



REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 Part 15.407 & ISED RSS-247

Report No.: MIKO114-U10b Rev A

Company: Mikrotikls SIA

Model Name: RBD25G-5HPacQD2HPnD-US



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

Test Report Serial No.: MIKO114-U10b Rev A

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Applicant: Mikrotikls SIA
Brivibas gatve 214i
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Latvia

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RF Report 5250 – 5350 MHz:	<input checked="" type="checkbox"/> MIKO114-U10b
DFS 5250 – 5350 MHz Addendum:	<input type="checkbox"/> MIKO114-U10c
RF Report 5470 - 5725 MHz:	<input type="checkbox"/> MIKO114-U10d
DFS 5470 - 5725 MHz Addendum :	<input type="checkbox"/> MIKO114-U10e

This Test Report is Issued Under the Authority of:

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



MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2017. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-01.pdf>



1.2. RECOGNITION

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

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

TCB – Telecommunications Certification Bodies (TCB)

FCB – Foreign Certification Body

CAB – Conformity Assessment Body

NB – Notified Body

AB – Approved Body

MRA – Mutual Recognition Agreement

MRA Phase I - recognition for product testing

MRA Phase II – recognition for both product testing and certification

1.3. PRODUCT CERTIFICATION

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



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

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	21st May 2021	Draft report for client review.
Rev A	25 th May 2021	Initial release.
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In the above table the latest report revision will replace all earlier versions.

3. TEST SUMMARY

List of Measurements

Test Header	Result	Data Link
Peak Transmit Power	Complies	View Data
26 dB & 99% Bandwidth	Complies	View Data
Power Spectral Density	Complies	View Data
Radiated	Complies	-
TX Spurious & Restricted Band Emissions	Complies	-
MikroTik db_PIFA_2_4-5_5_AN	Complies	View Data
Restricted Edge & Band-Edge Emissions	Complies	-
MikroTik db_PIFA_2_4-5_5_AN	Complies	View Data

4. TEST RESULTS

4.1. Peak Transmit Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:15.407	Ambient Temp. (°C):	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 $[10^{\log_{10} (10^{a/10} + 10^{b/10} + 10^{c/10} + 10^{d/10})}]$

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 $11 \text{ dBm} + 10 \log B$, 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):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5260.0	15.46	16.02			18.76	19.200	23.83	-5.07	25.00
5300.0	14.91	15.75			18.36	19.200	23.83	-5.47	25.00
5320.0	13.75	15.21			17.55	19.130	23.82	-6.27	25.00

Traceability to Industry Recognized Test Methodologies

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

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



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for Peak Transmit Power

Variant:	802.11ac-80	Duty Cycle (%):	82.0
Data Rate:	29.30 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5290.0	14.73	16.28			18.58	88.800	24.00	-5.42	25.00

Traceability to Industry Recognized Test Methodologies

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

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

Equipment Configuration for Peak Transmit Power

Variant:	802.11n HT-20	Duty Cycle (%):	92.0
Data Rate:	6.50 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5260.0	15.00	16.07			18.58	20.400	24.00	-5.42	25.00
5300.0	14.95	15.76			18.38	20.330	24.00	-5.62	25.00
5320.0	13.77	15.24			17.58	20.400	24.00	-6.42	25.00

Traceability to Industry Recognized Test Methodologies

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

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

Equipment Configuration for Peak Transmit Power

Variant:	802.11n HT-40	Duty Cycle (%):	92.0
Data Rate:	13.50 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5270.0	17.17	17.98			20.60	39.870	24.00	-3.40	25.00
5310.0	16.14	17.46			19.86	39.600	24.00	-4.14	25.00

Traceability to Industry Recognized Test Methodologies

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

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

4.2. 26 dB & 99% Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.407	Ambient Temp. (°C):	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):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

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

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5260.0	16.517	16.434			16.517	16.434		
5300.0	16.513	16.433			16.513	16.433		
5320.0	16.547	16.451			16.547	16.451		

Traceability to Industry Recognized Test Methodologies

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

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

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	802.11ac-80	Duty Cycle (%):	82.0
Data Rate:	29.30 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5290.0	88.800	93.870			93.870	88.800		
Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5290.0	75.907	76.159			76.159	75.907		

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 (%):	92.0
Data Rate:	6.50 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5260.0	20.470	20.400			20.470	20.400		
5300.0	20.600	20.330			20.600	20.330		
5320.0	20.470	20.400			20.470	20.400		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5260.0	17.663	17.661			17.663	17.661		
5300.0	17.672	17.644			17.672	17.644		
5320.0	17.697	17.657			17.697	17.657		

Traceability to Industry Recognized Test Methodologies

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

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

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	802.11n HT-40	Duty Cycle (%):	92.0
Data Rate:	13.50 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5270.0	40.000	39.870			40.000	39.870		
5310.0	40.000	39.600			40.000	39.600		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)							
MHz	a	b	c	d	Highest	Lowest		
5270.0	36.120	36.099			36.120	36.099		
5310.0	36.171	36.020			36.171	36.020		

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).

4.3. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.407	Ambient Temp. (°C):	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 (â) 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 = $A + 10 \log (1/x) \text{ dBm}$

$A = \text{Total Power Spectral Density} [10^* \log_{10} (10^{a/10} + 10^{b/10} + 10^{c/10} + 10^{d/10})]$

$x = \text{Duty Cycle}$

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 $11 \text{ dBm} + 10 \log B$, 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):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5260.0	3.111	3.825			6.496	11.0	-4.5
5300.0	3.081	3.533			6.267	11.0	-4.7
5320.0	1.646	3.121			5.348	11.0	-5.7

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).



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for Power Spectral Density

Variant:	802.11ac-80	Duty Cycle (%):	82.0
Data Rate:	29.30 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.86 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5290.0	-3.727	-2.255			0.852	11.0	-10.2

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density

Variant:	802.11n HT-20	Duty Cycle (%):	92.0
Data Rate:	6.50 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5260.0	2.084	3.602			6.236	11.0	-4.8
5300.0	2.773	3.251			6.318	11.0	-4.7
5320.0	1.338	2.839			5.381	11.0	-5.6

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).



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for Power Spectral Density

Variant:	802.11n HT-40	Duty Cycle (%):	92.0
Data Rate:	13.50 MBit/s	Antenna Gain (dBi):	3.50
Modulation:	OFDM	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5270.0	1.801	2.607			5.464	11.0	-5.5
5310.0	1.581	2.518			5.320	11.0	-5.7

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).

4.4. Radiated

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47:15.407	Ambient Temp. (°C):	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 (dB μ V/m);

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

where P is the EIRP in Watts

Therefore: -27 dBm/MHz equates to 68.23 dB μ V/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).

4.4.1. TX Spurious & Restricted Band Emissions

4.4.1.1. MikroTik db_PIFA_2_4-5_5_AN

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik db_PIFA_2_4-5_5_AN	Variant:	802.11a
Antenna Gain (dBi):	3.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	24	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
#1	5257.25	77.60	2.95	-12.20	68.35	Fundamental	Vertical	100	0	--	--	

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



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik db_PIFA_2_4-5_5_AN	Variant:	802.11a
Antenna Gain (dBi):	3.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	24	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
#1	5297.60	79.02	3.03	-12.00	70.05	Fundamental	Vertical	100	0	--	--		

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



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	MikroTik db_PIFA_2_4-5_5_AN	Variant:	802.11a
Antenna Gain (dBi):	3.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	24	Tested By:	JMH

Test Measurement Results

10000.00 - 18000.00 MHz														
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail		
#1	5318.04	74.08	2.97	-12.01	65.04	Fundamental	Vertical	100	0	--	--	--		

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

4.4.2. Restricted Edge & Band-Edge Emissions

4.4.2.2. MikroTik db_PIFA_2_4-5_5_AN

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5250 - 5350 MHz

MikroTik db_PIFA_2_4-5_5_AN		Band-Edge Freq	Limit 74.0dB μ V/m	Limit 54.0dB μ V/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dB μ V/m	dB μ V/m	
802.11a	5320.00	5350.00	63.52	49.54	24
802.11ac-80	5290.00	5350.00	73.10	51.33	20
802.11n HT-20	5320.00	5350.00	65.10	50.70	24
802.11n HT-40	5310.00	5350.00	67.28	52.17	24

Click on the links to view the data.



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik db_PIFA_2_4-5_5_AN	Variant:	802.11a
Antenna Gain (dBi):	Not Applicable	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	24	Tested By:	JMH

Test Measurement Results

5300.00 - 5460.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
#1	5350.00	12.02	3.06	34.46	49.54	Max Avg	Vertical	158	356	54.0	-4.5	Pass	
#3	5351.28	26.00	3.06	34.46	63.52	Max Peak	Vertical	158	356	74.0	-11.5	Pass	
#2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--	

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



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik db_PIFA_2_4-5_5_AN	Variant:	802.11ac-80
Antenna Gain (dBi):	Not Applicable	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	76
Channel Frequency (MHz):	5290.00	Data Rate:	29.30 MBit/s
Power Setting:	20	Tested By:	JMH

Test Measurement Results

5300.00 - 5460.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
#1	5350.00	12.62	3.06	34.46	51.33	Max Avg	Vertical	158	356	54.0	-2.7	Pass	
#3	5352.59	35.58	3.05	34.47	73.10	Max Peak	Vertical	158	356	74.0	-0.9	Pass	
#2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--	

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



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik db_PIFA_2_4-5_5_AN	Variant:	802.11n HT-20
Antenna Gain (dBi):	3.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.50 MBit/s
Power Setting:	24	Tested By:	JMH

Test Measurement Results

5300.00 - 5460.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
#1	5350.00	13.18	3.06	34.46	50.70	Max Avg	Vertical	158	356	54.0	-3.3	Pass	
#3	5350.64	27.58	3.06	34.46	65.10	Max Peak	Vertical	158	356	74.0	-8.9	Pass	
#2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--	

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



Title: Mikrotikls SIA RBD25G-5HPacQD2HPnD-US
To: FCC CFR 47 Part 15.407 & ISED RSS-247
Serial #: MIKO114-U10b Rev A

Equipment Configuration for Restricted Upper Band-Edge Emissions

Antenna:	MikroTik db_PIFA_2_4-5_5_AN	Variant:	802.11n HT-40
Antenna Gain (dBi):	3.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	90
Channel Frequency (MHz):	5310.00	Data Rate:	13.50 MBit/s
Power Setting:	24	Tested By:	JMH

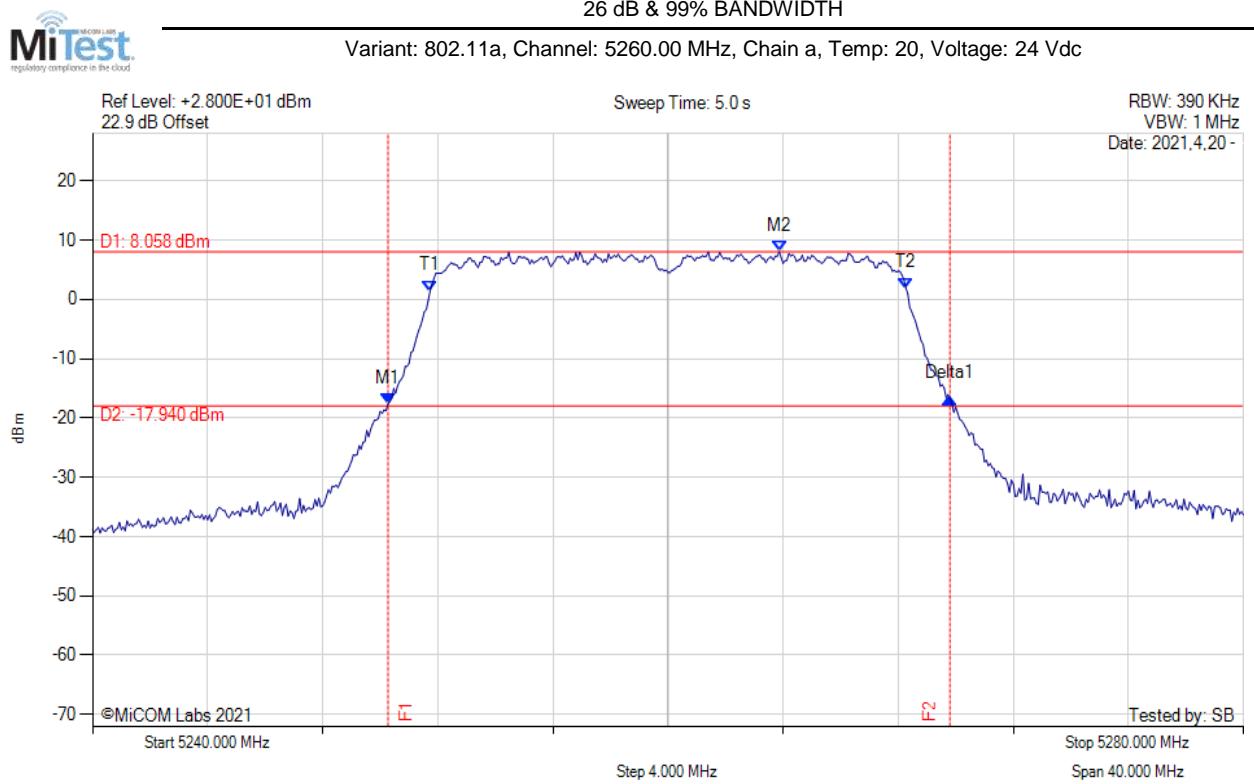
Test Measurement Results

5300.00 - 5460.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
#2	5351.92	29.76	3.06	34.46	67.28	Max Peak	Vertical	158	356	74.0	-6.7	Pass	
#3	5360.26	14.20	3.04	34.48	52.17	Max Avg	Vertical	158	356	54.0	-1.8	Pass	
#1	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--	

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber. 0.45 DCCF added to average measurement.

A. APPENDIX - GRAPHICAL IMAGES

A.1. 26 dB & 99% Bandwidth



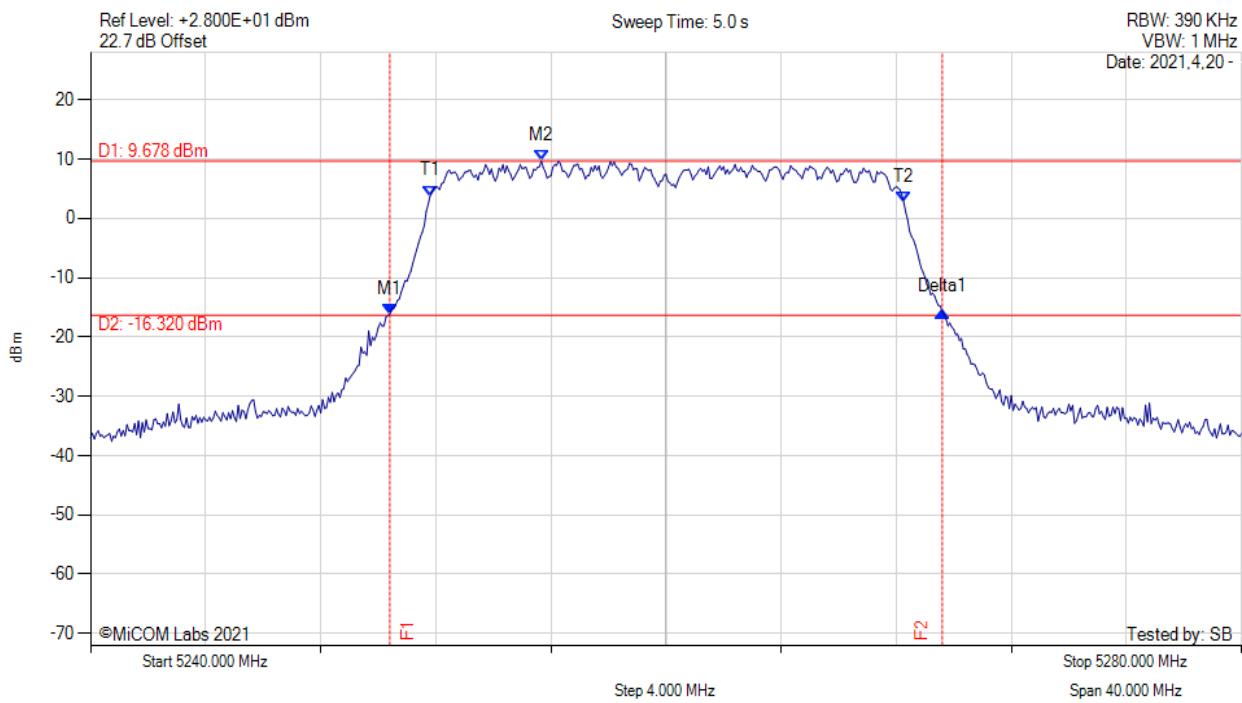
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5250.270 MHz : -17.656 dBm M2 : 5263.870 MHz : 8.058 dBm Delta1 : 19.530 MHz : 0.967 dB T1 : 5251.733 MHz : 1.438 dBm T2 : 5268.267 MHz : 1.915 dBm OBW : 16.517 MHz	Measured 26 dB Bandwidth: 19.530 MHz Measured 99% Bandwidth: 16.517 MHz

[back to matrix](#)

26 dB & 99% BANDWIDTH



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



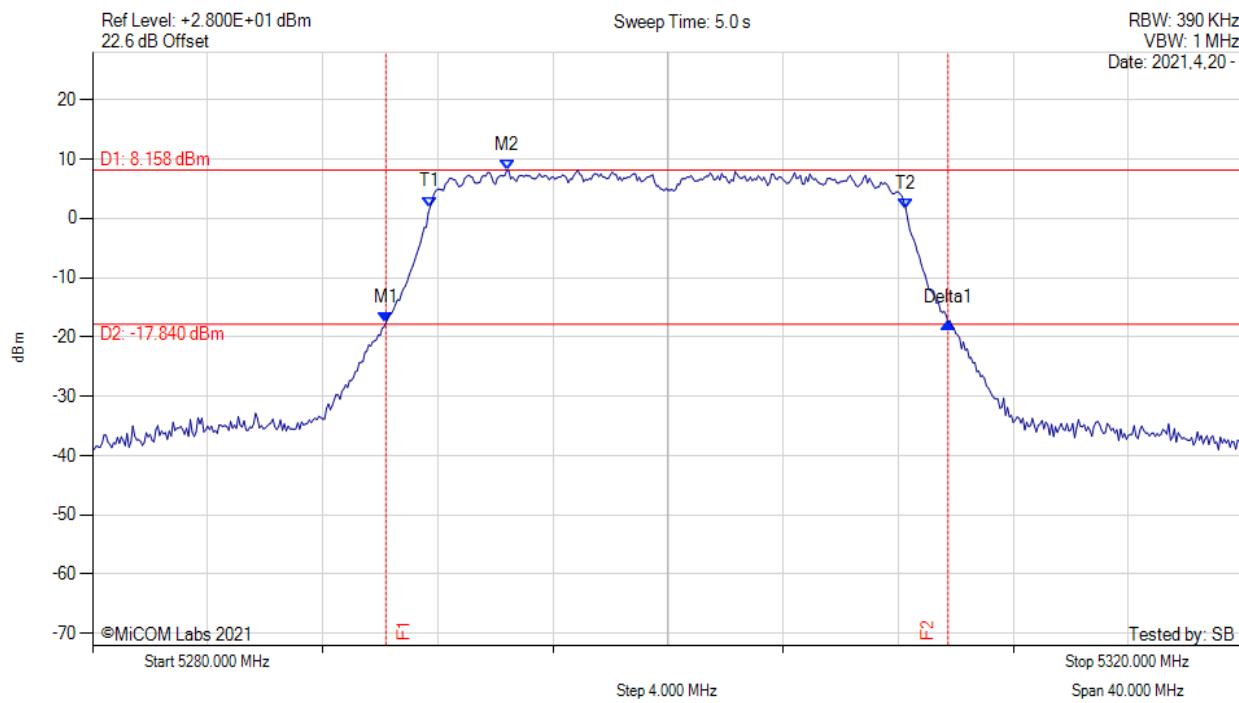
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5250.400 MHz : -16.119 dBm M2 : 5255.670 MHz : 9.678 dBm Delta1 : 19.200 MHz : 0.485 dB T1 : 5251.800 MHz : 3.782 dBm T2 : 5268.267 MHz : 2.656 dBm OBW : 16.434 MHz	Measured 26 dB Bandwidth: 19.200 MHz Measured 99% Bandwidth: 16.434 MHz

