REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 Part 15 Subpart E 15.407

Report No.: RDWN72-U2 Rev A

Company: Radwin

Model Name: AP0263510, AP0263530, AP0263540

REGULATORY COMPLIANCE TEST REPORT

Company Name: Radwin

Model Name: AP0263510, AP0263530, AP0263540

To: FCC CFR 47 Part 15 Subpart E 15.407

Test Report Serial No.: RDWN72-U2 Rev A

This report supersedes: NONE

Applicant: Radwin
27 Habarzel Street
Tel Aviv, 6971039
Israel

Issue Date: 25th March 2021

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
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www.micomlabs.com

ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

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

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 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 24th day of February 2020.

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

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

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

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 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 Site Designation #: US1084
Canada	Industry Canada (ISED)	FCB	APEC MRA 2	US0159 Test Company #: 4143A
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	Japan MRA 2	RCB 210
	Japan Approvals Institute for Telecommunication Equipment (JATE)			
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA 2	NB 2280
United Kingdom	Department for Business, Energy & Industrial Strategy (BEIS)	AB	UK MRA 2	AB 2280
Mexico	Instituto Federal de Telecomunicaciones (IFT)	CAB	Mexico MRA 1	US0159
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)			
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)			
Singapore	Infocomm Development Authority (IDA)			
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)			
Vietnam	Ministry of Communication (MIC)			

TCB- Telecommunications Certification Bodies (TCB)
FCB – Foreign Certification Body
CAB – Conformity Assessment Body
NB – Notified Body;
AB – Approved Body
MRA – Mutual Recognition Agreement

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

1.3. PRODUCT CERTIFICATION

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

Accredited Product Certification Body

A2LA has accredited

MiCOM LABS

Pleasanton, CA

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

Presented this 24th day of February 2020

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

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

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

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	16th March 2021	Draft report for client review.
Draft 2	23rd March 2021	Draft 2 for client review.
Rev A	25th March 2021	Initial release.
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In the above table the latest report revision will replace all earlier versions.

3. TEST RESULT CERTIFICATE

Manufacturer:	Radwin 27 Habarzel Street Tel Aviv 6971039 Israel	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model:	AP0263510, AP0263530, AP0263540	**Telephone:**	+1 925 462 0304
Type Of Equipment:	5 GHz SU/Alpha Board	**Fax:**	+1 925 462 0306
S/N's:	Sample unit		
Test Date(s):	9th to 26th February 2021	**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.

ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911 D01 & D02	Oct 31 2013	Guidance for measurement of output emission of devices that employ single transmitter with multiple outputs or systems with multiple transmitters operating simultaneously in the same frequency band
II	KDB 905462 D07 v02	22nd August 2016	Test guidance to demonstrate compliance for U-NII devices subject to DFS requirements.
III	KDB 926956 D01 v02	22nd August 2016	U-NII Device Transition Plan
IV	A2LA	5th October 2020	R105 - Requirement's When Making Reference to A2LA Accreditation Status
V	ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices
VI	ANSI C63.4	2014	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
VII	CISPR 32	2015	Electromagnetic compatibility of multimedia equipment - Emission requirements
VIII	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
IX	FCC 06-96	Jun 30 2006	Memorandum Opinion and Order
X	FCC 47 CFR Part 15.407	2020	Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
XI	ICES-003	Issue 7 ; October 15, 2020	Information Technology Equipment (Including Digital Apparatus) – Limits and methods of measurement.
XII	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
XIII	RSS-247 Issue 2	Feb 2017	Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices
XIV	RSS-Gen Issue 5	March 2019 Amendment 1	General Requirements for Compliance of Radio Apparatus
XV	FCC 47 CFR Part 2.1033	2020	FCC requirements and rules regarding photographs and test setup diagrams.
XVI	KDB 905462 D02 v02	April 8 2016	Compliance Measurement Procedures for Unlicensed National Information Infrastructure devices operating in the 5250 to 5350 MHz and 5470 to 5725 MHz bands incorporating Dynamic Frequency Selection.
XVII	KDB 789033 D02 V02r01	14th December, 2017	Guidelines For Compliance Testing Of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E

4.2. Test and Uncertainty Procedure

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

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

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

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5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Radwin AP0263510, AP0263530, AP0263540 to FCC CFR 47 Part 15 Subpart E 15.407; Compliance Measurement Procedures for Unlicensed National Information Infrastructure devices operating in the 5150 to 5250 MHz band.
Applicant:	Radwin 27 Habarzel Street Tel Aviv . 6971039 Israel
Manufacturer:	Radwin
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton, California 94566, USA
Test report reference number:	RDWN72-U2 Rev A
Date EUT received:	08th February 2021
Standard(s) applied:	FCC CFR 47 Part 15 Subpart E 15.407
Dates of test (from - to):	9th – 26th February 2021
No of Units Tested:	1
Product Family Name:	SU / Alpha
Model(s):	AP0263510, AP0263530, AP0263540.
Location for use:	Outdoors
Declared Frequency Range(s):	5150 - 5250 MHz
Type of Modulation:	OFDM
EUT Modes of Operation:	5150 - 5250 MHz: 10MHz; 20MHz; 40MHz; 80MHz;
Transmit/Receive Operation:	0
Rated Input Voltage and Current:	56VDC, 1A
Operating Temperature Range:	-35°C to +60°C
ITU Emission Designator:	10 MHz: 9M10W7W 20 MHz: 17M8W7W 40 MHz: 36M3W7W 80 MHz: 76M8W7W
Equipment Dimensions:	0.04 / 3.78 / 6.45 in
Weight:	0.004 Lb
Hardware Rev:	Prototype
Software Rev:	Prototype

5.2. Scope Of Test Program

Radwin AP0263510, AP0263530, AP0263540

The scope of the test program was to test the Radwin AP0263510, AP0263530, AP0263540 configurations in the frequency ranges 5150 - 5250 MHz for compliance against the following specification:

FCC CFR 47 Part 15 Subpart E 15.407
Compliance Measurement Procedures for Unlicensed National Information Infrastructure devices operating in the 5150 to 5250 MHz Band.

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

Type	Description	Manufacturer	Model	Serial no.	Delivery Date
EUT	Non-Isolated 5 GHz SU/Alpha Board	Radwin Ltd.	AP0263510	Sample Unit#1	8th February
EUT	Non-Isolated 5 GHz SU/Alpha Board with GPS	Radwin Ltd.	AP0263540	Sample Unit #3	8th February
Support	PoE Injector	SHENZHEN GOSPELL	G0566-560-100	--	--
Support	Laptop	Dell	--	--	--

5.4. Antenna Details

Highlighted antennas (total of 5) were tested during Radiated Emissions testing.

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW (degrees)	X-Pol	Frequency Band (MHz)
integral	RADWIN	MR0204670	Directional	22.0	-	10	Yes	5150 - 5250
integral	RADWIN	MT0268450	Directional	25.0	-	8	Yes	5150 - 5250
external	RADWIN	RW-9105-4958	Directional	16.0	-	20	Yes	5150 - 5250
integral	RADWIN	RW-9105-5159	Directional	13.0	-	30	Yes	5150 - 5250
external	RADWIN	RW-9613-4960	Directional	23.0	-	10	Yes	5150 - 5250
external	RADWIN	RW-9622-5001	Directional	28.0	-	5	Yes	5150 - 5250
external	RADWIN	RW-9721-5158	Dish	28.0	-	5.5	Yes	5150 - 5250
external	RADWIN	RW-9732-4958	Dish	32.0	-	4	Yes	5150 - 5250

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
Ethernet PoE IN	>30m	1			Packet Data	1000	Outdoors

5.6. Test Configurations

Results for the following configurations are provided in this report:

Operational Mode(s)	Data Rate with Highest Power MBit/s	Channel Frequency (MHz)		
		Low	Mid	High
5150 - 5250 MHz				
10MHz	13.0	5,175.00	5,210.00	5,245.00
20MHz	13.0	5,180.00	5,210.00	5,240.00
40MHz	13.0	5,190.00	5,210.00	5,230.00
80MHz	13.0	--	5,210.00	--

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
Power Spectral Density	Complies	View Data
Radiated	Complies	-
TX Spurious & Restricted Band Emissions	Complies	-
RADWIN MT0268450	Complies	View Data
RADWIN RW-9105-4958	Complies	View Data
RADWIN RW-9105-5159	Complies	View Data
RADWIN RW-9613-4960	Complies	View Data
RADWIN RW-9732-4958	Complies	View Data
Restricted Edge & Band-Edge Emissions	Complies	-
RADWIN MT0268450	Complies	View Data
RADWIN RW-9105-4958	Complies	View Data
RADWIN RW-9105-5159	Complies	View Data
RADWIN RW-9613-4960	Complies	View Data
RADWIN RW-9732-4958	Complies	View Data
Digital Emissions	Complies	View Data
AC Wireline	Complies	View Data

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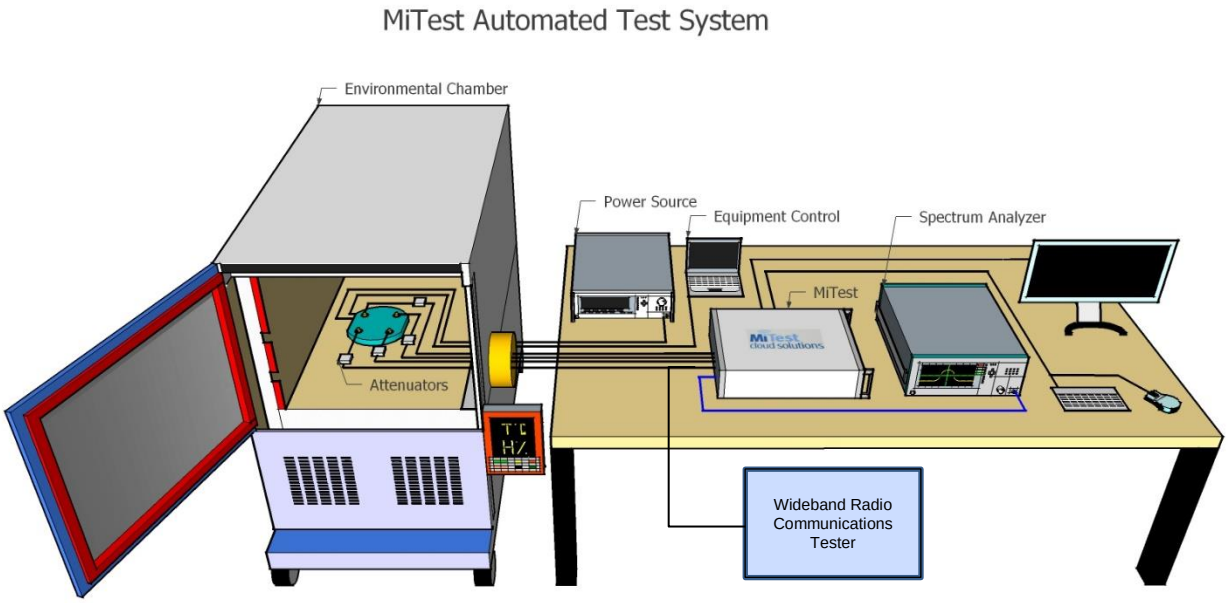
7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Conducted RF



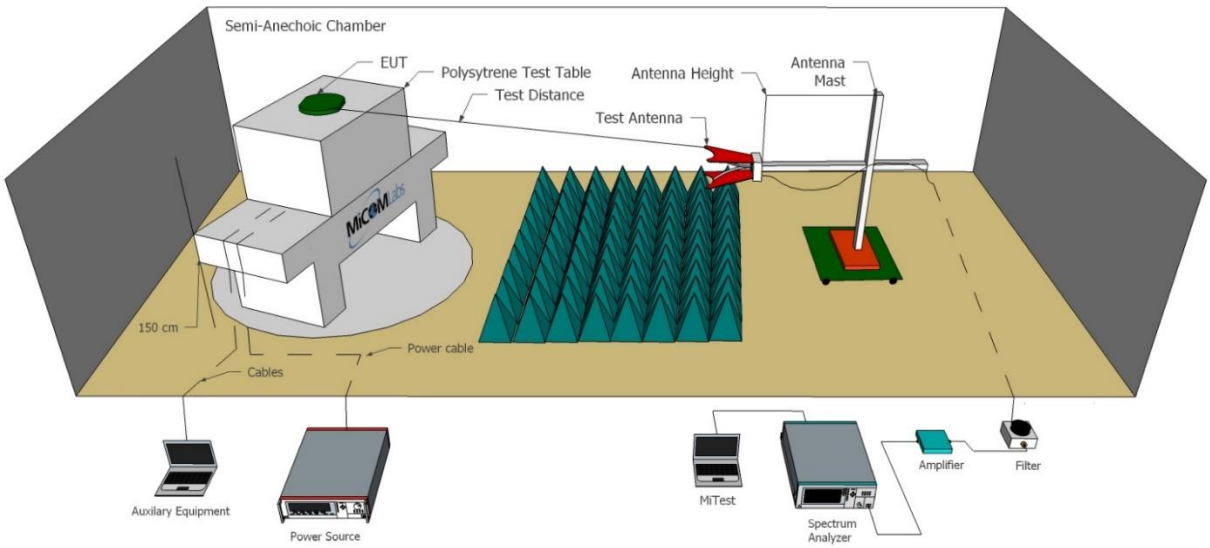
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

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

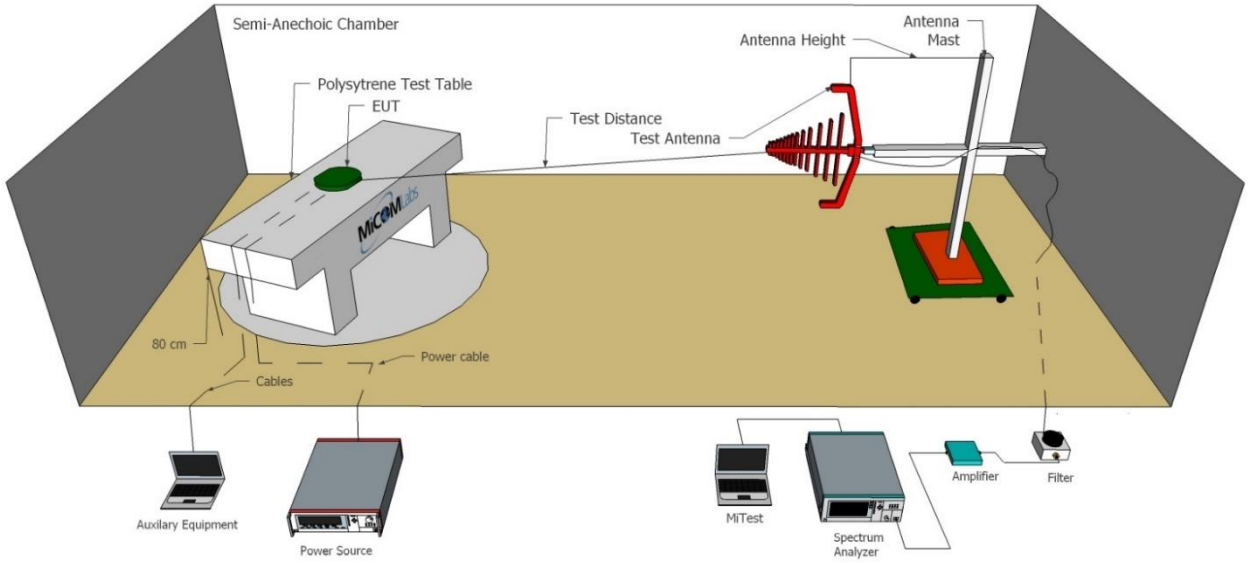
7.2. Radiated Emissions - 3m Chamber

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

Radiated Emissions Above 1GHz Test Setup



Radiated Emissions Below 1GHz Test Setup

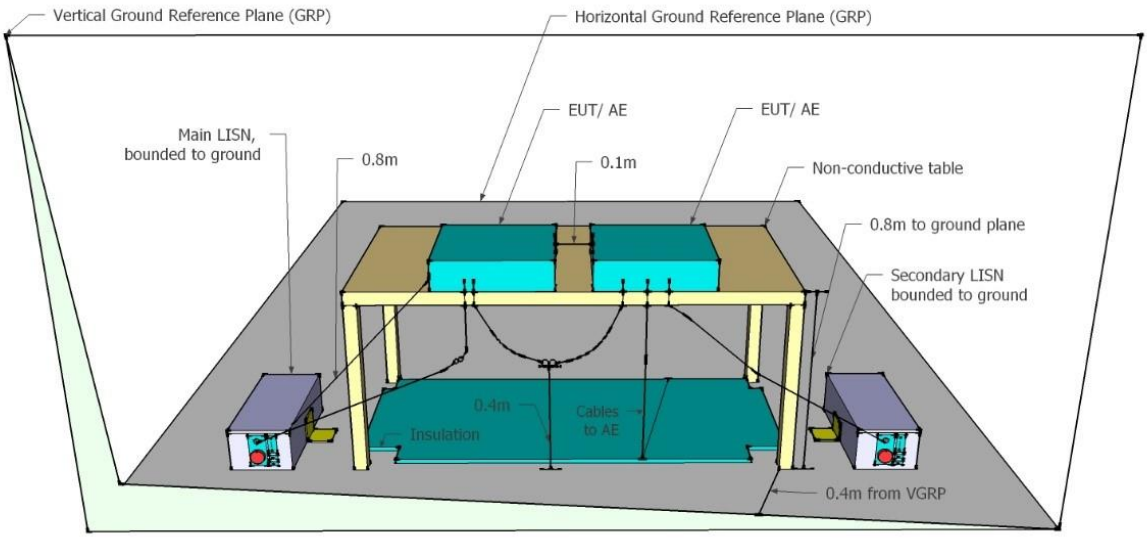


Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2021
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	26 Apr 2021
301	5470 to 5725 MHz Notch Filter	Microtronics	RBC50704	001	4 May 2021
302	5150 to 5350 MHz Notch Filter	Microtronics	BRC50703	002	4 May 2021
303	5725 to 5875 MHz Notch filter	Microtronics	BRC50705	003	4 May 2021
330	Variac 0-280 Vac	Staco Energy Co	3PN1020B	0546	Cal when used
336	Active loop Ant 10kHz to 30 MHz	EMCO	EMCO 6502	00060498	29 Nov 2021
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Apr 2021
342	2.4 GHz Notch Filter	EWT	EWT-14-0203	H1	4 May 2021
373	26III RMS Multimeter	Fluke	Fluke 26 series III	76080720	21 Jun 2021
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	4 May 2021
396	2.4 GHz Notch Filter	Microtronics	BRM50701	001	4 May 2021
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	9 May 2021
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 May 2021
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	9 May 2021
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
414	DC Power Supply 0-60V	HP	6274	1029A01285	Cal when used
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	Schwarzbeck	AK 9513	462	4 May 2021

	Antenna to Amplifier.				
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	4 May 2021
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	4 May 2021
465	Low Pass Filter DC-1000 MHz	Mini-Circuits	NLP-1200+	VUU01901402	4 May 2021
466	Low Pass Filter DC-1500 MHz	Mini-Circuits	NLP-1750+	VUU10401438	4 May 2021
467	2495 to 2650 MHz notch filter	MicroTronics	BRM50709	011	4 May 2021
468	Low pass filter	Mini Circuits	SLP-550	None	4 May 2021
469	Low pass filter	Mini Circuit	SLP-1000	None	4 May 2021
470	High Pass filter	Mini Circuits	SHP-700	None	4 May 2021
476	Low Pass dc-2200MHz filter	Mini Circuits	15542 NLP-2400+	VUU13801345	4 May 2021
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	4 May 2021
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	4 May 2021
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2021
518	Cable - Amp to Antenna	SRC Haverhill	157-3051574	518	4 May 2021
87	Uninterruptible Power Supply	Falcon Electric	ED2000-1/2LC	F3471 02/01	Cal when used

7.3. AC Wireline Emissions

Test Setup – Power Input / Output Port



Test Equipment Utilized

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
184	Pulse Limiter	Rhode & Schwarz	ESH3Z2	357.8810.52	30 Aug 2021
190	LISN (two-line V-network)	Rhode & Schwarz	ESH3Z5	836679/006	18 Apr 2021
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2021
295	Conducted Emissions Chamber Maintenance Check	MiCOM	Conducted Emissions Chamber	295	26 May 2021
307	BNC-CABLE	Megaphase	1689 1GVT4	15F50B002	28 Apr 2021
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 Jun 2021
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 2021
CCEMC01	Confidence Check.	MiCOM	CCEMC01	None	21 Apr 2021

8. MEASUREMENT AND PRESENTATION OF TEST DATA

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

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

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

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

9. TEST RESULTS

9.1. Peak Transmit Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:15.407	**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.

9.1.1.1. Point to Multi-Point

Equipment Configuration for Peak Transmit Power

Variant:	10MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	
5175.0	16.45	16.12			19.30		23.00	-3.70	16.50
5210.0	16.35	15.68			19.04		23.00	-3.96	16.00
5245.0	16.47	15.48			19.01		23.00	-3.99	16.00

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:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	17.35	17.04			20.21		23.00	-2.79	17.00
5210.0	19.20	18.53			21.89		23.00	-1.11	18.50
5240.0	19.29	18.23			21.80		23.00	-1.20	18.50

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:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	12.56	12.24			15.41		23.00	-7.59	12.00
5210.0	20.24	19.71			22.99		23.00	-0.01	19.50
5230.0	20.27	19.55			22.94		23.00	-0.06	19.50

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.

Variant:	80MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	11.06	10.56			13.83	81.600	23.00	-9.17	11.00

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.

9.1.1.2. Point to Point

Equipment Configuration for Peak Transmit Power

Variant:	10MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	
5175.0	16.58	15.77			19.20		30.00	-10.80	16.50
5210.0	22.81	22.47			25.65		30.00	-4.35	23.00
5245.0	22.27	22.20			25.25		30.00	-4.75	23.00

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:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	15.96	15.15			18.58		30.00	-11.42	15.50
5210.0	25.75	25.64			28.71		30.00	-1.29	26.00
5240.0	25.50	25.26			28.39		30.00	-1.61	26.00

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:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	12.77	11.96			15.39		30.00	-14.61	12.00
5210.0	25.63	25.75			28.70		30.00	-1.30	26.00
5230.0	26.30	25.88			29.11		30.00	-0.89	26.00

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:	80MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	14.92	14.71			17.83		30.00	-12.17	10.50

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

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.

9.2.1.3. Point to Multi-Point

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	10MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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**		
5175.0	11.630	11.700			11.700	11.630		
5210.0	11.670	11.630			11.670	11.630		
5245.0	11.770	11.700			11.770	11.700		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5175.0	9.065	9.078			9.078	9.065		
5210.0	9.046	9.078			9.078	9.046		
5245.0	9.053	9.084			9.084	9.053		

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:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	21.870	21.800			21.870	21.800		
5210.0	22.000	21.600			22.000	21.600		
5240.0	22.070	22.000			22.070	22.000		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5180.0	17.720	17.758			17.758	17.720		
5210.0	17.729	17.745			17.745	17.729		
5240.0	17.737	17.756			17.756	17.737		

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:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	41.600	41.200			41.600	41.200		
5210.0	41.330	41.330			41.330	41.330		
5230.0	41.200	41.200			41.200	41.200		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5190.0	36.213	36.225			36.225	36.213		
5210.0	36.200	36.205			36.205	36.200		
5230.0	36.215	36.179			36.215	36.179		

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:	80MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	81.600	81.600			81.600	81.600		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5210.0	75.653	75.768			75.768	75.653		

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

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

9.2.1.4. Point to Point

Equipment Configuration for 26 dB & 99% Occupied Bandwidth

Variant:	10MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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		
5175.0	11.430	11.630			11.630	11.430		
5210.0	13.200	12.830			13.200	12.830		
5245.0	12.330	12.770			12.770	12.330		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
5175.0	9.070	9.066			9.070	9.066		
5210.0	9.118	9.153			9.153	9.118		
5245.0	9.133	9.100			9.133	9.100		

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:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	22.000	21.870			22.000	21.870		
5210.0	39.200	39.530			39.530	39.200		
5240.0	38.400	37.470			38.400	37.470		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5180.0	17.746	17.699			17.746	17.699		
5210.0	20.547	22.802			22.802	20.547		
5240.0	20.383	19.241			20.383	19.241		

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:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	40.800	41.470			41.470	40.800		
5210.0	79.200	79.870			79.870	79.200		
5230.0	79.870	79.730			79.870	79.730		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5190.0	36.186	36.187			36.187	36.186		
5210.0	41.569	48.795			48.795	41.569		
5230.0	49.923	45.984			49.923	45.984		

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:	80MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	138.400	137.330			138.400	137.330		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5210.0	76.161	76.218			76.218	76.161		

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

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

9.3. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
Standard:	FCC CFR 47:15.407	**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.

9.3.1.5. Point to Multi-Point

Equipment Configuration for Power Spectral Density

Variant:	10MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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
5175.0	7.203	6.653			9.871	10.0	-0.1
5210.0	7.275	6.390			9.781	10.0	-0.2
5245.0	7.038	6.151			9.602	10.0	-0.4

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	6.731	6.462			9.562	10.0	-0.4
5210.0	7.281	6.466			9.798	10.0	-0.2
5240.0	7.098	6.197			9.715	10.0	-0.3

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:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	-2.580	-2.807			0.197	10.0	-9.8
5210.0	5.279	4.481			7.940	10.0	-2.1
5230.0	5.435	4.594			8.003	10.0	-2.0

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	80MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	-7.299	-7.817			-4.722	10.0	-14.7

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).

9.3.1.6. Point to Point

Equipment Configuration for Power Spectral Density			
Variant:	10MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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
5175.0	7.510	6.637			10.080	17.0	-6.9
5210.0	13.833	13.283			16.547	17.0	-0.5
5245.0	12.945	12.978			15.926	17.0	-1.1

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	4.124	3.172			6.630	17.0	-10.4
5210.0	14.306	13.437			16.929	17.0	-0.1
5240.0	13.868	13.317			16.472	17.0	-0.5

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	-1.969	-2.937			0.573	17.0	-16.4
5210.0	11.083	10.478			13.789	17.0	-3.2
5230.0	11.723	11.456			14.447	17.0	-2.6

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).

Equipment Configuration for Power Spectral Density			
Variant:	80MHz	**Duty Cycle (%):**	99.0
Data Rate:	13.00 MBit/s	**Antenna Gain (dBi):**	13.00
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	-3.235	-3.893			-0.535	17.0	-17.5

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).

9.4. 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);

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

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).

