

FCC Testing of the

SpectraWAVE, Inc
200134

In accordance with FCC 47 CFR part 15.225

Prepared for: SpectraWAVE, Inc
12 Oak Park Dr
Bedford, Massachusetts 01730

FCC ID: 2BQBY-200134



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RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Authorized Signatory	Ferdinand Custodio	2026 -July-21	
Testing	Thierry Jean-Charles	2026-July-21	

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 in compliance with FCC Part 15.225 .



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.

Issue	Description of Change	Date of Issue
1	First Issue	2026-July-21

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 15.225 for the tests documented herein.



Applicant	SpectraWAVE, Inc
Manufacturer	SpectraWAVE, Inc
Applicant's Email Address	spszenny@spectrawave.com
Model Number(s)	200134
Serial Number(s)	N/A
FCC ID	2BQBY-200134
Hardware Version(s)	200134 REV 9
Software Version(s)	SC-1052 REV 4
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, 2025
Order Number	721019729
Date	2026-March-23
Date of Receipt of EUT	2026-April-27
Start of Test	2026-April-27
Finish of Test	2026-July-10
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, 2025



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC Part 15.225 is shown below.

Table 1.3-1 – 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
20 dB Bandwidth	Yes	Pass	15.215(c)	11
99% Bandwidth	Yes	Pass	-----	13
Field strength of Emissions within the Band 13.110-14.010 MHz	Yes	Pass	15.225(a),(b),(c)	15
Field Strength of Emissions outside of the Band 13.110-14.010 MHz	Yes	Pass	15.209, 15.225(d)	24
Power Line Conducted Emissions	Yes	Pass	15.207	35
Frequency Tolerance of the Carrier Signal	Yes	Pass	15.225(e)	41
Duty Cycle of the Test Mode of Operation	No	-----	-----	44



1.4 Product Information

1.4.1 Technical Description

The HyperVue™ Controller is a subassembly of the HyperVue™ Imaging System intended for the imaging of coronary arteries. The Controller is tested and authorized as a standalone device. The device contains one extremely low-power intentional radiator used to read the Imaging Catheter ID via NFC.

Technical Details

Mode of Operation: 13.56 MHz NFC
Frequency Range: 13.110-14.010 MHz
Number of Channels: 1
Channel Separation: N/A
Data Rate: 1.65kbps to 52.97kbps
Modulations: AM
Antenna Type/Gain: surface mount chip antenna (3.2 x 2.5 x 2.0 mm)
Input Power: 42 VDC

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

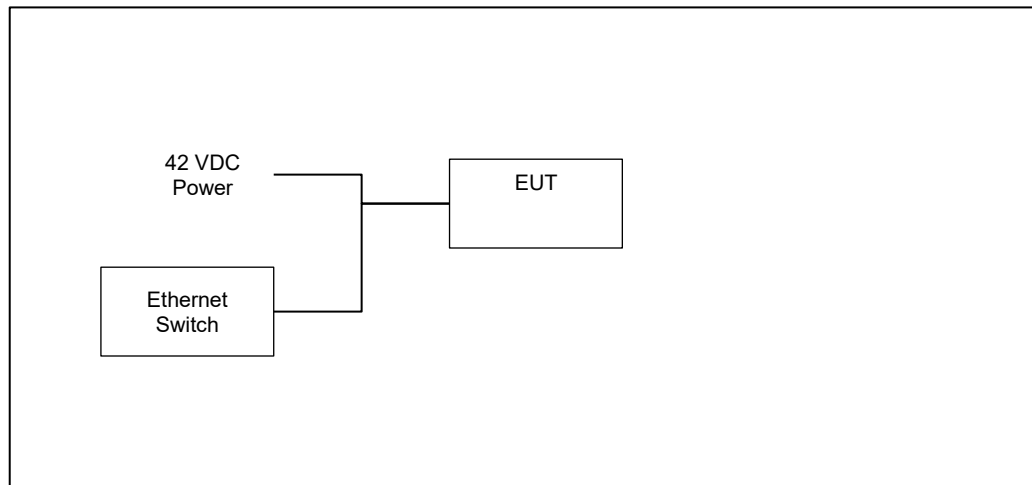


Figure 1.4.1-1 – Test Setup Block Diagram

**Table 1.4.1-1 – Cable Descriptions**

Cable/Port	Description
Data Cable	4m, EUT to Ethernet Switch and external power supply

For the radiated emissions evaluation, the support equipment was set outside of the test environment.

Table 1.4.1-2 – Support Equipment Descriptions

Make/Model	Description
Netgear / GS305	Ethernet Switch, S/N: 5U8811659A58A9
Netgear / ADS6FQ-06 05035EPCU	5V AC Adapter, S/N: 832044001115600GPU
FSP / FSP270-RFAN3	48 VDC Power Supply, S/N: H0511000066

- The 48VDC power supply was used for the power line conducted emissions only. That accessory is not marketed with the product.
- For the radiated emissions evaluation, the support equipment was set outside of the test environment. The support equipment was used for testing purposes only to properly exercise the EUT.



1.4.2 Modes of Operation

The EUT was evaluated with the 13.56 MHz NFC radio operating continuously while connected to an Ethernet switch and powered via 42 VDC. The EUT was configured for continuous transmission mode using SpectraWAVE Inc.'s Discovery version 2025.11 application.

1.4.3 Monitoring of Performance

The EUT was evaluated for the 13.56 MHz NFC radio in accordance with the requirements listed in Section 1.4.4 below. The EUT is a table top equipment and was evaluated in the orientation of typical use. More details are provided in the test setup photos.

1.4.4 Performance Criteria

The EUT was evaluated to the requirements defined below.

Table 1.4.4-1 – Performance Criteria

Parameter	Requirement
Antenna Requirement	FCC: Section 15.203. 15.204
20 dB Bandwidth	FCC: Section 15.215(c)
99% Bandwidth	N/A
Radiated Field Strength of Emissions within the 13.110-14.010 band	FCC: Section 15.225 (a),(b),(c)
Radiated Field Strength of Emissions outside of the 13.110-14.010 band	FCC: Section 15.209, 15.225
Power Line Conducted Emissions	FCC: Section 15.207
Frequency Tolerance of the Carrier Signal	FCC: Section 15.225(e)
Duty Cycle of the Test Mode of Operation	N/A

1.5 Deviations from the Standard

The evaluation was performed without any deviations from the test standards.

1.6 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
1	- Ferrites on power/ Ethernet cables: - FAIR-RITE Part 0461167281 (4 cm from controller enclosure) - Würth Elektronik Part 74275815 (3.55 m from controller enclosure) - TDK IFM16-030EB300X200 noise suppression sheet on keypad flex cable.	TUV SUD America, Inc.	5/8/2026



1.7 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 of Operation: DC Powered, Operating		
Antenna Requirement	Thierry Jean-Charles	A2LA
20 dB Bandwidth	Thierry Jean-Charles	A2LA
99% Bandwidth	Thierry Jean-Charles	A2LA
Radiated Field Strength of Emissions within the 13.110-14.010 band	Thierry Jean-Charles	A2LA
Radiated Field Strength of Emissions outside of the 13.110-14.010 band	Thierry Jean-Charles	A2LA
Power Line Conducted Emissions	Thierry Jean-Charles	A2LA
Frequency Tolerance of Carrier Signal	Thierry Jean-Charles	A2LA
Duty Cycle of the Test Mode of Operation	Thierry Jean-Charles	A2LA

Office Address:

TÜV SÜD America
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

SN: N/A

2.1.3 Date of Test

6/30/2026

2.1.4 Test Method

N/A. This is a visual inspection.

2.1.5 Environmental Conditions

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

2.1.6 Test Results

Operation: N/A

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
NFC Chip Antenna	Soldered to PCB	N/A

Test Summary:



The EUT uses an Abracon model AANI-CH-0029 surface mount chip antenna (3.2 x 2.5 x 2.0 mm) that is internal to device, directly soldered to the PCB. The antenna is not replaceable by the end user. The equipment meets 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.

Test Area: N/A

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



2.2 20 dB Bandwidth

2.2.1 Specification Reference

FCC: Section 15.215(c)

2.2.2 Equipment Under Test and Modification State

SN: N/A

2.2.3 Date of Test

7/10/2026

2.2.4 Test Method

The 20 dB bandwidth was measured in accordance with ANSI C63.10 Subclause 6.9.2. The spectrum analyzer span was set between two times and five times the OBW. The RBW of the spectrum analyzer was set to 1% to 5% of the OBW. The VBW was approximately three times RBW. A peak detector was used for the measurements.

2.2.5 Environmental Conditions

Ambient Temperature 24.2°C
Relative Humidity 33 %
Atmospheric Pressure 980 mBar

2.2.6 Test Results

Mode of Operation: DC Powered, Operating

Limit Clause FCC Part 15.215

The intentional radiator must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated.

Table 2.2.6-1 – 20 dB Bandwidth Test Results

Frequency (MHz)	20 dB Bandwidth (Hz)
13.56	316.868

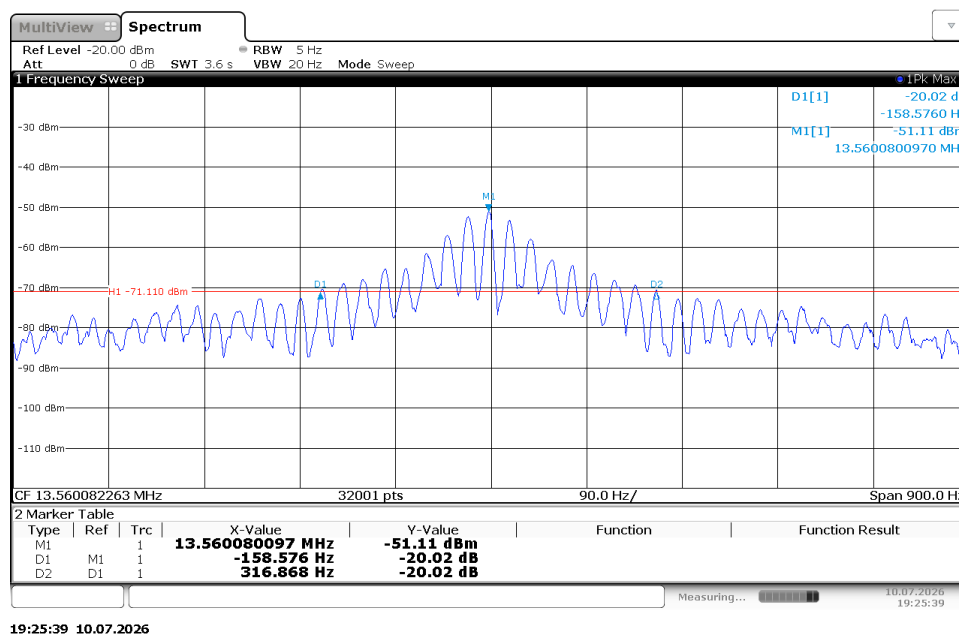


Figure 2.2.6-1 – 20 dB Bandwidth Test Results

Test Summary:

The 20-dB Bandwidth was measured to be 316.9 Hz

Test Result: Pass

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.

Test Area: Reverb

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
DEMC780	Hewlett Packard	DC Power Supply 0-60V/0-35A	6674A	US36370248	Y	N/A	N/A
WRLE03805	Agilent Technologies	Digital Multimeter	34401A	MY41049414	G	01/14/2026	01/14/2027
WRLE10515	EMCO/EMC Test	Near Field Probe	7405	7405-901	Y	N/A	N/A

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.



2.3 99% Bandwidth

2.3.1 Specification Reference

N/A

2.3.2 Equipment Under Test and Modification State

SN: N/A

2.3.3 Date of Test

7/10/2026

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.

