

FCC Testing of the

Resideo USA LLC.
ADT8AIO

FCC ID: CFS8DL8AIO

In accordance with:
FCC 47 CFR part 15.247

Prepared for: Resideo USA LLC.
1985 Douglas Dr. N
Golden Valley, Minnesota 55427 USA



COMMERCIAL-IN-CONFIDENCE

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FCC Accreditation Designation Number US1148 New Brighton, MN Test Laboratory	Innovation, Science, and Economic Development Canada Accreditation Site Number 4512A New Brighton, MN Test Laboratory
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EXECUTIVE SUMMARY

Samples of this product were tested and found to be compliant with the standards listed above and the tests shown in Table 1.4-1 of this report.

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	2026-September-09

1.2 Introduction

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations Section 15.247 for the tests documented herein.



Applicant	Resideo USA LLC.
Manufacturer	Resideo USA LLC
Applicant's Email Address	Christian.Fouth@resideo.com
Model Number(s)	ADT8AIO
Serial Number(s)	ADT_DVT #69 (Radiated and Power Lined Emissions Sample) ADT-GW-FCC-#02 (RF Conducted Sample)
FCC ID	CFS8DL8AIO
Hardware Version(s)	REV.C
Software Version(s)	01.34.0
Number of Samples Tested	2
Test Specification/Issue/Date	US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2025
Order Number	721020783
Date of Receipt of EUT	2026-April-01
Start of Test	2026-May-18
Finish of Test	2026-July-18
Name of Engineer(s)	Thierry Jean-Charles Duranta K. Barua Rafael Aguiar Cota
Related Document(s)	ANSI C63.10-2020: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2025. FCC OET KDB Publication 558074 D01 15.247 Meas Guidance v05r02: 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, April 2 2019



1.3 Scope of Testing

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations Section 15.247 of the ADT8AIO for the tests documented herein.

1.4 Summary of Results

A summary of the tests carried out in accordance with FCC Part 15.247 is shown below.

Table 1.4-1 – Test Result Summary

Test Parameter	Test Plan (Yes/No)	Test Result	FCC 47 CFR Rule Part	Test Report Page No
Antenna Requirement	Yes	Pass	15.203, 15.204	9
6 dB Bandwidth	Yes	Pass	15.247(a)(2)	11
99% Bandwidth	Yes	Pass	-----	14
Peak Output Power	Yes	Pass	15.247(b)(3)	17
Band-Edge Compliance of RF Conducted Emissions	Yes	Pass	15.247(d)	20
RF Conducted Spurious Emissions	Yes	Pass	15.247(d)	23
Radiated Spurious Emissions into Restricted Frequency Bands	Yes	Pass	15.205, 15.209	27
Power Spectral Density	Yes	Pass	15.247(e)	49
Duty Cycle	Yes	-----	N/A	52
Power Line Conducted Emissions	Yes	Pass	15.207	55



1.5 Product Information

1.5.1 Technical Description

The Tomcat AIO (All-In-One) ADT8AIO 8" Panel is a security interface touch panel that contains four (4) separate on-board radios: a Bluetooth LE (2.4 GHz), a Wi-Fi(2.4GHz), a Z-Wave/Z-Wave LR(908.42/916/912/920MHz) and a RF6 (Zigbee-based, 2.4 GHz), as well as LTE plugin module (FCC ID: RI7LE910CXNF). The test report documents the evaluation results for the Z-Wave radio.

Technical Details

Mode of Operation: Z-Wave Long Range
 Frequency Range: 912 - 920 MHz
 Number of Channels: 2
 Channel Separation: 8 MHz
 Data Rate: 100kbps
 Modulations: DSSS+OQPSK
 Antenna Type/Gain: Printed PCB Trace Antenna / -1.25 dBi
 Input Power: 120V/60Hz

A full description and detailed product specification details are available from the manufacturer.

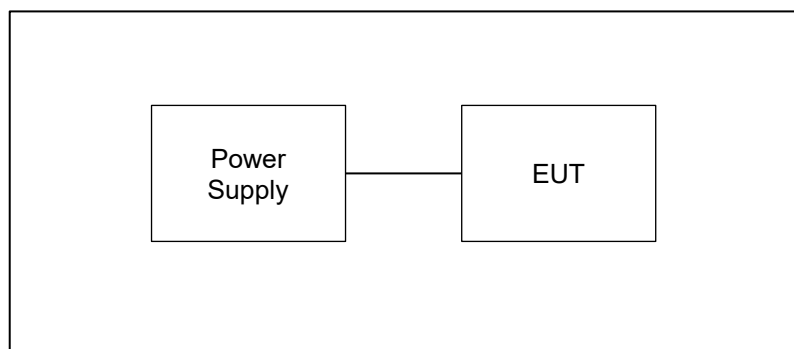


Figure 1.5.1-1 – Test Setup Block Diagram

Table 1.5.1-1 – Cable Descriptions

Cable/Port	Description
Power	2.5 m, EUT to Power Supply

Table 1.5.1-2 – Support Equipment Descriptions

Make/Model	Description
Resideo / ADS-25STA-12C	9V 2.5A Class 2 Power Supply



1.5.2 Modes of Operation

The tested mode of operation was:

The EUT was evaluated for the 900 MHz Z-Wave LR radio. The EUT was configured through a serial terminal using the output power settings defined by the equipment manufacturer. The EUT RF output power setting for the tested channels was 200. The EUT was configured to generate a continuously modulated signal on each channel evaluated.

Table 1.5.2-1: Frequencies Evaluated

Channel	Region	Channel Number	Frequency (MHz)
Low Channel	11	3	912
High Channel	12	3	920

1.5.3 Monitoring of Performance

The radiated and power line conducted emissions evaluations were performed on an unmodified sample. The sample was placed on the tabletop in its typical operating orientation. See the test setup photos for more information.

For the RF conducted measurements, the EUT was configured with coaxial connectors at the antenna ports to allow direct coupling to the measurement equipment.

1.5.4 Performance Criteria

The EUT was evaluated for the performance criteria defined below.

Table 1.5.4-1: Performance Criteria

Parameter	Requirement
Antenna Requirement	FCC: Section 15.203, 15.204
6 dB Bandwidth	FCC: Section 15.247(a)(2)
99% Bandwidth	N/A
Peak Output Power	FCC: Section 15.247(b)(3)
Band-Edge Compliance of RF Conducted Emissions	FCC: Section 15.247(d)
RF Conducted Spurious Emissions	FCC: Section 15.247(d)
Radiated Spurious Emissions into Restricted Frequency Bands	FCC: Sections 15.205, 15.209
Power Spectral Density	FCC: Section 15.247(e)
Duty Cycle	N/A
Power Line Conducted Emissions	FCC Section 15.207



1.6 Deviations from the Standard

The EUT was evaluated without any deviation from the test standards.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test program. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	N/A	N/A	N/A

The equipment was tested as provided without any modifications.

1.8 Test Location

TÜV SÜD Product Service conducted the following tests at our New Brighton, MN Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
AC Powered, Operating		
Antenna Requirement	Thierry Jean-Charles	A2LA
6 dB Bandwidth	Thierry Jean-Charles	A2LA
99% Bandwidth	Thierry Jean-Charles	A2LA
Peak Output Power	Thierry Jean-Charles	A2LA
Band-Edge Compliance of RF Conducted Emissions	Thierry Jean-Charles	A2LA
RF Conducted Spurious Emissions	Thierry Jean-Charles	A2LA
Radiated Spurious Emissions into Restricted Frequency Bands	Thierry Jean-Charles Rafael Aguiar Cota Duranta K. Barua	A2LA
Power Spectral Density	Thierry Jean-Charles	A2LA
Duty Cycle	Thierry Jean-Charles	A2LA

Office Address:

TÜV SÜD America, Inc.
141 14th Street NW
New Brighton, MN 55112
USA



2 Test Details

2.1 Antenna Requirements

2.1.1 Specification Reference

FCC: Section 15.203, 15.204.

2.1.2 Equipment Under Test and Modification State

S/N: ADT_DVT #69, refer to Section 1.7.

2.1.3 Date of Test

5/18/2026

2.1.4 Test Method

N/A

2.1.5 Environmental Conditions

Ambient Temperature	N/A
Relative Humidity	N/A
Atmospheric Pressure	N/A

2.1.6 Test Results

Limit Clause FCC Sections: 15.203, 15.204

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Table 2.1.6-1 – Antenna Used In EUT

Type	Connection Type	Antenna Gain (dBi)
PCB Trace Antenna	Integrated PCB Trace	-1.25



Test Summary:

The EUT uses a PCB trace antenna which is integral to the main board. The antennas are not removable and therefore meet the requirements of FCC section 15.203.

Test Result: Pass

2.1.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

As this is a visual inspection, no test equipment was used.



2.2 6 dB Bandwidth

2.2.1 Specification Reference

FCC: Section 15.247(a)(2)

2.2.2 Equipment Under Test and Modification State

S/N: ADT-GW-FCC-#02

2.2.3 Date of Test

7/16/2026

2.2.4 Test Method

The 6dB bandwidth was measured in accordance with ANSI C63.10 Subclause 11.8.1 Option 1. The RBW of the spectrum analyzer was set to 100 kHz and VBW 300 kHz. Span was set large enough to capture the emissions and >> RBW. A peak detector was used for the measurements. The amplitude offset of the spectrum analyzer was adjusted to account for cable and attenuator insertion losses.

2.2.5 Environmental Conditions

Ambient Temperature 22.9°C
Relative Humidity 41 %
Atmospheric Pressure 986 mBar

2.2.6 Test Results

AC Powered, Operating

Limit Clause FCC Part 15.247(a)(2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

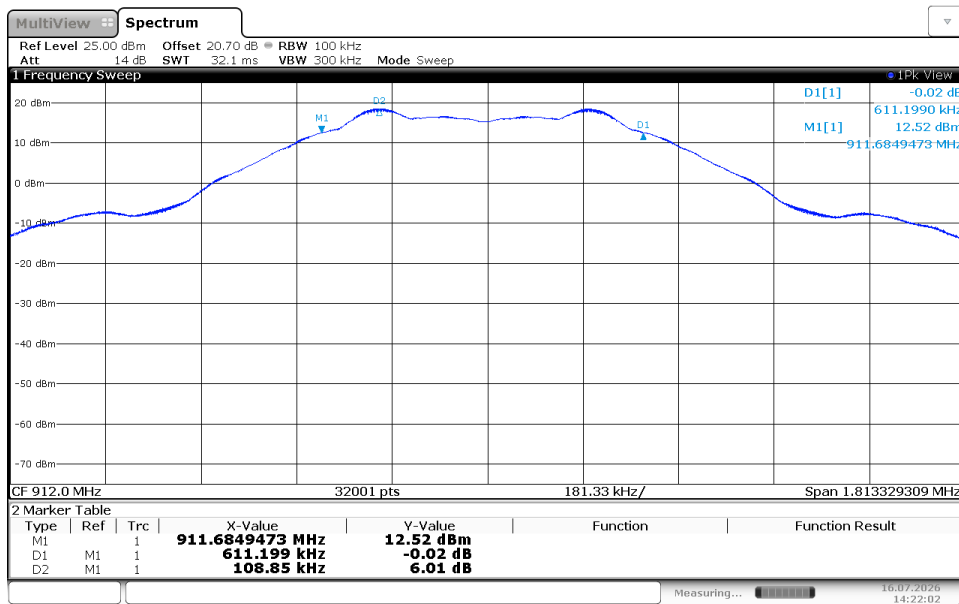
Test Summary:

The minimum 6-dB Bandwidth was measured to be 611.2 kHz which is greater than the minimum bandwidth of 500 kHz.

Test Result: Pass

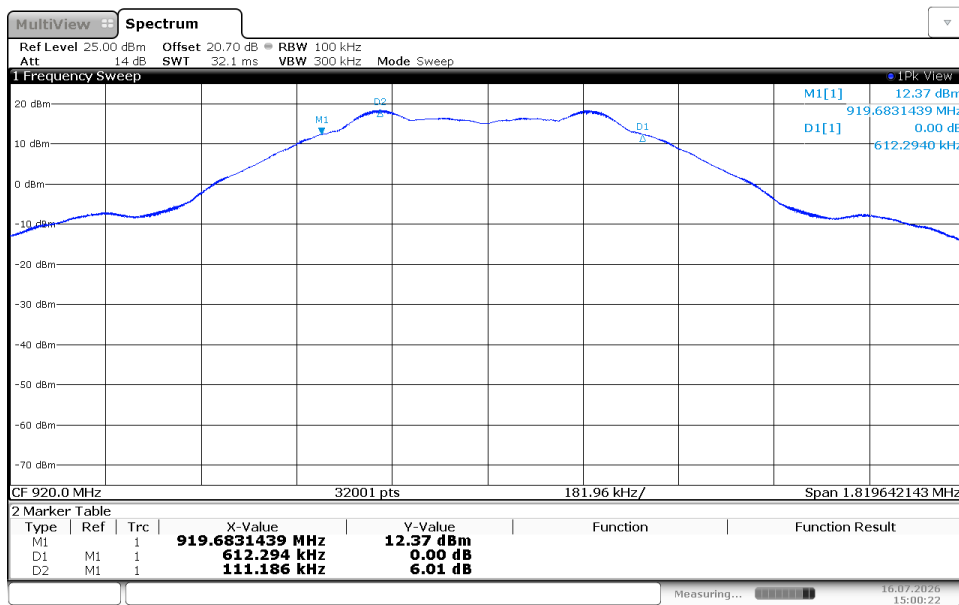
Table 2.2.6-1 – 6 dB Bandwidth Results

Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Result
912	611.199	500.00	Pass
920	612.294	500.00	Pass



14:22:03 16.07.2026

Figure 2.2.6-1 – 6 dB Bandwidth - Method 1 - 912 MHz



15:00:22 16.07.2026

Figure 2.2.6-2 – 6 dB Bandwidth - Method 1 - 920 MHz



2.2.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3049	Aeroflex Inmet	Atten 20dB 2.9mm-M/F, DC-26.5GH, 2W	26AH-20	1443	B	05/27/2025	05/27/2026
						06/12/2026	06/12/2027
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
BEMC02112	Teledyne Storm Products	Duratest 175 Cable 26.5GHz	921-0101-036	12-06-698	B	01/12/2026	01/12/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.3 99% Bandwidth

2.3.1 Specification Reference

N/A

2.3.2 Equipment Under Test and Modification State

S/N: ADT-GW-FCC-#02

2.3.3 Date of Test

7/16/2026

2.3.4 Test Method

The 99% occupied bandwidth was measured with the spectrum analyzer span set to fully display the emission. The RBW was set to 1% to 5% of the approximated bandwidth. The occupied 99% bandwidth was measured by using 99% bandwidth equipment function of the spectrum analyzer using a peak detector. The amplitude offset of the spectrum analyzer was adjusted to account for cable and attenuator insertion losses.

2.3.5 Environmental Conditions

Ambient Temperature	22.9°C
Relative Humidity	41 %
Atmospheric Pressure	986 mBar

2.3.6 Test Results

AC Powered, Operating

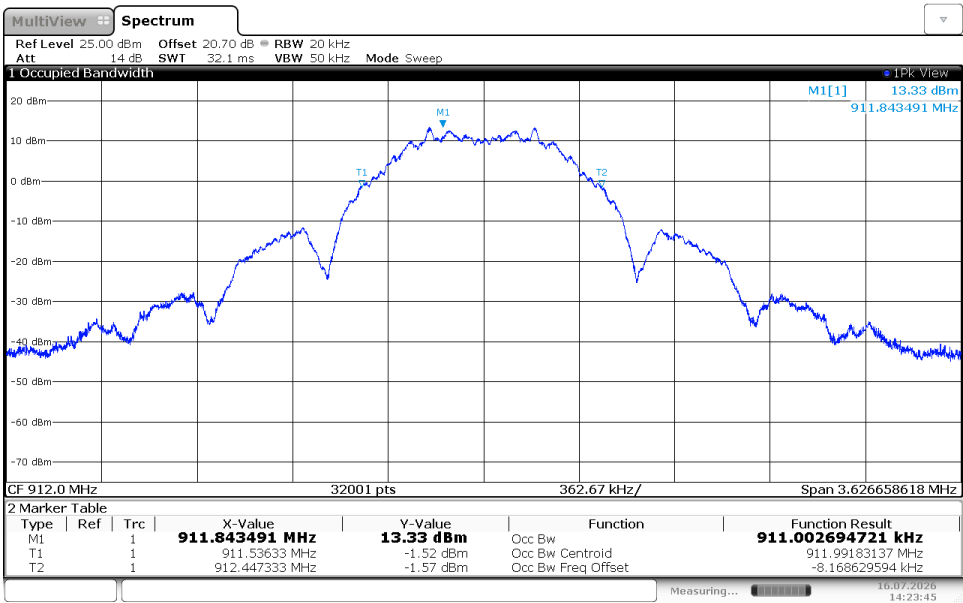
Test Summary:

The 99% Bandwidth was measured to be 911 kHz.

