



## **REGULATORY COMPLIANCE TEST REPORT**

**FCC CFR 47 Part 15 Subpart C 15.247 & ISED RSS-247**

**Report No.: ITRO67-U7 Rev A**

**Company:** Itron Networked Solutions, Inc.

**Model Name:** ERG-5600-005

## REGULATORY COMPLIANCE TEST REPORT

**Company Name:** Itron, Inc.

**Model Name:** ERG-5600-005

**To:** FCC CFR 47 Part 15 Subpart C 15.247 & ISED RSS-247

**Test Report Serial No.:** ITRO67-U7 Rev A

This report supersedes: NONE

**Applicant:** Itron, Inc.  
2401 North State St.  
Waseca,  
Minnesota 56093  
United States of America

**Issue Date:** 18th July 2024

**This Test Report is Issued Under the Authority of:**

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**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](http://www.a2la.org) test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-01.pdf>



### Accredited Laboratory

A2LA has accredited

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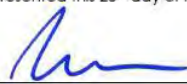
for technical competence in the field of

**Electrical Testing**

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



Presented this 28<sup>th</sup> 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 Phase I - recognition for product testing

Phase II – recognition for both product testing and certification



### 1.3. PRODUCT CERTIFICATION

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. The company is accredited by the American Association for Laboratory Accreditation (A2LA) [www.a2la.org](http://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

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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 28<sup>th</sup> day of February 2024.



Mr. Trace McInturf, 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	8th July 2024	Draft report for client review.
Rev A	18th July 2024	Initial release.

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

### 3. TEST RESULT CERTIFICATE

<b>Manufacturer:</b> Itron, Inc 313 North Hwy 11. West Union, South Carolina 29696-2706 USA	<b>Tested By:</b> MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
<b>Model:</b> ERG-5600-005	<b>Telephone:</b> +1 925 462 0304
<b>Type Of Equipment:</b> RF-based meter data collection solution	<b>Fax:</b> +1 925 462 0306
<b>S/N's:</b> Conducted: 2935662-08 Radiated: 2935662-04	
<b>Test Date(s):</b> 13 <sup>th</sup> – 19 <sup>th</sup> June 2024	<b>Website:</b> www.micomlabs.com

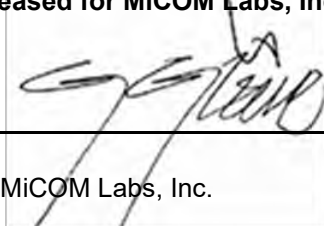
STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart C 15.247 & ISED RSS-247	EQUIPMENT COMPLIES

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.

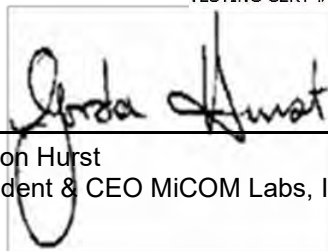
**Notes:**

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.

**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 558074 D01 v05r02	Apr 2019	Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices operating under section 15.247 of the FCC Rules.
II	A2LA	16th April 2024	R105 - Requirement's When Making Reference to A2LA Accreditation Status
III	ANSI C63.10	2020	American National Standard for Testing Unlicensed Wireless Devices
IV	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
V	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
VI	FCC 47 CFR Part 15, Subpart B	Nov 2017	Title 47: Telecommunication PART 15—RADIO FREQUENCY DEVICES, SubPart B; Unintentional Radiators
VII	FCC 47 CFR Part 15.247	Apr 2020	Radio Frequency Devices; Subpart C – Intentional Radiators
VIII	FCC Public Notice DA 00-705	Mar 2000	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems
IX	ICES-003	Issue 7; Oct 2020	Information Technology Equipment (Including Digital Apparatus)
X	UKAS M3003	Edition 6 March 2024	The Expression of Uncertainty and Confidence in Measurements
XI	RSS-247 Issue 3	Aug 2023	Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and Licence-Exempt Local Area Network (LE-LEN) Devices
XII	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.
XIII	FCC 47 CFR Part 2.1033	Feb 2023	FCC requirements and rules regarding photographs and test setup diagrams.
XIV	UKAS LAB 12	Edition 4 April 2022	The Expression of Uncertainty in Testing

## **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 Itron, Inc. 100G ERT® Module (ERG-5600-005) to FCC CFR 47 Part 15 Subpart C 15.247 & ISED RSS-247
Applicant:	Itron, Inc. 2401 North State St. Waseca MN 56093 United States of America
Manufacturer:	Itron, Inc.
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	ITRO67-U7
Date EUT received:	13 <sup>th</sup> June 2024
Standard(s) applied:	FCC CFR 47 Part 15 Subpart C 15.247 & ISED RSS-247
Dates of test (from - to):	13 <sup>th</sup> – 19 <sup>th</sup> June 2024
No of Units Tested:	2
Product Family Name:	100G ERT Modules
Model(s):	ERG-5600-005 ERG-5600-006
Location for use:	Indoors and Outdoors
Declared Frequency Range(s):	902 - 928 MHz;
Type of Modulation:	GFSK, OOK
EUT Modes of Operation:	902 - 928 MHz: GFSK, 37.5kbps, DEV 16.4kHz (FHSS); GFSK, 37.5kbps, DEV 50kHz (FHSS); OOK - PL1; OOK - PL3;
Declared Nominal Output Power (dBm):	30
Rated Input Voltage and Current:	3.6VDC, 0.25A
Operating Temperature Range:	-40°C to +70°C
ITU Emission Designator:	GFSK 136KF1D OOK 132KL1D
Equipment Dimensions:	5.54 x 3.57 x 3.1
Weight:	0.85 LB
Hardware Rev:	3
Software Rev:	CSL 10.0.15.0

## **5.2. Scope Of Test Program**

### **Itron, Inc. ERG-5600-005**

The scope of the test program was to test the Itron, Inc. ERG-5600-005, 100G ERT® Module (ERG-5600-005) configurations in the frequency ranges 902 - 928 MHz; for compliance against the following specification:

#### **FCC CFR 47 Part 15 Subpart C 15.247 & ISED RSS-247 (FHSS)**

Radio Frequency Devices; Subpart C – Intentional Radiators

#### **ISED RSS-247**

Digital Transmission Systems (DTSs), Frequency Hopping System (FHSs) and License-Exempt Local Area Network (LE-LEN) Devices

The Itron ERG-5600-005 is also marketed as the following Model Number per Manufacturer Declaration (refer to Section 11 of this report)

ERG-5600-006

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

Type (EUT/Support)	Equipment Description	Mfr	Model No.	Serial No.
EUT	RF-based meter data collection solution	Itron, Inc.	ERG-5600-005	Conducted: 2935662-08 Radiated: 2935662-04
Laptop Computer	Support	Lenovo	ThinkPad	N/A

### 5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
Integral	Itron, Inc.	Integral	PCB	2.23	-	360	-	902-928

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

### 5.5. Cabling and I/O Ports

1. NONE



## 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
<b>902 - 928 MHz</b>				
GFSK, 37.5kbps, DEV 16.4kHz	37.5	903.00	915.00	926.80
GFSK, 37.5kbps, DEV 50kHz	37.5	903.00	915.00	926.80
OOK - PL1	16.38	903.00	915.00	926.80
OOK - PL3	16.38	903.00	915.00	926.80

## 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
20 dB & 99% Bandwidth	Complies	<a href="#">View Data</a>
Frequency Hopping Tests	Complies	-
Number of Hopping Channels	Complies	<a href="#">View Data</a>
Channel Separation	Complies	<a href="#">View Data</a>
Output Power	Complies	<a href="#">View Data</a>
Emissions	Complies	-
(1) Conducted Emissions	Complies	-
(i) Conducted Unwanted Spurious Emissions	Complies	<a href="#">View Data</a>
(ii) Conducted Band-Edge Emissions	Complies	<a href="#">View Data</a>
(2) Radiated Emissions	Complies	-
(i) TX Spurious & Restricted Band Emissions	Complies	<a href="#">View Data</a>
(ii) RX Spurious Emissions	Complies	<a href="#">View Data</a>

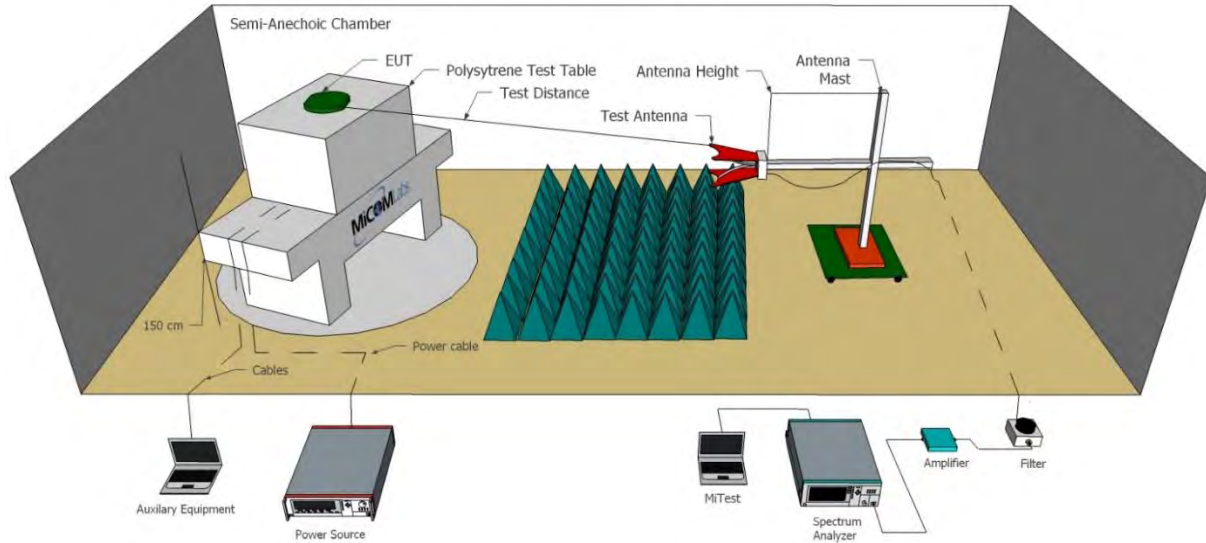
**Note:** Dwell Time and Channel Occupancy were not tested as part of this test program, these were declared for normal network operation by Itron. See Section 10 of this report for additional information.

## 7. TEST EQUIPMENT CONFIGURATION(S)

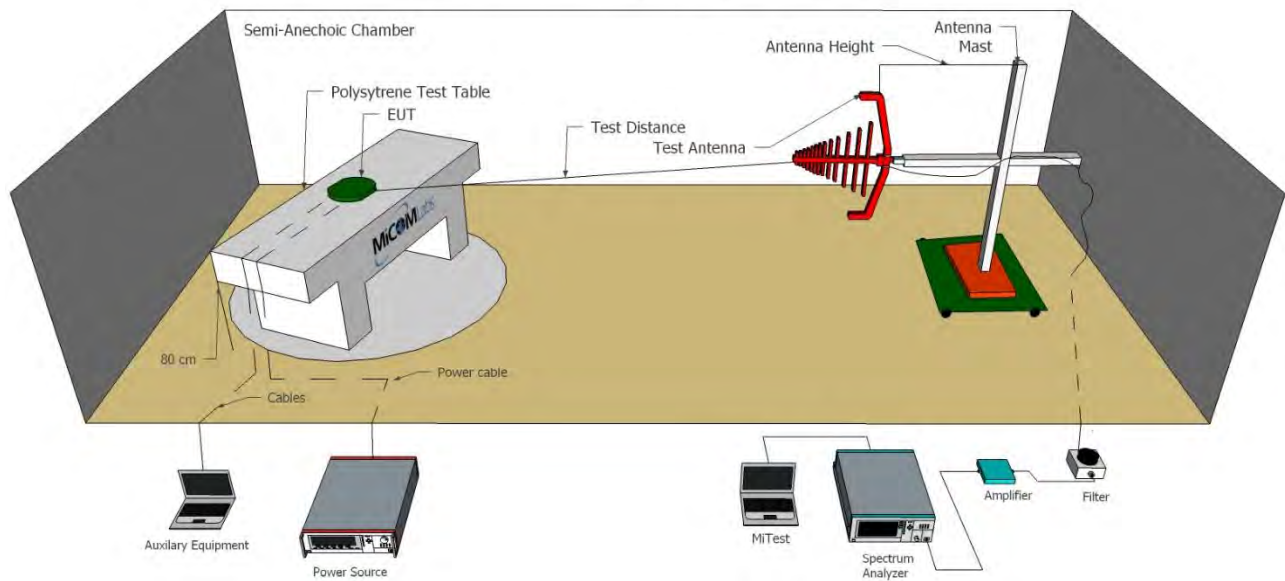
### 7.1. Radiated

Radiated emissions above and below 1GHz.

Radiated Emissions Above 1GHz Test Setup



Radiated Emissions Below 1GHz Test Setup



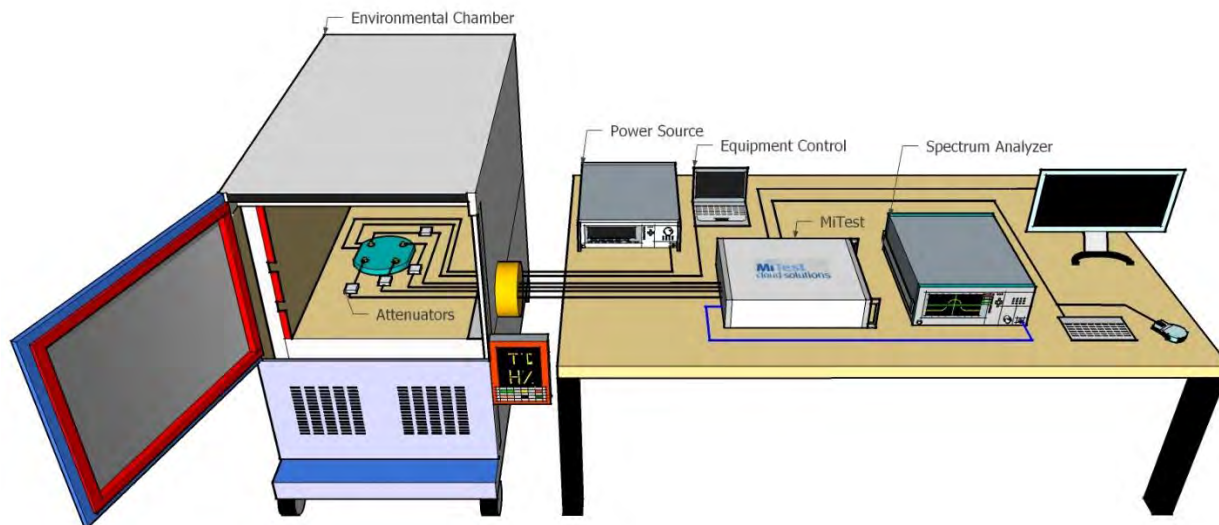
Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
266	10 Hz to 50GHz MXA Signal Analyzer	Keysight	N9020B	MY60110791	25 Jul 2025
285	DC Power Supply	Keysight	E36155A	MY63000156	4 Dec 2024
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	11 Oct 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
341	900MHz Notch Filter	EWT	EWT-14-0199	H1	13 Sep 2024
346	1.6 TO 10GHz High Pass Filter	EWT	EWT-57-0112	H1	13 Sep 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
396	2.4 GHz Notch Filter	Microtronics	BRM50701	001	13 Sep 2024
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	27 Oct 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-	Mini-Circuits	NLP-1200+	VUU01901402	14 Sep 2024

	1000 MHz				
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 2025
578	DC Power Supply 0 - 60 V, 0 - 15 A	HP	6274B	2537A-08192	Not Required
87	Uninterruptible Power Supply	Falcon Electric	ED2000-1/2LC	F3471 02/01	Cal when used
CC05	Confidence Check	MiCOM	CC05	None	11 Aug 2024



## 7.2. Conducted Test Setup

MiTest Automated Test System



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 Oct 2024
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	26 Oct 2024
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	26 Oct 2024
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	26 Oct 2024
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	26 Oct 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 2025
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	Boonton	55006	9181	12 Dec 2024

	Sensor				
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 Oct 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 2025
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	20 Nov 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. 20 dB & 99% Bandwidth

Conducted Test Conditions for 20 dB and 99% Bandwidth			
<b>Standard:</b>	FCC CFR 47:15.247 ISED RSS-247	<b>Ambient Temp. (°C):</b>	24.0 - 27.5
<b>Test Heading:</b>	20 dB and 99 % Bandwidth	<b>Rel. Humidity (%):</b>	32 - 45
<b>Standard Section(s):</b>	15.247 (a)(1)(i)/(ii) Section 5.1	<b>Pressure (mBars):</b>	999 - 1001
<b>Reference Document(s):</b>	See Normative References		

#### Test Procedure for 20 dB and 99% Bandwidth Measurement

The bandwidth at 20 dB and 99 % was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

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 specified in this document.

#### Limits for 20 dB and 99% Bandwidth

(a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

(i) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

(ii) Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

**Equipment Configuration for 20 dB 99% Bandwidth**

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured 20 dB Bandwidth (MHz)				20 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)				Highest	Lowest		
	a	b	c	d				
<b>MHz</b>					<b>MHz</b>	<b>MHz</b>	<b>MHz</b>	<b>MHz</b>
903.0	<a href="#">0.068</a>	--	--	--	0.068	0.068	0.5	-0.43
915.0	<a href="#">0.076</a>	--	--	--	0.076	0.076	0.5	-0.42
926.8	<a href="#">0.065</a>	--	--	--	0.065	0.065	0.5	-0.44

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
	a	b	c	d			
<b>MHz</b>							
903.0	<a href="#">0.062</a>	--	--	--	0.062		
915.0	<a href="#">0.065</a>	--	--	--	0.065		
926.8	<a href="#">0.062</a>	--	--	--	0.062		

**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 20 dB 99% Bandwidth**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured 20 dB Bandwidth (MHz)				20 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)				Highest	Lowest		
	a	b	c	d				
<b>MHz</b>					<b>MHz</b>	<b>MHz</b>	<b>MHz</b>	<b>MHz</b>
903.0	<a href="#">0.136</a>	--	--	--	0.136	0.136	0.5	-0.36
915.0	<a href="#">0.136</a>	--	--	--	0.136	0.136	0.5	-0.36
926.8	<a href="#">0.142</a>	--	--	--	0.142	0.142	0.5	-0.36

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
	a	b	c	d			
<b>MHz</b>							
903.0	<a href="#">0.131</a>	--	--	--	0.131		
915.0	<a href="#">0.131</a>	--	--	--	0.131		
926.8	<a href="#">0.132</a>	--	--	--	0.132		

**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 20 dB 99% Bandwidth**

<b>Variant:</b>	OOK - PL1	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured 20 dB Bandwidth (MHz)				20 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)				Highest	Lowest		
	a	b	c	d				
903.0	<a href="#">0.060</a>	--	--	--	0.060	0.060	0.5	-0.44
915.0	<a href="#">0.061</a>	--	--	--	0.061	0.061	0.5	-0.44
926.8	<a href="#">0.060</a>	--	--	--	0.060	0.060	0.5	-0.44

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
	a	b	c	d			
903.0	<a href="#">0.124</a>	--	--	--	0.124		
915.0	<a href="#">0.125</a>	--	--	--	0.125		
926.8	<a href="#">0.123</a>	--	--	--	0.123		

**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 20 dB 99% Bandwidth**

<b>Variant:</b>	OOK - PL3	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured 20 dB Bandwidth (MHz)				20 dB Bandwidth (MHz)		Limit	Lowest Margin
	Port(s)				Highest	Lowest		
	a	b	c	d				
903.0	<a href="#">0.062</a>	--	--	--	0.062	0.062	0.5	-0.44
915.0	<a href="#">0.068</a>	--	--	--	0.068	0.068	0.5	-0.43
926.8	<a href="#">0.061</a>	--	--	--	0.061	0.061	0.5	-0.44

Test Frequency	Measured 99% Bandwidth (MHz)				Maximum 99% Bandwidth (MHz)		
	Port(s)						
	a	b	c	d			
903.0	<a href="#">0.127</a>	--	--	--	0.127		
915.0	<a href="#">0.129</a>	--	--	--	0.129		
926.8	<a href="#">0.127</a>	--	--	--	0.127		

**Traceability to Industry Recognized Test Methodologies**

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

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

## 9.2. Frequency Hopping Tests

Conducted Test Conditions for Frequency Hopping Measurements			
<b>Standard:</b>	FCC CFR 47:15.247 ISED RSS-247	<b>Ambient Temp. (°C):</b>	24.0 - 27.5
<b>Test Heading:</b>	Frequency Hopping Tests	<b>Rel. Humidity (%):</b>	32 - 45
<b>Standard Section(s):</b>	15.247 (a)(1)(i)/(ii) Section 5.1	<b>Pressure (mBars):</b>	999 - 1001
<b>Reference Document(s):</b>	See Normative References, FCC Public Notice DA 00-705		

### Test Procedure for Frequency Hopping Measurements

These tests cover the following measurements:

- i) channel separation
- ii) channel occupancy
- iii) dwell time
- iv) number of hopping frequencies

Frequency hopping testing was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency or hopping mode.

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 specified in this document.

### Limits for Frequency Hopping Measurements

(a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

(i) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

(ii) Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

(iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

**9.2.1. Number of Hopping Channels**

**Equipment Configuration for Number of Hopping Channels**

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Frequency Range (MHz)	Number of Hopping Channels	Limit	Pass / Fail
902.0-910.0	<a href="#">35</a>	--	--
910.0-920.0	<a href="#">50</a>	--	--
920.0-928.0	<a href="#">35</a>	--	--
<b>Total number of Hops</b>	<b>120</b>	<b>50</b>	<b>Pass</b>

**Traceability to Industry Recognized Test Methodologies**

<b>Work Instruction:</b>	WI-03 MEASURING RF SPECTRUM MASK
<b>Measurement Uncertainty:</b>	±2.81 dB

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



**Equipment Configuration for Number of Hopping Channels**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Frequency Range (MHz)	Number of Hopping Channels	Limit	Pass / Fail
902.0-910.0	<a href="#">35</a>	--	--
910.0-920.0	<a href="#">50</a>	--	--
920.0-928.0	<a href="#">35</a>	--	--
<b>Total number of Hops</b>	<b>120</b>	<b>50</b>	<b>Pass</b>

**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 Number of Hopping Channels**

<b>Variant:</b>	OOK - PL1	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Frequency Range (MHz)	Number of Hopping Channels	Limit	Pass / Fail
902.0-910.0	<a href="#">35</a>	--	--
910.0-920.0	<a href="#">50</a>	--	--
920.0-928.0	<a href="#">35</a>	--	--
<b>Total number of Hops</b>	<b>120</b>	<b>50</b>	<b>Pass</b>

**Traceability to Industry Recognized Test Methodologies**

<b>Work Instruction:</b>	WI-03 MEASURING RF SPECTRUM MASK
<b>Measurement Uncertainty:</b>	±2.81 dB

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

**Equipment Configuration for Number of Hopping Channels**

<b>Variant:</b>	OOK - PL3	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Frequency Range (MHz)	Number of Hopping Channels	Limit	Pass / Fail
902.0-910.0	<a href="#">35</a>	--	--
910.0-920.0	<a href="#">50</a>	--	--
920.0-928.0	<a href="#">35</a>	--	--
<b>Total number of Hops</b>	<b>120</b>	<b>50</b>	<b>Pass</b>

**Traceability to Industry Recognized Test Methodologies**

<b>Work Instruction:</b>	WI-03 MEASURING RF SPECTRUM MASK
<b>Measurement Uncertainty:</b>	±2.81 dB

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

### 9.2.2. Channel Separation

<b>Equipment Configuration for Channel Separation</b>
---

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

<b>Test Measurement Results</b>
---------------------------------

Center Frequency (MHz)	Chan Separation (MHz)	Limit (MHz)	Pass / Fail
915.0	<a href="#">199.148</a>	0.068	Pass

<b>Traceability to Industry Recognized Test Methodologies</b>
---

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 Channel Separation**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Center Frequency (MHz)	Chan Separation (MHz)	Limit (MHz)	Pass / Fail
915.0	<a href="#">0.203</a>	0.136	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 Channel Separation**

<b>Variant:</b>	OOK - PL1	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Center Frequency (MHz)	Chan Separation (MHz)	Limit (MHz)	Pass / Fail
915.0	<a href="#">201.403</a>	0.060	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 Channel Separation**

<b>Variant:</b>	OOK - PL3	<b>Antenna:</b>	Not Applicable
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>Duty Cycle (%):</b>	100.0	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Center Frequency (MHz)	Chan Separation (MHz)	Limit (MHz)	Pass / Fail
915.0	<a href="#">196.894</a>	0.061	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).

### 9.3. Output Power

Conducted Test Conditions for Fundamental Emission Output Power			
<b>Standard:</b>	FCC CFR 47:15.247 ISED RSS-247	<b>Ambient Temp. (°C):</b>	24.0 - 27.5
<b>Test Heading:</b>	Output Power	<b>Rel. Humidity (%):</b>	32 - 45
<b>Standard Section(s):</b>	15.247 (a)(1), (b)(1)/(2)/(3) Section 5.4	<b>Pressure (mBars):</b>	999 - 1001
<b>Reference Document(s):</b>	See Normative References		

#### Test Procedure for Fundamental Emission Output Power Measurement

In the case of average power measurements an average power sensor was utilized.

For peak power measurements the spectrum analyzer built-in power function was used to integrate peak power over the 20 dB bandwidth.

Testing was performed under ambient conditions, nominal voltage. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured, summed ( $\Sigma$ ) and reported.

Test configuration and setup used for the measurement was per the Conducted Test Set-up specified in this document.

Supporting Information

Calculated Power =  $A + G + Y + 10 \log(1/x)$  dBm

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

G = Antenna Gain

Y = Beamforming Gain

x = Duty Cycle (average power measurements only)

#### Limits for Fundamental Emission Output Power

(a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following for frequency hopping systems:

(1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

(2) For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time

intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

**Equipment Configuration for Output Power Peak**

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	2.23
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured Output Power (dBm)				Calculated Total Power $\Sigma$ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
903.0	24.18	--	--	--	24.18	30.00	-5.82	27.00
915.0	23.92	--	--	--	23.92	30.00	-6.08	27.00
926.8	23.41	--	--	--	23.41	30.00	-6.59	27.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	$\pm 1.33$ dB

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

**Equipment Configuration for Output Power Peak**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	2.23
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured Output Power (dBm)				Calculated Total Power $\Sigma$ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
903.0	24.14	--	--	--	24.14	30.00	-5.86	27.00
915.0	24.01	--	--	--	24.01	30.00	-5.99	27.00
926.8	23.29	--	--	--	23.29	30.00	-6.71	27.00

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

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



**Equipment Configuration for Output Power Peak**

<b>Variant:</b>	OOK - PL1	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	2.23
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured Output Power (dBm)				Calculated Total Power $\Sigma$ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
903.0	4.07	--	--	--	4.07	30.00	-25.93	10.00
915.0	3.90	--	--	--	3.90	30.00	-26.10	10.00
926.8	3.58	--	--	--	3.58	30.00	-26.42	10.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	$\pm 1.33$ dB

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

**Equipment Configuration for Output Power Peak**

<b>Variant:</b>	OOK - PL3	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	2.23
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Measured Output Power (dBm)				Calculated Total Power $\Sigma$ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
903.0	21.00	--	--	--	21.00	30.00	-13.19	27.00
915.0	19.93	--	--	--	19.93	30.00	-13.58	27.00
926.8	18.58	--	--	--	18.58	30.00	-14.97	27.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	$\pm 1.33$ dB

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

## 9.4. Emissions

### 9.4.1. Conducted Emissions

Conducted Test Conditions for Transmitter Conducted Spurious and Band-Edge Emissions			
<b>Standard:</b>	FCC CFR 47:15.247 ISED RSS-247	<b>Ambient Temp. (°C):</b>	24.0 - 27.5
<b>Test Heading:</b>	Transmitter Conducted Spurious and Band-Edge Emissions	<b>Rel. Humidity (%):</b>	32 - 45
<b>Standard Section(s):</b>	15.247 (d) Section 5.5	<b>Pressure (mBars):</b>	999 - 1001
<b>Reference Document(s):</b>	See Normative References		

#### Test Procedure for Transmitter Conducted Spurious and Band-Edge Emissions Measurement

Transmitter Conducted Spurious and Band-Edge emissions were measured at a limit of 30 dBc (average detector) or 20 dBc (peak detector) below the highest in-band spectral density measured with a spectrum analyzer connected to the antenna terminal. Measurements were made while EUT was operating in transmit mode of operation at the appropriate centre frequency closest to the band-edge. Emissions were maximized during the measurement and limits derived from the peak spectral power and drawn on each plot.

Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured separately. Testing was performed under ambient conditions at nominal voltage only.

Test configuration and setup used for the measurement was per the Conducted Test Set-up specified in this document.

#### Limits Transmitter Conducted Spurious and Band-Edge Emissions

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### 9.4.1.1. Conducted Unwanted Spurious Emissions

Equipment Configuration for Unwanted Emissions Peak			
<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

#### Test Measurement Results

Test Frequency	Frequency Range	Unwanted Emissions Peak (dBm)							
		Port a		Port b		Port c		Port d	
		SE	Limit	SE	Limit	SE	Limit	SE	Limit
<b>903.0</b>	30.0 - 10000.0	<a href="#">-29.382</a>	3.74						
<b>915.0</b>	30.0 - 10000.0	<a href="#">-30.072</a>	3.74						
<b>926.8</b>	30.0 - 10000.0	<a href="#">-29.081</a>	2.99						

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Unwanted Emissions Peak**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Frequency Range	Unwanted Emissions Peak (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
903.0	30.0 - 10000.0	<a href="#">-29.852</a>	3.71						
915.0	30.0 - 10000.0	<a href="#">-29.966</a>	3.71						
926.8	30.0 - 10000.0	<a href="#">-29.270</a>	2.75						

**Traceability to Industry Recognized Test Methodologies**

<b>Work Instruction:</b>	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
<b>Measurement Uncertainty:</b>	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Unwanted Emissions Peak**

<b>Variant:</b>	OOK - PL1	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Frequency Range	Unwanted Emissions Peak (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
903.0	30.0 - 10000.0	<a href="#">-31.457</a>	-12.92						
915.0	30.0 - 10000.0	<a href="#">-30.782</a>	-12.70						
926.8	30.0 - 10000.0	<a href="#">-31.601</a>	-13.17						

**Traceability to Industry Recognized Test Methodologies**

<b>Work Instruction:</b>	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
<b>Measurement Uncertainty:</b>	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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



**Equipment Configuration for Unwanted Emissions Peak**

<b>Variant:</b>	OOK - PL3	<b>Duty Cycle (%):</b>	100
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Test Frequency	Frequency Range	Unwanted Emissions Peak (dBm)							
		Port a		Port b		Port c		Port d	
MHz	MHz	SE	Limit	SE	Limit	SE	Limit	SE	Limit
903.0	30.0 - 10000.0	<a href="#">-28.595</a>	-0.07						
915.0	30.0 - 10000.0	<a href="#">-29.622</a>	-0.25						
926.8	30.0 - 10000.0	<a href="#">-30.845</a>	-1.71						

**Traceability to Industry Recognized Test Methodologies**

<b>Work Instruction:</b>	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
<b>Measurement Uncertainty:</b>	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**9.4.1.2. Conducted Band-Edge Emissions**

**Equipment Configuration for Conducted Low Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
<b>Port(s)</b>	<b>Band-Edge Markers and Limit</b>			<b>Revised Limit</b>		<b>Margin</b>
	<b>M1 Amplitude (dBm)</b>	<b>Plot Limit (dBm)</b>	<b>M2 Frequency (MHz)</b>	<b>Amplitude (dBm)</b>	<b>M2A Frequency (MHz)</b>	<b>(MHz)</b>
<b>a</b>	<a href="#">-35.86</a>	3.94	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

<b>Work Instruction:</b>	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
<b>Measurement Uncertainty:</b>	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Low Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	<a href="#">-33.87</a>	3.92	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Low Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	OOK - PL1	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	<a href="#">-33.08</a>	-12.65	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Low Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	OOK - PL3	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	<a href="#">-21.89</a>	0.33	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Low Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-35.67</a>	4.03	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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



**Equipment Configuration for Conducted Low Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-35.00</a>	3.92	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Low Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	OOK - PL1	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	<a href="#">-31.30</a>	-12.60	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Low Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	OOK - PL3	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	903.0 MHz					
<b>Band-Edge Frequency:</b>	902.0 MHz					
<b>Test Frequency Range:</b>	875.0 - 905.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M1 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-21.47</a>	0.30	902.80			-0.800

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Upper Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	<a href="#">-37.58</a>	3.51	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Upper Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-33.00</a>	3.48	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Upper Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	OOK - PL1	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-34.64</a>	-12.30	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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



**Equipment Configuration for Conducted Upper Band-Edge Emissions (Hopping) Peak**

<b>Variant:</b>	OOK - PL3	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-25.32</a>	-0.47	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Upper Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	37.5kbps, DEV 16.4kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-34.68</a>	3.70	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Upper Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	37.5kbps, DEV 50kHz	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	37.50 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	(MHz)
a	<a href="#">-33.36</a>	3.75	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Upper Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	OOK - PL1	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	OOK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-33.10</a>	-12.50	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**Equipment Configuration for Conducted Upper Band-Edge Emissions (Static) Peak**

<b>Variant:</b>	OOK - PL3	<b>Duty Cycle (%):</b>	100.0
<b>Data Rate:</b>	16.38 KBit/s	<b>Antenna Gain (dBi):</b>	Not Applicable
<b>Modulation:</b>	GFSK	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	BQ
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

<b>Channel Frequency:</b>	926.8 MHz					
<b>Band-Edge Frequency:</b>	928.0 MHz					
<b>Test Frequency Range:</b>	925.0 - 950.0 MHz					
Port(s)	Band-Edge Markers and Limit			Revised Limit		Margin (MHz)
	M3 Amplitude (dBm)	Plot Limit (dBm)	M2 Frequency (MHz)	Amplitude (dBm)	M2A Frequency (MHz)	
a	<a href="#">-24.68</a>	-0.59	927.00			-1.000

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-05 MEASUREMENT OF SPURIOUS EMISSIONS
Measurement Uncertainty:	<=40 GHz ±2.37 dB, > 40 GHz ±4.6 dB

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

**9.4.2. Radiated Emissions**

Frequency Band			
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

(b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e) of this section, regardless of the field strength limits specified elsewhere in this subpart, the provisions of this section apply to emissions from any intentional radiator.

