

FCC and ISED Canada Testing of the

Allied Universal Electronic Monitoring US, Inc.
TRAK2 25005AVL

In accordance with FCC 47 CFR part 15.231 and
ISED Canada's Radio Standards Specifications
RSS-210

Prepared for: Allied Universal Electronic Monitoring US, Inc.
1838 Gunn Highway
Odessa FL, 33556

FCC ID: NC3-25005AVL

COMMERCIAL-IN-CONFIDENCE

Document Number: TP72191139.301 | Issue: 2

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Authorized Signatory	Dave Ernest	2026-January-09	
Testing	Thierry Jean-Charles	2026-January-09	

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 15.231 and ISED Canada's RSS-210.

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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	2025-May-29
2	1) Updated the cover page to include New Brighton's information instead of Tampa's due to the Tampa lab's closing. 2) Section 1.1 – Description of the changes 3) Section 1.2 – Updated ANSI C63.10 reference 4) Section 1.4.1 – Updated Antenna information 5) Section 1.7 – Added the accreditation information for the Tampa lab. The changes are only editorial in nature and do not affect the test results nor the state of compliance of the product.	2026-January-09

1.2 Introduction

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations Section 15.231 and Innovation Science and Economic Development Canada's Radio Standards Specification RSS-210 for the tests documented herein.



Applicant	Allied Universal Electronic Monitoring US, Inc.
Manufacturer	Allied Universal Electronic Monitoring US, Inc.
Applicant's Email Address	daniel.williamson@em.aus.com
Model Number(s)	TRAK2 25005AVL
Serial Number(s)	TRW302020431
FCC ID	NC3-25005AVL
Hardware Version(s)	18.1
Software Version(s)	9.15.70
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. Innovation, Science and Economic Development Canada Radio Standards Specification RSS-210, Licence-Exempt Radio Apparatus: Category I Equipment, issue 11, June 2024.
Test Plan/Issue/Date	2023-March-31
Order Number	72191139
Date	2023-June-19
Date of Receipt of EUT	2024-June-17
Start of Test	2024-June-21
Finish of Test	2025-March-22
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. 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 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC Part 15.231 and ISED Canada's RSS-210 is shown below.

Table 1.3-1 – 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	-----	10
Periodic Operation	Yes	Pass	15.231(a)	RSS-210 A.1.2	11
Radiated Field Strength of Fundamental and Spurious Emissions	Yes	Pass	15.231(b)	RSS-210 A.1.3	14
20 dB Bandwidth	Yes	Pass	15.231 (c)	-----	22
99% Bandwidth	Yes	Pass	-----	RSS-210 A.1.4	24
Power Line Conducted Emissions	Yes	Pass	15.207	RSS-GEN 8.8	26



1.4 Product Information

1.4.1 Technical Description

The EUT is that TRAK2 which include a 915 MHz ISMA radio, a 2.4 GHz Wi-Fi module and an LTE Cellular Modem. This test report covers the evaluation of the 900 MHz radio.

Technical Details

Mode of Operation: 900 MHz ISM
Frequency Range: 927.6 MHz
Number of Channels: 1
Channel Separation: N/A
Data Rate: N/A
Modulations: FSK
Antenna Type/Gain: Antenova Ltd Flex Antenna:
LHS: -2.24 dBi
RHS: -2.95 dBi
Input Power: 4.2 VDC Battery, 5 VDC Power Supply

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

Table 1.4.1-1 – Cable Descriptions

Cable/Port	Description
Power	3.24 m, Not Shielded, AC Adapter to Dock

Table 1.4.1-2 – Support Equipment Descriptions

Make/Model	Description
JFEC / JF012WR-0500200UV	AC Adapter



Declaration of Build Status

EQUIPMENT DESCRIPTION		
Model Name/Number	Name: TRAK2 V AND TRAK2 A	Model: 25005AVL
Part Number	10-000263-01 TRAK2 Black 915MHz NA GNSS TLB VZ AND 10-000302-01 TRAK2 Black 915MHz NA GNSS TLB AT&T	
Hardware Version	18.1	
Software Version	9.15.70	
FCC ID (if applicable)	NC3-25005AVL	
ISED ID (if applicable)	N/A	
Technical Description (Please provide a brief description of the intended use of the equipment)	This device uses LTE, GNSS/GPS, 2.4 GHz Wi-Fi (b/g/n), and 902-928 ISM Band Radio for remote electronic monitoring of personnel. This device communicates wirelessly with an ankle-worn bracelet.	

UN-INTENTIONAL RADIATOR	
Highest frequency generated or used in the device or on which the device operates or tunes	During Normal Operation: 2.484 GHz (Wi-Fi ISM Band) During Idle (Non-Activated): 8 MHz (MCU Crystal)
Lowest frequency generated or used in the device or on which the device operates or tunes	32.768 KHz
Class A Digital Device (Use in commercial, industrial or business environment) ☐	
Class B Digital Device (Use in residential environment only) ☒	

Power Source			
AC	Single Phase	Three Phase	Nominal Voltage
	☒	☐	120VAC
External DC	Nominal Voltage	Maximum Current	
	5VDC	1.0 Amps	
Battery	Nominal Voltage	Battery Operating End Point Voltage	
	3.7VDC	3.2 VDC to 4.2 VDC	

EXTREME CONDITIONS			
Maximum temperature	+ 60	°C	Minimum temperature
			- 20 °C

Ancillaries
Please list all ancillaries which will be used with the device.
1. Wall Adaptor (for charging the device) 2. PID3 (ankle-worn bracelet on personell) 3. Belt Holster (plastic)

I hereby declare that the information supplied is correct and complete.

Name: **Daniel S Williamson**

Position held: **RF/Electronics Engineer Technician**

Date: **5/27/2025**



1.4.2 Modes of Operation

The EUT was evaluated for the 900 MHz radio. The unit was configured using the GDUtility V1.31.11 application. The TX power setting was set to 4 during the evaluation.

1.4.3 Monitoring of Performance

Preliminary radiated emissions investigations were performed for the EUT in three orthogonal orientations as well as when the EUT is powered using the AC adapter. The results are reported for the configurations leading to the highest emissions.

- EUT sideways for antenna path 1
- EUT flat for antenna path 2

For the power line conducted emissions, the measurements were performed on the EUT with a dedicated AC adapter.

1.4.4 Performance Criteria

The EUT was evaluated for the parameters listed below.

Table 1.4.4-1 – Performance Criteria

Parameter	Requirement
Antenna Requirement	FCC: Section 15.203. 15.204
Periodic Operation	FCC; Section 15.231(a); ISED Canada: RSS-210 A.1.2
Radiated Field Strength of Fundamental and Spurious Emissions	FCC: Section 15.231(b); ISED Canada: RSS-210 A.1.3
20 dB Bandwidth	FCC: Section 15.231(c)
99% Bandwidth	ISED Canada: RSS-210 A.1.4
Power Line Conducted Emissions	FCC: Section 15.207; ISED Canada: RSS-GEN 8.8

1.5 Deviations from the Standard

The evaluation was performed without any deviation from the test standard.



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	RF Output Power Reduction to Setting 4	Allied Universal Electronic Monitoring US, Inc.	1/6/2025

1.7 Test Location

TÜV SÜD Product Service conducted the following tests at our Tampa FL Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Mode of Operation: Continuous Transmission		
Antenna Requirement	Thierry Jean-Charles	A2LA
Periodic Operation	Thierry Jean-Charles	A2LA
Radiated Field Strength of Fundamental and Spurious Emissions	Thierry Jean-Charles	A2LA
20 dB Bandwidth	Thierry Jean-Charles	A2LA
99% Bandwidth	Thierry Jean-Charles	A2LA
Power Line Conducted Emissions	Thierry Jean-Charles	A2LA

Office Address:

TÜV SÜD America, Inc.
5610 W. Sligh Ave, Suite 100
Tampa, FL 33634
USA

FCC Accreditation:

Designation Number US1063 Tampa, FL Test Laboratory

Innovation, Science, and Economic Development Canada Accreditation:

Site Number 2087A-2 Tampa, FL Test Laboratory

A2LA Cert. No. 2955.15



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: TRW302020431

2.1.3 Date of Test

10/18/2024

2.1.4 Test Method

This is a visual inspection. There are no defined method for this effort.

