

FCC and ISED Canada Testing of the

Resideo LLC / Ademco Inc.
EIM 4010

In accordance with FCC 47 CFR part 15.247 and
ISED Canada's Radio Standards Specifications
RSS-247

Prepared for: Resideo LLC
1985 Douglas Dr. N
Golden Valley, MN 55422

Module FCC ID: HS9-EIM4010R01
Module IC: 573R-EIM4010R01

COMMERCIAL-IN-CONFIDENCE

Document Number: NC721015324.1 | Issue: 3



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RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Authorized Signatory	Ferdinand Custodio	2025 -November-13	
Testing	Yves-Thierry Jean-Charles	2025-November-13	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

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 FCC Part 15.247 and ISED Canada's RSS-247 for the test documented in Table 1.4-1.



A2LA Cert. No. 2955.11

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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.

Table 1.1-1 – Modification Record

Issue	Description of Change	Date of Issue
1	First Issue	2025-October-27
2	Revised the description of the EUT	2025-October-30
3	Updated the applicant information	2025-November-13



1.2 Introduction

FCC Applicant	Resideo LLC
ISED Canada Applicant	Ademco Inc.
Manufacturer	Resideo LLC
Applicant's Email Address	Sean.Sellergren@resideo.com
Model Number(s)	EIM 4010
Serial Number(s)	N/A
FCC ID	HS9-EIM4010R01
ISED Certification Number	573R-EIM4010R01
Hardware Version(s)	Rev A
Software Version(s)	LW_EIM_RL_XTR_1.0.3.0
Number of Samples Tested	1
Test Specification/Issue/Date	US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2024 Innovation, Science and Economic Development Canada Radio Standards Specification: RSS-247 — Digital Transmission Systems, Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network Devices in 902-928 MHz, 2400-2483.5 MHz, and 5470-5895 MHz bands, Issue 4, July 24, 2025
Order Number	721015324
Date	2025-October-09
Date of Receipt of EUT	2025-October-09
Start of Test	2025-October-09
Finish of Test	2025-October-14
Name of Engineer(s)	Thierry Jean-Charles
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, 2024. 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 2019. Innovation, Science and Economic Development Canada Radio Standards Specification: RSS-GEN - General Requirements for Compliance of Radio Apparatus, Issue 5, April 2018, Amendment 1, March 2019, Amendment 2, February 2021.



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 and Innovation Science and Economic Development Canada's Radio Standards Specification RSS-247 of the EIM 4010 for the tests documented herein.

1.4 Summary of Results

A brief summary of the tests carried out in accordance with FCC Part 15.247 and ISED Canada's RSS-247 is shown below.

Table 1.4-1 – Test Result Summary

Test Parameter	Test Plan (Yes/No)	Test Result	FCC 47 CFR Rule Part	ISED Canada's RSS	Test Report Page No
Antenna Requirement	Yes	Pass	15.203, 15.204	-----	11
Carrier Frequency Separation	No	-----	15.247(a)(1)	RSS-247 5.1(b)	
Number of Hopping Channels	No	-----	15.247(a)(1)(iii)	RSS-247 5.1(d)	
Channel Dwell Time	No	-----	15.247(a)(1)(iii)	RSS-247 5.1(d)	
20 dB Bandwidth	No	-----	15.247(a)(1)(i)	RSS-247 5.1(a)	
99% Bandwidth	No	-----	-----	RSS-GEN 6.6	
Peak Output Power	No	-----	15.247(b)(3)	RSS-247 5.4(d)	
Band-Edge Compliance of RF Conducted Emissions	No	-----	15.247(d)	RSS-247 5.5	
RF Conducted Spurious Emissions	No	-----	15.247(d)	RSS-247 5.5	
Radiated Spurious Emissions into Restricted Frequency Bands	Yes	Pass	15.205, 15.209	RSS-GEN 8.9, 8.10	13
Power Spectral Density	No	-----	15.247(e)	RSS-247 5.2(b)	
Power Line Conducted Emissions	No	-----	15.207	RSS-GEN 8.8	
Duty Cycle of Test Mode of Operation	No	-----	N/A	N/A	

Notes:

The evaluation consists of radiated spurious emissions in the restricted bands per the manufacturer's requests. The report covering the remaining tests under FCC 15.247 and ISED Canada RSS-247 is handled by the manufacturer and is documented separately.

1.5 Product Information

1.5.1 Technical Description

The EIM4010 is an Equipment Interface Module that provides hardwired connections to HVAC and equipment in a Redlink system. The module is intended to be mounted near HVAC equipment while the 2-wire or wireless thermostat may be mounted in areas where wires may or may not be assessable. This device takes inputs from other RF devices (Thermostat) and uses those inputs to control heating and cooling equipment. Device is also prepared to measure current of the HVAC system.

Technical Details

Mode of Operation:	900 MHz FHSS
Frequency Range:	902.99973 - 926.39401 MHz
Number of Channels:	50
Channel Separation:	399.9 kHz
Data Rate:	38.4 kbd
Modulations:	GFSK
Antenna Type/Gain:	2x Printed PCB Antenna / 0.71 dBi (Antenna A, Short Edge), 0.8 dBi (Antenna B, Long Edge) 1/4 Wave Helical Antenna / 1.73 dBi (Wieson Technologies Co. LTD, Part ARY113)
Input Power:	24 VAC

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



Photo 1.5.1-1 – Front View of the EUT

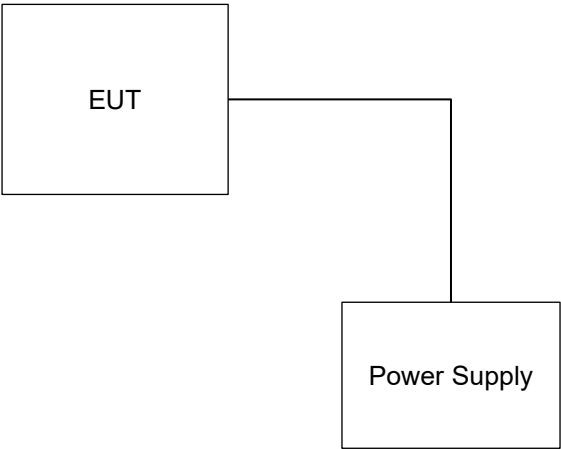


Figure 1.5.1-1 – Test Setup Block Diagram – Internal Antenna Configuration

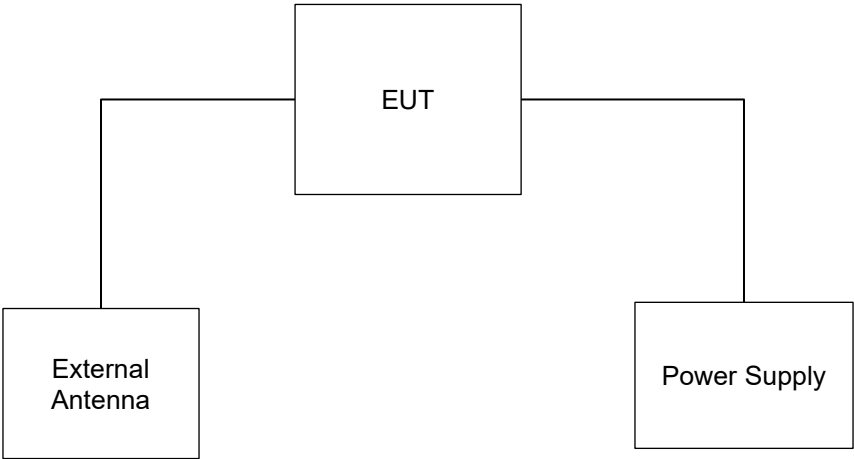


Figure 1.5.1-2 – Test Setup Block Diagram – External Antenna Configuration

**Table 1.5.1-1 – Cable Descriptions**

Cable/Port	Description
Coaxial	3m, Shielded RG-58, Antenna to EUT
Power	1.83m, Not Shielded, Power Supply to EUT

Table 1.5.1-2 – Support Equipment Descriptions

Make/Model	Description
Wieson Technologies Co. LTD, / ARY113-0012-011-00	¼ Wave Helical Antenna (1.73 dBi)
Triad Magnetics / WAU24-1000	120VAC to 24 VAC Class 2 Power Supply



1.5.2 Modes of Operation

The EUT was evaluated in the transmit mode for each of the internal PCB antennas as well as the external 1/4 wave helical antenna. The EUT was configured to the maximum RF output power (Power Setting of 12).

1.5.3 Monitoring of Performance

The EUT was evaluated for radiated spurious emissions using 3 antenna configurations- in the orientation of typical installation. Where applicable the results are provided for the configuration leading to the highest emissions.

1.5.4 Performance Criteria

The EUT was evaluated to the performance criteria listed below.

Table 1.5.4-1: Performance Criteria

Parameter	Requirement
Antenna Requirement	FCC: Section 15.203. 15.204
Radiated Spurious Emissions into Restricted Frequency Bands	FCC: Sections 15.205, 15.209; ISSED Canada: RSS-GEN 8.9, 8.10

1.6 Deviations from the Standard

The evaluation was performed 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	Initial State	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
Mode: DC Powered, Operating		
Antenna Requirement	Thierry Jean-Charles	A2LA
Radiated Spurious Emissions into Restricted Frequency Bands	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: N/A

2.1.3 Date of Test

10/9/2025

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**

Antenna Type	Connection Type	Antenna Gain (dBi)
Printed PCB Antenna	Integral to the PCB	0.71
Printed PCB Antenna	Integral to the PCB	0.8
¼ Wave Helical Antenna	Reverse SMA	1.73

Test Summary:

The EUT uses 2 internal printed PCB antennas which are integral to the Main PCB of the device. The antennas are not replaceable.

The EUT also provides an MMCX connector on the main PCB for connection to an external antenna. The external antenna uses a reverse SMA (RSMA) connector which connects to the PCB through an MMCX to RSMA cable. The antenna connector is considered unique.

Therefore, EUT meets the requirements of FCC Section 15.203.

Test Results: 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 was a visual inspection, no test equipment was used.



2.2 Radiated Spurious Emissions into Restricted Frequency Bands

2.2.1 Specification Reference

FCC Sections: 15.205, 15.209;
ISED Canada: RSS-GEN 8.9, 8.10

2.2.2 Equipment Under Test and Modification State

S/N: N/A

2.2.3 Date of Test

10/9/2025 to 10/14/2025

2.2.4 Test Method

Radiated emissions tests were made over the frequency range of 9 kHz to 18 GHz, 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 and average measurements are made with RBW of 1 MHz and VBW of 3 MHz. Average measurements are performed using an RMS detector.

2.2.5 Duty Cycle Correction

The EUT was configured to transmit at 100% duty cycle during the evaluation. The correction factor for the Duty Cycle of 100% can be calculated as $20 \cdot \log(100/100) = 0$ dB. Therefore, no Duty Cycle Correction Factor was applied for the corrected average results.

2.2.6 Environmental Conditions

Ambient Temperature	23 - 24.3 °C
Relative Humidity	26 - 37 %
Atmospheric Pressure	980 - 998 mbar



2.2.7 Test Results

Mode: AC Powered, Operating

Limit Clause FCC Sections 15.205, 15.209, ISED Canada: RSS-GEN 8.9, 8.10

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), 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 EUT was evaluated for radiated spurious emissions in the restricted bands for three antenna configurations while transmitting at the maximum TX output power of 12 dBm. All the peak and average field strength levels in the restricted bands met their respective limits as described below.

Test Results: Pass



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-axial - 903 MHz - PCB Antenna A

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

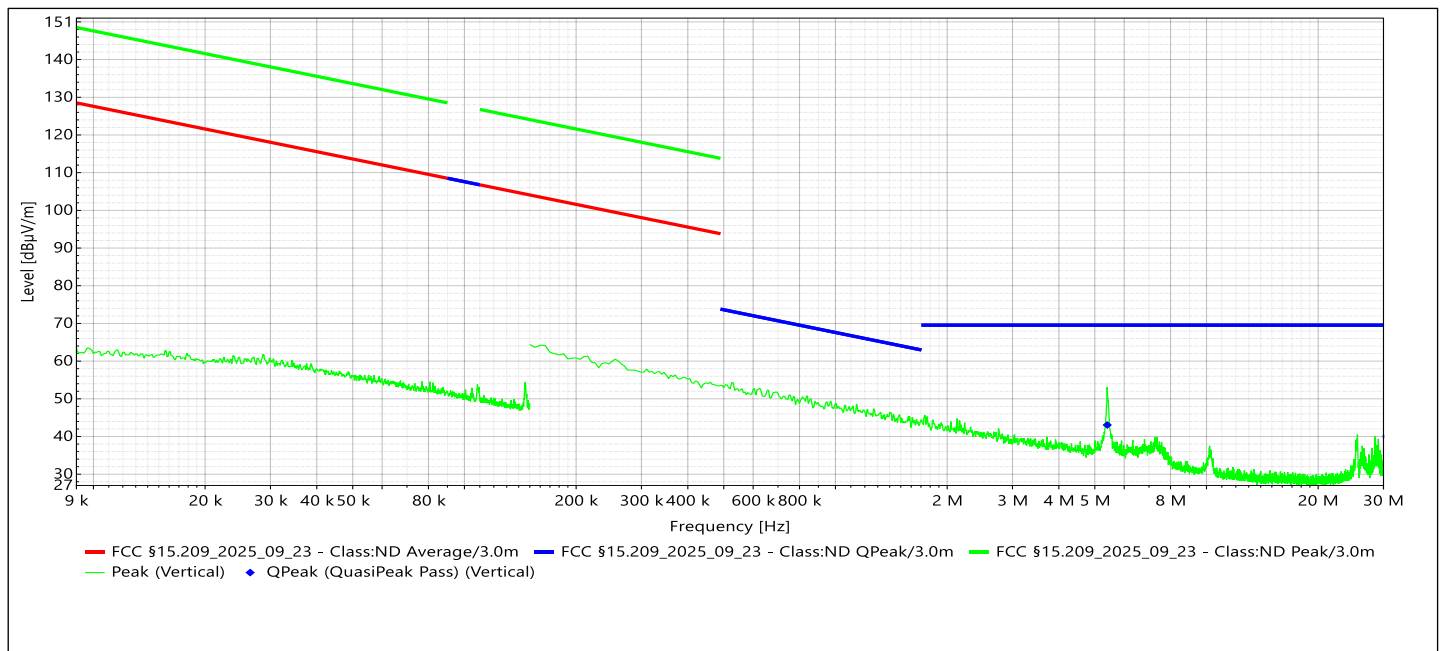


Figure 2.2.7-1 – Radiated Emissions Test Results



Finals

Table 2.2.7-1– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
5.402	43.06	69.54	-26.48	0.00	1.00	Vertical	Pass

Test Notes: PCB Antenna A - Max TX Power.



FCC 15.247 - Spurious Emissions 30M-1GHz - 903 MHz - PCB Antenna A

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

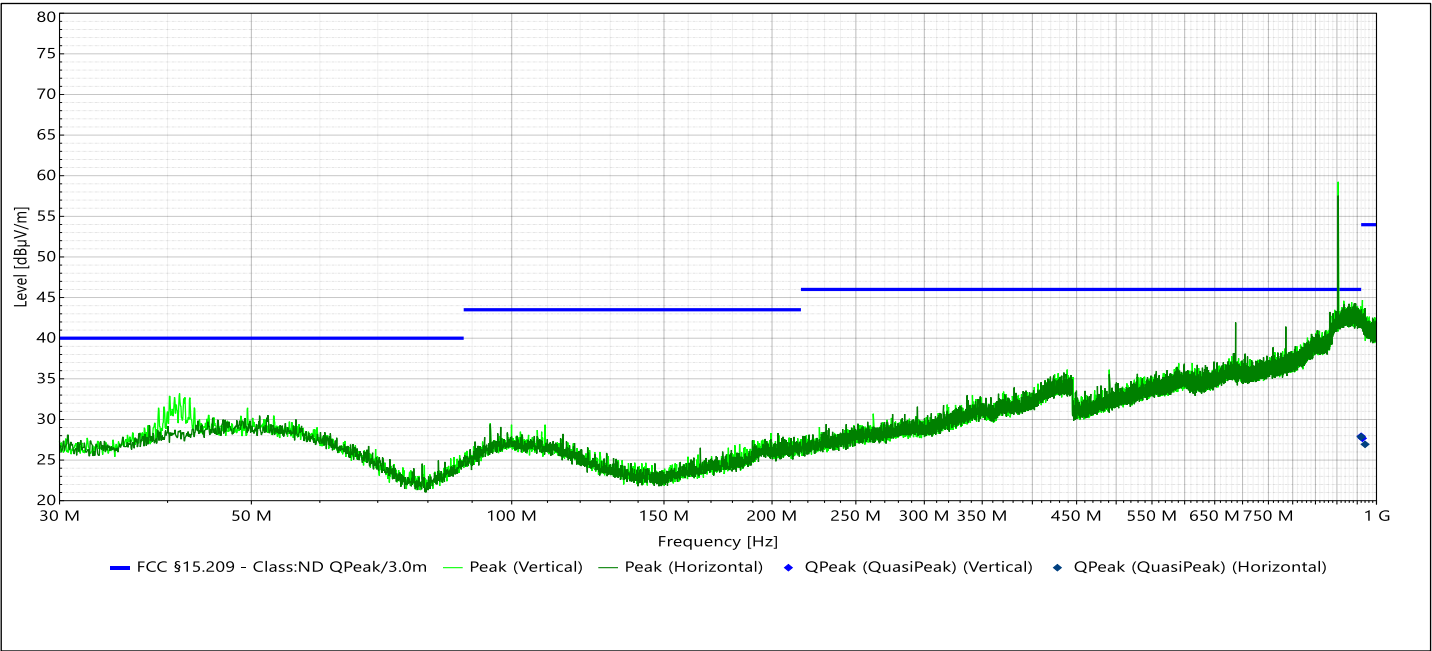


Figure 2.2.7-2 – Radiated Emissions Test Results



Finals

Table 2.2.7-2– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
960.026	27.93	53.97	-26.04	137.00	2.72	Vertical	Pass
963.244	27.68	53.97	-26.29	355.00	1.00	Vertical	Pass
959.973	27.86	46.00	-18.14	303.00	1.97	Horizontal	Pass
970.029	26.94	53.97	-27.03	360.00	4.00	Horizontal	Pass