2.3.5 Environmental Conditions

Ambient Temperature 24.2°C
Relative Humidity 33 %
Atmospheric Pressure 980 mBar

2.3.6 Test Results

Mode of Operation: DC Powered, Operating

Clause ISED RSS-GEN 6.6

Test Summary:

The 99% Bandwidth was measured to be 2.85 MHz

Test Result: Pass

Table 2.3.6-1 – 99% dB Bandwidth Test Results

Frequency (MHz)	99% Bandwidth (MHz)
13.56	2.852

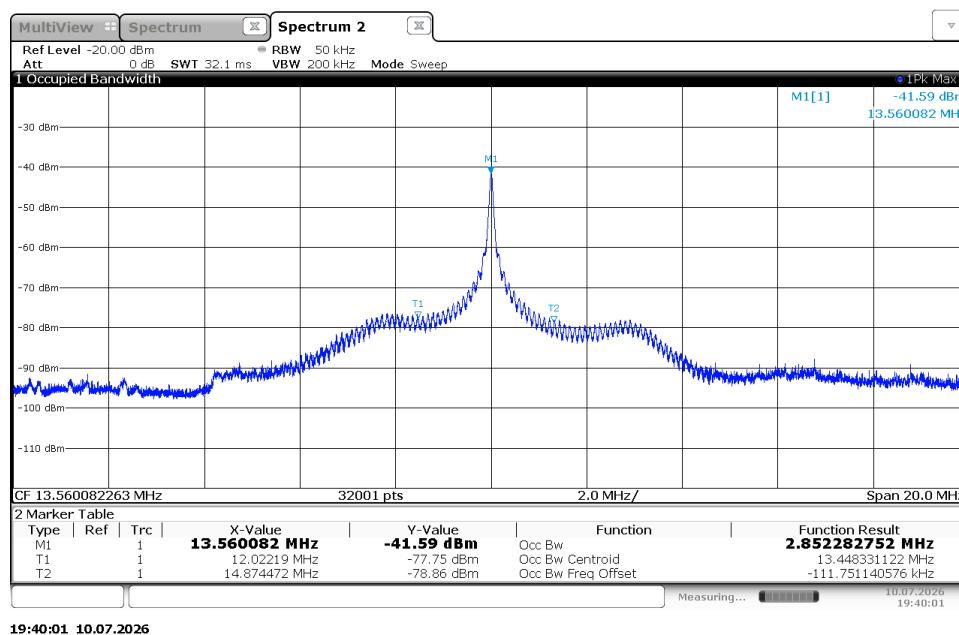


Figure 2.3.6-1 – 99% Bandwidth Test Results

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.

Test Area: Reverb

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
DEMC780	Hewlett Packard	DC Power Supply 0-60V/0-35A	6674A	US36370248	Y	N/A	N/A
WRLE03805	Agilent Technologies	Digital Multimeter	34401A	MY41049414	G	01/14/2026	01/14/2027
WRLE10515	EMCO/EMC Test	Near Field Probe	7405	7405-901	Y	N/A	N/A

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.



2.4 Radiated Field Strength of Emissions within the 13.110-14.010 Band

2.4.1 Specification Reference

FCC Sections: 15.225(a),(b),(c)

2.4.2 Equipment Under Test and Modification State

SN: N/A

2.4.3 Date of Test

6/15/2026

2.4.4 Test Method

Radiated emissions tests were made over the frequency range of 13.110 to 14.010 MHz. The receive antenna height was set to 1 m and the EUT was rotated through 360 degrees. The resolution bandwidth was set to 9 kHz, and a Quasi-Peak detector was used. The emissions were assessed against the radiated emission limits as defined in FCC Sections: 15.225(a),(b),(c) and ISED Canada: RSS-210 Annex B.6(a).

Measurements were made using BAT-EMC (2024.0.9.5) automated software at a 3m distance. Reported level is the actual level with all the correction factors factored in.

2.4.5 Environmental Conditions

Ambient Temperature 23.4 °C
Relative Humidity 31 %
Atmospheric Pressure 974 mBar

2.4.6 Test Results

Mode of Operation: DC Powered, Operating

Limit Clause FCC Sections 15.225 (a),(b),(c), ISED Canada: RSS-210 Annex B.6 (a)

Frequency (MHz)	Field Strength (microvolts/meter)	Field Strength (dBuV/m)	Measurement Distance (meters)
13.110 – 13.410	106	40.5	30
13.410 – 13.553	334	50.5	30
13.553 – 13.567	15,848	84	30
13.567 – 13.710	334	50.5	30
13.710 – 14.010	106*	40.5	30

Radiated measurements were performed at a distance closer than 30m as required, according to Part 15.209. Therefore, a correction factor was applied to account for propagation loss at the specified



distance. The propagation loss was determined by using the square of an inverse linear distance extrapolation factor (40dB/decade) according to FCC Part 15.31 and ISSED Canada's RSS-Gen 6.5. A sample calculation of the distance correction factor is shown below for limits expressed at a 30m measurement distance.

$$\begin{aligned}\text{Distance correction factor (30m Specified Test Distance)} &= 40 * \text{Log} (\text{Test Distance}/30) \\ &= 40 * \text{Log} (3/30) \\ &= - 40 \text{ dB}\end{aligned}$$

Test Summary:

The EUT meets the emissions mask of FCC Part 15.225.

Test Result: Pass

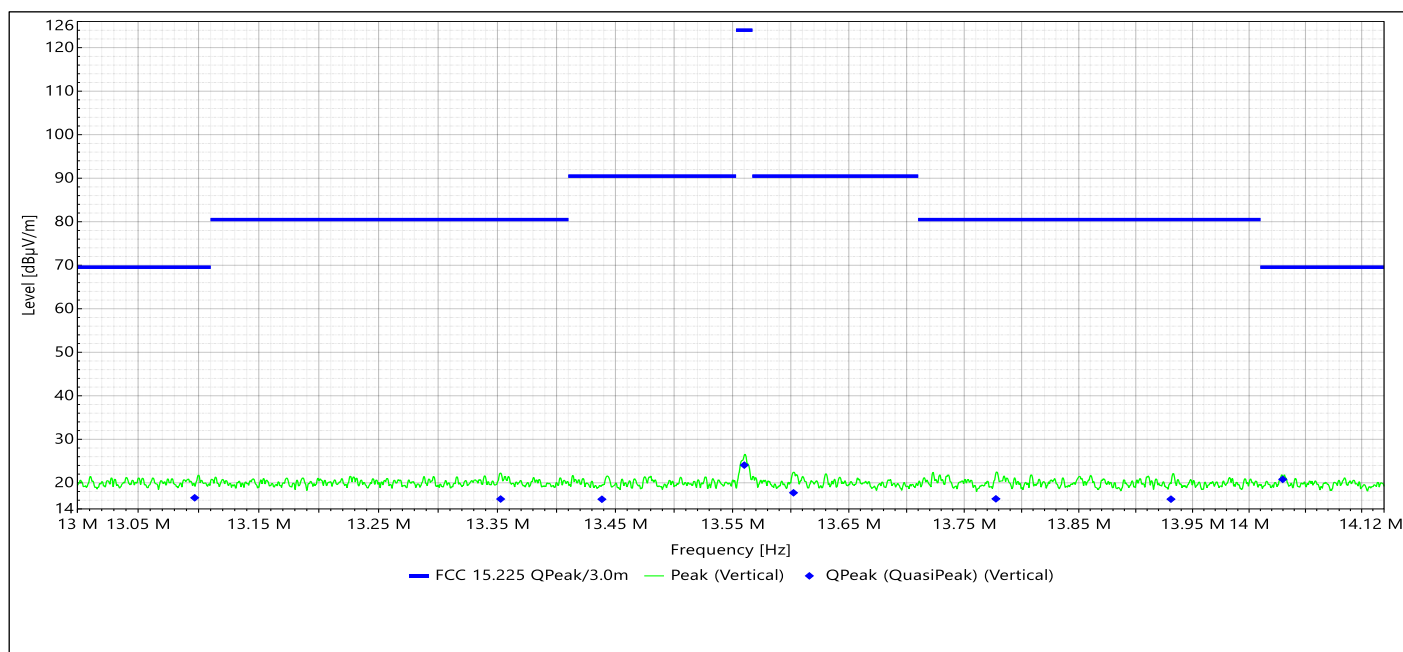


Emissions Mask - 13 MHz - 14.12 MHz - Vertical Co-Axial

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
13 MHz - 14.12 MHz	3m	Vertical	9 kHz	6001 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
STS	Thierry Jean-Charles	6/15/2026	23.4 °C	31 %	974 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56MHz	N/A	TX	X-axis



Limit: FCC Part 15.225/FCC 15.225
Test Results: Pass

Figure 2.4.6-1 – Radiated Field Strength of Emissions within the 13.110-14.010 MHz Band

**Table 2.4.6-1 – Radiated Field Strength of Emissions within the 13.110-14.010 Band**

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
13.097	16.56	69.54	-52.98	9.00	1.00	Vertical	Pass
13.353	16.27	80.50	-64.23	72.00	1.00	Vertical	Pass
13.438	16.22	90.47	-74.25	305.00	1.00	Vertical	Pass
13.560	24.06	124.01	-99.95	337.00	1.00	Vertical	Pass
13.602	17.71	90.47	-72.76	323.00	1.00	Vertical	Pass
13.778	16.32	80.50	-64.18	21.00	1.00	Vertical	Pass
13.931	16.24	80.50	-64.26	1.00	1.00	Vertical	Pass
14.030	20.80	69.54	-48.74	251.00	1.00	Vertical	Pass

Test Notes:

- The measurements were performed at a test distance of 3m. The limits are corrected using a distance correction factor of 40 dB per decade as described above.



Emissions Mask - 13 MHz - 14.12 MHz - Vertical Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
13 MHz - 14.12 MHz	3m	Vertical	9 kHz	6001 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
STS	Thierry Jean-Charles	6/15/2026	23.4 °C	31 %	974 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56MHz	N/A	TX	X-axis



Limit: FCC Part 15.225/FCC 15.225
Test Results: Pass

Figure 2.4.6-2 – Radiated Field Strength of Emissions within the 13.110-14.010 MHz Band

**Table 2.4.6-2 – Radiated Field Strength of Emissions within the 13.110-14.010 Band**

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
13.031	16.35	69.54	-53.19	319.00	1.00	Vertical	Pass
13.358	24.50	80.50	-56.00	215.00	1.00	Vertical	Pass
13.419	24.22	90.47	-66.25	223.00	1.00	Vertical	Pass
13.480	23.91	90.47	-66.56	156.00	1.00	Vertical	Pass
13.560	22.93	124.01	-101.08	120.00	1.00	Vertical	Pass
13.602	23.10	90.47	-67.37	78.00	1.00	Vertical	Pass
13.663	21.95	90.47	-68.52	99.00	1.00	Vertical	Pass
13.786	20.56	80.50	-59.94	179.00	1.00	Vertical	Pass
13.908	21.15	80.50	-59.35	239.00	1.00	Vertical	Pass
13.969	19.99	80.50	-60.51	208.00	1.00	Vertical	Pass
14.030	24.60	69.54	-44.94	126.00	1.00	Vertical	Pass
14.091	21.58	69.54	-47.96	162.00	1.00	Vertical	Pass

Test Notes:

- The measurements were performed at a test distance of 3m. The limits are corrected using a distance correction factor of 40 dB per decade as described above.

