



RF Test Report

Standard(s): FCC Part 15 Subpart 15.247
Unlicensed Intentional Radiators

Issued To: SafelyYou
36 Clyde Street
San Francisco, CA 94107
United States

Product Name: Halo™ Wall Button and Halo™ Pendant
Model(s): SYC-00046 and SYC-00047
FCC ID: 2BCWO-SYC-0001

Report No. ML302743B-RF00 LoRa FHSS
Date of Issue: March 5, 2026

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TRRF_FCC-ICES-247-FHSS_v1

Table of Contents

1.	Revision History	3
2.	Summary of Test Results.....	4
2.1	Test Verdict.....	4
2.2	Test Standards	5
2.3	Test Facility	6
3.	General Information	9
3.1	Client Information	9
3.2	Device Under Test (DUT)	9
3.3	Test Setup of DUT	10
3.4	Modifications for Compliance	10
4.	Test Results	11
4.1	Emission Bandwidth	11
4.2	Channel Carrier Frequency Separation	16
4.3	Number of Hopping Channels	20
4.4	Time of Occupancy (Dwell Time).....	22
4.5	Peak Conducted Output Power	25
4.6	Conducted Spurious Emissions (-20dBc)	28
4.7	Transmitter Spurious Radiated Emissions	35

1. Revision History

Project No. & Revision	Report Date	Initials	Description
ML302743B-RF00	March 5, 2026	AE	Initial Release
-	-	-	-

NOTE:

- Latest reports marked as a revision replace any previous report and/or report revision issued under the same project number.

2. Summary of Test Results

2.1 Test Verdict

Unless otherwise stated, the test data and results in this test report relate only to the sample(s) tested.

Requirement	Test Type	Result	Remark
FCC			
15.203 15.247(b)(4)	Antenna Gain and Requirement	Pass	Custom PCB antenna with 1.52dBi Gain
15.247(a)(1)	Emission Bandwidth	Pass	20 dB Bandwidth < 250kHz
15.247(a)(1)	Channel Carrier Frequency Separation	Pass	≥ MAX {25 kHz, BW20dB}
15.247(a)(1)	Number of Hopping Channels	Pass	>50
15.247(a)(1)	Time of Occupancy (Dwell Time)	Pass	< 0.4 s in 20s
15.247(b)	Peak Conducted Output Power	Pass	< 1 Watt
15.247(d)	Spurious Out of Band Emissions	Pass	< 20dBc
15.247(d) 15.209	Transmitter Spurious Radiated Emissions	Pass	---
15.207	Power Line Conducted Emissions	N/A	DUT is a module which is DC powered from its host and does not connect to any mains network

2.1.1 Test Verdict Notes and Justifications

The DUT was mounted in three orthogonal axes and worst-case results were obtained in the Y-axis. Worst case results are presented. See the Test Setup Photos for axis details.

Antenna details obtained from Client's Antenna Datasheet. As per FCC 15.203, the antenna is a custom PCB trace antenna and has less than 6dBi gain.

2.2 Test Standards

Standard	Description
47 CFR FCC Part 15 Subpart C	Code of Federal Regulations – Radio Frequency Devices, Intentional Radiators
FCC KDB 558074:2019	Digital Transmission Systems, measurements and procedures
ANSI C63.4:2014 + C63.4a-2017	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10-2020 + C63.10a-2024	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
ISO 17025:2017	General Requirements for the Competence of Testing and Calibration Laboratories

2.3 Test Facility

All tests were performed at Megalab Group Inc., located at 150 Addison Hall Circle, Aurora, ON, L4G 3X8, Canada.

The 10-meter semi-anechoic chamber for radiated emission and radiated immunity is designed to handle weights of up to 10,000lb and has power capability of over 100A. The turntable is capable of supporting test devices or systems either floor standing or table top of up to 4 meters wide and 3m tall. Conducted emissions, unless otherwise specified, are performed on a 2.44m x 2.48m ground plane and using a 2.44m x 2.48m vertical ground plane if applicable.

2.3.1 Accreditations

This report does not indicate any product endorsement by any government, accreditation agency, or Megalab Group Inc. Megalab Group Inc. shall have no liability for any deductions, interpretations or generalizations drawn by the client or others from the issued reports. If any opinions or interpretations are expressed in this report, they are outside Megalab Group Inc.'s scope of accreditation and do not necessarily reflect the opinions of Megalab Group Inc., unless otherwise specified.



A2LA (Certificate #5179.02)

Megalab Group Inc. is accredited to ISO/IEC 17025:2017 by the American Association for Laboratory Accreditation (A2LA) with Testing Certificate #5179.02. The laboratories current scope of accreditation can be found as listed on A2LA's website.



Innovation, Science and
Economic Development Canada

ISED

Megalab Group Inc. is registered with and recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.
Company Number: 28697, CAB Identifier Number: CA0102



FCC

Megalab Group Inc. is registered with and recognized by the Federal Communications Commission (FCC) as an accredited testing laboratory.
Registration No. 200040



VCCI

The Semi-anechoic chamber of Megalab Group Inc. is registered with the Regulations for Voluntary Control Council for Interference (VCCI). Registration No.: R-20173, G-20174, C-20132, T-20133.

2.3.2 Measurement Uncertainty

As per ISO/IEC 17025 requirements, an evaluation of the measurement uncertainties associated with the emission test results should be included in the test report.

Where relevant, the following measurement uncertainty levels have been estimated for the tests performed on the DUT as specified in CISPR 16-4-2. The measurement uncertainties given below are based on a coverage factor $k = 2$ which yields approximately a 95% level of confidence for the near-normal distribution typical of most measurement results.

Measurement	Frequency Range	Uncertainty
Conducted Emissions at AC Mains Power Port	150kHz to 30MHz	2.27 dB
Radiated Emissions	30MHz to 1GHz	5.22 dB
	1GHz to 18GHz	4.76 dB

2.3.3 Sample Calculations

Conducted Emissions

$$\begin{aligned}
 \text{Emission Level (dB}\mu\text{V)} &= \text{Read Level (dB}\mu\text{V)} + \text{LISN Factor (dB)} + \text{Attenuation Factor (dB)} + \text{Cable Loss (dB)} \\
 &= 34.8 + 0.1 + 10.0 + 0.2 \\
 &= 45.1
 \end{aligned}$$

$$\begin{aligned}
 \text{Margin (dB)} &= \text{Limit (dB}\mu\text{V)} - \text{Emission Level (dB}\mu\text{V)} \\
 &= 60.0 - 45.1 \\
 &= 14.9
 \end{aligned}$$

Radiated Emissions

$$\begin{aligned}
 \text{Emission Level (dB}\mu\text{V/m)} &= \text{Read Level (dB}\mu\text{V)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Pre-Amp Gain (dB)} \\
 &= 52.4 + 9.4 + 1.3 - 29.2 \\
 &= 33.9
 \end{aligned}$$

$$\begin{aligned}
 \text{Margin (dB)} &= \text{Limit (dB}\mu\text{V/m)} - \text{Emission Level (dB}\mu\text{V/m)} \\
 &= 50.0 - 33.9 \\
 &= 16.1
 \end{aligned}$$

2.3.4 Terms, Definitions and Abbreviations

AE	Auxiliary Equipment
DUT	Device Under Test
DTS	Digital Transmission System
EMC	Electro-Magnetic Compatibility
FHSS	Frequency Hopping Spread Spectrum
ISM	Industrial, Scientific and Medical
LISN	Line Impedance Stabilization Network
N/A	Not Applicable
NCR	No Calibration Required
RF	Radio Frequency
RBW	Resolution Bandwidth
VBW	Video Bandwidth

Auxiliary Equipment/Support Equipment

Equipment needed to exercise and/or monitor the operation of the DUT.

Artificial Mains Network

Network that provides a defined impedance to the DUT at radio frequencies, couples the disturbance voltage to the measuring receiver and decouples the test circuit from the supply mains.

Class A Equipment

Equipment suitable for use in all locations other than those allocated in residential environments and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

Class B Equipment

Equipment suitable for use in all locations, including in residential environments and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

Device Under Test

Device or system being evaluated for compliance with the requirements of the Test Standards listed in this report.

Electro-Magnetic Compatibility

Ability of equipment or system to function satisfactorily in its EM environment without introducing intolerable electromagnetic disturbances to anything in that environment.

Electromagnetic Disturbance

Any electromagnetic phenomenon which may degrade the performance of a device, equipment or system.

3. General Information

3.1 Client Information

Company	SafelyYou
Address	36 Clyde Street San Francisco, CA 94107 United States
Contact	Ryan Schaub
Email	rschaub@safely-you.com
Phone	415-579-3630

3.2 Device Under Test (DUT)

3.2.1 DUT Information

DUT Name	Halo™ Wall Button and Halo™ Pendant
DUT Model(s)	SYC-00046 and SYC-00047
Power Source (AC / DC / Battery)	Coin Cell Battery
Input Voltage (V) or Range	3.1VDC
Frequency (Hz) or Range	N/A
Mode(s) of Operation	Idle, Transmitting
Connectors Available on DUT	None
Transmitter Information	
FCC ID	2BCWO-SYC-0001
Technology Used	LoRa – FHSS
Operating Frequency	902.3MHz to 914.9MHz
Modulation Type	LoRa
Data Rate	SF7 Only
Number of Channels	64
Channel Separation	200kHz
Occupied Bandwidth	125kHz
Antenna Manufacturer	Custom/SafelyYou
Antenna Model	SYC-00051-R00
Antenna Type	PCB Trace
Antenna Gain	1.52 dBi

Note: Above antenna information is provided by the client. The characteristics and gain are obtained from the Antenna's Data Sheet.

3.2.2 DUT Description

The SafelyYou Halo™ Wall Button (SYC-00046) and Halo™ Pendant (SYC-00047) are devices that are used by facility residents to request assistance from facility staff members. Users push and release the white area of the Wall Button or press and release the ribbed area of the clip on the Pendant to activate either device and transmit a request.

Electrically, the two models are identical and only the plastic enclosure is different. One is mounted on the wall and the other is worn as a pendant.

3.3 Test Setup of DUT

3.3.1 Configuration

Power was supplied to the DUT via an external power supply at 3.1VDC

The DUT was configured in a direct test mode with the following parameters

- For all the tests, the DUT was set to transmit continuously with 100% duty cycle
- Output Power: -5dBm
- Channels:
 - o 0 (902.3MHz),
 - o 31 (908.5MHz),
 - o 63 (914.9MHz)
- Data Rate: SF7 only
- Payload Length: 235 bytes

During all radiated emission measurements, the DUT was mounted in three orthogonal axes. See Test Setup Photos for axis details.

Description of I/O Cables			
Cable Function	Length of Cable (m)	Shielded (Y/N)	Outdoor Use (Y/N)
None	--	--	--

3.3.2 Support Equipment

Device	Manufacturer	Model	S/N
Laptop with CLI tool terminal	Dell	XPS	N/A

3.4 Modifications for Compliance

No modifications were made to the device under test to comply with the testing requirements.

4. Test Results

4.1 Emission Bandwidth

Test Date: February 6, 2026
Temperature (°C) 20.5
Relative Humidity (%) 10.9
Barometric Pressure (kPa) 96.5

Initials: AE

4.1.1 Limits

Systems using frequency hopping techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands with a maximum allowable 20 dB bandwidth, specified in FCC 15.247 (a)(1) summarized below:

Frequency Band	Maximum 20dB Bandwidth Limit (BW _{20dB})
902 – 928 MHz	BW _{20dB} ≤ 250 kHz if hopping frequencies ≥ 50 or 250 kHz < BW _{20dB} ≤ 500kHz if hopping frequencies between 25 and 50
2400 – 2483.5 MHz	*
5725 – 5850 MHz	BW _{20dB} ≤ 1 MHz

*Note: FCC 15.247 does not explicitly specify a maximum 20 dB bandwidth for FHSS operating in the 2400 – 2483.5 MHz band. The maximum 20 dB bandwidth is implicitly given by the minimum number of hopping channels: i.e., the 20 dB bandwidth multiplied by minimum number of channels shall be within the 2400–2483.5 MHz band.

For 2400 – 2483.5 MHz band, the minimum number of hopping frequencies specified is 15 channels. Thus maximum 20 dB bandwidth shall be less than 5.5 MHz (83.5 MHz/15).

99% bandwidth limit is not specified but is required for other purposes.

4.1.2 Test Procedure

Tested according to ANSI C63.10 Section 6.9.2 for 20 dB bandwidth and Section 6.9.3 for 99% bandwidth.

For 20 dB Emission Bandwidth:

- Set RBW in the range of 1% to 5% of the actual occupied bandwidth.
- Set VBW ≥ [3 × RBW].
- Span set to 2 to 5 times the occupied bandwidth.
- Detector: Peak
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

For 99% Emission Bandwidth:

- a) Set RBW in the range of 1% to 5% of the actual occupied bandwidth.
- b) Set VBW $\geq [3 \times \text{RBW}]$.
- c) Span set to 1.5 to 5 times the occupied bandwidth.
- d) Detector: Peak
- e) Use the 99% power bandwidth function of the instrument to measure bandwidth.