(d) The following devices are exempt from the requirements of this section:

- (1) Swept frequency field disturbance sensors operating between 1.705 and 37 MHz provided their emissions only sweep through the bands listed in paragraph (a) of this section, the sweep is never stopped with the fundamental emission within the bands listed in paragraph (a) of this section, and the fundamental emission is outside of the bands listed in paragraph (a) of this section more than 99% of the time the device is actively transmitting, without compensation for duty cycle.
- (2) Transmitters used to detect buried electronic markers at 101.4 kHz which are employed by telephone companies.
- (3) Cable locating equipment operated pursuant to §15.213.
- (4) Any equipment operated under the provisions of §15.253, 15.255, and 15.256 in the frequency band 75-85 GHz, or §15.257 of this part.
- (5) Biomedical telemetry devices operating under the provisions of §15.242 of this part are not subject to the restricted band 608-614 MHz but are subject to compliance within the other restricted bands.
- (6) Transmitters operating under the provisions of subparts D or F of this part.
- (7) Devices operated pursuant to §15.225 are exempt from complying with this section for the 13.36-13.41 MHz band only.



(8) Devices operated in the 24.075-24.175 GHz band under §15.245 are exempt from complying with the requirements of this section for the 48.15-48.35 GHz and 72.225-72.525 GHz bands only, and shall not exceed the limits specified in §15.245(b).

(9) Devices operated in the 24.0-24.25 GHz band under §15.249 are exempt from complying with the requirements of this section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, and shall not exceed the limits specified in §15.249(a).

(e) Harmonic emissions appearing in the restricted bands above 17.7 GHz from field disturbance sensors operating under the provisions of §15.245 shall not exceed the limits specified in §15.245(b).

### 9.4.2.3. TX Spurious & Restricted Band Emissions 30MHz to 1GHz

#### 9.4.2.3.1. GFSK

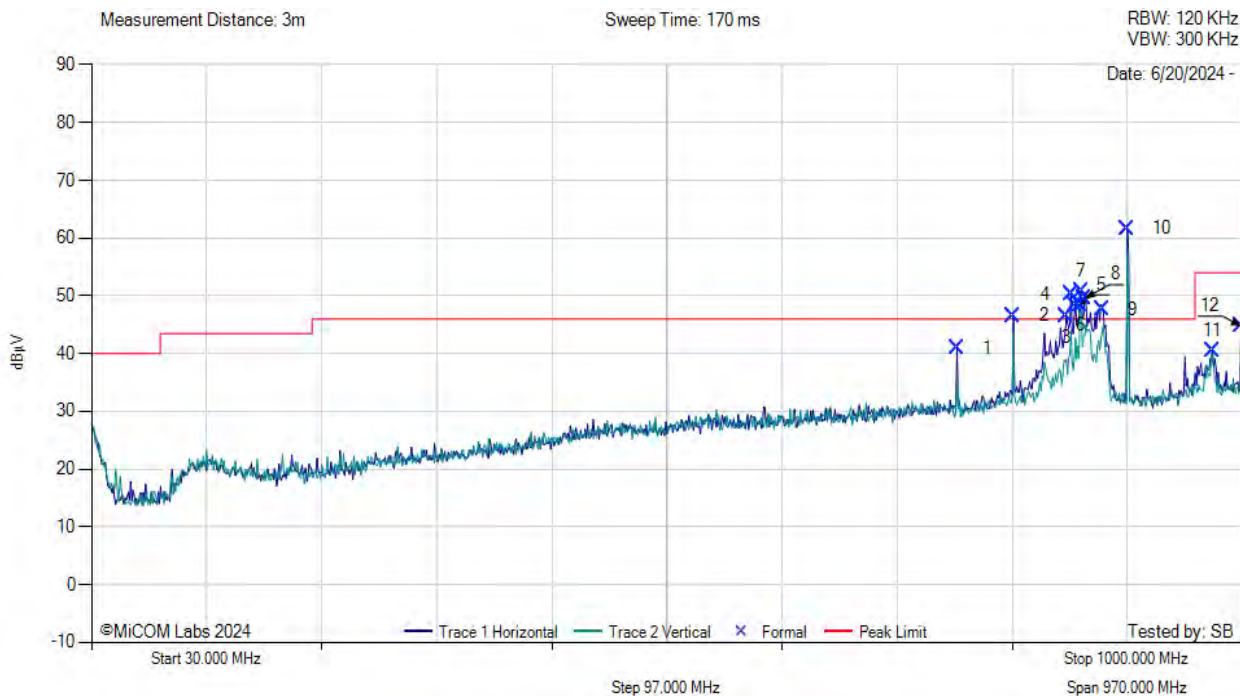
**Equipment Configuration for 30 MHz TO 1 GHz**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	GFSK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	903.00	<b>Data Rate:</b>	37.5kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



30 MHz to 1 GHz



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	759.44	38.21	6.49	-3.72	40.98	NRB	Horizontal	199	120	--	--	Pass
2	806.97	42.87	6.65	-2.92	46.60	NRB	Horizontal	98	90	--	--	Pass
3	851.59	42.07	6.81	-2.37	46.51	NRB	Horizontal	98	90	--	--	Pass
4	855.47	45.84	6.78	-2.36	50.27	NRB	Horizontal	98	120	--	--	Pass
5	859.35	43.93	6.80	-2.31	48.42	NRB	Horizontal	98	120	--	--	Pass
6	863.23	43.92	6.81	-2.23	48.5	NRB	Vertical	100	0	--	--	Pass
7	864.2	46.16	6.81	-2.23	50.74	NRB	Horizontal	98	90	--	--	Pass
8	867.11	44.95	6.82	-2.18	49.60	NRB	Horizontal	98	270	--	--	Pass
9	881.66	43.00	6.88	-2.23	47.65	NRB	Horizontal	98	300	--	--	Pass
10	903.00	56.59	6.93	28.70	61.67	Fundamental	Horizontal	98	300	--	--	Pass
11	974.78	34.47	7.16	-1.09	40.53	MaxP	Horizontal	98	330	54.0	-13.5	Pass
12	999.03	38.42	7.23	-0.94	44.71	MaxP	Horizontal	199	150	54.0	-9.3	Pass

**Test Notes:** SN: 2935662-04, GFSK, 903 MHz, 37.5 kbps, Power Level 3

Non Restrictive Band (NRB)

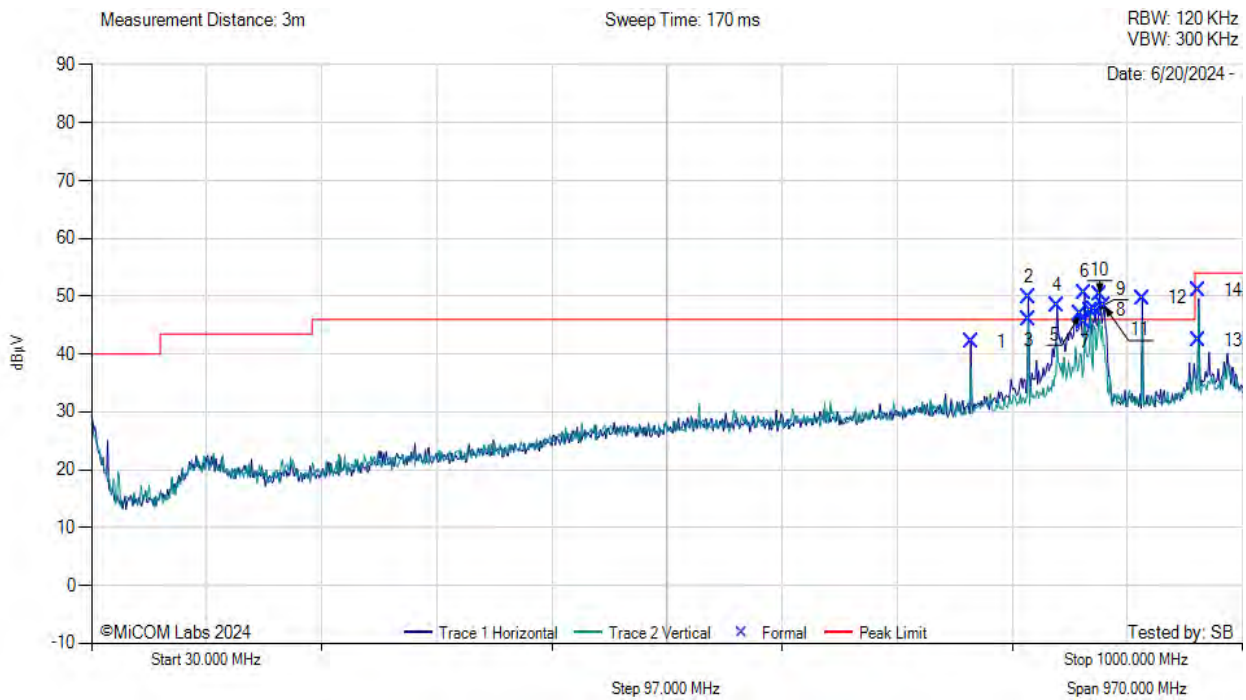
**Equipment Configuration for 30 MHz TO 1 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	GFSK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	915.00	<b>Data Rate:</b>	37.5kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



30 MHz to 1 GHz



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	771.08	39.3	6.56	-3.65	42.21	NRB	Horizontal	100	270	--	--	Pass
2	819.58	45.74	6.69	-2.67	49.76	NRB	Horizontal	100	120	--	--	Pass
3	819.58	41.93	6.69	-2.67	45.95	NRB	Vertical	100	120	--	--	Pass
4	843.83	43.98	6.75	-2.38	48.35	NRB	Horizontal	199	90	--	--	Pass
5	863.23	42.35	6.81	-2.22	46.93	NRB	Horizontal	100	90	--	--	Pass
6	867.11	45.99	6.82	-2.18	50.63	NRB	Horizontal	100	90	--	--	Pass
7	867.11	40.93	6.82	-2.18	45.57	NRB	Vertical	100	90	--	--	Pass
8	871.96	42.9	6.85	-2.2	47.55	NRB	Vertical	100	90	--	--	Pass
9	875.84	42.98	6.85	-2.2	47.63	NRB	Horizontal	100	90	--	--	Pass
10	879.72	45.69	6.87	-2.2	50.36	NRB	Horizontal	100	90	--	--	Pass
11	883.6	43.67	6.88	-2.24	48.3	NRB	Horizontal	100	300	--	--	Pass
12	915.00	44.42	6.98	-1.75	49.65	Fundamental	Horizontal	100	300	--	--	Pass
13	962.97	36.29	7.11	-1.09	42.31	MaxQP	Vertical	114	301	54.0	-11.7	Pass
14	963.06	44.96	7.11	-1.09	50.98	MaxQP	Horizontal	146	302	54.0	-3.0	Pass

**Test Notes:** SN: 2935662-04, GFSK, 915 MHz, 37.5 kbps, Power Level 3

Non Restrictive Band (NRB)

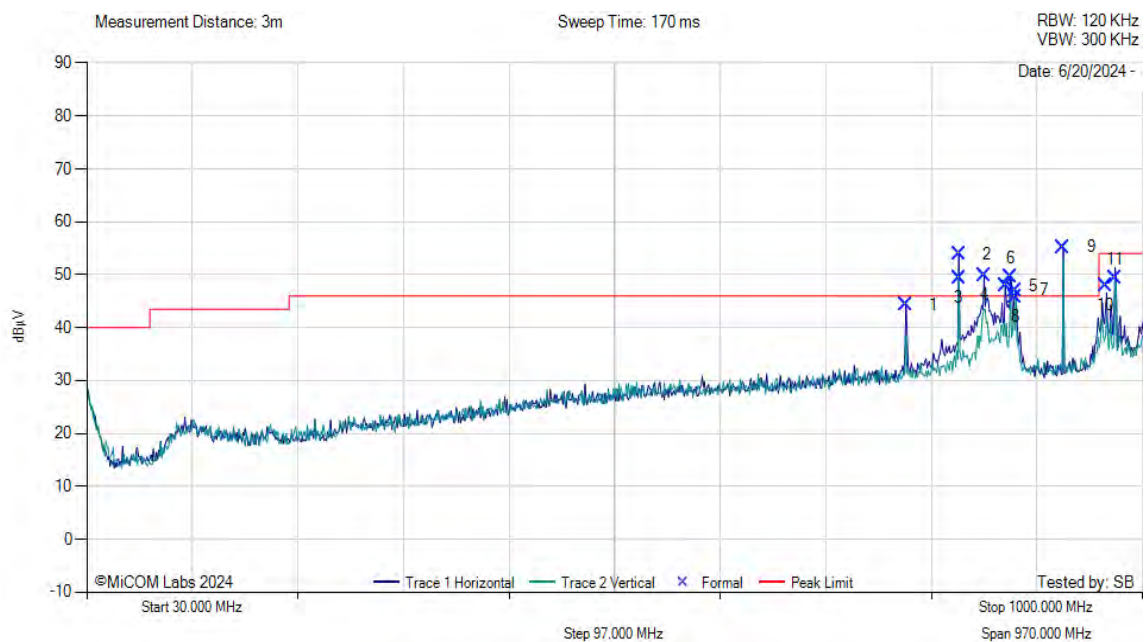
**Equipment Configuration for 30 MHz TO 1 GHz**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	GFSK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	926.8	<b>Data Rate:</b>	37.5kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



30 MHz to 1 GHz



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	782.72	40.92	6.57	-3.25	44.24	NRB	Horizontal	101	270	--	--	Pass
2	831.22	49.66	6.72	-2.57	53.81	NRB	Horizontal	101	120	--	--	Pass
3	831.22	45.22	6.72	-2.57	49.37	NRB	Vertical	101	120	--	--	Pass
4	854.5	45.32	6.79	-2.34	49.76	NRB	Horizontal	101	270	--	--	Pass
5	873.9	43.2	6.86	-2.17	47.89	NRB	Horizontal	101	120	--	--	Pass
6	878.75	44.86	6.86	-2.2	49.52	NRB	Horizontal	101	60	--	--	Pass
7	883.6	42.44	6.88	-2.24	47.08	NRB	Horizontal	101	330	--	--	Pass
8	883.6	41.13	6.88	-2.24	45.77	NRB	Vertical	101	330	--	--	Pass
9	926.8	49.72	7	-1.55	55.17	Fundamental	Horizontal	101	300	--	--	Pass
10	966.47	41.85	7.13	-1.09	47.90	MaxQP	Horizontal	147	300	54.0	-6.1	Pass
11	974.84	43.25	7.16	-1.09	49.31	MaxQP	Horizontal	100	289	54.0	-4.7	Pass

**Test Notes:** SN: 2935662-04, GFSK, 926.8 MHz, 37.5 kbps, Power Level 3  
 Non Restrictive Band (NRB)



9.4.2.3.2. OOK Power Level 3

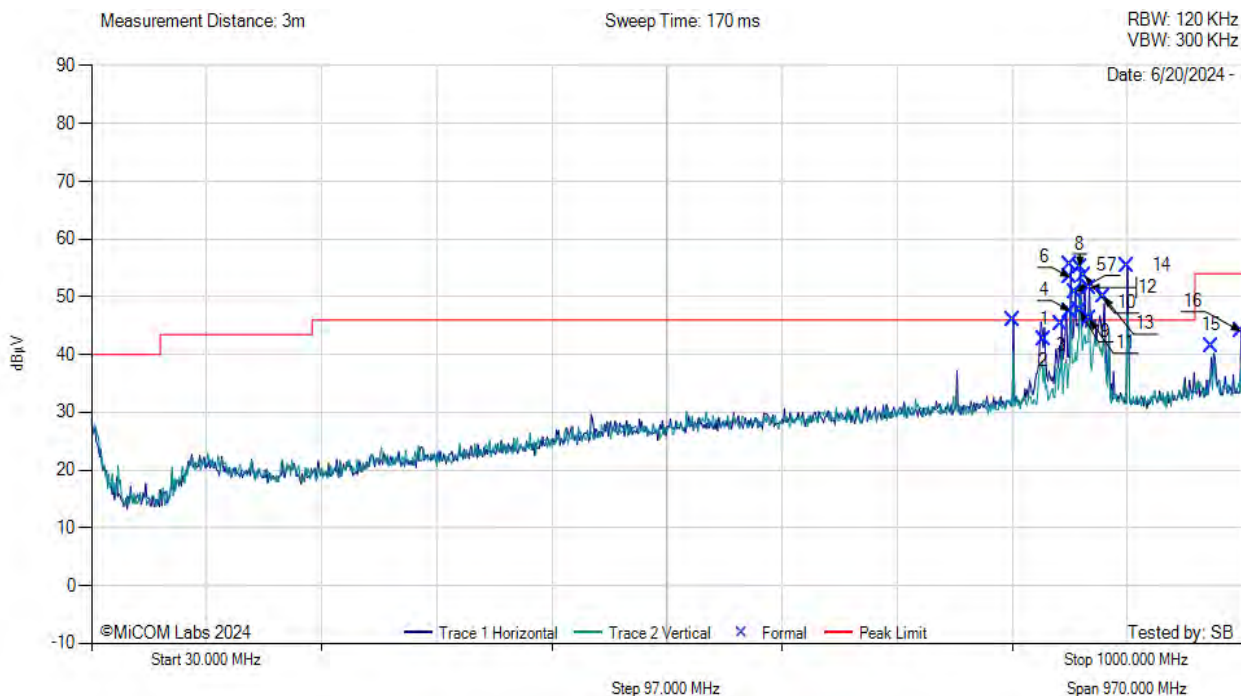
**Equipment Configuration for 30 MHZ TO 1 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	OOK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	903.00	<b>Data Rate:</b>	16.384kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



30 MHz to 1 GHz





**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	807.00	42.36	6.65	-2.92	46.09	NRB	Horizontal	100	102	--	--	Pass
2	832.44	38.50	6.72	-2.56	42.67	NRB	Horizontal	101	102	--	--	Pass
3	847.01	40.91	6.78	-2.39	45.29	NRB	Horizontal	100	246	--	--	Pass
4	855.01	43.15	6.78	-2.37	47.56	NRB	Vertical	143	204	--	--	Pass
5	855.02	51.11	6.78	-2.37	55.52	NRB	Horizontal	100	111	--	--	Pass
6	855.05	48.93	6.78	-2.37	53.34	NRB	Horizontal	100	282	--	--	Pass
7	858.99	46.35	6.79	-2.31	50.84	NRB	Horizontal	99	279	--	--	Pass
8	863.00	50.49	6.81	28.41	55.08	NRB	Horizontal	174	91	--	--	Pass
9	863.02	43.03	6.81	-2.22	47.61	NRB	Vertical	135	297	--	--	Pass
10	867.00	49.04	6.82	-2.18	53.68	NRB	Horizontal	99	293	--	--	Pass
11	870.99	41.47	6.87	-2.17	46.17	NRB	Vertical	133	303	--	--	Pass
12	870.99	46.94	6.87	-2.17	51.64	NRB	Horizontal	100	254	--	--	Pass
13	883.00	45.39	6.88	-2.23	50.03	NRB	Horizontal	101	92	--	--	Pass
14	903.00	50.37	6.93	28.70	55.45	Fundamental	Horizontal	99	300	--	--	Pass
15	973.57	35.50	7.14	-1.08	41.57	MaxQP	Horizontal	149	158	54.0	-12.4	Pass
16	999.01	37.71	7.23	-0.94	44.00	MaxQP	Horizontal	199	159	54.0	-10.0	Pass

**Test Notes:** SN: 2935662-04, OOK,903 MHz, 16.384 kbps, Power Level 3

Non Restrictive Band (NRB)

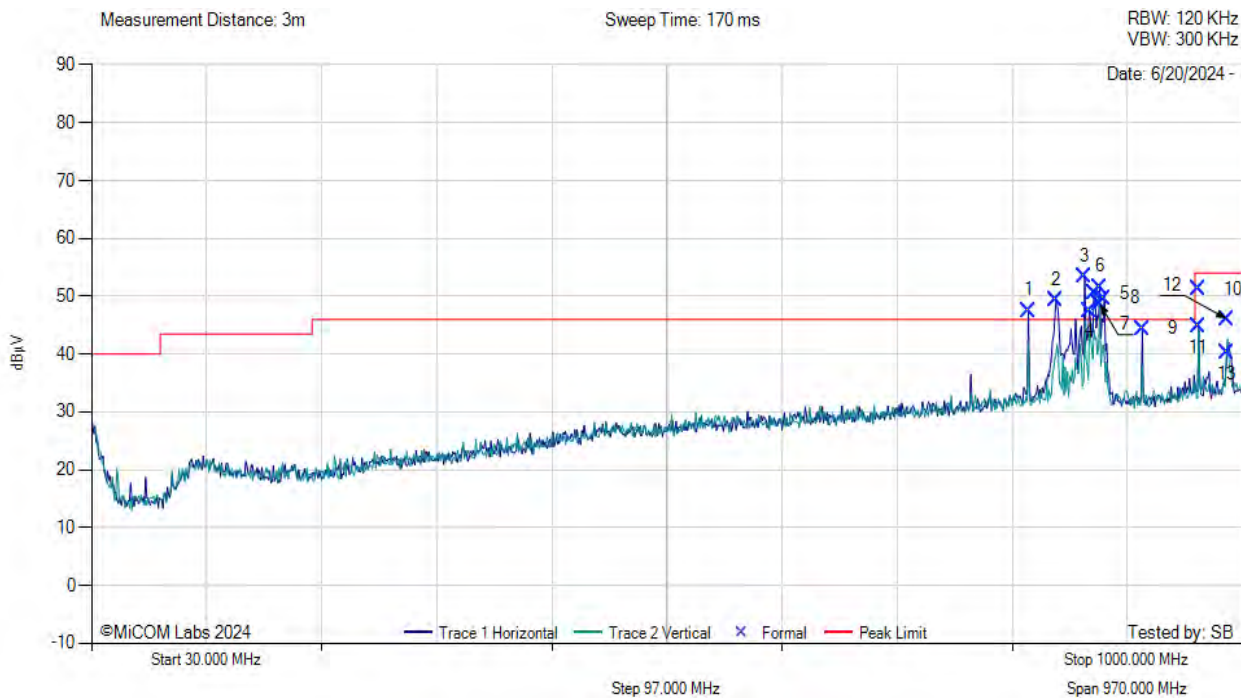
**Equipment Configuration for 30 MHz TO 1 GHz**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	OOK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	915.00	<b>Data Rate:</b>	16.384kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



30 MHz to 1 GHz



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	819.58	43.51	6.69	-2.67	47.53	NRB	Horizontal	199	300	--	--	Pass
2	842.86	44.92	6.75	-2.38	49.29	NRB	Horizontal	100	270	--	--	Pass
3	867.11	48.82	6.82	-2.18	53.46	NRB	Horizontal	100	120	--	--	Pass
4	870.99	42.84	6.87	-2.17	47.54	NRB	Horizontal	199	90	--	--	Pass
5	874.87	45.86	6.86	-2.19	50.53	NRB	Horizontal	199	60	--	--	Pass
6	879.72	46.95	6.87	-2.2	51.62	NRB	Horizontal	199	90	--	--	Pass
7	879.72	44.06	6.87	-2.2	48.73	NRB	Vertical	199	90	--	--	Pass
8	883.60	45.09	6.88	-2.24	49.72	NRB	Horizontal	100	60	--	--	Pass
9	915.00	39.19	6.98	-1.75	44.42	Fundamental	Horizontal	100	300	--	--	Pass
10	962.99	45.28	7.11	-1.09	51.30	MaxQP	Horizontal	148	303	54.0	-2.7	Pass
11	963.00	38.75	7.11	29.42	44.77	MaxQP	Vertical	196	204	54.0	-9.2	Pass
12	986.47	39.98	7.17	-1.02	46.14	MaxQP	Horizontal	148	142	54.0	-7.9	Pass
13	986.50	34.11	7.18	-1.02	40.26	MaxQP	Vertical	198	189	54.0	-13.7	Pass

**Test Notes:** SN: 2935662-04, OOK,915 MHz, 16.384 kbps, Power Level 3

Non Restrictive Band (NRB)

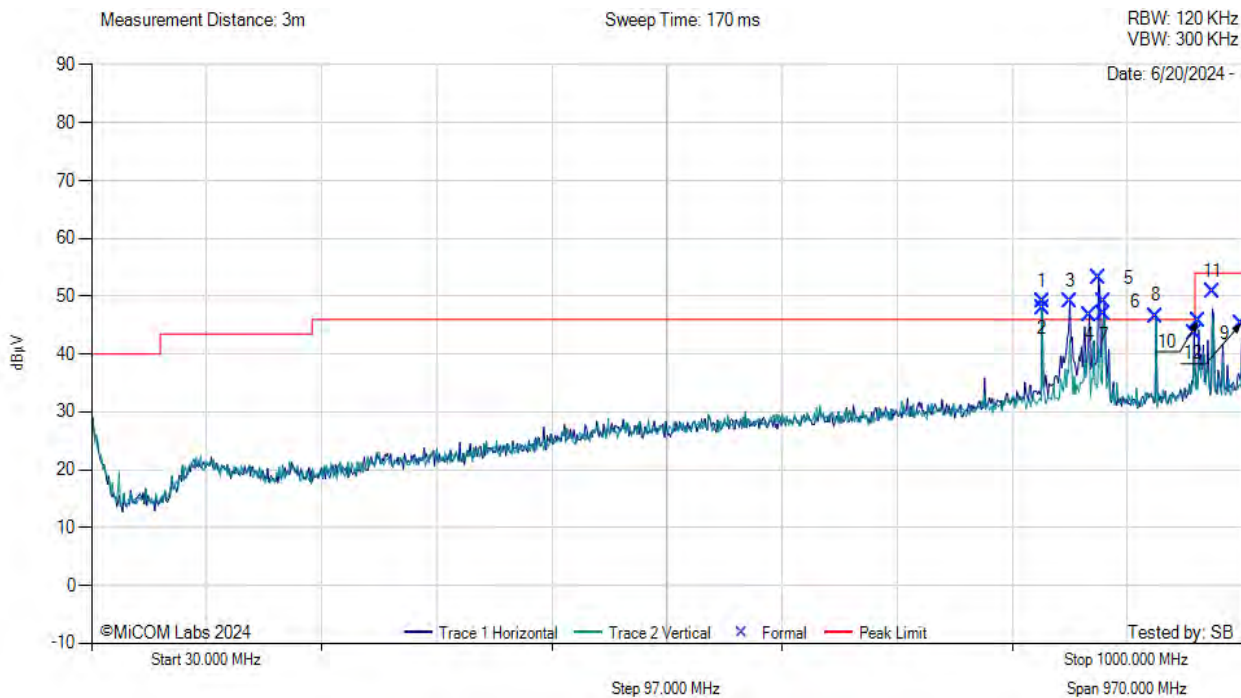
**Equipment Configuration for 30 MHz TO 1 GHz**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	OOK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	926.80	<b>Data Rate:</b>	16.384kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



30 MHz to 1 GHz



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	831.22	45	6.72	-2.57	49.15	NRB	Horizontal	199	120	--	--	Pass
2	831.22	43.86	6.72	-2.57	48.01	NRB	Vertical	199	120	--	--	Pass
3	854.5	44.65	6.79	-2.34	49.1	NRB	Horizontal	100	299	--	--	Pass
4	870.99	42.11	6.87	-2.17	46.81	NRB	Horizontal	199	90	--	--	Pass
5	878.75	48.56	6.86	-2.2	53.22	NRB	Horizontal	100	90	--	--	Pass
6	883.6	44.5	6.88	-2.24	49.13	NRB	Horizontal	199	90	--	--	Pass
7	883.6	42.23	6.88	-2.24	46.87	NRB	Vertical	199	90	--	--	Pass
8	926.80	41.12	7	-1.55	46.58	Fundamental	Horizontal	100	330	--	--	Pass
9	959.26	37.63	7.1	-1.13	43.6	NRB	Horizontal	100	299	--	--	Pass
10	962.80	39.77	7.11	-1.09	45.79	MaxQP	Horizontal	150	156	54.0	-8.2	Pass
11	974.78	44.71	7.16	-1.09	50.78	MaxQP	Horizontal	148	318	54.0	-3.2	Pass
12	999.20	39.11	7.22	-0.94	45.39	MaxQP	Horizontal	198	133	54.0	-8.6	Pass

**Test Notes:** SN: 2935662-04, OOK, 926.8 MHz, 16.384 kbps, Power Level 3

Non Restrictive Band (NRB)

### 9.4.2.4. TX Spurious & Restricted Band Emissions 1GHz to 18GHz

#### 9.4.2.4.1. GFSK

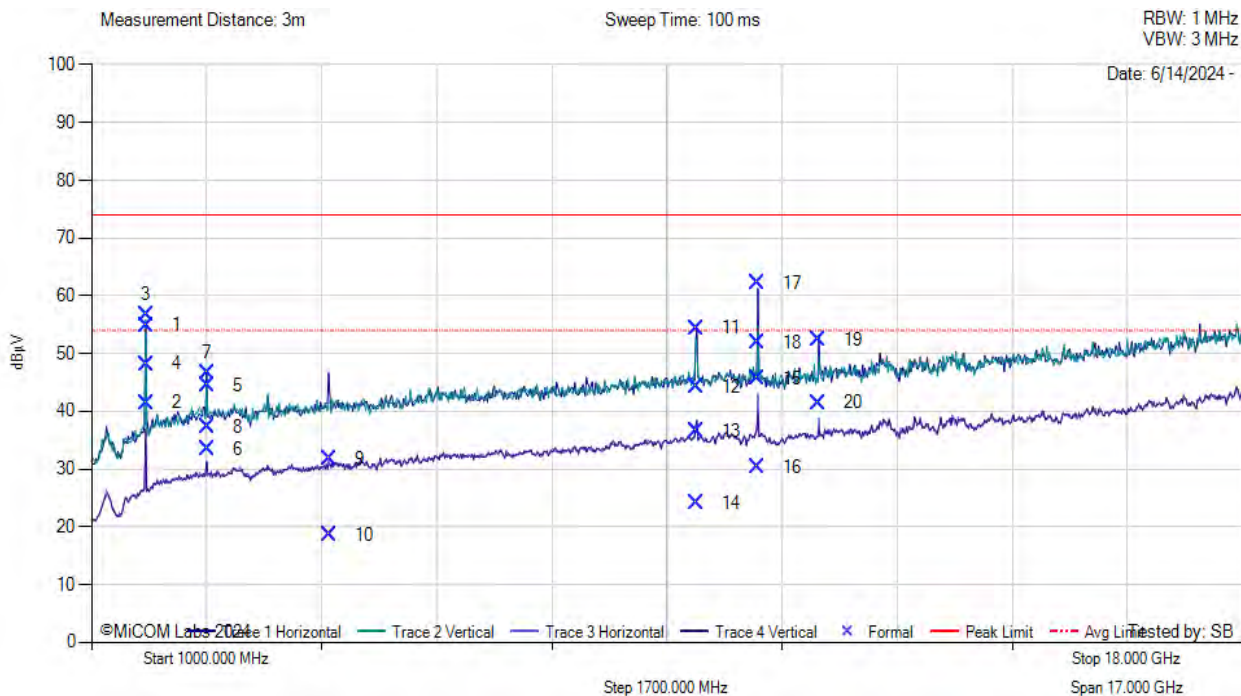
**Equipment Configuration for FCC SPURIOUS 1 GHZ -18 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	GFSK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	903.00	<b>Data Rate:</b>	37.5kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