9.4.1. TX Spurious & Restricted Band Emissions

9.4.1.1. RADWIN MT0268450

Equipment Configuration for TX Spurious & Restricted Band Emissions			
Antenna:	RADWIN MT0268450	**Variant:**	10MHz
Antenna Gain (dBi):	25.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	7.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.94	64.62	2.60	-12.25	54.97	Max Peak	Horizontal	99	122	68.2	-13.3	Pass
#2	3995.94	53.31	2.60	-12.25	43.66	Max Avg	Horizontal	99	122	54.0	-10.3	Pass
#3	5177.75	71.06	2.97	-12.12	61.91	Fundamental	Horizontal	100	0	--	--	
#4	6249.78	50.80	3.25	-9.50	44.55	Peak (NRB)	Horizontal	100	167	--	--	Pass
#5	6899.84	48.96	3.37	-8.00	44.33	Peak (NRB)	Vertical	100	167	--	--	Pass
Test Notes: EUT powered by POE. 5G notch in front of amp to prevent overload.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN MT0268450	**Variant:**	10MHz
Antenna Gain (dBi):	25.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	16.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.97	60.55	2.60	-12.25	50.90	Max Peak	Horizontal	156	92	68.2	-17.3	Pass
#2	3995.97	49.17	2.60	-12.25	39.52	Max Avg	Horizontal	156	92	54.0	-14.5	Pass
#3	4838.78	64.26	2.81	-12.55	54.52	Max Peak	Vertical	164	351	68.2	-13.7	Pass
#4	4838.78	49.10	2.81	-12.55	39.36	Max Avg	Vertical	164	351	54.0	-14.6	Pass
#5	5208.07	78.96	2.99	-12.39	69.56	Fundamental	Horizontal	100	0	--	--	
#6	6249.83	52.27	3.25	-9.50	46.02	Peak (NRB)	Horizontal	100	86	--	--	Pass
Test Notes: EUT powered by POE. 5G notch in front of amp to prevent overload.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN MT0268450	**Variant:**	10MHz
Antenna Gain (dBi):	25.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5245.00	**Data Rate:**	13.00 MBit/s
Power Setting:	16.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3996.02	67.64	2.60	-12.25	57.99	Max Peak	Horizontal	98	128	68.2	-10.2	Pass
#2	3996.02	61.04	2.60	-12.25	51.39	Max Avg	Horizontal	98	128	54.0	-2.6	Pass
#3	5246.88	70.96	3.00	-12.09	61.87	Fundamental	Horizontal	100	0	--	--	
#4	6250.12	51.44	3.25	-9.49	45.20	Peak (NRB)	Horizontal	100	165	--	--	Pass
Test Notes: EUT powered by POE. 5G notch in front of amp to prevent overload.												

9.4.1.2. RADWIN RW-9105-4958 – Point to Multi-Point

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/
Power Setting:	16.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.97	62.95	2.60	-12.25	53.30	Max Peak	Horizontal	130	277	68.2	-14.9	Pass
#2	3995.97	55.93	2.60	-12.25	46.28	Max Avg	Horizontal	130	277	54.0	-7.7	Pass
#3	4799.96	60.60	2.84	-12.41	51.03	Max Peak	Horizontal	129	356	68.2	-17.2	Pass
#4	4799.96	48.58	2.84	-12.41	39.01	Max Avg	Horizontal	129	356	54.0	-15.0	Pass
#5	5176.54	83.24	2.96	-12.14	74.06	Fundamental	Vertical	100	0	--	--	
#6	6250.06	52.75	3.25	-9.49	46.51	Peak (NRB)	Horizontal	150	360	--	--	Pass
Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	16.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.92	65.45	2.60	-12.25	55.80	Max Peak	Horizontal	139	283	68.2	-12.4	Pass
#2	3995.92	56.88	2.60	-12.25	47.23	Max Avg	Horizontal	139	283	54.0	-6.8	Pass
#3	5213.14	89.23	2.99	-12.35	79.87	Fundamental	Vertical	100	0	--	--	
#4	6249.81	52.00	3.25	-9.50	45.75	Peak (NRB)	Horizontal	100	0	--	--	Pass
Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5245.00	**Data Rate:**	13.00 MBit/s
Power Setting:	16.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.98	62.95	2.60	-12.25	53.30	Max Peak	Horizontal	140	283	68.2	-14.9	Pass
#2	3995.98	56.58	2.60	-12.25	46.93	Max Avg	Horizontal	140	283	54.0	-7.1	Pass
#3	5244.12	90.68	3.01	-12.05	81.64	Fundamental	Vertical	100	0	--	--	
#4	6249.96	49.60	3.25	-9.50	43.35	Peak (NRB)	Horizontal	100	0	--	--	Pass
#5	10488.77	50.90	4.43	-4.96	50.37	Peak (NRB)	Vertical	100	0	--	--	Pass
Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload.												

9.4.1.3. RADWIN RW-9105-4958 – Point to Point

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	15.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3996.06	64.42	2.60	-12.25	54.77	Max Peak	Horizontal	144	351	68.2	-13.5	Pass
#2	3996.06	57.48	2.60	-12.25	47.83	Max Avg	Horizontal	144	351	54.0	-6.2	Pass
#3	5176.87	80.99	2.96	-12.14	71.81	Fundamental	Vertical	100	0	--	--	
#4	6250.07	51.74	3.25	-9.49	45.50	Peak (NRB)	Horizontal	100	0	--	--	Pass
Test Notes: EUT powered by POE.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	20.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3996.02	68.93	2.60	-12.25	59.28	Max Peak	Horizontal	169	356	68.2	-9.0	Pass
#2	3996.02	58.34	2.60	-12.25	48.69	Max Avg	Horizontal	169	356	54.0	-5.3	Pass
#3	4779.40	58.66	2.86	-12.45	49.07	Max Peak	Horizontal	165	2	68.2	-19.2	Pass
#4	4779.40	44.25	2.86	-12.45	34.66	Max Avg	Horizontal	165	2	54.0	-19.3	Pass
#5	4807.52	60.68	2.85	-12.43	51.10	Max Peak	Horizontal	129	5	68.2	-17.1	Pass
#6	4807.52	45.73	2.85	-12.43	36.15	Max Avg	Horizontal	129	5	54.0	-17.9	Pass
#7	5211.83	90.97	2.99	-12.36	81.60	Fundamental	Vertical	100	0	--	--	
#8	6250.00	54.81	3.25	-9.49	48.57	Peak (NRB)	Horizontal	151	8	--	--	Pass
#9	10422.30	54.70	4.41	-5.31	53.80	Peak (NRB)	Vertical	151	8	--	--	Pass
#10	15631.77	56.63	5.58	-3.31	58.90	Max Peak	Horizontal	164	9	68.2	-9.3	Pass
#11	15631.77	38.98	5.58	-3.31	41.25	Max Avg	Horizontal	164	9	54.0	-12.8	Pass

Test Notes: EUT powered by POE.

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5245.00	**Data Rate:**	13.00 MBit/s
Power Setting:	20.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.94	70.10	2.60	-12.25	60.45	Max Peak	Horizontal	119	39	68.2	-7.8	Pass
#2	3995.94	59.21	2.60	-12.25	49.56	Max Avg	Horizontal	119	39	54.0	-4.4	Pass
#3	4810.94	58.41	2.85	-12.42	48.84	Max Peak	Horizontal	141	14	68.2	-19.4	Pass
#4	4810.94	43.89	2.85	-12.42	34.32	Max Avg	Horizontal	141	14	54.0	-19.7	Pass
#5	4839.35	61.10	2.82	-12.55	51.37	Max Peak	Horizontal	163	4	68.2	-16.9	Pass
#6	4839.35	46.85	2.82	-12.55	37.12	Max Avg	Horizontal	163	4	54.0	-16.9	Pass
#7	5243.35	91.07	3.02	-12.03	82.06	Fundamental	Vertical	100	0	--	--	
#8	6249.96	49.45	3.25	-9.50	43.20	Peak (NRB)	Horizontal	150	2	--	--	Pass
#9	10489.17	61.95	4.43	-4.94	61.44	Max Peak	Horizontal	158	8	68.2	-6.8	Pass
#10	10489.17	48.24	4.43	-4.94	47.73	Max Avg	Horizontal	158	8	54.0	-6.3	Pass
#11	15737.80	56.04	5.77	-2.87	58.94	Max Peak	Vertical	156	0	68.2	-9.3	Pass
#12	15737.80	39.62	5.77	-2.87	42.52	Max Avg	Vertical	156	0	54.0	-11.5	Pass
Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload.												

9.4.1.4. RADWIN RW-9105-5159 – Point to Multi-Point

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	19.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.94	66.36	2.60	-12.25	56.71	Max Peak	Horizontal	177	35	68.2	-11.5	Pass
#2	3995.94	59.98	2.60	-12.25	50.33	Max Avg	Horizontal	177	35	54.0	-3.7	Pass
#3	4779.63	60.55	2.86	-12.45	50.96	Max Peak	Vertical	146	355	68.2	-17.3	Pass
#4	4779.63	46.16	2.86	-12.45	36.57	Max Avg	Vertical	146	355	54.0	-17.4	Pass
#5	5178.30	87.29	2.97	-12.12	78.14	Fundamental	Horizontal	100	0	--	--	
#6	6249.93	53.18	3.25	-9.50	46.93	Peak (NRB)	Horizontal	100	0	--	--	Pass
#7	6899.90	50.02	3.37	-8.00	45.39	Peak (NRB)	Horizontal	100	0	--	--	Pass
Test Notes: EUT powered by POE.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	19.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	1331.95	65.27	1.49	-15.95	50.81	Max Peak	Horizontal	159	14	68.2	-17.4	Pass
#2	1331.95	60.02	1.49	-15.95	45.56	Max Avg	Horizontal	159	14	54.0	-8.4	Pass
#3	3996.13	67.51	2.60	-12.25	57.86	Max Peak	Horizontal	137	39	68.2	-10.4	Pass
#4	3996.13	59.93	2.60	-12.25	50.28	Max Avg	Horizontal	137	39	54.0	-3.7	Pass
#5	5211.05	90.94	2.99	-12.37	81.56	Fundamental	Horizontal	100	0	--	--	
#6	6249.89	53.12	3.25	-9.50	46.87	Peak (NRB)	Horizontal	100	0	--	--	Pass
#7	6946.52	51.54	3.35	-7.80	47.09	Peak (NRB)	Vertical	100	0	--	--	Pass
#8	10422.76	49.89	4.41	-5.31	48.99	Peak (NRB)	Horizontal	100	0	--	--	Pass
Test Notes: EUT powered by POE.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5245.00	**Data Rate:**	13.00 MBit/s
Power Setting:	19.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3996.00	65.18	2.60	-12.25	55.53	Max Peak	Horizontal	116	295	68.2	-12.7	Pass
#2	3996.00	58.41	2.60	-12.25	48.76	Max Avg	Horizontal	116	295	54.0	-5.2	Pass
#3	5241.48	92.18	3.01	-12.06	83.13	Fundamental	Horizontal	100	0	--	--	
#4	6249.87	52.72	3.25	-9.50	46.47	Peak (NRB)	Horizontal	100	0	--	--	Pass
#5	10490.52	53.59	4.43	-4.91	53.11	Peak (NRB)	Horizontal	100	0	--	--	Pass
Test Notes: EUT powered by POE.												

9.4.1.5. RADWIN RW-9105-5159 – Point to Point

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	16.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.91	64.95	2.60	-12.25	55.30	Max Peak	Horizontal	136	65	68.2	-12.9	Pass
#2	3995.91	58.04	2.60	-12.25	48.39	Max Avg	Horizontal	136	65	54.0	-5.6	Pass
#3	5176.98	84.33	2.96	-12.14	75.15	Fundamental	Horizontal	100	0	--	--	
#4	6249.82	53.28	3.25	-9.50	47.03	Peak (NRB)	Horizontal	100	0	--	--	Pass
#5	6899.88	52.30	3.37	-8.00	47.67	Peak (NRB)	Vertical	100	0	--	--	Pass
Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overloads.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	23.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3330.26	55.10	2.40	-12.11	45.39	Peak (NRB)	Horizontal	147	0	--	--	Pass
#2	3995.94	70.35	2.60	-12.25	60.70	Max Peak	Horizontal	138	56	68.2	-7.5	Pass
#3	3995.94	59.43	2.60	-12.25	49.78	Max Avg	Horizontal	138	56	54.0	-4.2	Pass
#4	5211.28	90.77	2.99	-12.37	83.39	Fundamental	Vertical	100	0	--	--	
#5	6249.87	53.34	3.25	-9.50	47.09	Peak (NRB)	Horizontal	147	9	--	--	Pass
#6	6946.67	52.83	3.35	-7.80	48.38	Peak (NRB)	Vertical	147	9	--	--	Pass
#7	10419.17	52.43	4.39	-5.38	51.44	Peak (NRB)	Horizontal	147	9	--	--	Pass
Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overloads.												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5245.00	**Data Rate:**	13.00 MBit/s
Power Setting:	23.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	3995.95	69.40	2.60	-12.25	59.75	Max Peak	Horizontal	151	42	68.2	-8.5	Pass
#2	3995.95	58.29	2.60	-12.25	48.64	Max Avg	Horizontal	151	42	54.0	-5.4	Pass
#3	5246.66	92.04	3.00	-12.09	82.95	Fundamental	Vertical	135	0	--	--	
#4	6250.05	51.83	3.25	-9.49	45.59	Peak (NRB)	Horizontal	100	0	--	--	Pass
#5	10488.94	51.71	4.43	-4.96	51.18	Peak (NRB)	Vertical	100	0	--	--	Pass
#6	15732.06	58.08	5.86	-2.87	61.07	Max Peak	Horizontal	136	0	68.2	-7.2	Pass
#7	15732.06	41.76	5.86	-2.87	44.75	Max Avg	Horizontal	136	0	54.0	-9.3	Pass
Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overloads.												

9.4.1.6. RADWIN RW-9622-5001 – Point to Point

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9622-5001	**Variant:**	10MHz
Antenna Gain (dBi):	28.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	0.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	1332.04	68.84	1.49	-15.95	54.38	Max Peak	Horizontal	155	182	68.2	-13.9	Pass
#2	1332.04	63.00	1.49	-15.95	48.54	Max Avg	Horizontal	155	182	54.0	-5.5	Pass
#3	3995.89	68.93	2.60	-12.25	59.28	Max Peak	Horizontal	158	223	68.2	-9.0	Pass
#4	3995.89	61.46	2.60	-12.25	51.81	Max Avg	Horizontal	158	223	54.0	-2.2	Pass
#5	5178.15	60.32	2.97	-12.12	51.17	Fundamental	Horizontal	100	0	--	--	
#6	6249.89	53.52	3.25	-9.50	47.27	Peak (NRB)	Horizontal	100	175	--	--	Pass
#7	6900.17	49.48	3.37	-8.03	44.82	Peak (NRB)	Vertical	100	0	--	--	Pass
Test Notes: EUT powered by POE												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9622-5001	**Variant:**	10MHz
Antenna Gain (dBi):	28.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	12.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	1331.96	70.59	1.49	-15.95	56.13	Max Peak	Horizontal	175	186	68.2	-12.0	Pass
#2	1331.96	63.68	1.49	-15.95	49.22	Max Avg	Horizontal	175	186	54.0	-4.8	Pass
#3	3996.12	61.89	2.60	-12.25	52.24	Max Avg	Horizontal	192	146	54.0	-1.8	Pass
#4	4832.11	65.91	2.84	-12.52	56.23	Max Peak	Horizontal	167	5	68.2	-11.0	Pass
#5	4832.11	51.25	2.84	-12.52	41.57	Max Avg	Horizontal	167	5	54.0	-12.4	Pass
#6	5210.96	74.90	2.99	-12.37	65.52	Fundamental	Horizontal	100	0	--	--	
#7	6250.10	54.72	3.25	-9.49	48.48	Peak (NRB)	Horizontal	100	145	--	--	Pass
#8	6946.55	53.43	3.35	-7.80	48.98	Peak (NRB)	Horizontal	123	360	--	--	Pass
#9	39961.14	68.60	2.60	-12.25	58.95	Max Peak	Horizontal	192	146	68.2	-9.3	Pass
Test Notes: EUT powered by POE												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9622-5001	**Variant:**	10MHz
Antenna Gain (dBi):	28.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5245.00	**Data Rate:**	13.00 MBit/s
Power Setting:	12.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	1331.99	67.90	1.49	-15.95	53.44	Max Peak	Horizontal	157	168	68.2	-14.8	Pass
#2	1331.99	62.15	1.49	-15.95	47.69	Max Avg	Horizontal	157	168	54.0	-6.2	Pass
#3	3996.11	66.62	2.60	-12.25	56.97	Max Peak	Horizontal	169	137	68.2	-11.3	Pass
#4	3996.11	59.82	2.60	-12.25	50.57	Max Avg	Horizontal	169	137	54.0	-3.4	Pass
#5	5243.13	75.13	3.02	-12.03	66.12	Fundamental	Horizontal	100	0	--	--	
#6	6249.99	53.09	3.25	-9.50	46.84	Peak (NRB)	Horizontal	100	180	--	--	Pass
Test Notes: EUT powered by POE. 5 G notch in front of amp to prevent overload												

9.4.1.7. RADWIN RW-9732-4958

Equipment Configuration for TX Spurious & Restricted Band Emissions			
Antenna:	RADWIN RW-9732-4958	**Variant:**	10MHz
Antenna Gain (dBi):	32.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	2.5	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	1332.00	70.76	1.49	-15.95	56.30	Max Peak	Horizontal	98	191	68.2	-11.9	Pass
#2	1332.00	62.48	1.49	-15.95	48.02	Max Avg	Horizontal	98	191	54.0	-6.0	Pass
#3	3995.96	67.38	2.60	-12.25	57.73	Max Peak	Horizontal	190	199	68.2	-10.5	Pass
#4	3995.96	60.58	2.60	-12.25	50.93	Max Avg	Horizontal	190	199	54.0	-3.1	Pass
#5	5177.86	66.42	2.97	-12.12	57.27	Fundamental	Vertical	151	0	--	--	
#6	6249.98	55.66	3.25	-9.50	49.41	Peak (NRB)	Horizontal	151	172	--	--	Pass
#7	6899.94	70.19	3.37	-8.00	65.56	Peak (NRB)	Vertical	135	13	68.2	-2.7	Pass
Test Notes: EUT powered by POE. 5G notch in front of amp to prevent overload. Power reduced to meet band edge limit												

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9732-4958	**Variant:**	10MHz
Antenna Gain (dBi):	32.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	7.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	1331.98	72.24	1.49	-15.95	57.78	Max Peak	Horizontal	139	170	68.2	-10.5	Pass
#2	1331.98	65.02	1.49	-15.95	50.56	Max Avg	Horizontal	139	170	54.0	-3.4	Pass
#3	3996.01	73.48	2.60	-12.25	63.83	Max Peak	Horizontal	98	185	68.2	-4.4	Pass
#4	3996.01	61.80	2.60	-12.25	52.15	Max Avg	Horizontal	98	185	54.0	-1.9	Pass
#5	5209.06	72.68	2.99	-12.38	63.29	Fundamental	Horizontal	151	0	--	--	
#6	6249.95	55.42	3.25	-9.50	49.17	Peak (NRB)	Horizontal	151	195	--	--	Pass
#7	6946.58	50.64	3.35	-7.80	46.19	Peak (NRB)	Horizontal	151	19	--	--	Pass

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	RADWIN RW-9732-4958	**Variant:**	10MHz
Antenna Gain (dBi):	32.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5245.00	**Data Rate:**	13.00 MBit/s
Power Setting:	7.0	**Tested By:**	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
#1	1332.02	71.17	1.49	-15.95	56.71	Max Peak	Horizontal	116	188	68.2	-11.5	Pass
#2	1332.02	63.11	1.49	-15.95	48.65	Max Avg	Horizontal	116	188	54.0	-5.4	Pass
#3	3996.00	73.35	2.60	-12.25	63.70	Max Peak	Horizontal	99	185	68.2	-4.5	Pass
#4	3996.00	61.68	2.60	-12.25	52.03	Max Avg	Horizontal	99	185	54.0	-2.0	Pass
#5	5243.02	70.71	3.02	-12.03	61.70	Fundamental	Horizontal	151	0	--	--	
#6	6249.92	55.32	3.25	-9.50	49.07	Peak (NRB)	Horizontal	151	195	--	--	Pass
Test Notes: EUT powered by POE. 5G notch in front of amp to prevent overload.												

9.4.2. Restricted Edge & Band-Edge Emissions

9.4.2.8. RADWIN MT0268450

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RADWIN MT0268450		Band-Edge Freq	Limit 68.2dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10MHz	5175.00	5150.00	66.72	53.21	5.0
20MHz	5180.00	5150.00	66.40	52.56	5.0
40MHz	5190.00	5150.00	66.46	52.89	5.0
80MHz	5210.00	5150.00	64.52	52.22	1.5

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN MT0268450	**Variant:**	10MHz
Antenna Gain (dBi):	25.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	5.0	**Tested By:**	JMH

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	5134.97	29.55	2.99	34.18	66.72	Max Peak	Vertical	170	347	68.2	-1.5	Pass
#2	5150.00	16.07	2.93	34.21	53.21	Max Avg	Vertical	170	347	54.0	-0.8	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN MT0268450	**Variant:**	20MHz
Antenna Gain (dBi):	25.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.00	**Data Rate:**	13.00 MBit/s
Power Setting:	5.0	**Tested By:**	JMH

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	5143.29	29.26	2.94	34.20	66.40	Max Peak	Vertical	170	347	68.2	-1.8	Pass
#2	5150.00	15.42	2.93	34.21	52.56	Max Avg	Vertical	170	347	54.0	-1.4	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN MT0268450	**Variant:**	40MHz
Antenna Gain (dBi):	25.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	90
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.00 MBit/s
Power Setting:	5.0	**Tested By:**	JMH

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	5140.98	29.30	2.96	34.20	66.46	Max Peak	Vertical	170	347	68.2	-1.8	Pass
#2	5150.00	15.75	2.93	34.21	52.89	Max Avg	Vertical	170	347	54.0	-1.1	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 0.4 dB DCCF added to average measurement												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN MT0268450	**Variant:**	80MHz
Antenna Gain (dBi):	25.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	75
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	1.5	**Tested By:**	JMH

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	15.08	2.93	34.21	52.22	Max Avg	Vertical	170	347	54.0	-1.8	Pass
#2	5150.00	27.38	2.93	34.21	64.52	Max Peak	Vertical	170	347	68.2	-3.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 1.25 dB DCCF added to average measurement												

9.4.2.9. RADWIN RW-9105-4958 – Point to Multi-Point

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RADWIN RW-9105-4958		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10MHz	5175.00	5150.00	66.87	52.73	15.0
20MHz	5180.00	5150.00	65.79	52.73	14.5
40MHz	5190.00	5150.00	67.27	53.92	11.0
80MHz	5210.00	5150.00	67.50	53.93	10.5

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	15.0	**Tested By:**	JMH

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	15.59	2.93	34.21	52.73	Max Avg	Vertical	147	1	54.0	-1.3	Pass
#2	5150.00	29.73	2.93	34.21	66.87	Max Peak	Vertical	147	1	74.0	-7.1	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	20MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.00	**Data Rate:**	13.00 MBit/s
Power Setting:	14.5	**Tested By:**	JMH

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	15.59	2.93	34.21	52.73	Max Avg	Vertical	147	1	54.0	-1.3	Pass
#2	5150.00	28.65	2.93	34.21	65.79	Max Peak	Vertical	147	1	74.0	-8.2	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	40MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	90
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.00 MBit/s
Power Setting:	11.0	**Tested By:**	JMH

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	16.78	2.93	34.21	53.92	Max Avg	Vertical	147	1	54.0	-0.1	Pass
#2	5150.00	30.13	2.93	34.21	67.27	Max Peak	Vertical	147	1	74.0	-6.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 0.4 dB DCCF added to average measurement.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	80MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	75
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	10.5	**Tested By:**	JMH

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	16.79	2.93	34.21	53.93	Max Avg	Vertical	147	1	54.0	-0.1	Pass
#2	5150.00	30.36	2.93	34.21	67.50	Max Peak	Vertical	147	1	74.0	-6.5	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 1.25 dB DCCF added to average measurement.												

9.4.2.10. RADWIN RW-9105-4958 – Point to Point

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RADWIN RW-9105-4958		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10MHz	5175.00	5150.00	66.28	53.52	15.0
20MHz	5180.00	5150.00	67.72	53.71	15.0
40MHz	5190.00	5150.00	65.32	53.53	11.0
80MHz	5210.00	5150.00	64.40	53.11	10.5

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	10MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	15.0	**Tested By:**	JMH

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	16.38	2.93	34.21	53.52	Max Avg	Vertical	168	0	54.0	-0.5	Pass
#2	5150.00	29.14	2.93	34.21	66.28	Max Peak	Vertical	168	0	74.0	-7.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	20MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.00	**Data Rate:**	13.00 MBit/s
Power Setting:	15.0	**Tested By:**	JMH

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	16.57	2.93	34.21	53.71	Max Avg	Vertical	168	0	54.0	-0.3	Pass
#2	5150.00	30.58	2.93	34.21	67.72	Max Peak	Vertical	168	0	74.0	-6.3	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	40MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	90
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.00 MBit/s
Power Setting:	11.0	**Tested By:**	JMH

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	16.39	2.93	34.21	53.53	Max Avg	Vertical	168	0	54.0	-0.5	Pass
#2	5150.00	28.18	2.93	34.21	65.32	Max Peak	Vertical	168	0	74.0	-8.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 0.4 dB DCCF added to average measurement.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-4958	**Variant:**	80MHz
Antenna Gain (dBi):	16.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	75
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	10.5	**Tested By:**	JMH

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	14.72	2.93	34.21	53.11	Max Avg	Vertical	168	0	54.0	-0.9	Pass
#2	5150.00	27.26	2.93	34.21	64.40	Max Peak	Vertical	168	0	74.0	-9.6	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 1.25 dB DCCF added to average measurement.												