4.1.3 Test Results

20dB (FHSS) Bandwidth				
Test Mode	Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Test Result
LoRa FHSS SF7	902.30	140.86	≤ 250	Pass
	908.50	141.36	≤ 250	Pass
	914.90	144.86	≤ 250	Pass

99% Bandwidth			
Test Mode	Frequency (MHz)	Occupied Bandwidth (kHz)	Test Result
LoRa FHSS SF7	902.30	127.13	Pass
	908.50	125.74	Pass
	914.90	127.14	Pass

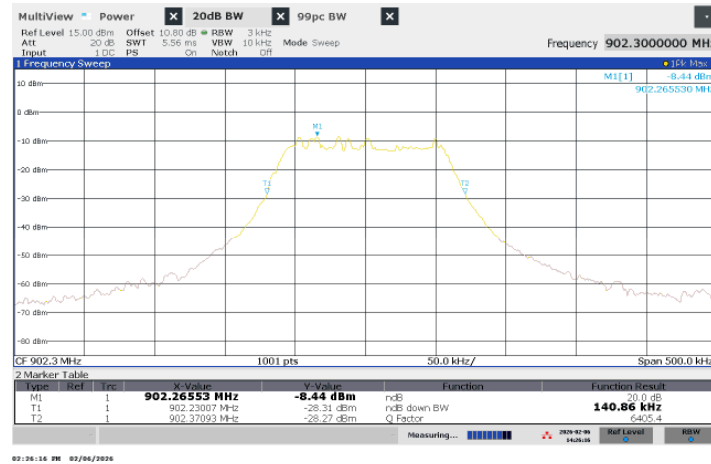


Figure 1 – 20 dB Bandwidth - Low Channel

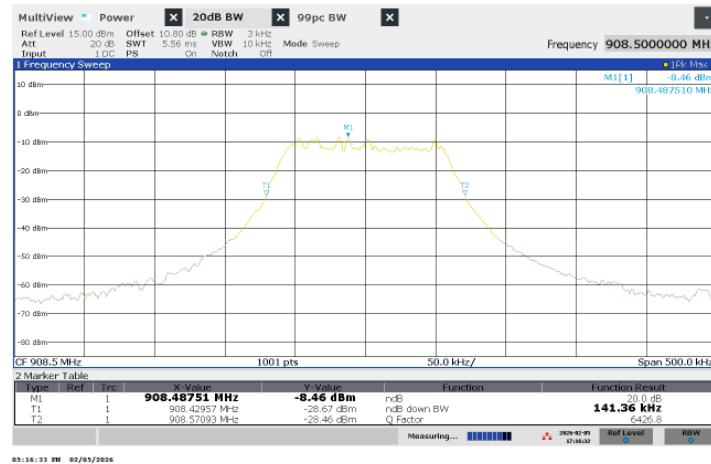


Figure 2 – 20 dB Bandwidth - Mid Channel

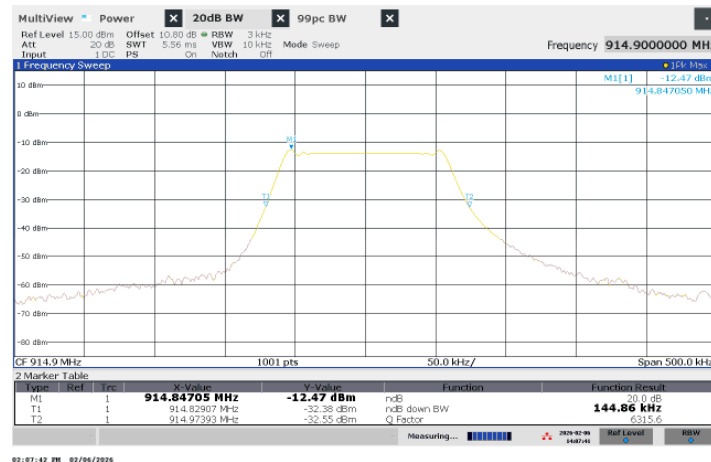


Figure 3 – 20 dB Bandwidth - High Channel

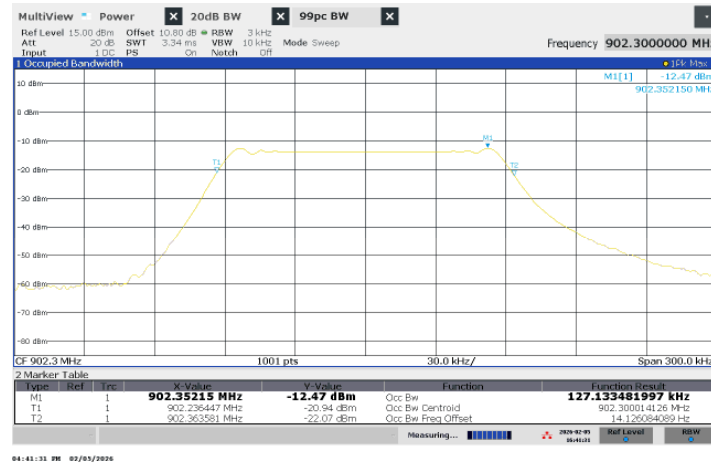


Figure 4 – 99% Bandwidth - Low Channel

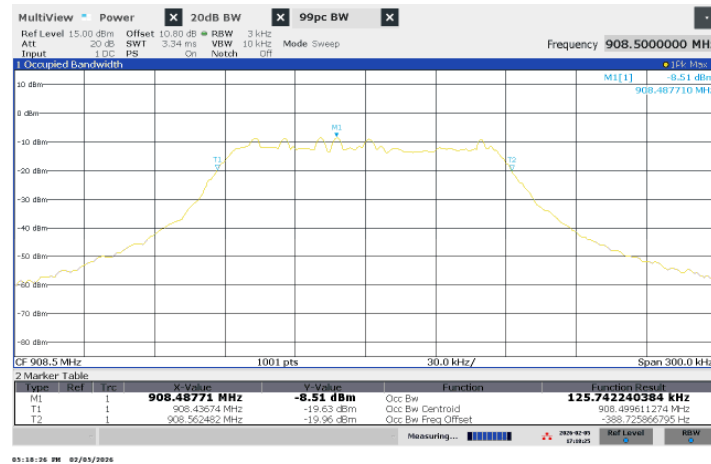


Figure 5 – 99% Bandwidth - Mid Channel

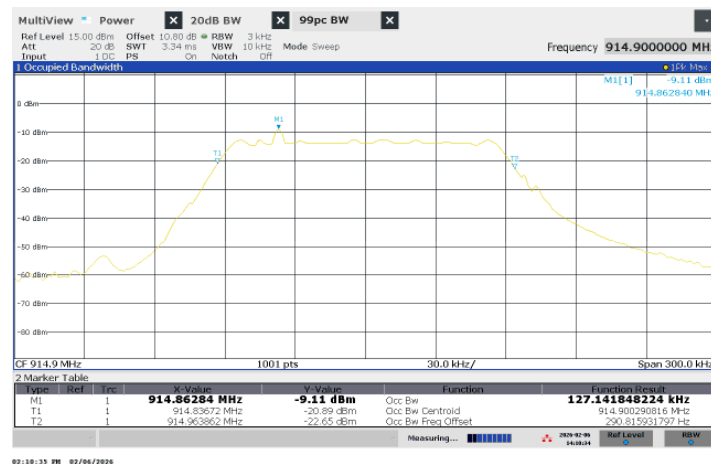


Figure 6 – 99% Bandwidth - High Channel

4.1.4 Test Equipment List

Equipment ID	Description	Manufacturer	Model	Calibration Date	Calibration Due
EQ_EMC_58	EMI Receiver	Rohde & Schwarz	ESW 44	Mar 1, 2024	Mar 1, 2026
EQ_EMC_115	10dB Attenuator	Fairview Microwave	SA18E-10	Dec 22, 2025	Dec 22, 2026

4.2 Channel Carrier Frequency Separation

Test Date: February 6, 2026
Temperature (°C) 20.5
Relative Humidity (%) 10.9
Barometric Pressure (kPa) 96.5

Initials: AE

4.2.1 Limits

Systems using frequency hopping techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands with a minimum allowable channel carrier frequency separation - Δf , specified in FCC 15.247 (a)(1) summarized below:

Frequency Band	Minimum Channel Separation – Δf	
	$P_{\text{max-pk}} \leq 1 \text{ W}$	$P_{\text{max-pk}} \leq 0.25 \text{ W}$
902 – 928 MHz	$\Delta f \geq \text{MAX} \{25 \text{ kHz}, BW_{20\text{dB}}\}$ $BW_{20\text{dB}} \leq 250 \text{ kHz}$	$\Delta f \geq \text{MAX} \{25 \text{ kHz}, BW_{20\text{dB}}\}$ $250 \text{ kHz} < BW_{20\text{dB}} \leq 500 \text{ kHz}$
2400 – 2483.5 MHz	$\Delta f \geq \text{MAX} \{25 \text{ kHz}, BW_{20\text{dB}}\}$ Max. $BW_{20\text{dB}}$ not specified	$\Delta f \geq [\text{MAX} \{25 \text{ kHz}, \frac{2}{3}BW_{20\text{dB}}\}]$ OR $\text{MAX} \{25 \text{ kHz}, BW_{20\text{dB}}\}$ Max. $BW_{20\text{dB}}$ not specified
5725 – 5850 MHz	$\Delta f \geq \text{MAX} \{25 \text{ kHz}, BW_{20\text{dB}}\}$ $BW_{20\text{dB}} \leq 1 \text{ MHz}$	

4.2.2 Test Procedure

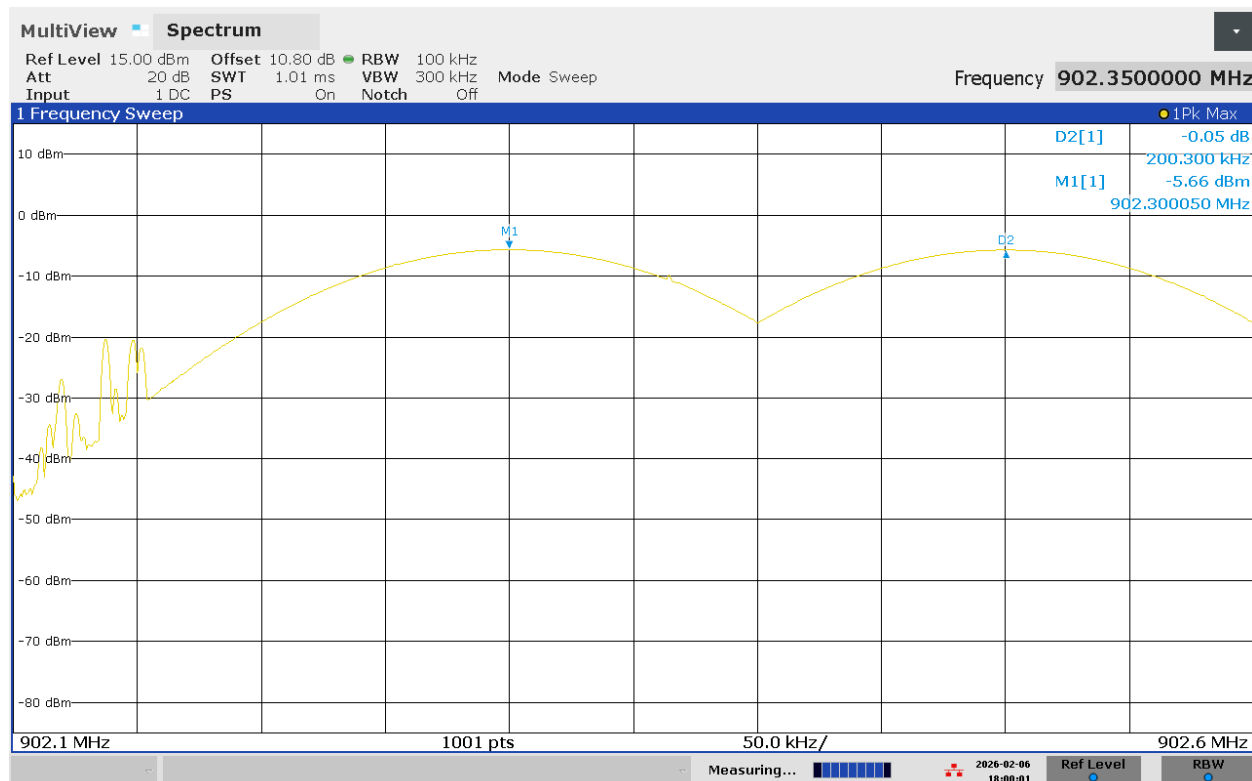
Tested according to ANSI C63.10 Section 7.8.2.

