REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 15.407

Report No.: MIKO95-U4 Rev A

Company: Mikrotikls SIA (MikroTik)

Model: RBD23UGS-5HPacD2HnD-NM-US
Marketing Name: NetMetal ac²

REGULATORY COMPLIANCE TEST REPORT

Company: Mikrotikls SIA (MikroTik)

Model: RBD23UGS-5HPacD2HnD-NM-US

To: FCC CFR 47 Part 15 Subpart E 15.407

Test Report Serial No.: MIKO95-U4 Rev A

This report supersedes: NONE

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

Issue Date: 19th December 2019

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
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ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

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

ilac-MRA A2LA

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

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

A2LA

Presented this 14th day of May 2018.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.01
Valid to February 29, 2020
Revised November 7, 2019

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

1.2. RECOGNITION

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

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	US0159 Listing #: 4143A-2 4143A-3
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	APEC MRA 2	RCB 210
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

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

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

1.3. PRODUCT CERTIFICATION

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

Accredited Product Certification Body

A2LA has accredited

MiCOM LABS

Pleasanton, CA

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

Presented this 14th day of May 2018

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.02
Valid to February 29, 2020
Revised November 7, 2019

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

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

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	26th November 2019	
Rev A	19th December 2019	Initial release

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

3. TEST RESULT CERTIFICATE

Manufacturer:	Mikrotikls SIA (MikroTik) Brivibas gatve 214i Riga, LV-1039 Latvia	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model:	RBD23UGS-5HPacD2HnD-NM-US	**Telephone:**	+1 925 462 0304
Equipment Type:	Wireless Access Point	**Fax:**	+1 925 462 0306
S/N's:	744D28F89F6F		
Test Date(s):	31st October – 19th November 2019	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart E 15.407	EQUIPMENT COMPLIES

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

Notes:

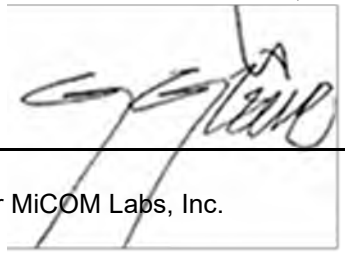
1. This document reports conditions under which testing was conducted and the results of testing performed.

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

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

A2LA ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:



Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911 D01 & D02	Oct 31 2013	Guidance for measurement of output emission of devices that employ single transmitter with multiple outputs or systems with multiple transmitters operating simultaneously in the same frequency band
II	KDB 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	August 2018	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	2016	Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
XI	ICES-003	Issue 6 Jan 2016; Updated April 2019	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
XV	FCC 47 CFR Part 2.1033	2016	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 (MikroTik) RBD23UGS-5HPacD2HnD-NM-US to FCC CFR 47 Part 15 Subpart E 15.407.
Applicant:	Mikrotikls SIA (MikroTik) Brivibas gatve 214i Riga, LV-1039 Latvia
Manufacturer:	Mikrotikls SIA (MikroTik)
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	MIKO95-U4
Date EUT received:	21st October 2019
Standard(s) applied:	FCC CFR 47 Part 15 Subpart E 15.407
Dates of test (from - to):	31st October – 19th November 2019
No of Units Tested:	1
Product Family Name:	NetMetal ac²
Model(s):	RBD23UGS-5HPacD2HnD-NM-US
Location for use:	Outdoors
Declared Frequency Range(s):	5150 - 5250 MHz; 5725 - 5850 MHz;
Type of Modulation:	OFDM
EUT Modes of Operation:	802.11a; ac-80; HT-20; HT-40;
Declared Nominal Output Power (dBm):	17 dBm
Transmit/Receive Operation:	Transceiver
Rated Input Voltage and Current:	AC Input 100-240V 50/60 Hz DC Output: 48V 0.95A POE Input 24-57V DC 0.95 A
Operating Temperature Range:	-40 to 70 ºC
ITU Emission Designator:	802.11a 16M4D1D 802.11n – HT-20 17M6D1D 802.11n – HT-40 36M0D1D 802.11ac-80 76M0D1D
Equipment Dimensions:	140 / 50 / 2450 mm
Weight:	0.8 Kg
Hardware Rev:	R1
Software Rev:	RouterOS 6.45.6

5.2. Scope Of Test Program

Mikrotikls SIA (MikroTik) RBD23UGS-5HPacD2HnD-NM-US

The scope of the test program was to test the Mikrotikls SIA (MikroTik) RBD23UGS-5HPacD2HnD-NM-US, configurations in the frequency ranges 5150 - 5250 MHz, 5725 - 5850 MHz for compliance against the following specification:

FCC CFR 47 Part 15 Subpart E 15.407
Radio Frequency Devices; Subpart E – Unlicensed National Information Infrastructure Devices

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

Type (EUT/ Support)	Equipment Description	Manufacturer	Model No.	Serial No.
EUT	Access Point	MikroTik	RBD23UGS-5HPacD2HnD-NM-US	744D28F89F6F
Support	48V AC/DC Power Supply	Golden Profit Electronics Technology Ltd.	MT48-480095-11DGU	-
Support	Laptop	Dell	D620	

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
external	MikroTik	MTAD-5G-30D3	Parabolic	30.0	-	2.5	-	5150 - 5250
external	MikroTik	MTAD-5G-30D3	Parabolic	30.0	-	2.5	-	5725 - 5850
external	MikroTik	MTAS-5G-19D120	Sector	19.0	-	120	-	5150 - 5250
external	MikroTik	MTAS-5G-19D120	Sector	19.0	-	120	-	5725 - 5850

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

5.5. Cabling and I/O Ports

Port Type	Max Cable Length	# of Ports	Screened	Conn Type	Data Type	Bit Rate	Environment
USB	3m	1	Yes	USB-A	Digital	None	End-User|Admin|
dc Jack		1	No	dc jack	Analog	none	Power
SFP	>30m	1		SFP+	Packet Data	10,100,1000,10000	End-User|
SIM Cards		1		SIM	Digital	None	End-User|
Ethernet PoE IN	>30m	1		RJ45	Packet Data	10,100,1000	End-User|

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
5150 - 5250 MHz				
a	6	5,180.00	5,200.00	5,240.00
ac-80	29.3	5,210.00	--	--
HT-20	6.5	5,180.00	5,200.00	5,240.00
HT-40	13.5	5,190.00	--	5,230.00
5725 - 5850 MHz				
a	6	5,745.00	5,785.00	5,825.00
ac-80	29.3	5,775.00	--	5,775.00
HT-20	6.5	5,745.00	5,785.00	5,825.00
HT-40	13.5	5,755.00	--	5,795.00

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

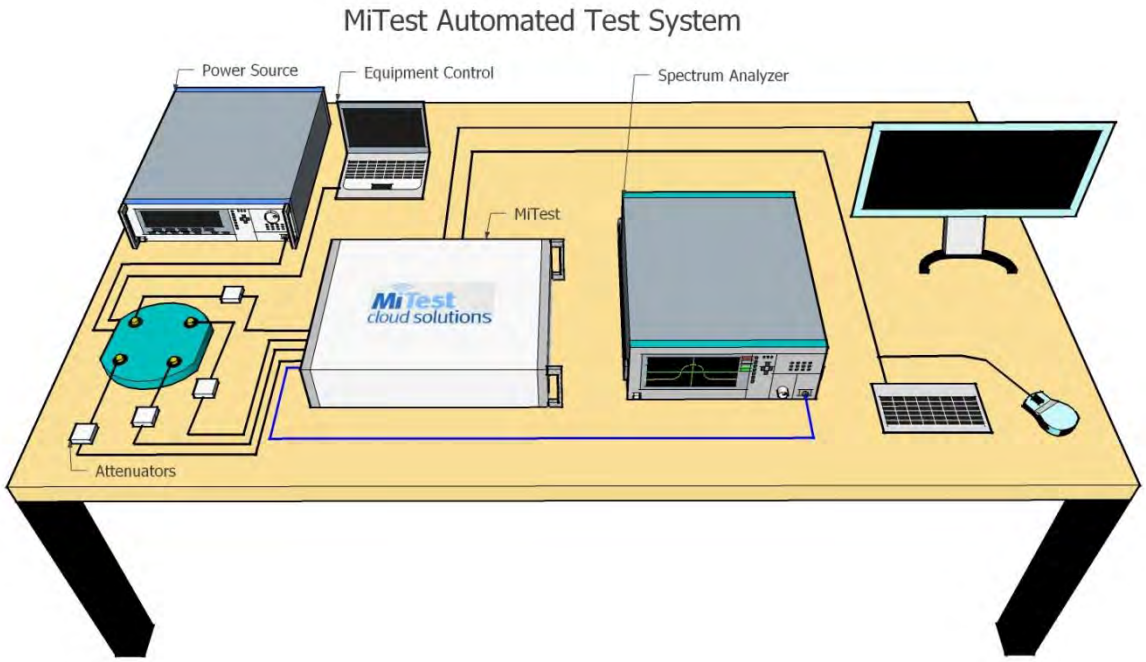
6. TEST SUMMARY

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	Complies	View Data
Power Spectral Density	Complies	View Data
Radiated	Complies	-
TX Spurious & Restricted Band Emissions	Complies	-
MikroTik MTAD-5G-30D3	Complies	View Data
MikroTik MTAS-5G-19D120	Complies	View Data
Restricted Edge & Band-Edge Emissions	Complies	-
MikroTik MTAD-5G-30D3	Complies	View Data
MikroTik MTAS-5G-19D120	Complies	View Data
Digital Emissions	Complies	View Data
AC Wireline	Complies	View Data

7. TEST EQUIPMENT CONFIGURATION(S)

7.1. RF Conducted Testing

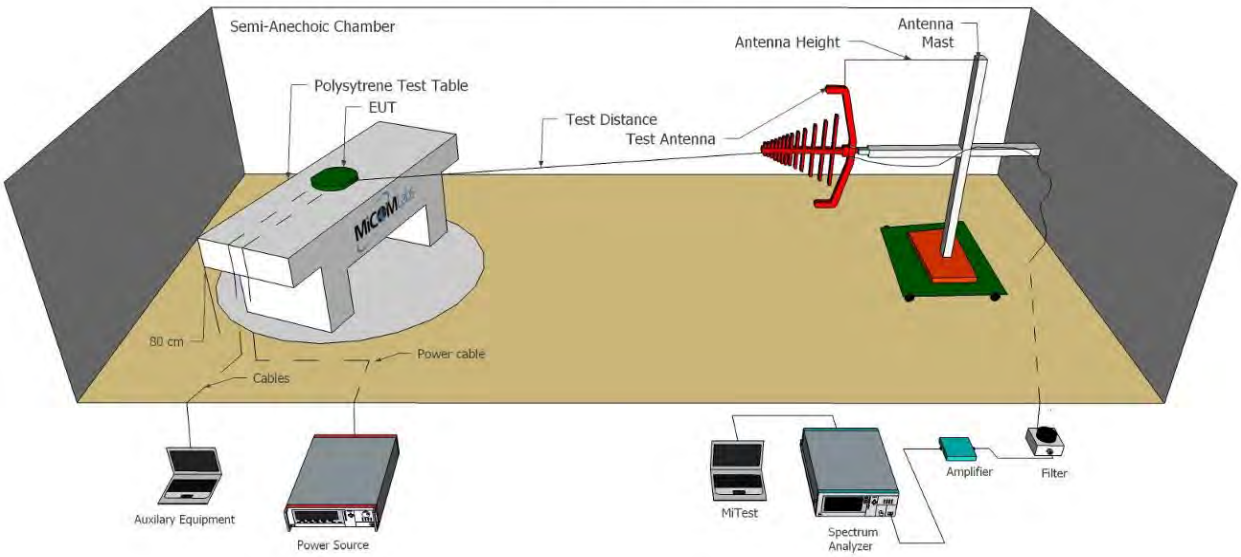


Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	9 Mar 2020
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	9 Mar 2020
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	9 Mar 2020
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	9 Mar 2020
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	9 Mar 2020
249	Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	30 Oct 2020
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2020
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2020
398	MiTest RF Conducted Test Software	MiCOM	MiTest ATS	Version 4.1	Not Required
405	DC Power Supply 0-60V	Agilent	6654A	MY4001826	Cal when used
408	USB to GPIB interface	National Instruments	GPIB-USB HS	14C0DE9	Not Required

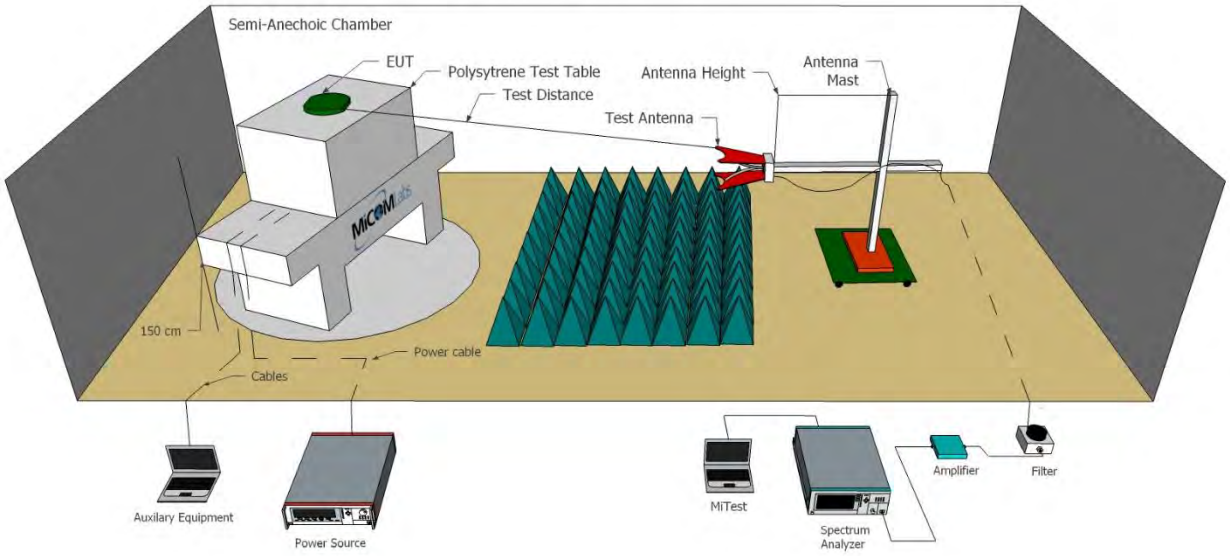
7.2. Radiated Emissions - 3m Chamber

Test Setup for Radiated Emissions for above and below 1 GHz

Radiated Emissions Below 1GHz Test Setup



Radiated Emissions Above 1GHz Test Setup



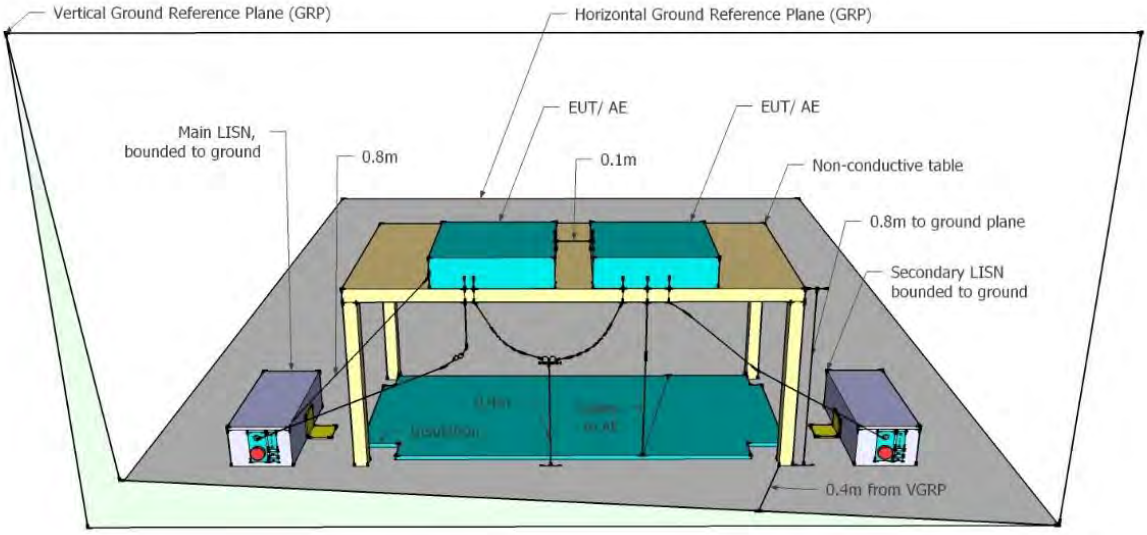
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	25 Jan 2020
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Apr 2020
346	1.6 TO 10GHz High Pass Filter	EWT	EWT-57-0112	H1	3 Sep 2020
373	26III RMS Multimeter	Fluke	Fluke 26 series III	76080720	21 Nov 2019
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2020
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	6 Sep 2020
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 Jan 2020
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	9 Sep 2020
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
416	Gigabit ethernet filter	ETS-Lingren	Gigafoil 260366	None	Not Required
447	MiTest Rad Emissions Test Software	MiCOM	Rad Emissions Test Software Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	5 Sep 2020
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	5 Sep 2020
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	9 Sep 2020
466	Low Pass Filter DC-1500 MHz	Mini-Circuits	NLP-1750+	VUU10401438	3 Sep 2020
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	9 Sep 2020
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	9 Sep 2020
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2019
518	Cable - Amp to Antenna	SRC Haverhill	157-3051574	518	9 Sep 2020
87	Uninterruptible Power Supply	Falcon Electric	ED2000-1/2LC	F3471 02/01	Cal when used
CC05	Confidence Check	MiCOM	CC05	None	4 Apr 2020

7.3. ac Wireline

The ac Wireline Conducted Emissions test was performed using the conducted test set-up shown in the diagram below.

Test Measurement Set up



Assets Utilized for ac Wireline Emission Testing

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

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
184	Pulse Limiter	Rhode & Schwarz	ESH3Z2	357.8810.52	28 Feb 2020
190	LISN (two-line V-network)	Rhode & Schwarz	ESH3Z5	836679/006	18 Oct 2020
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2020
295	Conducted Emissions Chamber Maintenance Check	MiCOM	Conducted Emissions Chamber	295	20 Dec 2019
307	BNC-CABLE	Megaphase	1689 1GVT4	15F50B002	11 Sep 2020
316	Dell desktop computer workstation	Dell	Desktop	WS04	Not Required
372	AC Variable PS	California Instruments	1251P	L06951	Cal when used
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2020
389	LISN (3 Phase) 9kHz - 30 MHz for support equipment	Rohde & Schwarz	ESH2-Z5	881493/013	Not Required
496	MiTest Conducted Emissions test software.	MiCOM	Conducted Emissions Test Software Version 1.0	496	Not Required
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2019
CCEMC01	Confidence Check.	MiCOM	CCEMC01	None	28 Feb 2020

8. MEASUREMENT AND PRESENTATION OF TEST DATA

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

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

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

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

9. TEST RESULTS

9.1. Peak Transmit Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Maximum Conducted Output Power	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	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 5150-5250 MHz

15. 407 (a)(1)
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. 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.

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.

Operating Frequency Band 5725 – 5850 MHz

15. 407 (a)(3)
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Equipment Configuration for Peak Transmit Power			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5180.0	11.49	11.50	--	--	14.51	N/A	17.00	-2.49	18.00
5200.0	12.48	12.69	--	--	15.60	N/A	17.00	-1.40	18.00
5240.0	11.91	12.40	--	--	15.17	N/A	17.00	-1.83	18.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11ac-80	**Duty Cycle (%):**	92.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5210.0	13.73	13.84	--	--	16.80	N/A	17.00	-0.20	18.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5180.0	11.56	11.65	--	--	14.62	N/A	17.00	-2.38	18.00
5200.0	11.58	11.71	--	--	14.66	N/A	17.00	-2.34	18.00
5240.0	11.48	12.07	--	--	14.80	N/A	17.00	-2.20	18.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5190.0	10.76	10.86	--	--	13.82	N/A	17.00	-3.18	18.00
5230.0	10.53	11.08	--	--	13.82	N/A	17.00	-3.18	18.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5745.0	12.62	13.21	--	--	15.94	N/A	17.00	-1.06	17.00
5785.0	11.97	12.55	--	--	15.28	N/A	17.00	-1.72	17.00
5825.0	11.55	12.34	--	--	14.97	N/A	17.00	-2.03	17.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11ac-80	**Duty Cycle (%):**	92.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5775.0	13.42	14.01	--	--	16.74	N/A	17.00	-0.26	17.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5745.0	10.80	11.75	--	--	14.31	N/A	17.00	-2.69	17.00
5785.0	11.37	12.04	--	--	14.73	N/A	17.00	-2.27	17.00
5825.0	11.16	11.91	--	--	14.56	N/A	17.00	-2.44	17.00

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

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

Equipment Configuration for Peak Transmit Power			
Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	19.00
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	
5755.0	10.12	10.95	--	--	13.57	N/A	17.00	-3.43	17.00
5795.0	10.93	11.98	--	--	14.50	N/A	17.00	-2.50	17.00

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

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

9.2. 26 dB & 99% Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	26 dB and 99 % Bandwidth	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	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):**	19.00
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**		
5180.0	19.078	19.078	--	--	19.078	19.078		
5200.0	19.078	18.918	--	--	19.078	18.918		
5240.0	19.158	18.998	--	--	19.158	18.998		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5180.0	16.433	16.433	--	--	16.433	16.433		
5200.0	16.433	16.433	--	--	16.433	16.433		
5240.0	16.433	16.433	--	--	16.433	16.433		

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

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

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	802.11ac-80	**Duty Cycle (%):**	92.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	19.00
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**		
5210.0	92.024	87.856	--	--	92.024	87.856		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5210.0	75.992	75.992	--	--	75.992	75.992		

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):**	19.00
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**		
5180.0	20.040	20.200	--	--	20.200	20.040		
5200.0	20.120	20.200	--	--	20.200	20.120		
5240.0	20.200	20.200	--	--	20.200	20.200		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5180.0	17.635	17.635	--	--	17.635	17.635		
5200.0	17.635	17.635	--	--	17.635	17.635		
5240.0	17.635	17.635	--	--	17.635	17.635		

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 (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	19.00
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**		
5190.0	39.920	39.760	--	--	39.920	39.760		
5230.0	39.920	39.760	--	--	39.920	39.760		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5190.0	36.072	36.072	--	--	36.072	36.072		
5230.0	36.072	36.072	--	--	36.072	36.072		

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. 6 dB & 99% Bandwidth

Conducted Test Conditions for 6 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	6 dB and 99 % Bandwidth	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for 6 dB and 99% Bandwidth Measurement
The bandwidth at 6 dB and 99 % 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 100 kHz.
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 6 dB & 99% Bandwidth			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	19.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5745.0	16.353	16.353	--	--	16.353	16.353		
5785.0	16.353	16.353	--	--	16.353	16.353		
5825.0	16.433	16.353	--	--	16.433	16.353		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5745.0	16.353	16.353	--	--	16.353	16.353		
5785.0	16.433	16.433	--	--	16.433	16.433		
5825.0	16.433	16.433	--	--	16.433	16.433		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth			
Variant:	802.11ac-80	**Duty Cycle (%):**	92.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	19.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5775.0	75.671	75.351	--	--	75.671	75.351		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5775.0	75.671	75.671	--	--	75.671	75.671		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	19.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5745.0	17.555	17.555	--	--	17.555	17.555		
5785.0	17.555	17.555	--	--	17.555	17.555		
5825.0	17.555	17.555	--	--	17.555	17.555		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5745.0	17.555	17.555	--	--	17.555	17.555		
5785.0	17.555	17.555	--	--	17.555	17.555		
5825.0	17.555	17.555	--	--	17.555	17.555		

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

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

Equipment Configuration for 6 dB & 99% Bandwidth			
Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	19.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 6 dB Bandwidth (MHz) Port(s)				6 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5755.0	35.752	35.431	--	--	35.752	35.431		
5795.0	35.431	35.110	--	--	35.431	35.110		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5755.0	35.912	35.912	--	--	35.912	35.912		
5795.0	36.072	36.072	--	--	36.072	36.072		

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

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

9.4. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.407	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Power Spectral Density	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.407 (a)	**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 5150-5250 MHz

15. 407 (a)(1)
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any

corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. 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.

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.

Operating Frequency Band 5725 – 5850 MHz

15. 407 (a)(3)
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Equipment Configuration for Power Spectral Density			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	19.00
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
5180.0	-0.301	-0.515	--	--	1.708	4.0	-2.3
5200.0	0.952	0.504	--	--	3.599	4.0	-0.4
5240.0	0.180	0.573	--	--	3.155	4.0	-0.9

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:	802.11ac-80	**Duty Cycle (%):**	92.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	19.00
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**
5210.0	-6.785	-7.392	--	--	-5.674	4.0	-9.7

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	19.00
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
5180.0	-0.918	-0.770	--	--	1.785	4.0	-2.2
5200.0	-0.764	-0.985	--	--	1.827	4.0	-2.2
5240.0	-0.782	-0.290	--	--	2.077	4.0	-1.9

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).

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Equipment Configuration for Power Spectral Density			
Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	19.00
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**
5190.0	-5.234	-5.314	--	--	-3.042	4.0	-7.1
5230.0	-5.450	-4.189	--	--	-2.283	4.0	-6.3

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).

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Equipment Configuration for Power Spectral Density			
Variant:	802.11a	**Duty Cycle (%):**	99.0
Data Rate:	6.00 MBit/s	**Antenna Gain (dBi):**	19.00
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/500 KHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/500 KHz	dBm/500 KHz	dB
5745.0	-0.880	-1.290	--	--	1.974	17.0	-15.0
5785.0	-2.382	-2.551	--	--	0.387	17.0	-16.6
5825.0	-2.637	-3.288	--	--	-0.270	17.0	-17.3

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:	802.11ac-80	**Duty Cycle (%):**	92.0
Data Rate:	29.30 MBit/s	**Antenna Gain (dBi):**	19.00
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/500 KHz)				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
MHz	a	b	c	d	dBm/500 KHz	dBm/500 KHz	dB
5775.0	-10.791	-9.439	--	--	-4.731	17.0	-21.7

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	802.11n HT-20	**Duty Cycle (%):**	99.0
Data Rate:	6.50 MBit/s	**Antenna Gain (dBi):**	19.00
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/500 KHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/500 KHz**	**dBm/500 KHz**	**dB**
5745.0	-4.585	-3.759	--	--	-1.207	17.0	-18.2
5785.0	-3.358	-3.017	--	--	-0.825	17.0	-17.8
5825.0	-3.903	-3.420	--	--	-0.710	17.0	-17.7

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	802.11n HT-40	**Duty Cycle (%):**	99.0
Data Rate:	13.50 MBit/s	**Antenna Gain (dBi):**	19.00
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/500 KHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/500 KHz**	**dBm/500 KHz**	**dB**
5755.0	-8.388	-6.959	--	--	-5.012	17.0	-22.0
5795.0	-7.207	-7.461	--	--	-4.535	17.0	-21.5

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).

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9.5. Radiated

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47:15.407	**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	**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);

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

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).

9.5.1. TX Spurious & Restricted Band Emissions

9.5.1.1. MikroTik MTAD-5G-30D3

Equipment Configuration for TX Spurious & Restricted Band Emissions			
Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5180.00	**Data Rate:**	6.00 MBit/s
Power Setting:	4	**Tested By:**	SB

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	4883.58	55.66	2.86	-12.56	45.96	Max Peak	Horizontal	164	184	68.2	-22.3	Pass
#2	4883.58	41.27	2.86	-12.56	31.57	Max Avg	Horizontal	164	184	54.0	-22.4	Pass
#3	5187.02	56.31	3.05	-12.25	47.11	Fundamental	Horizontal	151	162	--	--	
#4	6499.11	49.84	3.35	-8.81	44.38	Peak (NRB)	Horizontal	151	162	--	--	Pass

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5200.00	**Data Rate:**	6.00 MBit/s
Power Setting:	4	**Tested By:**	SB

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	4863.89	53.42	2.91	-12.55	43.78	Max Peak	Horizontal	127	267	68.2	-24.5	Pass
#2	4863.89	39.83	2.91	-12.55	30.19	Max Avg	Horizontal	127	267	54.0	-23.8	Pass
#3	5205.10	54.54	2.99	-12.40	45.13	Fundamental	Horizontal	100	157	--	--	

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5240.00	**Data Rate:**	6.00 MBit/s
Power Setting:	4	**Tested By:**	SB

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	4816.11	51.74	2.85	-12.42	42.17	Max Peak	Horizontal	166	19	68.2	-26.1	Pass
#2	4816.11	38.83	2.85	-12.42	29.26	Max Avg	Horizontal	166	19	54.0	-24.7	Pass
#3	5236.63	56.55	2.99	-12.13	47.41	Fundamental	Horizontal	100	156	--	--	
#4	6430.12	49.00	3.32	-8.90	43.42	Peak (NRB)	Horizontal	100	156	--	--	Pass

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	4	**Tested By:**	SB

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	3830.09	55.92	2.54	-11.98	46.48	Max Peak	Vertical	148	102	68.2	-21.8	Pass
#2	3830.09	49.93	2.54	-11.98	40.49	Max Avg	Vertical	148	102	54.0	-13.5	Pass
#3	3830.09	58.73	2.54	-11.98	49.29	Max Peak	Horizontal	148	339	68.2	-18.9	Pass
#4	3830.09	54.32	2.54	-11.98	44.88	Max Avg	Horizontal	148	339	54.0	-9.1	Pass
#5	6375.12	50.51	3.38	-9.10	44.79	Peak (NRB)	Vertical	150	112	--	--	Pass

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5785.00	**Data Rate:**	6.00 MBit/s
Power Setting:	4	**Tested By:**	SB

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	3858.04	51.03	2.58	-12.03	41.58	Max Peak	Vertical	148	63	68.2	-26.7	Pass
#2	3858.04	37.87	2.58	-12.03	28.42	Max Avg	Vertical	148	63	54.0	-25.6	Pass
#3	3858.04	51.42	2.58	-12.03	41.97	Max Peak	Horizontal	148	86	68.2	-26.3	Pass
#4	3858.04	37.81	2.58	-12.03	28.36	Max Avg	Horizontal	148	86	54.0	-25.6	Pass

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	4	**Tested By:**	SB

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	3883.23	60.15	2.56	-12.04	50.67	Max Peak	Vertical	150	324	68.2	-17.6	Pass
#2	3883.23	56.60	2.56	-12.04	47.12	Max Avg	Vertical	150	324	54.0	-6.9	Pass
#3	5828.74	49.79	3.14	-10.84	42.09	Fundamental	Horizontal	150	172	--	--	
#4	6340.38	49.27	3.26	-9.17	43.36	Peak (NRB)	Horizontal	150	172	--	--	Pass

9.5.1.2. MikroTik MTAS-5G-19D120

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5180.00	**Data Rate:**	6.00 MBit/s
Power Setting:	15	**Tested By:**	SB

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	5175.93	57.44	2.96	-12.16	48.24	Peak (NRB)	Horizontal	195	0	--	--	Pass

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5200.00	**Data Rate:**	6.00 MBit/s
Power Setting:	16	**Tested By:**	SB

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	5203.88	60.03	2.99	-12.42	50.60	Peak (NRB)	Horizontal	100	0	--	--	Pass

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5240.00	**Data Rate:**	6.00 MBit/s
Power Setting:	16	**Tested By:**	SB

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	5236.30	64.36	2.98	-12.16	55.18	Fundamental	Horizontal	100	0	--	--	

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	16	**Tested By:**	SB

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	3830.22	58.17	2.54	-11.98	48.73	Max Peak	Vertical	148	154	68.2	-19.5	Pass
#2	3830.22	53.37	2.54	-11.98	43.93	Max Avg	Vertical	148	154	54.0	-10.1	Pass
#3	3830.43	58.68	2.54	-11.98	49.24	Max Peak	Horizontal	101	55	68.2	-19.0	Pass
#4	3830.43	54.09	2.54	-11.98	44.65	Max Avg	Horizontal	101	55	54.0	-9.4	Pass
#5	5737.40	57.35	3.16	-11.17	49.34	Fundamental	Horizontal	150	186	--	--	

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5785.00	**Data Rate:**	6.00 MBit/s
Power Setting:	16	**Tested By:**	SB

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	3856.71	64.16	2.57	-12.01	54.72	Max Peak	Horizontal	98	53	68.2	-13.5	Pass
#2	3856.71	62.06	2.57	-12.01	52.62	Max Avg	Horizontal	98	53	54.0	-1.4	Pass
#3	5792.19	52.85	3.14	-10.85	45.14	Fundamental	Horizontal	101	304	--	--	

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	16	**Tested By:**	SB

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	3884.13	54.61	2.56	-12.04	45.13	Max Peak	Horizontal	102	57	68.2	-23.1	Pass
#2	3884.13	45.96	2.56	-12.04	36.48	Max Avg	Horizontal	102	57	54.0	-17.5	Pass
#3	5827.64	57.48	3.14	-10.85	49.77	Fundamental	Horizontal	100	21	--	--	

9.5.2. Restricted Edge & Band-Edge Emissions

9.5.2.3. MikroTik MTAD-5G-30D3

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

MikroTik MTAD-5G-30D3		Band-Edge Freq	Limit 68.2dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5180.00	5150.00	66.69	53.44	17
802.11ac-80	5210.00	5150.00	68.04	52.98	17
802.11n HT-20	5180.00	5150.00	65.58	53.54	17
802.11n HT-40	5190.00	5150.00	64.88	53.54	17

5725 MHz Radiated Lower Band-Edge Emissions

MikroTik MTAD-5G-30D3		Band-Edge Freq	Level	Level	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5725.00	5725.00	63.58	69.43	17
802.11ac-80	5725.00	5725.00	65.07	75.31	17
802.11n HT-20	5725.00	5725.00	63.59	69.59	17
802.11n HT-40	5725.00	5725.00	63.99	70.32	17

5850 MHz Radiated Higher Band-Edge Emissions

MikroTik MTAD-5G-30D3		Band-Edge Freq	Level	Level	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5850.00	5850.00	70.07	64.87	17
802.11ac-80	5850.00	5850.00	80.95	66.96	17
802.11n HT-20	5850.00	5850.00	70.64	62.88	17
802.11n HT-40	5850.00	5850.00	67.37	62.63	17

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5180.00	**Data Rate:**	6.00 MBit/s
Power Setting:	17	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	4823.15	16.54	2.86	34.04	53.44	Max Avg	Horizontal	164	203	54.0	-0.6	Pass
#2	4823.15	29.79	2.86	34.04	66.69	Max Peak	Horizontal	164	203	68.2	-1.5	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11ac-80
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	92.0
Channel Frequency (MHz):	5210.00	**Data Rate:**	29.30 MBit/s
Power Setting:	17	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	4823.15	16.08	2.86	34.04	52.98	Max Avg	Horizontal	164	201	54.0	-1.0	Pass
#2	5139.48	30.87	2.98	34.19	68.04	Max Peak	Horizontal	164	201	68.2	-0.2	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5180.00	**Data Rate:**	6.50 MBit/s
Power Setting:	17	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	4823.85	16.64	2.86	34.04	53.54	Max Avg	Horizontal	164	201	54.0	-0.5	Pass
#2	4823.85	28.68	2.86	34.04	65.58	Max Peak	Horizontal	164	201	68.2	-2.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.50 MBit/s
Power Setting:	17	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	4823.15	16.64	2.86	34.04	53.54	Max Avg	Horizontal	164	201	54.0	-0.5	Pass
#2	4824.05	27.98	2.86	34.04	64.88	Max Peak	Horizontal	164	201	68.2	-3.4	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5615.80	25.82	3.11	34.65	63.58	Max Peak	Vertical	137	4	68.2	-4.7	Pass
#2	5725.00	31.52	3.19	34.72	69.43	Max Peak	Vertical	137	4	122.2	-52.8	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11ac-80
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	92.0
Channel Frequency (MHz):	5775.00	**Data Rate:**	29.30 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5645.74	27.36	3.08	34.63	65.07	Max Peak	Vertical	137	4	68.2	-3.2	Pass
#2	5724.28	37.40	3.19	34.72	75.31	Max Peak	Vertical	137	4	119.9	-44.6	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5624.82	25.83	3.12	34.64	63.59	Max Peak	Vertical	137	4	68.2	-4.6	Pass
#2	5725.00	31.68	3.19	34.72	69.59	Max Peak	Vertical	137	4	122.2	-52.6	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5755.00	**Data Rate:**	13.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5641.41	26.25	3.10	34.64	63.99	Max Peak	Vertical	137	4	68.2	-4.2	Pass
#2	5722.84	32.40	3.20	34.72	70.32	Max Peak	Vertical	137	4	117.6	-47.3	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11a
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5863.83	31.87	3.20	35.00	70.07	Max Peak	Vertical	137	4	108.0	-37.9	Pass
#3	5937.43	26.56	3.20	35.11	64.87	Max Peak	Vertical	137	4	68.2	-3.4	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11ac-80
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	92.0
Channel Frequency (MHz):	5775.00	**Data Rate:**	29.30 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5850.92	42.75	3.24	34.96	80.95	Max Peak	Vertical	137	4	120.5	-39.6	Pass
#3	5926.83	28.67	3.18	35.11	66.96	Max Peak	Vertical	137	4	68.2	-1.3	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5863.37	32.46	3.19	34.99	70.64	Max Peak	Vertical	137	4	108.2	-37.6	Pass
#3	5926.37	24.60	3.17	35.11	62.88	Max Peak	Vertical	137	4	68.2	-5.4	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAD-5G-30D3	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	30.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5795.00	**Data Rate:**	13.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5863.83	29.17	3.20	35.00	67.37	Max Peak	Vertical	137	4	108.9	-41.5	Pass
#3	5955.41	24.29	3.21	35.13	62.63	Max Peak	Vertical	137	4	68.2	-5.6	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

9.5.2.4. MikroTik MTAS-5G-19D120

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

MikroTik MTAS-5G-19D120		Band-Edge Freq	Limit 68.2dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5180.00	5150.00	63.75	51.54	18
802.11ac-80	5210.00	5150.00	67.53	51.52	16
802.11n HT-20	5180.00	5150.00	63.73	51.50	18
802.11n HT-40	5190.00	5150.00	64.96	51.52	18

5725 MHz Radiated Lower Band-Edge Emissions

MikroTik MTAS-5G-19D120		Band-Edge Freq	Level	Level	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5725.00	5725.00	59.83	63.06	17
802.11ac-80	5725.00	5725.00	64.96	72.02	17
802.11n HT-20	5725.00	5725.00	59.42	64.43	17
802.11n HT-40	5725.00	5725.00	60.05	68.41	17

5850 MHz Radiated Higher Band-Edge Emissions

MikroTik MTAS-5G-19D120		Band-Edge Freq	Level	Level	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
802.11a	5850.00	5850.00	69.44	61.69	17
802.11ac-80	5850.00	5850.00	70.54	64.13	17
802.11n HT-20	5850.00	5850.00	69.37	62.72	17
802.11n HT-40	5850.00	5850.00	65.48	60.85	17

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5180.00	**Data Rate:**	6.00 MBit/s
Power Setting:	18	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	5150.00	14.40	2.93	34.21	51.54	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
#2	5150.00	26.61	2.93	34.21	63.75	Max Peak	Horizontal	162	182	68.2	-4.5	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11ac-80
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	92.0
Channel Frequency (MHz):	5210.00	**Data Rate:**	29.30 MBit/s
Power Setting:	16	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	5069.64	14.48	2.93	34.11	51.52	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
#2	5143.29	30.39	2.94	34.20	67.53	Max Peak	Horizontal	162	182	68.2	-0.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5180.00	**Data Rate:**	6.50 MBit/s
Power Setting:	18	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	5121.44	14.39	2.95	34.16	51.50	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
#2	5134.97	26.56	2.99	34.18	63.73	Max Peak	Horizontal	162	182	68.2	-4.5	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.50 MBit/s
Power Setting:	18	**Tested By:**	SB

Test Measurement Results

4500.00 - 5250.00 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	5136.47	14.33	3.00	34.19	51.52	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
#2	5143.99	27.83	2.93	34.20	64.96	Max Peak	Horizontal	162	182	68.2	-3.3	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.00 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5609.31	22.09	3.09	34.65	59.83	Max Peak	Horizontal	198	4	68.2	-8.4	Pass
#2	5725.00	25.15	3.19	34.72	63.06	Max Peak	Horizontal	198	4	122.2	-59.1	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11ac-80
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	92.0
Channel Frequency (MHz):	5775.00	**Data Rate:**	29.30 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5644.30	27.24	3.09	34.63	64.96	Max Peak	Horizontal	198	4	68.2	-3.3	Pass
#2	5705.16	34.17	3.16	34.69	72.02	Max Peak	Horizontal	198	4	106.6	-34.6	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5745.00	**Data Rate:**	6.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5615.80	21.66	3.11	34.65	59.42	Max Peak	Horizontal	198	4	68.2	-8.8	Pass
#2	5725.00	26.52	3.19	34.72	64.43	Max Peak	Horizontal	198	4	122.2	-57.8	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5725 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5755.00	**Data Rate:**	13.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5600.00 - 5780.00 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	5626.62	22.29	3.12	34.64	60.05	Max Peak	Horizontal	198	4	68.2	-8.2	Pass
#2	5725.00	30.50	3.19	34.72	68.41	Max Peak	Horizontal	198	4	122.2	-53.8	Pass
#3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11a
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.00 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5867.05	31.22	3.21	35.01	69.44	Max Peak	Horizontal	198	4	108.2	-38.8	Pass
#3	5937.90	23.37	3.20	35.12	61.69	Max Peak	Horizontal	198	4	68.2	-6.5	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11ac-80
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	92.0
Channel Frequency (MHz):	5775.00	**Data Rate:**	29.30 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5901.16	32.17	3.27	35.10	70.54	Max Peak	Horizontal	198	4	86.5	-16.0	Pass
#3	5929.60	25.83	3.19	35.11	64.13	Max Peak	Horizontal	198	4	68.2	-4.1	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11n HT-20
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5825.00	**Data Rate:**	6.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5864.29	31.17	3.20	35.00	69.37	Max Peak	Horizontal	198	4	107.6	-38.2	Pass
#3	5930.06	24.42	3.19	35.11	62.72	Max Peak	Horizontal	198	4	68.2	-5.5	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

Equipment Configuration for 5850 MHz Radiated Band-Edge Emissions

Antenna:	MikroTik MTAS-5G-19D120	**Variant:**	802.11n HT-40
Antenna Gain (dBi):	19.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99.0
Channel Frequency (MHz):	5795.00	**Data Rate:**	13.50 MBit/s
Power Setting:	17	**Tested By:**	JMH

Test Measurement Results

5770.00 - 6000.00 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	5883.19	27.25	3.18	35.05	65.48	Max Peak	Horizontal	198	4	97.8	-32.3	Pass
#3	5930.52	22.54	3.20	35.11	60.85	Max Peak	Horizontal	198	4	68.2	-7.4	Pass
#1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--
Test Notes: EUT powered by POE, connected to laptop outside chamber												

9.5.3. Digital Emissions

Radiated Test Conditions for Radiated Digital Emissions (0.03 – 1 GHz)			
Standard:	FCC CFR 47:15.247	**Ambient Temp. (ºC):**	20.0 - 24.5
Test Heading:	Digital Emissions	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	15.209	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Digital Emissions (0.03 – 1 GHz)
Testing 30M-1 GHz was performed in a 3-meter anechoic chamber using a CISPR compliant receiver. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. To further maximize emissions the receive antenna was varied between 1 and 4 meters. The emissions are recorded with receiver in peak hold mode. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed.

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

Field Strength Calculation
The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver.

FS = R + AF + CORR

where:
FS = Field Strength
R = Measured Receiver Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain

For example:
Given a Receiver input reading of 51.5dBmV; Antenna Factor of 8.5dB; Cable Loss of 1.3dB; Falloff Factor of 0dB, an Amplifier Gain of 26dB and Notch Filter Loss of 1dB. The Field Strength of the measured emission is:

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

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are done as:

Level (dBmV/m) = 20 * Log (level (mV/m))

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

Limits for Radiated Digital Emissions (0.03 – 1 GHz)

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength		Measurement Distance (m)
	µV/m (microvolts/meter)	dBµV/m (dB microvolts/meter)	
0.009-0.490	2400/F(kHz)	--	300
0.490-1.705	24000/F(kHz)	--	30

1.705-30.0	30	29.5	30
30-88	100**	40	3
88-216	150**	43.5	3
216-960	200**	46.0	3
Above 960	500	54.0	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241. (b) In the emission table above, the tighter limit applies at the band edges. (c) The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission. For intentional radiators which operate under the provisions of other sections within this part and which are required to reduce their unwanted emissions to the limits specified in this table, the limits in this table are based on the frequency of the unwanted emission and not the fundamental frequency. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. (d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. (e) The provisions in §§15.31, 15.33, and 15.35 for measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part. (f) In accordance with §15.33(a), in some cases the emissions from an intentional radiator must be measured to beyond the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator because of the incorporation of a digital device. If measurements above the tenth harmonic are so required, the radiated emissions above the tenth harmonic shall comply with the general radiated emission limits applicable to the incorporated digital device, as shown in §15.109 and as based on the frequency of the emission being measured, or, except for emissions contained in the restricted frequency bands shown in §15.205, the limit on spurious emissions specified for the intentional radiator, whichever is the higher limit. Emissions which must be measured above the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator and which fall within the restricted bands shall comply with the general radiated emission limits in §15.109 that are applicable to the incorporated digital device. (g) Perimeter protection systems may operate in the 54-72 MHz and 76-88 MHz bands under the provisions of this section. The use of such perimeter protection systems is limited to industrial, business and commercial applications.

Equipment Configuration for Digital Emissions (0.03 - 1 GHz)

Antenna:	MikroTik DA-2450-05RP-SMA-01	**Variant:**	OFDM
Antenna Gain (dBi):	5.00	**Modulation:**	CCK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	2437.00	**Data Rate:**	1.00 MBit/s
Power Setting:	26	**Tested By:**	SB

Test Measurement Results

30.00 - 1000.00 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	31.43	44.64	3.55	-8.71	39.48	MaxQP	Vertical	111	173	40.0	-0.5	Pass
#2	31.43	24.13	3.55	-8.71	18.97	MaxQP	Horizontal	101	218	40.0	-21.0	Pass
#3	43.86	52.15	3.67	-17.38	38.44	MaxQP	Vertical	100	338	40.0	-1.6	Pass
#4	43.86	36.74	3.67	-17.38	23.03	MaxQP	Horizontal	134	201	40.0	-17.0	Pass
#5	64.83	52.38	3.84	-20.75	35.47	MaxQP	Vertical	114	355	40.0	-4.5	Pass
#6	64.83	38.62	3.84	-20.75	21.71	MaxQP	Horizontal	151	293	40.0	-18.3	Pass
#7	182.74	44.31	4.46	-17.11	31.66	MaxQP	Horizontal	198	0	43.0	-11.3	Pass
#8	535.06	32.54	5.69	-9.34	28.89	MaxQP	Horizontal	104	185	46.0	-17.1	Pass

9.6. AC Wireline

Test Conditions for ac Wireline Emissions (0.15 – 30 MHz)			
Standard:	FCC CFR 47:15.247	Ambient Temp. (ºC):	20.0 - 24.5
Test Heading:	Conducted (ac Wireline Emissions)	Rel. Humidity (%):	32 - 45
Standard Section(s):	15.207	Pressure (mBars):	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for ac Wireline Emissions (0.15 – 30 MHz)
The EUT is configured in accordance with ANSI C63.4. The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

Test configuration and setup for ac Wireline Emission Measurement were per the ac Wireline Test Set-up specified in this document.

Limits for ac Wireline Emissions

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Limits for conducted disturbance at the mains ports of class B ITE

Frequency of emission (MHz)	Quasi-peak dBuV	Average dBuV
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50
Note 1	* Decreases with the logarithm of the frequency	
Note 2	* The lower limit applies at the boundary between frequency ranges	

Limits for conducted disturbance at the mains ports of class A ITE

Frequency of emission (MHz)	Quasi-peak dBuV	Average dBuV
0.15–0.5	79	66
0.5–30	73	60
Note 1	* The lower limit shall apply at the transition frequency.	

The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

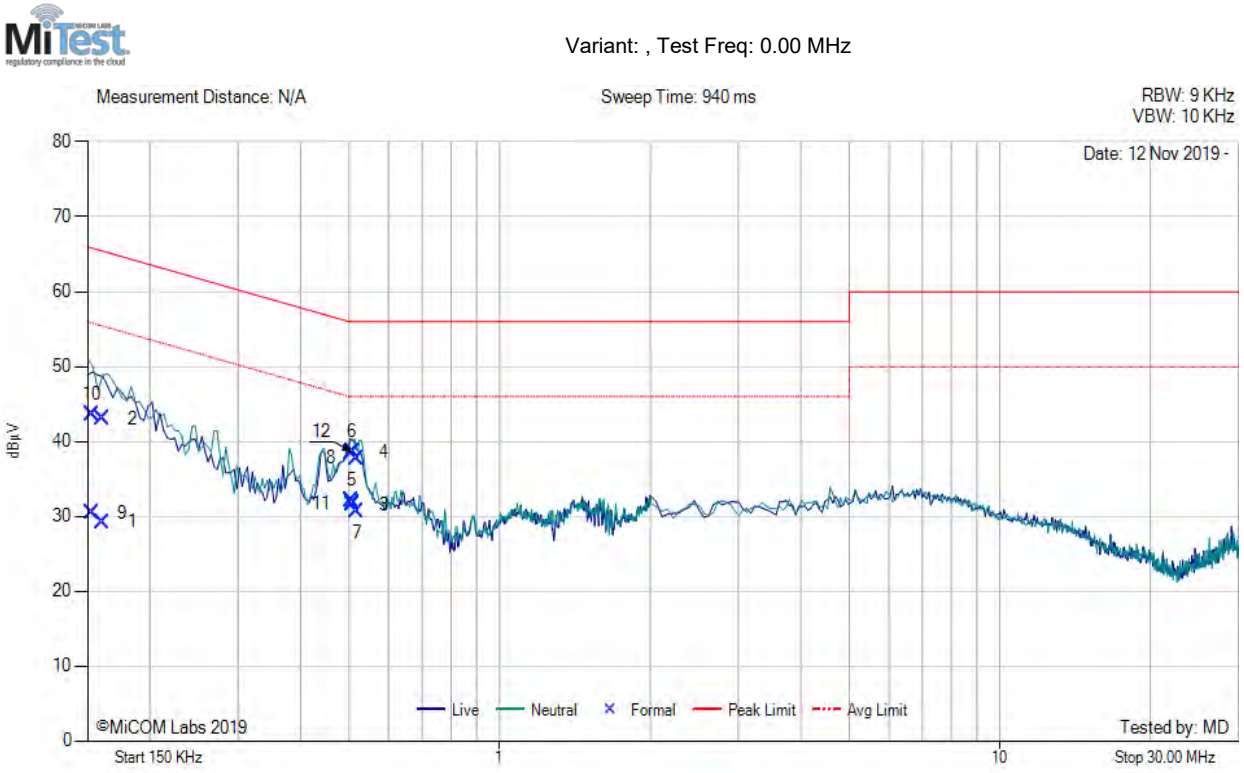
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μV within the frequency band 535-1705 kHz, as measured using a 50 μH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

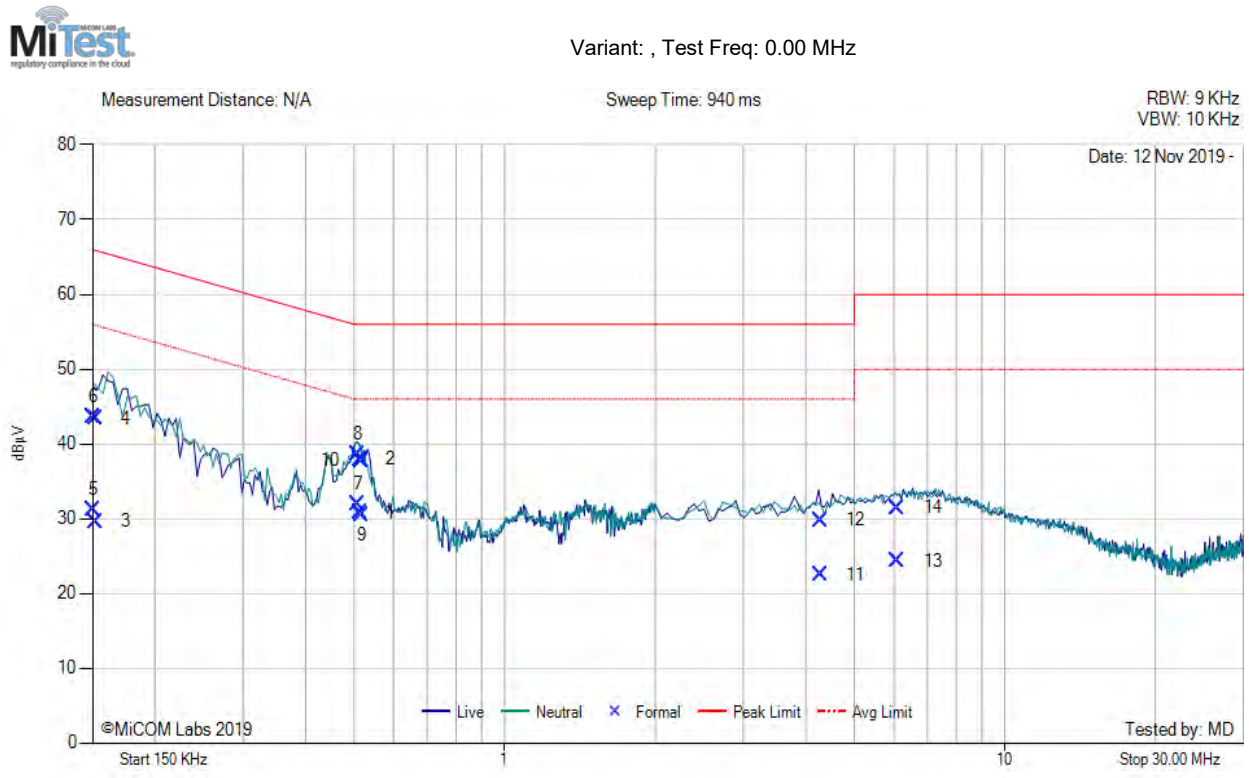
Model:	NetMetal ac²	Configuration tested:	PoE Powered
Input power:	120V$_{AC}$/60Hz	Standard:	FCC 15B



Num	Frequency MHz	Raw dBµV	Cable Loss dB	Factor dB	Total Correction dBµV	Corrected Value dBµV	Measurement Type	Line	Limit dBµV/m	Margin dB	Pass /Fail
1	0.160	19.25	0.05	9.92	9.97	29.22	Max Avg	Neutral	55.7	-26.5	Pass
2	0.160	33.04	0.05	9.92	9.97	43.01	Max Qp	Neutral	65.7	-22.7	Pass
3	0.510	21.56	0.09	9.92	10.01	31.57	Max Avg	Live	46.0	-14.4	Pass
4	0.510	28.57	0.09	9.92	10.01	38.58	Max Qp	Live	56.0	-17.4	Pass
5	0.505	22.14	0.09	9.92	10.01	32.15	Max Avg	Neutral	46.0	-13.9	Pass
6	0.505	28.48	0.09	9.92	10.01	38.49	Max Qp	Neutral	56.0	-17.5	Pass
7	0.519	20.59	0.09	9.92	10.01	30.60	Max Avg	Neutral	46.0	-15.4	Pass
8	0.519	27.73	0.09	9.92	10.01	37.74	Max Qp	Neutral	56.0	-18.3	Pass
9	0.153	20.47	0.05	9.92	9.97	30.44	Max Avg	Live	55.9	-25.5	Pass
10	0.153	33.68	0.05	9.92	9.97	43.65	Max Qp	Live	65.9	-22.3	Pass
11	0.508	21.72	0.09	9.92	10.01	31.73	Max Avg	Live	46.0	-14.3	Pass
12	0.508	28.57	0.09	9.92	10.01	38.58	Max Qp	Live	56.0	-17.4	Pass

Test Notes: 120 POE AC Mains

Model:	NetMetal ac²	Configuration tested:	AC/DC PS Powered
Input power:	120V$_{AC}$/60Hz	Standard:	FCC 15B



