	99
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	**MHz**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**
2412.0	30.0 - 26000.0	-58.435	-39.01	-59.058	-39.05				
2437.0	30.0 - 26000.0	-57.391	-39.73	-58.297	-39.83				
2462.0	30.0 - 26000.0	-56.486	-39.10	-57.342	-39.12				

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted Spurious Emissions - Average			

Variant:	802.11ax-40	**Duty Cycle (%):**	99
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	**MHz**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**
2422.0	30.0 - 26000.0	-58.148	-39.83	-58.971	-40.01				
2437.0	30.0 - 26000.0	-57.443	-40.71	-58.332	-40.97				
2452.0	30.0 - 26000.0	-56.626	-38.59	-57.431	-38.45				

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

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

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

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	**MHz**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**
2412.0	30.0 - 26000.0	-58.331	-39.91	-59.043	-39.55				
2437.0	30.0 - 26000.0	-57.462	-39.36	-58.218	-38.90				
2462.0	30.0 - 26000.0	-56.522	-40.15	-57.409	-39.39				

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

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

Equipment Configuration for Conducted Spurious Emissions - Average			
Variant:	802.11g	**Duty Cycle (%):**	99
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
2412.0	30.0 - 26000.0	-58.374	-39.26	-59.090	-39.12				
2437.0	30.0 - 26000.0	-57.555	-39.88	-58.366	-39.46				
2462.0	30.0 - 26000.0	-56.626	-39.49	-57.434	-39.66				

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

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

Equipment Configuration for Conducted Spurious Emissions - Average	

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

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	**MHz**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**
2412.0	30.0 - 26000.0	-58.383	-39.45	-59.101	-39.11				
2437.0	30.0 - 26000.0	-57.591	-39.87	-58.408	-39.69				
2462.0	30.0 - 26000.0	-56.648	-39.45	-57.511	-39.26				

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

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

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

Test Measurement Results

Test Frequency	Frequency Range	Conducted Spurious Emissions - Average (dBm)							
		Port a		Port b		Port c		Port d	
MHz	**MHz**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**	**SE**	**Limit**
2422.0	30.0 - 26000.0	-58.230	-40.39	-58.998	-39.99				
2437.0	30.0 - 26000.0	-57.524	-41.15	-58.432	-40.99				
2452.0	30.0 - 26000.0	-56.636	-38.81	-57.503	-38.68				

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

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

9.4.1.2. Conducted Band-Edge Emissions

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

Test Procedure for Transmitter Conducted Spurious and Band-Edge Emissions Measurement

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

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

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

Limits Transmitter Conducted Spurious and Band-Edge Emissions

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

Variant:	802.11ax-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-47.88	-34.22	2401.80	--	--	-1.800
b	-46.67	-33.87	2401.80	--	--	-1.800

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

Variant:	802.11ax-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	**Plot Limit (dBm)**	**M2 Frequency (MHz)**	**Amplitude (dBm)**	**M2A Frequency (MHz)**	**(MHz)**
a	-48.37	-36.76	2402.00	--	--	-2.000
b	-47.31	-36.76	2402.00	--	--	-2.000

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

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

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-62.65	-31.66	2403.30	--	--	-3.300
b	-62.31	-31.27	2403.40	--	--	-3.400

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

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

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-48.72	-33.37	2402.10	--	--	-2.100
b	-48.09	-33.16	2402.10	--	--	-2.100

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-47.11	-33.62	2401.80	--	--	-1.800
b	-47.54	-33.40	2402.00	--	--	-2.000

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted Low Band-Edge Emissions - Average

Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	**Plot Limit (dBm)**	**M2 Frequency (MHz)**	**Amplitude (dBm)**	**M2A Frequency (MHz)**	**(MHz)**
a	-48.11	-36.69	2402.00	--	--	-2.000
b	-47.51	-36.54	2402.00	--	--	-2.000

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average

Variant:	802.11ax-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-52.75	-33.89	2471.90	--	--	-11.600
b	-51.56	-33.85	2472.00	--	--	-11.500

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average

Variant:	802.11ax-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	Margin (MHz)
a	-49.70	-35.84	2471.50	--	--	-12.000
b	-49.32	-35.86	2471.50	--	--	-12.000

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average			

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

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-62.12	-31.76	2470.60	--	--	-12.900
b	-62.95	-31.40	2470.60	--	--	-12.900

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average			

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

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-55.13	-33.01	2471.70	--	--	-11.800
b	-54.10	-33.04	2471.70	--	--	-11.800

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average

Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-53.52	-33.12	2471.90	--	--	-11.600
b	-52.55	-33.21	2471.90	--	--	-11.600

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

Equipment Configuration for Conducted High Band-Edge Emissions - Average

Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

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

Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	-50.72	-35.79	2471.50	--	--	-12.000
b	-50.46	-35.70	2471.50	--	--	-12.000

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

9.4.2. Radiated Emissions

9.4.2.3. TX Spurious & Restricted Band Emissions

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions (Restricted Bands)			
Standard:	FCC CFR 47 Part 15 Subpart C 15.247 (DTS), ISED RSS-247	**Ambient Temp. (ºC):**	20.0 - 24.5
Test Heading:	Radiated Spurious and Band-Edge Emissions	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.205, 15.209	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

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

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

Orientation testing of the EUT was performed and the EUT standing upright was determined to be the worst case for Spurious and Band Edge emissions with the integral antennas attached.

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

Average Measurements were performed following ANSI C63.10 section11.12.2.5.2 Trace averaging across on and off times of the EUT transmissions followed by a duty cycle correction.
RMS detector used, DCCF of 10log (1/D) where D is the Duty Cycle.

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

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

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

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

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

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

Restricted Bands of Operation (15.205)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Equipment Configuration for TX Spurious & Restricted Band Emissions			
Antenna:	Aruba Wifi	**Variant:**	802.11b
Antenna Gain (dBi):	2.20	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2412.00	**Data Rate:**	1.00 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results
Click here to view measurement data...
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 2.4G notch in front of amp to prevent overload

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11b
Antenna Gain (dBi):	2.20	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2437.00	**Data Rate:**	1.00 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	2435.27	50.33	1.99	-12.25	40.07	Fundamental	Vertical	200	355	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 2.4G notch in front of amp to prevent overload												

	Equipment Configuration for TX Spurious & Restricted Band Emissions		

Antenna:	Aruba Wifi	**Variant:**	802.11b
Antenna Gain (dBi):	2.20	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2462.00	**Data Rate:**	1.00 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

					1000.00 - 18000.00 MHz							
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2462.13	52.21	2.04	-12.43	41.82	Fundamental	Vertical	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 2.4G notch in front of amp to prevent overload												

9.4.2.4. Restricted Edge & Band-Edge Emissions

Lower Band-Edge

Aruba Wifi		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11ax-20	2412.00	2390.00	64.15	42.29	18
802.11ax-40	2422.00	2390.00	66.15	44.60	18
802.11b	2412.00	2390.00	50.42	36.26	18
802.11g	2412.00	2390.00	59.32	40.70	18
802.11n HT-20	2412.00	2390.00	62.57	40.99	18
802.11n HT-40	2422.00	2390.00	69.08	43.83	18

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions	

Antenna:	Aruba Wifi	**Variant:**	802.11ax-20
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2412.00	**Data Rate:**	6.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	2390.00	8.31	2.02	31.96	42.29	Max Avg	Horizontal	150	348	54.0	-11.7	Pass
#2	2390.00	30.17	2.02	31.96	64.15	Max Peak	Horizontal	150	348	74.0	-9.9	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions		

Antenna:	Aruba Wifi	**Variant:**	802.11ax-40
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2422.00	**Data Rate:**	13.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	2387.98	32.18	2.02	31.95	66.15	Max Peak	Horizontal	150	348	74.0	-7.9	Pass
#2	2390.00	10.62	2.02	31.96	44.60	Max Avg	Horizontal	150	348	54.0	-9.4	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.												

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11b
Antenna Gain (dBi):	2.20	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2412.00	**Data Rate:**	1.00 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB/m	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	2388.20	16.45	2.02	31.95	50.42	Max Peak	Horizontal	150	348	74.0	-23.6	Pass
#2	2389.33	2.29	2.02	31.95	36.26	Max Avg	Horizontal	150	348	54.0	-17.7	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions	

Antenna:	Aruba Wifi	**Variant:**	802.11g
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2412.00	**Data Rate:**	6.00 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2390.00	6.72	2.02	31.96	40.70	Max Avg	Horizontal	150	348	54.0	-13.3	Pass
#2	2390.00	25.34	2.02	31.96	59.32	Max Peak	Horizontal	150	348	74.0	-14.7	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions			
Antenna:	Aruba Wifi	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2412.00	**Data Rate:**	6.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB/m	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	2390.00	7.01	2.02	31.96	40.99	Max Avg	Horizontal	150	348	54.0	-13.0	Pass
#2	2390.00	28.59	2.02	31.96	62.57	Max Peak	Horizontal	150	348	74.0	-11.4	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.												

Title: Hewlett Packard Enterprise Company ASIN0304
To: FCC Part 15 15.247 (DTS), ISED RSS-247 Issue 2
Serial #: HPEN155-U7 Rev A (2.4 GHz Wi-Fi)

Equipment Configuration for Radiated - Lower Restricted Band-Edge Emissions	

Antenna:	Aruba Wifi	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2422.00	**Data Rate:**	13.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2310.00 - 2422.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB/m	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	2390.00	9.85	2.02	31.96	43.83	Max Avg	Horizontal	150	348	54.0	-10.2	Pass
#2	2390.00	35.10	2.02	31.96	69.08	Max Peak	Horizontal	150	348	74.0	-4.9	Pass
#3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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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

Upper Band-Edge

Aruba Wifi		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11ax-20	2462.00	2483.50	68.45	46.81	18
802.11ax-40	2452.00	2483.50	64.66	44.79	18
802.11b	2462.00	2483.50	50.36	36.68	18
802.11g	2462.00	2483.50	64.00	43.79	18
802.11n HT-20	2462.00	2483.50	66.69	45.16	18
802.11n HT-40	2452.00	2483.50	67.50	43.79	18

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11ax-20
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2462.00	**Data Rate:**	6.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2483.50	12.45	2.03	32.33	46.81	Max Avg	Horizontal	150	348	54.0	-7.2	Pass
#2	2483.50	34.09	2.03	32.33	68.45	Max Peak	Horizontal	150	348	74.0	-5.6	Pass
#3	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11ax-40
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2452.00	**Data Rate:**	13.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	2483.50	10.43	2.03	32.33	44.79	Max Avg	Horizontal	150	348	54.0	-9.2	Pass
#3	2483.77	30.30	2.03	32.33	64.66	Max Peak	Horizontal	150	348	74.0	-9.3	Pass
#2	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.												

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11b
Antenna Gain (dBi):	2.20	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2462.00	**Data Rate:**	1.00 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#2	2499.72	16.00	2.05	32.31	50.36	Max Peak	Horizontal	150	348	74.0	-23.6	Pass
#3	2503.67	2.31	2.05	32.32	36.68	Max Avg	Horizontal	150	348	54.0	-17.3	Pass
#1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11g
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2462.00	**Data Rate:**	6.00 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

					2452.00 - 2520.00 MHz						
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2483.50	9.43	2.03	32.33	43.79	Max Avg	Horizontal	150	348	54.0	-10.2	Pass
#2	2483.50	29.64	2.03	32.33	64.00	Max Peak	Horizontal	150	348	74.0	-10.0	Pass
#3	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2462.00	**Data Rate:**	6.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	2483.50	10.80	2.03	32.33	45.16	Max Avg	Horizontal	150	348	54.0	-8.8	Pass
#2	2483.50	32.33	2.03	32.33	66.69	Max Peak	Horizontal	150	348	74.0	-7.3	Pass
#3	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.												

Equipment Configuration for Radiated - Upper Restricted Band-Edge Emissions

Antenna:	Aruba Wifi	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	2.20	**Modulation:**	OFDM
Beam Forming Gain (Y):	2.80	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	2452.00	**Data Rate:**	13.50 MBit/s
Power Setting:	18	**Tested By:**	JMH

Test Measurement Results

2452.00 - 2520.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	2483.50	9.43	2.03	32.33	43.79	Max Avg	Horizontal	150	348	54.0	-10.2	Pass
#3	2484.84	33.14	2.03	32.33	67.50	Max Peak	Horizontal	150	348	74.0	-6.5	Pass
#2	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.												

A. APPENDIX - GRAPHICAL IMAGES

A.1. Duty Cycle

802.11b Duty Cycle = 99.0%

	Marker 1 [T1]	RBW	5 MHz	RF Att	10 dB
Ref Lvl	−33.80 dBm	VBW	200 kHz		
−14 dBm	90.581162 ms	SWT	100 ms	Unit	dBm

```
 -14
      6 dB Offset                                                    A
 -20

 -30                                                                 SGL

 -40

 -50                                                                 IN1
                                                                     1RM
 -60

 -70

 -80

 -90

-100

-110
-114
      Center 2.412 GHz                        10 ms/
```
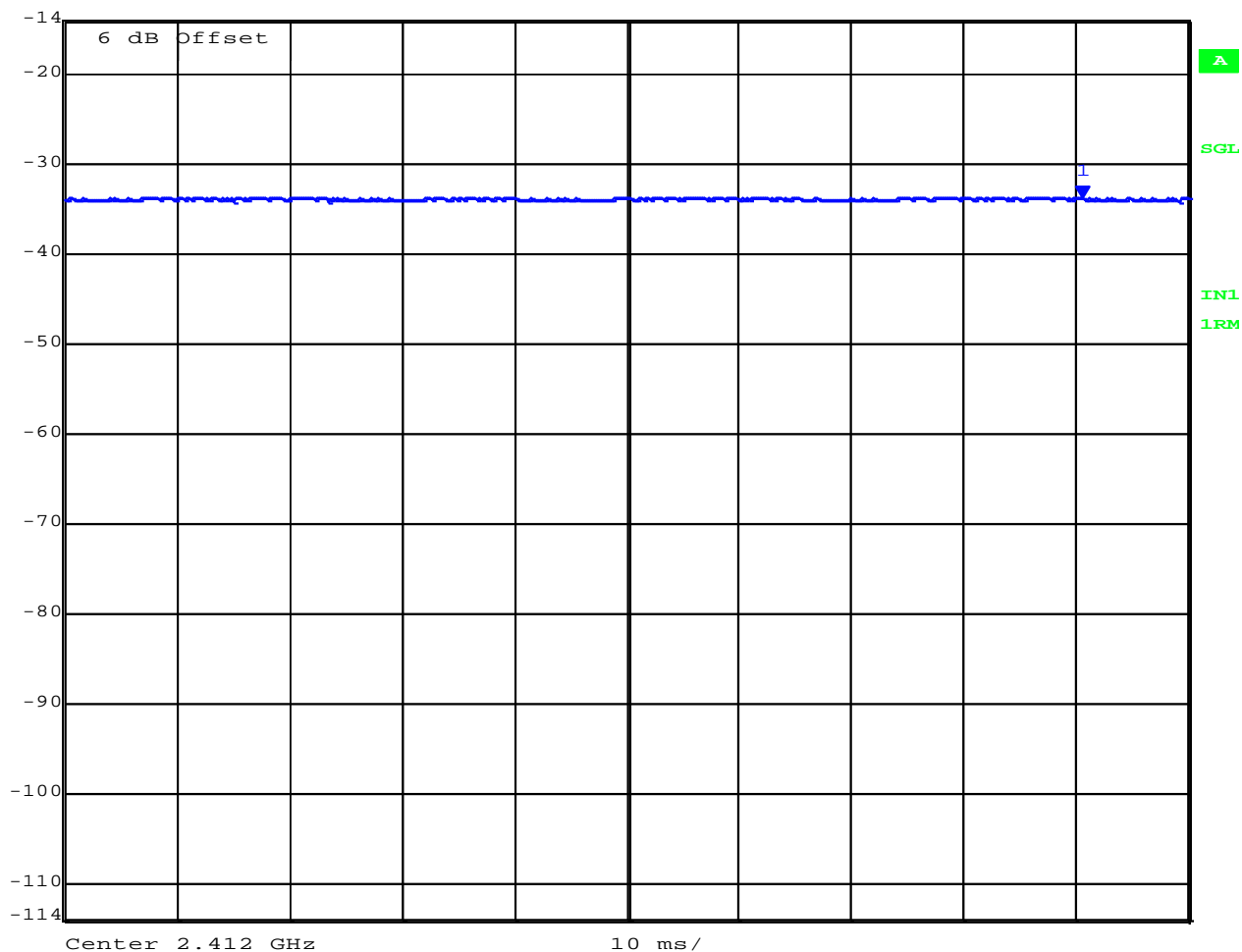
Date: 17.JUN.2021   09:11:11

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802.11g Duty Cycle = 99.0%

Marker 1 [T1]		RBW	5 MHz	RF Att	10 dB
Ref Lvl	−34.82 dBm	VBW	300 Hz		
−14 dBm	54.000000 ms	SWT	100 ms	Unit	dBm

Center 2.412 GHz   10 ms/
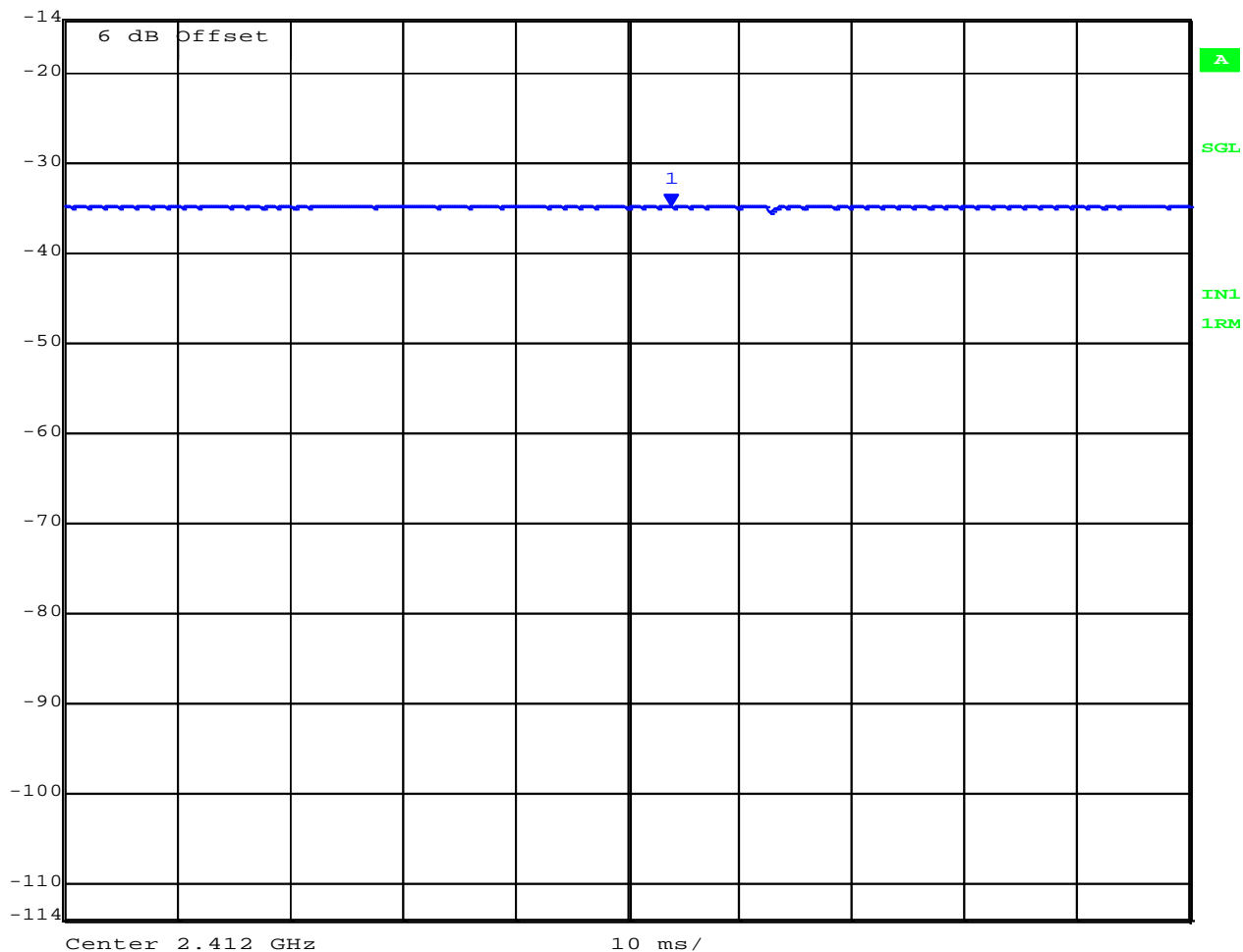
Date: 17.JUN.2021   09:13:57

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802.11n HT-20 Duty Cycle = 99.0%

Marker 1 [T1]		RBW	5 MHz	RF Att	10 dB
Ref Lvl	−42.17 dBm	VBW	300 Hz		
−14 dBm	10.821643 ms	SWT	150 ms	Unit	dBm

```
 -14
      6 dB Offset
 -20                                                          A
 -30                                                          SGL
 -40  1
                                                              IN1
 -50                                                          1RM
 -60
 -70
 -80
 -90
-100
-110
-114
      Center 2.412 GHz                   15 ms/
```
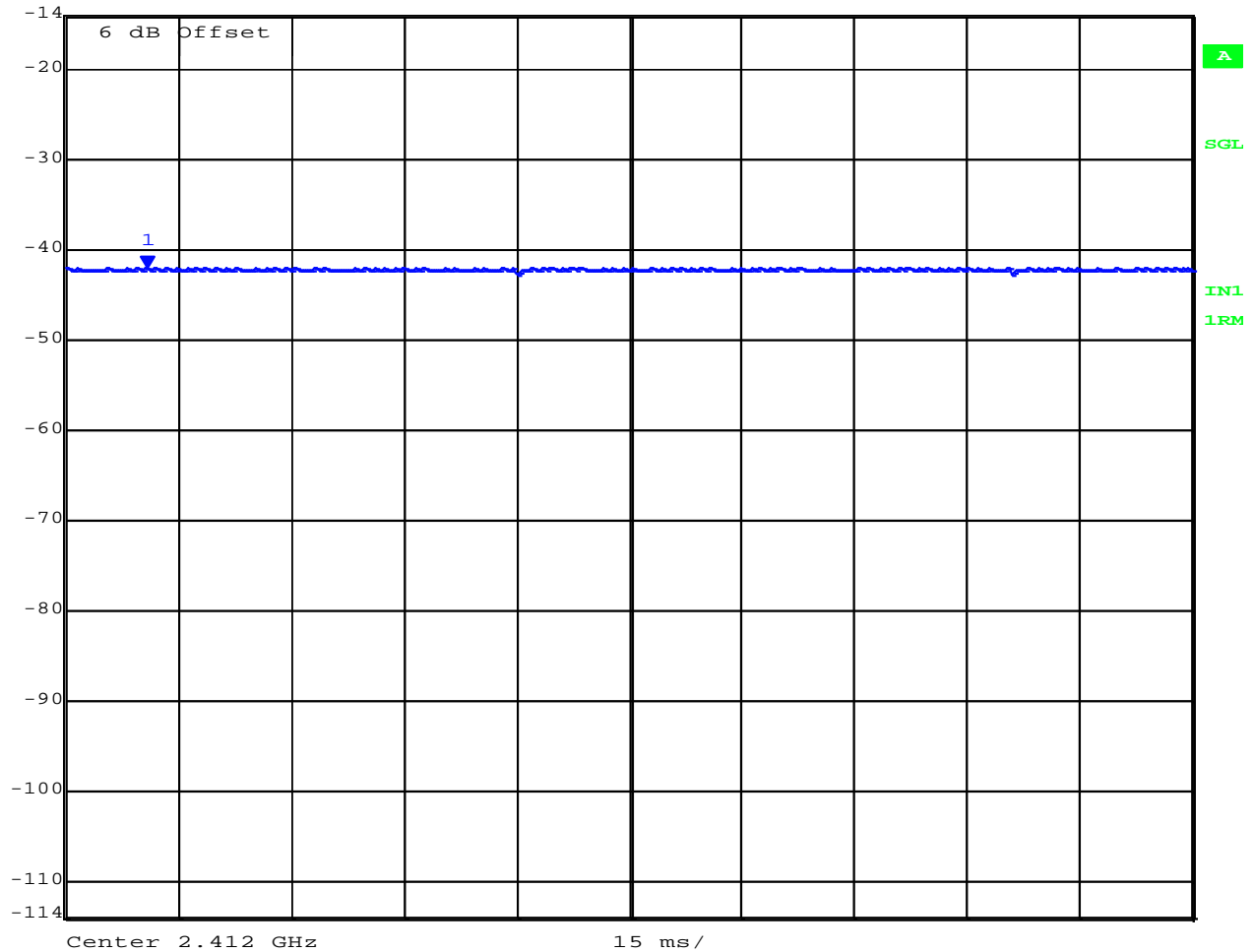
Date: 17.JUN.2021   09:15:35

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802.11n HT-40 Duty Cycle = 99.0%

Marker 1 [T1]		RBW	5 MHz	RF Att	10 dB
Ref Lvl	−45.79 dBm	VBW	300 Hz		
−14 dBm	39.078156 ms	SWT	100 ms	Unit	dBm

Center 2.422 GHz   10 ms/
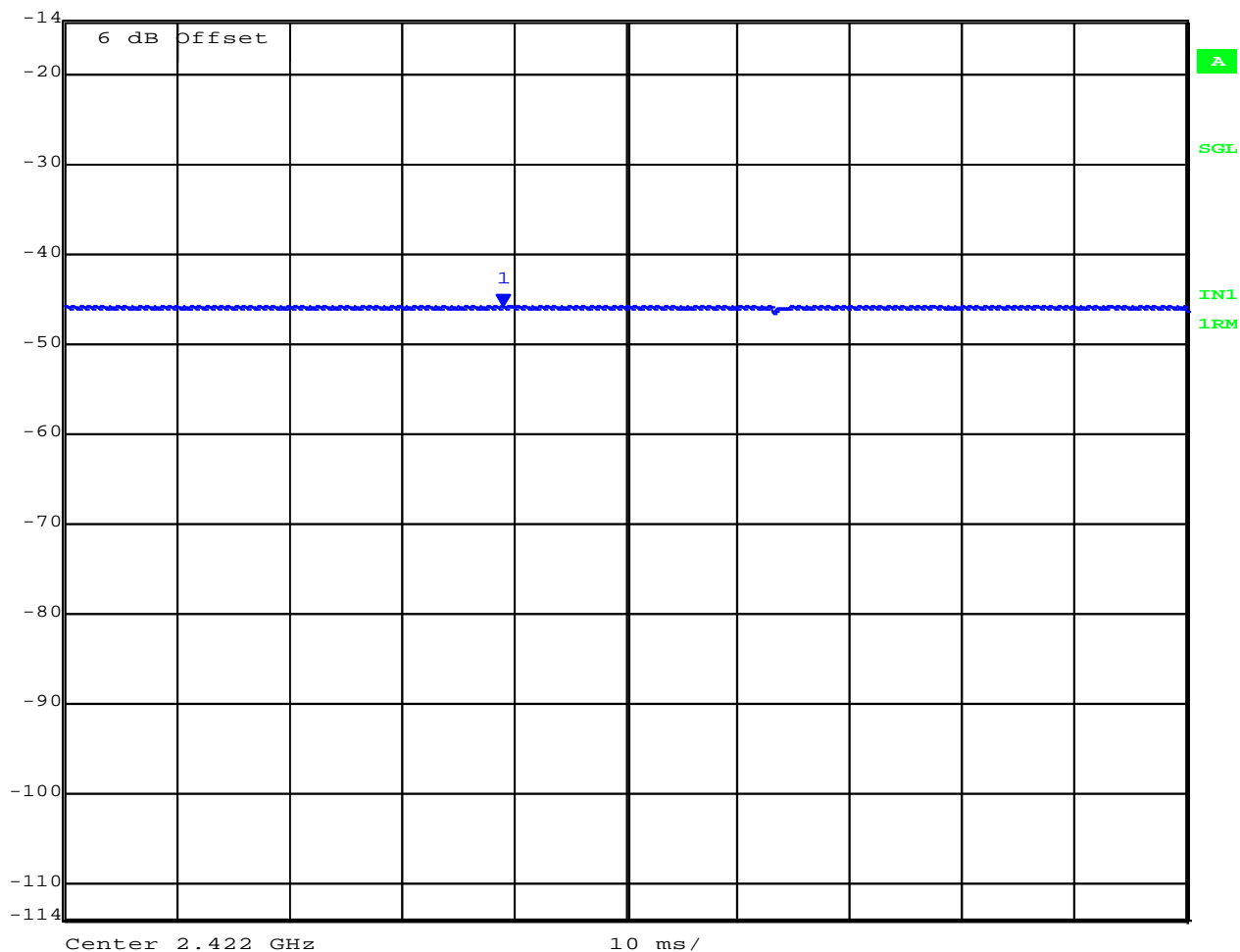
Date: 17.JUN.2021   09:21:24

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802.11ax-20 Duty Cycle = 99.0%

	Marker 1 [T1]		RBW	5 MHz	RF Att 10 dB
Ref Lvl		-42.71 dBm	VBW	300 kHz	
-14 dBm		86.973948 ms	SWT	100 ms	Unit dBm

```
  -14
         6 dB Offset                                           A
  -20
                                                              SGL
  -30

  -40                                                    1
                                                              IN1
                                                              1RM
  -50

  -60

  -70

  -80

  -90

 -100

 -110
 -114
      Center 2.412 GHz                    10 ms/
```
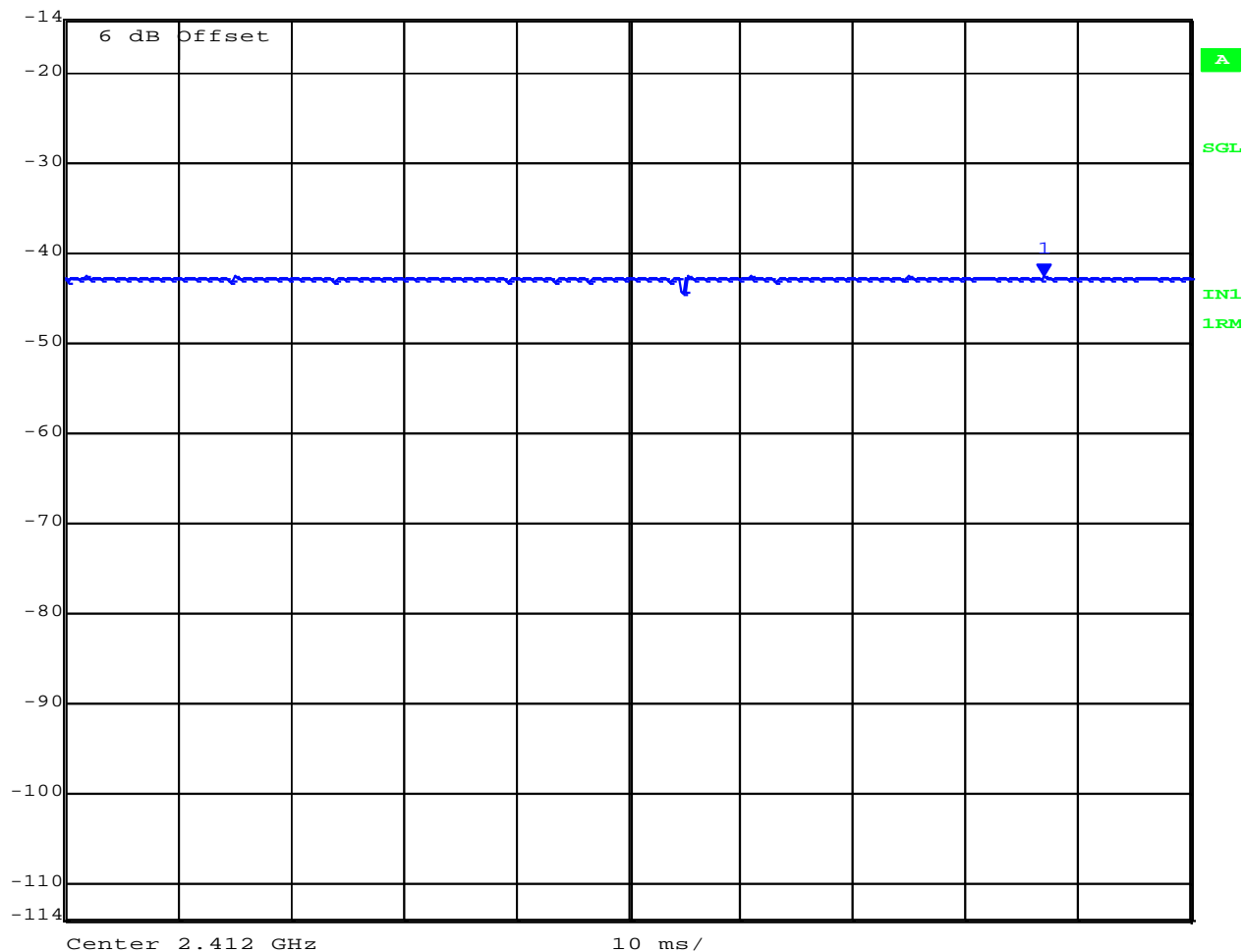
Date: 17.JUN.2021 09:23:16

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802.11ax-40 Duty Cycle = 99.0%

	Marker 1 [T1]	RBW	5 MHz	RF Att	10 dB
Ref Lvl	-46.15 dBm	VBW	300 kHz		
-14 dBm	44.488978 ms	SWT	100 ms	Unit	dBm

Center 2.412 GHz   10 ms/
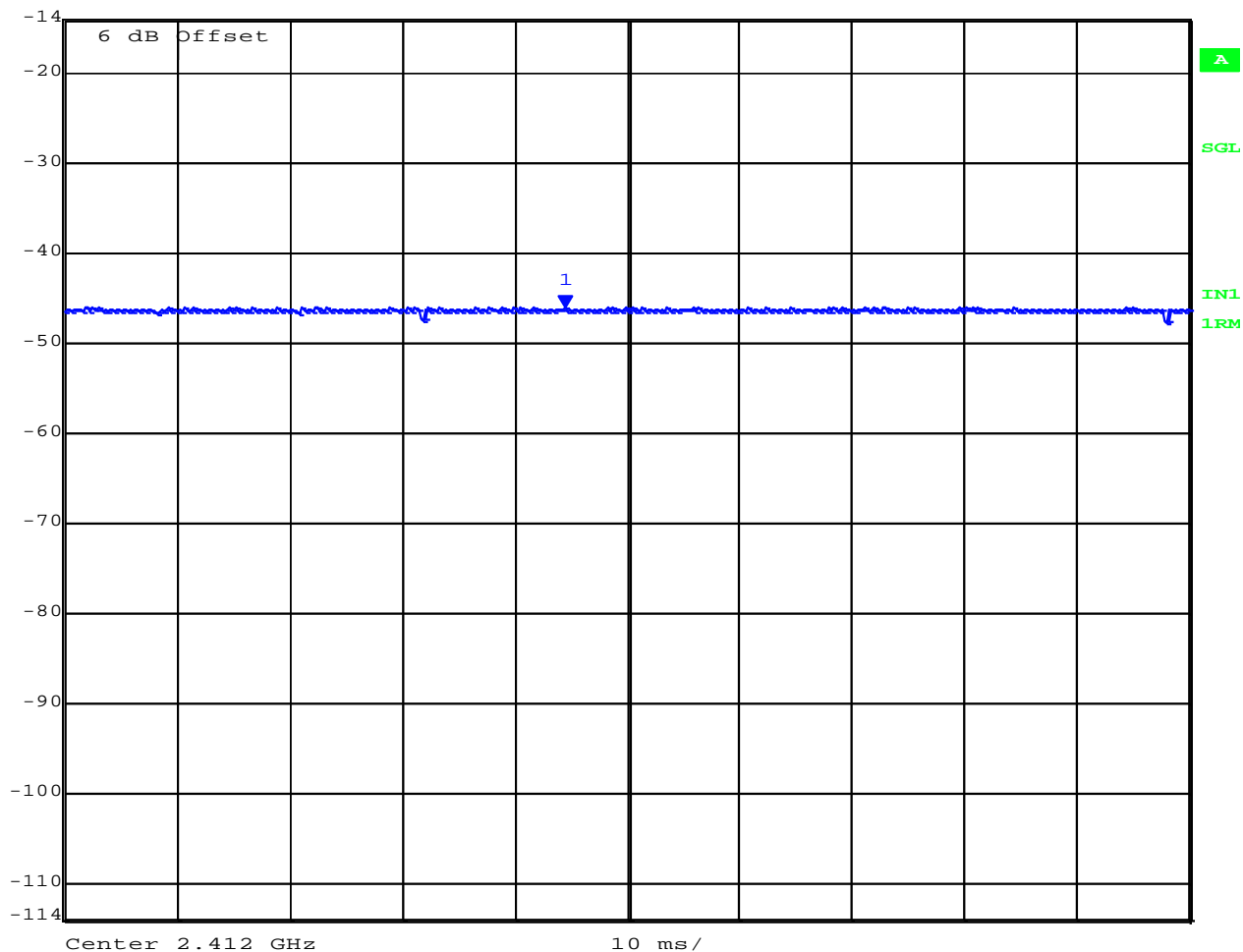
Date: 17.JUN.2021 09:24:04

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A.2. 6 dB & 99% Bandwidth

6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2402.800 MHz : 1.050 dBm M2 : 2419.470 MHz : 6.351 dBm Delta1 : 18.330 MHz : 0.346 dB T1 : 2402.600 MHz : -1.134 dBm T2 : 2421.400 MHz : -0.889 dBm OBW : 18.717 MHz	Measured 6 dB Bandwidth: 18.330 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

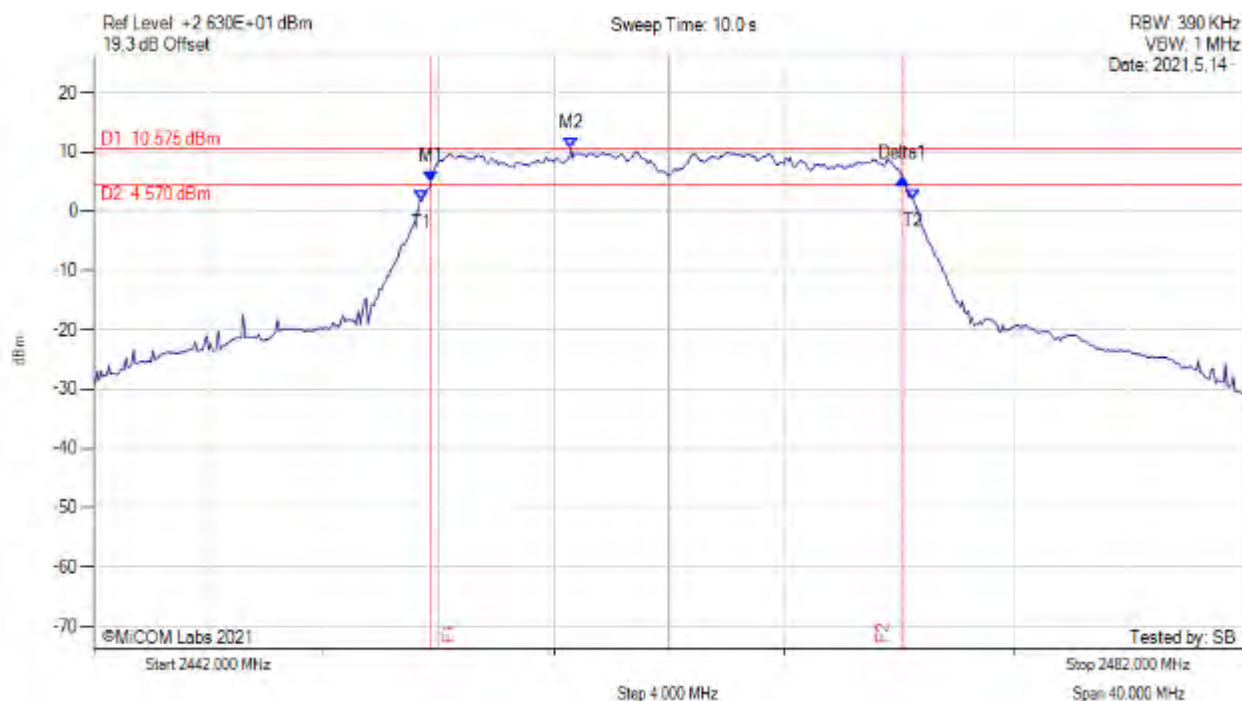Variant: 802.11ax-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2402.800 MHz : 0.307 dBm M2 : 2414.470 MHz : 6.244 dBm Delta1 : 18.330 MHz : 0.738 dB T1 : 2402.667 MHz : -0.383 dBm T2 : 2421.333 MHz : -0.545 dBm OBW : 18.685 MHz	Measured 6 dB Bandwidth: 18.330 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

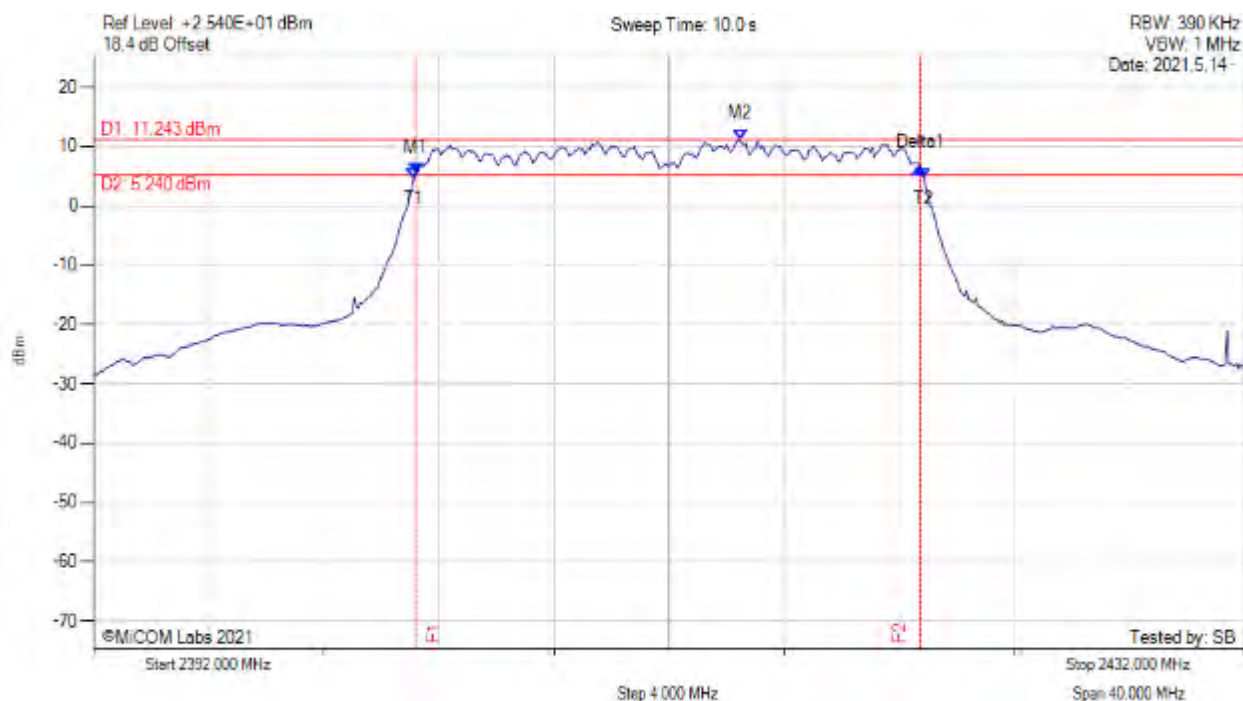Variant: 802.11ax-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2427.730 MHz : 0.623 dBm M2 : 2429.530 MHz : 6.573 dBm Delta1 : 18.330 MHz : 0.203 dB T1 : 2427.600 MHz : -0.146 dBm T2 : 2446.333 MHz : -0.137 dBm OBW : 18.721 MHz	Measured 6 dB Bandwidth: 18.330 MHz Limit: kHz Margin: #VALUE! MHz

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6 dB & 99% BANDWIDTH

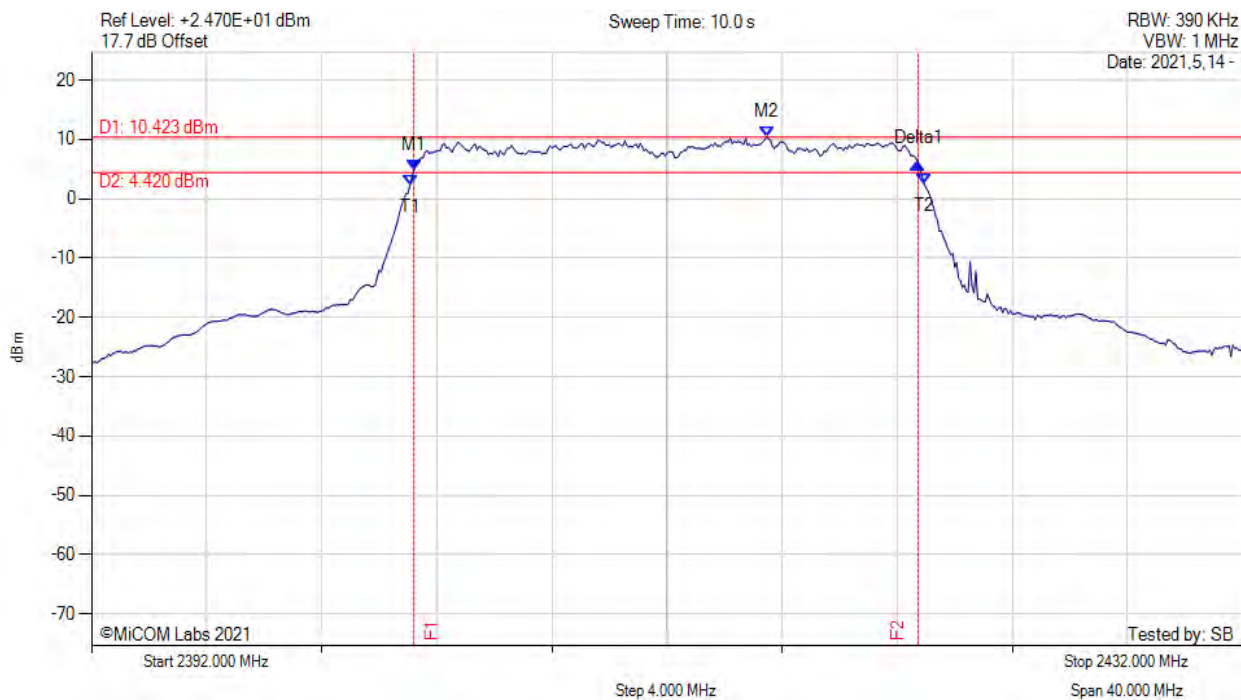Variant: 802.11ax-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2427.730 MHz : 0.968 dBm M2 : 2429.530 MHz : 6.841 dBm Delta1 : 18.270 MHz : 0.729 dB T1 : 2427.600 MHz : -0.289 dBm T2 : 2446.333 MHz : -0.558 dBm OBW : 18.715 MHz	Measured 6 dB Bandwidth: 18.270 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2452.730 MHz : 0.510 dBm M2 : 2454.470 MHz : 6.204 dBm Delta1 : 18.270 MHz : 0.047 dB T1 : 2452.600 MHz : -0.755 dBm T2 : 2471.333 MHz : -0.699 dBm OBW : 18.730 MHz	Measured 6 dB Bandwidth: 18.270 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

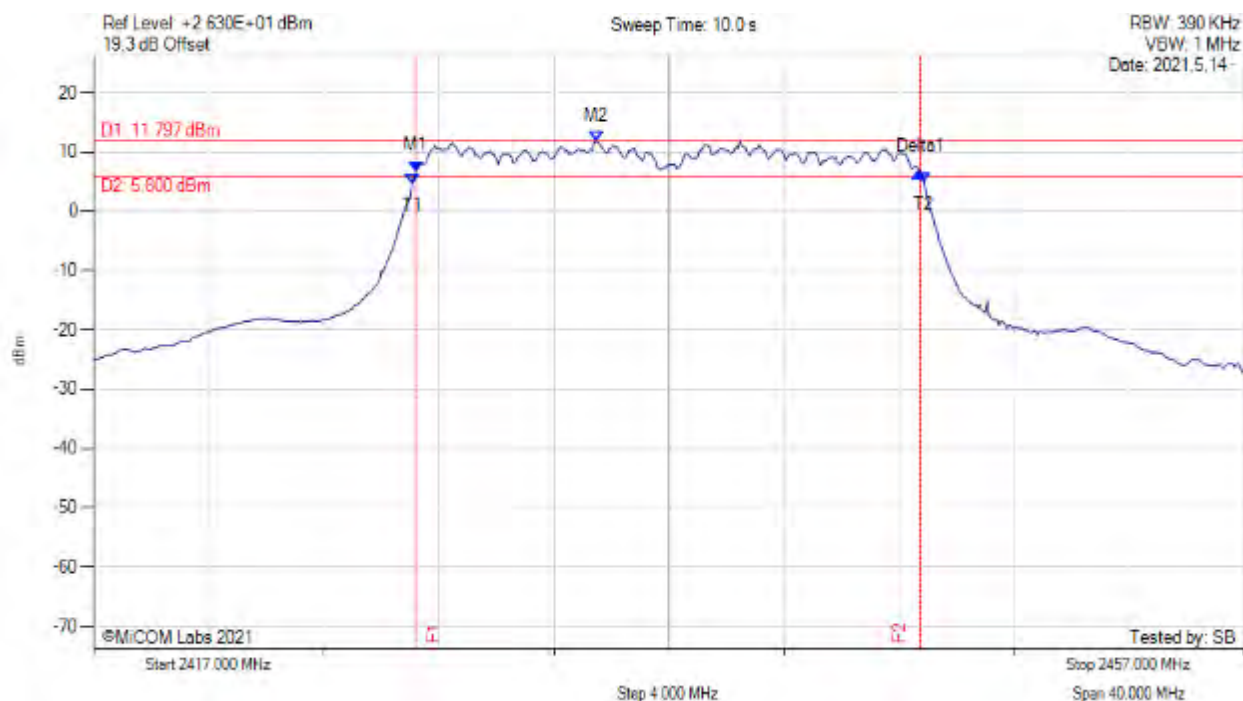Variant: 802.11ax-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2452.730 MHz : 0.367 dBm M2 : 2454.530 MHz : 6.006 dBm Delta1 : 18.330 MHz : 0.526 dB T1 : 2452.600 MHz : -0.364 dBm T2 : 2471.333 MHz : -1.223 dBm OBW : 18.719 MHz	Measured 6 dB Bandwidth: 18.330 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

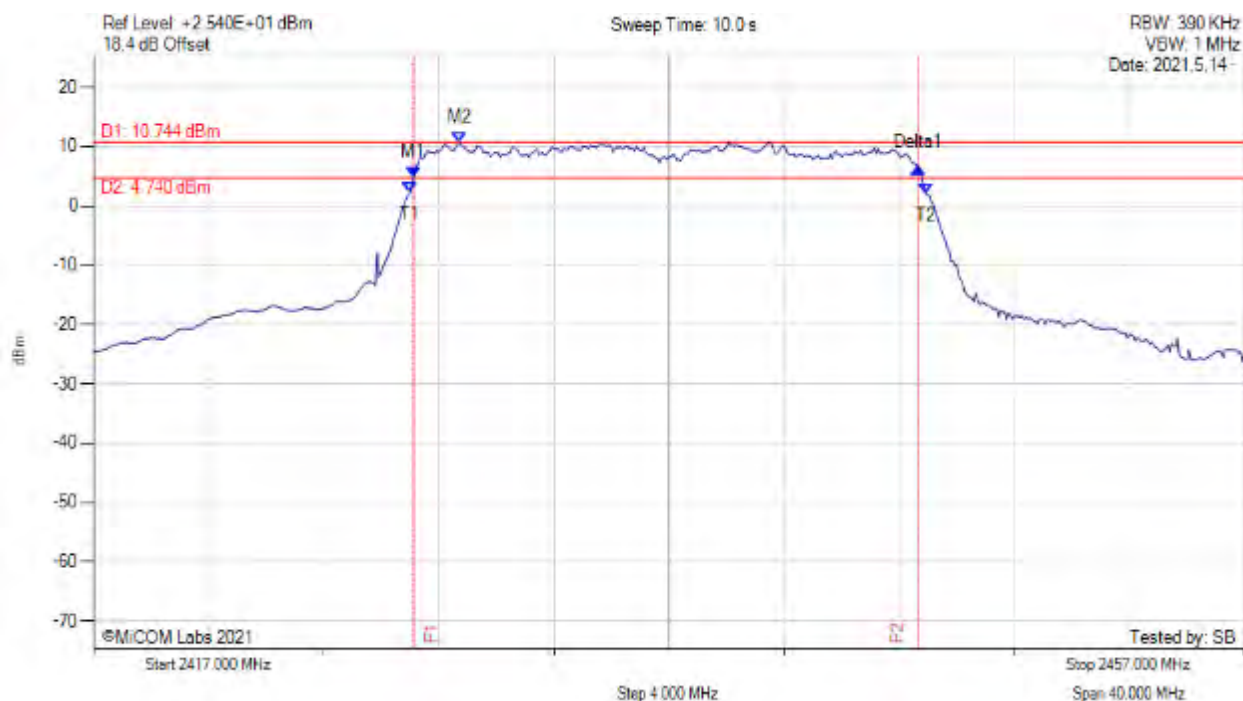Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2403.730 MHz : -1.999 dBm M2 : 2416.930 MHz : 3.855 dBm Delta1 : 36.000 MHz : 0.147 dB T1 : 2403.333 MHz : -3.004 dBm T2 : 2440.667 MHz : -3.515 dBm OBW : 37.319 MHz	Measured 6 dB Bandwidth: 36.000 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

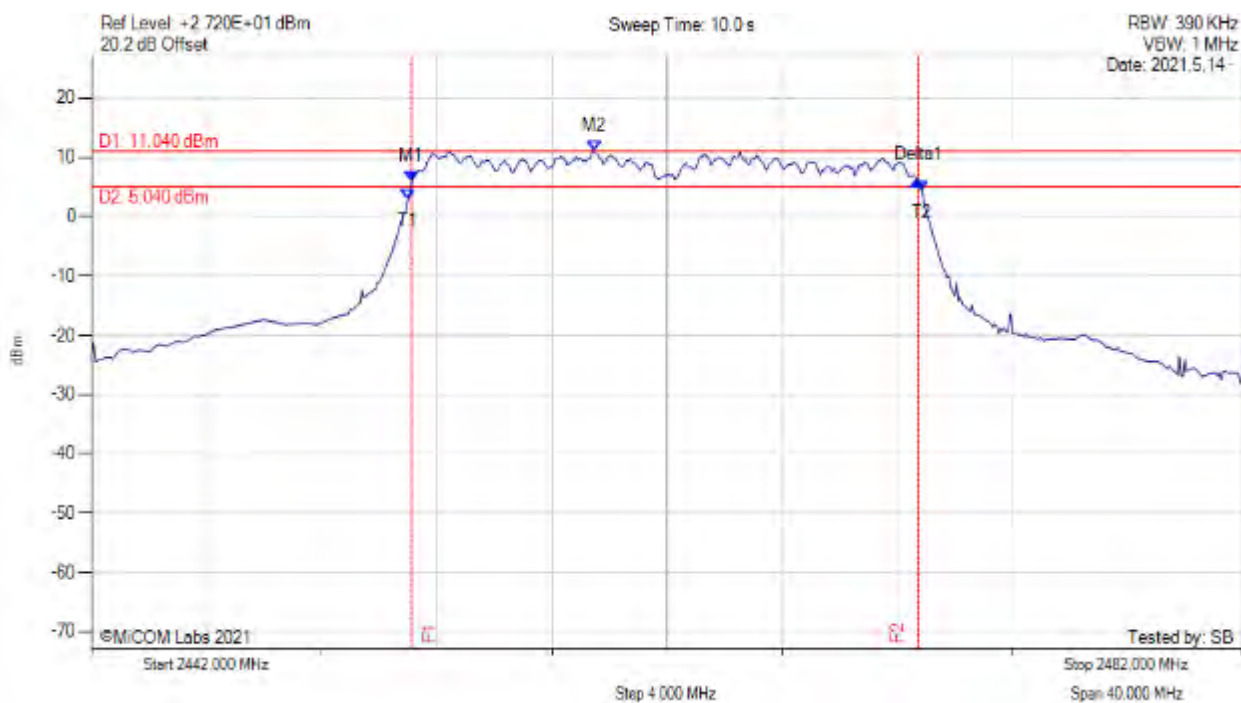Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: +2.480E+01 dBm
17.8 dB Offset
Sweep Time: 20.0 s
RBW: 100 KHz
VBW: 300 KHz
Date: 2021,5,18 -

D1: 3.325 dBm
D2: -2.670 dBm

Start 2382.000 MHz
Step 8.000 MHz
Stop 2462.000 MHz
Span 80.000 MHz

Tested by: SB

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2403.600 MHz : -2.452 dBm M2 : 2425.730 MHz : 3.325 dBm Delta1 : 36.800 MHz : 0.015 dB T1 : 2403.333 MHz : -3.334 dBm T2 : 2440.667 MHz : -3.781 dBm OBW : 37.259 MHz	Measured 6 dB Bandwidth: 36.800 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

