

TEST REPORT**Report Number: 106398251MPK-006****Project Numbers: G106398251****Report Issue Date: February 25, 2026****Revision Date: April 21, 2026****ISED Designation Number: US0039**

**Testing performed on the
Rechargeable Electric Toothbrush Handle
Model Numbers: HX987W, HX987B**

to

**FCC Part 15 Subpart C (15.225)
Industry Canada RSS-210 Issue 11**

for**Philips Oral Healthcare LLC****Test Performed by:**

Intertek
1365 Adams Court
Menlo Park, CA 94025 USA

Test Authorized by:

Philips Oral Healthcare LLC
22100 Bothell Everett Highway
Bothell, WA 98021 USA

Prepared by:**Gabriel Carreon****Date:** February 25, 2026**Reviewed by:****Aaron Chang****Date:** February 25, 2026

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Report No. 106398251MPK-006	
Equipment Under Test:	Rechargeable Toothbrush Handle
Model Number:	Rechargeable Toothbrush Handle (White): HX987W Rechargeable Toothbrush Handle (Black): HX987B
Applicant:	Philips Oral Healthcare LLC
Contact:	Patrick Erickson
Address:	Philips Oral Healthcare LLC 22100 Bothell Everett Highway Bothell, WA 98021 USA
Country:	USA
Tel. Number:	(425) 487-7000
Email:	patrick.erickson@philips.com
Applicable Regulation:	FCC Part 15 Subpart C (15.225) Industry Canada RSS-210 Issue 11
Date of Test:	January 26, 2026 – January 29, 2026

We attest to the accuracy of this report:



Gabriel Carreon
Project Engineer



Aaron Chang
EMC Team Leader

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1.0 Summary of Tests

TEST	REFERENCE FCC 15.225	REFERENCE RSS- 210	RESULTS
Field Strength of Fundamental	15.225(a)	B.6	Complies
Radiated Emissions Outside the band	15.225(b), 15.225(c), 15.225(d), 15.209	B.6	Complies
Frequency Tolerance of the Carrier	15.225(e)	B.6	Complies
Line Conducted Emissions	15.207	RSS-GEN	Not Applicable ¹
Occupied Bandwidth	15.215	RSS-GEN	Complies
Antenna requirement	15.203	RSS-GEN	Complies ²

¹ The EUT is battery powered.

² The EUT utilizes an internal Antenna.

EUT receive date: January 26, 2026

EUT receive condition: The pre-production version of the EUT was received in good condition with no apparent damage. As declared by the Applicant, it is identical to the production units.

Test start date: January 26, 2026

Test completion date: January 29, 2026

The test results in this report pertain only to the item tested.

2.0 General Description

2.1 Product Description

Philips Oral Healthcare LLC supplied the following description of the EUT:

The Philips HX856W and HX987B are rechargeable electric toothbrushes that is inductively charged. Bluetooth connectivity allows the toothbrush to be connected to an app which provides real-time guidance on pressure, motion, position, duration and frequency of brushing. The toothbrush also tracks the brush head usage through RFID to alert the user when the heads need to be replaced.

Overview of the EUT

Applicant name & address	Philips Oral Healthcare LLC 22100 Bothell Everett Highway Bothell, WA 98021 USA
Contact info / Email	Patrick Erickson / patrick.erickson@philips.com
Model	Rechargeable Toothbrush Handle (White): HX987W Rechargeable Toothbrush Handle (Black): HX987B
Operating Frequency	13.56 MHz
Number of Channels	1
Type of Modulation	ASK
Antenna Type	Internal Antenna

2.2 Related Submittal(s) Grants

None

2.3 Test Methodology

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4: 2014. Radiated tests were performed at an antenna to EUT distance of 10 meters, unless stated otherwise in this test report. All other measurements were made in accordance with the procedures in part 2 of CFR 47 7, ANSI C63.10: 2013, ANSI C63.4-2014 & RSS-GEN Issue 5.

2.4 Test Facility

The radiated emission test site and conducted measurement facility used to collect the data is 10m semi-anechoic chamber located in Menlo Park, California. This test facility and site measurement data have been fully placed on file with the FCC and Industry Canada (Site # 2042L-1).

2.5 Measurement Uncertainty

Compliance with the limits was based on the results of the measurements and does not take into account the measurement uncertainty.

Estimated Measurement Uncertainty

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 1 GHz	1 GHz – 2.5 GHz	> 2.5 GHz
RF Power and Power Density – antenna conducted	-	0.7 dB	-
Unwanted emissions - antenna conducted	1.1 dB	1.3 dB	1.9 dB
Bandwidth – antenna conducted	-	30 Hz	-

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 30MHz	30 MHz – 1 GHz	1 GHz – 18 GHz
Radiated emissions	-	4.6	5.0 dB
AC mains conducted emissions	2.1 dB	-	-

3.0 System Test Configuration

3.1 Equipment Under Test (EUT) and Support Equipment

Equipment Under Test			
Description	Manufacturer	Model	Serial Number
Rechargeable Toothbrush Handle (White)	Philips Oral Healthcare LLC	HX987W	8500 251201
Rechargeable Toothbrush Handle (Black)	Philips Oral Healthcare LLC	HX987B	9900 251204

Support Equipment		
Description	Manufacturer	Model
Toothbrush Head	Philips Oral Healthcare LLC	A3

3.2 Variant Models

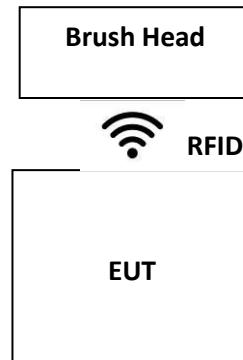
The following variant models were not tested as part of this evaluation but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants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

Description	Model	Remarks
Full Set product type reference	HX81nn, HX82nn, HX83nn, HX84nn, HX85nn, HX88nn, HX91nn, HX92nn, HX93nn, HX94nn, HX95nn, HX98nn	Where n can be a number from 0 to 9 indicating different product configurations for marketing purpose only
Electric Toothbrush Handles Codes	HX855x, HX856x, HX987x, HX988x	Where x can be a letter from A to Z indicating different color handles If x = W or P, handle tube is made of Terblend NM-11 All other letters, handle tube is made of Terlux 2802
Electric Toothbrush Base Charger	CBA62nn	Where n can be a number from 0 to 9 indicating different color and finish
Electric Toothbrush Travel Charging Case	HYTC1n, HYTC2n, HYTC3n	Where n can be a number from 0 to 9 indicating different color and finish n = 1 or 2 manufactured by Dongguan Aohai Technology Co.,Ltd. n = 3 – 9 manufactured by PI Electronics
Wall Adaptor	WAA1001, WAA2001	1001 = White 2001 = Black

HVIN/PMN	HX855B, HX855G, HX855L, HX855P, HX855W, HX856B, HX856G, HX856L, HX856P, HX856W, HX987L, HX987W, HX988B, HX988M, HA988W
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3.3 Block Diagram of Test Setup

The diagram shown below details the interconnection of the EUT and support equipment. For specific layout, refer to the test configuration photograph in the relevant section of this report.



EUT Photo



3.4 Justification

For radiated emission measurements the EUT is placed on a non-conductive table. The EUT was configured to continuously transmit.

As per manufacturer, radio is identical between the 2 models, but the housing materials are different. Therefore, radiated emissions testing was done separately for the 2 models. Other tests are only done for one model, HX987W, to represent the same radio module.

3.5 Software Exercise Program

The EUT exercise program used during testing was provided by Philips Oral Healthcare LLC

3.6 Mode of Operation during test

The EUT was constantly broadcasting a 13.56 MHz signal while reading an RFID.

3.7 Modifications required for Compliance

No modifications were made by the manufacturer to bring the EUT into compliance.

3.8 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

4.0 Measurement Results

4.1 Field Strength of Fundamental and Radiated Emissions Outside the band

4.1.1 Requirements

FCC Rules 15.225

- a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter (84 dBuV) at 30 meters.
- b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

§15.209 Radiated emission limits; general requirements.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

4.1.2 Procedure

Radiated Measurements Below 30 MHz

During the test the EUT is rotated and the measuring antenna angles are varied during the search for maximum signal level.

Radiated emissions are taken at ten meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Measurements for below 30 MHz were made at 10 meters. Data results below are corrected for distance back to 30 meters.

Radiated Measurements Above 30 MHz

During the test the EUT is rotated and the measuring antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at ten meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Measurements for above 30 MHz were made at 10 meters.

