REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 Part 90 Subpart Y,
ISED RSS 111

Report No.: RDWN97-U2 Rev A

Company: RADWIN Ltd.

Model Name: RADWIN 2000 EC00, RADWIN 2000 EI00, RADWIN 2000 E CON EC00, RADWIN 2000 E INT EI00

REGULATORY COMPLIANCE TEST REPORT

Company Name: RADWIN Ltd.

Model Name: RADWIN 2000 EC00, RADWIN 2000 EI00,
RADWIN 2000 E CON EC00, RADWIN 2000 E INT EI00

To: FCC CFR 47 Part 90 Subpart Y,
ISED RSS 111

Test Report Serial No.: RDWN97-U2 Rev A

This report supersedes: NONE

Applicant: RADWIN Ltd.
27 Habarzel Street
Tel Aviv, 6971039
Israel

Issue Date: 11th June 2024

This Test Report is Issued Under the Authority of:

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

A2LA ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

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

ilac-MRA A2LA

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

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

CORPORATE SEAL 1978 A2LA

Presented this 28th day of February 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2025

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 28th day of February 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2025

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	29th May 2024	Initial Draft for client review
Draft 2	10th June 2024	Additional draft for review
Rev A	11th June 2024	Initial release

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

3. TEST RESULT CERTIFICATE

Manufacturer:	RADWIN Ltd. 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, RADWIN 2000 E CON EC00, RADWIN 2000 E INT EI00	**Telephone:**	+1 925 462 0304
Type Of Equipment:	5 GHz High Performance PtP Outdoor Unit	**Fax:**	+1 925 462 0306
S/N's:	Test Sample		
Test Date(s):	21st – 24th May 2024	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 90 Subpart Y **ISED RSS 111**	**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:

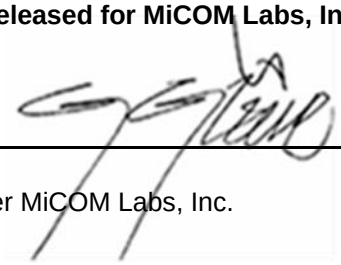
1. This document reports conditions under which testing was conducted and the results of testing performed.

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

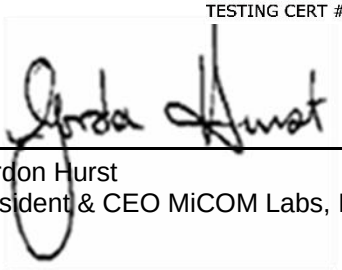
3. Test results apply only to the item(s) tested.

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	A2LA	22nd June 2022	R105 - Requirement's When Making Reference to A2LA Accreditation Status
III	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
IV	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
V	FCC 47 CFR Part 90	June 2003	Private Land Mobile Radio Services; Subpart Y – Regulations Governing Licensing and Use of Frequencies in the 4940-4990 MHz Band
VI	KDB 971168 D01, D02	D01 April 2018 D02 April 2023	Guidance for measurement of output emissions and power for licensed wideband digital transmission systems. D01 Power Meas License Digital Systems v03r01 971168 D02 Misc OOBE License Digital Systems v02r02
VII	M 3003	EDITION 4 Oct 2019	Expression of Uncertainty and Confidence in Measurements
VIII	FCC 47 CFR Part 2.1033	May 2021	FCC requirements and rules regarding photographs and test setup diagrams.
IX	ISED RSS 111 Issue 5	Sep. 4th 2014	Broadband Public Safety Equipment Operating in the Band 4940-4990 MHz
X	RSS-Gen Issue 5	Amendment 1,2 (Feb 2021)	General Requirements for Compliance of Radio Apparatus. With Amendments 1: March 2019 and 2: Feb 2021

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.

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Radwin 2000E to FCC CFR 47 Part 90 Subpart Y. Compliance Measurement Procedures for use in the 4940-4990 MHz band.
Applicant:	RADWIN Ltd. 27 Habarzel Street Tel Aviv 6971039 Israel
Manufacturer:	RADWIN Ltd.
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	RDWN97-U2
Date EUT received:	28th September 2022
Standard(s) applied:	FCC CFR 47 Part 90 Subpart Y & ISED RSS 111
Dates of test (from - to):	21st – 24th May 2024
No of Units Tested:	1
Product Family Name:	RADWIN 2000
Model(s):	RADWIN 2000 EC00, RADWIN 2000 EI00, RADWIN 2000 E CON EC00, RADWIN 2000 E INT EI00
Location for use:	Outdoors
Declared Frequency Range(s):	4940 - 4990 MHz;
Type of Modulation:	OFDM
EUT Modes of Operation:	4940 - 4990 MHz: 20MHz, 40MHz
Declared Nominal Output Power:	+33.00 / +36 dBm
Transmit/Receive Operation:	Transceiver
Rated Input Voltage and Current:	56VDC 1A
Operating Temperature Range:	-40°C - 60°C
ITU Emission Designator:	20 MHz: 20M0W7W 40 MHz: 39M9W7W (FCC Only)
Equipment Dimensions:	4.2 / 10.1 / 4.9 in
Weight:	2.7 lb
Hardware Rev:	Prototype
Software Rev:	B

5.2. Scope Of Test Program

RADWIN 2000 EC00, RADWIN 2000 EI00, RADWIN 2000 E CON EC00, RADWIN 2000 E INT EI00

The scope of the test program was to test the RADWIN 2000 EC00 for compliance against the following standards. A Declaration of Similarity was provided by the client claiming that testing the RADWIN 2000 EC00 covered the other named devices i.e. RADWIN 2000 EI00, RADWIN 2000 E CON EC00, RADWIN 2000 E INT EI00.

FCC CFR 47 Part 90 Subpart Y
This subpart sets out the regulations governing use of the 4940–4990 MHz (4.9 GHz) band. It includes eligibility requirements, and specific operational and technical standards for stations licensed in this band. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to licensing and operation in this band.

ISED RSS 111
Broadband Public Safety Equipment Operating in the Band 4940-4990 MHz

ISED NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

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

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

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
Integral	RADWIN	MR0284310	Directional	22.0	-	9	Yes	4940 – 4990
Integral	RADWIN	AX6400	Directional	22.0	-	--	Yes	4940 – 4990
External	RADWIN	RW-9613-4960	Panel	22.0	-	10	Yes	4940 – 4990
External	RADWIN	RW-9622-5001	Directional	26.0	-	5	Yes	4940 – 4990
External	RADWIN	RW-9721-5158	Dish	28.0	-	5.6	Yes	4940 – 4990
External	RADWIN	RW-9732-4958	Dish	32.0	-	4	Yes	4940 – 4990
External	RADWIN	RW-9732-4965	Dish	25.0	-	7	Yes	4940 – 4990

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
		4940 - 4990 MHz		
20MHz	8	4,950.00	4,965.00	4,980.00
40MHz	8	4,960.00	4,965.00	4,970.00

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not allowed as per section 5.3 of ISED RSS 111.

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

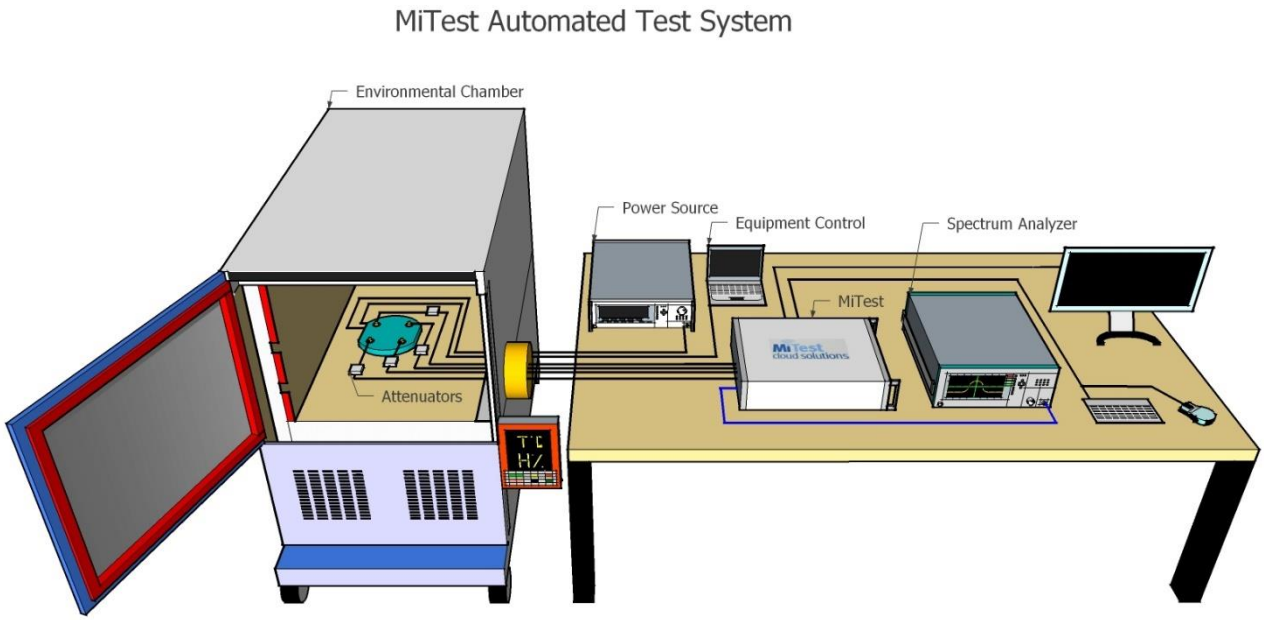
Test Header	Result	Data Link
Conducted Output Power	Complies	View Data
26 dB & 99% Bandwidth	Complies	View Data
Power Spectral Density	Complies	View Data
Peak Excursion Ratio	Complies	View Data
Spectrum Emission Mask	Complies	View Data
Frequency Stability	Complies	View Data
Radiated	Complies	-
TX Spurious Emissions	Complies	View Data
RX Emissions	Complies	View Data

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

7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Conducted

Conducted RF Emission Test Set-up(s) The following tests were performed using the conducted test set-up shown in the diagram below.



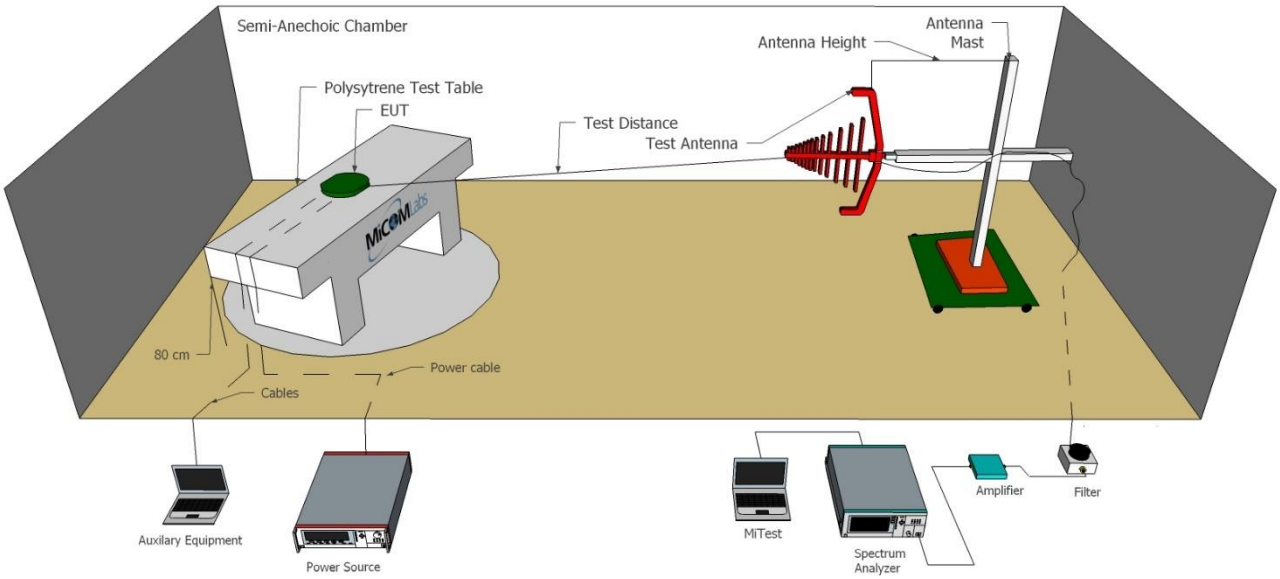
A full system calibration was performed on the test station and any resulting system losses (or gains) were considered in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	26 Jul 2024
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	26 Jul 2024
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	26 Jul 2024
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	26 Jul 2024
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	26 Jul 2024
249	Thermocouple; Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	22 Mar 2025
266	10 Hz to 50GHz MXA Signal Analyzer	Keysight	N9020B	MY60110791	25 Jul 2024
285	DC Power Supply	Keysight	E36155A	MY63000156	4 Dec 2024
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	4 Dec 2024
442	USB Wideband Power Sensor	Boonton	55006	9181	12 Dec 2024
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	27 Sep 2024
493	USB Wideband Power Sensor	Boonton	55006	9634	8 Oct 2024
494	USB Wideband Power Sensor	Boonton	55006	9726	12 Dec 2024
510	Barometer/Thermometer	Digi Sense	68000-49	170871375	4 Jan 2026
512	MiTest Cloud Solutions RF Test Box	MiCOM	2nd Gen	512	24 Jul 2024
516	USB Wideband Power Sensor	Boonton	RTP5006	10511	4 Dec 2024
555	Rhode & Schwarz Receiver (Firmware Version : 3.10 SP1)	Rhode & Schwarz	ESW 44	101893	28 Jun 2024
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	20 Nov 2024

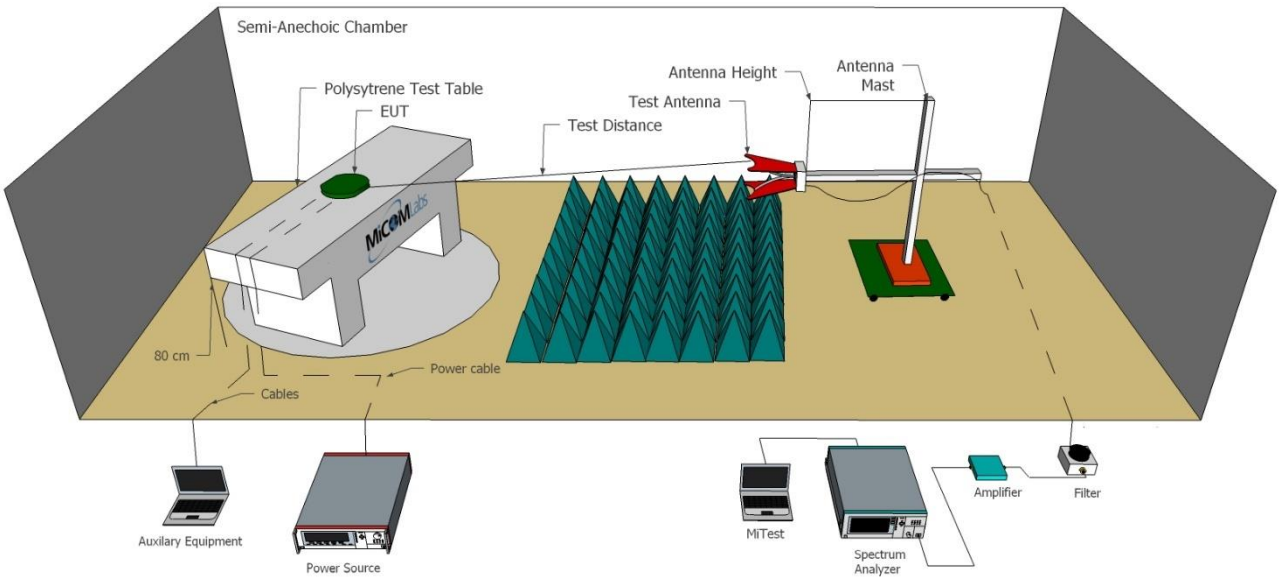
7.2. Radiated Emissions - 3m Chamber

The following tests were performed using the radiated test set-up shown in the diagram below.

Radiated Emissions Below 1GHz Test Setup



Radiated Emissions Above 1GHz Test Setup



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

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
266	10 Hz to 50GHz MXA Signal Analyzer	Keysight	N9020B	MY60110791	25 Jul 2024
285	DC Power Supply	Keysight	E36155A	MY63000156	4 Dec 2024
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	11 Jul 2024
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	7 Dec 2024
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	5 Dec 2024
373	26III RMS Multimeter	Fluke	Fluke 26 series III	76080720	29 Sep 2024
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	13 Sep 2024
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	27 Jul 2024
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	7 Dec 2024
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	2 Nov 2024
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
416	Gigabit ethernet filter	ETS-Lingren	Gigafoil 260366	None	Not Required
447	MiTest Rad Emissions Test Software	MiCOM	Rad Emissions Test Software Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	18 Sep 2024
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	18 Sep 2024
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	16 Sep 2024
465	Low Pass Filter DC-1000 MHz	Mini-Circuits	NLP-1200+	VUU01901402	14 Sep 2024
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	18 Sep 2024
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	18 Sep 2024
510	Barometer/Thermometer	Digi Sense	68000-49	170871375	4 Jan 2026
554	Precision SMA Cable	Fairview Microwave	SCE18060101-400CM	554	18 Sep 2024
555	Rhode & Schwarz Receiver (Firmware Version : 3.10 SP1)	Rhode & Schwarz	ESW 44	101893	28 Jun 2024
87	Uninterruptible Power Supply	Falcon Electric	ED2000-1/2LC	F3471 02/01	Cal when used
CC05	Confidence Check	MiCOM	CC05	None	11 Aug 2024

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. Conducted Output Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:90 (Y) ISED RSS 111	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Maximum Conducted Output Power	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	90.1215 (a) Section 5.3	**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
90.1215
Except as provided in paragraph (f) of this section, the transmitting power of stations operating in the 4940-4990 MHz band must not exceed the maximum limits in this section.

(a)(1) For base, mobile, and temporary fixed operations, the maximum conducted output power must not exceed:

Channel Bandwidth (MHz)	Low power maximum conducted output power (dBm)	High power maximum conducted output power (dBm)
1	7	20
5	14	27
10	17	30
15	18.8	31.8
20	20	33
30	21.8	34.8
40	23	36
50	24	37

(a) (2) High power devices are also limited to a peak power spectral density of 21 dBm per one MHz. High power devices using channel bandwidth other than those listed above are permitted; however, they are limited to peak power spectral density of 21 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ a transmitting antenna with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

(f) The transmitting power of permanent fixed point-to-point and point-to-multipoint stations operating in the 4940-4990 MHz band must not exceed the maximum limits in this paragraph (f). Moreover, applicants should request no more power than necessary for a particular use.

(1) The maximum equivalent isotropically radiated power (EIRP), as referenced to an isotropic radiator, must not exceed 55 dBW (85 dBm)
(2) For path lengths shorter than 17 kilometers, the EIRP shall not exceed the value derived from the following equation: New EIRP limit = 55 dBW – 40*log(17/B) dBW, where B = the actual path length in kilometers.

Equipment Configuration for Peak Transmit Power			
Variant:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	dBm	dB	
4950.0	20.42	19.03	--	--	22.79	33.0	-10.21	23.00
4965.0	20.58	19.14	--	--	22.93	33.0	-10.07	23.00
4980.0	20.67	19.25	--	--	23.03	33.0	-9.97	23.00

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

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

Equipment Configuration for Peak Transmit Power			
Variant:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	dBm	dB	
4960.0	21.86	18.37	--	--	23.47	36.0	-12.53	25.00
4965.0	21.84	18.36	--	--	23.45	36.0	-12.55	25.00
4970.0	21.84	18.31	--	--	23.43	36.0	-12.57	25.00

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

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

9.1.1. High Gain Antenna

Equipment Configuration for Peak Transmit Power

Variant:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	32.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	dBm	dB	
4950.0	20.42	19.03	--	--	22.79	27.0	-4.21	23.00
4965.0	20.58	19.14	--	--	22.93	27.0	-4.07	23.00
4980.0	20.67	19.25	--	--	23.03	27.0	-3.97	23.00

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

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

Equipment Configuration for Peak Transmit Power			
Variant:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	32.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Conducted Output Power (dBm) Port(s)				Calculated Total Power	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	Σ Port(s) dBm	dBm	dB	
4960.0	21.86	18.37	--	--	23.47	30.0	-6.53	25.00
4965.0	21.84	18.36	--	--	23.45	30.0	-6.55	25.00
4970.0	21.84	18.31	--	--	23.43	30.0	-6.57	25.00

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

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

9.2. 26 dB & 99% Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Standard:	FCC CFR 47:90 (I) ISED RSS 111	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	26 dB and 99 % Bandwidth	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	90.209 Section 5.3	**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:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
4950.0	19.930	19.800	--	--	19.930	19.800		
4965.0	20.000	19.730	--	--	20.000	19.730		
4980.0	19.870	19.930	--	--	19.930	19.870		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	**a**	**b**	**c**	**d**	**Highest**	**Lowest**		
4950.0	16.438	16.411	--	--	16.438	16.411		
4965.0	16.420	16.420	--	--	16.420	16.420		
4980.0	16.432	16.403	--	--	16.432	16.403		

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).

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured 26 dB Bandwidth (MHz) Port(s)				26 dB Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
4960.0	39.870	38.530	--	--	39.870	38.530		
4965.0	39.730	39.200	--	--	39.730	39.200		
4970.0	39.470	39.070	--	--	39.470	39.070		

Test Frequency	Measured 99% Bandwidth (MHz) Port(s)				99% Bandwidth (MHz)			
MHz	a	b	c	d	Highest	Lowest		
4960.0	35.130	35.031	--	--	35.130	35.031		
4965.0	35.112	35.003	--	--	35.112	35.003		
4970.0	35.108	35.030	--	--	35.108	35.030		

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 47:90 (Y) ISED RSS 111	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Power Spectral Density	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	90.1215(a)(2) Section 4.2 / 5.3	**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
(a) (2) High power devices are also limited to a peak power spectral density of 21 dBm per one MHz. High power devices using channel bandwidth other than those listed above are permitted; however, they are limited to peak power spectral density of 21 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ a transmitting antenna with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

(d) The peak power spectral density is measured as conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements are made over a bandwidth of one MHz or the 26 dB emission bandwidth of the device, whichever is less. A resolution bandwidth less than the measurement bandwidth can be used, provided that the measured power is integrated to show total power over the measurement bandwidth. If the resolution bandwidth is approximately equal to the measurement bandwidth, and much less than the emission bandwidth of the equipment under test, the measured results shall be corrected to account for any difference between the resolution bandwidth of the test instrument and its actual noise bandwidth.

Equipment Configuration for Power Spectral Density

Variant:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
4950.0	8.122	7.490	--	--	10.703	21.0	-10.3
4965.0	8.263	7.711	--	--	10.891	21.0	-10.1
4980.0	8.439	7.747	--	--	10.969	21.0	-10.0

Traceability to Industry Recognized Test Methodologies

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

DCCF - Duty Cycle Correction Factor

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

Equipment Configuration for Power Spectral Density			
Variant:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
4960.0	6.217	3.882	--	--	8.087	21.0	-12.9
4965.0	6.332	4.020	--	--	8.138	21.0	-12.9
4970.0	6.245	3.631	--	--	8.049	21.0	-13.0

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

DCCF - Duty Cycle Correction Factor

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

9.3.1. High Gain Antenna

9	Equipment Configuration for Power Spectral Density

Variant:	20MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	32.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
4950.0	8.122	7.490	--	--	10.703	15.0	-4.3
4965.0	8.263	7.711	--	--	10.891	15.0	-4.1
4980.0	8.439	7.747	--	--	10.969	15.0	-4.0

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

DCCF - Duty Cycle Correction Factor

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

Equipment Configuration for Power Spectral Density			
Variant:	40MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	32.00
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Power Spectral Density Port(s) (dBm/MHz)				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
MHz	**a**	**b**	**c**	**d**	**dBm/MHz**	**dBm/MHz**	**dB**
4960.0	6.217	3.882	--	--	8.087	15.0	-6.9
4965.0	6.332	4.020	--	--	8.138	15.0	-6.9
4970.0	6.245	3.631	--	--	8.049	15.0	-7.0

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

DCCF - Duty Cycle Correction Factor

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

9.4. Peak Excursion Ratio

Conducted Test Conditions for Peak Excursion Ratio			
Standard:	FCC CFR 47:90 (Y) ISED RSS 111	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Peak Excursion Ratio	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	90.1215 (e) Section 5.4	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Peak Excursion Ratio
The spectrum analyzers built in Peak-To-Average Power Ratio measurement function was utilized.

Only the center channel is measured for each operating mode, and all transmitter chains are combined and analyzed simultaneously.

Peak Excursion Limits
The ratio of the peak excursion of the modulation envelope to the maximum conducted output power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less. Additionally, the PAPR can be used, and shall not exceed 13 dB for more than 0.1% of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.

Equipment Configuration for Peak Excursion Ratio			
Variant:	20 MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.0
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured Ratio (dB)		Limit	Margin	EUT Power Setting
MHz	**0.1% (dB)**	**Peak**	**dB**	**dB**	
4965.0	9.12	11.03	13.0	-3.88	23.0

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

Equipment Configuration for Peak Excursion Ratio			
Variant:	40 MHz	**Duty Cycle (%):**	99.0
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.0
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured Ratio (dB)		Limit	Margin	EUT Power Setting
MHz	**0.1% (dB)**	**Peak**	**dB**	**dB**	
4965.0	9.45	10.83	13.0	-3.55	25

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

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

9.5. Spectrum Emission Mask and Spurious Emissions

Conducted Test Conditions for Spectrum Emission Mask			
Standard:	FCC CFR 47:90 (I) ISED RSS 111	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Spectrum Emission Mask	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	90.210 (m) Section 5.5	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Emission Masks

Emission Mask Limits

Except as indicated in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (o) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere in this part, the table in this section specifies the emission masks for equipment operating under this part.

(m) **Emission Mask M.** For high power transmitters (greater than 20 dBm) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

(1) On any frequency removed from the assigned frequency between 0-45% of the authorized bandwidth (BW):
0 dB.

(2) On any frequency removed from the assigned frequency between 45-50% of the authorized bandwidth (BW):
568 log (% of (BW)/45) dB.

(3) On any frequency removed from the assigned frequency between 50-55% of the authorized bandwidth (BW):
26 + 145 log (% of (BW)/50) dB.

(4) On any frequency removed from the assigned frequency between 55-100% of the authorized bandwidth (BW):
32 + 31 log (% of (BW)/55) dB.

(5) On any frequency removed from the assigned frequency between 100-150% of the authorized bandwidth (BW):
40 + 57 log (% of (BW)/100) dB.

(6) On any frequency removed from the assigned frequency between above 150% of the authorized bandwidth:
50 dB or 55 + 10 log (P) dB, whichever is the lesser attenuation.

(7) The zero dB reference is measured relative to the highest average power of the fundamental emission measured across the designated channel bandwidth using a resolution bandwidth of at least one percent of the occupied bandwidth of the fundamental emission and a video bandwidth of 30 kHz. The power spectral density is the power measured within the resolution bandwidth of the measurement device divided by the resolution bandwidth of the measurement device. Emission levels are also based on the use of measurement instrumentation employing a resolution bandwidth of at least one percent of the occupied bandwidth.

Equipment Configuration for Spectrum Emission Mask			
Variant:	20MHz	**Duty Cycle (%):**	99
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.0
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Spectrum Mask Port(s)				Complies
MHz	**a**	**b**	**c**	**d**	**Pass/Fail**
4950.0	Mask / Spurious	Mask / Spurious	--	--	Pass
4965.0	Mask / Spurious	Mask / Spurious	--	--	Pass
4980.0	Mask / Spurious	Mask / Spurious	--	--	Pass

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 Spectrum Emission Mask			
Variant:	40MHz	**Duty Cycle (%):**	99
Data Rate:	8.00 MBit/s	**Antenna Gain (dBi):**	22.0
Modulation:	OFDM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Spectrum Mask Port(s)				Complies
MHz	**a**	**b**	**c**	**d**	**Pass/Fail**
4960.0	Mask / Spurious	Mask / Spurious	--	--	Pass
4965.0	Mask / Spurious	Mask / Spurious	--	--	Pass
4970.0	Mask / Spurious	Mask / Spurious	--	--	Pass

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).

NOTE: Only 20MHz bandwidth is applicable for ISED RSS 111. Bandwidths above 20MHz are not permitted as per section 5.3 of ISED RSS 111.

9.6. Frequency Stability

Conducted Test Conditions for Frequency Stability			
Standard:	FCC CFR 47:90 (I) ISED RSS 111	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Frequency Stability	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	90.213 Section 5.2	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Emission Masks
The transmitter output was connected to a spectrum analyzer and the frequency stability was measured using the analyzers occupied bandwidth measurement capability, which reports the frequency delta from the center frequency in kHz. The values were recorded and ppm values calculated.

Frequency stability was measured through the extremes of temperature on the mid channel and a single operating mode only. Before measurements were taken at each temperature the equipment was allowed time to reach thermal equilibrium.

Frequency Stability Limits
Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as described in the following table.

Minimum Frequency Stability

Frequency Range (MHz)	Fixed and base stations	Mobile Stations	
		Over 2 watts output power	2 watts or less output power
Below 25	100	100	200
25-50	20	20	50
72-76	5		50
150-174	5	5	50
216-220	1.0		1.0
220-222	0.1	1.5	1.5
421-512	2.5	5	5
806-809	1.0	1.5	1.5
809-824	1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	0.1	1.5	1.5
902-928	2.5	2.5	2.5
929-930	1.5		
935-940	0.1	1.5	1.5
1427-1435	300	300	300
Above 2450			

Manufacturers Specification for Frequency Stability

As no apparent frequency stability limits were provided the manufacturer's specification was used ±20 ppm.

Equipment Configuration for Carrier Frequencies			
Variant:	20 MHz	**Duty Cycle (%):**	99
Data Rate:	Not Applicable	**Antenna Gain (dBi):**	Not Applicable
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test frequency	4965 MHz	Frequency Error		Limit	Margin
Temperature	**Voltage**	**kHz**	**ppm**	**ppm**	**ppm**
20 °C	**56.0 Vdc**	-29.838	6.010	20	-13.99
	50.4 Vdc	-24.562	4.947	20	-15.05
	61.6 Vdc	-18.860	3.799	20	-16.20
-40 °C	**55 Vdc**	78.428	15.796	20	-4.20
-30 °C		73.151	14.733	20	-5.27
-20 °C		73.325	14.768	20	-5.23
-10 °C		50.383	10.148	20	-9.85
0 °C		24.791	4.993	20	-15.01
10 °C		15.161	3.054	20	-16.95
30 °C		-30.437	6.130	20	-13.87
40 °C		-40.870	8.232	20	-11.77
50 °C		-34.364	6.921	20	-13.08
60 °C		-51.880	10.449	20	-9.55

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-02 MEASURING FREQUENCY
Measurement Uncertainty:	±0.86 ppm

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

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

9.7. Radiated

9.7.1 TX Spurious Emissions

Radiated Spurious Emissionsa			
Standard:	FCC CFR 47:90 (I)	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Radiated Spurious Emissions	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	90.210 (m)	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Spurious Emission

Emission Limits
Except as indicated in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (o) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere in this part, the table in this section specifies the emission masks for equipment operating under this part.

(m) **Emission Mask M.** For high power transmitters (greater than 20 dBm) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

(1) On any frequency removed from the assigned frequency between 0-45% of the authorized bandwidth (BW):
0 dB.

(2) On any frequency removed from the assigned frequency between 45-50% of the authorized bandwidth (BW):
568 log (% of (BW)/45) dB.

(3) On any frequency removed from the assigned frequency between 50-55% of the authorized bandwidth (BW):
26 + 145 log (% of (BW)/50) dB.

(4) On any frequency removed from the assigned frequency between 55-100% of the authorized bandwidth (BW):
32 + 31 log (% of (BW)/55) dB.

(5) On any frequency removed from the assigned frequency between 100-150% of the authorized bandwidth (BW):
40 + 57 log (% of (BW)/100) dB.

(6) On any frequency removed from the assigned frequency between above 150% of the authorized bandwidth:
50 dB or 55 + 10 log (P) dB, whichever is the lesser attenuation.

(7) The zero dB reference is measured relative to the highest average power of the fundamental emission measured across the designated channel bandwidth using a resolution bandwidth of at least one percent of the occupied bandwidth of the fundamental emission and a video bandwidth of 30 kHz. The power spectral density is the power measured within the resolution bandwidth of the measurement device divided by the resolution bandwidth of the measurement device. Emission levels are also based on the use of measurement instrumentation employing a resolution bandwidth of at least one percent of the occupied bandwidth.

Test Procedure
Measurements were made while EUT was operating in a modulated transmit mode of operation, at the appropriate center frequency, 100% duty cycle and maximum power at all times. Radiated spurious emissions were measured to 40 GHz. Substitution was performed on any emissions observed. The antenna port was attenuated with 50 dB attenuation plus a 50 Ω terminator.

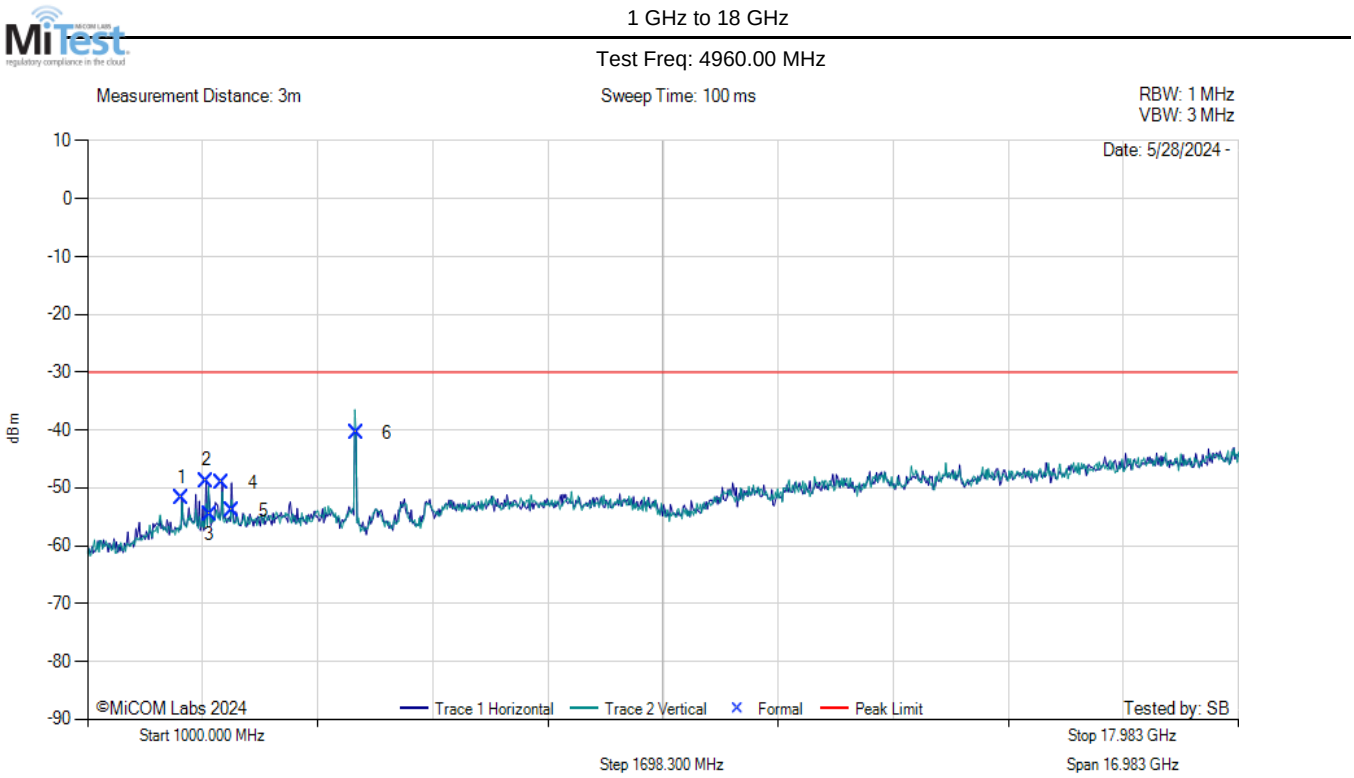
The measurement equipment was set to measure in peak hold mode. The emissions were measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode.

The highest emissions relative to the limit are listed for each frequency spanned.
Measurements below 1 GHz utilized 100 KHz RBW, measurements above 1 GHz were performed using a minimum RBW of 1 MHz.

Emission measurements were performed to the 10th harmonic of the transmitter. No emissions were found.