Num	Frequency MHz	Raw dBµV	Cable Loss dB	Factor dB	Total Correction dBµV	Corrected Value dBµV	Measurement Type	Line	Limit dBµV/m	Margin dB	Pass /Fail
1	0.514	20.87	0.09	9.92	10.01	30.88	Max Avg	Neutral	46.0	-15.1	Pass
2	0.514	27.95	0.09	9.92	10.01	37.96	Max Qp	Neutral	56.0	-18.0	Pass
3	0.152	19.67	0.05	9.92	9.97	29.64	Max Avg	Neutral	55.9	-26.3	Pass
4	0.152	33.46	0.05	9.92	9.97	43.43	Max Qp	Neutral	65.9	-22.5	Pass
5	0.151	21.23	0.05	9.92	9.97	31.20	Max Avg	Live	56.0	-24.8	Pass
6	0.151	33.66	0.05	9.92	9.97	43.63	Max Qp	Live	66.0	-22.3	Pass
7	0.509	21.96	0.09	9.92	10.01	31.97	Max Avg	Live	46.0	-14.0	Pass
8	0.509	28.64	0.09	9.92	10.01	38.65	Max Qp	Live	56.0	-17.4	Pass
9	0.518	20.55	0.09	9.92	10.01	30.56	Max Avg	Neutral	46.0	-15.4	Pass
10	0.518	27.73	0.09	9.92	10.01	37.74	Max Qp	Neutral	56.0	-18.3	Pass
11	4.277	12.20	0.24	10.06	10.30	22.50	Max Avg	Live	46.0	-23.5	Pass
12	4.277	19.49	0.24	10.06	10.30	29.79	Max Qp	Live	56.0	-26.2	Pass
13	6.110	13.90	0.34	10.15	10.49	24.39	Max Avg	Live	50.0	-25.6	Pass
14	6.110	21.00	0.34	10.15	10.49	31.49	Max Qp	Live	60.0	-28.5	Pass

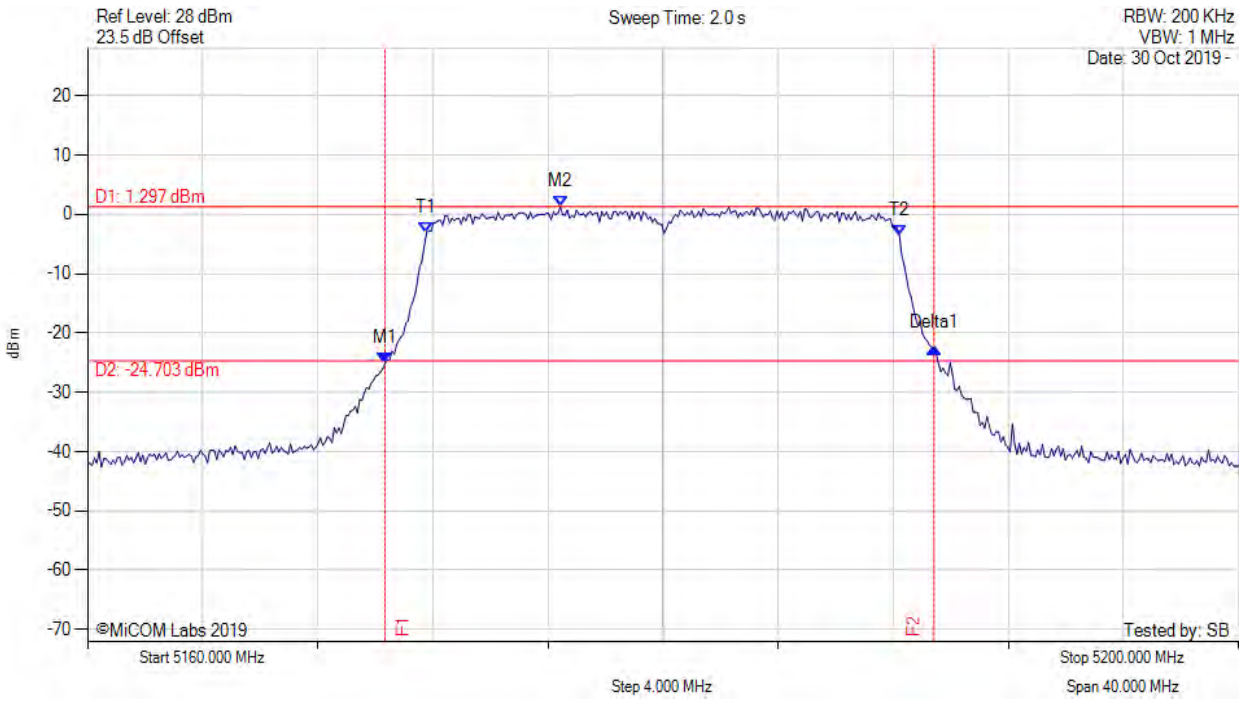
Test Notes: 120 PS AC Mains

A. APPENDIX - GRAPHICAL IMAGES

A.1. 26 dB & 99% Bandwidth

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

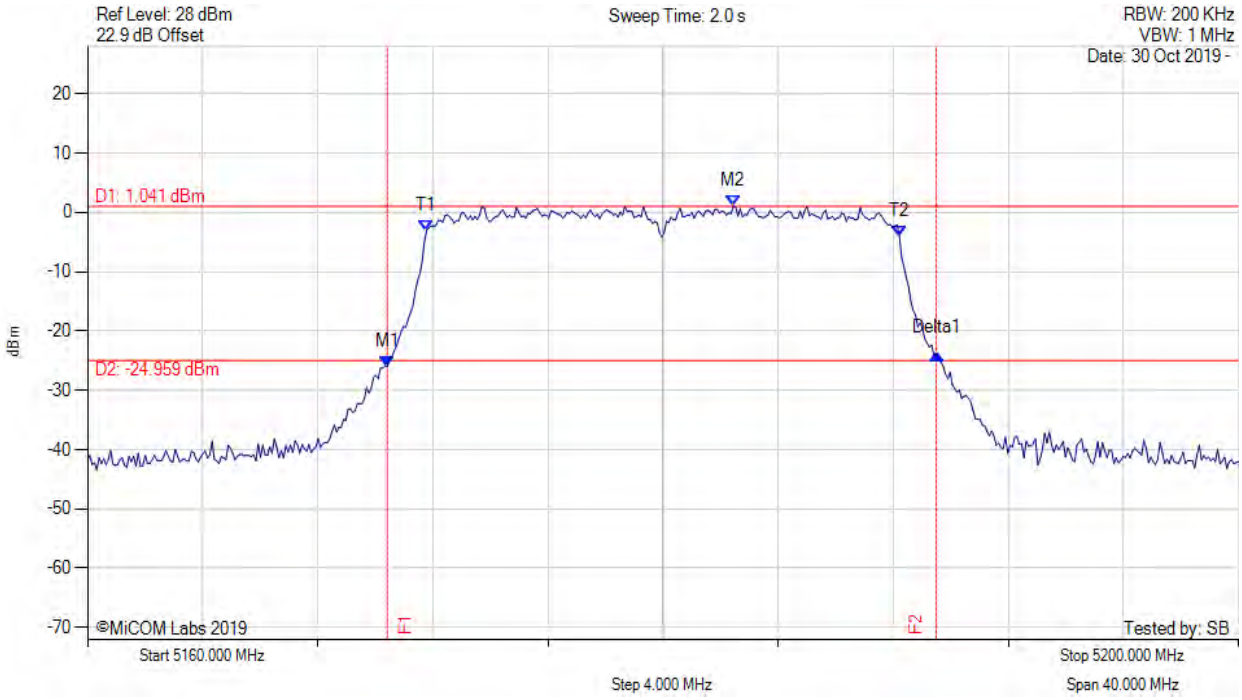


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5170.341 MHz : -25.132 dBm M2 : 5176.433 MHz : 1.297 dBm Delta1 : 19.078 MHz : 2.601 dB T1 : 5171.784 MHz : -3.086 dBm T2 : 5188.216 MHz : -3.606 dBm OBW : 16.433 MHz	Measured 26 dB Bandwidth: 19.078 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

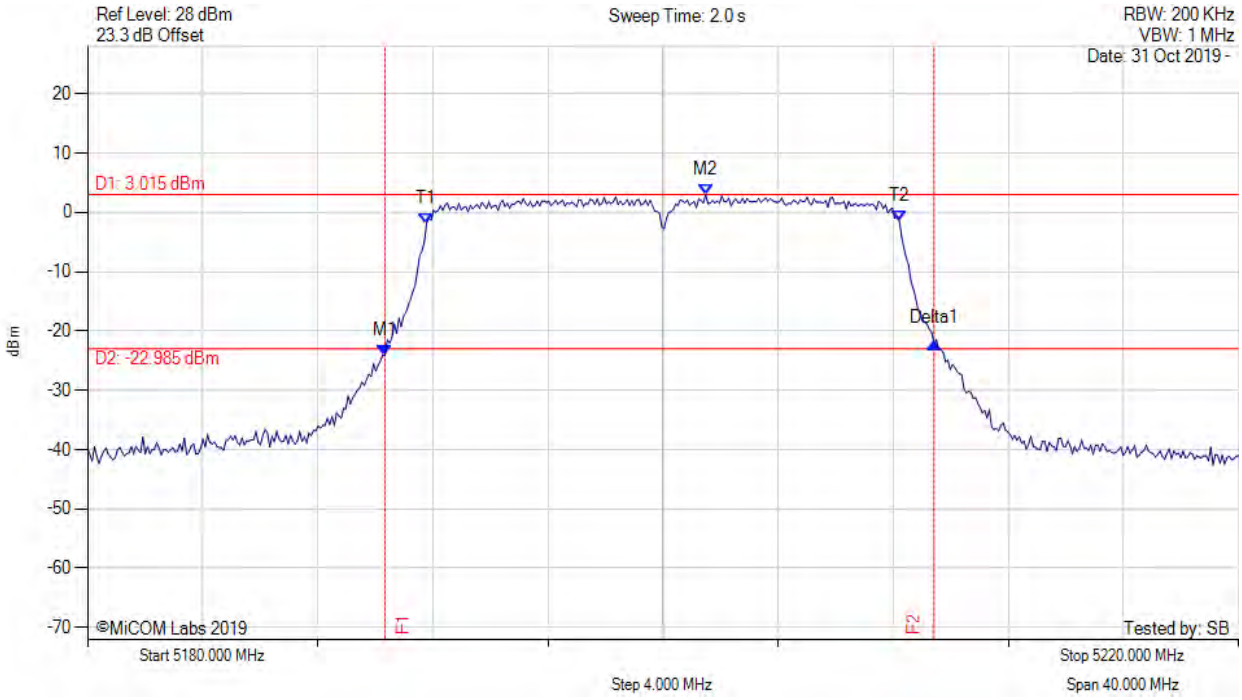


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5170.421 MHz : -26.002 dBm M2 : 5182.445 MHz : 1.041 dBm Delta1 : 19.078 MHz : 2.198 dB T1 : 5171.784 MHz : -3.063 dBm T2 : 5188.216 MHz : -4.074 dBm OBW : 16.433 MHz	Measured 26 dB Bandwidth: 19.078 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

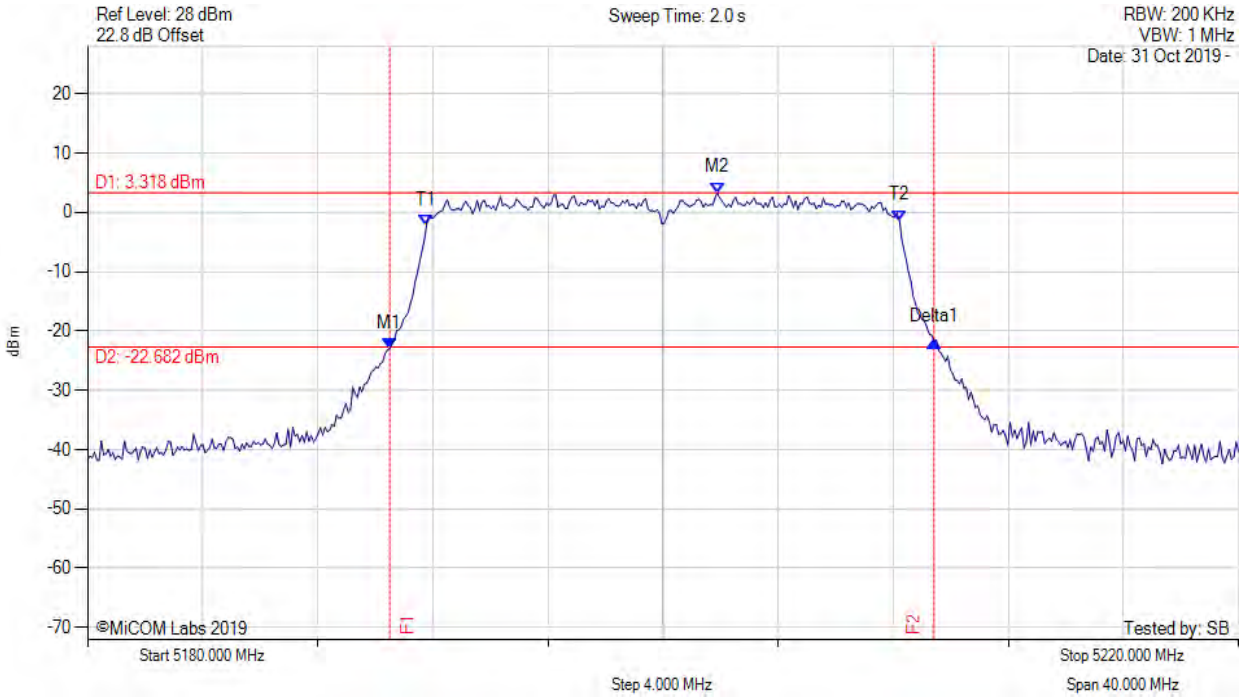


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5190.341 MHz : -24.078 dBm M2 : 5201.483 MHz : 3.015 dBm Delta1 : 19.078 MHz : 2.101 dB T1 : 5191.784 MHz : -1.864 dBm T2 : 5208.216 MHz : -1.532 dBm OBW : 16.433 MHz	Measured 26 dB Bandwidth: 19.078 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

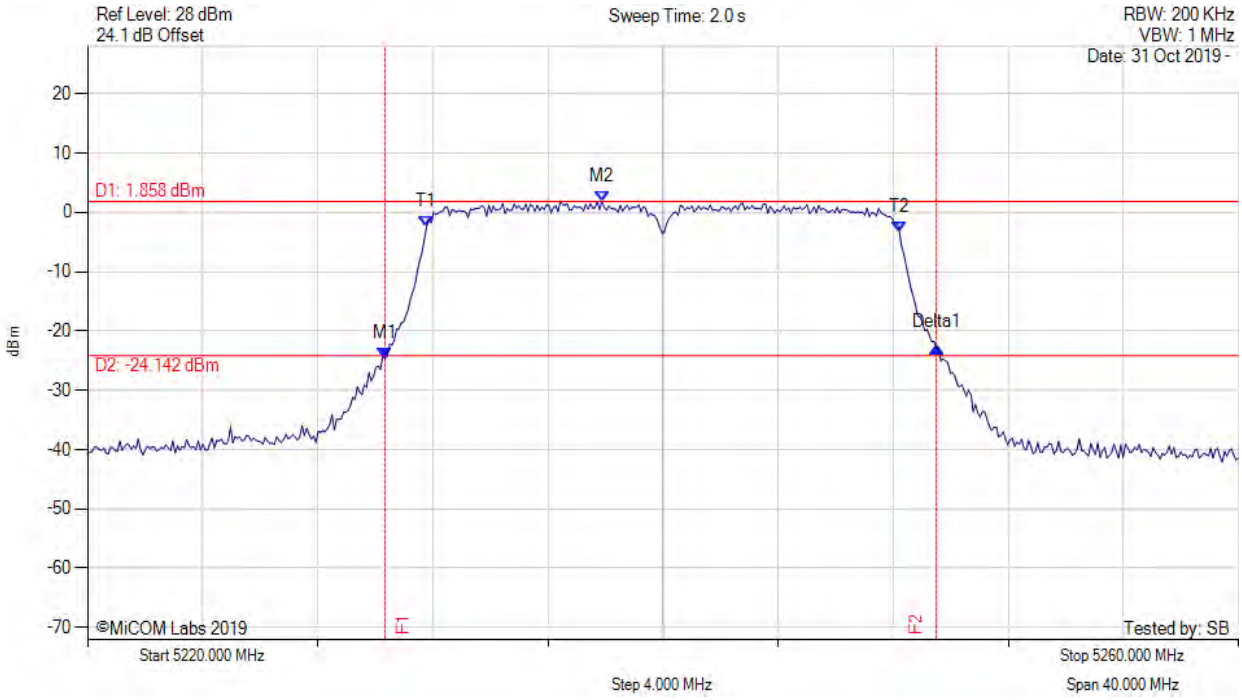


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5190.501 MHz : -22.923 dBm M2 : 5201.884 MHz : 3.318 dBm Delta1 : 18.918 MHz : 1.165 dB T1 : 5191.784 MHz : -2.085 dBm T2 : 5208.216 MHz : -1.359 dBm OBW : 16.433 MHz	Measured 26 dB Bandwidth: 18.918 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

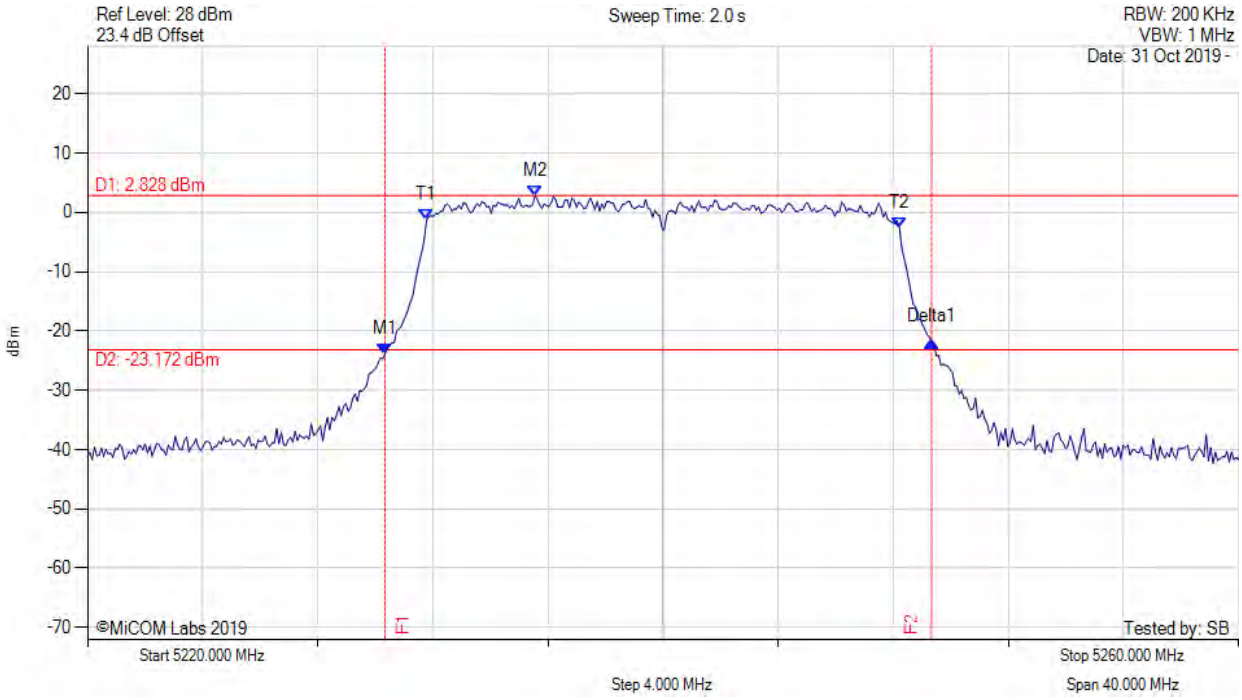


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5230.341 MHz : -24.688 dBm M2 : 5237.876 MHz : 1.858 dBm Delta1 : 19.158 MHz : 1.879 dB T1 : 5231.784 MHz : -2.364 dBm T2 : 5248.216 MHz : -3.310 dBm OBW : 16.433 MHz	Measured 26 dB Bandwidth: 19.158 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

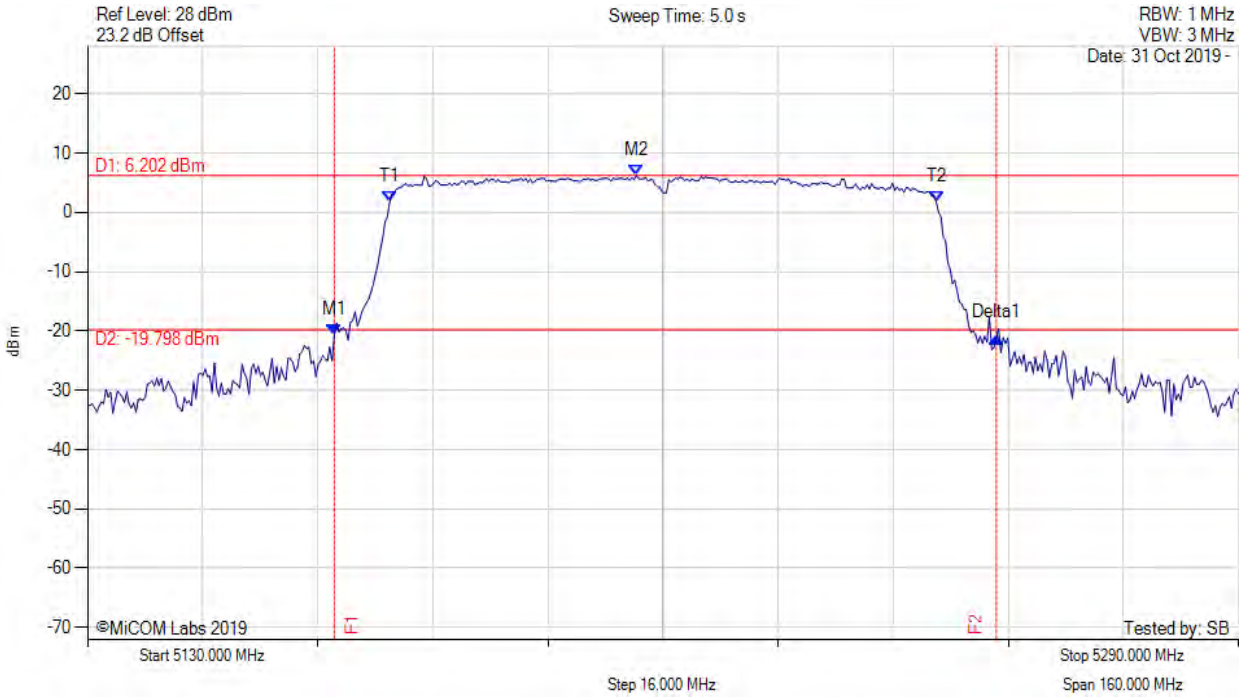


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5230.341 MHz : -23.814 dBm M2 : 5235.551 MHz : 2.828 dBm Delta1 : 18.998 MHz : 1.938 dB T1 : 5231.784 MHz : -1.339 dBm T2 : 5248.216 MHz : -2.602 dBm OBW : 16.433 MHz	Measured 26 dB Bandwidth: 18.998 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

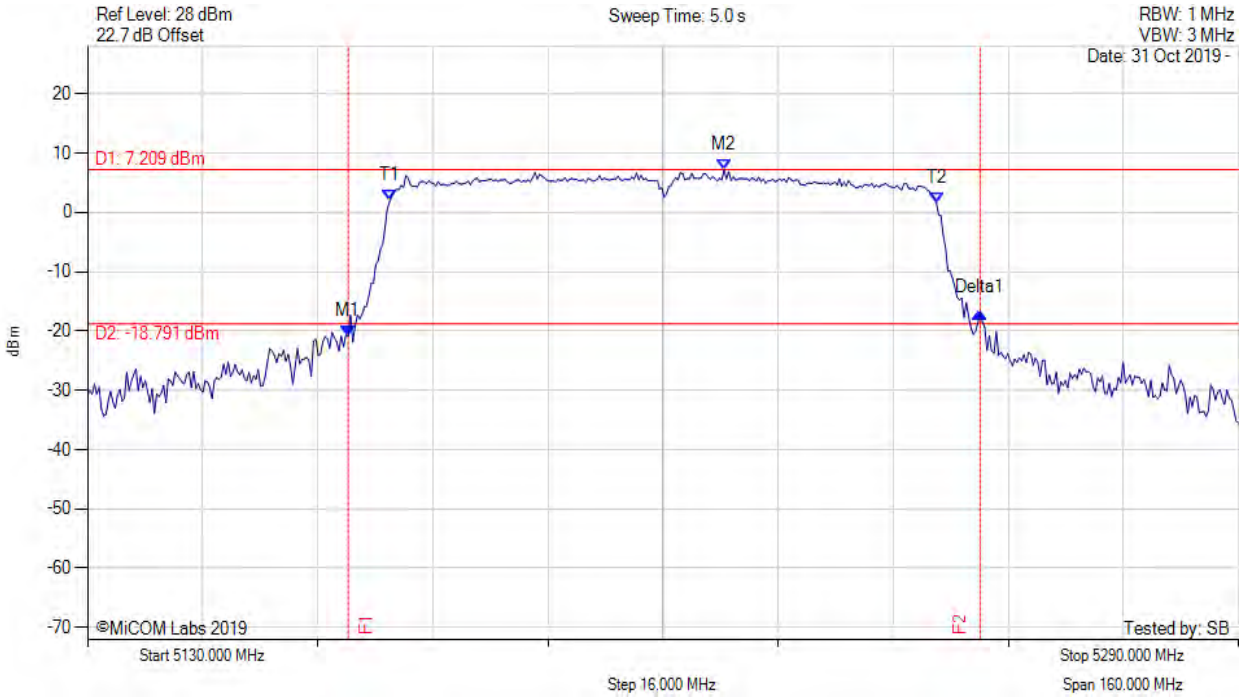


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5164.309 MHz : -20.590 dBm M2 : 5206.313 MHz : 6.202 dBm Delta1 : 92.024 MHz : -0.588 dB T1 : 5172.004 MHz : 1.785 dBm T2 : 5247.996 MHz : 1.696 dBm OBW : 75.992 MHz	Measured 26 dB Bandwidth: 92.024 MHz Measured 99% Bandwidth: 75.992 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

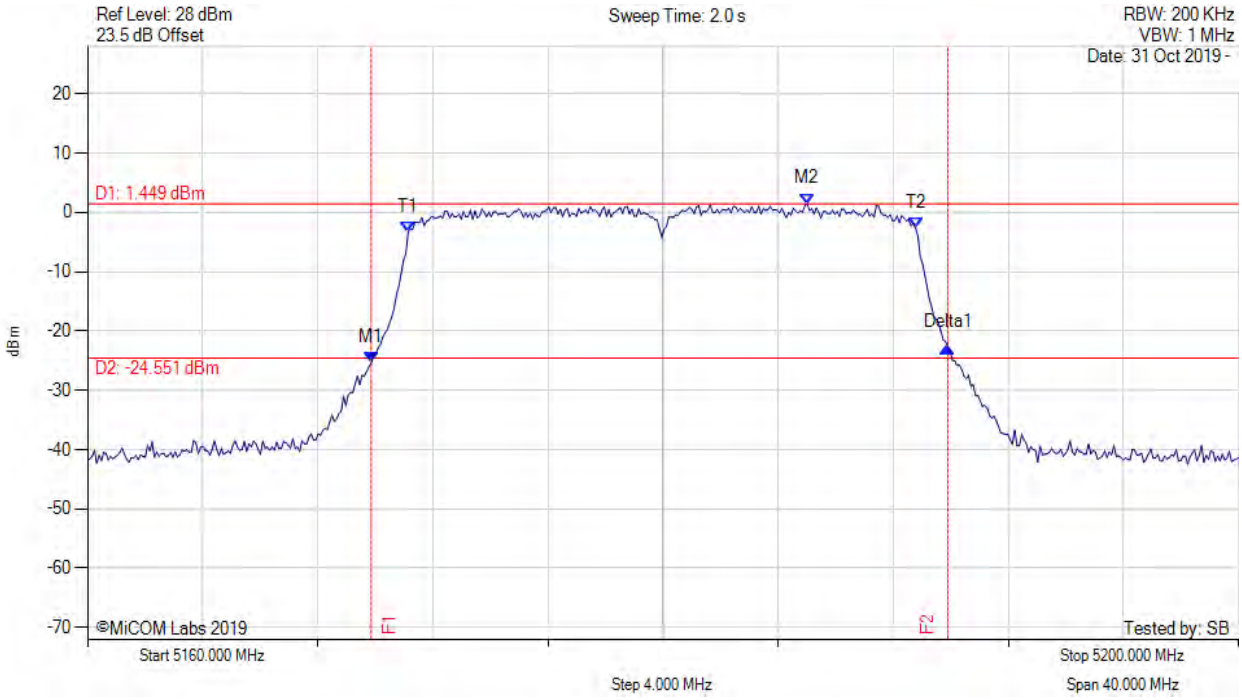


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5166.232 MHz : -20.826 dBm M2 : 5218.497 MHz : 7.209 dBm Delta1 : 87.856 MHz : 3.931 dB T1 : 5172.004 MHz : 1.940 dBm T2 : 5247.996 MHz : 1.641 dBm OBW : 75.992 MHz	Measured 26 dB Bandwidth: 87.856 MHz Measured 99% Bandwidth: 75.992 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

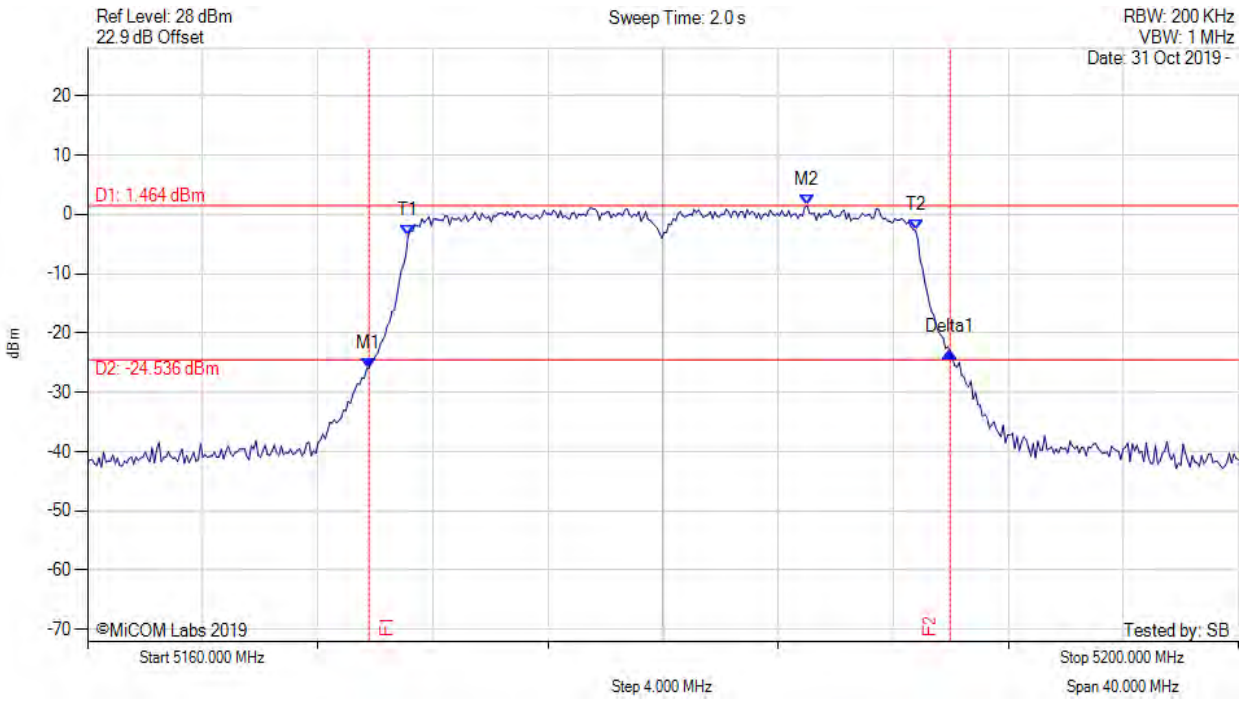


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5169.860 MHz : -25.394 dBm M2 : 5185.010 MHz : 1.449 dBm Delta1 : 20.040 MHz : 2.668 dB T1 : 5171.142 MHz : -3.326 dBm T2 : 5188.778 MHz : -2.677 dBm OBW : 17.635 MHz	Measured 26 dB Bandwidth: 20.040 MHz Measured 99% Bandwidth: 17.635 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

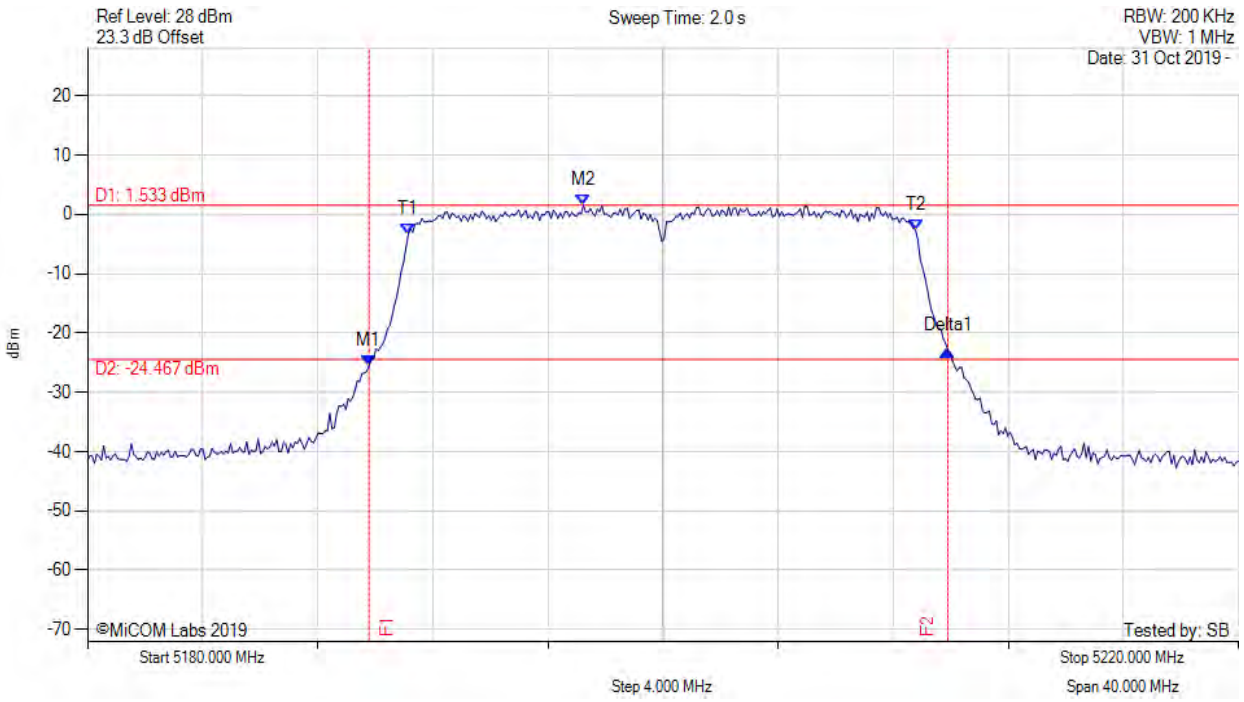


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5169.780 MHz : -26.008 dBm M2 : 5185.010 MHz : 1.464 dBm Delta1 : 20.200 MHz : 2.849 dB T1 : 5171.142 MHz : -3.505 dBm T2 : 5188.778 MHz : -2.734 dBm OBW : 17.635 MHz	Measured 26 dB Bandwidth: 20.200 MHz Measured 99% Bandwidth: 17.635 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

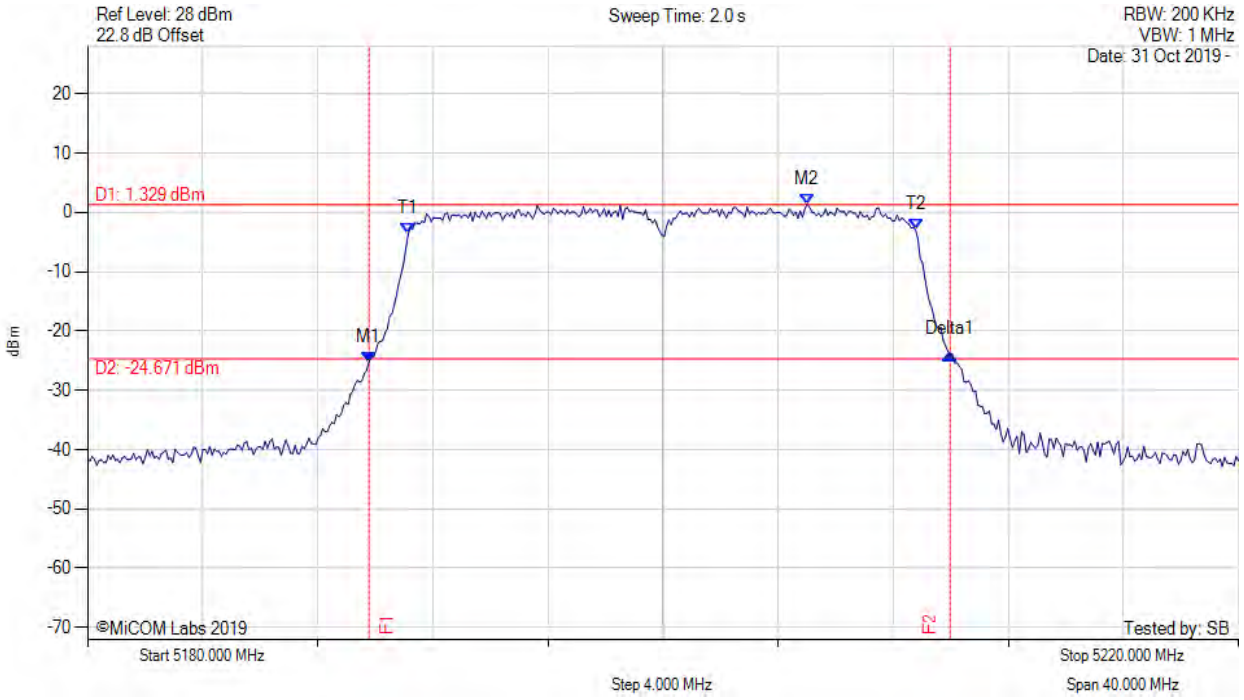


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5189.780 MHz : -25.571 dBm M2 : 5197.234 MHz : 1.533 dBm Delta1 : 20.120 MHz : 2.550 dB T1 : 5191.142 MHz : -3.425 dBm T2 : 5208.778 MHz : -2.632 dBm OBW : 17.635 MHz	Measured 26 dB Bandwidth: 20.120 MHz Measured 99% Bandwidth: 17.635 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

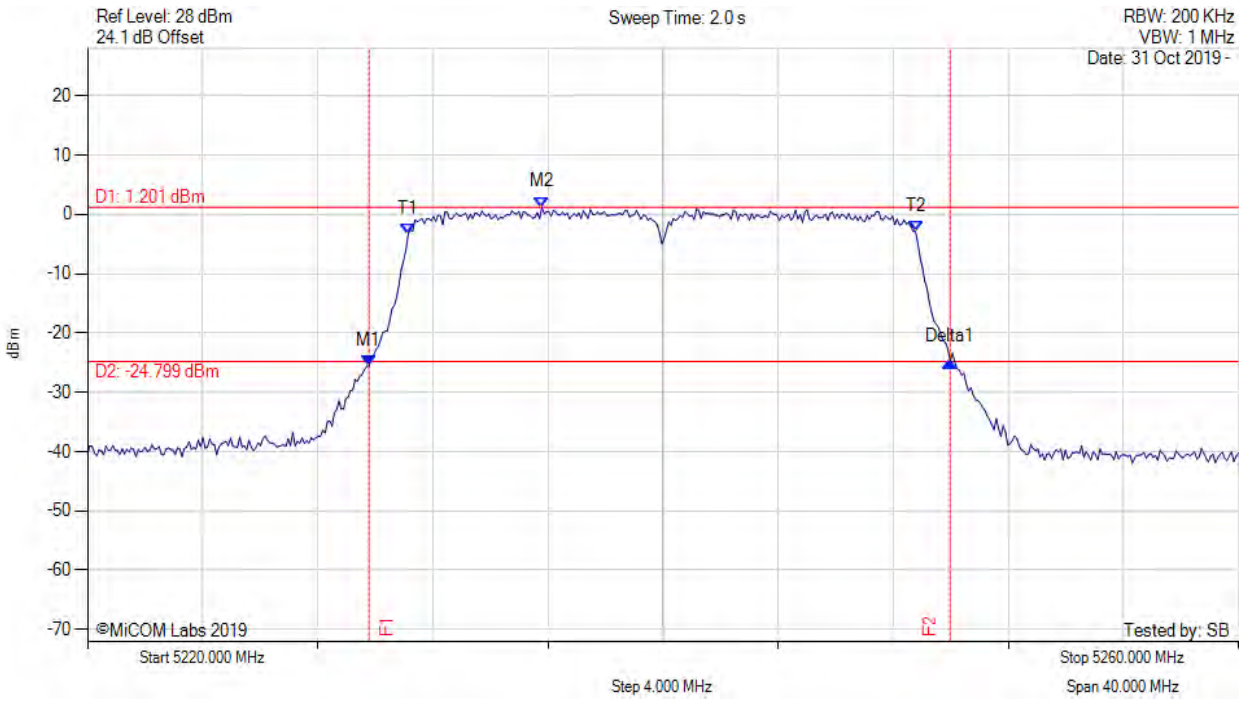


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5189.780 MHz : -25.233 dBm M2 : 5205.010 MHz : 1.329 dBm Delta1 : 20.200 MHz : 1.237 dB T1 : 5191.142 MHz : -3.653 dBm T2 : 5208.778 MHz : -2.899 dBm OBW : 17.635 MHz	Measured 26 dB Bandwidth: 20.200 MHz Measured 99% Bandwidth: 17.635 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

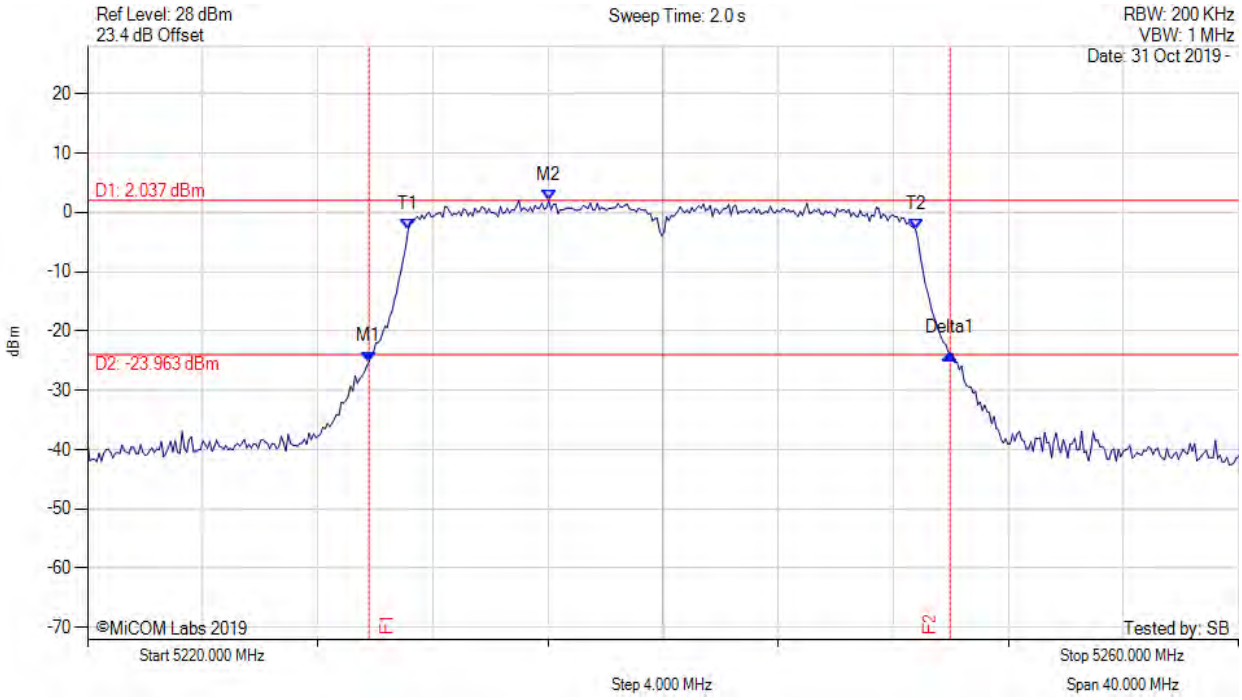


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5229.780 MHz : -25.524 dBm M2 : 5235.792 MHz : 1.201 dBm Delta1 : 20.200 MHz : 0.704 dB T1 : 5231.142 MHz : -3.326 dBm T2 : 5248.778 MHz : -2.925 dBm OBW : 17.635 MHz	Measured 26 dB Bandwidth: 20.200 MHz Measured 99% Bandwidth: 17.635 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

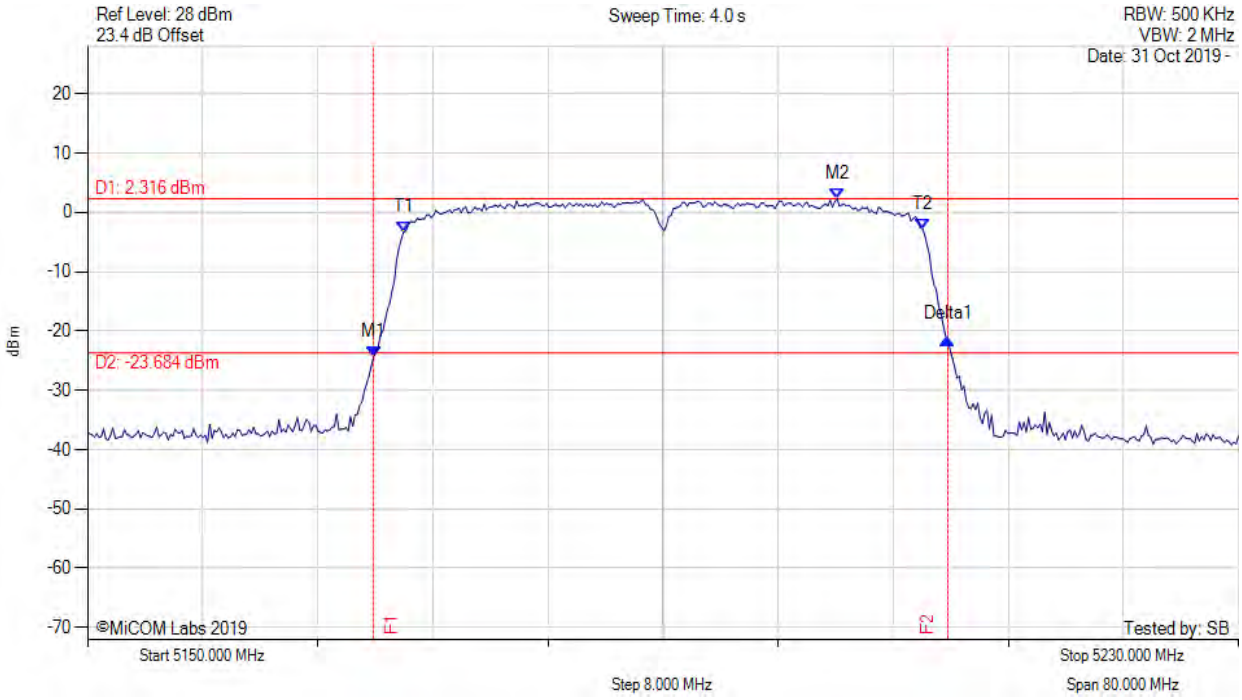


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5229.780 MHz : -25.187 dBm M2 : 5236.032 MHz : 2.037 dBm Delta1 : 20.200 MHz : 1.381 dB T1 : 5231.142 MHz : -2.933 dBm T2 : 5248.778 MHz : -2.779 dBm OBW : 17.635 MHz	Measured 26 dB Bandwidth: 20.200 MHz Measured 99% Bandwidth: 17.635 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

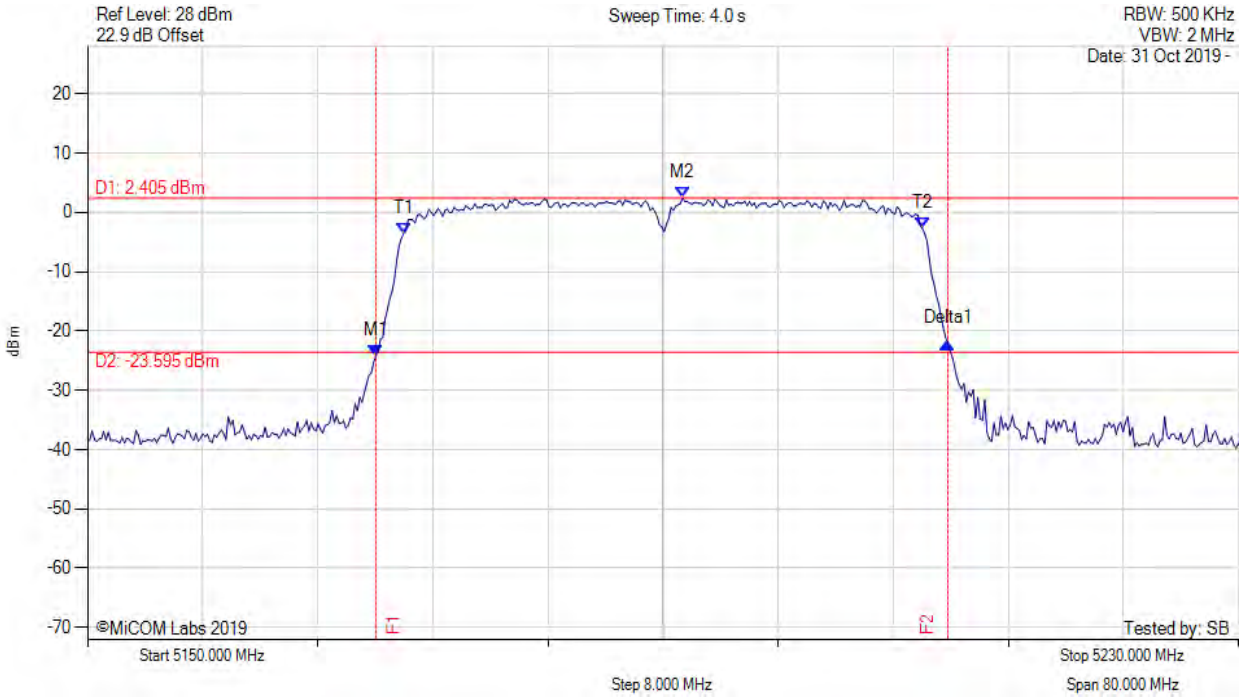


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5169.880 MHz : -24.345 dBm M2 : 5202.104 MHz : 2.316 dBm Delta1 : 39.920 MHz : 3.004 dB T1 : 5171.964 MHz : -3.297 dBm T2 : 5208.036 MHz : -2.783 dBm OBW : 36.072 MHz	Measured 26 dB Bandwidth: 39.920 MHz Measured 99% Bandwidth: 36.072 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

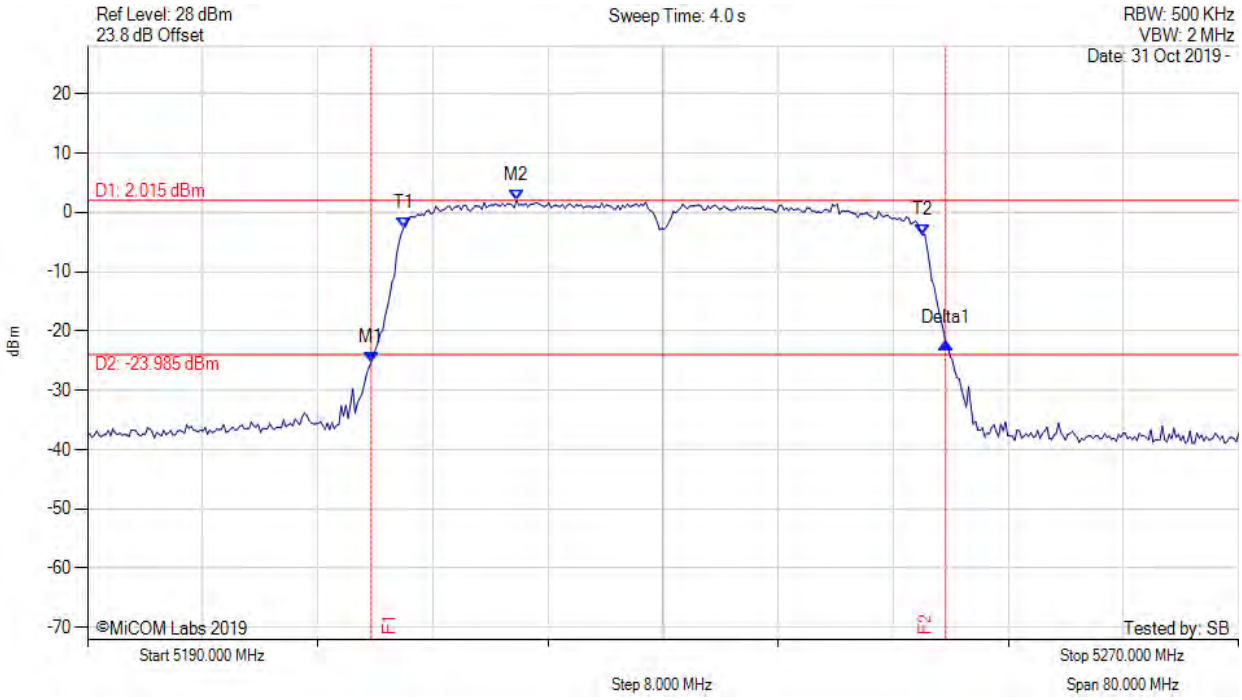


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5170.040 MHz : -24.098 dBm M2 : 5191.363 MHz : 2.405 dBm Delta1 : 39.760 MHz : 2.022 dB T1 : 5171.964 MHz : -3.525 dBm T2 : 5208.036 MHz : -2.705 dBm OBW : 36.072 MHz	Measured 26 dB Bandwidth: 39.760 MHz Measured 99% Bandwidth: 36.072 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

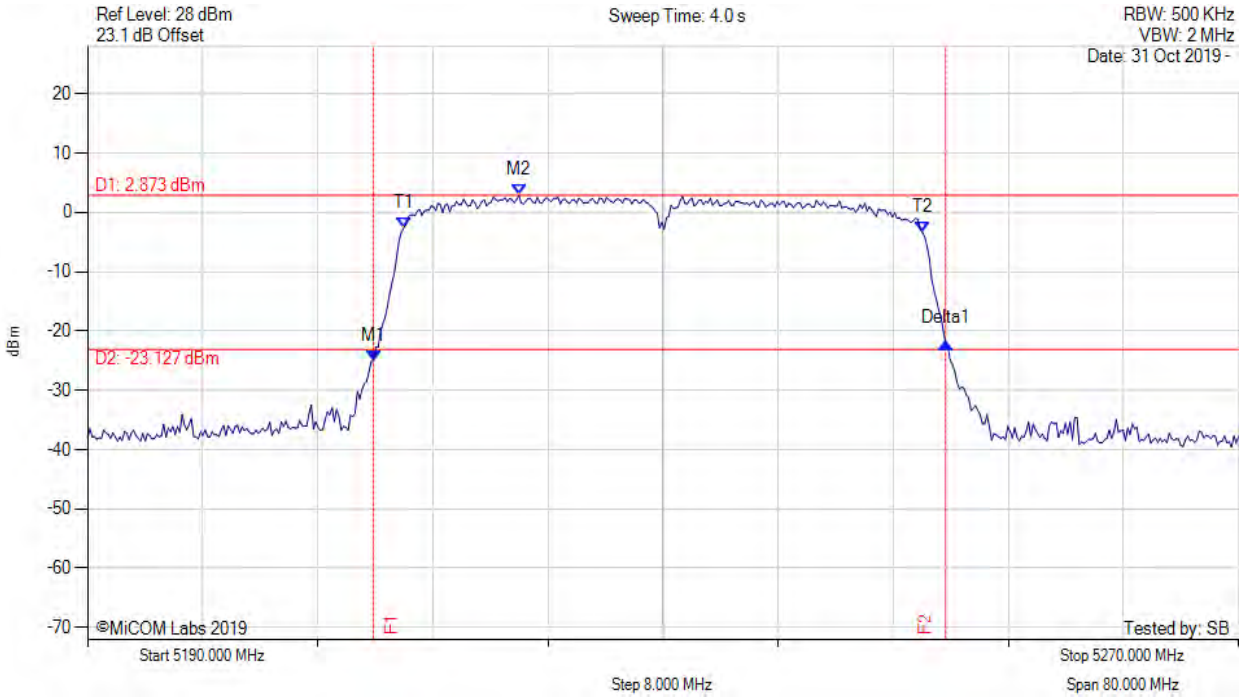


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5209.719 MHz : -25.278 dBm M2 : 5219.820 MHz : 2.015 dBm Delta1 : 39.920 MHz : 3.213 dB T1 : 5211.964 MHz : -2.624 dBm T2 : 5248.036 MHz : -3.785 dBm OBW : 36.072 MHz	Measured 26 dB Bandwidth: 39.920 MHz Measured 99% Bandwidth: 36.072 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



