

CPI Satcom & Antenna Technologies, Inc.

EMISSIONS TEST REPORT

SCOPE OF WORK

EMISSIONS TESTING – DRU2-1KW.0001

REPORT NUMBER

106529094BOX-001 REV1

ISSUE DATE

03/18/2026

[REVISED DATE]

03/30/2026

04/23/2026

DOCUMENT CONTROL NUMBER

Non-Specific Radio Report Shell Rev. June 2024

© 2022 INTERTEK



EMISSIONS TEST REPORT

(FULL COMPLIANCE)

Report Number: 106529094BOX-001 REV1

Project Number: G106529094

Report Issue Date: 03/18/2026

Report Revision Date: 04/23/2026

Model(s) Tested: DRU2-1KW.0001

Model(s) Partially Tested: None

Model(s) Not Tested but declared equivalent by the client: None

Standards: FCC 47CRF Part 25:2026

FCC 47CFR Part 15 Subpart B:2026

Tested by:
Intertek
70 Codman Hill Road
Boxborough, MA 01719
USA

Client:
CPI Satcom & Antenna Technologies, Inc.
1000 Klein Road
Plano, TX 75074
USA

Report prepared by



Vathana Ven / Sr. EMC Staff Engineer

Report reviewed by



Kouma Sinn / Sr. EMC Staff Engineer

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Table of Contents

1	<i>Introduction and Conclusion</i>	<i>4</i>
2	<i>Test Summary</i>	<i>4</i>
3	<i>Client Information</i>	<i>5</i>
4	<i>Description of Equipment Under Test and Variant Models</i>	<i>5</i>
5	<i>System Setup and Method</i>	<i>8</i>
6	<i>RF Output Power.....</i>	<i>9</i>
7	<i>Peak-to-Average Power Ratio (PAPR)</i>	<i>14</i>
8	<i>Occupied Bandwidth and 26 dB Bandwidth</i>	<i>18</i>
9	<i>Transmitter Conducted Spurious Emissions and Band Edge</i>	<i>24</i>
10	<i>Transmitter Radiated Spurious Emissions</i>	<i>30</i>
11	<i>Frequency Stability</i>	<i>49</i>
12	<i>Radiated Emissions of Digital Device</i>	<i>53</i>
13	<i>AC Mains Conducted Emissions</i>	<i>63</i>
14	<i>Revision History</i>	<i>67</i>

1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	System Setup and Method	--
6	RF Output Power (FCC Part 2.1046, FCC Part 25.144(e)(7)(ii) & FCC Part 25.214(d)(1))	Pass
7	Peak-to-Average Power Ratio (PAPR) (FCC Part 2.1046, FCC Part 25.144(e)(7)(ii) & FCC Part 25.214(d)(1))	Pass
8	Occupied Bandwidth (FCC Part 2.1049, FCC Part 25.202(a)(6) & FCC Part 25.202(h))	Pass
9	Transmitter Conducted Spurious Emissions and Band edge (FCC Part 2.1051, FCC Part 2.1057 & FCC Part 25.202(h)(1))	Pass
10	Transmitter Radiated Spurious Emissions (FCC Part 2.1053, FCC Part 2.1057 & FCC Part 25.202(h)(1))	Pass
11	Frequency Stability (FCC Part 2.1055 & FCC Part 25.202(d))	Pass
12	Radiated Spurious Emissions of Digital Device (FCC Part 15 Subpart B:2026)	Pass
13	Conducted Emissions (FCC 47CFR Part 15.107(b) Subpart B:2026)	Pass
14	Revision History	--

3 Client Information**This EUT was tested at the request of:**

Client: CPI Satcom & Antenna Technologies, Inc.
1000 Klein Road
Plano, TX 75074
USA

Contact: David Welsch
Email: dave.welsch@cpil.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: CPI Satcom & Antenna Technologies, Inc.
1000 Klein Road
Plano, TX 75074
USA

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Base station SDARS terrestrial repeater	CPI Satcom & Antenna Technologies, Inc.	DRU2-1KW.0001	None

Receive Date:	08/12/2025
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)

The EUT is a base station SDARS terrestrial repeater for use by broadcasters to maximize service availability in areas challenged by shadowed satellite coverage. It receives input data either from a modem using UDP (User Datagram Protocol) or from an S-band satellite input. The Dual-Band Exciter 2 (DBE2) LRU transcodes the inputs to Low-Band (LB) and High-Band (HB) COFDM waveforms. High-power amplifiers in the DRU2 system amplify the LB and HB signals in separate paths. Couplers and detectors monitor RF forward and reflected power from each band and the system.

Technical Description of DUT

CPI is producing the next generation of terrestrial repeater systems for Sirius XM Radio's Satellite Digital Audio Radio Service (SDARS) infrastructure. The ground-based repeater stations support the delivery of satellite radio services to subscribers in areas where satellite coverage may be obstructed or weak, such as urban environments with tall buildings, tunnels, or dense foliage.

The systems are composed of an outdoor enclosure, exciter that receives satellite downlink and generates output signal, power amplifier, power supplies, control system, and cooling system. The power amplifier produces a maximum of 63 dBm of average power using the SDARS waveform which is of a Coded Orthogonal Frequency Division Multiplexing (COFDM) type and has a Peak to Average (PAR) of 9 dB. The output of the system to an external antenna is WR340 rectangular waveguide interface. Photos of the system are shown in the following figures.

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026
Revised: 04/23/2026

System Components Include:

- Dual Band Exciter (Sirius Modem)
- High Power Amplifier (HPA) Modules, qty 8, Phase combined
- 50V Power Supplies for HPAs, qty 8
- 12 Power System and Battery Backup for telemetry over IP to Sirius XM control center
- CPI system controller
- Sealed cabinet air-to-air heat exchangers (qty 2)
- Power Distribution Unit (PDU) with circuit breakers and line filters
- Waveguide combiner
- Waveguide cavity filter
- Output RF power detectors
- Liquid Heat Exchanger for waste heat from the HPAs

Equipment Under Test Power Configuration

Rated Voltage	Rated Current	Rated Frequency	Number of Phases
120/240VAC 208VAC	80 A	50/60 Hz	3W+PE 2W+N+PE

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Pseudorandom Binary Sequence (PRBS) manual test – Exciter outputs typical waveforms for each band, system transmits at specified output power in both bands simultaneously.

Report Number: 106529094BOX-001 REV1	Issued: 03/18/2026 Revised: 04/23/2026
--------------------------------------	---

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	LRU: SCM MCU, FW version: 0.3.9 2025-06-26 08:02:272
2	LRU: SCM NIC, FW version: 0.9.12 2025-07-02 20:18:25
3	LRU: HPAs, FW version: 0.3.4 2025-07-23 15:18:22
4	LRU: AHXs, FW version: 0.3.3 2025-06-17 10:26:04
5	LRU: LHXs, FW version: 5.0.0 1970-01-01 00:00:00
6	LRU: TVMS, FW version: 0.3.4 2025-07-21 08:27:34
7	LRU: DBE2, FW version: 20250624-b60f776

Transmitter Characteristics	
Frequency Band(s)	Low band: 2324.244 to 2328.256 MHz High band: 2336.225 to 2341.285 MHz
Modulation Type(s)	COFDM
Maximum Output Power	Low Band: 60.094 dBm (Conducted) High Band: 60.502 dBm (Conducted)
Test Channels	2 (High band and Low Band)
Occupied Bandwidth	Low Band: 4.06 MHz High Band: 5.01 MHz
Frequency Hopper: Number of Hopping Channels	N/A
Frequency Hopper: Channel Dwell Time	N/A
Frequency Hopper: Max interval between two instances of use of the same channel	N/A
MIMO Information (# of Transmit and Receive antenna ports)	N/A
Equipment Type	Standalone
Antenna Type and Gain	2.3GHz V-POL Omni High Power, Gain: 10 dBi (In practice, alternate antennas may be substituted in the field provided that the output power in combination with the net gain of the transmission system are less than or equal to the 12kW max average EIRP)

Variant Models:

The following variant models were not tested as part of this evaluation and are not eligible for certification; but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

5 System Setup and Method

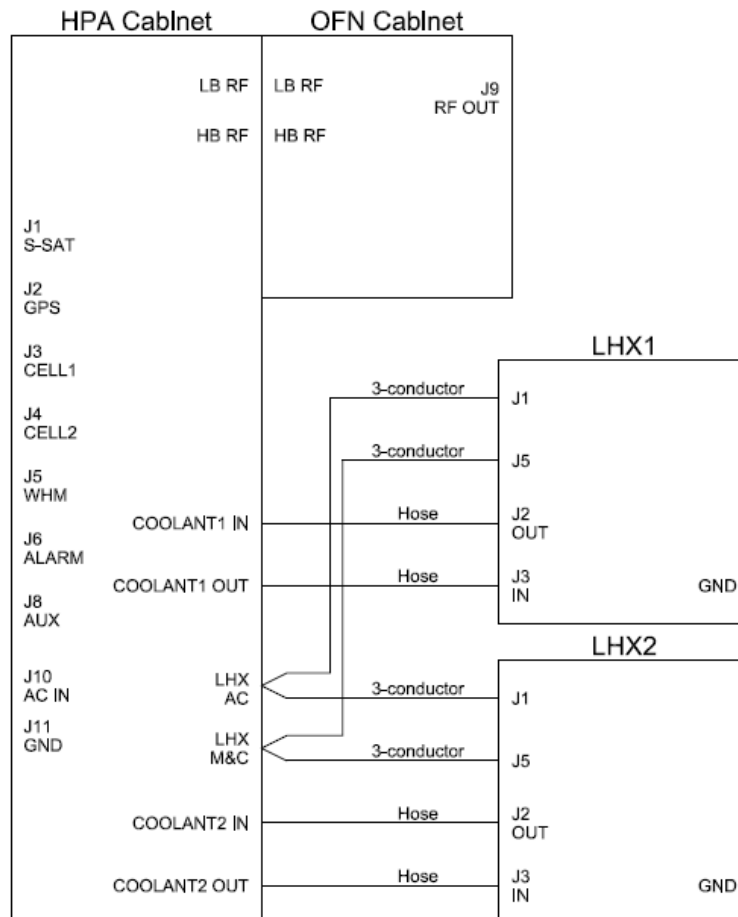
Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
1	AC In	> 3	None	None	AC mains
2	GND, 3/8" stud	< 3	Braid shield	None	PE
3	AUX Cable grip, CAT7	> 3	Shielded	None	PC (support equipment)
4	Waveguide RF Out	< 3	Shielded	None	Waveguide termination (support equipment)

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
Laptop PC	Lenovo	Thinkpad X1	Not labelled

5.1 Method:

Configuration as required by FCC 47CRF Part 25:2026, FCC 47CFR Part 15 Subpart B:2026, ANSI C63.26:2015, and ANSI C63.4:2014.

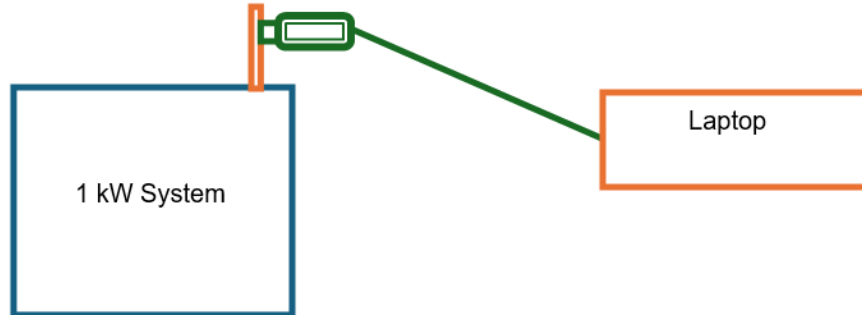
5.2 EUT Block Diagram:



6 RF Output Power

6.1 Method

Tests are performed in accordance with ANSI C63.26.



- 1) Testing was performed using the power meter by connecting it to the antenna port.
- 2) The power meter was connected to the laptop via USB cable and the conducted output power was displayed on the laptop.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

6.2 Limit:

FCC Part §25.214(d)(1) SDARS terrestrial repeaters must be operated at a power level less than or equal to 12-kW or 70.79 dBm average EIRP, with a maximum peak-to-average power ratio of 13 dB.

6.3 Test Equipment Used:

Equipment used on 03/13/2026

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV009	weather station	Davis Instruments	6351 Vantage VUE	DAV009	04/01/2025	04/01/2026
None	USB Wide Dynamic Range Average Power Sensor 10MHz - 18GHz	Keysight Technologies	U2043XA	MY55280011	09/29/2025	09/29/2026
None	WR340 coupler	Microwave Techniques	OG9Y7-65979-712	2302392	01/29/2026	01/29/2027
None	WR340 termination	Apollo	18826-02	CO-55159	VBU	Verified

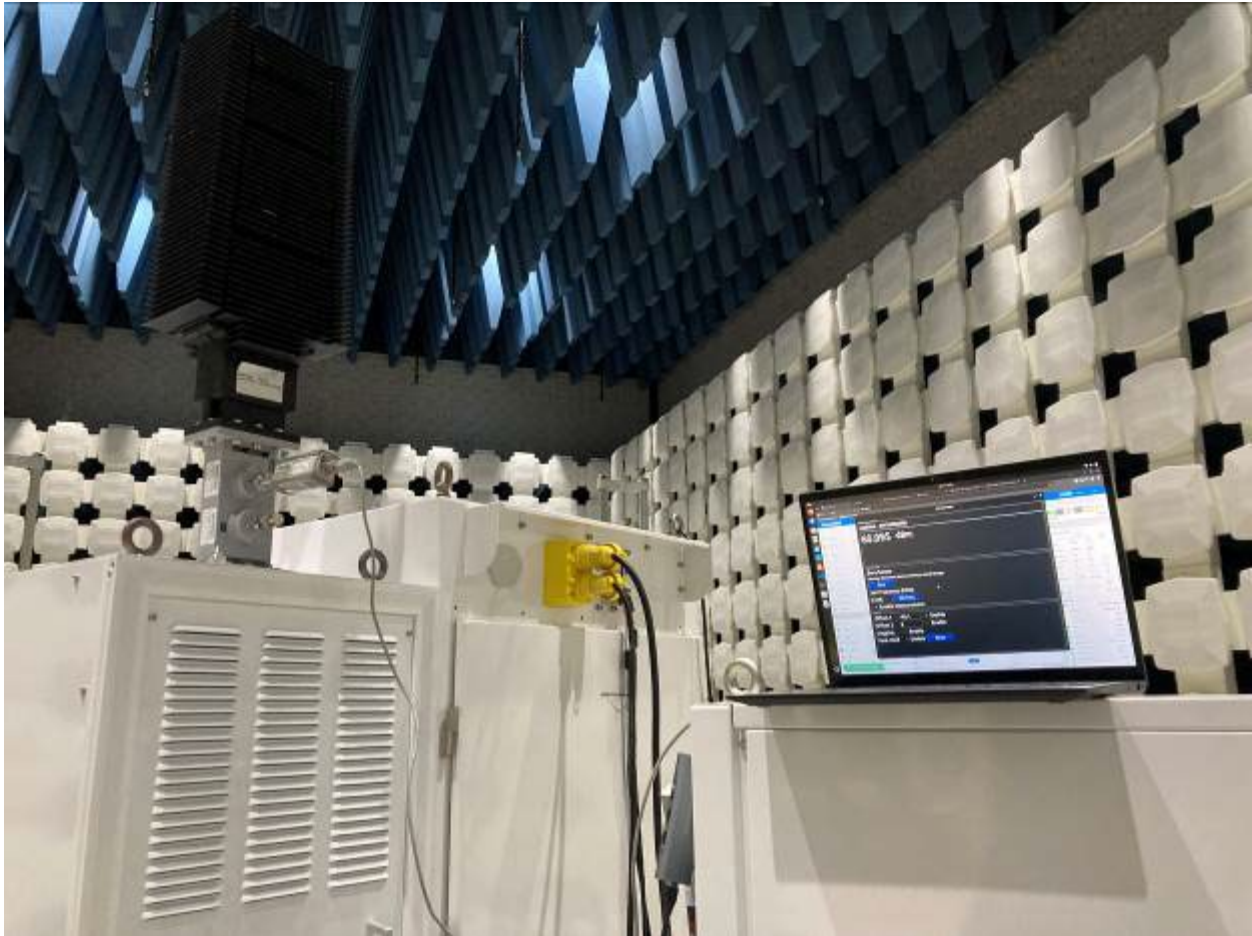
Software Utilized:

Name	Manufacturer	Version
None		

6.4 Results:

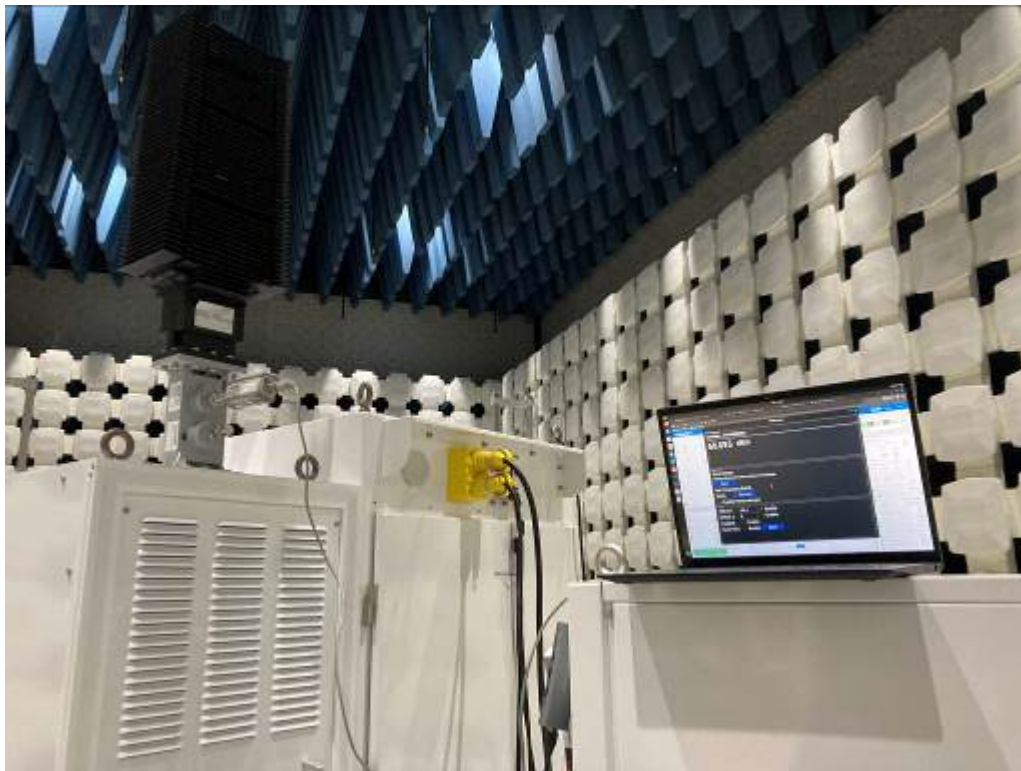
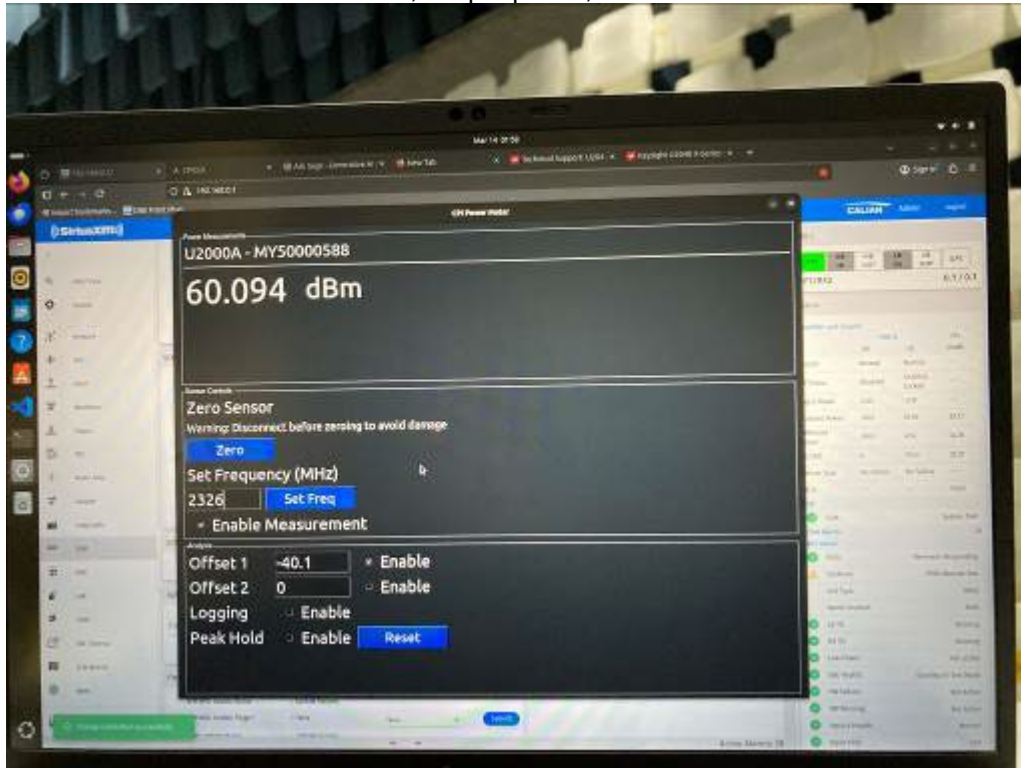
The sample tested was found to Comply.

