

# TEST REPORT



**CTK Co., Ltd.**  
(Ho-dong), 113, Yejik-ro, Cheoin-gu,  
Yongin-si, Gyeonggi-do, Korea  
Tel: +82-31-339-9970  
Fax: +82-31-624-9501

Report No.:  
CTK-2024-01044-1  
Page (1) / (26) Pages

## 1. Applicant

- Name : Samsung Electronics Co., Ltd
- Address : 19 Chapin Rd, Building D. Pine Brook, New Jersey, United States
- Date of Receipt : 2024-02-28

## 2. Manufacturer

- Name : Samsung Electronics Co., Ltd.
- Address : Yen Phong 1 Industrial Park, Yen Phong District Bac Ninh Province VIETNAM

**3. Use of Report :** For FCC Certification, For ISED Certification

**4. Test Sample / Model :** WIRELESS CHARGER / EP-OL300

**5. Date of Test :** 2024-03-29 to 2024-04-02



**6. Test Standard(method) used :** FCC 47 CFR part 15 subpart C 15.209  
RSS-Gen Issue 5, RSS-216 Issue 2

**7. Testing Environment:** refer to 9 pages to 22 pages

**8. Test Results :** Compliance

**9. Location of Test :**  Permanent Testing Lab  On Site Testing  
(Address : 5, Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This report cannot be reproduced or copied without the written consent of CTK.

Approval	Tested by	Technical Manager
	Gwanyong Kim: (Signature) 	Young-taek Lee: (Signature) 

Remark. This report is not related to KOLAS accreditation and relevant regulation.

2024-05-16

**CTK Co., Ltd.**



**CTK Co., Ltd.**  
(Ho-dong), 113, Yejik-ro, Cheoin-gu,  
Yongin-si, Gyeonggi-do, Korea  
Tel: +82-31-339-9970  
Fax: +82-31-624-9501

Report No.:  
CTK-2024-01044-1  
Page (2) / (26) Pages

## REPORT REVISION HISTORY

Date	Revision	Page No
2024-04-09	Issued (CTK-2024-01044)	all
2024-05-16	Issued (CTK-2024-01044-1) Applicant's address correction	1

***This report shall not be reproduced except in full, without the written approval of CTK Co., Ltd. This document may be altered or revised by CTK Co., Ltd. Personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by CTK Co., Ltd. Will constitute fraud and shall nullify the document.***



**CTK Co., Ltd.**  
(Ho-dong), 113, Yejik-ro, Cheoin-gu,  
Yongin-si, Gyeonggi-do, Korea  
Tel: +82-31-339-9970  
Fax: +82-31-624-9501

Report No. :  
CTK-2024-01044-1  
Page (3) / (26) Pages

## **CONTENTS**

1. General Description.....	4
1.1 Client Information .....	4
1.2 Manufacturer Information.....	4
1.3 Product Information.....	5
1.4 Antenna Information.....	5
2. Accreditations .....	6
2.1 Laboratory Accreditations and Listings .....	6
2.2 Calibration Details of Equipment Used for Measurement .....	6
3. Test Specifications .....	7
3.1 Standards.....	7
3.2 Mode of operation during the test.....	7
3.3 Peripheral Devices .....	8
3.4 Measurement Uncertainty.....	8
3.5 Test Software.....	8
4. Technical Characteristic Test.....	9
4.1 Emission Bandwidth.....	9
4.2 Radiated emissions.....	11
4.3 AC Power Line Conducted Emissions .....	21
APPENDIX A – Test Equipment Used For Tests .....	26



**CTK Co., Ltd.**  
(Ho-dong), 113, Yejik-ro, Cheoin-gu,  
Yongin-si, Gyeonggi-do, Korea  
Tel: +82-31-339-9970  
Fax: +82-31-624-9501

Report No.:  
CTK-2024-01044-1  
Page (4) / (26) Pages


## 1. General Description

### 1.1 Client Information

<b>Company</b>	Samsung Electronics Co., Ltd.
<b>Contact Point</b>	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
<b>Contact Person</b>	Name : Hyungkoo Chung E-mail : h9.chung@samsung.com

### 1.2 Manufacturer Information

<b>Manufacturer</b>	Samsung Electronics Co., Ltd.
<b>Address</b>	Yen Phong 1 Industrial Park, Yen Phong District Bac Ninh Province VIETNAM
<b>Factory #1</b>	RFTECH THAI NGUYEN CO., LTD
<b>Factory #1 Address</b>	Line 1-2, Diem Thuy Industry Zone, Diem Thuy Commune, Phu Binh District, 230000 Thai Nguyen Province, VIETNAM
<b>Factory #2</b>	LUXSHARE-ICT (NGHE AN) LIMITED
<b>Factory #2 Address</b>	NO. 18, NO. 3 ROAD, NGHE AN VSIP INDUSTRY PARK, HUNG TAY COMMUNE, HUNG NGUYEN DISTRICT, NGHE AN PROVINCE, VIETNAM
<b>Factory #3</b>	HAEM VINA CO., LTD.
<b>Factory #3 Address</b>	PLOT B4M SONG KHE INDUSTRIAL ZONE NOI HOANG, BAC GIANG PROVINCE 21000, VIETNAM
<b>Factory #4</b>	CHITWING PRECISION TECH VIET NAM+H103 CO., LTD
<b>Factory #4 Address</b>	LOT CN2-2 AND LOT CN9-4 YEN PHONG INDUSTRIAL PARK, YEN TRUNG COMMUNE, YEN PHONG DISTRICT, BAC NINH PROVINCE, VIETNAM

 <b>CTK Co., Ltd.</b> <small>The Prime Leader of Global Regulatory Certification</small>	<b>CTK Co., Ltd.</b> (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2024-01044-1 Page (5) / (26) Pages	
---	---	--	--

### 1.3 Product Information

<b>FCC ID</b>	A3LEPOL300
<b>IC</b>	649E-EPOL300
<b>Product Description</b>	WIRELESS CHARGER
<b>Model name</b>	EP-OL300
<b>Variant Model name</b>	-
<b>FVIN</b>	N/A
<b>Classification of WPT devices</b>	<input type="checkbox"/> Type 1 (Interference-causing Equipment)
	<input type="checkbox"/> Type 2 (Category II Radio Apparatus)
	<input checked="" type="checkbox"/> Type 3 (Category I Radio Apparatus)
<b>Charging Frequency</b>	143.5 kHz ~ 146.5 kHz
<b>RF Output Power</b>	70.5 dBuV/m @ 3m
<b>Power Transfer Method</b>	Magnetic induction and only single primary coil coupling secondary coil
<b>Output power from each primary coil</b>	3 W
<b>That may have multiple primary coils</b>	No
<b>Antenna Type</b>	Loop Coil
<b>Charging Method</b>	Directly contact
<b>Power Source</b>	DC 5 V

### 1.4 Antenna Information

<input checked="" type="checkbox"/>	Integral antenna (antenna permanently attached)
<input type="checkbox"/>	Temporary RF connector provided
<input checked="" type="checkbox"/>	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
<input type="checkbox"/>	External antenna (dedicated antennas)

## 2. Accreditations

### 2.1 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	CN : 8737A CAB ID : KR0025
KOREA	NRRA	KR0025

### 2.2 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

### 3. Test Specifications

#### 3.1 Standards

FCC Part Section(s)	RSS Section(s)	Requirement(s)	Status (Note 1)	Report Clause
15.203	RSS-Gen 6.8	Antenna Requirement	C	1.4
15.215(c)	RSS-Gen 6.7	Emission Bandwidth	C	4.1
15.209	RSS-216 6.2.2.2	Radiated Emissions	C	4.2
15.207	RSS-216 6.2.2.1	AC Power Line Conducted Emissions	C	4.3

**Note 1:** C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

**Note 2:** The data in this test report are traceable to the national or international standards.

**Note 3:** The sample was tested according to the following specification: ANSI C63.10-2013.

#### 3.2 Mode of operation during the test

Wireless charger were performed all charging conditions including variable loading and non-charging operation. It only contains data for worst case conditions.

