

TEST REPORT

EMC Test for WSP-i250

APPLICANT
WOOSIM SYSTEMS INC.

REPORT NO.
HCT-EM-2511-FC005-R1

DATE OF ISSUE
December 19, 2025

Tested by
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TEST REPORT

FCC Certification

REPORT NO.

HCT-EM-2511-FC005-R1

DATE OF ISSUE

December 19, 2025

FCC ID.

QDDWSP-I250

Applicant**WOOSIM SYSTEMS INC.**

60, Sandan-ro 388beon-gil, Galsan-myeon, Hongseong-gun,
Chungcheongnam-do, Republic of Korea

Product Name

2INCH Rugged MOBILE PRINTER

Model Name

WSP-i250

Date of Test

October 28, 2025 to November 13, 2025

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing Lab
(Address: See clause 1.2)

Test Standard Used

FCC CFR 47 PART 15 Subpart B Class B
ANSI C63.4-2014

Test Results

Refer to the present document

Manufacturer

WOOSIM SYSTEMS INC.

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	November 17, 2025	Initial Release
1	December 19, 2025	Descriptions were added for the emissions observed in the [Bluetooth + MSR Mode] during the Radiated Emission (above 1 GHz) test.

Notice

Content

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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1. TESTING LABORATORY

1.1 General Information

Organization Name	HCT Co., Ltd.
Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Telephone	+82 31 645 6300
FAX	+82 31 645 6401

1.2 Location of the Test Site

The test site is located at the following address.;

Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Telephone	+82 31 645 6300
FAX	+82 31 645 6401

2. GENERAL INFORMATION

2.1 Description of EUT

FCC ID.	QDDWSP-I250
Product Name	2INCH Rugged MOBILE PRINTER
Model Name	WSP-i250
Frequency Range	Bluetooth: 2 402 MHz ~ 2 480 MHz
Operating Voltage	Rated voltage: DC 5 V, 2 A Battery: DC 7.2 V, 3000 mAh
Manufacturer	WOOSIM SYSTEMS INC.

2.2 Power Source

During the test, the following power supply levels are utilized/provided.;

Power supply: AC 120 V, 60 Hz / DC 7.2 V (battery)

2.3 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Device Type	Model Name	Serial Number	Manufacturer
2INCH Rugged MOBILE PRINTER (EUT)	WSP-i250	-	WOOSIM SYSTEMS INC.
AC/DC Adapter	P12DUSB050200 EK	-	Something High Electric (Xiamen) Company Inc.
Phone 1 (for MST)	SM-A305N	1129118	Samsung Electronics Co., Ltd.
Phone 2 (for Bluetooth)	LM-G710EM	806KPSL0132278	LG Electronics Inc.
AP	N104i	N104i 100080901289	ipTIME
AP Adapter	FLDE0501000K	-	FAIRONE ELECTRONICS
Notebook PC	NT550XEZ	-	SAMSUNG Electronics Co., Ltd.
Notebook PC Adapter	EP-TA845 001	-	SOLUM VINA COMPANY LIMITED

NOTE1. The AC/DC adapter is not included in the box with the EUT.
INPUT: 100~240 VAC, 50/60 Hz, 0.3 A
OUTPUT: 5.0 VDC, 2.0 A

NOTE2. A USB Type-C to Type-A cable (Model: CD4398) is included in the box, and a ferrite core (Model: SCRC 90B) is applied near the USB Type-C connector (EUT end) of the cable at the manufacturer's request.
Complete Cable Assembly Model name: 49-04122
Manufacturer: Something High Electric Company Inc.



2.4 Cable Description

[Idle Mode]

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	-	-	-	-

[USB+Printing Mode]

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	USB Type C	Y	Y	(P,D) 1.2
Notebook PC	LAN	N	N	(D) 1.5
	DC IN	N	N	(P) 1.8
Notebook PC Adapter	AC IN	N	N	(P) -
AP	DC IN	N	N	(P) 1.5
AP Adapter	AC IN	N	N	(P) -

[Bluetooth+MSR Mode]

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	-	-	-	-
Phone 1 (for MST)	-	-	-	-
Phone 2 (for Bluetooth)	-	-	-	-

[Charging Mode]

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	USB Type C	Y	Y	(P) 1.2
AC/DC Adapter	AC IN	N	N	(P) -

(D) Data cable, (P) Power cable

2.5 Noise Suppression Parts on Cable (I/O Cable)

[Idle Mode]

Product Name	Port	Ferrite Core (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	-	N	N/A	N	N/A

[USB+Printing Mode]

Product Name	Port	Ferrite Core (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	USB Type C	Y	EUT End	Y	Both End
Notebook PC	LAN	N	N/A	N	N/A
	DC IN	DC IN	N	N/A	Y
Notebook PC Adapter	AC IN	N	N/A	N	N/A
AP	DC IN	N	N/A	Y	AP END
AP Adapter	AC IN	N	N/A	N	N/A

[Bluetooth+MSR Mode]

Product Name	Port	Ferrite Core (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	-	N	N/A	N	N/A
Phone 1 (for MST)	-	N	N/A	N	N/A
Phone 2 (for Bluetooth)	-	N	N/A	N	N/A

[Charging Mode]

Product Name	Port	Ferrite Core (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	USB Type C	Y	EUT End	Y	Both End
AC/DC Adapter	AC IN	N	N/A	N	N/A

3. DESCRIPTION OF TEST

3.1 Measurement of Conducted Emission

The test procedure was in accordance with ANSI C63.4-2014, Clause 7.3

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN).

If the EUT is connected to the PC through USB, the AC power-line adapter of the PC is directly connected to a line impedance stabilization network (LISN).

Other support units were connected to the power mains through another LISN.

The two LISNs provide $50\ \Omega$ / $50\ \mu\text{H}$ of coupling impedance for the measuring instrument.

b. Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration.

c. The frequency ranges from 150 kHz to 30 MHz was searched.

Conducted Emission Limits

Frequency (MHz)	Class A Quasi-Peak (dB μ V)	Class A Average (dB μ V)	Class B Quasi-Peak (dB μ V)	Class B Average (dB μ V)
0.15 to 0.5	79	66	66 to 56*	56 to 46*
0.5 to 5	73	60	56	46
5 to 30	73	60	60	50

NOTE. The more stringent limit applies at transition frequencies.

[*] The limit level in dB μ V decreases linearly with the logarithm of frequency.

3.2 Antenna Conducted Power Measurements

The test procedure was in accordance with ANSI C63.4-2014, Clause 12.2.6.

Antenna-conducted power measurements shall be performed on each broadcast reception tuner input in accordance with the requirements of the applicable regulatory authority. For example, see 47 CFR paragraph 15.111 and ANSI C63.4 paragraph 12.1.5 and Appendix H5 (test method) with the following clarifications:

- a. With the TV tuned to each channel [e.g., channel 2 to channel 69], the level of the local oscillator frequency and the second harmonic shall be measured and recorded for each tuner.
- b. Antenna-conducted power measurements shall be performed with the EUT antenna terminals connected directly to either a spectrum analyzer or another measurement instrument conforming to ANSI C63.2 or CISPR 16-1 or the latest revision thereof, if the antenna impedance matches the impedance of the measuring instrument.

Otherwise, use a balun or impedance-matching network to connect the measuring instrument to the antenna terminals of the EUT. Manufacturer-supplied interconnect cabling or wiring shall be used, or if none is supplied, the cable shall be commercially available and a maximum of 2 m in length. Losses in decibels in any balun or impedance-matching network used shall be added to the measured value in dB μ V.