Radiated emission measurements were performed from 9kHz to 18 GHz.
Analyzer resolution is:

200Hz or greater for 9kHz to 150kHz
9 kHz or greater for 150kHz to 30 MHz
120 kHz or greater for 30MHz to 1000 MHz
For those frequencies quasi-peak detector applies.
1 MHz for 1 GHz to 18GHz.

Data reported is in the worst-case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

Field Strength 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 is as follows:

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

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 (1/m)

AG = Amplifier Gain in dB

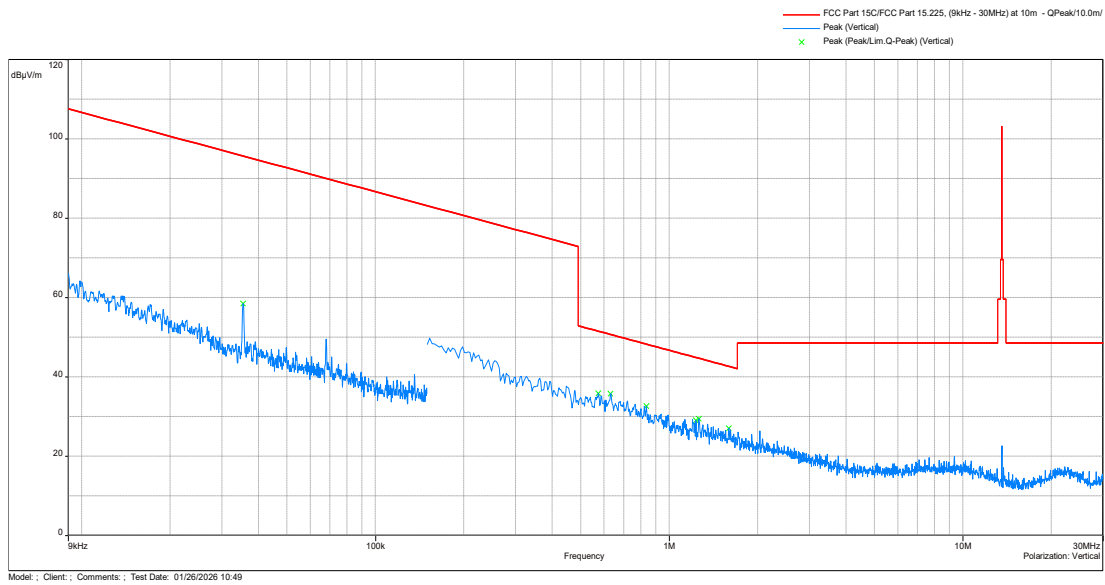
DCF = Distance Correction Factor

Note: FS was measured with loop antenna below 30MHz

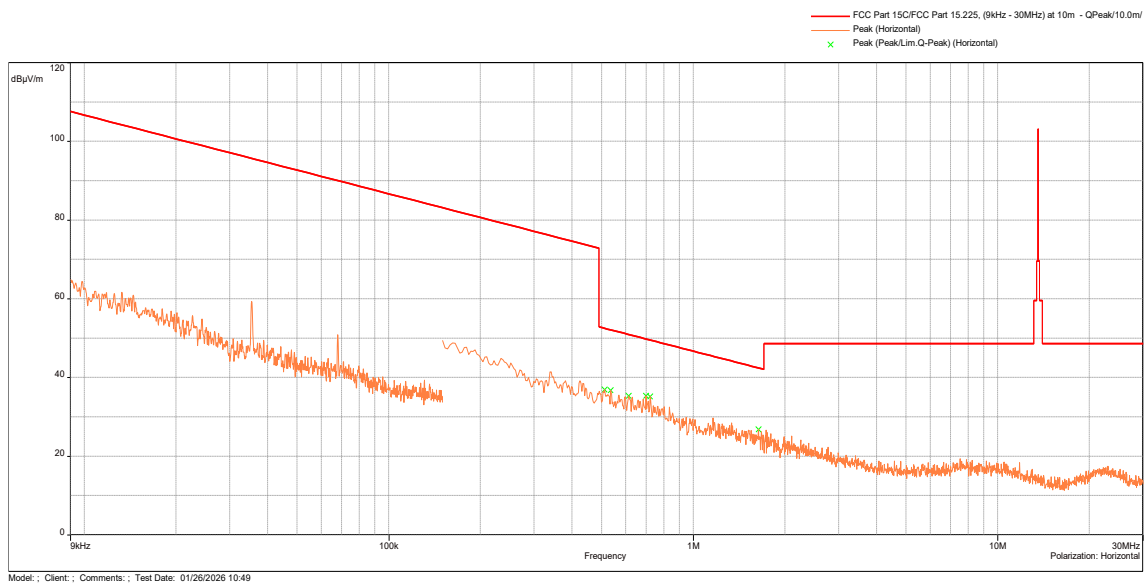
4.1.3 Test Result

Note: Measurements were performed with different orientation of the EUT. The worse-case data was presented below:

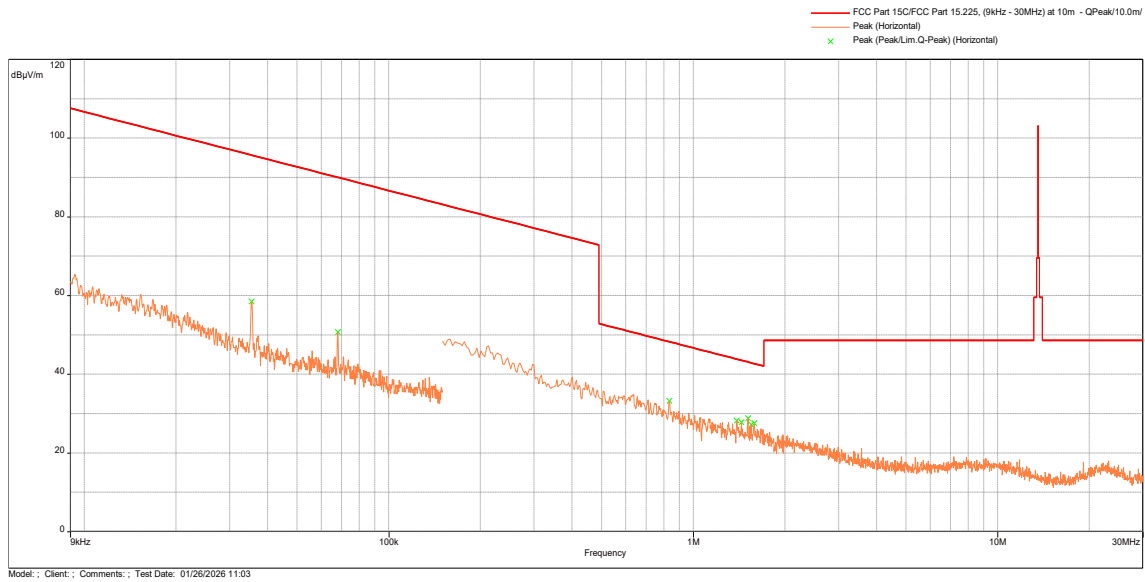
Radiated Spurious Emissions from 9kHz to 30MHz HX987W (White) Receiving Antenna Vertical Coplanar Orientation



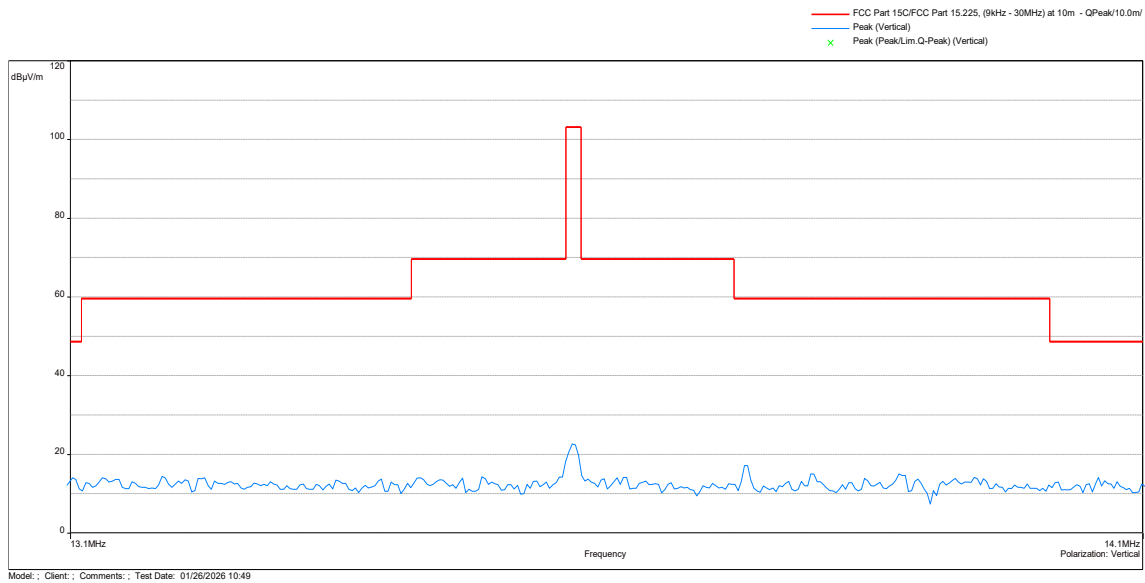
Receiving Antenna Vertical Coaxial Orientation