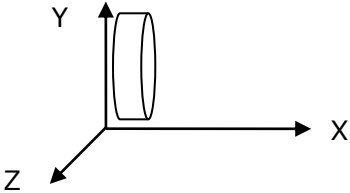
##### Test Frequency


Charging Frequencies
145 kHz

##### Chip Type

Chip Type	
Type 1	NuVolta IC, Clock frequency : 92 MHz)
Type 2	MAXIC IC, Clock frequency : 48 MHz)

##### Worst Case Measurement Configuration

<b>Tests Item</b>	Transmitter Radiated Emissions, Emission Bandwidth
<b>Condition</b>	Radiated measurement
<b>User Position</b>	<input checked="" type="checkbox"/> EUT will be placed in fixed position. <input type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. <input type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.
<b>EUT faces identified relative to view from receiving antenna</b>	

 <p><b>CTK Co., Ltd.</b> The Prime Leader of Global Regulatory Certification</p>	<p><b>CTK Co., Ltd.</b> (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel: +82-31-339-9970 Fax: +82-31-624-9501</p>	<p>Report No.: CTK-2024-01044-1 Page (8) / (26) Pages</p>	
---	--	---	--

### 3.3 Peripheral Devices

No.	Device	Manufacturer	Model No.	Serial No.
1	AC/DC Adaptor	RFTECH	EP-T2510	-
2	WPT Load	-	-	-

Note : WPT load was provided by manufacturer.

### 3.4 Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.  
Coverage factor  $k = 2$ , Confidence levels of 95 %

Test Item	Uncertainty
Radiated emissions	3.88 dB(C.L. : Approx. 95%, $k = 2$ )

### 3.5 Test Software

Radiated Test	ES10 Ver. 2022.04.000
---------------	-----------------------



## 4. Technical Characteristic Test

### 4.1 Emission Bandwidth

#### Requirement

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, 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.

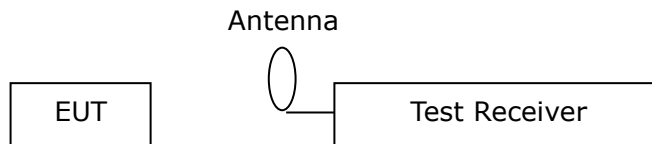
The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the "x dB bandwidth" is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated x dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

#### Test Procedures

For the emission bandwidth refer ANSI C63.10-2013, clause 6.9(Occupied bandwidth).

#### Test Setup



#### Test results

##### Test Date

2024-04-02

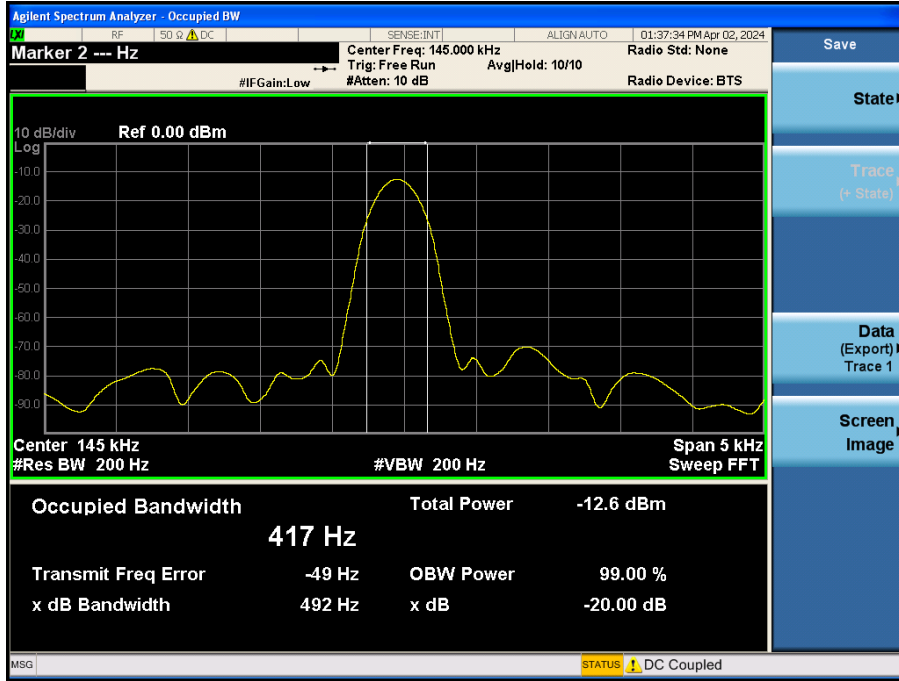
##### Testing Environment

Temperature: (22 ± 1) °C

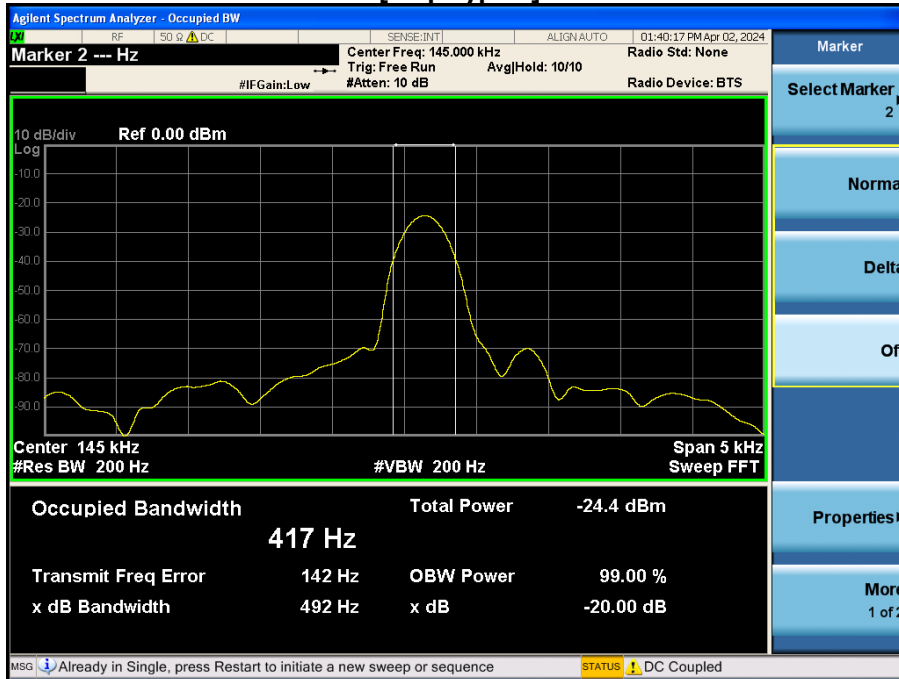
Relative Humidity: (33 ± 3) % R.H.

