REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 Part 15.407 & ISED RSS-247

Report No.: MIKO114-U2 Rev A

Company: Mikrotikls SIA

Model Name: RBD53iG-5HacD2HnD-US

REGULATORY COMPLIANCE TEST REPORT

Company Name: Mikrotikls SIA

Model Name: RBD53iG-5HacD2HnD-US

To: FCC CFR 47 Part 15.407 & ISED RSS-247

Test Report Serial No.: MIKO114-U2 Rev A

This report supersedes: NONE

Applicant: Mikrotikls SIA
Brivibas gatve 214i
Riga, LV-1039
Latvia

Issue Date: 24th May 2021

Test Report Sections	Document Number
RF Report	☒ MIKO114-U2
DFS Addendum:	☐ MIKO114-U2 DFS Addendum

This Test Report is Issued Under the Authority of:

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

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
MRA 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

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	7th May 2021	Draft report for client review.
Rev A	24th May 2021	Initial release.
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In the above table the latest report revision will replace all earlier versions.

3. TEST RESULT CERTIFICATE

Manufacturer:	Mikrotikls SIA Brivibas gatve 214i Riga LV-1039 Latvia	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model:	RBD53iG-5HacD2HnD-US	**Telephone:**	+1 925 462 0304
Type Of Equipment:	Wireless Access Point	**Fax:**	+1 925 462 0306
S/N's:	E7290DF6447A		
Test Date(s):	14 - 19 April 2021	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15.407 & ISED RSS-247	EQUIPMENT COMPLIES

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

Notes:

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

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

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

ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911 D01 & D02	Oct 31 2013	Guidance for measurement of output emission of devices that employ single transmitter with multiple outputs or systems with multiple transmitters operating simultaneously in the same frequency band
II	KDB 905462 D07 v02	22nd August 2016	Test guidance to demonstrate compliance for U-NII devices subject to DFS requirements.
III	KDB 926956 D01 v02	22nd August 2016	U-NII Device Transition Plan
IV	A2LA	5th October 2020	R105 - Requirement's When Making Reference to A2LA Accreditation Status
V	ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices
VI	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
VII	CISPR 32	2015	Electromagnetic compatibility of multimedia equipment - Emission requirements
VIII	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
IX	FCC 06-96	Jun 30 2006	Memorandum Opinion and Order
X	FCC 47 CFR Part 15.407	2020	Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
XI	ICES-003	Issue 7 ; October 15,2020	Information Technology Equipment (Including Digital Apparatus) – Limits and methods of measurement.
XII	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
XIII	RSS-247 Issue 2	Feb 2017	Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices
XIV	RSS-Gen Issue 5	2018	General Requirements for Compliance of Radio Apparatus. With Amendments 1: March 2019 and 2: Feb 2021.
XV	FCC 47 CFR Part 2.1033	2020	FCC requirements and rules regarding photographs and test setup diagrams.
XVI	KDB 905462 D02 v02	April 8 2016	Compliance Measurement Procedures for Unlicensed National Information Infrastructure devices operating in the 5250 to 5350 MHz and 5470 to 5725 MHz bands incorporating Dynamic Frequency Selection.
XVII	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.

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

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Mikrotikls SIA RBD53iG-5HacD2HnD-US to FCC CFR 47 Part 15.407 & ISED RSS-247 requirements. Compliance Measurement Procedures for Unlicensed National Information Infrastructure devices operating in the 5250 to 5350 MHz and 5470 to 5725 MHz bands incorporating Dynamic Frequency Selection.
Applicant:	Mikrotikls SIA Brivibas gatve 214i Riga LV-1039 Latvia
Manufacturer:	Mikrotikls SIA
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	MIKO114-U2
Date EUT received:	12 April 2021
Standard(s) applied:	FCC CFR 47 Part 15.407 & ISED RSS-247
Dates of test (from - to):	14 - 19 April 2021
No of Units Tested:	1
Product Family Name:	RBD53iG
Model(s):	RBD53iG-5HacD2HnD-US
Location for use:	Indoors
Declared Frequency Range(s):	5250 - 5350 MHz; 5470 - 5725 MHz
Type of Modulation:	RBD53iG-5HacD2HnD-US
EUT Modes of Operation:	5250 - 5350 MHz: a; ac-80; HT-20; HT-40; 5470 - 5725 MHz: a; ac-80; HT-20; HT-40;
Declared Nominal Output Power (dBm):	24
Transmit/Receive Operation:	Transceiver
Rated Input Voltage and Current:	12-28V DC, 1.5 Amp
Operating Temperature Range:	-40 to +70°C
ITU Emission Designator:	11a 16M6D1D HT-20 17M8D1D HT-40 36M0D1D AC-80 76M9D1D
Equipment Dimensions:	251 mm X 129 mm X 39 mm
Weight:	0.85 Kg
Hardware Rev:	r5
Software Rev:	Router OS v6

5.2. Scope Of Test Program

Mikrotikls SIA RBD53iG-5HacD2HnD-US

The scope of the test program was to test the Mikrotikls SIA RBD53iG-5HacD2HnD-US 802.11 configurations in the frequency ranges 5250 - 5350 MHz; 5470 - 5725 MHz for compliance against the following specifications:

FCC CFR 47 Part 15 Subpart E 15.407
Compliance Measurement Procedures for Unlicensed National Information Infrastructure devices operating in the 5250 to 5350 MHz and 5470 to 5725 MHz bands incorporating Dynamic Frequency Selection.

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

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

Type (EUT/ Support)	Equipment Description (Including Brand Name)	Mfr.	Model No.	Serial No.
EUT	Wireless Access Point	MikroTik	RBD53iG-5HacD2HnD-US	E7290DF6447A
EUT	AC/DC	CullPower	SAW30-240-1500G	--
Support	Laptop PC 1	Dell	Latitude	None

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
external	MikroTik	HGO-antenna-IN	OMNI	5.5	-	360	-	5150 - 5250
external	MikroTik	HGO-antenna-IN	OMNI	5.5	-	360	-	5250 - 5350
external	MikroTik	HGO-antenna-IN	OMNI	5.5	-	360	-	5470 - 5725
external	MikroTik	HGO-antenna-IN	OMNI	5.5	-	360	-	5725 - 5850

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

5.5. Cabling and I/O Ports

Port Type	Port Description	Qty	Screened (Yes/ No)	Length
Ethernet	RJ-45	4	N	>3m
Ethernet POE	RJ-45	1	N	>3m
Antenna	SMA Antenna Ports	2	N	NA
DC Input	DC	1	N	< 1m
USB	USB Slot	1	Y	< 3m

5.6. 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
5250 - 5350 MHz				
a	6	5,260.00	5,300.00	5,320.00
ac-80	29.3	--	--	5,290.00
HT-20	6.5	5,260.00	5,300.00	5,320.00
HT-40	13.5	5,270.00	--	5,310.00
5470 - 5725 MHz				
a	6	5,500.00	5,580.00	5,720.00
ac-80	29.3	5,530.00	5,610.00	5,690.00
HT-20	6.5	5,500.00	5,580.00	5,720.00
HT-40	13.5	5,510.00	5,550.00	5,710.00

5.7. Equipment Modifications

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

5.8. Deviations from the Test Standard

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

6. TEST SUMMARY

List of Measurements

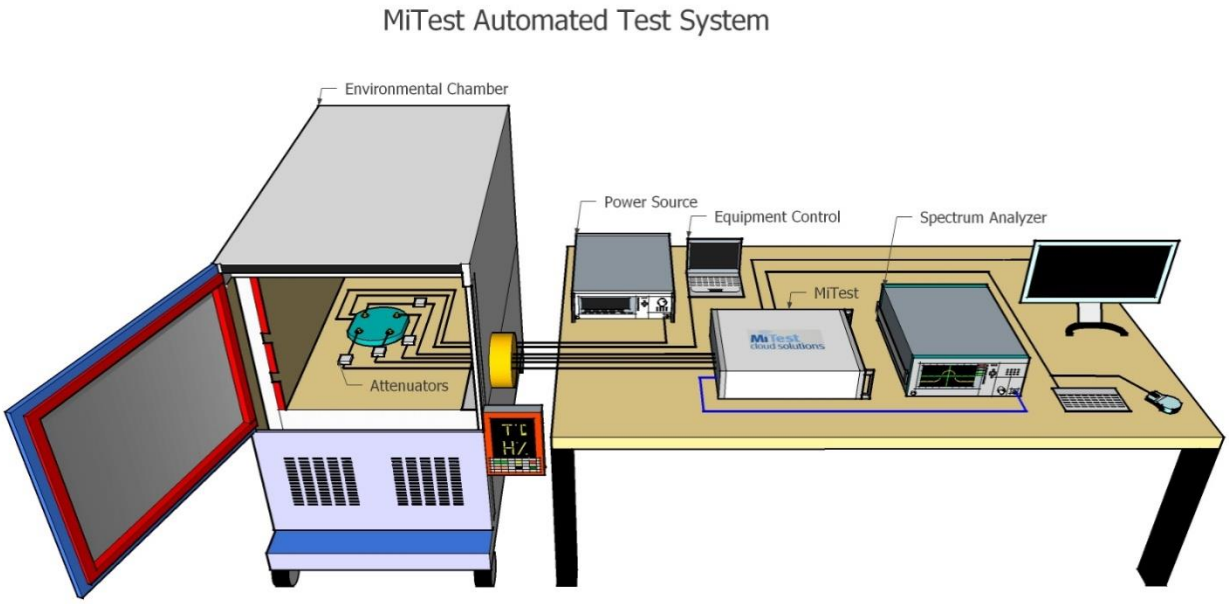
Test Header	Result	Data Link
Peak Transmit Power	Complies	View Data
26 dB & 99% Bandwidth	Complies	View Data
6 dB & 99% Bandwidth	Not Tested	-
Power Spectral Density	Complies	View Data
Frequency Stability	Not Tested	-
Transmit Power Control (TPC)	Not Tested	-
Dynamic Frequency Selection (DFS)	Complies	Refer to DFS addendum report
Channel Availability Check	Complies	-
Initial CAC	Complies	-
Beginning CAC	Complies	-
End CAC	Complies	-
Channel Close / Transmission Time	Complies	-
Non-Occupancy Period	Complies	-
Probability of Detection	Complies	View Data
Detection Bandwidth	Complies	View Data
Radiated	Complies	-
TX Spurious & Restricted Band Emissions	Complies	-
MikroTik HGO-antenna-IN	Complies	View Data
Restricted Edge & Band-Edge Emissions	Complies	-
MikroTik HGO-antenna-IN	Complies	View Data
Digital Emissions	Not Tested	Note 1*
AC Wireline	Not Tested	Note 1*

Note 1: Refer to Rogers Labs Test report # Mikrotikls RBD53iG DTS TstRpt 200526 Rev 1 Dated August 10 2020.

7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Conducted

Conducted RF Emission Test Set-up(s)

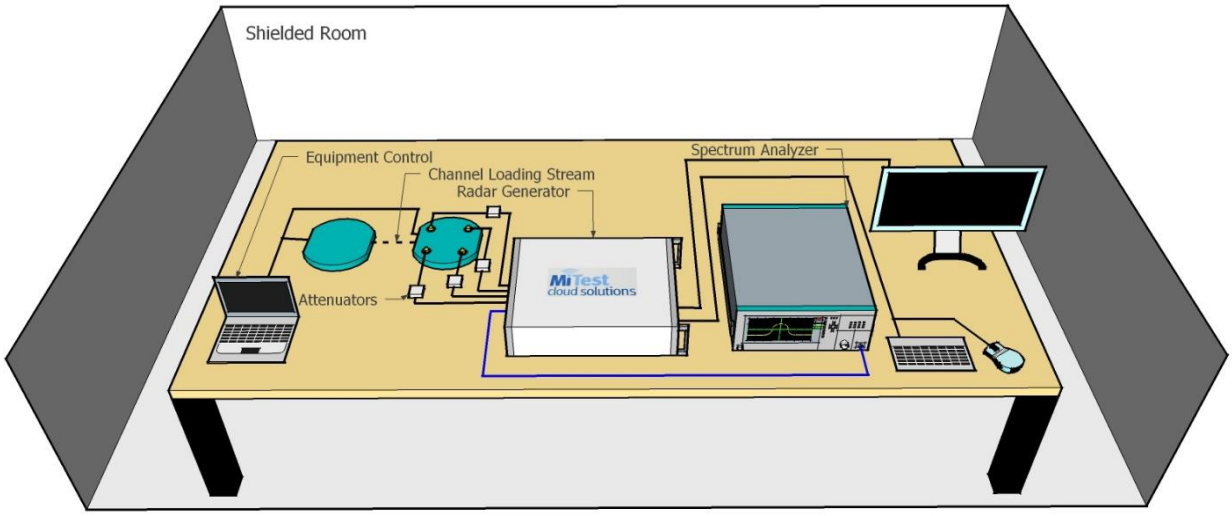


A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	4 Sep 2021
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	4 Sep 2021
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	4 Sep 2021
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	4 Sep 2021
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	4 Sep 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
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 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 Sep 2021
441	USB Wideband Power Sensor	Boonton	55006	9179	20 Sep 2021
442	USB Wideband Power Sensor	Boonton	55006	9181	19 Sep 2021
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	20 Sep 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 Sep 2021
534	Power Sensor 50 GHz -70dBm to +20dBm	R&S	NRP50SN	1419.0093K02-100888-SB	26 Feb 2022
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	20 Feb 2022

7.2. DFS - Conducted

Dynamic Frequency Selection (DFS) - Conducted



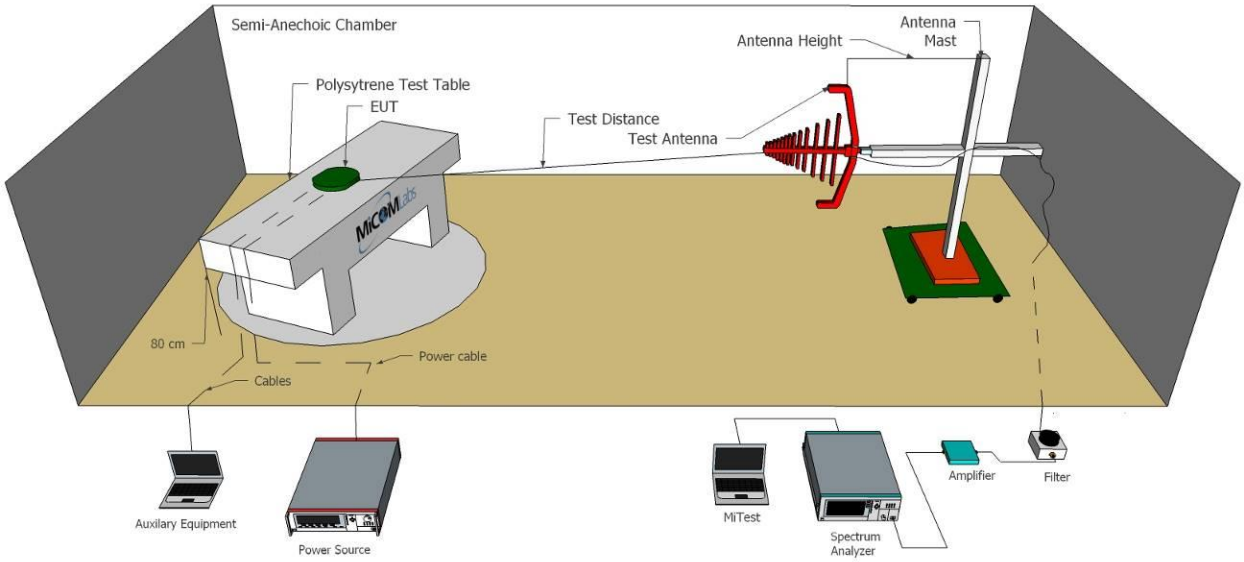
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
299	Test Software DFS Test System	Aeroflex	DFS test Software	V2.8	Not Required
359	DFS System	Aeroflex	PXI-1042	300001/004	6 Sep 2021
417	Laptop for DFS with DFS software	Lenova	W520	DFS	Not Required
418	PCI-e interface card	National Instruments	Express 8360	174AAC5	Not Required
422	Splitter/Combiner	Pasternack	PE 2031	001	Cal when used
495	RF Power Divider	Micon Precise Corp	91002	495	Cal when used
504	MiTest Cloud Solutions RF Test Box	MiCOM	2nd Gen	504	5 Sep 2021
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2021
533	MiTest DFS Test Software	MiCOM	MiTest DFS Test software Version 2.8	533	Not Required
71	Spectrum Analyser 9KHz-50GHz	HP	8565E	3425A00181	Not Required
DFS PCIe#1	PCIe cable for Aeroflex	National Instruments	PCIe cable	None	Not Required
DFS SMA#1	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used
DFS SMA#2	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used
DFS SMA#3	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used
DFS SMA#4	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used

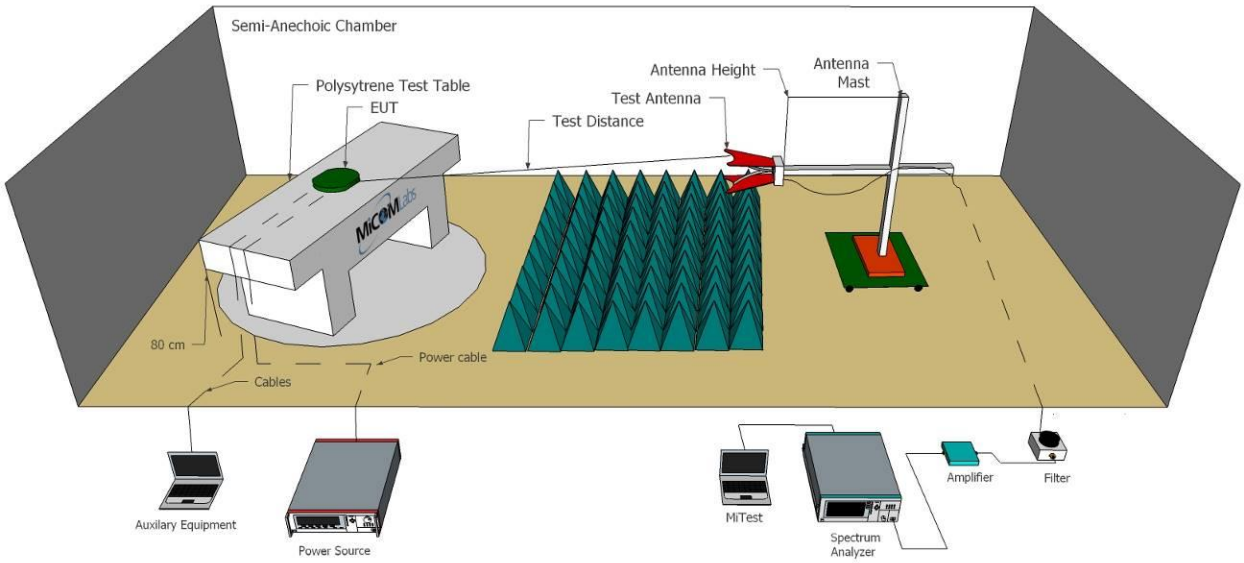
7.3. Radiated Emissions - 3m Chamber

Test Setup for Radiated Emissions for above and below 1 GHz

Radiated Emissions Below 1GHz Test Setup



Radiated Emissions Above 1GHz Test Setup



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

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
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
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	4 Sep 2021
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Jun 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	Rad Emissions Test Software 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
467	2495 to 2650 MHz notch filter	MicroTronics	BRM50709	011	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

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. Peak Transmit Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:15.407 ISED RSS 247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Maximum Conducted Output Power	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a) 6.2.2.1, 6.2.3.1,	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Maximum Conducted Output Power Measurement
Method PM (Measurement using an RF average power meter). KDB 789033 defines a methodology using an average wideband power meter. Measurements were made while the EUT was operating in a continuous transmission mode (100% duty cycle) at the appropriate center frequency. All operational modes and frequency bands were measured independently and the resultant calculated. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported separately. A summation (Σ) of each antenna port output power is provided which includes any offset due to Duty Cycle Correction Factor (DCCF). Testing was performed under ambient conditions at nominal voltage.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section 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 Maximum Conducted Output Power

Operating Frequency Band 5250-5350 and 5470 – 5725 MHz

15. 407 (a)(2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Equipment Configuration for Peak Transmit Power			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5260.0	16.39	14.63			18.61	19.130	23.82	-5.21	23.00
5300.0	16.04	14.64			18.41	19.200	23.83	-5.43	23.00
5320.0	15.88	14.31			18.18	19.270	23.85	-5.67	23.00

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

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

Variant:	802.11ac-80	**Duty Cycle (%):**	82.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5290.0	14.84	13.45			17.21	89.870	24.00	-6.79	23.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	95.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5260.0	16.15	14.53			18.43	20.470	24.00	-5.57	23.00
5300.0	15.78	14.55			18.22	20.400	24.00	-5.78	23.00
5320.0	15.74	14.14			18.02	20.270	24.00	-5.98	23.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-40	**Duty Cycle (%):**	90.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5270.0	15.99	14.35			18.26	39.870	24.00	-5.74	23.00
5310.0	15.63	14.32			18.03	39.600	24.00	-5.97	23.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5500.0	16.03	14.75			18.45	19.600	23.92	-5.48	23.00
5580.0	16.16	15.31			18.77	19.600	23.92	-5.16	23.00
5720.0	15.79	15.91			18.86	19.200	23.83	-4.97	23.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11ac-80	**Duty Cycle (%):**	82.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5530.0	14.74	13.51			17.18	89.600	24.00	-6.82	23.00
5610.0	14.49	13.97			17.25	87.730	24.00	-6.75	23.00
5690.0	14.50	14.34			17.43	90.670	24.00	-6.57	23.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5500.0	15.94	14.29			18.20	20.270	24.00	-5.80	23.00
5580.0	15.93	14.77			18.40	20.330	24.00	-5.60	23.00
5720.0	15.75	15.68			18.73	20.400	24.00	-5.27	23.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-40	**Duty Cycle (%):**	92.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5510.0	15.59	14.16			17.94	39.600	24.00	-6.06	23.00
5550.0	15.81	14.50			18.21	39.600	24.00	-5.79	23.00
5710.0	15.45	15.16			18.32	39.730	24.00	-5.68	23.00

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

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

9.2. 26 dB & 99% Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.407 ISED RSS-247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	26 dB and 99 % Bandwidth	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a) 6.2.2.1, 6.2.3.1,	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for 26 dB and 99% Bandwidth Measurement
The bandwidth at 26 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. The Resolution Bandwidth was set to approximately 1% of the emission bandwidth.
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 section specified in this document.

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5260.0	19.530	19.130			19.530	19.130		
5300.0	19.530	19.200			19.530	19.200		
5320.0	19.600	19.270			19.600	19.270		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5260.0	16.499	16.431			16.499	16.431		
5300.0	16.498	16.417			16.498	16.417		
5320.0	16.515	16.434			16.515	16.434		

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 26 dB & 99% Occupied Bandwidth			
Variant:	802.11ac-80	**Duty Cycle (%):**	82.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5290.0	89.870	90.400			90.400	89.870		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5290.0	75.913	75.995			75.995	75.913		

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).

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

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-20	**Duty Cycle (%):**	95.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5260.0	20.470	20.470			20.470	20.470		
5300.0	20.730	20.400			20.730	20.400		
5320.0	20.470	20.270			20.470	20.270		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5260.0	17.730	17.698			17.730	17.698		
5300.0	17.715	17.687			17.715	17.687		
5320.0	17.672	17.643			17.672	17.643		

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 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-40	**Duty Cycle (%):**	90.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5270.0	39.730	39.730			39.730	39.730		
5310.0	40.000	39.600			40.000	39.600		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5270.0	35.995	36.010			79.226	36.010		
5310.0	36.053	35.991			36.053	35.991		

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 26 dB & 99% Occupied Bandwidth

Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5500.0	19.870	19.600			19.870	19.600		
5580.0	19.930	19.600			19.930	19.600		
5720.0	19.470	19.200			19.470	19.200		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5500.0	16.599	16.466			16.599	16.466		
5580.0	16.558	16.466			16.558	16.466		
5720.0	16.505	16.434			16.505	16.434		

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 26 dB & 99% Occupied Bandwidth			
Variant:	802.11ac-80	**Duty Cycle (%):**	82.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5530.0	89.600	92.270			92.270	89.600		
5610.0	87.730	93.070			93.070	87.730		
5690.0	90.670	92.800			92.800	90.670		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5530.0	75.635	75.957			75.957	75.635		
5610.0	75.841	75.999			75.999	75.841		
5690.0	75.889	76.079			76.079	75.889		

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 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5500.0	20.470	20.270			20.470	20.270		
5580.0	20.470	20.330			20.470	20.330		
5720.0	20.470	20.400			20.470	20.400		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5500.0	17.667	17.642			17.667	17.642		
5580.0	17.649	17.640			17.649	17.640		
5720.0	17.661	17.645			17.661	17.645		

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 26 dB & 99% Occupied Bandwidth			
Variant:	802.11n HT-40	**Duty Cycle (%):**	92.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5510.0	39.600	39.600			39.600	39.600		
5550.0	40.000	39.600			40.000	39.600		
5710.0	39.870	39.730			39.870	39.730		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5510.0	36.008	35.958			36.008	35.958		
5550.0	36.085	35.927			36.085	35.927		
5710.0	36.022	35.998			36.022	35.998		

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).

9.3. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.407 ISED RSS-247	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Power Spectral Density	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a) 6.2.2.1 ; 6.2.3.1.	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Power Spectral Density
The in-band power spectral density was measured using the test technique specified in KDB 789033. A 1 MHz measurement bandwidth was implemented for the analyzer sweep. Once the sweep is complete the analyzer trace data is downloaded and used 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.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section 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 spectrum in some 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

Operating Frequency Band 5250-5350 and 5470 – 5725 MHz

15. 407 (a)(2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Equipment Configuration for Power Spectral Density			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
5260.0	3.974	1.829			6.050	11.0	-5.0
5300.0	4.055	2.383			6.261	11.0	-4.7
5320.0	3.807	1.872			5.975	11.0	-5.0

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	802.11ac-80	**Duty Cycle (%):**	82.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.86 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
5290.0	-3.779	-5.813			-0.881	11.0	-11.9

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			
Variant:	802.11n HT-20	**Duty Cycle (%):**	95.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.22 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
5260.0	3.550	2.092			6.068	11.0	-4.9
5300.0	3.508	2.019			5.993	11.0	-5.0
5320.0	3.187	1.704			5.679	11.0	-5.3

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			
Variant:	802.11n HT-40	**Duty Cycle (%):**	82.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.86 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
5270.0	0.672	-1.558			2.984	11.0	-8.0
5310.0	0.857	-0.918			3.863	11.0	-7.1

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5500.0	4.586	3.082			6.907	11.0	-4.1
5580.0	4.216	3.504			6.856	11.0	-4.2
5720.0	4.288	4.044			7.205	11.0	-3.8

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			
Variant:	802.11ac-80	**Duty Cycle (%):**	82.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.86 dB)	Limit	Margin
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5530.0	-3.387	-4.612			-0.255	11.0	-11.3
5610.0	-3.833	-4.179			-0.141	11.0	-11.2
5690.0	-3.313	-3.356			0.475	11.0	-10.5

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			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
5500.0	3.627	2.082			5.841	11.0	-5.2
5580.0	3.335	2.665			6.016	11.0	-5.0
5720.0	3.815	3.540			6.642	11.0	-4.4

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	802.11n HT-40	**Duty Cycle (%):**	92.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	5.50
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
5510.0	0.660	-0.804			3.316	11.0	-7.7
5550.0	1.661	-0.316			4.012	11.0	-7.0
5710.0	1.238	0.457			4.224	11.0	-6.8

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. Radiated Emissions

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47:15.407 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):	15.407 (b), 15.205, 15.209 6.2.2.2 ; 6.2.4.2.	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Spurious and Band-Edge Emissions
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 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 Undesirable Measurement were per the Radiated Test Set-up specified in this document.

15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Limits for Restricted Bands (15.205, 15.209)
Peak emission: 74 dBuV/m
Average emission: 54 dBuV/m

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

where:
FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss

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

$$E = \frac{1000000 \times \sqrt{30P}}{3}$$ µV/m

where P is the EIRP in Watts

Therefore: -27 dBm/MHz equates to 68.23 dBuV/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).

9.4.1. TX Spurious & Restricted Band Emissions

9.4.1.1. MikroTik HGO-antenna-IN

Equipment Configuration for TX Spurious & Restricted Band Emissions			
Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5260.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**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	5265.63	74.62	2.90	-12.22	65.30	Fundamental	Vertical	100	0	--	--	
#2	6431.99	54.42	3.31	-8.89	48.84	Peak (NRB)	Vertical	100	17	--	--	Pass
#3	7013.30	61.55	3.47	-7.71	57.31	Max Peak	Vertical	102	145	68.2	-10.9	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5300.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**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	5295.73	73.14	3.02	-12.01	64.15	Fundamental	Vertical	100	0	--	--	
#2	6431.92	54.70	3.31	-8.89	49.12	Peak (NRB)	Vertical	100	34	--	--	Pass
#3	7066.76	59.59	3.55	-7.57	55.57	Max Peak	Vertical	102	142	68.2	-12.7	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5320.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**Tested By:**	JMH

Test Measurement Results

1000.00 - 180000.00 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	5316.16	68.57	2.98	-12.01	59.54	Fundamental	Vertical	100	0	--	--	
#2	6431.99	54.57	3.31	-8.89	48.99	Peak (NRB)	Vertical	100	20	--	--	Pass
#3	7093.34	61.43	3.46	-7.89	57.00	Max Peak	Vertical	98	315	68.2	-11.2	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5500.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**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	5501.24	61.52	3.05	-11.64	52.93	Fundamental	Vertical	100	0	--	--	
#2	6431.97	54.88	3.31	-8.89	49.30	Peak (NRB)	Vertical	100	32	--	--	Pass
#3	7333.22	60.46	3.57	-8.09	55.94	Max Peak	Vertical	98	141	68.2	-12.3	Pass
#4	7333.22	57.19	3.57	-8.09	52.67	Max Avg	Vertical	98	141	54.0	-1.3	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5580.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**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	5581.72	66.81	3.13	-11.56	58.38	Fundamental	Vertical	100	0	--	--	
#2	6431.99	53.91	3.31	-8.89	48.33	Peak (NRB)	Vertical	100	29	--	--	Pass
#3	7439.89	56.97	3.62	-7.73	52.86	Max Peak	Vertical	151	262	68.2	-15.4	Pass
#4	7439.89	52.09	3.62	-7.73	47.98	Max Avg	Vertical	151	262	54.0	-6.0	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5720.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**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	5713.36	55.60	3.14	-11.32	47.42	Fundamental	Vertical	100	104	--	--	
#2	6431.94	51.95	3.31	-8.89	46.37	Peak (NRB)	Vertical	100	104	--	--	Pass
#3	7626.65	55.75	3.79	-7.48	52.06	Max Peak	Vertical	106	124	68.2	-16.2	Pass
#4	7626.65	51.14	3.79	-7.48	47.45	Max Avg	Vertical	106	124	54.0	-6.6	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.												

9.4.2. Restricted Edge & Band-Edge Emissions

9.4.2.2. MikroTik HGO-antenna-IN

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5250 - 5350 MHz

MikroTik HGO-antenna-IN		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5320.00	5350.00	64.94	49.54	24
802.11ac-80	5290.00	5350.00	72.83	50.73	19
802.11n HT-20	5320.00	5350.00	65.05	49.54	24
802.11n HT-40	5310.00	5350.00	68.66	52.95	22

5470 - 5725 MHz

MikroTik HGO-antenna-IN		Restricted-Edge Freq	Limit 68.23dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5500.00	5460.00	64.65	49.45	24
802.11ac-80	5530.00	5460.00	67.20	48.54	19
802.11n HT-20	5500.00	5460.00	64.75	49.13	24
802.11n HT-40	5510.00	5460.00	66.87	51.90	22

Click on the links to view the data.

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5320.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**Tested By:**	JMH

Test Measurement Results

5300.00 - 5460.00 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	5350.00	12.02	3.06	34.46	49.54	Max Avg	Vertical	169	171	54.0	-4.5	Pass
#3	5355.47	27.42	3.05	34.47	64.94	Max Peak	Vertical	169	171	68.2	-3.3	Pass
#2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber.												

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11ac-80
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	76
Channel Frequency (MHz):	5290.00	**Data Rate:**	29.30 MBit/s
Power Setting:	19	**Tested By:**	JMH

Test Measurement Results

5300.00 - 5460.00 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	5352.59	35.31	3.05	34.47	72.83	Max Peak	Vertical	169	171	74.0	-1.2	Pass
#3	5356.43	12.02	3.05	34.47	50.73	Max Avg	Vertical	169	171	54.0	-3.3	Pass
#1	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 1.19 dB DCCF added to average measurement.												

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5320.00	**Data Rate:**	6.50 MBit/s
Power Setting:	24	**Tested By:**	JMH

Test Measurement Results

5300.00 - 5460.00 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	5350.00	12.02	3.06	34.46	49.54	Max Avg	Vertical	169	171	54.0	-4.5	Pass
#3	5356.43	27.53	3.05	34.47	65.05	Max Peak	Vertical	169	171	68.2	-3.2	Pass
#2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber.												

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	5.50	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	84
Channel Frequency (MHz):	5310.00	**Data Rate:**	13.50 MBit/s
Power Setting:	22	**Tested By:**	JMH

Test Measurement Results

5300.00 - 5460.00 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	5350.64	14.67	3.06	34.46	52.95	Max Avg	Vertical	169	171	54.0	-1.1	Pass
#3	5354.03	31.14	3.05	34.47	68.66	Max Peak	Vertical	169	171	74.0	-5.3	Pass
#1	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 0.76 dB DCCF added to average measurement.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11a
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5500.00	**Data Rate:**	6.00 MBit/s
Power Setting:	24	**Tested By:**	JMH

Test Measurement Results

5350.00 - 5500.00 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	5460.00	11.86	3.06	34.53	49.45	Max Avg	Vertical	172	175	54.0	-4.6	Pass
#3	5465.13	27.04	3.07	34.54	64.65	Max Peak	Vertical	172	175	68.2	-3.6	Pass
#2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
#4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11ac-80
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	76
Channel Frequency (MHz):	5530.00	**Data Rate:**	29.30 MBit/s
Power Setting:	19	**Tested By:**	JMH

Test Measurement Results

5350.00 - 5500.00 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	5460.00	10.95	3.06	34.53	48.54	Max Avg	Vertical	172	175	54.0	-5.5	Pass
#3	5461.02	29.61	3.06	34.53	67.20	Max Peak	Vertical	172	175	68.2	-1.0	Pass
#2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
#4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 1.19 dB DCCF added to average measurements												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5500.00	**Data Rate:**	6.50 MBit/s
Power Setting:	24	**Tested By:**	JMH

Test Measurement Results

5350.00 - 5500.00 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	5460.00	11.54	3.06	34.53	49.13	Max Avg	Vertical	172	175	54.0	-4.9	Pass
#3	5461.20	27.16	3.06	34.53	64.75	Max Peak	Vertical	172	175	68.2	-3.5	Pass
#2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
#4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik HGO-antenna-IN	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	Not Applicable	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	84
Channel Frequency (MHz):	5510.00	**Data Rate:**	13.50 MBit/s
Power Setting:	22	**Tested By:**	JMH

Test Measurement Results

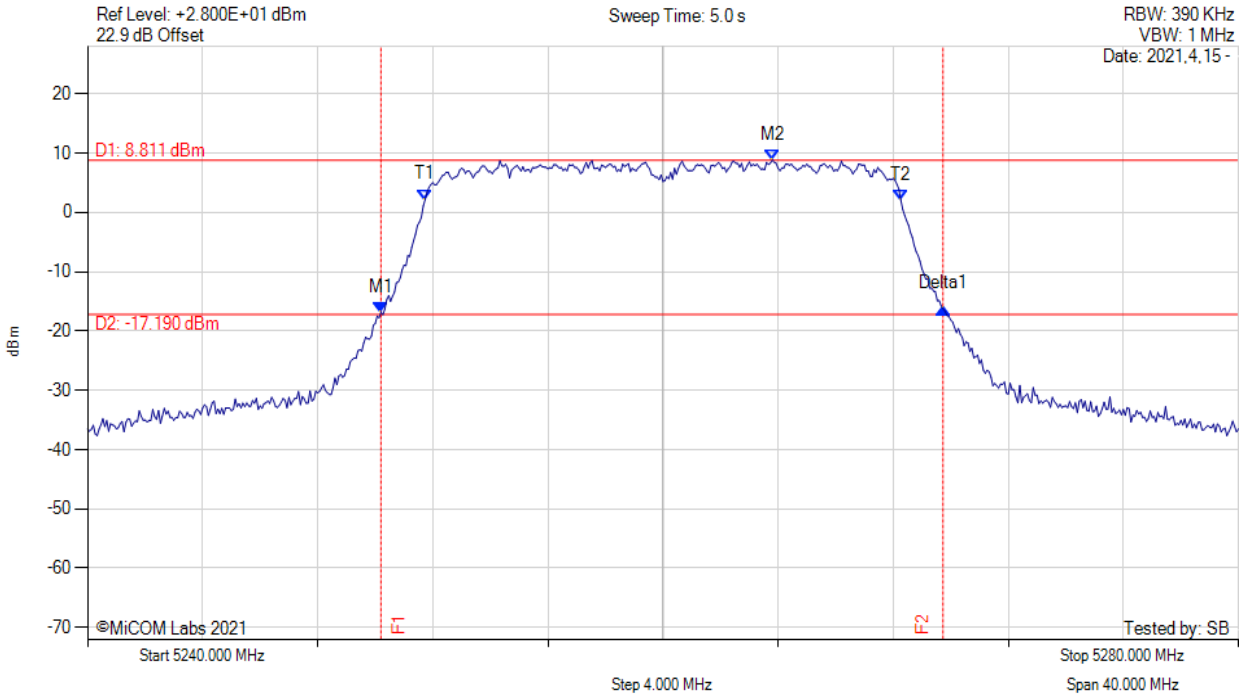
5350.00 - 5500.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	5460.00	14.31	3.06	34.53	51.90	Max Avg	Vertical	172	175	54.0	-2.1	Pass
#3	5464.51	29.26	3.07	34.54	66.87	Max Peak	Vertical	172	175	68.2	-1.4	Pass
#2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
#4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 0.76 dB DCCF added to average measurements												

A. APPENDIX - GRAPHICAL IMAGES

A.1. 26 dB & 99% Bandwidth

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5260.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

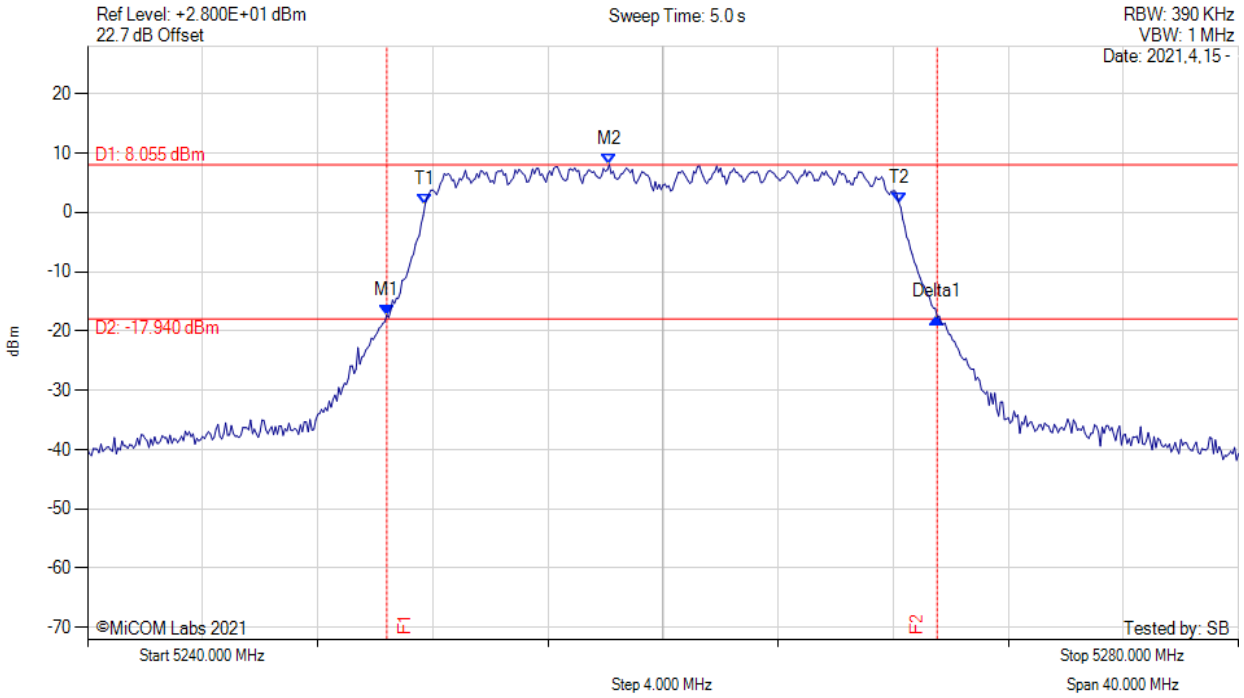


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5250.200 MHz : -16.822 dBm M2 : 5263.800 MHz : 8.811 dBm Delta1 : 19.530 MHz : 0.588 dB T1 : 5251.733 MHz : 2.139 dBm T2 : 5268.267 MHz : 2.055 dBm OBW : 16.499 MHz	Measured 26 dB Bandwidth: 19.530 MHz Measured 99% Bandwidth: 16.499 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

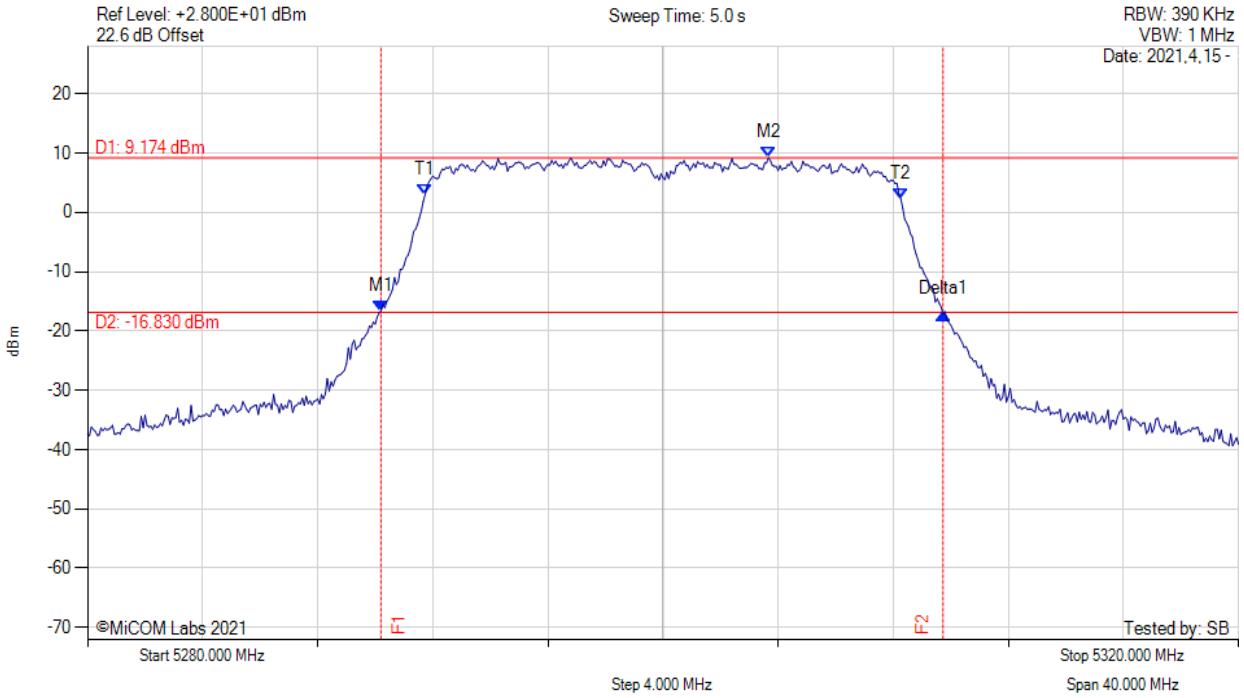


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5250.400 MHz : -17.301 dBm M2 : 5258.130 MHz : 8.055 dBm Delta1 : 19.130 MHz : -0.418 dB T1 : 5251.733 MHz : 1.339 dBm T2 : 5268.200 MHz : 1.564 dBm OBW : 16.431 MHz	Measured 26 dB Bandwidth: 19.130 MHz Measured 99% Bandwidth: 16.431 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

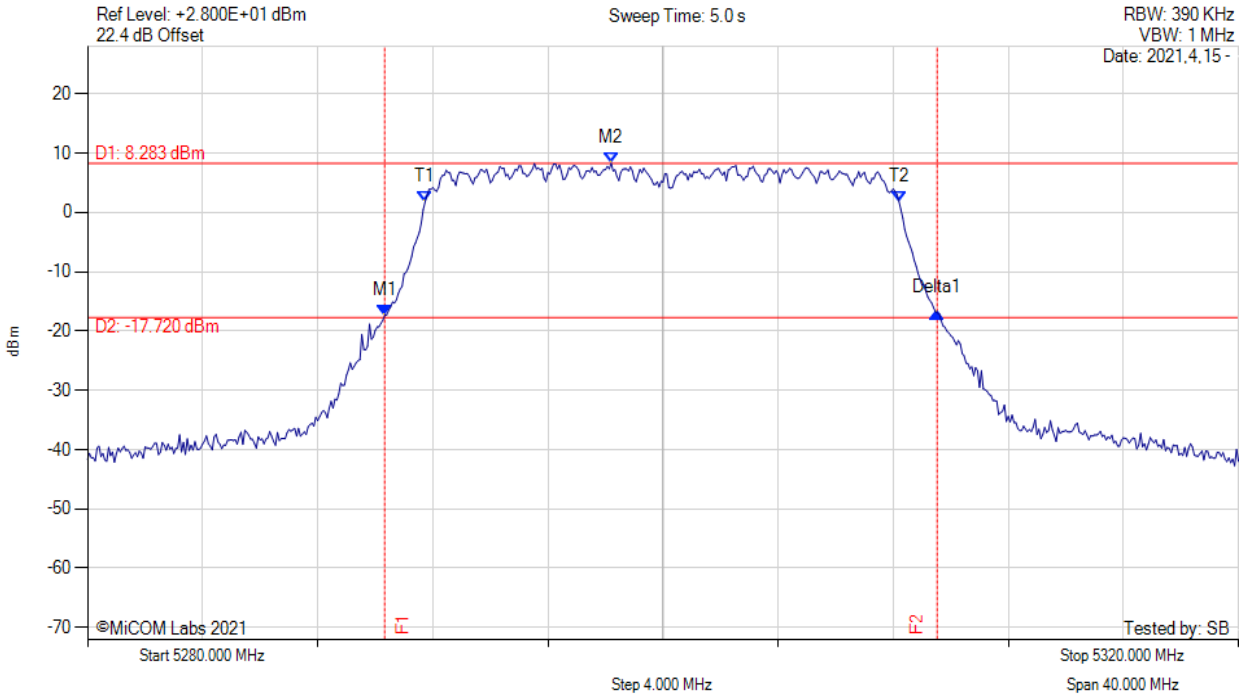


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5290.200 MHz : -16.622 dBm M2 : 5303.670 MHz : 9.174 dBm Delta1 : 19.530 MHz : -0.584 dB T1 : 5291.733 MHz : 3.007 dBm T2 : 5308.267 MHz : 2.271 dBm OBW : 16.498 MHz	Measured 26 dB Bandwidth: 19.530 MHz Measured 99% Bandwidth: 16.498 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