Antenna Conducted Power Emission Limits

Frequency (MHz)	Limits (dB μ V)	
	Quasi-Peak	Peak
30 to 1 000	51.7	-
1 000 to 2 150	-	51.7

3.3 Measurement of Radiated Emission

The test procedure was in accordance with ANSI C63.4-2014, Clause 8.3

- a. The EUT was placed on the top of a turn table 0.8 meters above the ground at a semi-anechoic chamber.
The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 m to 4 m and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to Peak and Average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- g. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. (1 GHz to 40 GHz)

Radiated Emission Limits

Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength ($\mu\text{V/m}$)	Quasi-Peak (dB $\mu\text{V/m}$)	Antenna Distance (m)	Field Strength ($\mu\text{V/m}$)	Quasi-Peak (dB $\mu\text{V/m}$)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	3	150	43.5
216 to 960	10	210	46.4	3	200	46.0
Above 960	10	300	49.5	3	500	54.0
Frequency (MHz)	Antenna Distance (m)	Class A		Class B		
		Peak (dB $\mu\text{V/m}$)	Average (dB $\mu\text{V/m}$)	Peak (dB $\mu\text{V/m}$)	Average (dB $\mu\text{V/m}$)	
Above 1 000	3	80	60	74	54	

Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

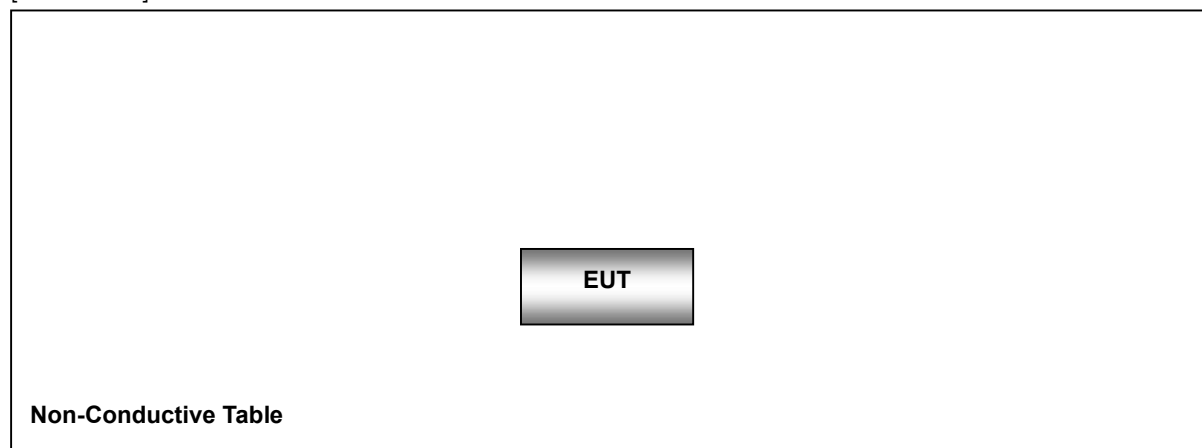
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

3.4 Configuration of Tested System

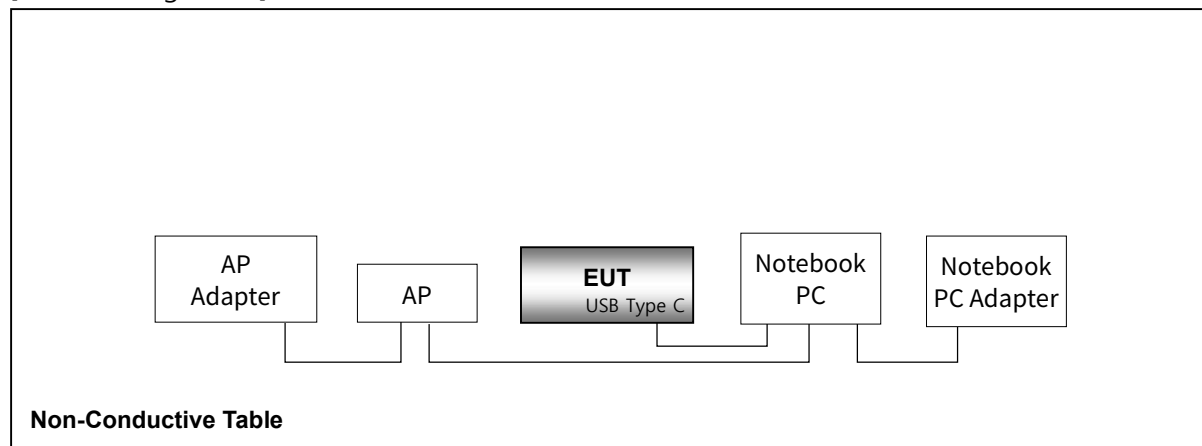
The EUT was configured in the following manner.

At the request of the manufacturer, the configuration of the tests was arranged.

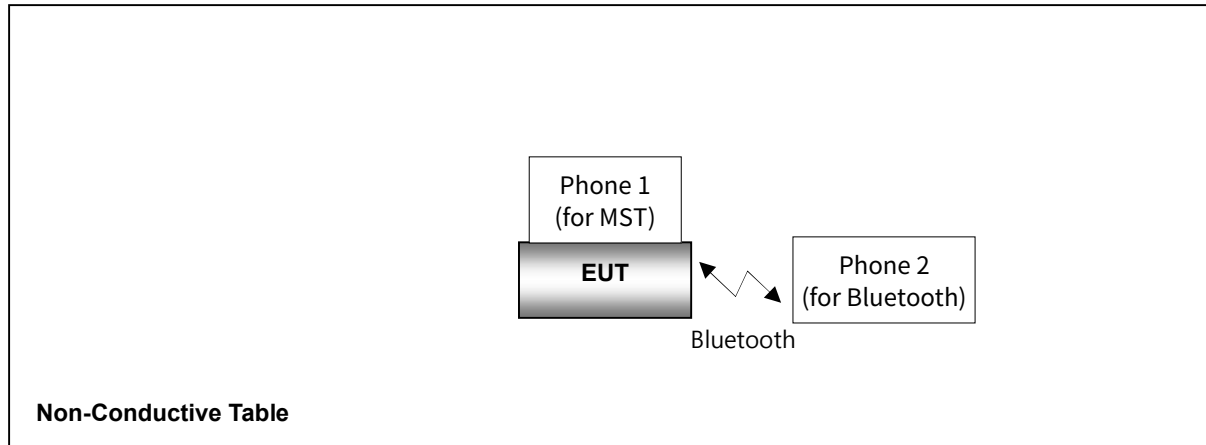
[Idle Mode]



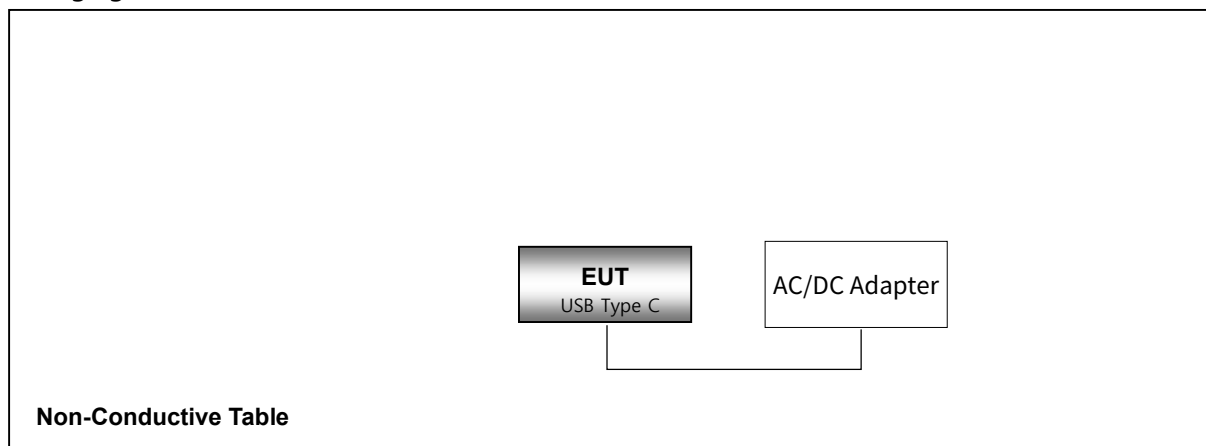
[USB+Printing Mode]



[Bluetooth+MSR Mode]



[Charging Mode]



3.5 Operation of EUT

During the preliminary and final tests, the following operating mode was investigated.
The following operating mode was tested after connecting all peripheral devices.

Operating Mode: Idle Mode
 USB+Printing Mode
 Bluetooth+MSR Mode
 Charging Mode

Idle Mode

The EUT was powered on and remained in an idle mode.