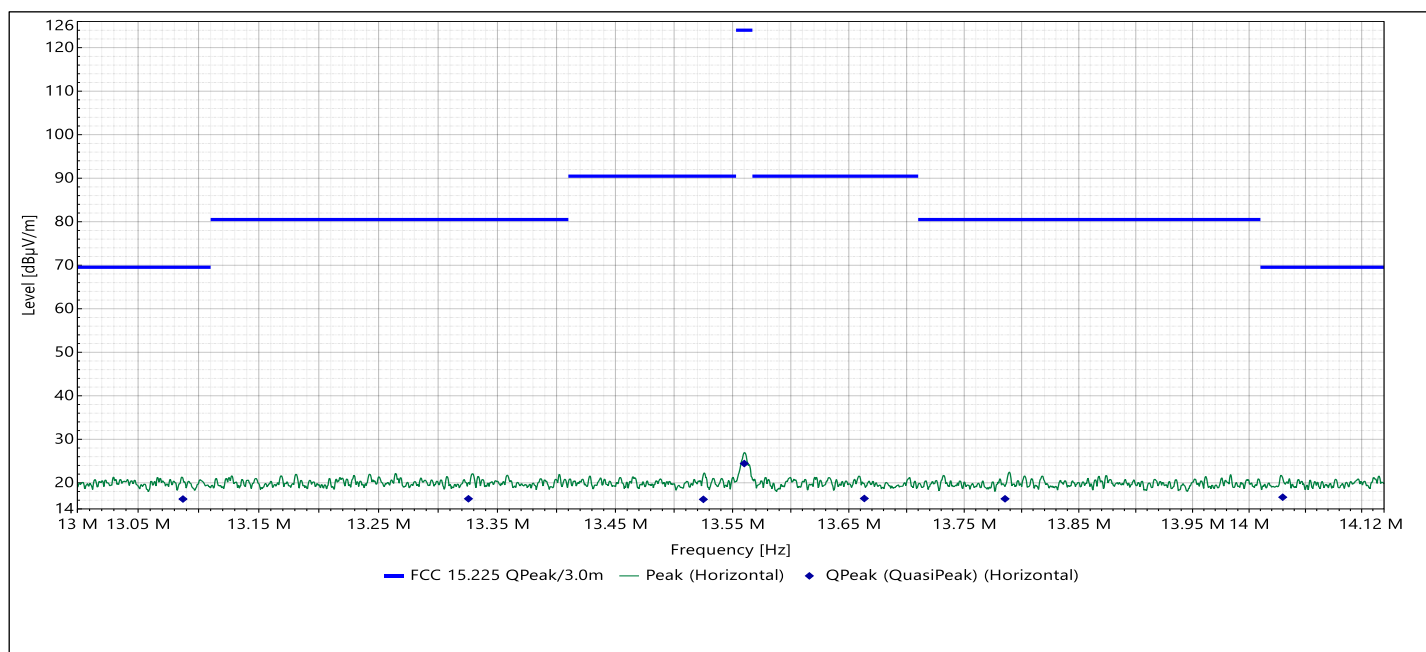


Emissions Mask - 13 MHz - 14.12 MHz - Horizontal Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
13 MHz - 14.12 MHz	3m	Horizontal	9 kHz	6001 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
STS	Thierry Jean-Charles	6/15/2026	23.4 °C	31 %	974 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56MHz	N/A	TX	X-axis



Limit: FCC Part 15.225/FCC 15.225
Test Results: Pass

Figure 2.4.6-3 – Radiated Field Strength of Emissions within the 13.110-14.010 MHz Band

**Table 2.4.6-3 – Radiated Field Strength of Emissions within the 13.110-14.010 Band**

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
13.087	16.27	69.54	-53.27	359.00	1.00	Horizontal	Pass
13.326	16.33	80.50	-64.17	53.00	1.00	Horizontal	Pass
13.525	16.20	90.47	-74.27	322.00	1.00	Horizontal	Pass
13.560	24.43	124.01	-99.58	42.00	1.00	Horizontal	Pass
13.663	16.40	90.47	-74.07	107.00	1.00	Horizontal	Pass
13.786	16.33	80.50	-64.17	41.00	1.00	Horizontal	Pass
14.030	16.69	69.54	-52.85	254.00	1.00	Horizontal	Pass

Test Notes:

- The measurements were performed at a test distance of 3m. The limits are corrected using a distance correction factor of 40 dB per decade as described above.

2.4.7 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: Quasi-PeakCorrected Level: $12.08 + 11.98 = 24.06 \text{ dB}\mu\text{V/m}$ Margin: $24.06 \text{ dB}\mu\text{V/m} - 124.01 \text{ dB}\mu\text{V/m} = -99.95 \text{ dB}$



2.4.8 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: STS

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
NBLE11012	Huber Suhner	Cable, BNC 12M	EF142/11BNC/11BNC/12M	11012	B	10/16/2025	10/16/2026
NBLE11338	Huber Suhner	Cable, N 4M	RG214HF/11N/11N/2.000	1338	B	10/15/2025	10/15/2026
WRLE02418	EMCO/EMC Test	Antenna, Loop	6502	2215	G	03/18/2025	03/18/2027
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.



2.5 Radiated Field Strength of Emissions outside of the 13.110-14.010 Band

2.5.1 Specification Reference

FCC Sections: 15.225(d), 15.209

2.5.2 Equipment Under Test and Modification State

SN: N/A

2.5.3 Date of Test

5/27/2026 to 6/22/2026

2.5.4 Test Method

Radiated emissions tests were made over the frequency range of 9 kHz to 18 GHz, 10 times the highest fundamental frequency or 5 times the highest frequency used or generated by the digital device. Each emission 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 in the linear scale using VBW of 30 Hz.

Measurements were made using BAT-EMC (2024.0.9.5) automated software at a 3m distance. Reported level is the actual level with all the correction factors factored in.

2.5.5 Duty Cycle Correction

The EUT was configured to transmit at 23.1% duty cycle during the evaluation which was the maximum allowed by the customer firmware. No duty cycle correction factor was used for the measurements.

2.5.6 Environmental Conditions

Ambient Temperature	26.5 °C
Relative Humidity	29 %
Atmospheric Pressure	983 mBar



2.5.7 Test Results

Mode of Operation: DC Powered, Operating

Limit Clause FCC Sections 15.209, 15.225(d)

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

Radiated measurements were performed at a distance closer than 300 meters and 30m as required, according to Part 15.209. Therefore, a correction factor was applied to account for propagation loss at the specified distance. The propagation loss was determined by using the square of an inverse linear distance extrapolation factor (40dB/decade) according to 15.31. A sample calculation of the distance correction factor is shown below for limits expressed at a 300m measurement distance and a 30m measurement distance.

Distance correction factor (300m Specified Test Distance) = $40 \cdot \log(\text{Test Distance}/300)$
 $= 40 \cdot \log(3/300)$
 $= -80 \text{ dB}$

Distance correction factor (30m Specified Test Distance) = $40 \cdot \log(\text{Test Distance}/30)$
 $= 40 \cdot \log(3/30)$
 $= -40 \text{ dB}$

Test Summary:

The EUT meets the radiated spurious emissions requirements. The emissions detected were determined to be generated by the digital device.

Test Result: Pass

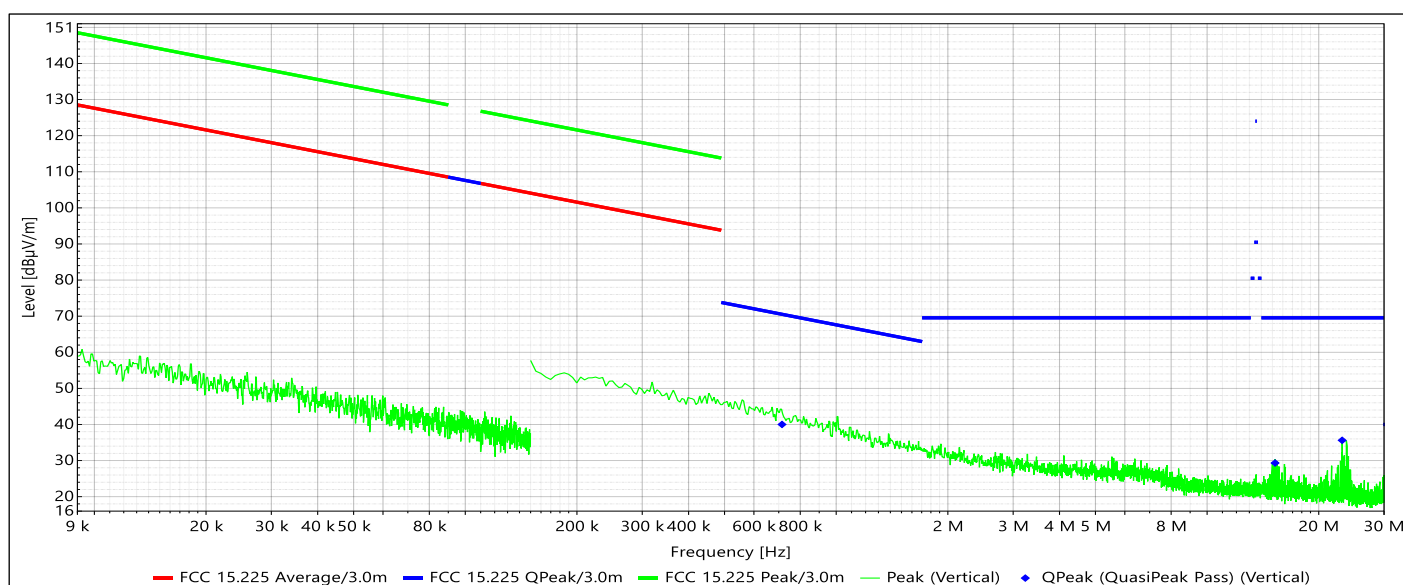


Spurious - 9kHz-30MHz - Vertical Co-Axial

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Vertical	200 Hz	1601 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Vertical	9 kHz	6001 Pts	5 ms/MHz

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	6/15/2026	24.8 °C	32 %	966 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56 MHz	N/A	TX	X-axis



Limit:
FCC Part 15.225/FCC 15.225

Test Results:
Pass

Figure 2.5.7-1 – Radiated Emissions Test Results

Table 2.5.7-1– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.714	40.01	70.55	-30.54	128.00	1.00	Vertical	Pass
15.251	29.33	69.54	-40.21	339.00	1.00	Vertical	Pass
23.129	35.62	69.54	-33.92	61.00	1.00	Vertical	Pass