For Channel Carrier Frequency Separation:

- Set RBW to approximately 30% of the channel spacing; adjust as necessary to identify the center of each channel.
- Set VBW $\geq$ RBW.
- Set Span wide enough to capture the peaks of two adjacent channels.
- Detector: Peak
- Allow Max-hold trace to stabilize.
- Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

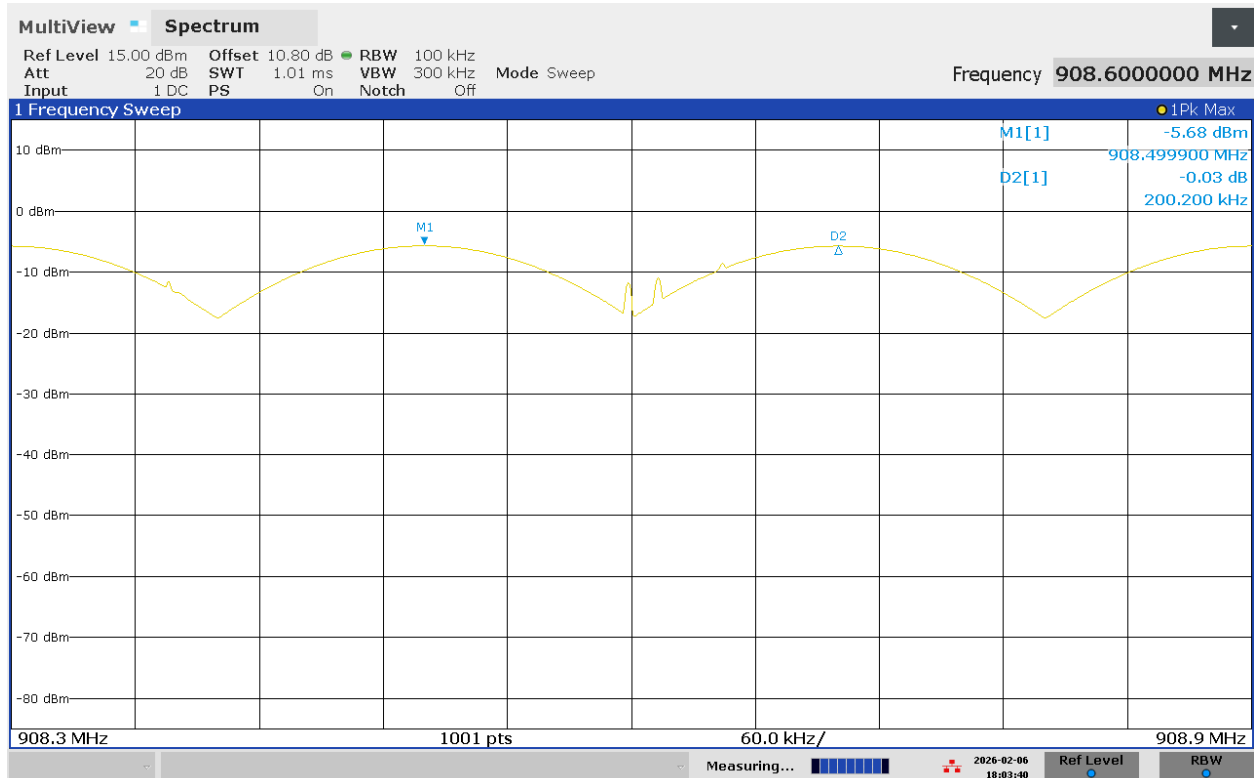
4.2.3 Test Results

Test Mode	Frequency (MHz)	Channel Separation (kHz)	Limit (kHz)	Test Result
LoRa FHSS SF7	902.3	200.30	≥ 144.86	Pass
	Adjacent Channel			
	908.5	200.20		Pass
	Adjacent Channel			
	914.9	200.30		Pass
	Adjacent Channel			



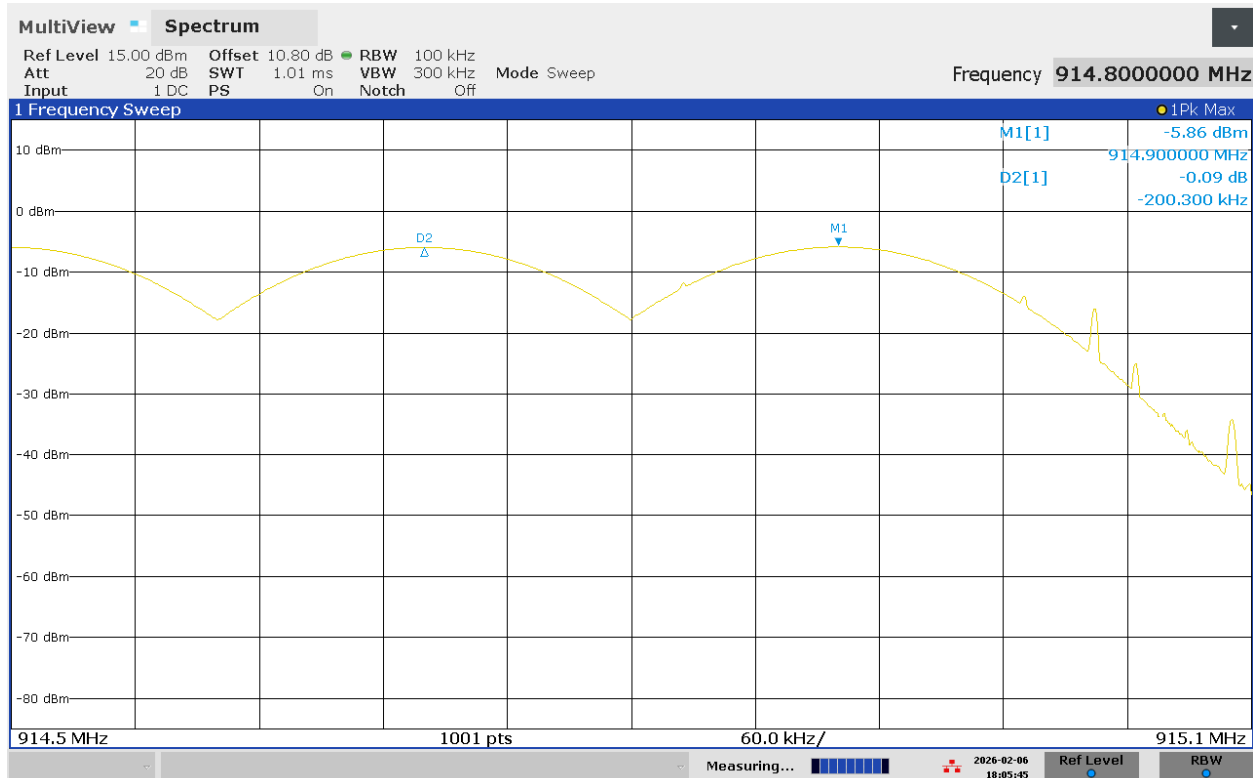
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Figure 7 – Channel Separation – Low Channel



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Figure 8 – Channel Separation – Mid Channel



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Figure 9 – Channel Separation – High Channel

4.2.4 Test Equipment List

Equipment ID	Description	Manufacturer	Model	Calibration Date	Calibration Due
EQ_EMC_58	EMI Receiver	Rohde & Schwarz	ESW 44	Mar 1, 2024	Mar 1, 2026
EQ_EMC_115	10dB Attenuator	Fairview Microwave	SA18E-10	Dec 22, 2025	Dec 22, 2026

4.3 Number of Hopping Channels

Test Date: February 6, 2026
Temperature (°C) 20.5
Relative Humidity (%) 10.9
Barometric Pressure (kPa) 96.5

Initials: AE

4.3.1 Limits

Systems using frequency hopping techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands with a minimum Number of Hopping Channels - N_{ch} , specified in FCC 15.247

(a)(1) summarized below:

Frequency Band	Minimum Number of Hopping Channels – N_{ch}	
	$P_{max-pk} \leq 1\text{ W}$	$P_{max-pk} \leq 0.25\text{ W}$
902 – 928 MHz	$N_{ch} \geq 50$	$25 \leq N_{ch} < 50$
2400 – 2483.5 MHz	$N_{ch} \geq 75$	$N_{ch} \geq 15$
5725 – 5850 MHz	$N_{ch} \geq 75$	

4.3.2 Test Procedure

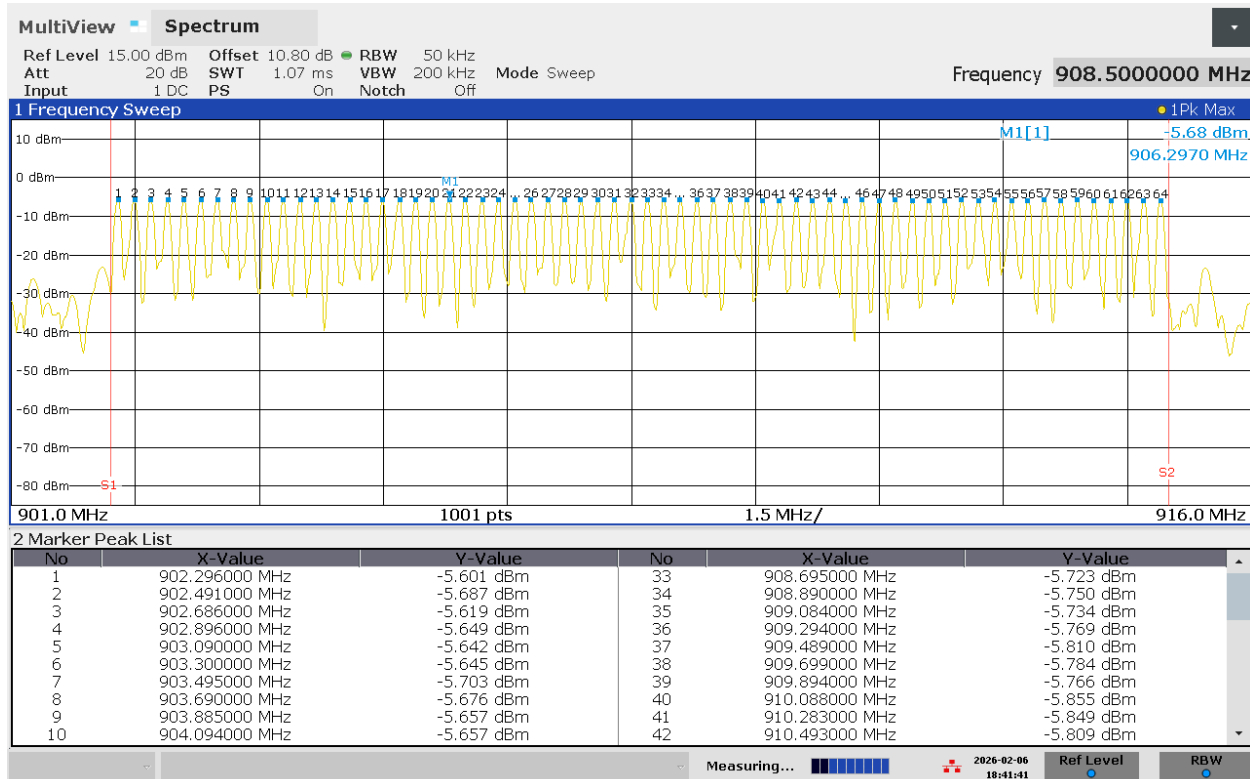
Tested according to ANSI C63.10 Section 7.8.3.

For Number of Hopping Channels

- Set RBW less than 30% of the channel spacing or the 20dB bandwidth, whichever is smaller; adjust as necessary to identify each channel.
- Set VBW $\geq$ RBW.
- Detector: Peak
- Set Span wide enough to capture the whole frequency band of operation. Depending on the number of channels, the band could be divided into multiple spans if individual channels are not clearly seen.
- Allow Max-hold trace to stabilize
- Use the Marker Peak List function to count all the peaks

4.3.3 Test Results

Test Mode	Hopping Channels (N _{ch})	Limit	Test Result
LoRa FHSS SF7	64	N _{ch} ≥ 50	Pass



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Figure 10 – Number of Hopping Channels

4.3.4 Test Equipment List

Equipment ID	Description	Manufacturer	Model	Calibration Date	Calibration Due
EQ_EMC_58	EMI Receiver	Rohde & Schwarz	ESW 44	Mar 1, 2024	Mar 1, 2026
EQ_EMC_115	10dB Attenuator	Fairview Microwave	SA18E-10	Dec 22, 2025	Dec 22, 2026

4.4 Time of Occupancy (Dwell Time)

Test Date: February 20, 2026
Temperature (°C) 20.3
Relative Humidity (%) 23.5
Barometric Pressure (kPa) 96.4

Initials: AE

4.4.1 Limits

Systems using frequency hopping techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands with a maximum Time of Occupancy for each channel - t_{ch} , specified in FCC 15.247 (a)(1) summarized below:

Frequency Band	Maximum Time of Occupancy	
	$P_{\max-pk} \leq 1 \text{ W}$	$P_{\max-pk} \leq 0.25 \text{ W}$
902 – 928 MHz	$BW_{20dB} \leq 250 \text{ kHz}$ $t_{ch} \leq 0.4s \text{ for } T = 20s$	$250 \text{ kHz} < BW_{20dB} \leq 500 \text{ kHz}$ $t_{ch} \leq 0.4s \text{ for } T = 10s$
2400 – 2483.5 MHz	$N_{ch} \geq 75$ $t_{ch} \leq 0.4s \text{ for } T = 0.4 N_{ch}$	$N_{ch} \geq 15$ $t_{ch} \leq 0.4 s \text{ for } T = 0.4 N_{ch}$
5725 – 5850 MHz	$t_{ch} \leq 0.4s \text{ for } T = 30s$	

4.4.2 Test Procedure

Tested according to ANSI C63.10 Section 7.8.4.