Test Notes: PCB Antenna A - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 903 MHz - PCB Antenna A

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23.9 C	26%	989 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

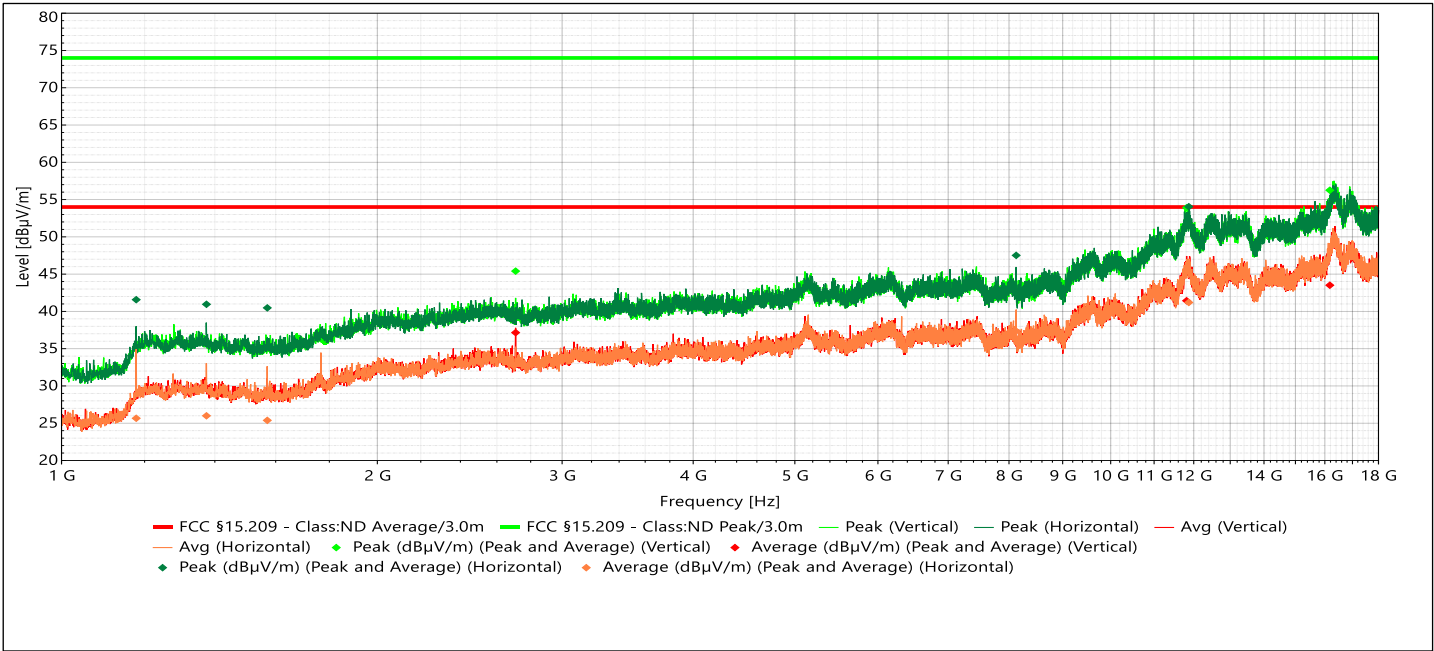


Figure 2.2.7-3 – Radiated Emissions Test Results



Finals

Table 2.2.7-3– 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
2709.066	45.40	74.00	-28.60	37.15	54.00	-16.85	177.00	1.45	Vertical	Pass
11812.553	53.90	74.00	-20.10	41.43	54.00	-12.57	201.00	2.23	Vertical	Pass
16176.468	56.25	74.00	-17.75	43.51	54.00	-10.49	104.00	1.25	Vertical	Pass
1178.156	41.57	74.00	-32.43	25.66	54.00	-28.34	160.00	1.19	Horizontal	Pass
1374.514	40.95	74.00	-33.05	26.00	54.00	-28.00	184.00	1.33	Horizontal	Pass
1570.874	40.47	74.00	-33.53	25.38	54.00	-28.62	159.00	2.44	Horizontal	Pass
8127.197	47.52	74.00	-26.48	37.35	54.00	-16.65	160.00	1.00	Horizontal	Pass
11870.670	54.05	74.00	-19.95	41.20	54.00	-12.80	32.00	1.27	Horizontal	Pass

Test Notes: PCB Antenna A - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-axial - 914.6 MHz - PCB Antenna A

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

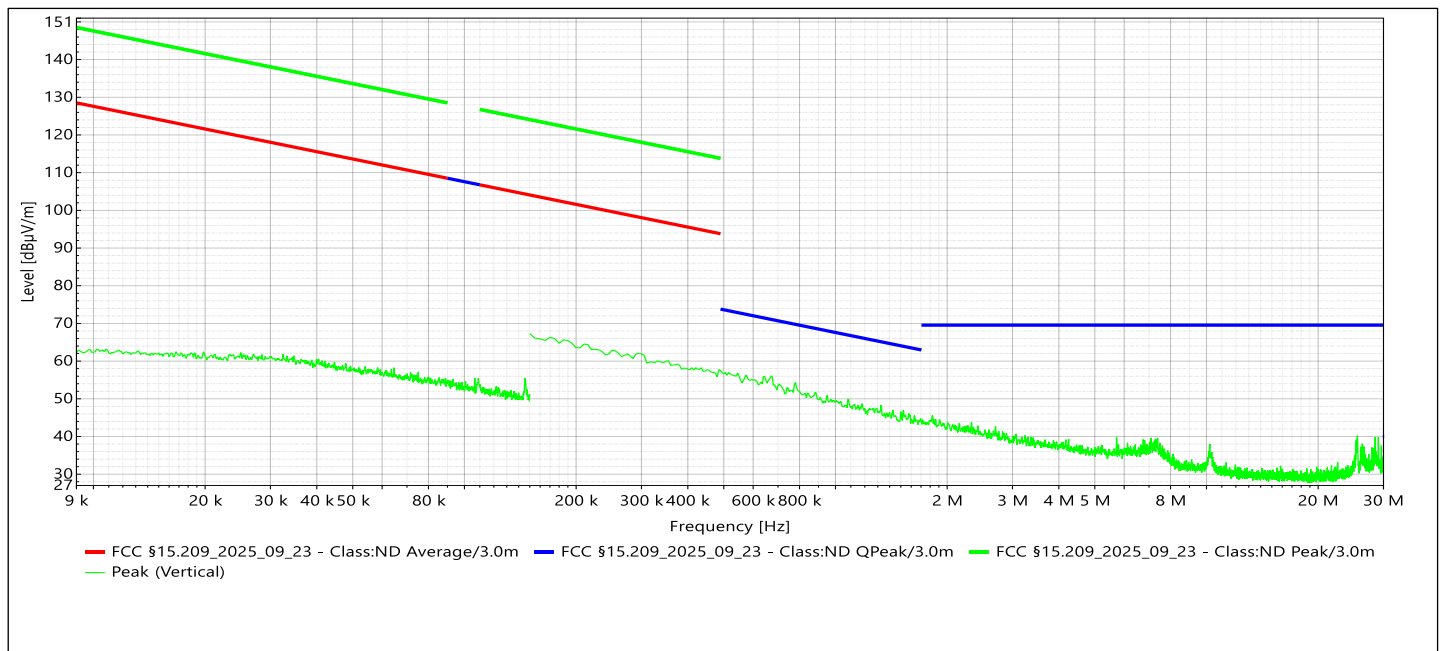


Figure 2.2.7-4 – Radiated Emissions Test Results

Finals

Test Notes:

PCB Antenna A - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-Planar - 914.6 MHz - PCB Antenna A

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

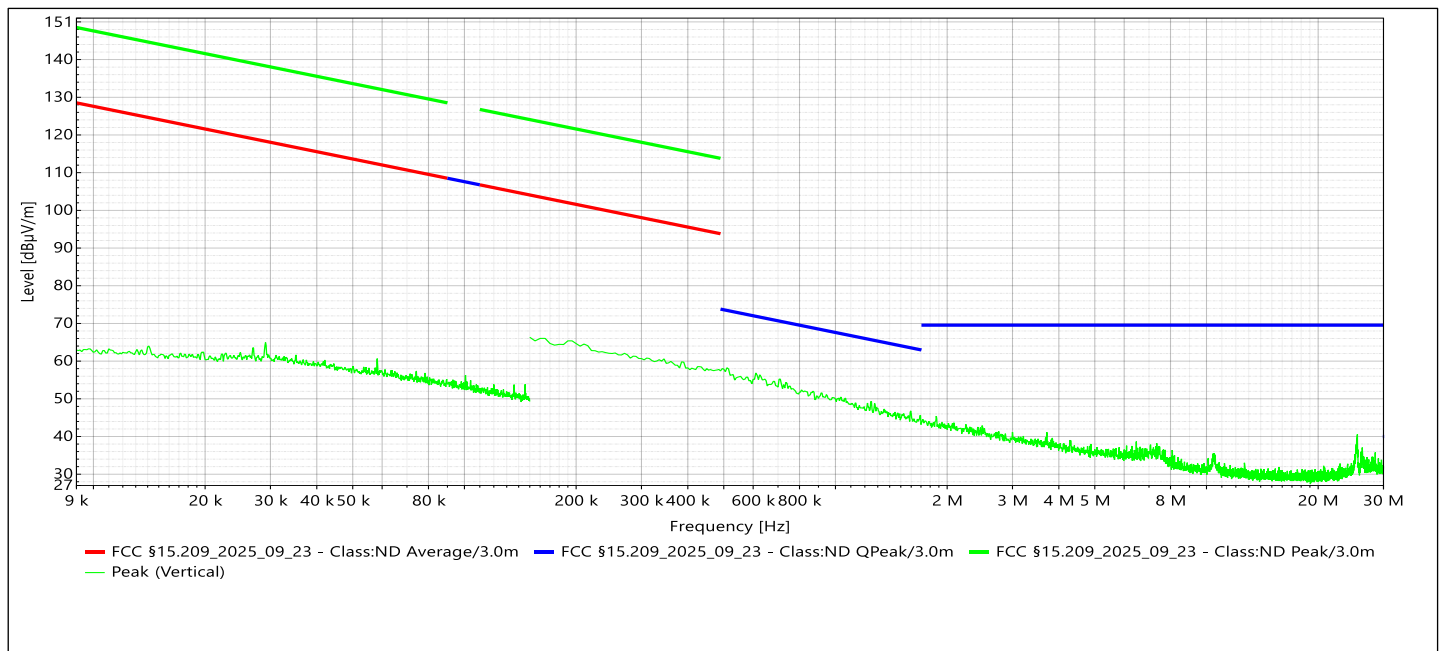


Figure 2.2.7-5 – Radiated Emissions Test Results

Finals

Test Notes:

PCB Antenna A - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Horizontal Co-Planar - 914.6 MHz - PCB Antenna A

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

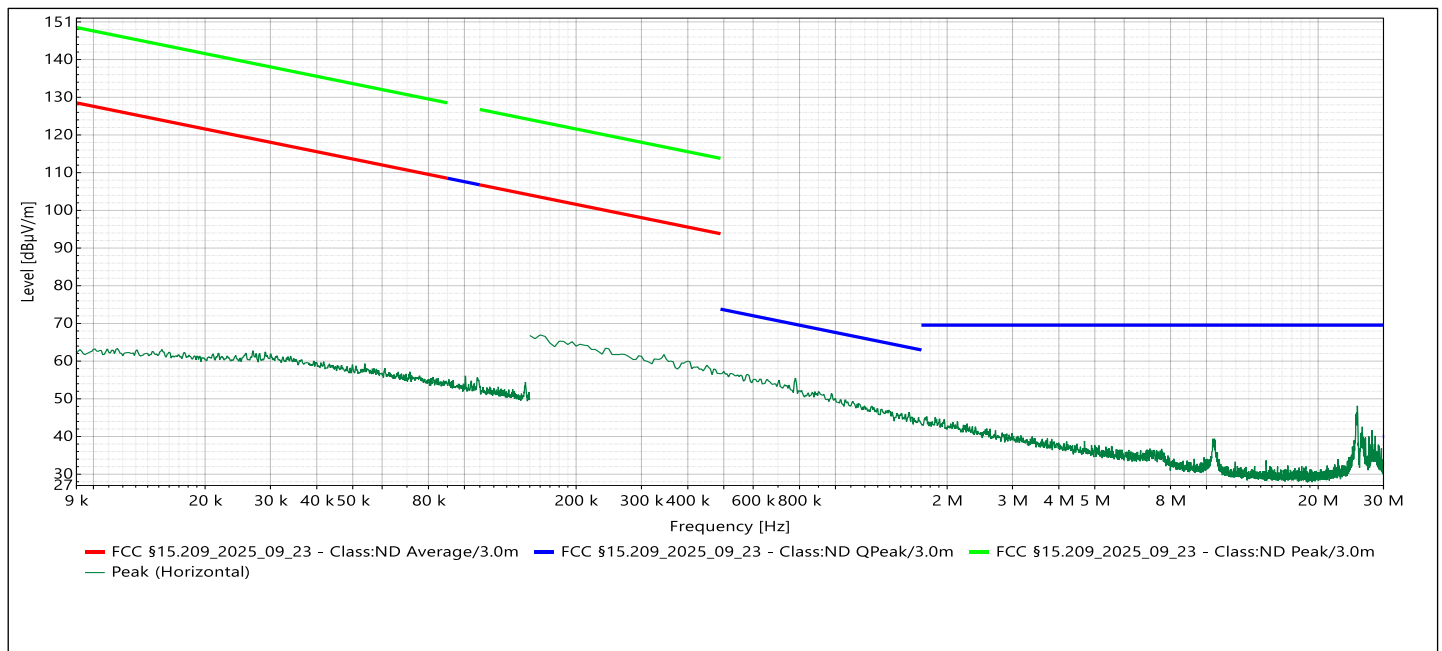


Figure 2.2.7-6 – Radiated Emissions Test Results

Finals

Test Notes:

PCB Antenna A - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions 30M-1GHz - 914.6 MHz - PCB Antenna
A

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

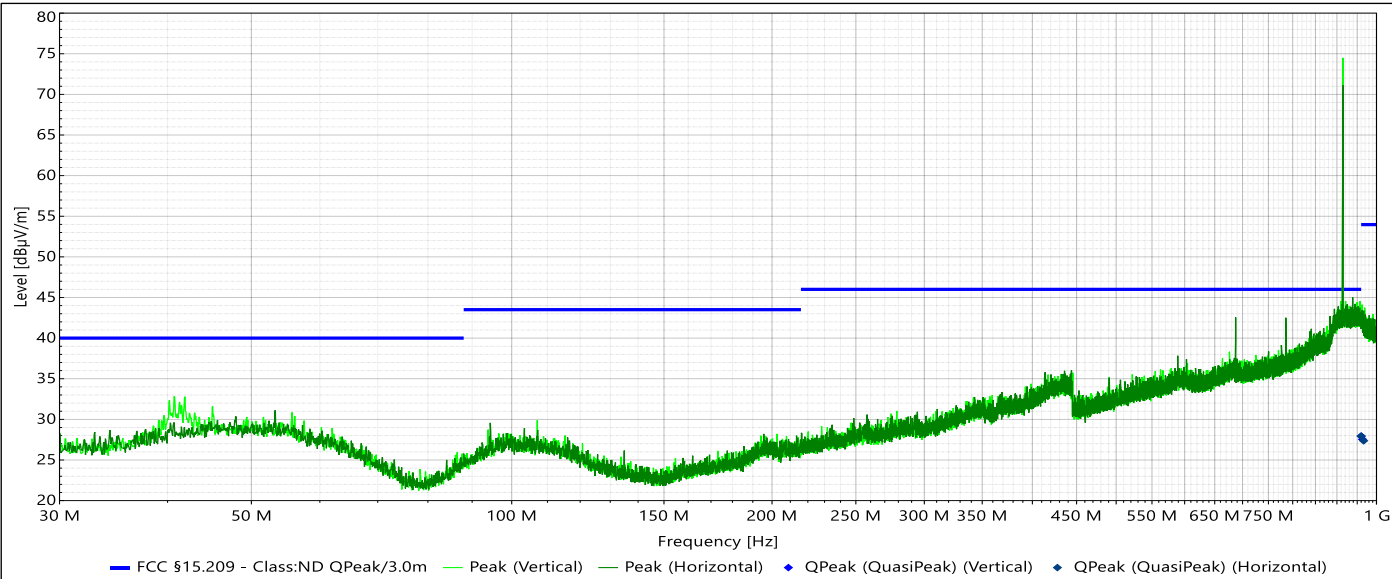


Figure 2.2.7-7 – Radiated Emissions Test Results



Finals

Table 2.2.7-4– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
960.149	27.94	53.97	-26.03	71.00	1.41	Vertical	Pass
963.530	27.54	53.97	-26.43	117.00	4.00	Vertical	Pass
959.965	27.94	46.00	-18.06	130.00	1.11	Horizontal	Pass
966.415	27.36	53.97	-26.61	118.00	1.00	Horizontal	Pass

Test Notes: PCB Antenna A - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 914.6 MHz - PCB Antenna
A

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10-11-2025	23.2 C	29%	980 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