6.5 Setup Photograph:



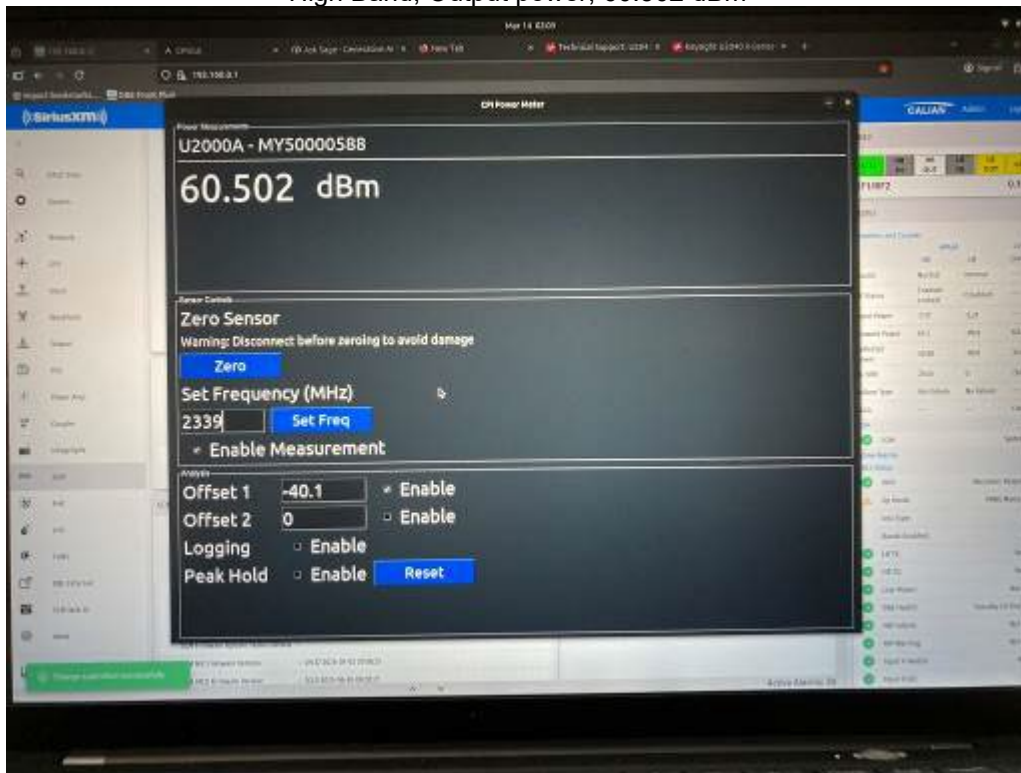
6.6 Plots/Data:

Low Band, Output power, 60.094 dBm



Note: Power meter was used for measurements. Factors were internally compensated.

High Band, Output power, 60.502 dBm



Note: Power meter was used for measurements. Factors were internally compensated.

Intertek

Report Number: 106529094BOX-001 REV1	Issued: 03/18/2026 Revised: 04/23/2026
--------------------------------------	---

Band	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Band	60.094	10	70.094	70.79	-0.696
High Band	60.502	10	70.502	70.79	-0.288

EIRP = Conducted power + Antenna gain

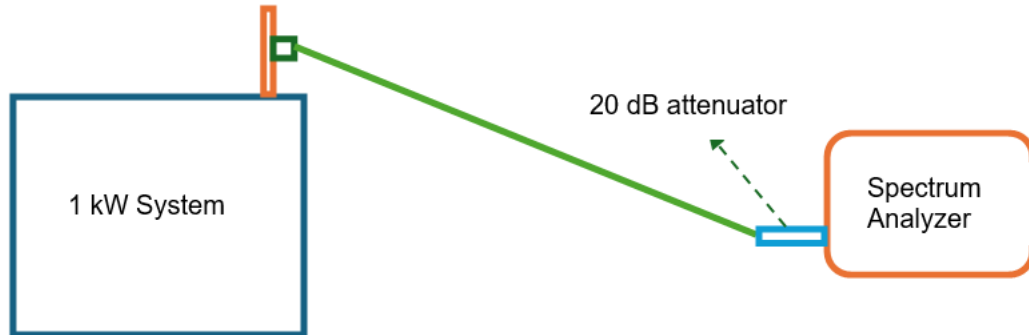
Product Standard: FCC Part 25				Limit applied: See section 6.2 Pretest Verification w/BB source: Yes			
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
03/13/2026	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx mode	25	19	999.3

Deviations, Additions, or Exclusions: None

7 Peak-to-Average Power Ratio (PAPR)

7.1 Method

Tests are performed in accordance with ANSI C63.26.



- 1) Testing was performed by connecting the antenna port to the spectrum analyzer via a 20 dB attenuator.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

7.2 Limits:

FCC Part §25.214(d)(1) SDARS terrestrial repeaters must be operated at a power level less than or equal to 12-kW or 70.79 dBm average EIRP, with a maximum peak-to-average power ratio of 13 dB.

7.3 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	01/29/2026	01/29/2027
CBLHF2012-5M-2'	5m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252676002	03/06/2025	03/06/2026
None	WR340 coupler	Apollo	18705-02	CO-55092	04/18/2025	04/18/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBV	Verified

Software Utilized:

Name	Manufacturer	Version
None		

7.4 Results:

The sample tested was found to Comply.

7.5 Setup Photograph:

Note: SiriusXM Harmonic test fixture was used to support the testing.

7.6 Plots/Data:

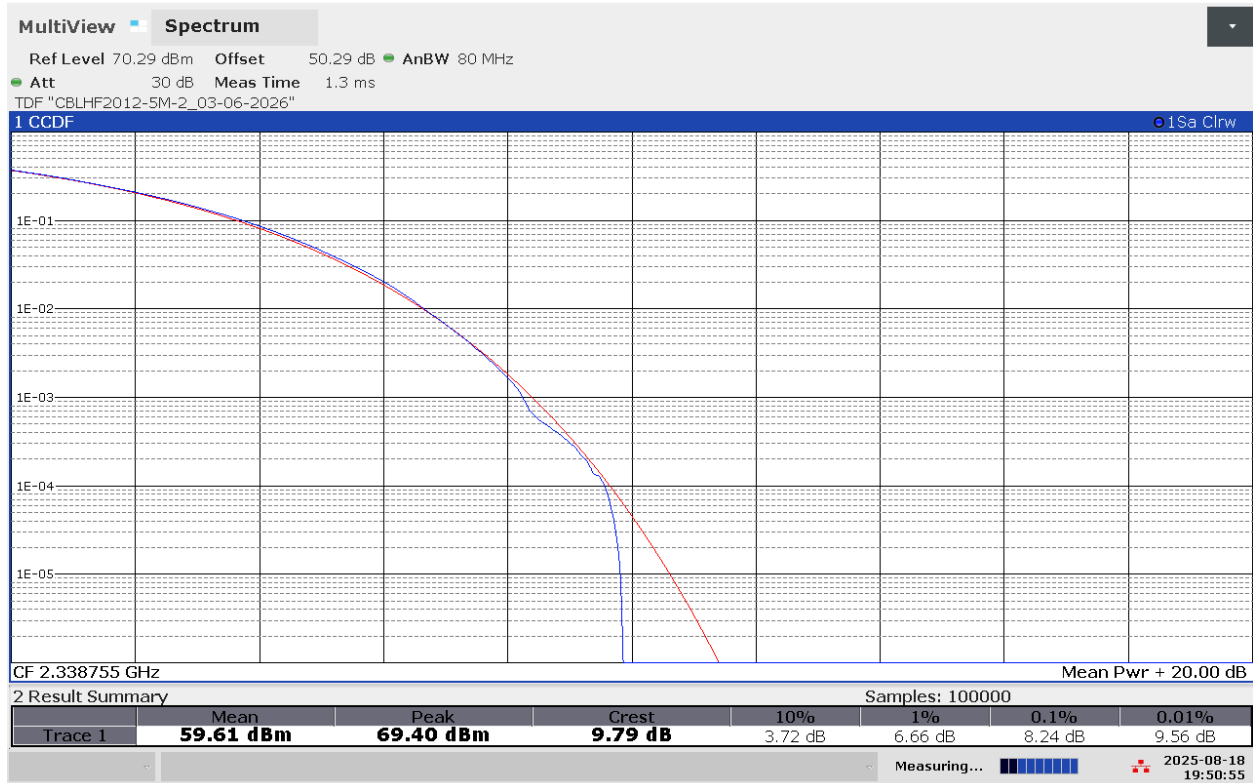
Low Band, CCDF, 8.60 dB



07:30:13 PM 08/18/2025

Note: Cable factors and coupler factors were internally compensated.

High Band, CCDF, 8.24 dBm



07:50:55 PM 08/18/2025

Note: Cable factors and coupler factors were internally compensated.

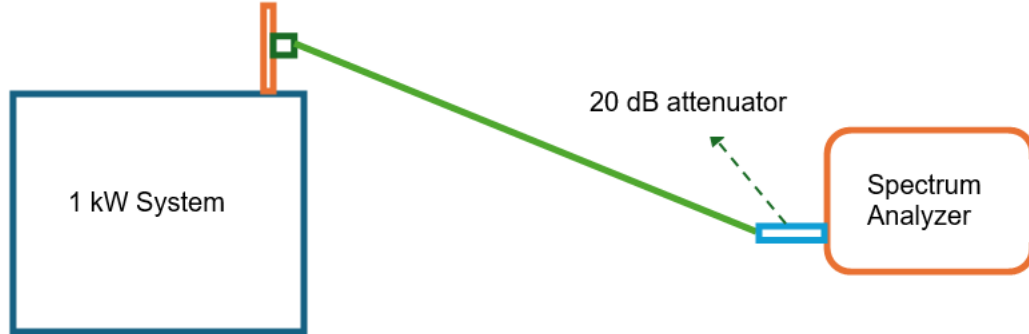
Product Standard: FCC Part 25				Limit applied: See section 7.2 Pretest Verification w/BB source: Yes			
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
08/18/2025	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx mode	24	48	1012

Deviations, Additions, or Exclusions: None

8 Occupied Bandwidth and 26 dB Bandwidth

8.1 Method

Tests are performed in accordance with ANSI C63.26.



- 1) Testing was performed by connecting the antenna port to the spectrum analyzer via a 20 dB attenuator.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

8.2 Limit:

FCC Part § 2.1049

The occupied bandwidth shall be within the authorized frequency band of FCC Part §25.202(a)(6) under which the equipment is operated.

8.3 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	01/29/2026	01/29/2027
CBLHF2012-5M-2'	5m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252676002	03/06/2025	03/06/2026
None	WR340 coupler	Apollo	18705-02	CO-55092	04/18/2025	04/18/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBV	Verified

Software Utilized:

Name	Manufacturer	Version
None		

8.4 Results:

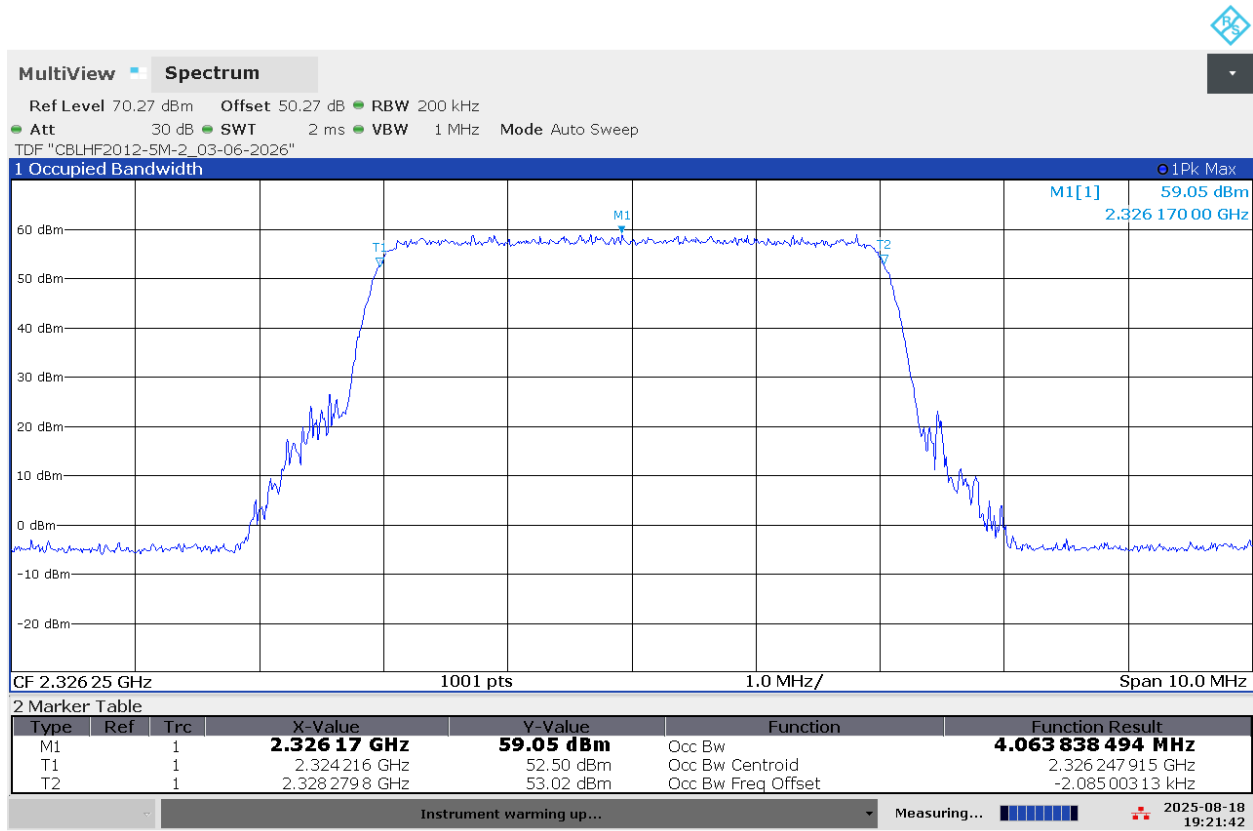
The sample tested was found to Comply.

8.5 Setup Photograph:

Note: SiriusXM Harmonic test fixture was used to support the testing.

8.6 Plots/Data:

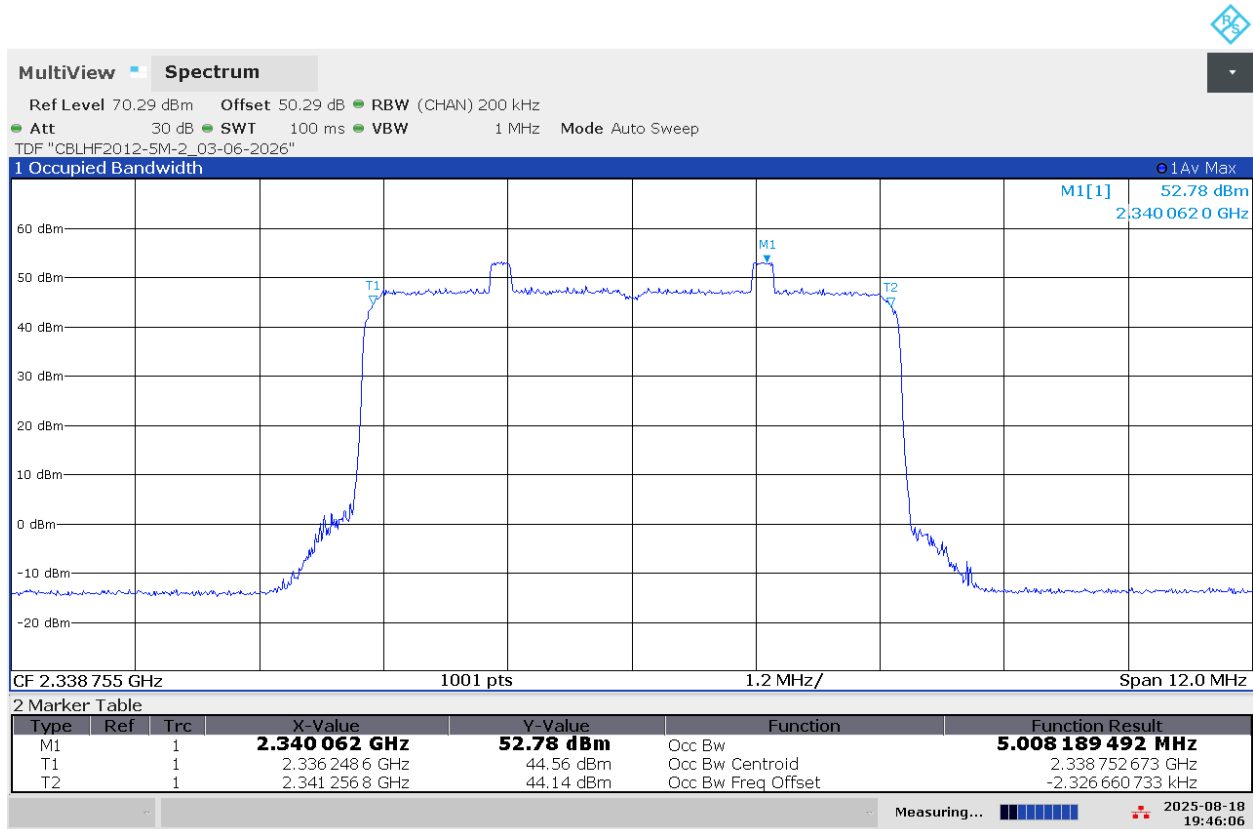
Low Band, OBW, 4.06 MHz



07:21:42 PM 08/18/2025

Note: Cable factors and coupler factors were internally compensated.