9.4.2.11. RADWIN RW-9105-5159 – Point to Multi-Point

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RADWIN RW-9105-5159		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10MHz	5175.00	5150.00	66.78	52.68	16.5
20MHz	5180.00	5150.00	69.08	53.91	17.0
40MHz	5190.00	5150.00	66.51	53.23	12.0
80MHz	5210.00	5150.00	66.39	53.48	11.0

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	16.5	**Tested By:**	JMH

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	15.54	2.93	34.21	52.68	Max Avg	Horizontal	157	1	54.0	-1.3	Pass
#2	5150.00	29.64	2.93	34.21	66.78	Max Peak	Horizontal	157	1	74.0	-7.2	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	20MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.00	**Data Rate:**	13.00 MBit/s
Power Setting:	17.0	**Tested By:**	JMH

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	5148.50	31.96	2.91	34.21	69.08	Max Peak	Horizontal	157	1	74.0	-4.9	Pass
#2	5150.00	16.77	2.93	34.21	53.91	Max Avg	Horizontal	157	1	54.0	-0.1	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	40MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	90
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.00 MBit/s
Power Setting:	12.0	**Tested By:**	JMH

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	16.09	2.93	34.21	53.23	Max Avg	Horizontal	157	1	54.0	-0.8	Pass
#2	5150.00	29.37	2.93	34.21	66.51	Max Peak	Horizontal	157	1	74.0	-1.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. Avg measurements have 0.4 dB DCCF added												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	80MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	75
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	11.0	**Tested By:**	JMH

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	16.74	2.93	34.21	53.48	Max Avg	Horizontal	157	1	54.0	-0.1	Pass
#2	5150.00	29.25	2.93	34.21	66.39	Max Peak	Horizontal	157	1	74.0	-7.6	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. Avg measurements have 1.25 dB DCCF added												

9.4.2.12. RADWIN RW-9105-5159 – Point to Point

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RADWIN RW-9105-5159		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10MHz	5175.00	5150.00	64.71	52.30	16.5
20MHz	5180.00	5150.00	67.15	52.73	15.5
40MHz	5190.00	5150.00	66.02	53.73	12.0
80MHz	5210.00	5150.00	64.71	53.77	11.0

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	10MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	16.5	**Tested By:**	JMH

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	5145.49	27.59	2.92	34.20	64.71	Max Peak	Horizontal	112	4	74.0	-9.3	Pass
#2	5150.00	15.16	2.93	34.21	52.30	Max Avg	Horizontal	112	4	54.0	-1.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	20MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.00	**Data Rate:**	13.00 MBit/s
Power Setting:	15.5	**Tested By:**	JMH

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	5148.50	30.03	2.91	34.21	67.15	Max Peak	Horizontal	112	4	74.0	-6.9	Pass
#2	5150.00	15.59	2.93	34.21	52.73	Max Avg	Horizontal	112	4	54.0	-1.3	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	40MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	90
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.00 MBit/s
Power Setting:	12.0	**Tested By:**	JMH

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	5148.50	28.90	2.91	34.21	66.02	Max Peak	Horizontal	112	4	74.0	-8.0	Pass
#2	5150.00	16.59	2.93	34.21	53.73	Max Avg	Horizontal	112	4	54.0	-0.3	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 0.4 dB DCCF added to average measurement												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9105-5159	**Variant:**	80MHz
Antenna Gain (dBi):	13.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	75
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	11.0	**Tested By:**	JMH

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	5143.99	27.58	2.93	34.20	64.71	Max Peak	Horizontal	112	4	74.0	-9.3	Pass
#2	5150.00	16.63	2.93	34.21	53.77	Max Avg	Horizontal	112	4	54.0	-0.2	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 1.25 dB DCCF added to average measurement												

9.4.2.13. RADWIN RW-9622-5001 – Point to Point

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RADWIN RW-9105-5159		Band-Edge Freq	Limit 74.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10MHz	5175.00	5150.00	66.75	53.29	0.5
20MHz	5180.00	5150.00	65.83	53.13	0.5
40MHz	5190.00	5150.00	63.96	52.48	0.0
80MHz	5210.00	5150.00	64.34	53.33	0.0

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9622-5001	**Variant:**	10MHz
Antenna Gain (dBi):	28.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	0.5	**Tested By:**	JMH

Test Measurement Results

5100.00 - 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	5136.17	16.10	3.00	34.19	53.29	Max Avg	Vertical	158	1	54.0	-0.7	Pass
#2	5148.20	29.63	2.91	34.21	66.75	Max Peak	Vertical	158	1	74.0	-7.3	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9622-5001	**Variant:**	20MHz
Antenna Gain (dBi):	28.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.00	**Data Rate:**	13.00 MBit/s
Power Setting:	0.5	**Tested By:**	JMH

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	5145.49	28.71	2.92	34.20	65.83	Max Peak	Vertical	158	1	74.0	-8.2	Pass
#2	5150.00	15.99	2.93	34.21	53.13	Max Avg	Vertical	158	1	54.0	-0.9	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9622-5001	**Variant:**	40MHz
Antenna Gain (dBi):	28.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	90
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.00 MBit/s
Power Setting:	0.0	**Tested By:**	JMH

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	5148.50	26.84	2.91	34.21	63.96	Max Peak	Vertical	158	1	74.0	-10.0	Pass
#2	5150.00	15.34	2.93	34.21	52.48	Max Avg	Vertical	158	1	54.0	-1.5	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 0.4 dB DCCF added to average measurement.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9622-5001	**Variant:**	80MHz
Antenna Gain (dBi):	28.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	75
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	0.0	**Tested By:**	JMH

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	5144.79	27.22	2.92	34.20	64.34	Max Peak	Vertical	158	1	74.0	-9.7	Pass
#2	5150.00	16.29	2.93	34.21	53.33	Max Avg	Vertical	158	1	54.0	-0.7	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 1.25 dB DCCF added to average measurement.												

9.4.2.14. RADWIN RW-9732-4958

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RADWIN RW-9732-4958		Band-Edge Freq	Limit 68.2dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
10MHz	5175.00	5150.00	65.93	52.81	2.5
20MHz	5180.00	5150.00	65.26	52.71	2.5
40MHz	5190.00	5150.00	66.12	52.81	2.5
80MHz	5210.00	5150.00	66.06	53.76	2.0

Click on the links to view the data.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9732-4958	**Variant:**	10MHz
Antenna Gain (dBi):	32.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	2.5	**Tested By:**	JMH

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	15.67	2.93	34.21	52.81	Max Avg	Horizontal	139	351	54.0	-1.2	Pass
#2	5150.00	28.79	2.93	34.21	65.93	Max Peak	Horizontal	139	351	68.2	-2.3	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--

Test Notes: EUT powered by POE.

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9732-4958	**Variant:**	20MHz
Antenna Gain (dBi):	32.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.00	**Data Rate:**	13.00 MBit/s
Power Setting:	2.5	**Tested By:**	JMH

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	5143.99	28.13	2.93	34.20	65.26	Max Peak	Horizontal	139	351	74.0	-8.7	Pass
#2	5150.00	15.57	2.93	34.21	52.71	Max Avg	Horizontal	139	351	54.0	-1.3	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9732-4958	**Variant:**	40MHz
Antenna Gain (dBi):	32.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	90
Channel Frequency (MHz):	5190.00	**Data Rate:**	13.00 MBit/s
Power Setting:	2.5	**Tested By:**	JMH

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	5143.99	28.99	2.93	34.20	66.12	Max Peak	Horizontal	139	351	74.0	-7.9	Pass
#2	5150.00	15.67	2.93	34.21	52.81	Max Avg	Horizontal	139	351	54.0	-1.2	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 0.4 dB DCCF added to average measurement.												

Equipment Configuration for Restricted Lower Band-Edge Emissions

Antenna:	RADWIN RW-9732-4958	**Variant:**	80MHz
Antenna Gain (dBi):	32.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	75
Channel Frequency (MHz):	5210.00	**Data Rate:**	13.00 MBit/s
Power Setting:	2.0	**Tested By:**	JMH

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	5113.93	28.98	2.94	34.14	66.06	Max Peak	Horizontal	139	351	74.0	-7.9	Pass
#2	5145.49	16.54	2.92	34.20	53.76	Max Avg	Horizontal	139	351	54.0	-0.2	Pass
#3	5150.00	--	--	--	--	Restricted-Band	--	--	--	--	--	--
Test Notes: EUT powered by POE. 1.25 dB DCCF added to average measurement.												

9.4.3. 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) (15.209)

(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

Antenna:	RADWIN MR0204670	**Variant:**	10MHz
Antenna Gain (dBi):	22.00	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5175.00	**Data Rate:**	13.00 MBit/s
Power Setting:	11	**Tested By:**	JMH

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	64.76	49.10	3.84	-20.75	32.19	MaxQP	Vertical	104	303	40.0	-7.8	Pass
#2	119.71	47.83	4.16	-14.67	37.32	MaxQP	Vertical	101	112	43.0	-5.7	Pass
#3	121.12	48.36	4.17	-14.68	37.85	MaxQP	Vertical	98	115	43.0	-5.2	Pass
#4	134.05	51.80	4.23	-14.92	41.11	MaxQP	Vertical	99	118	43.0	-1.9	Pass
#5	134.36	51.77	4.23	-14.92	41.08	MaxQP	Vertical	102	108	43.0	-1.9	Pass

Test Notes: AP0263540 with 22 dBi antenna in plastic enclosure.

Equipment Configuration for Digital Emissions			
Antenna:	RADWIN RW-9732-4958	**Variant:**	10MHz
Antenna Gain (dBi):	32.0	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5730.00	**Data Rate:**	13.00 MBit/s
Power Setting:	8.0	**Tested By:**	JMH

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	43.07	51.66	3.67	-17.38	37.95	MaxQP	Vertical	104	48	40.0	-2.1	Pass
#2	45.53	51.38	3.68	-18.57	36.49	MaxQP	Vertical	102	27	40.0	-3.5	Pass
#3	125.01	47.75	4.19	-14.55	37.39	MaxQP	Horizontal	134	17	43.0	-5.6	Pass
#4	140.37	54.03	4.26	-15.40	42.89	MaxQP	Horizontal	147	131	43.0	-0.1	Pass
#5	141.83	47.78	4.27	-15.40	42.65	MaxQP	Horizontal	189	144	43.0	-0.4	Pass
#6	206.19	49.79	4.55	-17.17	37.17	MaxQP	Horizontal	100	213	43.0	-5.8	Pass

Test Notes: EUT powered by POE.

9.5. 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:

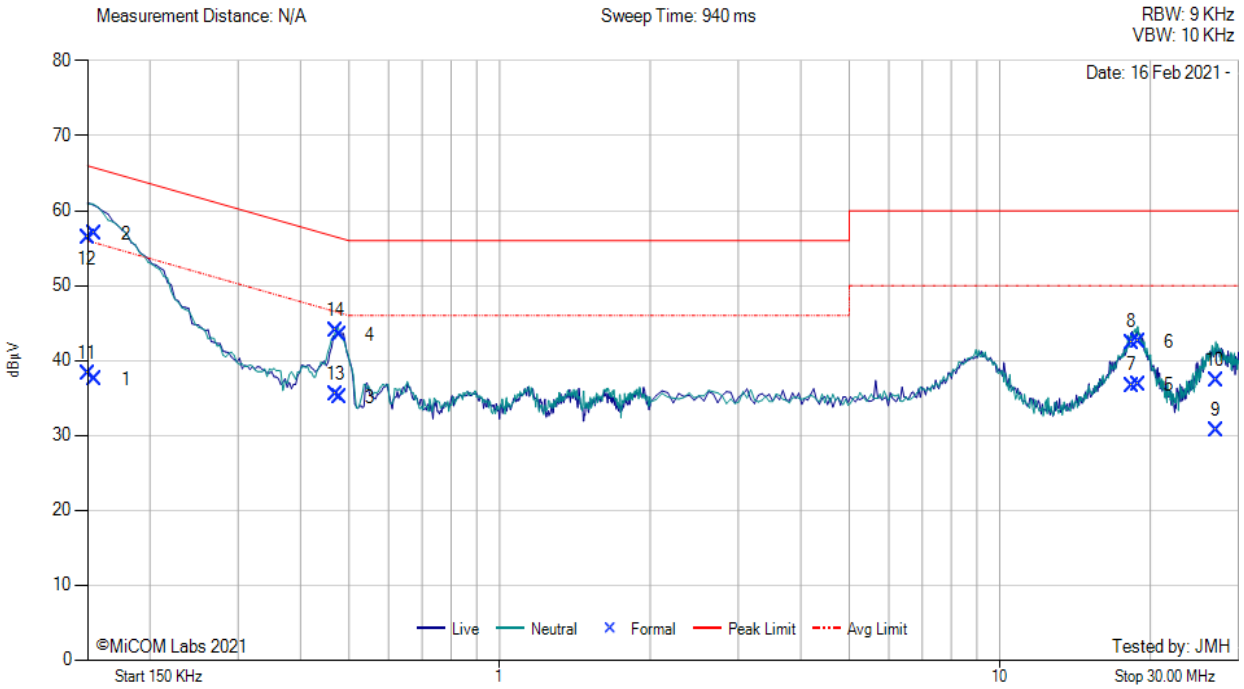
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(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.

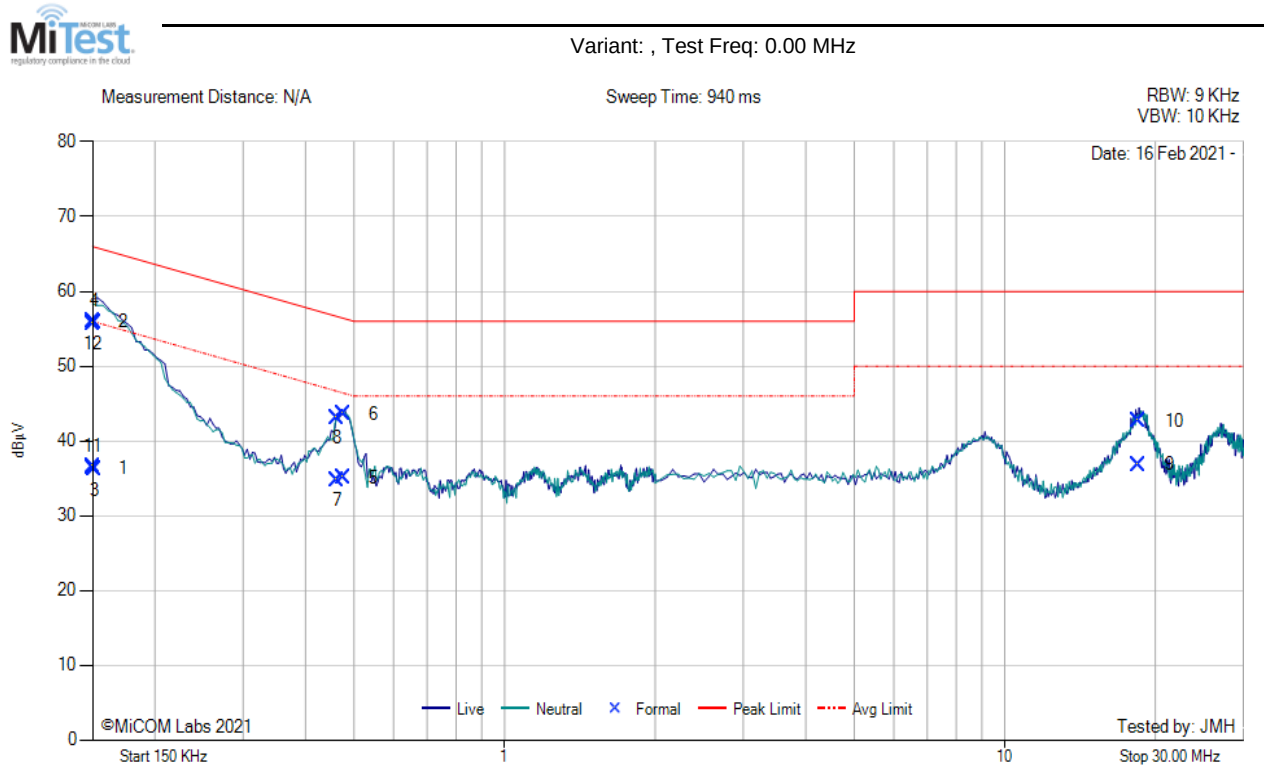
Model:	AP0263530	Configuration tested:	120 Vac, 60 Hz
Input power:	120V_{AC}/60Hz	Standard:	FCC Part 15B



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	0.155	27.57	0.05	9.92	9.97	37.54	Max Avg	Live	55.9	-18.3	Pass
2	0.155	46.89	0.05	9.92	9.97	56.86	Max Qp	Live	65.9	-9.0	Pass
3	0.478	25.08	0.08	9.93	10.01	35.09	Max Avg	Neutral	46.6	-11.5	Pass
4	0.478	33.41	0.08	9.93	10.01	43.42	Max Qp	Neutral	56.6	-13.2	Pass
5	18.889	25.54	0.60	10.62	11.22	36.76	Max Avg	Neutral	50.0	-13.2	Pass
6	18.889	31.31	0.60	10.62	11.22	42.53	Max Qp	Neutral	60.0	-17.5	Pass
7	18.366	25.46	0.57	10.60	11.17	36.63	Max Avg	Live	50.0	-13.4	Pass
8	18.366	31.24	0.57	10.60	11.17	42.41	Max Qp	Live	60.0	-17.6	Pass
9	27.039	19.08	0.73	10.89	11.62	30.70	Max Avg	Neutral	50.0	-19.3	Pass
10	27.039	25.68	0.73	10.89	11.62	37.30	Max Qp	Neutral	60.0	-22.7	Pass
11	0.150	28.25	0.05	9.92	9.97	38.22	Max Avg	Live	56.0	-17.8	Pass
12	0.150	46.39	0.05	9.92	9.97	56.36	Max Qp	Live	66.0	-9.6	Pass
13	0.471	25.50	0.07	9.93	10.00	35.50	Max Avg	Live	46.8	-11.3	Pass
14	0.471	33.95	0.07	9.93	10.00	43.95	Max Qp	Live	56.8	-12.9	Pass

Test Notes: A0263530 powered by POE and connected to 13 dBi antenna. Transmitting 5785 MHz Max Power

Model:	AP0263540	Configuration tested:	120 Vac, 60 Hz
Input power:	120V_{AC}/60Hz	Standard:	FCC Part 15B

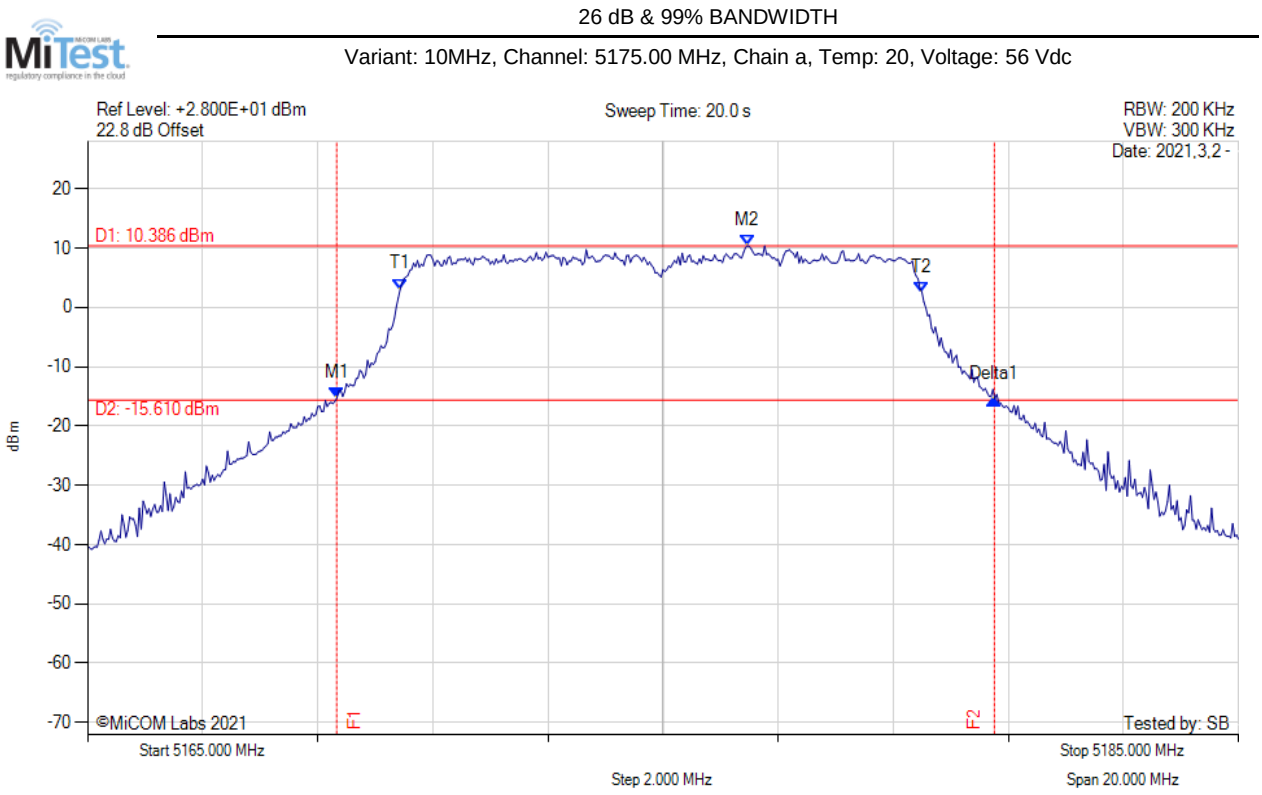


Num	Frequency MHz	Raw dBµV	Cable Loss dB	Factor dB	Total Correction dBµV	Corrected Value dBµV	Measurement Type	Line	Limit dBµV/m	Margin dB	Pass /Fail
1	0.150	26.43	0.05	9.92	9.97	36.40	Max Avg	Live	56.0	-19.6	Pass
2	0.150	45.98	0.05	9.92	9.97	55.95	Max Qp	Live	66.0	-10.1	Pass
3	0.152	26.21	0.05	9.92	9.97	36.18	Max Avg	Neutral	55.9	-19.8	Pass
4	0.152	45.93	0.05	9.92	9.97	55.90	Max Qp	Neutral	65.9	-10.0	Pass
5	0.476	25.10	0.08	9.93	10.01	35.11	Max Avg	Live	46.7	-11.6	Pass
6	0.476	33.61	0.08	9.93	10.01	43.62	Max Qp	Live	56.7	-13.1	Pass
7	0.463	24.77	0.07	9.93	10.00	34.77	Max Avg	Neutral	47.1	-12.3	Pass
8	0.463	33.14	0.07	9.93	10.00	43.14	Max Qp	Neutral	57.1	-13.9	Pass
9	18.532	25.68	0.58	10.61	11.19	36.87	Max Avg	Live	50.0	-13.1	Pass
10	18.532	31.45	0.58	10.61	11.19	42.64	Max Qp	Live	60.0	-17.4	Pass
11	0.150	26.60	0.05	9.92	9.97	36.57	Max Avg	Live	56.0	-19.4	Pass
12	0.150	45.72	0.05	9.92	9.97	55.69	Max Qp	Live	66.0	-10.3	Pass

Test Notes: A0263540 powered by POE and connected to 22 dBi antenna. Transmitting 5785 MHz max power

APPENDIX - GRAPHICAL IMAGES

A.1 26 dB & 99% Bandwidth

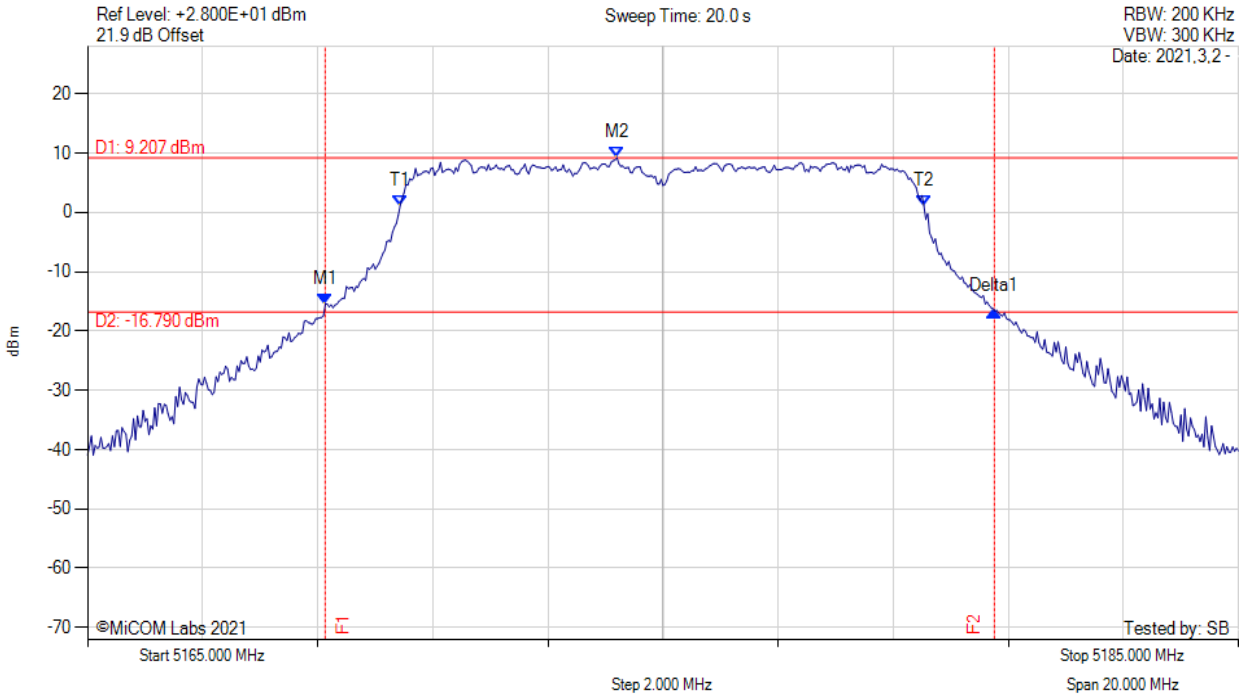


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.330 MHz : -15.277 dBm M2 : 5176.470 MHz : 10.386 dBm Delta1 : 11.430 MHz : -0.132 dB T1 : 5170.433 MHz : 3.095 dBm T2 : 5179.500 MHz : 2.527 dBm OBW : 9.070 MHz	Measured 26 dB Bandwidth: 11.430 MHz Measured 99% Bandwidth: 9.070 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5175.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