USB+Printing Mode

The EUT was connected to a PC via a USB cable, and the software provided by the manufacturer was executed to keep the EUT in a printing operation during the test.

Bluetooth+MSR Mode

The peripheral device (Phone 1) was maintained in the MST mode.

The peripheral device (Phone 2) was wirelessly connected to the EUT via Bluetooth and continuously transmitted MSR commands to the EUT.

The EUT was tested in the MSR mode while Phone 1 continuously performed tagging operations.

Charging Mode

According to the user manual, the EUT is powered off and charges its internal battery through the AC/DC adapter.

NOTE1. [Bluetooth+MSR Mode] The EUT was connected to Phone 2 via Bluetooth to enable continuous operation of the MSR mode.

4. TEST SITES CONDITIONS

4.1 Test Facility

The SAC (Semi Anechoic Chamber) and conducted measurement facilities used for collecting radiated data were constructed in accordance with the requirements of ANSI C63.4-2014 + C63.4a-2017.

Our laboratories are accredited and designated in accordance with the provisions of Radio Waves ACT and International Standard ISO/IEC 17025:2017. (National Radio Research Agency, CABID No. KR0032)

4.2 Measuring Instrument Calibration

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturers recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5:2017.

4.3 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the UCISPR measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Phenomenon	Test Site (Chamber)	Expanded Uncertainty	
Conducted Emission	EMI Shield Room	2.0 dB	
Antenna Conducted Power Emission	EMI Shield Room	N/A	
Radiated emission	3 m Semi Anechoic Chamber #1	30 MHz to 1 GHz	5.1 dB
	3 m Semi Anechoic Chamber #1	1 GHz to 18 GHz	4.8 dB
	3 m Semi Anechoic Chamber #1	18 GHz to 40 GHz	N/A

4.4 Decision Rules and Statements of Conformity

Simple Acceptance

5. MEASURING EQUIPMENT

Type	Model Name	Manufacturer	Serial Number	Cal. Cycle	Next Cal. Date (yy.mm.dd)
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Conducted emission

☒	EMI Test Receiver	ESR7	ROHDE&SCHWARZ	101910	1 year	2026.08.20
☒	LISN	ENV216	ROHDE&SCHWARZ	102245	1 year	2026.07.15
☒	LISN	ENV216	ROHDE&SCHWARZ	100073	1 year	2026.04.29
☒	Software	EMC32	ROHDE&SCHWARZ	-	N/A	-

Antenna conducted power emission

☐	EMI Test Receiver	ESCI	ROHDE&SCHWARZ	100584	1 year	2026.05.07
☐	Impedance Matching Pad	PE7070	PASTERNAK	5	1 year	2026.01.08
☐	Software	EMC32	ROHDE&SCHWARZ	-	N/A	-

Radiated emission up to 1 GHz

☒	EMI Test Receiver	ESW44	Rohde & Schwarz	101946	1 year	2025.11.08
☒	Bilog Antenna	VULB9168	Schwarzbeck	255	2 year	2027.02.27
☒	Antenna master	MA4640-XP-ET	INNCO SYSTEM	-	N/A	-
☒	Turn Table	DS2000-S	INNCO SYSTEM	-	N/A	-
☒	Software	EMC32	ROHDE&SCHWARZ	-	N/A	-

Type	Model Name	Manufacturer	Serial Number	Cal. Cycle	Next Cal. Date (yy.mm.dd)
Radiated emission above 1 GHz					
☒ EMI Test Receiver	ESW44	Rohde & Schwarz	101946	1 year	2026.11.04
☒ Horn Antenna	HF907	ROHDE&SCHWARZ	103160	1 year	2026.10.14
☒ Power Amplifier	TK-PA18H	TESTEK	170034-L	1 year	2026.10.02
☐ Horn Antenna	BBHA 9170	Schwarzbeck	BBHA9170 #786	1 year	2026.10.27
☐ Power Amplifier	TK-PA1840H	TESTEK	170030-L	1 year	2026.02.13
☒ Antenna Mast	MA4640-XP-ET	INNCO SYSTEM	-	N/A	-
☒ Turn Table	DS2000-S	INNCO SYSTEM	-	N/A	-
☒ Software	EMC32	ROHDE&SCHWARZ	-	N/A	-

6. EMISSION TEST SUMMARY

6.1 Conducted Emission

6.1.1 Operating Conditions

The test results of conducted emission at mains ports provide the following information:

Date of Test (yy.mm.dd)	2025.11.06						
Temperature	min.	21.5	°C	Relative Humidity	min.	36.1	%
	max.	23.8	°C		max.	39.0	%
Test Site	EMI Shield Room						
Test Standard Used	FCC CFR 47 PART 15 Subpart B Class B ANSI C63.4-2014						
Frequency Range	0.15 MHz to 30 MHz						
Detector / Bandwidth	Quasi-Peak, CISPR-Average / 9 kHz (6 dB)						
Operating Mode	USB+Printing Mode Charging Mode						
Test Result	PASS						

NOTE. Since the Idle Mode and Bluetooth+MSR Mode operate from the internal power source without being connected to the AC mains, the Conducted Emission test is not applicable.

A disturbance voltage is calculated by the following equation:

$$A = B + C$$

Where

A: QuasiPeak or CAverage in dBμV

B: Meter reading in dBμV

C: Corr. in dB (Cable loss + LISN factor)

Margin in dB: Limit - A

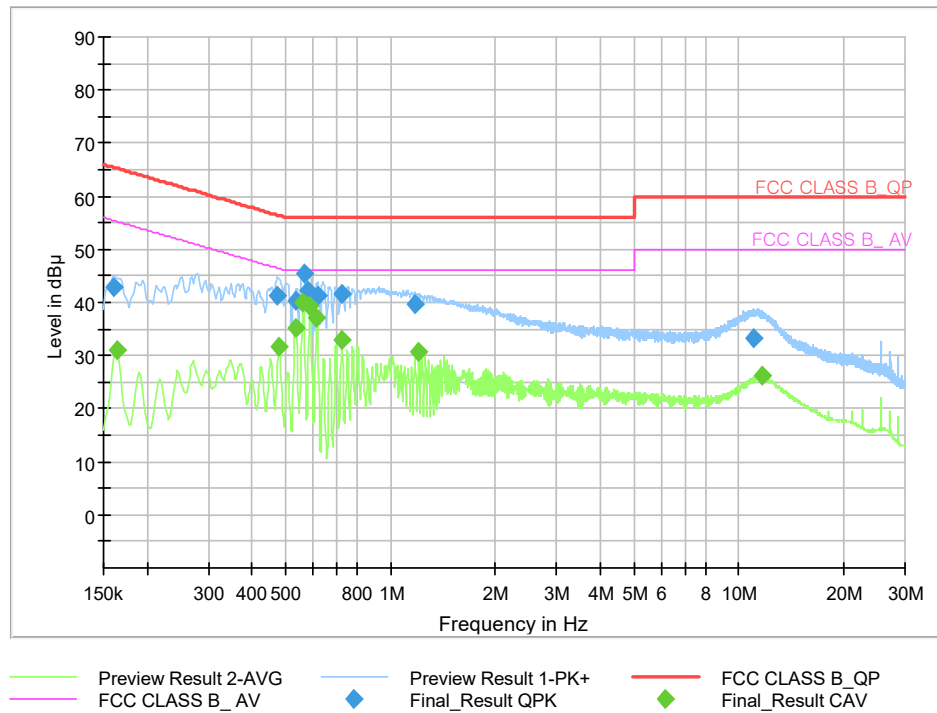
If it's an AC mains cable, the readings includes both Live (L1) and Neutral (N).

The measurements for both Live (L1) and Neutral (N) from the LISN are combined into a single graph.