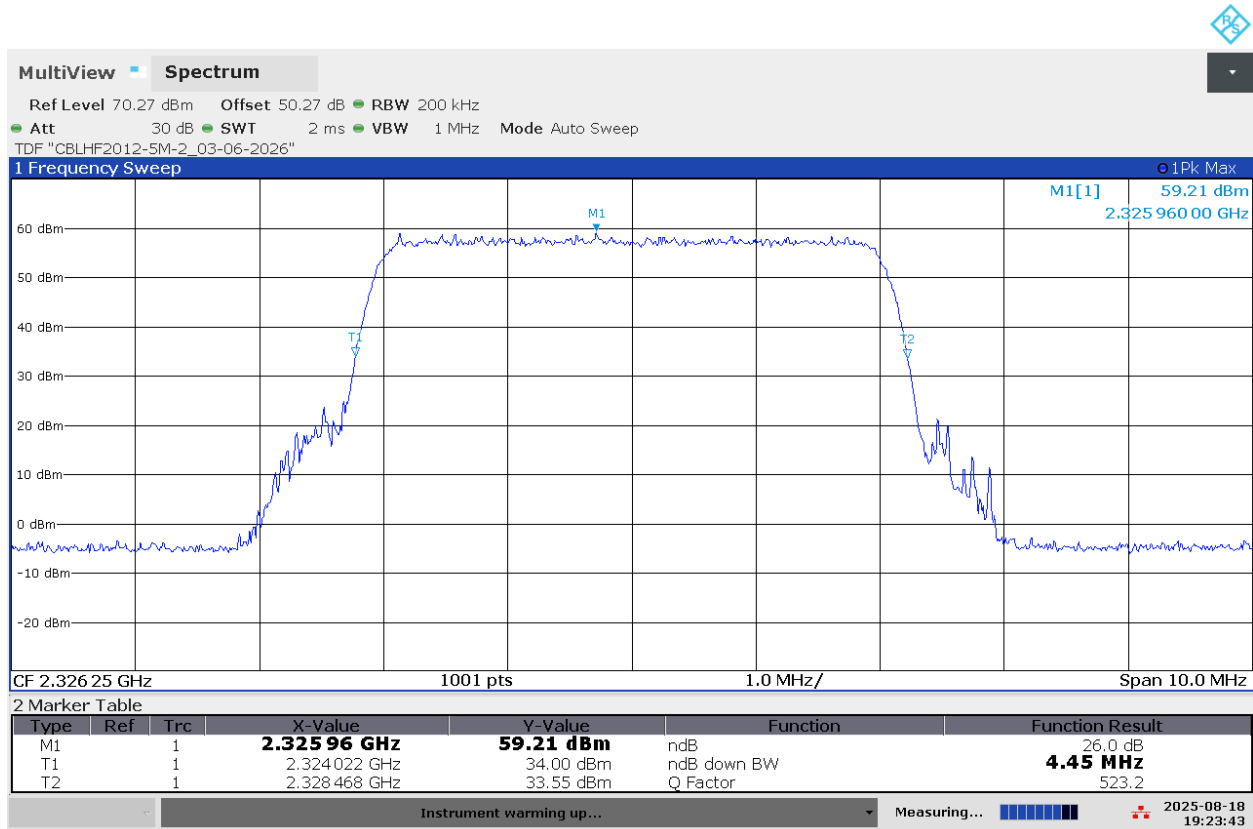
High Band, OBW, 5.01 MHz



07:46:07 PM 08/18/2025

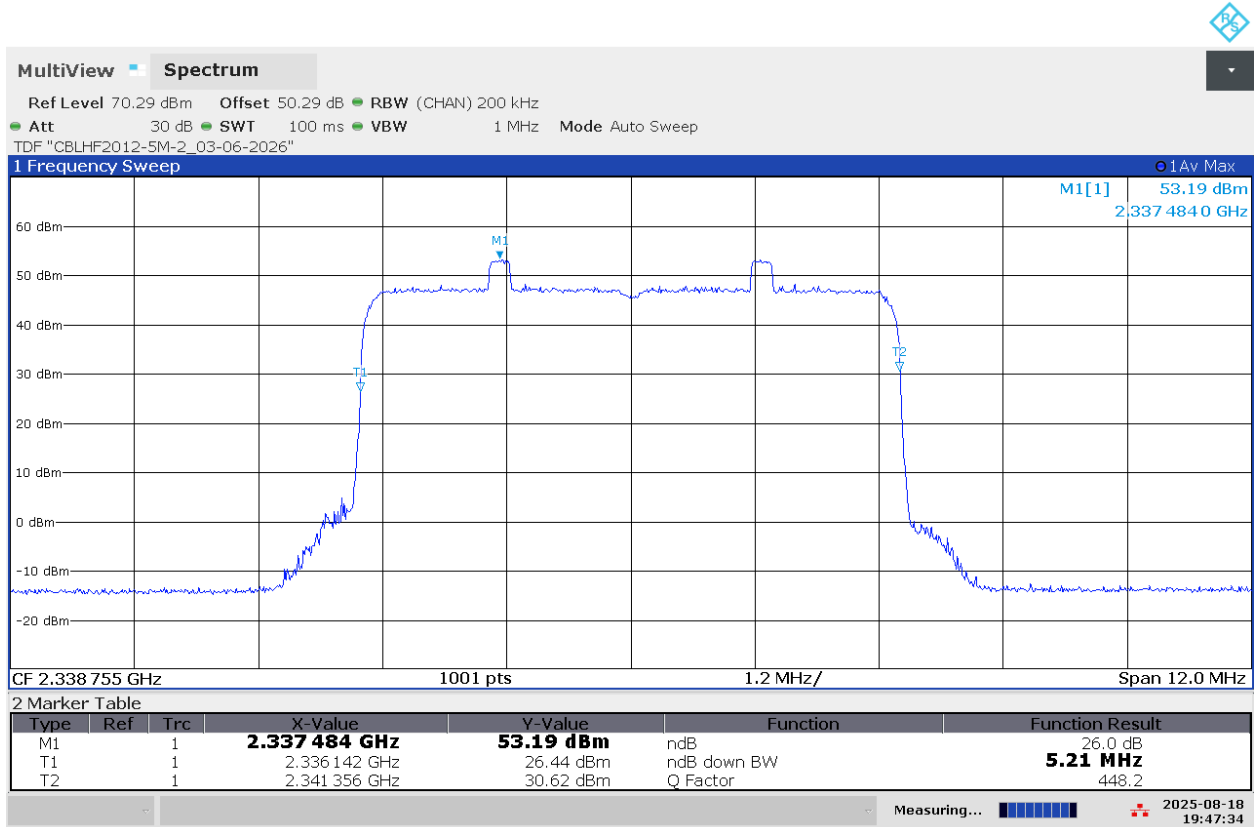
Note: Cable factors and coupler factors were internally compensated.

Low Band, 26 dB, 4.45 MHz



07:23:43 PM 08/18/2025

High Band, 26 dB, 5.21 MHz



07:47:35 PM 08/18/2025

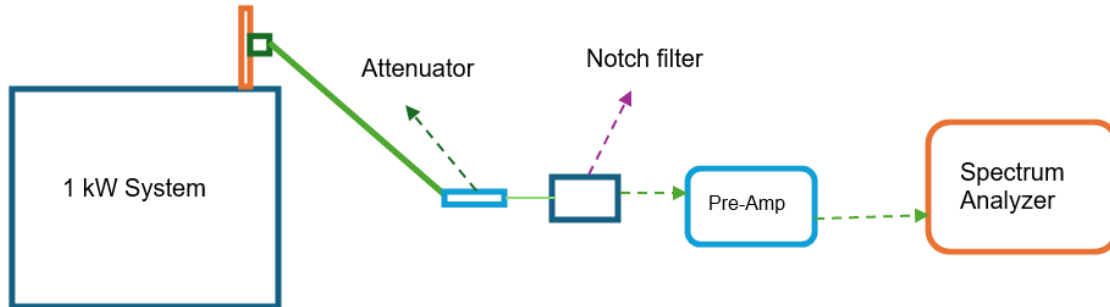
Product Standard: FCC Part 25				Limit applied: See section 8.2 Pretest Verification w/BB source: Yes			
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
08/18/2025	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx mode	24	48	1012

Deviations, Additions, or Exclusions: None

9 Transmitter Conducted Spurious Emissions and Band Edge

9.1 Method

Tests are performed in accordance with ANSI C63.26.



- 1) Testing was performed by connecting the antenna port to the spectrum analyzer via an attenuator, notch filter, and pre-amp.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

9.2 Limit:

FCC Part §25.202(h)(1) Any SDARS terrestrial repeater operating at a power level greater than 2-watt average EIRP is required to attenuate its out-of-band emissions below the transmitter power P by a factor of not less than $90 + 10 \log(P)$ dB in a 1-megahertz bandwidth outside the 2320-2345 MHz band, where P is average transmitter output power in watts.

9.3 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	01/29/2026	01/29/2027
CBL030'	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	03/06/2025	03/06/2026
CBLSHF202'	Cable, SMA - SMA, 9kHz-40GHz	Sucoflex (Huber Suhm)	104PE	CBLSHF202	03/06/2025	03/06/2026
RENT010'	100MHz to 18GHz pre-amplifier 48dB gain	EMC Shop	PA18G-HA	001366	11/18/2025	11/18/2026
CBLSHF102'	Cable, SMA - SMA, 9kHz-40GHz (Cable Kit 5)	Sucoflex (Huber Suhm)	104PE	CBLSHF102	03/11/2025	03/11/2026
REA010'	2332MHz Band stop filter, Passband 1-3GHz except notch	Reactel, Inc	12RX7-2332 5-X70S11	25-01	11/17/2025	11/17/2026
None	WR340 coupler	Microwave Techniques	OG9Y7-65979-712	2302392	01/29/2026	01/29/2027
None	WR340 termination	Apollo	18826-02	CO-55159	VBV	Verified

Software Utilized:

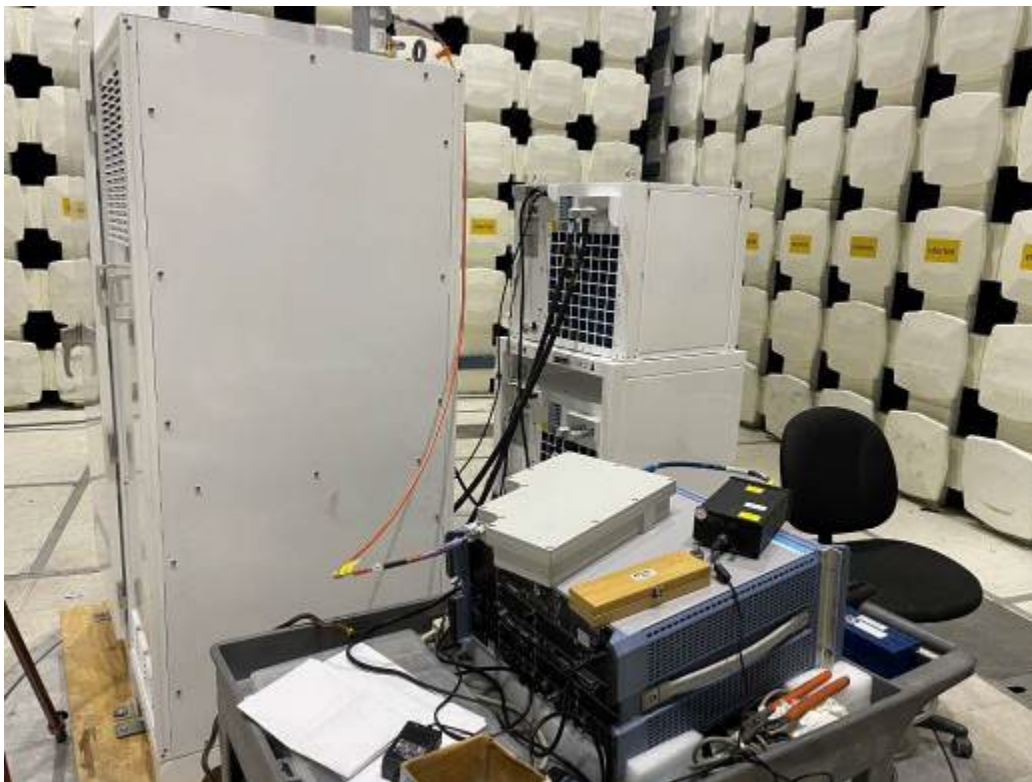
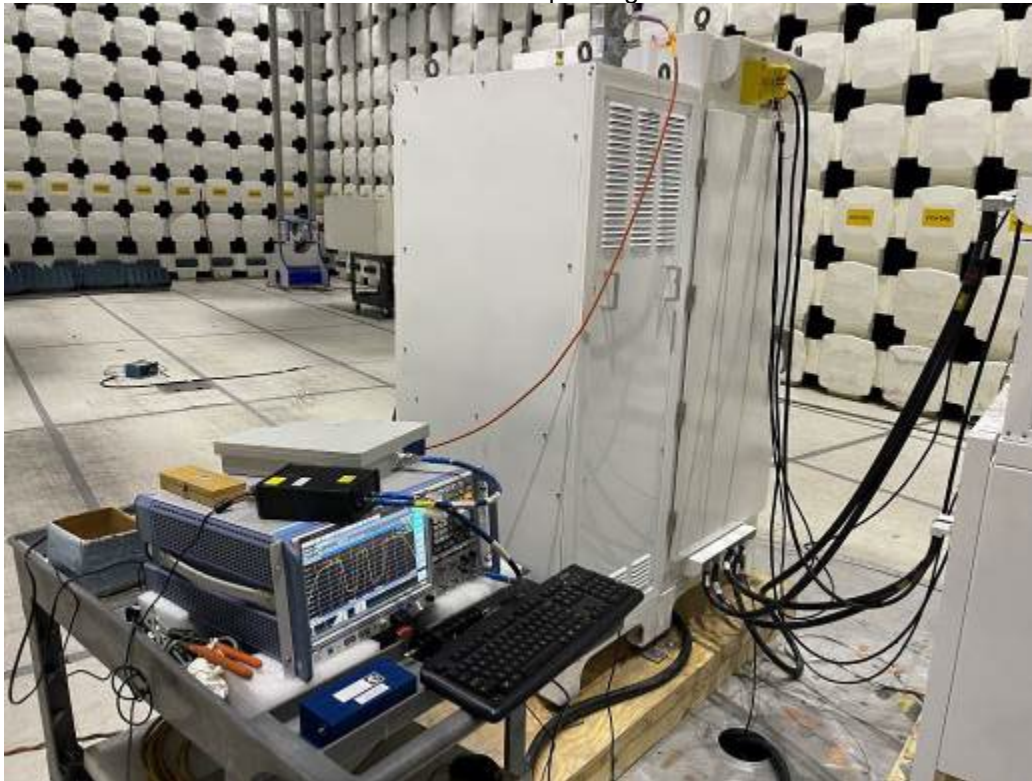
Name	Manufacturer	Version
None		

9.4 Results:

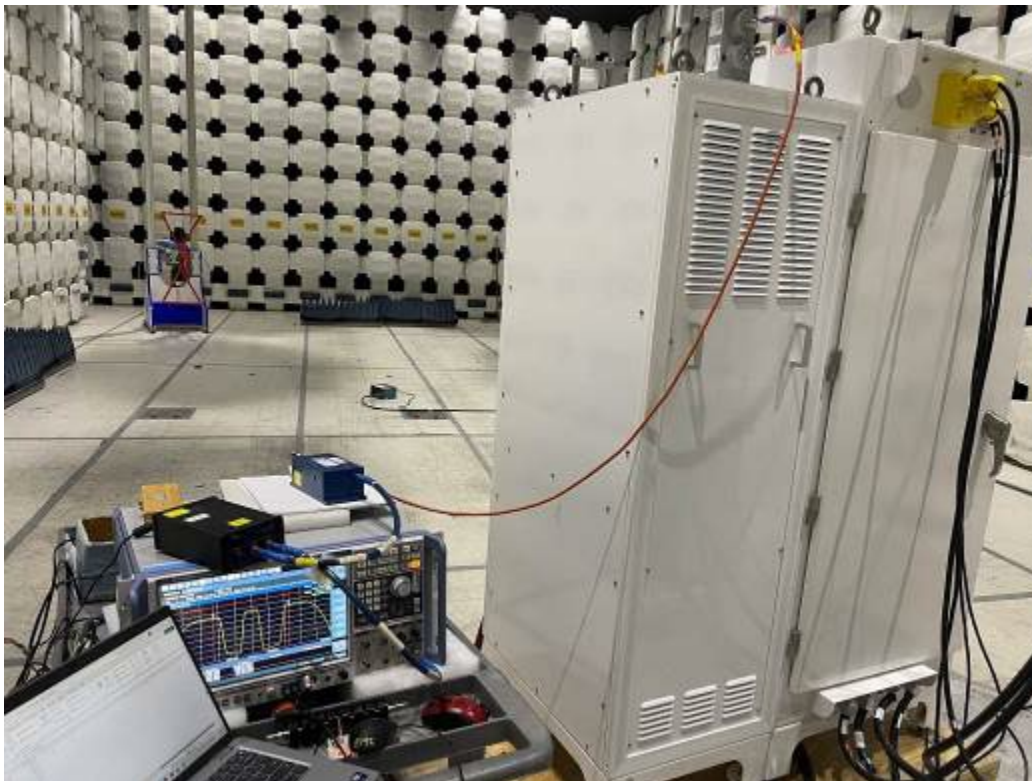
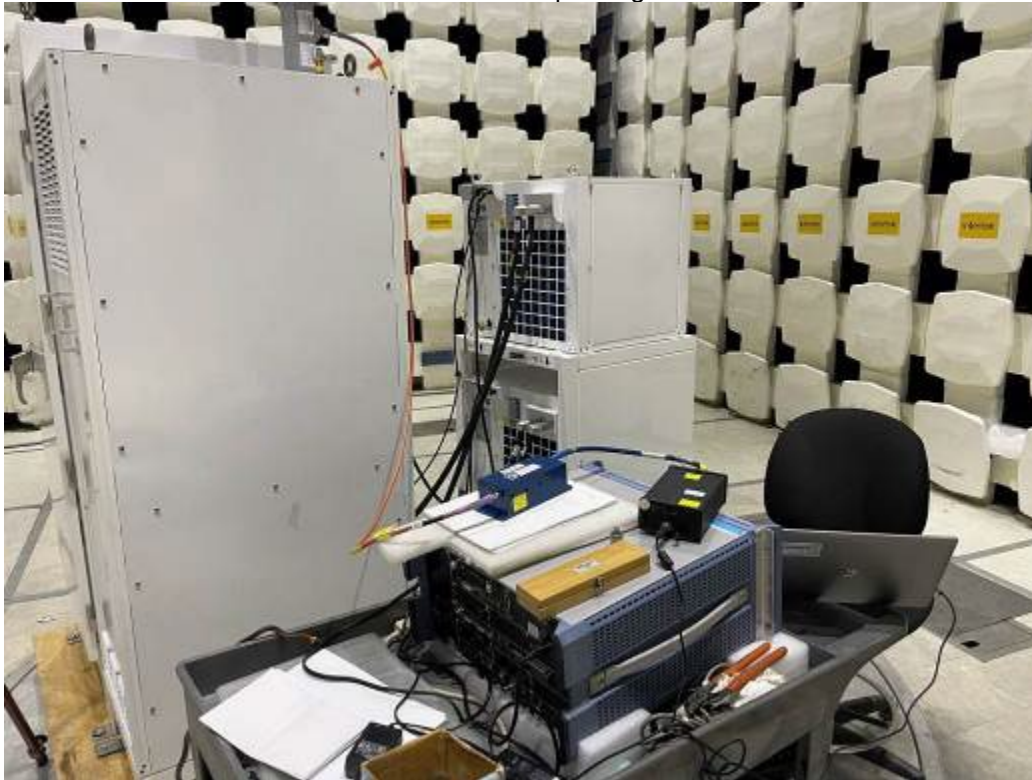
The sample tested was found to Comply.