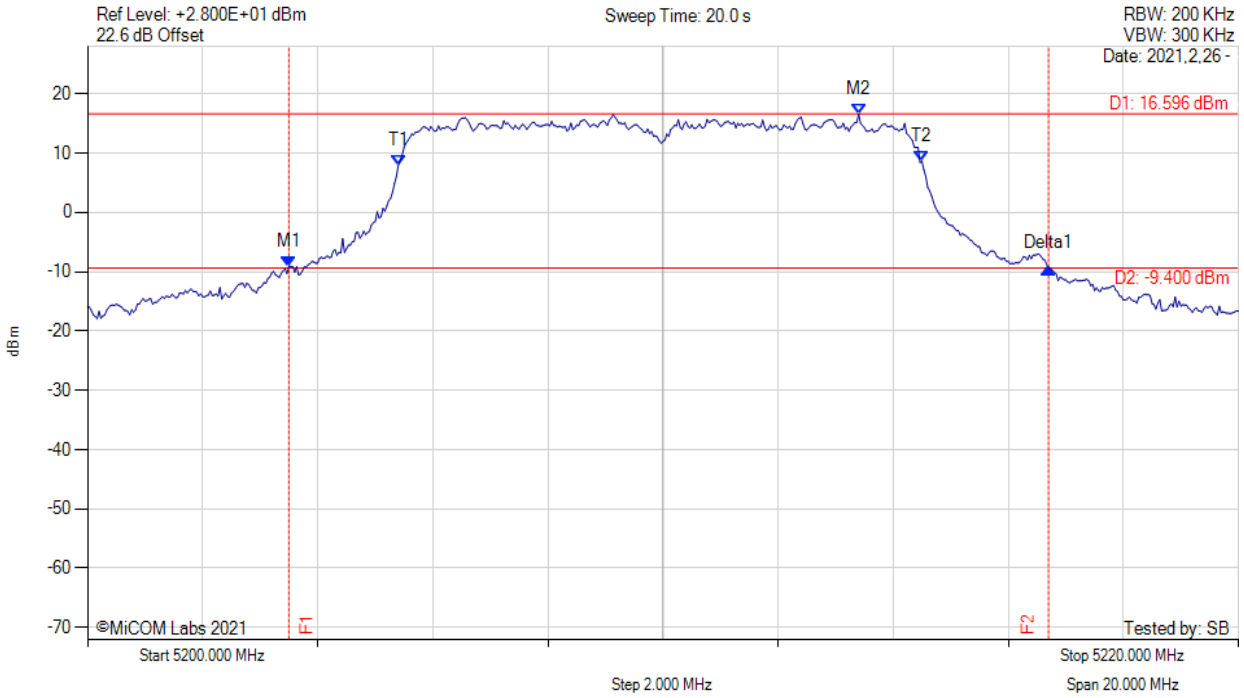


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.130 MHz : -15.461 dBm M2 : 5174.200 MHz : 9.207 dBm Delta1 : 11.630 MHz : -1.173 dB T1 : 5170.433 MHz : 1.195 dBm T2 : 5179.533 MHz : 1.178 dBm OBW : 9.066 MHz	Measured 26 dB Bandwidth: 11.630 MHz Measured 99% Bandwidth: 9.066 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

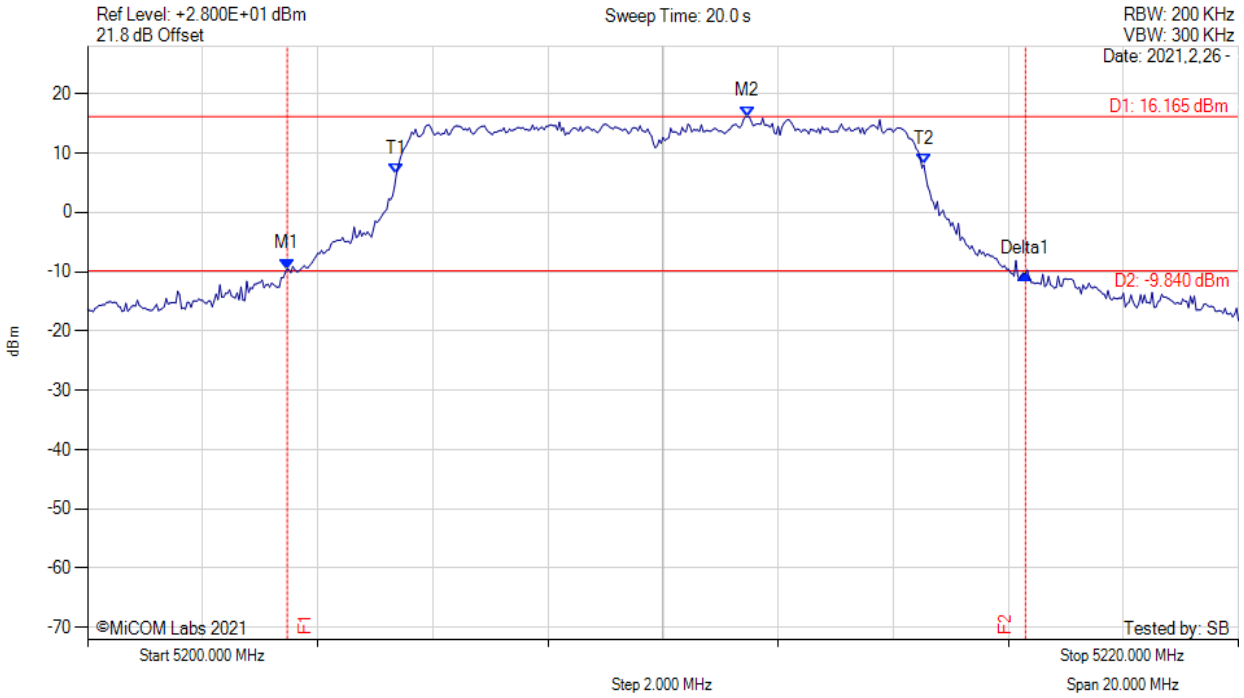


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5203.500 MHz : -9.137 dBm M2 : 5213.400 MHz : 16.596 dBm Delta1 : 13.200 MHz : -0.288 dB T1 : 5205.400 MHz : 7.934 dBm T2 : 5214.500 MHz : 8.616 dBm OBW : 9.118 MHz	Measured 26 dB Bandwidth: 13.200 MHz Measured 99% Bandwidth: 9.118 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

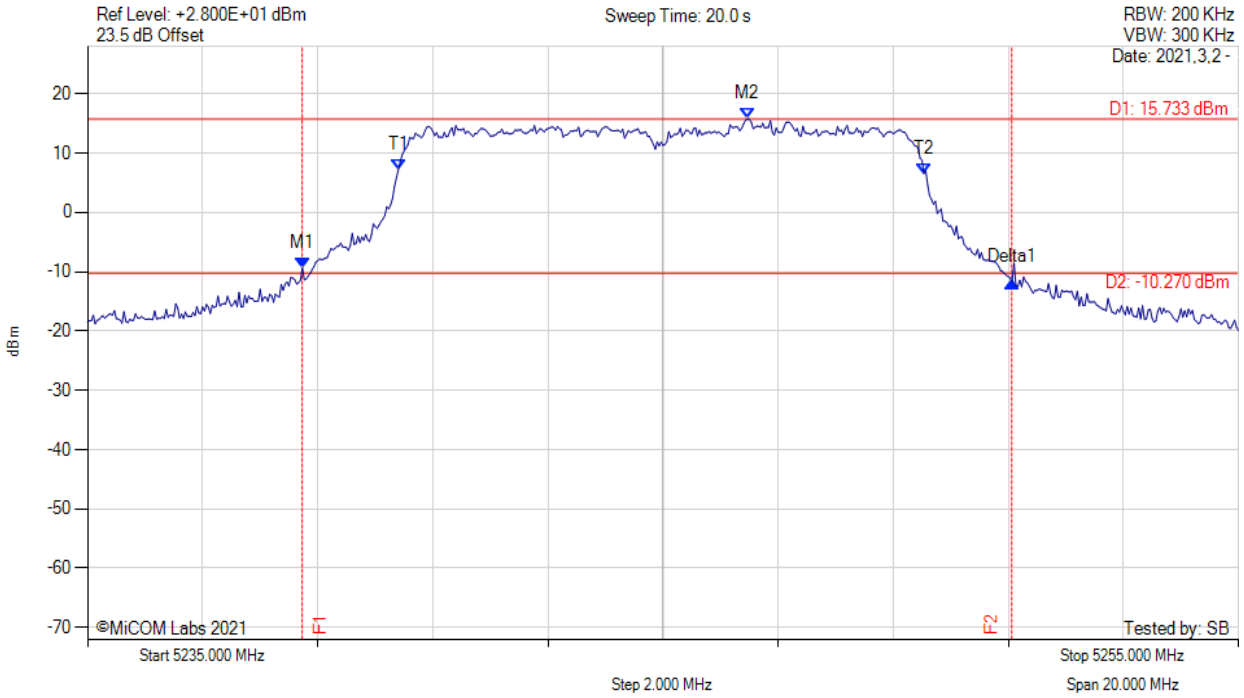


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5203.470 MHz : -9.530 dBm M2 : 5211.470 MHz : 16.165 dBm Delta1 : 12.830 MHz : -0.742 dB T1 : 5205.367 MHz : 6.423 dBm T2 : 5214.533 MHz : 8.010 dBm OBW : 9.153 MHz	Measured 26 dB Bandwidth: 12.830 MHz Measured 99% Bandwidth: 9.153 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5245.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

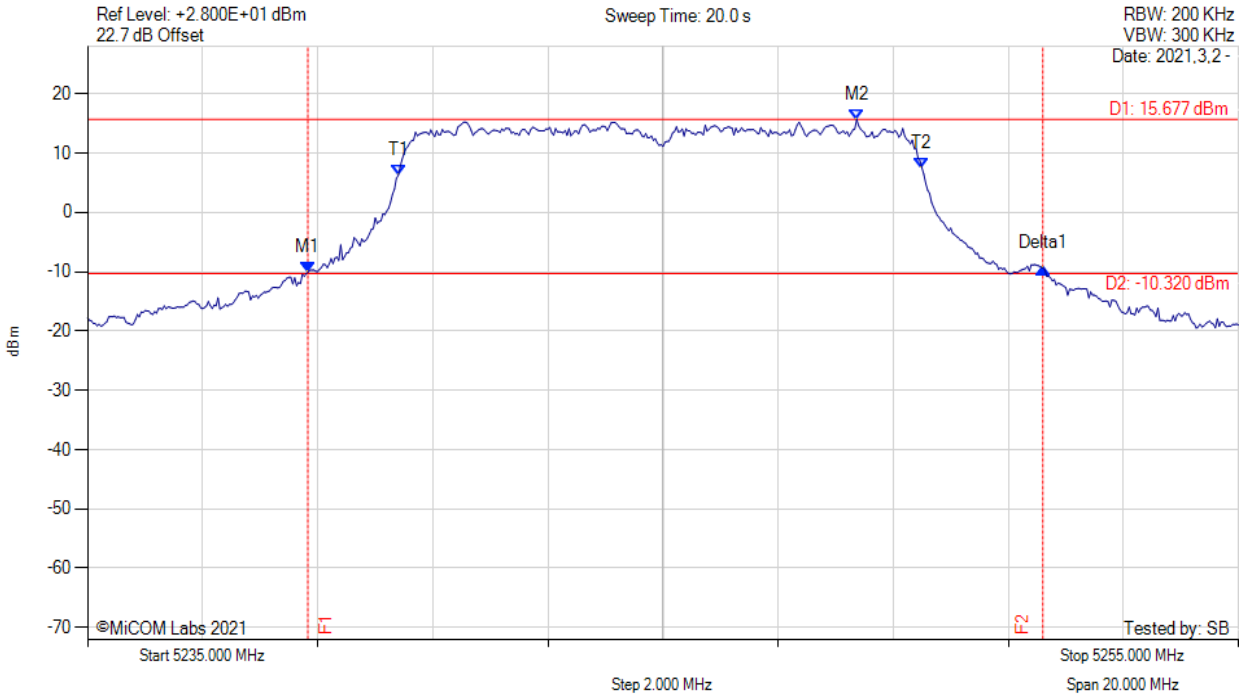


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5238.730 MHz : -9.375 dBm M2 : 5246.470 MHz : 15.733 dBm Delta1 : 12.330 MHz : -2.311 dB T1 : 5240.400 MHz : 7.179 dBm T2 : 5249.533 MHz : 6.537 dBm OBW : 9.133 MHz	Measured 26 dB Bandwidth: 12.330 MHz Measured 99% Bandwidth: 9.133 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5245.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

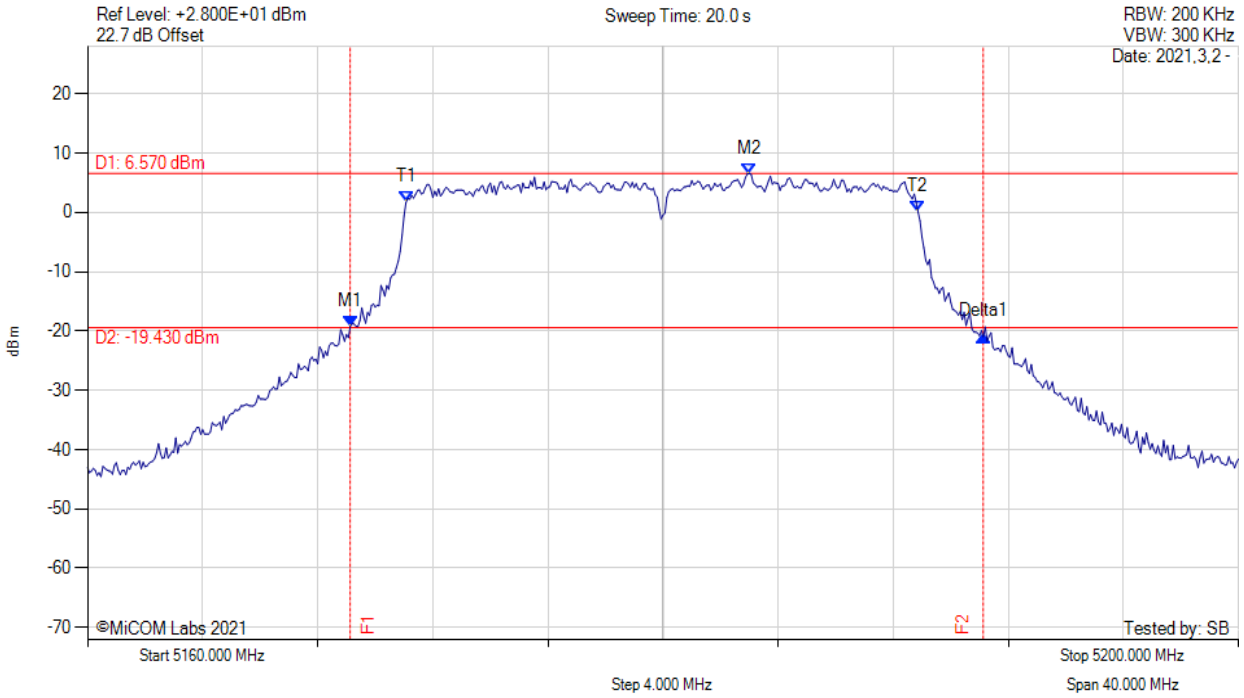


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5238.830 MHz : -10.031 dBm M2 : 5248.370 MHz : 15.677 dBm Delta1 : 12.770 MHz : 0.707 dB T1 : 5240.400 MHz : 6.241 dBm T2 : 5249.500 MHz : 7.472 dBm OBW : 9.100 MHz	Measured 26 dB Bandwidth: 12.770 MHz Measured 99% Bandwidth: 9.100 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

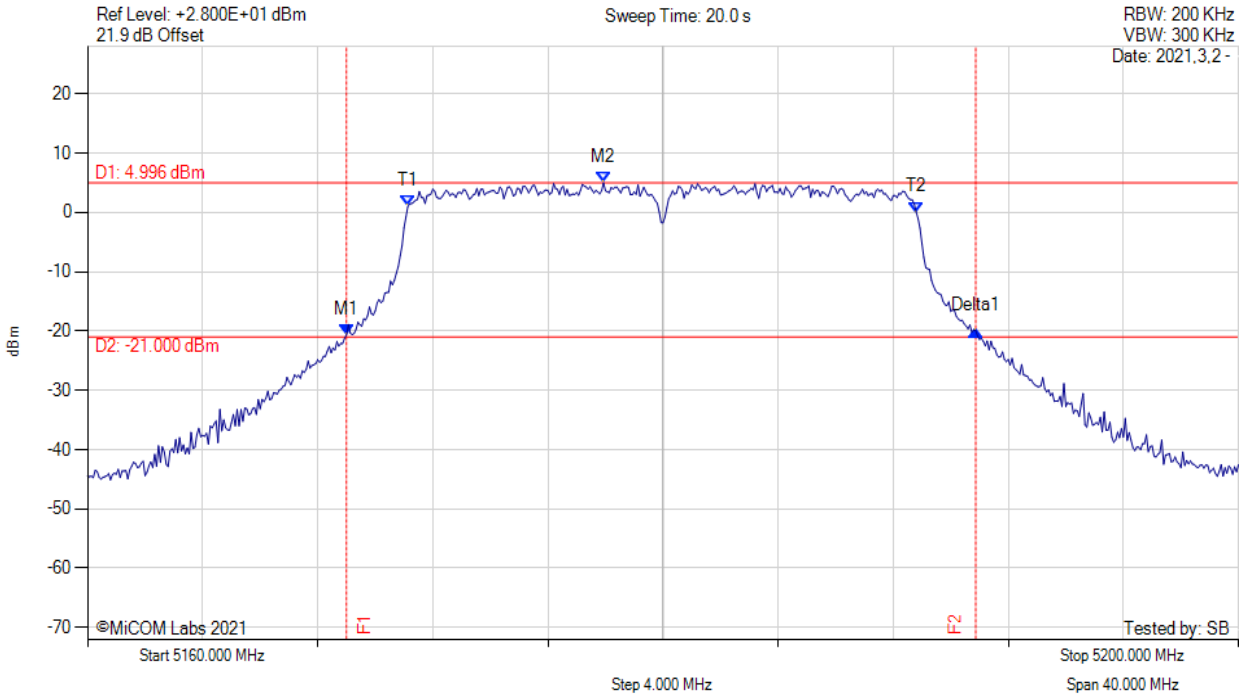


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.130 MHz : -19.185 dBm M2 : 5183.000 MHz : 6.570 dBm Delta1 : 22.000 MHz : -1.762 dB T1 : 5171.067 MHz : 1.699 dBm T2 : 5188.867 MHz : 0.057 dBm OBW : 17.746 MHz	Measured 26 dB Bandwidth: 22.000 MHz Measured 99% Bandwidth: 17.746 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

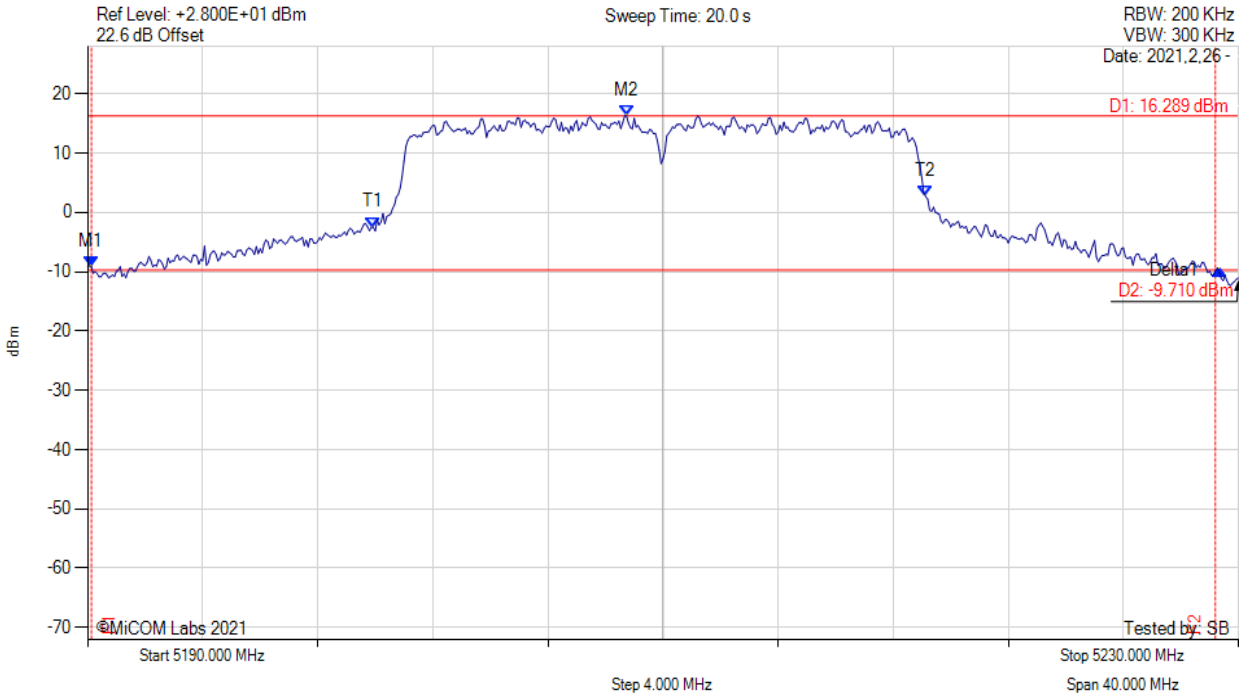


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.000 MHz : -20.635 dBm M2 : 5177.930 MHz : 4.996 dBm Delta1 : 21.870 MHz : 0.744 dB T1 : 5171.133 MHz : 1.020 dBm T2 : 5188.800 MHz : 0.044 dBm OBW : 17.699 MHz	Measured 26 dB Bandwidth: 21.870 MHz Measured 99% Bandwidth: 17.699 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

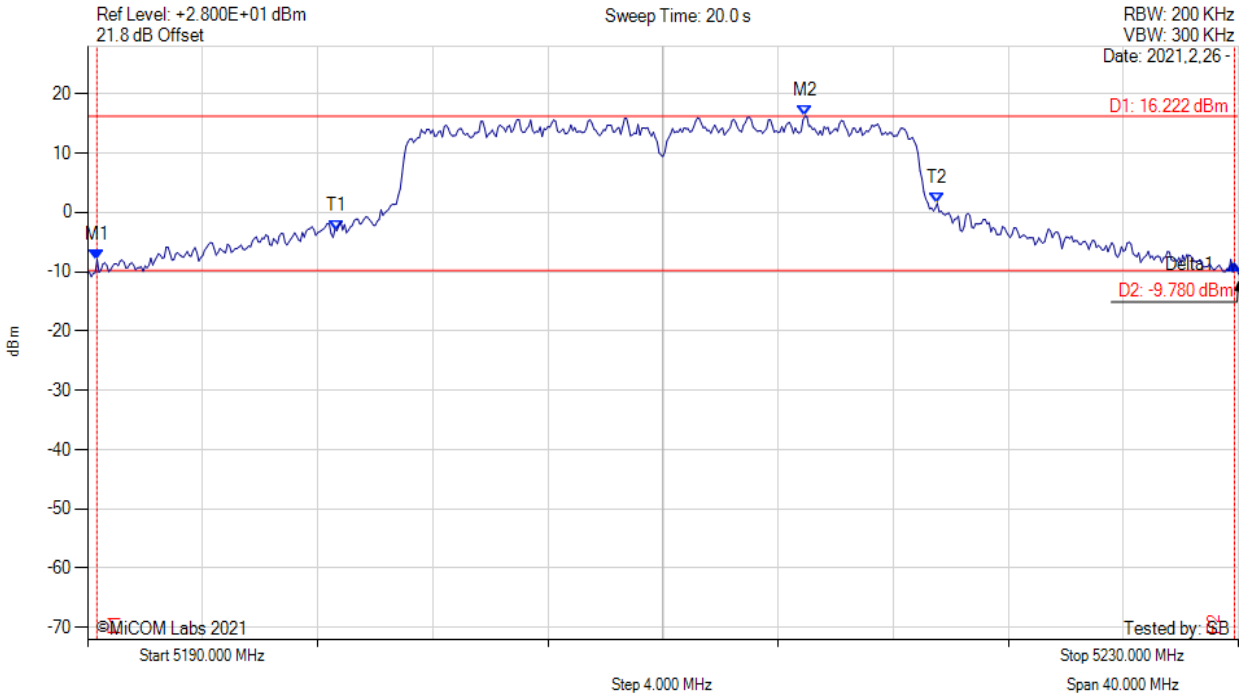


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5190.133 MHz : -9.221 dBm M2 : 5208.730 MHz : 16.289 dBm Delta1 : 39.200 MHz : -0.464 dB T1 : 5199.933 MHz : -2.515 dBm T2 : 5219.133 MHz : 2.659 dBm OBW : 20.547 MHz	Measured 26 dB Bandwidth: 39.200 MHz Measured 99% Bandwidth: 20.547 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

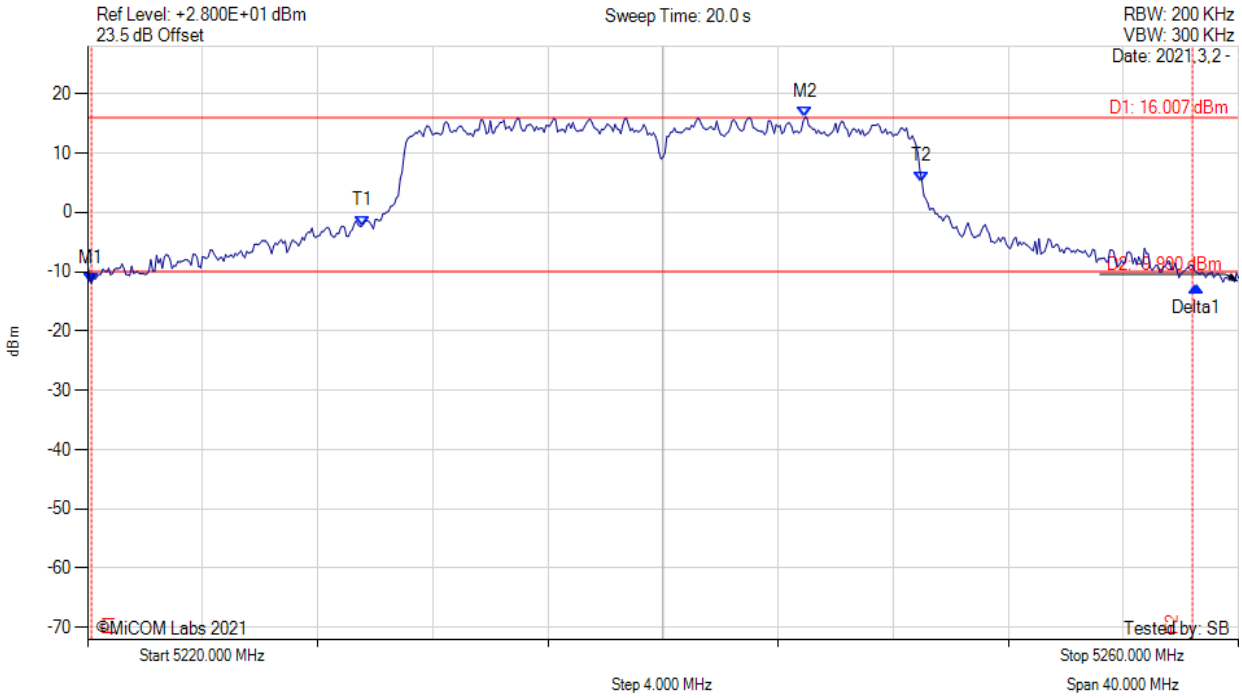


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5190.330 MHz : -7.935 dBm M2 : 5214.930 MHz : 16.222 dBm Delta1 : 39.530 MHz : -0.759 dB T1 : 5198.667 MHz : -3.109 dBm T2 : 5219.533 MHz : 1.528 dBm OBW : 22.802 MHz	Measured 26 dB Bandwidth: 39.530 MHz Measured 99% Bandwidth: 22.802 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