FCC Spurious 1 GHz -18 GHz





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	1805.98	67.68	1.71	-14.53	54.86	MaxP	Horizontal	153	40	74.0	-19.1	Pass
2	1805.98	54.33	1.71	-14.53	41.51	AVG	Horizontal	153	40	54.0	-12.5	Pass
3	1806.09	69.51	1.71	-14.53	56.69	MaxP	Vertical	149	111	74.0	-17.3	Pass
4	1806.09	60.98	1.71	-14.53	48.16	AVG	Vertical	149	111	54.0	-5.8	Pass
5	2709.07	54.19	2.07	-11.77	44.49	MaxP	Vertical	167	0	74.0	-29.5	Pass
6	2709.07	43.13	2.07	-11.77	33.43	AVG	Vertical	167	0	54.0	-20.6	Pass
7	2709.09	56.34	2.07	-11.77	46.64	MaxP	Horizontal	169	113	74.0	-27.4	Pass
8	2709.09	47.00	2.07	-11.77	37.30	AVG	Horizontal	169	113	54.0	-16.7	Pass
9	4514.53	41.08	2.79	-12.12	31.74	MaxP	Horizontal	162	301	74.0	-42.3	Pass
10	4514.53	27.89	2.79	-12.12	18.56	AVG	Horizontal	162	301	54.0	-35.4	Pass
11	9933.55	55.64	4.34	-5.52	54.45	MaxP	Horizontal	173	0	74.0	-19.5	Pass
12	9933.55	45.47	4.34	-5.52	44.28	AVG	Horizontal	173	0	54.0	-9.7	Pass
13	9933.73	37.81	4.34	-5.53	36.62	MaxP	Vertical	181	335	74.0	-37.4	Pass
14	9933.73	25.32	4.34	-5.53	24.13	AVG	Vertical	181	335	54.0	-29.9	Pass
15	10836.08	45.83	4.57	-4.69	45.71	MaxP	Vertical	148	343	74.0	-28.3	Pass
16	10836.08	30.41	4.57	-4.69	30.28	AVG	Vertical	148	343	54.0	-23.7	Pass
17	10836.60	62.31	4.57	-4.70	62.17	MaxP	Horizontal	199	0	74.0	-11.8	Pass
18	10836.60	52.01	4.57	-4.70	51.87	AVG	Horizontal	199	0	54.0	-2.1	Pass
19	11739.62	53.92	5.02	-6.52	52.42	MaxP	Horizontal	198	343	74.0	-21.6	Pass
20	11739.62	42.96	5.02	-6.52	41.45	AVG	Horizontal	198	343	54.0	-12.5	Pass

**Test Notes:** SN: 2935662-04, GFSK, 903 MHz, 37.5 kbps, Power Level 3



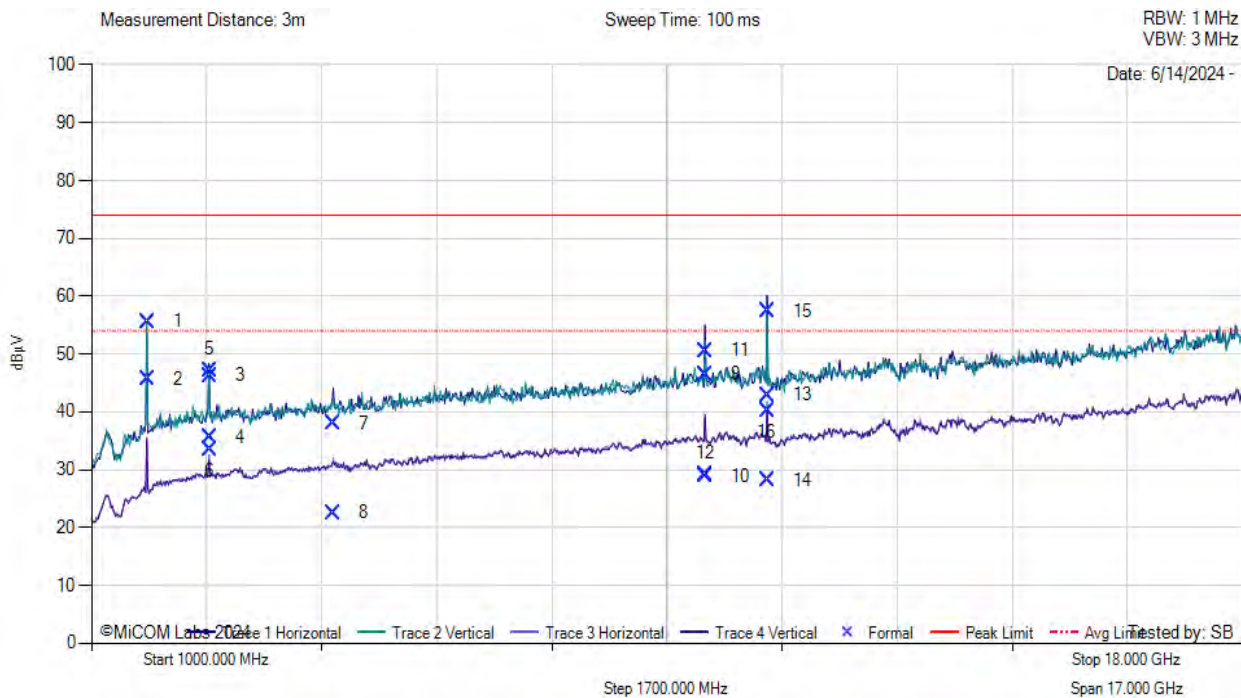
**Equipment Configuration for FCC SPURIOUS 1 GHZ -18 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	GFSK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	915.00	<b>Data Rate:</b>	37.5kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



FCC Spurious 1 GHz -18 GHz



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	1829.94	68.25	1.75	-14.36	55.64	MaxP	Vertical	148	94	74.0	-18.4	Pass
2	1829.94	58.26	1.75	-14.36	45.65	AVG	Vertical	148	94	54.0	-8.4	Pass
3	2744.81	55.86	2.11	-11.74	46.23	MaxP	Vertical	187	0	74.0	-27.8	Pass
4	2744.81	45.29	2.11	-11.74	35.66	AVG	Vertical	187	0	54.0	-18.3	Pass
5	2745.04	56.83	2.11	-11.74	47.20	MaxP	Horizontal	149	98	74.0	-26.8	Pass
6	2745.04	43.04	2.11	-11.74	33.40	AVG	Horizontal	149	98	54.0	-20.6	Pass
7	4574.65	47.44	2.82	-12.26	38.00	MaxP	Horizontal	183	303	74.0	-36.0	Pass
8	4574.65	32.01	2.82	-12.26	22.58	AVG	Horizontal	183	303	54.0	-31.4	Pass
9	10065.65	47.77	4.27	-5.51	46.52	MaxP	Vertical	172	328	74.0	-27.5	Pass
10	10065.65	30.15	4.27	-5.51	28.91	AVG	Vertical	172	328	54.0	-25.1	Pass
11	10065.68	51.80	4.27	-5.51	50.56	MaxP	Horizontal	171	0	74.0	-23.4	Pass
12	10065.68	30.48	4.27	-5.51	29.24	AVG	Horizontal	171	0	54.0	-24.8	Pass
13	10979.87	43.47	4.60	-5.18	42.89	MaxP	Vertical	148	340	74.0	-31.1	Pass
14	10979.87	28.81	4.60	-5.18	28.24	AVG	Vertical	148	340	54.0	-25.8	Pass
15	10980.45	58.04	4.59	-5.17	57.46	MaxP	Horizontal	198	0	74.0	-16.5	Pass
16	10980.45	40.71	4.59	-5.17	40.13	AVG	Horizontal	198	0	54.0	-13.9	Pass

**Test Notes:** SN: 2935662-04, GFSK, 915 MHz, 37.5 kbps, Power Level 3

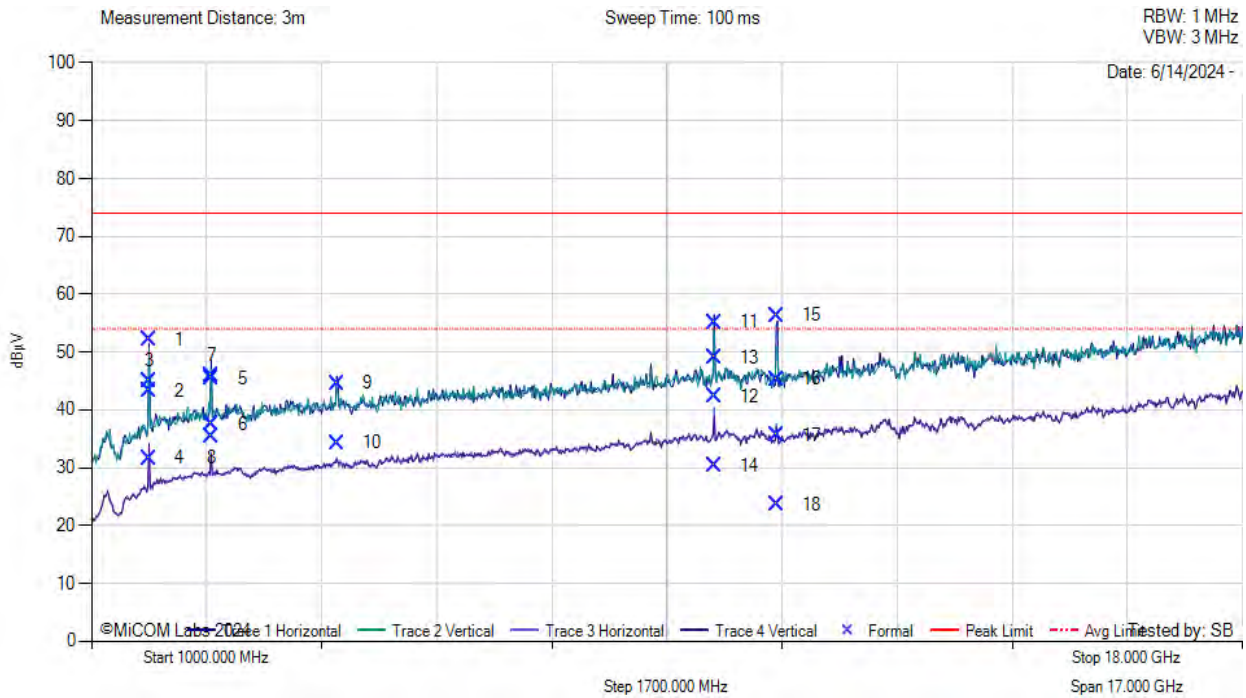
**Equipment Configuration for FCC SPURIOUS 1 GHZ -18 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	GFSK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	926.8	<b>Data Rate:</b>	37.5kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



FCC Spurious 1 GHz -18 GHz



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	1853.54	64.53	1.72	-14.16	52.08	MaxP	Horizontal	159	268	74.0	-21.9	Pass
2	1853.54	55.65	1.72	-14.16	43.21	AVG	Horizontal	159	268	54.0	-10.8	Pass
3	1853.79	57.40	1.72	-14.15	44.96	MaxP	Vertical	178	127	74.0	-29.0	Pass
4	1853.79	44.06	1.72	-14.15	31.62	AVG	Vertical	178	127	54.0	-22.4	Pass
5	2780.28	55.16	2.13	-11.79	45.50	MaxP	Vertical	150	353	74.0	-28.5	Pass
6	2780.28	47.13	2.13	-11.79	37.47	AVG	Vertical	150	353	54.0	-16.5	Pass
7	2780.60	55.65	2.13	-11.79	45.99	MaxP	Horizontal	199	27	74.0	-28.0	Pass
8	2780.60	44.96	2.13	-11.79	35.30	AVG	Horizontal	199	27	54.0	-18.7	Pass
9	4634.20	54.02	2.80	-12.27	44.55	MaxP	Horizontal	184	316	74.0	-29.5	Pass
10	4634.20	43.73	2.80	-12.27	34.26	AVG	Horizontal	184	316	54.0	-19.7	Pass
11	10195.27	56.02	4.36	-5.24	55.14	MaxP	Horizontal	169	0	74.0	-18.9	Pass
12	10195.27	43.24	4.36	-5.24	42.37	AVG	Horizontal	169	0	54.0	-11.6	Pass
13	10195.46	49.86	4.36	-5.24	48.98	MaxP	Vertical	183	335	74.0	-25.0	Pass
14	10195.46	31.21	4.36	-5.24	30.33	AVG	Vertical	183	335	54.0	-23.7	Pass
15	11122.20	57.46	4.51	-5.63	56.34	MaxP	Horizontal	197	1	74.0	-17.7	Pass
16	11122.20	46.40	4.51	-5.63	45.28	AVG	Horizontal	197	1	54.0	-8.7	Pass
17	11122.48	36.81	4.51	-5.64	35.68	MaxP	Vertical	148	336	74.0	-38.3	Pass
18	11122.48	24.80	4.51	-5.64	23.68	AVG	Vertical	148	336	54.0	-30.3	Pass

**Test Notes:** SN: 2935662-04, GFSK, 926.8 MHz, 37.5 kbps, Power Level 3

9.4.2.4.2. OOK Power Level 3

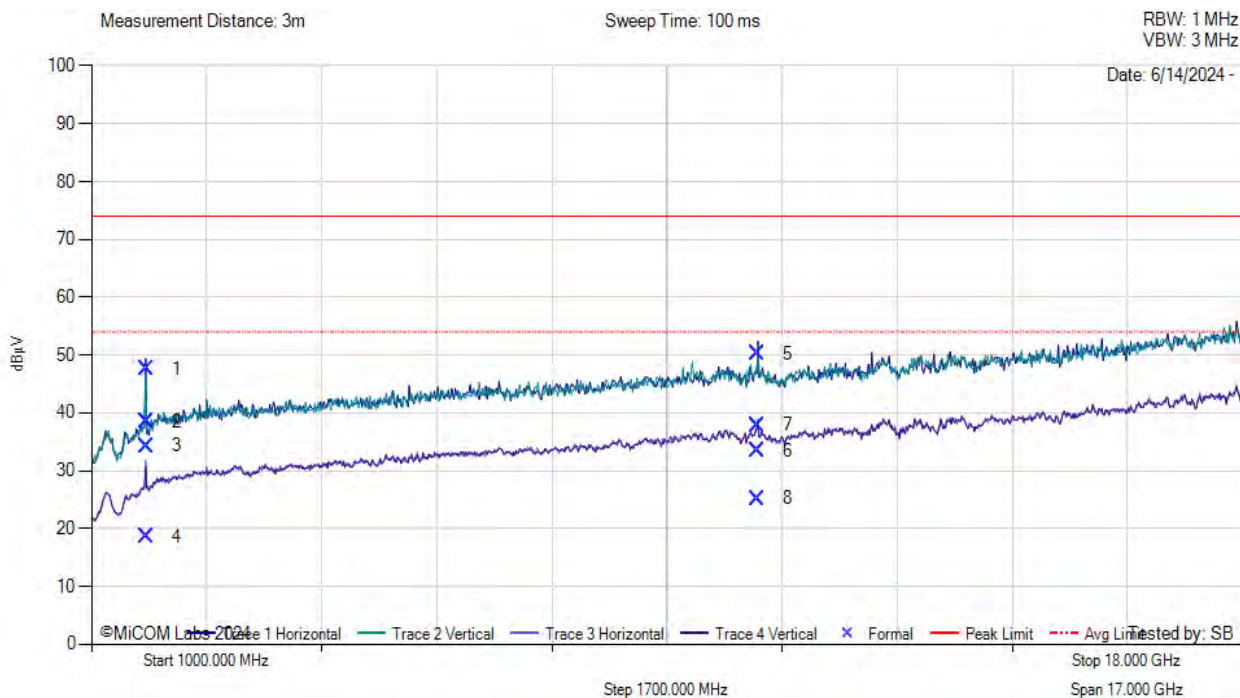
**Equipment Configuration for FCC SPURIOUS 1 GHZ -18 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	OOK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	903.00	<b>Data Rate:</b>	16.384kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



FCC Spurious 1 GHz -18 GHz



**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	1805.95	60.45	1.71	-14.53	47.63	MaxP	Horizontal	159	272	74.0	-26.4	Pass
2	1805.95	51.34	1.71	-14.53	38.51	AVG	Horizontal	159	272	54.0	-15.5	Pass
3	1806.13	47.10	1.71	-14.53	34.27	MaxP	Vertical	171	92	74.0	-39.7	Pass
4	1806.13	31.49	1.71	-14.53	18.67	AVG	Vertical	171	92	54.0	-35.3	Pass
5	10835.90	50.32	4.57	-4.69	50.21	MaxP	Horizontal	195	0	74.0	-23.8	Pass
6	10835.90	33.60	4.57	-4.69	33.48	AVG	Horizontal	195	0	54.0	-20.5	Pass
7	10837.35	38.02	4.57	-4.72	37.87	MaxP	Vertical	154	302	74.0	-36.1	Pass
8	10837.35	25.33	4.57	-4.72	25.18	AVG	Vertical	154	302	54.0	-28.8	Pass

**Test Notes:** SN: 2935662-04, OOK, 903 MHz, 16.38 kbps, Power Level 3



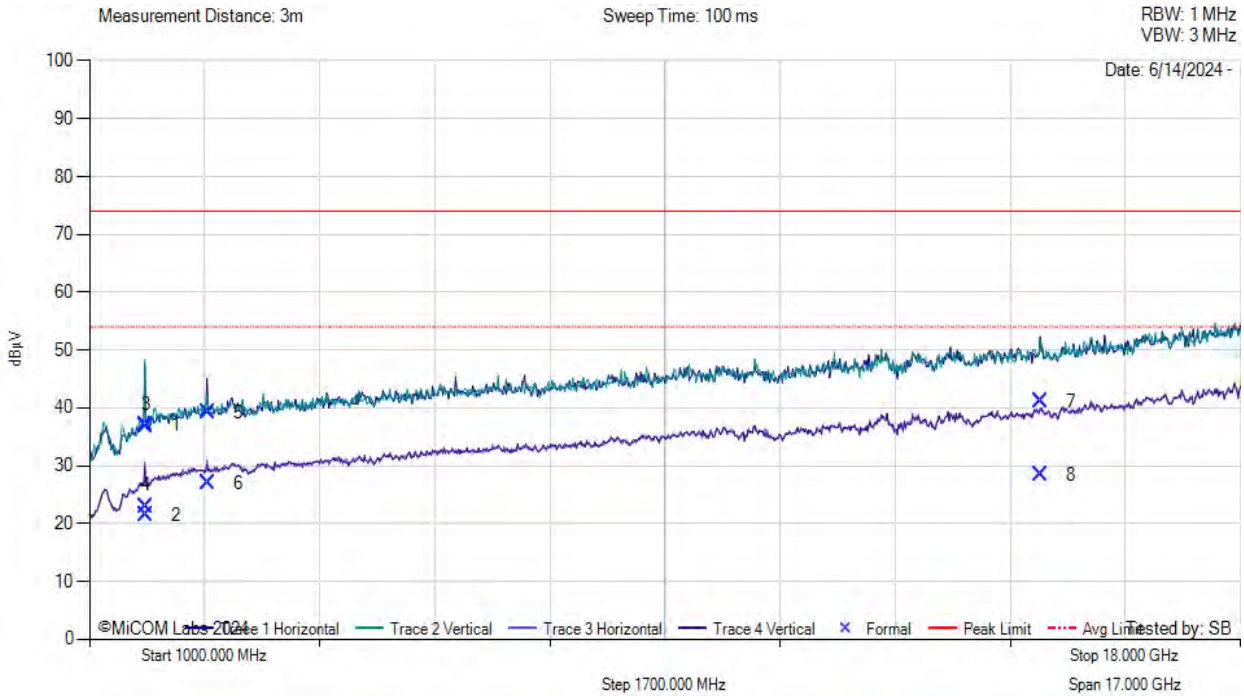
**Equipment Configuration for FCC SPURIOUS 1 GHZ -18 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	OOK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	915.00	<b>Data Rate:</b>	16.384kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



FCC Spurious 1 GHz -18 GHz



**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	1829.88	49.52	1.75	-14.36	36.91	MaxP	Vertical	165	277	74.0	-37.1	Pass
2	1829.88	34.02	1.75	-14.36	21.41	AVG	Vertical	165	277	54.0	-32.6	Pass
3	1830.11	49.64	1.75	-14.36	37.03	MaxP	Horizontal	163	107	74.0	-37.0	Pass
4	1830.11	35.61	1.75	-14.36	23.00	AVG	Horizontal	163	107	54.0	-31.0	Pass
5	2745.09	48.80	2.11	-11.74	39.17	MaxP	Horizontal	171	117	74.0	-34.8	Pass
6	2745.09	36.59	2.11	-11.74	26.96	AVG	Horizontal	171	117	54.0	-27.0	Pass
7	15041.64	39.87	5.60	-4.38	41.08	MaxP	Horizontal	189	149	74.0	-32.9	Pass
8	15041.64	27.18	5.60	-4.38	28.40	AVG	Horizontal	189	149	54.0	-25.6	Pass

**Test Notes:** SN: 2935662-04, OOK, 915 MHz, 16.38 kbps, Power Level 3

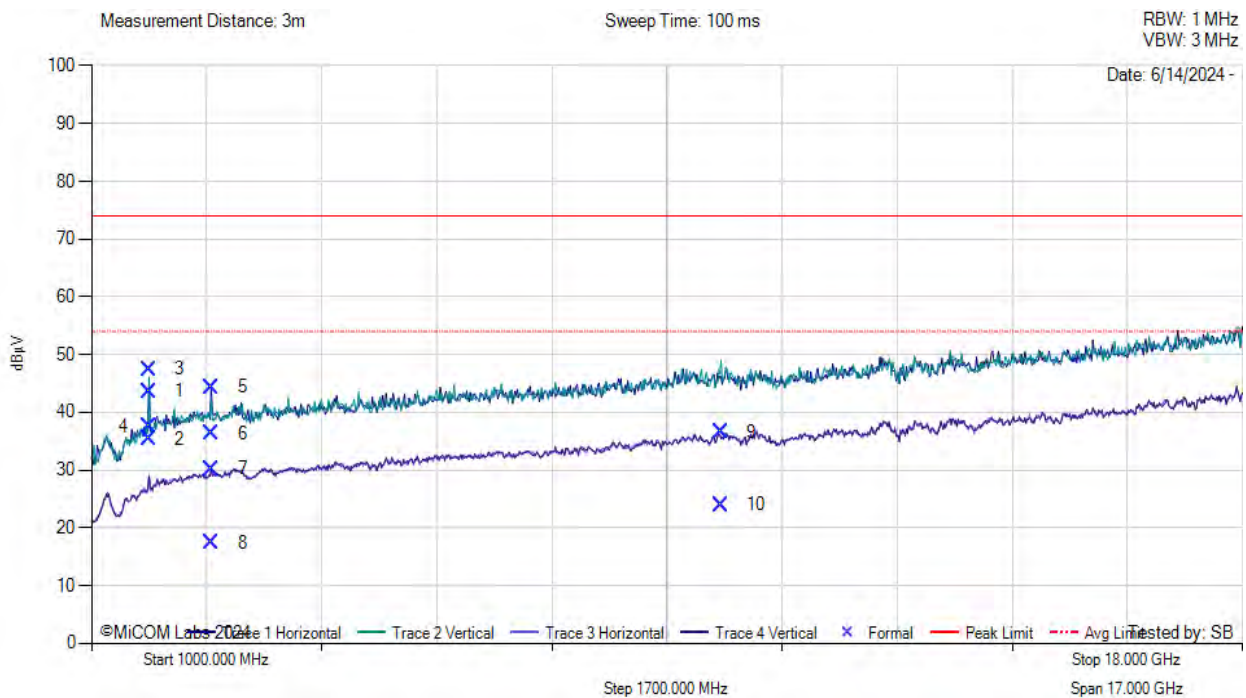
**Equipment Configuration for FCC SPURIOUS 1 GHZ -18 GHZ**

<b>Antenna:</b>	Integral	<b>Variant:</b>	100G DM
<b>Antenna Gain (dBi):</b>	Not Applicable	<b>Modulation:</b>	OOK
<b>Beam Forming Gain (Y):</b>	Not Applicable	<b>Duty Cycle (%):</b>	99
<b>Channel Frequency (MHz):</b>	926.80	<b>Data Rate:</b>	16.384kbps
<b>Power Setting:</b>	Power Level 3	<b>Tested By:</b>	SB

**Test Measurement Results**



FCC Spurious 1 GHz -18 GHz



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	1853.56	56.04	1.72	-14.16	43.60	MaxP	Horizontal	148	118	74.0	-30.4	Pass
2	1853.56	47.74	1.72	-14.16	35.30	AVG	Horizontal	148	118	54.0	-18.7	Pass
3	1853.63	59.93	1.72	-14.16	47.49	MaxP	Vertical	180	118	74.0	-26.5	Pass
4	1853.63	49.97	1.72	-14.16	37.53	AVG	Vertical	180	118	54.0	-16.5	Pass
5	2780.42	54.03	2.13	-11.79	44.37	MaxP	Horizontal	198	86	74.0	-29.6	Pass
6	2780.42	45.98	2.13	-11.79	36.32	AVG	Horizontal	198	86	54.0	-17.7	Pass
7	2780.58	39.89	2.13	-11.79	30.23	MaxP	Vertical	180	9	74.0	-43.8	Pass
8	2780.58	27.10	2.13	-11.79	17.44	AVG	Vertical	180	9	54.0	-36.6	Pass
9	10298.80	37.49	4.31	-5.20	36.60	MaxP	Vertical	184	51	74.0	-37.4	Pass
10	10298.80	24.92	4.31	-5.20	24.03	AVG	Vertical	184	51	54.0	-30.0	Pass

**Test Notes:** SN: 2935662-04, OOK, 926.8 MHz, 16.38 kbps, Power Level 3



## **10. Manufacturer Dwell & Channel Occupancy Declaration**

**Note:** Dwell Time and Channel Occupancy were not tested as part of this test program, these were declared for normal network operation by Itron in the following document provided as an exhibit in support of this test program.

“BPD Time of Use and Equal Usage” 800-0016 Version 06 Dated 29<sup>th</sup> November 2023

This document contains Dwell & Occupancy times as compliant for the following operation modes declared by the manufacturer for the Itron 100G ERT® Module in normal operation.

- 1) 100S Mode pages 7 to 9
- 2) Local Port Mode pages 10 to 12;
- 3) BACT Mode Pages P13 to P17,
- 4) EFC/ EFC + Mode P18 to 20.
- 5) INS Mode Pages 21 to 22.

## 11. Manufacturer Declaration of Similarity



Itron, Inc.  
2401 N. State St.  
Waseca, MN 56093  
507-781-4300  
[www.itron.com](http://www.itron.com)

June 28, 2024

Subject: Declaration of Similarity: EWQ100GTB, 864D-100GTB

Dear Sir or Madam,

We declare the product models listed below are electrically identical.

Product Information	
Marketing Name	100G ERT Module
Description	Gas utility AMR device
Models(s)	ERG-5600-005, ERG-5600-006

The only difference between these variant models is the housing and the gas meter wiggler interface. The differences of these variants does not affect any RF or EMC performance.

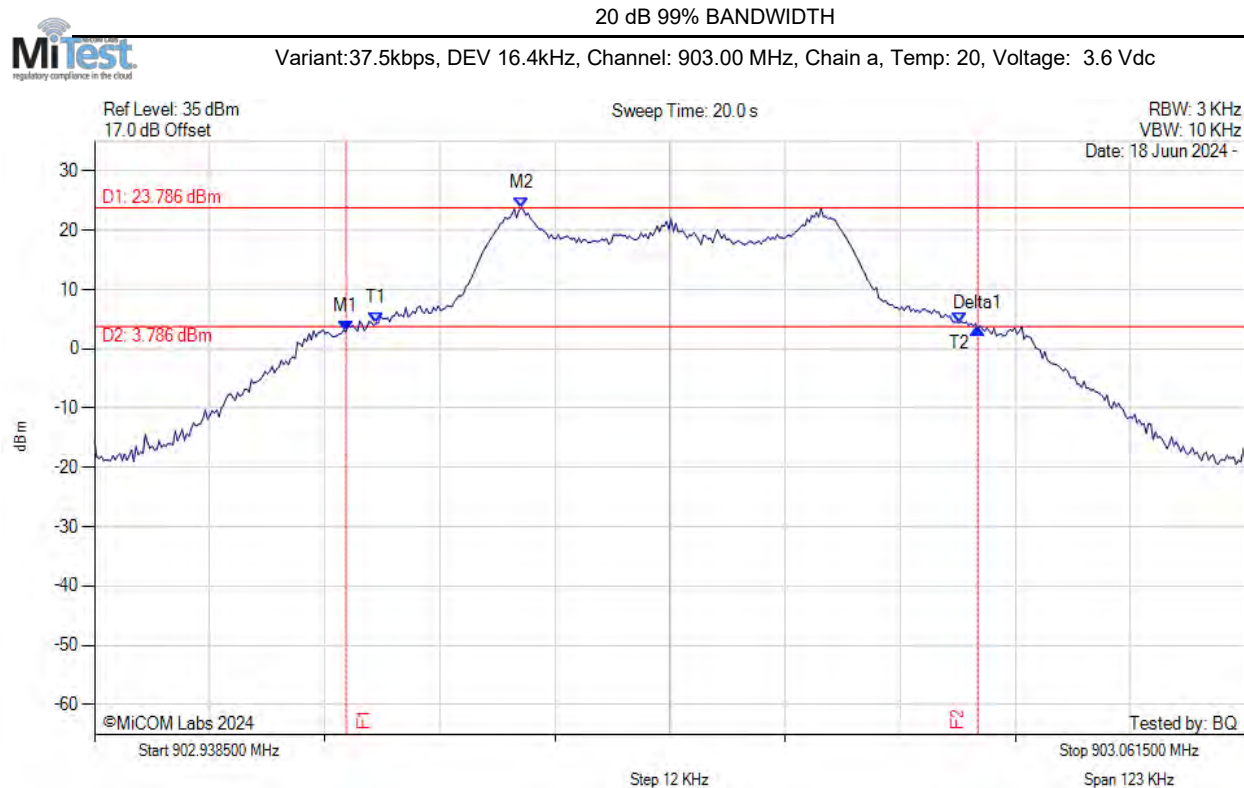
Sincerely,



Dan Bomsta  
Sr. Principal Regulatory Engineer  
507-781-4480  
[dan.bomsta@itron.com](mailto:dan.bomsta@itron.com)

## **A. APPENDIX - GRAPHICAL IMAGES**

### A.1. 20 dB & 99% Bandwidth



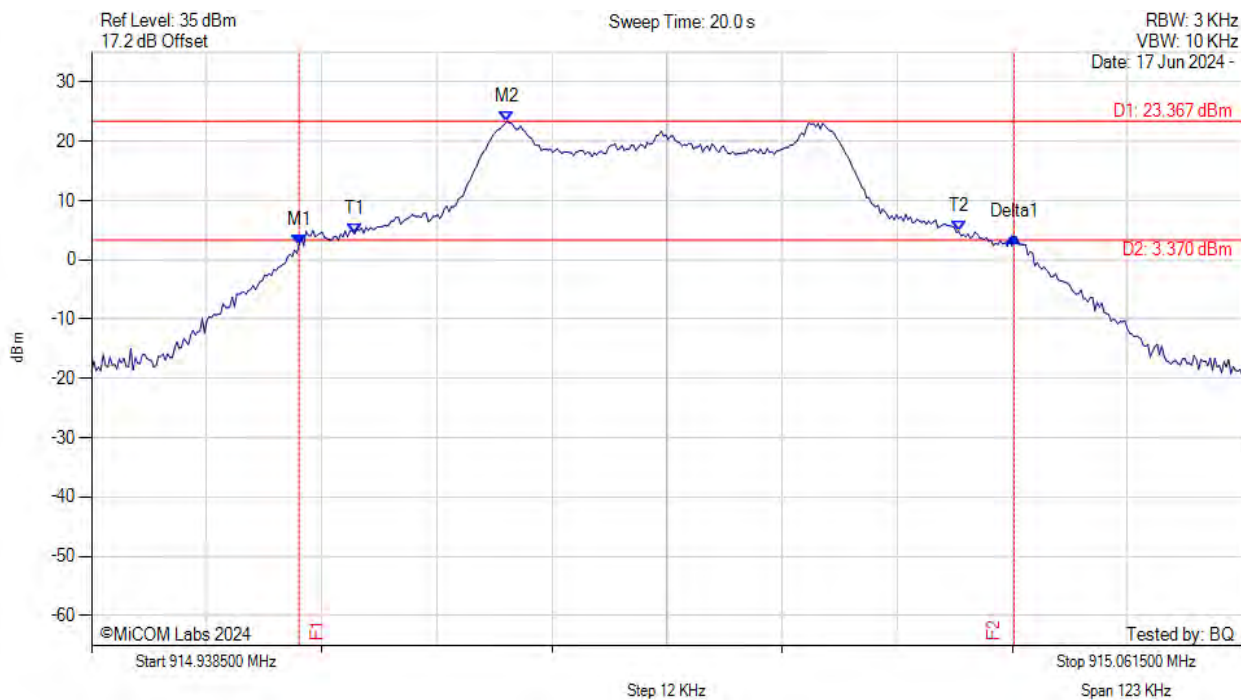
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 902.965 MHz : 2.960 dBm M2 : 902.984 MHz : 23.786 dBm Delta1 : 68 KHz : 0.478 dB T1 : 902.969 MHz : 4.339 dBm T2 : 903.031 MHz : 4.463 dBm OBW : 62 KHz	Measured 20 dB Bandwidth: 0.068 MHz Limit: 0.5 kHz Margin: -0.43 MHz