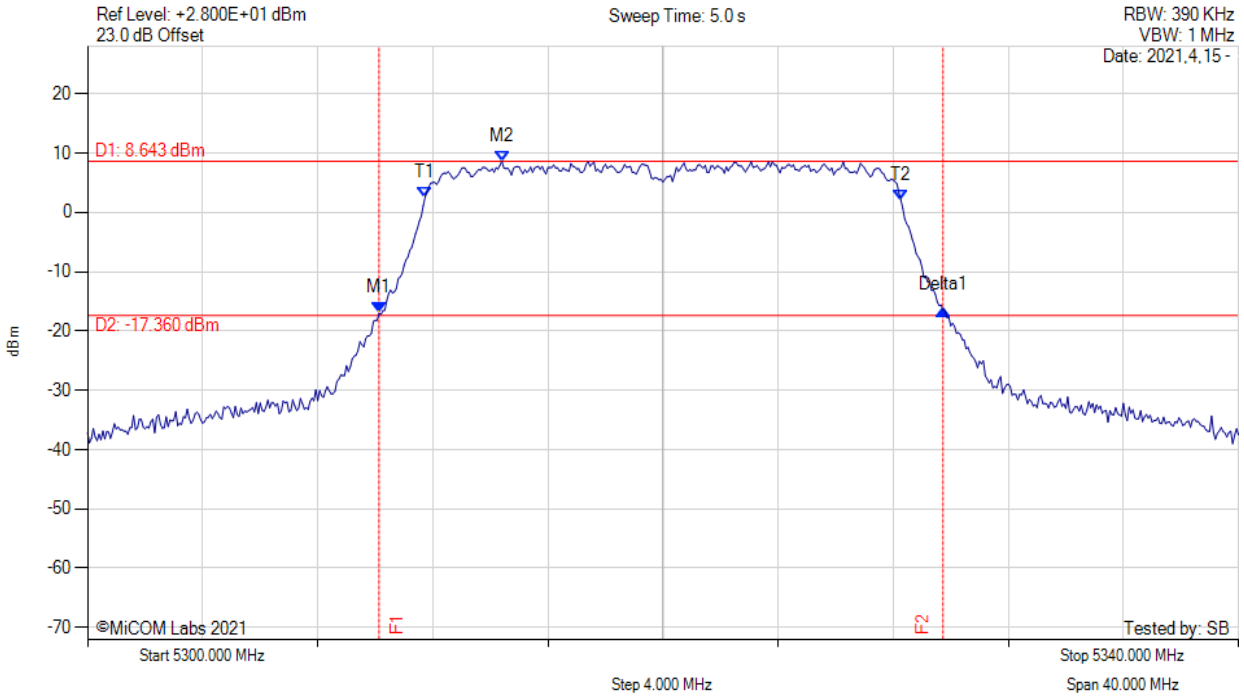


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5290.330 MHz : -17.348 dBm M2 : 5298.200 MHz : 8.283 dBm Delta1 : 19.200 MHz : 0.412 dB T1 : 5291.733 MHz : 1.770 dBm T2 : 5308.200 MHz : 1.861 dBm OBW : 16.417 MHz	Measured 26 dB Bandwidth: 19.200 MHz Measured 99% Bandwidth: 16.417 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

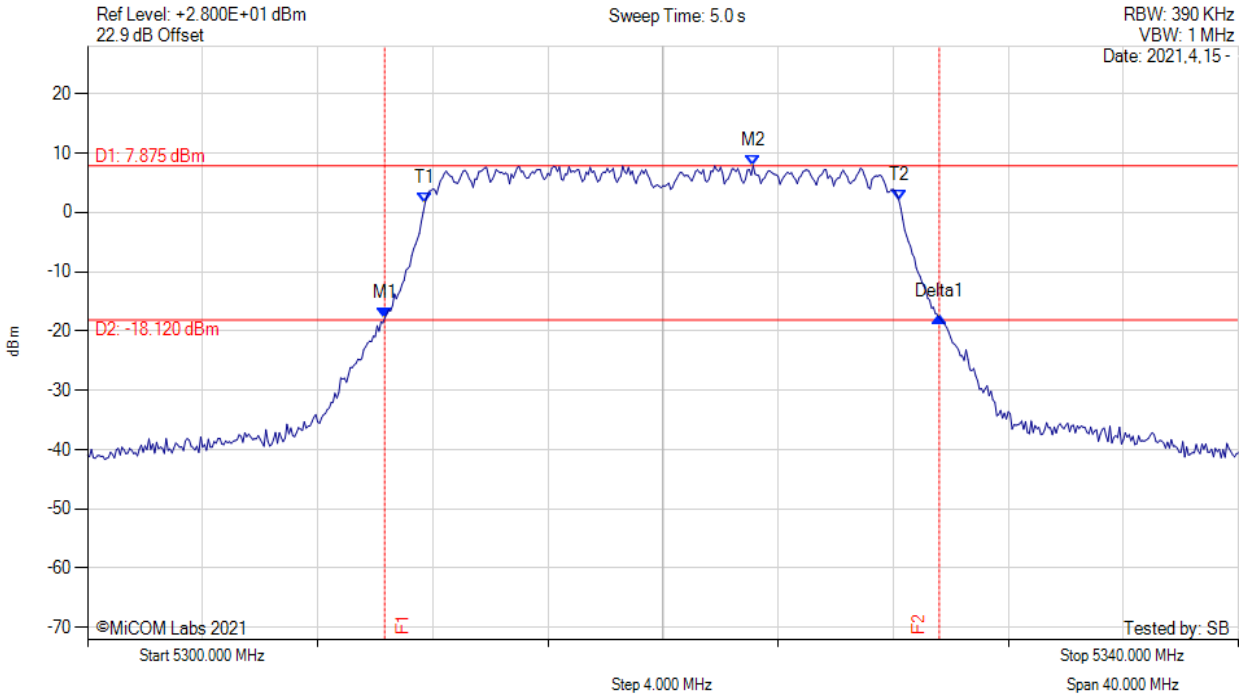


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5310.130 MHz : -17.002 dBm M2 : 5314.400 MHz : 8.643 dBm Delta1 : 19.600 MHz : 0.572 dB T1 : 5311.733 MHz : 2.550 dBm T2 : 5328.267 MHz : 2.100 dBm OBW : 16.515 MHz	Measured 26 dB Bandwidth: 19.600 MHz Measured 99% Bandwidth: 16.515 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

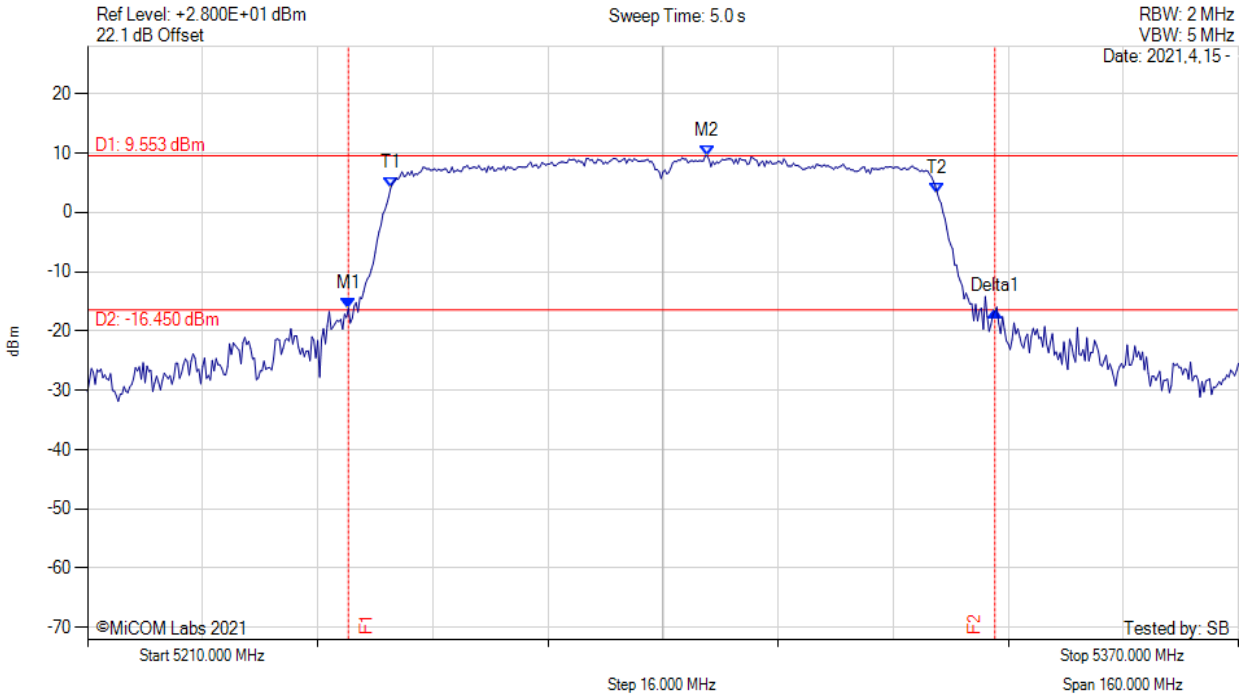


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5310.330 MHz : -17.813 dBm M2 : 5323.130 MHz : 7.875 dBm Delta1 : 19.270 MHz : 0.132 dB T1 : 5311.733 MHz : 1.624 dBm T2 : 5328.200 MHz : 2.030 dBm OBW : 16.434 MHz	Measured 26 dB Bandwidth: 19.270 MHz Measured 99% Bandwidth: 16.434 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

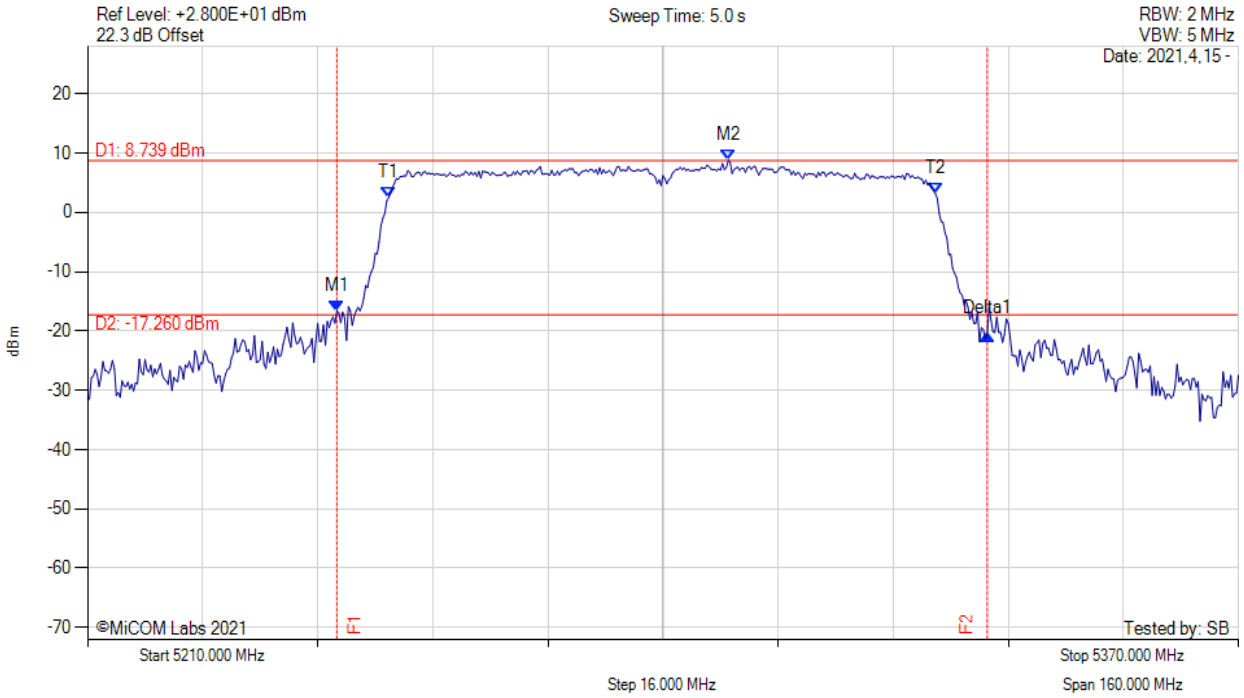


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5246.270 MHz : -16.154 dBm M2 : 5296.130 MHz : 9.553 dBm Delta1 : 89.870 MHz : -0.489 dB T1 : 5252.133 MHz : 4.059 dBm T2 : 5328.133 MHz : 3.237 dBm OBW : 75.913 MHz	Measured 26 dB Bandwidth: 89.870 MHz Measured 99% Bandwidth: 75.913 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

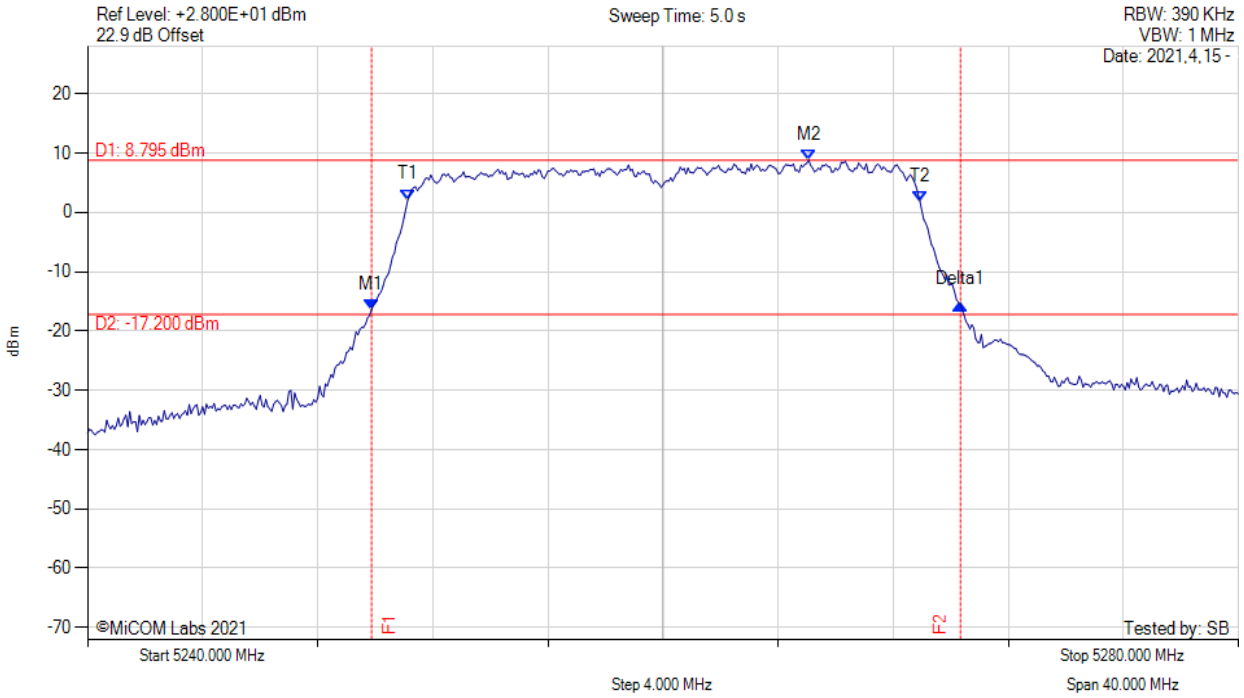


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5244.670 MHz : -16.613 dBm M2 : 5299.070 MHz : 8.739 dBm Delta1 : 90.400 MHz : -3.903 dB T1 : 5251.867 MHz : 2.510 dBm T2 : 5327.867 MHz : 3.167 dBm OBW : 75.995 MHz	Measured 26 dB Bandwidth: 90.400 MHz Measured 99% Bandwidth: 75.995 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

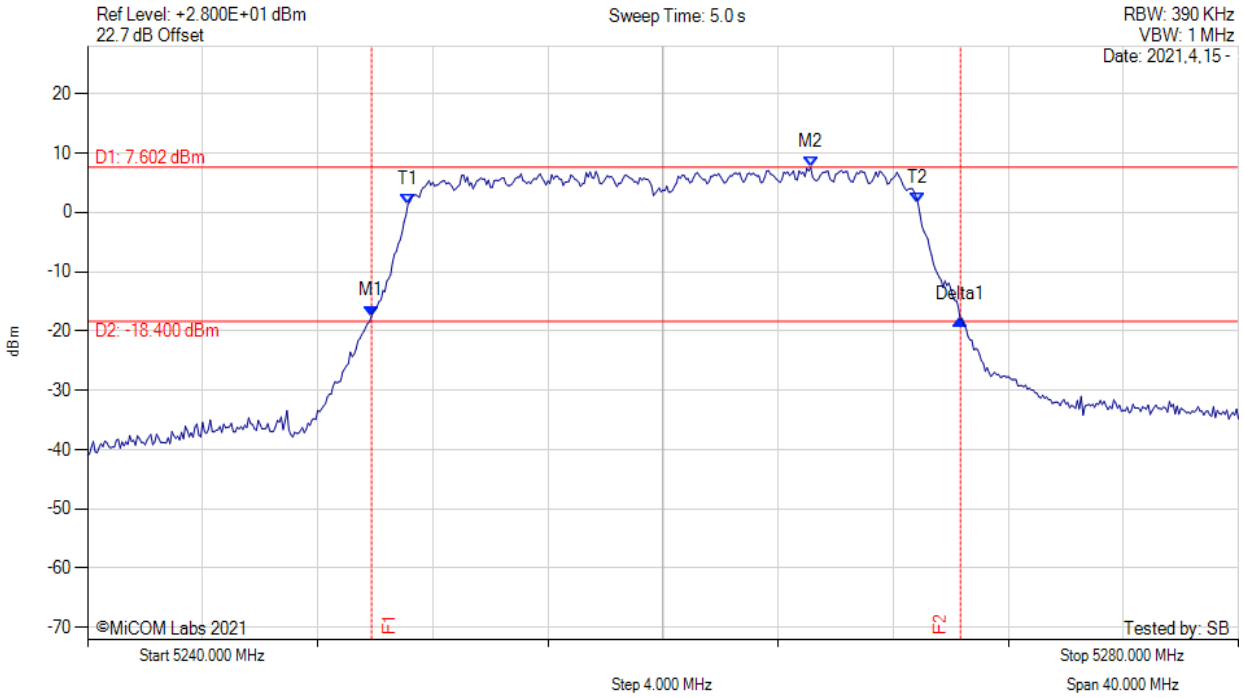


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5249.870 MHz : -16.428 dBm M2 : 5265.070 MHz : 8.795 dBm Delta1 : 20.470 MHz : 1.005 dB T1 : 5251.133 MHz : 2.152 dBm T2 : 5268.933 MHz : 1.810 dBm OBW : 17.730 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.730 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

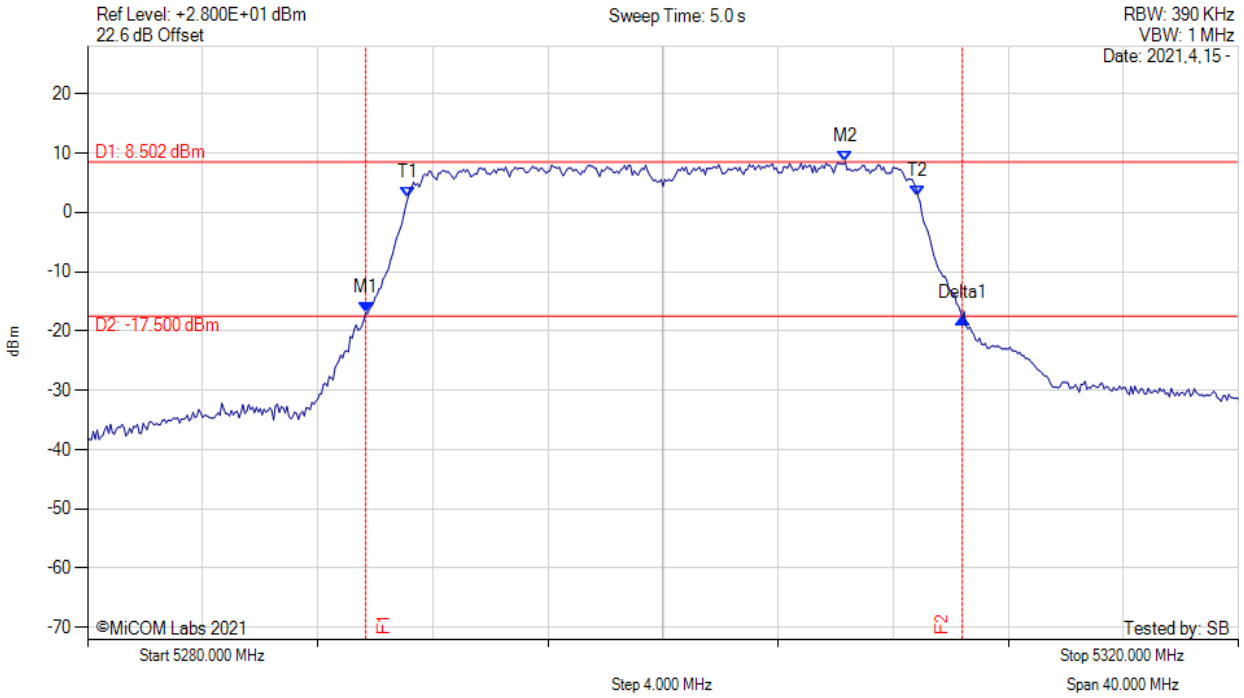


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5249.870 MHz : -17.476 dBm M2 : 5265.130 MHz : 7.602 dBm Delta1 : 20.470 MHz : -0.600 dB T1 : 5251.133 MHz : 1.337 dBm T2 : 5268.867 MHz : 1.503 dBm OBW : 17.698 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.698 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

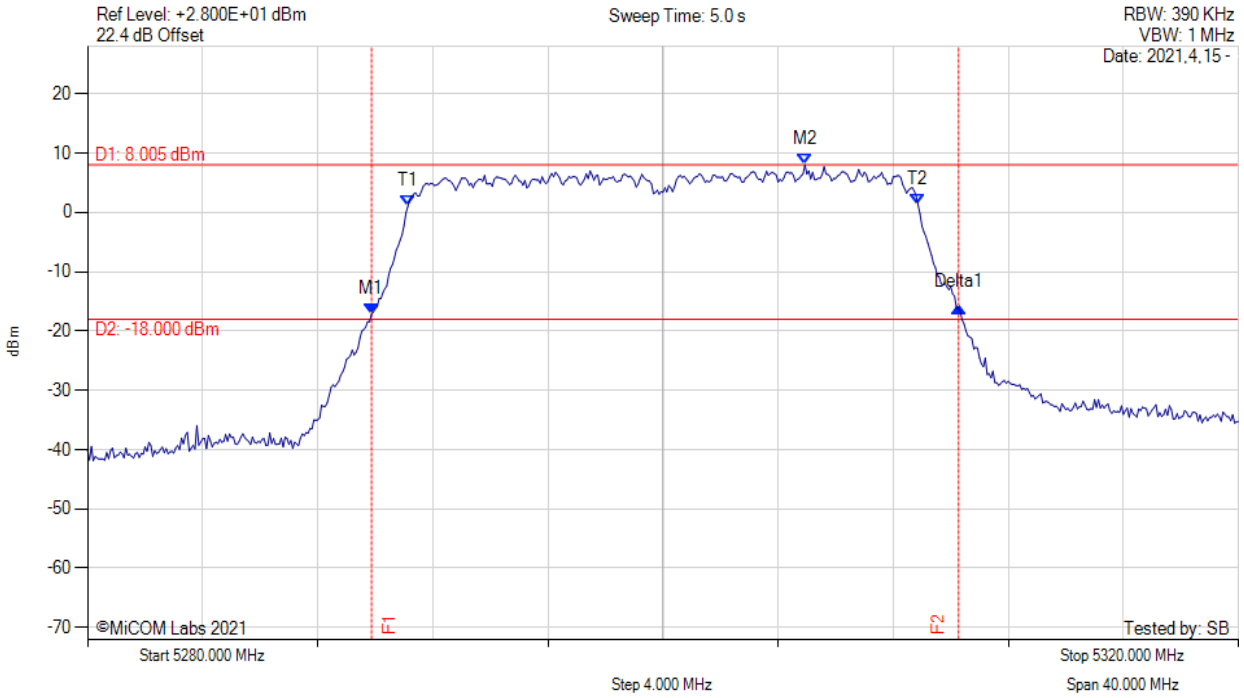


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5289.670 MHz : -16.917 dBm M2 : 5306.330 MHz : 8.502 dBm Delta1 : 20.730 MHz : -0.847 dB T1 : 5291.133 MHz : 2.463 dBm T2 : 5308.867 MHz : 2.661 dBm OBW : 17.715 MHz	Measured 26 dB Bandwidth: 20.730 MHz Measured 99% Bandwidth: 17.715 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

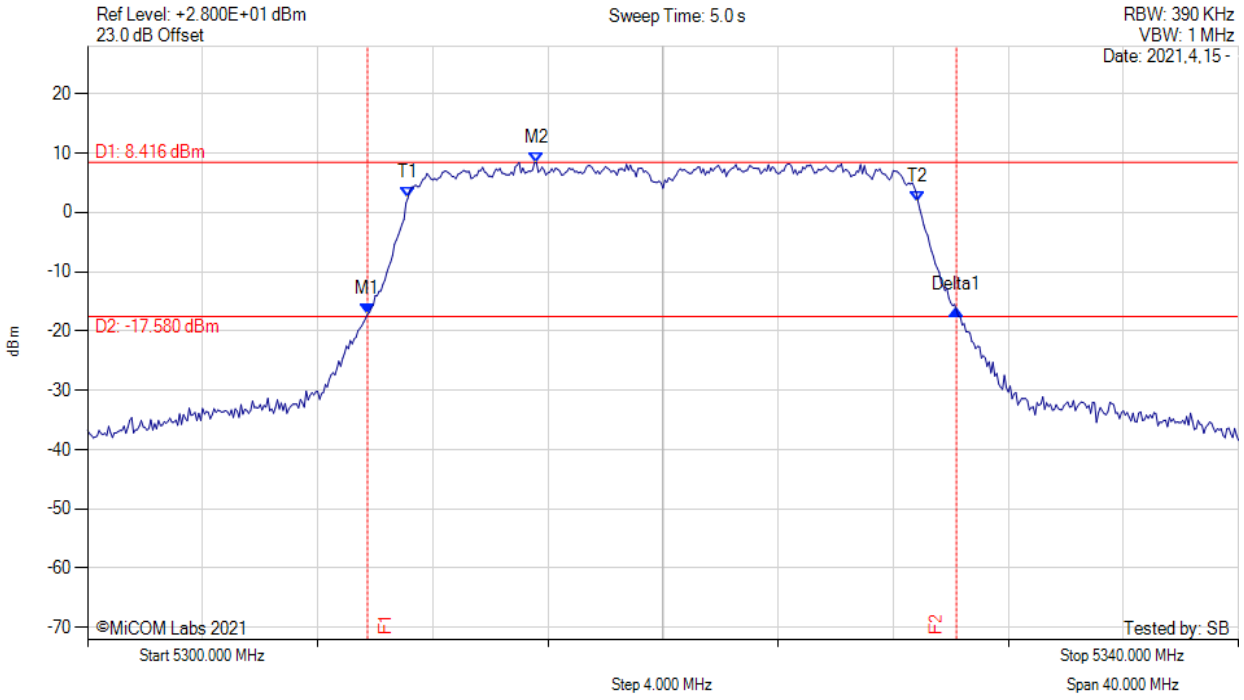


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5289.870 MHz : -17.200 dBm M2 : 5304.930 MHz : 8.005 dBm Delta1 : 20.400 MHz : 1.251 dB T1 : 5291.133 MHz : 1.021 dBm T2 : 5308.867 MHz : 1.243 dBm OBW : 17.687 MHz	Measured 26 dB Bandwidth: 20.400 MHz Measured 99% Bandwidth: 17.687 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

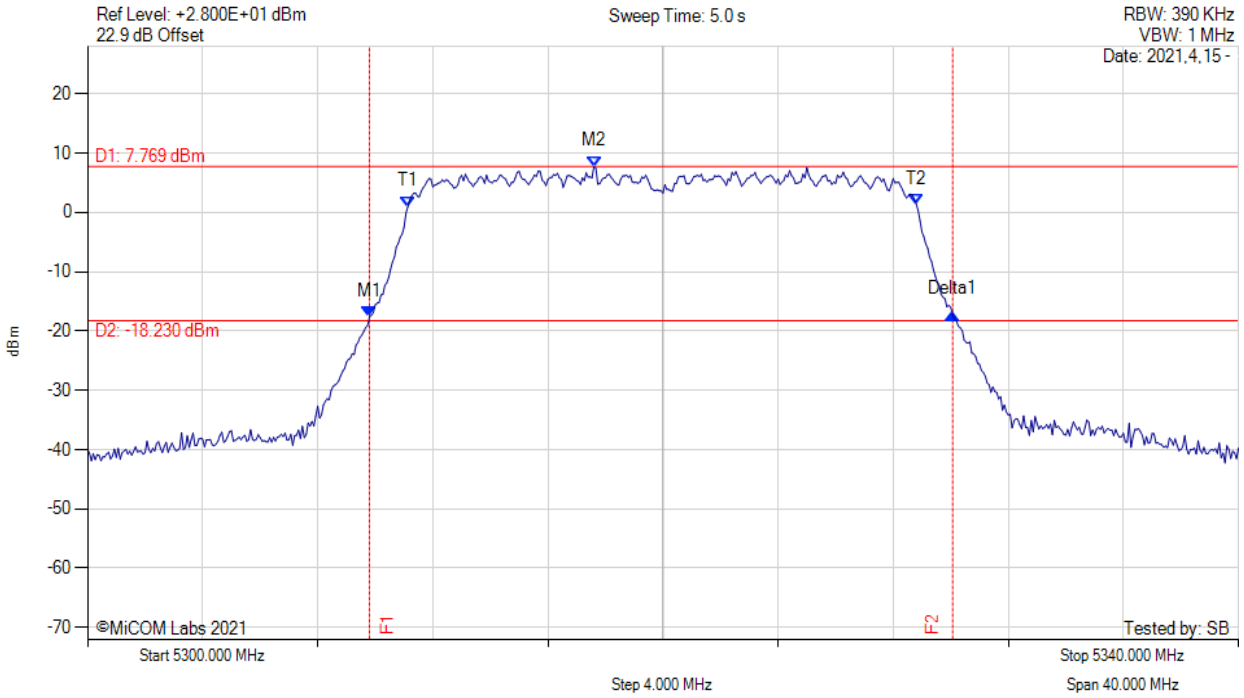


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5309.730 MHz : -17.150 dBm M2 : 5315.600 MHz : 8.416 dBm Delta1 : 20.470 MHz : 0.718 dB T1 : 5311.133 MHz : 2.400 dBm T2 : 5328.867 MHz : 1.775 dBm OBW : 17.672 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.672 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

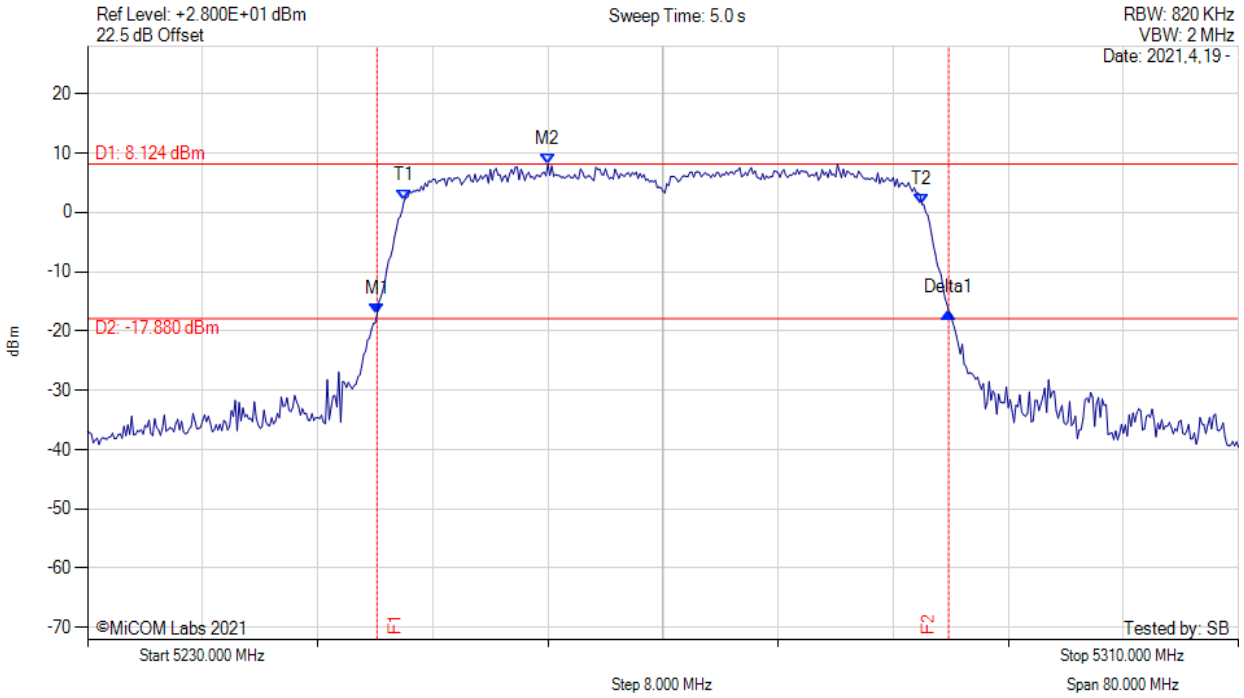


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5309.800 MHz : -17.622 dBm M2 : 5317.600 MHz : 7.769 dBm Delta1 : 20.270 MHz : 0.398 dB T1 : 5311.133 MHz : 0.967 dBm T2 : 5328.800 MHz : 1.411 dBm OBW : 17.643 MHz	Measured 26 dB Bandwidth: 20.270 MHz Measured 99% Bandwidth: 17.643 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

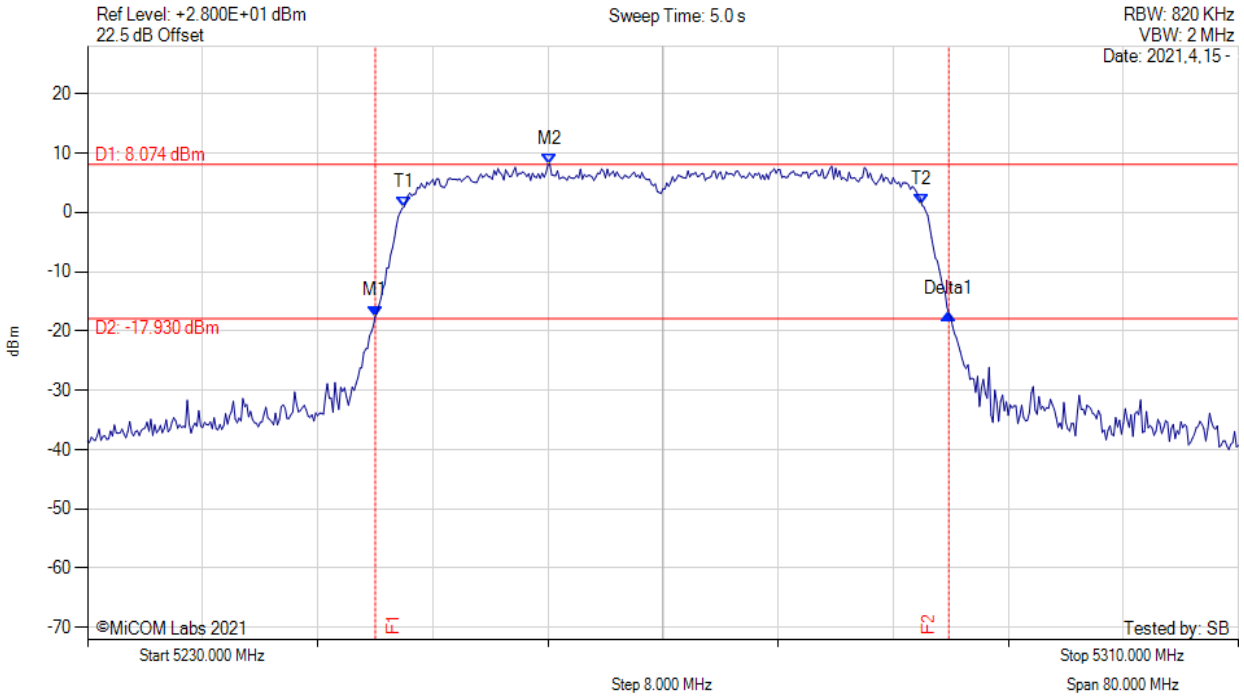


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5250.130 MHz : -17.048 dBm M2 : 5262.000 MHz : 8.124 dBm Delta1 : 39.730 MHz : 0.171 dB T1 : 5252.000 MHz : 1.949 dBm T2 : 5288.000 MHz : 1.331 dBm OBW : 35.995 MHz	Measured 26 dB Bandwidth: 39.730 MHz Measured 99% Bandwidth: 35.995 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

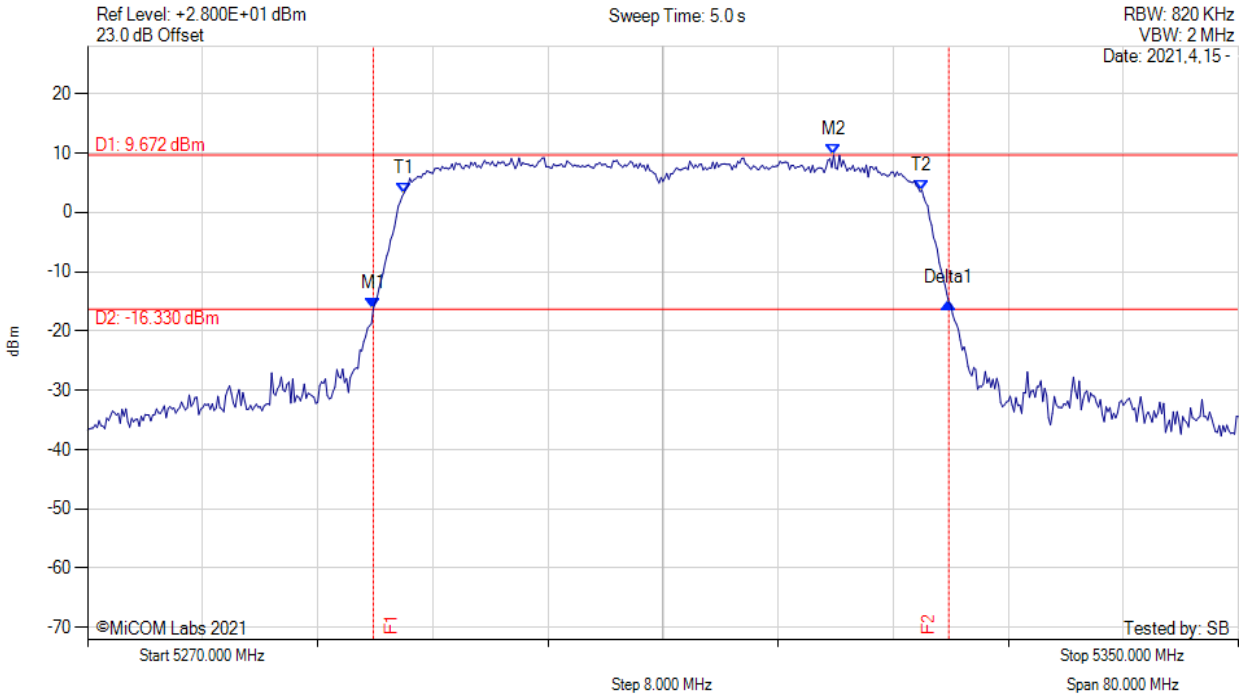


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5250.000 MHz : -17.487 dBm M2 : 5262.130 MHz : 8.074 dBm Delta1 : 39.870 MHz : 0.318 dB T1 : 5252.000 MHz : 0.962 dBm T2 : 5288.000 MHz : 1.226 dBm OBW : 36.010 MHz	Measured 26 dB Bandwidth: 39.870 MHz Measured 99% Bandwidth: 36.010 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

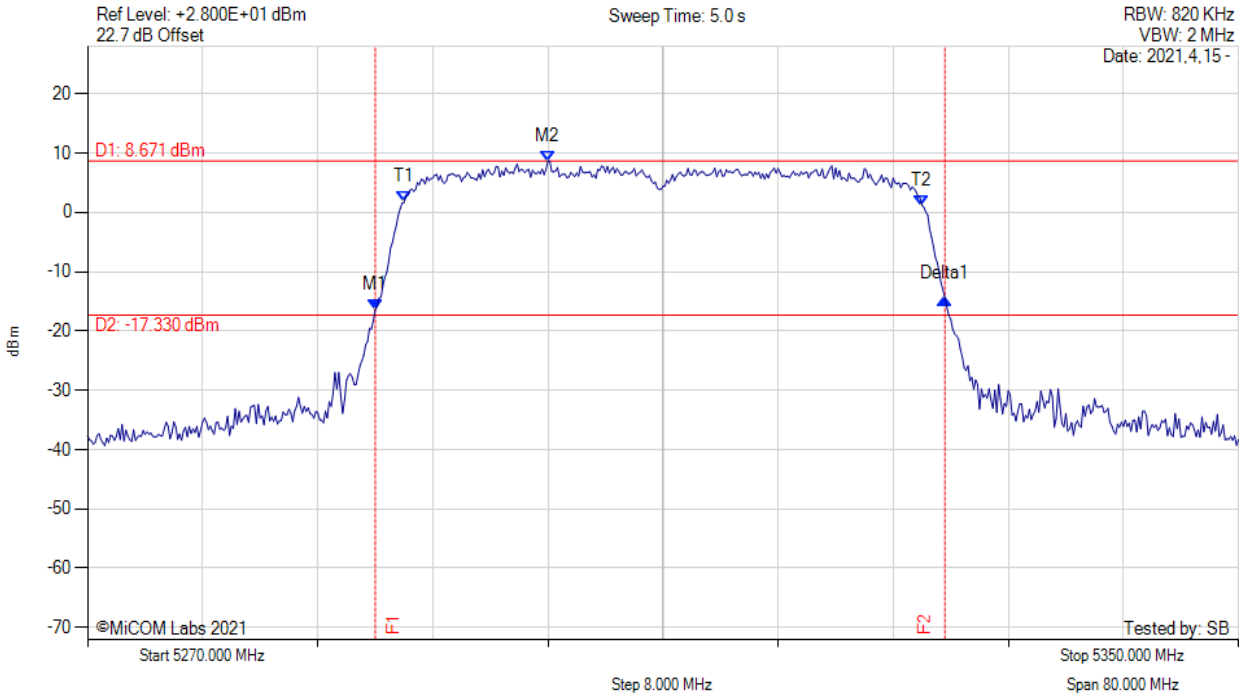


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5289.870 MHz : -16.221 dBm M2 : 5321.870 MHz : 9.672 dBm Delta1 : 40.000 MHz : 0.957 dB T1 : 5292.000 MHz : 3.284 dBm T2 : 5328.000 MHz : 3.703 dBm OBW : 36.053 MHz	Measured 26 dB Bandwidth: 40.000 MHz Measured 99% Bandwidth: 36.053 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

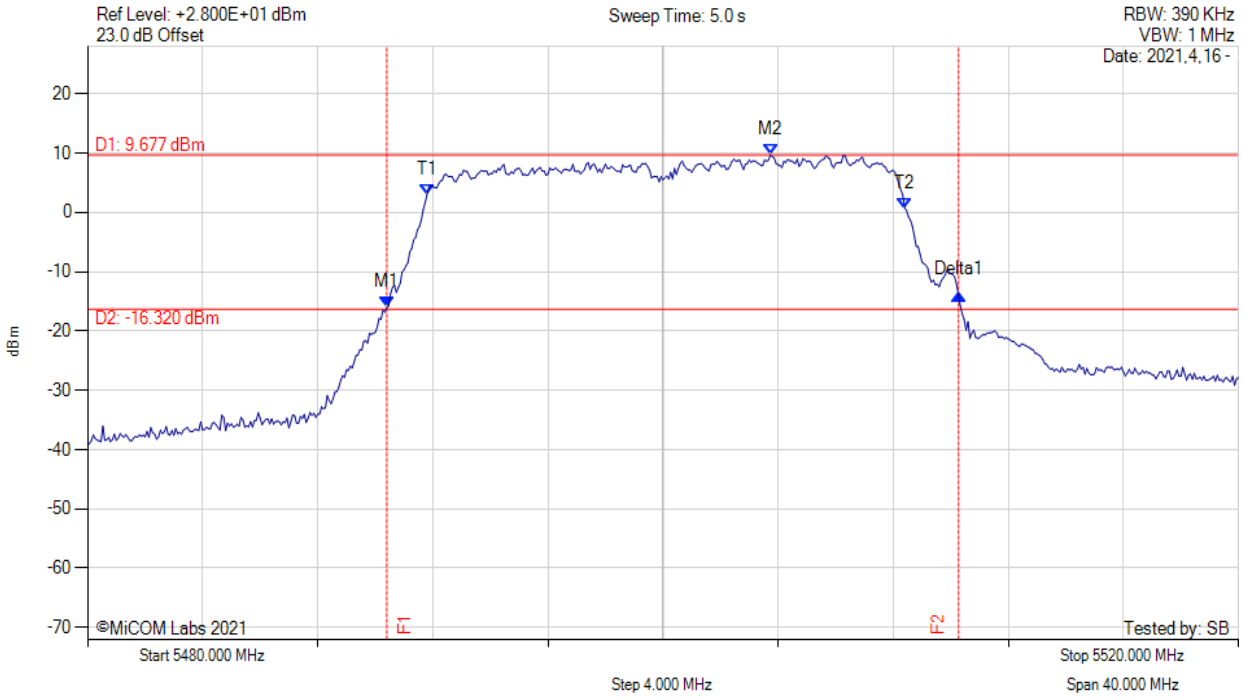


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5290.000 MHz : -16.395 dBm M2 : 5302.000 MHz : 8.671 dBm Delta1 : 39.600 MHz : 1.857 dB T1 : 5292.000 MHz : 1.710 dBm T2 : 5328.000 MHz : 1.156 dBm OBW : 35.991 MHz	Measured 26 dB Bandwidth: 39.600 MHz Measured 99% Bandwidth: 35.991 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

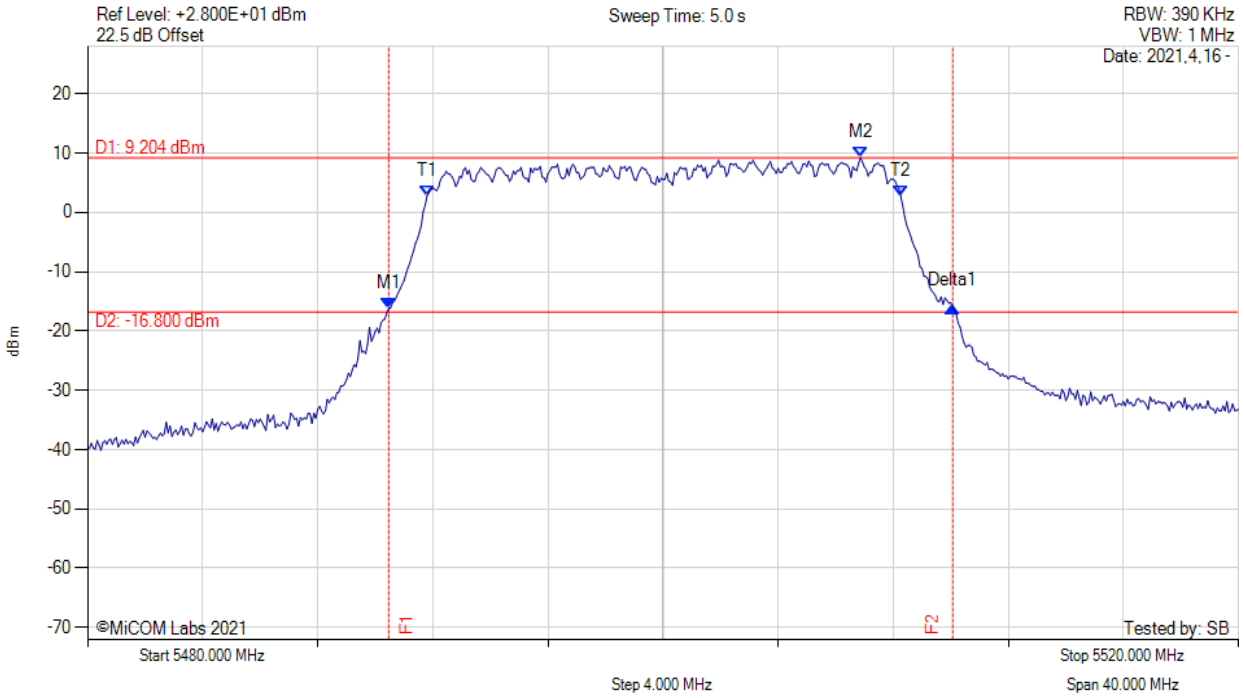


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5490.400 MHz : -16.064 dBm M2 : 5503.730 MHz : 9.677 dBm Delta1 : 19.870 MHz : 2.163 dB T1 : 5491.800 MHz : 3.040 dBm T2 : 5508.400 MHz : 0.701 dBm OBW : 16.599 MHz	Measured 26 dB Bandwidth: 19.870 MHz Measured 99% Bandwidth: 16.599 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