For Dwell Time per Hop

- Span: Zero span, centered on a hopping channel.
- Set RBW less than channel spacing.
- Sweep Time: Set to long enough to capture the start and the end of the last transmission.
- Use video trigger, where possible with a trigger delay, and adjust so that the start of the transmission is clearly observed.
- Detector: Peak
- Set trace to Clear-write, single sweep

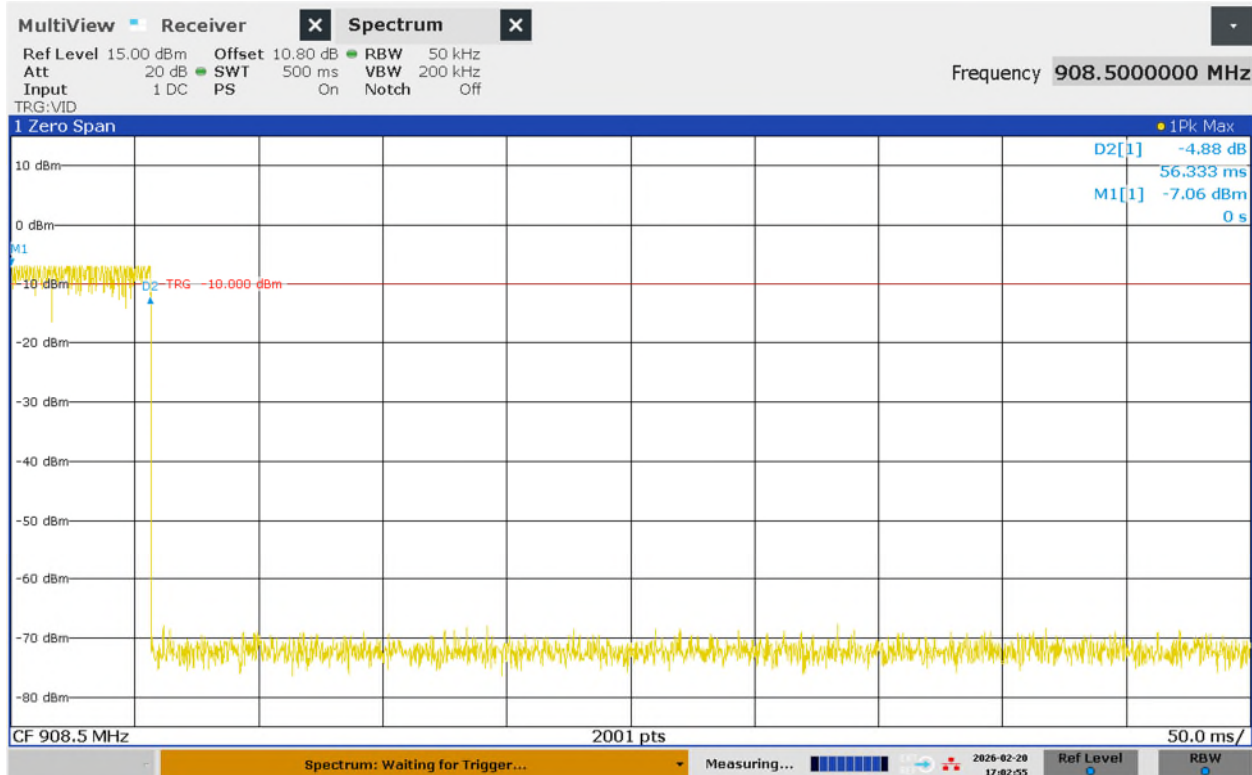
For Number of Hop

- Repeat above and increase Sweep Time to long enough to capture at least two hops.
- The number of hops within the period T is calculated from the number of hops on the channel divided by the spectrum analyzer sweep time multiplied by the period limit T.

The average Time of Occupancy is calculated by multiplying the dwell time per hop by the number of hops in the observation period T.

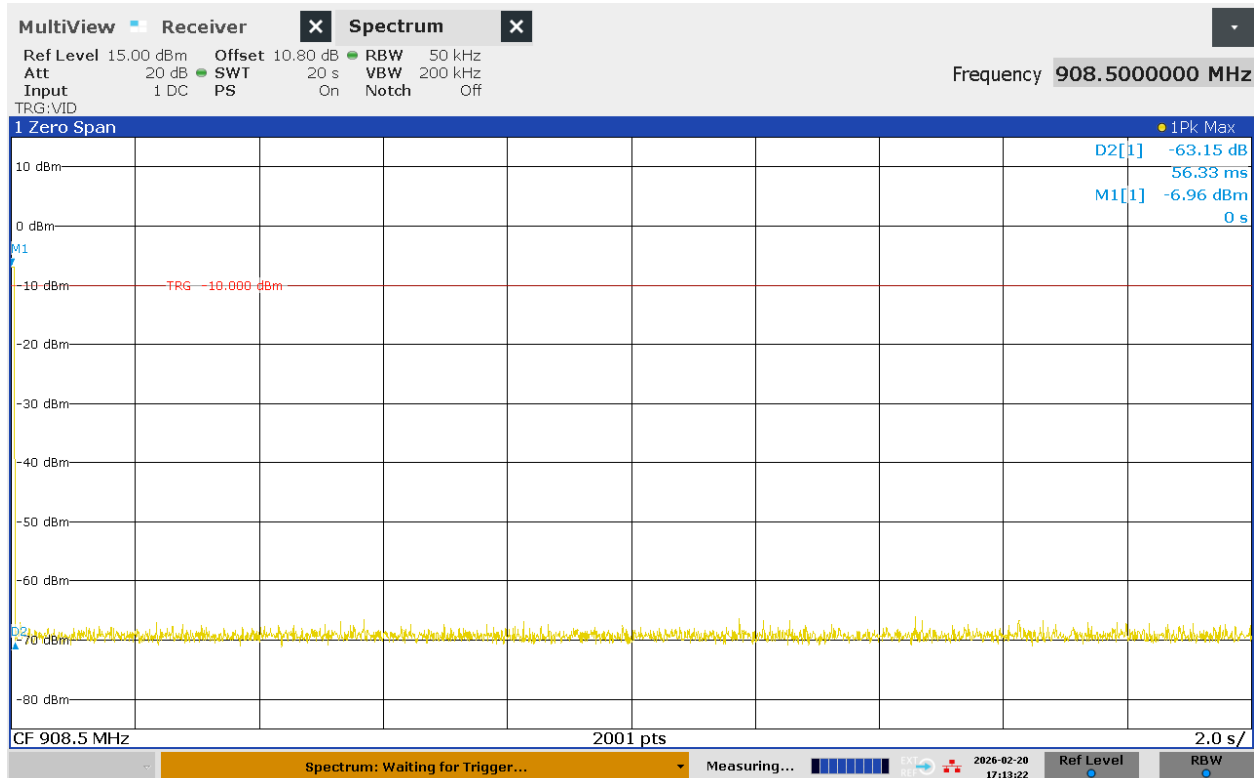
4.4.3 Test Results

Test Mode	Frequency (MHz)	Dwell Time (ms)	Number of Hops	Total Dwell Time (ms)	Limit (ms)	Period, T (s)	Test Result
LoRa FHSS SF7	908.5	56.33	1	56.33	400	20	Pass



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Figure 11 – Dwell Time per Hop



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Figure 12 – Number of Hops for Total Sweep Time

4.4.4 Test Equipment List

Equipment ID	Description	Manufacturer	Model	Calibration Date	Calibration Due
EQ_EMC_58	EMI Receiver	Rohde & Schwarz	ESW 44	Mar 1, 2024	Mar 1, 2026
EQ_EMC_115	10dB Attenuator	Fairview Microwave	SA18E-10	Dec 22, 2025	Dec 22, 2026

4.5 Peak Conducted Output Power

Test Date: February 6, 2026
Temperature (°C) 20.5
Relative Humidity (%) 10.9
Barometric Pressure (kPa) 96.5

Initials: AE

4.5.1 Limits

Systems using frequency hopping techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands with a maximum peak conducted power, specified in FCC 15.247 (b) summarized below:

Frequency Band	Maximum Peak Conducted Power	
902 – 928 MHz	$N_{ch} \geq 50$ $P_{max-pk} \leq 1 \text{ W}$	$25 \leq N_{ch} < 50$ $P_{max-pk} \leq 0.25 \text{ W}$
2400 – 2483.5 MHz	$N_{ch} \geq 75$ $P_{max-pk} \leq 1 \text{ W}$	$N_{ch} \geq 15$ $P_{max-pk} \leq 0.125 \text{ W}$
5725 – 5850 MHz	$N_{ch} \geq 75$ $P_{max-pk} \leq 1 \text{ W}$	

4.5.2 Test Procedure

Tested according to ANSI C63.10 Section 7.8.5.

For Peak Conducted Output Power

- Set RBW > 20dB emission bandwidth
- Set VBW ≥ RBW
- Span set to approximately five times the 20dB emission bandwidth
- Detector: Peak
- Allow Max-hold trace to stabilize.

The RF output of the DUT was connected to the spectrum analyzer with sufficient attenuation in front and the total path loss was set as reference offset to correct the final reading.

4.5.3 Test Results

Channel	Frequency (MHz)	Peak Power		Limit (W)	Test Result
		(dBm)	(W)		
Low	902.30	-5.66	0.272	1	Pass
Mid	908.50	-5.70	0.269	1	Pass
High	914.90	-5.92	0.256	1	Pass