[back to matrix](#)

20 dB 99% BANDWIDTH



Variant:37.5kbps, DEV 16.4kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 914.961 MHz : 2.548 dBm M2 : 914.983 MHz : 23.367 dBm Delta1 : 76 KHz : 1.291 dB T1 : 914.967 MHz : 4.402 dBm T2 : 915.031 MHz : 4.833 dBm OBW : 65 KHz	Measured 20 dB Bandwidth: 0.076 MHz Limit: 0.5 kHz Margin: -0.42 MHz

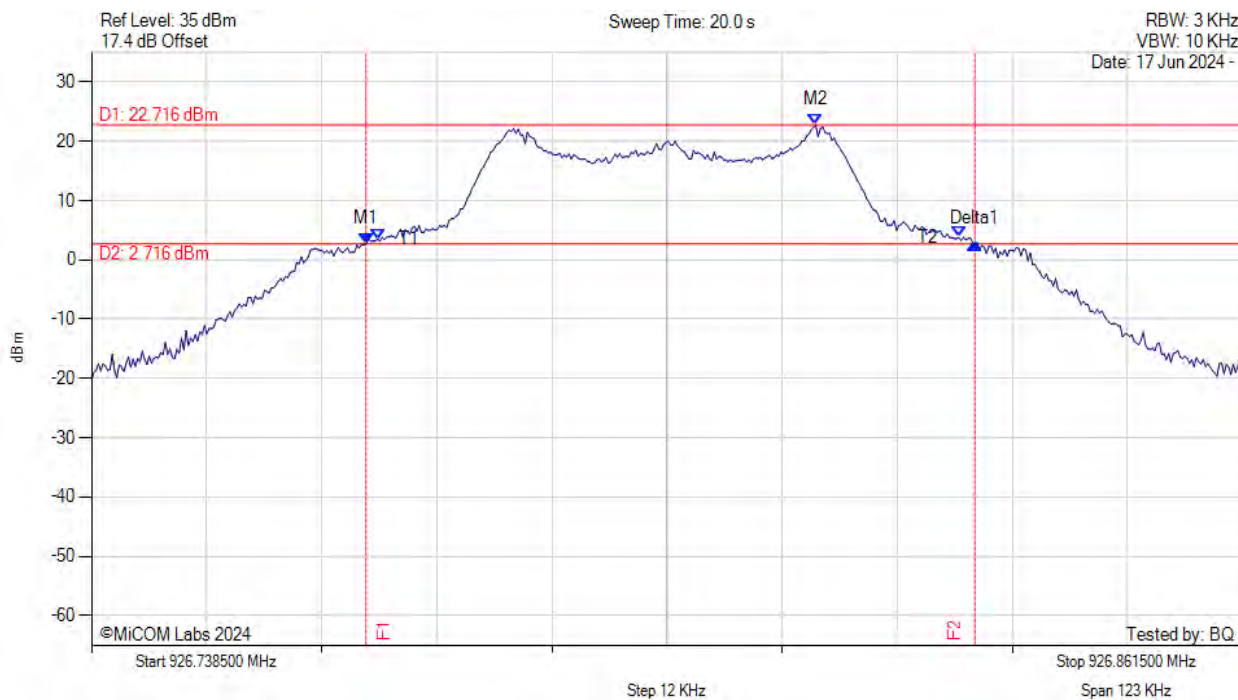
[back to matrix](#)



20 dB 99% BANDWIDTH



Variant:37.5kbps, DEV 16.4kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



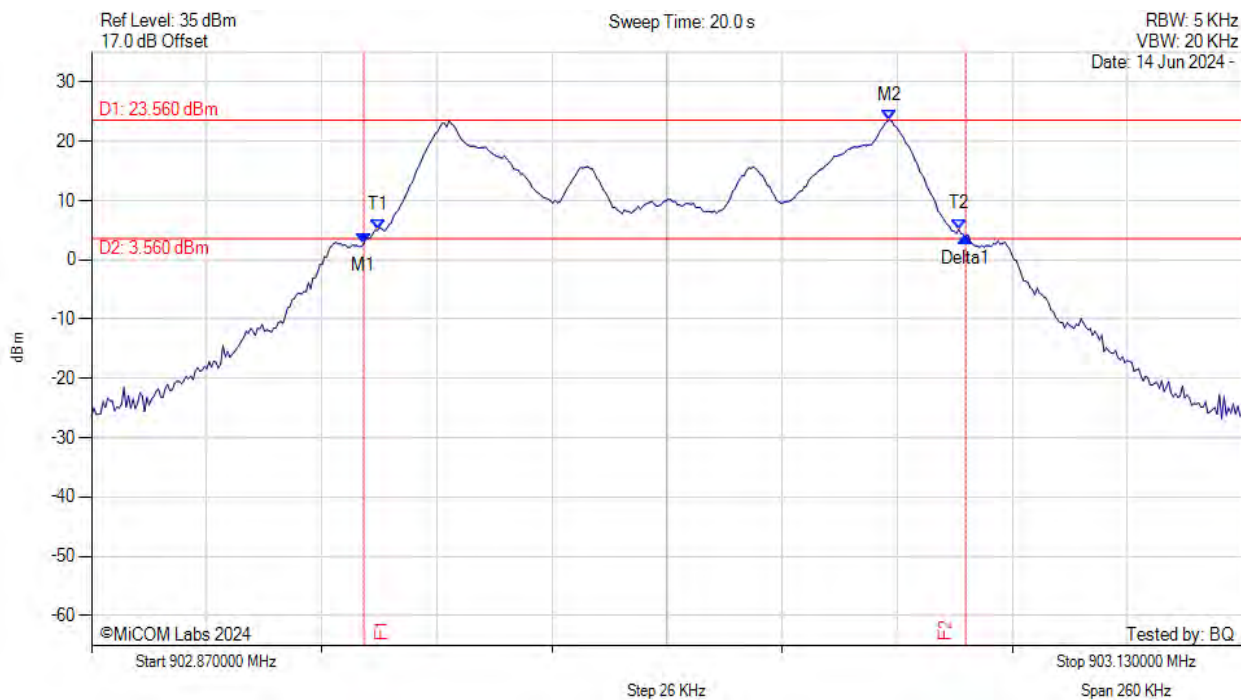
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 926.768 MHz : 2.694 dBm M2 : 926.816 MHz : 22.716 dBm Delta1 : 65 KHz : 0.057 dB T1 : 926.769 MHz : 3.503 dBm T2 : 926.831 MHz : 3.798 dBm OBW : 62 KHz	Measured 20 dB Bandwidth: 0.065 MHz Limit: 0.5 kHz Margin: -0.44 MHz

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20 dB 99% BANDWIDTH



Variant:37.5kbps, DEV 50kHz, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 902.931 MHz : 2.747 dBm M2 : 903.050 MHz : 23.560 dBm Delta1 : 136 KHz : 1.125 dB T1 : 902.935 MHz : 4.998 dBm T2 : 903.066 MHz : 5.183 dBm OBW : 131 KHz	Measured 20 dB Bandwidth: 0.136 MHz Limit: 0.5 kHz Margin: -0.36 MHz

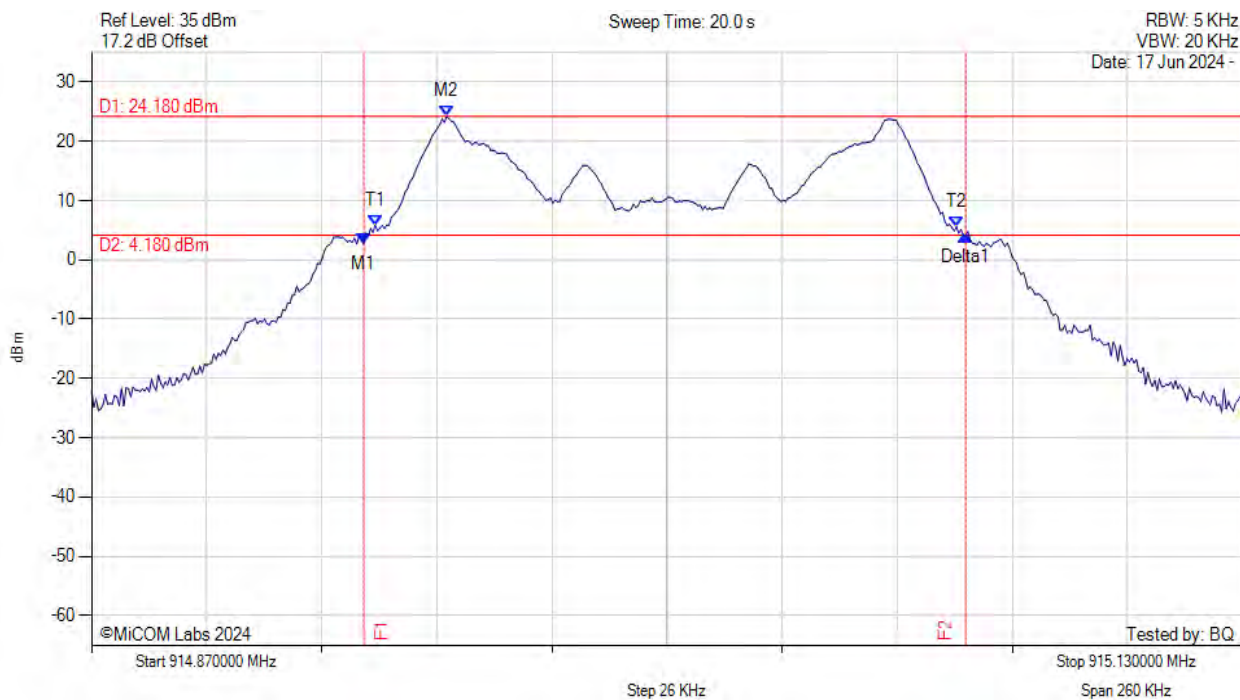
[back to matrix](#)



20 dB 99% BANDWIDTH



Variant:37.5kbps, DEV 50kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



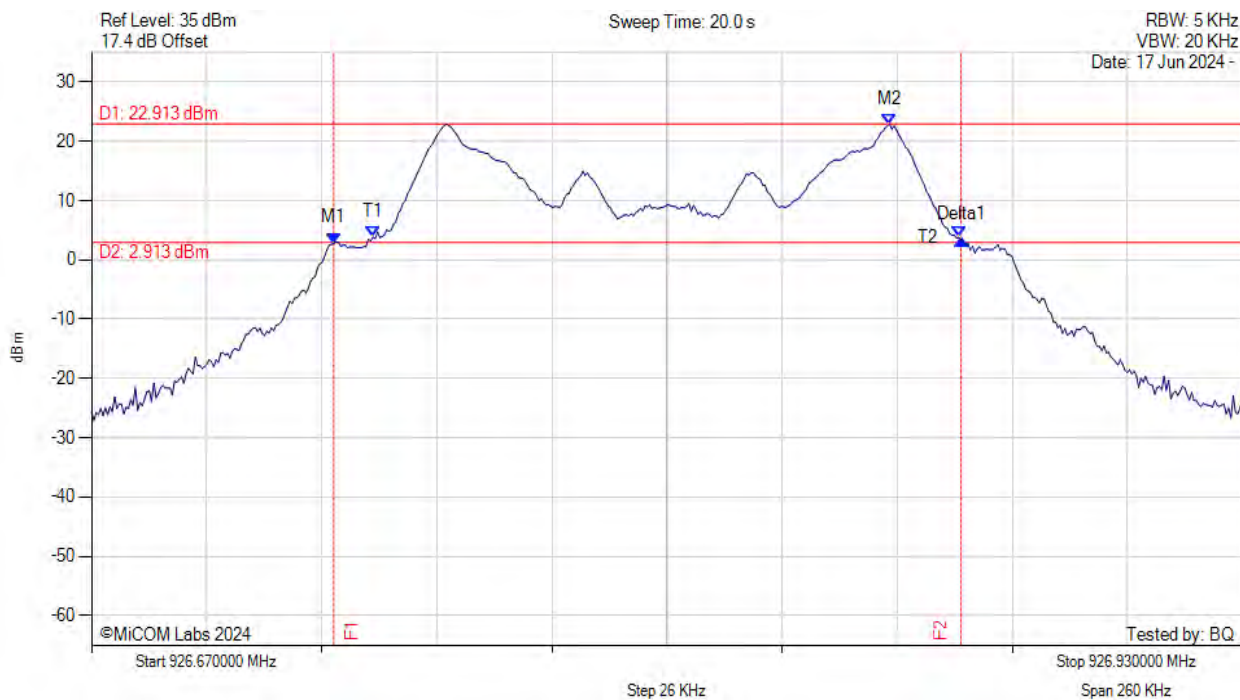
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 914.931 MHz : 2.761 dBm M2 : 914.950 MHz : 24.180 dBm Delta1 : 136 KHz : 1.348 dB T1 : 914.934 MHz : 5.797 dBm T2 : 915.065 MHz : 5.596 dBm OBW : 131 KHz	Measured 20 dB Bandwidth: 0.136 MHz Limit: 0.5 kHz Margin: -0.36 MHz

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20 dB 99% BANDWIDTH



Variante: 37.5kbps, DEV 50kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



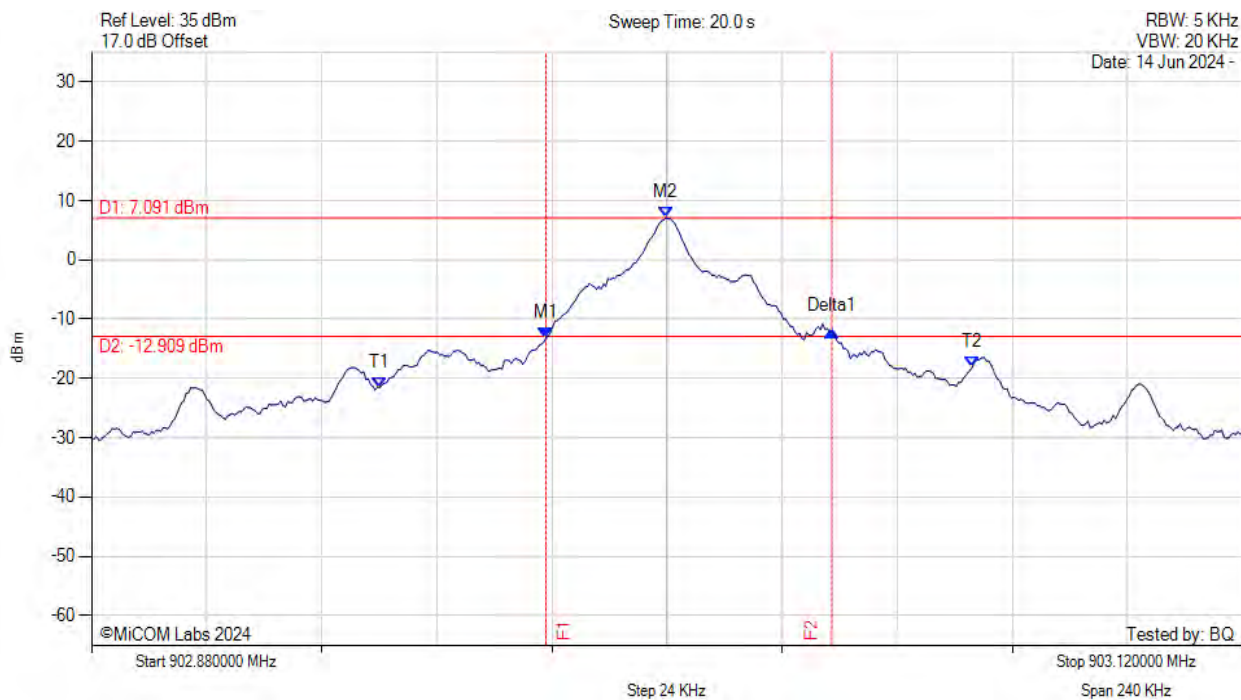
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 926.725 MHz : 2.828 dBm M2 : 926.850 MHz : 22.913 dBm Delta1 : 142 KHz : 0.673 dB T1 : 926.734 MHz : 3.847 dBm T2 : 926.866 MHz : 3.790 dBm OBW : 132 KHz	Measured 20 dB Bandwidth: 0.142 MHz Limit: 0.5 kHz Margin: -0.36 MHz

[back to matrix](#)

20 dB 99% BANDWIDTH



Variant: OOK - PL1, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



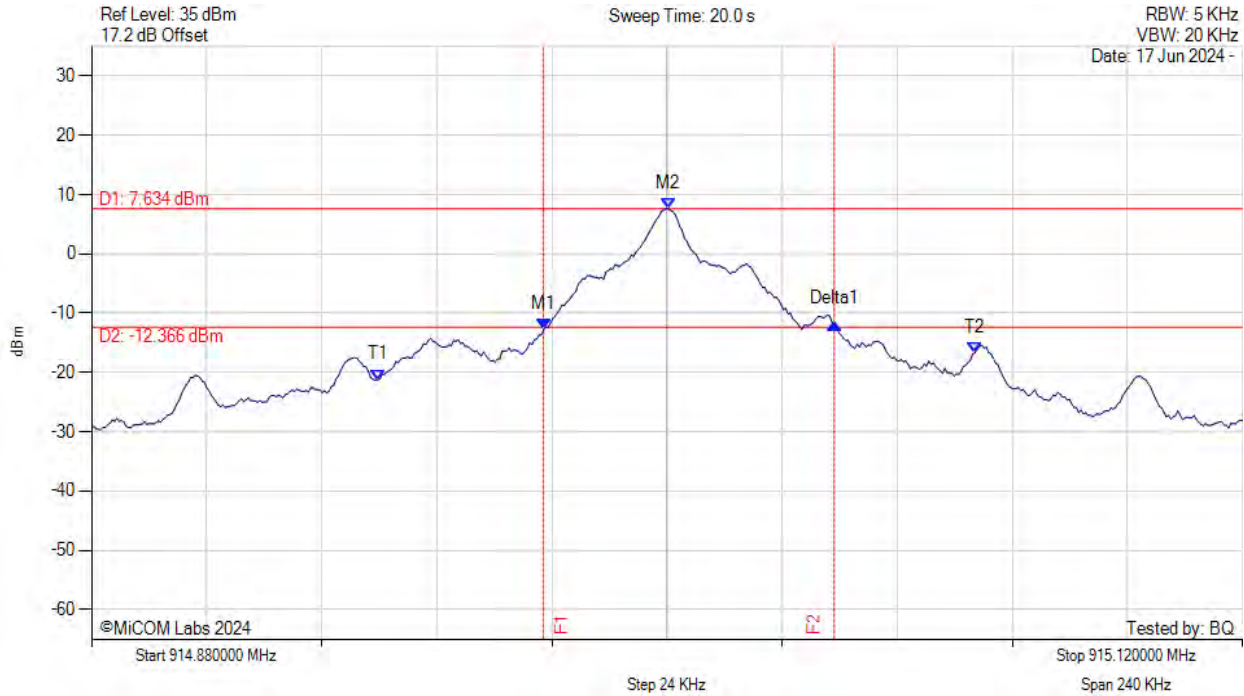
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 902.975 MHz : -13.167 dBm M2 : 903.000 MHz : 7.091 dBm Delta1 : 60 KHz : 1.070 dB T1 : 902.940 MHz : -21.524 dBm T2 : 903.064 MHz : -17.983 dBm OBW : 124 KHz	Measured 20 dB Bandwidth: 0.060 MHz Limit: 0.5 kHz Margin: -0.44 MHz

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20 dB 99% BANDWIDTH



Variants: OOK - PL1, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



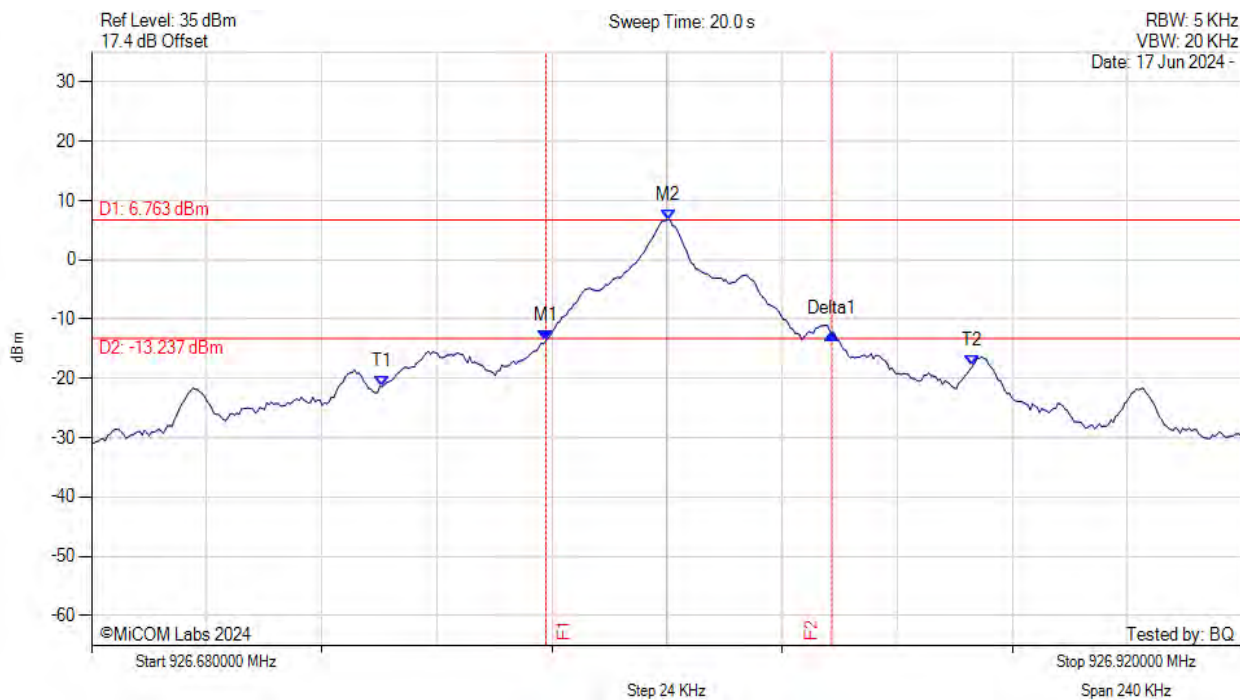
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 914.974 MHz : -12.769 dBm M2 : 915.000 MHz : 7.634 dBm Delta1 : 61 KHz : 0.976 dB T1 : 914.940 MHz : -21.245 dBm T2 : 915.064 MHz : -16.661 dBm OBW : 125 KHz	Measured 20 dB Bandwidth: 0.061 MHz Limit: 0.5 kHz Margin: -0.44 MHz

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20 dB 99% BANDWIDTH



Variant: OOK - PL1, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 926.775 MHz : -13.657 dBm M2 : 926.800 MHz : 6.763 dBm Delta1 : 60 KHz : 1.267 dB T1 : 926.741 MHz : -21.406 dBm T2 : 926.864 MHz : -17.906 dBm OBW : 123 KHz	Measured 20 dB Bandwidth: 0.060 MHz Limit: 0.5 kHz Margin: -0.44 MHz

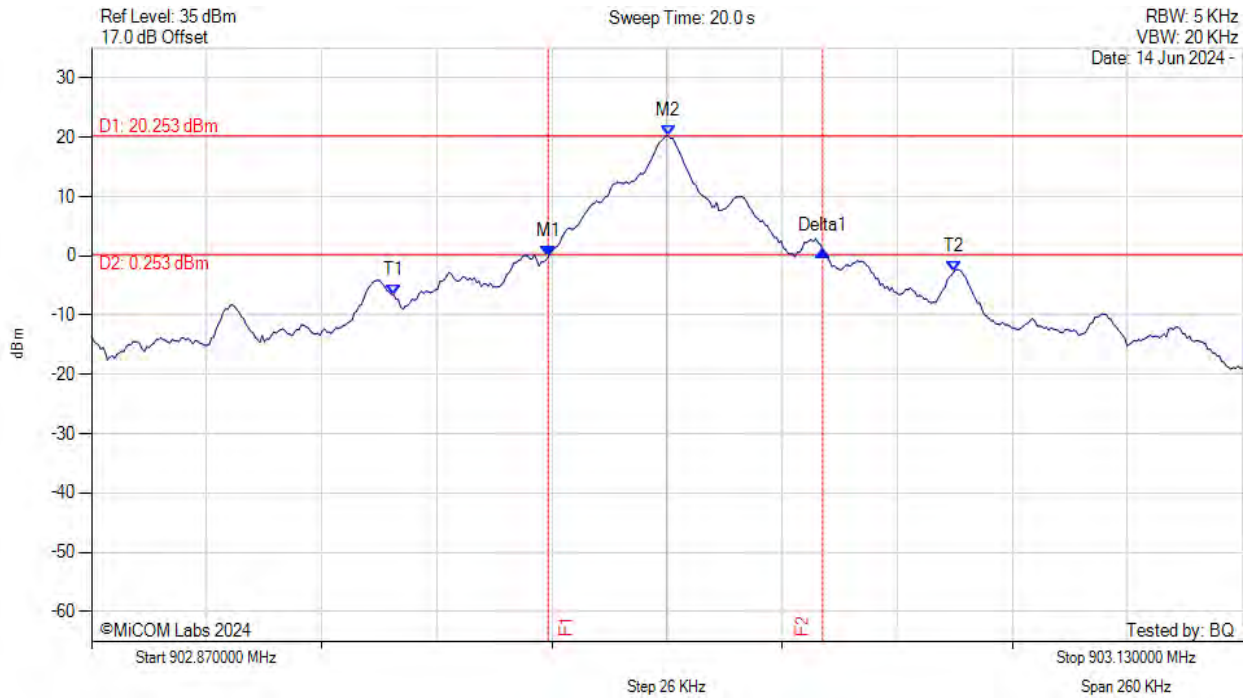
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20 dB 99% BANDWIDTH



Variant: OOK - PL3, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 902.973 MHz : -0.182 dBm M2 : 903.000 MHz : 20.253 dBm Delta1 : 62 KHz : 0.999 dB T1 : 902.938 MHz : -6.541 dBm T2 : 903.065 MHz : -2.565 dBm OBW : 127 KHz	Measured 20 dB Bandwidth: 0.062 MHz Limit: 0.5 kHz Margin: -0.44 MHz

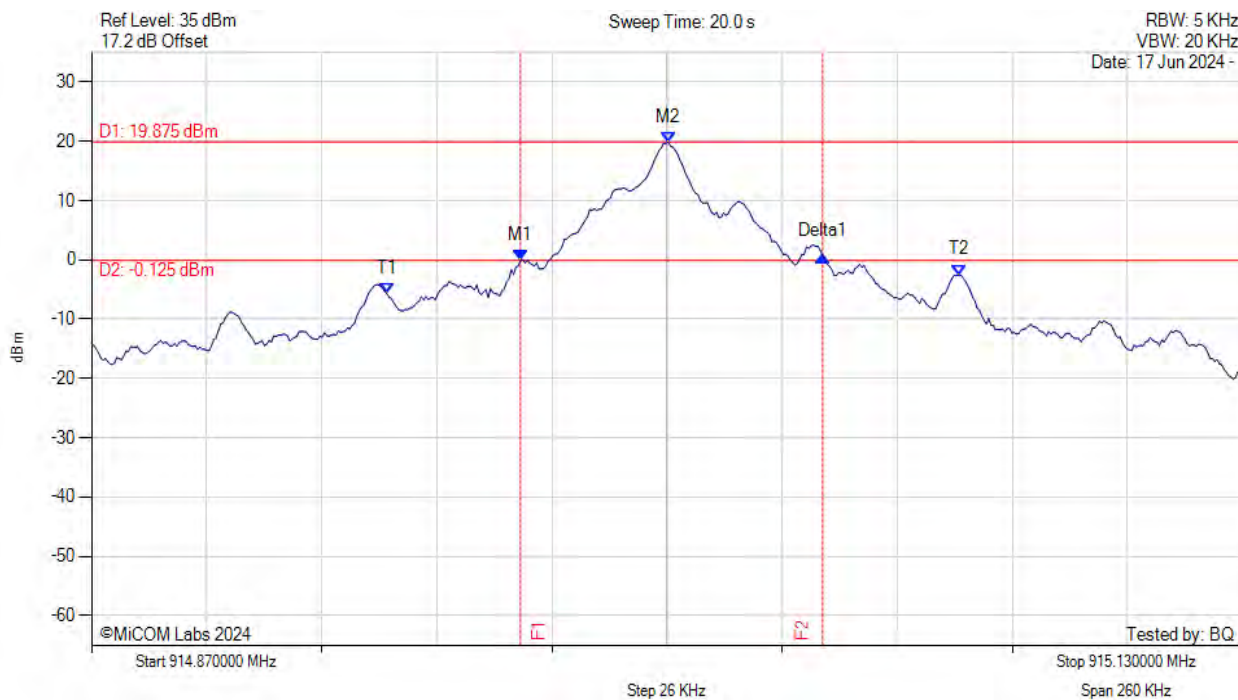
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20 dB 99% BANDWIDTH



Variant: OOK - PL3, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



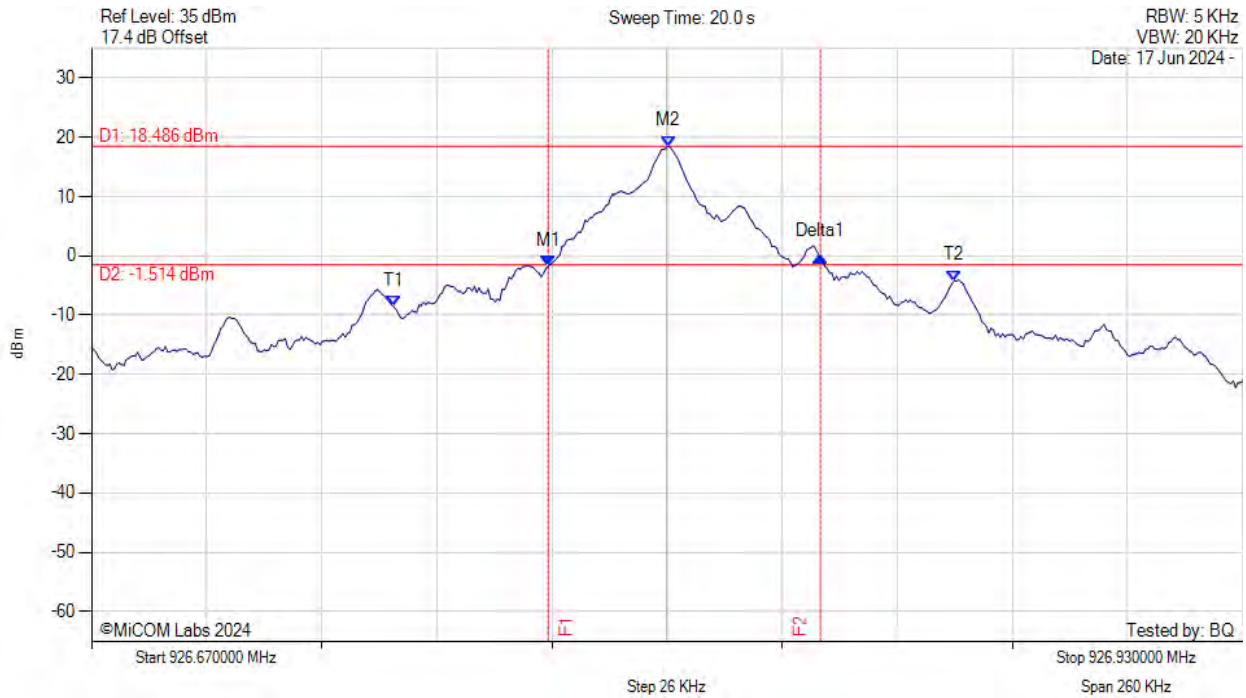
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 914.967 MHz : -0.157 dBm M2 : 915.000 MHz : 19.875 dBm Delta1 : 68 KHz : 0.818 dB T1 : 914.937 MHz : -5.669 dBm T2 : 915.066 MHz : -2.527 dBm OBW : 129 KHz	Measured 20 dB Bandwidth: 0.068 MHz Limit: 0.5 kHz Margin: -0.43 MHz

