



**中认信通**

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



## TEST REPORT

**Applicant: BYTECH NY INC.**

Address: 2585 West 13 street, Brooklyn, NY 11223 USA

**FCC ID: 2AHN6-AUBS189**

**Product Name: 10W Touch LED Wireless Charger**

**Standard(s): 47 CFR Part 15, Subpart C  
ANSI C63.10-2013**

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

**Report Number: CR230743311-00**

**Date Of Issue: 2023/8/4**

**Reviewed By: Calvin Chen**

*Calvin Chen*

Title: RF Engineer

**Approved By: Sun Zhong**

*Sun Zhong*

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## Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

## Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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## DOCUMENT REVISION HISTORY

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Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230743311-00	Original Report	2023/8/4

## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment under Test (EUT)

<b>EUT Name:</b>	10W Touch LED Wireless Charger
<b>EUT Model:</b>	BY-AU-BS-189-BK
<b>Operation Frequency:</b>	137 kHz
<b>Rated Input Voltage:</b>	DC 5V 2A/9V 2A from Type C
<b>Wireless Output:</b>	5Watts, 7.5Watts, 10Watts
<b>Serial Number:</b>	28ZS-1
<b>EUT Received Date:</b>	2023/8/2
<b>EUT Received Status:</b>	Good
<b>UPC number:</b>	805112119844
<b>SKU Number:</b>	9096691
<b>Lot Number:</b>	BY081023

### Antenna Information Detail ▲:

Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
Coil	50	110-205 kHz	Unknown

The Method of §15.203 Compliance:

- Antenna must be permanently attached to the unit.
- Antenna must use a unique type of connector to attach to the EUT.
- Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

### Accessory Information:

Accessory Description	Manufacturer	Model
/	/	/

## 1.2 Description of Test Configuration

### 1.2.1 EUT Operation Condition:

<b>EUT Operation Mode:</b>	The system was configured for testing in Engineering Mode, which was provided by the manufacturer. The EUT support max 18 Watts input, max 10 Watts wireless output. So select the full load mode(10 Watts wireless output) to test.
<b>Equipment Modifications:</b>	No
<b>EUT Exercise Software:</b>	No
Engineering Mode was provided by manufacturer▲. The maximum power was configured default setting.	

### 1.2.2 Support Equipment List and Details

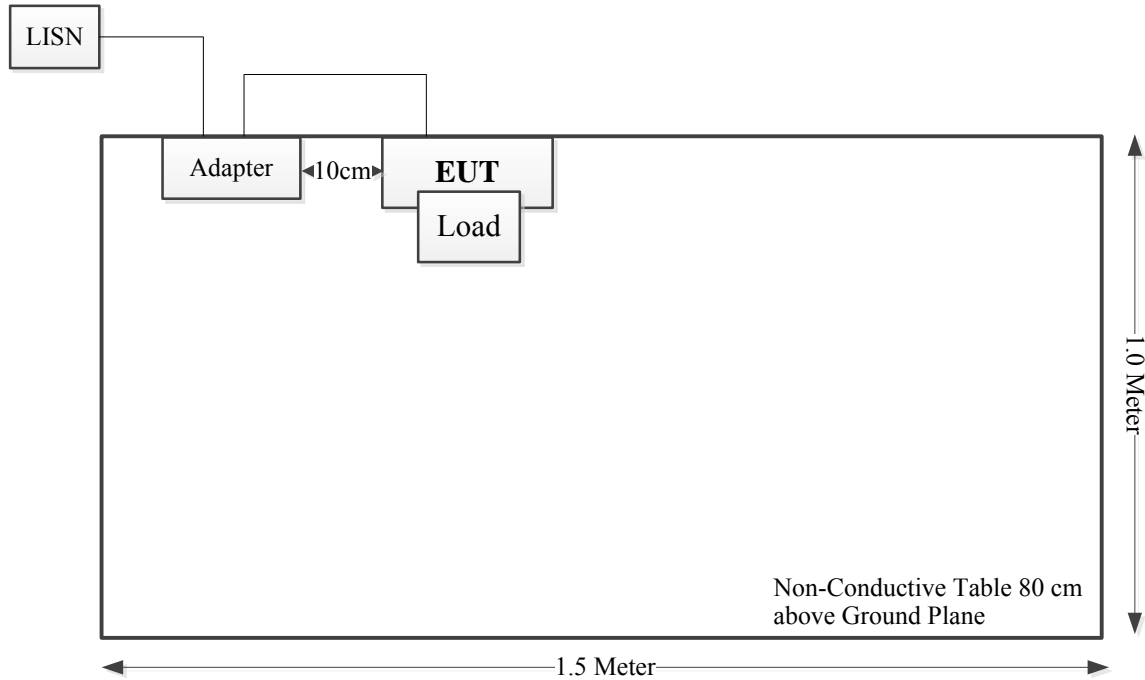
Manufacturer	Description	Model	Serial Number
UGREEN	Adapter	CD161	40715
SiLiYuan	Wireless Charging Load	MX15W	211013003