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	50 Ohm Term	**Variant:**	20MHz
Antenna Gain (dBi):	--	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	4950.00	**Data Rate:**	8 Mbit/s
Power Setting:	25.0	**Tested By:**	SB

Test Measurement Results

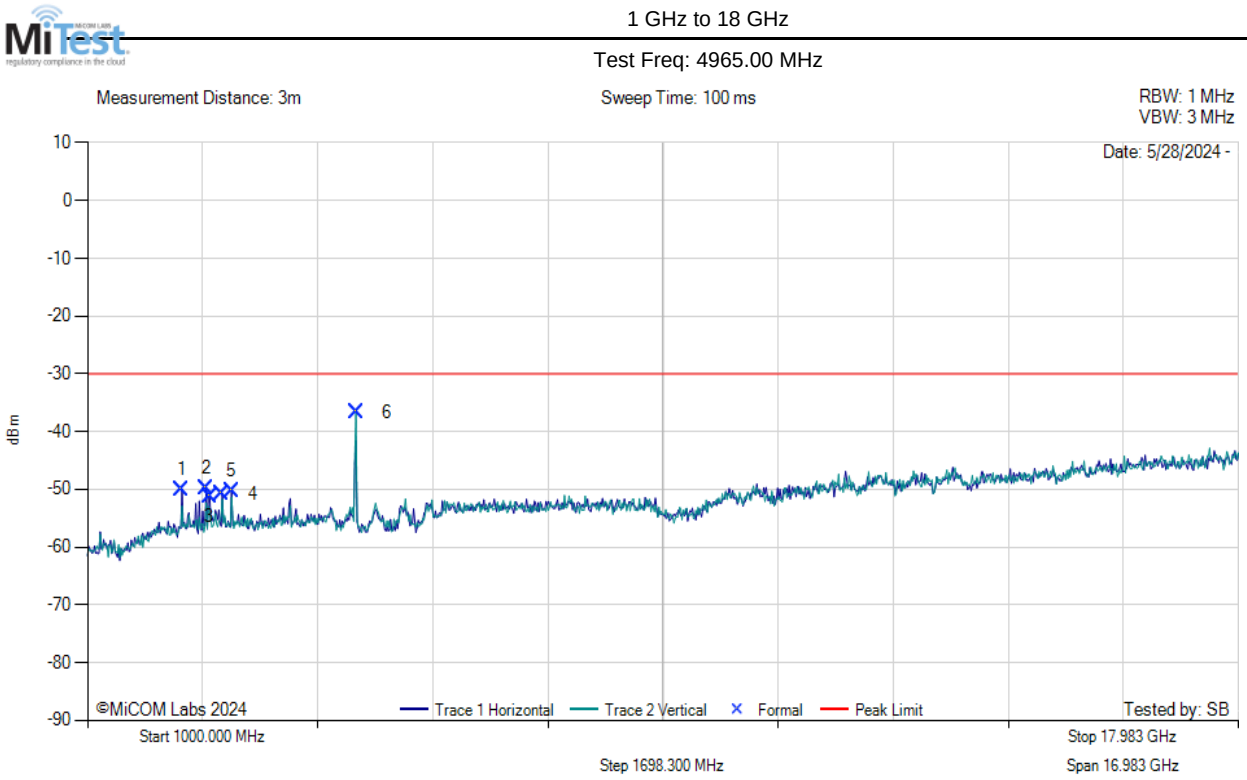


1000.00 - 17983.00 MHz												
Num	**Frequency MHz**	**Raw dBm**	**Cable Loss dB**	**AF dB/m**	**Level dBm**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBm**	**Margin dB**	**Pass /Fail**
1	2394.00	-52.53	-1.03	49.94	-51.81	MaxP	Horizontal	150	30	-30.0	-21.8	Pass
2	2751.00	-49.97	-1.12	50.72	-48.74	MaxP	Horizontal	150	30	-30.0	-18.7	Pass
3	2802.00	-55.76	-1.10	50.90	-54.56	MaxP	Vertical	199	0	-30.0	-24.6	Pass
4	2989.00	-50.75	-1.17	51.08	-49.10	MaxP	Horizontal	150	30	-30.0	-19.1	Pass
5	3142.00	-55.62	-1.21	51.50	-53.93	MaxP	Horizontal	150	328	-30.0	-23.9	Pass
6	4961.00	-41.70	-1.67	56.42	-40.50	Fundamental	Vertical	199	--	--	--	Pass
Test Notes: 4950MHz, Power Setting: 25												

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

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	50 Ohm Term	**Variant:**	20MHz
Antenna Gain (dBi):	--	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	4965.00	**Data Rate:**	8 Mbit/s
Power Setting:	25.0	**Tested By:**	SB

Test Measurement Results



1000.00 - 17983.00 MHz												
Num	**Frequency MHz**	**Raw dBm**	**Cable Loss dB**	**AF dB/m**	**Level dBm**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBm**	**Margin dB**	**Pass /Fail**
1	2394.00	-50.72	-1.03	49.94	-50.00	MaxP	Horizontal	149	30	-30.0	-20.0	Pass
2	2751.00	-51.09	-1.12	50.72	-49.87	MaxP	Horizontal	149	30	-30.0	-19.9	Pass
3	2802.00	-52.37	-1.10	50.90	-51.17	MaxP	Horizontal	149	330	-30.0	-21.2	Pass
4	2989.00	-52.37	-1.17	51.08	-50.73	MaxP	Horizontal	199	30	-30.0	-20.7	Pass
5	3125.00	-52.16	-1.19	51.34	-50.37	MaxP	Horizontal	199	30	-30.0	-20.4	Pass
6	4961.00	-37.91	-1.67	56.42	-36.71	Fundamental	Vertical	--	--	--	Pass	Pass

Test Notes: 4965MHz, Power Setting: 25

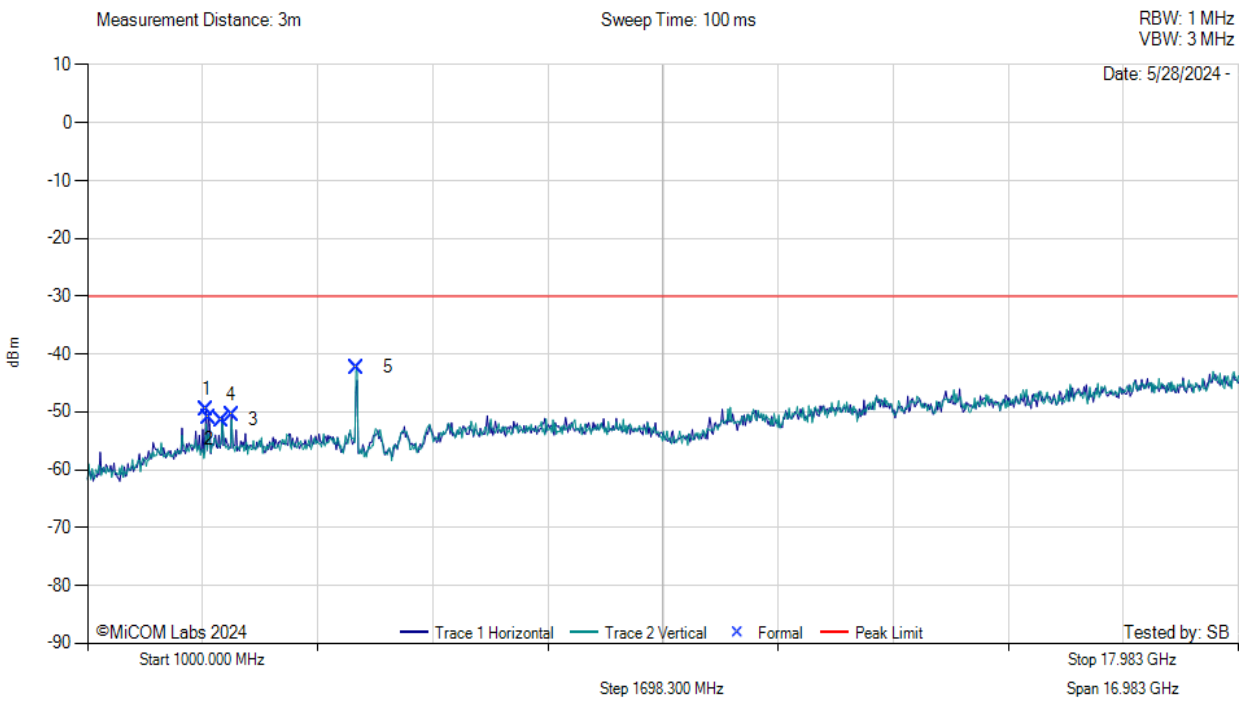
Testing was performed up to 40 GHz, no emissions were found above 18GHz.

Equipment Configuration for FCC Spurious 1 GHz -18 GHz			
Antenna:	50 Ohm Term	**Variant:**	20MHz
Antenna Gain (dBi):	--	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	4980.00	**Data Rate:**	8 Mbit/s
Power Setting:	25.0	**Tested By:**	SB

Test Measurement Results

1 GHz to 18 GHz

Test Freq: 4980.00 MHz



1000.00 - 17983.00 MHz												
Num	**Frequency MHz**	**Raw dBm**	**Cable Loss dB**	**AF dB/m**	**Level dBm**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBm**	**Margin dB**	**Pass /Fail**
1	2751.00	-50.79	-1.12	50.72	-49.56	MaxP	Horizontal	150	30	-30.0	-19.6	Pass
2	2785.00	-52.23	-1.12	50.86	-51.04	MaxP	Horizontal	150	30	-30.0	-21.0	Pass
3	2989.00	-51.72	-1.17	51.08	-51.38	MaxP	Horizontal	150	30	-30.0	-21.4	Pass
4	3125.00	-52.38	-1.19	51.34	-50.59	MaxP	Horizontal	200	60	-30.0	-20.6	Pass
5	4978.00	-43.81	-1.79	56.22	-42.26	MaxP	Vertical	200	29	-30.0	-12.3	Pass

Test Notes: 4980MHz, Power Setting: 25

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

9.7.2 Receiver Radiated Spurious Emissions

Radiated Spurious Emissionsa			
Standard:	RSS-Gen	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Receiver Radiated Emissions	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	4.10, 6	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Receiver Radiated Spurious Emissions

RSS-Gen §4.10 the search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g.. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least 3 times the highest tunable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.
For emissions below 1000 MHz, measurements shall be performed using a CISPR quasi-peak detector and the related measurement bandwidth. As an alternative to CISPR quasi-peak measurement, compliance with the emission limit can be demonstrated using measuring equipment employing a peak detector function properly adjusted for factors such as pulse desensitization as required, with an equal or greater measurement bandwidth relative to the applicable CISPR quasi-peak bandwidth.
Above 1000 MHz, measurements shall be performed using an average detector with a minimum resolution bandwidth of 1 MHz.

RSS-Gen §6 Receiver Spurious Radiated Limits
Spurious emissions from receivers shall not exceed the radiated limits shown in the table below:

RSS-Gen Spurious Emissions Limits

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Test Procedure
Measurements were made while EUT was operating in a receiver mode of operation. Radiated Receiver emissions were measured to 40 GHz. .

The measurement equipment was set to measure in peak hold mode. The emissions were 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.

The highest emissions relative to the limit are listed for each frequency spanned.
Measurements below 1 GHz utilized 100 KHz RBW, measurements above 1 GHz were performed using a minimum RBW of 1 MHz.

Emission measurements were performed to the 10th harmonic of the transmitter. No emissions were found.

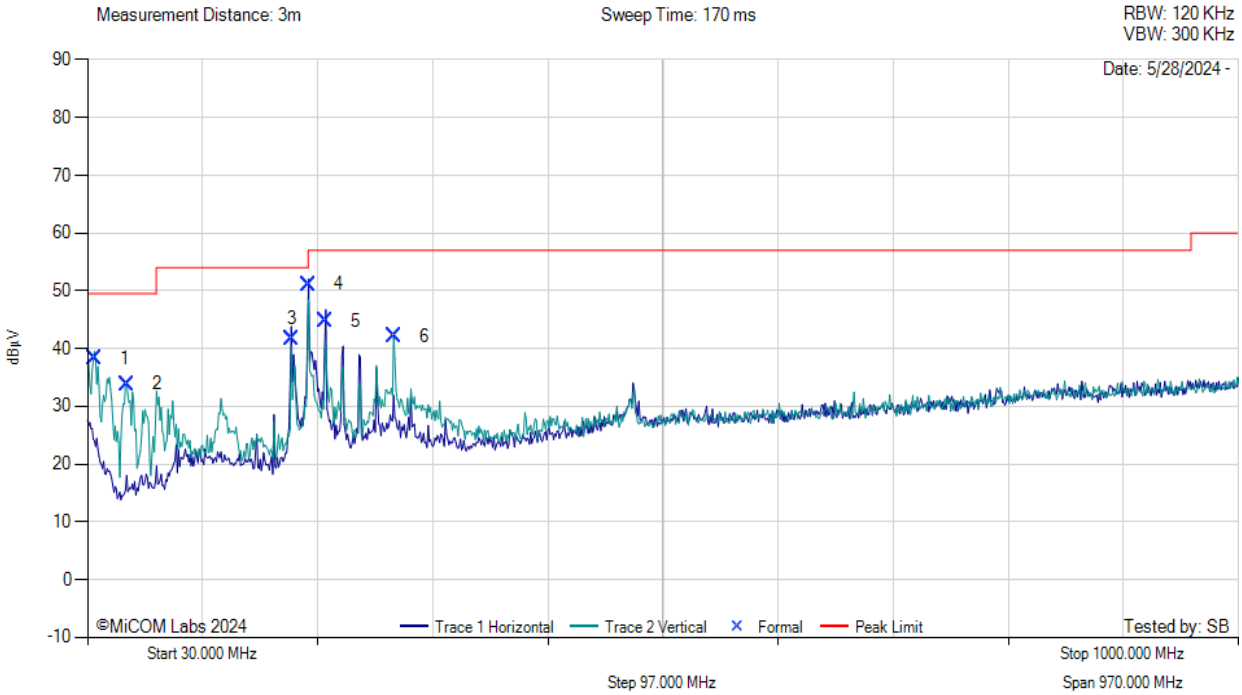
Equipment Configuration for 0.03 - 1 GHz

Antenna:	50 Ohm Term	**Variant:**	20MHz
Antenna Gain (dBi):	--	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	4965.00	**Data Rate:**	8 Mbit/s
Power Setting:	25.0	**Tested By:**	SB

Test Measurement Results

30 MHz to 1 GHz

Test Freq: 4965.00 MHz



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	36.13	42.92	3.58	-8.12	38.38	MaxQP	Vertical	104	140	49.5	-11.1	Pass
2	62.77	47.40	3.83	-17.36	33.86	MaxQP	Vertical	119	278	49.5	-15.6	Pass
3	202.06	49.84	4.60	-12.72	41.72	MaxQP	Horizontal	99	215	54.0	-12.3	Pass
4	216.37	60.05	4.65	-13.61	51.10	MaxQP	Horizontal	99	261	57.0	-5.9	Pass
5	230.69	53.31	4.71	-13.20	44.82	MaxQP	Horizontal	103	264	57.0	-12.2	Pass
6	288.47	48.51	4.95	-11.35	42.10	MaxQP	Vertical	131	133	57.0	-14.9	Pass

Test Notes: 4965MHz, Power Setting 25.0

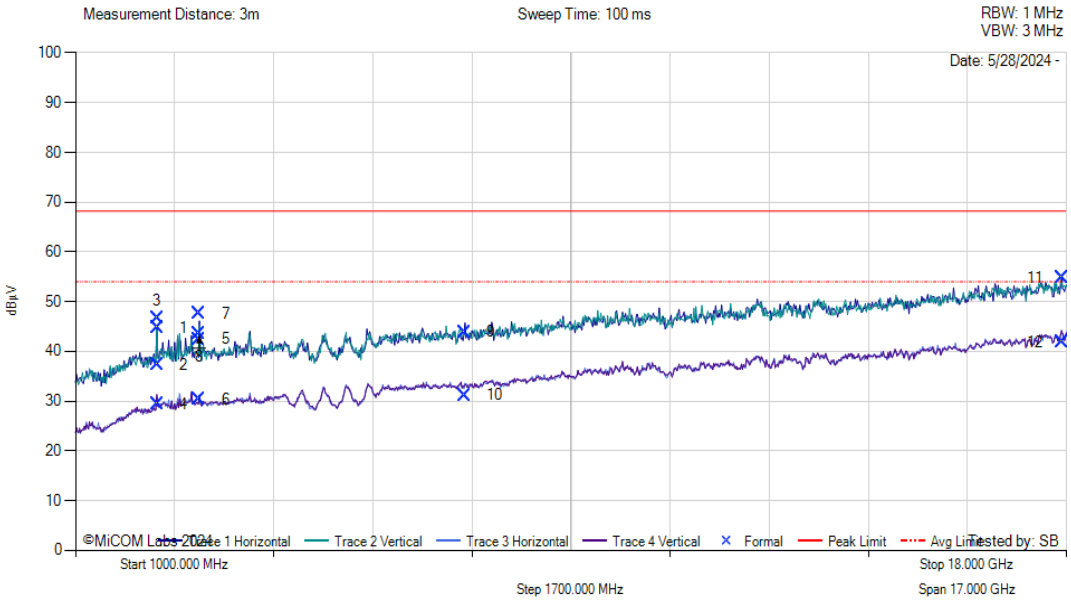
Equipment Configuration for 1-18 GHz

Antenna:	50 Ohm Term	**Variant:**	20MHz
Antenna Gain (dBi):	--	**Modulation:**	OFDM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	99
Channel Frequency (MHz):	4965.00	**Data Rate:**	8 Mbit/s
Power Setting:	25.0	**Tested By:**	SB

Test Measurement Results

1 GHz to 18 GHz

Test Freq: 4965.00 MHz



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	2400.06	54.89	1.96	-12.14	44.71	MaxP	Vertical	141	321	68.2	-23.5	Pass
2	2400.06	47.53	1.96	-12.14	37.35	AVG	Vertical	141	321	54.0	-16.6	Pass
3	2400.79	56.82	1.96	-12.13	46.65	MaxP	Horizontal	115	326	68.2	-21.6	Pass
4	2400.79	39.52	1.96	-12.13	29.35	AVG	Horizontal	115	326	54.0	-24.7	Pass
5	3124.50	51.44	2.23	-11.23	42.44	MaxP	Vertical	100	299	68.2	-25.8	Pass
6	3124.50	39.37	2.23	-11.23	30.37	AVG	Vertical	100	299	54.0	-23.6	Pass
7	3125.06	56.60	2.23	-11.23	47.61	MaxP	Horizontal	136	48	68.2	-20.6	Pass
8	3125.06	52.53	2.23	-11.23	43.54	AVG	Horizontal	136	48	54.0	-10.5	Pass
9	7680.38	47.87	3.81	-7.82	43.86	MaxP	Horizontal	141	91	68.2	-24.4	Pass
10	7680.38	35.21	3.81	-7.82	31.20	AVG	Horizontal	141	91	54.0	-22.8	Pass
11	17914.40	46.80	6.69	1.28	54.77	MaxP	Horizontal	108	27	68.2	-13.5	Pass
12	17914.40	33.92	6.69	1.28	41.89	AVG	Horizontal	108	27	54.0	-12.1	Pass

Test Notes: 4965MHz, Power Setting 25.0

10. DECLARATION OF SIMILARITY

RADWIN 2000 EC00, RADWIN 2000 EI00, RADWIN 2000 E CON EC00, RADWIN 2000 E INT EI00

RADWIN

DECLARATION OF SIMILARITY

We, RADWIN Ltd., hereby declare that RADWIN 2000 EC00 is identical to RADWIN 2000 EI00, RADWIN E CON EC00 and RADWIN E INT EI00 in all radio parameters.

1. RADWIN 2000 EC00 and RADWIN 2000 E CON EC00 - Connectorized form factor with N-Type connectors for external antennas
2. RADWIN 2000 EI00 and RADWIN 2000 E INT EI00 - Integrated antenna form factor

Signature:

Printed Name: Shlomo Weiss

Title: Standardization Officer

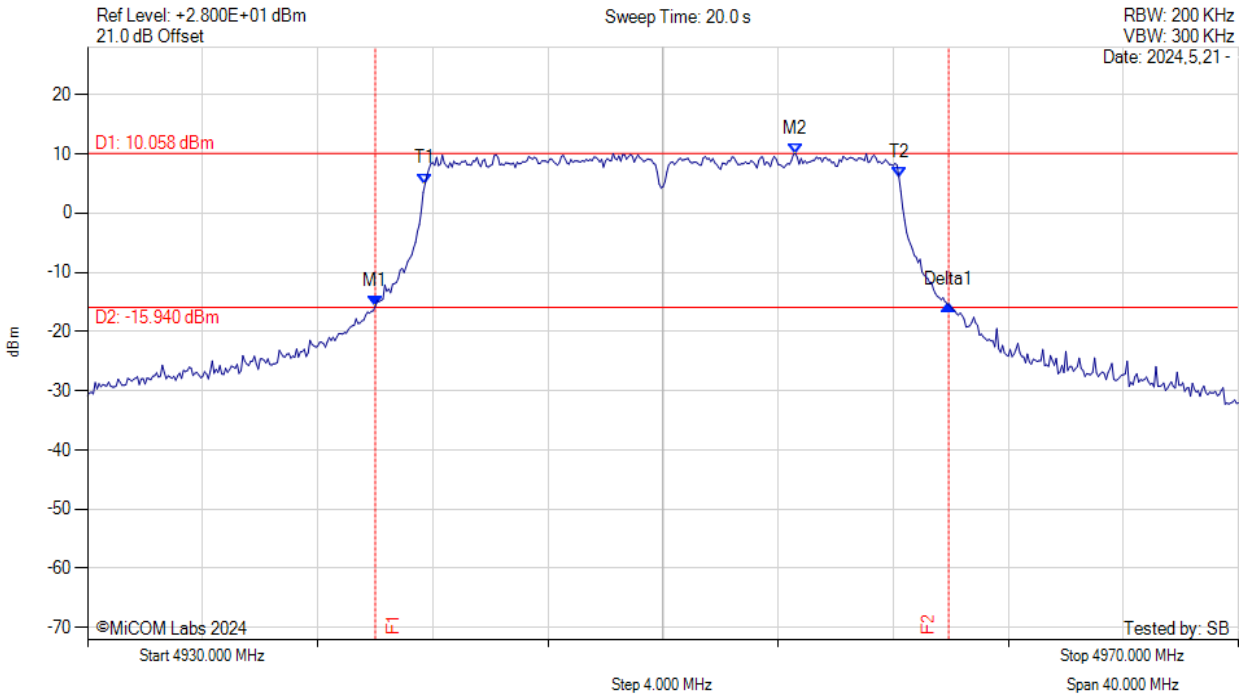
Company Name: RADWIN Ltd.

A. APPENDIX - GRAPHICAL IMAGES

A.1. 26 dB & 99% Bandwidth

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 4950.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

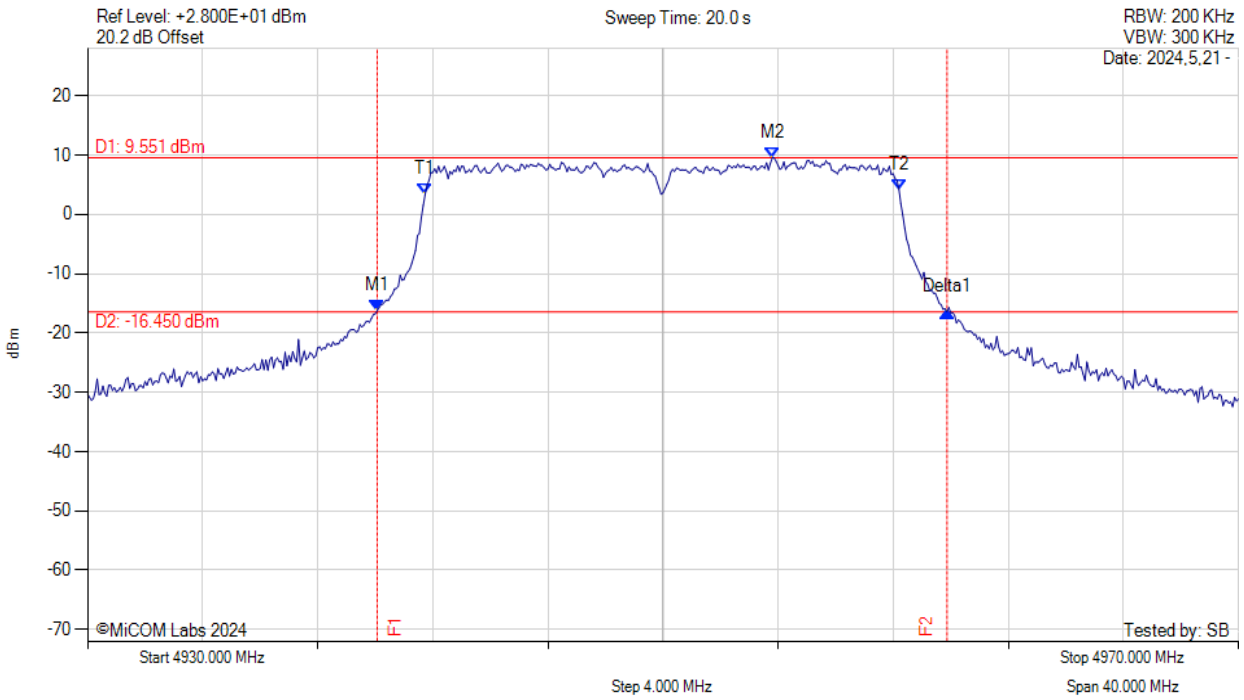


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4940.000 MHz : -15.763 dBm M2 : 4954.600 MHz : 10.058 dBm Delta1 : 19.930 MHz : 0.274 dB T1 : 4941.733 MHz : 4.958 dBm T2 : 4958.200 MHz : 6.057 dBm OBW : 16.438 MHz	Measured 26 dB Bandwidth: 19.930 MHz Measured 99% Bandwidth: 16.438 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 4950.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

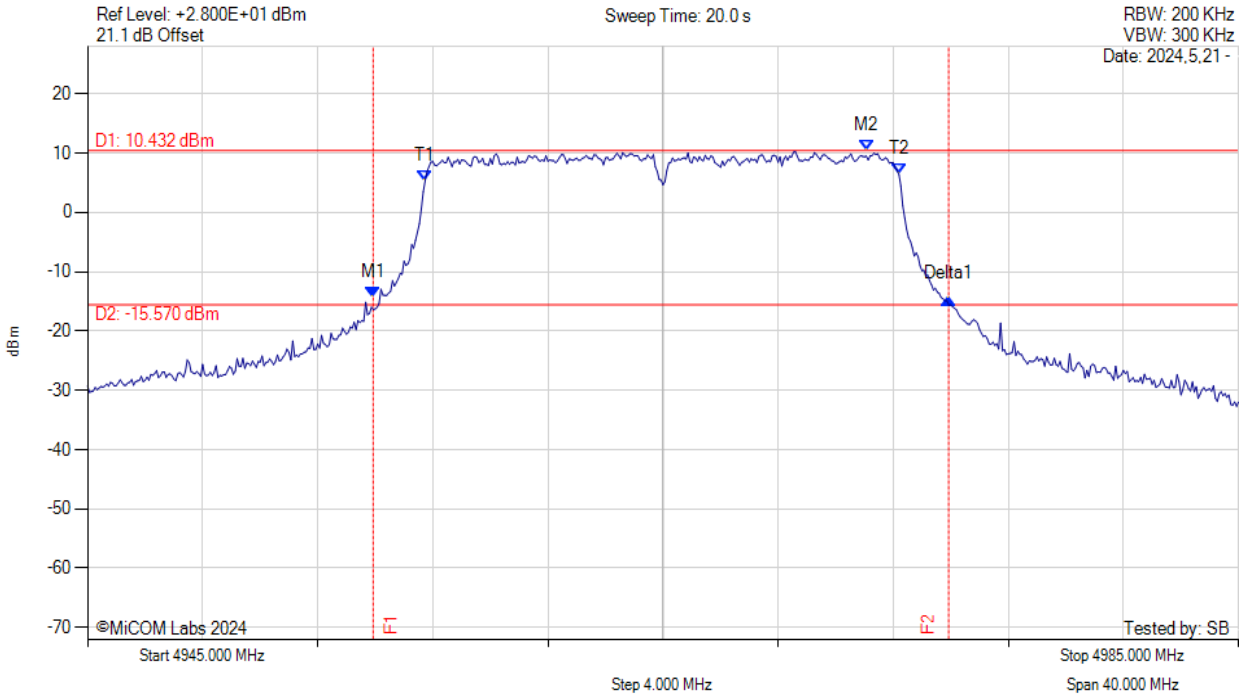


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4940.070 MHz : -16.238 dBm M2 : 4953.800 MHz : 9.551 dBm Delta1 : 19.800 MHz : -0.129 dB T1 : 4941.733 MHz : 3.338 dBm T2 : 4958.200 MHz : 4.217 dBm OBW : 16.411 MHz	Measured 26 dB Bandwidth: 19.800 MHz Measured 99% Bandwidth: 16.411 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

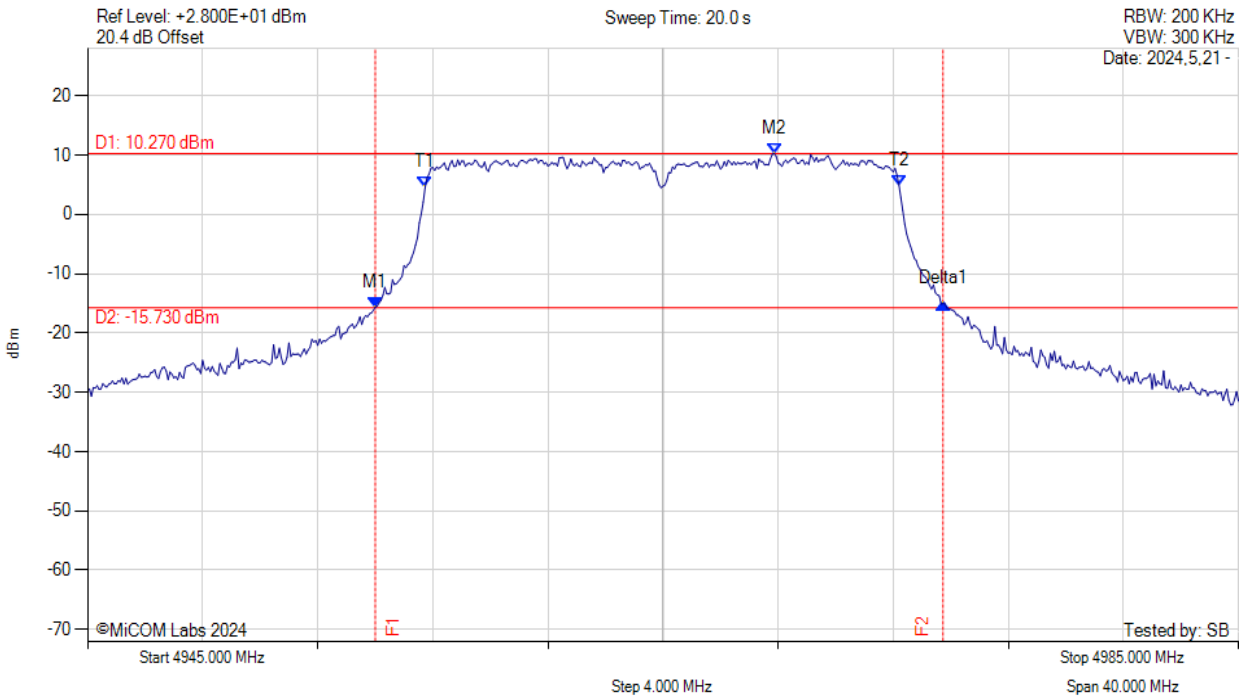


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4954.930 MHz : -14.280 dBm M2 : 4972.070 MHz : 10.432 dBm Delta1 : 20.000 MHz : -0.359 dB T1 : 4956.733 MHz : 5.302 dBm T2 : 4973.200 MHz : 6.395 dBm	Measured 26 dB Bandwidth: 20.000 MHz Measured 99% Bandwidth: 16.420 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

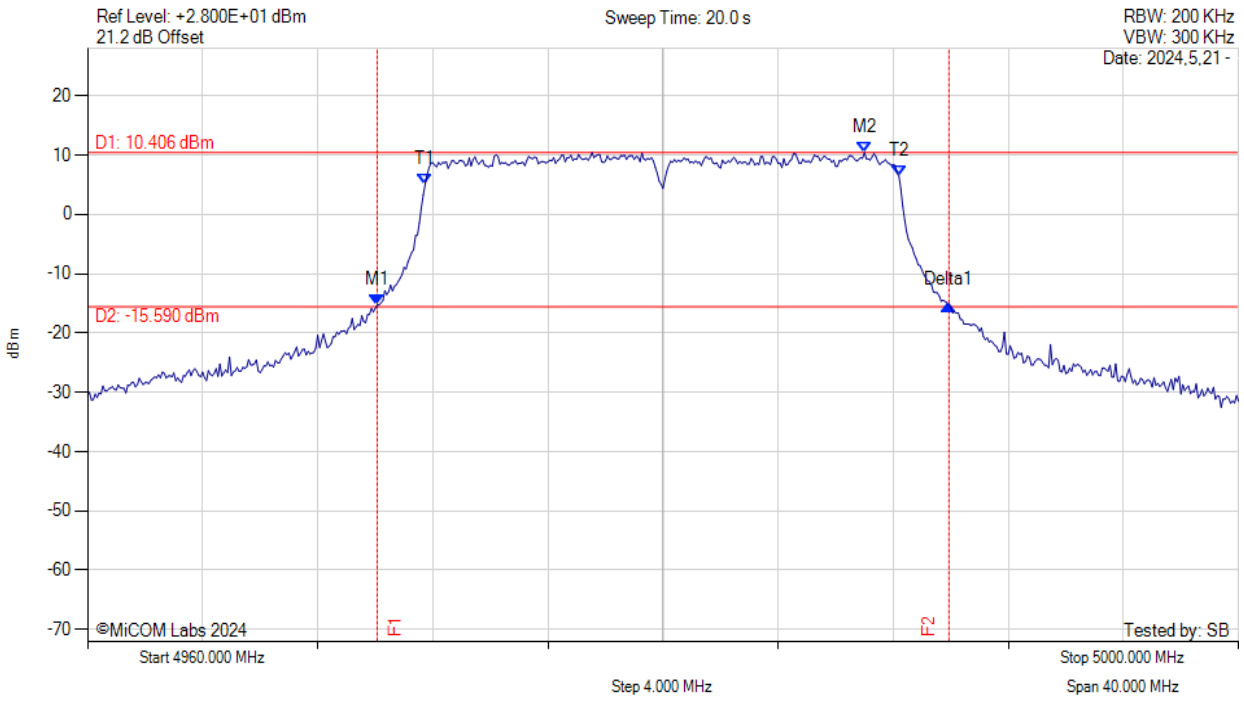


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4955.000 MHz : -15.638 dBm M2 : 4968.870 MHz : 10.270 dBm Delta1 : 19.730 MHz : 0.584 dB T1 : 4956.733 MHz : 4.522 dBm T2 : 4973.200 MHz : 4.934 dBm OBW : 16.420 MHz	Measured 26 dB Bandwidth: 19.730 MHz Measured 99% Bandwidth: 16.420 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 4980.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

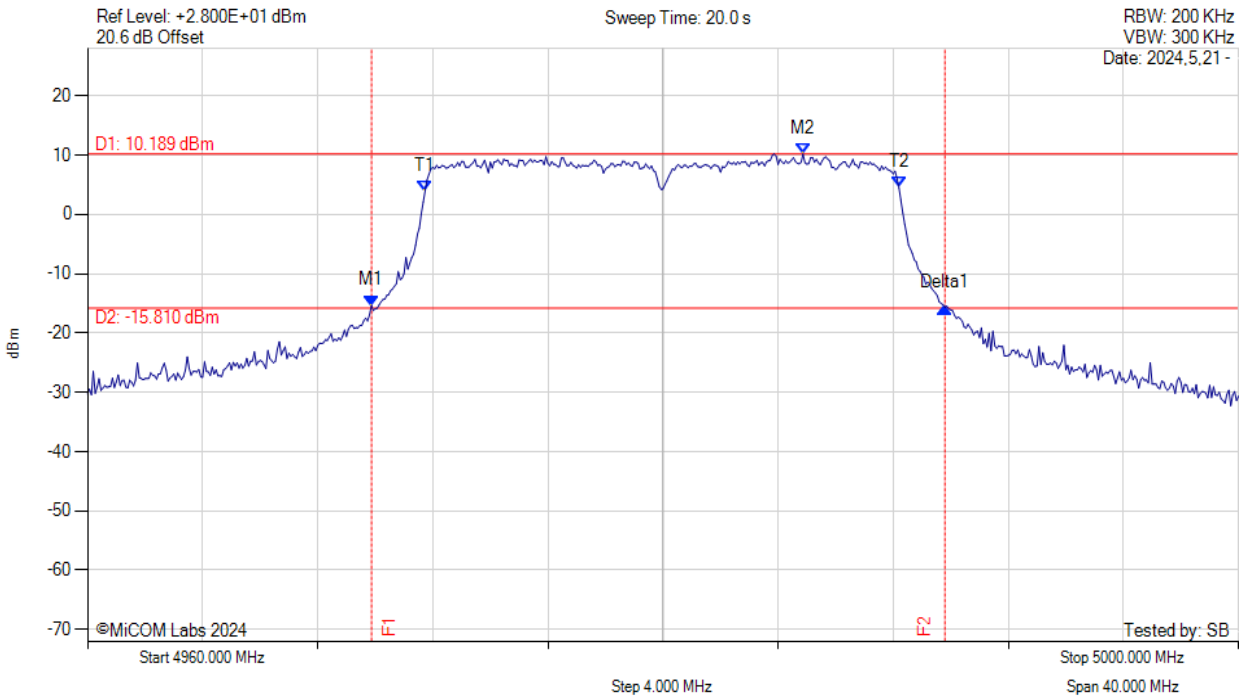


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4970.070 MHz : -15.271 dBm M2 : 4987.000 MHz : 10.406 dBm Delta1 : 19.870 MHz : -0.063 dB T1 : 4971.733 MHz : 5.000 dBm T2 : 4988.200 MHz : 6.456 dBm OBW : 16.432 MHz	Measured 26 dB Bandwidth: 19.870 MHz Measured 99% Bandwidth: 16.432 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 20MHz, Channel: 4980.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