Receiving Antenna Horizontal Coplanar Orientation



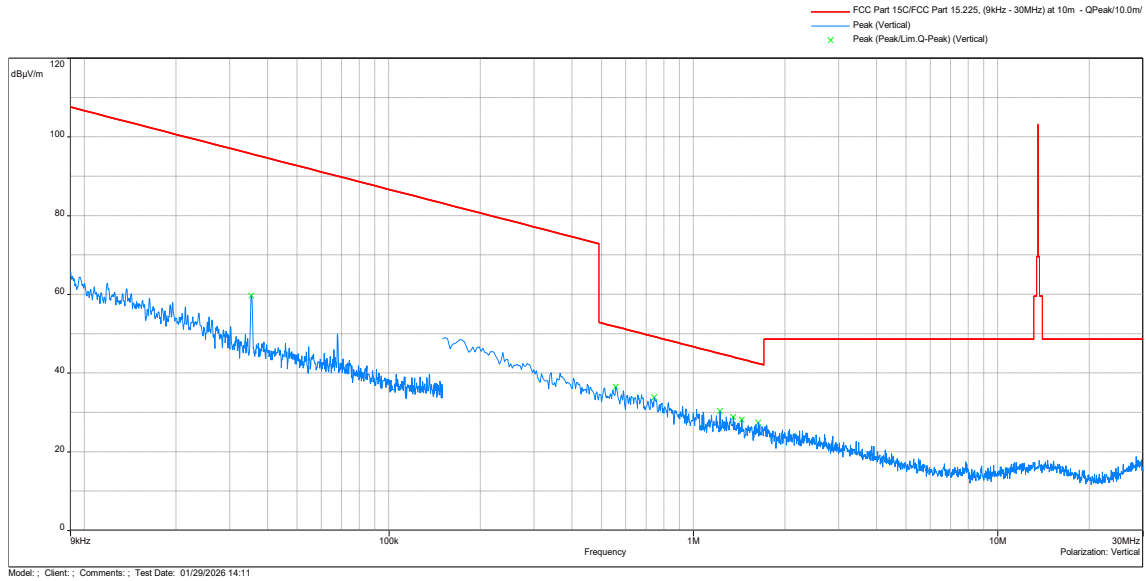
Test Result 15.225 (a)(b)(c) Radiated Spurious Emissions Mask



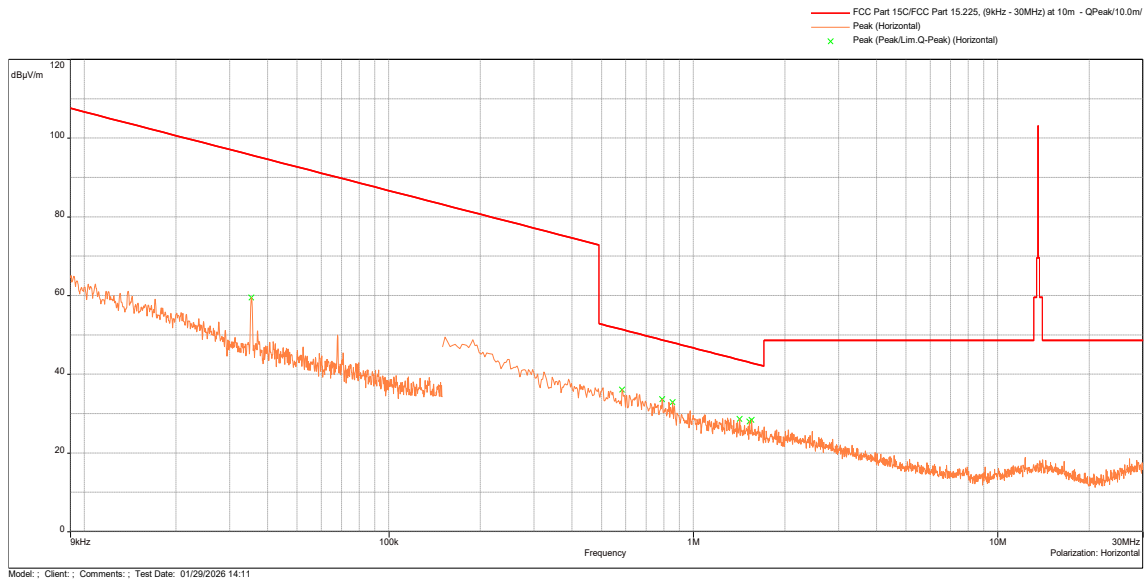
Frequency (MHz)	Peak FS@10m dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	Polarization	Correction dB
13.55862	22.63	103.1	-80.47	Coplanar	2.06

Note: Correction = AF+CF-AG- distance correction factor
Distance correction factor=40*log10(limit distance/measured distance)

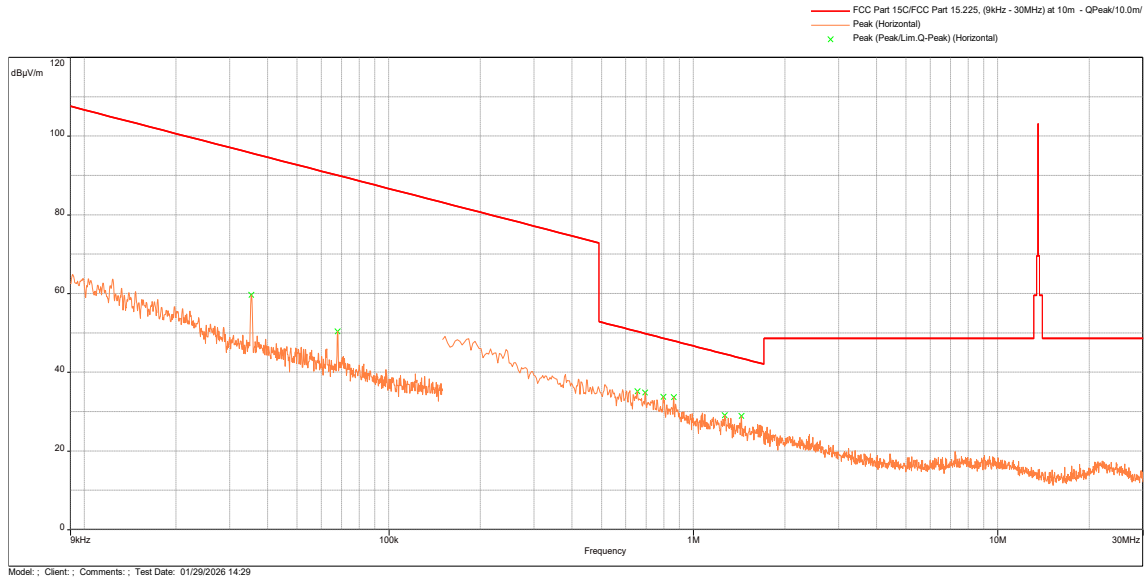
***Radiated Spurious Emissions from 9kHz to 30MHz
HX987B (Black)
Receiving Antenna Vertical Coplanar Orientation***



