REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 Part 15 Subpart E 15.407

Report No.: RDWN77-U2 Rev A

Company: Radwin

Model Name: RADWIN 2000 EC00, RADWIN 2000 E100

REGULATORY COMPLIANCE TEST REPORT

Company Name: Radwin

Model Name: RADWIN 2000 EC00, RADWIN 2000 E100

To: FCC CFR 47 Part 15 Subpart E 15.407

Test Report Serial No.: RDWN77-U2 Rev A

This report supersedes: NONE

Applicant: Radwin
27 Habarzel Street
Tel Aviv, 6971039
Israel

Issue Date: 22nd December 2022

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
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Pleasanton California 94566
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A2LA ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

Table of Contents

1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

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

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

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

Presented this 14th day of January 2022.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2023

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

1.2. RECOGNITION

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

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

TCB – Telecommunications Certification Bodies (TCB)
FCB – Foreign Certification Body
CAB – Conformity Assessment Body
NB – Notified Body
AB – Approved Body
MRA – Mutual Recognition Agreement
MRA PhasePhase I - recognition for product testing
Phase II – recognition for both product testing and certification

1.3. PRODUCT CERTIFICATION

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

Accredited Product Certification Body

A2LA has accredited

MiCOM LABS

Pleasanton, CA

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

Presented this 14th day of January 2022

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2023

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	6th December 2022	
Draft #2	21st December 2022	
Rev A	22nd December 2022	Initial Release

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:	RADWIN 2000 EC00, RADWIN 2000 EI00	**Telephone:**	+1 925 462 0304
Equipment Type:	5 GHz High Performance PrP Outdoor Unit	**Fax:**	+1 925 462 0306
S/N's:	Prototype		
Test Date(s):	22nd - 23rd Sept. and 1st - 2nd Dec. 2022	**Website:**	www.micomlabs.com

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

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

Notes:

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

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

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

A2LA ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911 D01, D02, D03	D01 Oct 2013, D02 Oct 2011, D03 Oct 2020	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. 662911 D01 Multiple Transmitter Output v02r01, 662911 D02 MIMO with Cross Polarized Antenna v01, 662911 D03 MIMO Antenna Gain Measurement v01, OET 13TR1003 Directional Gain of 802 11 MIMO with CDD 04 05 2013
II	KDB 905462 D07 v02	Aug 2016	Test guidance to demonstrate compliance for U-NII devices subject to DFS requirements.
III	KDB 926956 D01 v02	Aug 2016	U-NII Device Transition Plan
IV	A2LA	22nd June 2022	R105 - Requirement's When Making Reference to A2LA Accreditation Status
V	ANSI C63.10	2020	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	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
VIII	FCC 06-96	Jun 2006	Memorandum Opinion and Order
IX	FCC 47 CFR Part 15.407	2021	Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
X	ICES-003	Issue 7; Oct 2020	Information Technology Equipment (Including Digital Apparatus)
XI	M 3003	EDITION 4 Oct 2019	Expression of Uncertainty and Confidence in Measurements
XII	FCC 47 CFR Part 2.1033	May 2021	FCC requirements and rules regarding photographs and test setup diagrams.
XIII	KDB 905462 D02 v02	Apr 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.
XIV	KDB 789033 D02 V02r01	Dec 2017	Guidelines For Compliance Testing Of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E

4.2. Test and Uncertainty Procedure

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

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

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

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

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Radwin RADWIN 2000 E 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 band.
Applicant:	Radwin 27 Habarzel Street Tel Aviv 6971039 Israel
Manufacturer:	As Above
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	RDWN77-U2
Date EUT received:	26th September 2022
Standard(s) applied:	FCC CFR 47 Part 15 Subpart E 15.407
Dates of test (from - to):	22nd - 23rd Sept. and 1st - 2nd Dec. 2022
No of Units Tested:	1
Product Family Name:	RADWIN 2000
Model(s):	RADWIN 2000 EC00, RADWIN 2000 EI00
Location for use:	Outdoors
Declared Frequency Range(s):	5150 - 5250 MHz
Type of Modulation:	OFDM
EUT Modes of Operation:	20MHz; 40MHz; 80MHz
Declared Nominal Output Power (dBm):	+30 dBm
Transmit/Receive Operation:	Transceiver
Rated Input Voltage and Current:	56VDC 1A
Operating Temperature Range:	-40°C to + 60°C
ITU Emission Designator:	20M0W7W, 40M0W7W, 80M0W7W,
Equipment Dimensions:	4.2 / 10.1 / 4.9 in
Weight:	2.7 Lb
Hardware Rev:	Prototype
Software Rev:	Prototype

5.2. Scope Of Test Program

RADWIN 2000 EC00, RADWIN 2000 EI00

The scope of the test program was to test Radwin's RADWIN 2000 E configurations in the frequency ranges 5150 - 5250 MHz for compliance against the following specification:

Client declared models RADWIN 2000 EC00, RADWIN 2000 EI00 are similar and therefore as a result no testing was performed on these models.

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.

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

Type (EUT/ Support)	Equipment Description	Manufacturer	Model No.	Serial No.
EUT	5 GHz High Performance PtP Outdoor Unit	RADWIN	RADWIN 2000 EC00, RADWIN 2000 EI00	Prototype
Support	POE Power Supply	Gospell	G0566-560-100	--
Support	Laptop	Dell	--	--

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
integral	RADWIN	MR0284310	Directional	24.0	-	9	Yes	5150 - 5250
external	RADWIN	RW-9622-5001	Directional	28.0	-	5	Yes	5150 - 5250
external	RADWIN	RW-9721-5158	Dish	28.0	-	5.6	Yes	5150 - 5250
external	RADWIN	RW-9732-4958	Dish	32.0	-	4	Yes	5150 - 5250
external	RADWIN	RW-9732-4965	Dish	25.0	-	7	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	No	RJ45	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		
OFDM-20	8.6	5,180.00	5,210.00	5,240.00
OFDM-40	17.2	5,190.00	5,210.00	5,230.00
OFDM-80	36.0	--	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

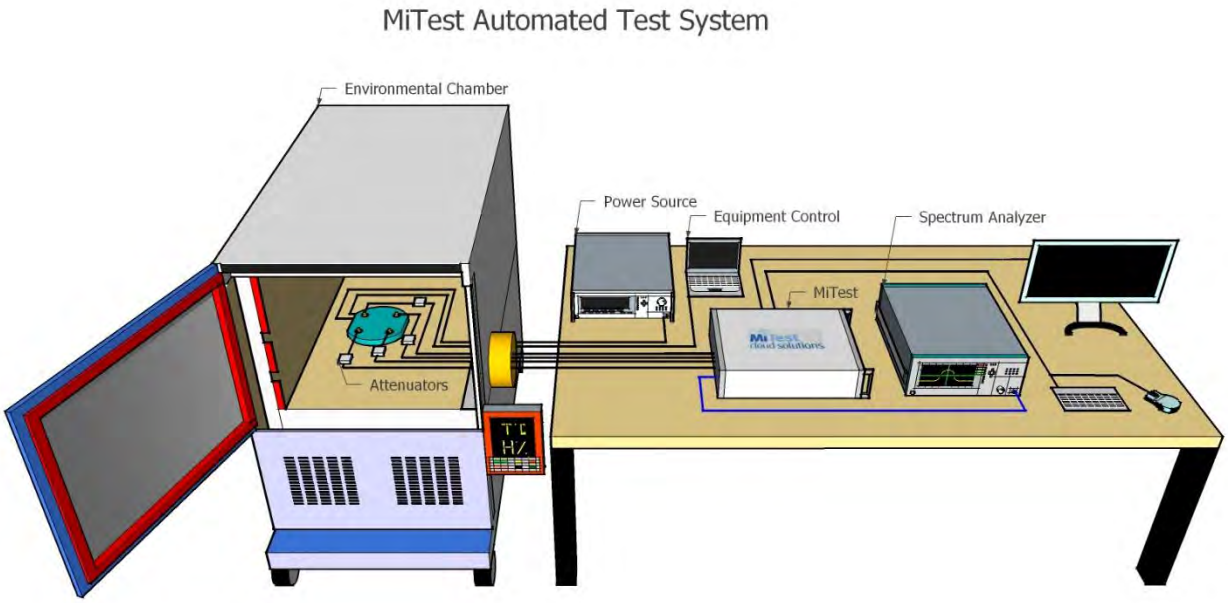
6. TEST SUMMARY

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	View Data
Restricted Edge & Band-Edge Emissions	Complies	View Data
Digital Emissions	Complies	View Data
AC Wireline	Complies	View Data

7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Conducted RF



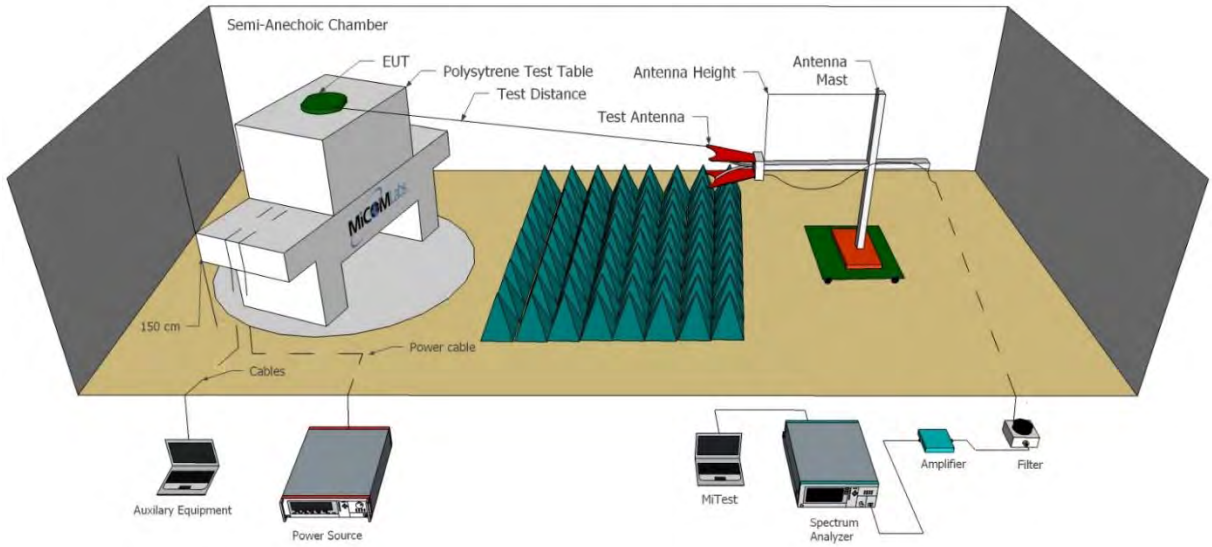
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	29 Jun 2023
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	29 Jun 2023
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	29 Jun 2023
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	29 Jun 2023
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	29 Jun 2023
249	Thermocouple; Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	29 Jun 2023
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2023
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
441	USB Wideband Power Sensor	Boonton	55006	9179	20 Sep 2023
442	USB Wideband Power Sensor	Boonton	55006	9181	19 Oct 2023
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	27 Sep 2023
493	USB Wideband Power Sensor	Boonton	55006	9634	8 Oct 2023
494	USB Wideband Power Sensor	Boonton	55006	9726	19 Oct 2023
510	Barometer/Thermometer	Digi Sense	68000-49	170871375	4 Jan 2024
512	MiTest Cloud Solutions RF Test Box	MiCOM	2nd Gen with DFS	512	29 Jun 2023
555	Rhode & Schwarz Receiver (Firmware Version : 2.00 SP1)	Rhode & Schwarz	ESW 44	101893	28 Jun 2023
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	20 Feb 2023

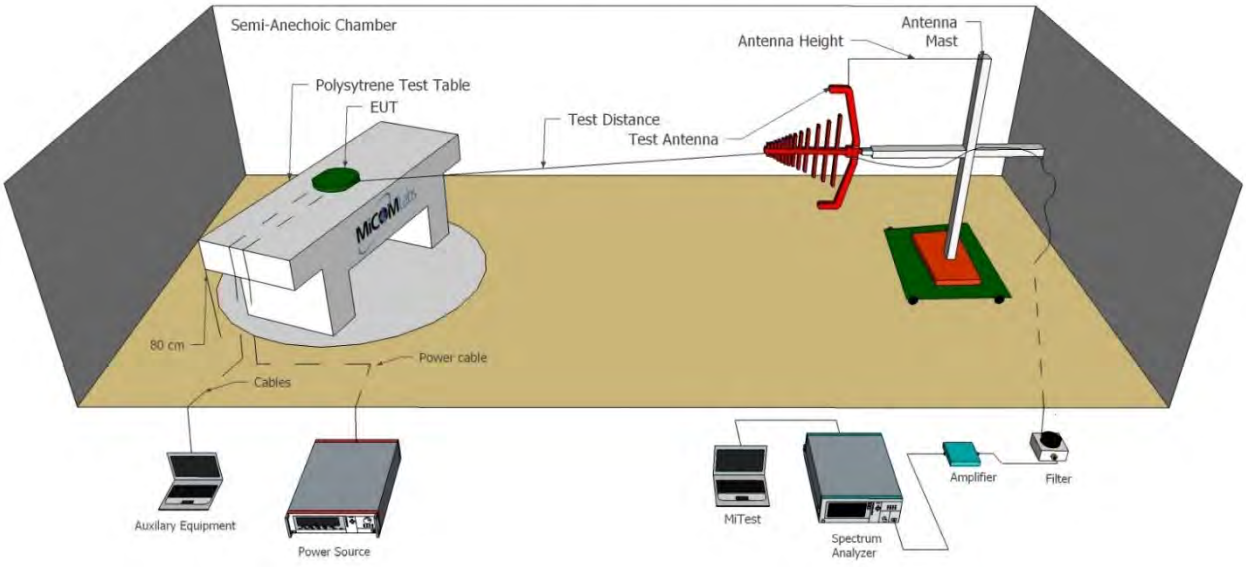
7.2. Radiated Emissions

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

Radiated Emissions Above 1GHz Test Setup



Radiated Emissions Below 1GHz Test Setup



Test Equipment Utilized

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2023
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	24 Jan 2023
302	5150 to 5350 MHz Notch Filter	Microtronics	BRC50703	002	6 Oct 2023
303	5725 to 5875 MHz Notch filter	Microtronics	BRC50705	003	6 Oct 2023
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 2023
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	29 Sep 2023
343	5.15 GHz Notch Filter	EWT	EWT-14-0200	H1	6 Oct 2023
373	26III RMS Multimeter	Fluke	Fluke 26 series III	76080720	29 Sep 2023
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	6 Oct 2023
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	27 Oct 2023
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	30 Sep 2023
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	2 Nov 2023
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 Antenna to Amplifier.	Schwarzbeck	AK 9513	462	27 Oct 2023

463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	27 Oct 2023
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	27 Oct 2023
466	Low Pass Filter DC-1500 MHz	Mini-Circuits	NLP-1750+	VUU10401438	6 Oct 2023
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	6 Oct 2023
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	6 Oct 2023
510	Barometer/Thermometer	Digi Sense	68000-49	170871375	4 Jan 2024
554	Precision SMA Cable	Fairview Microwave	SCE18060101-400CM	554	6 Oct 2023
555	Rhode & Schwarz Receiver (Firmware Version : 2.00 SP1)	Rhode & Schwarz	ESW 44	101893	28 Jun 2023
87	Uninterruptible Power Supply	Falcon Electric	ED2000-1/2LC	F3471 02/01	Cal when used
CC05	Confidence Check	MiCOM	CC05	None	27 Feb 2023

8. MEASUREMENT AND PRESENTATION OF TEST DATA

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

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

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

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

9. TEST RESULTS

9.1. Peak Transmit Power

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

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

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

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

Limits Maximum Conducted Output Power

Operating Frequency Band 5150-5250 MHz

15. 407 (a)(1)
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are

used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Operating Frequency Band 5250-5350 and 5470 – 5725 MHz

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

Operating Frequency Band 5725 – 5850 MHz

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

Equipment Configuration for Peak Transmit Power			
Variant:	OFDM-20	**Duty Cycle (%):**	99.0
Data Rate:	8.6 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**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	13.77	13.31	--	--	16.56	--	29.00	-12.44	12.00
5210.0	24.98	24.73	--	--	27.87	--	29.00	-1.13	25.50
5240.0	24.06	24.55	--	--	27.32	--	29.00	-1.68	25.50

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.

For 5180.00 MHz channel frequency power reduced due to a power reduction for radiated band-edge compliance

Equipment Configuration for Peak Transmit Power			
Variant:	OFDM-40	**Duty Cycle (%):**	99.0
Data Rate:	17.2 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**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	13.57	13.24	--	--	16.42	--	29.00	-12.58	12.00
5210.0	25.09	24.83	--	--	27.97	--	29.00	-1.03	25.50
5230.0	24.15	24.69	--	--	27.44	--	29.00	-1.56	25.50

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.

For 5190.00 MHz channel frequency power reduced due to a power reduction for radiated band-edge compliance

Equipment Configuration for Peak Transmit Power			
Variant:	OFDM-80	**Duty Cycle (%):**	99.0
Data Rate:	36 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5210.0	10.96	10.58	--	--	13.78	--	29.00	15.22	9.0

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.

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	OFDM-20	**Duty Cycle (%):**	99.0
Data Rate:	8.6 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**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	26.200	24.930	--	--	26.200	24.930		
5210.0	26.070	26.330	--	--	26.330	26.070		
5240.0	21.600	25.000	--	--	25.000	21.600		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5180.0	19.043	19.067	--	--	19.067	19.043		
5210.0	19.047	19.066	--	--	19.066	19.047		
5240.0	19.006	19.050	--	--	19.050	19.006		

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:	OFDM-40	**Duty Cycle (%):**	99.0
Data Rate:	17.2 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**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	44.670	44.930	--	--	44.930	44.670		
5210.0	44.270	48.530	--	--	48.530	44.270		
5230.0	42.000	44.800	--	--	44.800	42.000		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5190.0	37.906	37.958	--	--	37.958	37.906		
5210.0	37.920	37.961	--	--	37.961	37.920		
5230.0	37.854	37.938	--	--	37.938	37.854		

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:	OFDM-80	**Duty Cycle (%):**	99.0
Data Rate:	36 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**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	85.800	97.500	--	--	97.500	85.800		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
5210.0	77.543	77.627	--	--	77.627	77.543		

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.

Operating Frequency Band 5250-5350 and 5470 – 5725 MHz

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

Operating Frequency Band 5725 – 5850 MHz

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

Equipment Configuration for Power Spectral Density			
Variant:	OFDM-20	**Duty Cycle (%):**	99.0
Data Rate:	17.2 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
5180.0	-0.989	-0.547	--	--	1.724	16.0	-14.3
5210.0	11.726	11.572	--	--	14.645	16.0	-1.4
5240.0	11.168	11.556	--	--	14.354	16.0	-1.7

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

DCCF - Duty Cycle Correction Factor

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

Equipment Configuration for Power Spectral Density			
Variant:	OFDM-40	**Duty Cycle (%):**	99.0
Data Rate:	17.2 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**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	-3.661	-3.060	--	--	-0.484	16.0	-16.5
5210.0	8.933	8.676	--	--	11.782	16.0	-4.2
5230.0	8.342	8.737	--	--	11.503	16.0	-4.5

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:	OFDM-80	**Duty Cycle (%):**	99.0
Data Rate:	36 MBit/s	**Antenna Gain (dBi):**	24.00
Modulation:	BPSK	**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	-10.119	-9.334	--	--	-7.049	16.0	-23.1

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).

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)(i) For transmitters operating solely in the 5.725 – 5.850 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(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).

Testing was performed up to 40 GHz, no emissions were found >18GHz.

9.4.1. TX Spurious & Restricted Band Emissions

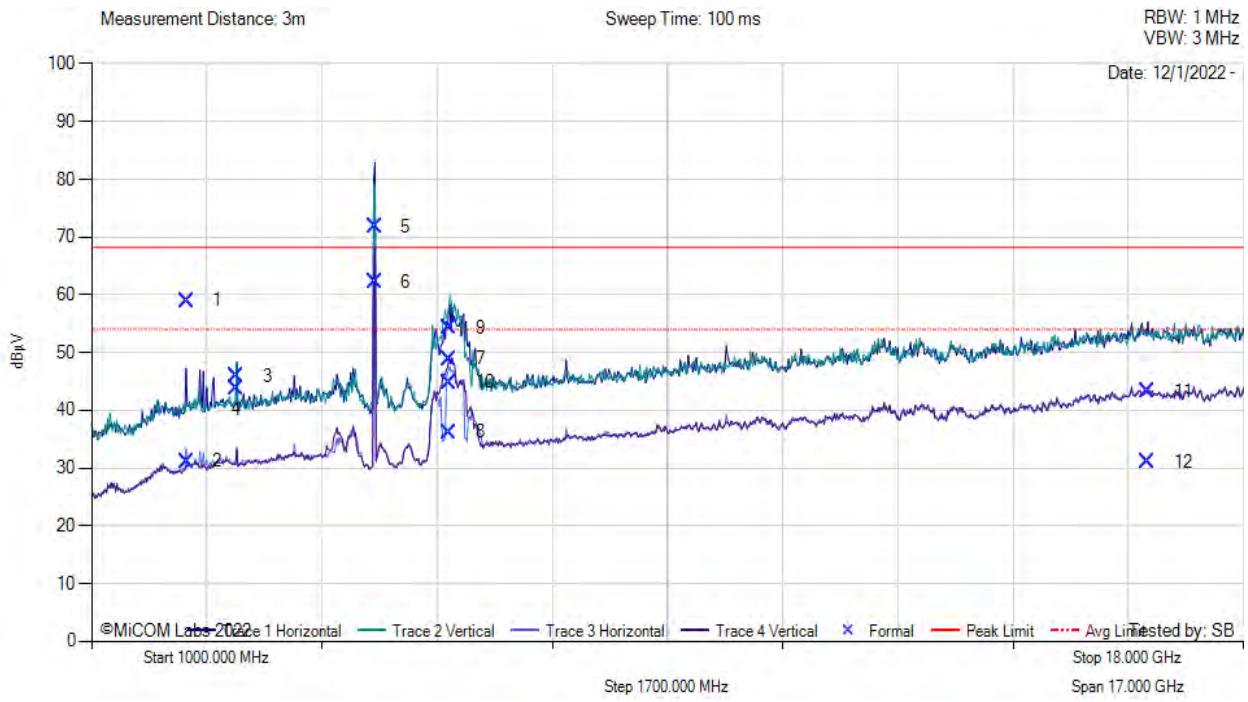
9.4.1.1. MR0248310 5150-5250MHz

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	MR0284310	**Variant:**	20MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.0	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: MR0284310



1GHz - 18 GHz												
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	2399.90	69.18	1.96	-12.19	58.95	MaxP	Horizontal	131	208	68.2	-9.3	Pass
2	2399.90	41.40	1.96	-12.19	31.16	AVG	Horizontal	131	208	54.0	-22.8	Pass
3	3142.77	55.26	2.27	-11.64	45.89	MaxP	Horizontal	118	213	68.2	-22.3	Pass
4	3142.77	53.16	2.27	-11.64	43.79	AVG	Horizontal	118	213	54.0	-10.2	Pass
5	5187.77	80.81	2.97	-12.03	71.75	MaxP	Fundamental	148	0	--	--	Pass
6	5187.77	71.33	2.97	-12.03	62.27	AVG	Fundamental	148	0	--	--	Pass
7	6283.03	54.49	3.29	-8.88	48.91	MaxP	Vertical	145	0	68.2	-19.3	Pass
8	6283.03	41.79	3.29	-8.88	36.21	AVG	Vertical	145	0	54.0	-17.8	Pass
9	6286.14	59.84	3.30	-8.91	54.23	MaxP	Horizontal	146	0	68.2	-14.0	Pass
10	6286.14	50.45	3.30	-8.91	44.85	AVG	Horizontal	146	0	54.0	-9.2	Pass
11	16589.72	37.88	6.19	-0.82	43.25	MaxP	Horizontal	99	26	68.2	-25.0	Pass
12	16589.72	25.65	6.19	-0.82	31.02	AVG	Horizontal	99	26	54.0	-23.0	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

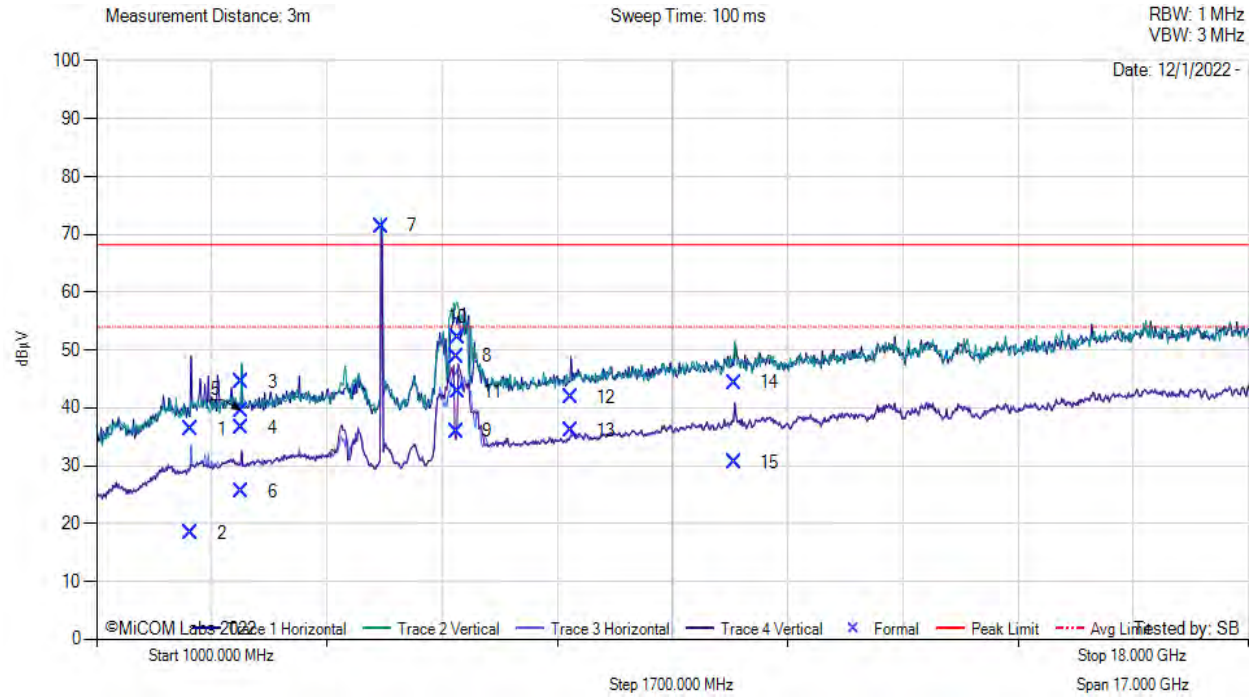
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	MR0284310	**Variant:**	20MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: MR0284310



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	2395.54	46.63	1.96	-12.22	36.37	MaxP	Horizontal	98	241	68.2	-31.9	Pass
2	2395.54	28.59	1.96	-12.22	18.33	AVG	Horizontal	98	241	54.0	-35.7	Pass
3	3142.82	53.81	2.27	-11.64	44.45	MaxP	Vertical	112	212	68.2	-23.8	Pass
4	3142.82	45.88	2.27	-11.64	36.51	AVG	Vertical	112	212	54.0	-17.5	Pass
5	3142.90	48.94	2.27	-11.64	39.57	MaxP	Horizontal	98	213	68.2	-28.7	Pass
6	3142.90	34.92	2.27	-11.64	25.55	AVG	Horizontal	98	213	54.0	-28.5	Pass
7	5199.00	80.67	2.98	34.17	71.42	AVG	Fundamental	149	0	--	--	Pass
8	6316.43	54.54	3.36	-9.04	48.86	MaxP	Vertical	149	1	68.2	-19.4	Pass
9	6316.43	41.62	3.36	-9.04	35.94	AVG	Vertical	149	1	54.0	-18.1	Pass
10	6338.77	57.52	3.41	-8.85	52.08	MaxP	Horizontal	142	0	68.2	-16.1	Pass
11	6338.77	48.22	3.41	-8.85	42.78	AVG	Horizontal	142	0	54.0	-11.2	Pass
12	8000.06	45.89	3.91	-8.00	41.81	MaxP	Horizontal	144	241	68.2	-26.4	Pass
13	8000.06	40.13	3.91	-8.00	36.04	AVG	Horizontal	144	241	54.0	-18.0	Pass
14	10419.83	45.45	4.47	-5.54	44.38	MaxP	Vertical	145	0	68.2	-23.9	Pass
15	10419.83	31.64	4.47	-5.54	30.56	AVG	Vertical	145	0	54.0	-23.4	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

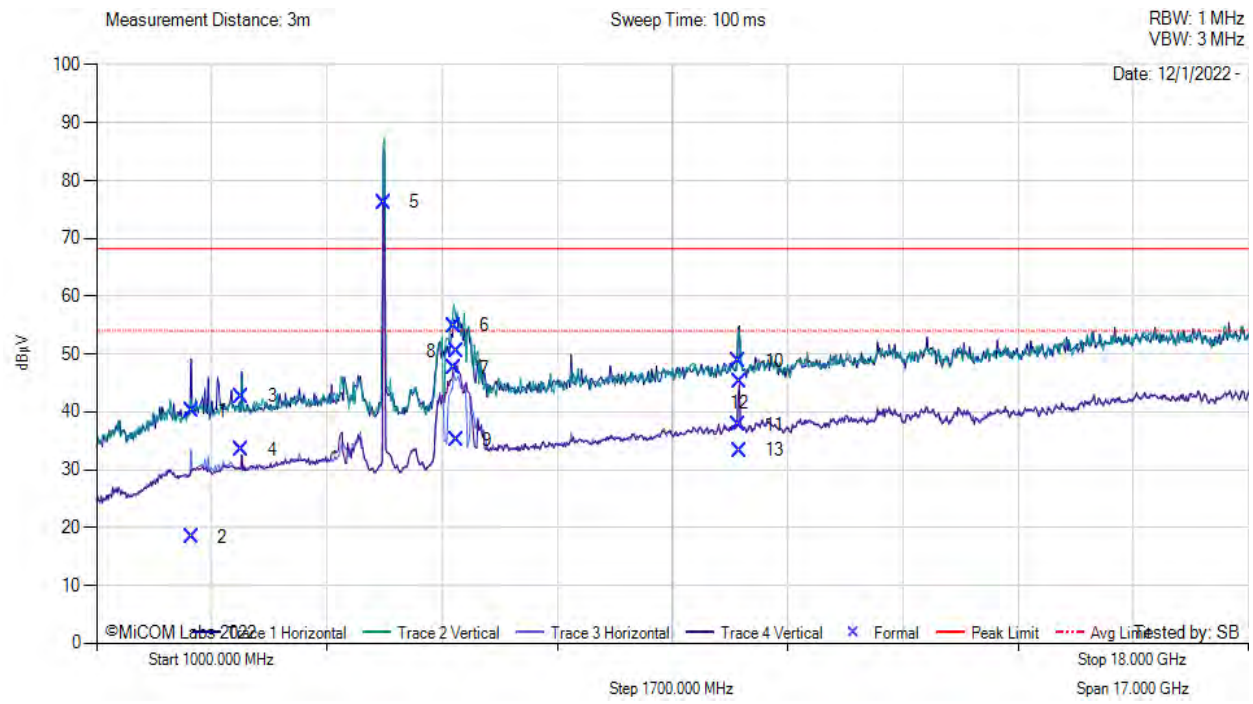
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious 1 GHz - 18 GHz			
Antenna:	MR0284310	**Variant:**	20MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5240	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: MR0284310



1 GHz - 18 GHz												
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	2398.40	50.46	1.96	-12.20	40.22	MaxP	Horizontal	139	241	68.2	-28.0	Pass
2	2398.40	28.65	1.96	-12.20	18.40	AVG	Horizontal	139	241	54.0	-35.6	Pass
3	3142.67	52.01	2.27	-11.64	42.65	MaxP	Horizontal	126	210	68.2	-25.6	Pass
4	3142.67	42.75	2.27	-11.64	33.38	AVG	Horizontal	126	210	54.0	-20.6	Pass
5	5233.00	84.98	3.05	34.22	76.18	AVG	Fundamental	149	0	--	--	Pass
6	6276.34	60.39	3.32	-8.84	54.86	MaxP	Vertical	149	0	68.2	-13.4	Pass
7	6276.34	53.10	3.32	-8.84	47.57	AVG	Vertical	149	0	54.0	-6.4	Pass
8	6315.58	56.18	3.36	-9.04	50.51	MaxP	Horizontal	143	0	68.2	-17.7	Pass
9	6315.58	40.76	3.36	-9.04	35.09	AVG	Horizontal	143	0	54.0	-18.9	Pass
10	10480.05	49.31	4.43	-4.92	48.82	MaxP	Vertical	149	0	68.2	-19.4	Pass
11	10480.05	38.32	4.43	-4.92	37.83	AVG	Vertical	149	0	54.0	-16.2	Pass
12	10484.99	45.79	4.42	-4.98	45.23	MaxP	Horizontal	145	0	68.2	-23.0	Pass
13	10484.99	33.86	4.42	-4.98	33.30	AVG	Horizontal	145	0	54.0	-20.7	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

Testing was performed up to 40 GHz, no emissions were found above 18GHz.