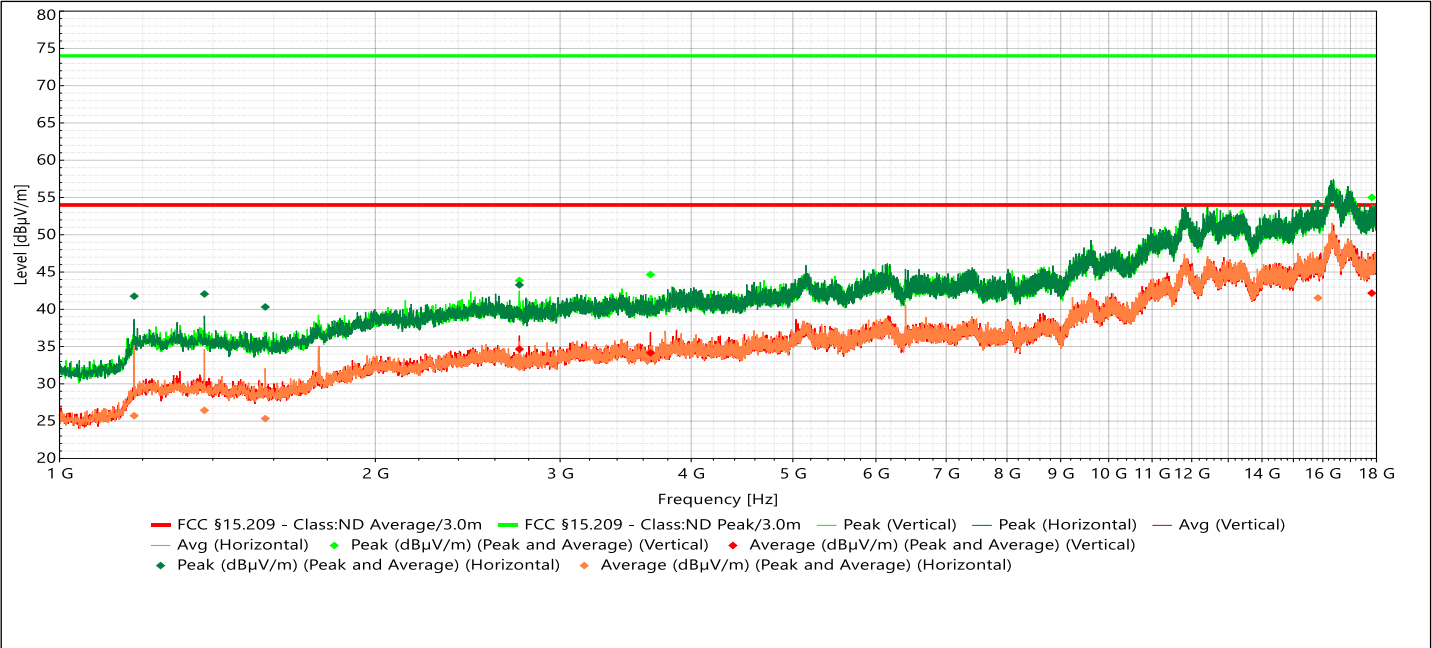


Figure 2.2.7-8 – Radiated Emissions Test Results



Finals

Table 2.2.7-5– 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
2743.856	43.87	74.00	-30.13	34.66	54.00	-19.34	159.00	1.00	Vertical	Pass
3658.276	44.67	74.00	-29.33	34.16	54.00	-19.84	161.00	1.59	Vertical	Pass
17813.809	55.01	74.00	-18.99	42.17	54.00	-11.83	39.00	2.50	Vertical	Pass
1178.156	41.76	74.00	-32.24	25.72	54.00	-28.28	184.00	1.12	Horizontal	Pass
1374.515	42.06	74.00	-31.94	26.45	54.00	-27.55	159.00	1.54	Horizontal	Pass
1570.874	40.32	74.00	-33.68	25.34	54.00	-28.66	159.00	1.11	Horizontal	Pass
2743.856	43.28	74.00	-30.72	32.24	54.00	-21.76	143.00	2.21	Horizontal	Pass
15831.677	54.08	74.00	-19.92	41.53	54.00	-12.47	249.00	3.52	Horizontal	Pass

Test Notes: PCB Antenna A - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-axial - 926.4 MHz - PCB Antenna A

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

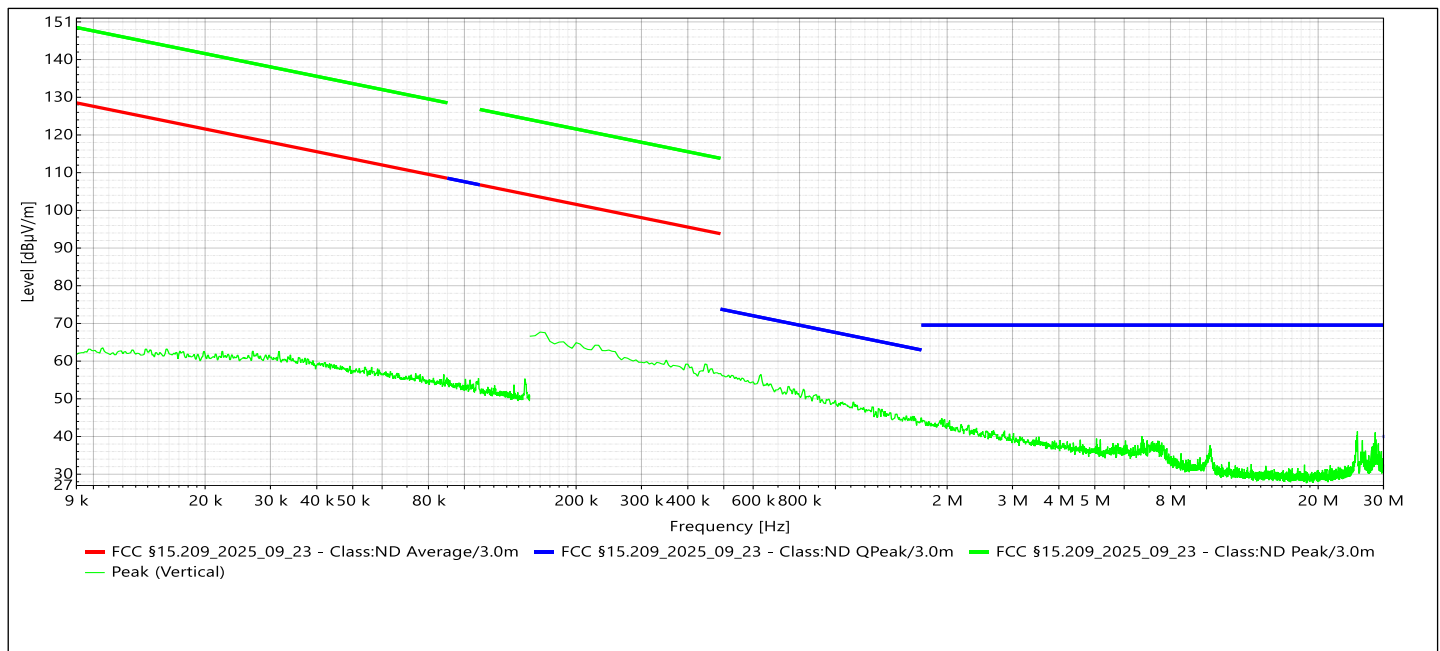


Figure 2.2.7-9 – Radiated Emissions Test Results

Finals

Test Notes:

PCB Antenna A - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions 30M-1GHz - 926.4 MHz - PCB Antenna
A

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

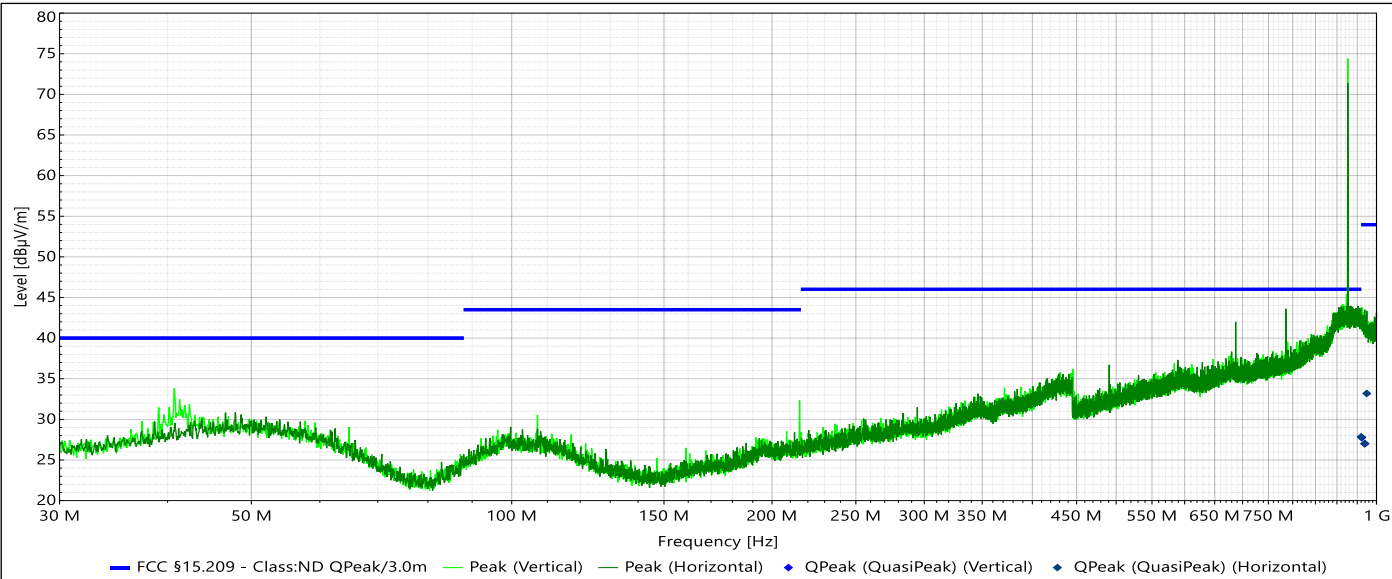


Figure 2.2.7-10 – Radiated Emissions Test Results



Finals

Table 2.2.7-6– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
961.438	27.75	53.97	-26.22	261.00	2.94	Vertical	Pass
969.207	26.99	53.97	-26.98	0.00	4.00	Vertical	Pass
960.076	27.85	53.97	-26.12	290.00	1.96	Horizontal	Pass
969.460	27.03	53.97	-26.94	0.00	4.00	Horizontal	Pass
974.415	33.19	53.97	-20.78	360.00	1.00	Horizontal	Pass

Test Notes: PCB Antenna A - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 926.4 MHz - PCB Antenna A

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/11/2025	23.2 C	29%	980 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

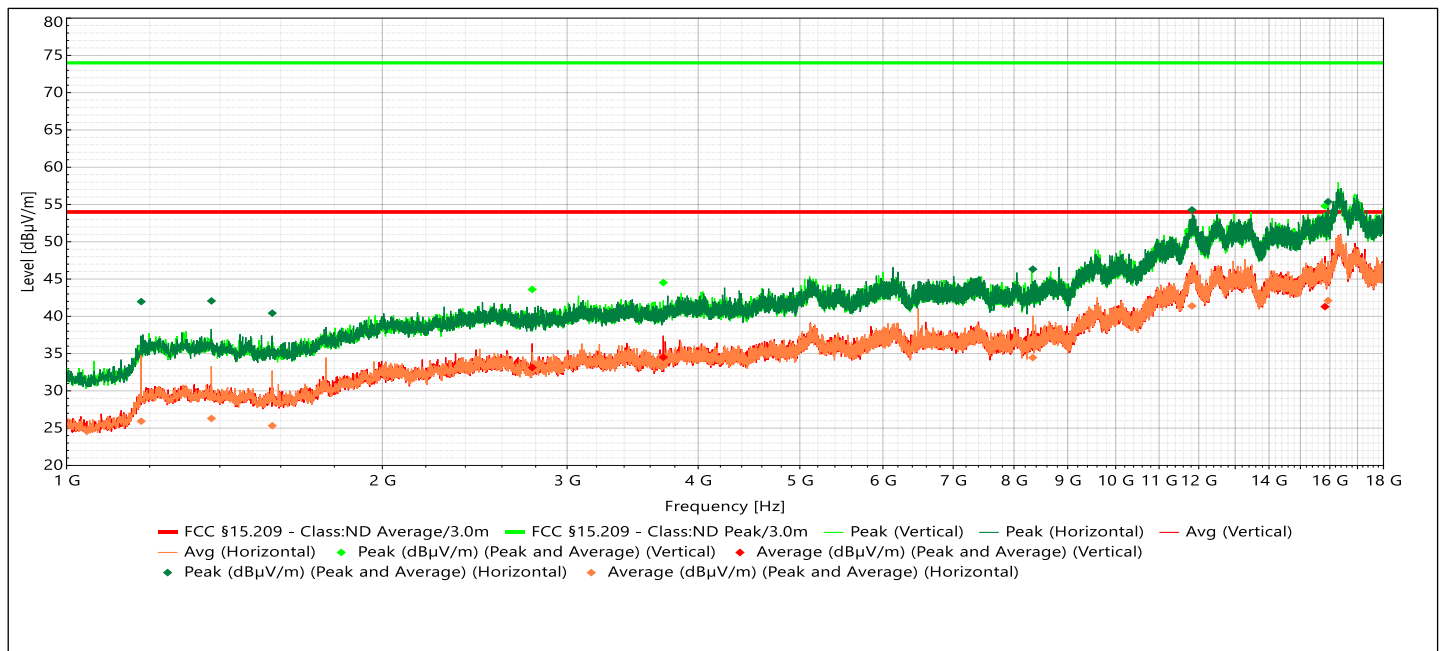


Figure 2.2.7-11 – Radiated Emissions Test Results



Finals

Table 2.2.7-7– 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
2779.096	43.61	74.00	-30.39	33.13	54.00	-20.87	167.00	1.14	Vertical	Pass
3705.462	44.52	74.00	-29.48	34.51	54.00	-19.49	168.00	2.70	Vertical	Pass
15831.441	54.80	74.00	-19.20	41.29	54.00	-12.71	103.00	1.66	Vertical	Pass
1178.156	41.97	74.00	-32.03	25.93	54.00	-28.07	176.00	2.15	Horizontal	Pass
1374.514	42.07	74.00	-31.93	26.30	54.00	-27.70	168.00	1.59	Horizontal	Pass
1570.874	40.43	74.00	-33.57	25.32	54.00	-28.68	167.00	2.65	Horizontal	Pass
8337.743	46.33	74.00	-27.67	34.46	54.00	-19.54	128.00	2.91	Horizontal	Pass
11822.664	54.28	74.00	-19.72	41.38	54.00	-12.62	248.00	2.00	Horizontal	Pass
15938.085	55.37	74.00	-18.63	42.10	54.00	-11.90	200.00	2.49	Horizontal	Pass

Test Notes: PCB Antenna A - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-axial - 903 MHz - PCB Antenna B

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209_2025_09_23

Test Results:
Pass

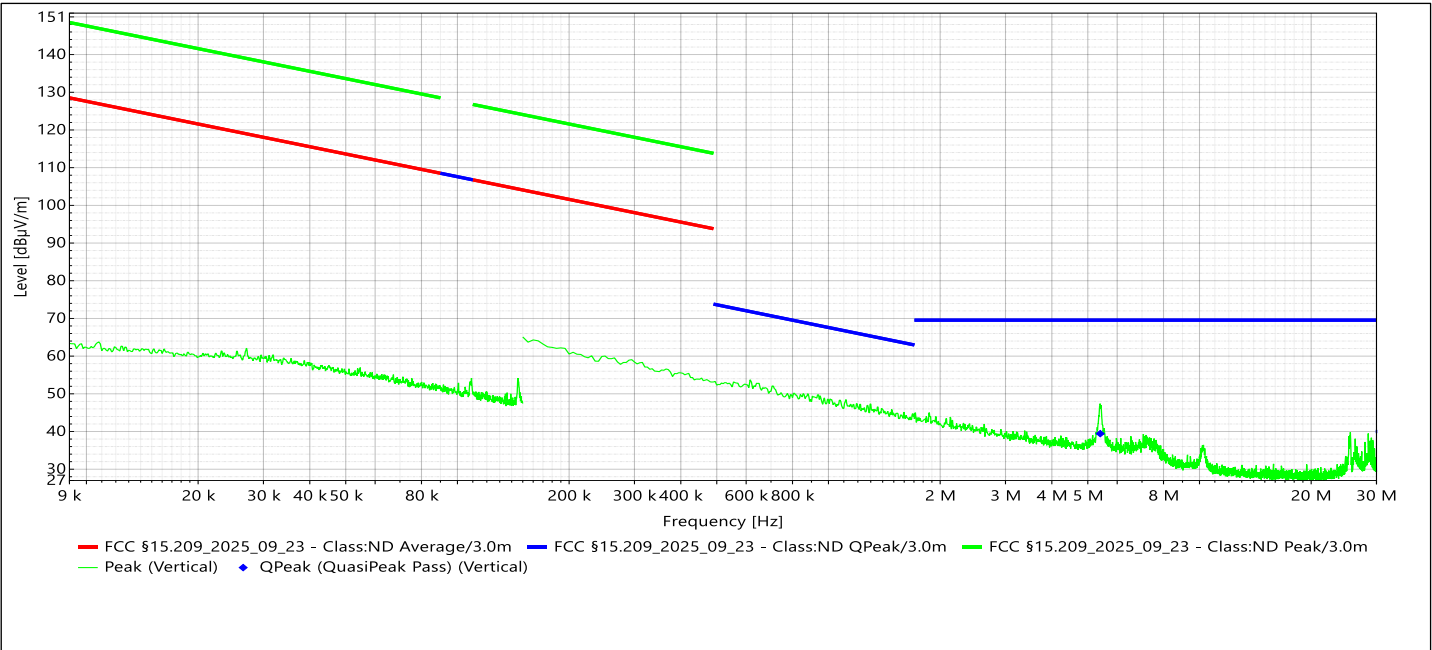


Figure 2.2.7-12 – Radiated Emissions Test Results



Finals

Table 2.2.7-8– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
5.402	39.43	69.54	-30.11	176.00	1.00	Vertical	Pass