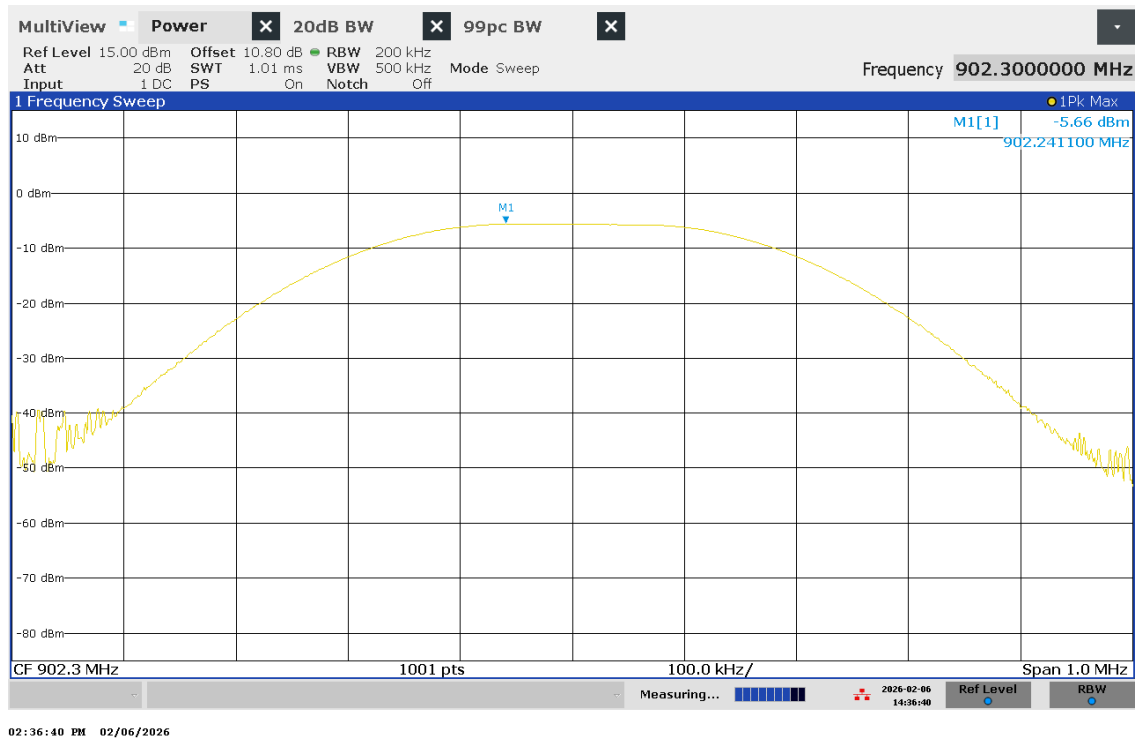


Figure 13 – Peak Power - Low Channel

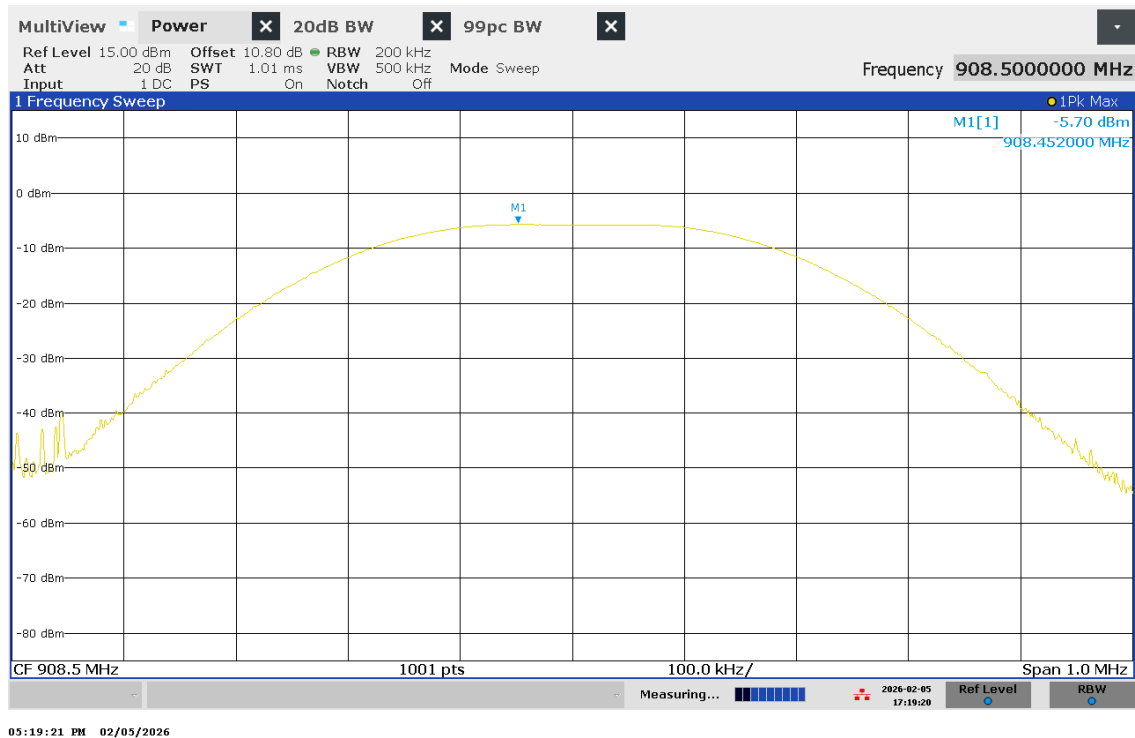


Figure 14 – Peak Power - Mid Channel

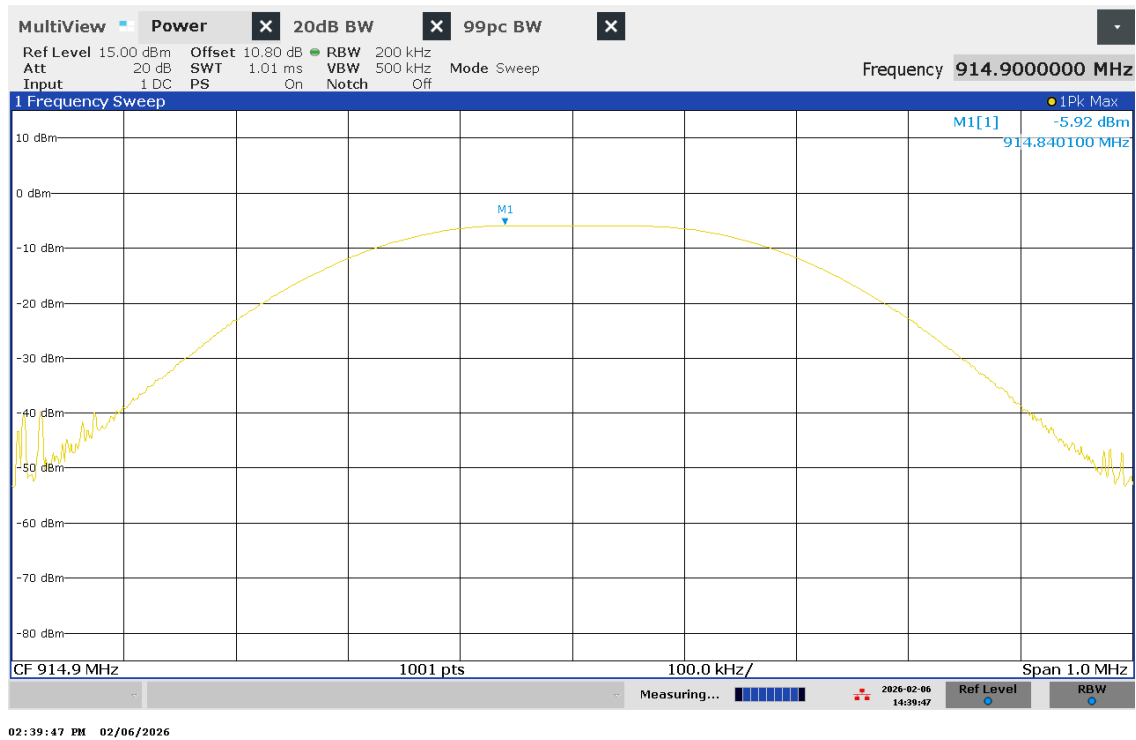


Figure 15 – Peak Power - High Channel

4.5.4 Test Equipment List

Equipment ID	Description	Manufacturer	Model	Calibration Date	Calibration Due
EQ_EMC_58	EMI Receiver	Rohde & Schwarz	ESW 44	Mar 1, 2024	Mar 1, 2026
EQ_EMC_115	10dB Attenuator	Fairview Microwave	SA18E-10	Dec 22, 2025	Dec 22, 2026

4.6 Conducted Spurious Emissions (-20dBc)

Test Date:	February 6, 2026
Temperature (°C)	20.5
Relative Humidity (%)	10.9
Barometric Pressure (kPa)	96.5

Initials: AE

4.6.1 Limits

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 20dB below that in the 100kHz 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, the attenuation required shall be 30dB instead of 20dB.

4.6.2 Test Procedure

Tested according to ANSI C63.10 Section 7.8.7.

For the reference level measurement:

- Set RBW = 100kHz and VBW $\geq [3 \times \text{RBW}]$.
- Detector = Peak and Trace Mode = Max Hold.
- Sweep = Auto Couple.
- Span set to $\geq 1.5 \times 20\text{dB}$ emission bandwidth.
- Use the peak marker function to determine the maximum level.

For the out of band emission measurement

- Set the start and stop frequency to encompass the frequency range to be measured (10 times the operating frequency).
- Set RBW = 100kHz and VBW $\geq [3 \times \text{RBW}]$.
- Detector = Peak and Trace Mode = Max Hold.
- Sweep = Auto Couple.
- Use the peak marker function to determine the maximum level.

Compliance with the relative limit at the band-edges (-20dBc) is made on the lowest and on the highest channels with frequency hopping disabled and repeated with frequency hopping enabled.

The RF output of the DUT was connected to the spectrum analyzer with sufficient attenuation in front and the total path loss was set as reference offset to correct the final reading.

4.6.3 Test Results

The DUT met the 20dB below carrier requirement for out of band emissions.