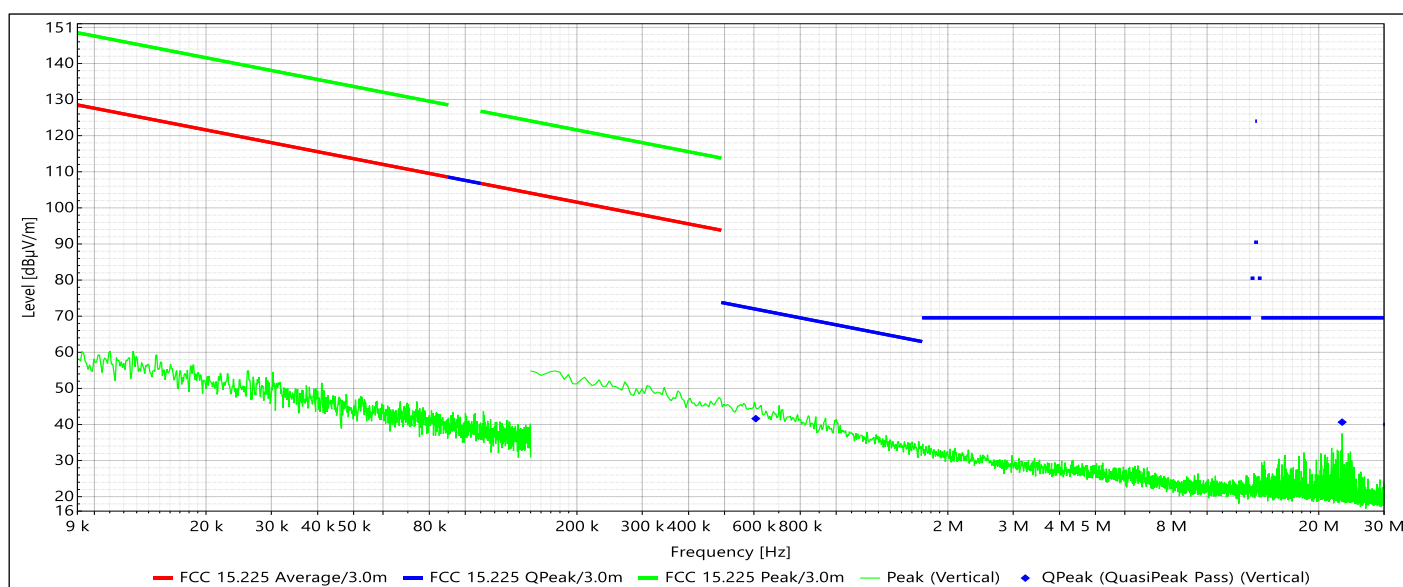


Spurious - 9kHz-30MHz - Vertical Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Vertical	200 Hz	1601 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Vertical	9 kHz	6001 Pts	5 ms/MHz

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	6/15/2026	24.8 °C	32 %	966 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56 MHz	N/A	TX	X-axis



Limit:
FCC Part 15.225/FCC 15.225

Test Results:
Pass

Figure 2.5.7-2 – Radiated Emissions Test Results

Table 2.5.7-2– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.607	41.61	71.93	-30.31	0.00	1.00	Vertical	Pass
23.129	40.64	69.54	-28.90	133.00	1.00	Vertical	Pass

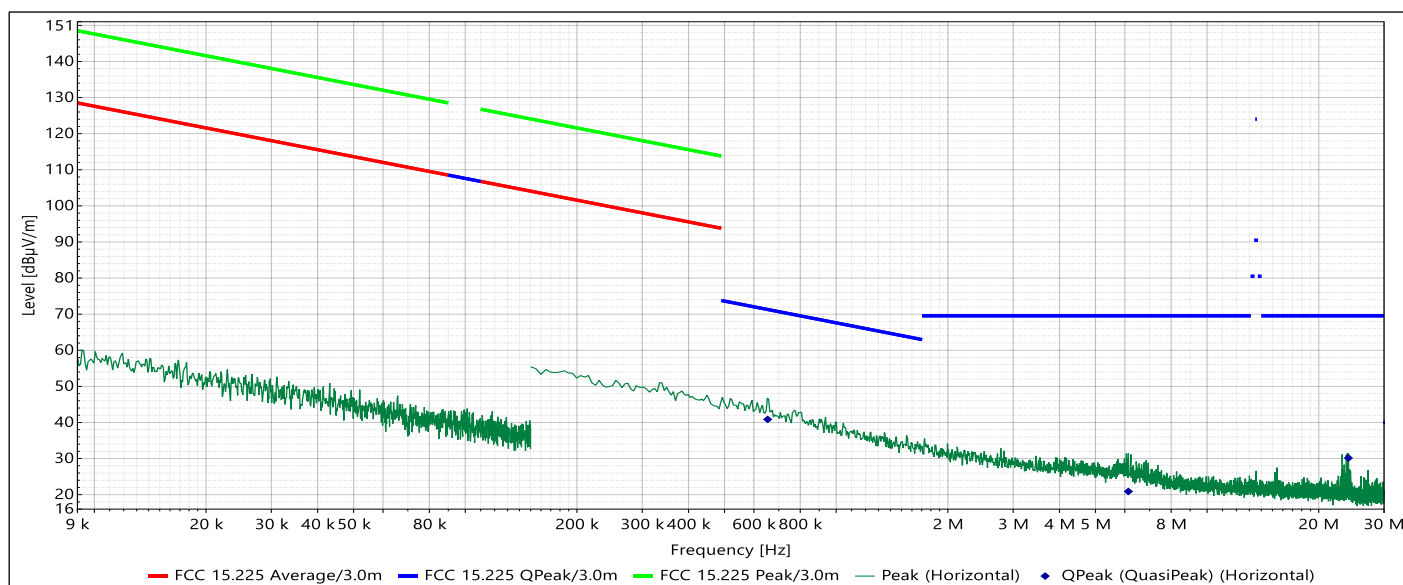


Spurious - 9kHz-30MHz - Horizontal Co-Planar

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
9 kHz - 150 kHz	3m	Horizontal	200 Hz	1601 Pts	5 ms/MHz
150 kHz - 30 MHz	3m	Horizontal	9 kHz	6001 Pts	5 ms/MHz

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
3mSAC	Thierry Jean-Charles	6/15/2026	24.8 °C	32 %	966 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56 MHz	N/A	TX	X-axis



Limit:
FCC Part 15.225/FCC 15.225

Test Results:
Pass

Figure 2.5.7-3 – Radiated Emissions Test Results

Table 2.5.7-3– Radiated Emissions Test Results

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
0.654	40.85	71.31	-30.46	0.00	1.00	Horizontal	Pass
6.133	20.89	69.54	-48.65	89.00	1.00	Horizontal	Pass
24.044	30.16	69.54	-39.38	191.00	1.00	Horizontal	Pass

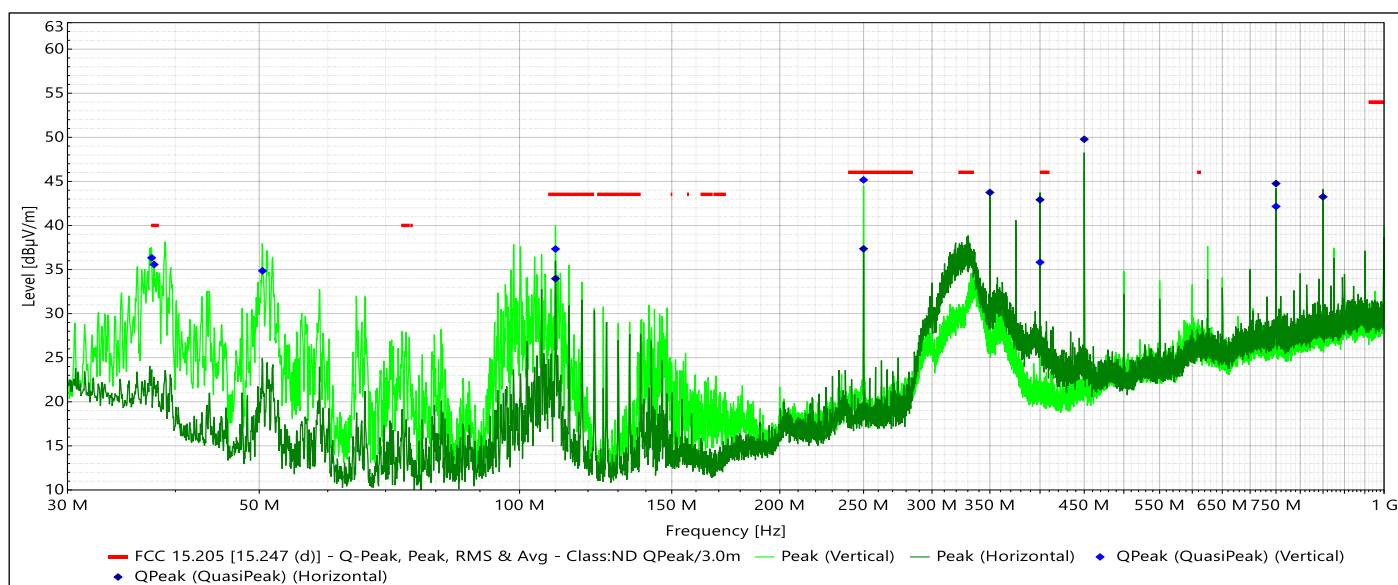


Spurious Emissions 30M-1GHz - Shield on Ribbon Cable + Ferrite on Controller Cable - 42 VDC – FCC 15.205 /15.209 Limits

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
STS	Thierry Jean-Charles	6/15/2026	26 °C	29 %	983 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56 MHz	N/A	TX	X-axis



Limit:
FCC Part 15/FCC 15.205 [15.209] - Q-Peak

Test Results:
Pass

Figure 2.5.7-4 – Radiated Emissions Test Results

Test Notes:

- Shield added on ribbon cable for 400 MHz spur.
- Ferrite on Controller Cable for 250 MHz spur.
- Powered by 42 VDC External Power Supply
- The FCC Part 15.209 limits apply for the emissions up to the 10h harmonic and those beyond the 10th harmonic falling within the restricted bands.

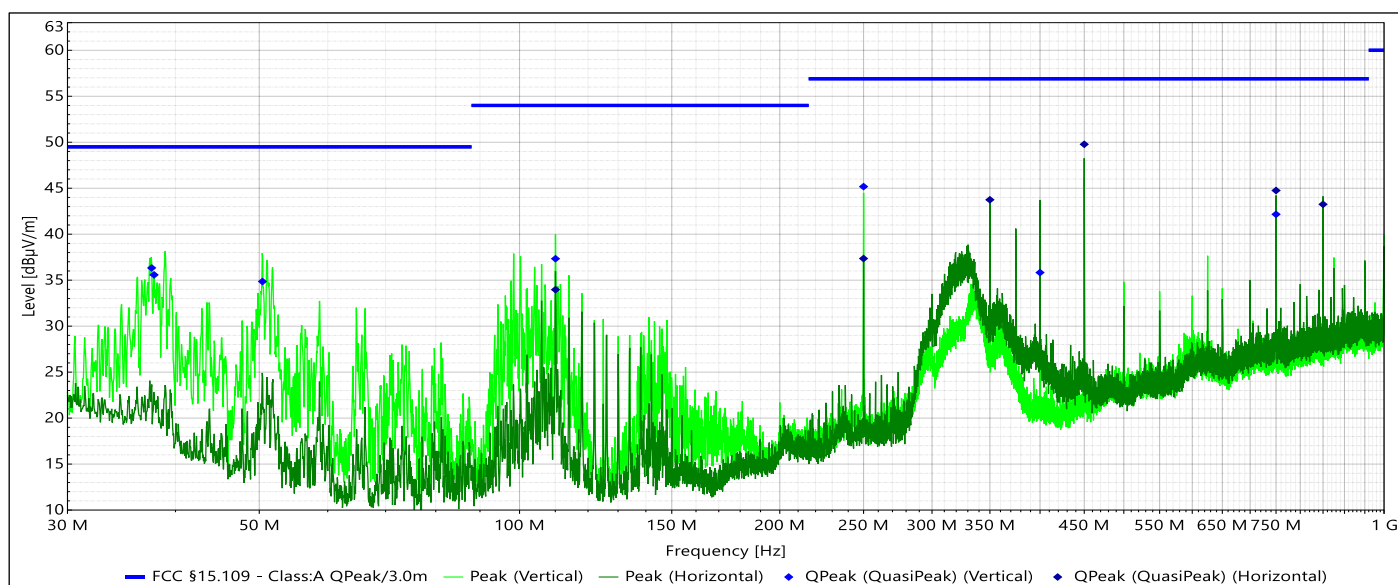


Spurious Emissions 30M-1GHz - Shield on Ribbon Cable + Ferrite on Controller Cable - 42 VDC – FCC Part 15.109 Class A Limits

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
STS	Thierry Jean-Charles	6/15/2026	26 °C	29 %	983 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56 MHz	N/A	TX	X-axis



Limit:
FCC Part 15/FCC §15.109

Test Results:
Pass

Figure 2.5.7-5 –Radiated Emissions Test Results

Test Notes:

- Shield added on ribbon cable for 400 MHz spur.
- Ferrite on Controller Cable for 250 MHz spur.
- Powered by 42 VDC External Power Supply
- The FCC Part 15.109(b) limits apply for the emissions beyond the 10h harmonic falling outside of the restricted bands.