Chip Type	Emission Bandwidth	
	20 dB Bandwidth	99 % Bandwidth
1	492 Hz	417 Hz
2	492 Hz	417 Hz

[Chip Type 1]



[Chip Type 2]





## 4.2 Radiated emissions

### FCC Requirement

FCC Part 15 § 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency [MHz]	Field Strength [uV/m]	Field Strength [dBuV/m]	Measurement Distance [meters]
0.009-0.490	2400/F(kHz)	48.5 – 13.8	300
0.490-1.705	24000/F(kHz)	33.8 – 23	30
1.705-30	30	29.5	30
30-88	100**	40	3
88-216	150**	43.5	3
216-960	200**	46	3
Above 960	500	54	3

\*\* Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

Note : The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.



## ISED Requirement

The magnetic field radiated emissions within 9 kHz – 30 MHz from the WPT subassembly of WPT source and client devices and WPT systems shall comply with the limits applicable to induction cooking equipment, as set out in ICES-001.

The preferred test method for WPT devices that may be used in residential environments and that have a maximum dimension of less than or equal to 1.6 m is the test method using the van Veen loop antenna system, as per ICES-001.

However, it is acceptable to use the alternate 60 cm loop test method and corresponding limit for these small residential WPT devices (the same as for commercial/industrial and large residential devices).

The electric field radiated emissions within 30 – 1000 MHz from the WPT subassembly of WPT source and client devices and WPT systems shall comply with limits applicable to induction cooking equipment, as set out in ICES-001.

Frequency Range [MHz]	Quasi-peak, at 3 m distance Field Strength [dBuA/m]	Quasi-peak, at 3 m distance Field Strength [dBuV/m]
0.009 – 0.07	69	120.5
0.07 – 0.15	69 - 39*	120.5 – 90.5
0.15 – 30	39 - 7*	90.5 – 58.5
*The limit level in dBuA/m decreases linearly with the logarithm of frequency. Conversion factor between dBuA/m and dBuV/m is 51.5 dB.		

Frequency Range [MHz]	Quasi-peak, at 3 m distance Field Strength [dBuV/m]
30 – 230	40
230 – 1 000	47



**CTK Co., Ltd.**  
 (Ho-dong), 113, Yejik-ro, Cheoin-gu,  
 Yongin-si, Gyeonggi-do, Korea  
 Tel: +82-31-339-9970  
 Fax: +82-31-624-9501

Report No.:  
 CTK-2024-01044-1  
 Page (13) / (26) Pages

## Test Location

10 m SAC (test distance :  10 m,  3 m)

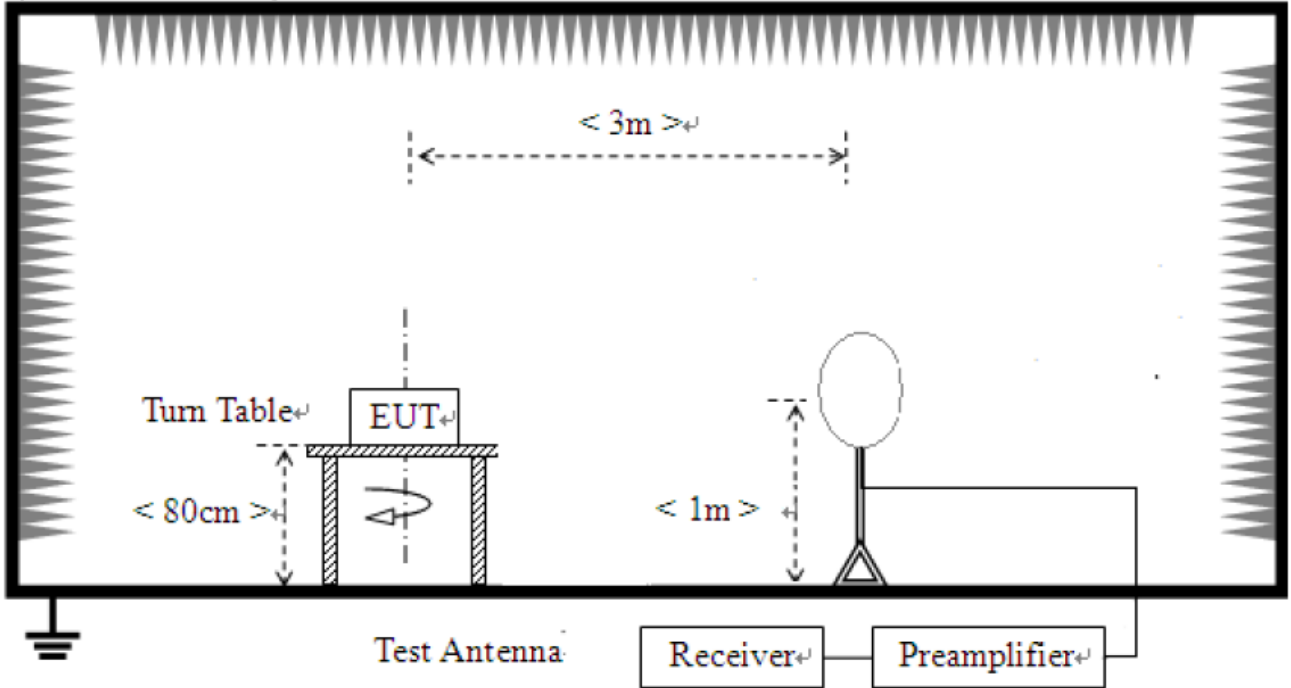
## Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10-2013, clause 6.4(Radiated emissions from unlicensed wireless devices below 30 MHz).
<input checked="" type="checkbox"/>	Radiated emission tests shall be performed in the frequency range of 9 kHz to 30 MHz, using a calibrated loop antenna. When perpendicular to the ground plane, the lowest height of the magnetic antenna shall be 1 m above the ground and shall be positioned at the specified distance from the EUT. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
<input checked="" type="checkbox"/>	The results shall be by using the square of an inverse linear distance extrapolation factor(40 dB/decade).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10-2013, clause 6.5(Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz).
<input checked="" type="checkbox"/>	In the frequency range above 30 MHz, Bi-Log Test Antenna(30 MHz to 1 GHz) is used. Test Antenna height is carried from 1m to 4m above the ground to determine the maximum value of the field strength. The emissions levels at both horizontal and vertical polarizations should be tested.
<input checked="" type="checkbox"/>	Emissions more than 20 dB below the limit do not need to be reported.