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20 dB 99% BANDWIDTH



Variant: OOK - PL3, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc

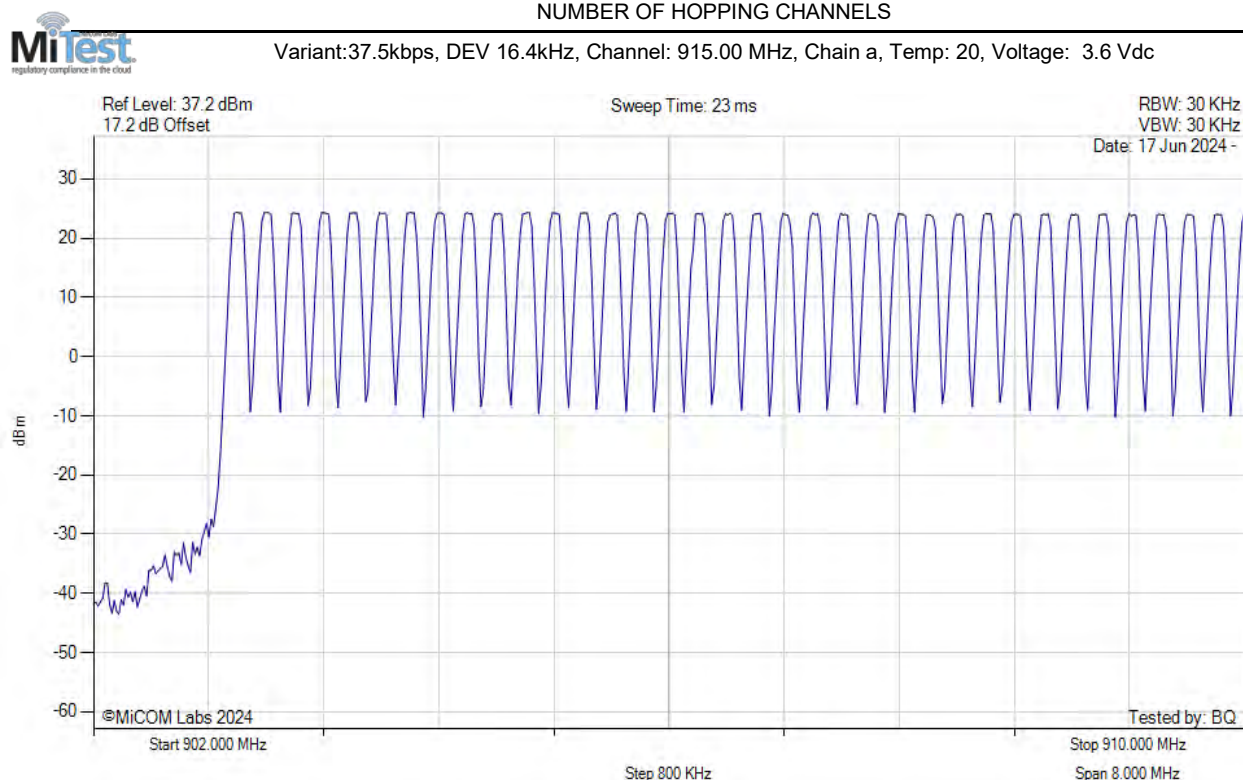


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = MAX HOLD	M1 : 926.773 MHz : -1.799 dBm M2 : 926.800 MHz : 18.486 dBm Delta1 : 61 KHz : 1.666 dB T1 : 926.738 MHz : -8.599 dBm T2 : 926.865 MHz : -4.184 dBm OBW : 127 KHz	Measured 20 dB Bandwidth: 0.061 MHz Limit: 0.5 kHz Margin: -0.44 MHz

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## A.2. Frequency Hopping Tests

### A.2.1. Number of Hopping Channels



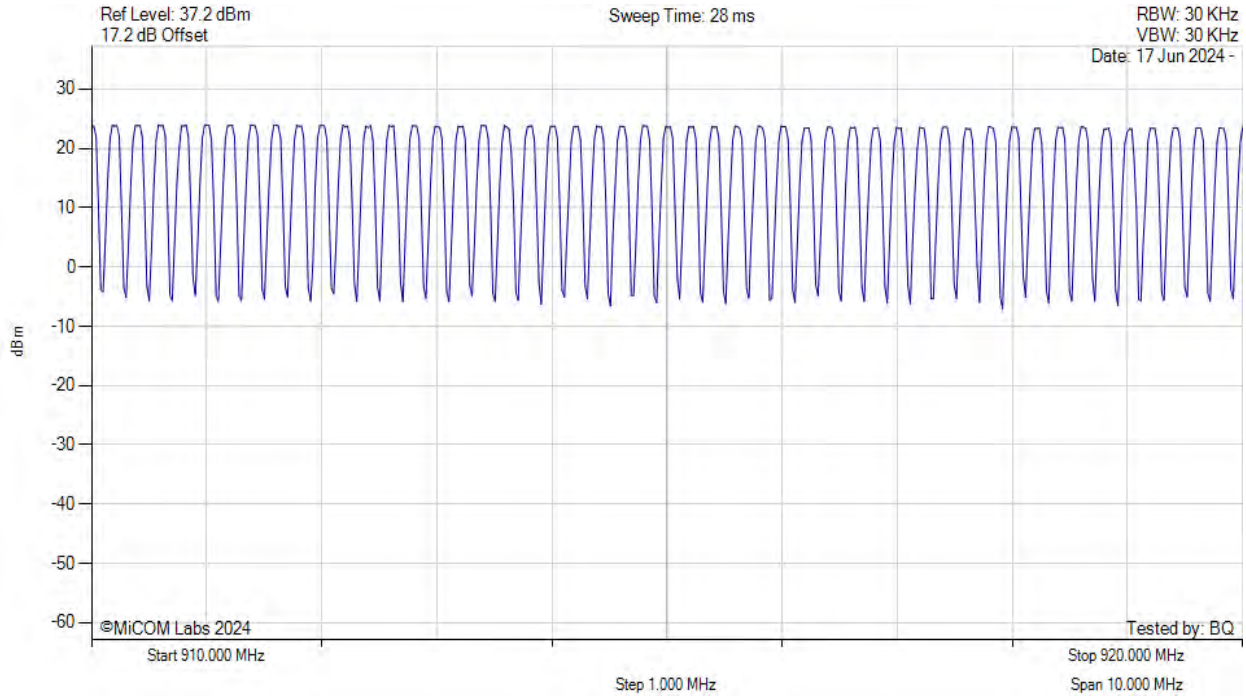
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

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NUMBER OF HOPPING CHANNELS



Variant:37.5kbps, DEV 16.4kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

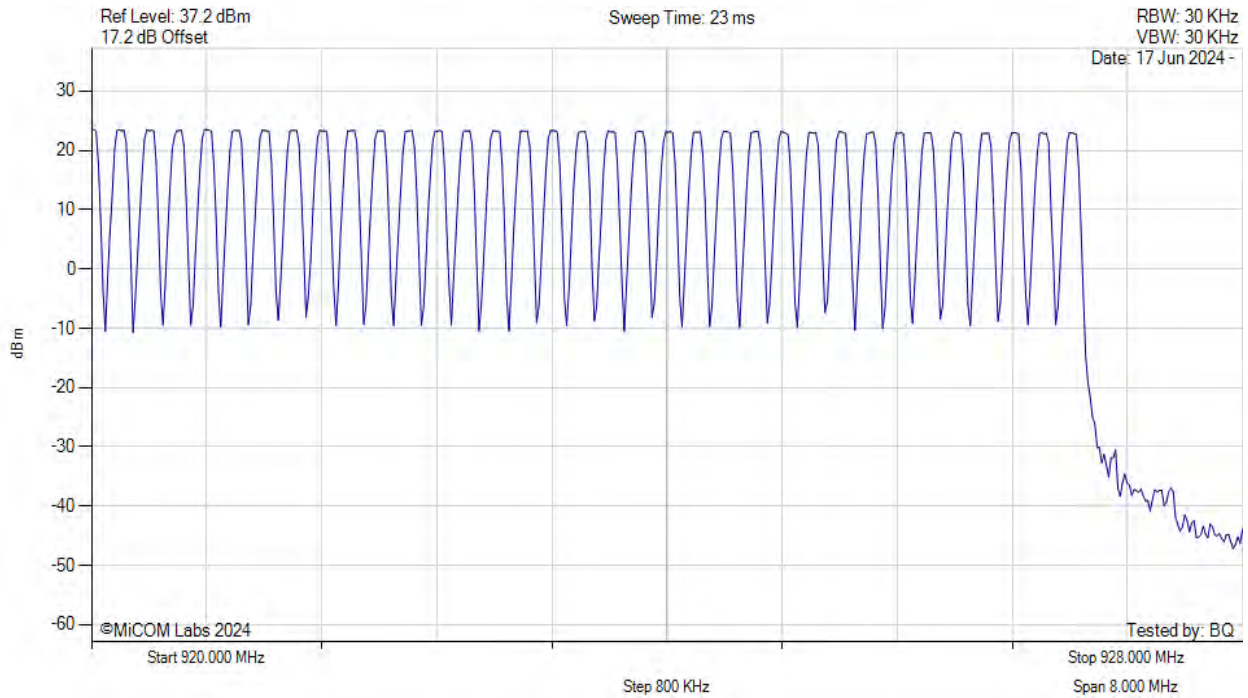
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NUMBER OF HOPPING CHANNELS



Variant: 37.5kbps, DEV 16.4kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



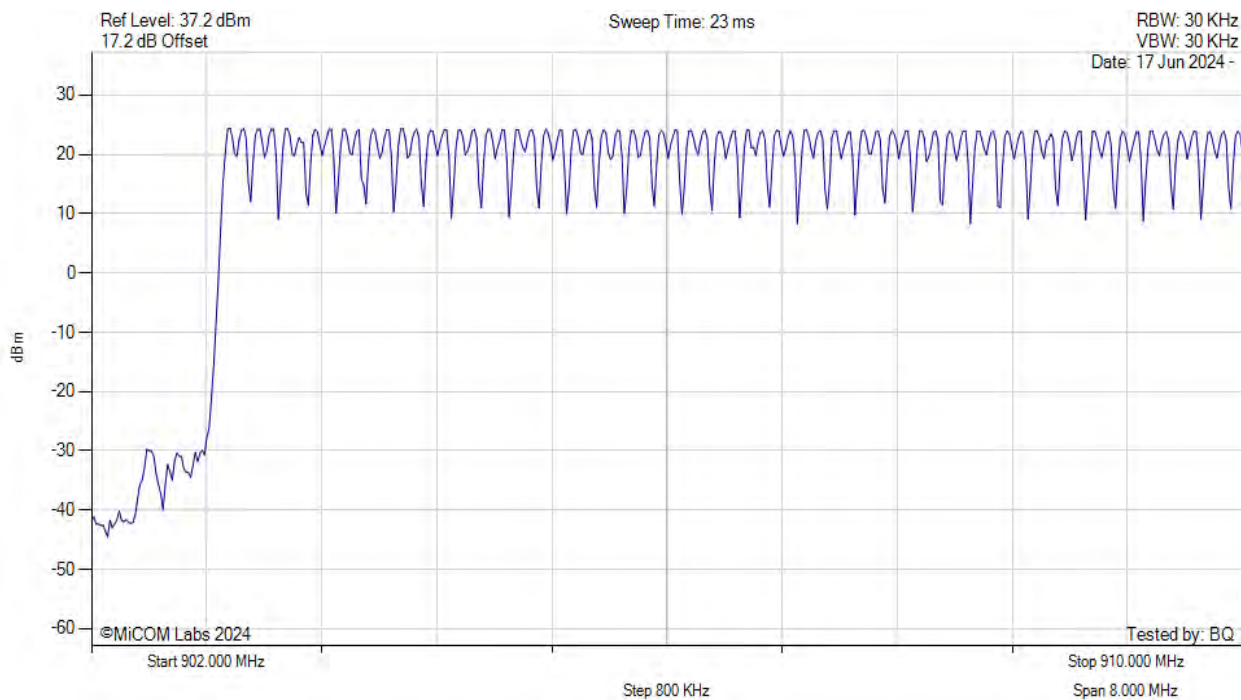
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

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NUMBER OF HOPPING CHANNELS



Variant: 37.5kbps, DEV 50kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

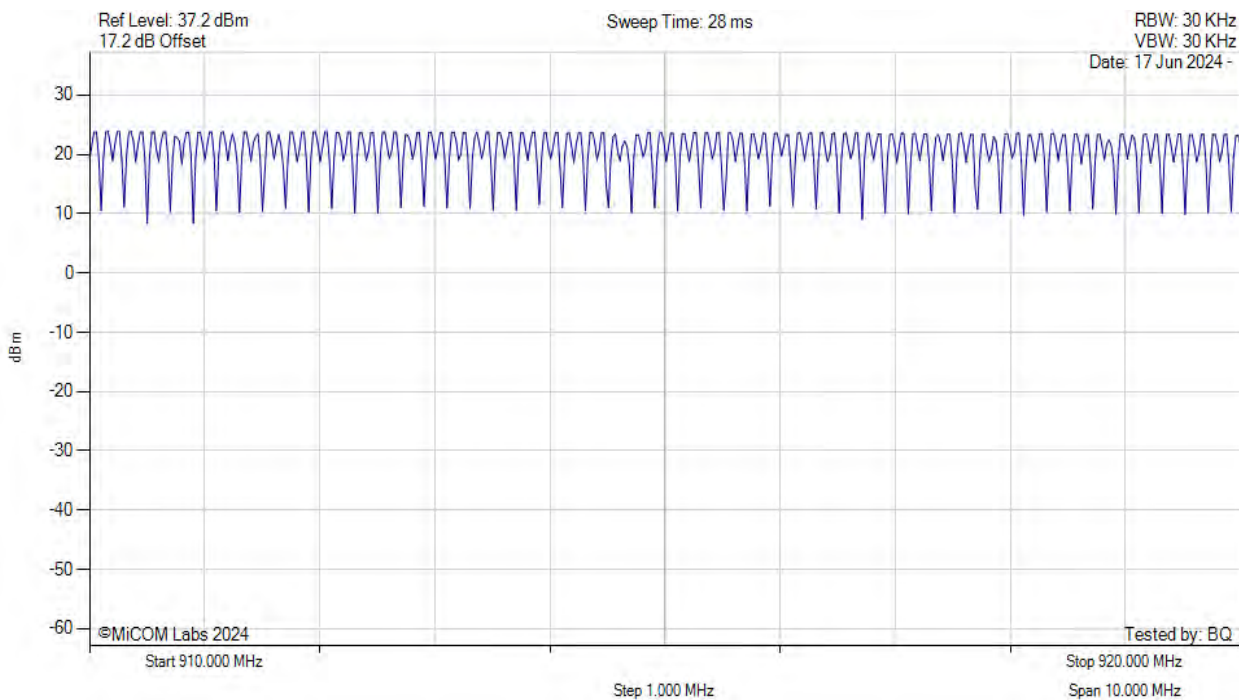
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NUMBER OF HOPPING CHANNELS



Variation: 37.5kbps, DEV 50kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



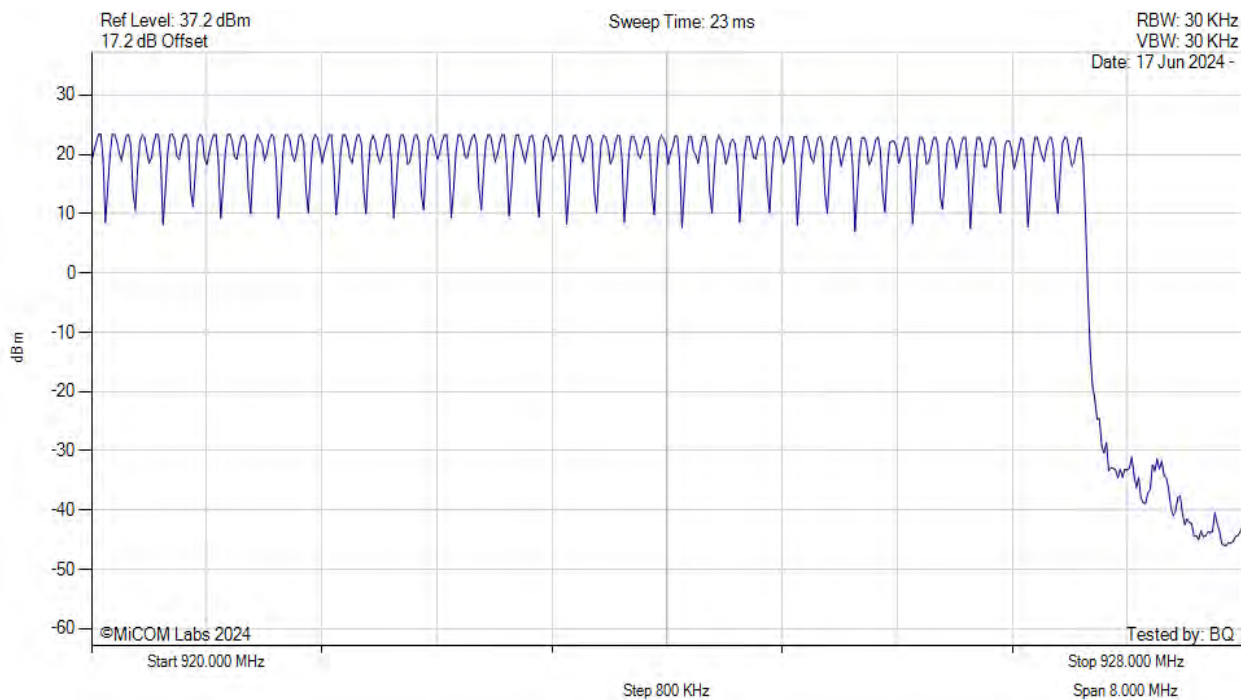
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

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NUMBER OF HOPPING CHANNELS



Variant: 37.5kbps, DEV 50kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



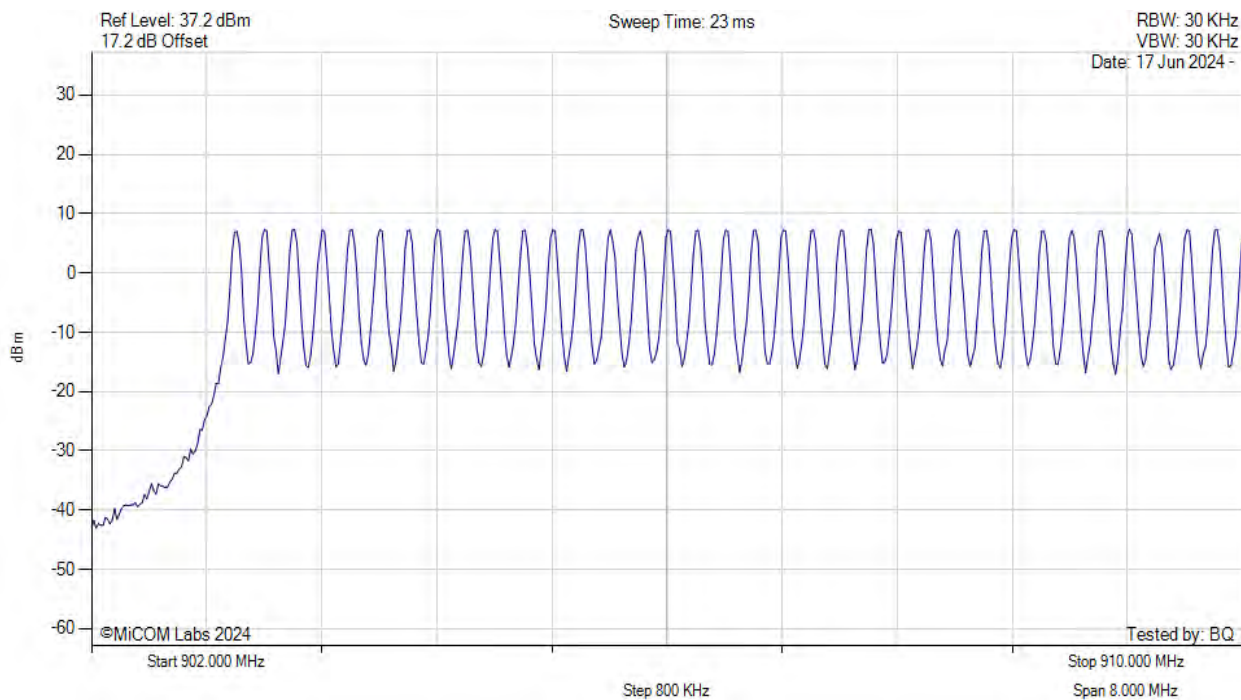
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

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NUMBER OF HOPPING CHANNELS



Variant: OOK - PL1, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



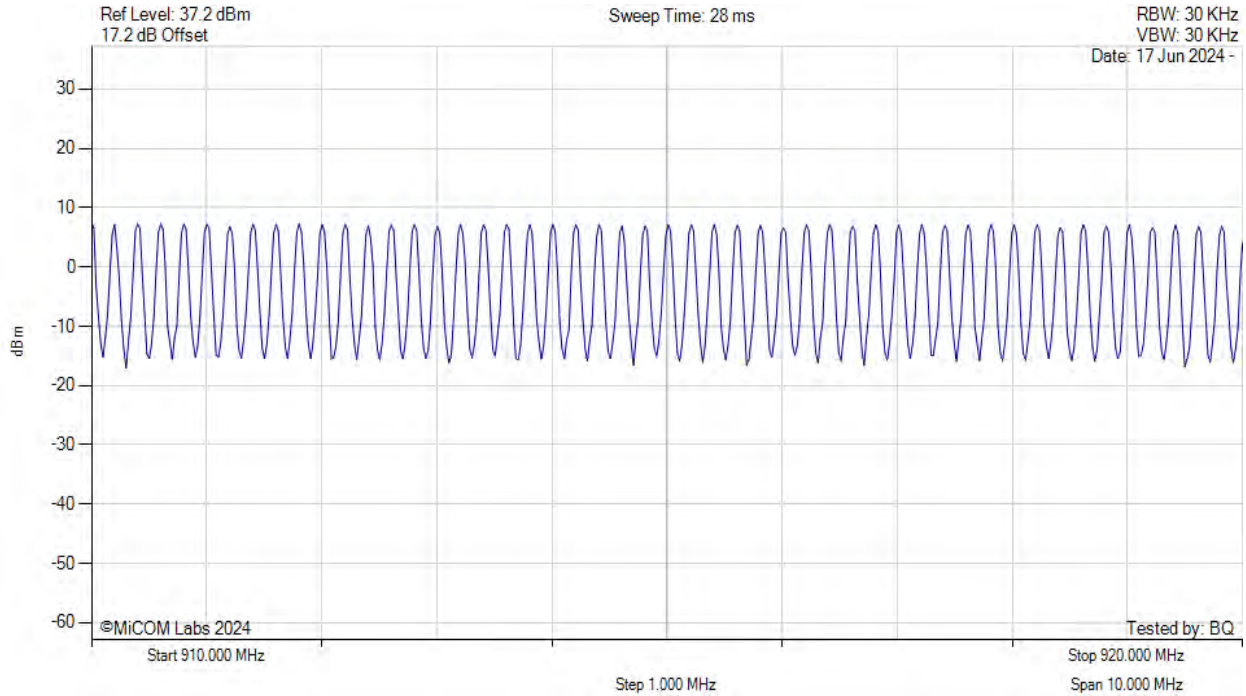
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

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NUMBER OF HOPPING CHANNELS



Variant: OOK - PL1, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



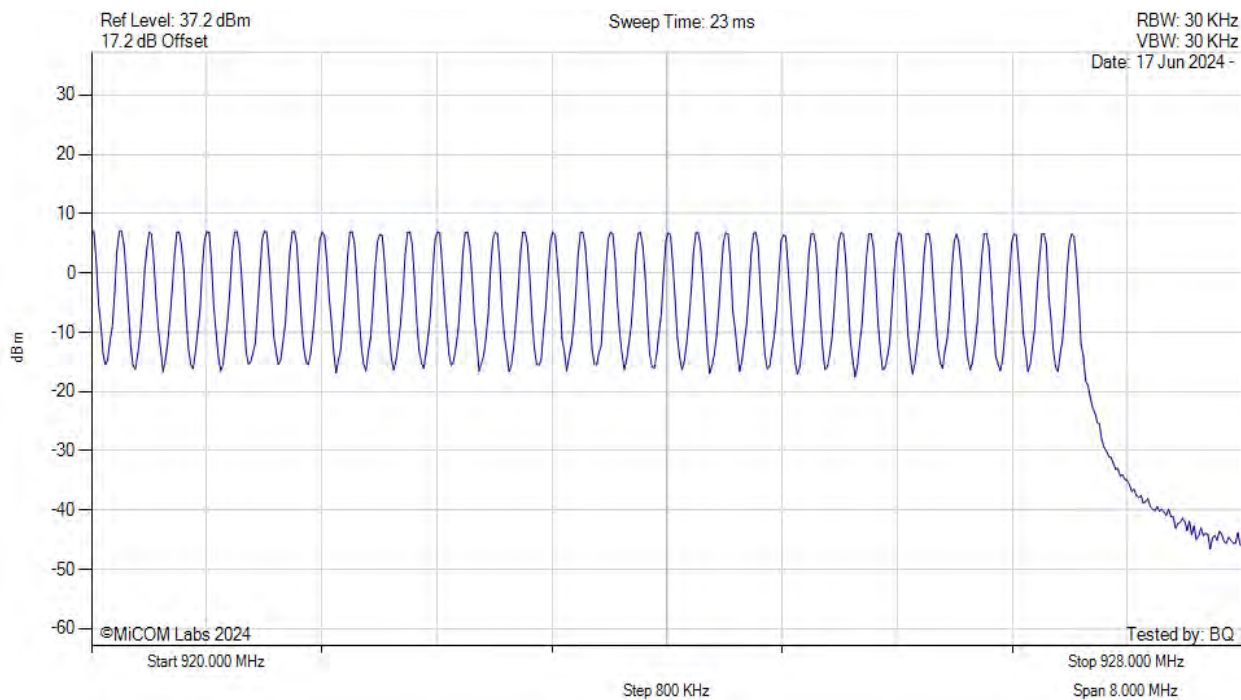
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

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NUMBER OF HOPPING CHANNELS



Variant: OOK - PL1, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

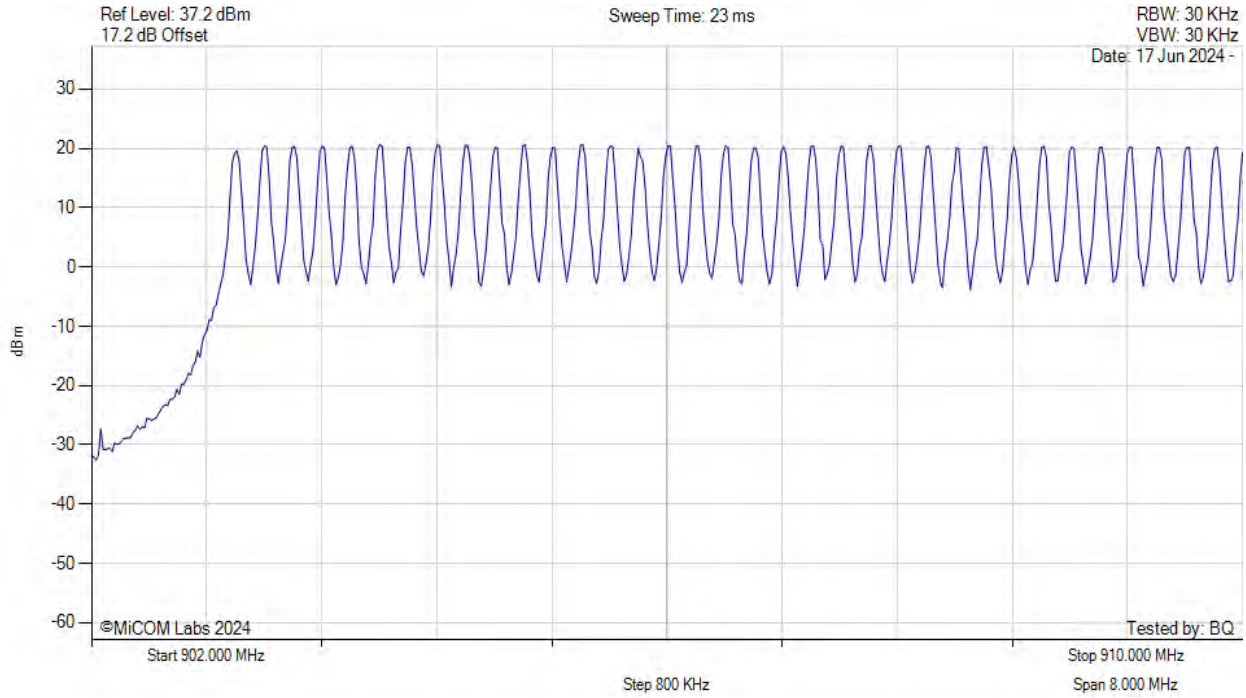
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NUMBER OF HOPPING CHANNELS



Variant: OOK - PL3, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

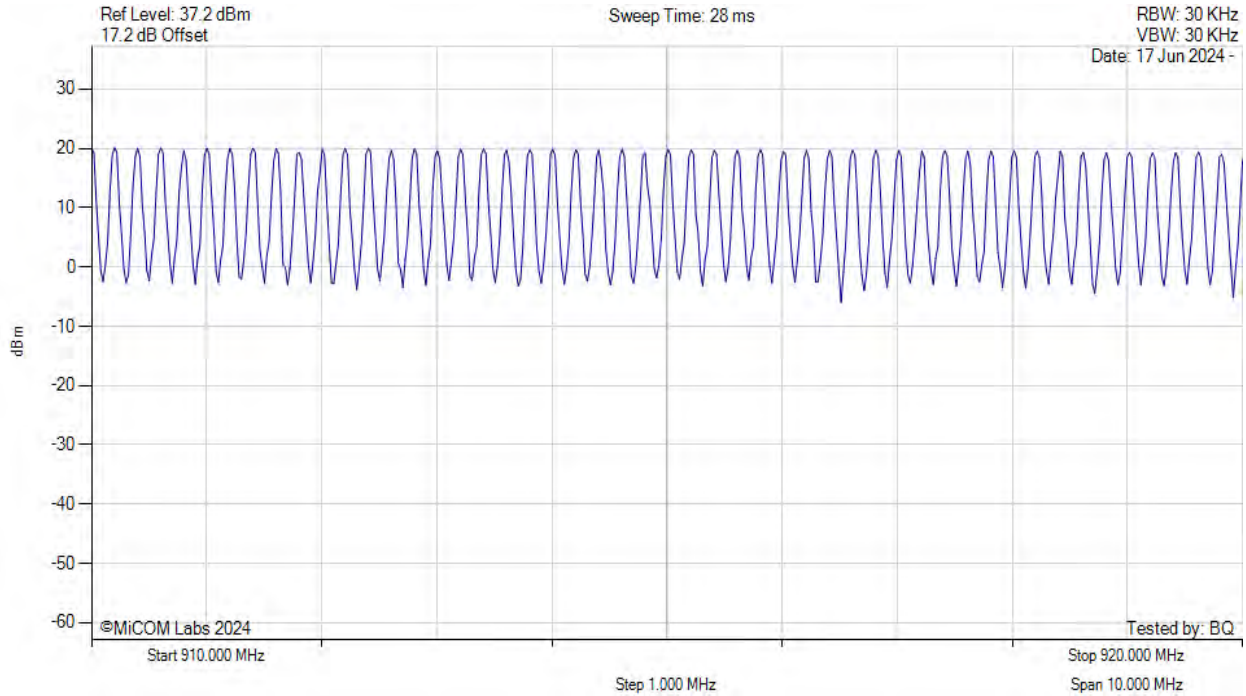
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NUMBER OF HOPPING CHANNELS