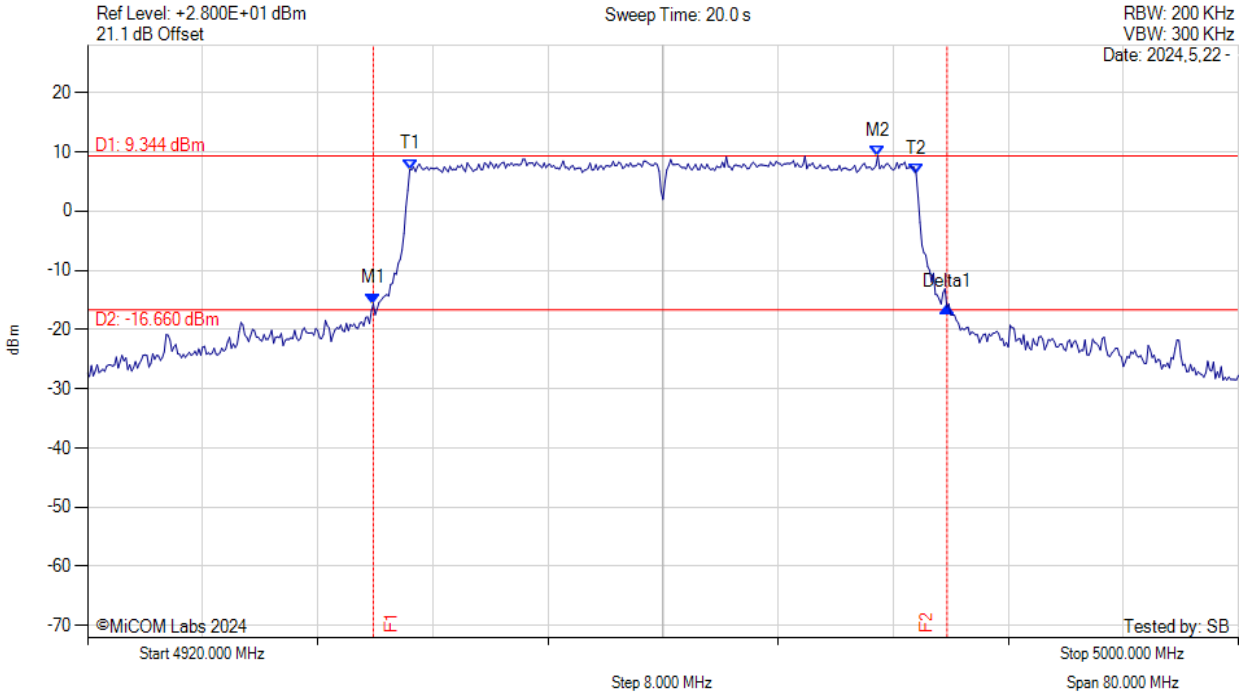


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4969.870 MHz : -15.395 dBm M2 : 4984.870 MHz : 10.189 dBm Delta1 : 19.930 MHz : -0.312 dB T1 : 4971.733 MHz : 3.967 dBm T2 : 4988.200 MHz : 4.510 dBm OBW : 16.403 MHz	Measured 26 dB Bandwidth: 19.930 MHz Measured 99% Bandwidth: 16.403 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 4960.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

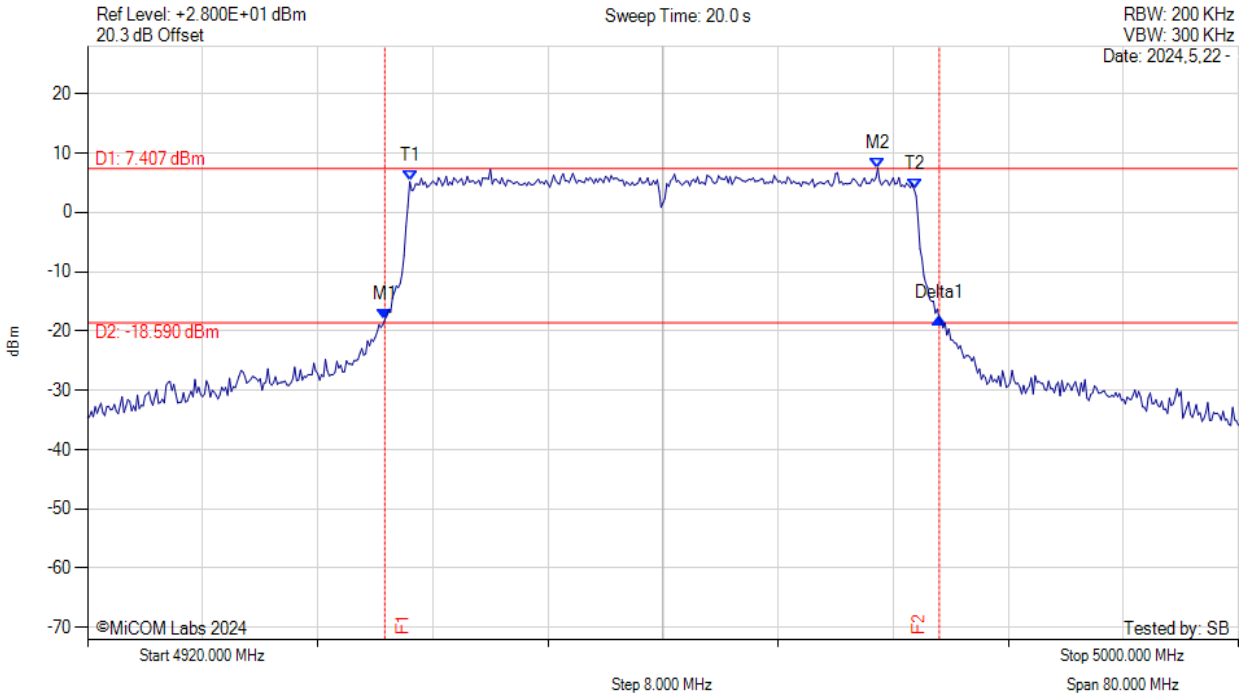


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4939.870 MHz : -15.610 dBm M2 : 4974.930 MHz : 9.344 dBm Delta1 : 39.870 MHz : -0.645 dB T1 : 4942.400 MHz : 7.054 dBm T2 : 4977.600 MHz : 6.175 dBm OBW : 35.130 MHz	Measured 26 dB Bandwidth: 39.870 MHz Measured 99% Bandwidth: 35.130 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 4960.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

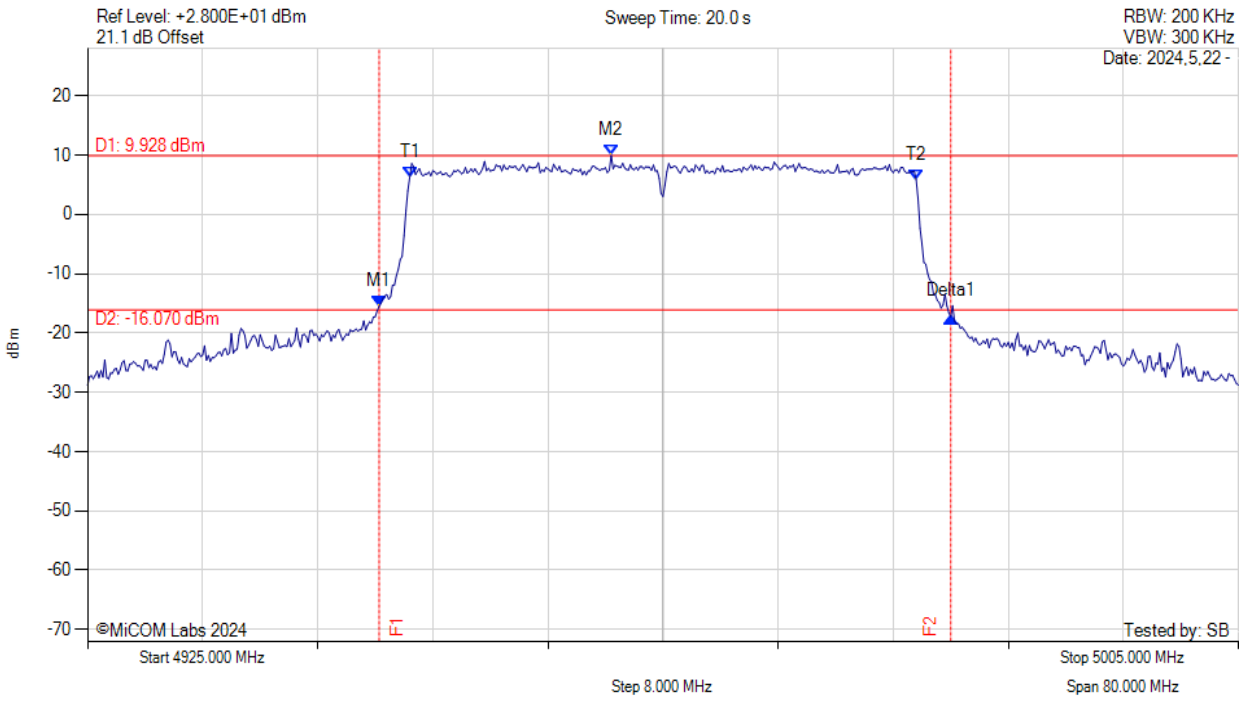


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4940.670 MHz : -18.098 dBm M2 : 4974.930 MHz : 7.407 dBm Delta1 : 38.530 MHz : 0.275 dB T1 : 4942.400 MHz : 5.202 dBm T2 : 4977.467 MHz : 3.806 dBm OBW : 35.031 MHz	Measured 26 dB Bandwidth: 38.530 MHz Measured 99% Bandwidth: 35.031 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

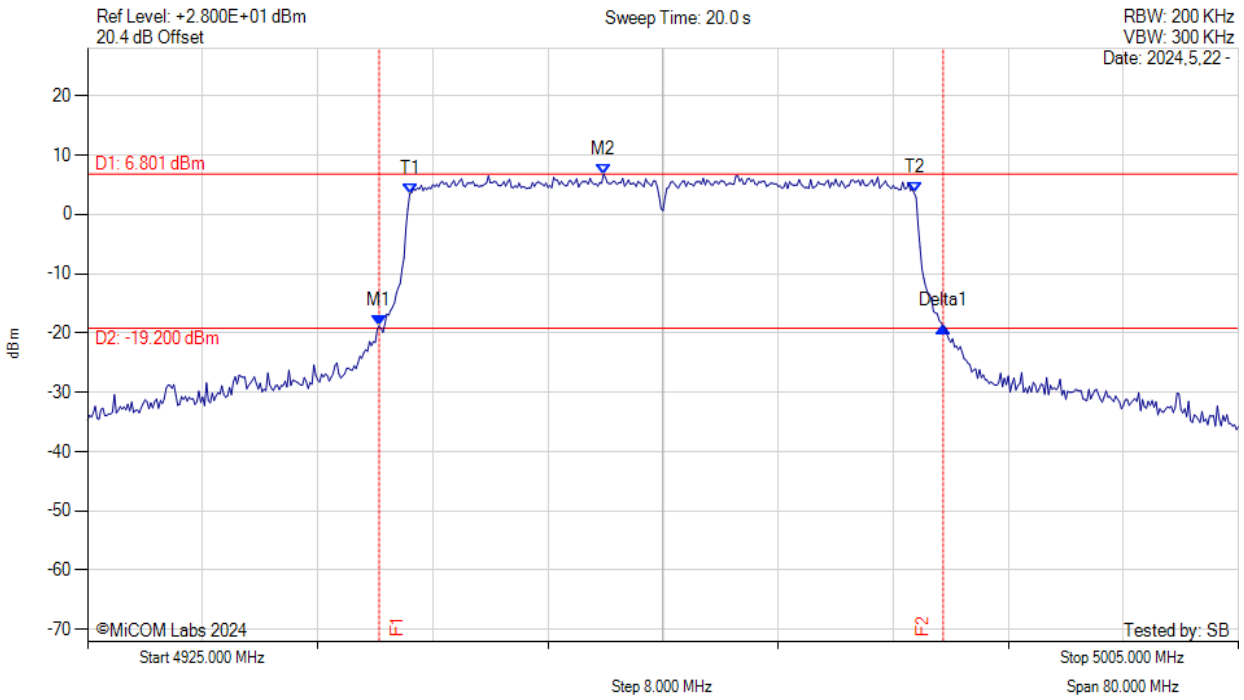


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4945.270 MHz : -15.533 dBm M2 : 4961.400 MHz : 9.928 dBm Delta1 : 39.730 MHz : -1.705 dB T1 : 4947.400 MHz : 6.331 dBm T2 : 4982.600 MHz : 5.778 dBm OBW : 35.112 MHz	Measured 26 dB Bandwidth: 39.730 MHz Measured 99% Bandwidth: 35.112 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

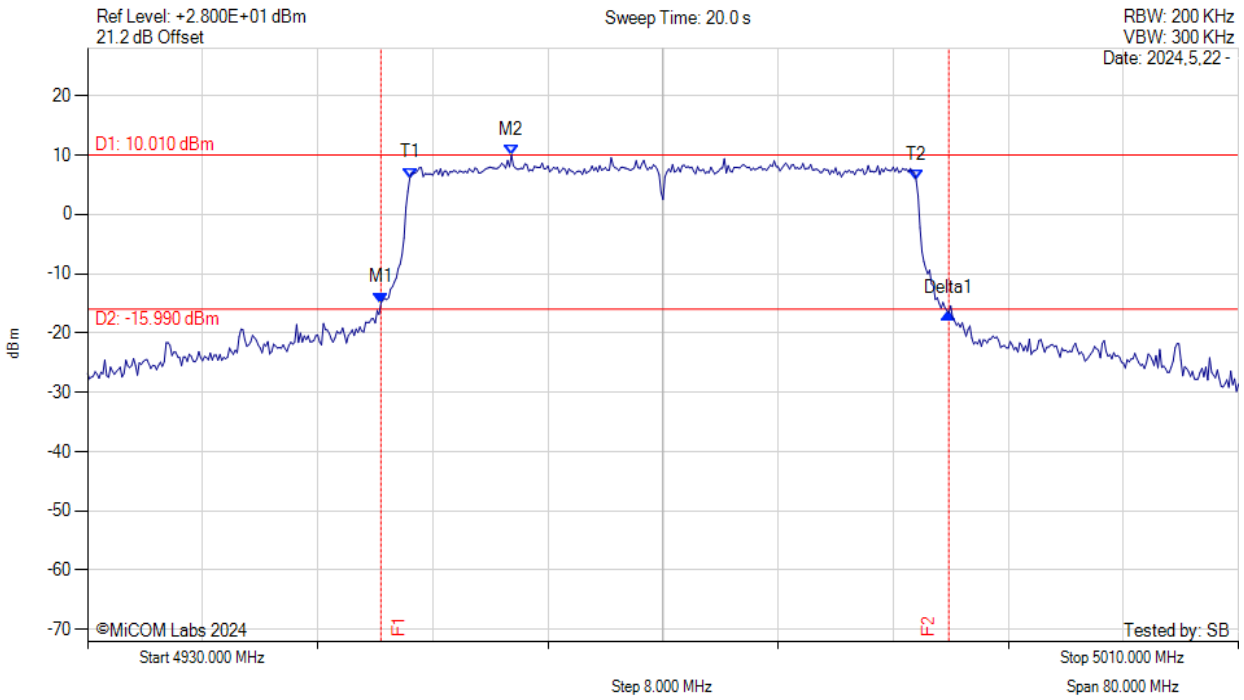


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4945.270 MHz : -18.803 dBm M2 : 4960.870 MHz : 6.801 dBm Delta1 : 39.200 MHz : -0.078 dB T1 : 4947.400 MHz : 3.525 dBm T2 : 4982.467 MHz : 3.606 dBm OBW : 35.003 MHz	Measured 26 dB Bandwidth: 39.200 MHz Measured 99% Bandwidth: 35.003 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 4970.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

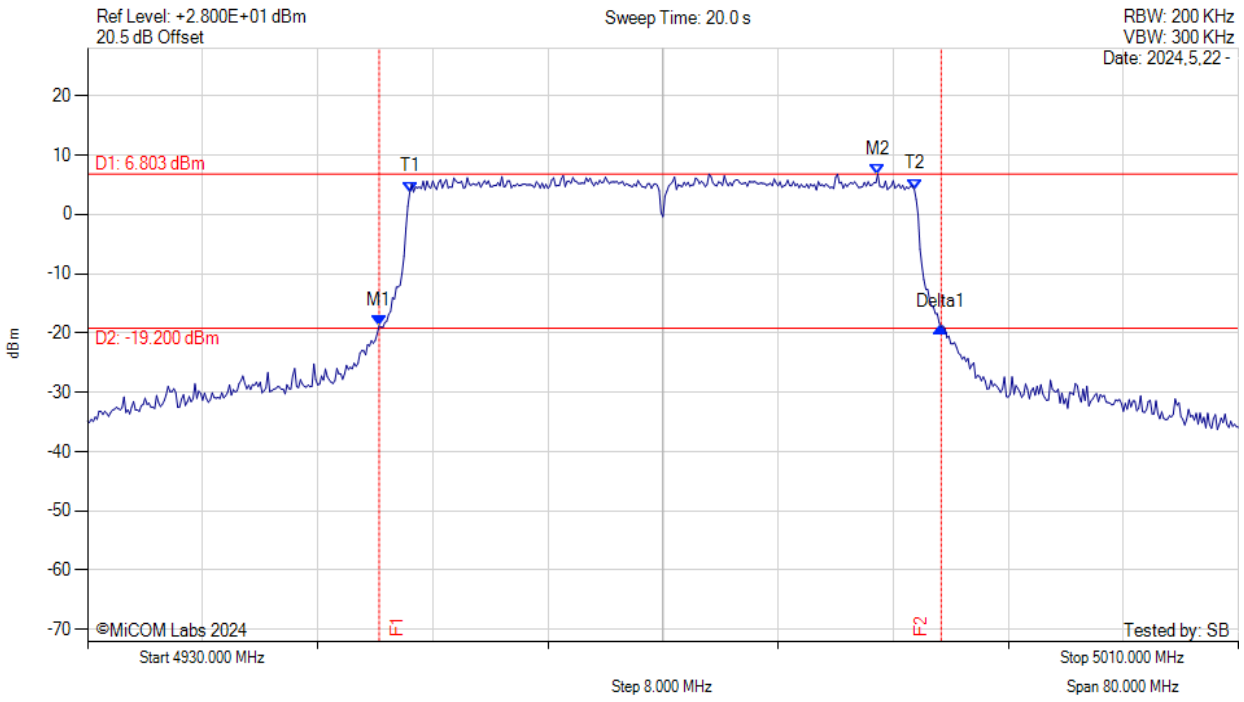


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4950.400 MHz : -14.911 dBm M2 : 4959.470 MHz : 10.010 dBm Delta1 : 39.470 MHz : -1.730 dB T1 : 4952.400 MHz : 6.123 dBm T2 : 4987.600 MHz : 5.693 dBm OBW : 35.108 MHz	Measured 26 dB Bandwidth: 39.470 MHz Measured 99% Bandwidth: 35.108 MHz

back to matrix

26 dB & 99% BANDWIDTH

Variant: 40MHz, Channel: 4970.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



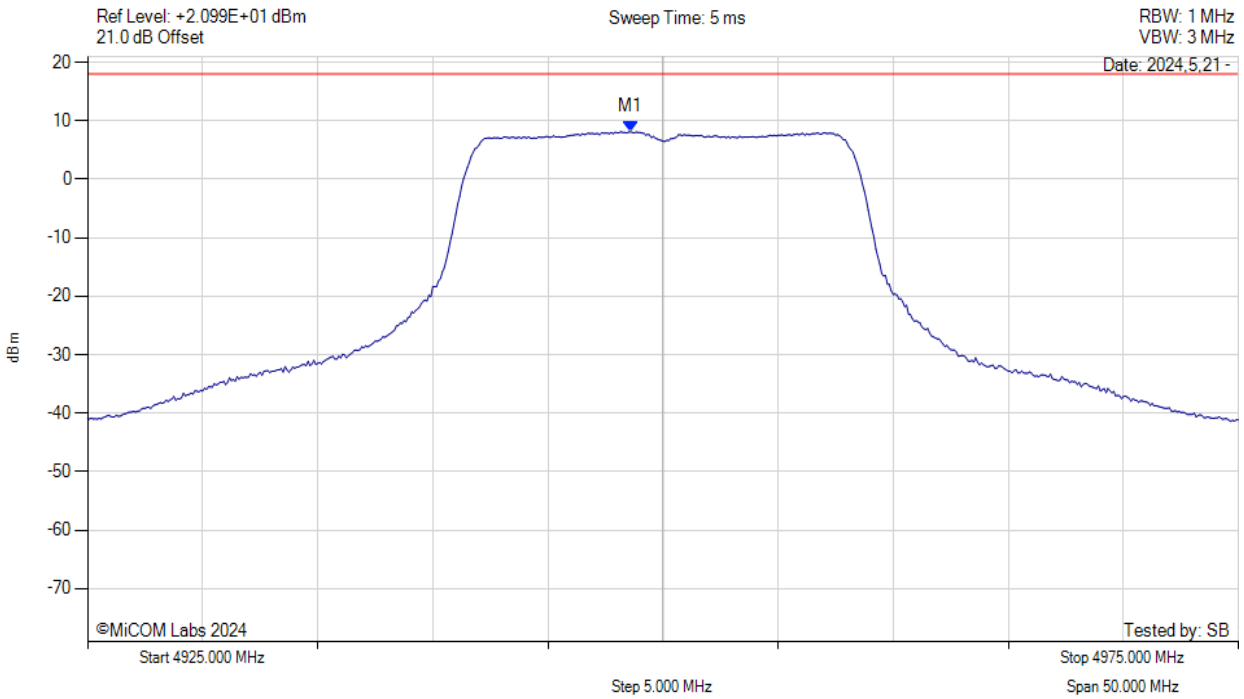
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAXH	M1 : 4950.270 MHz : -18.793 dBm M2 : 4984.930 MHz : 6.803 dBm Delta1 : 39.070 MHz : -0.167 dB T1 : 4952.400 MHz : 3.769 dBm T2 : 4987.467 MHz : 4.238 dBm OBW : 35.030 MHz	Measured 26 dB Bandwidth: 39.070 MHz Measured 99% Bandwidth: 35.030 MHz

back to matrix

A.2. Power Spectral Density

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4950.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

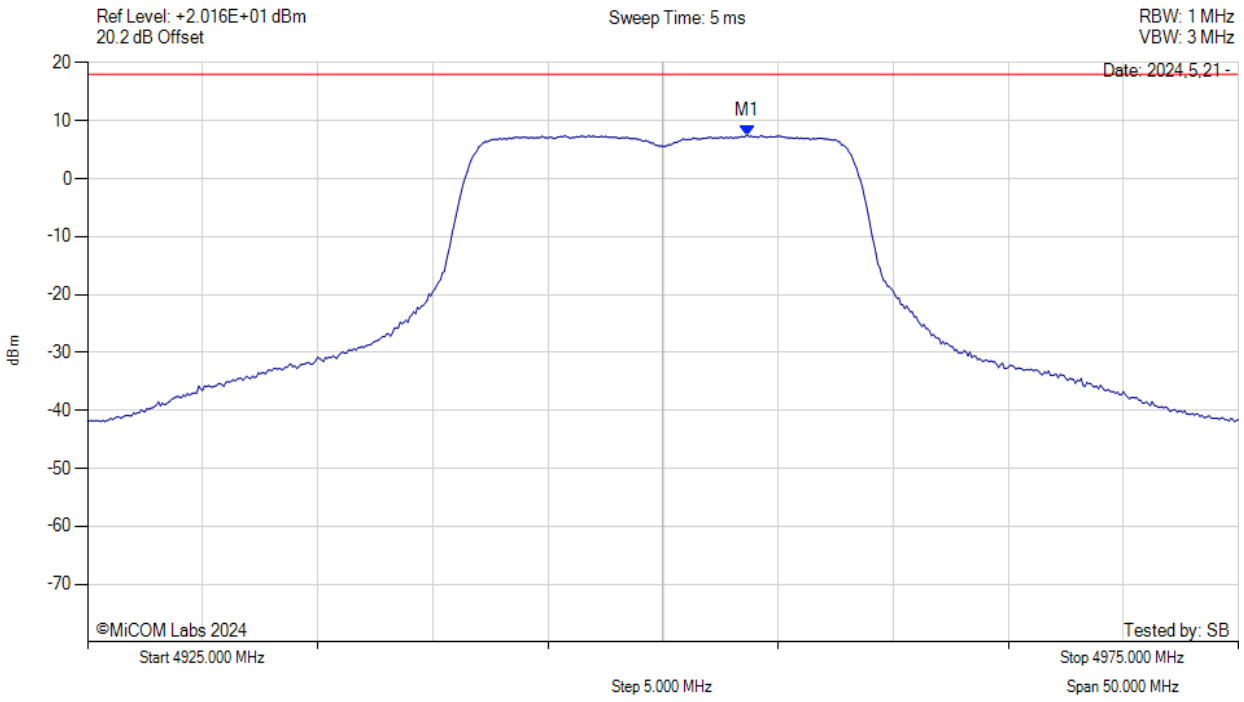


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4948.580 MHz : 8.122 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4950.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

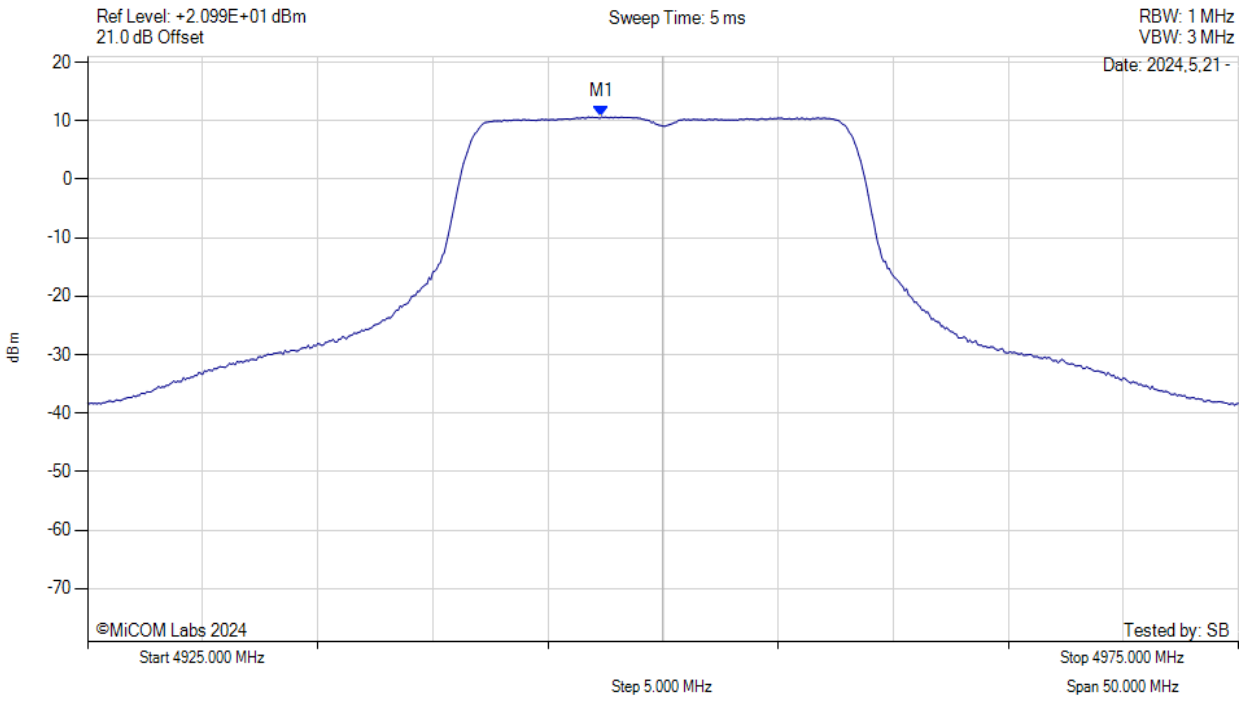


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4953.670 MHz : 7.490 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4950.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

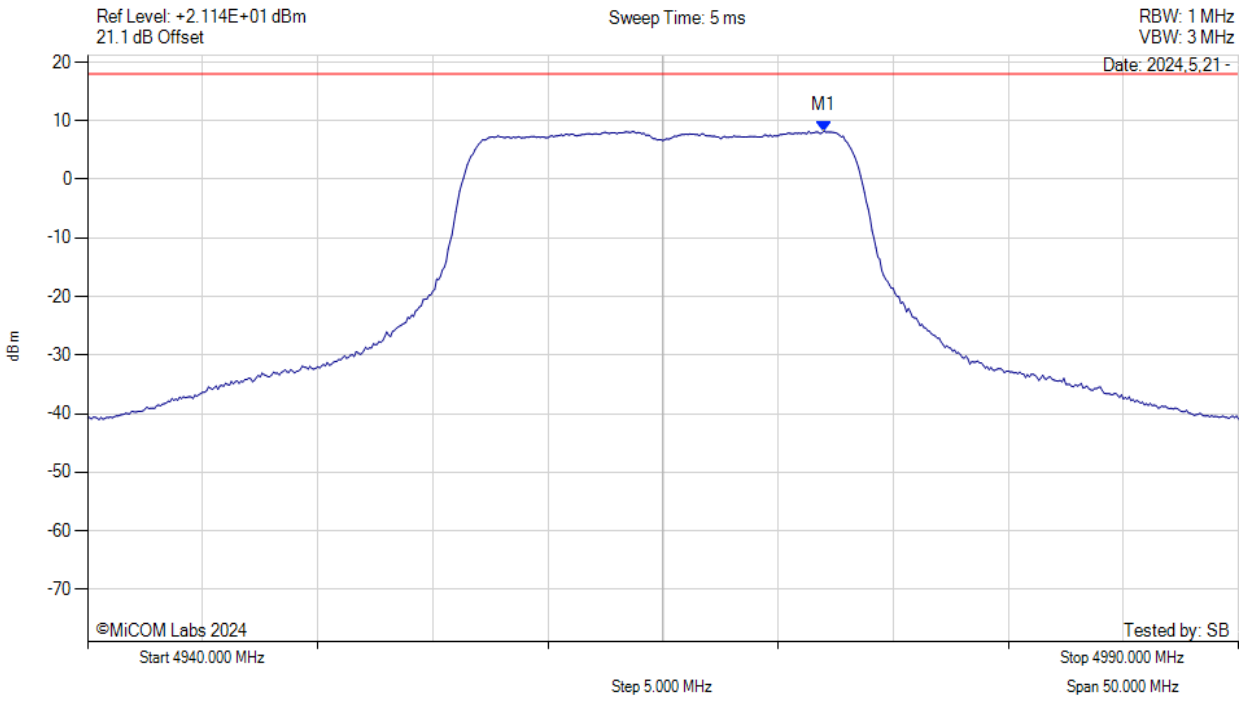


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4947.300 MHz : 10.659 dBm M1 + DCCF : 4947.300 MHz : 10.703 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 21.0 dBm Margin: -10.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

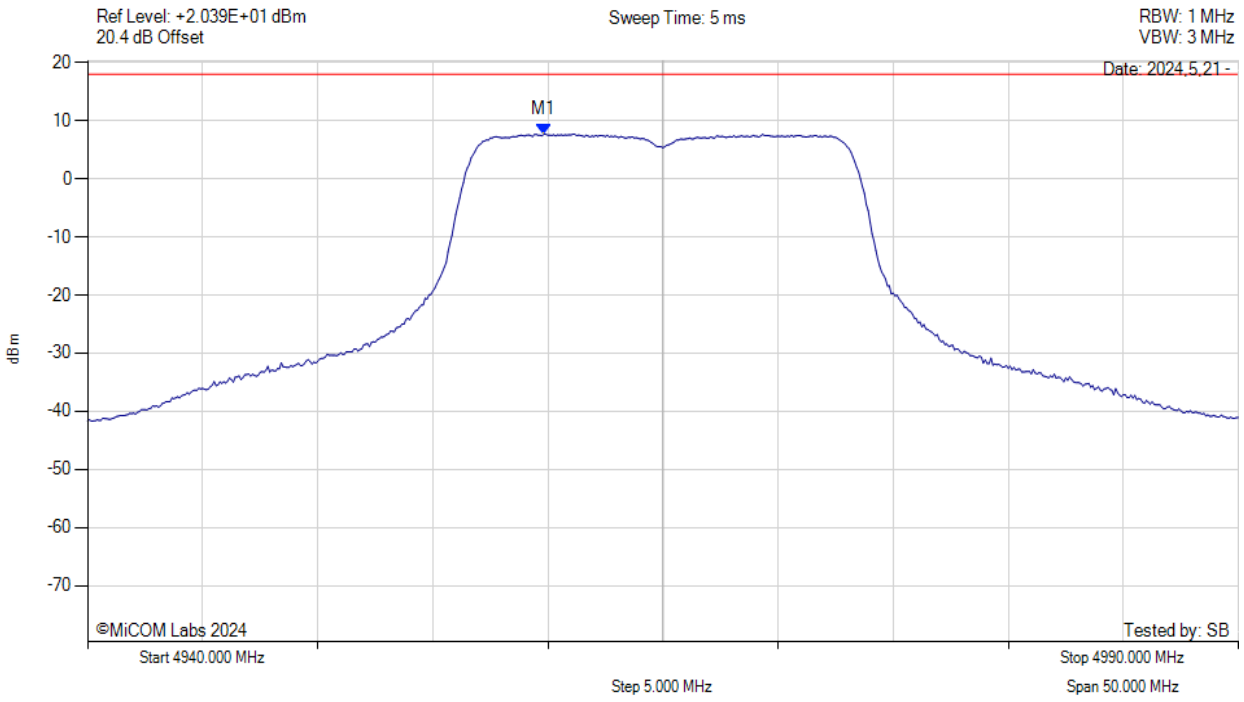


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.000 MHz : 8.263 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

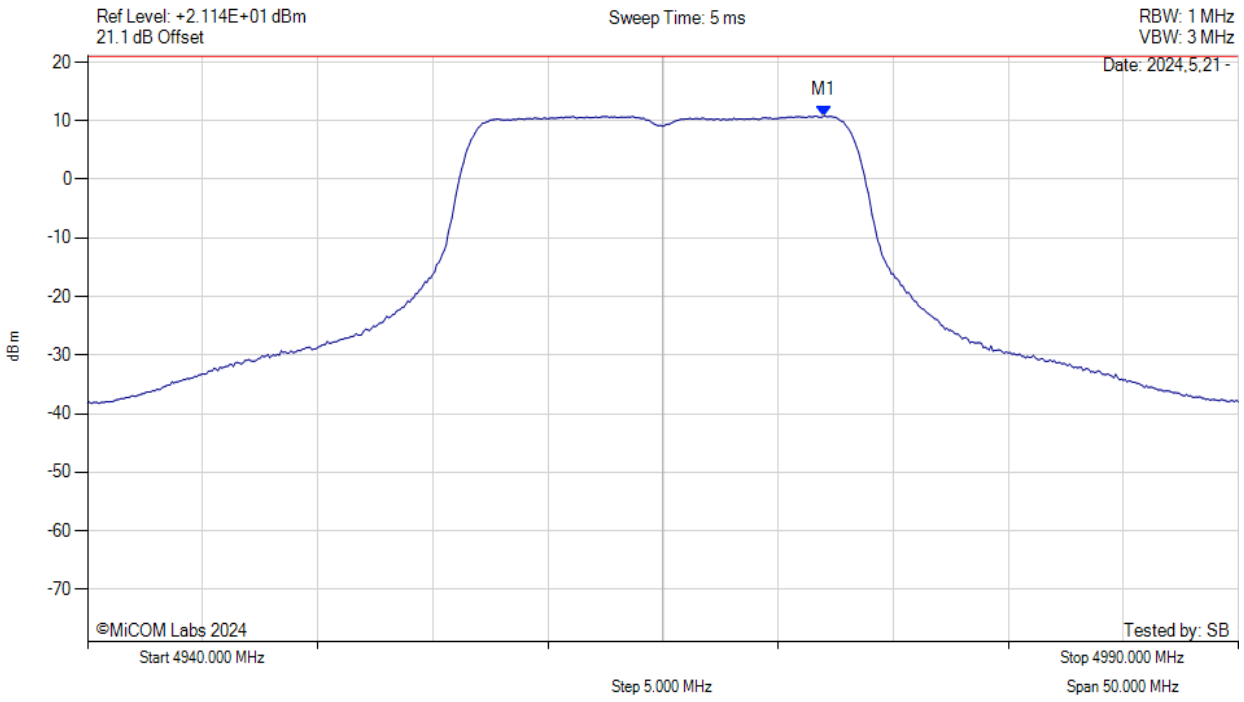


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4959.830 MHz : 7.711 dBm	Channel Frequency: 4965.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4965.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