### 1.2.3 Support Cable List and Details

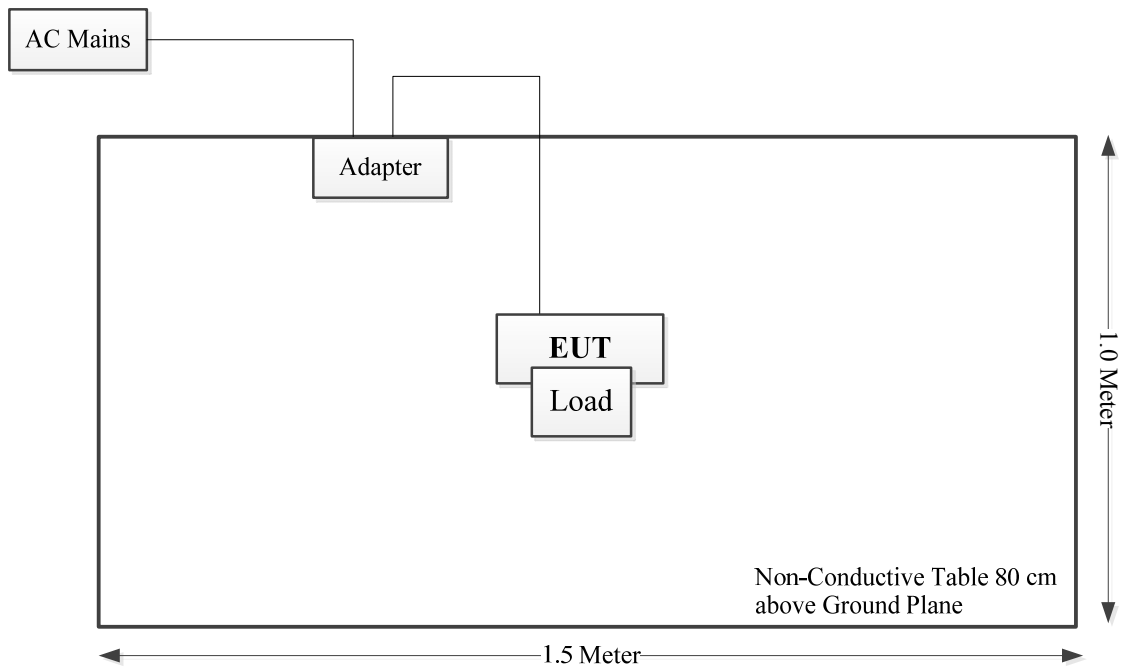
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	1	Adapter	EUT

### 1.2.4 Block Diagram of Test Setup

AC line conducted emissions:



Spurious emissions:



### 1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
radiated Emissions	9kHz~30MHz: 4.12dB 30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)



## 2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
FCC§15.207	AC Line Conducted Emission	Compliant
FCC§15.209 §15.205	Radiated Emission Test	Compliant
FCC§15.215	20 dB Emission Bandwidth	Compliant
FCC§15.203	Antenna Requirement	Compliant
FCC§1.1310 §2.1091	Maximum Permissible Exposure (MPE)	Compliant

### 3. REQUIREMENTS AND TEST PROCEDURES

#### 3.1 AC Line Conducted Emissions

##### 3.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, 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 of emission (MHz)	Conducted limit (dB $\mu$ V)	
	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.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

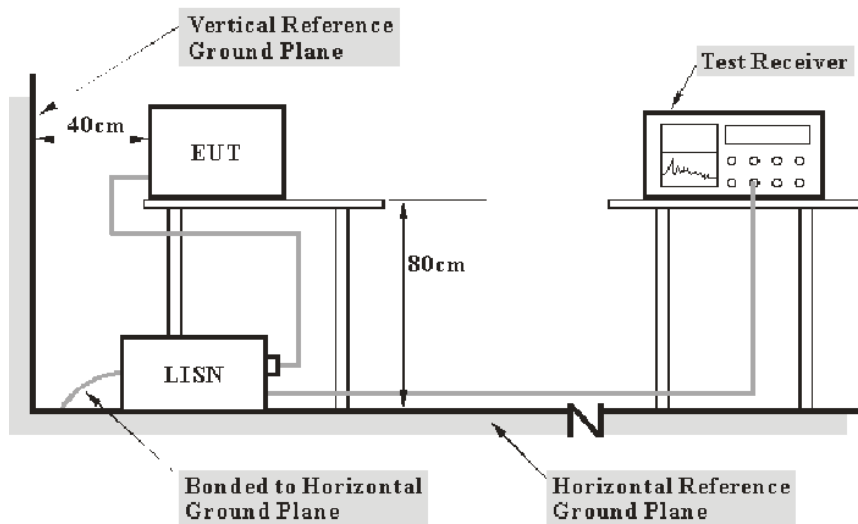
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000  $\mu$ V within the frequency band 535-1705 kHz, as measured using a 50  $\mu$ H/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