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 EUT uses internal custom Antenova Ltd Flex antennas which are not accessible to the end user. The antennas use unique connectors and therefore meet the requirements of FCC Section 15.203 / 15.204.

2.1.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

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



2.2 Periodic Operation

2.2.1 Specification Reference

FCC Sections: 15.231(a);
ISED Canada: RSS-210 A.1.2

2.2.2 Equipment Under Test and Modification State

S/N: TRW302020431

2.2.3 Date of Test

3/17/2025

2.2.4 Test Method

The transmitter was activated automatically by pairing it to a companion device and was evaluated using a spectrum analyzer at zero span.

2.2.5 Environmental Conditions

Ambient Temperature 23.3 °C
Relative Humidity 35.6 %
Atmospheric Pressure 1019.1 mbar

2.2.6 Test Results

AC Powered Operating

Limit Clause FCC Sections 15.231(a), ISED Canada: RSS-210 A.1.2

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. A transmitter activated automatically shall cease transmission within 5 seconds after activation.

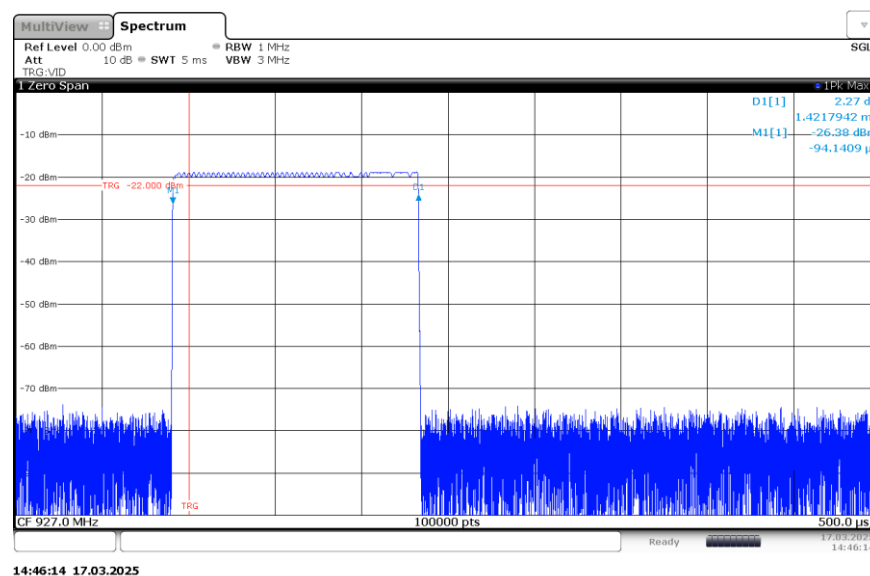




Figure 2.2.6-1 – Transmission Duration – 5 ms

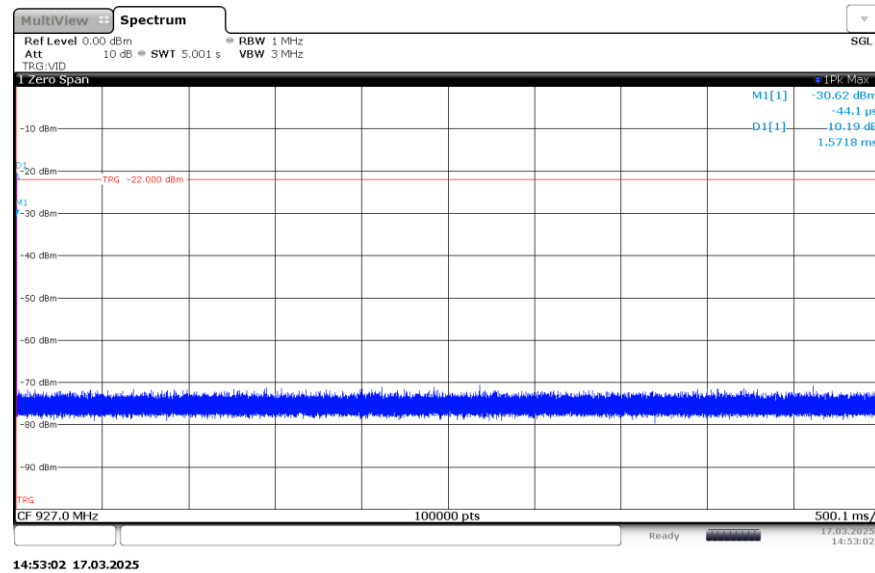


Figure 2.2.6-2 – Transmission Duration – 5 s

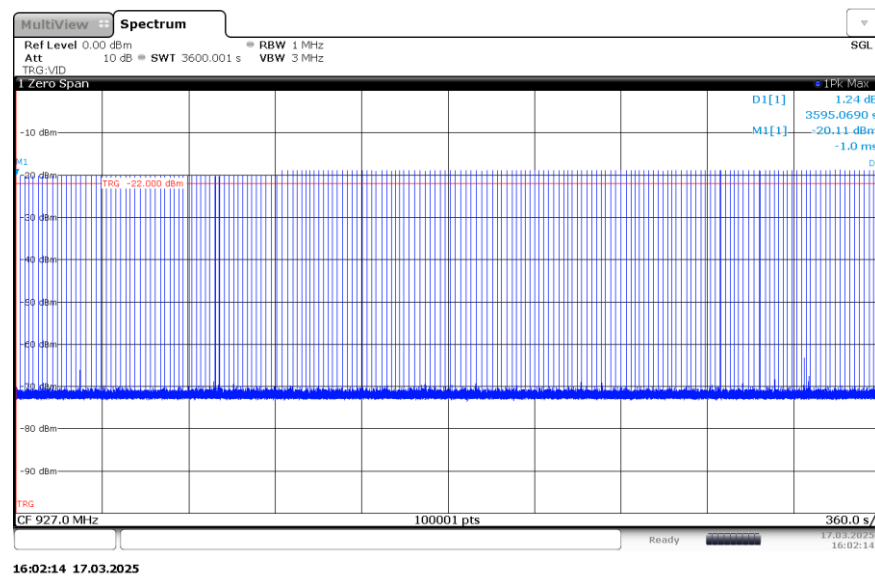


Figure 2.2.6-3 – Duration of Transmission per hour



2.2.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Duratest 175 Cable 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	18-Oct-2025
PCB Loop Antenna	FAU EMI R&D Lab	EMI-LOOP	BEMC02141	N/A	N/A	NCR
Signal & Spectrum Analyzer	Rohde & Schwarz	FSW43	DEMC3085	2.90 SP1	12	03-Jun-2025

TU - Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment

N/A - Not Applicable

NCR – No Calibration Required



2.3 Radiated Field Strength and Spurious Emissions

2.3.1 Specification Reference

FCC Sections: 15.231(b);
ISED Canada: RSS-210 A.1.3

2.3.2 Equipment Under Test and Modification State

S/N: TRW302020431

2.3.3 Date of Test

6/21/2024 to 3/22/2025

2.3.4 Test Method

Radiated emissions tests were made over the frequency range of 9 kHz to 10 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 measurements are made with RBW of 1 MHz and VBW of 3 MHz.

A Peak detector was used for all measurements above 1 GHz. The peak emissions were also compared to a limit corresponding to 20 dB above the maximum permitted average limit according to Part 15.35. The final measurements were then corrected by antenna correction factors and cable loss for comparison to the limits. Further, compliance with the provisions of 15.205 was demonstrated using the measurement instrumentation specified in that section where applicable.

2.3.5 Duty Cycle Correction

The EUT was configured to transmit at 100% duty cycle during the evaluation. A Duty Cycle Correction of 1.42% corresponding to $20 \cdot \log(1.42/100) = -36.94$ dB was applied to the average measurements for the corrected average results. The justification of the duty cycle is provided in the equipment's theory of operation document.