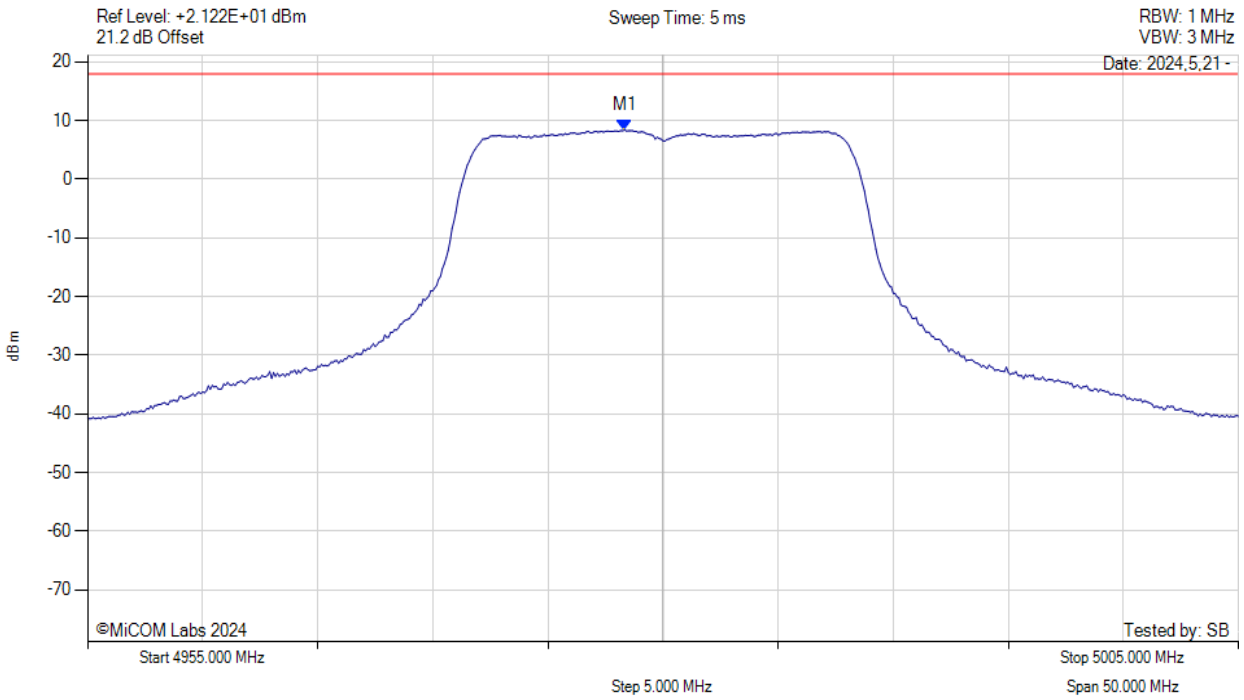


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.000 MHz : 10.847 dBm M1 + DCCF : 4972.000 MHz : 10.891 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 21.0 dBm Margin: -10.1 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4980.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

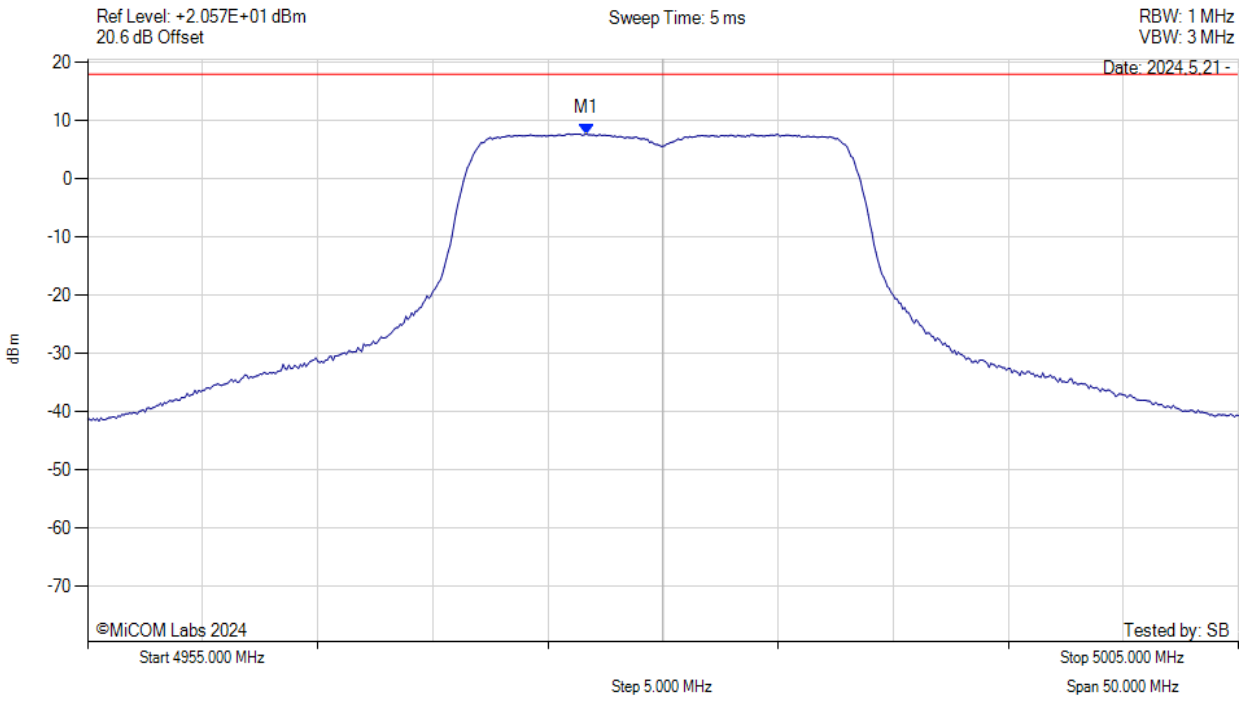


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4978.330 MHz : 8.439 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4980.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

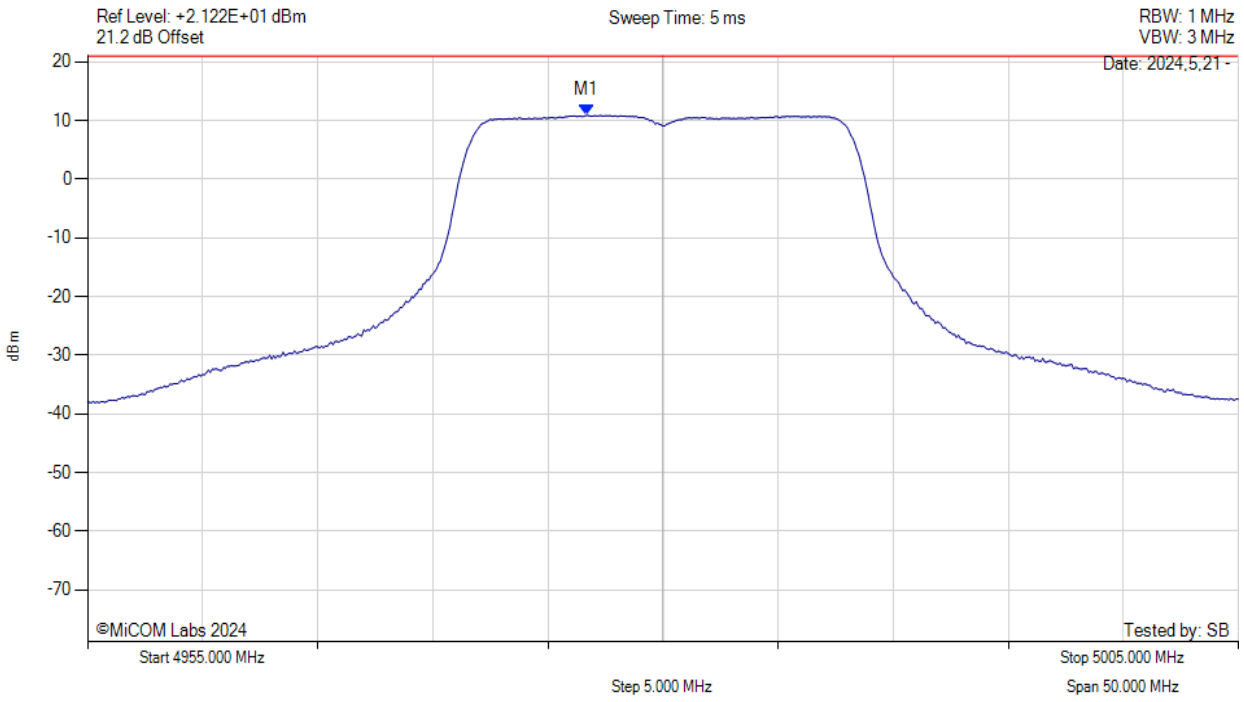


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4976.670 MHz : 7.747 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz, Channel: 4980.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

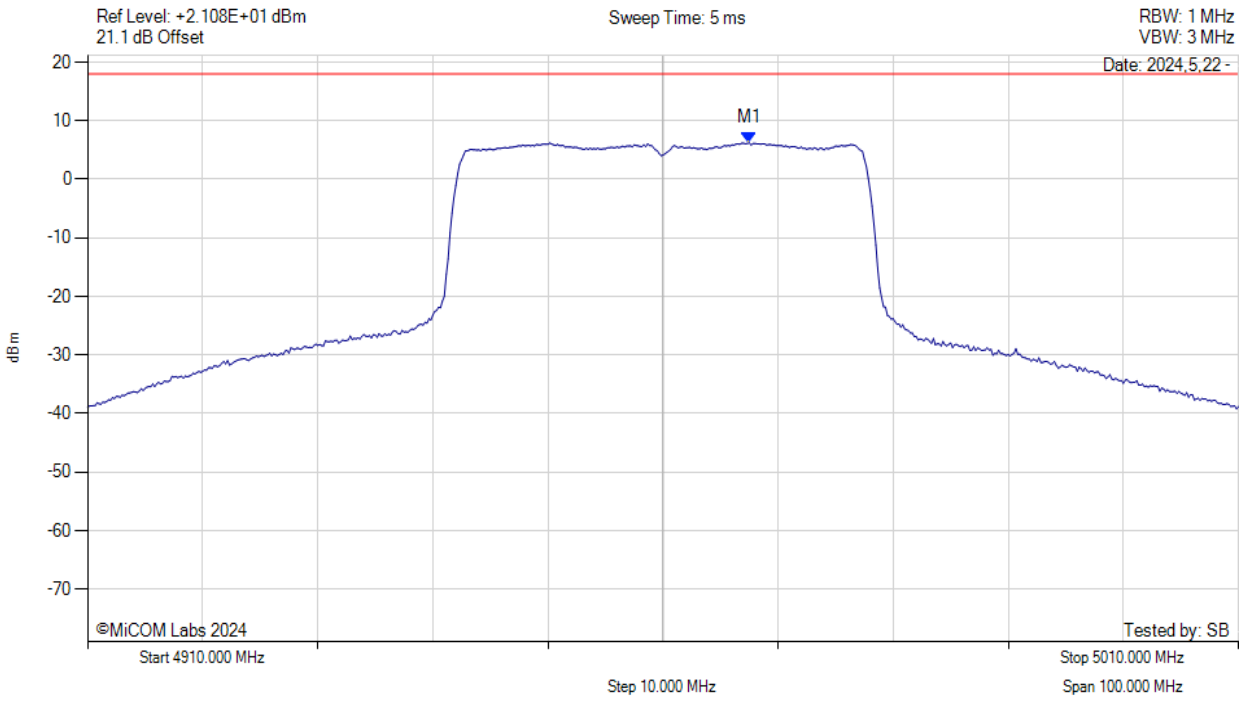


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4976.700 MHz : 10.925 dBm M1 + DCCF : 4976.700 MHz : 10.969 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 21.0 dBm Margin: -10.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4960.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

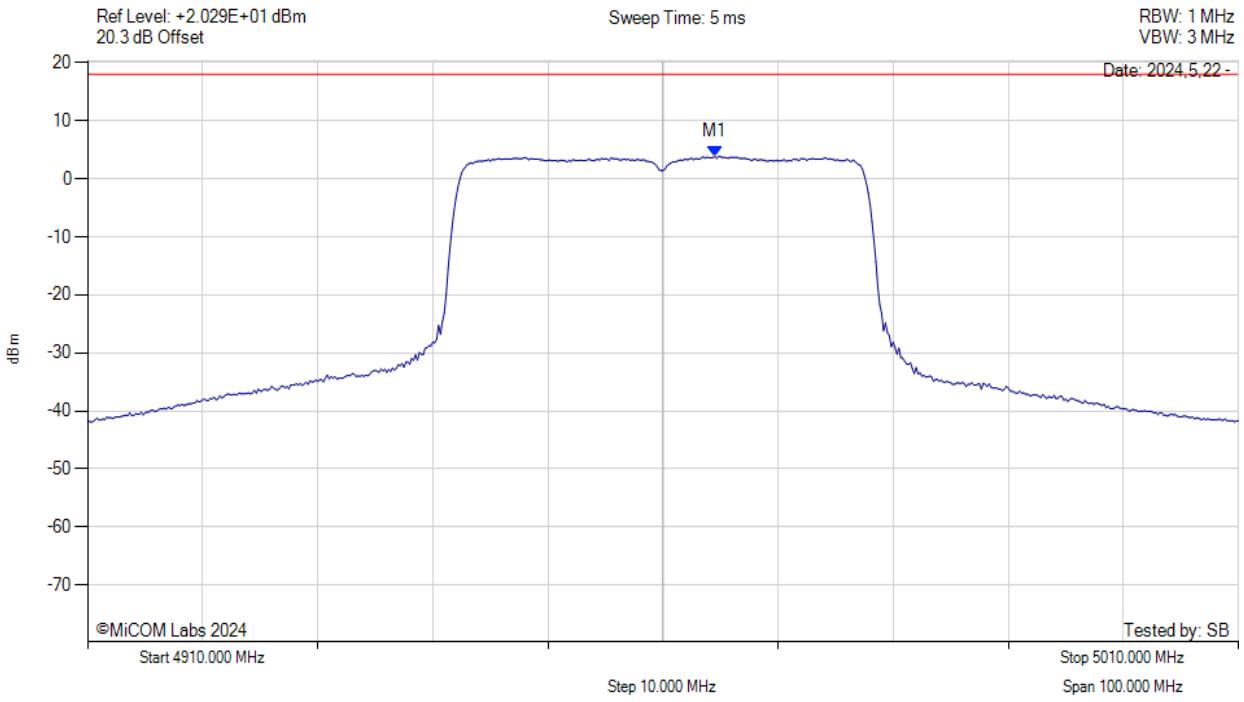


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4967.500 MHz : 6.217 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4960.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

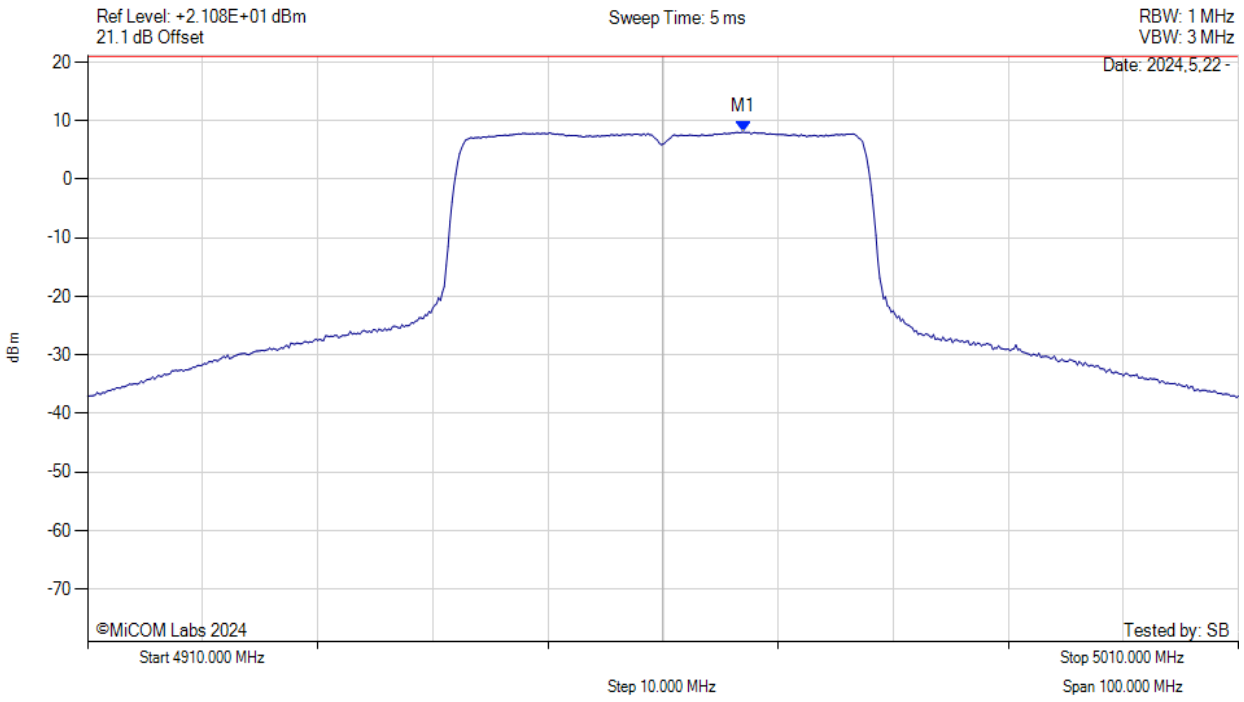


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4964.500 MHz : 3.882 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4960.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

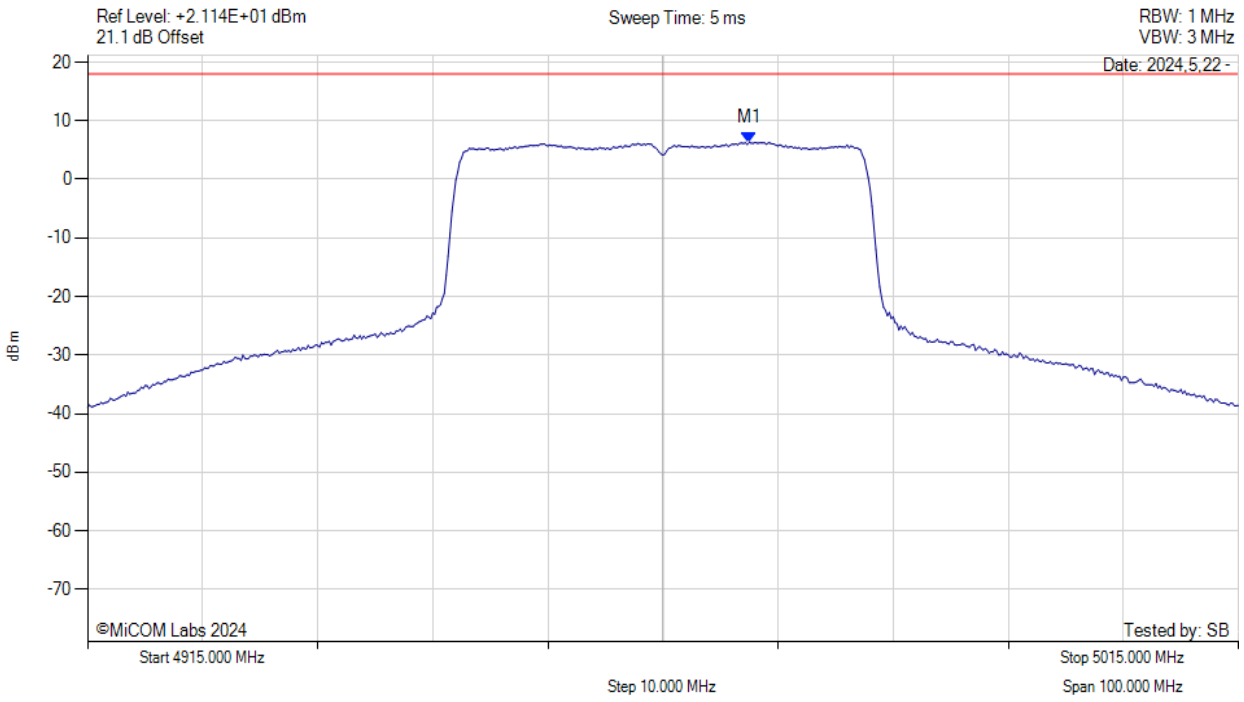


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4967.000 MHz : 8.043 dBm M1 + DCCF : 4967.000 MHz : 8.087 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 21.0 dBm Margin: -12.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

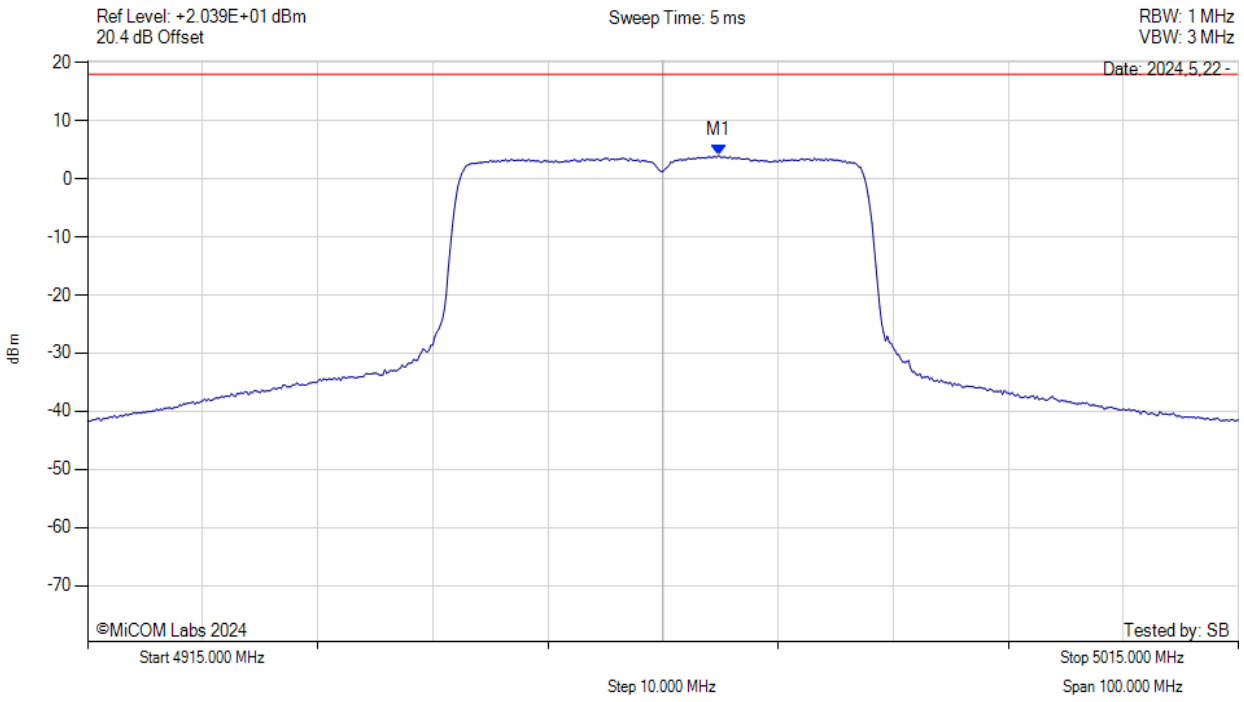


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.500 MHz : 6.332 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

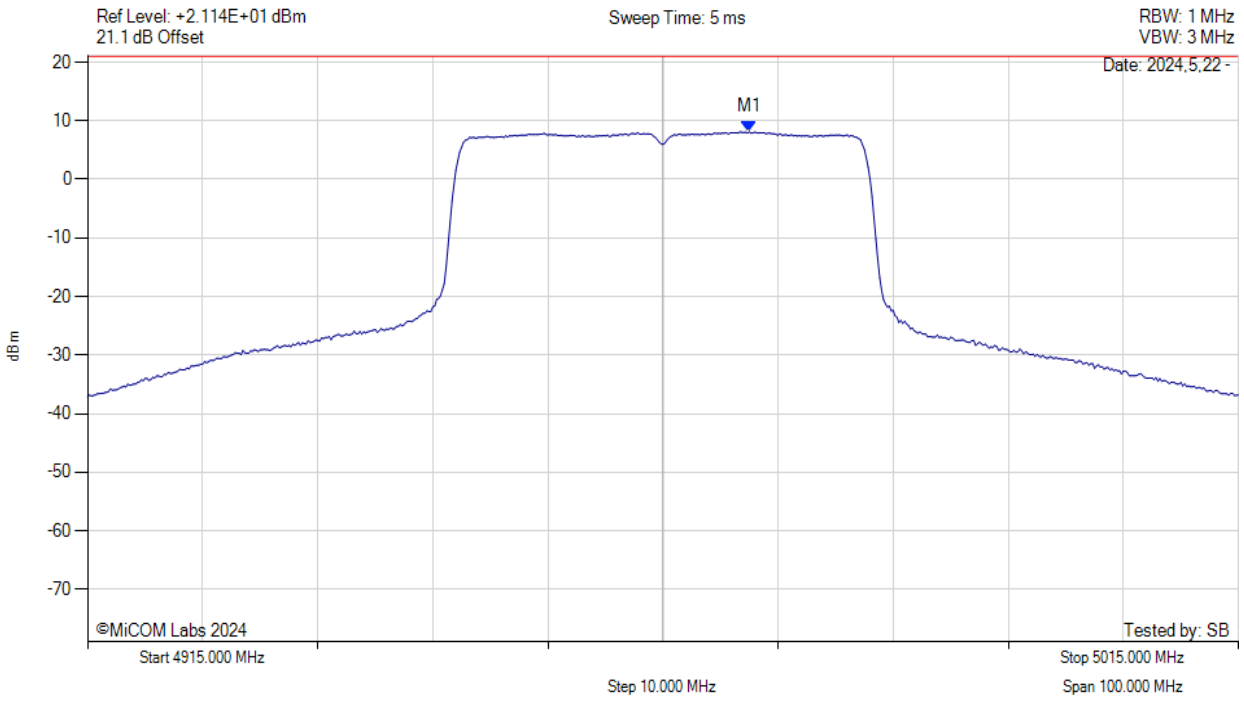


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4969.830 MHz : 4.020 dBm	Channel Frequency: 4965.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4965.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

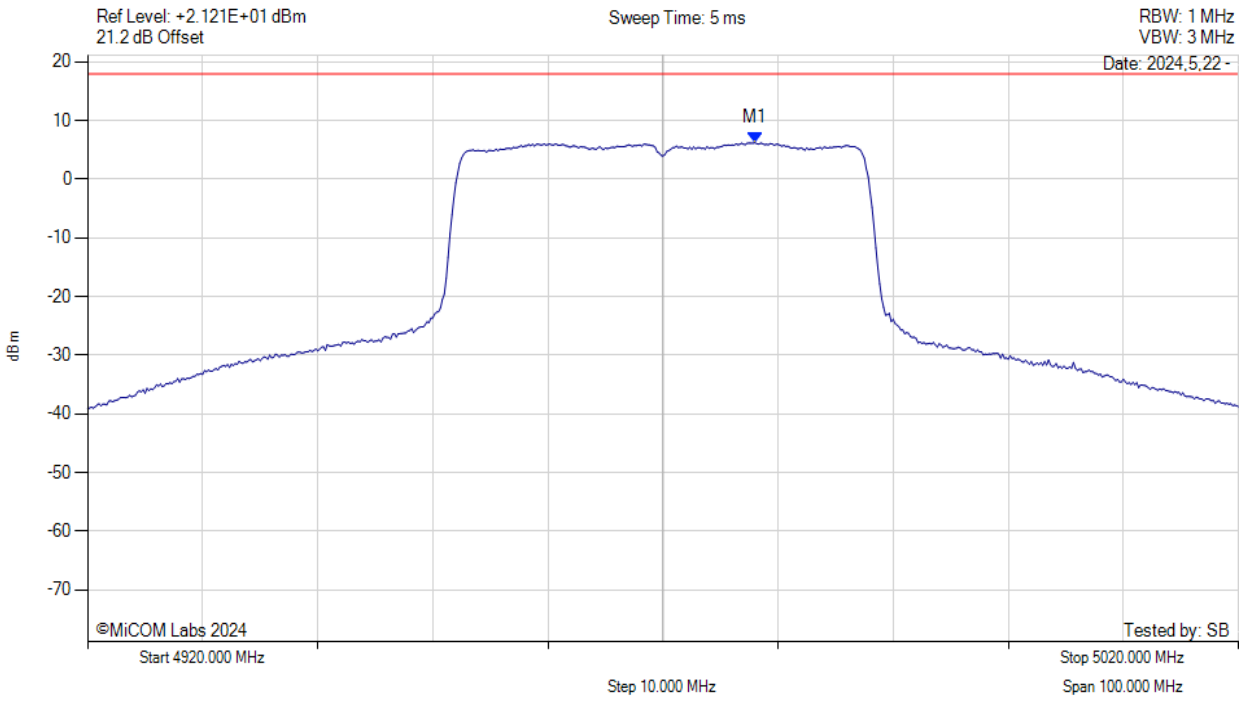


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.500 MHz : 8.094 dBm M1 + DCCF : 4972.500 MHz : 8.138 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 21.0 dBm Margin: -12.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4970.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

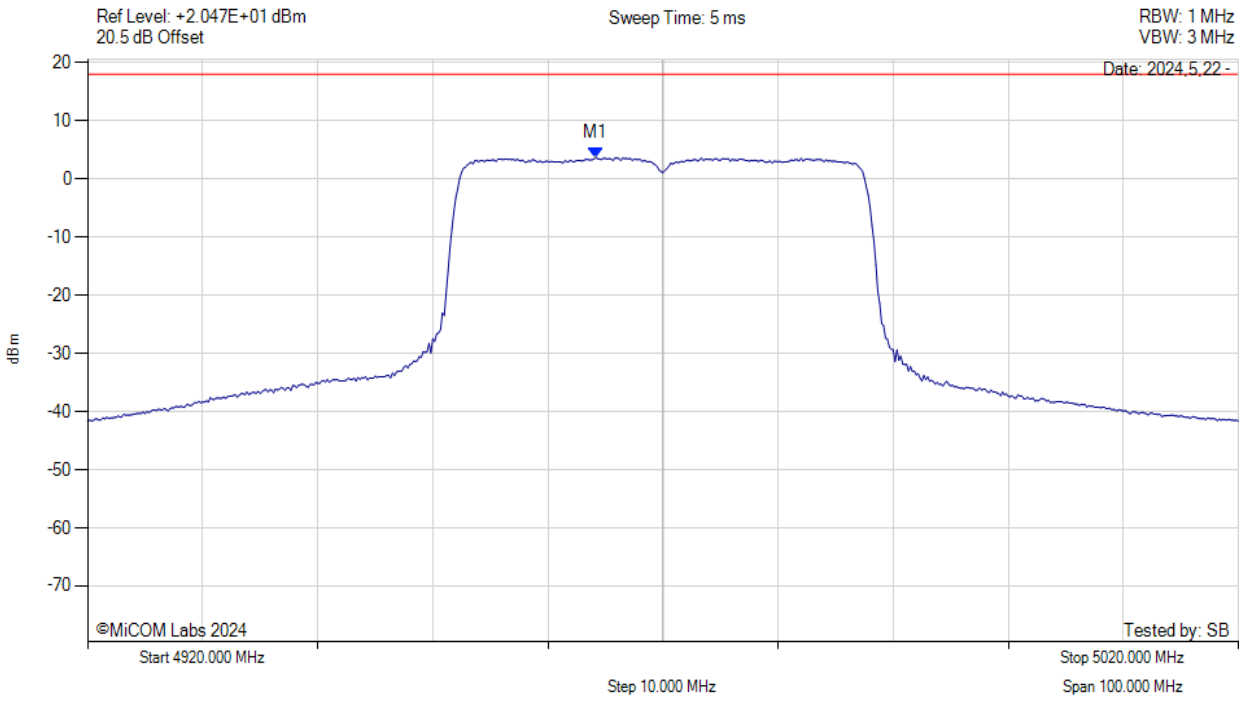


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4978.000 MHz : 6.245 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4970.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

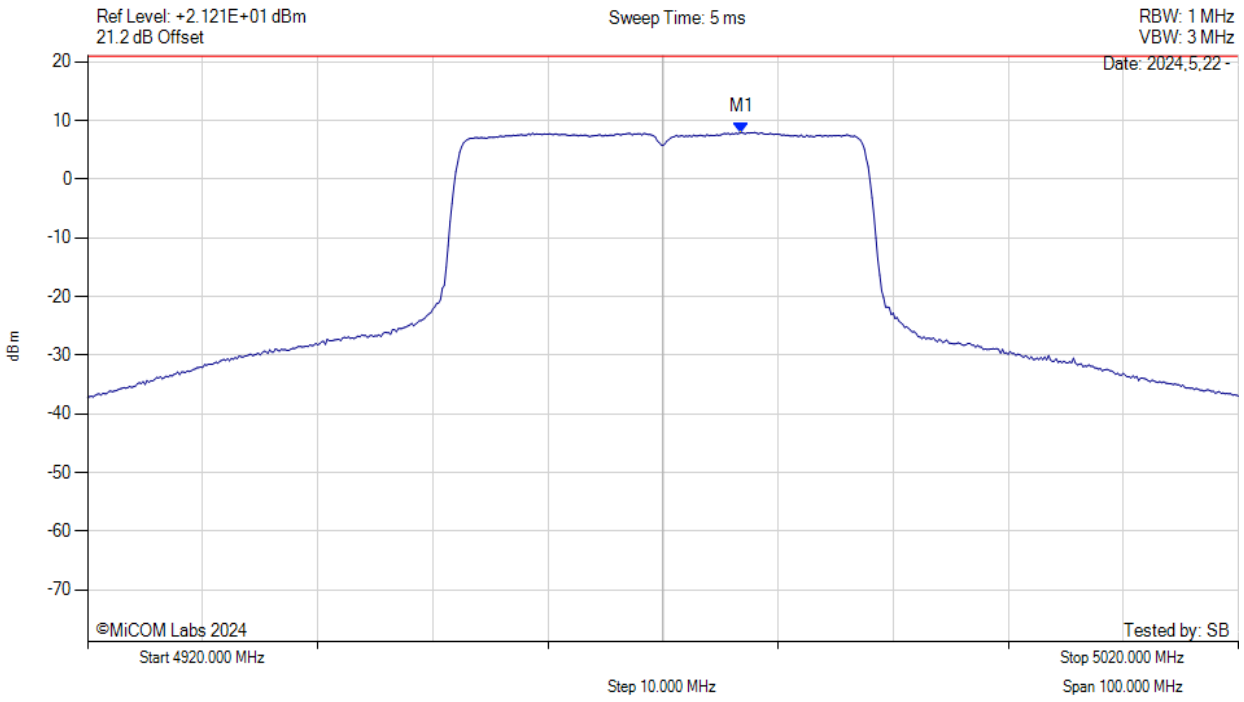


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4964.170 MHz : 3.631 dBm	Limit: ≤ 18.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz, Channel: 4970.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

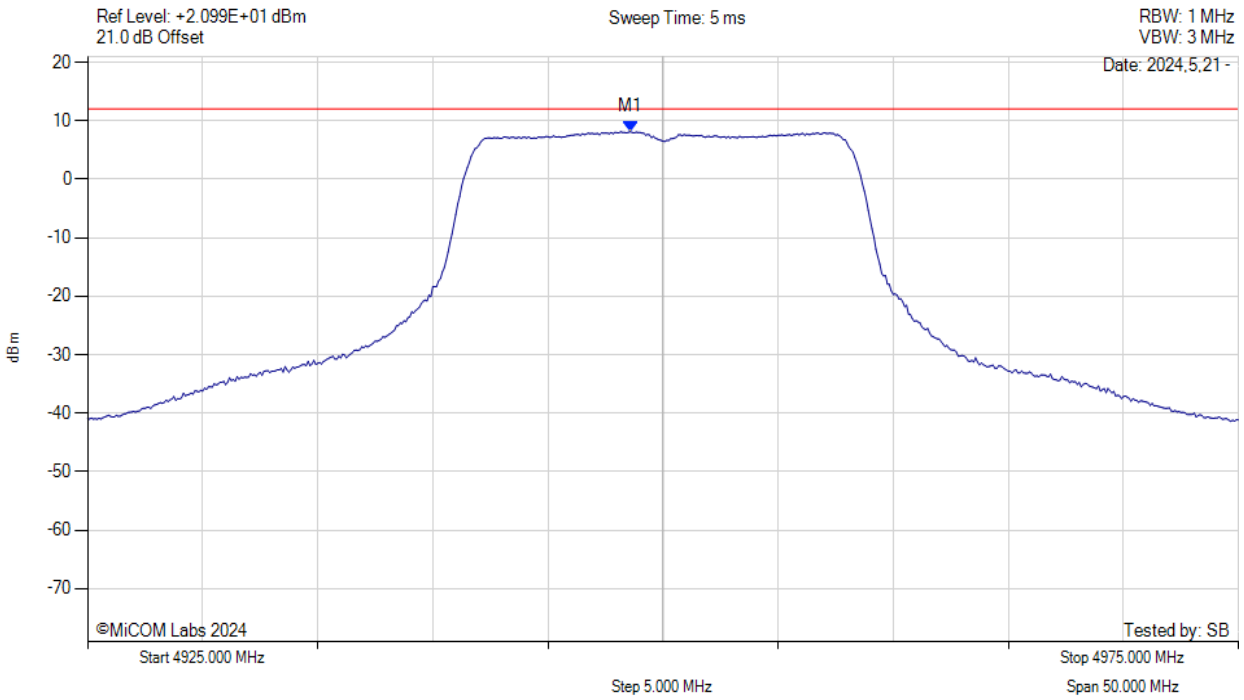


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4976.800 MHz : 8.005 dBm M1 + DCCF : 4976.800 MHz : 8.049 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 21.0 dBm Margin: -13.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4950.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