### 3.1.2 EUT Setup



- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter or EUT was connected to the main LISN with a 125 V/60 Hz AC power source.

### 3.1.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

### 3.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase (“hot”) line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

### 3.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$\text{Result} = \text{Reading} + \text{Factor}$$

$$\text{Factor} = \text{attenuation caused by cable loss} + \text{voltage division factor of AMN}$$

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Result}$$

## 3.2 Radiation Spurious Emissions

### 3.2.1 Applicable Standard

FCC §15.209

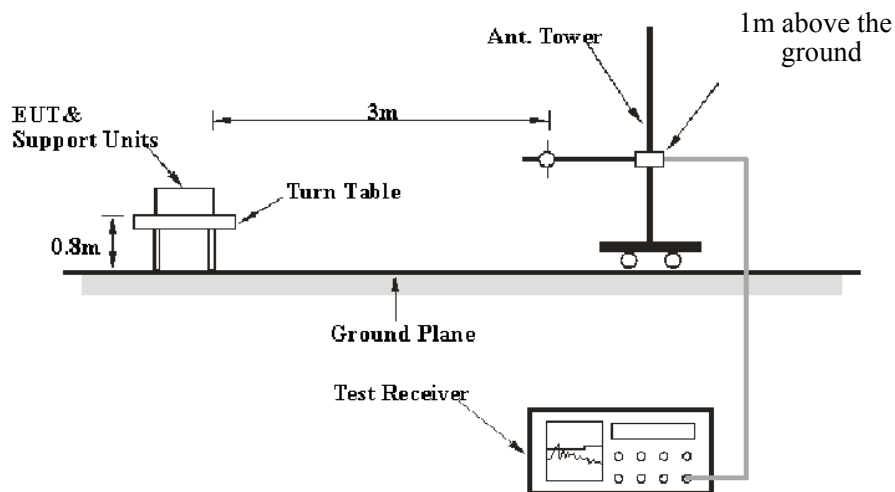
(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (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

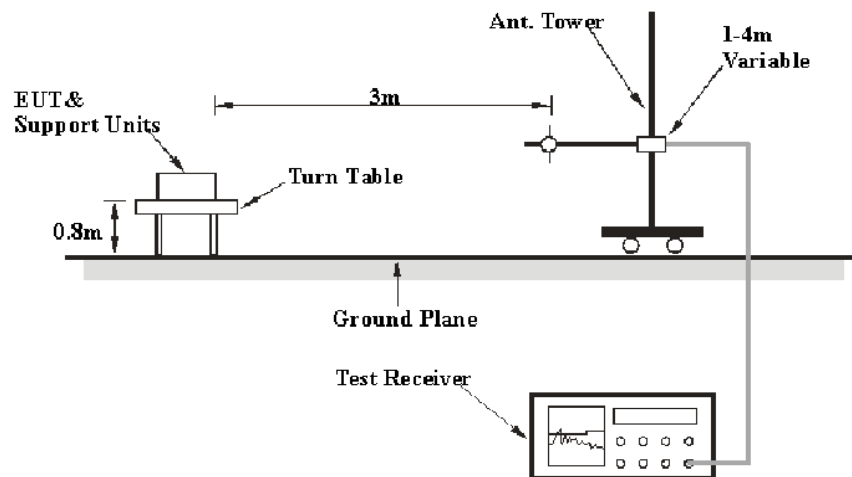
\*\*Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this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

### 3.2.2 EUT Setup

9kHz-30MHz:



30MHz-1GHz:



The radiated emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 limits.

The spacing between the peripherals was 10 cm.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

### 3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 1 GHz.

During the radiated emission test, the EMI test Receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	Measurement
9 kHz – 150 kHz	200 Hz	1 kHz	QP/Average
150 kHz – 30 MHz	9 kHz	30 kHz	QP/Average
30 MHz – 1000 MHz	120 kHz	300 kHz	QP

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.