2.3.6 Environmental Conditions

Ambient Temperature	23.3 °C
Relative Humidity	35.6 - 36.9 %
Atmospheric Pressure	1019.1 - 1021.1 mbar



2.3.7 Test Results

Battery Powered, Operating

Limit Clause FCC Sections 15.231(a), ISED Canada: RSS-210 A.1.3

Table 2.3.7-1 – Fundamental and Spurious Emissions Limits

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	¹ 1,250 to 3,750	¹ 125 to 375
174-260	3,750	375
260-470	¹ 3,750 to 12,500	¹ 375 to 1250
Above 470	12,500	1250

¹Linear Interpolations

**Table 2.3.7-2 – Radiated Field Strength and Spurious Emissions Test Results – Antenna 1**

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	avg			pk	avg	pk	avg	pk	avg
Fundamental Frequency										
927.6	69.66	69.66	H	29.05	98.71	61.77	101.9	81.9	3.2	20.1
927.6	61.04	61.04	V	29.05	90.09	53.15	101.9	81.9	11.8	28.8
Spurious Emissions										
1855.2	52.30	52.30	H	-6.61	45.69	8.74	81.9	61.9	36.2	53.2
1855.2	51.54	51.54	V	-6.61	44.93	7.98	81.9	61.9	37.0	53.9
2782.8	48.19	48.19	H	-4.39	43.80	6.86	74	54	30.2	47.1
2782.8	47.84	47.84	V	-4.39	43.45	6.51	74	54	30.5	47.5
3710.4	52.95	52.95	H	-2.59	50.36	13.42	74	54	23.6	40.6
3710.4	52.51	52.51	V	-2.59	49.92	12.98	74	54	24.1	41.0
4638	48.59	48.59	H	-0.40	48.19	11.24	74	54	25.8	42.8
4638	46.67	46.67	V	-0.40	46.27	9.32	74	54	27.7	44.7
5565.6	49.04	49.04	H	1.77	50.81	13.86	81.9	61.9	31.1	48.0
5565.6	47.89	47.89	V	1.77	49.66	12.71	81.9	61.9	32.2	49.2
6493.2	43.16	43.16	H	3.53	46.69	9.74	81.9	61.9	35.2	52.2
6493.2	43.94	43.94	V	3.53	47.47	10.52	81.9	61.9	34.4	51.4
7420.8	46.96	46.96	H	4.03	50.99	14.04	74	54	23.0	40.0
7420.8	42.77	42.77	V	4.03	46.80	9.85	74	54	27.2	44.1
8348.4	43.40	43.40	H	5.39	48.79	11.85	74	54	25.2	42.1
8348.4	41.74	41.74	V	5.39	47.13	10.19	74	54	26.9	43.8
9276	43.30	43.30	H	6.46	49.76	12.82	81.9	61.9	32.1	49.1
9276	42.59	42.59	V	6.46	49.05	12.11	81.9	61.9	32.8	49.8

Note:

The peak levels were corrected using a duty cycle correction factor of 1.4179% for the corrected average measurement levels. A justification for the duty cycle correction factor can be found in the Theory of Operation of the device.

**Table 2.3.7-3 – Radiated Field Strength and Spurious Emissions Test Results – Antenna 2**

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	avg			pk	avg	pk	avg	pk	avg
Fundamental Frequency										
927.6	62.94	62.94	H	29.05	91.99	55.05	101.9	81.9	9.9	26.9
927.6	55.18	55.18	V	29.05	84.23	47.29	101.9	81.9	17.7	34.6
Spurious Emissions										
1855.2	53.32	53.32	H	-6.61	46.71	9.76	81.9	61.9	35.2	52.1
1855.2	51.77	51.77	V	-6.61	45.16	8.21	81.9	61.9	36.7	53.7
2782.8	47.60	47.60	H	-4.39	43.21	6.27	74	54	30.8	47.7
2782.8	48.56	48.56	V	-4.39	44.17	7.23	74	54	29.8	46.8
3710.4	50.55	50.55	H	-2.59	47.96	11.02	74	54	26.0	43.0
3710.4	52.68	52.68	V	-2.59	50.09	13.15	74	54	23.9	40.9
4638	47.51	47.51	H	-0.40	47.11	10.16	74	54	26.9	43.8
4638	47.83	47.83	V	-0.40	47.43	10.48	74	54	26.6	43.5
5565.6	47.23	47.23	H	1.77	49.00	12.05	81.9	61.9	32.9	49.8
5565.6	48.45	48.45	V	1.77	50.22	13.27	81.9	61.9	31.7	48.6
6493.2	43.89	43.89	H	3.53	47.42	10.47	81.9	61.9	34.5	51.4
6493.2	44.11	44.11	V	3.53	47.64	10.69	81.9	61.9	34.3	51.2
7420.8	41.60	41.60	H	4.03	45.63	8.68	74	54	28.4	45.3
7420.8	43.27	43.27	V	4.03	47.30	10.35	74	54	26.7	43.6
8348.4	42.31	42.31	H	5.39	47.70	10.76	74	54	26.3	43.2
8348.4	42.81	42.81	V	5.39	48.20	11.26	74	54	25.8	42.7
9276	42.85	42.85	H	6.46	49.31	12.37	81.9	61.9	32.6	49.5
9276	41.40	41.40	V	6.46	47.86	10.92	81.9	61.9	34.0	51.0

Note:

The peak levels were corrected using a duty cycle correction factor of 1.4179% for the corrected average measurement levels. A justification for the duty cycle correction factor can be found in the Theory of Operation of the device.

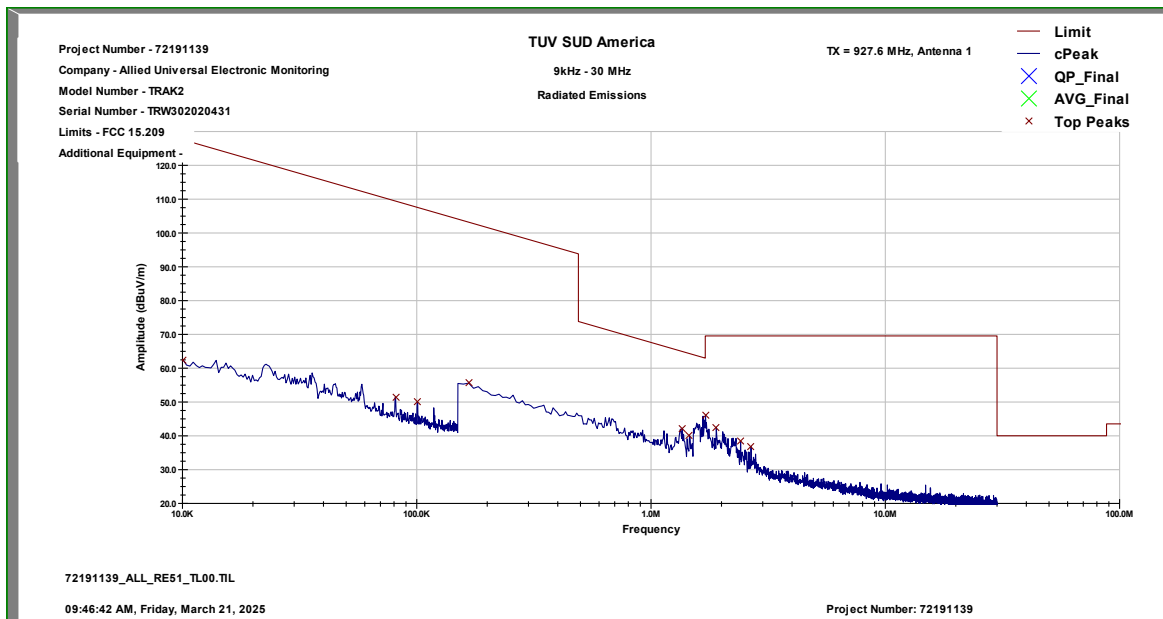


Figure 2.3.7-1 – Radiated Spurious Emissions Plots - below 30 MHz – Vertical Polarization