Variant: OOK - PL3, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



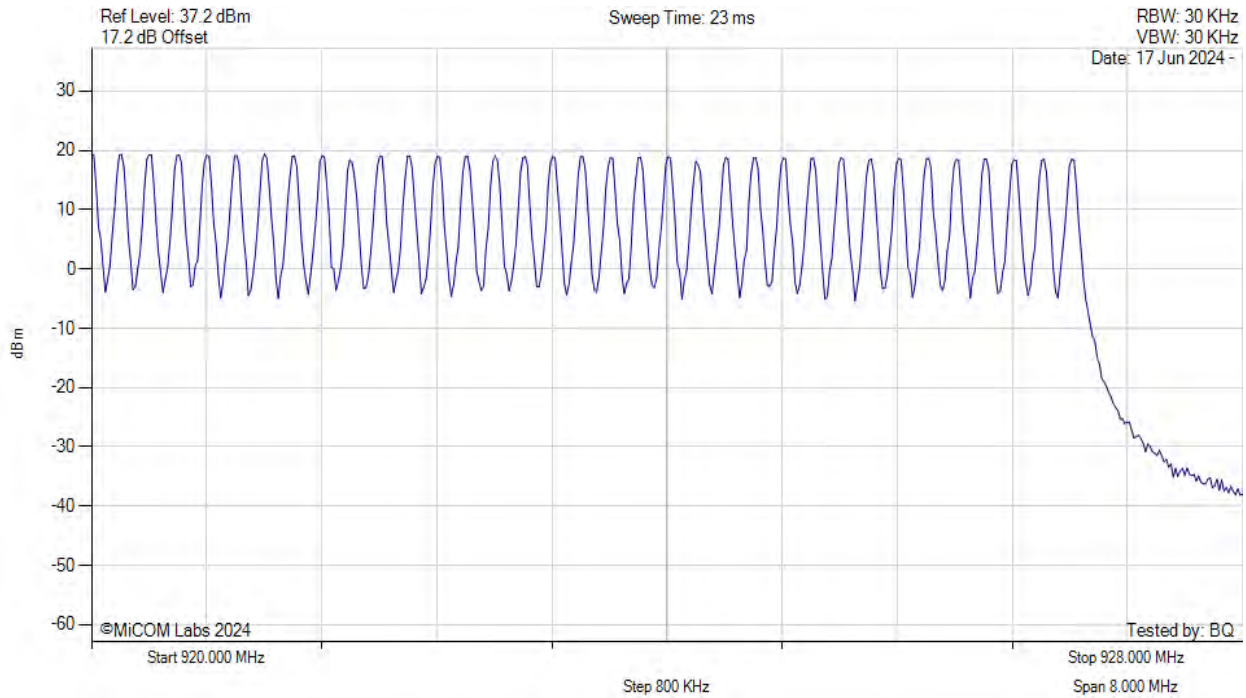
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

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NUMBER OF HOPPING CHANNELS



Variant: OOK - PL3, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW		Channel Frequency: 915.00 MHz

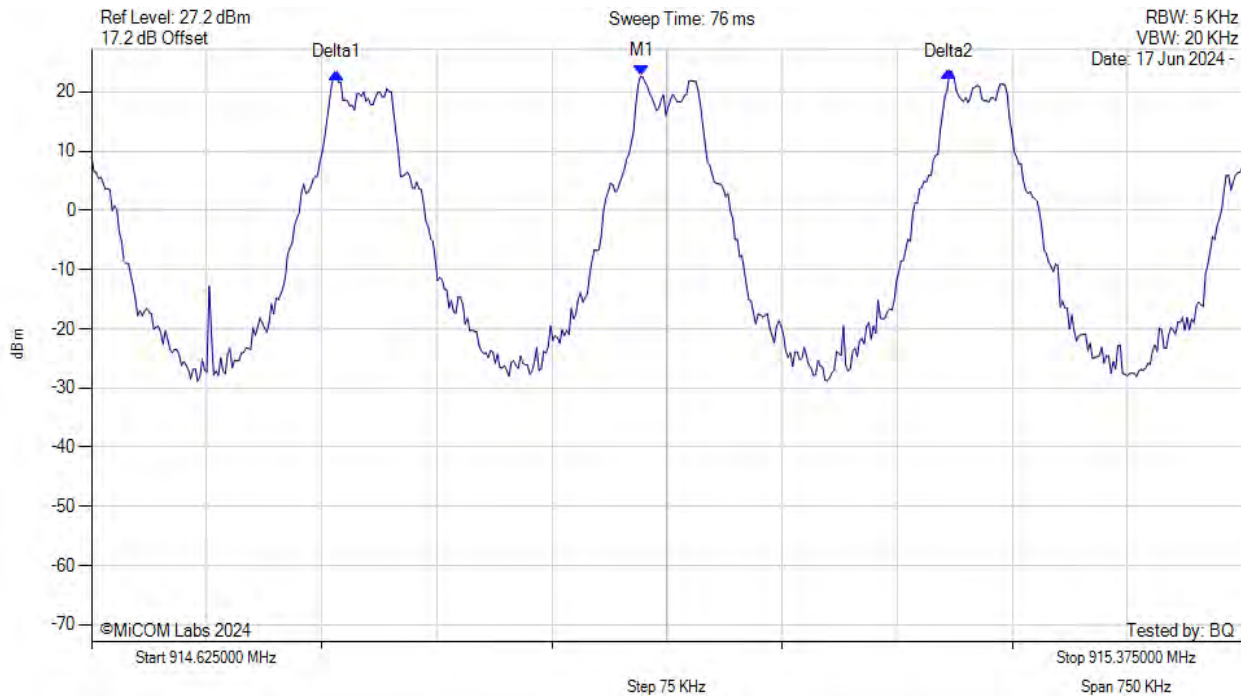
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**A.2.2. Channel Separation**

CHANNEL SEPARATION



Variant:37.5kbps, DEV 16.4kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



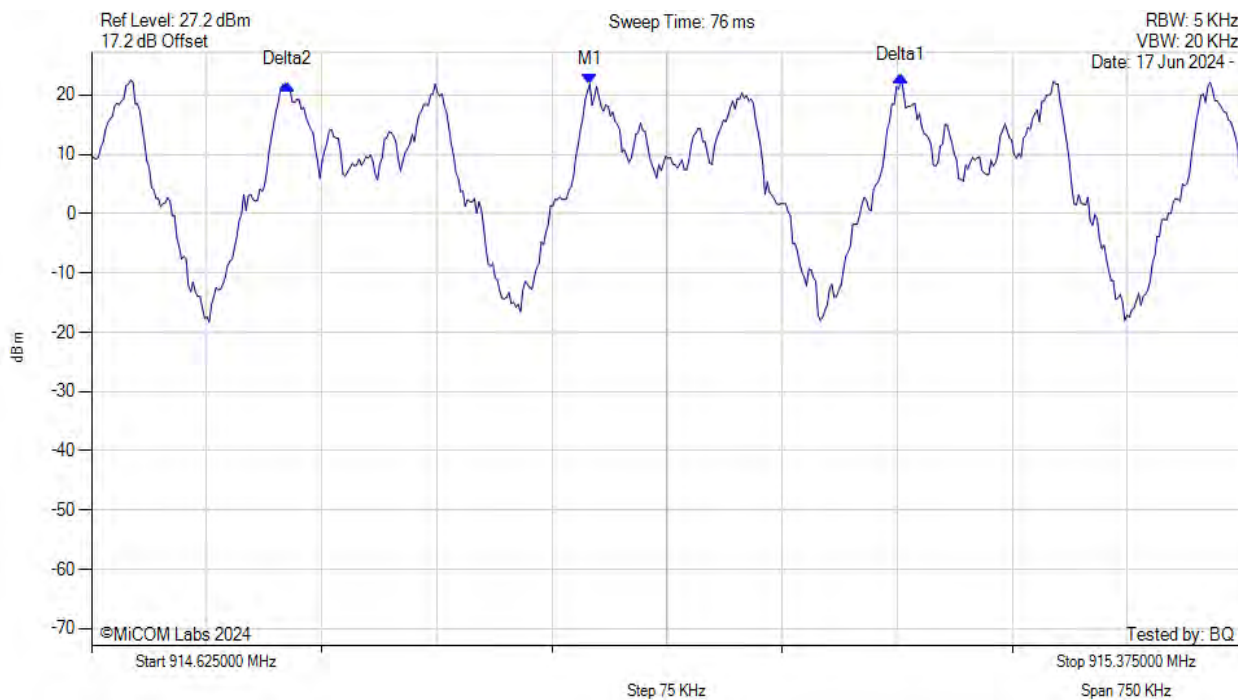
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 914.983 MHz : 22.634 dBm Delta1 : -199148 Hz : 0.616 dB Delta2 : 200 KHz : 0.844 dB	Channel Frequency: 915.00 MHz

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CHANNEL SEPARATION



Variants: 37.5kbps, DEV 50kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



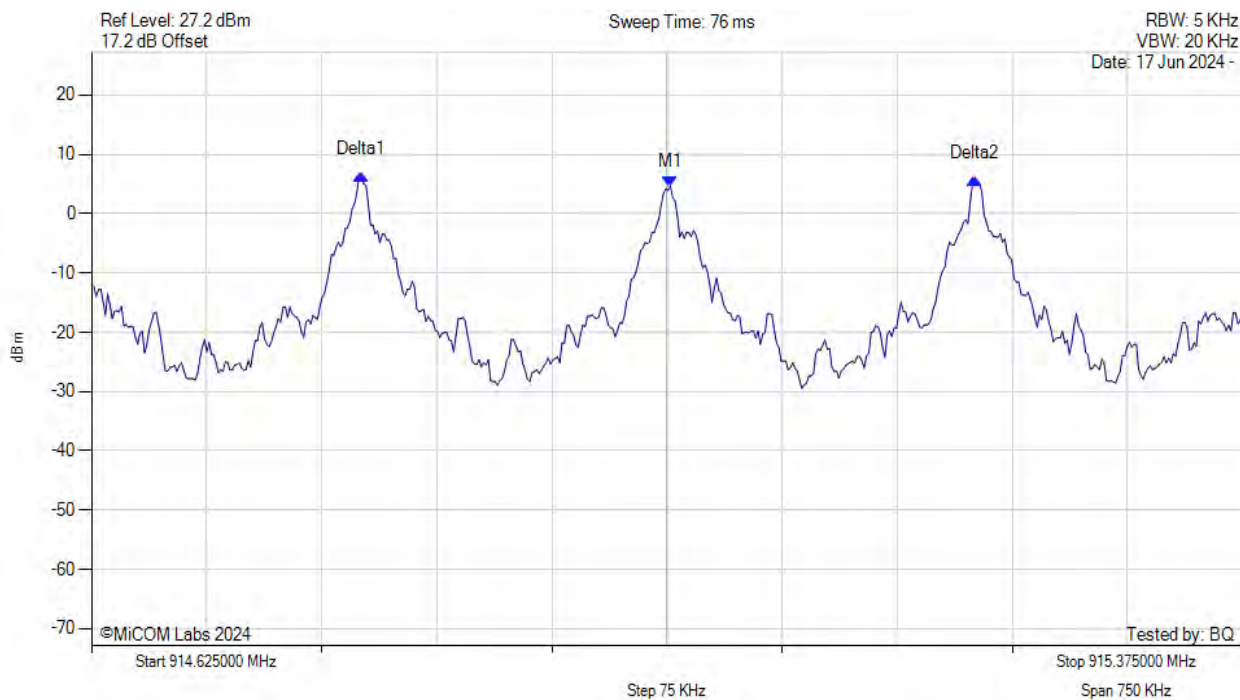
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAX HOLD	M1 : 914.950 MHz : 21.843 dBm Delta1 : 203 KHz : 1.409 dB Delta2 : -196894 Hz : -0.033 dB	Channel Frequency: 915.00 MHz

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CHANNEL SEPARATION



Variant: OOK - PL1, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 915.002 MHz : 4.552 dBm Delta1 : -201403 Hz : 2.036 dB Delta2 : 198 KHz : 1.348 dB	Channel Frequency: 915.00 MHz

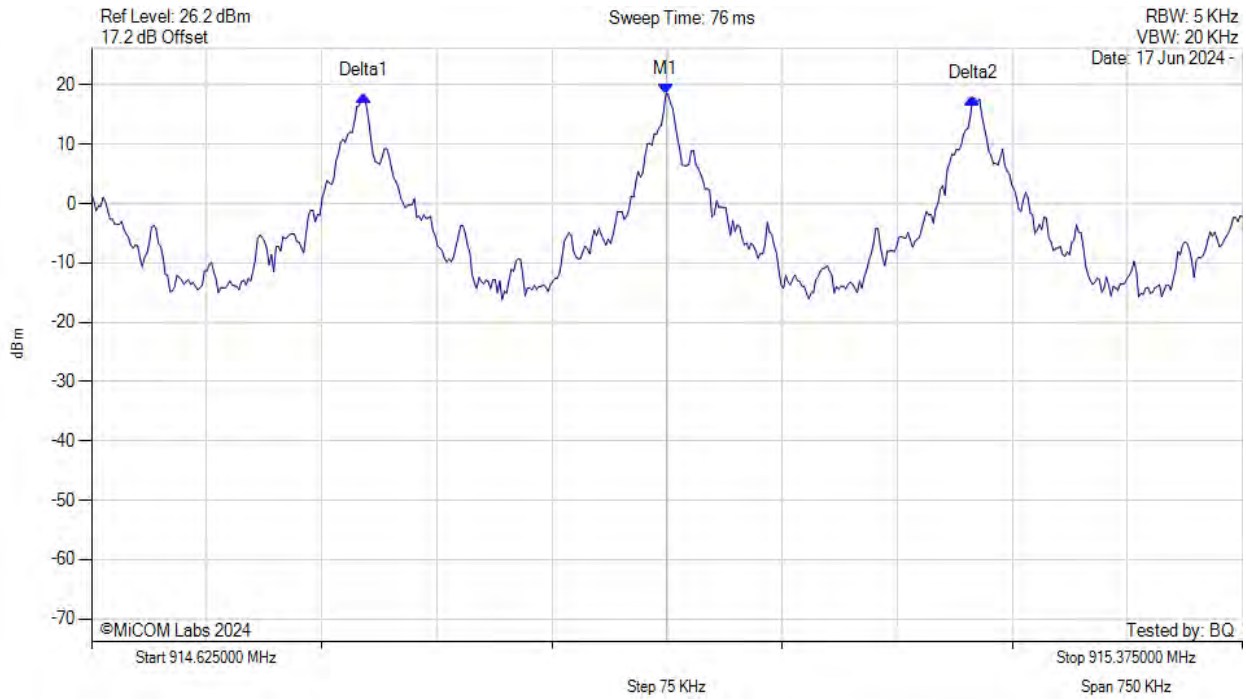
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CHANNEL SEPARATION



Variant: OOK - PL3, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 914.999 MHz : 18.455 dBm Delta1 : -196894 Hz : -0.329 dB Delta2 : 200 KHz : -0.704 dB	Channel Frequency: 915.00 MHz

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### A.3. Emissions

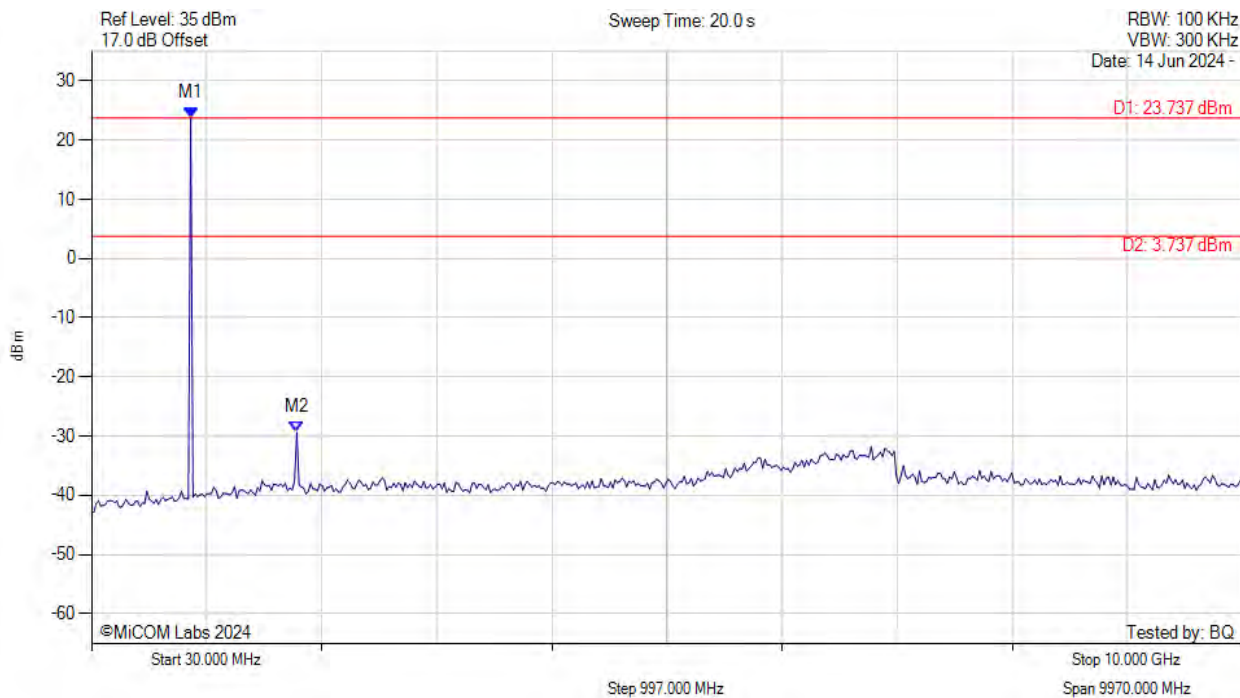
#### A.3.1. Conducted Emissions

##### A.3.1.1. Conducted Unwanted Spurious Emissions

#### UNWANTED EMISSIONS PEAK



Variant:37.5kbps, DEV 16.4kHz, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



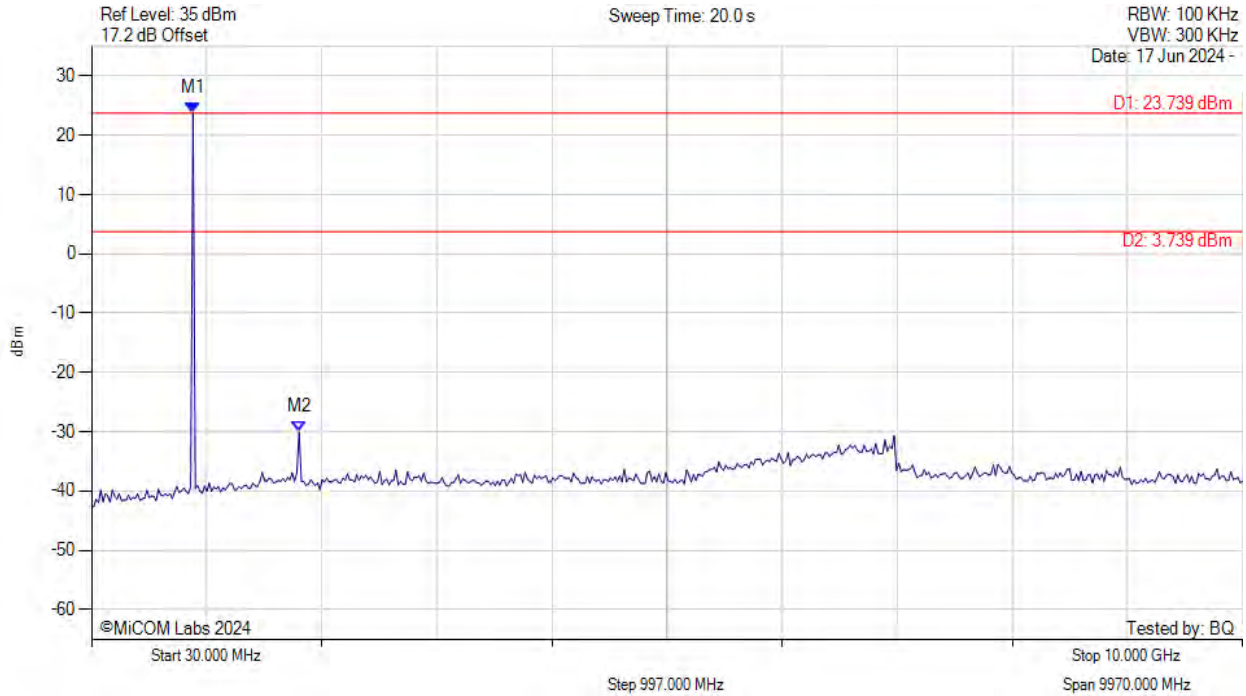
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 889.138 MHz : 23.737 dBm M2 : 1808.216 MHz : -29.382 dBm	Limit: 3.74 dBm Margin: -33.12 dB

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UNWANTED EMISSIONS PEAK



Variant:37.5kbps, DEV 16.4kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



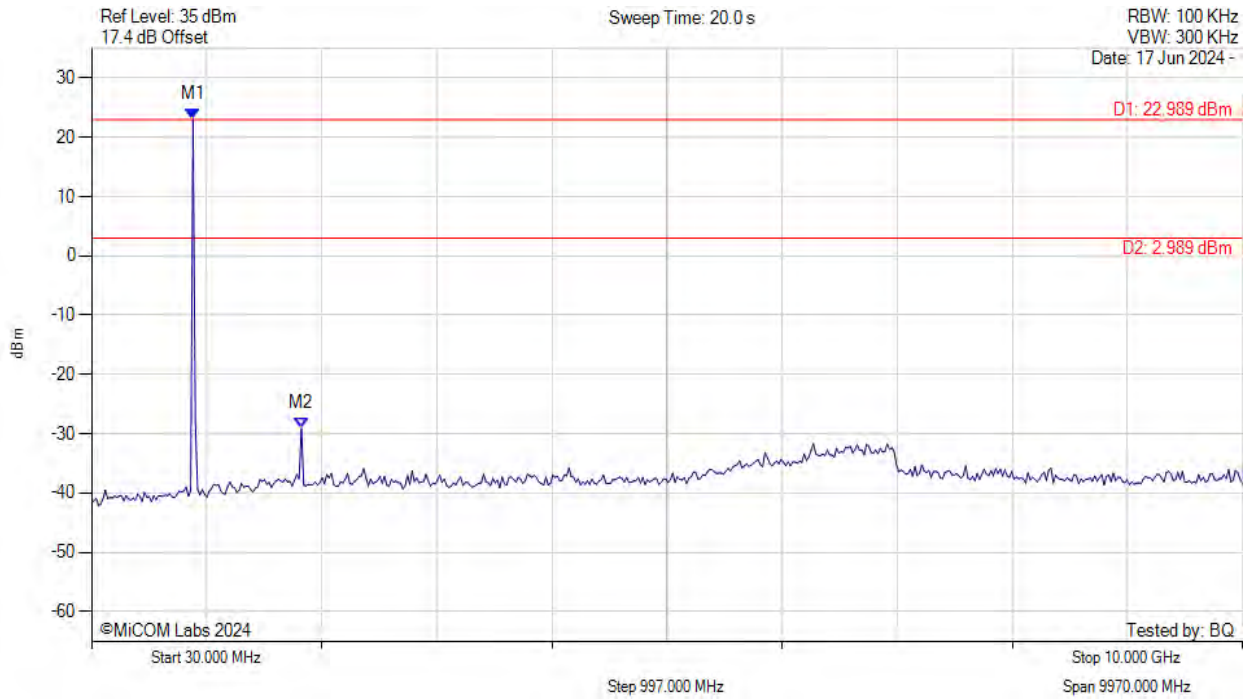
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 23.739 dBm M2 : 1828.196 MHz : -30.072 dBm	Limit: 3.74 dBm Margin: -33.81 dB

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UNWANTED EMISSIONS PEAK



Variant:37.5kbps, DEV 16.4kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



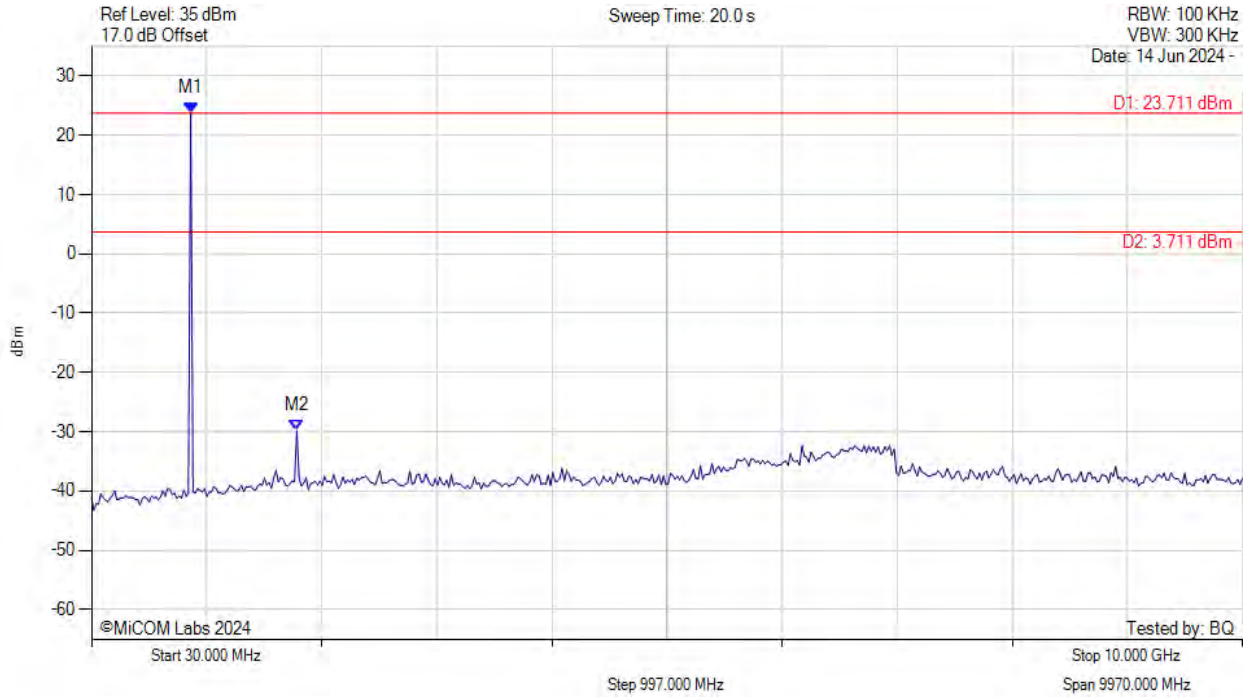
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 22.989 dBm M2 : 1848.176 MHz : -29.081 dBm	Limit: 2.99 dBm Margin: -32.07 dB

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UNWANTED EMISSIONS PEAK



Variants: 37.5kbps, DEV 50kHz, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



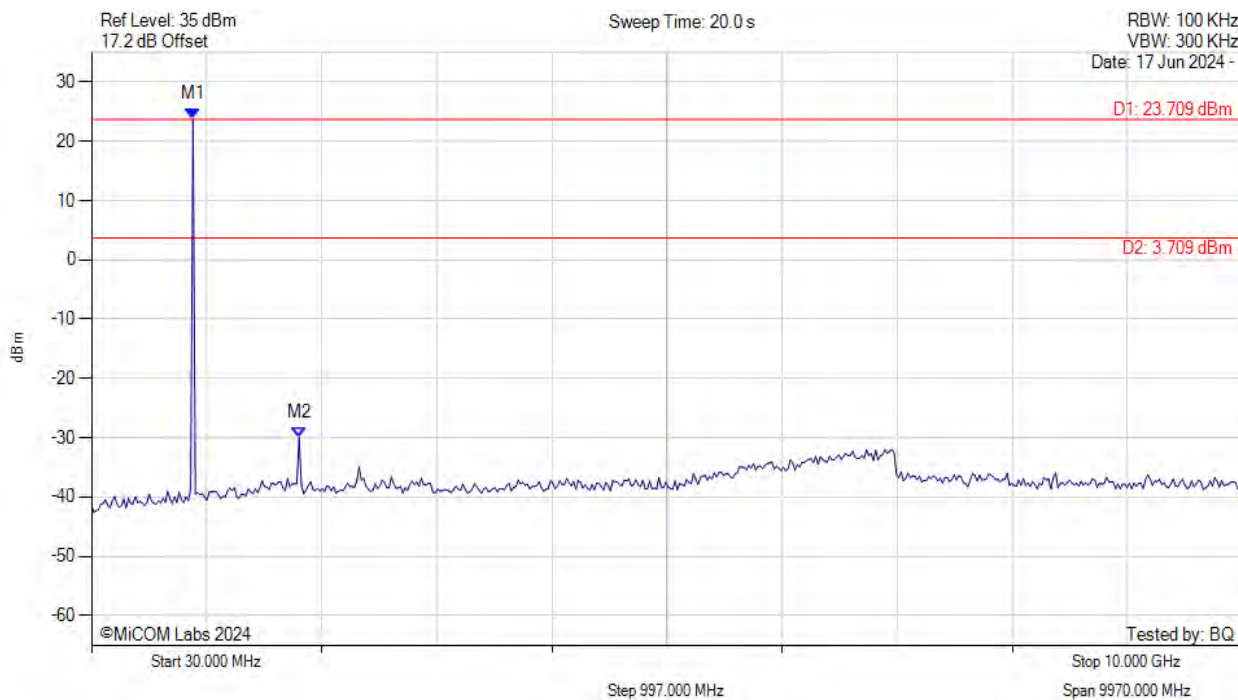
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 889.138 MHz : 23.711 dBm M2 : 1808.216 MHz : -29.852 dBm	Limit: 3.71 dBm Margin: -33.56 dB

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UNWANTED EMISSIONS PEAK



Variants: 37.5kbps, DEV 50kHz, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 23.709 dBm M2 : 1828.196 MHz : -29.966 dBm	Limit: 3.71 dBm Margin: -33.68 dB

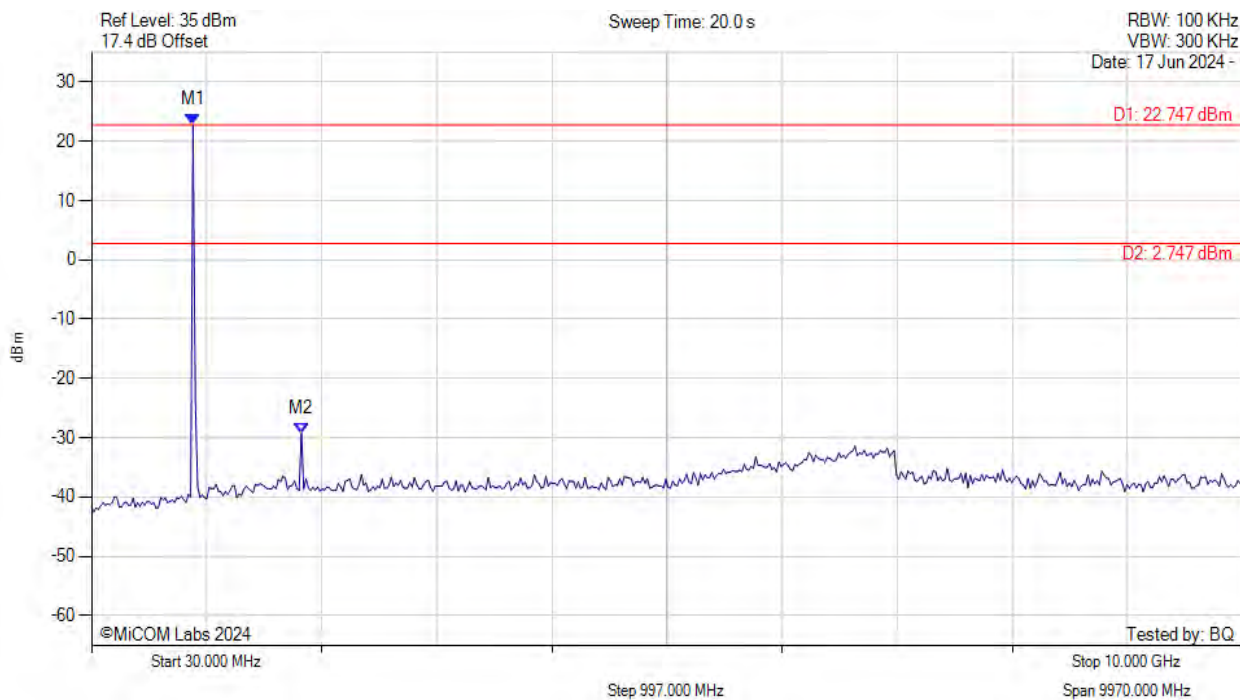
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UNWANTED EMISSIONS PEAK



Variants: 37.5kbps, DEV 50kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 22.747 dBm M2 : 1848.176 MHz : -29.270 dBm	Limit: 2.75 dBm Margin: -32.02 dB