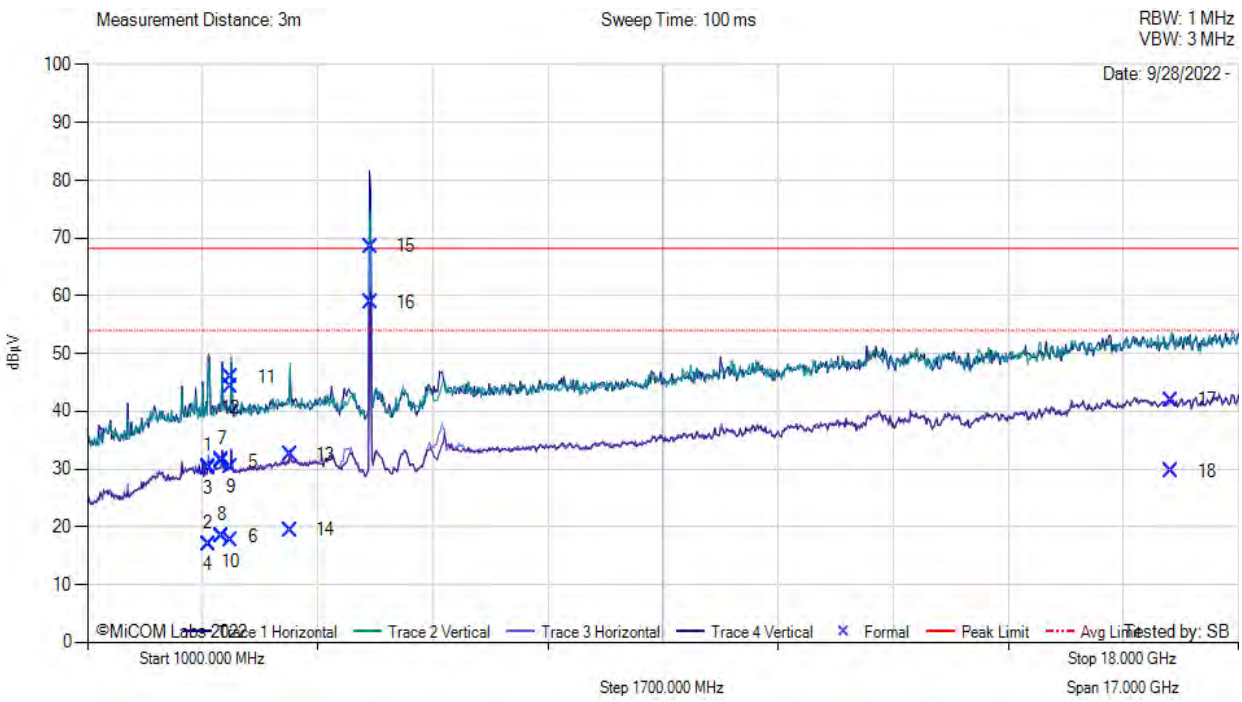
9.4.1.2. RW-9732-4958 5150-5250MHz

Equipment Configuration for FCC Spurious Emissions 1 GHz - 18 GHz			
Antenna:	RW-9732-4958	**Variant:**	20MHz
Antenna Gain (dBi):	32	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: RW-9732-4958



1 GHz – 18 Ghz												
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	2783.14	40.24	2.12	-11.86	30.50	MaxP	Horizontal	99	327	68.2	-37.7	Pass
2	2783.14	26.78	2.12	-11.86	17.04	AVG	Horizontal	99	327	54.0	-37.0	Pass
3	2783.15	39.94	2.12	-11.86	30.20	MaxP	Vertical	106	360	68.2	-38.0	Pass
4	2783.15	26.76	2.12	-11.86	17.02	AVG	Vertical	106	360	54.0	-37.0	Pass
5	2988.42	40.59	2.20	-11.44	31.35	MaxP	Vertical	133	342	68.2	-36.9	Pass
6	2988.42	27.61	2.20	-11.44	18.37	AVG	Vertical	133	342	54.0	-35.6	Pass
7	2990.57	40.89	2.20	-11.43	31.66	MaxP	Horizontal	119	316	68.2	-36.6	Pass
8	2990.57	27.71	2.20	-11.43	18.48	AVG	Horizontal	119	316	54.0	-35.5	Pass
9	3124.69	39.71	2.23	-11.52	30.43	MaxP	Vertical	110	341	68.2	-37.8	Pass
10	3124.69	26.93	2.23	-11.52	17.65	AVG	Vertical	110	341	54.0	-36.4	Pass
11	3124.95	55.15	2.23	-11.52	45.87	MaxP	Horizontal	99	320	68.2	-22.4	Pass
12	3124.95	53.57	2.23	-11.52	44.28	AVG	Horizontal	99	320	54.0	-9.7	Pass
13	3993.18	41.53	2.51	-11.58	32.47	MaxP	Vertical	119	351	68.2	-35.8	Pass
14	3993.18	28.51	2.51	-11.58	19.45	AVG	Vertical	119	351	54.0	-34.6	Pass
15	5183.89	77.55	2.97	-11.93	68.59	Fundamental	Horizontal	145	0	--	--	Pass
16	5183.89	67.86	2.97	-11.93	58.90	Fundamental	Horizontal	145	0	--	--	Pass
17	17012.02	36.48	6.57	-1.07	41.97	MaxP	Vertical	133	67	68.2	-26.3	Pass
18	17012.02	24.11	6.57	-1.07	29.61	AVG	Vertical	133	67	54.0	-24.4	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

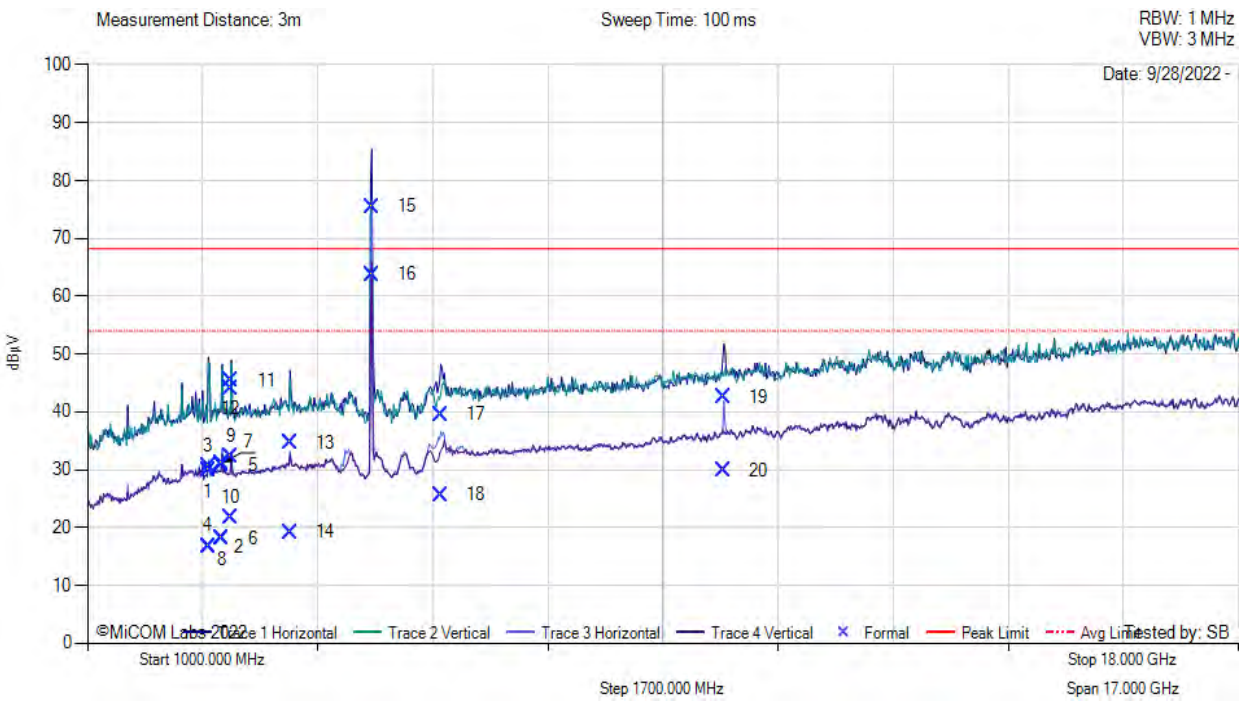
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious Emissions 1 GHz - 18 GHz			
Antenna:	RW-9732-4958	**Variant:**	20MHz
Antenna Gain (dBi):	32	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.0	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: RW-9732-4958



1 GHz - 18 GHz												
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	2784.08	39.65	2.12	-11.86	29.91	MaxP	Vertical	142	325	68.2	-38.3	Pass
2	2784.08	26.44	2.12	-11.86	16.70	AVG	Vertical	142	325	54.0	-37.3	Pass
3	2786.08	40.35	2.11	-11.85	30.61	MaxP	Horizontal	102	322	68.2	-37.6	Pass
4	2786.08	26.53	2.11	-11.85	16.79	AVG	Horizontal	102	322	54.0	-37.2	Pass
5	2989.88	40.03	2.20	-11.43	30.80	MaxP	Horizontal	148	268	68.2	-37.4	Pass
6	2989.88	27.39	2.20	-11.43	18.16	AVG	Horizontal	148	268	54.0	-35.8	Pass
7	2989.99	40.39	2.20	-11.43	31.16	MaxP	Vertical	119	312	68.2	-37.1	Pass
8	2989.99	27.30	2.20	-11.43	18.07	AVG	Vertical	119	312	54.0	-35.9	Pass
9	3124.92	41.60	2.23	-11.52	32.31	MaxP	Vertical	106	297	68.2	-35.9	Pass
10	3124.92	31.01	2.23	-11.52	21.72	AVG	Vertical	106	297	54.0	-32.3	Pass
11	3124.95	54.74	2.23	-11.52	45.45	MaxP	Horizontal	99	314	68.2	-22.8	Pass
12	3124.95	53.36	2.23	-11.52	44.07	AVG	Horizontal	99	314	54.0	-9.9	Pass
13	3992.26	43.77	2.52	-11.58	34.71	MaxP	Horizontal	105	319	68.2	-33.5	Pass
14	3992.26	28.28	2.52	-11.58	19.23	AVG	Horizontal	105	319	54.0	-34.8	Pass
15	5198.72	84.74	2.98	-12.22	75.50	Fundamental	Horizontal	145	0	--	--	Pass
16	5198.72	72.97	2.98	-12.22	63.73	Fundamental	Horizontal	145	0	--	--	Pass
17	6220.61	45.57	3.31	-9.33	39.55	MaxP	Horizontal	142	0	68.2	-28.7	Pass
18	6220.61	31.67	3.31	-9.33	25.65	AVG	Horizontal	142	0	54.0	-28.4	Pass
19	10400.25	43.53	4.60	-5.53	42.60	MaxP	Horizontal	141	0	68.2	-25.6	Pass
20	10400.25	30.86	4.60	-5.53	29.93	AVG	Horizontal	141	0	54.0	-24.1	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

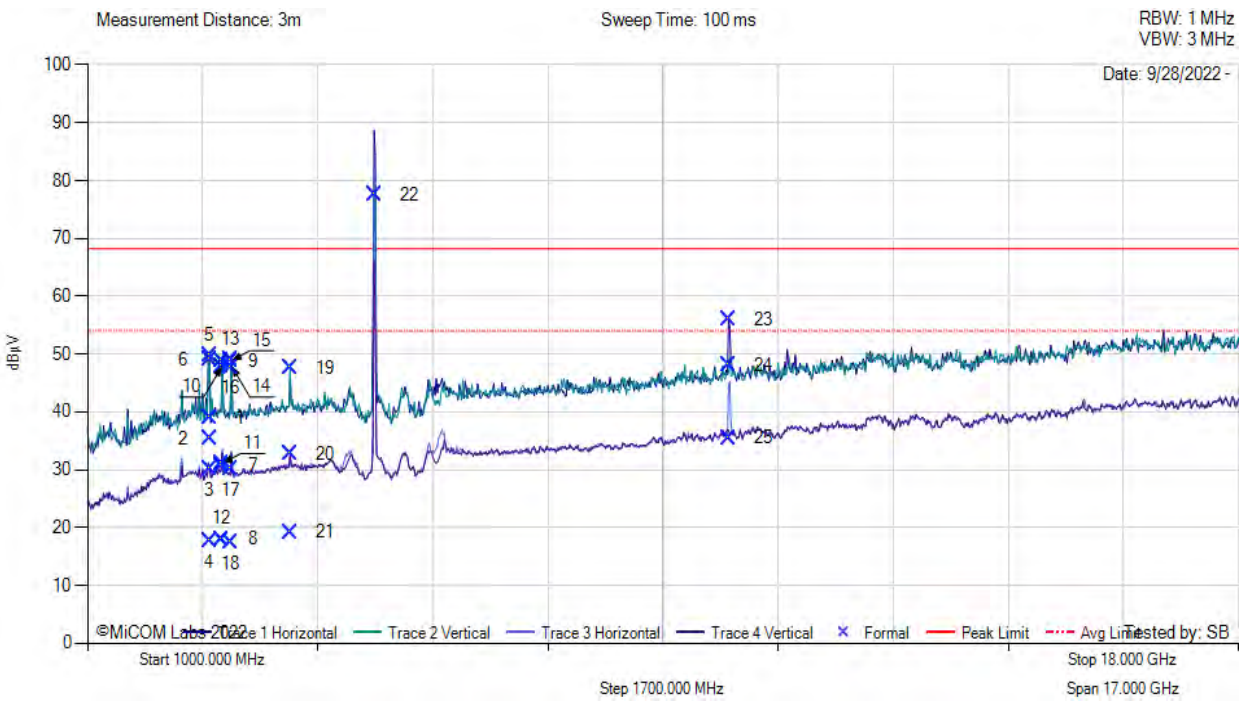
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious Emissions 1 GHz - 18 GHz			
Antenna:	RW-9732-4958	**Variant:**	20MHz
Antenna Gain (dBi):	32	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5240.0	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz- 18 GHz

Antenna: RW-9732-4958



1 GHz – 18 GHz												
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	2800.09	48.74	2.12	-11.84	39.02	MaxP	Horizontal	124	312	68.2	-29.2	Pass
2	2800.09	45.14	2.12	-11.84	35.42	AVG	Horizontal	124	312	54.0	-18.6	Pass
3	2800.12	39.76	2.12	-11.84	30.04	MaxP	Vertical	127	317	68.2	-38.2	Pass
4	2800.12	27.34	2.12	-11.84	17.62	AVG	Vertical	127	317	54.0	-36.4	Pass
5	2802.00	23.63	2.12	-11.84	49.67	MaxP	Vertical	127	317	68.2	-18.53	Pass
6	2802.00	58.82	2.12	32.41	49.10	MaxP	Horizontal	98	300	68.2	-19.1	Pass
7	2988.26	39.98	2.20	-11.44	30.74	MaxP	Horizontal	129	293	68.2	-37.5	Pass
8	2988.26	27.26	2.20	-11.44	18.02	AVG	Horizontal	129	293	54.0	-36.0	Pass
9	2989.00	57.97	2.20	32.87	48.73	MaxP	Horizontal	149	300	68.2	-19.5	Pass
10	2989.00	43.04	2.2	32.87	47.97	MaxP	Vertical	127	317	68.2	-20.23	Pass
11	2990.34	40.29	2.20	-11.43	31.06	MaxP	Vertical	123	332	68.2	-37.2	Pass
12	2990.34	27.26	2.20	-11.43	18.03	AVG	Vertical	123	332	54.0	-36.0	Pass
13	3125.00	58.26	2.23	32.77	48.97	MaxP	Horizontal	98	330	68.2	-19.3	Pass
14	3125.00	57.27	2.23	32.77	47.98	MaxP	Vertical	149	330	68.2	-20.2	Pass
15	3125.01	58.12	2.23	-11.52	48.83	MaxP	Horizontal	100	320	68.2	-19.4	Pass
16	3125.01	57.01	2.23	-11.52	47.73	AVG	Horizontal	100	320	54.0	-6.3	Pass
17	3125.27	39.36	2.23	-11.52	30.08	MaxP	Vertical	125	330	68.2	-38.2	Pass
18	3125.27	26.70	2.23	-11.52	17.42	AVG	Vertical	125	330	54.0	-36.6	Pass
19	3992.00	56.58	2.52	33.94	47.52	MaxP	Vertical	149	330	68.2	-20.7	Pass
20	3992.88	41.74	2.51	-11.58	32.68	MaxP	Vertical	142	315	68.2	-35.6	Pass
21	3992.88	28.23	2.51	-11.58	19.16	AVG	Vertical	142	315	54.0	-34.8	Pass
22	5233.00	86.29	3.05	34.22	77.48	Fundamental	Horizontal	149	--	--	--	Pass
23	10469.00	56.23	4.50	37.26	55.95	MaxP	Horizontal	149	0	68.2	-12.3	Pass
24	10469.12	48.34	4.50	-4.78	48.05	MaxP	Horizontal	139	0	68.2	-20.2	Pass
25	10469.12	35.82	4.50	-4.78	35.53	AVG	Horizontal	139	0	54.0	-18.5	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

Testing was performed up to 40 GHz, no emissions were found above 18GHz.

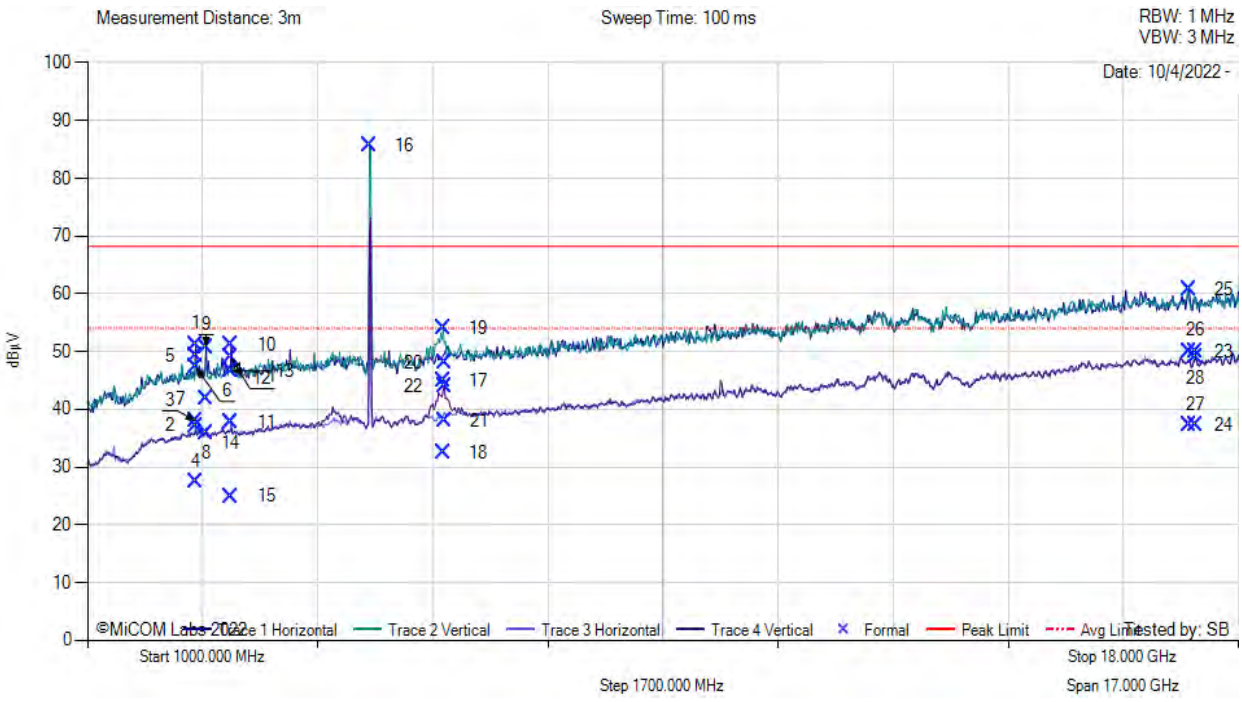
9.4.1.3. RW-9622-5001 5150-5250MHz

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	28	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: RW-9622-5001



1 GHz- 18 GHz												
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	2598.00	54.86	2.06	32.52	51.27	MaxP	Horizontal	100	210	68.2	-17.0	Pass
2	2598.00	40.79	2.06	32.52	37.19	AVG	Horizontal	100	180	54.0	-16.8	Pass
3	2599.88	41.58	2.07	-11.65	38.00	MaxP	Horizontal	101	204	68.2	-30.2	Pass
4	2599.88	31.01	2.07	-11.65	27.42	AVG	Horizontal	101	204	54.0	-26.6	Pass
5	2599.97	52.82	2.07	-11.65	49.23	MaxP	Horizontal	99	204	68.2	-19.0	Pass
6	2599.97	50.92	2.07	-11.65	47.34	AVG	Horizontal	99	204	54.0	-6.7	Pass
7	2750.08	45.54	2.11	-11.79	41.87	MaxP	Horizontal	106	204	68.2	-26.4	Pass
8	2750.08	39.69	2.11	-11.79	36.01	AVG	Horizontal	106	204	54.0	-18.0	Pass
9	2751.00	54.31	2.11	32.40	50.63	MaxP	Horizontal	100	180	68.2	-17.6	Pass
10	3125.00	54.40	2.23	32.77	51.12	MaxP	Horizontal	149	150	68.2	-17.1	Pass
11	3125.00	41.12	2.23	32.77	37.83	AVG	Horizontal	100	150	54.0	-16.2	Pass
12	3125.04	52.27	2.23	-11.52	48.98	MaxP	Horizontal	104	151	68.2	-19.2	Pass
13	3125.04	49.93	2.23	-11.52	46.64	AVG	Horizontal	104	151	54.0	-7.4	Pass
14	3125.13	41.04	2.23	-11.52	37.76	MaxP	Horizontal	132	134	68.2	-30.5	Pass
15	3125.13	28.22	2.23	-11.52	24.94	AVG	Horizontal	132	134	54.0	-29.1	Pass
16	5165.00	88.39	3.02	34.13	85.74	Fundamental	Vertical	149	--	--	--	Pass
17	6252.12	44.55	3.30	-8.95	44.90	MaxP	Vertical	141	0	68.2	-23.3	Pass
18	6252.12	32.15	3.30	-8.95	32.50	AVG	Vertical	141	0	54.0	-21.5	Pass
19	6253.00	53.67	3.30	35.61	54.03	MaxP	Vertical	149	0	68.2	-14.2	Pass
20	6269.78	47.58	3.32	-8.82	48.08	MaxP	Vertical	144	0	68.2	-20.1	Pass
21	6269.78	37.51	3.32	-8.82	38.02	AVG	Vertical	144	0	54.0	-16.0	Pass
22	6270.00	43.51	3.32	35.60	44.02	AVG	Vertical	149	0	54.0	-10.0	Pass
23	17267.88	38.11	6.57	-0.70	49.98	MaxP	Horizontal	105	72	68.2	-18.3	Pass
24	17267.88	25.47	6.57	-0.70	37.34	AVG	Horizontal	105	72	54.0	-16.7	Pass
25	17269.00	48.93	6.57	40.90	60.78	MaxP	Horizontal	100	90	68.2	-7.4	Pass
26	17369.97	38.54	6.43	-0.87	50.10	MaxP	Vertical	100	269	68.2	-18.1	Pass
27	17369.97	25.72	6.43	-0.87	37.28	AVG	Vertical	100	269	54.0	-16.7	Pass
28	17371.00	37.43	6.48	40.89	49.01	AVG	Vertical	100	239	54.0	-5.0	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

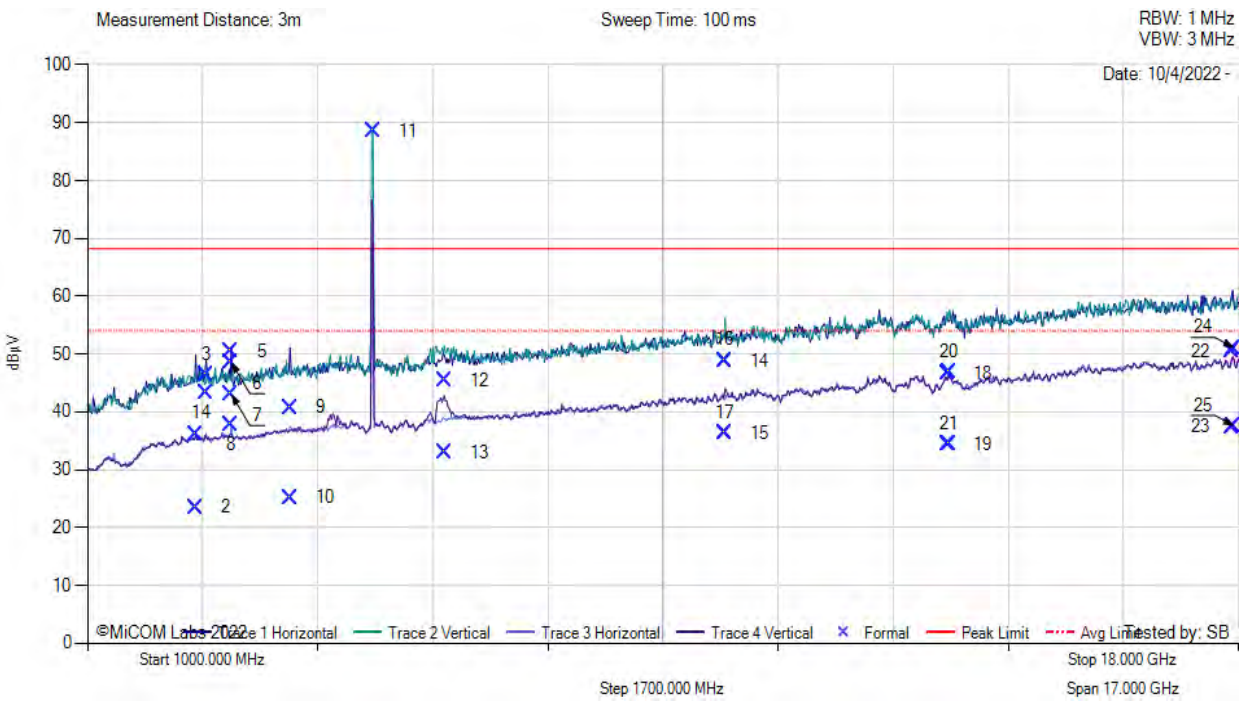
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious 1 GHz - 18 GHz			
Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	28	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: RW-9622-5001



1 GHz – 18 GHz												
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	2599.84	39.82	2.07	-11.65	36.24	MaxP	Horizontal	104	203	68.2	-32.0	Pass
2	2599.84	27.10	2.07	-11.65	23.52	AVG	Horizontal	104	203	54.0	-30.5	Pass
3	2750.04	50.01	2.11	-11.79	46.34	MaxP	Horizontal	101	202	68.2	-21.9	Pass
4	2750.04	47.05	2.11	-11.79	43.37	AVG	Horizontal	101	202	54.0	-10.6	Pass
5	3124.97	53.68	2.23	-11.52	50.40	MaxP	Horizontal	104	150	68.2	-17.8	Pass
6	3124.97	51.86	2.23	-11.52	48.57	AVG	Horizontal	104	150	54.0	-5.4	Pass
7	3125.08	46.35	2.23	-11.52	43.06	MaxP	Horizontal	102	177	68.2	-25.2	Pass
8	3125.08	41.16	2.23	-11.52	37.88	AVG	Horizontal	102	177	54.0	-16.1	Pass
9	3993.57	43.81	2.51	-11.57	40.75	MaxP	Horizontal	124	178	68.2	-27.5	Pass
10	3993.57	28.21	2.51	-11.57	25.15	AVG	Horizontal	124	178	54.0	-28.8	Pass
11	5216.00	91.88	2.98	34.20	88.61	Fundamental	Vertical	149	0	--	--	Pass
12	6269.62	44.90	3.32	-8.82	45.41	MaxP	Vertical	141	0	68.2	-22.8	Pass
13	6269.62	32.53	3.32	-8.82	33.03	AVG	Vertical	141	0	54.0	-21.0	Pass
14	10419.57	43.90	4.47	-5.55	48.83	MaxP	Vertical	145	57	68.2	-19.4	Pass
15	10419.57	31.36	4.47	-5.55	36.29	AVG	Vertical	145	57	54.0	-17.7	Pass
16	10419.96	43.95	4.47	-5.54	48.88	MaxP	Vertical	144	0	68.2	-19.3	Pass
17	10419.96	31.42	4.47	-5.54	36.35	AVG	Vertical	144	0	54.0	-17.7	Pass
18	13714.57	42.11	5.50	-6.97	46.64	MaxP	Vertical	116	311	68.2	-21.6	Pass
19	13714.57	29.87	5.50	-6.97	34.40	AVG	Vertical	116	311	54.0	-19.6	Pass
20	13733.70	42.34	5.55	-6.97	46.92	MaxP	Vertical	100	30	68.2	-21.3	Pass
21	13733.70	29.82	5.55	-6.97	34.41	AVG	Vertical	100	30	54.0	-19.6	Pass
22	17899.13	37.94	6.30	0.15	50.39	MaxP	Horizontal	115	263	68.2	-17.8	Pass
23	17899.13	24.92	6.30	0.15	37.36	AVG	Horizontal	115	263	54.0	-16.6	Pass
24	17931.95	38.49	6.50	0.10	51.09	MaxP	Vertical	105	37	68.2	-17.1	Pass
25	17931.95	25.01	6.50	0.10	37.61	AVG	Vertical	105	37	54.0	-16.4	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

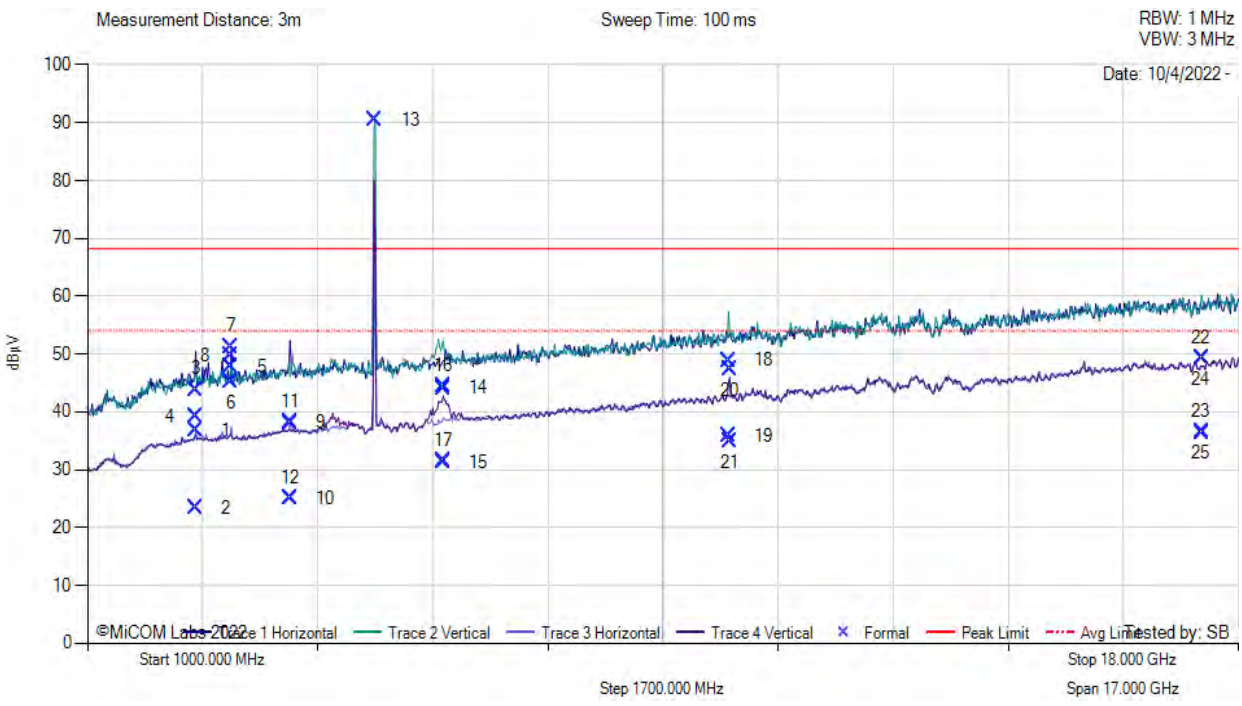
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious 1 GHz - 18 GHz			
Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	28	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5240	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz -18 GHz

Antenna: RW-9622-5001



1 GHz – 18 GHz												
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	2599.81	40.41	2.07	-11.65	36.83	MaxP	Horizontal	102	183	68.2	-31.4	Pass
2	2599.81	26.96	2.07	-11.65	23.38	AVG	Horizontal	102	183	54.0	-30.6	Pass
3	2599.92	47.50	2.07	-11.65	43.92	MaxP	Horizontal	98	204	68.2	-24.3	Pass
4	2599.92	42.76	2.07	-11.65	39.18	AVG	Horizontal	98	204	54.0	-14.8	Pass
5	3124.98	51.05	2.23	-11.52	47.76	MaxP	Horizontal	135	225	68.2	-20.5	Pass
6	3124.98	48.47	2.23	-11.52	45.18	AVG	Horizontal	135	225	54.0	-8.8	Pass
7	3125.01	54.58	2.23	-11.52	51.29	MaxP	Horizontal	103	150	68.2	-16.9	Pass
8	3125.01	53.01	2.23	-11.52	49.73	AVG	Horizontal	103	150	54.0	-4.3	Pass
9	3990.06	41.37	2.52	-11.58	38.32	MaxP	Horizontal	136	182	68.2	-29.9	Pass
10	3990.06	28.19	2.52	-11.58	25.13	AVG	Horizontal	136	182	54.0	-28.9	Pass
11	3993.80	41.20	2.51	-11.57	38.14	MaxP	Horizontal	135	181	68.2	-30.1	Pass
12	3993.80	28.12	2.51	-11.57	25.06	AVG	Horizontal	135	181	54.0	-28.9	Pass
13	5250.00	92.90	3.04	34.25	90.44	Fundamental	Vertical	149	0	--	--	Pass
14	6253.45	43.73	3.30	-8.93	44.10	MaxP	Vertical	145	0	68.2	-24.1	Pass
15	6253.45	30.92	3.30	-8.93	31.29	AVG	Vertical	145	0	54.0	-22.7	Pass
16	6253.79	44.08	3.30	-8.92	44.45	MaxP	Vertical	141	0	68.2	-23.8	Pass
17	6253.79	31.13	3.30	-8.92	31.51	AVG	Vertical	141	0	54.0	-22.5	Pass
18	10469.56	43.22	4.49	-4.78	48.93	MaxP	Vertical	144	0	68.2	-19.3	Pass
19	10469.56	30.21	4.49	-4.78	35.92	AVG	Vertical	144	0	54.0	-18.1	Pass
20	10484.45	41.87	4.41	-4.98	47.31	MaxP	Vertical	145	0	68.2	-20.9	Pass
21	10484.45	29.48	4.41	-4.98	34.92	AVG	Vertical	145	0	54.0	-19.1	Pass
22	17454.38	38.26	6.11	-1.09	49.28	MaxP	Vertical	129	9	68.2	-18.9	Pass
23	17454.38	25.48	6.11	-1.09	36.50	AVG	Vertical	129	9	54.0	-17.5	Pass
24	17454.59	38.18	6.11	-1.09	49.20	MaxP	Vertical	110	50	68.2	-19.0	Pass
25	17454.59	25.46	6.11	-1.09	36.48	AVG	Vertical	110	50	54.0	-17.5	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

Testing was performed up to 40 GHz, no emissions were found above 18GHz.