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26 dB & 99% BANDWIDTH



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



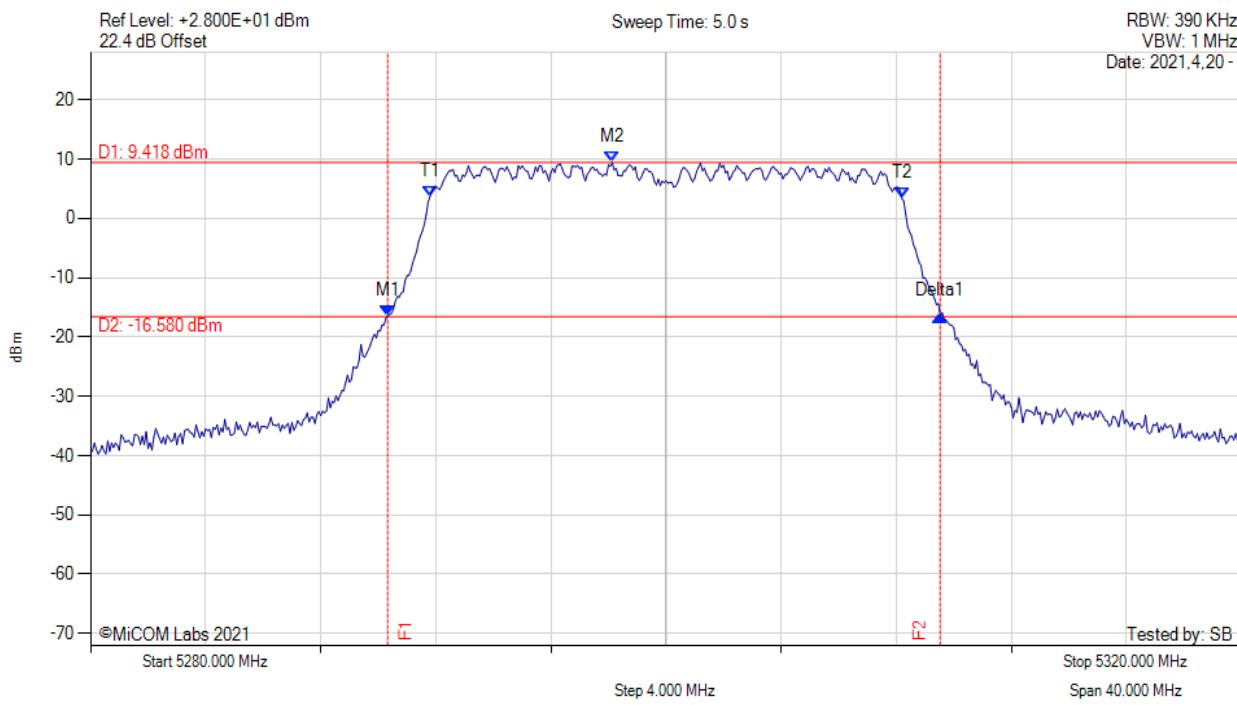
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5290.200 MHz : -17.624 dBm M2 : 5294.400 MHz : 8.158 dBm Delta1 : 19.530 MHz : 0.115 dB T1 : 5291.733 MHz : 1.914 dBm T2 : 5308.267 MHz : 1.642 dBm OBW : 16.513 MHz	Measured 26 dB Bandwidth: 19.530 MHz Measured 99% Bandwidth: 16.513 MHz

[back to matrix](#)

26 dB & 99% BANDWIDTH



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



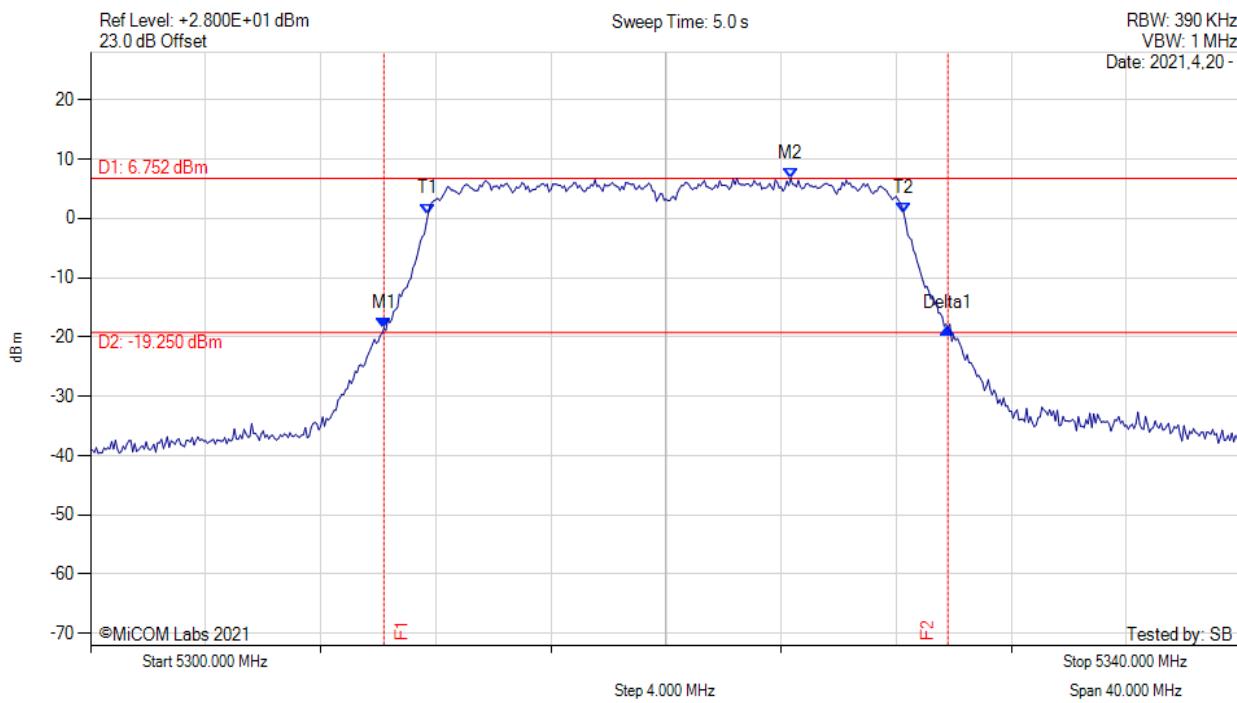
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5290.330 MHz : -16.422 dBm M2 : 5298.130 MHz : 9.418 dBm Delta1 : 19.200 MHz : -0.046 dB T1 : 5291.800 MHz : 3.719 dBm T2 : 5308.200 MHz : 3.349 dBm OBW : 16.433 MHz	Measured 26 dB Bandwidth: 19.200 MHz Measured 99% Bandwidth: 16.433 MHz

[back to matrix](#)

26 dB & 99% BANDWIDTH



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



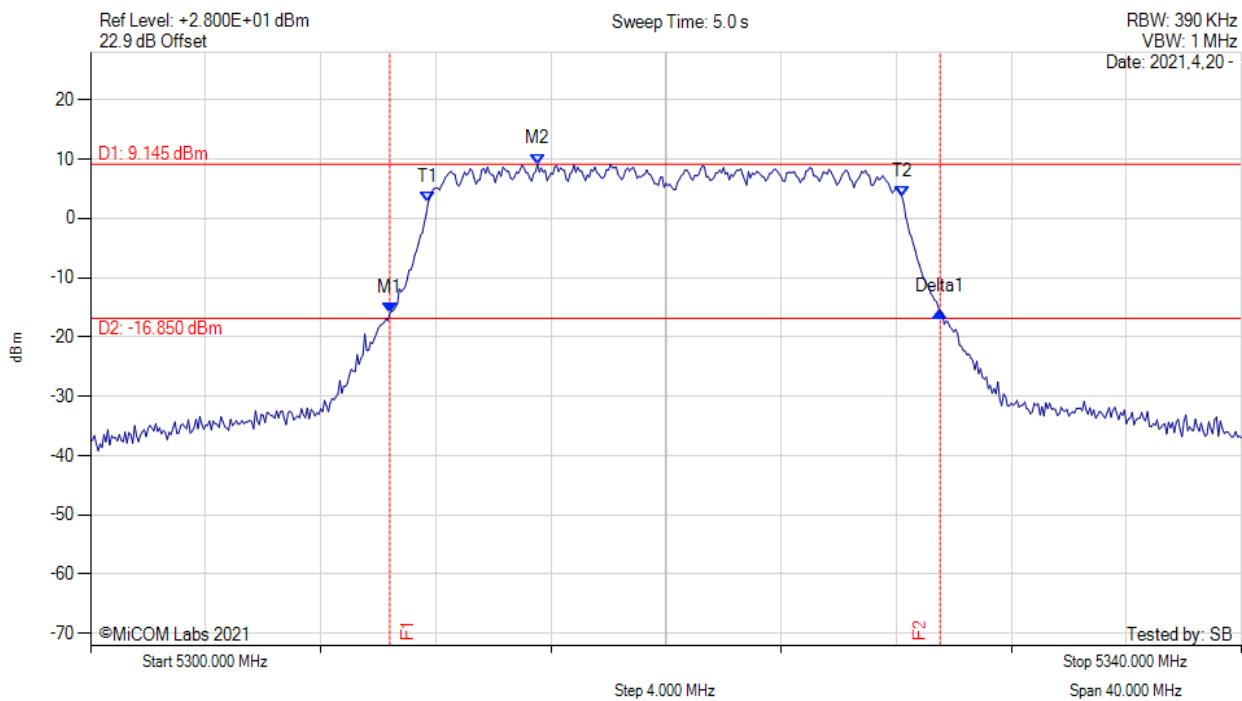
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5310.200 MHz : -18.517 dBm M2 : 5324.330 MHz : 6.752 dBm Delta1 : 19.600 MHz : -0.032 dB T1 : 5311.733 MHz : 0.754 dBm T2 : 5328.267 MHz : 0.829 dBm OBW : 16.547 MHz	Measured 26 dB Bandwidth: 19.600 MHz Measured 99% Bandwidth: 16.547 MHz

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26 dB & 99% BANDWIDTH



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



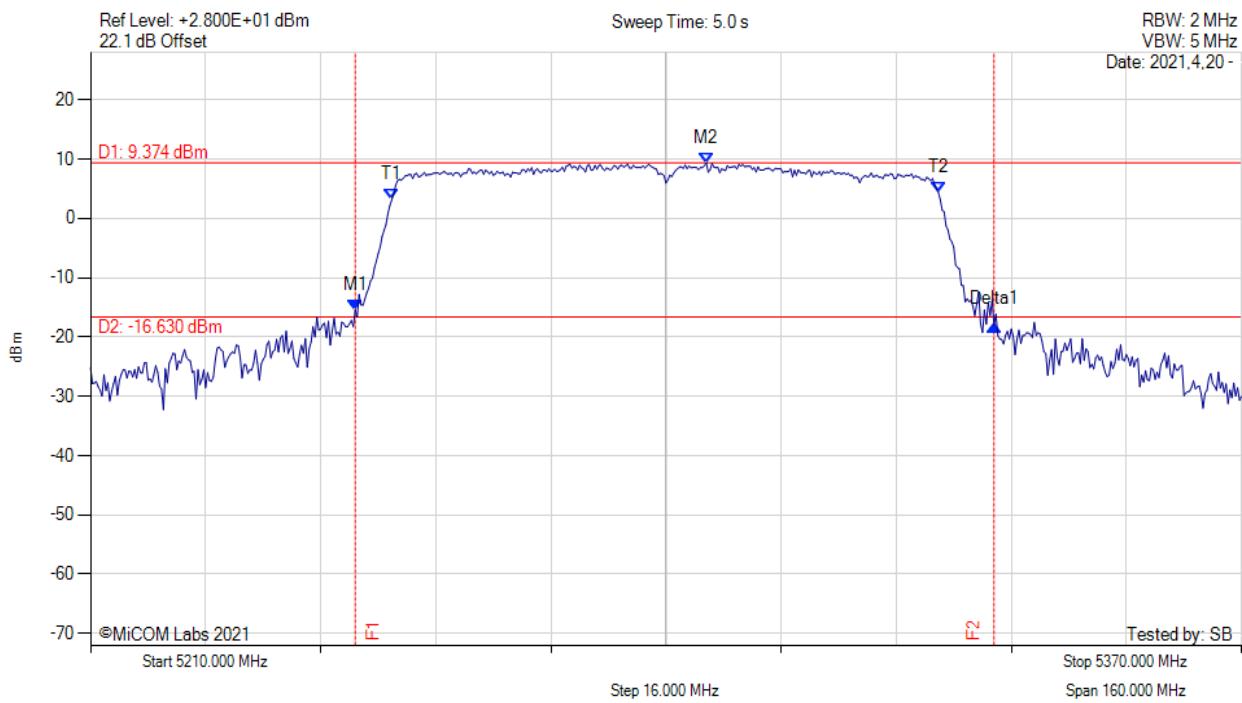
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5310.400 MHz : -16.015 dBm M2 : 5315.530 MHz : 9.145 dBm Delta1 : 19.130 MHz : 0.191 dB T1 : 5311.733 MHz : 2.663 dBm T2 : 5328.200 MHz : 3.684 dBm OBW : 16.451 MHz	Measured 26 dB Bandwidth: 19.130 MHz Measured 99% Bandwidth: 16.451 MHz

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26 dB & 99% BANDWIDTH



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



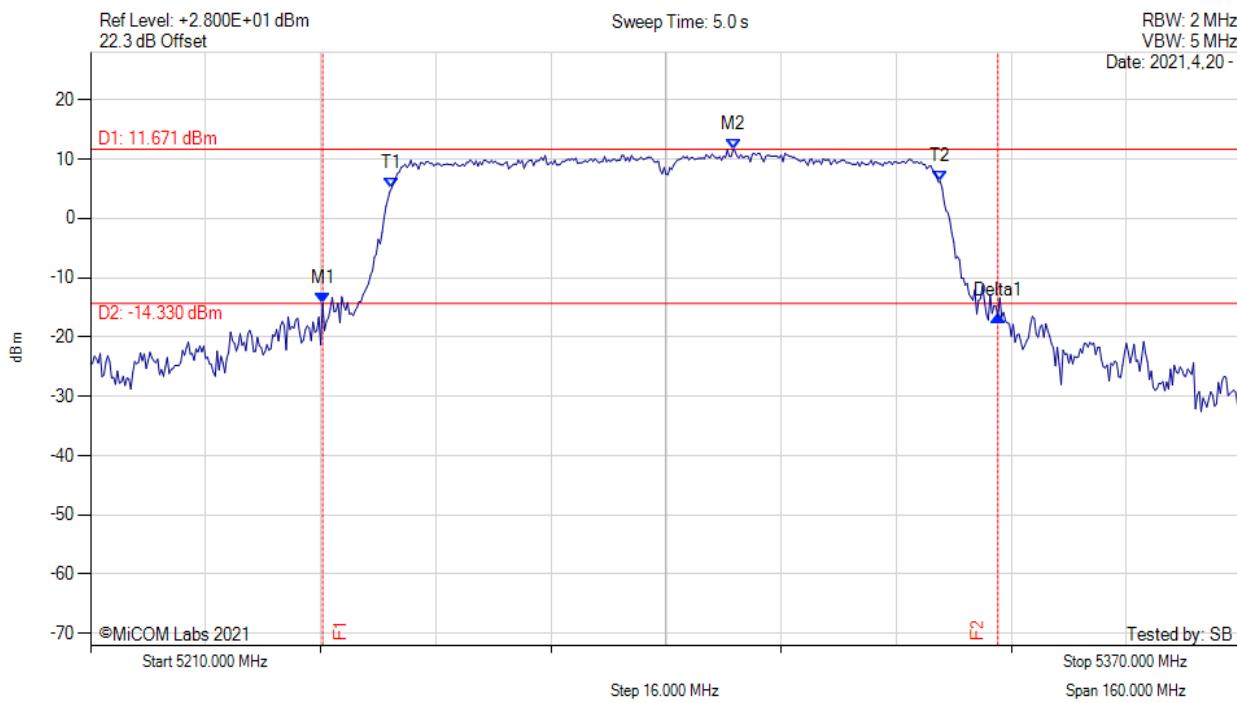
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5246.800 MHz : -15.449 dBm M2 : 5295.600 MHz : 9.374 dBm Delta1 : 88.800 MHz : -2.511 dB T1 : 5251.867 MHz : 3.134 dBm T2 : 5327.867 MHz : 4.392 dBm OBW : 75.907 MHz	Measured 26 dB Bandwidth: 88.800 MHz Measured 99% Bandwidth: 75.907 MHz

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26 dB & 99% BANDWIDTH



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



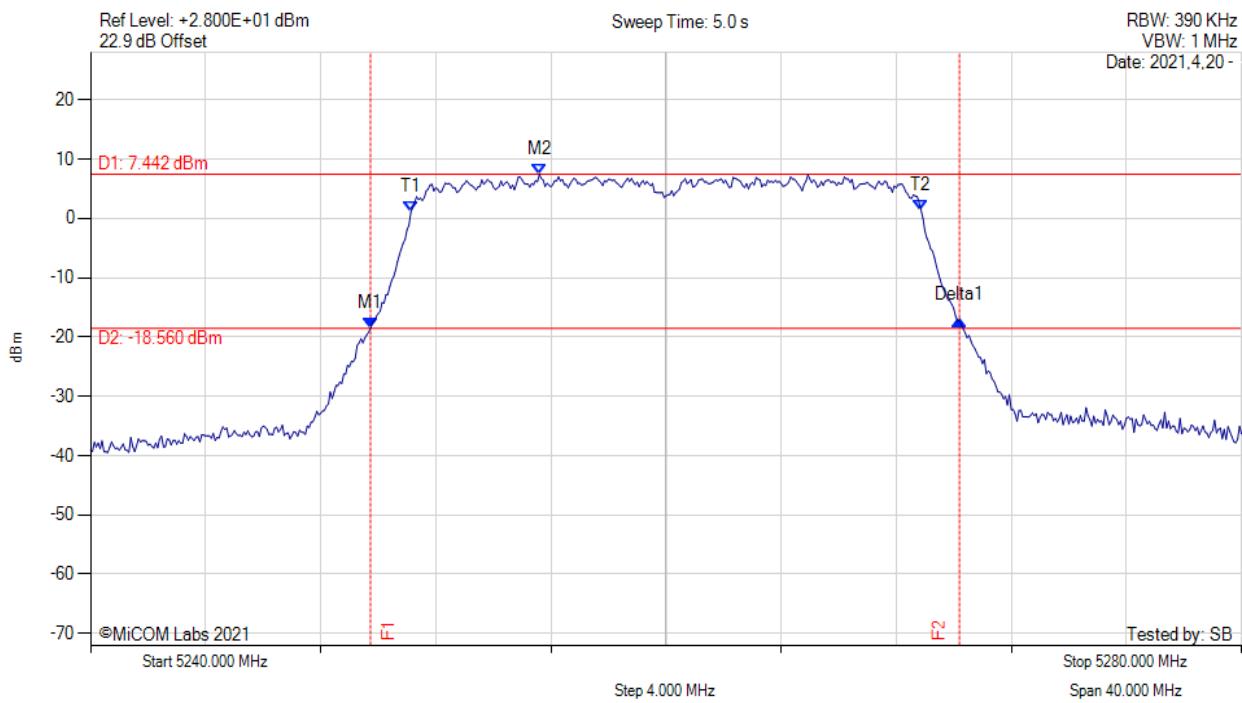
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5242.270 MHz : -14.299 dBm M2 : 5299.330 MHz : 11.671 dBm Delta1 : 93.870 MHz : -2.229 dB T1 : 5251.867 MHz : 5.143 dBm T2 : 5328.133 MHz : 6.217 dBm OBW : 76.159 MHz	Measured 26 dB Bandwidth: 93.870 MHz Measured 99% Bandwidth: 76.159 MHz

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26 dB & 99% BANDWIDTH



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



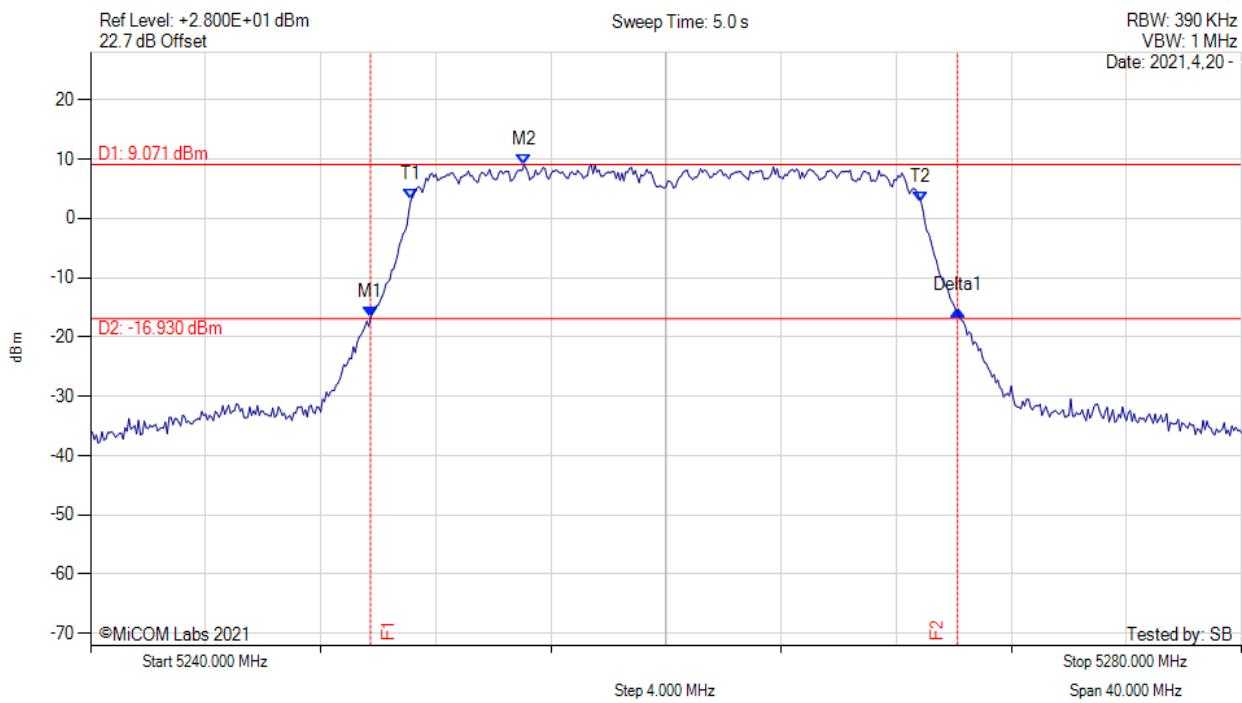
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5249.730 MHz : -18.469 dBm M2 : 5255.600 MHz : 7.442 dBm Delta1 : 20.470 MHz : 1.262 dB T1 : 5251.133 MHz : 1.050 dBm T2 : 5268.867 MHz : 1.404 dBm OBW : 17.663 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.663 MHz