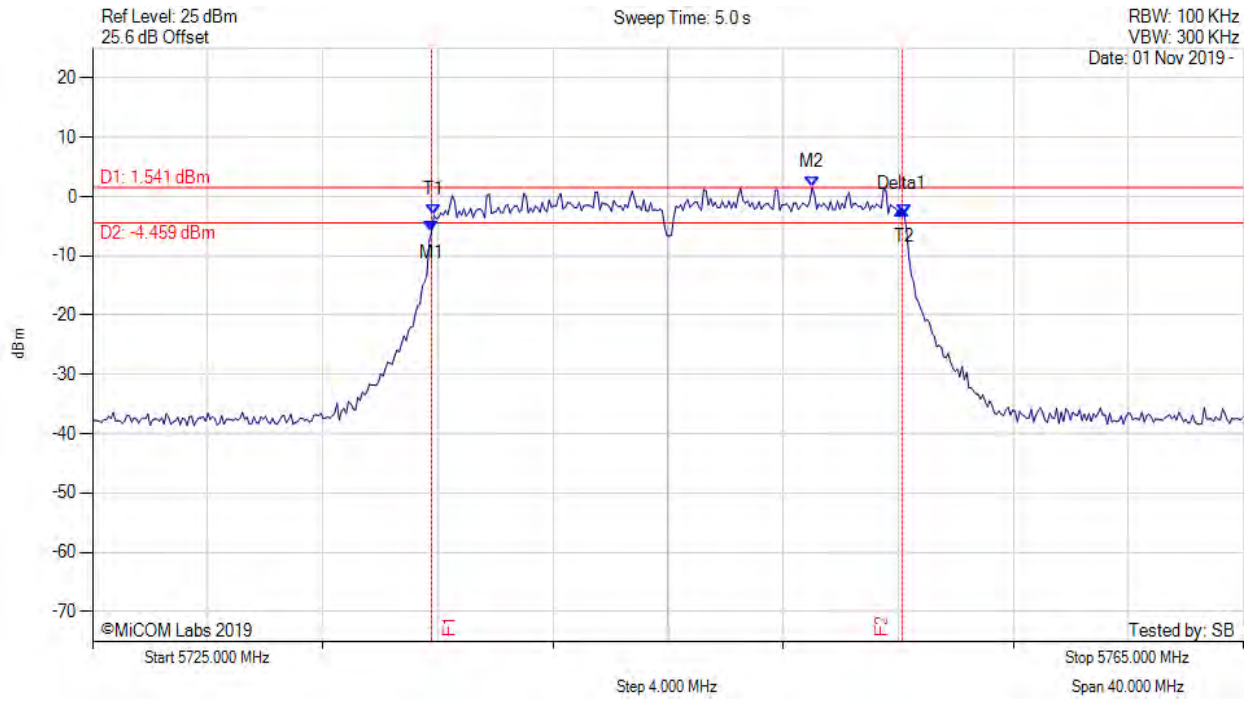
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5209.880 MHz : -25.060 dBm M2 : 5219.980 MHz : 2.873 dBm Delta1 : 39.760 MHz : 2.918 dB T1 : 5211.964 MHz : -2.665 dBm T2 : 5248.036 MHz : -3.401 dBm OBW : 36.072 MHz	Measured 26 dB Bandwidth: 39.760 MHz Measured 99% Bandwidth: 36.072 MHz

back to matrix

A.2. 6 dB & 99% Bandwidth

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

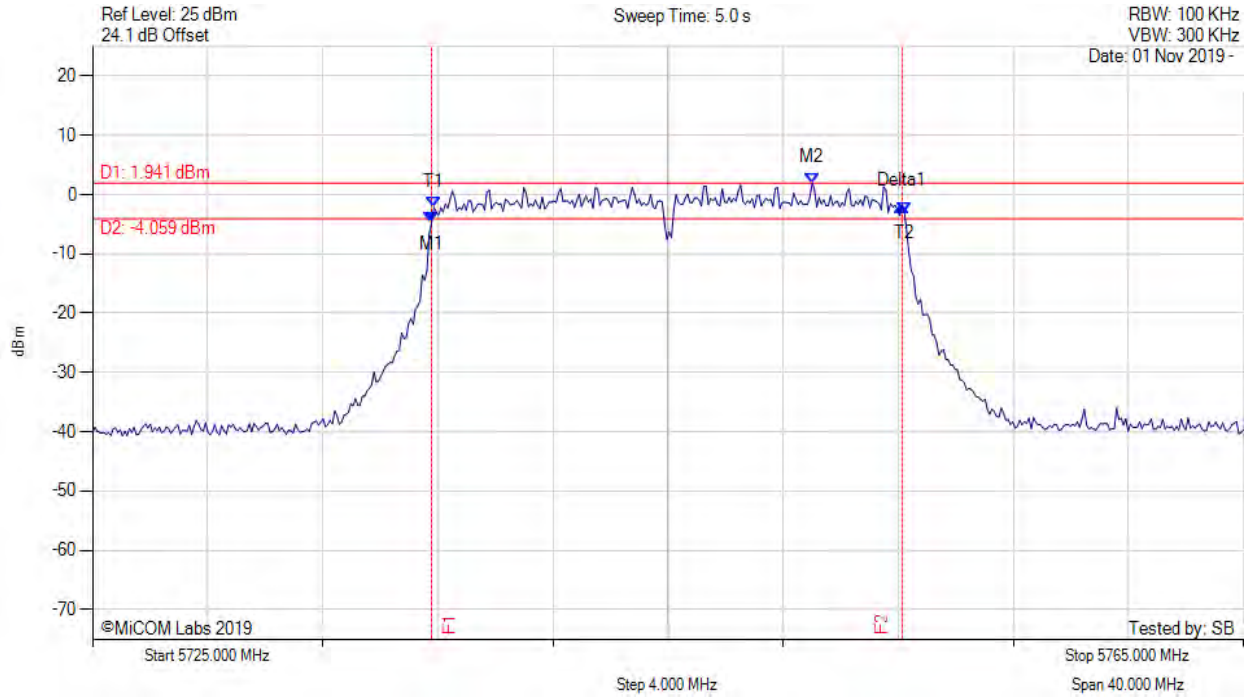


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5736.784 MHz : -5.909 dBm M2 : 5750.010 MHz : 1.541 dBm Delta1 : 16.353 MHz : 3.834 dB T1 : 5736.864 MHz : -3.117 dBm T2 : 5753.216 MHz : -3.173 dBm OBW : 16.353 MHz	Measured 6 dB Bandwidth: 16.353 MHz Measured 99% Bandwidth: 16.353 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

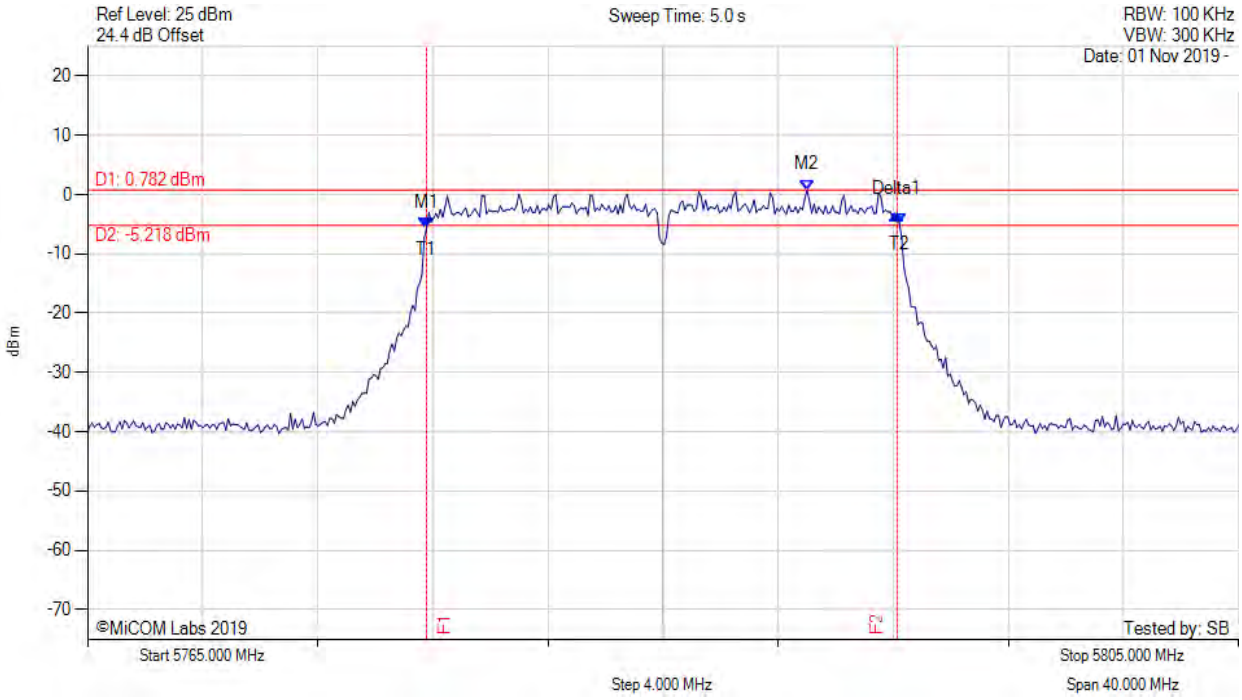


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5736.784 MHz : -4.754 dBm M2 : 5750.010 MHz : 1.941 dBm Delta1 : 16.353 MHz : 2.935 dB T1 : 5736.864 MHz : -2.142 dBm T2 : 5753.216 MHz : -2.976 dBm OBW : 16.353 MHz	Measured 6 dB Bandwidth: 16.353 MHz Measured 99% Bandwidth: 16.353 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

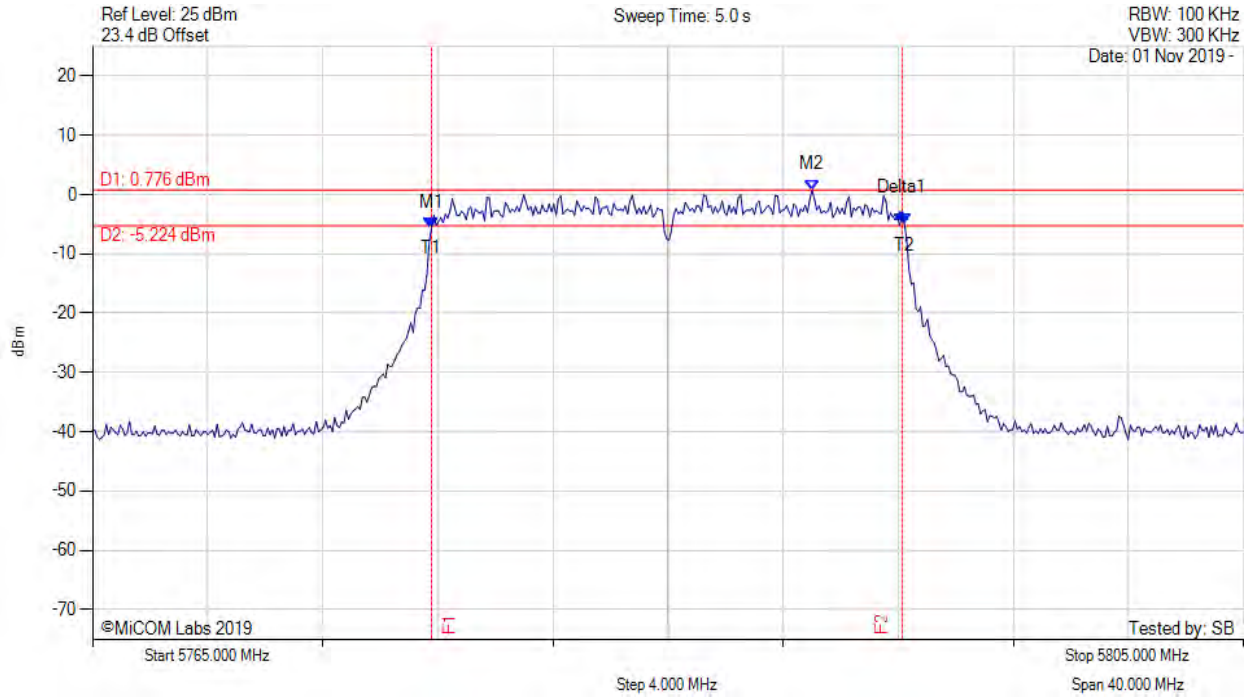


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5776.784 MHz : -5.671 dBm M2 : 5790.010 MHz : 0.782 dBm Delta1 : 16.353 MHz : 2.459 dB T1 : 5776.784 MHz : -5.671 dBm T2 : 5793.216 MHz : -4.861 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 16.353 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

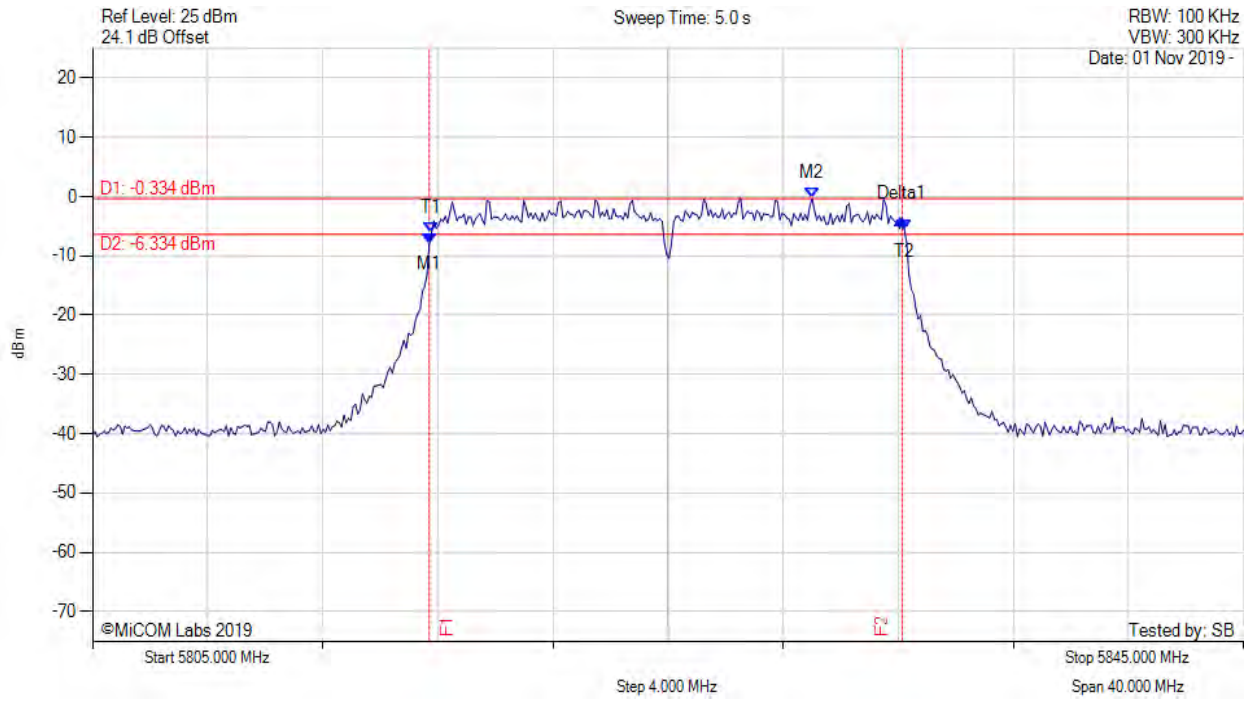


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5776.784 MHz : -5.588 dBm M2 : 5790.010 MHz : 0.776 dBm Delta1 : 16.353 MHz : 2.459 dB T1 : 5776.784 MHz : -5.588 dBm T2 : 5793.216 MHz : -4.929 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 16.353 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

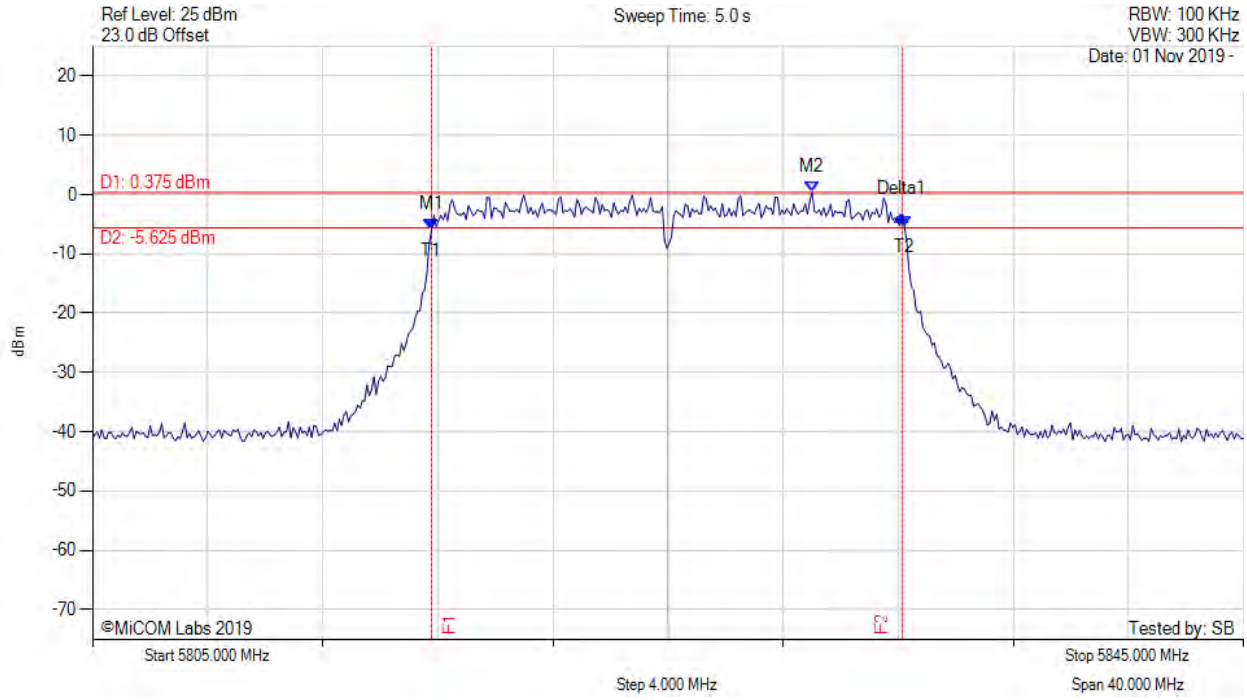


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5816.703 MHz : -7.920 dBm M2 : 5830.010 MHz : -0.334 dBm Delta1 : 16.433 MHz : 4.061 dB T1 : 5816.784 MHz : -6.088 dBm T2 : 5833.216 MHz : -5.647 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 16.433 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

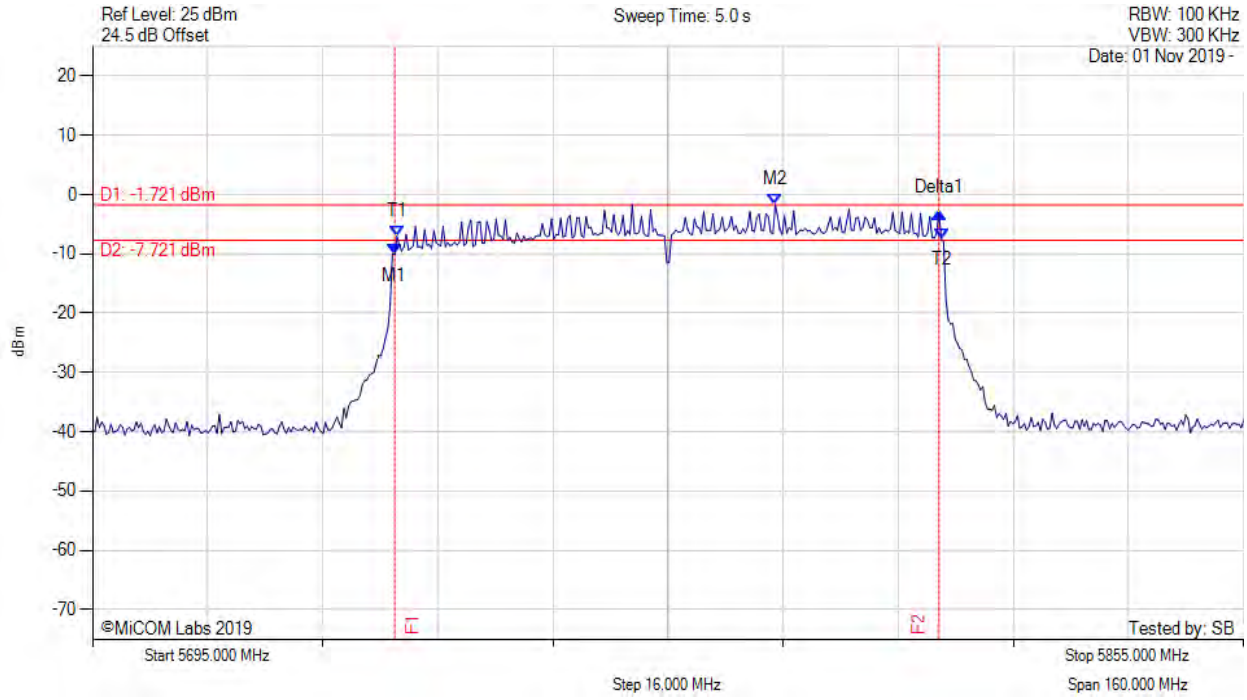


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5816.784 MHz : -5.915 dBm M2 : 5830.010 MHz : 0.375 dBm Delta1 : 16.353 MHz : 2.485 dB T1 : 5816.784 MHz : -5.915 dBm T2 : 5833.216 MHz : -5.366 dBm OBW : 16.433 MHz	Measured 6 dB Bandwidth: 16.353 MHz Measured 99% Bandwidth: 16.433 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

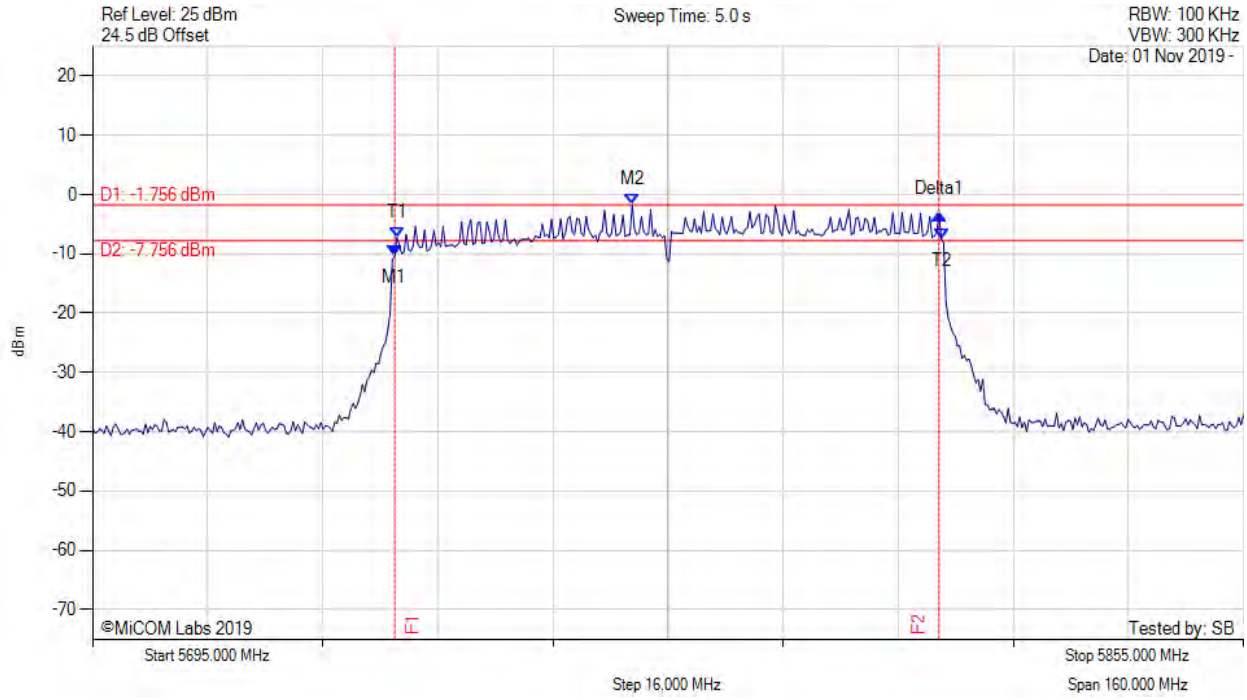


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5737.004 MHz : -10.060 dBm M2 : 5789.910 MHz : -1.721 dBm Delta1 : 75.671 MHz : 6.972 dB T1 : 5737.325 MHz : -7.046 dBm T2 : 5812.996 MHz : -7.450 dBm OBW : 75.671 MHz	Channel Frequency: 5775.00 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

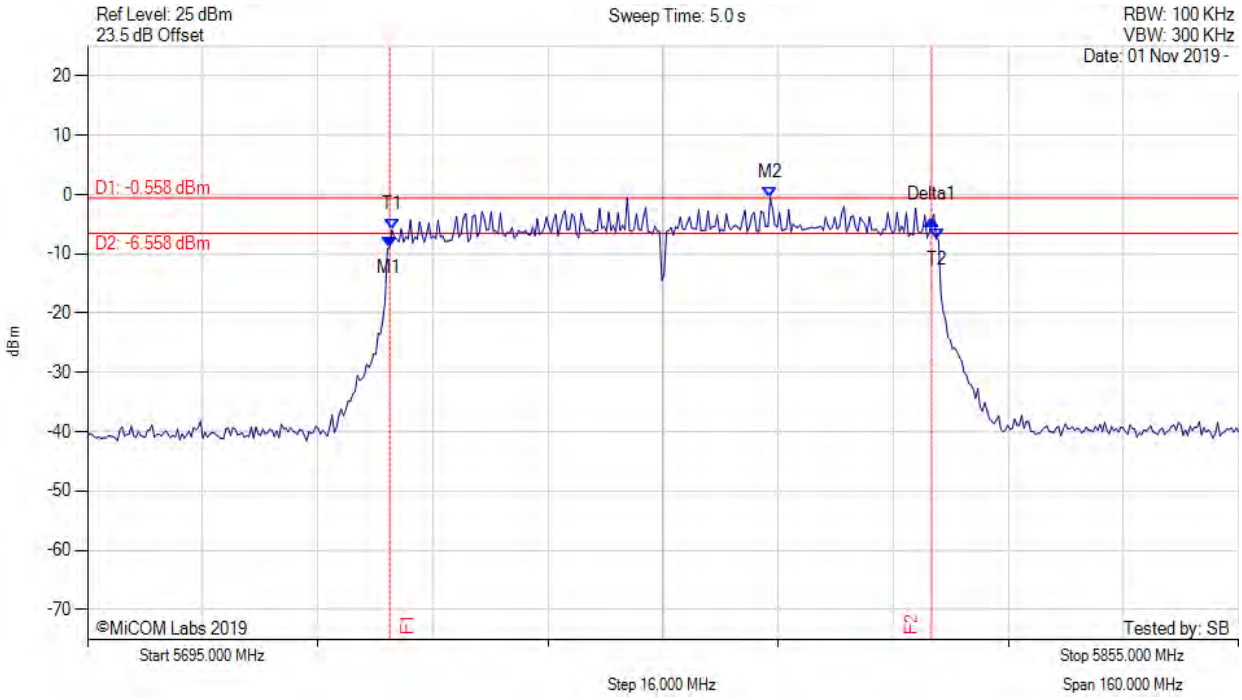


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5737.004 MHz : -10.377 dBm M2 : 5770.030 MHz : -1.756 dBm Delta1 : 75.671 MHz : 7.153 dB T1 : 5737.325 MHz : -7.188 dBm T2 : 5812.996 MHz : -7.495 dBm OBW : 75.671 MHz	Measured 6 dB Bandwidth: 75.671 MHz Measured 99% Bandwidth: 75.671 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

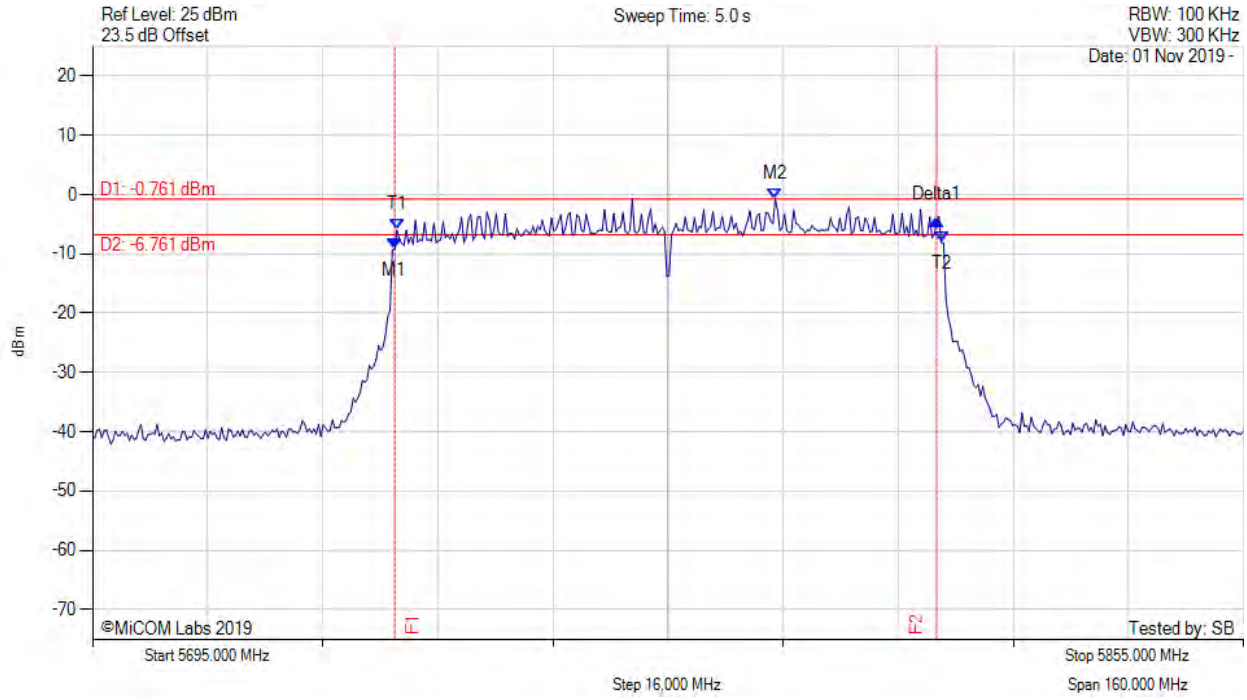


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5737.004 MHz : -8.815 dBm M2 : 5789.910 MHz : -0.558 dBm Delta1 : 75.351 MHz : 4.560 dB T1 : 5737.325 MHz : -5.935 dBm T2 : 5812.996 MHz : -7.426 dBm OBW : 75.671 MHz	Measured 6 dB Bandwidth: 75.351 MHz Measured 99% Bandwidth: 75.671 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

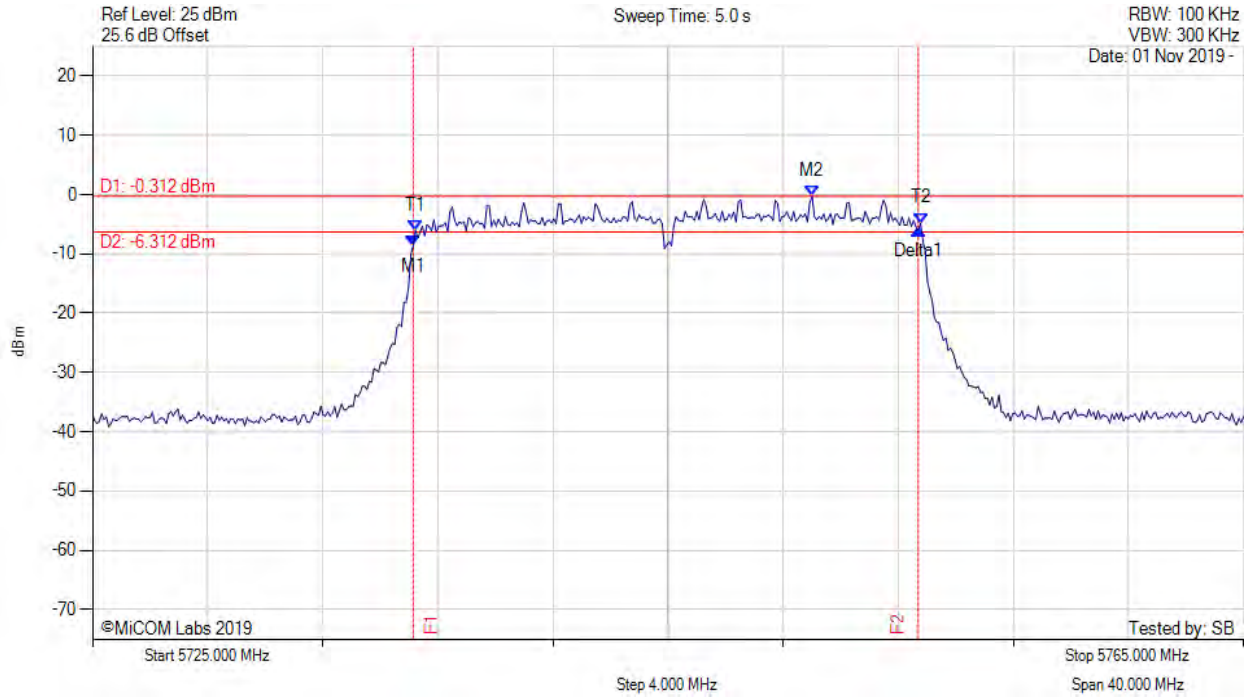


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5737.004 MHz : -9.187 dBm M2 : 5789.910 MHz : -0.761 dBm Delta1 : 75.351 MHz : 4.956 dB T1 : 5737.325 MHz : -5.980 dBm T2 : 5812.996 MHz : -8.036 dBm OBW : 75.671 MHz	Channel Frequency: 5775.00 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

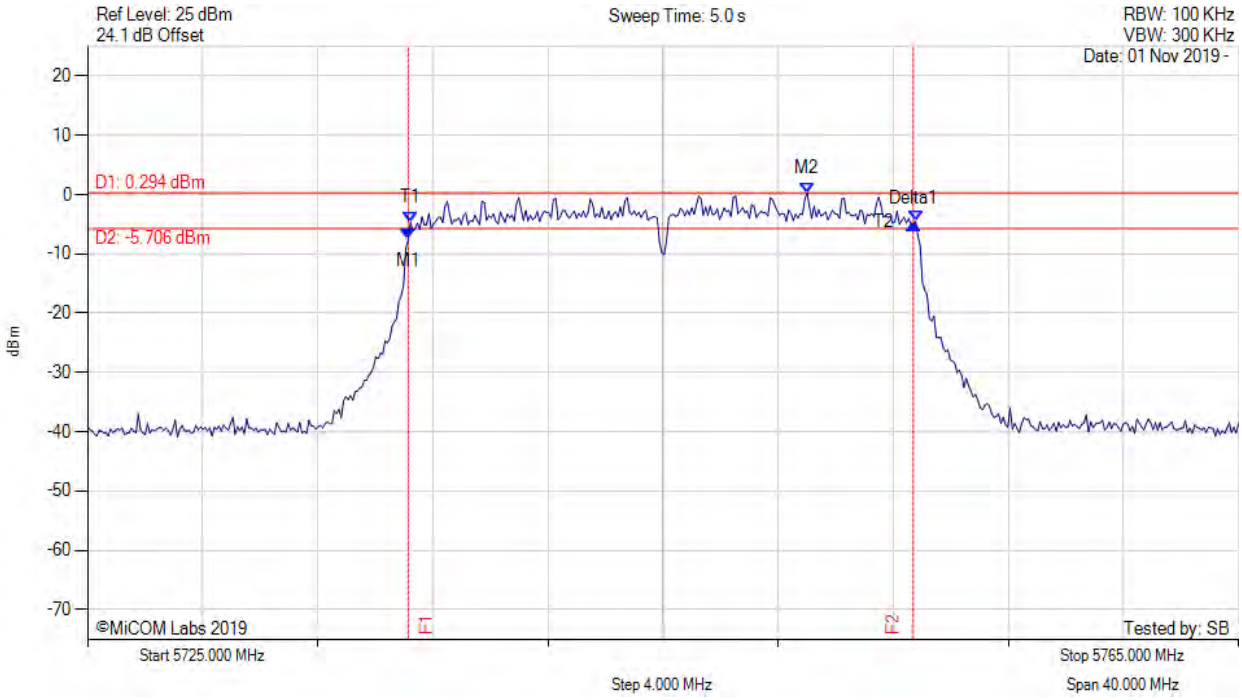


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5736.142 MHz : -8.559 dBm M2 : 5750.010 MHz : -0.312 dBm Delta1 : 17.555 MHz : 2.619 dB T1 : 5736.222 MHz : -6.041 dBm T2 : 5753.778 MHz : -4.821 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 17.555 MHz Measured 99% Bandwidth: 17.555 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

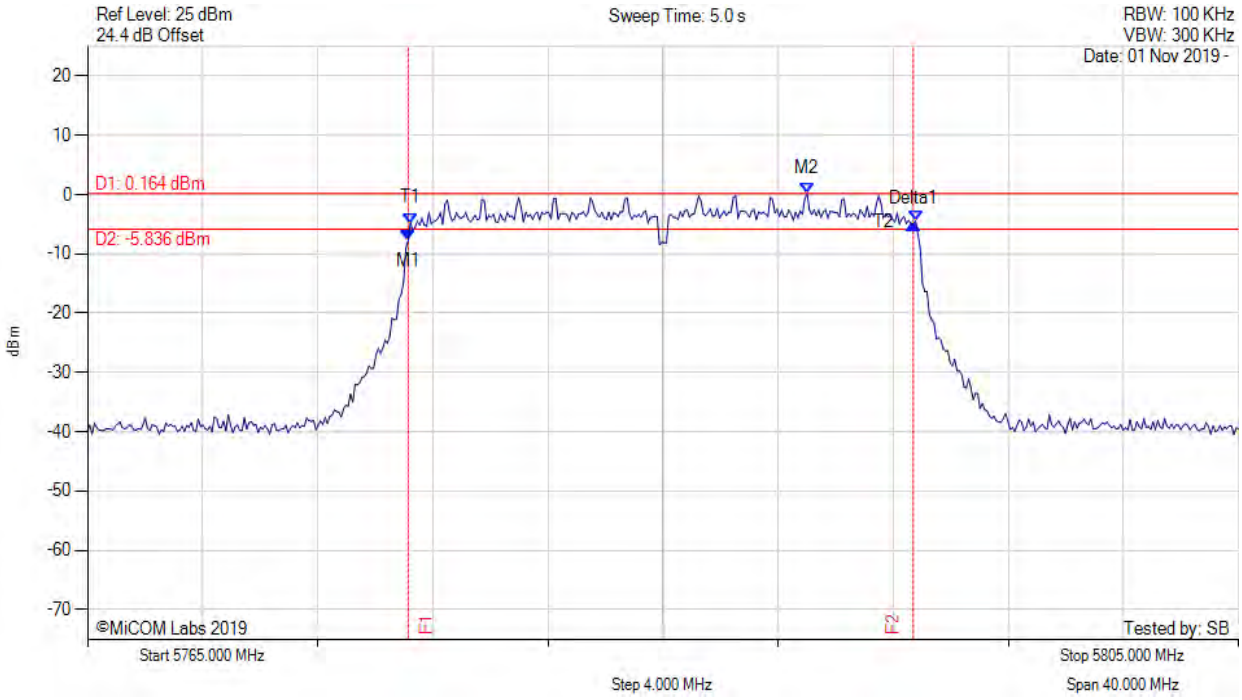


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5736.142 MHz : -7.585 dBm M2 : 5750.010 MHz : 0.294 dBm Delta1 : 17.555 MHz : 2.652 dB T1 : 5736.222 MHz : -4.719 dBm T2 : 5753.778 MHz : -4.530 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 17.555 MHz Measured 99% Bandwidth: 17.555 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

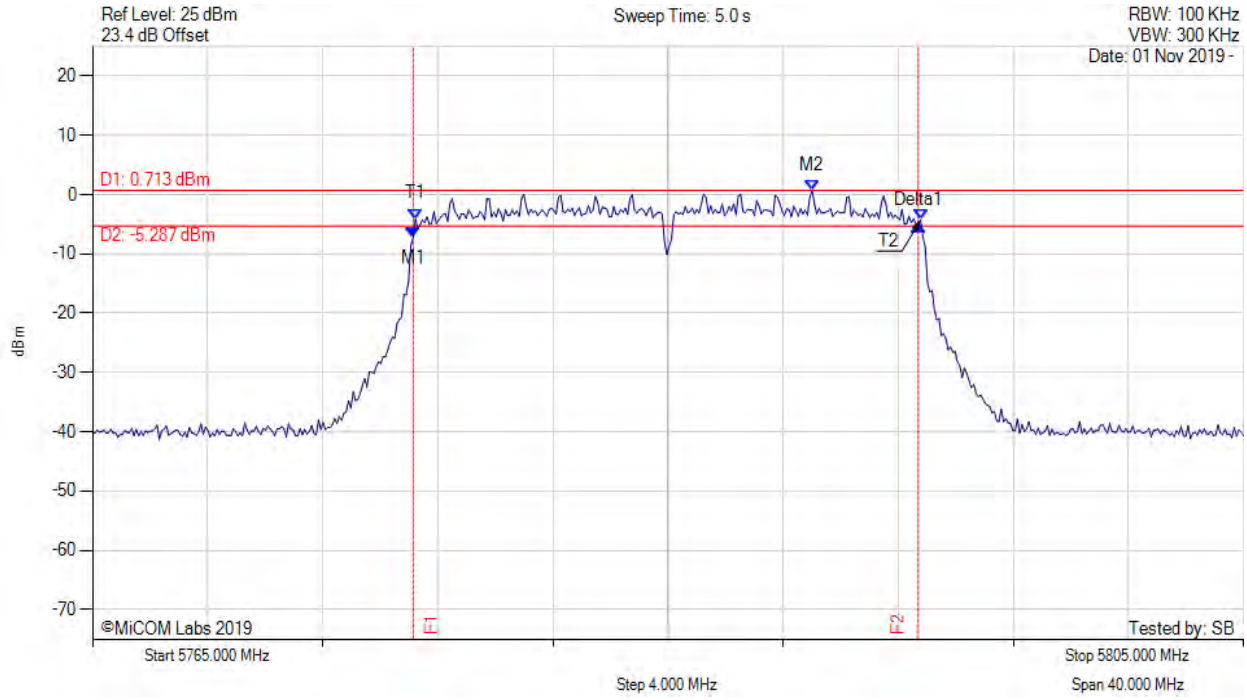


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5776.142 MHz : -7.662 dBm M2 : 5790.010 MHz : 0.164 dBm Delta1 : 17.555 MHz : 2.754 dB T1 : 5776.222 MHz : -4.817 dBm T2 : 5793.778 MHz : -4.436 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 17.555 MHz Measured 99% Bandwidth: 17.555 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

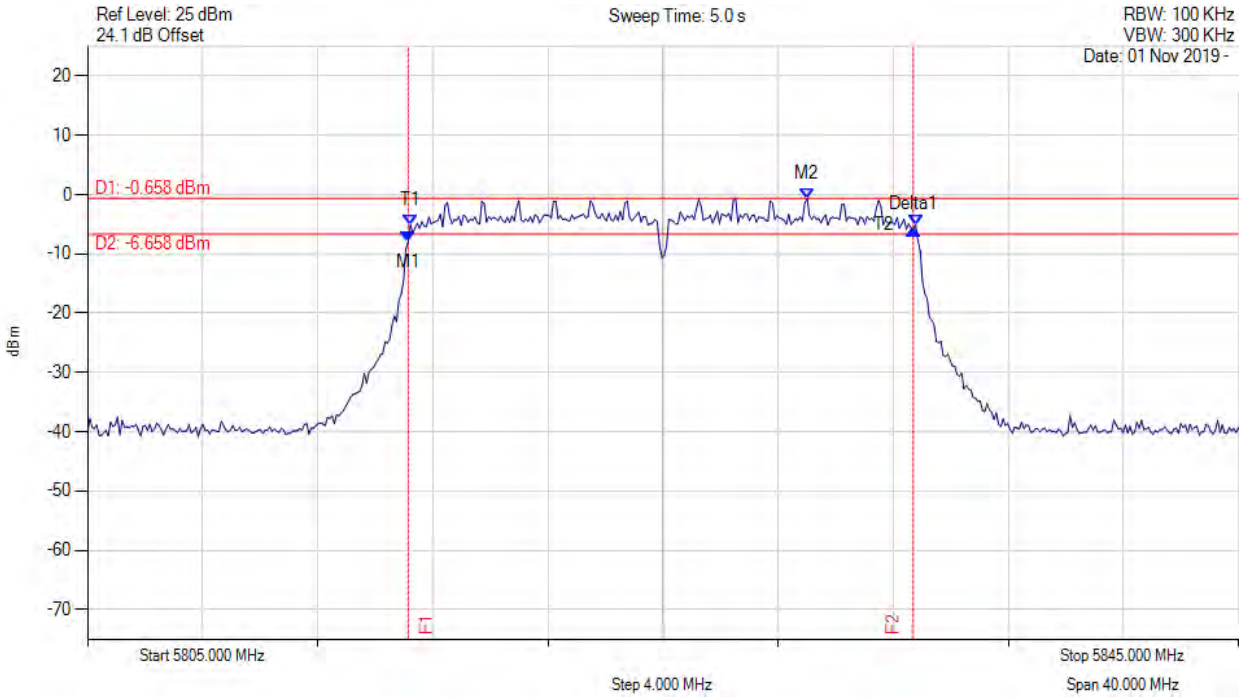


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5776.142 MHz : -7.192 dBm M2 : 5790.010 MHz : 0.713 dBm Delta1 : 17.555 MHz : 2.040 dB T1 : 5776.222 MHz : -4.133 dBm T2 : 5793.778 MHz : -4.266 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 17.555 MHz Measured 99% Bandwidth: 17.555 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

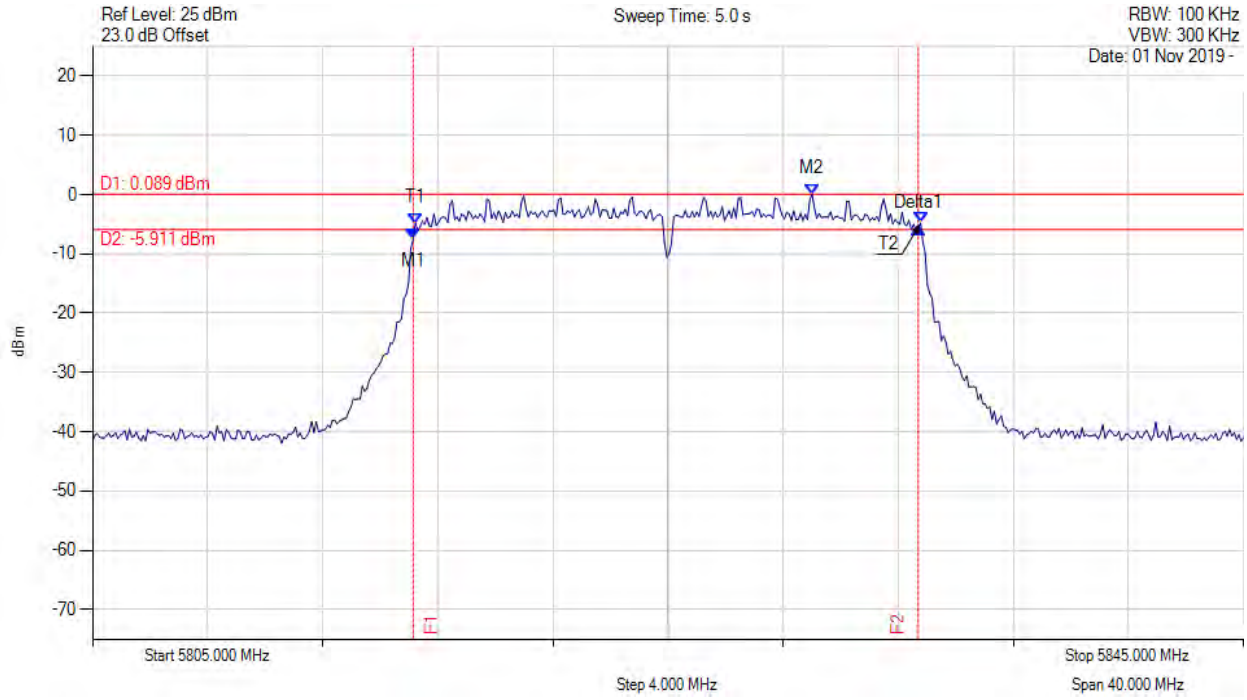


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5816.142 MHz : -7.898 dBm M2 : 5830.010 MHz : -0.658 dBm Delta1 : 17.555 MHz : 2.081 dB T1 : 5816.222 MHz : -5.089 dBm T2 : 5833.778 MHz : -5.079 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 17.555 MHz Measured 99% Bandwidth: 17.555 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

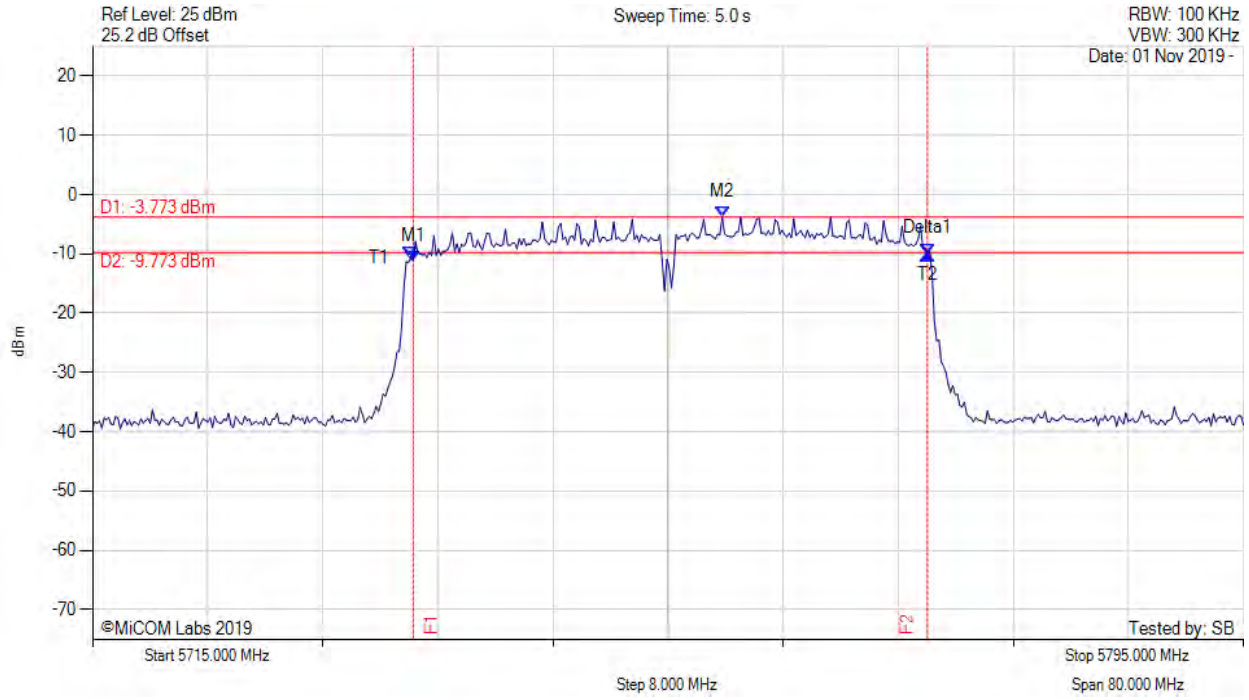


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5816.142 MHz : -7.560 dBm M2 : 5830.010 MHz : 0.089 dBm Delta1 : 17.555 MHz : 1.902 dB T1 : 5816.222 MHz : -4.831 dBm T2 : 5833.778 MHz : -4.774 dBm OBW : 17.555 MHz	Measured 6 dB Bandwidth: 17.555 MHz Measured 99% Bandwidth: 17.555 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

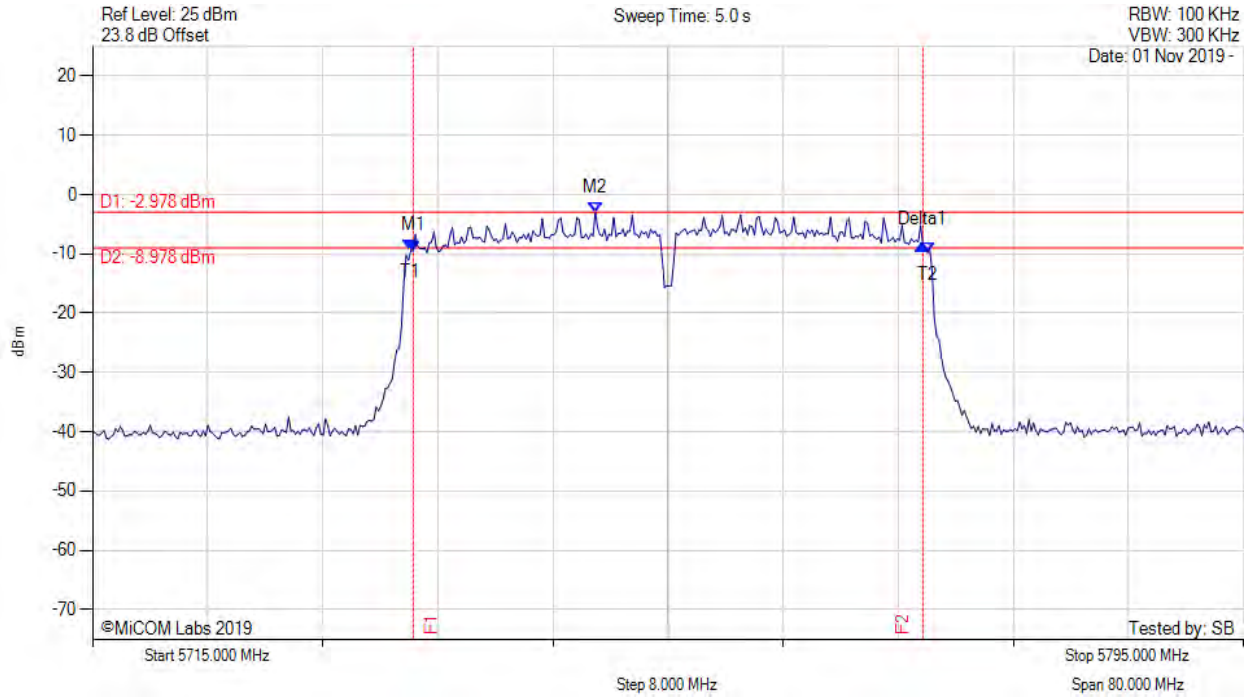


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5737.285 MHz : -11.162 dBm M2 : 5758.768 MHz : -3.773 dBm Delta1 : 35.752 MHz : 1.196 dB T1 : 5737.124 MHz : -10.627 dBm T2 : 5773.036 MHz : -9.966 dBm OBW : 35.912 MHz	Measured 6 dB Bandwidth: 35.752 MHz Measured 99% Bandwidth: 35.912 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