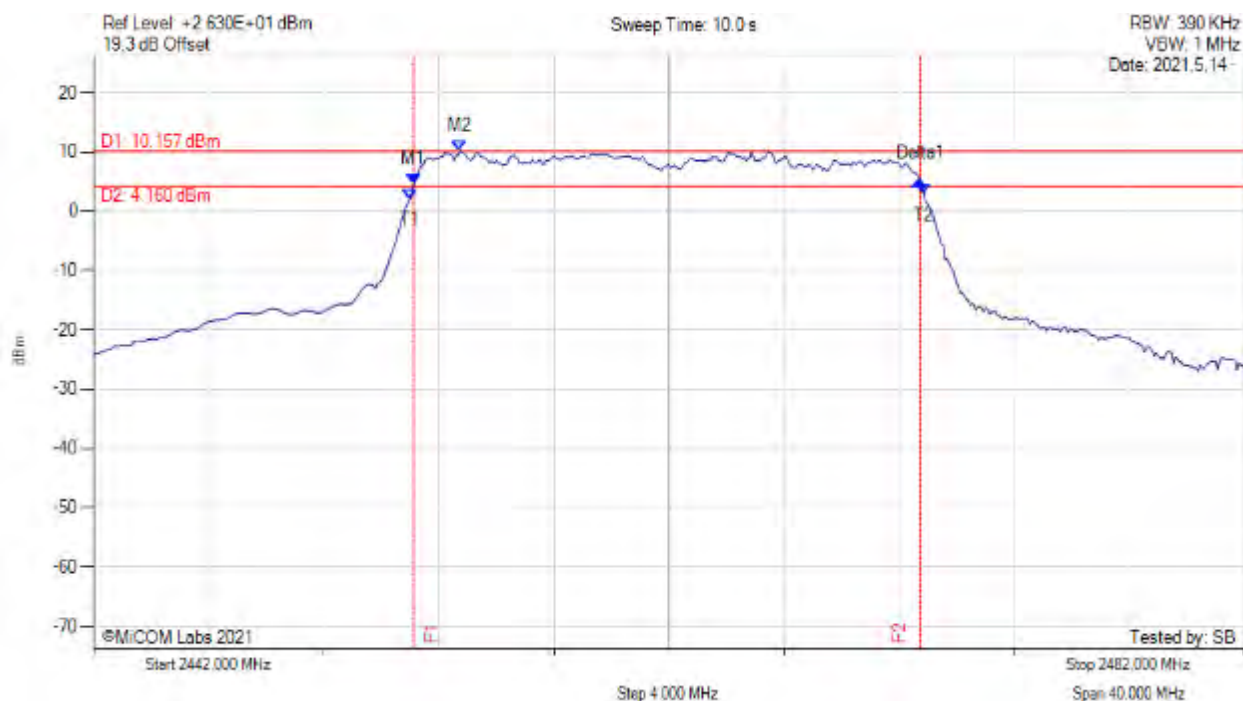Variant: 802.11ax-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2418.470 MHz : -1.077 dBm M2 : 2431.930 MHz : 4.499 dBm Delta1 : 36.270 MHz : -0.237 dB T1 : 2418.200 MHz : -2.768 dBm T2 : 2455.533 MHz : -2.704 dBm OBW : 37.301 MHz	Measured 6 dB Bandwidth: 36.270 MHz Limit: kHz Margin: #VALUE! MHz

back to matrix

6 dB & 99% BANDWIDTH

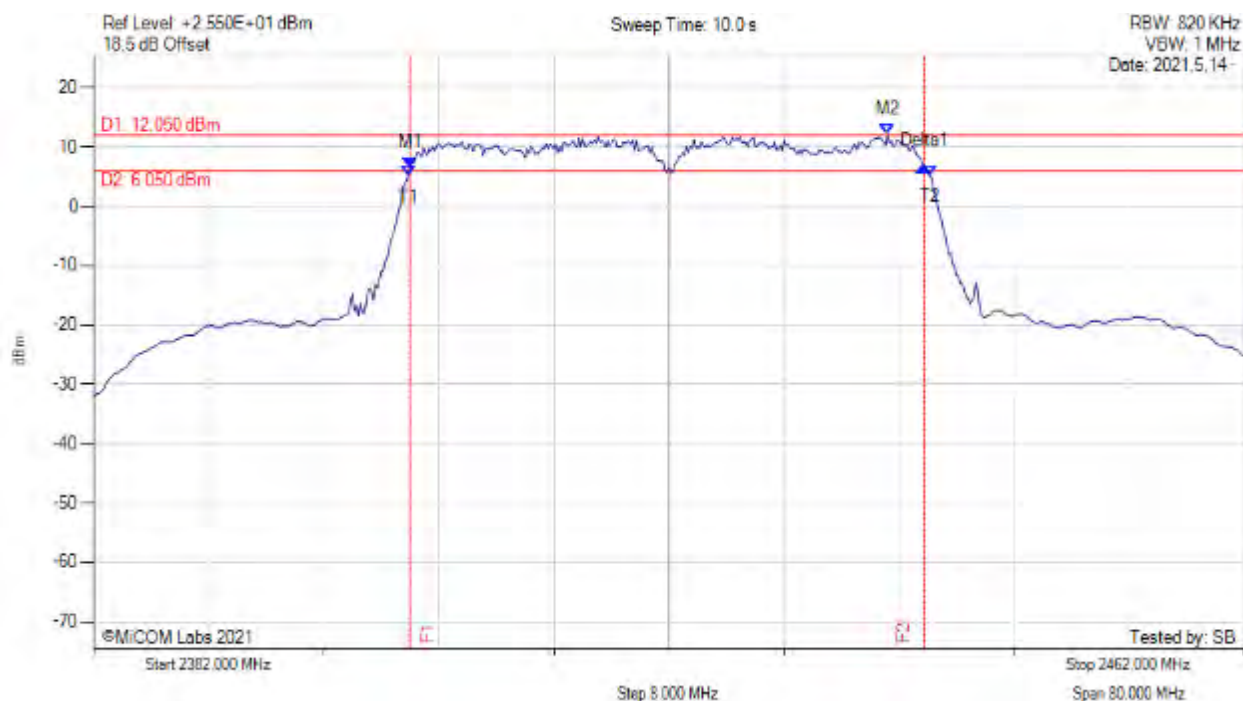Variant: 802.11ax-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2418.470 MHz : -1.816 dBm M2 : 2420.730 MHz : 3.762 dBm Delta1 : 36.400 MHz : 0.014 dB T1 : 2418.200 MHz : -3.062 dBm T2 : 2455.533 MHz : -2.565 dBm OBW : 37.291 MHz	Measured 6 dB Bandwidth: 36.400 MHz Limit: kHz Margin: #VALUE! MHz

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6 dB & 99% BANDWIDTH

Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2433.200 MHz : -1.210 dBm M2 : 2436.930 MHz : 4.627 dBm Delta1 : 36.270 MHz : 2.857 dB T1 : 2433.200 MHz : -1.210 dBm T2 : 2470.533 MHz : -2.974 dBm OBW : 37.365 MHz	Measured 6 dB Bandwidth: 36.270 MHz Limit: kHz Margin: #VALUE! MHz

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6 dB & 99% BANDWIDTH

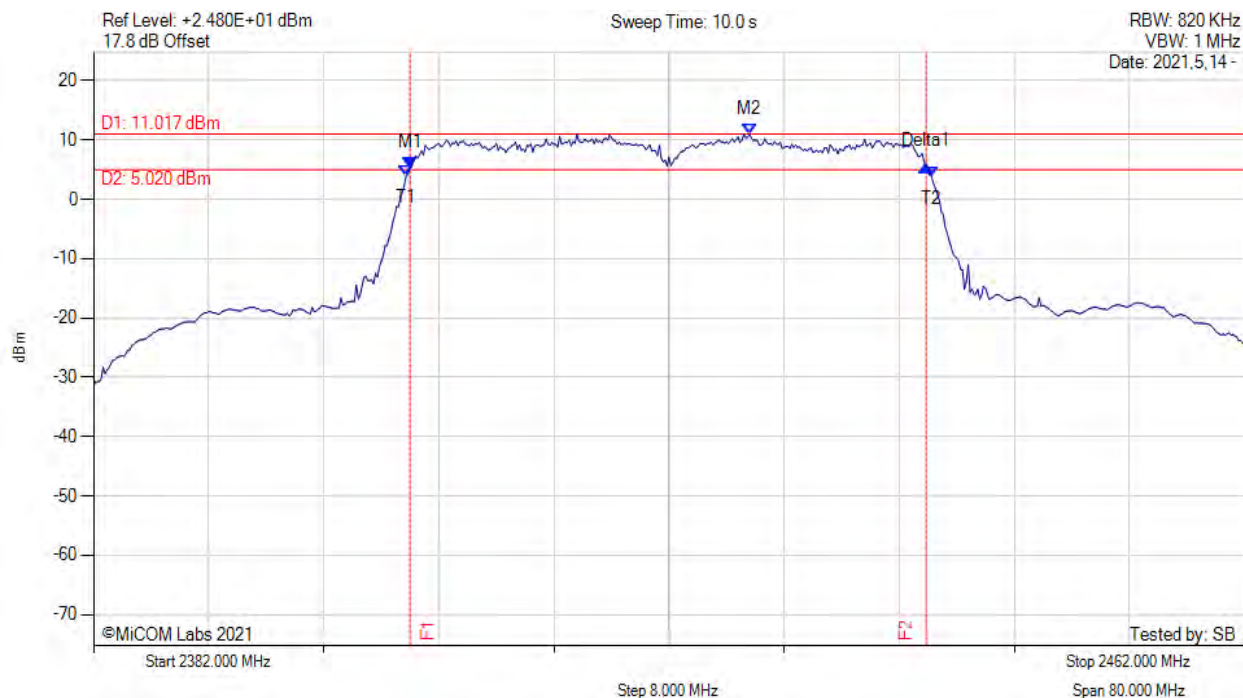Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2433.470 MHz : -0.238 dBm M2 : 2435.730 MHz : 4.600 dBm Delta1 : 36.000 MHz : 1.290 dB T1 : 2433.200 MHz : -1.798 dBm T2 : 2470.533 MHz : -3.114 dBm OBW : 37.305 MHz	Measured 6 dB Bandwidth: 36.000 MHz Limit: kHz Margin: #VALUE! MHz

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6 dB & 99% BANDWIDTH

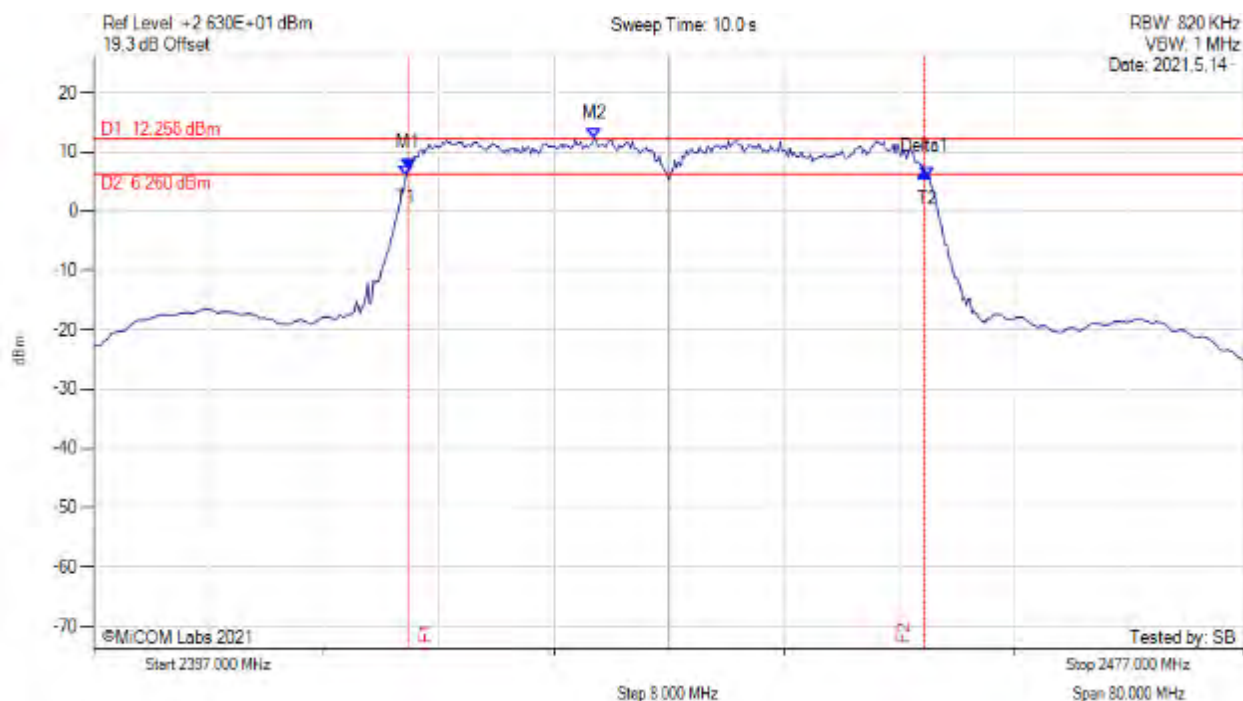Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2406.870 MHz : 1.868 dBm M2 : 2412.470 MHz : 7.341 dBm Delta1 : 10.200 MHz : 0.792 dB T1 : 2405.333 MHz : -4.735 dBm T2 : 2418.667 MHz : -4.833 dBm OBW : 13.336 MHz	Measured 6 dB Bandwidth: 10.200 MHz Limit: ≥500.0 kHz Margin: -9.70 MHz

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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2406.870 MHz : 2.479 dBm M2 : 2412.930 MHz : 7.834 dBm Delta1 : 10.200 MHz : 0.730 dB T1 : 2405.333 MHz : -4.215 dBm T2 : 2418.667 MHz : -4.380 dBm OBW : 13.318 MHz	Measured 6 dB Bandwidth: 10.200 MHz Limit: ≥500.0 kHz Margin: -9.70 MHz

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6 dB & 99% BANDWIDTH

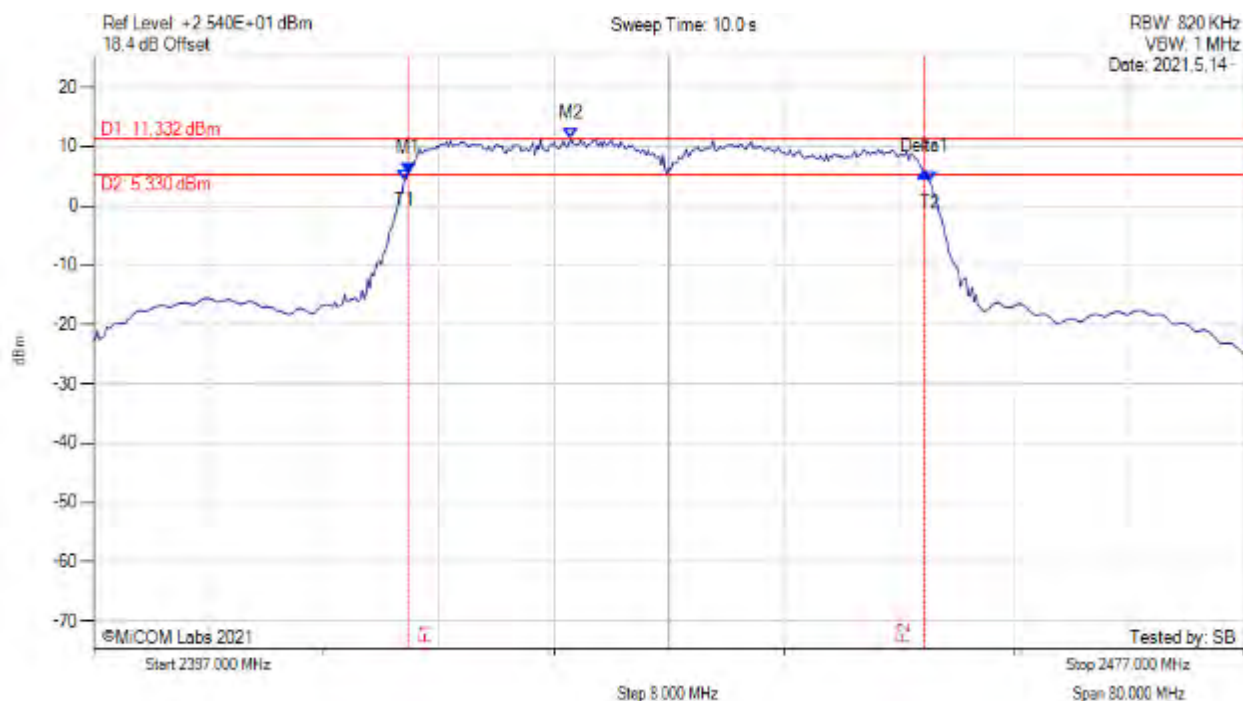Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2431.870 MHz : 3.112 dBm M2 : 2436.000 MHz : 8.068 dBm Delta1 : 10.130 MHz : 0.100 dB T1 : 2430.267 MHz : -5.026 dBm T2 : 2443.667 MHz : -4.563 dBm OBW : 13.364 MHz	Measured 6 dB Bandwidth: 10.130 MHz Limit: ≥500.0 kHz Margin: -9.63 MHz

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6 dB & 99% BANDWIDTH

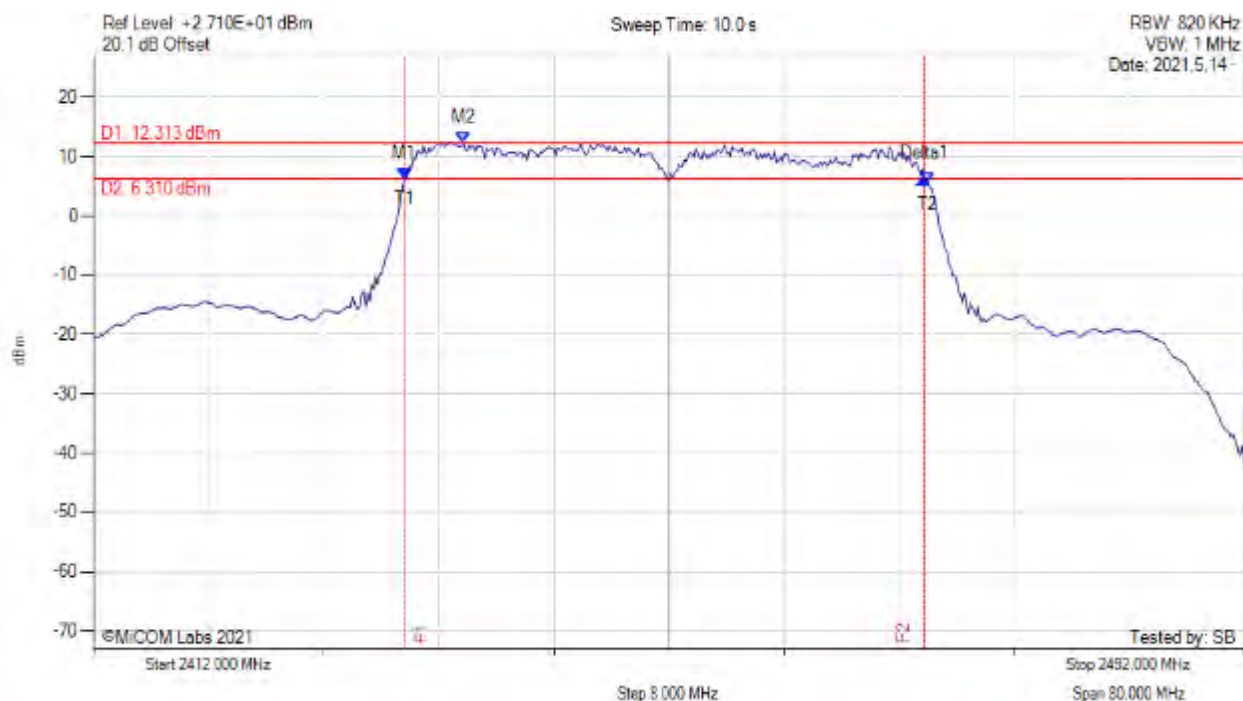Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2431.870 MHz : 3.353 dBm M2 : 2436.000 MHz : 8.488 dBm Delta1 : 10.200 MHz : -0.037 dB T1 : 2430.267 MHz : -4.665 dBm T2 : 2443.600 MHz : -2.997 dBm OBW : 13.329 MHz	Measured 6 dB Bandwidth: 10.200 MHz Limit: ≥500.0 kHz Margin: -9.70 MHz

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6 dB & 99% BANDWIDTH

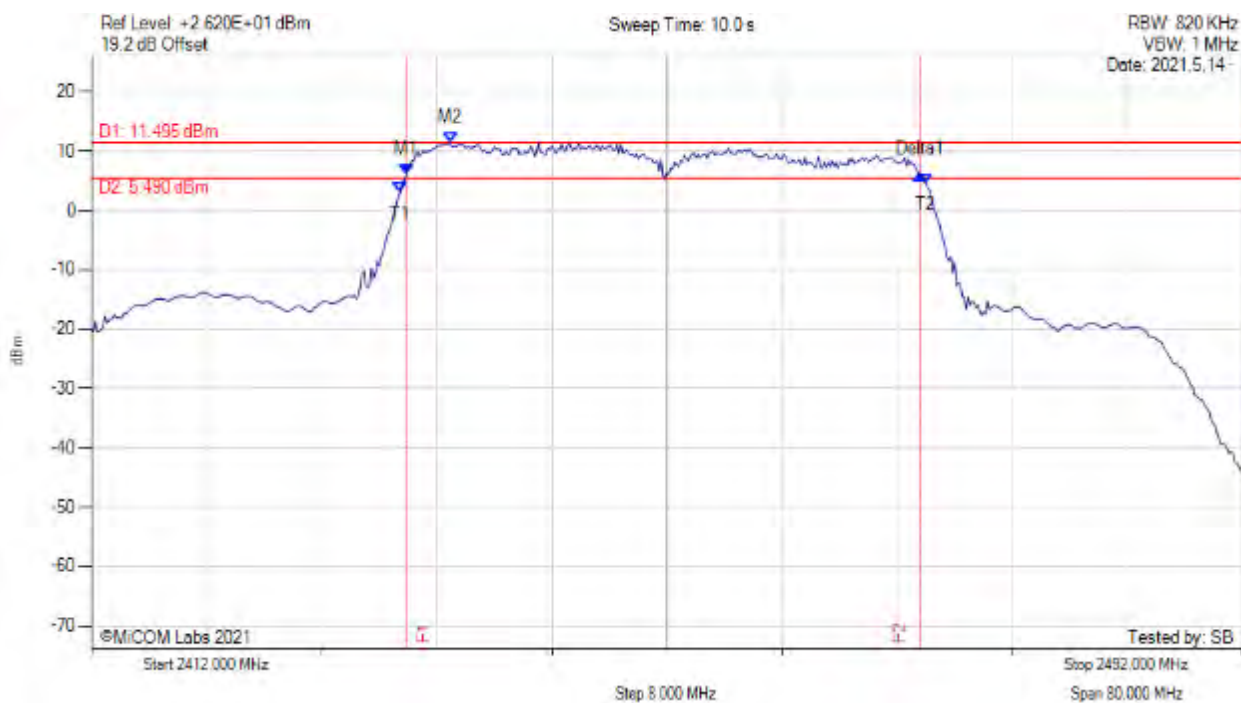Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2456.870 MHz : 2.285 dBm M2 : 2461.470 MHz : 7.163 dBm Delta1 : 10.130 MHz : -0.097 dB T1 : 2455.200 MHz : -7.020 dBm T2 : 2468.667 MHz : -5.359 dBm OBW : 13.443 MHz	Measured 6 dB Bandwidth: 10.130 MHz Limit: ≥500.0 kHz Margin: -9.63 MHz

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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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2456.800 MHz : 2.113 dBm M2 : 2461.470 MHz : 8.050 dBm Delta1 : 10.270 MHz : 0.799 dB T1 : 2455.200 MHz : -6.236 dBm T2 : 2468.600 MHz : -3.513 dBm OBW : 13.402 MHz	Measured 6 dB Bandwidth: 10.270 MHz Limit: ≥500.0 kHz Margin: -9.77 MHz

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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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2403.730 MHz : 5.696 dBm M2 : 2413.870 MHz : 11.159 dBm Delta1 : 16.470 MHz : 1.328 dB T1 : 2403.600 MHz : 2.401 dBm T2 : 2420.400 MHz : 2.293 dBm OBW : 16.808 MHz	Measured 6 dB Bandwidth: 16.470 MHz Limit: ≥500.0 kHz Margin: -15.97 MHz

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6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2403.800 MHz : 5.472 dBm M2 : 2414.070 MHz : 10.249 dBm Delta1 : 16.400 MHz : 0.402 dB T1 : 2403.533 MHz : 2.163 dBm T2 : 2420.533 MHz : 2.236 dBm OBW : 17.007 MHz	Measured 6 dB Bandwidth: 16.400 MHz Limit: ≥500.0 kHz Margin: -15.90 MHz

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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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2428.670 MHz : 6.056 dBm M2 : 2438.870 MHz : 11.609 dBm Delta1 : 16.530 MHz : 0.694 dB T1 : 2428.533 MHz : 2.873 dBm T2 : 2445.333 MHz : 3.703 dBm OBW : 16.805 MHz	Measured 6 dB Bandwidth: 16.530 MHz Limit: ≥500.0 kHz Margin: -16.03 MHz

6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2428.730 MHz : 5.106 dBm M2 : 2435.870 MHz : 10.407 dBm Delta1 : 16.400 MHz : 1.271 dB T1 : 2428.467 MHz : 2.562 dBm T2 : 2445.467 MHz : 2.343 dBm OBW : 17.023 MHz	Measured 6 dB Bandwidth: 16.400 MHz Limit: ≥500.0 kHz Margin: -15.90 MHz

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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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2453.670 MHz : 5.441 dBm M2 : 2463.870 MHz : 10.825 dBm Delta1 : 16.470 MHz : 1.486 dB T1 : 2453.467 MHz : 1.775 dBm T2 : 2470.333 MHz : 3.396 dBm OBW : 16.853 MHz	Measured 6 dB Bandwidth: 16.470 MHz Limit: ≥500.0 kHz Margin: -15.97 MHz

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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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2453.730 MHz : 5.045 dBm M2 : 2458.600 MHz : 10.575 dBm Delta1 : 16.400 MHz : 0.515 dB T1 : 2453.400 MHz : 1.738 dBm T2 : 2470.467 MHz : 2.001 dBm OBW : 17.069 MHz	Measured 6 dB Bandwidth: 16.400 MHz Limit: ≥500.0 kHz Margin: -15.90 MHz

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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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2403.200 MHz : 5.459 dBm M2 : 2414.470 MHz : 11.243 dBm Delta1 : 17.530 MHz : 1.065 dB T1 : 2403.133 MHz : 4.695 dBm T2 : 2420.867 MHz : 4.619 dBm OBW : 17.744 MHz	Measured 6 dB Bandwidth: 17.530 MHz Limit: ≥500.0 kHz Margin: -17.03 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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2403.200 MHz : 4.862 dBm M2 : 2415.470 MHz : 10.423 dBm Delta1 : 17.530 MHz : 1.042 dB T1 : 2403.067 MHz : 2.250 dBm T2 : 2420.933 MHz : 2.451 dBm OBW : 17.869 MHz	Measured 6 dB Bandwidth: 17.530 MHz Limit: ≥500.0 kHz Margin: -17.03 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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2428.200 MHz : 6.767 dBm M2 : 2434.470 MHz : 11.797 dBm Delta1 : 17.530 MHz : -0.075 dB T1 : 2428.067 MHz : 4.541 dBm T2 : 2445.867 MHz : 4.734 dBm OBW : 17.758 MHz	Measured 6 dB Bandwidth: 17.530 MHz Limit: ≥500.0 kHz Margin: -17.03 MHz

back to matrix

6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2428.130 MHz : 4.842 dBm M2 : 2429.730 MHz : 10.744 dBm Delta1 : 17.530 MHz : 1.606 dB T1 : 2428.000 MHz : 2.215 dBm T2 : 2445.933 MHz : 1.962 dBm OBW : 17.905 MHz	Measured 6 dB Bandwidth: 17.530 MHz Limit: ≥500.0 kHz Margin: -17.03 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 = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2453.130 MHz : 5.818 dBm M2 : 2459.470 MHz : 11.040 dBm Delta1 : 17.600 MHz : 0.335 dB T1 : 2453.000 MHz : 2.885 dBm T2 : 2470.867 MHz : 4.184 dBm OBW : 17.802 MHz	Measured 6 dB Bandwidth: 17.600 MHz Limit: ≥500.0 kHz Margin: -17.10 MHz

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6 dB & 99% BANDWIDTH

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2453.130 MHz : 4.470 dBm M2 : 2454.730 MHz : 10.157 dBm Delta1 : 17.600 MHz : 0.873 dB T1 : 2453.000 MHz : 2.036 dBm T2 : 2470.867 MHz : 2.846 dBm OBW : 17.909 MHz	Measured 6 dB Bandwidth: 17.600 MHz Limit: ≥500.0 kHz Margin: -17.10 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2404.000 MHz : 6.576 dBm M2 : 2437.200 MHz : 12.050 dBm Delta1 : 35.730 MHz : 0.254 dB T1 : 2403.867 MHz : 5.164 dBm T2 : 2440.133 MHz : 5.246 dBm OBW : 36.238 MHz	Measured 6 dB Bandwidth: 35.730 MHz Limit: ≥500.0 kHz Margin: -35.23 MHz

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6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2404.000 MHz : 5.464 dBm M2 : 2427.600 MHz : 11.017 dBm Delta1 : 35.870 MHz : 0.138 dB T1 : 2403.733 MHz : 4.003 dBm T2 : 2440.267 MHz : 3.691 dBm OBW : 36.492 MHz	Measured 6 dB Bandwidth: 35.870 MHz Limit: ≥500.0 kHz Margin: -35.37 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Ref Level +2.630E+01 dBm
19.3 dB Offset

Sweep Time: 10.0 s

RBW: 820 KHz
VBW: 1 MHz
Date: 2021.5.14

D1 12.258 dBm
D2 6.260 dBm

Start 2397.000 MHz
Stop 2477.000 MHz
Step 8.000 MHz
Span 80.000 MHz

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Tested by: SB

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2418.870 MHz : 7.222 dBm M2 : 2431.800 MHz : 12.258 dBm Delta1 : 35.870 MHz : -0.524 dB T1 : 2418.733 MHz : 5.929 dBm T2 : 2455.000 MHz : 5.688 dBm OBW : 36.279 MHz	Measured 6 dB Bandwidth: 35.870 MHz Limit: ≥500.0 kHz Margin: -35.37 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2418.870 MHz : 5.483 dBm M2 : 2430.200 MHz : 11.332 dBm Delta1 : 35.870 MHz : 0.258 dB T1 : 2418.600 MHz : 4.433 dBm T2 : 2455.133 MHz : 4.015 dBm OBW : 36.526 MHz	Measured 6 dB Bandwidth: 35.870 MHz Limit: ≥500.0 kHz Margin: -35.37 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2433.600 MHz : 6.317 dBm M2 : 2437.730 MHz : 12.313 dBm Delta1 : 36.130 MHz : 0.009 dB T1 : 2433.600 MHz : 6.317 dBm T2 : 2470.000 MHz : 5.467 dBm OBW : 36.400 MHz	Measured 6 dB Bandwidth: 36.130 MHz Limit: ≥500.0 kHz Margin: -35.63 MHz

back to matrix

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6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 2433.870 MHz : 5.987 dBm M2 : 2436.930 MHz : 11.495 dBm Delta1 : 35.730 MHz : 0.045 dB T1 : 2433.467 MHz : 3.031 dBm T2 : 2470.000 MHz : 4.540 dBm OBW : 36.610 MHz	Measured 6 dB Bandwidth: 35.730 MHz Limit: ≥500.0 kHz Margin: -35.23 MHz

A.3. Power Spectral Density

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-20, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
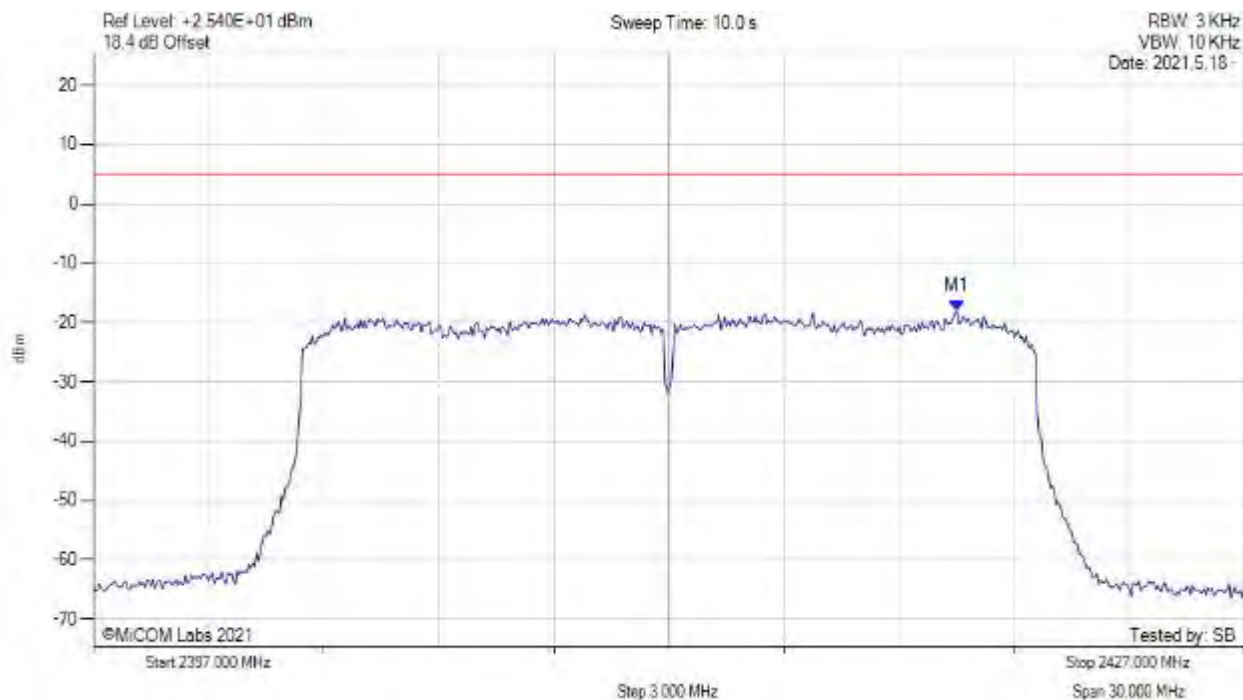
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2419.500 MHz : -18.107 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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

Ref Level +2.470E+01 dBm
17.7 dB Offset
Sweep Time: 10.0 s
RBW. 3 KHz
VBW. 10 KHz
Date: 2021.5.18

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

Tested by: SB

©MiCOM Labs 2021
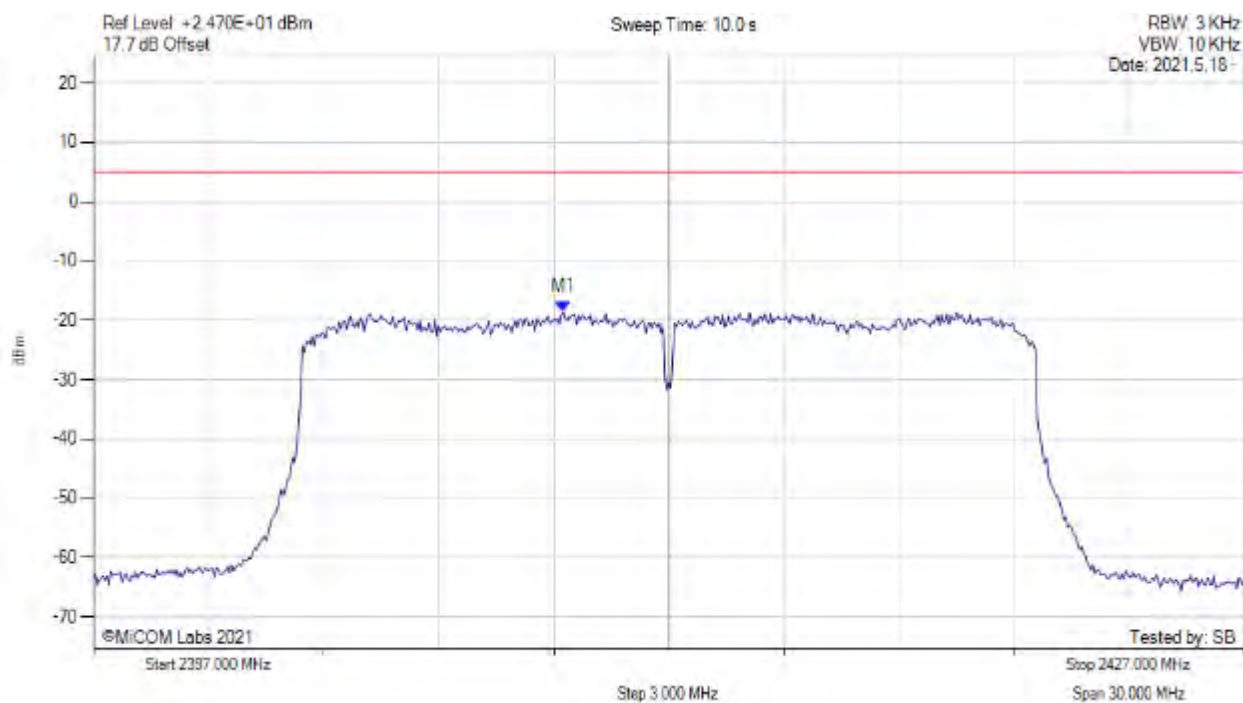
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2409.250 MHz : -18.539 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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

Ref Level +2.540E+01 dBm
18.4 dB Offset

Sweep Time: 10.0 s

RBW: 3 KHz
VBW: 10 KHz
Date: 2021.5.18

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Tested by: SB

Start 2397.000 MHz

Step 3.000 MHz

Stop 2427.000 MHz

Span 30.000 MHz
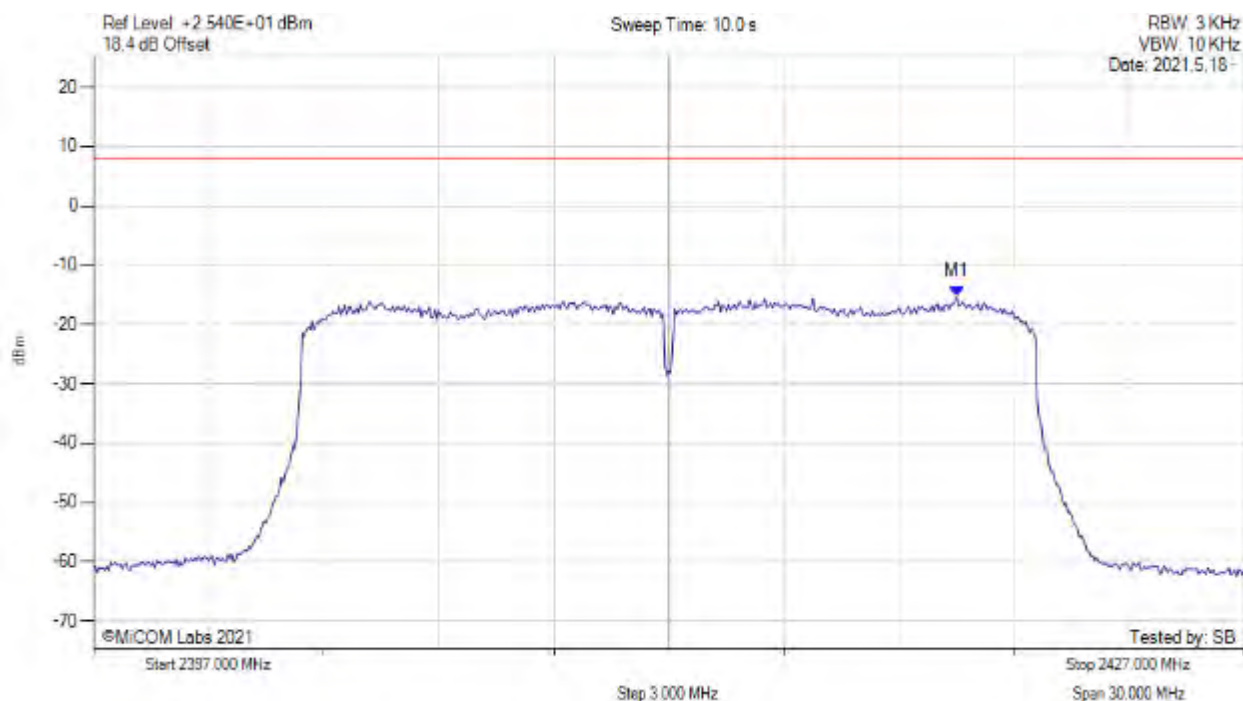
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2419.500 MHz : -15.387 dBm M1 + DCCF : 2419.500 MHz : -15.343 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -23.4 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

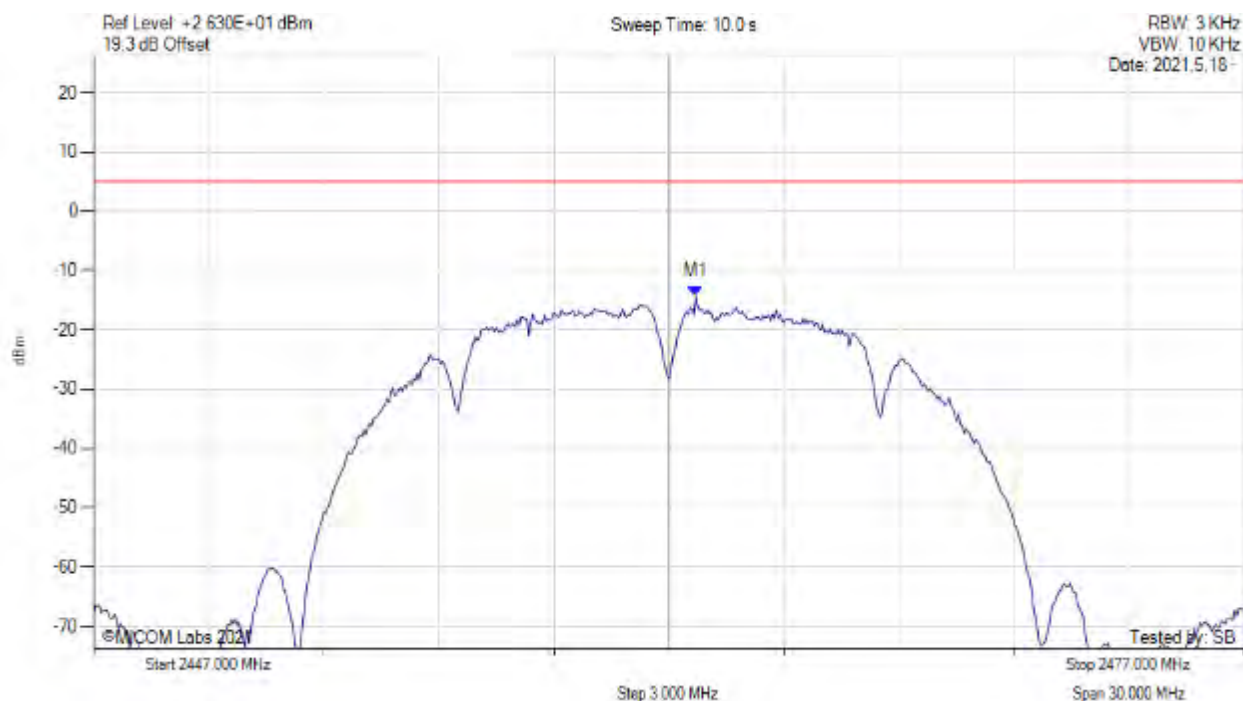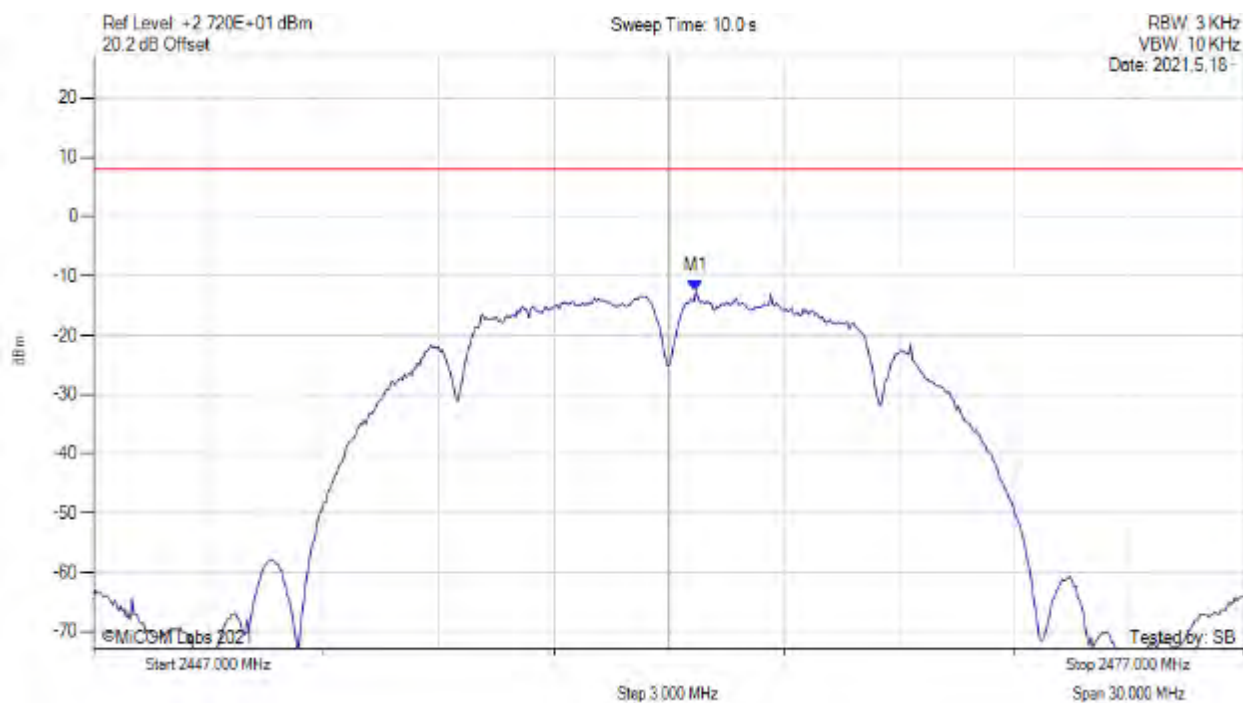Variant: 802.11ax-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
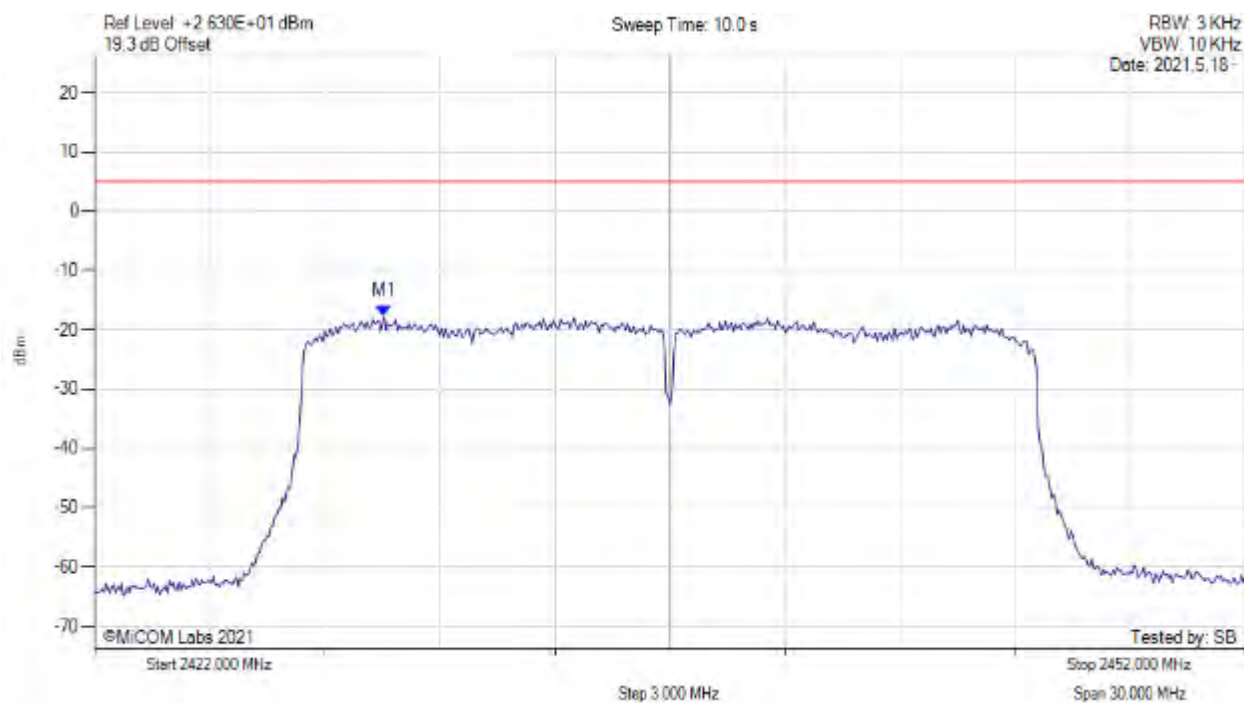
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2429.550 MHz : -17.705 dBm	Limit: ≤ 4.990 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
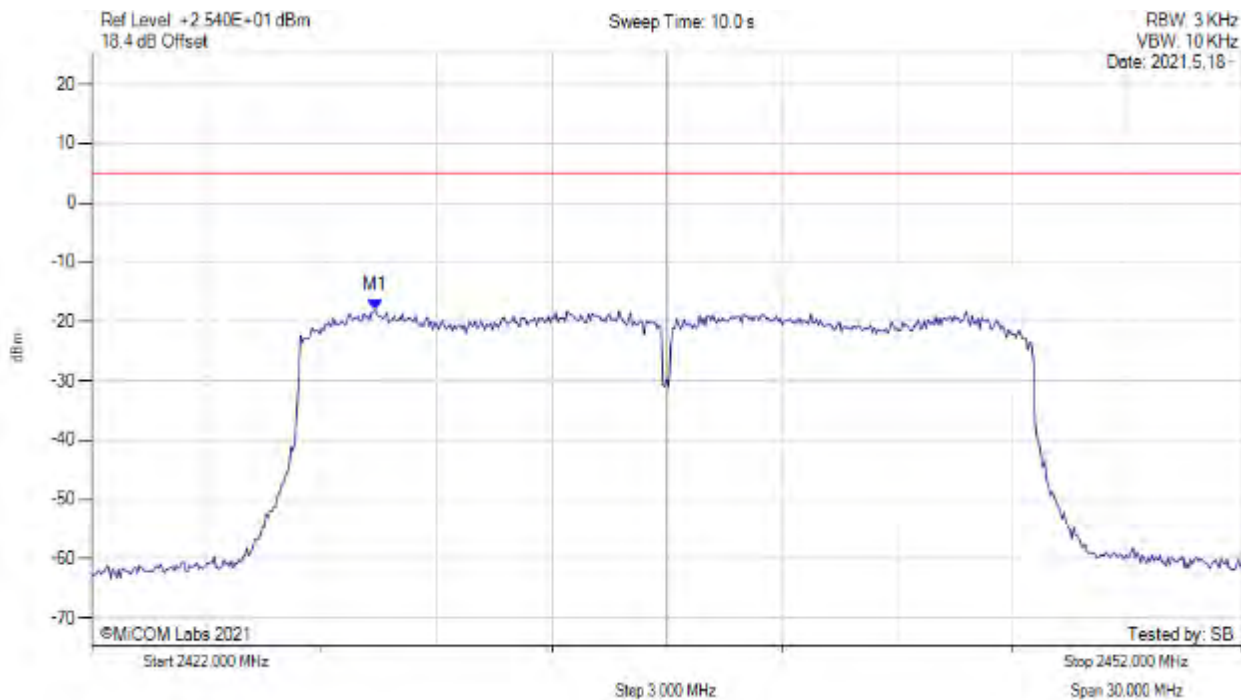
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2429.400 MHz : -18.095 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

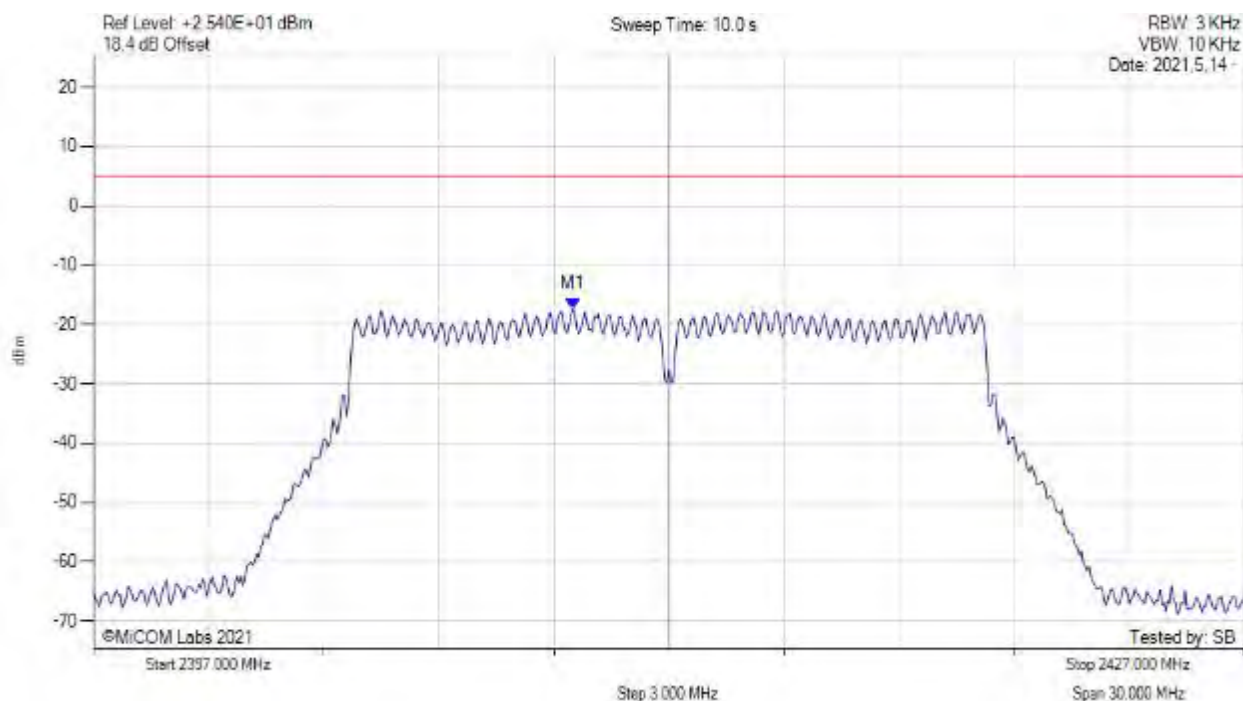Variant: 802.11ax-20, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
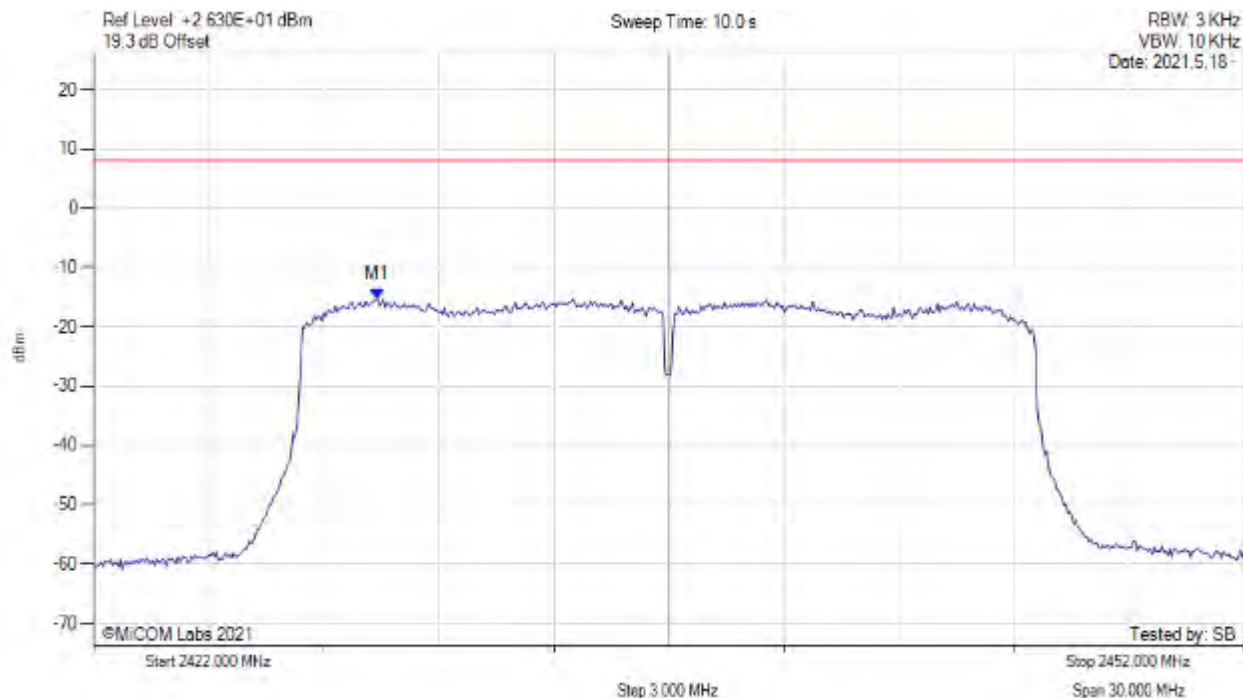
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2429.400 MHz : -15.244 dBm M1 + DCCF : 2429.400 MHz : -15.200 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -23.2 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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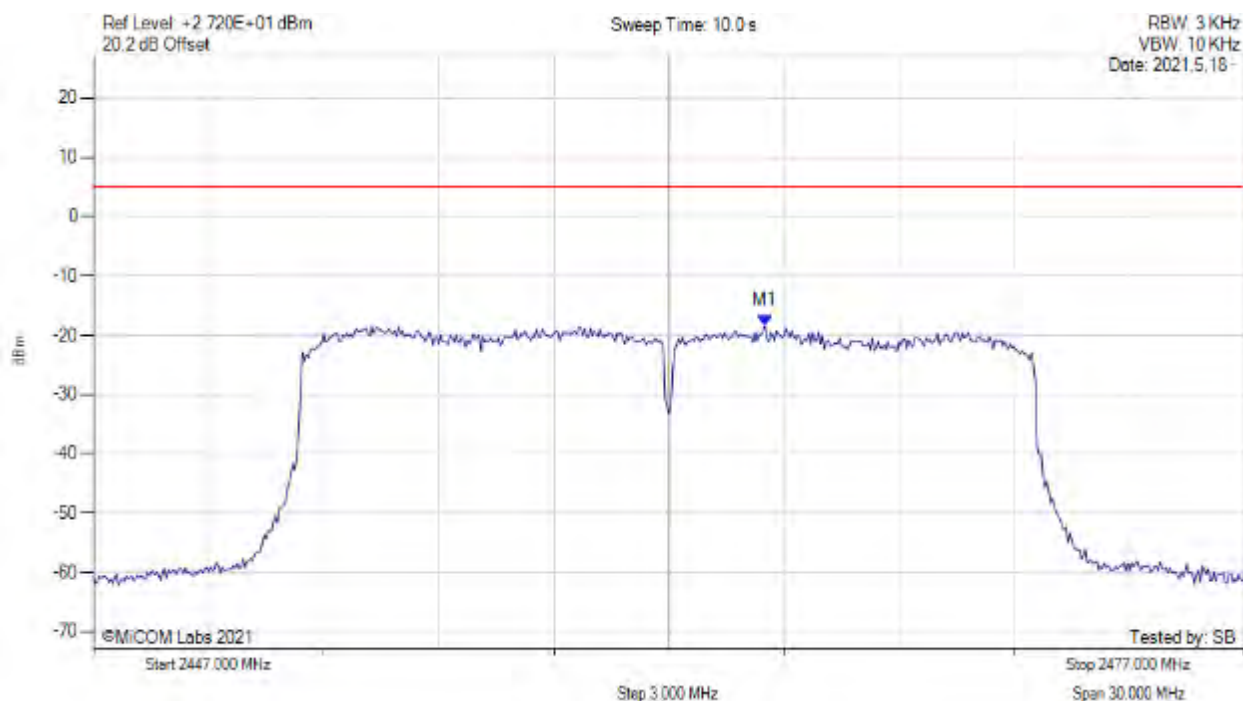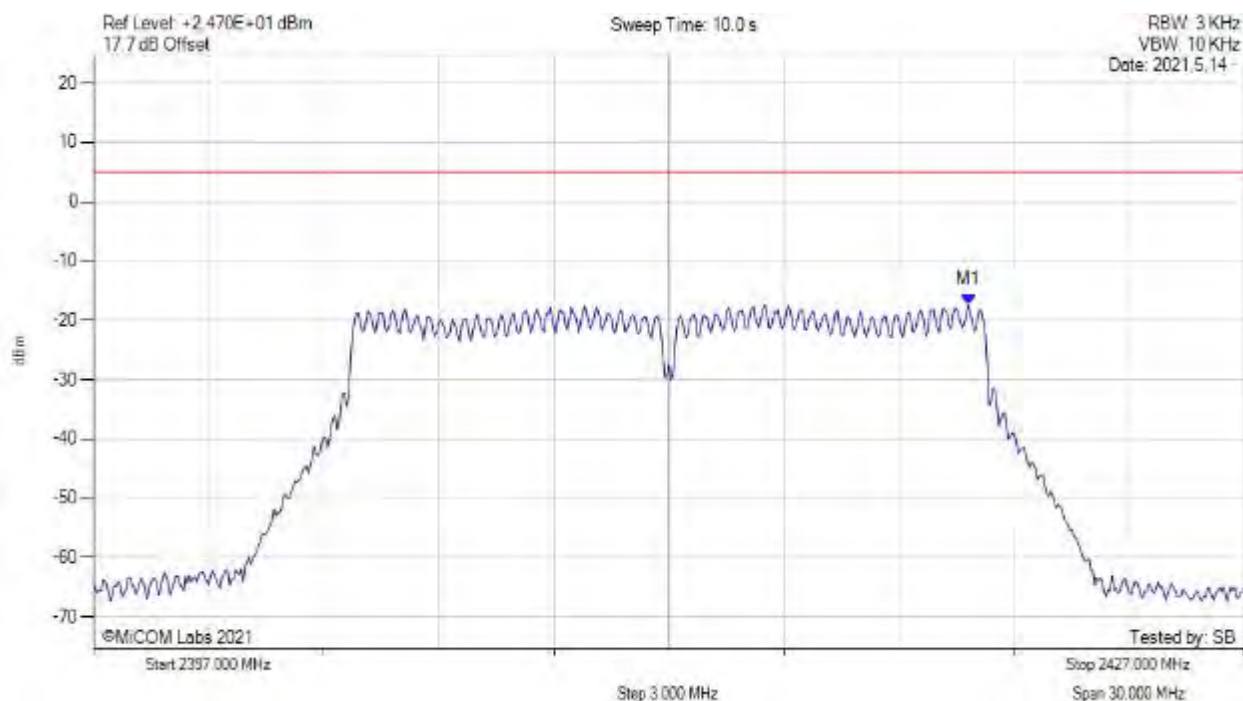