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26 dB & 99% BANDWIDTH



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



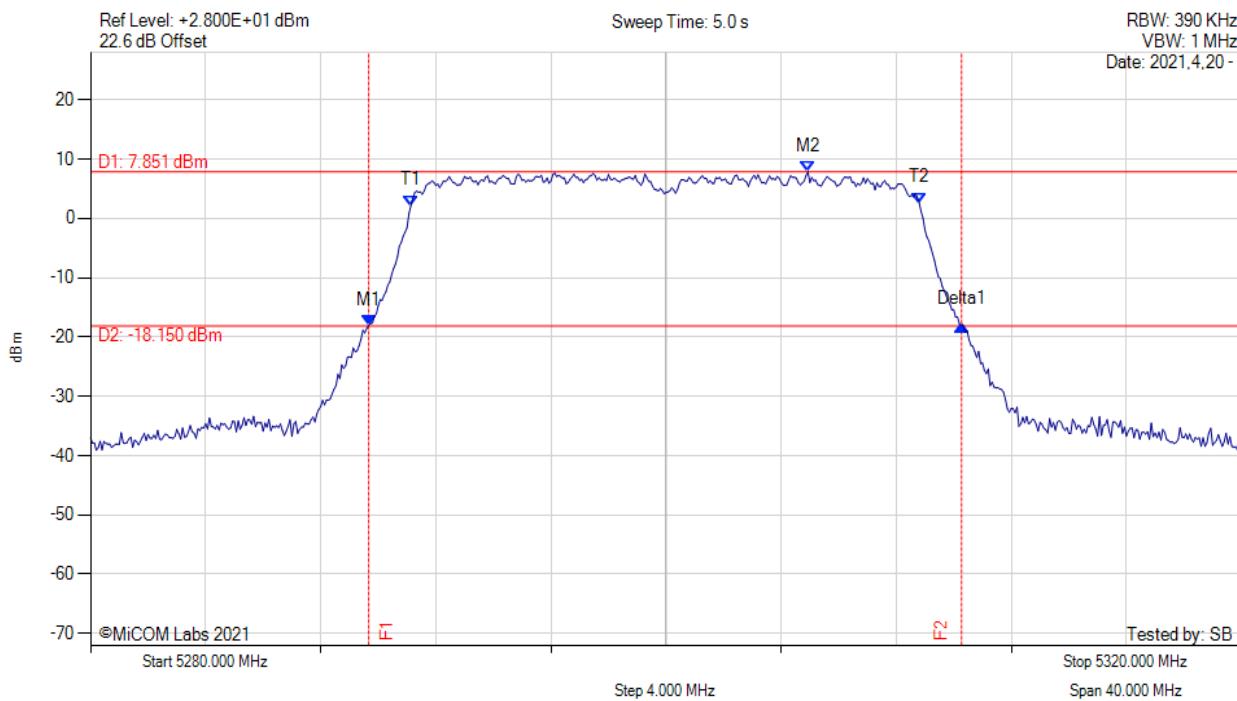
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5249.730 MHz : -16.733 dBm M2 : 5255.070 MHz : 9.071 dBm Delta1 : 20.400 MHz : 1.178 dB T1 : 5251.133 MHz : 3.103 dBm T2 : 5268.867 MHz : 2.782 dBm OBW : 17.661 MHz	Measured 26 dB Bandwidth: 20.400 MHz Measured 99% Bandwidth: 17.661 MHz

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26 dB & 99% BANDWIDTH



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



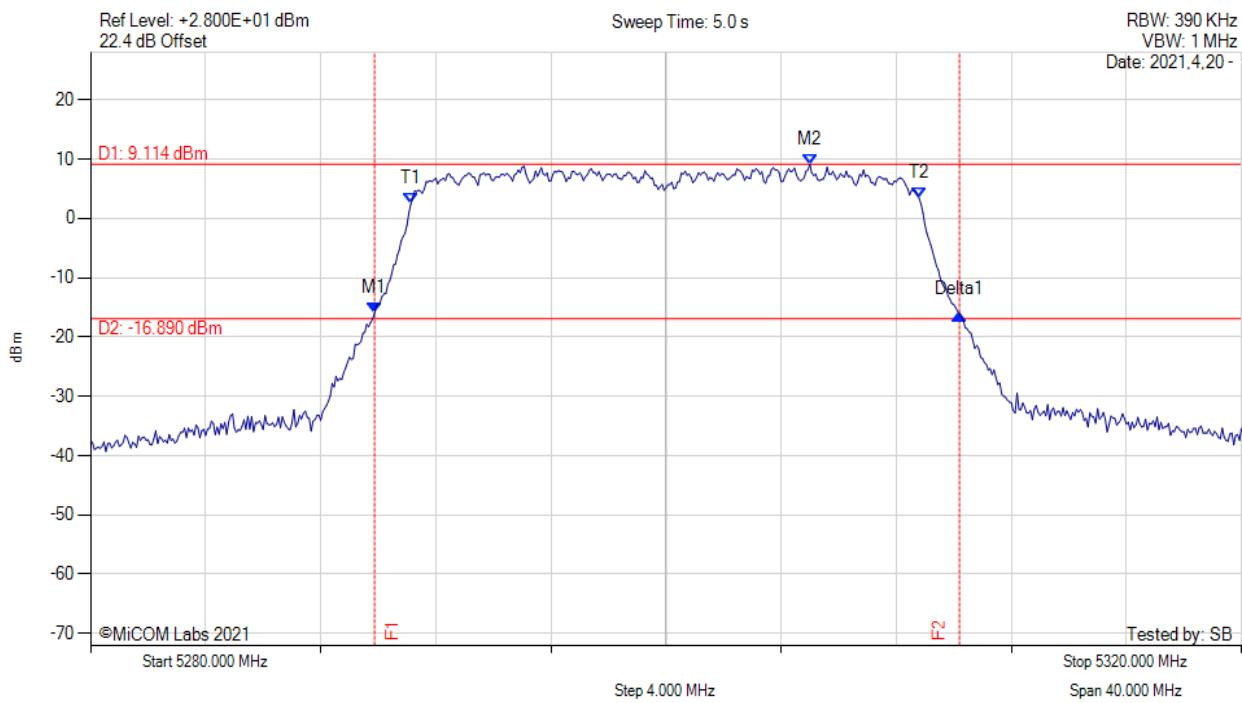
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5289.670 MHz : -17.974 dBm M2 : 5304.930 MHz : 7.851 dBm Delta1 : 20.600 MHz : 0.031 dB T1 : 5291.133 MHz : 2.142 dBm T2 : 5308.800 MHz : 2.603 dBm OBW : 17.672 MHz	Measured 26 dB Bandwidth: 20.600 MHz Measured 99% Bandwidth: 17.672 MHz

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26 dB & 99% BANDWIDTH



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



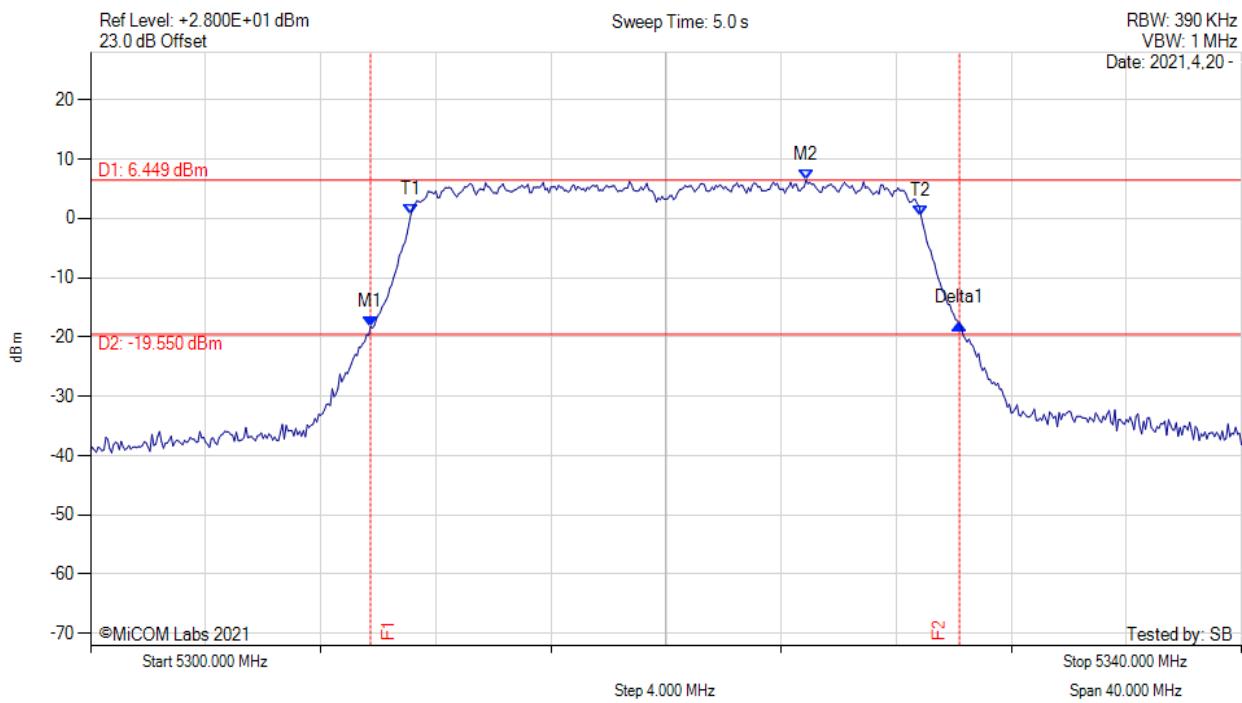
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5289.870 MHz : -16.040 dBm M2 : 5305.000 MHz : 9.114 dBm Delta1 : 20.330 MHz : -0.135 dB T1 : 5291.133 MHz : 2.417 dBm T2 : 5308.800 MHz : 3.369 dBm OBW : 17.644 MHz	Measured 26 dB Bandwidth: 20.330 MHz Measured 99% Bandwidth: 17.644 MHz

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26 dB & 99% BANDWIDTH



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



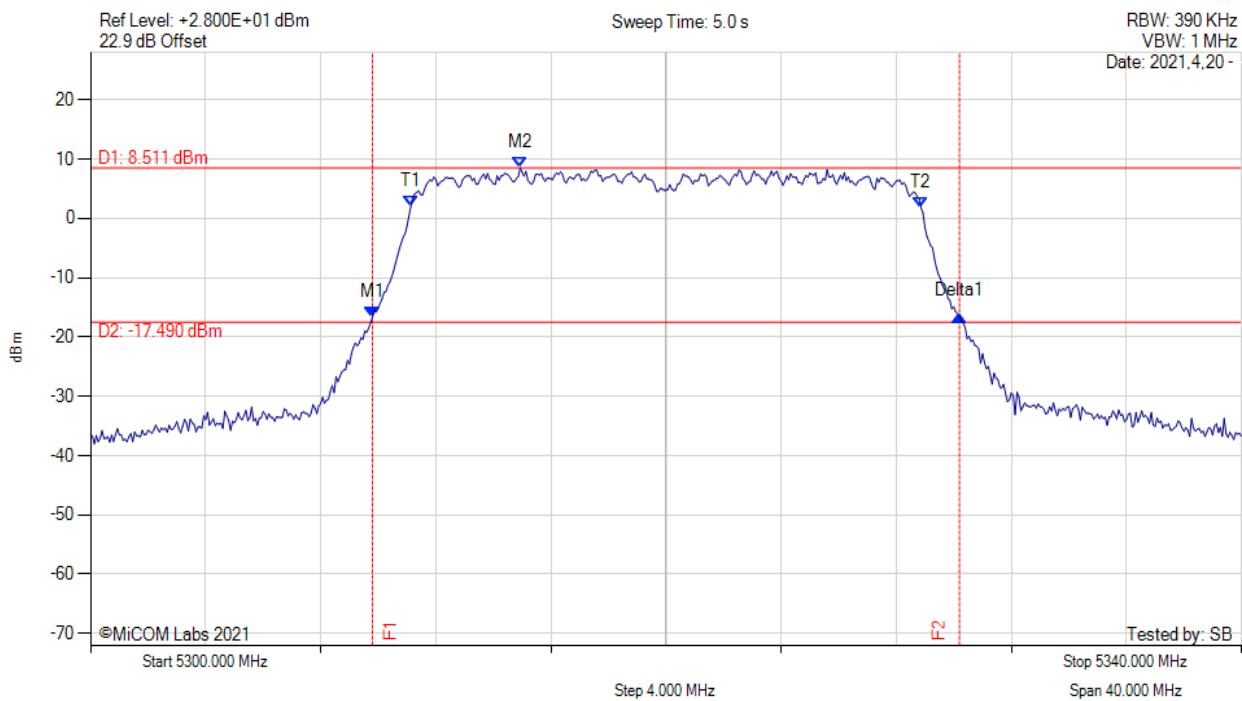
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5309.730 MHz : -18.233 dBm M2 : 5324.870 MHz : 6.449 dBm Delta1 : 20.470 MHz : 0.520 dB T1 : 5311.133 MHz : 0.654 dBm T2 : 5328.867 MHz : 0.383 dBm OBW : 17.697 MHz	Measured 26 dB Bandwidth: 20.470 MHz Measured 99% Bandwidth: 17.697 MHz

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26 dB & 99% BANDWIDTH



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



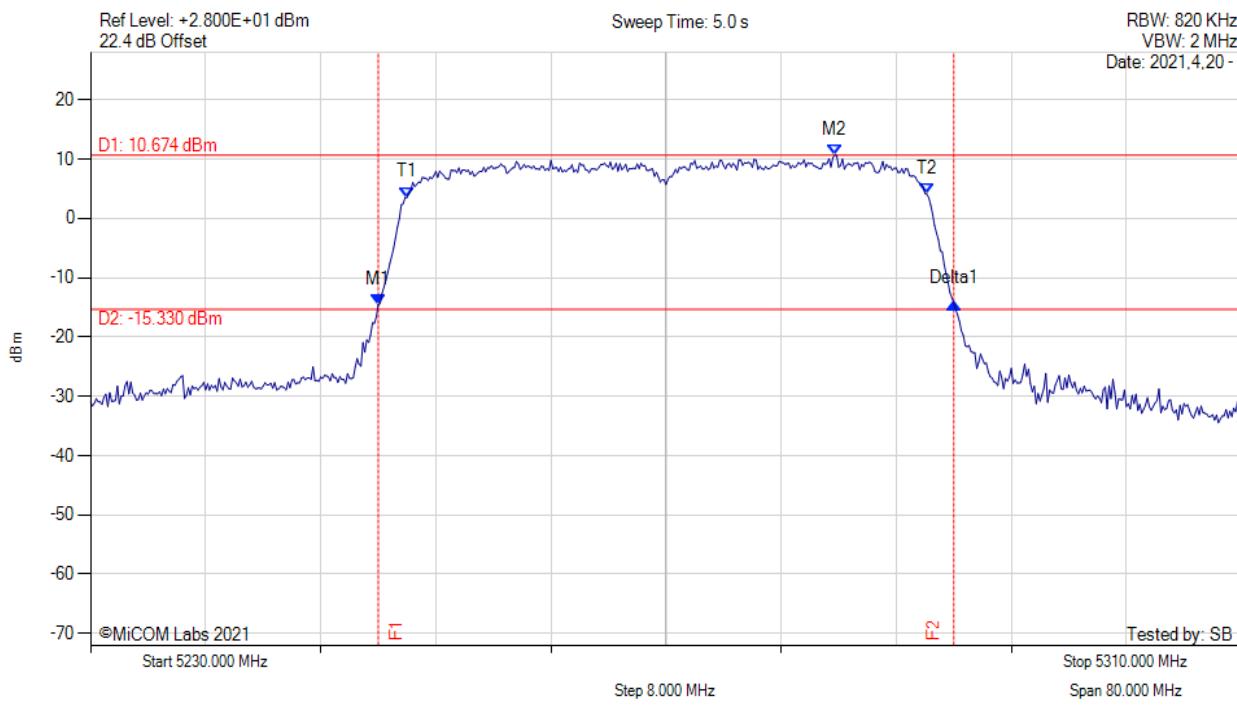
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5309.800 MHz : -16.595 dBm M2 : 5314.930 MHz : 8.511 dBm Delta1 : 20.400 MHz : 0.195 dB T1 : 5311.133 MHz : 2.078 dBm T2 : 5328.867 MHz : 1.765 dBm OBW : 17.657 MHz	Measured 26 dB Bandwidth: 20.400 MHz Measured 99% Bandwidth: 17.657 MHz

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26 dB & 99% BANDWIDTH



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



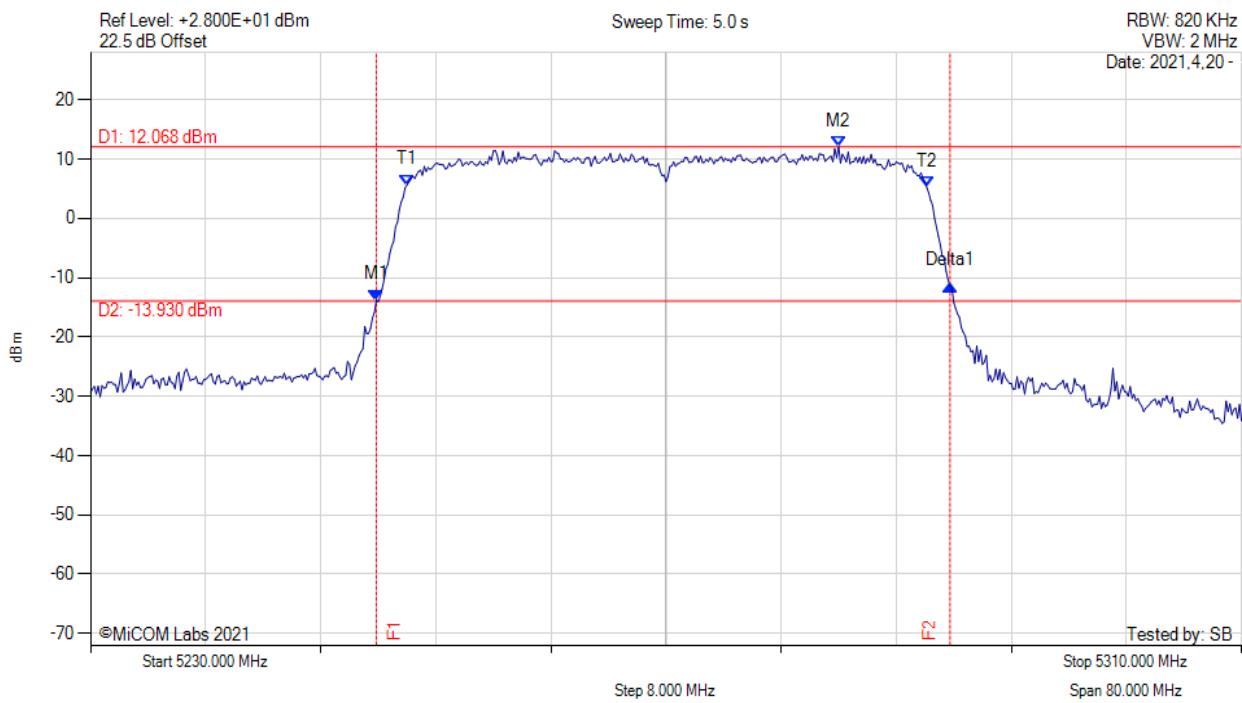
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5250.000 MHz : -14.527 dBm M2 : 5281.730 MHz : 10.674 dBm Delta1 : 40.000 MHz : 0.281 dB T1 : 5252.000 MHz : 3.558 dBm T2 : 5288.133 MHz : 4.097 dBm OBW : 36.120 MHz	Measured 26 dB Bandwidth: 40.000 MHz Measured 99% Bandwidth: 36.120 MHz