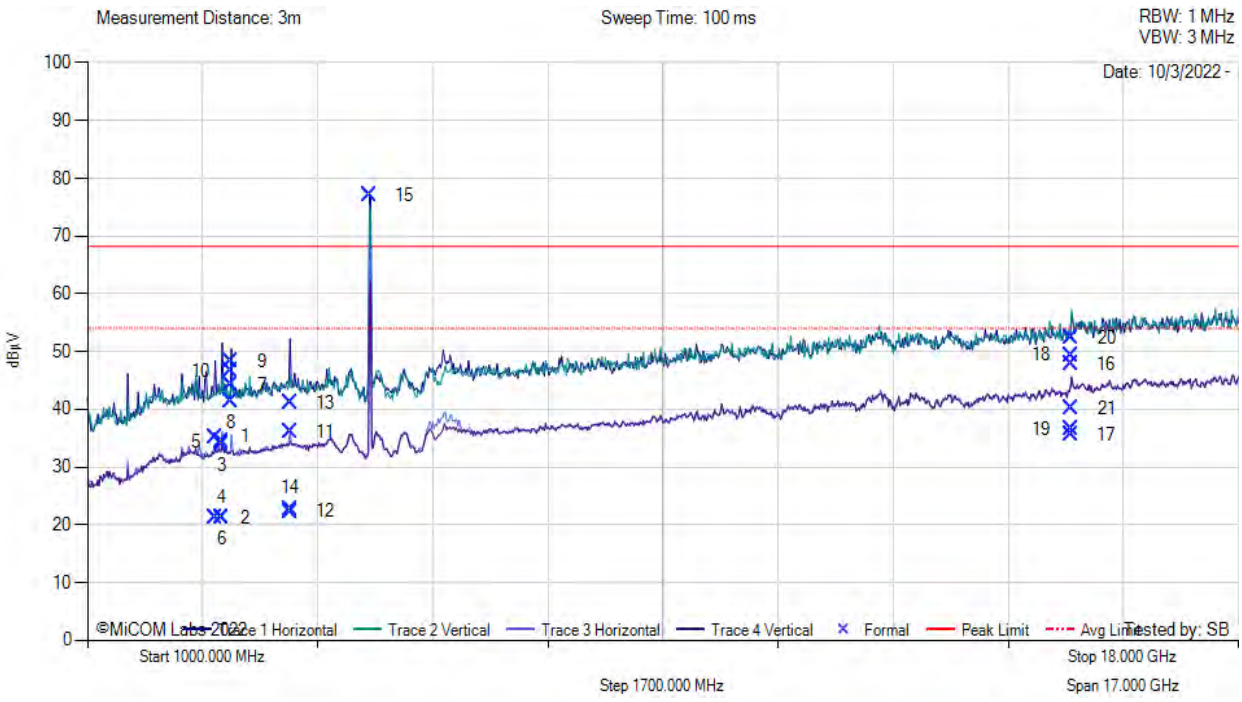
9.4.1.4. RW-9732-4965 5150-5250MHz

Equipment Configuration for FCC Spurious 1 GHz - 18 GHz			
Antenna:	RW-9732-4965	**Variant:**	20 MHz
Antenna Gain (dBi):	25.0	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5190	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz - 18 GHz

Antenna: RW-9732-4965



1 GHz– 18 GHz												
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	2885.83	41.77	2.16	-11.67	35.25	MaxP	Horizontal	143	178	68.2	-33.0	Pass
2	2885.83	27.76	2.16	-11.67	21.25	AVG	Horizontal	143	178	54.0	-32.8	Pass
3	2988.35	40.12	2.20	-11.44	33.88	MaxP	Horizontal	101	227	68.2	-34.4	Pass
4	2988.35	27.40	2.20	-11.44	21.16	AVG	Horizontal	101	227	54.0	-32.8	Pass
5	2990.69	40.57	2.20	-11.43	34.34	MaxP	Horizontal	106	177	68.2	-33.9	Pass
6	2990.69	27.43	2.20	-11.43	21.20	AVG	Horizontal	106	177	54.0	-32.8	Pass
7	3124.92	50.54	2.23	-11.52	44.25	MaxP	Horizontal	100	143	68.2	-24.0	Pass
8	3124.92	47.59	2.23	-11.52	41.30	AVG	Horizontal	100	143	54.0	-12.7	Pass
9	3125.04	54.56	2.23	-11.52	48.28	MaxP	Horizontal	104	143	68.2	-20.0	Pass
10	3125.04	52.94	2.23	-11.52	46.65	AVG	Horizontal	104	143	54.0	-7.3	Pass
11	3990.56	42.21	2.52	-11.57	36.16	MaxP	Horizontal	101	134	68.2	-32.1	Pass
12	3990.56	28.35	2.52	-11.57	22.29	AVG	Horizontal	101	134	54.0	-31.7	Pass
13	3993.53	47.18	2.51	-11.57	41.12	MaxP	Horizontal	147	125	68.2	-27.1	Pass
14	3993.53	28.85	2.51	-11.57	22.78	AVG	Horizontal	147	125	54.0	-31.2	Pass
15	5165.00	82.74	3.02	34.13	77.09	Fundamental	Vertical	149	--	--	--	Pass
16	15533.06	41.63	5.69	-2.43	47.89	MaxP	Horizontal	100	134	68.2	-20.3	Pass
17	15533.06	29.32	5.69	-2.43	35.58	AVG	Horizontal	100	134	54.0	-18.4	Pass
18	15534.72	43.12	5.71	-2.46	49.36	MaxP	Vertical	147	149	68.2	-18.9	Pass
19	15534.72	30.32	5.71	-2.46	36.57	AVG	Vertical	147	149	54.0	-17.4	Pass
20	15535.95	46.10	5.72	-2.49	52.33	MaxP	Vertical	142	161	68.2	-15.9	Pass
21	15535.95	33.87	5.72	-2.49	40.11	AVG	Vertical	142	161	54.0	-13.9	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

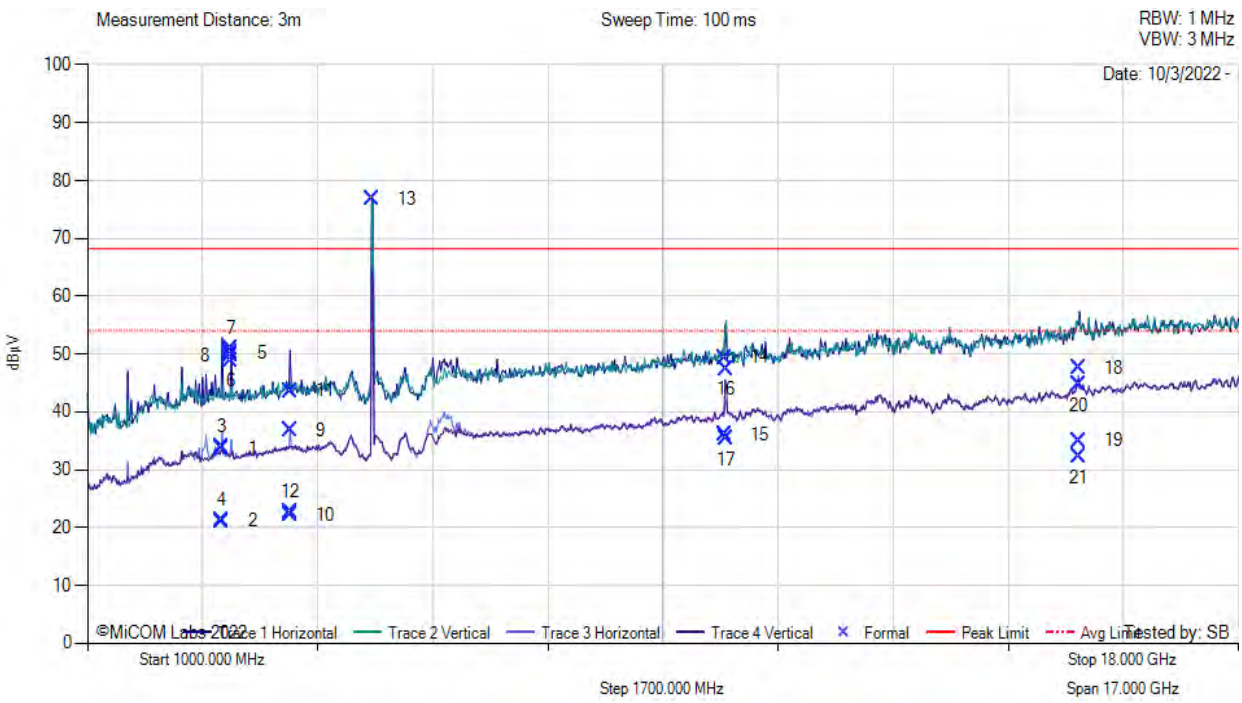
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	RW-9732-4965	**Variant:**	20 MHz
Antenna Gain (dBi):	25.0	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz - 18 GHz

Antenna: RW-9732-4965



1 GHz – 18 GHz												
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	2989.26	39.92	2.20	-11.44	33.68	MaxP	Horizontal	115	235	68.2	-34.5	Pass
2	2989.26	27.37	2.20	-11.44	21.13	AVG	Horizontal	115	235	54.0	-32.9	Pass
3	2989.69	40.14	2.20	-11.43	33.91	MaxP	Horizontal	99	207	68.2	-34.3	Pass
4	2989.69	27.39	2.20	-11.43	21.16	AVG	Horizontal	99	207	54.0	-32.8	Pass
5	3124.97	56.45	2.23	-11.52	50.17	MaxP	Horizontal	103	143	68.2	-18.1	Pass
6	3124.97	55.21	2.23	-11.52	48.92	AVG	Horizontal	103	143	54.0	-5.1	Pass
7	3125.00	57.22	2.23	-11.52	50.94	MaxP	Horizontal	108	142	68.2	-17.3	Pass
8	3125.00	56.10	2.23	-11.52	49.81	AVG	Horizontal	108	142	54.0	-4.2	Pass
9	3990.82	42.89	2.52	-11.57	36.84	MaxP	Horizontal	126	119	68.2	-31.4	Pass
10	3990.82	28.30	2.52	-11.57	22.25	AVG	Horizontal	126	119	54.0	-31.8	Pass
11	3993.99	49.73	2.51	-11.57	43.67	MaxP	Horizontal	144	133	68.2	-24.6	Pass
12	3993.99	28.79	2.51	-11.57	22.73	AVG	Horizontal	144	133	54.0	-31.3	Pass
13	5199.00	82.99	2.98	34.17	76.74	Fundamental	Vertical	149	--	--	--	Pass
14	10419.69	47.47	4.47	-5.54	49.40	MaxP	Vertical	149	0	68.2	-18.8	Pass
15	10419.69	34.21	4.47	-5.54	36.13	AVG	Vertical	149	0	54.0	-17.9	Pass
16	10434.19	45.17	4.54	-5.22	47.50	MaxP	Vertical	148	0	68.2	-20.7	Pass
17	10434.19	33.09	4.54	-5.22	35.42	AVG	Vertical	148	0	54.0	-18.6	Pass
18	15635.57	41.14	5.67	-2.22	47.59	MaxP	Horizontal	100	155	68.2	-20.6	Pass
19	15635.57	28.56	5.67	-2.22	35.01	AVG	Horizontal	100	155	54.0	-19.0	Pass
20	15652.16	38.28	5.66	-2.19	44.75	MaxP	Horizontal	146	126	68.2	-23.5	Pass
21	15652.16	25.81	5.66	-2.19	32.28	AVG	Horizontal	146	126	54.0	-21.7	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

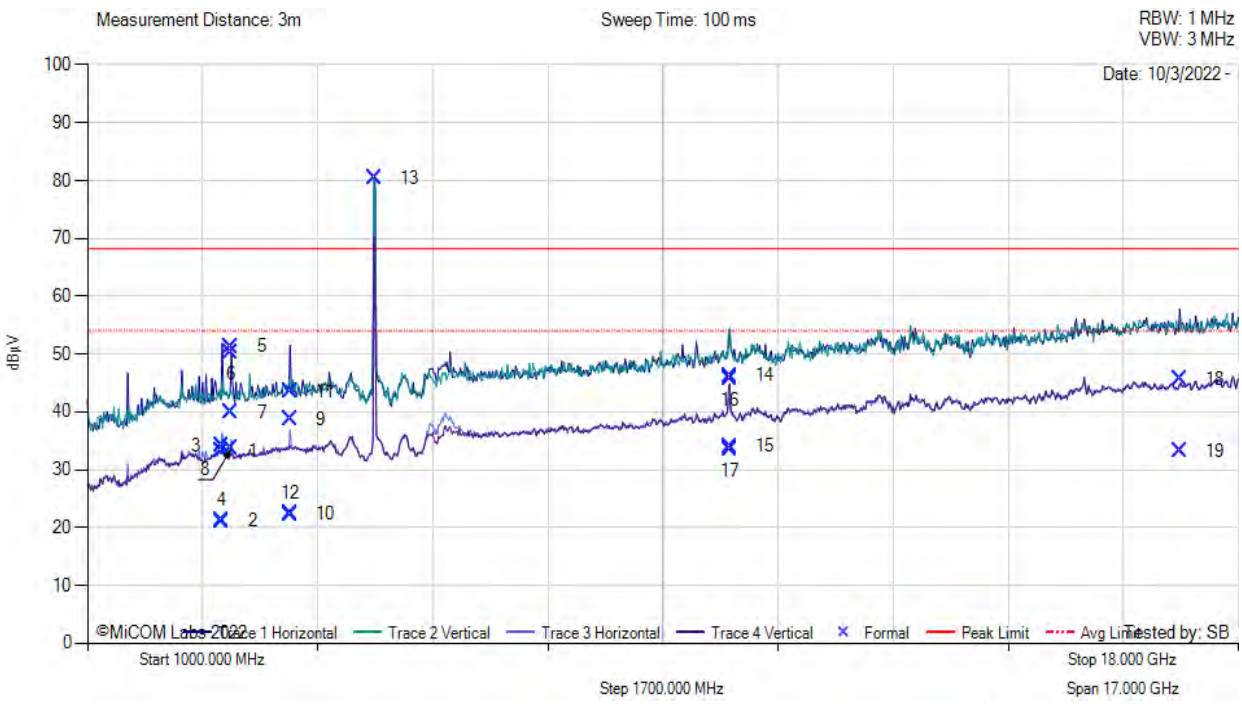
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	RW-9732-4965	**Variant:**	20 MHz
Antenna Gain (dBi):	25.0	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5240	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

FCC Spurious 1 GHz - 18 GHz

Antenna: RW-9732-4965



1 GHz – 18 GHz												
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	2987.50	39.44	2.20	-11.45	33.20	MaxP	Horizontal	125	210	68.2	-35.0	Pass
2	2987.50	27.37	2.20	-11.45	21.13	AVG	Horizontal	125	210	54.0	-32.9	Pass
3	2990.62	40.34	2.20	-11.43	34.11	MaxP	Horizontal	142	240	68.2	-34.1	Pass
4	2990.62	27.41	2.20	-11.43	21.18	AVG	Horizontal	142	240	54.0	-32.8	Pass
5	3125.00	57.59	2.23	-11.52	51.30	MaxP	Horizontal	104	143	68.2	-16.9	Pass
6	3125.00	56.58	2.23	-11.52	50.29	AVG	Horizontal	104	143	54.0	-3.7	Pass
7	3125.10	46.14	2.23	-11.52	39.85	MaxP	Horizontal	99	145	68.2	-28.4	Pass
8	3125.10	40.01	2.23	-11.52	33.72	AVG	Horizontal	99	145	54.0	-20.3	Pass
9	3990.62	44.71	2.52	-11.57	38.65	MaxP	Horizontal	138	124	68.2	-29.6	Pass
10	3990.62	28.54	2.52	-11.57	22.49	AVG	Horizontal	138	124	54.0	-31.5	Pass
11	3992.92	49.51	2.51	-11.58	43.45	MaxP	Horizontal	130	125	68.2	-24.8	Pass
12	3992.92	28.38	2.51	-11.58	22.32	AVG	Horizontal	130	125	54.0	-31.7	Pass
13	5233.00	86.23	3.05	34.22	80.42	Fundamental	Vertical	149	--	--	--	Pass
14	10484.34	43.84	4.41	-4.98	46.27	MaxP	Vertical	99	170	68.2	-22.0	Pass
15	10484.34	31.64	4.41	-4.98	34.07	AVG	Vertical	99	170	54.0	-19.9	Pass
16	10485.60	43.28	4.43	-5.00	45.71	MaxP	Vertical	149	0	68.2	-22.5	Pass
17	10485.60	31.05	4.43	-5.00	33.48	AVG	Vertical	149	0	54.0	-20.5	Pass
18	17132.70	36.81	6.92	-1.10	45.63	MaxP	Horizontal	99	332	68.2	-22.6	Pass
19	17132.70	24.38	6.92	-1.10	33.20	AVG	Horizontal	99	332	54.0	-20.8	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

Testing was performed up to 40 GHz, no emissions were found above 18GHz.

9.4.2. Restricted Edge & Band-Edge Emissions

9.4.2.5. MR0248310 5150-5250MHz

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

MR0248310		Band-Edge Freq	Limit 68.2dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
20MHz	5180.00	5150.00	64.41	53.55	12.0
40MHz	5190.00	5150.00	64.30	53.77	12.0
80MHz	5210.00	5150.00	66.39	53.94	9.0

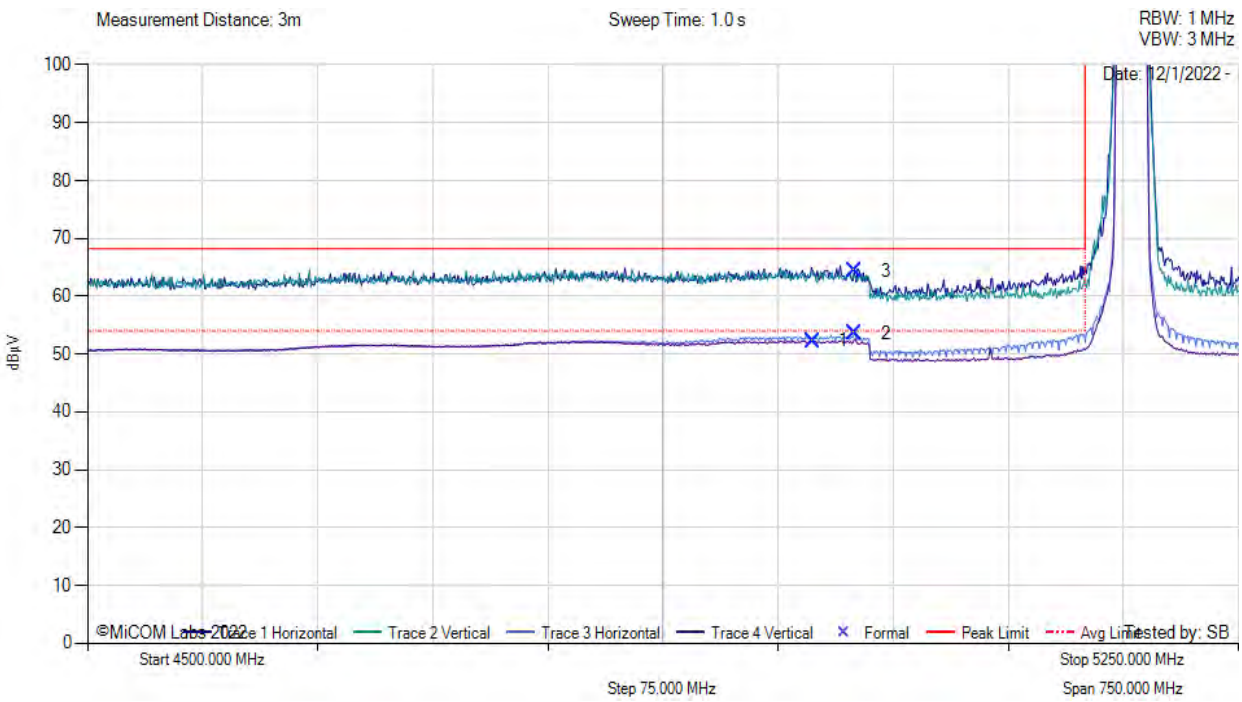
Click on the links to view the data.

Equipment Configuration for BE 5150 MHZ			
Antenna:	MR0284310	**Variant:**	20MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.0	**Data Rate:**	8.6
Power Setting:	12	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: MR0284310



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	4972.5	15.11	2.94	34.25	52.3	AVG	Vertical	150	0	54.0	-1.7	Pass
2	5000.25	16.35	2.95	34.25	53.55	AVG	Horizontal	150	1	54.0	-0.5	Pass
3	5000.25	27.22	2.94	34.25	64.41	MaxP	Vertical	150	0	68.2	-3.8	Pass

Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC

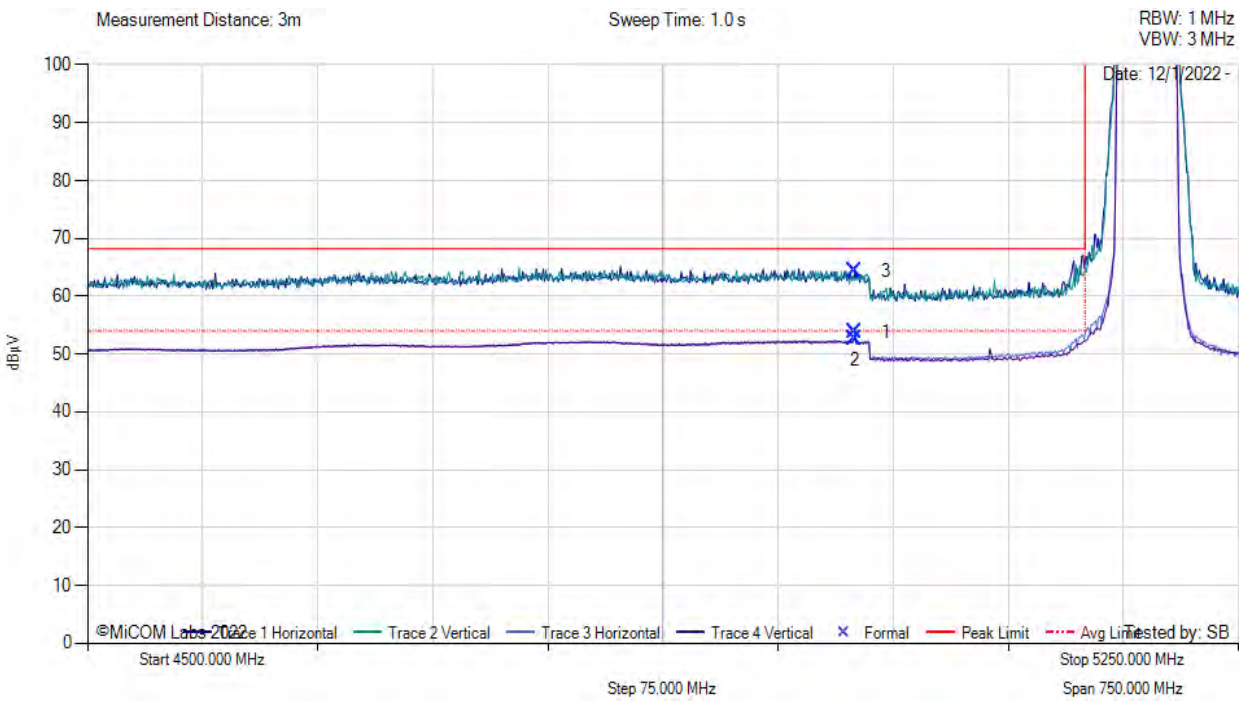
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	MR0284310	**Variant:**	40MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.0	**Data Rate:**	17.2
Power Setting:	12	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: MR0284310



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	5000.25	16.57	2.95	34.25	53.77	AVG	Horizontal	150	1	54.0	-0.2	Pass
2	5000.25	15.51	2.95	34.22	52.68	AVG	Vertical	150	0	54.0	-1.3	Pass
3	5000.25	27.13	2.95	34.22	64.30	MaxP	Horizontal	150	0	68.2	-3.9	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

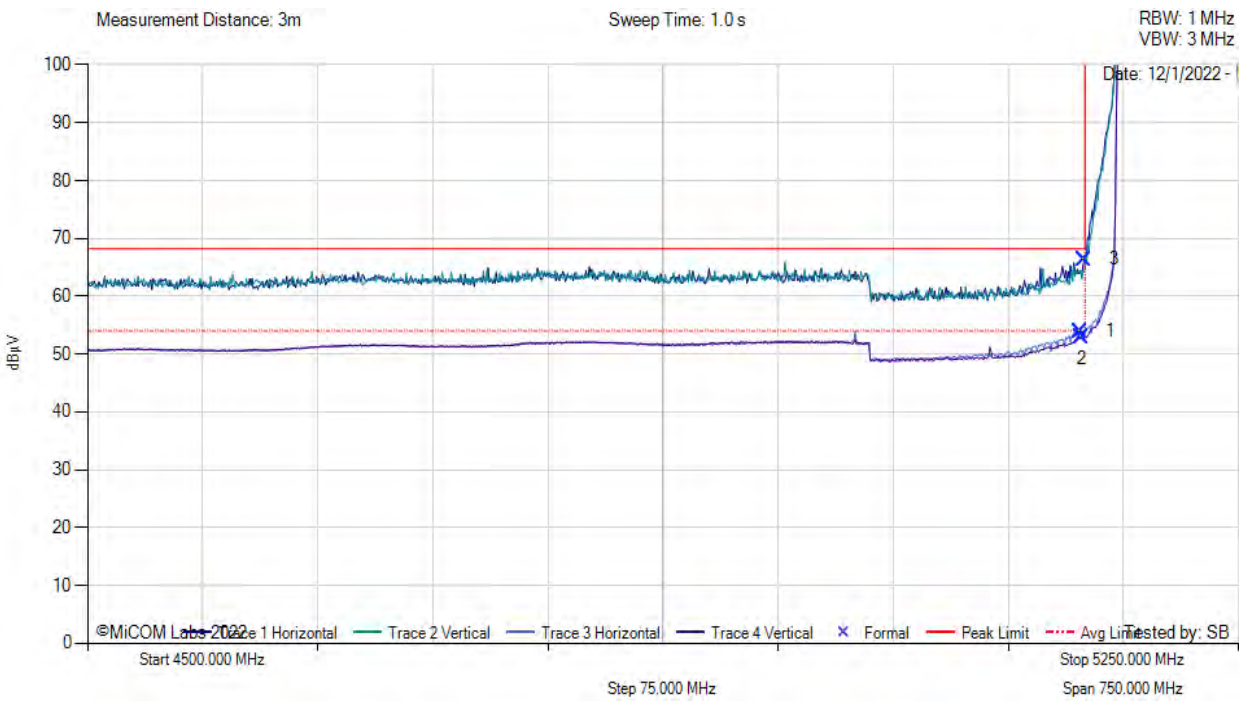
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	MR0284310	**Variant:**	80MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210.0	**Data Rate:**	36.00
Power Setting:	9	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: MR0284310



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	5146.50	16.77	3.06	34.11	53.94	AVG	Horizontal	150	2	54.0	-0.1	Pass
2	5148.00	15.75	3.06	34.11	52.92	AVG	Vertical	150	0	54.0	-1.1	Pass
3	5149.50	29.22	3.06	34.11	66.39	MaxP	Horizontal	150	2	68.2	-1.8	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

back to matrix

9.4.2.6. RW-9732-4958 5150-5250MHz

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RW-9732-4958		Band-Edge Freq	Limit 54.0dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
20MHz	5180.00	5150.00	66.16	52.79	12.0
40MHz	5190.00	5150.00	62.25	53.63	10.0
80MHz	5210.00	5150.00	68.00	53.68	6.0

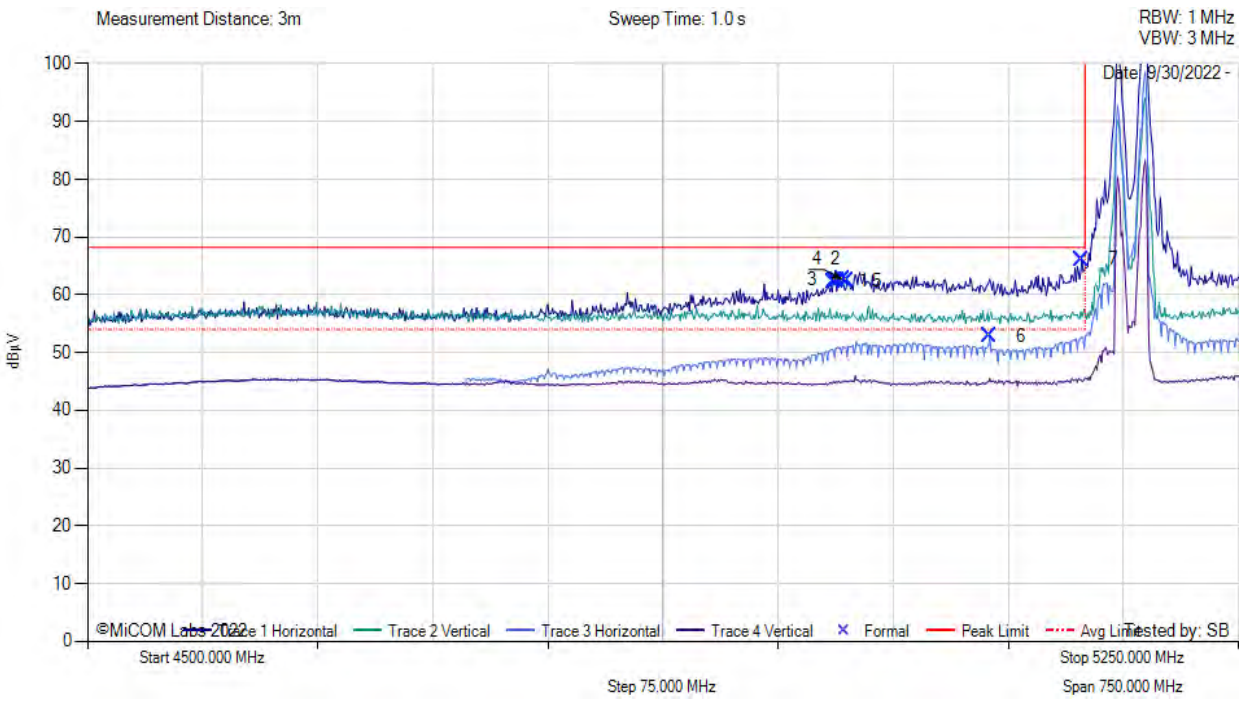
Click on the links to view the data.

