

Test Report

Prepared for: American Technology Network, Corp.

Model: THOR LTV 640

Serial Number: N/A

Project No: p24c0010

Test Results: Pass

To

FCC Part 15B Class B
and
IC ICES-003 Issue 7 (October 2020) Class B

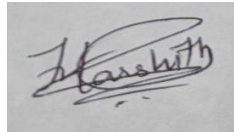
Date of Issue: April 9, 2025

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FCC Site Reg. #US2901
ISED Site Reg. #2044A-2

Reviewed / Authorized By:



Harshith Devaraja, EMC Engineer

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Test Results Summary
Test Date Range: **April 2, 2025 – April 7, 2025**

Specification		Test Name	Pass, Fail, N/A	Comments
FCC	ICES			
FCC 15.107	ICES-003 Section 3	A/C Powerline Conducted Emissions	Pass	
FCC 15.109	ICES-003 Section 3	Radiated Emissions	Pass	
Method Deviations/Additions: No				

Statements of conformity are reported as:

- Pass - the measured value is below the acceptance limit, *acceptance limit = test limit*.
- Fail - the measured value is above the acceptance limit, *acceptance limit = test limit*.

References/Methods	Description
ANSI C63.4-2014	Method and Measurements of Radio-Noise Emissions from low-Voltage Electrical and Electronic Equipment in the range 9kHz to 40GHz.
ISO/IEC 17025:2017	General requirements for the Competence of Testing and Calibrations Laboratories

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	04/09/2025	Harshith Devaraja	Original Document

Current revision of the test report replaces any prior versions. Only the current version of the test report is valid.

EUT Description

Model:	THOR LTV 640
Serial:	N/A
Firmware:	v 1.2.5.2410152
Software:	N/A
Description:	Thermal detection Gun Scopes
Additional Information:	Highest Frequency Generated (MHz): 720MHz Usage: Portable use USB Cable: The USB cable used during the following tests is used to recharge the batteries in the EUT.
Receipt of Sample(s):	February 19 th , 2025
EUT Condition:	Visual Damage No State of Development Engineering Sample/Prototype

EUT PHOTO



Variant Models

The manufacturer has listed the following models as variant models similar in electrical design to the THOR LTV 640 tested in this report claiming the difference between each model is limited to different sensor types and lens sizing.

The Models are as follows:

- THOR LTV 160
- THOR LTV 256
- THOR LTV 320

Notifications

The applicant has been cautioned as to the following:

FCC

15.21 – Information to user

The user's manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) – Special Accessories

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in the part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer without an additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in §2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerning the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

Industry Canada

Products subject to Industry Canada ICES-003 must be labeled in English and/or French (based on the intended market and any other applicable provincial or federal regulations) as follows:

CAN ICES-003 (B)/NMB-003(B)

Note: These notices are specific to the methods and standards related to the testing within this report. Customers should also consider and review additional legal regulations for import/export documentation and labeling for the countries and geographies under consideration by the manufacturer.

Test and Measurement Data

Subpart 2.1033(b)

All tests and measurement data shown were performed in accordance with FCC Rule Parts: 15.107, 15.109 (Unintentional Radiators).

All tests and measurement data shown are deemed satisfactory evidence of compliance with Industry Canada Interference-Causing Equipment Standard ICES-003.

Standard Engineering Practices

Unless otherwise indicated, the procedures contained in ANSI C63.4-2014 were observed during testing.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

Standard Test Conditions and Engineering Practices

Unless otherwise indicated in the specific measurement results, the ambient temperature was maintained within the range of 10° to 40°C (50° to 104°F) and the relative humidity levels were in the range of 10% to 90%.

Environmental Conditions		
Temperature (°C)	Humidity (%)	Barometric Pressure (mbar)
22.6 – 26.5	32.7 – 26.8	961.8 – 979.7

Test Setup and Modes of Operation

EUT Operation during Tests

The device was connected to the AC power supply, 120V 60Hz. The EUT was turned on along with recording function active which is deemed to be the worst-case operation of the EUT.