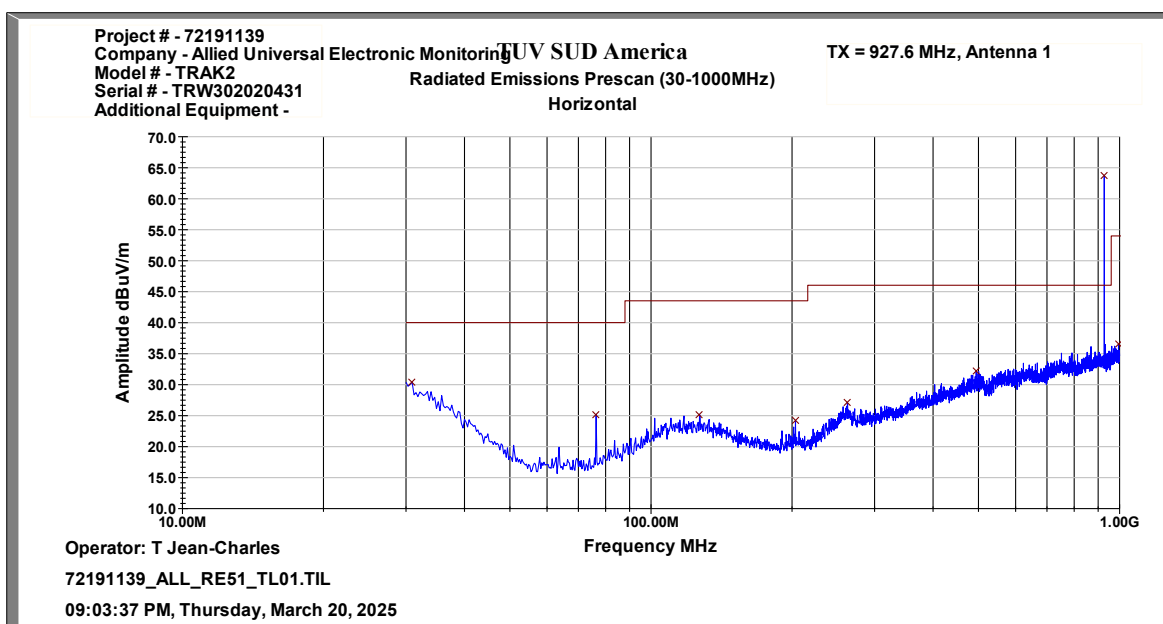


Figure 2.3.7-2 – Radiated Spurious Emissions Plots - 30 MHz - 1 GHz – Horizontal Polarization

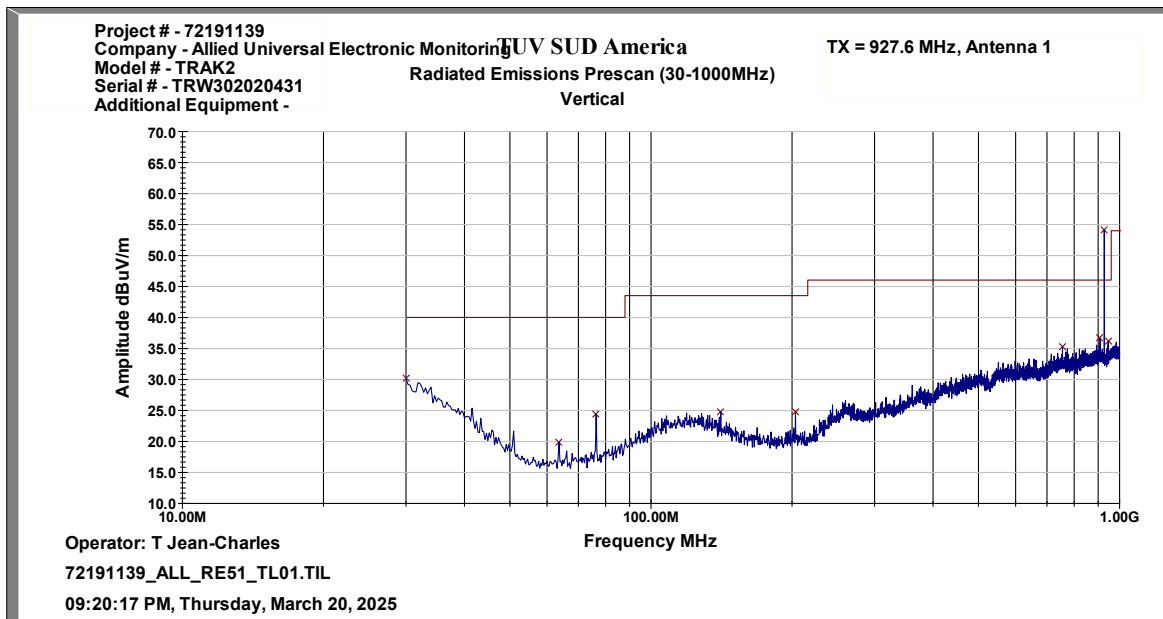


Figure 2.3.7-3 – Radiated Spurious Emissions Plots - 30 MHz - 1 GHz – Vertical Polarization

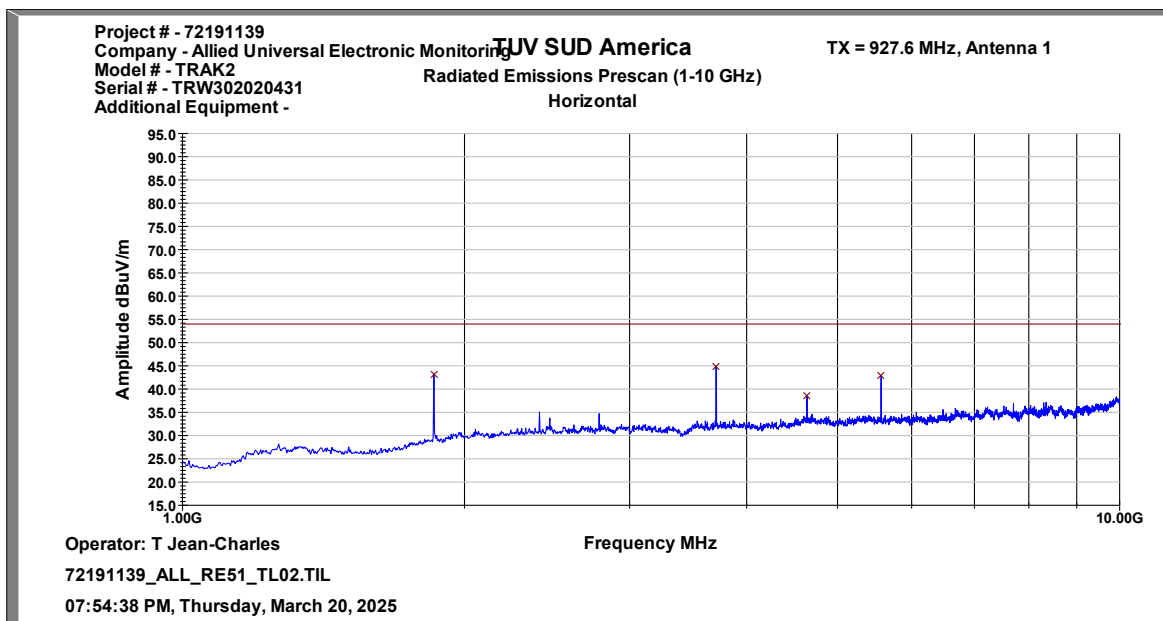


Figure 2.3.7-4 – Radiated Spurious Emissions Plots - above 1 GHz – Horizontal Polarization