9.5 Setup Photographs:

Conducted Emissions Setup Using Pivotone Filter

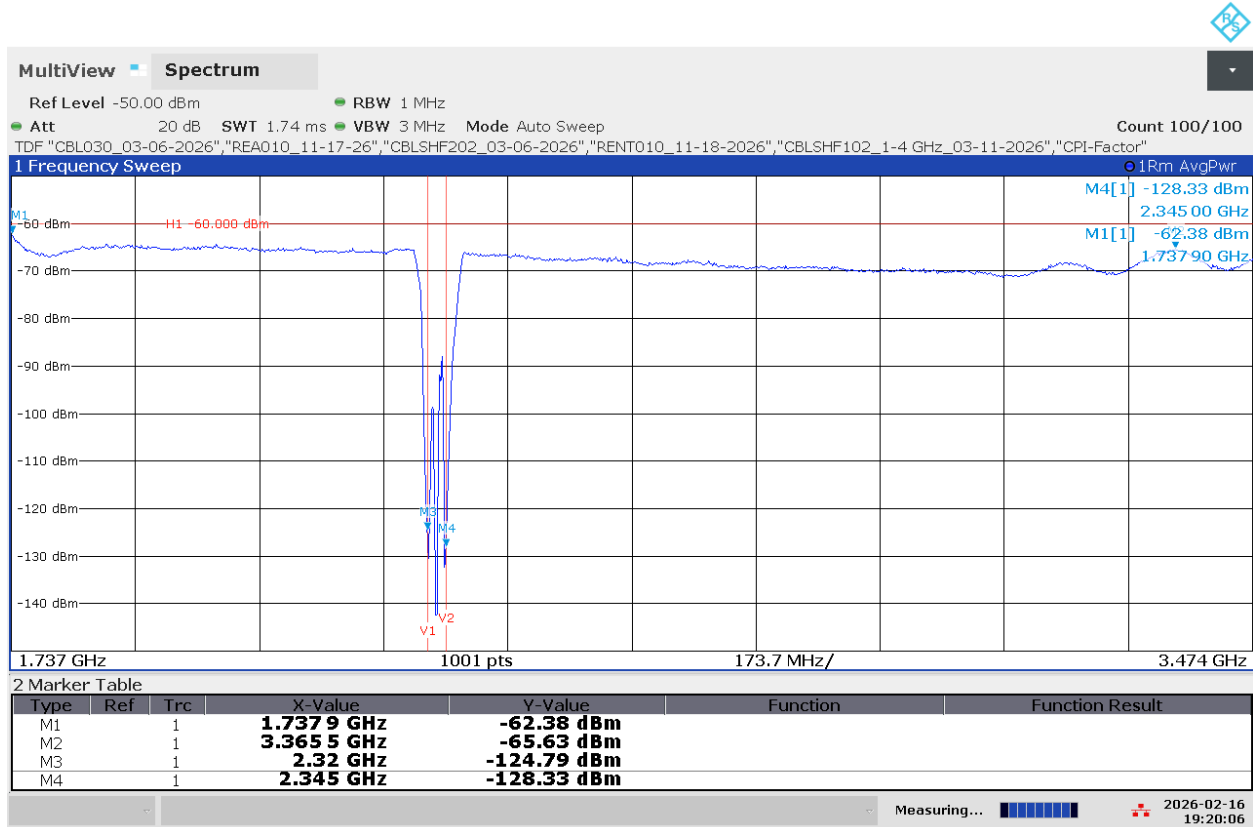


Conducted Emissions Setup Using Reactel Filter



9.6 Plots/Data:

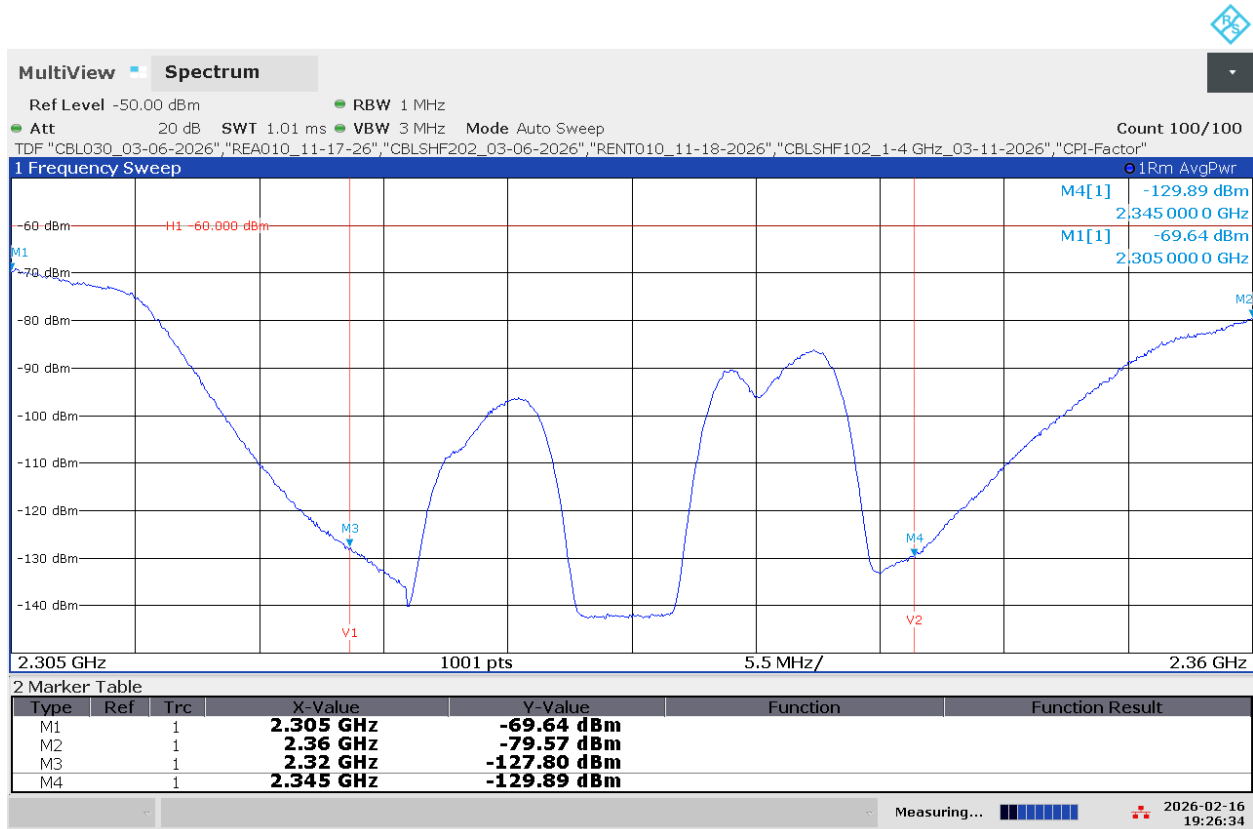
Antenna Port Conducted Emissions From 1.737-3.474 GHz Using Reactel Filter



07:20:06 PM 02/16/2026

Note: All factors were compensated internally as Transducer Factor (TDF)

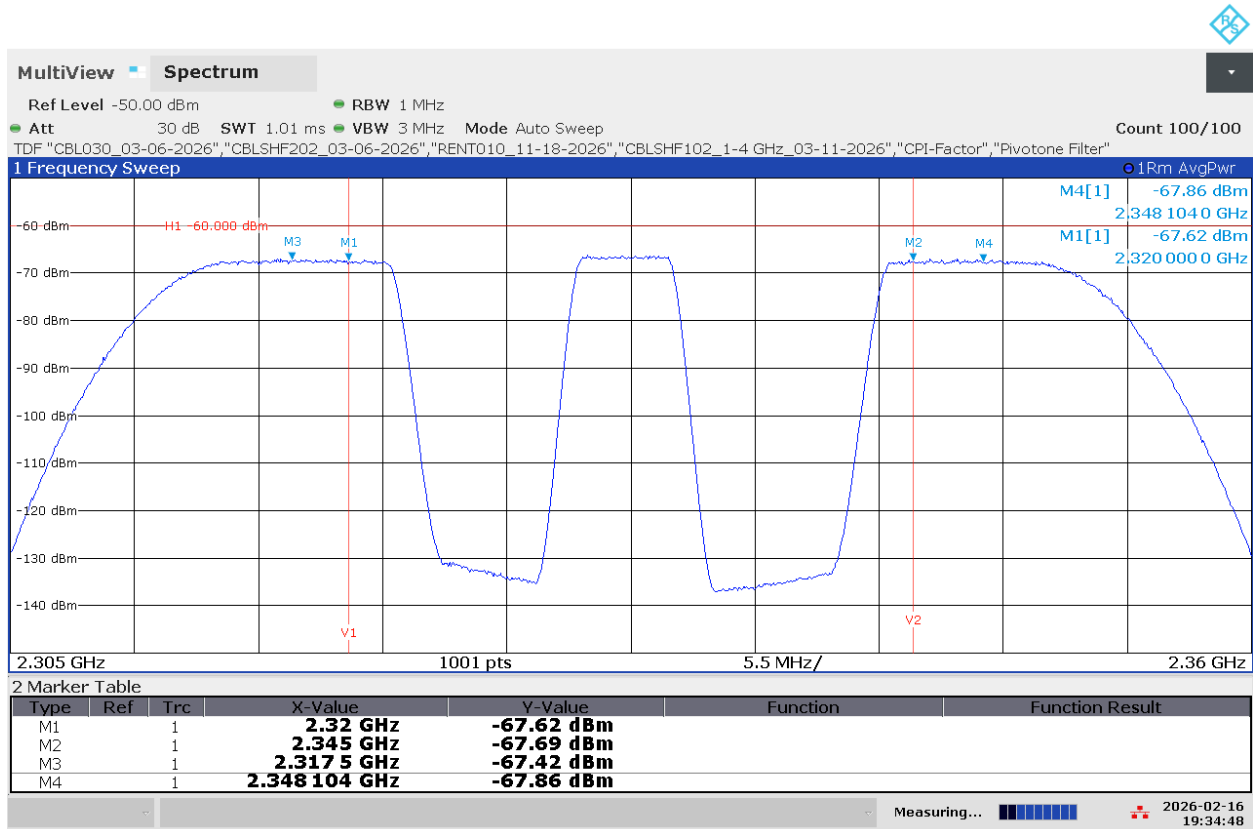
Antenna Port Conducted Emissions From 2.305-2.360 GHz Using Reactel Filter



07:26:34 PM 02/16/2026

Note: All factors were compensated internally as Transducer Factor (TDF)

Antenna Port Conducted Emissions Edge From 2.305-2.360 GHz Using PIVOTONE Filter



07:34:48 PM 02/16/2026

Note: All factors were compensated internally as Transducer Factor (TDF)

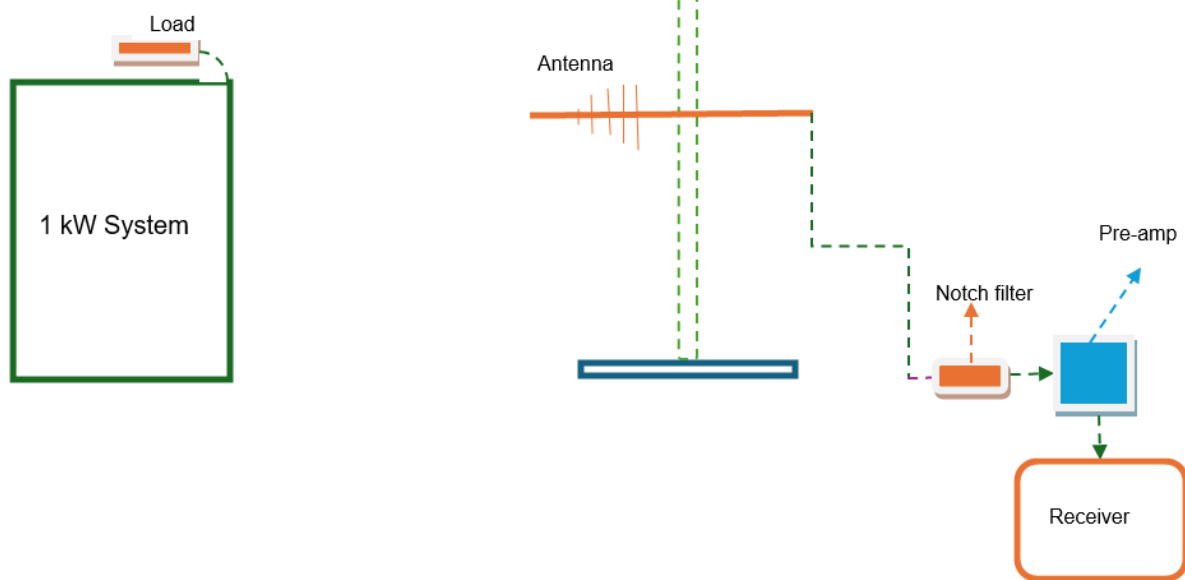
Product Standard: FCC Part 25				Limit applied: See section 9.2 Pretest Verification w/BB source: Yes			
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
02/16/2026	Kouma Sinn <i>KPS</i>	Vathana Ven <i>VSV</i>	208VAC 60Hz (3 Phases)	Tx Mode	23	20	1011

Deviations, Additions, or Exclusions: None

10 Transmitter Radiated Spurious Emissions

10.1 Method

Tests are performed in accordance with ANSI C63.26.



The 1 kW System was tested in a 10M chamber. The EUT, antenna, notch filter, and pre-amp were located inside the chamber and the receiver was placed outside in the control room.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisp
Radiated Emissions, 10m	30-1000 MHz	5.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.4 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.1 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	4.8 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.1 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR

Report Number: 106529094BOX-001 REV1	Issued: 03/18/2026 Revised: 04/23/2026
--------------------------------------	---

11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where FS = Field Strength in dBμV/m
 RA = Receiver Amplitude (including preamplifier) in dBμV
 CF = Cable Attenuation Factor in dB
 AF = Antenna Factor in dB
 AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
 AF = 7.4 dB/m
 CF = 1.6 dB
 AG = 29.0 dB
 FS = 32 dBμV/m

To convert from dBμV to μV or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where } UF = \text{Net Reading in } \mu V$$

$$NF = \text{Net Reading in dB}\mu V$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu V / 20)} = 39.8 \mu V/m$$

Alternately, when BAT-EMC Emission Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". The "Correction" includes Antenna Factor, Preamp, and Cable Loss. These are already accounted for in the "Level" column.

10.2 Limit:

FCC Part §25.202(h)(1) Any SDARS terrestrial repeater operating at a power level greater than 2-watt average EIRP is required to attenuate its out-of-band emissions below the transmitter power P by a factor of not less than $90 + 10 \log (P)$ dB in a 1-megahertz bandwidth outside the 2320-2345 MHz band, where P is average transmitter output power in watts.

10.3 Test Equipment Used:

Test equipment used from 9 kHz-30 MHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS014'	Receiver 1Hz-44GHz	Rhode & Schwarz	ESW 44	103232	06/17/2025	06/17/2026
145-414'	Cable 145-414	Huber + Suhner	3m Track A cable	145-414	07/14/2025	07/14/2026
HS005'	2M long	Huber suhner	SF118A	505109/118A	10/09/2025	10/09/2026
HS003'	10m under floor cable	Huber-Schuner	10m-1	HS003	03/06/2025	03/06/2026

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026

Revised: 04/23/2026

HS004'	2M long	Huber suhner	SF118A	505108/118A	10/09/2025	10/09/2026
145019'	Active Loop Antenna (9 KHz to 30 MHz)	EMCO	6502/1	9902-3267	03/10/2025	03/10/2026
CBLBNC62	RG223U 25ft long	Pomona	RG223U	CBLBNC62	07/10/2025	07/10/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBV	Verified

Name	Manufacturer	Version
BAT-EMC	Nexio	2022.0.27.0

Test equipment used from 30-1000 MHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS011'	ESW44 receiver 1Hz-44GHz	Rhode and Schwarz	ESW44	103296	10/29/2025	10/29/2026
HS006'	2m Long	Huber suhner	SF118A	505110/118A	10/09/2025	10/09/2026
IW006'	DC-18GHz cable 8.4m long	Insulated Wire	2800-NPS	IW006	05/28/2025	05/28/2026
145-406'	10m Track A In-floor Cable #1	Huber + Suhner	sucoflex 160-19220mm	001	06/26/2025	06/26/2026
HS004'	2M long	Huber suhner	SF118A	505108/118A	10/09/2025	10/09/2026
PRE10'	30-1000MHz pre-amp	ITS	PRE10	PRE10	03/03/2025	03/03/2026
145106'	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	09/18/2025	09/18/2026
N/A	WR340 termination	Apollo	18826-02	CO-55159	VBV	Verified

Name	Manufacturer	Version
BAT-EMC	Nexio	2022.0.27.0

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026

Revised: 04/23/2026

Test equipment used from 1-3 GHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS014'	Receiver 1Hz-44GHz	Rhode & Schwarz	ESW 44	103232	06/17/2025	06/17/2026
145-414'	Cable 145-414	Huber + Suhner	3m Track A cable	145-414	07/14/2025	07/14/2026
HS005'	2M long	Huber suhner	SF118A	505109/118A	10/09/2025	10/09/2026
HS003'	10m under floor cable	Huber-Schuner	10m-1	HS003	03/06/2025	03/06/2026
HS004'	2M long	Huber suhner	SF118A	505108/118A	10/09/2025	10/09/2026
ETS002'	1-18GHz DRG Horn Antenna	ETS Lindgren	3117	00143260	09/18/2025	09/18/2026
RENT010'	100MHz to 18GHz pre-amplifier 48dB gain	EMC Shop	PA18G-HA	001366	11/18/2025	11/18/2026
REA010'	2332MHz Band stop filter, Passband 1-3GHz except notch	Reactel, Inc	12RX7-2332 5-X70S11	25-01	11/17/2025	11/17/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBU	VBU

Name	Manufacturer	Version
BAT-EMC	Nexio	2022.0.27.0

Test equipment used from 3-18 GHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS014'	Receiver 1Hz-44GHz	Rhode & Schwarz	ESW 44	103232	06/17/2025	06/17/2026
145-414'	Cable 145-414	Huber + Suhner	3m Track A cable	145-414	07/14/2025	07/14/2026
HS005'	2M long	Huber suhner	SF118A	505109/118A	10/09/2025	10/09/2026
HS003'	10m under floor cable	Huber-Schuner	10m-1	HS003	03/06/2025	03/06/2026
HS004'	2M long	Huber suhner	SF118A	505108/118A	10/09/2025	10/09/2026
ETS002'	1-18GHz DRG Horn Antenna	ETS Lindgren	3117	00143260	09/18/2025	09/18/2026
RENT010'	100MHz to 18GHz pre-amplifier 48dB gain	EMC Shop	PA18G-HA	001366	11/18/2025	11/18/2026
REA004'	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	03/06/2025	03/06/2026
REA010'	2332MHz Band stop filter, Passband 1-3GHz except notch	Reactel, Inc	12RX7-2332 5-X70S11	25-01	11/17/2025	11/17/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBU	Verified

Name	Manufacturer	Version
BAT-EMC	Nexio	2022.0.27.0

Test equipment used from 18-25 GHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS011'	ESW44 receiver 1Hz-44GHz	Rhode and Schwarz	ESW44	103296	10/29/2025	10/29/2026
CBLHF2012-5M-2'	5m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252676002	03/06/2025	03/06/2026
CBLHF2012-2M-1'	2m 9kHz-40GHz Coaxial Cable - SET1	Huber & Suhner	SF102	252675001	03/06/2025	03/06/2026
EMC018'	18-40GHz Pre-amp 40dB gain	The EMC Shop	PA40G	27490-01	08/05/2025	08/05/2026
EMC04'	ANTENNA, RIDGED GUIDE, 18-40 GHZ	EMCO	3116	2090	03/10/2025	03/10/2026
REA006'	18GHz High Pass Filter	Reactel, Inc	7HS-18G/40G K11	(06)1	04/09/2025	04/09/2026
REA010'	2332MHz Band stop filter, Passband 1-3GHz except notch	Reactel, Inc	12RX7-2332 5-X70S11	25-01	11/17/2025	11/17/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBU	Verified

Software Utilized:

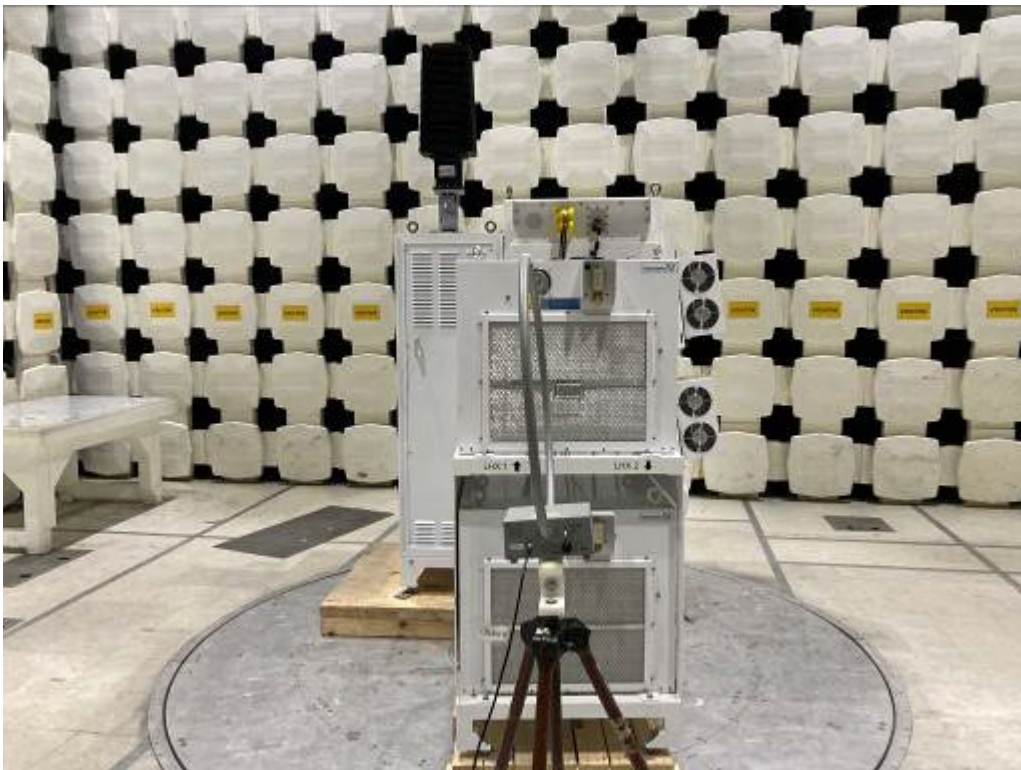
Name	Manufacturer	Version
None	N/A	N/A

10.4 Results:

The sample tested was found to Comply.