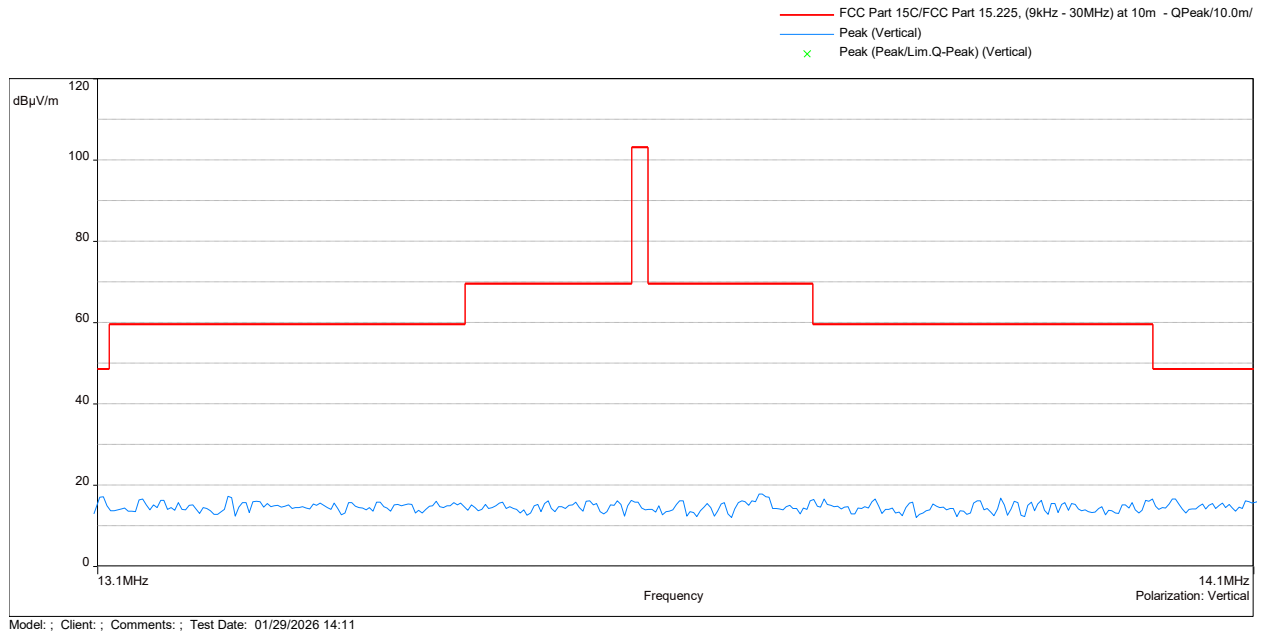
Receiving Antenna Vertical Coaxial Orientation



Receiving Antenna Horizontal Coplanar Orientation



Test Result 15.225 (a)(b)(c) Radiated Spurious Emissions Mask

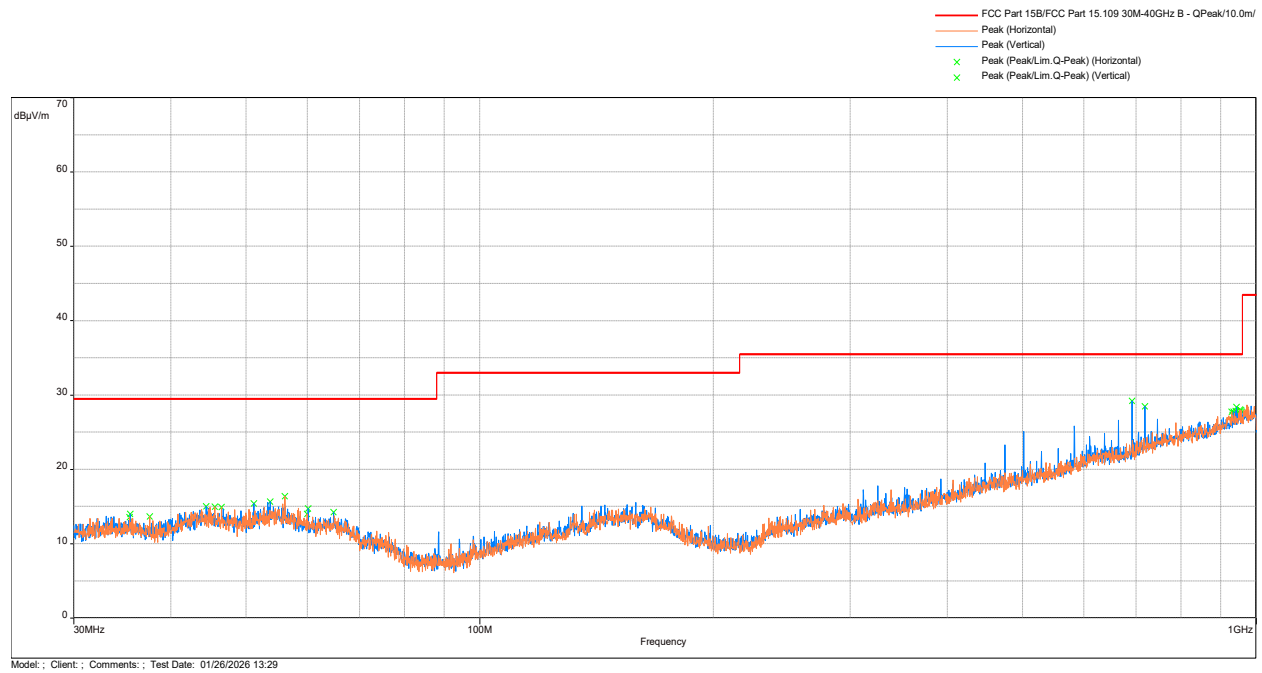


Frequency (MHz)	Peak FS@10m dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	Polarization	Correction dB
13.55862	15.886	103.1	-87.214	Coplanar	2.06

Note: Correction = AF+CF-AG- distance correction factor
Distance correction factor=40*log10(limit distance/measured distance)

4.1.4 Test Result:

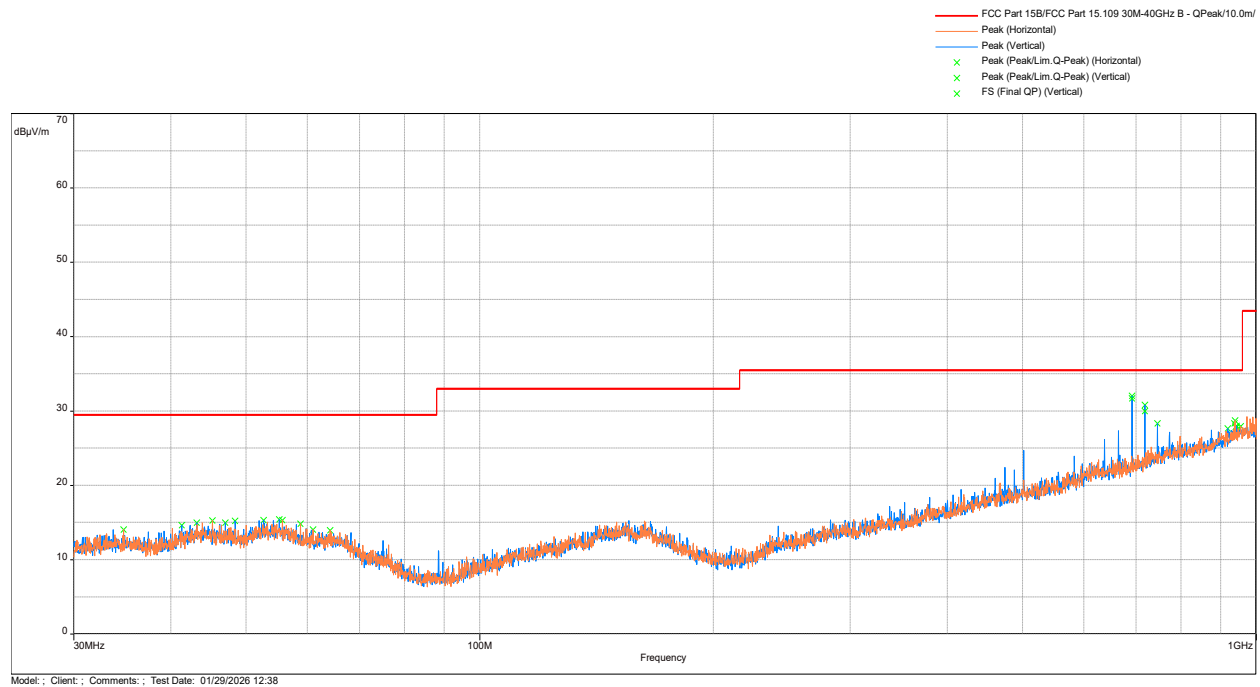
Radiated Spurious Emissions from 30 MHz to 1000 MHz HX987W (White)



Freq (MHz)	FS@10m dB(uV/m)	Limit@10m dB(uV/m)	Margin (dB)	Height (m)	Azimuth (deg)	Polarity	Correction (dB)
691.54	29.19	35.5	-6.31	2	236.75	Vertical	-3.39
718.6353	28.47	35.5	-7.03	2	177.75	Vertical	-2.75
943.0933	28.37	35.5	-7.13	3	179.25	Vertical	1.72
952.664	28.02	35.5	-7.48	1	311.5	Horizontal	1.91
955.9297	27.94	35.5	-7.56	2	37.75	Horizontal	1.94
940.83	27.84	35.5	-7.66	1	299.75	Vertical	1.69
935.5273	27.75	35.5	-7.75	1	133.75	Vertical	1.57