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2464.500 MHz : -18.470 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
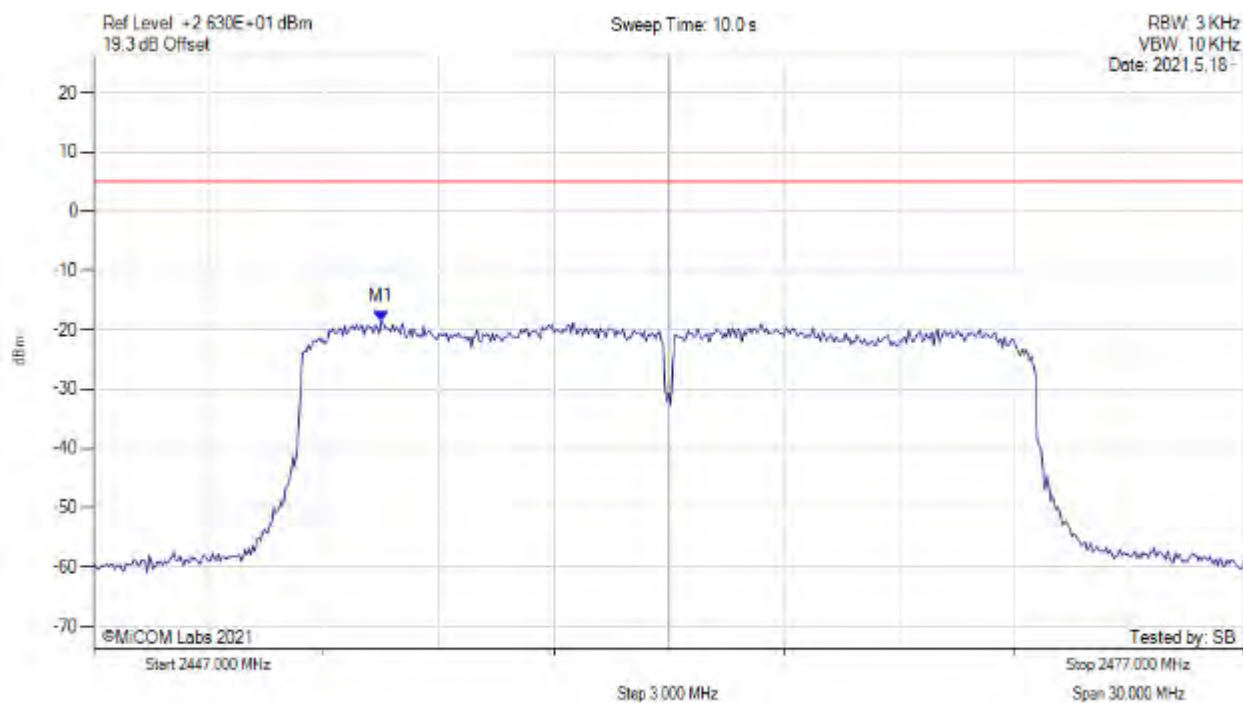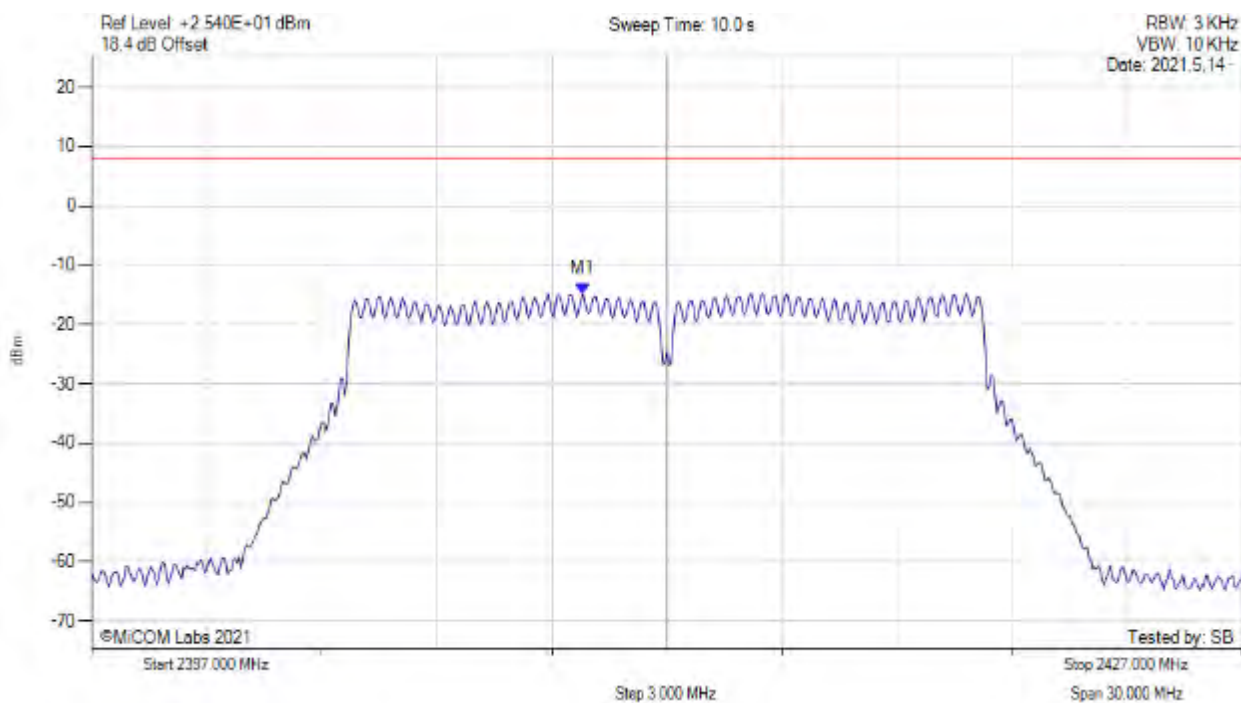
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.500 MHz : -18.503 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

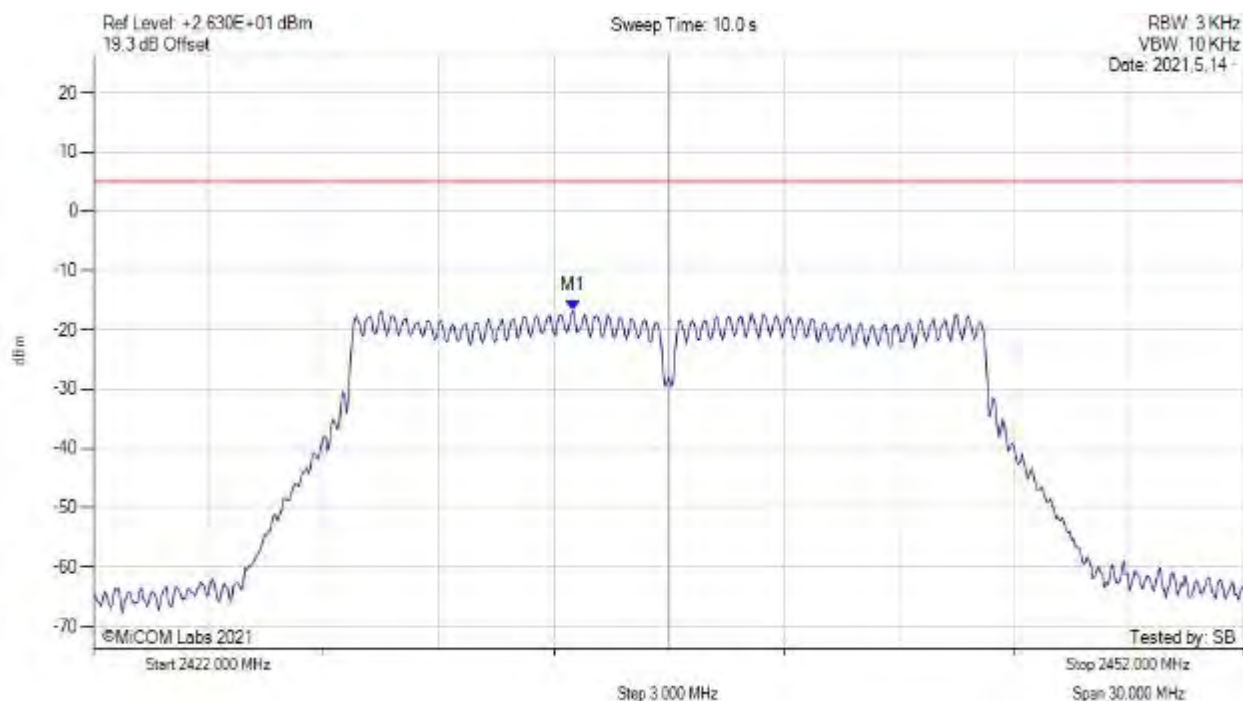Variant: 802.11ax-20, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
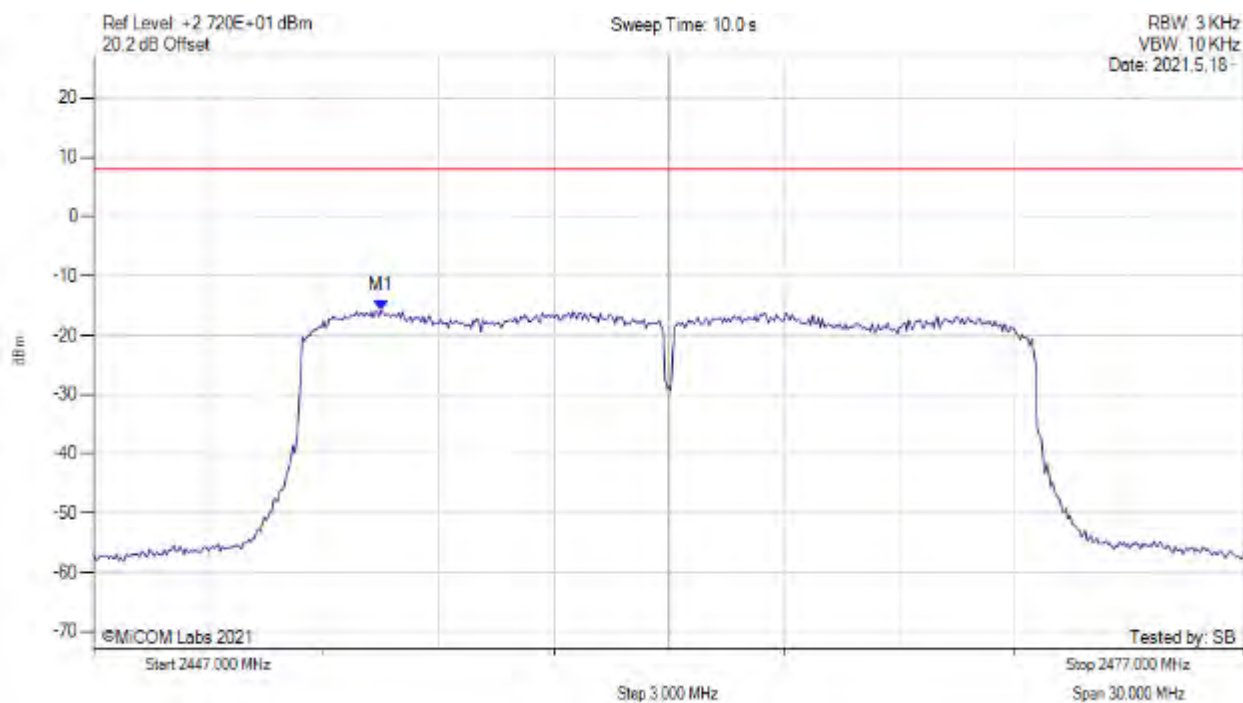
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.500 MHz : -15.787 dBm M1 + DCCF : 2454.500 MHz : -15.743 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -23.8 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
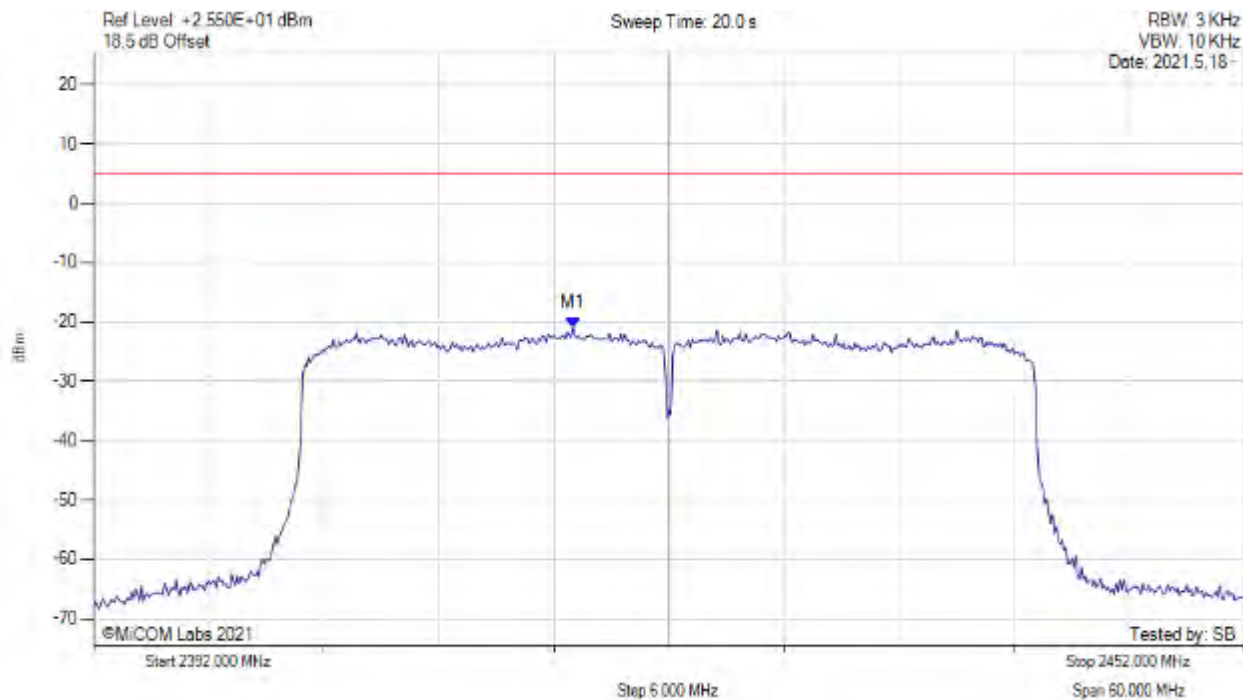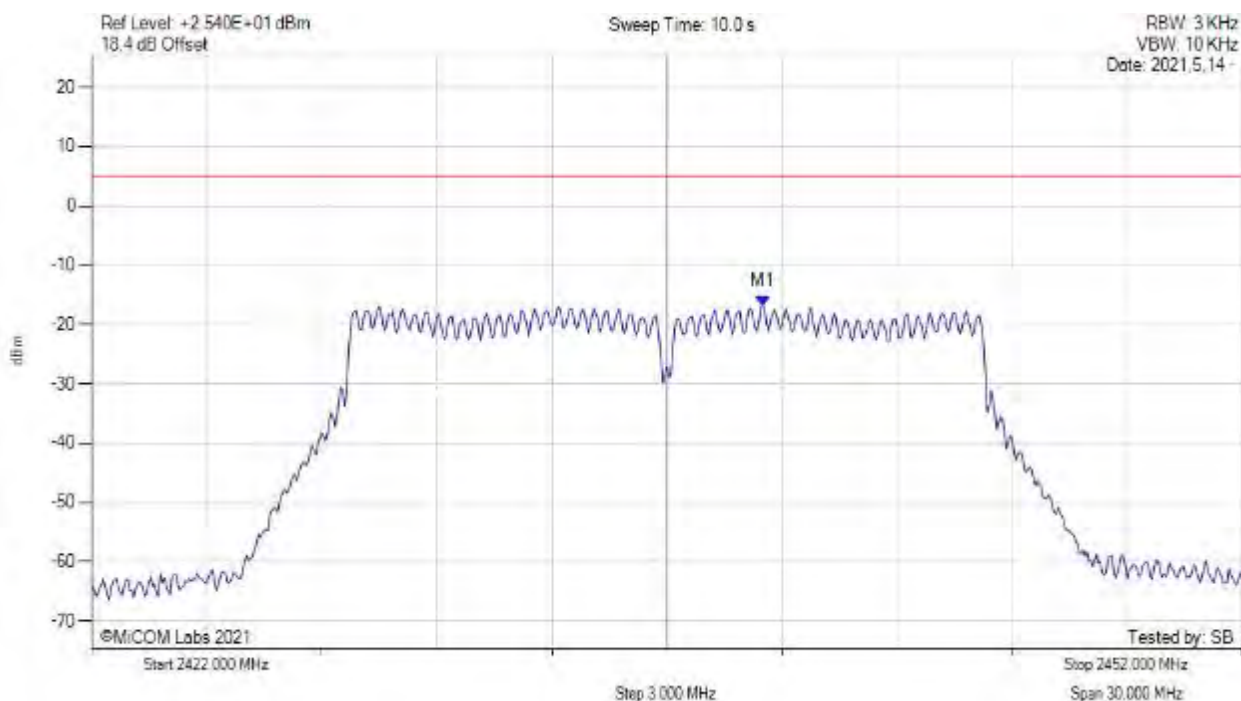

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2417.000 MHz : -20.956 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
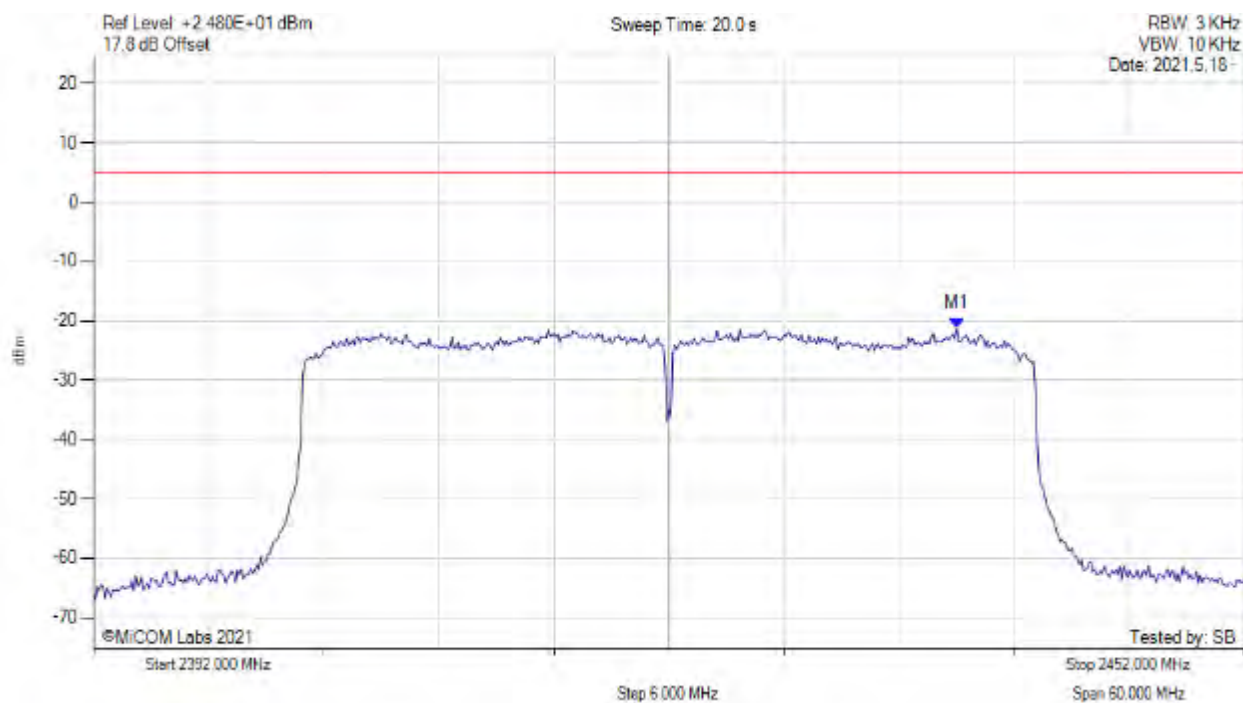
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.000 MHz : -21.342 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

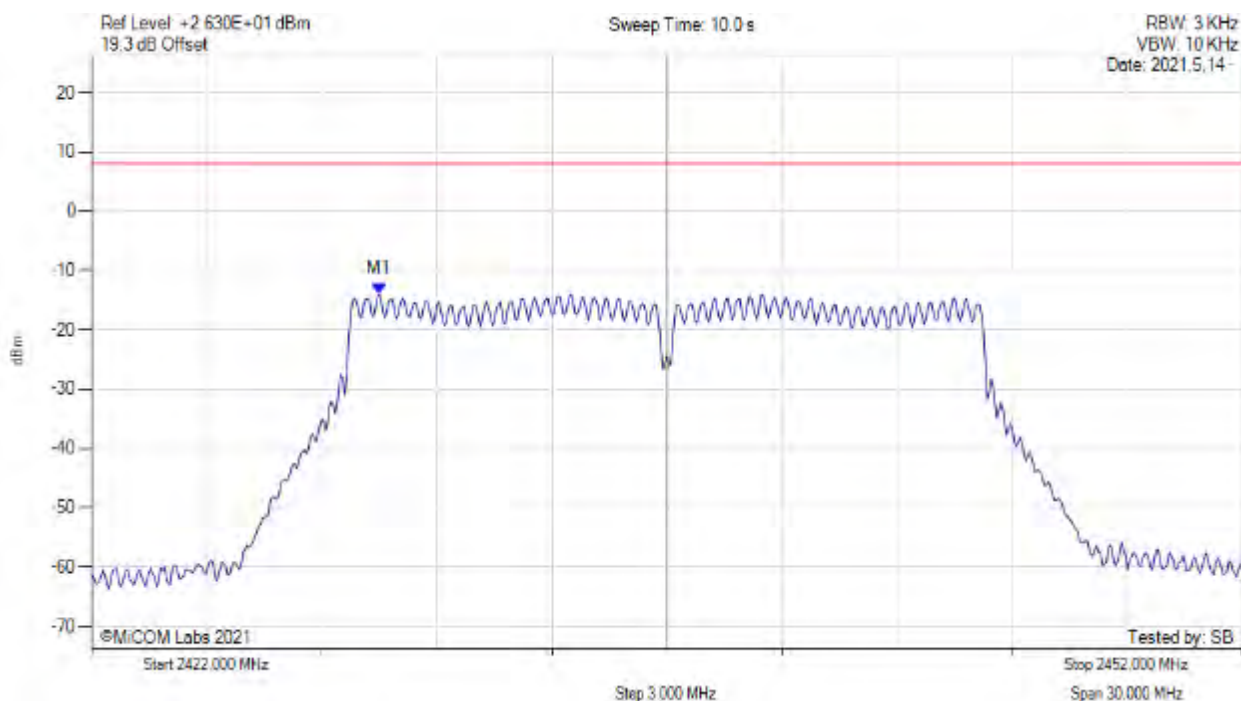Variant: 802.11ax-40, Channel: 2422.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
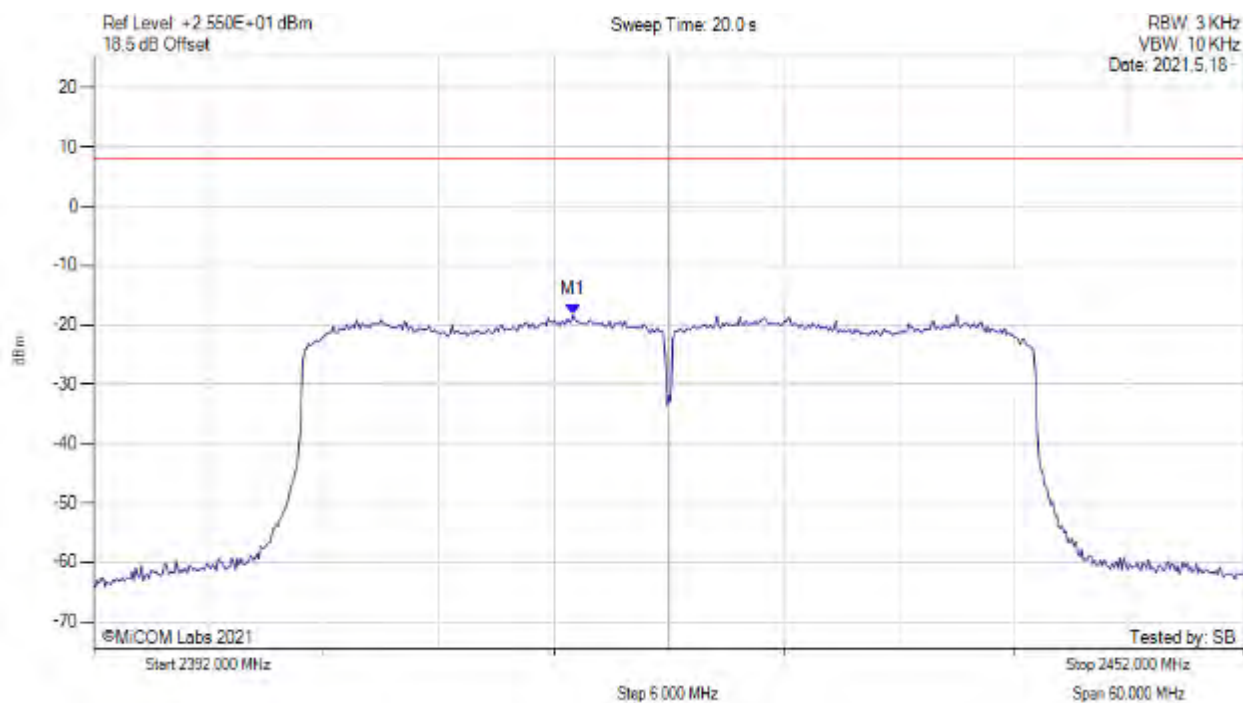
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2417.000 MHz : -18.298 dBm M1 + DCCF : 2417.000 MHz : -18.254 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -26.3 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Ref Level +2.630E+01 dBm
19.3 dB Offset
Sweep Time: 20.0 s
RBW: 3 KHz
VBW: 10 KHz
Date: 2021.5.18

Start 2407.000 MHz
Stop 2467.000 MHz
Step 6.000 MHz
Span 60.000 MHz

Tested by: SB
©MiCOM Labs 2021
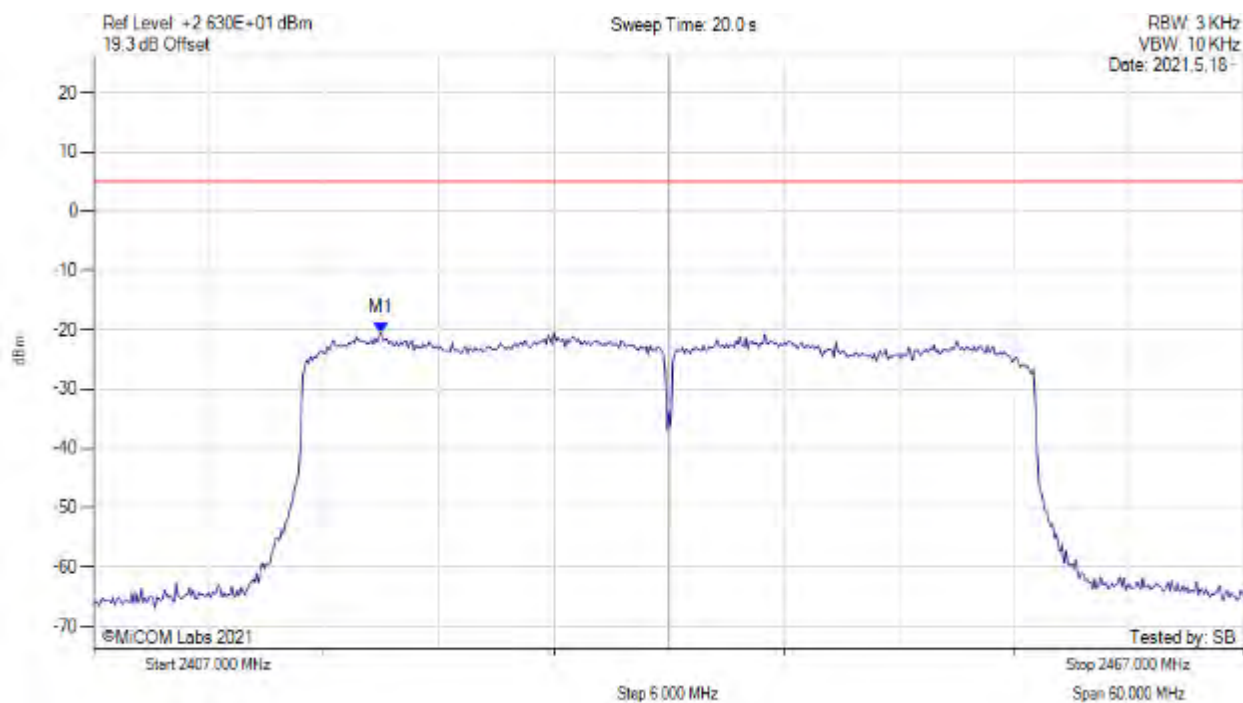
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2422.000 MHz : -20.472 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

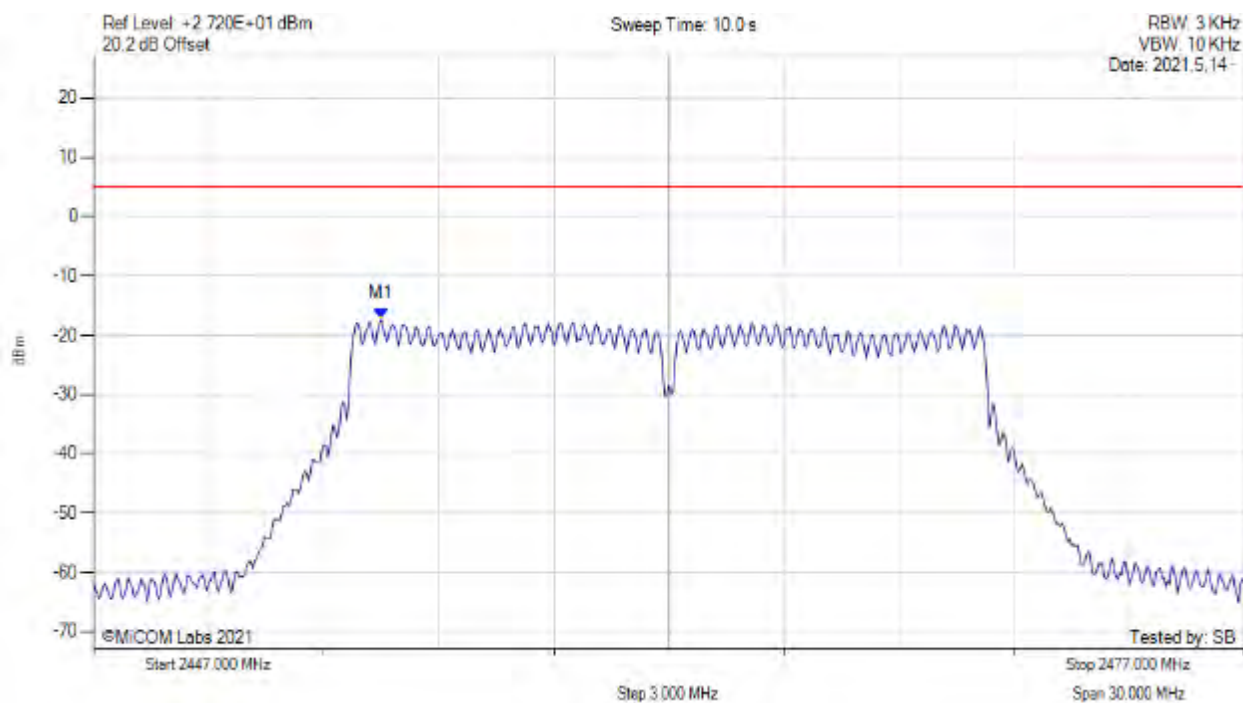Variant: 802.11ax-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
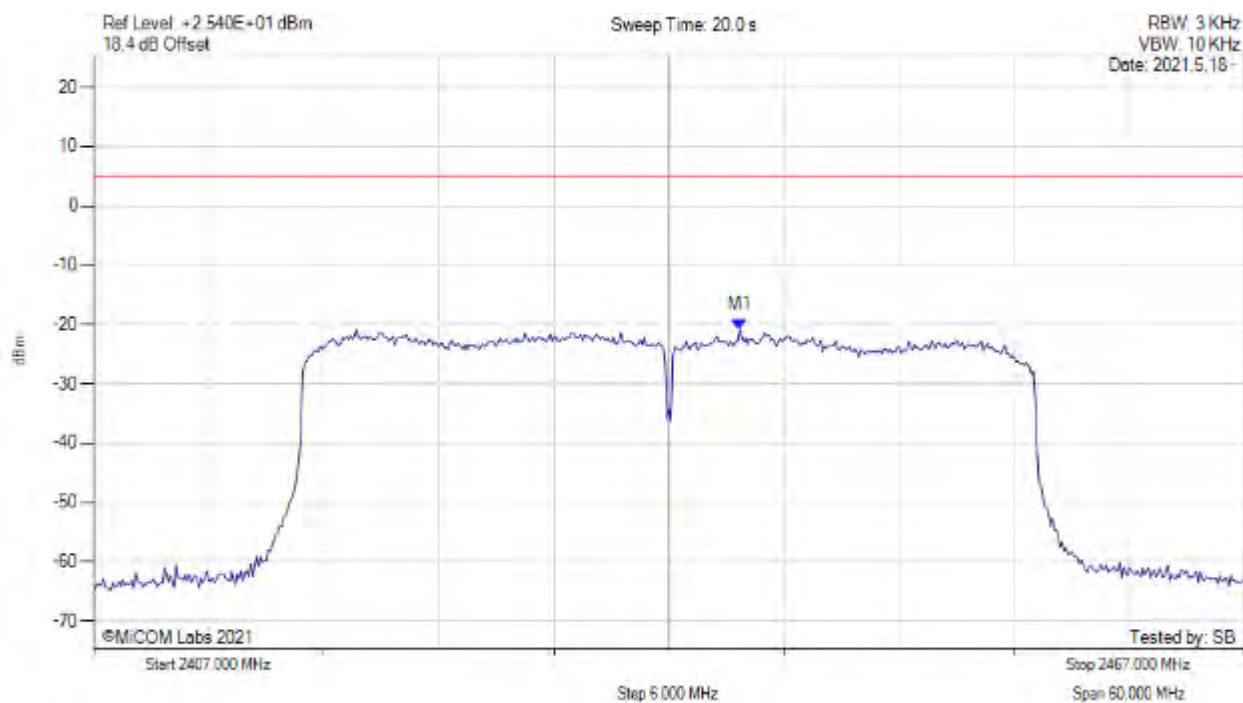
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2440.700 MHz : -20.818 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-40, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
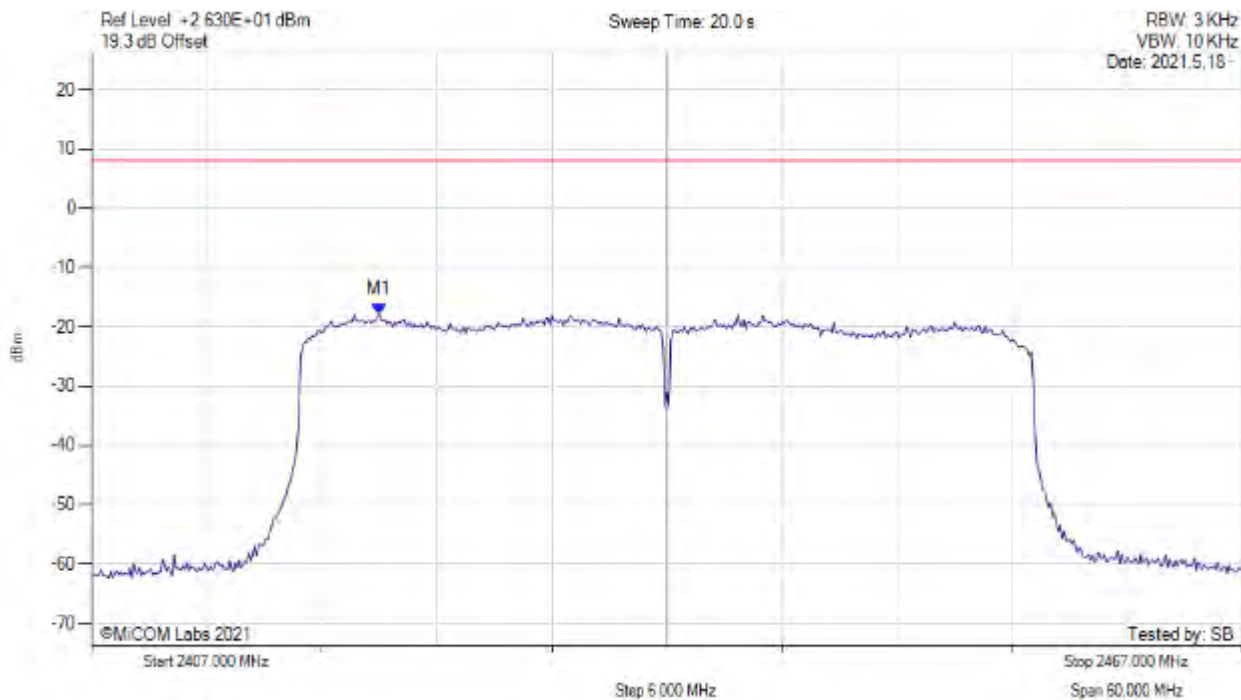
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2422.000 MHz : -17.850 dBm M1 + DCCF : 2422.000 MHz : -17.806 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -25.8 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
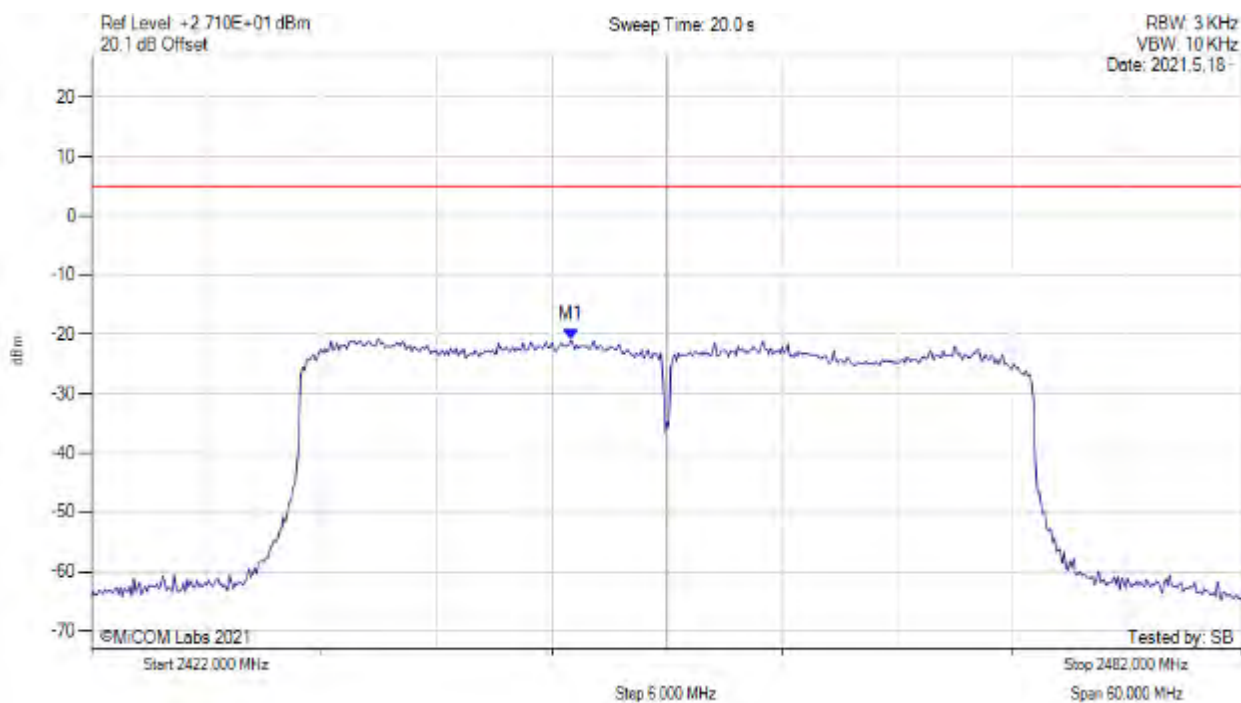
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2447.000 MHz : -20.883 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

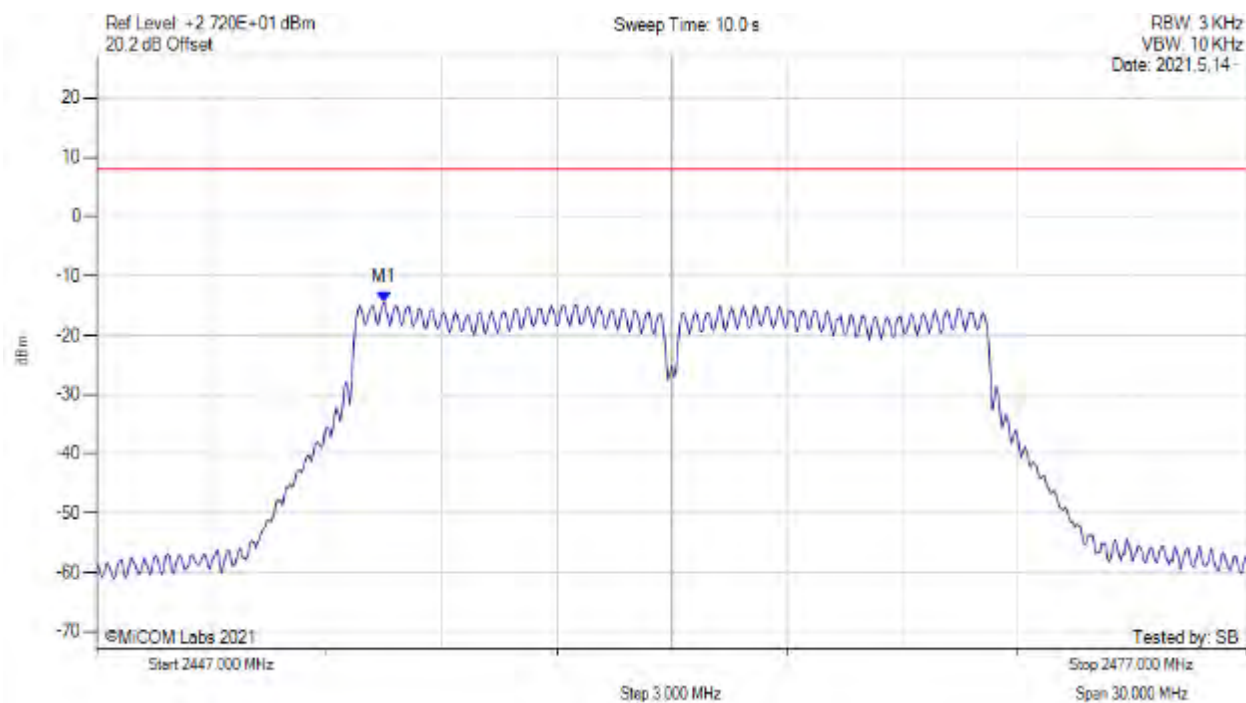Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
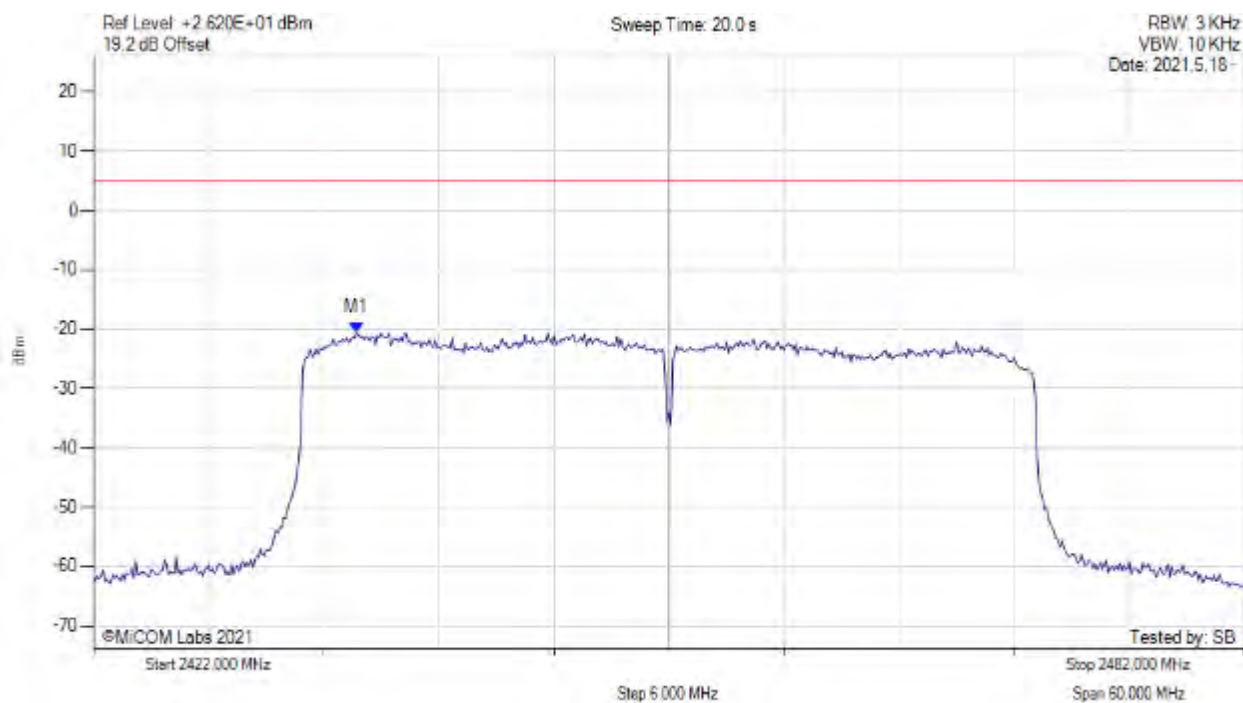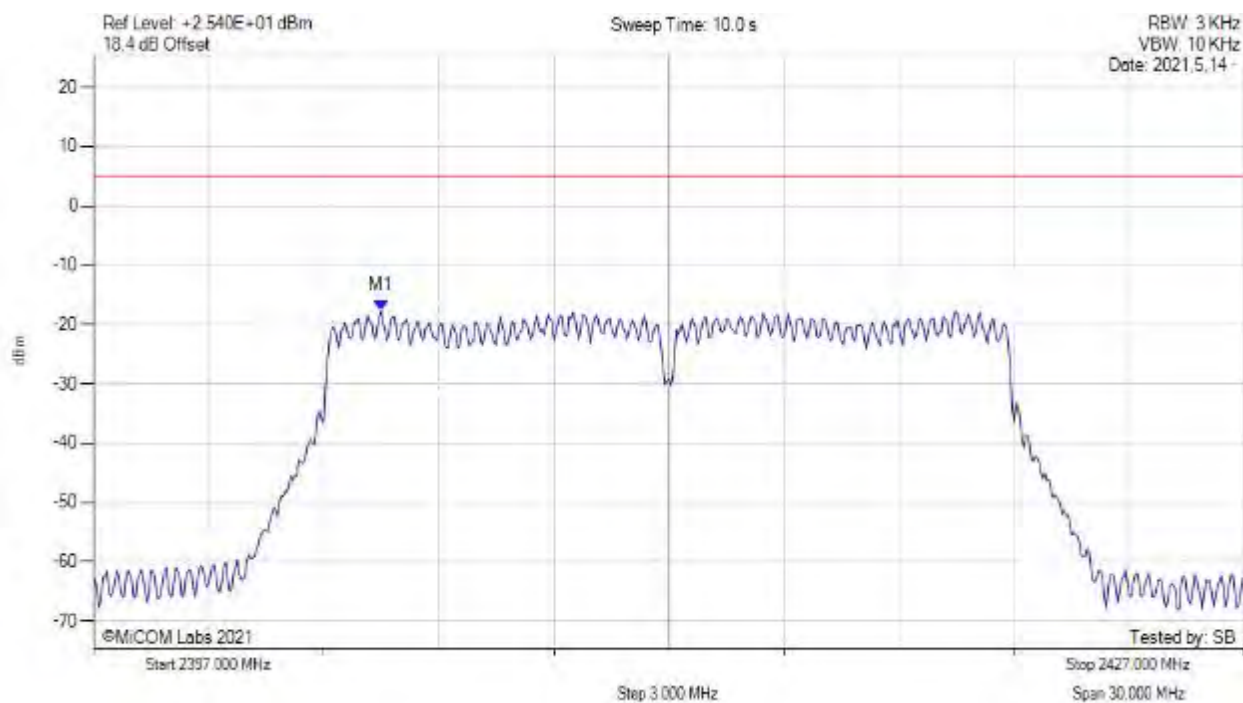

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2435.700 MHz : -20.523 dBm	Limit: ≤ 4.990 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11ax-40, Channel: 2452.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
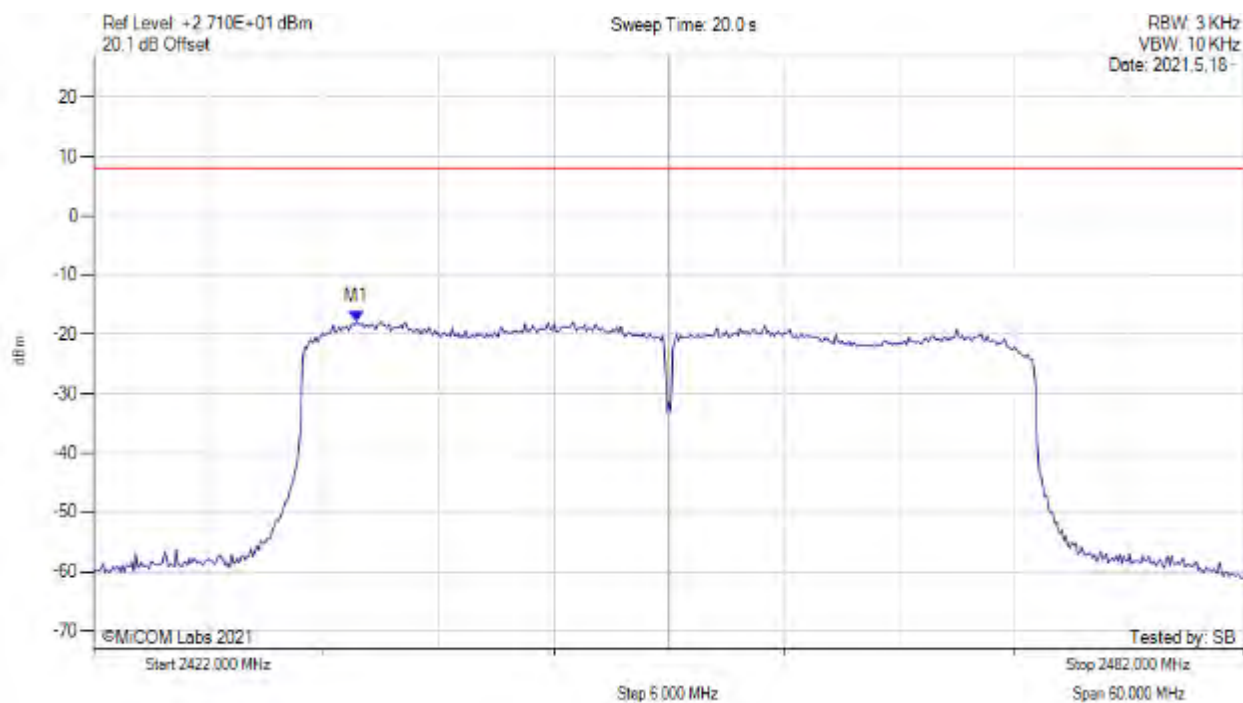
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2435.700 MHz : -17.723 dBm M1 + DCCF : 2435.700 MHz : -17.679 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -25.7 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