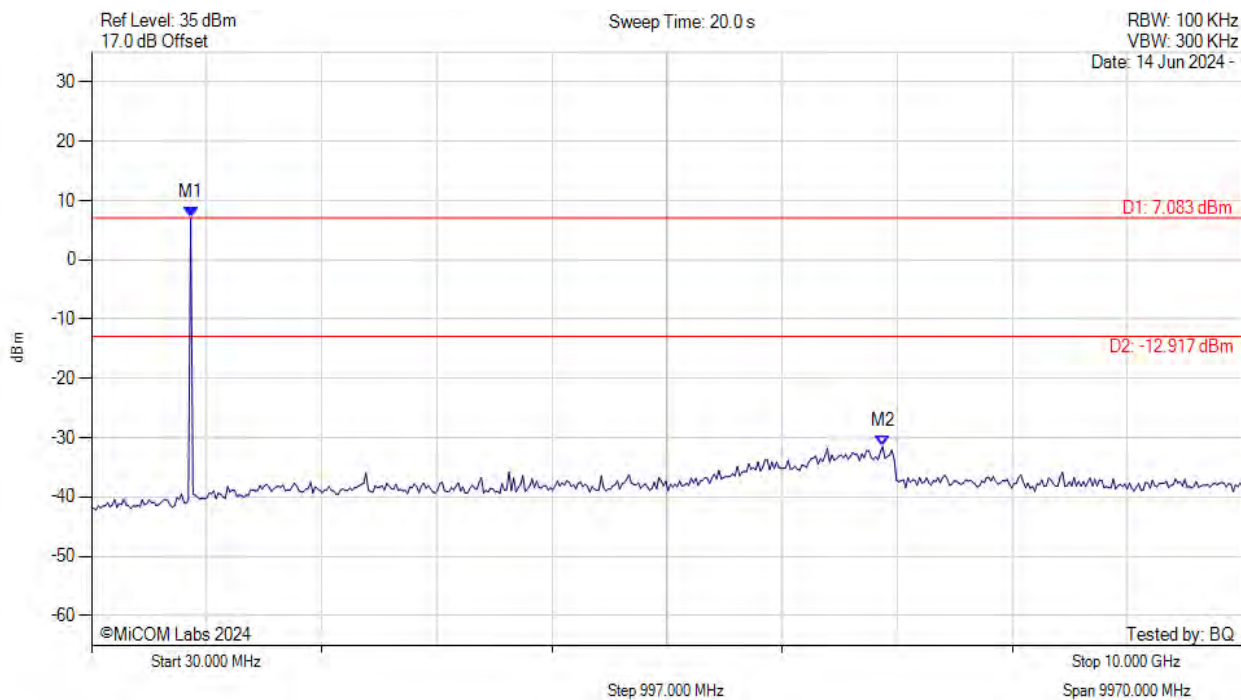
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UNWANTED EMISSIONS PEAK



Variant: OOK - PL1, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



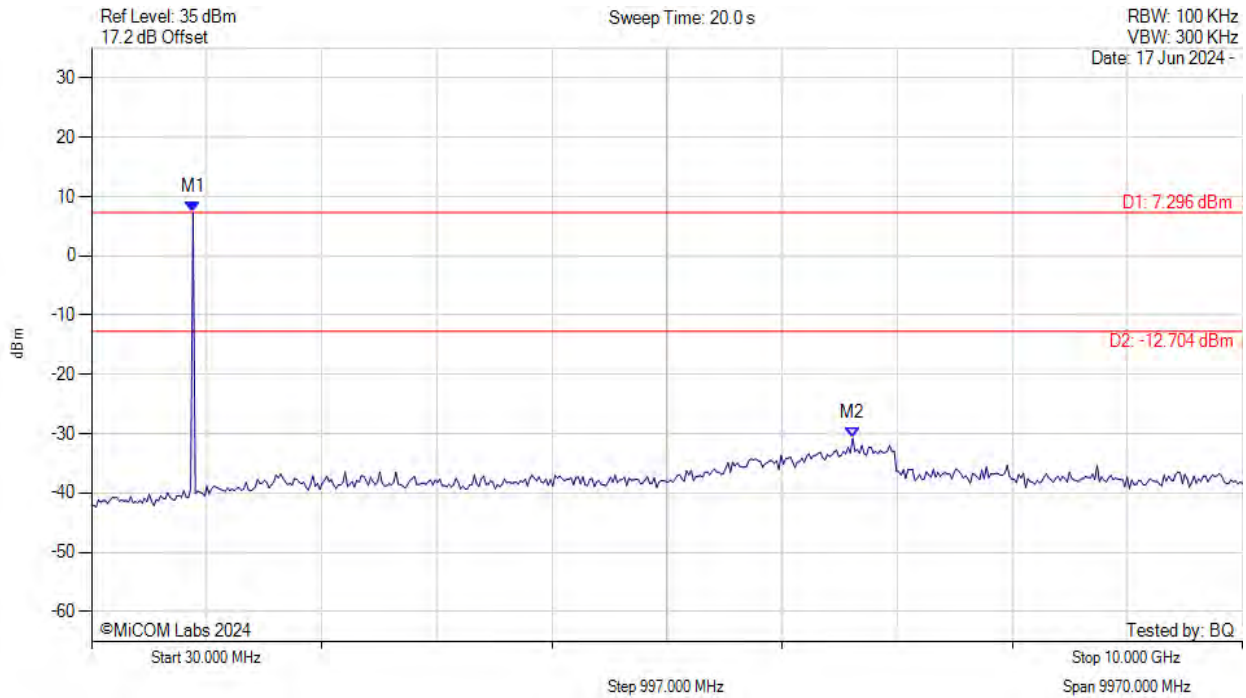
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 889.138 MHz : 7.083 dBm M2 : 6883.126 MHz : -31.457 dBm	Limit: -12.92 dBm Margin: -18.54 dB

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UNWANTED EMISSIONS PEAK



Variant: OOK - PL1, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



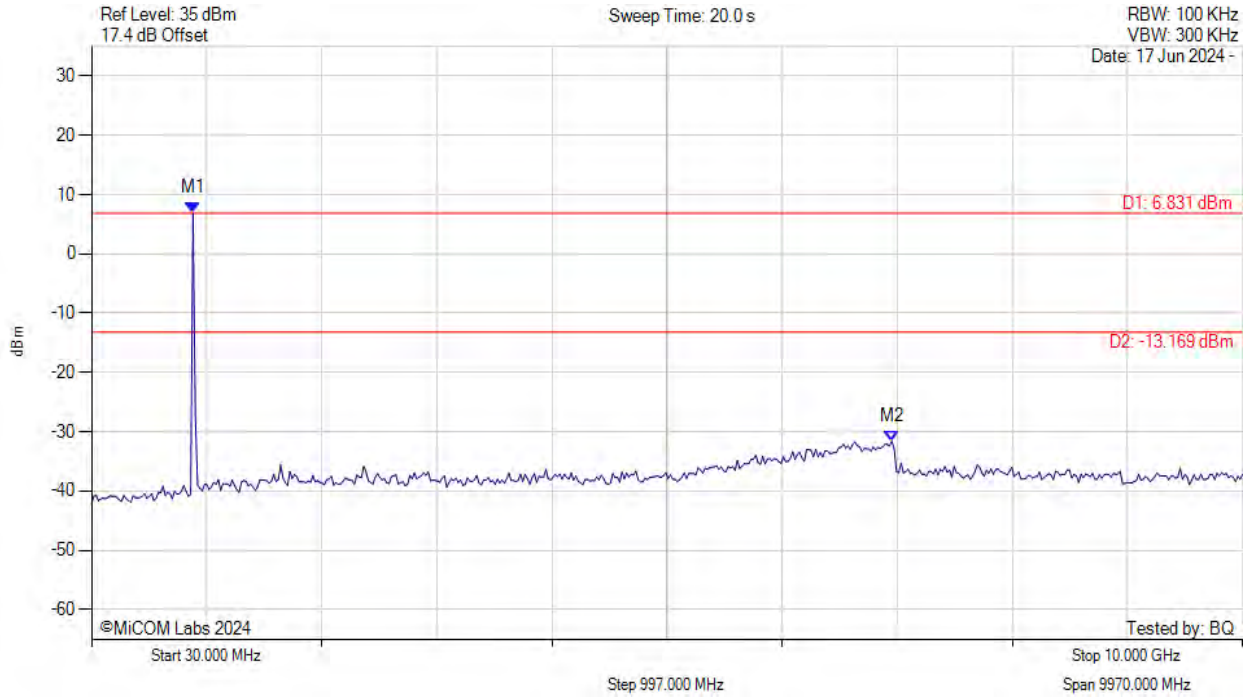
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 7.296 dBm M2 : 6623.387 MHz : -30.782 dBm	Limit: -12.70 dBm Margin: -18.08 dB

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UNWANTED EMISSIONS PEAK



Variant: OOK - PL1, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



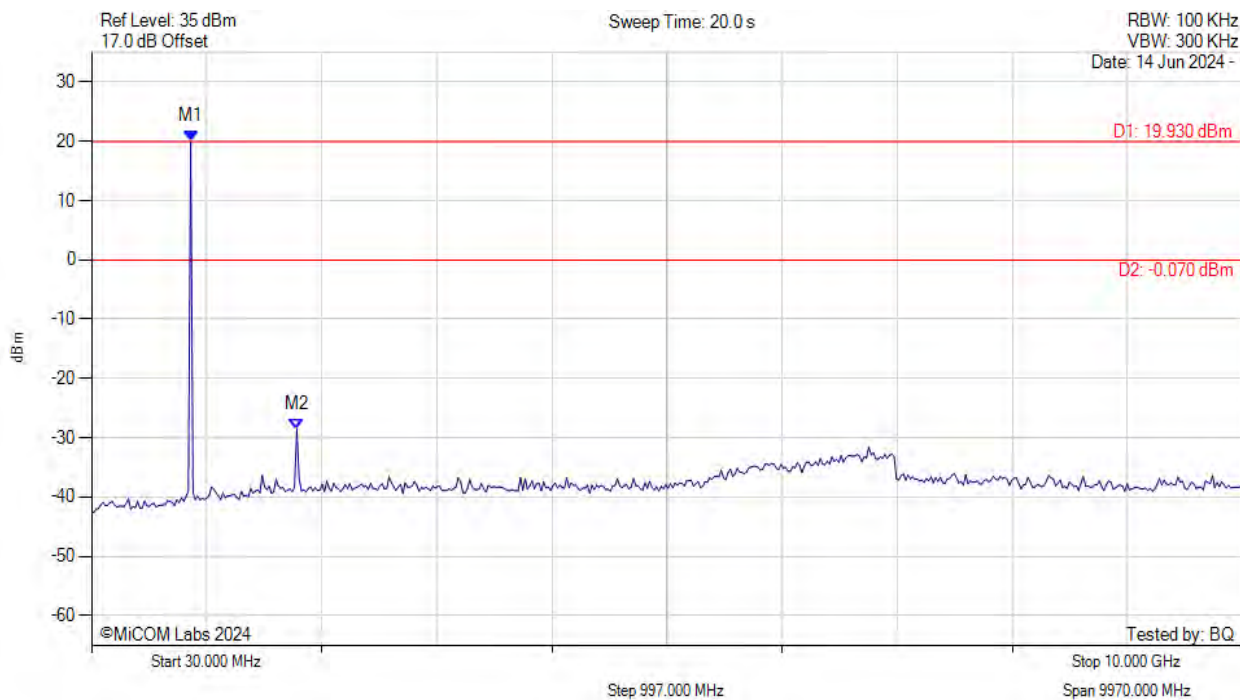
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 6.831 dBm M2 : 6963.046 MHz : -31.601 dBm	Limit: -13.17 dBm Margin: -18.43 dB

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UNWANTED EMISSIONS PEAK



Variant: OOK - PL3, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



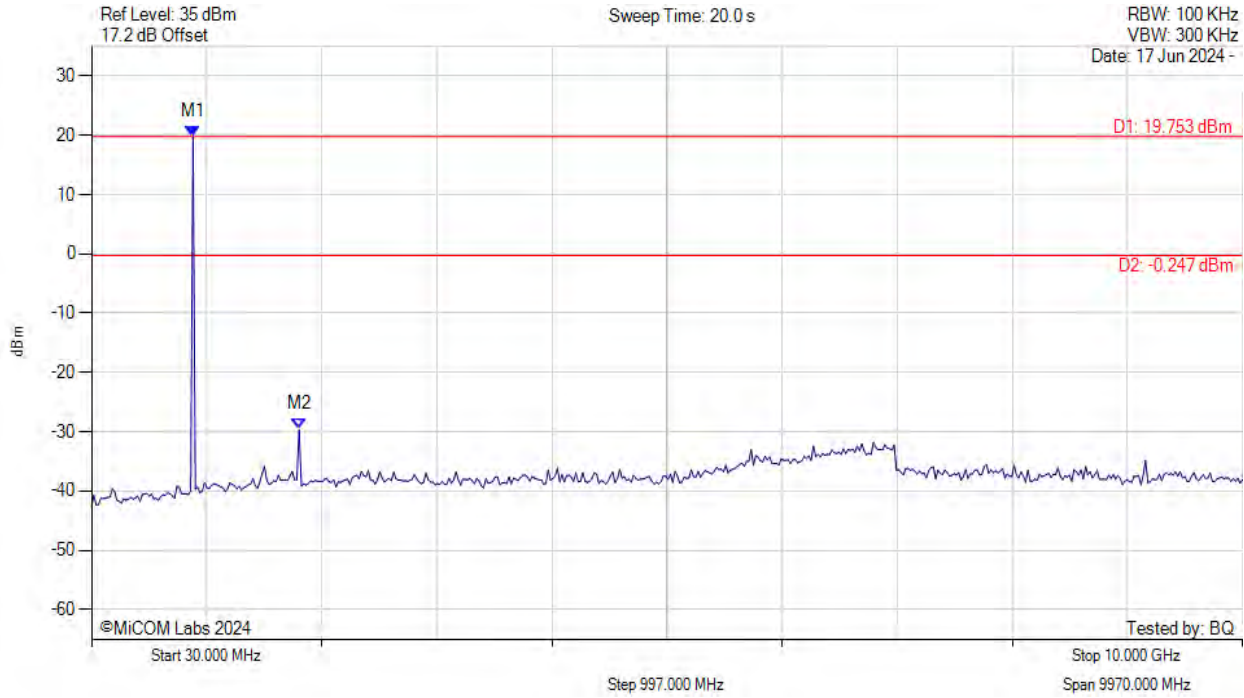
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 889.138 MHz : 19.930 dBm M2 : 1808.216 MHz : -28.595 dBm	Limit: -0.07 dBm Margin: -28.52 dB

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UNWANTED EMISSIONS PEAK



Variant: OOK - PL3, Channel: 915.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 19.753 dBm M2 : 1828.196 MHz : -29.622 dBm	Limit: -0.25 dBm Margin: -29.37 dB

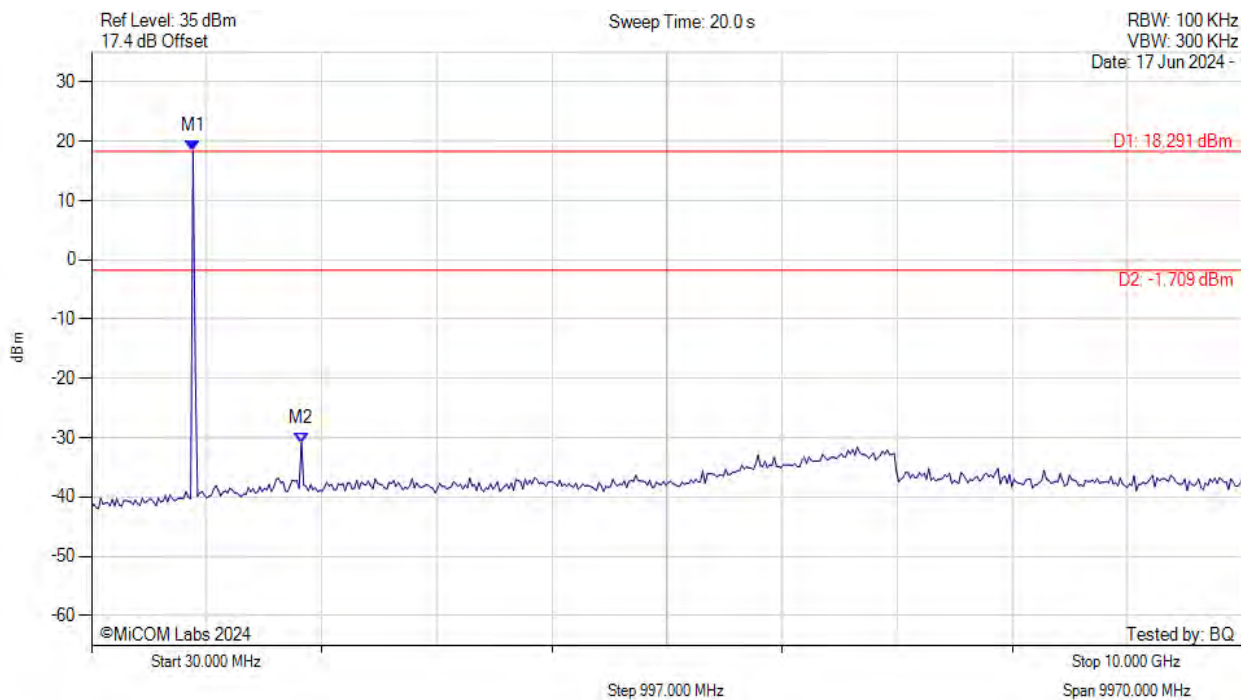
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UNWANTED EMISSIONS PEAK



Variant: OOK - PL3, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 909.118 MHz : 18.291 dBm M2 : 1848.176 MHz : -30.845 dBm	Limit: -1.71 dBm Margin: -29.13 dB

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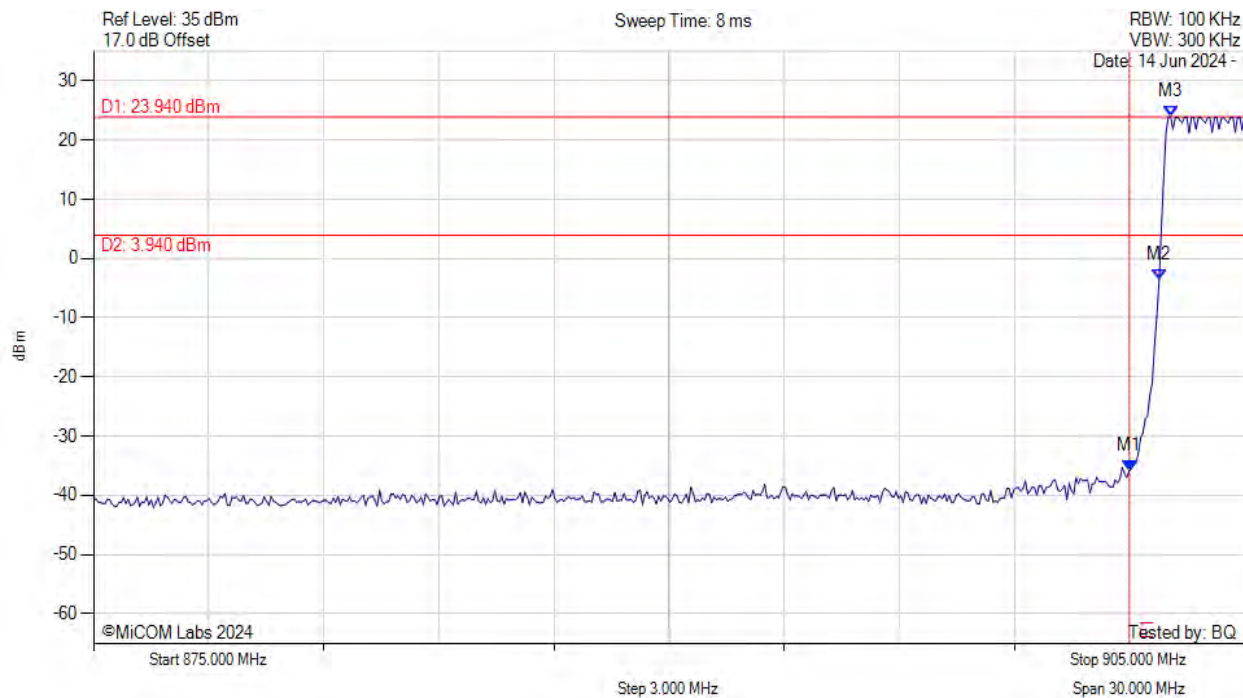


### A.3.1.2. Conducted Band-Edge Emissions



#### CONDUCTED LOW BAND-EDGE EMISSIONS (HOPPING) PEAK

Variant: 37.5kbps, DEV 16.4kHz, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



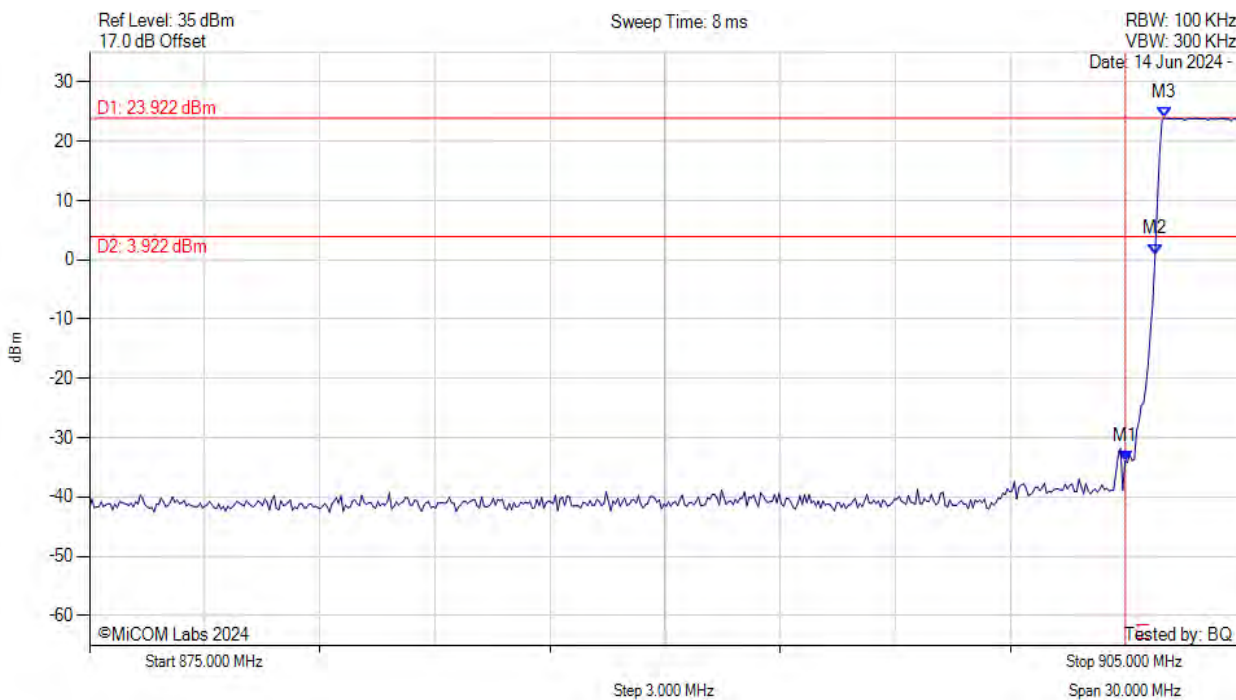
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -35.856 dBm M2 : 902.776 MHz : -3.664 dBm M3 : 903.076 MHz : 23.940 dBm	Channel Frequency: 903.00 MHz

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CONDUCTED LOW BAND-EDGE EMISSIONS (HOPPING) PEAK



Variants: 37.5kbps, DEV 50kHz, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



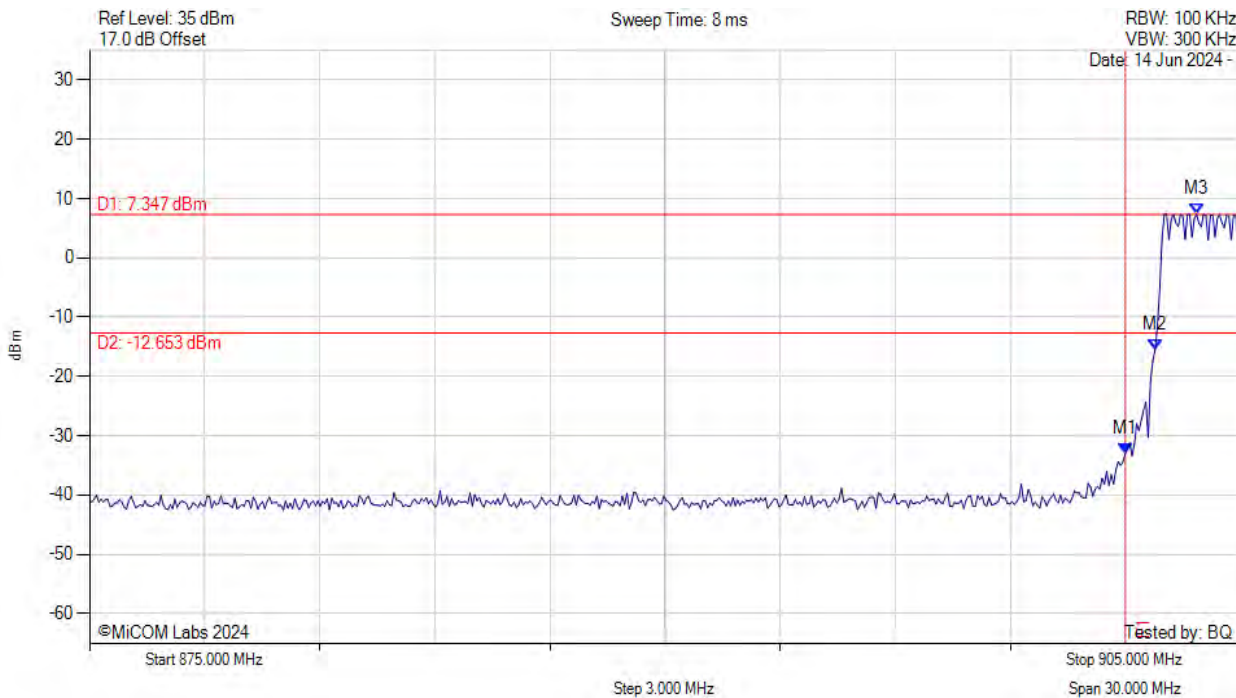
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -33.871 dBm M2 : 902.776 MHz : 0.963 dBm M3 : 903.016 MHz : 23.922 dBm	Channel Frequency: 903.00 MHz

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CONDUCTED LOW BAND-EDGE EMISSIONS (HOPPING) PEAK



Variant: OOK - PL1, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



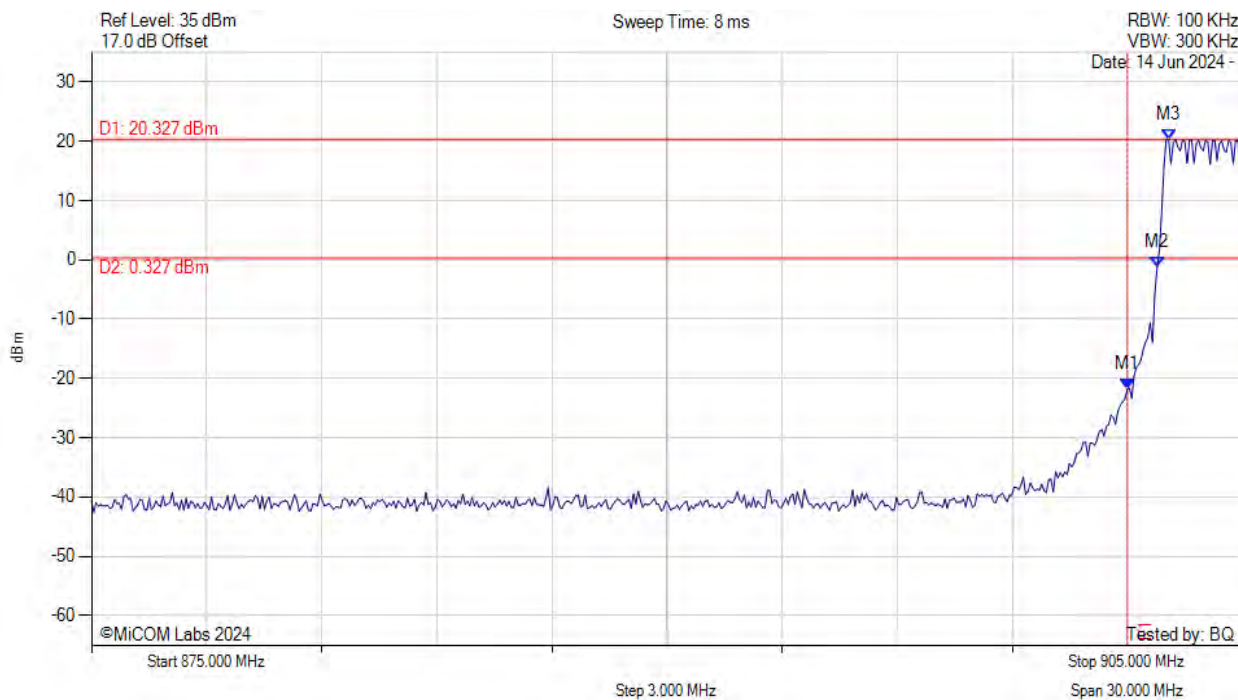
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -33.078 dBm M2 : 902.776 MHz : -15.443 dBm M3 : 903.858 MHz : 7.347 dBm	Channel Frequency: 903.00 MHz

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CONDUCTED LOW BAND-EDGE EMISSIONS (HOPPING) PEAK



Variant: OOK - PL3, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



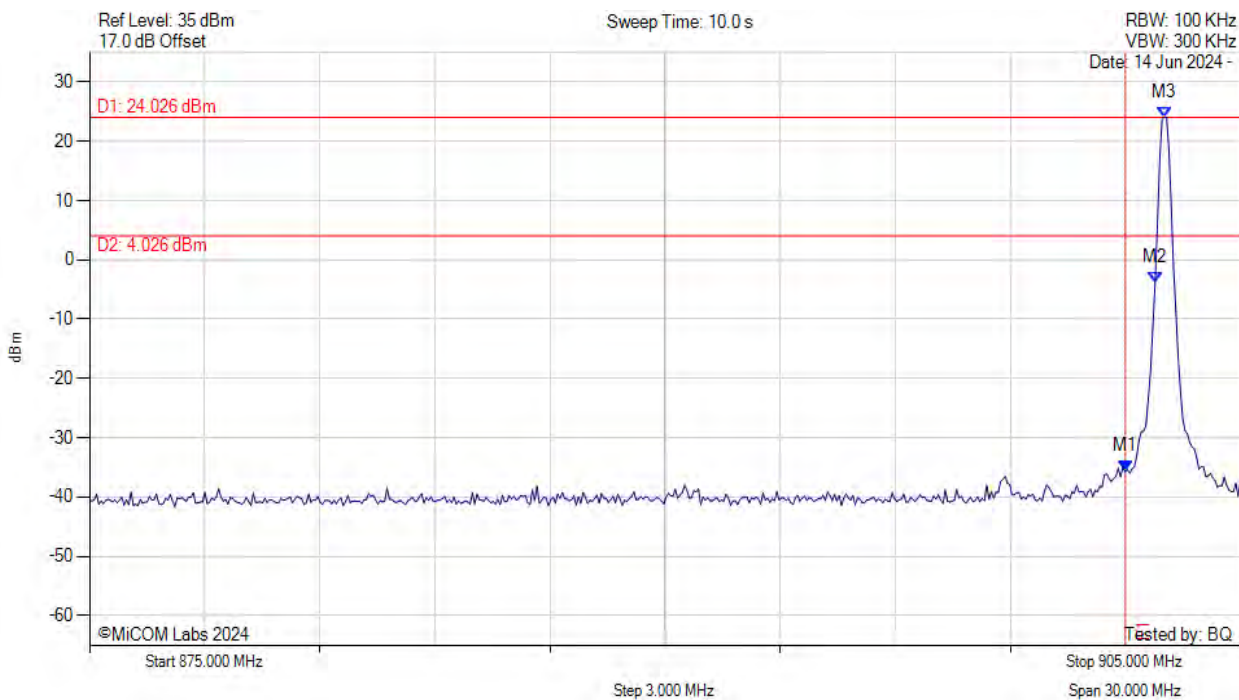
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -21.892 dBm M2 : 902.776 MHz : -1.156 dBm M3 : 903.076 MHz : 20.327 dBm	Channel Frequency: 903.00 MHz

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CONDUCTED LOW BAND-EDGE EMISSIONS (STATIC) PEAK



Variant: 37.5kbps, DEV 16.4kHz, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -35.669 dBm M2 : 902.776 MHz : -3.769 dBm M3 : 903.016 MHz : 24.026 dBm	Channel Frequency: 903.00 MHz