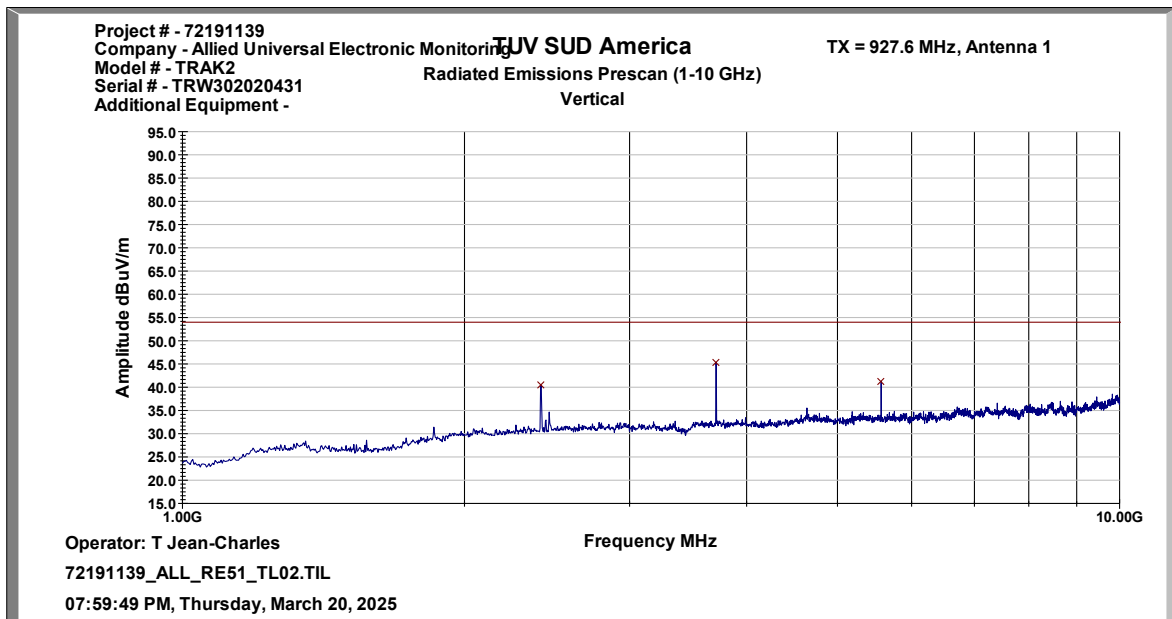


Figure 2.3.7-5 – Radiated Spurious Emissions Plots - above 1 GHz – Vertical Polarization

2.3.8 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: $48.19 + (-4.89) = 43.3 \text{ dB}\mu\text{V/m}$

Margin: $74 \text{ dB}\mu\text{V/m} - 43.3 \text{ dB}\mu\text{V/m} = 30.7 \text{ dB}$

Example Calculation: Average

Corrected Level: $48.19 + (-4.89) - 36.94 = 6.36 \text{ dB}\mu\text{V/m}$

Margin: $54 \text{ dB}\mu\text{V/m} - 6.36 \text{ dB}\mu\text{V/m} = 47.64 \text{ dB}$



2.3.9 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Active Loop Antenna	EMCO	6502	BEMC00078	N/A	24	06-Sep-2025
100Hz-26.5GHz EMC analyzer/HYZ	Hewlett Packard	E7405A	BEMC00523	A.14.06	12	25-Jun-2025
Notch Filter	Trilithic, Inc.	7NM867/122-X1-AA	BEMC02069	N/A	12	25-Nov-2025
Tile Automation Software	ETS Lindgren	TILE4! - Version 4.2.A	BEMC02095	4.2.A	N/A	NCR
BI LOG PERIODIC, ANTENNA	Schaffner	CBL6112B	TEMC00005	N/A	24	07-Nov-2025
EMC Chamber	Panashield	N/A	TEMC00031	N/A	24	19-Oct-2025
Double Ridge Guide Horn	ETS Lindgren	3117	TEMC00061	N/A	24	15-Feb-2026
Microwave Preamplifier	Com-Power Corporation	PAM-118A	TEMC00160	N/A	12	12-Dec-2025
1.2 GHz High Pass Filter	Micro-Tronics	HPM50108-01	TEMC00175	N/A	12	08-Feb-2026
R & S ESW EMI Test Receiver	Rohde & Schwarz	ESW	TEMC00232	2.00 SP1	12	04-Jun-2025
DC to 18 GHz Cable	SSI Technologies	2801-03-03-360/WN	TEMC00293	N/A	12	13-Dec-2025
Active Loop Antenna	EMCO	6502	BEMC00078	N/A	24	06-Sep-2025

TU - Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment

N/A - Not Applicable

NCR – No Calibration Required



2.4 20 dB Bandwidth

2.4.1 Specification Reference

FCC: Section 15.215

2.4.2 Equipment Under Test and Modification State

S/N: TRW302020431

2.4.3 Date of Test

3/21/2025

2.4.4 Test Method

The spectrum analyzer span was set to 2 to 5 times the estimated bandwidth of the emission. The RBW was set from 1% to 5% of the estimated emission bandwidth. The trace was set to max hold with a peak detector active. The 20-dB function of the analyzer was utilized to determine the 20 dB bandwidth of the emission.

2.4.5 Environmental Conditions

Ambient Temperature	22.9°C
Relative Humidity	34.2 %
Atmospheric Pressure	1017.8 mbar

2.4.6 Test Results

AC Powered Operating

Limit Clause FCC Part 15.231(c)

The 20 dB Bandwidth limit is calculated as 0.50% of the 927.6 MHz center frequency. The limit is equal to 4.64 MHz. Therefore the 20 dB bandwidth of the emission is less than 0.50% of the center frequency.

Table 2.4.6-1 – 20 dB Bandwidth Test Results

Frequency MHz	20dB-Bandwidth kHz	Limit kHz	Status
927.6	122.088	4638	Pass

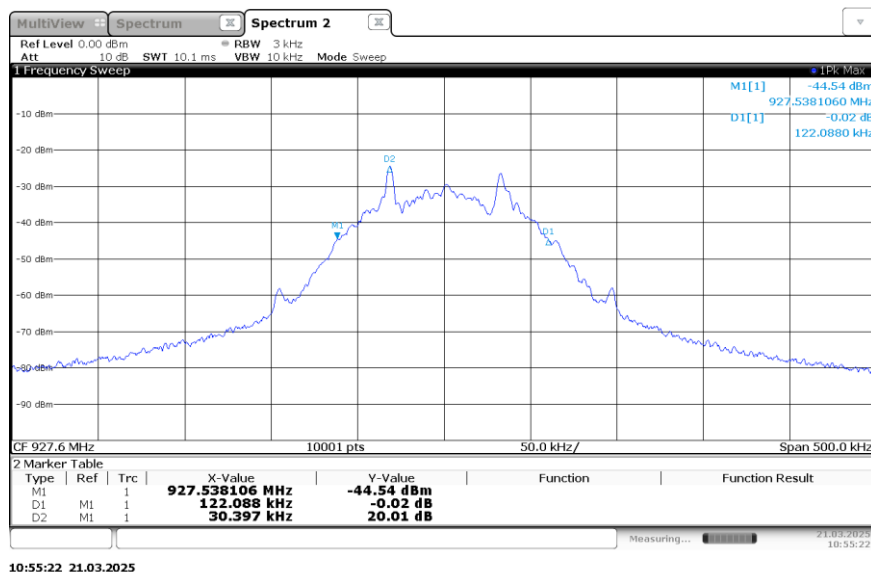


Figure 2.4.6-1 – 20 dB Bandwidth

2.4.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Duratest 175 Cable 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	18-Oct-2025
PCB Loop Antenna	FAU EMI R&D Lab	EMI-LOOP	BEMC02141	N/A	N/A	NCR
Signal & Spectrum Analyzer	Rohde & Schwarz	FSW43	DEMC3085	2.90 SP1	12	03-Jun-2025

TU - Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment

N/A - Not Applicable

NCR – No Calibration Required



2.5 99% Bandwidth

2.5.1 Specification Reference

ISED Canada: RSS-210 A.1.4

2.5.2 Equipment Under Test and Modification State

S/N: TRW302020431

2.5.3 Date of Test

3/21/2025

2.5.4 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.