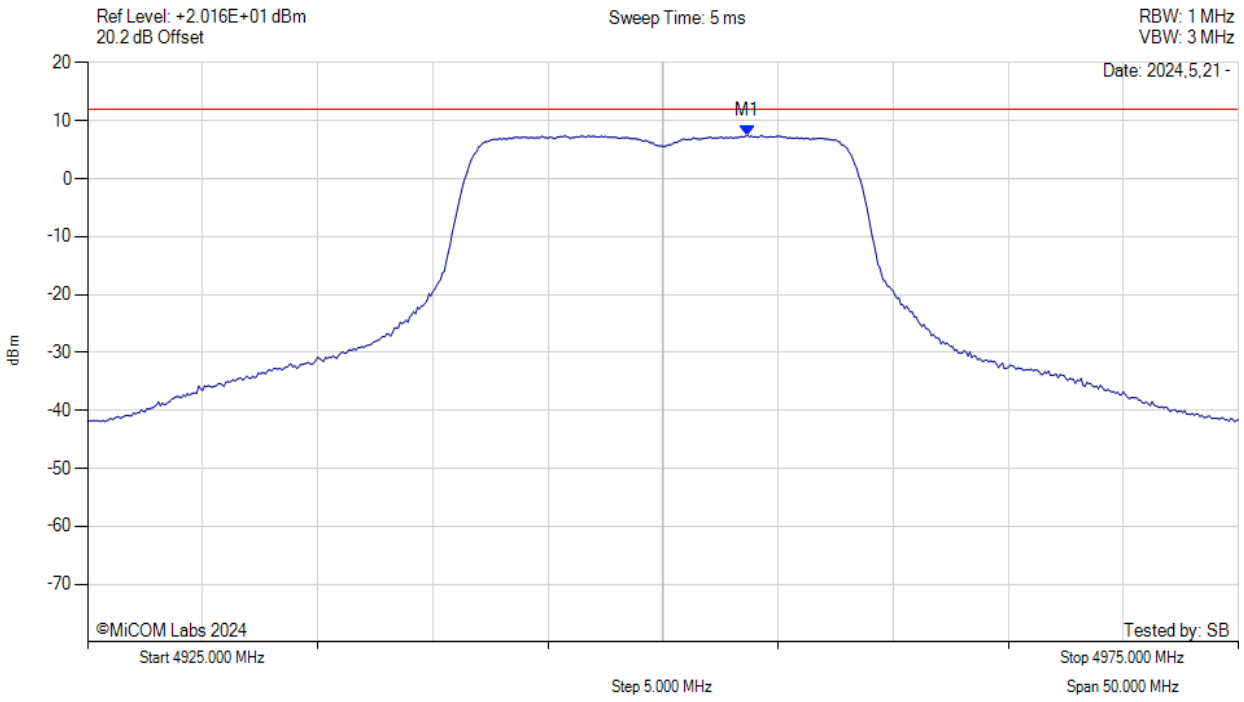


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4948.580 MHz : 8.122 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4950.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

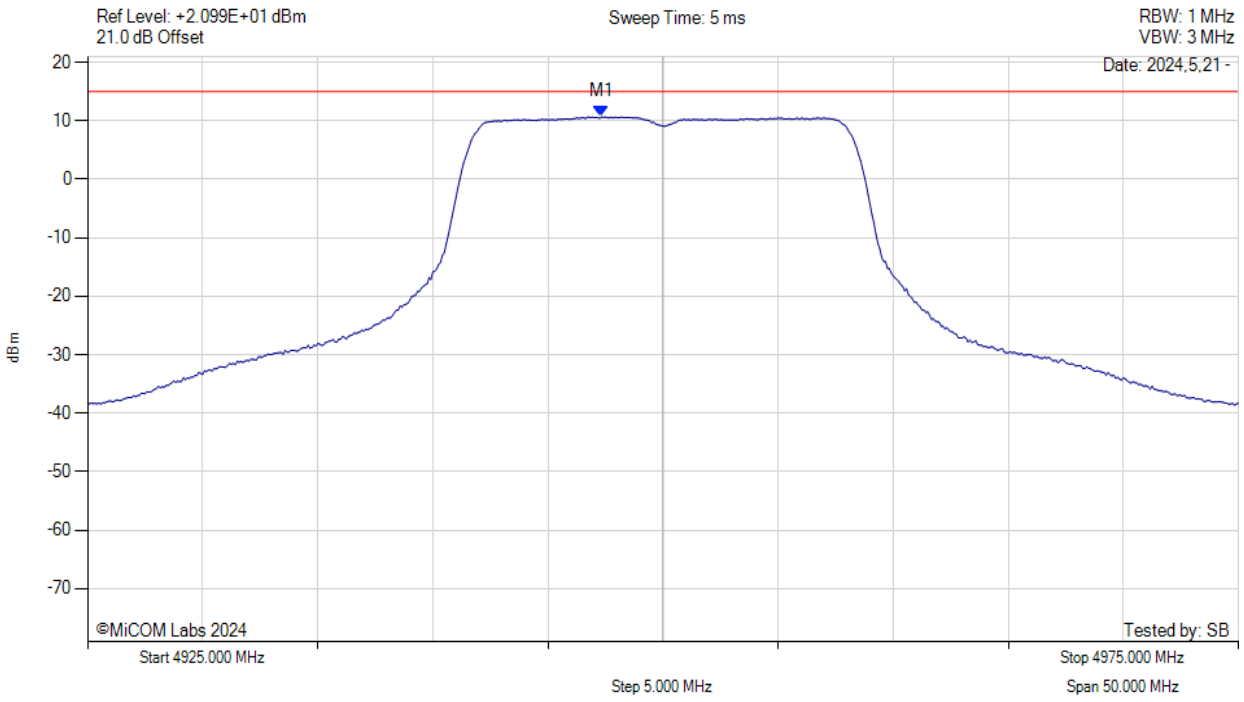


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4953.670 MHz : 7.490 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4950.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

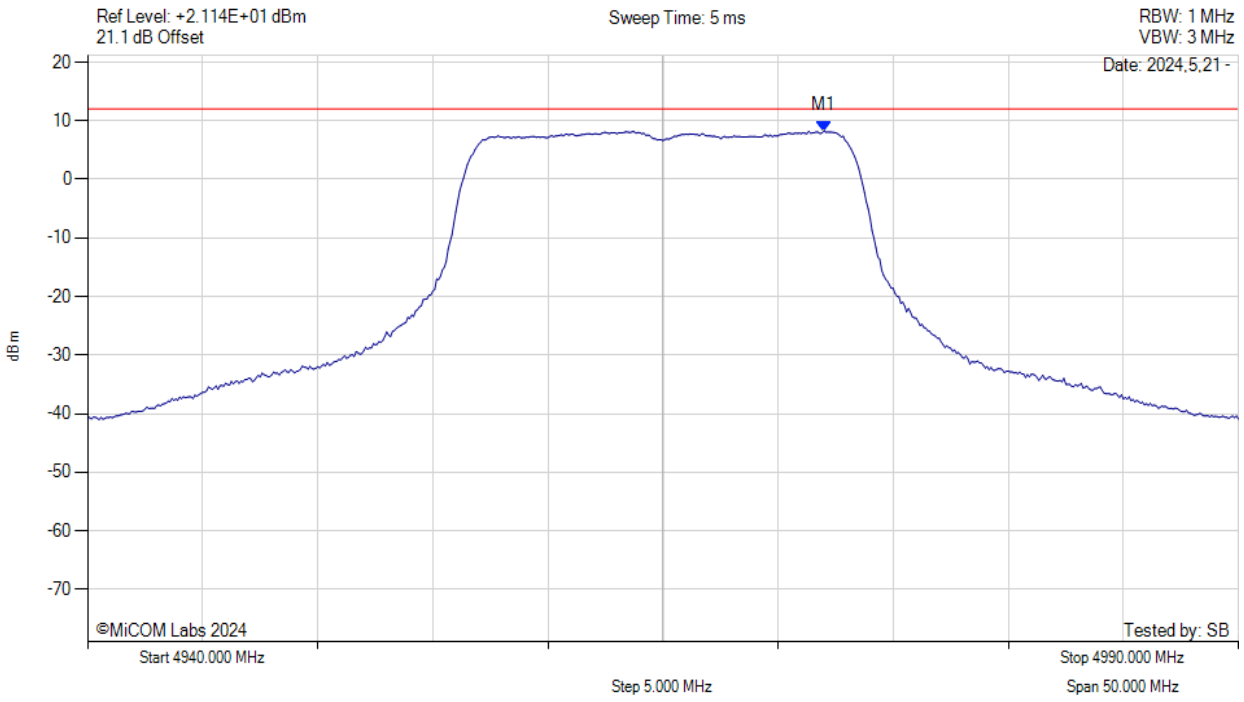


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4947.300 MHz : 10.659 dBm M1 + DCCF : 4947.300 MHz : 10.703 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 15.0 dBm Margin: -4.3 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

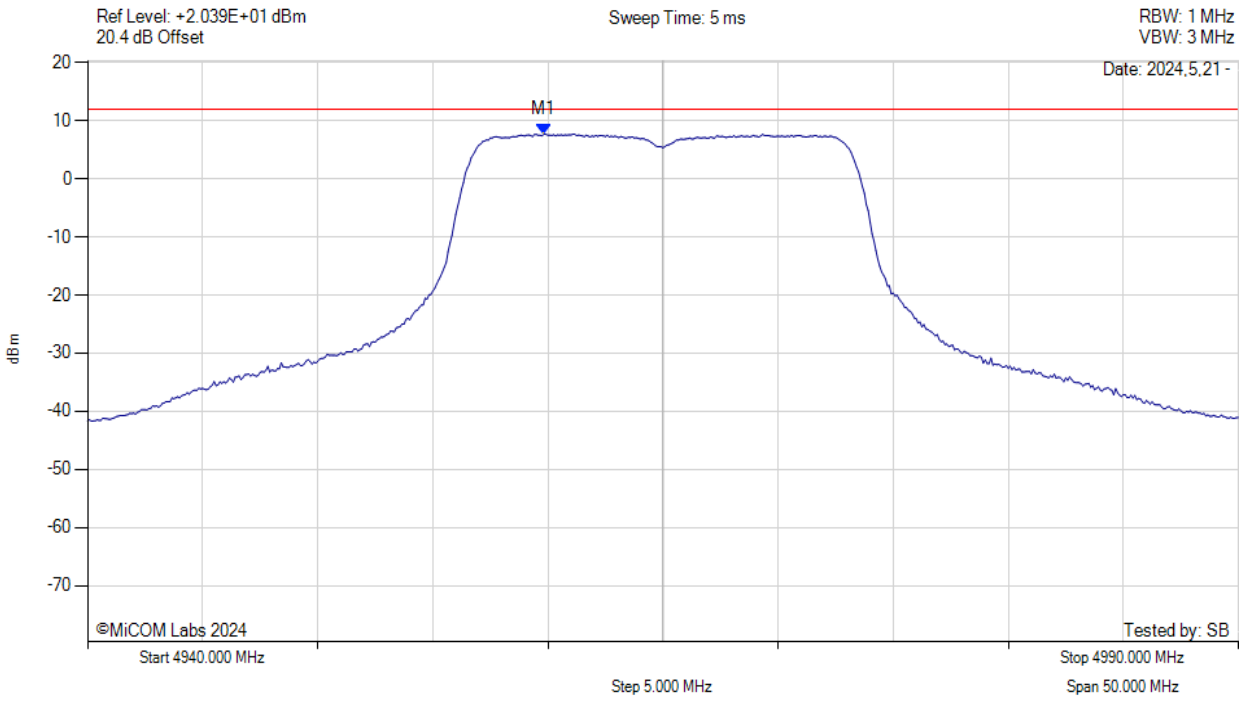


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.000 MHz : 8.263 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

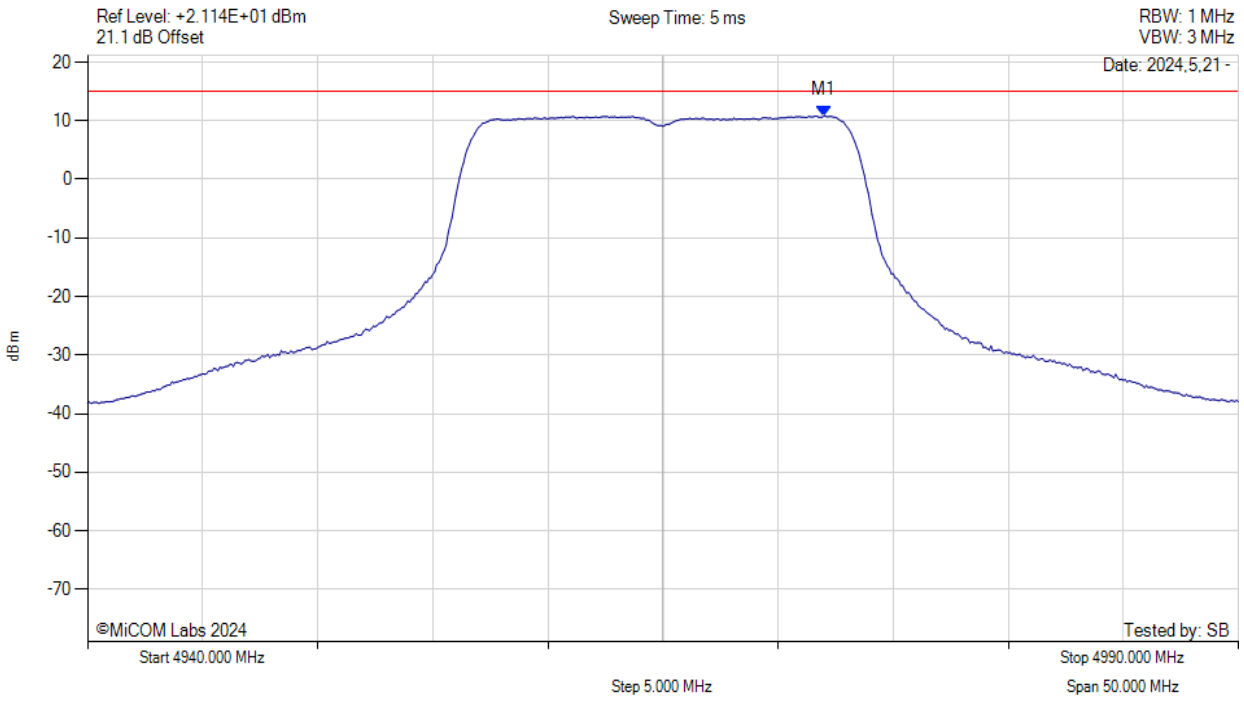


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4959.830 MHz : 7.711 dBm	Channel Frequency: 4965.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4965.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

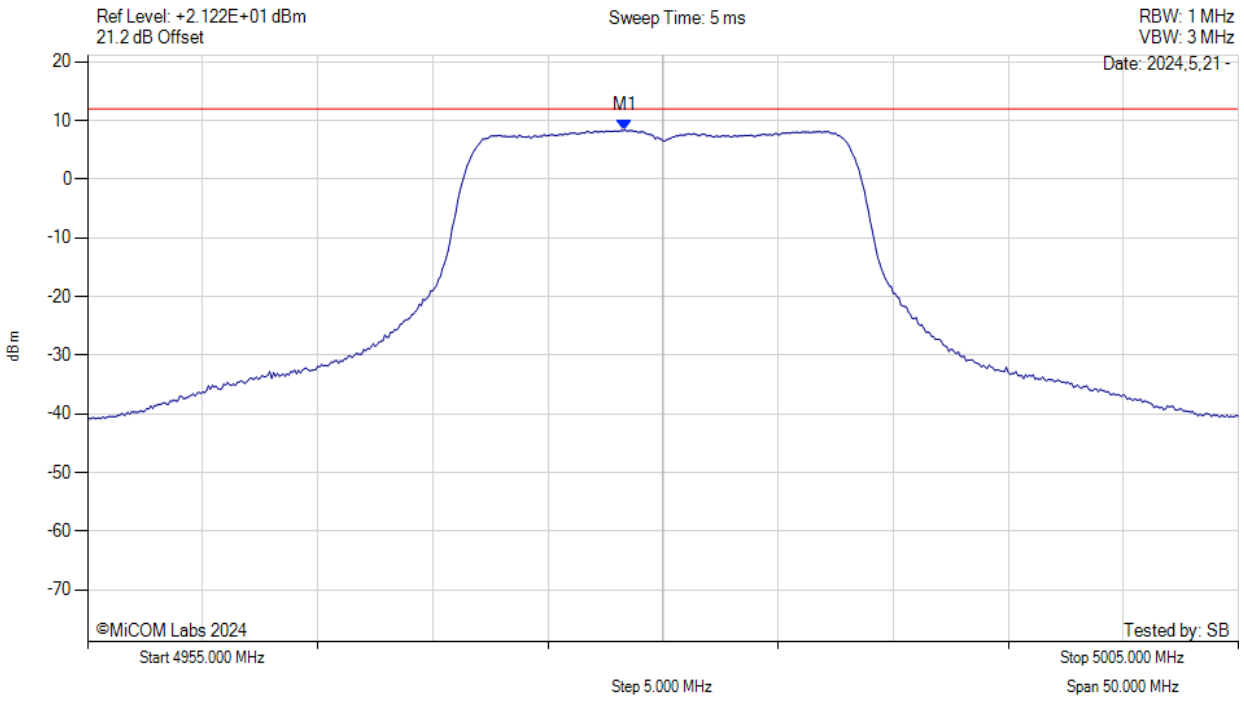


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.000 MHz : 10.847 dBm M1 + DCCF : 4972.000 MHz : 10.891 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 15.0 dBm Margin: -4.1 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4980.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

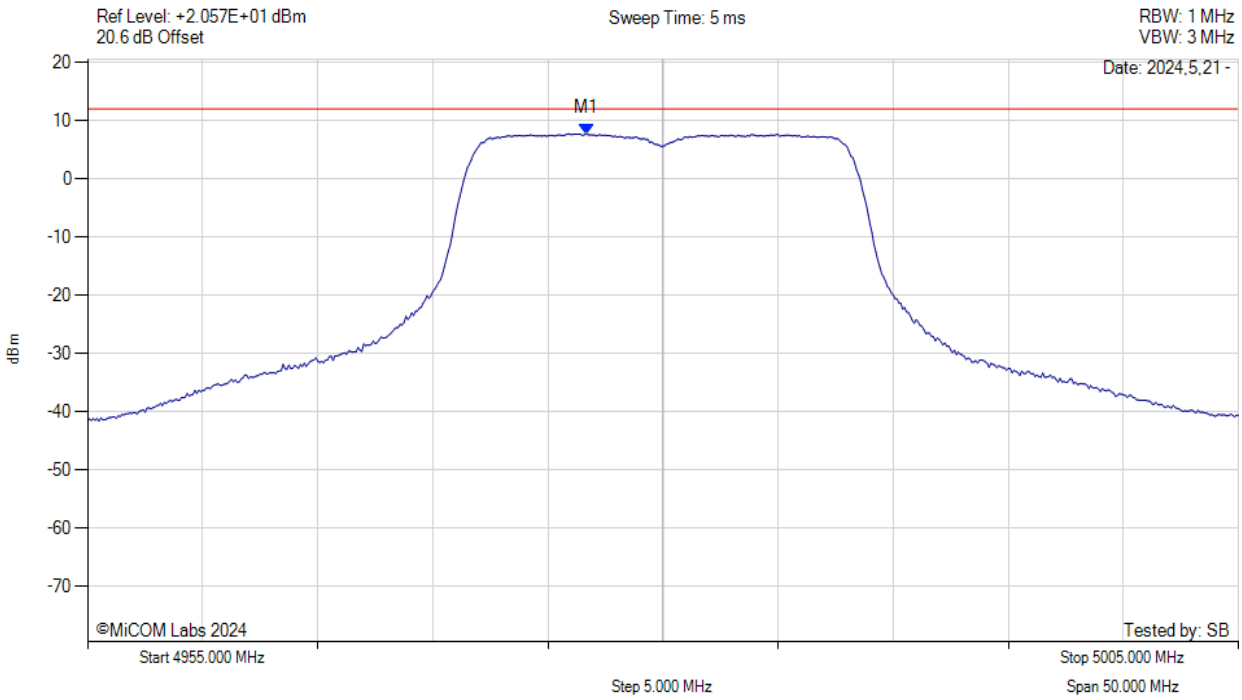


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4978.330 MHz : 8.439 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4980.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

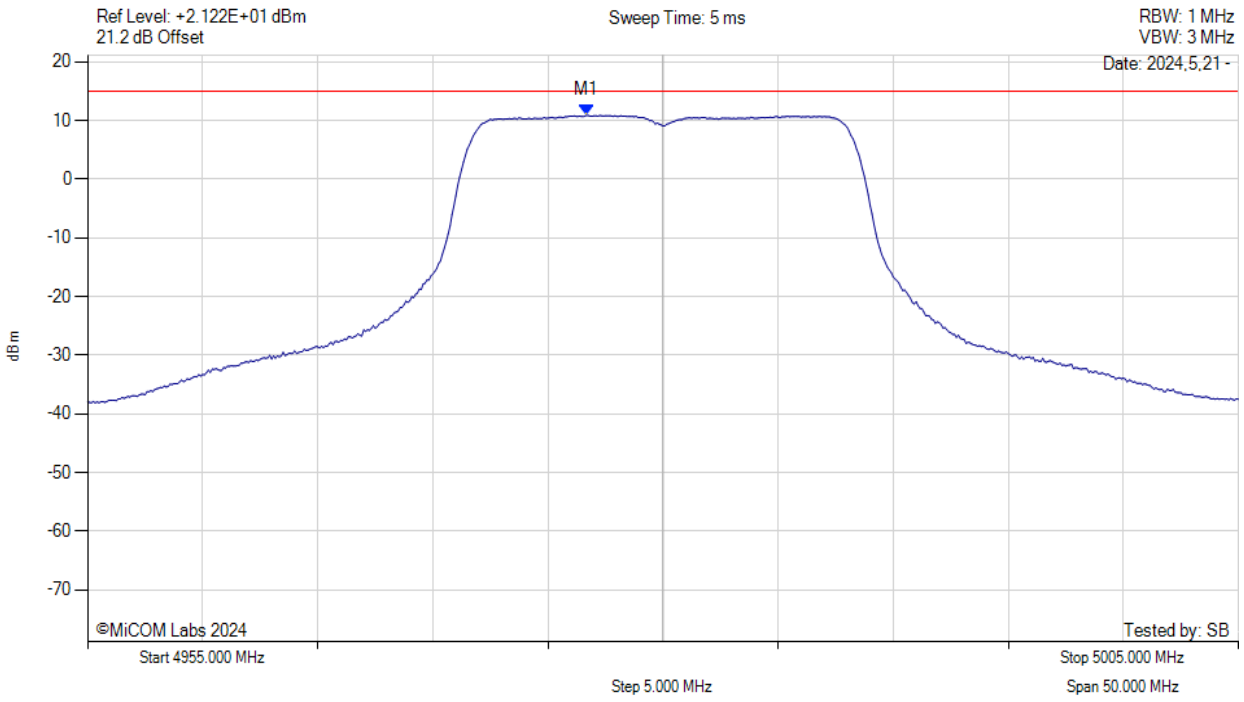


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4976.670 MHz : 7.747 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 20MHz-32dBi, Channel: 4980.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

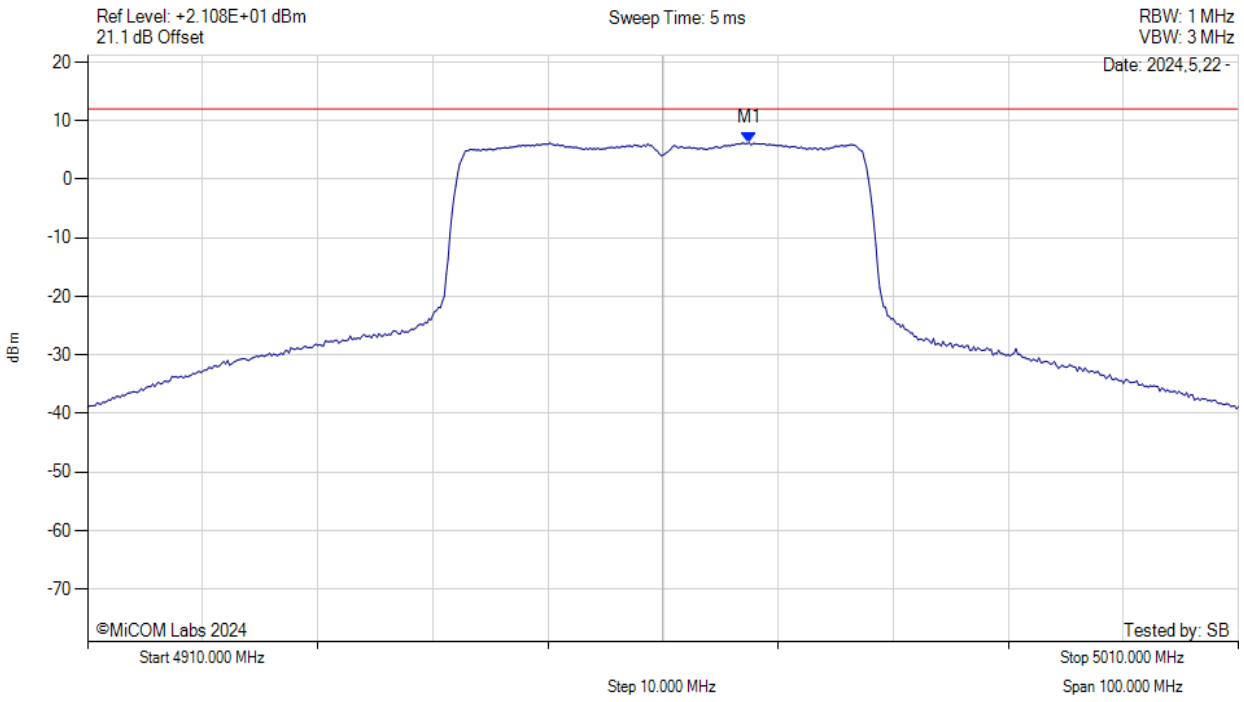


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4976.700 MHz : 10.925 dBm M1 + DCCF : 4976.700 MHz : 10.969 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 15.0 dBm Margin: -4.0 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4960.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

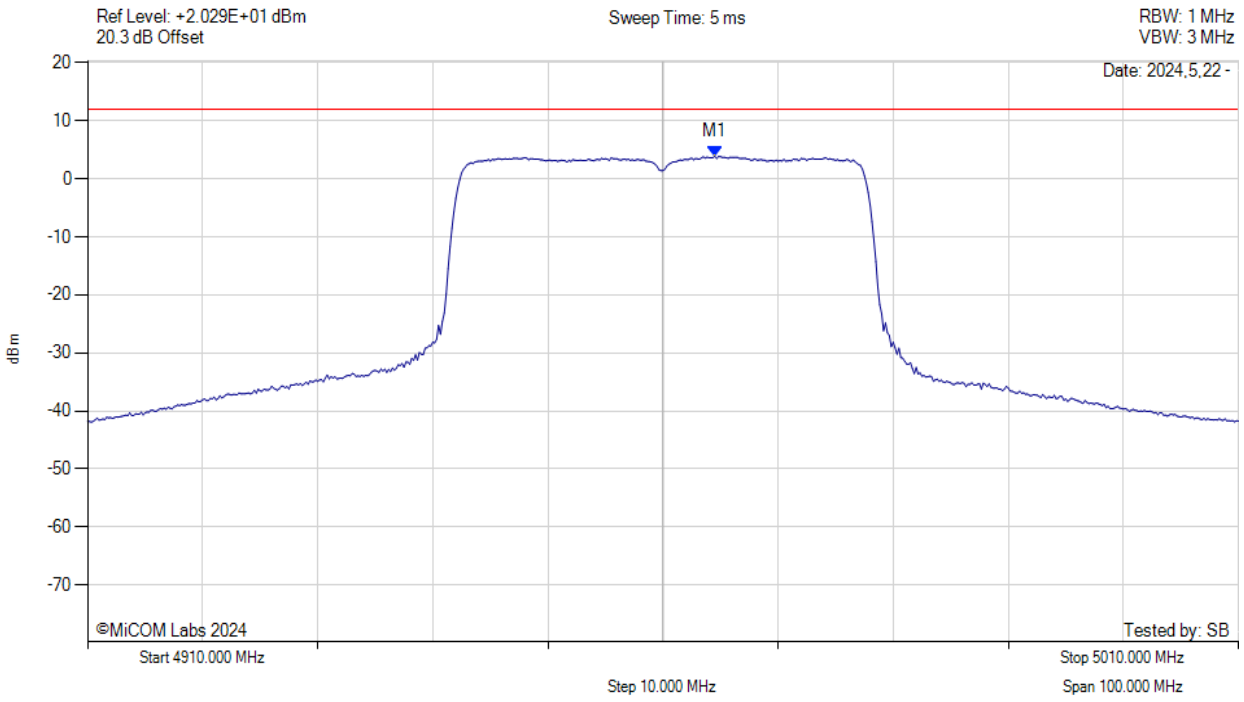


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4967.500 MHz : 6.217 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4960.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

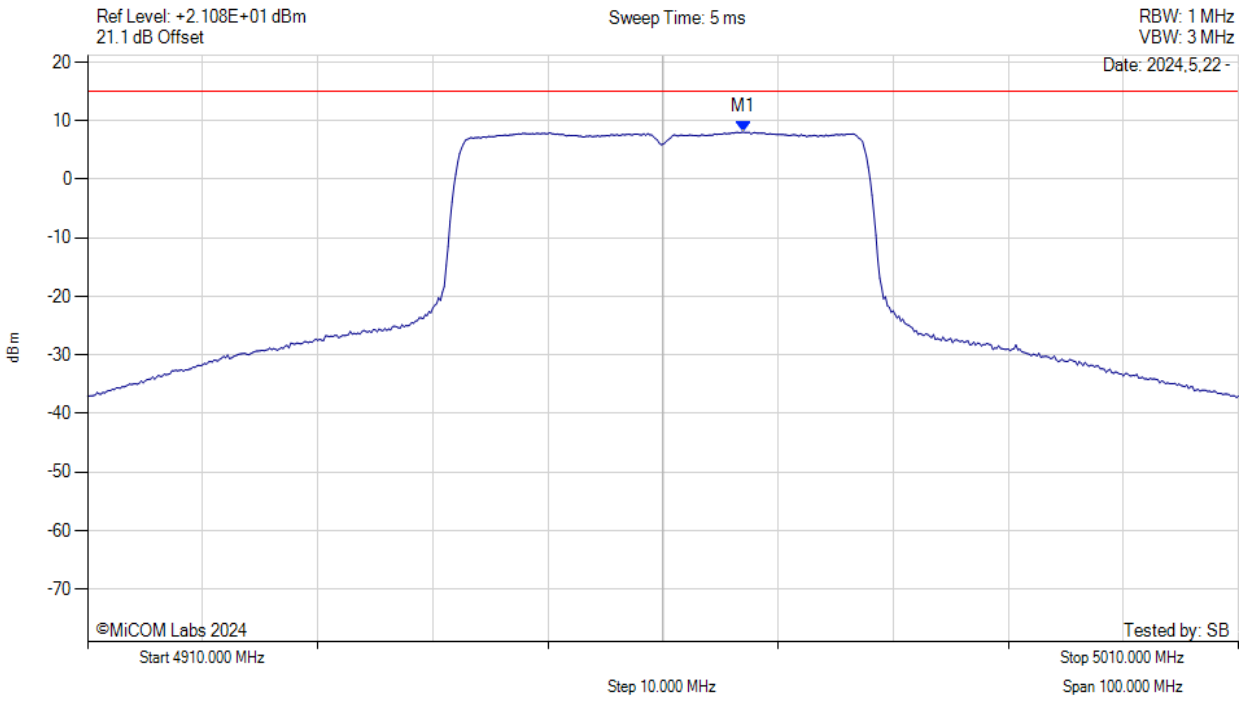


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4964.500 MHz : 3.882 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4960.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

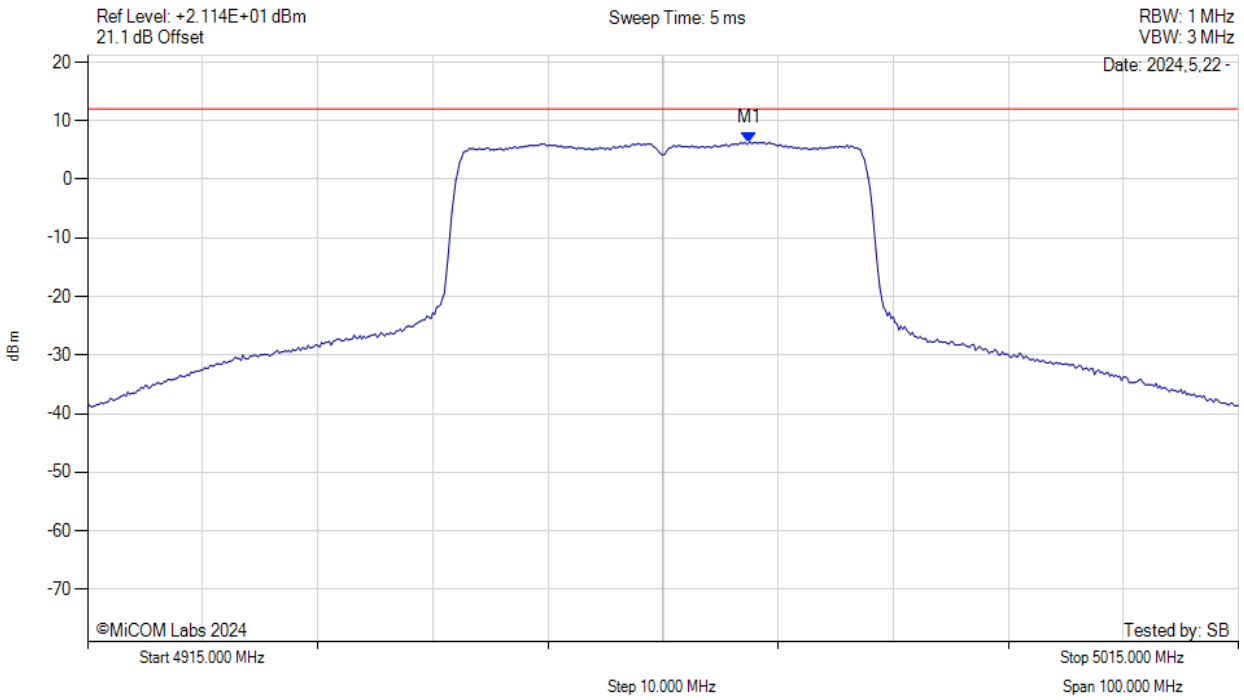


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4967.000 MHz : 8.043 dBm M1 + DCCF : 4967.000 MHz : 8.087 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 15.0 dBm Margin: -6.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