**Table 2.5.7-4– Radiated Emissions Test Results**

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (°)	Height (m)	Polarity	Result
37.540	36.33	40.00	-3.67	0.00	1.00	Vertical	Pass
37.784	35.58	40.00	-4.42	360.00	1.00	Vertical	Pass
50.424	34.85	40.00	-5.15	198.00	1.00	Vertical	Pass
110.054	37.33	43.52	-6.19	169.00	1.00	Vertical	Pass
250.002	45.17	46.02	-0.85	278.00	1.00	Vertical	Pass
399.997	35.82	46.02	-10.20	192.00	2.50	Vertical	Pass
750.006	42.16	56.90	-14.74	201.00	2.42	Vertical	Pass
110.054	33.97	43.52	-9.55	98.00	1.91	Horizontal	Pass
250.002	37.35	46.02	-8.67	127.00	1.16	Horizontal	Pass
349.997	43.74	56.90	-13.16	333.00	1.00	Horizontal	Pass
399.997	42.92	46.02	-3.10	89.00	1.00	Horizontal	Pass
449.996	49.77	56.90	-7.13	82.00	2.12	Horizontal	Pass
750.006	44.75	56.90	-12.15	48.00	1.00	Horizontal	Pass
849.994	43.25	56.90	-13.65	225.00	1.00	Horizontal	Pass

Test Notes :

- The limits of FCC 15.209 were applied up to the 10th harmonic of the fundamental and to the emissions falling within the restricted bands. Beyond the 10th harmonic, the limits applicable to the digital device, FCC Part 15.109 (b), were applied to the emissions falling outside of the restricted bands.

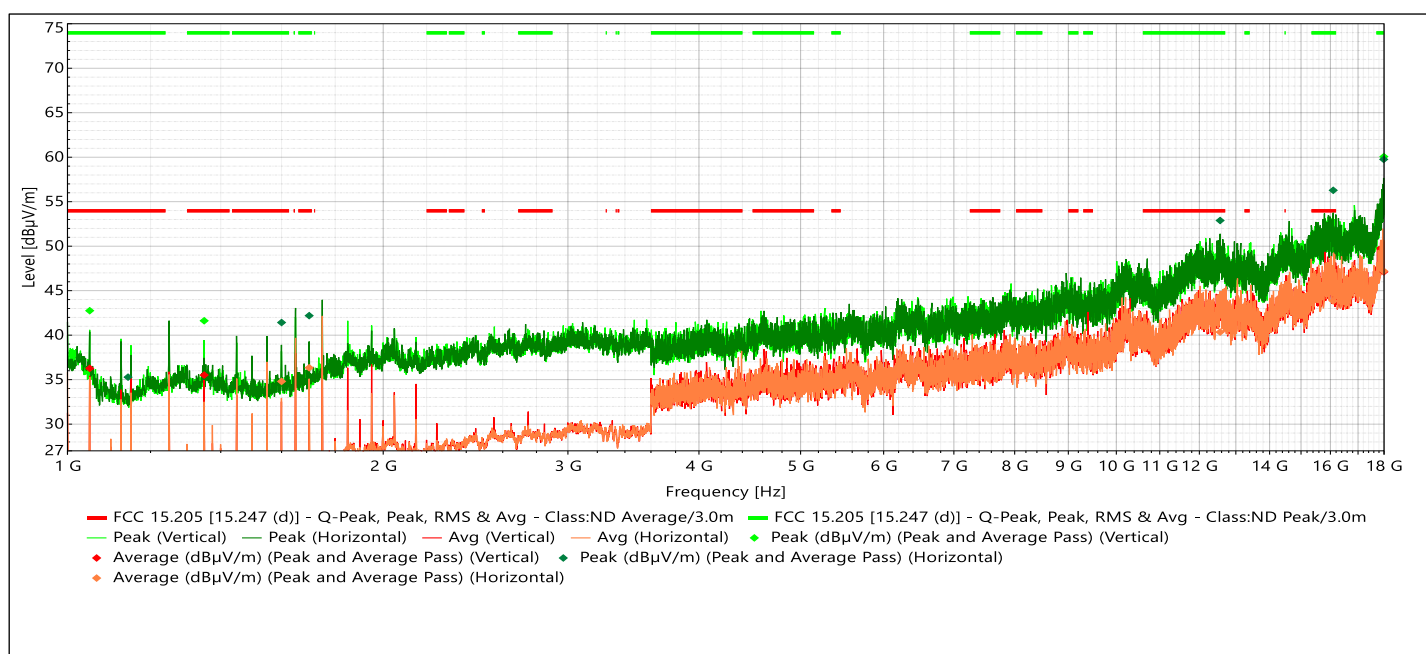


Spurious Emissions 1-18GHz - RFID On

Frequency Range	Antenna Distance	Antenna Polarization	RBW	Step Size	Sweep Time
1 GHz - 18 GHz	3m	Vertical	1 MHz	30001 Pts	Auto
1 GHz - 18 GHz	3m	Horizontal	1 MHz	30001 Pts	Auto

Test Area	Tested By	Test Date	Temperature	Humidity	Pressure
STS	Thierry Jean-Charles	6/15/2026	22.9 °C	34 %	974 mBar

Technology	Frequency	Channel	Mode	EUT Orientation
RFID	13.56 MHz	N/A	TX	X-axis



Limit:

FCC Part 15/FCC 15.205 [15.209] - Peak, Avg

Test Results:

Pass

Figure 2.5.7-6 – Radiated Emissions Test Results

**Table 2.5.7-5– 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
1049.992	42.75	73.98	-31.23	36.27	53.98	-17.71	0.00	1.00	Vertical	Pass
1349.991	41.62	73.98	-32.36	35.52	53.98	-18.46	315.00	1.25	Vertical	Pass
17991.451	60.06	73.98	-13.92	47.12	53.98	-6.86	347.00	4.00	Vertical	Pass
1142.211	35.28	73.98	-38.70	22.56	53.98	-31.42	199.00	3.21	Horizontal	Pass
1599.987	41.42	73.98	-32.56	34.80	53.98	-19.17	218.00	2.16	Horizontal	Pass
1699.986	42.19	73.98	-31.79	36.34	53.98	-17.64	179.00	1.00	Horizontal	Pass
12559.397	52.89	73.98	-21.09	40.35	53.98	-13.63	160.00	1.02	Horizontal	Pass
16099.015	56.28	73.98	-17.70	43.85	53.98	-10.13	134.00	2.50	Horizontal	Pass
17985.306	59.76	73.98	-14.22	47.20	53.98	-6.78	228.00	2.50	Horizontal	Pass

2.5.8 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: Quasi-Peak

Corrected Level: $52.47 + -9.72 = 42.75 \text{ dB}\mu\text{V/m}$

Margin: $42.75 \text{ dB}\mu\text{V/m} - 73.98 \text{ dB}\mu\text{V/m} = -31.23 \text{ dB}$

Example Calculation: Average

Corrected Level: $45.99 + -9.72 - 0 = 36.27 \text{ dB}\mu\text{V/m}$

Margin: $46.10 \text{ dB}\mu\text{V/m} - 53.98 \text{ dB}\mu\text{V/m} = -17.71 \text{ dB}$



2.5.9 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: STS

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
NBLE02667	Hewlett-Packard	Preamplifier, 0.1-1300 MHz	8447D	1616A00688	B	01/13/2026	01/13/2027
NBLE03506	Florida RF Labs	Cable, SMA 6ft	FL200	6ft-1	B	01/26/2026	01/26/2027
NBLE11012	Huber Suhner	Cable, BNC 12M	EF142/11BNC/11BNC/12M	11012	B	10/16/2025	10/16/2026
NBLE11338	Huber Suhner	Cable, N 4M	RG214HF/11N/11N/2.000	1338	B	10/15/2025	10/15/2026
NBLE11460	ETS-Lindgren	Antenna, Horn 1-18 GHz	3117	155005	G	03/17/2025	03/17/2027
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
WRLE10630	Florida RF Labs	Cable, SMA 3ft	SMSE-200-36.0-SMSE	10630	B	03/27/2026	03/26/2027
WRLE10998	Rohde & Schwarz	Receiver, 20 Hz-26.5 GHz	ESU 26	100379	G	09/02/2025	09/02/2026
NBLE11578	ETS-Lindgren	Antenna, BiConiLog	3142C	00079889	G	11/05/2024	11/05/2026
NBLE11617	Teledyne Storm Microwave	Cable, N 8m	90-195-8MTR	182982-003	B	03/04/2026	03/04/2027
NBLE11626	Com-Power Corp.	Preamplifier, 500 MHz-18 GHz	PAM-118A (SAP21007419)	18040020	B	01/17/2026	01/17/2027

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.



2.6 Power Line Conducted Emissions

2.6.1 Specification Reference

FCC: Section 15.207

2.6.2 Equipment Under Test and Modification State

S/N: N/A

2.6.3 Date of Test

4/27/2026 to 6/4/2026

2.6.4 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:

$$\begin{aligned} \text{Corrected Reading} &= \text{Analyzer Reading} + \text{LISN Loss} + \text{Cable Loss} \\ \text{Margin} &= \text{Applicable Limit} - \text{Corrected Reading} \end{aligned}$$

Measurements were made using BAT-EMC (2024.0.9.5) automated software. Reported level is the actual level with all the correction factors factored in.

2.6.5 Environmental Conditions

Ambient Temperature 24 °C
Relative Humidity 37 %
Atmospheric Pressure 982 mBar

2.6.6 Test Results

Mode of Operation: DC Powered, Operating

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:

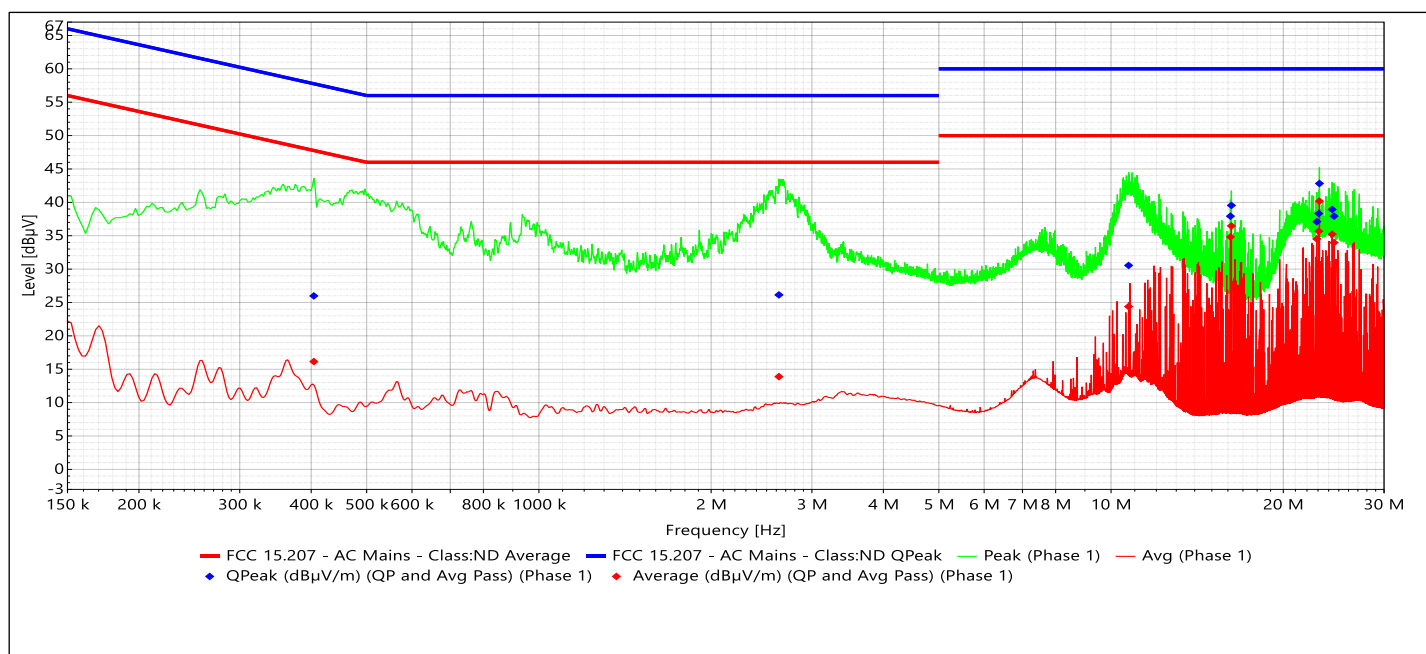
The EUT meets the conducted emissions requirements.