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9732-4958	**Variant:**	20MHz
Antenna Gain (dBi):	32	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180	**Data Rate:**	8.6
Power Setting:	12.0	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9732-4958



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	4986.00	25.01	3.05	34.23	62.29	MaxP	Horizontal	149	0	68.2	-5.9	Pass
2	4987.50	25.27	3.08	34.23	62.58	MaxP	Horizontal	149	0	68.2	-5.6	Pass
3	4989.00	25.23	3.09	34.23	62.55	MaxP	Horizontal	149	0	68.2	-5.6	Pass
4	4992.00	25.30	3.09	34.23	62.62	MaxP	Horizontal	149	0	68.2	-5.6	Pass
5	4995.00	25.13	3.03	34.22	62.38	MaxP	Horizontal	149	0	68.2	-5.8	Pass
6	5088.00	15.71	2.93	34.15	52.79	AVG	Horizontal	149	0	54.0	-1.2	Pass
7	5148.00	28.99	3.06	34.11	66.16	MaxP	Horizontal	149	0	68.2	-2.0	Pass

Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC

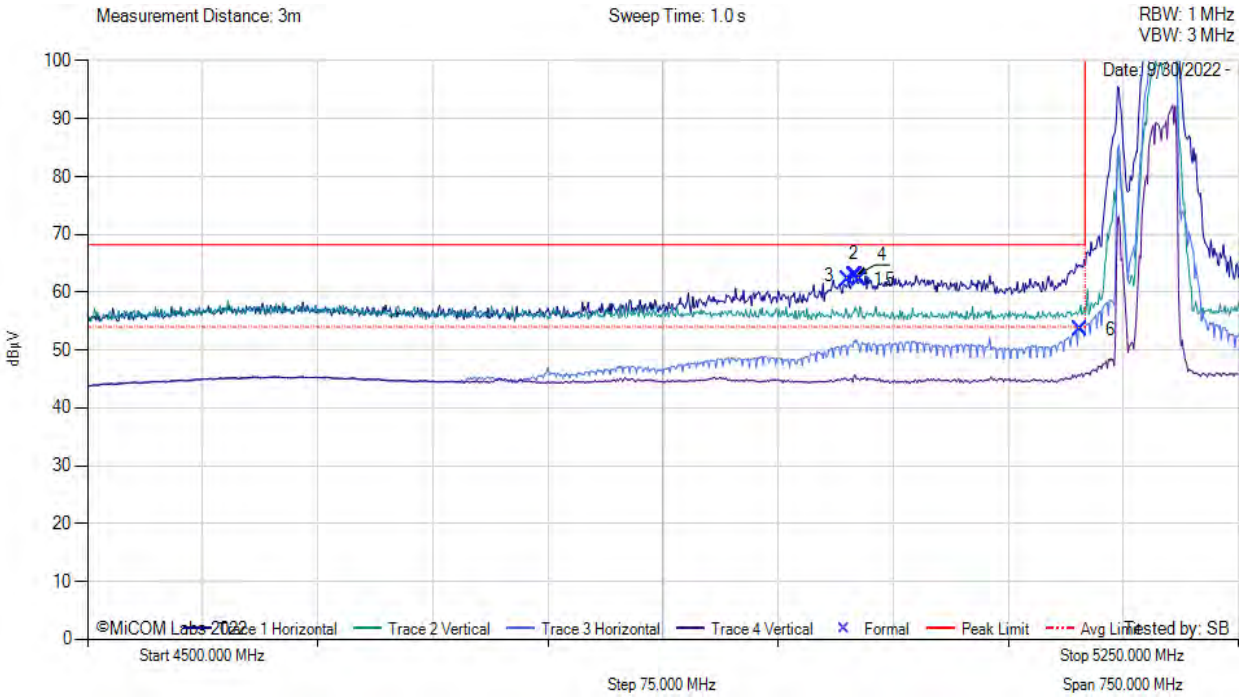
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9732-4958	**Variant:**	40MHz
Antenna Gain (dBi):	32	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5190	**Data Rate:**	17.2
Power Setting:	10.0	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9732-4958



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	4995.75	25.00	3.02	34.22	62.23	MaxP	Horizontal	149	0	68.2	-6.0	Pass
2	4999.50	25.90	2.95	34.22	63.07	MaxP	Horizontal	149	0	68.2	-5.1	Pass
3	5000.25	25.78	2.95	34.22	62.95	MaxP	Horizontal	149	0	68.2	-5.3	Pass
4	5001.00	25.79	2.93	34.22	62.94	MaxP	Horizontal	149	0	68.2	-5.3	Pass
5	5003.25	25.09	2.93	34.22	62.25	MaxP	Horizontal	149	0	68.2	-6.0	Pass
6	5146.50	16.43	3.08	34.11	53.63	AVG	Horizontal	149	0	54.0	-0.4	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

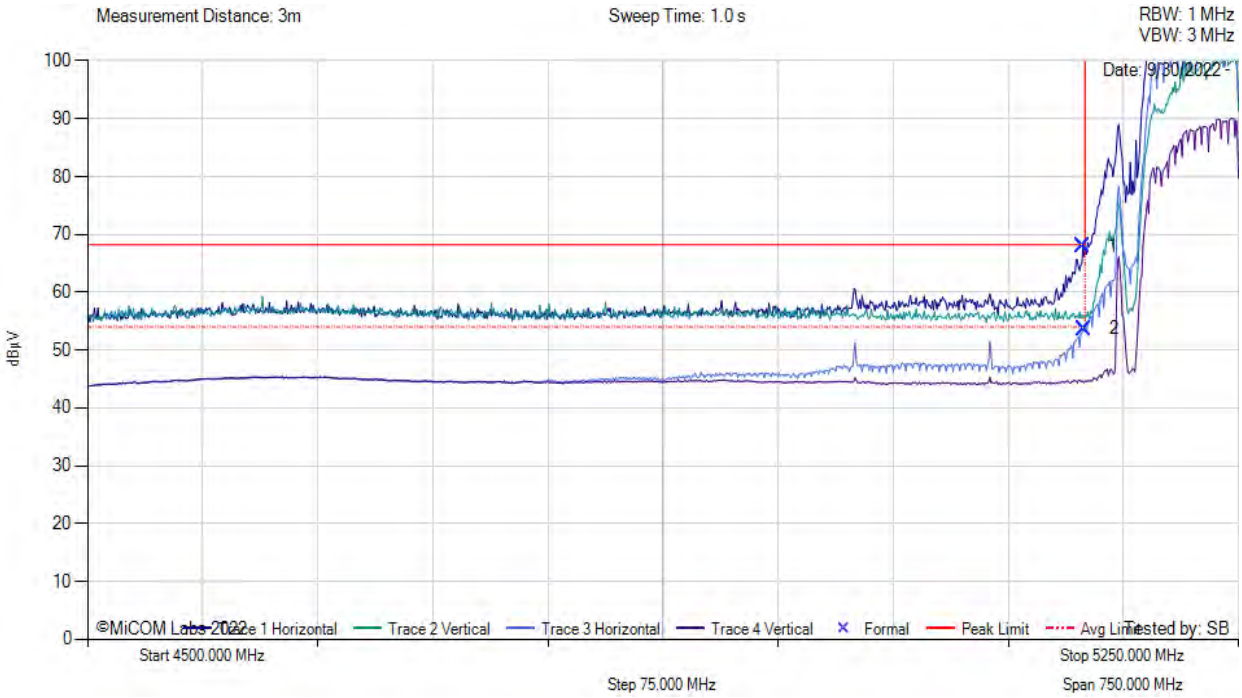
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9732-4958	**Variant:**	80MHz
Antenna Gain (dBi):	32	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210	**Data Rate:**	36
Power Setting:	6.0	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9732-4958



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	5148.75	30.84	3.06	34.11	68.00	MaxP	Horizontal	149	0	68.2	-0.2	Pass
2	5149.50	16.53	3.05	34.11	53.68	AVG	Horizontal	149	0	54.0	-0.3	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

back to matrix

9.4.2.7. RW-9622-5001 5150-5250MHz

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RW-9622-5001		Band-Edge Freq	Limit 68.2dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
20MHz	5180.00	5150.00	62.80	53.99	8.0
40MHz	5190.00	5150.00	63.78	53.52	8.0
80MHz	5210.00	5150.00	64.78	53.51	5.0

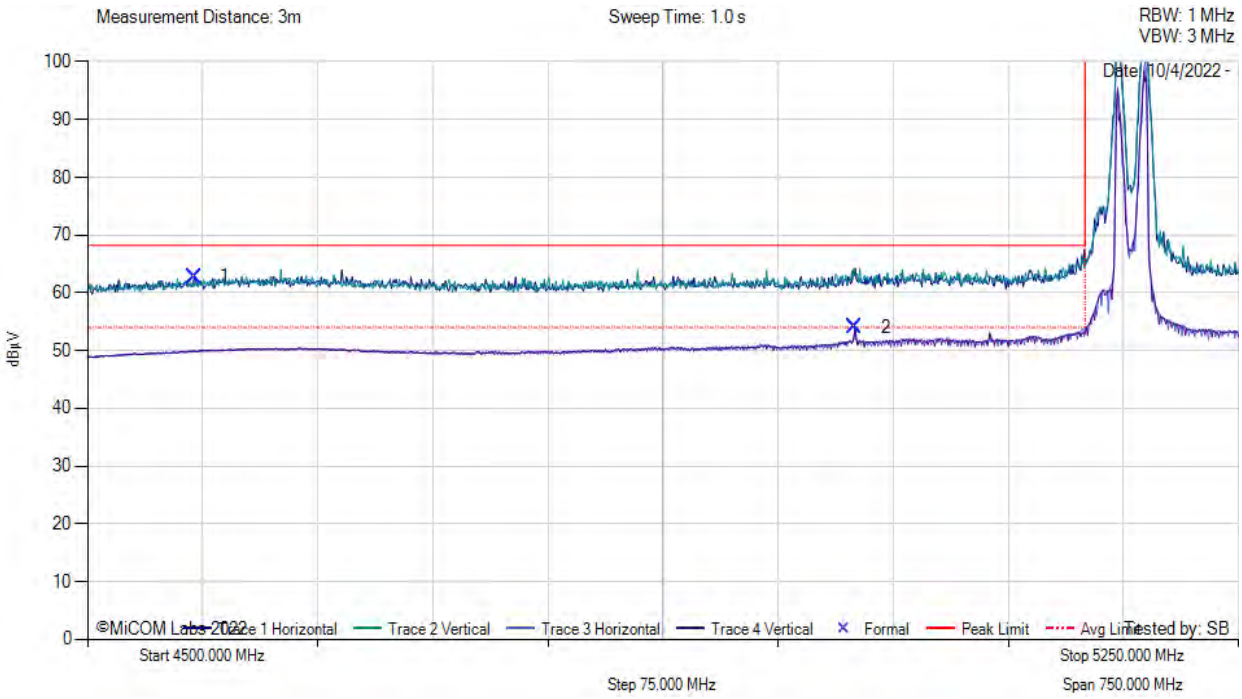
Click on the links to view the data.

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9622-5001	**Variant:**	20 MHz
Antenna Gain (dBi):	28	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180	**Data Rate:**	8.6
Power Setting:	8.0	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9622-5001



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	4569.75	25.90	2.80	34.10	62.80	MaxP	Vertical	149	210	68.2	-5.4	Pass
2	5000.25	16.83	2.95	34.22	53.99	AVG	Vertical	100	0	54.0	0.0	Pass

Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC

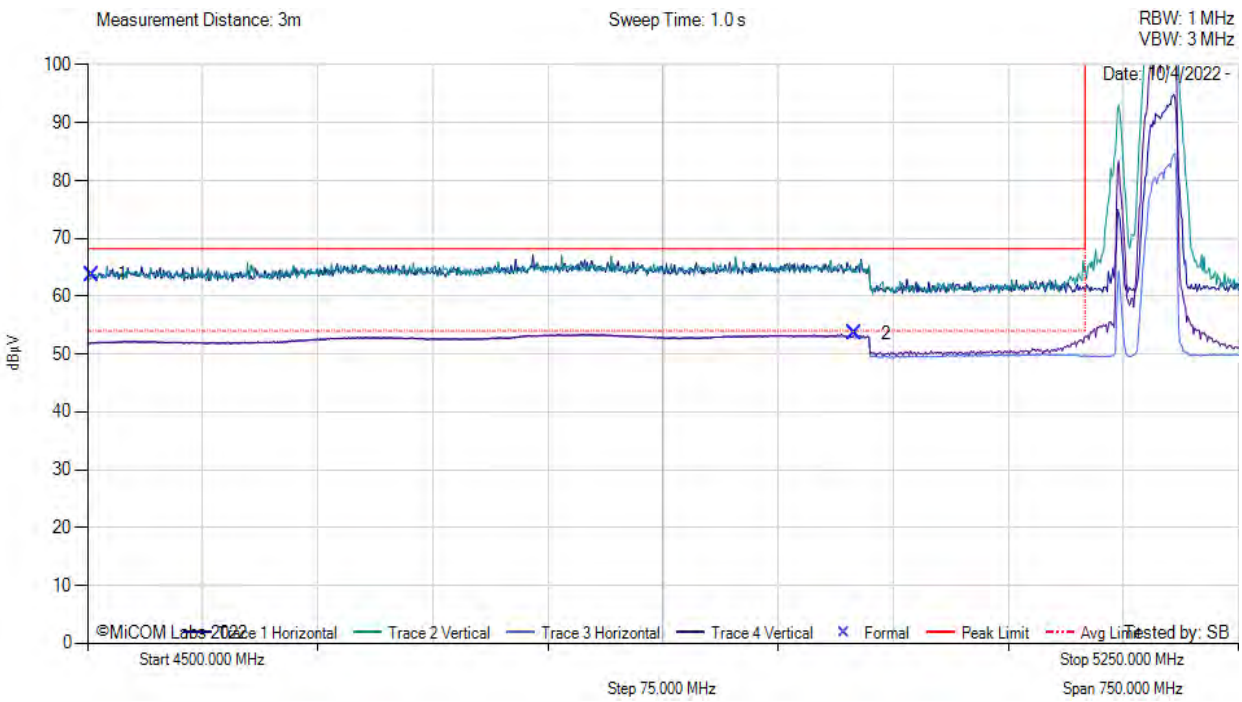
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9622-5001	**Variant:**	40 MHz
Antenna Gain (dBi):	28	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5190	**Data Rate:**	17.2
Power Setting:	8.0	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9622-5001



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	4503.00	27.18	2.76	33.84	63.78	MaxP	Horizontal	100	300	68.2	-4.4	Pass
2	5000.25	16.36	2.95	34.22	53.52	AVG	Vertical	149	0	54.0	-0.5	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

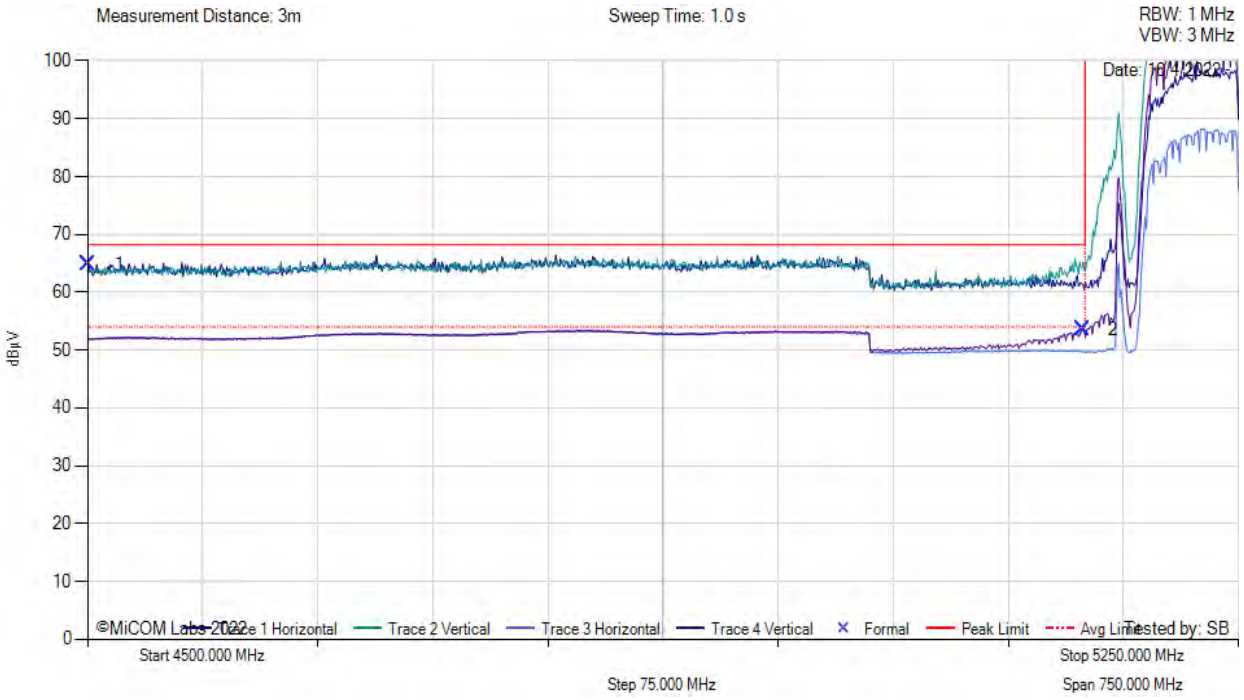
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9622-5001	**Variant:**	80 MHz
Antenna Gain (dBi):	28	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210	**Data Rate:**	36
Power Setting:	5.0	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9622-5001



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	4500.75	28.20	2.75	33.83	64.78	MaxP	Horizontal	149	270	68.2	-3.4	Pass
2	5148.75	16.34	3.06	34.11	53.51	AVG	Vertical	149	0	54.0	-0.5	Pass

Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC

back to matrix

9.4.2.8. RW-9732-4965 5150-5250MHz

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5150 - 5250 MHz

RW-9732-4965		Band-Edge Freq	Limit 68.2dBµV/m	Limit 54.0dBµV/m	Power Setting
Operational Mode	Operating Frequency (MHz)	MHz	dBµV/m	dBµV/m	
20MHz	5180.00	5150.00	66.62	50.27	19.5
40MHz	5190.00	5150.00	67.37	51.59	19.5
80MHz	5210.00	5150.00	66.96	52.91	17.0

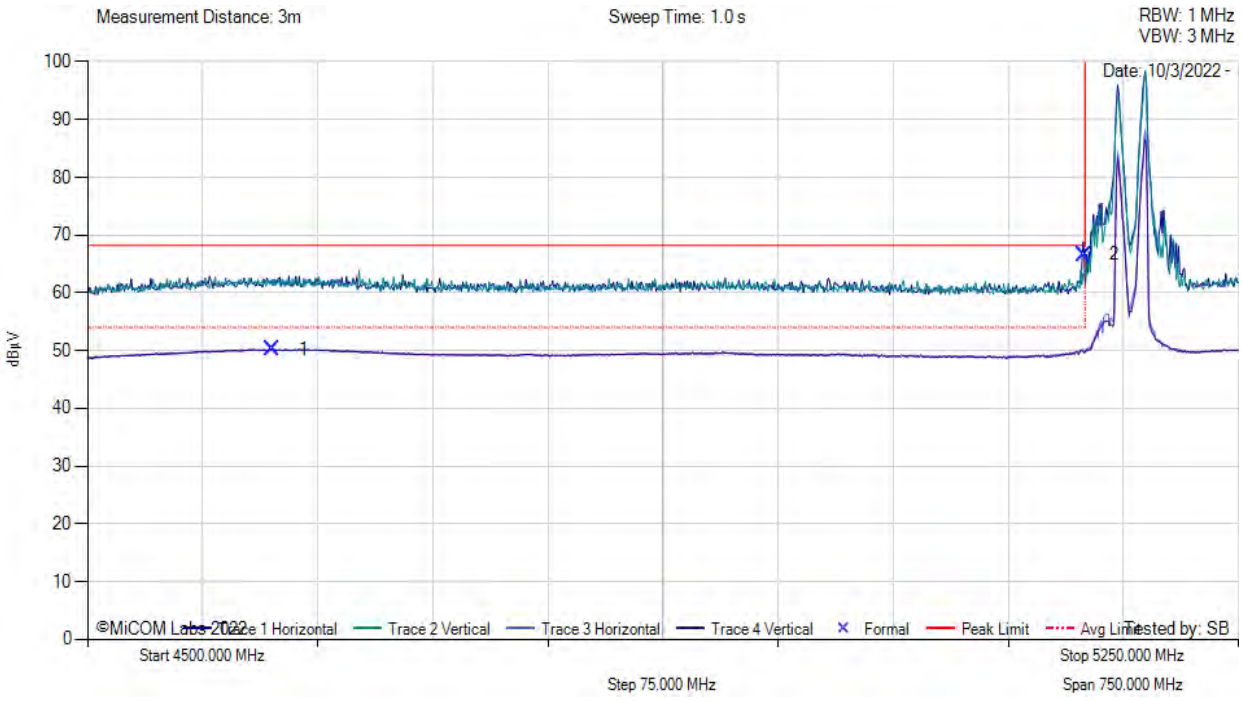
Click on the links to view the data.

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9732-4965	**Variant:**	20 MHz
Antenna Gain (dBi):	25.0	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180	**Data Rate:**	8.6
Power Setting:	19.5	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9732-4965



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	4620.75	13.31	2.77	34.19	50.27	AVG	Horizontal	149	210	54.0	-3.7	Pass
2	5149.50	29.47	3.05	34.11	66.62	MaxP	Horizontal	99	330	68.2	-1.6	Pass

Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC

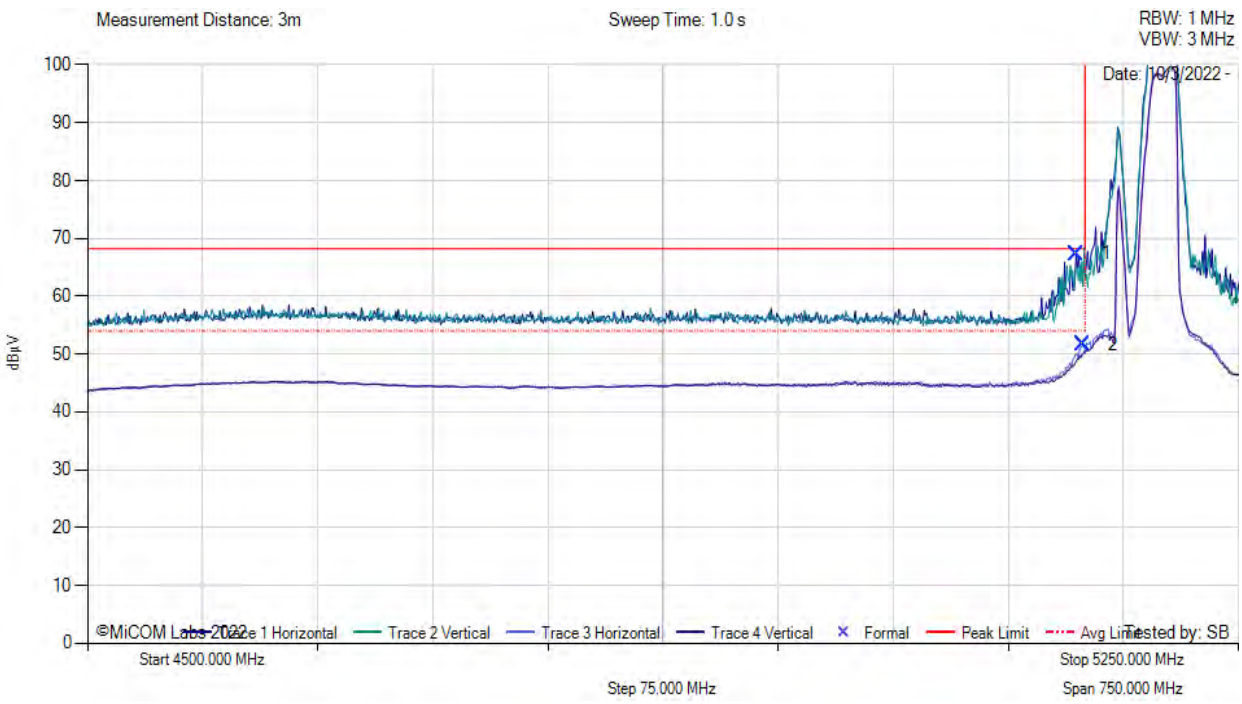
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9732-4965	**Variant:**	40 MHz
Antenna Gain (dBi):	25.0	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5190	**Data Rate:**	17.2
Power Setting:	19.5	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9732-4965



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	5144.25	30.14	3.11	34.12	67.37	MaxP	Horizontal	149	330	68.2	-0.8	Pass
2	5148.75	14.42	3.06	34.11	51.59	AVG	Horizontal	149	330	54.0	-2.4	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

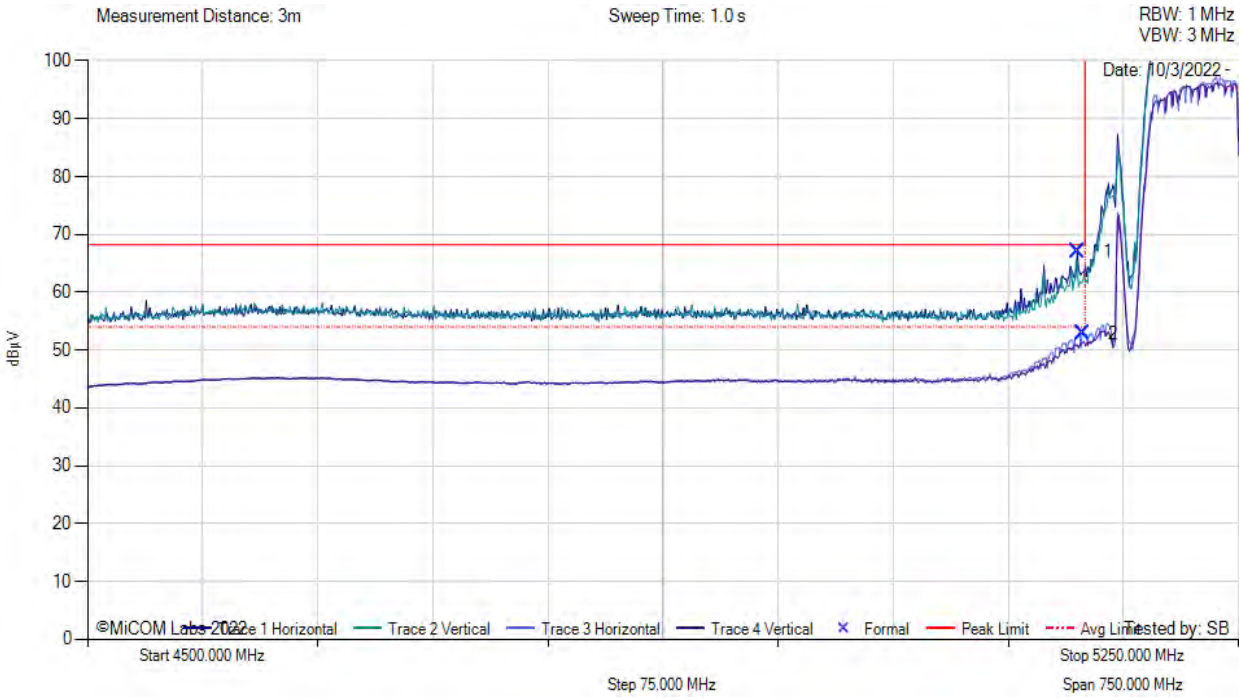
back to matrix

Equipment Configuration for BE 5150 MHZ			
Antenna:	RW-9732-4965	**Variant:**	80 MHz
Antenna Gain (dBi):	25.0	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5210	**Data Rate:**	36
Power Setting:	17	**Tested By:**	SB

Test Measurement Results

BE 5150 MHz

Antenna: RW-9732-4965



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	5145.00	29.75	3.10	34.11	66.96	MaxP	Horizontal	149	330	68.2	-1.2	Pass
2	5148.75	15.74	3.06	34.11	52.91	AVG	Horizontal	149	330	54.0	-1.1	Pass
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC												

back to matrix

9.5. 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.