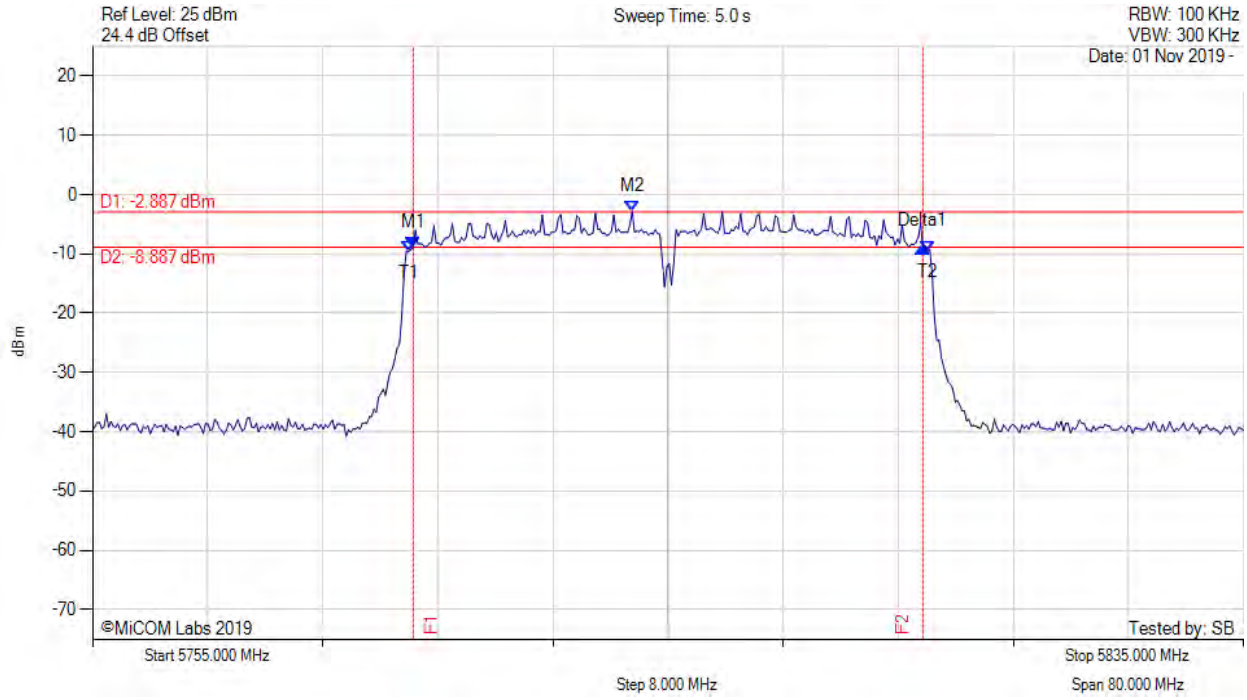


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5737.285 MHz : -9.494 dBm M2 : 5749.950 MHz : -2.978 dBm Delta1 : 35.431 MHz : 1.108 dB T1 : 5737.124 MHz : -9.452 dBm T2 : 5773.036 MHz : -9.844 dBm OBW : 35.912 MHz	Measured 6 dB Bandwidth: 35.431 MHz Measured 99% Bandwidth: 35.912 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

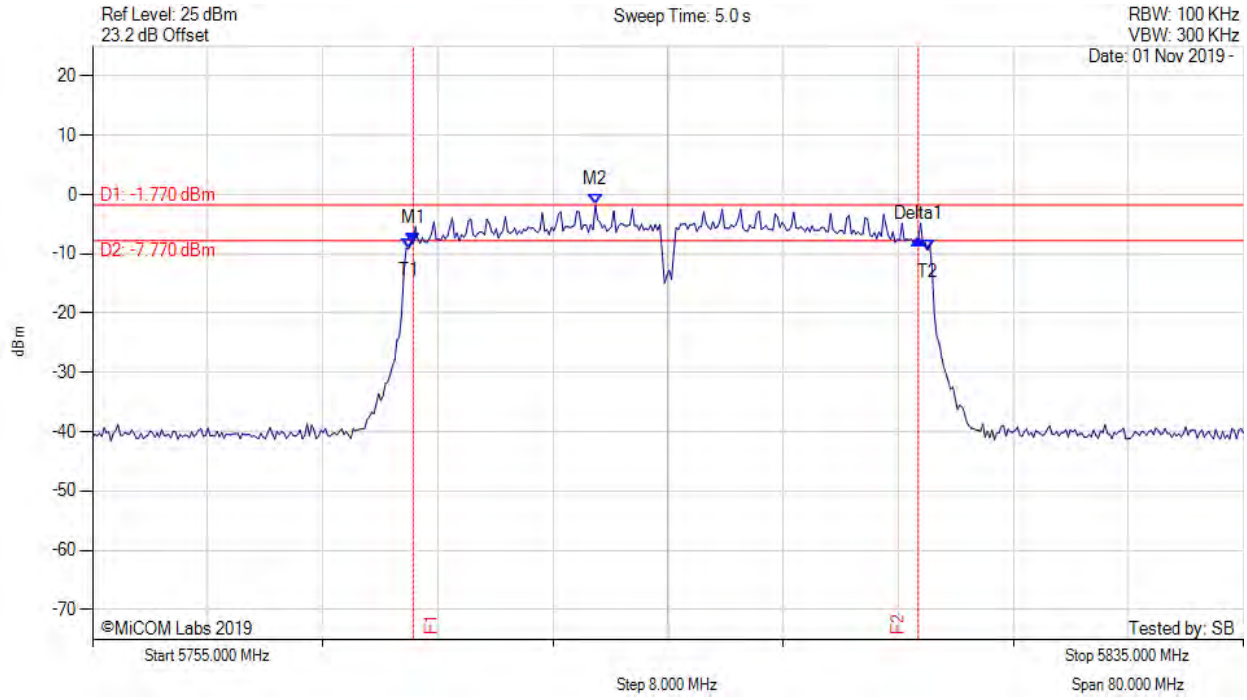


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5777.285 MHz : -8.962 dBm M2 : 5792.515 MHz : -2.887 dBm Delta1 : 35.431 MHz : 0.167 dB T1 : 5776.964 MHz : -9.651 dBm T2 : 5813.036 MHz : -9.553 dBm OBW : 36.072 MHz	Measured 6 dB Bandwidth: 35.431 MHz Measured 99% Bandwidth: 36.072 MHz

back to matrix

6 dB & 99% BANDWIDTH

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



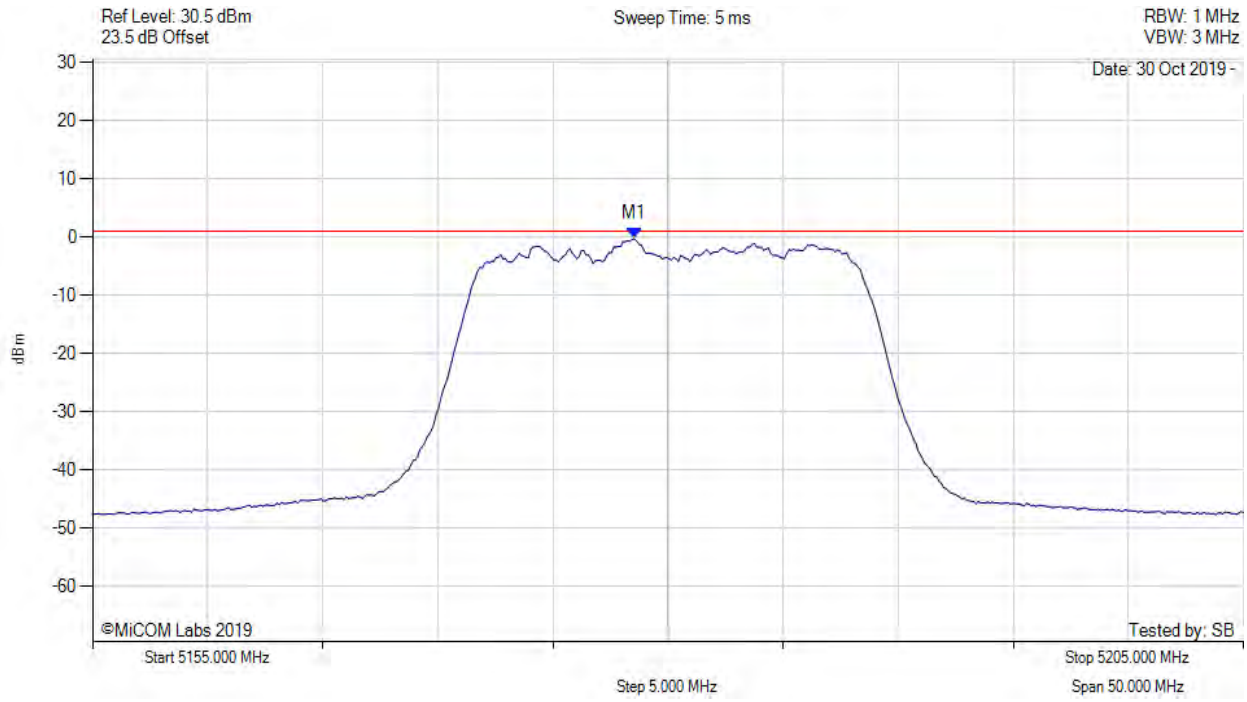
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 5777.285 MHz : -8.235 dBm M2 : 5789.950 MHz : -1.770 dBm Delta1 : 35.110 MHz : 0.767 dB T1 : 5776.964 MHz : -9.181 dBm T2 : 5813.036 MHz : -9.411 dBm OBW : 36.072 MHz	Measured 6 dB Bandwidth: 35.110 MHz Measured 99% Bandwidth: 36.072 MHz

back to matrix

A.3. Power Spectral Density

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

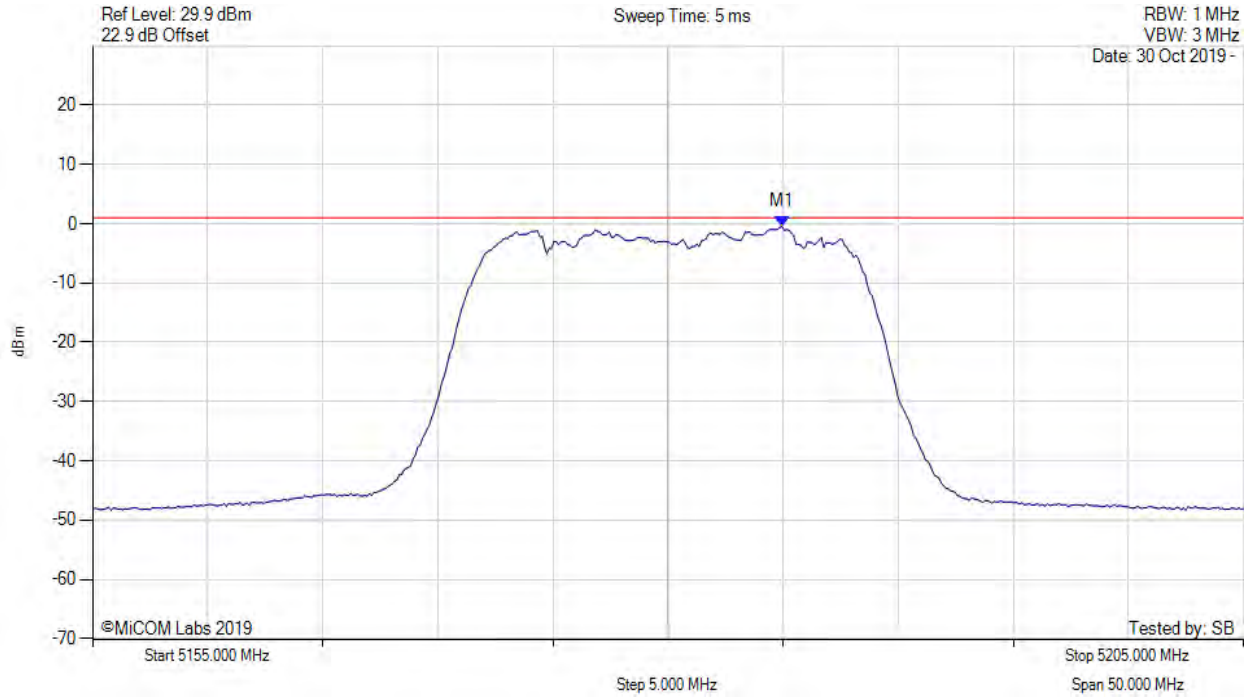


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5178.547 MHz : -0.301 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

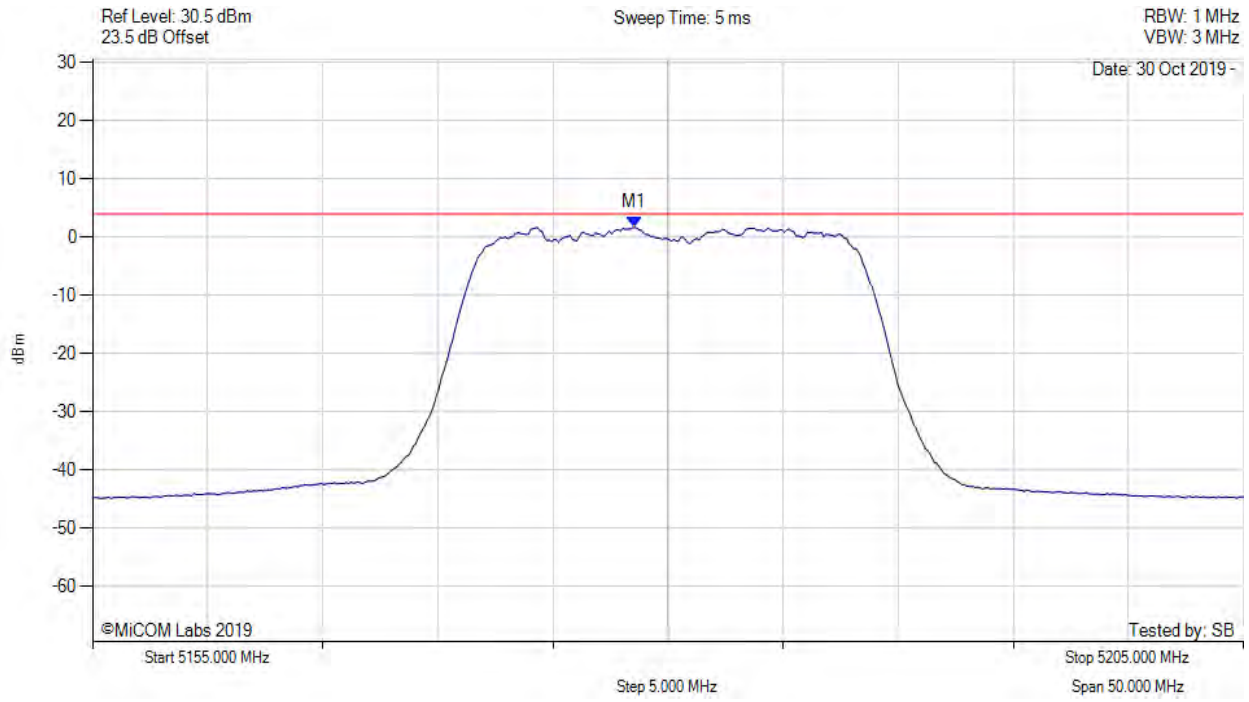


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5184.960 MHz : -0.515 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5180.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

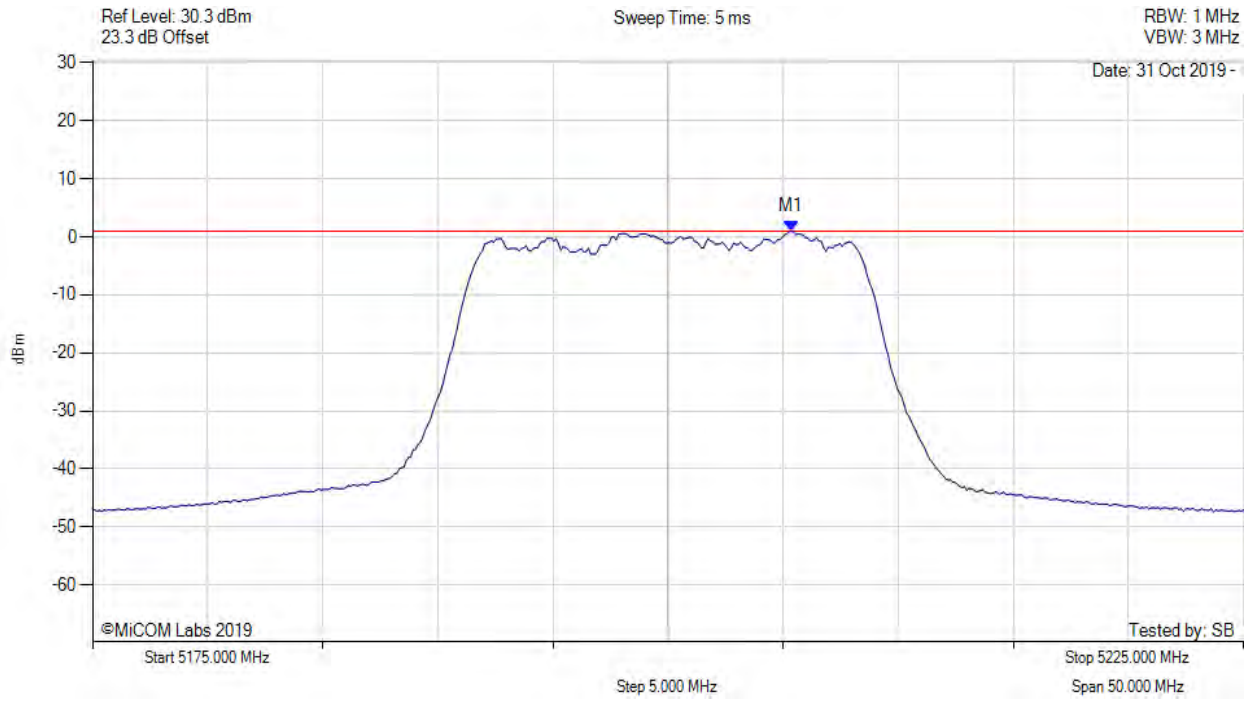


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5178.500 MHz : 1.664 dBm M1 + DCCF : 5178.500 MHz : 1.708 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -2.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

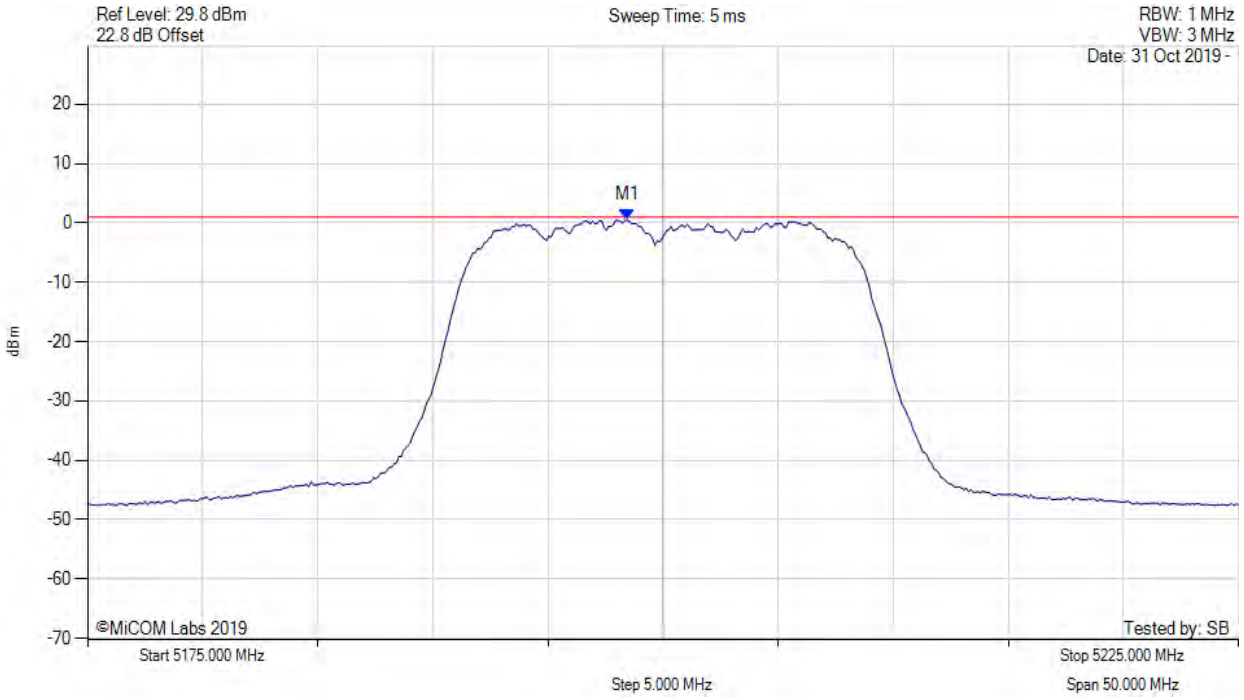


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5205.361 MHz : 0.952 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

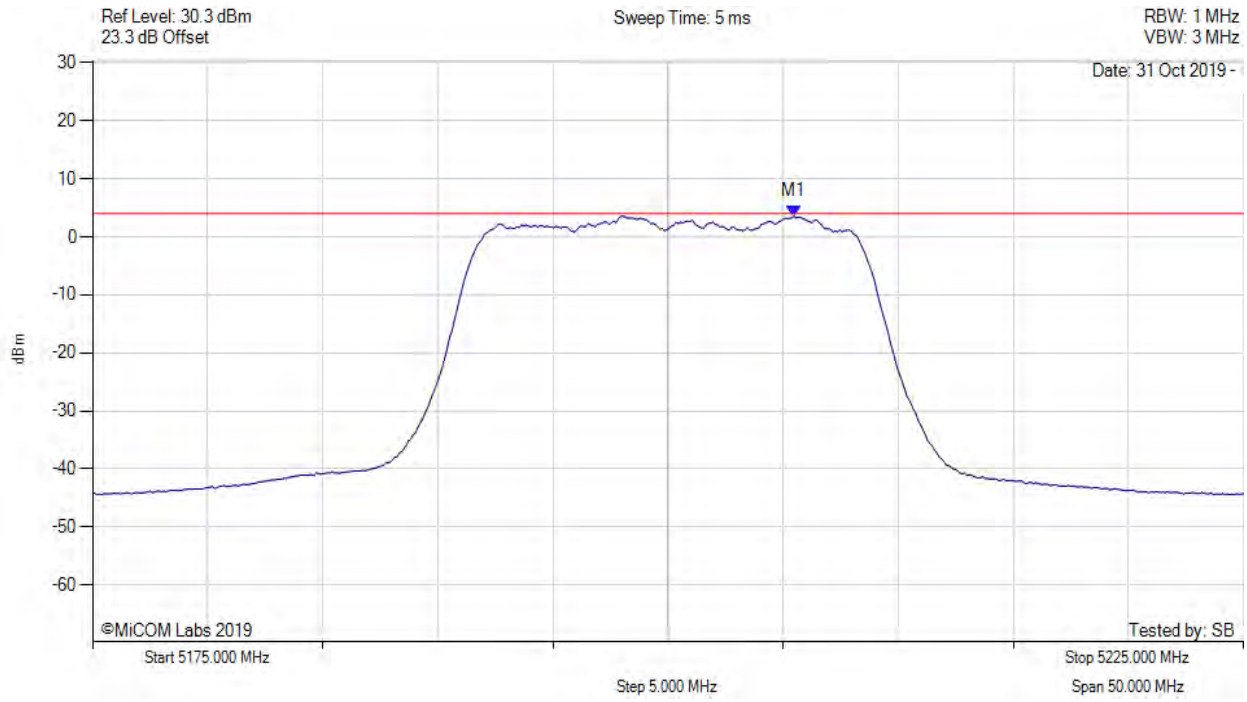


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5198.447 MHz : 0.504 dBm	Channel Frequency: 5200.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5200.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

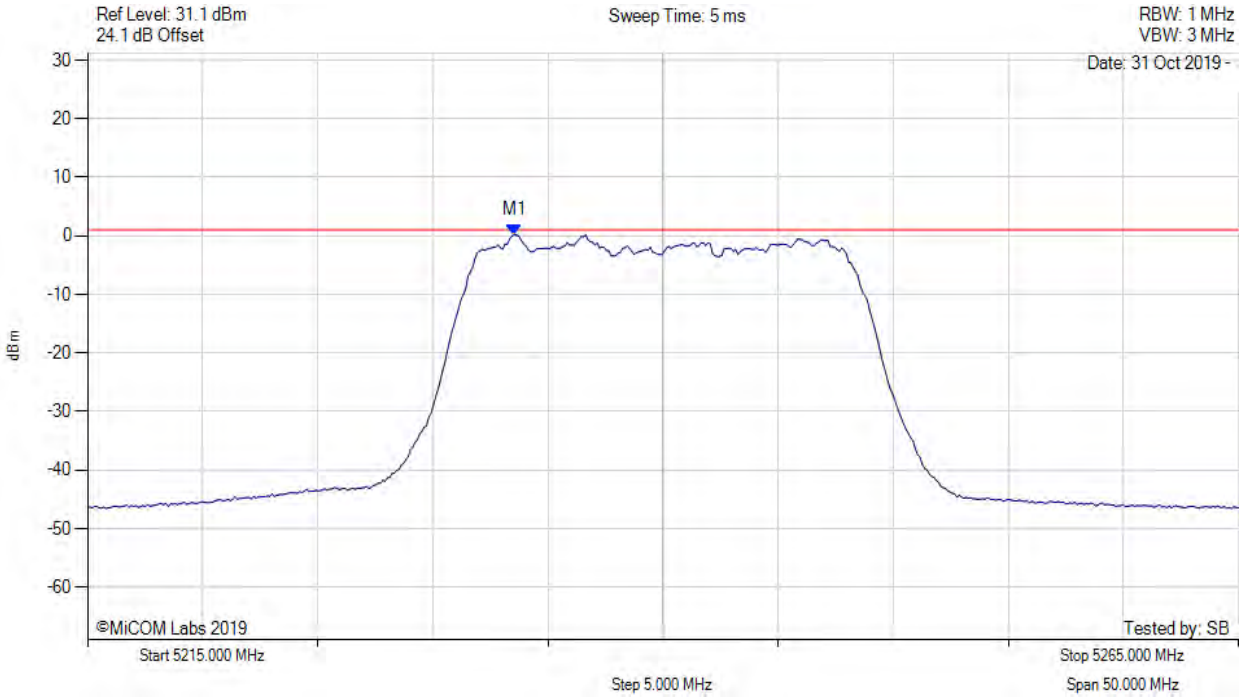


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5205.500 MHz : 3.555 dBm M1 + DCCF : 5205.500 MHz : 3.599 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -0.4 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

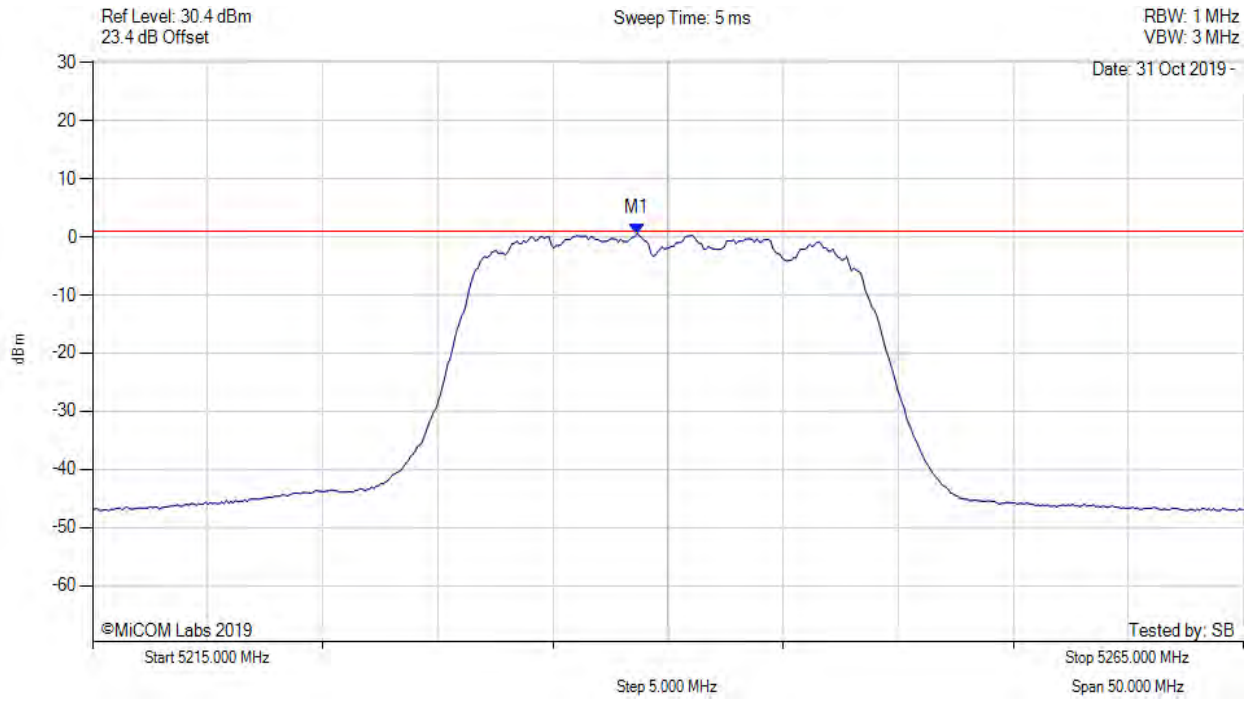


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5233.537 MHz : 0.180 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

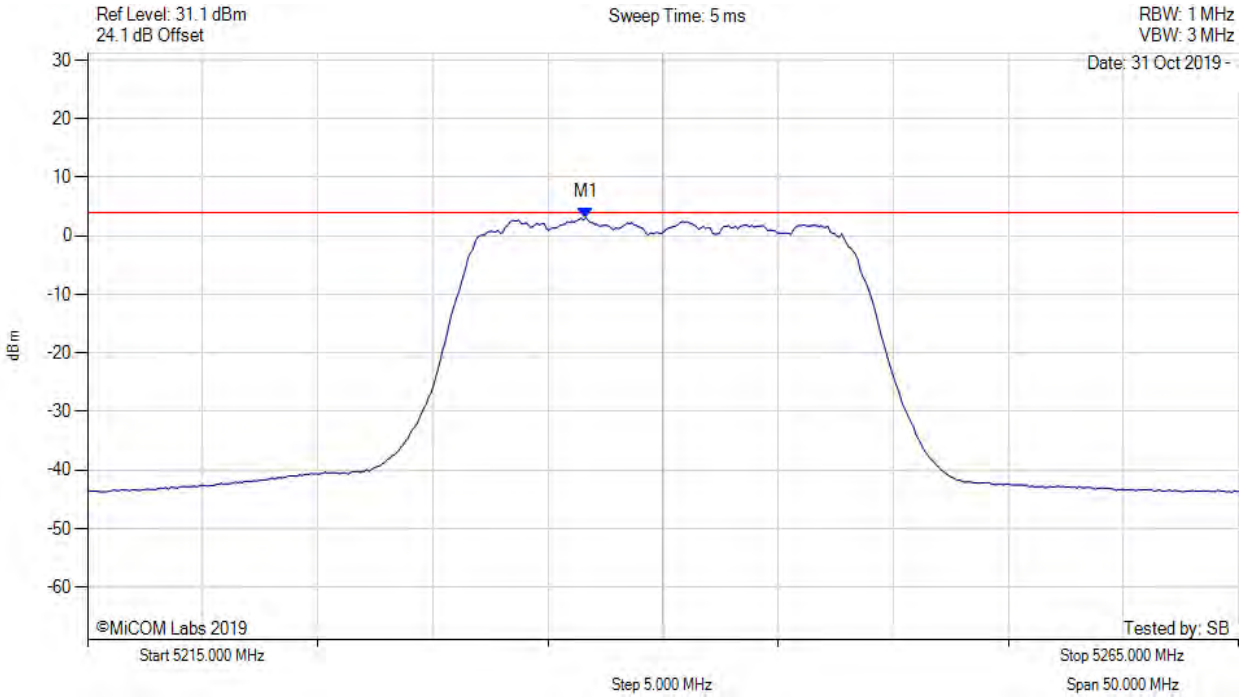


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5238.647 MHz : 0.573 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5240.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

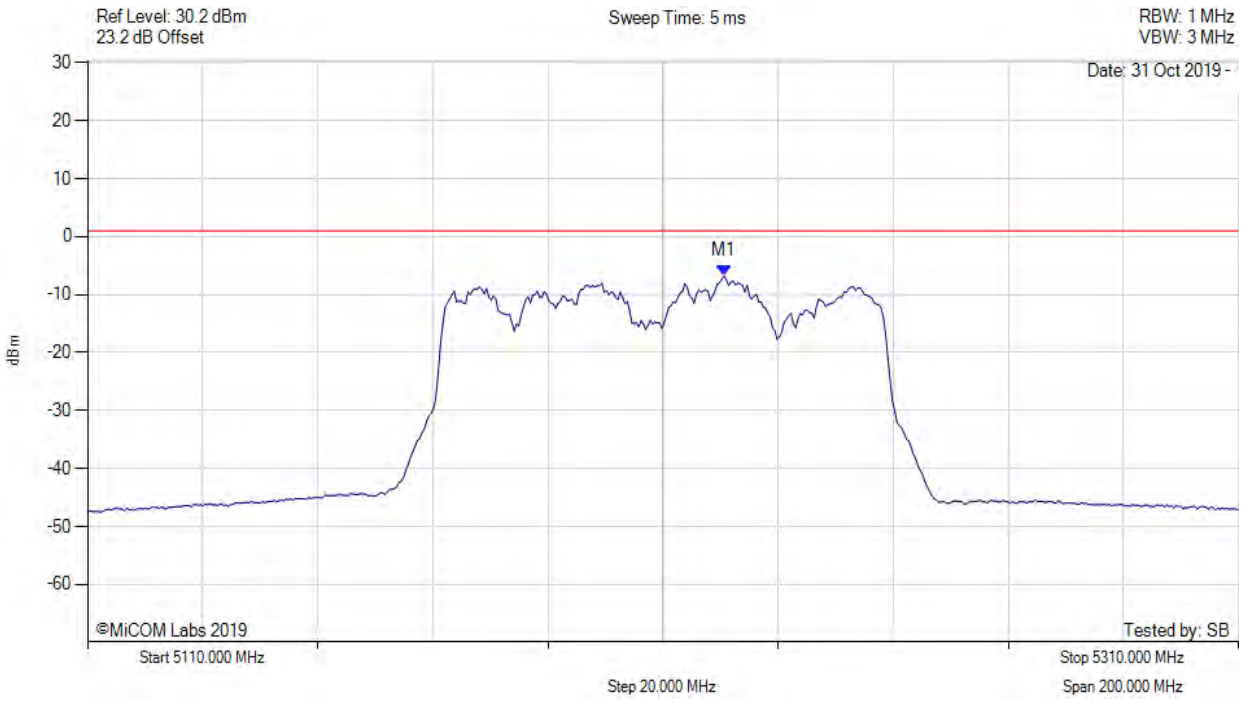


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5236.600 MHz : 3.111 dBm M1 + DCCF : 5236.600 MHz : 3.155 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -0.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

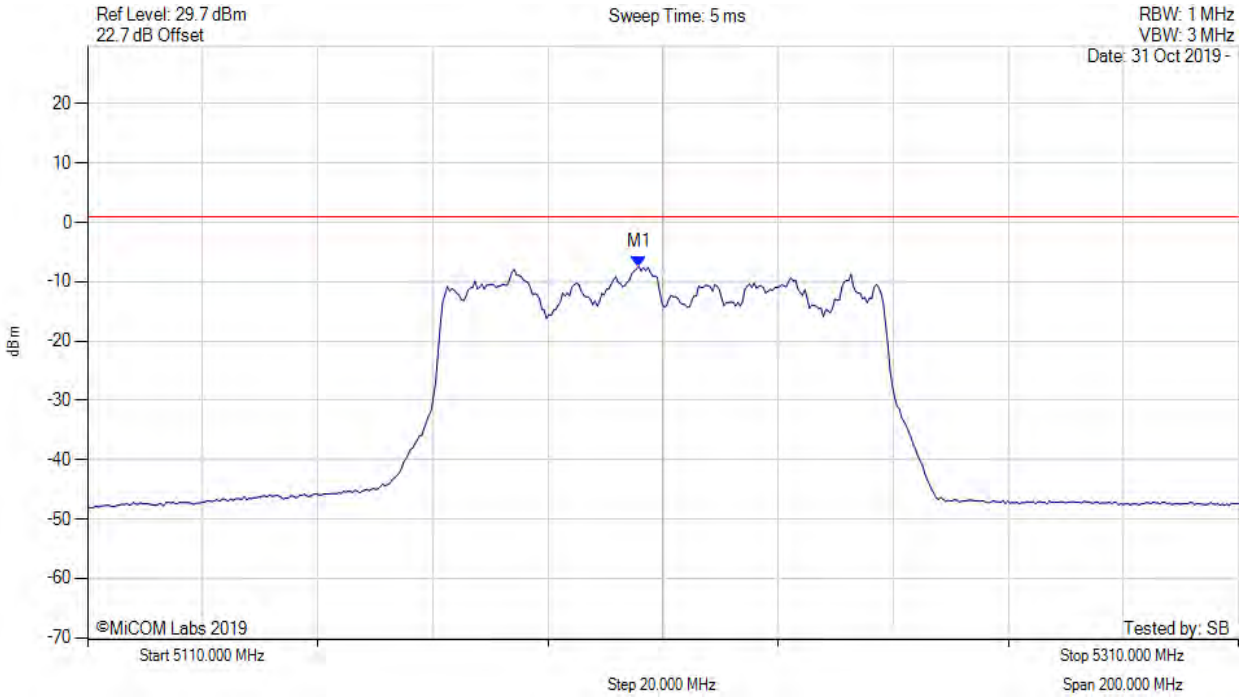


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5220.621 MHz : -6.785 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

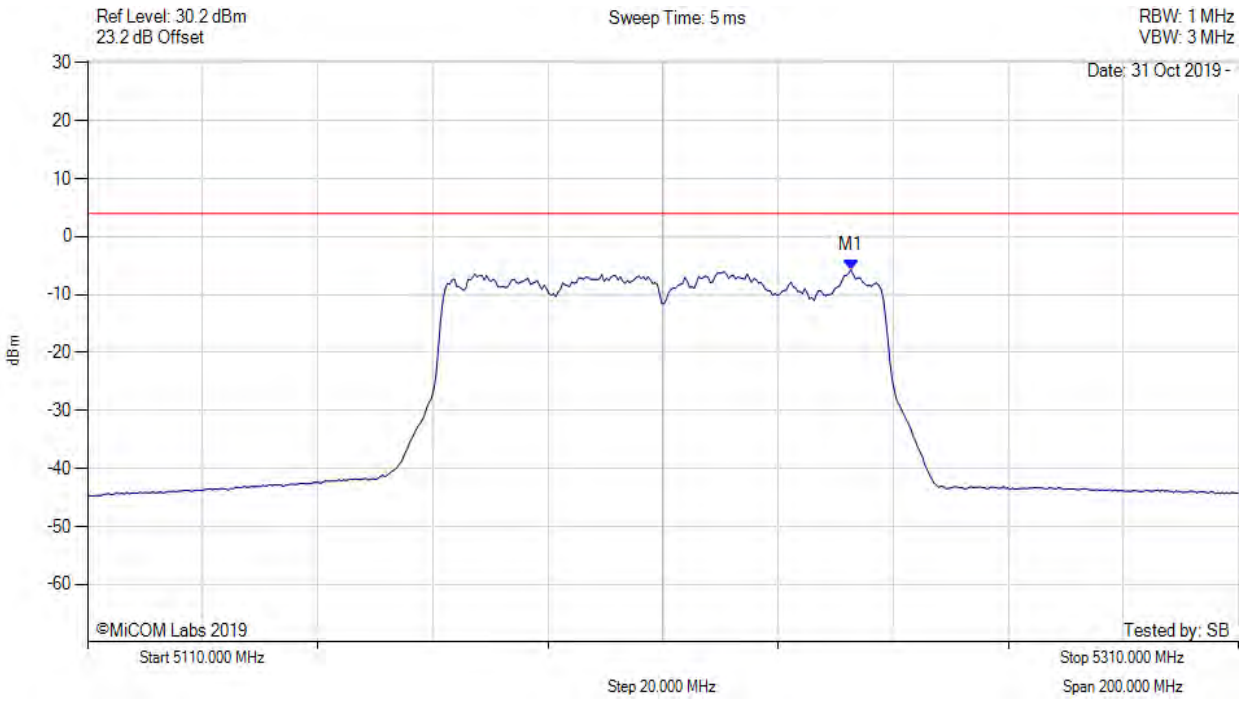


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5205.792 MHz : -7.392 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

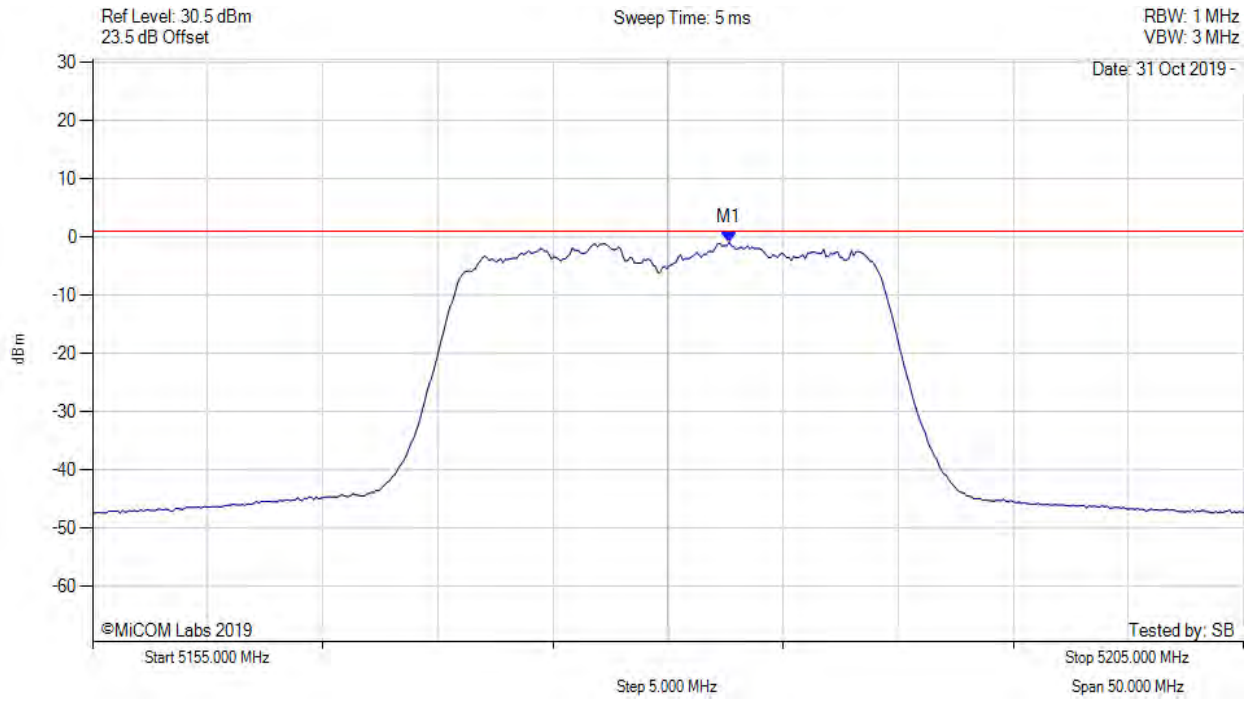


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5242.700 MHz : -5.718 dBm M1 + DCCF : 5242.700 MHz : -5.674 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -9.7 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

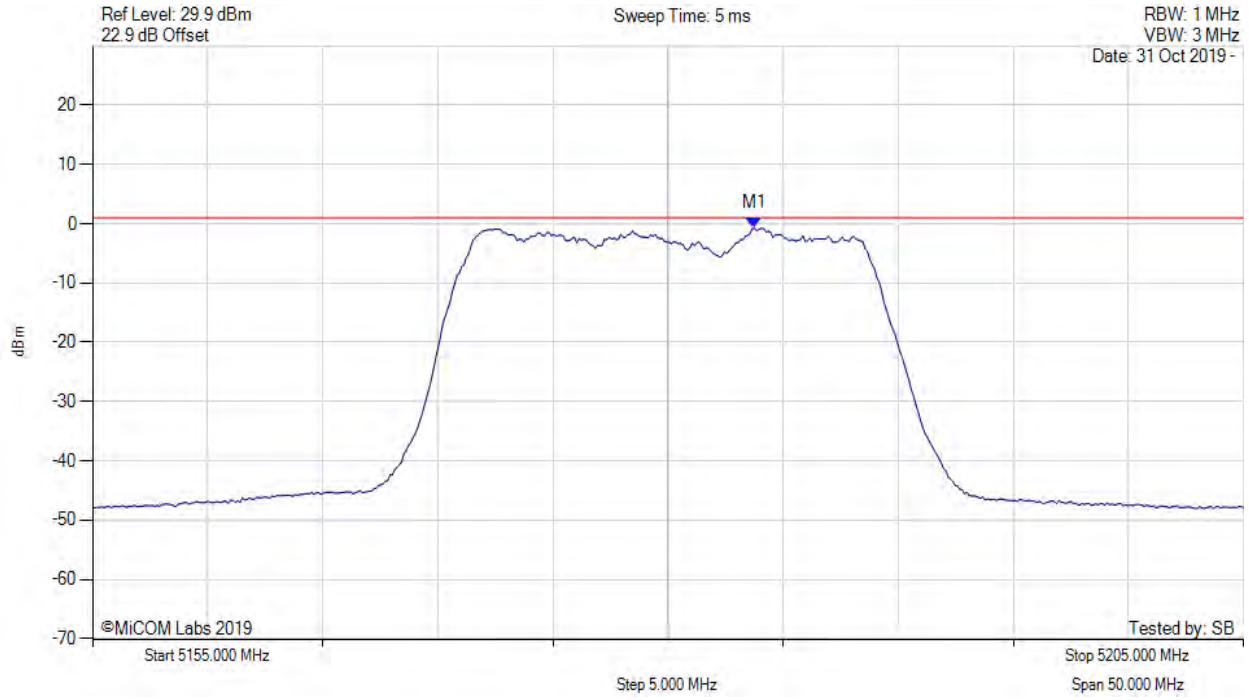


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5182.655 MHz : -0.918 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

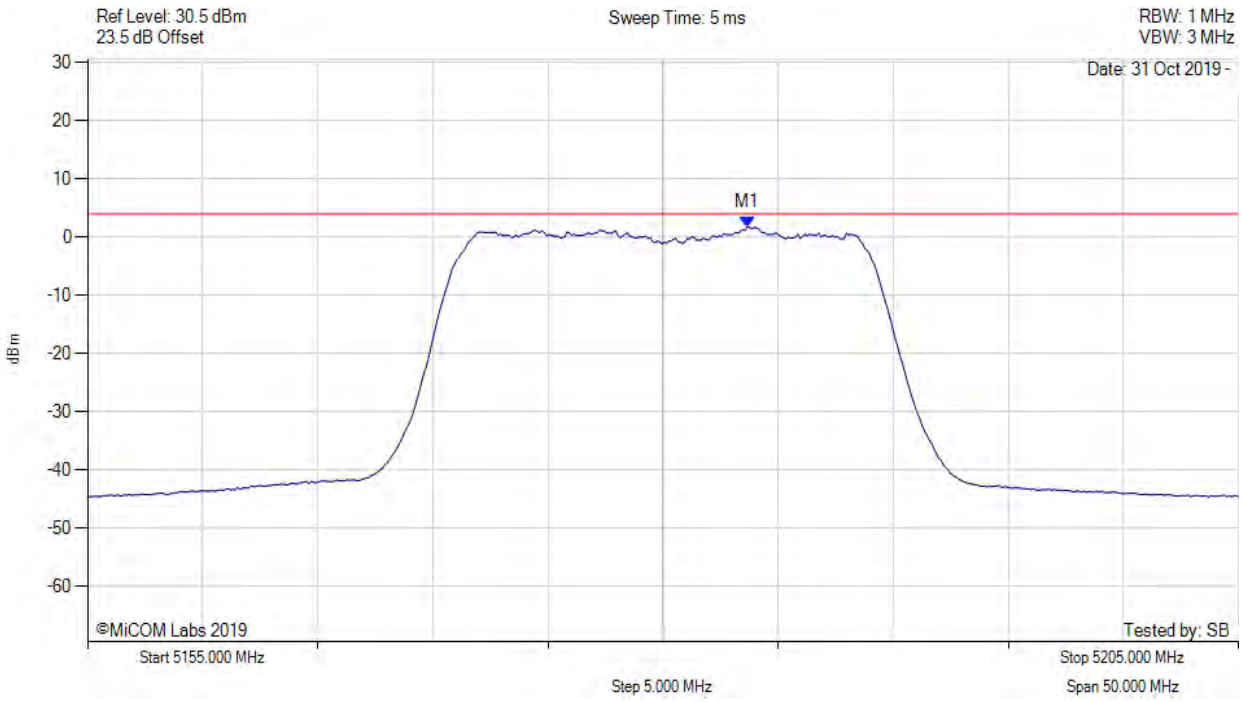


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5183.758 MHz : -0.770 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5180.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

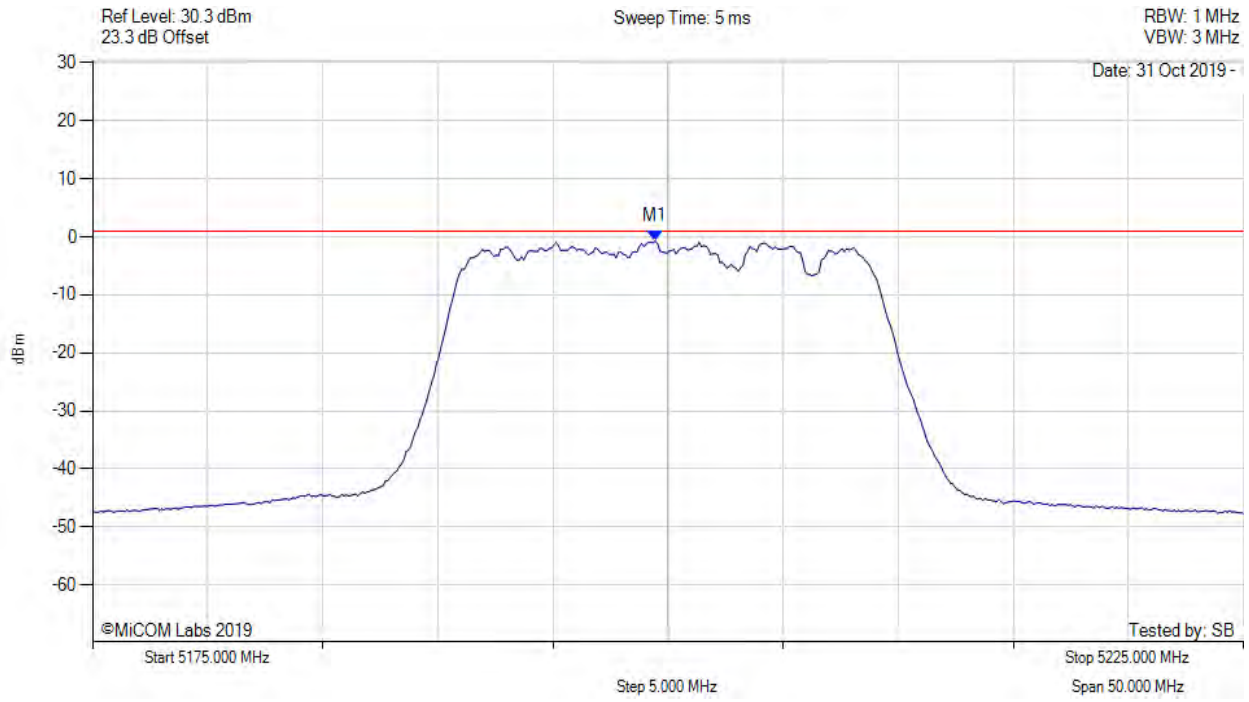


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5183.700 MHz : 1.741 dBm M1 + DCCF : 5183.700 MHz : 1.785 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -2.2 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

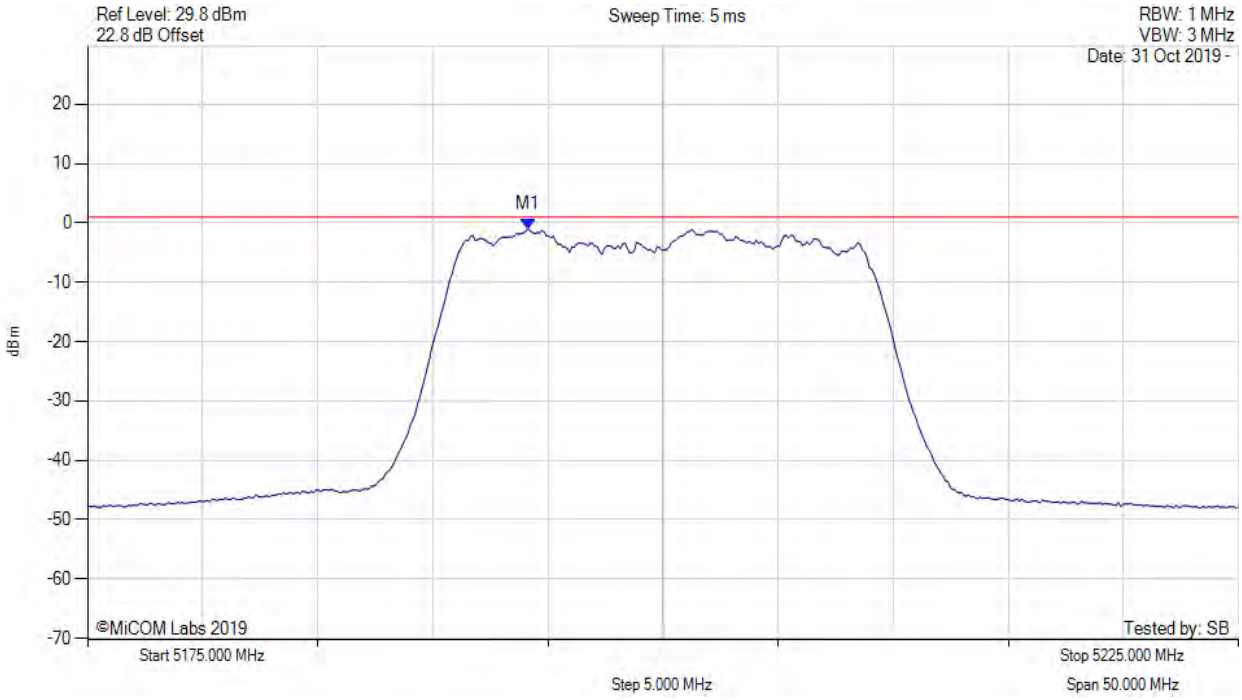


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5199.449 MHz : -0.764 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

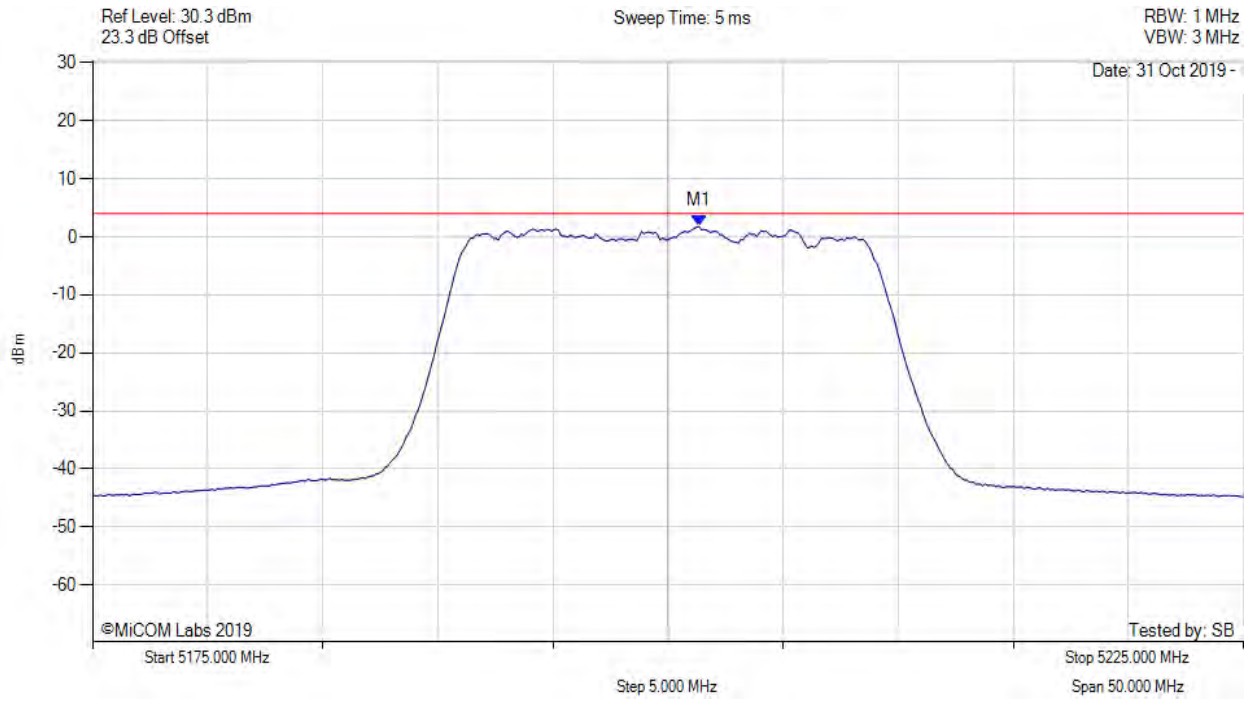


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5194.138 MHz : -0.985 dBm	Channel Frequency: 5200.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5200.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