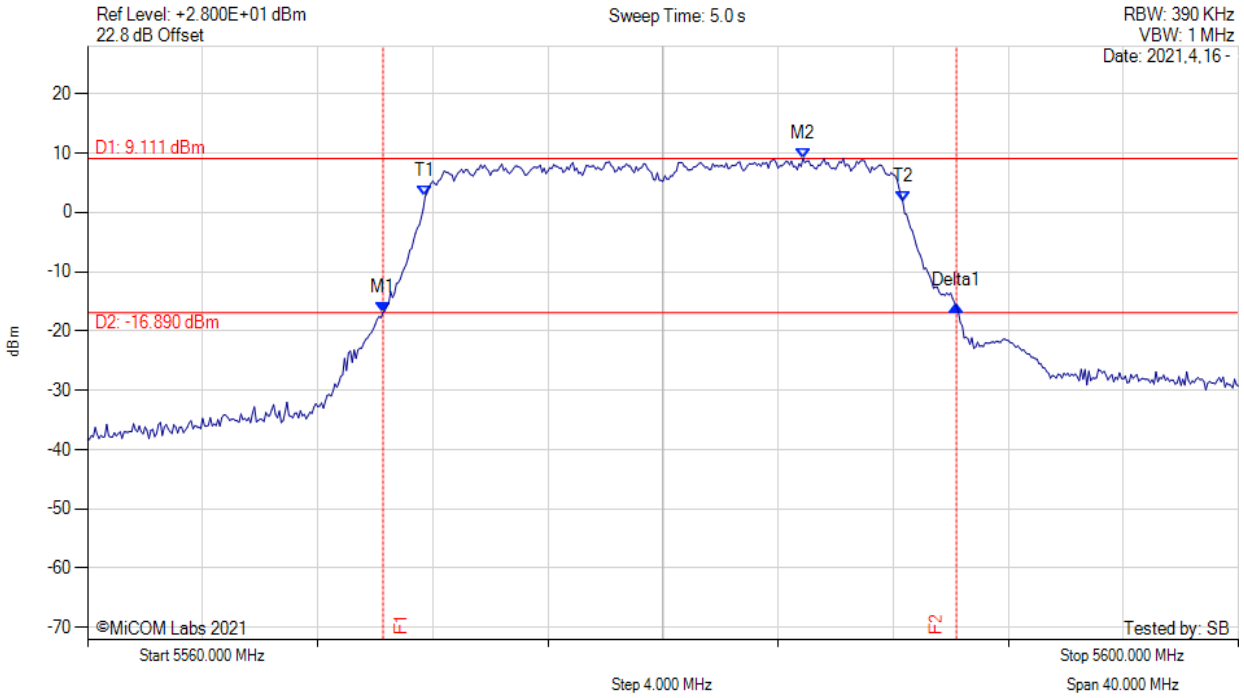


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5490.470 MHz : -16.197 dBm M2 : 5506.870 MHz : 9.204 dBm Delta1 : 19.600 MHz : 0.347 dB T1 : 5491.800 MHz : 2.818 dBm T2 : 5508.267 MHz : 2.669 dBm OBW : 16.466 MHz	Measured 26 dB Bandwidth: 19.600 MHz Measured 99% Bandwidth: 16.466 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

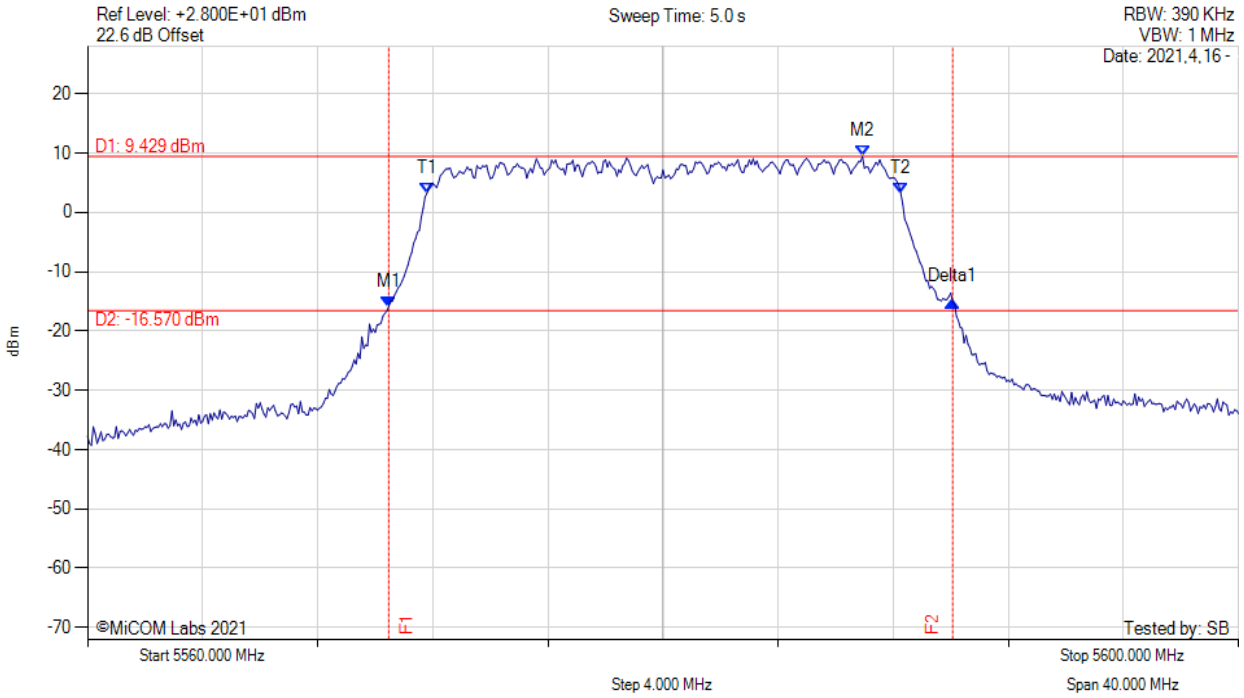


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5570.270 MHz : -16.874 dBm M2 : 5584.870 MHz : 9.111 dBm Delta1 : 19.930 MHz : 1.109 dB T1 : 5571.733 MHz : 2.634 dBm T2 : 5588.333 MHz : 1.851 dBm OBW : 16.558 MHz	Measured 26 dB Bandwidth: 19.930 MHz Measured 99% Bandwidth: 16.558 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

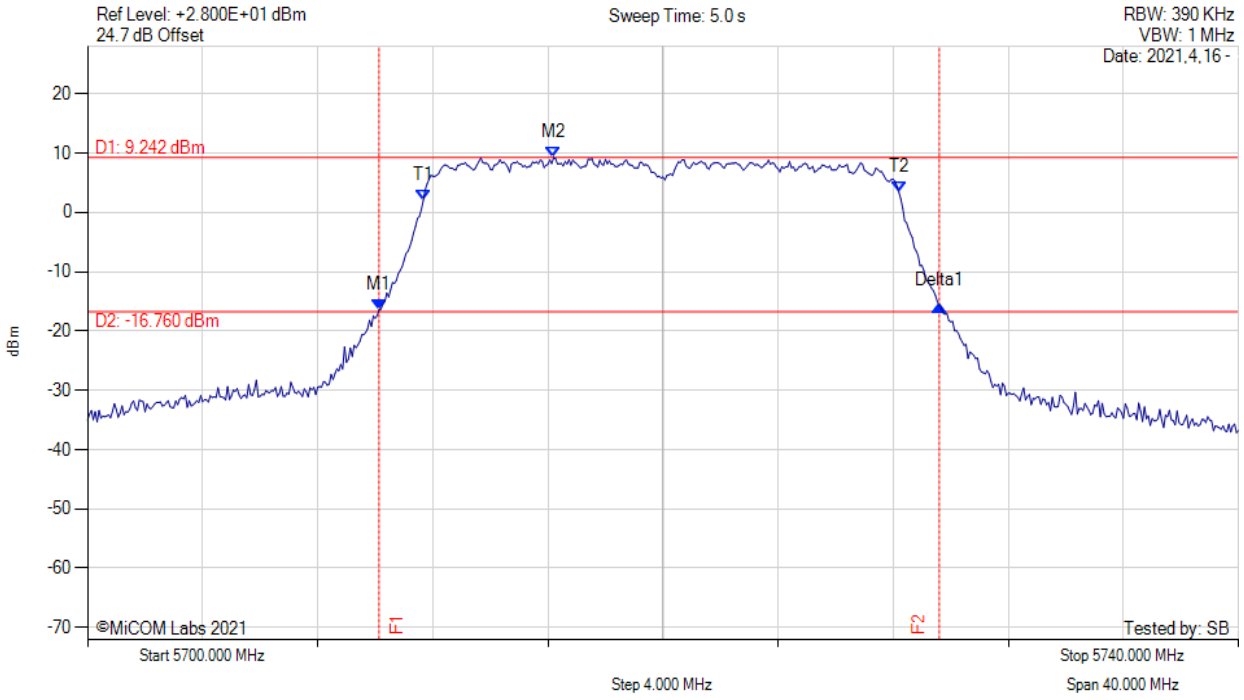


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5570.470 MHz : -15.871 dBm M2 : 5586.930 MHz : 9.429 dBm Delta1 : 19.600 MHz : 0.768 dB T1 : 5571.800 MHz : 3.278 dBm T2 : 5588.267 MHz : 3.170 dBm OBW : 16.466 MHz	Measured 26 dB Bandwidth: 19.600 MHz Measured 99% Bandwidth: 16.466 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

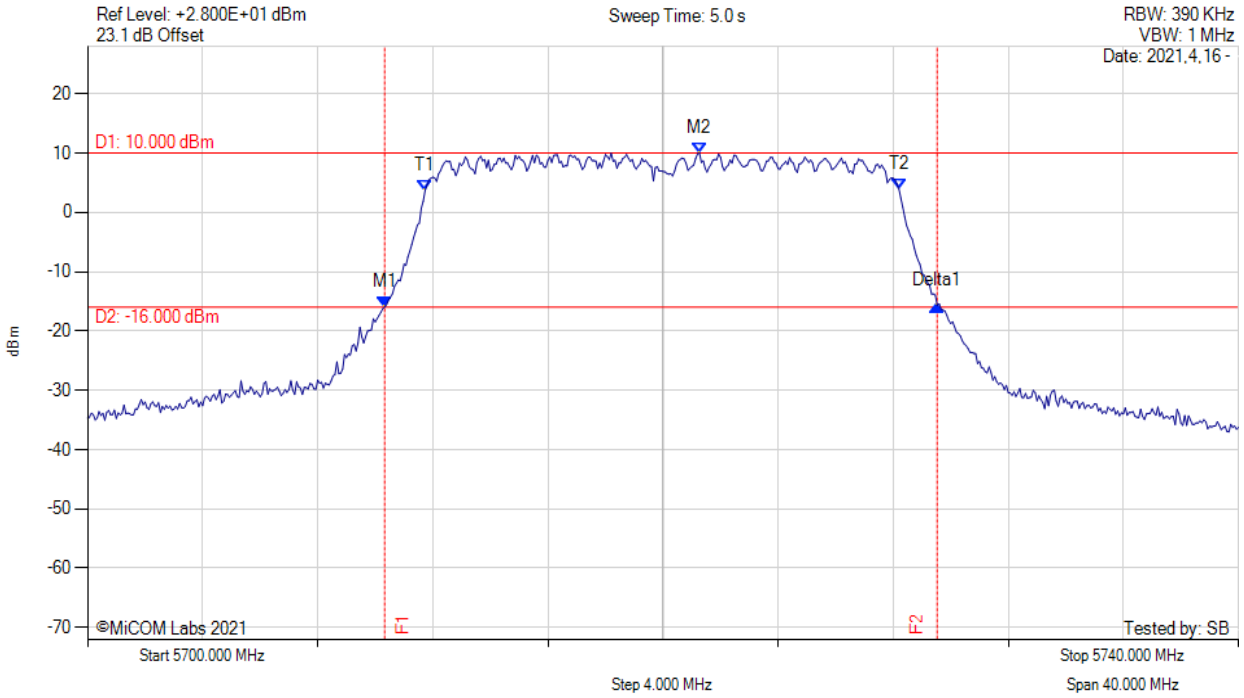


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5710.130 MHz : -16.476 dBm M2 : 5716.200 MHz : 9.242 dBm Delta1 : 19.470 MHz : 0.826 dB T1 : 5711.667 MHz : 1.993 dBm T2 : 5728.200 MHz : 3.387 dBm OBW : 16.505 MHz	Measured 26 dB Bandwidth: 19.470 MHz Measured 99% Bandwidth: 16.505 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

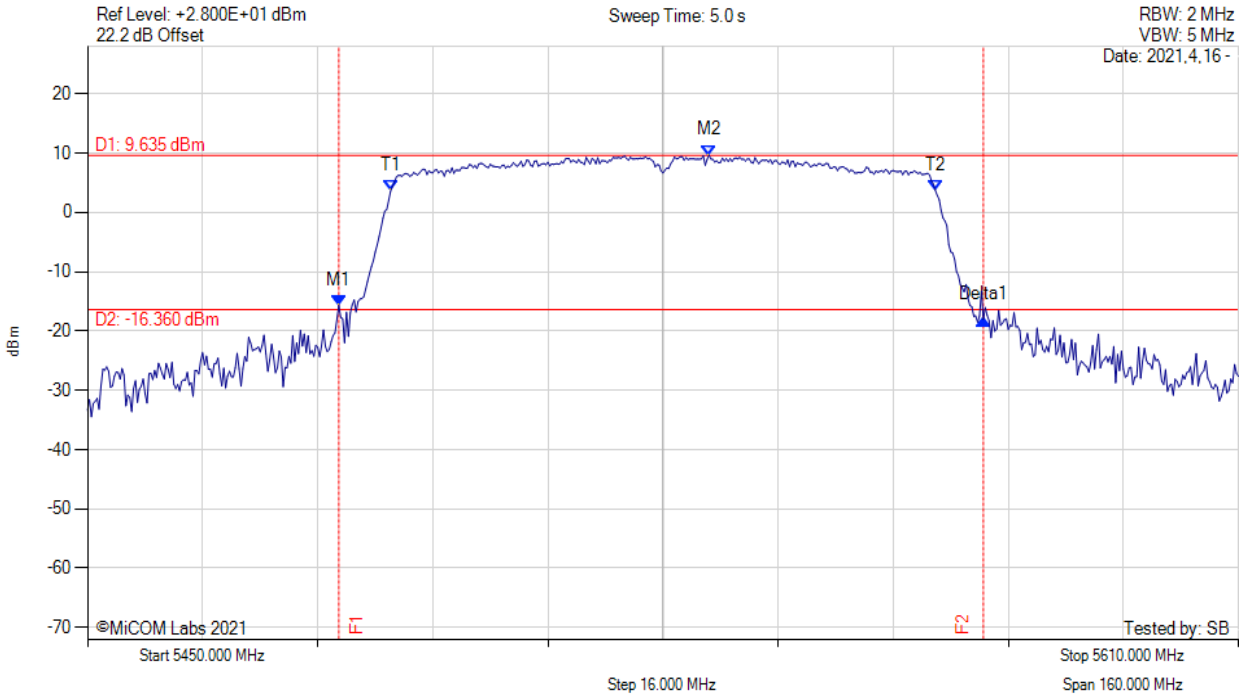


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5710.330 MHz : -15.942 dBm M2 : 5721.270 MHz : 10.000 dBm Delta1 : 19.200 MHz : 0.233 dB T1 : 5711.733 MHz : 3.685 dBm T2 : 5728.200 MHz : 3.928 dBm OBW : 16.434 MHz	Measured 26 dB Bandwidth: 19.200 MHz Measured 99% Bandwidth: 16.434 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

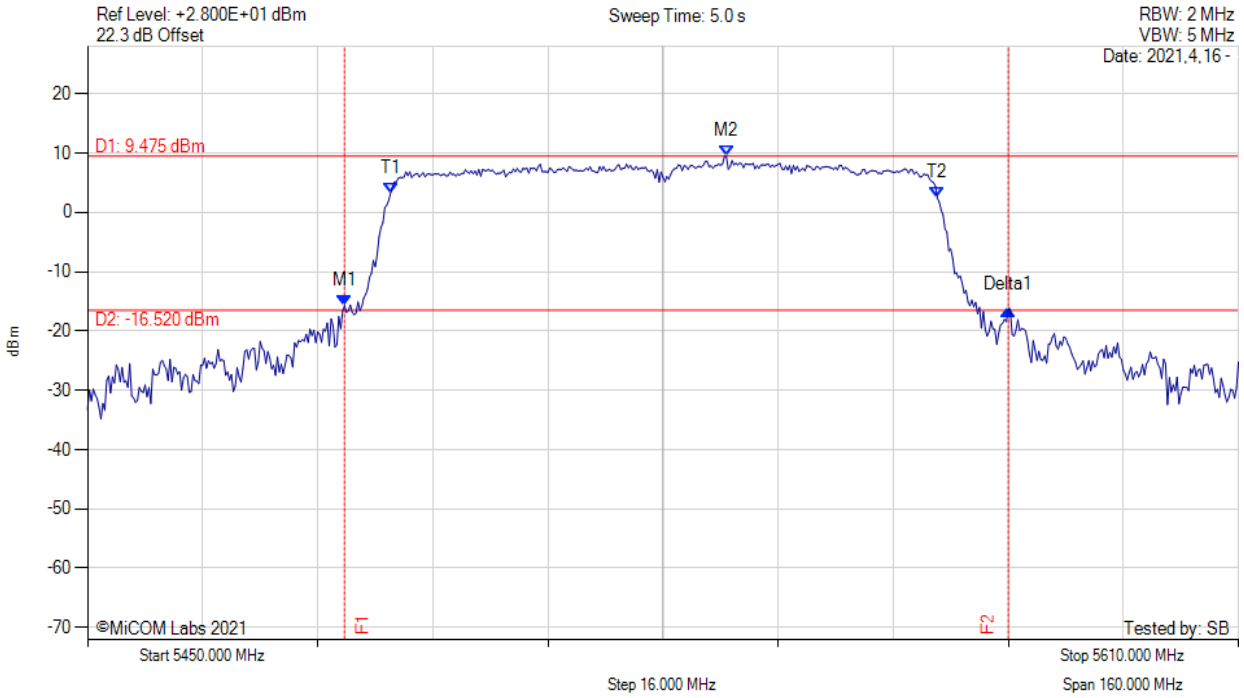


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5484.930 MHz : -15.680 dBm M2 : 5536.400 MHz : 9.635 dBm Delta1 : 89.600 MHz : -2.329 dB T1 : 5492.133 MHz : 3.579 dBm T2 : 5567.867 MHz : 3.717 dBm OBW : 75.635 MHz	Measured 26 dB Bandwidth: 89.600 MHz Measured 99% Bandwidth: 75.635 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

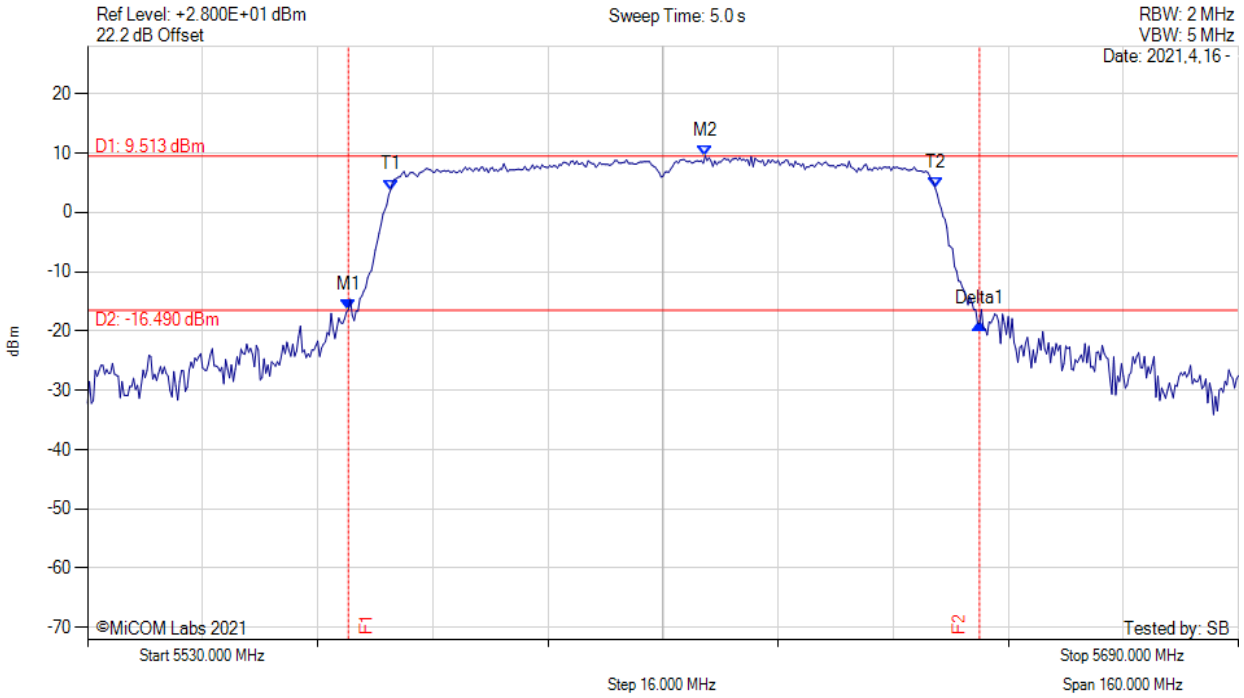


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5485.730 MHz : -15.750 dBm M2 : 5538.800 MHz : 9.475 dBm Delta1 : 92.270 MHz : -0.581 dB T1 : 5492.133 MHz : 3.285 dBm T2 : 5568.133 MHz : 2.410 dBm OBW : 75.957 MHz	Measured 26 dB Bandwidth: 92.270 MHz Measured 99% Bandwidth: 75.957 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

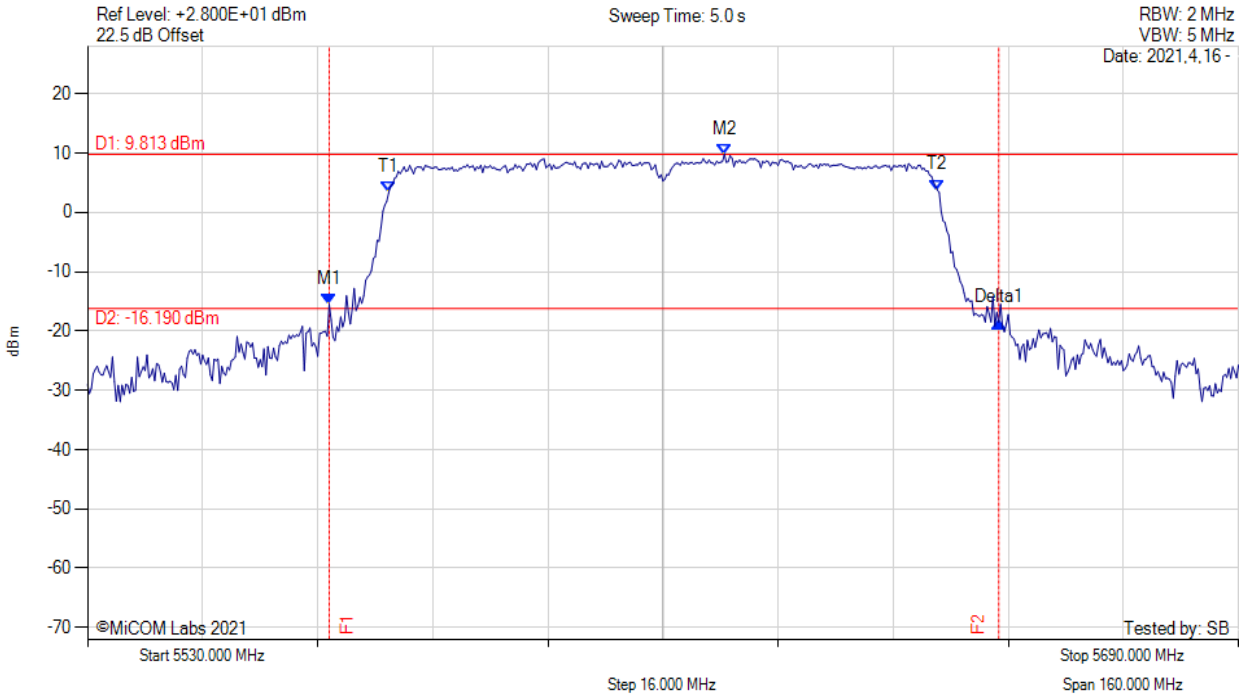


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5566.270 MHz : -16.406 dBm M2 : 5615.870 MHz : 9.513 dBm Delta1 : 87.730 MHz : -2.382 dB T1 : 5572.133 MHz : 3.774 dBm T2 : 5647.867 MHz : 4.044 dBm OBW : 75.841 MHz	Measured 26 dB Bandwidth: 87.730 MHz Measured 99% Bandwidth: 75.841 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

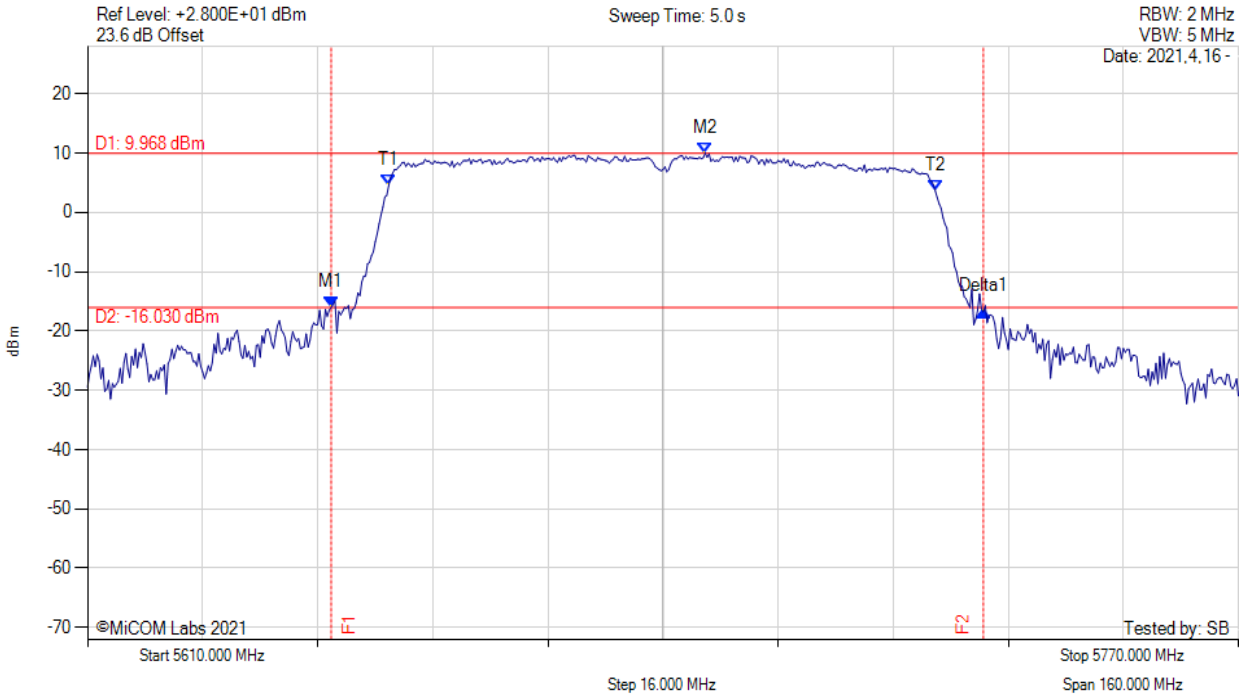


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5563.600 MHz : -15.532 dBm M2 : 5618.530 MHz : 9.813 dBm Delta1 : 93.070 MHz : -2.999 dB T1 : 5571.867 MHz : 3.343 dBm T2 : 5648.133 MHz : 3.789 dBm OBW : 75.999 MHz	Measured 26 dB Bandwidth: 93.070 MHz Measured 99% Bandwidth: 75.999 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

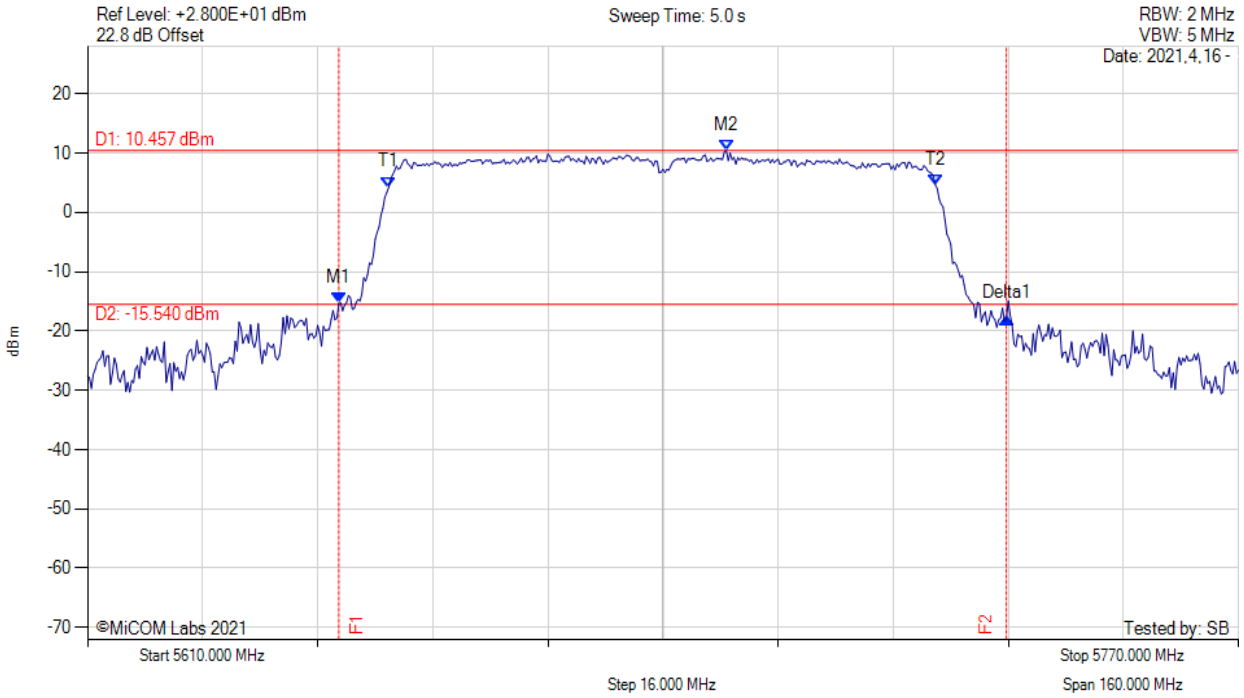


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5643.870 MHz : -16.028 dBm M2 : 5695.870 MHz : 9.968 dBm Delta1 : 90.670 MHz : -0.720 dB T1 : 5651.867 MHz : 4.534 dBm T2 : 5727.867 MHz : 3.613 dBm OBW : 75.889 MHz	Measured 26 dB Bandwidth: 90.670 MHz Measured 99% Bandwidth: 75.889 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

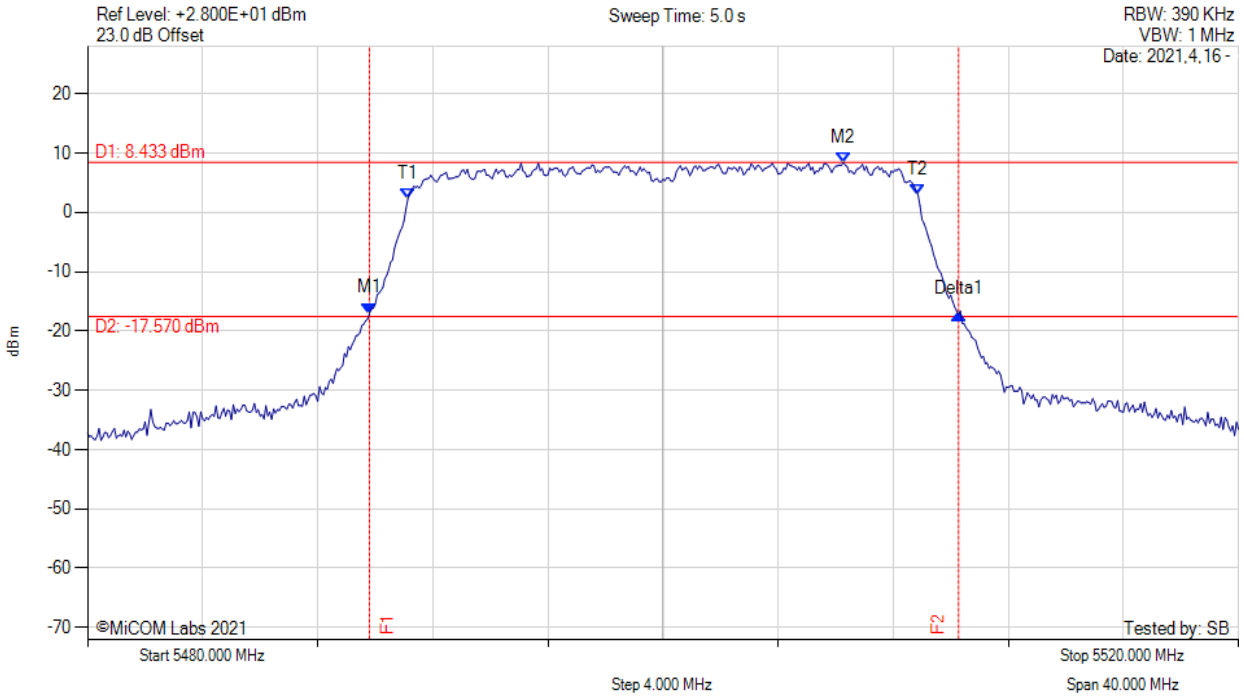


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5644.930 MHz : -15.349 dBm M2 : 5698.800 MHz : 10.457 dBm Delta1 : 92.800 MHz : -2.570 dB T1 : 5651.867 MHz : 4.243 dBm T2 : 5727.867 MHz : 4.618 dBm OBW : 76.079 MHz	Measured 26 dB Bandwidth: 92.800 MHz Measured 99% Bandwidth: 76.079 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

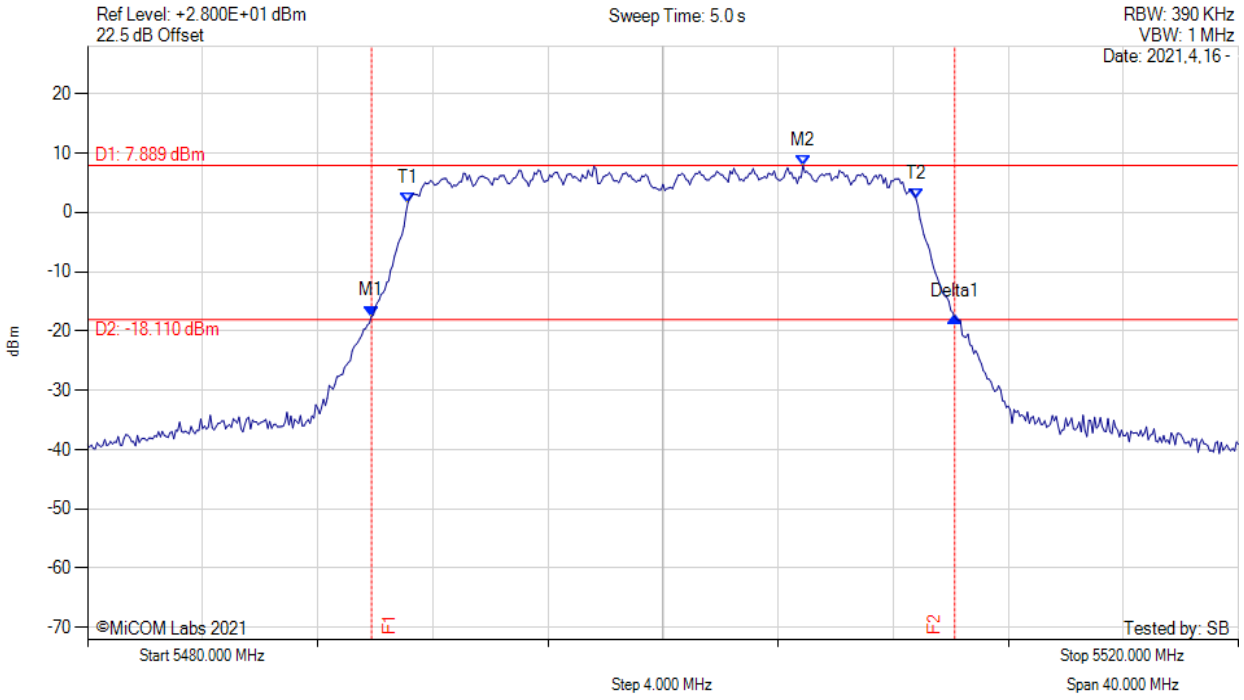


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5489.800 MHz : -17.015 dBm M2 : 5506.270 MHz : 8.433 dBm Delta1 : 20.470 MHz : -0.181 dB T1 : 5491.133 MHz : 2.273 dBm T2 : 5508.867 MHz : 2.944 dBm OBW : 17.667 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.667 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

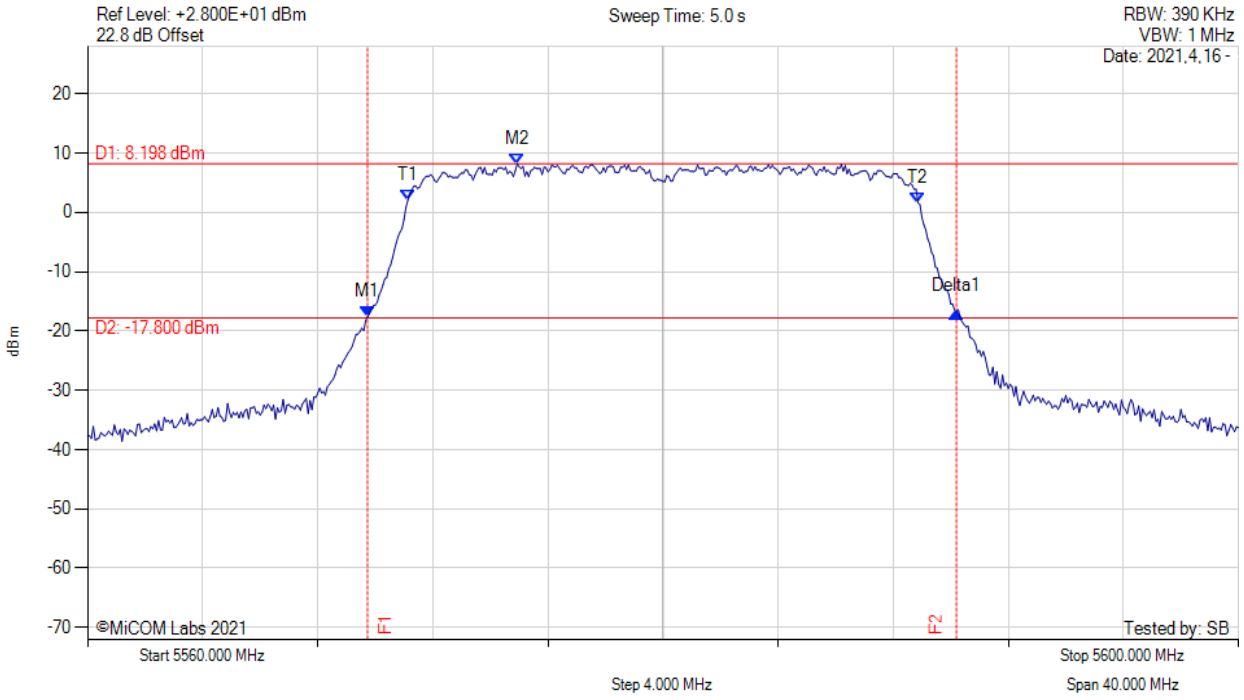


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5489.870 MHz : -17.472 dBm M2 : 5504.870 MHz : 7.889 dBm Delta1 : 20.270 MHz : -0.091 dB T1 : 5491.133 MHz : 1.585 dBm T2 : 5508.800 MHz : 2.184 dBm OBW : 17.642 MHz	Measured 26 dB Bandwidth: 20.270 MHz Measured 99% Bandwidth: 17.642 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

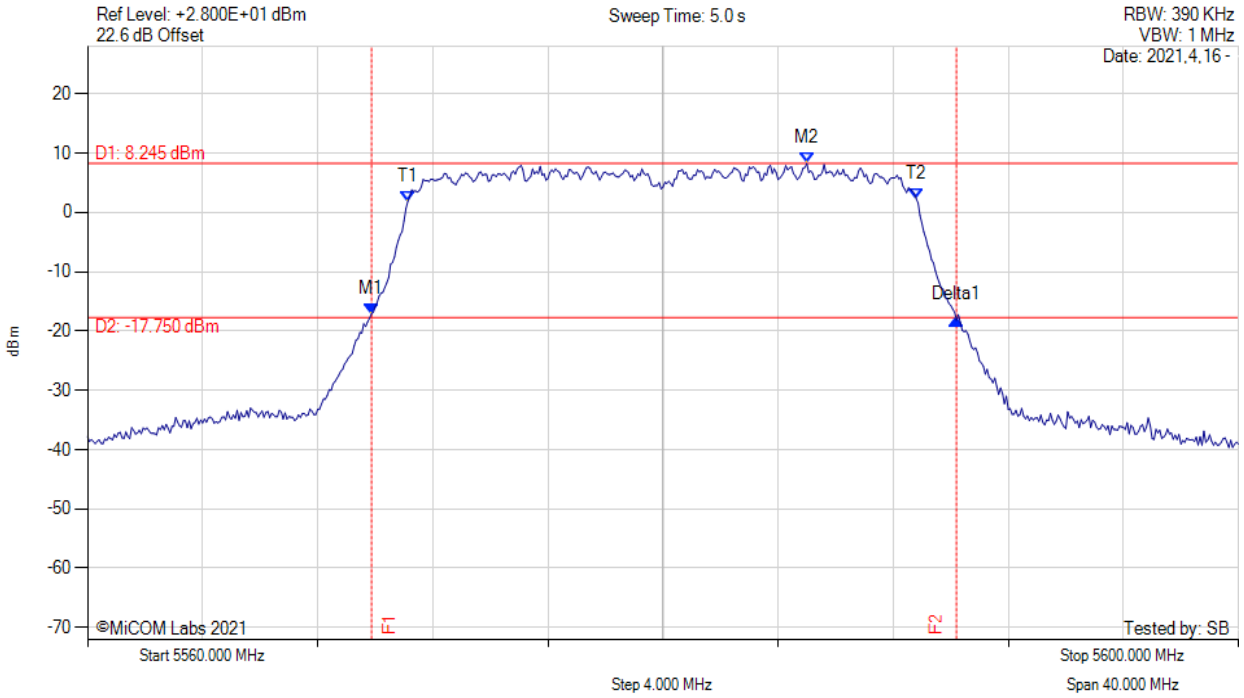


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5569.730 MHz : -17.647 dBm M2 : 5574.930 MHz : 8.198 dBm Delta1 : 20.470 MHz : 0.877 dB T1 : 5571.133 MHz : 2.049 dBm T2 : 5588.867 MHz : 1.611 dBm OBW : 17.649 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.649 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

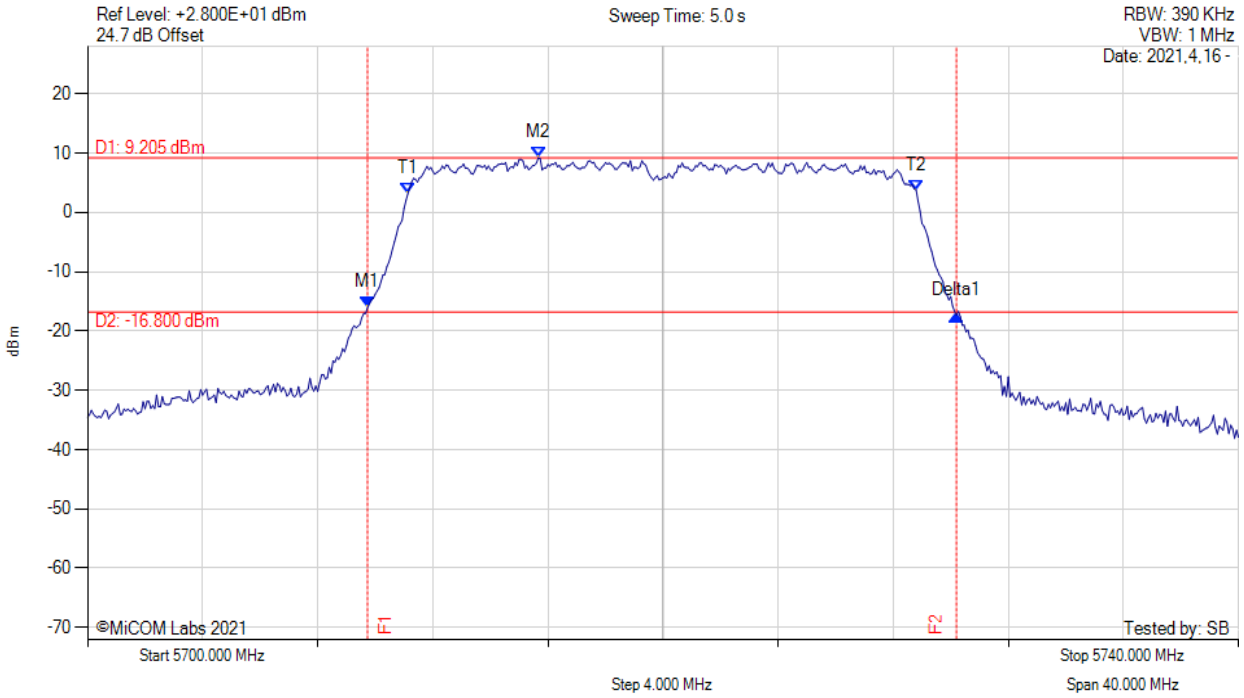


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5569.870 MHz : -17.110 dBm M2 : 5585.000 MHz : 8.245 dBm Delta1 : 20.330 MHz : -1.052 dB T1 : 5571.133 MHz : 1.865 dBm T2 : 5588.800 MHz : 2.311 dBm OBW : 17.640 MHz	Measured 26 dB Bandwidth: 20.330 MHz Measured 99% Bandwidth: 17.640 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

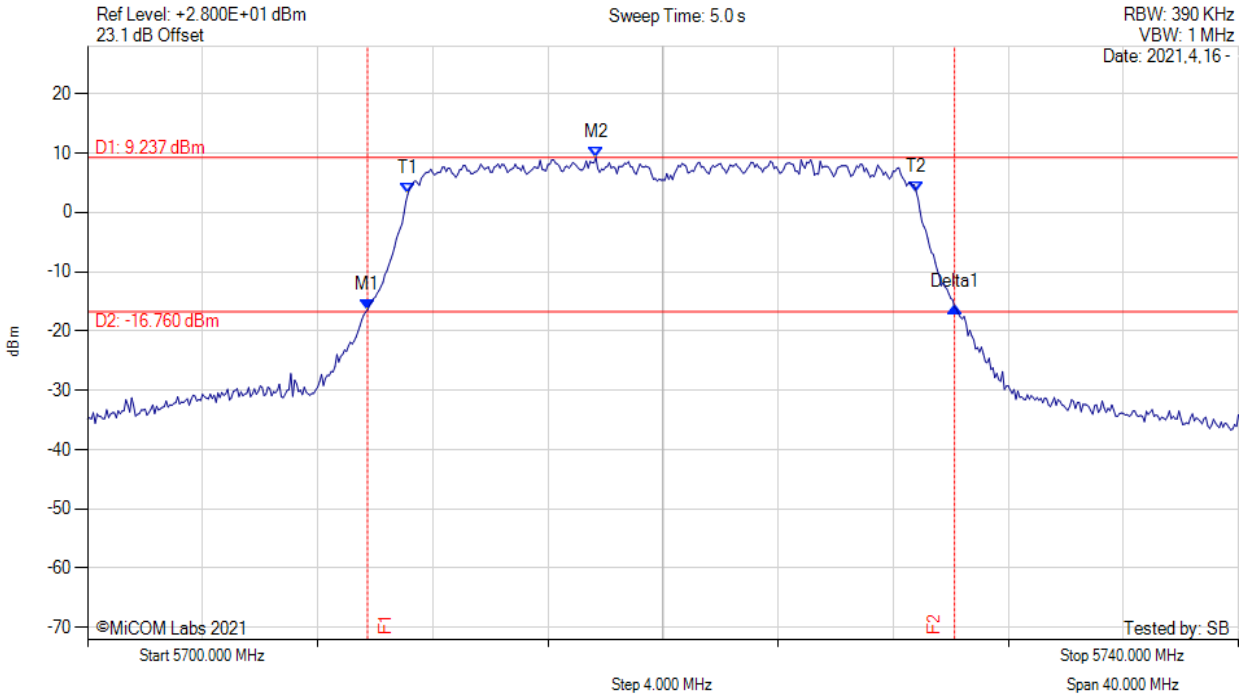


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5709.730 MHz : -16.048 dBm M2 : 5715.670 MHz : 9.205 dBm Delta1 : 20.470 MHz : -1.270 dB T1 : 5711.133 MHz : 3.154 dBm T2 : 5728.800 MHz : 3.734 dBm OBW : 17.661 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.661 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