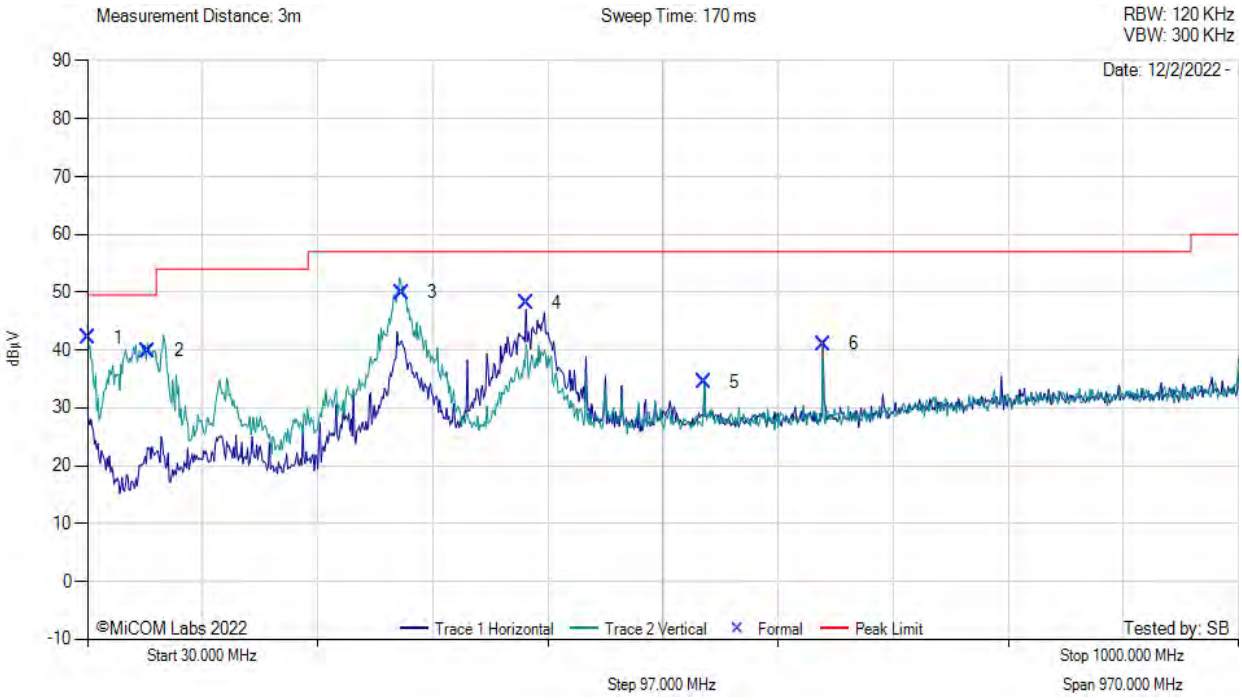
(b) In the emission table above, the tighter limit applies at the band edges. (c) The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission. For intentional radiators which operate under the provisions 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 0.03 - 1 GHz Class A			
Antenna:	MR0284310	**Variant:**	20MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.0	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB

Test Measurement Results

30 MHz to 1 GHz Class A

Antenna: MR0284310



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	30.64	42.33	3.52	-3.64	42.21	MaxQP	Vertical	99	211	49.5	-7.3	Pass
2	81.20	53.44	3.98	-17.57	39.85	MaxQP	Vertical	114	177	49.5	-9.6	Pass
3	294.59	57.30	4.97	-12.36	49.91	MaxQP	Vertical	181	0	57.0	-7.1	Pass
4	400.02	52.10	5.35	-9.27	48.18	MaxQP	Horizontal	172	184	57.0	-8.8	Pass
5	549.99	36.04	5.86	-7.37	34.53	MaxQP	Vertical	98	1	57.0	-22.5	Pass
6	650.01	40.68	6.17	-5.75	41.09	MaxQP	Horizontal	121	304	57.0	-15.9	Pass

Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC

9.6. AC Wireline

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

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

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

Limits for ac Wireline Emissions

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

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

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

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

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

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

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

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

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

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

Scope

This test assesses the ability of the EUT to limit its internal noise from being present on the AC mains power input/output ports.

Test Procedure

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.

Limits

The equipment shall meet the class B limits given in FCC 15.207 & ICES-003. Alternatively, for equipment intended to be used in telecommunication centers only, the class A limits given in FCC 15B, ICES-003 may be used.

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.	

Traceability

All conducted emission measurements are traceable to national standards. The uncertainty of measurement at a confidence level of not less than 95 %, with a coverage factor of k=2, in the range 9 kHz – 30 MHz (Average & Quasi-peak) is ±2.64 dB.

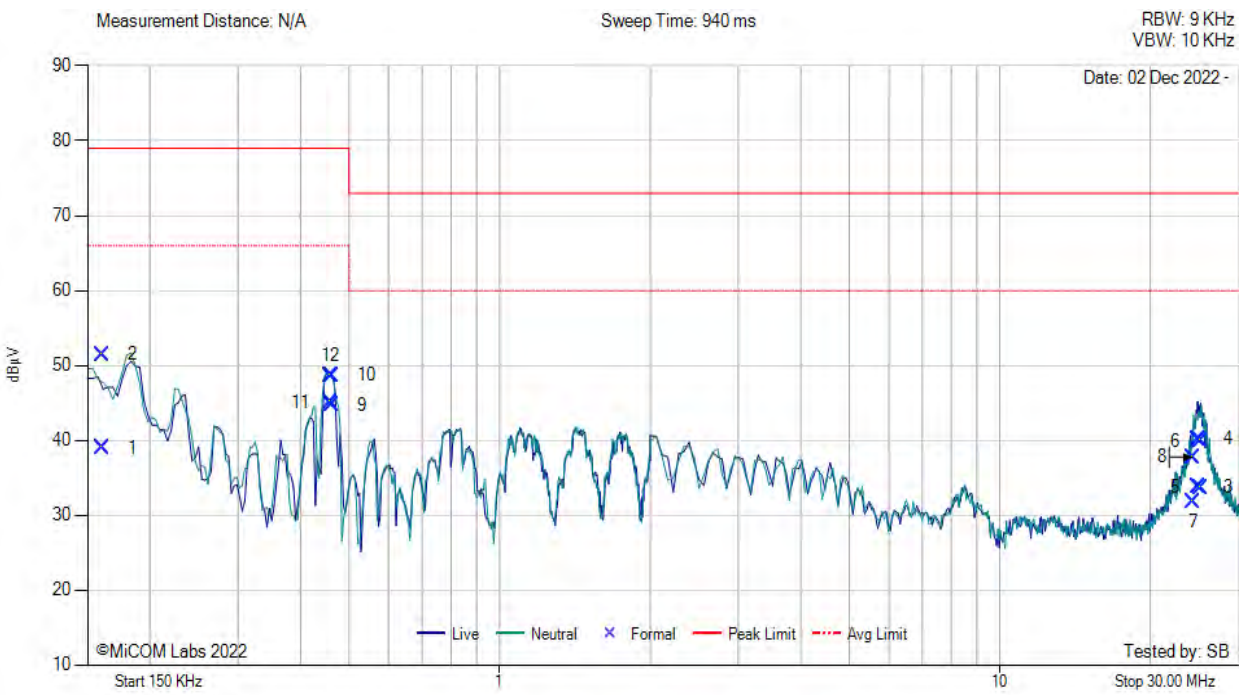
Laboratory Measurement Uncertainty	
Measurement uncertainty	±2.64 dB

Method
Measurements were made per work instruction WI-EMC-01 ‘Measurement of Conducted Emissions’

Test Equipment Utilized

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
184	Pulse Limiter	Rhode & Schwarz	ESH3Z2	357.8810.52	24 Apr 2023
190	LISN (two-line V-network)	Rhode & Schwarz	ESH3Z5	836679/006	11 Oct 2023
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2023
295	Conducted Emissions Chamber Maintenance Check	MiCOM	Conducted Emissions Chamber	295	24 Feb 2023
307	BNC-CABLE	Megaphase	1689 1GVT4	15F50B002	24 Feb 2023
316	Dell desktop computer workstation	Dell	Desktop	WS04	Not Required
372	AC Variable PS	California Instruments	1251P	L06951	Cal when used
496	MiTest Conducted Emissions test software.	MiCOM	Conducted Emissions Test Software Version 1.0	496	Not Required
510	Barometer/Thermometer	Digi Sense	68000-49	170871375	4 Jan 2024
CCEMC01	Confidence Check.	MiCOM	CCEMC01	None	24 Feb 2023

Equipment Configuration for AC Wireline			
Antenna:	MR0284310	**Variant:**	20MHz
Antenna Gain (dBi):	24	**Modulation:**	BPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	5180.0	**Data Rate:**	8.6
Power Setting:	25.5	**Tested By:**	SB
Test Measurement Results			



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	0.161	29.03	-0.04	9.99	9.95	38.98	Max Avg	Neutral	66.0	-27.0	Pass
2	0.161	41.52	-0.04	9.99	9.95	51.47	Max Qp	Neutral	79.0	-27.5	Pass
3	24.897	23.15	-0.32	10.93	10.61	33.76	Max Avg	Live	60.0	-26.2	Pass
4	24.897	29.55	-0.32	10.93	10.61	40.16	Max Qp	Live	73.0	-32.8	Pass
5	25.276	23.11	-0.33	10.93	10.60	33.71	Max Avg	Neutral	60.0	-26.3	Pass
6	25.276	29.28	-0.33	10.93	10.60	39.88	Max Qp	Neutral	73.0	-33.1	Pass
7	24.394	21.25	-0.32	10.93	10.61	31.86	Max Avg	Neutral	60.0	-28.1	Pass
8	24.394	27.16	-0.32	10.93	10.61	37.77	Max Qp	Neutral	73.0	-35.2	Pass
9	0.461	34.82	-0.06	9.99	9.93	44.75	Max Avg	Neutral	66.0	-21.3	Pass
10	0.461	38.78	-0.06	9.99	9.93	48.71	Max Qp	Neutral	79.0	-30.3	Pass
11	0.460	35.12	-0.06	9.99	9.93	45.05	Max Avg	Live	66.0	-21.0	Pass
12	0.460	38.61	-0.06	9.99	9.93	48.54	Max Qp	Live	79.0	-30.5	Pass

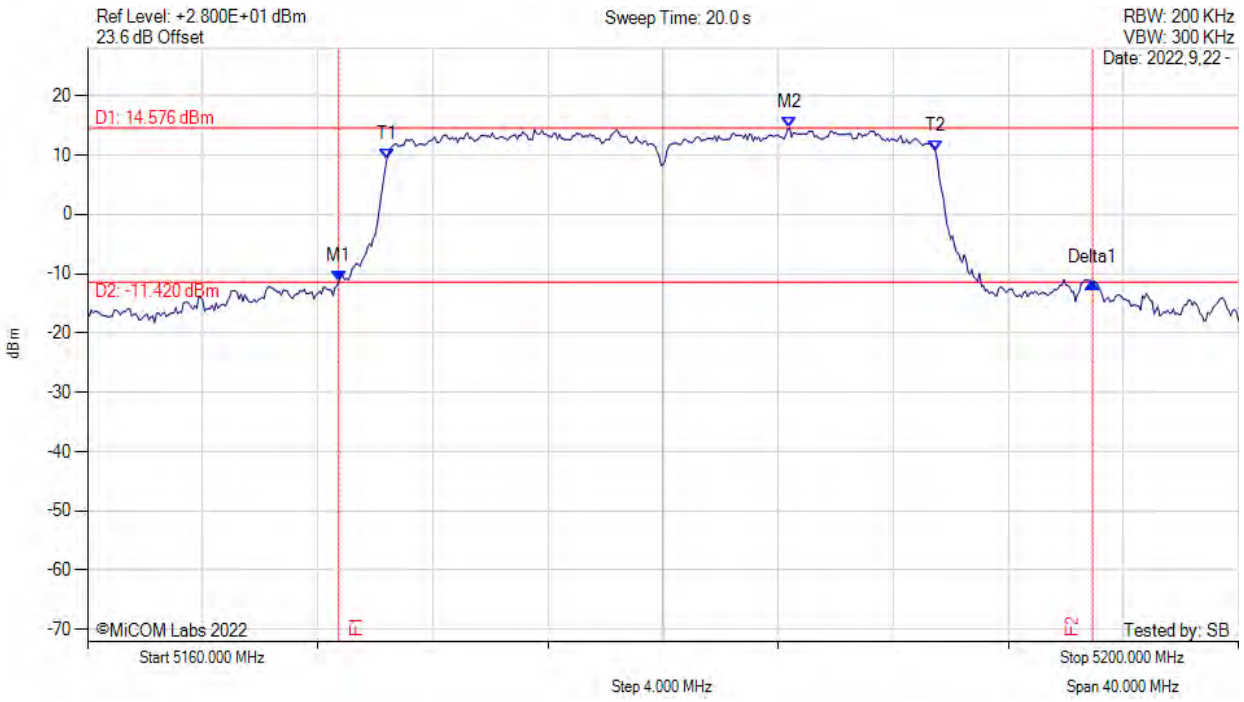
Test Notes: POE supply inside the chamber: Manufacturer: Gospell, Model: G0566-560-100, 100-240VAC, 56VDC

A. APPENDIX - GRAPHICAL IMAGES

A.1. 26 dB & 99% Bandwidth

26 dB & 99% BANDWIDTH

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

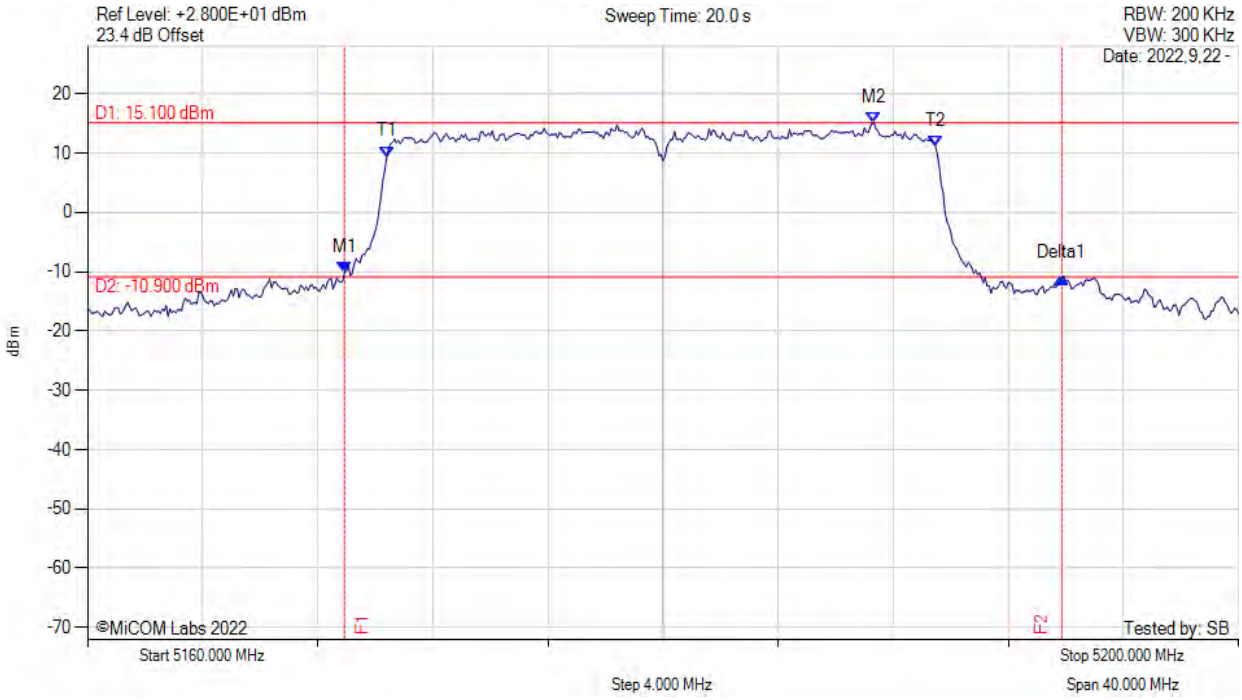


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5168.730 MHz : -11.337 dBm M2 : 5184.400 MHz : 14.576 dBm Delta1 : 26.200 MHz : -0.211 dB T1 : 5170.400 MHz : 9.187 dBm T2 : 5189.467 MHz : 10.719 dBm OBW : 19.043 MHz	Measured 26 dB Bandwidth: 26.200 MHz Measured 99% Bandwidth: 19.043 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

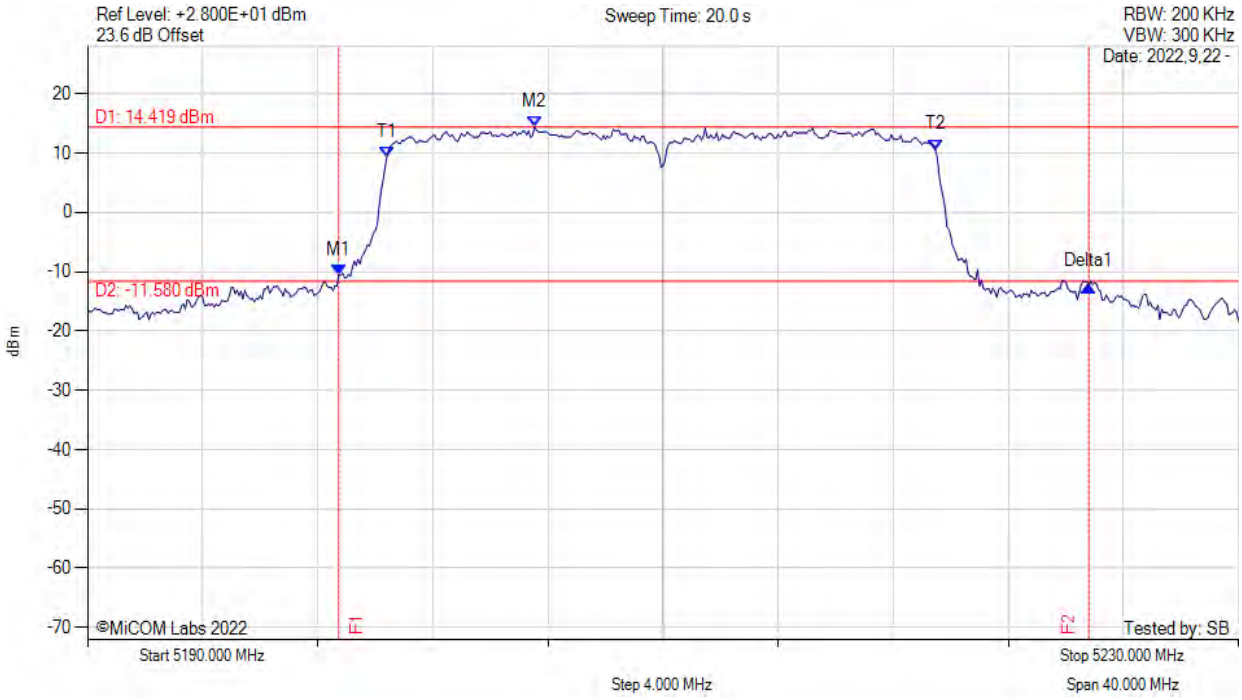


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5168.930 MHz : -10.103 dBm M2 : 5187.330 MHz : 15.100 dBm Delta1 : 24.930 MHz : -0.896 dB T1 : 5170.400 MHz : 9.392 dBm T2 : 5189.467 MHz : 11.189 dBm OBW : 19.067 MHz	Measured 26 dB Bandwidth: 24.930 MHz Measured 99% Bandwidth: 19.067 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

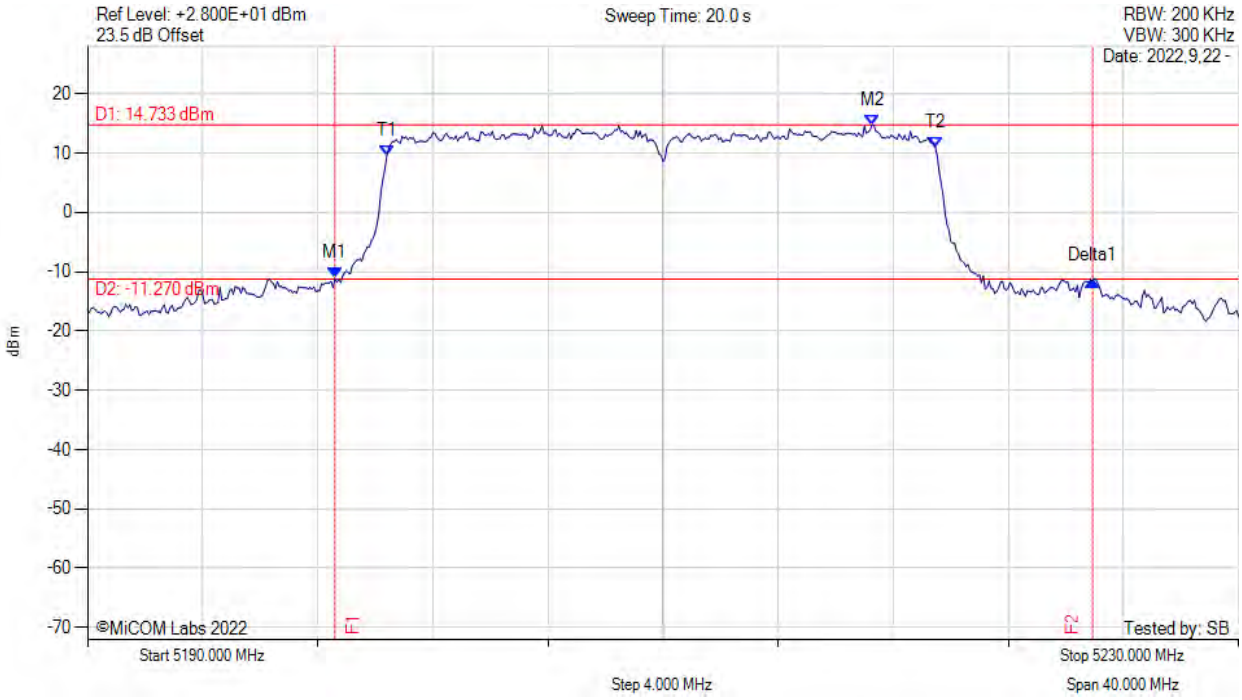


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5198.730 MHz : -10.494 dBm M2 : 5205.530 MHz : 14.419 dBm Delta1 : 26.070 MHz : -1.965 dB T1 : 5200.400 MHz : 9.269 dBm T2 : 5219.467 MHz : 10.564 dBm OBW : 19.047 MHz	Measured 26 dB Bandwidth: 26.070 MHz Measured 99% Bandwidth: 19.047 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

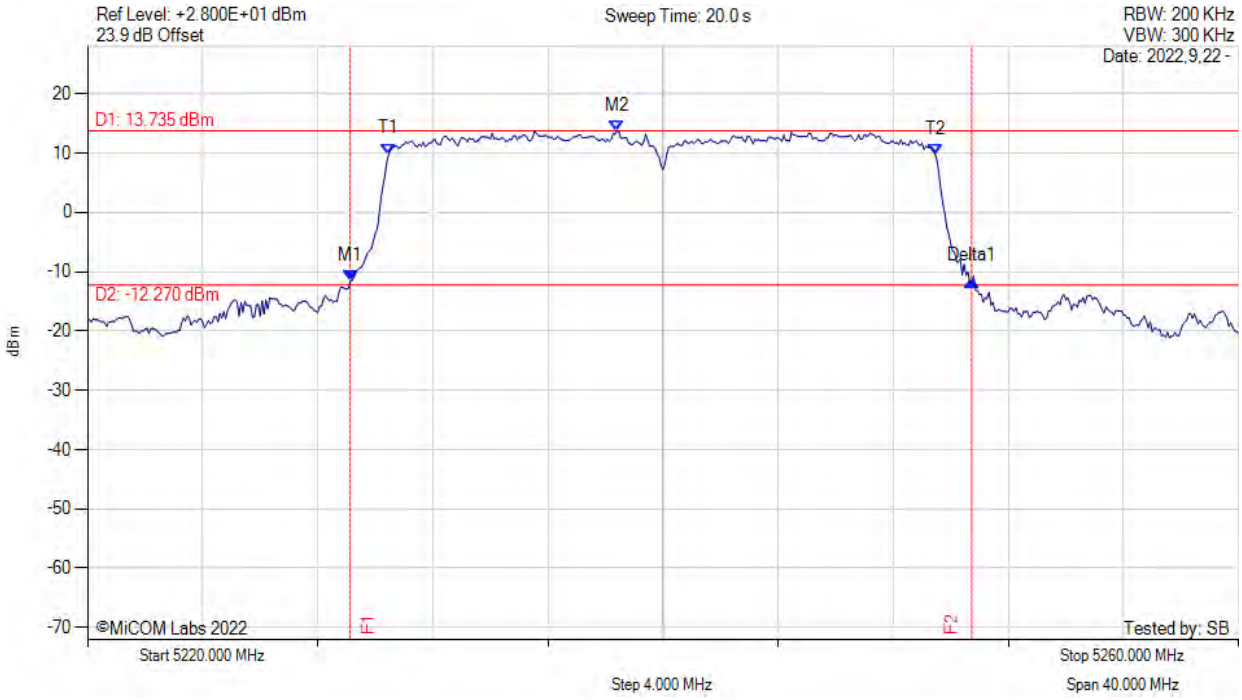


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5198.600 MHz : -11.160 dBm M2 : 5217.270 MHz : 14.733 dBm Delta1 : 26.330 MHz : -0.385 dB T1 : 5200.400 MHz : 9.588 dBm T2 : 5219.467 MHz : 10.989 dBm OBW : 19.066 MHz	Measured 26 dB Bandwidth: 26.330 MHz Measured 99% Bandwidth: 19.066 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

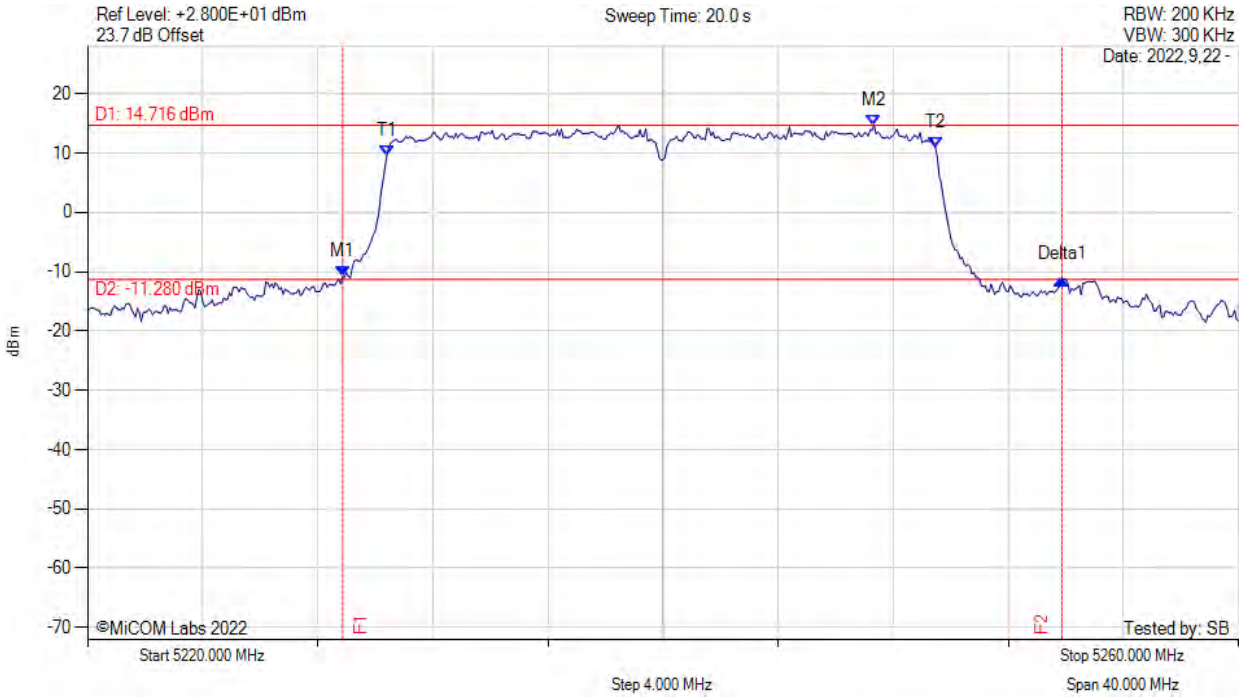


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5229.130 MHz : -11.587 dBm M2 : 5238.400 MHz : 13.735 dBm Delta1 : 21.600 MHz : 0.008 dB T1 : 5230.467 MHz : 9.858 dBm T2 : 5249.467 MHz : 9.779 dBm OBW : 19.006 MHz	Measured 26 dB Bandwidth: 21.600 MHz Measured 99% Bandwidth: 19.006 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

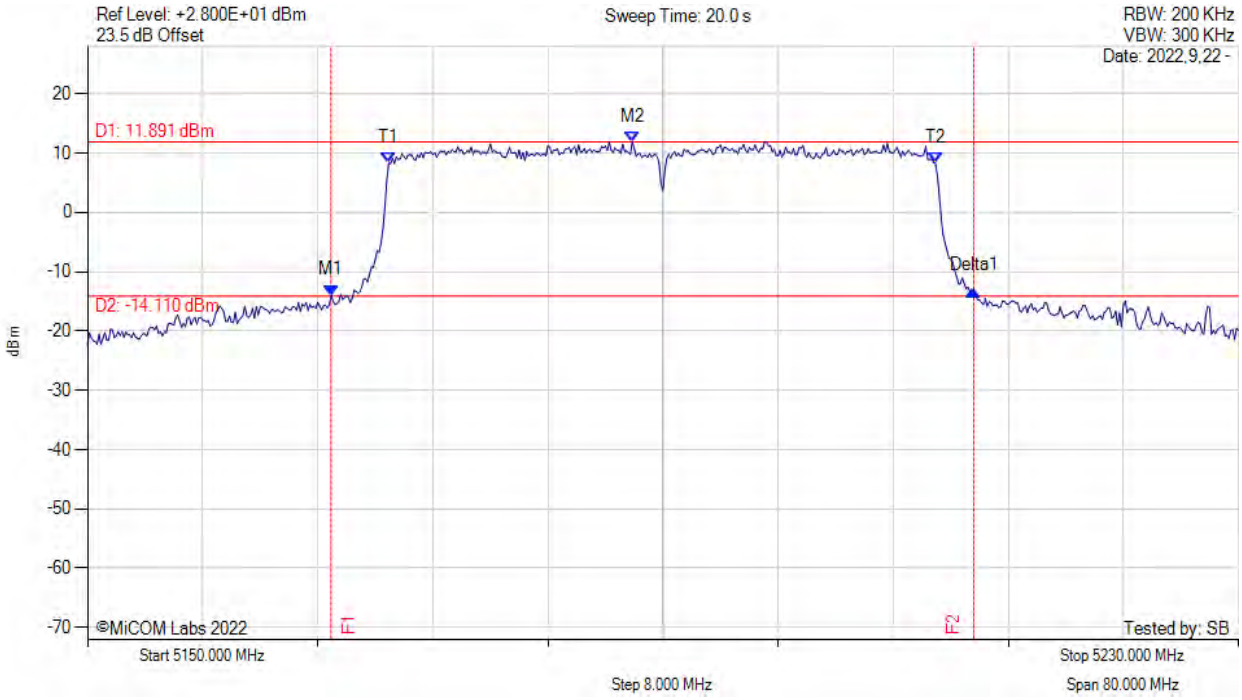


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5228.870 MHz : -10.921 dBm M2 : 5247.330 MHz : 14.716 dBm Delta1 : 25.000 MHz : -0.465 dB T1 : 5230.400 MHz : 9.526 dBm T2 : 5249.467 MHz : 10.964 dBm OBW : 19.050 MHz	Measured 26 dB Bandwidth: 25.000 MHz Measured 99% Bandwidth: 19.050 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