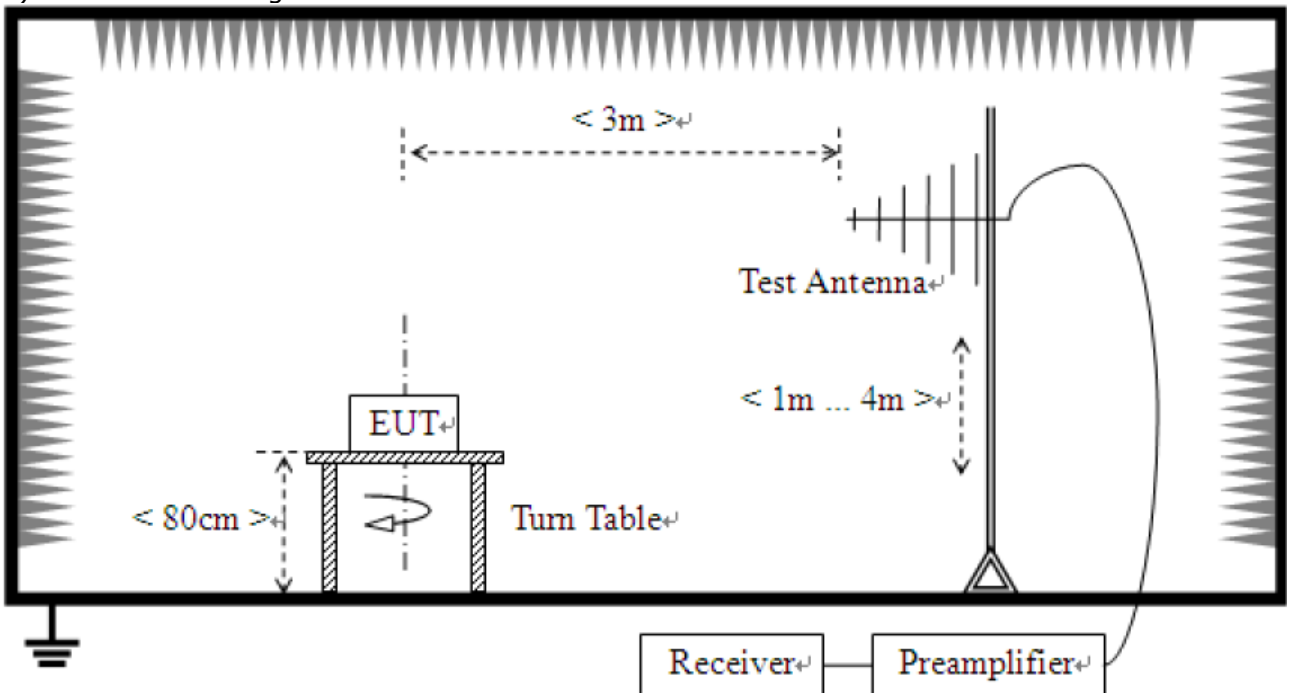
Measuring instrument Settings	
Frequency Range	9 kHz – 1 000 MHz
RBW	200 Hz (9 kHz – 150 kHz) 9 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1 000 MHz)
VBW	≥ RBW
Sweep time	auto couple
Detector function	CISPR quasi-peak(below 1 000 MHz)

## Test Setup

- 1) For field strength of emissions from 9 kHz to 30 MHz



- 2) For field strength of emissions from 30 MHz to 1 GHz



## Test results

### 1) Radiated emissions of fundamental frequency

**Test Date**

2024-03-29

**Testing Environment**

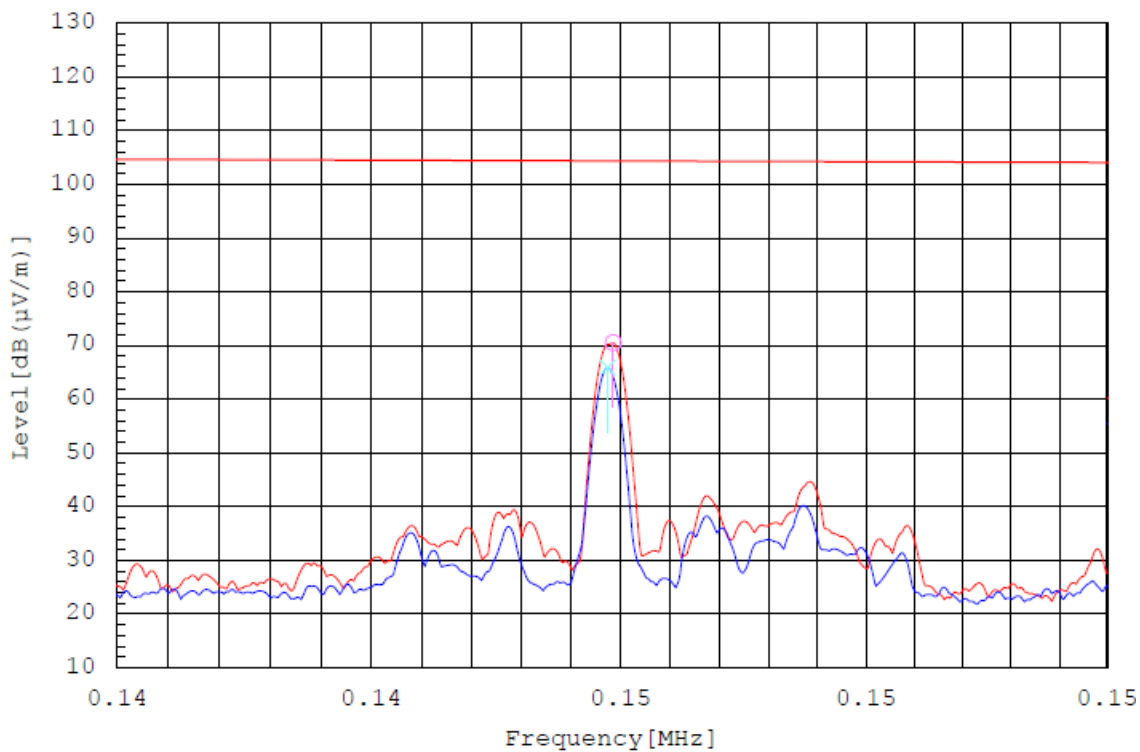
Temperature: (23 ± 1) °C

Relative Humidity: (53 ± 3) % R.H.

The requirements are:

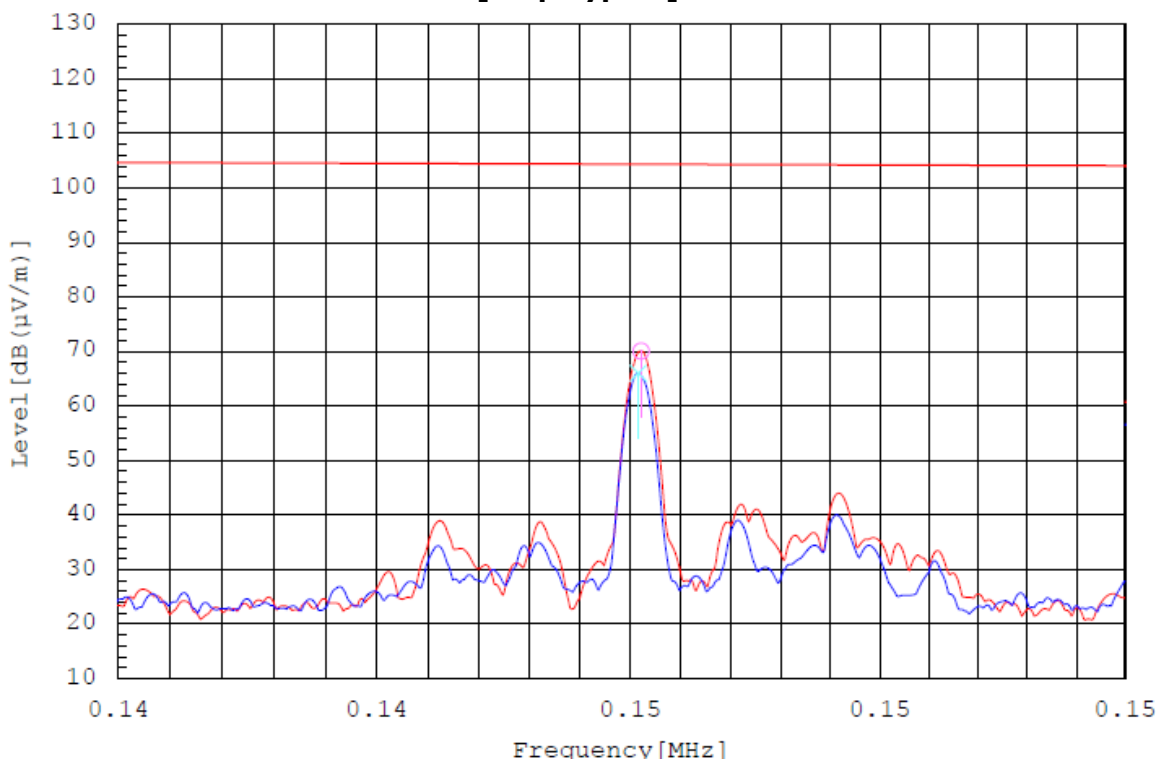
Complies

[Chip Type 1]