Accessories:

Qty	Description	Manufacturer	Model	S/N
1	Switching power supply 5V 1A DC Output	Ten Pao Industrial Co Ltd	S005AYU	0500100

Cables:

Qty	Description	Length (m)	Ferrites (Y/N)	Shielding Y/N	Shielded Hood Y/N	Termination / Connection
1	Power supply cable	1.5	N	N	N	AC wall adapter/ EUT supply port

Modifications to EUT(s) (Y/N): N

15.107 A/C Powerline Conducted Emissions

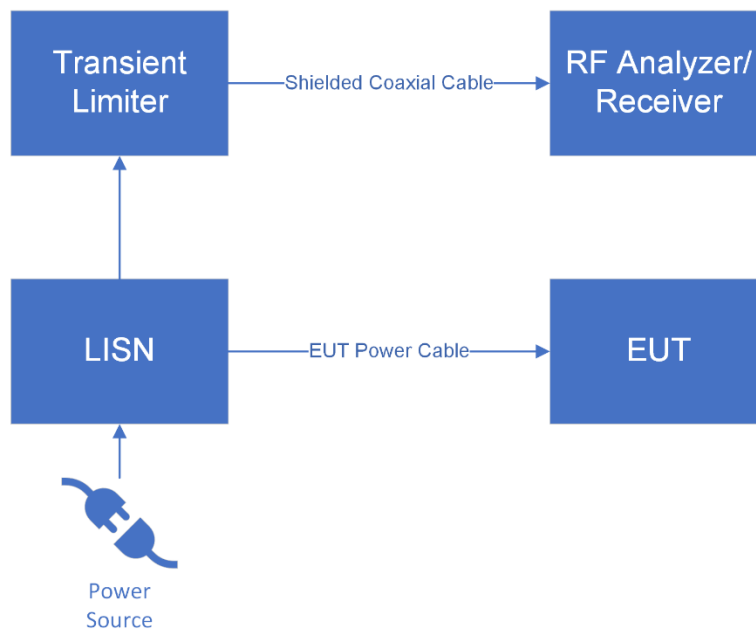
Engineer: Harshith Devaraja

Test Date: 04/04/25

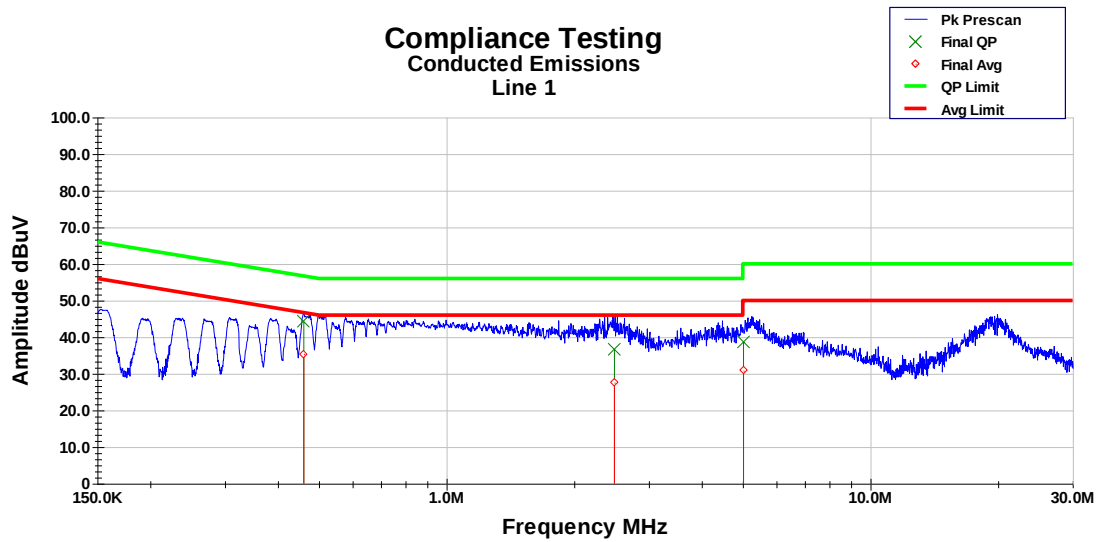
Test Procedure

The EUT power cable was connected to a LISN and the monitored output of the LISN was connected to a transient limiter, which then connected directly to a spectrum analyzer. The conducted emissions from 150 kHz to 30 MHz were measured and compared to the specification limits.