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions 30M-1GHz - 903 MHz - PCB Antenna B

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

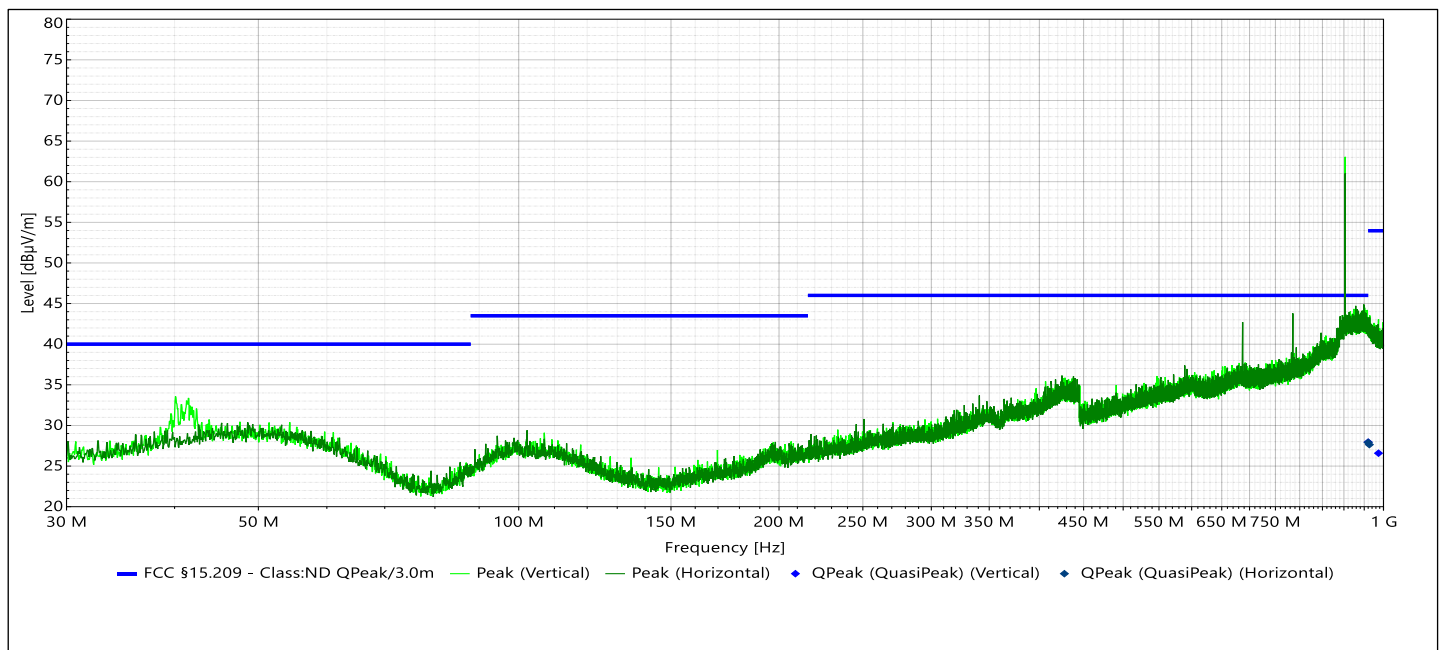


Figure 2.2.7-13 – Radiated Emissions Test Results



Finals

Table 2.2.7-9– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
960.025	27.95	46.00	-18.05	312.00	1.96	Vertical	Pass
986.798	26.58	53.97	-27.39	124.00	4.00	Vertical	Pass
959.964	27.91	46.00	-18.09	195.00	2.82	Horizontal	Pass
963.046	27.64	53.97	-26.33	0.00	3.75	Horizontal	Pass

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 903 MHz - PCB Antenna B

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/11/2025	23.2 C	29%	980 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

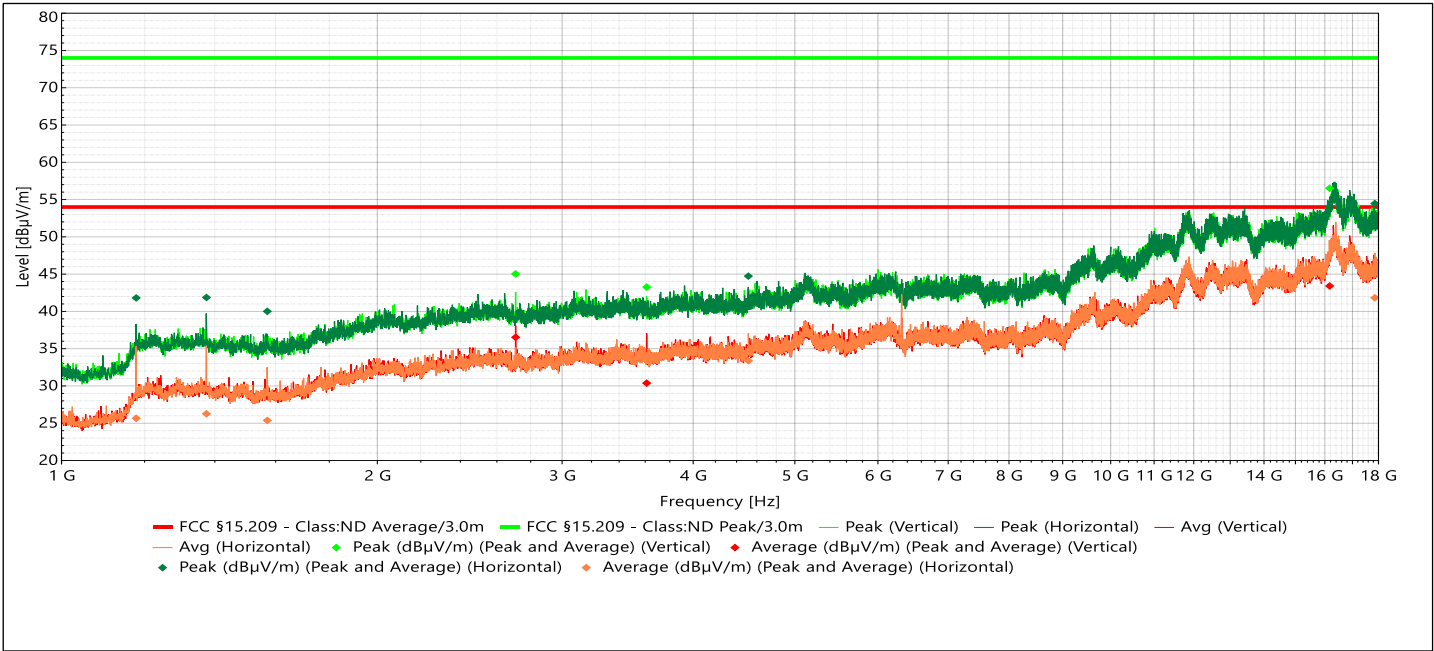


Figure 2.2.7-14 – Radiated Emissions Test Results



Finals

Table 2.2.7-10– 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
2709.065	45.03	74.00	-28.97	36.53	54.00	-17.47	184.00	1.00	Vertical	Pass
3612.088	43.27	74.00	-30.73	30.38	54.00	-23.62	264.00	1.25	Vertical	Pass
16170.569	56.52	74.00	-17.48	43.41	54.00	-10.59	248.00	1.39	Vertical	Pass
1178.154	41.81	74.00	-32.19	25.66	54.00	-28.34	159.00	2.90	Horizontal	Pass
1374.514	41.87	74.00	-32.13	26.26	54.00	-27.74	160.00	1.46	Horizontal	Pass
1570.873	40.01	74.00	-33.99	25.38	54.00	-28.62	135.00	1.60	Horizontal	Pass
4515.109	44.73	74.00	-29.27	33.39	54.00	-20.61	191.00	1.00	Horizontal	Pass
17855.742	54.47	74.00	-19.53	41.82	54.00	-12.18	96.00	1.39	Horizontal	Pass

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-axial - 914.6 MHz - PCB Antenna B

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209_2025_09_23

Test Results:
Pass

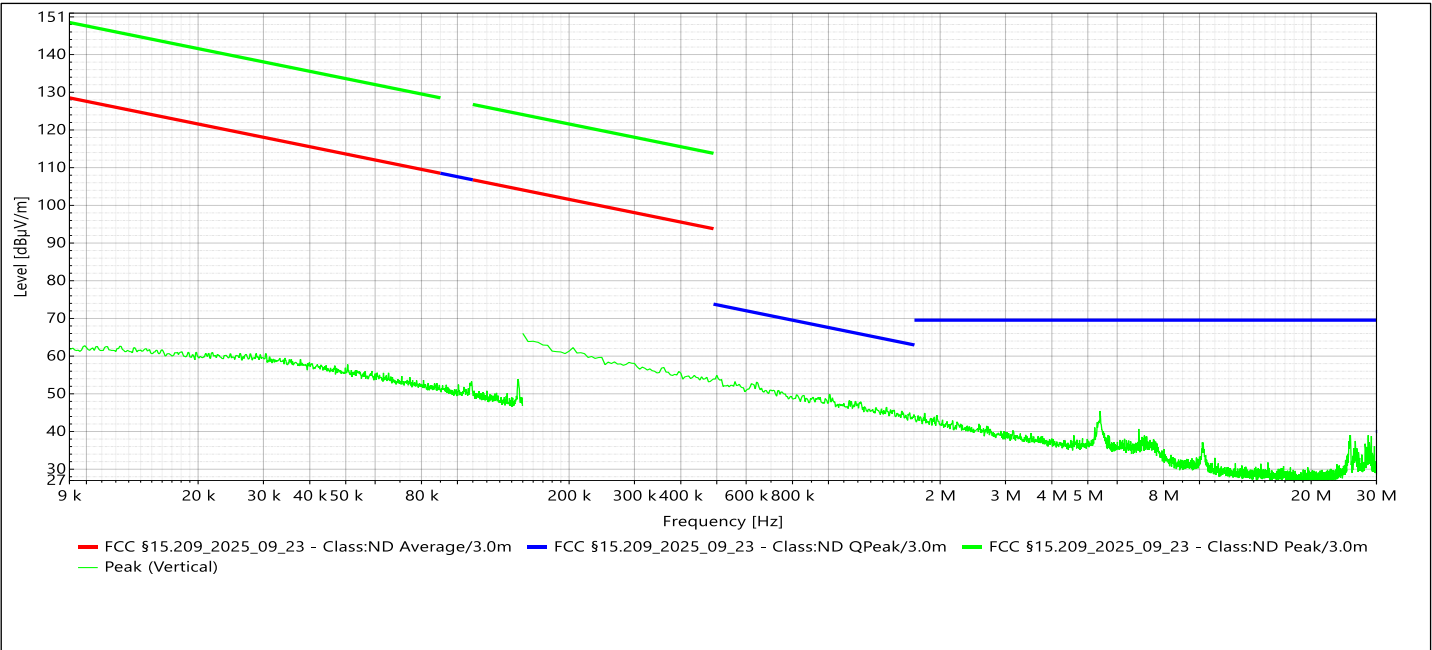


Figure 2.2.7-15 – Radiated Emissions Test Results

Finals

Test Notes:
PCB Antenna B - Max TX Power
No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-Planar - 914.6 MHz - PCB Antenna B

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209_2025_09_23

Test Results:
Pass

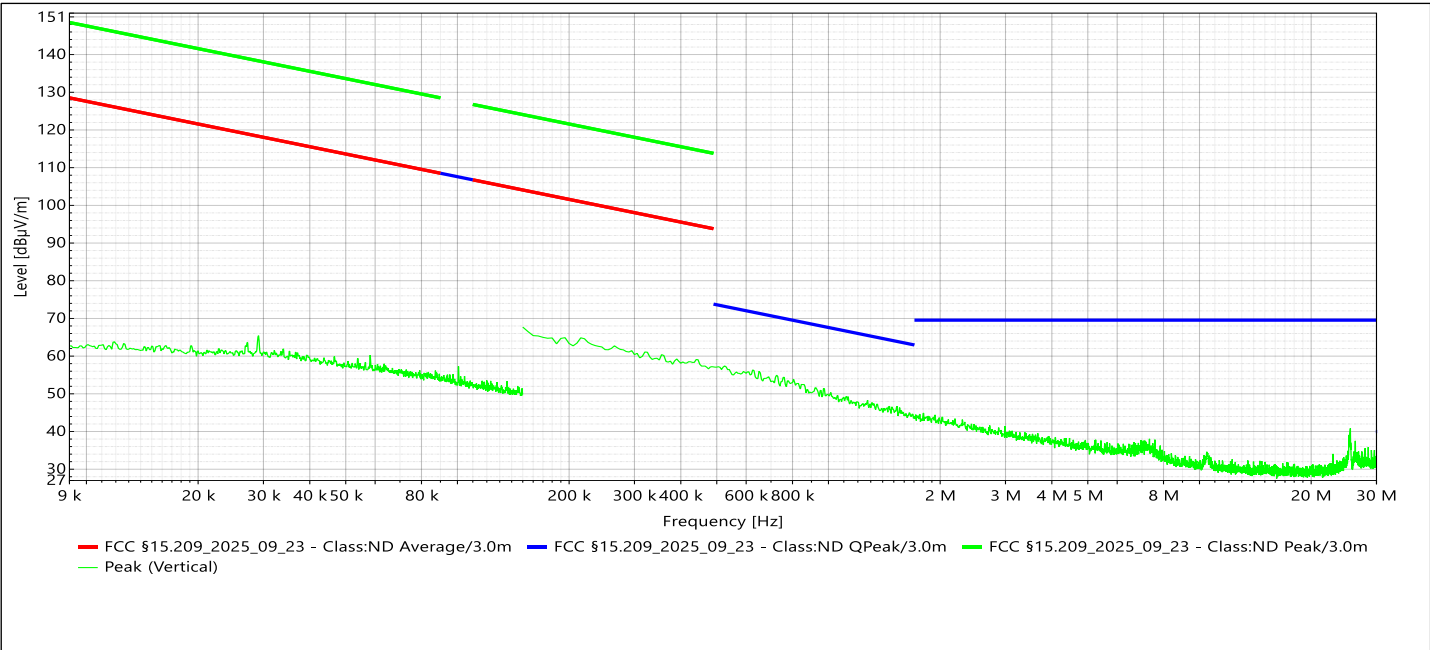


Figure 2.2.7-16 – Radiated Emissions Test Results

Finals

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Horizontal Co-Planar - 914.6 MHz - PCB Antenna B

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

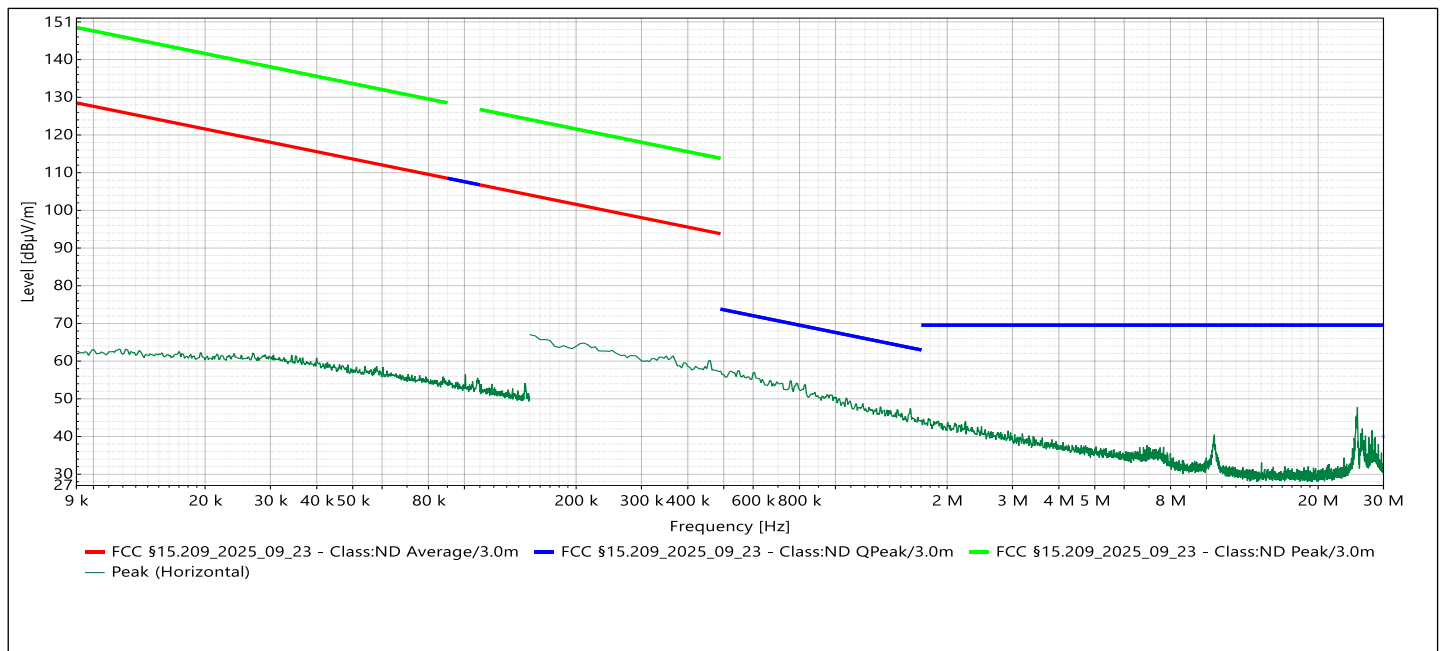


Figure 2.2.7-17 – Radiated Emissions Test Results

Finals

Test Notes:

PCB Antenna B - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions 30M-1GHz - 914.6 MHz - PCB Antenna
B

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

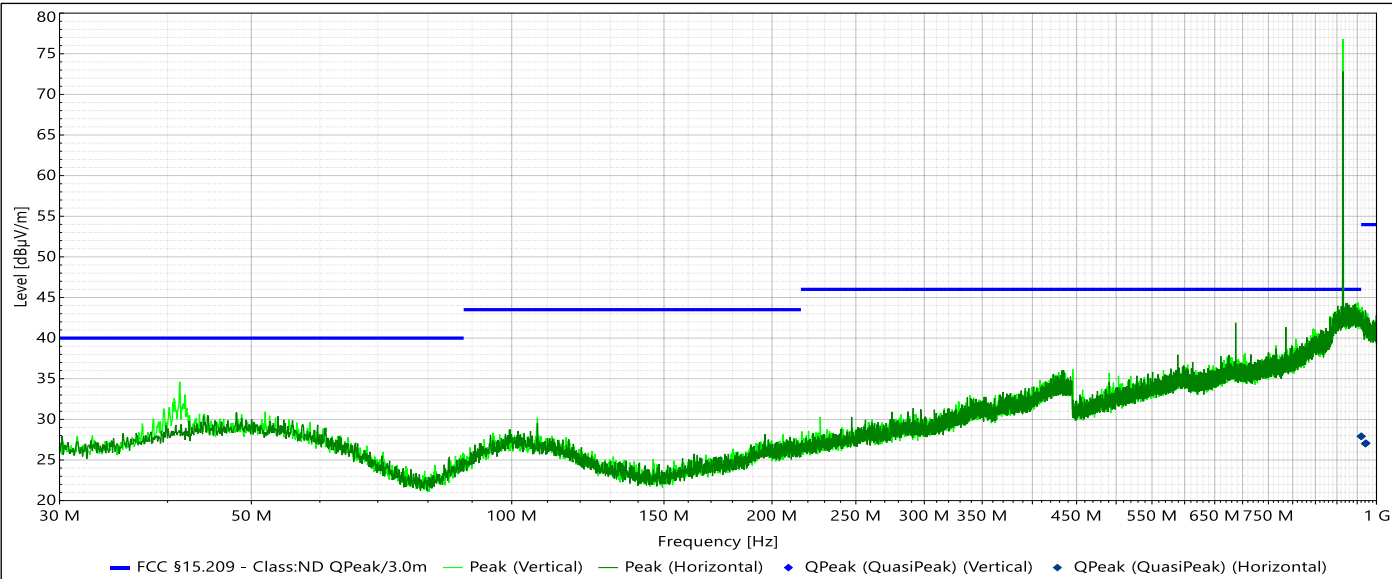


Figure 2.2.7-18 – Radiated Emissions Test Results



Finals

Table 2.2.7-11– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
960.174	27.91	53.97	-26.06	334.00	3.04	Vertical	Pass
972.329	27.07	53.97	-26.90	124.00	1.00	Vertical	Pass
960.196	27.92	53.97	-26.05	28.00	3.14	Horizontal	Pass
970.830	27.00	53.97	-26.97	360.00	1.00	Horizontal	Pass

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 914.6 MHz - PCB Antenna B

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/11/2025	23.2 C	29%	980 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

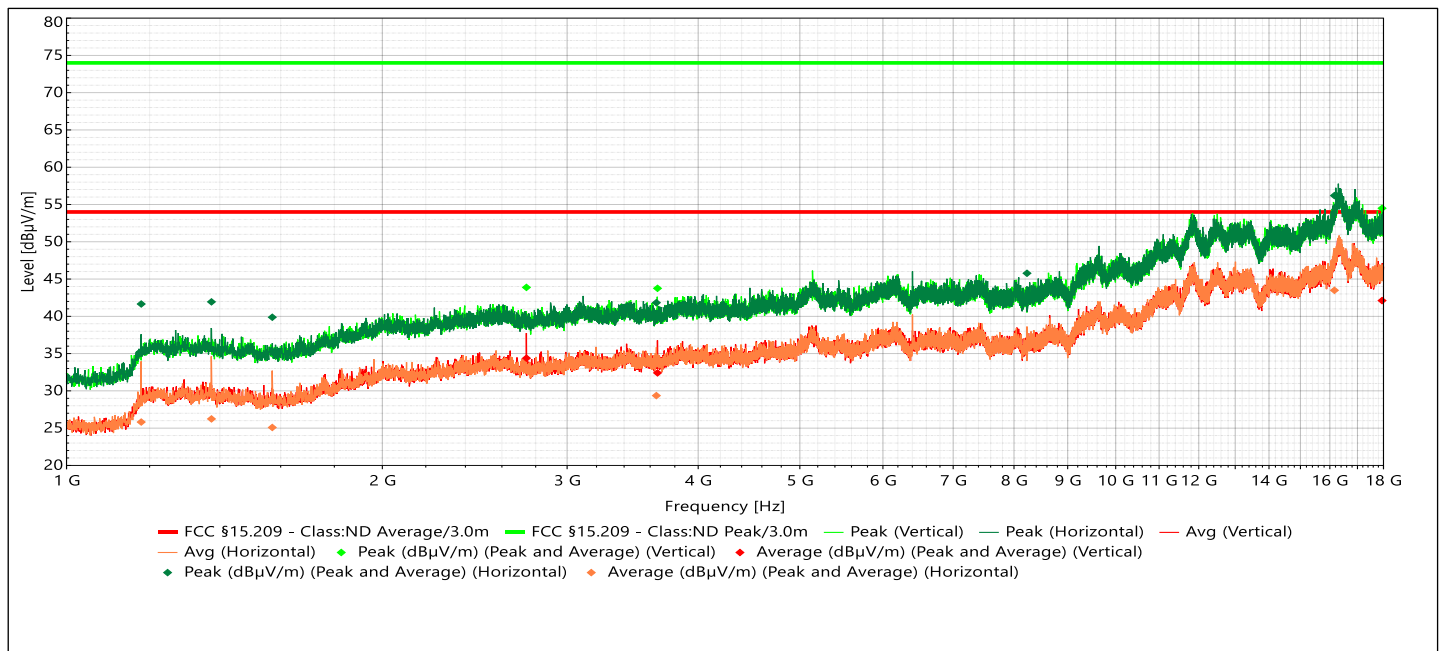


Figure 2.2.7-19 – Radiated Emissions Test Results



Finals

Table 2.2.7-12– 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
2743.855	43.88	74.00	-30.12	34.38	54.00	-19.62	152.00	1.73	Vertical	Pass
3658.473	43.75	74.00	-30.25	32.41	54.00	-21.59	224.00	2.16	Vertical	Pass
17943.316	54.49	74.00	-19.51	42.11	54.00	-11.89	217.00	3.95	Vertical	Pass
1178.154	41.65	74.00	-32.35	25.82	54.00	-28.18	152.00	2.22	Horizontal	Pass
1374.515	41.94	74.00	-32.06	26.24	54.00	-27.76	159.00	2.17	Horizontal	Pass
1570.873	39.87	74.00	-34.13	25.09	54.00	-28.91	151.00	3.28	Horizontal	Pass
3649.240	41.83	74.00	-32.17	29.36	54.00	-24.64	232.00	2.35	Horizontal	Pass
8231.564	45.77	74.00	-28.23	35.82	54.00	-18.18	119.00	1.00	Horizontal	Pass
16162.237	56.19	74.00	-17.81	43.49	54.00	-10.51	128.00	1.89	Horizontal	Pass

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-axial - 926.4 MHz - PCB Antenna B

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

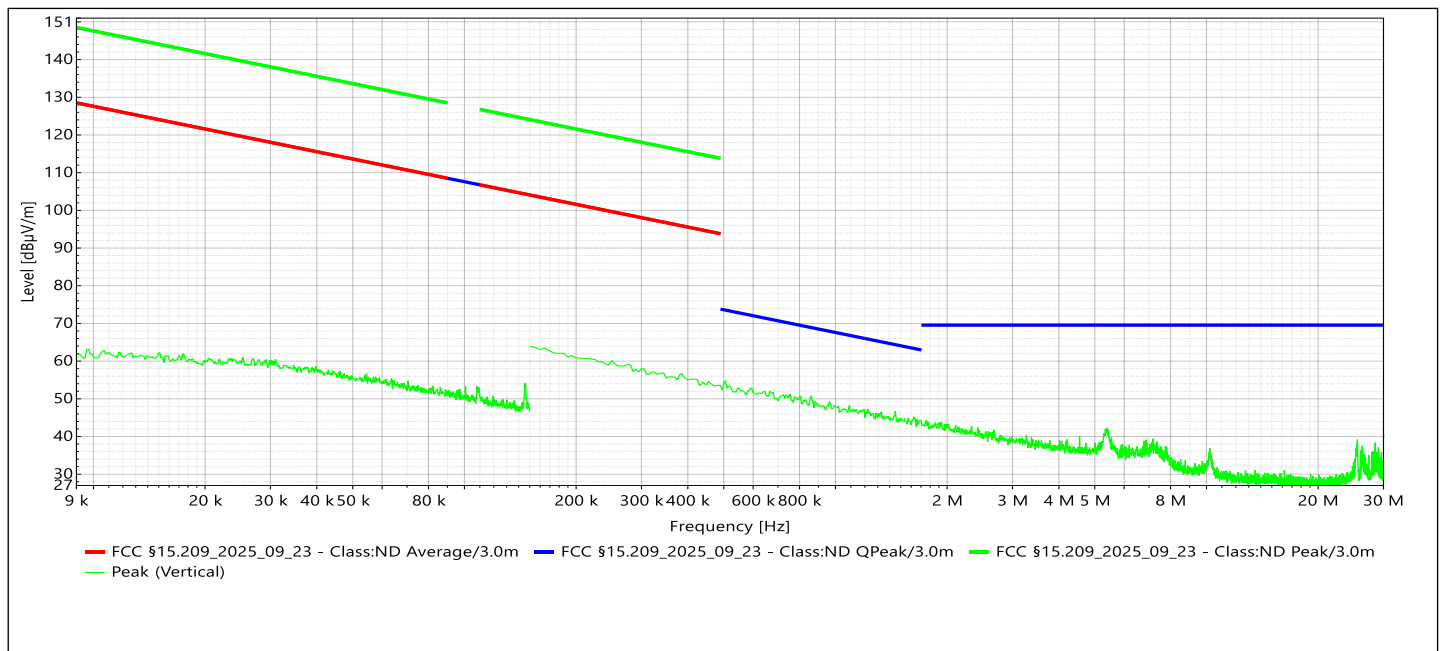


Figure 2.2.7-20 – Radiated Emissions Test Results

Finals

Test Notes:

PCB Antenna B - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions 30M-1GHz - 926.4 MHz - PCB Antenna
B

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

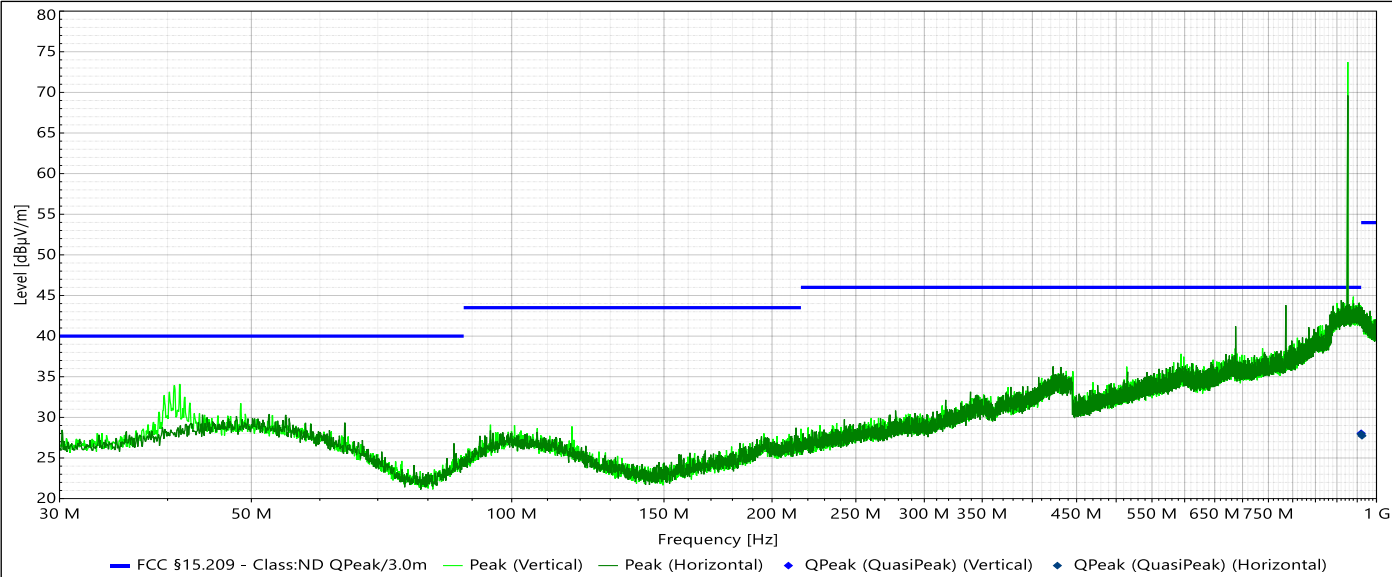


Figure 2.2.7-21 – Radiated Emissions Test Results



Finals

Table 2.2.7-13– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
960.000	28.04	46.00	-17.96	64.00	2.63	Vertical	Pass
960.163	27.94	53.97	-26.03	101.00	2.18	Horizontal	Pass
962.073	27.73	53.97	-26.24	118.00	3.75	Horizontal	Pass

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 926.4 MHz - PCB Antenna B

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/11/2025	23.2 C	29%	980 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

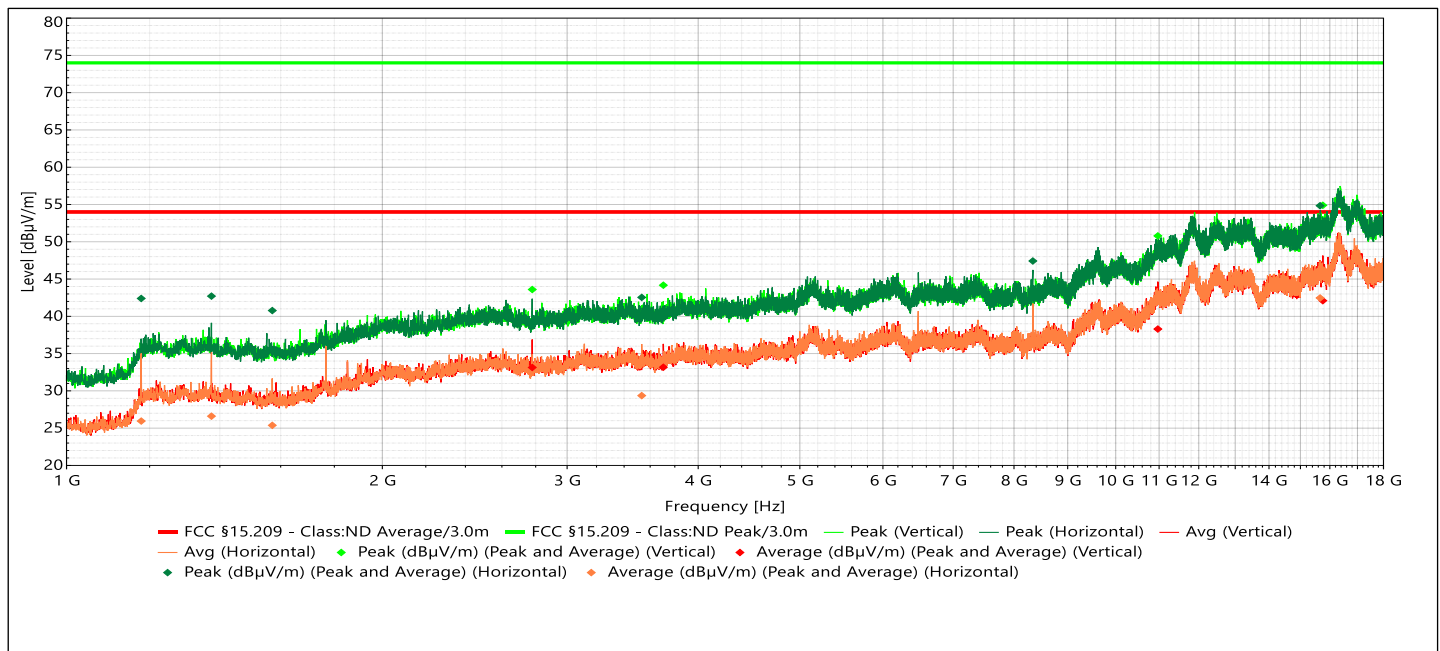


Figure 2.2.7-22 – Radiated Emissions Test Results



Finals

Table 2.2.7-14– 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
2779.248	43.59	74.00	-30.41	33.14	54.00	-20.86	152.00	1.46	Vertical	Pass
3705.663	44.17	74.00	-29.83	33.17	54.00	-20.83	200.00	2.09	Vertical	Pass
10969.629	50.79	74.00	-23.21	38.29	54.00	-15.71	104.00	2.72	Vertical	Pass
15755.456	54.90	74.00	-19.10	42.10	54.00	-11.90	329.00	2.55	Vertical	Pass
1178.154	42.40	74.00	-31.60	25.95	54.00	-28.05	151.00	2.13	Horizontal	Pass
1374.515	42.71	74.00	-31.29	26.60	54.00	-27.40	152.00	1.60	Horizontal	Pass
1570.874	40.77	74.00	-33.23	25.37	54.00	-28.63	152.00	1.26	Horizontal	Pass
3533.831	42.54	74.00	-31.46	29.36	54.00	-24.64	329.00	2.92	Horizontal	Pass
8337.741	47.42	74.00	-26.58	37.54	54.00	-16.46	112.00	1.00	Horizontal	Pass
15660.970	54.84	74.00	-19.16	42.46	54.00	-11.54	192.00	3.21	Horizontal	Pass