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26 dB & 99% BANDWIDTH



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



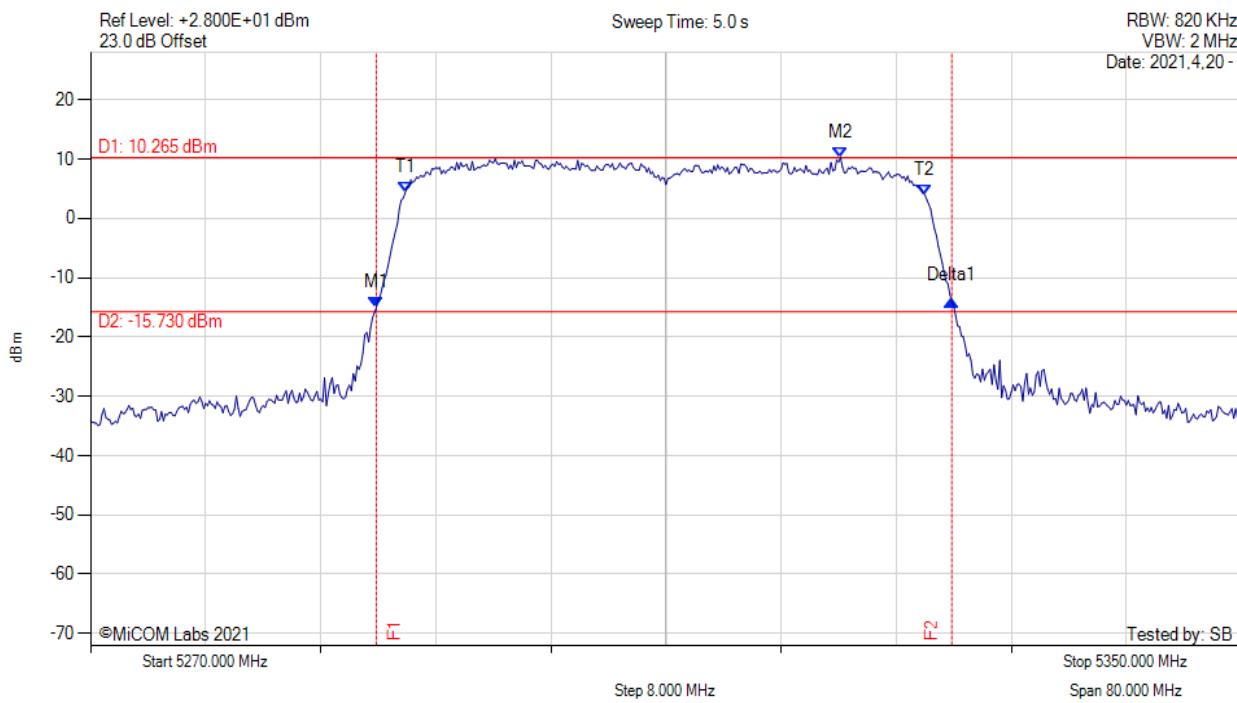
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5249.870 MHz : -13.748 dBm M2 : 5282.000 MHz : 12.068 dBm Delta1 : 39.870 MHz : 2.404 dB T1 : 5252.000 MHz : 5.648 dBm T2 : 5288.133 MHz : 5.214 dBm OBW : 36.099 MHz	Measured 26 dB Bandwidth: 39.870 MHz Measured 99% Bandwidth: 36.099 MHz

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26 dB & 99% BANDWIDTH



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



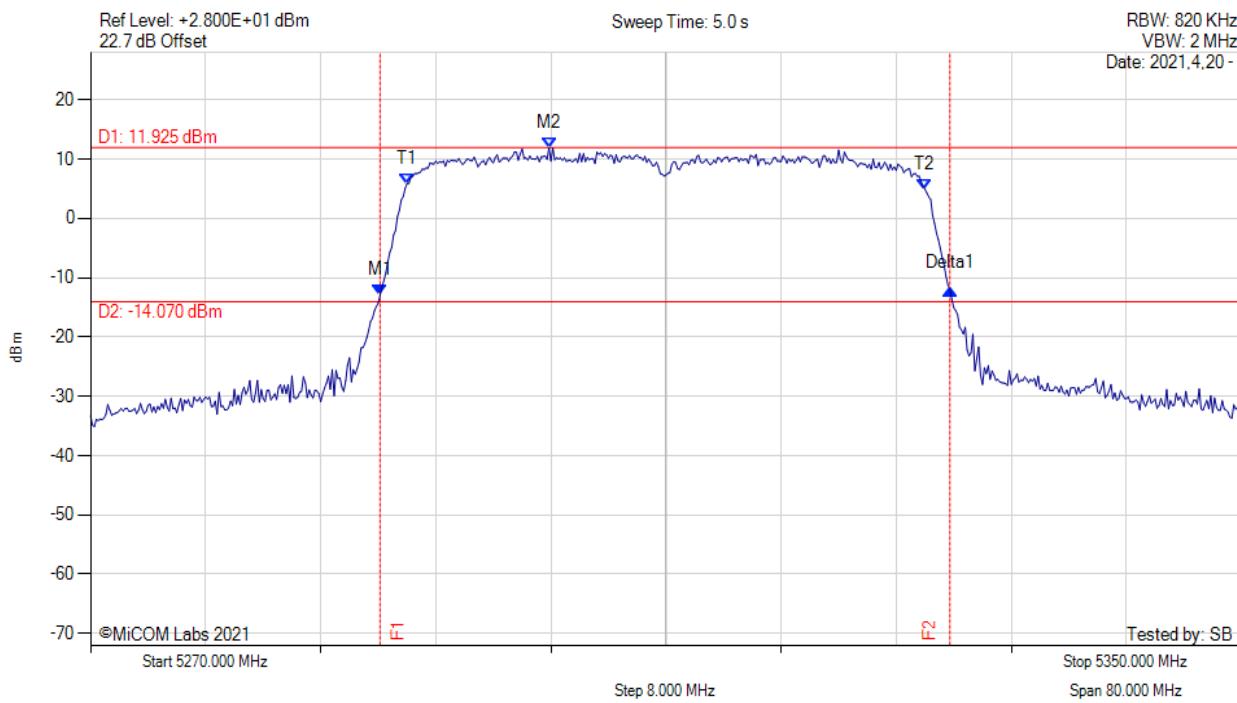
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5289.870 MHz : -15.039 dBm M2 : 5322.130 MHz : 10.265 dBm Delta1 : 40.000 MHz : 1.089 dB T1 : 5291.867 MHz : 4.275 dBm T2 : 5328.000 MHz : 3.942 dBm OBW : 36.171 MHz	Measured 26 dB Bandwidth: 40.000 MHz Measured 99% Bandwidth: 36.171 MHz

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26 dB & 99% BANDWIDTH



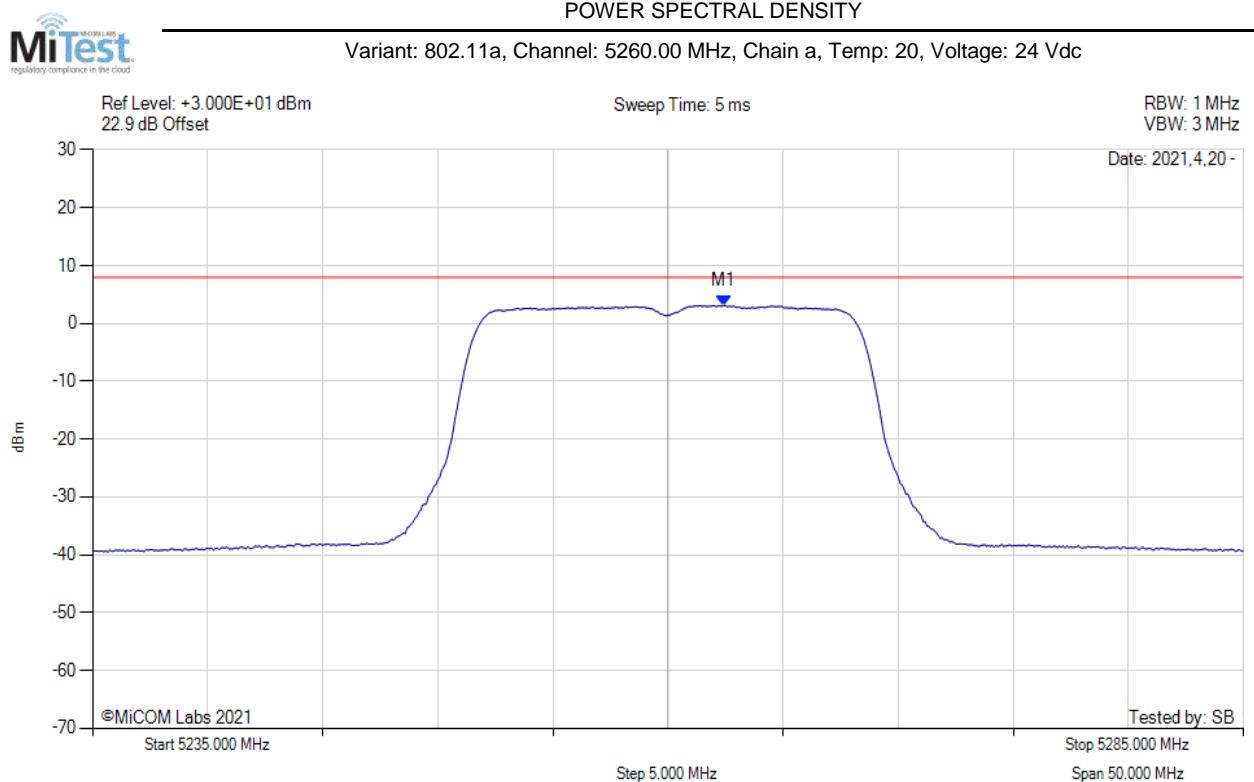
Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain b, Temp: 20, Voltage: 24 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5290.130 MHz : -12.881 dBm M2 : 5301.870 MHz : 11.925 dBm Delta1 : 39.600 MHz : 0.995 dB T1 : 5292.000 MHz : 5.864 dBm T2 : 5328.000 MHz : 4.932 dBm OBW : 36.020 MHz	Measured 26 dB Bandwidth: 39.600 MHz Measured 99% Bandwidth: 36.020 MHz

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A.2. Power Spectral Density



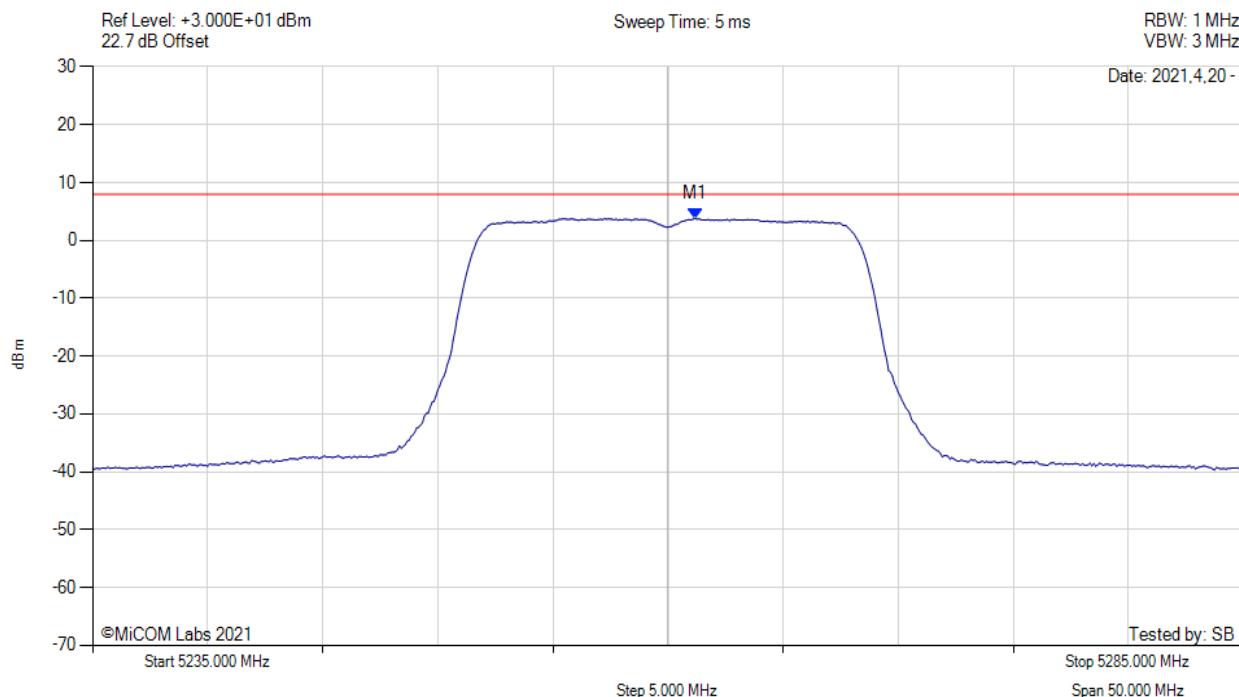
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5262.420 MHz : 3.111 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



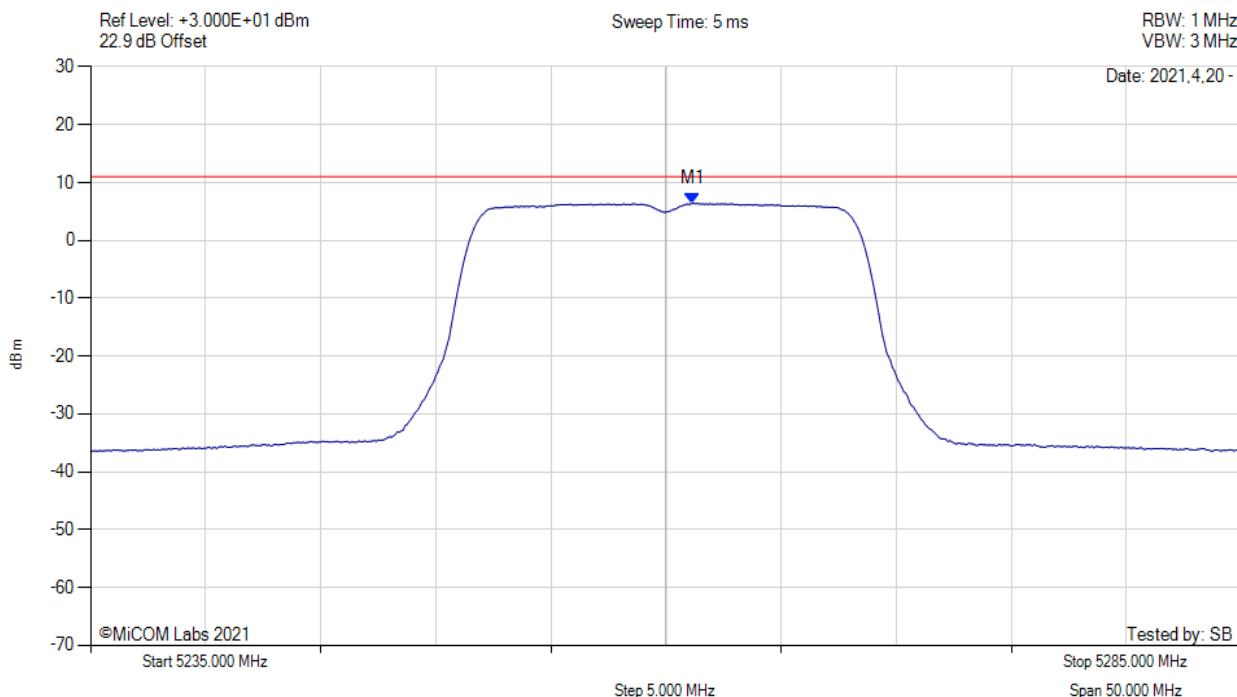
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5261.170 MHz : 3.825 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



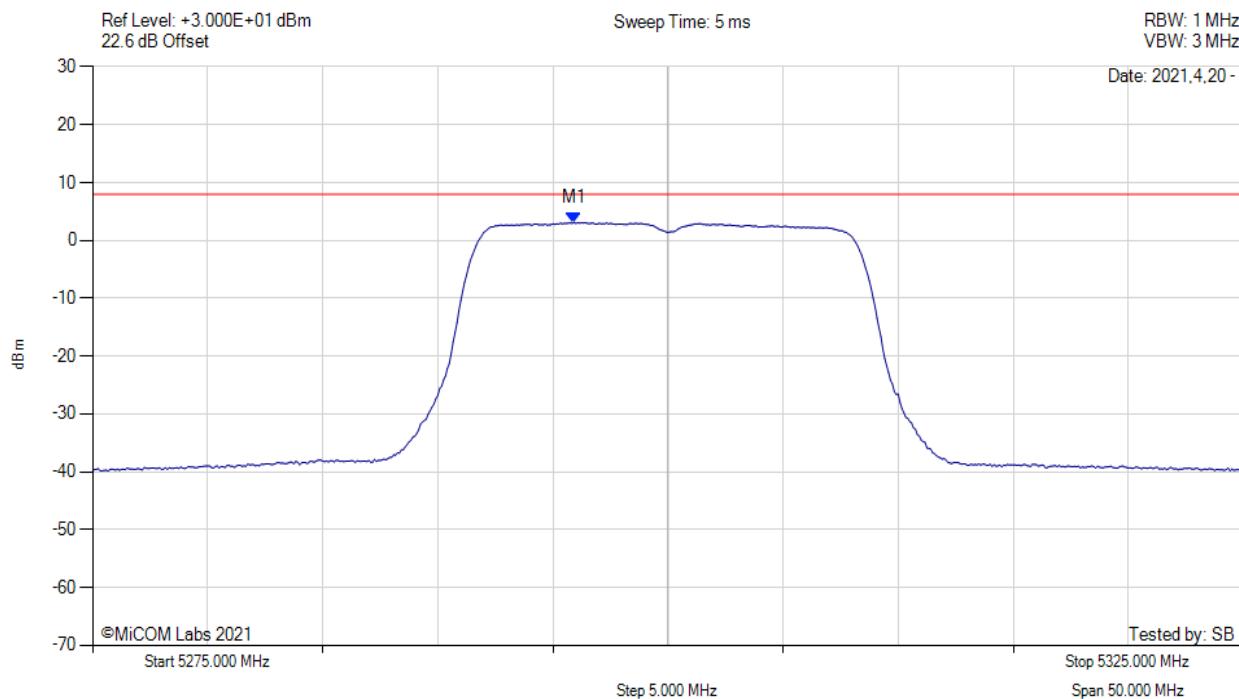
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5261.200 MHz : 6.452 dBm M1 + DCCF : 5261.200 MHz : 6.496 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -4.5 dB

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POWER SPECTRAL DENSITY



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



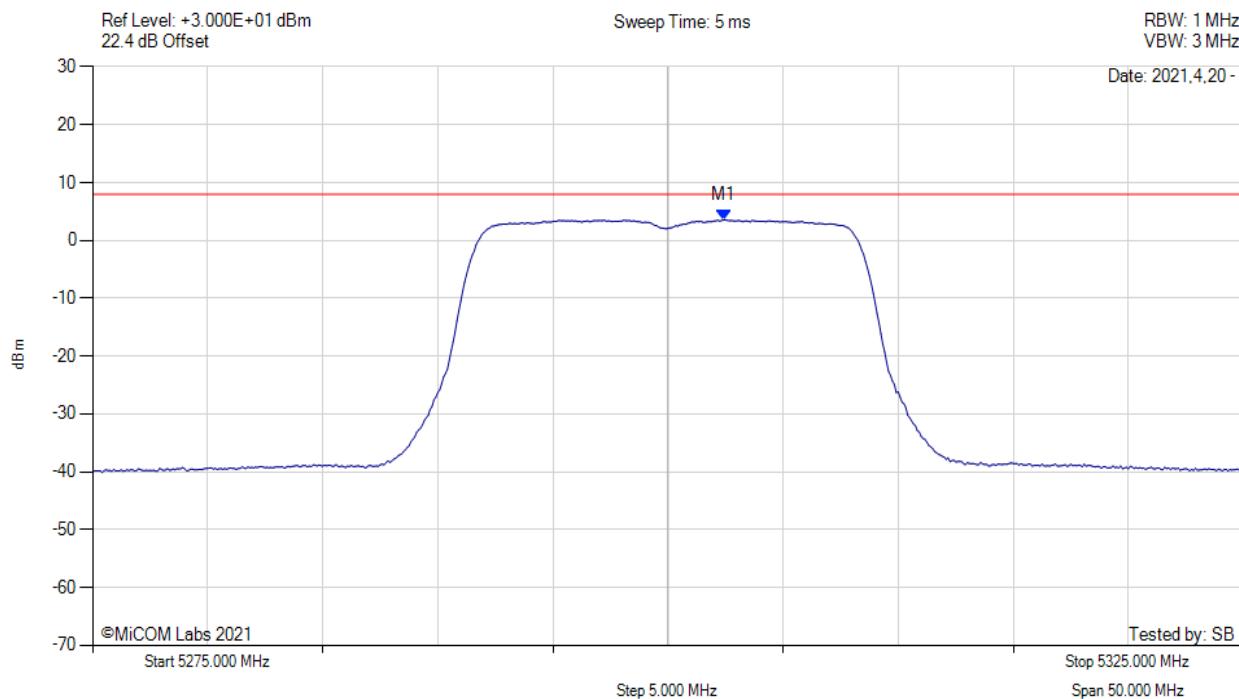
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5295.920 MHz : 3.081 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



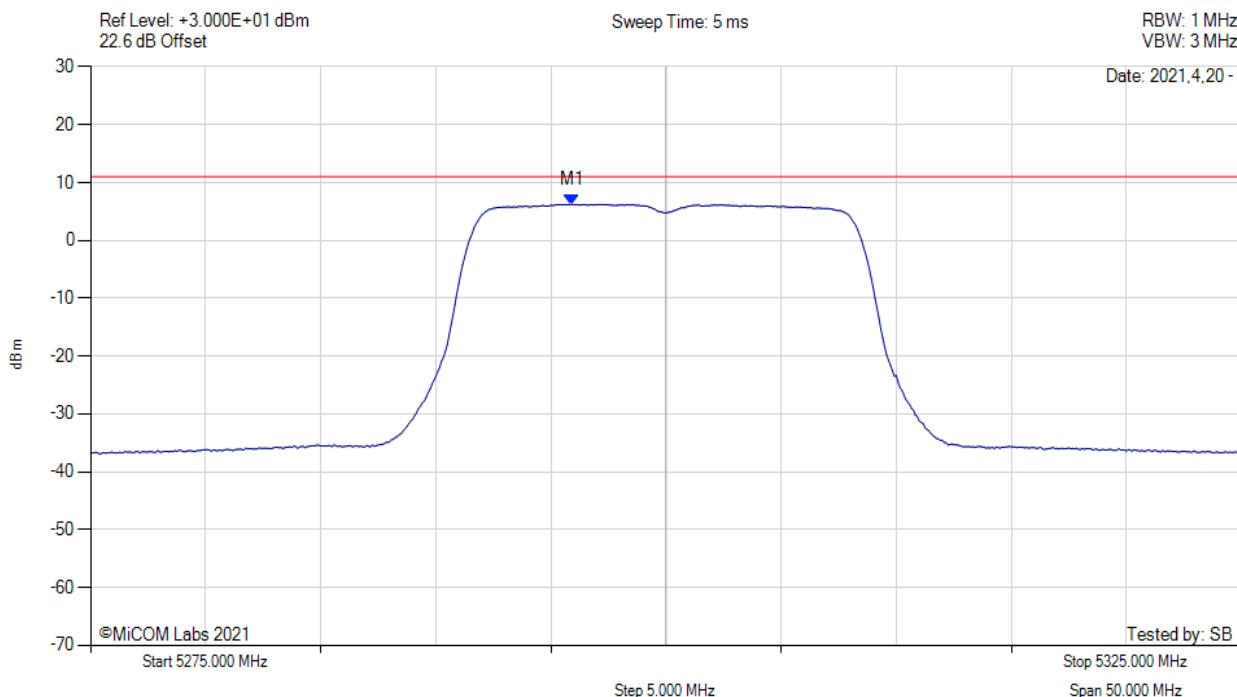
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5302.420 MHz : 3.533 dBm	Channel Frequency: 5300.00 MHz