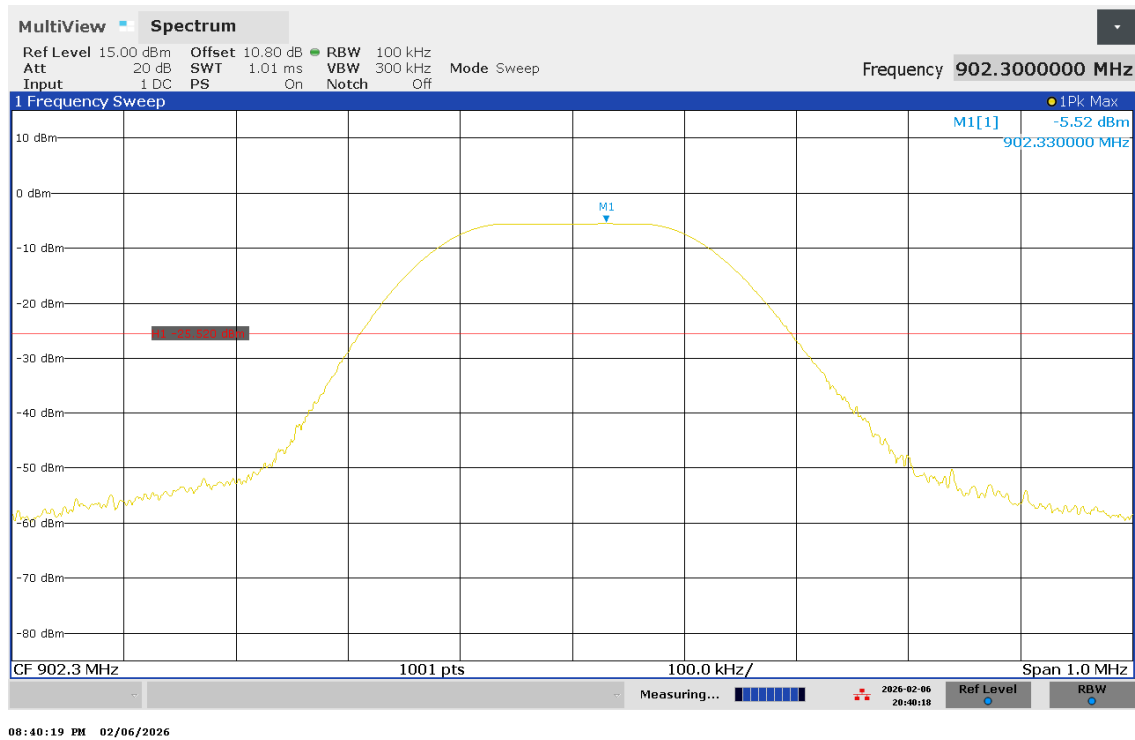


Figure 16 – -20dBc Reference Level - Low Channel

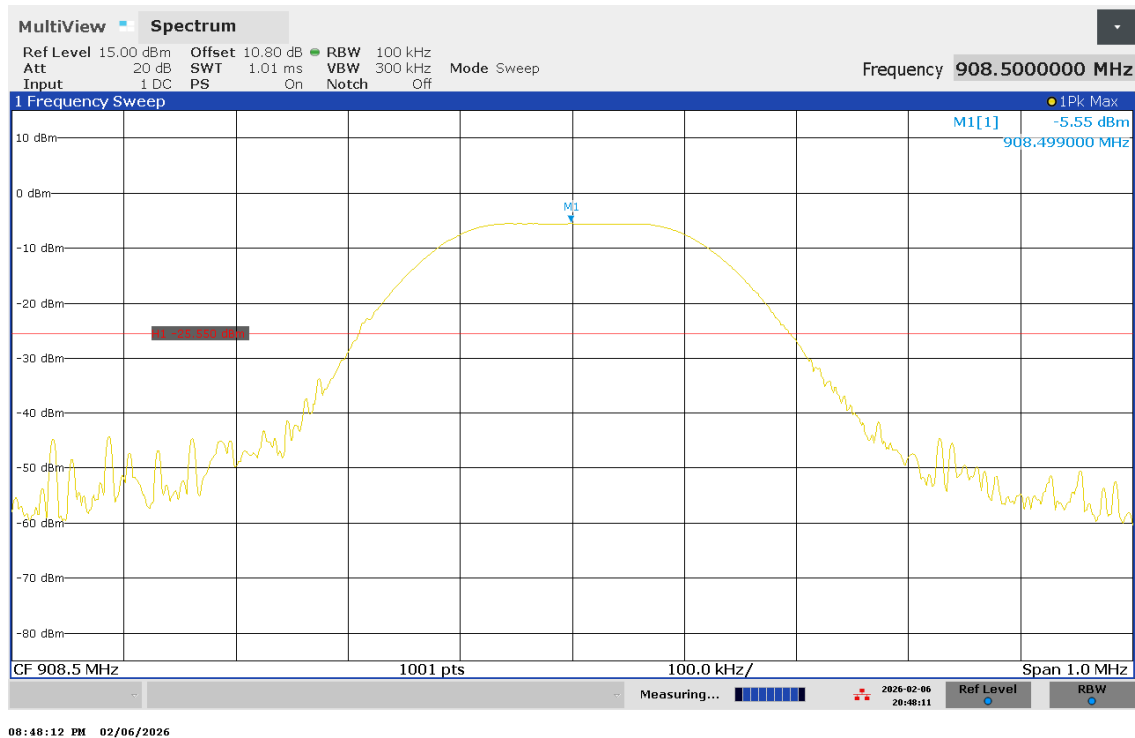


Figure 17 – -20dBc Reference Level - Mid Channel

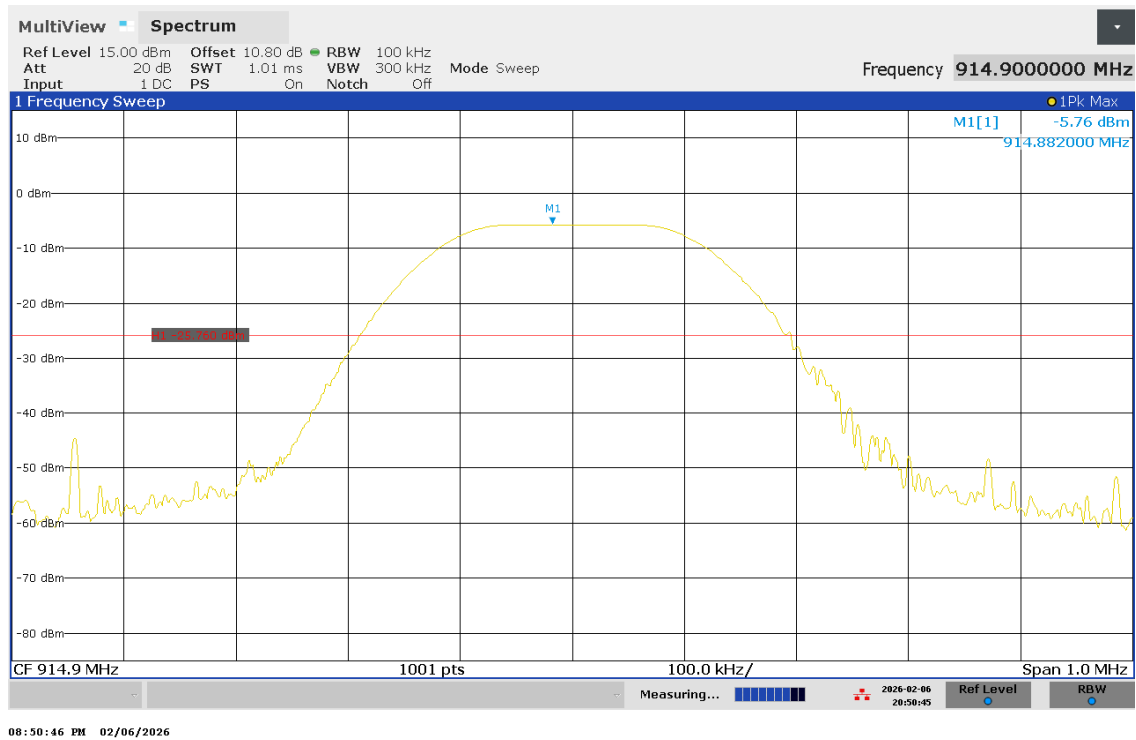


Figure 18 – -20dBc Reference Level - High Channel

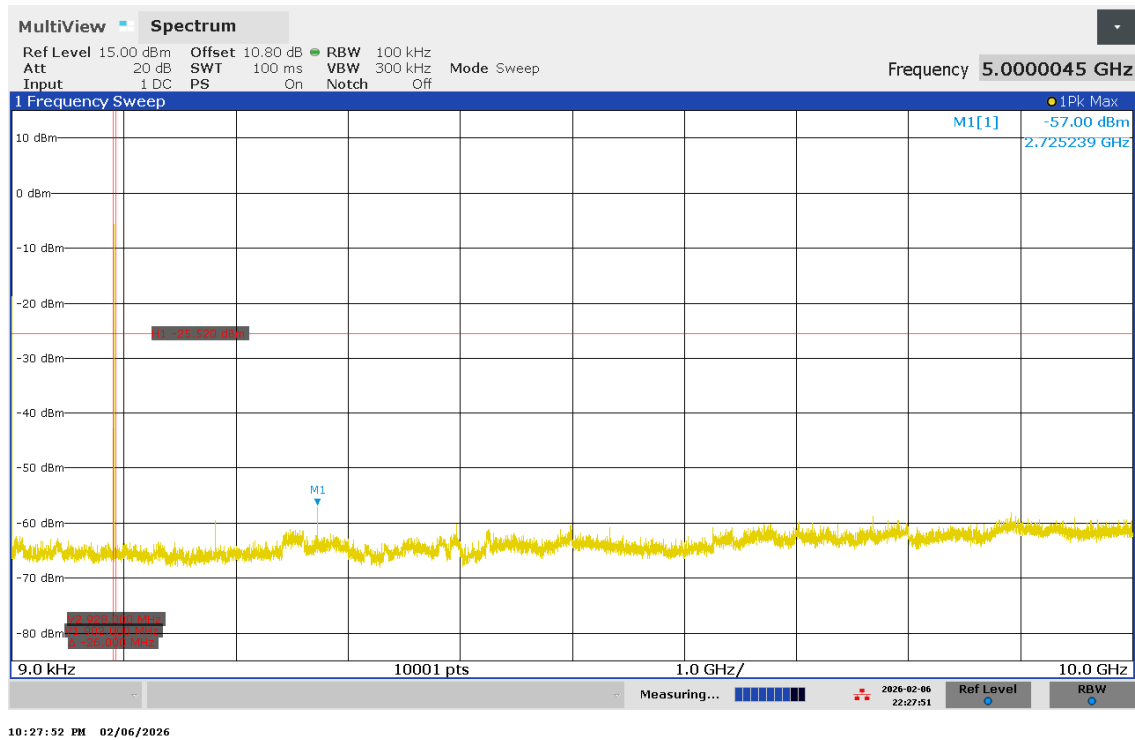


Figure 19 – -20dBc (Hopping Disabled)

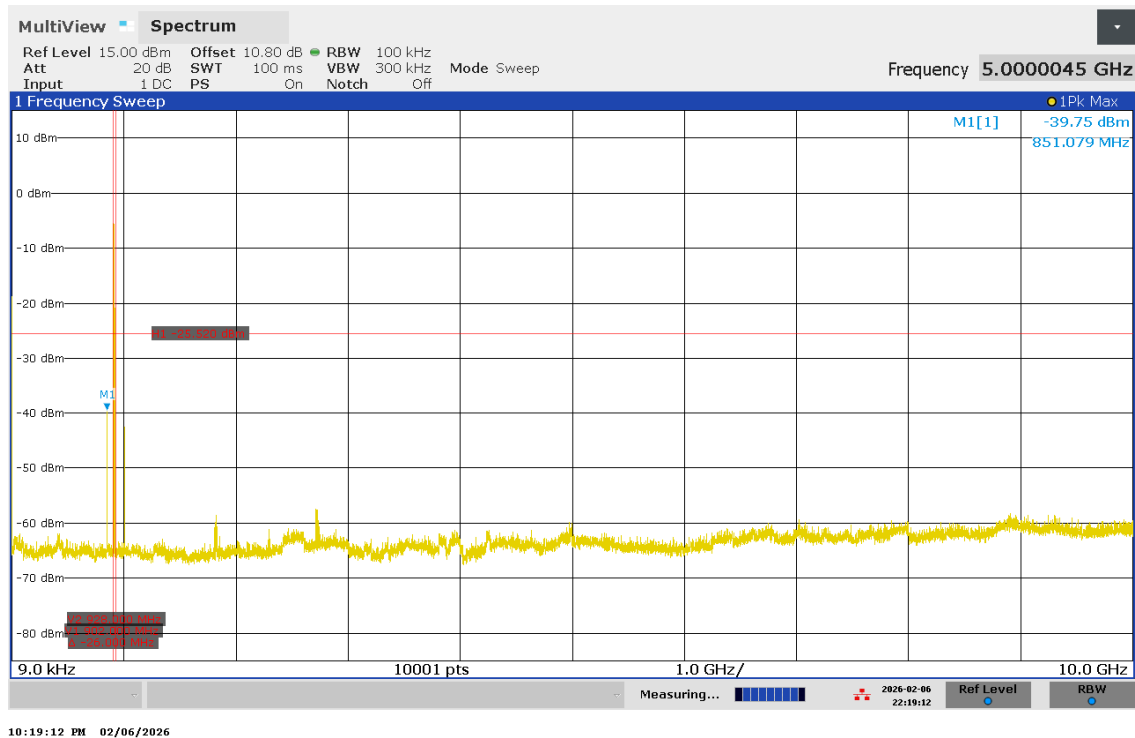


Figure 20 – -20dBc (Hopping Enabled)

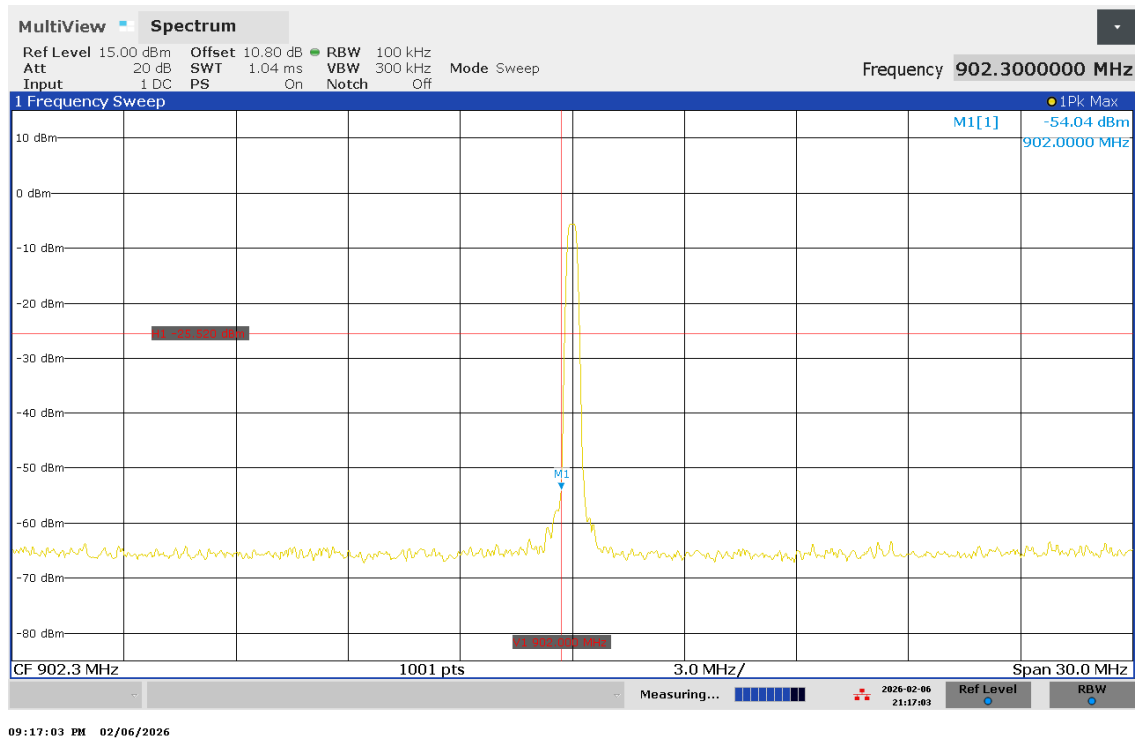


Figure 21 – -20dBc Band Edge - Low Channel (Hopping Disabled)

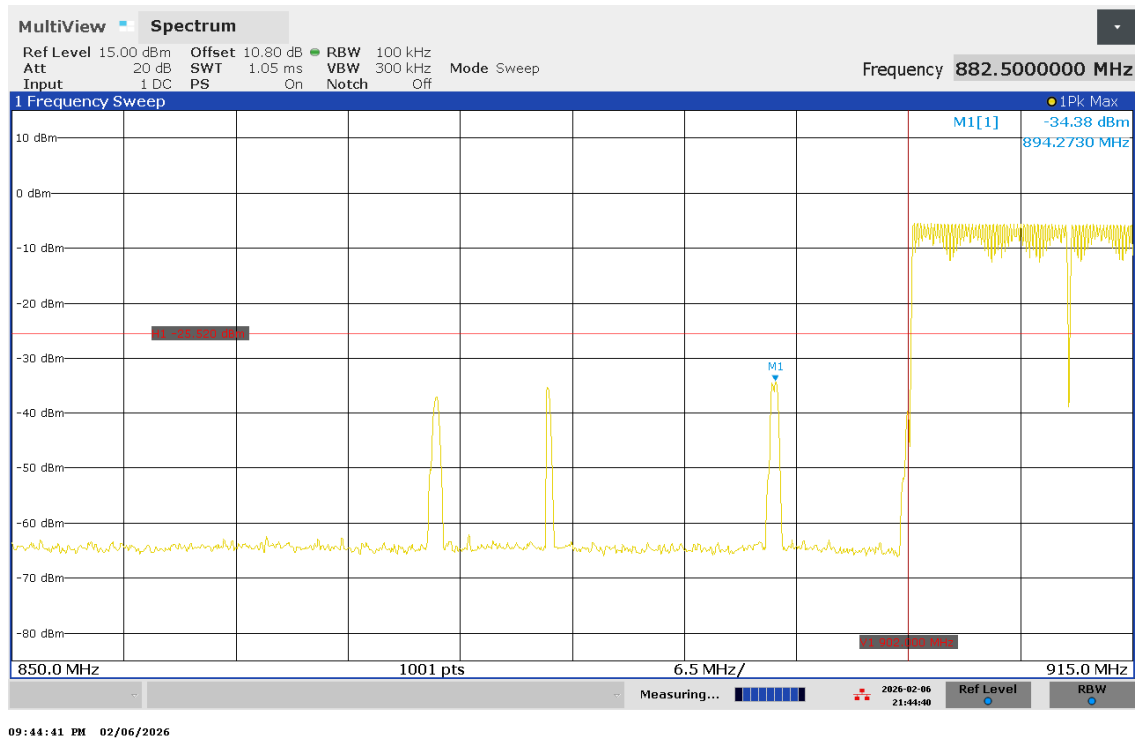


Figure 22 – -20dBc Band Edge - Low Channel (Hopping Enabled)