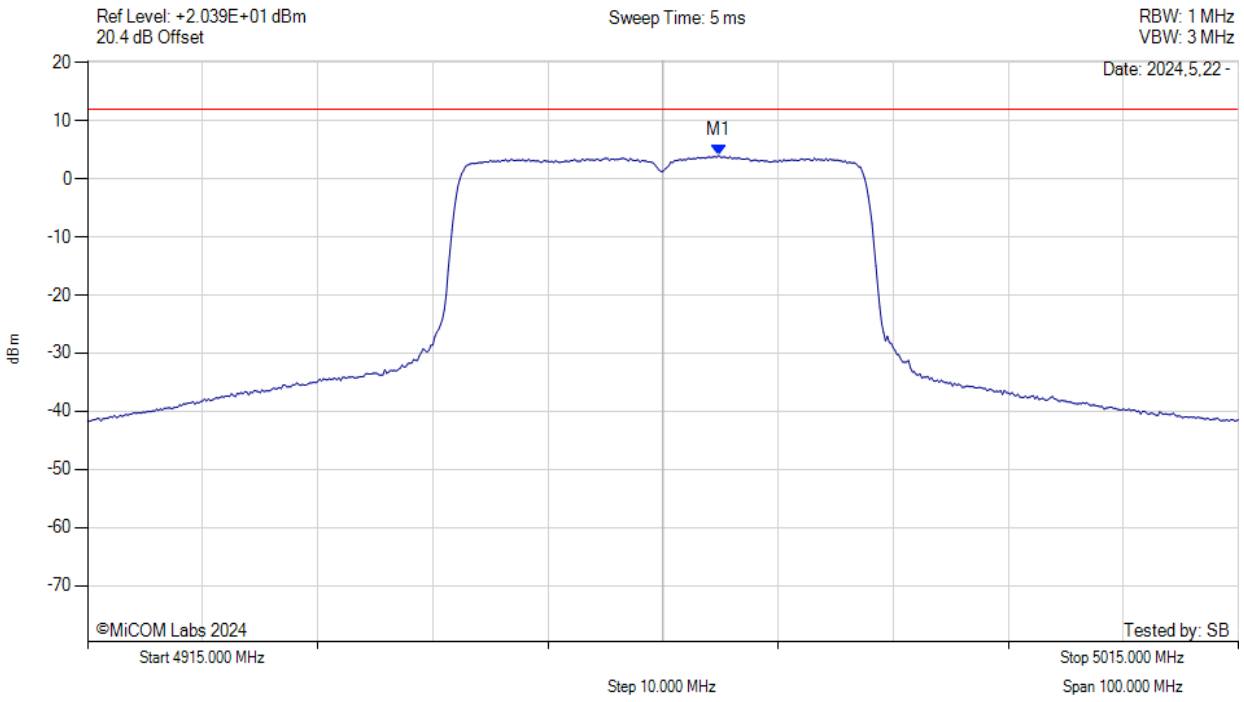


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.500 MHz : 6.332 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

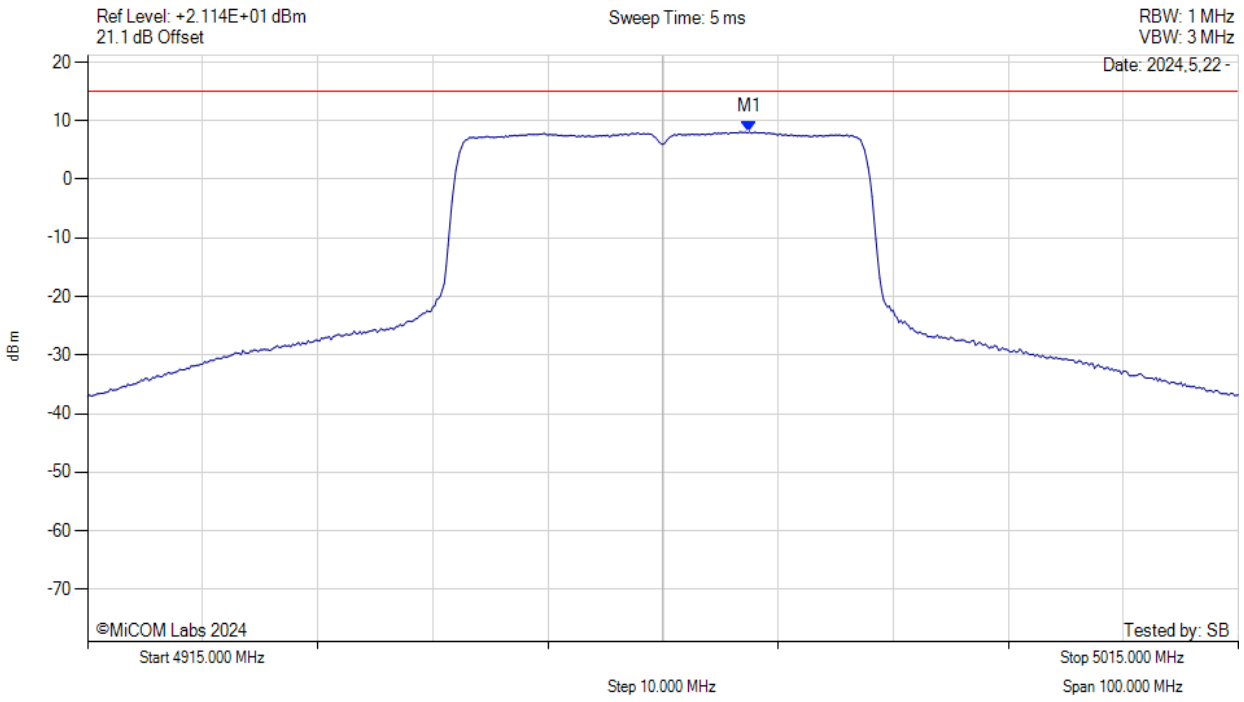


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4969.830 MHz : 4.020 dBm	Channel Frequency: 4965.00 MHz

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4965.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc

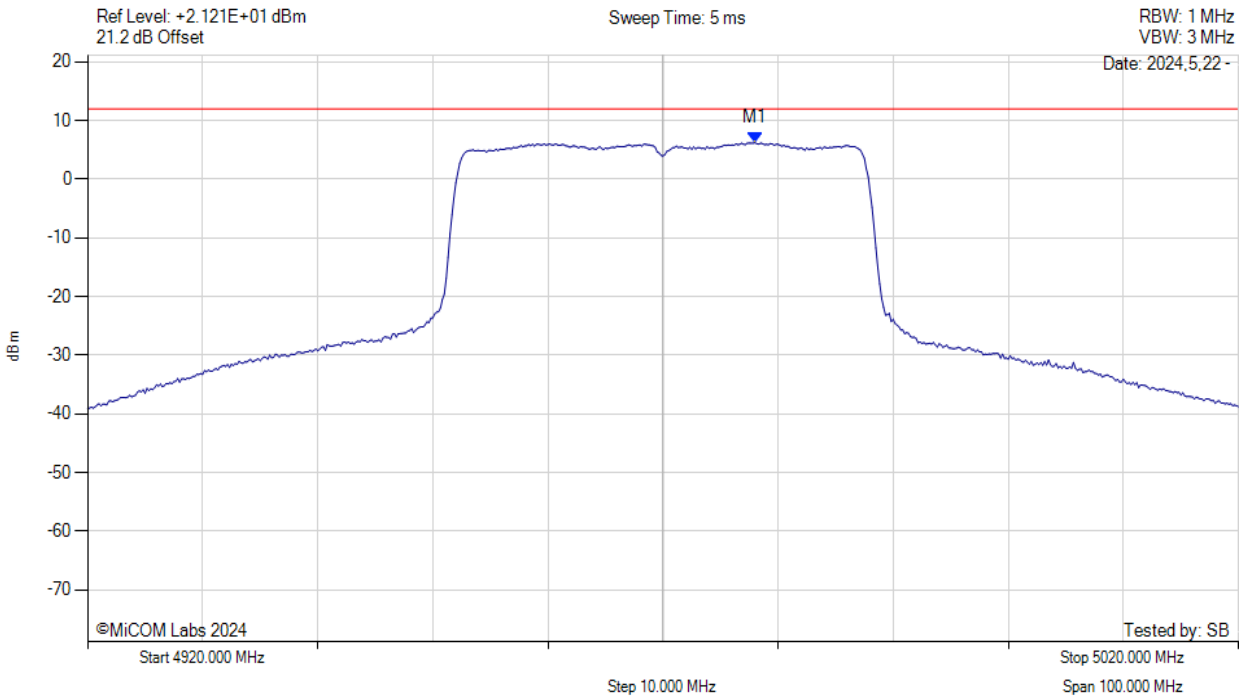


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4972.500 MHz : 8.094 dBm M1 + DCCF : 4972.500 MHz : 8.138 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 15.0 dBm Margin: -6.9 dB

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4970.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

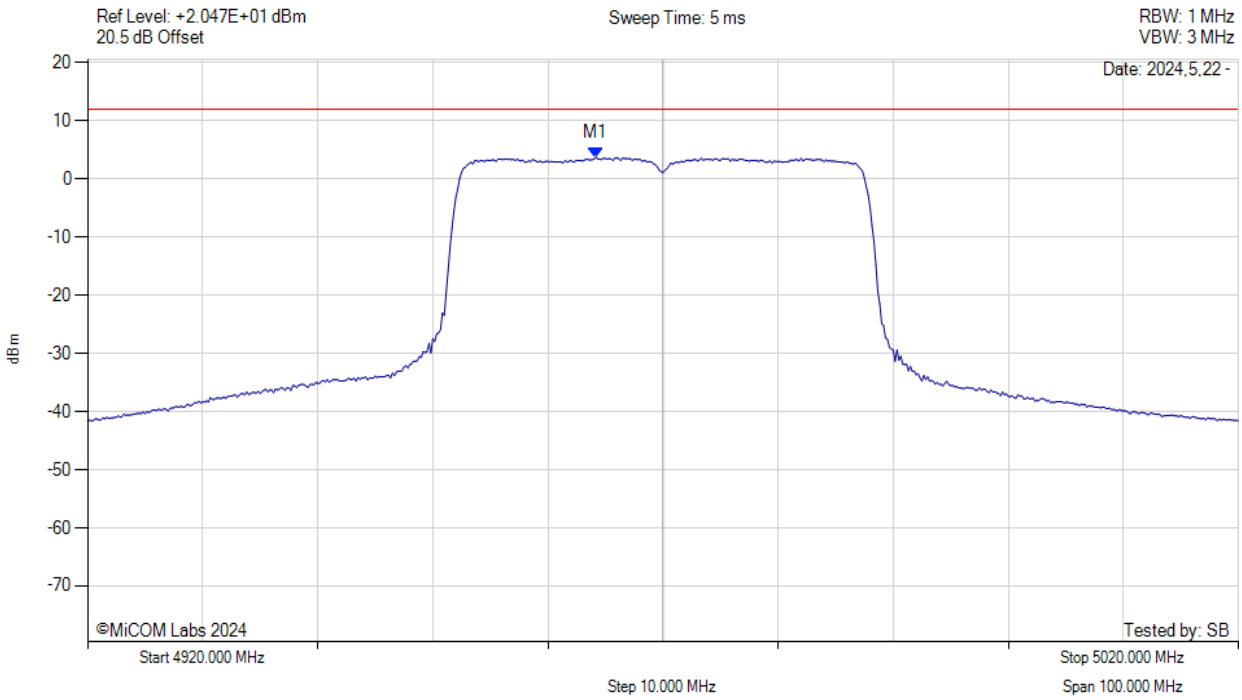


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4978.000 MHz : 6.245 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4970.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

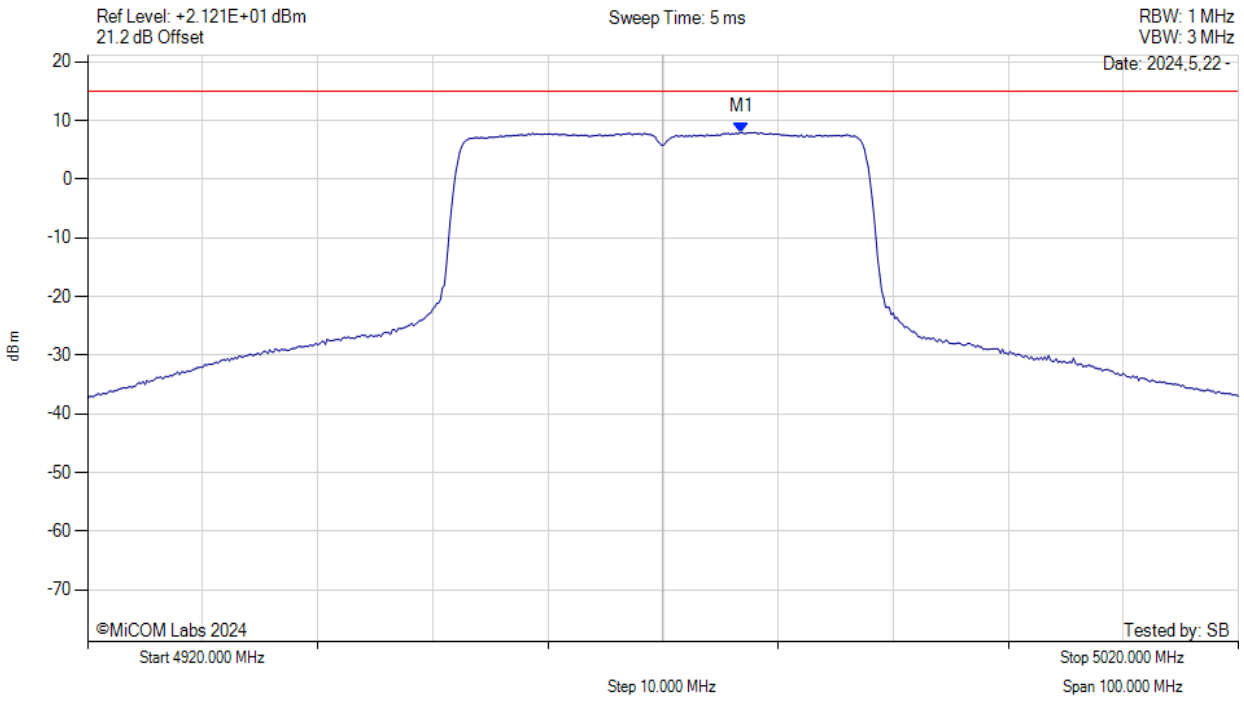


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4964.170 MHz : 3.631 dBm	Limit: ≤ 12.000 dBm

back to matrix

POWER SPECTRAL DENSITY

Variant: 40MHz-32dBi, Channel: 4970.00 MHz, SUM, Temp: 20, Voltage: 56 Vdc



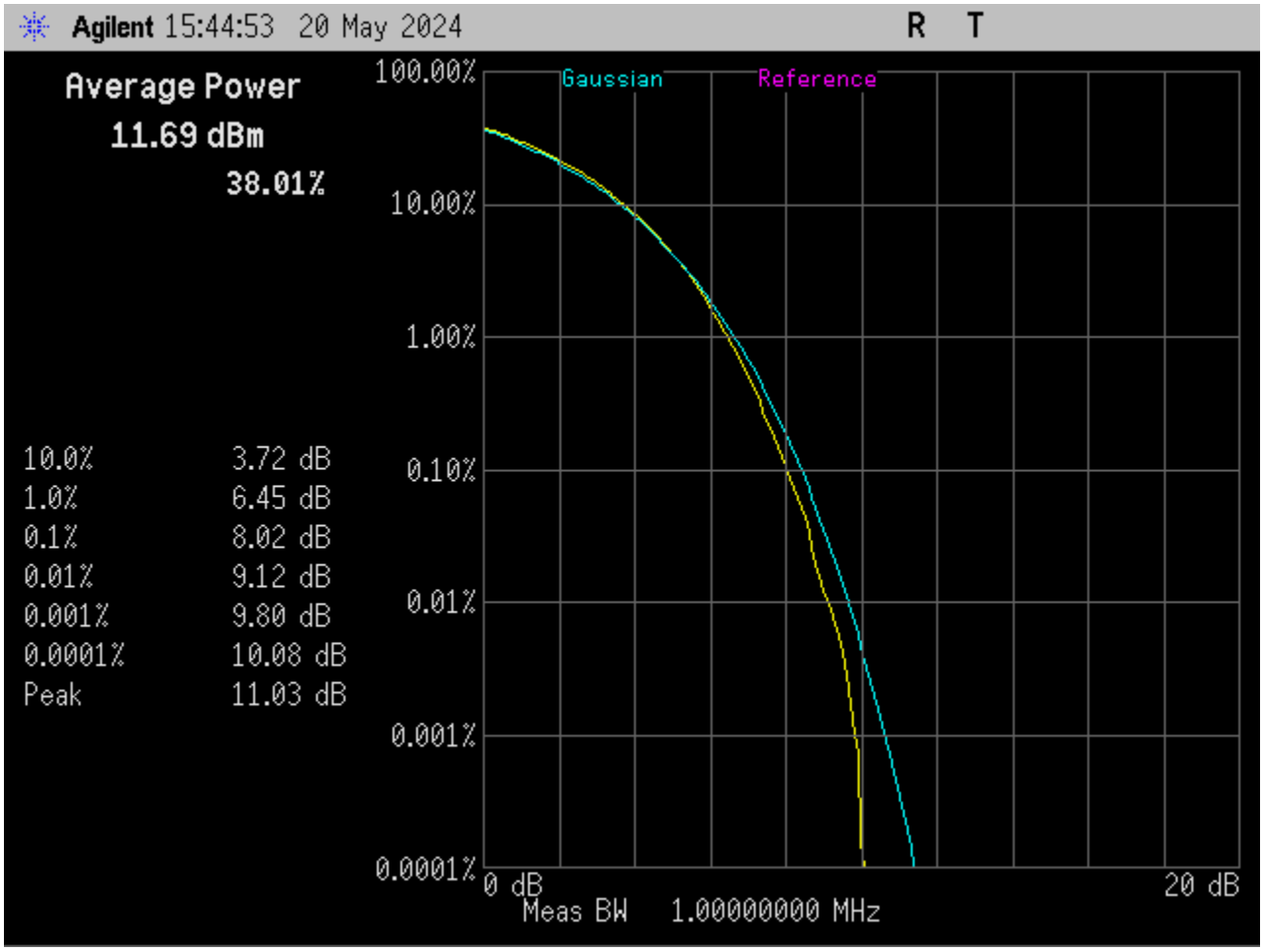
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 4976.800 MHz : 8.005 dBm M1 + DCCF : 4976.800 MHz : 8.049 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 15.0 dBm Margin: -7.0 dB

back to matrix

A.3. Peak Excursion Ratio

PEAK EXCURSION RATIO

Variant: 20MHz, Channel: 4965.00 MHz, Combined, Temp: 20, Voltage: 56 Vdc

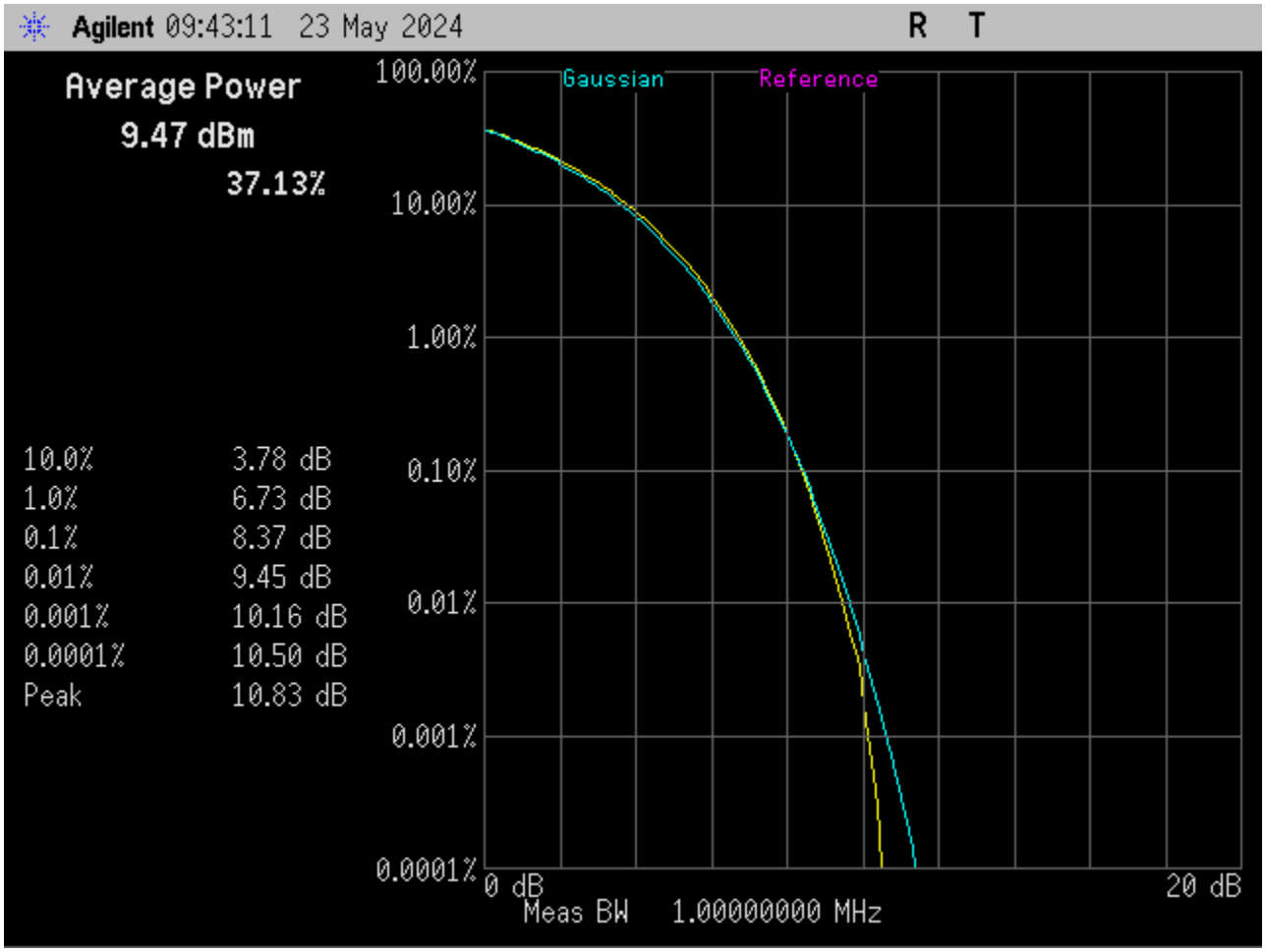


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak/AVER Sweep Count = 1 MCount RF Atten (dB) = 20 Trace Mode = PAPR	M1 : 0.1% : 9.12 dB	Limit: ≤ 13.0 dB

back to matrix

PEAK EXCURSION RATIO

Variant: 40MHz, Channel: 4965.00 MHz, Combined, Temp: 20, Voltage: 56 Vdc



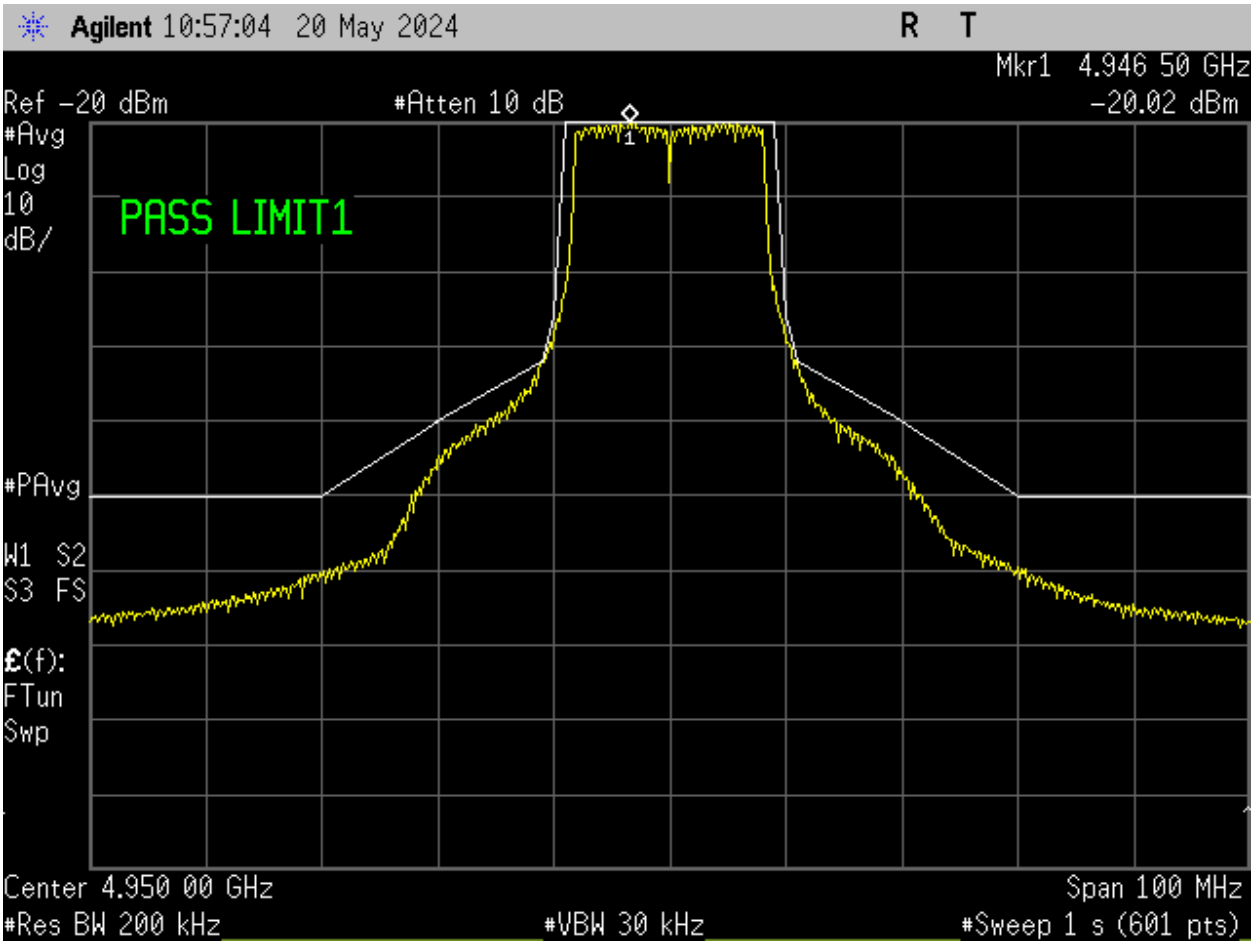
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak/AVER Sweep Count = 1 MCount RF Atten (dB) = 20 Trace Mode = PAPR	M1 : 0.1% : 9.45 dB	Limit: ≤ 13.0 dB

back to matrix

A.4. Spectrum Emission Mask

SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4950.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

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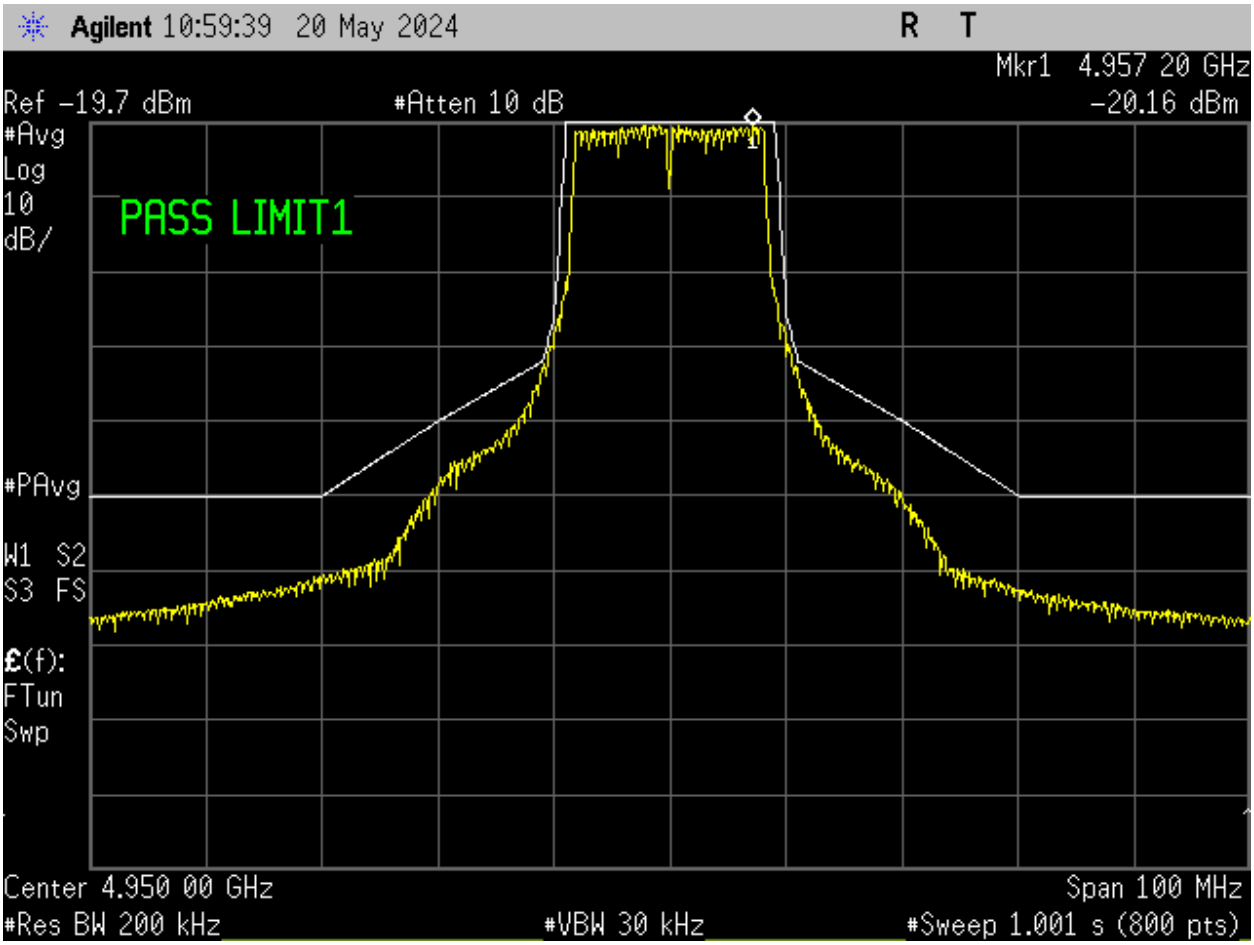
SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4950.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

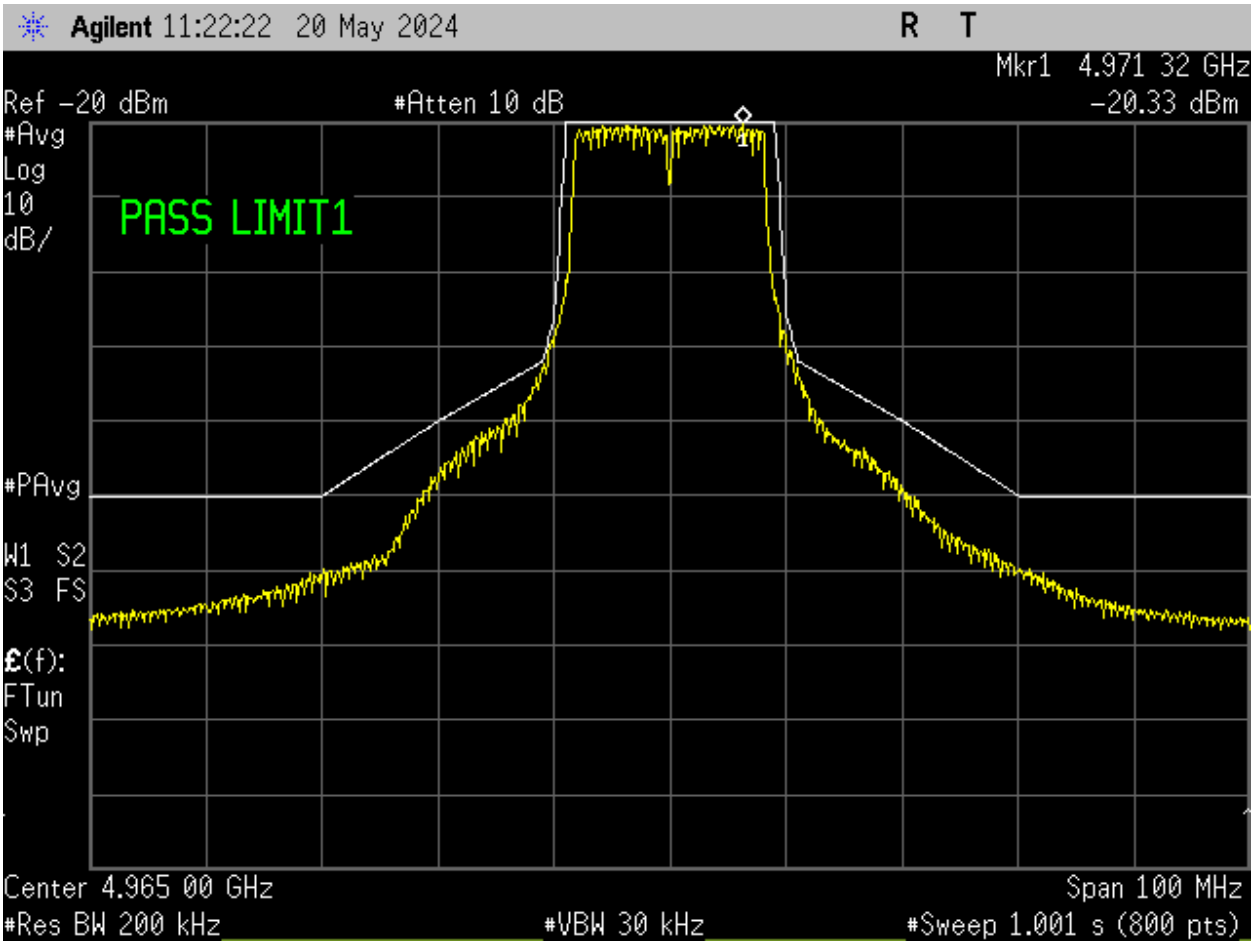


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

Back to Matrix

SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

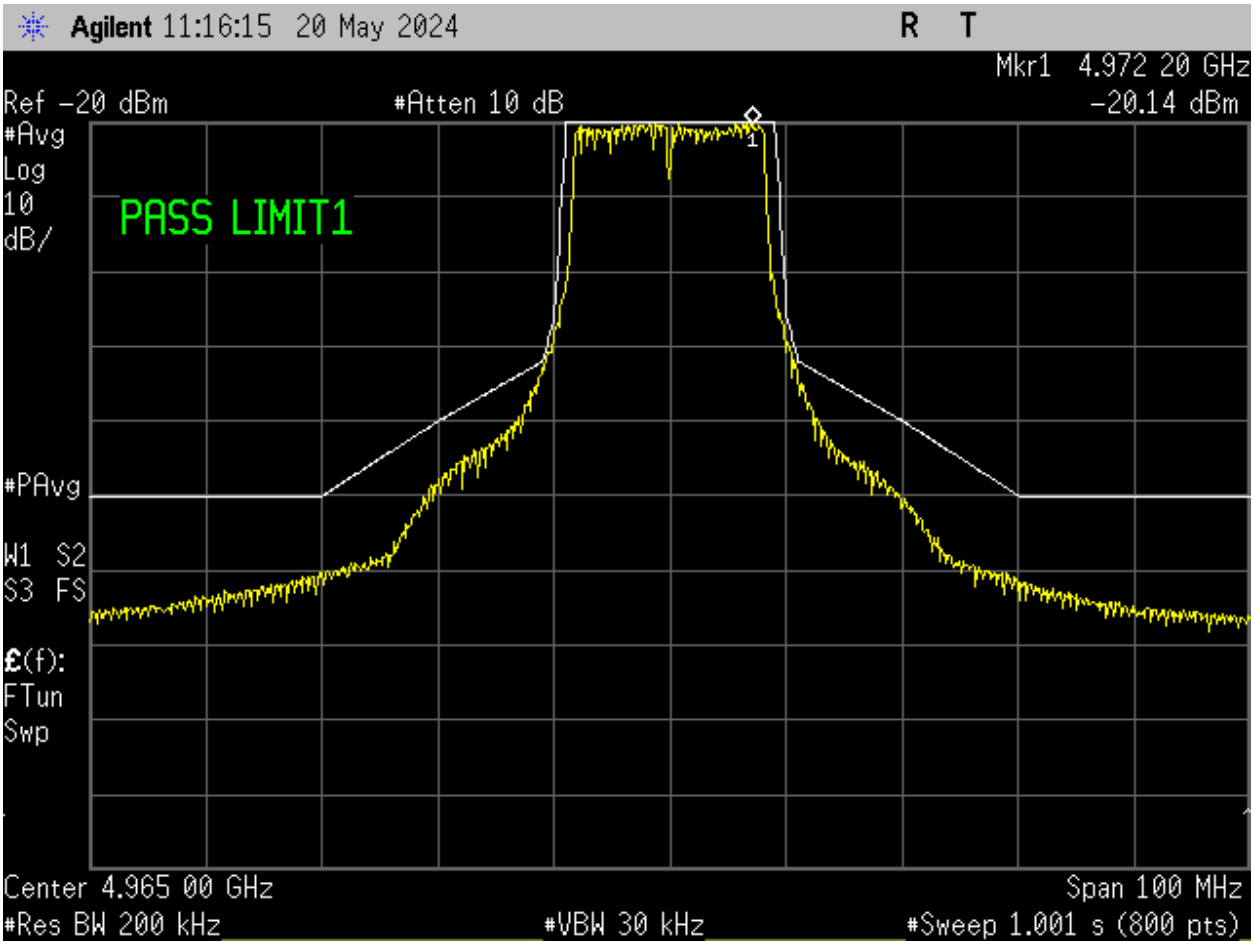


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

Back to Matrix

SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

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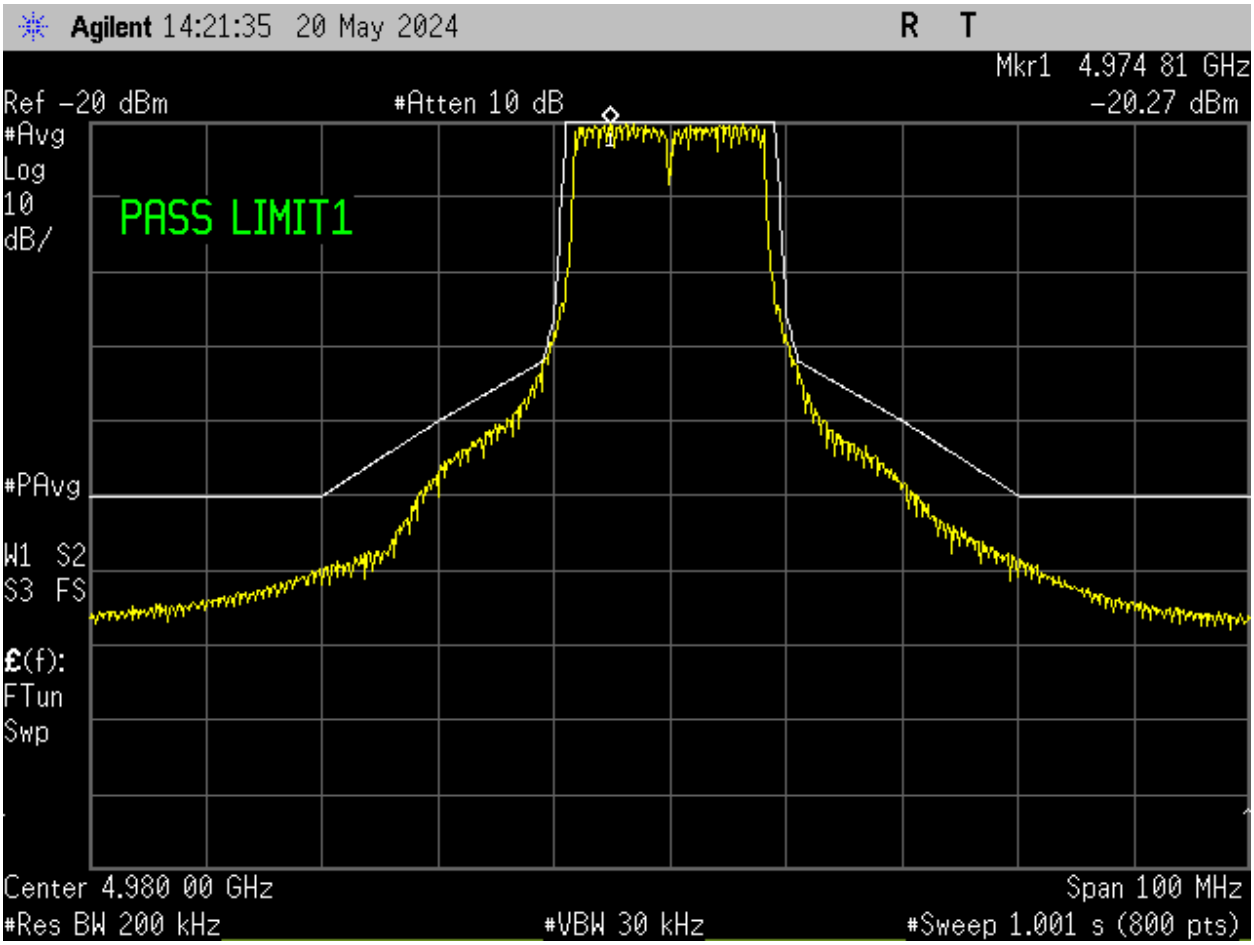
SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4980.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