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POWER SPECTRAL DENSITY



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



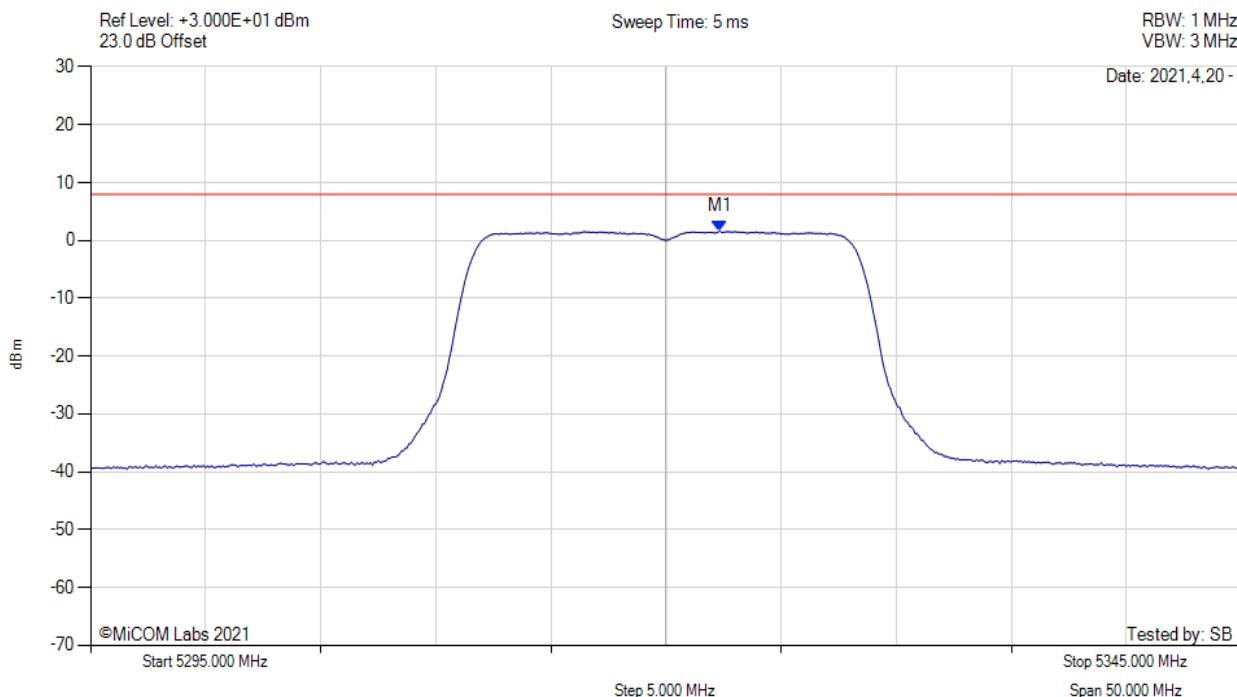
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5295.900 MHz : 6.223 dBm M1 + DCCF : 5295.900 MHz : 6.267 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -4.7 dB

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POWER SPECTRAL DENSITY



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



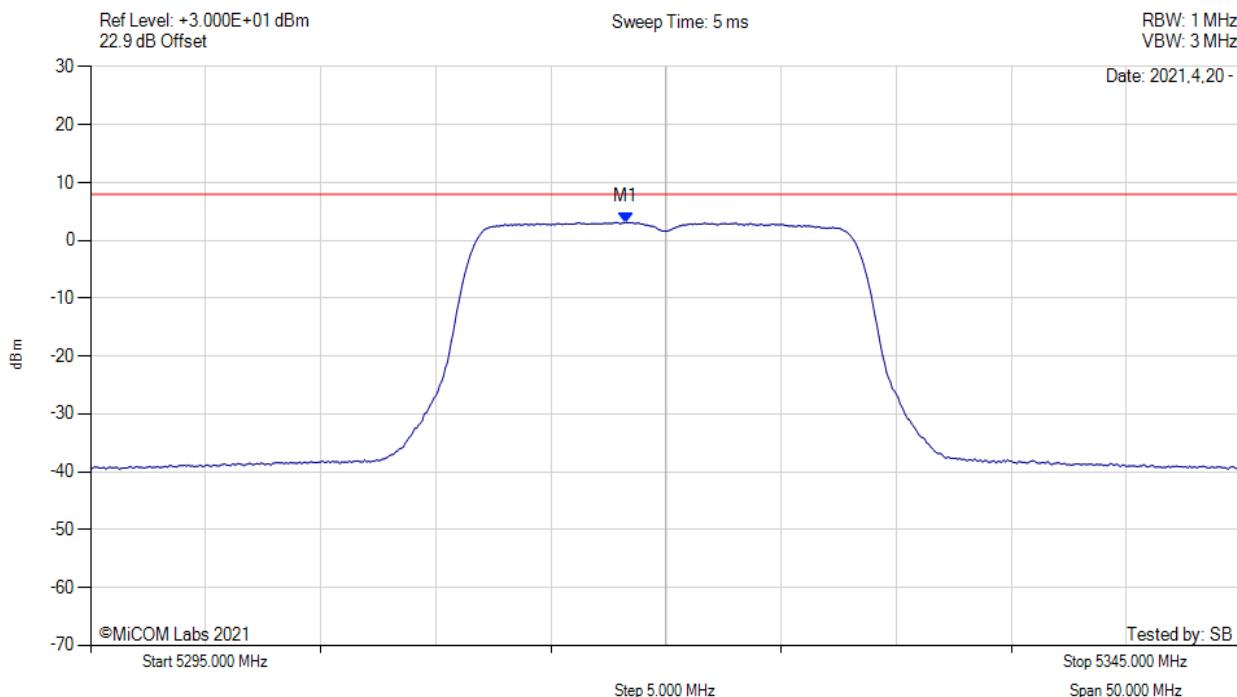
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5322.330 MHz : 1.646 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



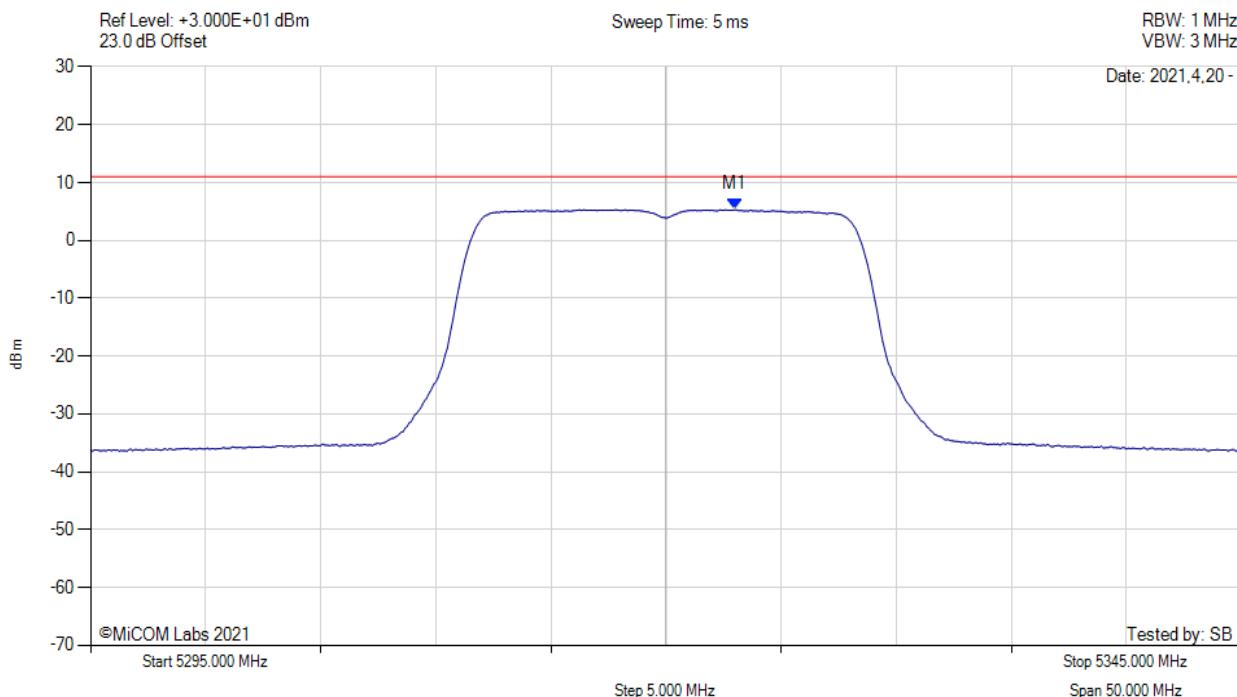
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5318.250 MHz : 3.121 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



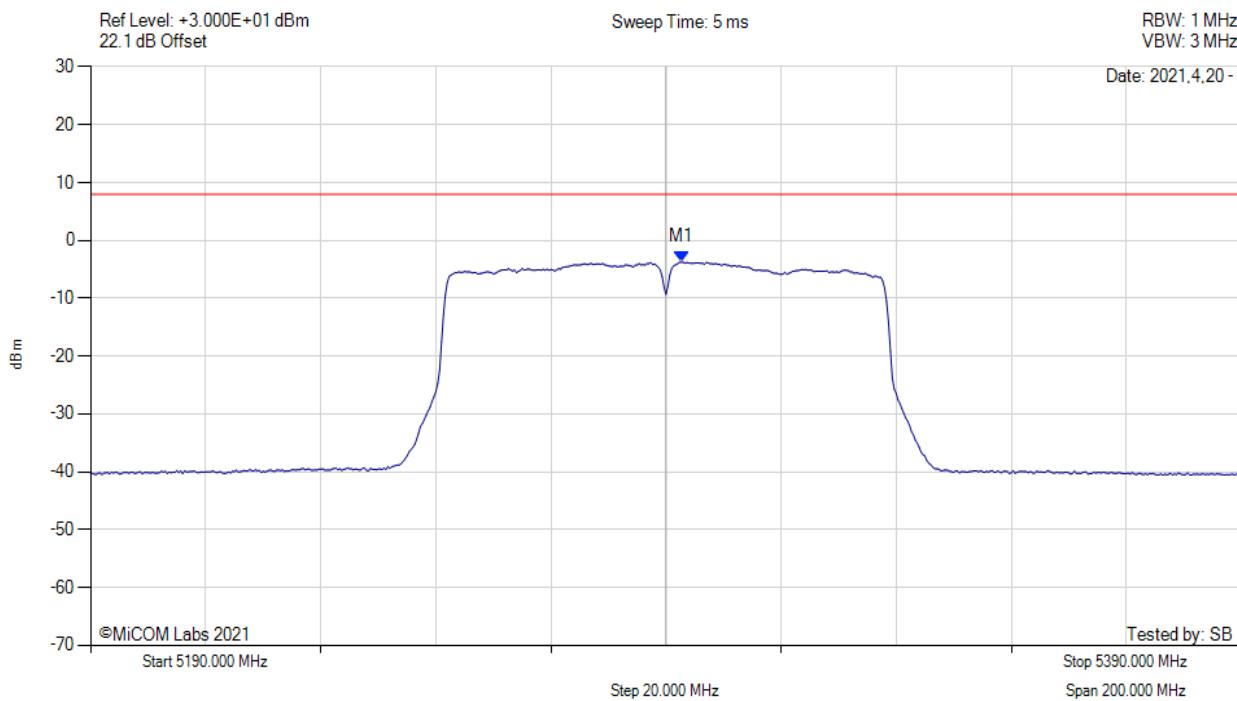
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5323.000 MHz : 5.304 dBm M1 + DCCF : 5323.000 MHz : 5.348 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -5.7 dB

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POWER SPECTRAL DENSITY



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



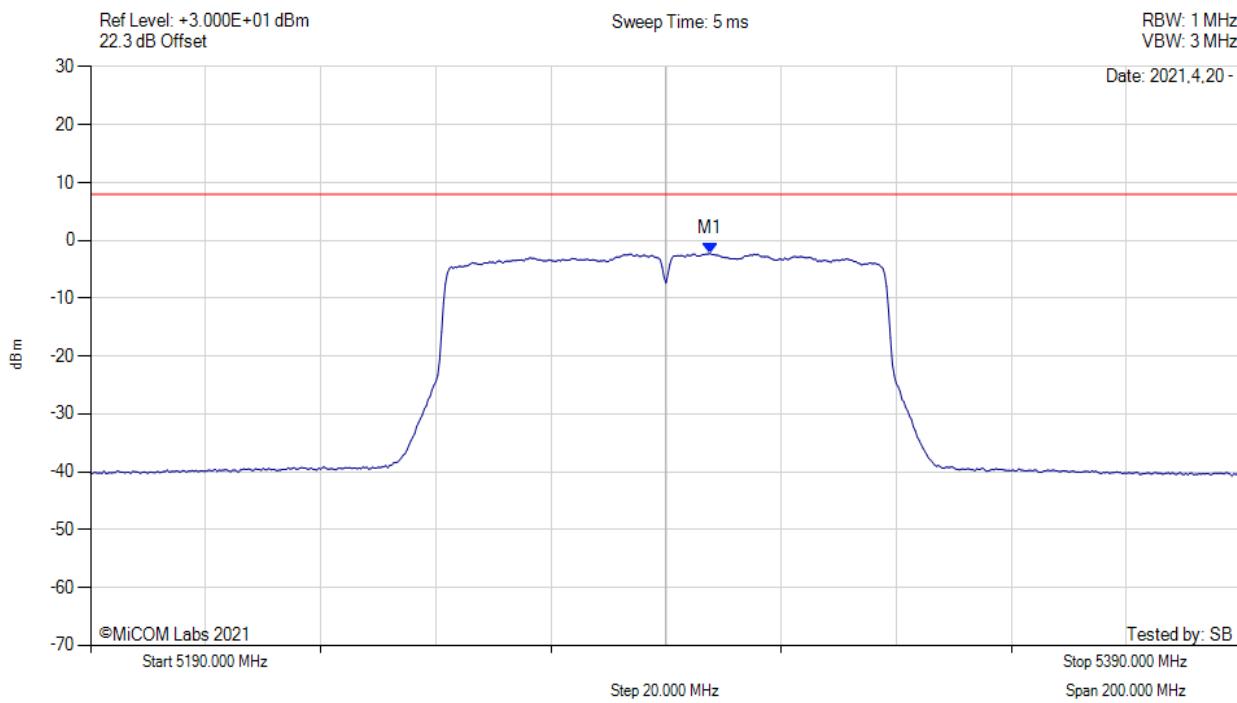
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5292.700 MHz : -3.727 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



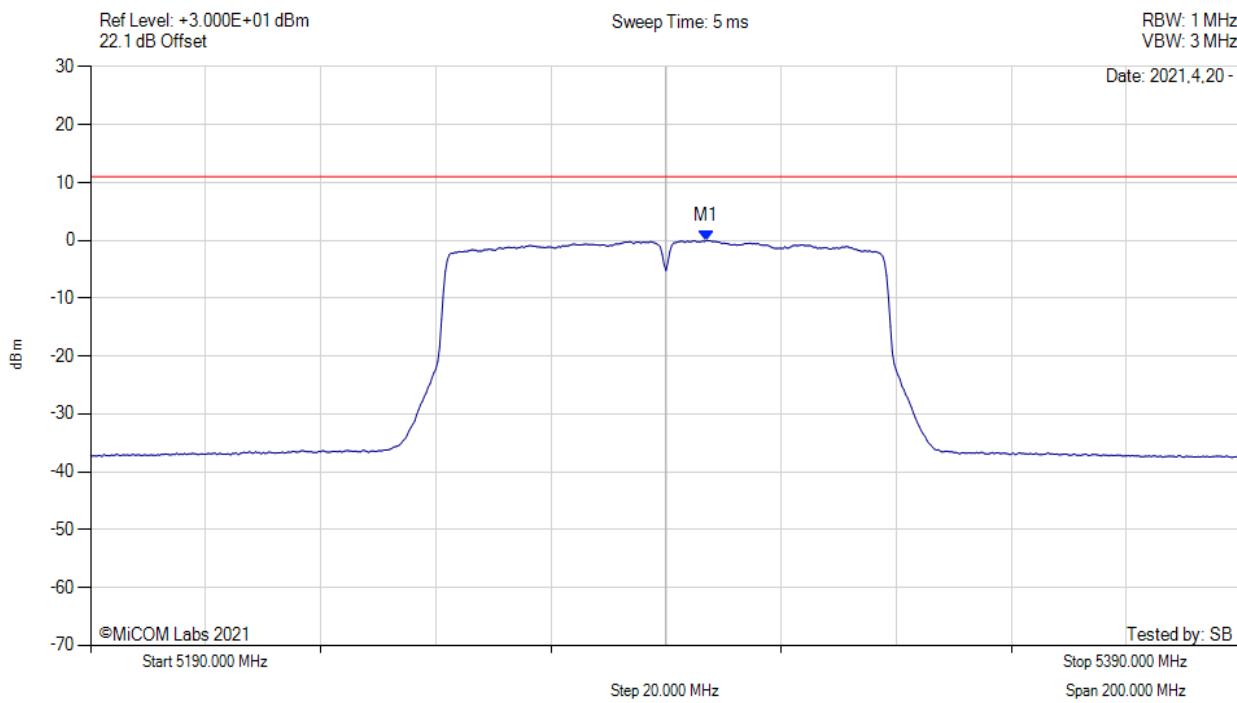
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5297.700 MHz : -2.255 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



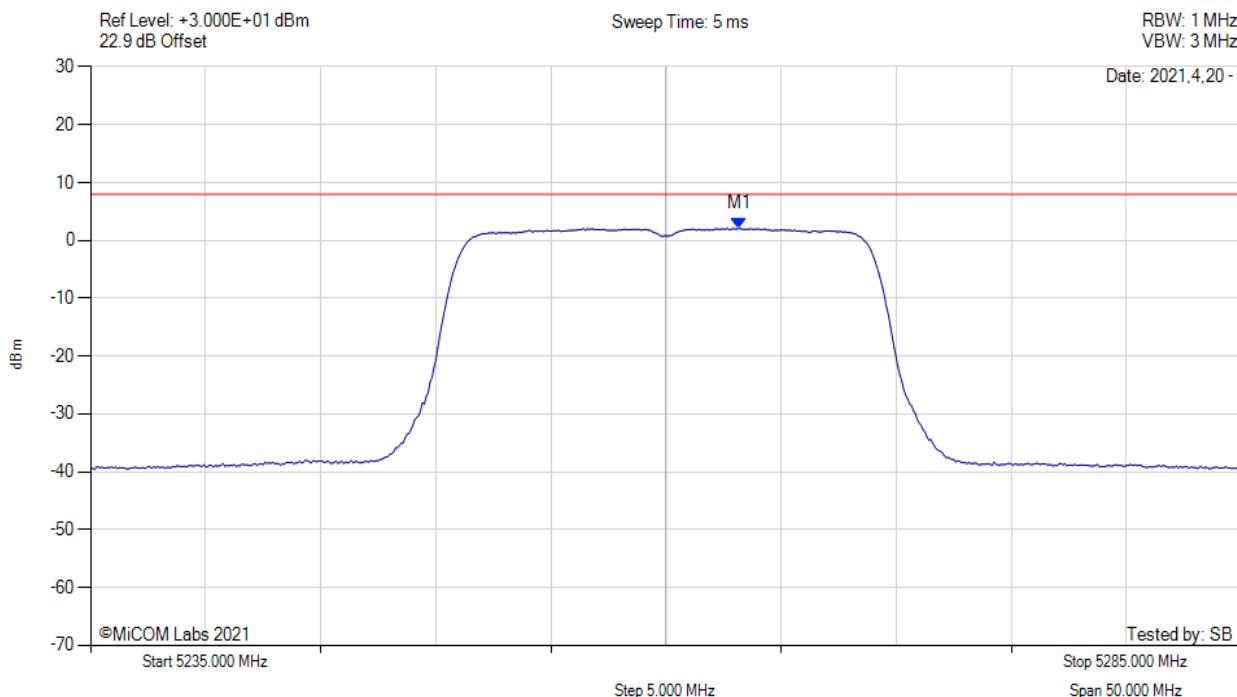
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5297.000 MHz : -0.010 dBm M1 + DCCF : 5297.000 MHz : 0.852 dBm Duty Cycle Correction Factor : +0.86 dB	Limit: ≤ 11.0 dBm Margin: -10.2 dB