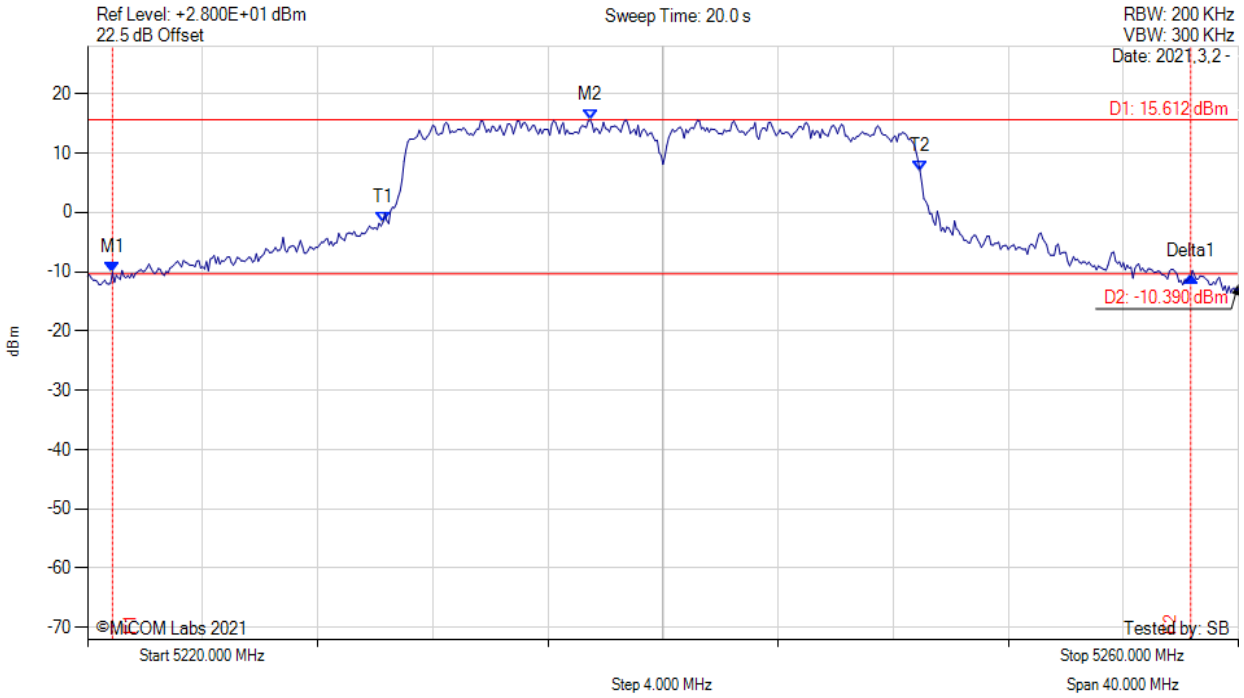


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5220.133 MHz : -12.000 dBm M2 : 5244.930 MHz : 16.007 dBm Delta1 : 38.410 MHz : -0.501 dB T1 : 5229.533 MHz : -2.306 dBm T2 : 5249.000 MHz : 5.179 dBm OBW : 20.383 MHz	Measured 26 dB Bandwidth: 38.410 MHz Measured 99% Bandwidth: 20.383 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

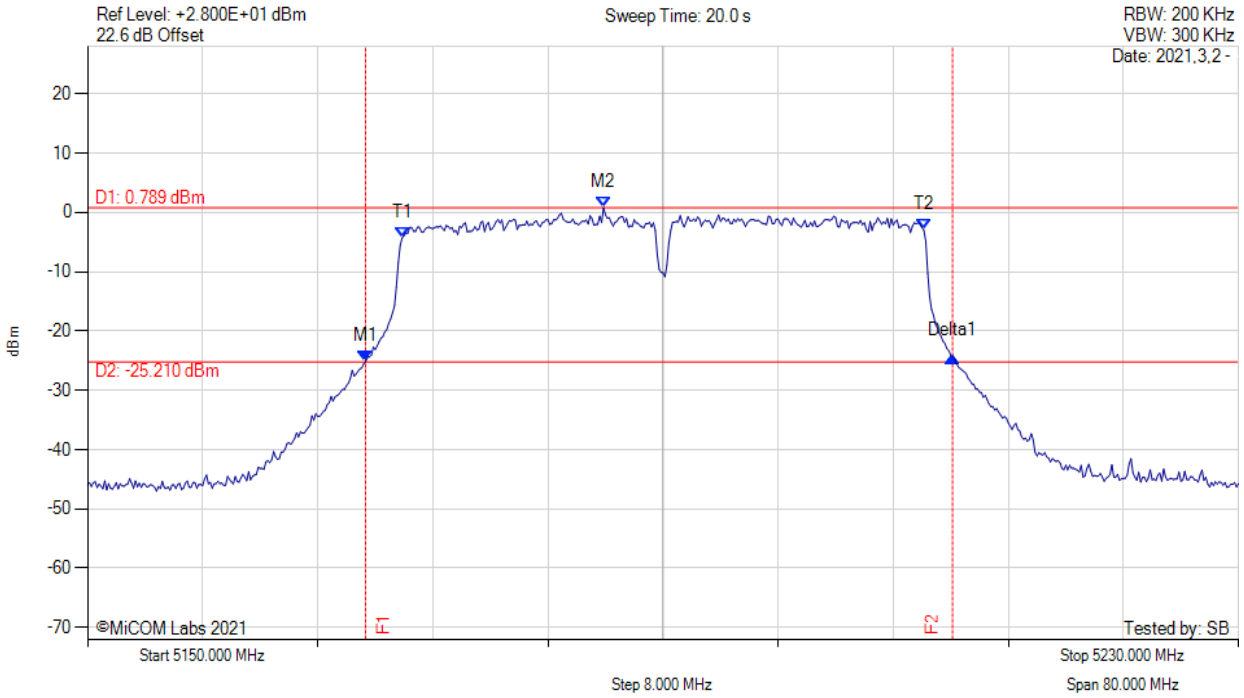


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5220.870 MHz : -10.130 dBm M2 : 5237.470 MHz : 15.612 dBm Delta1 : 37.470 MHz : -0.729 dB T1 : 5230.267 MHz : -1.674 dBm T2 : 5248.933 MHz : 7.013 dBm OBW : 19.241 MHz	Measured 26 dB Bandwidth: 37.470 MHz Measured 99% Bandwidth: 19.241 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5190.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

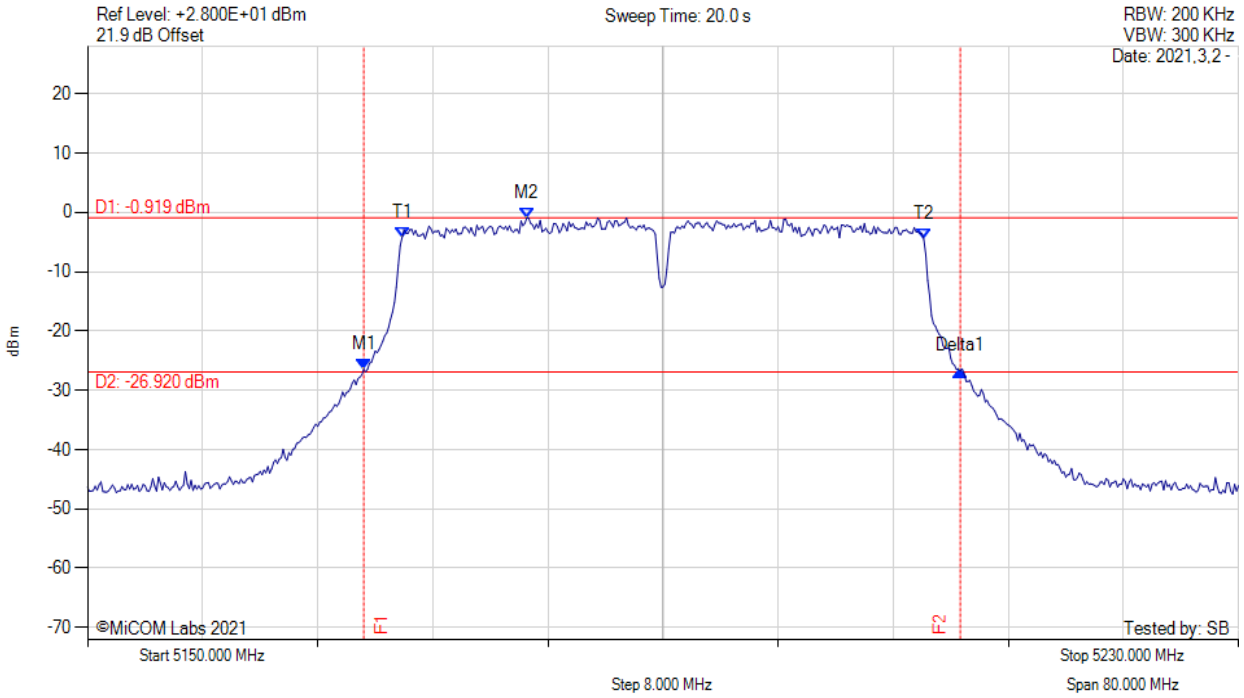


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.330 MHz : -25.150 dBm M2 : 5185.870 MHz : 0.789 dBm Delta1 : 40.800 MHz : 0.877 dB T1 : 5171.867 MHz : -4.334 dBm T2 : 5208.133 MHz : -2.961 dBm OBW : 36.186 MHz	Measured 26 dB Bandwidth: 40.800 MHz Measured 99% Bandwidth: 36.186 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5190.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

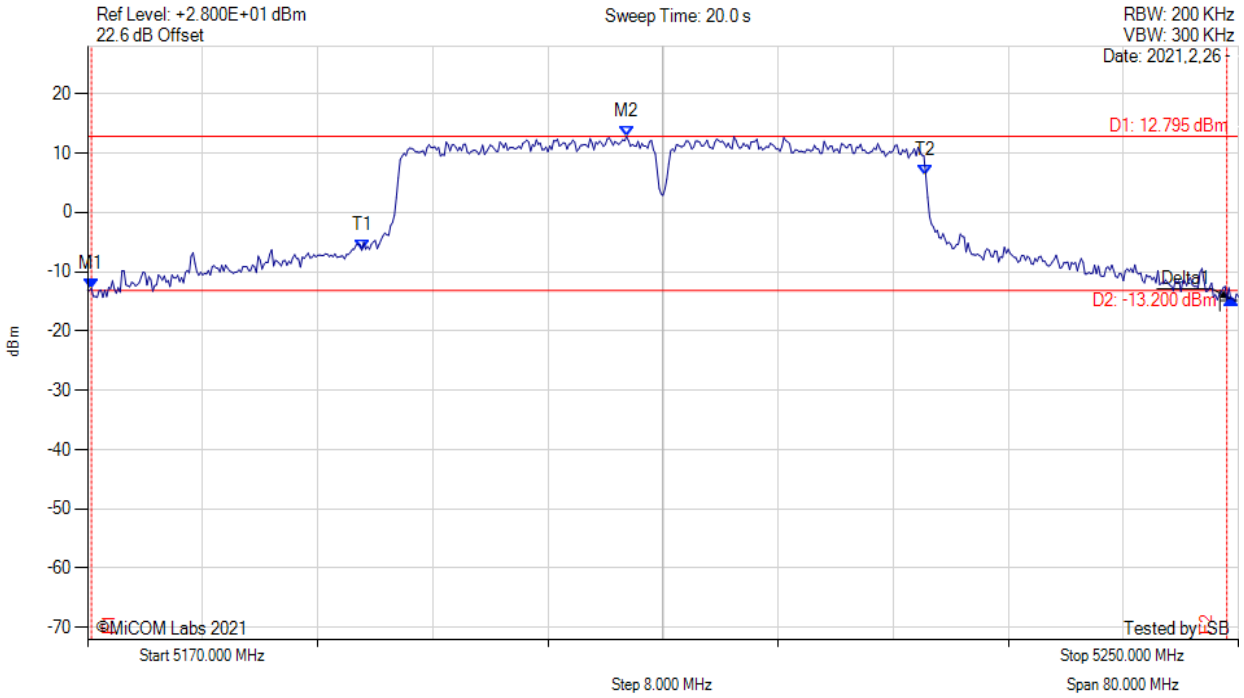


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.200 MHz : -26.452 dBm M2 : 5180.530 MHz : -0.919 dBm Delta1 : 41.470 MHz : -0.252 dB T1 : 5171.867 MHz : -4.241 dBm T2 : 5208.133 MHz : -4.565 dBm OBW : 36.187 MHz	Measured 26 dB Bandwidth: 41.470 MHz Measured 99% Bandwidth: 36.187 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

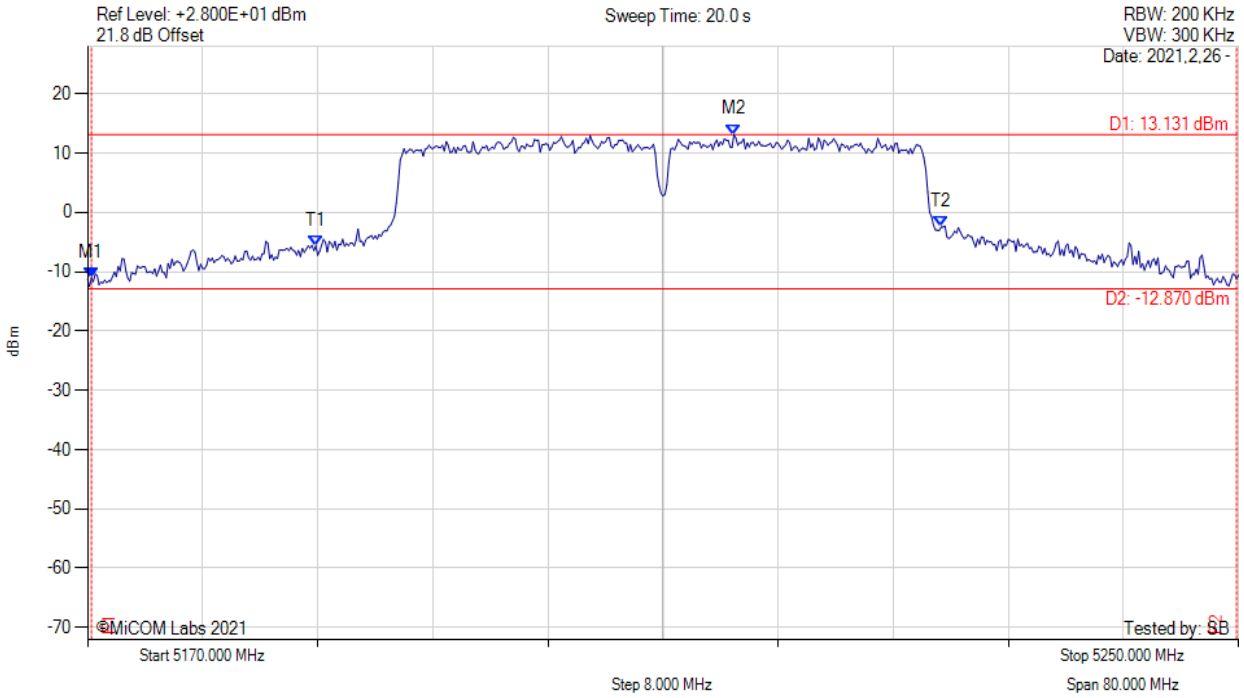


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5170.267 MHz : -12.833 dBm M2 : 5207.470 MHz : 12.795 dBm Delta1 : 79.200 MHz : -1.791 dB T1 : 5189.067 MHz : -6.426 dBm T2 : 5228.267 MHz : 6.209 dBm OBW : 41.569 MHz	Measured 26 dB Bandwidth: 79.200 MHz Measured 99% Bandwidth: 41.569 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

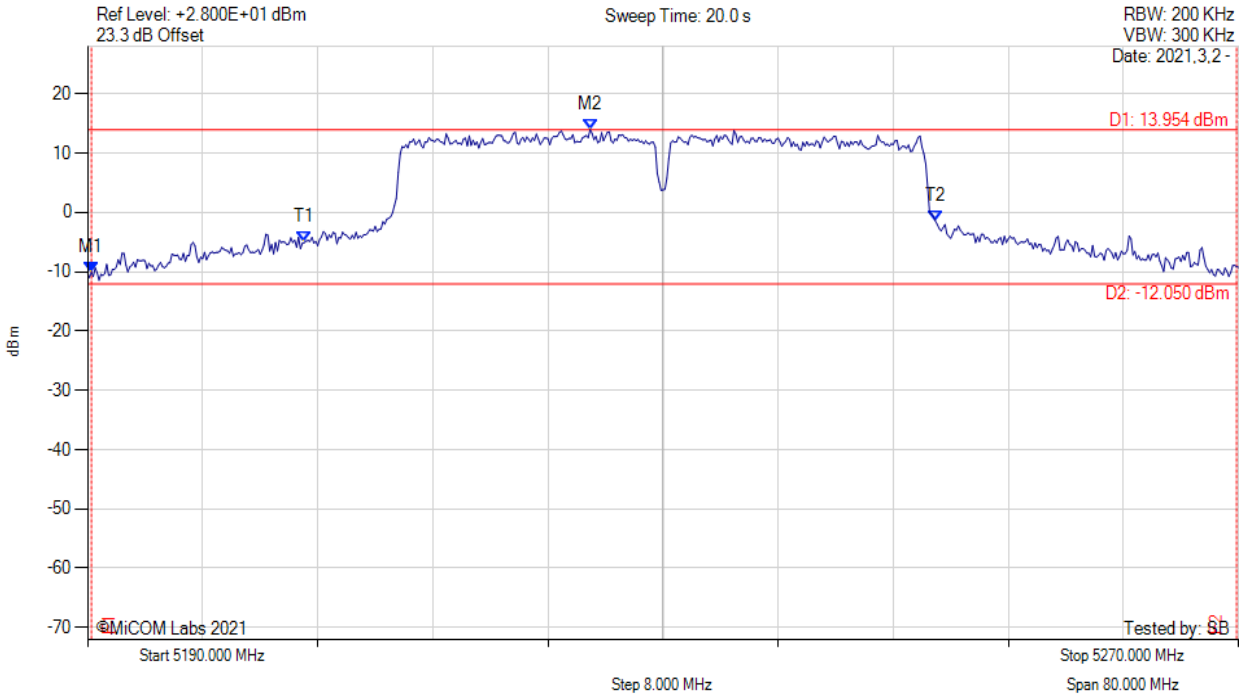


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5170.267 MHz : -11.080 dBm M2 : 5214.930 MHz : 13.131 dBm Delta1 : 79.870 MHz : 0.047 dB T1 : 5185.867 MHz : -5.655 dBm T2 : 5229.333 MHz : -2.450 dBm OBW : 48.795 MHz	Measured 26 dB Bandwidth: 79.870 MHz Measured 99% Bandwidth: 48.795 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5230.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

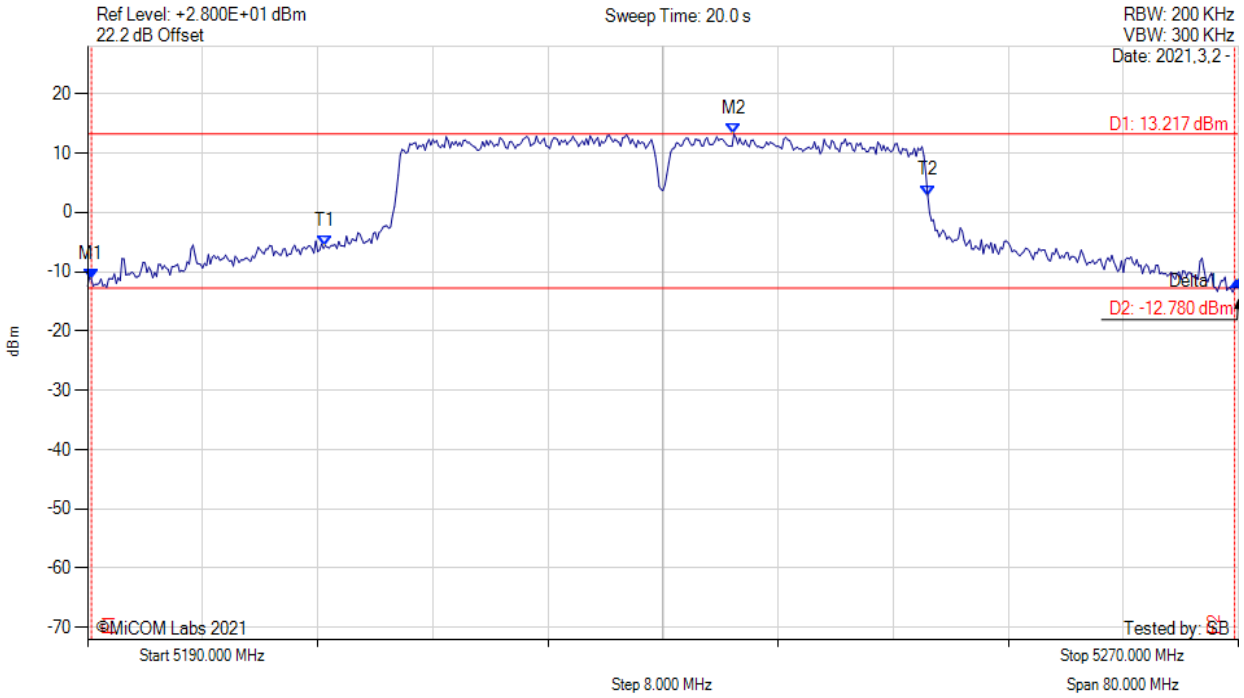


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5190.267 MHz : -10.101 dBm M2 : 5224.930 MHz : 13.954 dBm Delta1 : 79.870 MHz : 0.995 dB T1 : 5205.067 MHz : -5.083 dBm T2 : 5248.933 MHz : -1.443 dBm OBW : 49.923 MHz	Measured 26 dB Bandwidth: 79.870 MHz Measured 99% Bandwidth: 49.923 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5230.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

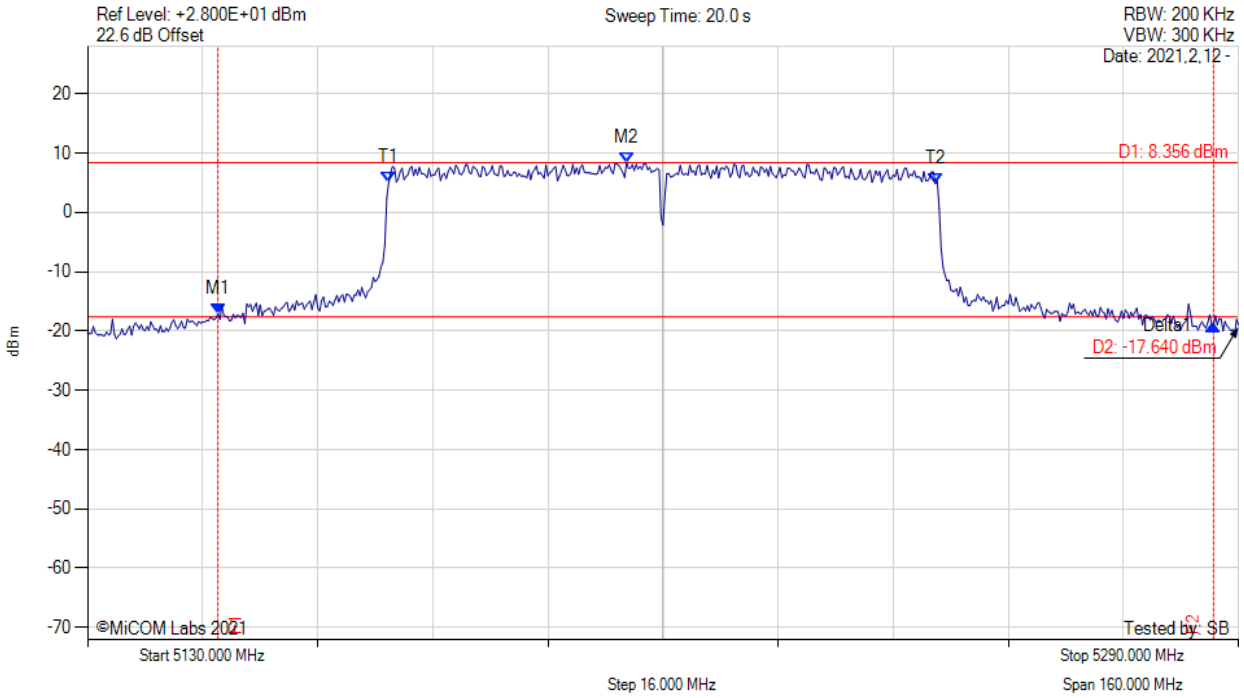


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5190.267 MHz : -11.288 dBm M2 : 5234.930 MHz : 13.217 dBm Delta1 : 79.730 MHz : -0.261 dB T1 : 5206.533 MHz : -5.589 dBm T2 : 5248.400 MHz : 2.840 dBm OBW : 45.984 MHz	Measured 26 dB Bandwidth: 79.730 MHz Measured 99% Bandwidth: 45.984 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 80MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