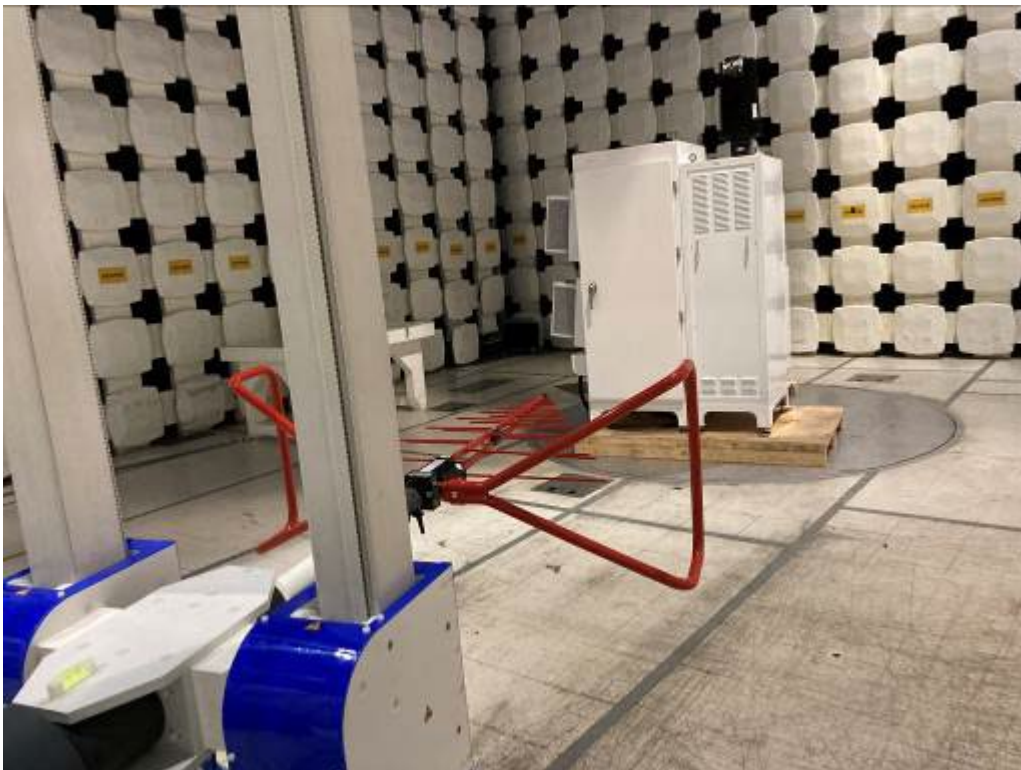
10.5 Setup Photographs:

9kHz – 30 MHz





30 – 1000 MHz



1 – 18 GHz



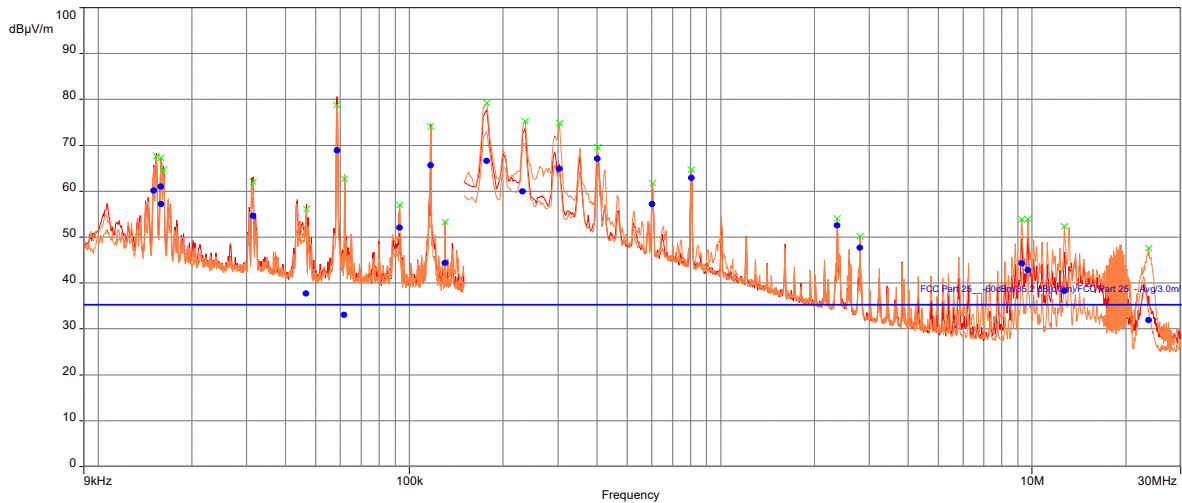
18-24 GHz



Notes: Testing was performed manually at 5 cm around the EUT.

10.6 Plots/Data:**9kHz-30MHz, Standby****Test Information:**

Date and Time	2/20/2026 6:53:19 PM
Client and Project Number	CPI_G106282107
Engineer	Vathana Ven
Temperature	23 deg C
Humidity	25 %
Atmospheric Pressure	997 mbars
Comments	Scan#37_RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location_Standby mode_1kW Unit

Graph:**Results:**

RMS (PASS) (22)

Frequency (MHz)	Level (dBμV/m)	RBW Factors (dB)	Distance factors (dB)	Net Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas. Time (s)	Correction (dB)
0.0150982	60.15	37.00	-59.00	38.15	35.20	2.95	336.30	Vertical	0.200k	1.00	20.48
0.0159075	60.99	37.00	-59.00	38.99	35.20	3.79	347.40	Vertical	0.200k	1.00	20.12
0.0159506	57.20	37.00	-59.00	35.2	35.20	0	41.20	Vertical	0.200k	1.00	20.10
0.0314351	54.63	37.00	-59.00	32.63	35.20	-2.57	30.00	Vertical	0.200k	1.00	17.12
0.0465628	37.76	37.00	-59.00	15.76	35.20	-19.44	143.50	Vertical	0.200k	1.00	15.29
0.0585773	68.96	37.00	-59.00	46.96	35.20	11.76	154.70	Vertical	0.200k	1.00	14.81
0.0617257	33.04	37.00	-59.00	11.04	35.20	-24.16	155.10	Vertical	0.200k	1.00	14.75
0.0931775	52.05	37.00	-59.00	30.05	35.20	-5.15	143.60	Vertical	0.200k	1.00	14.17
0.1170773	65.69	37.00	-59.00	43.69	35.20	8.49	165.80	Vertical	0.200k	1.00	13.83
0.1302748	44.37	37.00	-59.00	22.37	35.20	-12.83	132.20	Vertical	0.200k	1.00	13.78
0.17633	66.62	20.46	-59.00	28.08	35.20	-7.12	146.60	Vertical	9k	1.00	13.59
0.23123	60.00	20.46	-59.00	21.46	35.20	-13.74	135.00	Vertical	9k	1.00	13.41
0.30345	64.95	20.46	-59.00	26.41	35.20	-8.79	108.00	Vertical	9k	1.00	13.20
0.40189	67.08	20.46	-59.00	28.54	35.20	-6.66	97.60	Vertical	9k	1.00	13.11
0.60292	57.22	20.46	-59.00	18.68	35.20	-16.52	92.20	Vertical	9k	1.00	13.12
0.80419	62.98	20.46	-59.00	24.44	35.20	-10.76	97.40	Vertical	9k	1.00	12.95
2.36861	52.61	20.46	-59.00	14.07	35.20	-21.13	172.20	Vertical	9k	1.00	12.73
2.79915	47.68	20.46	-59.00	9.14	35.20	-26.06	167.40	Vertical	9k	1.00	12.62
9.26126	44.31	20.46	-59.00	5.77	35.20	-29.43	172.70	Vertical	9k	1.00	12.06
9.69045	42.85	20.46	-59.00	4.31	35.20	-30.89	162.20	Vertical	9k	1.00	12.08
12.70545	38.29	20.46	-59.00	-0.25	35.20	-35.45	161.50	Vertical	9k	1.00	11.97
23.70096	31.98	20.46	-59.00	-6.56	35.20	-41.76	172.10	Vertical	9k	1.00	10.75

Note 1: Testing was performed at 10cm.

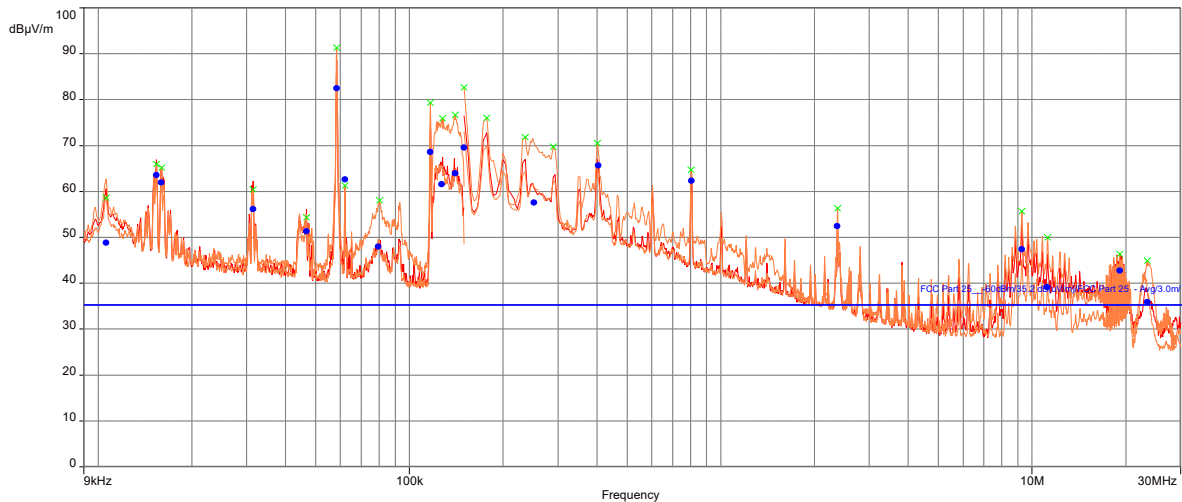
Note 2: The scan was performed with the transmitter turned off.

9kHz-30MHz, Tx Low & High band

Test Information:

Date and Time	2/20/2026 5:35:53 PM
Client and Project Number	CPI_G106282107
Engineer	Vathana Ven
Temperature	23 deg C
Humidity	25 %
Atmospheric Pressure	997 mbars
Comments	Scan#36_RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location_Tx Low and high band_1kW Unit

Graph:



Results:

RMS (PASS) (20)

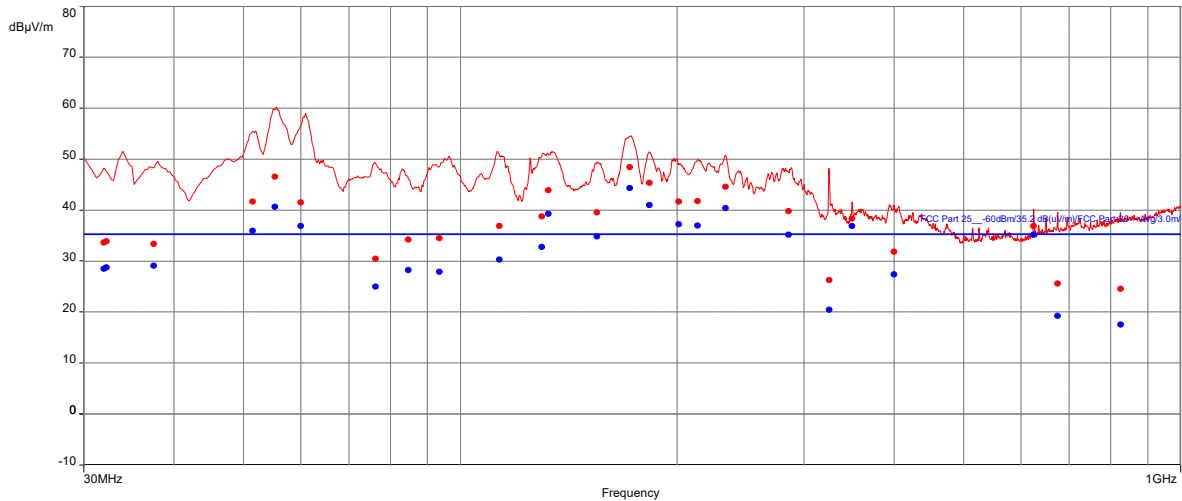
Frequency (MHz)	Level (dBμV/m)	RBW Factors (dB)	Distance factors (dB)	Net Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time (s)	Correction (dB)
0.0105925	48.88	37.00	-59.00	26.88	35.20	-8.32	143.50	Vertical	0.200k	1.00	22.27
0.0153975	63.63	37.00	-59.00	41.63	35.20	6.43	29.80	Vertical	0.200k	1.00	20.35
0.0159252	62.00	37.00	-59.00	40	35.20	4.8	360.00	Vertical	0.200k	1.00	20.11
0.031465	56.18	37.00	-59.00	34.18	35.20	-1.02	358.90	Vertical	0.200k	1.00	17.12
0.0466676	51.31	37.00	-59.00	29.31	35.20	-5.89	348.20	Vertical	0.200k	1.00	15.28
0.0583576	82.49	37.00	-59.00	60.49	35.20	25.29	143.30	Vertical	0.200k	1.00	14.82
0.0620302	62.67	37.00	-59.00	40.67	35.20	5.47	109.40	Vertical	0.200k	1.00	14.74
0.0795114	47.97	37.00	-59.00	25.97	35.20	-9.23	131.90	Vertical	0.200k	1.00	14.31
0.1169247	68.68	37.00	-59.00	46.68	35.20	11.48	154.80	Vertical	0.200k	1.00	13.83
0.1271716	61.63	37.00	-59.00	39.63	35.20	4.43	86.80	Vertical	0.200k	1.00	13.80
0.140465	63.95	37.00	-59.00	41.95	35.20	6.75	155.20	Vertical	0.200k	1.00	13.74
0.15017	69.63	20.46	-59.00	31.09	35.20	-4.11	113.60	Vertical	9k	1.00	13.70
0.25236	57.61	20.46	-59.00	19.07	35.20	-16.13	140.80	Vertical	9k	1.00	13.35
0.40335	65.65	20.46	-59.00	27.11	35.20	-8.09	108.30	Vertical	9k	1.00	13.11
0.80418	62.39	20.46	-59.00	23.85	35.20	-11.35	102.80	Vertical	9k	1.00	12.95
2.36918	52.49	20.46	-59.00	13.95	35.20	-21.25	178.00	Vertical	9k	1.00	12.73
9.26241	47.42	20.46	-59.00	8.88	35.20	-26.32	177.80	Vertical	9k	1.00	12.06
11.19654	39.17	20.46	-59.00	0.63	35.20	-34.57	162.00	Vertical	9k	1.00	12.10
19.11413	42.80	20.46	-59.00	4.26	35.20	-30.94	129.40	Vertical	9k	1.00	11.32
23.49239	35.92	20.46	-59.00	-2.62	35.20	-37.82	129.80	Vertical	9k	1.00	10.76

Note 1: Testing was performed at 10cm.

Note 2: The system was scanned with the transmitter turned on and off to determine if the emissions were related to the intentional radiator. It was determined that all emissions were from the host.