Note: Correction = AF + CF – Preamp

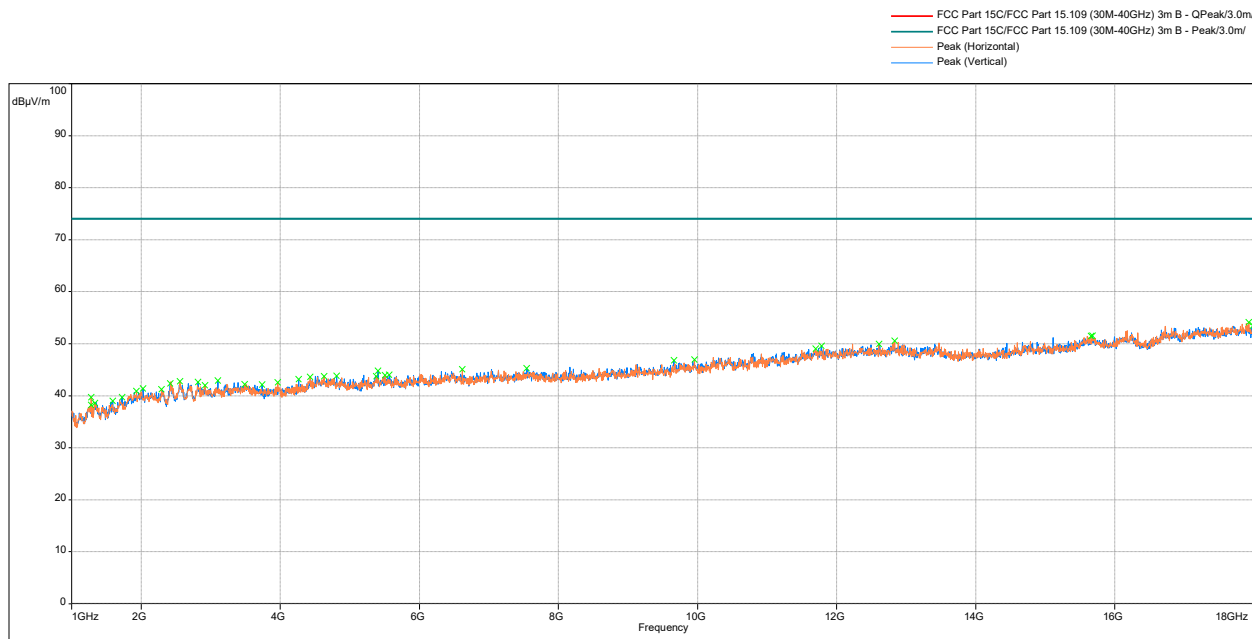
**Radiated Spurious Emissions from 30 MHz to 1000 MHz
HX987B (Black)**



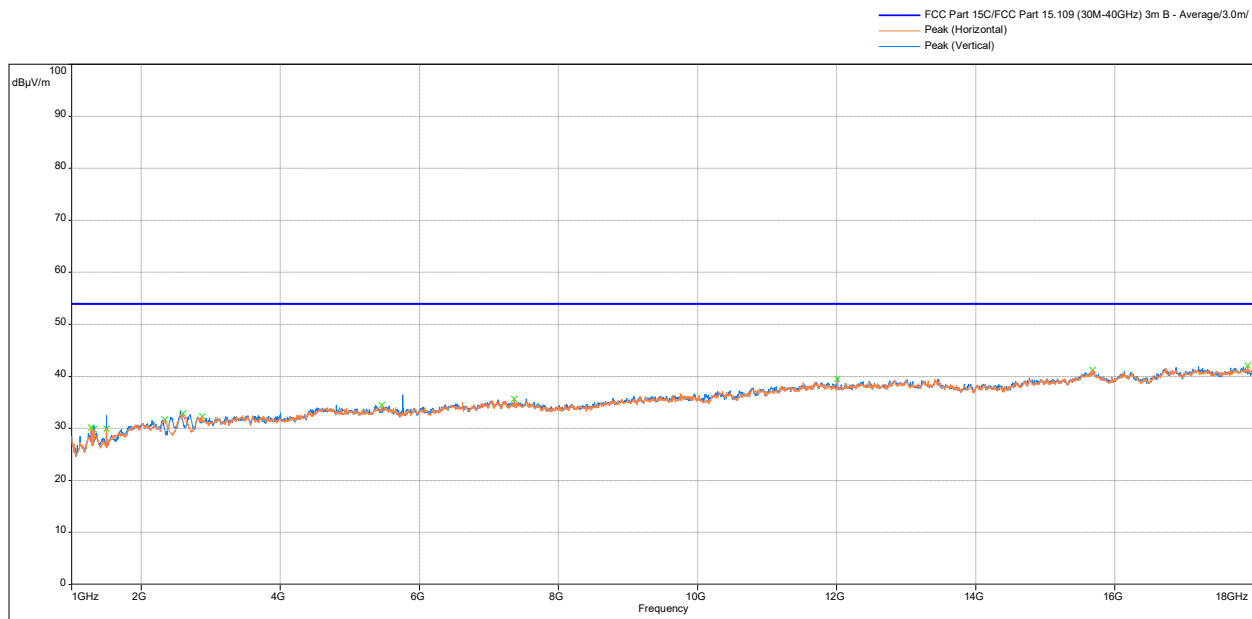
Freq (MHz)	FS@10m dB(uV/m)	Limit@10m dB(uV/m)	Margin (dB)	Height (m)	Azimuth (deg)	Polarity	Correction (dB)
691.508	31.67	35.5	-3.83	2	299.25	Vertical	-3.39
718.6241	29.99	35.5	-5.51	2	197.5	Vertical	-2.75
938.7607	28.74	35.5	-6.76	2	122	Horizontal	1.66
937.532	28.33	35.5	-7.17	1	186	Horizontal	1.58
745.763	28.32	35.5	-7.18	2	273.75	Vertical	-2.11
943.352	27.97	35.5	-7.53	1	344.5	Vertical	1.73