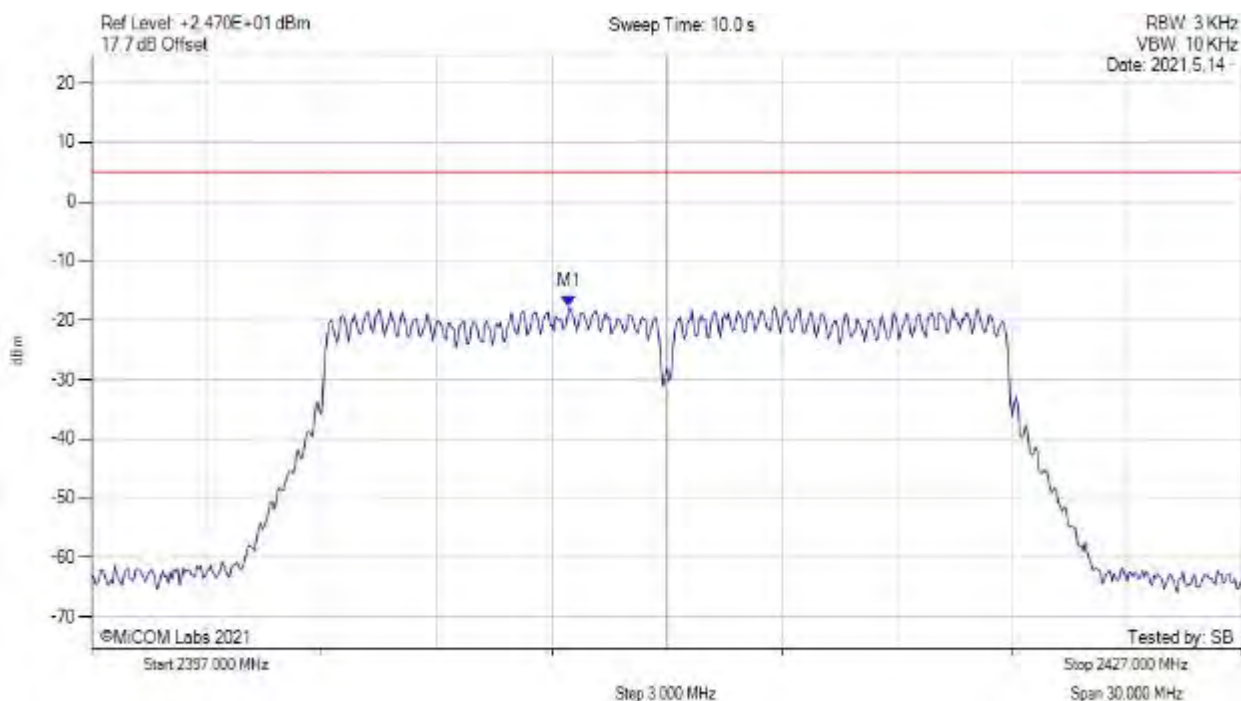Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
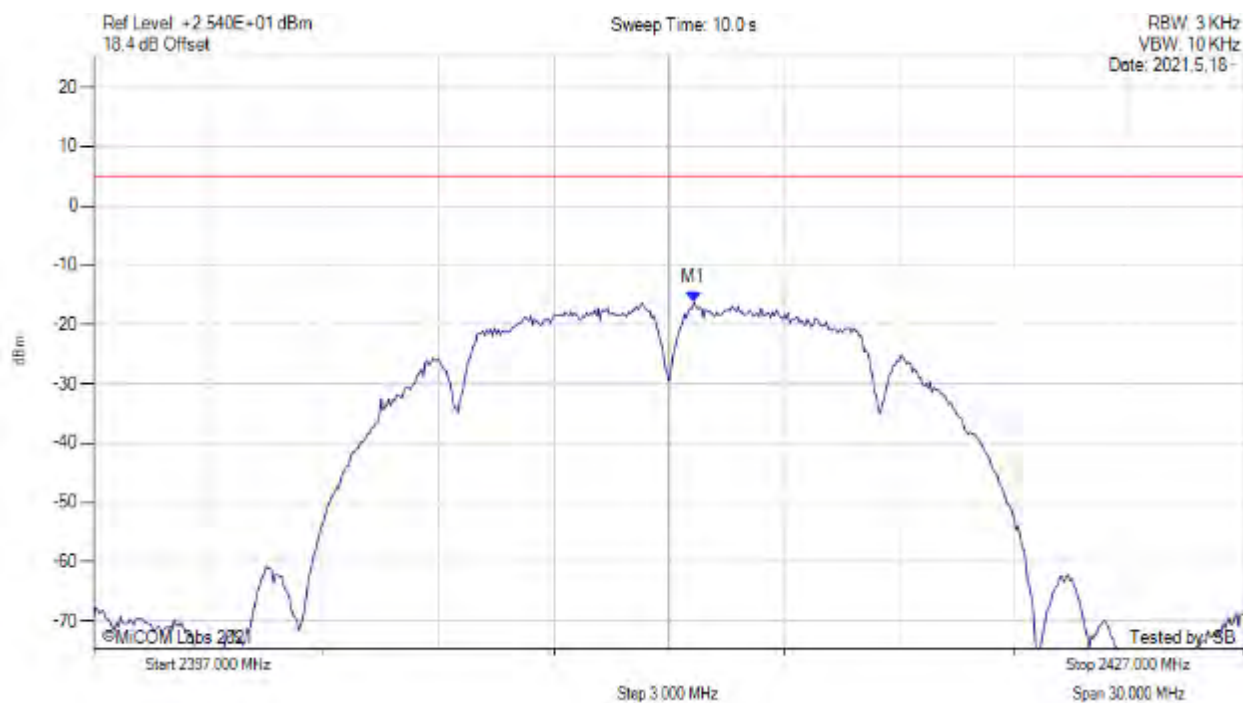
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.650 MHz : -16.295 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

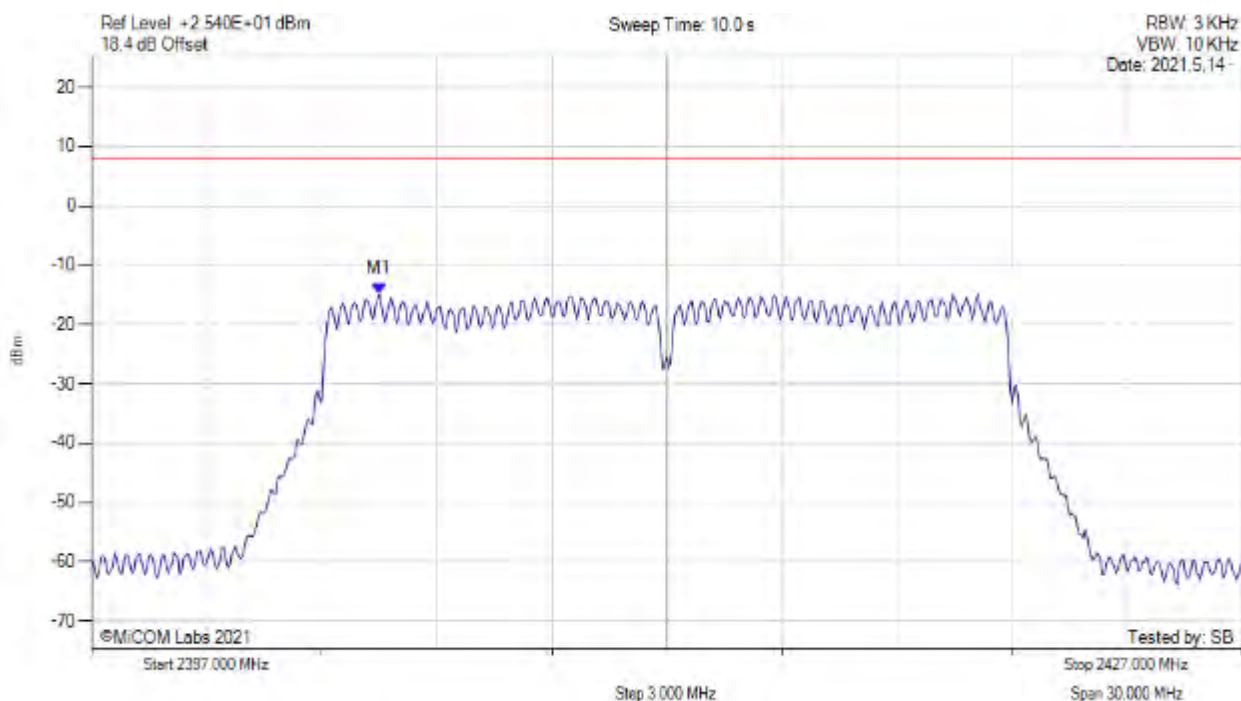Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
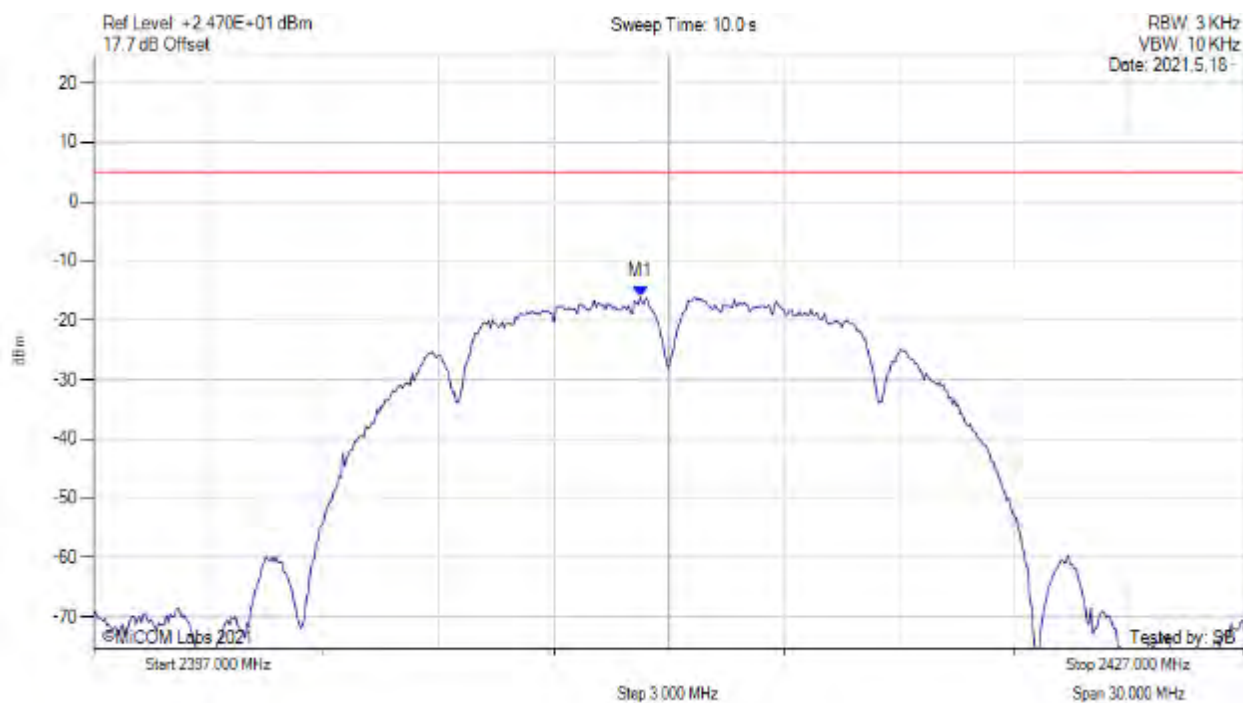
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2411.250 MHz : -16.056 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

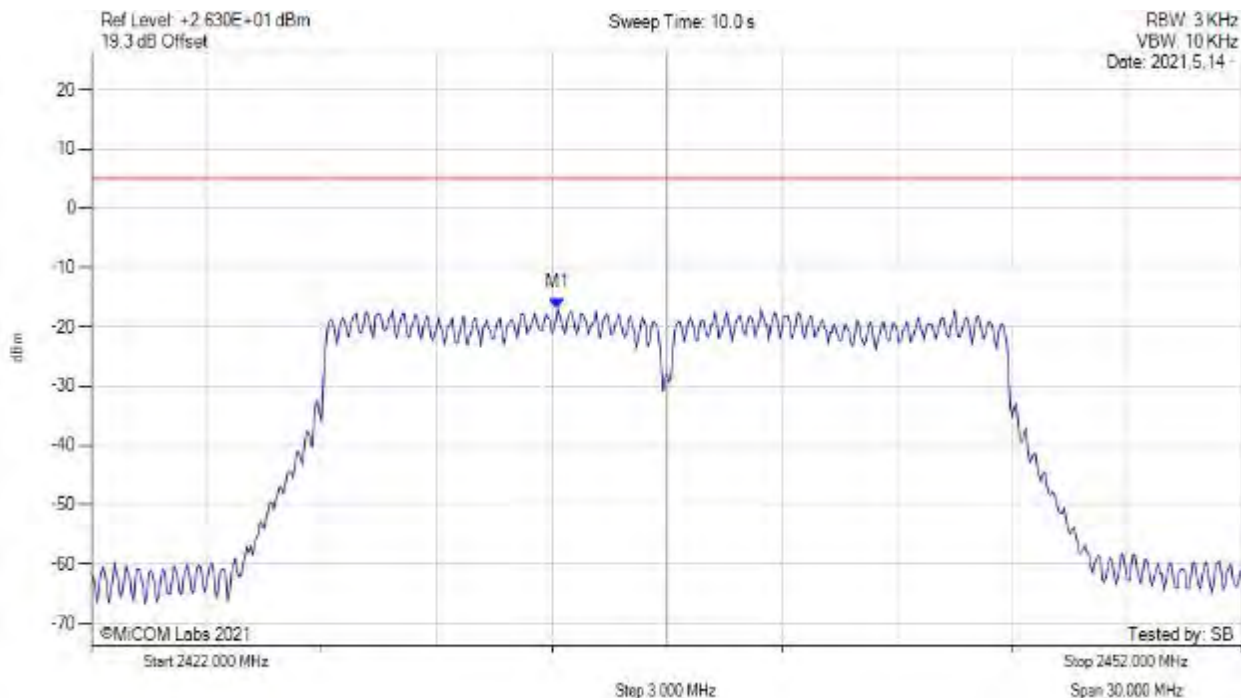Variant: 802.11b, Channel: 2412.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
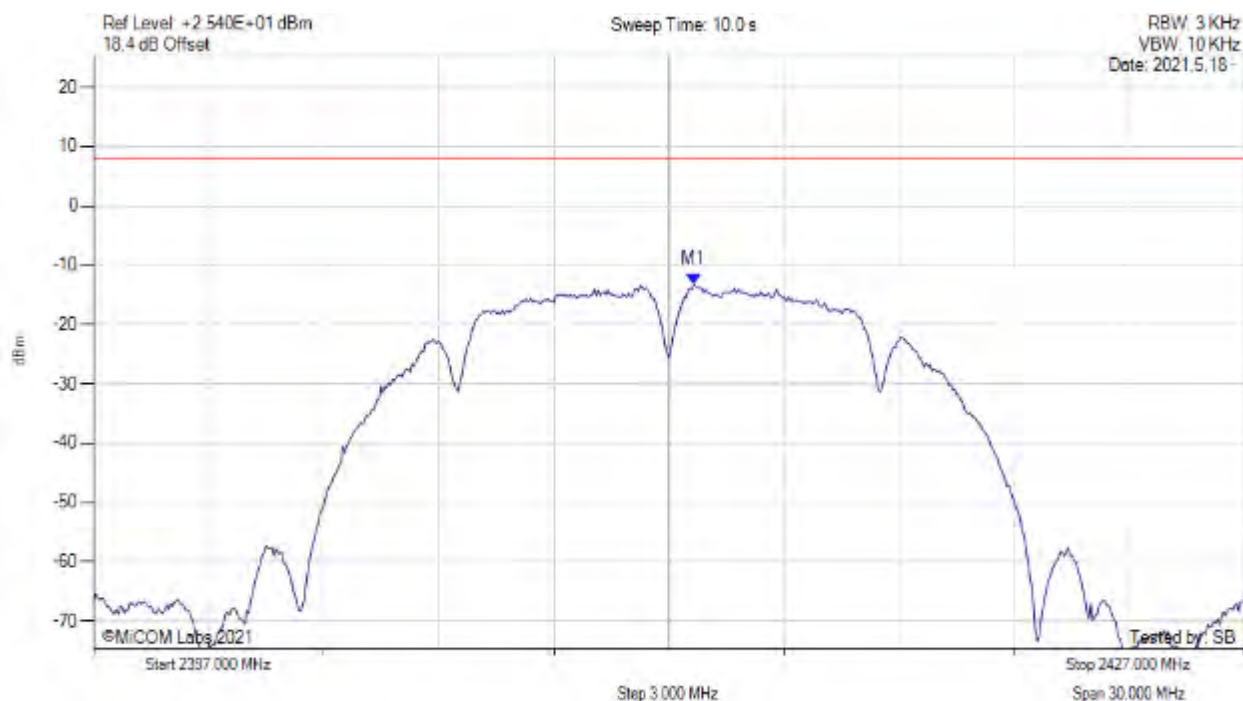
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2412.700 MHz : -13.236 dBm M1 + DCCF : 2412.700 MHz : -13.192 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -21.2 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

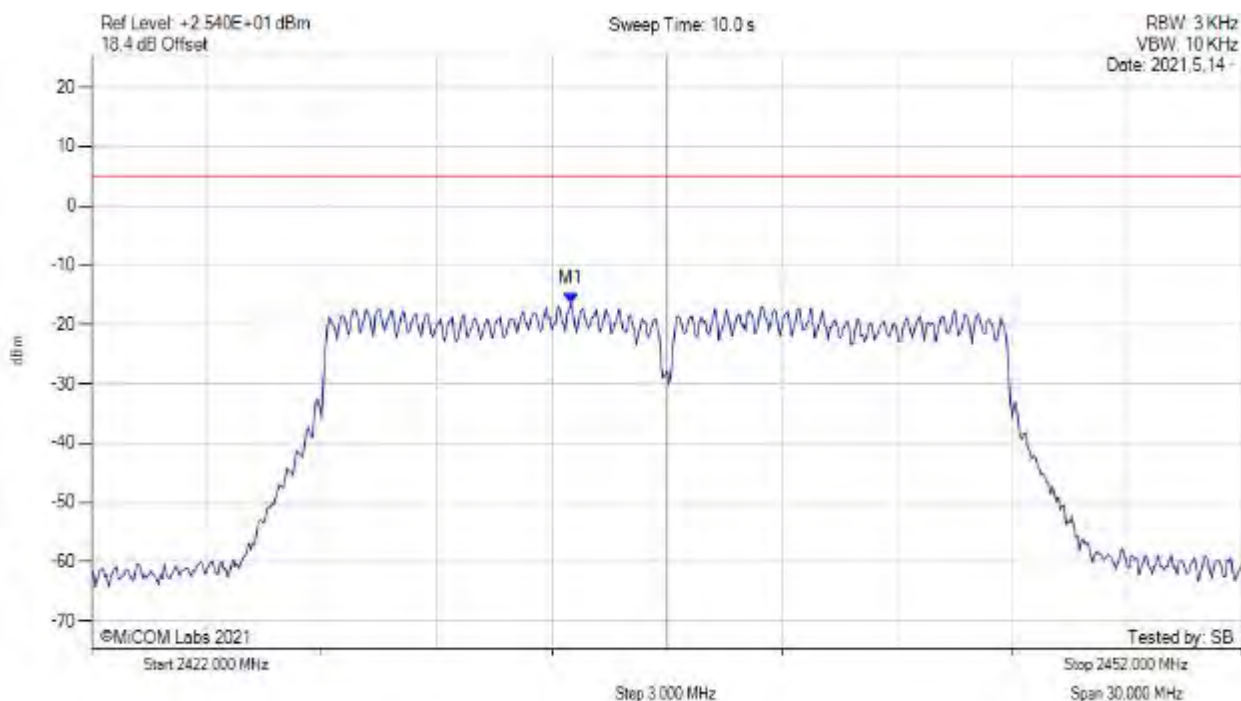Variant: 802.11b, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
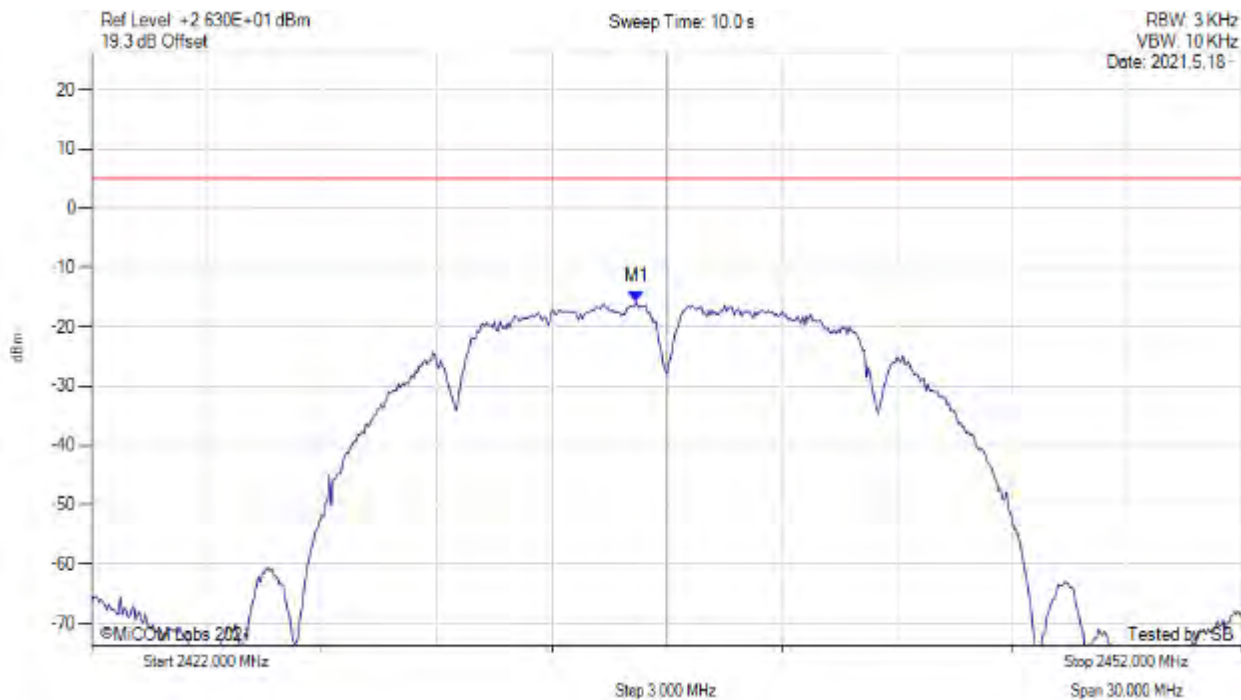
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2436.200 MHz : -15.838 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
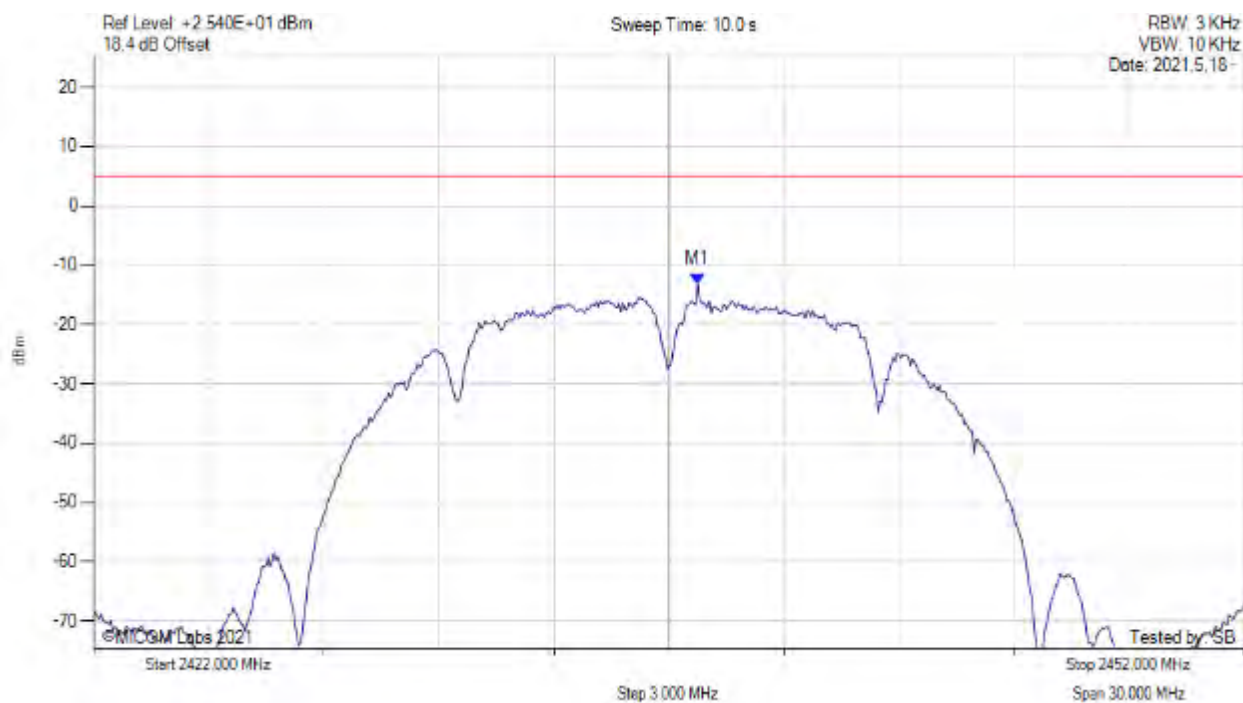
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.750 MHz : -13.228 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

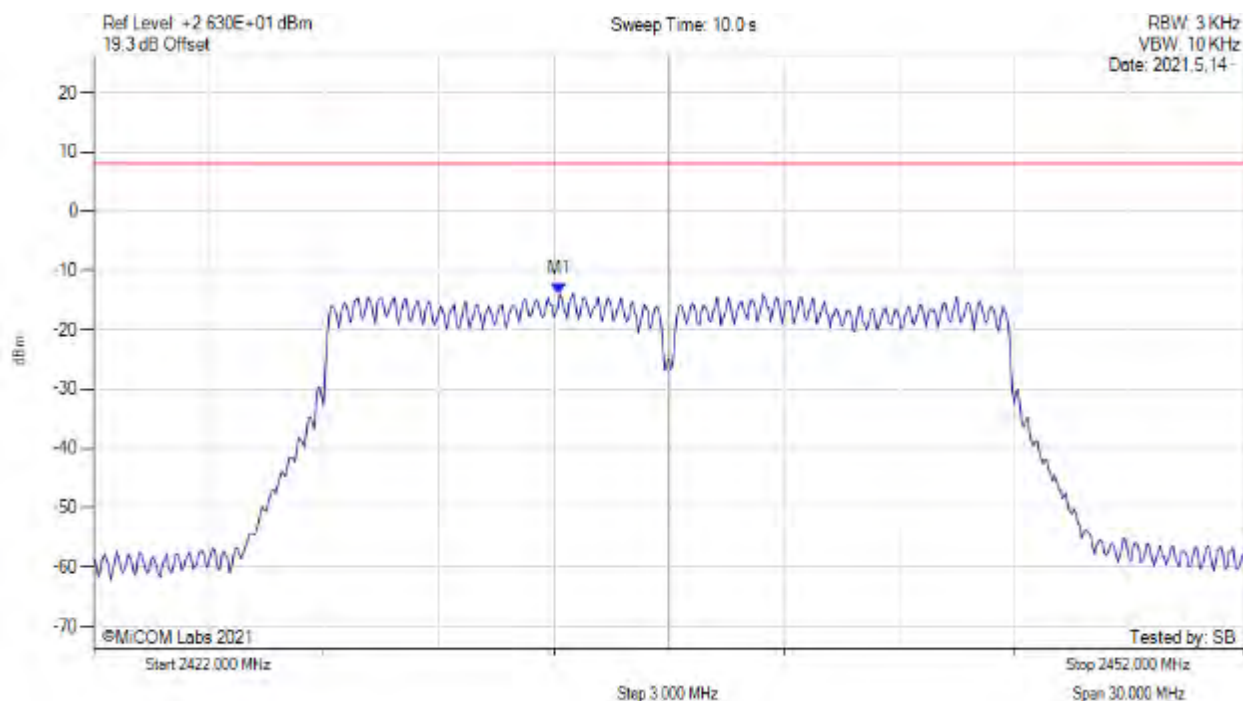Variant: 802.11b, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
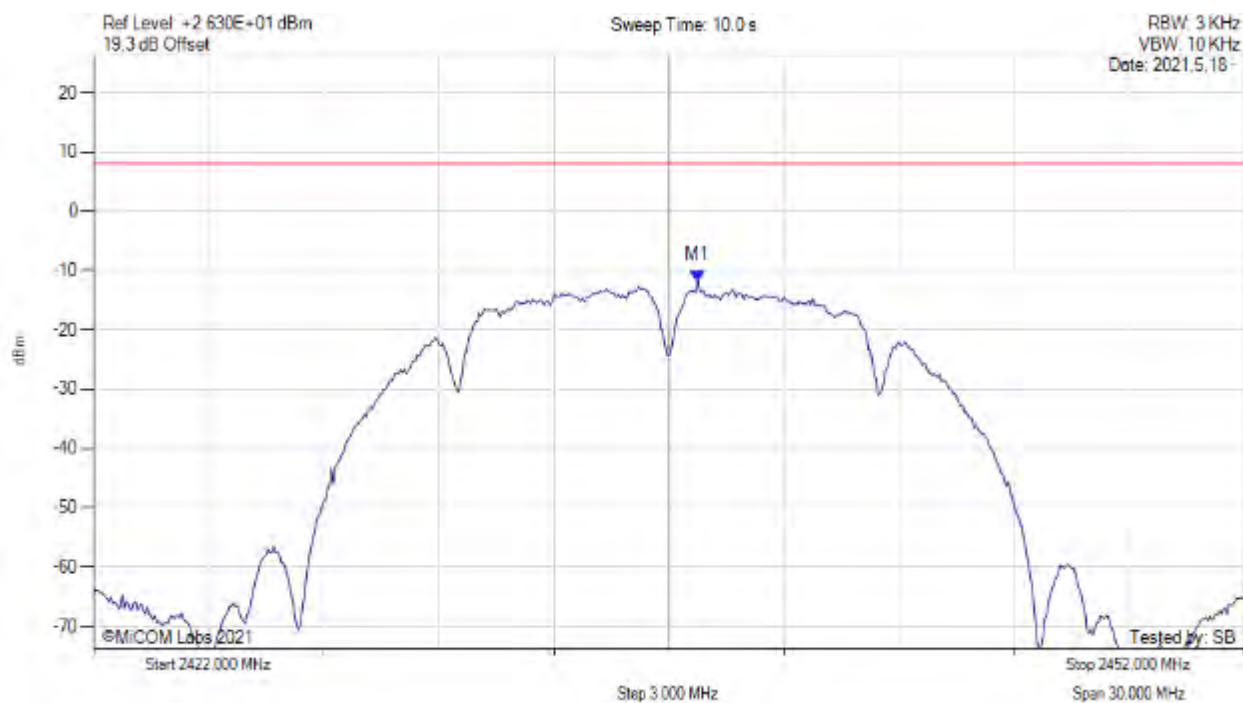
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.800 MHz : -11.709 dBm M1 + DCCF : 2437.800 MHz : -11.665 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -19.7 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
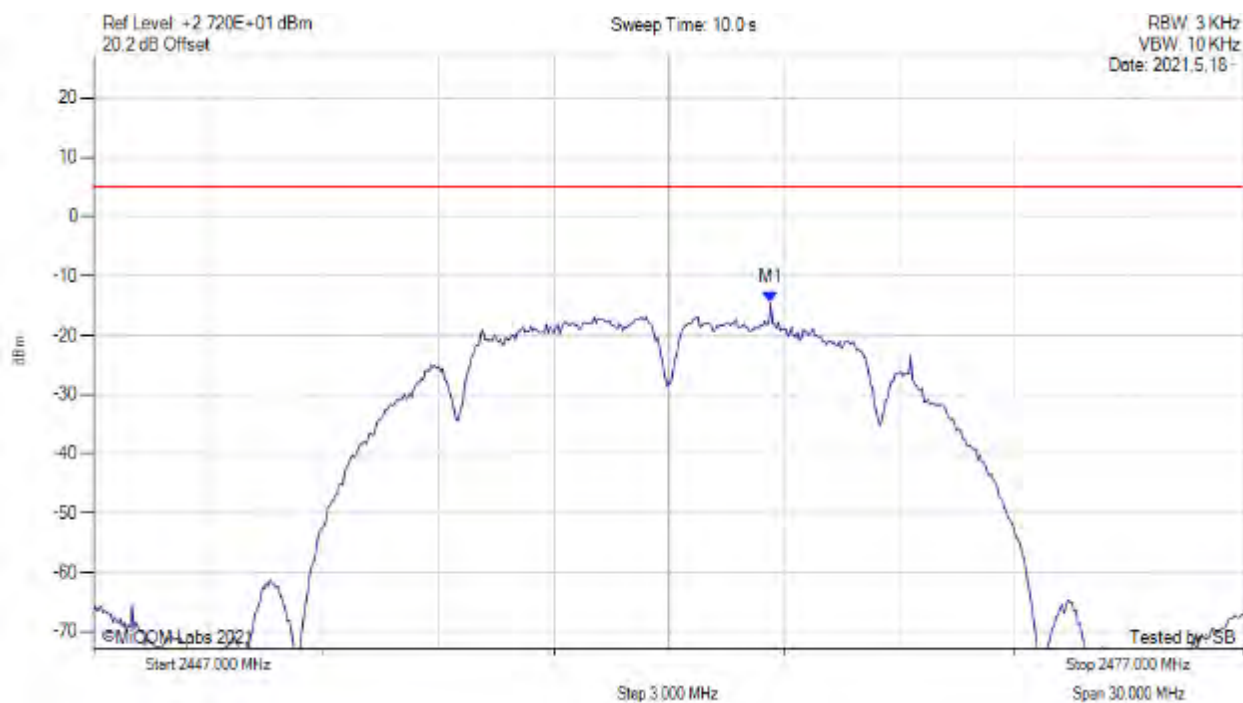
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2464.650 MHz : -14.519 dBm	Limit: ≤ 4.990 dBm

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 +2.630E+01 dBm
19.3 dB Offset
Sweep Time: 10.0 s
RBW: 3 KHz
VBW: 10 KHz
Date: 2021.5.18

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

Tested By: SB

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Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2462.700 MHz : -14.322 dBm	Limit: ≤ 4.990 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 = AVER	M1 : 2462.700 MHz : -12.496 dBm	Limit: ≤ 8.0 dBm
Sweep Count = 0	M1 + DCCF : 2462.700 MHz : -12.452 dBm	Margin: -20.5 dB
RF Atten (dB) = 20	Duty Cycle Correction Factor : +0.04 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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2409.500 MHz : -17.355 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

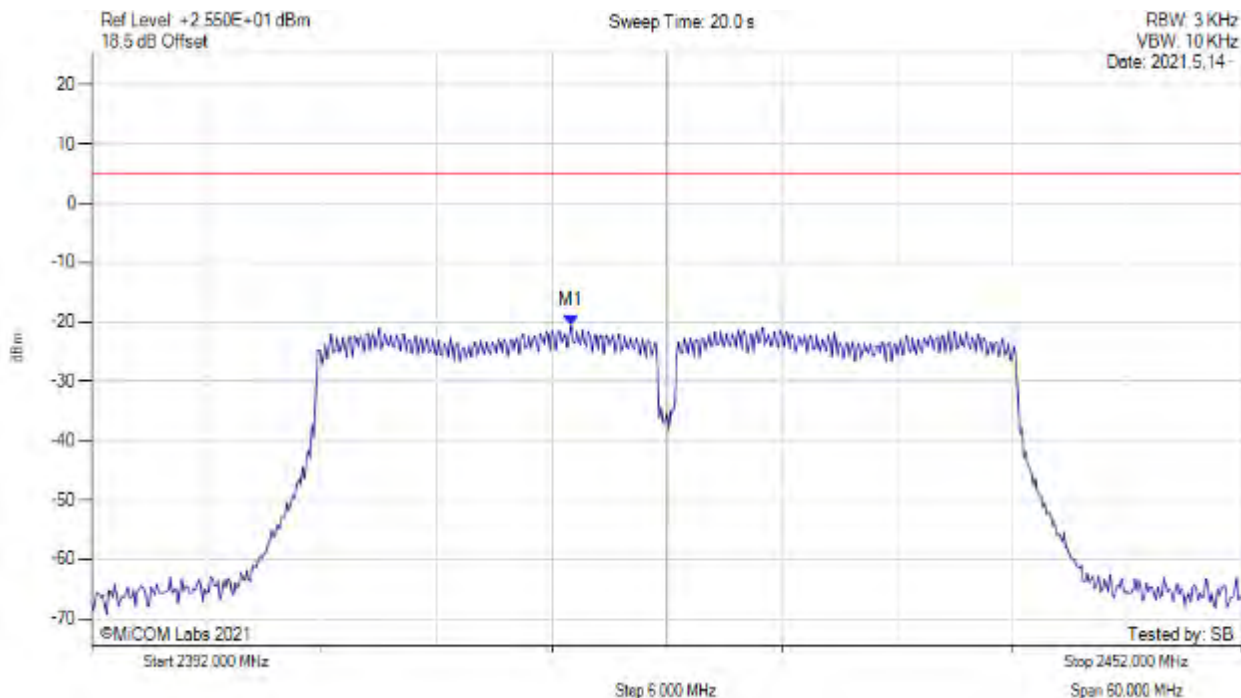Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2419.800 MHz : -17.383 dBm	Limit: ≤ 4.990 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 = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2409.800 MHz : -14.761 dBm M1 + DCCF : 2409.800 MHz : -14.717 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -22.7 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

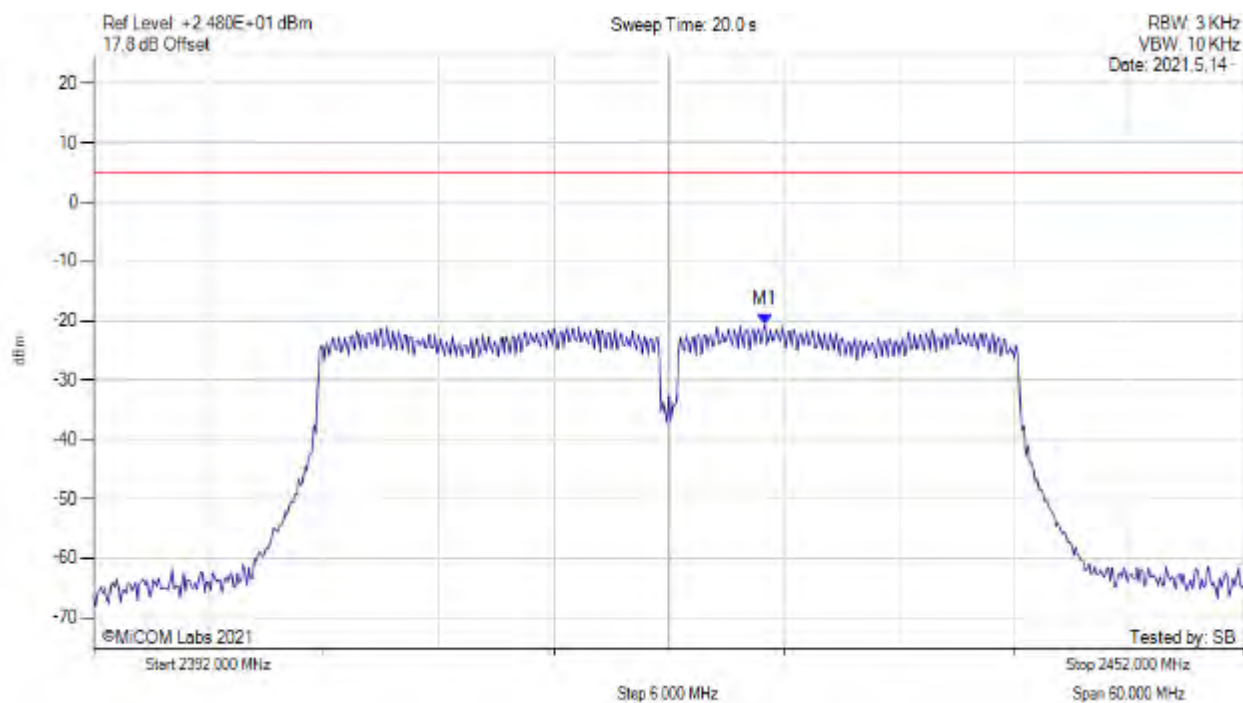Variant: 802.11g, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2434.500 MHz : -16.826 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

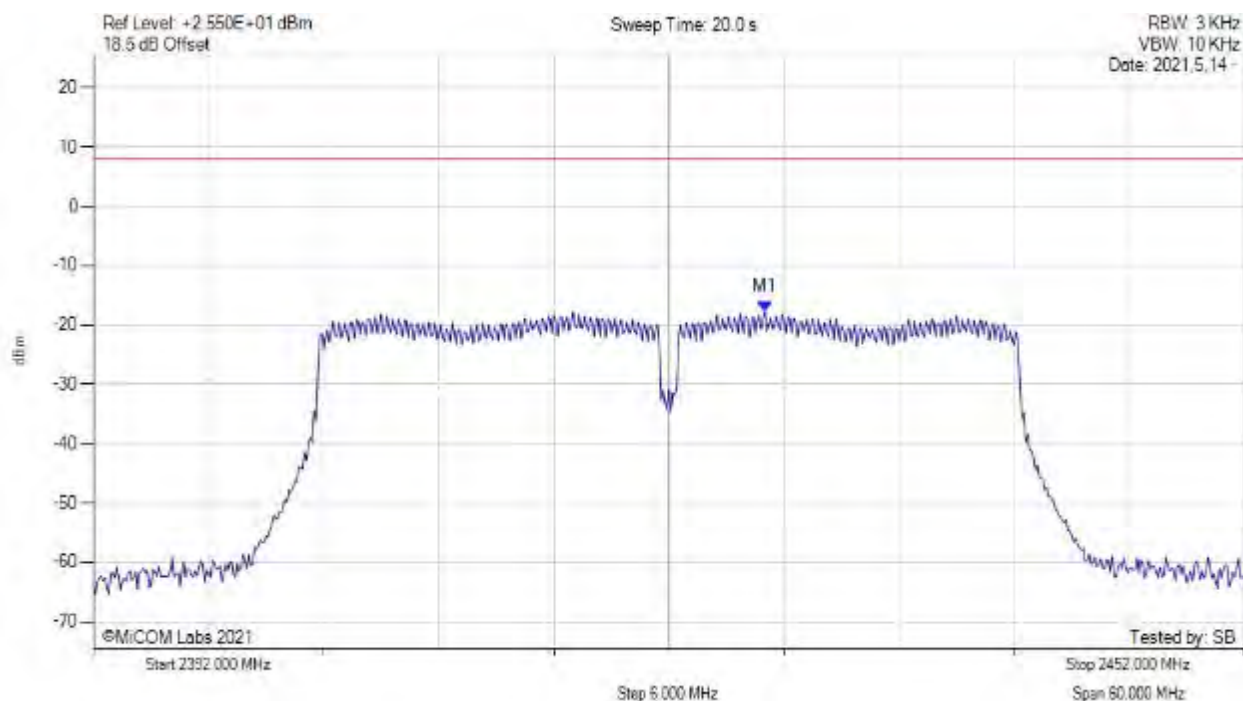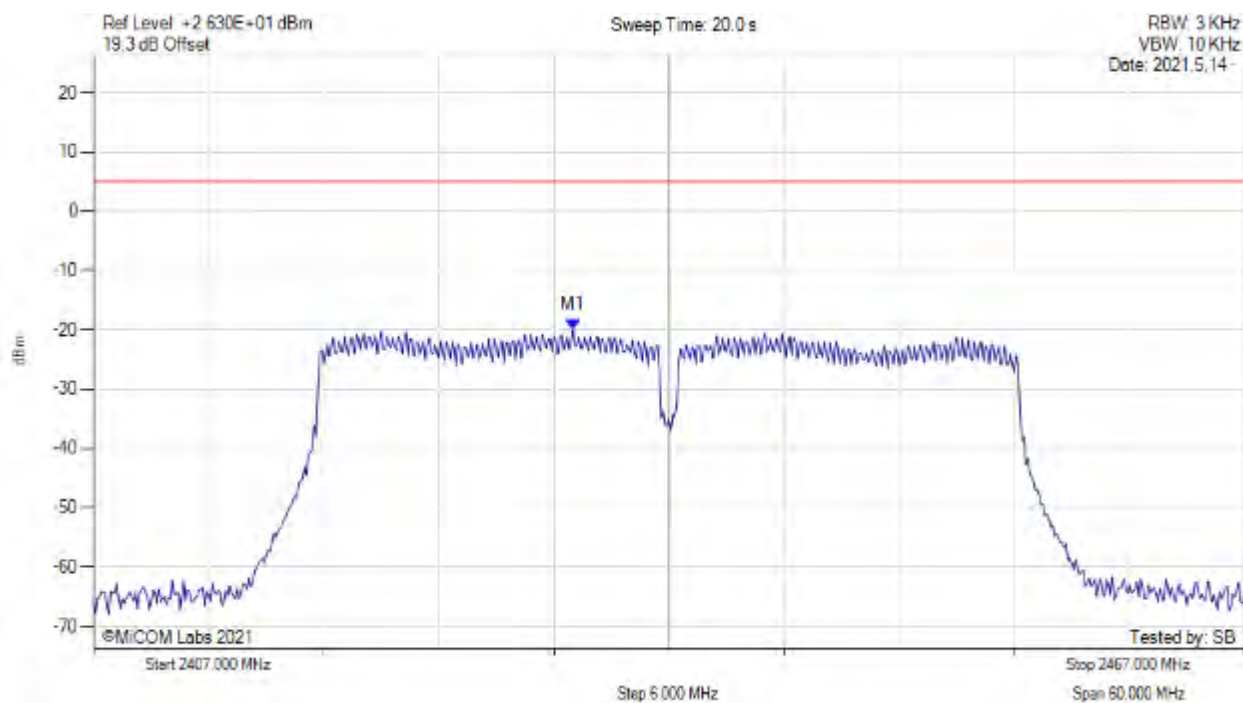Variant: 802.11g, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2439.500 MHz : -16.859 dBm	Limit: ≤ 4.990 dBm

back to matrix

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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 = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2429.500 MHz : -13.931 dBm M1 + DCCF : 2429.500 MHz : -13.887 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -21.9 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

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

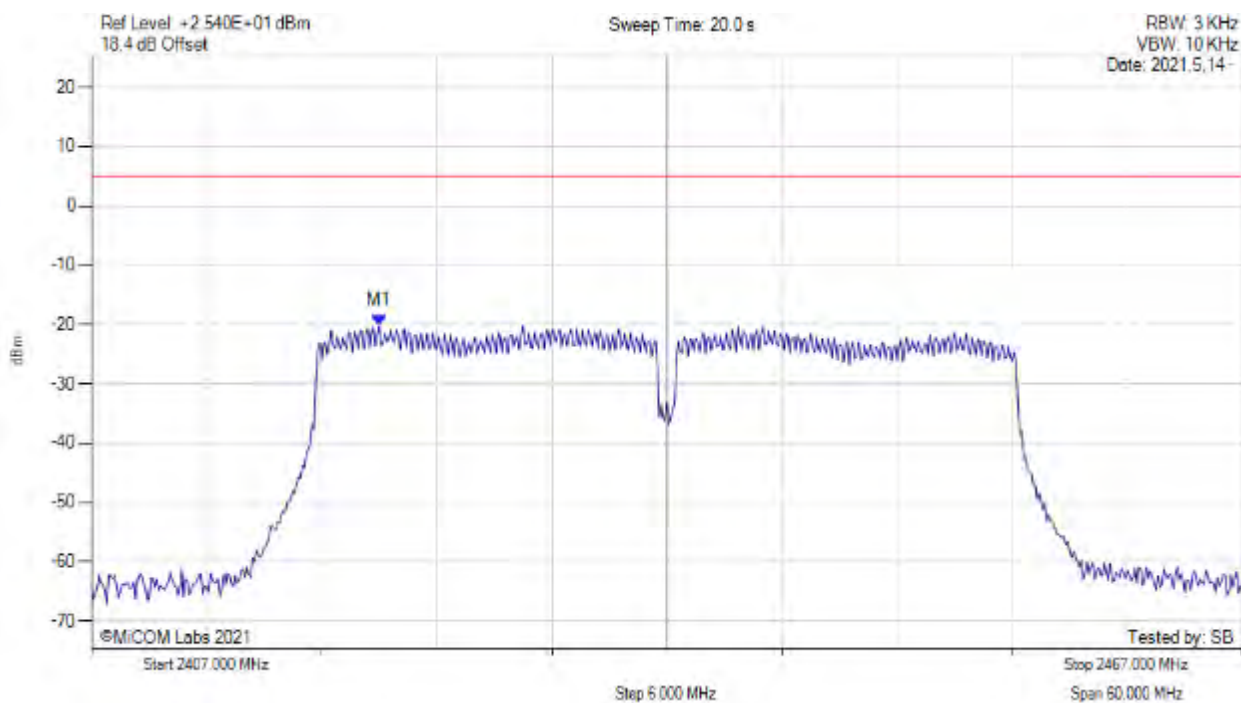

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.500 MHz : -17.321 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

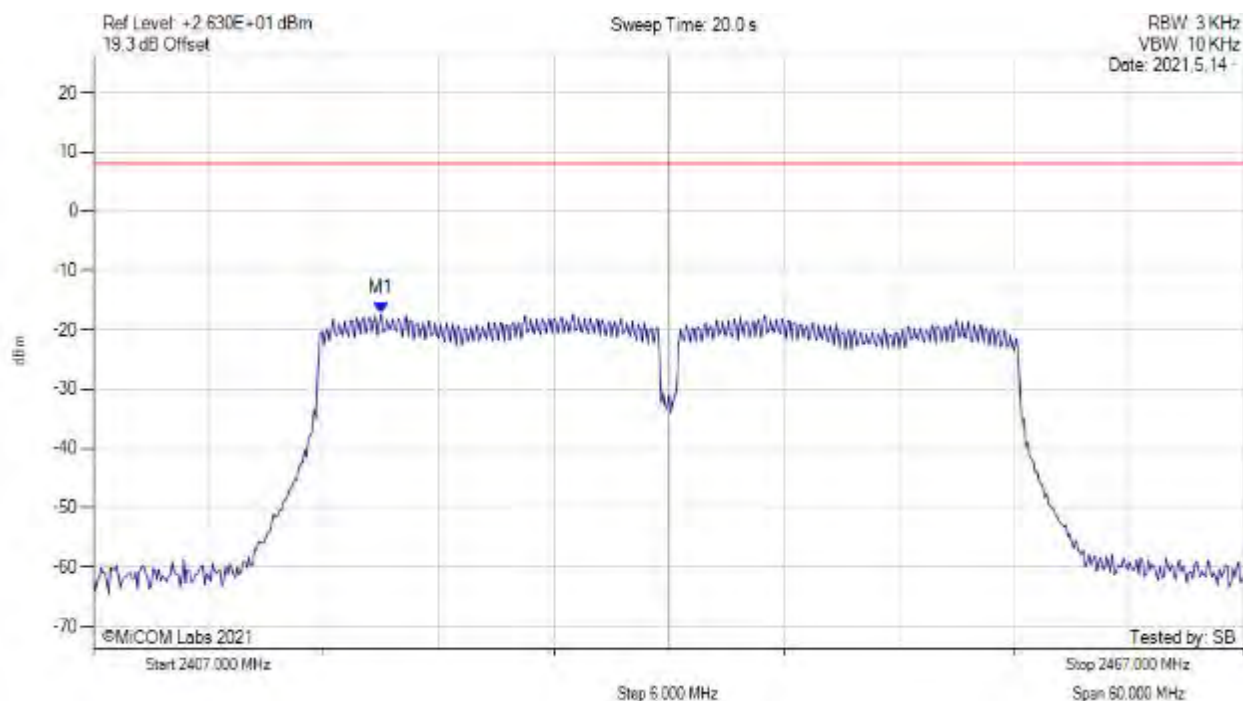Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
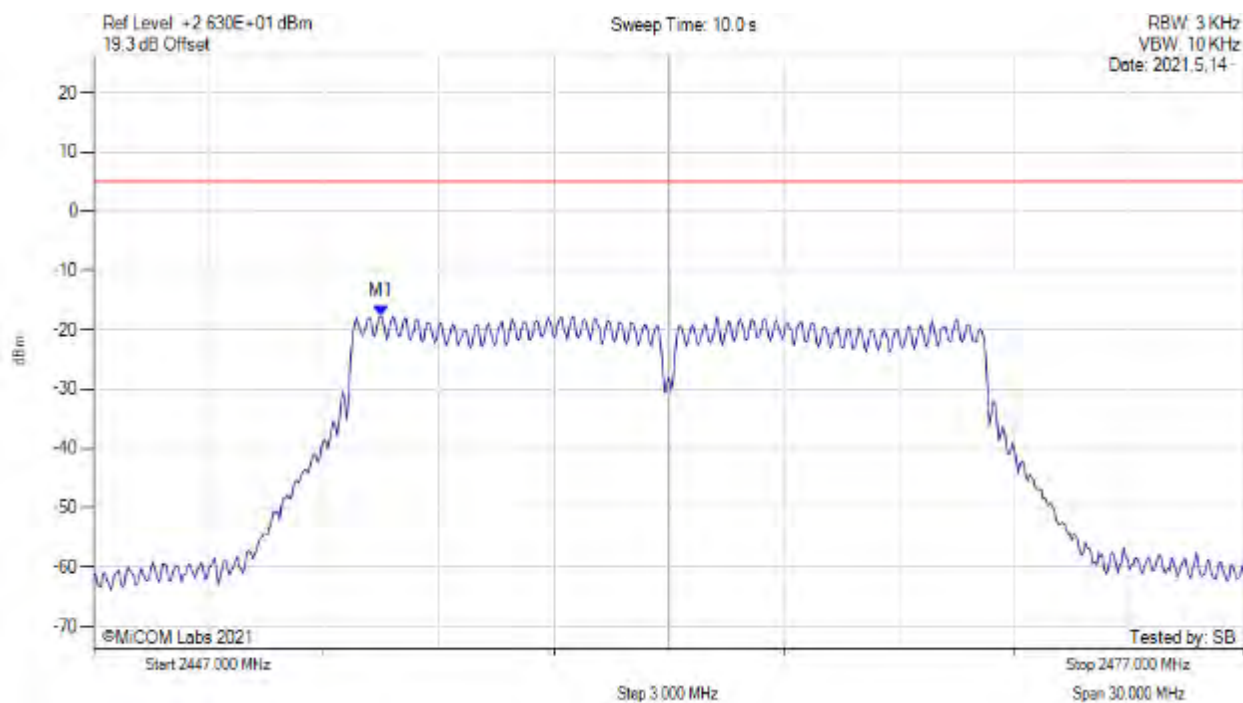
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.500 MHz : -17.677 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

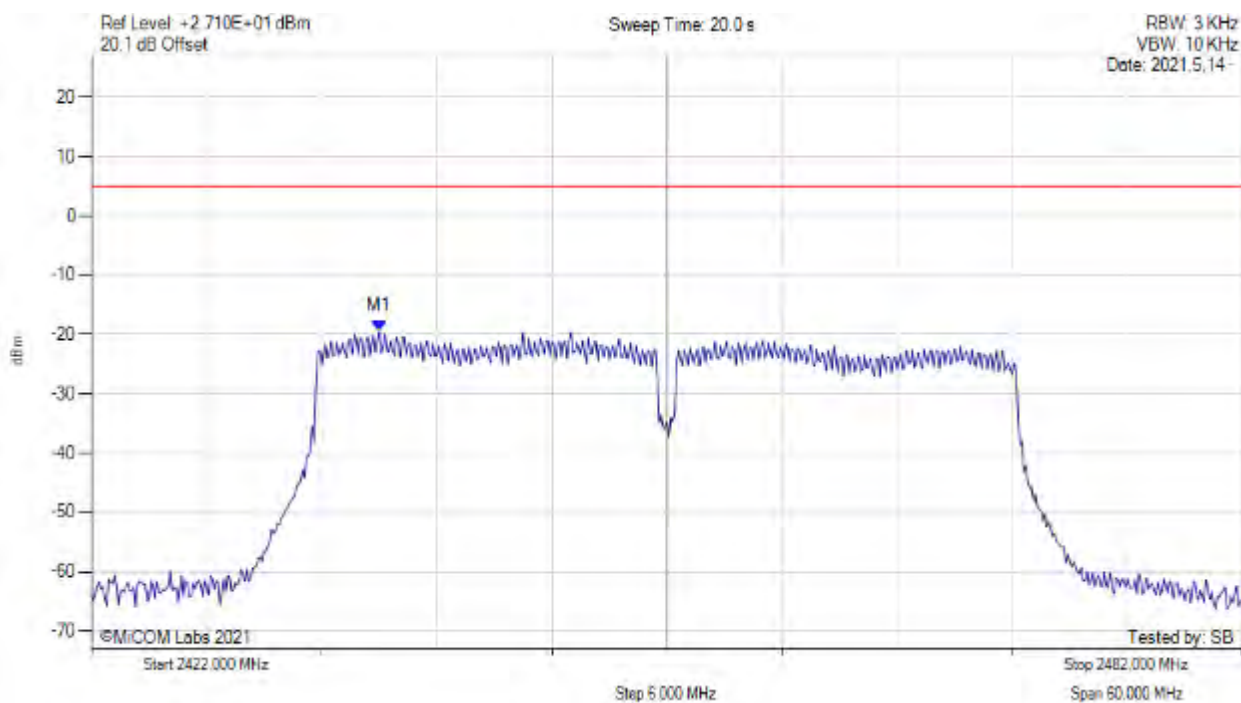Variant: 802.11g, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER	M1 : 2454.500 MHz : -14.485 dBm	Limit: ≤ 8.0 dBm
Sweep Count = 0	M1 + DCCF : 2454.500 MHz : -14.441 dBm	Margin: -22.5 dB
RF Atten (dB) = 20	Duty Cycle Correction Factor : +0.04 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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2404.500 MHz : -17.666 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