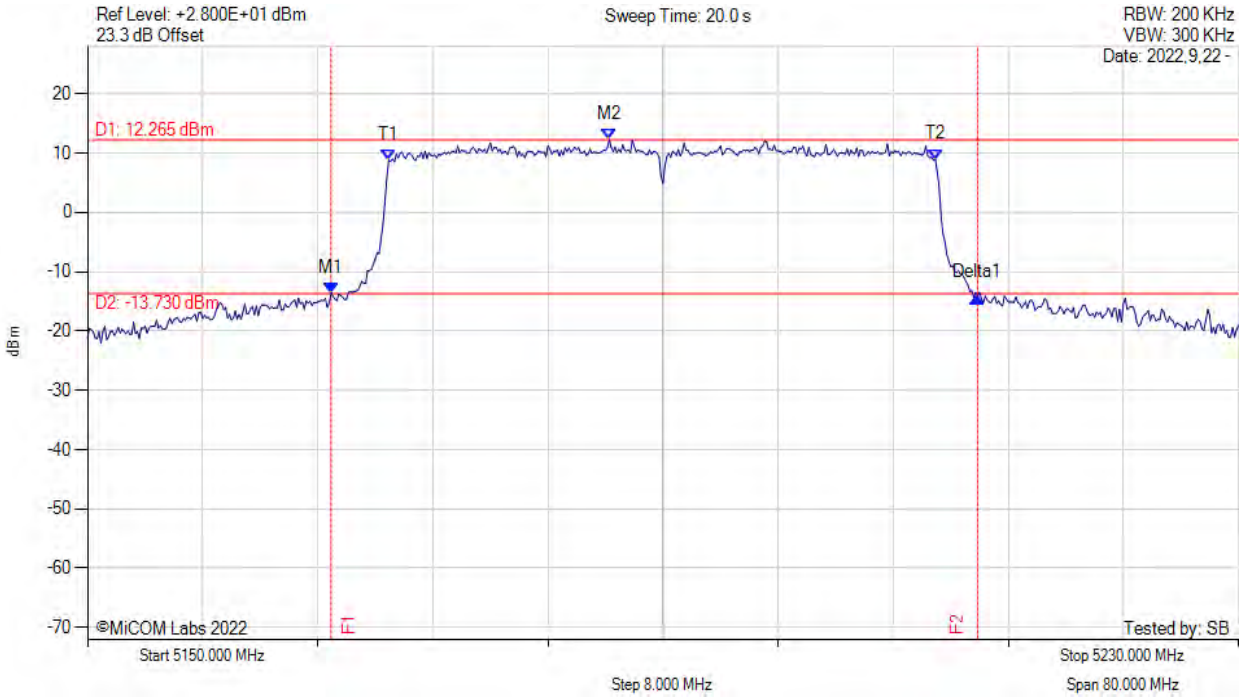


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5166.930 MHz : -13.970 dBm M2 : 5187.870 MHz : 11.891 dBm Delta1 : 44.670 MHz : 0.747 dB T1 : 5170.933 MHz : 8.267 dBm T2 : 5208.933 MHz : 8.299 dBm OBW : 37.906 MHz	Measured 26 dB Bandwidth: 44.670 MHz Measured 99% Bandwidth: 37.906 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

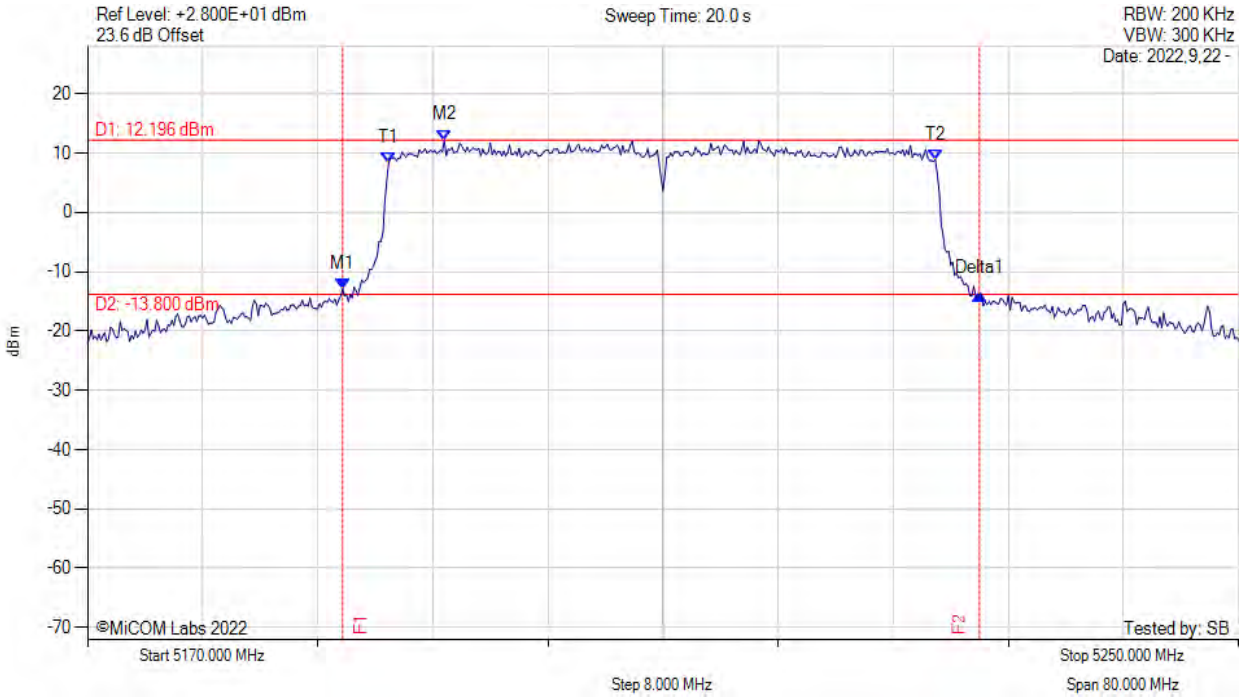


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5166.930 MHz : -13.550 dBm M2 : 5186.270 MHz : 12.265 dBm Delta1 : 44.930 MHz : -0.692 dB T1 : 5170.933 MHz : 8.791 dBm T2 : 5208.933 MHz : 8.922 dBm OBW : 37.958 MHz	Measured 26 dB Bandwidth: 44.930 MHz Measured 99% Bandwidth: 37.958 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

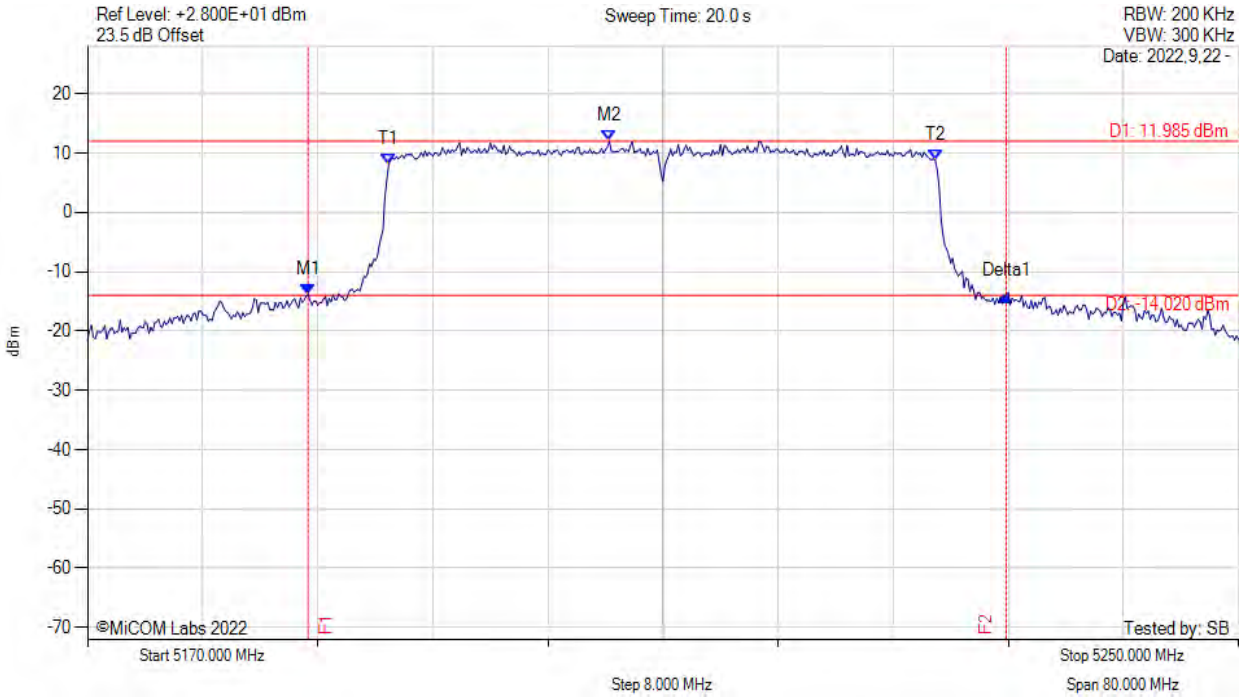


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5187.730 MHz : -12.862 dBm M2 : 5194.800 MHz : 12.196 dBm Delta1 : 44.270 MHz : -0.874 dB T1 : 5190.933 MHz : 8.441 dBm T2 : 5228.933 MHz : 8.904 dBm OBW : 37.920 MHz	Measured 26 dB Bandwidth: 44.270 MHz Measured 99% Bandwidth: 37.920 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

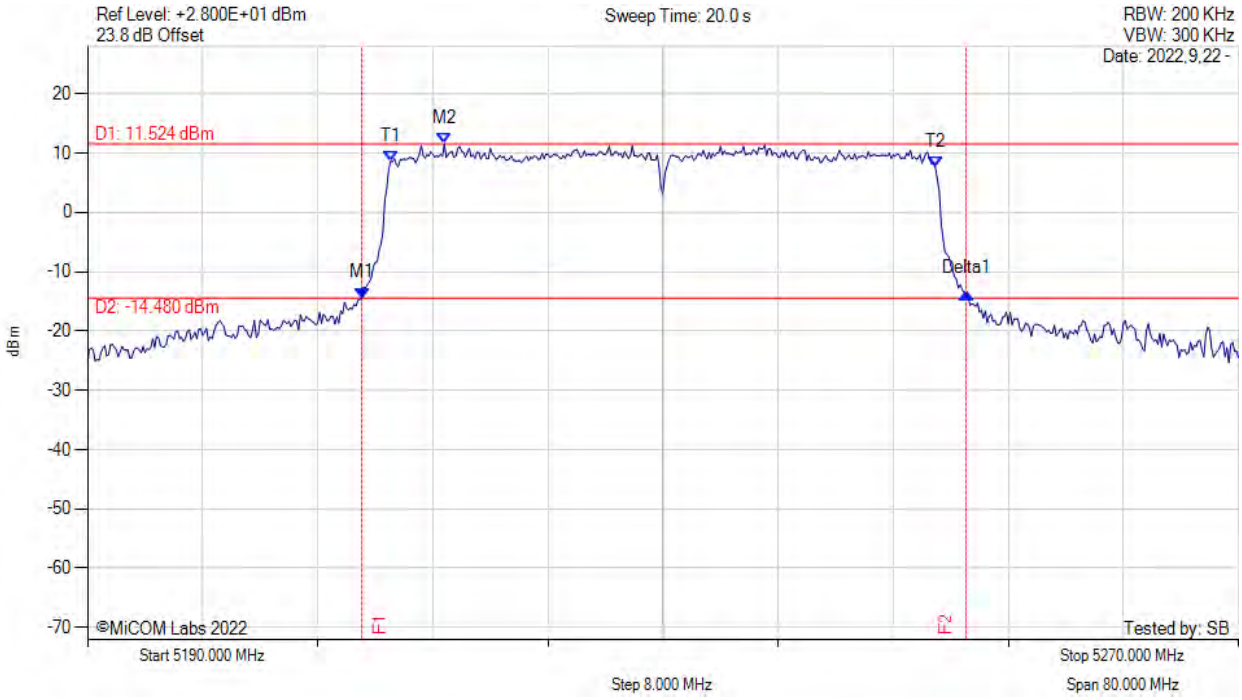


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5185.330 MHz : -13.804 dBm M2 : 5206.270 MHz : 11.985 dBm Delta1 : 48.530 MHz : -0.303 dB T1 : 5190.933 MHz : 8.163 dBm T2 : 5228.933 MHz : 8.807 dBm OBW : 37.961 MHz	Measured 26 dB Bandwidth: 48.530 MHz Measured 99% Bandwidth: 37.961 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

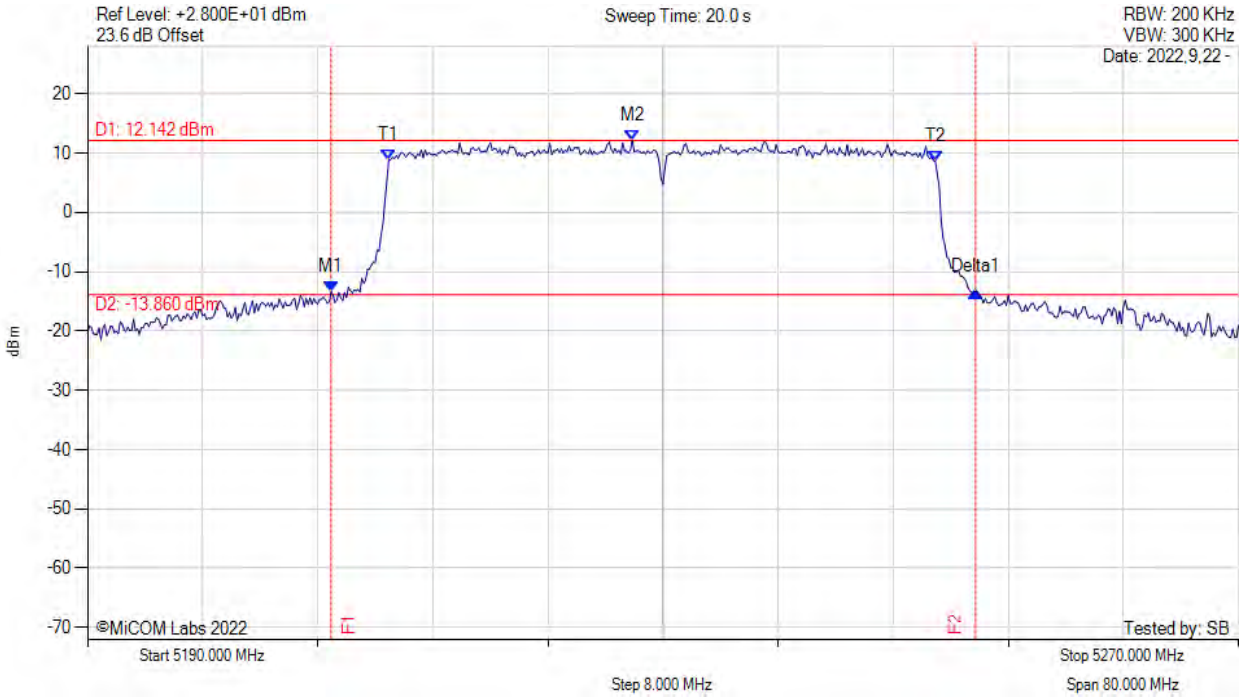


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5209.070 MHz : -14.433 dBm M2 : 5214.800 MHz : 11.524 dBm Delta1 : 42.000 MHz : 0.871 dB T1 : 5211.067 MHz : 8.572 dBm T2 : 5248.933 MHz : 7.589 dBm OBW : 37.854 MHz	Measured 26 dB Bandwidth: 42.000 MHz Measured 99% Bandwidth: 37.854 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

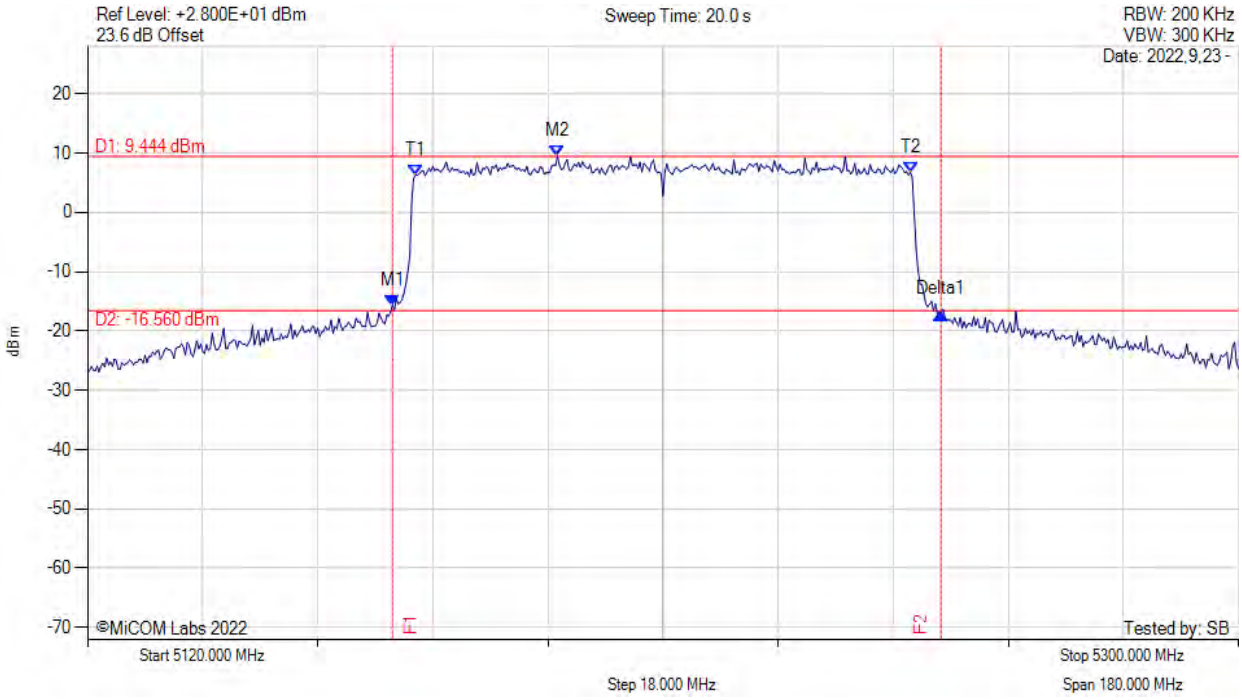


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5206.930 MHz : -13.379 dBm M2 : 5227.870 MHz : 12.142 dBm Delta1 : 44.800 MHz : 0.029 dB T1 : 5210.933 MHz : 8.789 dBm T2 : 5248.933 MHz : 8.575 dBm OBW : 37.938 MHz	Measured 26 dB Bandwidth: 44.800 MHz Measured 99% Bandwidth: 37.938 MHz

back to matrix

26 dB & 99% BANDWIDTH

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

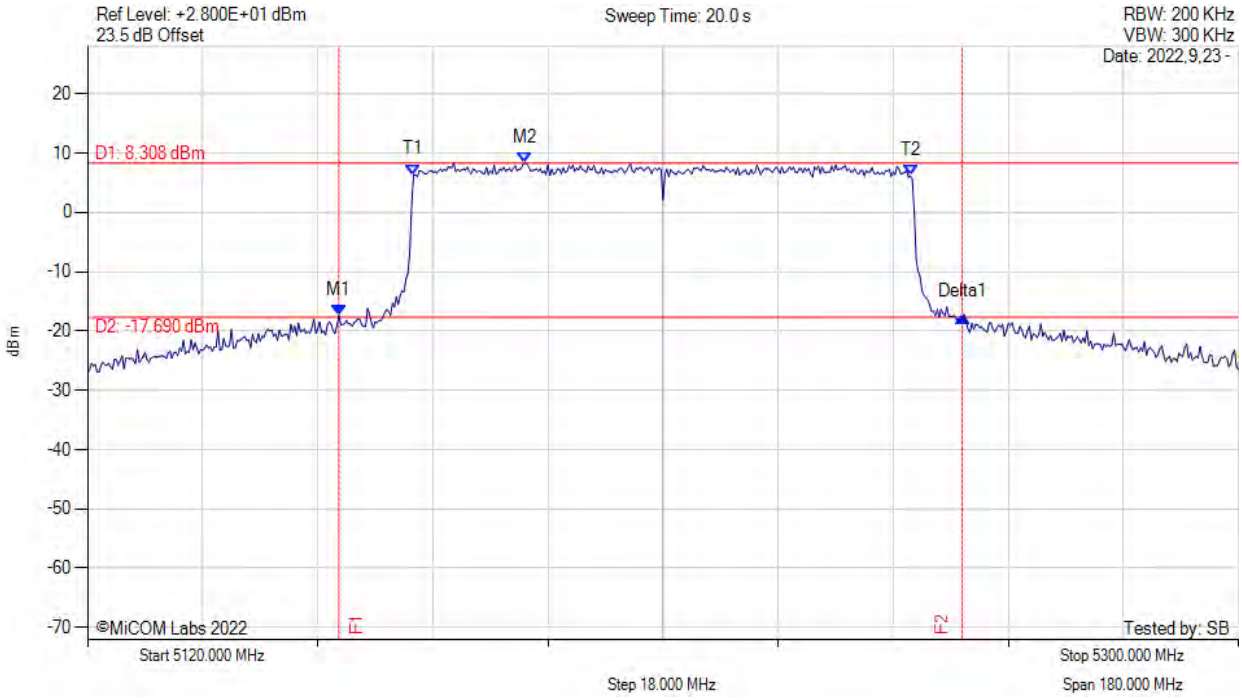


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5167.700 MHz : -15.636 dBm M2 : 5193.500 MHz : 9.444 dBm Delta1 : 85.800 MHz : -1.511 dB T1 : 5171.300 MHz : 6.320 dBm T2 : 5248.700 MHz : 6.725 dBm OBW : 77.543 MHz	Measured 26 dB Bandwidth: 85.800 MHz Measured 99% Bandwidth: 77.543 MHz

back to matrix

26 dB & 99% BANDWIDTH

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



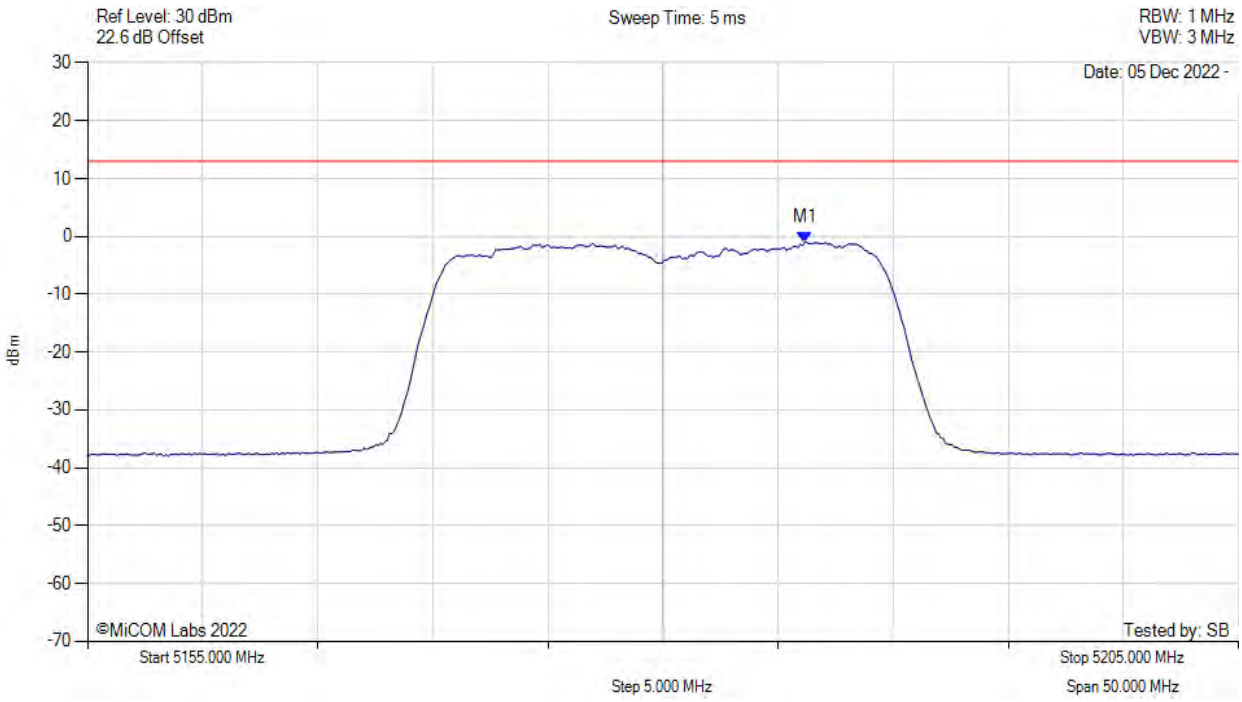
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5159.300 MHz : -17.434 dBm M2 : 5188.400 MHz : 8.308 dBm Delta1 : 97.500 MHz : -0.156 dB T1 : 5171.000 MHz : 6.359 dBm T2 : 5248.700 MHz : 6.148 dBm OBW : 77.627 MHz	Measured 26 dB Bandwidth: 97.500 MHz Measured 99% Bandwidth: 77.627 MHz

back to matrix

A.2. Power Spectral Density

POWER SPECTRAL DENSITY

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

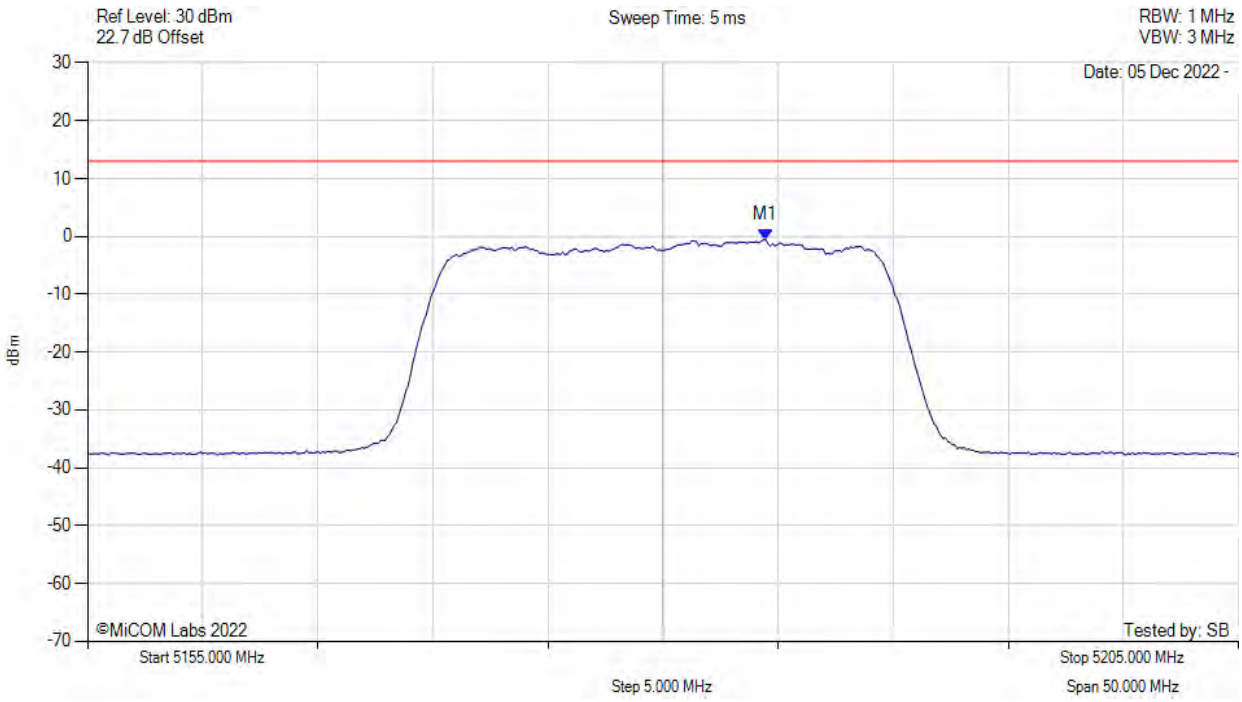


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5186.162 MHz : -0.989 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

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

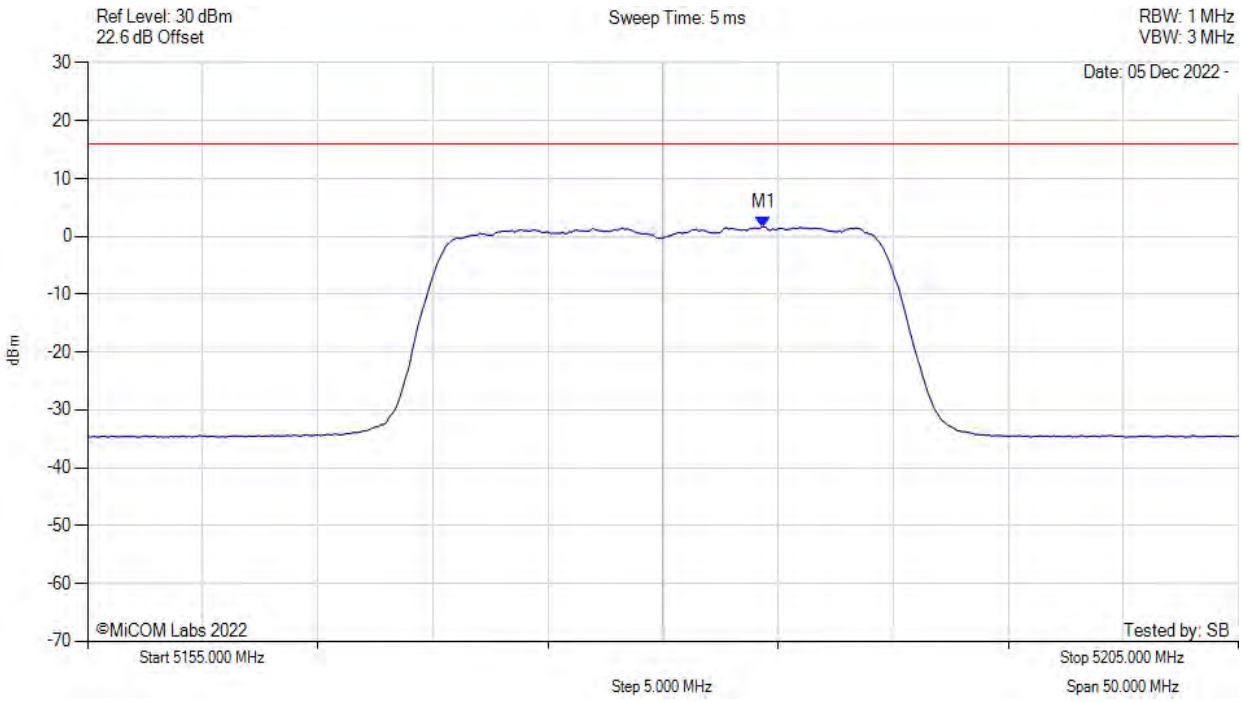


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5184.459 MHz : -0.547 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-20, Channel: 5180.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