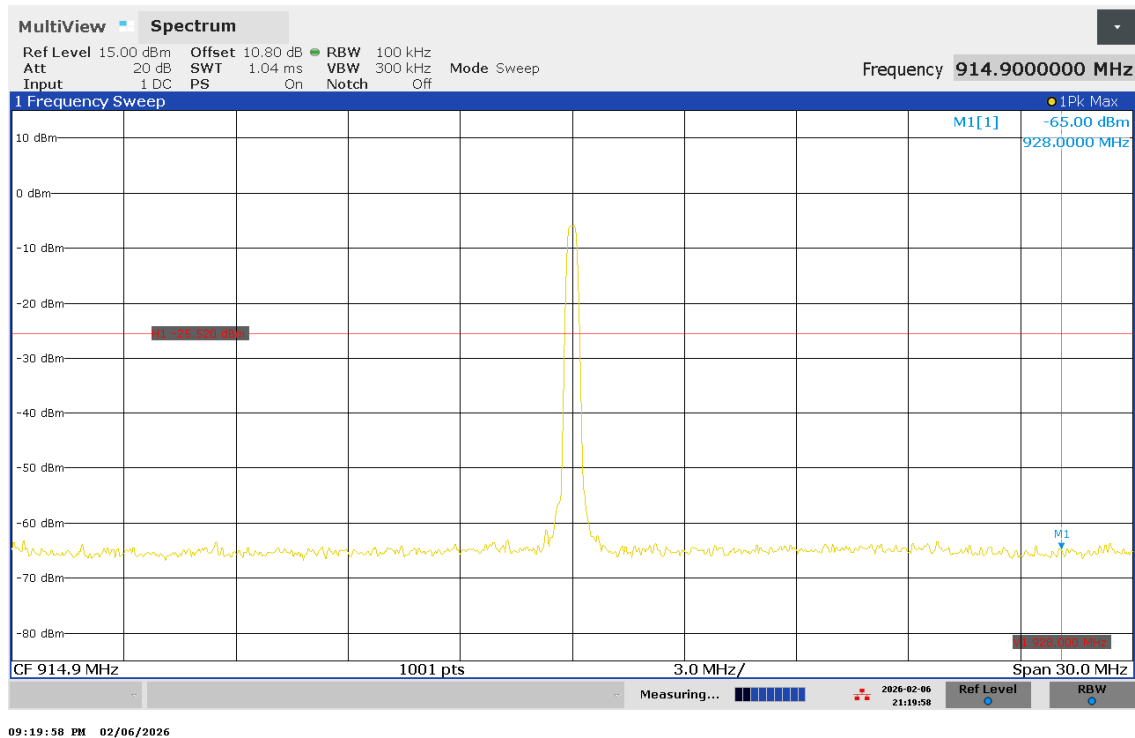


Figure 23 – -20dBc Band Edge - High Channel (Hoping Disabled)

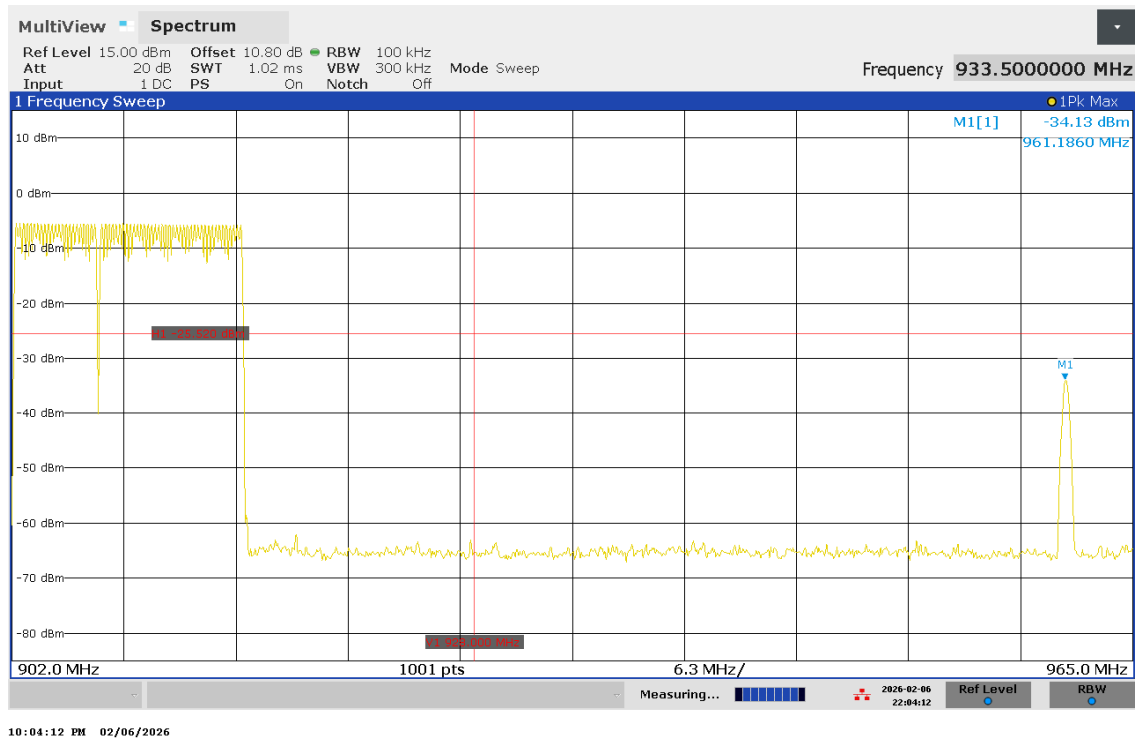


Figure 24 – -20dBc Band Edge - High Channel (Hoping Enabled)

4.6.4 Test Equipment List

Equipment ID	Description	Manufacturer	Model	Calibration Date	Calibration Due
EQ_EMC_58	EMI Receiver	Rohde & Schwarz	ESW 44	Mar 1, 2024	Mar 1, 2026
EQ_EMC_115	10dB Attenuator	Fairview Microwave	SA18E-10	Dec 22, 2025	Dec 22, 2026

4.7 Transmitter Spurious Radiated Emissions

Test Date: January 6, 2026
Temperature (°C) 21.1
Relative Humidity (%) 19.7
Barometric Pressure (kPa) 96.3

Initials: AE

4.7.1 Limits

Any radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a), must comply with the general radiated emission limits specified in FCC 15.209(a). Other emissions shall be at least 20dB below the highest level of the intentional transmitter.

Base Standard(s): FCC Subpart C 15.209.

Frequency Range (MHz)	Field Strength Limit		Field Strength at 3m (dBμV/m)	Detector Type / Measurement Bandwidth
	μV/m	Distance		
0.009 – 0.150	2400/F(kHz)	300	128.5 – 104.1	Quasi-Peak‡ / 200Hz
0.150 – 0.490	2400/F(kHz)	300	104.1 – 93.8	Quasi-Peak‡ / 9kHz
0.490 – 1.705	24000/F(kHz)	30	73.8 – 63.0	Quasi-Peak / 9kHz
1.705 – 30	30	30	69.5	Quasi-Peak / 9kHz
30 – 88	100	3	40.0	Quasi-Peak / 120kHz
88 – 216	150	3	43.5	Quasi-Peak / 120kHz
216 – 960	200	3	46.0	Quasi-Peak / 120kHz
960 – 1000	500	3	54.0	Quasi-Peak / 120kHz
Above 1000	500	3	54.0	Average / 1MHz
Above 1000	5000	3	74.0	Peak / 1MHz

‡The emission limits below 1GHz shown in the above table are based on measurements employing a CISPR Quasi-Peak detector except for the frequency bands 9-90 kHz and 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

As per ANSI C63.4 Section 4.2, if the Peak detector measurements do not exceed the Quasi-Peak limits, or Average limits where defined, then the DUT is considered to have passed the requirements.

4.7.2 Test Procedure

Tested according to ANSI C63.10 Section 6.3.

The device under test was setup inside a semi-anechoic chamber with remotely controlled turntable and antenna positioner at a 3m test distance. The DUT was placed on top of a 0.8m high non-conductive table above the reference ground plane for frequencies below 1GHz and 1.5m high for frequencies above 1GHz.

To determine the emission characteristics of the DUT, exploratory radiated emission scans were made while rotating the turntable 0° to 360° and using a Quasi-Peak, Average or Peak detector as applicable. The results were recorded in graphical form.

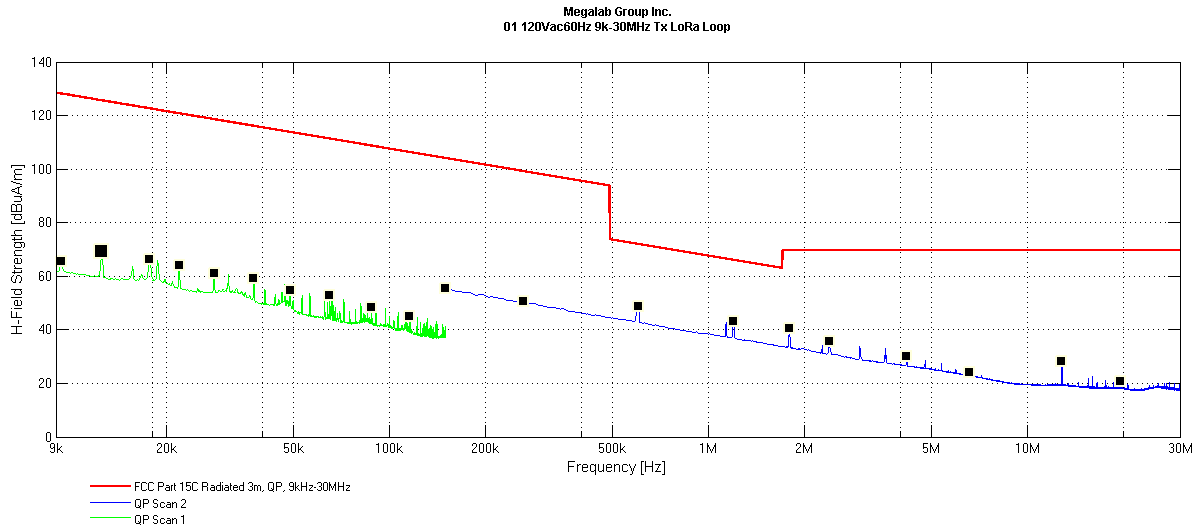
For each suspected emission, final measurements of the DUT radiated emissions with the Quasi-Peak, Average or Peak detector, as defined in the limit tables above, were made with the turntable azimuth rotated 0° to 360° and antenna height varied from 1m to 4m. The antenna was positioned to receive emissions in the vertical and horizontal polarizations such that the maximum radiated emission levels were detected.

As per FCC Part 15.33(a), the DUT was scanned to the 10th harmonic of the highest fundamental frequency.

Peak output power for low, mid and high channels, each in three orthogonal axes, were verified. The worst case was used for the spurious emissions which was on the low channel and in the Y-axis.