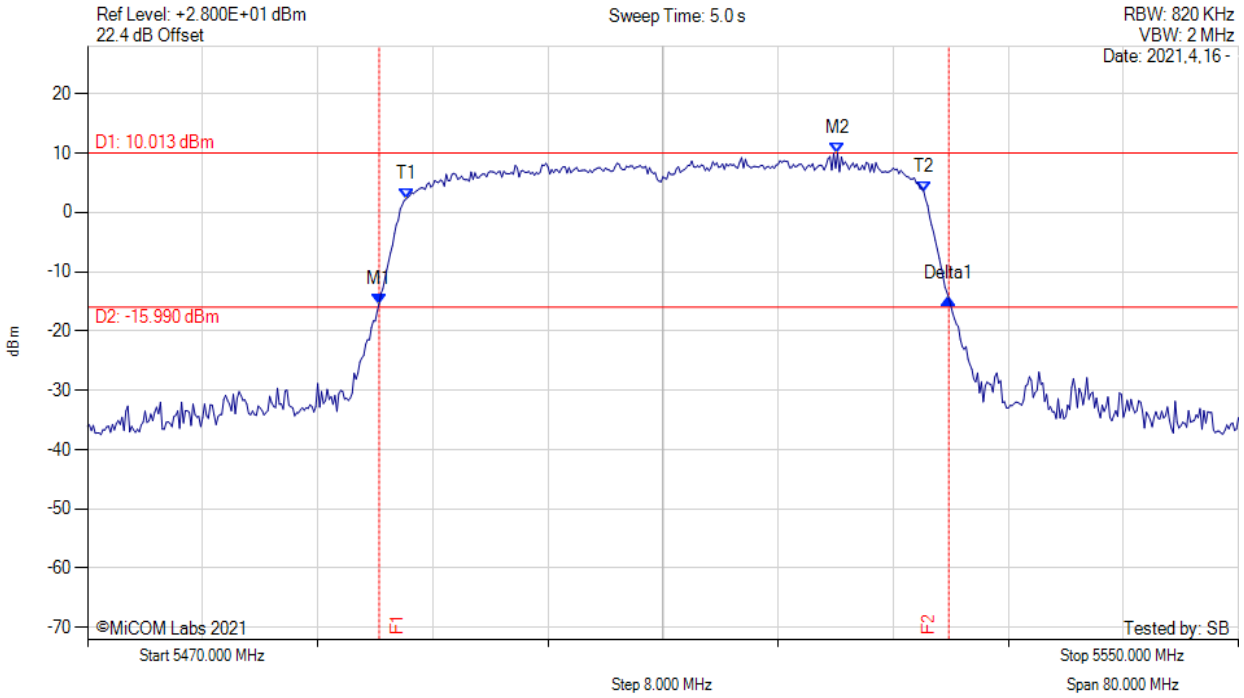


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5709.730 MHz : -16.465 dBm M2 : 5717.670 MHz : 9.237 dBm Delta1 : 20.400 MHz : 0.470 dB T1 : 5711.133 MHz : 3.110 dBm T2 : 5728.800 MHz : 3.451 dBm OBW : 17.645 MHz	Measured 26 dB Bandwidth: 20.400 MHz Measured 99% Bandwidth: 17.645 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

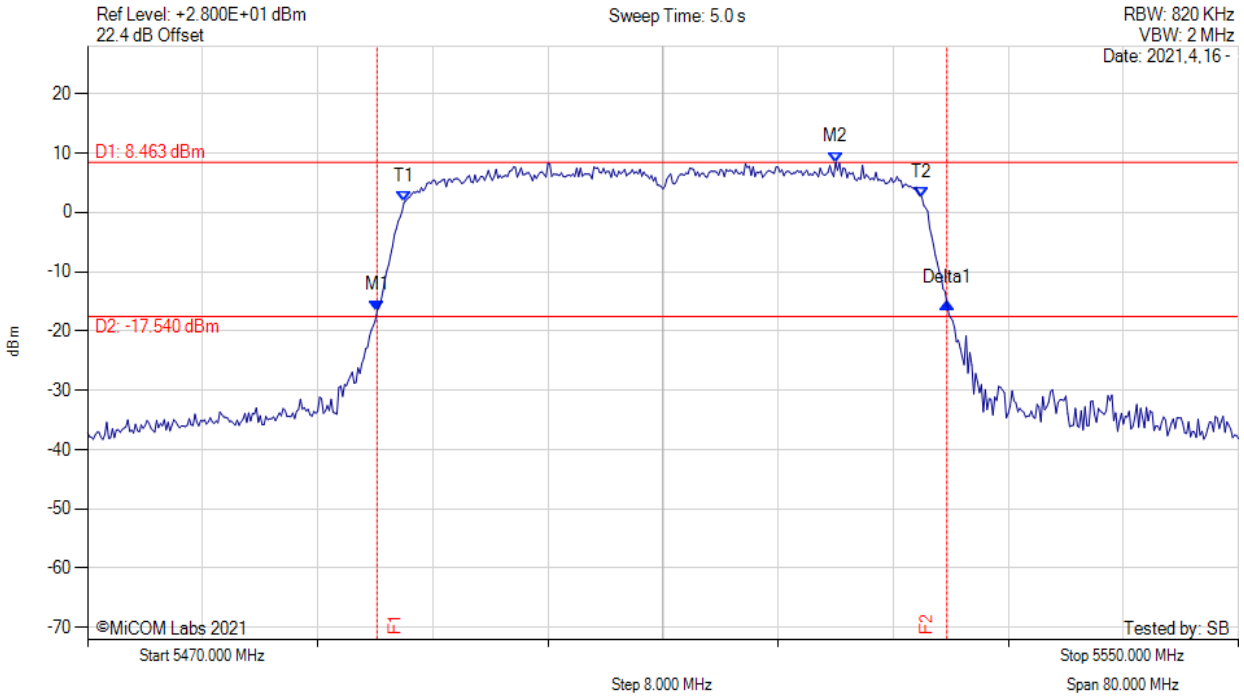


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5490.270 MHz : -15.431 dBm M2 : 5522.130 MHz : 10.013 dBm Delta1 : 39.600 MHz : 0.967 dB T1 : 5492.133 MHz : 2.238 dBm T2 : 5528.133 MHz : 3.464 dBm OBW : 36.008 MHz	Measured 26 dB Bandwidth: 39.600 MHz Measured 99% Bandwidth: 36.008 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

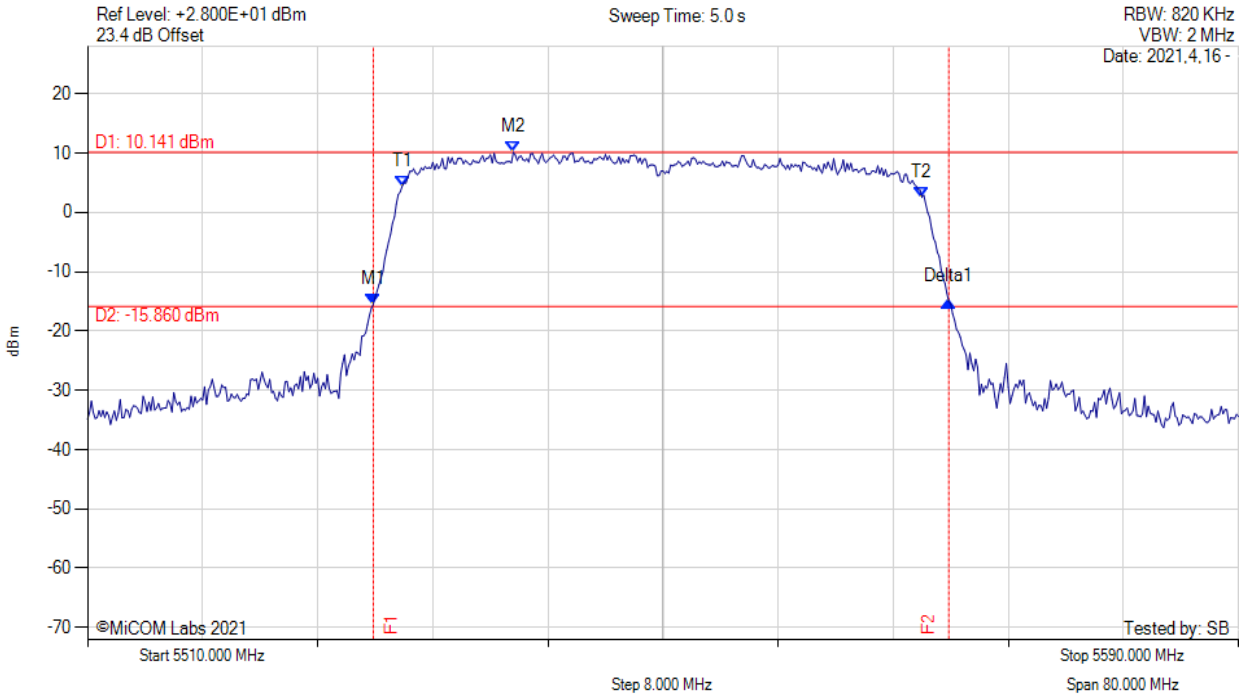


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5490.130 MHz : -16.555 dBm M2 : 5522.000 MHz : 8.463 dBm Delta1 : 39.600 MHz : 1.247 dB T1 : 5492.000 MHz : 1.694 dBm T2 : 5528.000 MHz : 2.500 dBm OBW : 35.958 MHz	Measured 26 dB Bandwidth: 39.600 MHz Measured 99% Bandwidth: 35.958 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

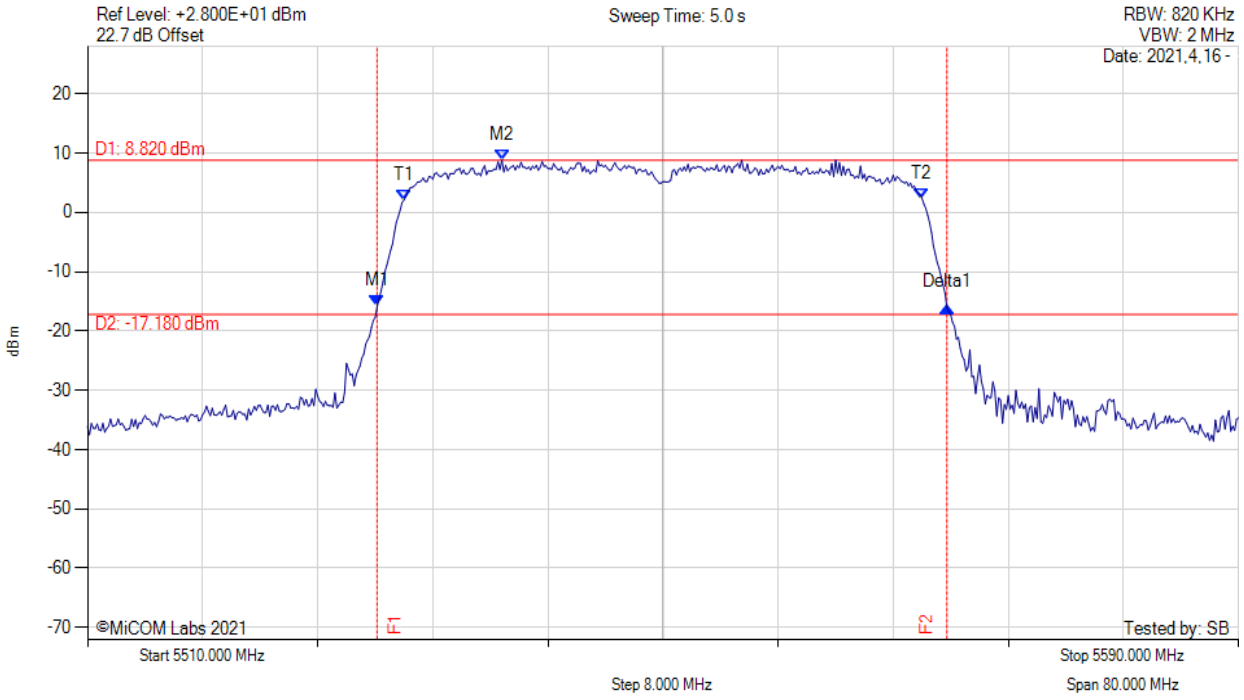


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5529.870 MHz : -15.452 dBm M2 : 5539.600 MHz : 10.141 dBm Delta1 : 40.000 MHz : 0.400 dB T1 : 5531.867 MHz : 4.359 dBm T2 : 5568.000 MHz : 2.582 dBm OBW : 36.085 MHz	Measured 26 dB Bandwidth: 40.000 MHz Measured 99% Bandwidth: 36.085 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

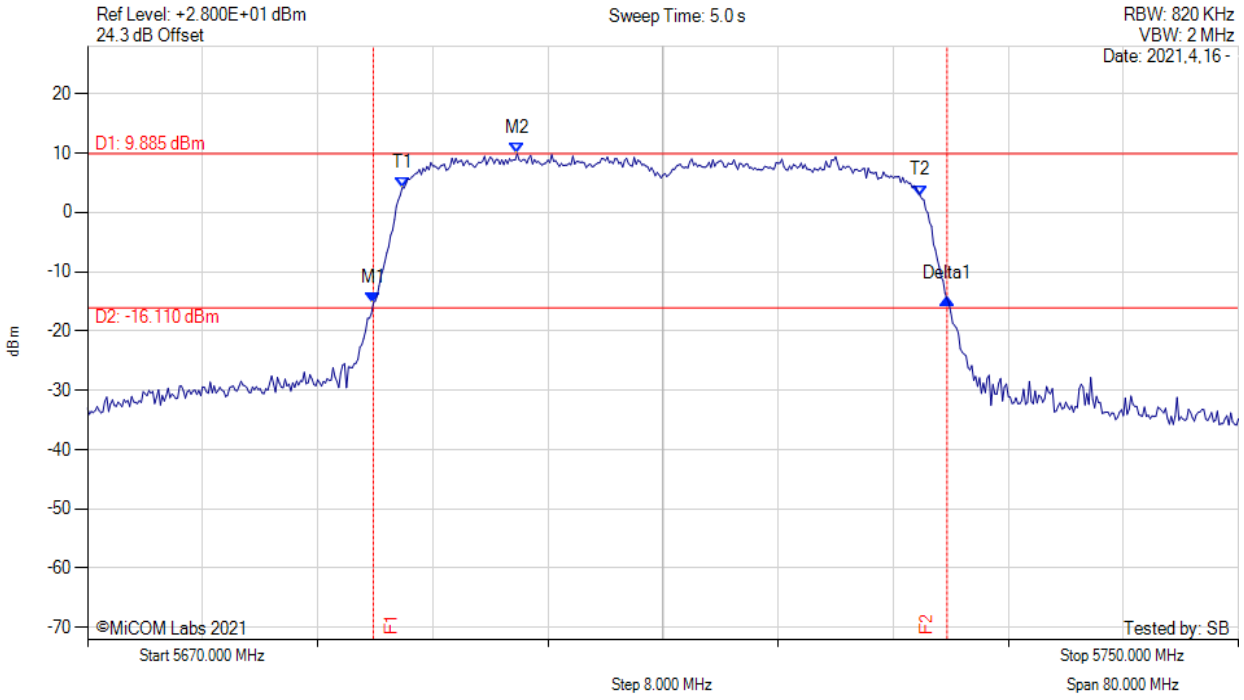


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5530.130 MHz : -15.829 dBm M2 : 5538.800 MHz : 8.820 dBm Delta1 : 39.600 MHz : -0.232 dB T1 : 5532.000 MHz : 2.114 dBm T2 : 5568.000 MHz : 2.364 dBm OBW : 35.927 MHz	Measured 26 dB Bandwidth: 39.600 MHz Measured 99% Bandwidth: 35.927 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

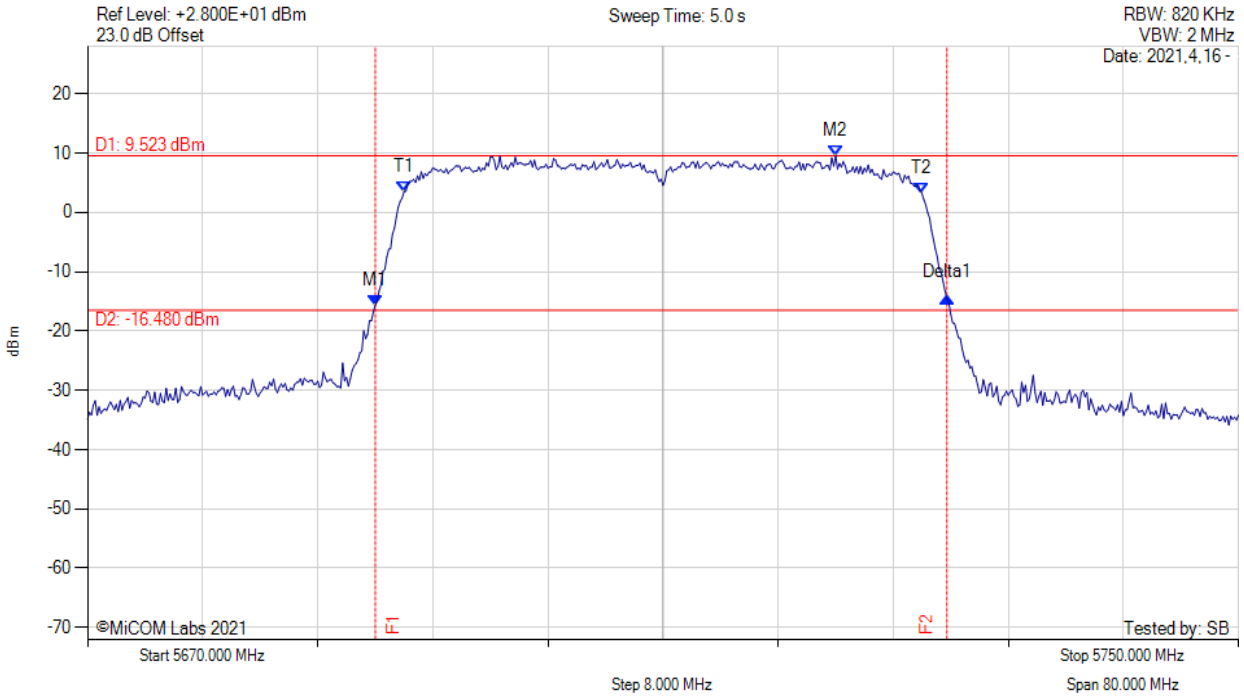


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5689.870 MHz : -15.289 dBm M2 : 5699.870 MHz : 9.885 dBm Delta1 : 39.870 MHz : 0.797 dB T1 : 5691.867 MHz : 4.094 dBm T2 : 5727.867 MHz : 2.852 dBm OBW : 36.022 MHz	Measured 26 dB Bandwidth: 39.870 MHz Measured 99% Bandwidth: 36.022 MHz

back to matrix

26 dB & 99% BANDWIDTH

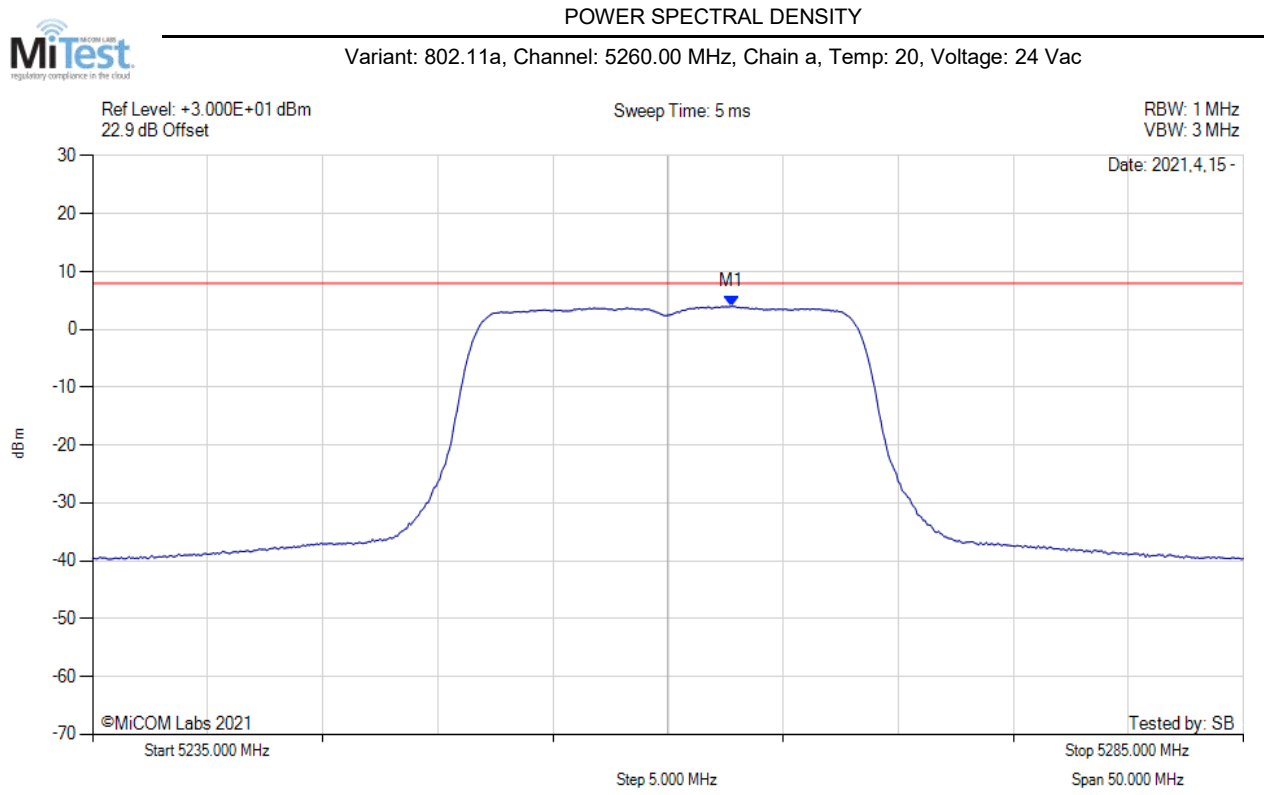
Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5690.000 MHz : -15.664 dBm M2 : 5722.000 MHz : 9.523 dBm Delta1 : 39.730 MHz : 1.251 dB T1 : 5692.000 MHz : 3.492 dBm T2 : 5728.000 MHz : 3.182 dBm OBW : 35.998 MHz	Measured 26 dB Bandwidth: 39.730 MHz Measured 99% Bandwidth: 35.998 MHz

back to matrix

A.2. Power Spectral Density

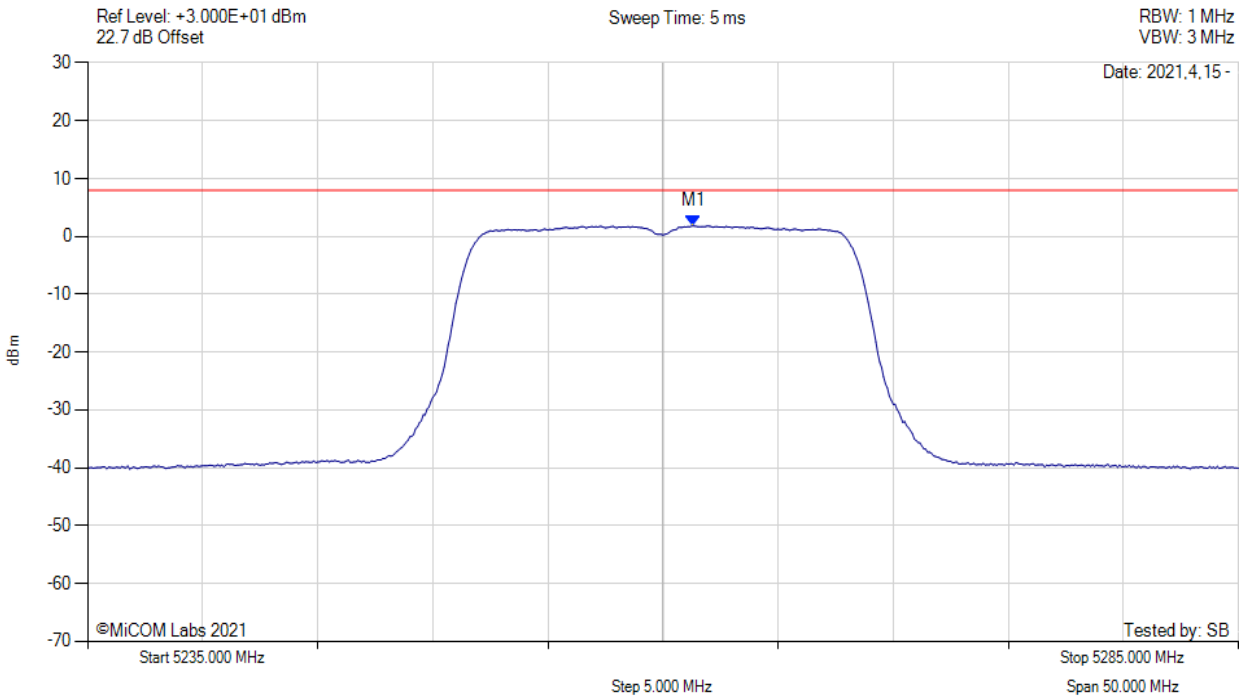


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5262.750 MHz : 3.974 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

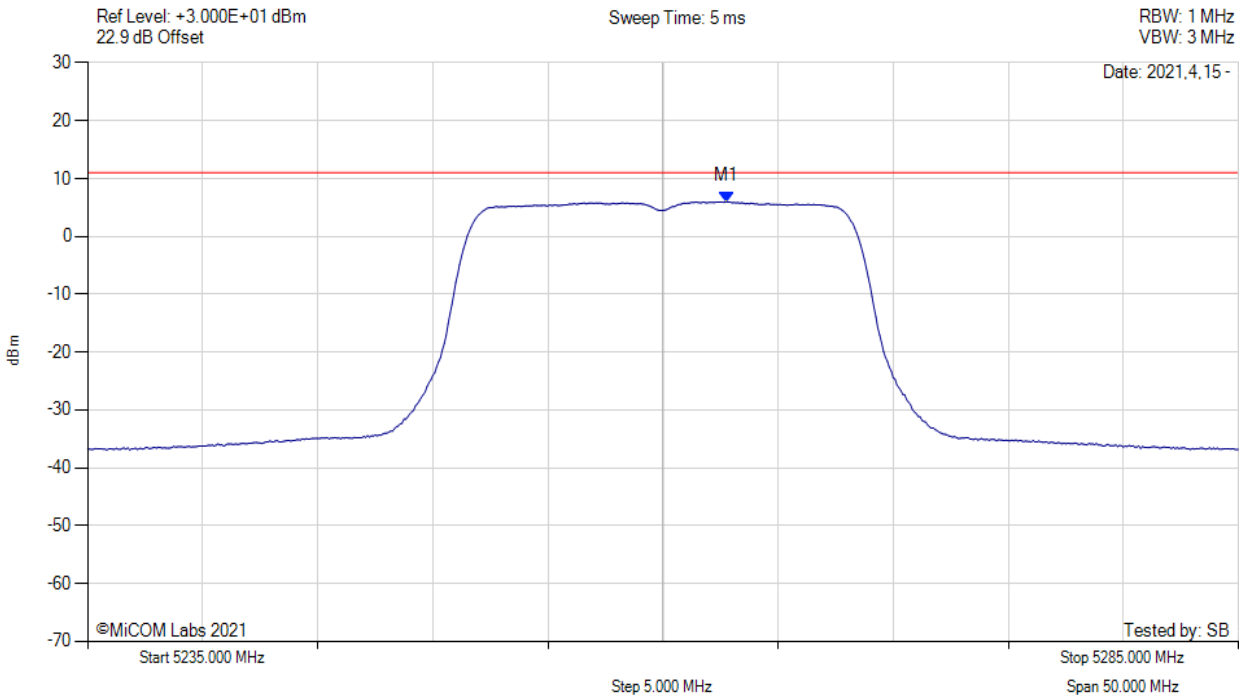


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5261.330 MHz : 1.829 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5260.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

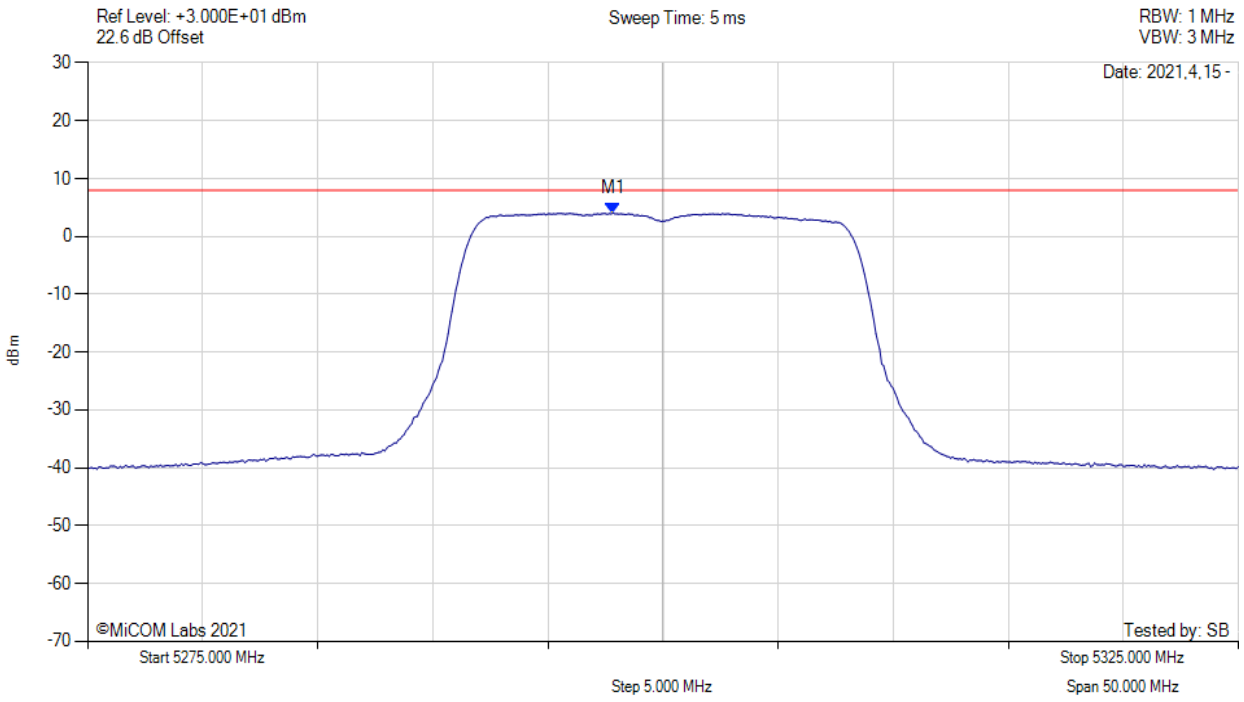


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5262.800 MHz : 6.006 dBm M1 + DCCF : 5262.800 MHz : 6.050 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -5.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

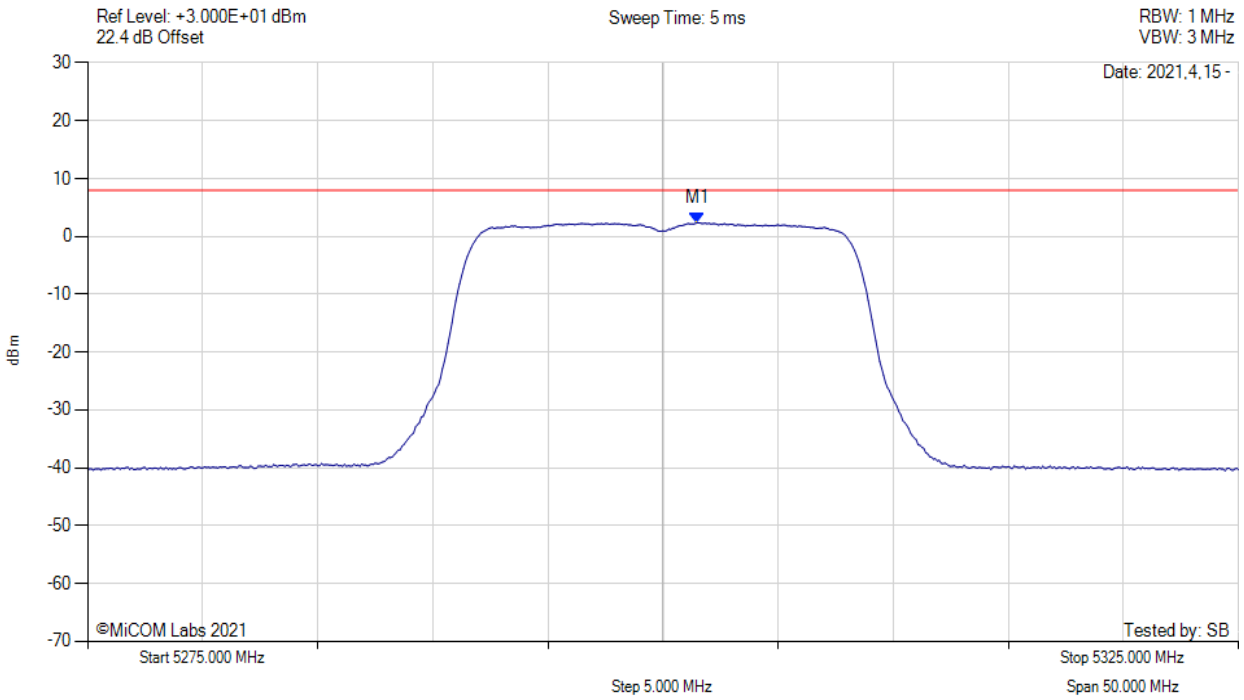


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5297.830 MHz : 4.055 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

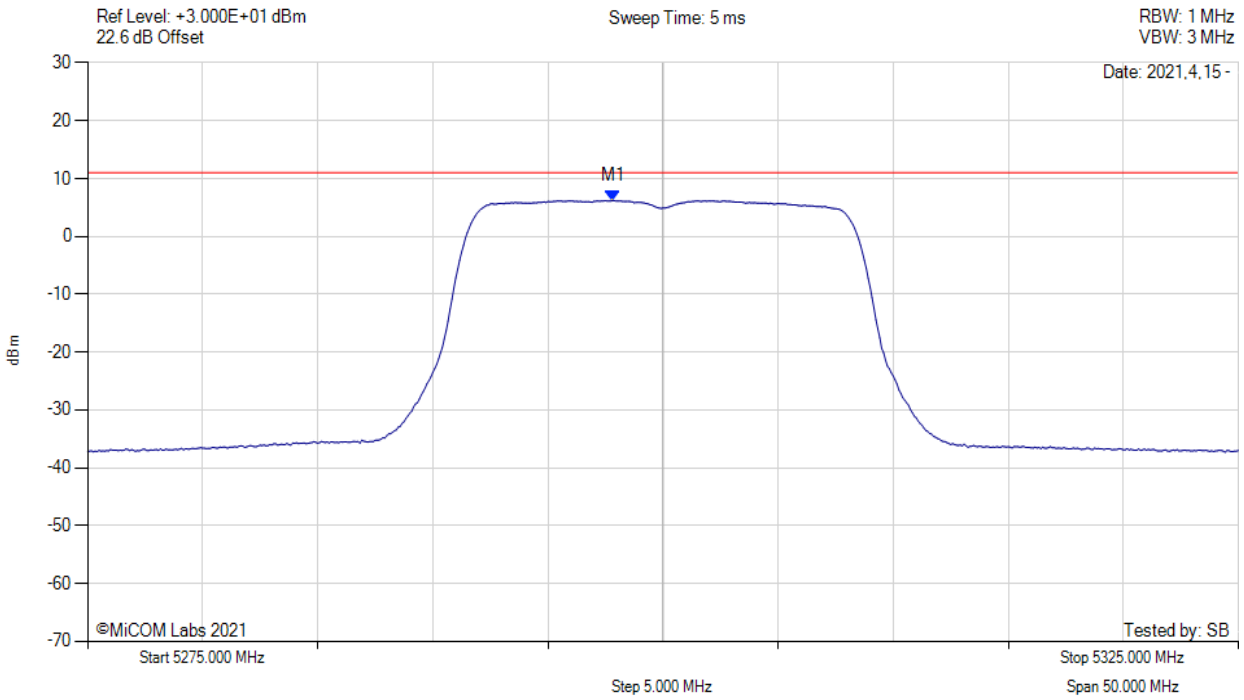


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5301.500 MHz : 2.383 dBm	Channel Frequency: 5300.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5300.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

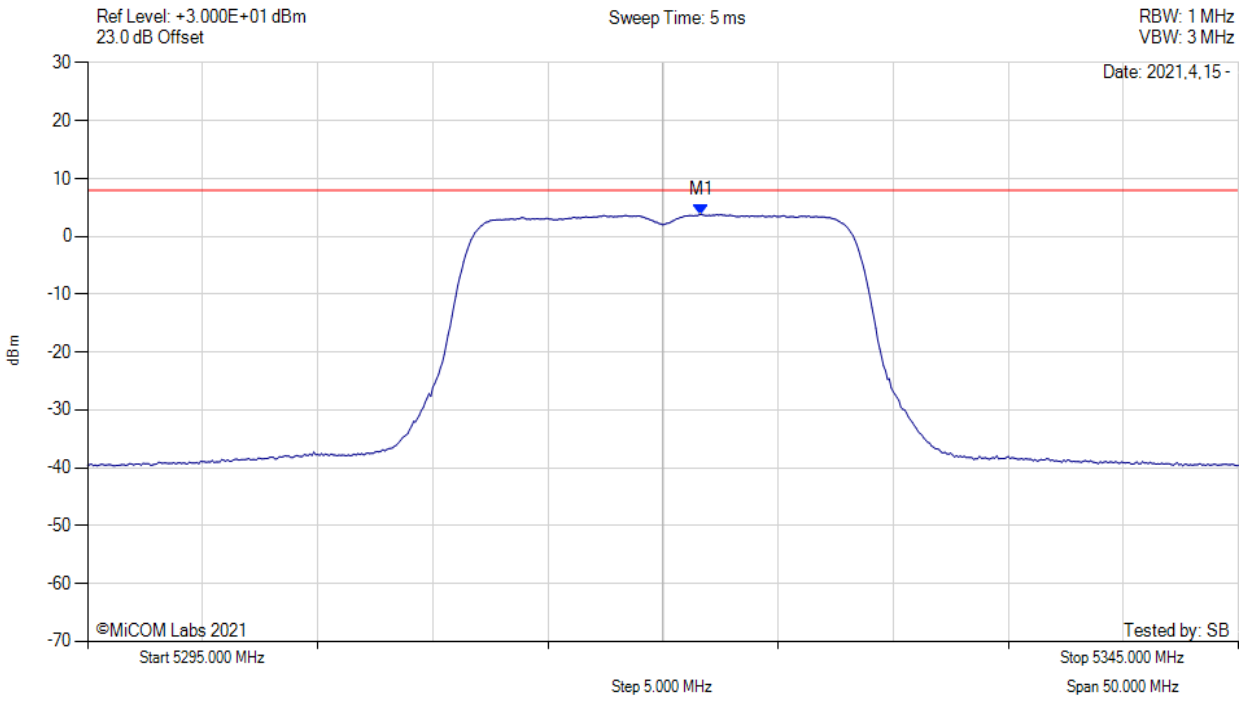


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5297.800 MHz : 6.217 dBm M1 + DCCF : 5297.800 MHz : 6.261 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -4.7 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

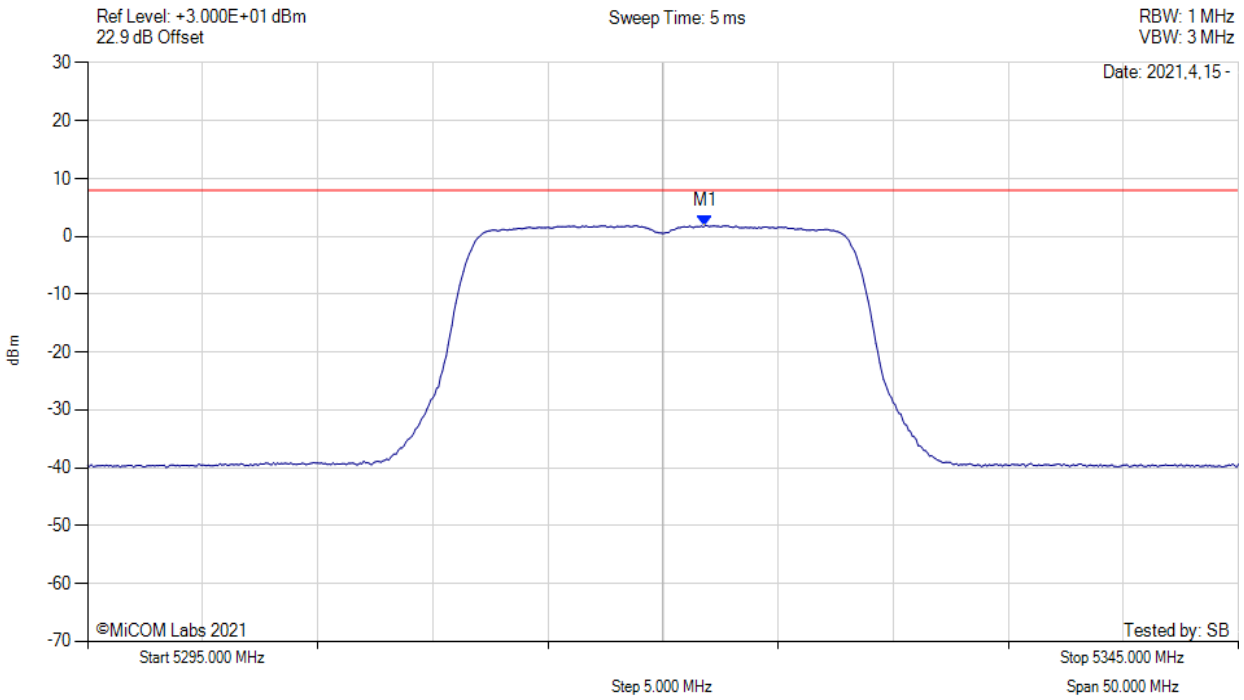


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5321.670 MHz : 3.807 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

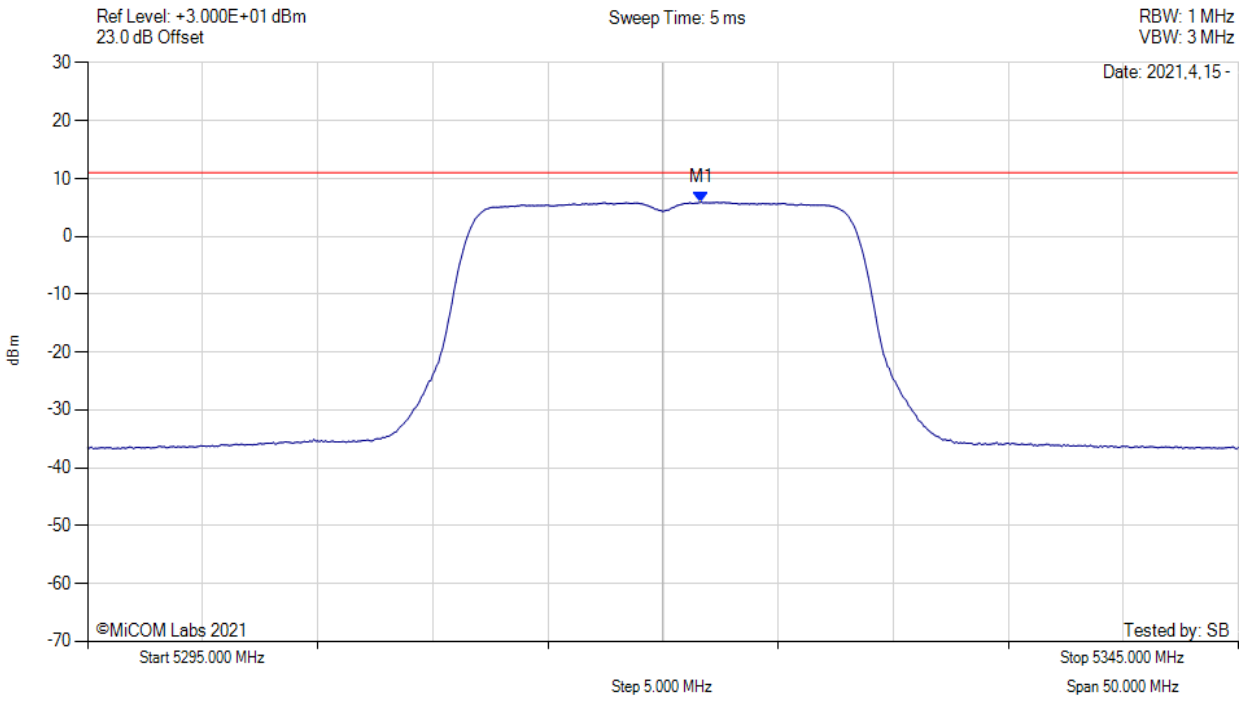


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5321.830 MHz : 1.872 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5320.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

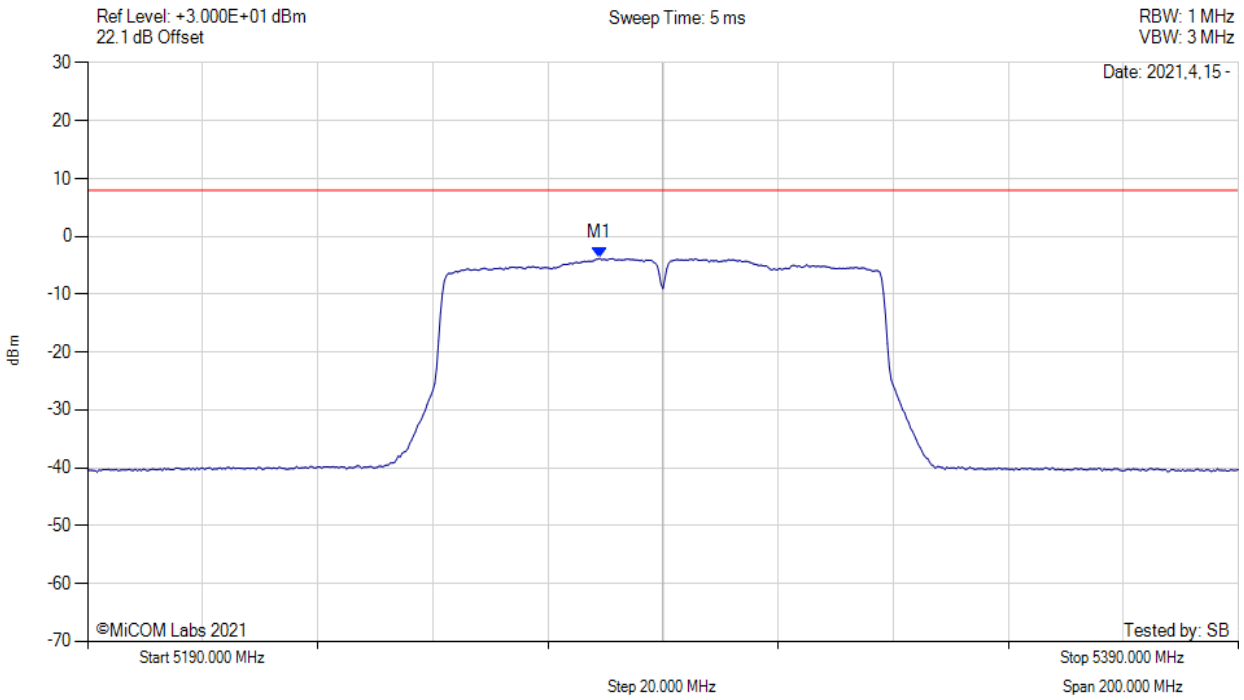


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5321.700 MHz : 5.931 dBm M1 + DCCF : 5321.700 MHz : 5.975 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -5.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

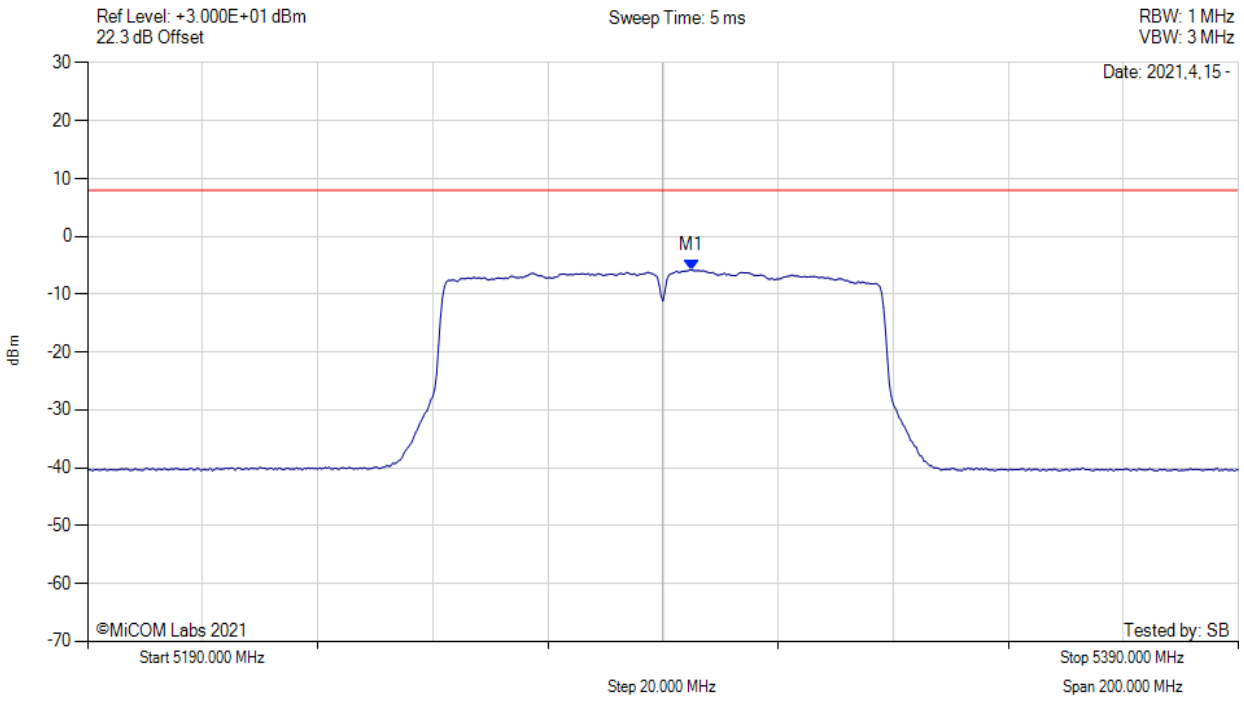


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5279.000 MHz : -3.779 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