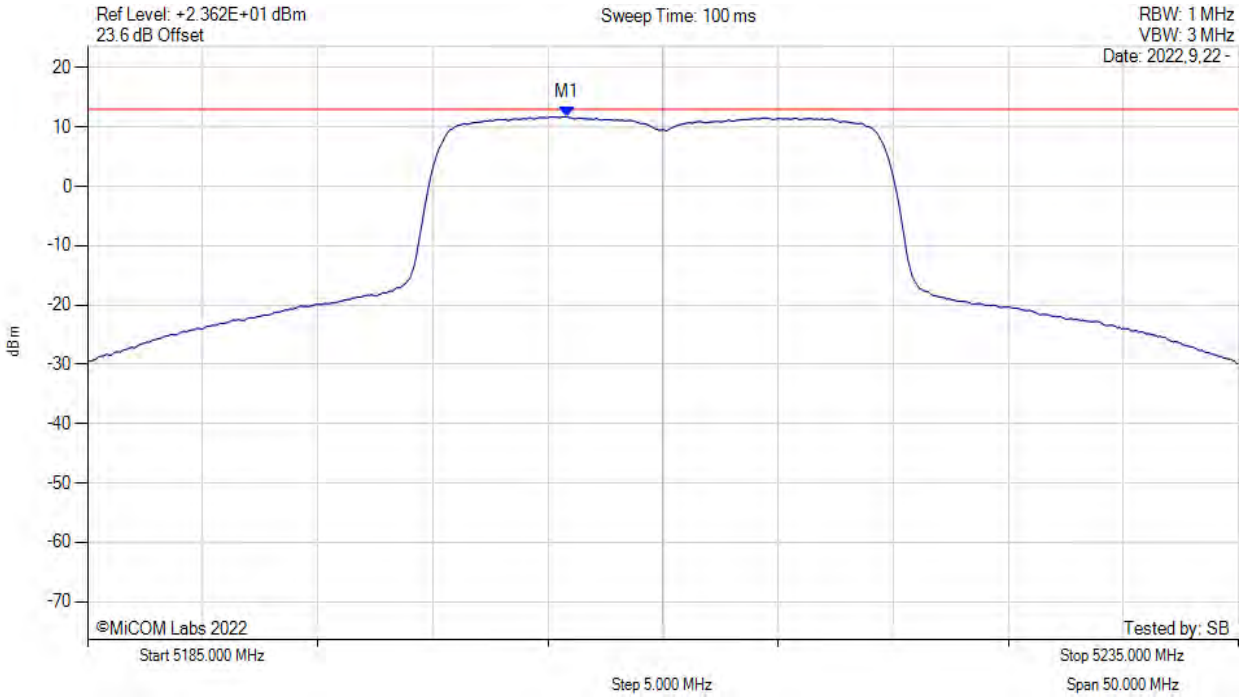


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5184.400 MHz : 1.680 dBm M1 + DCCF : 5184.400 MHz : 1.724 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -14.3 dB

back to matrix

POWER SPECTRAL DENSITY

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

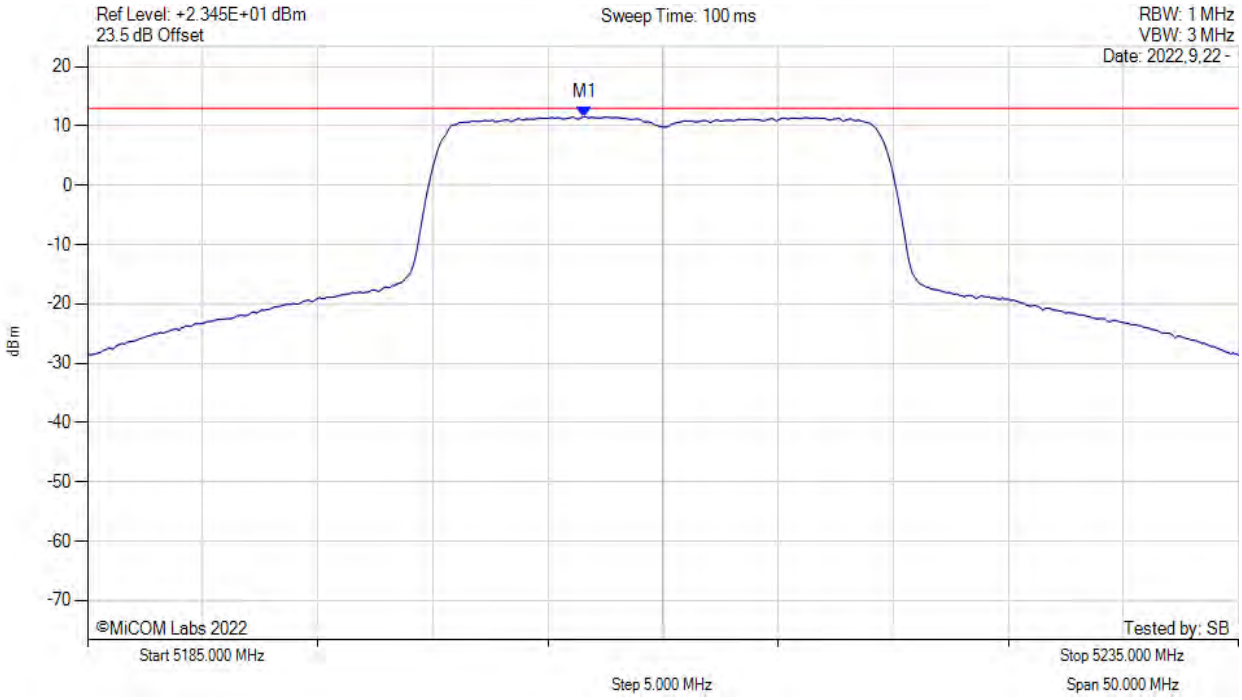


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5205.830 MHz : 11.726 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

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

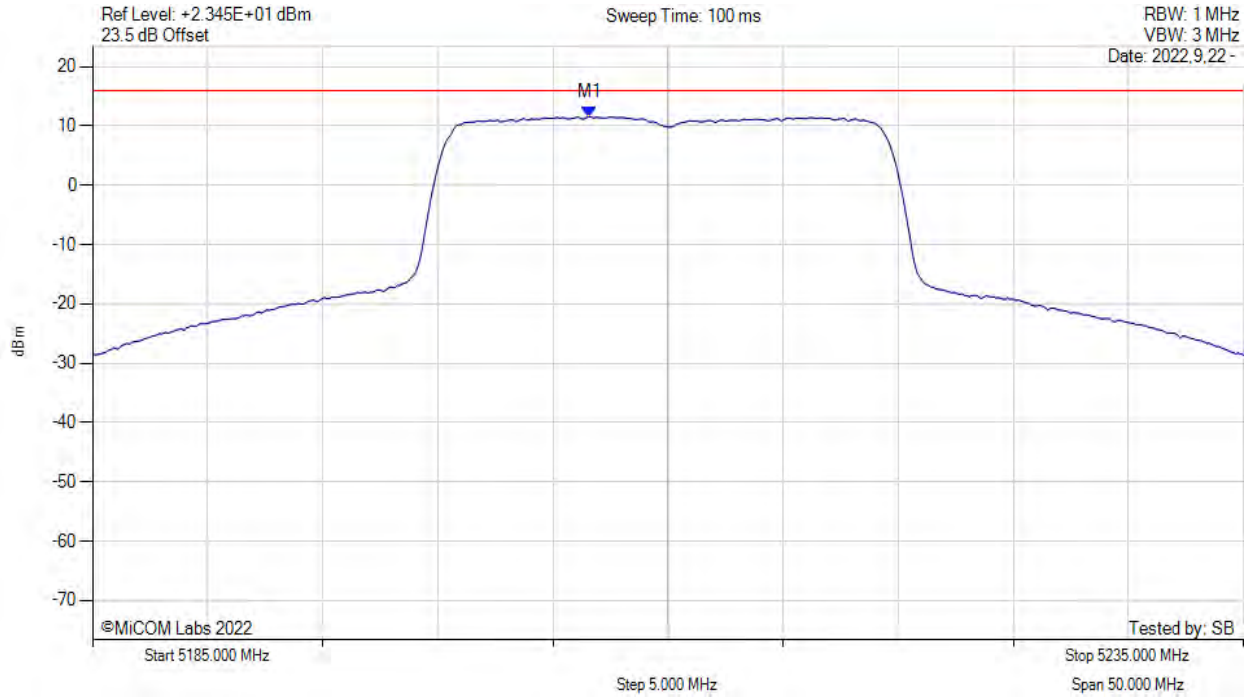


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5206.580 MHz : 11.572 dBm	Channel Frequency: 5210.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-20, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

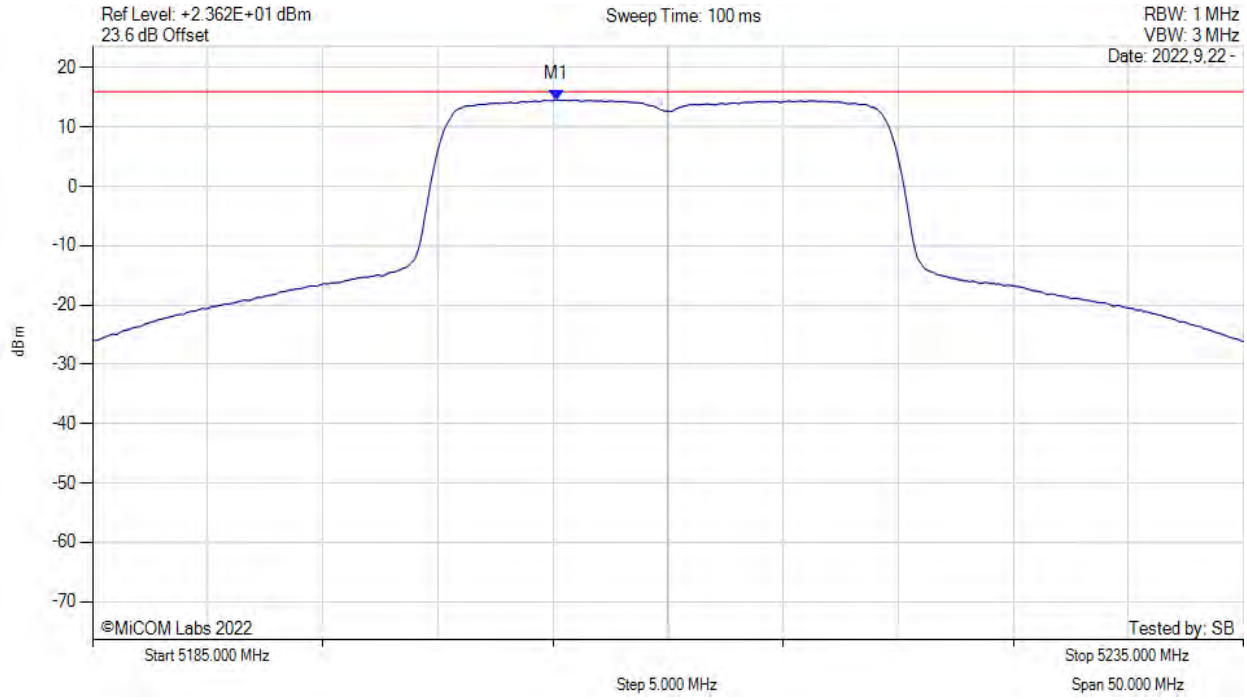


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5206.600 MHz : 11.572 dBm M1 + DCCF : 5206.600 MHz : 11.616 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -4.4 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-20, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

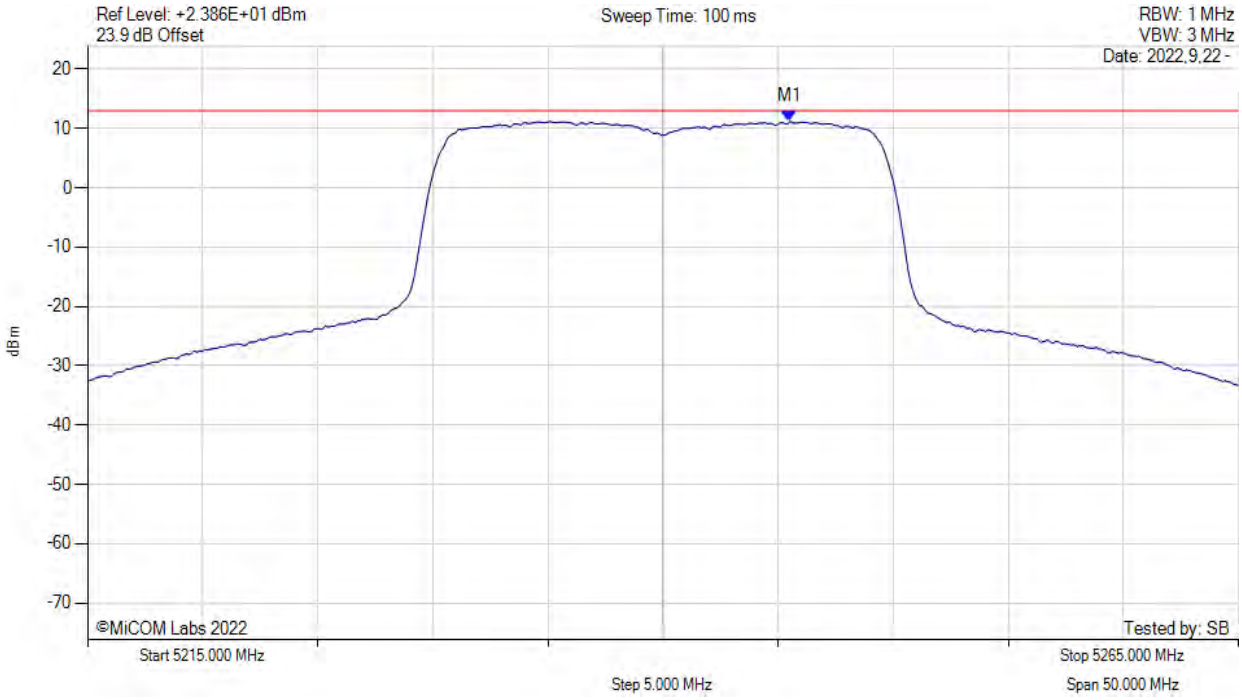


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5205.200 MHz : 14.601 dBm M1 + DCCF : 5205.200 MHz : 14.645 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -1.4 dB

back to matrix

POWER SPECTRAL DENSITY

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

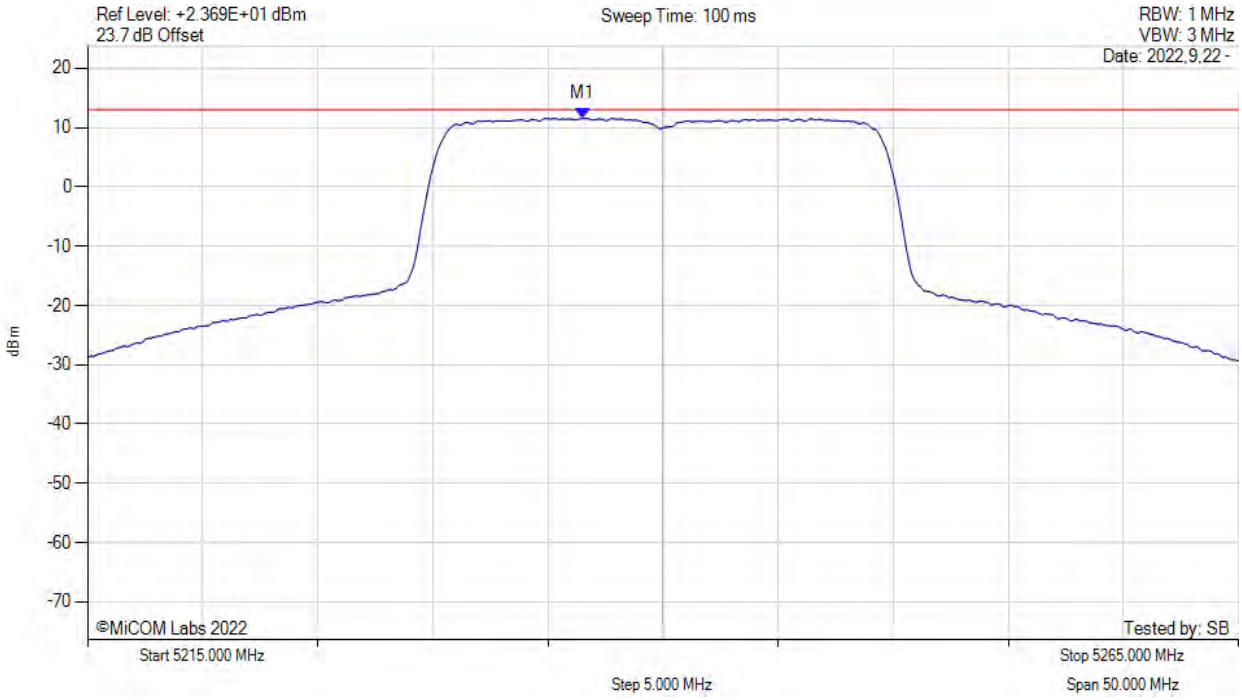


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5245.500 MHz : 11.168 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

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

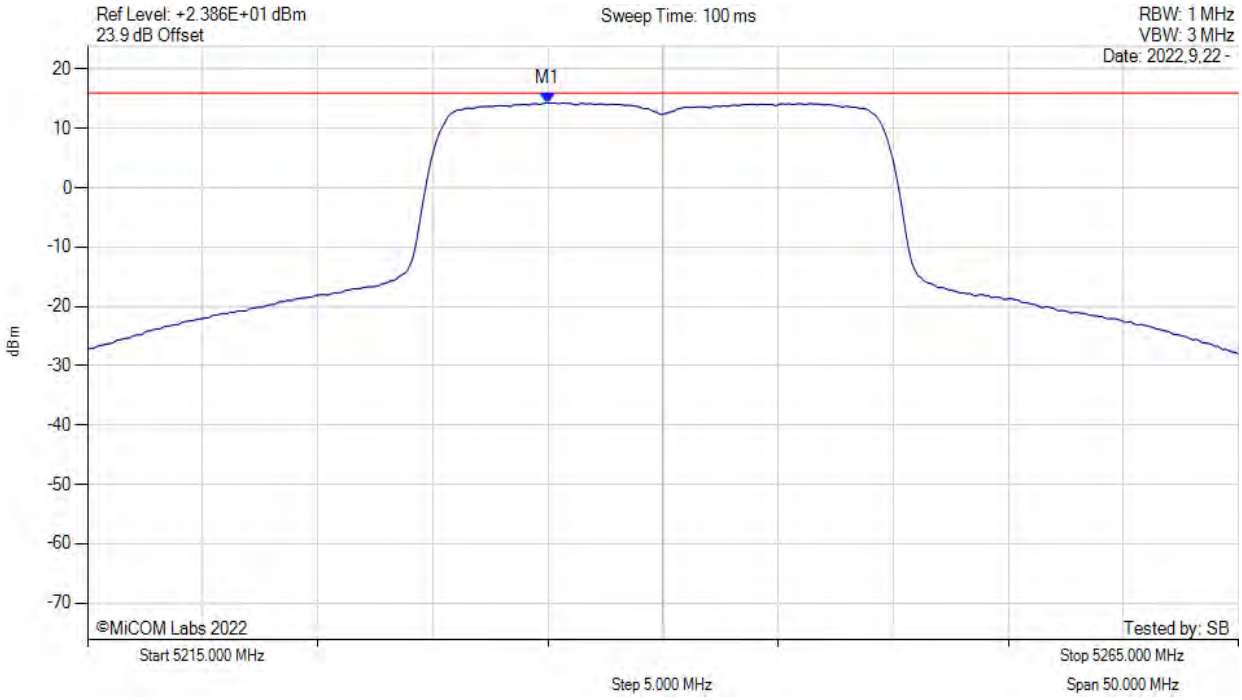


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5236.500 MHz : 11.556 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-20, Channel: 5240.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

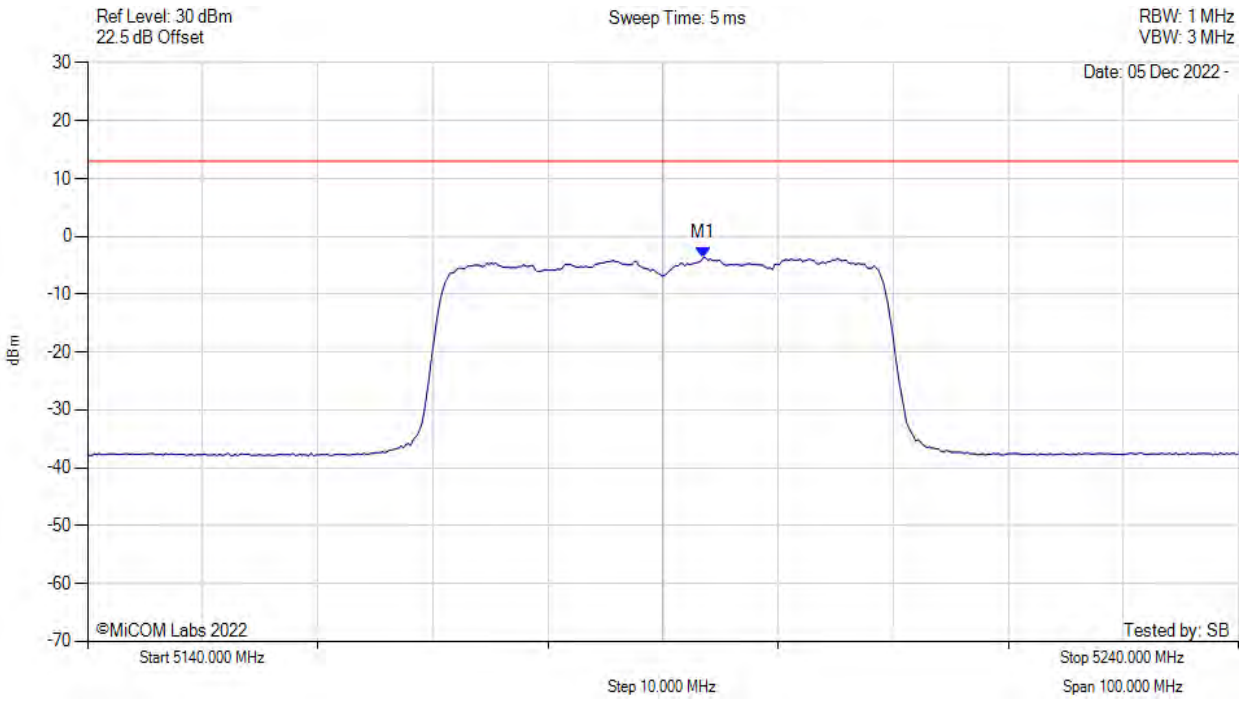


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5235.000 MHz : 14.310 dBm M1 + DCCF : 5235.000 MHz : 14.354 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -1.7 dB

back to matrix

POWER SPECTRAL DENSITY

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

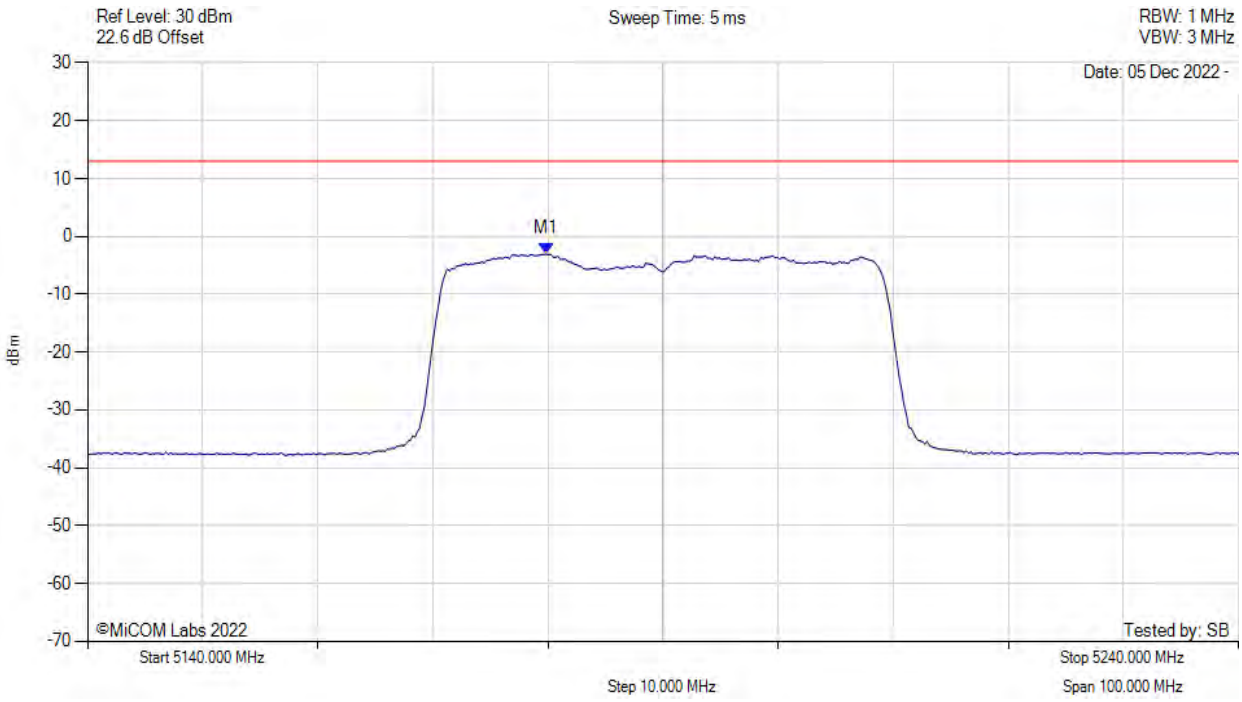


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5193.507 MHz : -3.661 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

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

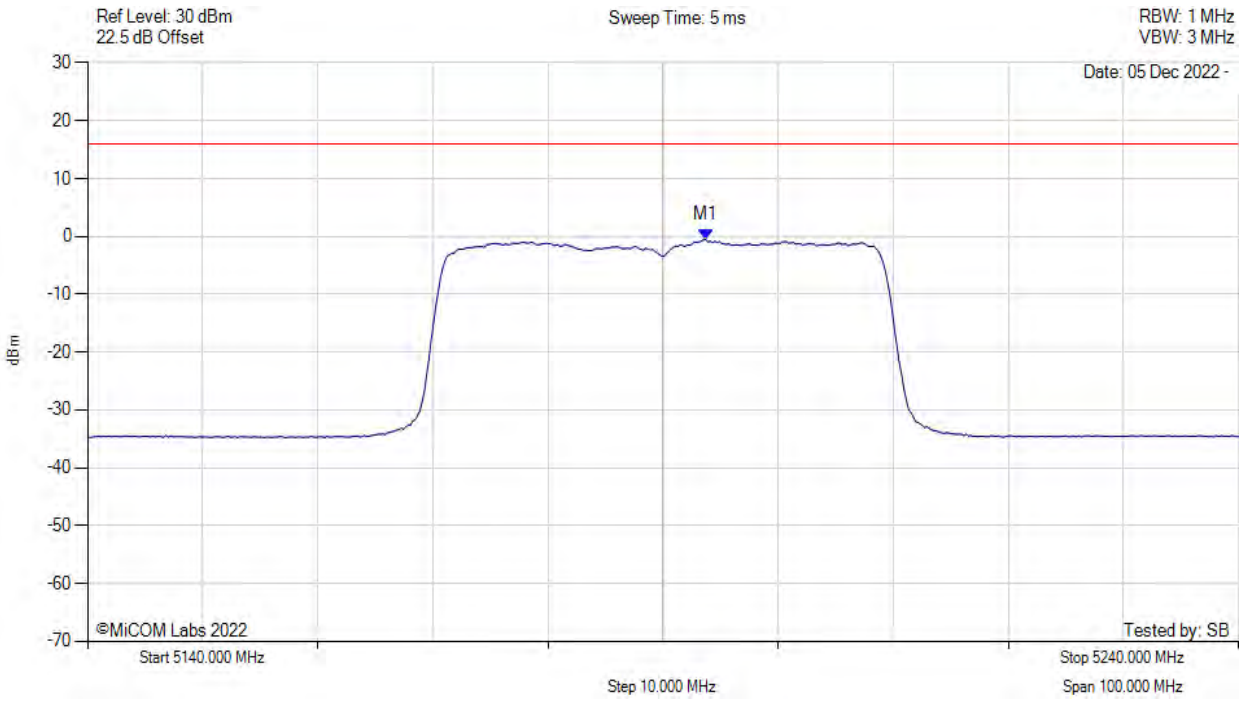


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5179.880 MHz : -3.060 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-40, Channel: 5190.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

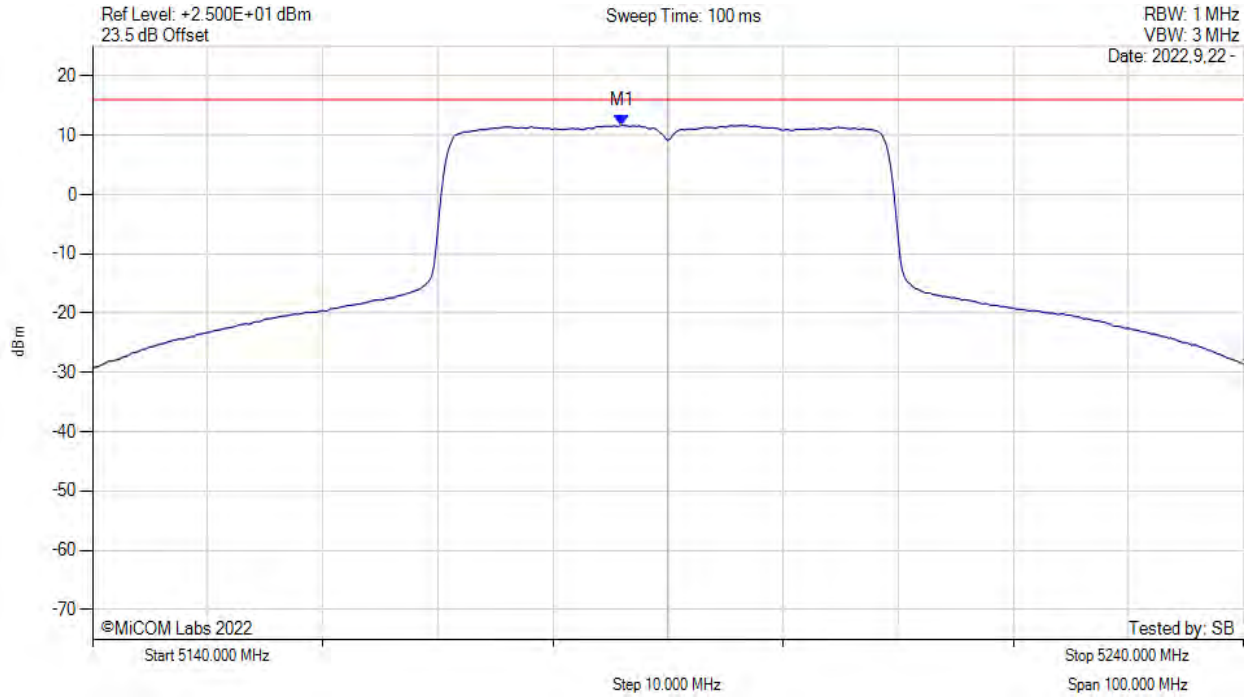


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5193.700 MHz : -0.528 dBm M1 + DCCF : 5193.700 MHz : -0.484 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -16.5 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-40, Channel: 5190.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