2.5.5 Environmental Conditions

Ambient Temperature	22.9°C
Relative Humidity	34.2 %
Atmospheric Pressure	1017.8 mbar

2.5.6 Test Results

AC Powered, Operating

Limit Clause ISED RSS-210 A.1.4

The 99% Occupied Bandwidth limit is calculated as 0.50% of the 927.6 MHz center frequency. The limit is equal to 4.64 MHz. Therefore the 99% bandwidth of the emission are less than 0.50% of the center frequency.

Table 2.5.6-1 – 99% Bandwidth Test Results

Frequency MHz	99%-Bandwidth kHz	Limit kHz	Status
927.6	120.1384	4638	Pass

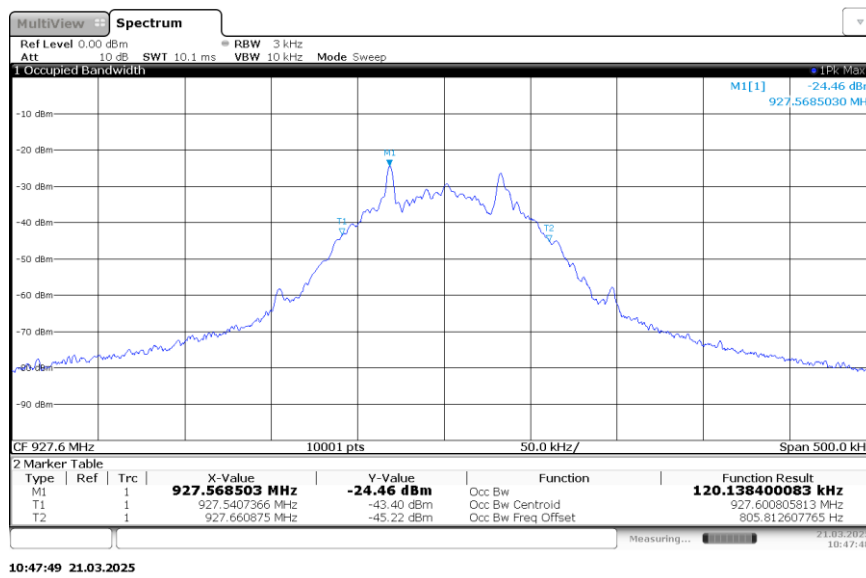


Figure 2.5.6-1 – 99% Bandwidth

2.5.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Duratest 175 Cable 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	18-Oct-2025
PCB Loop Antenna	FAU EMI R&D Lab	EMI-LOOP	BEMC02141	N/A	N/A	NCR
Signal & Spectrum Analyzer	Rohde & Schwarz	FSW43	DEMC3085	2.90 SP1	12	03-Jun-2025

TU - Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment

N/A - Not Applicable



2.6 Power Line Conducted Emissions

2.6.1 Specification Reference

FCC: Section 15.207
ISED Canada; RSS-GEN 8.8

2.6.2 Equipment Under Test and Modification State

S/N: TRW302020431

2.6.3 Date of Test

3/21/2025

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:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss
Margin = Applicable Limit - Corrected Reading

2.6.5 Environmental Conditions

Ambient Temperature 22.9 °C
Relative Humidity 34.2 %
Atmospheric Pressure 1017.8 mbar

2.6.6 Test Results

AC Powered, Operating

Table 2.6.6-1 – Power Line Conducted Emissions Limits

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

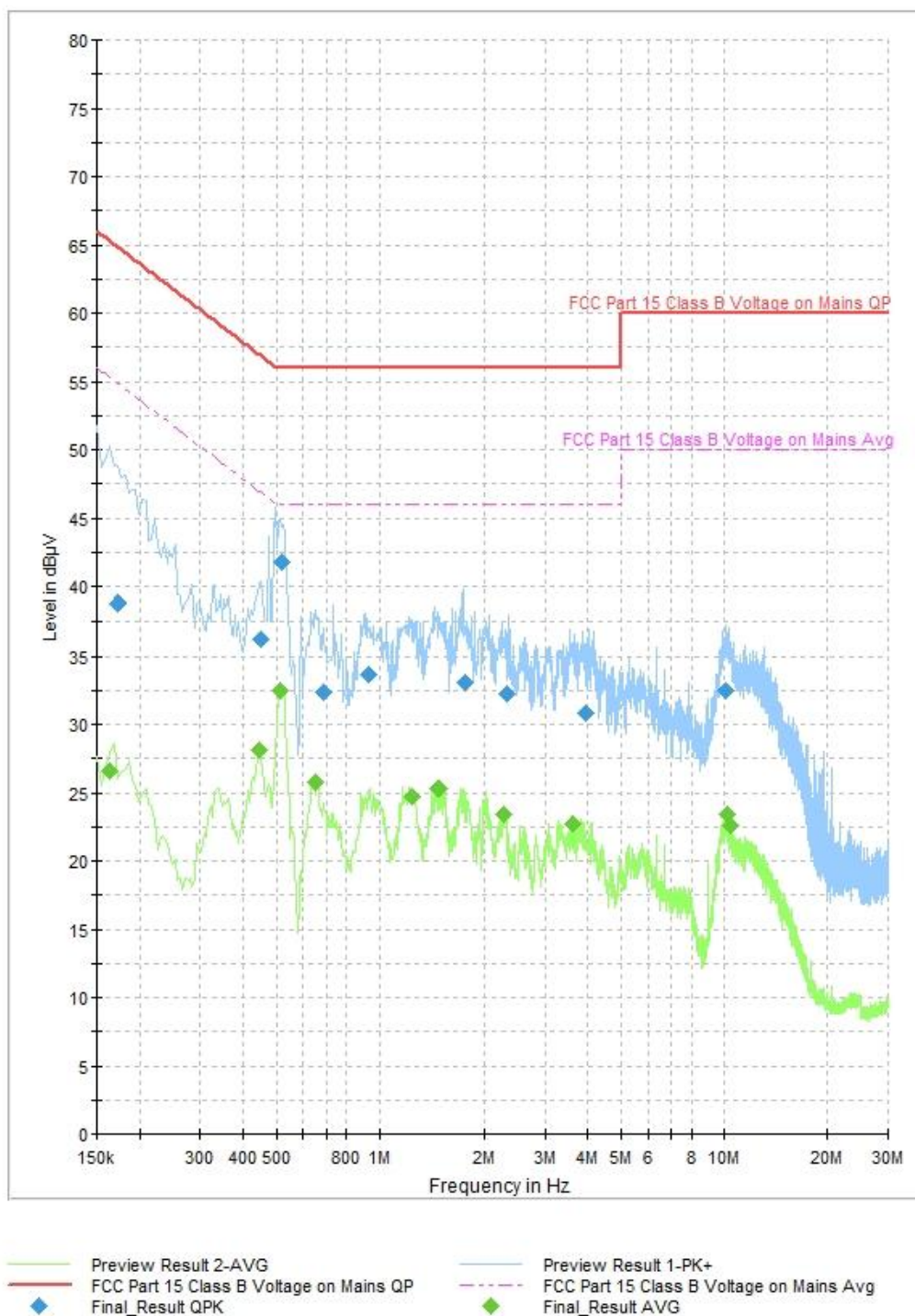
*Decreases with the logarithm of the frequency.