Test Result: There are no standards limits for the bandwidth. The information is for reference purposes only.

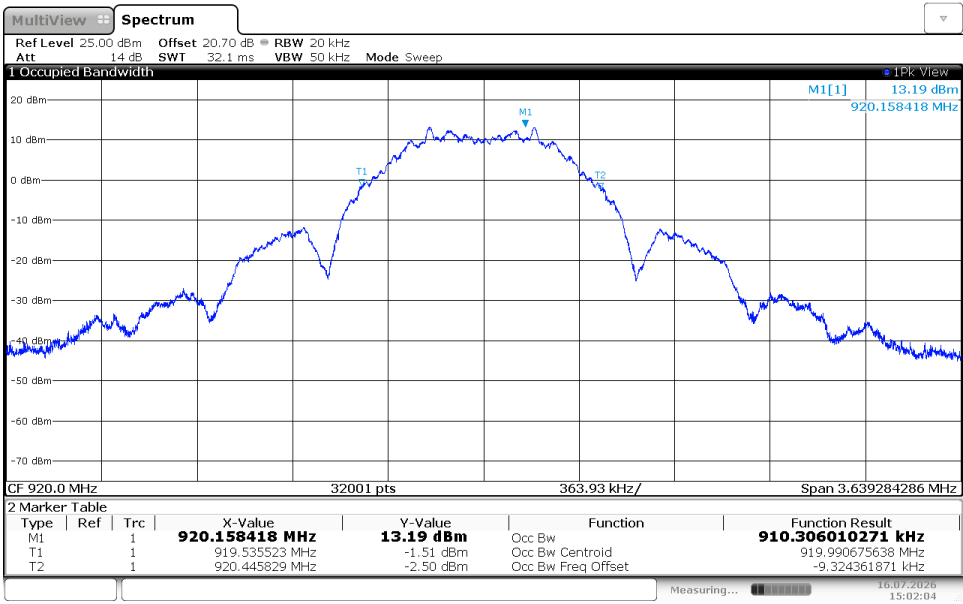
Table 2.3.6-1 – 99% Occupied Bandwidth Results

Frequency (MHz)	99% Bandwidth (kHz)
912.0	911.0027
920.0	910.3060



14:23:45 16.07.2026

Figure 2.3.6-1 – 99% Occupied Bandwidth - 912 MHz



15:02:05 16.07.2026

Figure 2.3.6-2 – 99% Occupied Bandwidth - 920 MHz



2.3.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3049	Aeroflex Inmet	Atten 20dB 2.9mm-M/F, DC-26.5GH, 2W	26AH-20	1443	B	05/27/2025	05/27/2026
						06/12/2026	06/12/2027
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
BEMC02112	Teledyne Storm Products	Duratest 175 Cable 26.5GHz	921-0101-036	12-06-698	B	01/12/2026	01/12/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.4 Peak Output Power

2.4.1 Specification Reference

FCC Section 15.247(b)(3)

2.4.2 Equipment Under Test and Modification State

S/N: ADT-GW-FCC-#02

2.4.3 Date of Test

7/16/2026

2.4.4 Test Method

The fundamental emission output power was measured in accordance with ANSI C63.10 Subclause 11.9.1.1 RBW $\geq$ DTS bandwidth. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer through suitable attenuation. The amplitude offset of the spectrum analyzer was adjusted to account for cable and attenuator insertion losses.

2.4.5 Environmental Conditions

Ambient Temperature	22.9°C
Relative Humidity	41 %
Atmospheric Pressure	986 mbar

2.4.6 Test Results

AC Powered, Operating

Limit Clause FCC Part 15.247(b)(3)

The Maximum Output Power allowed for systems using digital modulation is 1 Watt (30 dBm)

Test Summary:

The maximum output power was measured to be 18.73 dBm.

Test Result: Pass

Table 2.4.6-1 – Peak Conducted Output Power Results

Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)	Result
912.0	18.734	30.00	11.266	Pass
920	18.694	30.00	11.306	Pass

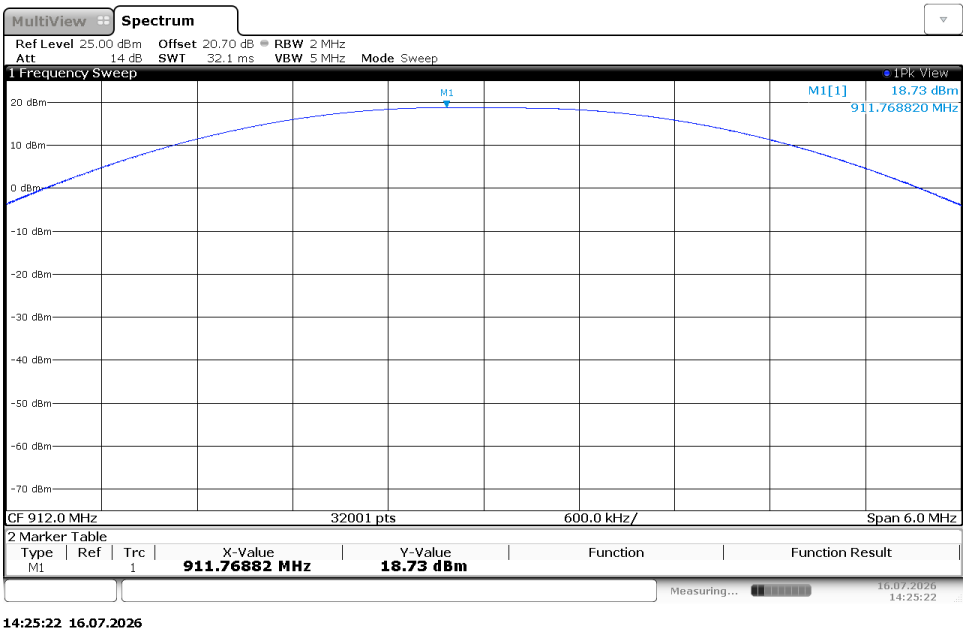


Figure 2.4.6-1 – Peak Conducted Output Power - 912 MHz

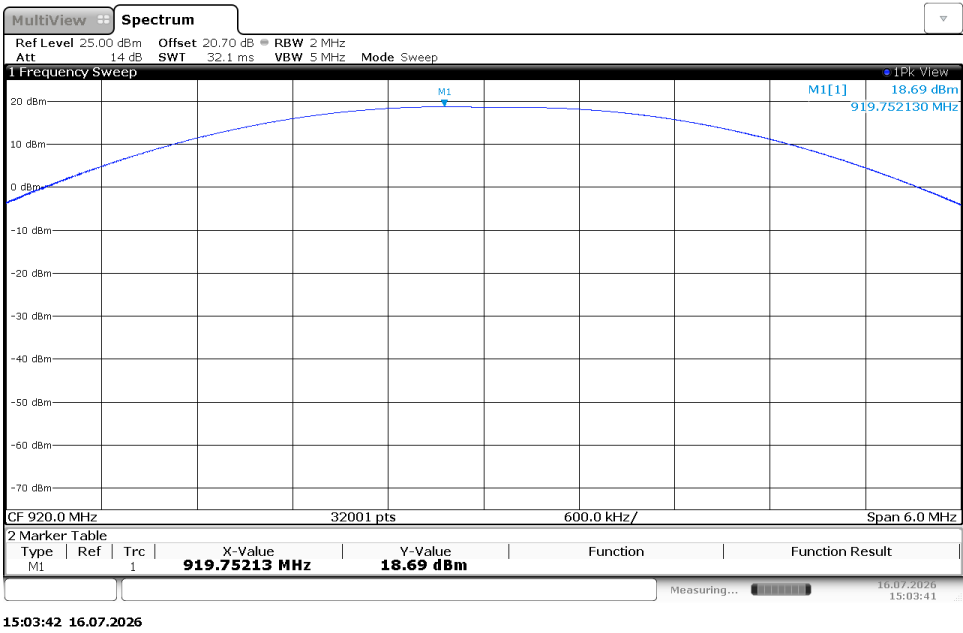


Figure 2.4.6-2 – Peak Conducted Output Power - 920 MHz



2.4.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3049	Aeroflex Inmet	Atten 20dB 2.9mm-M/F, DC-26.5GH, 2W	26AH-20	1443	B	05/27/2025 06/12/2026	05/27/2026 06/12/2027
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
BEMC02112	Teledyne Storm Products	Duratest 175 Cable 26.5GHz	921-0101-036	12-06-698	B	01/12/2026	01/12/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.5 Band-Edge Compliance of RF Conducted Emissions

2.5.1 Specification Reference

FCC: Section 15.247(d)

2.5.2 Equipment Under Test and Modification State

S/N: ADT-GW-FCC-#02

2.5.3 Date of Test

7/16/2026

2.5.4 Test Method

The RF Conducted Emissions at the Band-Edges were measured in accordance with Subclause 11.11 of ANSI C63.10. The RF output port of the EUT was connected to the input of the spectrum analyzer through suitable attenuation. The EUT was investigated at the lowest and highest channel available to determine band-edge compliance. For each measurement the spectrum analyzer's RBW was set to 100 kHz, and the VBW was set to ≥ 300 kHz. The amplitude offset of the spectrum analyzer was adjusted to account for cable and attenuator insertion losses.

2.5.5 Environmental Conditions

Ambient Temperature	22.9 °C
Relative Humidity	41 %
Atmospheric Pressure	986 mbar

2.5.6 Test Results

AC Powered, Operating

Limit Clause FCC Section 15.247(d)

In any 100 kHz bandwidth outside of the frequency band the radio frequency power shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. 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 30 dB instead of 20 dB.

Test Summary:

All the emissions at the band-edge were attenuated by at least 20 dB below the fundamental.

Test Result: Pass

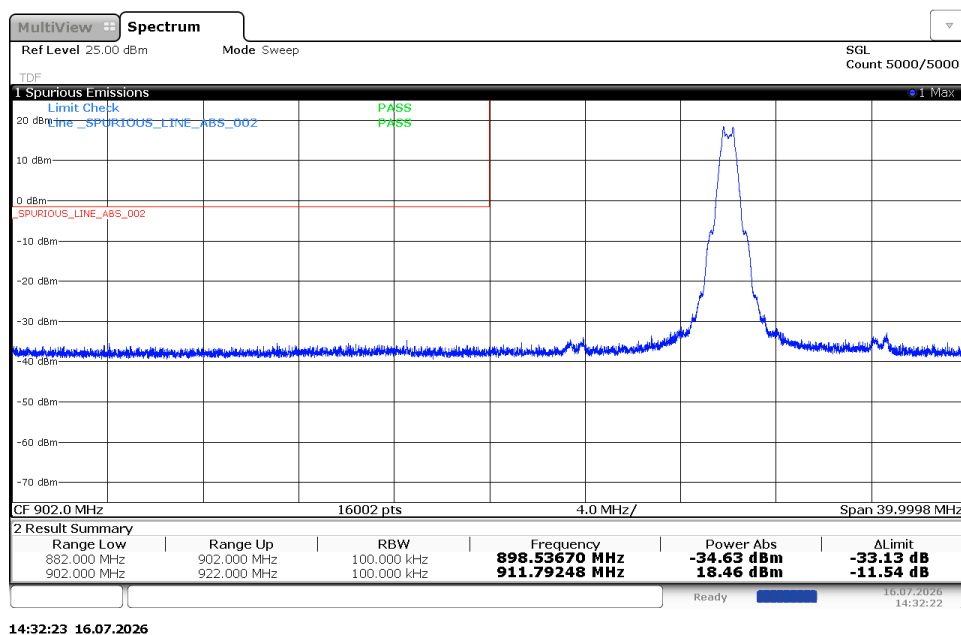


Figure 2.5.6-1 – Conducted Band-Edge Results - 912 MHz

Table 2.5.6-1 – Conducted Band-Edge Results - 912 MHz

Frequency (MHz)	Measured Level (dBm)	Limit (dBm)	Margin (dB)	Result
898.5367	-34.628	-1.50	-33.128	Pass

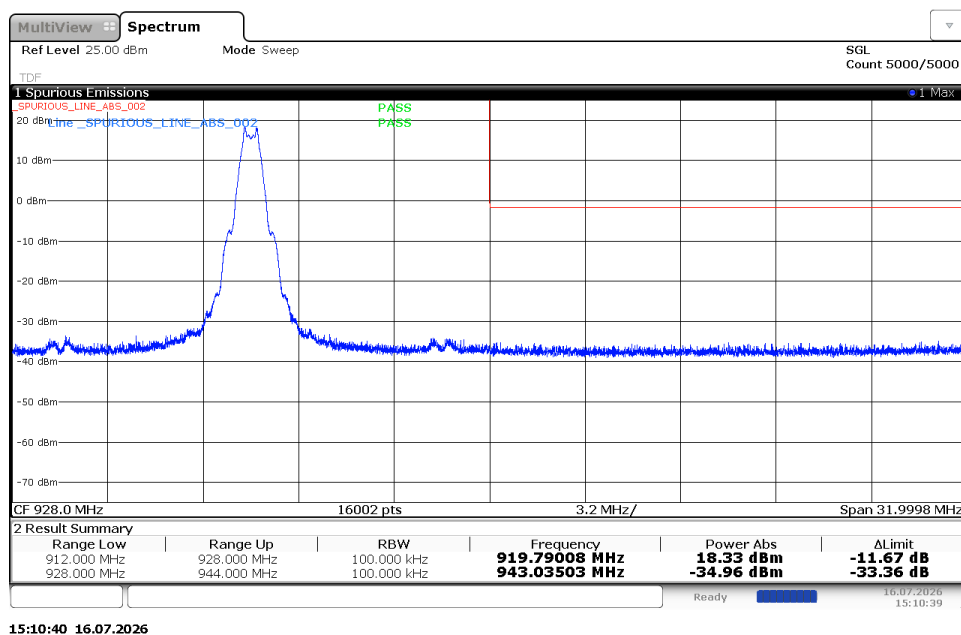


Figure 2.5.6-2 – Conducted Band-Edge Results - 920 MHz

Table 2.5.6-2 – Conducted Band-Edge Results - 920 MHz

Frequency (MHz)	Measured Level (dBm)	Limit (dBm)	Margin (dB)	Result
943.03503	-34.965	-1.600	-33.365	Pass

2.5.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3049	Aeroflex Inmet	Atten 20dB 2.9mm-M/F, DC-26.5GH, 2W	26AH-20	1443	B	05/27/2025 06/12/2026	05/27/2026 06/12/2027
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
BEMC02112	Teledyne Storm Products	Duratest 175 Cable 26.5GHz	921-0101-036	12-06-698	B	01/12/2026	01/12/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.6 RF Conducted Spurious Emissions

2.6.1 Specification Reference

FCC: Section 15.247(d)

2.6.2 Equipment Under Test and Modification State

S/N: ADT-GW-FCC-#02

2.6.3 Date of Test

7/16/2026

2.6.4 Test Method

The RF Conducted Spurious Emissions were measured in accordance with Subclause 11.11 of ANSI C63.10. The RF output port of the equipment under test was directly connected to the input of the spectrum analyzer. The EUT was investigated for conducted spurious emissions from 30 MHz to 25 GHz, 10 times the highest fundamental frequency. Measurements were made at the low, center and high channels of the EUT. For each measurement, the spectrum analyzer's RBW was set to 100 kHz and the VBW was set to 300 kHz. The peak Max Hold function of the analyzer was utilized. The amplitude offset of the spectrum analyzer was adjusted to account for cable and attenuator insertion losses.