Note: Correction = AF + CF – Preamp

***Radiated Spurious Emissions from 1 to 18 GHz, Peak Scan vs Peak Limits
HX987W (White)***

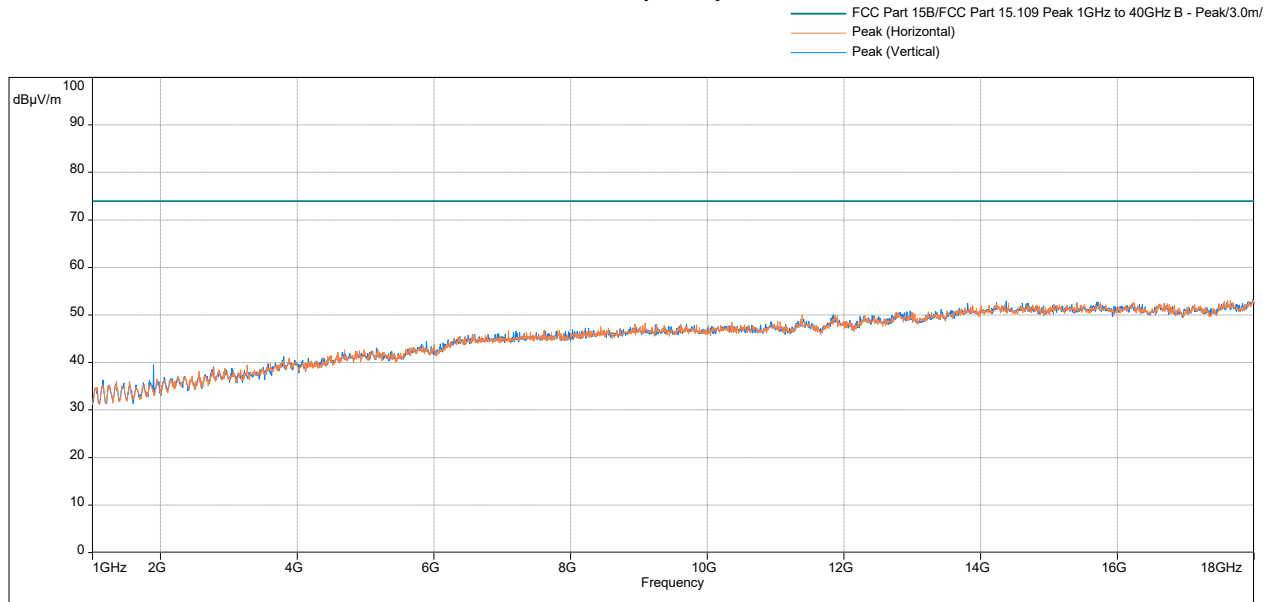


***Radiated Spurious Emissions from 1 to 18 GHz, Average Scan vs Average Limits
HX987W (White)***

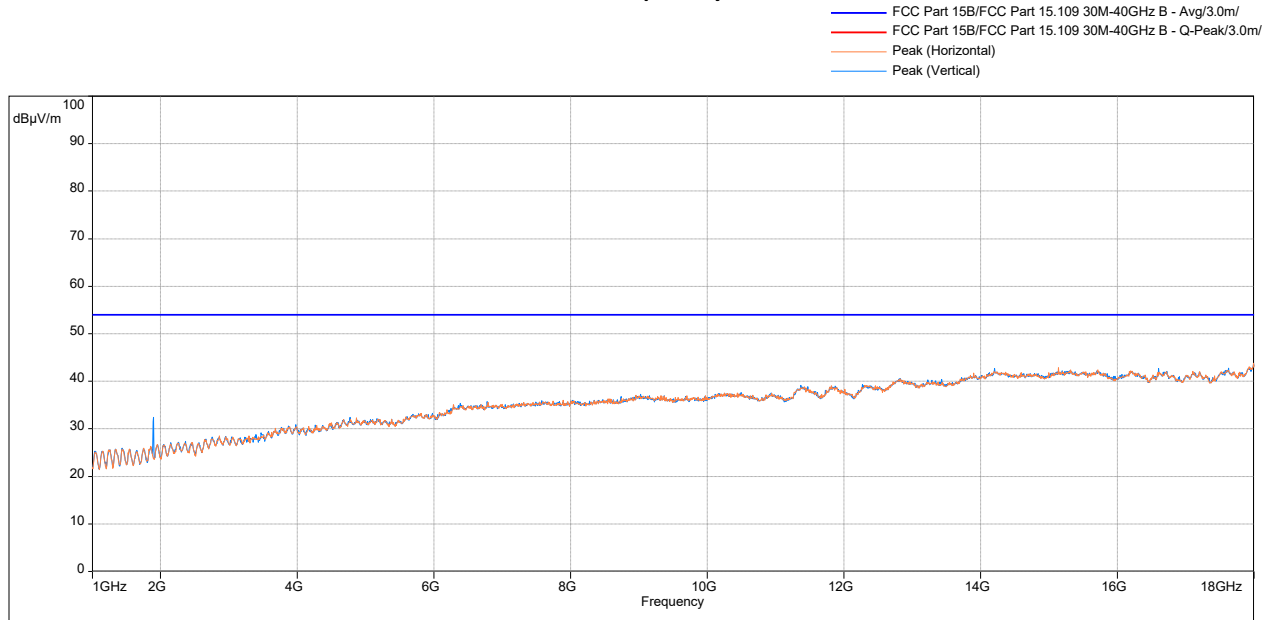


Freq (MHz)	Avg FS@3m dB(uV/m)	Avg. Limit@3m dB(uV/m)	Margin (dB)	Azimuth (Deg)	Height (m)	Polarity	Correction (dB)
17910.47	42.07	54	-11.93	134.5	3.01	Horizontal	10.8
15678.37	41.2	54	-12.8	185.5	3.99	Horizontal	7.18
12009.2	39.46	54	-14.54	176.5	3.01	Horizontal	3.63
7360.833	35.65	54	-18.35	357.25	2.01	Horizontal	-1.77
5461.367	34.48	54	-19.52	293.25	3.01	Horizontal	-3.95
2599.7	32.89	54	-21.11	289.25	1.01	Horizontal	-8.26

Radiated Spurious Emissions from 1 to 18 GHz, Peak Scan vs Peak Limits
HX987B (Black)



Radiated Spurious Emissions from 1 to 18 GHz, Average Scan vs Average Limits
HX987B (Black)