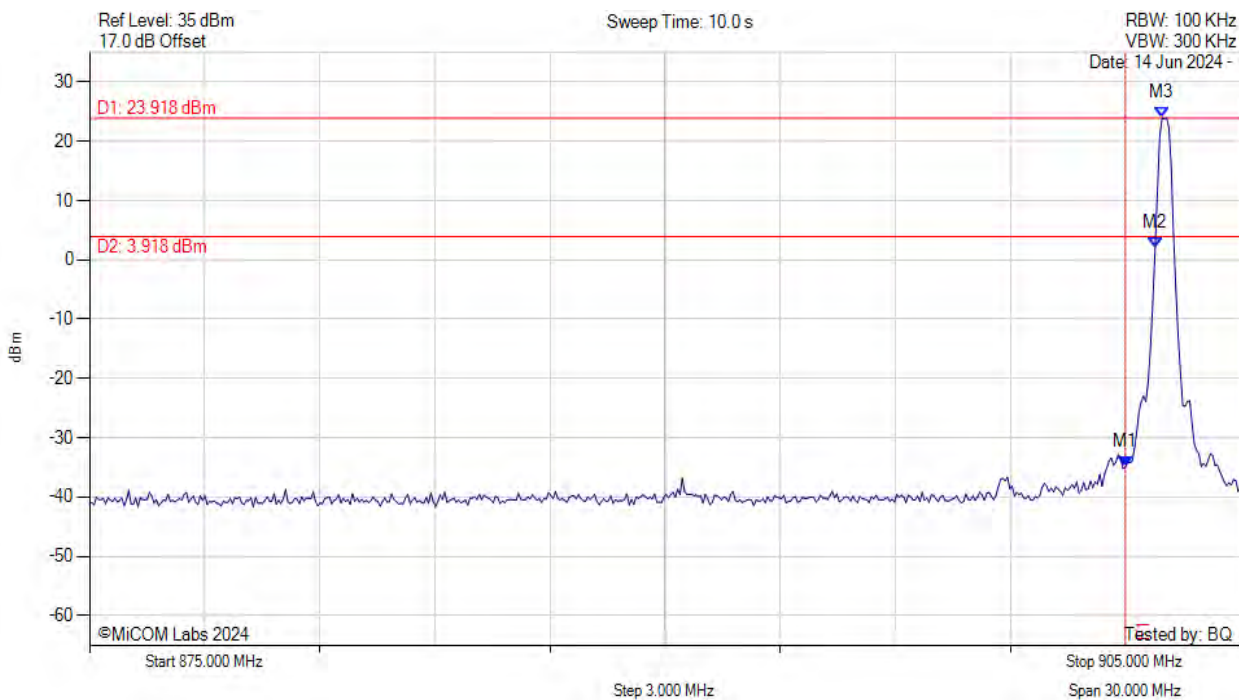
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CONDUCTED LOW BAND-EDGE EMISSIONS (STATIC) PEAK



Variants: 37.5kbps, DEV 50kHz, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -34.995 dBm M2 : 902.776 MHz : 1.933 dBm M3 : 902.956 MHz : 23.918 dBm	Channel Frequency: 903.00 MHz

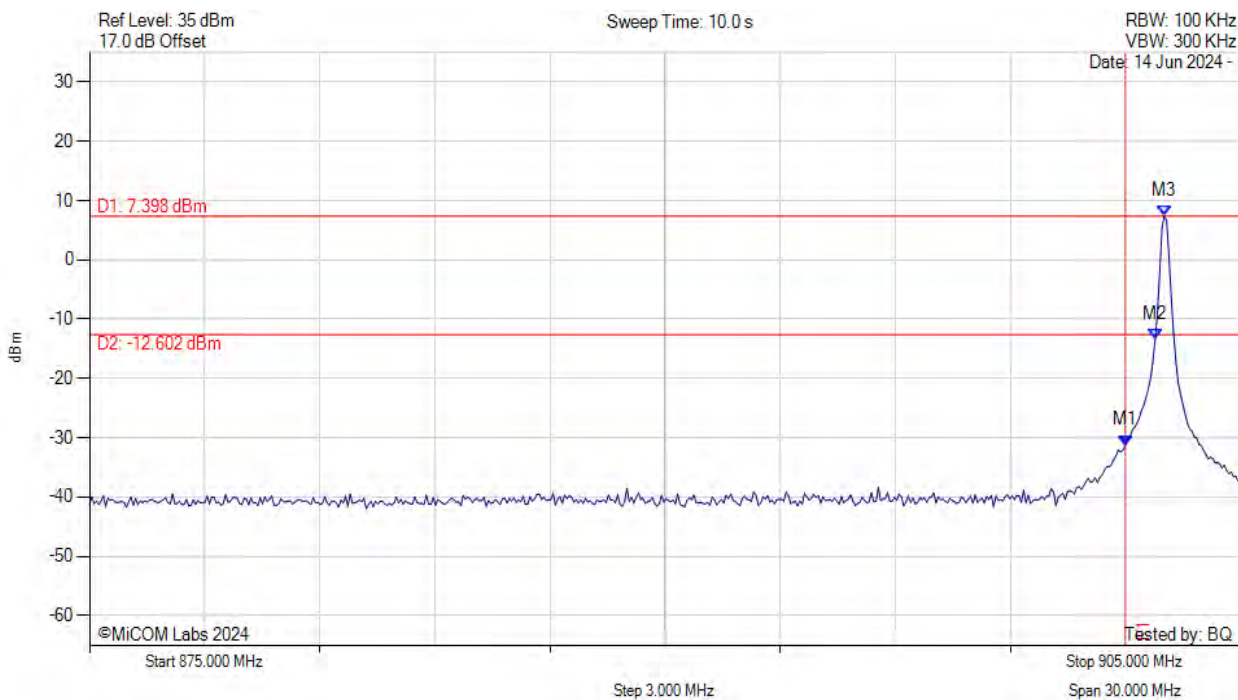
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CONDUCTED LOW BAND-EDGE EMISSIONS (STATIC) PEAK



Variant: OOK - PL1, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



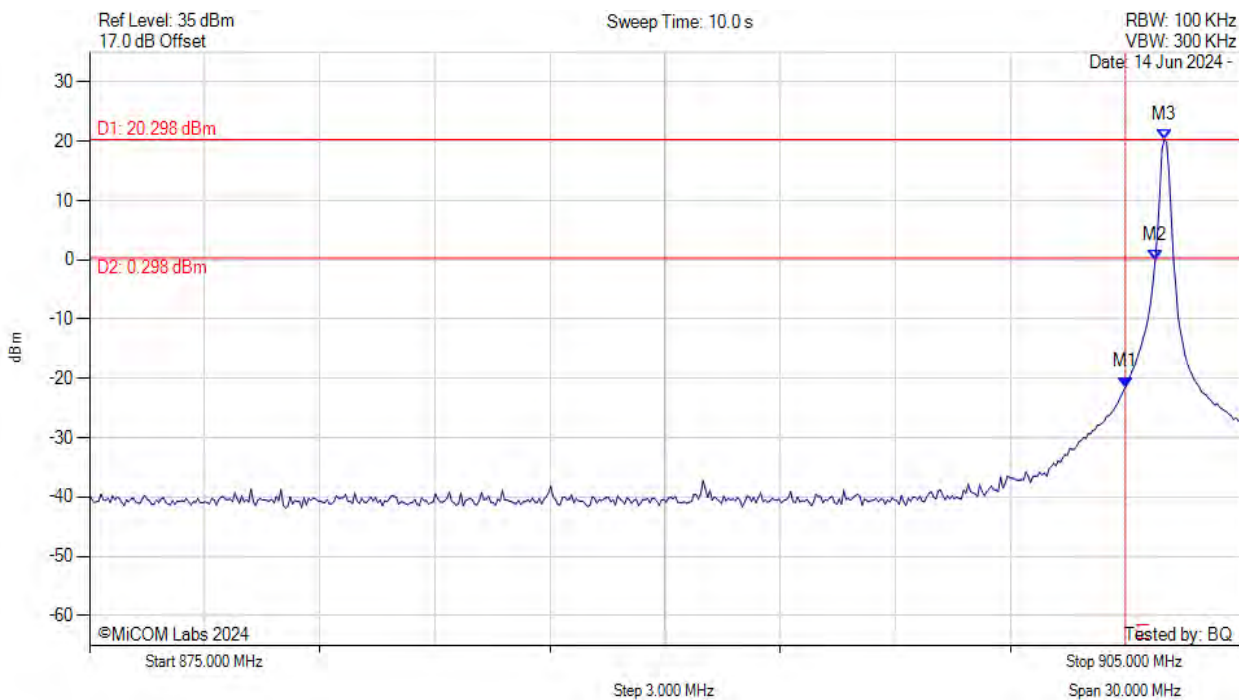
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -31.296 dBm M2 : 902.776 MHz : -13.460 dBm M3 : 903.016 MHz : 7.398 dBm	Channel Frequency: 903.00 MHz

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CONDUCTED LOW BAND-EDGE EMISSIONS (STATIC) PEAK



Variant: OOK - PL3, Channel: 903.00 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



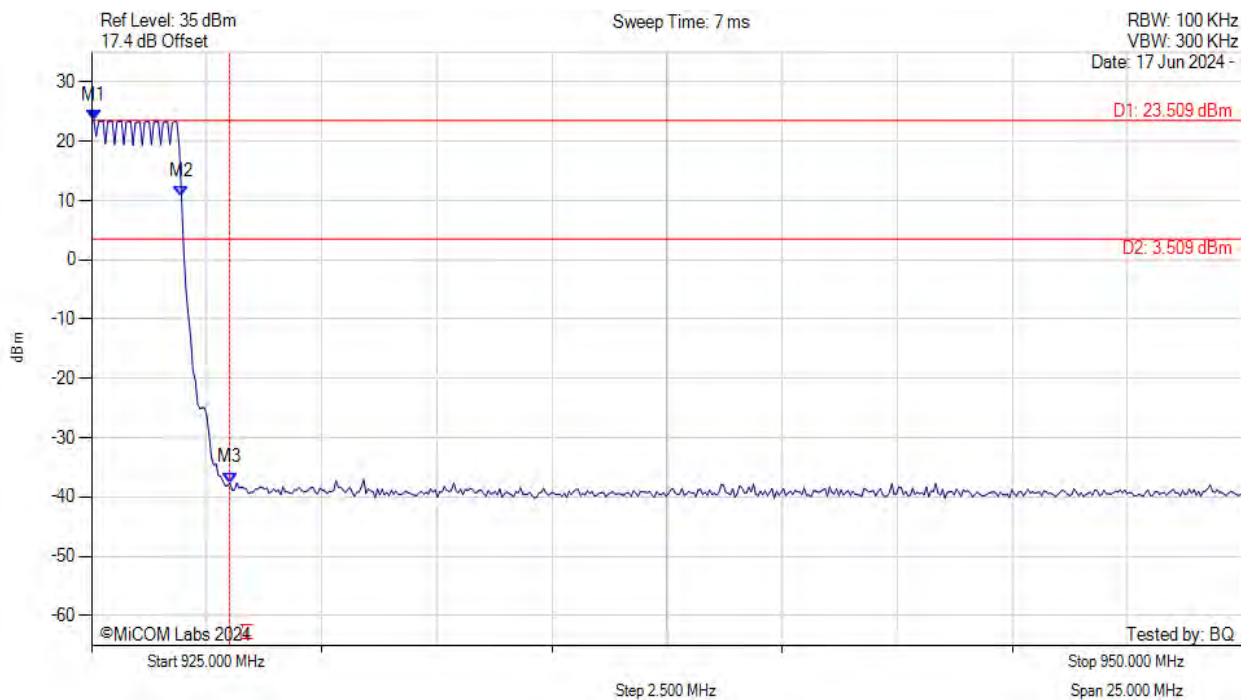
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 902.000 MHz : -21.471 dBm M2 : 902.776 MHz : -0.180 dBm M3 : 903.016 MHz : 20.298 dBm	Channel Frequency: 903.00 MHz

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CONDUCTED UPPER BAND-EDGE EMISSIONS (HOPPING) PEAK



Variant: 37.5kbps, DEV 16.4kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



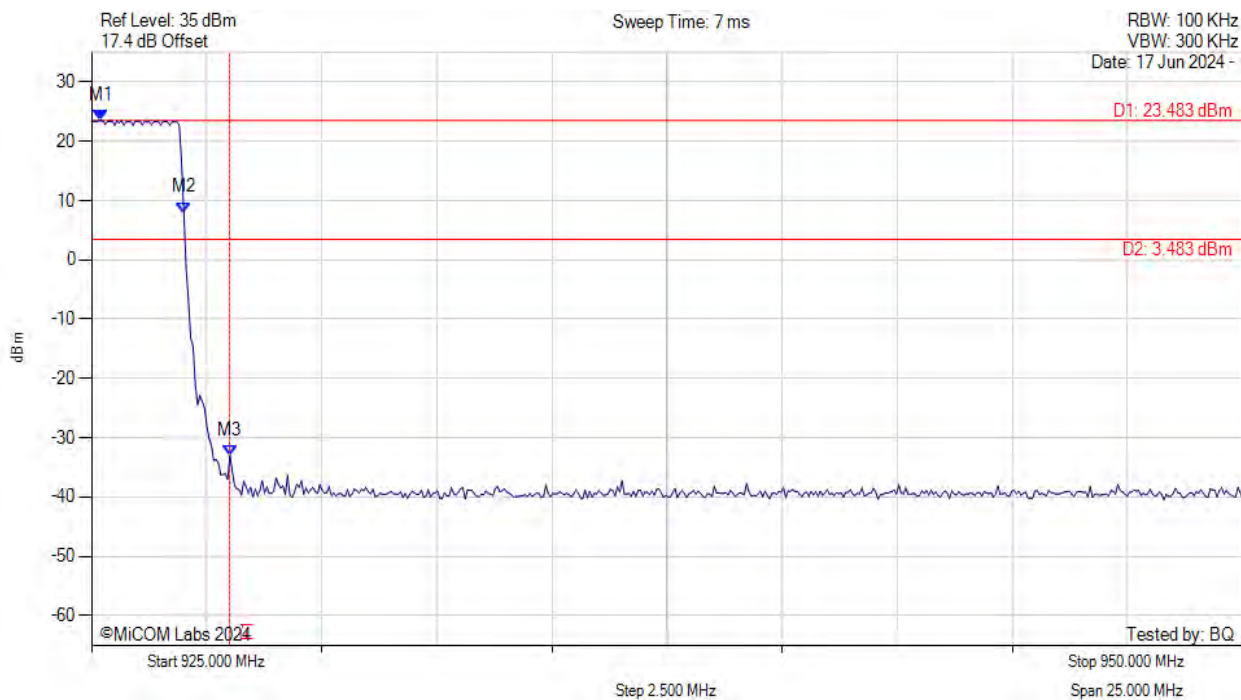
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 925.050 MHz : 23.509 dBm M2 : 926.954 MHz : 10.719 dBm M3 : 928.000 MHz : -37.584 dBm	Channel Frequency: 926.80 MHz

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CONDUCTED UPPER BAND-EDGE EMISSIONS (HOPPING) PEAK



Variants: 37.5kbps, DEV 50kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



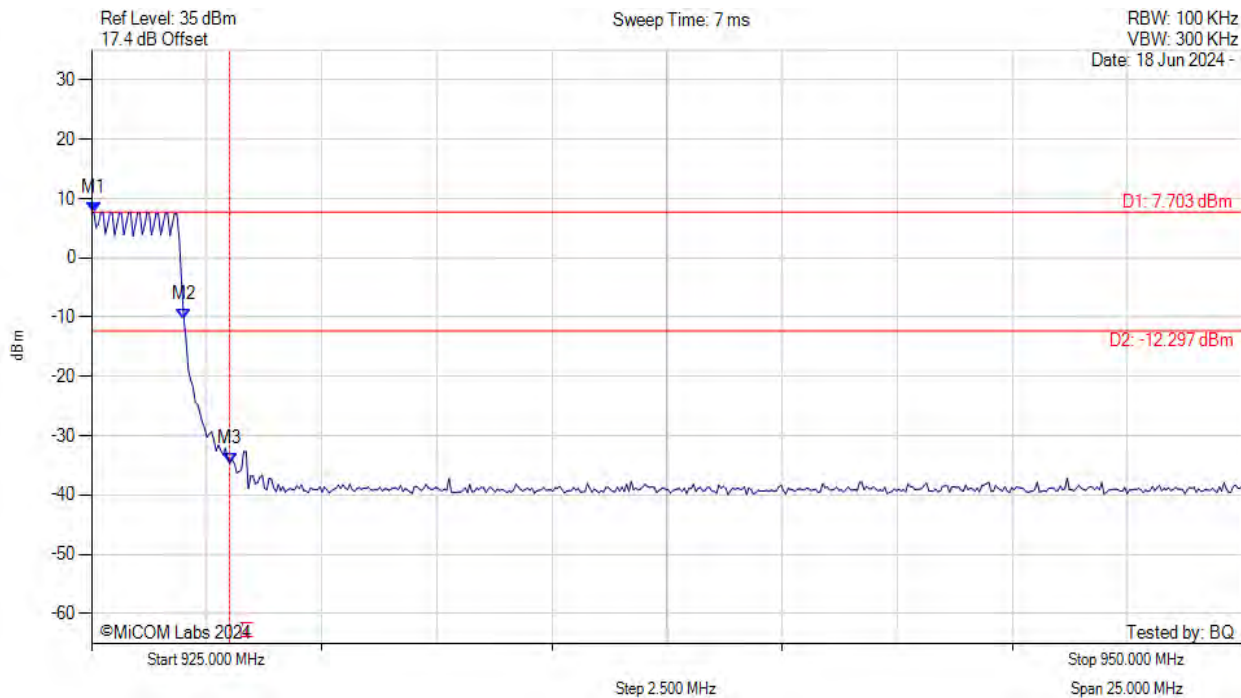
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 925.200 MHz : 23.483 dBm M2 : 927.004 MHz : 7.972 dBm M3 : 928.000 MHz : -32.996 dBm	Channel Frequency: 926.80 MHz

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CONDUCTED UPPER BAND-EDGE EMISSIONS (HOPPING) PEAK



Variant: OOK - PL1, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 925.050 MHz : 7.703 dBm M2 : 927.004 MHz : -10.275 dBm M3 : 928.000 MHz : -34.640 dBm	Channel Frequency: 926.80 MHz

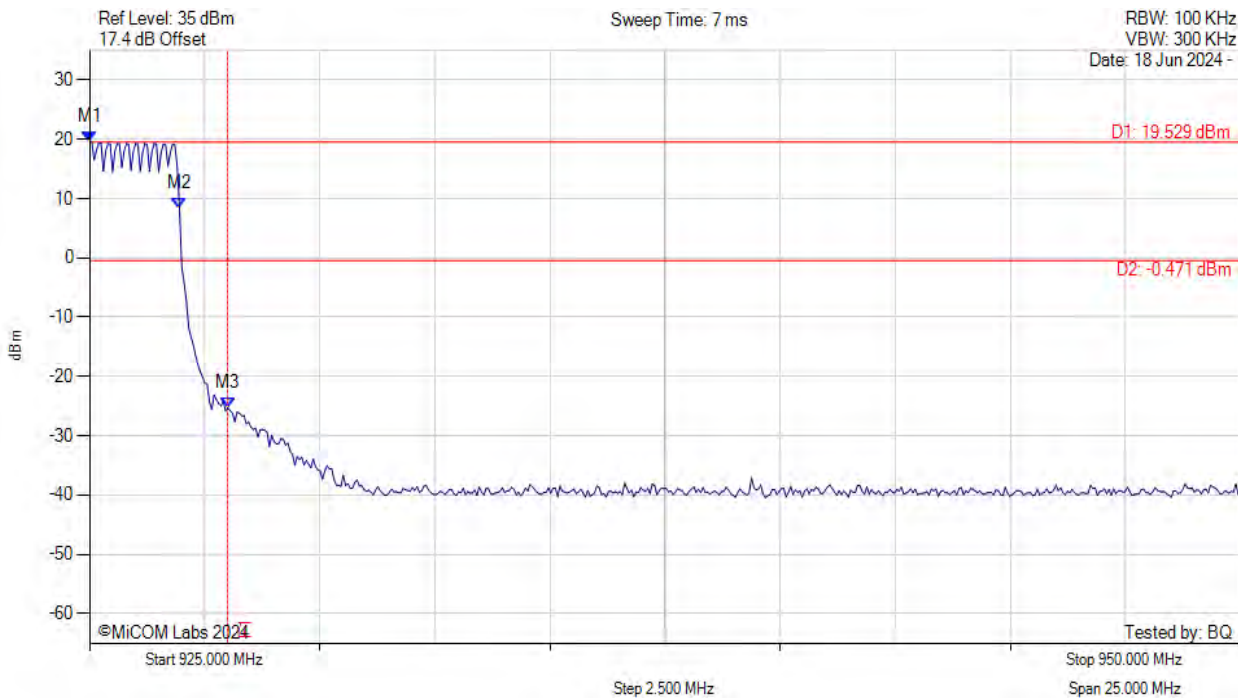
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CONDUCTED UPPER BAND-EDGE EMISSIONS (HOPPING) PEAK



Variant: OOK - PL3, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 925.000 MHz : 19.529 dBm M2 : 926.954 MHz : 8.386 dBm M3 : 928.000 MHz : -25.315 dBm	Channel Frequency: 926.80 MHz

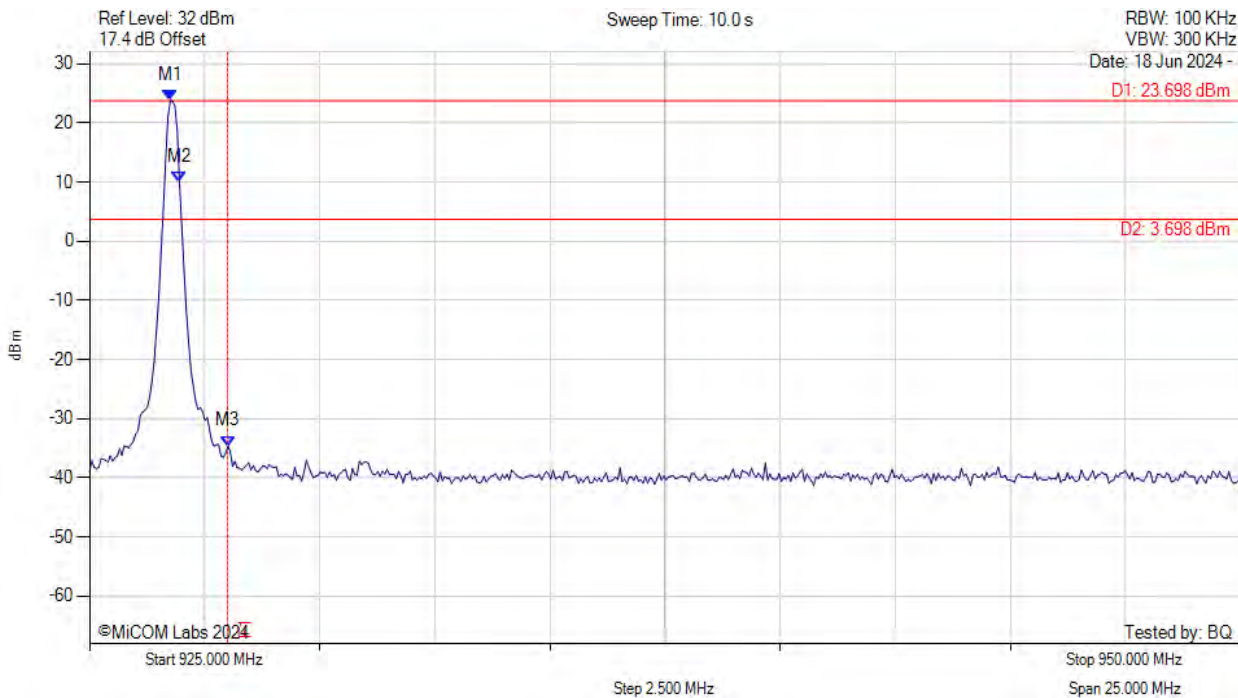
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CONDUCTED UPPER BAND-EDGE EMISSIONS (STATIC) PEAK



Variant: 37.5kbps, DEV 16.4kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



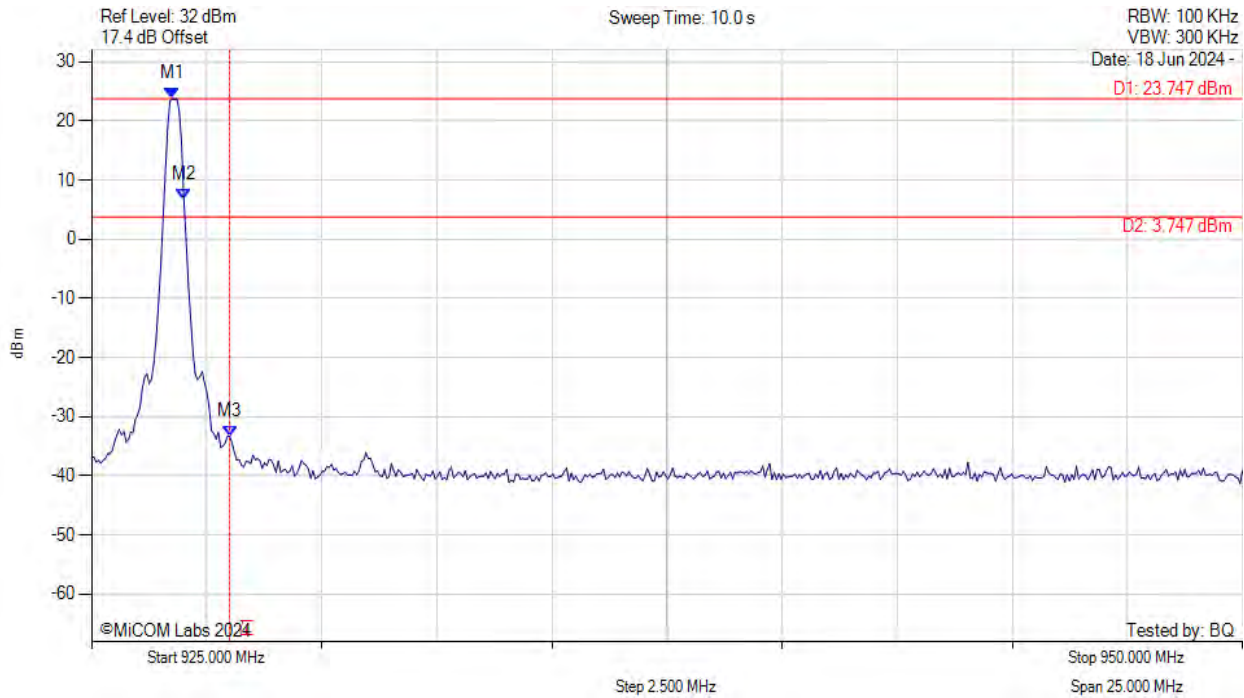
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 926.754 MHz : 23.698 dBm M2 : 926.954 MHz : 9.914 dBm M3 : 928.000 MHz : -34.678 dBm	Channel Frequency: 926.80 MHz

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CONDUCTED UPPER BAND-EDGE EMISSIONS (STATIC) PEAK



Variants: 37.5kbps, DEV 50kHz, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



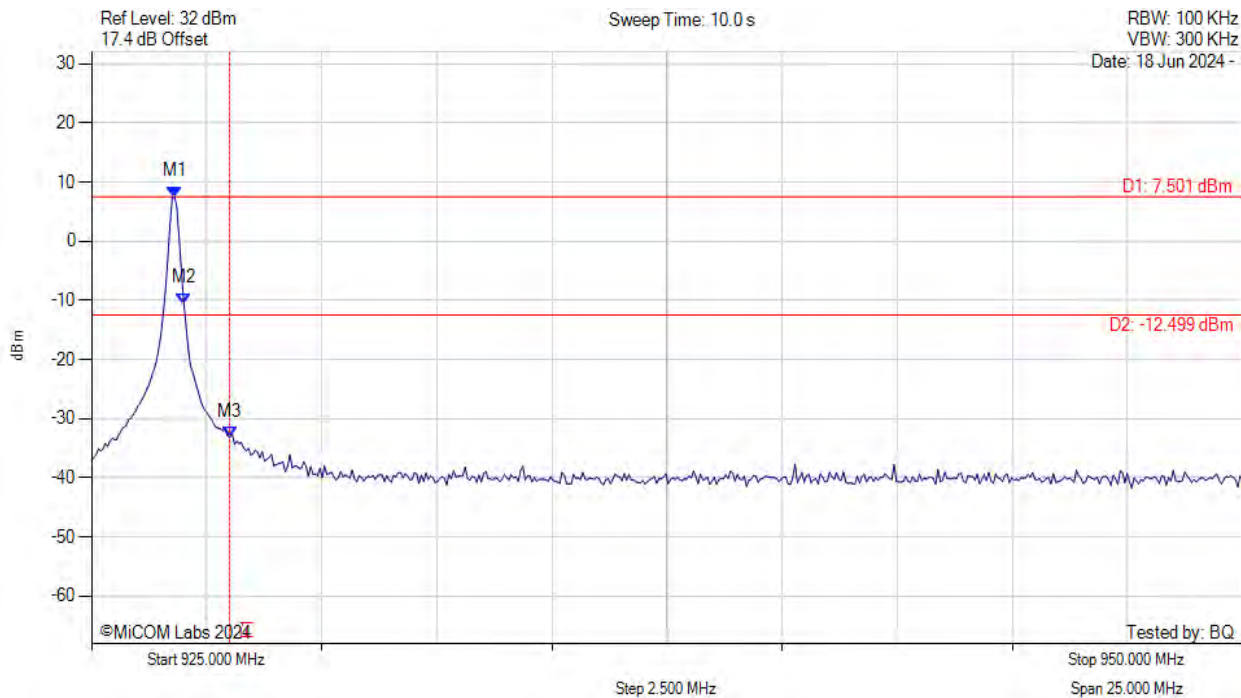
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 926.754 MHz : 23.747 dBm M2 : 927.004 MHz : 6.686 dBm M3 : 928.000 MHz : -33.358 dBm	Channel Frequency: 926.80 MHz

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CONDUCTED UPPER BAND-EDGE EMISSIONS (STATIC) PEAK



Variant: OOK - PL1, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



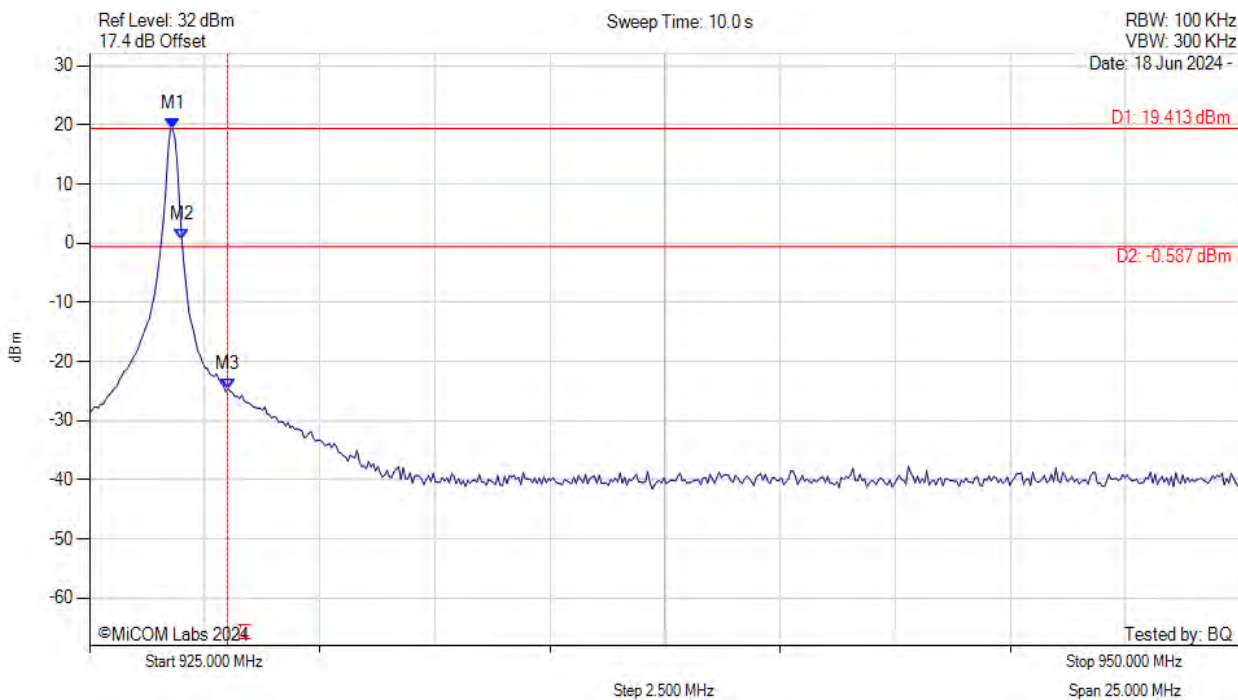
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 926.804 MHz : 7.501 dBm M2 : 927.004 MHz : -10.540 dBm M3 : 928.000 MHz : -33.098 dBm	Channel Frequency: 926.80 MHz

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CONDUCTED UPPER BAND-EDGE EMISSIONS (STATIC) PEAK



Variant: OOK - PL3, Channel: 926.80 MHz, Chain a, Temp: 20, Voltage: 3.6 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 30 Trace Mode = VIEW	M1 : 926.804 MHz : 19.413 dBm M2 : 927.004 MHz : 0.577 dBm M3 : 928.000 MHz : -24.678 dBm	Channel Frequency: 926.80 MHz

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