Test Result: Pass



Transmitter Enabled - L1

Frequency Range	Line Tested	RBW	Step Size	Sweep Time
150 kHz - 30 MHz	L1	9 kHz	2.25 kHz	10 s



Limit: FCC Part 15/FCC 15.207 - AC Mains
Test Date: 6/4/2026
Test Results: Pass

Figure 2.6.6-1 – Power Line Conducted Emissions Test Results

Test Notes:

- 48 VDC Off-the-Shelf Power Supply. RFID Transmitter active

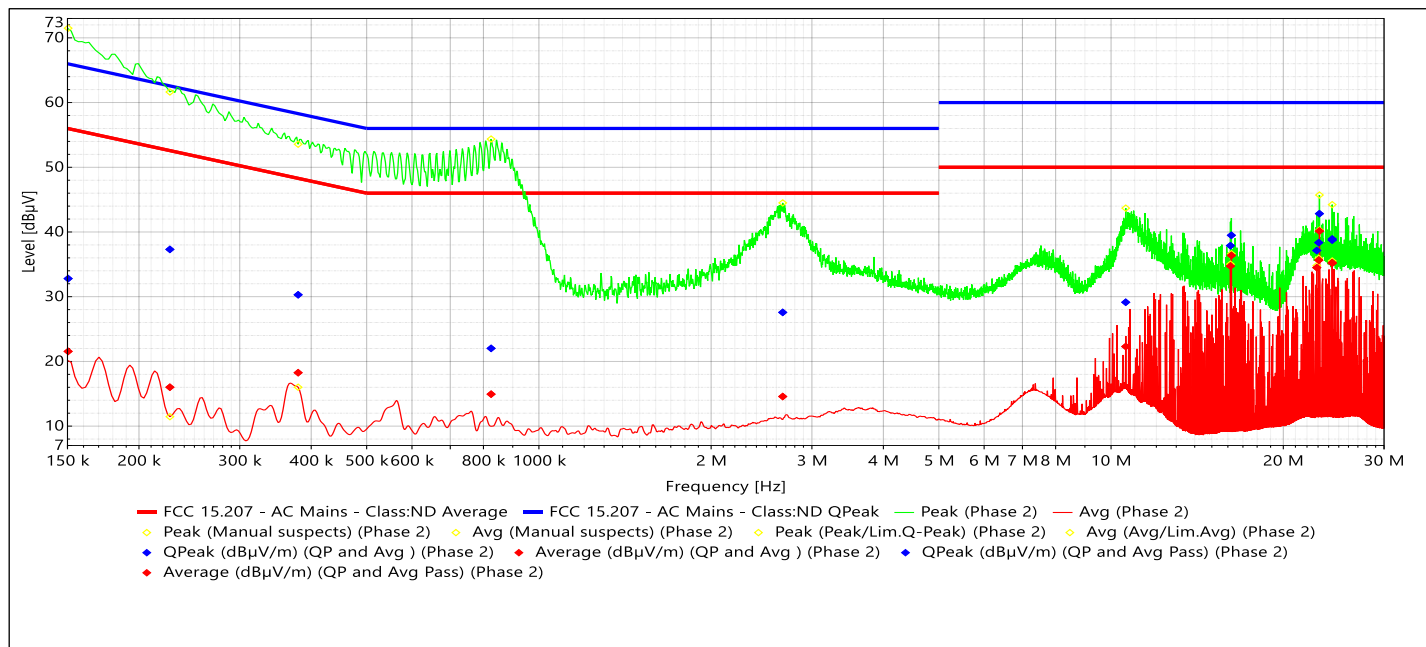
**Table 2.6.6-1 – Power Line Conducted Emissions Test Results**

Frequency (MHz)	Average (dBuV)	Average Limit (dBuV)	Average Margin (dB)	QPeak (dBuV)	QPeak Limit (dBuV)	QPeak Margin (dB)	Result
0.404	16.15	47.77	-31.62	25.98	57.77	-31.78	Pass
2.627	13.89	46.00	-32.11	26.13	56.00	-29.87	Pass
10.732	24.39	50.00	-25.61	30.55	60.00	-29.45	Pass
16.168	34.82	50.00	-15.18	37.93	60.00	-22.07	Pass
16.229	36.47	50.00	-13.53	39.54	60.00	-20.46	Pass
22.884	34.52	50.00	-15.48	37.10	60.00	-22.90	Pass
23.069	35.67	50.00	-14.33	38.32	60.00	-21.68	Pass
23.129	40.17	50.00	-9.83	42.82	60.00	-17.18	Pass
24.349	35.22	50.00	-14.78	38.93	60.00	-21.07	Pass
24.533	33.97	50.00	-16.03	37.93	60.00	-22.07	Pass



Transmitter Enabled - L2

Frequency Range	Line Tested	RBW	Step Size	Sweep Time
150 kHz - 30 MHz	L2	9 kHz	2.25 kHz	10 s



Limit: FCC Part 15/FCC 15.207 - AC Mains
Test Date: 6/4/2026
Test Results: Pass

Figure 2.6.6-2 – Power Line Conducted Emissions Test Results

Test Notes:

- 48 VDC Off-the-Shelf Power Supply. RFID active.

**Table 2.6.6-2 – Power Line Conducted Results Emissions Test**

Frequency (MHz)	Average (dBuV)	Average Limit (dBuV)	Average Margin (dB)	QPeak (dBuV)	QPeak Limit (dBuV)	QPeak Margin (dB)	Result
0.150	21.55	56.00	-34.45	32.80	66.00	-33.20	Pass
0.227	16.01	52.58	-36.57	37.31	62.58	-25.27	Pass
0.380	18.25	48.29	-30.04	30.29	58.29	-28.00	Pass
0.825	14.94	46.00	-31.06	22.01	56.00	-33.99	Pass
2.668	14.57	46.00	-31.43	27.57	56.00	-28.43	Pass
10.608	22.30	50.00	-27.70	29.14	60.00	-30.86	Pass
16.168	34.73	50.00	-15.27	37.89	60.00	-22.11	Pass
16.229	36.38	50.00	-13.62	39.49	60.00	-20.51	Pass
22.884	34.49	50.00	-15.51	37.14	60.00	-22.86	Pass
23.069	35.64	50.00	-14.36	38.36	60.00	-21.64	Pass
23.129	40.14	50.00	-9.86	42.83	60.00	-17.17	Pass
24.349	35.25	50.00	-14.75	38.91	60.00	-21.09	Pass
24.351	35.17	50.00	-14.83	38.74	60.00	-21.26	Pass

2.6.7 Sample Calculations

$$R_C = R_U + CF_T$$

Where:

- CF_T = Total Correction Factor (LIL+CA+ ATT)
- R_U = Uncorrected Reading
- R_C = Corrected Level
- LIL = LISN Insertion Loss
- CA = Cable Attenuation
- ATT = External Attenuator or Transient Limiter

Example Calculation: Quasi-Peak

Corrected Level: $19.01 + 19.92 = 38.93 \text{ dB}\mu\text{V}$

Margin: $38.93 \text{ dB}\mu\text{V} - 60 \text{ dB}\mu\text{V} = -21.07 \text{ dB}$

Example Calculation: Average

Corrected Level: $15.3 + 19.92 = 35.22 \text{ dB}\mu\text{V}$

Margin: $35.22 \text{ dB}\mu\text{V} - 50 \text{ dB}\mu\text{V} = -14.78 \text{ dB}$



2.6.8 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: GRP2

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
NBLE10461	Weinschel	Attenuator, 20 dB	34-20-34	BR2623	B	03/25/2026	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
NBLE11754	Rohde & Schwarz	Receiver, 1 Hz-44 GHz	ESW44	103037	G	10/24/2025	10/24/2026

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.



2.7 Frequency Tolerance of Carrier Signal

2.7.1 Specification Reference

FCC Section 15.225(e)

2.7.2 Equipment Under Test and Modification State

Model: 200134, Serial Number: N/A

2.7.3 Date of Test

2026-June-20

2.7.4 Test Method

Frequency stability measurements with respect to ambient temperature and when varying voltage were performed in accordance with ANSI C63.10 section 6.8. The measurements were performed using a spectrum analyzer. Sufficient stabilization period was used at each temperature prior to each measurement.

2.7.5 Environmental Conditions

Ambient Temperature 24.6 °C
Relative Humidity 33 %
Atmospheric Pressure 982 mBar

2.7.6 Test Results

Mode of Operation: DC Powered, Operating

Limit Clause FCC Sections 15.225(e)

	Carrier Frequency Tolerance Limits	
Temperature Range	FCC 15.225 (e)	
-20 C to +50C	0.01%	100 ppm

Test Summary:

The EUT meets the frequency stability requirements.