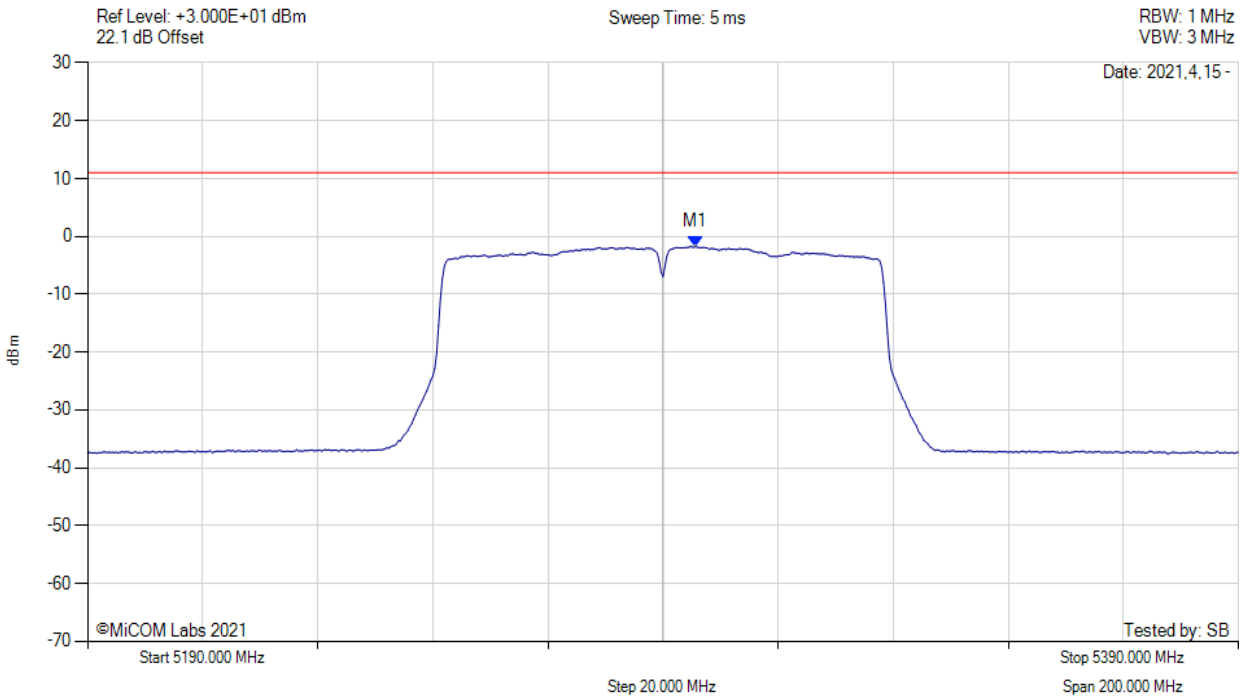


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5295.000 MHz : -5.813 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5290.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

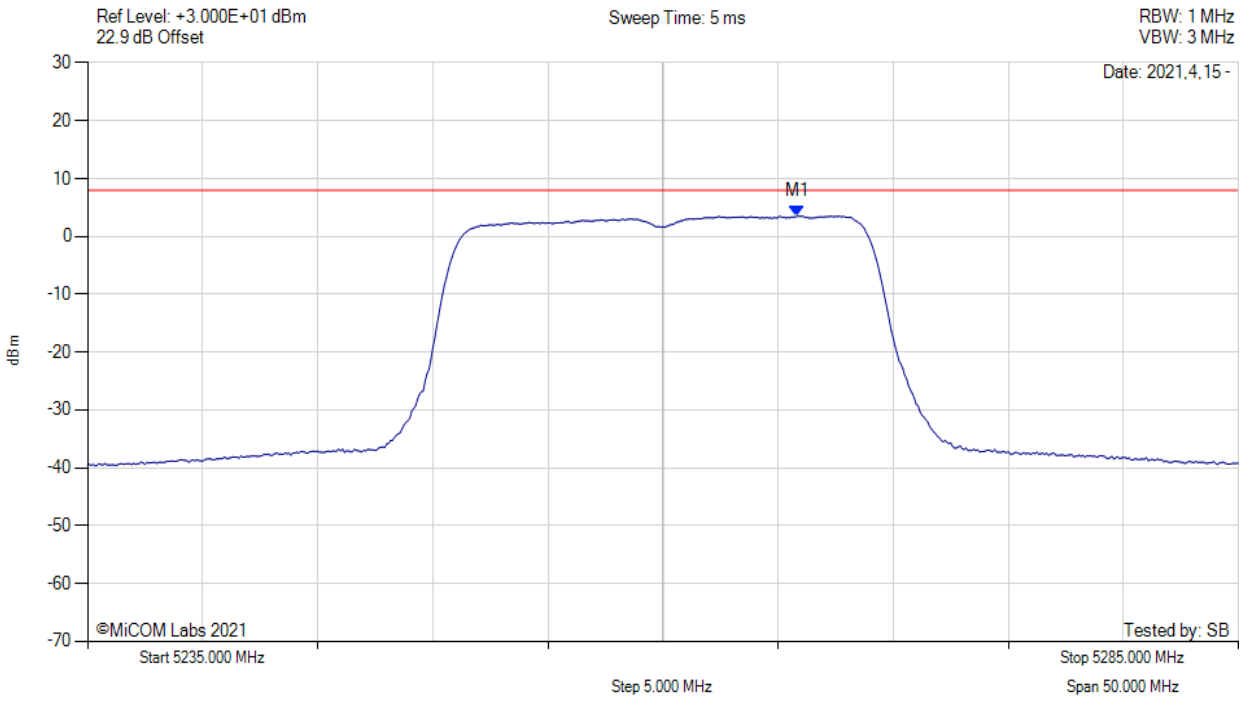


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5295.700 MHz : -1.743 dBm M1 + DCCF : 5295.700 MHz : -0.881 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 11.0 dBm Margin: -11.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

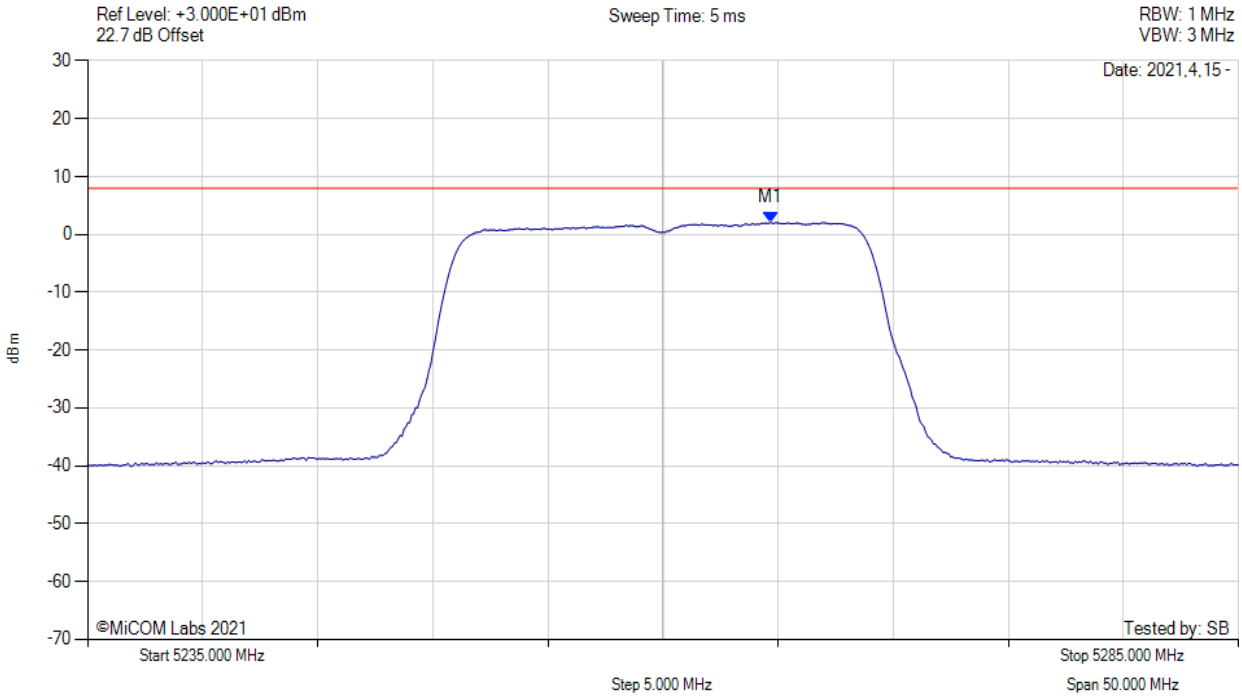


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5265.830 MHz : 3.550 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

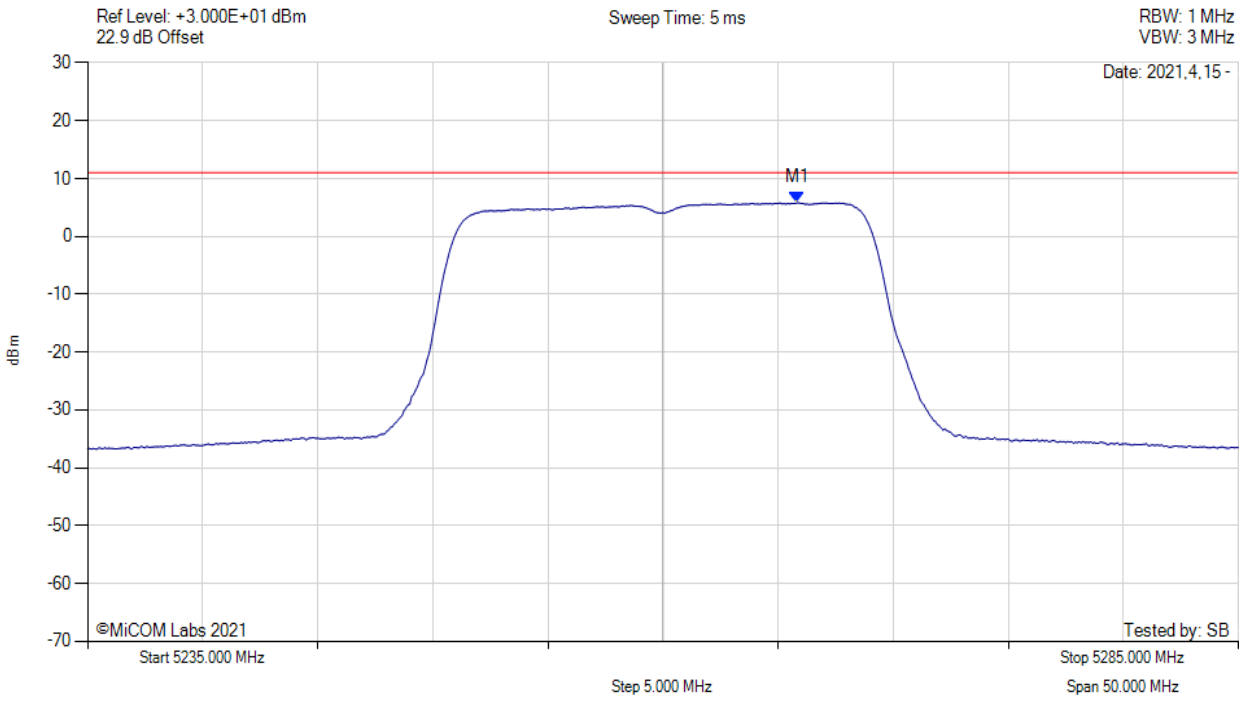


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5264.670 MHz : 2.092 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5260.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

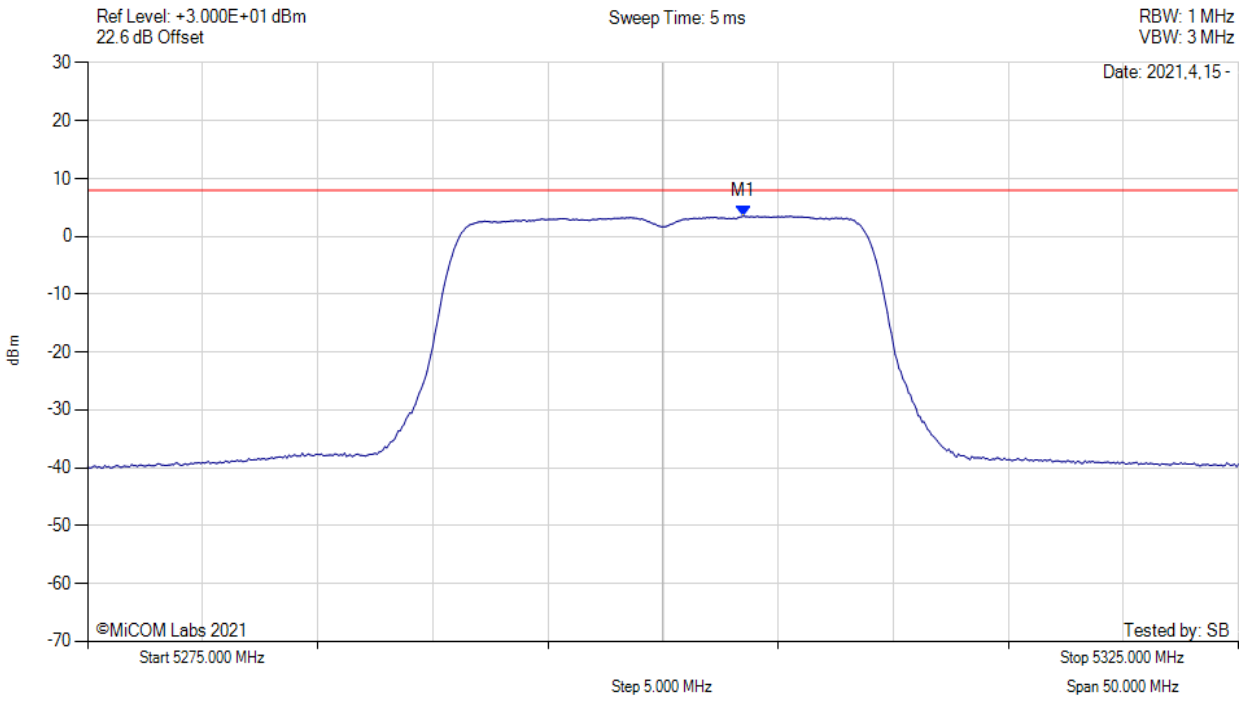


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5265.800 MHz : 5.845 dBm M1 + DCCF : 5265.800 MHz : 6.068 dBm Duty Cycle Correction Factor : +0.22 dB	Limit: ≤ 11.0 dBm Margin: -4.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

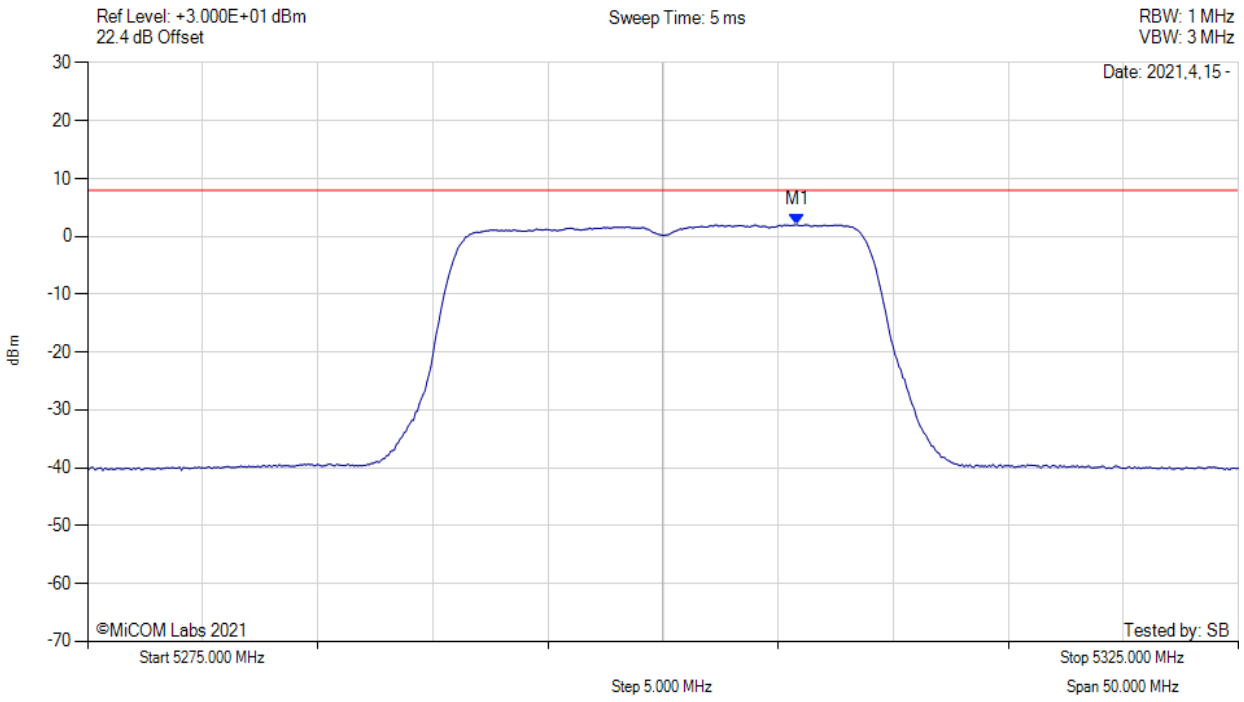


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5303.500 MHz : 3.508 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

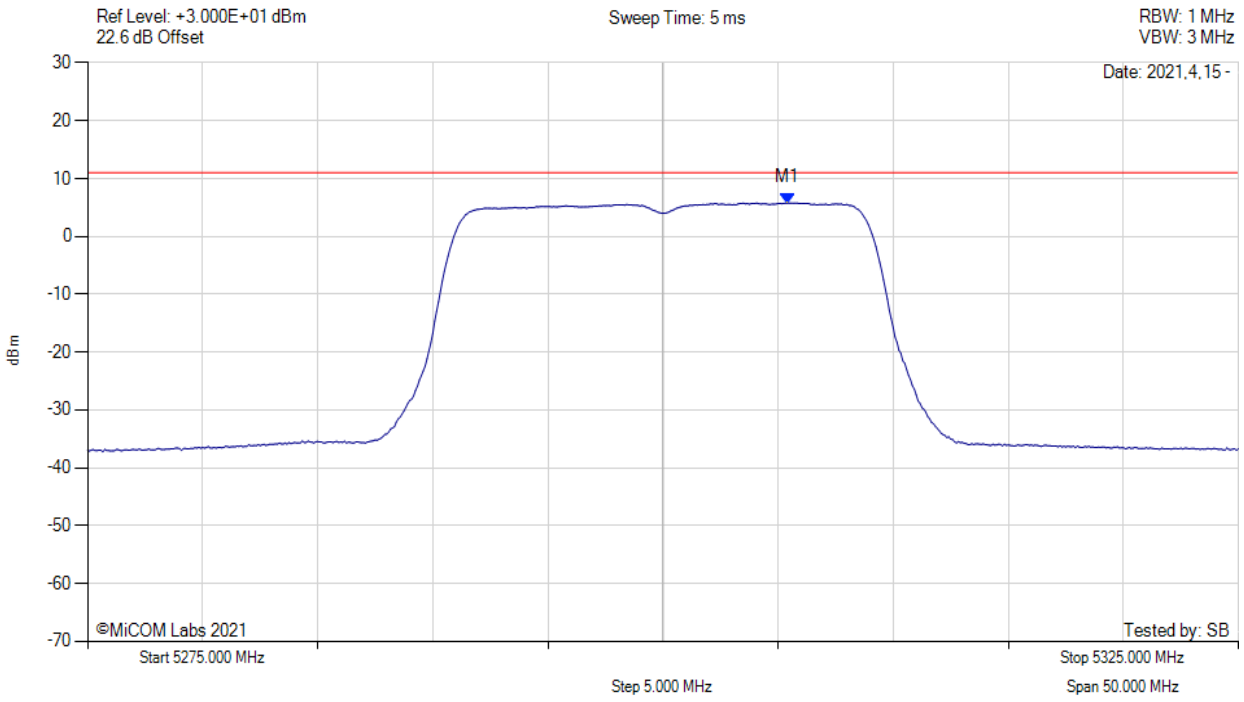


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5305.830 MHz : 2.019 dBm	Channel Frequency: 5300.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5300.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

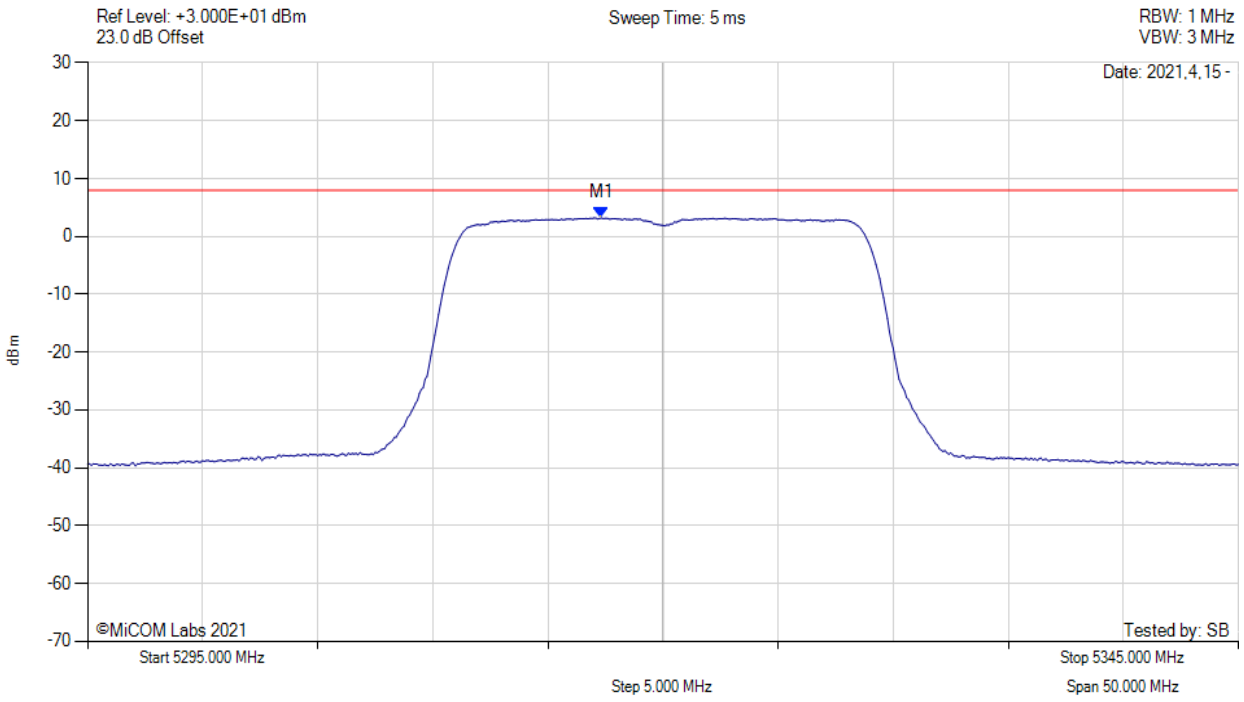


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5305.400 MHz : 5.770 dBm M1 + DCCF : 5305.400 MHz : 5.993 dBm Duty Cycle Correction Factor : +0.22 dB	Limit: ≤ 11.0 dBm Margin: -5.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

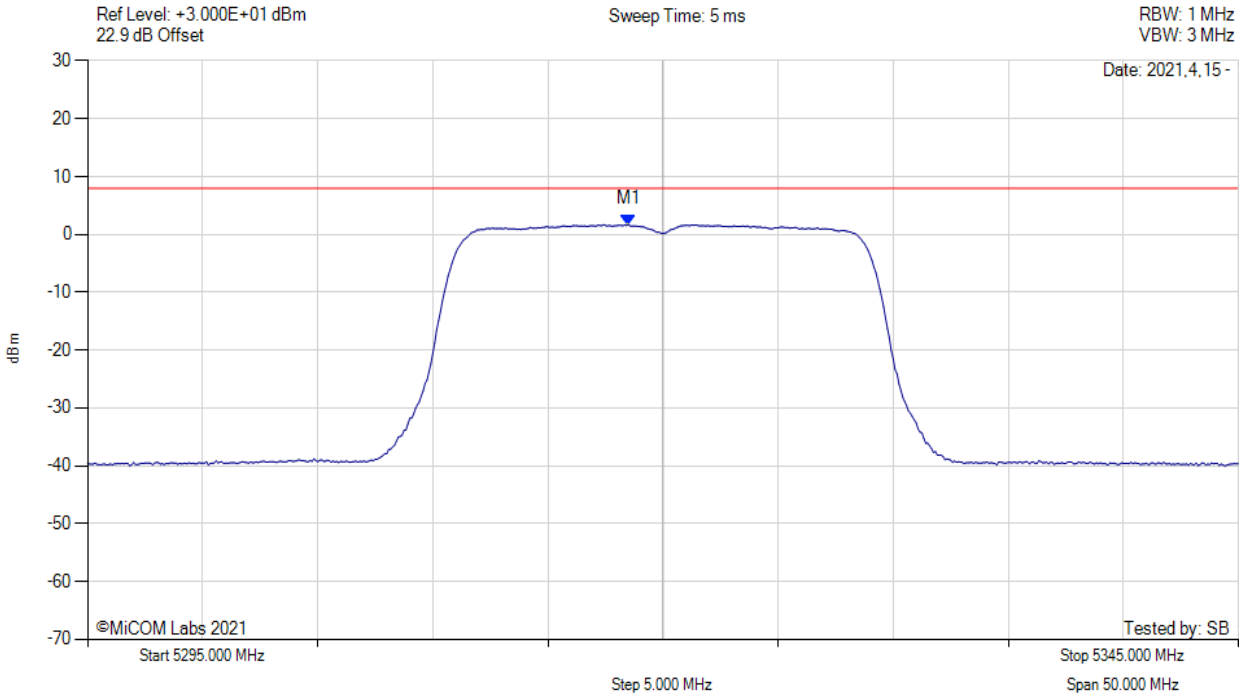


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5317.330 MHz : 3.187 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

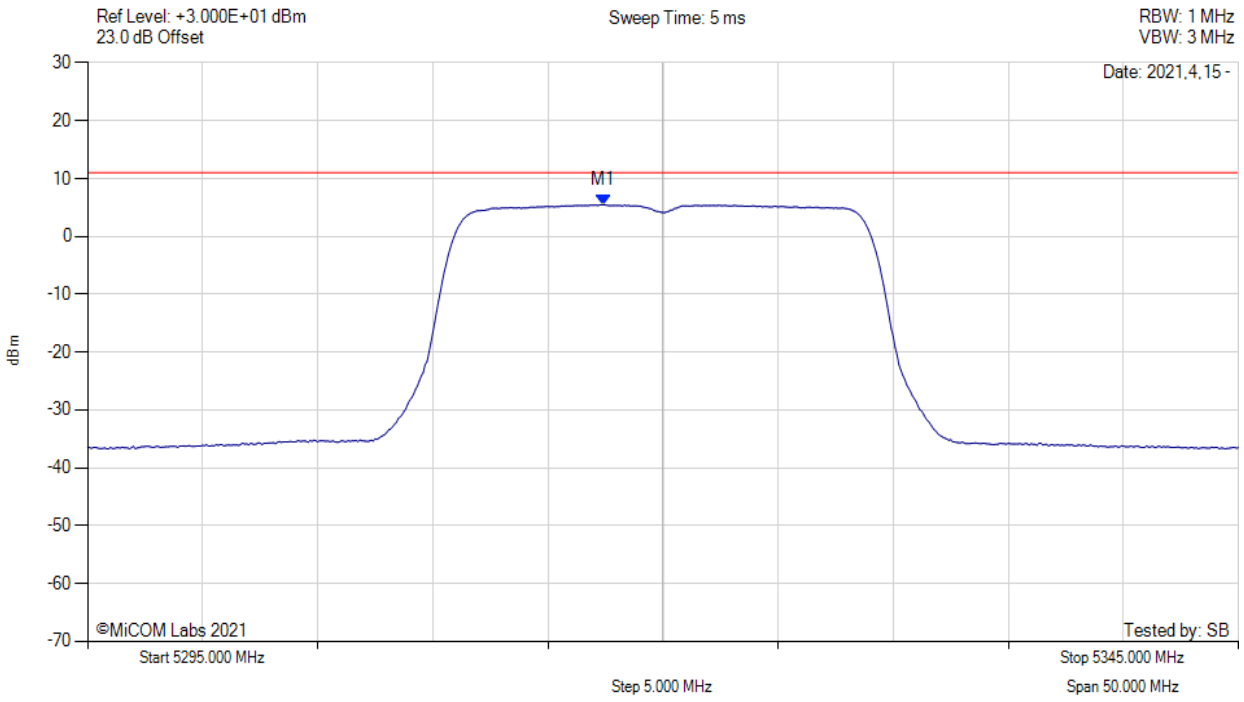


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5318.500 MHz : 1.704 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5320.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

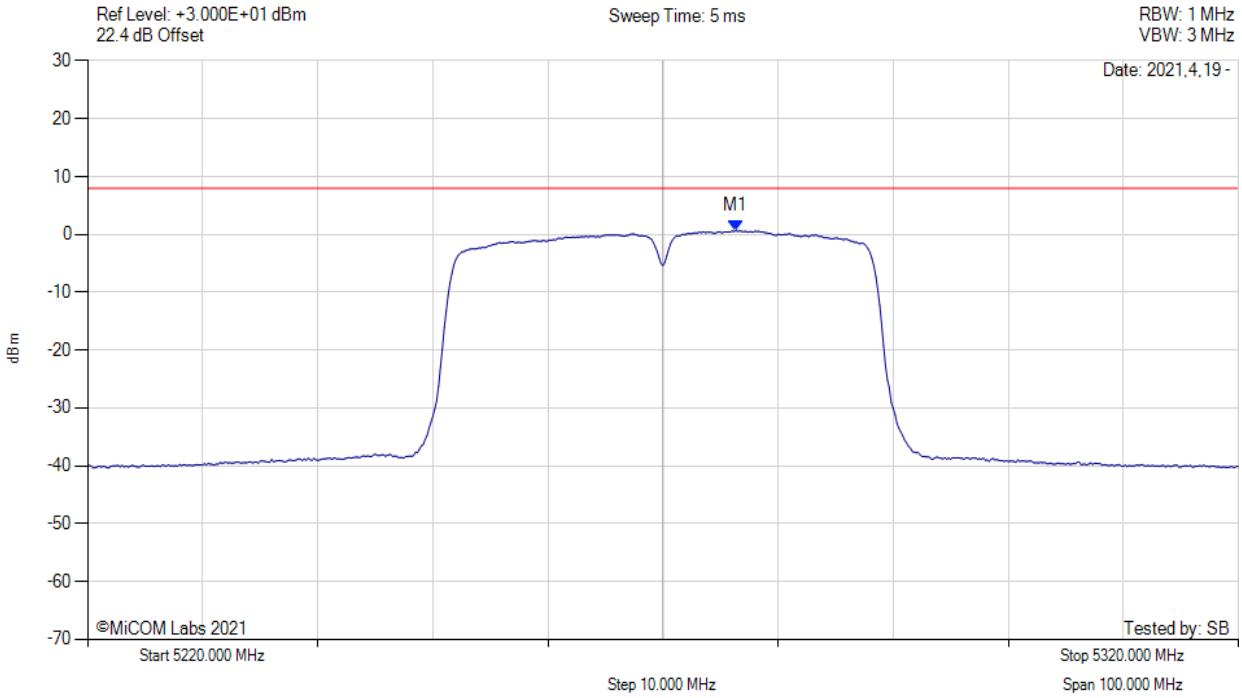


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5317.400 MHz : 5.456 dBm M1 + DCCF : 5317.400 MHz : 5.679 dBm Duty Cycle Correction Factor : +0.22 dB	Limit: ≤ 11.0 dBm Margin: -5.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

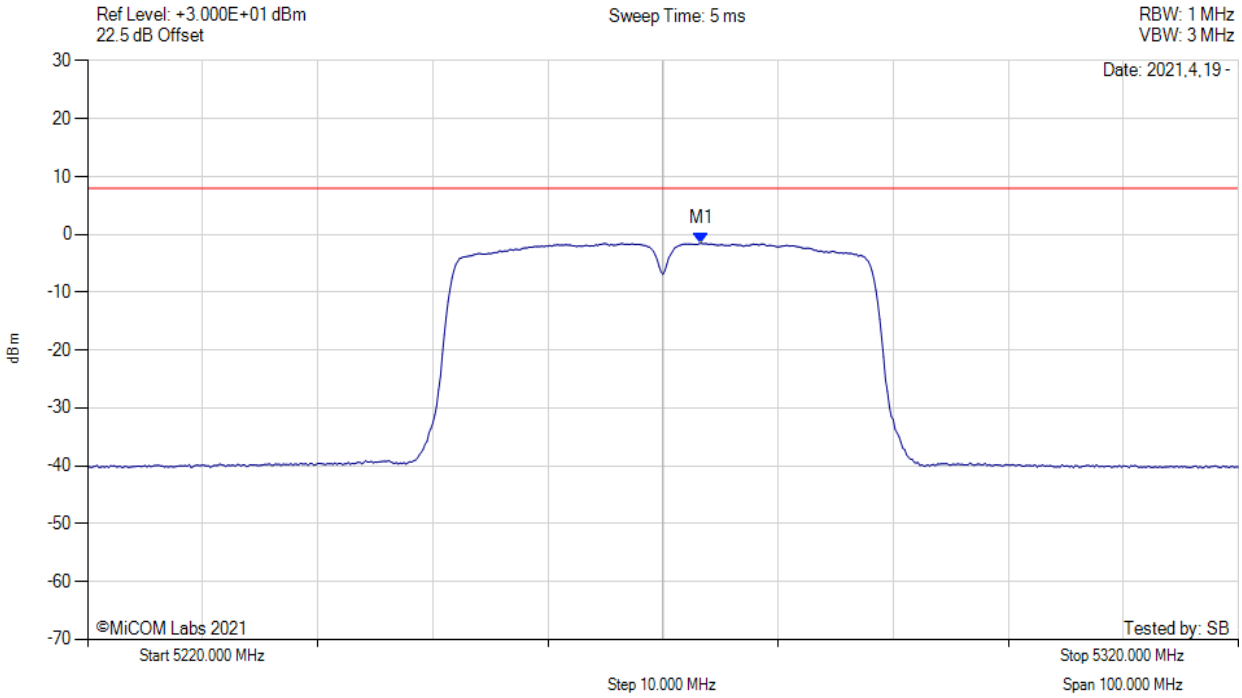


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5276.330 MHz : 0.672 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

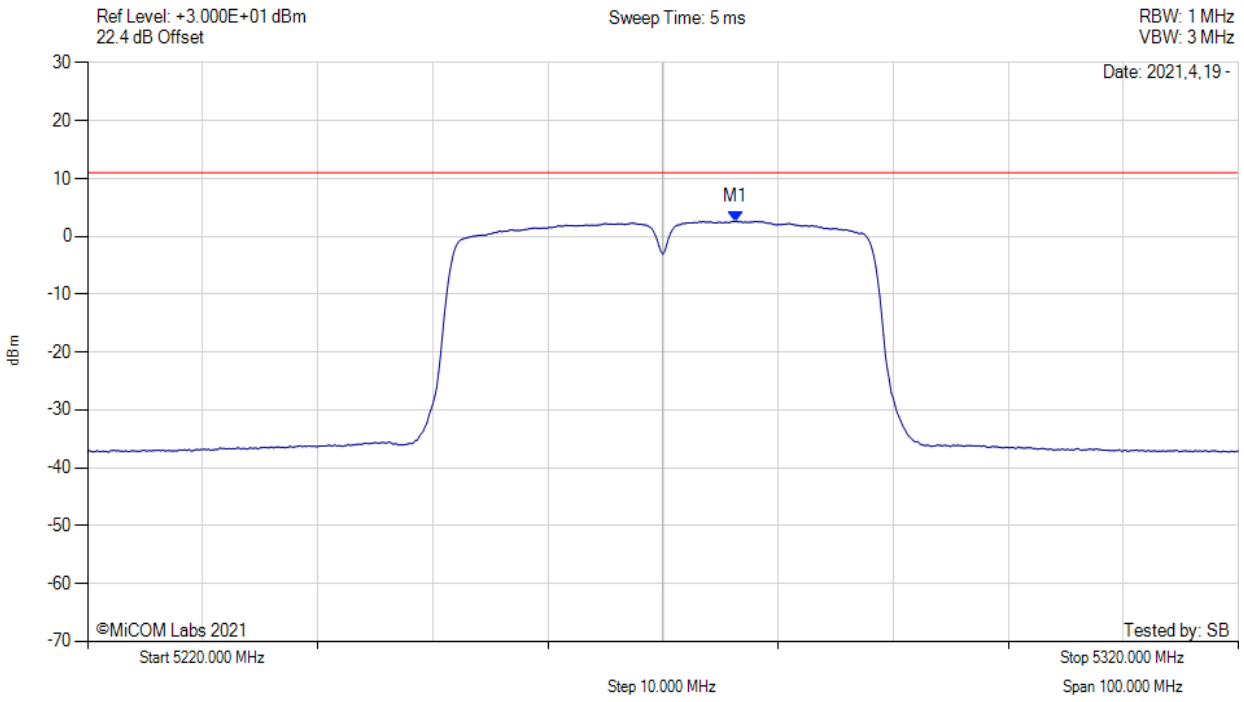


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5273.330 MHz : -1.558 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5270.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

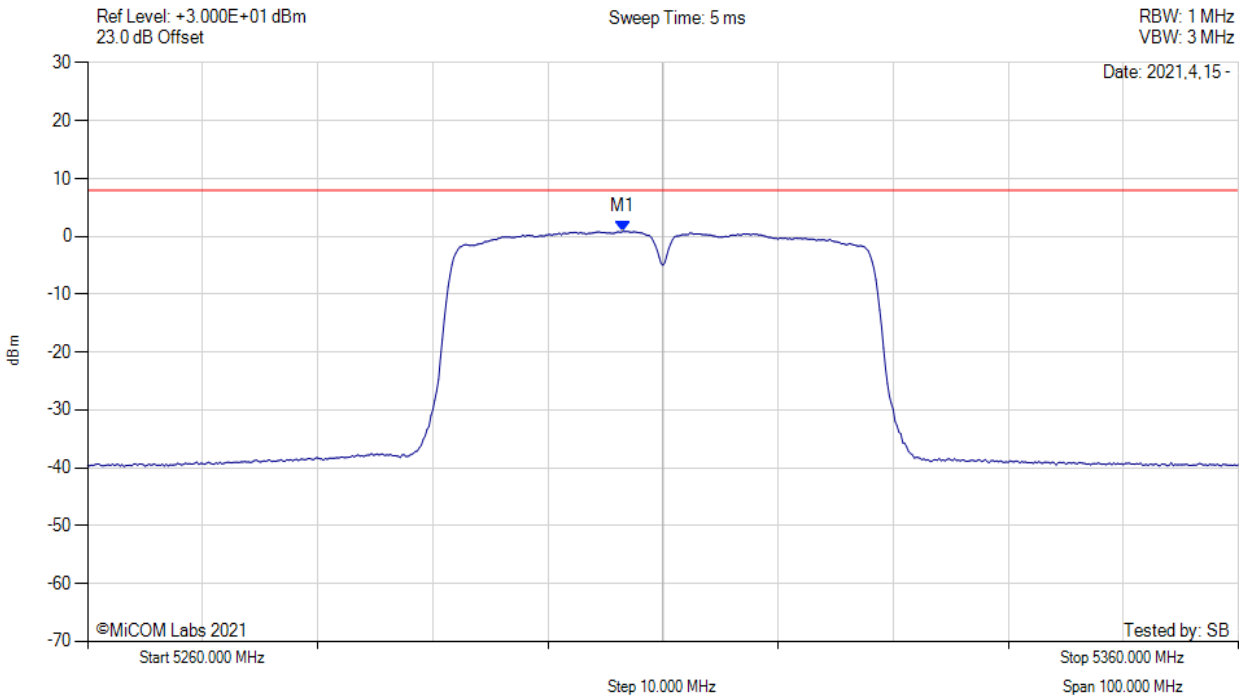


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5276.300 MHz : 2.622 dBm M1 + DCCF : 5276.300 MHz : 2.984 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -8.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

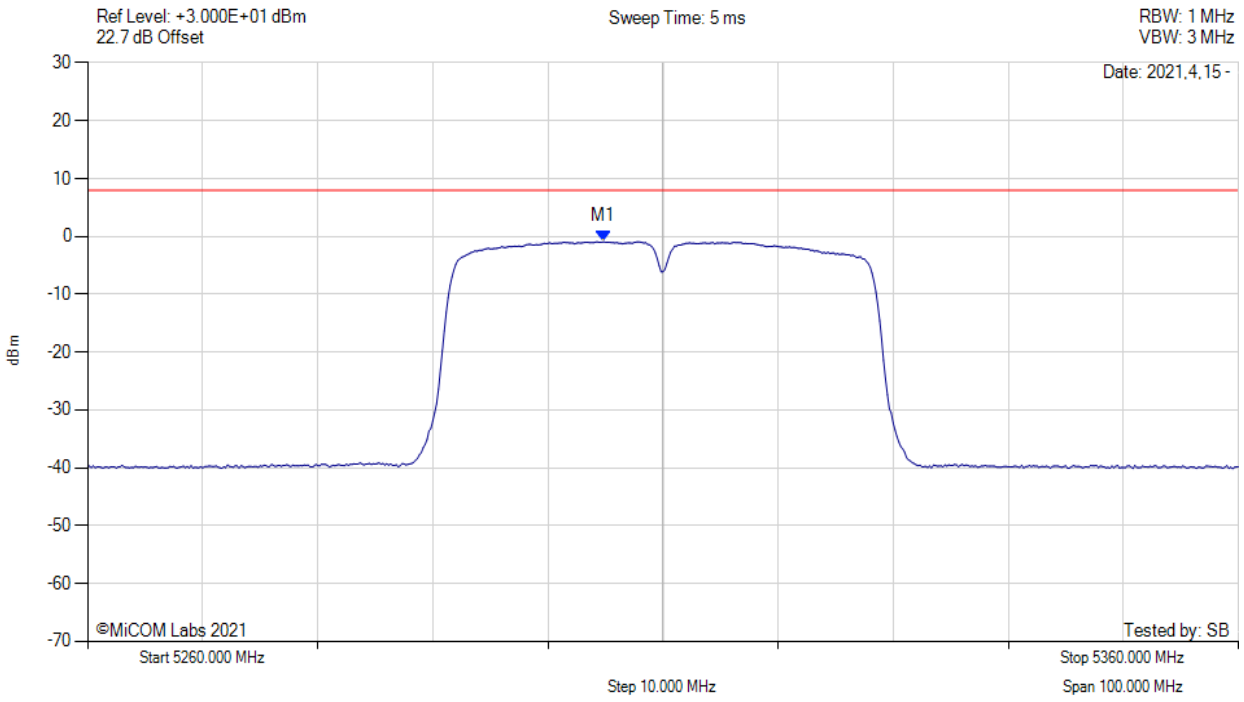


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5306.500 MHz : 0.857 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

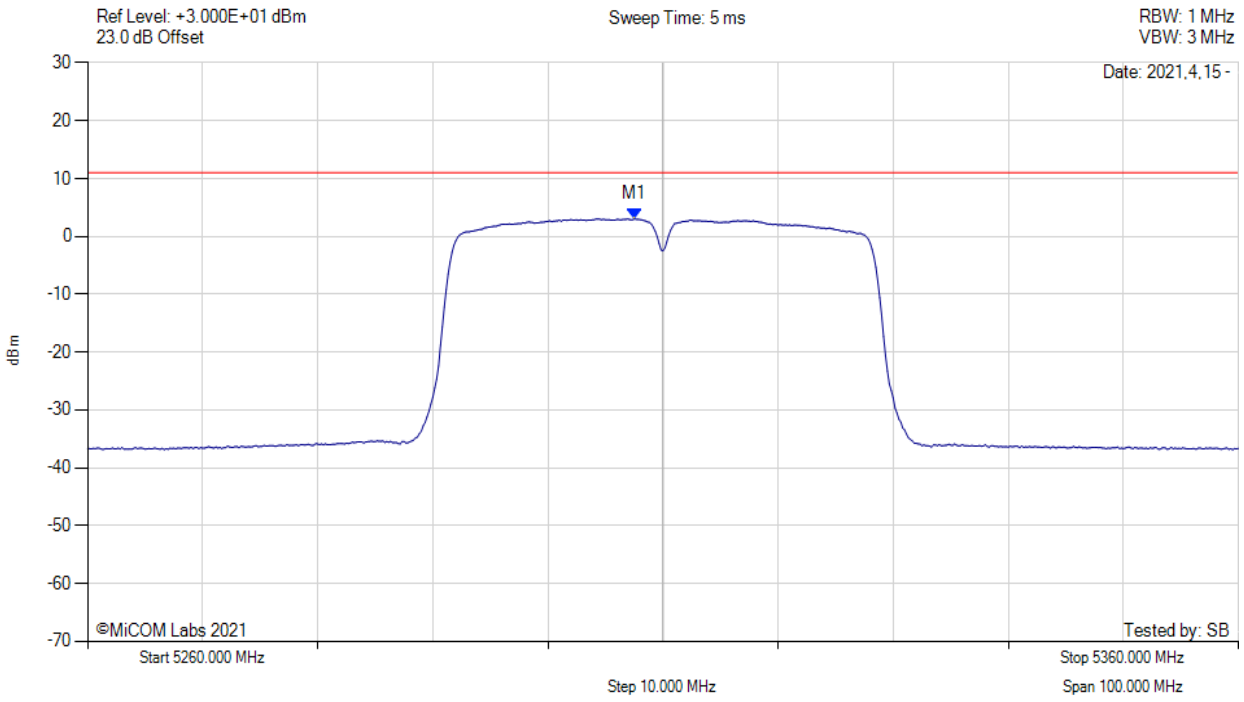


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5304.830 MHz : -0.918 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5310.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

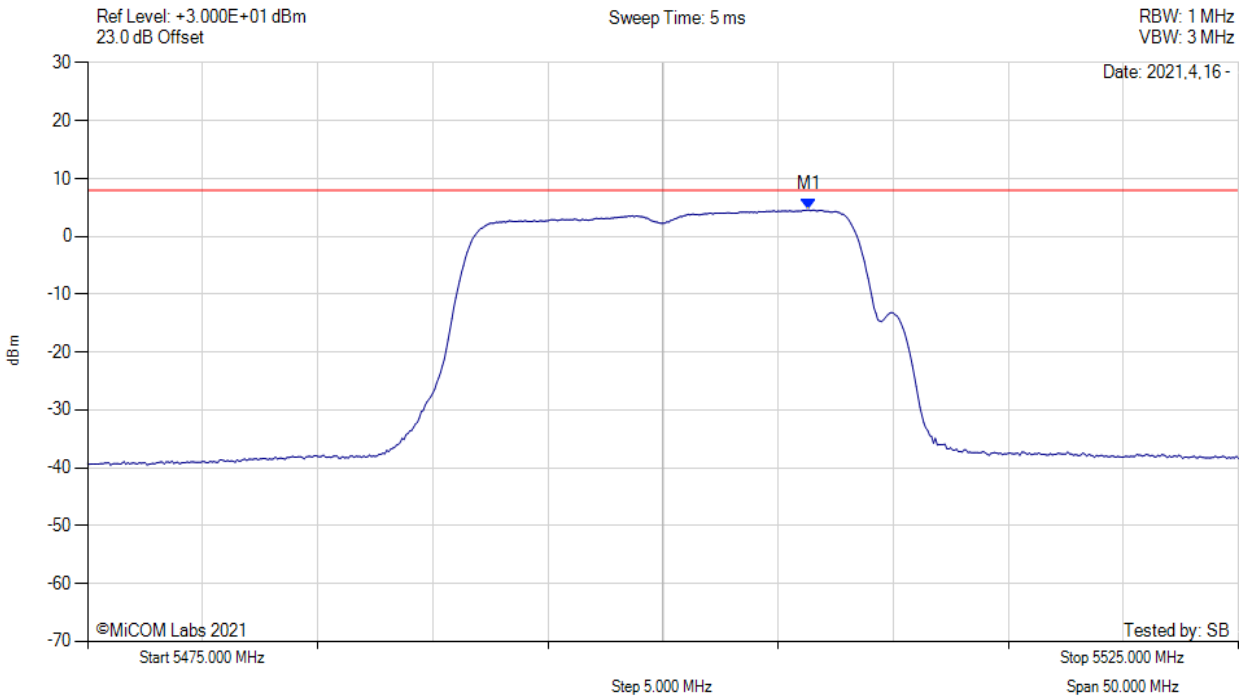


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5307.500 MHz : 3.001 dBm M1 + DCCF : 5307.500 MHz : 3.863 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 11.0 dBm Margin: -7.1 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