Test Notes: PCB Antenna B - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-Axial - 903 MHz - External Antenna

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

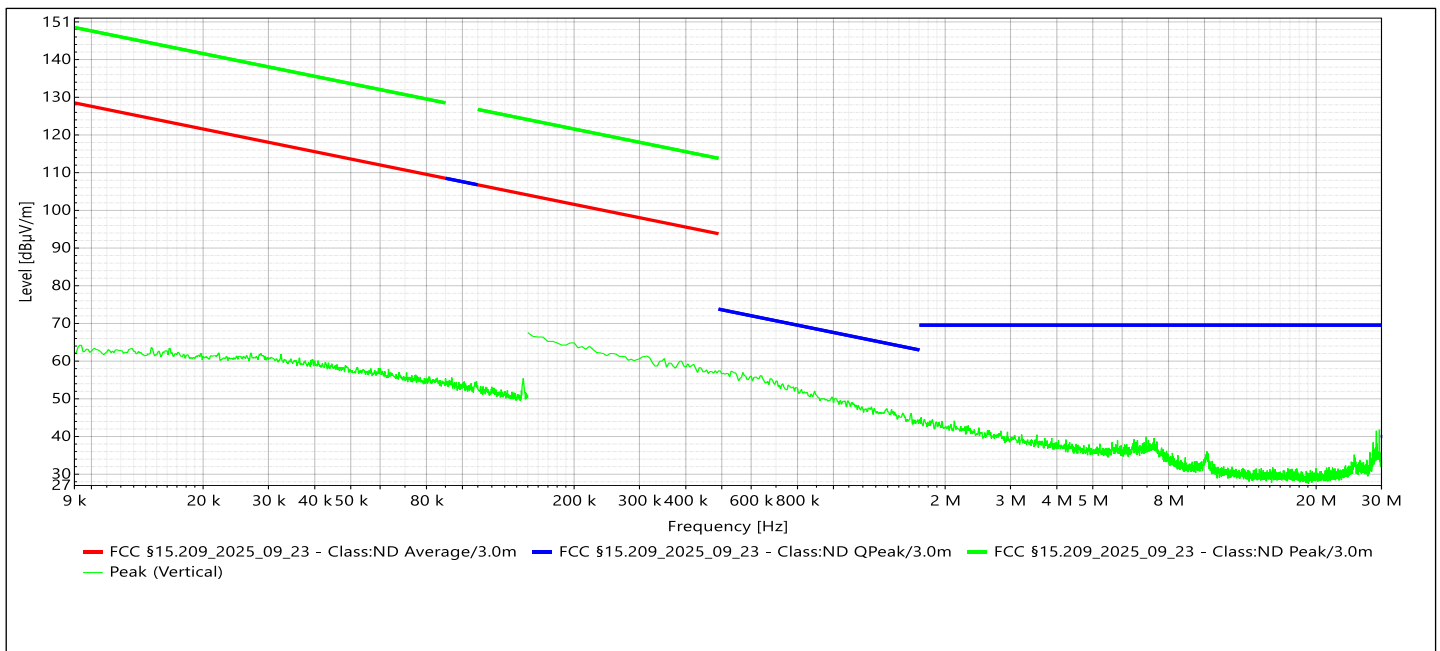


Figure 2.2.7-23 – Radiated Emissions Test Results

Finals

Test Notes:

External Antenna - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions 30M-1GHz - 903 MHz - External Antenna

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	100 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	100 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/9/2025	24.3 C	29 %	987 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

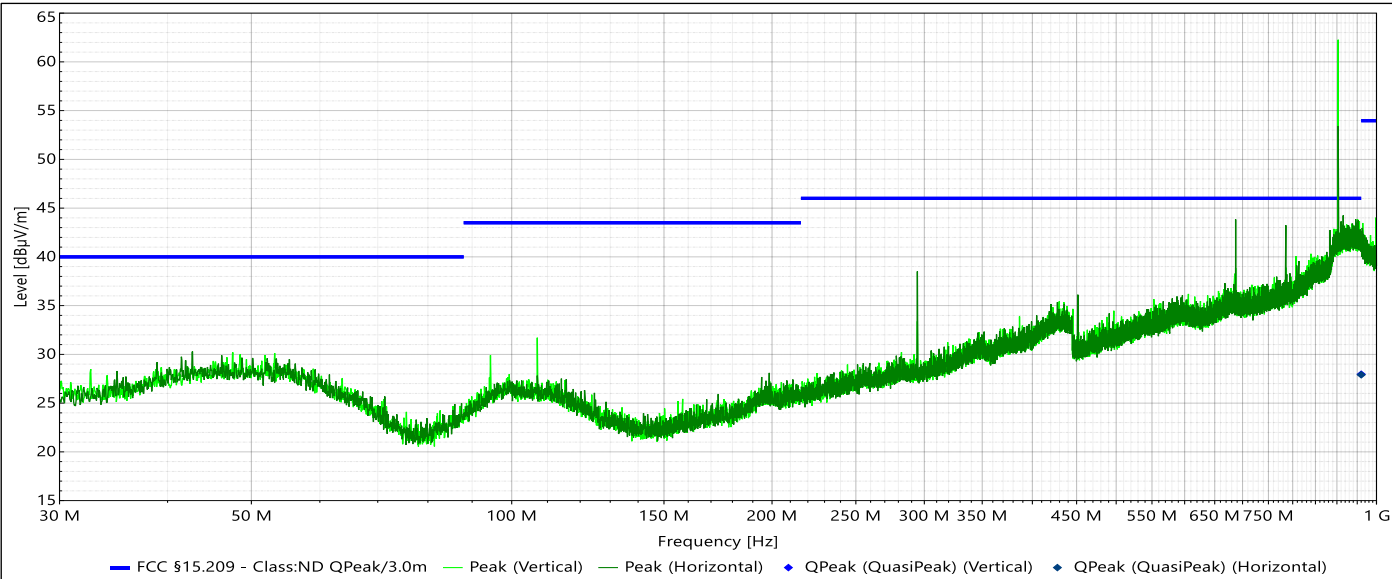


Figure 2.2.7-24 – Radiated Emissions Test Results



Finals

Table 2.2.7-15– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
960.151	27.96	53.97	-26.01	277.00	2.28	Vertical	Pass
960.100	27.90	53.97	-26.07	130.00	1.82	Horizontal	Pass

Test Notes: External Antenna - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 903 MHz - External Antenna

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/11/2025	23.2 C	29%	980 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	902.99973 MHz	0	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

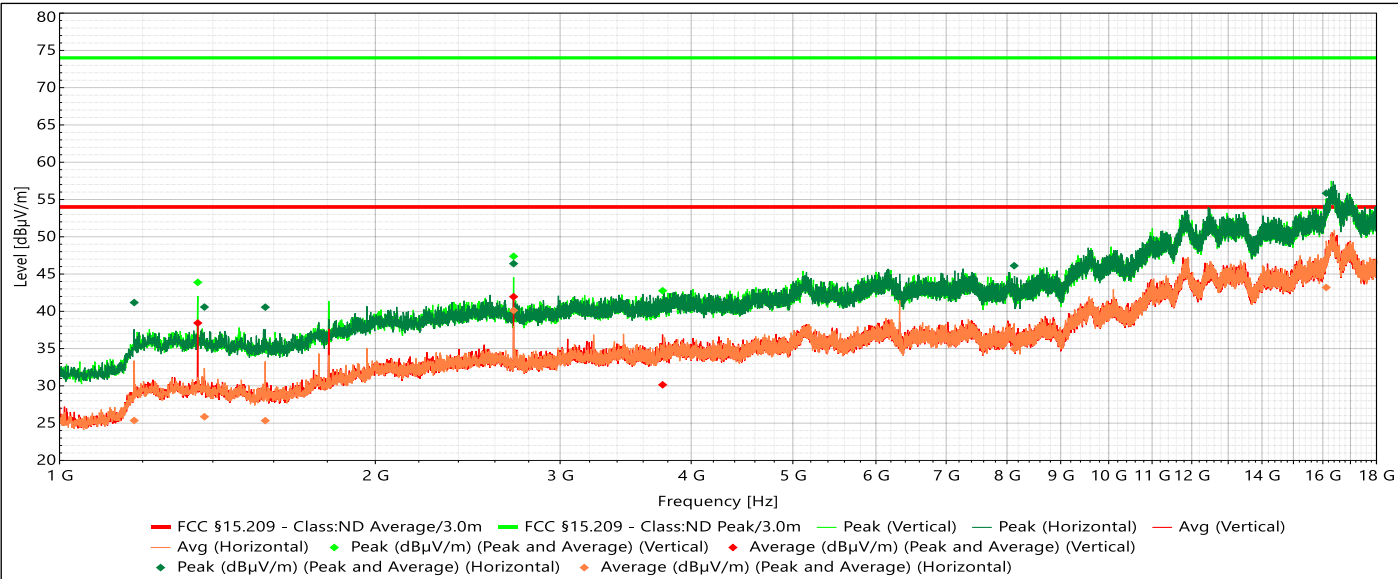


Figure 2.2.7-25 – Radiated Emissions Test Results



Finals

Table 2.2.7-16– 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
1354.533	43.88	74.00	-30.12	38.43	54.00	-15.57	256.00	1.82	Vertical	Pass
2709.065	47.38	74.00	-26.62	41.95	54.00	-12.05	208.00	2.84	Vertical	Pass
3757.126	42.76	74.00	-31.24	30.14	54.00	-23.86	120.00	1.18	Vertical	Pass
1178.152	41.18	74.00	-32.82	25.35	54.00	-28.65	103.00	2.22	Horizontal	Pass
1374.513	40.57	74.00	-33.43	25.86	54.00	-28.14	136.00	3.49	Horizontal	Pass
1570.876	40.56	74.00	-33.44	25.33	54.00	-28.67	176.00	2.02	Horizontal	Pass
2709.065	46.40	74.00	-27.60	40.12	54.00	-13.88	208.00	2.35	Horizontal	Pass
8127.195	46.12	74.00	-27.88	34.98	54.00	-19.02	160.00	1.00	Horizontal	Pass
16120.013	55.84	74.00	-18.16	43.19	54.00	-10.81	240.00	1.43	Horizontal	Pass

Test Notes: External Antenna - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-Axial - 914.6 MHz - External Antenna

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

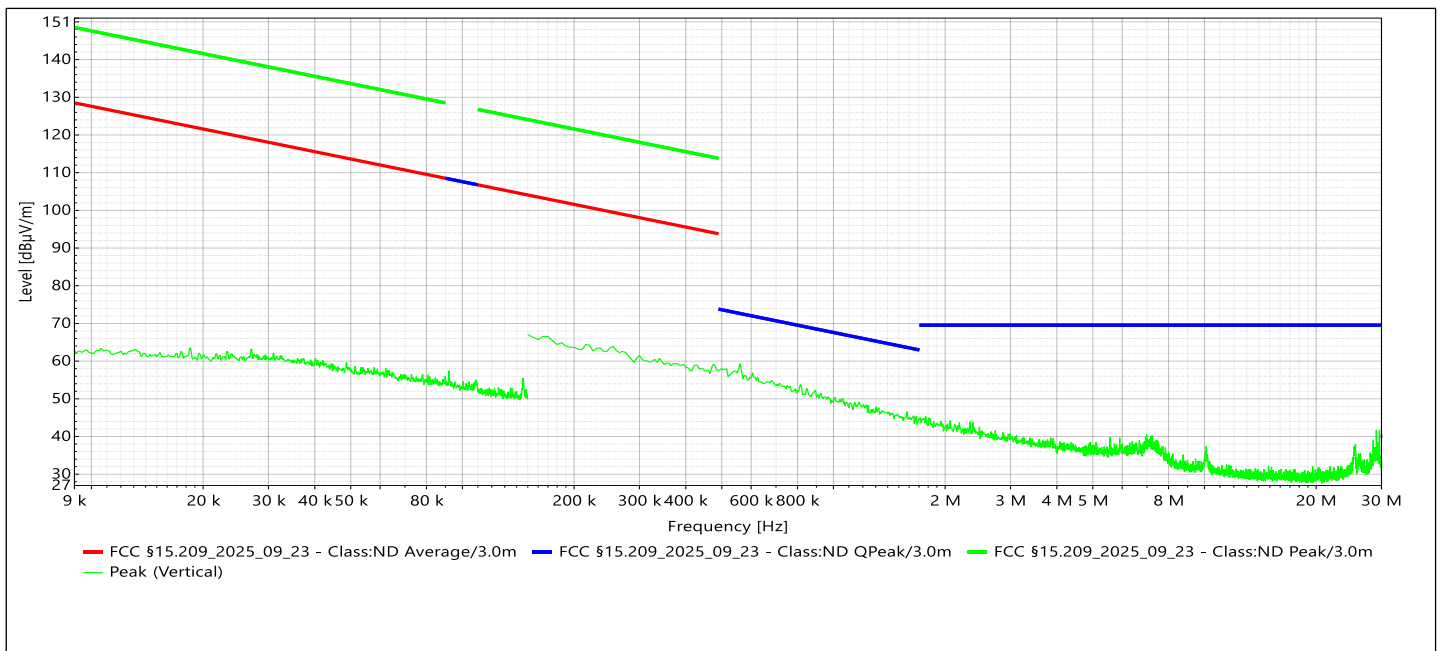


Figure 2.2.7-26 – Radiated Emissions Test Results

Finals

Test Notes:

External Antenna - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-Planar - 914.6 MHz - External Antenna

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

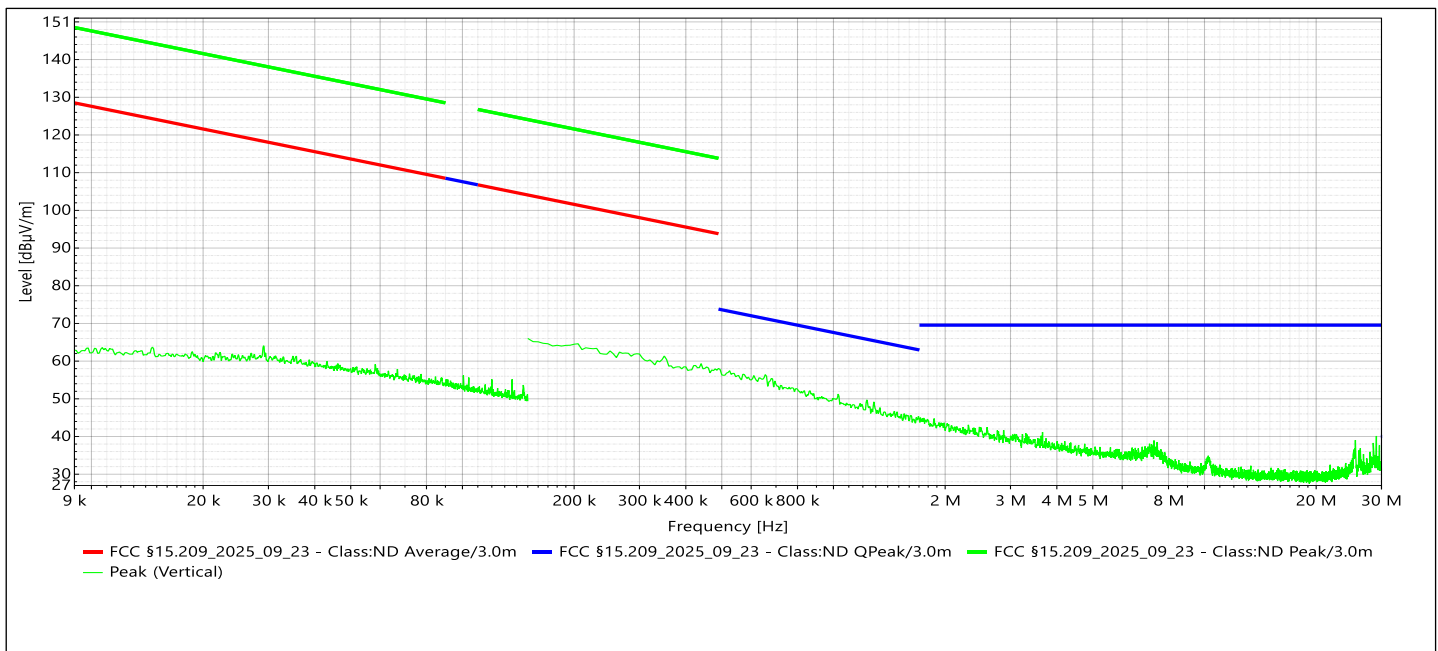


Figure 2.2.7-27 – Radiated Emissions Test Results

Finals

Test Notes:

External Antenna - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Horizontal Co-Planar - 914.6 MHz - External Antenna

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209_2025_09_23

Test Results:
Pass

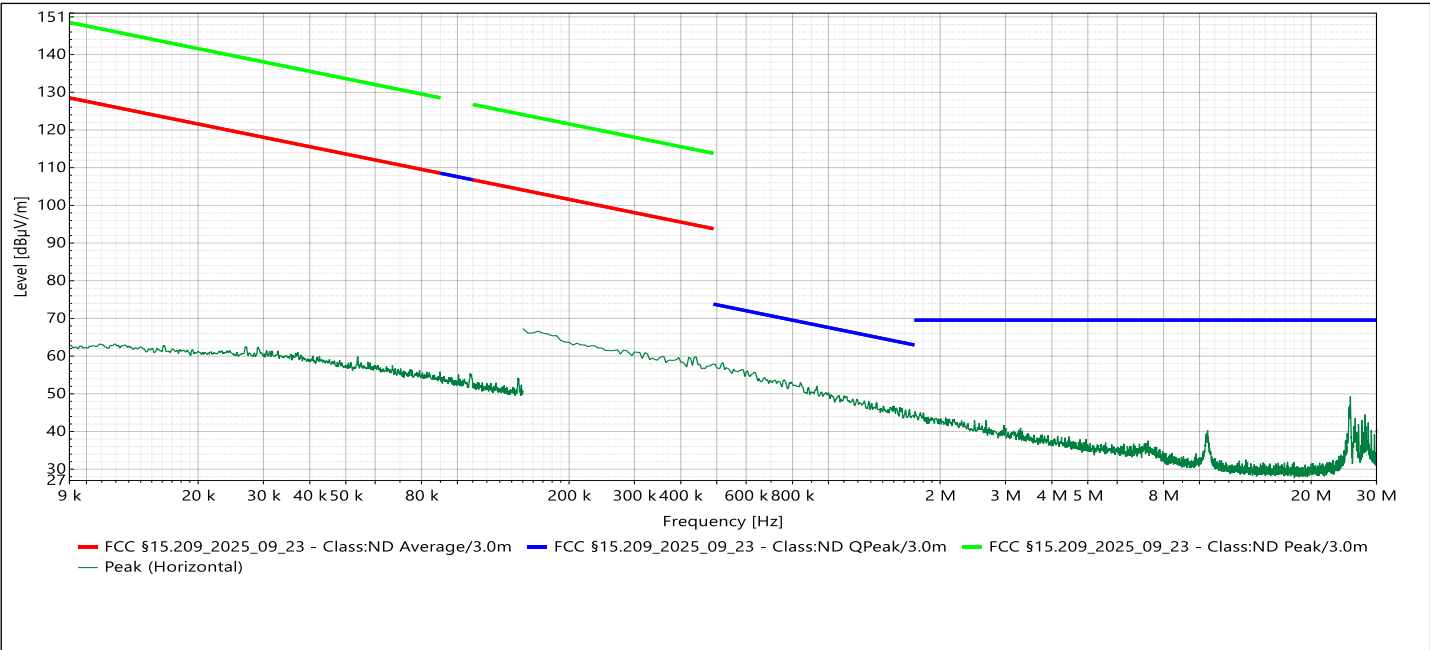


Figure 2.2.7-28 – Radiated Emissions Test Results

Finals

Test Notes:
External Antenna - Max TX Power
No significant emissions were observed. Therefore, no finals measurements were performed.