Frequency [kHz]	Reading [dBuV]	c.f [dB/m]	Result [dBuV/m]
145	45.4	25.1	70.5

**[Chip Type 2]**



Frequency [kHz]	Reading [dBuV]	c.f [dB/m]	Result [dBuV/m]
145	45.0	25.1	70.1

**Remark :**

1. Result = Reading + c.f(correction factor)
2. Correction factor = Antenna factor + Cable loss + 6 dB attenuator
3. FCC Limit :  $20\log(2400/145) + 40\log(300/3) = 104.4$  dBuV/m
4. ISED Limit :  $-(3/8)*145 + 95.25 = 40.875$  dBuA/m => 92.375 dBuV/m
5. The test result in peak detector is less than quasi-peak limit.



## 2) Radiated emissions in the frequency range of 9 kHz to 30 MHz

### Test Date

2024-03-29

### Testing Environment

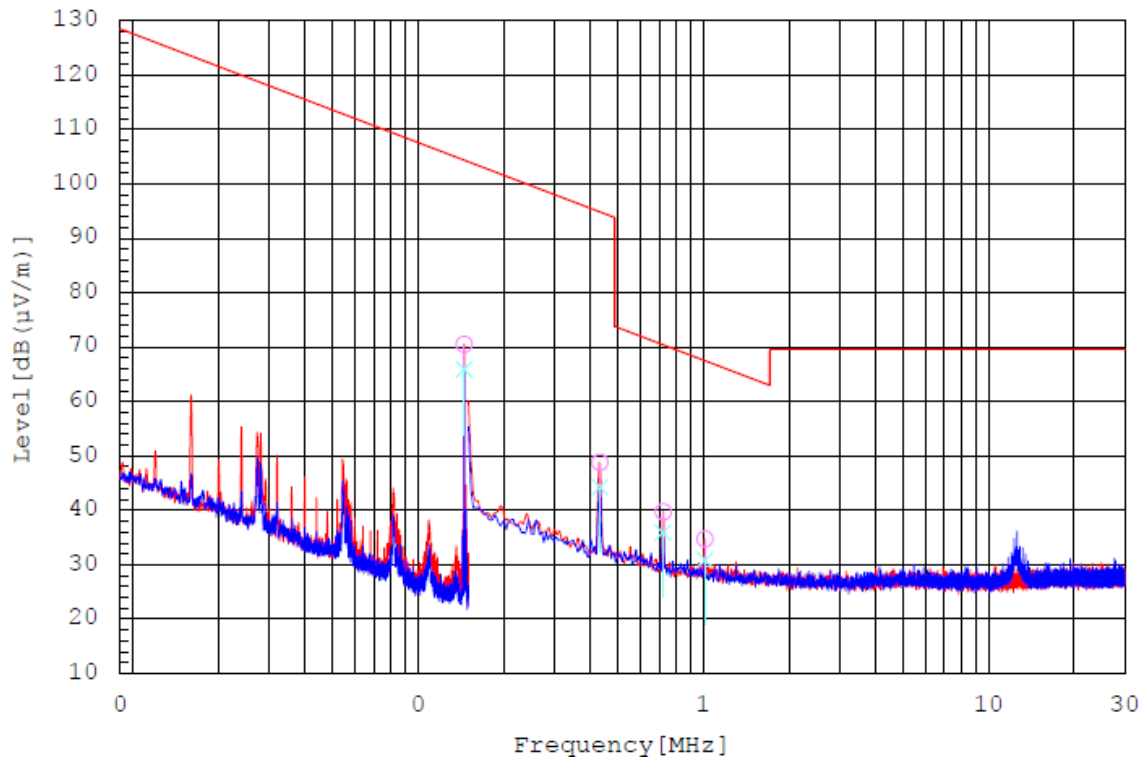
Temperature: (21 ± 1) °C

Relative Humidity: (33 ± 3) % R.H.

The requirements are:

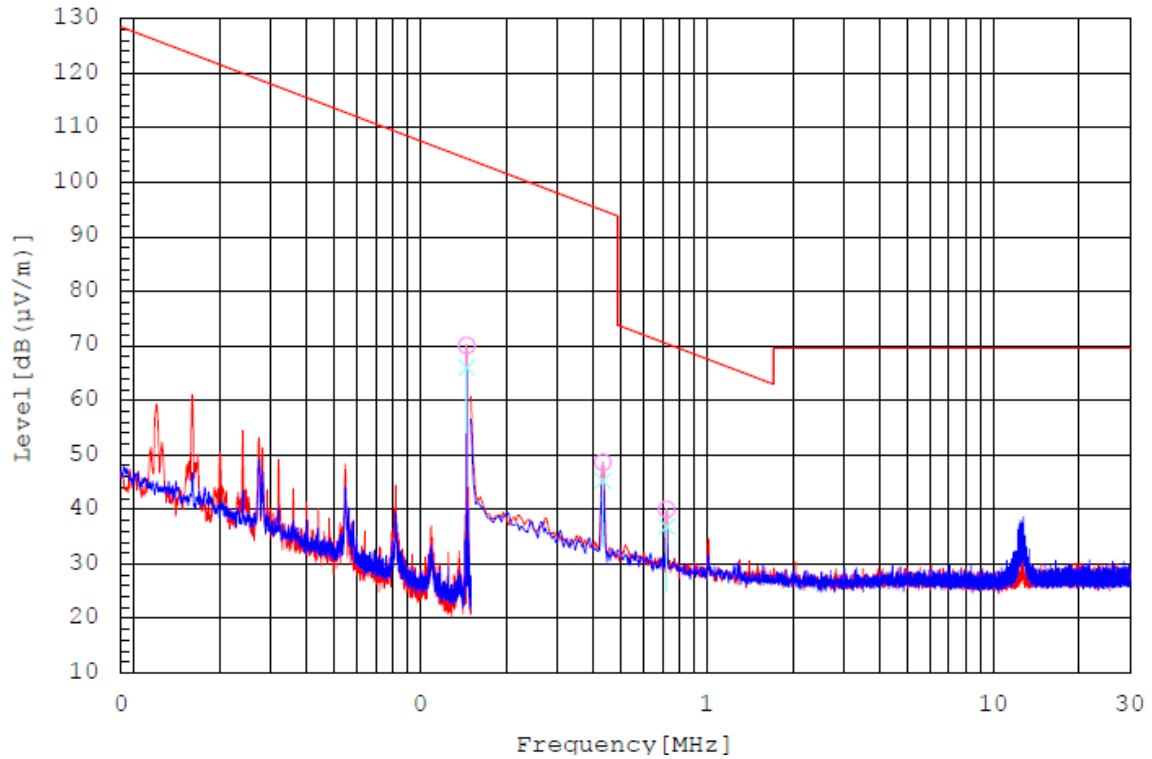
Complies

### [Chip Type 1]



No.	Frequency [MHz]	Reading [dBuV]	c.f [dB/m]	Result [dBuV/m]	Limit [dBuV/m]	Margin[dB]	Remark
1	0.145	40.8	25.1	65.9	104.4	38.5	Fundamental frequency
2	0.434	23.6	25.2	48.8	94.9	46.1	
3	0.723	14.6	25.1	39.7	70.4	30.7	

[Chip Type 2]



No.	Frequency [MHz]	Reading [dBuV]	c.f [dB/m]	Result [dBuV/m]	Limit [dBuV/m]	Margin[dB]	Remark
1	0.145	45.0	25.1	70.1	104.4	34.3	Fundamental frequency
2	0.434	23.5	25.2	48.7	94.9	46.2	
3	0.723	14.9	25.1	40.0	70.4	30.4	

**Remark :**

1. Result = Reading + c.f(correction factor)
2. Correction factor = Antenna factor + Cable loss + 6 dB attenuator
3. The test result in peak detector is less than quasi-peak limit.