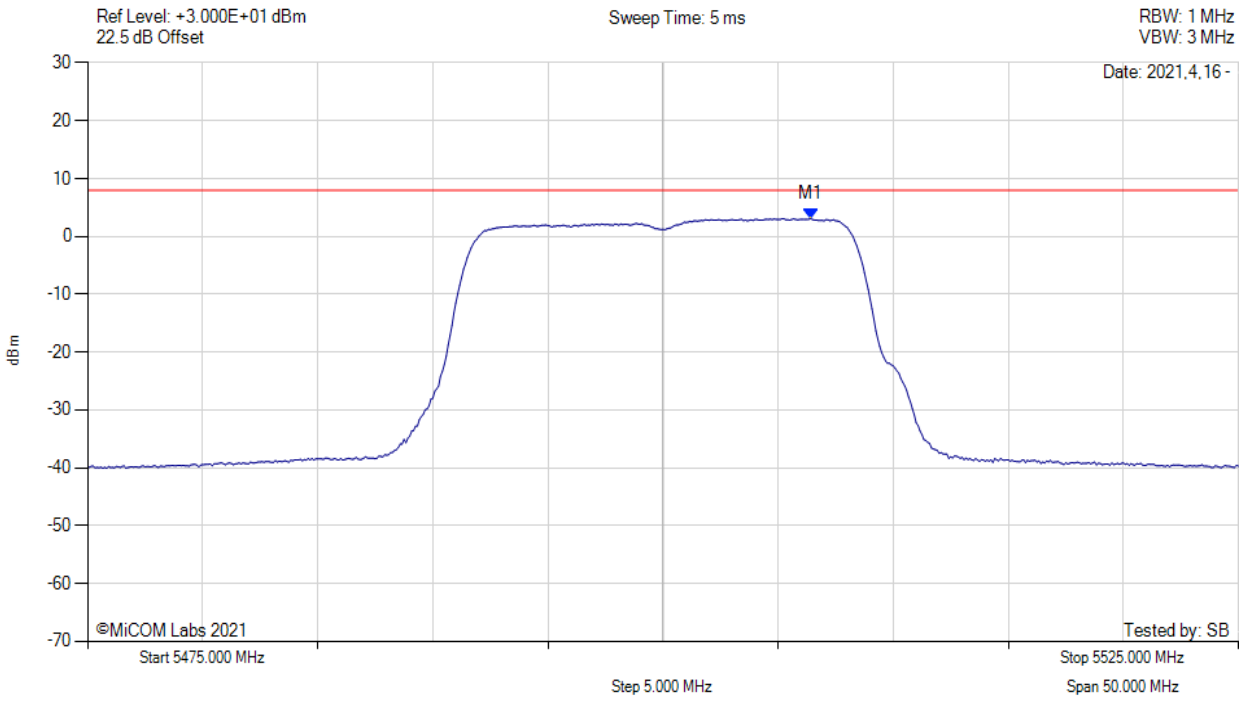


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5506.330 MHz : 4.586 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

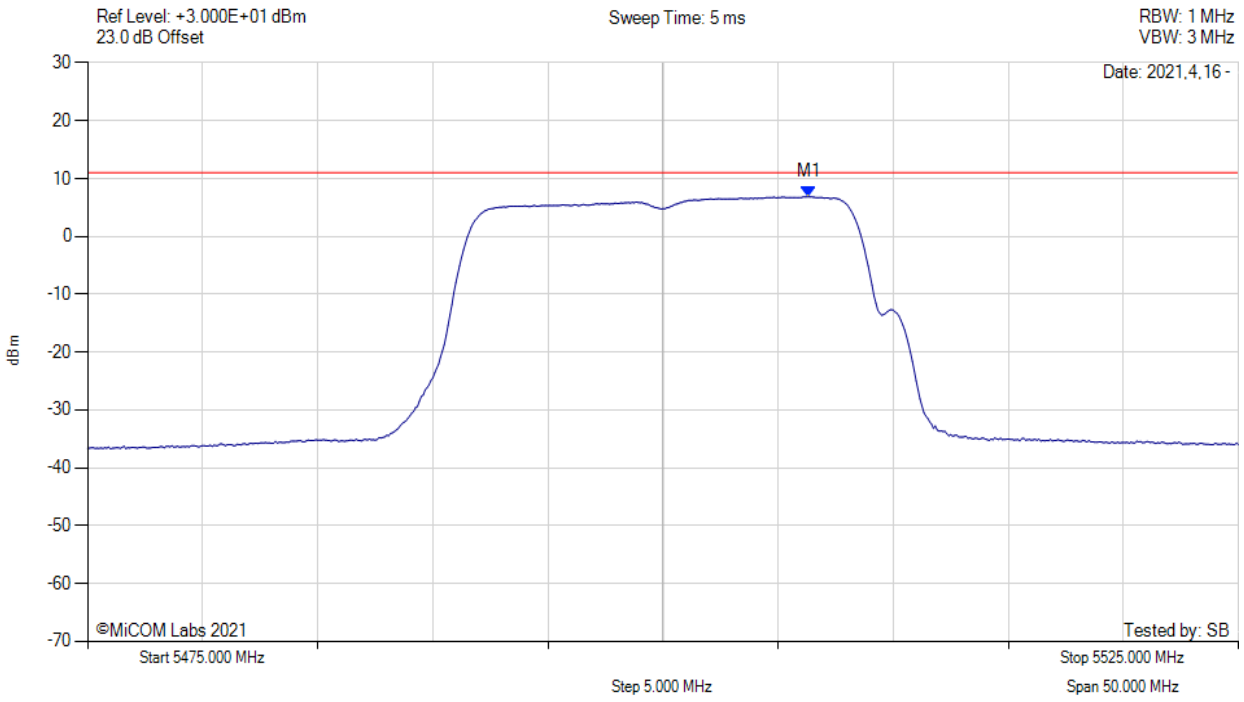


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5506.420 MHz : 3.082 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5500.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

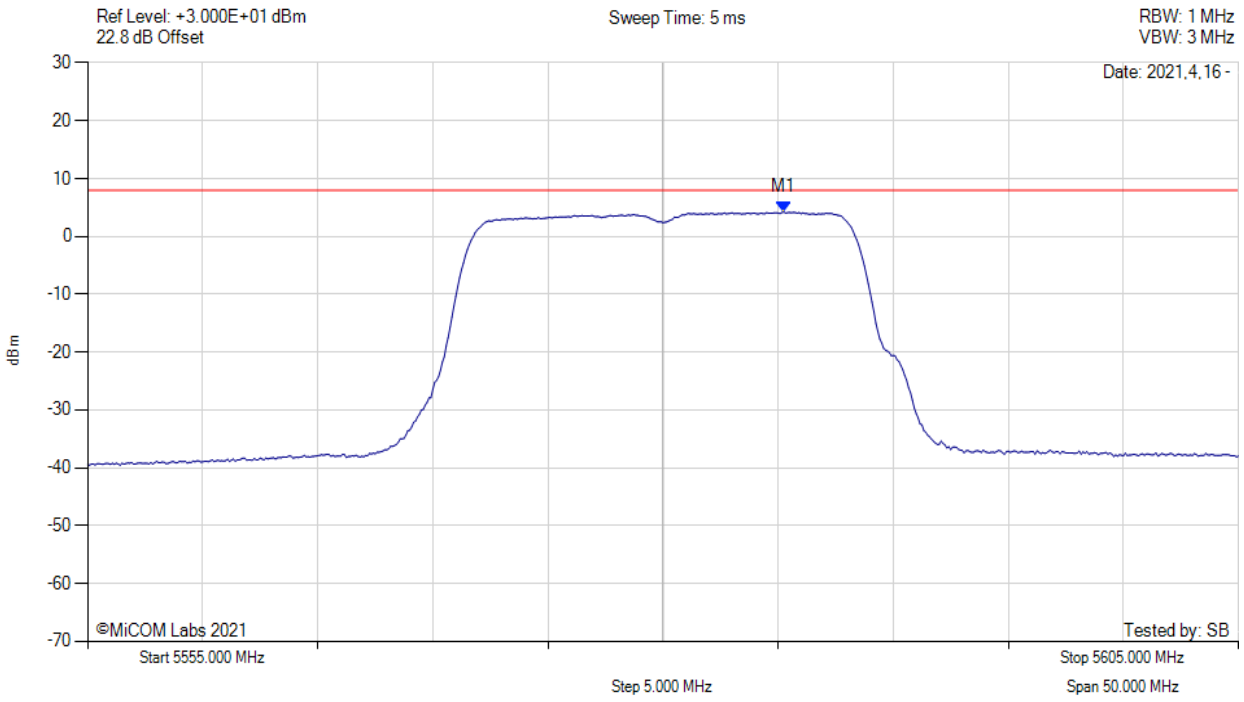


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5506.300 MHz : 6.863 dBm M1 + DCCF : 5506.300 MHz : 6.907 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -4.1 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

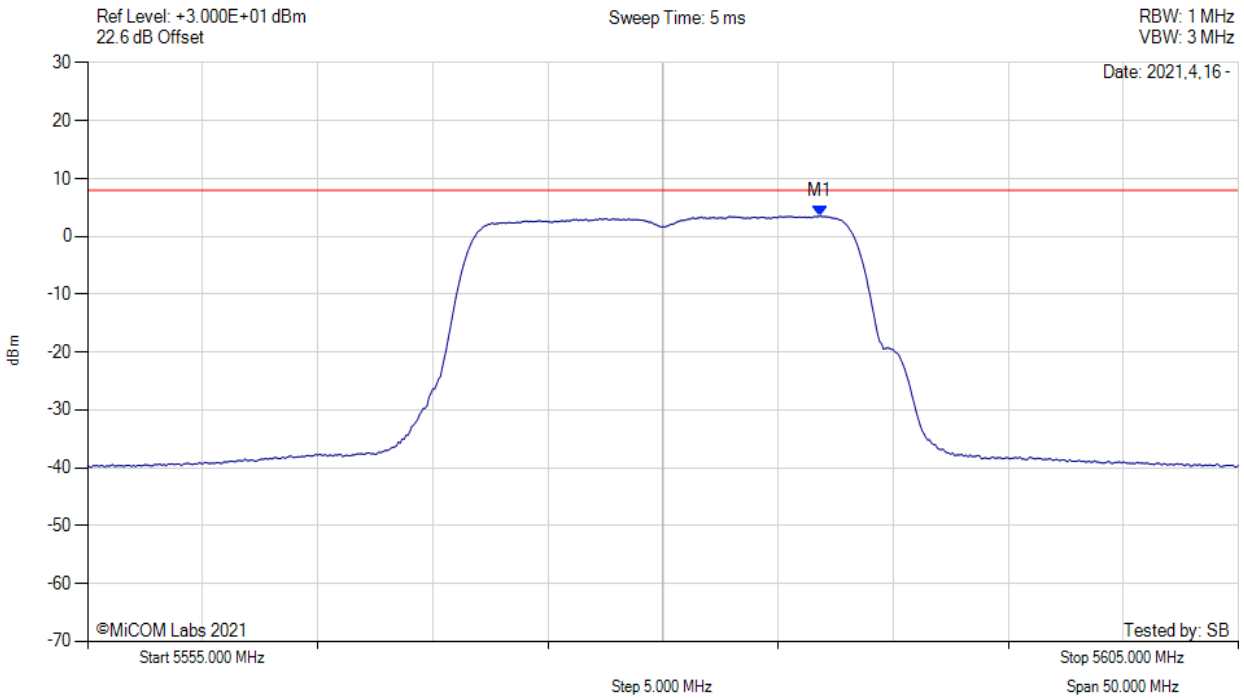


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5585.250 MHz : 4.216 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

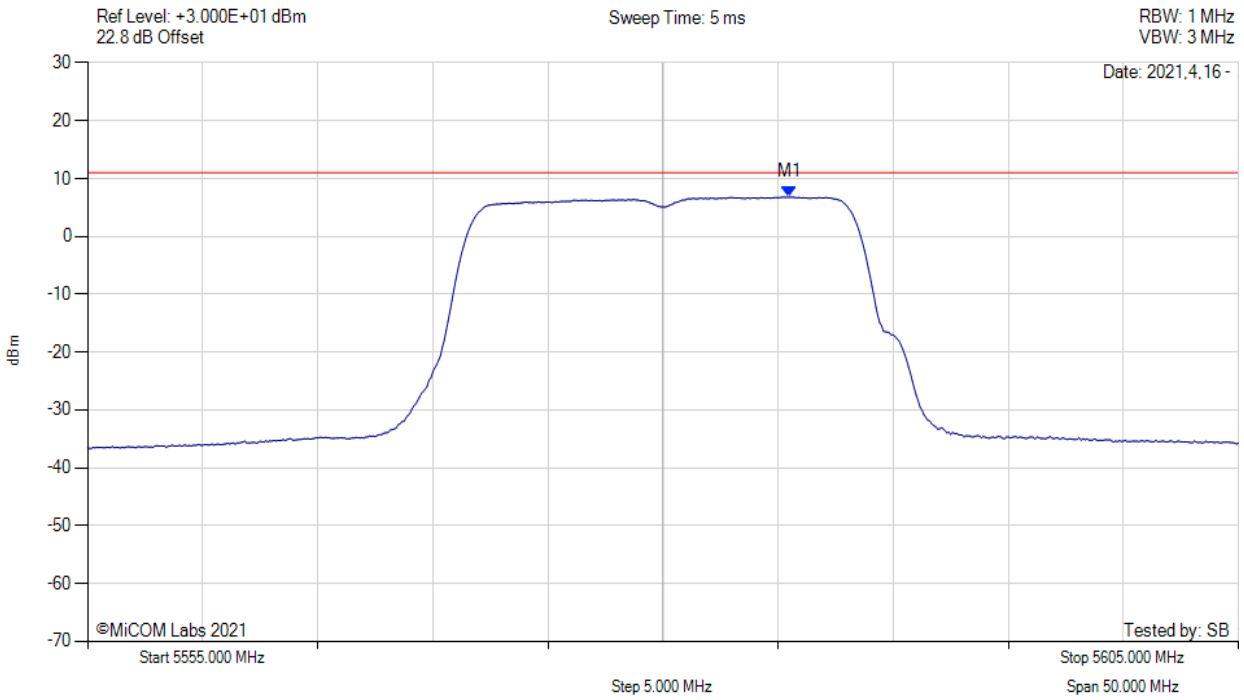


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5586.830 MHz : 3.504 dBm	Channel Frequency: 5580.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5580.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

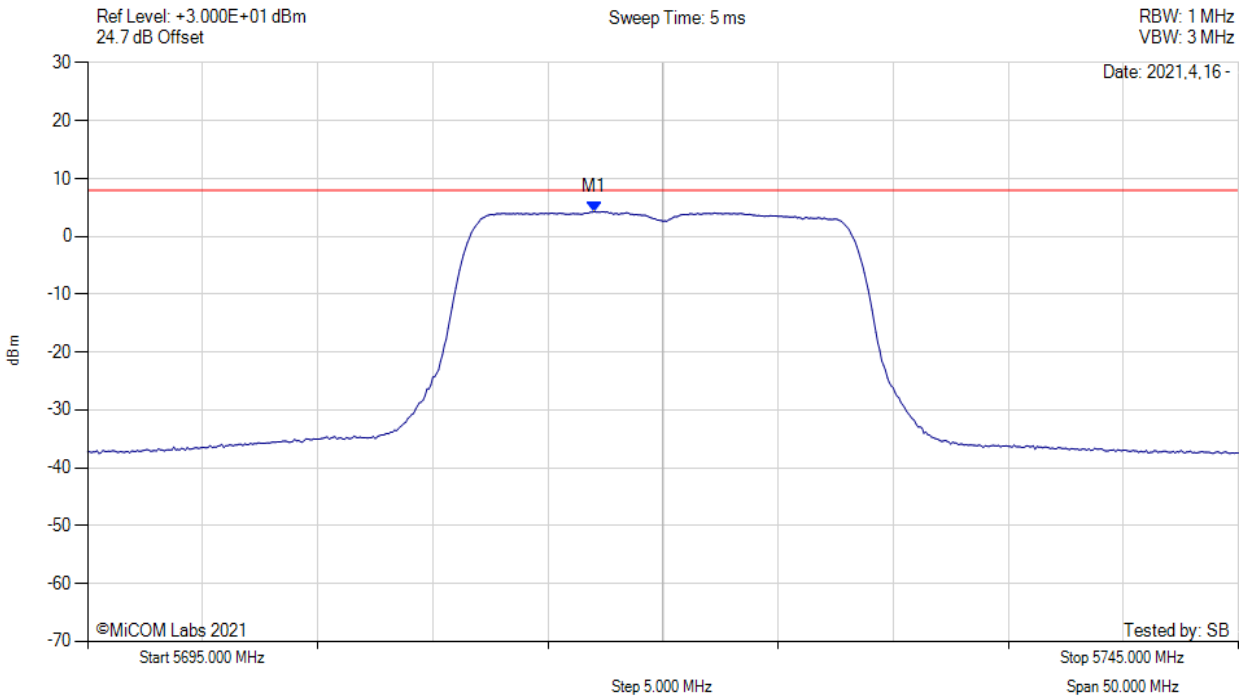


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5585.500 MHz : 6.812 dBm M1 + DCCF : 5585.500 MHz : 6.856 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -4.2 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

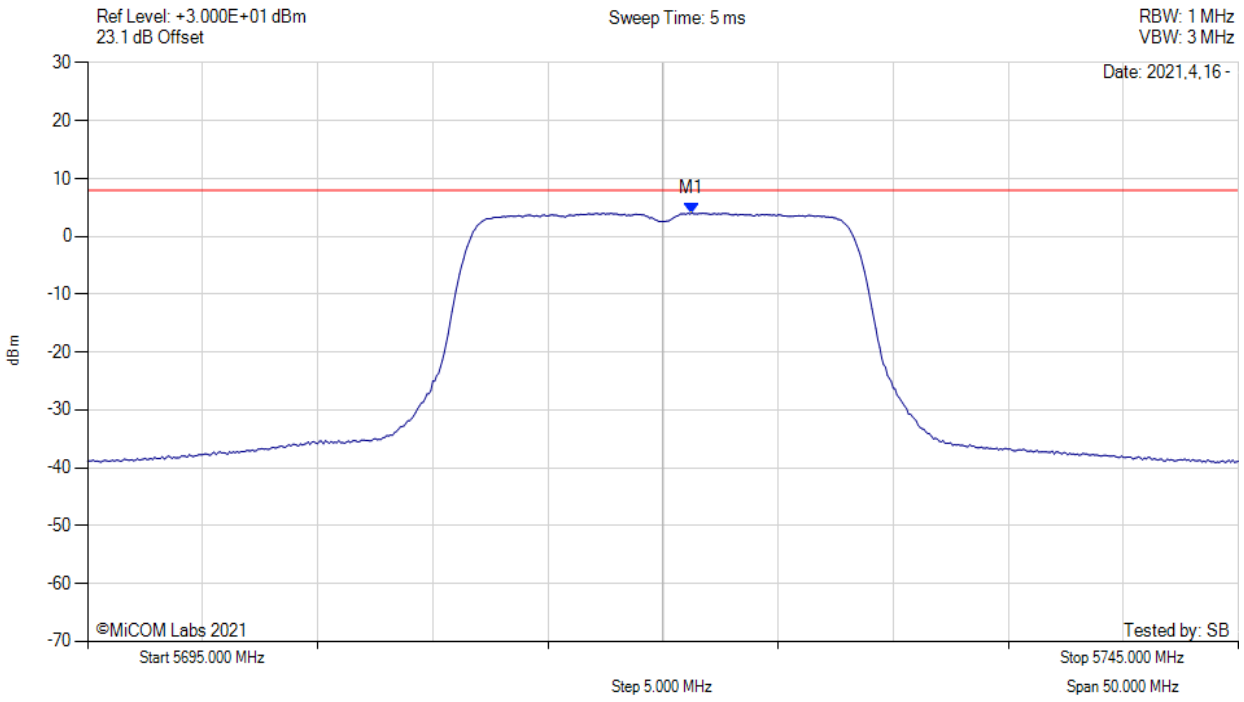


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5717.000 MHz : 4.288 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

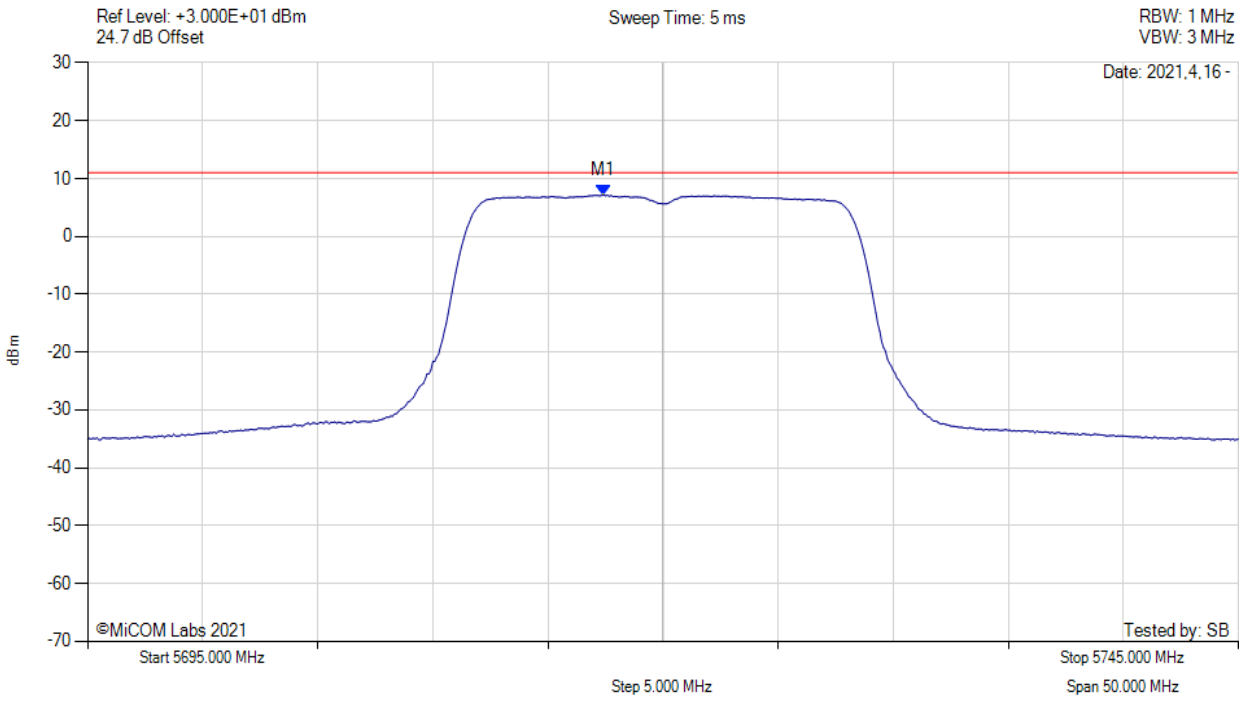


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5721.250 MHz : 4.044 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5720.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

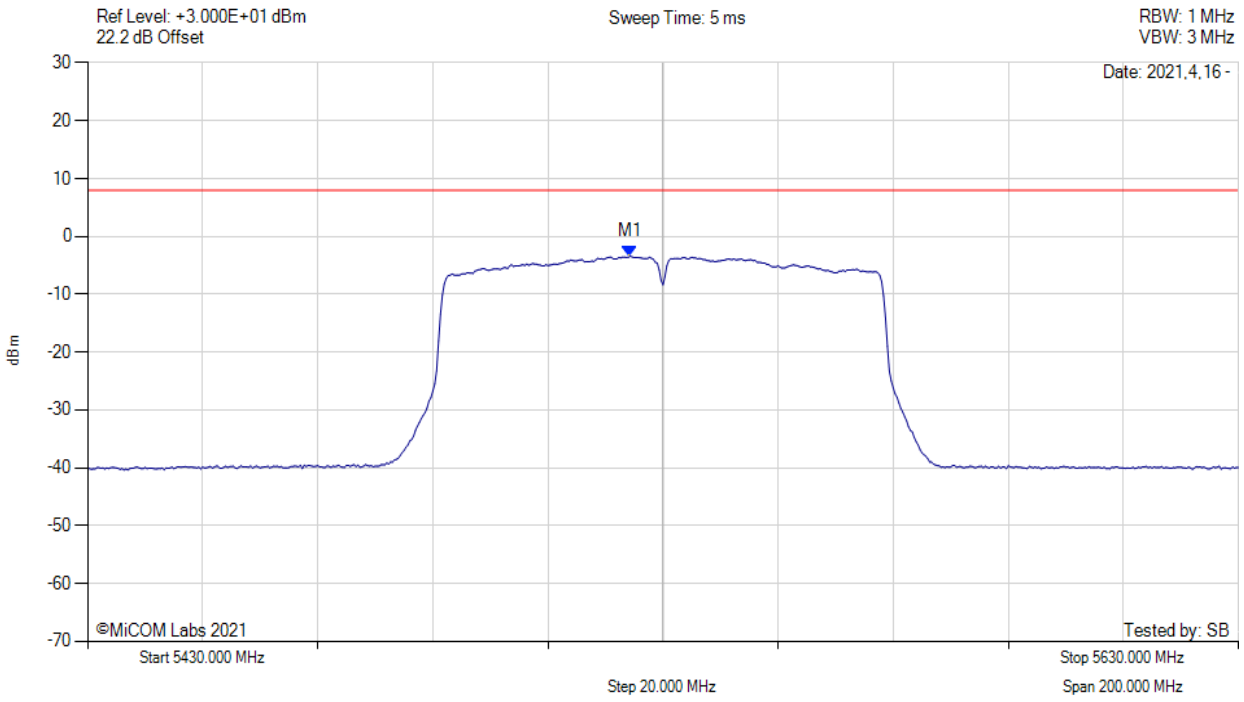


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5717.400 MHz : 7.161 dBm M1 + DCCF : 5717.400 MHz : 7.205 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -3.8 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

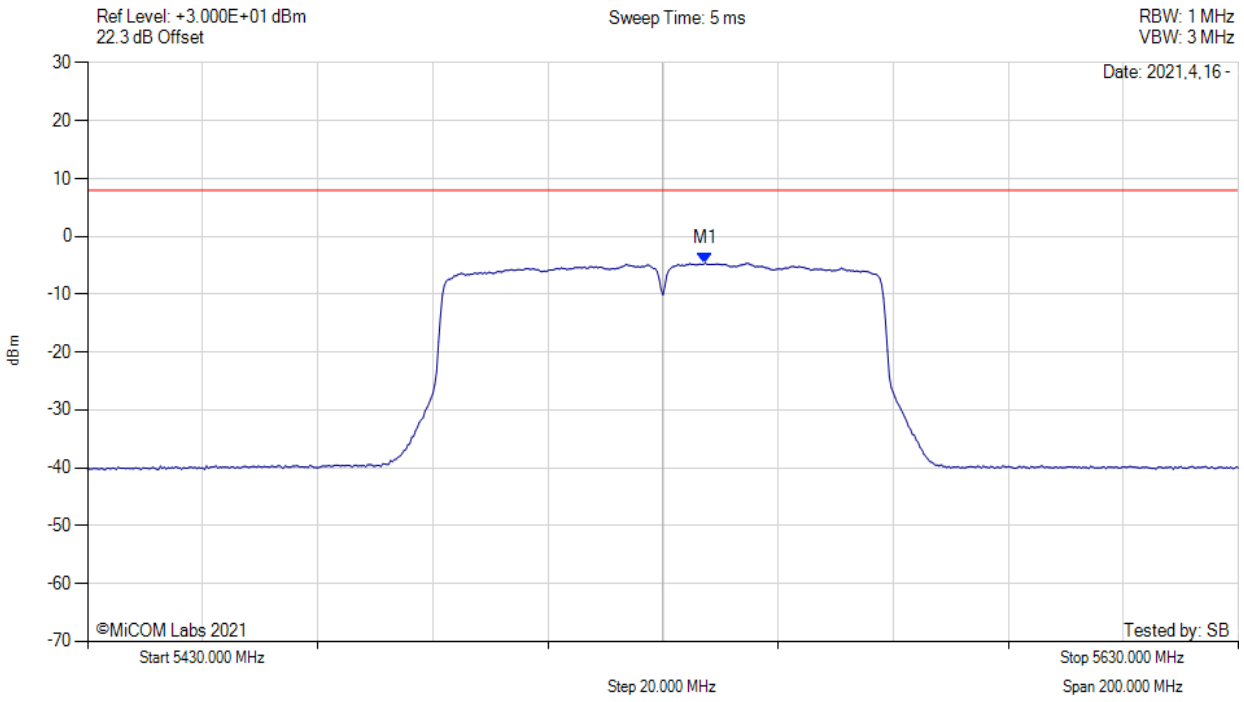


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5524.300 MHz : -3.387 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

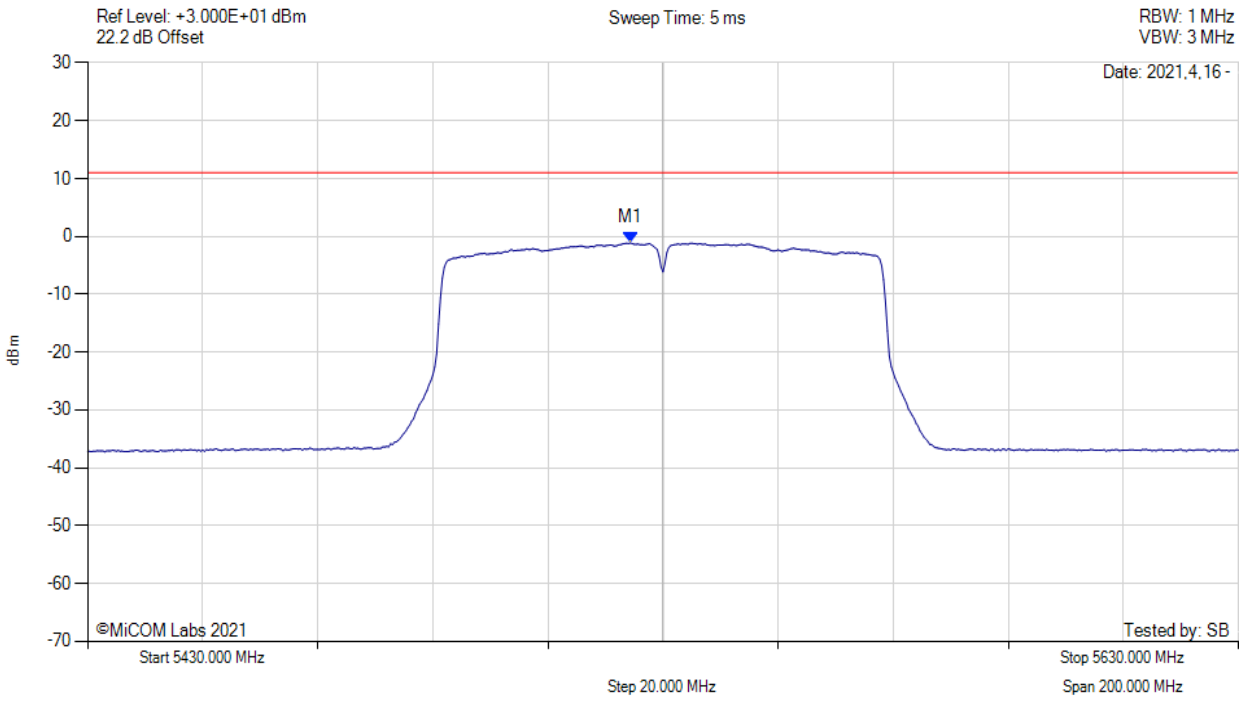


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5537.300 MHz : -4.612 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5530.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

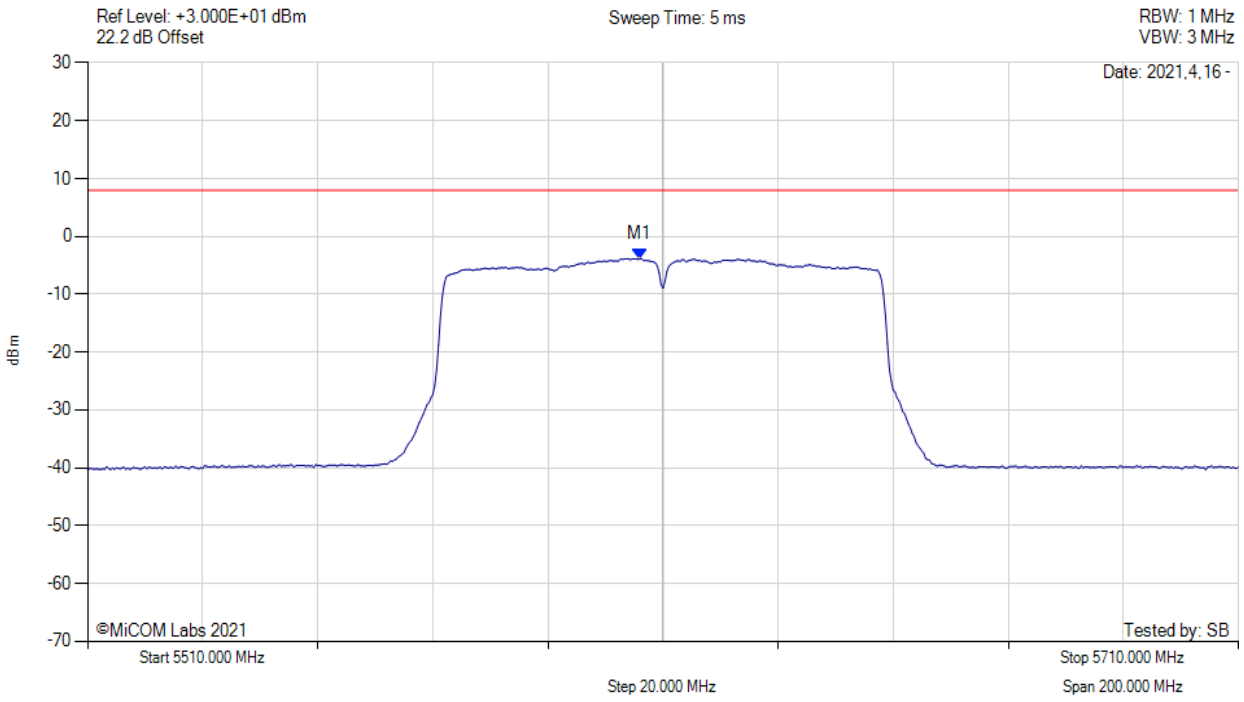


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5524.300 MHz : -1.117 dBm M1 + DCCF : 5524.300 MHz : -0.255 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 11.0 dBm Margin: -11.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

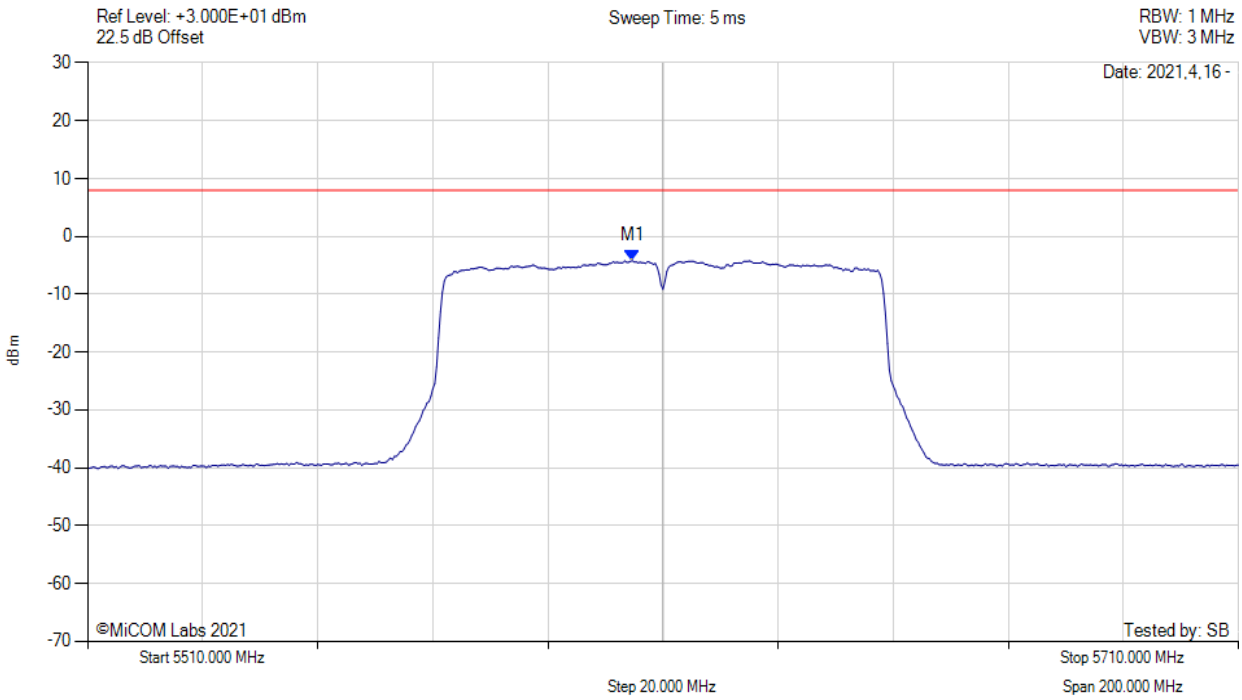


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5606.000 MHz : -3.833 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

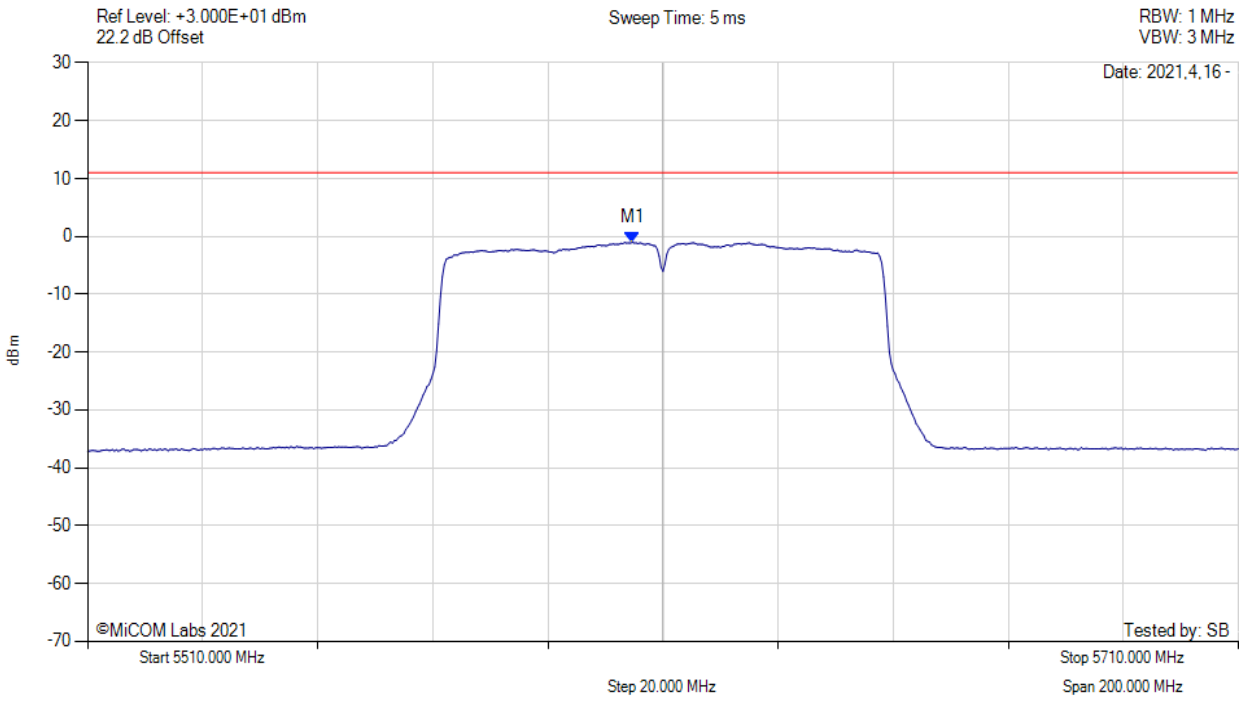


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5604.700 MHz : -4.179 dBm	Channel Frequency: 5610.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5610.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

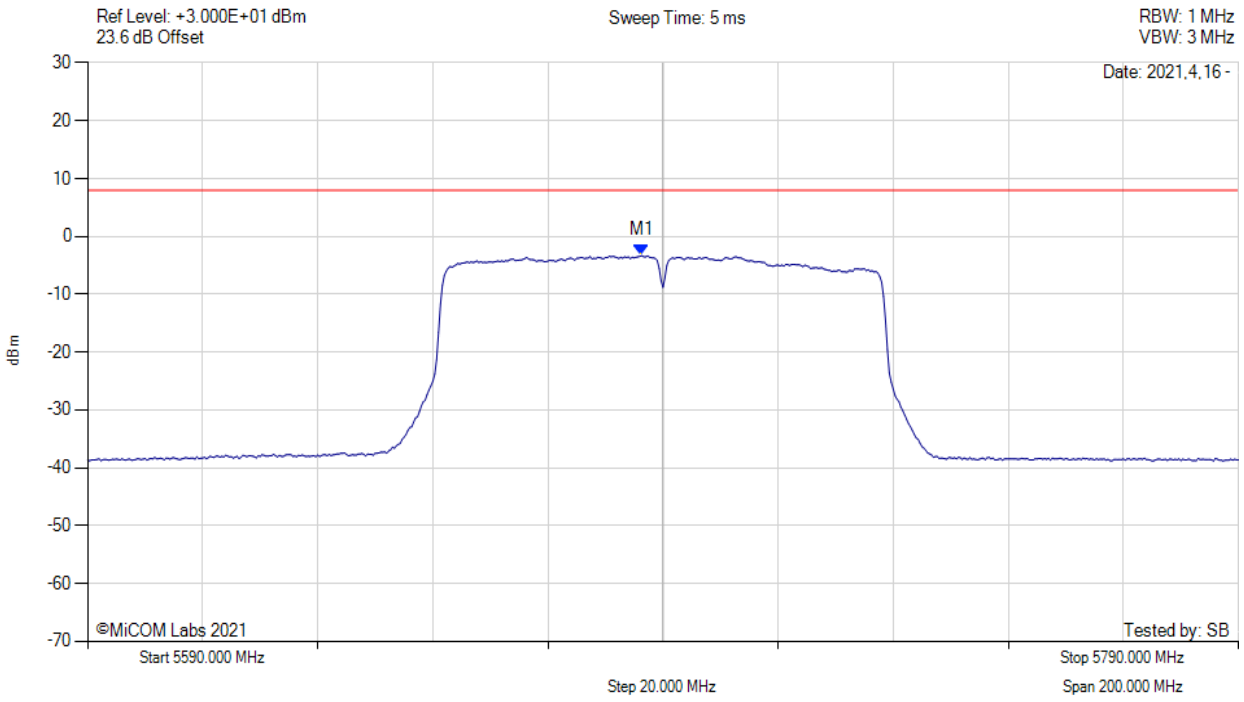


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5604.700 MHz : -1.003 dBm M1 + DCCF : 5604.700 MHz : -0.141 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 11.0 dBm Margin: -11.2 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

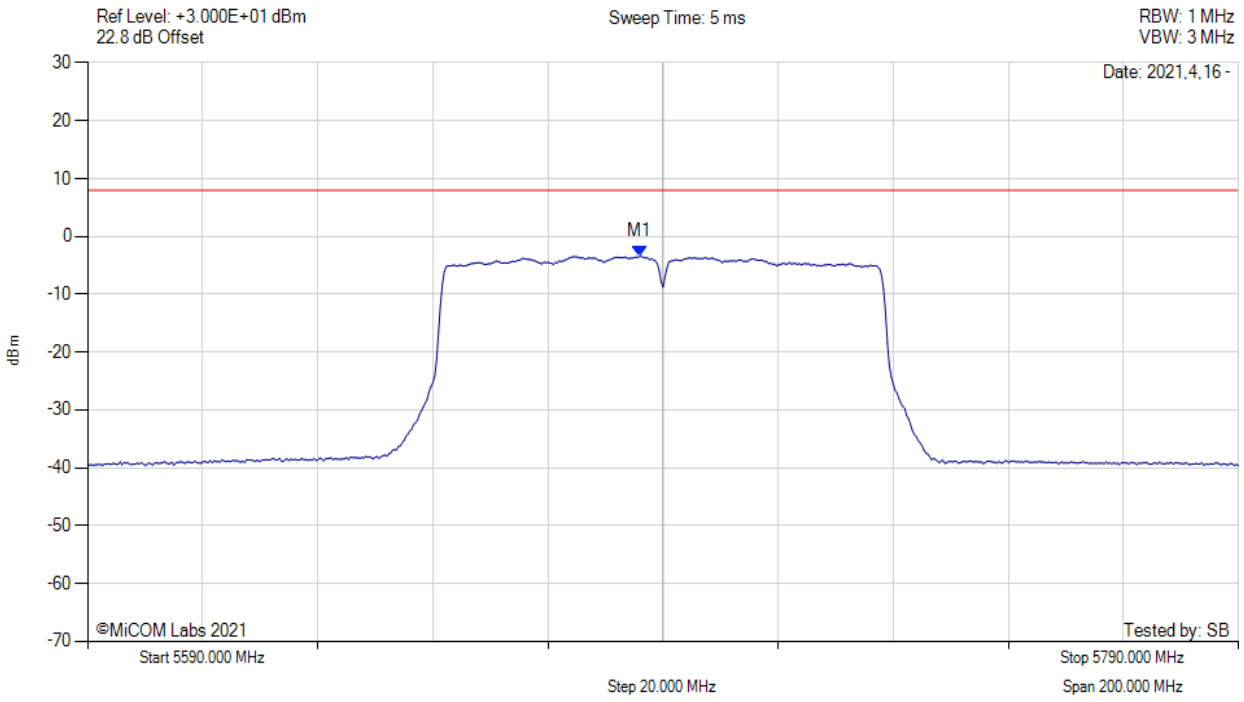


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5686.300 MHz : -3.313 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

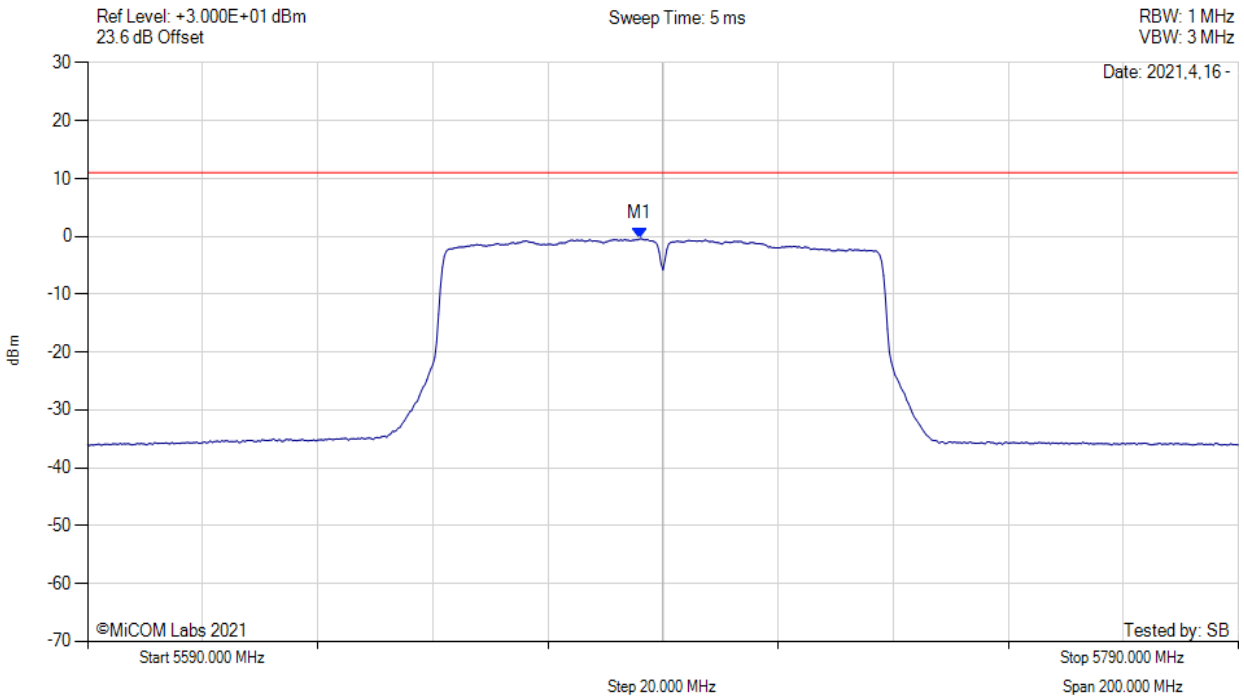


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5686.000 MHz : -3.356 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5690.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