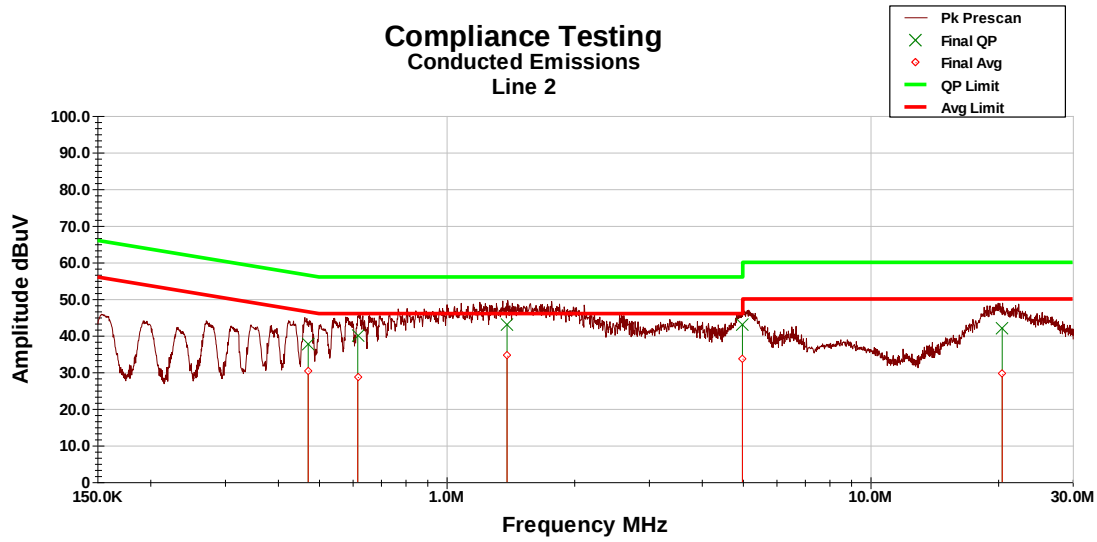
Basic Test Setup



Conducted Emissions at 120V 60Hz

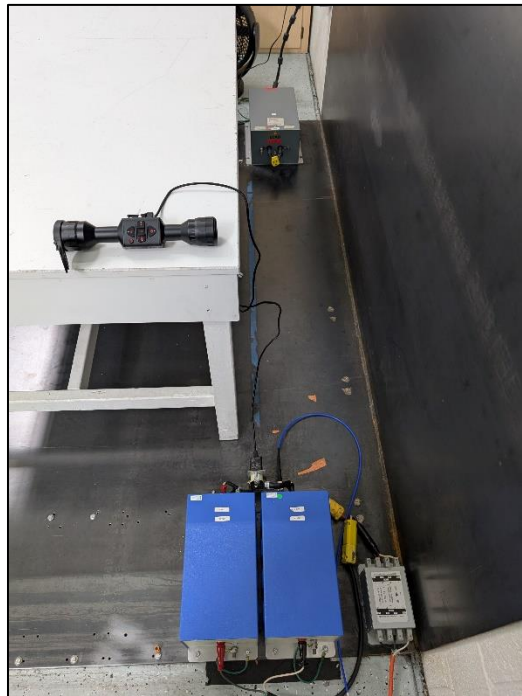
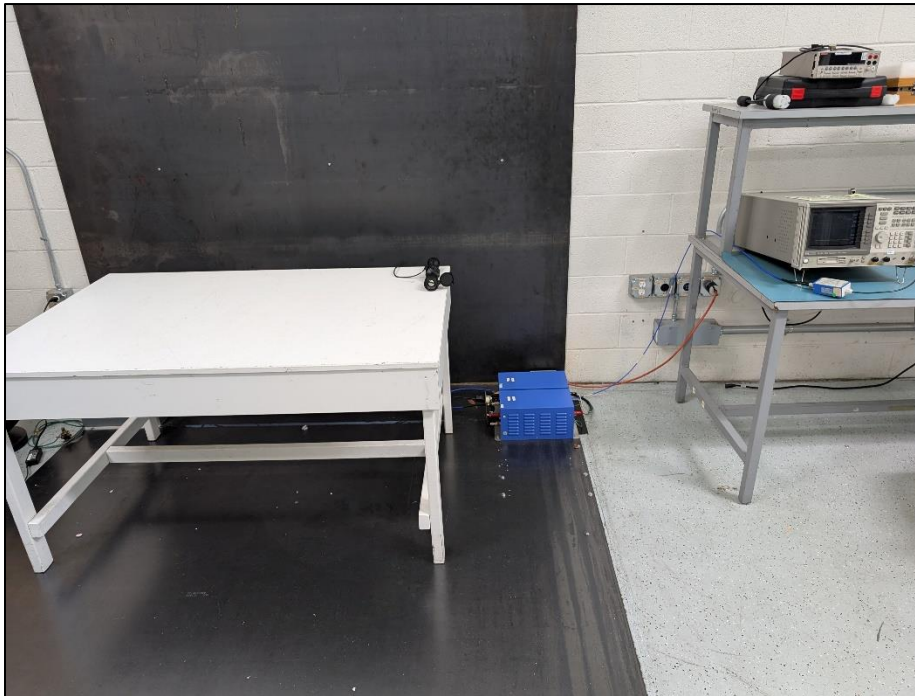