### 3) Radiated emissions in the frequency range of 30 MHz to 1 000 MHz

**Test Date**

2024-03-29

**Testing Environment**

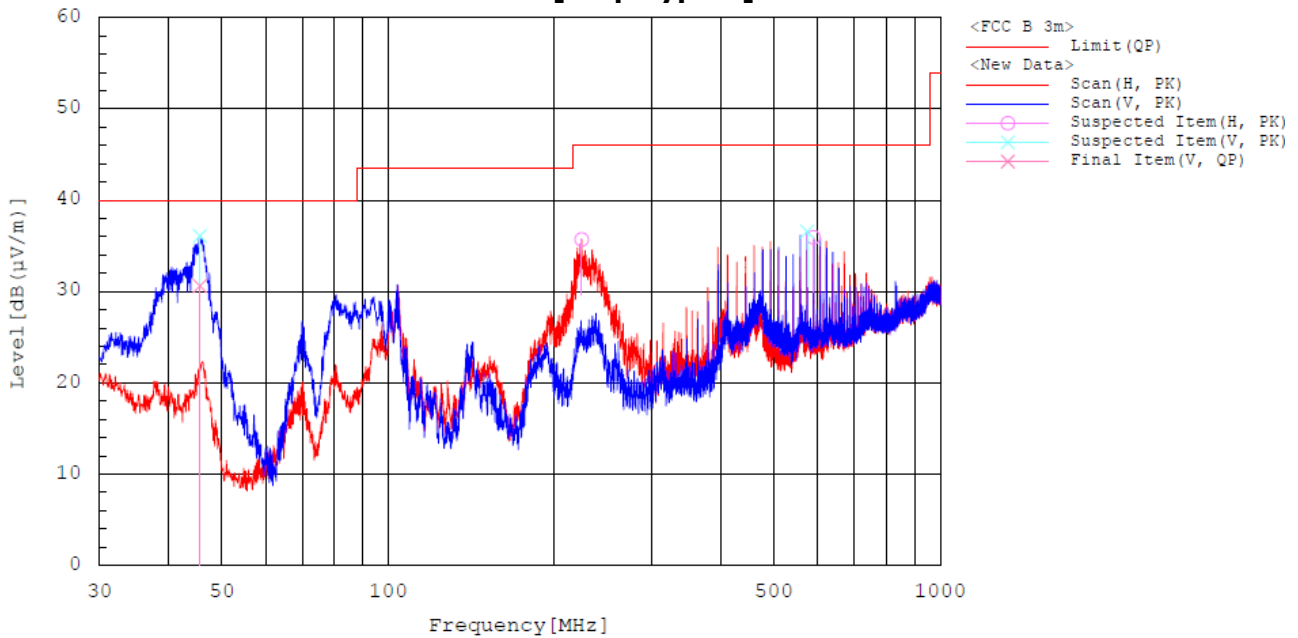
Temperature: (21 ± 1) °C

Relative Humidity: (33 ± 3) % R.H.

The requirements are:

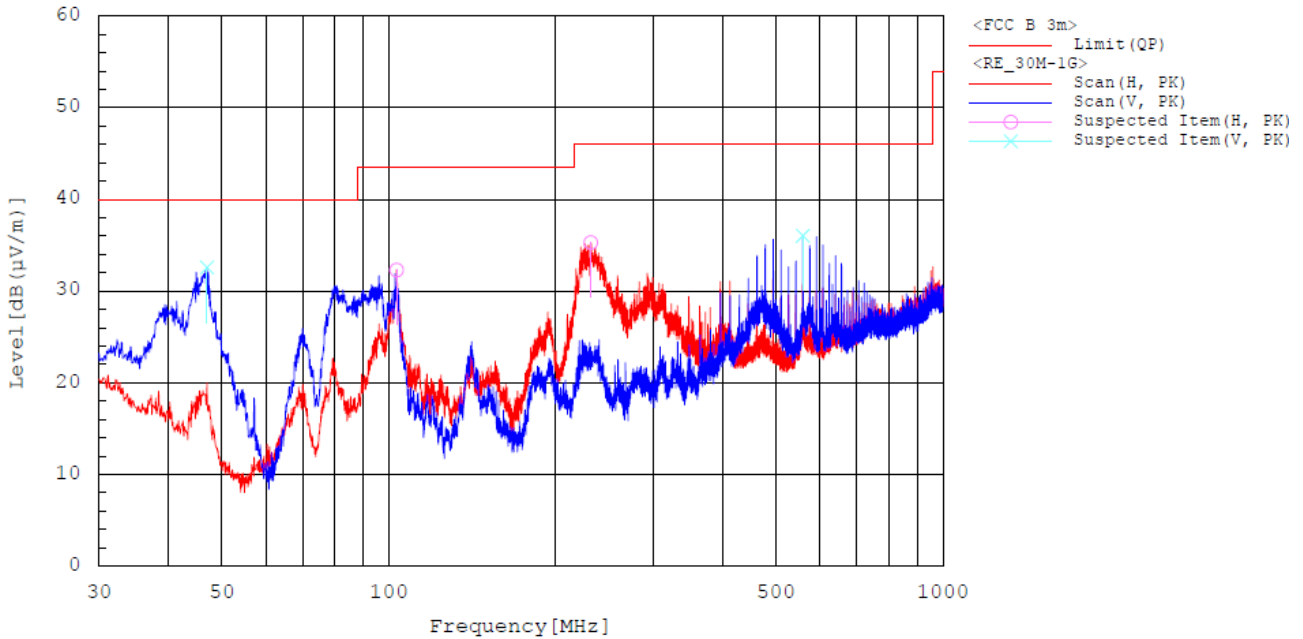
Complies

**[Chip Type 1]**



No.	Frequency [MHz]	Pol.	Reading [dBuV]	c.f [dB/m]	Result [dBuV/m]	Limit [dBuV/m]	Margin[dB]	Remark
1	45.617	V	51.2	-15.1	36.1	40.0	3.9	
2	224.291	H	50.8	-14.3	35.7	46.0	10.3	
3	574.461	V	38.8	-2.2	36.6	46.0	9.4	
4	589.593	H	38.1	2.2	35.9	46.0	10.1	

[Chip Type 2]



No.	Frequency [MHz]	Pol.	Reading [dBuV]	c.f [dB/m]	Result [dBuV/m]	Limit [dBuV/m]	Margin[dB]	Remark
1	46.975	V	48.6	-16.0	32.6	40.0	7.4	
2	103.332	H	46.8	-14.5	32.3	43.5	11.2	
3	231.566	H	49.0	-13.7	35.3	46.0	10.7	
4	559.135	V	38.0	-2.0	36.0	46.0	10.0	

**Remark :**

1. Result = Reading + c.f(Correction factor)
2. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
3. The test result in peak detector is less than quasi-peak limit.