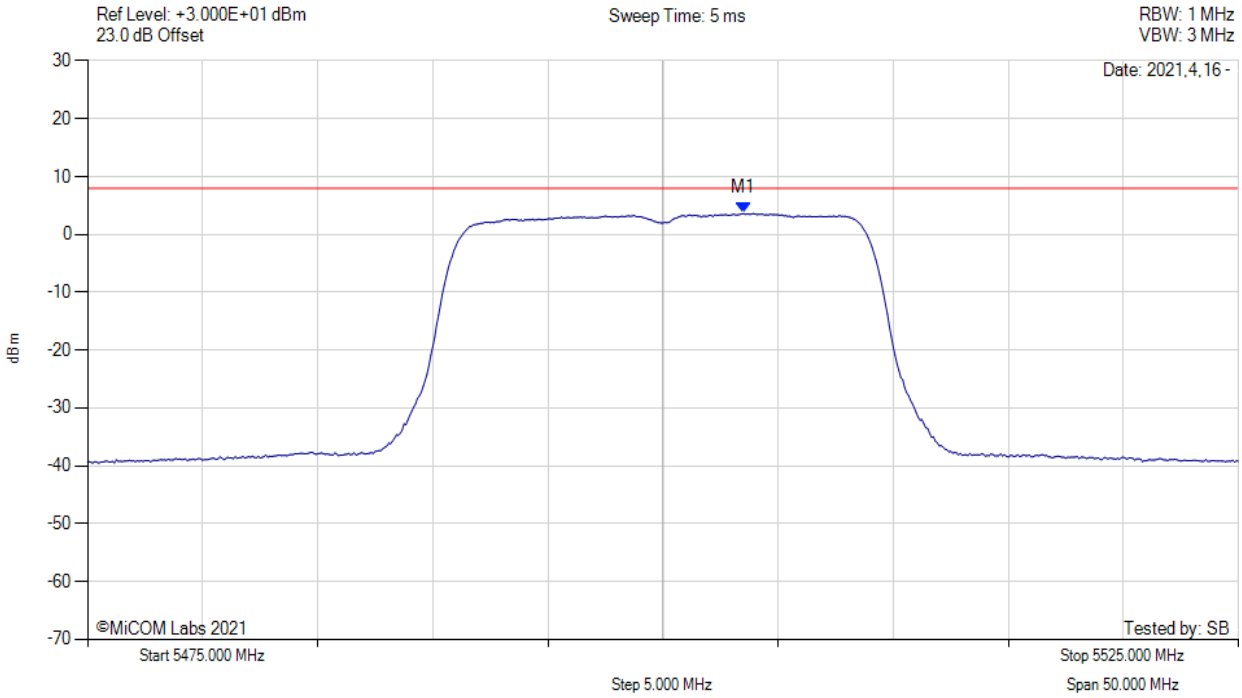


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5686.000 MHz : -0.387 dBm M1 + DCCF : 5686.000 MHz : 0.475 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 11.0 dBm Margin: -10.5 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

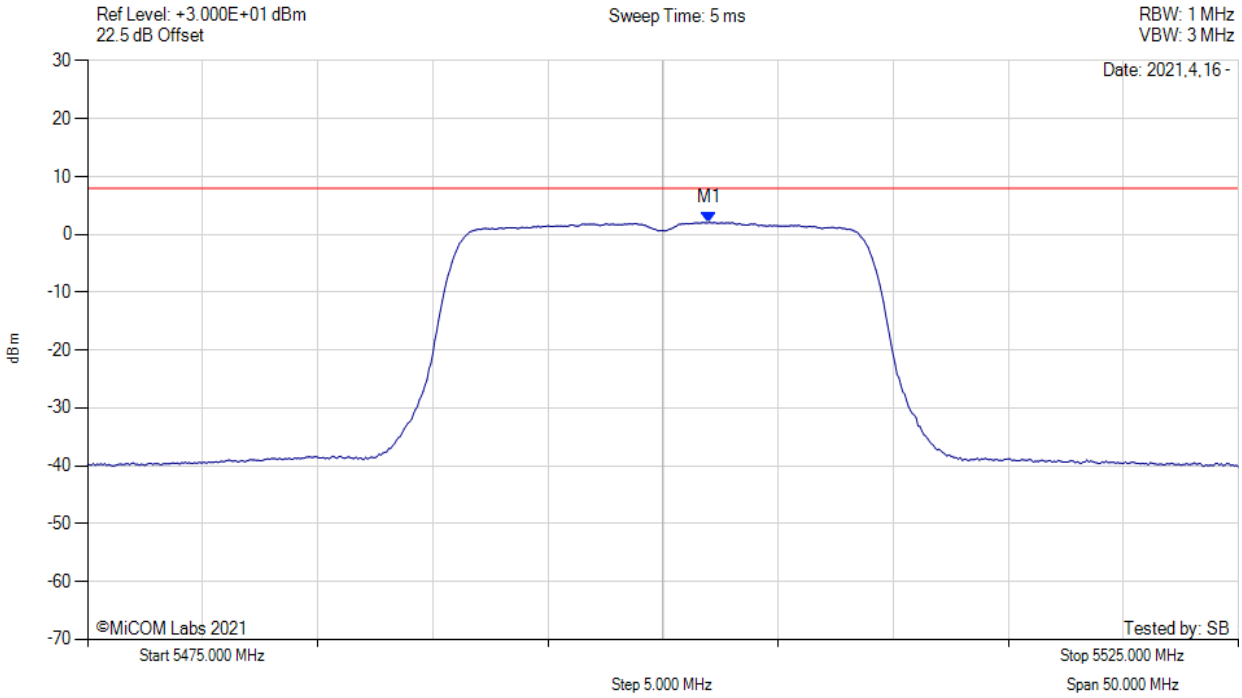


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5503.500 MHz : 3.627 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

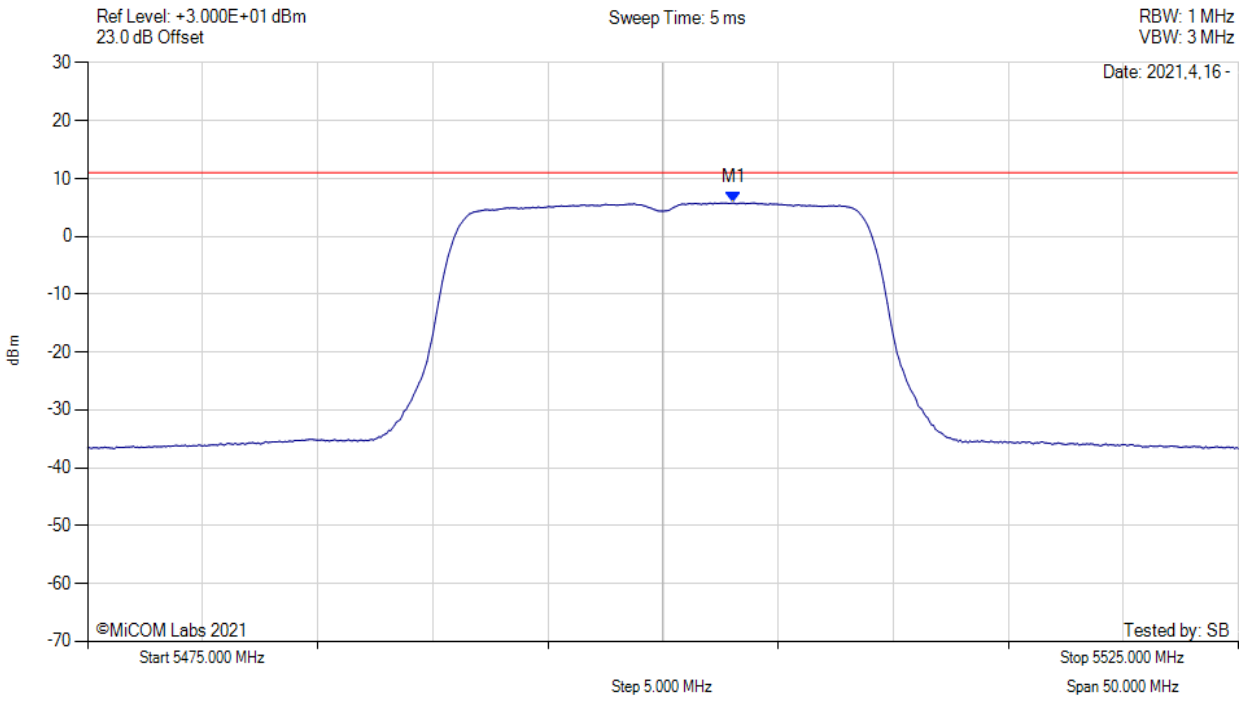


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5502.000 MHz : 2.082 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5500.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

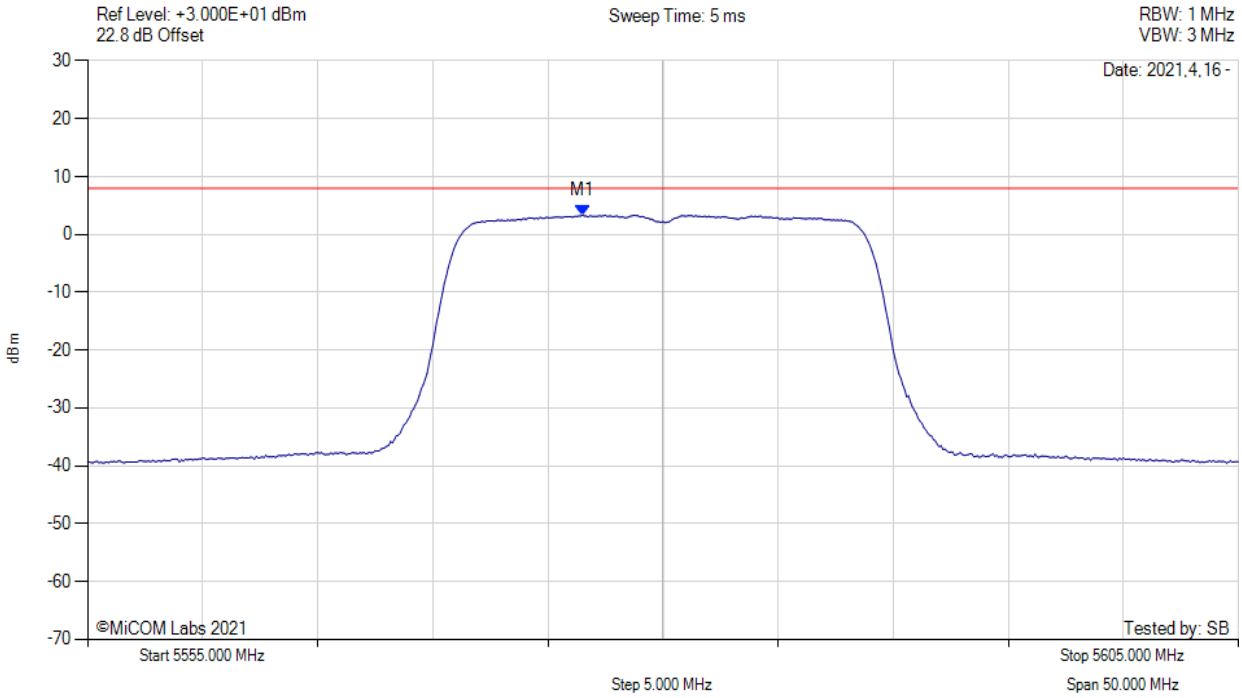


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5503.100 MHz : 5.797 dBm M1 + DCCF : 5503.100 MHz : 5.841 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -5.2 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

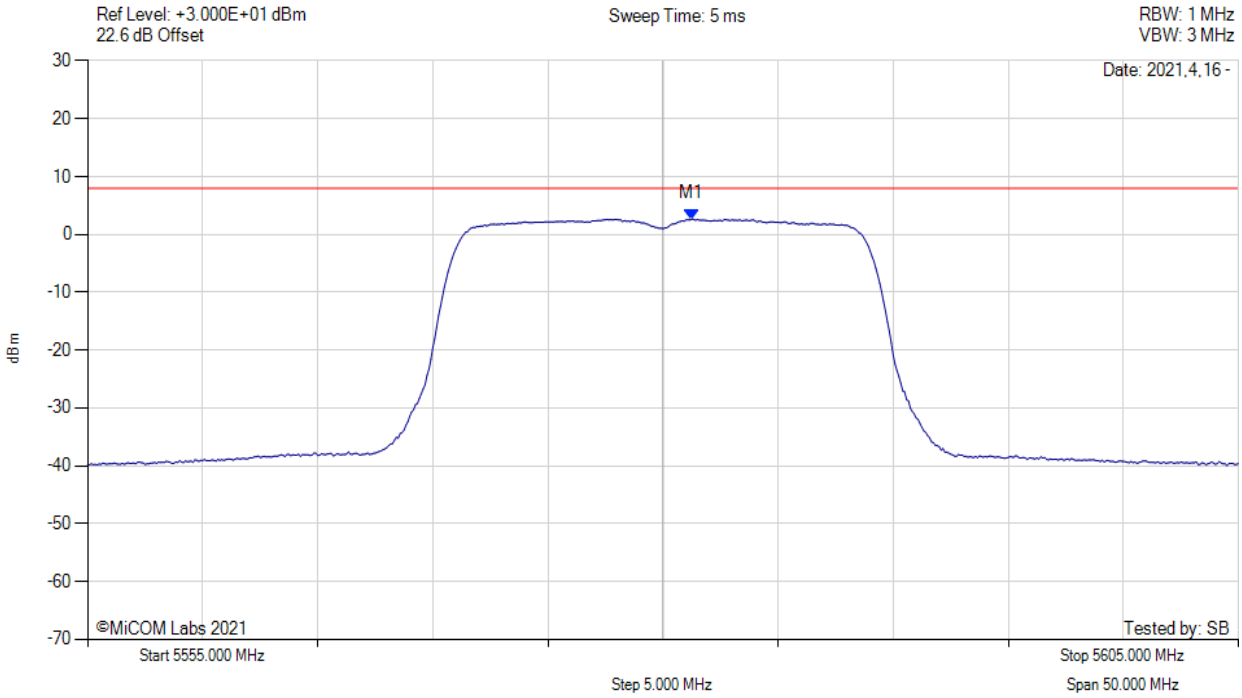


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5576.500 MHz : 3.335 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

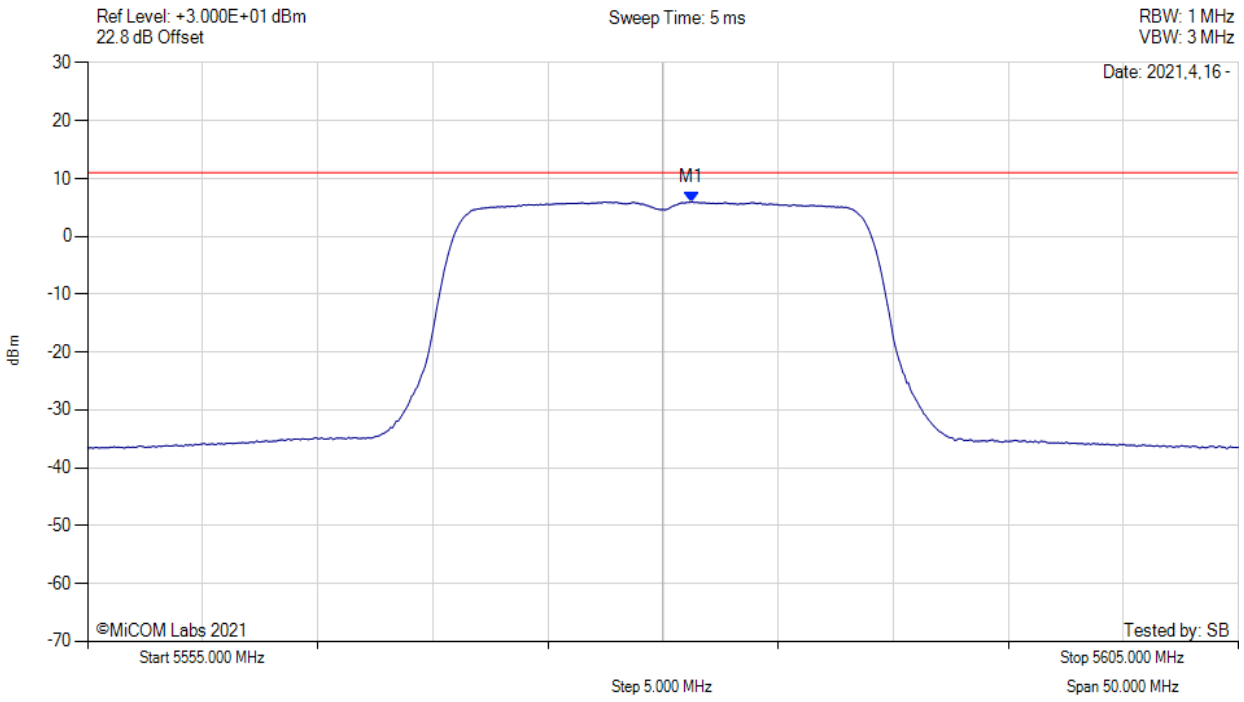


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5581.250 MHz : 2.665 dBm	Channel Frequency: 5580.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5580.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

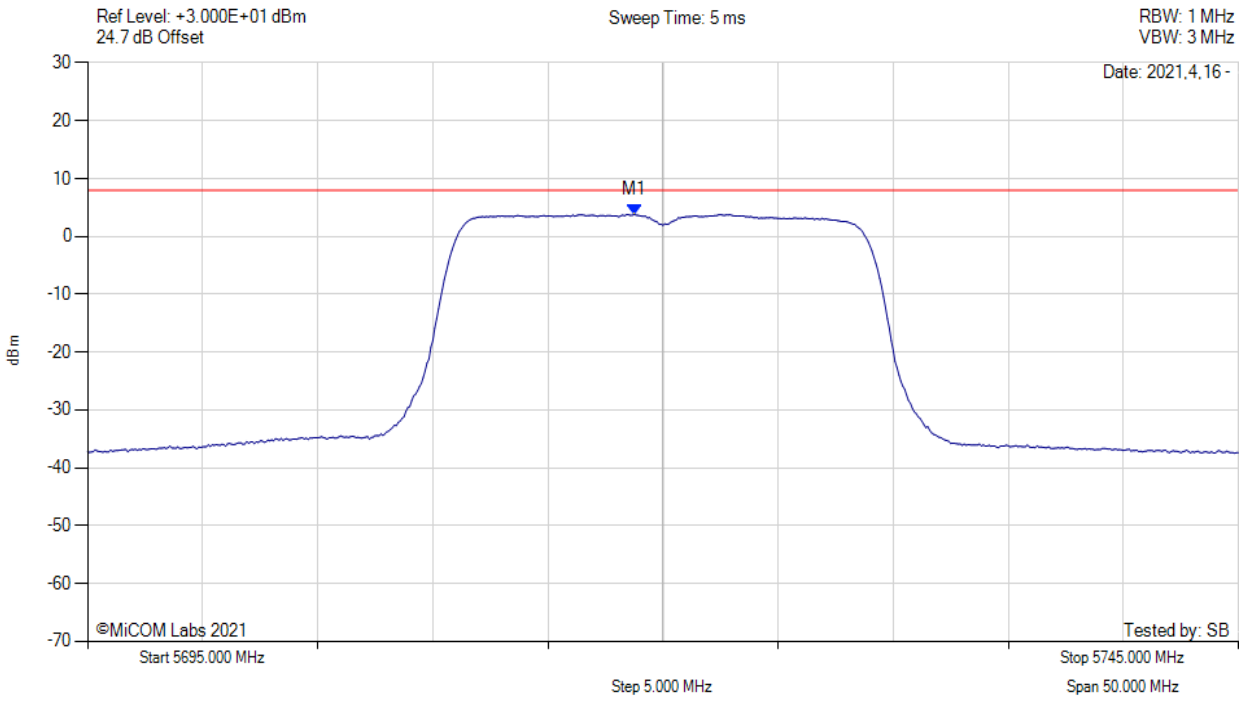


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5581.300 MHz : 5.972 dBm M1 + DCCF : 5581.300 MHz : 6.016 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -5.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

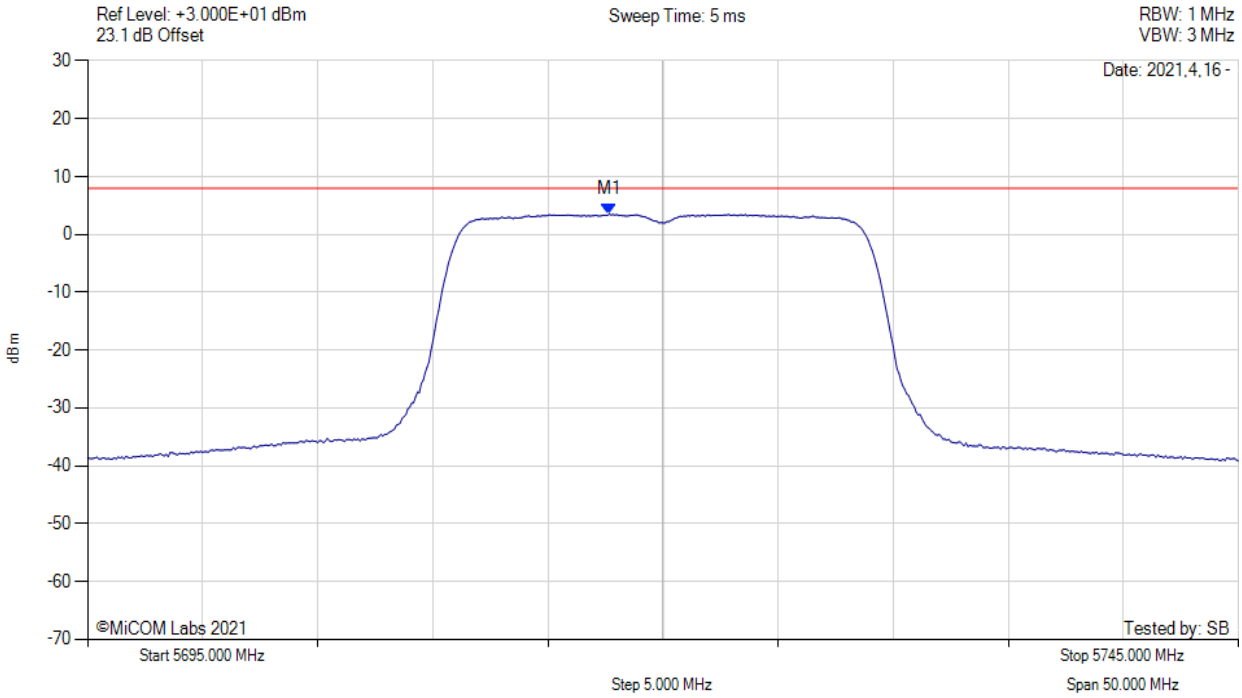


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5718.750 MHz : 3.815 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

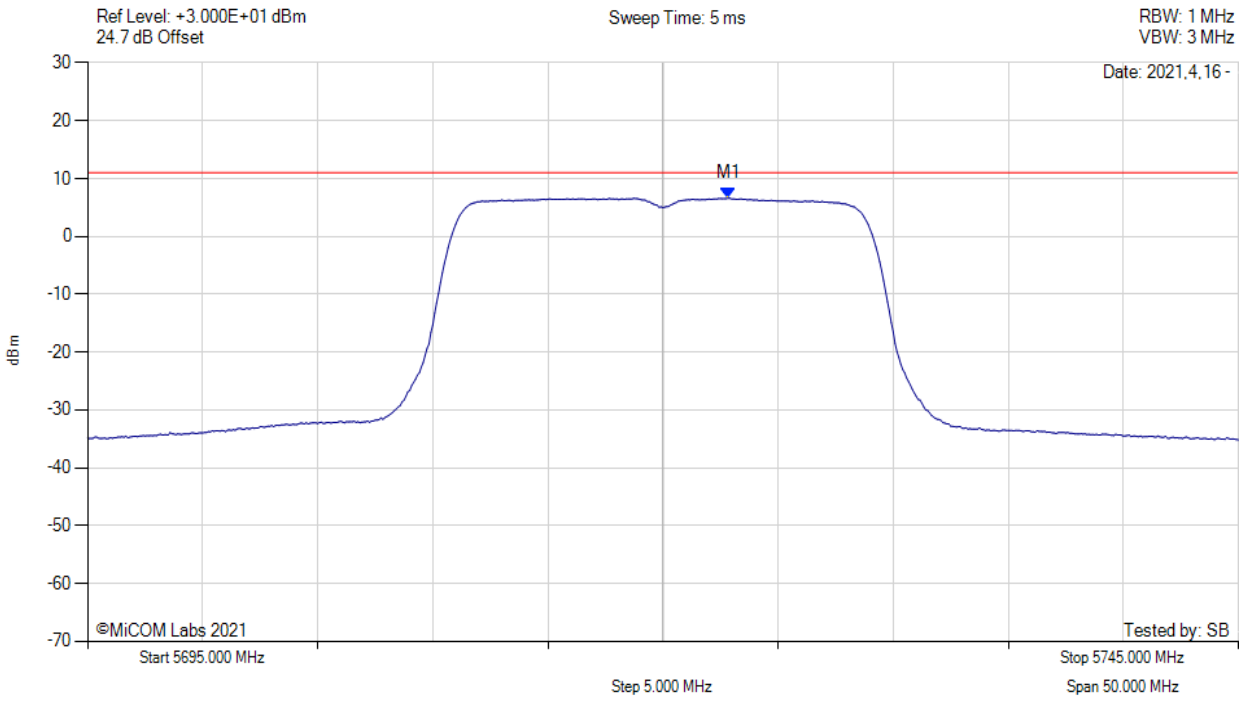


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5717.670 MHz : 3.540 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5720.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

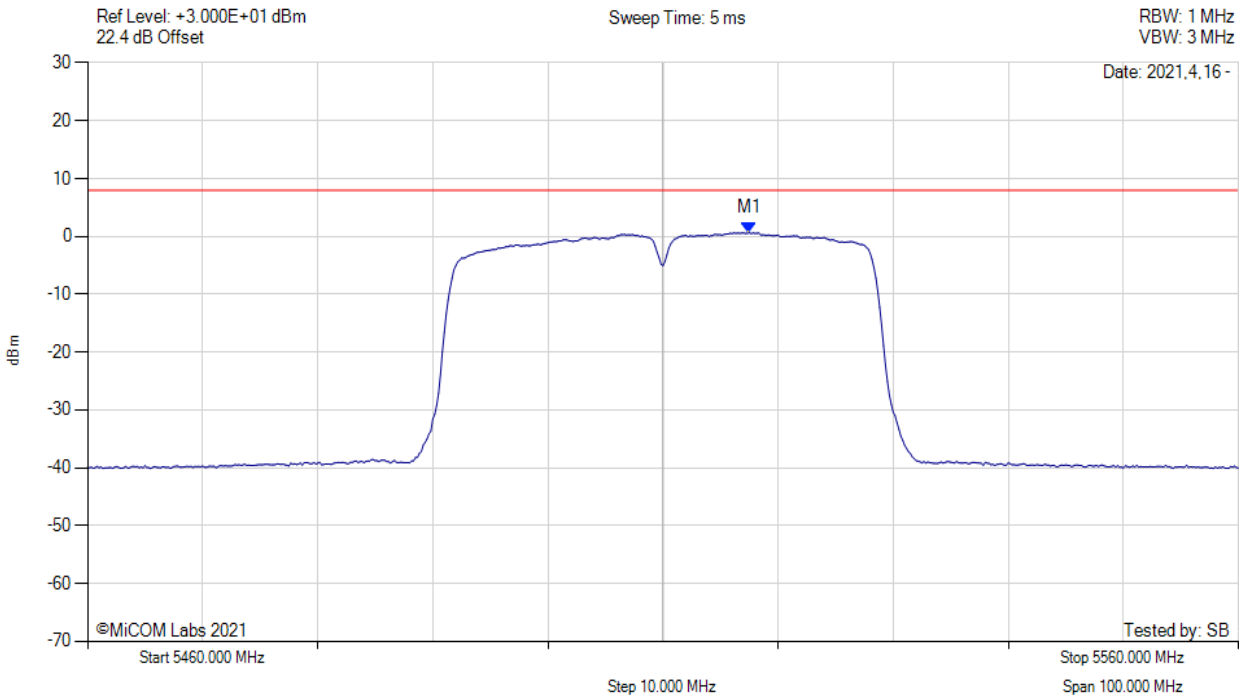


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5722.800 MHz : 6.598 dBm M1 + DCCF : 5722.800 MHz : 6.642 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -4.4 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

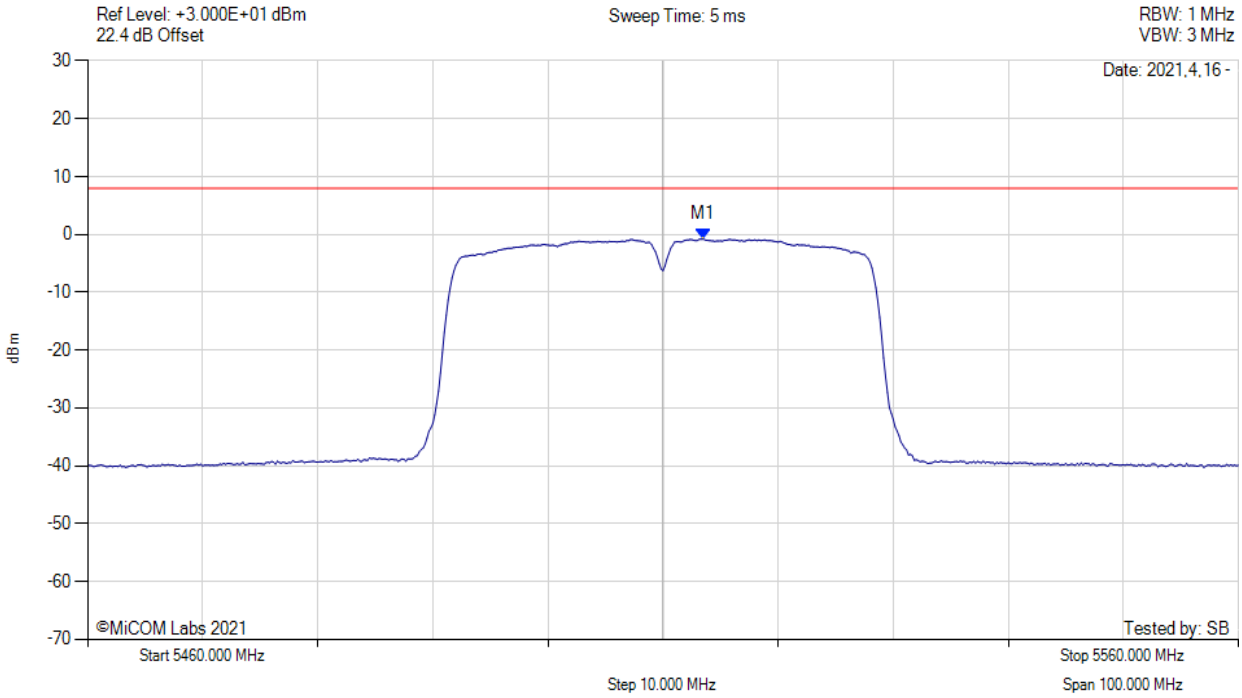


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5517.500 MHz : 0.660 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

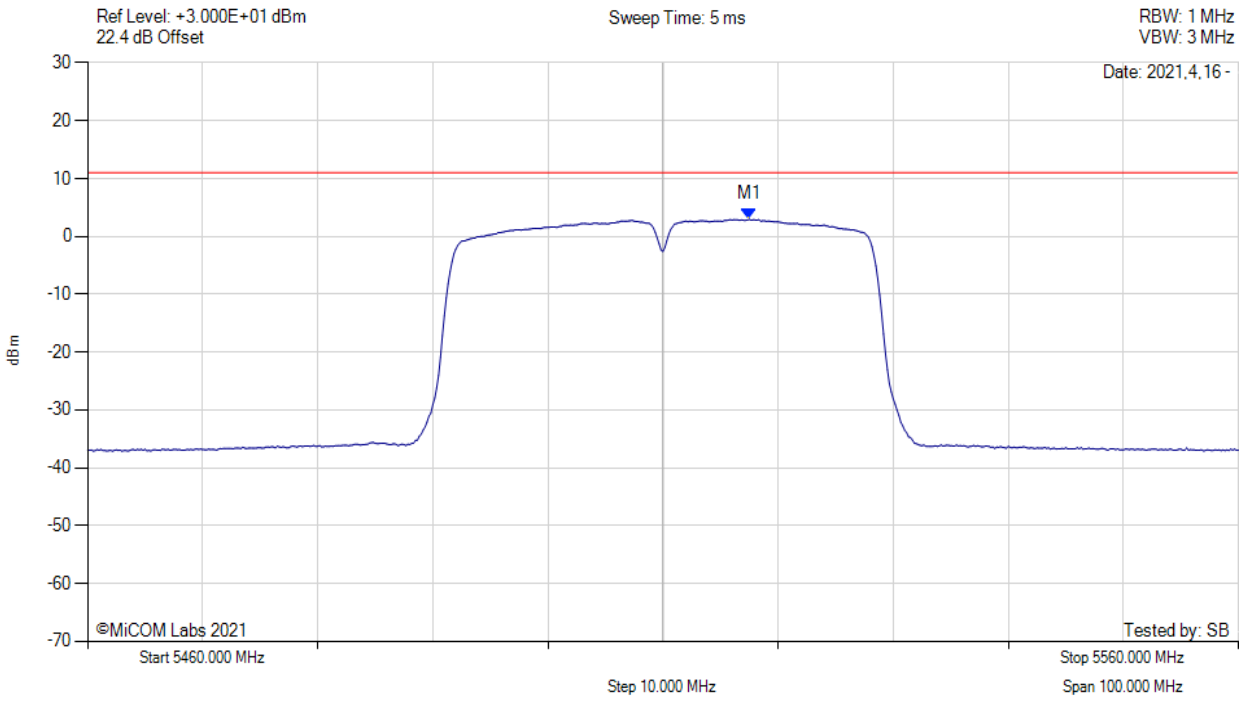


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5513.500 MHz : -0.804 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5510.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

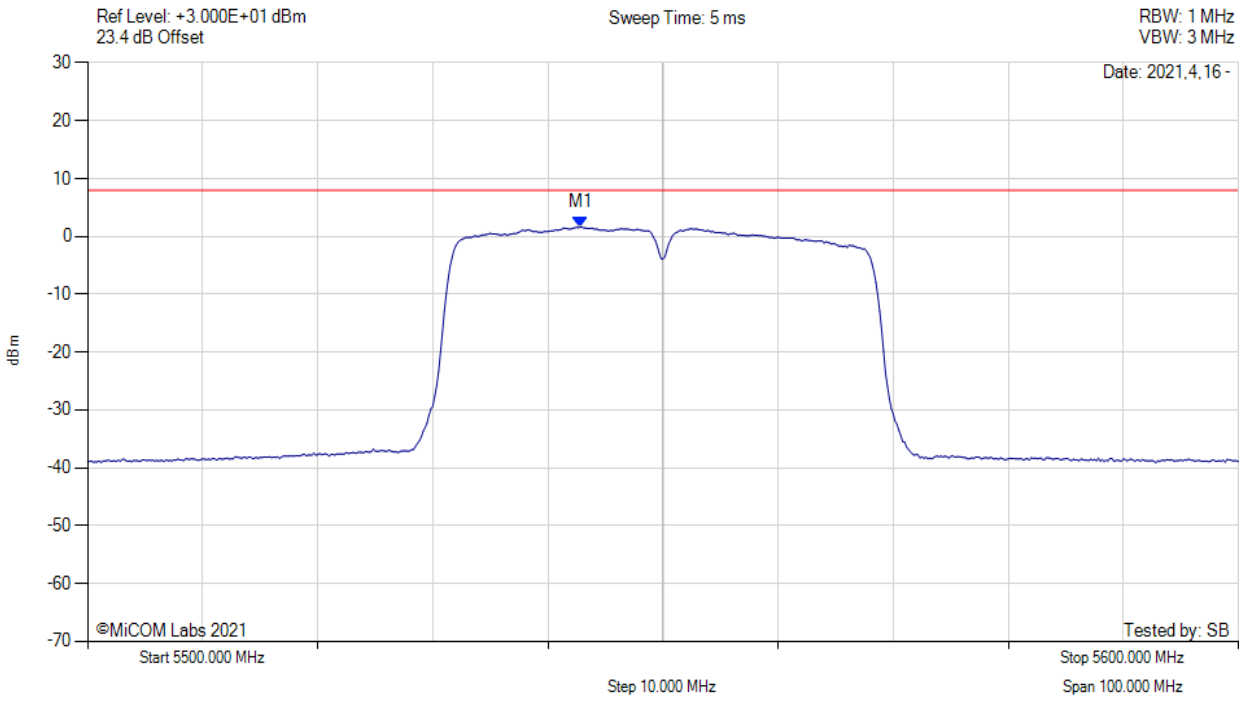


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5517.500 MHz : 2.954 dBm M1 + DCCF : 5517.500 MHz : 3.316 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -7.7 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

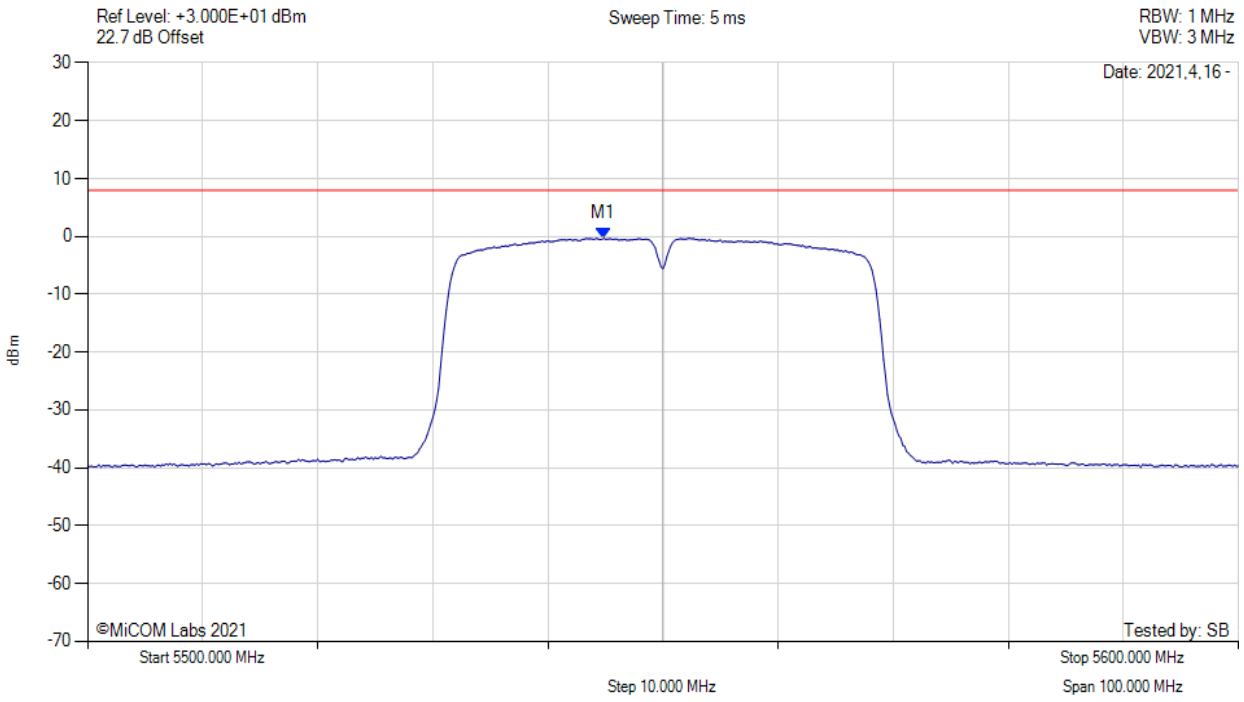


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5542.830 MHz : 1.661 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

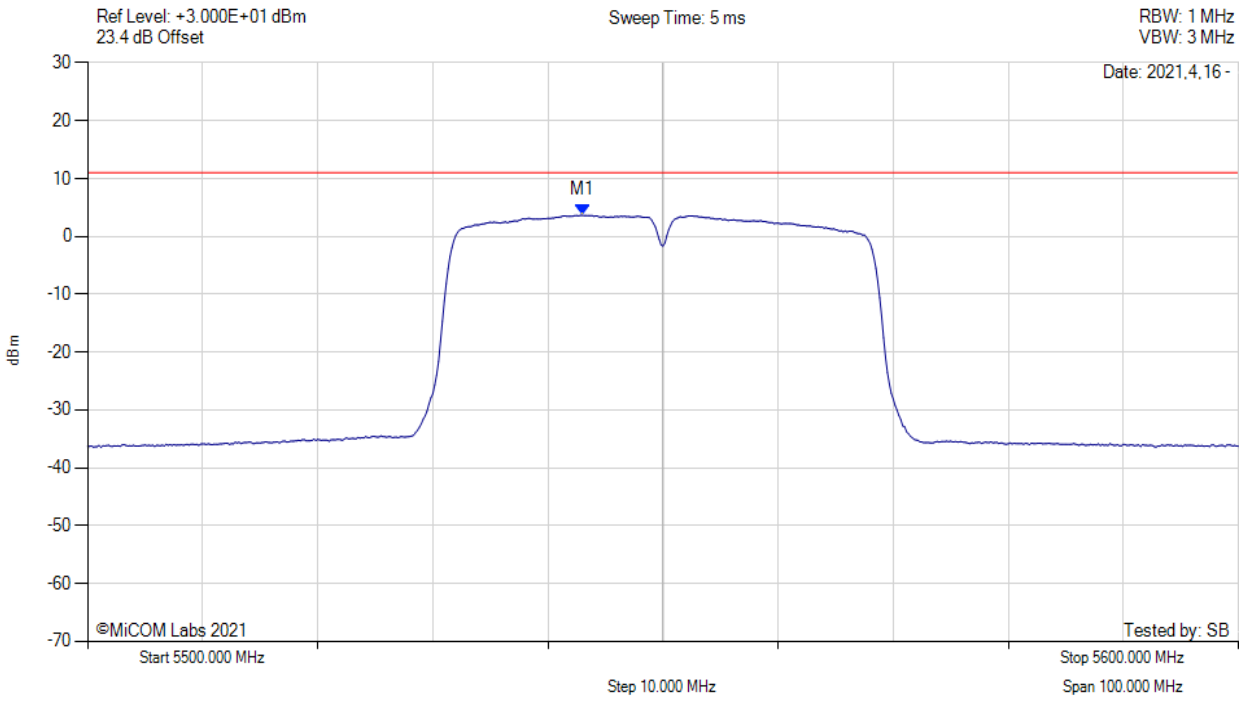


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5544.830 MHz : -0.316 dBm	Channel Frequency: 5550.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5550.00 MHz, SUM, Temp: 20, Voltage: 24 Vac

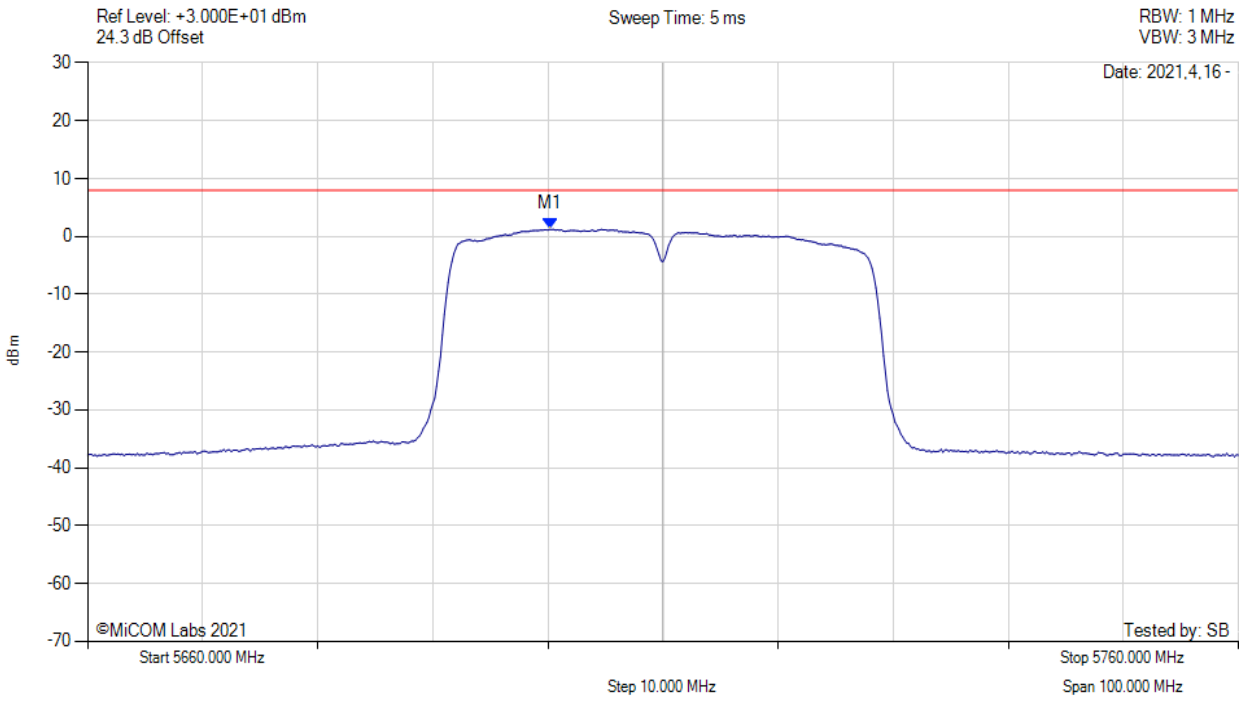


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5543.000 MHz : 3.650 dBm M1 + DCCF : 5543.000 MHz : 4.012 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -7.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain a, Temp: 20, Voltage: 24 Vac

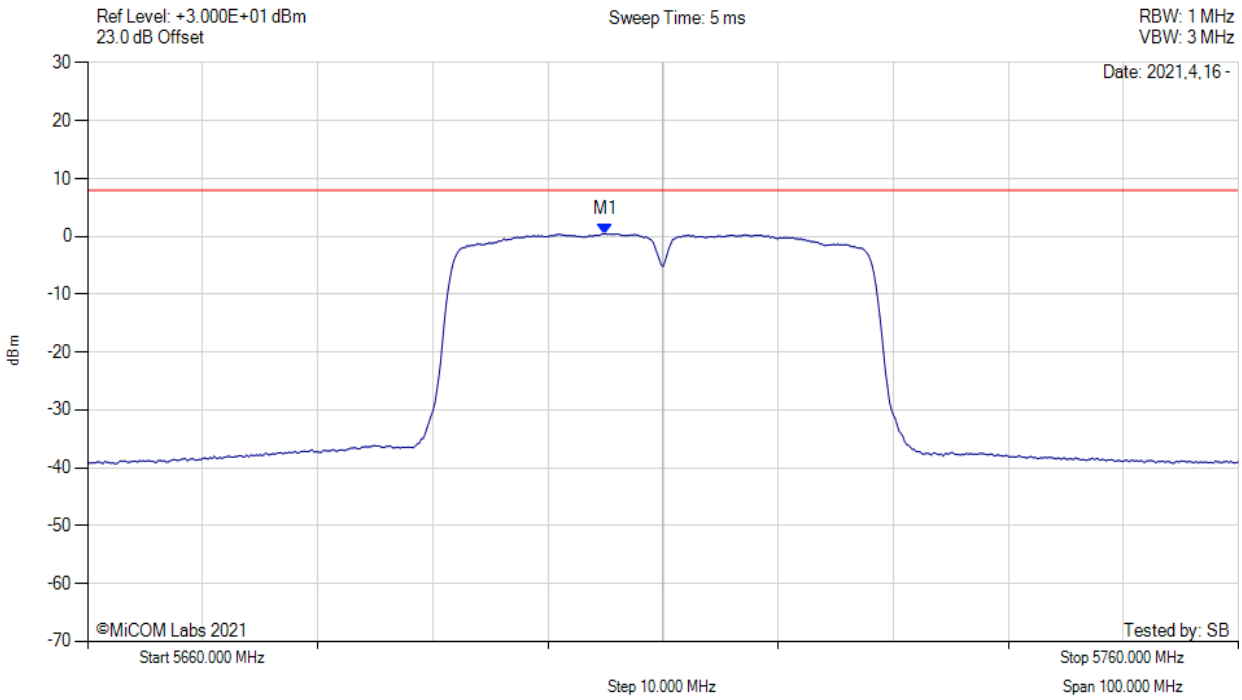


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5700.170 MHz : 1.238 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain b, Temp: 20, Voltage: 24 Vac