Frequency (MHz)	Raw QP dBuV	Raw Avg dBuV	Path Loss dB	Final QP dBuV	Final Avg dBuV	QP Limit dBuV	QP Margin dB	Avg Limit dBuV	Avg Margin dB
460.72 KHz	34.10	25.40	10.10	44.20	35.40	57.10	-13.00	47.10	-11.70
2.4895 MHz	26.40	17.40	10.10	36.60	27.60	56.00	-19.40	46.00	-18.40
5.0204 MHz	28.50	20.60	10.20	38.70	30.80	60.00	-21.30	50.00	-19.20
Final = Raw + Path Loss									
Margin = Final - Limit									



Frequency	Raw QP	Raw Avg	Path Loss	Final QP	Final Avg	QP Limit	QP Margin	Avg Limit	Avg Margin
(MHz)	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dB	dBuV	dB
471.76 KHz	27.69	20.40	10.00	37.70	30.40	56.80	-19.10	46.80	-16.40
617.33 KHz	30.07	18.70	10.00	40.10	28.70	56.00	-15.90	46.00	-17.30
1.3894 MHz	32.99	24.40	10.10	43.10	34.50	56.00	-12.90	46.00	-11.50
4.9917 MHz	32.92	23.60	10.10	43.10	33.70	56.00	-12.90	46.00	-12.30
20.453 MHz	31.42	19.00	10.60	42.00	29.60	60.00	-18.00	50.00	-20.40
Final = Raw + Path Loss									
Margin = Final - Limit									