## 4.3 AC Power Line Conducted Emissions

### FCC Requirement

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

\* Decreases with the logarithm of the frequency.

### ISED Requirement

The limits for the mains terminal disturbance voltages applicable to induction cooking appliances are presented in table. The induction cooking appliance shall comply with both the quasi-peak and the average limits.

Frequency (MHz)	Conducted emission limits for induction cooking appliances (dBuV)	
	Quasi-peak	Average
0.009 ~ 0.05	110	-
0.05 ~ 0.15	90 to 80*	-
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

\* The limit level in dBuV decreases linearly with the logarithm of the frequency.

### Test Procedures

Refer as ANSI C63.10-2013, clause 6.2(Standard test method for ac power-line conducted emissions from unlicensed wireless devices).

## Test Results

### Test Date

2024-04-02

### Testing Environment

Temperature: (18 ± 1) °C

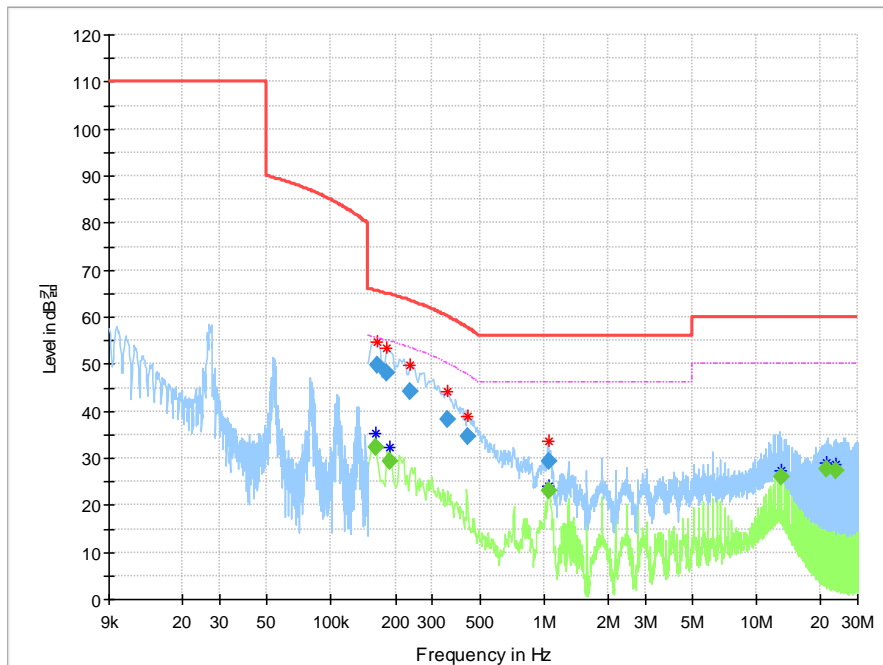
Relative Humidity: (31 ± 3) % R.H.

The requirements are:

Complies

### [Chip Type 1] - LINE

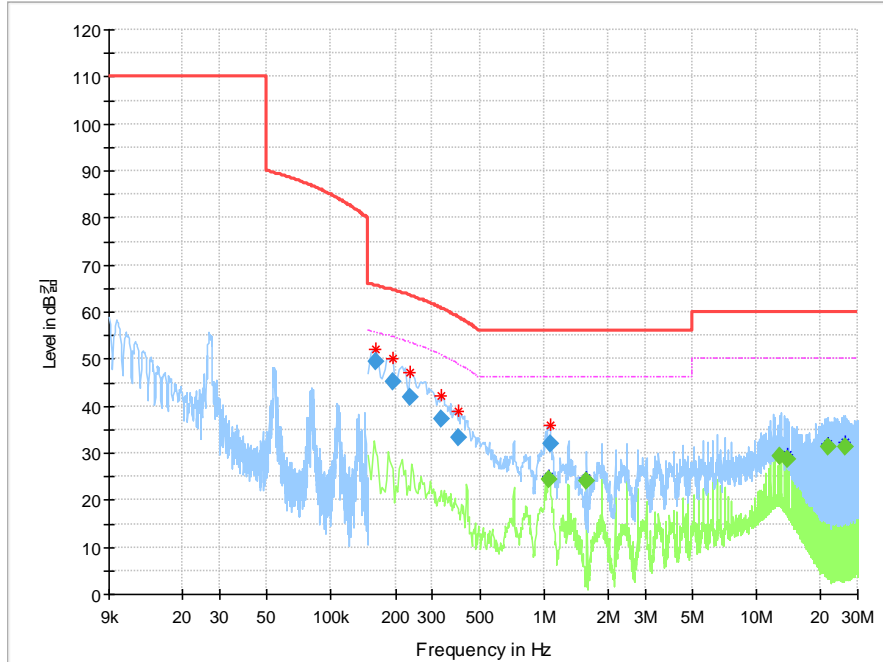
Full Spectrum



Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.162000	---	32.37	55.62	23.25	15000.0	9.000	L1	ON	9.6
0.166000	49.66	---	65.50	15.85	15000.0	9.000	L1	ON	9.6
0.182000	48.21	---	65.05	16.84	15000.0	9.000	L1	ON	9.6
0.190000	---	29.50	54.82	25.32	15000.0	9.000	L1	ON	9.6
0.234000	44.29	---	63.57	19.28	15000.0	9.000	L1	ON	9.6
0.354000	38.18	---	60.15	21.97	15000.0	9.000	L1	ON	9.6
0.442000	34.58	---	57.65	23.07	15000.0	9.000	L1	ON	9.6
1.050000	29.30	---	56.00	26.70	15000.0	9.000	L1	ON	9.7
1.054000	---	23.02	46.00	22.98	15000.0	9.000	L1	ON	9.7
13.190000	---	25.96	50.00	24.04	15000.0	9.000	L1	ON	10.1
21.306000	---	27.69	50.00	22.31	15000.0	9.000	L1	ON	10.4
23.770000	---	27.26	50.00	22.74	15000.0	9.000	L1	ON	10.4