6.1.2 Measurement Data

[Charging Mode]

Full Spectrum



[QuasiPeak]

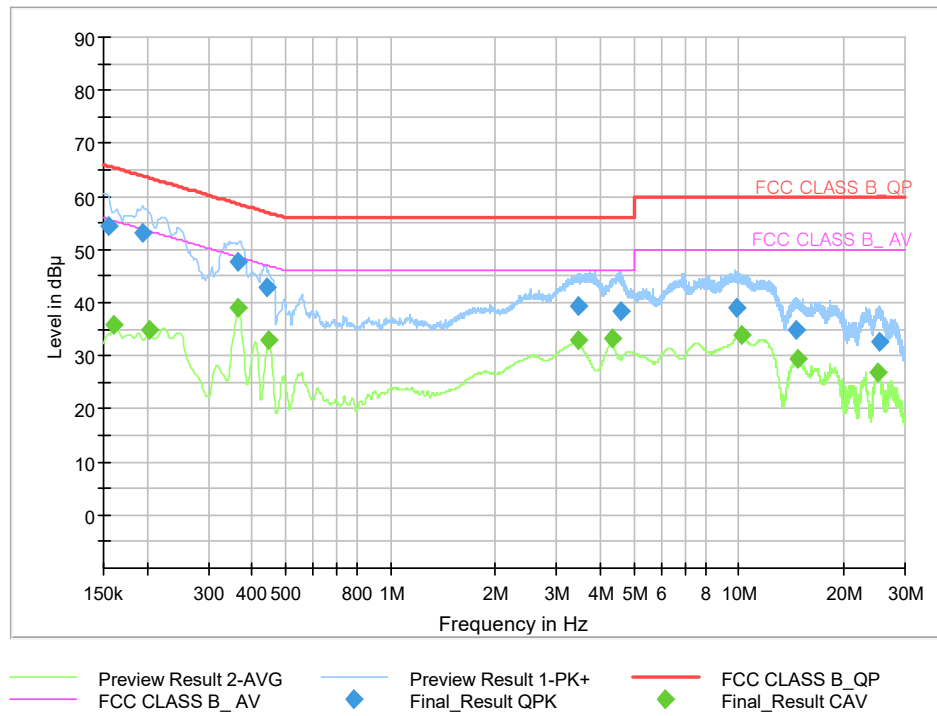
Frequency [MHz]	QuasiPeak [dBμV]	Corr. [dB]	Line	Margin [dB]	Limit [dBμV]
0.1613	42.77	9.7	N	22.63	65.40
0.4718	41.32	9.7	N	15.17	56.48
0.5338	40.17	9.7	N	15.83	56.00
0.5630	45.32	9.7	N	10.68	56.00
0.5810	42.23	9.8	L1	13.77	56.00
0.6193	41.13	9.7	N	14.87	56.00
0.7250	41.70	9.7	N	14.30	56.00
1.1773	39.61	9.8	N	16.39	56.00
11.0255	33.23	10.2	L1	26.77	60.00

[CAverage]

Frequency [MHz]	CAverage [dBμV]	Corr. [dB]	Line	Margin [dB]	Limit [dBμV]
0.1635	31.06	9.7	N	24.22	55.28
0.4785	31.62	9.7	N	14.74	46.37
0.5338	35.31	9.7	N	10.69	46.00
0.5608	40.02	9.7	N	5.98	46.00
0.5878	39.40	9.7	N	6.60	46.00
0.6148	37.21	9.7	N	8.79	46.00
0.7228	32.99	9.7	N	13.01	46.00
1.2043	30.59	9.8	N	15.41	46.00
11.6375	26.29	10.2	N	23.72	50.00

[USB+Printing Mode]

Full Spectrum



[QuasiPeak]

Frequency [MHz]	QuasiPeak [dBμV]	Corr. [dB]	Line	Margin [dB]	Limit [dBμV]
0.1545	54.48	9.8	L1	11.27	65.75
0.1950	53.19	9.8	L1	10.63	63.82
0.3660	47.67	9.8	L1	10.92	58.59
0.4403	42.78	9.8	L1	14.28	57.06
3.4543	39.29	9.9	L1	16.71	56.00
4.5928	38.28	10.0	L1	17.72	56.00
9.8285	39.00	10.2	L1	21.00	60.00
14.6030	34.88	10.3	L1	25.12	60.00
25.3198	32.72	10.8	N	27.28	60.00

[CAverage]

Frequency [MHz]	CAverage [dBμV]	Corr. [dB]	Line	Margin [dB]	Limit [dBμV]
0.1613	35.74	9.7	N	19.66	55.40
0.2040	34.78	9.8	L1	18.67	53.45
0.3660	39.01	9.8	L1	9.58	48.59
0.4470	32.88	9.8	L1	14.05	46.93
3.4543	32.84	9.9	L1	13.16	46.00
4.3295	33.12	9.9	L1	12.88	46.00
10.1818	34.02	10.2	L1	15.98	50.00
14.6908	29.34	10.3	L1	20.66	50.00
25.1983	26.91	10.8	N	23.09	50.00

6.2 Antenna Conducted Power Emission (Not Applicable)

6.2.1 Operating Condition

The test results of antenna conducted power emission provide the following information.;

Date of Test (yy.mm.dd)		---			
Temperature	min.	°C	Relative Humidity	min.	%
	max.	°C		max.	%
Test Site		EMI Shield Room			
Test Method Used		ANSI C63.4-2014			
Frequency Range		30 MHz to 2150 MHz			
Detector / Bandwidth		For frequencies ≤1 GHz: Quasi-peak / 120 kHz For frequencies ≥1 GHz: Peak / 1 MHz			
Operating Mode		---			
Test Result		---			

NOTE. This test is not applicable because the EUT does not have tuner ports.

6.2.2 Measurement Data

Not applicable

6.3 Radiated Emission up to 1 GHz

6.3.1 Operating Condition

The test results of radiated emission provide the following information:

Date of Test (yy.mm.dd)	2025.10.28 ~ 2025.10.29		
Temperature	min. 21.9 °C	Relative Humidity	min. 36.8 %
	max. 25.5 °C		max. 43.2 %
Test Site	3 m Semi Anechoic Chamber #1		
Used Test Standard	FCC CFR 47 PART 15 Subpart B Class B ANSI C63.4-2014		
Frequency Range	30 MHz to 1 000 MHz		
Detector / Bandwidth	Quasi-Peak / 120 kHz (6 dB)		
Measurement Distance	3 m		
Antenna Height	1 m to 4 m		
Antenna Polarity	Horizontal, Vertical		
Operating Mode	Idle Mode USB+Printing Mode Bluetooth+MSR Mode Charging Mode		
Test Result	PASS		

A field strength is calculated by the following equation.;

$$A = B + C$$

Where

A: Field strength (Quasi Peak) in dBμV/m

B: Meter reading in dBμV/m

C: Corr. in dB (Cable loss + Antenna factor - Amplifier gain)