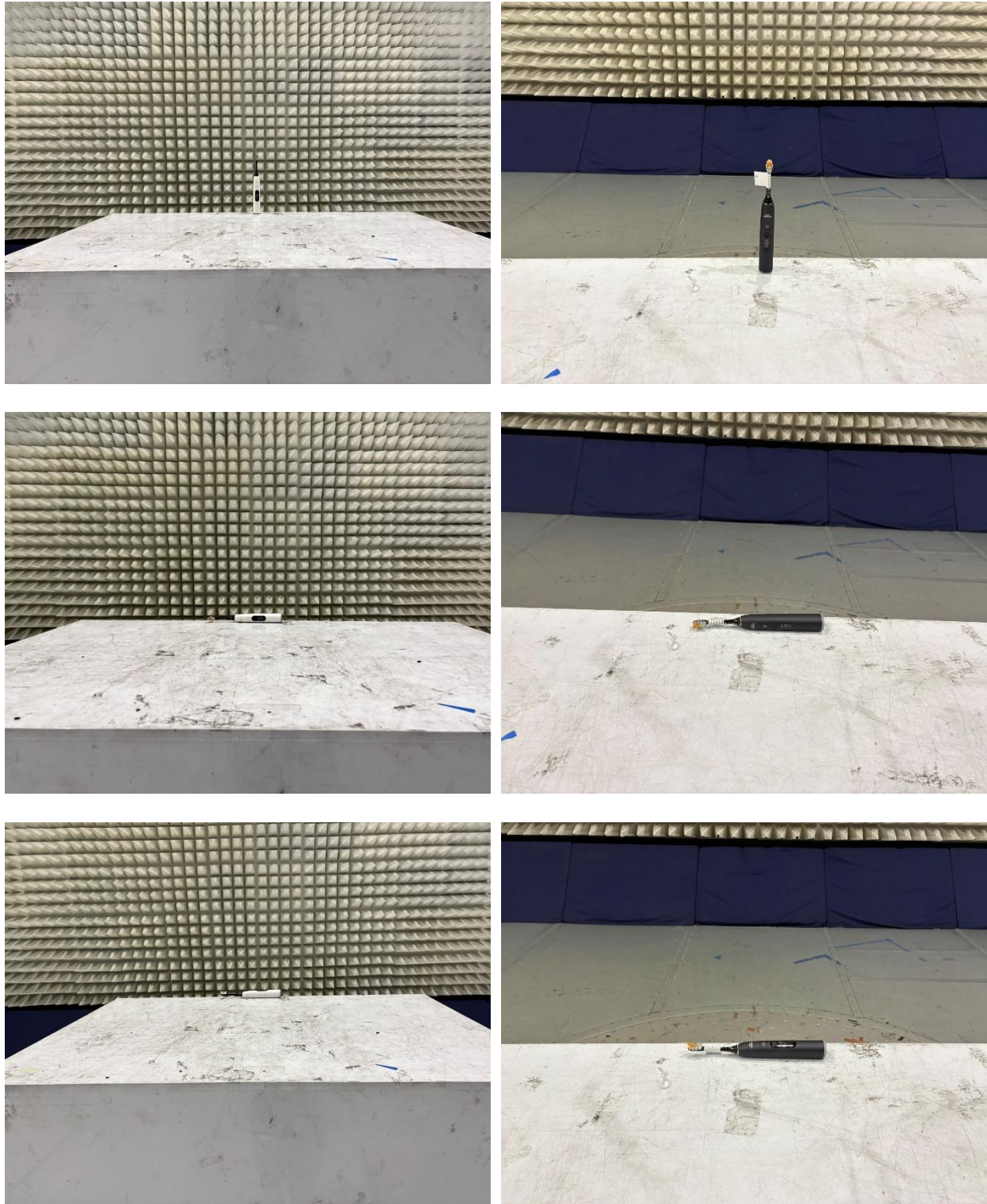


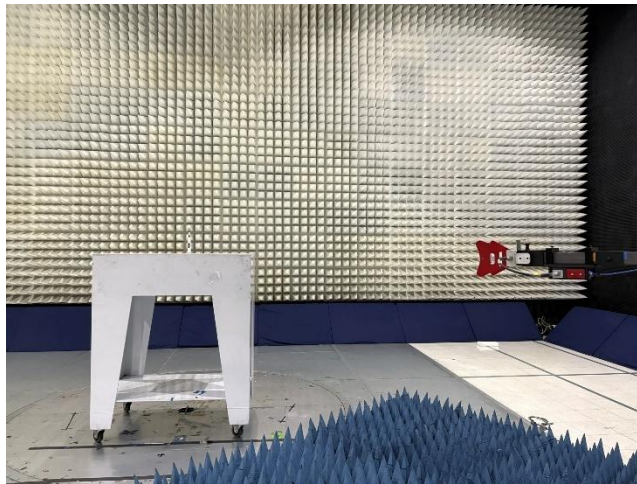
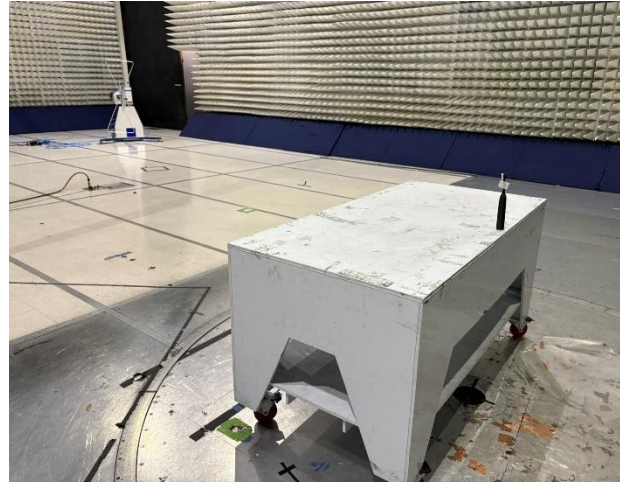
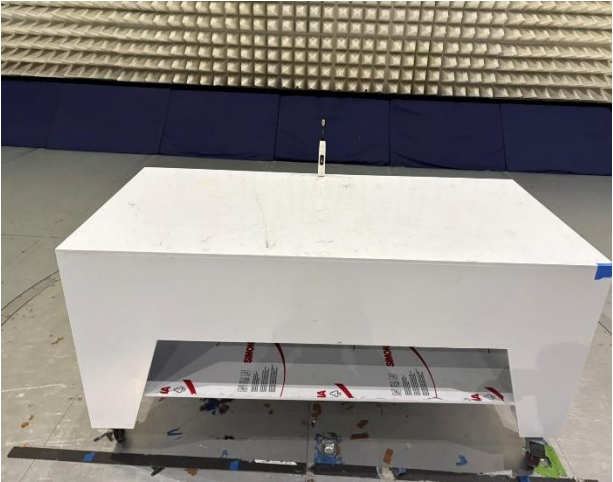
Freq (MHz)	Avg FS@3m dB(uV/m)	Avg. Limit@3m dB(uV/m)	Margin (dB)	Azimuth (Deg)	Height (m)	Polarity	Correction (dB)
16603.733	42.68	54	-11.32	203.7	2.01	Vertical	4.85
14200.500	42.65	54	-11.35	0.0	3.99	Vertical	5.13
17105.233	42.16	54	-11.84	0.0	2.01	Horizontal	4.15
16719.333	42.01	54	-11.99	0.0	2.01	Horizontal	4.6
11366.033	39.18	54	-14.82	1.0	1.01	Vertical	4.22
11816.533	39.08	54	-14.92	318.6	3.99	Horizontal	3.71

Result	Complies by 11.32 dB
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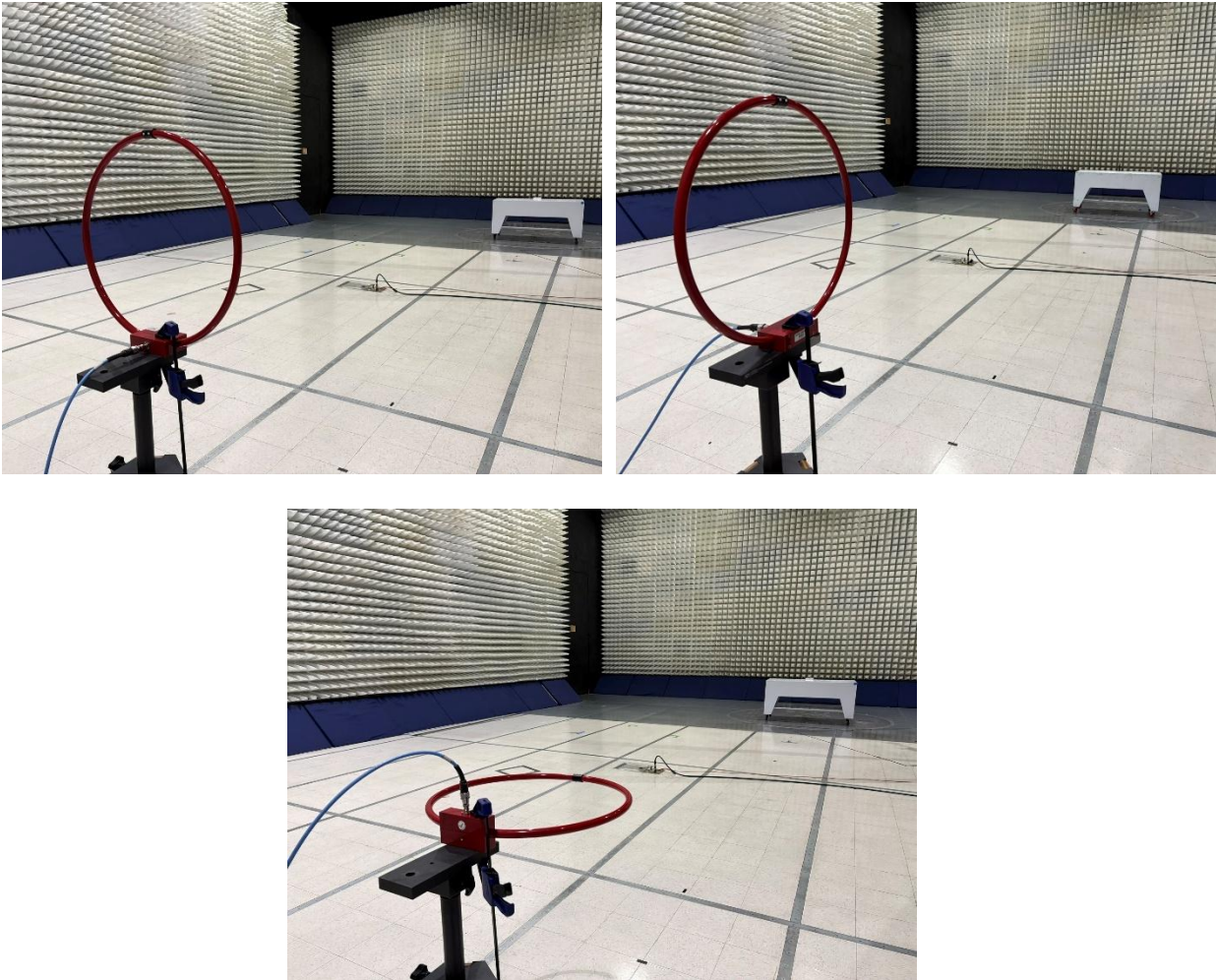
4.1.5 Test Configuration Photographs

The following photographs show the testing configurations used.





4.1.5 Test Configuration Photographs (Continued)



4.2 Frequency Tolerance

4.2.1 Requirements

FCC 15.225 (e)

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.2.2 Procedure

The EUT was placed in the temperature chamber. The frequency counter was connected to the transmitter output. For each temperature, the carrier frequency was recorded.

4.2.3 Test Results

Nominal Frequency: 13559000 Hz

Voltage (AC)	Temperature (C)	Measured Frequency (Hz)	Deviation from Reference (Hz)	Deviation (%)
Battery	-20	13559028	28	0.00000207
Battery	-10	13559029	29	0.00000214
Battery	0	13559025	25	0.00000184
Battery	10	13559015	15	0.00000111
Battery	20	13559000	0	0.00000000
Battery	30	13558976	-24	-0.00000177
Battery	40	13558949	-51	-0.00000376
Battery	50	13558917	-83	-0.00000612