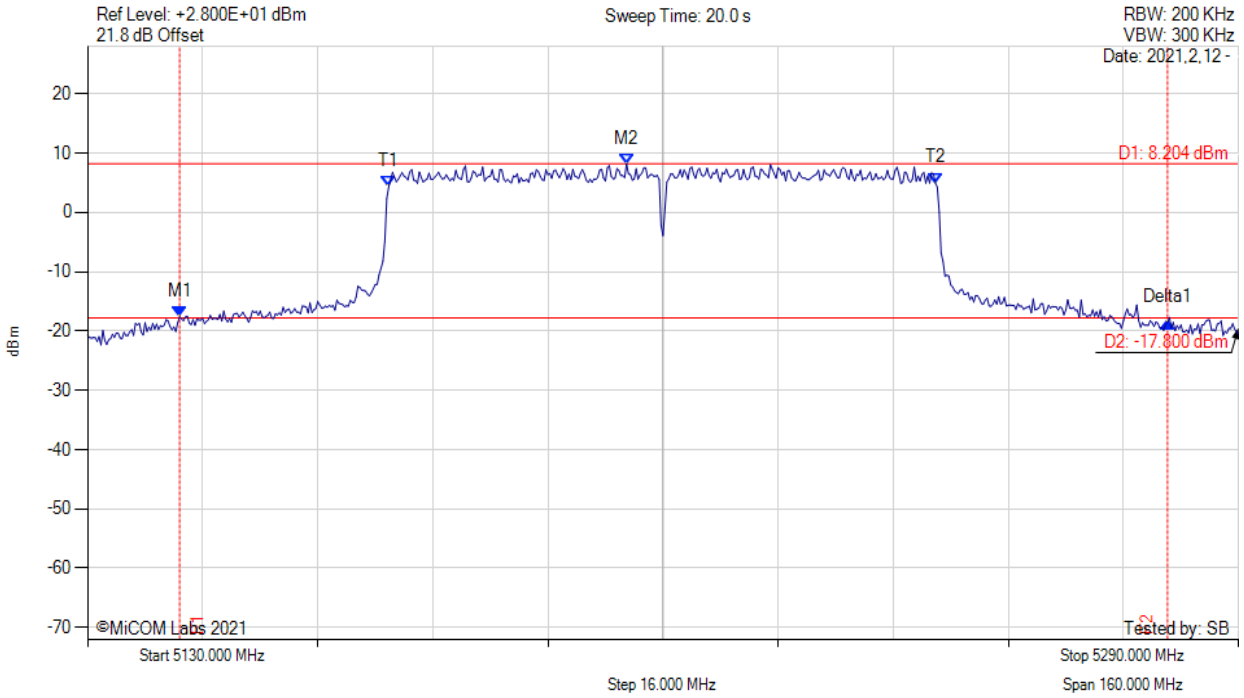


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5148.130 MHz : -17.075 dBm M2 : 5204.930 MHz : 8.356 dBm Delta1 : 138.400 MHz : -1.952 dB T1 : 5171.867 MHz : 5.024 dBm T2 : 5247.867 MHz : 4.835 dBm OBW : 76.161 MHz	Measured 26 dB Bandwidth: 138.400 MHz Measured 99% Bandwidth: 76.161 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 80MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

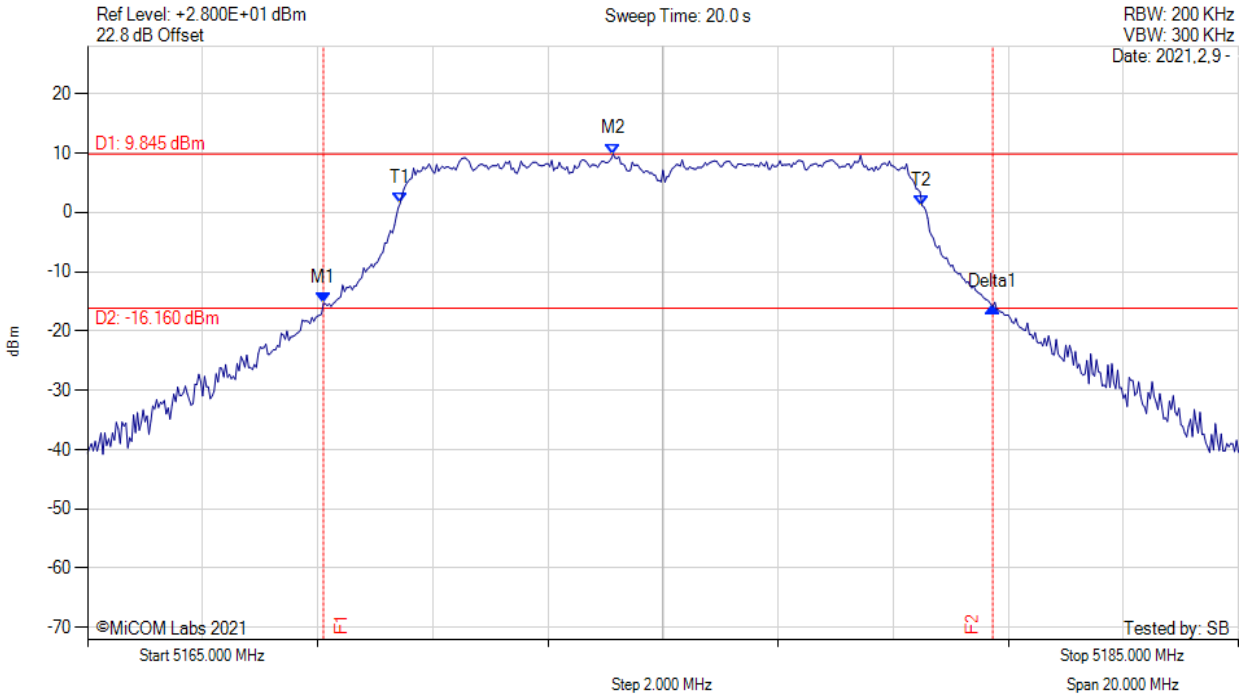


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5142.800 MHz : -17.641 dBm M2 : 5204.930 MHz : 8.204 dBm Delta1 : 137.330 MHz : -0.940 dB T1 : 5171.867 MHz : 4.301 dBm T2 : 5247.867 MHz : 4.944 dBm OBW : 76.218 MHz	Measured 26 dB Bandwidth: 137.330 MHz Measured 99% Bandwidth: 76.218 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5175.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

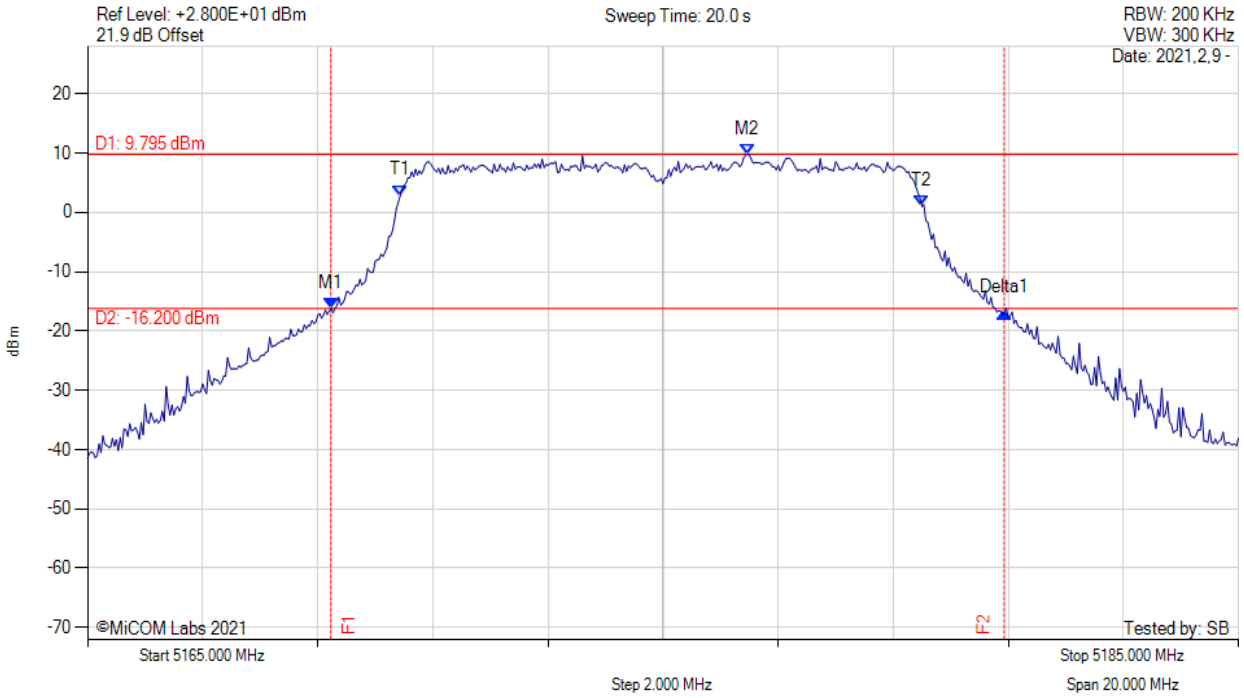


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.100 MHz : -15.318 dBm M2 : 5174.130 MHz : 9.845 dBm Delta1 : 11.630 MHz : -0.554 dB T1 : 5170.433 MHz : 1.544 dBm T2 : 5179.500 MHz : 1.154 dBm OBW : 9.065 MHz	Measured 26 dB Bandwidth: 11.630 MHz Measured 99% Bandwidth: 9.065 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5175.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

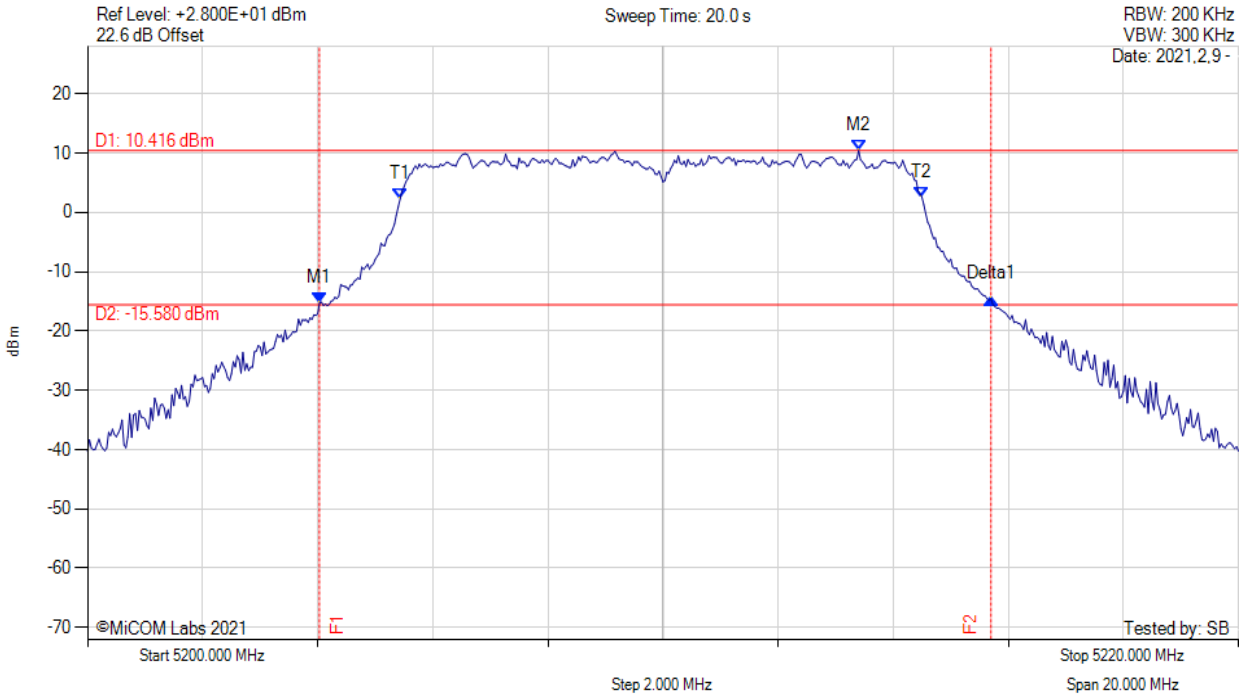


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.230 MHz : -16.123 dBm M2 : 5176.470 MHz : 9.795 dBm Delta1 : 11.700 MHz : -0.836 dB T1 : 5170.433 MHz : 2.840 dBm T2 : 5179.500 MHz : 0.999 dBm OBW : 9.078 MHz	Measured 26 dB Bandwidth: 11.700 MHz Measured 99% Bandwidth: 9.078 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

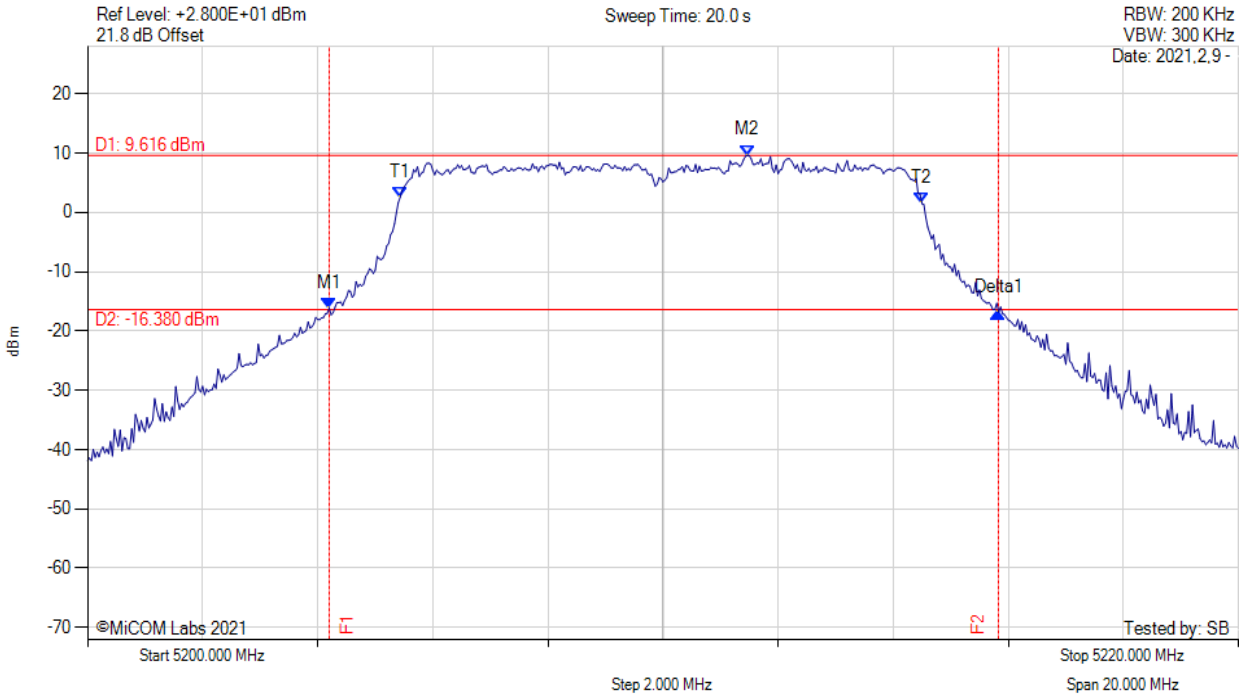


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5204.030 MHz : -15.208 dBm M2 : 5213.400 MHz : 10.416 dBm Delta1 : 11.670 MHz : 0.619 dB T1 : 5205.433 MHz : 2.310 dBm T2 : 5214.500 MHz : 2.533 dBm OBW : 9.046 MHz	Measured 26 dB Bandwidth: 11.670 MHz Measured 99% Bandwidth: 9.046 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

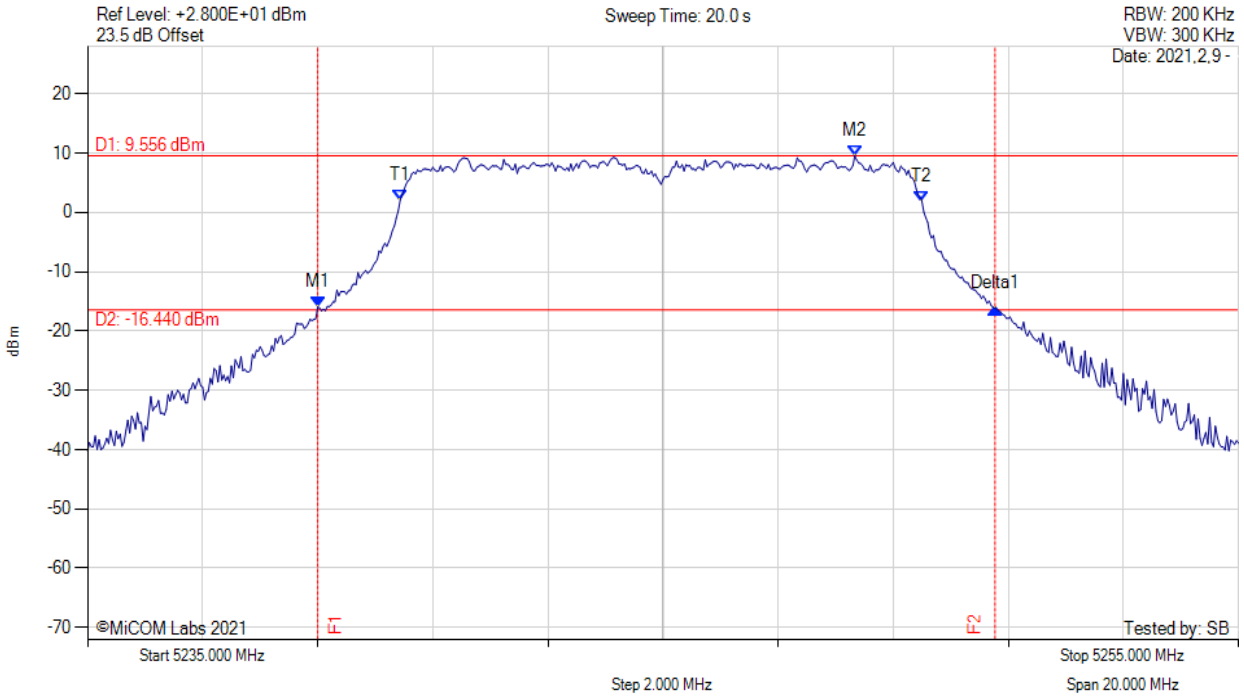


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5204.200 MHz : -16.114 dBm M2 : 5211.470 MHz : 9.616 dBm Delta1 : 11.630 MHz : -0.721 dB T1 : 5205.433 MHz : 2.570 dBm T2 : 5214.500 MHz : 1.484 dBm OBW : 9.078 MHz	Measured 26 dB Bandwidth: 11.630 MHz Measured 99% Bandwidth: 9.078 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5245.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

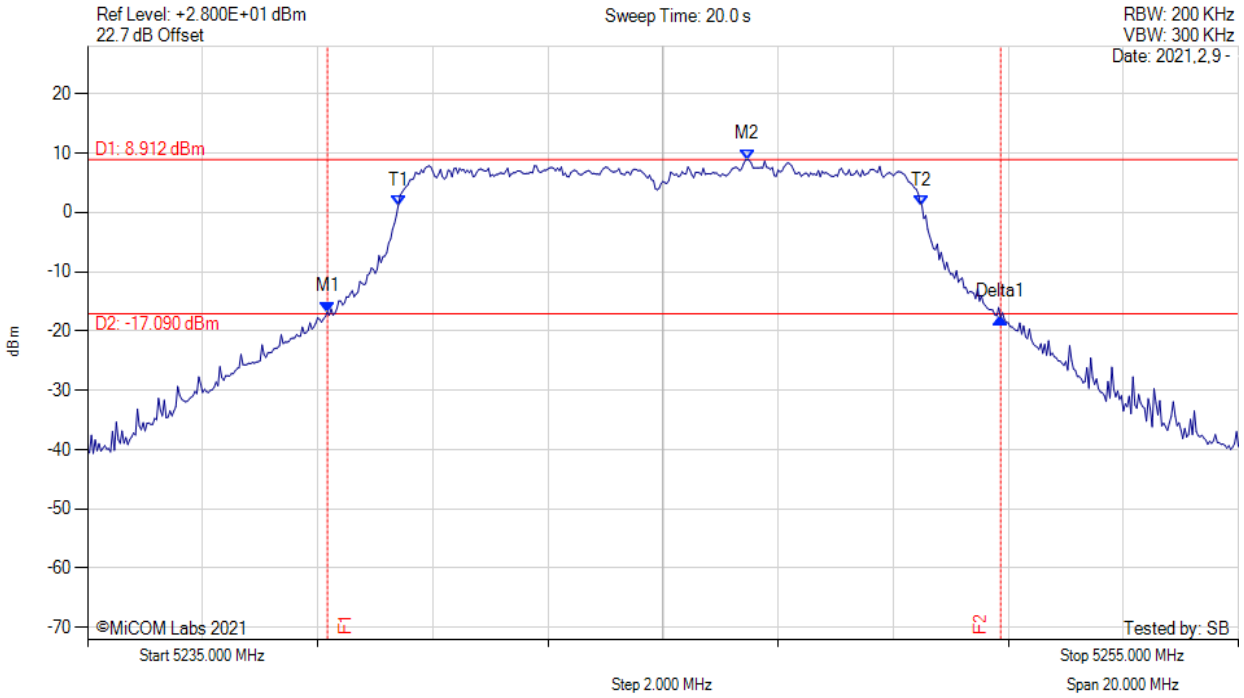


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5239.000 MHz : -15.946 dBm M2 : 5248.330 MHz : 9.556 dBm Delta1 : 11.770 MHz : -0.217 dB T1 : 5240.433 MHz : 2.104 dBm T2 : 5249.500 MHz : 1.822 dBm OBW : 9.053 MHz	Measured 26 dB Bandwidth: 11.770 MHz Measured 99% Bandwidth: 9.053 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 10MHz, Channel: 5245.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

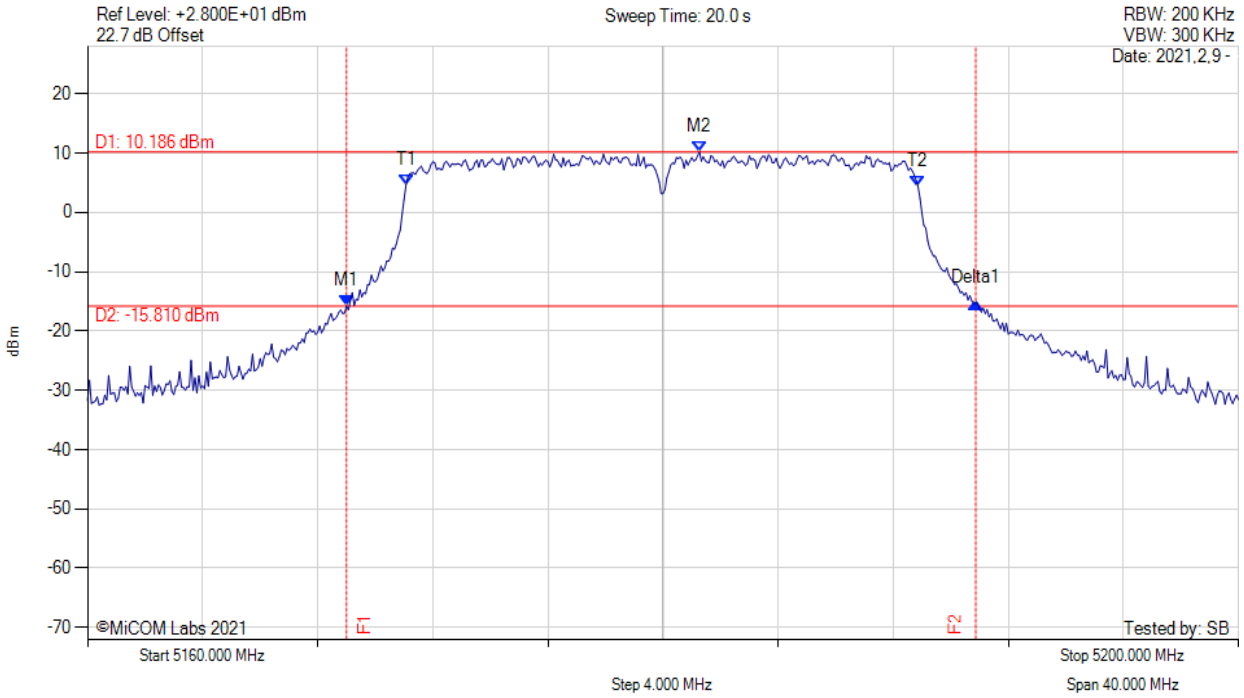


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5239.170 MHz : -16.770 dBm M2 : 5246.470 MHz : 8.912 dBm Delta1 : 11.700 MHz : -0.945 dB T1 : 5240.400 MHz : 1.181 dBm T2 : 5249.500 MHz : 1.106 dBm OBW : 9.084 MHz	Measured 26 dB Bandwidth: 11.700 MHz Measured 99% Bandwidth: 9.084 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5180.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

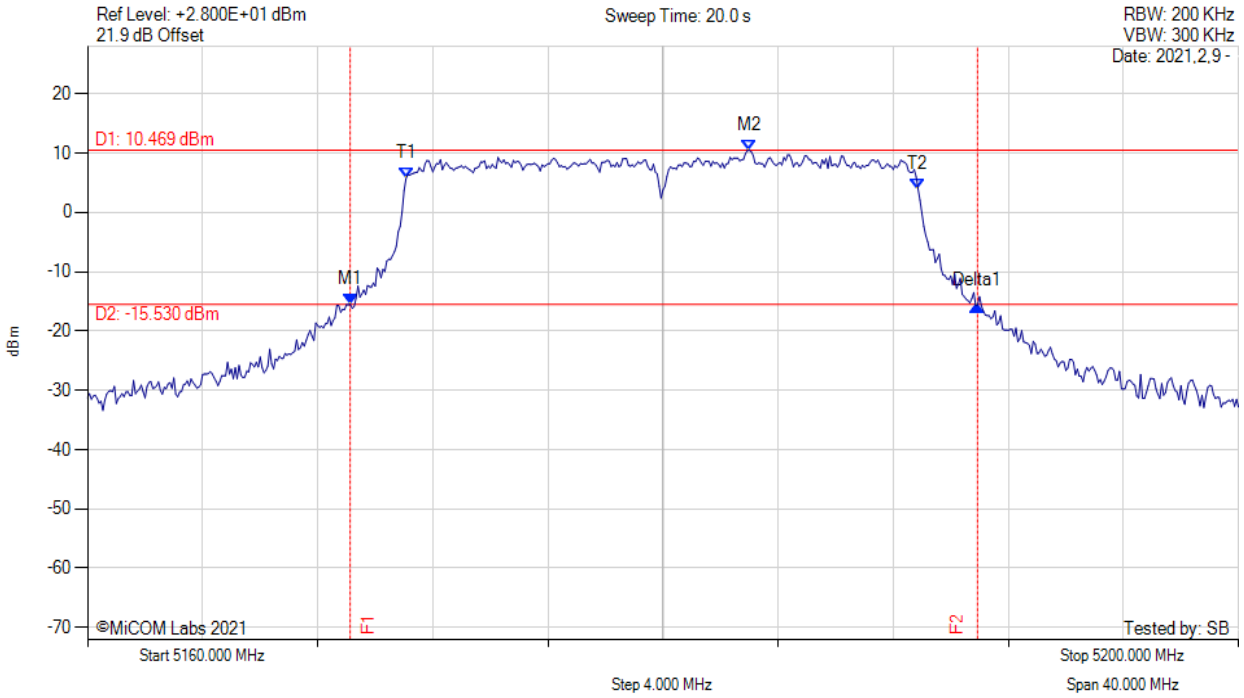


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.000 MHz : -15.782 dBm M2 : 5181.270 MHz : 10.186 dBm Delta1 : 21.870 MHz : 0.445 dB T1 : 5171.067 MHz : 4.597 dBm T2 : 5188.867 MHz : 4.320 dBm OBW : 17.720 MHz	Measured 26 dB Bandwidth: 21.870 MHz Measured 99% Bandwidth: 17.720 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5180.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