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

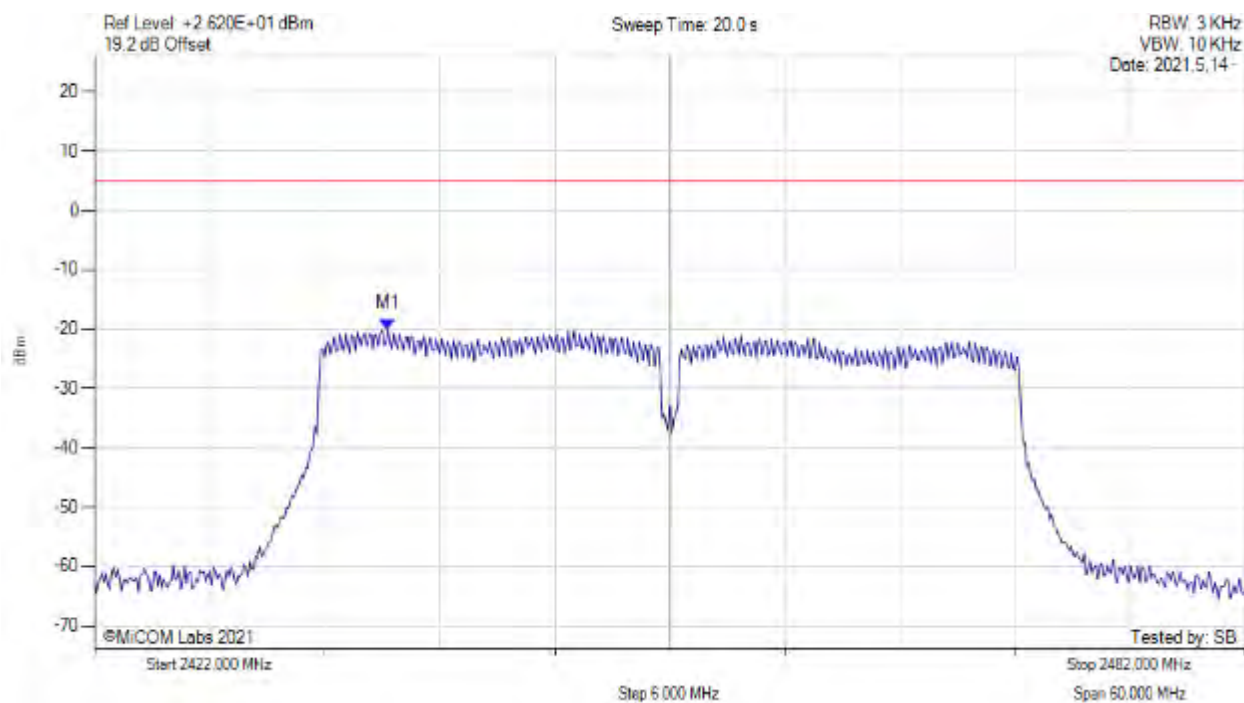| Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2409.450 MHz : -17.612 dBm	Limit: ≤ 4.990 dBm

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 = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2404.500 MHz : -14.896 dBm M1 + DCCF : 2404.500 MHz : -14.852 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -22.9 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

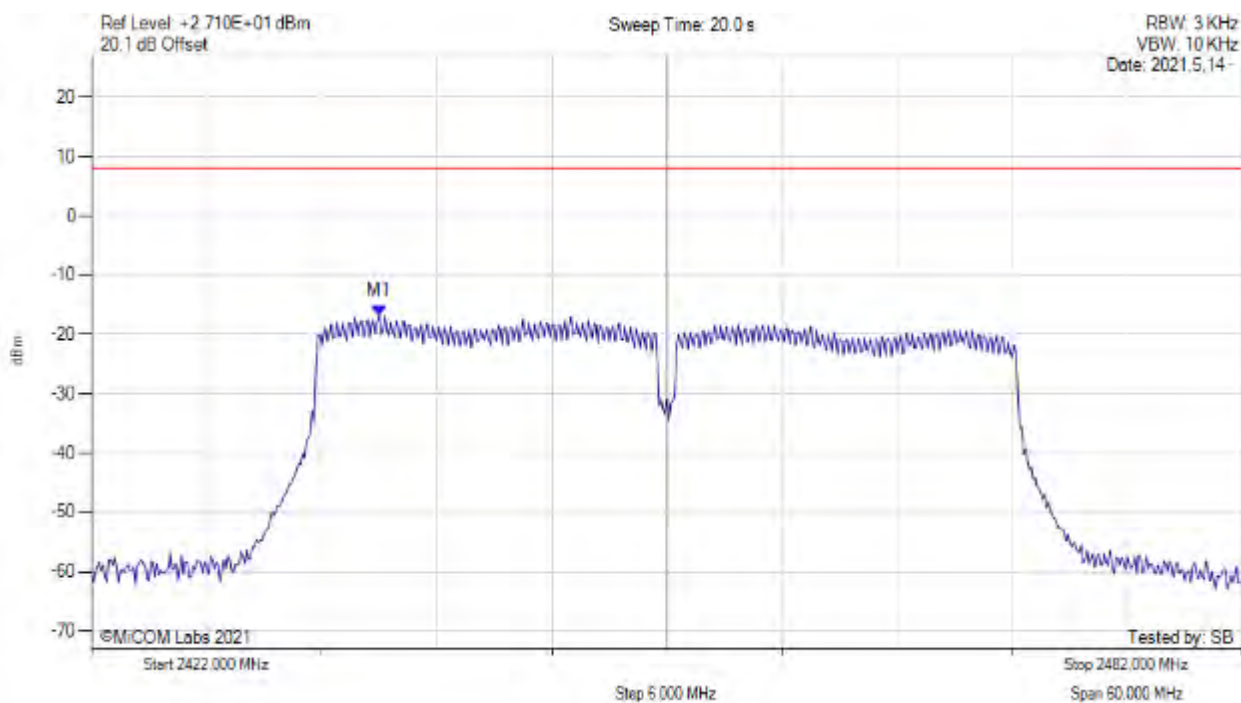Variant: 802.11n HT-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2434.150 MHz : -16.849 dBm	Limit: ≤ 4.990 dBm

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 = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2434.500 MHz : -16.389 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

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

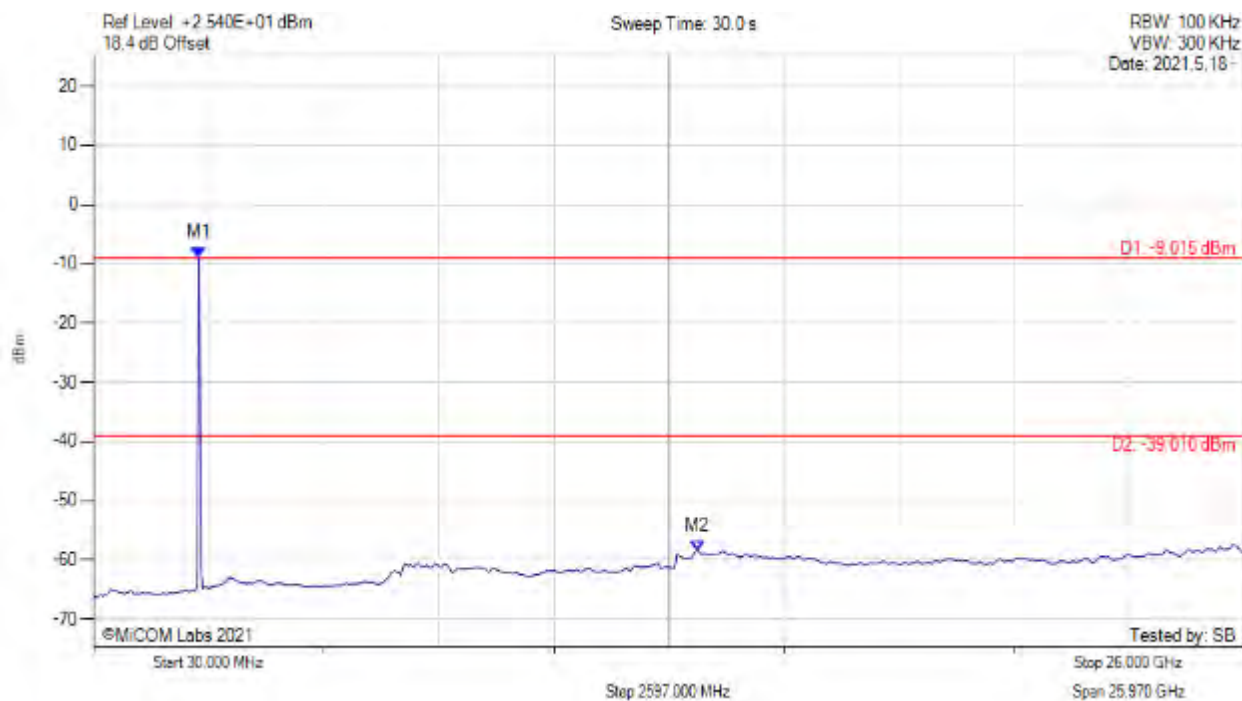| Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2434.200 MHz : -13.827 dBm M1 + DCCF : 2434.200 MHz : -13.783 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -21.8 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
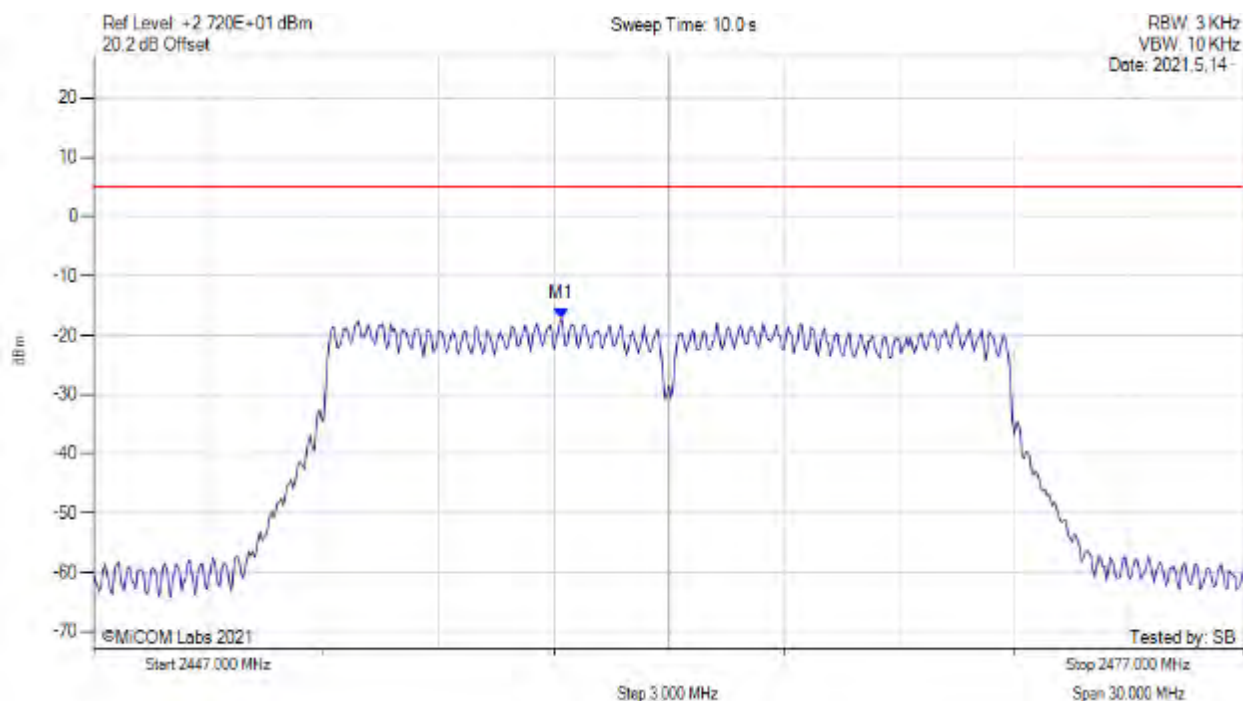
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2459.200 MHz : -17.234 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
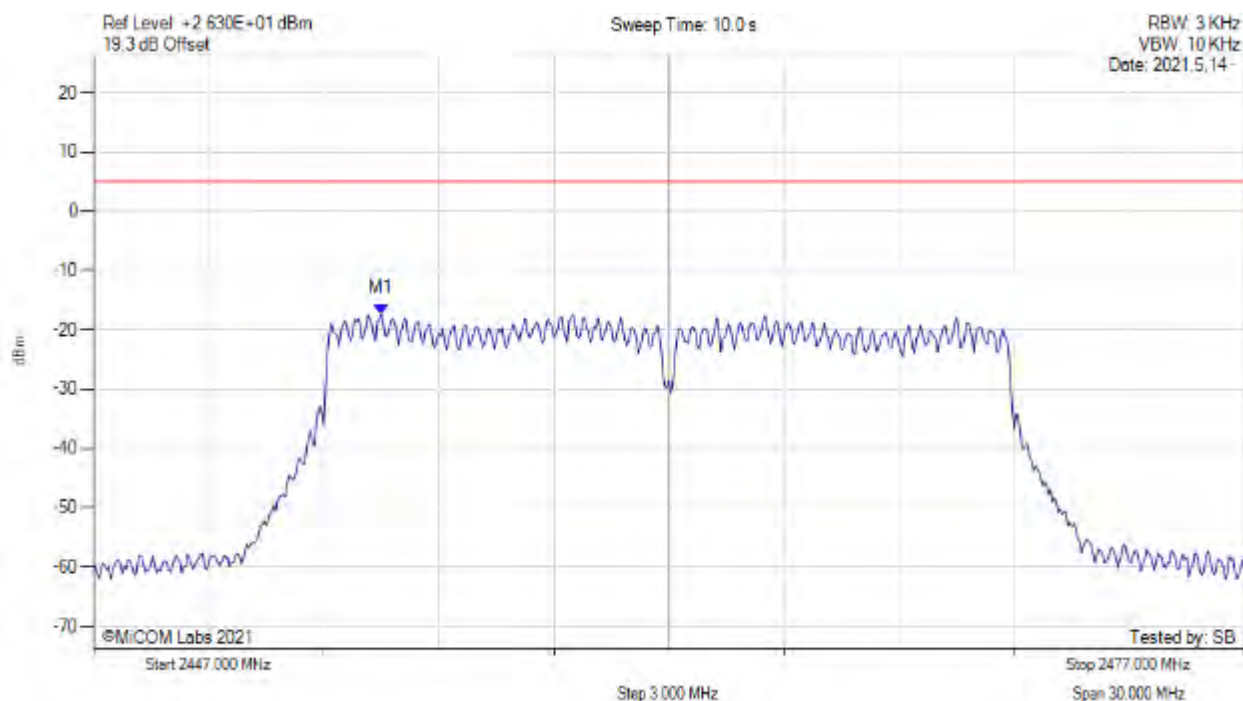
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.500 MHz : -17.308 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-20, Channel: 2462.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc
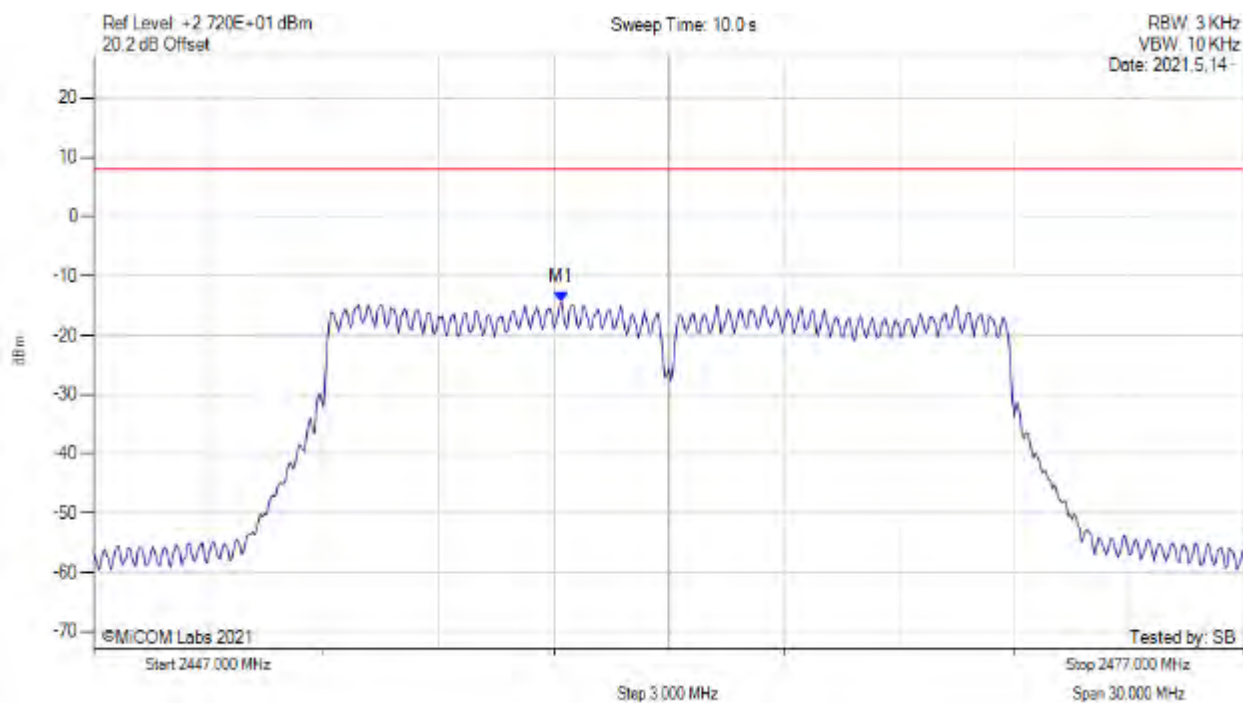
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2459.200 MHz : -14.517 dBm M1 + DCCF : 2459.200 MHz : -14.473 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -22.5 dB

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2417.000 MHz : -20.475 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2427.000 MHz : -20.583 dBm	Limit: ≤ 4.990 dBm

back to matrix

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POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2427.000 MHz : -17.750 dBm M1 + DCCF : 2427.000 MHz : -17.706 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -25.7 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2432.000 MHz : -20.013 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2422.000 MHz : -20.250 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2422.000 MHz : -17.262 dBm M1 + DCCF : 2422.000 MHz : -17.218 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -25.2 dB

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.000 MHz : -19.511 dBm	Limit: ≤ 4.990 dBm

back to matrix

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.300 MHz : -19.985 dBm	Limit: ≤ 4.990 dBm

POWER SPECTRAL DENSITY - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, SUM, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.000 MHz : -16.800 dBm M1 + DCCF : 2437.000 MHz : -16.756 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 8.0 dBm Margin: -24.8 dB

back to matrix

A.4. Emissions

A.4.1. Conducted Emissions

A.4.1.1. Conducted Spurious Emissions

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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

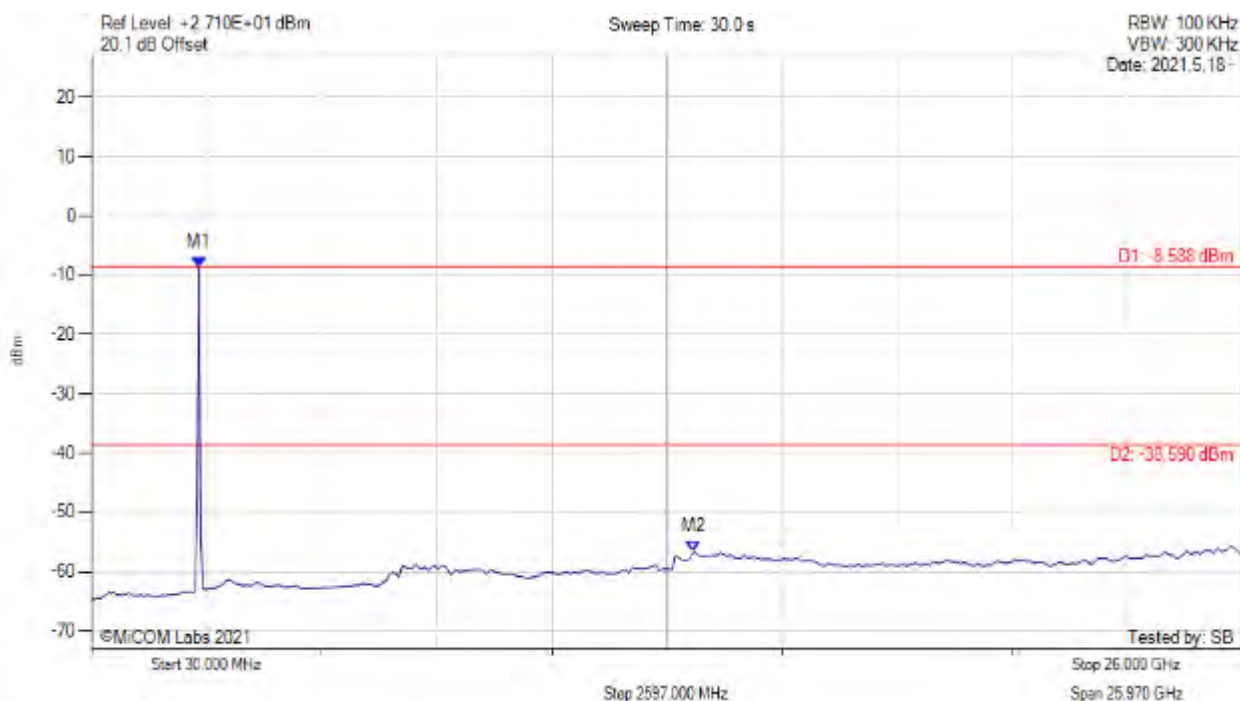| Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.015 dBm M2 : 13.660 GHz : -58.435 dBm	Limit: -39.01 dBm Margin: -19.43 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

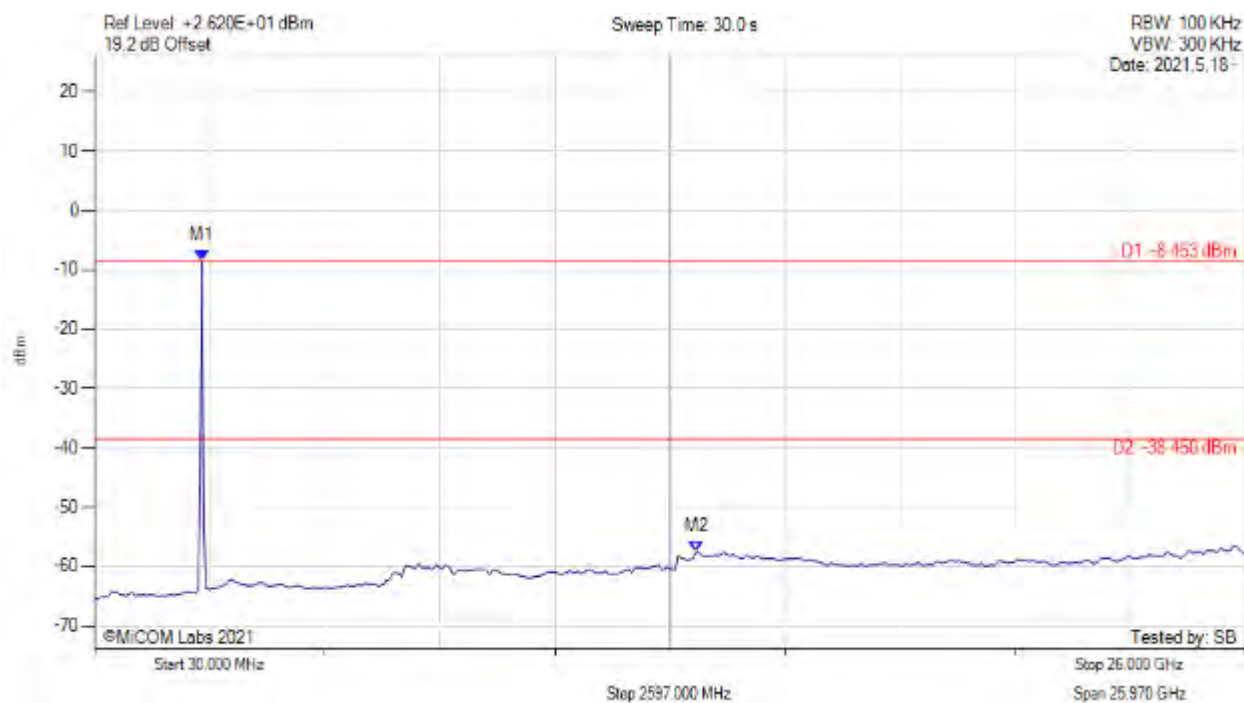Variant: 802.11ax-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
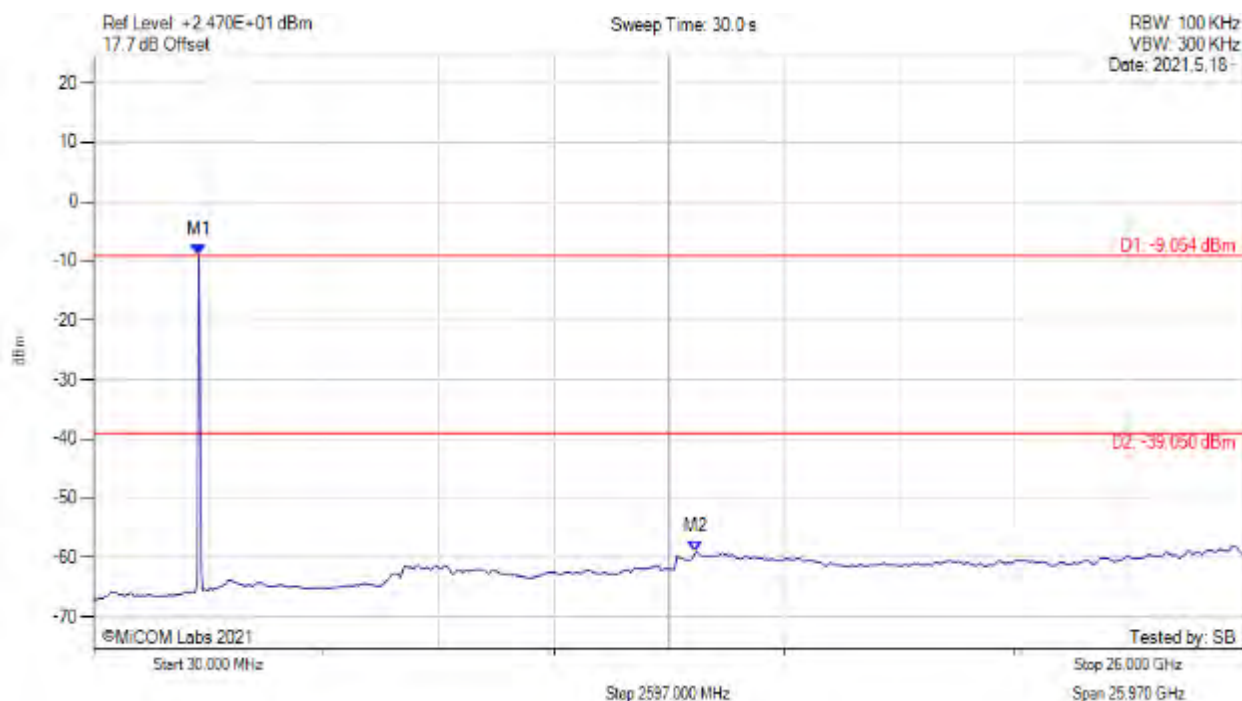
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.054 dBm M2 : 13.620 GHz : -59.058 dBm	Limit: -39.05 dBm Margin: -20.01 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

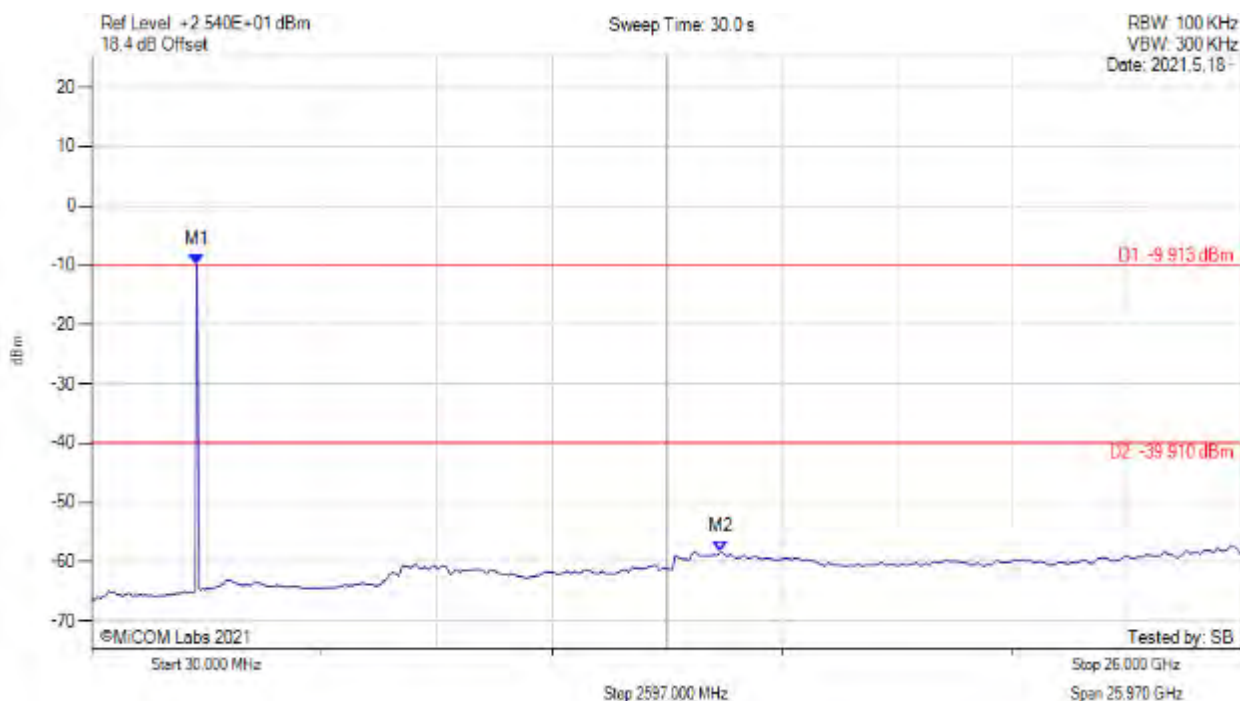Variant: 802.11ax-20, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
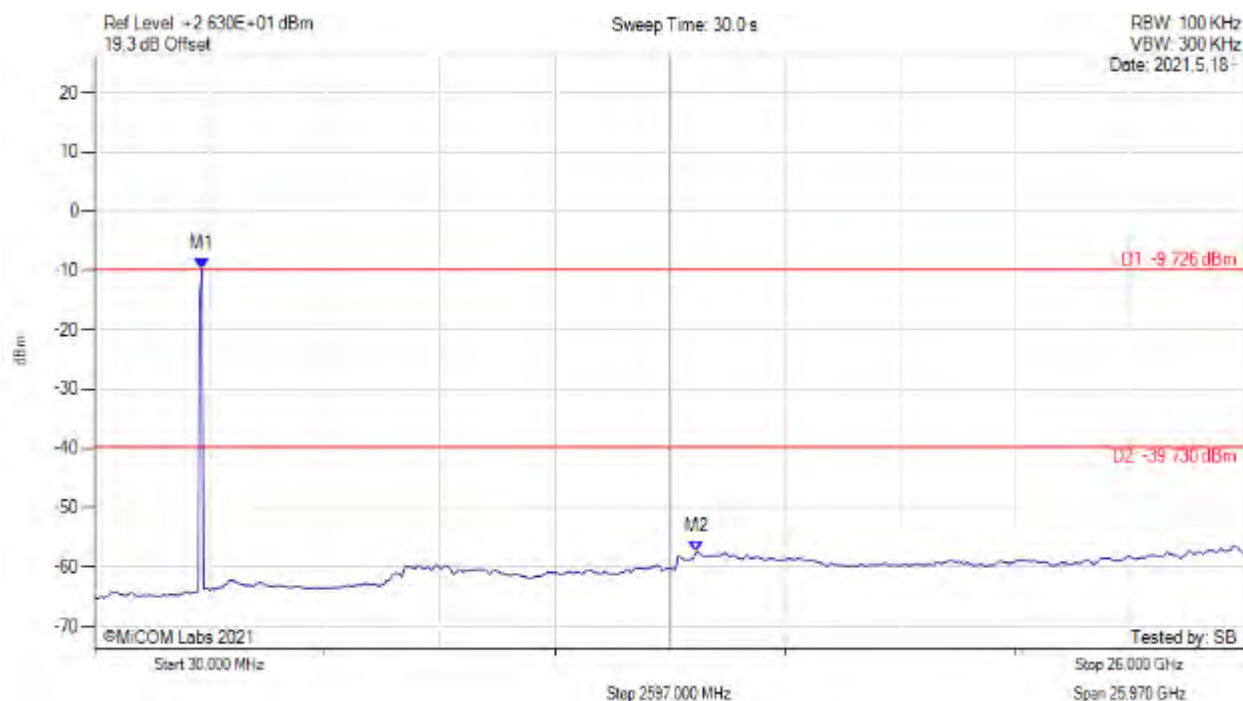
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.726 dBm M2 : 13.620 GHz : -57.391 dBm	Limit: -39.73 dBm Margin: -17.66 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11ax-20, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
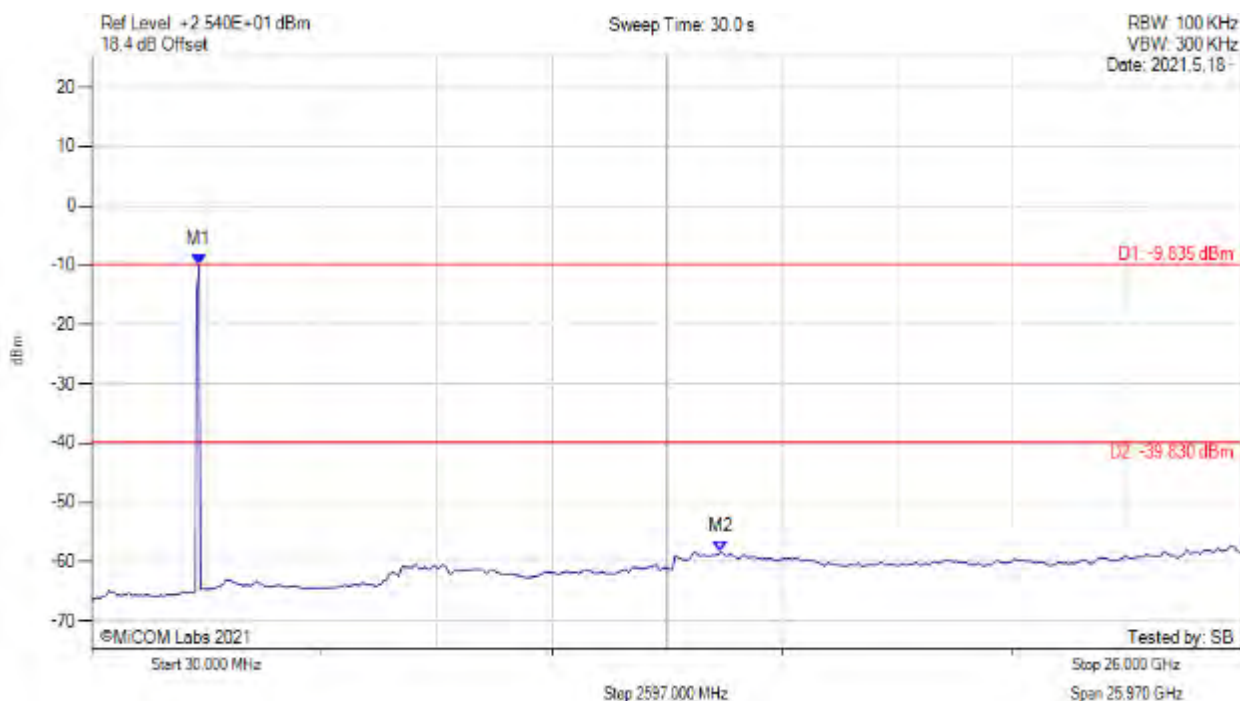
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.835 dBm M2 : 14.230 GHz : -58.297 dBm	Limit: -39.83 dBm Margin: -18.47 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

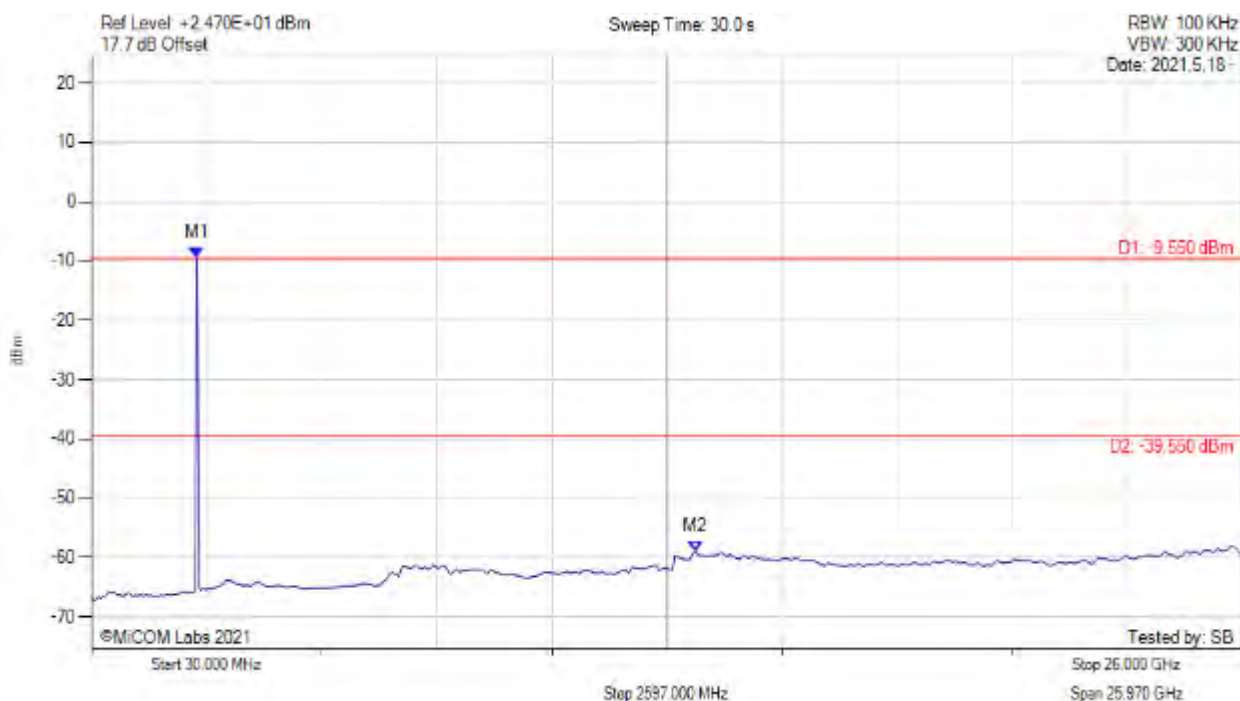Variant: 802.11ax-20, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
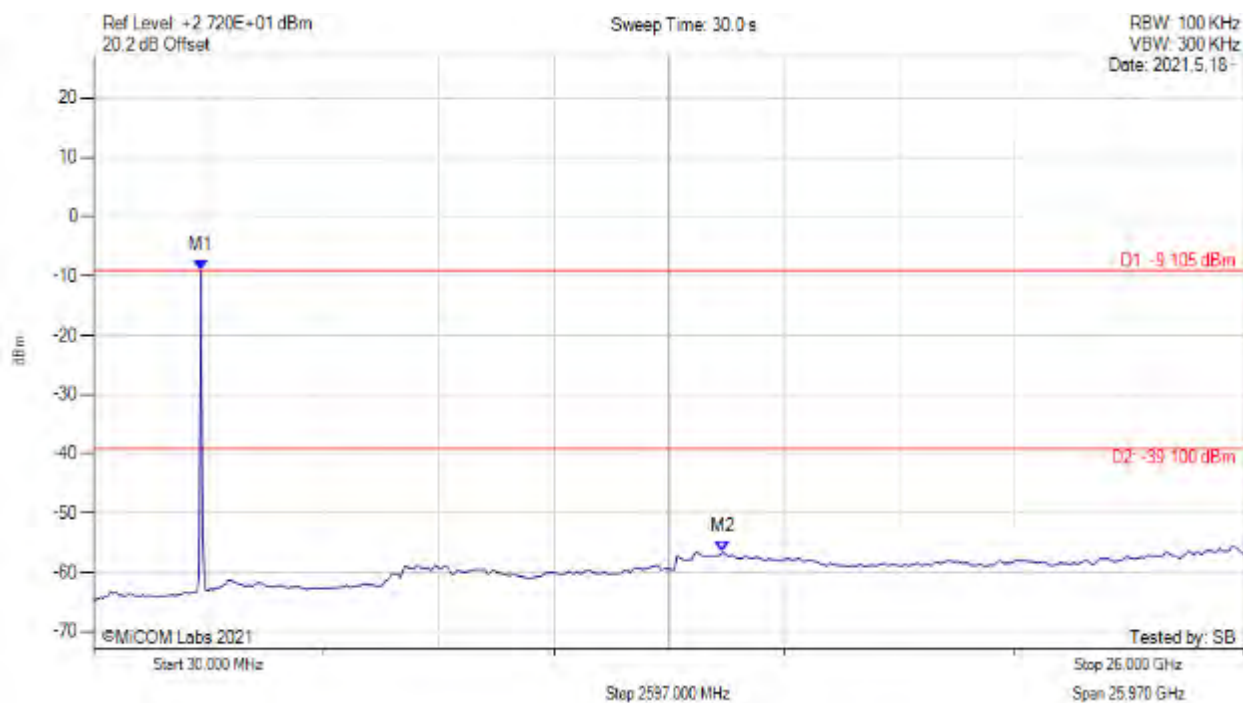
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.105 dBm M2 : 14.230 GHz : -56.486 dBm	Limit: -39.10 dBm Margin: -17.39 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

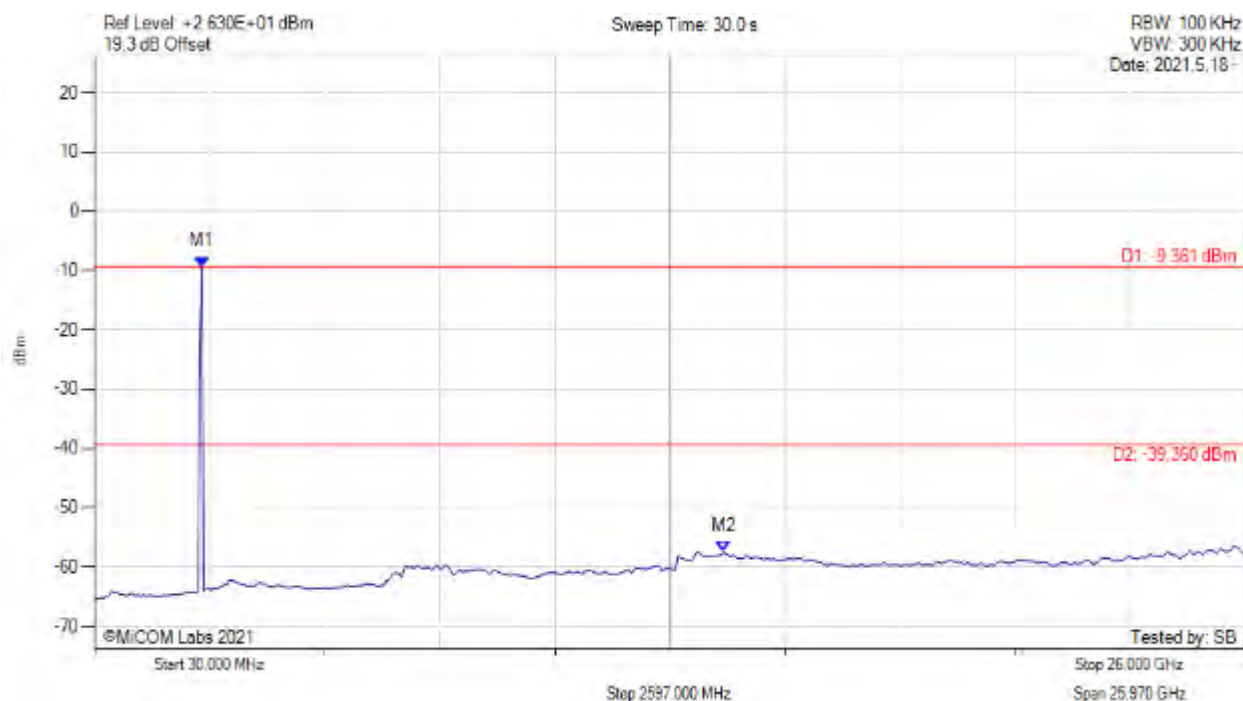Variant: 802.11ax-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
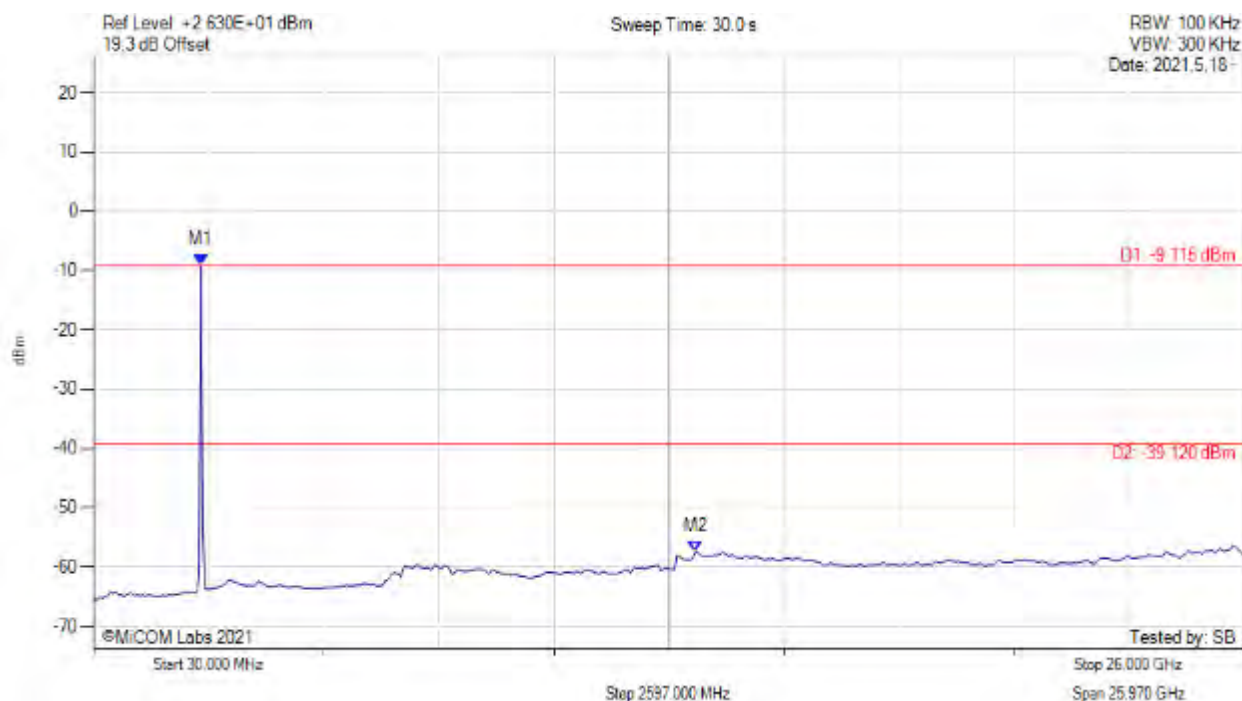
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.115 dBm M2 : 13.620 GHz : -57.342 dBm	Limit: -39.12 dBm Margin: -18.22 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

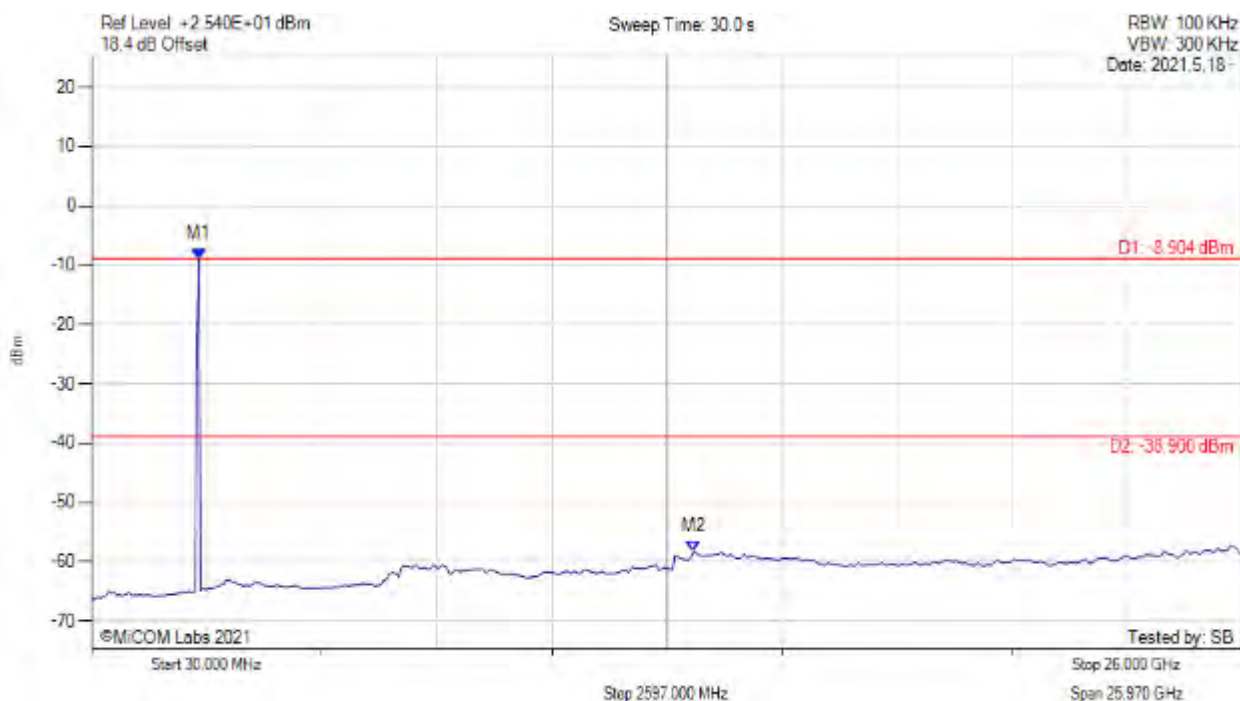Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
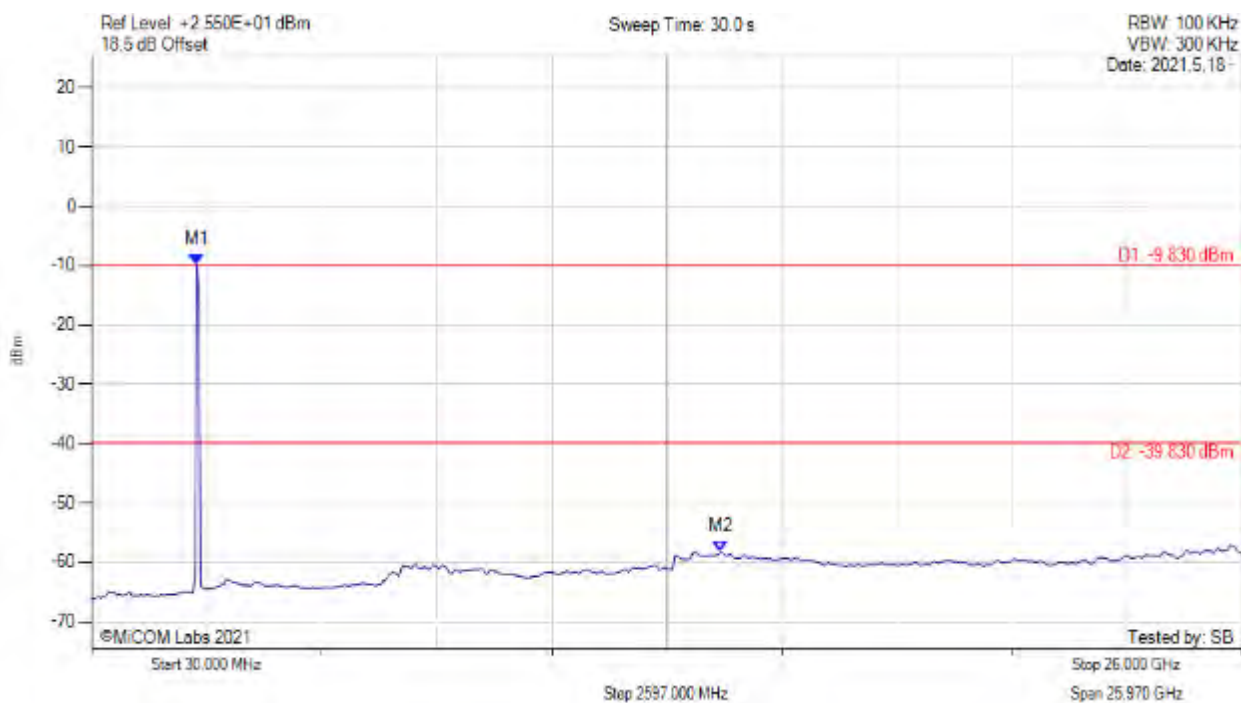
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.830 dBm M2 : 14.230 GHz : -58.148 dBm	Limit: -39.83 dBm Margin: -18.32 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
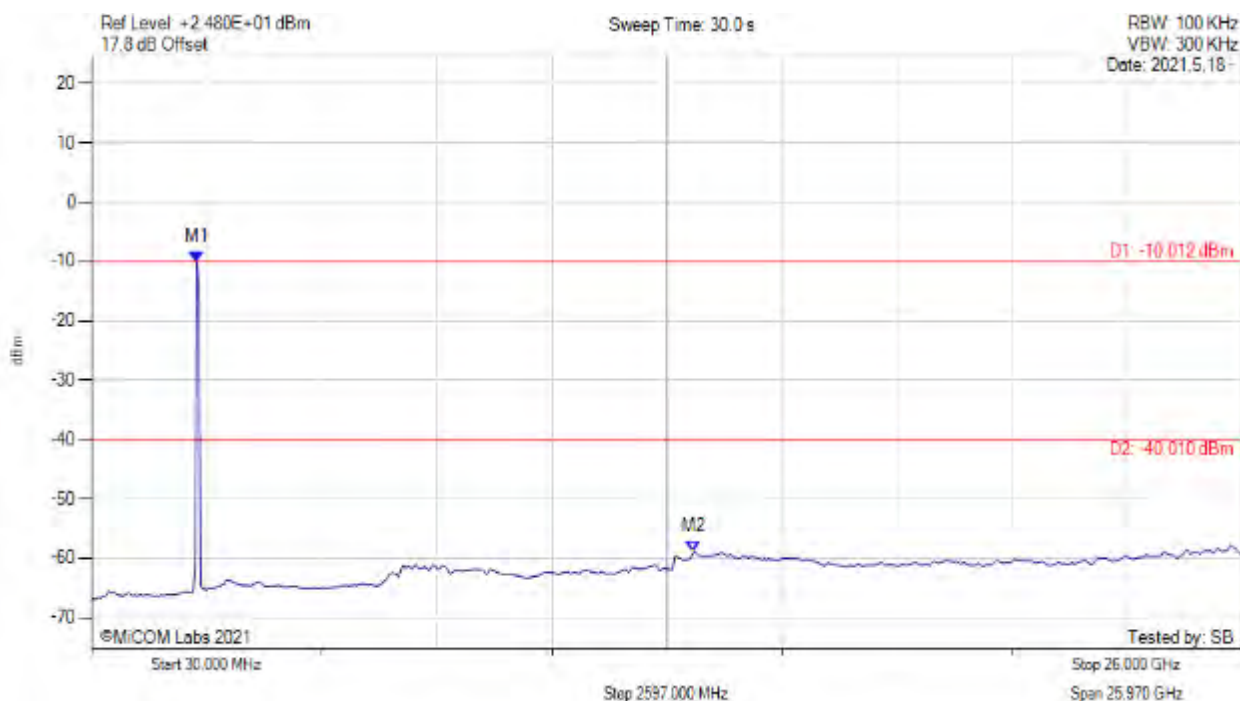
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -10.012 dBm M2 : 13.620 GHz : -58.971 dBm	Limit: -40.01 dBm Margin: -18.96 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