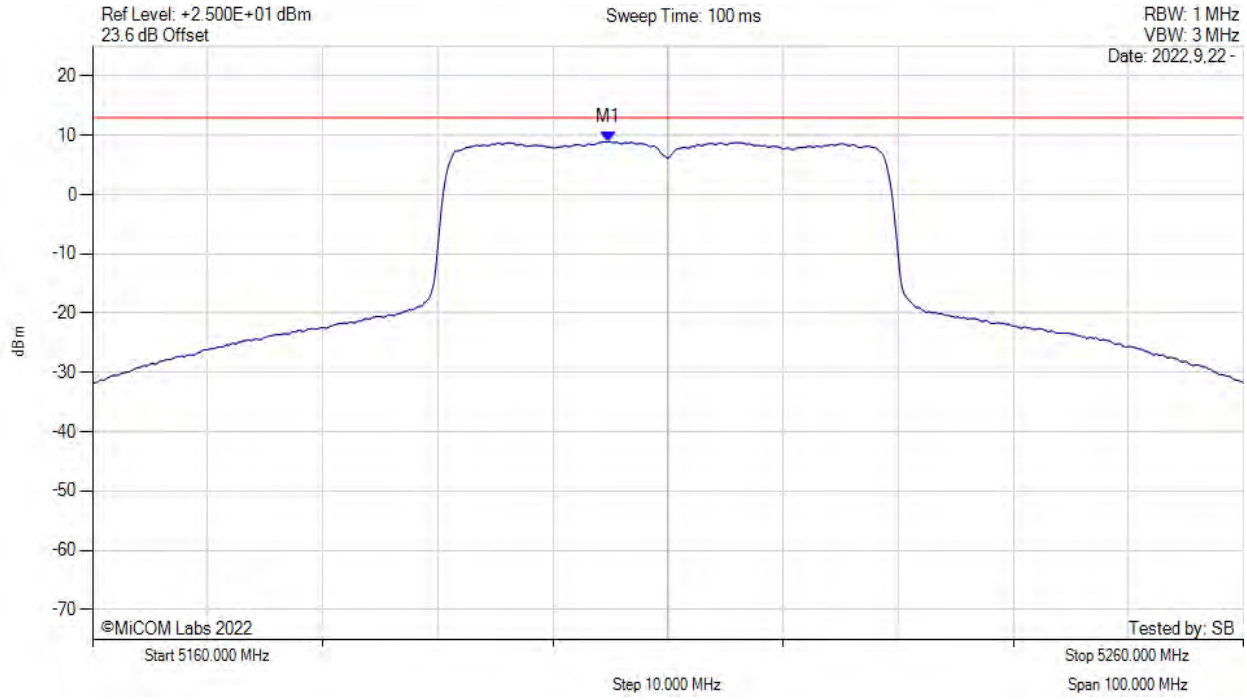


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5186.000 MHz : 11.690 dBm M1 + DCCF : 5186.000 MHz : 11.734 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -4.3 dB

back to matrix

POWER SPECTRAL DENSITY

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

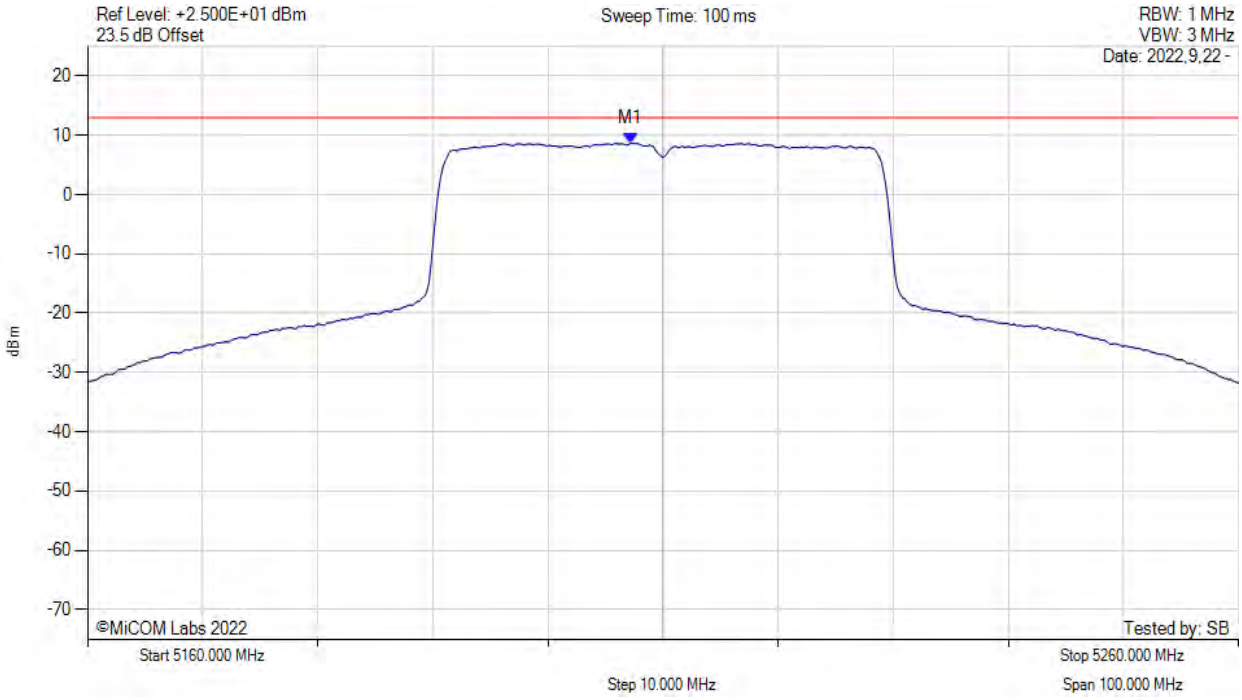


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5204.830 MHz : 8.933 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

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

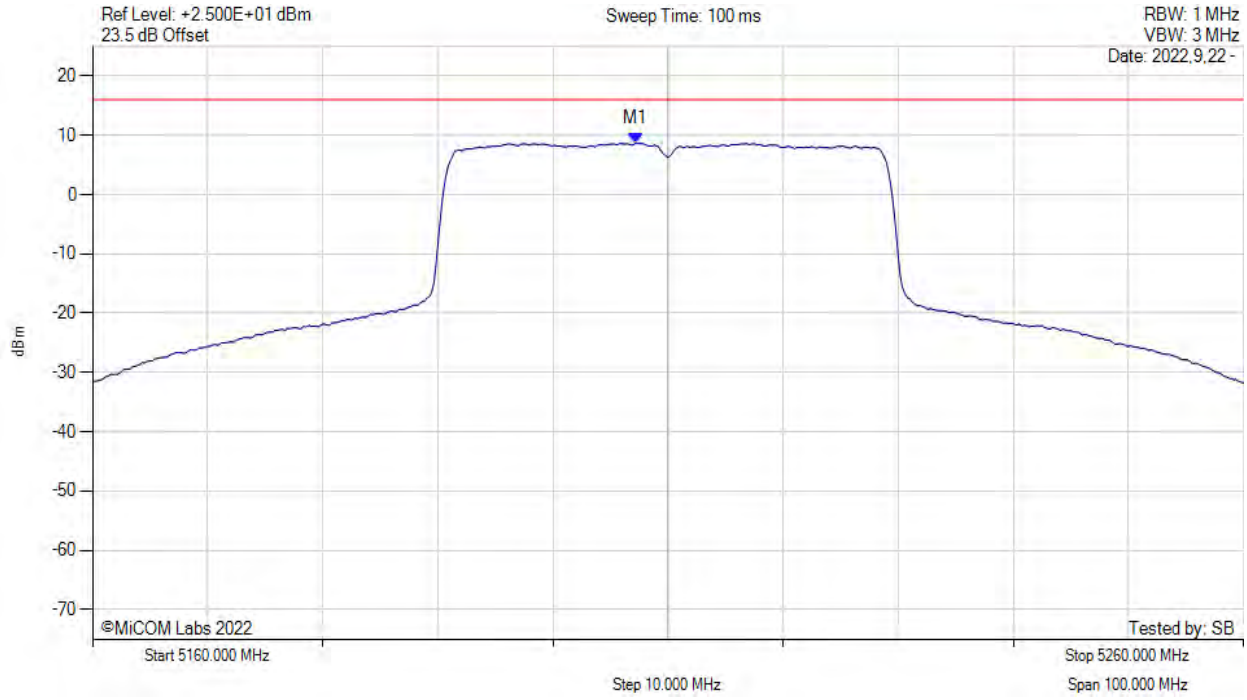


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5207.170 MHz : 8.676 dBm	Channel Frequency: 5210.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-40, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

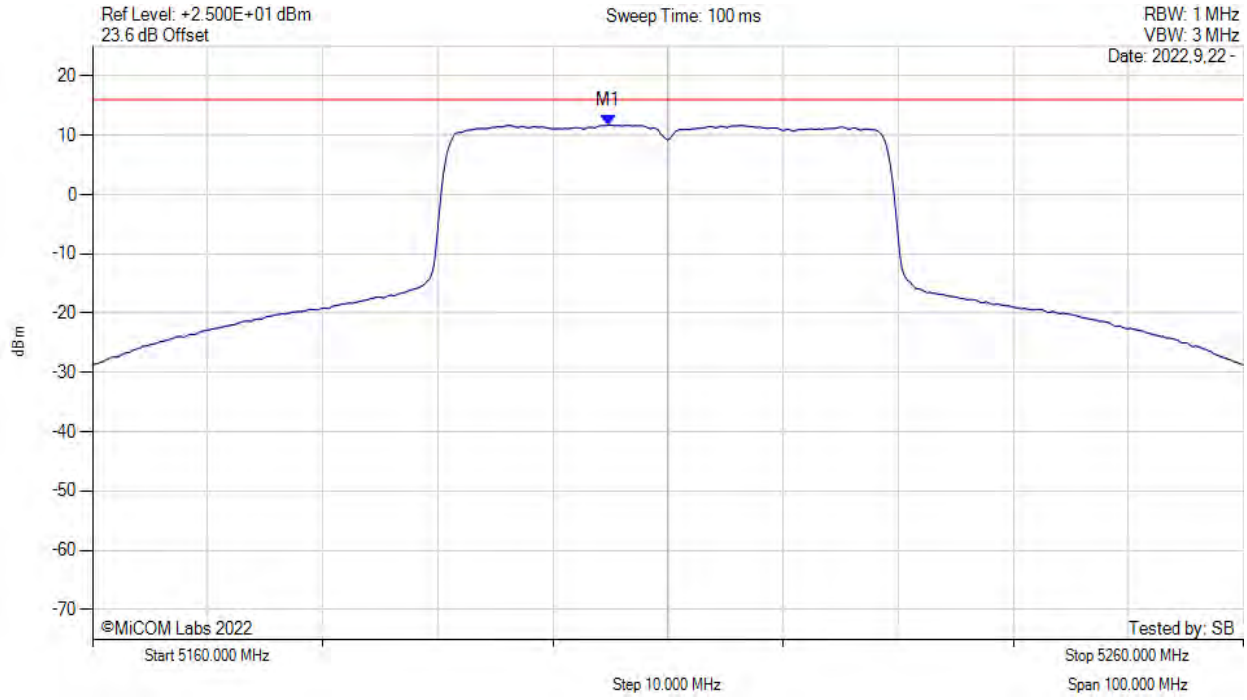


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5207.200 MHz : 8.676 dBm M1 + DCCF : 5207.200 MHz : 8.720 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -7.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-40, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

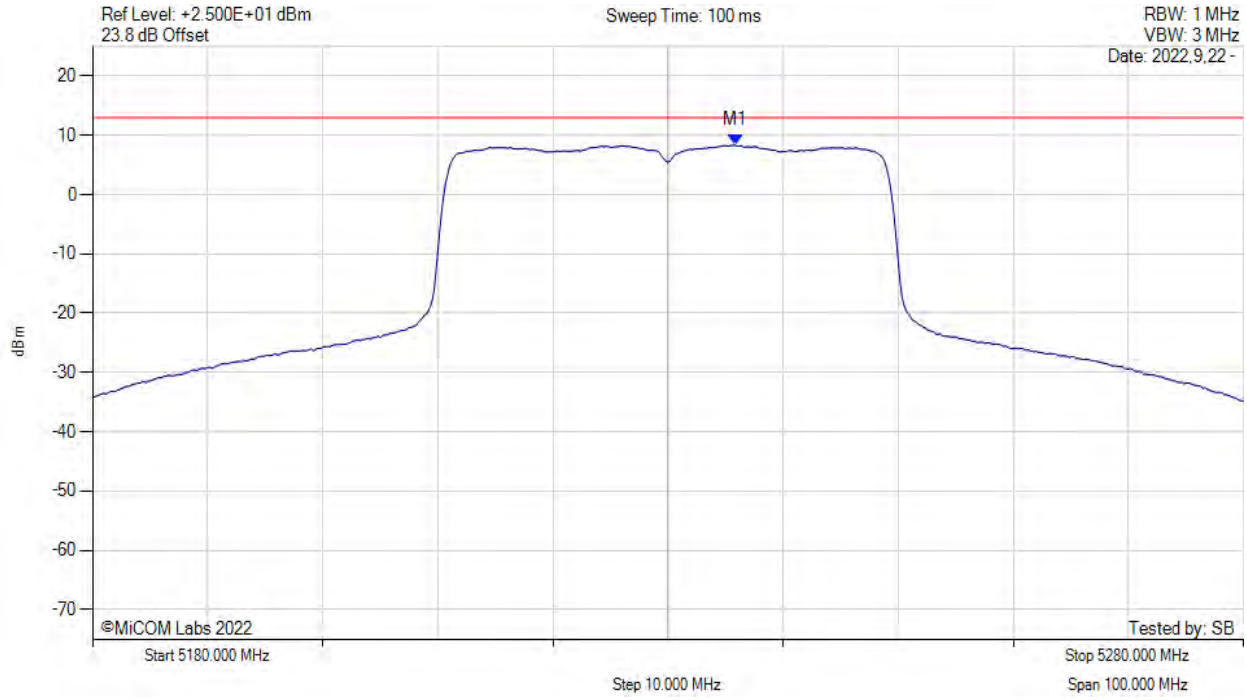


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5204.800 MHz : 11.738 dBm M1 + DCCF : 5204.800 MHz : 11.782 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -4.2 dB

back to matrix

POWER SPECTRAL DENSITY

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

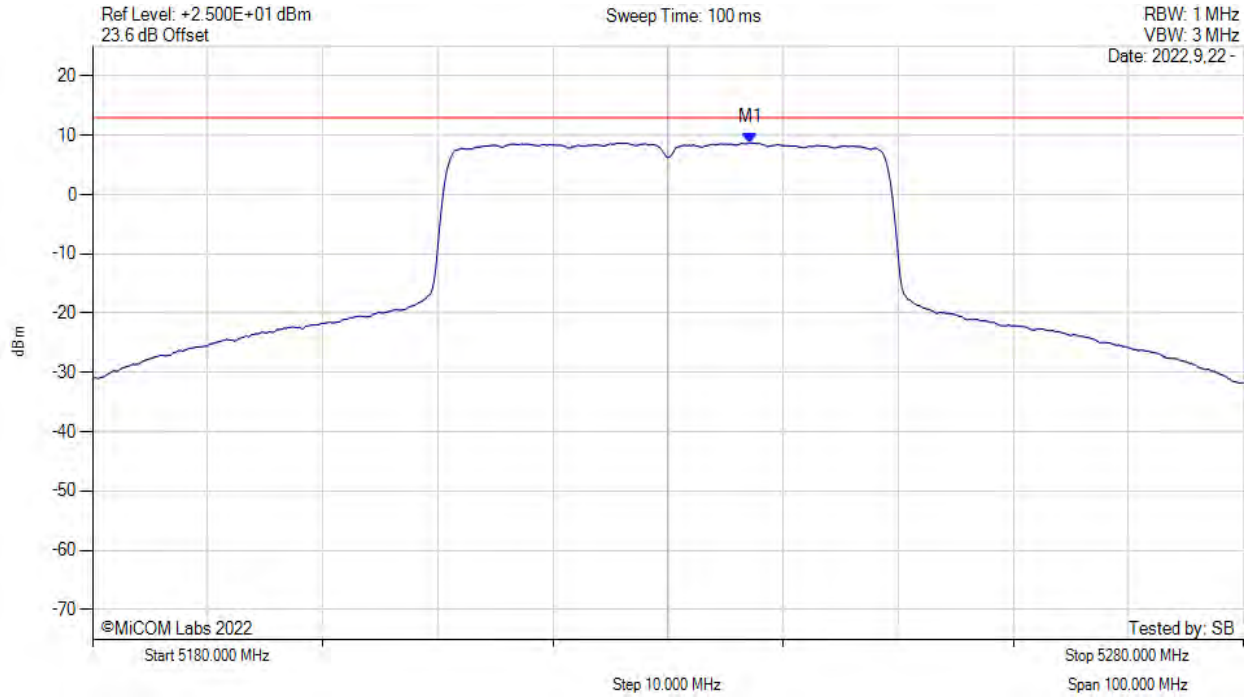


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5235.830 MHz : 8.342 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

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

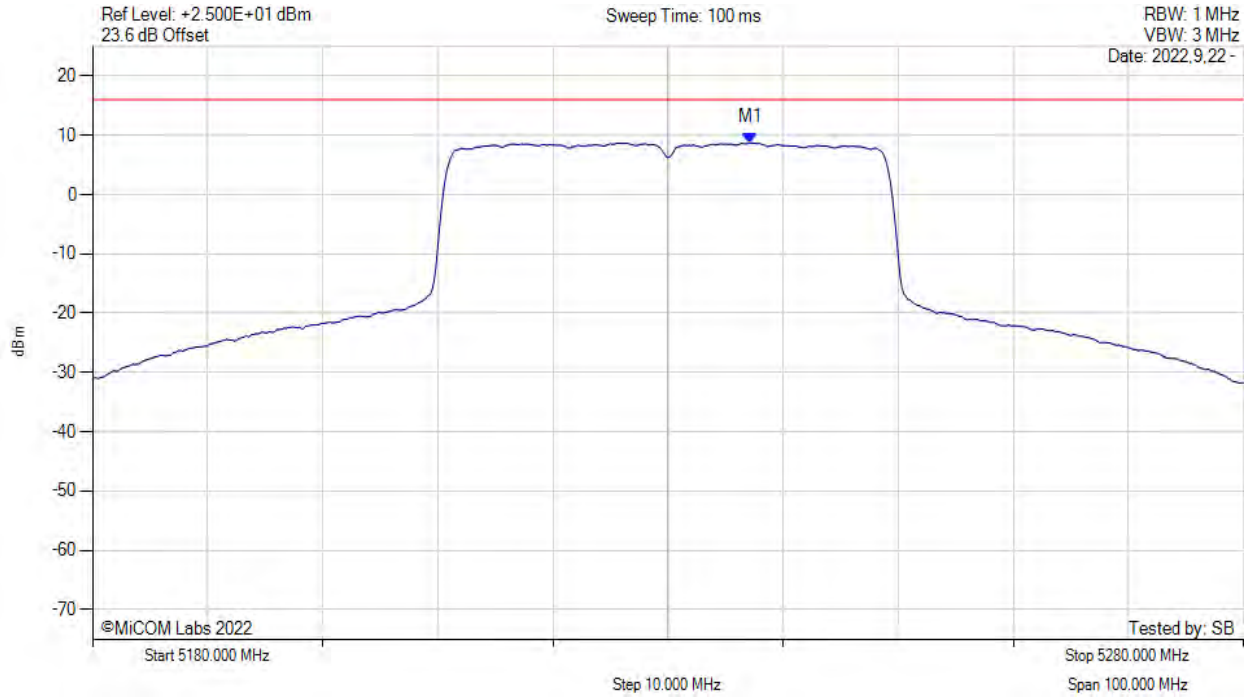


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5237.170 MHz : 8.737 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-40, Channel: 5230.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

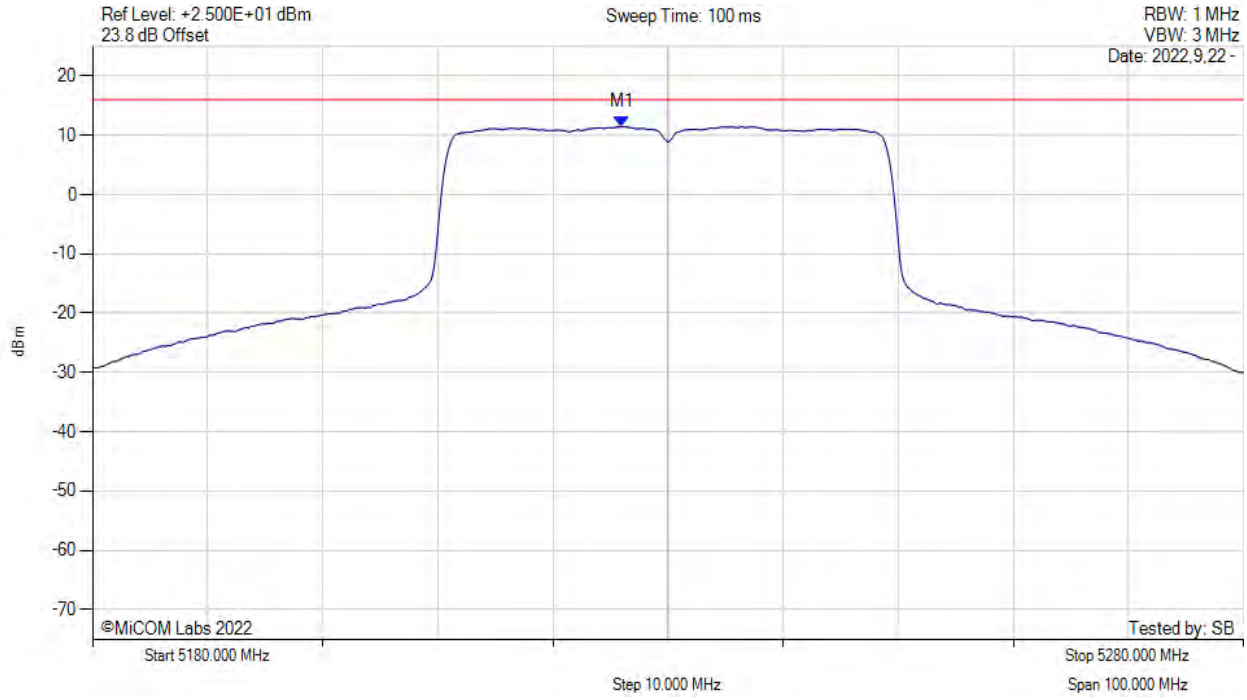


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5237.200 MHz : 8.737 dBm M1 + DCCF : 5237.200 MHz : 8.781 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -7.2 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-40, Channel: 5230.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

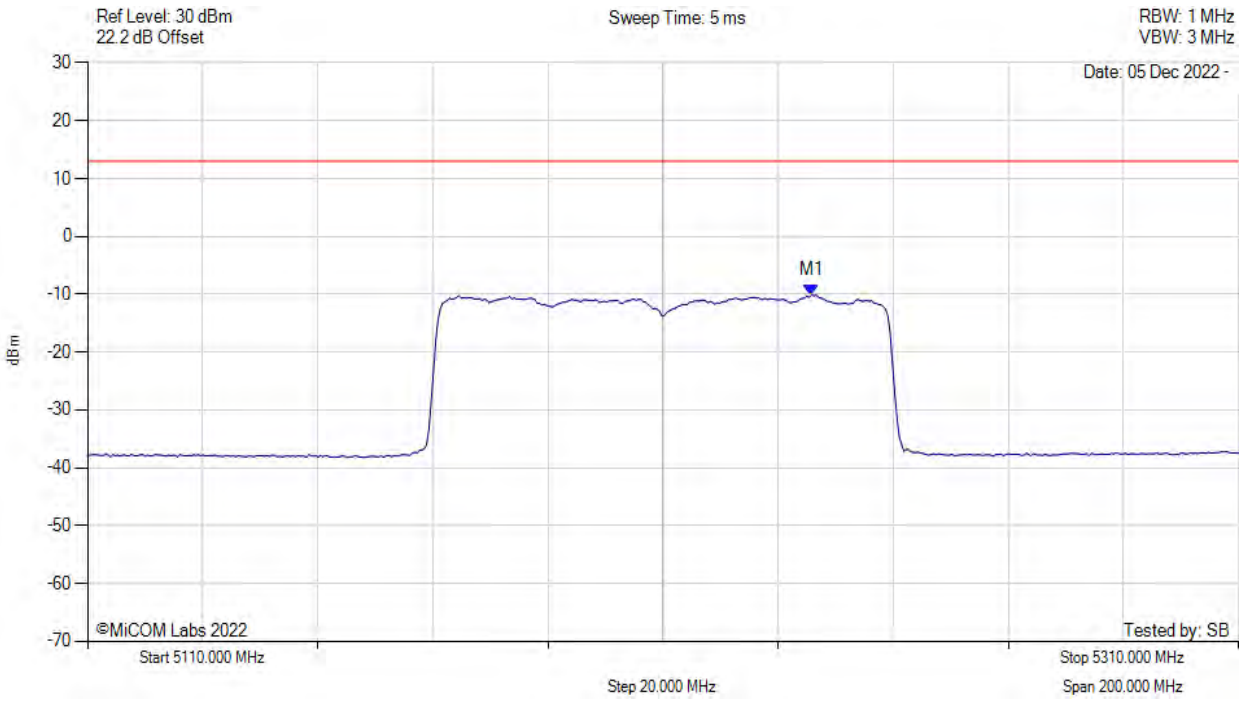


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5226.000 MHz : 11.459 dBm M1 + DCCF : 5226.000 MHz : 11.503 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -4.5 dB

back to matrix

POWER SPECTRAL DENSITY

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

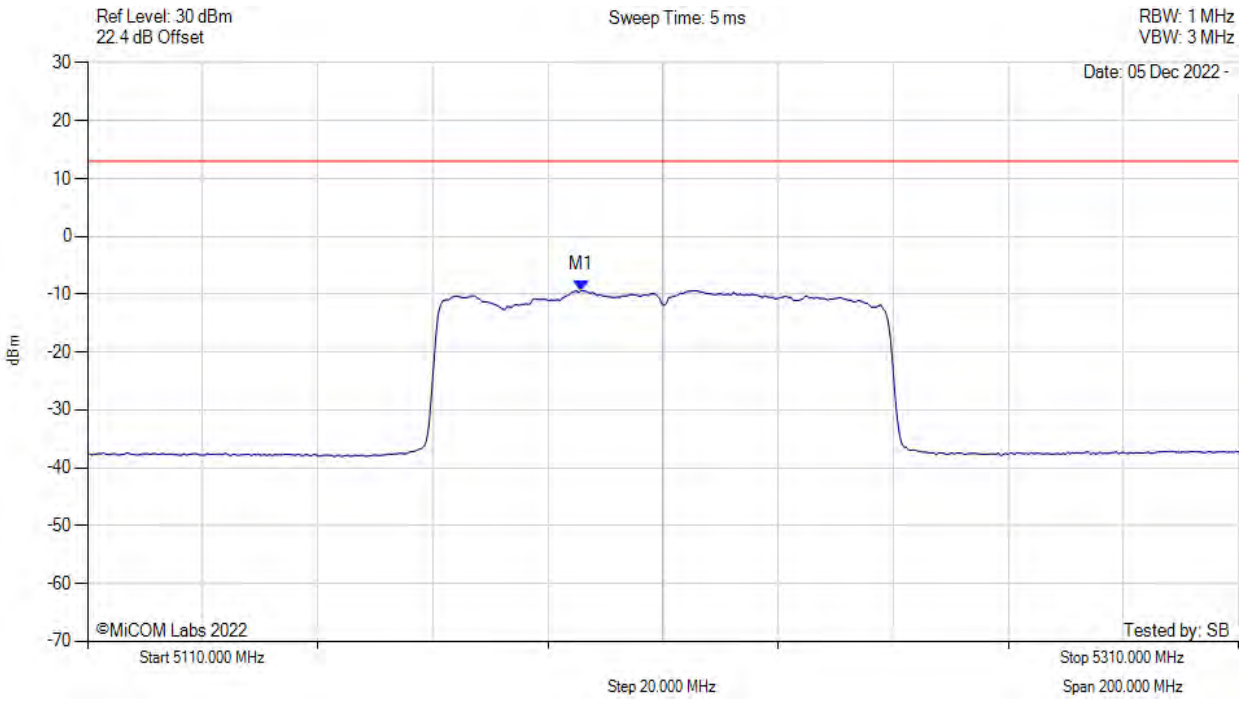


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5235.852 MHz : -10.119 dBm	Limit: ≤ 12.990 dBm

back to matrix

POWER SPECTRAL DENSITY

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

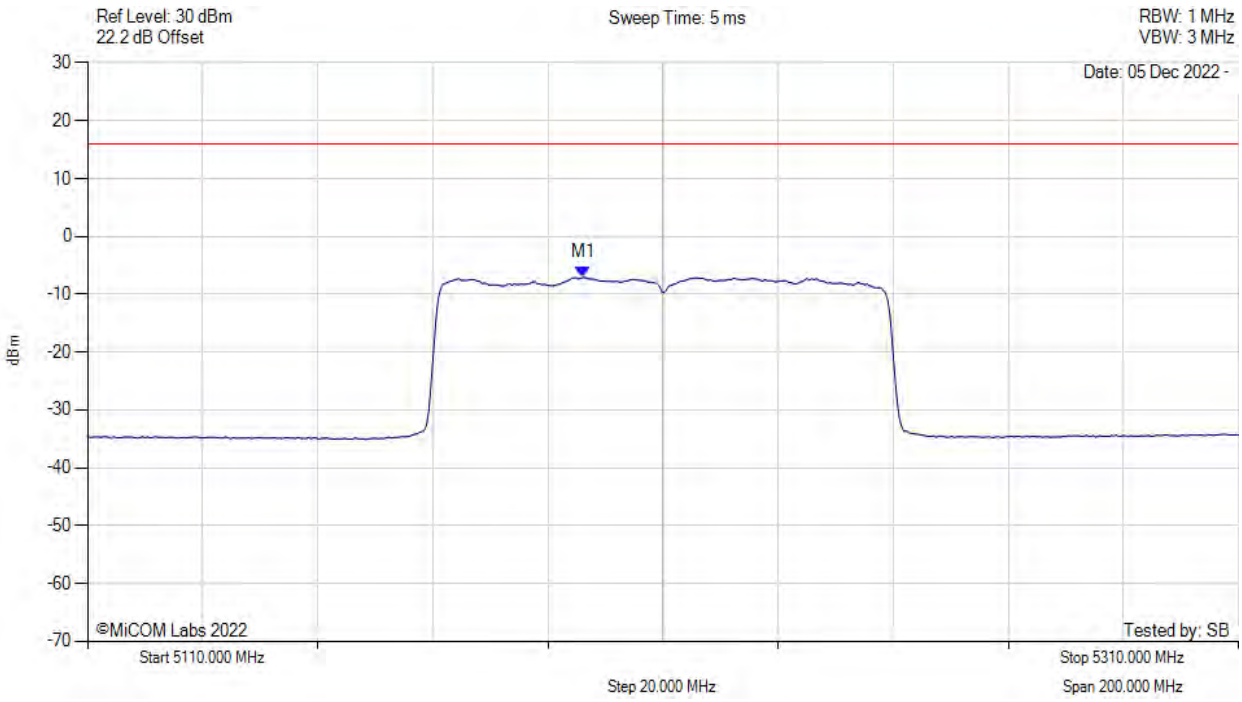


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5195.772 MHz : -9.334 dBm	Channel Frequency: 5210.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-80, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

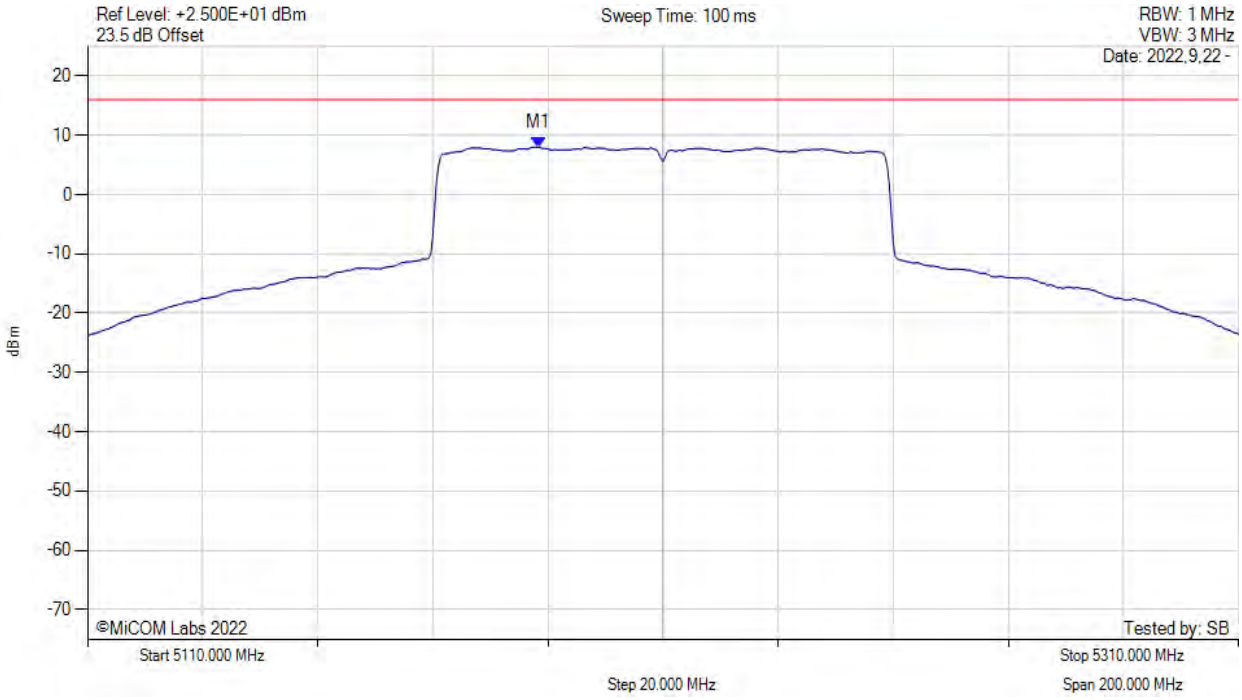


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = RMS Sweep Count = 100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 5196.200 MHz : -7.093 dBm M1 + DCCF : 5196.200 MHz : -7.049 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -23.1 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: OFDM-80, Channel: 5210.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5188.300 MHz : 8.008 dBm M1 + DCCF : 5188.300 MHz : 8.052 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 16.0 dBm Margin: -8.0 dB

back to matrix

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