30-1000MHz_Standby**Test Information:**

Date and Time	1/2/2026 2:14:34 PM
Client and Project Number	CPI G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	13 %
Atmospheric Pressure	996 mbars
Comments	Scan#31_3M test__ RE 30-1000MHz_Stand by_1kW model_Replace LHX_Better shielding_Double ferrites_Plus INT_Plus PSM&TVMS ferrites

Graph:

Note: Blue dots were QP readings. The RMS measurements were recorded manually,

Results:**Peak**

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
31.889	33.62	---	108.80	1.51	Vertical	1M	1.00	-13.91
32.276	33.91	---	28.00	1.09	Vertical	1M	1.00	-14.17
37.588	33.37	---	259.10	1.00	Vertical	1M	1.00	-17.77
51.463	41.69	---	264.70	1.00	Vertical	1M	1.00	-25.60
55.325	46.56	---	302.90	1.21	Vertical	1M	1.00	-25.93
60.028	41.47	---	76.60	1.15	Vertical	1M	1.00	-25.67
76.224	30.47	---	6.60	4.00	Vertical	1M	1.00	-25.04
84.721	34.25	---	254.00	1.09	Vertical	1M	1.00	-25.54
93.458	34.50	---	248.10	1.39	Vertical	1M	1.00	-24.34
113.173	36.85	---	296.50	1.09	Vertical	1M	1.00	-19.49
129.65	38.77	---	210.30	1.00	Vertical	1M	1.00	-18.79
132.529	43.87	---	210.70	1.03	Vertical	1M	1.00	-18.96
154.639	39.58	---	39.00	1.00	Vertical	1M	1.00	-20.05
171.952	48.40	---	146.40	1.33	Horizontal	1M	1.00	-20.65
182.925	45.34	---	167.60	1.15	Horizontal	1M	1.00	-21.10
201.105	41.70	---	12.00	1.09	Vertical	1M	1.00	-19.73
213.538	41.77	---	11.90	1.00	Vertical	1M	1.00	-21.54
233.438	44.57	---	103.10	1.00	Horizontal	1M	1.00	-20.74
285.469	39.78	---	156.20	1.00	Vertical	1M	1.00	-18.57
325.149	26.27	---	285.40	1.00	Horizontal	1M	1.00	-17.82
350.037	38.34	---	269.80	4.00	Horizontal	1M	1.00	-17.34
400.012	31.84	---	205.20	1.09	Horizontal	1M	1.00	-16.02
625	36.91	---	280.90	1.00	Horizontal	1M	1.00	-11.09
675.138	25.61	---	360.00	1.00	Horizontal	1M	1.00	-10.35
825.175	24.54	---	60.30	4.00	Horizontal	1M	1.00	-7.54

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026
Revised: 04/23/2026

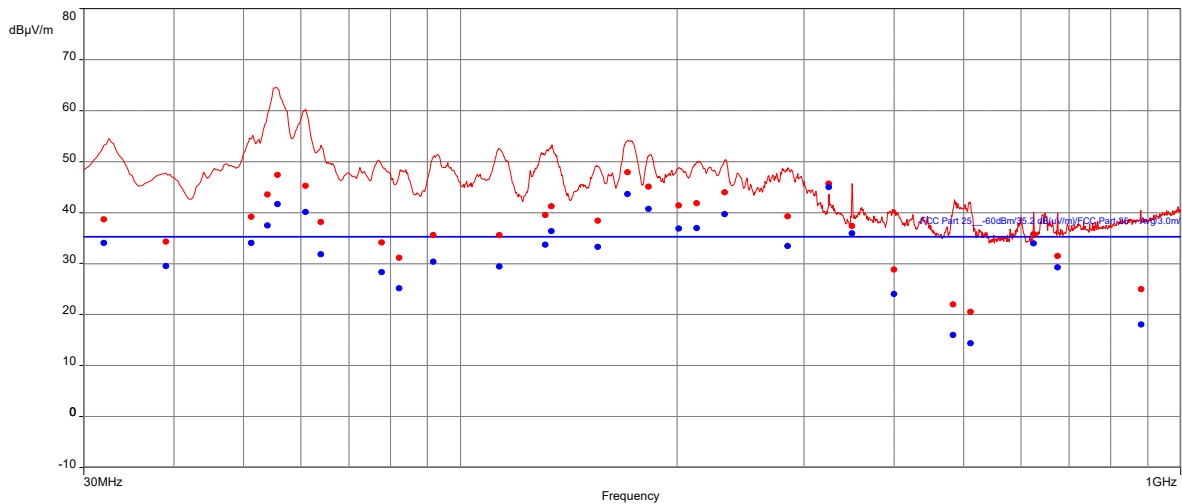
RMS (PASS) (26)

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
31.889	22.85	35.20	-12.35	108.80	1.51	Vertical	1M	1.00	-13.91
32.276	23.26	35.20	-11.94	28.00	1.09	Vertical	1M	1.00	-14.17
37.588	23.99	35.20	-11.21	259.10	1.00	Vertical	1M	1.00	-17.77
51.463	30.5	35.20	-4.7	264.70	1.00	Vertical	1M	1.00	-25.60
55.325	34.95	35.20	-0.25	302.90	1.21	Vertical	1M	1.00	-25.93
60.028	31.66	35.20	-3.54	76.60	1.15	Vertical	1M	1.00	-25.67
76.224	19.46	35.20	-15.74	6.60	4.00	Vertical	1M	1.00	-25.04
84.721	22.2	35.20	-13	254.00	1.09	Vertical	1M	1.00	-25.54
93.458	21.28	35.20	-13.92	248.10	1.39	Vertical	1M	1.00	-24.34
113.173	20.87	35.20	-14.33	296.50	1.09	Vertical	1M	1.00	-19.49
129.65	26.86	35.20	-8.34	210.30	1.00	Vertical	1M	1.00	-18.79
132.529	33.49	35.20	-1.71	210.70	1.03	Vertical	1M	1.00	-18.96
154.639	29.18	35.20	-6.02	39.00	1.00	Vertical	1M	1.00	-20.05
171.952	38.85	35.20	3.65	146.40	1.33	Horizontal	1M	1.00	-20.65
182.925	35.51	35.20	0.31	167.60	1.15	Horizontal	1M	1.00	-21.10
201.105	31.52	35.20	-3.68	12.00	1.09	Vertical	1M	1.00	-19.73
213.538	31.34	35.20	-3.86	11.90	1.00	Vertical	1M	1.00	-21.54
233.438	34.88	35.20	-0.32	103.10	1.00	Horizontal	1M	1.00	-20.74
285.469	29.57	35.20	-5.63	156.20	1.00	Vertical	1M	1.00	-18.57
325.149	14.98	35.20	-20.22	285.40	1.00	Horizontal	1M	1.00	-17.82
350.037	35.73	35.20	0.53	269.80	4.00	Horizontal	1M	1.00	-17.34
400.012	21.88	35.20	-13.32	205.20	1.09	Horizontal	1M	1.00	-16.02
625	31.87	35.20	-3.33	280.90	1.00	Horizontal	1M	1.00	-11.09
675.138	14.22	35.20	-20.98	360.00	1.00	Horizontal	1M	1.00	-10.35
825.175	11.78	35.20	-23.42	60.30	4.00	Horizontal	1M	1.00	-7.54

Note: The system was scanned with the transmitter turned on and off to determine if the emissions were related to the intentional radiator. It was determined that all emissions were from the host.

30-1000MHz_Tx Low & High Band**Test Information:**

Date and Time	1/2/2026 4:21:12 PM
Client and Project Number	CPI_G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	13 %
Atmospheric Pressure	996 mbars
Comments	Scan#32_3M test RE 30-1000MHz_RF on Tx Low & Hi Ch_1kW model_Replace LHX_Better shielding_Double ferrites_Plus INT_Plus PSM&TVMS ferrites

Graph:**Results:****Peak**

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
32.101	38.67	---	254.50	1.00	Vertical	1M	1.00	-14.07
39.112	34.30	---	280.60	1.00	Vertical	1M	1.00	-18.90
51.152	39.17	---	76.40	1.21	Vertical	1M	1.00	-25.57
53.931	43.56	---	248.20	1.09	Vertical	1M	1.00	-25.93
55.862	47.38	---	312.80	1.09	Vertical	1M	1.00	-25.92
61.05	45.26	---	70.90	1.09	Vertical	1M	1.00	-25.56
63.913	38.17	---	339.40	1.00	Vertical	1M	1.00	-25.25
77.723	34.16	---	253.90	1.51	Vertical	1M	1.00	-25.18
82.217	31.16	---	210.90	1.03	Vertical	1M	1.00	-25.50
91.865	35.57	---	242.50	1.15	Vertical	1M	1.00	-24.72
113.237	35.59	---	297.20	1.03	Vertical	1M	1.00	-19.48
131.352	39.54	---	211.00	1.09	Vertical	1M	1.00	-18.85
133.863	41.21	---	151.10	1.09	Vertical	1M	1.00	-19.00
155.348	38.47	---	39.10	1.57	Vertical	1M	1.00	-20.04
170.751	47.94	---	146.80	1.27	Horizontal	1M	1.00	-20.55
182.591	45.13	---	167.30	1.15	Horizontal	1M	1.00	-21.10
200.9	41.39	---	6.60	1.03	Vertical	1M	1.00	-19.70
212.929	41.84	---	12.00	1.00	Vertical	1M	1.00	-21.55
233.076	44.03	---	109.10	1.21	Horizontal	1M	1.00	-20.74
284.726	39.32	---	167.20	1.00	Vertical	1M	1.00	-18.57
325.025	45.71	---	292.00	1.15	Horizontal	1M	1.00	-17.82
349.975	37.44	---	269.50	4.00	Horizontal	1M	1.00	-17.34
399.938	28.88	---	210.00	1.15	Horizontal	1M	1.00	-16.03
483.318	22.02	---	307.70	4.00	Horizontal	1M	1.00	-13.41
510.786	20.55	---	291.60	4.00	Horizontal	1M	1.00	-13.29
625.05	35.79	---	281.30	1.03	Horizontal	1M	1.00	-11.09
674.987	31.53	---	296.80	1.00	Horizontal	1M	1.00	-10.34

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026

Revised: 04/23/2026

881.222	25.01	---	130.20	3.27	Horizontal	1M	1.00	-6.82
---------	-------	-----	--------	------	------------	----	------	-------

RMS (PASS) (29)

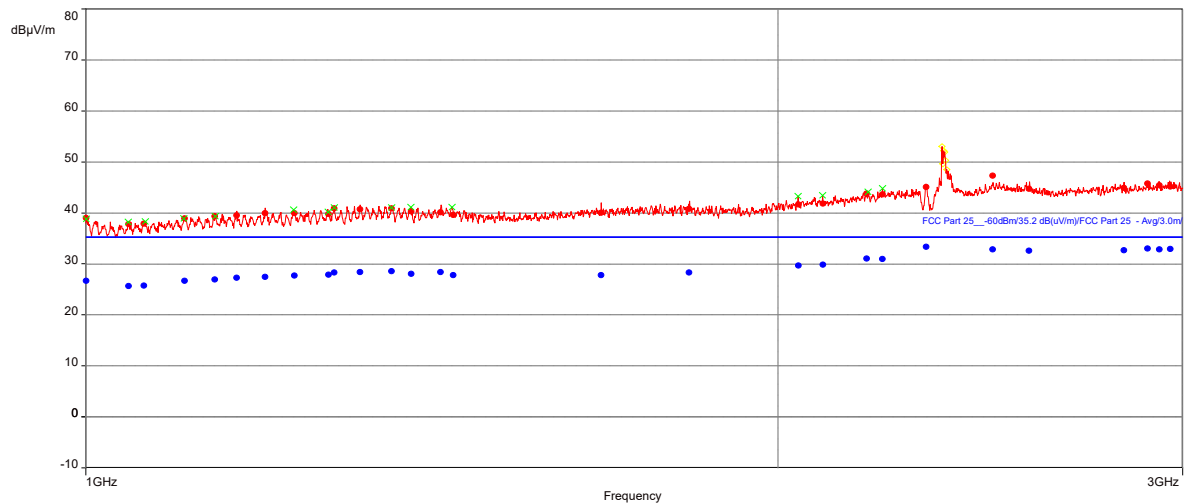
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
32.101	28.37	35.20	-6.83	254.50	1.00	Vertical	1M	1.00	-14.07
39.112	23.96	35.20	-11.24	280.60	1.00	Vertical	1M	1.00	-18.90
51.152	28.87	35.20	-6.33	76.40	1.21	Vertical	1M	1.00	-25.57
53.931	31.68	35.20	-3.52	248.20	1.09	Vertical	1M	1.00	-25.93
55.862	35.74	35.20	0.54	312.80	1.09	Vertical	1M	1.00	-25.92
61.05	34.54	35.20	-0.66	70.90	1.09	Vertical	1M	1.00	-25.56
63.913	25.77	35.20	-9.43	339.40	1.00	Vertical	1M	1.00	-25.25
77.723	22.57	35.20	-12.63	253.90	1.51	Vertical	1M	1.00	-25.18
82.217	18.85	35.20	-16.35	210.90	1.03	Vertical	1M	1.00	-25.50
91.865	24.57	35.20	-10.63	242.50	1.15	Vertical	1M	1.00	-24.72
113.237	19.72	35.20	-15.48	297.20	1.03	Vertical	1M	1.00	-19.48
131.352	27.74	35.20	-7.46	211.00	1.09	Vertical	1M	1.00	-18.85
133.863	30.67	35.20	-4.53	151.10	1.09	Vertical	1M	1.00	-19.00
155.348	27.67	35.20	-7.53	39.10	1.57	Vertical	1M	1.00	-20.04
170.751	38.18	35.20	2.98	146.80	1.27	Horizontal	1M	1.00	-20.55
182.591	35.28	35.20	0.08	167.30	1.15	Horizontal	1M	1.00	-21.10
200.9	31.2	35.20	-4	6.60	1.03	Vertical	1M	1.00	-19.70
212.929	31.31	35.20	-3.89	12.00	1.00	Vertical	1M	1.00	-21.55
233.076	34.26	35.20	-0.94	109.10	1.21	Horizontal	1M	1.00	-20.74
284.726	27.65	35.20	-7.55	167.20	1.00	Vertical	1M	1.00	-18.57
325.025	44.86	35.20	9.66	292.00	1.15	Horizontal	1M	1.00	-17.82
349.975	34.29	35.20	-0.91	269.50	4.00	Horizontal	1M	1.00	-17.34
399.938	18.39	35.20	-16.81	210.00	1.15	Horizontal	1M	1.00	-16.03
483.318	10.16	35.20	-25.04	307.70	4.00	Horizontal	1M	1.00	-13.41
510.786	8.55	35.20	-26.65	291.60	4.00	Horizontal	1M	1.00	-13.29
625.05	31.78	35.20	-3.42	281.30	1.03	Horizontal	1M	1.00	-11.09
674.987	28.18	35.20	-7.02	296.80	1.00	Horizontal	1M	1.00	-10.34
881.222	12.26	35.20	-22.94	130.20	3.27	Horizontal	1M	1.00	-6.82

Note: The system was scanned with the transmitter turned on and off to determine if the emissions were related to the intentional radiator. It was determined that all emissions were from the host

1-3GHz_Tx Low & High Band

Test Information:

Date and Time	1/8/2026 9:17:01 PM
Client and Project Number	CPI_G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	26 %
Atmospheric Pressure	1012 mbars
Comments	Scan #40_RE 1 to 3GHz_Tx Low & High Band_1kW model

Graph:**Results:**

Peak (PASS) (28)

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
1000.468	39.00	---	---	230.70	1.44	Vertical	1M	1.00	-14.31
1043.862	37.82	---	---	152.50	4.00	Horizontal	1M	1.00	-14.79
1060.054	37.91	---	---	113.10	1.00	Vertical	1M	1.00	-14.71
1104.335	38.98	---	---	191.70	3.58	Vertical	1M	1.00	-14.14
1138.313	39.33	---	---	230.50	1.98	Horizontal	1M	1.00	-14.03
1163.062	39.55	---	---	269.70	1.00	Horizontal	1M	1.00	-13.71
1197.025	39.95	---	---	35.20	1.00	Horizontal	1M	1.00	-13.23
1232.373	40.01	---	---	308.60	4.00	Horizontal	1M	1.00	-12.74
1275.249	39.80	---	---	308.70	2.51	Horizontal	1M	1.00	-11.93
1282.675	40.92	---	---	0.00	1.98	Horizontal	1M	1.00	-11.77
1316.374	40.78	---	---	34.90	3.04	Vertical	1M	1.00	-11.97
1358.263	40.92	---	---	152.30	1.00	Vertical	1M	1.00	-11.92
1385.237	40.28	---	---	269.40	1.44	Horizontal	1M	1.00	-12.42
1426.49	40.16	---	---	191.40	3.58	Vertical	1M	1.00	-12.27
1445.02	39.66	---	---	269.60	3.05	Horizontal	1M	1.00	-12.36
1675.601	40.06	---	---	347.40	2.51	Horizontal	1M	1.00	-11.65
1829.79	40.79	---	---	0.00	1.98	Horizontal	1M	1.00	-9.69
2041.823	41.64	---	---	191.50	2.51	Horizontal	1M	1.00	-8.38
2092.512	41.88	---	---	34.90	1.44	Horizontal	1M	1.00	-8.49
2185.97	43.86	---	---	360.00	1.00	Horizontal	1M	1.00	-8.58
2221.064	43.68	---	---	152.30	3.05	Vertical	1M	1.00	-8.36
2320.96	45.09	---	---	0.00	2.51	Horizontal	1M	1.00	-7.48
2480.237	47.36	---	---	34.80	1.98	Vertical	1M	1.00	-6.63
2572.364	44.75	---	---	113.10	3.05	Vertical	1M	1.00	-6.08
2828.824	44.92	---	---	230.90	3.58	Vertical	1M	1.00	-5.69
2896.978	45.78	---	---	34.80	4.00	Horizontal	1M	1.00	-5.49
2931.695	45.41	---	---	191.60	4.00	Horizontal	1M	1.00	-5.28
2963.829	45.22	---	---	269.70	1.44	Vertical	1M	1.00	-5.09

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026
Revised: 04/23/2026

RMS (PASS) (28)

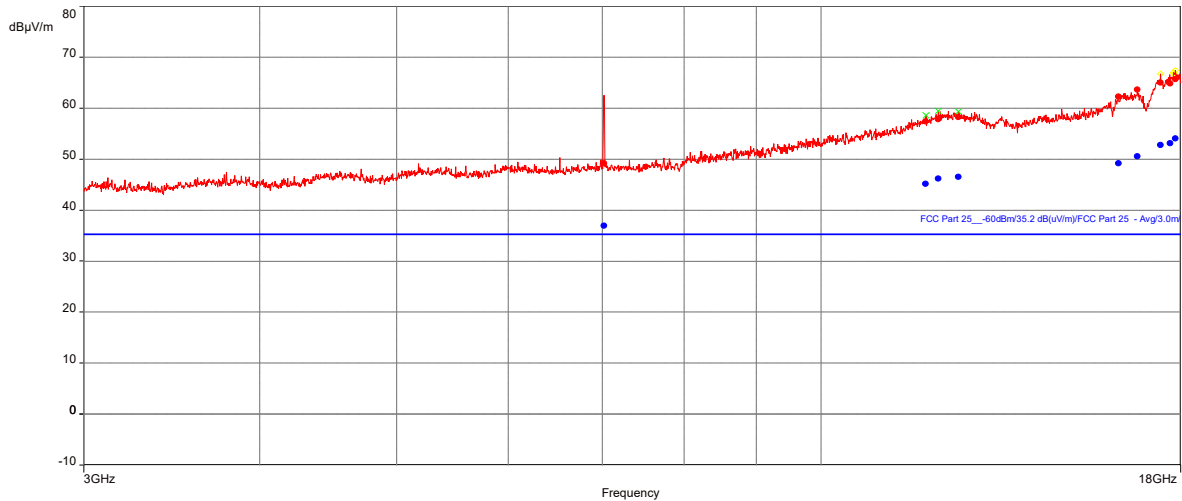
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
1000.468	26.74	35.20	-8.46	230.70	1.44	Vertical	1M	1.00	-14.31
1043.862	25.70	35.20	-9.5	152.50	4.00	Horizontal	1M	1.00	-14.79
1060.054	25.81	35.20	-9.39	113.10	1.00	Vertical	1M	1.00	-14.71
1104.335	26.75	35.20	-8.45	191.70	3.58	Vertical	1M	1.00	-14.14
1138.313	26.95	35.20	-8.25	230.50	1.98	Horizontal	1M	1.00	-14.03
1163.062	27.33	35.20	-7.87	269.70	1.00	Horizontal	1M	1.00	-13.71
1197.025	27.49	35.20	-7.71	35.20	1.00	Horizontal	1M	1.00	-13.23
1232.373	27.70	35.20	-7.5	308.60	4.00	Horizontal	1M	1.00	-12.74
1275.249	27.89	35.20	-7.31	308.70	2.51	Horizontal	1M	1.00	-11.93
1282.675	28.33	35.20	-6.87	0.00	1.98	Horizontal	1M	1.00	-11.77
1316.374	28.45	35.20	-6.75	34.90	3.04	Vertical	1M	1.00	-11.97
1358.263	28.56	35.20	-6.64	152.30	1.00	Vertical	1M	1.00	-11.92
1385.237	28.07	35.20	-7.13	269.40	1.44	Horizontal	1M	1.00	-12.42
1426.49	28.45	35.20	-6.75	191.40	3.58	Vertical	1M	1.00	-12.27
1445.02	27.82	35.20	-7.38	269.60	3.05	Horizontal	1M	1.00	-12.36
1675.601	27.84	35.20	-7.36	347.40	2.51	Horizontal	1M	1.00	-11.65
1829.79	28.36	35.20	-6.84	0.00	1.98	Horizontal	1M	1.00	-9.69
2041.823	29.67	35.20	-5.53	191.50	2.51	Horizontal	1M	1.00	-8.38
2092.512	29.90	35.20	-5.3	34.90	1.44	Horizontal	1M	1.00	-8.49
2185.97	31.08	35.20	-4.12	360.00	1.00	Horizontal	1M	1.00	-8.58
2221.064	30.96	35.20	-4.24	152.30	3.05	Vertical	1M	1.00	-8.36
2320.96	33.37	35.20	-1.83	0.00	2.51	Horizontal	1M	1.00	-7.48
2480.237	32.85	35.20	-2.35	34.80	1.98	Vertical	1M	1.00	-6.63
2572.364	32.62	35.20	-2.58	113.10	3.05	Vertical	1M	1.00	-6.08
2828.824	32.66	35.20	-2.54	230.90	3.58	Vertical	1M	1.00	-5.69
2896.978	33.07	35.20	-2.13	34.80	4.00	Horizontal	1M	1.00	-5.49
2931.695	32.86	35.20	-2.34	191.60	4.00	Horizontal	1M	1.00	-5.28
2963.829	32.95	35.20	-2.25	269.70	1.44	Vertical	1M	1.00	-5.09

3-18GHz_Tx Low & High Band

Test Information:

Date and Time	1/8/2026 10:42:15 PM
Client and Project Number	CPI G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	26 %
Atmospheric Pressure	1012 mbars
Comments	Scan #43 RE 3 to 18GHz Tx Low & High Band 1kW model Testing at 30cm

Graph:



Results:

Peak (PASS) (9)

Frequency (MHz)	Level (dBμV/m)	Level – 20 dB distance factor (dBμV/m)	Limit (dBμV/m)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
7016.013	49.22	29.22	---	265.10	4.00	Vertical	1M	1.00	2.29
11870.086	57.45	37.45	---	0.00	1.00	Vertical	1M	1.00	14.08
12117.789	57.86	37.86	---	265.90	1.00	Horizontal	1M	1.00	14.76
12517.389	58.27	38.27	---	0.00	1.00	Horizontal	1M	1.00	14.70
16260.564	62.31	42.31	---	360.00	4.00	Vertical	1M	1.00	19.24
16767.293	63.69	43.69	---	360.00	4.00	Horizontal	1M	1.00	20.41
17413.985	65.03	45.03	---	265.90	1.00	Vertical	1M	1.00	23.65
17689.757	64.89	44.89	---	0.00	4.00	Vertical	1M	1.00	25.29
17846.06	65.74	45.74	---	360.00	1.00	Vertical	1M	1.00	25.87

RMS (PASS) (9)

Frequency (MHz)	Level (dBμV/m)	Level – 20 dB distance factor (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
7016.013	36.95	16.95	35.2	-18.25	265.10	4.00	Vertical	1M	1.00	2.29
11870.086	45.16	25.16	35.2	-10.04	0.00	1.00	Vertical	1M	1.00	14.08
12117.789	46.19	26.19	35.2	-9.01	265.90	1.00	Horizontal	1M	1.00	14.76
12517.389	46.55	26.55	35.2	-8.65	0.00	1.00	Horizontal	1M	1.00	14.70
16260.564	49.22	29.22	35.2	-5.98	360.00	4.00	Vertical	1M	1.00	19.24
16767.293	50.55	30.55	35.2	-4.65	360.00	4.00	Horizontal	1M	1.00	20.41
17413.985	52.79	32.79	35.2	-2.41	265.90	1.00	Vertical	1M	1.00	23.65
17689.757	53.18	33.18	35.2	-2.02	0.00	4.00	Vertical	1M	1.00	25.29
17846.06	54.10	34.1	35.2	-1.1	360.00	1.00	Vertical	1M	1.00	25.87

Note: Emissions were determined to be from the host. The radio was turned on and off for comparison purposes during testing.