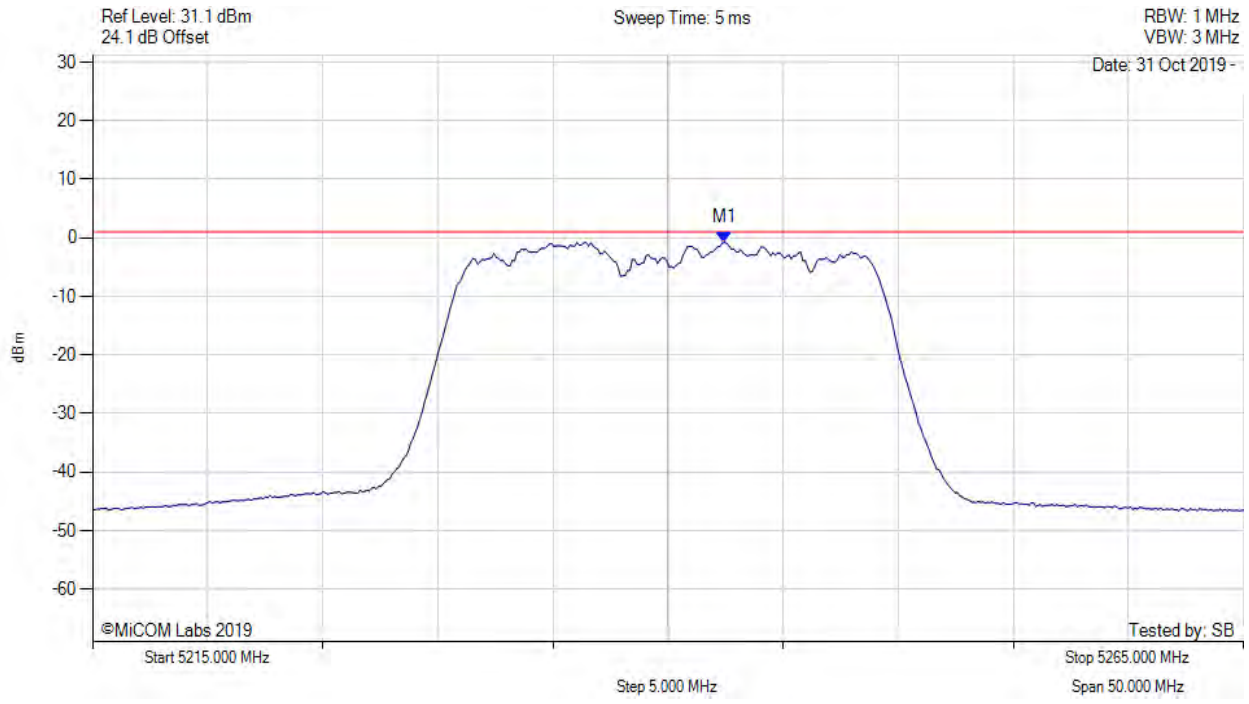


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5201.400 MHz : 1.783 dBm M1 + DCCF : 5201.400 MHz : 1.827 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -2.2 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

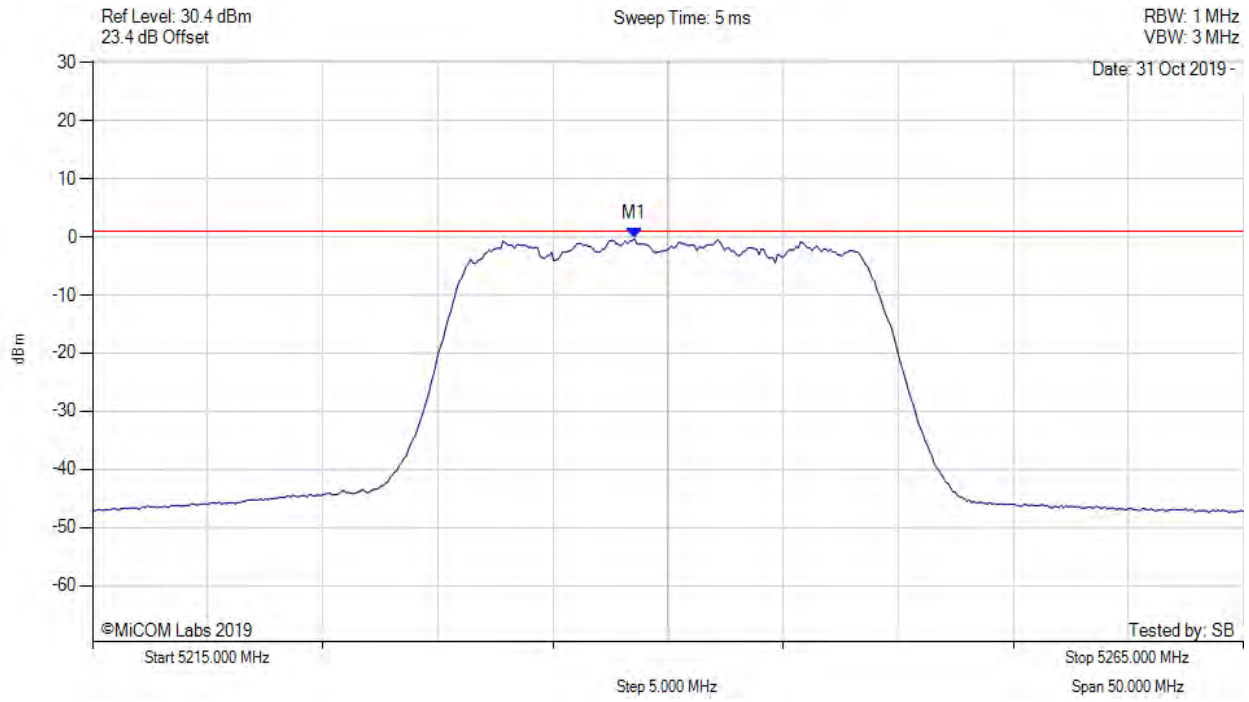


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5242.455 MHz : -0.782 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

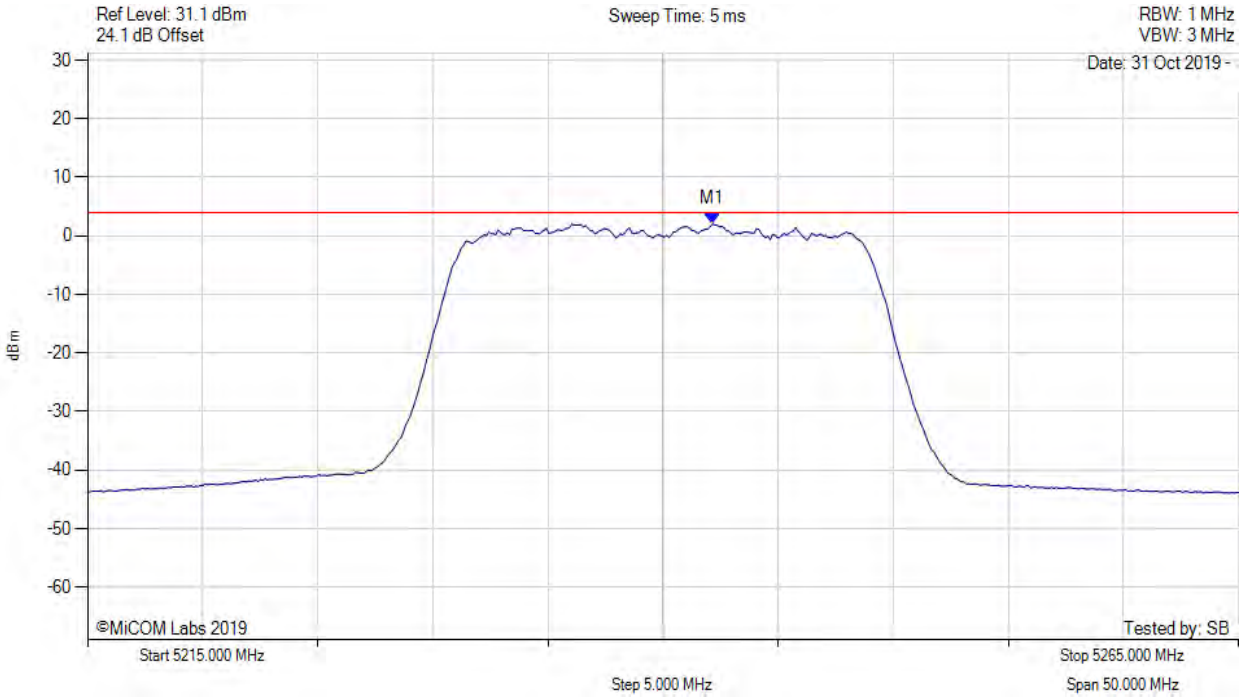


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5238.547 MHz : -0.290 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5240.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

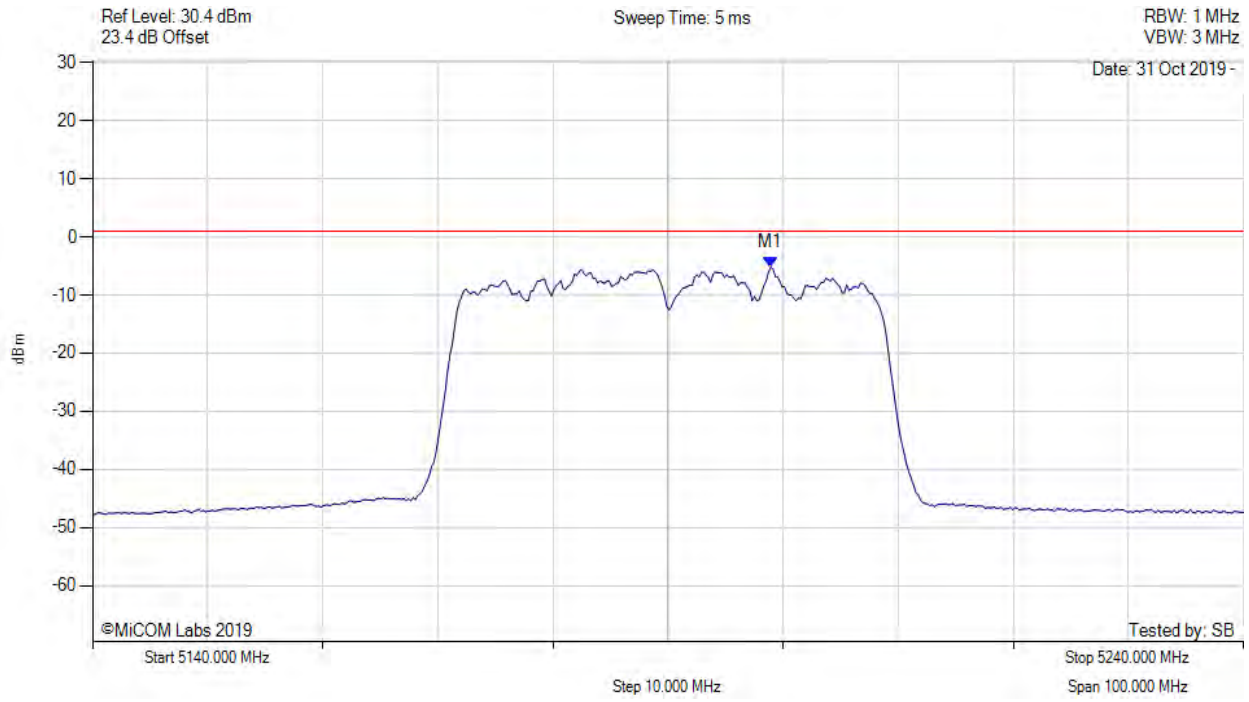


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5242.200 MHz : 2.033 dBm M1 + DCCF : 5242.200 MHz : 2.077 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -1.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

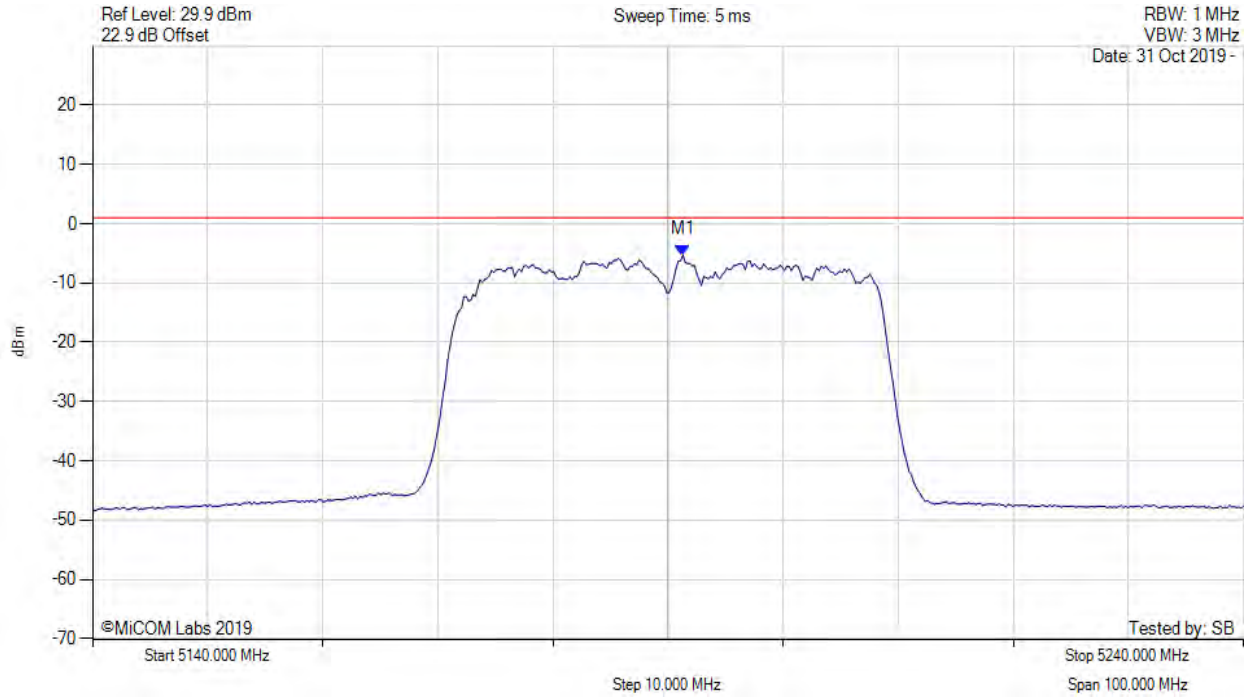


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5198.918 MHz : -5.234 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

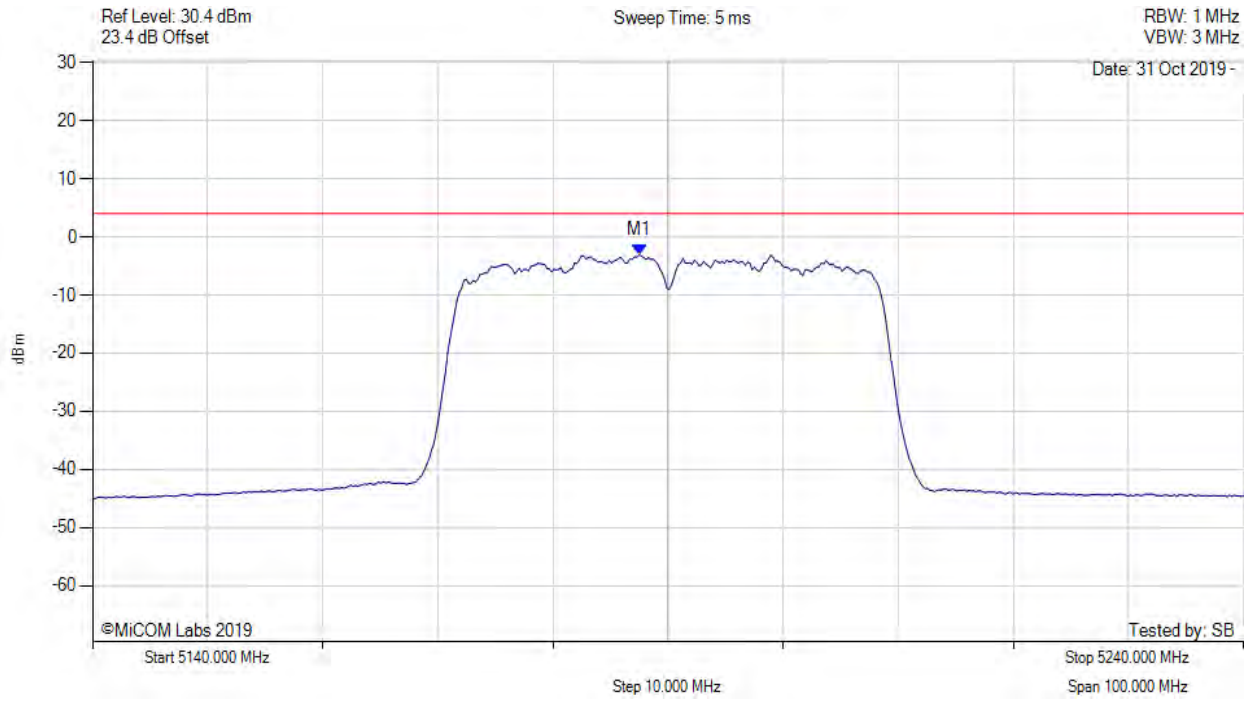


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5191.303 MHz : -5.314 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5190.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

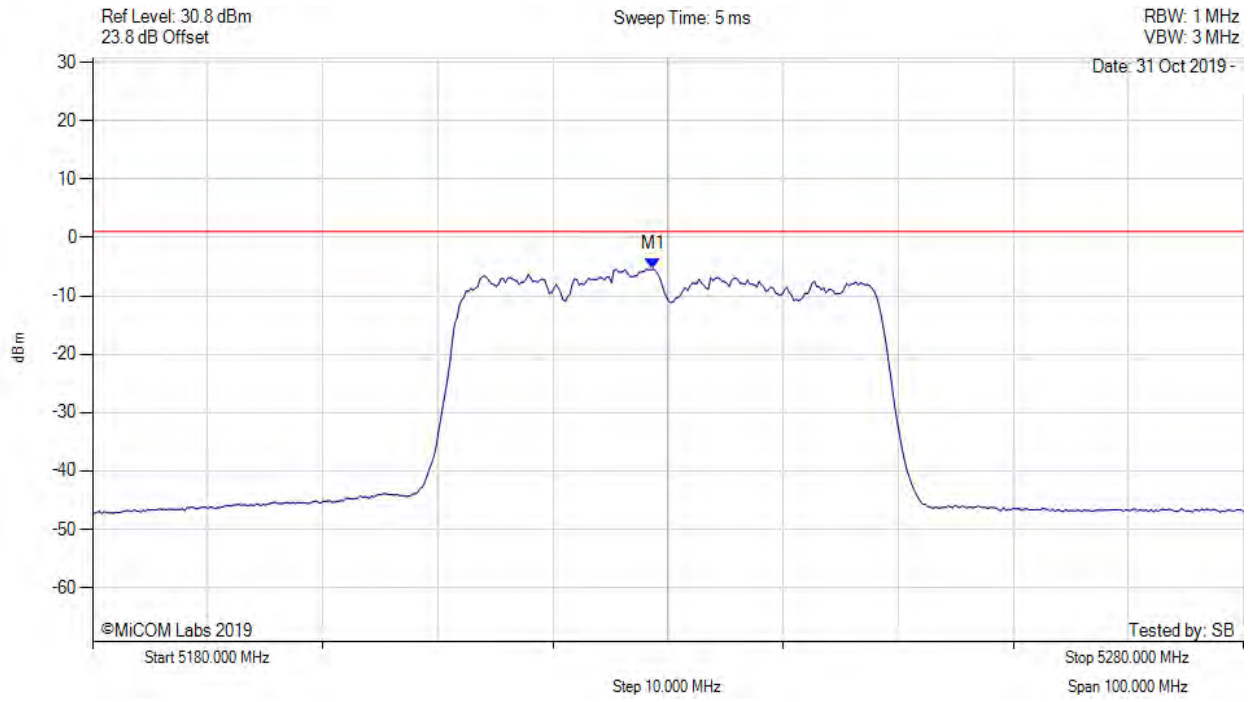


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5187.500 MHz : -3.086 dBm M1 + DCCF : 5187.500 MHz : -3.042 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -7.1 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

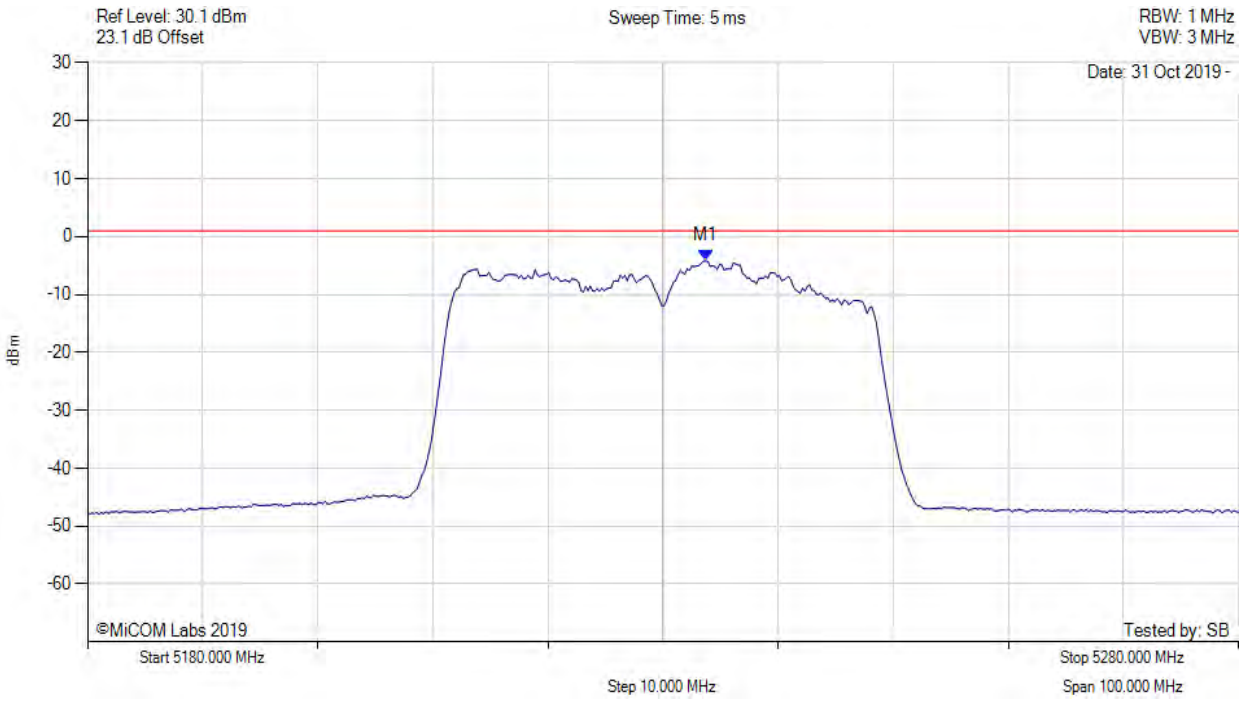


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5228.697 MHz : -5.450 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

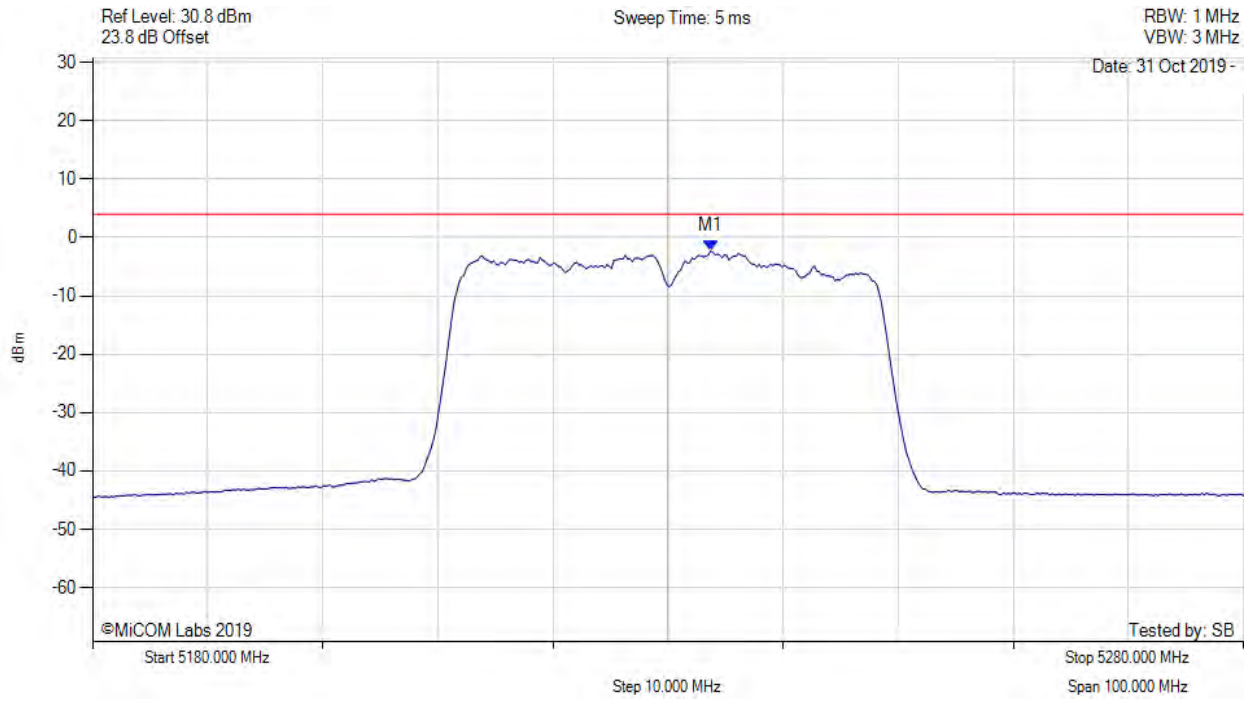


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5233.707 MHz : -4.189 dBm	Limit: ≤ 0.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5230.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

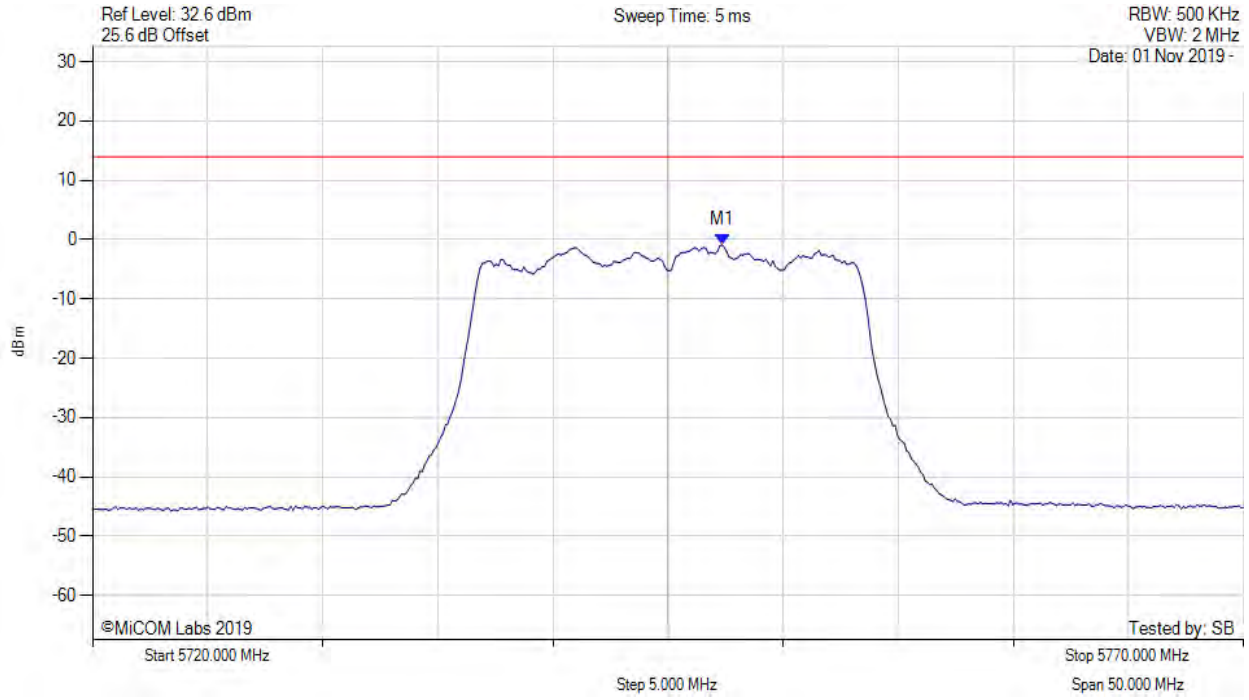


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5233.700 MHz : -2.327 dBm M1 + DCCF : 5233.700 MHz : -2.283 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 4.0 dBm Margin: -6.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

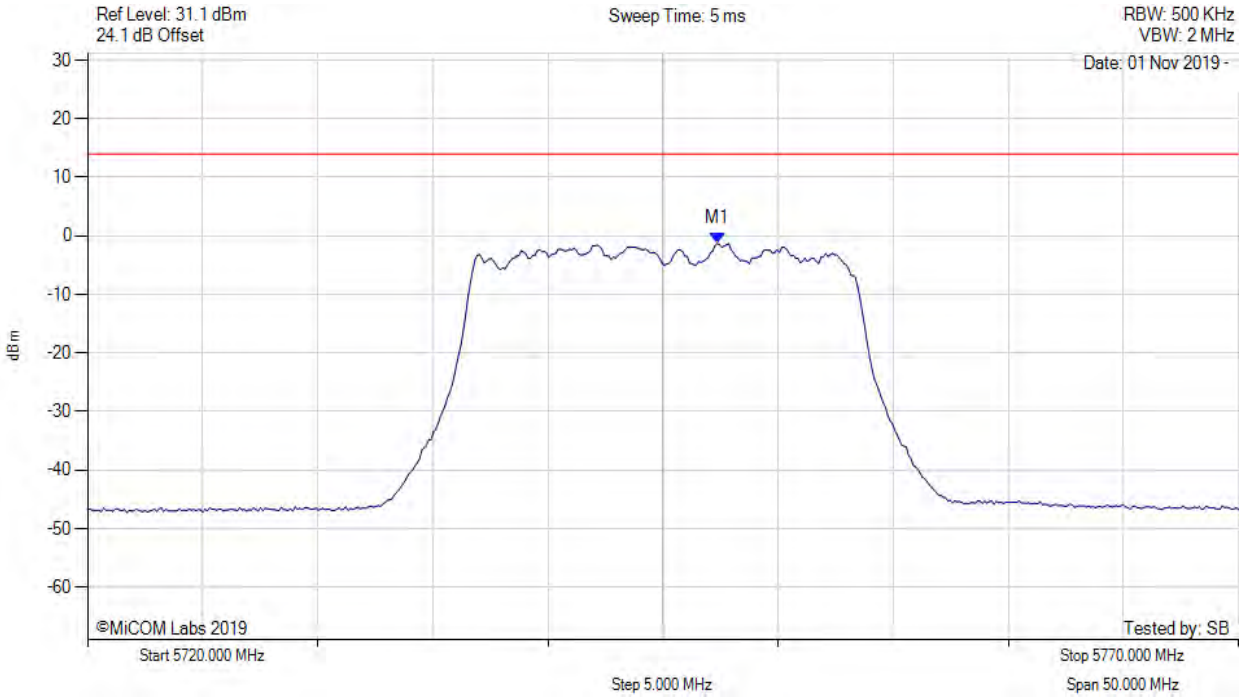


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5747.355 MHz : -0.880 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

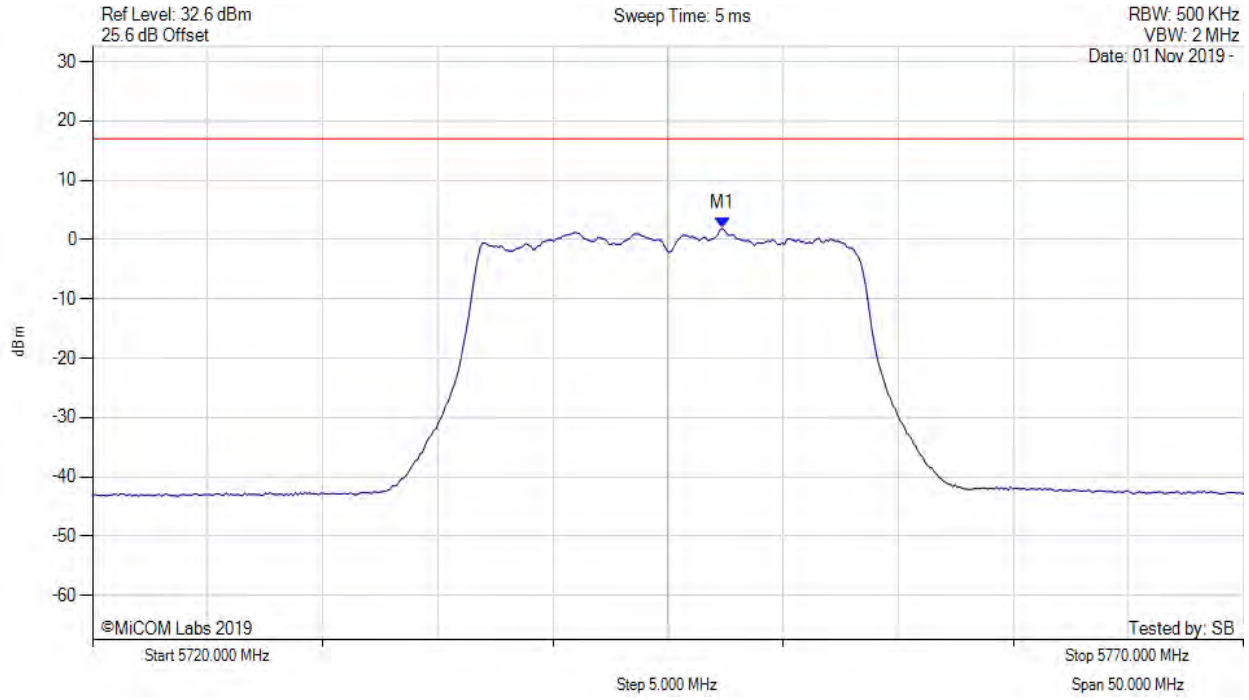


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5747.355 MHz : -1.290 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5745.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

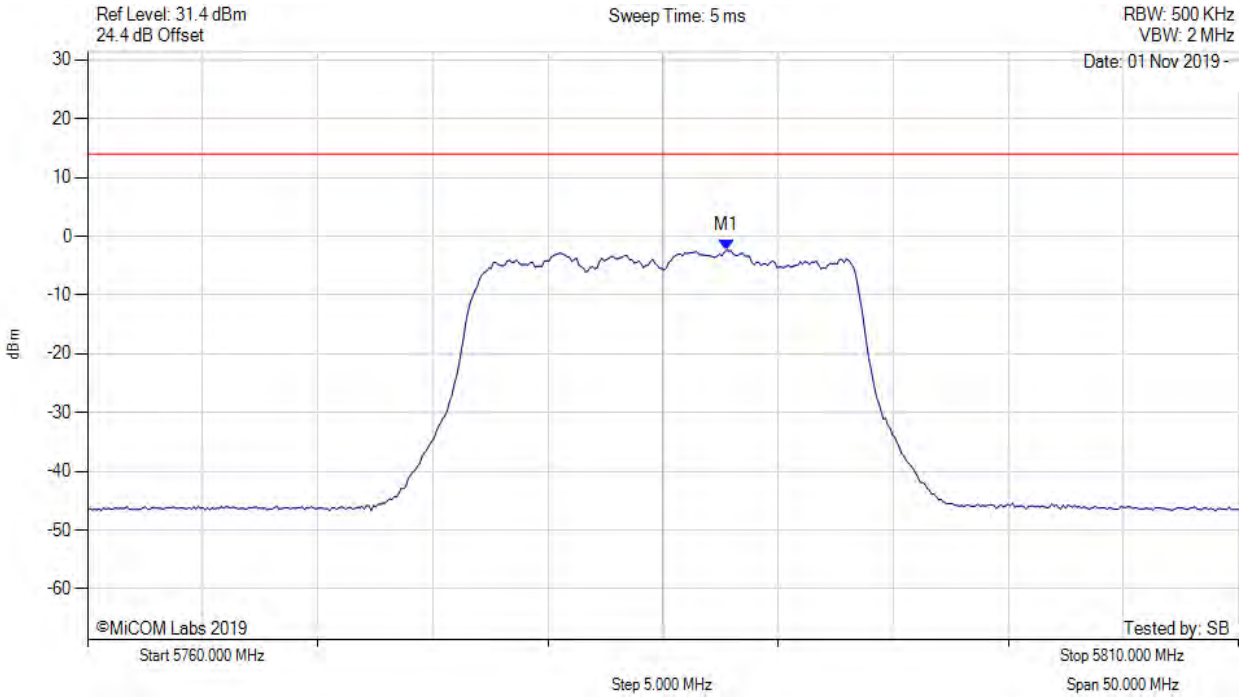


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5747.400 MHz : 1.930 dBm M1 + DCCF : 5747.400 MHz : 1.974 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -15.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

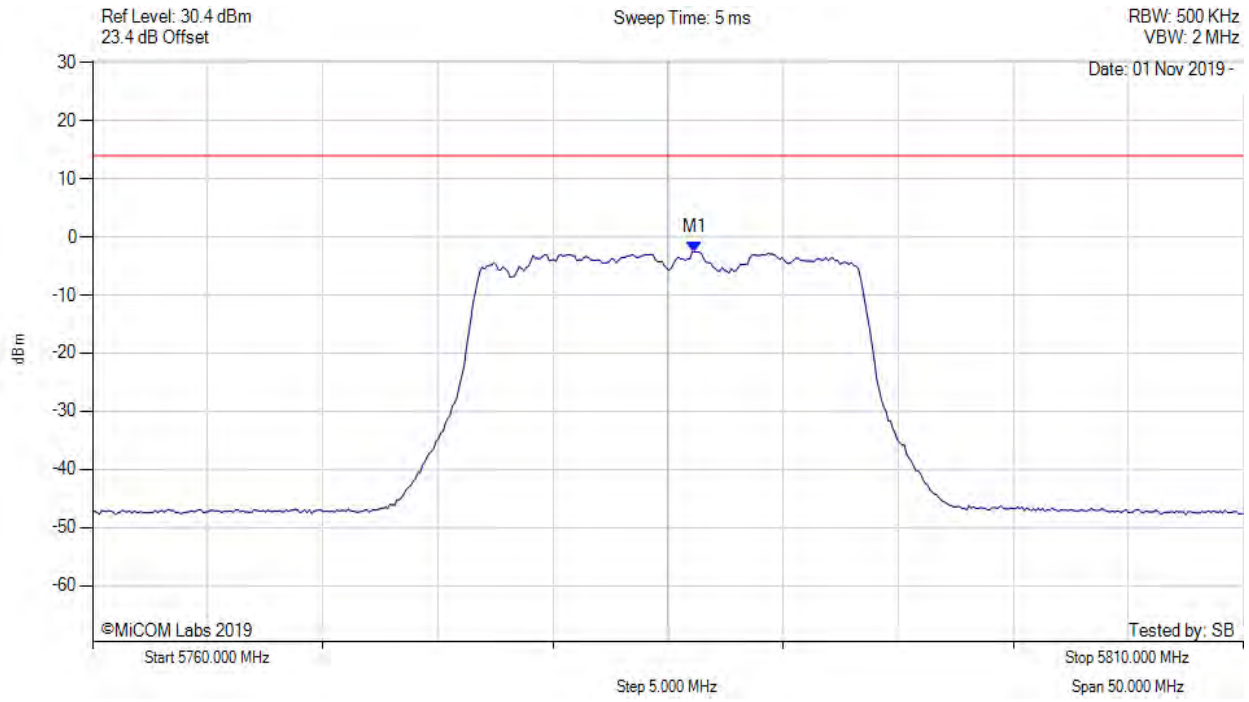


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5787.756 MHz : -2.382 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

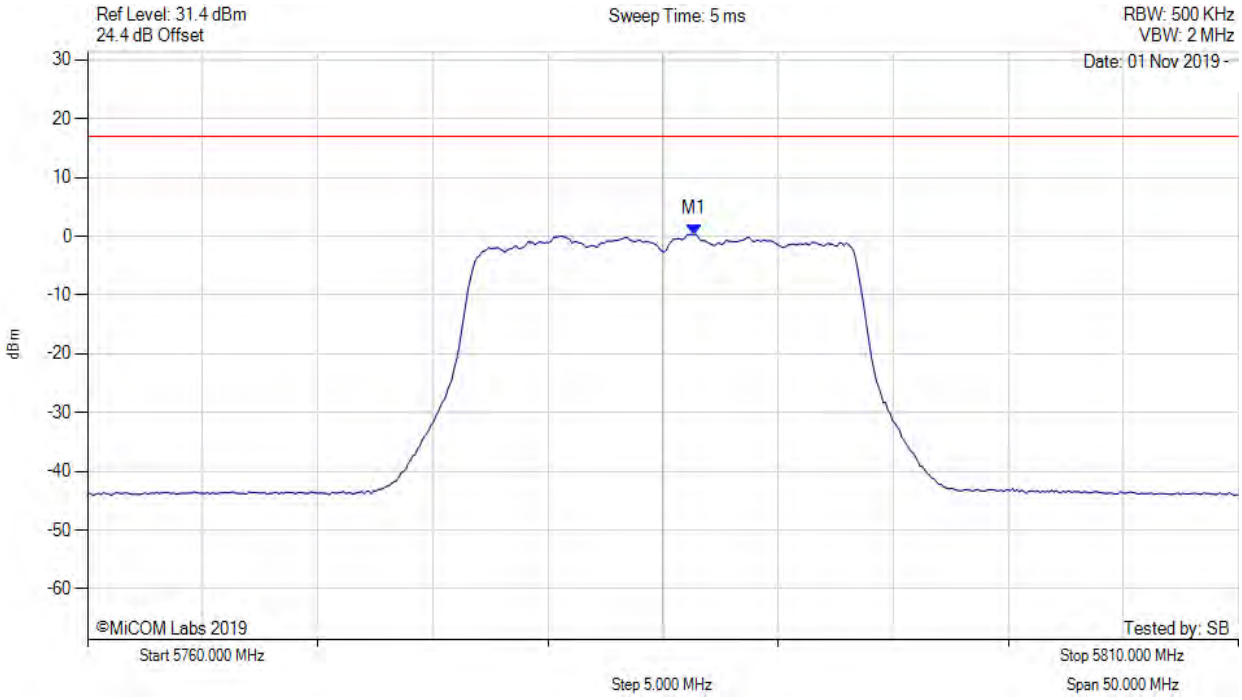


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5786.152 MHz : -2.551 dBm	Channel Frequency: 5785.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5785.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

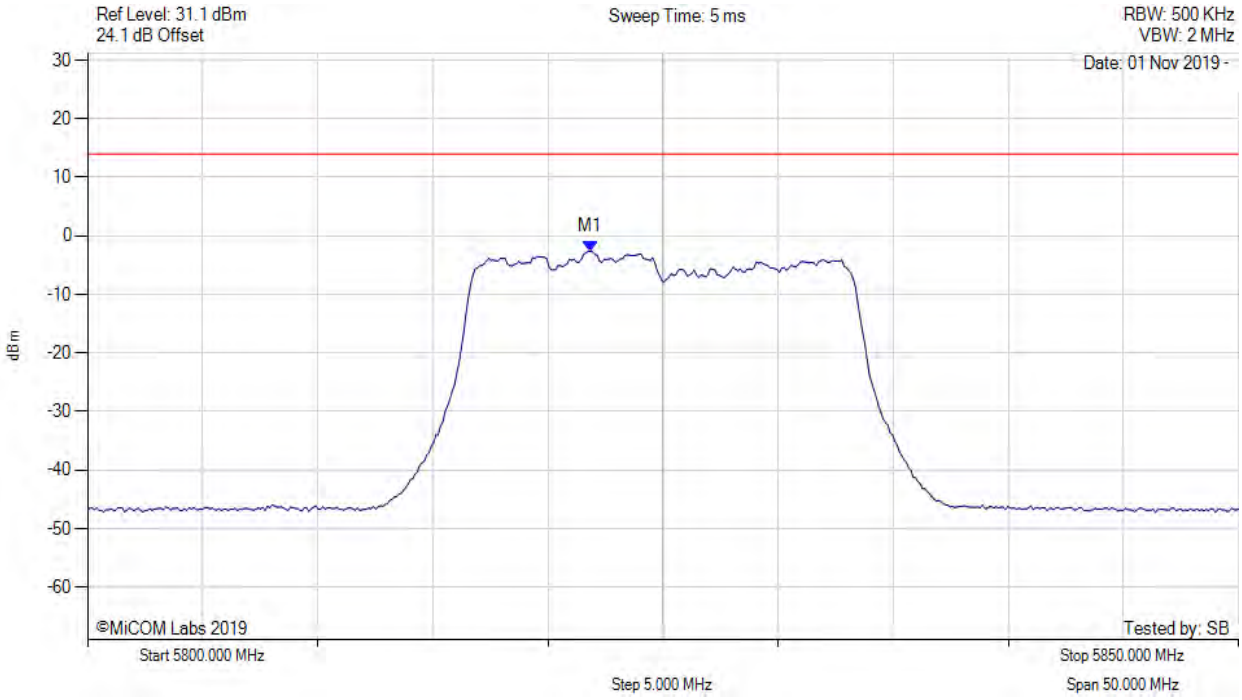


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5786.400 MHz : 0.343 dBm M1 + DCCF : 5786.400 MHz : 0.387 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -16.6 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

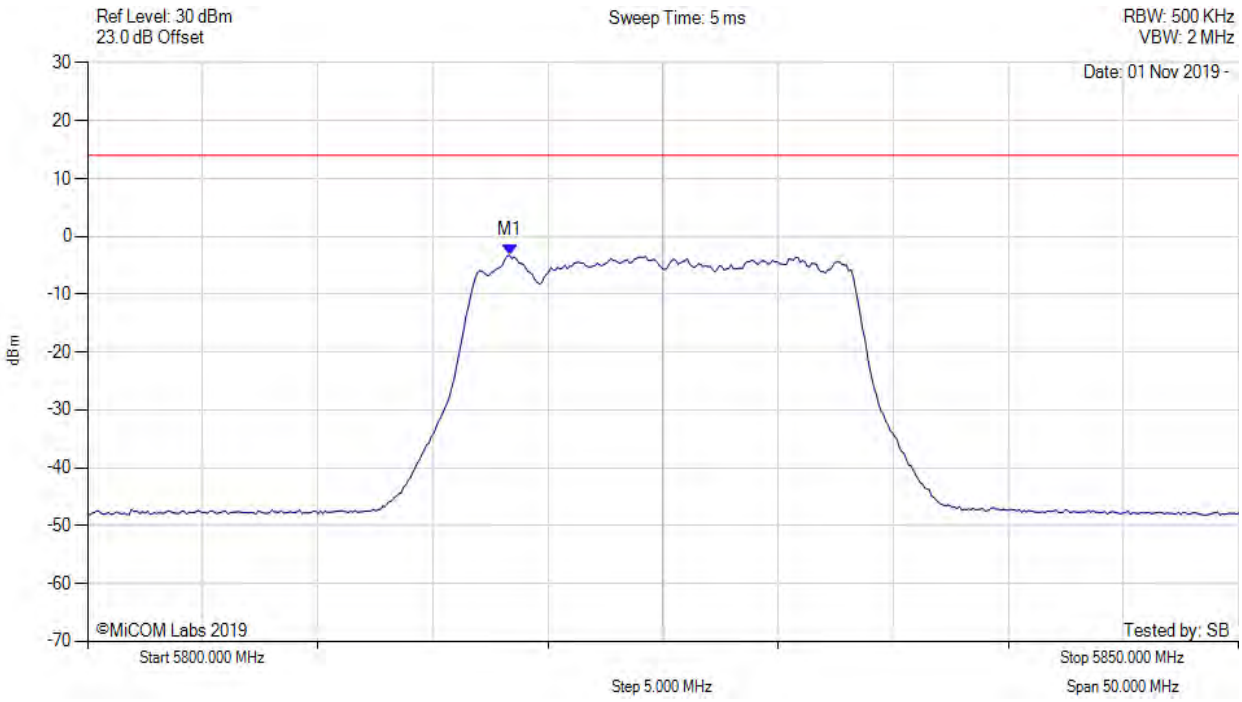


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5821.844 MHz : -2.637 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

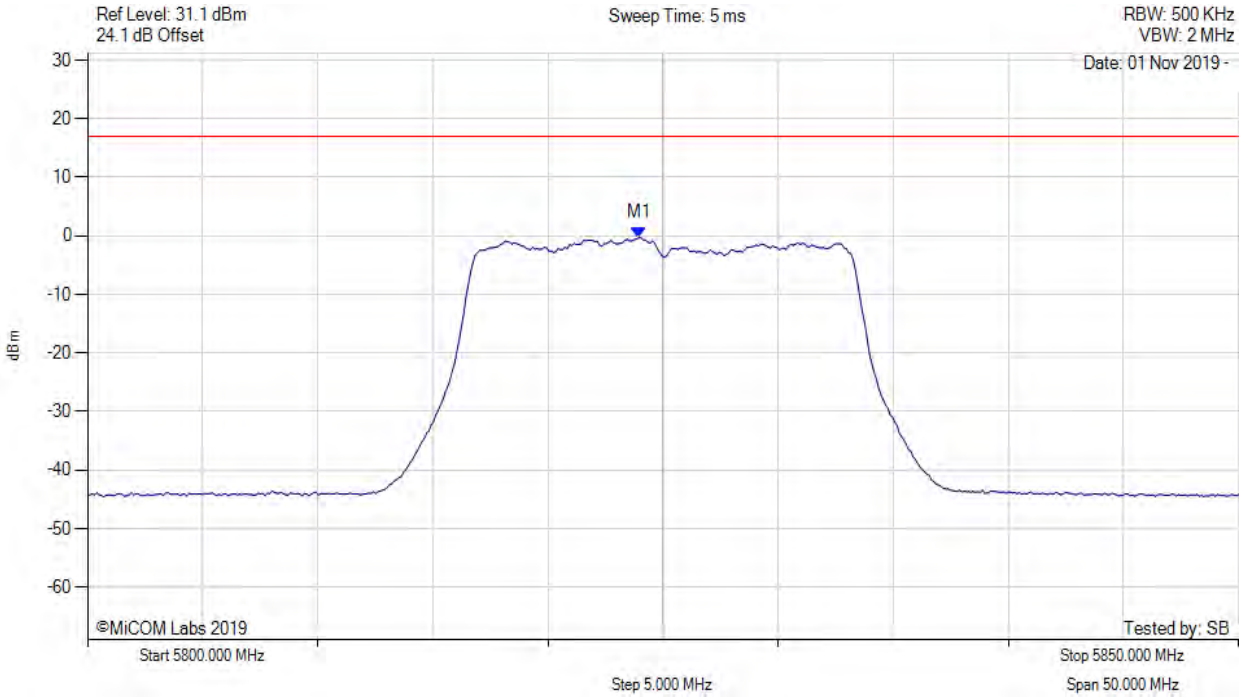


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5818.337 MHz : -3.288 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5825.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

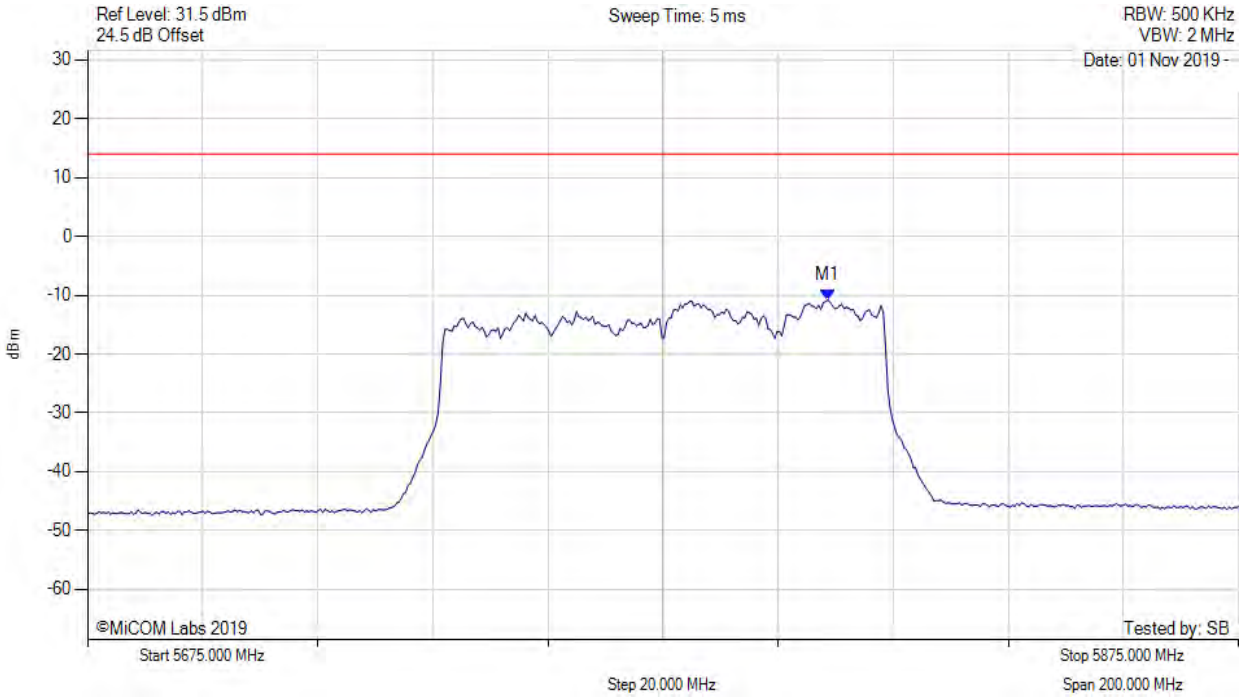


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5823.900 MHz : -0.314 dBm M1 + DCCF : 5823.900 MHz : -0.270 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -17.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

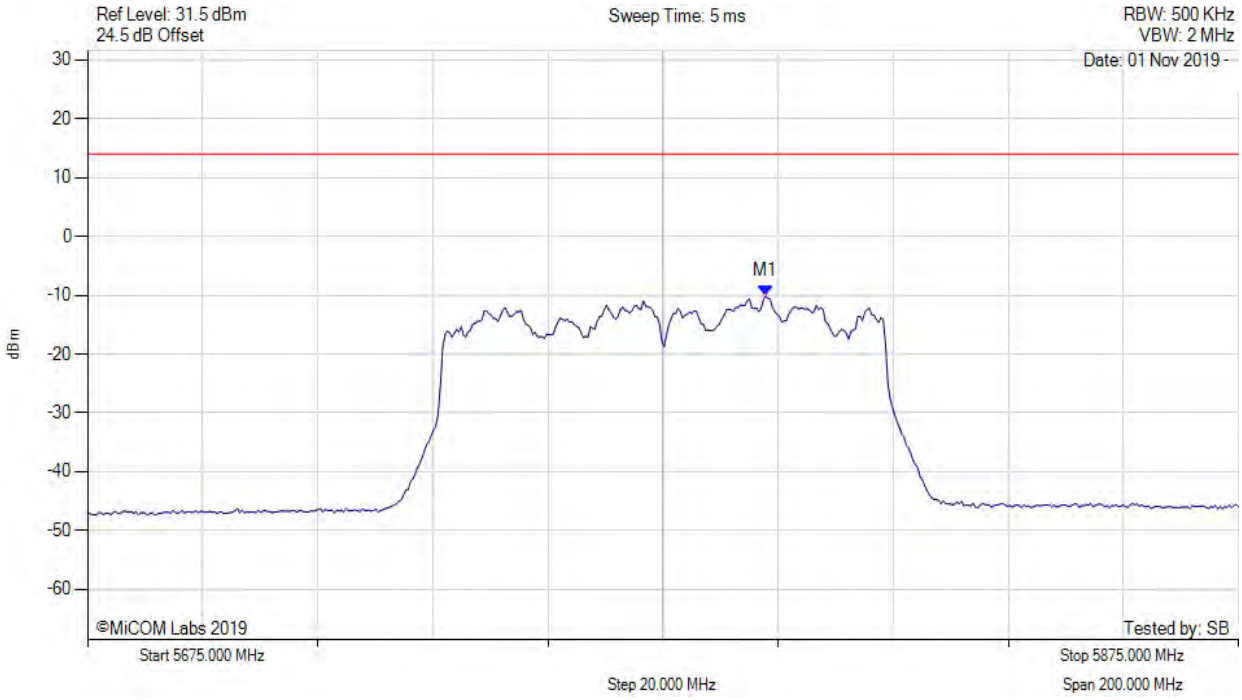


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5803.657 MHz : -10.791 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