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POWER SPECTRAL DENSITY



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



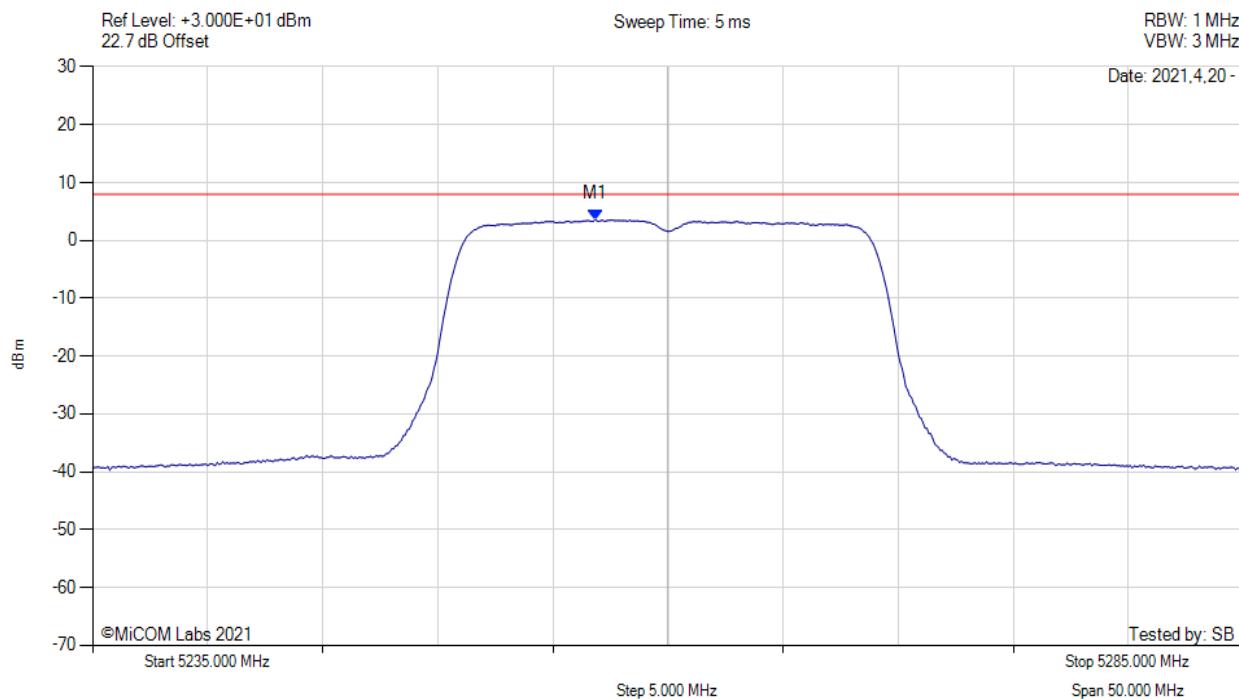
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5263.170 MHz : 2.084 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



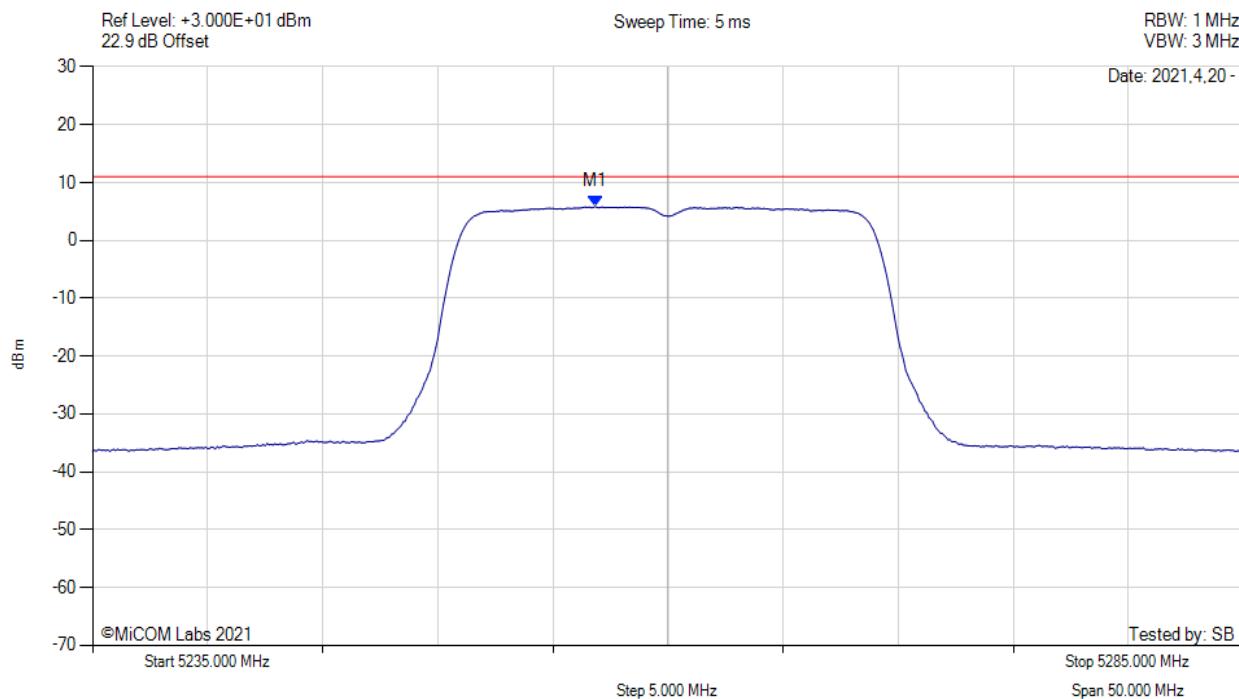
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5256.830 MHz : 3.602 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



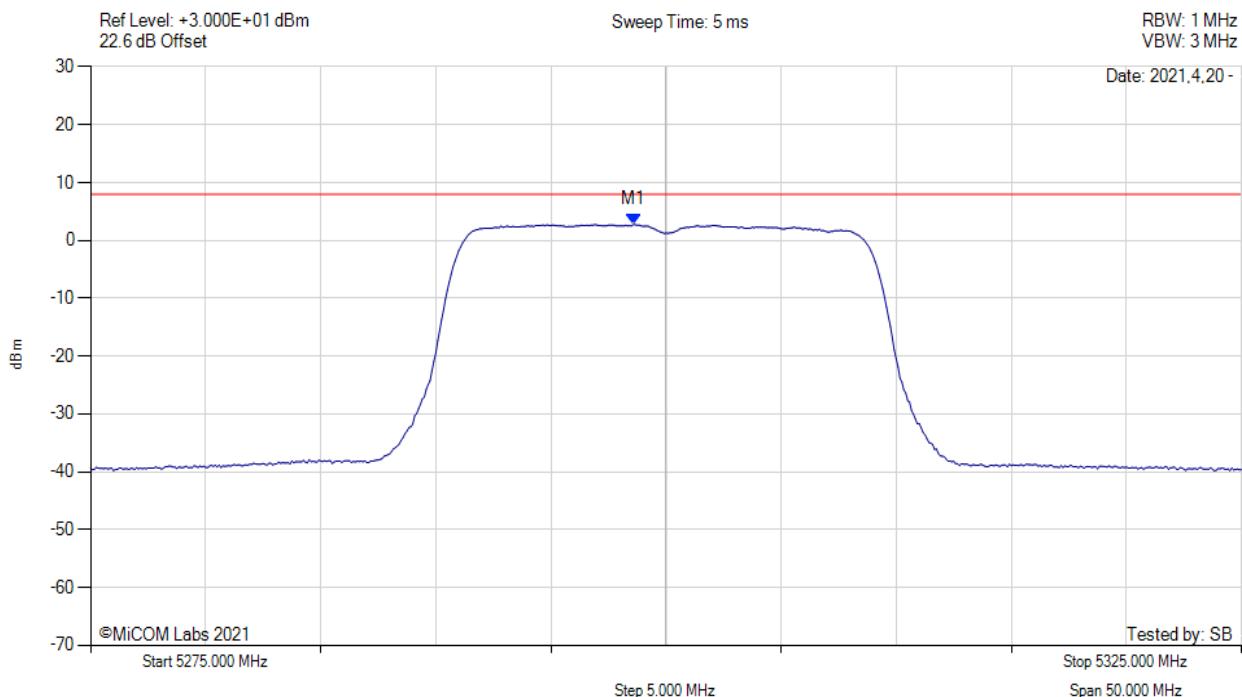
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5256.800 MHz : 5.874 dBm M1 + DCCF : 5256.800 MHz : 6.236 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -4.8 dB

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POWER SPECTRAL DENSITY



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



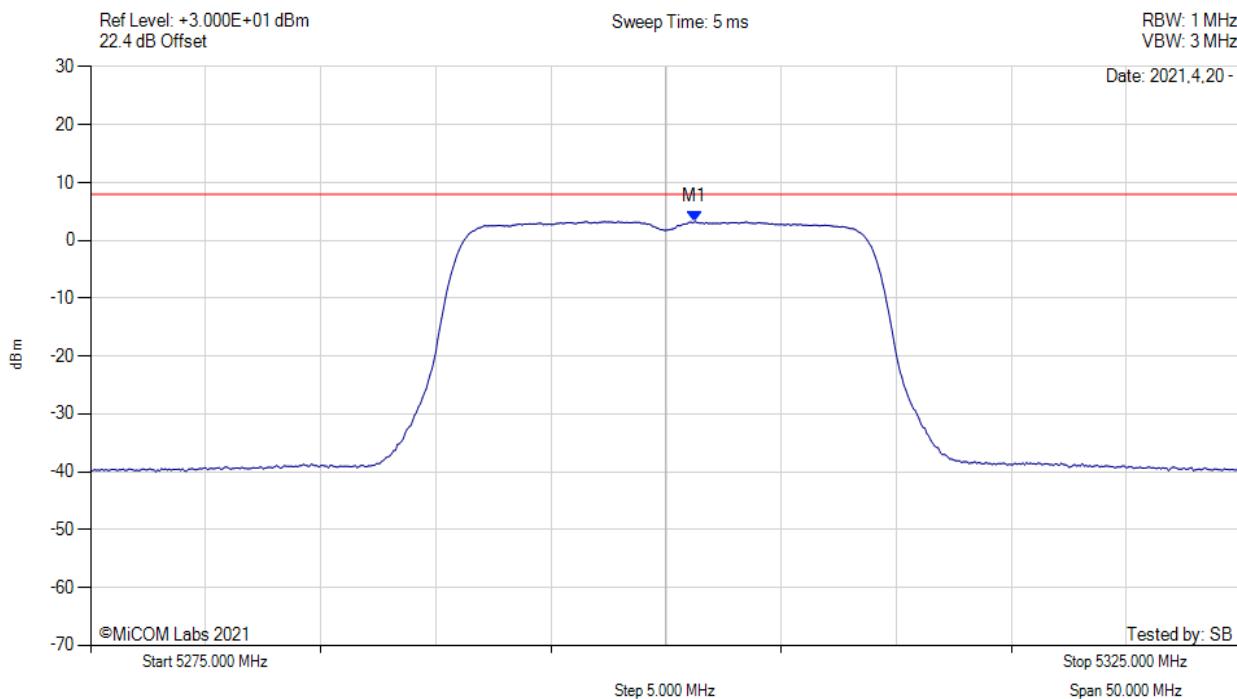
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5298.580 MHz : 2.773 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



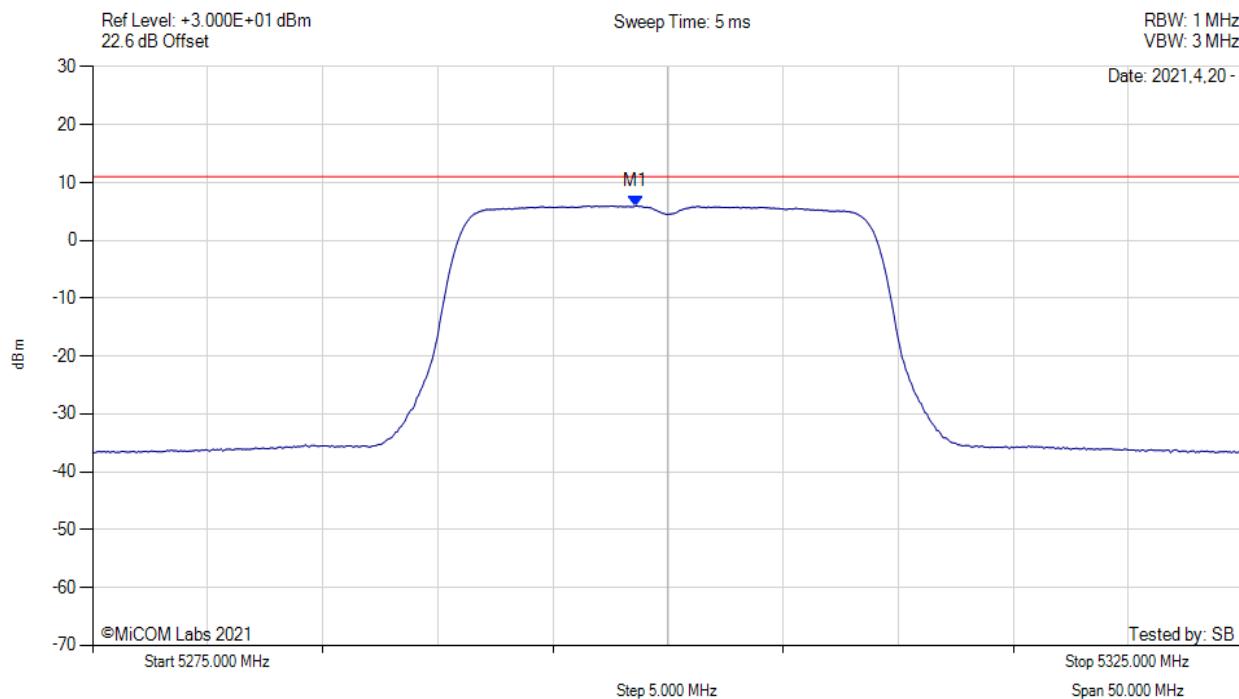
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5301.250 MHz : 3.251 dBm	Channel Frequency: 5300.00 MHz

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POWER SPECTRAL DENSITY



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



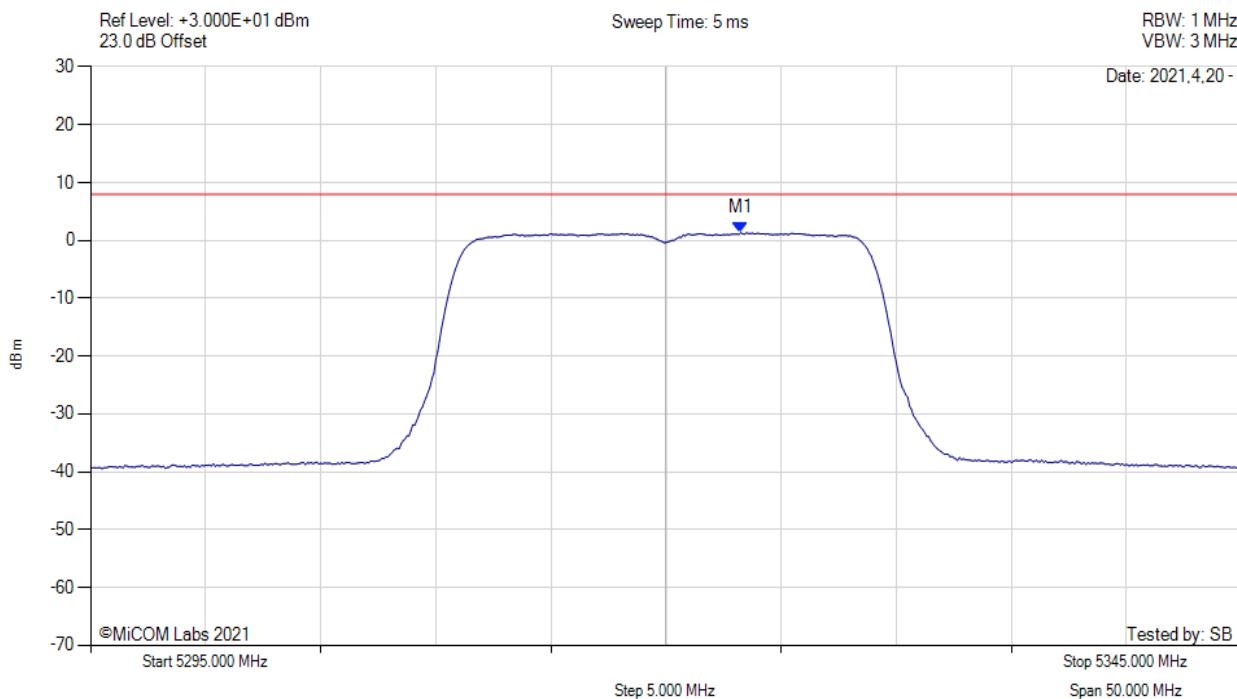
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5298.600 MHz : 5.956 dBm M1 + DCCF : 5298.600 MHz : 6.318 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -4.7 dB

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POWER SPECTRAL DENSITY



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



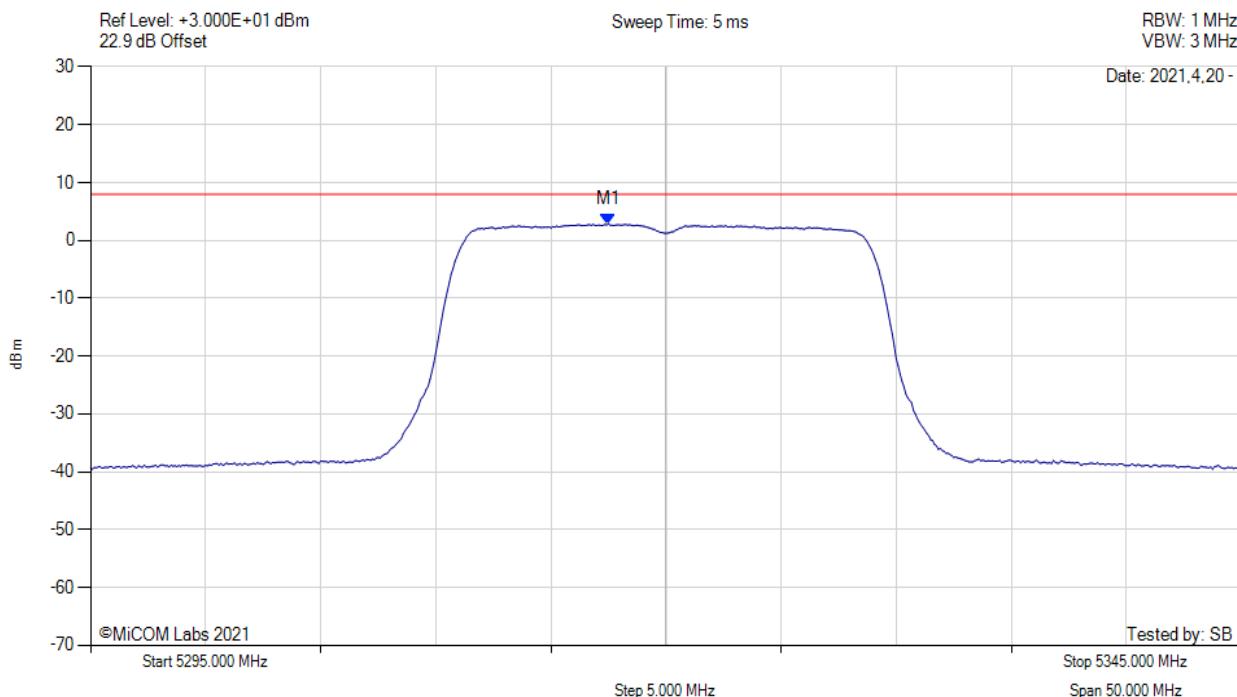
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5323.250 MHz : 1.338 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



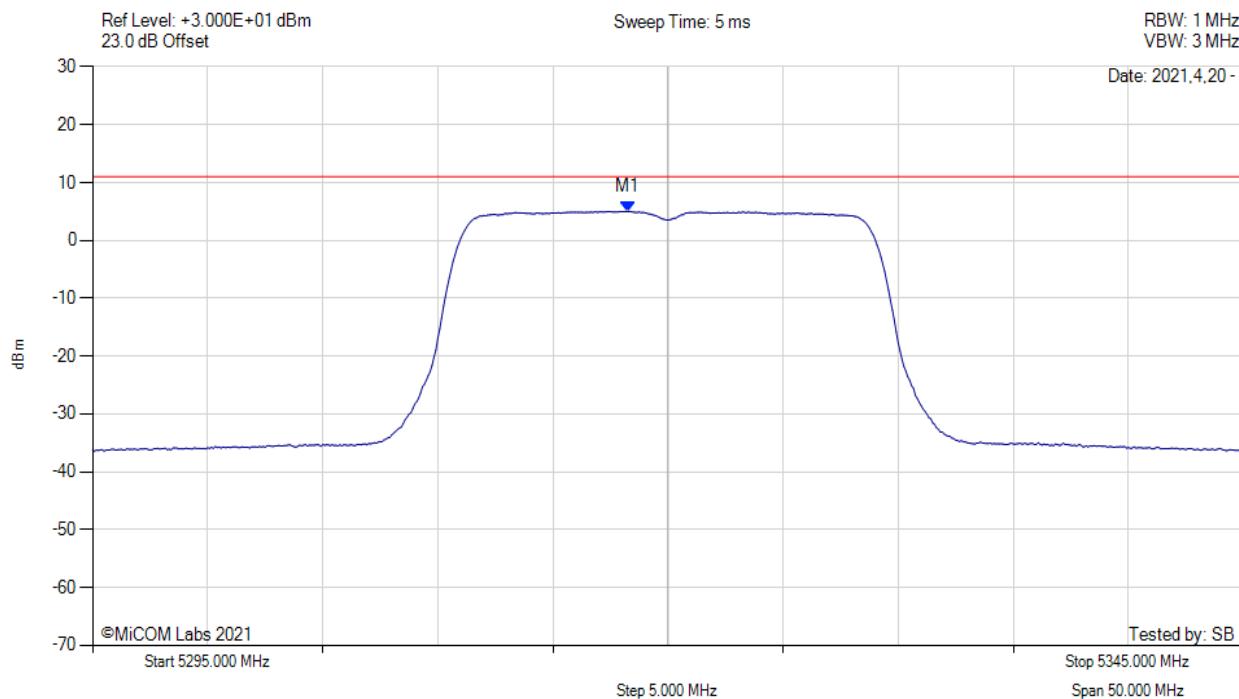
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5317.500 MHz : 2.839 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