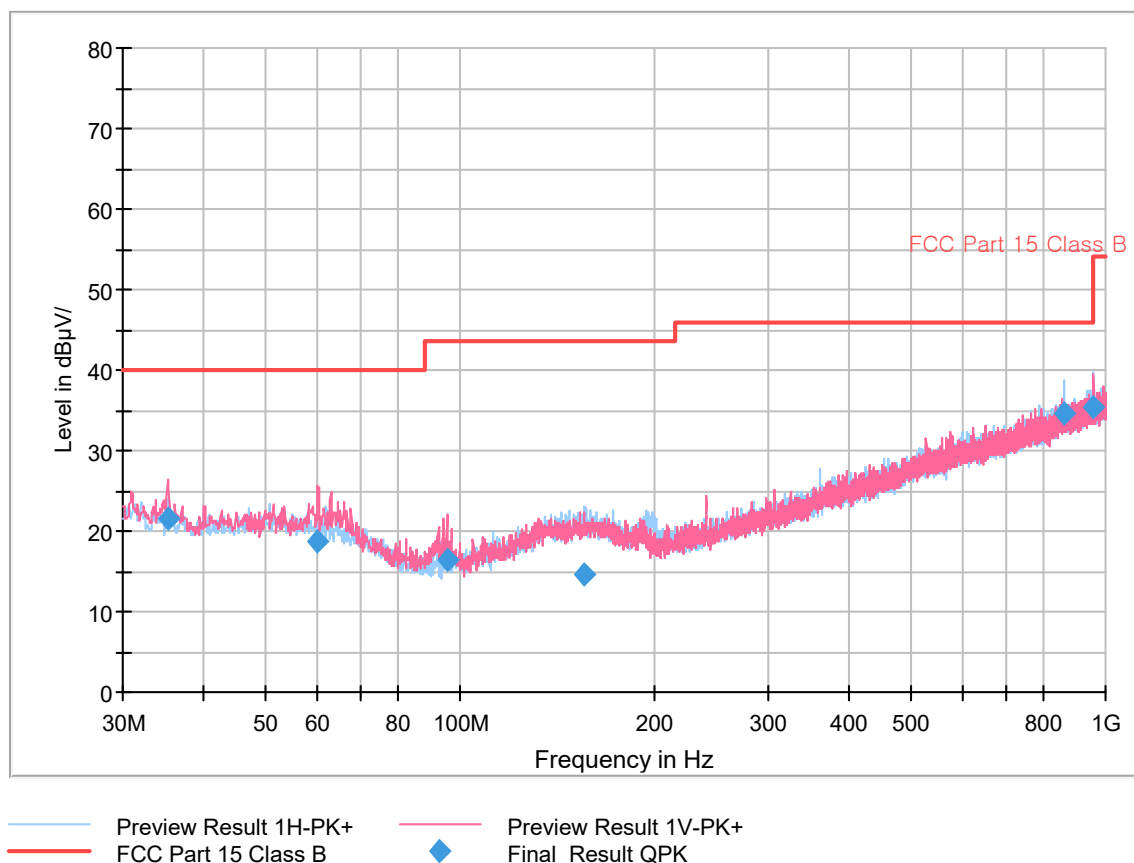
Margin in dB: Limit - A

The measurements' polarities are H and V, where H means horizontal and V means vertical.

6.3.2 Measurement Data

[Bluetooth+MSR Mode]

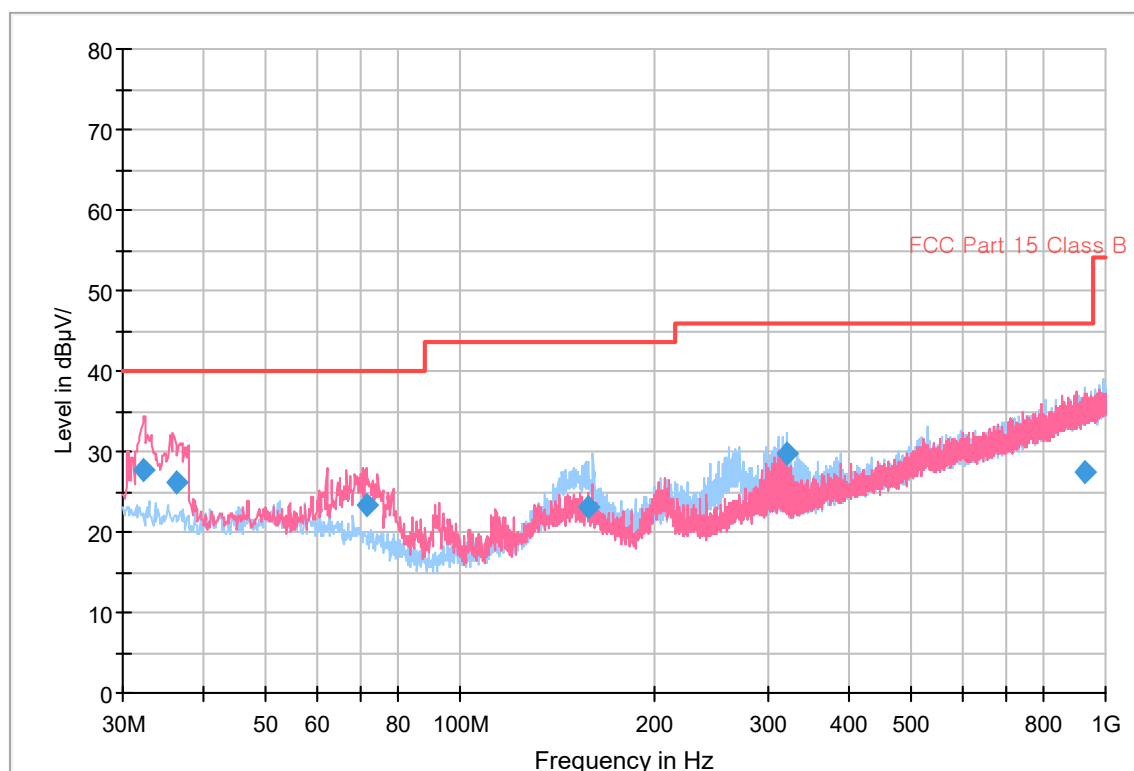
Full Spectrum



Frequency	QuasiPeak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
35.2551	21.44	118.5	V	111.0	19.2	18.56	40.00
60.2344	18.67	107.0	V	154.0	19.9	21.33	40.00
95.4741	16.33	100.0	V	245.0	15.5	27.17	43.50
155.5400	14.63	374.8	H	102.0	20.3	28.87	43.50
864.0698	34.74	100.0	H	192.0	32.3	11.26	46.00
960.0754	35.41	100.0	H	144.0	33.4	18.59	54.00

[Charging Mode]

Full Spectrum

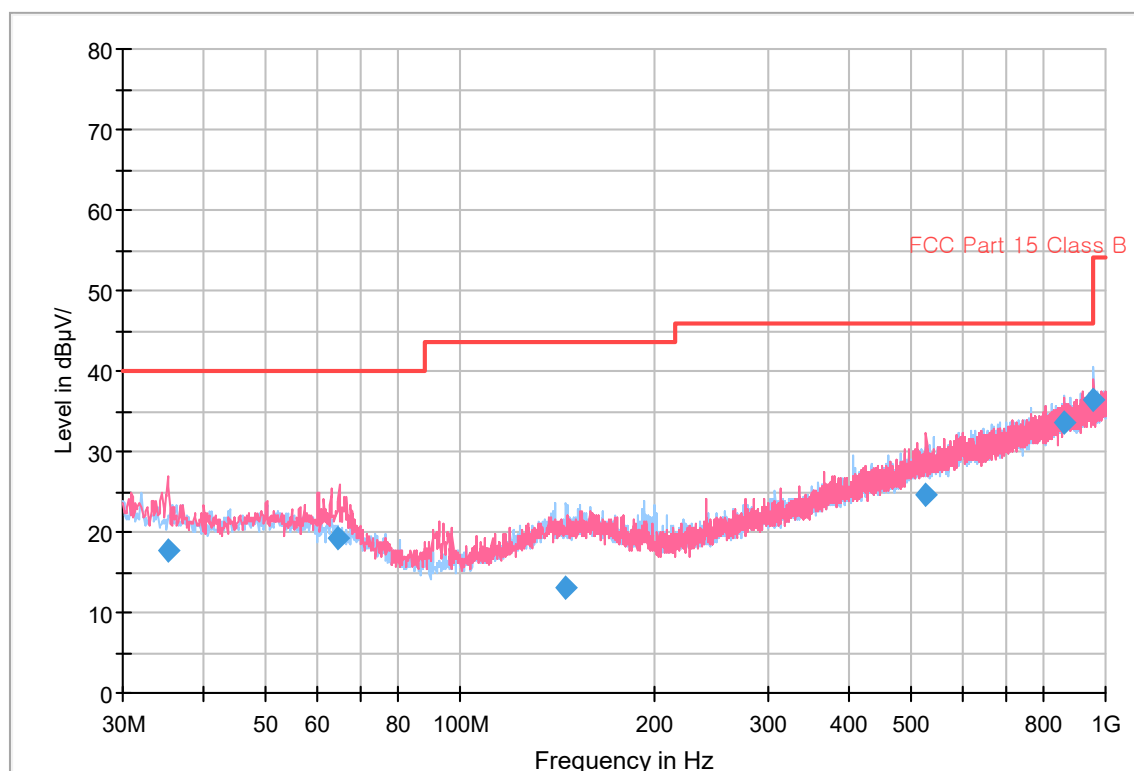


— Preview Result 1H-PK+ — Preview Result 1V-PK+
— FCC Part 15 Class B ◆ Final_Result QPK