2.6.5 Environmental Conditions

Ambient Temperature	22.9 °C
Relative Humidity	41 %
Atmospheric Pressure	986 mBar

2.6.6 Test Results

AC Powered, Operating

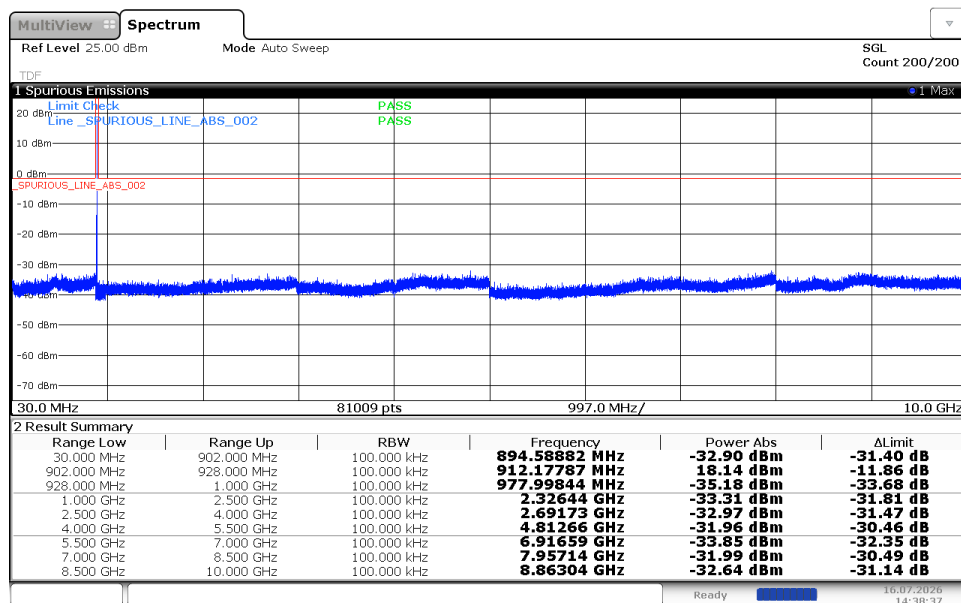
Limit Clause FCC Section 15.247(d)

In any 100 kHz bandwidth outside of the frequency band the radio frequency power shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. 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 30 dB instead of 20 dB.

Test Summary:

All the emissions at the band-edge were attenuated by at least 20 dB below the fundamental.

Test Result: Pass



14:38:37 16.07.2026

Figure 2.6.6-1 – Conducted Spurious Emissions Results - 912 MHz

Table 2.6.6-1 – Conducted Spurious Emissions Results - 912 MHz

Frequency (MHz)	Measured Level (dBm)	Limit (dBm)	Margin (dB)	Result
399.73536	-33.416	-1.50	-31.916	Pass
491.57582	-32.984	-1.50	-31.484	Pass
894.58882	-32.898	-1.50	-31.398	Pass
936.41107	-35.380	-1.50	-33.880	Pass
977.99844	-35.179	-1.50	-33.679	Pass
2326.43595	-33.311	-1.50	-31.811	Pass
2691.7287	-32.973	-1.50	-31.473	Pass
3958.92123	-34.915	-1.50	-33.415	Pass
4812.6597	-31.956	-1.50	-30.456	Pass
6916.5926	-33.852	-1.50	-32.352	Pass
7957.14365	-31.992	-1.50	-30.492	Pass
8863.043	-32.640	-1.50	-31.140	Pass

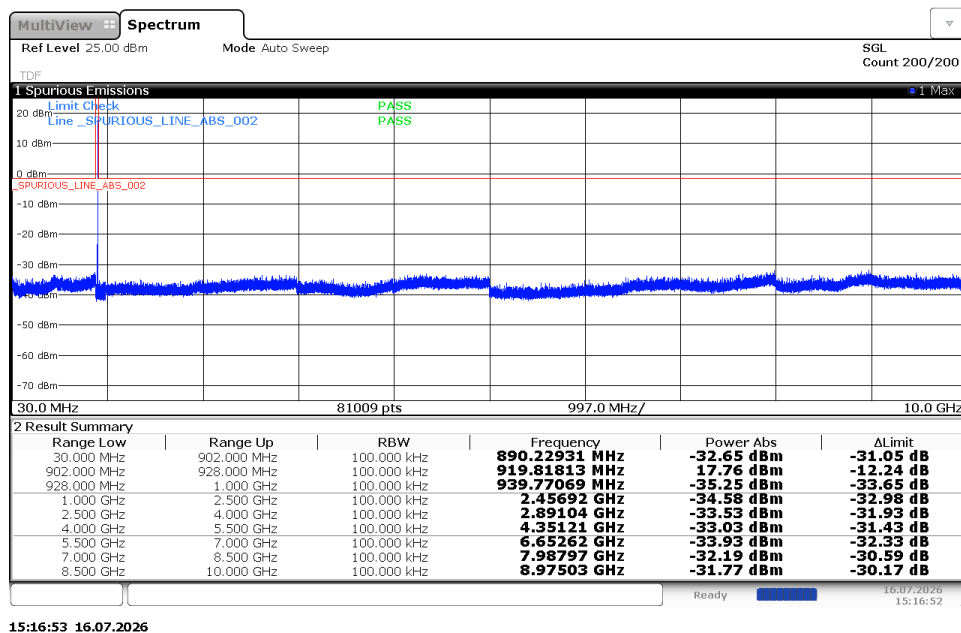


Figure 2.6.6-2 – Conducted Spurious Emissions Results - 920 MHz

Table 2.6.6-2 – Conducted Spurious Emissions Results - 920 MHz

Frequency (MHz)	Measured Level (dBm)	Limit (dBm)	Margin (dB)	Result
32.47039	-34.172	-1.600	-32.572	Pass
890.22931	-32.653	-1.600	-31.053	Pass
939.77069	-35.255	-1.600	-33.655	Pass
978.74236	-35.797	-1.600	-34.197	Pass
991.40496	-35.793	-1.600	-34.193	Pass
2456.92145	-34.576	-1.600	-32.976	Pass
2891.03988	-33.528	-1.600	-31.928	Pass
3992.08421	-34.604	-1.600	-33.004	Pass
4351.21098	-33.027	-1.600	-31.427	Pass
6652.62193	-33.930	-1.600	-32.330	Pass
7987.97356	-32.193	-1.600	-30.593	Pass
8975.03055	-31.771	-1.600	-30.171	Pass



2.6.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3049	Aeroflex Inmet	Atten 20dB 2.9mm-M/F, DC-26.5GH, 2W	26AH-20	1443	B	05/27/2025	05/27/2026
						06/12/2026	06/12/2027
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
BEMC02112	Teledyne Storm Products	Duratest 175 Cable 26.5GHz	921-0101-036	12-06-698	B	01/12/2026	01/12/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.7 Radiated Spurious Emissions into Restricted Frequency Bands

2.7.1 Specification Reference

FCC Sections: 15.205, 15.209.

2.7.2 Equipment Under Test and Modification State

S/N: ADT_DVT #69

2.7.3 Date of Test

6/12/2026 to 6/17/2026

2.7.4 Test Method

Radiated emissions tests were made over the frequency range of 9 kHz to 40 GHz, at least 10 times the highest fundamental frequency. Each emission found to be in a restricted band as defined by section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in Section 15.209.

For measurements below 30 MHz, the receive antenna height was set to 1 m and the EUT was rotated through 360 degrees. The resolution bandwidth was set to 200 Hz below 150 kHz and to 9 kHz above 150 kHz.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 1000 MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000 MHz, peak measurements are made with RBW of 1 MHz and VBW of 3 MHz. Average measurements are performed using an RMS detector.

2.7.5 Duty Cycle Correction

The EUT was configured to transmit at 100 % duty cycle during the evaluation. No duty cycle correction factor was applicable for the final measurements.

2.7.6 Environmental Conditions

Ambient Temperature	23.6 - 24.6 °C
Relative Humidity	28 - 32 %
Atmospheric Pressure	970 - 981 mbar

2.7.7 Additional Observations

Measurements were made using BAT-EMC (2024.0.9.5) automated software. The reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only.



2.7.8 Test Results

AC Powered, Operating

Limit Clause FCC Sections 15.205, 15.209

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.4090-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

** Except as provided in paragraph (g) of FCC Part 15.209, fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

Test Summary:

The emissions within the restricted bands meet the aforementioned limits.

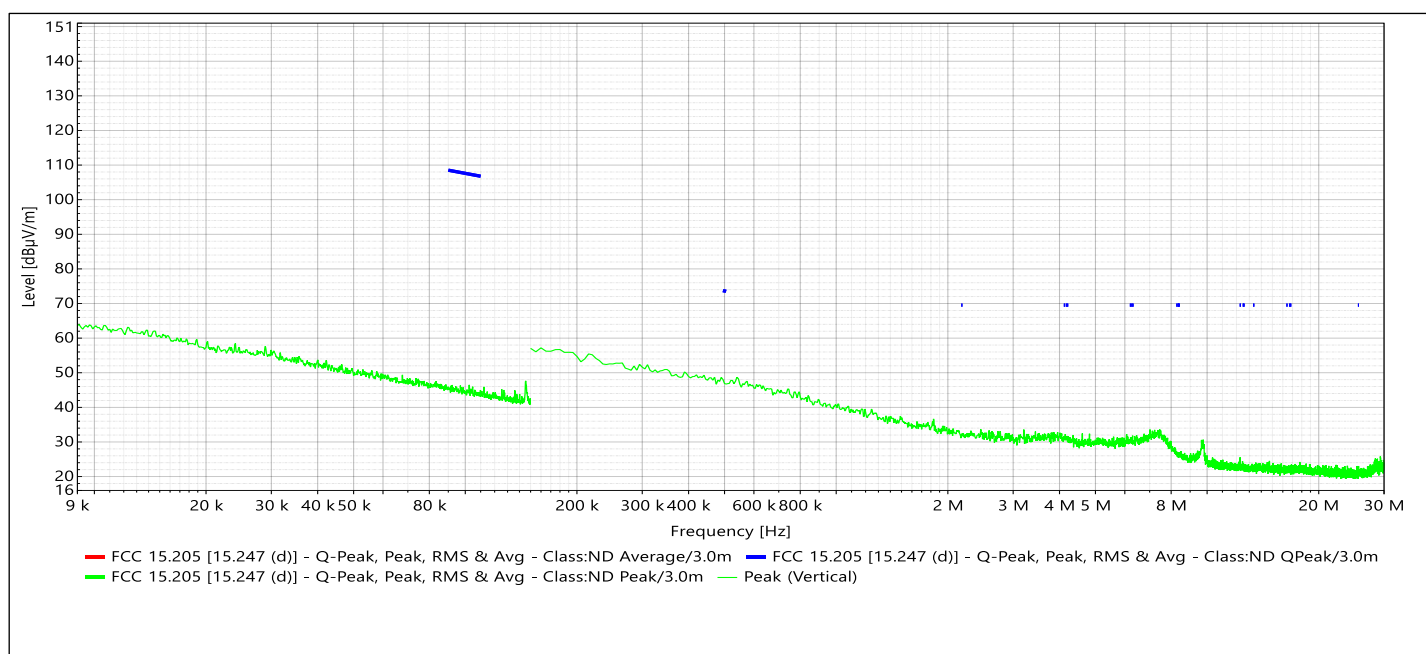
Test Result: Pass



Spurious - 9kHz-30MHz - 912 MHz (LR) - Vertical Coaxial

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Vertical	200 Hz	1411 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Vertical	9 kHz	5971 Pts	5 ms/MHz

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/16/2026	3mSAC	Rafael Aguiar Cota	24 °C	28 %	970 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	912 MHz	3	TX	Y-axis	FCC Part 15/FCC 15.205 [15.247 (d)] - Q-Peak, Peak, & Avg	Pass

Figure 2.7.8-1 –Radiated Emissions Test Results

Test Notes:

- Vertical Coaxial
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

Table 2.7.8-1–Radiated Emissions Test Results

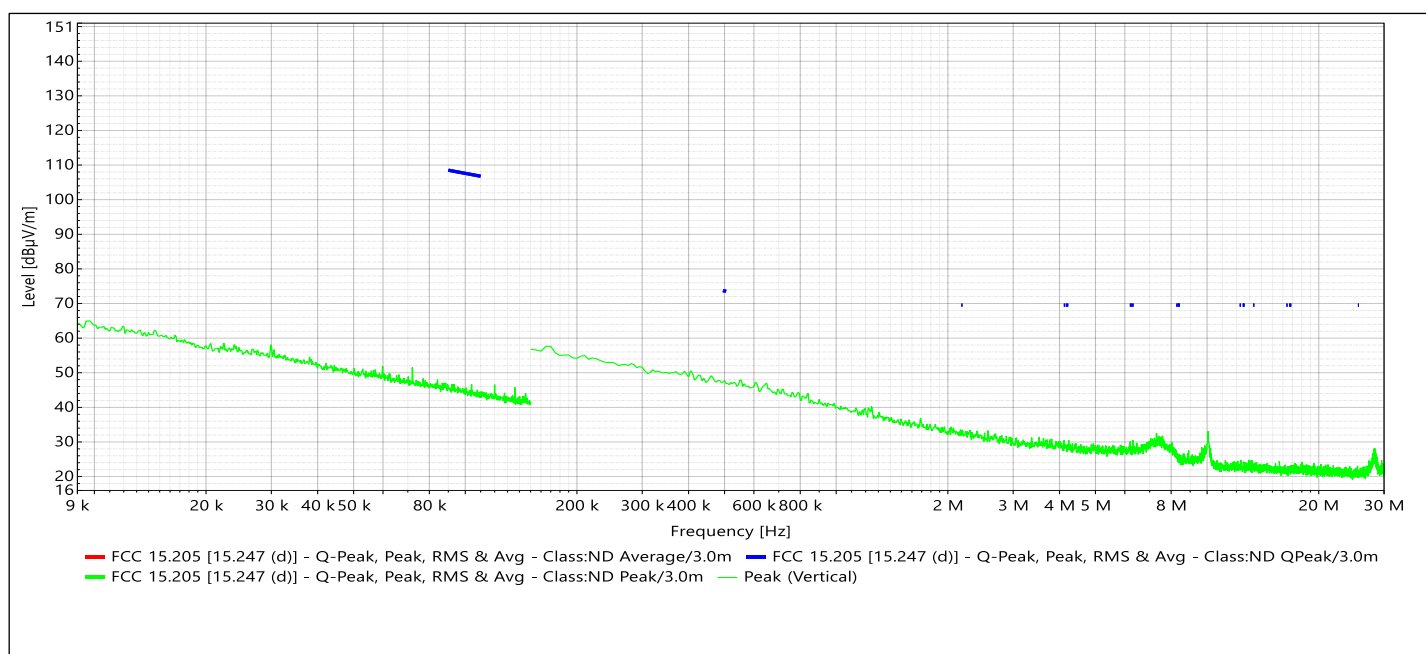
Frequency (MHz)	QP Level (dBμV/m)	QP Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.496	43.56	73.71	-30.15	305.00	1.00	Vertical	Pass



Spurious - 9kHz-30MHz - 912 MHz (LR) - Vertical Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Vertical	200 Hz	1411 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Vertical	9 kHz	5971 Pts	5 ms/MHz

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/16/2026	3mSAC	Rafael Aguiar Cota	24 °C	28 %	970 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	912 MHz	3	TX	Y-axis	FCC Part 15/FCC 15.205 [15.247 (d)] - Q-Peak, Peak, & Avg	Pass

Figure 2.7.8-2 – Radiated Emissions Test Results

Test Notes:

- Vertical Co-Planar
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

Table 2.7.8-2– Radiated Emissions Test Results

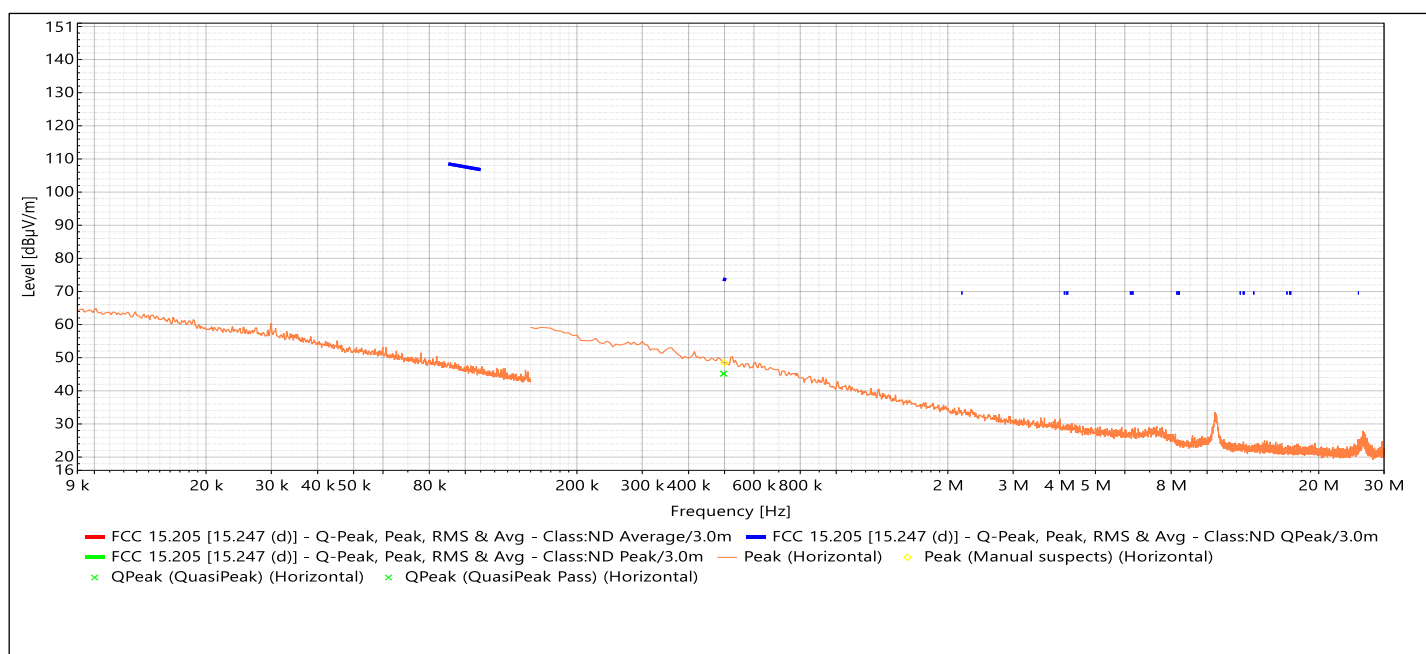
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.504	43.63	73.54	-29.90	0.00	1.00	Vertical	Pass



Spurious - 9kHz-30MHz - 912 MHz (LR) - Horizontal Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Horizontal	200 Hz	1411 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Horizontal	9 kHz	5971 Pts	5 ms/MHz

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/17/2026	3mSAC	Rafael Aguiar Cota	24 °C	28 %	970 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	912 MHz	3	TX	Y-axis	FCC Part 15/FCC 15.205 [15.247 (d)] - Q-Peak, Peak, & Avg	Pass

Figure 2.7.8-3 – Radiated Emissions Test Results

Test Notes:

- Horizontal Co-Planar
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

Table 2.7.8-3– Radiated Emissions Test Results

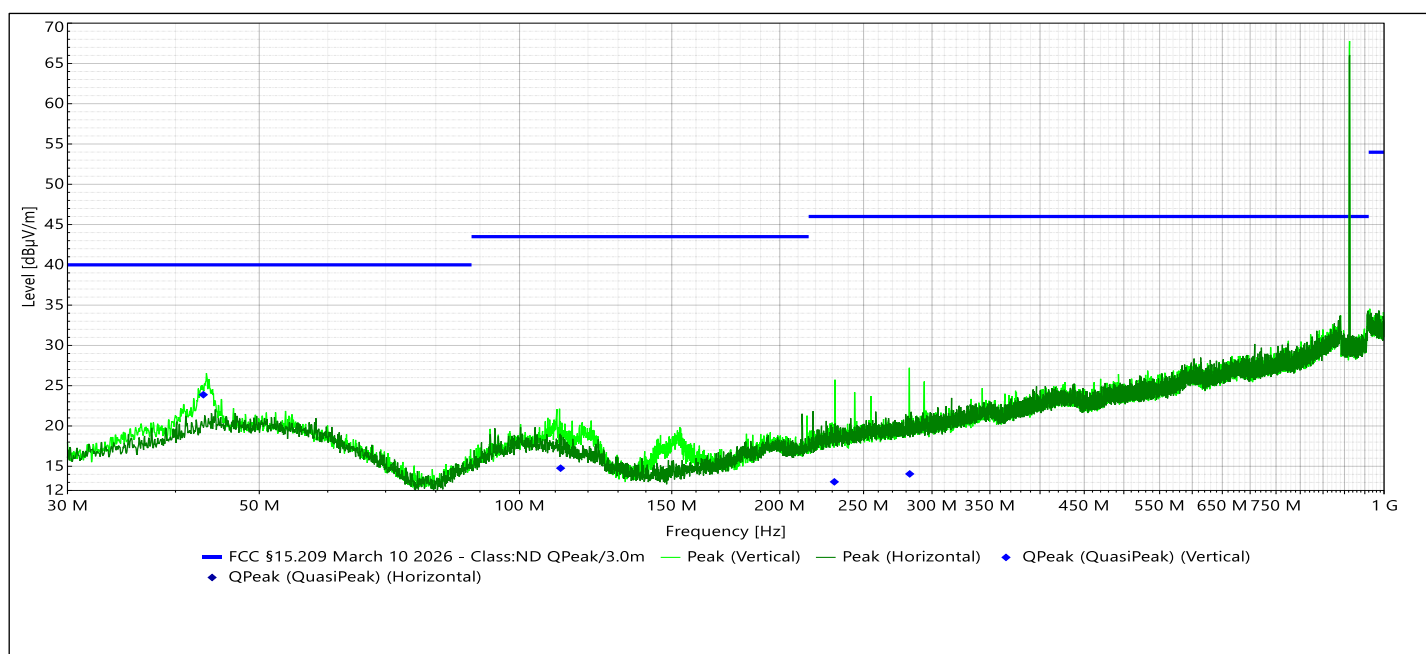
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.497	45.18	73.71	-28.53	91.00	1.00	Horizontal	Pass



Spurious Emissions 30M-1GHz - 912 MHz (LR)

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	20001 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	20001 Pts	Auto

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/15/2026	3mSAC	Duranta K. Barua	24.5 °C	29 %	979 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	912MHz (LR)	3	TX	Y-axis	FCC Part 15/FCC §15.209	Pass

Figure 2.7.8-4 – Radiated Emissions Test Results

Test Notes:

- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

**Table 2.7.8-4– Radiated Emissions Test Results**

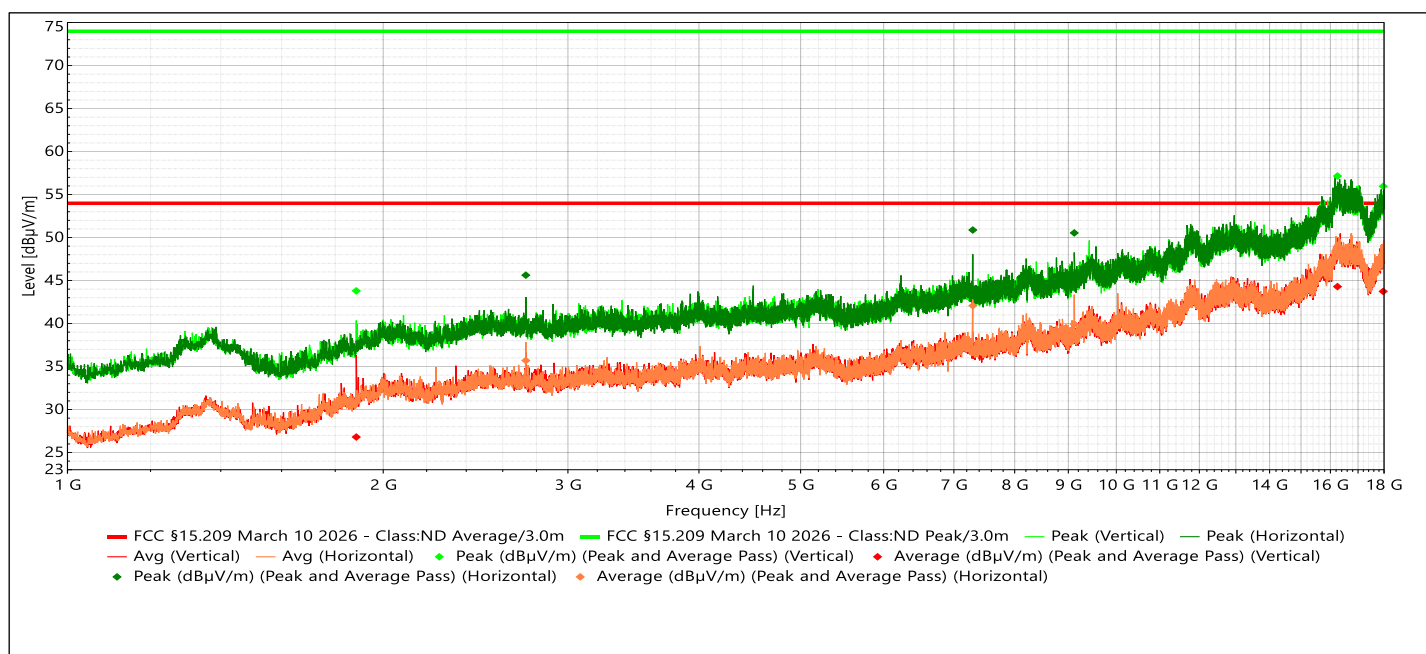
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
43.085	23.88	40.00	-16.12	345.00	1.36	Vertical	Pass
111.564	14.76	43.50	-28.74	360.00	1.00	Vertical	Pass
231.294	13.06	46.00	-32.94	333.00	1.00	Vertical	Pass
282.712	14.05	46.00	-31.95	233.00	1.00	Vertical	Pass
218.614	11.75	46.00	-34.25	200.00	1.46	Horizontal	Pass



Spurious Emissions 1 - 18GHz - 912 MHz (LR)

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
1 GHz - 1.5 GHz	3m	Vertical	1 MHz	1001 Pts	10 ms
1 GHz - 1.5 GHz	3m	Horizontal	1 MHz	1001 Pts	10 ms
1.5 GHz - 18 GHz	3m	Vertical	1 MHz	34001 Pts	200 ms
1.5 GHz - 18 GHz	3m	Horizontal	1 MHz	34001 Pts	200 ms

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/12/2026	3mSAC	Duranta K. Barua	24.6 °C	32 %	979 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	912 MHz (LR)	3	TX	Y-axis	FCC Part 15/FCC §15.209	Pass

Figure 2.7.8-5 – Radiated Emissions Test Results

Test Notes:

- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

**Table 2.7.8-5– Radiated Emissions Test Results**

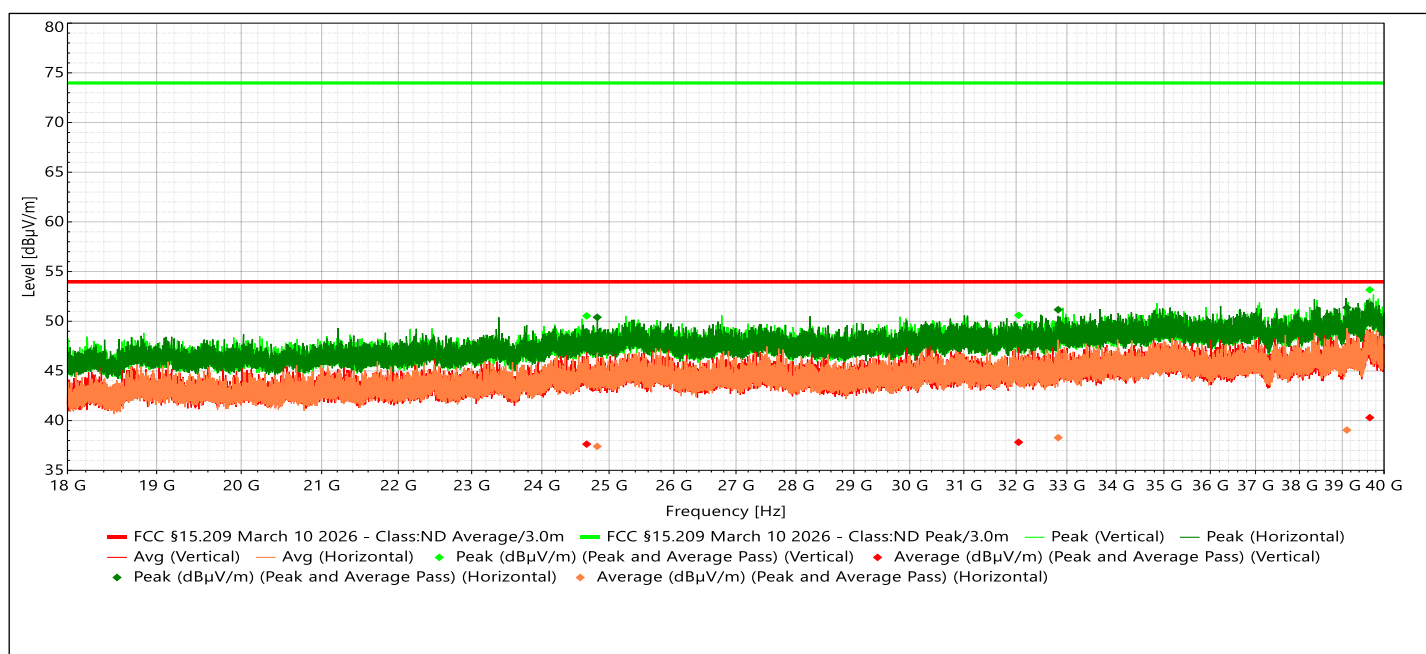
Frequency (MHz)	Peak Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)	Average Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
1885.145	43.80	73.98	-30.18	26.80	53.98	-27.18	329.00	1.00	Vertical	Pass
16250.564	57.16	73.98	-16.82	44.29	53.98	-9.69	175.00	4.00	Vertical	Pass
17966.220	55.96	73.98	-18.02	43.74	53.98	-10.24	153.00	4.00	Vertical	Pass
2735.301	45.62	73.98	-28.36	35.70	53.98	-18.28	176.00	1.00	Horizontal	Pass
7297.490	50.87	73.98	-23.10	42.08	53.98	-11.90	211.00	1.00	Horizontal	Pass
9117.862	50.54	73.98	-23.44	39.93	53.98	-14.05	190.00	2.50	Horizontal	Pass



Spurious Emissions 18 - 40GHz - 912 (LR) MHz

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
18 GHz - 40 GHz	3m	Vertical	1 MHz	44001 Pts	Auto
18 GHz - 40 GHz	3m	Horizontal	1 MHz	44001 Pts	Auto

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/13/2026	3mSAC	Rafael Aguiar Cota	23.6 °C	31 %	981 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	912 (LR) MHz	3	TX	Y-axis	FCC Part 15/FCC §15.209	Pass

Figure 2.7.8-6 – Radiated Emissions Test Results

Test Notes:

- Power 200 WaveRegion 11
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

**Table 2.7.8-6– Radiated Emissions Test Results**

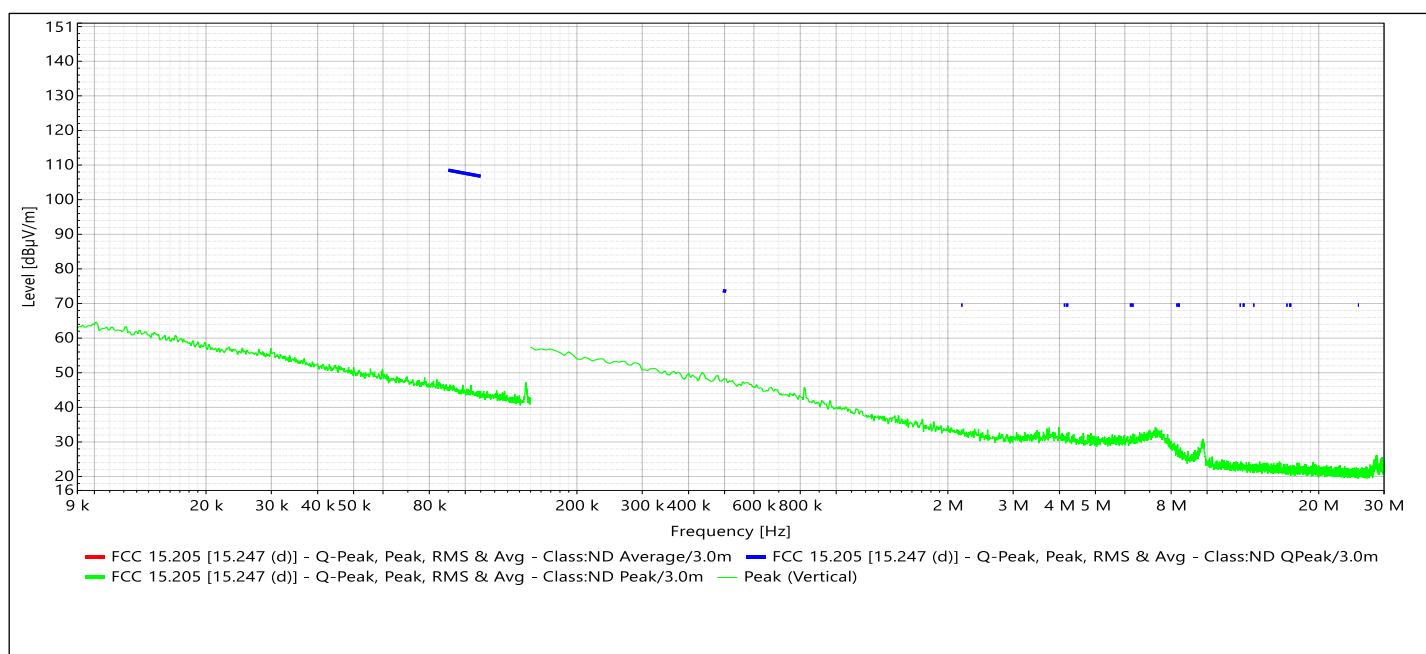
Frequency (MHz)	Peak Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)	Average Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
24662.083	50.55	73.98	-23.43	37.63	53.98	-16.35	360.00	1.83	Vertical	Pass
32047.828	50.60	73.98	-23.38	37.83	53.98	-16.15	314.00	2.50	Vertical	Pass
39654.888	53.16	73.98	-20.81	40.30	53.98	-13.68	171.00	1.00	Vertical	Pass
24820.477	50.40	73.98	-23.58	37.41	53.98	-16.57	81.00	3.99	Horizontal	Pass
32827.061	51.16	73.98	-22.81	38.28	53.98	-15.69	156.00	2.50	Horizontal	Pass
39107.555	51.37	73.98	-22.61	39.05	53.98	-14.93	283.00	1.00	Horizontal	Pass



Spurious - 9kHz-30MHz - 920 MHz (LR)- Vertical Coaxial

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Vertical	200 Hz	1411 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Vertical	9 kHz	5971 Pts	5 ms/MHz

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/16/2026	3mSAC	Rafael Aguiar Cota	24 °C	28 %	970 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	920 MHz	3	TX	Y-axis	FCC Part 15/FCC 15.205 [15.247 (d)] - Q-Peak, Peak, & Avg	Pass

Figure 2.7.8-7 – Radiated Emissions Test Results

Test Notes:

- Vertical Coaxial
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

Table 2.7.8-7– Radiated Emissions Test Results

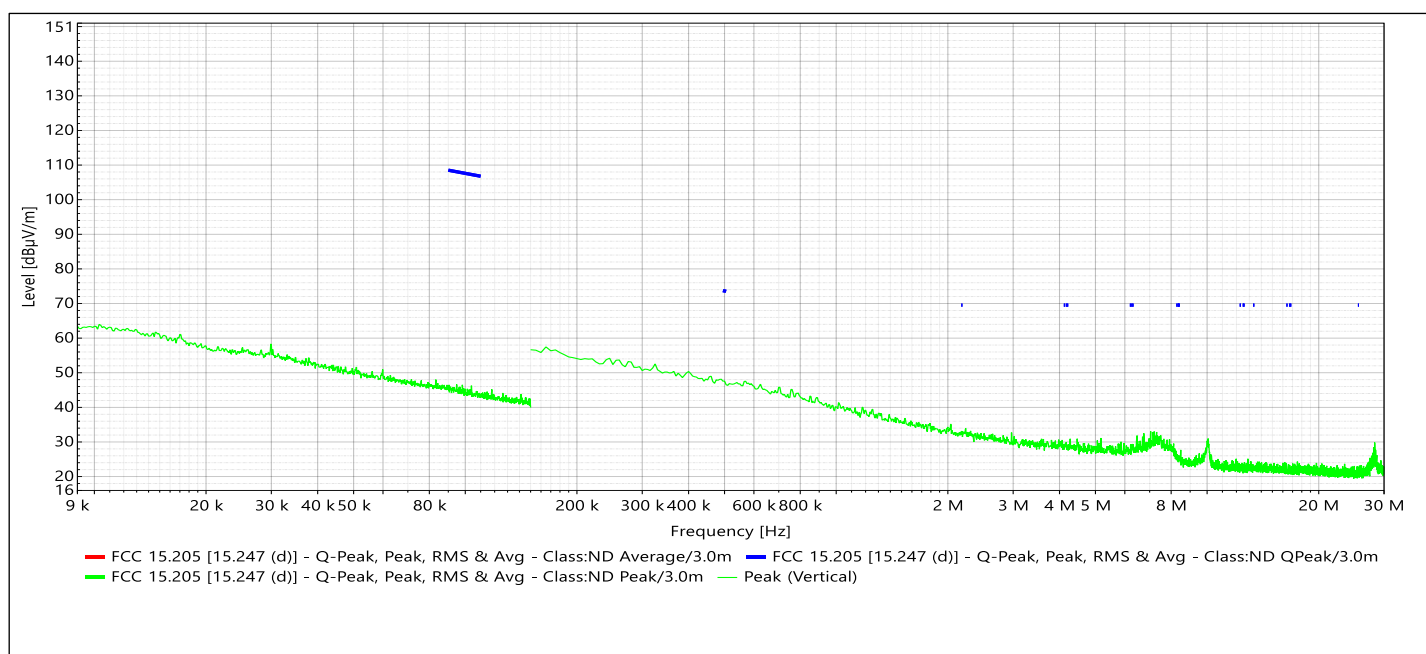
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.504	43.53	73.54	-30.01	234.00	1.00	Vertical	Pass



Spurious - 9kHz-30MHz -920 MHz (LR)- Vertical Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Vertical	200 Hz	1411 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Vertical	9 kHz	5971 Pts	5 ms/MHz

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/16/2026	3mSAC	Rafael Aguiar Cota	24 °C	28 %	970 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	920 MHz	3	TX	Y-axis	FCC Part 15/FCC 15.205 [15.247 (d)] - Q-Peak, Peak, & Avg	Pass

Figure 2.7.8-8 – Radiated Emissions Test Results

Test Notes:

- Vertical Co-Planar
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

Table 2.7.8-8– Radiated Emissions Test Results

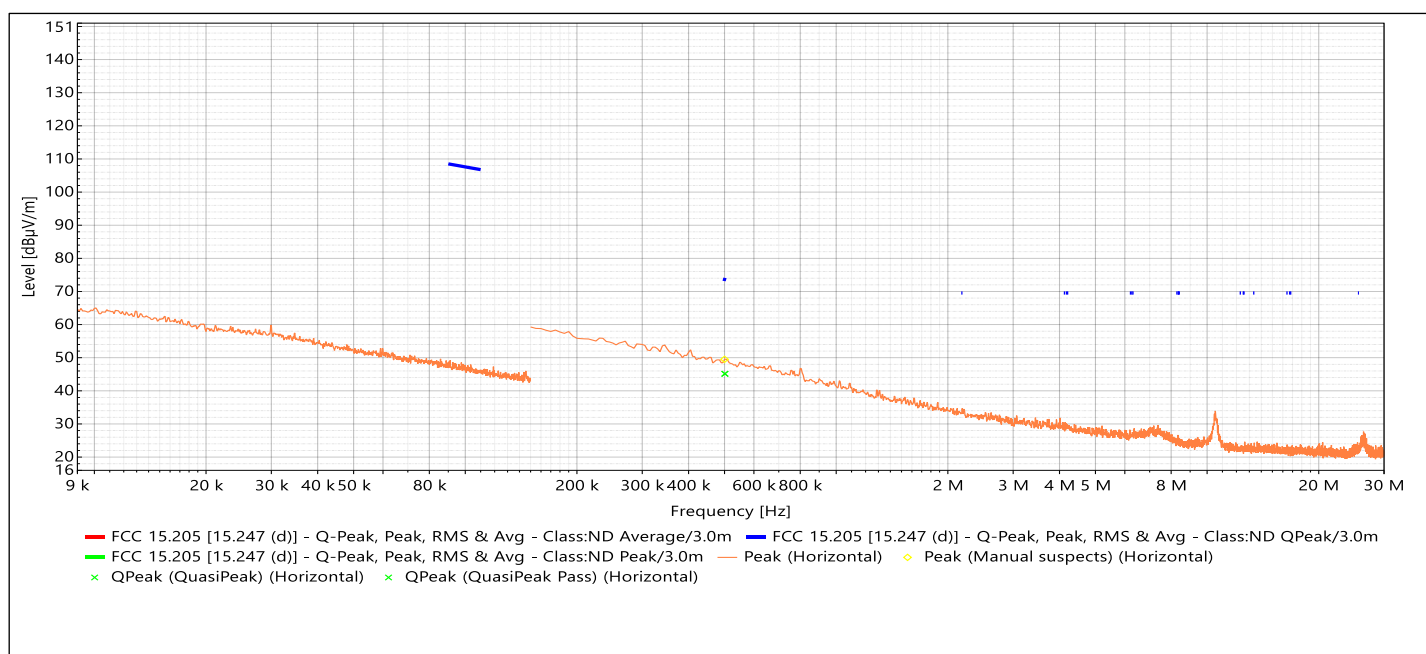
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.504	43.47	73.54	-30.07	184.00	1.00	Vertical	Pass



Spurious - 9kHz-30MHz -920 MHz (LR)- Horizontal Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Horizontal	200 Hz	1411 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Horizontal	9 kHz	5971 Pts	5 ms/MHz

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/17/2026	3mSAC	Rafael Aguiar Cota	24 °C	28 %	970 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	920 MHz	3	TX	Y-axis	FCC Part 15/FCC 15.205 [15.247 (d)] - Q-Peak, Peak, & Avg	Pass

Figure 2.7.8-9 – Radiated Emissions Test Results

Test Notes:

- Horizontal Co-Planar
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

Table 2.7.8-9– Radiated Emissions Test Results

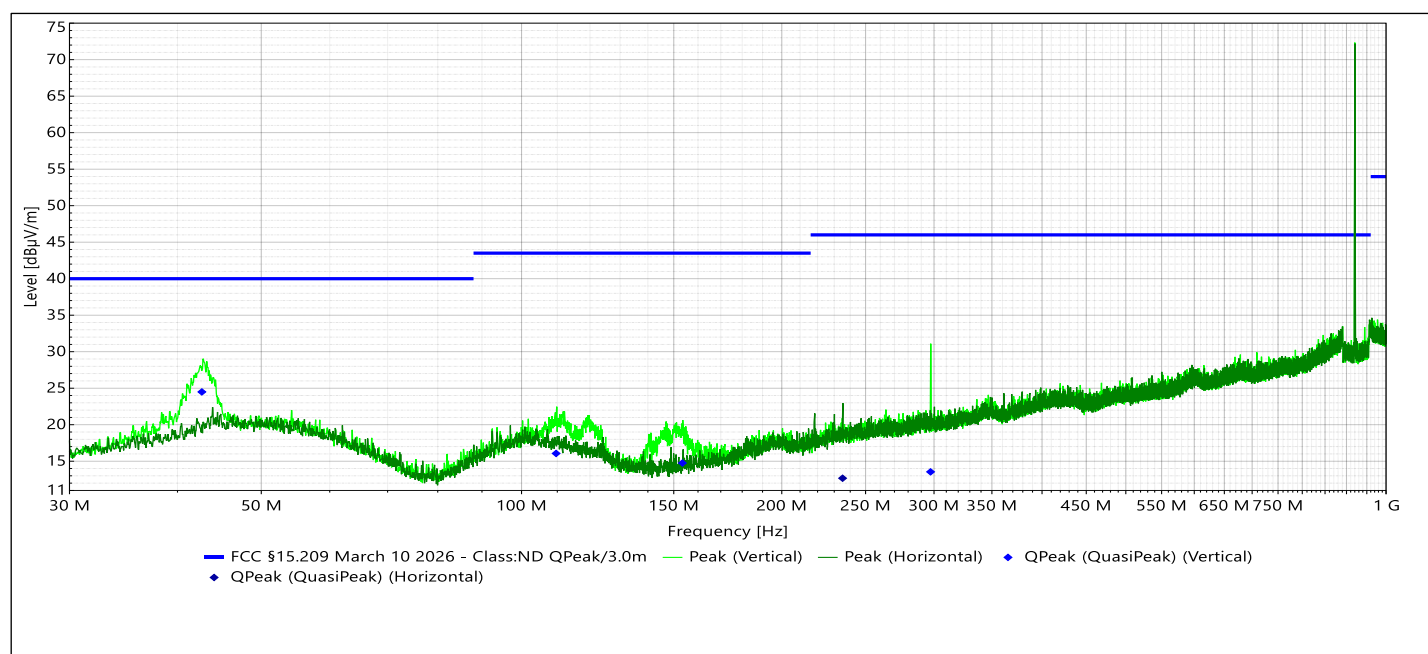
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.501	45.15	73.62	-28.47	6.00	1.00	Horizontal	Pass



Spurious Emissions 30M-1GHz - 920 MHz (LR)

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	20001 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	20001 Pts	Auto

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/15/2026	3mSAC	Duranta K. Barua	24.6 °C	29 %	978 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	920MHz (LR)	3	TX	Y-axis	FCC Part 15/FCC §15.209	Pass

Figure 2.7.8-10 – Radiated Emissions Test Results

Test Notes:

- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

**Table 2.7.8-10– Radiated Emissions Test Results**

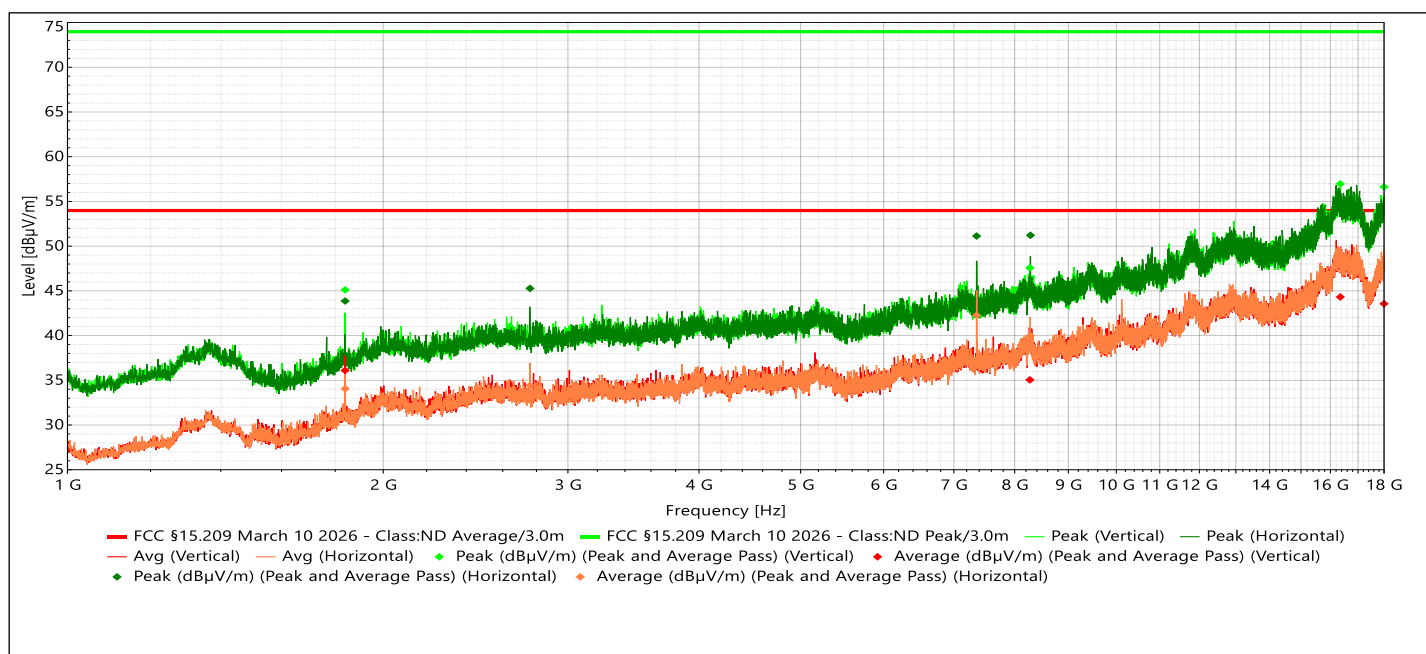
Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
42.683	24.49	40.00	-15.51	293.00	1.00	Vertical	Pass
109.647	16.06	43.50	-27.44	246.00	1.00	Vertical	Pass
153.485	14.75	43.50	-28.75	253.00	1.00	Vertical	Pass
297.268	13.54	46.00	-32.46	119.00	2.50	Vertical	Pass
235.165	12.67	46.00	-33.33	213.00	2.50	Horizontal	Pass