Conducted Emissions Test Setup Photo



15.109 Radiated Emissions

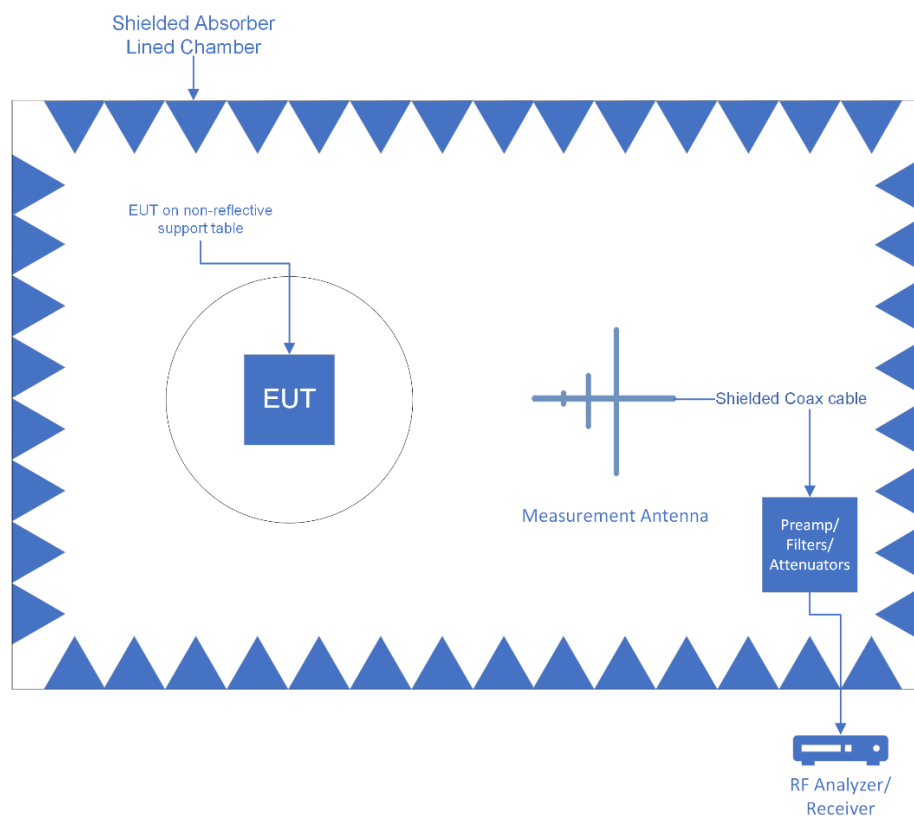
Engineer: Harshith Devaraja

Test Date: 04/07/25

Test Procedure

The EUT was tested in a semi-anechoic chamber with the turntable set 3m from the receiving antenna. A spectrum analyzer was used to verify that the EUT met the requirements for Radiated Emissions. The EUT was tested by rotating it 360 degrees with the antennas in both the vertical and horizontal orientation while raised from 1 to 4 meters to ensure the signal levels were maximized. All emissions from 30 MHz to 18 GHz were examined.

Basic Test Setup



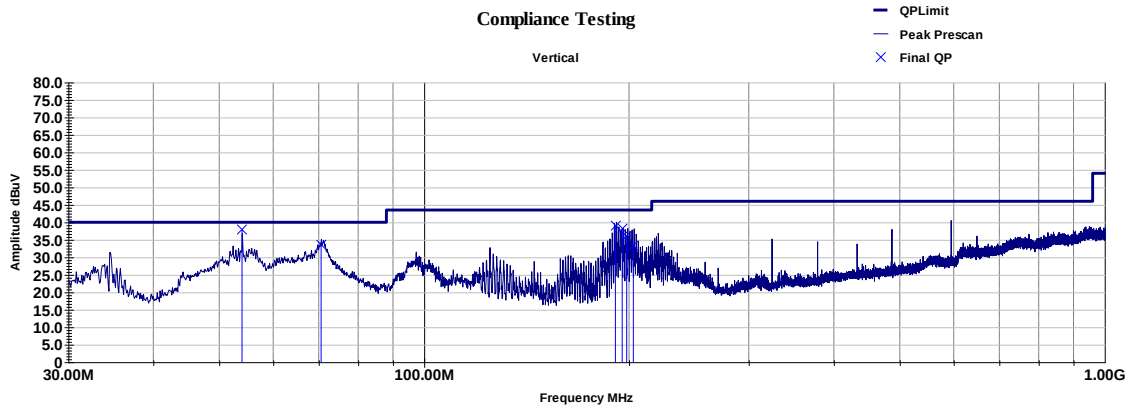
	Settings Below 1GHz	Settings Above 1GHz
RBW	120 kHz	1 MHz
VBW	300 kHz	3 MHz
Detector	Quasi Peak	Peak / Average

Sample Calculations

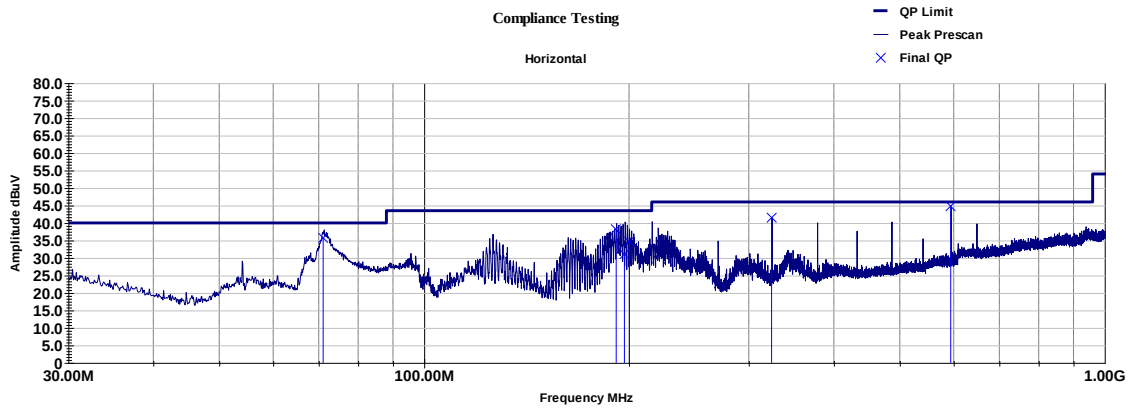
Corrected Value = Measured Value + Correction factor