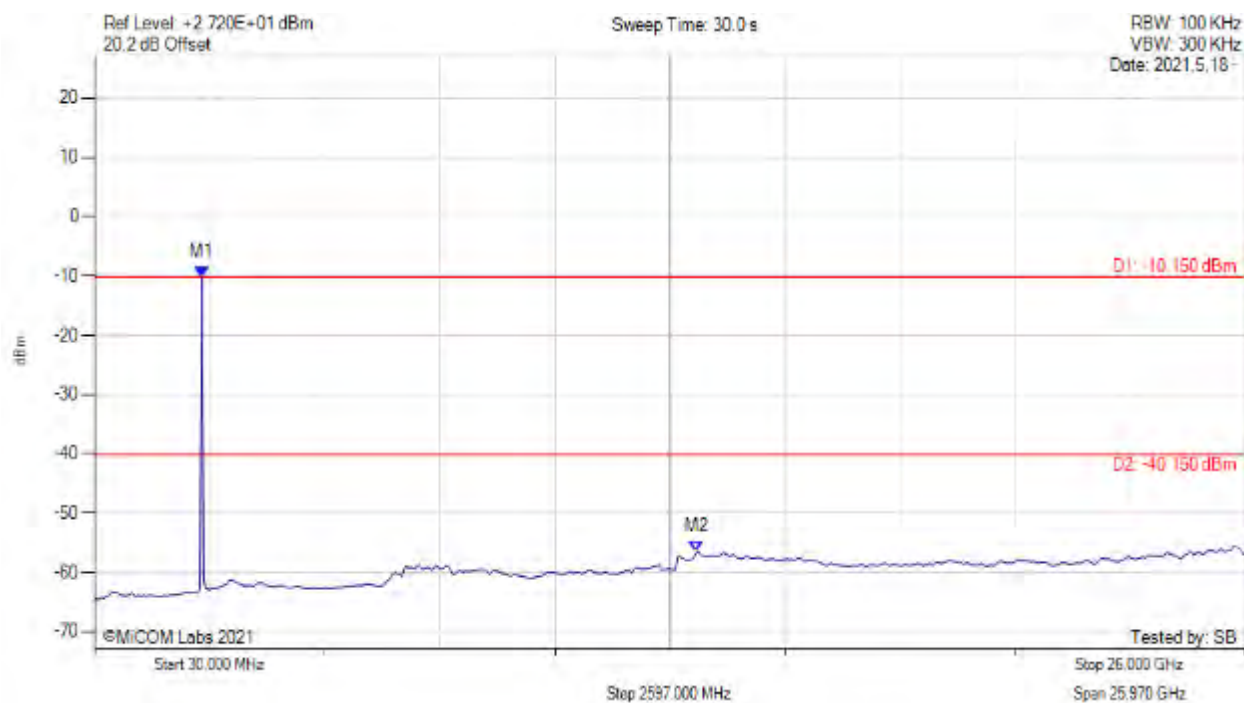Variant: 802.11ax-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
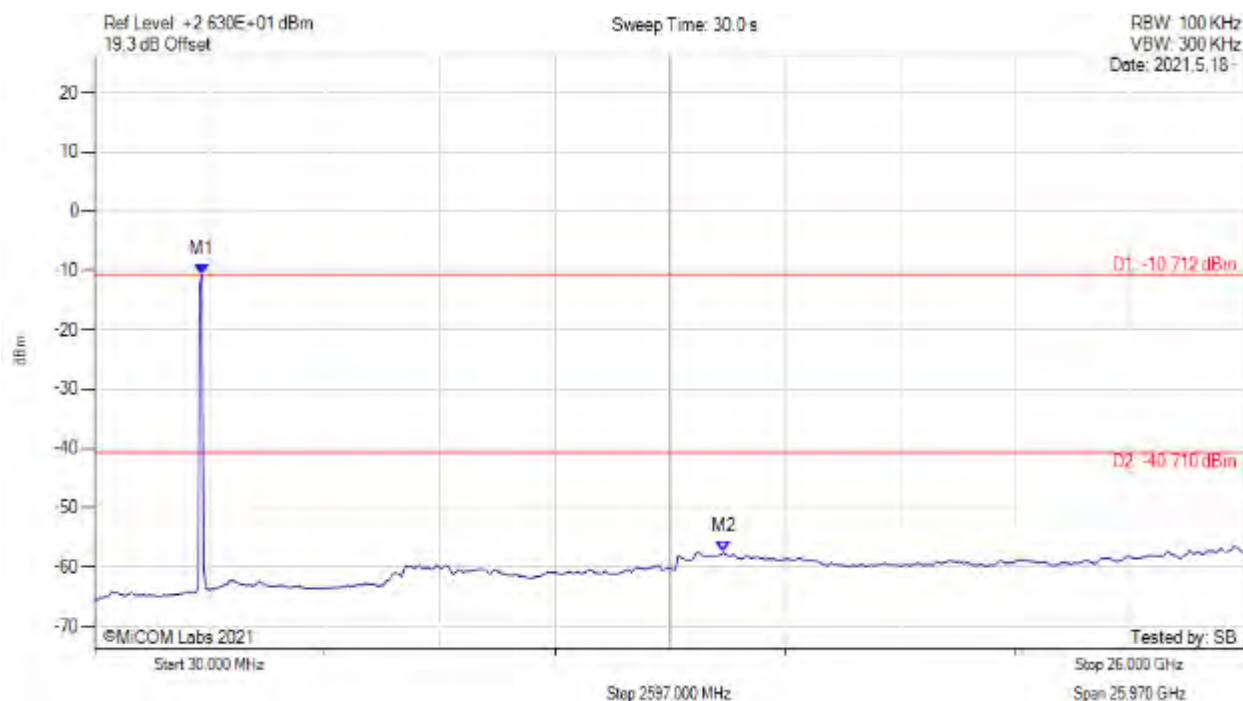
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -10.712 dBm M2 : 14.230 GHz : -57.443 dBm	Limit: -40.71 dBm Margin: -16.73 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

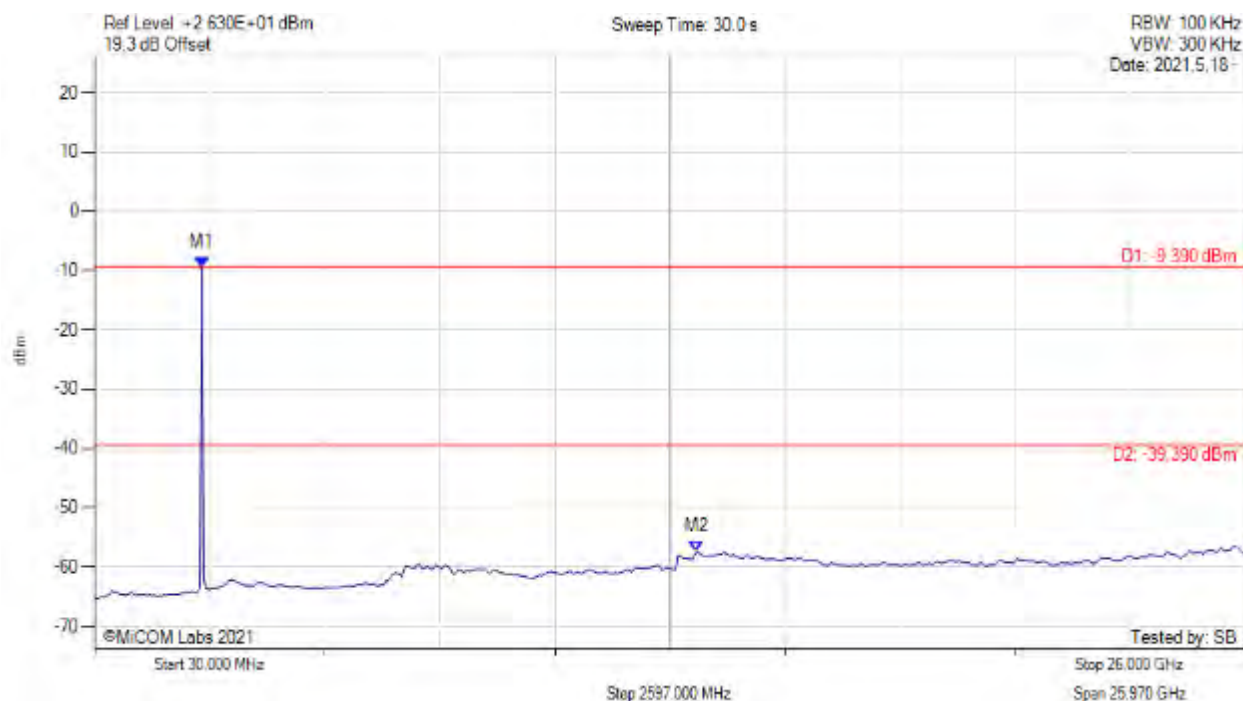Variant: 802.11ax-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
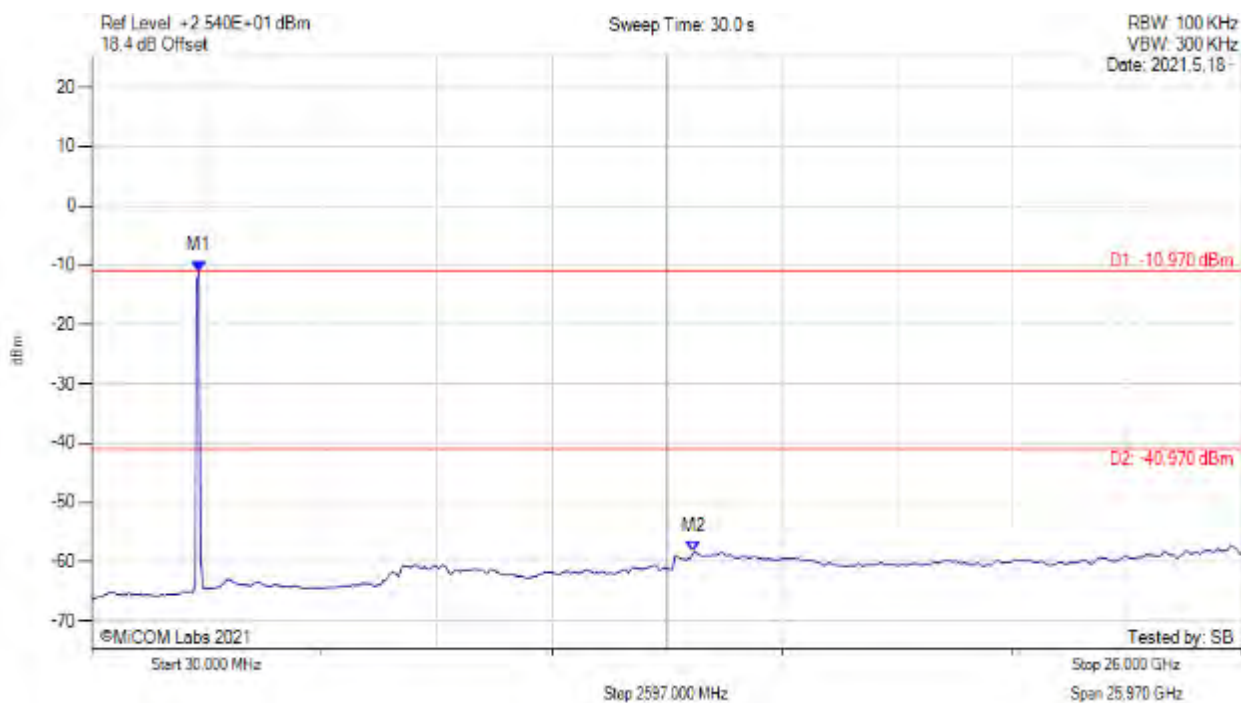
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -10.970 dBm M2 : 13.620 GHz : -58.332 dBm	Limit: -40.97 dBm Margin: -17.36 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -8.588 dBm M2 : 13.620 GHz : -56.626 dBm	Limit: -38.59 dBm Margin: -18.04 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

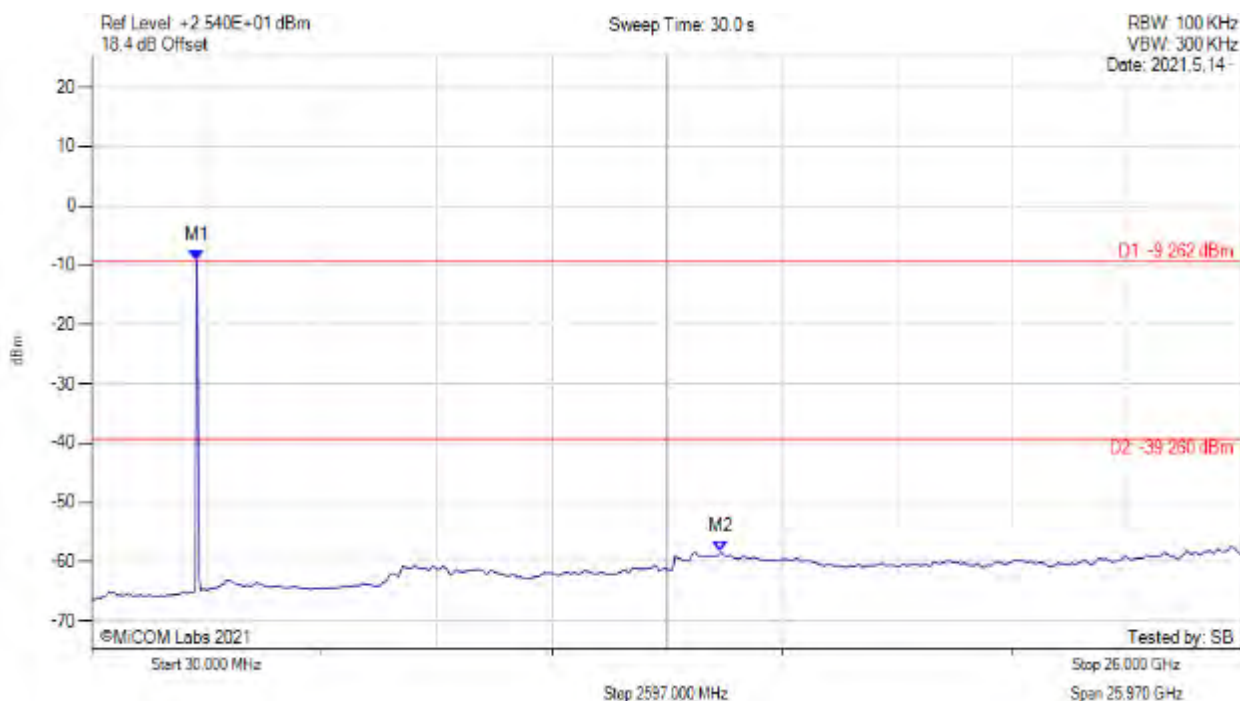Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -8.453 dBm M2 : 13.620 GHz : -57.431 dBm	Limit: -38.45 dBm Margin: -18.98 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

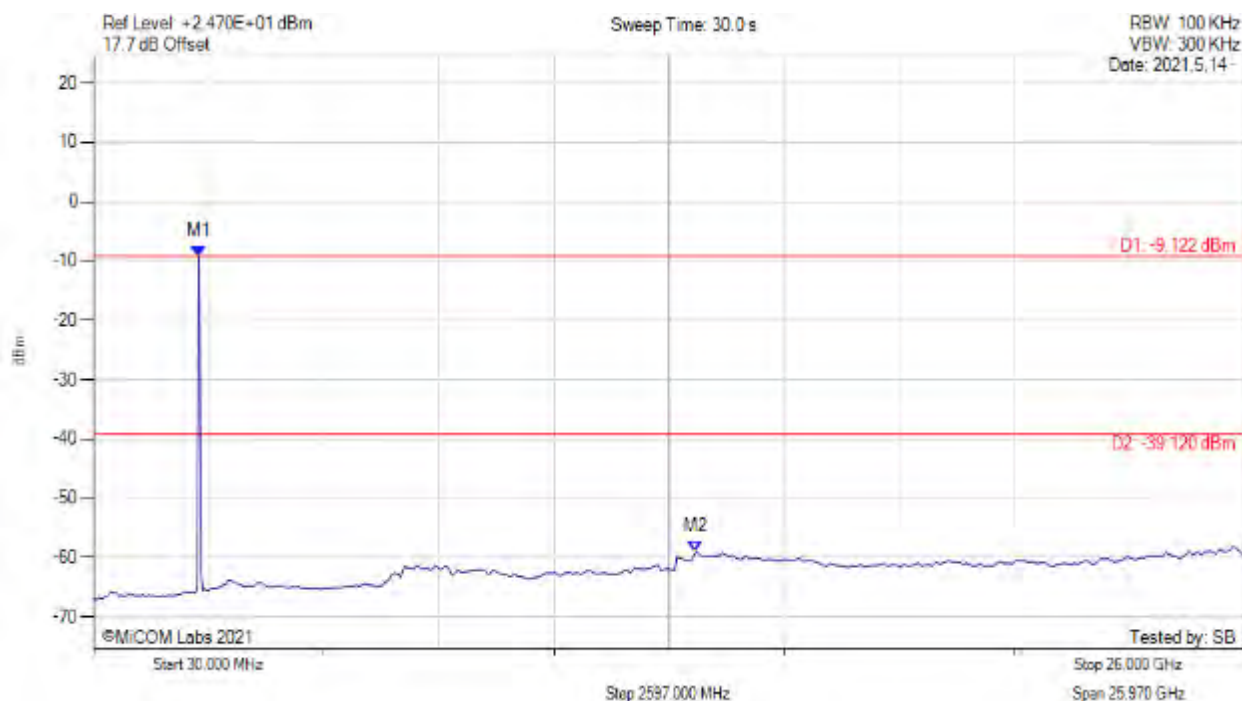Variant: 802.11b, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.913 dBm M2 : 14.230 GHz : -58.331 dBm	Limit: -39.91 dBm Margin: -18.42 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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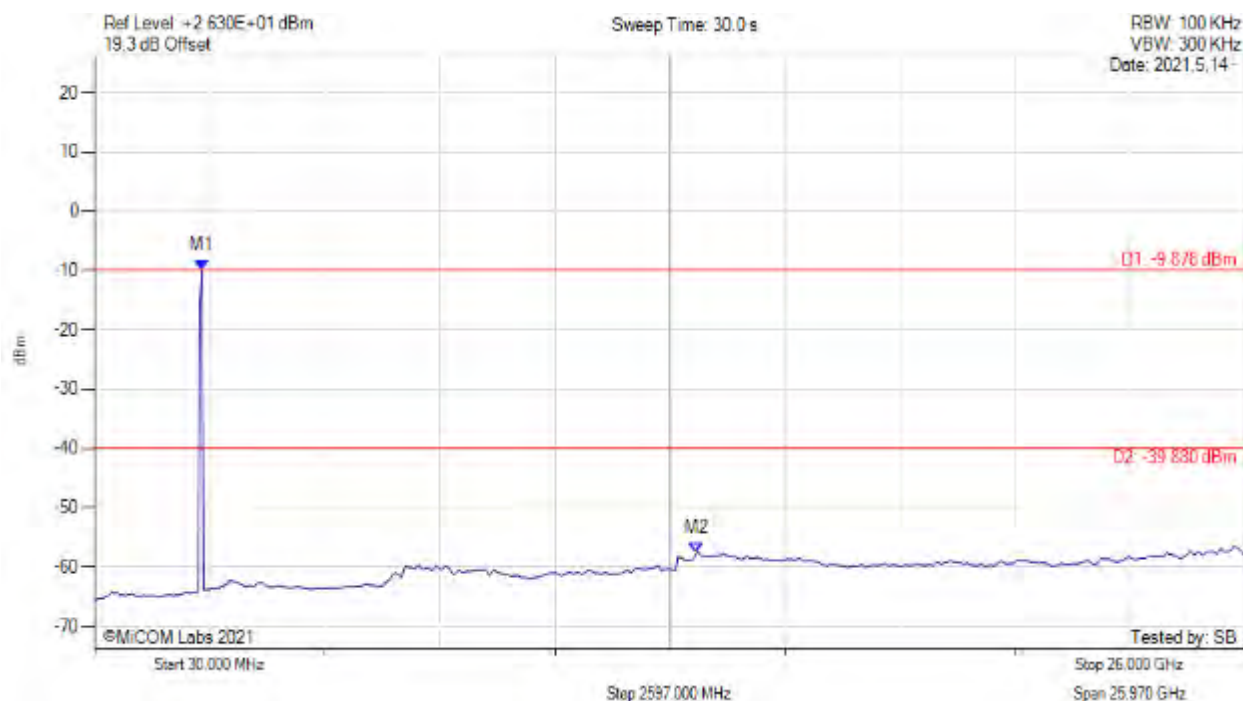

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.550 dBm M2 : 13.660 GHz : -59.043 dBm	Limit: -39.55 dBm Margin: -19.49 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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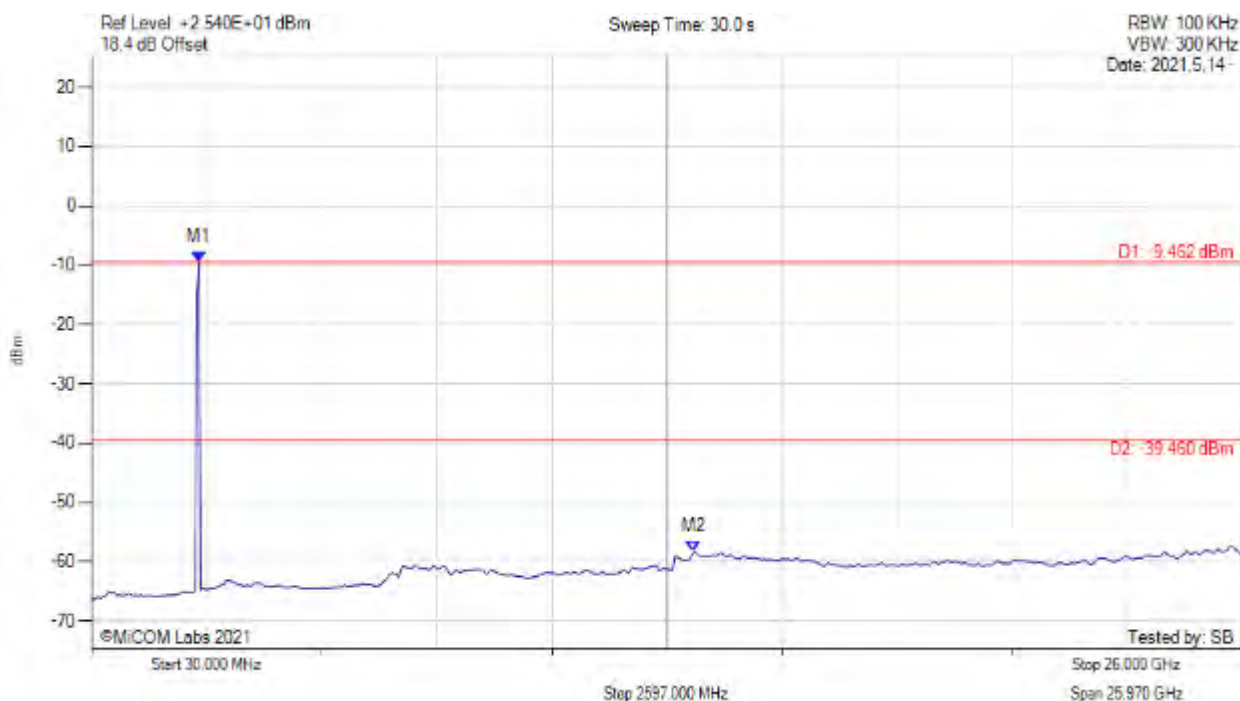

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.361 dBm M2 : 14.230 GHz : -57.462 dBm	Limit: -39.36 dBm Margin: -18.10 dB

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

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -8.904 dBm M2 : 13.620 GHz : -58.218 dBm	Limit: -38.90 dBm Margin: -19.32 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

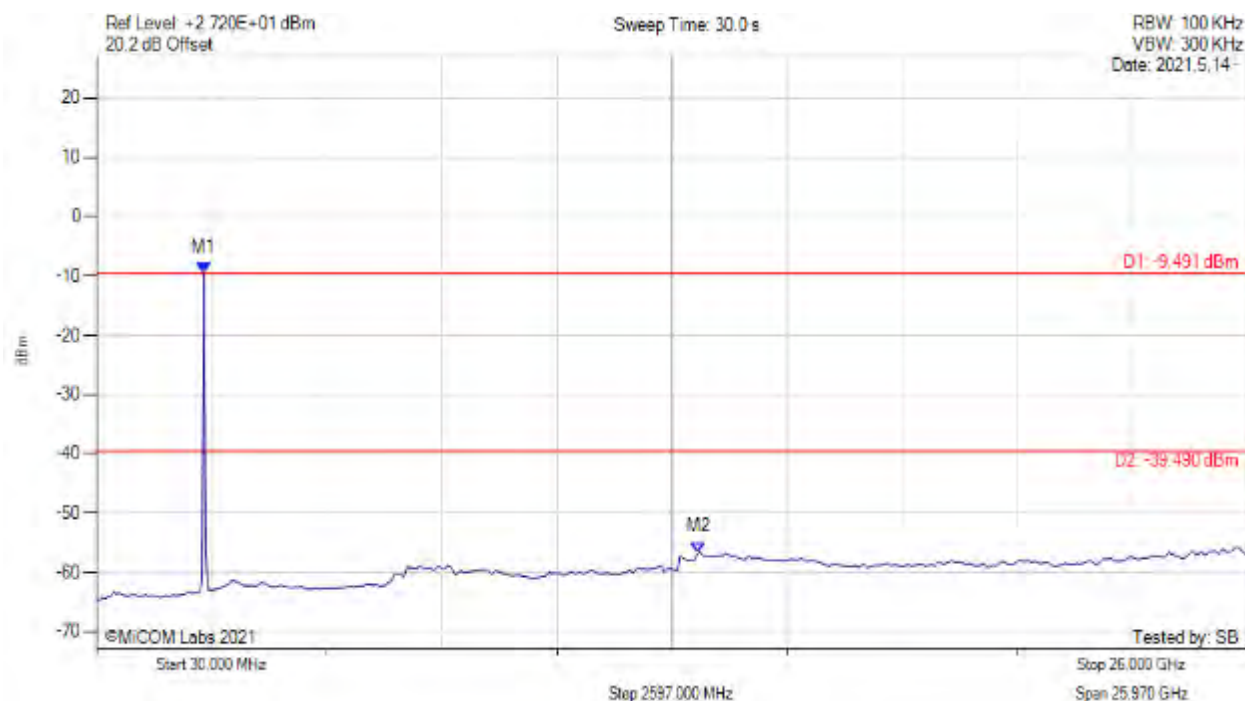Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -10.150 dBm M2 : 13.620 GHz : -56.522 dBm	Limit: -40.15 dBm Margin: -16.37 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

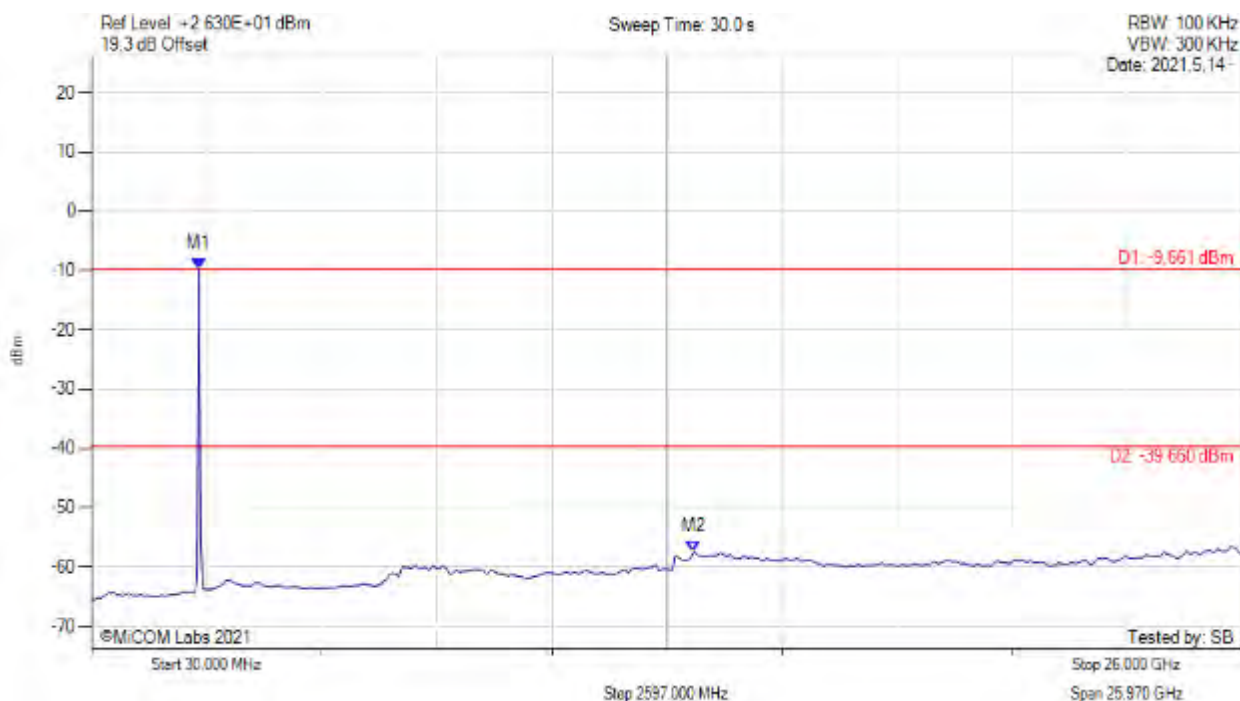Variant: 802.11b, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.390 dBm M2 : 13.620 GHz : -57.409 dBm	Limit: -39.39 dBm Margin: -18.02 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

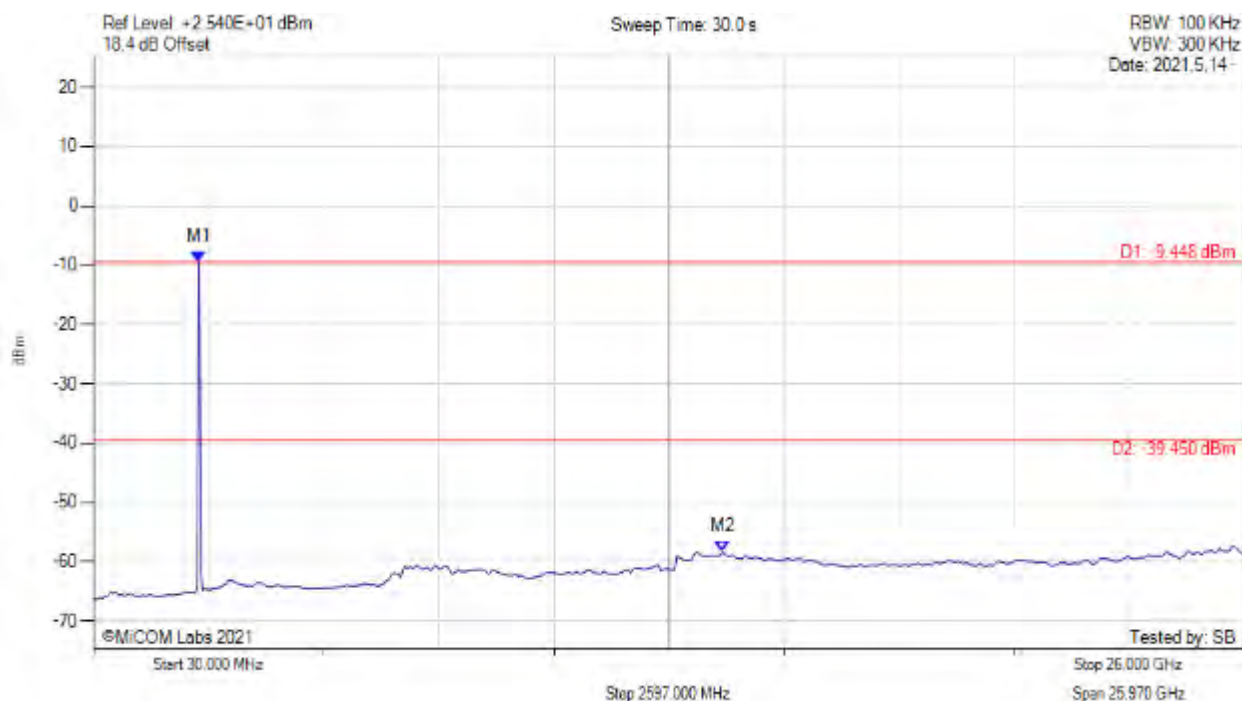Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.262 dBm M2 : 14.230 GHz : -58.374 dBm	Limit: -39.26 dBm Margin: -19.11 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

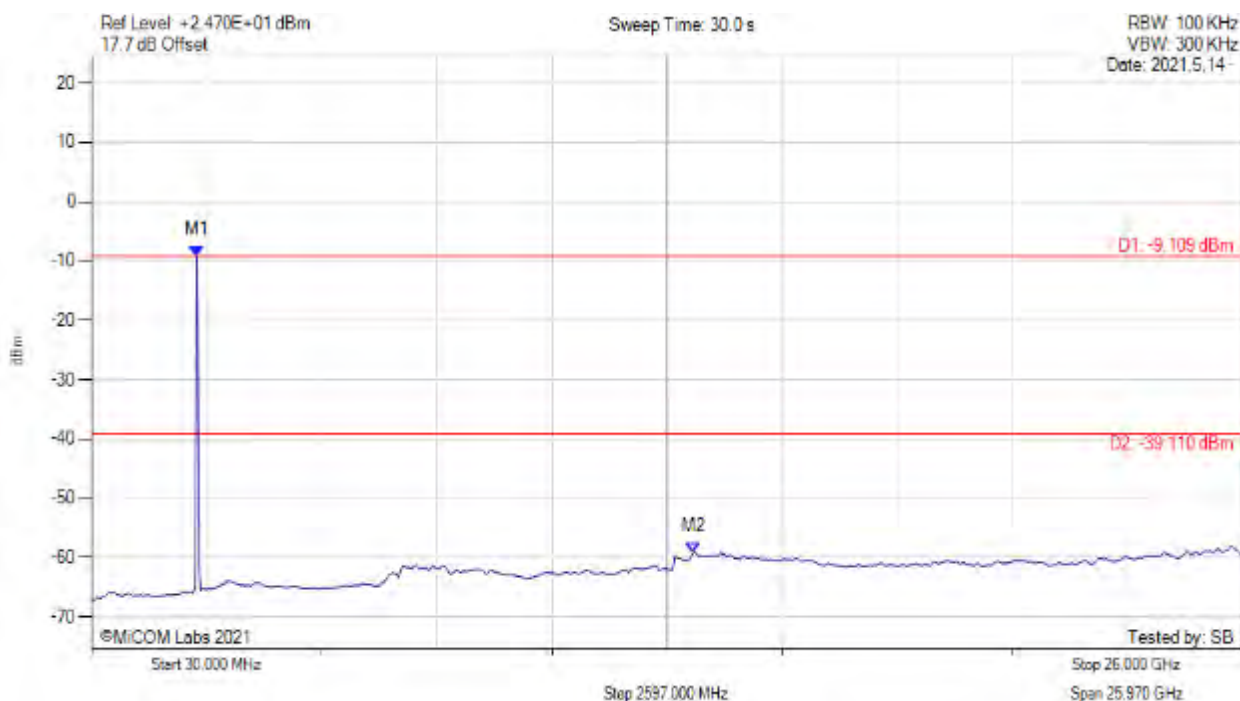Variant: 802.11g, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.122 dBm M2 : 13.620 GHz : -59.090 dBm	Limit: -39.12 dBm Margin: -19.97 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.878 dBm M2 : 13.620 GHz : -57.555 dBm	Limit: -39.88 dBm Margin: -17.67 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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

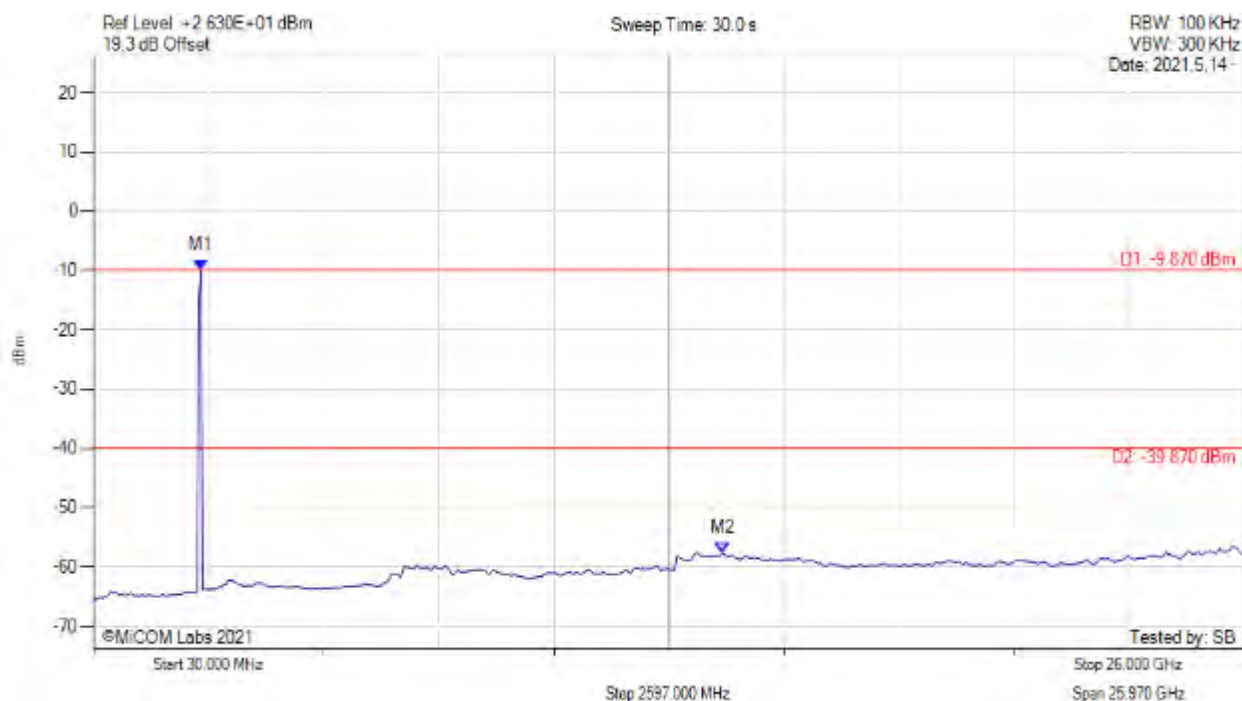| Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.462 dBm M2 : 13.620 GHz : -58.366 dBm	Limit: -39.46 dBm Margin: -18.91 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

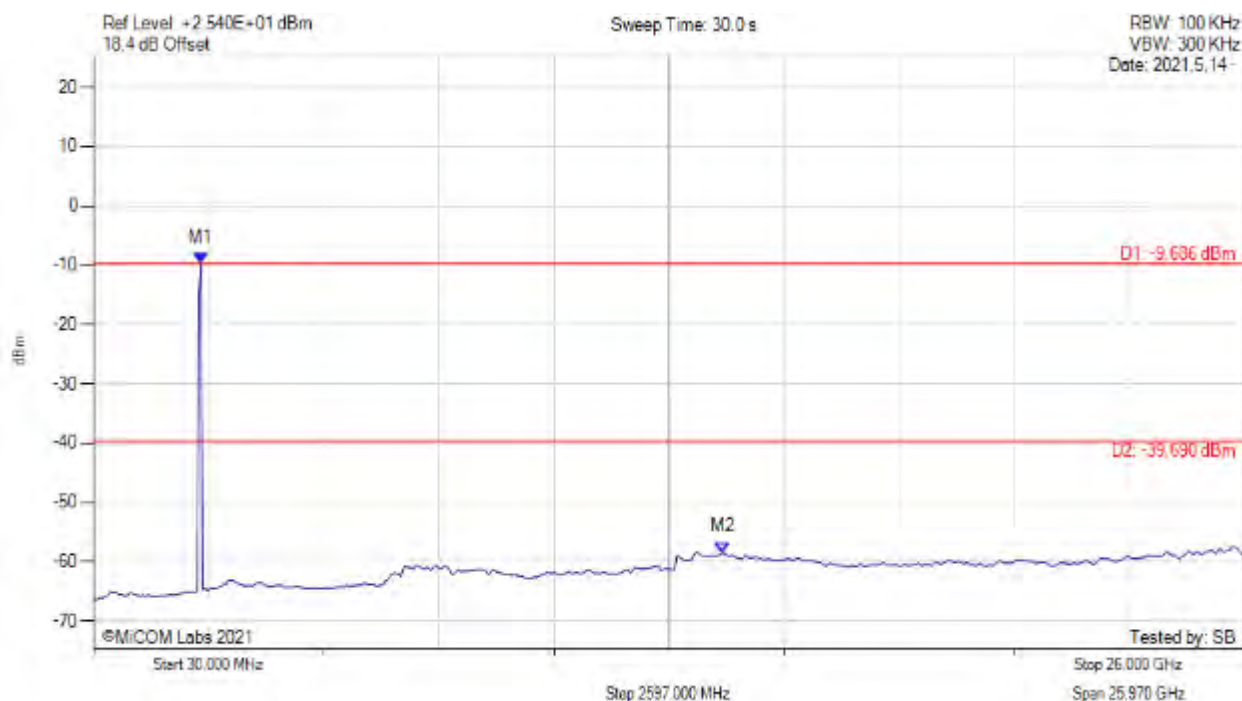Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.491 dBm M2 : 13.620 GHz : -56.626 dBm	Limit: -39.49 dBm Margin: -17.14 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.661 dBm M2 : 13.620 GHz : -57.434 dBm	Limit: -39.66 dBm Margin: -17.77 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

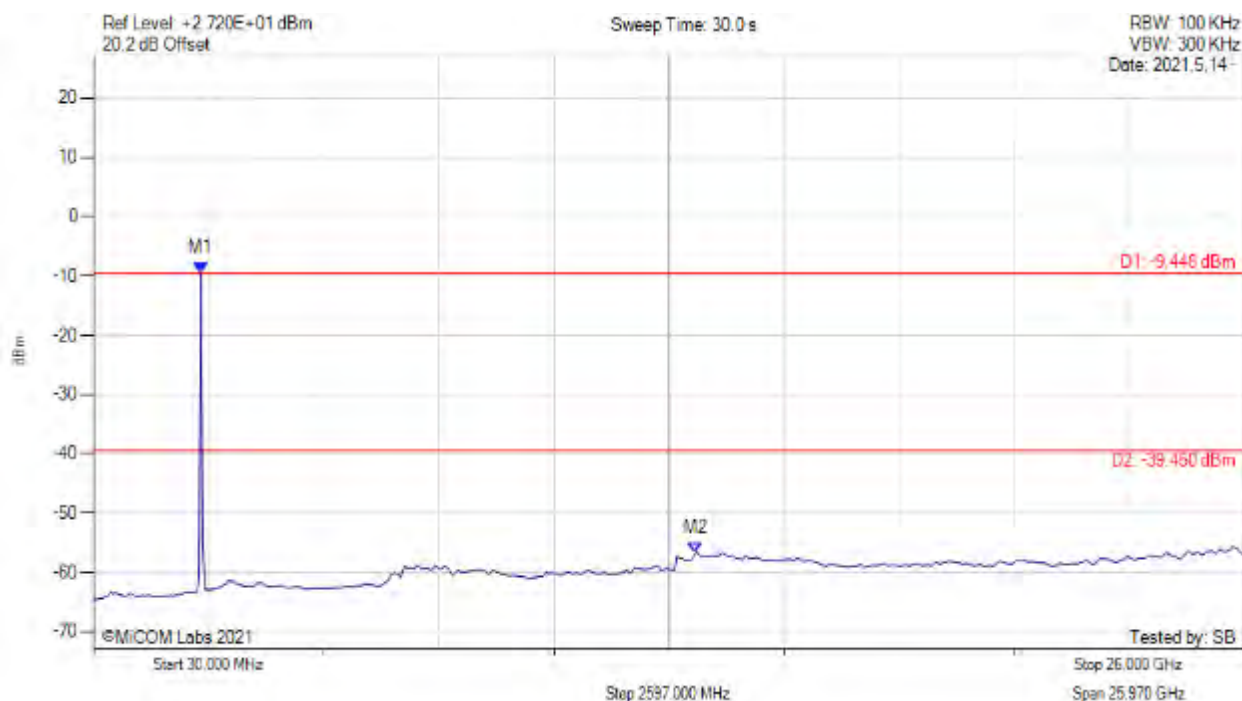Variant: 802.11n HT-20, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.448 dBm M2 : 14.230 GHz : -58.383 dBm	Limit: -39.45 dBm Margin: -18.93 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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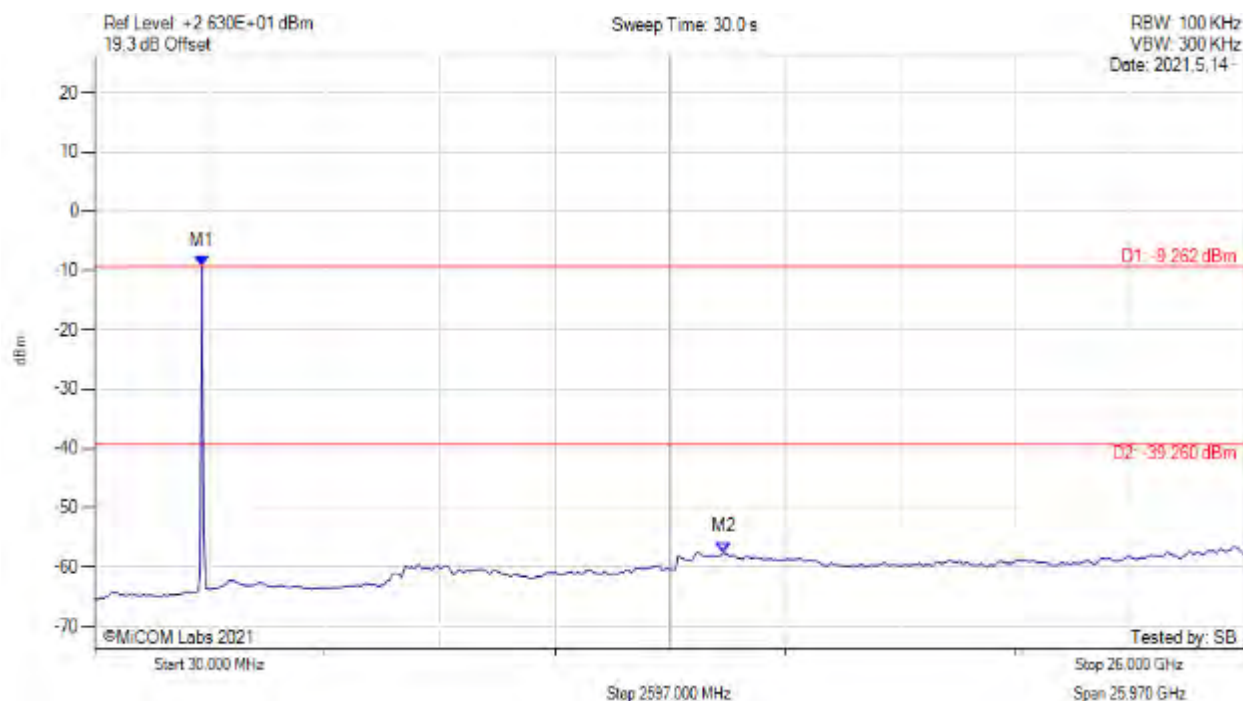

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.109 dBm M2 : 13.620 GHz : -59.101 dBm	Limit: -39.11 dBm Margin: -19.99 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - 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 = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.870 dBm M2 : 14.230 GHz : -57.591 dBm	Limit: -39.87 dBm Margin: -17.72 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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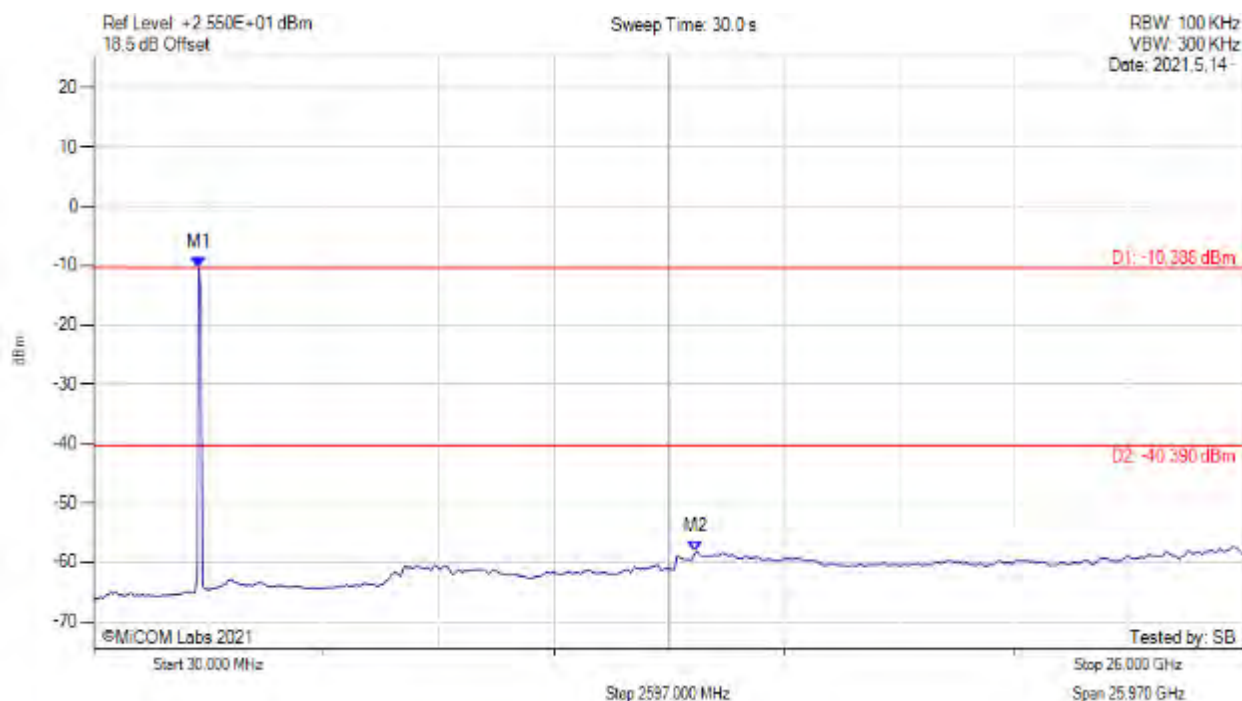

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.686 dBm M2 : 14.230 GHz : -58.408 dBm	Limit: -39.69 dBm Margin: -18.72 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

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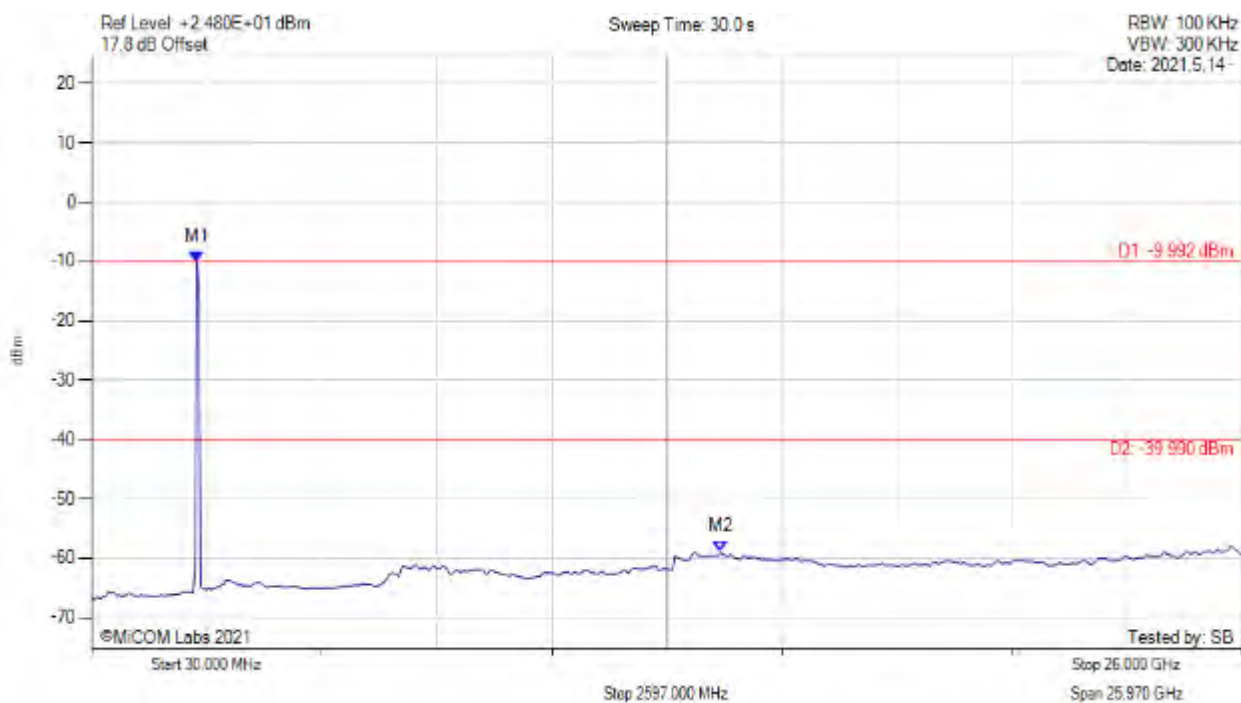

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.448 dBm M2 : 13.620 GHz : -56.648 dBm	Limit: -39.45 dBm Margin: -17.20 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

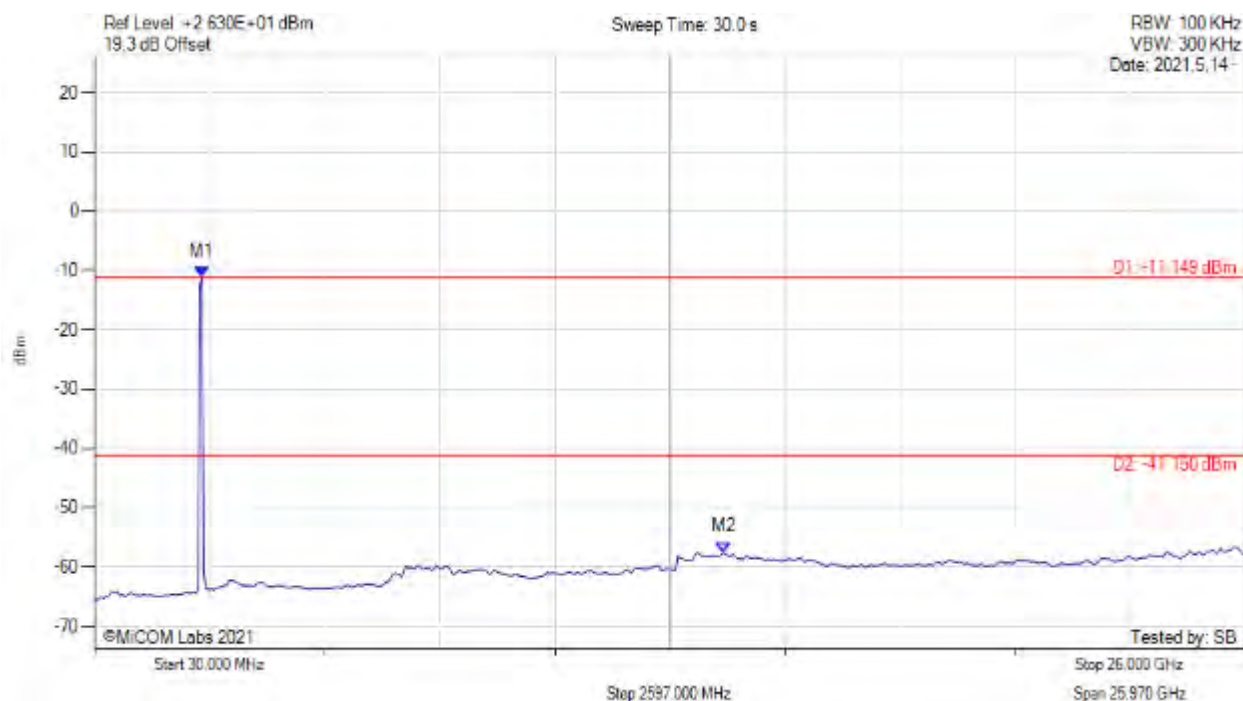Variant: 802.11n HT-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -9.262 dBm M2 : 14.230 GHz : -57.511 dBm	Limit: -39.26 dBm Margin: -18.25 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -10.388 dBm M2 : 13.620 GHz : -58.230 dBm	Limit: -40.39 dBm Margin: -17.84 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
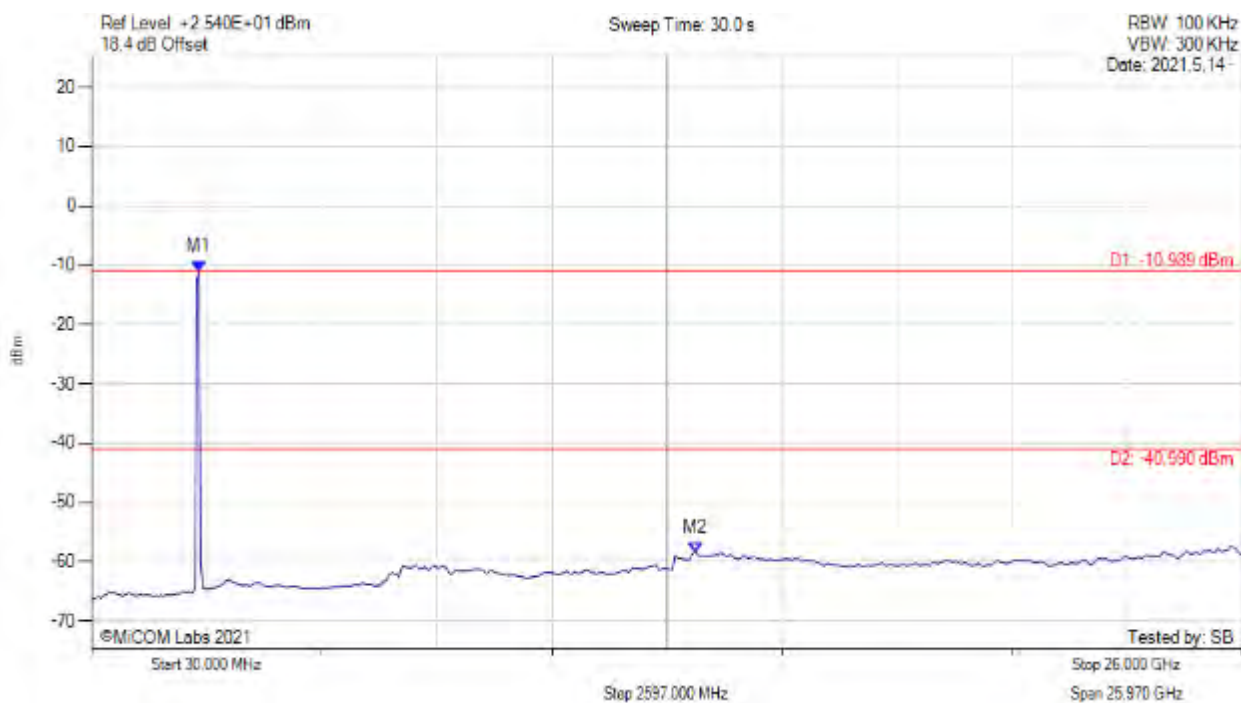