FCC 15.247 - Spurious Emissions 30M-1GHz - 914.6 MHz - External Antenna

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

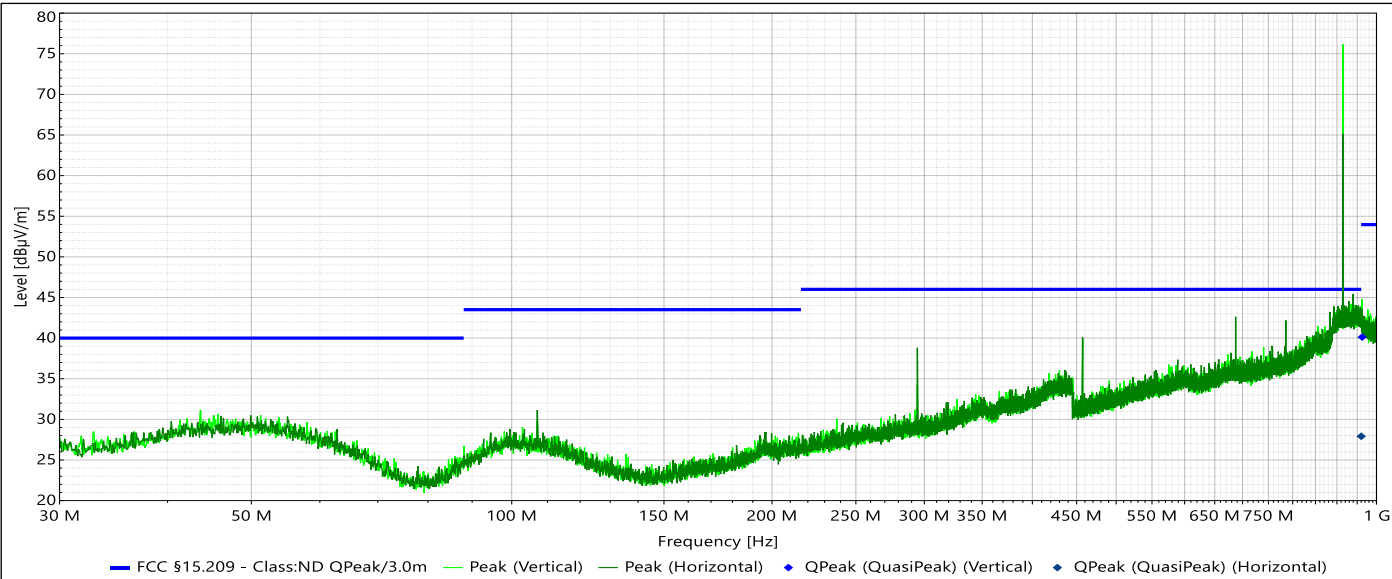


Figure 2.2.7-29 – Radiated Emissions Test Results



Finals

Table 2.2.7-17– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
962.618	40.13	53.97	-13.84	334.00	1.11	Vertical	Pass
960.308	27.92	53.97	-26.05	115.00	2.94	Horizontal	Pass

Test Notes: External Antenna - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 914.6 MHz - External Antenna

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/13/2025	23.2 C	29%	980 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	914.59689 MHz	25	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

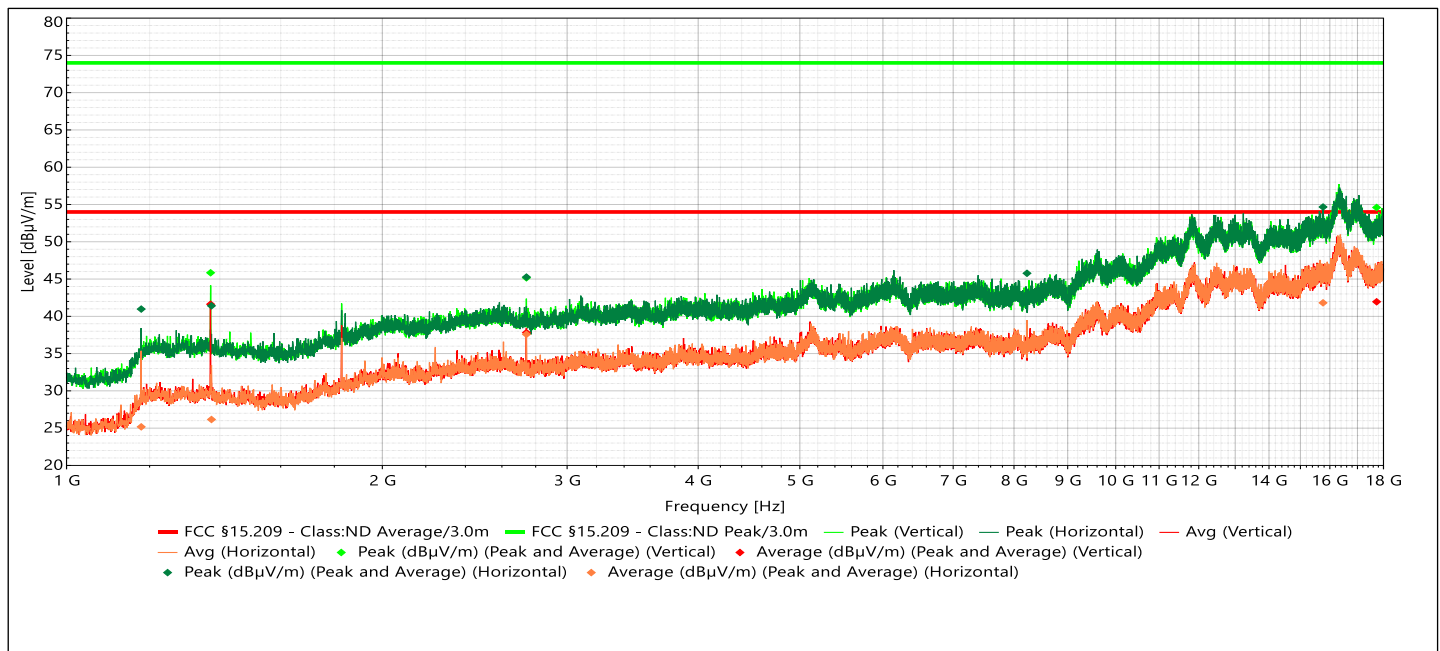


Figure 2.2.7-30 – Radiated Emissions Test Results



Finals

Table 2.2.7-18– 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
1371.928	45.84	74.00	-28.16	41.62	54.00	-12.38	7.00	1.53	Vertical	Pass
2743.856	45.16	74.00	-28.84	37.81	54.00	-16.19	176.00	1.19	Vertical	Pass
17730.543	54.60	74.00	-19.40	41.95	54.00	-12.05	119.00	4.00	Vertical	Pass
1178.156	40.97	74.00	-33.03	25.17	54.00	-28.83	160.00	1.96	Horizontal	Pass
1374.516	41.41	74.00	-32.59	26.16	54.00	-27.84	152.00	1.11	Horizontal	Pass
2743.856	45.26	74.00	-28.74	37.58	54.00	-16.42	152.00	1.26	Horizontal	Pass
8231.567	45.77	74.00	-28.23	35.96	54.00	-18.04	135.00	1.46	Horizontal	Pass
15763.363	54.66	74.00	-19.34	41.81	54.00	-12.19	265.00	1.85	Horizontal	Pass

Test Notes: External Antenna - Max TX Power



FCC 15.247 - Spurious Emissions- 9kHz-30MHz - Vertical Co-Axial - 926.4 MHz - External Antenna

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 Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/14/2025	23.3 C	32 %	998 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:

FCC Part 15/FCC §15.209_2025_09_23

Test Results:

Pass

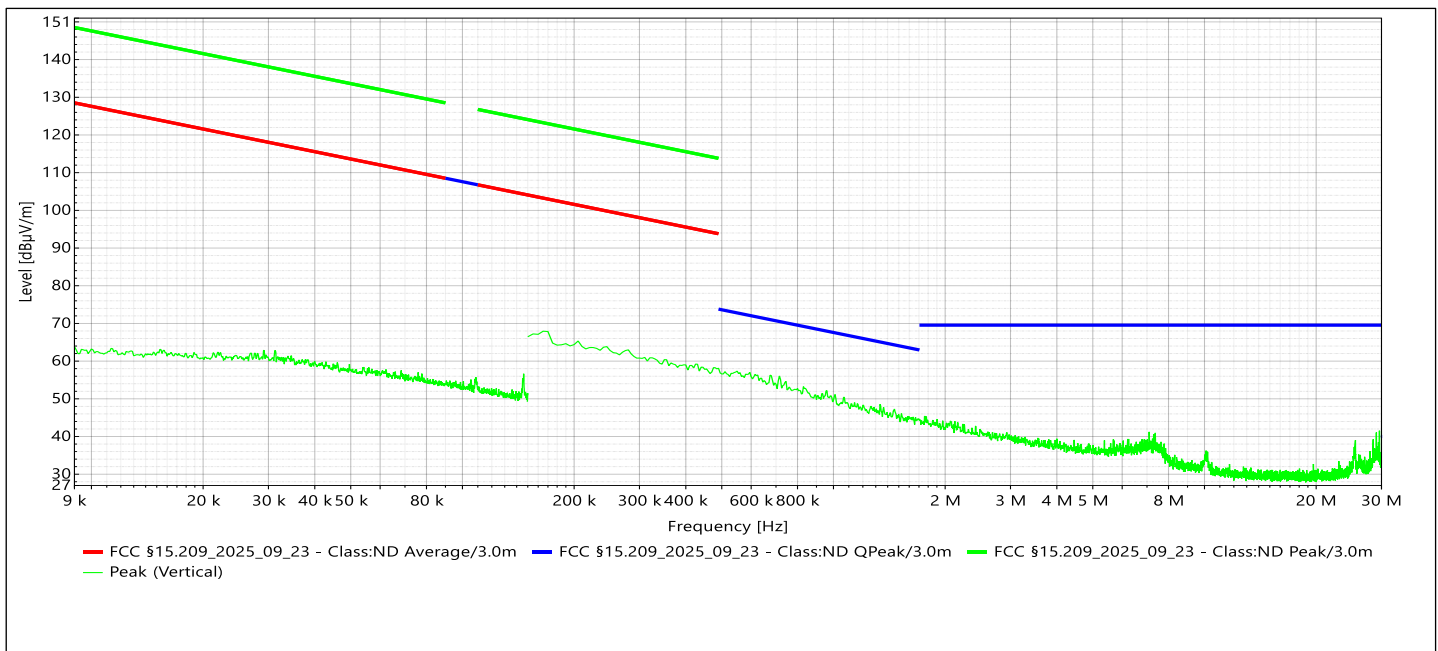


Figure 2.2.7-31 – Radiated Emissions Test Results

Finals

Test Notes:

External Antenna - Max TX Power

No significant emissions were observed. Therefore, no finals measurements were performed



FCC 15.247 - Spurious Emissions 30M-1GHz - 926.4 MHz - External Antenna

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
30 MHz - 1 GHz	3m	Vertical	120 kHz	19401 Pts	Auto
30 MHz - 1 GHz	3m	Horizontal	120 kHz	19401 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10/10/2025	23 C	37 %	988 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

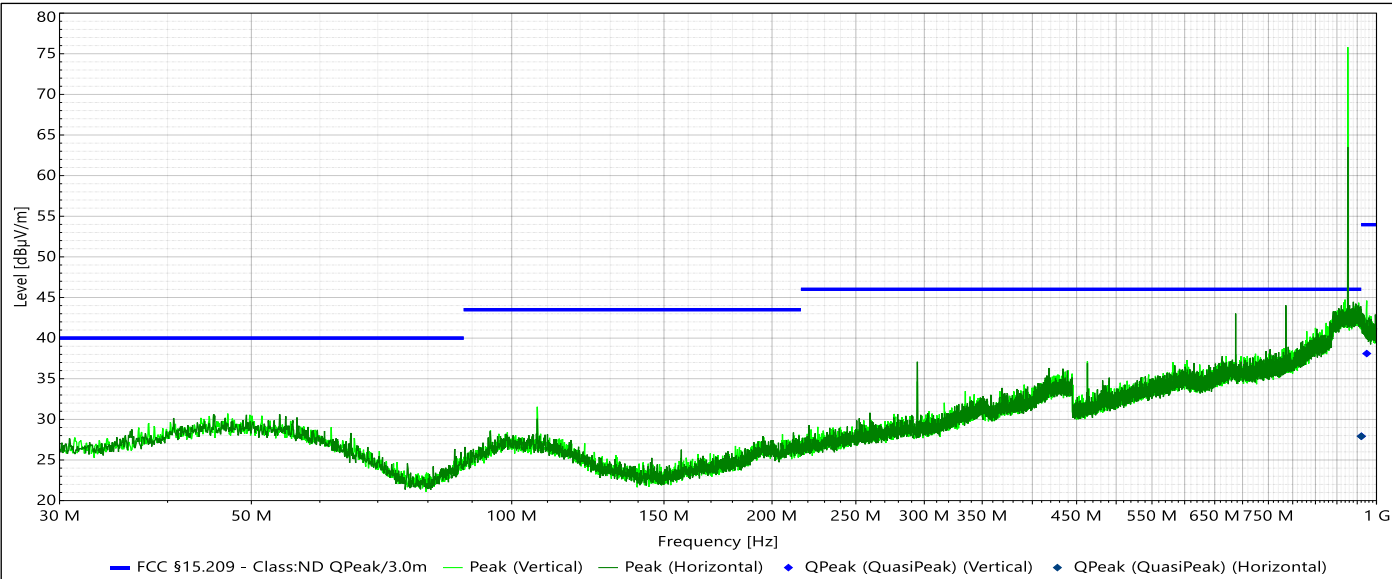


Figure 2.2.7-32 – Radiated Emissions Test Results



Finals

Table 2.2.7-19– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
960.723	27.92	53.97	-26.05	117.00	1.00	Vertical	Pass
974.369	38.10	53.97	-15.87	355.00	1.00	Vertical	Pass
960.226	27.92	53.97	-26.05	117.00	1.25	Horizontal	Pass

Test Notes: External Antenna - Max TX Power



FCC 15.247 - Spurious Emissions 1 - 18GHz - 926.4 MHz - External Antenna

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

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	10-13-2025	23.4 C	30%	990 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
Proprietary 900 MHz DSS Transmitter	926.39401 MHz	49	TX	Z-axis