Correction factor = Antenna Correction Factor + Cable loss + Preamp/Attenuator Factor

Radiated Emissions 30-1000MHz

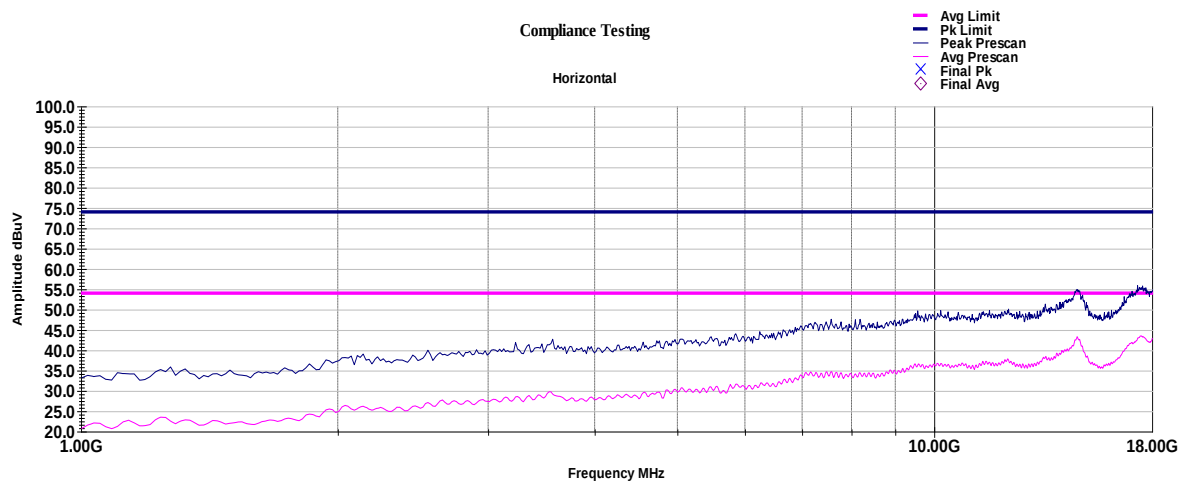
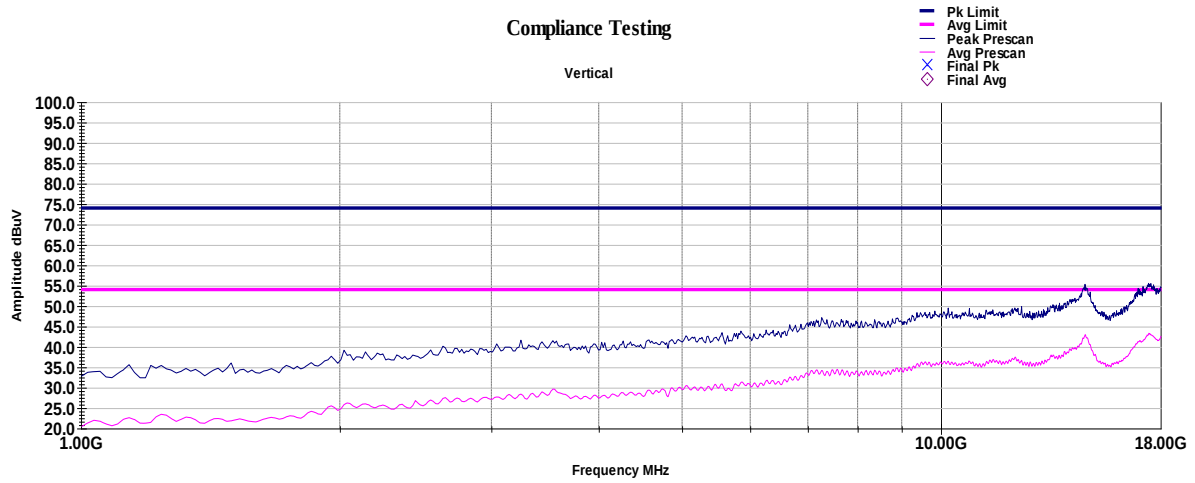