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2410.000 MHz : -9.992 dBm M2 : 14.230 GHz : -58.998 dBm	Limit: -39.99 dBm Margin: -19.01 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

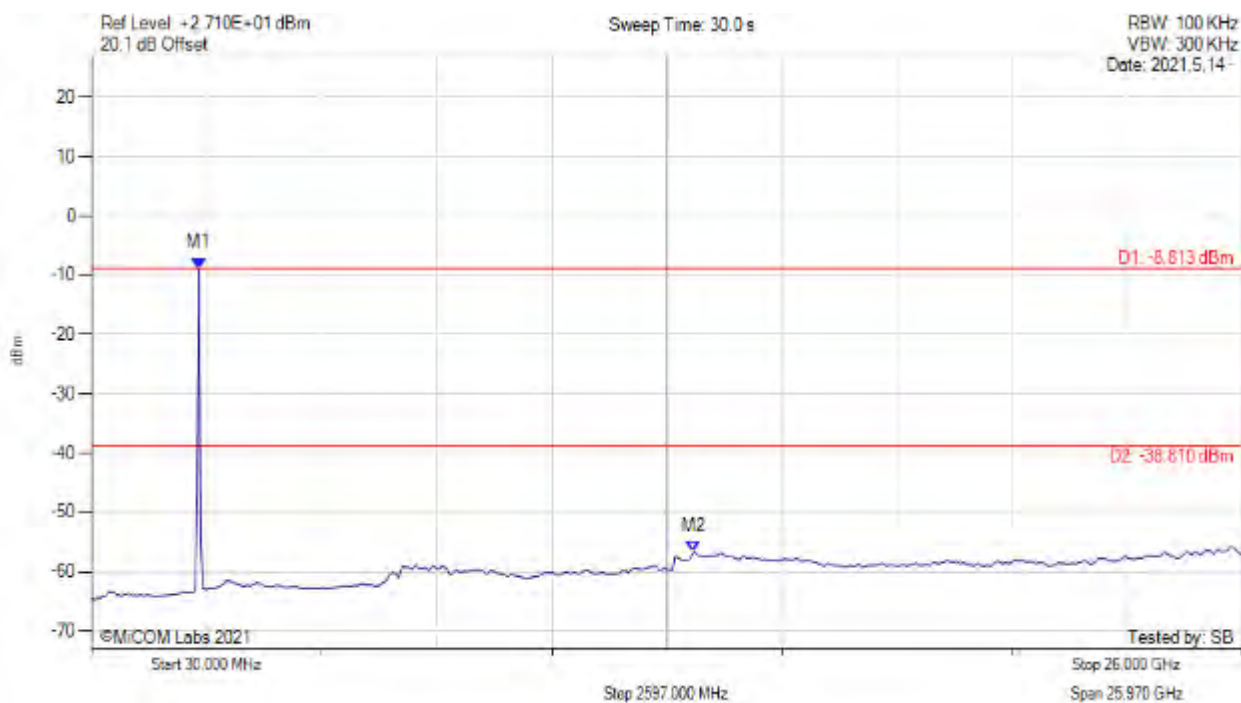Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -11.149 dBm M2 : 14.230 GHz : -57.524 dBm	Limit: -41.15 dBm Margin: -16.37 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2437.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -10.989 dBm M2 : 13.660 GHz : -58.432 dBm	Limit: -40.99 dBm Margin: -17.44 dB

back to matrix

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
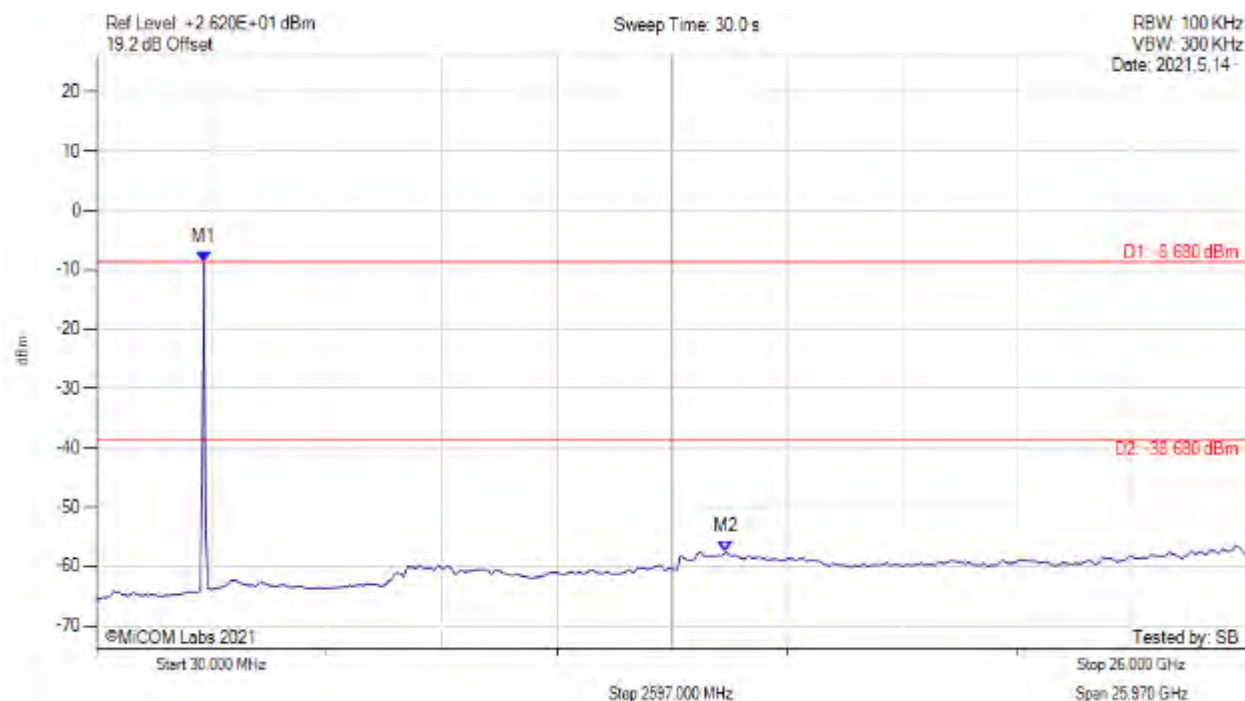

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -8.813 dBm M2 : 13.620 GHz : -56.636 dBm	Limit: -38.81 dBm Margin: -17.83 dB

CONDUCTED SPURIOUS EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

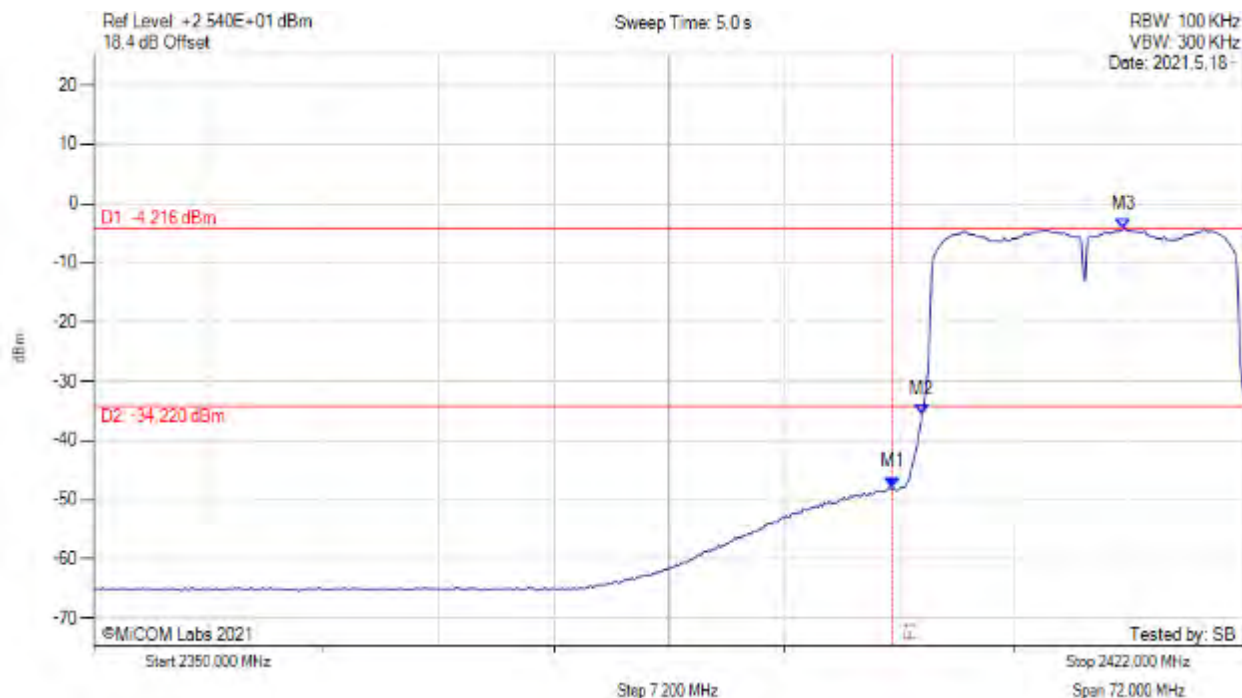| Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2450.000 MHz : -8.680 dBm M2 : 14.230 GHz : -57.503 dBm	Limit: -38.68 dBm Margin: -18.82 dB

back to matrix

A.4.1.2. Conducted Band-Edge Emissions

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

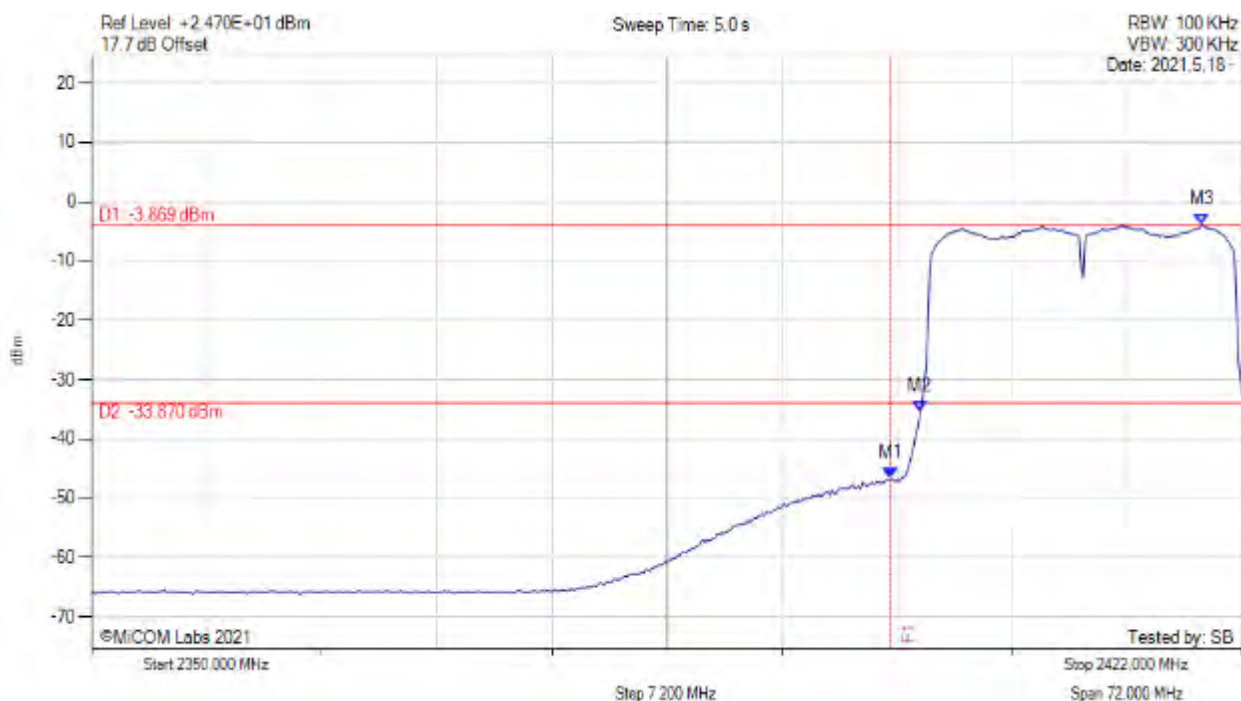Variant: 802.11ax-20, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -47.883 dBm M2 : 2401.840 MHz : -35.648 dBm M3 : 2414.440 MHz : -4.216 dBm	Channel Frequency: 2412.00 MHz

back to matrix

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CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

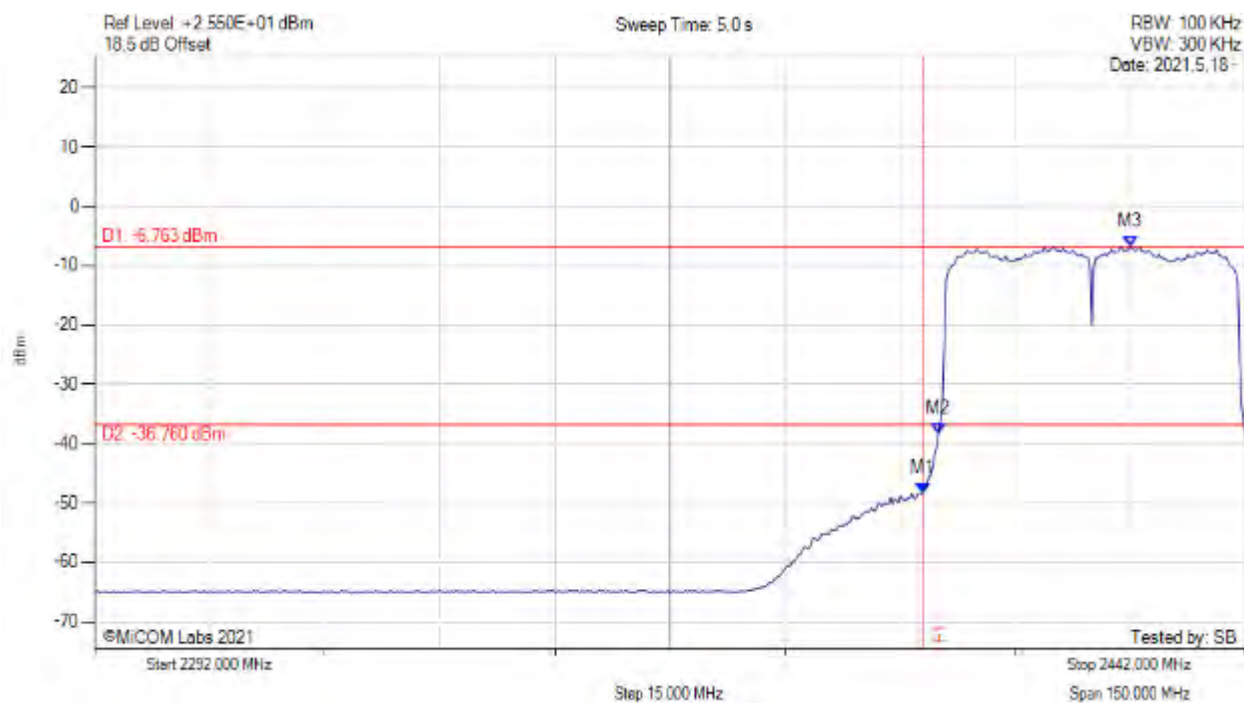Variant: 802.11ax-20, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -46.665 dBm M2 : 2401.840 MHz : -35.387 dBm M3 : 2419.480 MHz : -3.869 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

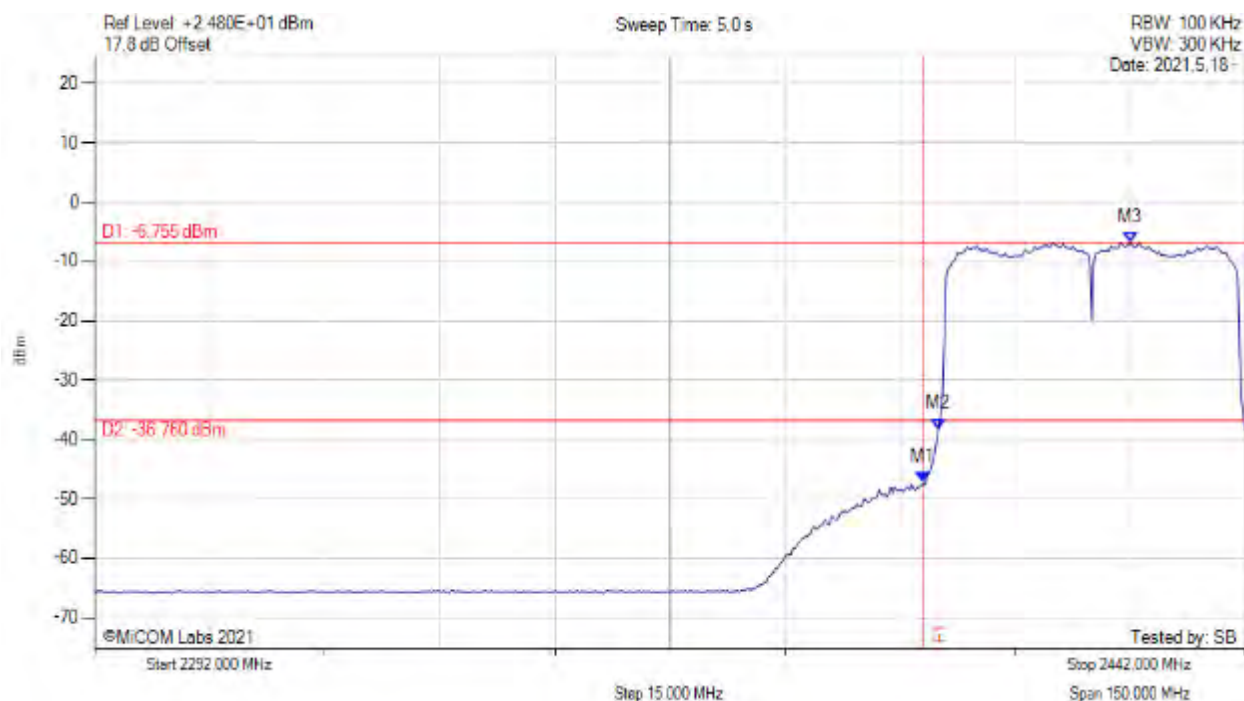Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -48.367 dBm M2 : 2402.000 MHz : -38.295 dBm M3 : 2427.000 MHz : -6.763 dBm	Channel Frequency: 2422.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

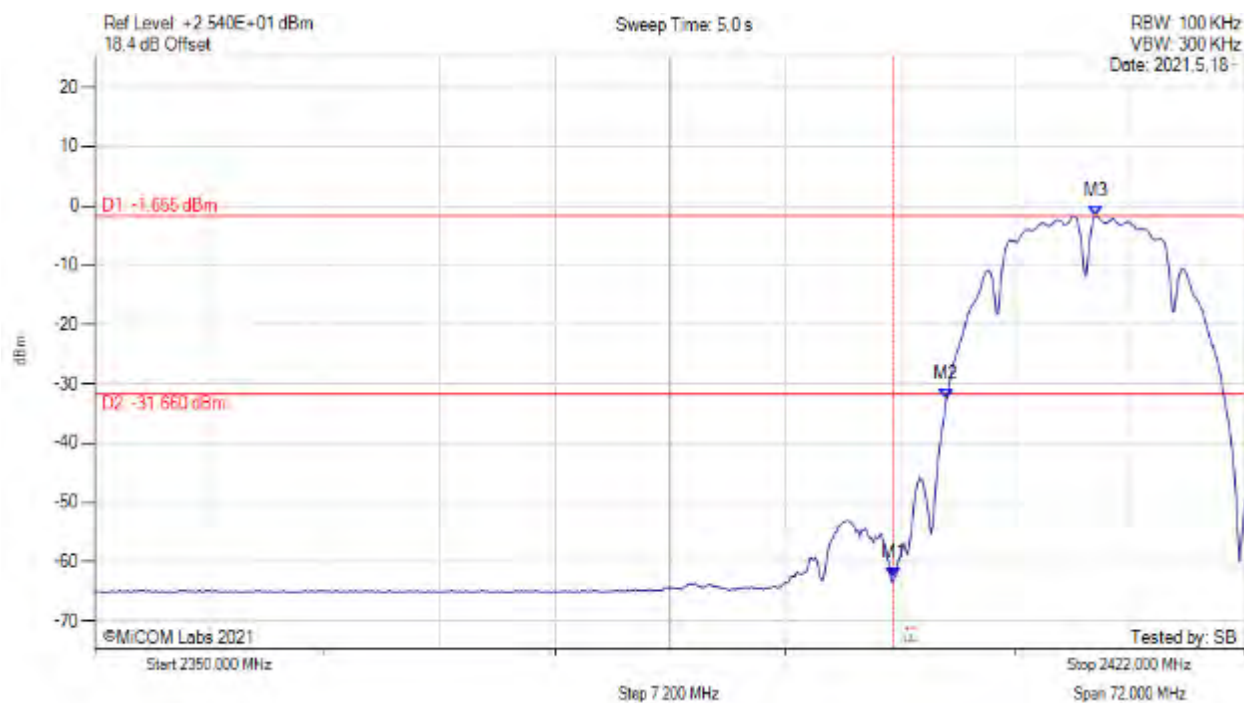Variant: 802.11ax-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -47.309 dBm M2 : 2402.000 MHz : -38.211 dBm M3 : 2427.000 MHz : -6.755 dBm	Channel Frequency: 2422.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -62.647 dBm M2 : 2403.280 MHz : -32.690 dBm M3 : 2412.640 MHz : -1.655 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

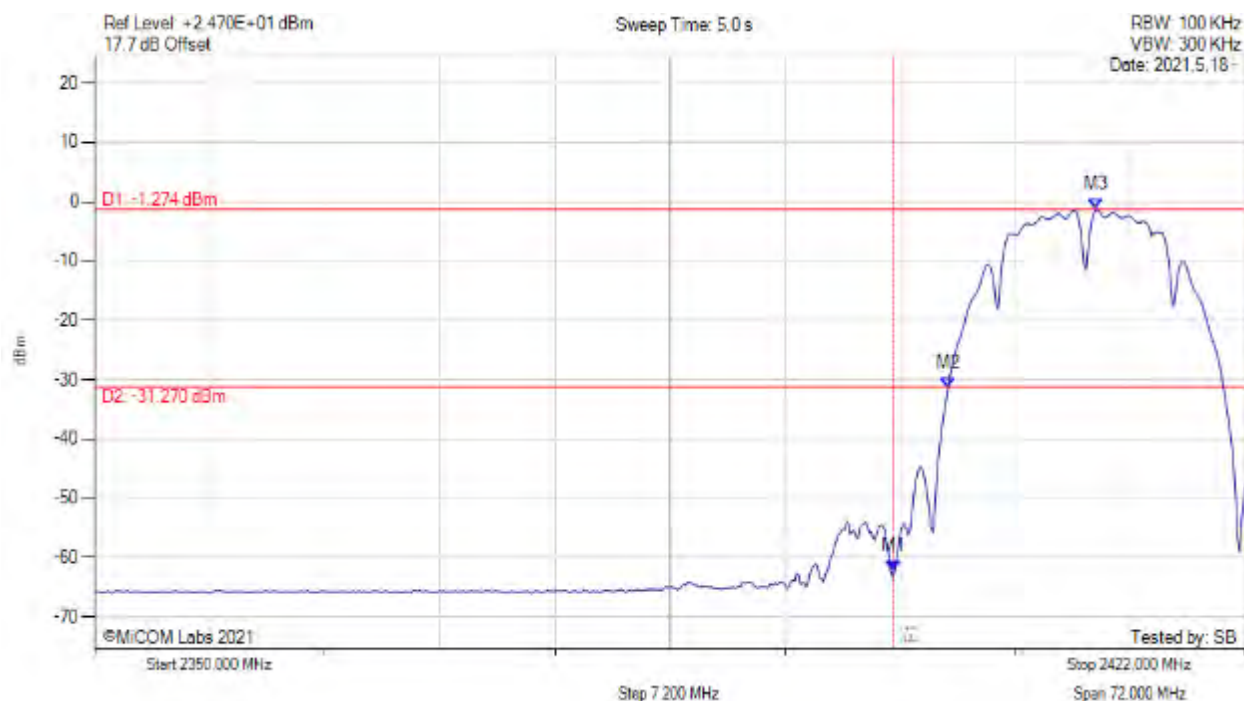Variant: 802.11b, Channel: 2412.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -62.313 dBm M2 : 2403.400 MHz : -31.337 dBm M3 : 2412.640 MHz : -1.274 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

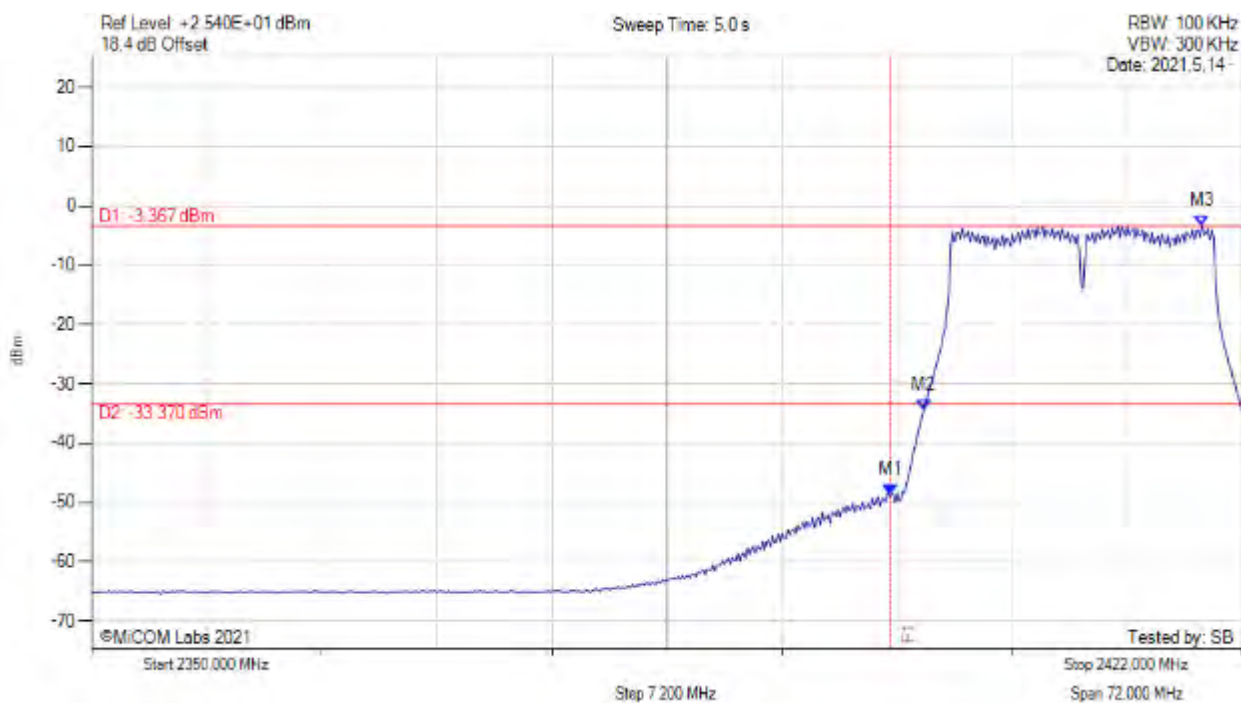Variant: 802.11g, Channel: 2412.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -48.719 dBm M2 : 2402.080 MHz : -34.445 dBm M3 : 2419.480 MHz : -3.367 dBm	Channel Frequency: 2412.00 MHz

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -48.090 dBm M2 : 2402.080 MHz : -34.203 dBm M3 : 2419.480 MHz : -3.156 dBm	Channel Frequency: 2412.00 MHz

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

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

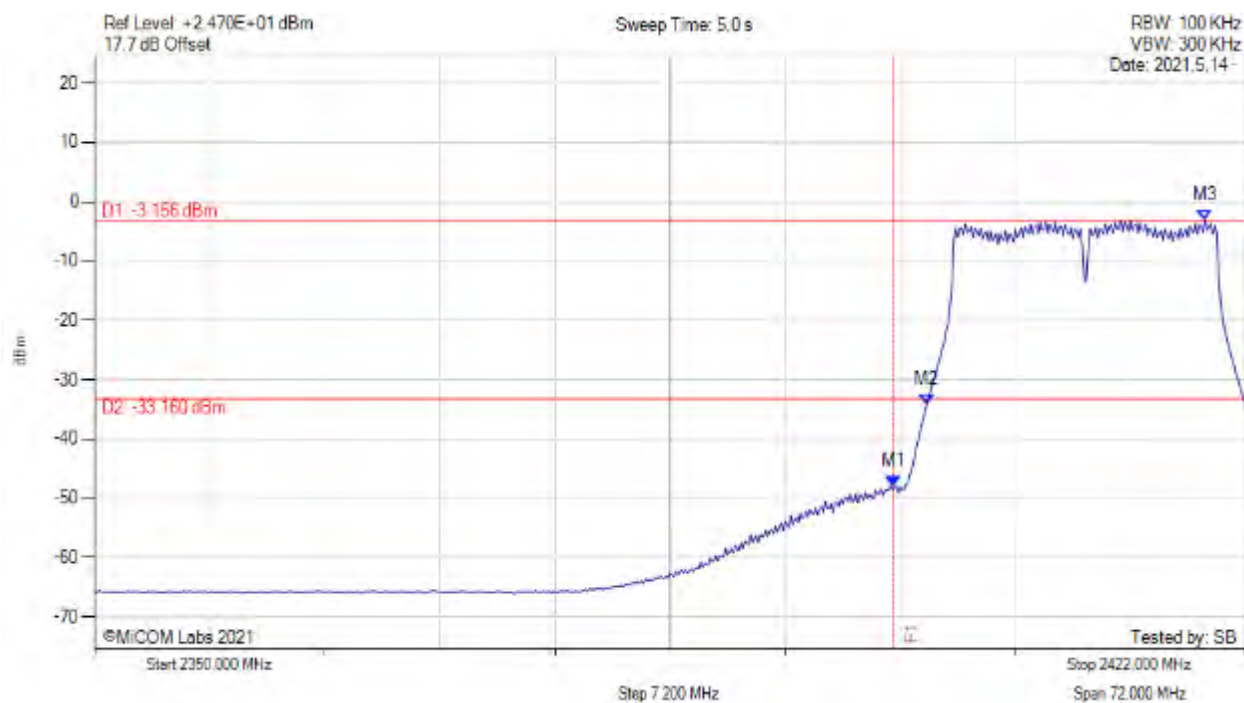| Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -47.105 dBm M2 : 2401.840 MHz : -34.617 dBm M3 : 2414.440 MHz : -3.620 dBm	Channel Frequency: 2412.00 MHz

back to matrix

MiCOMLabs

Title: Hewlett Packard Enterprise Company ASIN0304
To: FCC Part 15 15.247 (DTS), ISED RSS-247 Issue 2
Serial #: HPEN155-U7 Rev A (2.4 GHz Wi-Fi)

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -47.543 dBm M2 : 2401.960 MHz : -33.598 dBm M3 : 2419.480 MHz : -3.399 dBm	Channel Frequency: 2412.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

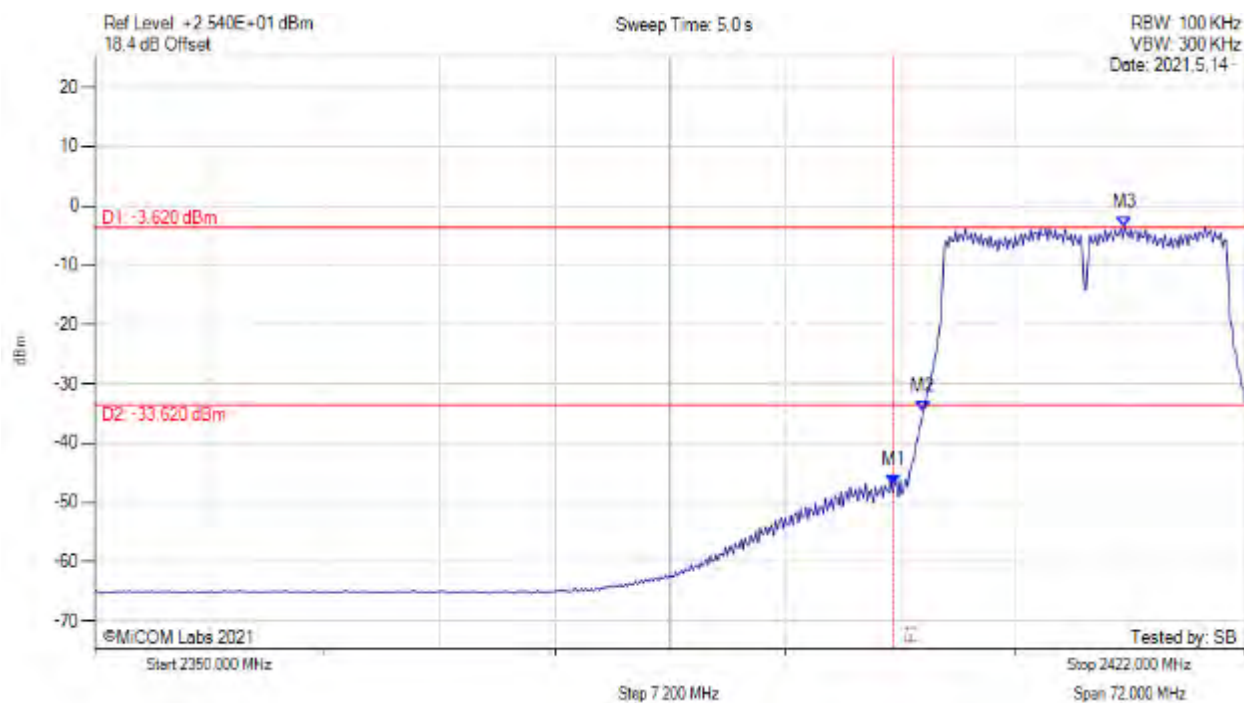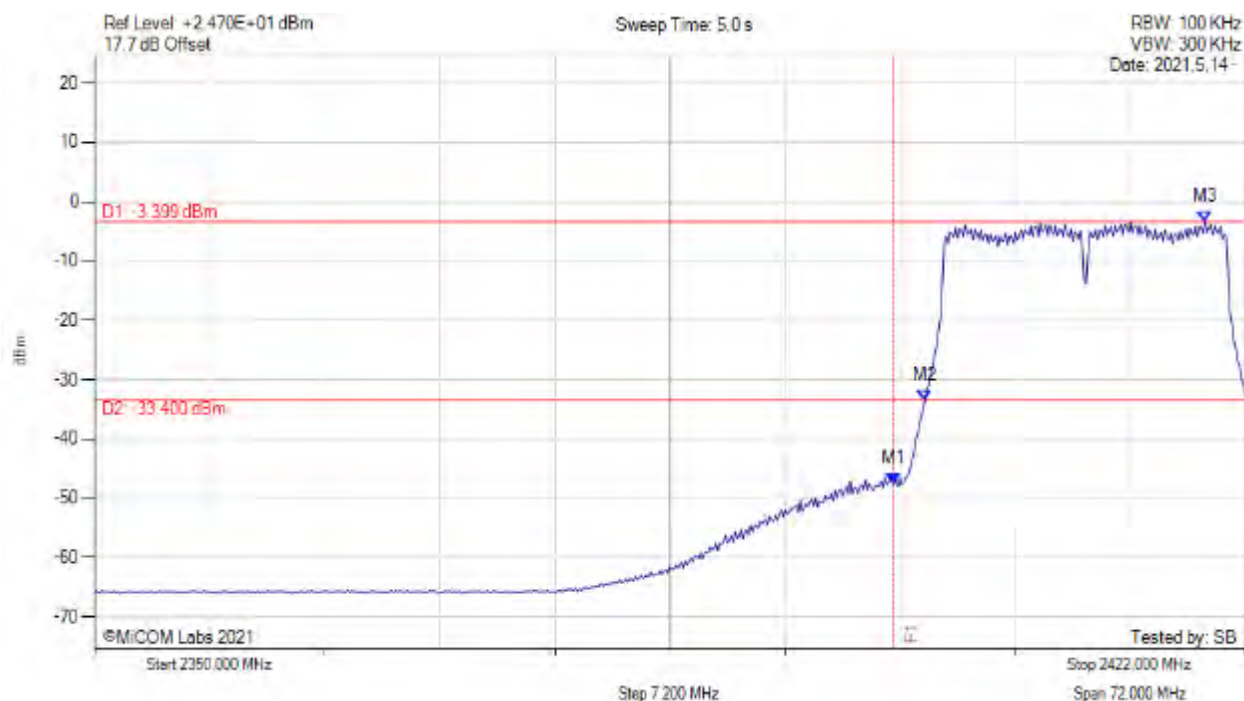Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2400.000 MHz : -48.108 dBm M2 : 2402.000 MHz : -37.419 dBm M3 : 2427.000 MHz : -6.685 dBm	Channel Frequency: 2422.00 MHz

back to matrix

CONDUCTED LOW BAND-EDGE EMISSIONS - AVERAGE

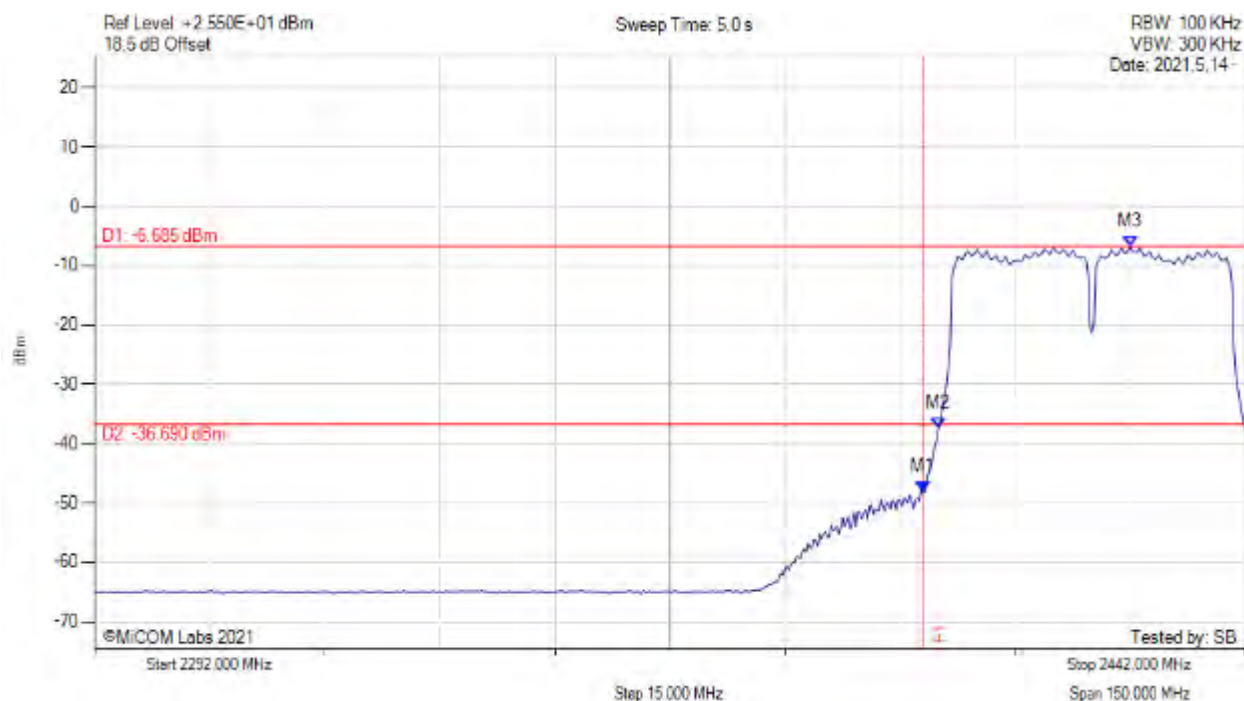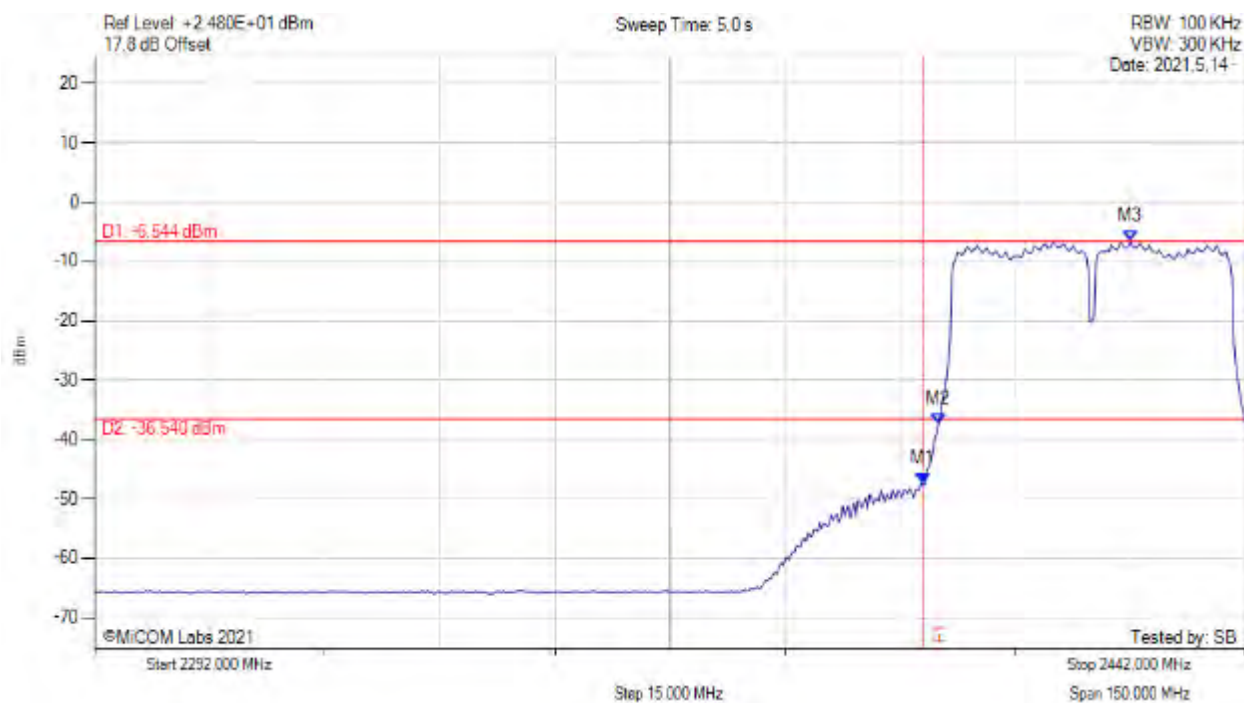Variant: 802.11n HT-40, Channel: 2422.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER	M1 : 2400.000 MHz : -47.508 dBm	Channel Frequency: 2422.00 MHz
Sweep Count = 0	M2 : 2402.000 MHz : -37.391 dBm	
RF Atten (dB) = 20	M3 : 2427.000 MHz : -6.544 dBm	
Trace Mode = VIEW		

back to matrix

Issue Date: 24th July 2021   **Page:** 225 of 253

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CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.520 MHz : -3.892 dBm M2 : 2471.920 MHz : -31.826 dBm M3 : 2483.500 MHz : -52.753 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

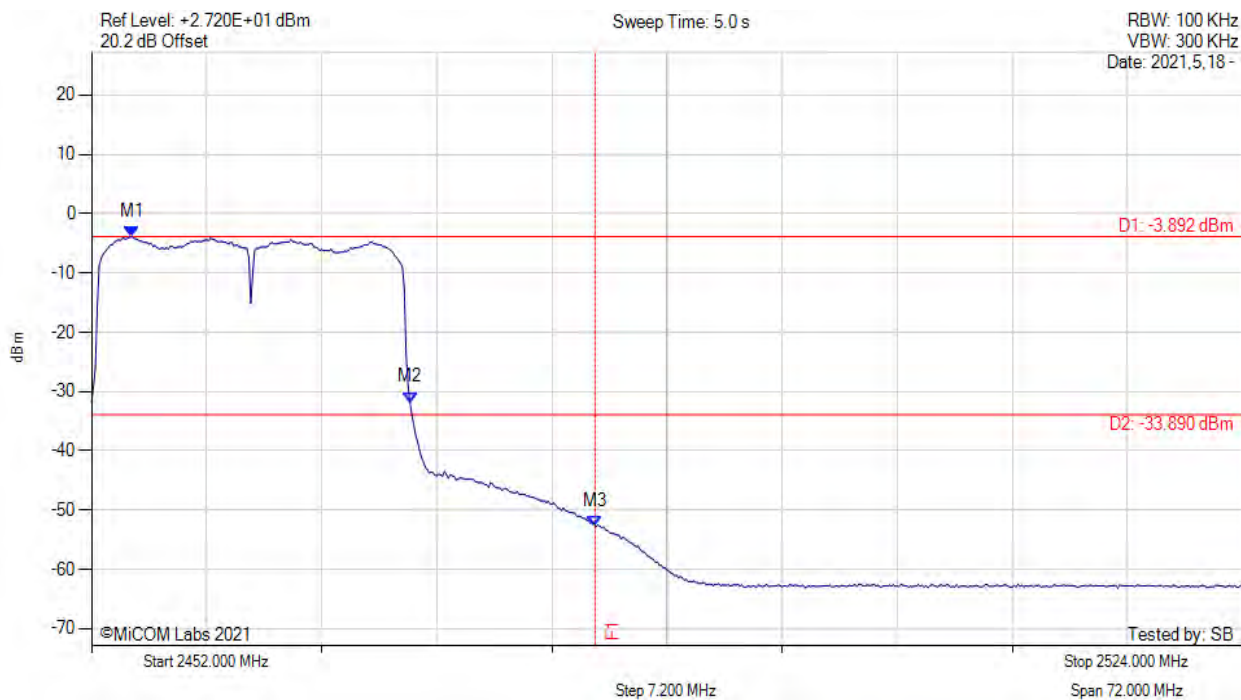Variant: 802.11ax-20, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.520 MHz : -3.849 dBm M2 : 2472.040 MHz : -33.686 dBm M3 : 2483.500 MHz : -51.561 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.000 MHz : -5.843 dBm M2 : 2471.500 MHz : -33.251 dBm M3 : 2483.500 MHz : -49.696 dBm	Channel Frequency: 2452.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

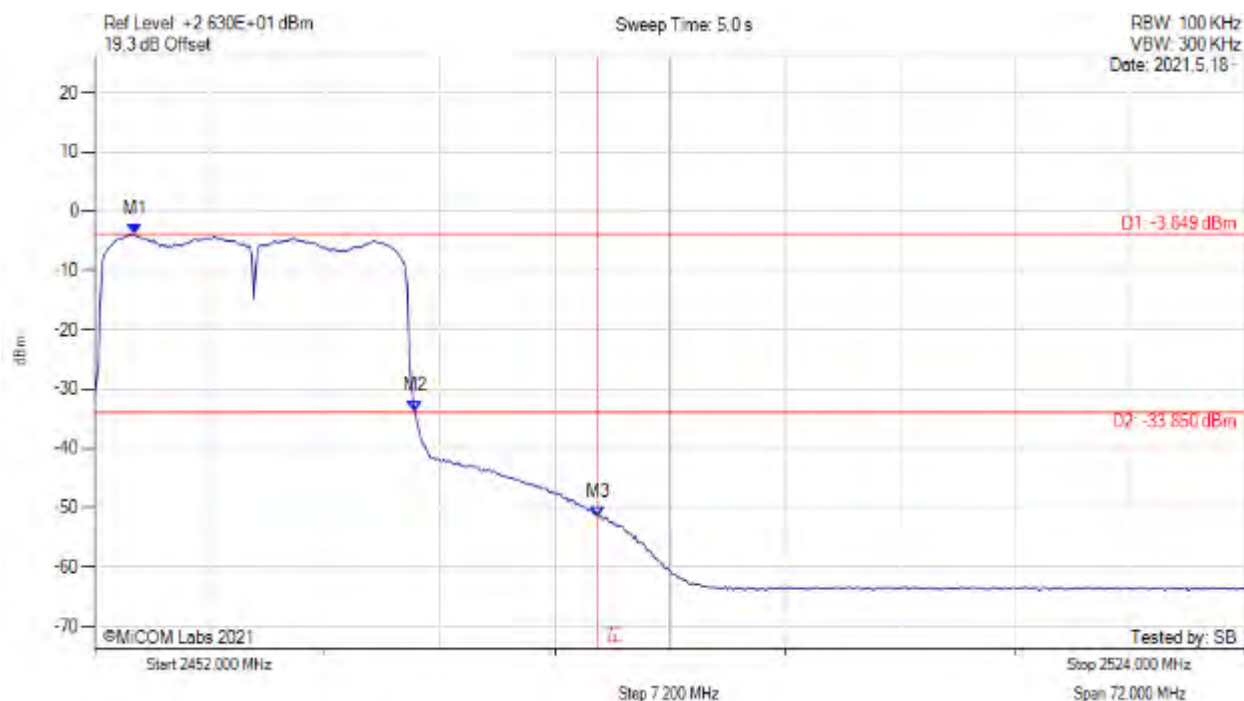Variant: 802.11ax-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
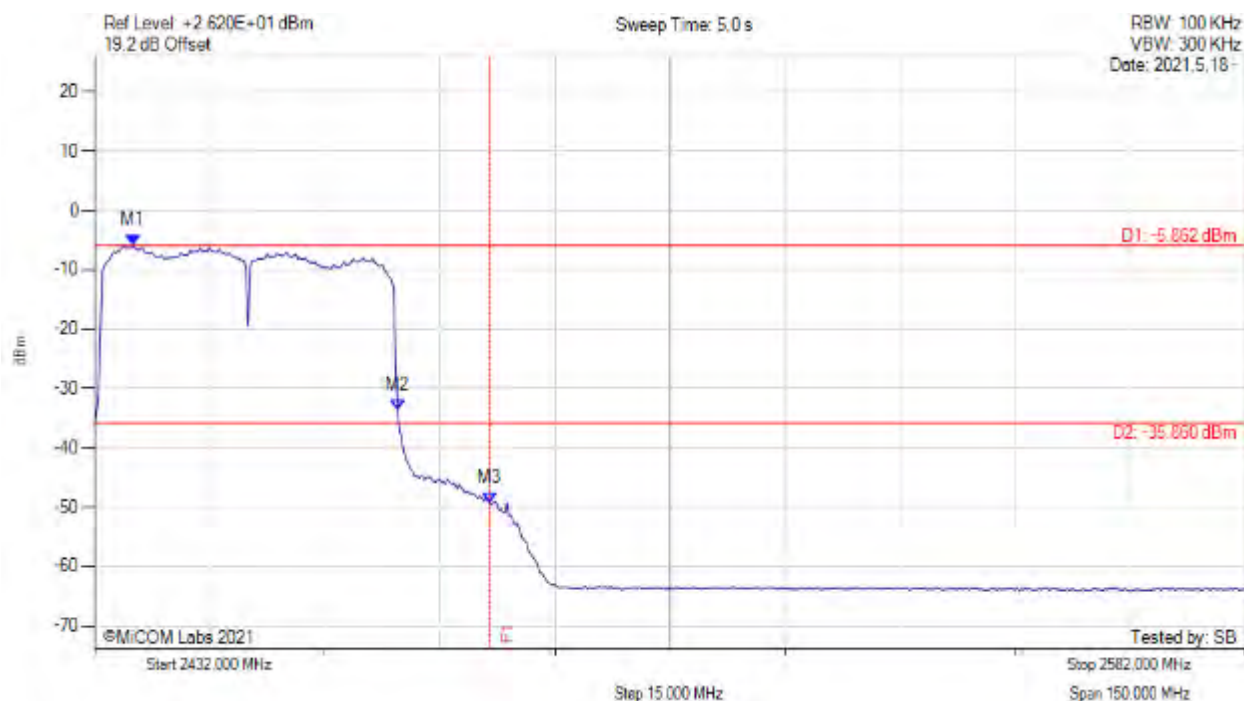
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.000 MHz : -5.862 dBm M2 : 2471.500 MHz : -33.663 dBm M3 : 2483.500 MHz : -49.315 dBm	Channel Frequency: 2452.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

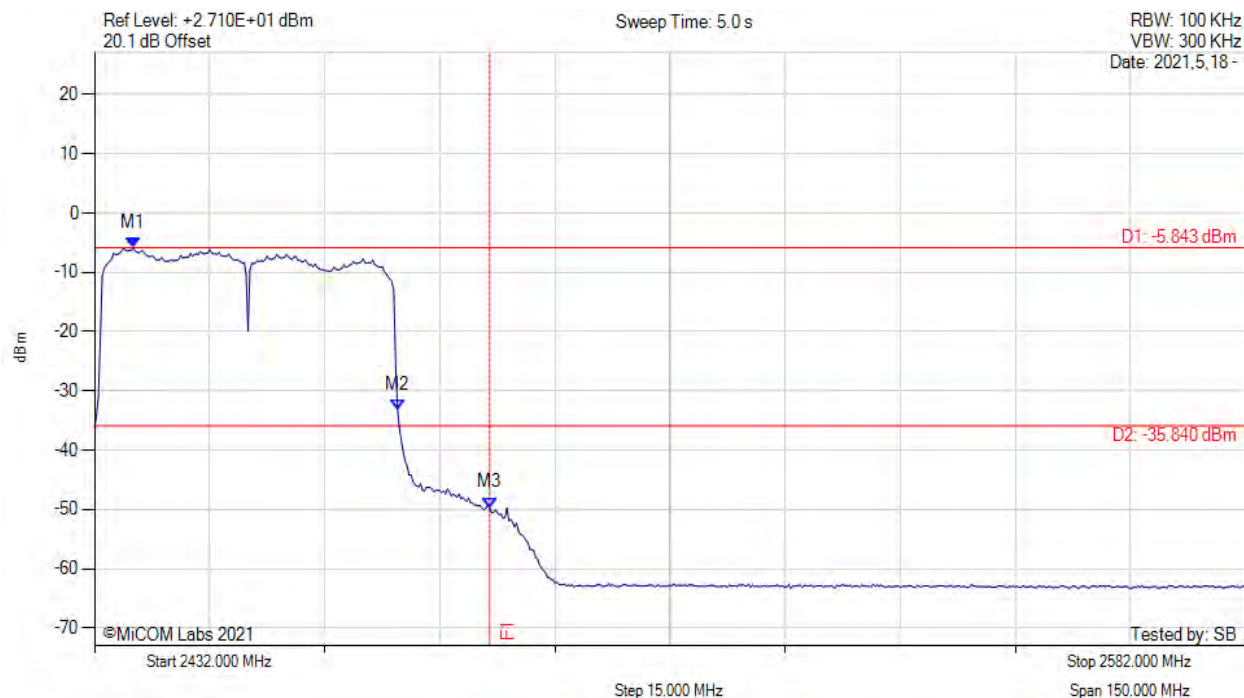Variant: 802.11b, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.240 MHz : -1.764 dBm M2 : 2470.600 MHz : -31.573 dBm M3 : 2483.500 MHz : -62.115 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

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

Ref Level +2.630E+01 dBm
19.3 dB Offset
Sweep Time: 5.0 s
RBW: 100 KHz
VBW: 300 KHz
Date: 2021.5.18

D1: -1.397 dBm
D2: -31.400 dBm

Start 2452.000 MHz
Stop 2524.000 MHz
Step 7.200 MHz
Span 72.000 MHz

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Tested by: SB

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2461.240 MHz : -1.397 dBm M2 : 2470.600 MHz : -31.065 dBm M3 : 2483.500 MHz : -62.950 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