**[Chip Type 1] - NEUTRAL**

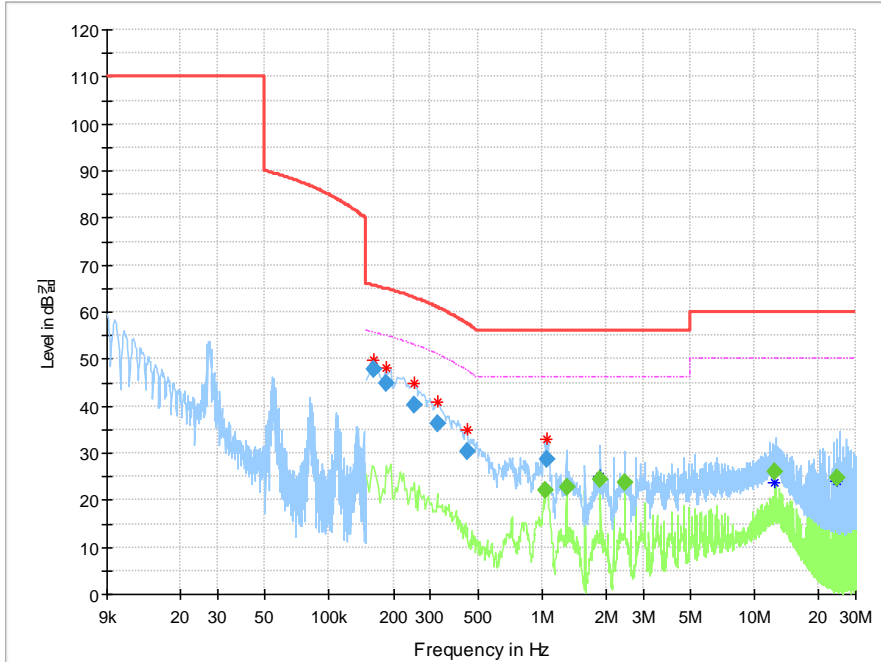
Full Spectrum



Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.162000	49.44	---	65.62	16.17	15000.0	9.000	N	ON	9.6
0.194000	45.18	---	64.71	19.53	15000.0	9.000	N	ON	9.6
0.234000	41.78	---	63.57	21.79	15000.0	9.000	N	ON	9.6
0.330000	37.40	---	60.84	23.44	15000.0	9.000	N	ON	9.6
0.398000	33.14	---	58.90	25.76	15000.0	9.000	N	ON	9.6
1.058000	---	24.44	46.00	21.56	15000.0	9.000	N	ON	9.7
1.066000	31.92	---	56.00	24.08	15000.0	9.000	N	ON	9.7
1.594000	---	24.17	46.00	21.83	15000.0	9.000	N	ON	9.7
12.898000	---	29.36	50.00	20.64	15000.0	9.000	N	ON	10.3
14.058000	---	28.66	50.00	21.34	15000.0	9.000	N	ON	10.4
21.594000	---	31.25	50.00	18.75	15000.0	9.000	N	ON	10.8
26.086000	---	31.41	50.00	18.59	15000.0	9.000	N	ON	10.9

**[Chip Type 2] - LINE**

Full Spectrum

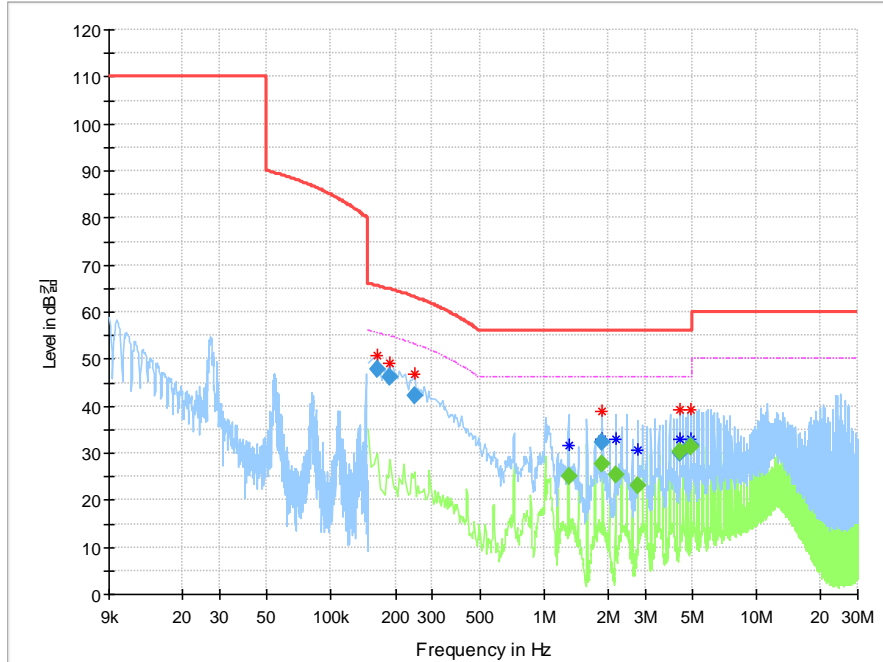


Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.162000	47.71	---	65.62	17.91	15000.0	9.000	L1	ON	9.6
0.186000	44.99	---	64.93	19.95	15000.0	9.000	L1	ON	9.6
0.250000	40.33	---	63.11	22.78	15000.0	9.000	L1	ON	9.6
0.322000	36.25	---	61.06	24.82	15000.0	9.000	L1	ON	9.6
0.446000	30.44	---	57.54	27.10	15000.0	9.000	L1	ON	9.6
1.046000	---	22.06	46.00	23.94	15000.0	9.000	L1	ON	9.7
1.054000	28.84	---	56.00	27.16	15000.0	9.000	L1	ON	9.7
1.306000	---	22.59	46.00	23.41	15000.0	9.000	L1	ON	9.7
1.886000	---	24.30	46.00	21.70	15000.0	9.000	L1	ON	9.7
2.466000	---	23.61	46.00	22.39	15000.0	9.000	L1	ON	9.7
12.478000	---	26.12	50.00	23.88	15000.0	9.000	L1	ON	10.1
24.662000	---	24.58	50.00	25.42	15000.0	9.000	L1	ON	10.4



**[Chip Type 2] - NEUTRAL**

Full Spectrum



Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.166000	47.77	---	65.50	17.73	15000.0	9.000	N	ON	9.6
0.190000	46.32	---	64.82	18.50	15000.0	9.000	N	ON	9.6
0.246000	42.20	---	63.23	21.03	15000.0	9.000	N	ON	9.6
1.306000	---	25.15	46.00	20.85	15000.0	9.000	N	ON	9.7
1.886000	---	27.72	46.00	18.28	15000.0	9.000	N	ON	9.7
1.886000	32.34	---	56.00	23.66	15000.0	9.000	N	ON	9.7
2.178000	---	25.31	46.00	20.69	15000.0	9.000	N	ON	9.7
2.758000	---	22.93	46.00	23.07	15000.0	9.000	N	ON	9.7
4.354000	29.90	---	56.00	26.10	15000.0	9.000	N	ON	9.8
4.354000	---	30.17	46.00	15.83	15000.0	9.000	N	ON	9.8
4.934000	---	31.41	46.00	14.59	15000.0	9.000	N	ON	9.9
4.934000	31.71	---	56.00	24.29	15000.0	9.000	N	ON	9.9



**CTK Co., Ltd.**  
 (Ho-dong), 113, Yejik-ro, Cheoin-gu,  
 Yongin-si, Gyeonggi-do, Korea  
 Tel: +82-31-339-9970  
 Fax: +82-31-624-9501

Report No.:  
 CTK-2024-01044-1  
 Page (26) / (26) Pages

## APPENDIX A – Test Equipment Used For Tests

No.	Name of Equipment	Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date
1	EMI Test Receiver	R&S	ESW44	102039	2023-05-03	2024-05-03
2	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-125	2022-04-15	2024-04-15
3	BILOG ANTENNA	TESEQ	CBL6111D	60654	2023-08-21	2025-08-21
4	AMPLIFIER	SONOMA INSTRUMENT	310N	411011	2023-08-04	2024-08-04
5	6dB Attenuator	PASTERNAK	PE7AP006-06	L20210504000023	2023-08-04	2024-08-04
6	ATTENUATOR	NONE	6dB	190557	2023-09-25	2024-09-25
7	Signal Analyzer	Agilent	N9020A	US46470483	2023-12-05	2024-12-05
8	EMI Receiver	R&S	ESR3	102826	2023-05-03	2024-05-03
9	LISN	R&S	ENV216	102698	2023-05-03	2024-05-03

No.	Cable	Manufacturer	Model No.	Serial No.	Check Date
1	RF Cable (9 kHz ~ 1 GHz, Radiated)	HUBER+SUHNER	SUCOFLEX 104	MY27558/4	2024-03-05
2	RF Cable (9 kHz ~ 30MHz, Radiated)	CANARE	L-5D2W	N/A	2024-03-05
3	RF Cable (30 MHz ~ 1 GHz, Radiated)	CANARE	L-5D2W	N/A	2024-03-05

-END-