4.3 Occupied Bandwidth FCC 15.215

4.3.1 Requirements

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

4.3.2 Procedure

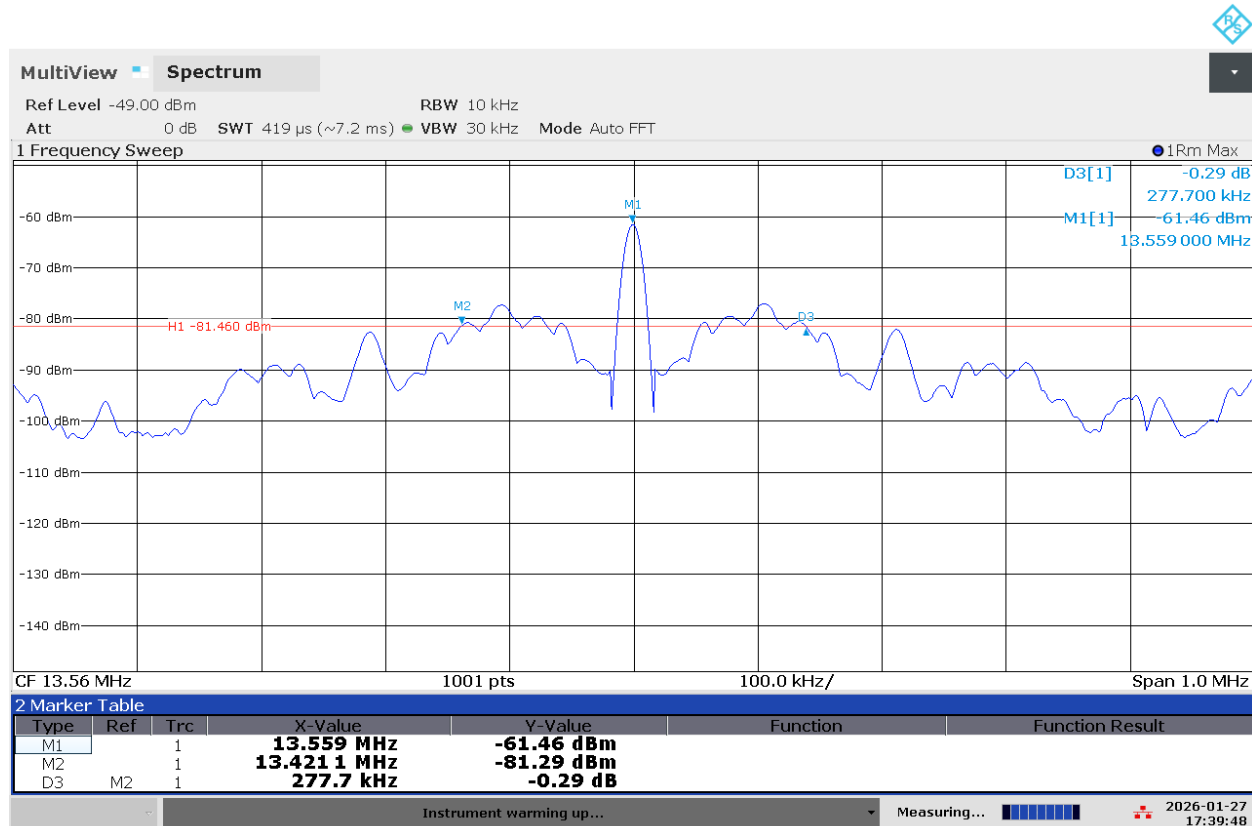
The EUT was setup to transmit in normal operating condition.

Measurements were made with the loop antenna in close proximity of the EUT. Following the procedures of ANSI 63.10: 2020, the 20dB bandwidth measurements were taken. The following plots show Occupied Bandwidth.

4.3.3 Test Results

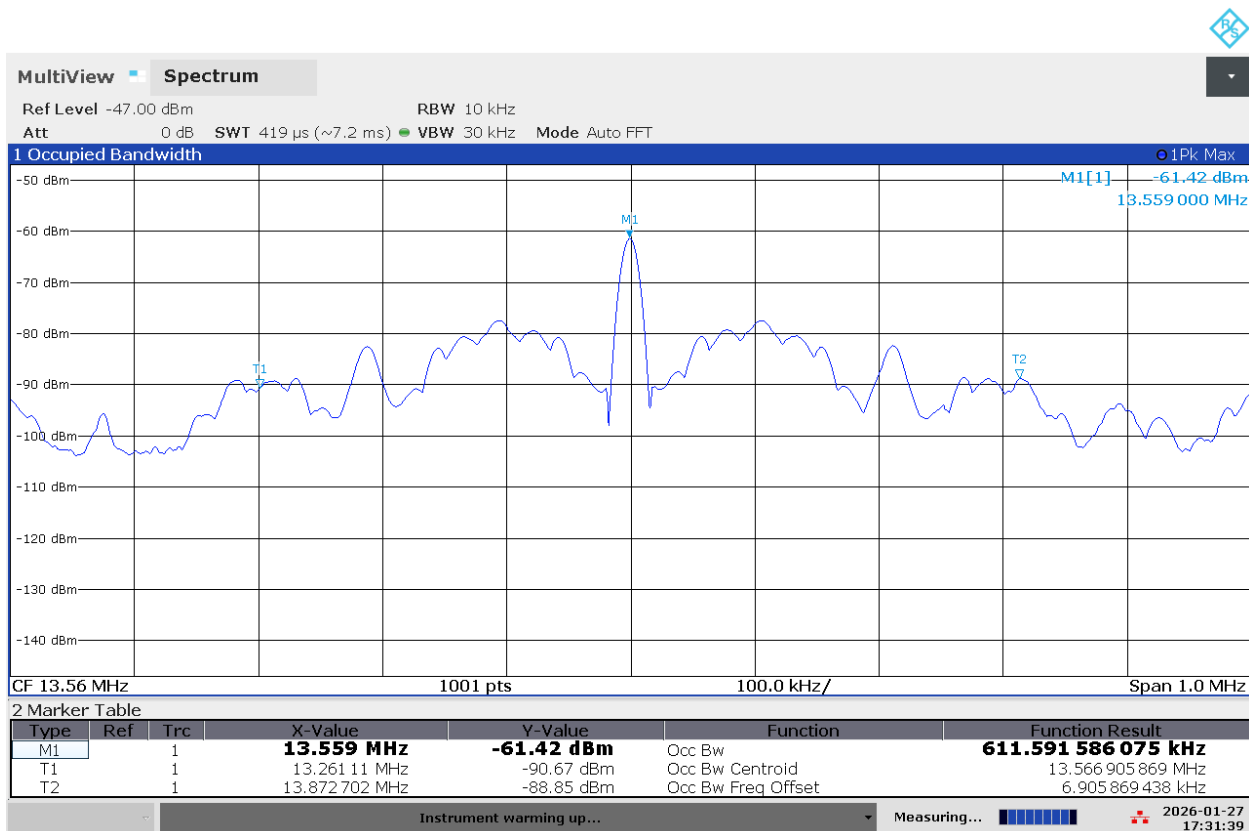
Frequency (MHz)	-20 dB Channel Bandwidth (kHz)	99% Channel Bandwidth (kHz)
13.56	277.70	611.591

-20 dB Channel Bandwidth Plot



05:39:49 PM 01/27/2026

99% Channel Bandwidth Plot



05:31:39 PM 01/27/2026

4.4 AC Line Conducted Emission FCC Rule 15.207, FCC 15.107

4.4.1 Requirement

Frequency Band MHz	Class B Limit dB(μ V)		Class A Limit dB(μ V)	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15-0.50	66 to 56 *	56 to 46 *	79	66
0.50-5.00	56	46	73	60
5.00-30.00	60	50	73	60

Note: *Decreases linearly with the logarithm of the frequency. At the transition frequency the lower limit applies.

4.4.2 Procedure

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUT are placed on a horizontal metal ground plane and isolated from the ground plane by resting on an insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

EUT was placed in transmission mode then tested for conducted emissions per 15.207 to ensure the device complies with 15.207. After, the EUT RF was powered off and was measured to show compliance with the 15.107 limits.

4.4.3 Test Result

Not applicable. The EUT is battery powered.

5.0 List of test equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Asset #	Equipment	Manufacturer	Model/Type	Cal Int (months)	Cal Due
00961	EMI Test Receiver 40GHz	Rohde & Schwarz	ESU40	12	04/08/2026
01659	Signal Analyzer 43GHz	Rohde & Schwarz	FSW43	12	09/15/2026
01365	1-18GHz Small Horn Antenna with Preamp	ETS Lindgren	3117-PA	12	05/20/2026
01713	9kHz-1GHz Pre-amplifier	Sonoma Instrument	310N	12	02/21/2026
02097	30-1000MHz Trilog Antenna	Schwarzbec	VULB 9168	12	09/17/2026
01573	9kHz-30MHz Loop Antenna (Passive)	ETS Lindgren	6512	12	12/12/2026
01436	Humidity Temperature Test Chamber	ESPEC	BTX-475	12	10/03/2026
01608	Loop Sensor	Solar Electronics	7334-1	12	08/19/2026
00984	Radio Frequency Shielded System	Panashield	10 Meter Chamber	36	01/16/2029

Software used for emission compliance testing utilized the following:

Name	Manufacturer	Version	Template/Profile
BAT-EMC	Nexio	2024.0.19.1	N/A

6.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
0 / G106398251	GC	AC	February 25, 2026	Original document
1 / G106398251	AM	AC	April 21, 2026	Added ISED Designation Number Added list of HVINs

END OF TEST REPORT