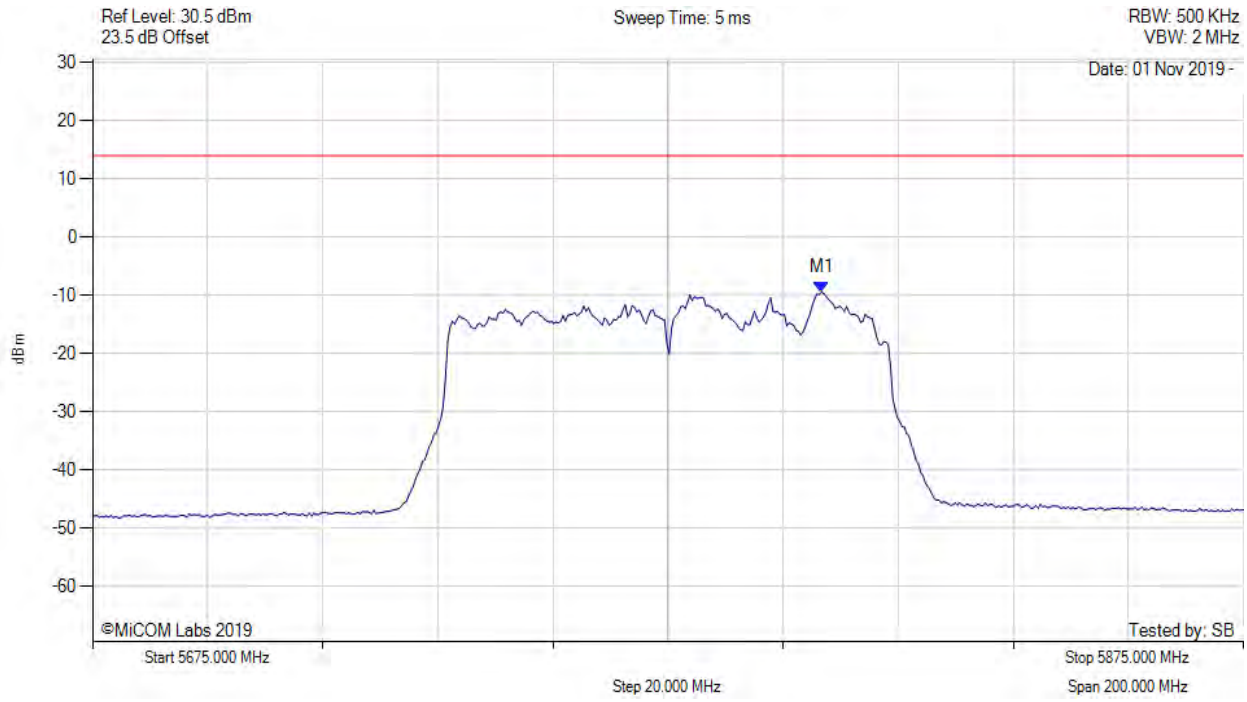


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5792.836 MHz : -10.162 dBm	Channel Frequency: 5775.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

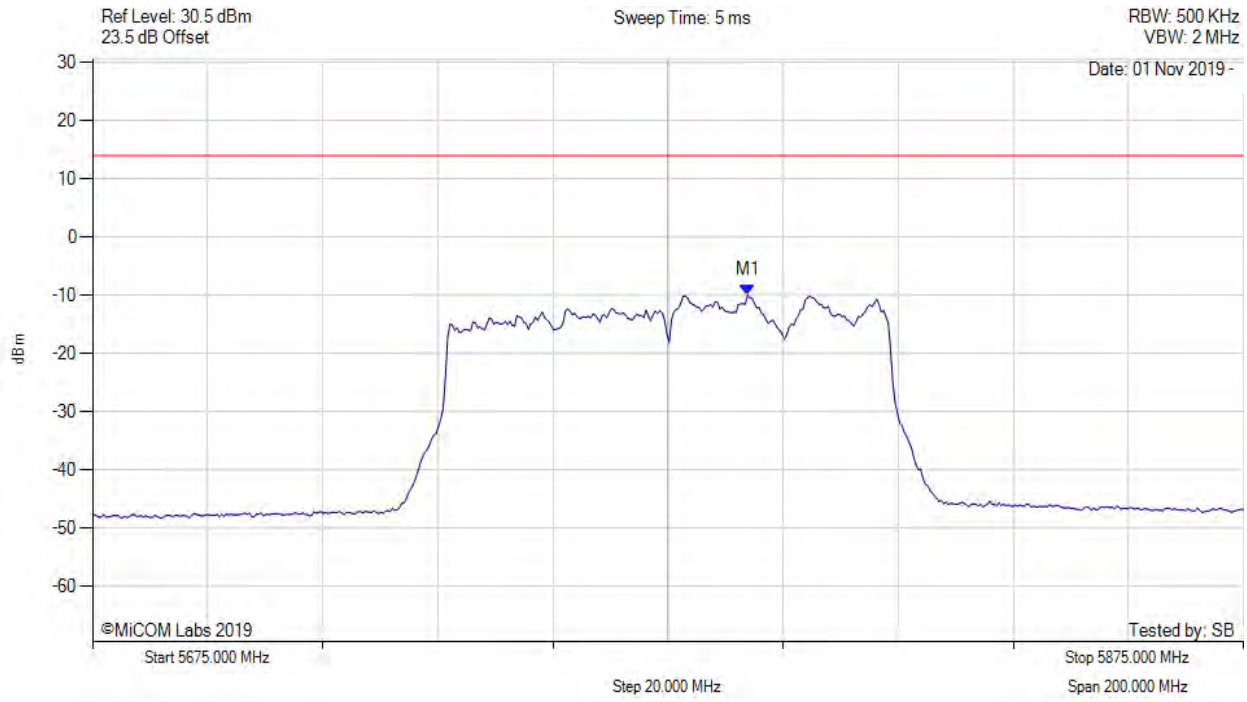


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5801.653 MHz : -9.439 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

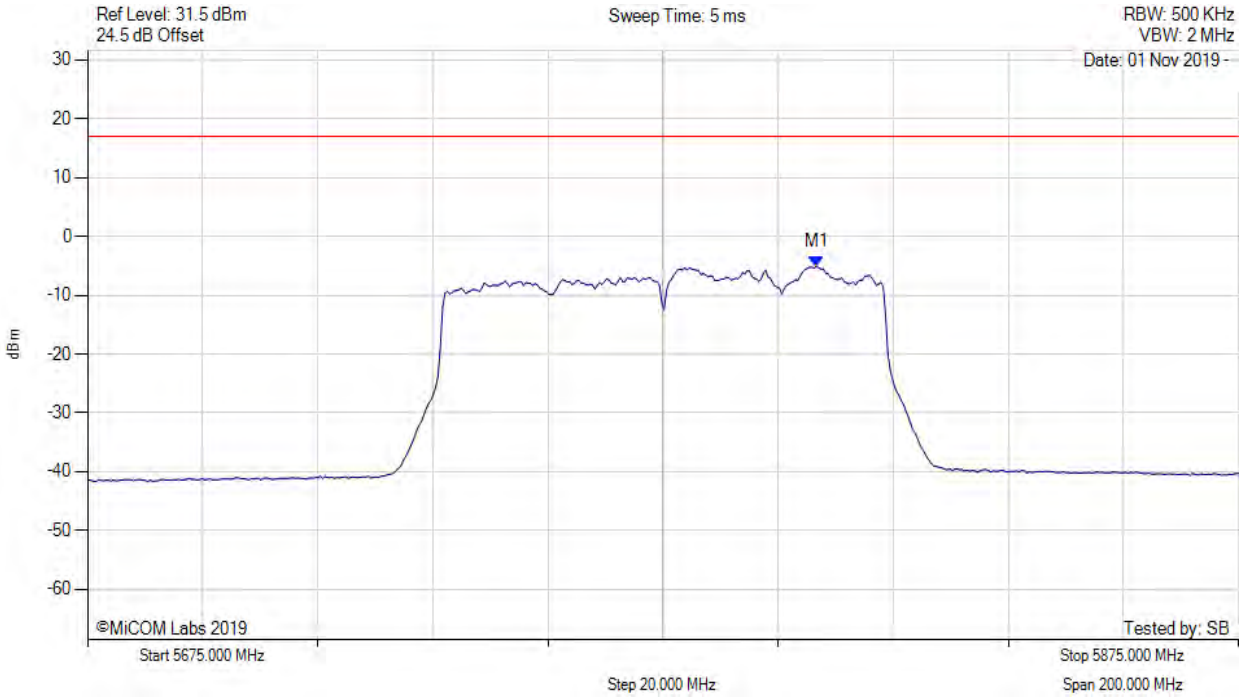


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5788.828 MHz : -10.002 dBm	Channel Frequency: 5775.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

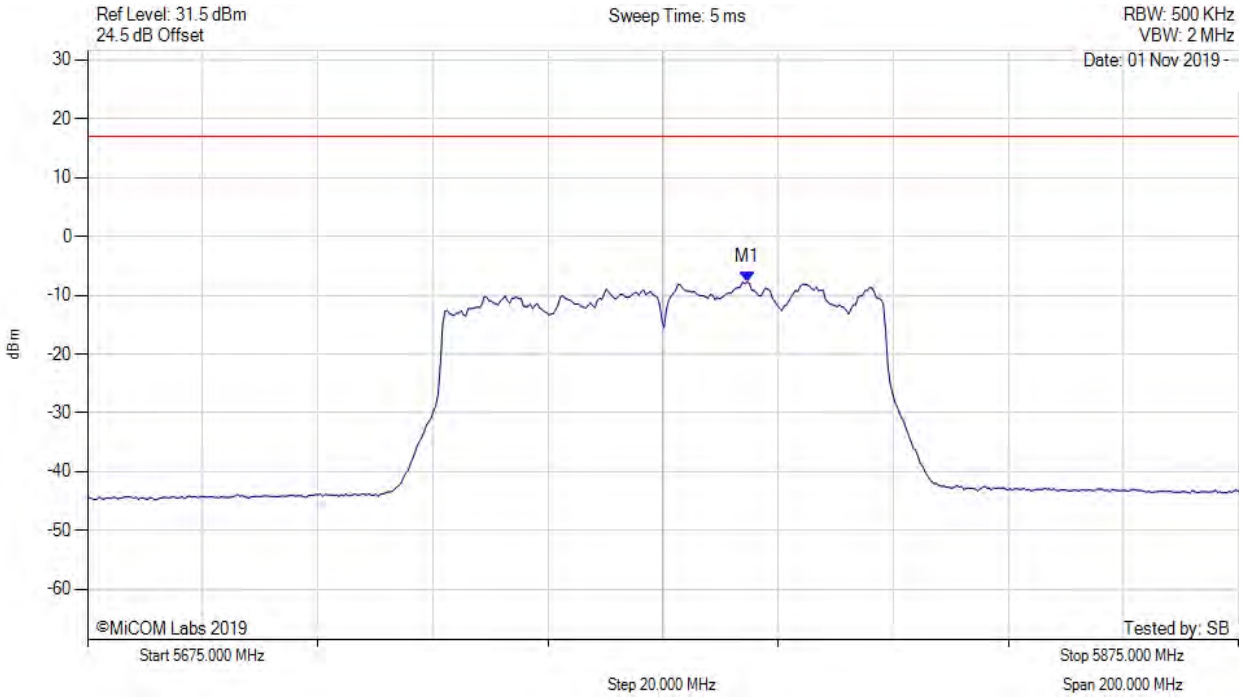


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5801.700 MHz : -5.093 dBm M1 + DCCF : 5801.700 MHz : -4.731 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 17.0 dBm Margin: -21.7 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11ac-80, Channel: 5775.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

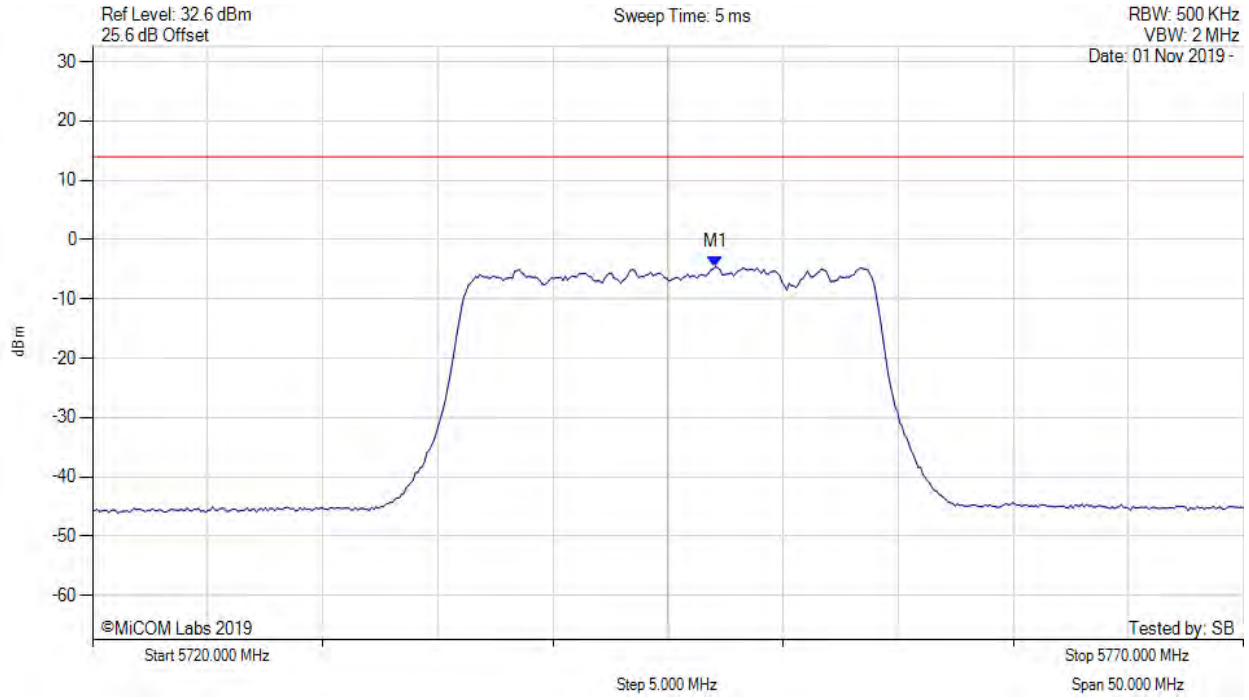


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5789.600 MHz : -7.729 dBm M1 + DCCF : 5789.600 MHz : -7.367 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 17.0 dBm Margin: -24.4 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

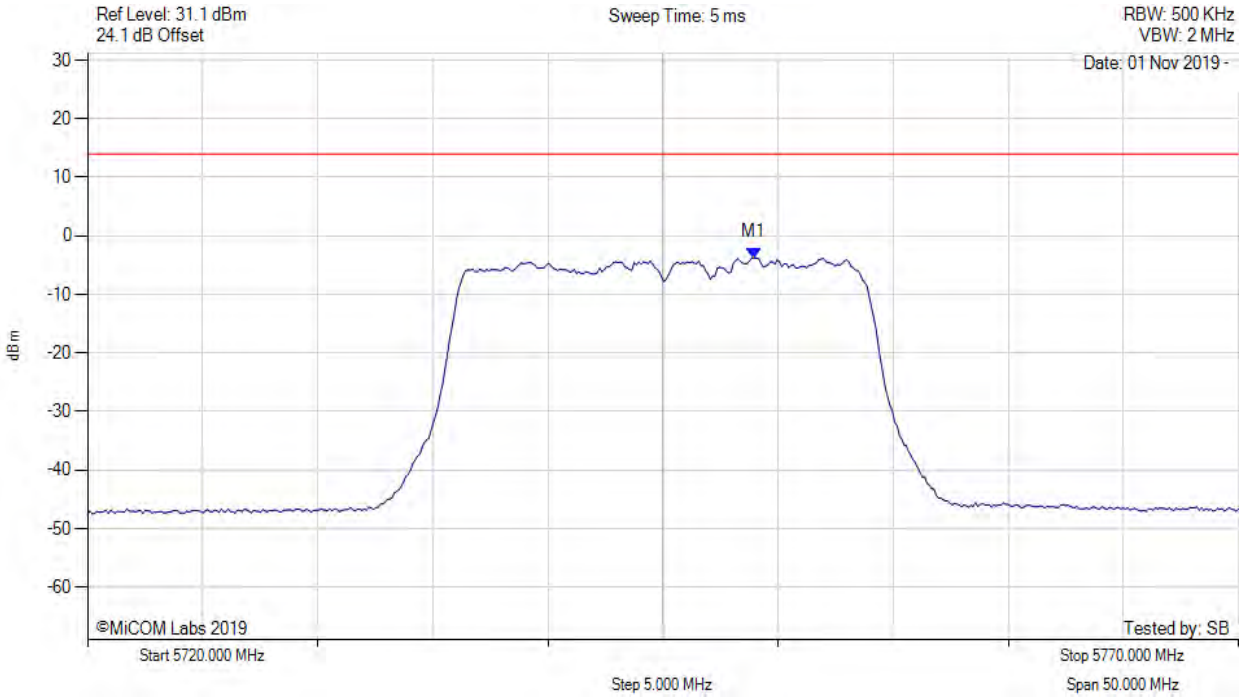


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5747.054 MHz : -4.585 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

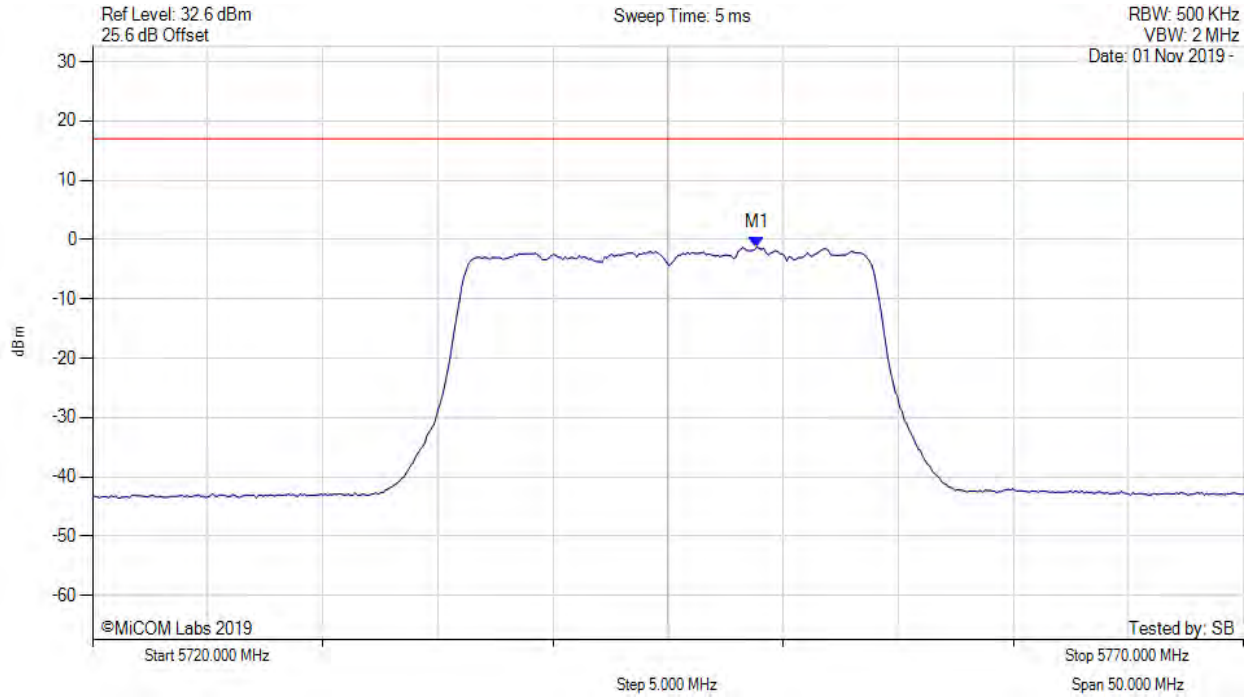


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5748.958 MHz : -3.759 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5745.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

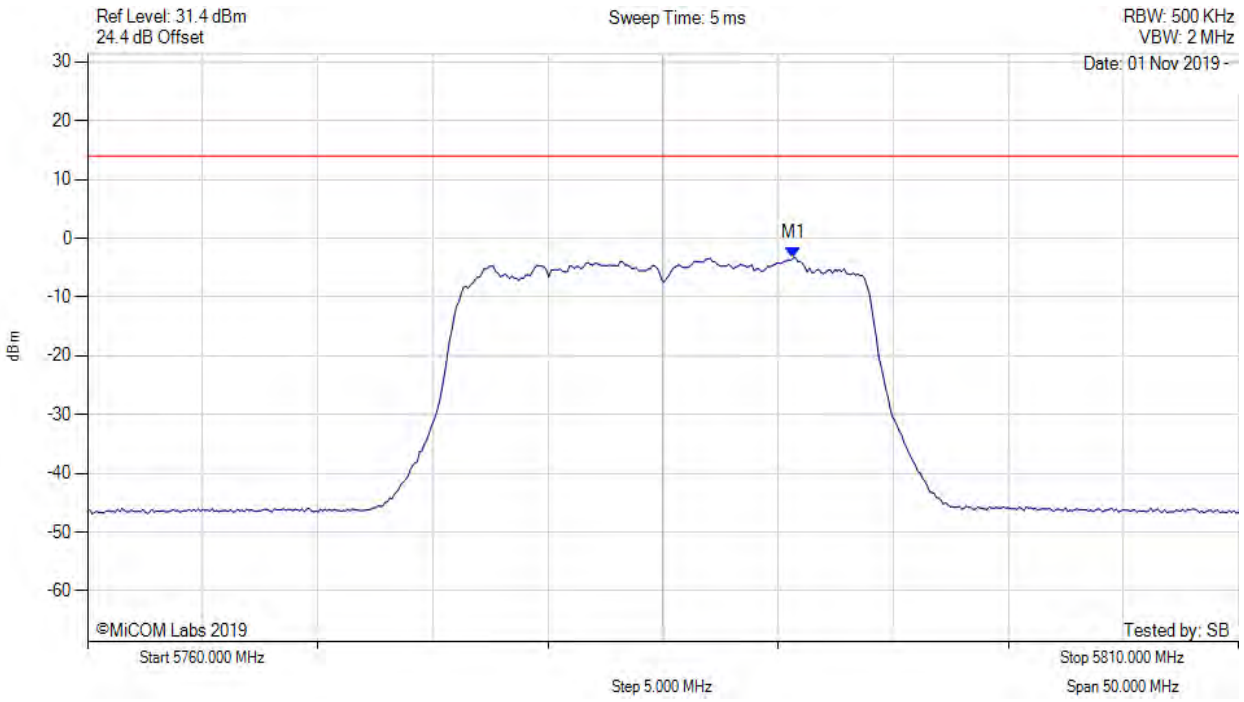


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5748.900 MHz : -1.251 dBm M1 + DCCF : 5748.900 MHz : -1.207 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -18.2 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

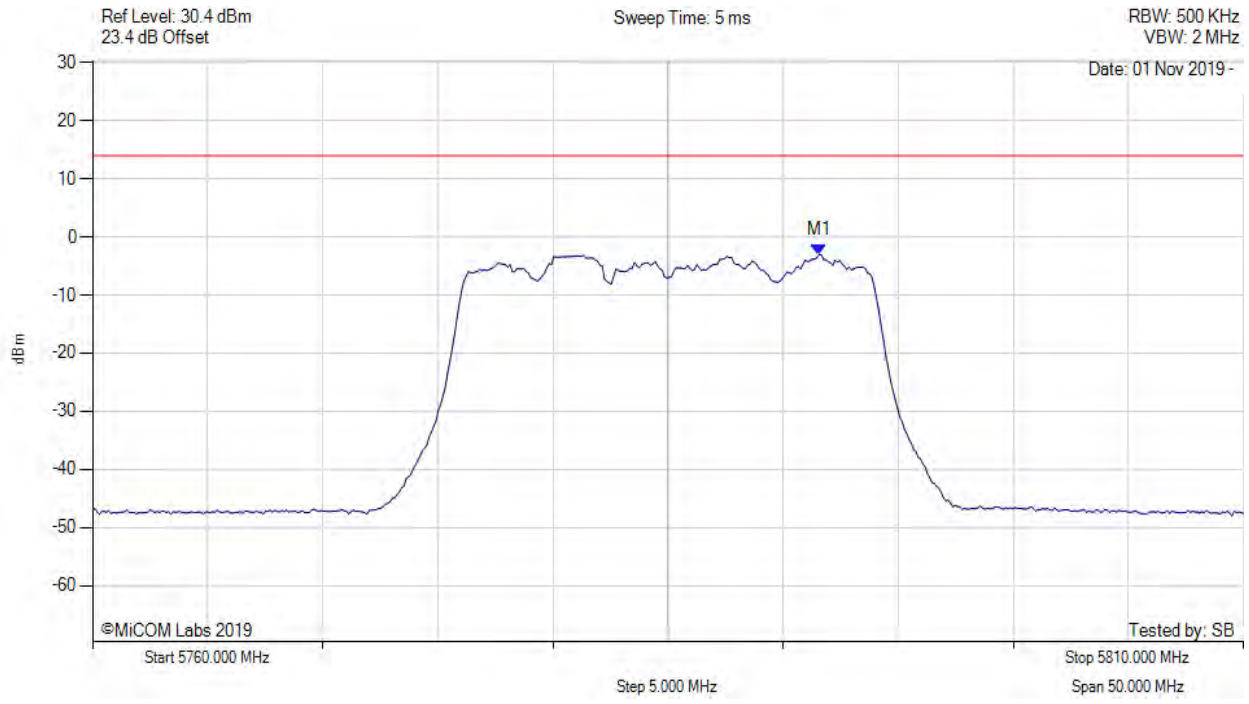


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5790.661 MHz : -3.358 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

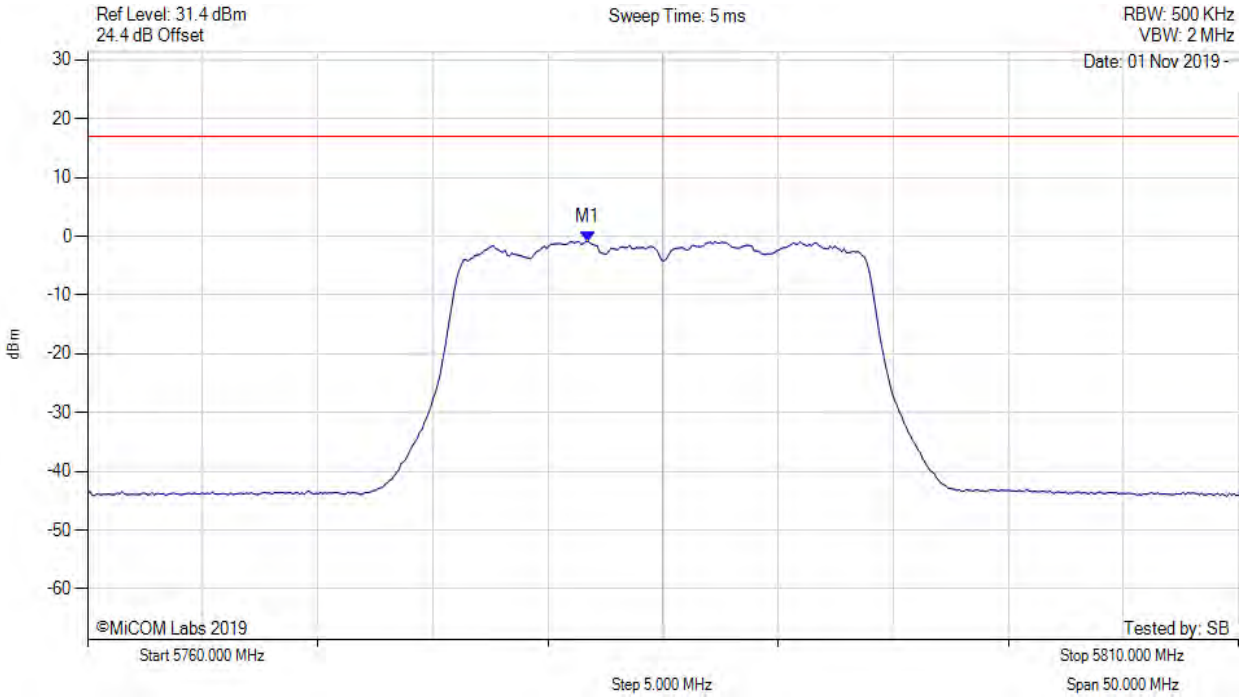


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5791.563 MHz : -3.017 dBm	Channel Frequency: 5785.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5785.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

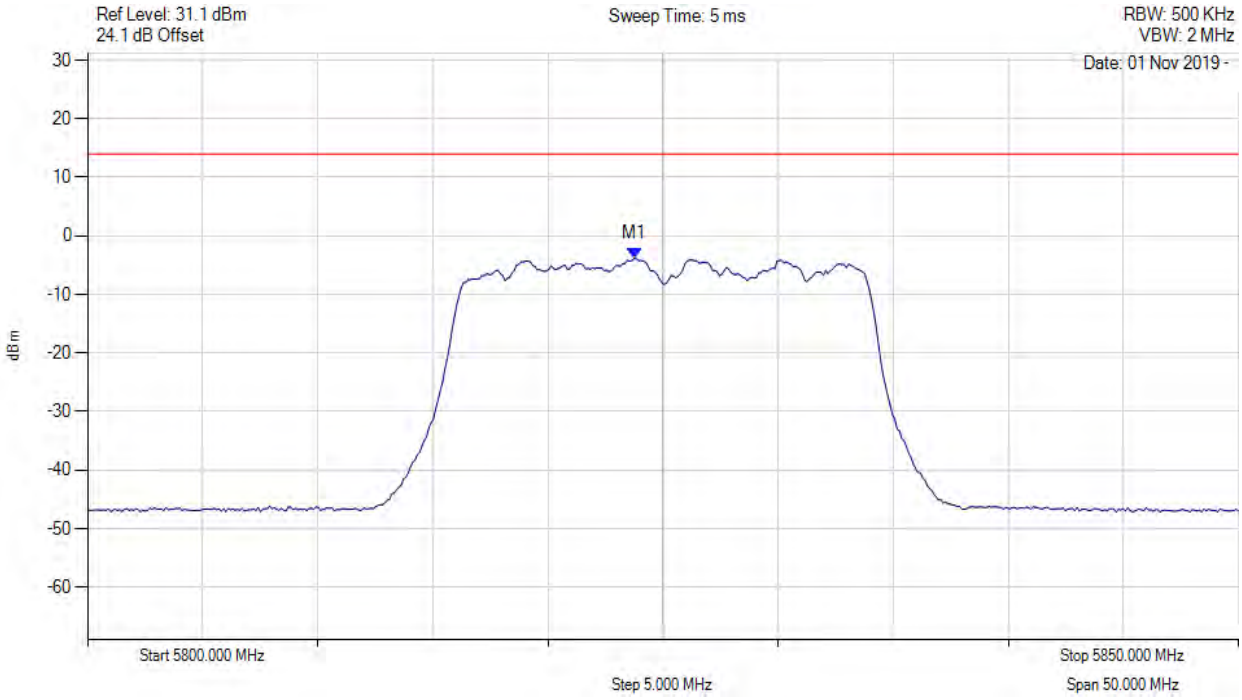


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5781.700 MHz : -0.869 dBm M1 + DCCF : 5781.700 MHz : -0.825 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -17.8 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

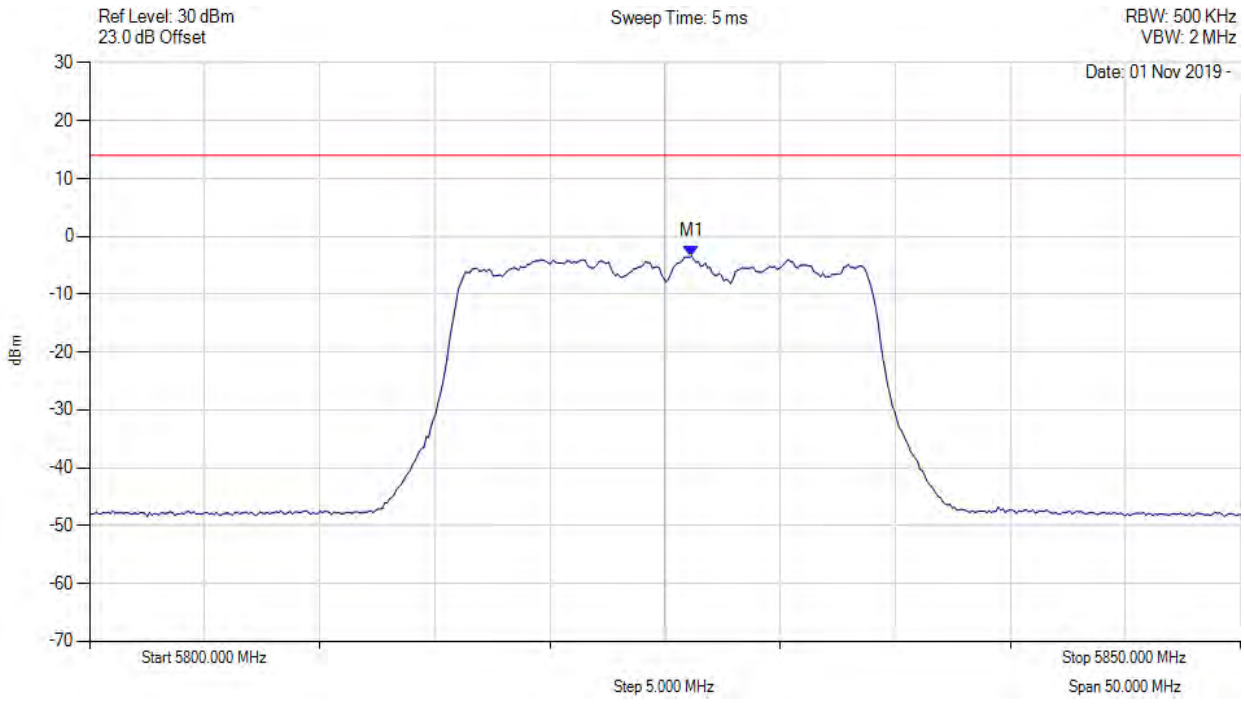


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5823.747 MHz : -3.903 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

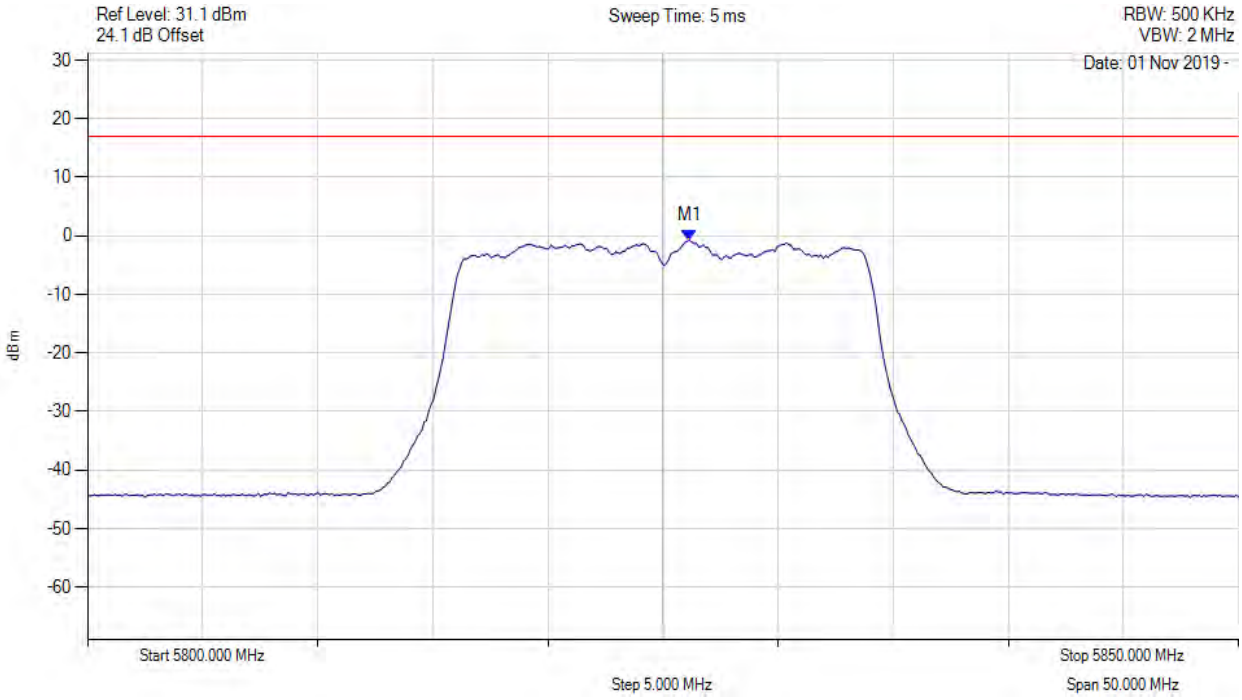


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5826.152 MHz : -3.420 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-20, Channel: 5825.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

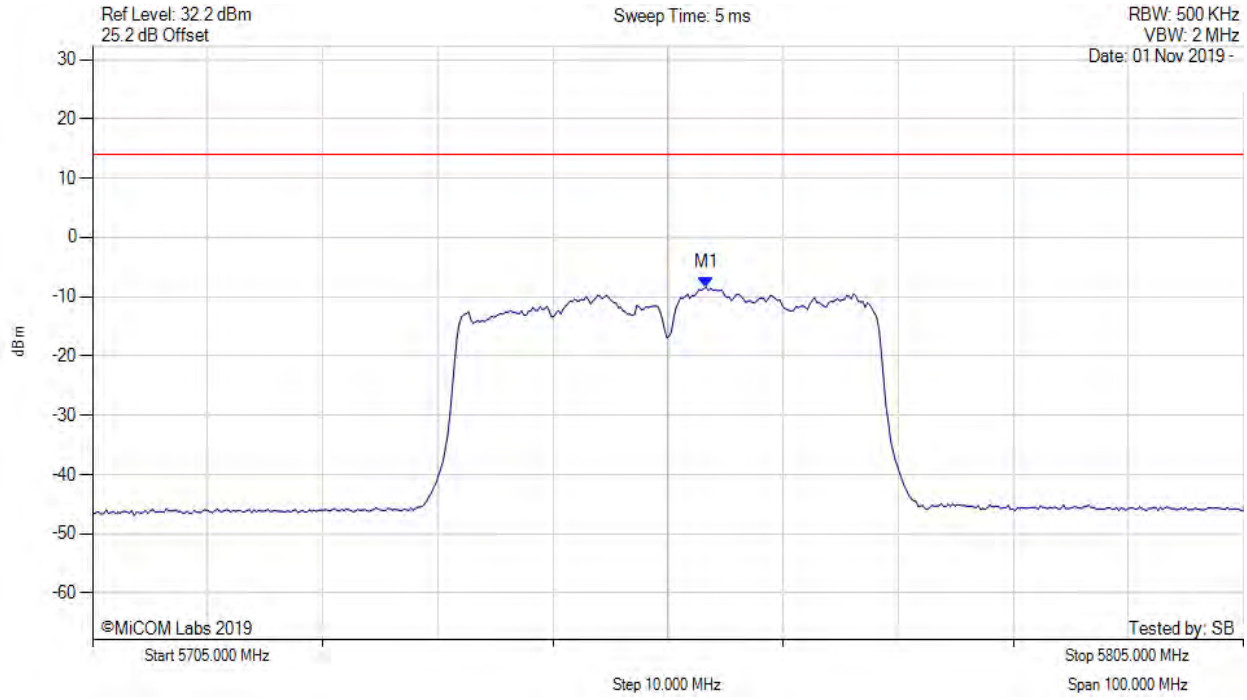


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5826.200 MHz : -0.754 dBm M1 + DCCF : 5826.200 MHz : -0.710 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -17.7 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

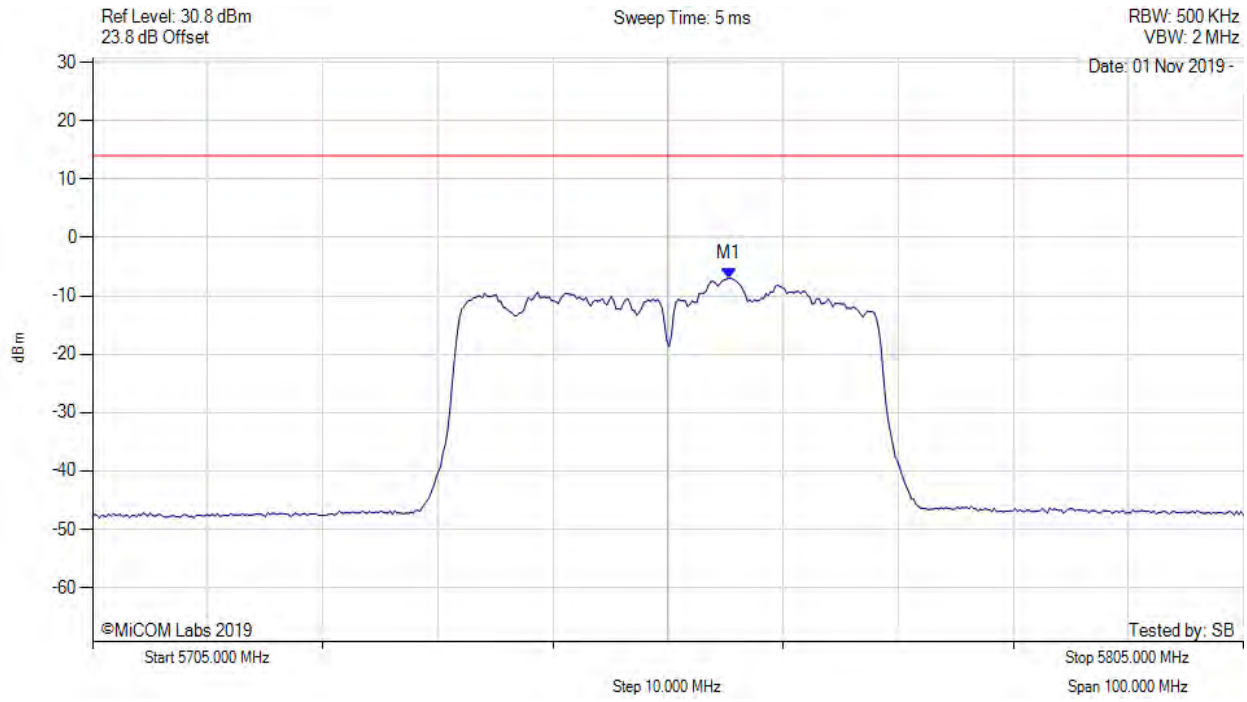


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5758.307 MHz : -8.388 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

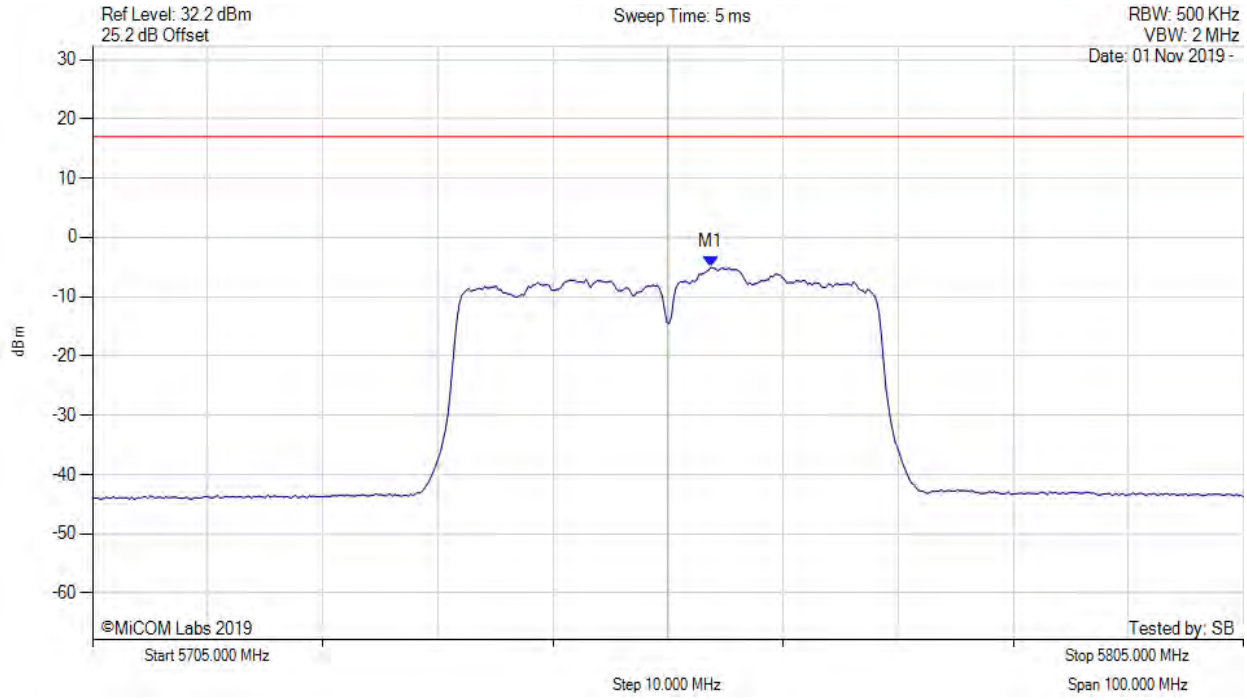


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5760.311 MHz : -6.959 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5755.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc

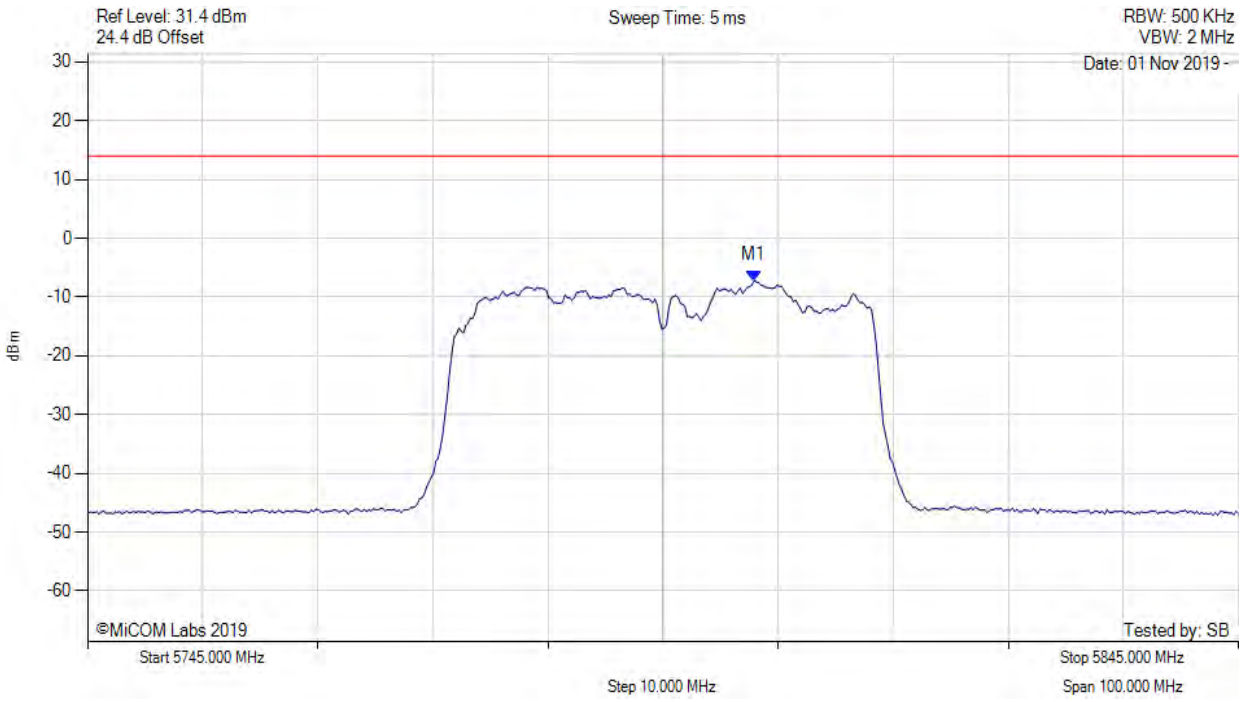


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5758.700 MHz : -5.056 dBm M1 + DCCF : 5758.700 MHz : -5.012 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -22.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc

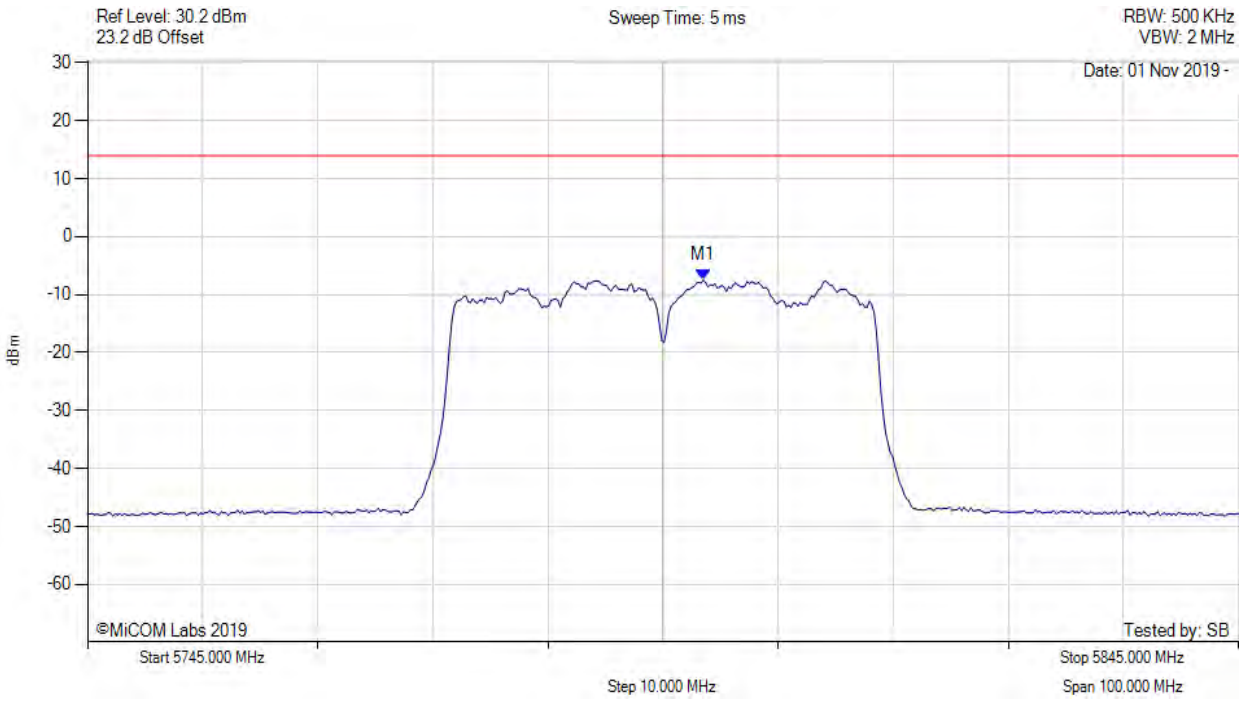


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5802.916 MHz : -7.207 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc

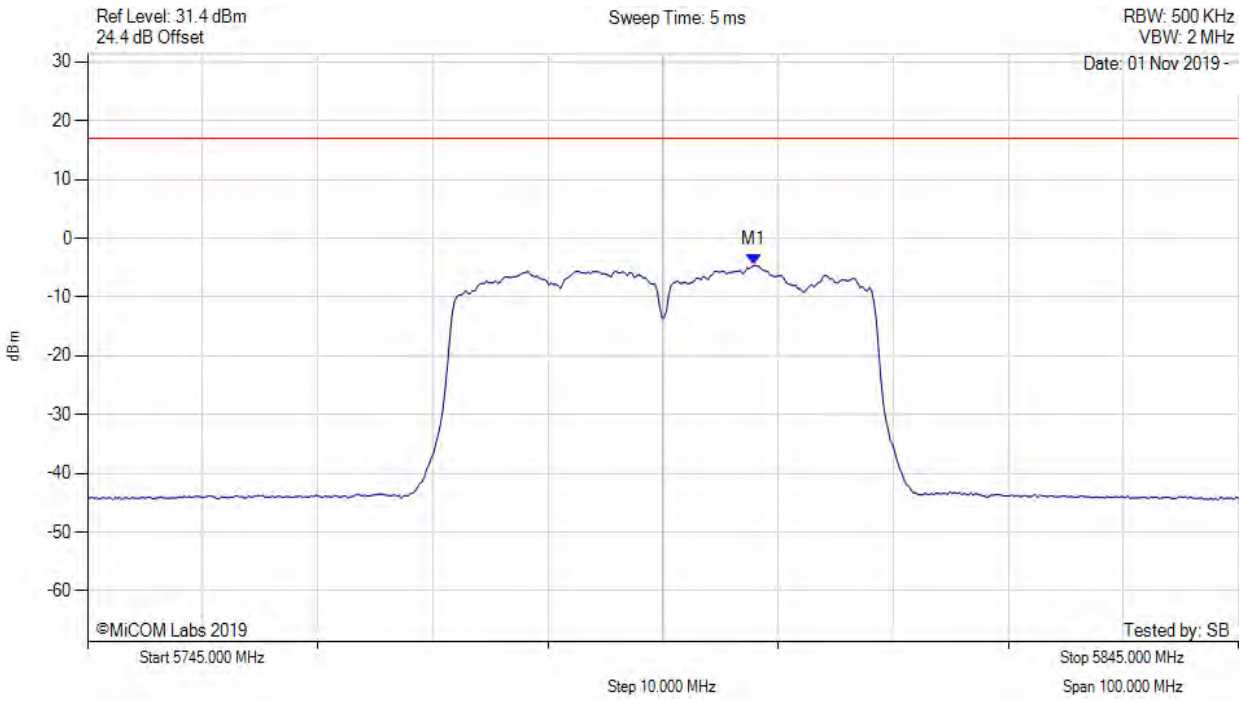


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5798.507 MHz : -7.461 dBm	Limit: ≤ 13.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 802.11n HT-40, Channel: 5795.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