Spurious Emissions 1 - 18GHz - 920 MHz (LR)

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
1 GHz - 1.5 GHz	3m	Vertical	1 MHz	1001 Pts	10 ms
1 GHz - 1.5 GHz	3m	Horizontal	1 MHz	1001 Pts	10 ms
1.5 GHz - 18 GHz	3m	Vertical	1 MHz	34001 Pts	200 ms
1.5 GHz - 18 GHz	3m	Horizontal	1 MHz	34001 Pts	200 ms

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/12/2026	3mSAC	Duranta K. Barua	24.6 °C	31 %	979 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	920 MHz (LR)	3	TX	Y-axis	FCC Part 15/FCC §15.209	Pass

Figure 2.7.8-11 – Radiated Emissions Test Results

Test Notes:

- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

**Table 2.7.8-11– Radiated Emissions Test Results**

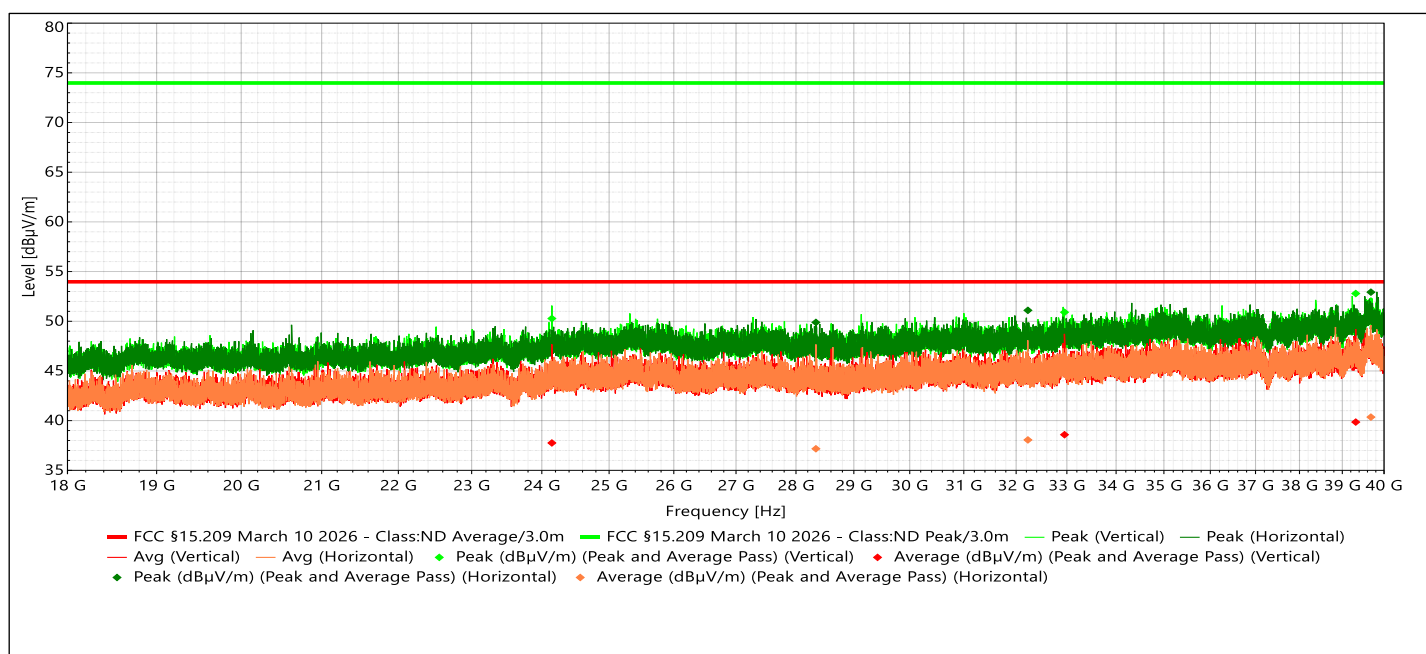
Frequency (MHz)	Peak Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)	Average Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
1839.573	45.11	73.98	-28.87	36.11	53.98	-17.87	79.00	1.00	Vertical	Pass
8272.058	47.57	73.98	-26.41	35.05	53.98	-18.93	119.00	4.00	Vertical	Pass
16351.454	56.97	73.98	-17.01	44.32	53.98	-9.66	208.00	4.00	Vertical	Pass
17998.666	56.62	73.98	-17.36	43.56	53.98	-10.42	0.00	4.00	Vertical	Pass
1839.572	43.87	73.98	-30.11	34.05	53.98	-19.93	248.00	1.53	Horizontal	Pass
2760.559	45.27	73.98	-28.71	34.42	53.98	-19.56	176.00	2.15	Horizontal	Pass
7358.290	51.13	73.98	-22.85	42.25	53.98	-11.73	212.00	1.00	Horizontal	Pass
8281.767	51.21	73.98	-22.77	39.99	53.98	-13.99	71.00	3.41	Horizontal	Pass



Spurious Emissions 18 - 40GHz - 920 (LR) MHz

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
18 GHz - 40 GHz	3m	Vertical	1 MHz	44001 Pts	Auto
18 GHz - 40 GHz	3m	Horizontal	1 MHz	44001 Pts	Auto

Test Date	Test Area	Tested By	Temperature	Humidity	Pressure
6/14/2026	3mSAC	Rafael Aguiar Cota	23.6 °C	31 %	981 mBar



Technology	Frequency	Channel	Mode	EUT Orientation	Limit	Test Results
Z-Wave	920 (LR) MHz	3	TX	Y-axis	FCC Part 15/FCC §15.209	Pass

Figure 2.7.8-12 – Radiated Emissions Test Results

Test Notes:

- Power 200 , WaveRegion 12
- Graphical data is provided for informational purposes only. Final levels are provided in tabular format.

**Table 2.7.8-12– Radiated Emissions Test Results**

Frequency (MHz)	Peak Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)	Average Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
24147.028	50.28	73.98	-23.70	37.75	53.98	-16.23	179.00	2.36	Vertical	Pass
32952.835	50.91	73.98	-23.07	38.58	53.98	-15.39	255.00	2.31	Vertical	Pass
39319.000	52.79	73.98	-21.19	39.86	53.98	-14.12	195.00	2.51	Vertical	Pass
28340.514	49.89	73.98	-24.09	37.17	53.98	-16.81	206.00	2.57	Horizontal	Pass
32229.048	51.10	73.98	-22.88	38.06	53.98	-15.92	109.00	4.00	Horizontal	Pass
39682.404	52.93	73.98	-21.05	40.36	53.98	-13.62	356.00	1.31	Horizontal	Pass

2.7.9 Sample Calculations

$$R_C = R_U + CF_T$$

Where:

- CF_T = Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
 R_U = Uncorrected Reading
 R_C = Corrected Level
 AF = Antenna Factor
 CA = Cable Attenuation
 AG = Amplifier Gain
 DC = Duty Cycle Correction Factor

Example Calculation: Peak

Corrected Level: $47.75 + -3.95 = 43.8 \text{ dB}\mu\text{V/m}$

Margin: $43.8 \text{ dB}\mu\text{V/m} - 74 \text{ dB}\mu\text{V/m} = -30.2 \text{ dB}$

Example Calculation: Average

Corrected Level: $30.75 + -3.95 = 26.80 \text{ dB}\mu\text{V/m}$

Margin: $26.80 \text{ dB}\mu\text{V/m} - 54 \text{ dB}\mu\text{V/m} = -27.20 \text{ dB}$



2.7.10 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
BEMC00653	Huber & Suhner	Cable (40GHz)	SF-102A	0944/2A	B	06/10/2026	06/10/2027
						05/29/2025	05/29/2026
NBLE02667	Hewlett-Packard	Preamplifier, 0.1-1300 MHz	8447D	1616A00688	B	01/13/2026	01/13/2027
NBLE03504	Florida RF Labs	Cable, N 3ft	FL335	3ft-1	B	03/26/2026	03/26/2027
NBLE03506	Florida RF Labs	Cable, SMA 6ft	FL200	6ft-1	B	01/26/2026	01/26/2027
NBLE03514	Florida RF Labs	Cable, SMA	FL200	3ft-9	B	10/14/2025	10/14/2026
NBLE10574	Huber+ Suhner	Cable, BNC 3M	EF142	10574	B	04/27/2026	04/27/2027
NBLE11509	Florida RF Labs	Cable, N 10ft	NMS-335A-120.0-NMS	11509	B	08/04/2025	08/04/2026
WRLE02418	EMCO/EMC Test	Antenna, Loop	6502	2215	G	03/18/2025	03/18/2027
WRLE10891	Huber+ Suhner	Cable, BNC 5M	EF142/11BNC/11BNC/5M	N/A	B	04/07/2026	04/07/2027
WRLE10998	Rohde & Schwarz	Receiver, 20 Hz-26.5 GHz	ESU 26	100379	G	09/02/2025	09/02/2026
WRLE11519	Com-Power Corp.	Preamplifier, 500 MHz-18 GHz	PAM-118A	18040002	B	01/24/2026	01/24/2027
NBLE11578	ETS-Lindgren	Antenna, BiConiLog	3142C	00079889	G	11/05/2024	11/05/2026
NBLE11614	Teledyne Storm Microwave	Cable, N 3m	90-195-3MTR	182984-003	B	01/26/2026	01/26/2027
NBLE11617	Teledyne Storm Microwave	Cable, N 8m	90-195-8MTR	182982-003	B	03/04/2026	03/04/2027
NBLE11618	Teledyne Storm Microwave	Cable, N 8m	90-195-8MTR	182982-004	B	02/05/2026	02/05/2027
NBLE11630	ETS-Lindgren	Antenna, 1-18 GHz	3117	00218816	G	09/27/2024	09/27/2026
WRLE11519	Com-Power Corp.	Preamp, 500 MHz-18 GHz	PAM-118A	18040002	G	01/24/2026	01/24/2027
NBLE11689	ATM	Antenna, DRG 18-40 GHz	180-442-KF	102040	G	07/08/2025	07/08/2027
WRLE10517	Microwave Circuits Inc	Filter, 900-950 MHz Notch	N03915M1	138901	B	04/24/2026	04/24/2027



Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
NBLE11754	Rohde & Schwarz	Receiver, 1 Hz-44 GHz	ESW44	103037	G	10/24/2025	10/24/2026
TEMC00175	Micro-Tronics	1.2 GHz High Pass Filter	HPM50108-01	014	B	02/10/2026	02/10/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.8 Power Spectral Density

2.8.1 Specification Reference

FCC: Section 15.247(e)

2.8.2 Equipment Under Test and Modification State

S/N: ADT-GW-FCC-#02

2.8.3 Date of Test

7/16/2026

2.8.4 Test Method

The power spectral density was measured in accordance with ANSI C63.10 Subclause 11.10.3 Method AVGPS-1. The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The spectrum analyzer's RBW was set to 3 kHz and VBW to 10 kHz. The Span was adjusted to greater than 1.5 times the occupied bandwidth (OBW) and the sweep time was set to auto. The measurements were performed using an RMS detector. The amplitude offset of the spectrum analyzer was adjusted to account for cable and attenuator insertion losses.

2.8.5 Environmental Conditions

Ambient Temperature	22.9 °C
Relative Humidity	41 %
Atmospheric Pressure	986 mbar

2.8.6 Test Results

AC Powered, Operating

Limit FCC: Section 15.247(e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time of continuous transmission.

Test Summary:

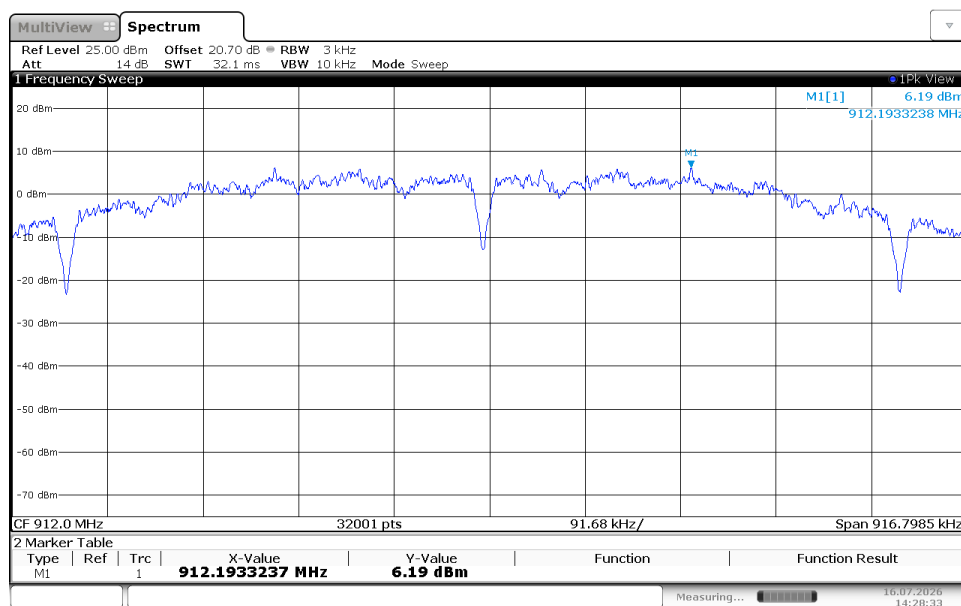
The maximum power density was measured as 6.185 dBm, which is smaller than 8 dBm.

Test Result: Pass



Table 2.8.6-1 – Peak Power Spectral Density Results

Frequency (MHz)	Measured PSD (dBm)	Limit (dBm)	Margin (dB)	Result
911.76882	6.185	8.00	1.815	Pass
919.75213	6.037	8.00	1.963	Pass



14:28:34 16.07.2026

Figure 2.8.6-1 – Peak Power Spectral Density - 912 MHz

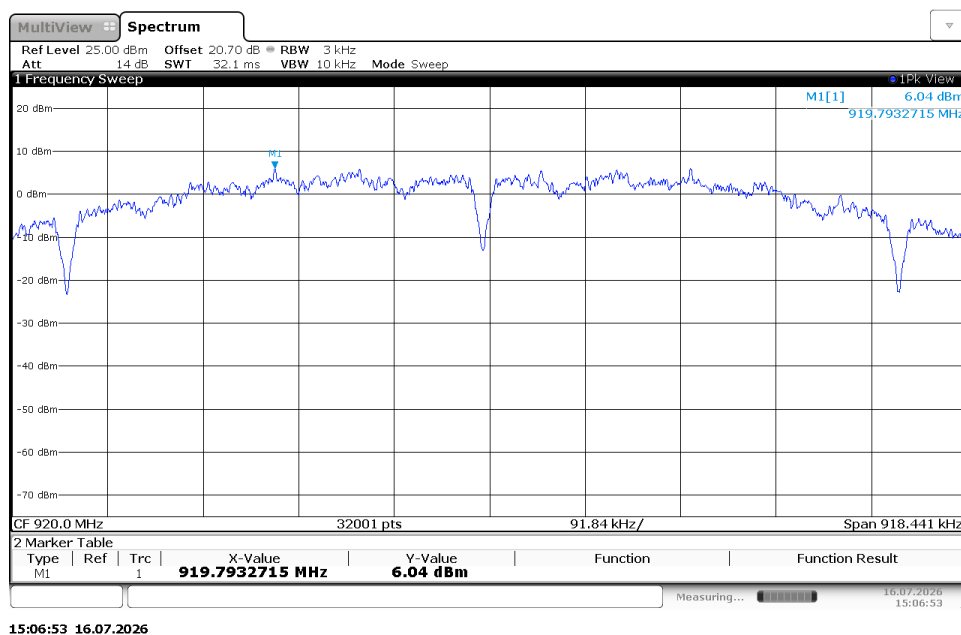


Figure 2.8.6-2 – Peak Power Spectral Density - 920 MHz

2.8.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3049	Aeroflex Inmet	Atten 20dB 2.9mm-M/F, DC-26.5GH, 2W	26AH-20	1443	B	05/27/2025 06/12/2026	05/27/2026 06/12/2027
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
BEMC02112	Teledyne Storm Products	Duratest 175 Cable 26.5GHz	921-0101-036	12-06-698	B	01/12/2026	01/12/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.9 Duty Cycle

2.9.1 Specification Reference

None

2.9.2 Equipment Under Test and Modification State

S/N: ADT-GW-FCC-#02

2.9.3 Date of Test

7/16/2026

2.9.4 Test Method

The duty cycle was measured in accordance with ANSI C63.10 Section 11.6 Duty cycle (D), transmission duration (T), and maximum power control level. The unit was connected directly to the input of the spectrum analyzer via suitable attenuation. The RBW and VBW were set to 10 MHz and the number of sweep points across duration T was set to exceed 100. The amplitude offset of the spectrum analyzer was adjusted to account for cable and attenuator insertion losses.