**Table 2.6.6-2 – Power Line Conducted Emissions – Quasi-Peak Detector Results**

Frequency (MHz)	Quasi-peak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.172500	38.84	N	20.2	26.00	64.84
0.451500	36.24	L1	20.2	20.60	56.85
0.519000	41.82	L1	20.2	14.18	56.00
0.690000	32.41	L1	20.2	23.59	56.00
0.928500	33.63	L1	20.2	22.37	56.00
1.752000	33.01	L1	20.3	22.99	56.00
2.314500	32.18	L1	20.3	23.82	56.00
3.966000	30.79	L1	20.4	25.21	56.00
10.095000	32.50	L1	20.7	27.50	60.00

Table 2.6.6-3 – Power Line Conducted Emissions – Average Detector Results

Frequency (MHz)	Average (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	26.57	L1	20.2	28.72	55.28
0.447000	28.09	L1	20.2	18.84	46.93
0.514500	32.44	L1	20.2	13.56	46.00
0.649500	25.75	L1	20.2	20.25	46.00
1.243500	24.70	L1	20.3	21.30	46.00
1.482000	25.24	L1	20.3	20.76	46.00
2.283000	23.39	L1	20.3	22.61	46.00
3.610500	22.74	L1	20.4	23.26	46.00
10.162500	23.38	L1	20.7	26.62	50.00
10.378500	22.53	L1	20.7	27.47	50.00

**Figure 2.6.6-1 – Power Line Conducted Emissions Line 1 and Neutral Combined Plots**



2.6.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
EMI Test Receiver	Rohde & Schwarz	ESCS30	TEMC00011	2.3003.0203.36	12	14-Jan-2026
RFI/EMI Shielded Enclosure	UNIVERSAL SHIELDING CORP.	N/A	TEMC00100	N/A	N/A	NCR
Test Software	Rohde & Schwarz	EMC32	TEMC00184	10.50.00	N/A	NCR
2-Line V-Network	Rohde & Schwarz GmbH & Co. KG	ENV216	TEMC00290	N/A	12	06-Jun-2025
Conducted cable with UNAT-10+ attenuator	L-com	RG58C/U	TEMC00291	N/A	12	18-Oct-2025

TU - Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment

N/A - Not Applicable

NCR – No Calibration Required



3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Active Loop Antenna	EMCO	6502	BEMC00078	N/A	24	06-Sep-2025
100Hz-26.5GHz EMC analyzer/HYZ	Hewlett Packard	E7405A	BEMC00523	A.14.06	12	25-Jun-2025
Notch Filter	Trilithic, Inc.	7NM867/122-X1-AA	BEMC02069	N/A	12	25-Nov-2025
Tile Automation Software	ETS Lindgren	TILE4! - Version 4.2.A	BEMC02095	4.2A	N/A	NCR
BI LOG PERIODIC, ANTENNA	Schaffner	CBL6112B	TEMC00005	N/A	24	07-Nov-2025
EMC Chamber	Panashield	N/A	TEMC00031	N/A	24	19-Oct-2025
Double Ridge Guide Horn	ETS Lindgren	3117	TEMC00061	N/A	24	15-Feb-2026
Microwave Preamplifier	Com-Power Corporation	PAM-118A	TEMC00160	N/A	12	12-Dec-2025
1.2 GHz High Pass Filter	Micro-Tronics	HPM50108-01	TEMC00175	N/A	12	08-Feb-2026
R & S ESW EMI Test Receiver	Rohde & Schwarz	ESW	TEMC00232	2.00 SP1	12	04-Jun-2025
DC to 18 GHz Cable	SSI Technologies	2801-03-03-360/WN	TEMC00293	N/A	12	13-Dec-2025
Active Loop Antenna	EMCO	6502	BEMC00078	N/A	24	06-Sep-2025
EMI Test Receiver	Rohde & Schwarz	ESCS30	TEMC00011	2.3003.0203.36	12	14-Jan-26
RFI/EMI Shielded Enclosure	UNIVERSAL SHIELDING CORP.	N/A	TEMC00100	N/A	N/A	NCR
Test Software	Rohde & Schwarz	EMC32	TEMC00184	10.50.00 / 11.50.00	N/A	NCR
2-Line V-Network	Rohde & Schwarz GmbH & Co. KG	ENV216	TEMC00290	N/A	12	06-Jun-2025
Conducted cable with UNAT-10+ attenuator	L-com	RG58C/U	TEMC00291	N/A	12	18-Oct-2025
Duratest 175 Cable 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	18-Oct-2025
PCB Loop Antenna	FAU EMI R&D Lab	EMI-LOOP	BEMC02141	N/A	N/A	NCR
Signal & Spectrum Analyzer	Rohde & Schwarz	FSW43	DEMC3085	2.90 SP1	12	03-Jun-2025