Frequency	Azimuth	Height	Raw QP	Correction	Final QP	Limit	QP Margin
MHz	deg	cm	dBuV	dB	dBuV/m	dBuV/m	dB
53.997	15.00	105.00	61.95	-24.09	37.90	40.00	-2.10
70.565	353.00	302.00	56.87	-23.39	33.50	40.00	-6.50
191.035	20.00	100.00	59.00	-20.01	39.00	43.50	-4.50
195.445	0.00	100.00	58.13	-20.03	38.10	43.50	-5.40
198.454	0.00	109.00	55.82	-19.76	36.10	43.50	-7.40
202.945	0.00	100.00	52.69	-19.33	33.40	43.50	-10.10
Final = Raw + Path Loss							
Margin = Final - Limit							



Frequency	Azimuth	Height	Raw QP	Correction	Final QP	Limit	QP Margin
MHz	deg	cm	dBuV	dB	dBuV/m	dBuV/m	dB
71.069	287.00	400.00	59.70	-23.90	35.80	40.00	-4.20
191.526	230.00	100.00	58.69	-20.40	38.30	43.50	-5.20
196.903	239.00	105.00	50.97	-19.97	31.00	43.50	-12.50
200.345	228.00	125.00	54.35	-19.81	34.50	43.50	-9.00
323.992	288.00	100.00	56.35	-14.77	41.60	46.00	-4.40
594.018	266.00	325.00	52.37	-7.52	44.90	46.00	-1.10
Final = Raw + Path Loss							
Margin = Final - Limit							

Radiated Emissions Above 1000MHz



Test Equipment Utilized

EMI/EMC Testing

Description	Manufacturer	Model #	CT Asset #	Last Cal Date	Cal Due Date
Temp./humidity/pressure monitor (Main Lab)	Omega Engineering	iBTHX-W-5	i00686	1/25/25	1/25/26
Temp./humidity/pressure monitor (Main Lab)	Omega Engineering	iBTHX-W-5	i00631	8/7/24	8/7/25
3 Meter Semi-Anechoic Chamber	Panashield	3 Meter Semi-Anechoic Chamber	i00428	7/13/23	7/13/26
44GHz EMI receiver	Keysight	N9038A	i00552	3/17/25	3/17/26
Bi-Log antenna	Chase	CBL6111C	i00267	3/5/24	3/5/26
Horn Antenna (1-18GHz)	ARA	DRG-118/A	i00271	8/9/24	8/9/26
Preamplifier	COM-Power	PAM-103	i00734	Verified on: 6/27/24	
Preamplifier	Eravant	SBB-0115034019-2F2F-E3	i00722	Verified on: 12/4/24	
EMI Receiver	HP	85462A	i00033	6/25/24	6/25/25
Transient Limiter	Com-Power	LIT-153	i00123	Verified on: PTV	
AC Power Source	Behlman	BL 6000	i00362	NCR	
LISN	COM-Power	LI-125A	i00446	3/18/24	3/18/26
LISN	COM-Power	LI-125A	i00448	3/18/24	3/18/26

In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

Measurement Uncertainty

Measurement Uncertainty (U_{lab}) for Compliance Testing is listed in the table below.

Measurement	U_{lab}
Radio Frequency	$\pm 3.3 \times 10^{-8}$
RF Power, conducted	± 1.5 dB
RF Power Density, conducted	± 1.0 dB
Conducted Emissions	± 1.8 dB
Radiated Emissions 9kHz-30MHz	± 3.6 dB
Radiated Emissions 30MHz-1000MHz	± 4.25 dB
Radiated Emissions – 1GHz-18GHz	± 4.5 dB
Temperature	± 1.5 deg C
Humidity	± 4.3 %
DC voltage	± 0.20 VDC
AC Voltage	± 1.2 VAC

The reported expanded uncertainty $\pm U_{lab}$ (dB) has been estimated at a 95% confidence level ($k=2$)

U_{lab} is less than or equal to U_{ETSI} therefore

- Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit
- Non-Compliance is deemed to occur if any measured disturbance exceeds the disturbance limit

END OF TEST REPORT