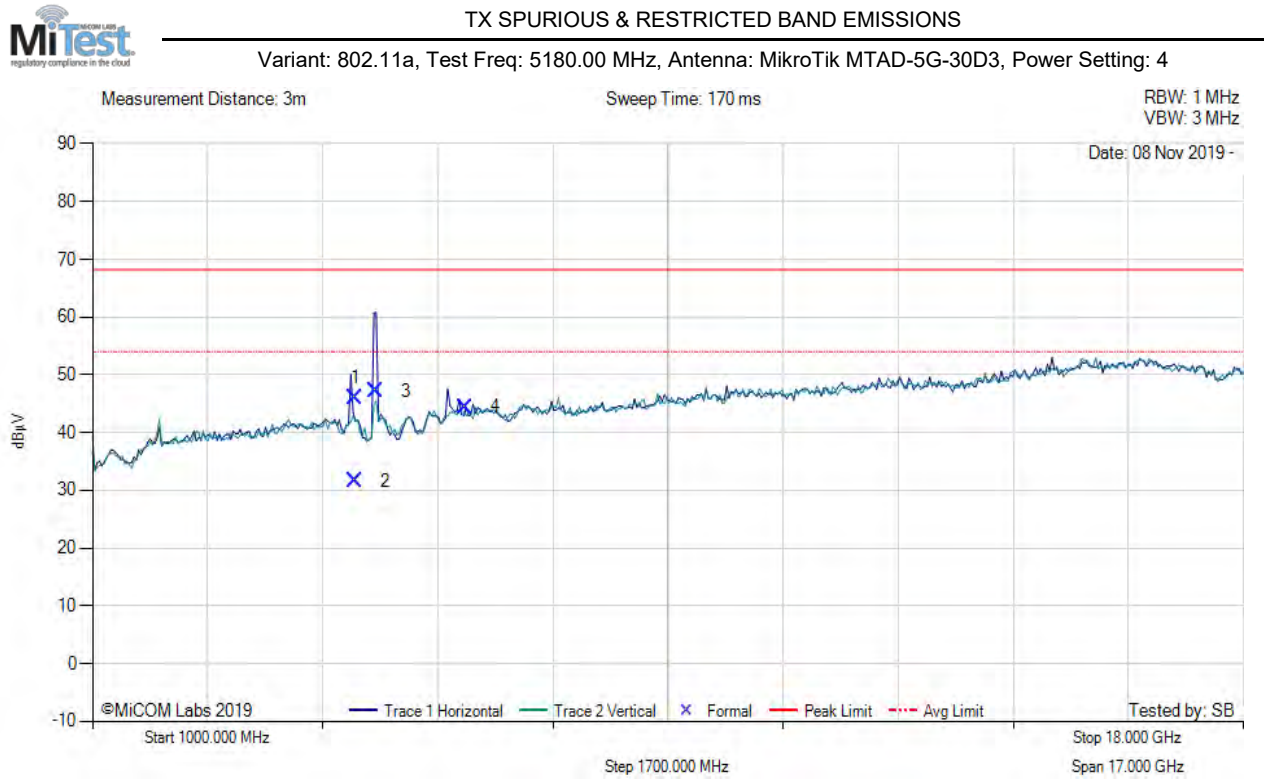
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5802.900 MHz : -4.579 dBm M1 + DCCF : 5802.900 MHz : -4.535 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -21.5 dB

back to matrix

A.4. Radiated

TX Spurious & Restricted Band Emissions

A.4.1.1. MikroTik MTAD-5G-30D3

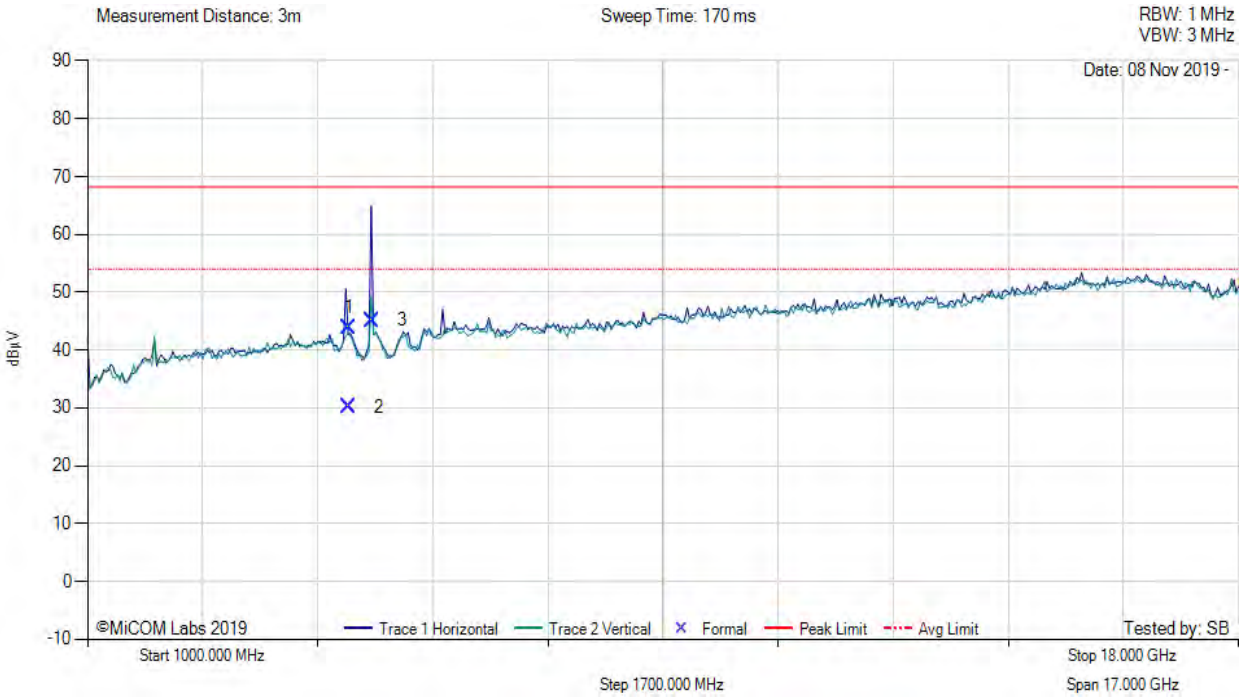


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4883.58	55.66	2.86	-12.56	45.96	Max Peak	Horizontal	164	184	68.2	-22.3	Pass
2	4883.58	41.27	2.86	-12.56	31.57	Max Avg	Horizontal	164	184	54.0	-22.4	Pass
3	5187.02	56.31	3.05	-12.25	47.11	Fundamental	Horizontal	151	162	--	--	
4	6499.11	49.84	3.35	-8.81	44.38	Peak (NRB)	Horizontal	151	162	--	--	Pass

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5200.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 4

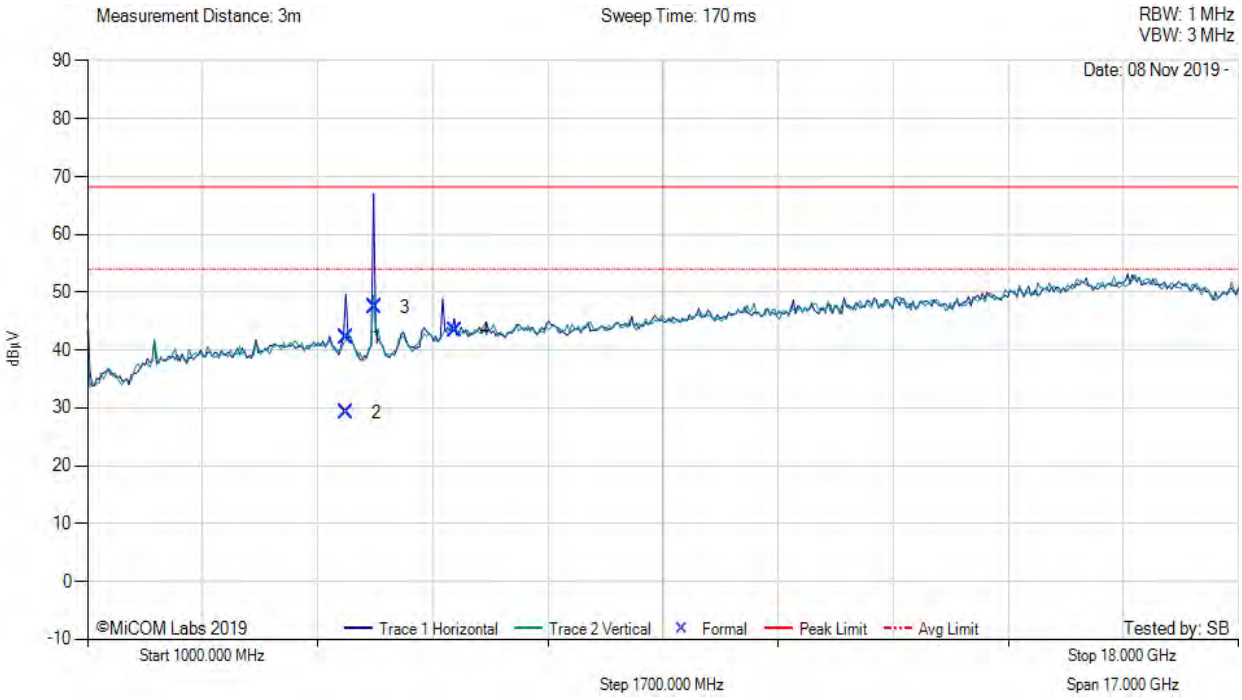


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4863.89	53.42	2.91	-12.55	43.78	Max Peak	Horizontal	127	267	68.2	-24.5	Pass
2	4863.89	39.83	2.91	-12.55	30.19	Max Avg	Horizontal	127	267	54.0	-23.8	Pass
3	5205.10	54.54	2.99	-12.40	45.13	Fundamental	Horizontal	100	157	--	--	

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5240.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 4

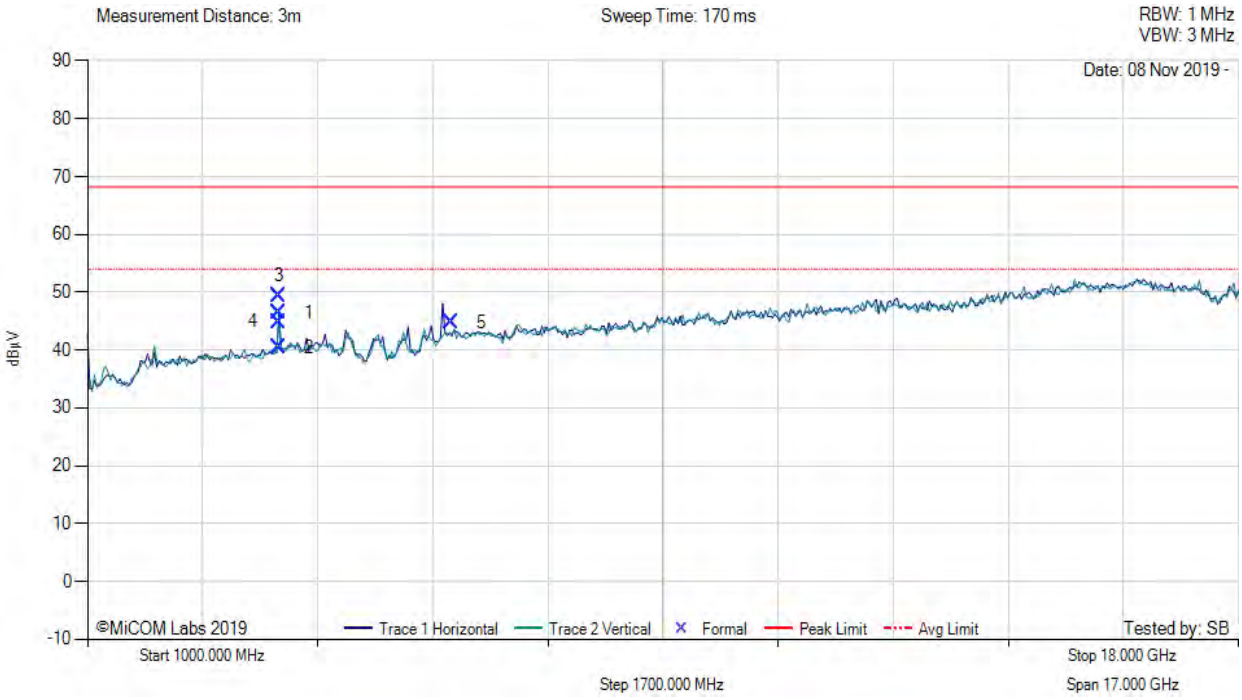


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4816.11	51.74	2.85	-12.42	42.17	Max Peak	Horizontal	166	19	68.2	-26.1	Pass
2	4816.11	38.83	2.85	-12.42	29.26	Max Avg	Horizontal	166	19	54.0	-24.7	Pass
3	5236.63	56.55	2.99	-12.13	47.41	Fundamental	Horizontal	100	156	--	--	
4	6430.12	49.00	3.32	-8.90	43.42	Peak (NRB)	Horizontal	100	156	--	--	Pass

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 4

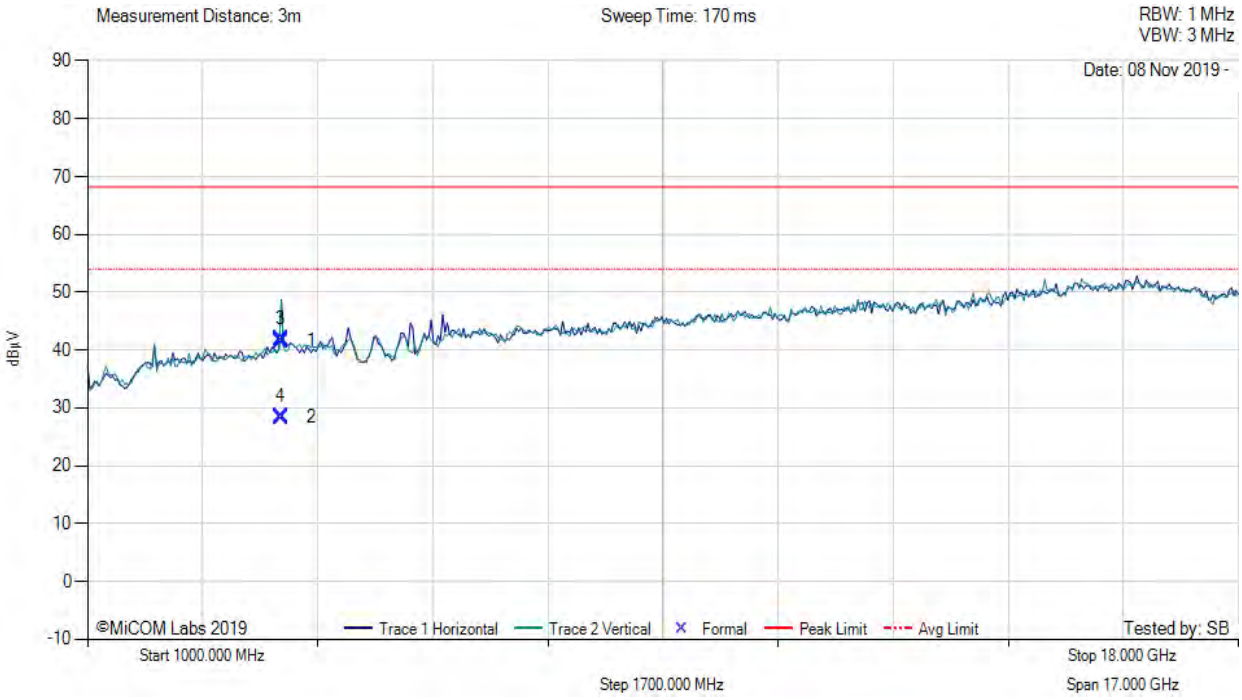


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3830.09	55.92	2.54	-11.98	46.48	Max Peak	Vertical	148	102	68.2	-21.8	Pass
2	3830.09	49.93	2.54	-11.98	40.49	Max Avg	Vertical	148	102	54.0	-13.5	Pass
3	3830.09	58.73	2.54	-11.98	49.29	Max Peak	Horizontal	148	339	68.2	-18.9	Pass
4	3830.09	54.32	2.54	-11.98	44.88	Max Avg	Horizontal	148	339	54.0	-9.1	Pass
5	6375.12	50.51	3.38	-9.10	44.79	Peak (NRB)	Vertical	150	112	--	--	Pass

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5785.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 4

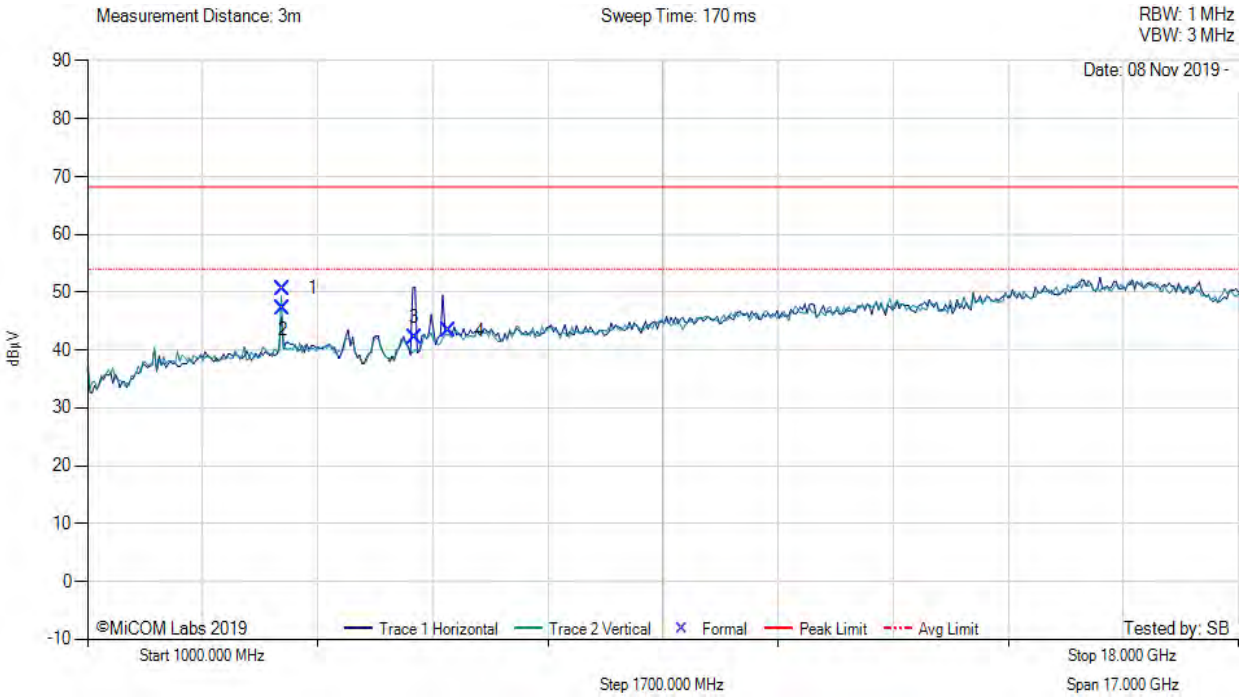


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3858.04	51.03	2.58	-12.03	41.58	Max Peak	Vertical	148	63	68.2	-26.7	Pass
2	3858.04	37.87	2.58	-12.03	28.42	Max Avg	Vertical	148	63	54.0	-25.6	Pass
3	3858.04	51.42	2.58	-12.03	41.97	Max Peak	Horizontal	148	86	68.2	-26.3	Pass
4	3858.04	37.81	2.58	-12.03	28.36	Max Avg	Horizontal	148	86	54.0	-25.6	Pass

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 4



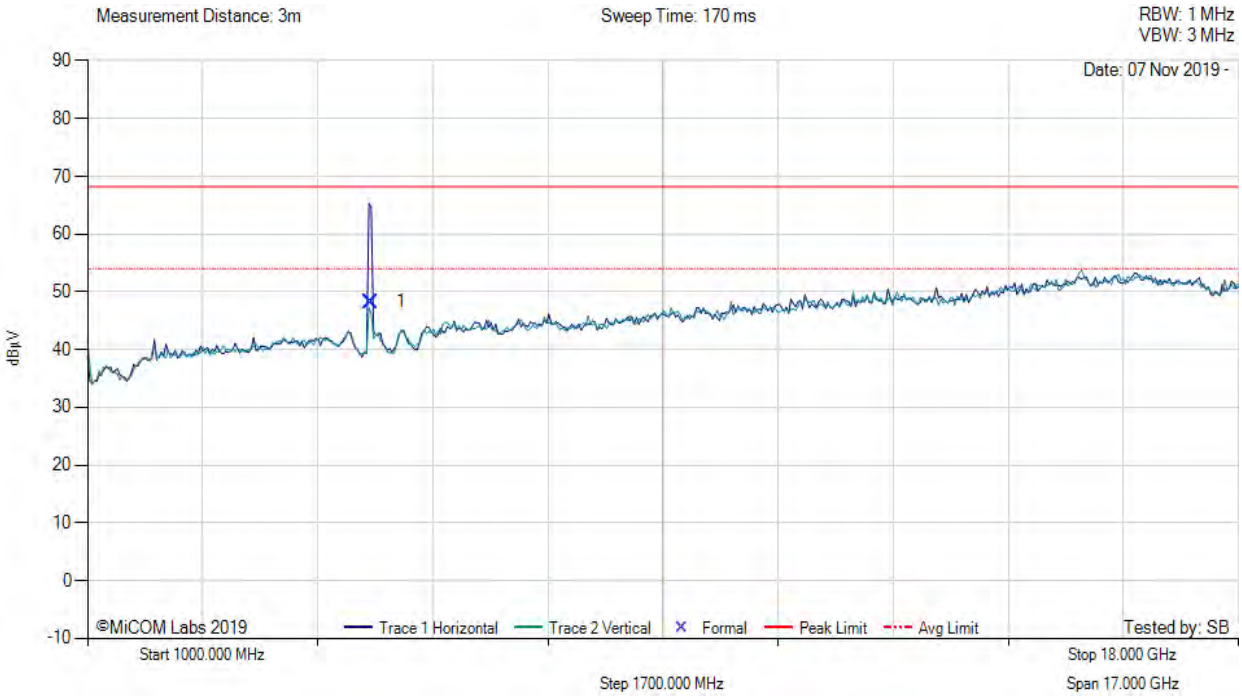
1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3883.23	60.15	2.56	-12.04	50.67	Max Peak	Vertical	150	324	68.2	-17.6	Pass
2	3883.23	56.60	2.56	-12.04	47.12	Max Avg	Vertical	150	324	54.0	-6.9	Pass
3	5828.74	49.79	3.14	-10.84	42.09	Fundamental	Horizontal	150	172	--	--	
4	6340.38	49.27	3.26	-9.17	43.36	Peak (NRB)	Horizontal	150	172	--	--	Pass

back to matrix

A.4.1.2. MikroTik MTAS-5G-19D120

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5180.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 15

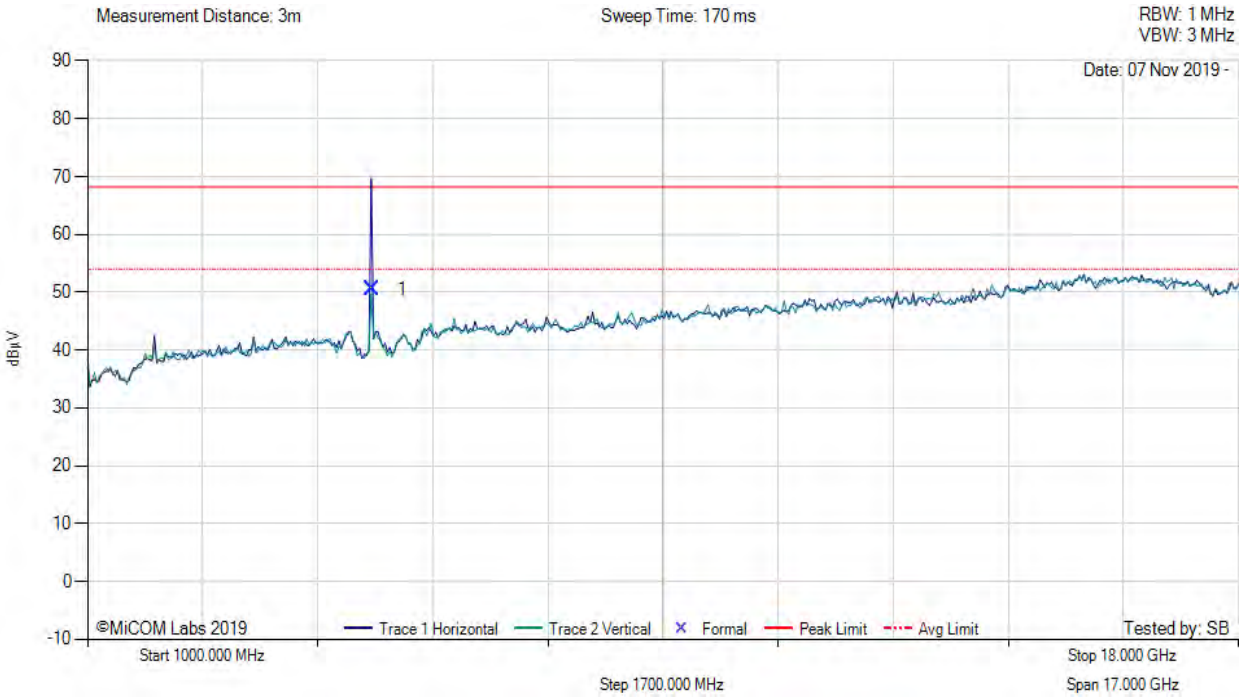


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5175.93	57.44	2.96	-12.16	48.24	Peak (NRB)	Horizontal	195	0	--	--	Pass

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5200.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 16

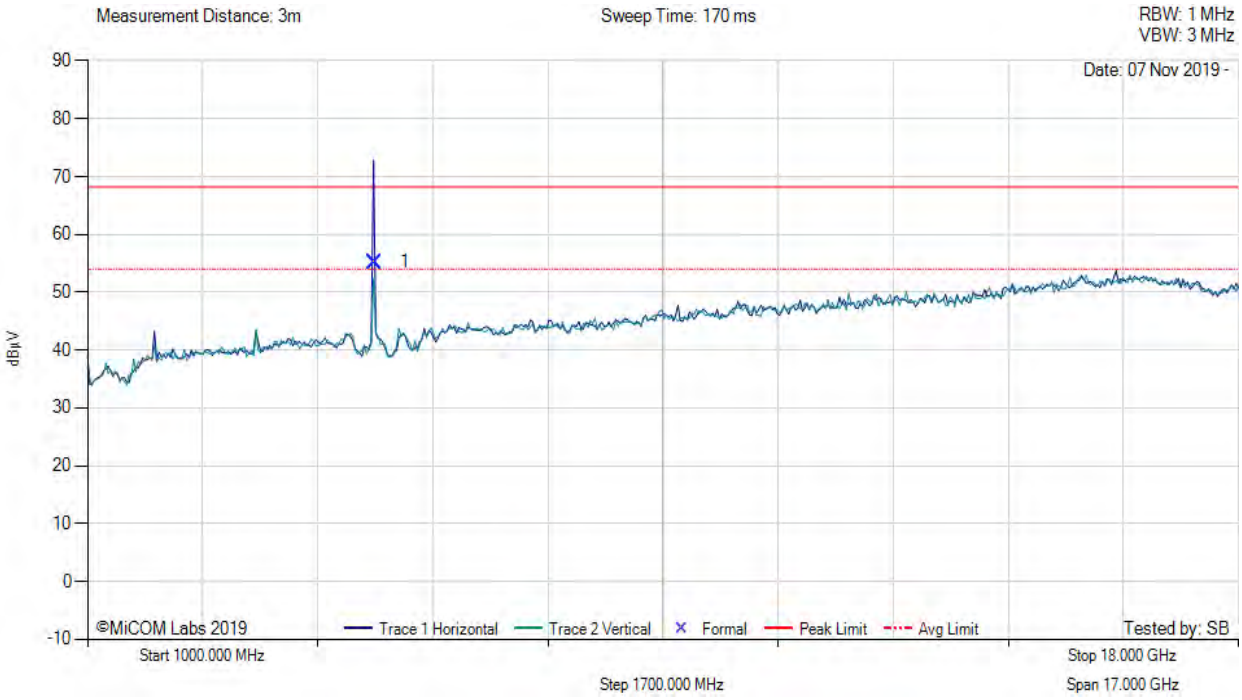


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5203.88	60.03	2.99	-12.42	50.60	Peak (NRB)	Horizontal	100	0	--	--	Pass

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5240.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 16

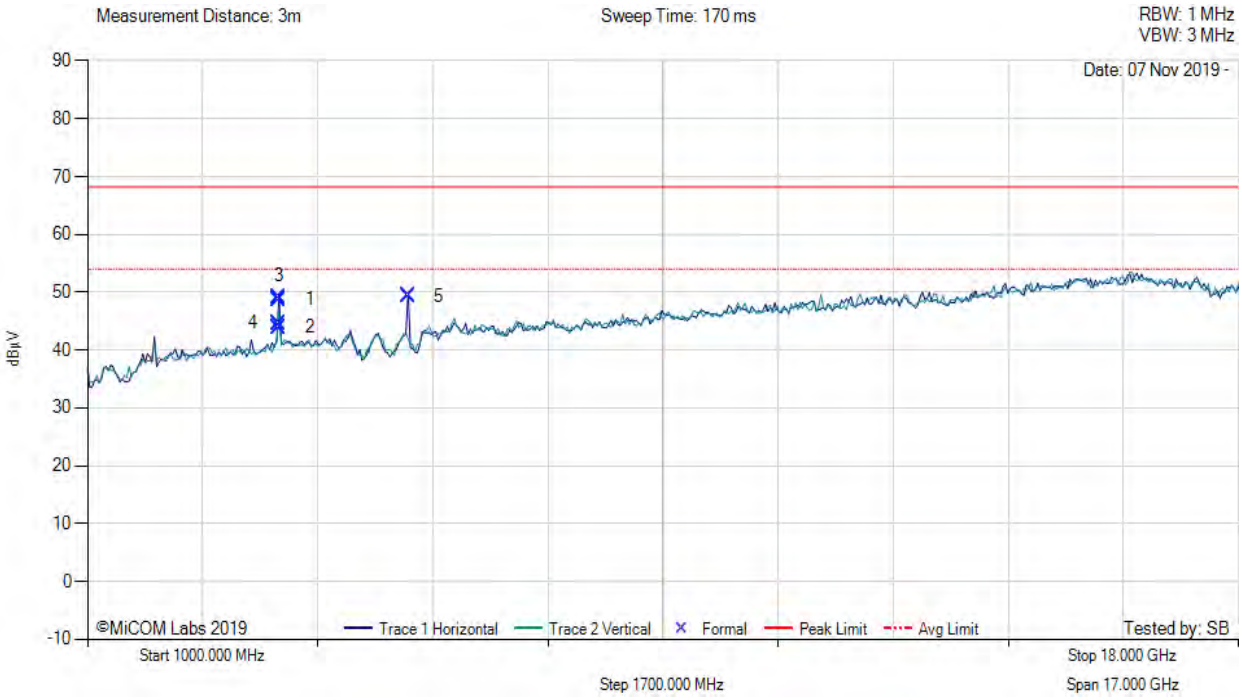


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5236.30	64.36	2.98	-12.16	55.18	Fundamental	Horizontal	100	0	--	--	

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 16

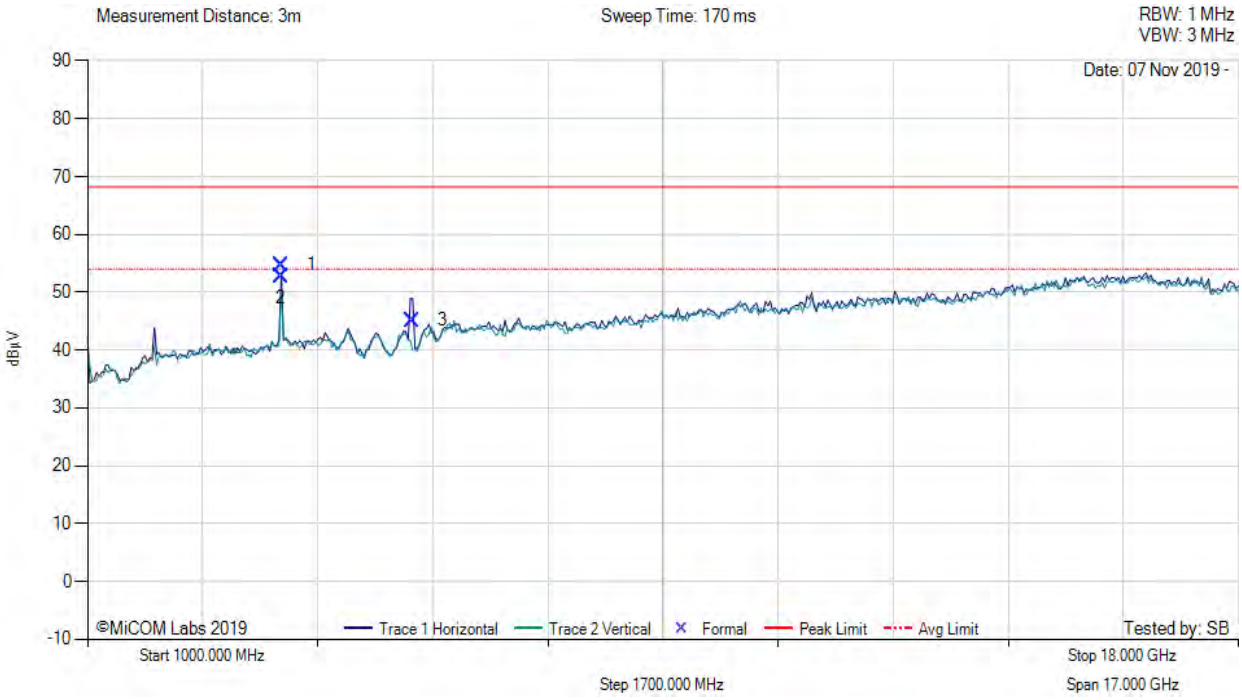


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3830.22	58.17	2.54	-11.98	48.73	Max Peak	Vertical	148	154	68.2	-19.5	Pass
2	3830.22	53.37	2.54	-11.98	43.93	Max Avg	Vertical	148	154	54.0	-10.1	Pass
3	3830.43	58.68	2.54	-11.98	49.24	Max Peak	Horizontal	101	55	68.2	-19.0	Pass
4	3830.43	54.09	2.54	-11.98	44.65	Max Avg	Horizontal	101	55	54.0	-9.4	Pass
5	5737.40	57.35	3.16	-11.17	49.34	Fundamental	Horizontal	150	186	--	--	

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5785.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 16

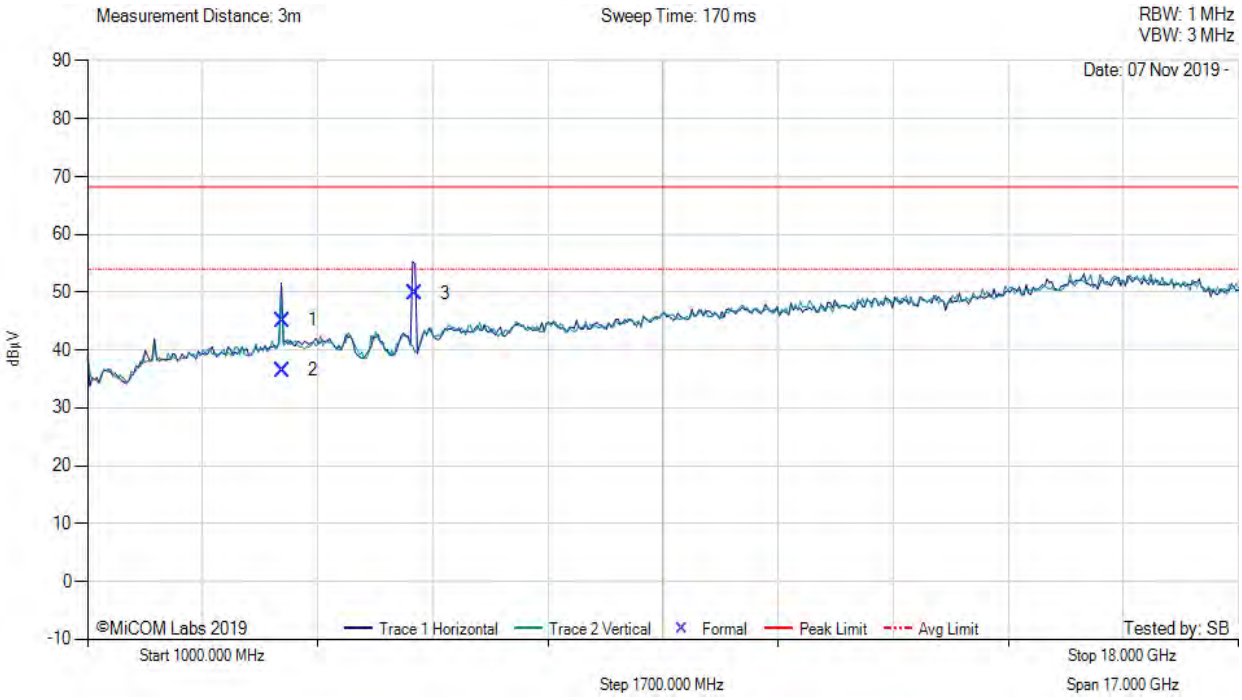


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	3856.71	64.16	2.57	-12.01	54.72	Max Peak	Horizontal	98	53	68.2	-13.5	Pass
2	3856.71	62.06	2.57	-12.01	52.62	Max Avg	Horizontal	98	53	54.0	-1.4	Pass
3	5792.19	52.85	3.14	-10.85	45.14	Fundamental	Horizontal	101	304	--	--	

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 16



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	3884.13	54.61	2.56	-12.04	45.13	Max Peak	Horizontal	102	57	68.2	-23.1	Pass
2	3884.13	45.96	2.56	-12.04	36.48	Max Avg	Horizontal	102	57	54.0	-17.5	Pass
3	5827.64	57.48	3.14	-10.85	49.77	Fundamental	Horizontal	100	21	--	--	

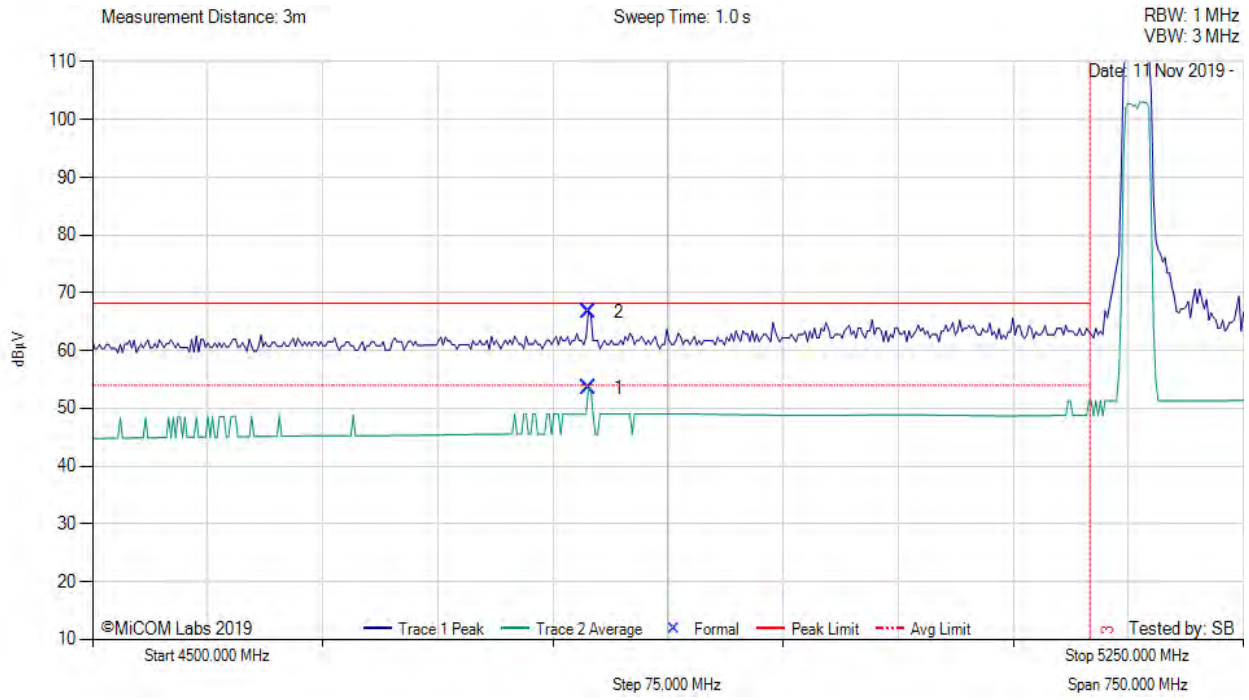
back to matrix

A.4.2. Restricted Edge & Band-Edge Emissions

A.4.2.3. MikroTik MTAD-5G-30D3

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5180.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17, Duty Cycle (%): 99

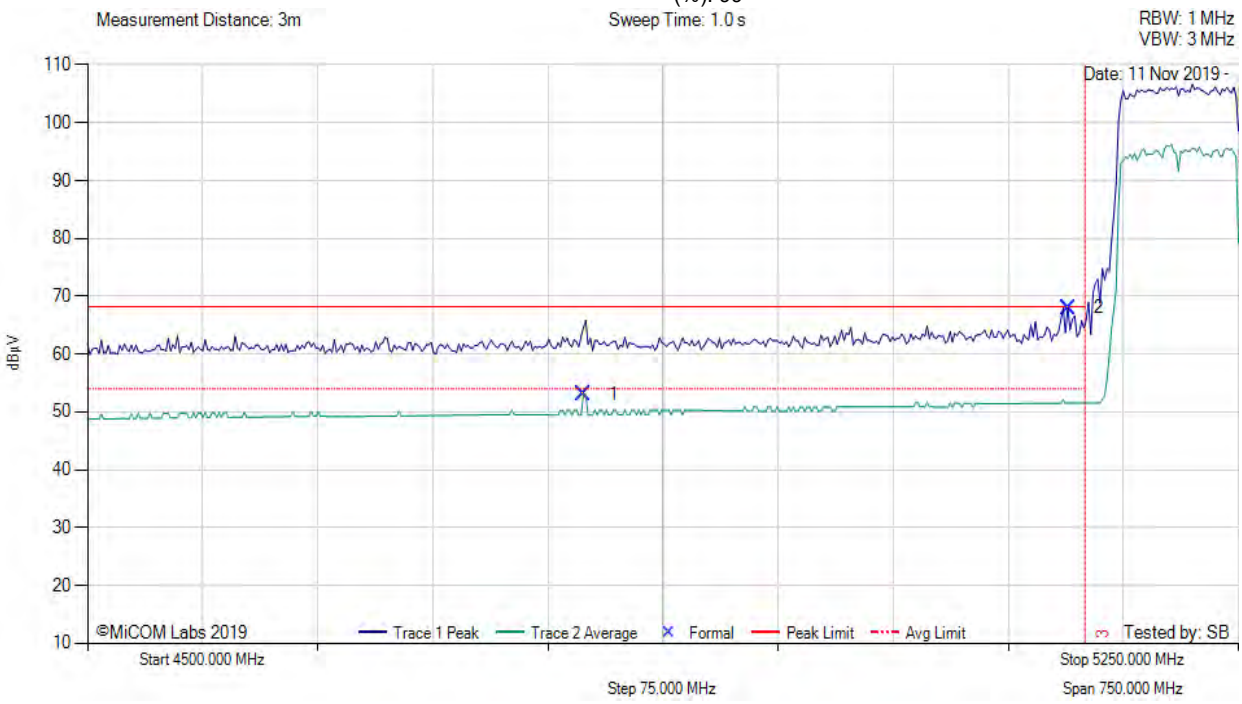


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4823.15	16.54	2.86	34.04	53.44	Max Avg	Horizontal	164	203	54.0	-0.6	Pass
2	4823.15	29.79	2.86	34.04	66.69	Max Peak	Horizontal	164	203	68.2	-1.5	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5210.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17, Duty Cycle (%): 99

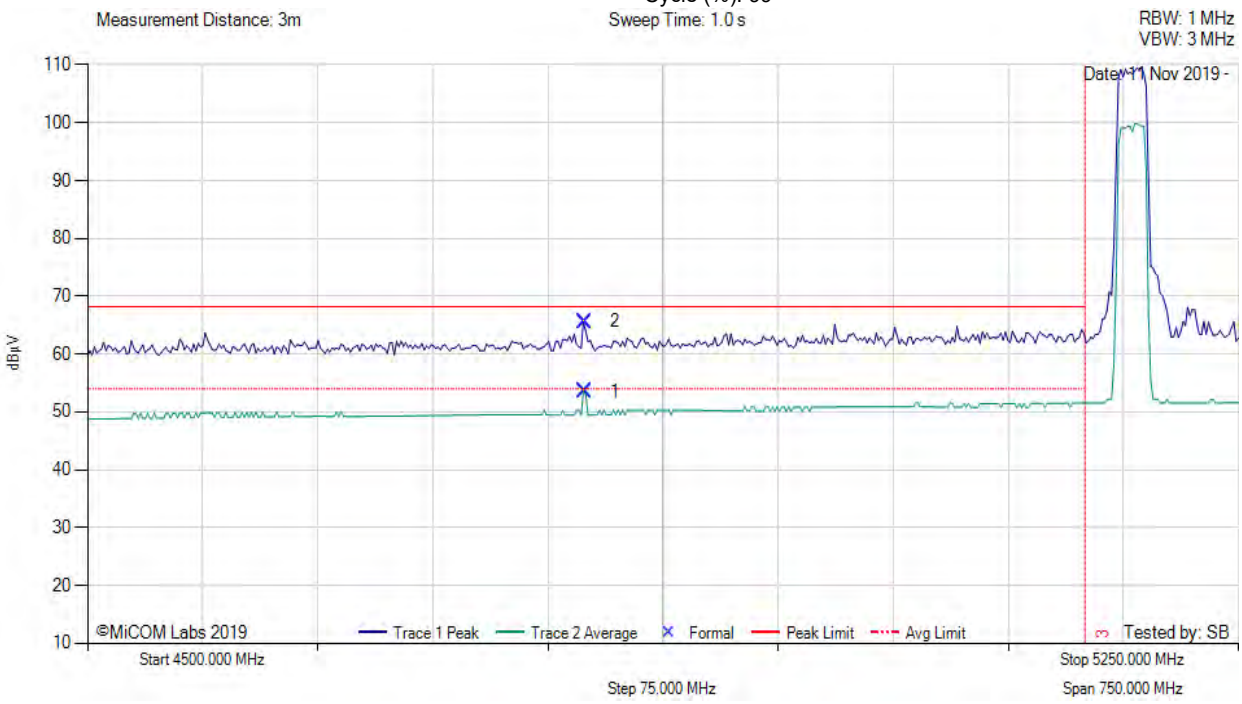


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4823.15	16.08	2.86	34.04	52.98	Max Avg	Horizontal	164	201	54.0	-1.0	Pass
2	5139.48	30.87	2.98	34.19	68.04	Max Peak	Horizontal	164	201	68.2	-0.2	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5180.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17, Duty Cycle (%): 99

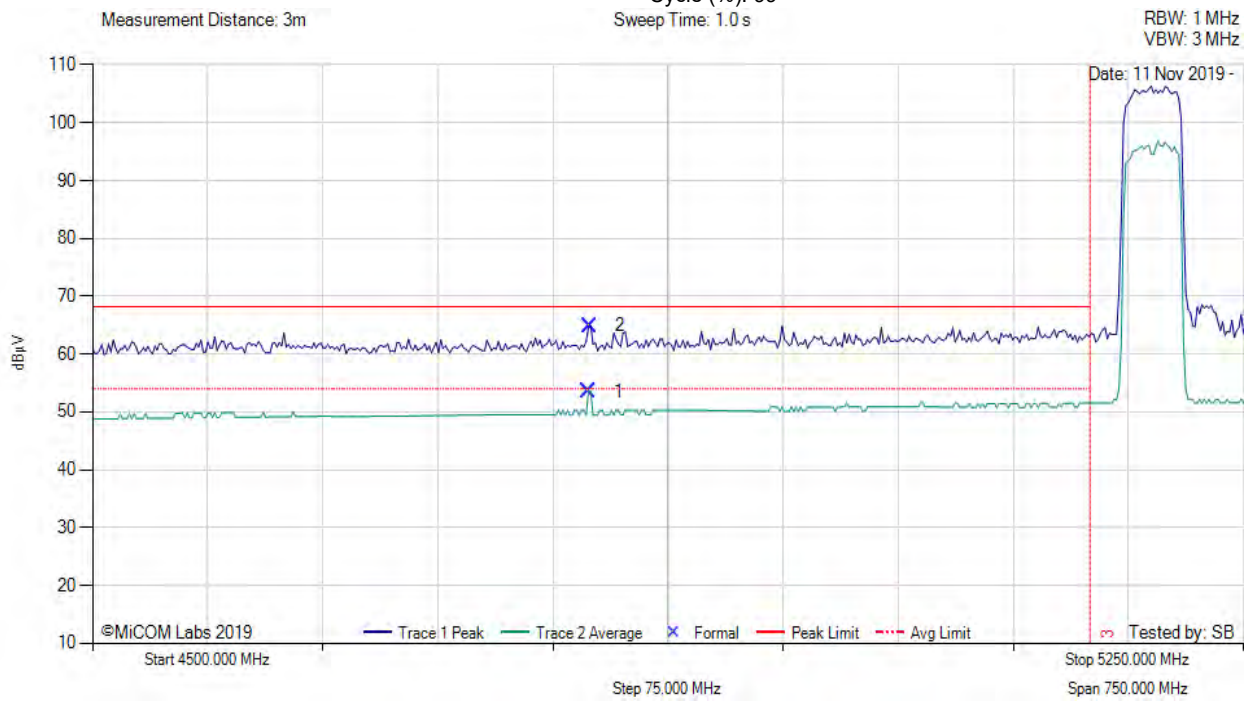


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4823.85	16.64	2.86	34.04	53.54	Max Avg	Horizontal	164	201	54.0	-0.5	Pass
2	4823.85	28.68	2.86	34.04	65.58	Max Peak	Horizontal	164	201	68.2	-2.7	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5190.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17, Duty Cycle (%): 99

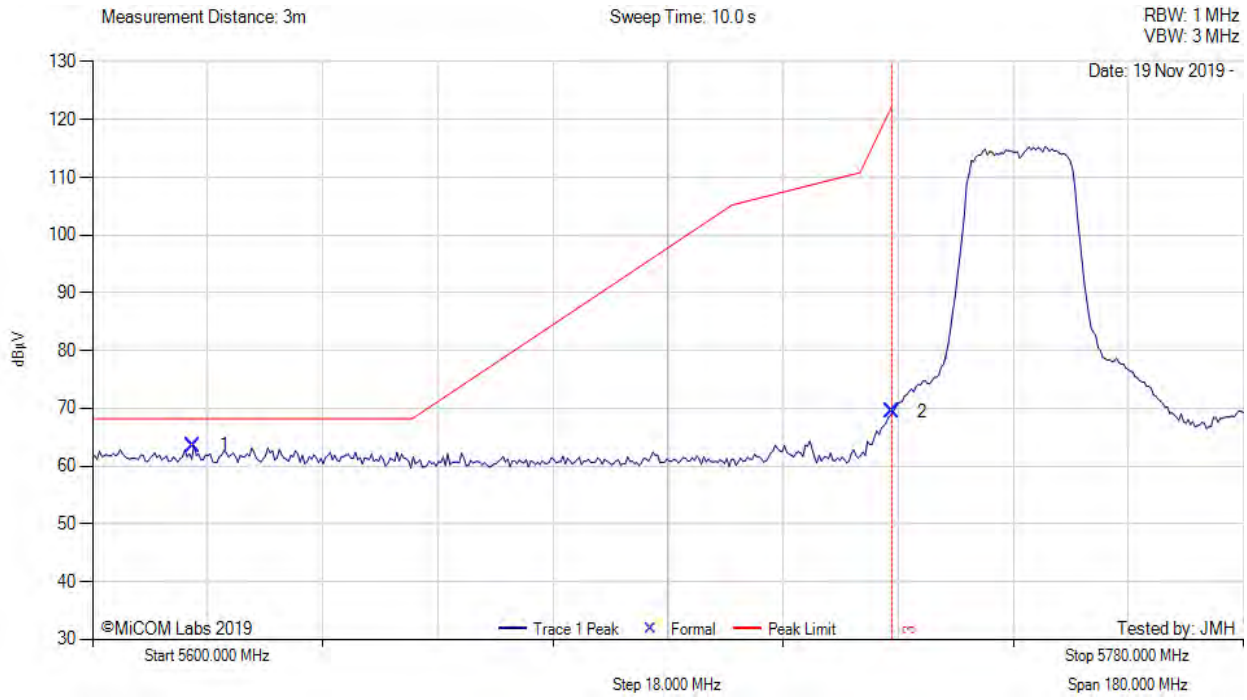


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4823.15	16.64	2.86	34.04	53.54	Max Avg	Horizontal	164	201	54.0	-0.5	Pass
2	4824.05	27.98	2.86	34.04	64.88	Max Peak	Horizontal	164	201	68.2	-3.4	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



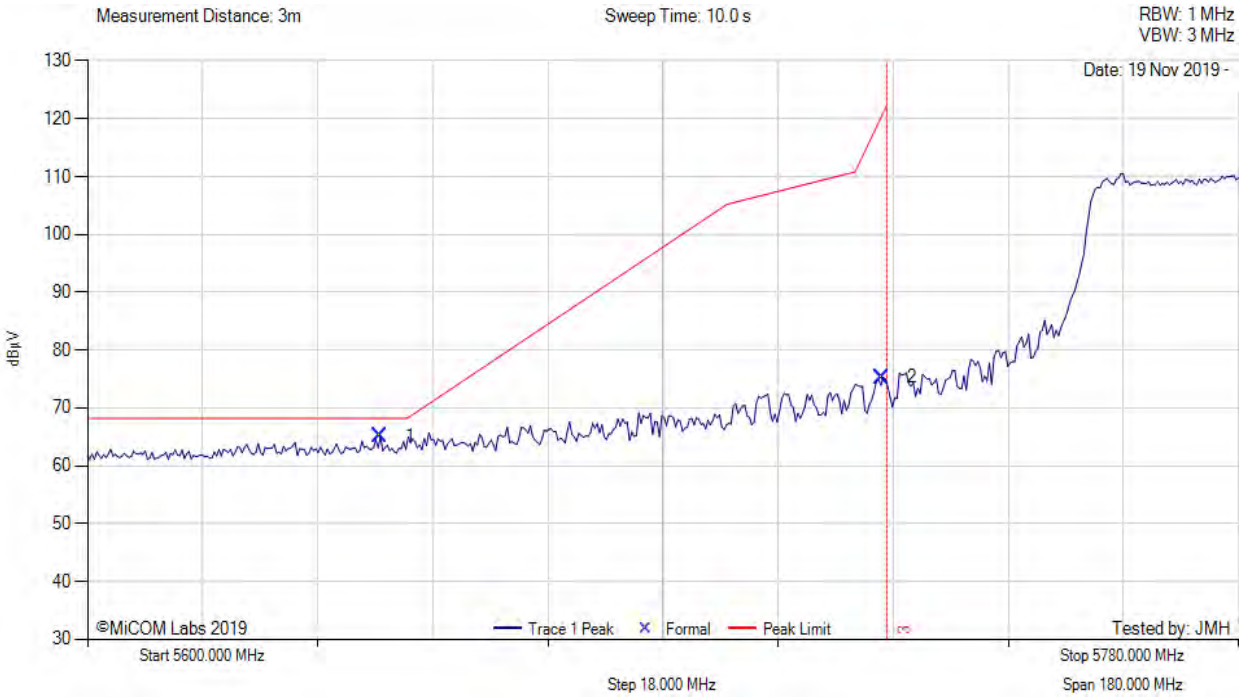
5600.00 - 5780.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5615.80	25.82	3.11	34.65	63.58	Max Peak	Vertical	137	4	68.2	-4.7	Pass
2	5725.00	31.52	3.19	34.72	69.43	Max Peak	Vertical	137	4	122.2	-52.8	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5775.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



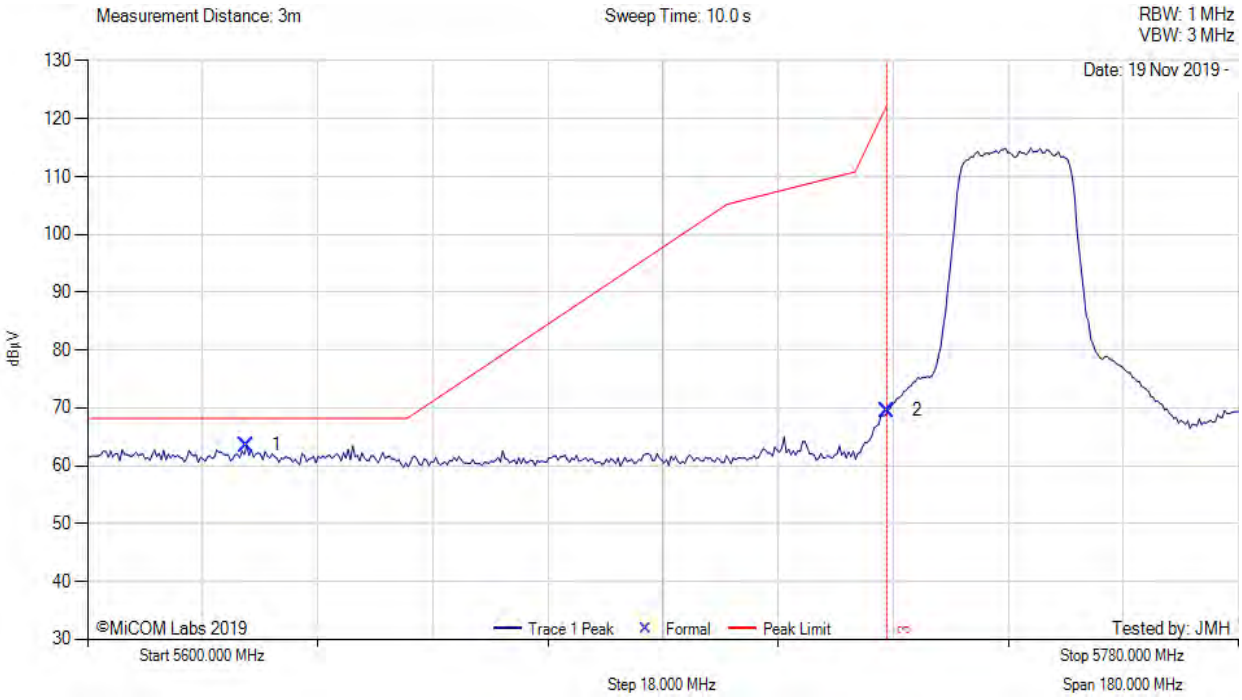
5600.00 - 5780.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5645.74	27.36	3.08	34.63	65.07	Max Peak	Vertical	137	4	68.2	-3.2	Pass
2	5724.28	37.40	3.19	34.72	75.31	Max Peak	Vertical	137	4	119.9	-44.6	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5745.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