TU - Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment

N/A - Not Applicable

NCR – No Calibration Required

4 Diagram of Test Set-ups

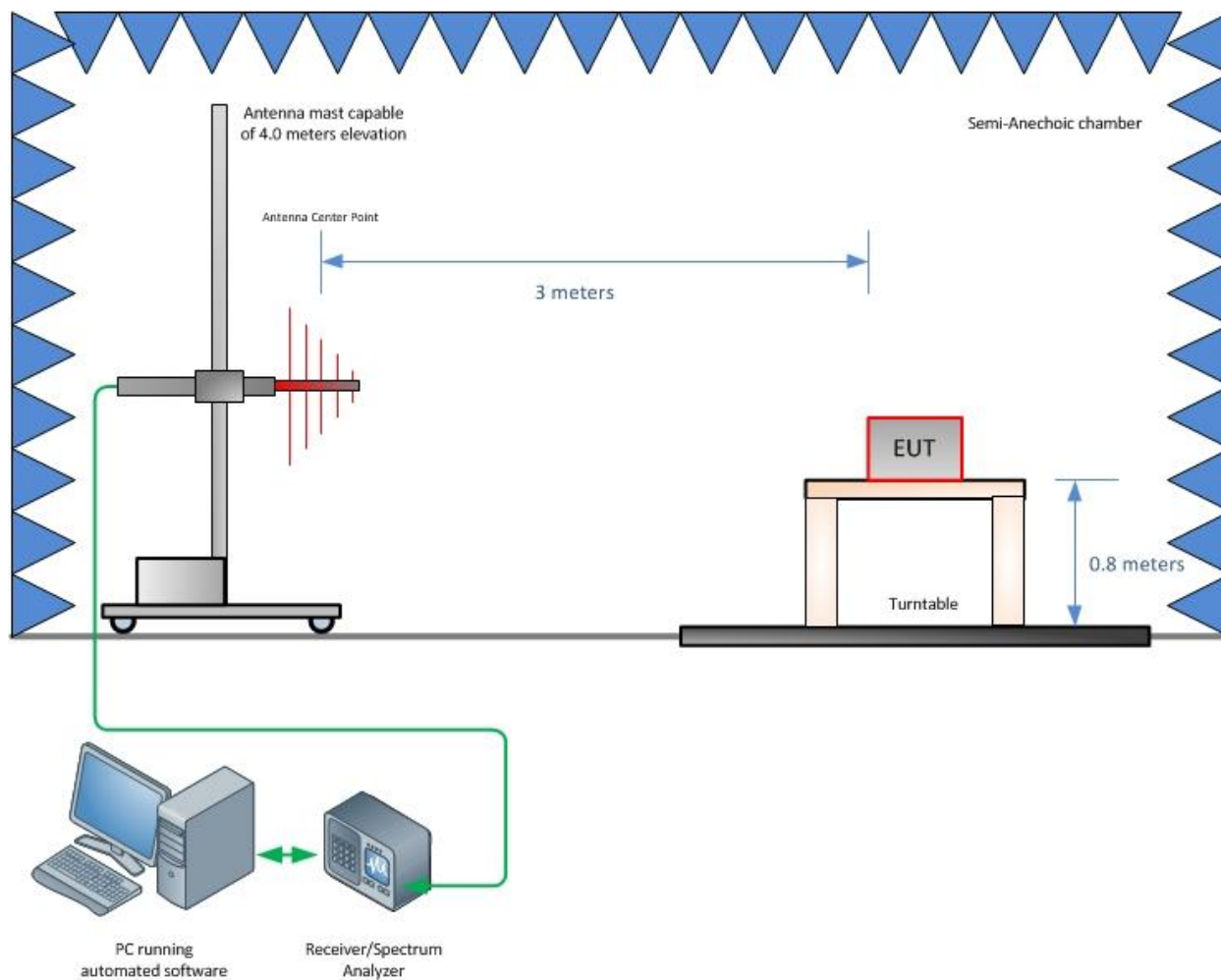


Figure 4-1 – Radiated Emissions Test Setup up to 1 GHz

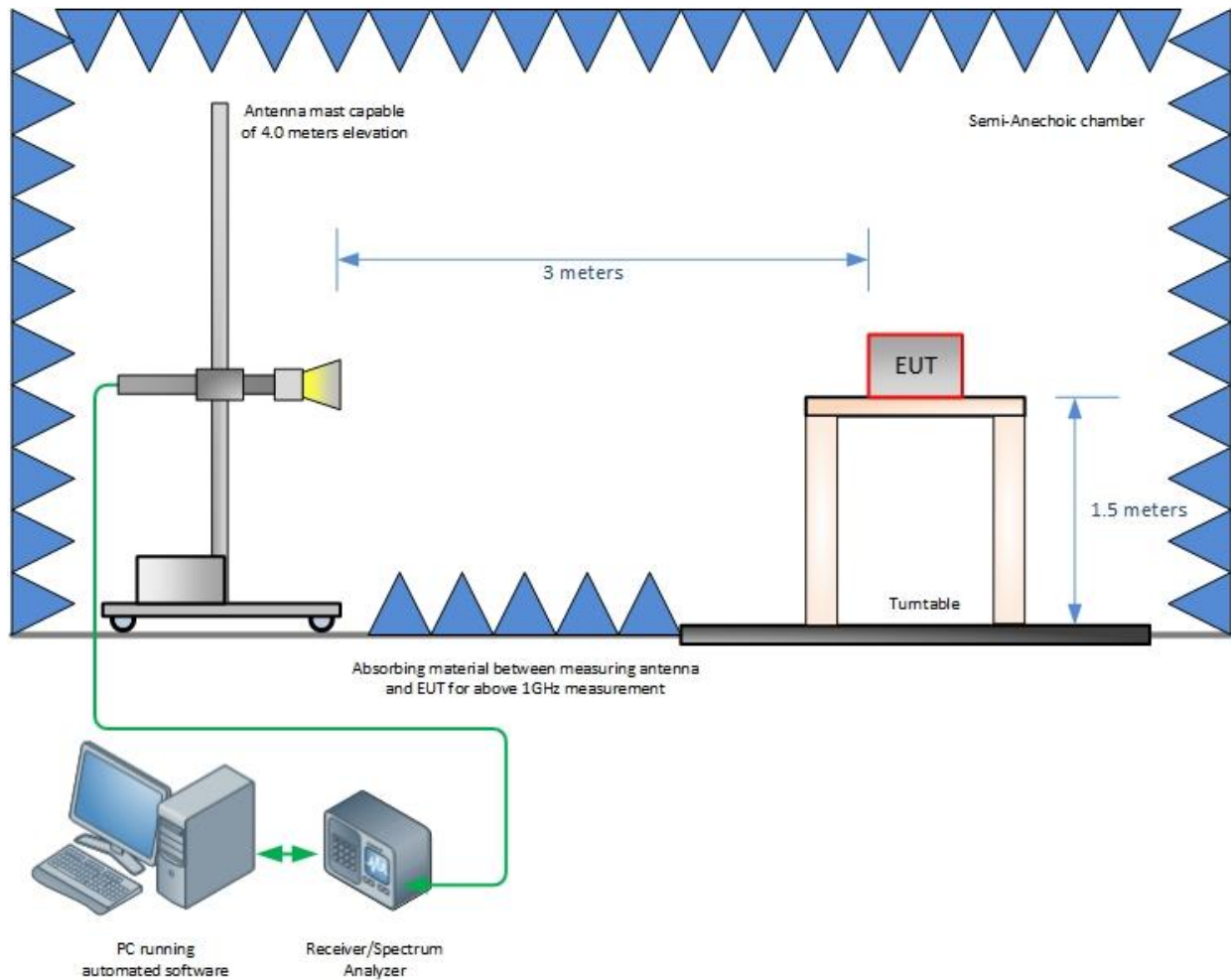


Figure 4-2 – Radiated Emissions Test Setup above 1 GHz

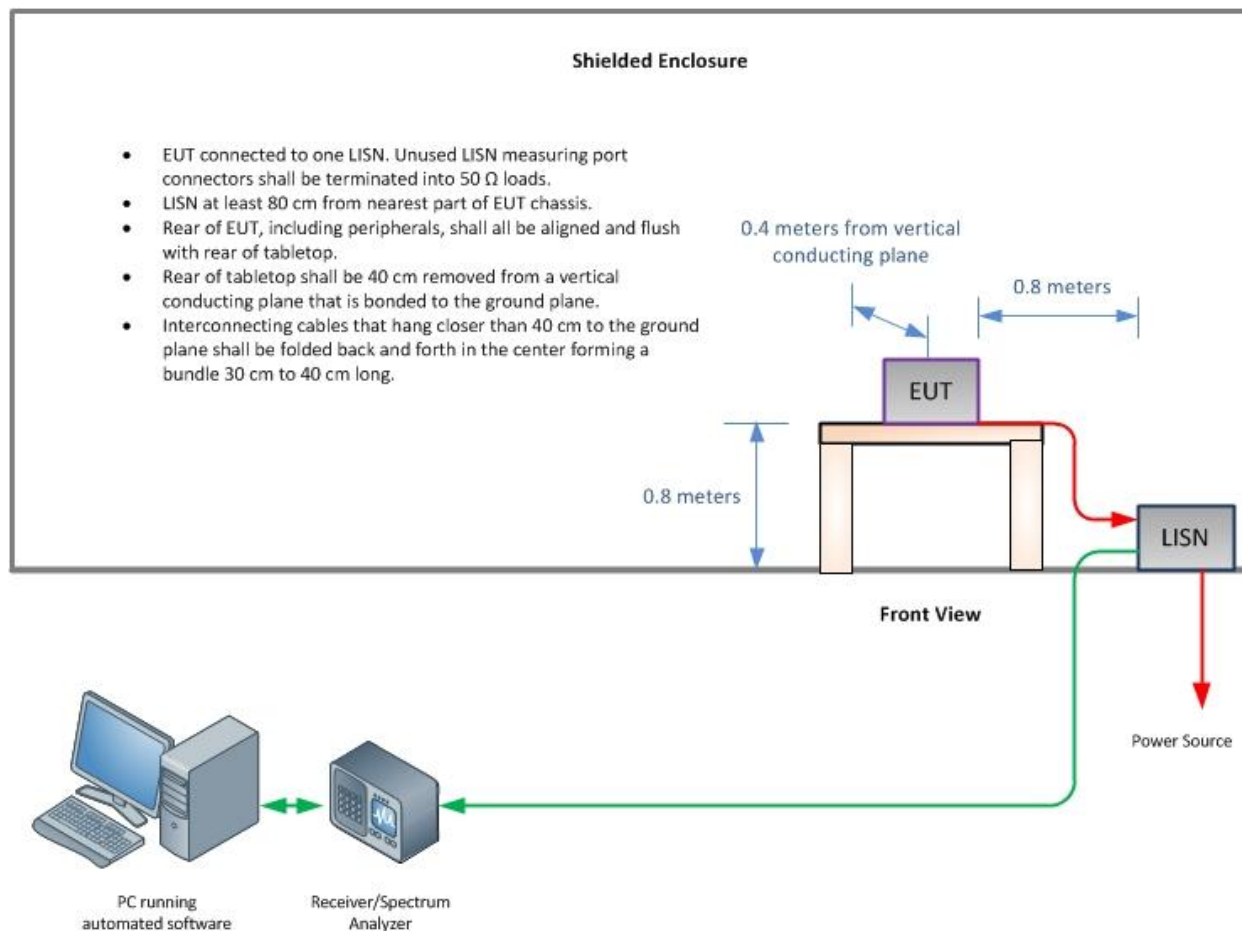


Figure 4-3 – Conducted Emissions Test Setup

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}
Conducted disturbance (mains port) (9 kHz – 150 kHz) (150 kHz – 30 MHz)	3.8 dB 3.4 dB	3.71 dB 3.31 dB
Conducted disturbance (telecom port) (150 kHz – 30 MHz 55 dB LCL) (150 kHz – 30 MHz 65 dB LCL) (150 kHz – 30 MHz 75 dB LCL)	5.0 dB 5.0 dB 5.0 dB	4.11 dB 4.50 dB 4.94 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	5.94 dB 5.07 dB 5.07 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.



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