Frequency	QuasiPeak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
32.3396	27.76	108.0	V	82.0	19.0	12.24	40.00
36.2238	26.06	100.0	V	168.0	19.2	13.94	40.00
71.4500	23.31	100.0	V	310.0	18.1	16.69	40.00
158.2600	23.12	182.1	H	178.0	20.3	20.38	43.50
320.1116	29.84	100.0	H	170.0	21.8	16.16	46.00
931.9969	27.50	100.0	H	24.0	33.1	18.50	46.00

[Idle Mode]

Full Spectrum

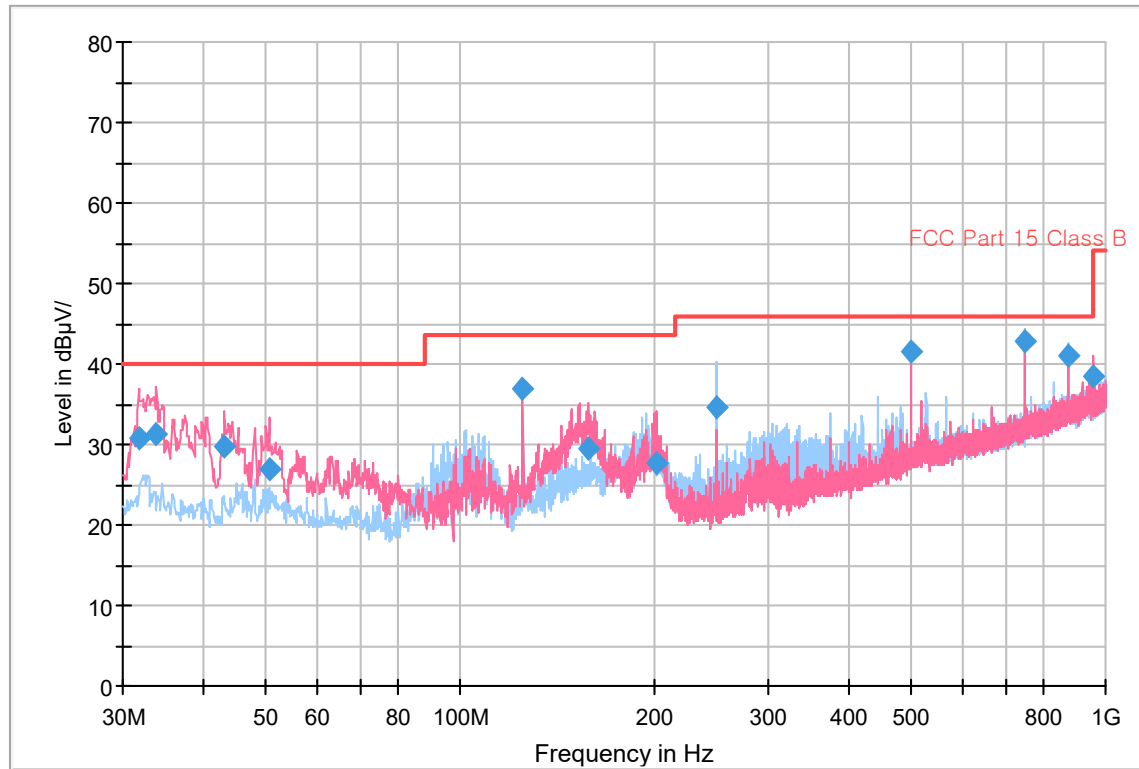


— Preview Result 1H-PK+ — Preview Result 1V-PK+
— FCC Part 15 Class B ◆ Final_Result QPK

Frequency	QuasiPeak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
35.1668	17.63	100.0	V	173.0	19.2	22.37	40.00
64.8703	19.28	100.0	V	322.0	19.3	20.72	40.00
146.1526	13.11	225.1	H	324.0	20.0	30.39	43.50
527.9516	24.57	100.0	V	0.0	26.9	21.43	46.00
864.0701	33.51	100.0	H	97.0	32.3	12.49	46.00
960.0689	36.31	100.0	H	120.0	33.4	17.69	54.00

[USB+Printing Mode]

Full Spectrum



— Preview Result 1H-PK+ — Preview Result 1V-PK+
— FCC Part 15 Class B ◆ Final_Result QPK

Frequency	QuasiPeak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
31.8043	30.82	100.0	V	74.0	18.9	9.18	40.00
33.8310	31.41	100.0	V	5.0	19.1	8.59	40.00
43.1288	29.69	125.2	V	157.0	19.8	10.31	40.00
50.6521	26.85	100.0	V	85.0	20.4	13.15	40.00
125.0843	37.00	274.6	H	1.0	18.2	6.50	43.50
157.7076	29.59	108.0	V	222.0	20.3	13.91	43.50
201.1780	27.68	100.0	V	270.0	17.7	15.82	43.50
249.9420	34.60	125.1	H	31.0	19.6	11.40	46.00
499.9840	41.49	174.5	H	0.0	26.3	4.51	46.00
749.9488	42.80	100.0	H	278.0	30.7	3.20	46.00
875.1069	40.96	100.0	H	186.0	32.4	5.04	46.00
960.1393	38.56	125.2	V	62.0	33.4	15.44	54.00

6.4 Radiated Emission above 1 GHz

6.4.1 Operating Condition

The test results of radiated emission provide the following information:

Date of Test (yy.mm.dd)	2025.11.12 ~ 2025.11.13		
Temperature	min. 21.5 °C	Relative Humidity	min. 35.8 %
	max. 24.4 °C		max. 45.2 %
Test Site	3 m Semi Anechoic Chamber #1		
Used Test Standard	FCC CFR 47 PART 15 Subpart B Class B ANSI C63.4-2014		
Detector / Bandwidth	Peak, CISPR-Average / 1 MHz		
Highest Frequency	2480 MHz		
Tested Frequency Range	1 GHz to 18 GHz		
Measurement Distance	3 m		
Antenna Height	1 m to 4 m		
Antenna Polarity	Horizontal, Vertical		
Operating Mode	Idle Mode USB+Printing Mode Bluetooth+MSR Mode Charging Mode		
Test Result	PASS		

A field strength is calculated by the following equation:

$$A = B + C$$

Where

A: Field strength (Peak or CAverage) in dBμV/m

B: Meter reading in dBμV/m

C: Corr. in dB (Cable loss + Antenna factor - Amplifier gain)