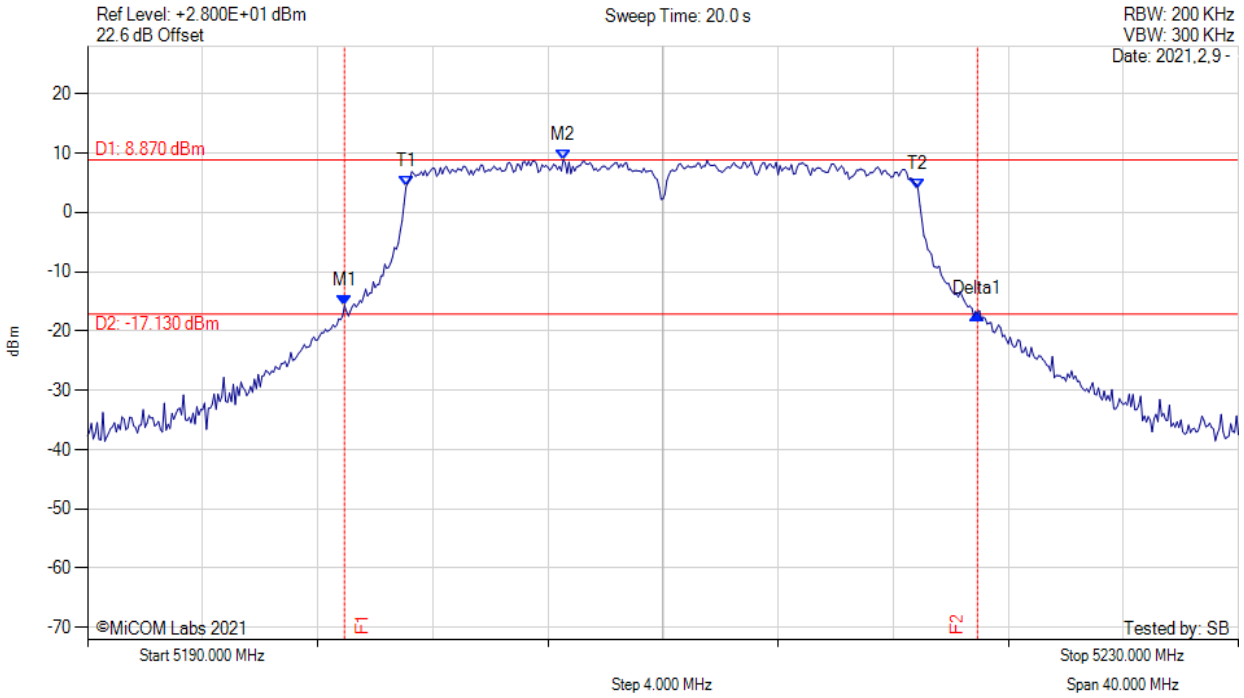


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.130 MHz : -15.477 dBm M2 : 5183.000 MHz : 10.469 dBm Delta1 : 21.800 MHz : -0.167 dB T1 : 5171.067 MHz : 5.674 dBm T2 : 5188.867 MHz : 3.928 dBm OBW : 17.758 MHz	Measured 26 dB Bandwidth: 21.800 MHz Measured 99% Bandwidth: 17.758 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

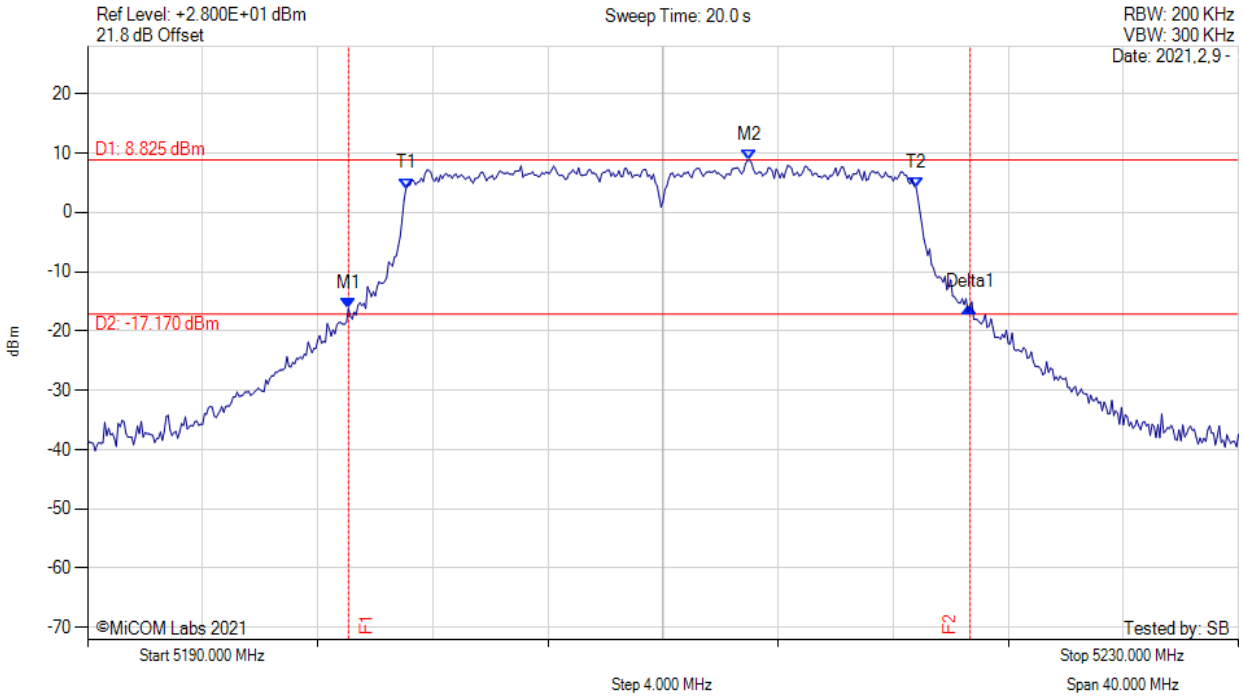


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5198.930 MHz : -15.719 dBm M2 : 5206.530 MHz : 8.870 dBm Delta1 : 22.000 MHz : -1.379 dB T1 : 5201.067 MHz : 4.271 dBm T2 : 5218.867 MHz : 3.855 dBm OBW : 17.729 MHz	Measured 26 dB Bandwidth: 22.000 MHz Measured 99% Bandwidth: 17.729 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

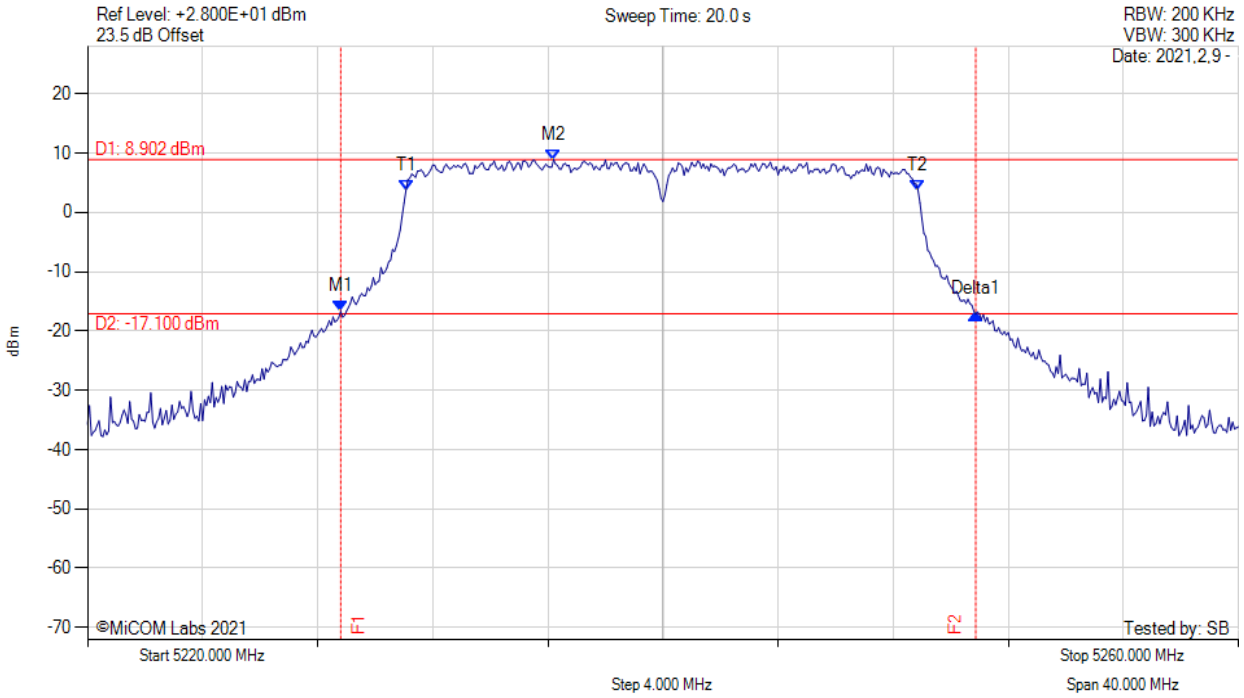


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5199.070 MHz : -16.194 dBm M2 : 5213.000 MHz : 8.825 dBm Delta1 : 21.600 MHz : 0.219 dB T1 : 5201.067 MHz : 4.005 dBm T2 : 5218.800 MHz : 4.137 dBm OBW : 17.745 MHz	Measured 26 dB Bandwidth: 21.600 MHz Measured 99% Bandwidth: 17.745 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5240.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

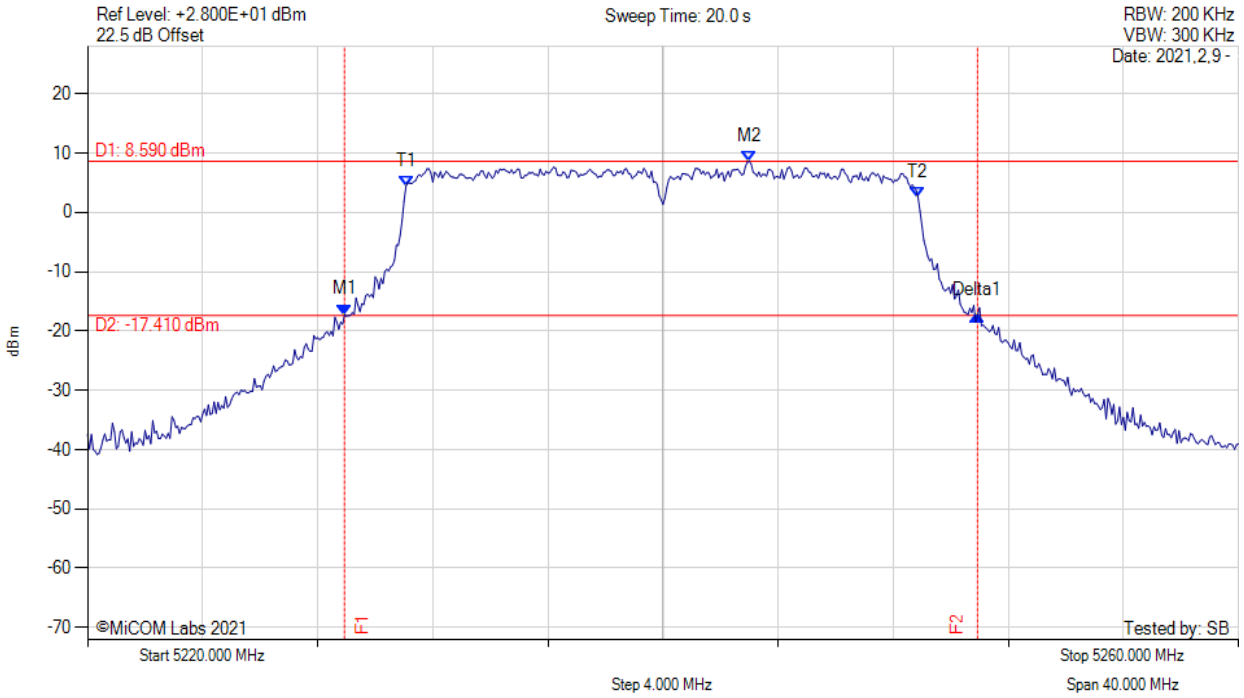


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5228.800 MHz : -16.710 dBm M2 : 5236.200 MHz : 8.902 dBm Delta1 : 22.070 MHz : -0.444 dB T1 : 5231.067 MHz : 3.748 dBm T2 : 5248.867 MHz : 3.643 dBm OBW : 17.737 MHz	Measured 26 dB Bandwidth: 22.070 MHz Measured 99% Bandwidth: 17.737 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 5240.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

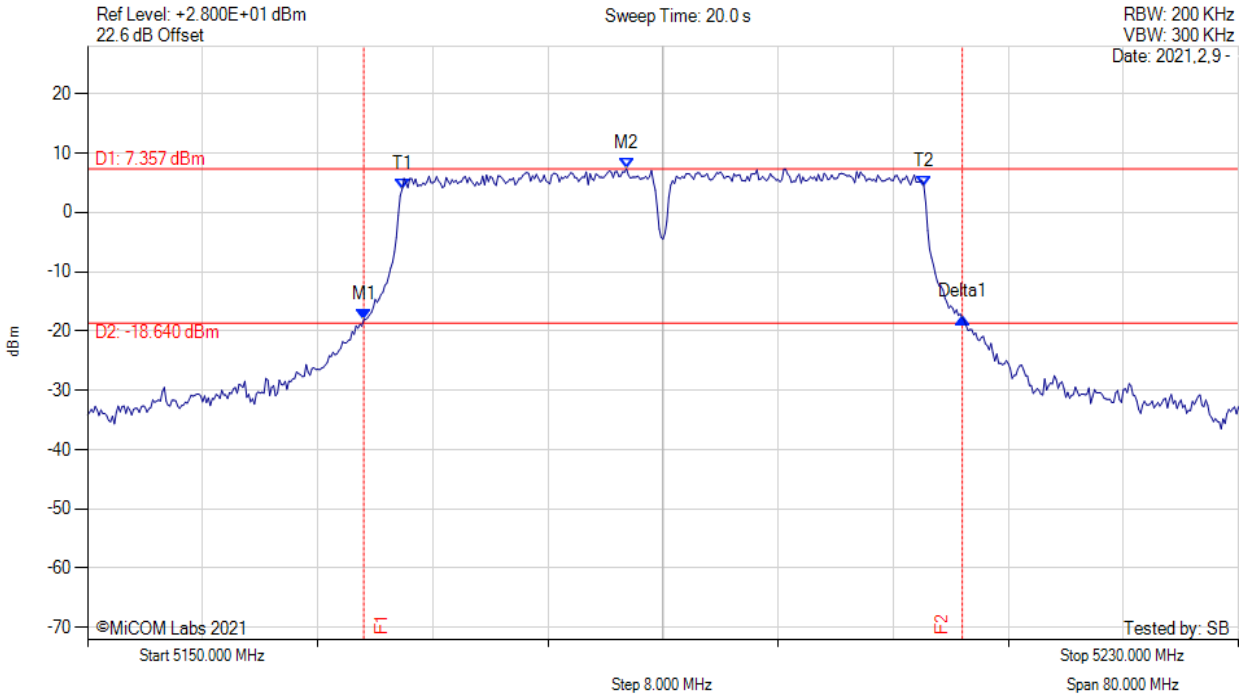


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5228.930 MHz : -17.257 dBm M2 : 5243.000 MHz : 8.590 dBm Delta1 : 22.000 MHz : -0.174 dB T1 : 5231.067 MHz : 4.421 dBm T2 : 5248.867 MHz : 2.473 dBm OBW : 17.756 MHz	Measured 26 dB Bandwidth: 22.000 MHz Measured 99% Bandwidth: 17.756 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5190.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

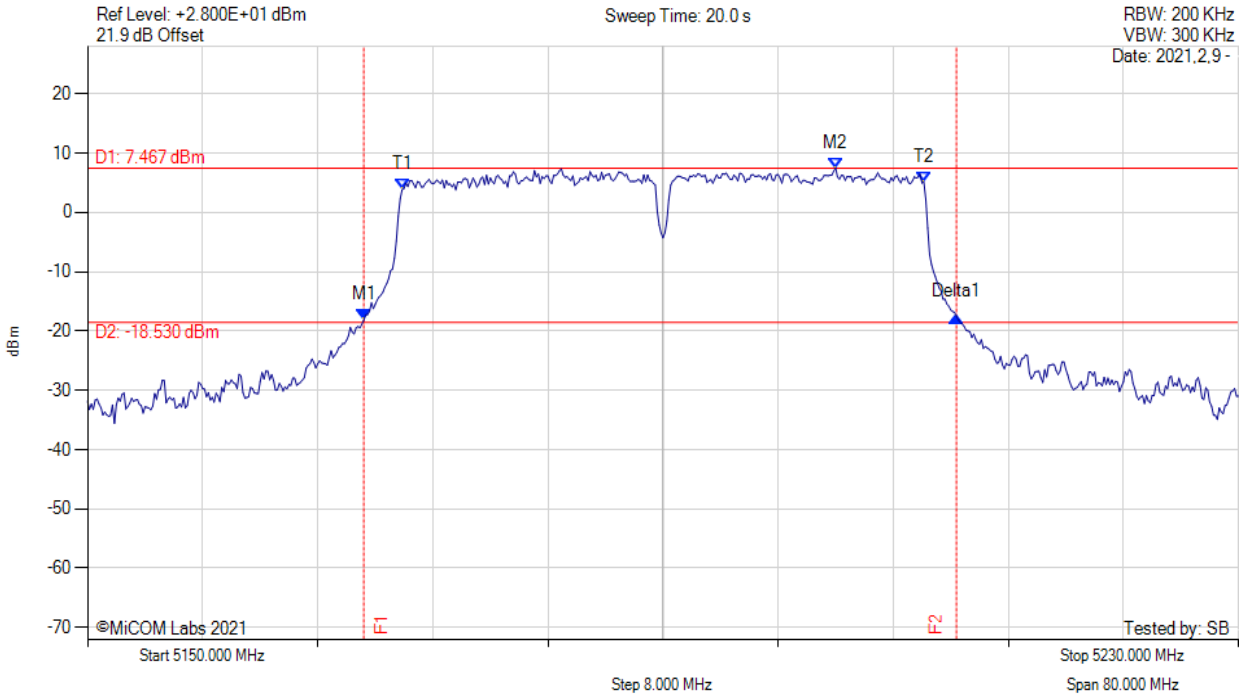


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.200 MHz : -18.086 dBm M2 : 5187.470 MHz : 7.357 dBm Delta1 : 41.600 MHz : 0.357 dB T1 : 5171.867 MHz : 3.859 dBm T2 : 5208.133 MHz : 4.468 dBm OBW : 36.213 MHz	Measured 26 dB Bandwidth: 41.600 MHz Measured 99% Bandwidth: 36.213 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5190.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

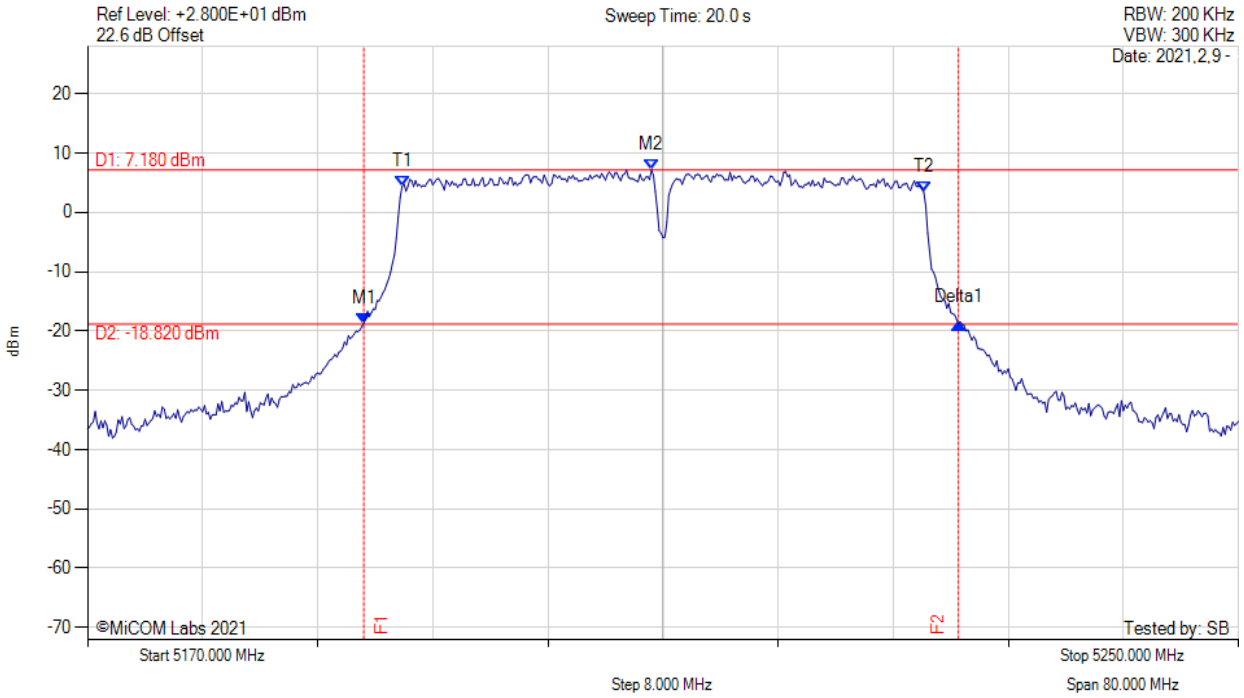


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5169.200 MHz : -18.163 dBm M2 : 5202.000 MHz : 7.467 dBm Delta1 : 41.200 MHz : 0.650 dB T1 : 5171.867 MHz : 3.819 dBm T2 : 5208.133 MHz : 5.137 dBm OBW : 36.225 MHz	Measured 26 dB Bandwidth: 41.200 MHz Measured 99% Bandwidth: 36.225 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

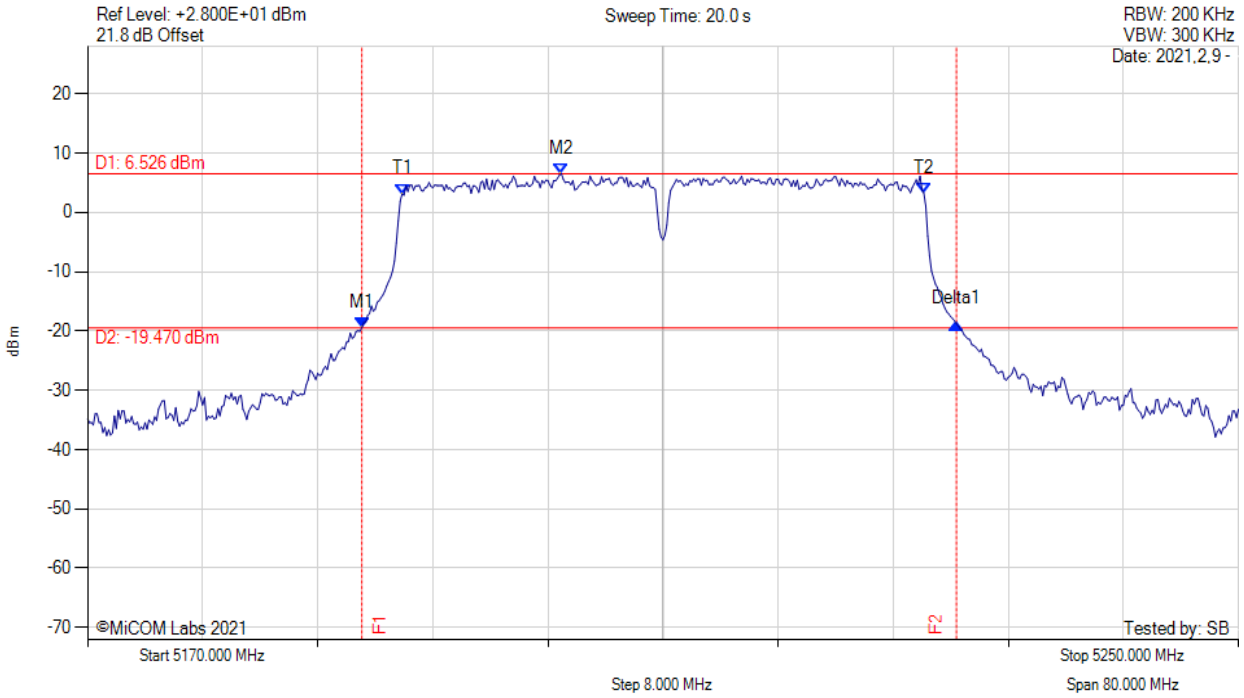


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5189.200 MHz : -18.690 dBm M2 : 5209.200 MHz : 7.180 dBm Delta1 : 41.330 MHz : 0.027 dB T1 : 5191.867 MHz : 4.421 dBm T2 : 5228.133 MHz : 3.379 dBm OBW : 36.200 MHz	Measured 26 dB Bandwidth: 41.330 MHz Measured 99% Bandwidth: 36.200 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