2.9.5 Environmental Conditions

Ambient Temperature 22.9 °C
Relative Humidity 41 %
Atmospheric Pressure 986 mbar

2.9.6 Test Results

AC Powered, Operating

Test Summary:

The test mode duty cycle is provided for informational purposes as required per ANSI C63.10. The test mode duty cycle was measured to be 100%.

Test Result: N/A

Table 2.9.6-1 – Duty Cycle Results

Frequency (MHz)	Transmission On-Time (ms)	Period (ms)	Duty Cycle (%)
912.0	100.00	100.00	100.00
920.0	100.00	100.00	100.00



Figure 2.9.6-1 – Duty Cycle - 912 MHz



Figure 2.9.6-2 – Duty Cycle - 920 MHz



2.9.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 141 14th Street NW, New Brighton, MN 55112, USA.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3049	Aeroflex Inmet	Atten 20dB 2.9mm-M/F, DC-26.5GH, 2W	26AH-20	1443	B	05/27/2025	05/27/2026
						06/12/2026	06/12/2027
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
BEMC02112	Teledyne Storm Products	Duratest 175 Cable 26.5GHz	921-0101-036	12-06-698	B	01/12/2026	01/12/2027

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

The test equipment was used only during the active cycle of the calibration period.



2.10 Power Line Conducted Emissions

2.10.1 Specification Reference

FCC: Section 15.207

2.10.2 Equipment Under Test and Modification State

As shown in §1.5 with modification state “0”, as noted in §1.7.

2.10.3 Date of Test

7/19/2026

2.10.4 Test Method

ANSI C63.10 section 6.2 was the guiding document for this evaluation. Conducted emissions were performed from 150 kHz to 30 MHz with the spectrum analyzer’s resolution bandwidth set to 9 kHz and the video bandwidth set to 30 kHz. The calculation for the conducted emissions is as follows:

$$\text{Corrected Reading} = \text{Analyzer Reading} + \text{LISN Loss} + \text{Cable Loss}$$

$$\text{Margin} = \text{Applicable Limit} - \text{Corrected Reading}$$

2.10.5 Environmental Conditions

Ambient Temperature	23 °C
Relative Humidity	35 %
Atmospheric Pressure	985 mBar

2.10.6 Additional Observations

Measurements were made using BAT-EMC (2024.0.9.5) automated software. The reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only.

2.10.7 Test Results

Table 2.10.7-1: Conducted Emissions Limits

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.



Test Summary: EUT operated as intended before, during, and after testing.

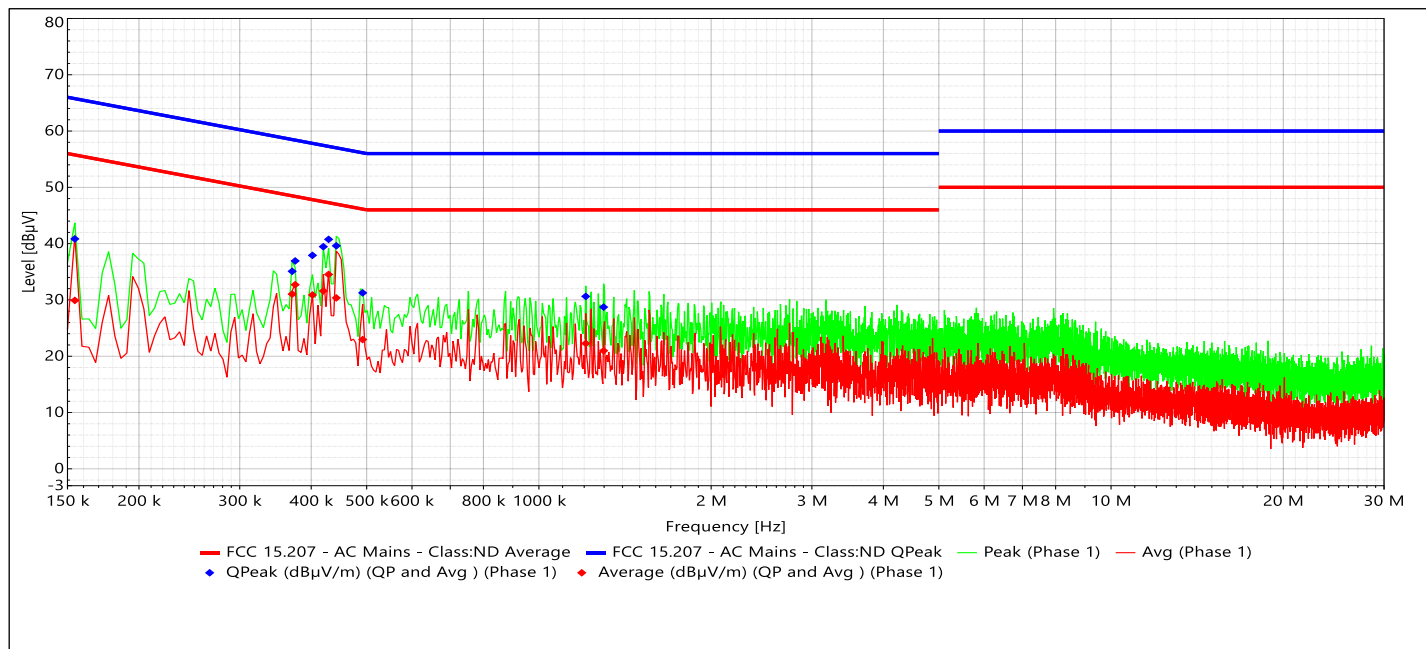
Test Result: Pass

See data below for detailed results.



L1 [120VAC, 60Hz] - Z-Wave LR

Frequency Range	Line Tested	RBW	Step Size	Sweep Time
150 kHz - 30 MHz	L1	9 kHz	4.5 kHz	Auto



Limit: FCC Part 15/FCC 15.207 - AC Mains **Test Date:** 7/19/2026 **Test Results:** Pass

Figure 2.10.7-1 – Power Line Conducted Emissions – L1

Test Notes: Z-Wave LR

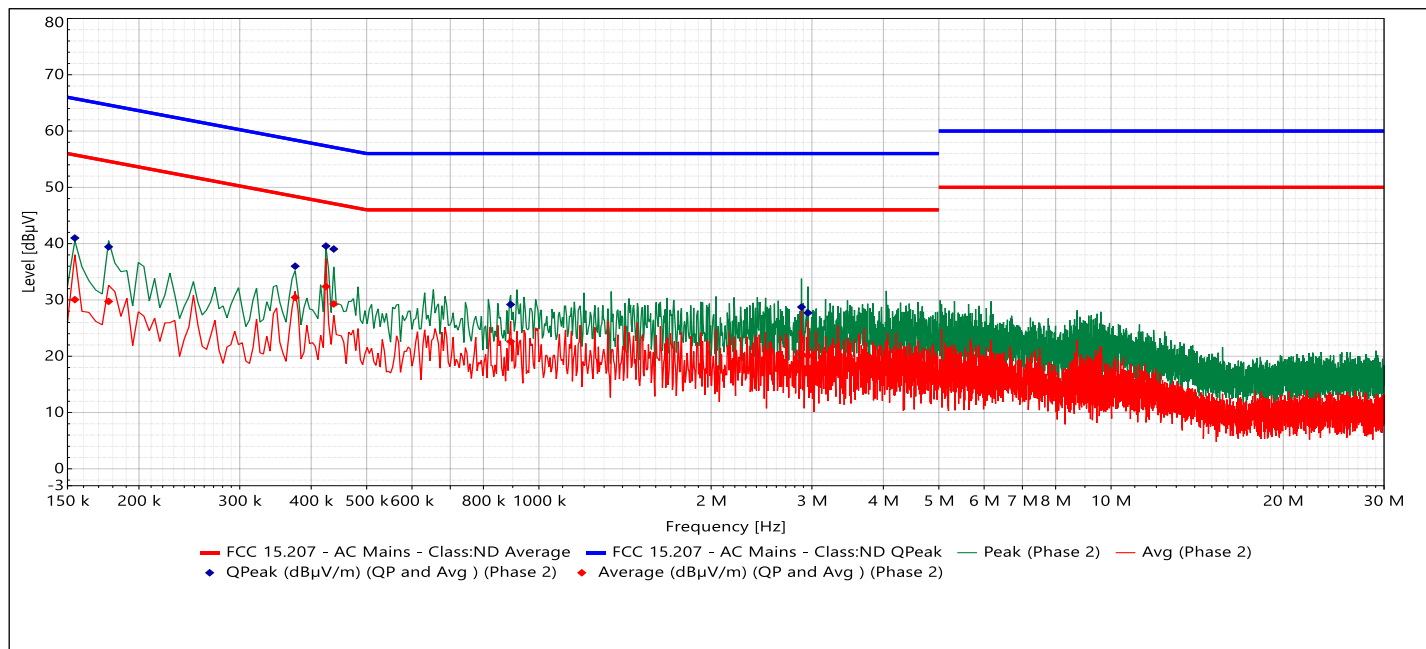
**Table 2.10.7-2 – Power Line Conducted Emissions – L1**

Frequency (MHz)	Average (dBuV)	Average Limit (dBuV)	Average Margin (dB)	QPeak (dBuV)	QPeak Limit (dBuV)	QPeak Margin (dB)	Result
0.155	29.92	55.75	-25.84	40.84	65.75	-24.91	Pass
0.371	31.04	48.49	-17.45	35.09	58.49	-23.40	Pass
0.375	32.70	48.39	-15.68	36.93	58.39	-21.46	Pass
0.402	30.88	47.81	-16.93	37.92	57.81	-19.90	Pass
0.420	31.60	47.45	-15.85	39.46	57.45	-17.99	Pass
0.429	34.53	47.27	-12.74	40.76	57.27	-16.51	Pass
0.443	30.36	47.01	-16.65	39.61	57.01	-17.40	Pass
0.492	22.96	46.13	-23.17	31.25	56.13	-24.88	Pass
1.208	22.27	46.00	-23.73	30.63	56.00	-25.37	Pass
1.298	20.98	46.00	-25.02	28.73	56.00	-27.27	Pass



L2 [120VAC, 60Hz] - Z-Wave LR

Frequency Range	Line Tested	RBW	Step Size	Sweep Time
150 kHz - 30 MHz	L2	9 kHz	4.5 kHz	Auto



Limit: FCC Part 15/FCC 15.207 - AC Mains
Test Date: 7/19/2026
Test Results: Pass

Figure 2.10.7-2 – Power Line Conducted Emissions – L2

Test Notes: Z-Wave LR

**Table 2.10.7-3 – Power Line Conducted Emissions – L2**

Frequency (MHz)	Average (dBuV)	Average Limit (dBuV)	Average Margin (dB)	QPeak (dBuV)	QPeak Limit (dBuV)	QPeak Margin (dB)	Result
0.155	30.05	55.75	-25.70	41.00	65.75	-24.75	Pass
0.177	29.73	54.63	-24.89	39.44	64.63	-25.19	Pass
0.375	30.44	48.39	-17.95	35.99	58.39	-22.40	Pass
0.425	32.37	47.36	-14.99	39.57	57.36	-17.79	Pass
0.438	29.29	47.10	-17.81	39.04	57.10	-18.06	Pass
0.893	22.61	46.00	-23.39	29.19	56.00	-26.81	Pass
2.877	20.38	46.00	-25.62	28.74	56.00	-27.26	Pass
2.954	20.07	46.00	-25.93	27.70	56.00	-28.30	Pass

2.10.8 Test Location and Test Equipment Used

The tests were carried out in New Brighton, MN.
Test Area: GRP2

Table 2.10.8-1 – Conducted Emissions Test Equipment List

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
NBLE10459	Weinschel	Attenuator, 20 dB	34-20-34	BP1557	B	03/26/2026	03/25/2027
NBLE10572	Huber + Suhner	Cable, BNC 3M	EF142	10572	B	08/07/2025	08/07/2026
WRLE10944	Fischer Custom Comm.	LISN	FCC-LISN-50-25-2-10	120308	G	07/09/2025	07/09/2027
WRLE10998	Rohde & Schwarz	Receiver, 20 Hz-26.5 GHz	ESU 26	100379	G	09/02/2025	09/02/2026

Cal Code G = Calibration performed by an accredited outside source.

Cal Code B = Calibration verification performed internally.

Cal Code Y = Passive Device, or Calibration not required when used with other calibrated equipment.