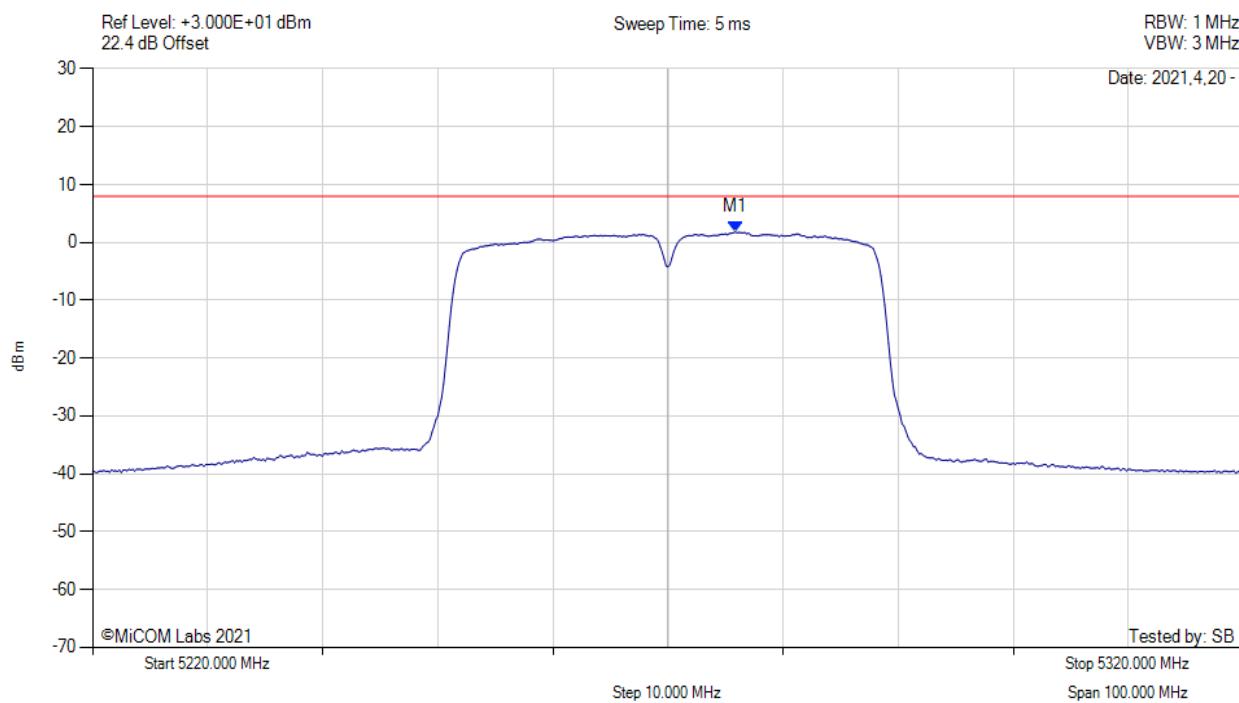
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5318.300 MHz : 5.019 dBm M1 + DCCF : 5318.300 MHz : 5.381 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -5.6 dB

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POWER SPECTRAL DENSITY



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



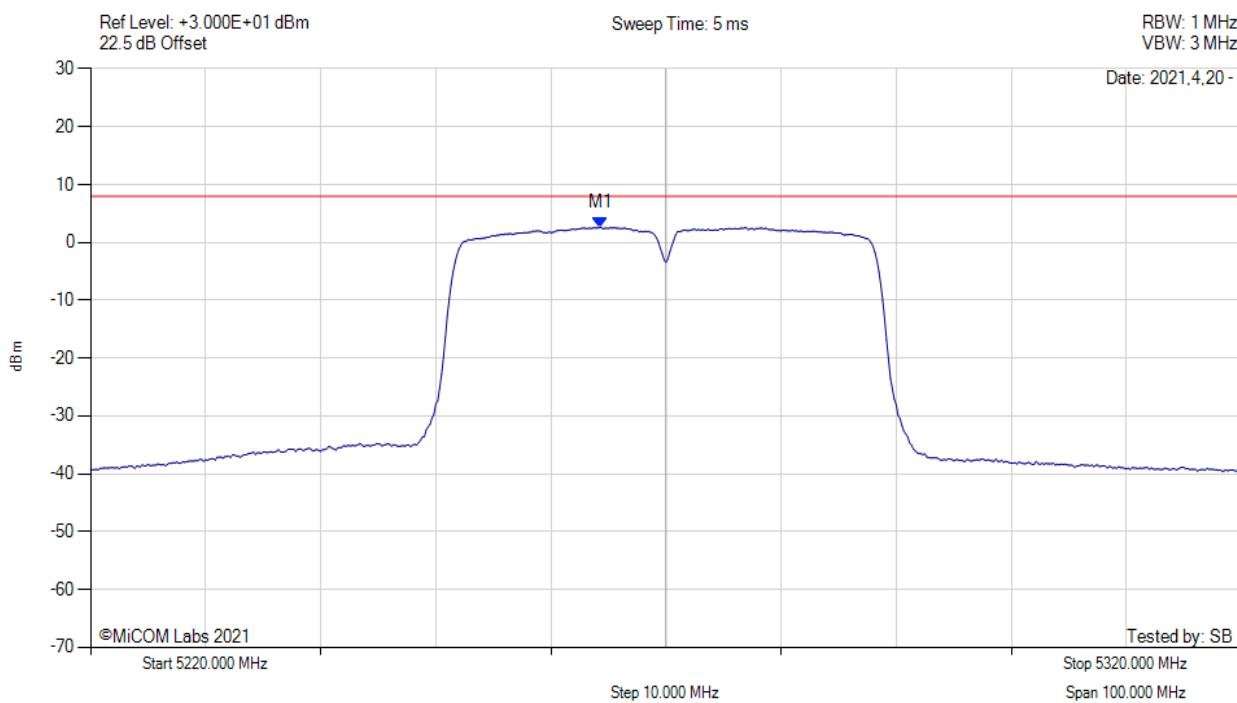
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5275.830 MHz : 1.801 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



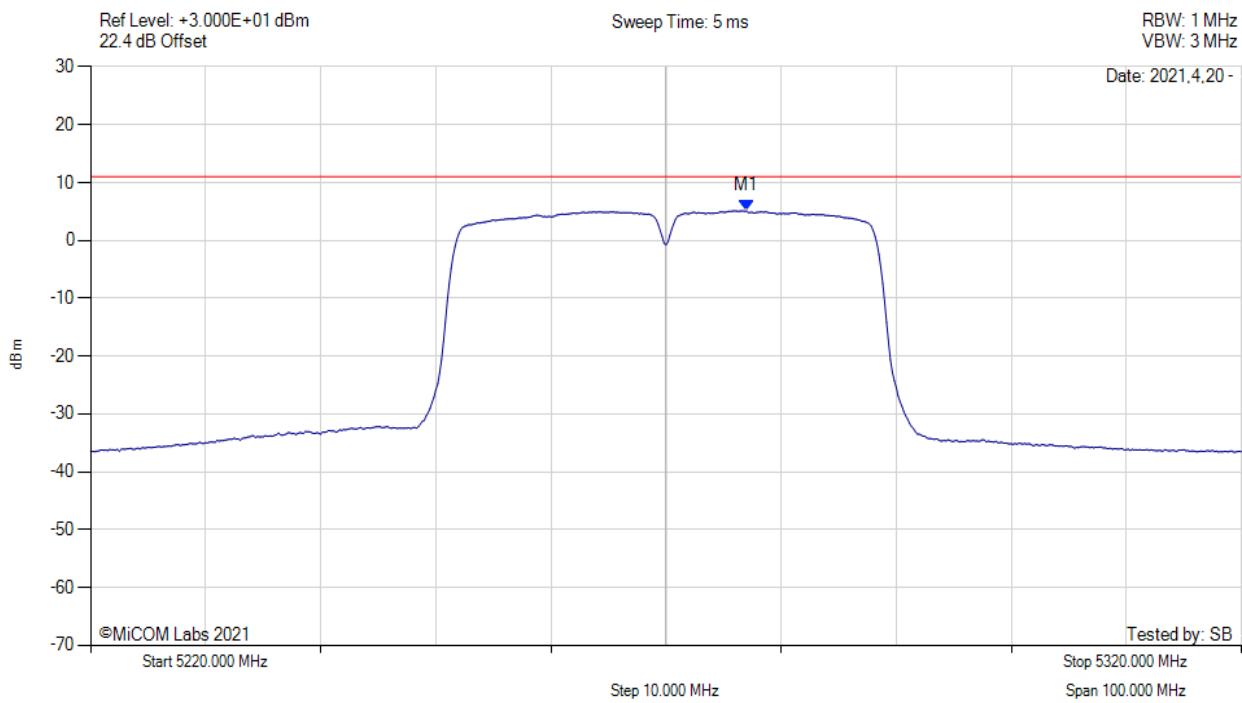
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5264.330 MHz : 2.607 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



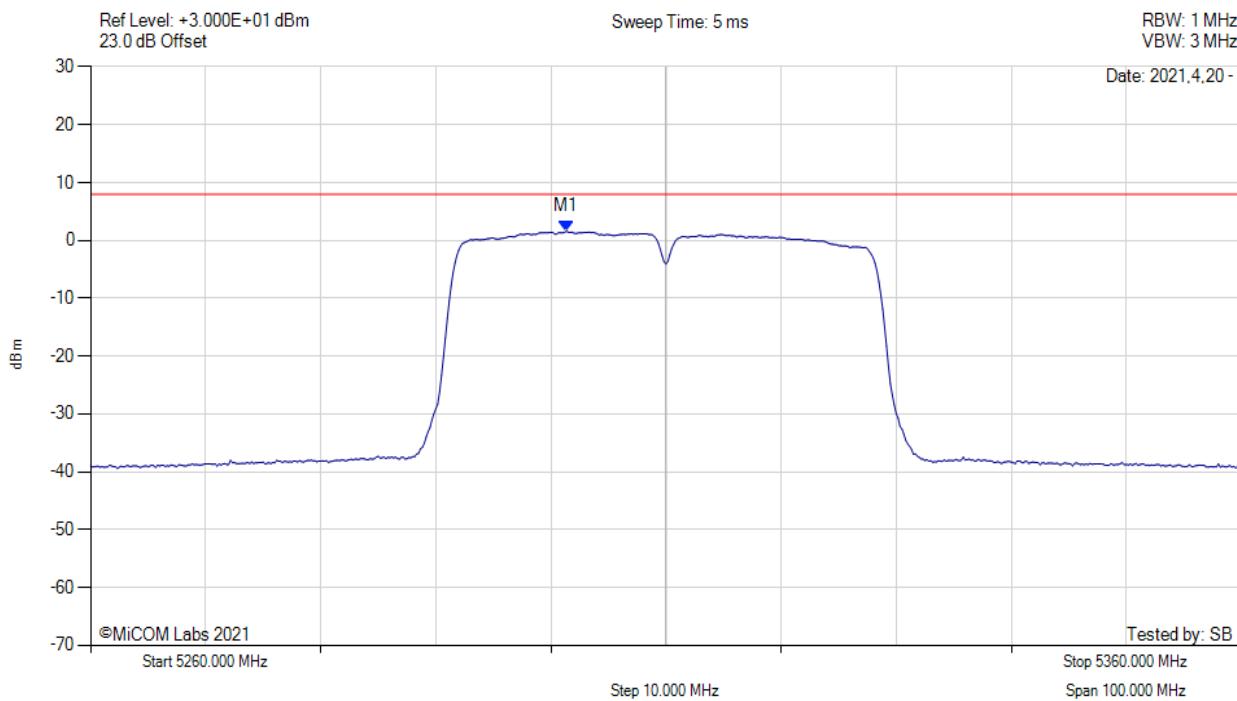
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5277.000 MHz : 5.102 dBm M1 + DCCF : 5277.000 MHz : 5.464 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -5.5 dB

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POWER SPECTRAL DENSITY



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



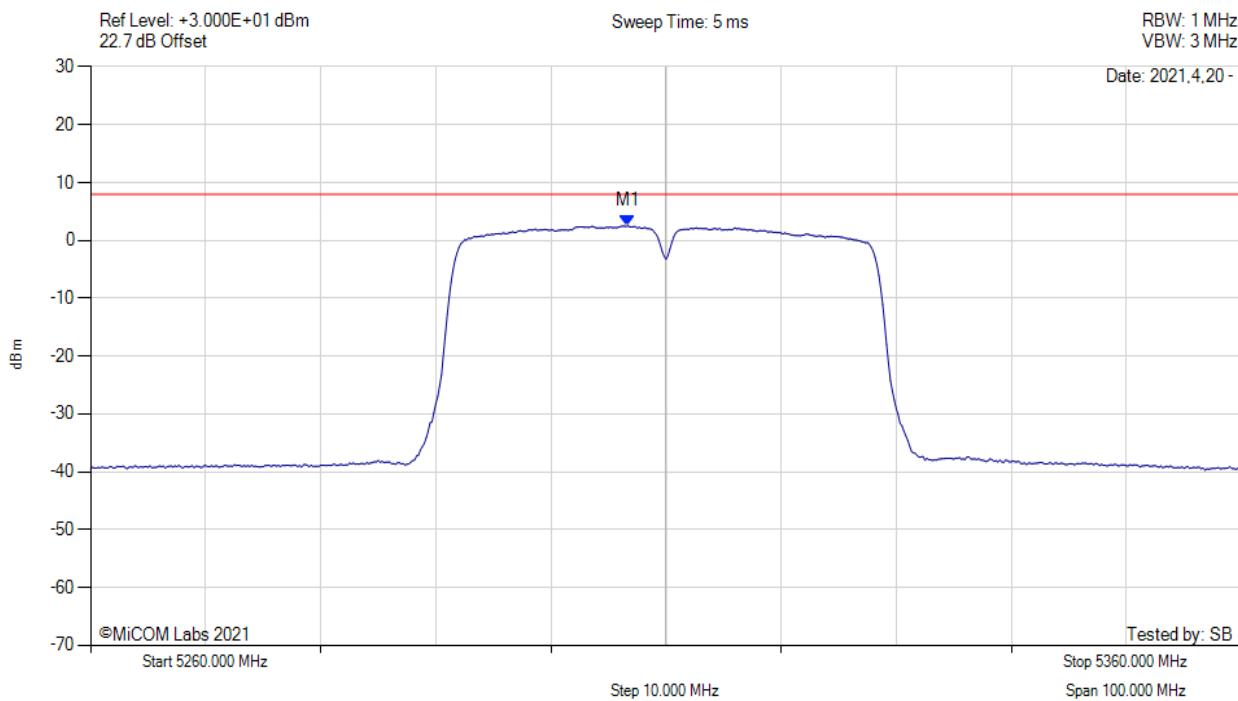
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5301.330 MHz : 1.581 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



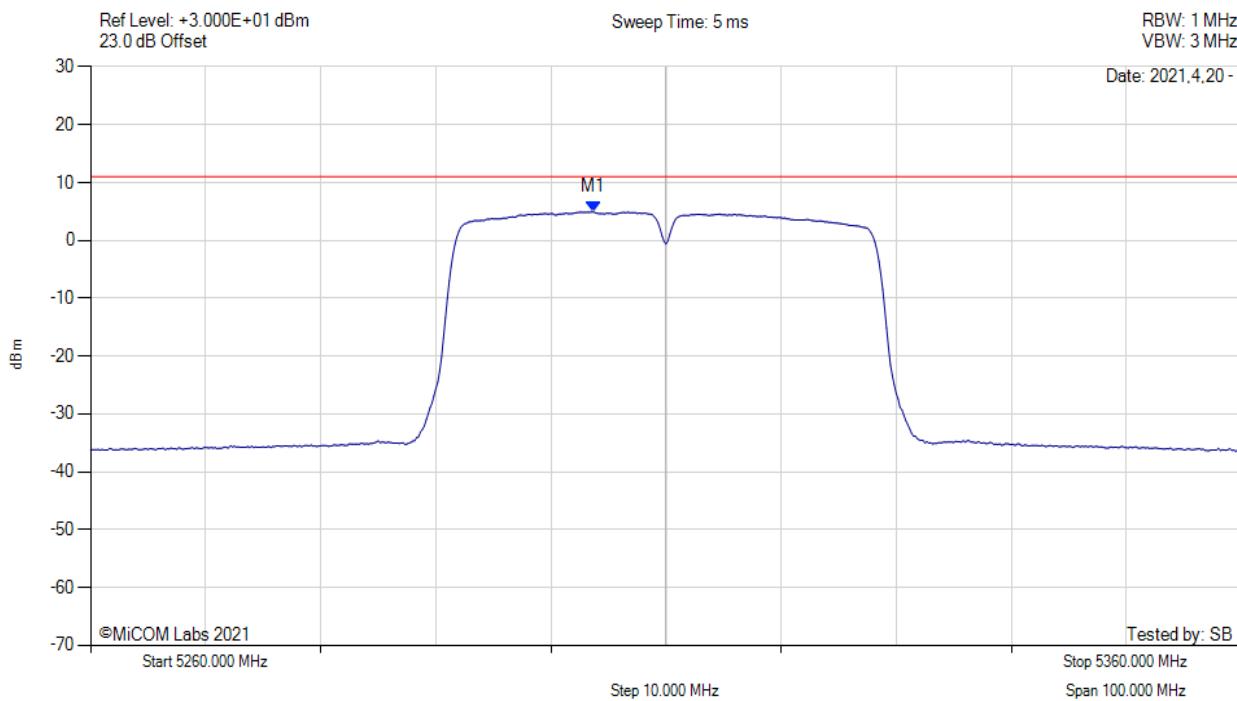
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5306.670 MHz : 2.518 dBm	Limit: ≤ 7.990 dBm

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POWER SPECTRAL DENSITY



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



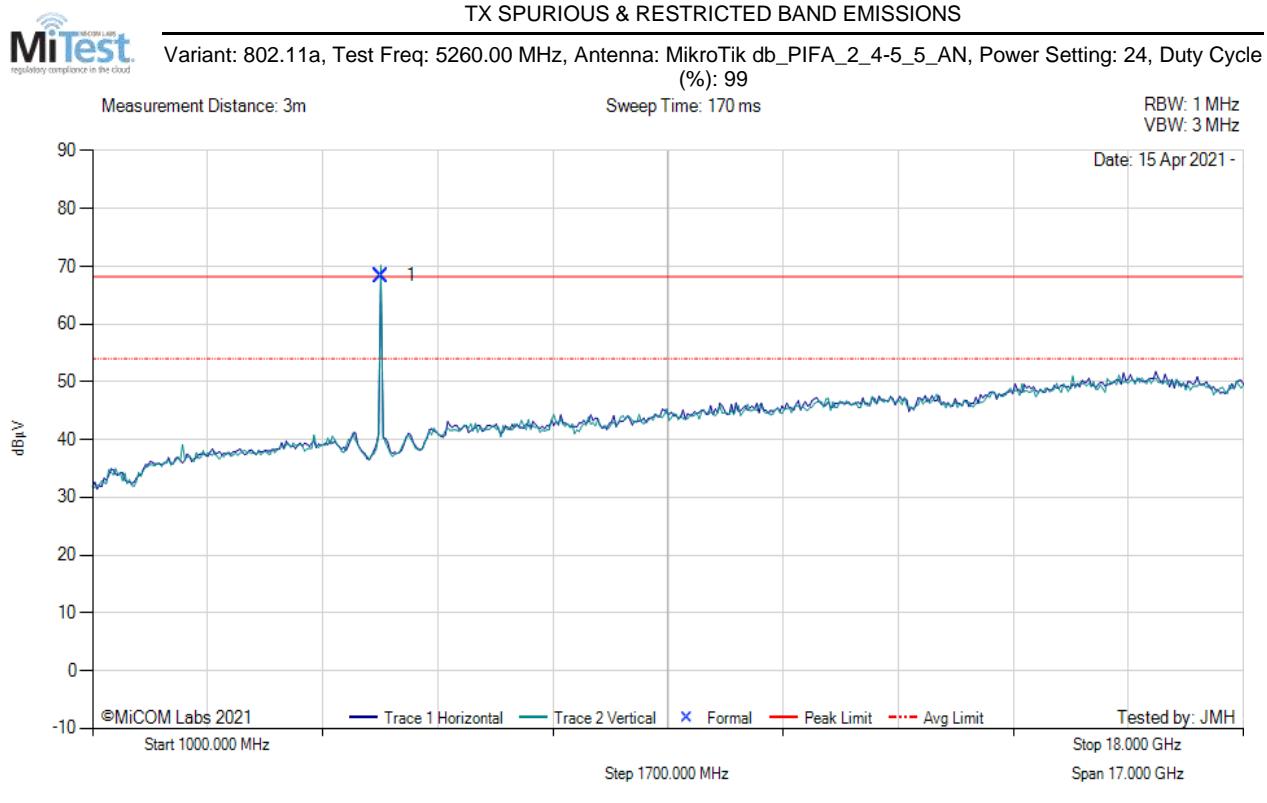
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5303.700 MHz : 4.958 dBm M1 + DCCF : 5303.700 MHz : 5.320 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 11.0 dBm Margin: -5.7 dB