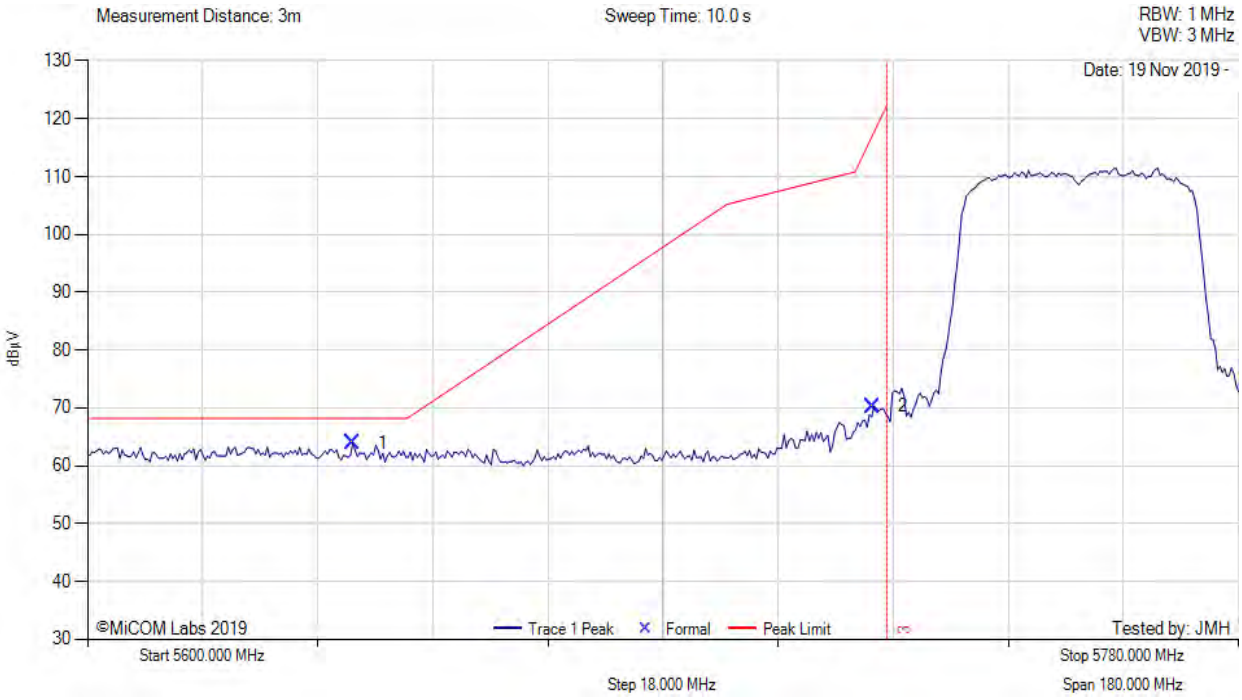
5600.00 - 5780.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5624.82	25.83	3.12	34.64	63.59	Max Peak	Vertical	137	4	68.2	-4.6	Pass
2	5725.00	31.68	3.19	34.72	69.59	Max Peak	Vertical	137	4	122.2	-52.6	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5755.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



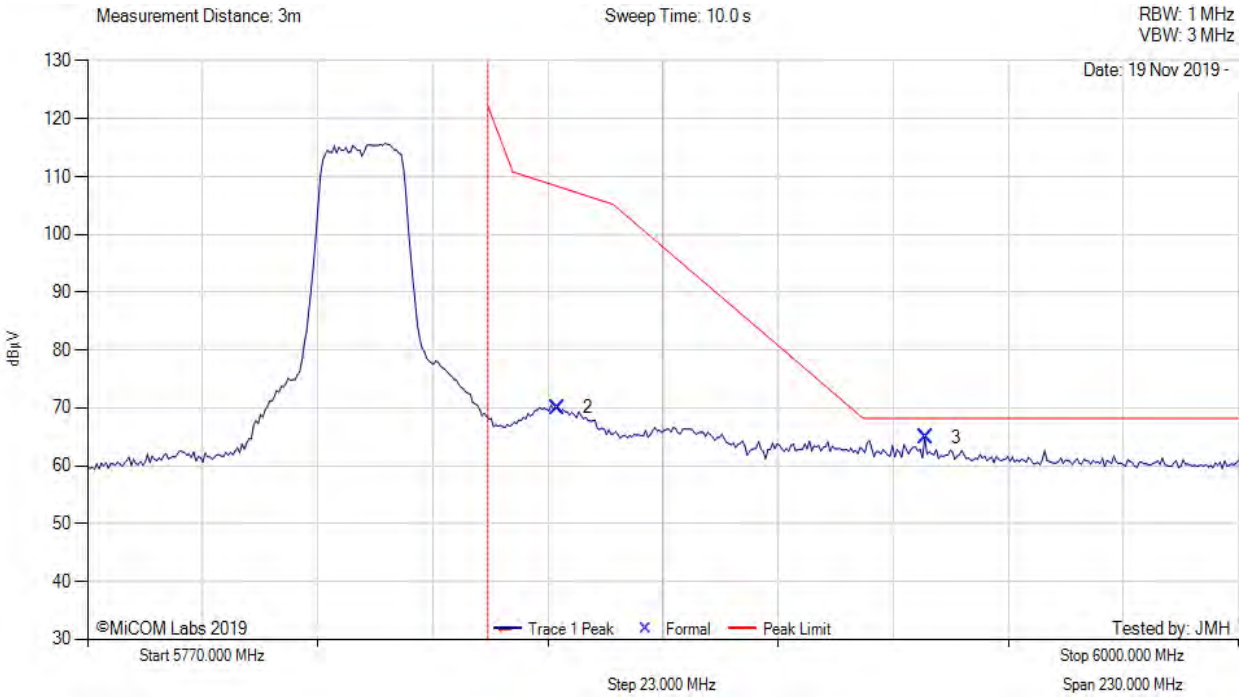
5600.00 - 5780.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5641.41	26.25	3.10	34.64	63.99	Max Peak	Vertical	137	4	68.2	-4.2	Pass
2	5722.84	32.40	3.20	34.72	70.32	Max Peak	Vertical	137	4	117.6	-47.3	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



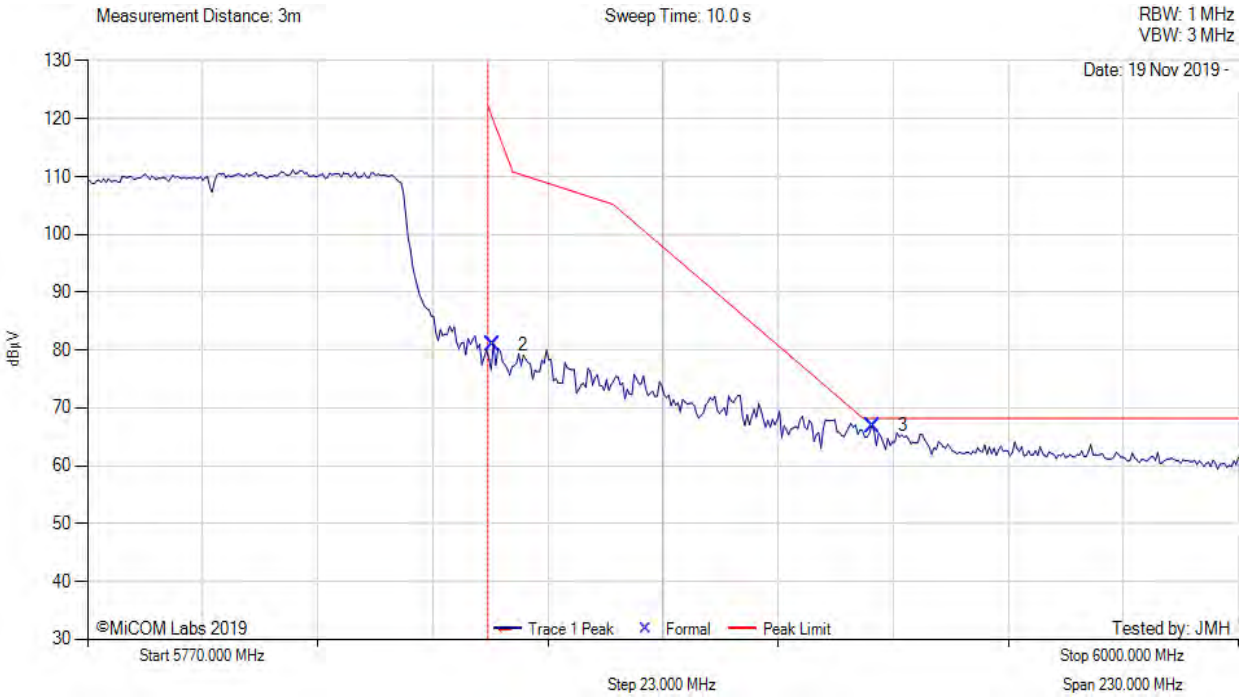
5770.00 - 6000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
2	5863.83	31.87	3.20	35.00	70.07	Max Peak	Vertical	137	4	108.0	-37.9	Pass
3	5937.43	26.56	3.20	35.11	64.87	Max Peak	Vertical	137	4	68.2	-3.4	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5775.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



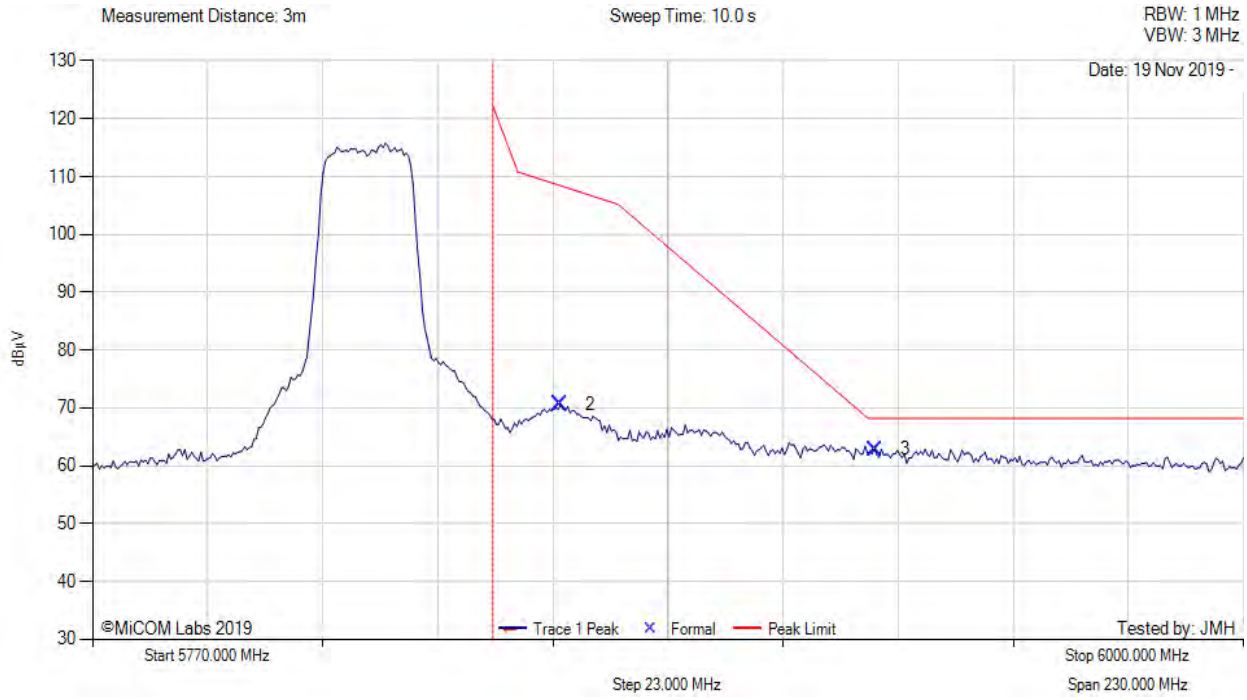
5770.00 - 6000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
2	5850.92	42.75	3.24	34.96	80.95	Max Peak	Vertical	137	4	120.5	-39.6	Pass
3	5926.83	28.67	3.18	35.11	66.96	Max Peak	Vertical	137	4	68.2	-1.3	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5825.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



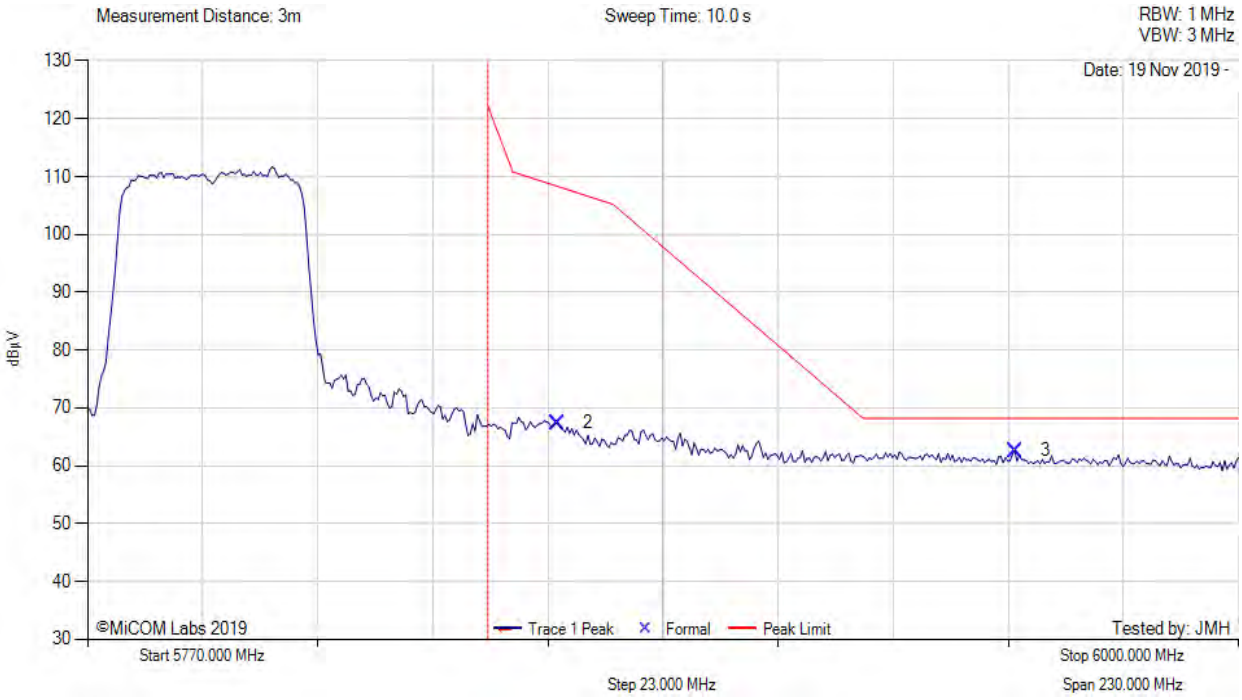
5770.00 - 6000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
2	5863.37	32.46	3.19	34.99	70.64	Max Peak	Vertical	137	4	108.2	-37.6	Pass
3	5926.37	24.60	3.17	35.11	62.88	Max Peak	Vertical	137	4	68.2	-5.4	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5795.00 MHz, Antenna: MikroTik MTAD-5G-30D3, Power Setting: 17



5770.00 - 6000.00 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	5863.83	29.17	3.20	35.00	67.37	Max Peak	Vertical	137	4	108.9	-41.5	Pass
3	5955.41	24.29	3.21	35.13	62.63	Max Peak	Vertical	137	4	68.2	-5.6	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

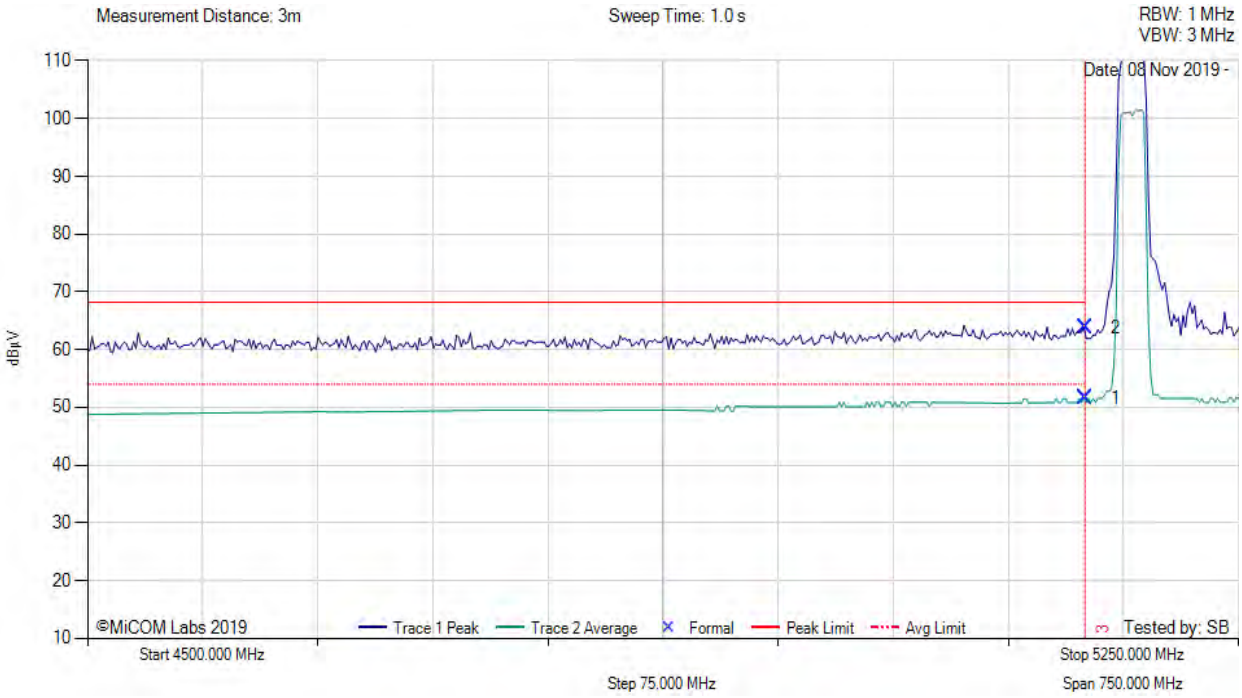
Test Notes: EUT powered by POE, connected to laptop outside chamber

back to matrix

A.4.2.4. MikroTik MTAS-5G-19D120

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5180.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 18

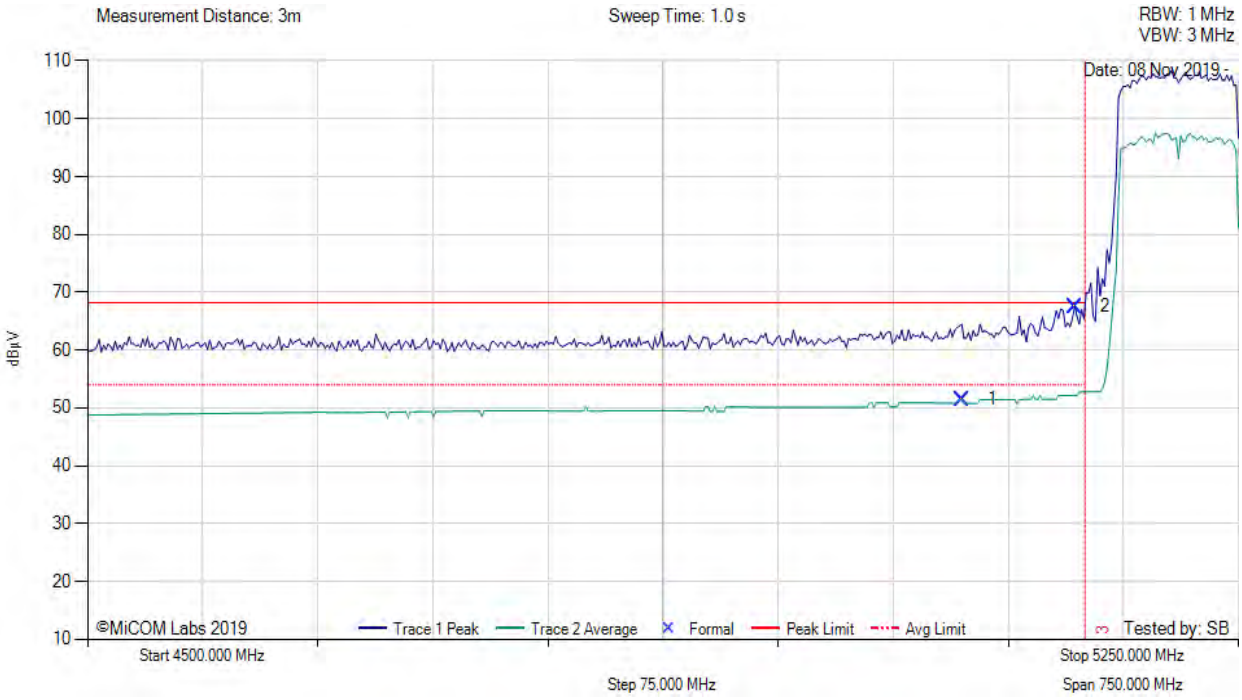


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5150.00	14.40	2.93	34.21	51.54	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
2	5150.00	26.61	2.93	34.21	63.75	Max Peak	Horizontal	162	182	68.2	-4.5	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5210.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 16

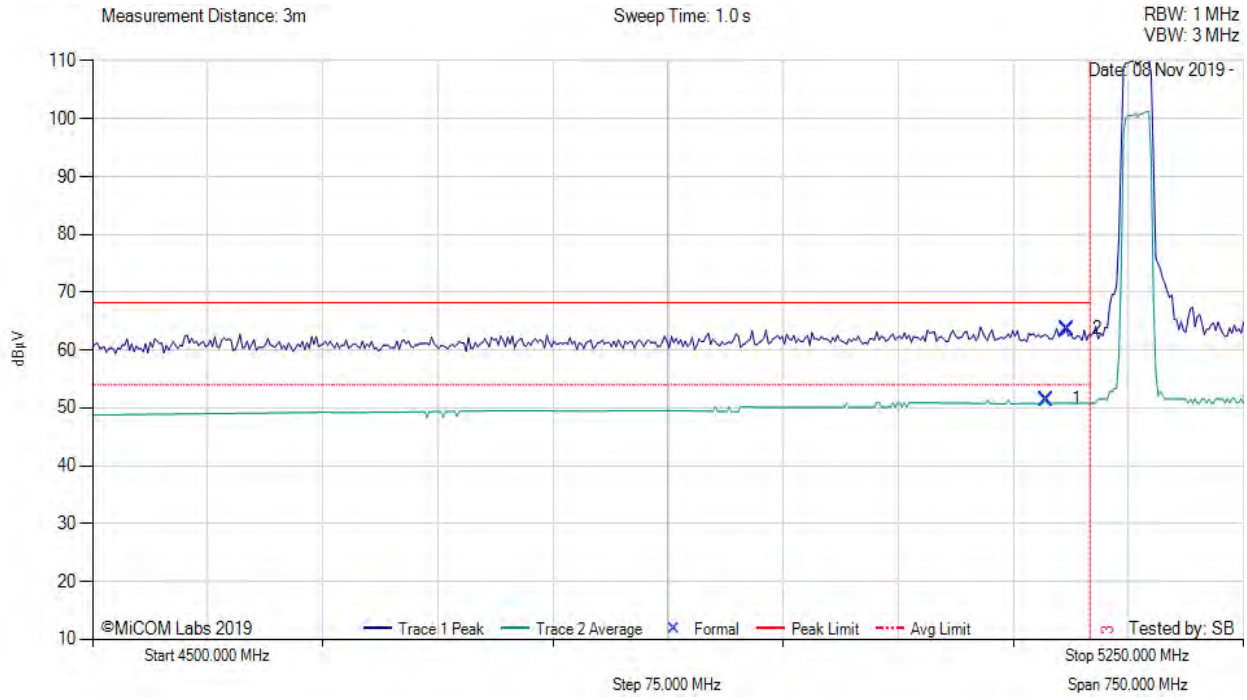


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5069.64	14.48	2.93	34.11	51.52	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
2	5143.29	30.39	2.94	34.20	67.53	Max Peak	Horizontal	162	182	68.2	-0.7	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5180.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 18

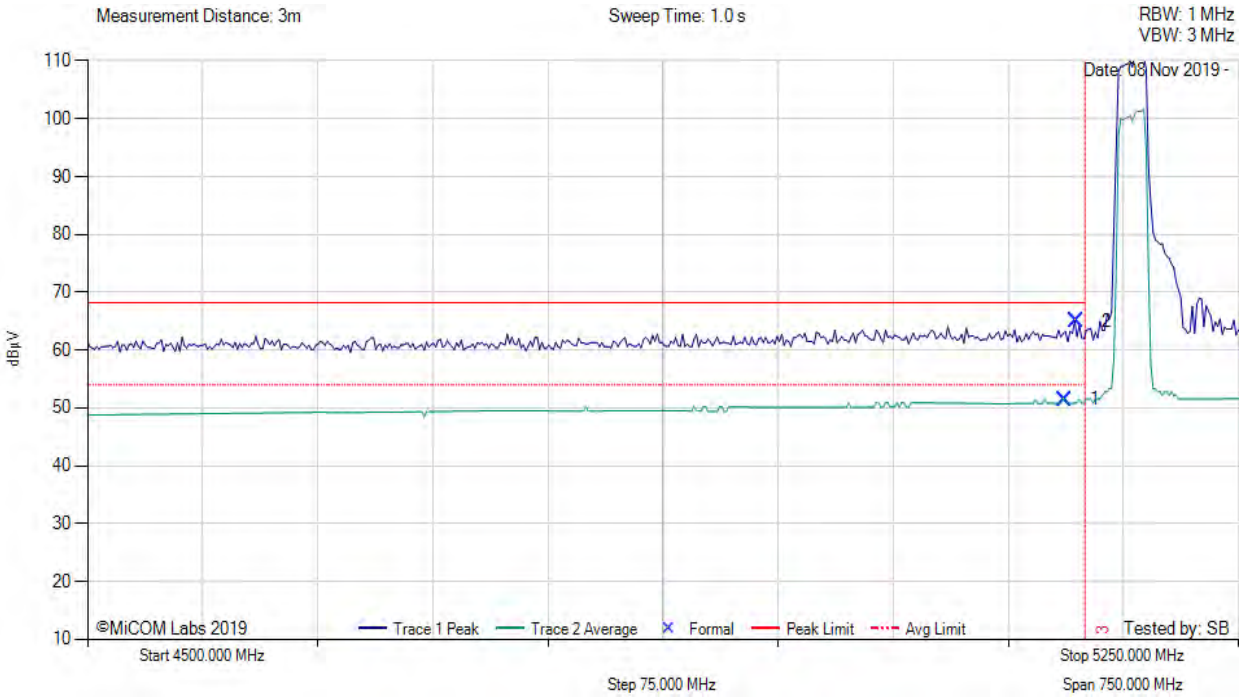


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5121.44	14.39	2.95	34.16	51.50	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
2	5134.97	26.56	2.99	34.18	63.73	Max Peak	Horizontal	162	182	68.2	-4.5	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5190.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 18

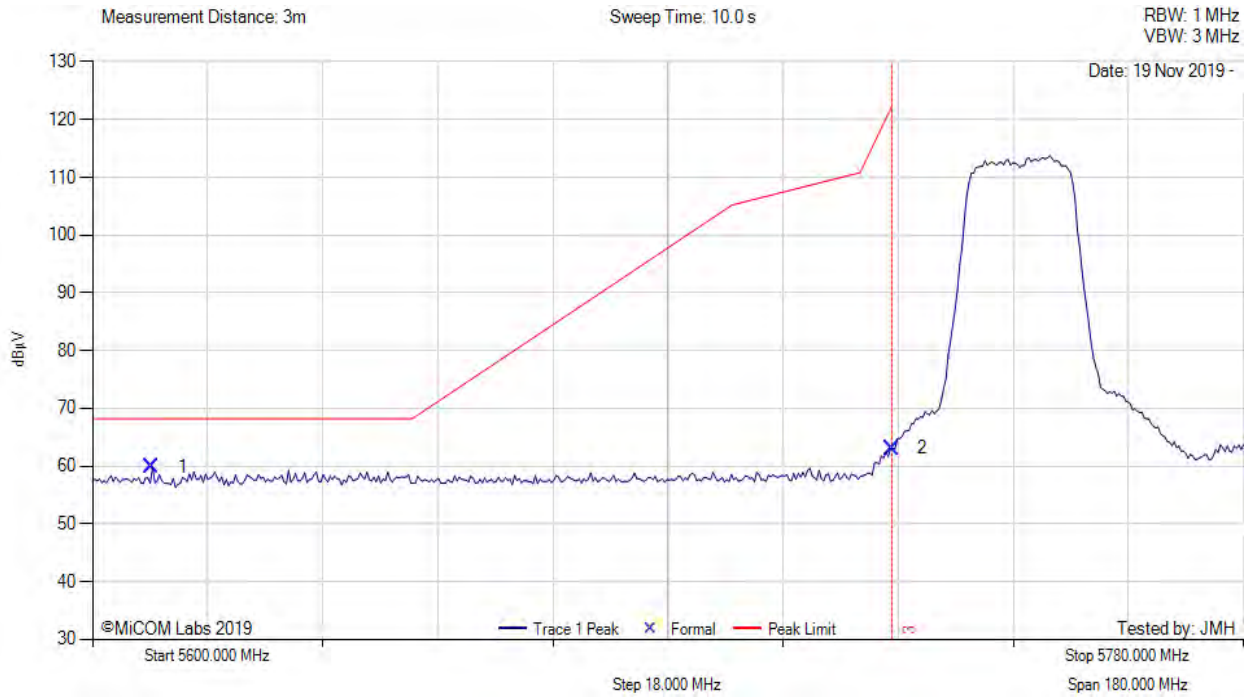


4500.00 - 5250.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5136.47	14.33	3.00	34.19	51.52	Max Avg	Horizontal	162	182	54.0	-2.5	Pass
2	5143.99	27.83	2.93	34.20	64.96	Max Peak	Horizontal	162	182	68.2	-3.3	Pass
3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5745.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



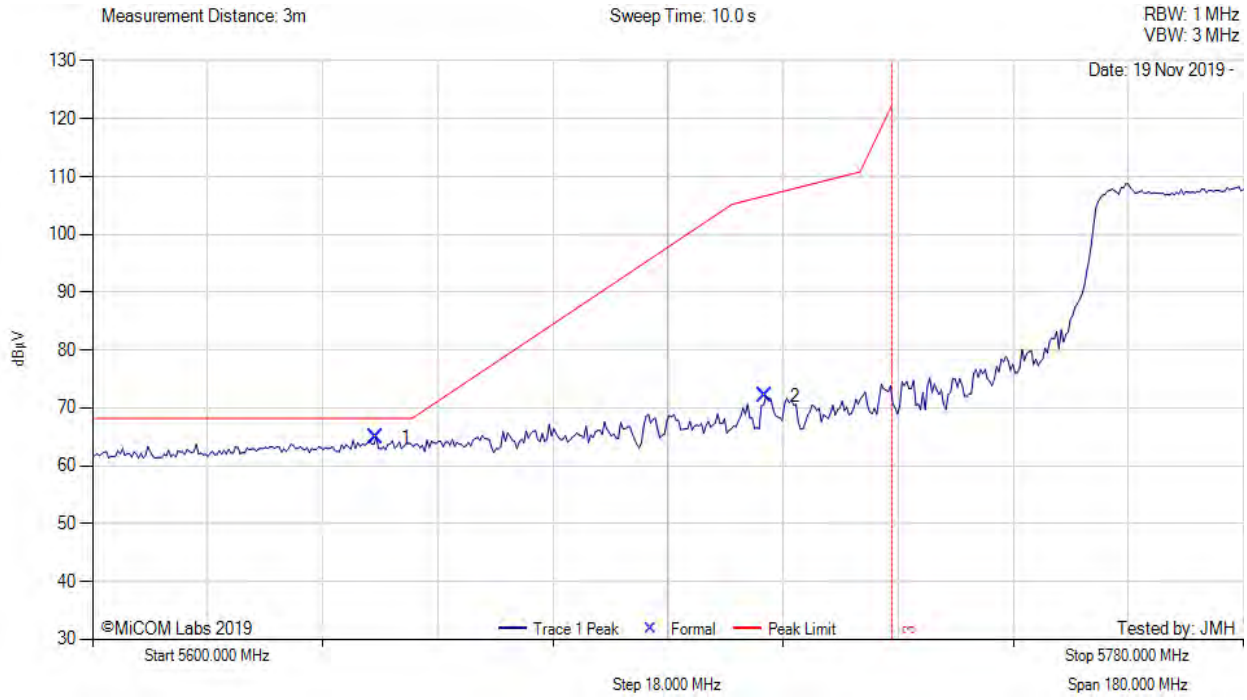
5600.00 - 5780.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	5609.31	22.09	3.09	34.65	59.83	Max Peak	Horizontal	198	4	68.2	-8.4	Pass
2	5725.00	25.15	3.19	34.72	63.06	Max Peak	Horizontal	198	4	122.2	-59.1	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5775.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



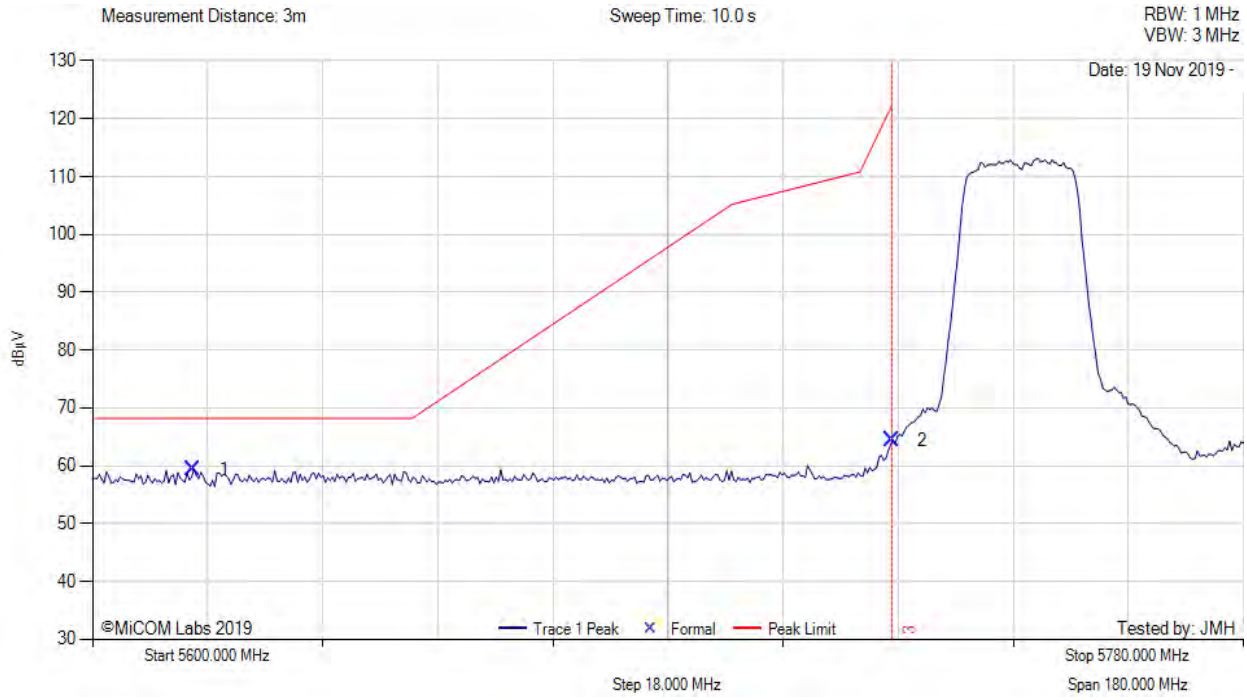
5600.00 - 5780.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5644.30	27.24	3.09	34.63	64.96	Max Peak	Horizontal	198	4	68.2	-3.3	Pass
2	5705.16	34.17	3.16	34.69	72.02	Max Peak	Horizontal	198	4	106.6	-34.6	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5745.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



5600.00 - 5780.00 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	5615.80	21.66	3.11	34.65	59.42	Max Peak	Horizontal	198	4	68.2	-8.8	Pass
2	5725.00	26.52	3.19	34.72	64.43	Max Peak	Horizontal	198	4	122.2	-57.8	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

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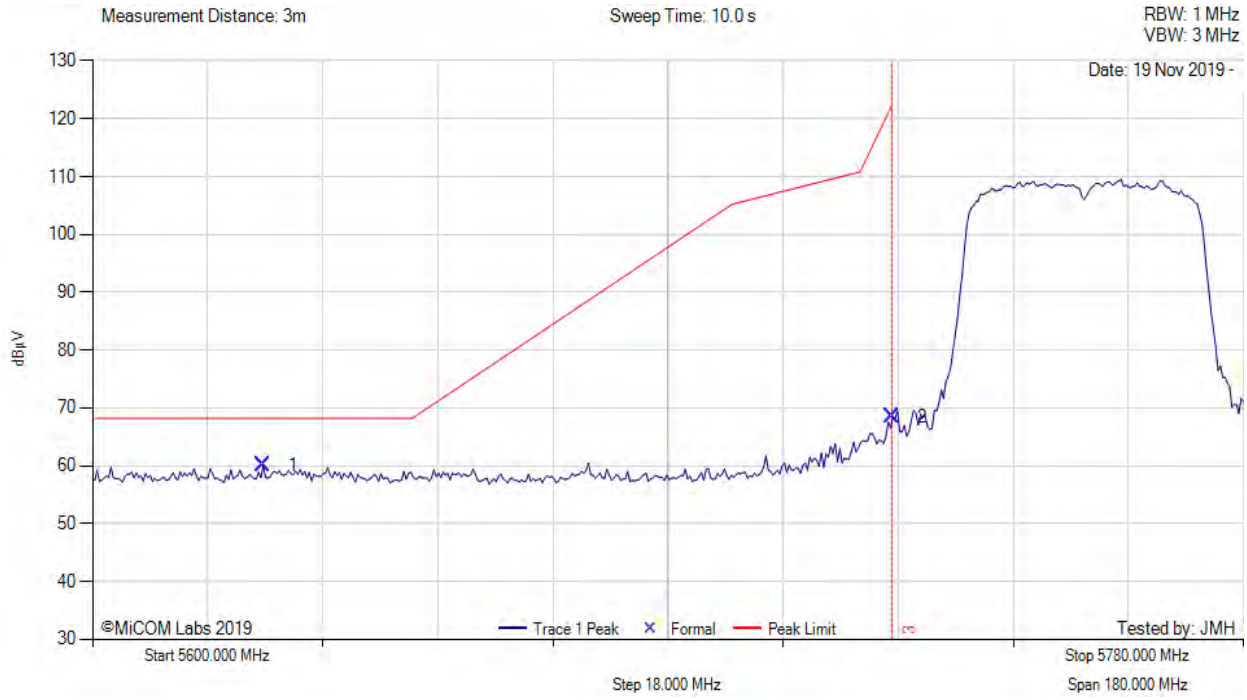
5725 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5755.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



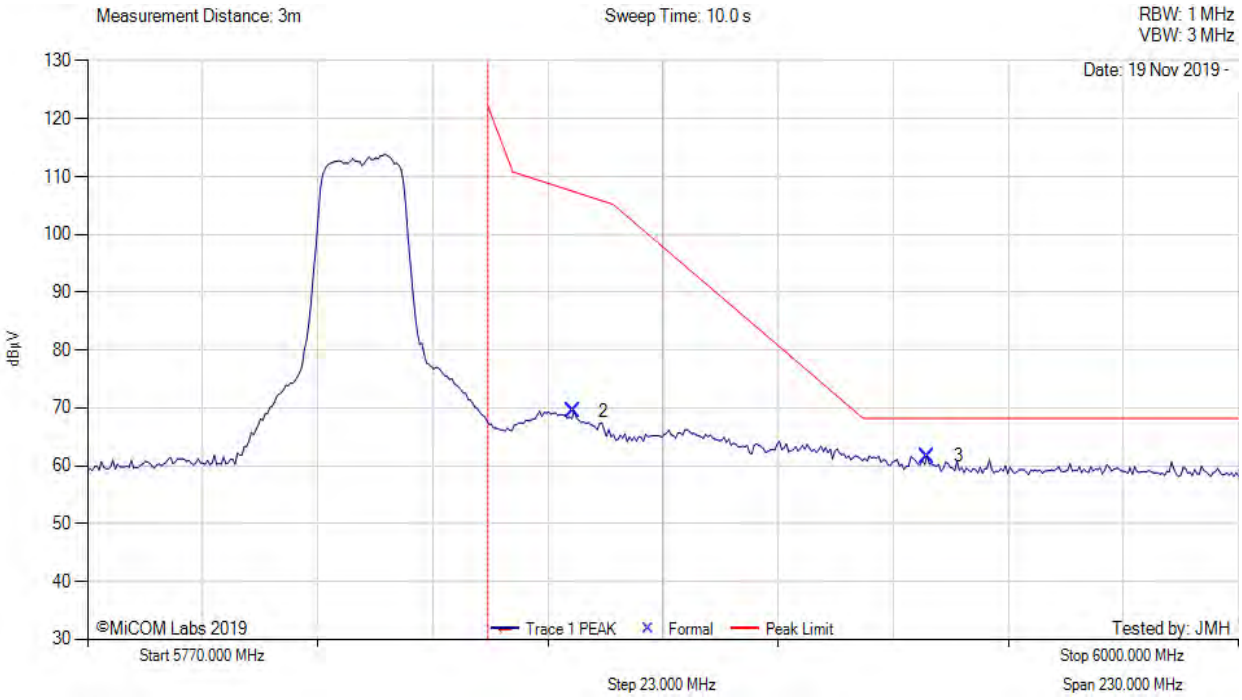
5600.00 - 5780.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	5626.62	22.29	3.12	34.64	60.05	Max Peak	Horizontal	198	4	68.2	-8.2	Pass
2	5725.00	30.50	3.19	34.72	68.41	Max Peak	Horizontal	198	4	122.2	-53.8	Pass
3	5725.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11a, Test Freq: 5825.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



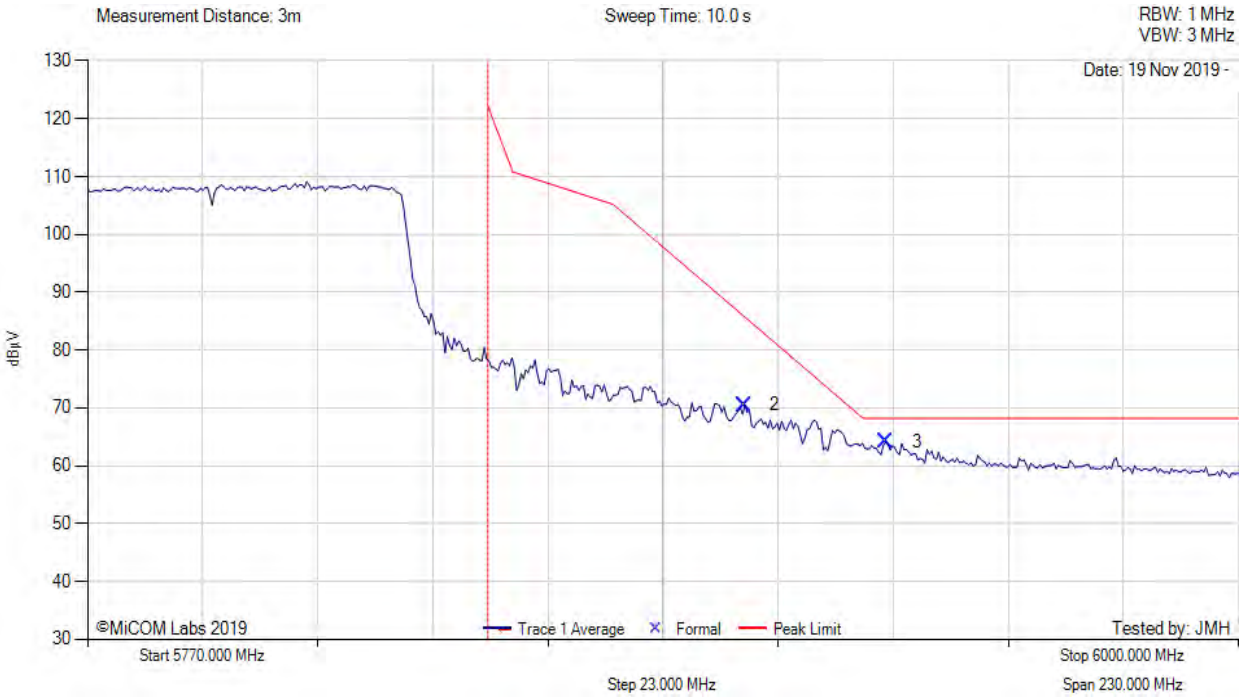
5770.00 - 6000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
2	5867.05	31.22	3.21	35.01	69.44	Max Peak	Horizontal	198	4	108.2	-38.8	Pass
3	5937.90	23.37	3.20	35.12	61.69	Max Peak	Horizontal	198	4	68.2	-6.5	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11ac-80, Test Freq: 5775.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



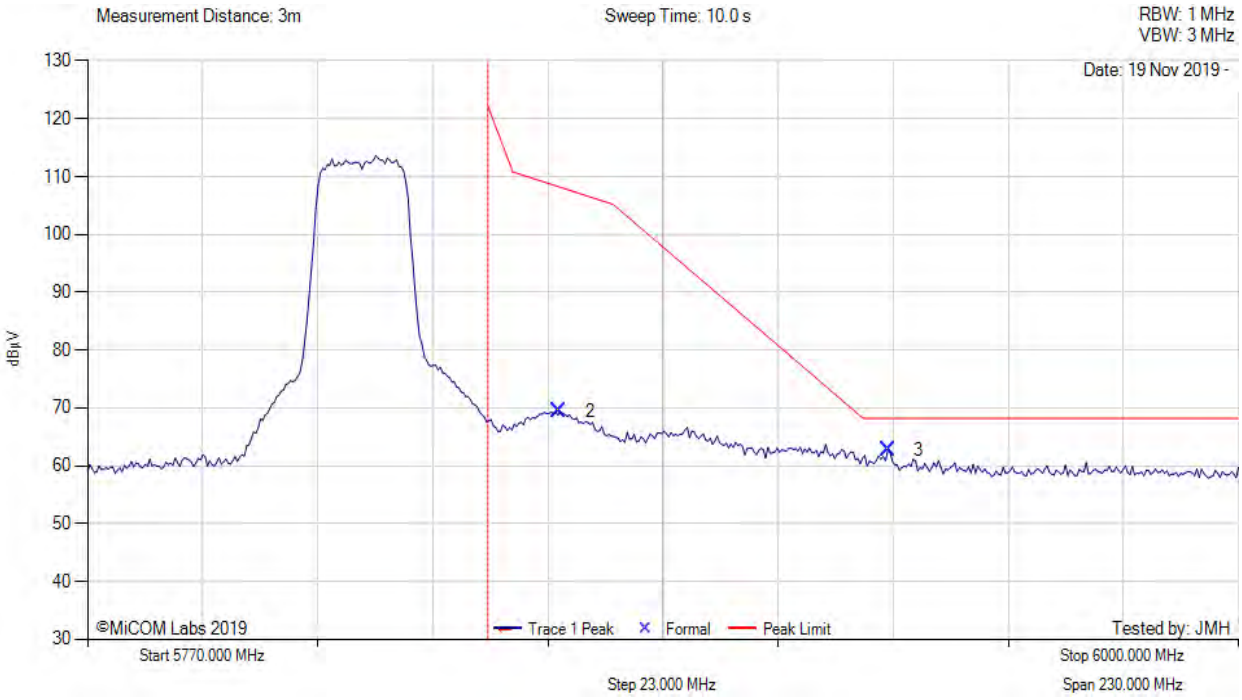
5770.00 - 6000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
2	5901.16	32.17	3.27	35.10	70.54	Max Peak	Horizontal	198	4	86.5	-16.0	Pass
3	5929.60	25.83	3.19	35.11	64.13	Max Peak	Horizontal	198	4	68.2	-4.1	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

back to matrix

5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-20, Test Freq: 5825.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



5770.00 - 6000.00 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	5864.29	31.17	3.20	35.00	69.37	Max Peak	Horizontal	198	4	107.6	-38.2	Pass
3	5930.06	24.42	3.19	35.11	62.72	Max Peak	Horizontal	198	4	68.2	-5.5	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

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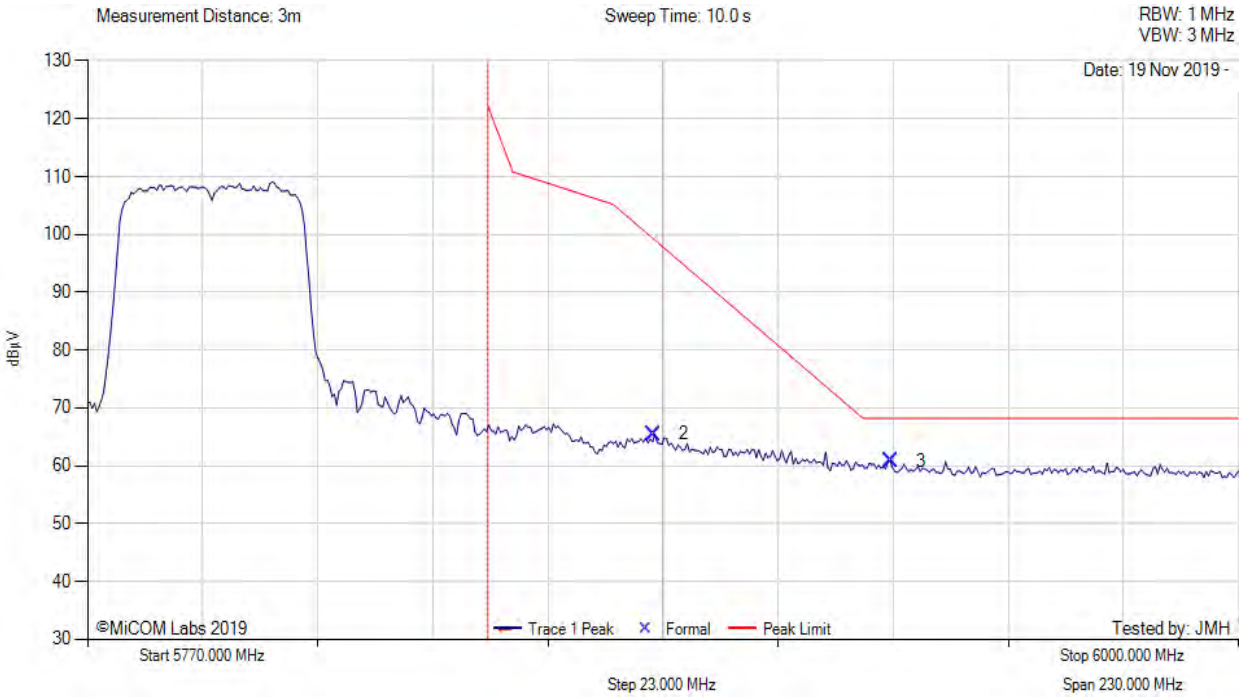
5850 MHz RADIATED BAND-EDGE EMISSIONS

Variant: 802.11n HT-40, Test Freq: 5795.00 MHz, Antenna: MikroTik MTAS-5G-19D120, Power Setting: 17



5770.00 - 6000.00 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	5883.19	27.25	3.18	35.05	65.48	Max Peak	Horizontal	198	4	97.8	-32.3	Pass
3	5930.52	22.54	3.20	35.11	60.85	Max Peak	Horizontal	198	4	68.2	-7.4	Pass
1	5850.00	--	--	--	--	Band-Edge	--	--	--	--	--	--

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

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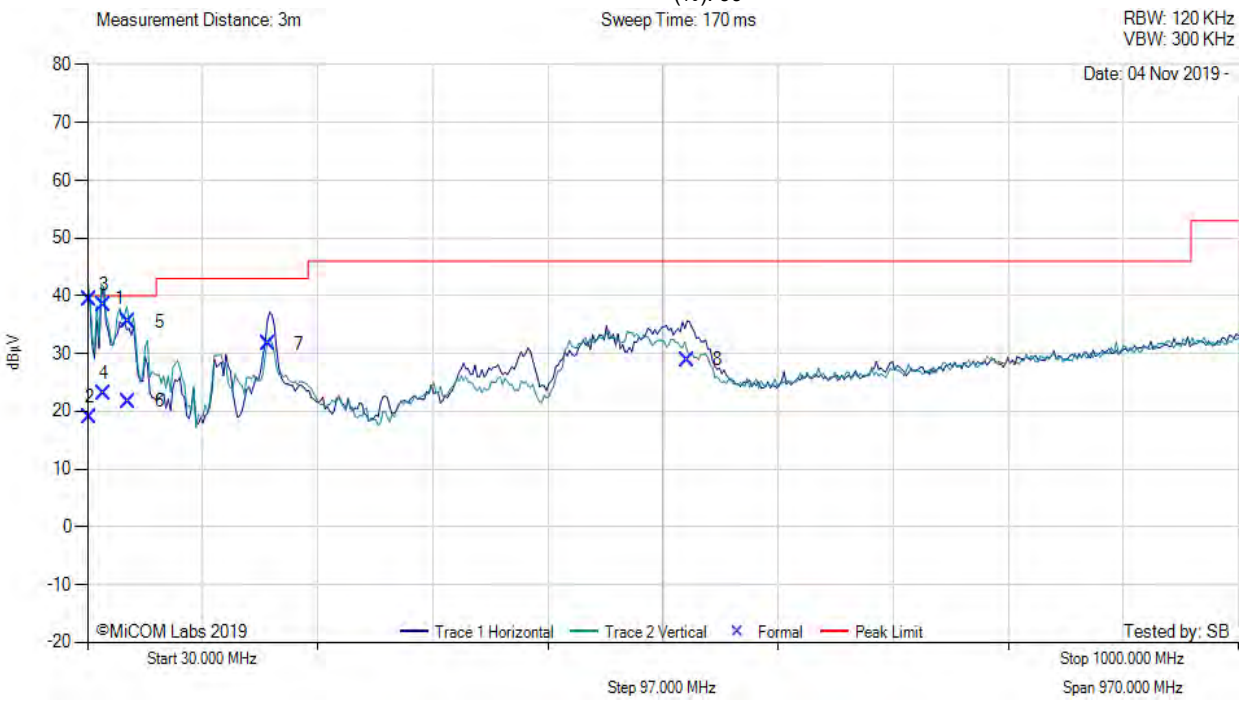
A.4.3. Digital Emissions (0.03 - 1 GHz)

DIGITAL EMISSIONS (0.03 - 1 GHz)

Variant: OFDM, Test Freq: 2437.00 MHz, Antenna: MikroTik DA-2450-05RP-SMA-01, Power Setting: 26, Duty Cycle (%): 99



30.00 - 1000.00 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	31.43	44.64	3.55	-8.71	39.48	MaxQP	Vertical	111	173	40.0	-0.5	Pass
2	31.43	24.13	3.55	-8.71	18.97	MaxQP	Horizontal	101	218	40.0	-21.0	Pass
3	43.86	52.15	3.67	-17.38	38.44	MaxQP	Vertical	100	338	40.0	-1.6	Pass
4	43.86	36.74	3.67	-17.38	23.03	MaxQP	Horizontal	134	201	40.0	-17.0	Pass
5	64.83	52.38	3.84	-20.75	35.47	MaxQP	Vertical	114	355	40.0	-4.5	Pass
6	64.83	38.62	3.84	-20.75	21.71	MaxQP	Horizontal	151	293	40.0	-18.3	Pass
7	182.74	44.31	4.46	-17.11	31.66	MaxQP	Horizontal	198	0	43.0	-11.3	Pass
8	535.06	32.54	5.69	-9.34	28.89	MaxQP	Horizontal	104	185	46.0	-17.1	Pass

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