18-24GHz_Tx Low & High Band



03:48:57 PM 02/16/2026

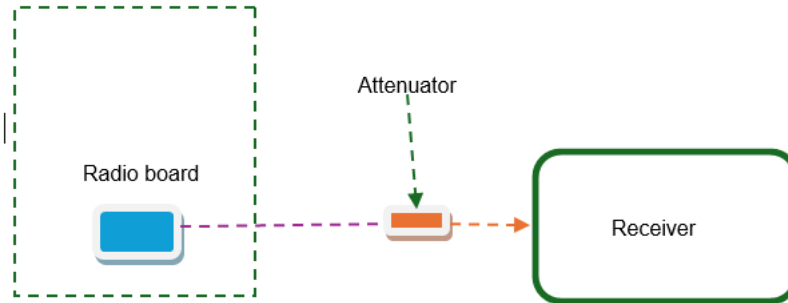
Product Standard: FCC Part 25					Limit applied: See section 10.2		
					Pretest Verification w/BB source: Yes		
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
08/18/2025	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx mode	24	48	1012
02/16/2026	Kouma Sinn <i>KPS</i>	Vathana Ven <i>VSV</i>	208VAC 60Hz (3 Phases)	Tx mode	24	26	1012
02/20/2026	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx mode	23	25	997

Deviations, Additions, or Exclusions: None

11 Frequency Stability

11.1 Method

Tests are performed in accordance with ANSI C63.26.



Testing was performed by placing a transmitter board inside an environmental chamber. Antenna port was connected to a receiver via an attenuator.,

TEST SITE: Safety Lab

11.2 Limit:

FCC Part § 25.202(d) Frequency tolerance, Earth stations. The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

11.3 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
SAF1153'	Freezing Rain/Icing(Temp/Humidity) -73deg C to +190deg C, 95% humidity, Ice Freezing Rain	Cincinnati Sub-Zero	CTH-(FR)64-6-6-SC/AC	12-CT15628	08/29/2025	08/29/2026
CBLHF2012-5M-2'	5m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252676002	03/06/2025	03/06/2026
SAF1312'	Digital Multimeter	Fluke	87V	30840221	01/19/2026	01/19/2027
SAF1648C'	Pressure/Humidity/Temp datalogger	Extech	SD700	A129343	09/17/2025	09/17/2026
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	01/29/2026	01/29/2027

Software Utilized:

Name	Manufacturer	Version
None		

11.4 Results:

The sample tested was found to Comply.

11.5 Setup Photograph:



11.6 Test Data:

Lower Band

Company: CPI

Model #: DRU2 1kW

Serial #: N/A

Engineer(s): Vathana Ven

Project #: G106282107

Standard: FCC Part 25, 25.202(d)

Limit:

08/19/25

Location: Safety

Nominal f: 2326.250 MHz

PPM

Test Equipment Used:

SAF1153

25.6 deg C

CBLHF2012-5M-2 SAF1312 SAF1648C

1011.2 mB

Voltage: 13.6 VDC

%	Voltage Volts	Frequency Center (MHz)	Deviation kHz	Limit kHz
-15%	11.56	2326.25002	0.00000	23.26250
-10%	12.24	2326.25002	0.00000	23.26250
-5%	12.92	2326.25002	0.00000	23.26250
+0%	13.6	2326.25002	-0.00002	23.26250
+5%	14.28	2326.25002	0.00000	23.26250
+10%	14.96	2326.25002	0.00000	23.26250
+15%	15.64	N/A	N/A	N/A

Temp Celsius	Frequency Center (MHz)	Deviation kHz	Limit kHz
-20.00000	2326.25001	-0.01000	23.26250
-10.00000	2326.25001	-0.01000	23.26250
0.00000	2326.25001	-0.01000	23.26250
10.00000	2326.25002	-0.02000	23.26250
20.00000	2326.25002	-0.02000	23.26250
30.00000	2326.25002	-0.02000	23.26250
40.00000	2326.25002	-0.02000	23.26250
50.00000	2326.25002	-0.02000	23.26250
65.00000	2326.25000	0.00000	23.26250

Limit: 23.2625

Note: The device's voltage operating range is 10 to 15VDC. Temperature range -20 to 65 deg C.

Upper Band

Frequency Stability

Company: CPI

Model #: DRU2 1kW

Serial #: N/A

Engineer(s): Vathana Ven

Project #: G106282107

Standard: FCC Part 25, 25.202(d)

Limit:

Date(s): 08/19/25

Location: Safety

Nominal f: 2338.755 MHz

PPM

Test Equipment Used:

SAF1153

25.6 deg C

ROS005-1 CBLHF2012-5M-2 SAF1312 SAF1648C

35.50% 1011.2 mB

Exttech DC P/S, Model 382270, S/N 21040037

Voltage: 2337.495 2340.017 13.6 VDC

%	Voltage Volts	Frequency Low (MHz)	Frequency High (MHz)	Frequency Center (MHz)	Deviation kHz	Limit kHz
-15%	11.56	2337.48990	2340.01990	2338.75500	0.05000	23.37500
-10%	12.24	2337.48990	2340.02000	2338.75500	0.05000	23.37500
-5%	12.92	2337.48990	2340.01999	2338.75500	0.05000	23.37500
+0%	13.6	2337.48995	2340.02000	2338.75500	0.00000	23.37500
+5%	14.28	2337.48990	2340.02000	2338.75500	0.05000	23.37500
+10%	14.96	2337.48990	2340.02000	2338.75500	0.05000	23.37500
+15%	15.64	N/A	N/A	N/A	N/A	N/A

Temp Celsius	Frequency Low (MHz)	Frequency High (MHz)	Frequency Center (MHz)	Deviation kHz	Limit kHz
-20	2337.49001	2340.02001	2338.75500	-0.00745	23.37500
-10	2337.49001	2340.02001	2338.75500	-0.00745	23.37500
0	2337.49001	2340.02001	2338.75500	-0.00745	23.37500
10	2337.49002	2340.02002	2338.75500	-0.01900	23.37500
20	2337.49000	2340.02000	2338.75500	0.00000	23.37500
30	2337.49002	2340.02002	2338.75500	-0.01900	23.37500
40	2337.49002	2340.02002	2338.75500	-0.01900	23.37500
50	2337.490019	2340.02002	2338.75500	-0.01900	23.37500
65	2337.490020	2340.02002	2338.75500	-0.02000	23.37500

Limit: 0.023375

Note: The device's voltage operating range is 10 to 15VDC. Temperature range -20 to 65 deg C.

Intertek

Report Number: 106529094BOX-001 REV1	Issued: 03/18/2026 Revised: 04/23/2026
--------------------------------------	---

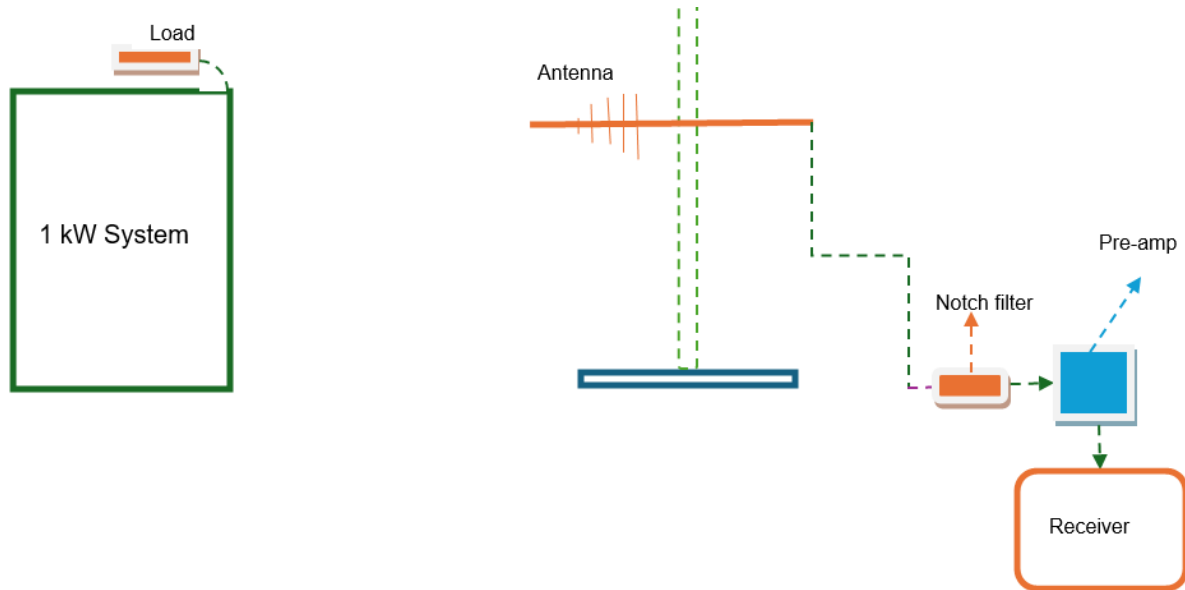
Product Standard: FCC Part 25				Limit applied: See section 11.2 Pretest Verification w/BB source: Yes			
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
08/19/2025	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	15VDC	Tx mode	25.6	48	1011.2

Deviations, Additions, or Exclusions: None

12 Radiated Emissions of Digital Device

12.1 Method

Tests are performed in accordance with ANSI 63.4.



The 1 kW System was tested in a 10M chamber. The EUT, antenna, notch filter, and pre-amp were located inside the chamber and the receiver was placed outside in the control room.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisp
Radiated Emissions, 10m	30-1000 MHz	5.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.4 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.1 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	4.8 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.1 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the

Report Number: 106529094BOX-001 REV1	Issued: 03/18/2026 Revised: 04/23/2026
--------------------------------------	---

measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V
 AF = 7.4 dB/m
 CF = 1.6 dB
 AG = 29.0 dB
 FS = 32 dB μ V/m

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where } UF = \text{Net Reading in } \mu\text{V}$$

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

Alternately, when BAT-EMC Emission Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". The "Correction" includes Antenna Factor, Preamp, and Cable Loss. These are already accounted for in the "Level" column.

12.2 Limits:

FCC 47CFR Part 15.109(b) Subpart B

Frequency of Emissions (MHz)	Field Strength Limit at 10 m ($\mu\text{V/m}$)	Field Strength Limit at 10 m (dB $\mu\text{V/m}$)
30-88	90	39.08
88-216	150	43.52
216-960	210	46.44
Above 960	300	59.65

Notes: dB $\mu\text{V/m}$ = $20 \cdot \log(\mu\text{V/m})$

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026

Revised: 04/23/2026

12.3 Test Equipment Used:

Test equipment used from 30-1000 MHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS011'	ESW44 receiver 1Hz-44GHz	Rhode and Schwarz	ESW44	103296	10/29/2025	10/29/2026
HS006'	2m Long	Huber suhner	SF118A	505110/118A	10/09/2025	10/09/2026
IW006'	DC-18GHz cable 8.4m long	Insulated Wire	2800-NPS	IW006	05/28/2025	05/28/2026
145-406'	10m Track A In-floor Cable #1	Huber + Suhner	sucoflex 160-19220mm	001	06/26/2025	06/26/2026
HS004'	2M long	Huber suhner	SF118A	505108/118A	10/09/2025	10/09/2026
PRE10'	30-1000MHz pre-amp	ITS	PRE10	PRE10	03/03/2025	03/03/2026
145106'	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	09/18/2025	09/18/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBU	VBU

Name	Manufacturer	Version
BAT-EMC	Nexio	2022.0.27.0

Test equipment used from 1-3 GHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS014'	Receiver 1Hz-44GHz	Rhode & Schwarz	ESW 44	103232	06/17/2025	06/17/2026
145-414'	Cable 145-414	Huber + Suhner	3m Track A cable	145-414	07/14/2025	07/14/2026
HS005'	2M long	Huber suhner	SF118A	505109/118A	10/09/2025	10/09/2026
HS003'	10m under floor cable	Huber-Schuner	10m-1	HS003	03/06/2025	03/06/2026
HS004'	2M long	Huber suhner	SF118A	505108/118A	10/09/2025	10/09/2026
ETS002'	1-18GHz DRG Horn Antenna	ETS Lindgren	3117	00143260	09/18/2025	09/18/2026
RENT010'	100MHz to 18GHz pre-amplifier 48dB gain	EMC Shop	PA18G-HA	001366	11/18/2025	11/18/2026
REA010'	2332MHz Band stop filter, Passband 1-3GHz except notch	Reactel, Inc	12RX7-2332 5-X70S11	25-01	11/17/2025	11/17/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBU	Verified

Name	Manufacturer	Version
BAT-EMC	Nexio	2022.0.27.0

Test equipment used from 3-18 GHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS014'	Receiver 1Hz-44GHz	Rhode & Schwarz	ESW 44	103232	06/17/2025	06/17/2026
145-414'	Cable 145-414	Huber + Suhner	3m Track A cable	145-414	07/14/2025	07/14/2026
HS005'	2M long	Huber suhner	SF118A	505109/118A	10/09/2025	10/09/2026
HS003'	10m under floor cable	Huber-Schuner	10m-1	HS003	03/06/2025	03/06/2026
HS004'	2M long	Huber suhner	SF118A	505108/118A	10/09/2025	10/09/2026
ETS002'	1-18GHz DRG Horn Antenna	ETS Lindgren	3117	00143260	09/18/2025	09/18/2026
RENT010'	100MHz to 18GHz pre-amplifier 48dB gain	EMC Shop	PA18G-HA	001366	11/18/2025	11/18/2026
REA004'	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	03/06/2025	03/06/2026
REA010'	2332MHz Band stop filter, Passband 1-3GHz except notch	Reactel, Inc	12RX7-2332 5-X70S11	25-01	11/17/2025	11/17/2026
None	WR340 termination	Apollo	18826-02	CO-55159	VBU	VBU

Name	Manufacturer	Version
BAT-EMC	Nexio	2022.0.27.0

12.4 Results:

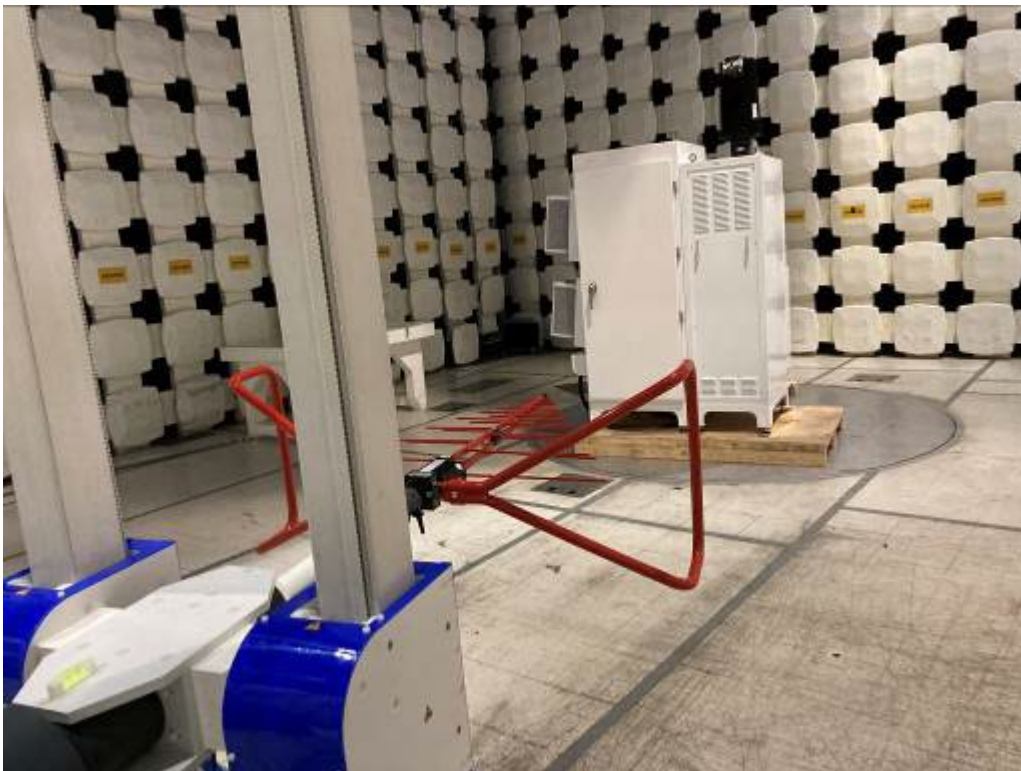
The sample tested was found to Comply when tested as modified below.

Modifications:

- Exterior LHX M&C cable: Add (4) Laird 28A2809-0A2 ferrites. Final exterior LHX M&C cable has (8) Laird 28A2809-0A2 ferrites.
- Interior LHX M&C cable: Add (2) Fair-Rite 0475178281 ferrites. Final interior LHX M&C cable has (4) Fair-Rite 0475178281 ferrites.
- PSM line cords: Add (1) Fair-Rite 0431167281 ferrite to each PSM line cord for a total of (8) Fair-Rite 0431167281 ferrite on (8) PSM line cords.