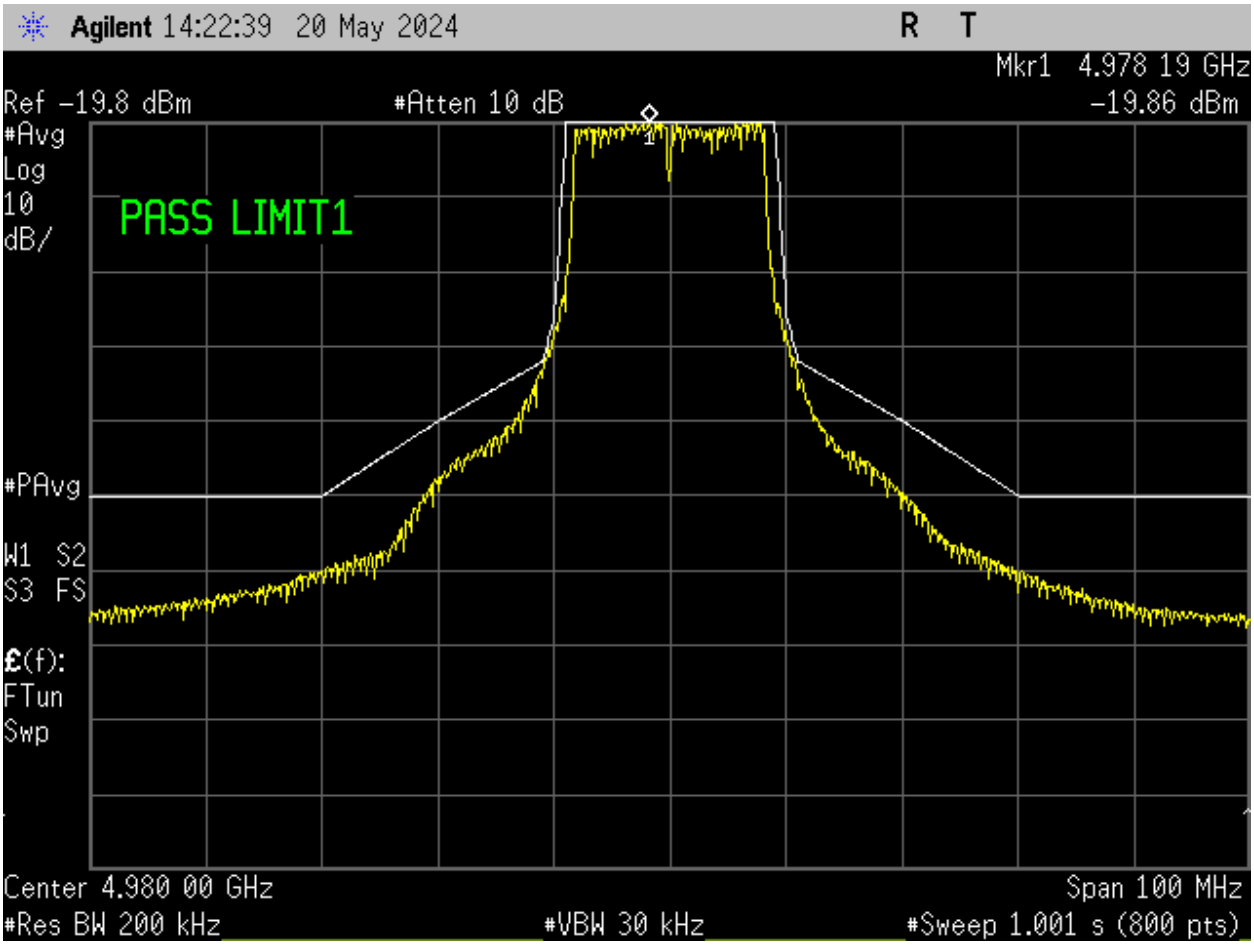


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

Back to Matrix

SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4980.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

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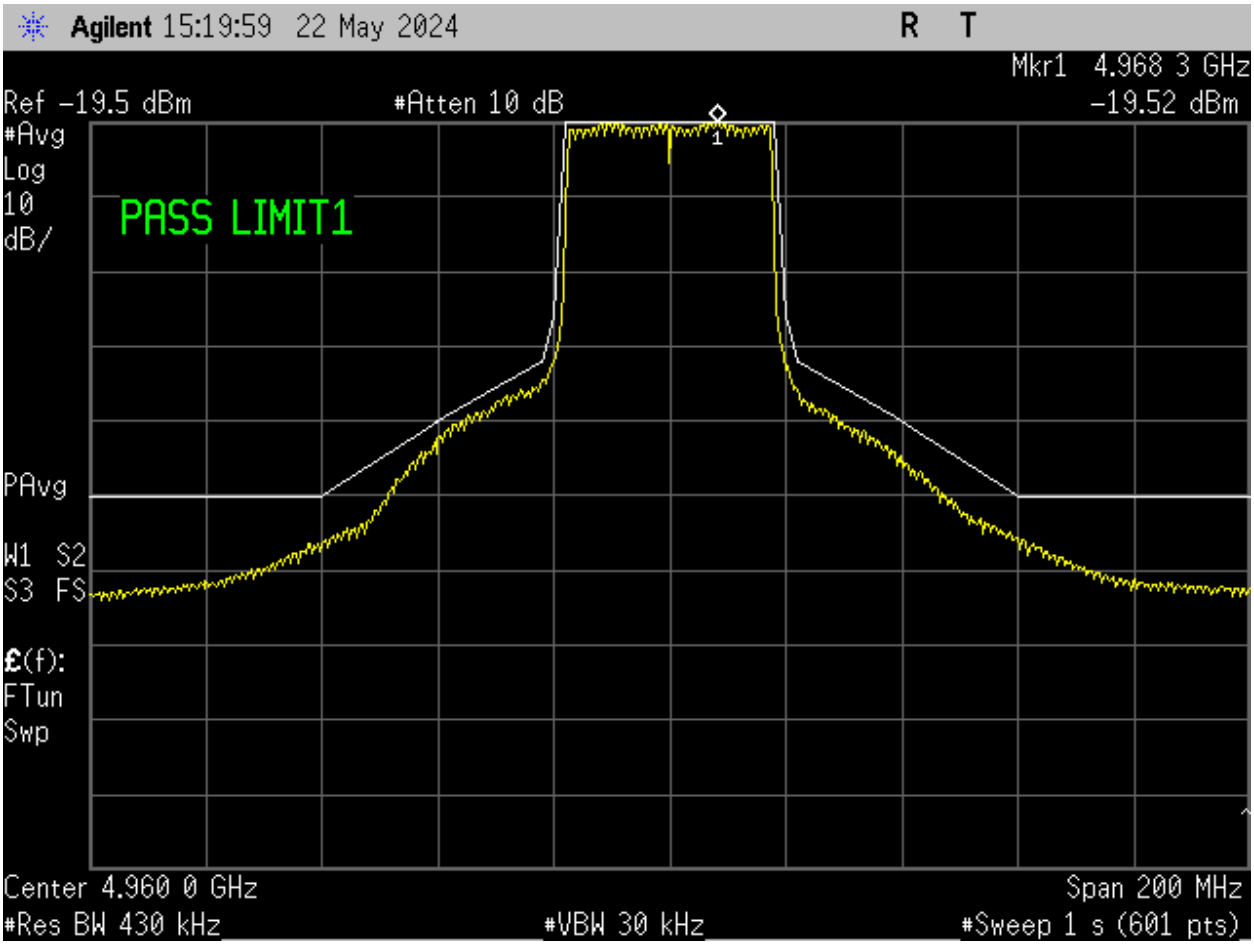
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4960.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

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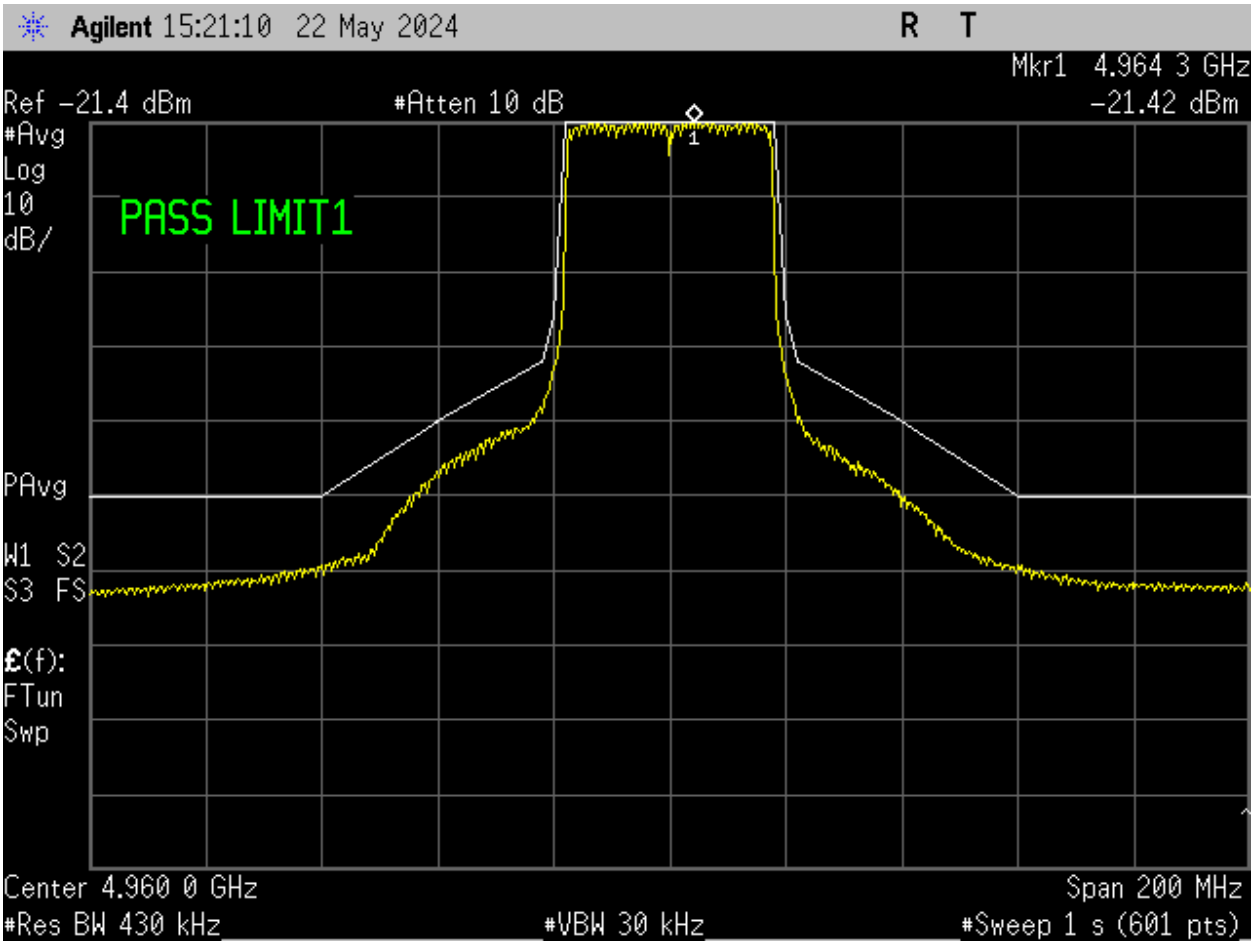
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4960.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

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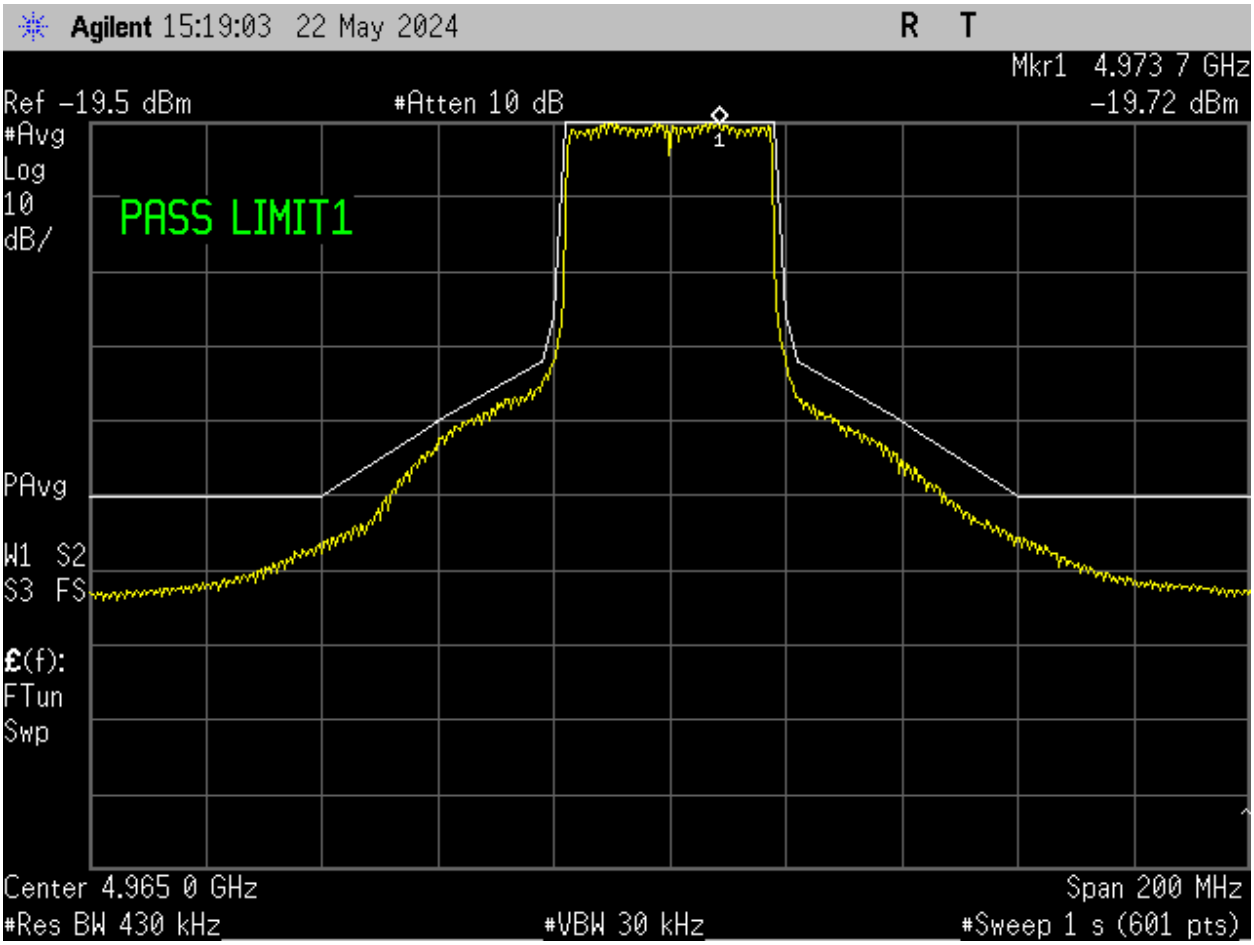
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

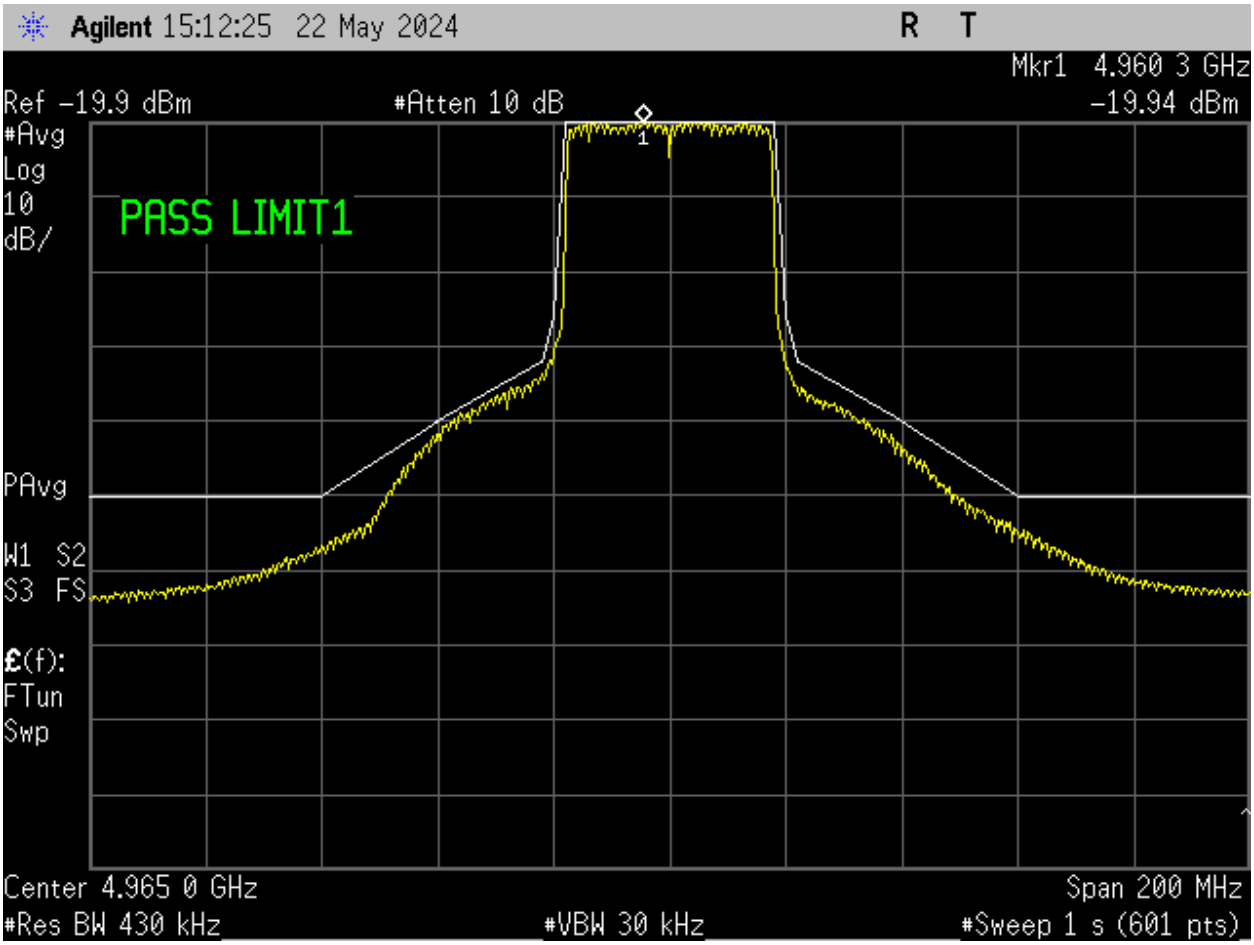


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

Back to Matrix

SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

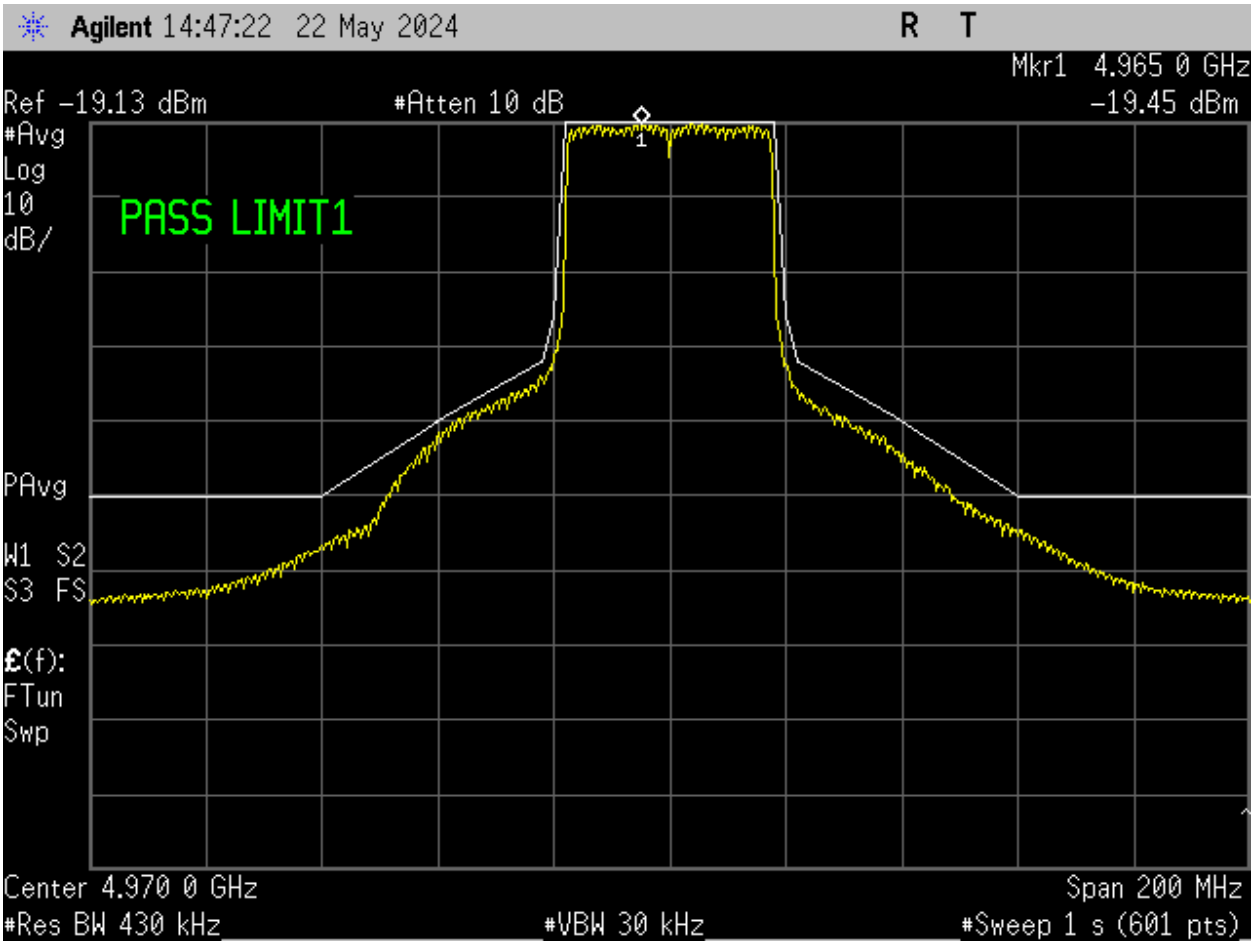


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

Back to Matrix

SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4970.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc

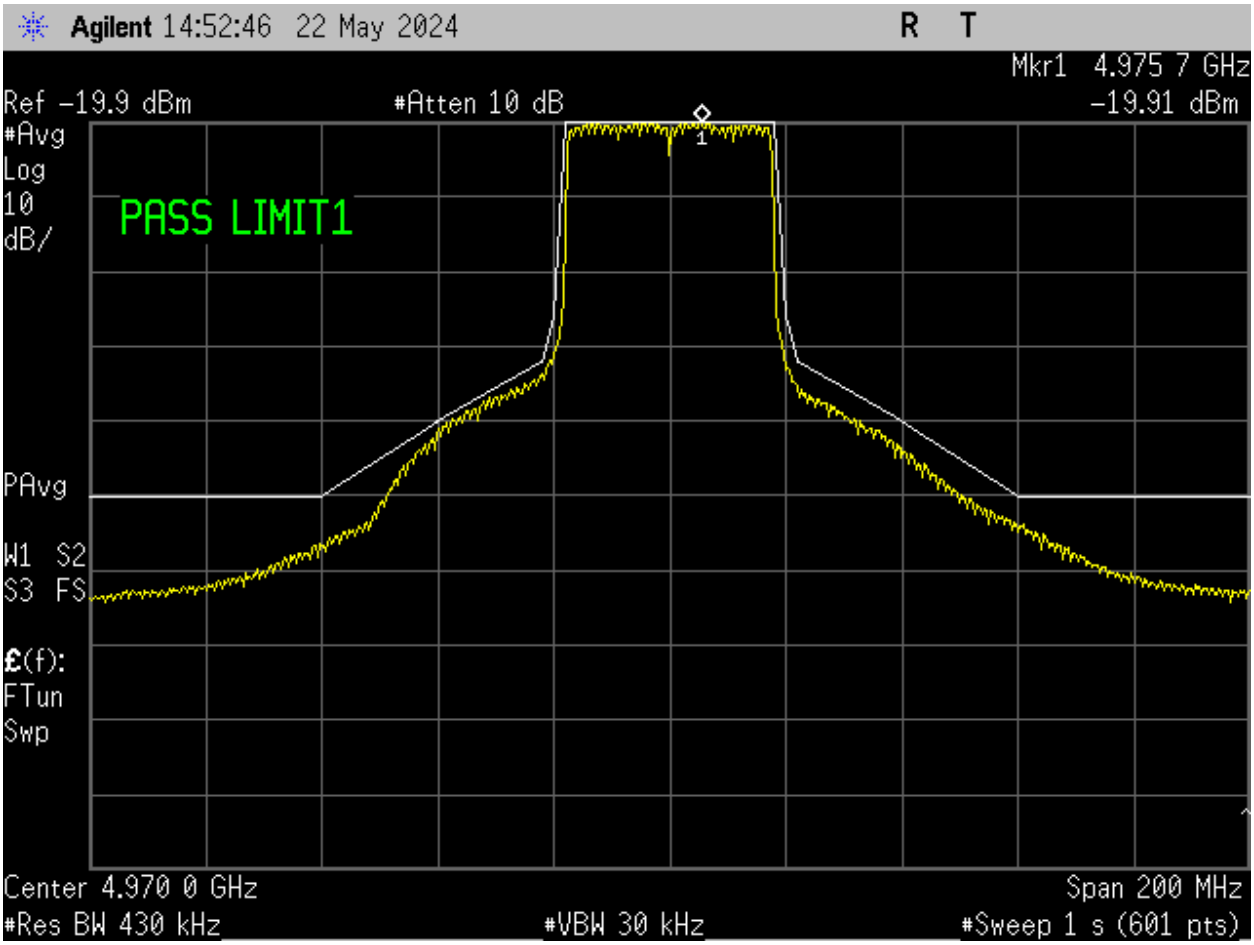


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

Back to Matrix

SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4970.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc

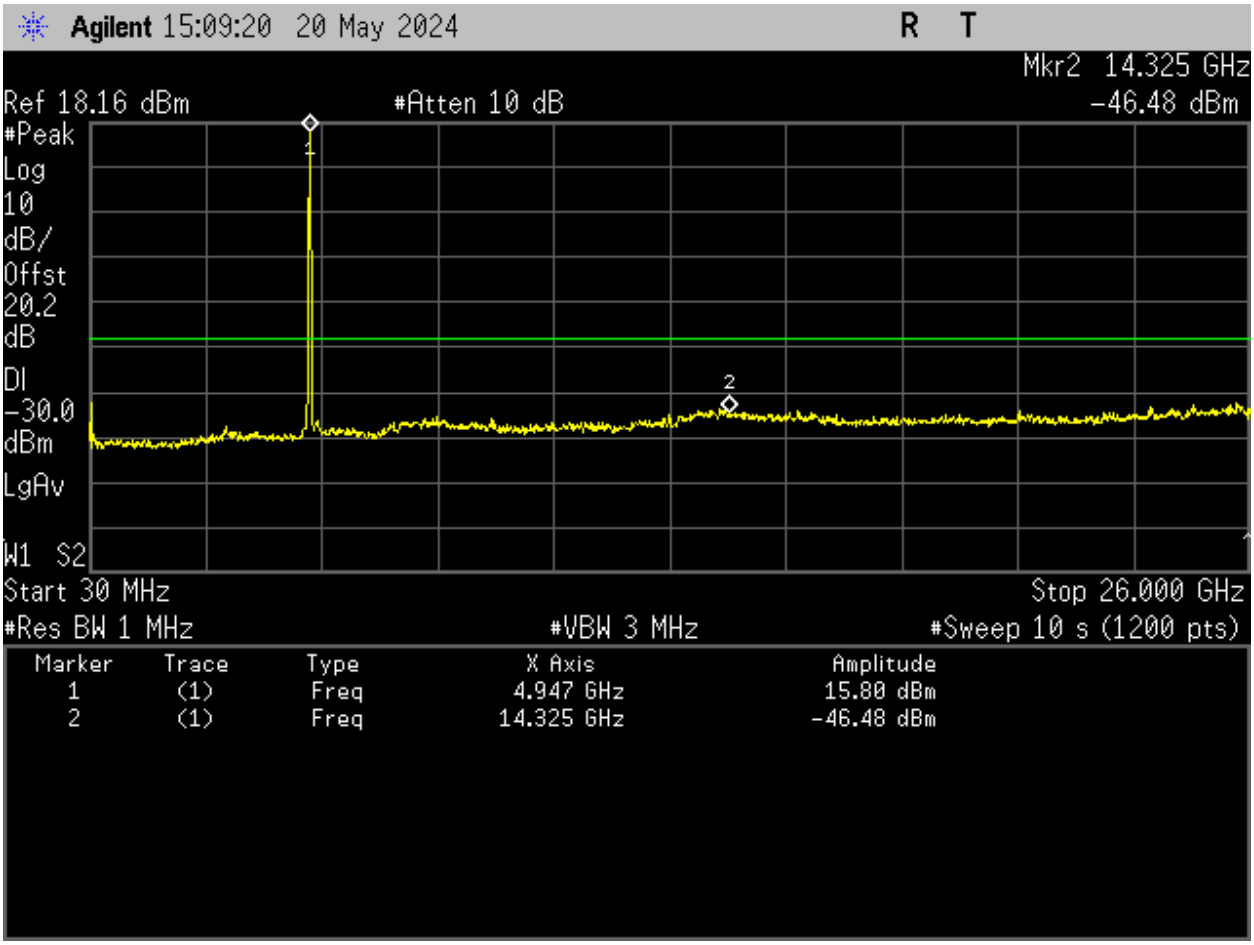


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Avg Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLRWR		