3 Diagram of Test Set-ups

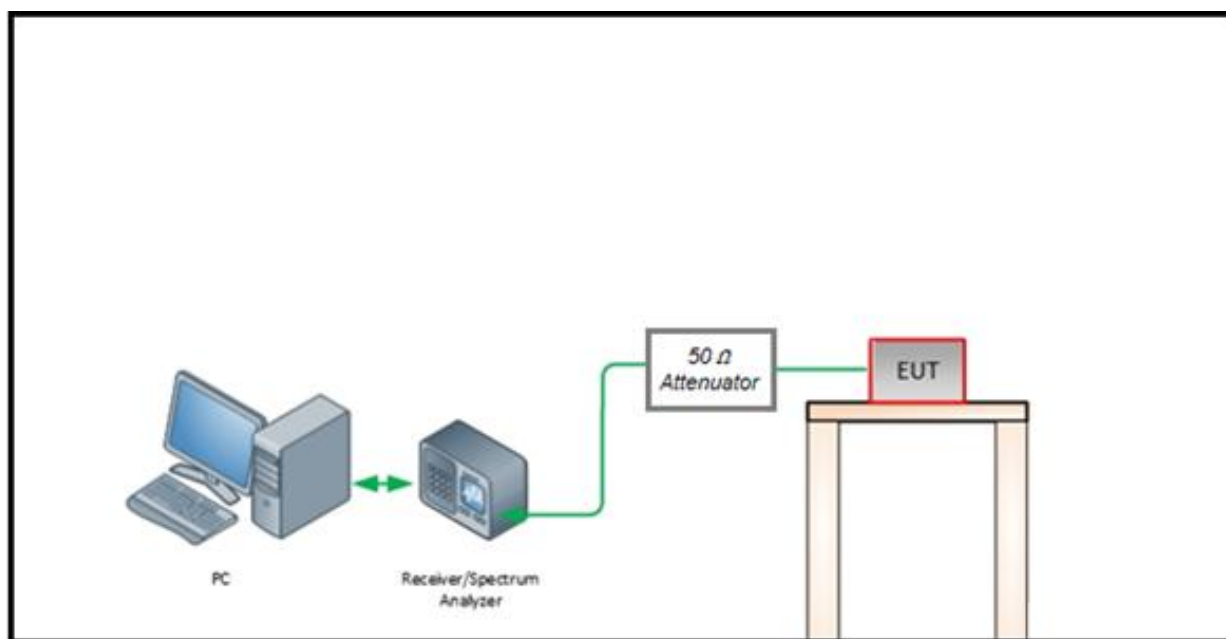


Figure 3-1 – RF Conducted Measurements Test Setup

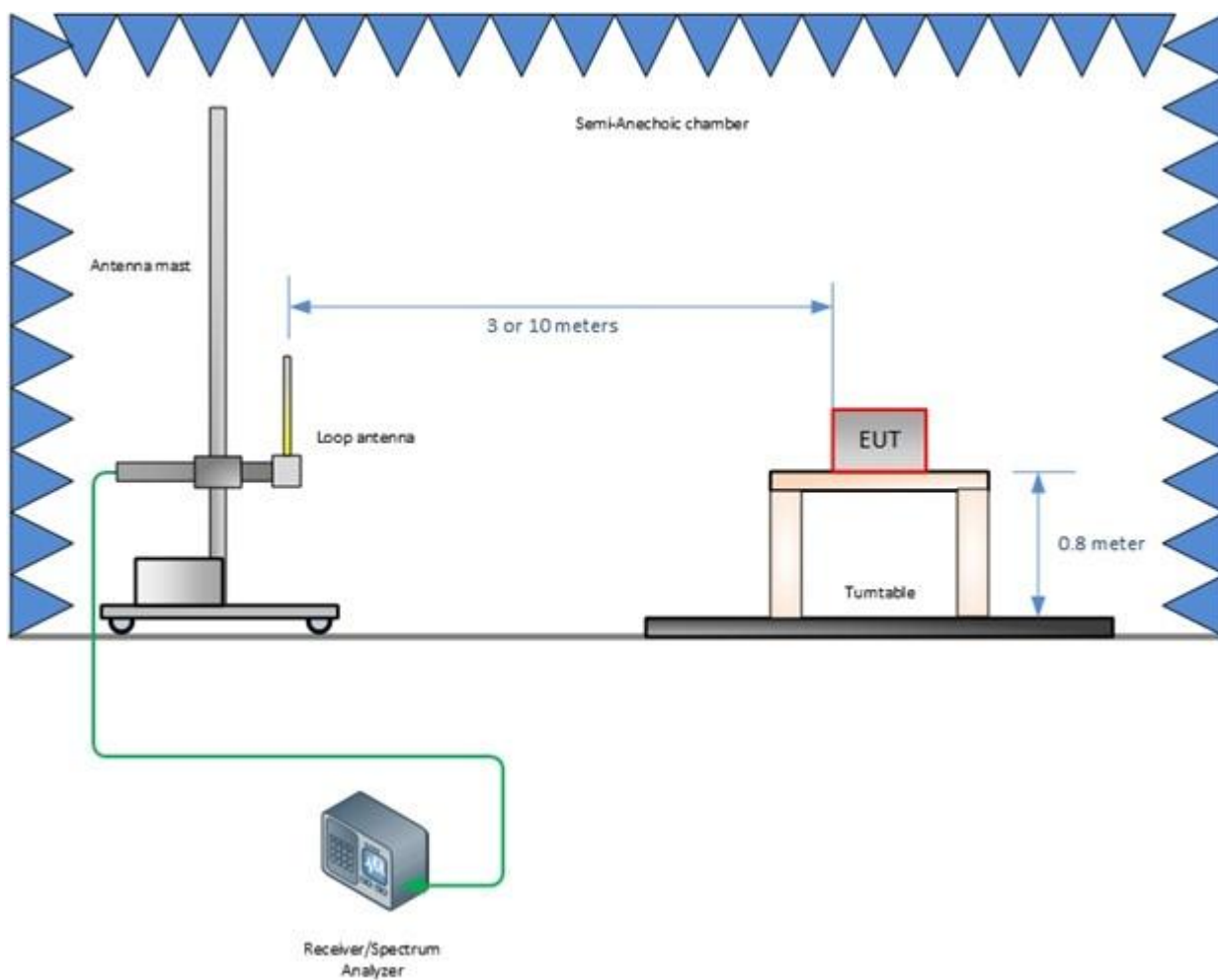


Figure 3-2 – Radiated Emissions Test Setup below 30 MHz

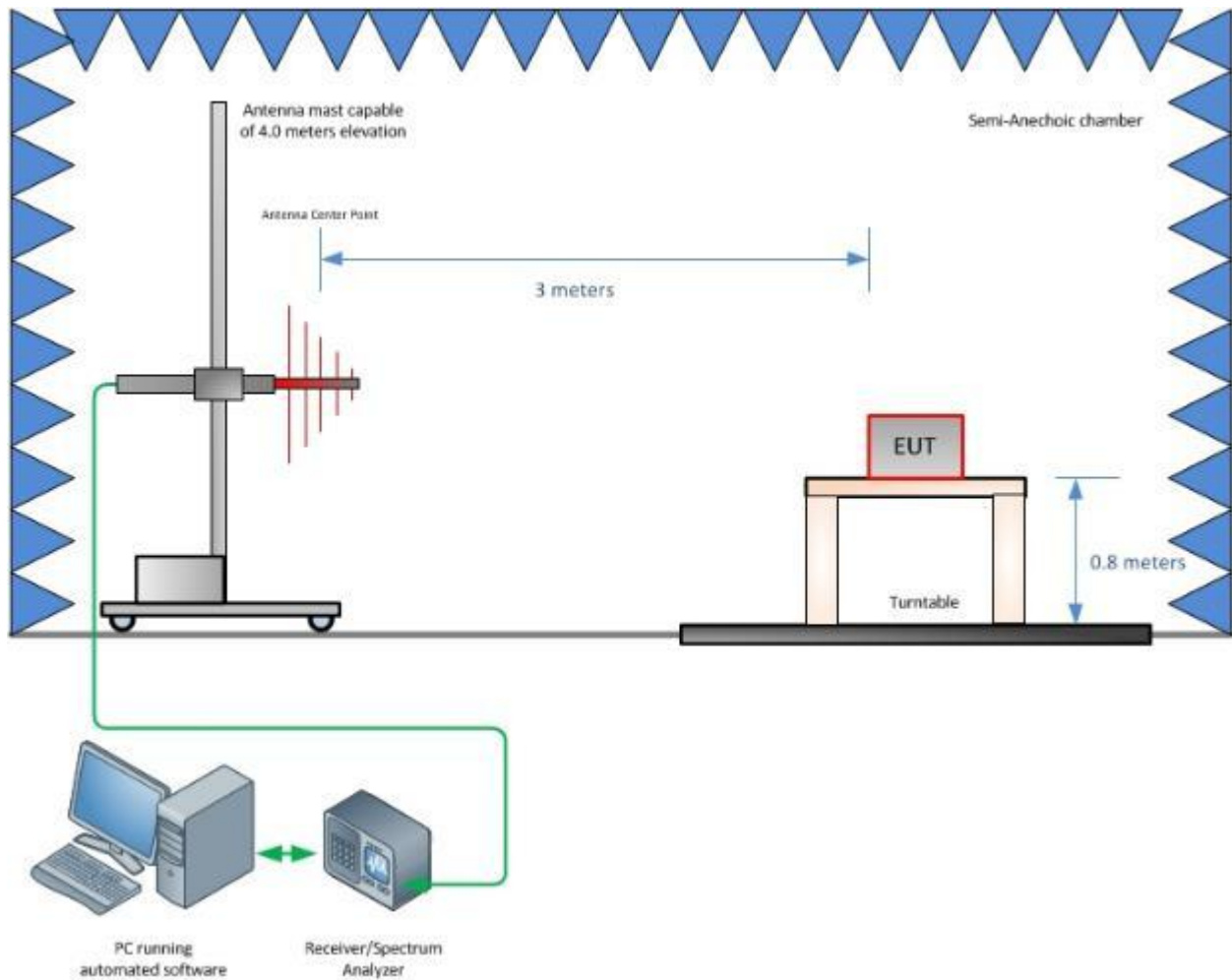


Figure 3-3 – Radiated Emissions Test Setup up to 1 GHz

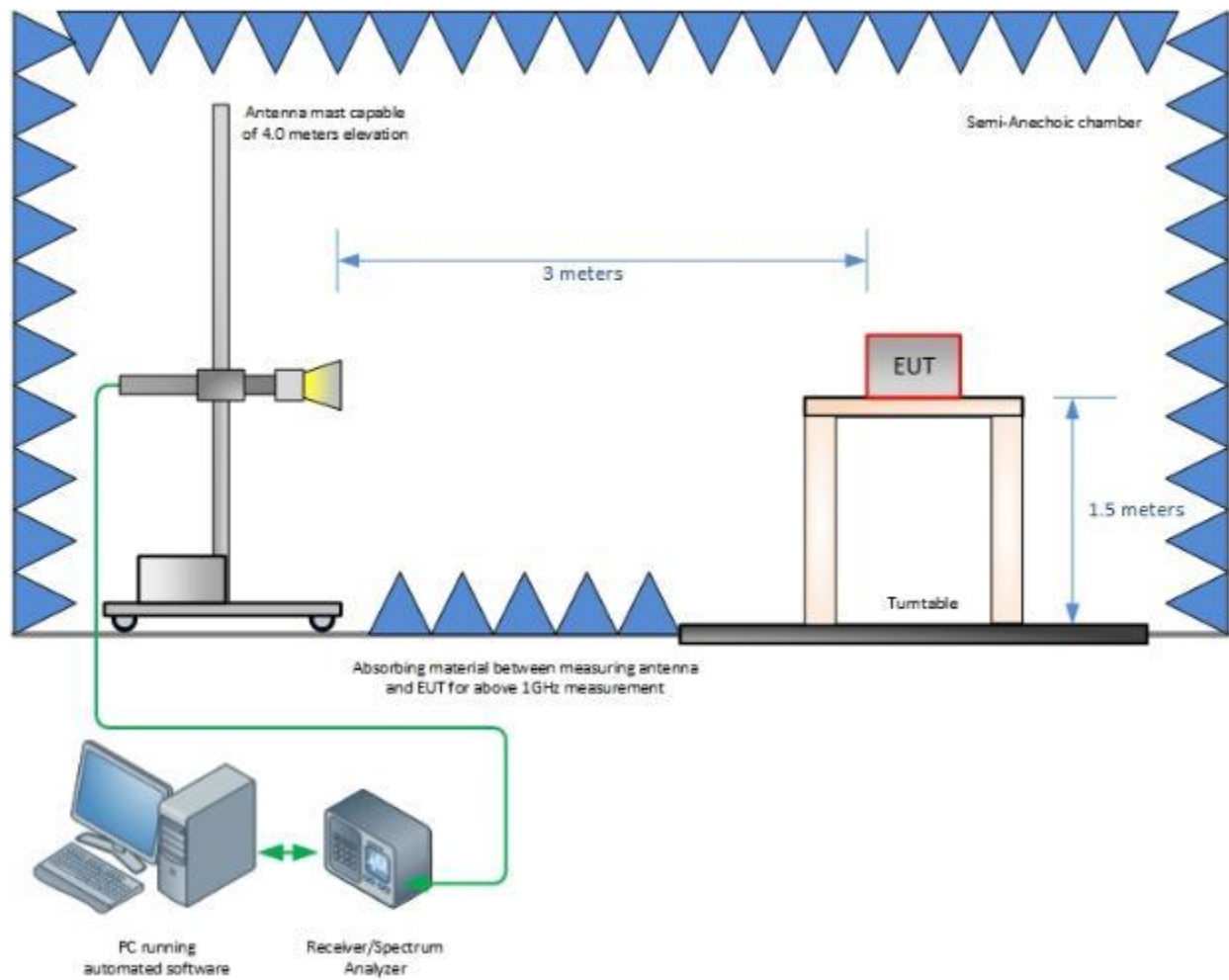


Figure 3-4 – Radiated Emissions Test Setup above 1 GHz

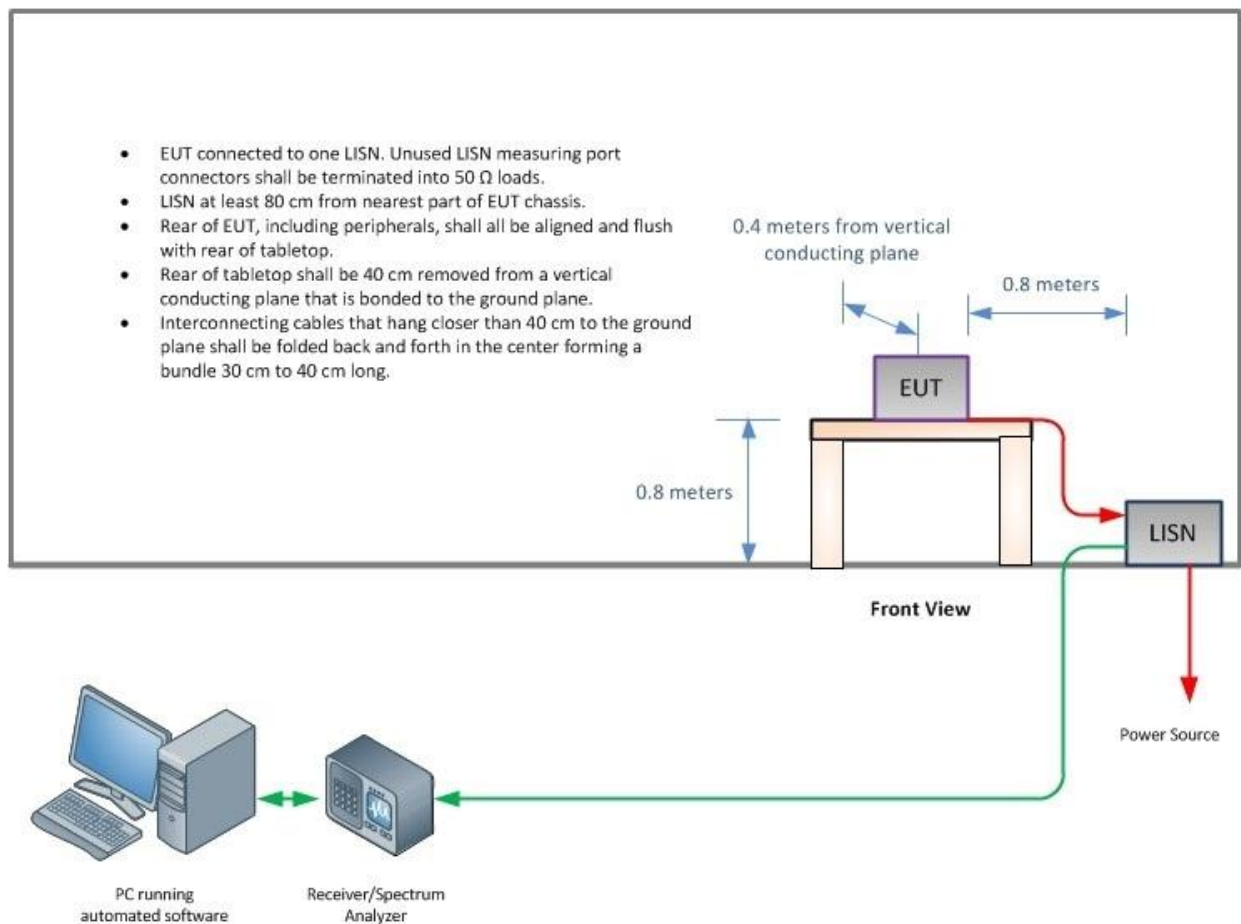


Figure 3-5 – Power Line Conducted Emissions Test Setup



4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Table 4-1- Values of U_{CISPR} and U_{Lab}

Measurement	U_{CISPR}	U_{Lab}
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1 000 MHz) (1 – 6 GHz) (6-18 GHz)	6.3 dB 5.2 dB 5.5 dB	5.88 dB 4.47 dB 4.478 dB
Power Line Conducted Emissions 150 kHz – 30 MHz	3.4 dB	3.30 dB
Occupied Channel Bandwidth	-----	±2.83 %
RF output power, conducted	-----	±0.61 dB
Power Spectral Density, conducted	-----	±1.13 dB
Unwanted Emissions, conducted	-----	±2.64 dB

Notes:

U_{CISPR} resembles a value of measurement uncertainty for a specific test, which was determined by considering uncertainties associated with the quantities listed in CISPR 16-4-2:2011.

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. This test system has a measurement uncertainty of ±3.30 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. This test system for 30 MHz-1000 MHz has a measurement uncertainty of ±5.88 dB and above 1 GHz a measurement uncertainty of ±4.47 dB. The measurement uncertainty values for conducted and radiated emissions meet the requirements as expressed in CISPR 16-4-2. The equipment comprising the test systems is calibrated on an annual basis.



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