Limit:
FCC Part 15/FCC §15.209

Test Results:
Pass

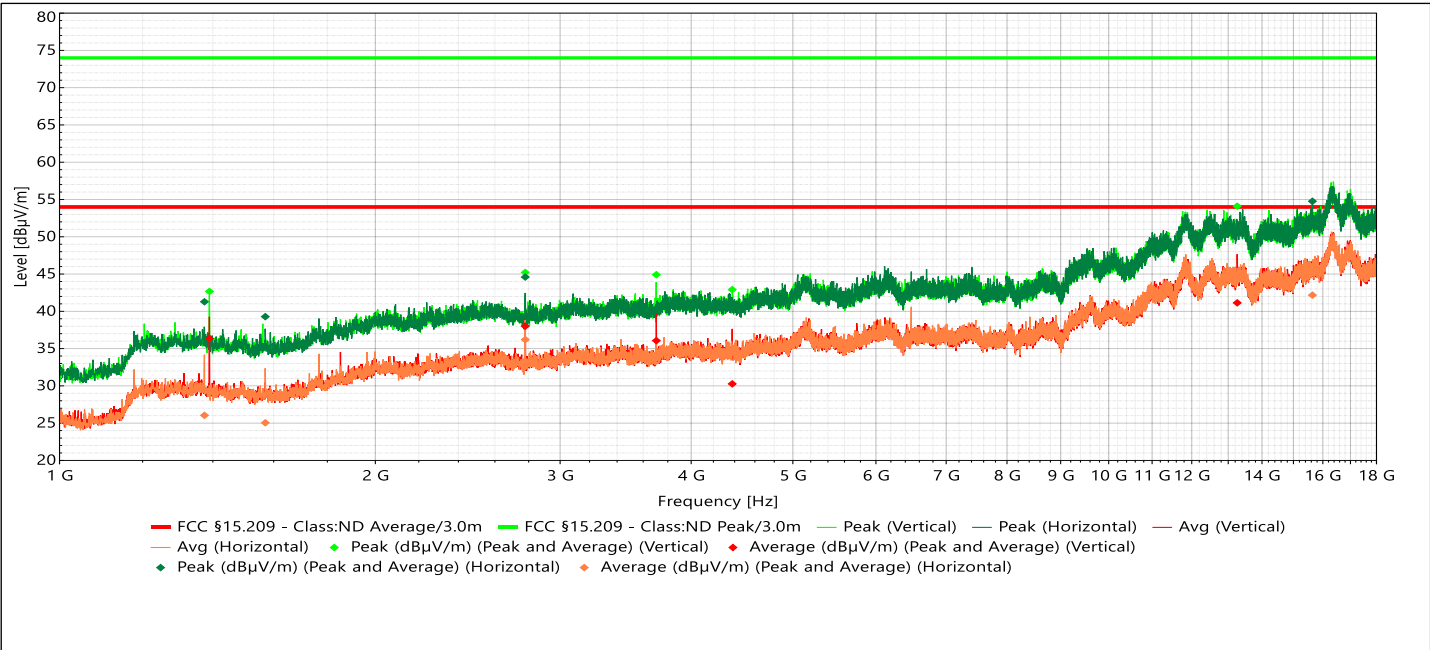


Figure 2.2.7-33 – Radiated Emissions Test Results



Finals

Table 2.2.7-20– 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
1389.624	42.67	74.00	-31.33	36.37	54.00	-17.63	273.00	2.70	Vertical	Pass
2779.248	45.21	74.00	-28.79	38.01	54.00	-15.99	87.00	1.05	Vertical	Pass
3705.663	44.92	74.00	-29.08	36.07	54.00	-17.93	160.00	2.57	Vertical	Pass
4377.131	42.91	74.00	-31.09	30.27	54.00	-23.73	103.00	3.00	Vertical	Pass
13259.686	54.10	74.00	-19.90	41.14	54.00	-12.86	7.00	2.12	Vertical	Pass
1374.517	41.28	74.00	-32.72	26.04	54.00	-27.96	127.00	1.60	Horizontal	Pass
1570.876	39.29	74.00	-34.71	25.05	54.00	-28.95	160.00	3.26	Horizontal	Pass
2779.248	44.60	74.00	-29.40	36.20	54.00	-17.80	111.00	1.53	Horizontal	Pass
15638.506	54.76	74.00	-19.24	42.17	54.00	-11.83	160.00	2.16	Horizontal	Pass

Test Notes: External Antenna - Max TX Power

2.2.8 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: $47.56 + (-2.16) = 45.4 \text{ dB}\mu\text{V/m}$

Margin: $45.4 \text{ dB}\mu\text{V/m} - 74 \text{ dB}\mu\text{V/m} = -28.6 \text{ dB}$

Example Calculation: Average

Corrected Level: $39.31 + (-2.16) - 0 = 37.15 \text{ dB}\mu\text{V/m}$

Margin: $37.15 \text{ dB}\mu\text{V/m} - 54 \text{ dB}\mu\text{V/m} = -16.85 \text{ dB}$

2.2.9 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.

Test Area: 3mSAC

The test equipment used are listed in Section 3.1.



3 Test Equipment Information

3.1 General Test Equipment Used

TEST EQUIPMENT

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated to meet test method standard requirements and/or manufacturer's specifications.

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
NBLE03504	Florida RF Labs	Cable, N 3ft	FL335	3ft-1	B	03/19/2025	03/19/2026
NBLE03514	Florida RF Labs	Cable, SMA	FL200	3ft-9	B	10/12/2024	10/12/2025
						10/14/2025	10/14/2026
NBLE10574	Huber & Suhner	Cable, BNC 3M	EF142	10574	B	03/21/2025	03/21/2026
WRLE02418	EMCO/EMC Test	Antenna, Loop	6502	2215	G	03/18/2025	03/18/2027
WRLE10517	Microwave Circuits Inc	Filter, 900-950 MHz Notch	N03915M1	138901	B	04/17/2025	04/17/2026
WRLE10891	Huber & Suhner	Cable, BNC 5M	EF142/11BNC/11BNC/5M	na	B	03/17/2025	03/17/2026
WRLE11519	Com-Power Corp.	Preamplifier, 500 MHz-18 GHz	PAM-118A	18040002	B	01/23/2025	01/23/2026
NBLE11555	Rohde & Schwarz	Receiver, 2 Hz-44 GHz	ESW44	101537	G	01/23/2025	01/23/2026
NBLE11614	Teledyne Storm Microwave	Cable, N 3m	90-195-3MTR	182984-003	B	02/05/2025	02/05/2026
NBLE11618	Teledyne Storm Microwave	Cable, N 8m	90-195-8MTR	182982-004	B	02/05/2025	02/05/2026
NBLE11630	ETS-Lindgren	Antenna, 1-18 GHz	3117	00218816	G	09/27/2024	09/27/2026
NBLE11645	Schwarzbeck	Antenna, Trilog, 30 MHz-7 GHz	VULB 9162	0254	G	06/24/2025	06/24/2027
TEM00175	Micro-Tronics	1.2 GHz High Pass Filter	HPM50108-01	014	B	02/08/2025	02/08/2026

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.



4 **Diagram of Test Set-ups**

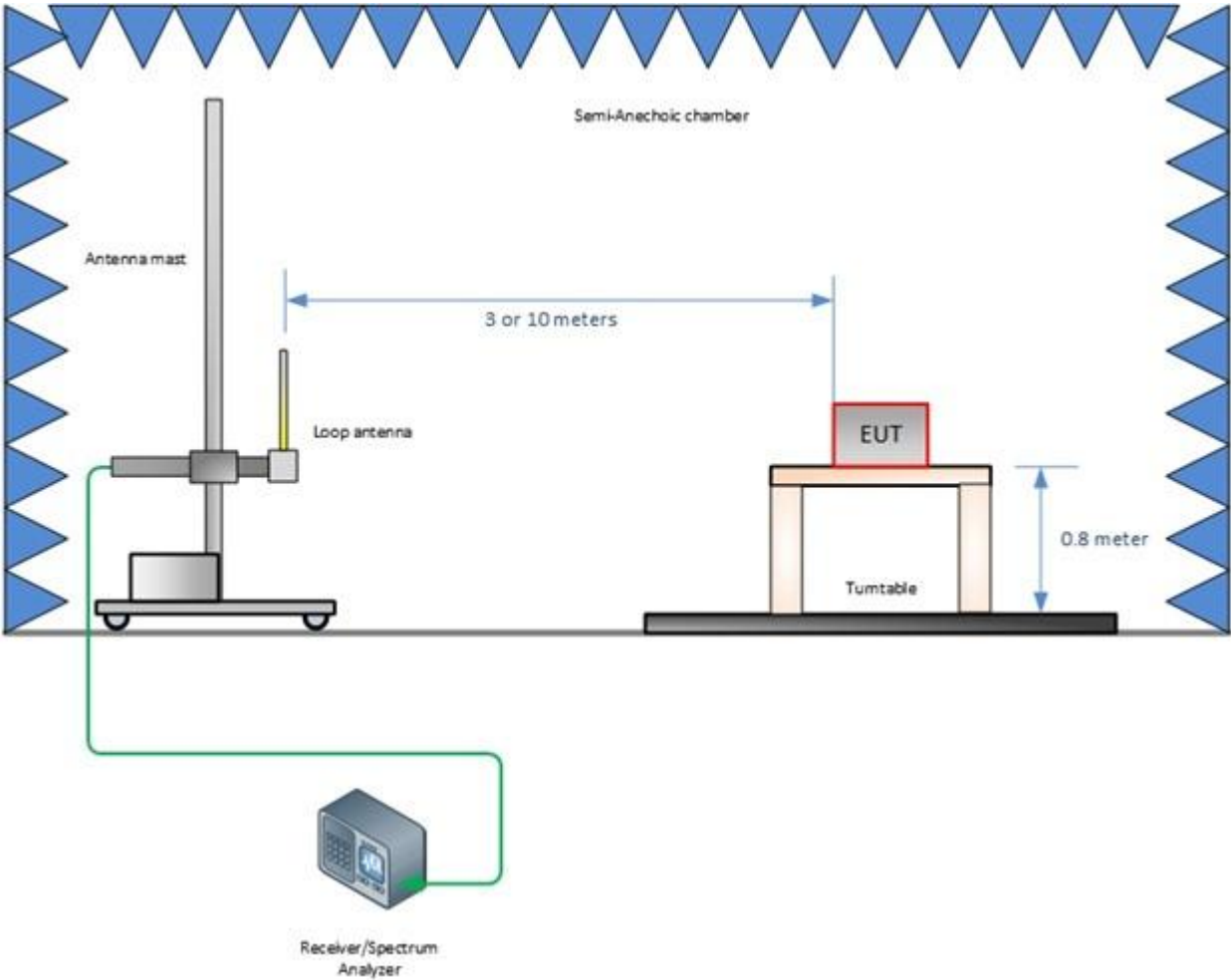


Figure 4-1 - Radiated Emissions Test Setup below to 3MHz

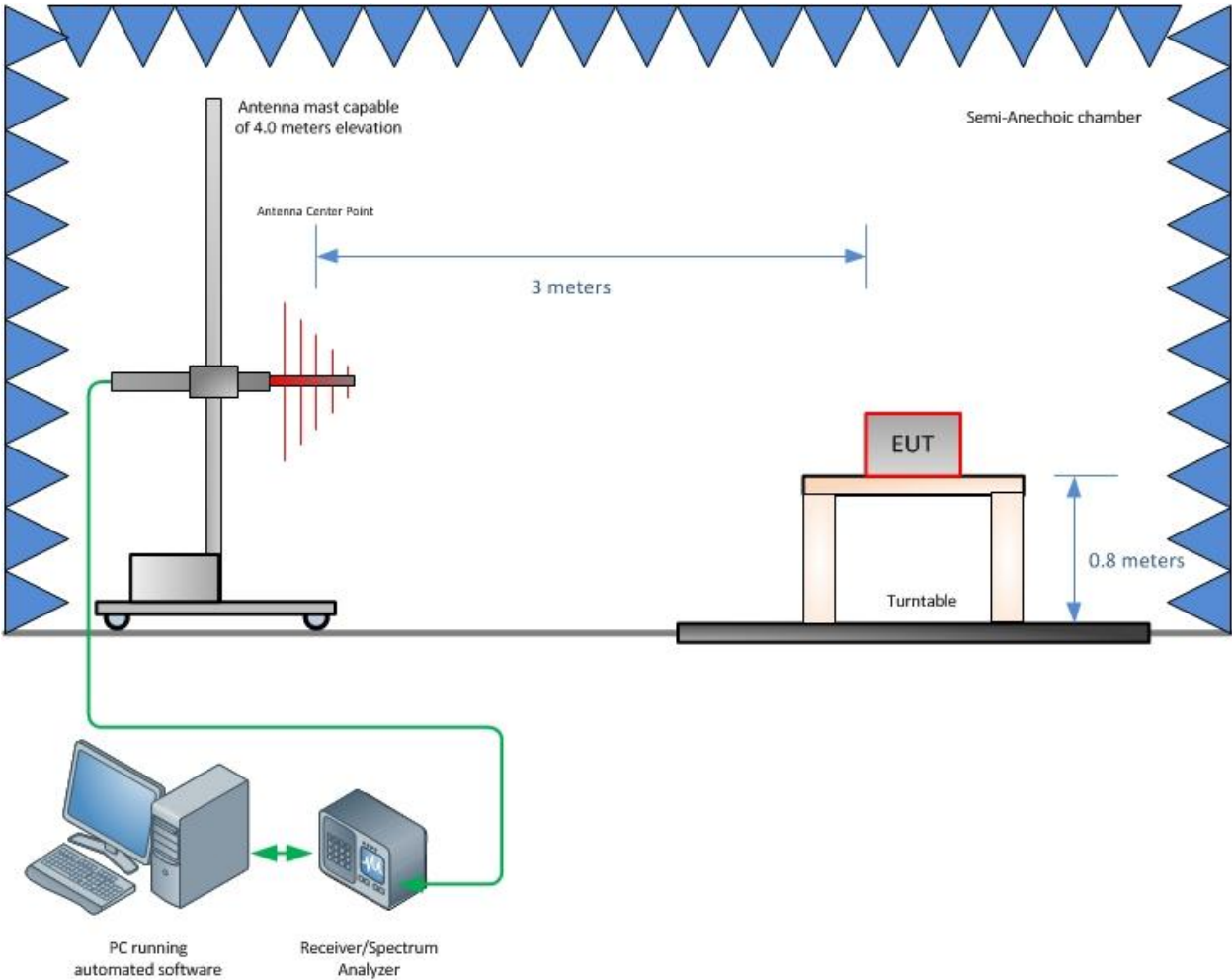


Figure 4-1 - Radiated Emissions Test Setup up to 1 GHz

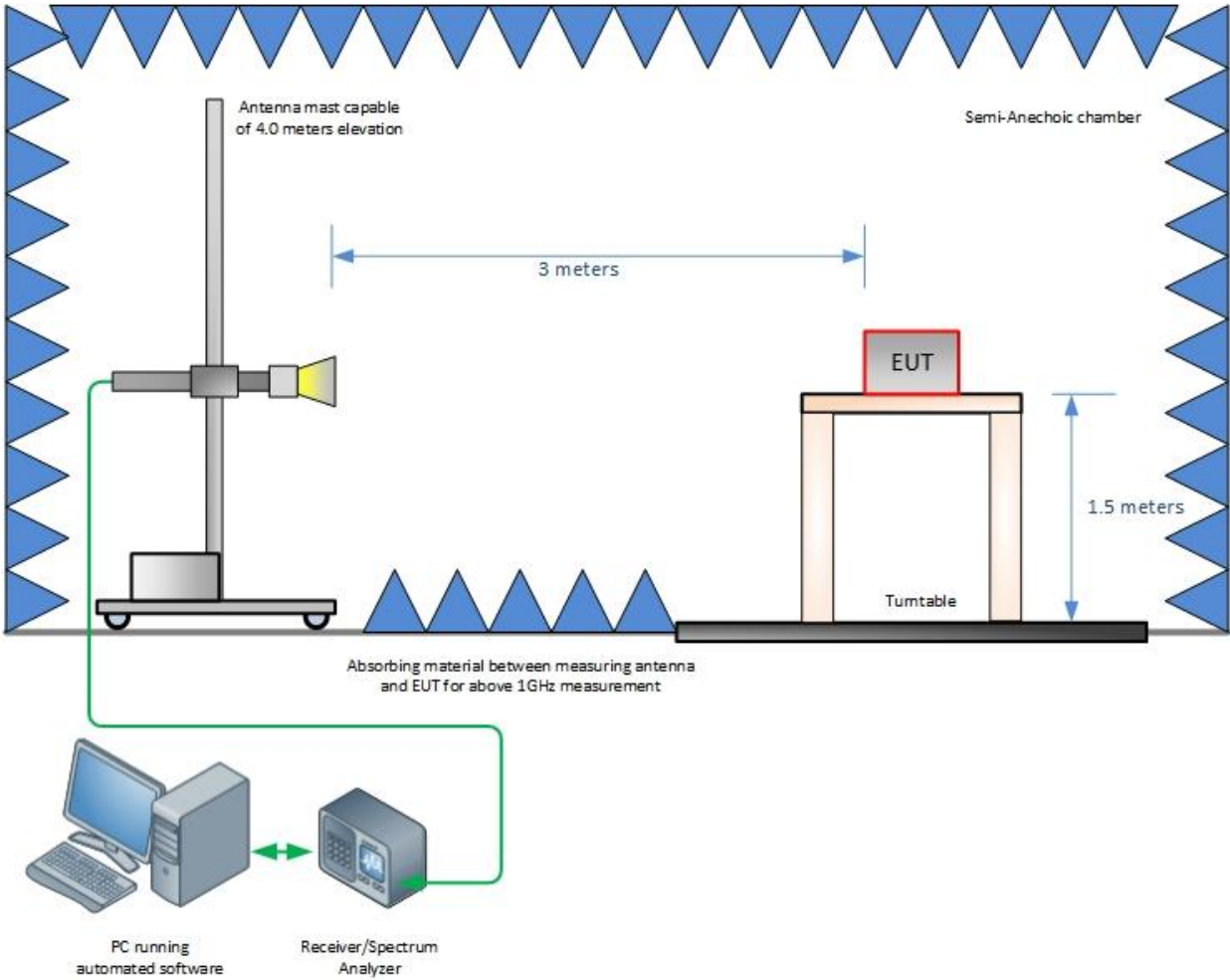


Figure 4-2 - Radiated Emissions Test Setup above 1 GHz



5 Measurement Uncertainty

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

Table 5-1 - 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)	6.3 dB	5.88 dB
(1 – 6 GHz)	5.2 dB	4.47 dB
(6-18 GHz)	5.5 dB	4.47 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.

STATEMENT OF MEASUREMENT UNCERTAINTY – Emissions

The test system for conducted emissions is defined as the 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.



6 Accreditation, Disclaimers and Copyright

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