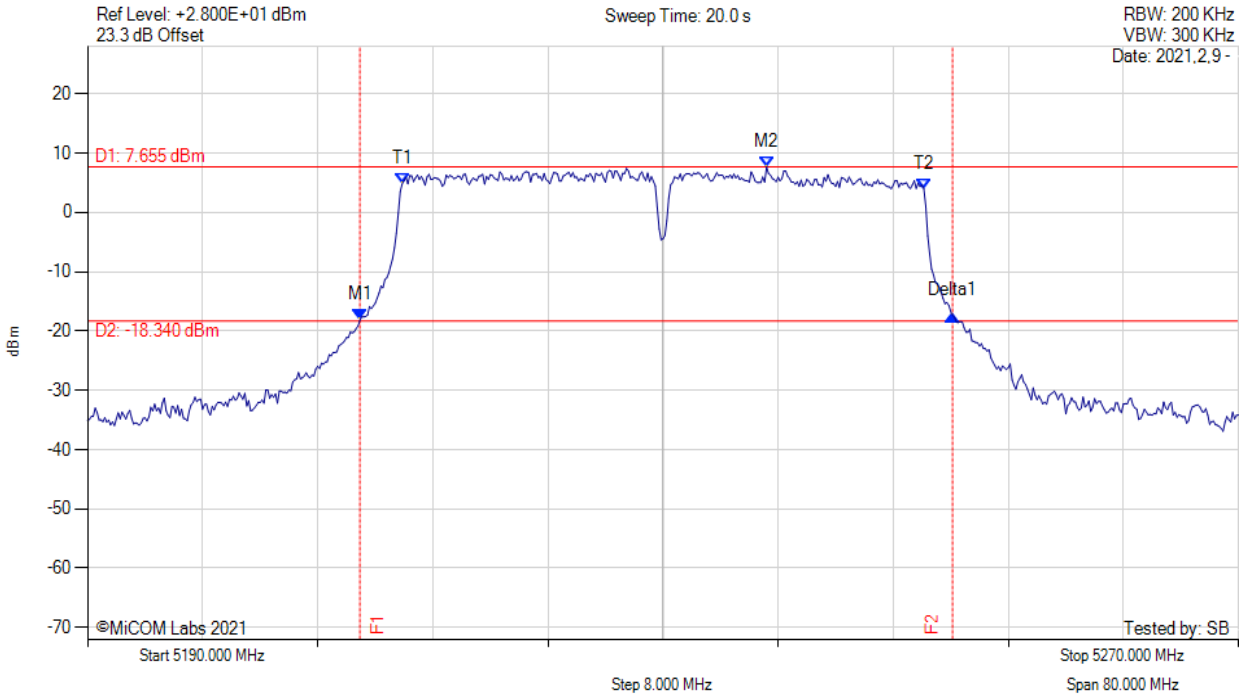


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5189.070 MHz : -19.431 dBm M2 : 5202.930 MHz : 6.526 dBm Delta1 : 41.330 MHz : 0.666 dB T1 : 5191.867 MHz : 3.083 dBm T2 : 5228.133 MHz : 3.242 dBm OBW : 36.205 MHz	Measured 26 dB Bandwidth: 41.330 MHz Measured 99% Bandwidth: 36.205 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5230.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

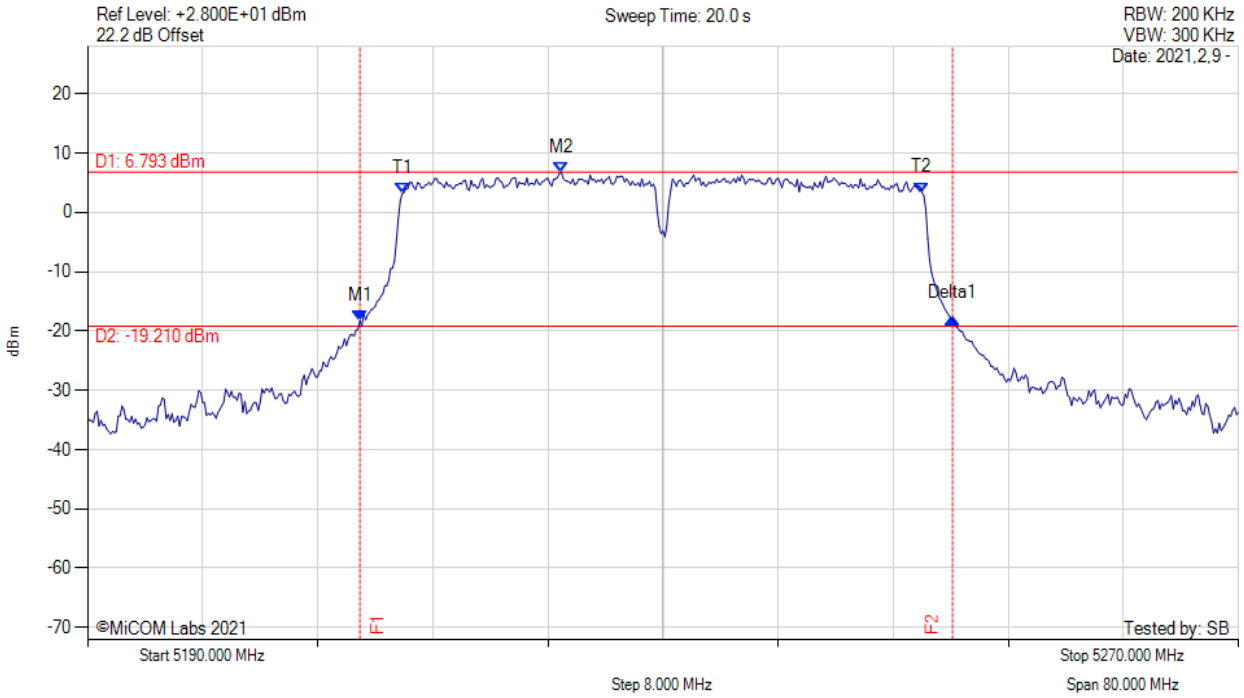


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5208.930 MHz : -18.162 dBm M2 : 5237.200 MHz : 7.655 dBm Delta1 : 41.200 MHz : 0.875 dB T1 : 5211.867 MHz : 4.764 dBm T2 : 5248.133 MHz : 3.977 dBm OBW : 36.215 MHz	Measured 26 dB Bandwidth: 41.200 MHz Measured 99% Bandwidth: 36.215 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 5230.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

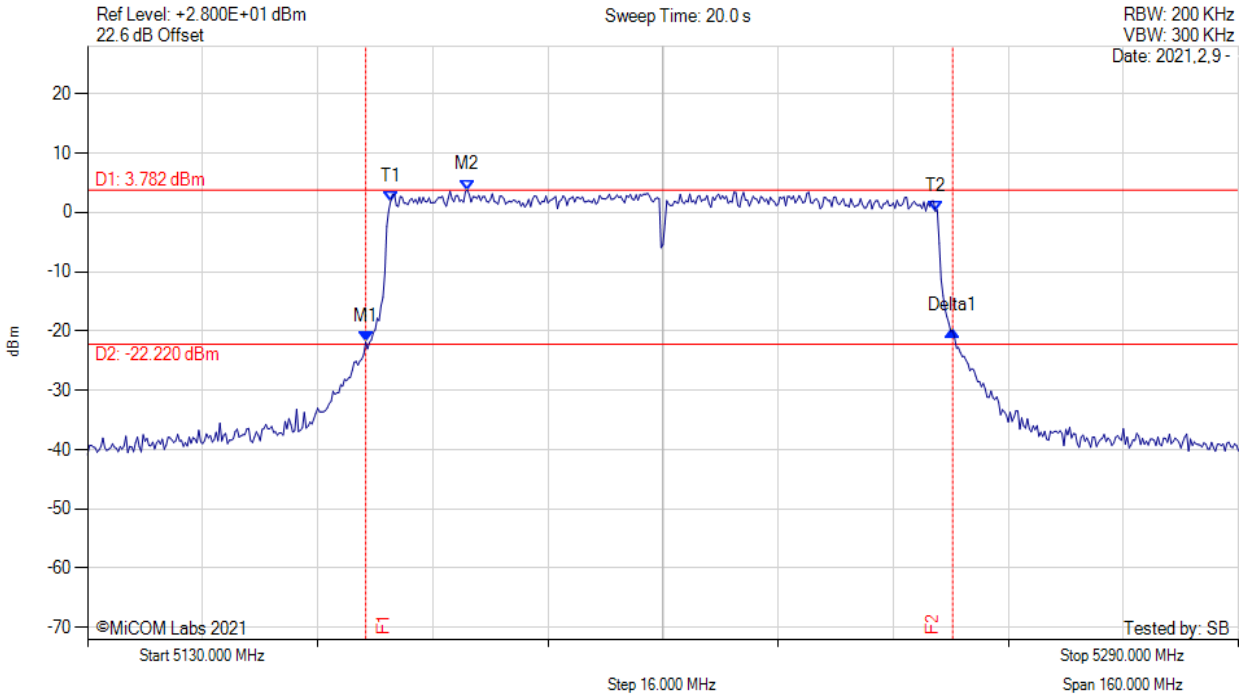


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5208.930 MHz : -18.294 dBm M2 : 5222.930 MHz : 6.793 dBm Delta1 : 41.200 MHz : 0.371 dB T1 : 5211.867 MHz : 3.154 dBm T2 : 5248.000 MHz : 3.326 dBm OBW : 36.179 MHz	Measured 26 dB Bandwidth: 41.200 MHz Measured 99% Bandwidth: 36.179 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 80MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

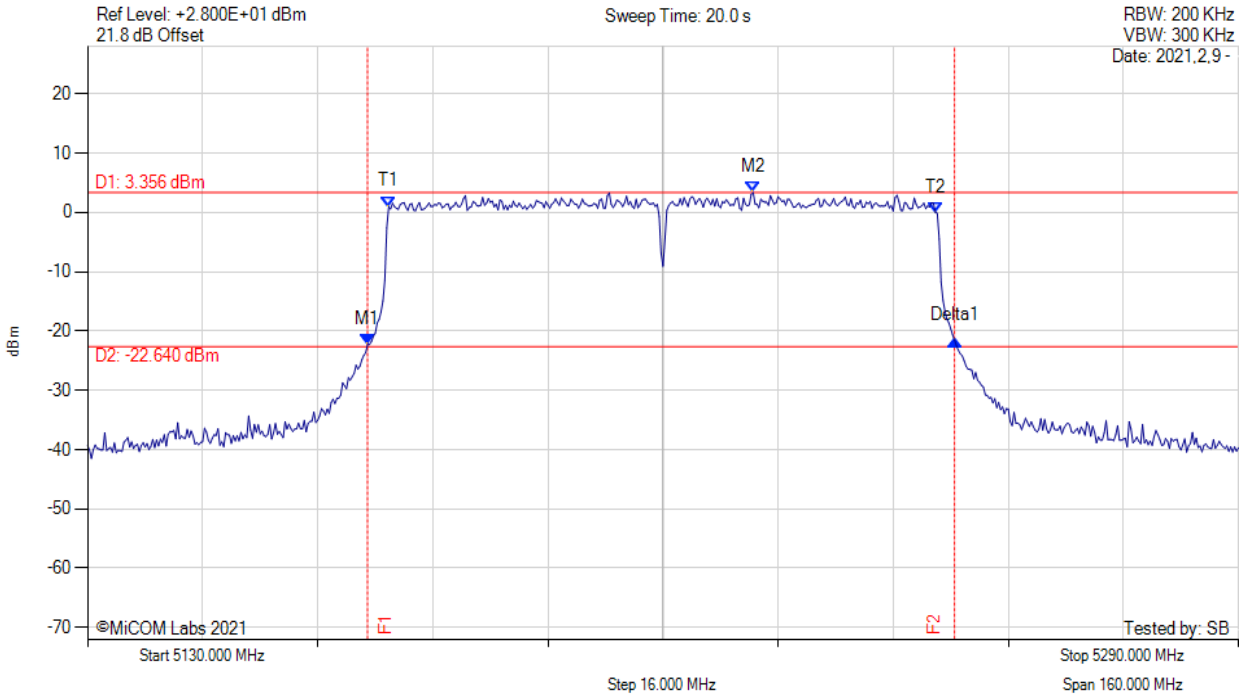


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5168.670 MHz : -21.851 dBm M2 : 5182.800 MHz : 3.782 dBm Delta1 : 81.600 MHz : 1.966 dB T1 : 5172.133 MHz : 1.828 dBm T2 : 5247.867 MHz : 0.184 dBm OBW : 75.653 MHz	Measured 26 dB Bandwidth: 81.600 MHz Measured 99% Bandwidth: 75.653 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 80MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



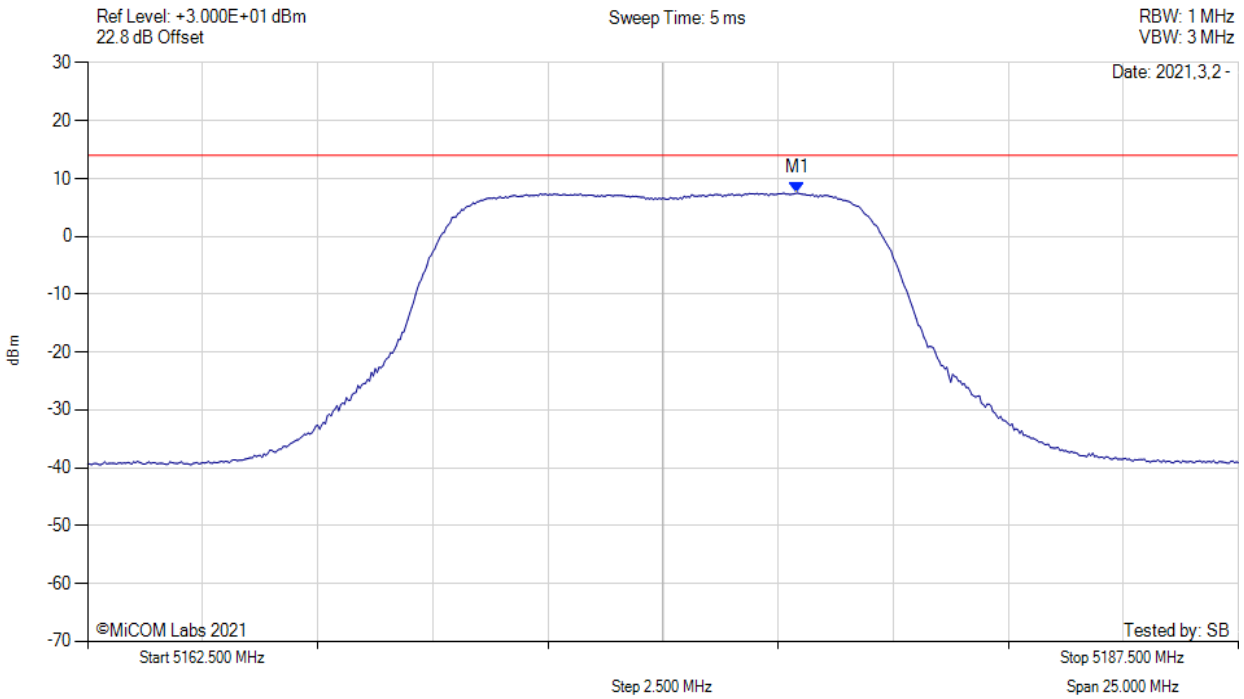
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5168.930 MHz : -22.292 dBm M2 : 5222.530 MHz : 3.356 dBm Delta1 : 81.600 MHz : 0.771 dB T1 : 5171.867 MHz : 0.968 dBm T2 : 5247.867 MHz : 0.018 dBm OBW : 75.768 MHz	Measured 26 dB Bandwidth: 81.600 MHz Measured 99% Bandwidth: 75.768 MHz

back to matrix

A.2 Power Spectral Density

POWER SPECTRAL DENSITY

Variant: 10MHz, Channel: 5175.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

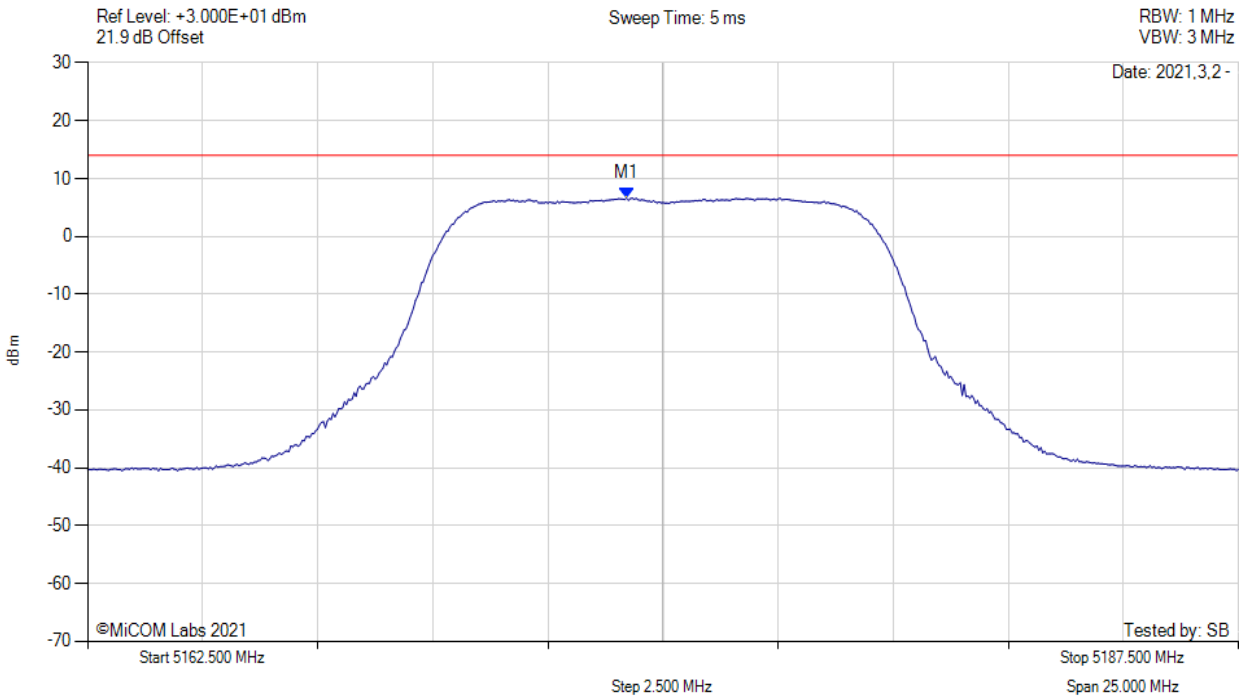


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5177.920 MHz : 7.510 dBm	Limit: ≤ 14.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 10MHz, Channel: 5175.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

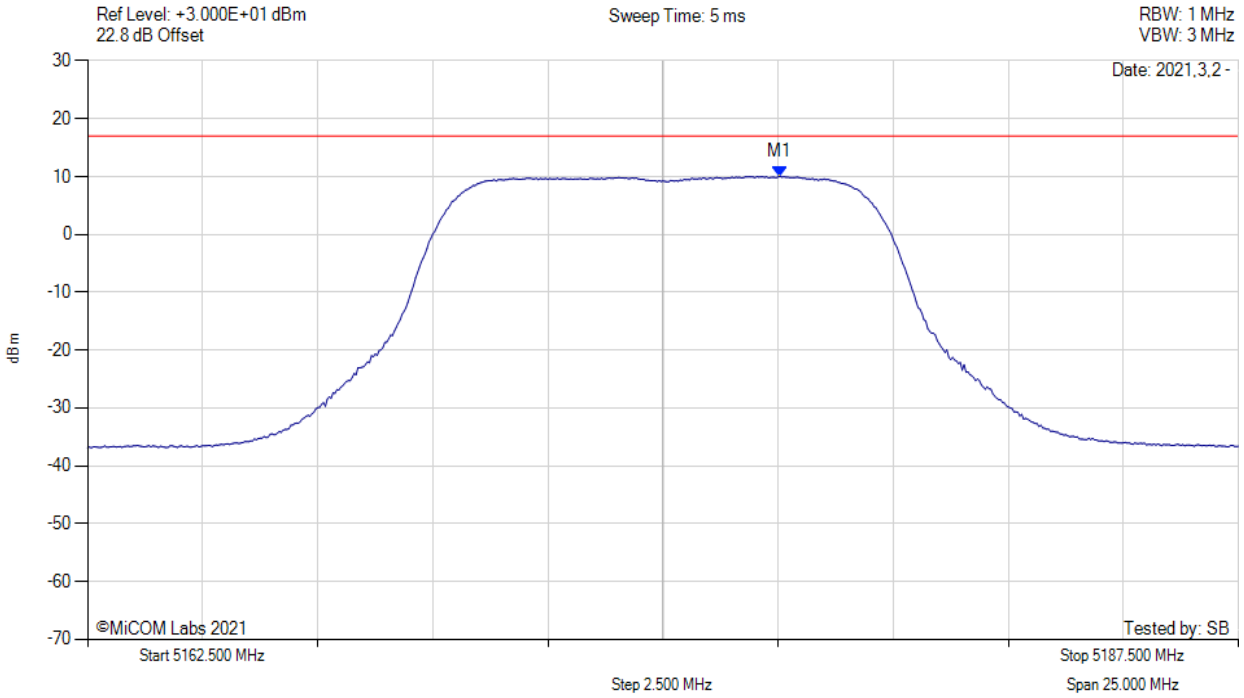


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5174.210 MHz : 6.637 dBm	Limit: ≤ 14.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 10MHz, Channel: 5175.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

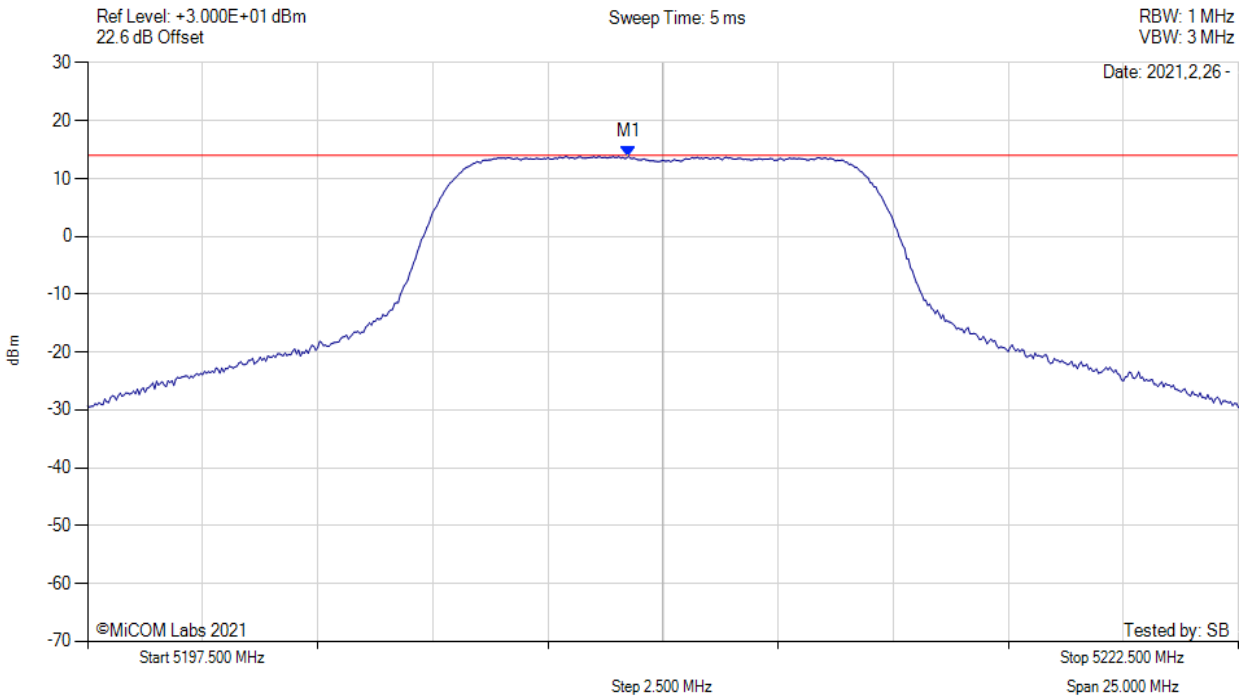


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5177.500 MHz : 10.036 dBm M1 + DCCF : 5177.500 MHz : 10.080 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 17.0 dBm Margin: -6.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 10MHz, Channel: 5210.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

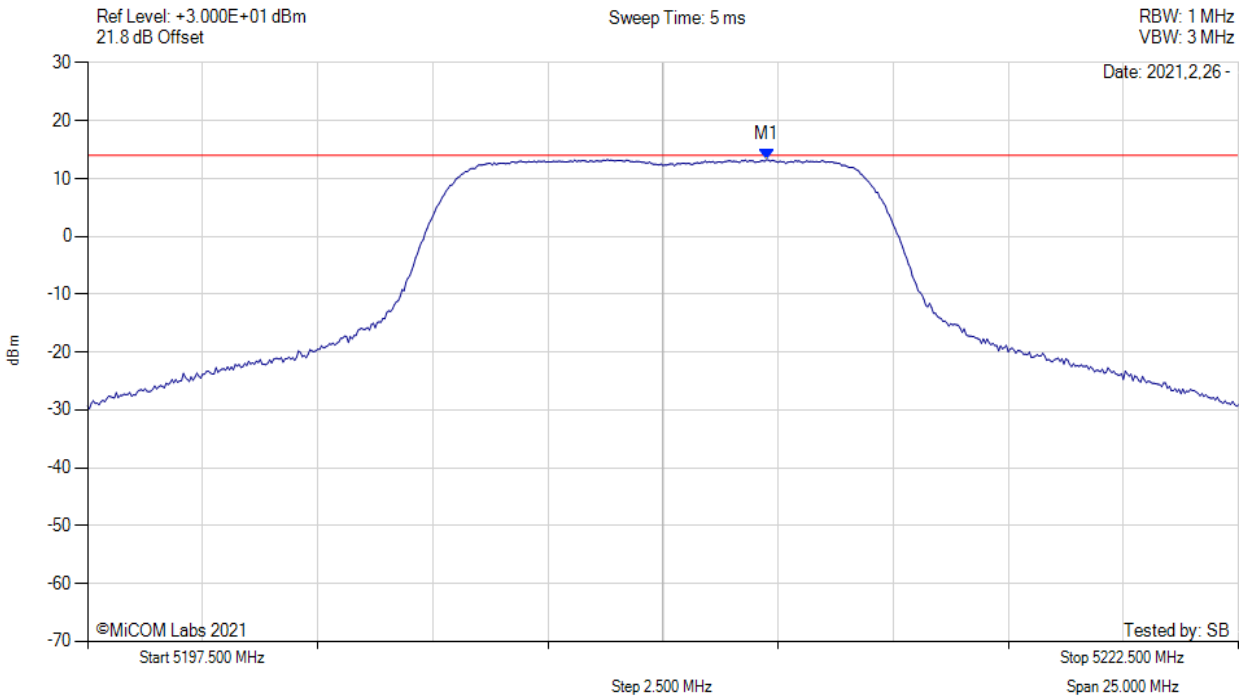


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5209.250 MHz : 13.833 dBm	Limit: ≤ 14.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 10MHz, Channel: 5210.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5212.250 MHz : 13.283 dBm	Channel Frequency: 5210.00 MHz

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