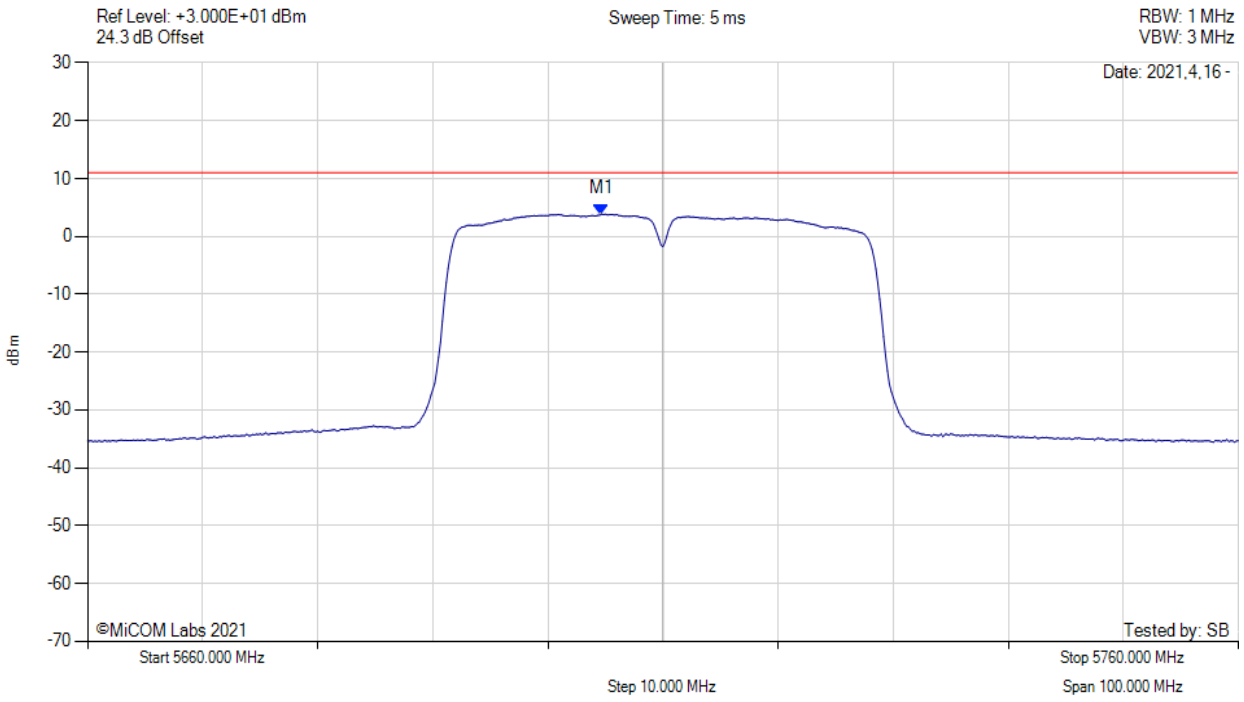


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5705.000 MHz : 0.457 dBm	Limit: ≤ 7.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5710.00 MHz, SUM, Temp: 20, Voltage: 24 Vac



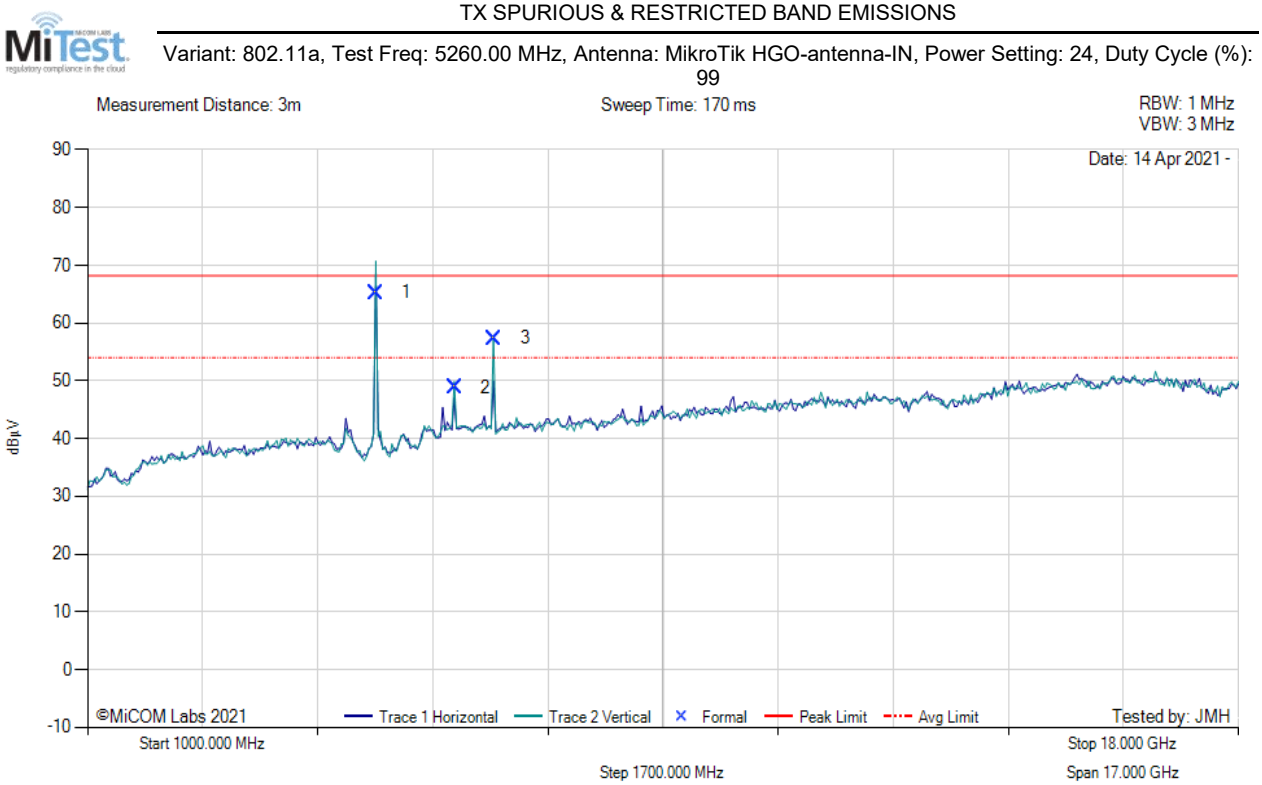
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5704.700 MHz : 3.862 dBm M1 + DCCF : 5704.700 MHz : 4.224 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -6.8 dB

back to matrix

A.3. Radiated

A.3.1. TX Spurious & Restricted Band Emissions

A.3.1.1. MikroTik HGO-antenna-IN



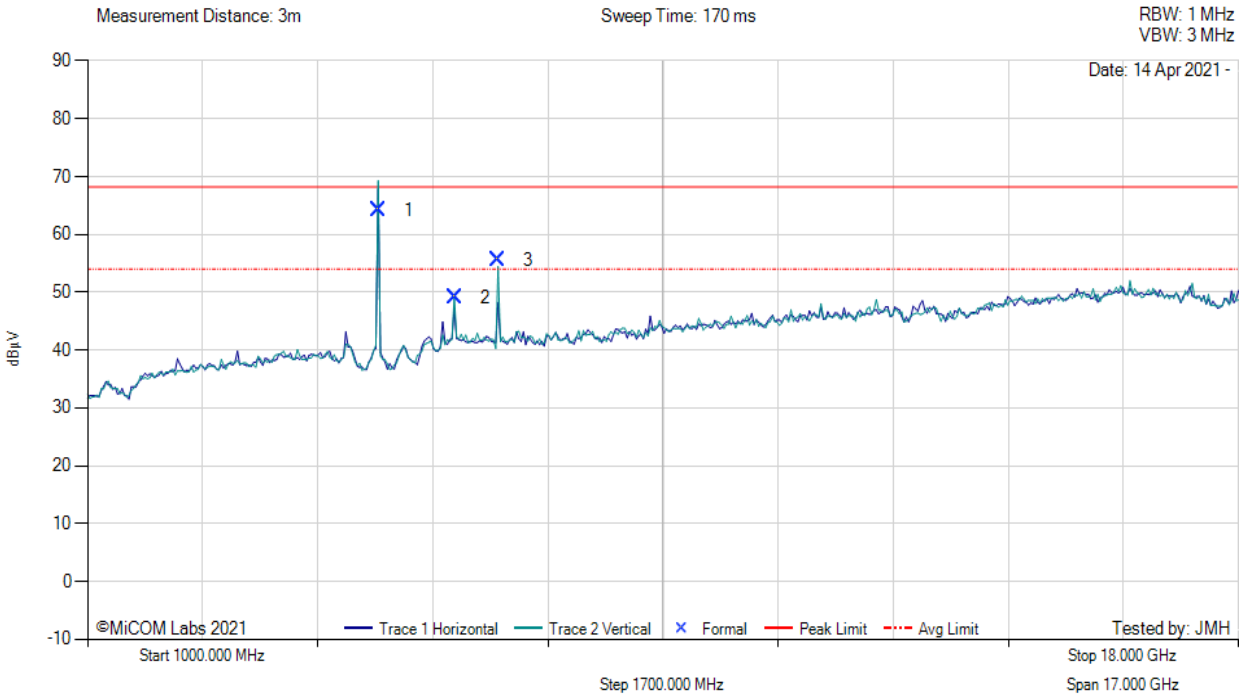
1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5265.63	74.62	2.90	-12.22	65.30	Fundamental	Vertical	100	0	--	--	
2	6431.99	54.42	3.31	-8.89	48.84	Peak (NRB)	Vertical	100	17	--	--	Pass
3	7013.30	61.55	3.47	-7.71	57.31	Max Peak	Vertical	102	145	68.2	-10.9	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5300.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5295.73	73.14	3.02	-12.01	64.15	Fundamental	Vertical	100	0	--	--	
2	6431.92	54.70	3.31	-8.89	49.12	Peak (NRB)	Vertical	100	34	--	--	Pass
3	7066.76	59.59	3.55	-7.57	55.57	Max Peak	Vertical	102	142	68.2	-12.7	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.

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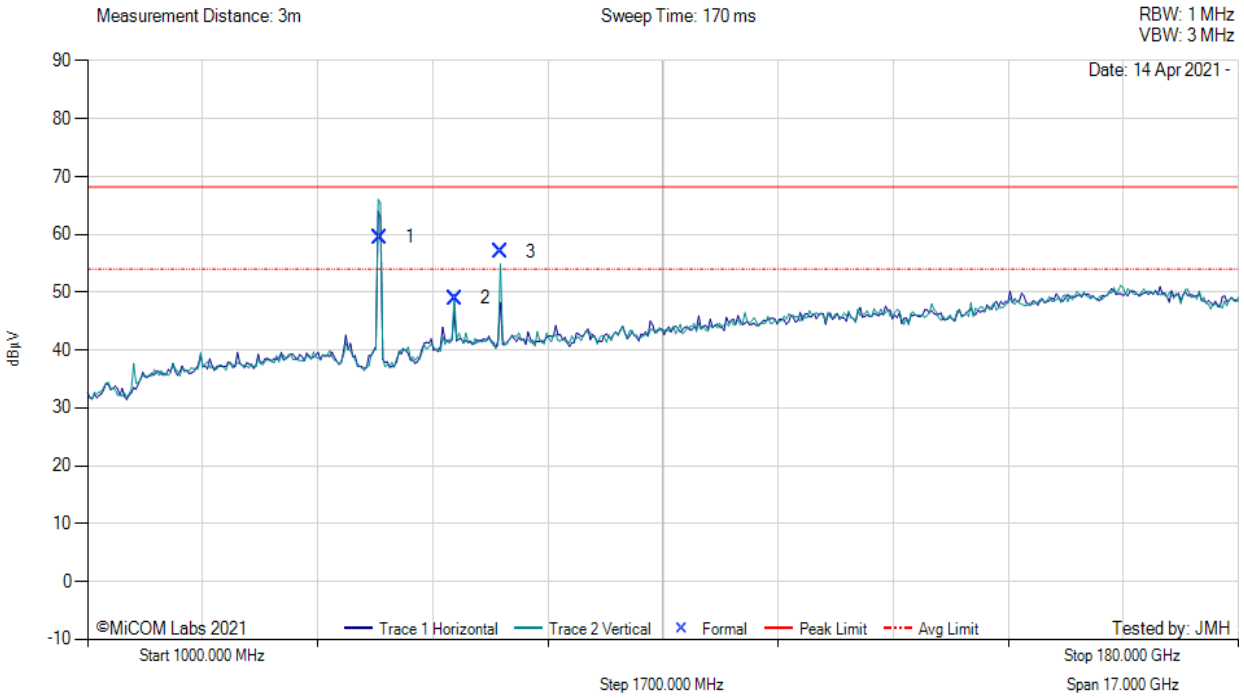
TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5320.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



1000.00 - 180000.00 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	5316.16	68.57	2.98	-12.01	59.54	Fundamental	Vertical	100	0	--	--	
2	6431.99	54.57	3.31	-8.89	48.99	Peak (NRB)	Vertical	100	20	--	--	Pass
3	7093.34	61.43	3.46	-7.89	57.00	Max Peak	Vertical	98	315	68.2	-11.2	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.

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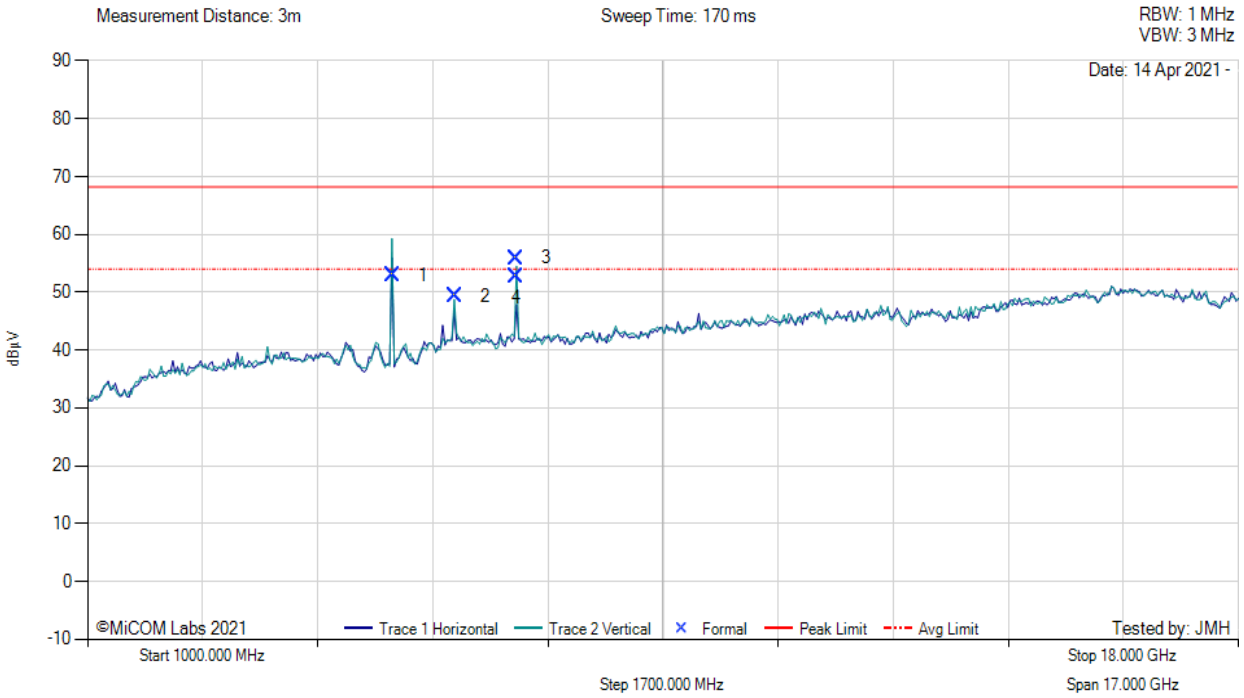
TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5501.24	61.52	3.05	-11.64	52.93	Fundamental	Vertical	100	0	--	--	
2	6431.97	54.88	3.31	-8.89	49.30	Peak (NRB)	Vertical	100	32	--	--	Pass
3	7333.22	60.46	3.57	-8.09	55.94	Max Peak	Vertical	98	141	68.2	-12.3	Pass
4	7333.22	57.19	3.57	-8.09	52.67	Max Avg	Vertical	98	141	54.0	-1.3	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.

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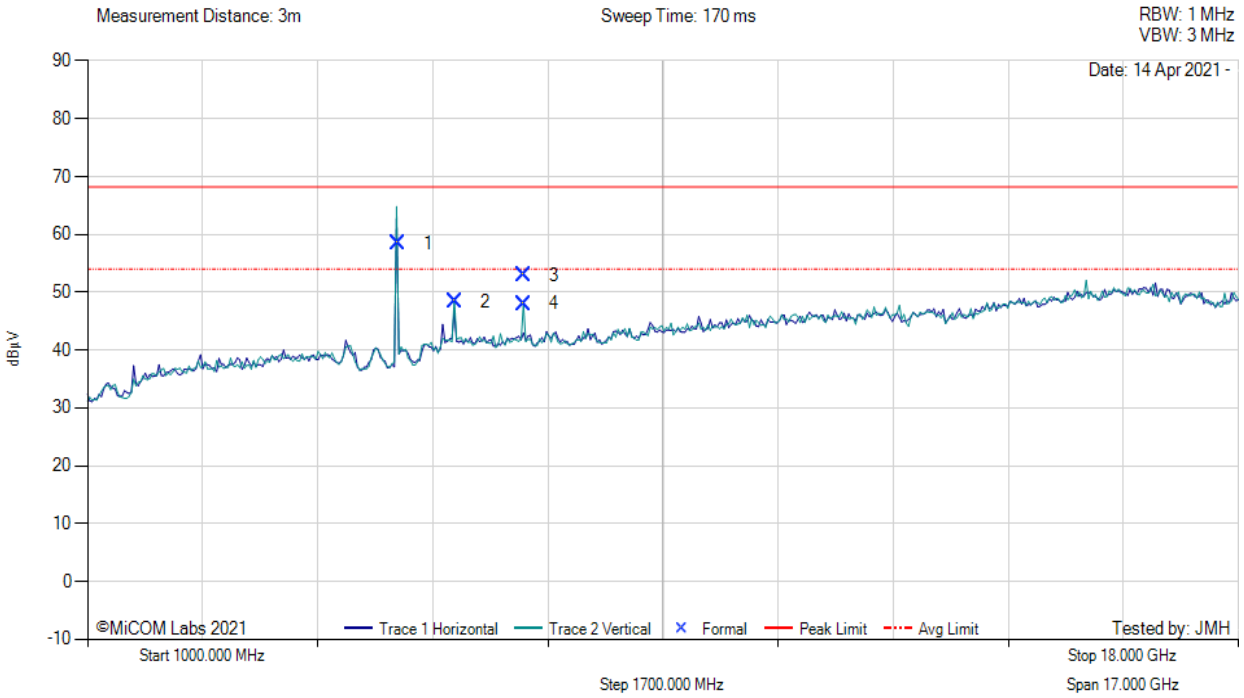
TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5580.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5581.72	66.81	3.13	-11.56	58.38	Fundamental	Vertical	100	0	--	--	
2	6431.99	53.91	3.31	-8.89	48.33	Peak (NRB)	Vertical	100	29	--	--	Pass
3	7439.89	56.97	3.62	-7.73	52.86	Max Peak	Vertical	151	262	68.2	-15.4	Pass
4	7439.89	52.09	3.62	-7.73	47.98	Max Avg	Vertical	151	262	54.0	-6.0	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.

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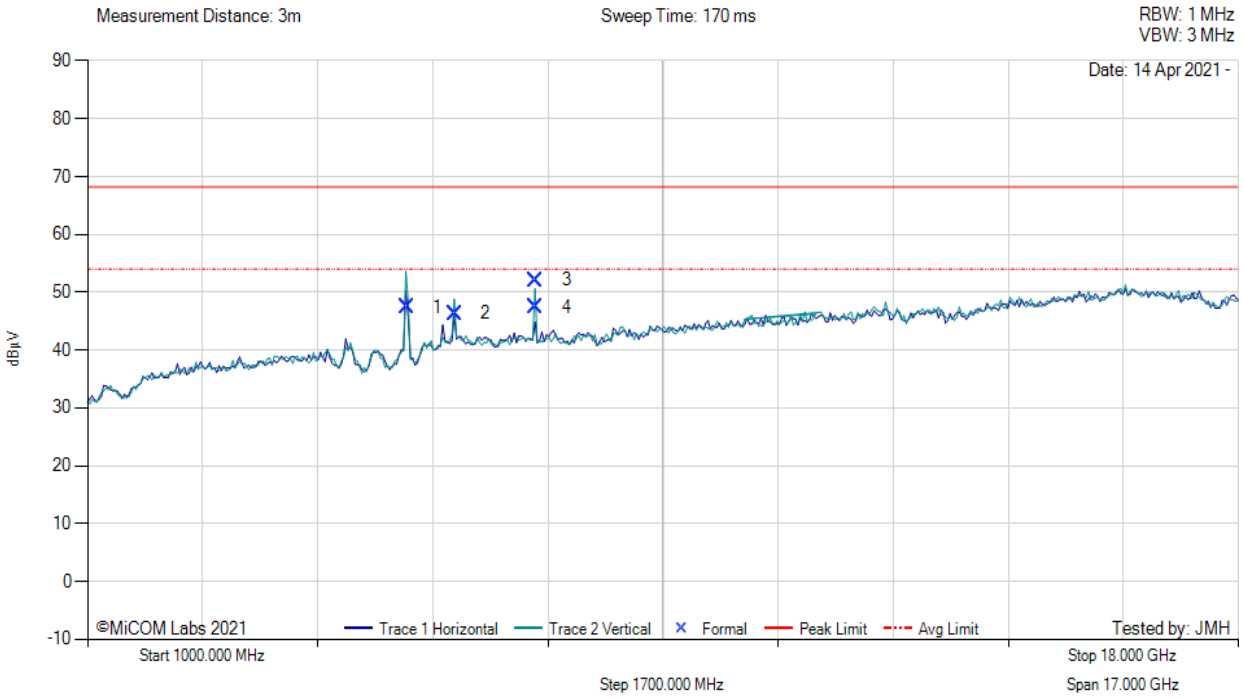
TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5720.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5713.36	55.60	3.14	-11.32	47.42	Fundamental	Vertical	100	104	--	--	
2	6431.94	51.95	3.31	-8.89	46.37	Peak (NRB)	Vertical	100	104	--	--	Pass
3	7626.65	55.75	3.79	-7.48	52.06	Max Peak	Vertical	106	124	68.2	-16.2	Pass
4	7626.65	51.14	3.79	-7.48	47.45	Max Avg	Vertical	106	124	54.0	-6.6	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overloads.

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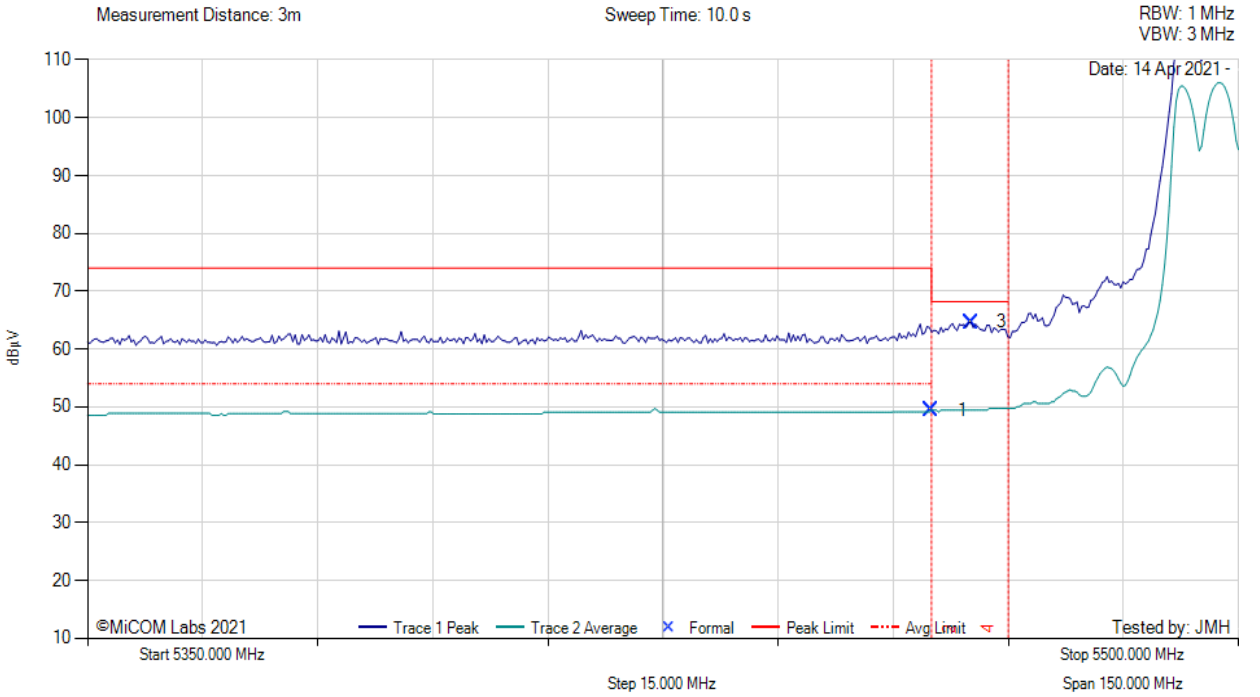
A.3.2. Restricted Edge & Band-Edge Emissions

A.3.2.2. MikroTik HGO-antenna-IN

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



5350.00 - 5500.00 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	5460.00	11.86	3.06	34.53	49.45	Max Avg	Vertical	172	175	54.0	-4.6	Pass
3	5465.13	27.04	3.07	34.54	64.65	Max Peak	Vertical	172	175	68.2	-3.6	Pass
2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

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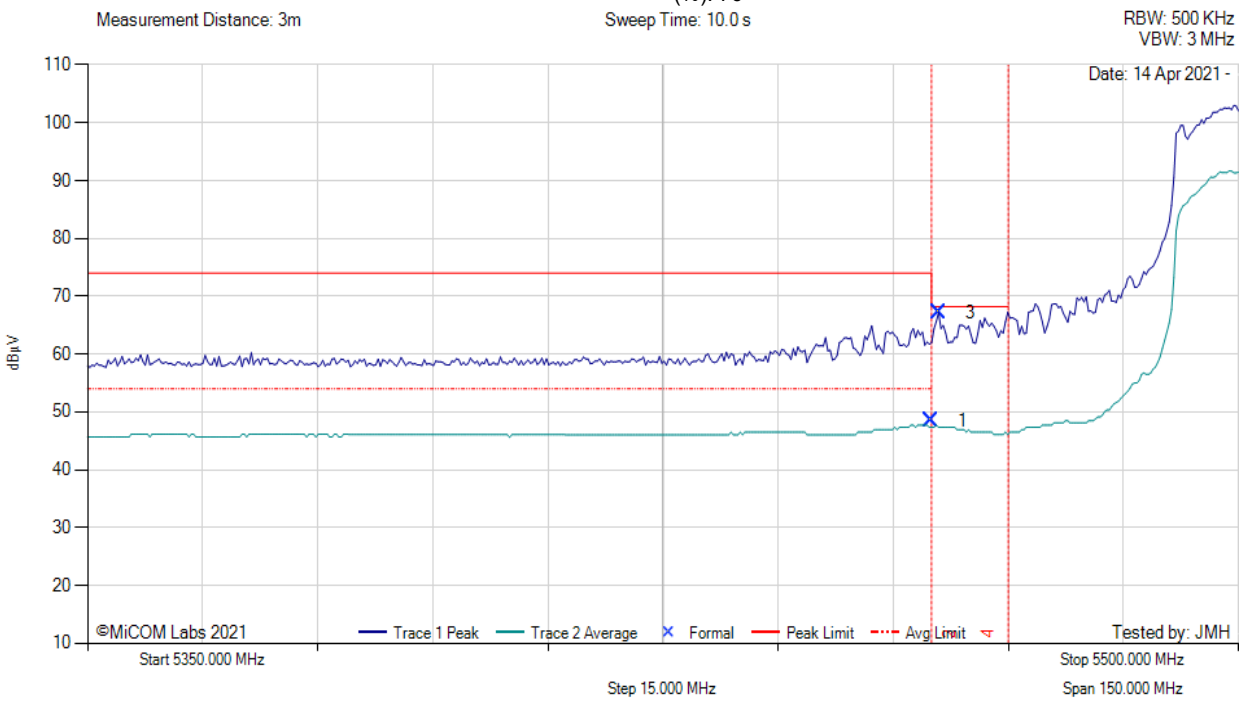
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5530.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 19, Duty Cycle (%): 76



5350.00 - 5500.00 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	5460.00	10.95	3.06	34.53	48.54	Max Avg	Vertical	172	175	54.0	-5.5	Pass
3	5461.02	29.61	3.06	34.53	67.20	Max Peak	Vertical	172	175	68.2	-1.0	Pass
2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 1.19 dB DCCF added to average measurements

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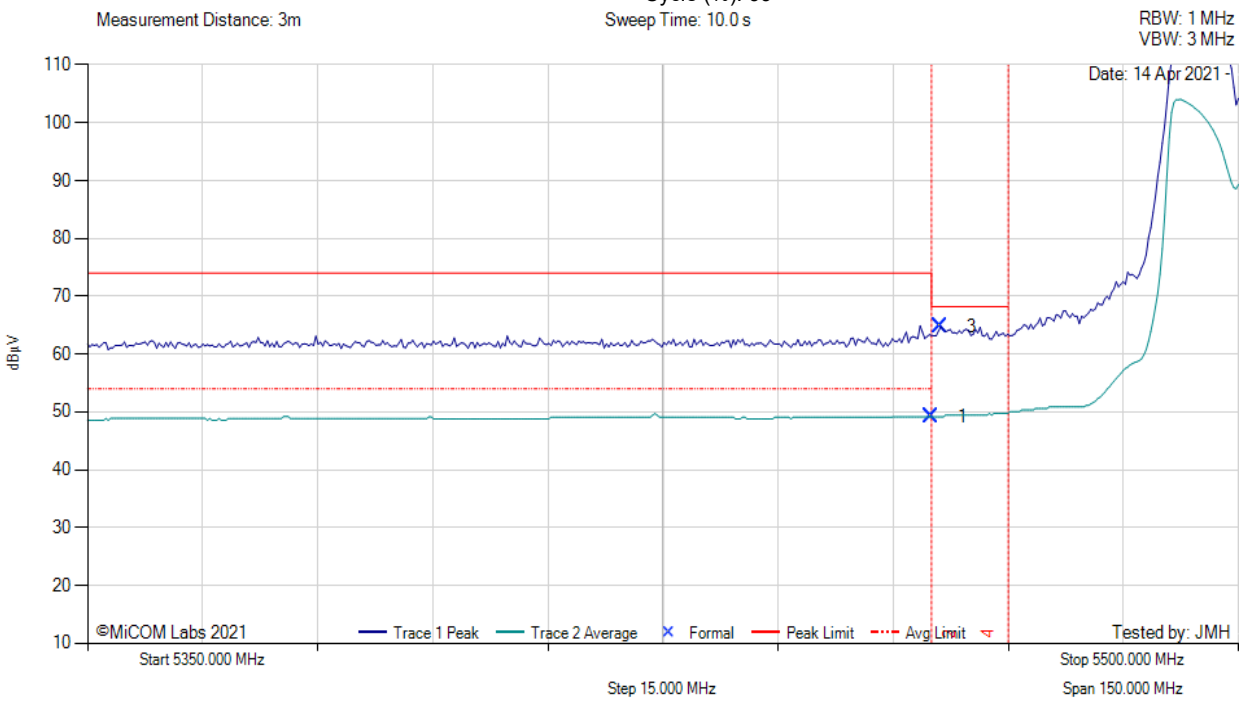
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5500.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



5350.00 - 5500.00 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	5460.00	11.54	3.06	34.53	49.13	Max Avg	Vertical	172	175	54.0	-4.9	Pass
3	5461.20	27.16	3.06	34.53	64.75	Max Peak	Vertical	172	175	68.2	-3.5	Pass
2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

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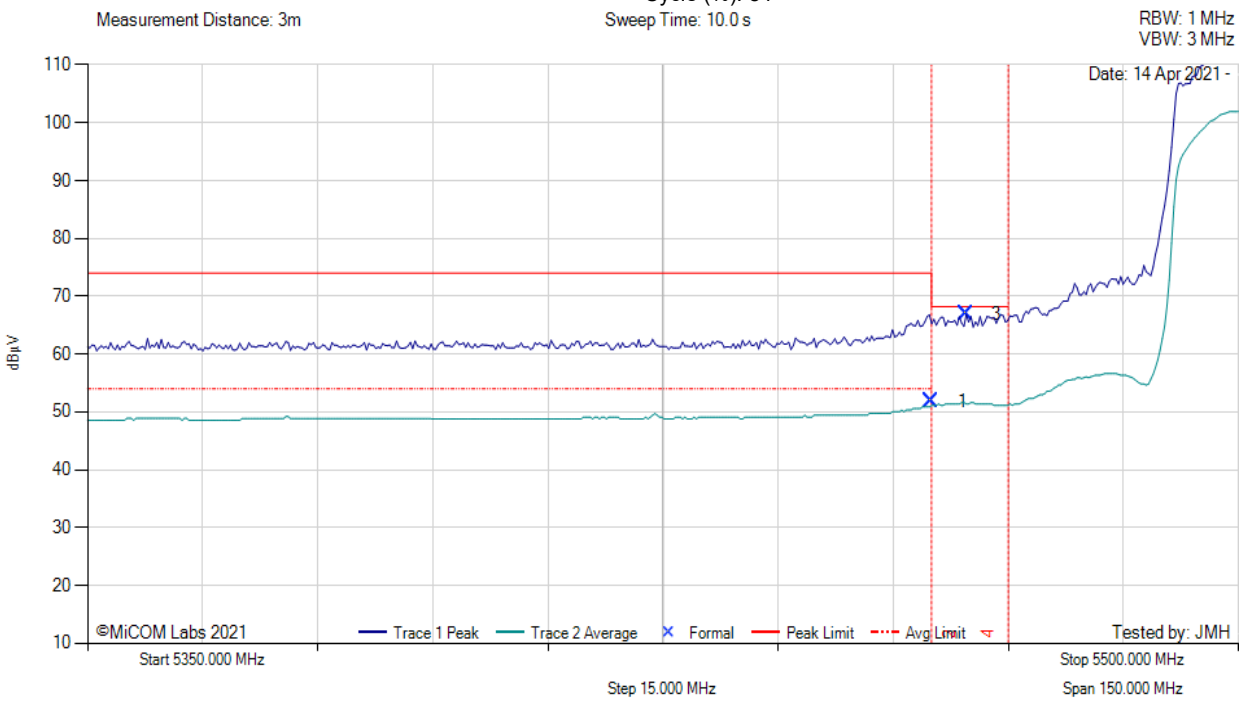
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5510.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 22, Duty Cycle (%): 84



5350.00 - 5500.00 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	5460.00	14.31	3.06	34.53	51.90	Max Avg	Vertical	172	175	54.0	-2.1	Pass
3	5464.51	29.26	3.07	34.54	66.87	Max Peak	Vertical	172	175	68.2	-1.4	Pass
2	5460.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
4	5470.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 0.76 dB DCCF added to average measurements

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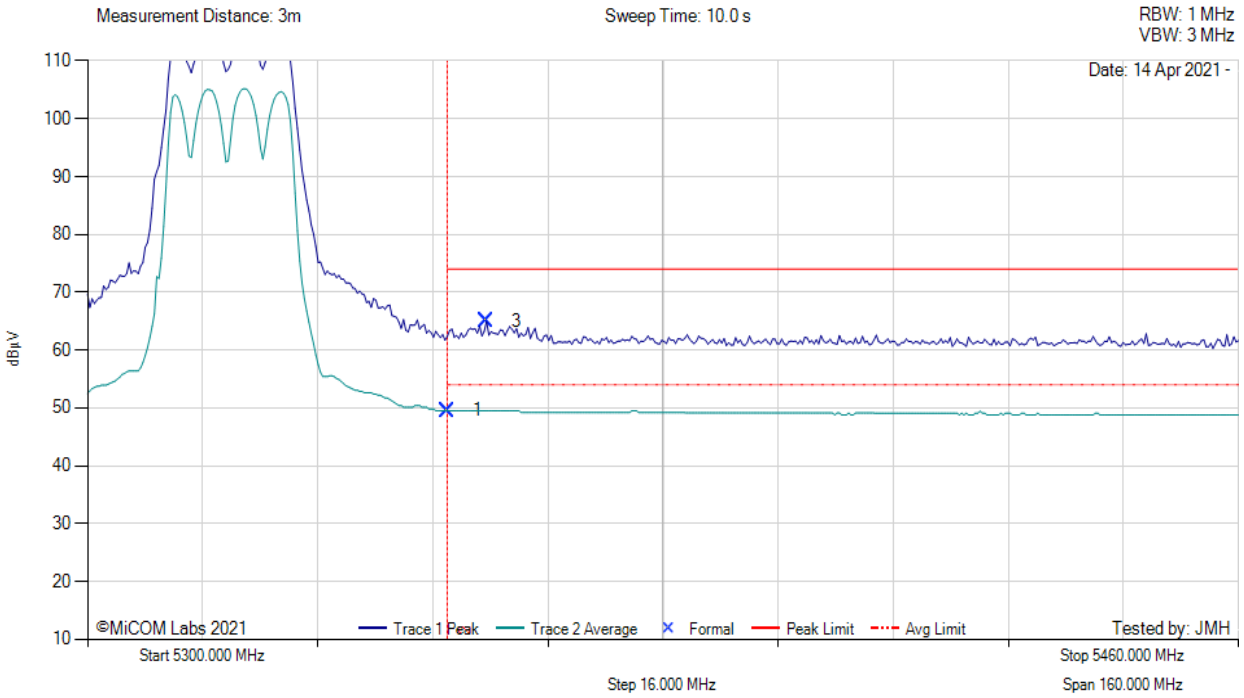
RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5320.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



5300.00 - 5460.00 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	5350.00	12.02	3.06	34.46	49.54	Max Avg	Vertical	169	171	54.0	-4.5	Pass
3	5355.47	27.42	3.05	34.47	64.94	Max Peak	Vertical	169	171	68.2	-3.3	Pass
2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

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

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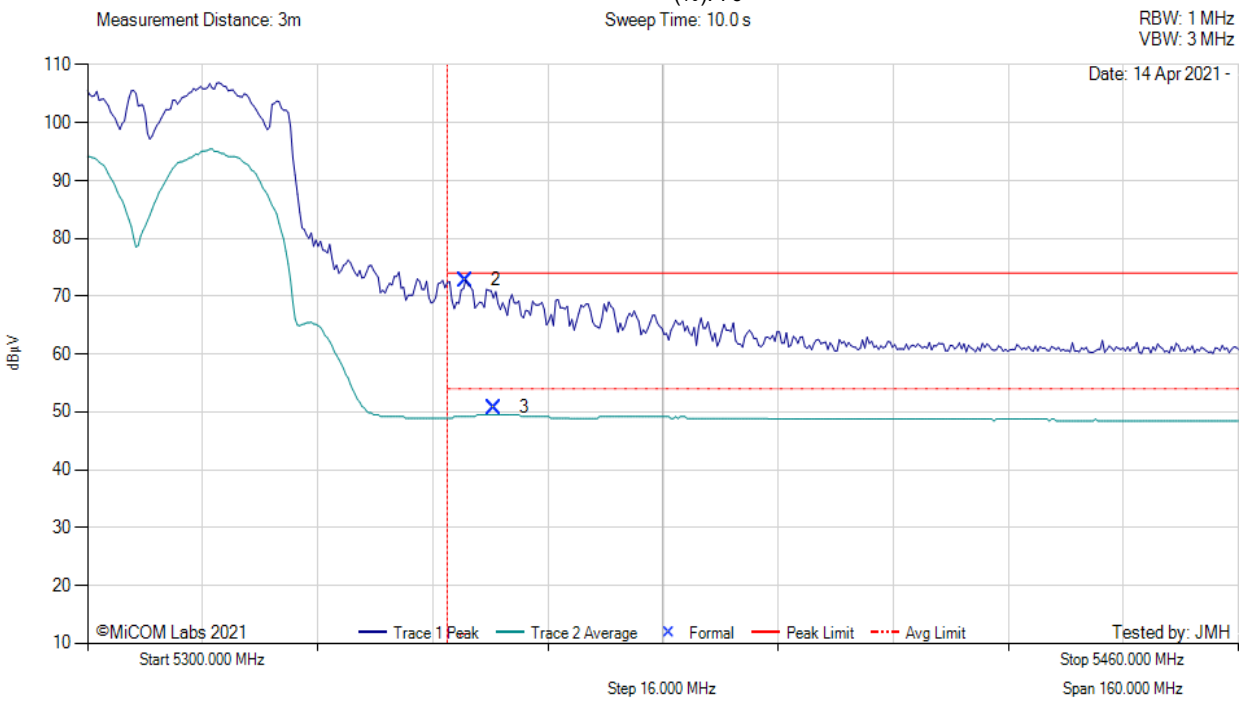
RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5290.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 19, Duty Cycle (%): 76



5300.00 - 5460.00 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	5352.59	35.31	3.05	34.47	72.83	Max Peak	Vertical	169	171	74.0	-1.2	Pass
3	5356.43	12.02	3.05	34.47	50.73	Max Avg	Vertical	169	171	54.0	-3.3	Pass
1	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 1.19 dB DCCF added to average measurement.

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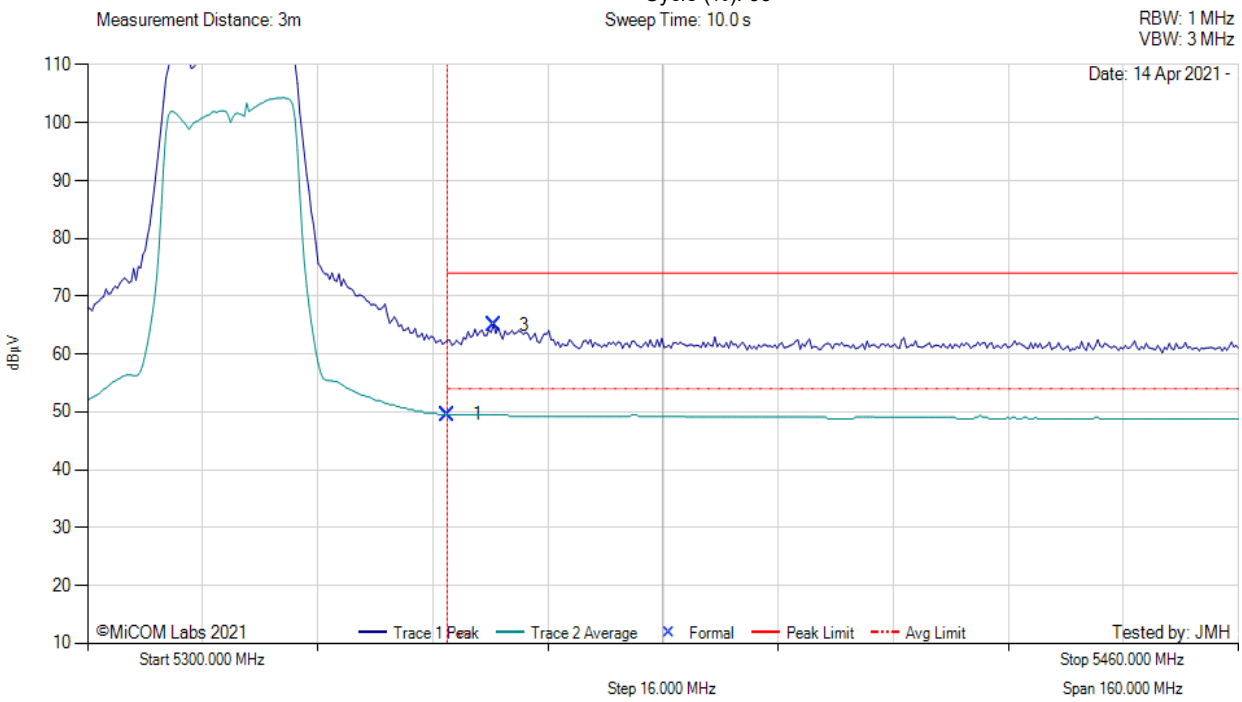
RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5320.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 24, Duty Cycle (%): 99



5300.00 - 5460.00 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	5350.00	12.02	3.06	34.46	49.54	Max Avg	Vertical	169	171	54.0	-4.5	Pass
3	5356.43	27.53	3.05	34.47	65.05	Max Peak	Vertical	169	171	68.2	-3.2	Pass
2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

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

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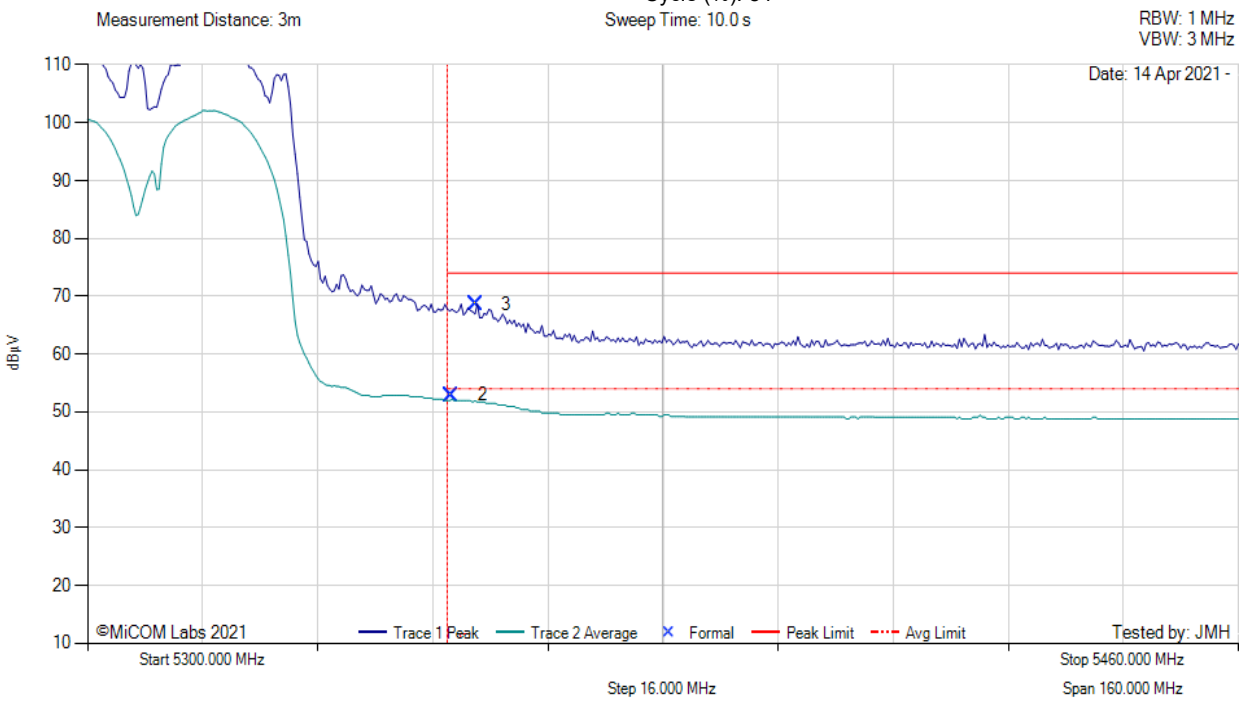
RESTRICTED UPPER BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5310.00 MHz, Antenna: MikroTik HGO-antenna-IN, Power Setting: 22, Duty Cycle (%): 84



5300.00 - 5460.00 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	5350.64	14.67	3.06	34.46	52.95	Max Avg	Vertical	169	171	54.0	-1.1	Pass
3	5354.03	31.14	3.05	34.47	68.66	Max Peak	Vertical	169	171	74.0	-5.3	Pass
1	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber. 0.76 dB DCCF added to average measurement.

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MiCOM Labs
opening wireless markets

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