Back to Matrix

SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4950.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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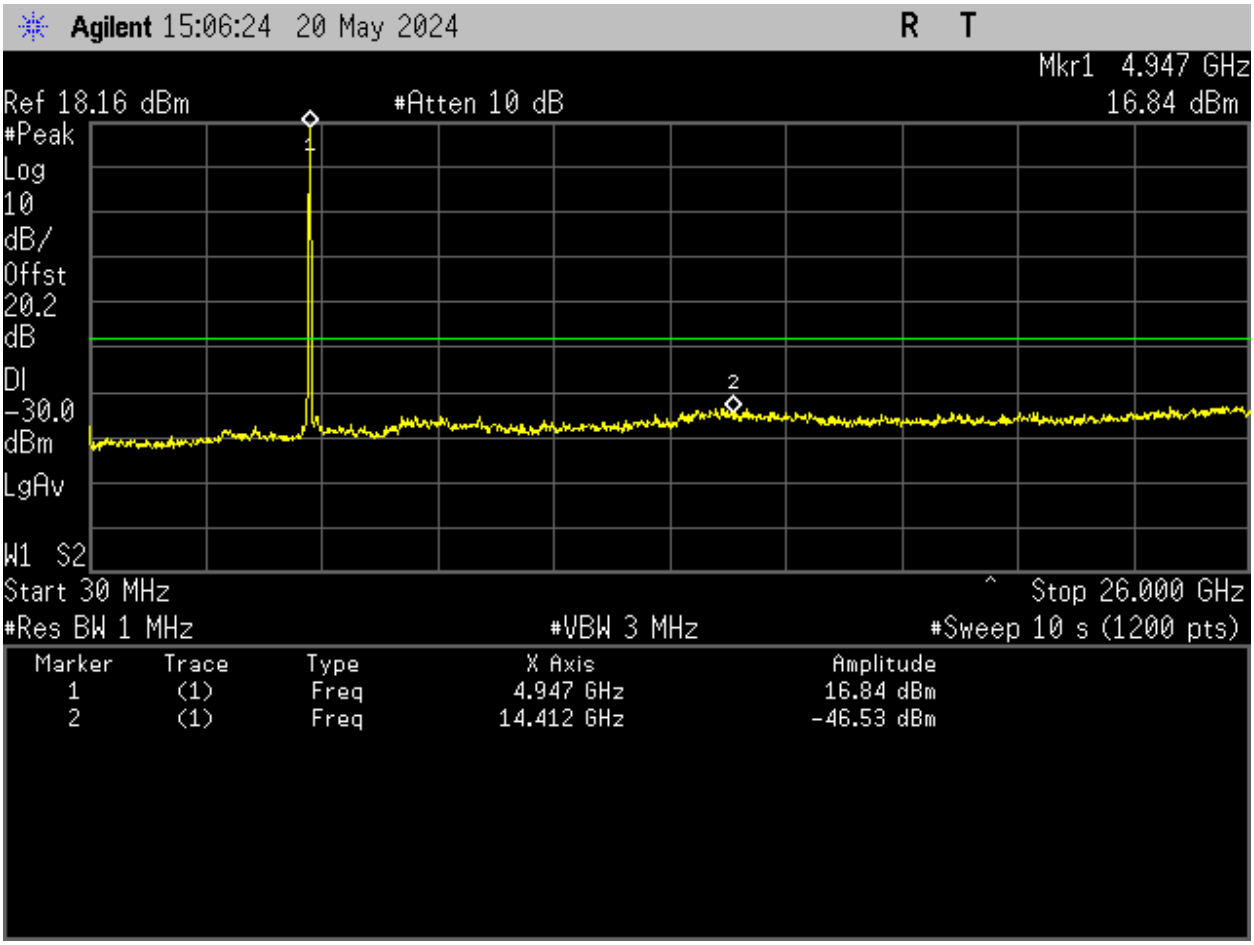
SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4950.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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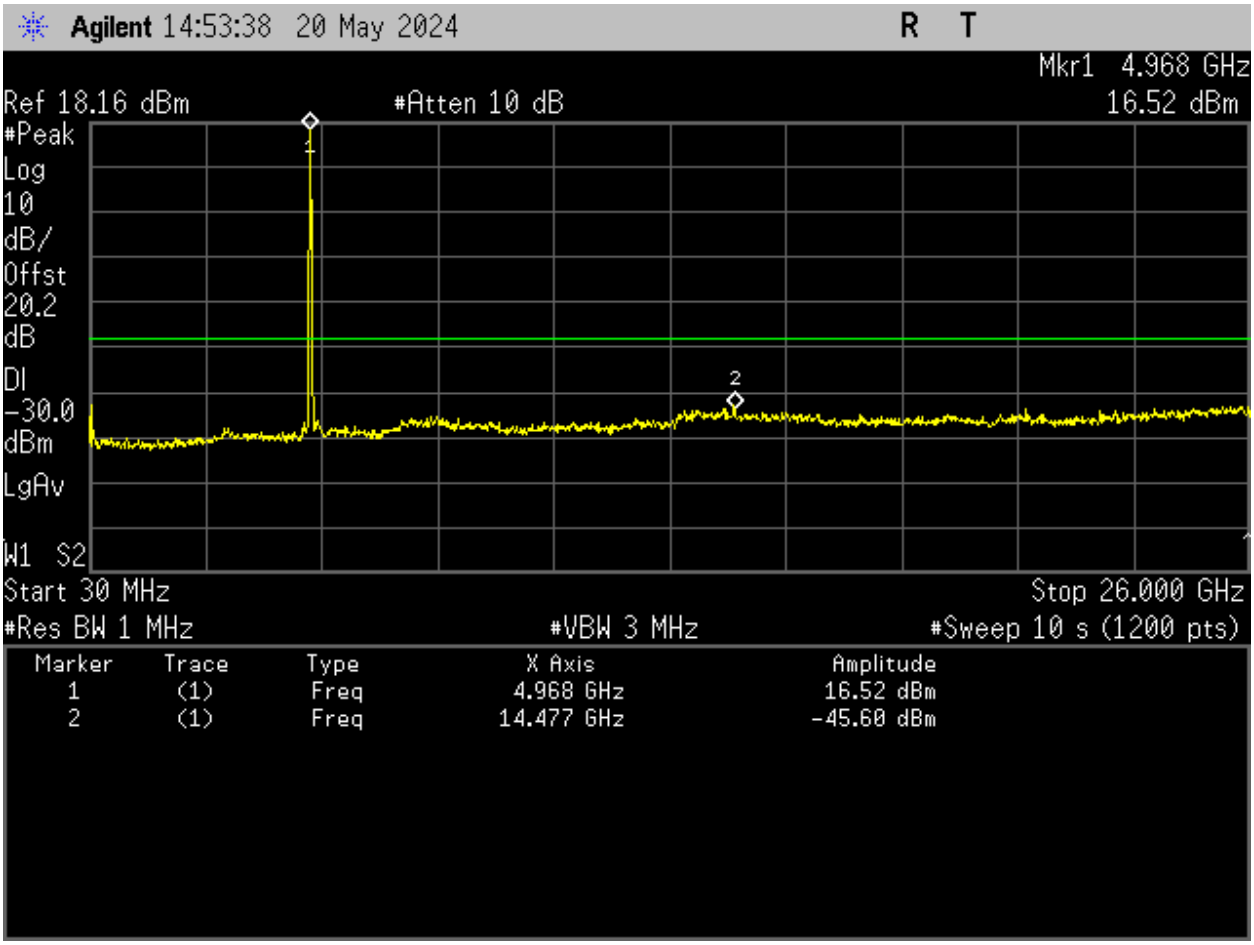
SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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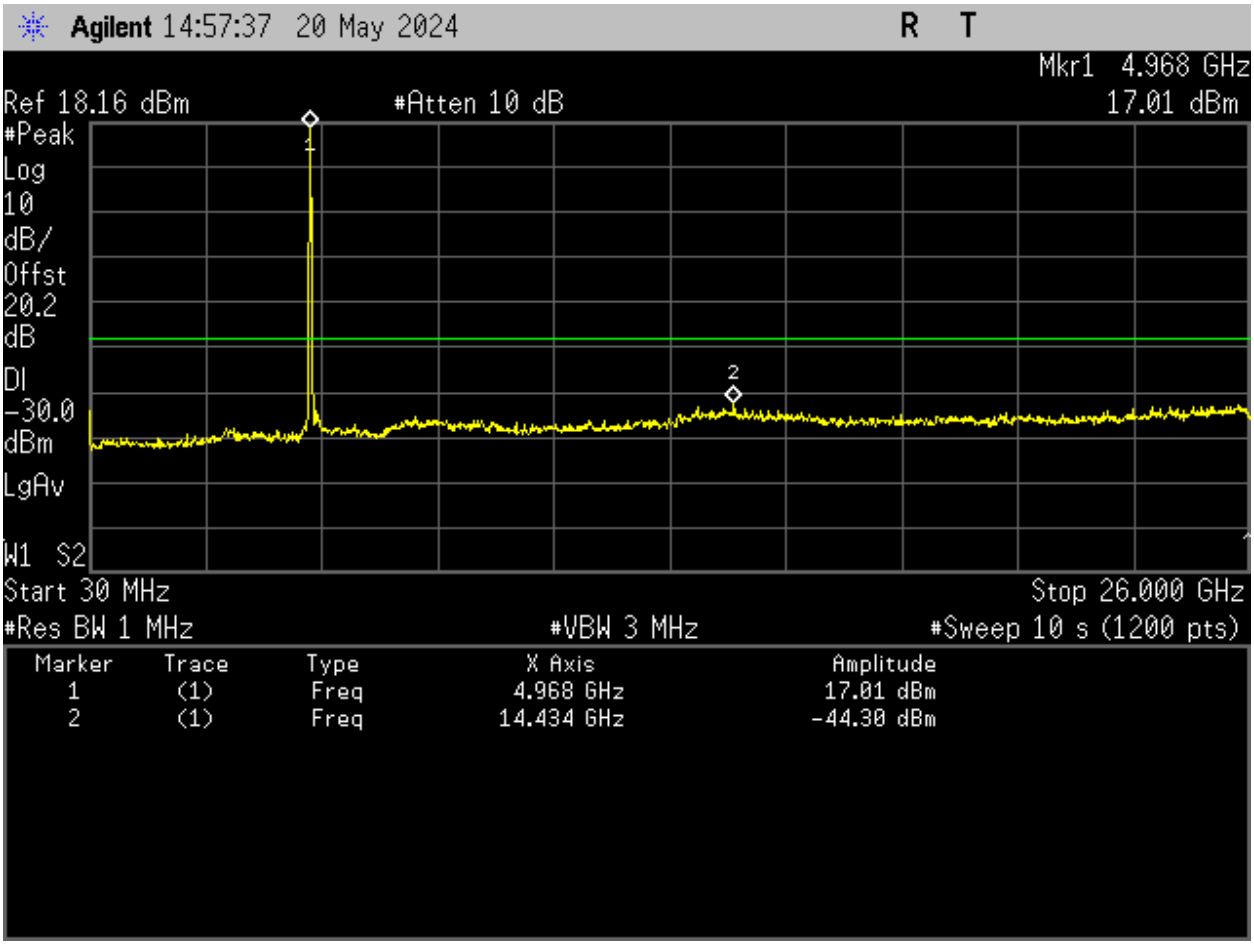
SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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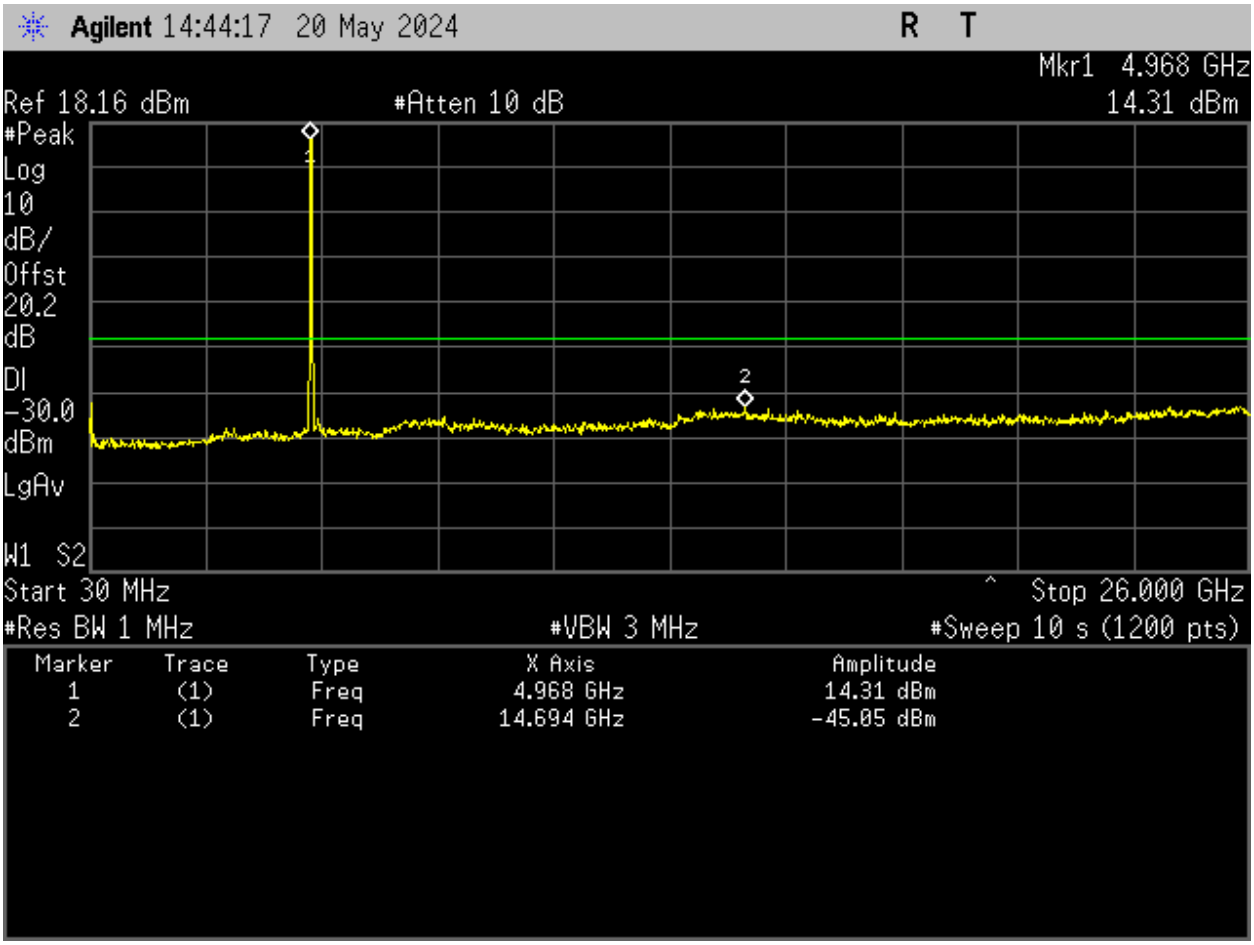
SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4980.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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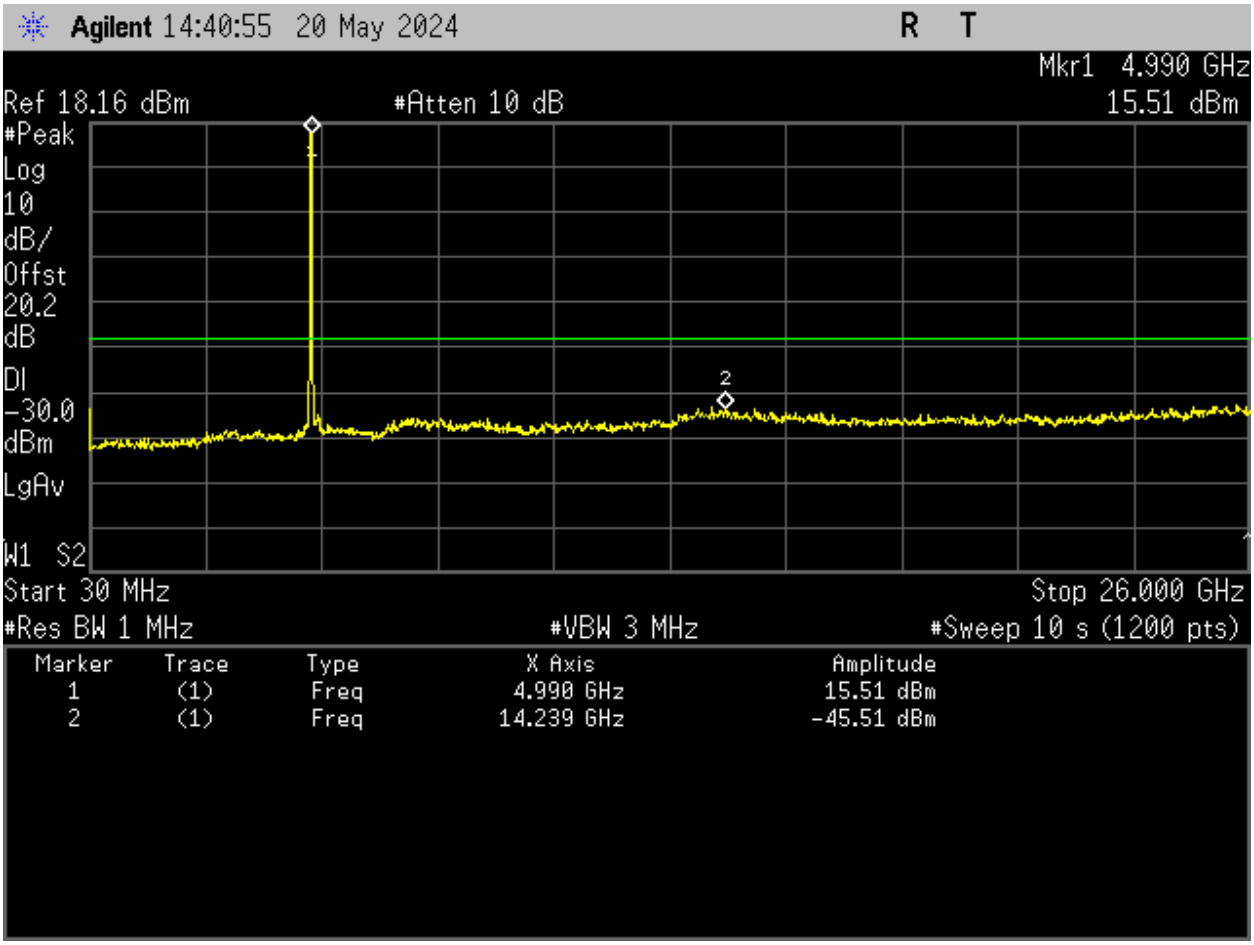
SPECTRUM EMISSION MASK

Variant: 20MHz, Channel: 4980.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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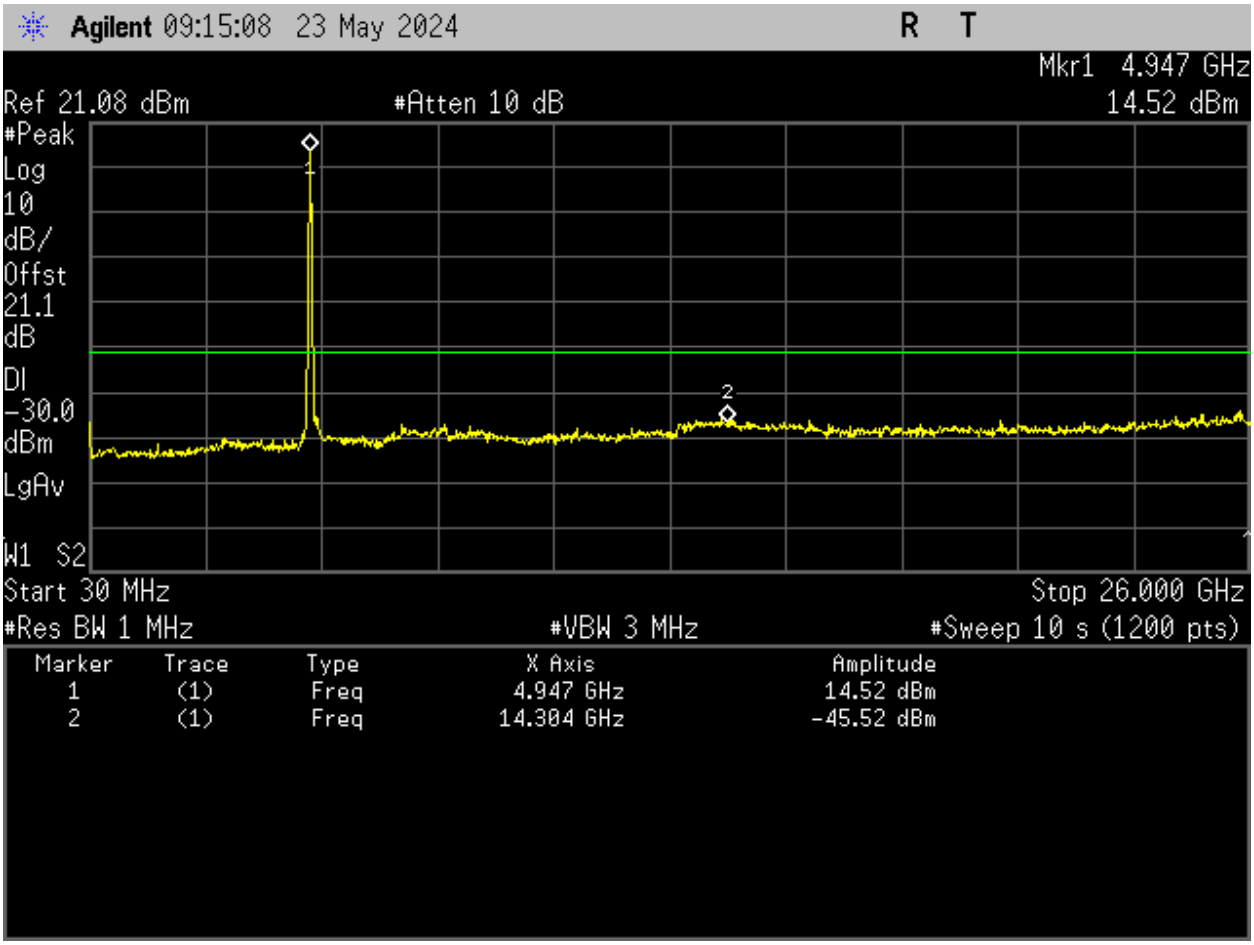
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4960.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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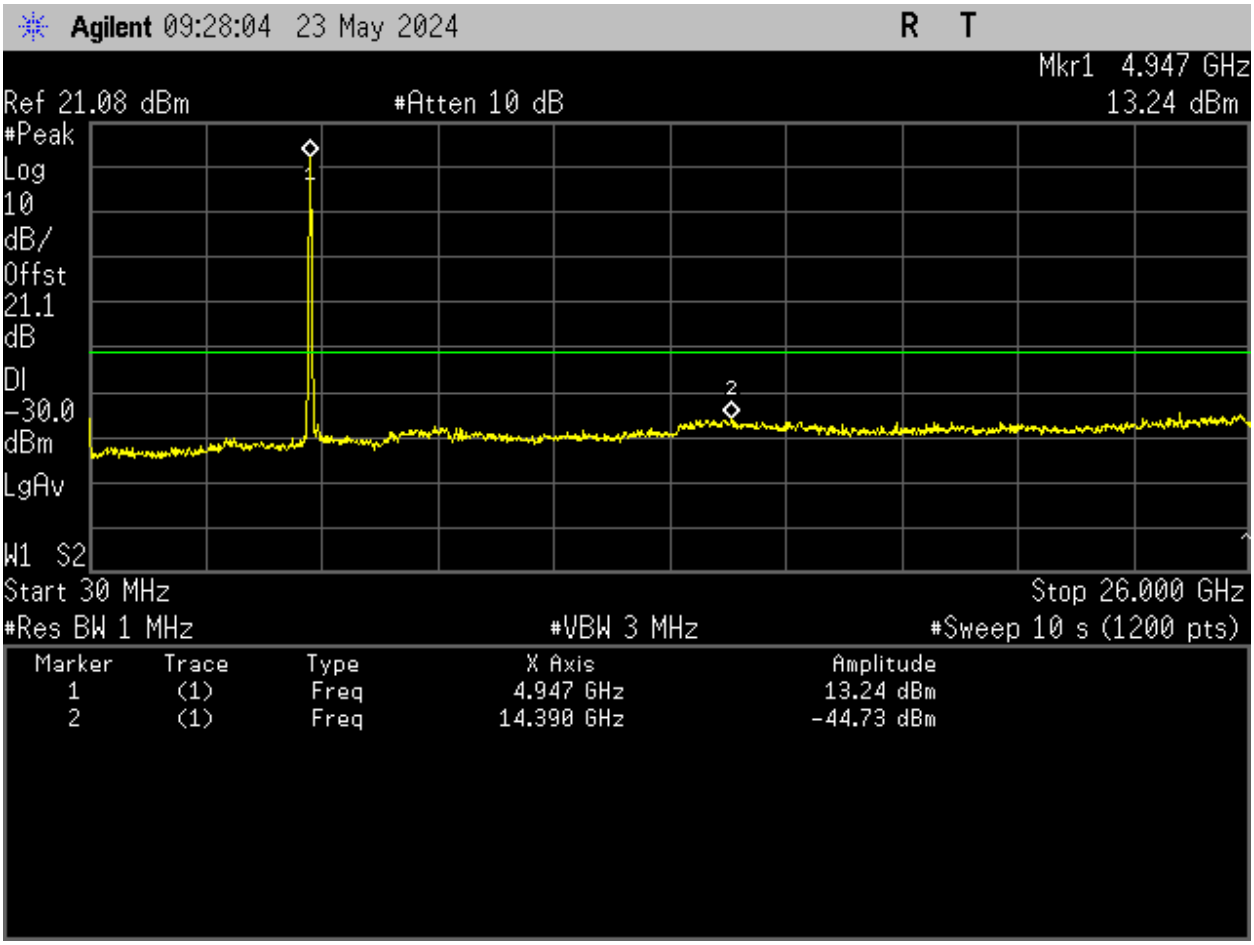
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4960.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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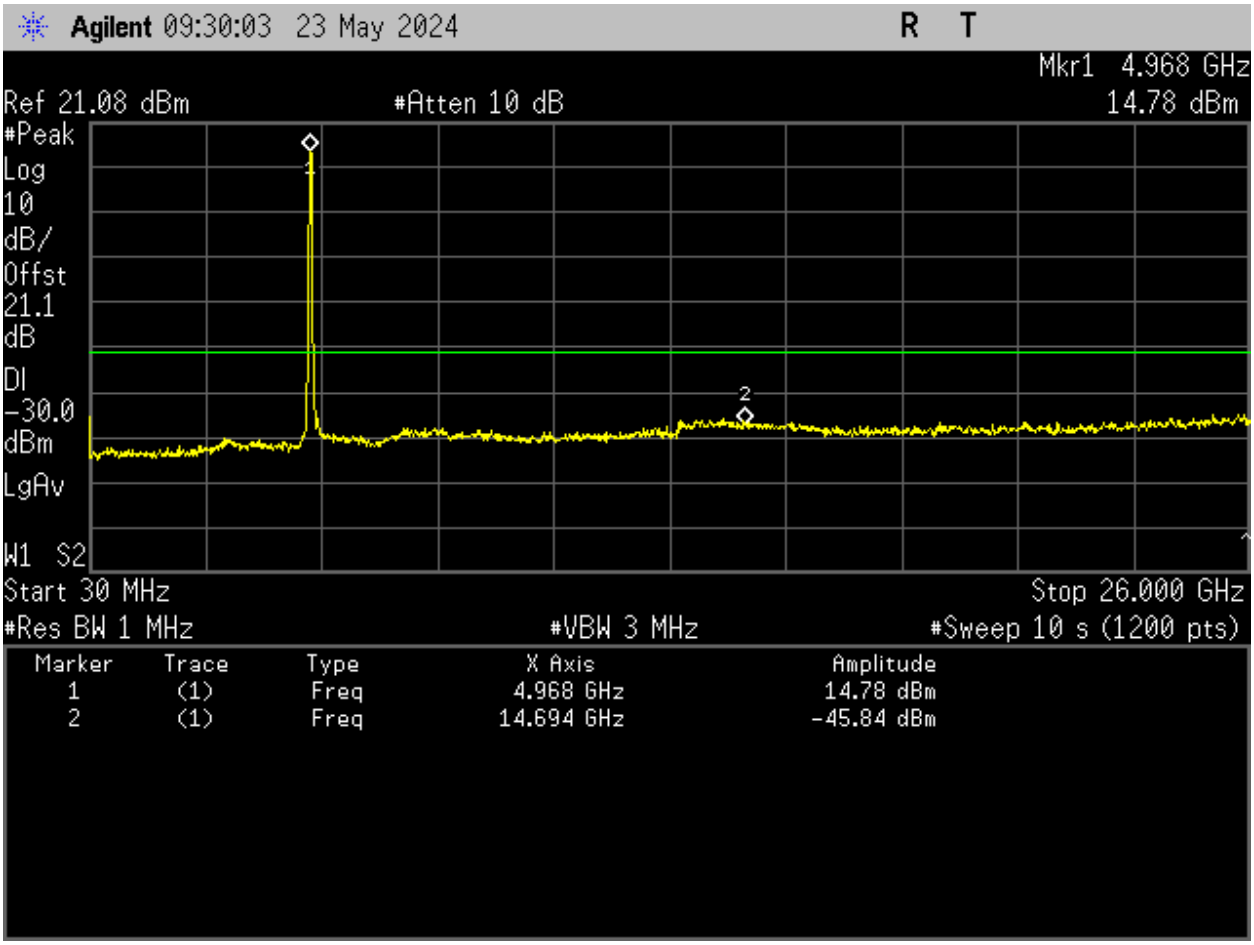
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4965.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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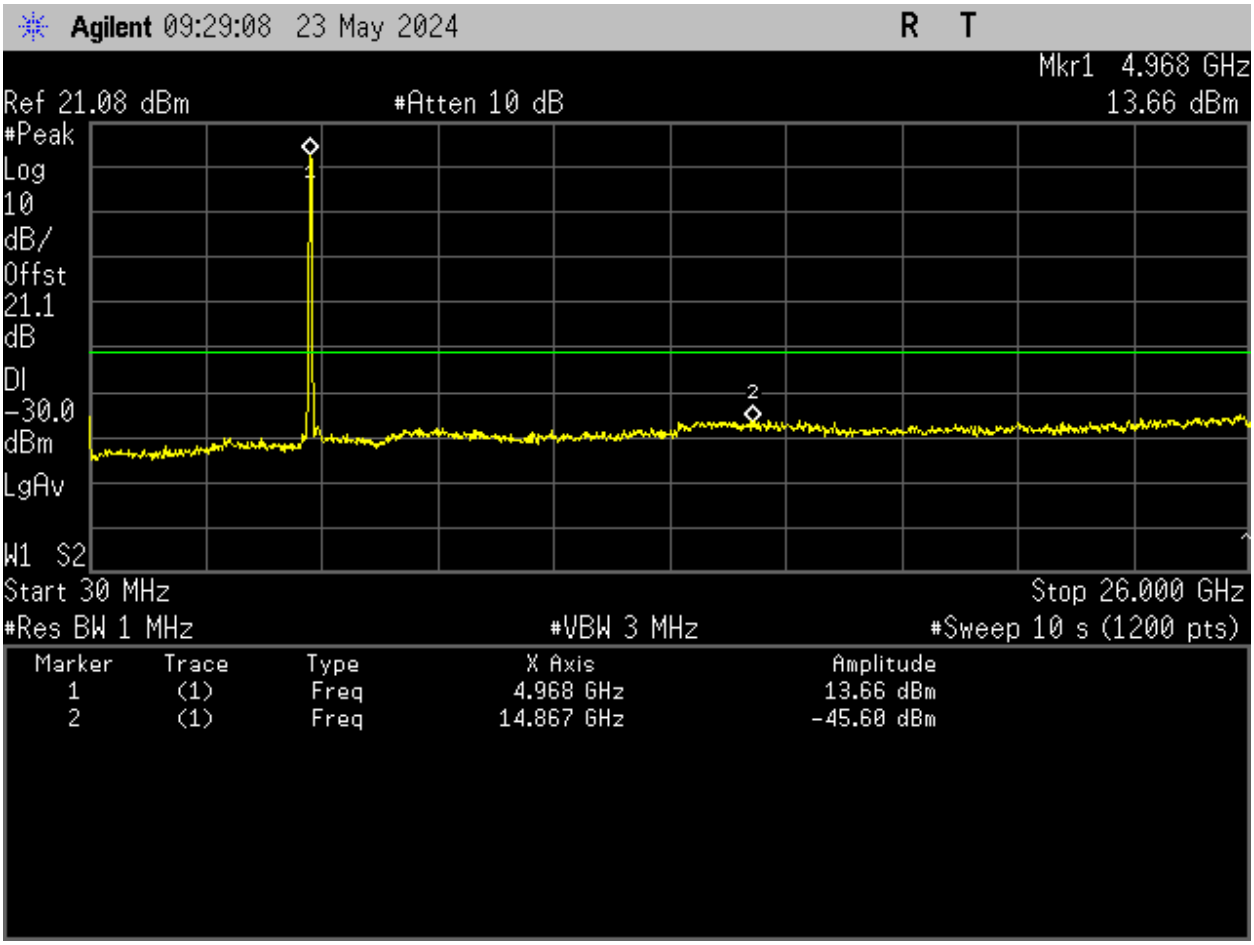
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4965.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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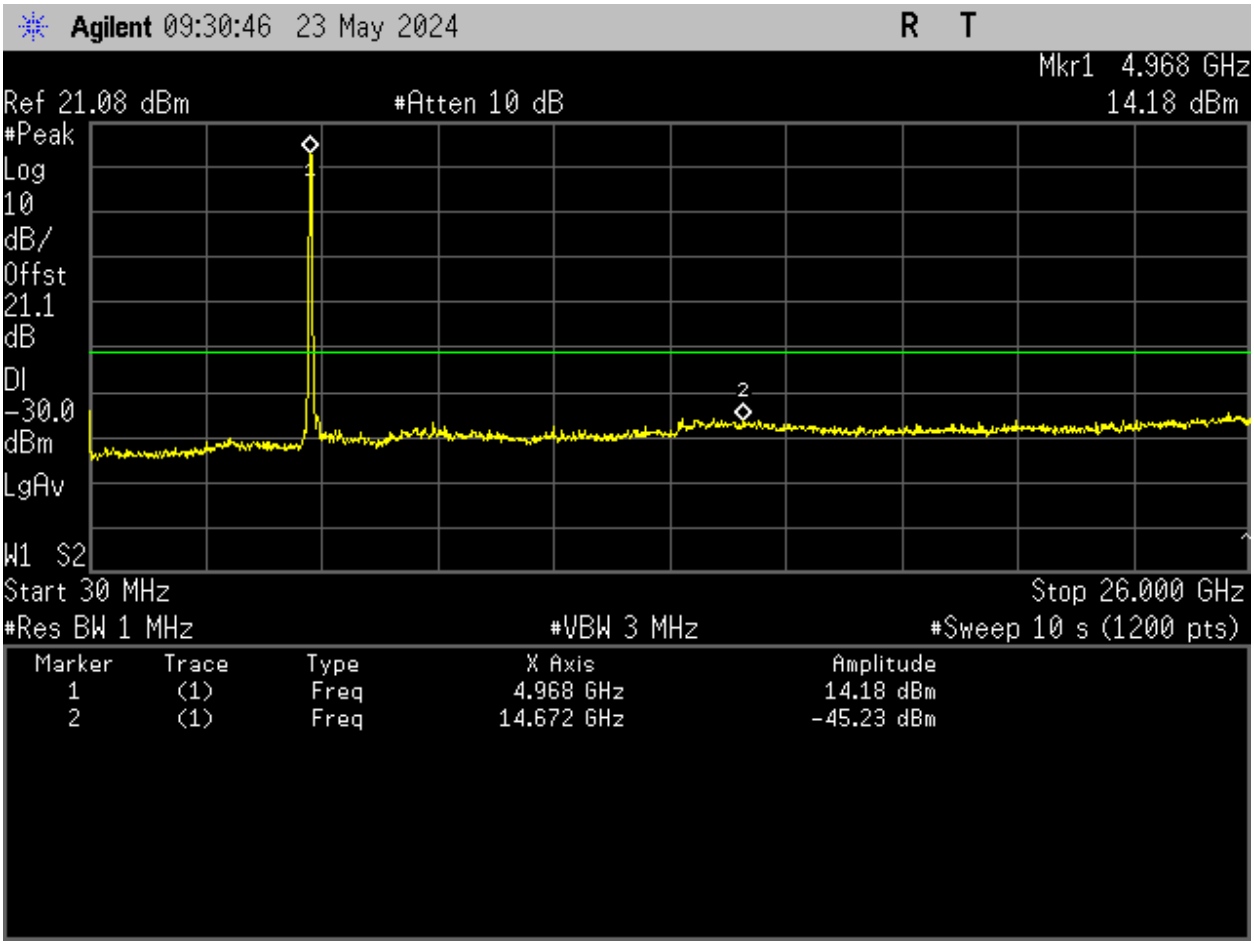
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4970.00 MHz, Chain a, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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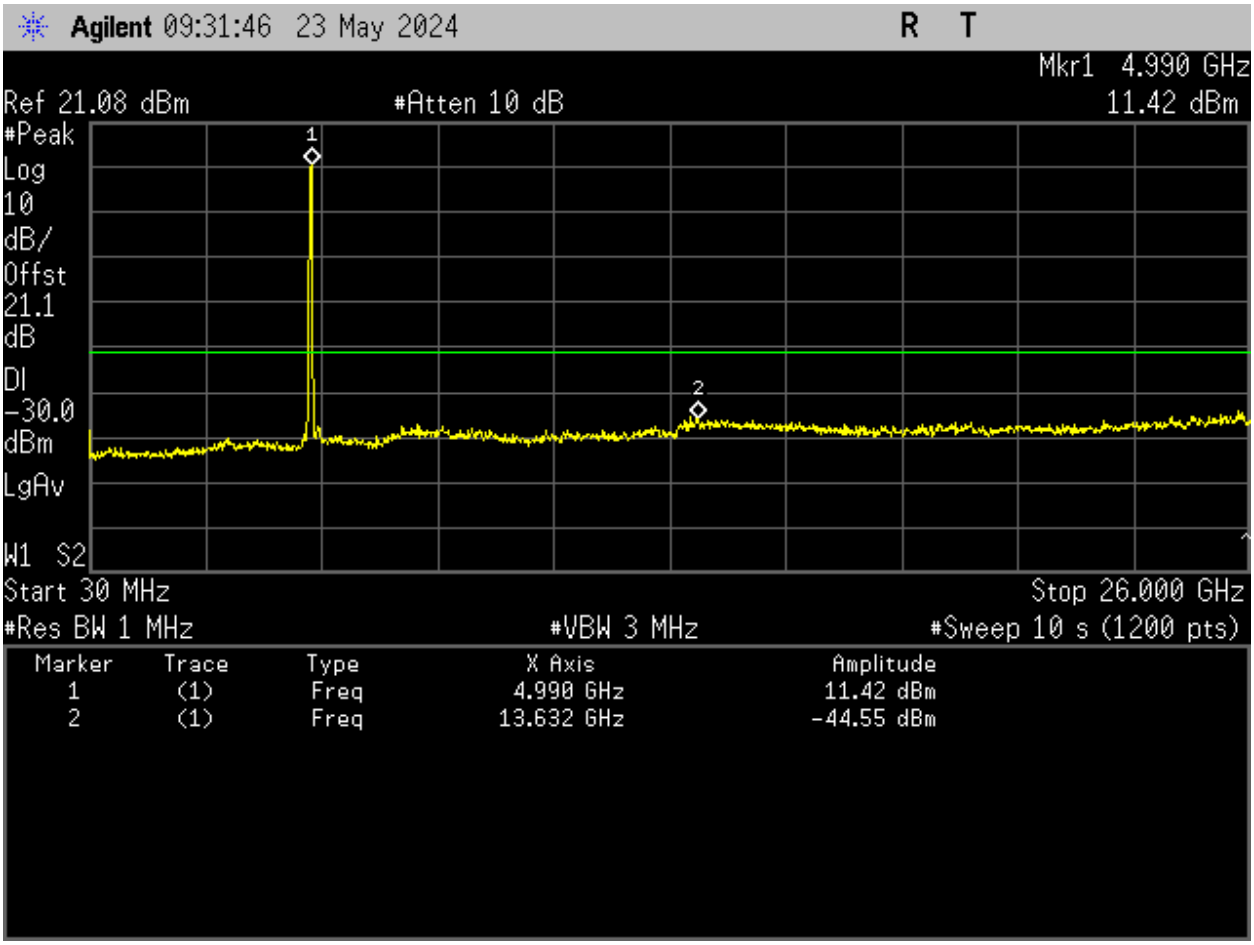
SPECTRUM EMISSION MASK

Variant: 40MHz, Channel: 4970.00 MHz, Chain b, Temp: 20, Voltage: 56 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = Peak Sweep Count = 0 RF Atten (dB) = 10 Trace Mode = CLRWR		

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