Test Result: Pass



Frequency Stability

Frequency (MHz): 13.560080
 Deviation Limit (%): 0.01
 Deviation Limit (PPM): 100.00
 Nominal Voltage (VDC): 42

Temperature	Frequency	Frequency Error		Voltage	Voltage
C	MHz	(%)	PPM	(%)	(VDC)
-20 C	13.560092	0.00009	0.91445	100%	42.00
-10 C	13.560117	0.00028	2.77285	100%	42.00
0 C	13.560121	0.00031	3.05308	100%	42.00
10 C	13.560111	0.00023	2.29350	100%	42.00
20 C	13.560080	0.00000	0.00000	100%	42.00
30 C	13.560062	-0.00013	-1.27580	100%	42.00
40 C	13.560051	-0.00022	-2.15338	100%	42.00
50 C	13.560048	-0.00024	-2.35249	100%	42.00
20 C	13.560091	0.00008	0.80383	85%	35.70
20 C	13.560088	0.00006	0.58259	115%	48.30

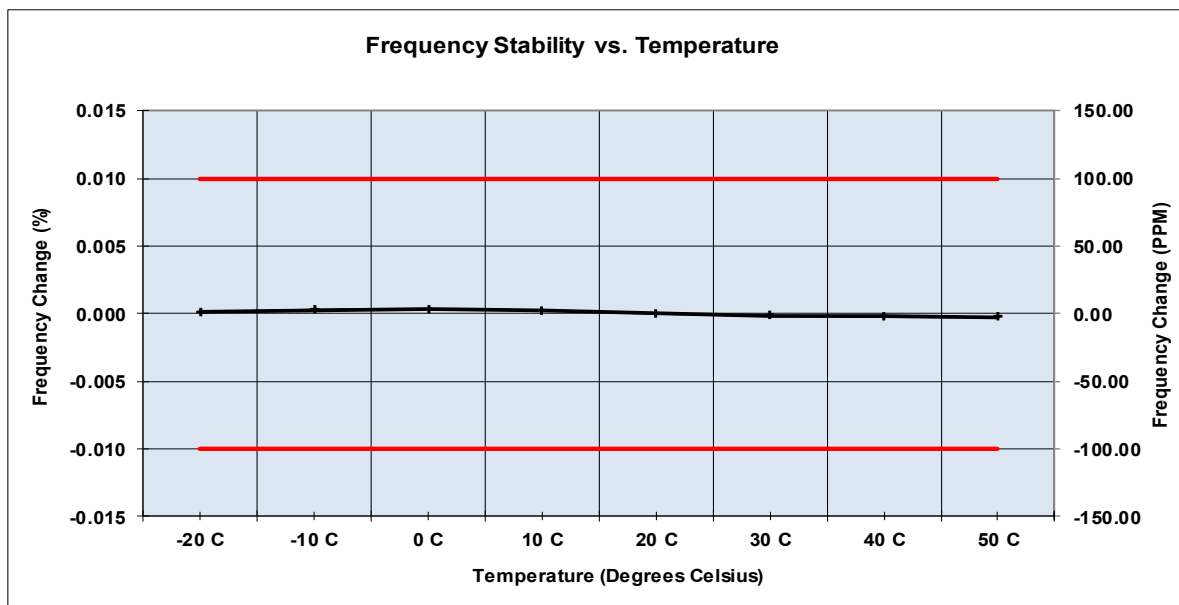


Figure 2.7.6-1 – Frequency Tolerance of Carrier Signal Result



2.7.7 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.

Test Area: Reverb

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
DEMC780	Hewlett Packard	DC Power Supply 0-60V/0-35A	6674A	US36370248	Y	N/A	N/A
WRLE03805	Agilent Technologies	Digital Multimeter	34401A	MY41049414	G	01/14/2026	01/14/2027
WRLE10515	EMCO/EMC Test	Near Field Probe	7405	7405-901	Y	N/A	N/A
BEMC00002	US-Omega Engineering	Digital Thermometer	MDSS41-TC	5020074	G	09/02/2025	09/02/2026
TEMC00242	Sun Electronic Systems, Inc.	Temperature Test Chamber	EC127	EC0152	Y	N/A	N/A

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.



2.8 Duty Cycle of the Test Mode of Operation

2.8.1 Specification Reference

FCC: Section: N/A

2.8.2 Equipment Under Test and Modification State

S/N: N/A

2.8.3 Date of Test

7/10/2026

2.8.4 Test Method

The spectrum analyzer's RBW was set to ≥ 20 dB BW or the largest value. The measurements were performed using a Peak detector.

2.8.5 Environmental Conditions

Ambient Temperature 23.9 °C
Relative Humidity 37 %
Atmospheric Pressure 982 mBar

2.8.6 Test Results

Mode of Operation: DC Powered, Operating

Test Summary:

The transmitter duty cycle is provided for informational purposes.

Test Result: Pass

Table 2.8.6-1 – Duty Cycle Results

Frequency (MHz)	Tx On (ms)	Period (ms)	Duty Cycle (%)
13.56	11.7875	51.0875	23.1

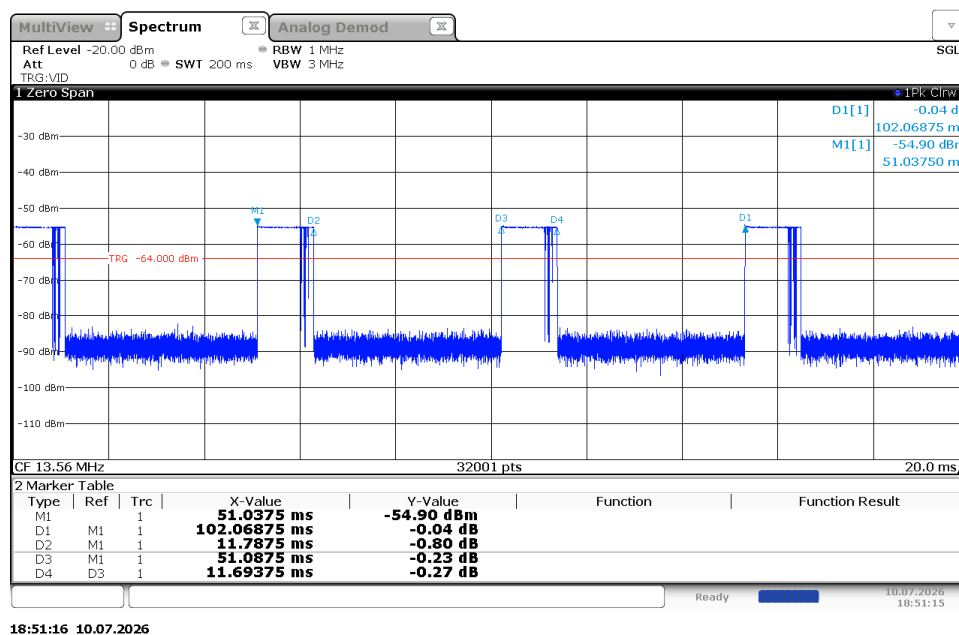


Figure 2.8.6-1: Duty Cycle Results

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.

Test Area: Reverb

Device #	Manufacturer	Description	Model	Serial #	Cal Code	Cal Date	Cal Due
DEMC3085	Rohde & Schwarz	Signal & Spectrum Analyzer	FSW43	103997	G	08/29/2025	08/29/2026
DEMC780	Hewlett Packard	DC Power Supply 0-60V/0-35A	6674A	US36370248	Y	N/A	N/A
WRLE03805	Agilent Technologies	Digital Multimeter	34401A	MY41049414	G	01/14/2026	01/14/2027
WRLE10515	EMCO/EMC Test	Near Field Probe	7405	7405-901	Y	N/A	N/A