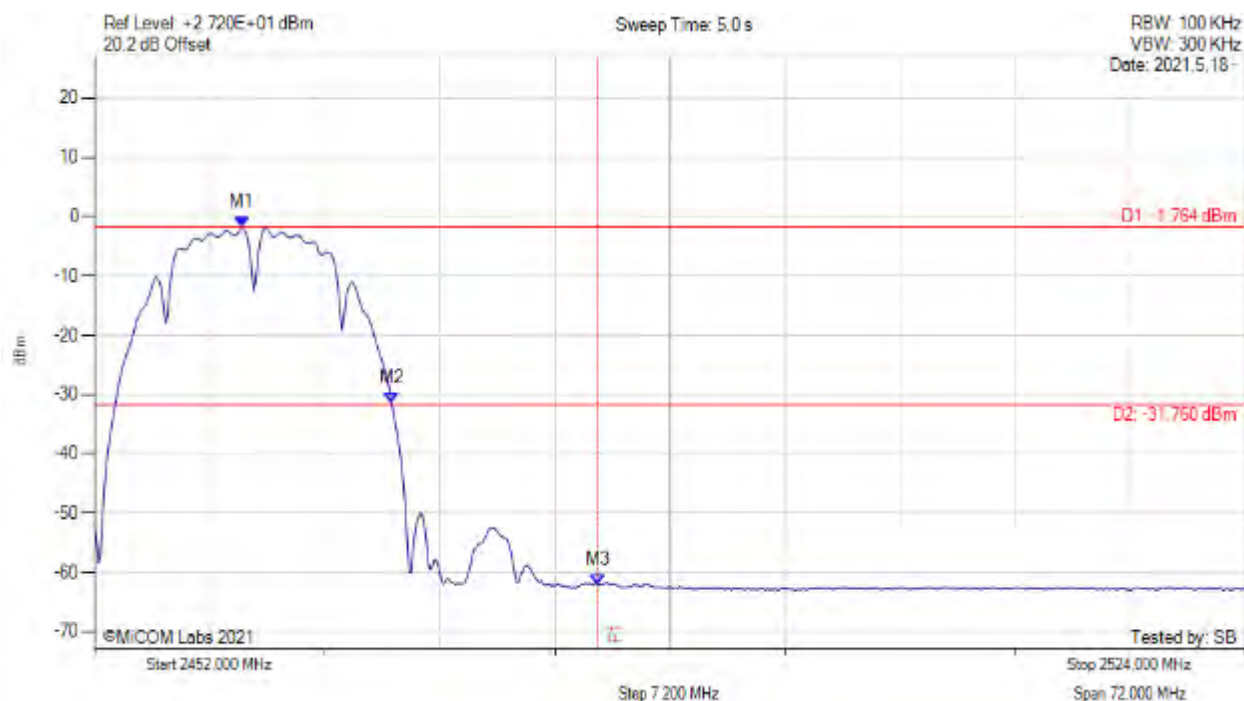Variant: 802.11g, Channel: 2462.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
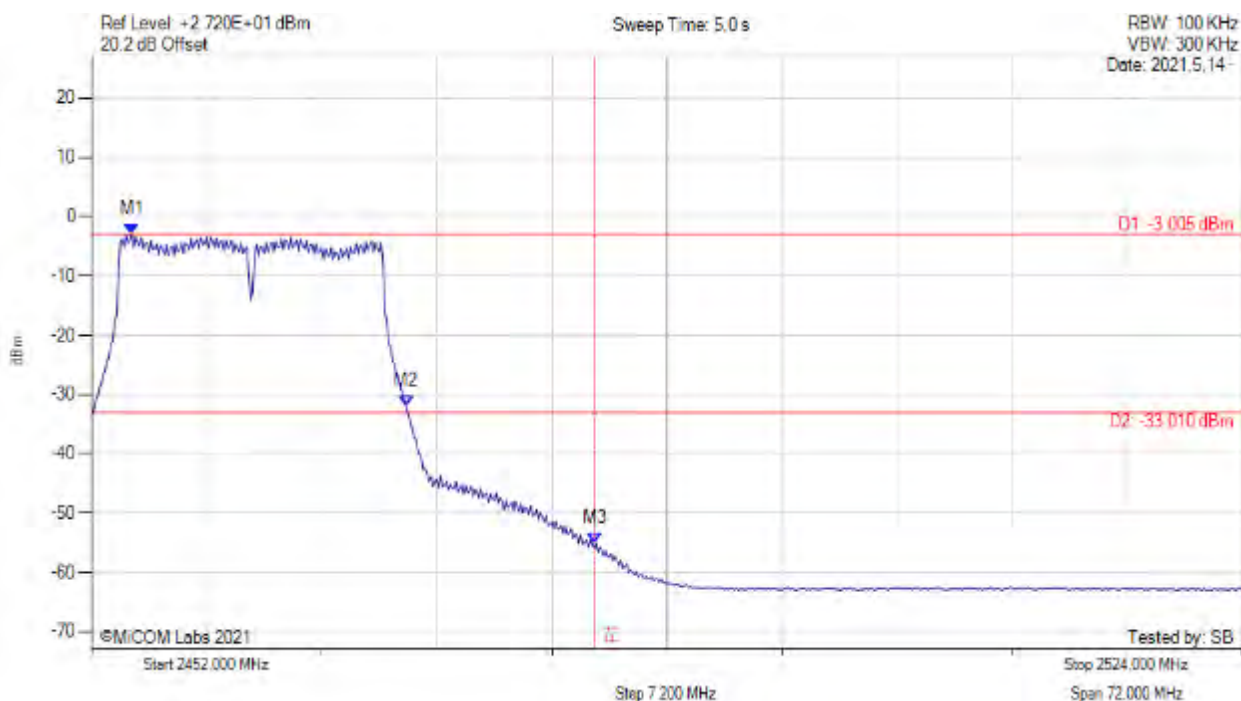
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.520 MHz : -3.005 dBm M2 : 2471.680 MHz : -31.946 dBm M3 : 2483.500 MHz : -55.134 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11g, Channel: 2462.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc
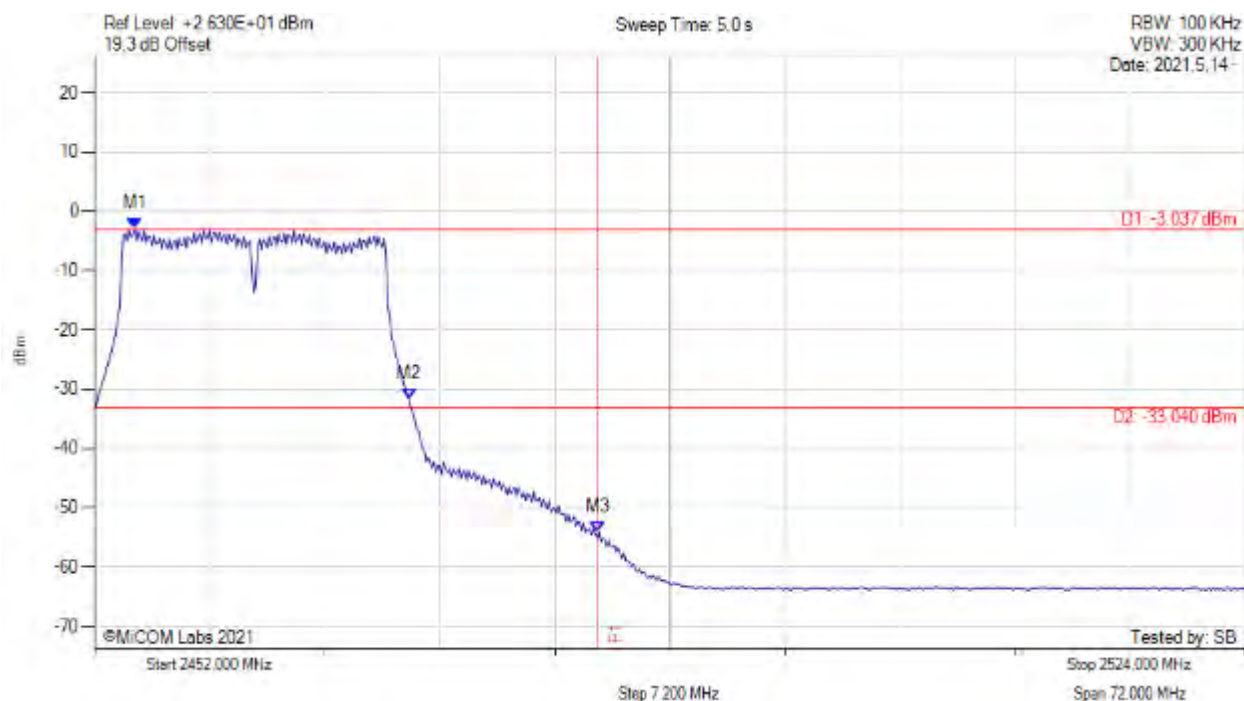
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.520 MHz : -3.037 dBm M2 : 2471.680 MHz : -31.766 dBm M3 : 2483.500 MHz : -54.098 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

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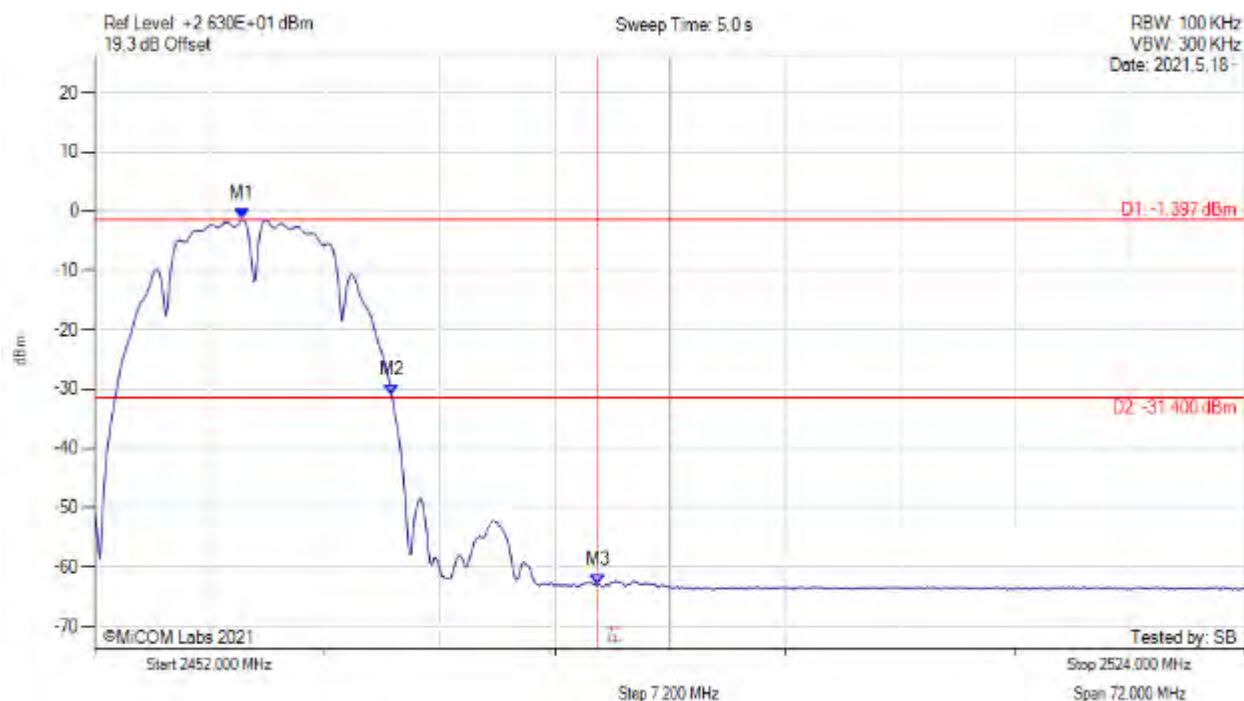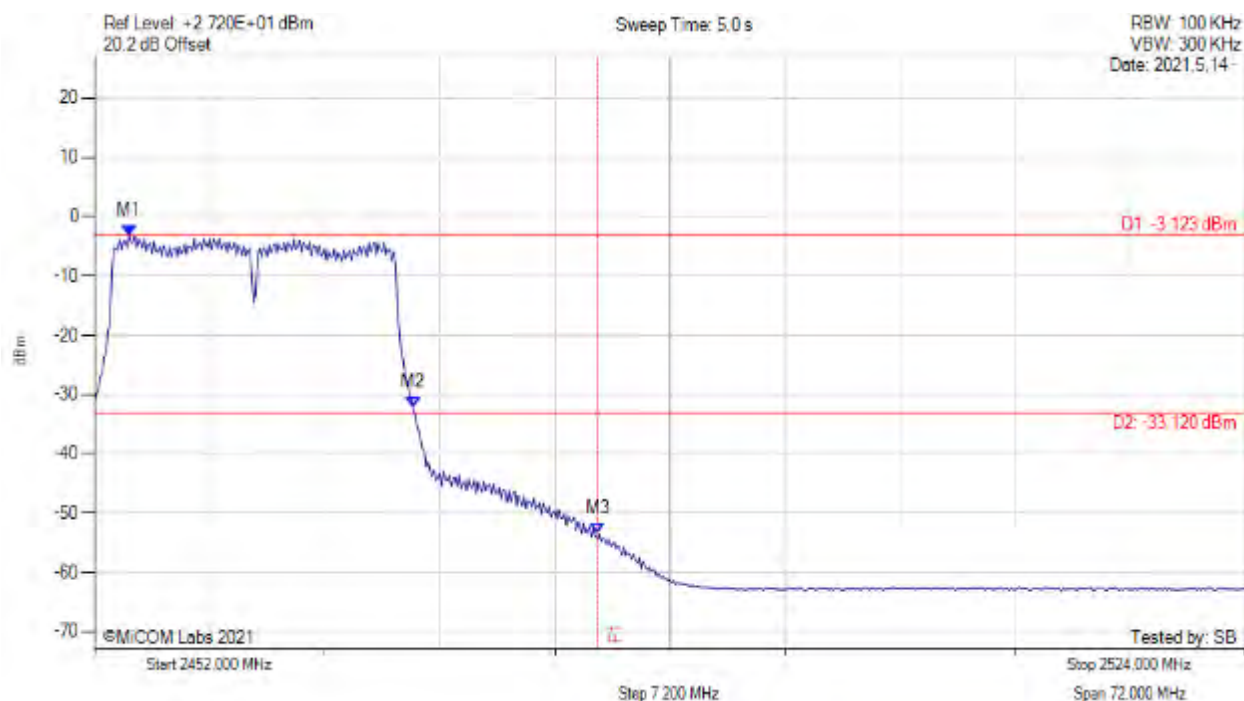

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2454.160 MHz : -3.123 dBm M2 : 2471.920 MHz : -32.189 dBm M3 : 2483.500 MHz : -53.517 dBm	Channel Frequency: 2462.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

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

Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER	M1 : 2454.160 MHz : -3.208 dBm	Channel Frequency: 2462.00 MHz
Sweep Count = 0	M2 : 2471.920 MHz : -31.983 dBm	
RF Atten (dB) = 20	M3 : 2483.500 MHz : -52.545 dBm	
Trace Mode = VIEW		

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain a, Temp: 20, Voltage: 12 Vdc
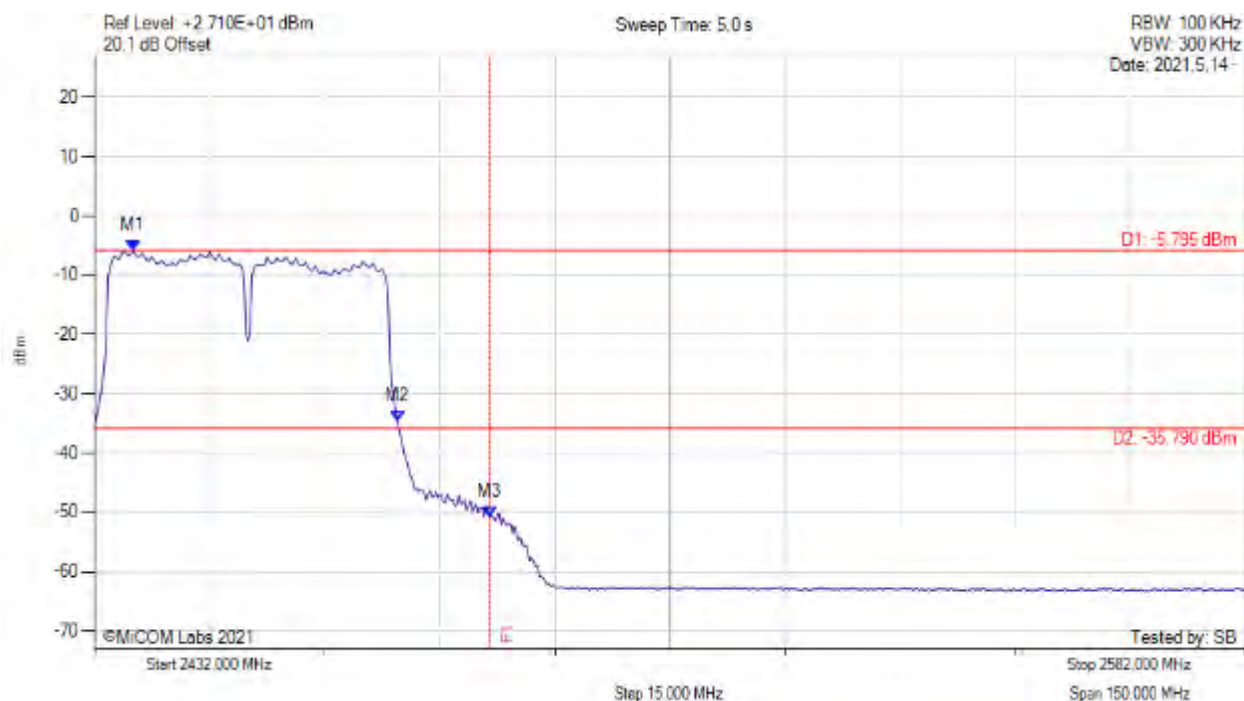
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 2437.000 MHz : -5.795 dBm M2 : 2471.500 MHz : -34.608 dBm M3 : 2483.500 MHz : -50.719 dBm	Channel Frequency: 2452.00 MHz

back to matrix

CONDUCTED HIGH BAND-EDGE EMISSIONS - AVERAGE

Variant: 802.11n HT-40, Channel: 2452.00 MHz, Chain b, Temp: 20, Voltage: 12 Vdc

Ref Level: +2.620E+01 dBm
19.2 dB Offset

Sweep Time: 5.0 s

RBW: 100 KHz
VBW: 300 KHz
Date: 2021,5,14

D1: -5.697 dBm

D2: -35.700 dBm

Start 2432.000 MHz
Step 15.000 MHz
Stop 2582.000 MHz
Span 150.000 MHz

©MiCOM Labs 2021

Tested by: SB
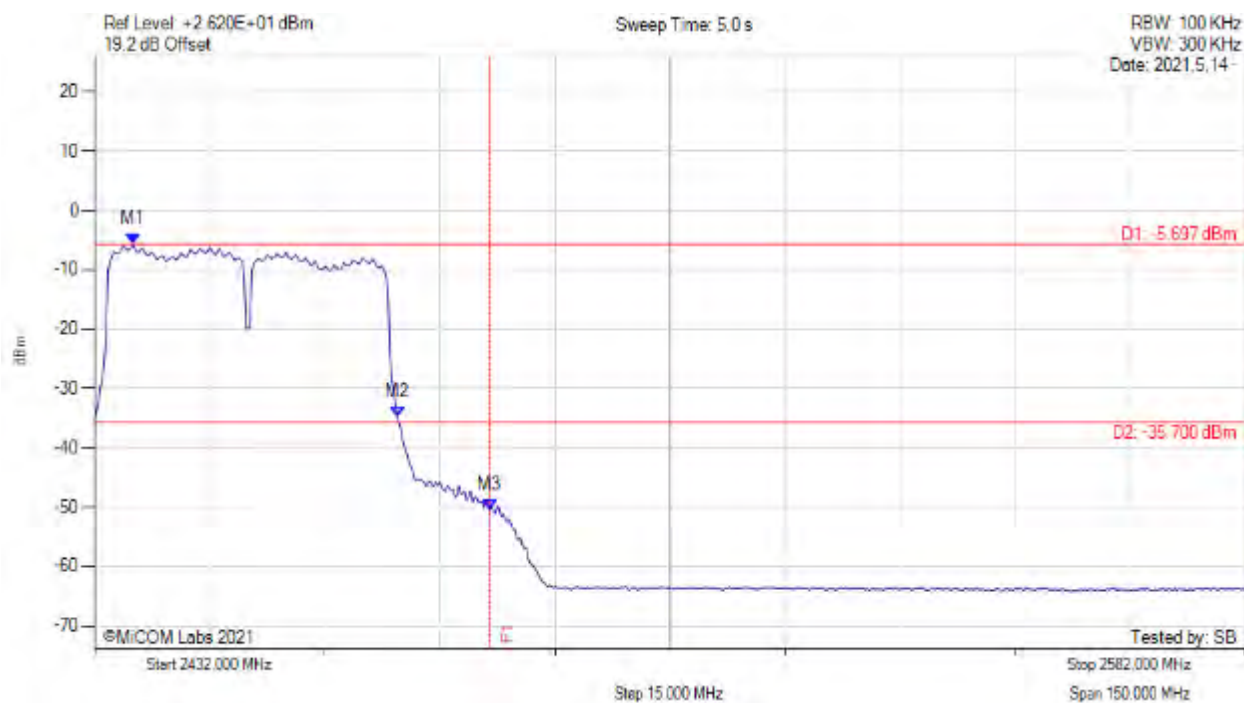
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER	M1 : 2437.000 MHz : -5.697 dBm	Channel Frequency: 2452.00 MHz
Sweep Count = 0	M2 : 2471.500 MHz : -34.745 dBm	
RF Atten (dB) = 20	M3 : 2483.500 MHz : -50.459 dBm	
Trace Mode = VIEW		

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A.4.2. Radiated Emissions

A.4.2.3. TX Spurious & Restricted Band Emissions

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11b, Test Freq: 2412.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0
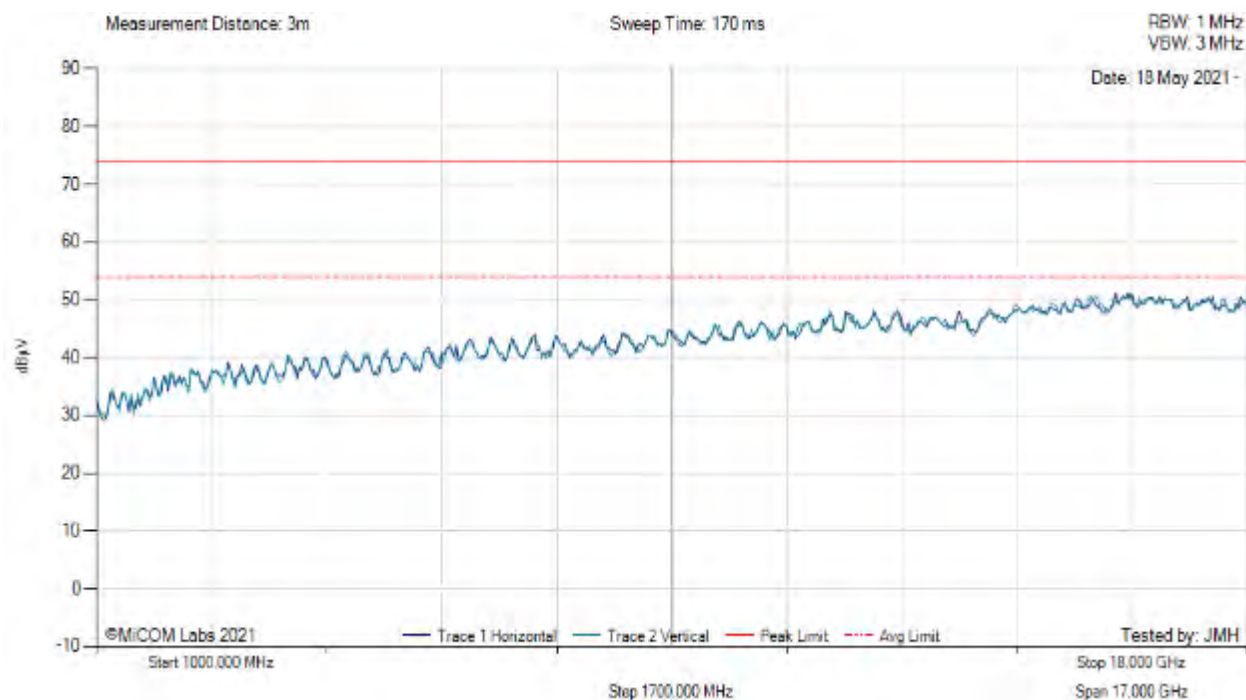
There are no emissions found within 6dB of the limit line.

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 2.4G notch in front of amp to prevent overload

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TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11b, Test Freq: 2437.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

	1000.00 - 18000.00 MHz											
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2435.27	50.33	1.99	-12.25	40.07	Fundamental	Vertical	200	355	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 2.4G notch in front of amp to prevent overload

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11b, Test Freq: 2462.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2462.13	52.21	2.04	-12.43	41.82	Fundamental	Vertical	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 2.4G notch in front of amp to prevent overload

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A.4.2.4. Restricted Edge & Band-Edge Emissions

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11ax-20, Test Freq: 2412.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

			2310.00 - 2422.00 MHz									
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2390.00	8.31	2.02	31.96	42.29	Max Avg	Horizontal	150	348	54.0	-11.7	Pass
2	2390.00	30.17	2.02	31.96	64.15	Max Peak	Horizontal	150	348	74.0	-9.9	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11ax-40, Test Freq: 2422.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

	2310.00 - 2422.00 MHz											
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2387.98	32.18	2.02	31.95	66.15	Max Peak	Horizontal	150	348	74.0	-7.9	Pass
2	2390.00	10.62	2.02	31.96	44.60	Max Avg	Horizontal	150	348	54.0	-9.4	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11b, Test Freq: 2412.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

							2310.00 - 2422.00 MHz						
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2388.20	16.45	2.02	31.95	50.42	Max Peak	Horizontal	150	348	74.0	-23.6	Pass
2	2389.33	2.29	2.02	31.95	36.26	Max Avg	Horizontal	150	348	54.0	-17.7	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11g, Test Freq: 2412.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

| Measurement Distance: 3m | Sweep Time: 10.0 s | RBW: 1 MHz, VBW: 3 MHz |

Start 2310.000 MHz   Step 11.200 MHz   Stop 2422.000 MHz   Span 112.000 MHz

Tested by: JMH   Date: 19 May 2021

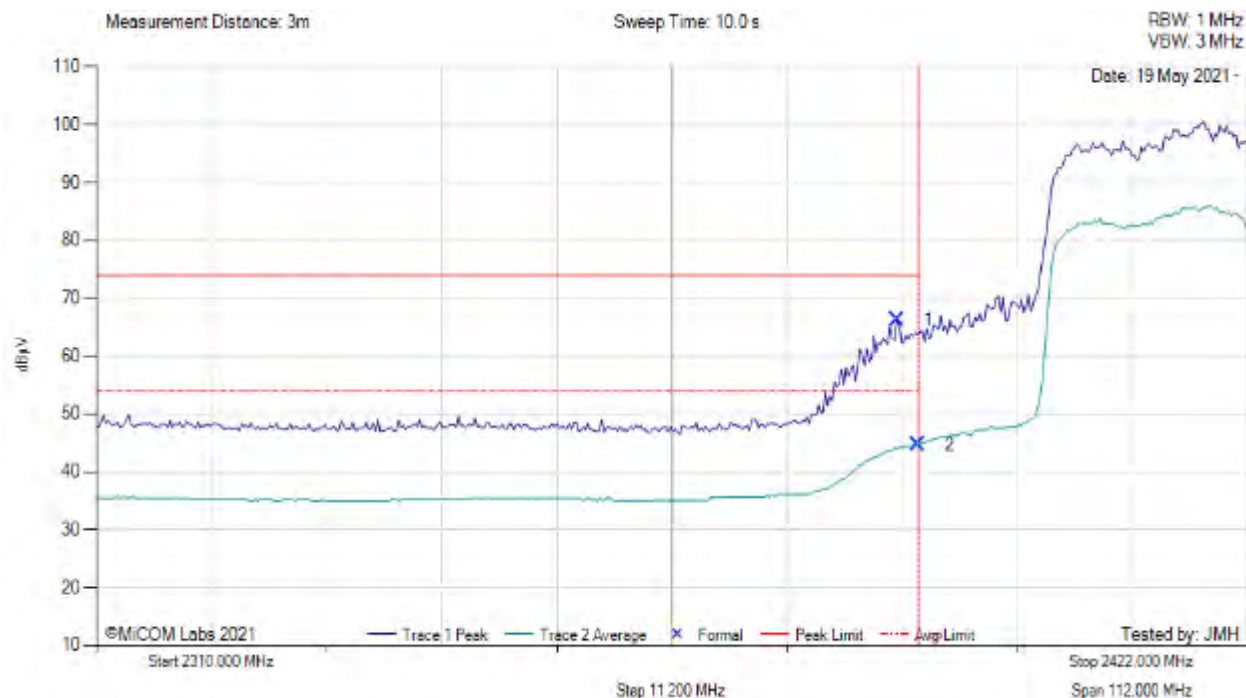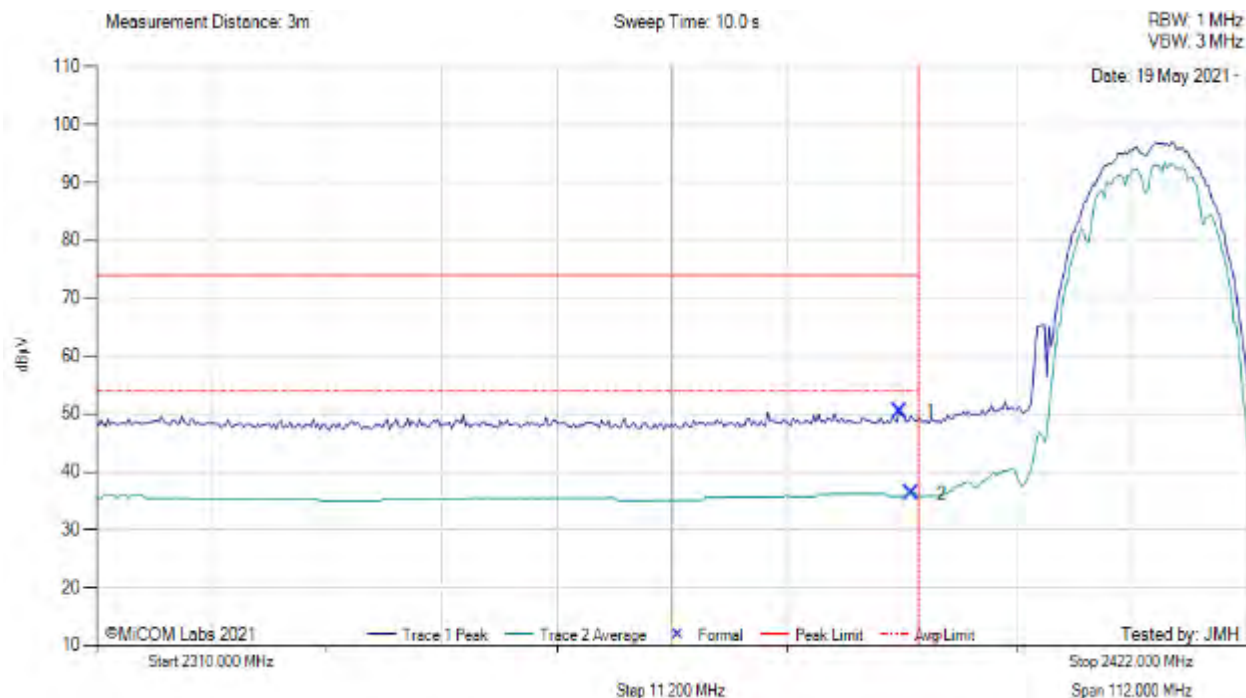| 2310.00 - 2422.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2390.00	6.72	2.02	31.96	40.70	Max Avg	Horizontal	150	348	54.0	-13.3	Pass
2	2390.00	25.34	2.02	31.96	59.32	Max Peak	Horizontal	150	348	74.0	-14.7	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

back to matrix

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 2412.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

2310.00 - 2422.00 MHz

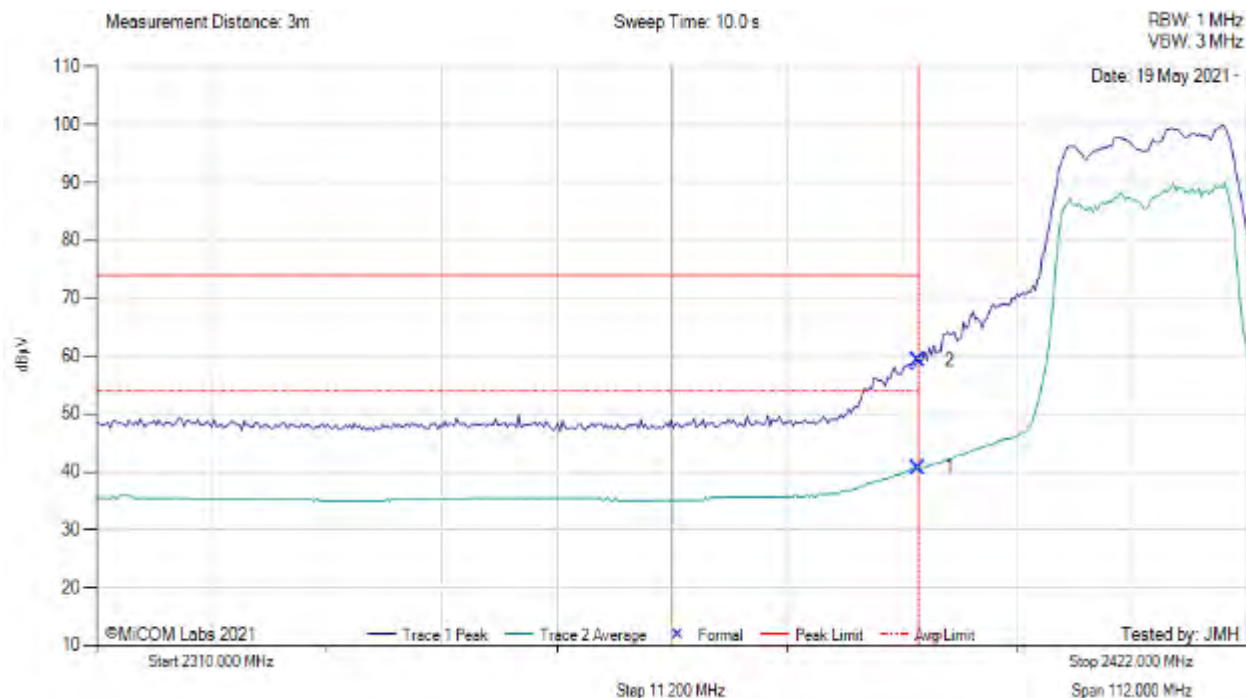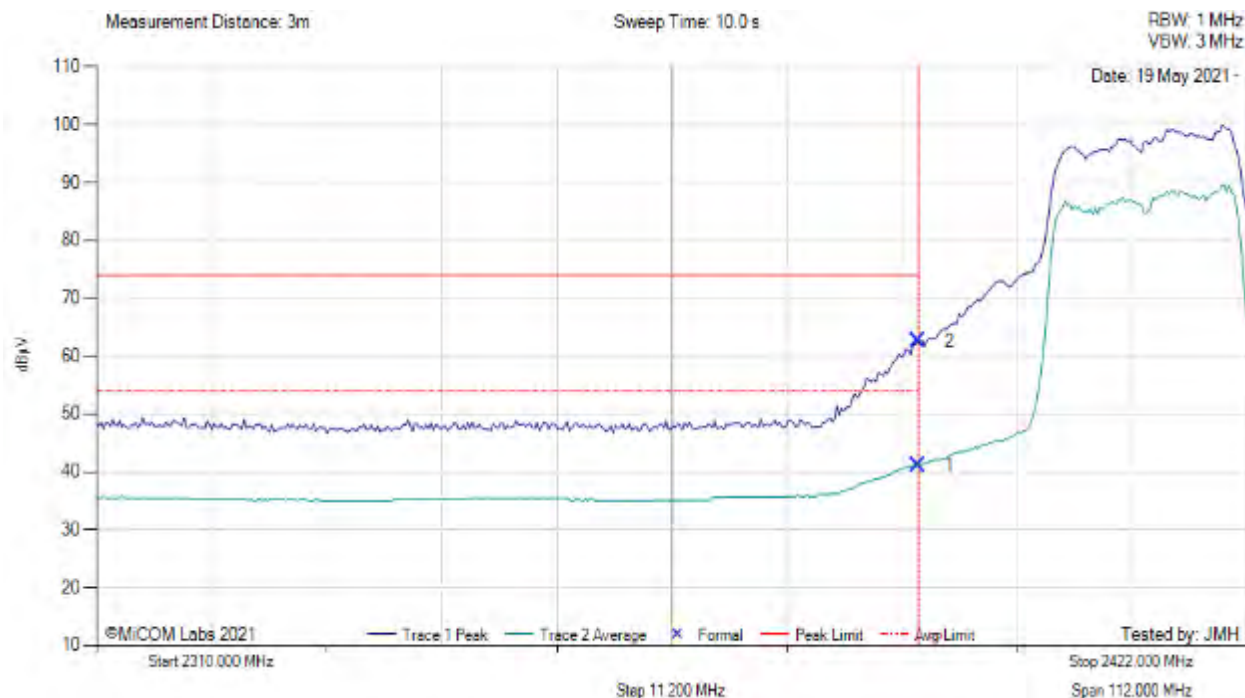| Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2390.00	7.01	2.02	31.96	40.99	Max Avg	Horizontal	150	348	54.0	-13.0	Pass
2	2390.00	28.59	2.02	31.96	62.57	Max Peak	Horizontal	150	348	74.0	-11.4	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

back to matrix

RADIATED - LOWER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 2422.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

	2310.00 - 2422.00 MHz											
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2390.00	9.85	2.02	31.96	43.83	Max Avg	Horizontal	150	348	54.0	-10.2	Pass
2	2390.00	35.10	2.02	31.96	69.08	Max Peak	Horizontal	150	348	74.0	-4.9	Pass
3	2390.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11ax-20, Test Freq: 2462.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

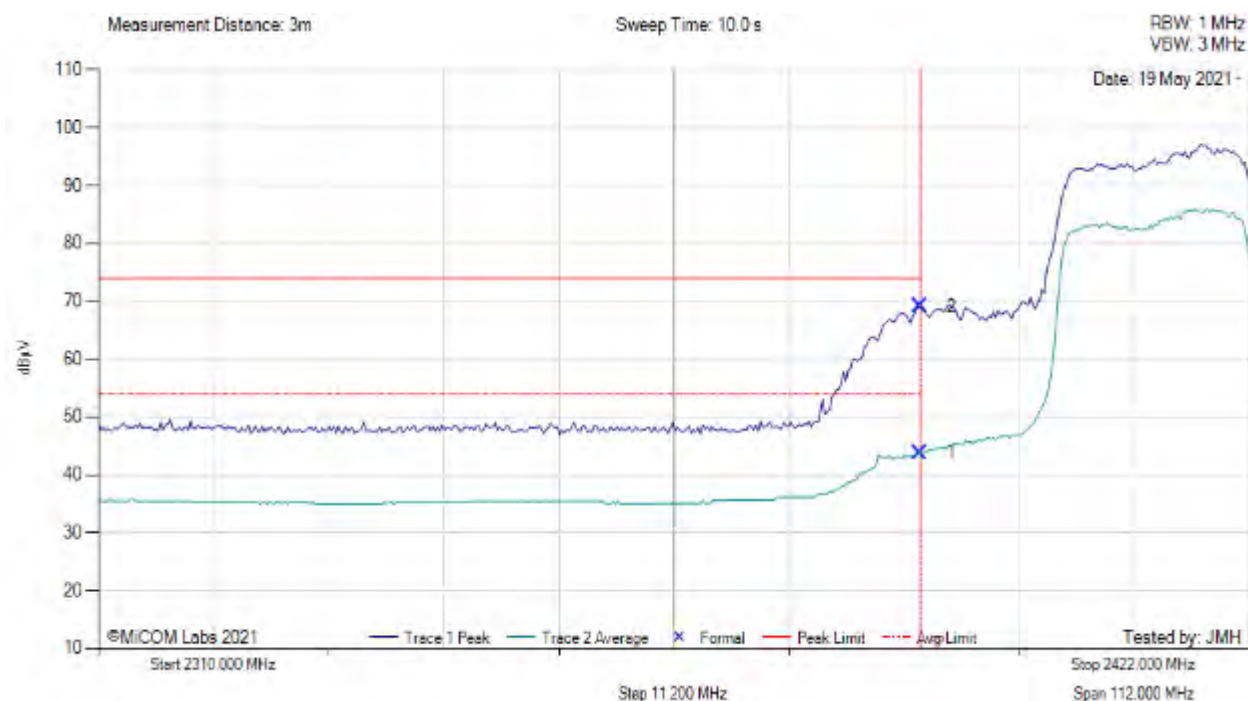| 2452.00 - 2520.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2483.50	12.45	2.03	32.33	46.81	Max Avg	Horizontal	150	348	54.0	-7.2	Pass
2	2483.50	34.09	2.03	32.33	68.45	Max Peak	Horizontal	150	348	74.0	-5.6	Pass
3	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

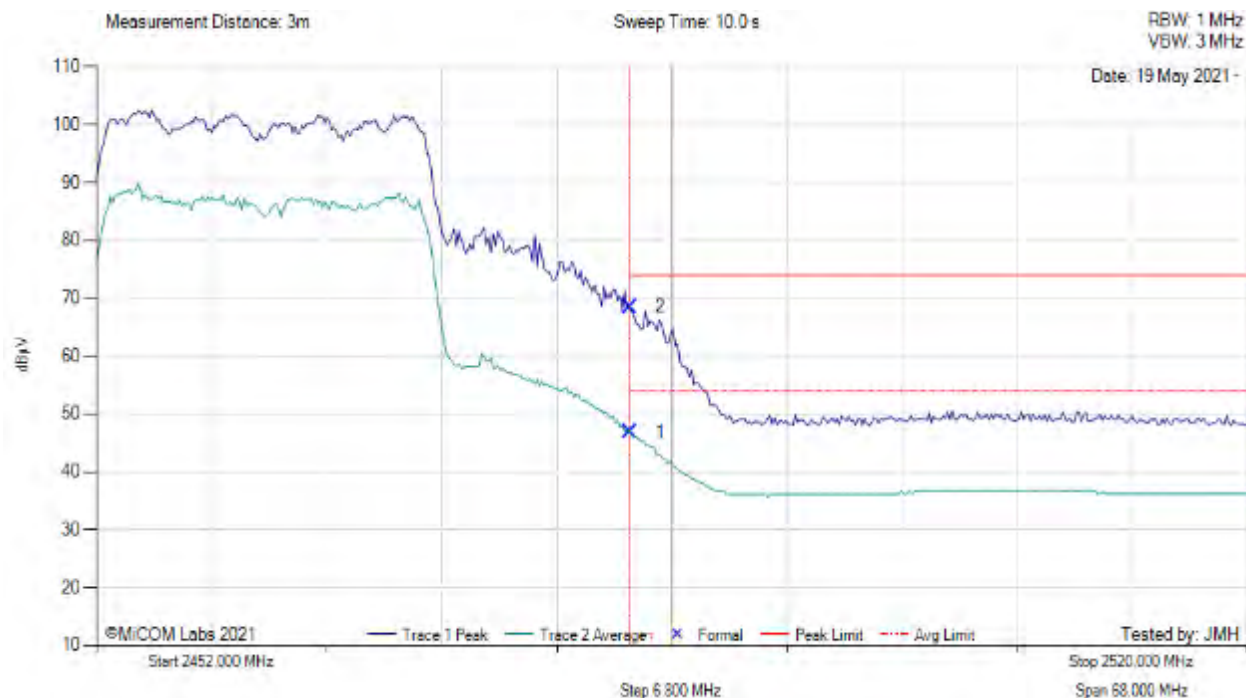**Test Notes:** EUT powered by AC/DC ps. Connected to laptop outside chamber.

RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11ax-40, Test Freq: 2452.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

Measurement Distance: 3m   Sweep Time: 10.0 s   RBW: 1 MHz / VBW: 3 MHz

Start 2452.000 MHz   Step 6.800 MHz   Stop 2520.000 MHz   Span 68.000 MHz

2452.00 - 2520.00 MHz

Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2483.50	10.43	2.03	32.33	44.79	Max Avg	Horizontal	150	348	54.0	-9.2	Pass
3	2483.77	30.30	2.03	32.33	64.66	Max Peak	Horizontal	150	348	74.0	-9.3	Pass
2	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11b, Test Freq: 2462.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

Measurement Distance: 3m Sweep Time: 10.0 s RBW: 1 MHz
VBW: 3 MHz

Date: 19 May 2021 -

Start 2452.000 MHz   Step 6.800 MHz   Stop 2520.000 MHz   Span 68.000 MHz

Tested by: JMH

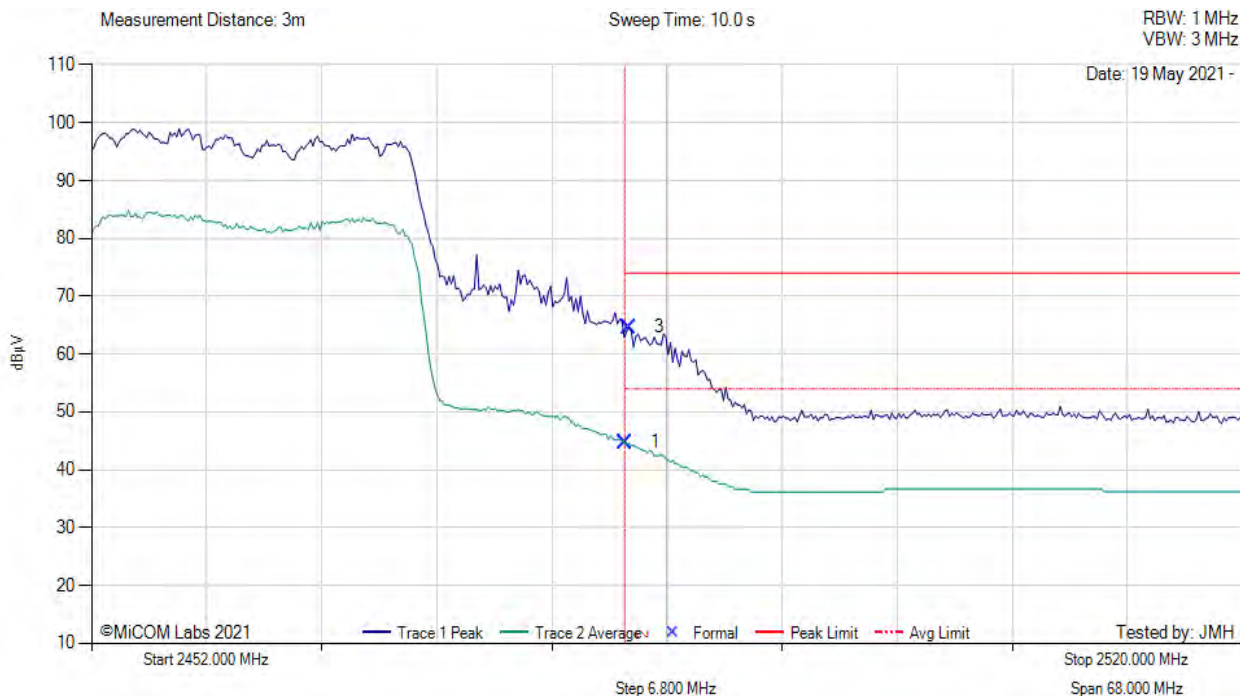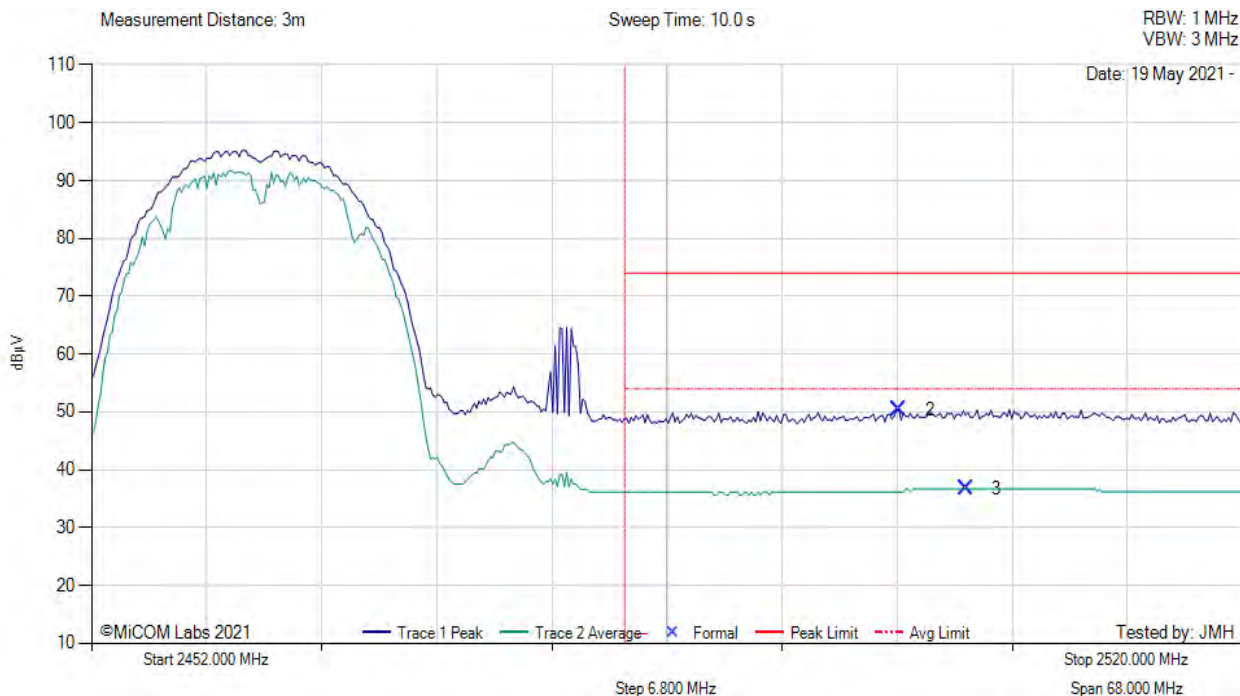|						2452.00 - 2520.00 MHz						
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
2	2499.72	16.00	2.05	32.31	50.36	Max Peak	Horizontal	150	348	74.0	-23.6	Pass
3	2503.67	2.31	2.05	32.32	36.68	Max Avg	Horizontal	150	348	54.0	-17.3	Pass
1	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

back to matrix

RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11g, Test Freq: 2462.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

Measurement Distance: 3m   Sweep Time: 10.0 s   RBW: 1 MHz
                                                              VBW: 3 MHz

Date: 19 May 2021 -

Trace 1 Peak — Trace 2 Average — X Formal — Peak Limit - - - - Avg Limit   Tested by: JMH

Start 2452.000 MHz   Stop 2520.000 MHz
Step 6.800 MHz   Span 68.000 MHz

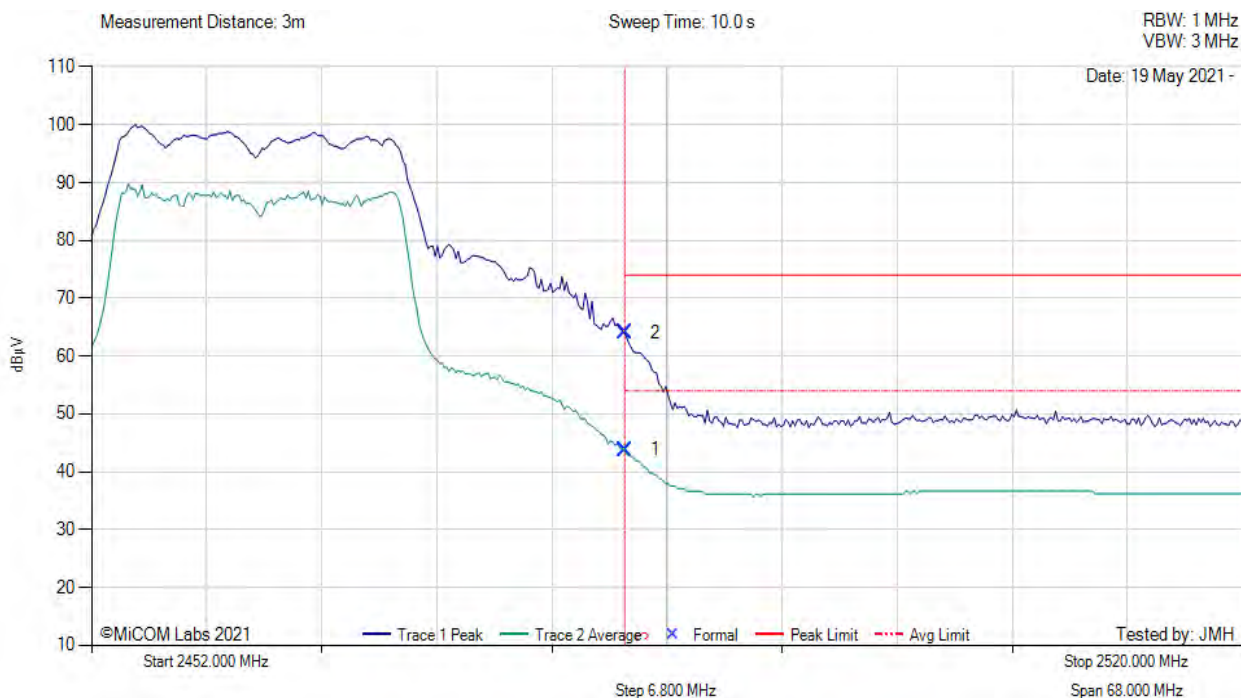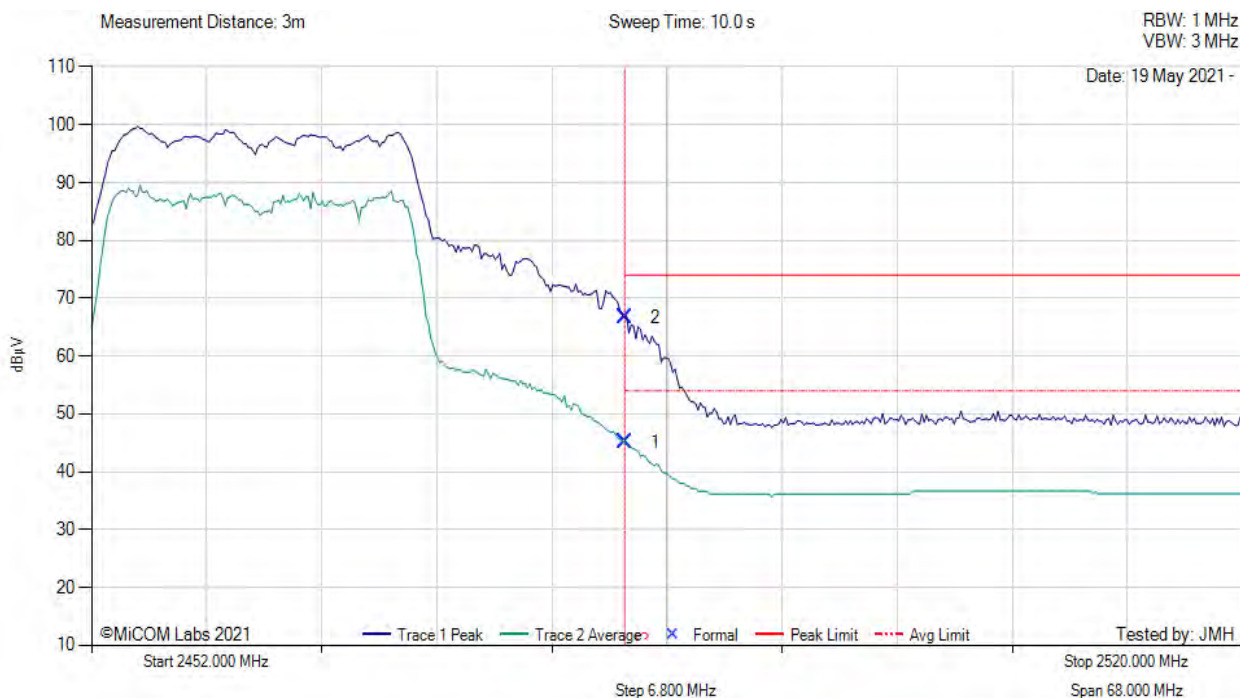| | | | | | | **2452.00 - 2520.00 MHz** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 2483.50 | 9.43 | 2.03 | 32.33 | 43.79 | Max Avg | Horizontal | 150 | 348 | 54.0 | -10.2 | Pass |
| 2 | 2483.50 | 29.64 | 2.03 | 32.33 | 64.00 | Max Peak | Horizontal | 150 | 348 | 74.0 | -10.0 | Pass |
| 3 | 2483.50 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 2462.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

Measurement Distance: 3m   Sweep Time: 10.0 s   RBW: 1 MHz
                                                          VBW: 3 MHz

Start 2452.000 MHz   Stop 2520.000 MHz
Step 6.800 MHz   Span 68.000 MHz

						2452.00 - 2520.00 MHz						
Num	**Frequency MHz**	**Raw dBμV**	**Cable Loss dB**	**AF dB/m**	**Level dBμV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBμV/m**	**Margin dB**	**Pass /Fail**
1	2483.50	10.80	2.03	32.33	45.16	Max Avg	Horizontal	150	348	54.0	-8.8	Pass
2	2483.50	32.33	2.03	32.33	66.69	Max Peak	Horizontal	150	348	74.0	-7.3	Pass
3	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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MiTest

RADIATED - UPPER RESTRICTED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 2452.00 MHz, Antenna: Aruba Wifi, Power Setting: 18, Duty Cycle (%): 99.0

Measurement Distance: 3m   Sweep Time: 10.0 s   RBW: 1 MHz
VBW: 3 MHz

Date: 19 May 2021 -

Trace 1 Peak — Trace 2 Average — X Formal — Peak Limit — Avg Limit   Tested by: JMH

Start 2452.000 MHz   Stop 2520.000 MHz

Step 6.800 MHz   Span 68.000 MHz

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						2452.00 - 2520.00 MHz						
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2483.50	9.43	2.03	32.33	43.79	Max Avg	Horizontal	150	348	54.0	-10.2	Pass
3	2484.84	33.14	2.03	32.33	67.50	Max Peak	Horizontal	150	348	74.0	-6.5	Pass
2	2483.50	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber.

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