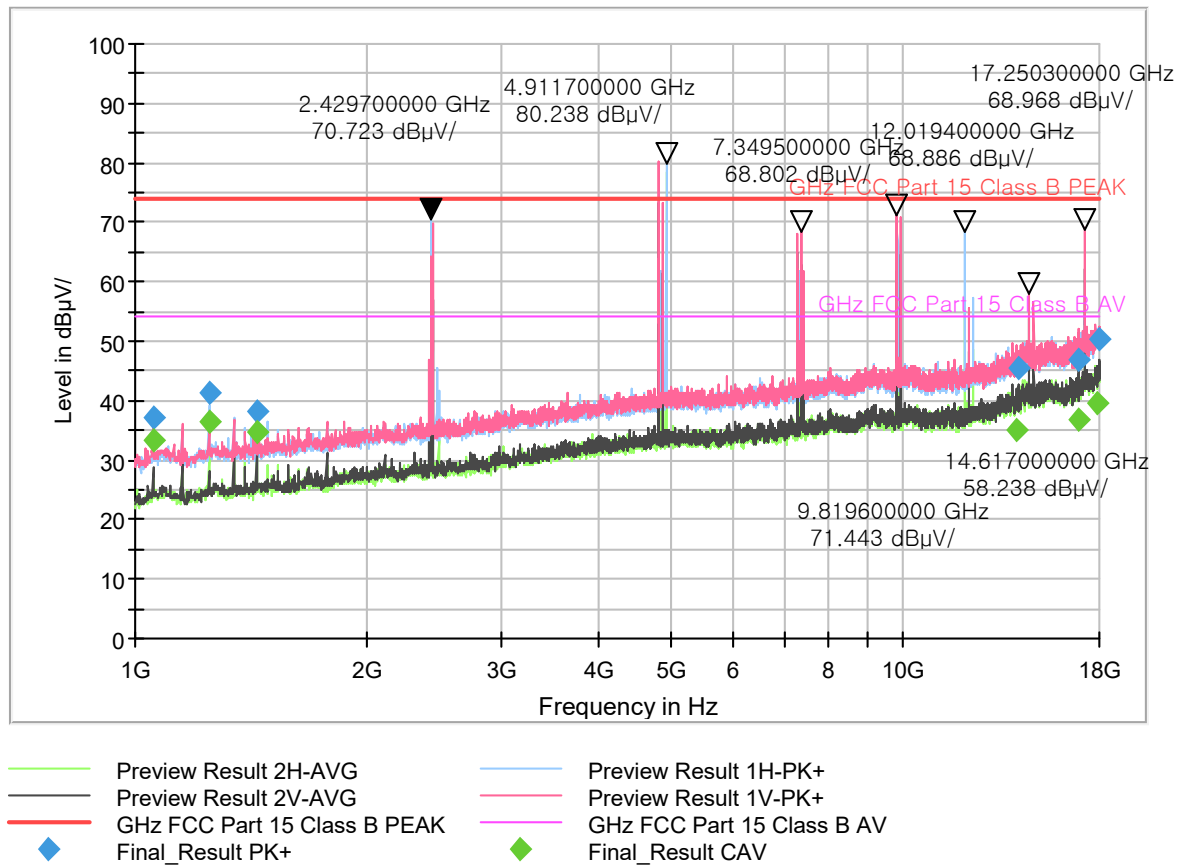
Margin in dB: Limit - A

The measurements' polarities are H and V, where H means horizontal and V means vertical.

6.4.2 Measurement Data

[Bluetooth+MSR Mode]

Full Spectrum



The observed emissions originate from the Bluetooth module(FCC ID: QDDWSM-M3W) integrated in the device, and the module is compliant with the applicable standards.

[Peak]

Frequency	Peak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
1056.0150	37.05	210.5	V	121.0	-30.5	36.95	74.00
1248.0100	41.16	297.5	H	111.0	-29.5	32.84	74.00
1439.9850	38.36	284.1	V	119.0	-28.4	35.64	74.00
14098.6450	45.56	100.0	V	281.0	-0.4	28.44	74.00
16921.6150	46.91	325.1	V	345.0	3.1	27.09	74.00
17968.9100	50.28	317.4	V	216.0	7.9	23.72	74.00

[CAverage]

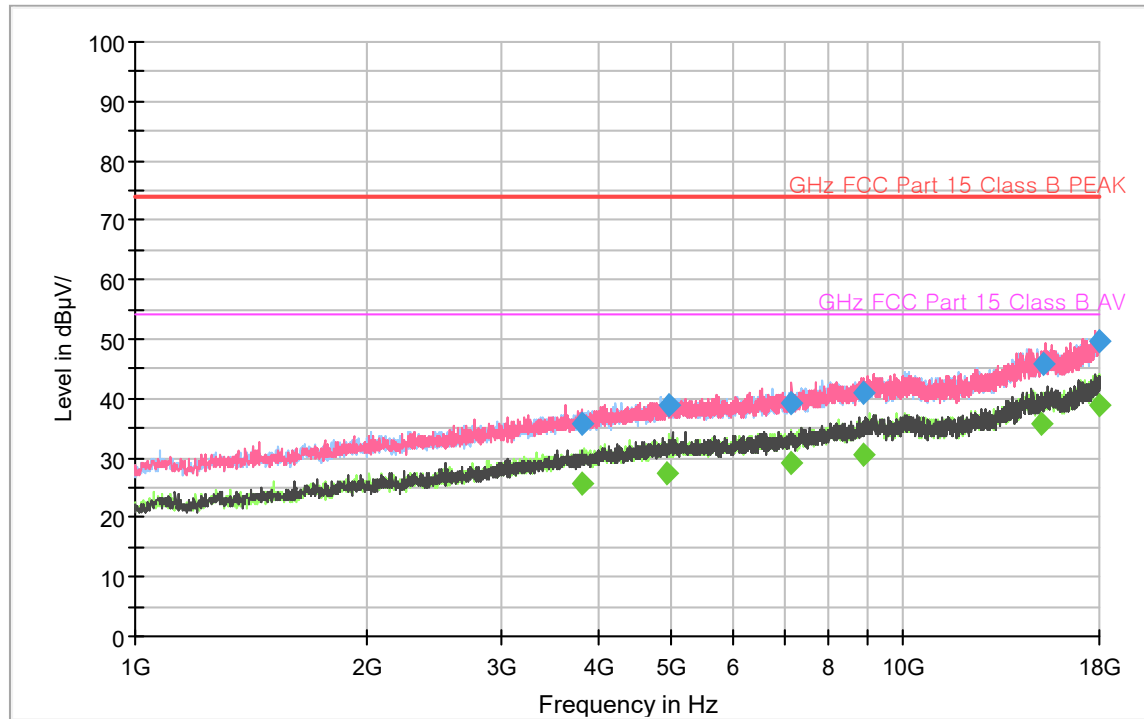
Frequency	CAverage	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
1056.0350	33.49	199.8	V	146.0	-30.5	20.51	54.00
1247.9350	36.50	295.8	H	120.0	-29.5	17.50	54.00
1440.1000	34.66	292.1	V	121.0	-28.4	19.34	54.00
14080.4650	35.15	103.5	V	260.0	-0.5	18.85	54.00
16919.3600	36.85	309.8	V	307.0	3.1	17.15	54.00
17940.1500	39.52	177.9	V	225.0	7.7	14.48	54.00

Bluetooth Carrier Frequency: 2.4297 GHz

Bluetooth Harmonic Frequency: 4.9117, 7.3495, 9.8196, 12.0194, 14.6170, 17.2503 GHz

[Charging Mode]

Full Spectrum



Preview Result 2H-AVG	Preview Result 1H-PK+
Preview Result 2V-AVG	Preview Result 1V-PK+
GHz FCC Part 15 Class B PEAK	GHz FCC Part 15 Class B AV
Final_Result PK+	Final_Result CAV

[Peak]

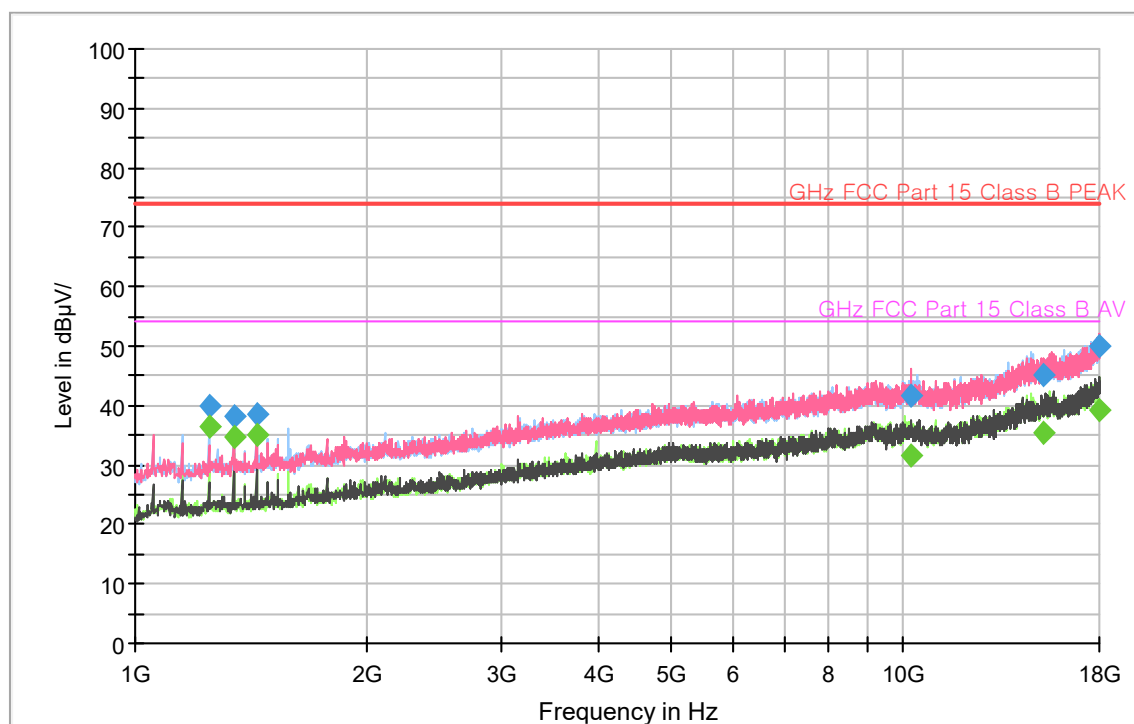
Frequency	Peak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
3826.7650	35.79	224.9	V	28.0	-17.4	38.21	74.00
4945.5600	38.78	288.2	V	233.0	-13.8	35.22	74.00
7155.1350	39.38	176.2	V	99.0	-9.9	34.62	74.00
8884.9950	40.89	293.5	V	83.0	-8.2	33.11	74.00
15180.4400	45.74	113.6	V	232.0	1.4	28.26	74.00
17983.4166	49.54	209.3	V	108.0	8.0	24.46	74.00