4.7.3 Test Results

Range:	9kHz to 30MHz	Tx Frequency	903.0MHz
Test Voltage:	3.1VDC	Antenna Polarization	N/A

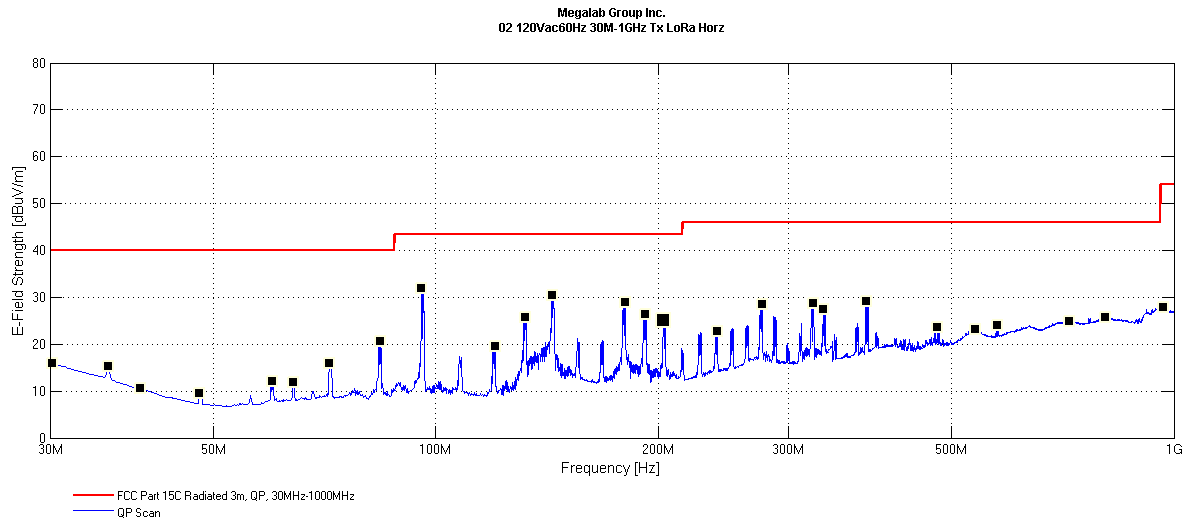


Operator: admin
Last Data Update: 2025-12-23 17:15:20

Project: ML302743 SafelyYou Halo Spurious LoRa S64

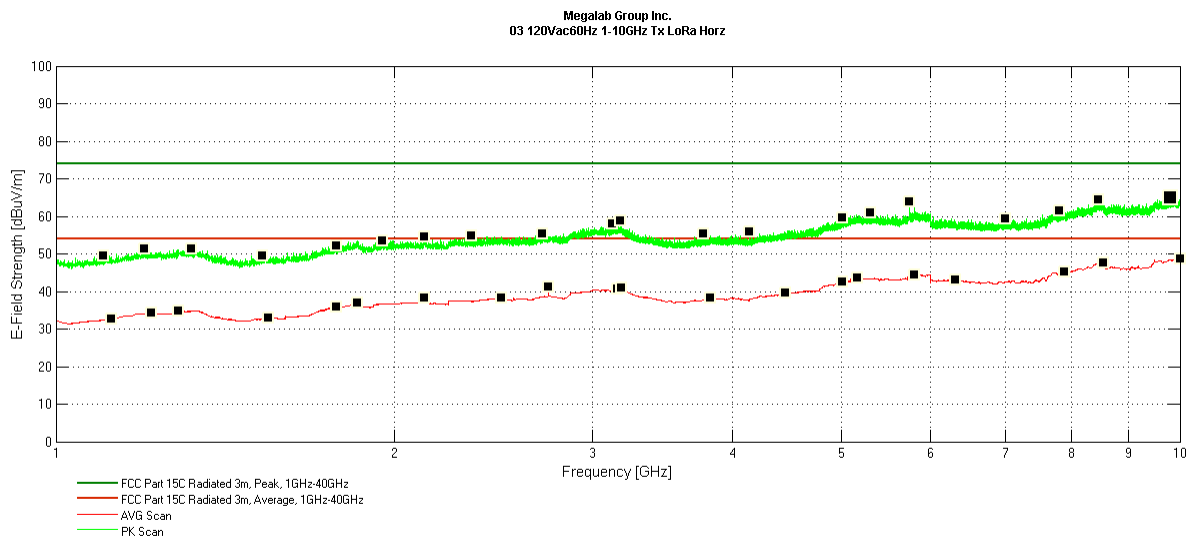
Remark: Quasi-Peak Emission Plot

Range:	30MHz to 1GHz	Tx Frequency	903.0MHz
Test Voltage:	3.1VDC	Antenna Polarization	Horizontal



Remark: - Quasi-Peak Emission Plot
- A Notch filter was used to filter out the fundamental

Range:	1GHz to 10GHz	Tx Frequency	903.0MHz
Test Voltage:	3.1VDC	Antenna Polarization	Horizontal

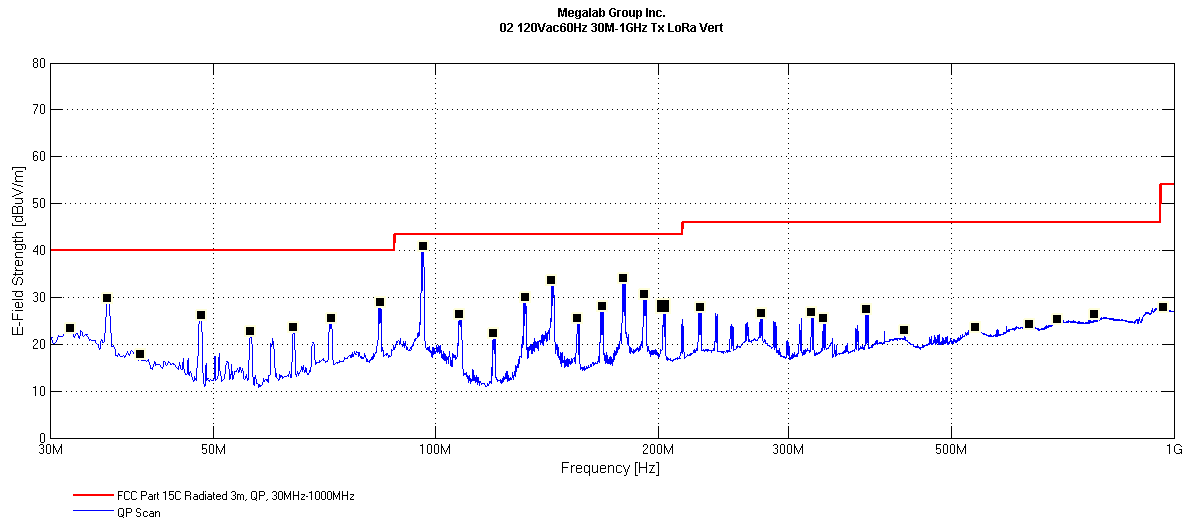


Remark: - Peak and Average Emission Plot

Horizontal Antenna Polarization							
Frequency (MHz)	Detector	Reading (dBμV)	Correction Factor (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Test Result
95.70	QP	44.95	-13.15	31.80	43.50	11.70	Pass
143.65	QP	42.57	-12.27	30.30	43.50	13.20	Pass
180.45	QP	38.91	-10.09	28.82	43.50	14.68	Pass
383.05	QP	32.64	-3.51	29.13	46.00	16.87	Pass
192.40	QP	36.61	-10.30	26.31	43.50	17.19	Pass
324.75	QP	34.83	-6.13	28.70	46.00	17.30	Pass
9814.00	PEAK	56.31	8.54	64.85	74.00	9.15	Pass
8461.00	PEAK	56.41	7.86	64.27	74.00	9.73	Pass
5748.00	PEAK	61.47	2.40	63.87	74.00	10.13	Pass
7818.00	PEAK	55.85	5.68	61.53	74.00	12.47	Pass
5307.00	PEAK	59.19	1.62	60.81	74.00	13.19	Pass
5005.00	PEAK	58.54	0.94	59.48	74.00	14.52	Pass
10000.00	AVG	39.54	9.26	48.80	54.00	5.20	Pass
8542.00	AVG	39.89	7.79	47.68	54.00	6.32	Pass
7893.00	AVG	39.22	5.90	45.12	54.00	8.88	Pass
5808.00	AVG	41.76	2.67	44.43	54.00	9.57	Pass
5166.00	AVG	42.19	1.42	43.61	54.00	10.39	Pass
2709.00	AVG	43.77	-2.68	41.09	54.00	12.91	Pass

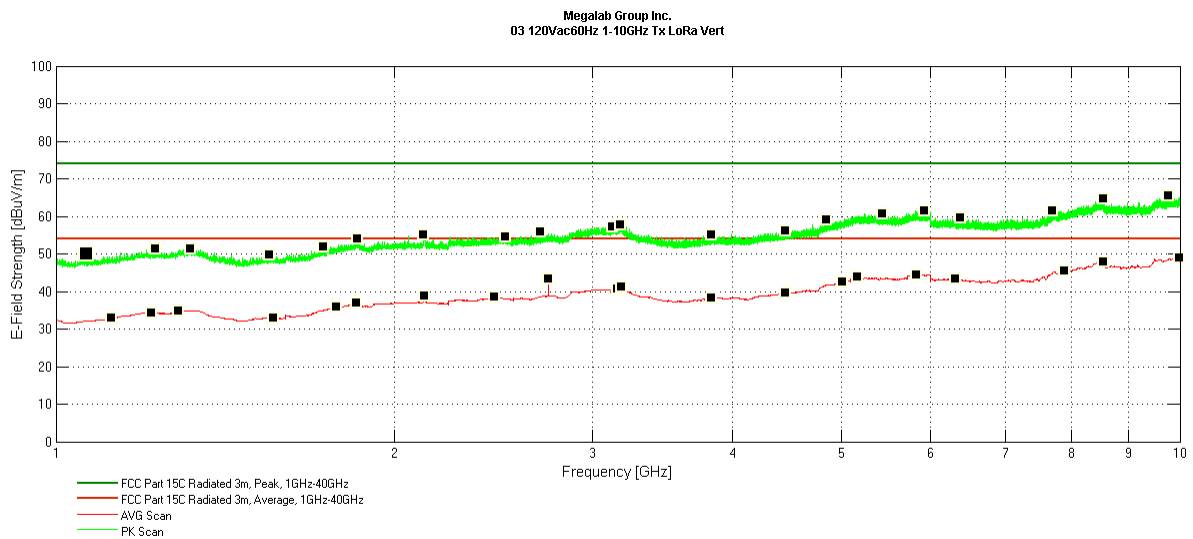
Worst case position: Angle: 330 Deg
Height: 150 cm

Range:	30MHz to 1GHz	Tx Frequency	903.0MHz
Test Voltage:	3.1VDC	Antenna Polarization	Vertical



Remark: - Quasi-Peak Emission Plot
- A Notch filter was used to filter out the fundamental

Range:	1GHz to 10GHz	Tx Frequency	903.0MHz
Test Voltage:	3.1VDC	Antenna Polarization	Vertical



Remark: - Peak and Average Emission Plot

Vertical Antenna Polarization							
Frequency (MHz)	Detector	Reading (dBμV)	Correction Factor (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Test Result
96.25	QP	53.86	-13.07	40.79	43.50	2.71	Pass
179.45	QP	44.04	-10.09	33.95	43.50	9.55	Pass
143.50	QP	45.87	-12.28	33.59	43.50	9.91	Pass
35.90	QP	38.29	-8.54	29.75	40.00	10.25	Pass
84.15	QP	42.86	-13.96	28.90	40.00	11.10	Pass
191.40	QP	40.86	-10.31	30.55	43.50	12.95	Pass
9765.00	PEAK	56.97	8.44	65.41	74.00	8.59	Pass
8543.00	PEAK	56.77	7.80	64.57	74.00	9.43	Pass
5921.00	PEAK	58.66	2.90	61.56	74.00	12.44	Pass
7708.00	PEAK	55.95	5.58	61.53	74.00	12.47	Pass
5439.00	PEAK	58.92	1.85	60.77	74.00	13.23	Pass
6373.00	PEAK	56.18	3.29	59.47	74.00	14.53	Pass
9999.00	AVG	39.77	9.26	49.03	54.00	4.97	Pass
8542.00	AVG	40.10	7.79	47.89	54.00	6.11	Pass
7894.00	AVG	39.44	5.90	45.34	54.00	8.66	Pass
5824.00	AVG	41.83	2.70	44.53	54.00	9.47	Pass
5168.00	AVG	42.34	1.43	43.77	54.00	10.23	Pass
2709.00	AVG	46.11	-2.68	43.43	54.00	10.57	Pass

Worst case position: Angle: 211 Deg
Height: 100 cm

4.7.4 Test Equipment List

Equipment ID	Description	Manufacturer	Model	Calibration Date	Calibration Due
EQ_EMC_132	EMI Receiver	Gauss Instruments	TDEMI X40	Nov 29, 2023	May 29, 2026
EQ_EMC_48	Loop Antenna 9kHz – 30MHz	Com-Power	AL-130R	Apr 9, 2024	Apr 9, 2026
EQ_EMC_59	BiLog Antenna 30MHz – 1GHz	ETS Lindgren	3142E	Apr 19, 2024	Apr 19, 2026
EQ_EMC_68	6dB Attenuator	Fairview Microwave	SA3NS-06	Apr 19, 2024	Apr 19, 2026
EQ_EMC_60	Horn Antenna 1GHz – 18GHz	ETS Lindgren	3117	April 9, 2024	April 9, 2026
EQ_EMC_85	RF Cable <1GHz	Times Microwave	LMR-400	Apr 2, 2025	Apr 2, 2026
EQ_EMC_75	RF Cable >1GHz	MegaPhase	EMC2	Apr 2, 2025	Apr 2, 2026
EQ_EMC_196	Preamplifier 30MHz – 1GHz	HP	8447D	Feb 18, 2025	Feb 18, 2026
EQ_EMC_42	Preamplifier 1GHz – 18GHz	Com-Power	PAM-118A	Jan 17, 2024	Jan 17, 2026
EQ_EMC_107	902MHz- 928MHz Notch Filter	Micro-Tronics	BRC50722	Apr 4, 2025	Apr 4, 2026
EQ_EMC_110	1.2GHz-18GHz HPF Filter	Micro-Tronics	HPM50108	Apr 4, 2025	Apr 4, 2026
EQ_EMC_149	Emissions Software	Gauss Instruments	EMI64k v6.31.2	NCR	NCR

----- End of Test Report -----