12.5 Setup Photographs:

30 – 1000 MHz



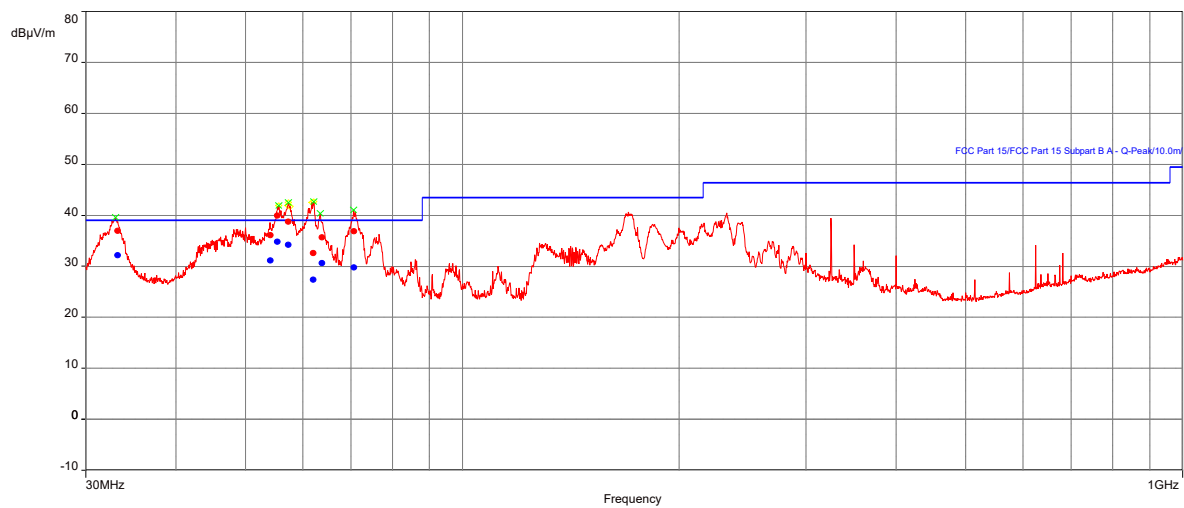
12.6 Plots/Data:

30-1000MHz_System running with Tx Low Band

Test Information:

Date and Time	8/18/2025 8:48:52 PM
Client and Project Number	CPI G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	42 %
Atmospheric Pressure	1012 mbars
Comments	Scan #14b_RE 30-1000MHz_Tx Low Band 2324.548-2327.925 MHz_New baseline_1kW unit

Graph:



Results:

QuasiPeak (PASS) (7)

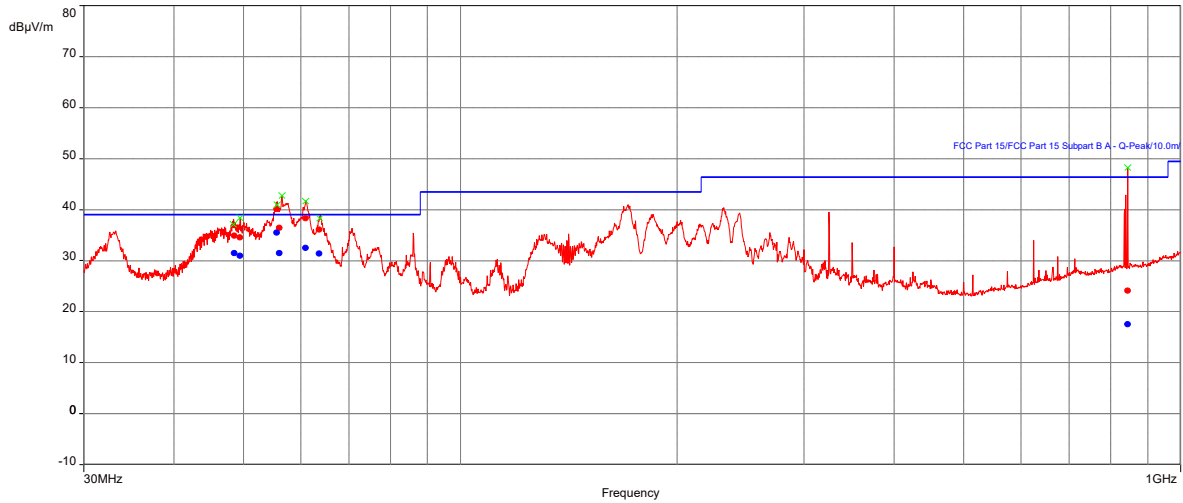
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
33.1975	32.16	39.00	-6.84	178.00	1.15	Vertical	120k	1.00	-14.65
54.1558	31.16	39.00	-7.84	136.00	1.00	Vertical	120k	1.00	-25.83
55.3806	34.88	39.00	-4.12	22.60	2.12	Vertical	120k	1.00	-25.81
57.2926	34.21	39.00	-4.79	269.30	4.00	Vertical	120k	1.00	-25.76
62.0583	27.41	39.00	-11.59	1.30	4.00	Vertical	120k	1.00	-25.35
63.8556	30.64	39.00	-8.36	1.50	4.00	Vertical	120k	1.00	-25.14
70.6708	29.76	39.00	-9.24	86.70	4.00	Vertical	120k	1.00	-24.80

30-1000MHz_System running with Tx High Band

Test Information:

Date and Time	8/18/2025 8:09:24 PM
Client and Project Number	CPI_G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	42 %
Atmospheric Pressure	1012 mbars
Comments	Scan #14a_RE 30-1000MHz_Tx High Band 2336.225-2341.285 MHz_New baseline_1kW unit

Graph:



Results:

QuasiPeak (PASS) (7)

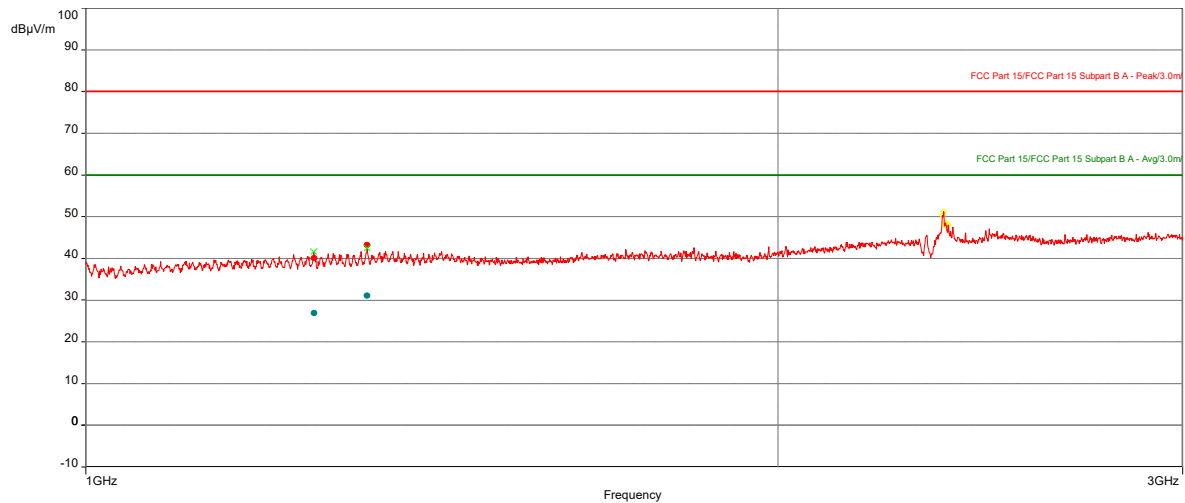
Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
48.571	31.51	39.00	-7.49	296.40	4.00	Vertical	120k	1.00	-24.63
49.4236	30.98	39.00	-8.02	318.20	4.00	Vertical	120k	1.00	-24.95
55.5842	35.50	39.00	-3.50	356.00	1.75	Vertical	120k	1.00	-25.80
56.0861	31.47	39.00	-7.53	221.60	1.33	Vertical	120k	1.00	-25.78
60.969	32.51	39.00	-6.49	1.20	4.00	Vertical	120k	1.00	-25.46
63.6184	31.43	39.00	-7.57	1.30	4.00	Vertical	120k	1.00	-25.16
844.6376	17.58	46.40	-28.82	177.60	4.00	Vertical	120k	1.00	-6.92

1-3 GHz, System running with Tx Low & High Bands

Test Information:

Date and Time	1/8/2026 9:47:59 PM
Client and Project Number	CPI_G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	26 %
Atmospheric Pressure	1012 mbars
Comments	Scan #41_RE 1 to 3GHz_Tx Low & High Band_1kW model

Graph:



Results:

Peak (PASS) (2)

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
1256.899	40.07	80.00	-39.93	230.50	1.44	Horizontal	1M	1.00	-12.46
1325.3	43.23	80.00	-36.77	152.50	1.00	Vertical	1M	1.00	-11.97

AVG (PASS) (2)

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
1256.899	26.87	60.00	-33.13	230.50	1.44	Horizontal	1M	1.00	-12.46
1325.3	31.09	60.00	-28.91	152.50	1.00	Vertical	1M	1.00	-11.97

Intertek

Report Number: 106529094BOX-001 REV1

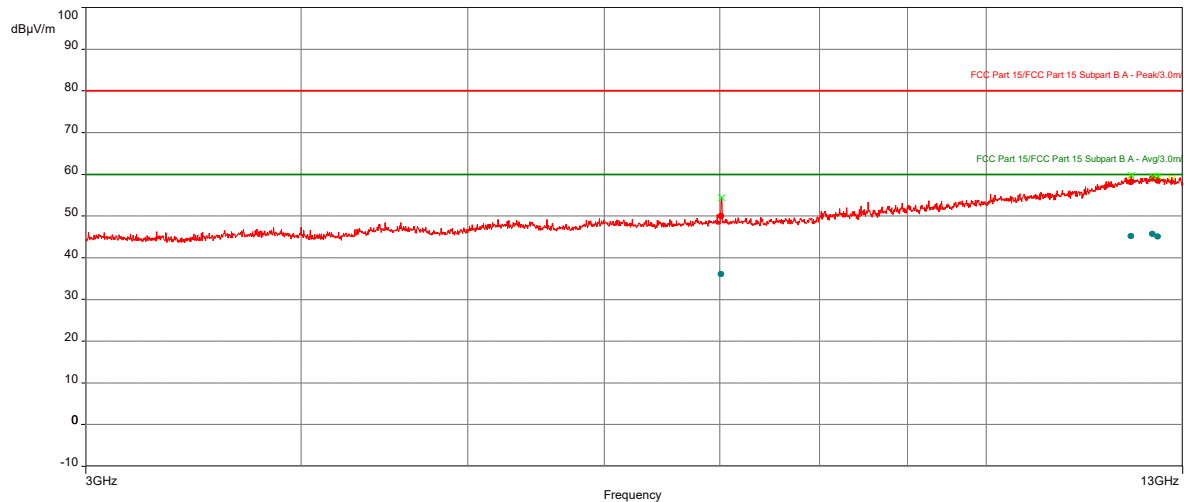
Issued: 03/18/2026
Revised: 04/23/2026

3-13 GHz, System running with Tx Low & High Bands

Test Information:

Date and Time	1/8/2026 10:04:31 PM
Client and Project Number	CPI_G106282107
Engineer	Vathana Ven
Temperature	24 deg C
Humidity	26 %
Atmospheric Pressure	1012 mbars
Comments	Scan #42 RE 3 to 13GHz Tx Low & High Band 1kW model

Graph:



Results:

Peak (PASS) (4)

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
7015.528	50.04	80.00	-29.96	177.00	3.44	Vertical	1M	1.00	2.28
12131.031	58.14	80.00	-21.86	360.00	1.00	Vertical	1M	1.00	14.79
12485.473	58.98	80.00	-21.02	360.00	3.44	Horizontal	1M	1.00	14.78
12575.513	58.53	80.00	-21.47	360.00	3.44	Horizontal	1M	1.00	14.45

AVG (PASS) (4)

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
7015.528	36.12	60.00	-23.88	177.00	3.44	Vertical	1M	1.00	2.28
12131.031	45.19	60.00	-14.81	360.00	1.00	Vertical	1M	1.00	14.79
12485.473	45.78	60.00	-14.22	360.00	3.44	Horizontal	1M	1.00	14.78
12575.513	45.11	60.00	-14.89	360.00	3.44	Horizontal	1M	1.00	14.45

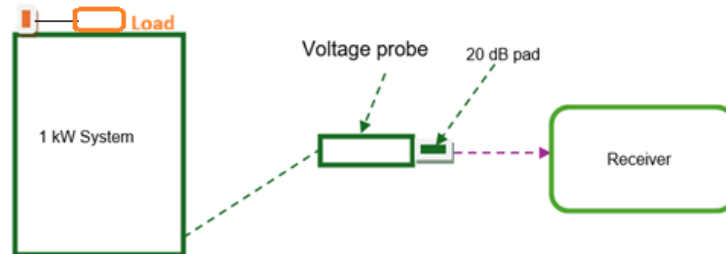
Product Standard: FCC Part 15 Subpart B				Limit applied: Class A – See Section 12.2 Pretest Verification w/BB source: Yes			
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
08/18/2025	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx mode	24	42	1012
01/08/2026	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx mode	24	26	1012

Deviations, Additions, or Exclusions: None

13 AC Mains Conducted Emissions

13.1 Method

Tests are performed in accordance with FCC Part 15 Subpart B and ANSI C63.4.



Testing was performed by connecting each phase to a receiver via a voltage probe and 20 dB pad.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisp
AC Line Conducted Emissions	150 kHz - 30 MHz	2.8 dB	3.4dB
Telco Port Emissions	150 kHz - 30 MHz	4.1 dB	5.0dB
AC Line Conducted Emissions	9 kHz - 150 MHz	2.4 dB	3.4 dB

As shown in the table above our conducted emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculations

The following is how net line-conducted readings were determined:

$$NF = RF + LF + CF + AF$$

Where NF = Net Reading in dB μ V

RF = Reading from receiver in dB μ V

LF = LISN or ISN Correction Factor in dB

CF = Cable Correction Factor in dB

AF = Attenuator Loss Factor in dB

Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026
Revised: 04/23/2026

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where } UF = \text{Net Reading in } \mu\text{V}$$

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 \text{ dB}\mu\text{V}$$

$$UF = 10^{(49.1 \text{ dB}\mu\text{V} / 20)} = 285.1 \mu\text{V/m}$$

When BAT-EMC Emission Software is used, the “Level” includes all losses and gains and is compared directly in the “Margin” column to the “Limit”. The “Correction” includes LISN Factor, Attenuator, and Cable Loss. These are already accounted for in the “Level” column.

13.2 Limit:

FCC 47CFR Part 15.107(b) Subpart B

Frequency of Emissions (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	79	66
0.5-30	73	60

13.3 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV006'	Weather Station	Davis	6250	MS191218071	03/10/2025	03/10/2026
ROS013'	5kHz-30MHz	Rhode & Schwarz	EPL	100952	02/27/2025	02/27/2026
EMC019'	10dB attenuator	Mini Circuits	10dB	EMC019	03/11/2025	03/11/2026
SOL64'	Voltage Line Probe, 1500 ohm, FCC	Solar	8614-1	8614150803	12/02/2024	12/02/2025
CBL310E'	30' CABLE, BNC/BNC	Alpha	RG58B/U	CBL310E	03/06/2025	03/06/2026

Software Utilized:

Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

13.4 Results:

The sample tested was found to Comply when tested as modified below.

Modifications:

- (2) Fair-Rite 0431173951 ferrites added to U2 wire in LHX e-box
- (2) Fair-Rite 0431173951 ferrites added to V2 wire in LHX e-box
- (4) Fair- Rite 0431173951 ferrites added to U3 wire in LHX e-box
- (4) Fair- Rite 0431173951 ferrites added to V3 wire in LHX e-box

13.5 Setup Photograph:



Intertek

Report Number: 106529094BOX-001 REV1

Issued: 03/18/2026
Revised: 04/23/2026

13.6 Test Data:

Conducted Emissions

Company: CPI
Model #: DRU2 1kW
Serial #: N/A
Engineer(s): Vathana Ven
Project #: G106282107
Date: 08/15/25
Mod(s): With LHX M&C ferrites
Standard: FCC Part 15/Cispr22 Class A
Barometer: DAV003 Temp/Humidity/Pressure: 24 deg C 48% 1012 mB Attenuator: EMC019 03-11-2026.txt

Receiver: EPL Receiver (RDS013) 02-27-2026
Cable: CBL310E 3-06-2026.txt
LISN 1: SOL64__12-02-2025.txt
LISN 2: SOL64__12-02-2025.txt
LISN 3: SOL64__12-02-2025.txt
LISN 4: NONE.

Voltage/Frequency: 208VAC 60Hz Frequency Range: 0.150-30 MHz

Net is the sum of worst-case lsn, cable, & attenuator losses, and initial reading, factors are not shown

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor; Bandwidth denoted as RBW/VBW

Detector Type	Frequency MHz	Reading Line 1 dB(uV)	Reading Line 2 dB(uV)	Reading Line 3 dB(uV)	Reading Line 4 dB(uV)	Net dB(uV)	QP Limit dB(uV)	Margin dB	Bandwidth
QP	0.150	3.60	3.69	4.03	N/A	50.59	79.00	-28.41	9/30 kHz
QP	0.201	16.43	16.45	15.42	N/A	64.00	79.00	-15.00	9/30 kHz
QP	0.402	10.96	10.99	9.71	N/A	53.88	79.00	-25.12	9/30 kHz
QP	0.805	9.53	9.51	13.23	N/A	54.43	73.00	-18.57	9/30 kHz
QP	1.607	10.70	10.81	9.47	N/A	51.33	73.00	-21.67	9/30 kHz
QP	3.419	12.76	13.00	13.06	N/A	53.54	73.00	-19.46	9/30 kHz
QP	5.820	13.41	13.50	12.65	N/A	54.21	73.00	-18.79	9/30 kHz
QP	6.252	12.24	12.18	11.70	N/A	53.14	73.00	-19.86	9/30 kHz

Detector Type	Frequency MHz	Reading Line 1 dB(uV)	Reading Line 2 dB(uV)	Reading Line 3 dB(uV)	Reading Line 4 dB(uV)	Net dB(uV)	Average Limit dB(uV)	Margin dB	Bandwidth
AVG	0.150	0.00	0.00	0.00	N/A	46.56	66.00	-19.44	9/30 kHz
AVG	0.201	12.51	12.45	11.08	N/A	60.06	66.00	-5.94	9/30 kHz
AVG	0.402	7.00	7.11	5.83	N/A	49.89	66.00	-16.11	9/30 kHz
AVG	0.805	5.25	5.14	9.28	N/A	50.48	60.00	-9.52	9/30 kHz
AVG	1.607	7.03	7.07	6.00	N/A	47.70	60.00	-12.30	9/30 kHz
AVG	3.419	10.00	9.98	9.27	N/A	50.48	60.00	-9.52	9/30 kHz
AVG	5.820	11.81	12.00	10.87	N/A	52.80	60.00	-7.20	9/30 kHz
AVG	6.252	10.11	10.08	9.60	N/A	51.01	60.00	-8.99	9/30 kHz

Product Standard: FCC Part 15 Subpart B					Limit applied: Class A – See Section 13.2		
					Pretest Verification w/ signal generator: Yes		
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
08/15/2026	Vathana Ven <i>VSV</i>	Kouma Sinn <i>KPS</i>	208VAC 60Hz (3 Phases)	Tx Mode	24	48	1012

Deviations, Additions, or Exclusions: None

Intertek

Report Number: 106529094BOX-001 REV1	Issued: 03/18/2026 Revised: 04/23/2026
--------------------------------------	---

14 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	03/18/2026	106282107BOX-023	VFV <i>VFV</i>	KPS <i>KPS</i>	Original Issue
1	03/26/2026	106282107BOX-023	VFV <i>VFV</i>		Added a statement in Transmitter Characteristic Table regarding different antennas could be used on page 6 and replaced block diagram on page 7
2	03/30/2026	106529094BOX-001	VFV <i>VFV</i>	KPS <i>KPS</i>	Using new GIN# for the test report
3	04/23/2026	106529094BOX-001 REV1	VFV <i>VFV</i>		Added table for output power, added block diagrams for test setup in every section

END OF TEST REPORT