[CAverage]

Frequency	CAverage	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
3822.4750	25.55	309.1	V	258.0	-17.4	28.45	54.00
4931.4650	27.29	303.4	V	270.0	-13.8	26.71	54.00
7148.6950	29.13	222.8	V	99.0	-9.9	24.87	54.00
8885.3100	30.42	277.2	V	75.0	-8.2	23.58	54.00
15147.9650	35.72	174.2	V	30.0	1.3	18.28	54.00
17965.3259	38.98	283.0	V	348.0	7.9	15.02	54.00

[Idle Mode]

Full Spectrum



Preview Result 2H-AVG	Preview Result 1H-PK+
Preview Result 2V-AVG	Preview Result 1V-PK+
GHz FCC Part 15 Class B PEAK	GHz FCC Part 15 Class B AV
Final Result PK+	Final Result CAV

[Peak]

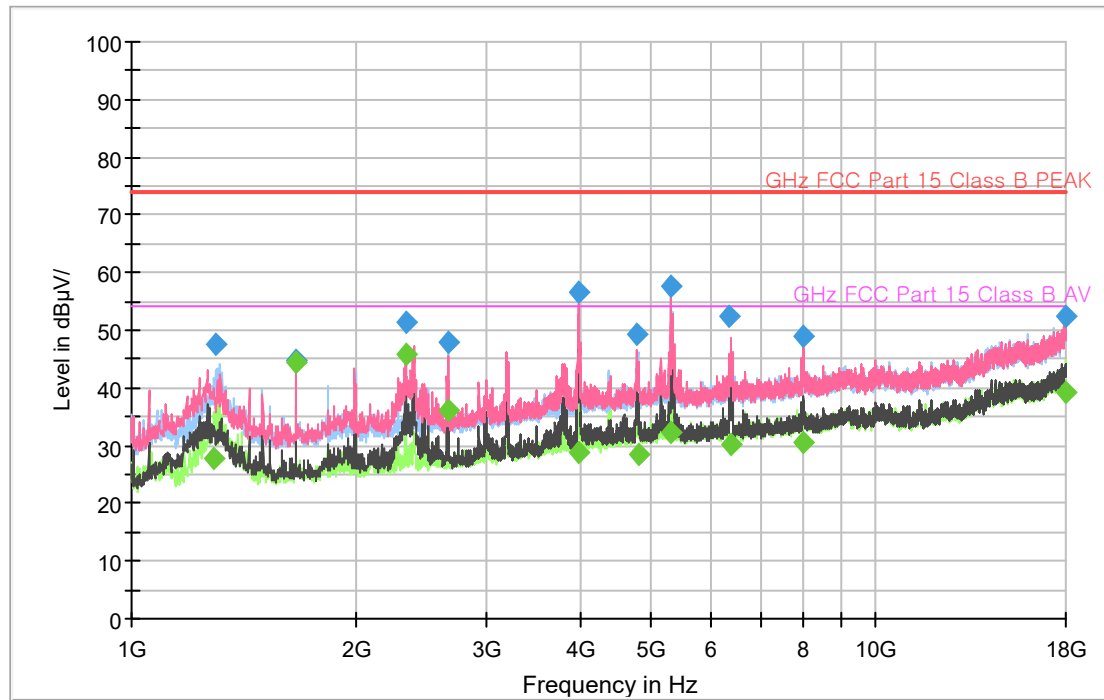
Frequency	Peak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
1248.0300	39.90	293.9	H	124.0	-29.5	34.10	74.00
1344.1350	38.32	103.7	H	346.0	-29.0	35.68	74.00
1439.9500	38.55	292.0	V	127.0	-28.4	35.45	74.00
10248.2950	41.80	116.1	V	199.0	-6.3	32.20	74.00
15214.6150	45.30	210.5	V	1.0	1.4	28.70	74.00
17968.7400	50.13	213.5	V	207.0	7.9	23.87	74.00

[CAverage]

Frequency	CAverage	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
1248.1150	36.38	295.1	H	121.0	-29.5	17.62	54.00
1343.9850	34.81	109.9	H	349.0	-29.0	19.19	54.00
1440.0650	35.00	289.8	V	123.0	-28.4	19.00	54.00
10233.2600	31.60	276.0	V	334.0	-6.3	22.40	54.00
15203.6550	35.49	174.2	V	25.0	1.4	18.51	54.00
17986.7350	39.09	274.3	V	50.0	8.0	14.91	54.00

[USB+Printing Mode]

Full Spectrum



- | | |
|------------------------------|----------------------------|
| Preview Result 2H-AVG | Preview Result 1H-PK+ |
| Preview Result 2V-AVG | Preview Result 1V-PK+ |
| GHz FCC Part 15 Class B PEAK | GHz FCC Part 15 Class B AV |
| Final_Result PK+ | Final_Result CAV |

[Peak]

Frequency	Peak	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
1295.2850	47.64	306.0	H	175.0	-29.2	26.36	74.00
1666.5900	44.81	278.1	H	78.0	-27.1	29.19	74.00
2333.3300	51.22	400.0	V	2.0	-23.6	22.78	74.00
2666.6400	47.89	189.3	H	260.0	-22.1	26.11	74.00
3990.9400	56.73	101.3	V	0.0	-16.8	17.27	74.00
4779.2250	49.31	100.0	V	0.0	-14.4	24.69	74.00
5310.8050	57.54	192.2	V	40.0	-13.1	16.46	74.00
6367.2750	52.31	103.8	V	340.0	-11.1	21.69	74.00
7999.4850	48.80	323.0	V	156.0	-8.9	25.20	74.00
17981.2766	52.57	224.9	V	285.0	7.9	21.43	74.00

[CAverage]

Frequency	CAverage	Height	Pol.	Azimuth	Corr.	Margin	Limit
[MHz]	[dBμV/m]	[cm]	[H/V]	[deg]	[dB]	[dB]	[dBμV/m]
1289.9850	27.87	314.0	H	173.0	-29.3	26.13	54.00
1666.6500	44.49	398.3	H	65.0	-27.1	9.51	54.00
2333.3200	45.93	400.0	V	0.0	-23.6	8.07	54.00
2666.6400	36.21	178.3	H	250.0	-22.1	17.79	54.00
3977.7500	28.65	100.0	V	0.0	-16.9	25.35	54.00
4809.0800	28.41	274.1	V	29.0	-14.2	25.59	54.00
5315.4000	32.30	274.1	V	0.0	-13.1	21.70	54.00
6397.9350	30.25	100.0	V	345.0	-11.0	23.75	54.00
7967.6500	30.46	325.1	V	169.0	-9.0	23.54	54.00
17991.9519	39.35	378.2	V	0.0	8.0	14.65	54.00

APPENDIX A. TEST SETUP PHOTO

Please refer to Appendix. A and test setup photo file no. as follows;

File No.	Date of Issue	Description
HCT-EM-2511-FC005-P	November 17, 2025	Initial Release

End of report