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

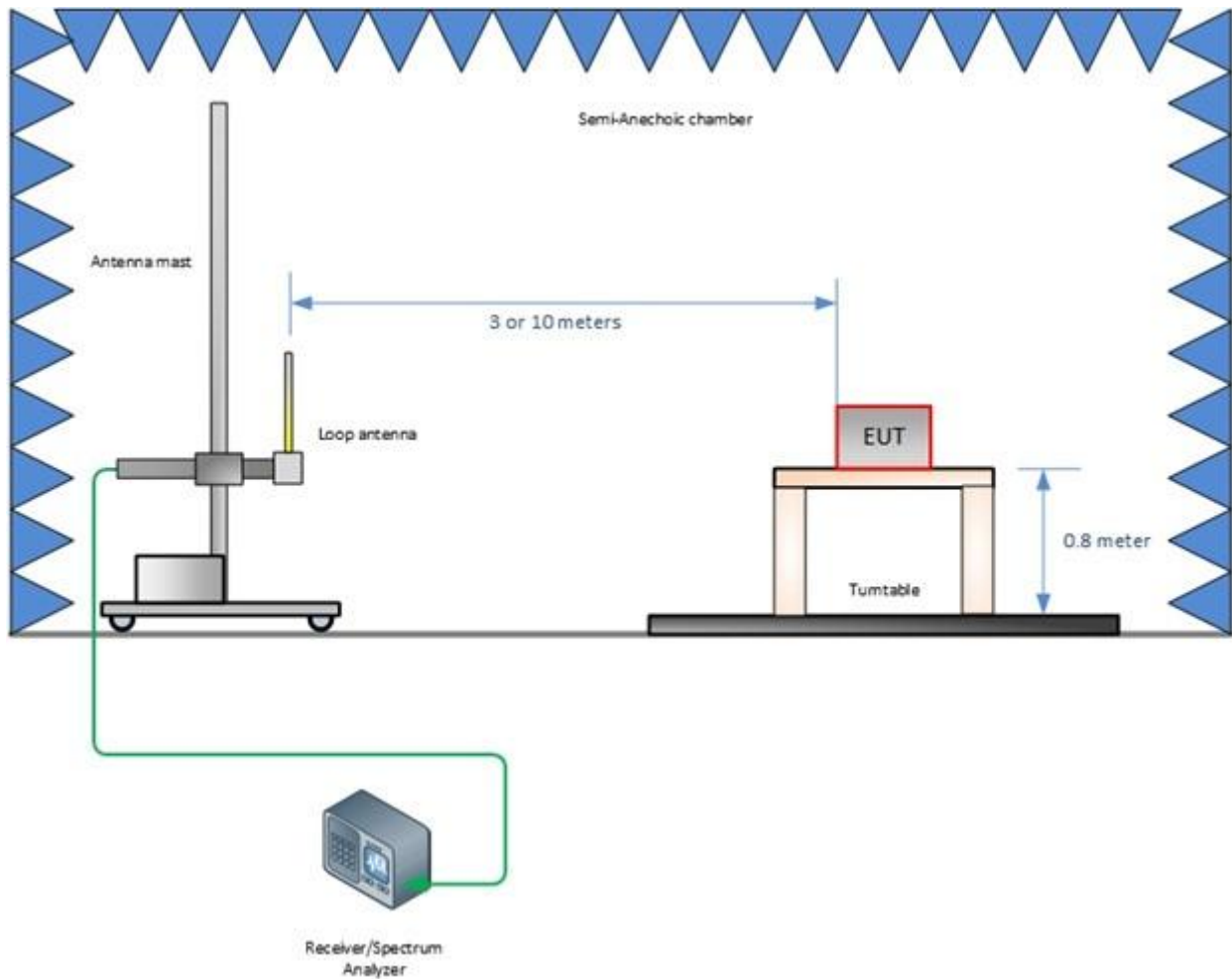


Figure 3-1 - Radiated Emissions Test Setup up to 30 MHz

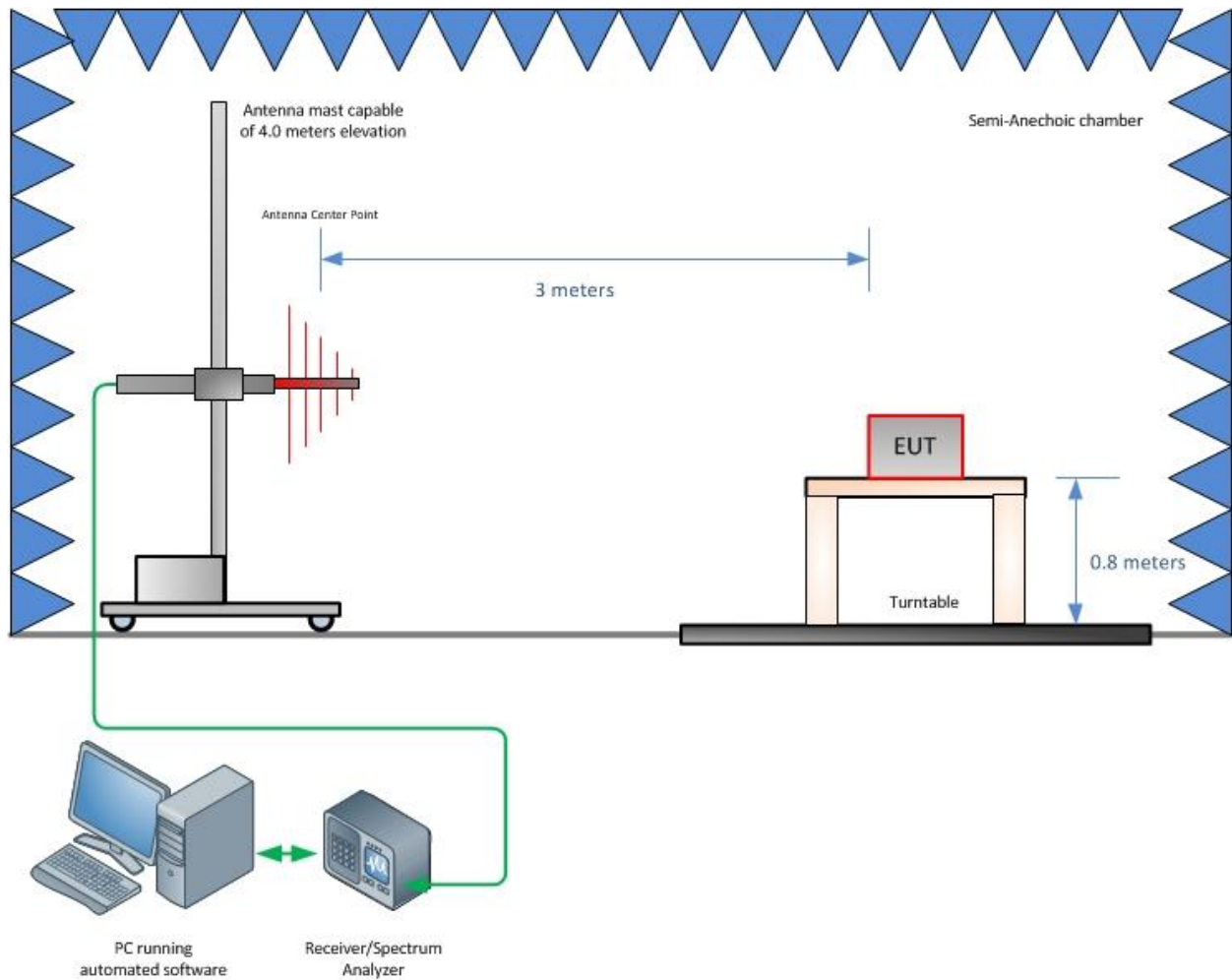


Figure 3-2 - Radiated Emissions Test Setup up to 1 GHz

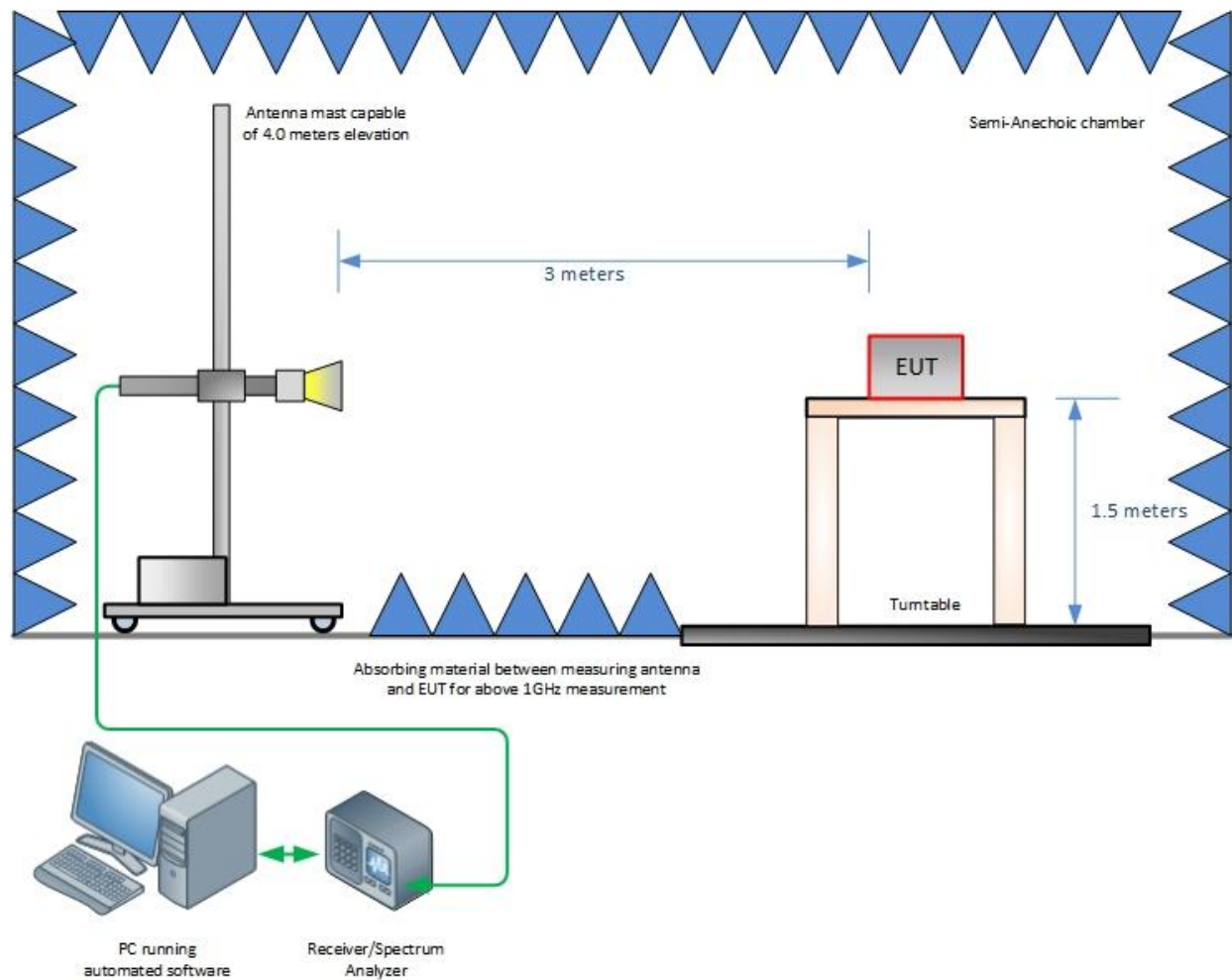


Figure 3-3 - Radiated Emissions Test Setup above 1 GHz

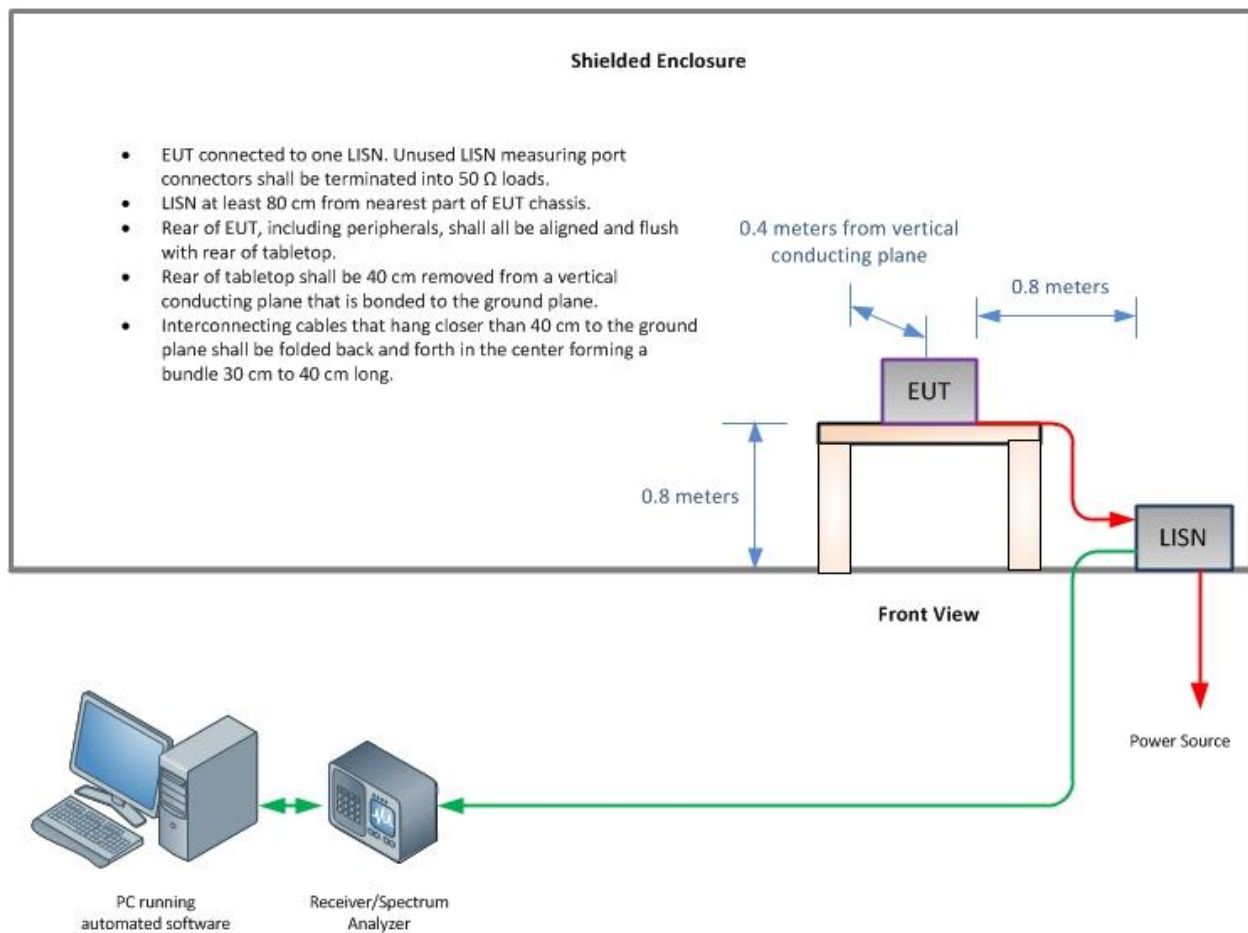


Figure 3-4 - Conducted Emissions Test Setup

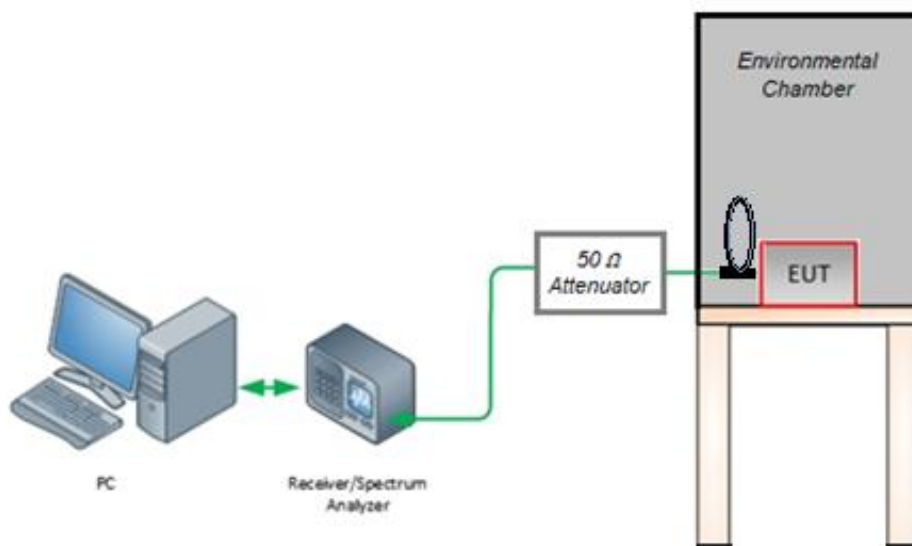


Figure 3-5 – Frequency Stability Test Setup



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}
Conducted disturbance (mains port) (150 kHz – 30 MHz)	3.4 dB	3.31 dB
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 4.47 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.

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.



5 Accreditation, Disclaimers and Copyright

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