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A.3. Radiated

A.3.1. TX Spurious & Restricted Band Emissions

A.3.1.1. MikroTik db_PIFA_2_4-5_5_AN



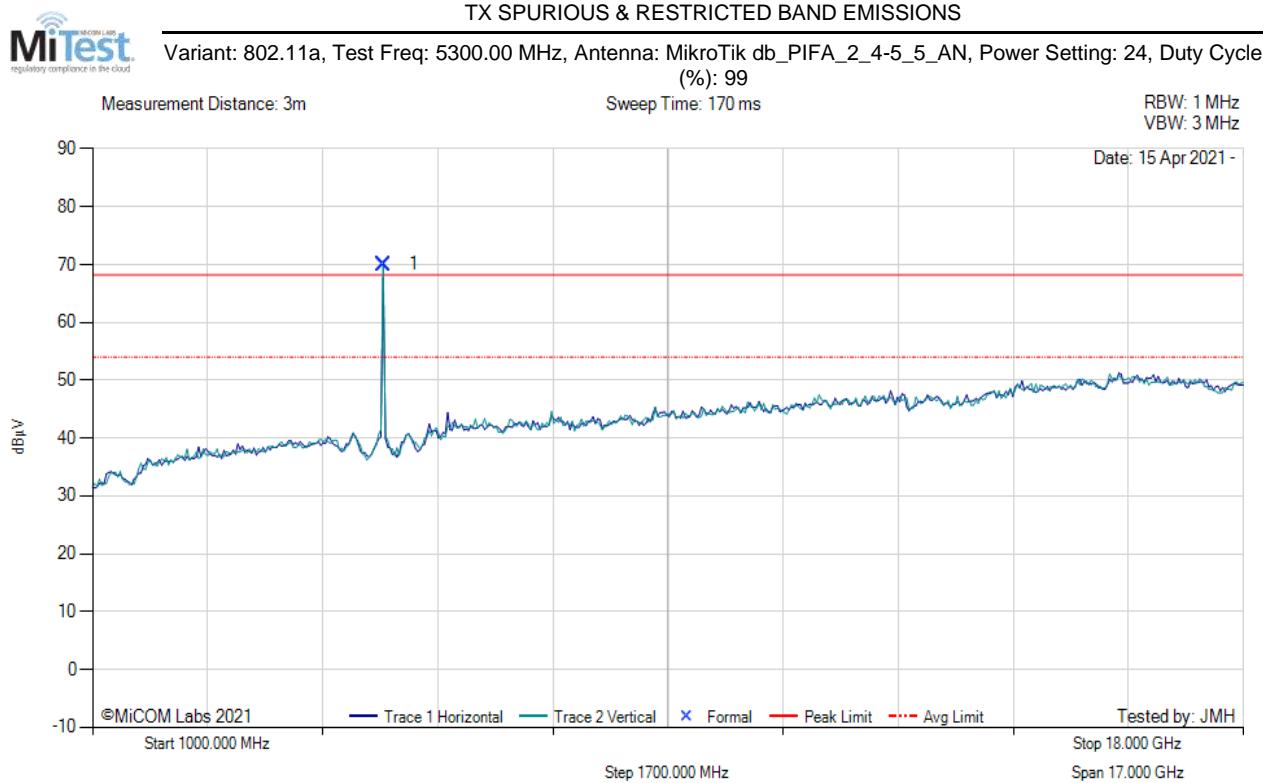
1000.00 - 18000.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
1	5257.25	77.60	2.95	-12.20	68.35	Fundamental	Vertical	100	0	--	--		
Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overload.													

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TX SPURIOUS & RESTRICTED BAND EMISSIONS



regulatory compliance in the cloud



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	5297.60	79.02	3.03	-12.00	70.05	Fundamental	Vertical	100	0	--	--		

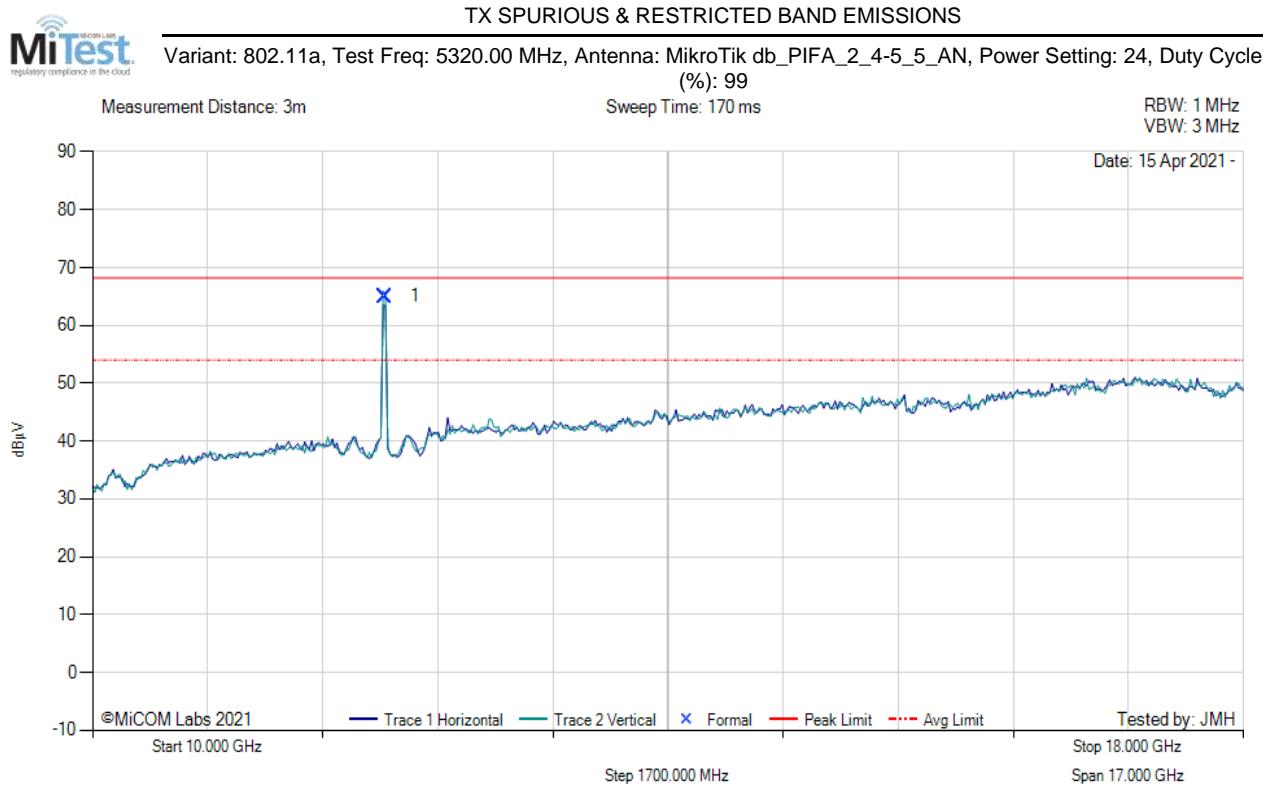
Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber. 5G Notch in front of amp to prevent overload.

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TX SPURIOUS & RESTRICTED BAND EMISSIONS



regulatory compliance in the cloud



10000.00 - 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	5318.04	74.08	2.97	-12.01	65.04	Fundamental	Vertical	100	0	--	--		

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

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A.3.2. Restricted Edge & Band-Edge Emissions

A.3.2.2. MikroTik db_PIFA_2_4-5_5_AN

RESTRICTED UPPER BAND-EDGE EMISSIONS



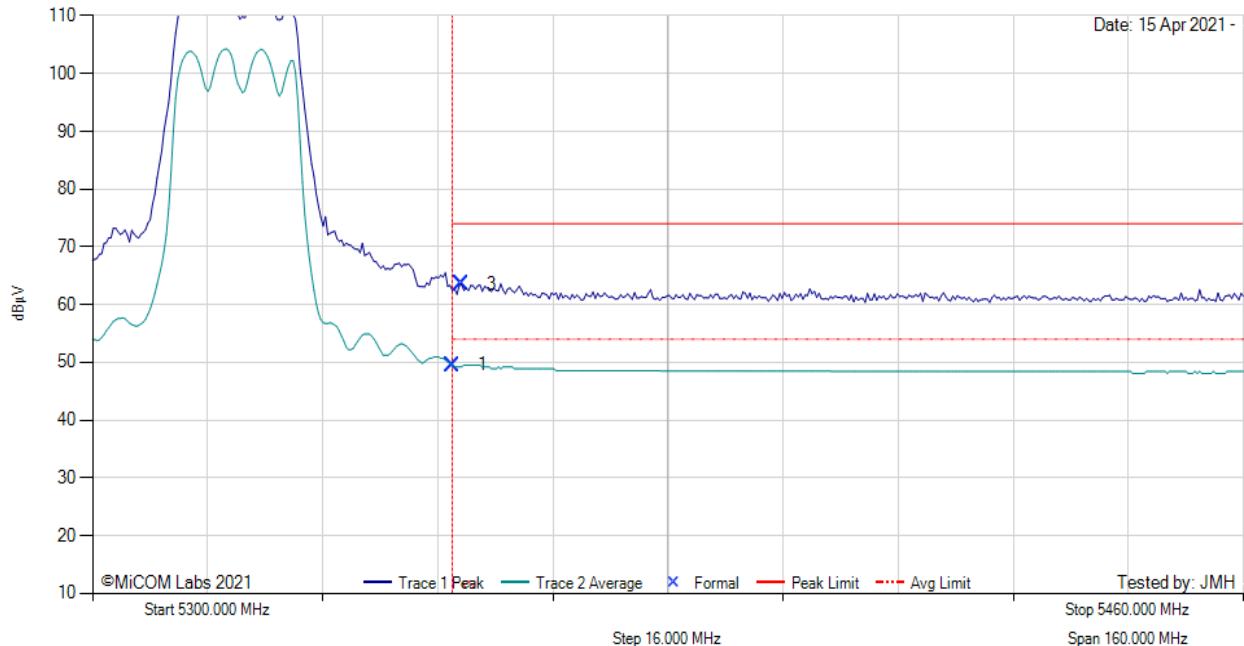
Variant: 802.11a, Test Freq: 5320.00 MHz, Antenna: MikroTik db_PIFA_2_4-5_5_AN, Power Setting: 24, Duty Cycle (%): 99

Measurement Distance: 3m

Sweep Time: 10.0 s

RBW: 1 MHz
VBW: 3 MHz

Date: 15 Apr 2021 -



5300.00 - 5460.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
1	5350.00	12.02	3.06	34.46	49.54	Max Avg	Vertical	158	356	54.0	-4.5	Pass	
3	5351.28	26.00	3.06	34.46	63.52	Max Peak	Vertical	158	356	74.0	-11.5	Pass	
2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--	

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

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RESTRICTED UPPER BAND-EDGE EMISSIONS

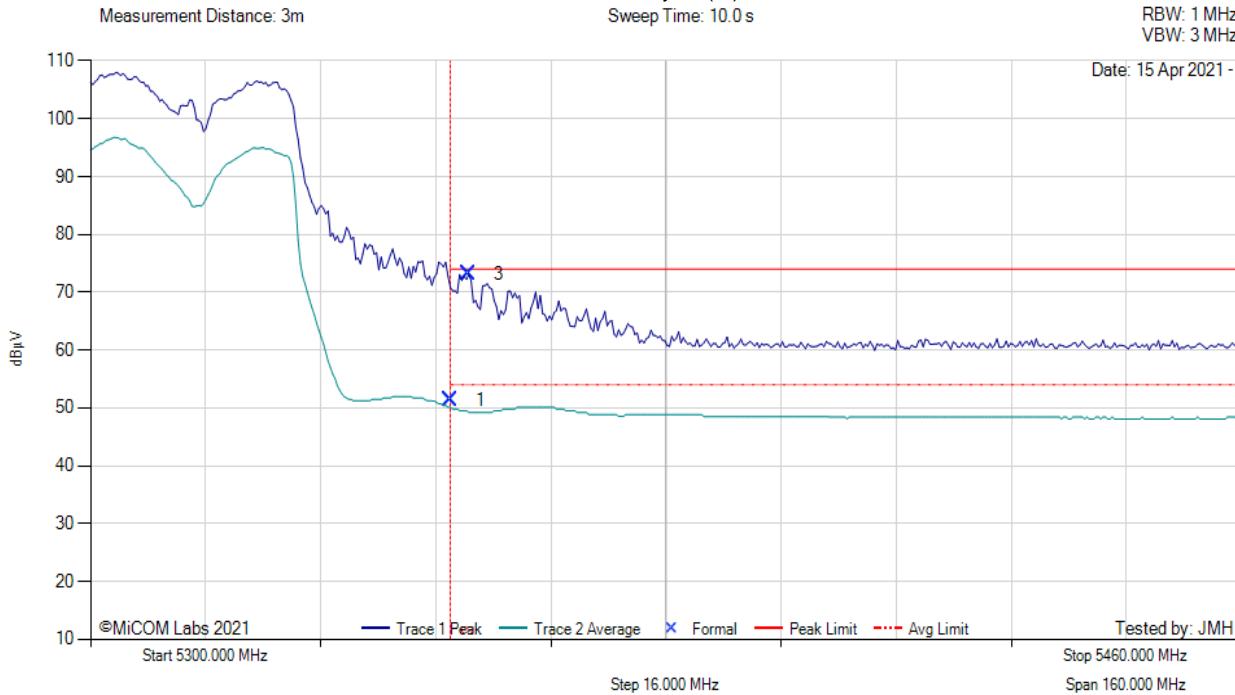


Variant: 802.11ac-80, Test Freq: 5290.00 MHz, Antenna: MikroTik db_PIFA_2_4-5_5_AN, Power Setting: 20, Duty

Cycle (%): 76

Sweep Time: 10.0 s

RBW: 1 MHz
VBW: 3 MHz



5300.00 - 5460.00 MHz													
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail	
1	5350.00	12.62	3.06	34.46	51.33	Max Avg	Vertical	158	356	54.0	-2.7	Pass	
3	5352.59	35.58	3.05	34.47	73.10	Max Peak	Vertical	158	356	74.0	-0.9	Pass	
2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--	

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

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RESTRICTED UPPER BAND-EDGE EMISSIONS

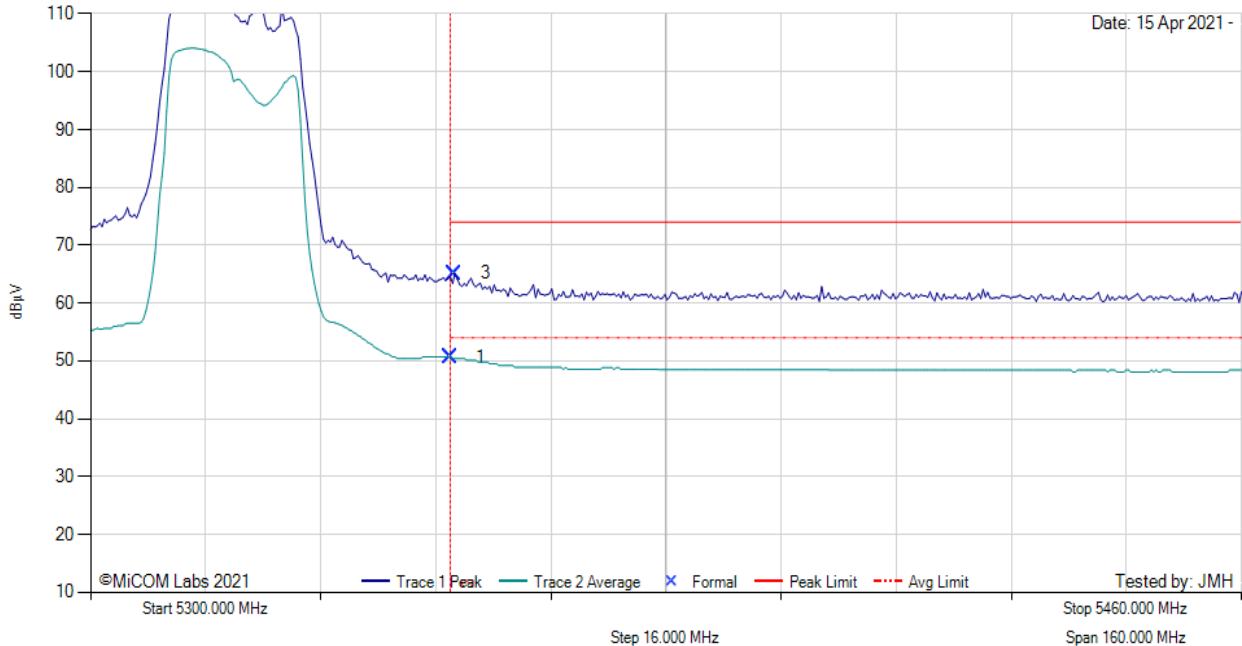


Variant: 802.11n HT-20, Test Freq: 5320.00 MHz, Antenna: MikroTik db_PIFA_2_4-5_5_AN, Power Setting: 24, Duty Cycle (%): 99

Measurement Distance: 3m

Sweep Time: 10.0 s

RBW: 1 MHz
VBW: 3 MHz



5300.00 - 5460.00 MHz												
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	5350.00	13.18	3.06	34.46	50.70	Max Avg	Vertical	158	356	54.0	-3.3	Pass
3	5350.64	27.58	3.06	34.46	65.10	Max Peak	Vertical	158	356	74.0	-8.9	Pass
2	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

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

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RESTRICTED UPPER BAND-EDGE EMISSIONS



Variant: 802.11n HT-40, Test Freq: 5310.00 MHz, Antenna: MikroTik db_PIFA_2_4-5_5_AN, Power Setting: 24, Duty Cycle (%): 90

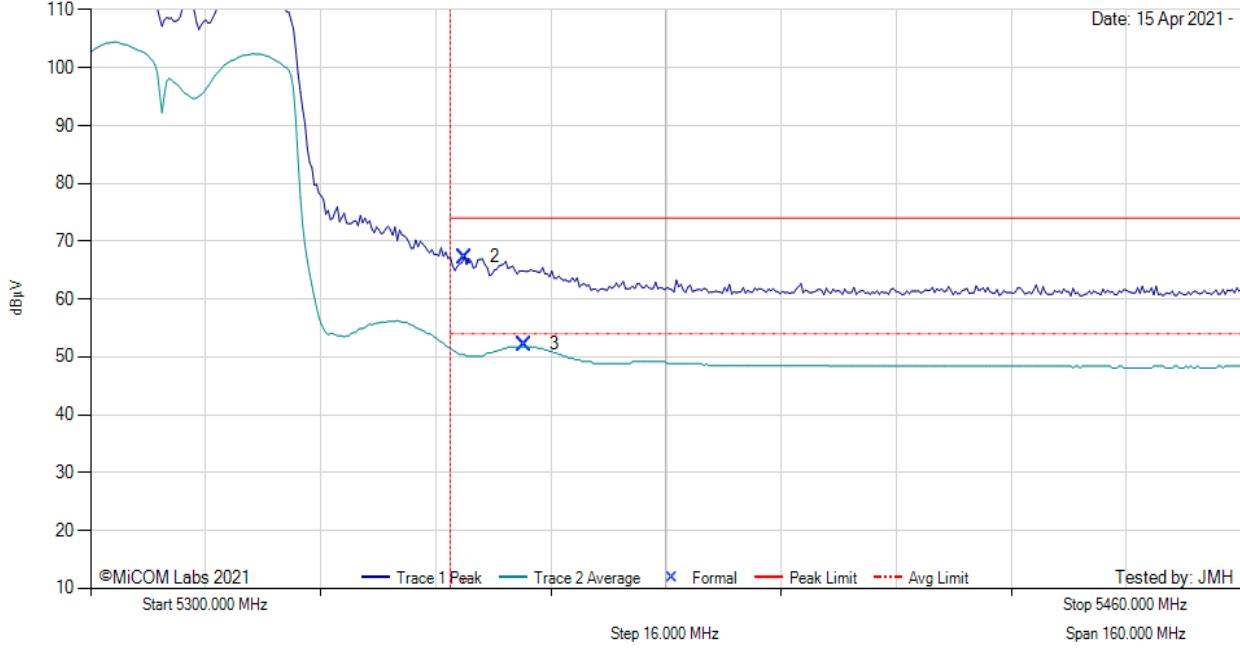
Duty Cycle (%): 90

Measurement Distance: 3m

Sweep Time: 10.0 s

RBW: 1 MHz
VBW: 3 MHz

Date: 15 Apr 2021 -



5300.00 - 5460.00 MHz												
Num	Frequency MHz	Raw dB μ V	Cable Loss dB	AF dB/m	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
2	5351.92	29.76	3.06	34.46	67.28	Max Peak	Vertical	158	356	74.0	-6.7	Pass
3	5360.26	14.20	3.04	34.48	52.17	Max Avg	Vertical	158	356	54.0	-1.8	Pass
1	5350.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by AC/DC ps. Connected to laptop outside chamber. 0.45 DCCF added to average measurement.

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