If the maximized peak measured value complies with the limit, then it is unnecessary to perform an QP/Average measurement

### 3.2.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

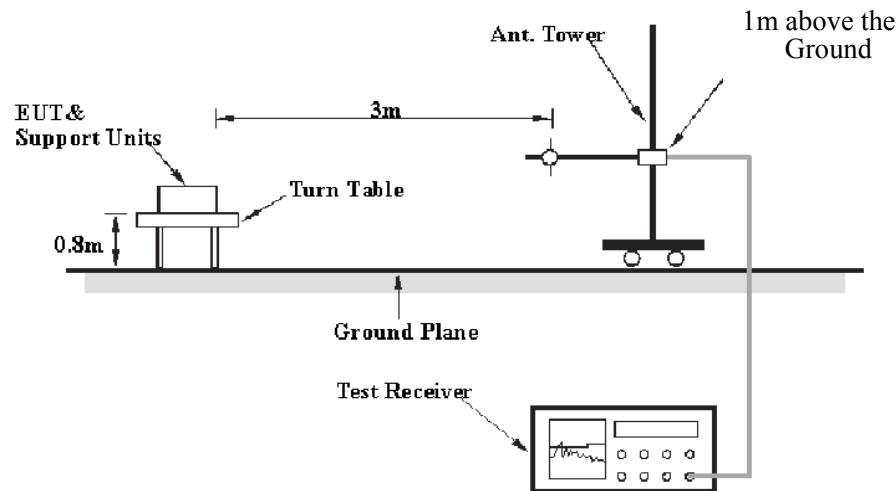
### 3.3 20 dB Emission Bandwidth:

#### 3.3.1 Applicable Standard

FCC §15.215

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 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. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of band operation.

#### 3.3.2 EUT Setup



#### 3.3.3 Test Procedure

1. Position the EUT on the test table without connection to measurement instrument. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
2. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
3. Measure the 99% Occupied bandwidth use the 99% Occupied bandwidth function of the test equipment.

### **3.4 Antenna Requirement**

#### **3.4.1 Applicable Standard**

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

#### **3.4.2 Judgment**

**Compliant.** Please refer to the Antenna Information detail in Section 1.



## 4. Test DATA AND RESULTS

### 4.1 AC Line Conducted Emissions

Serial Number:	28ZS-1	Test Date:	2023/8/3
Test Site:	CE	Test Mode:	Wireless Charging
Tester:	David Huang	Test Result:	Pass

#### Environmental Conditions:

Temperature: (°C)	26	Relative Humidity: (%)	57	ATM Pressure: (kPa)	99.7
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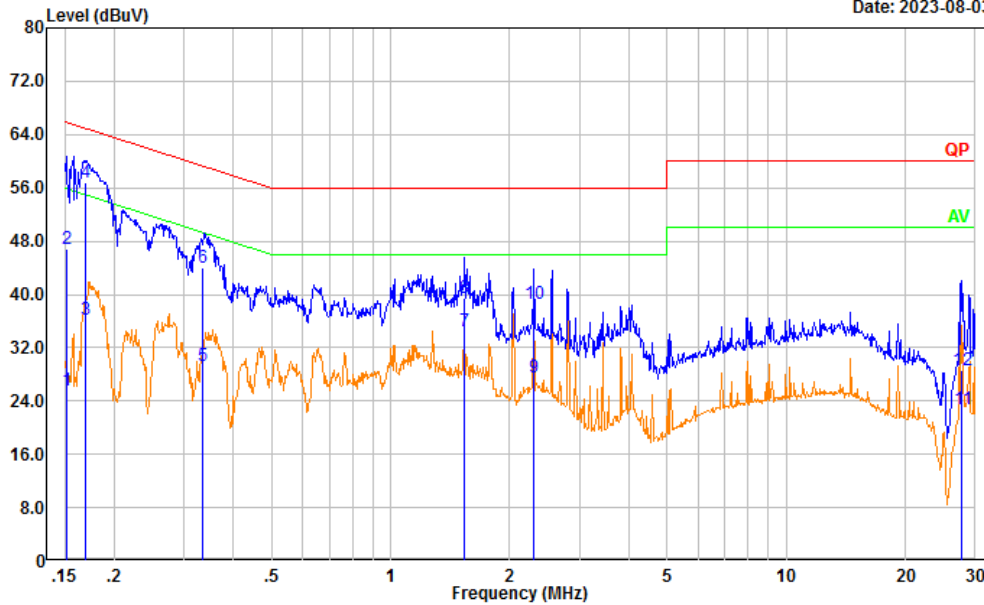
#### Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/3/31	2024/3/30
R&S	EMI Test Receiver	ESR3	102726	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2022/8/7	2023/8/6
Audix	Test Software	E3	190306 (V9)	N/A	N/A

\* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Mode: Wireless Charging  
 Port: Line  
 Note:

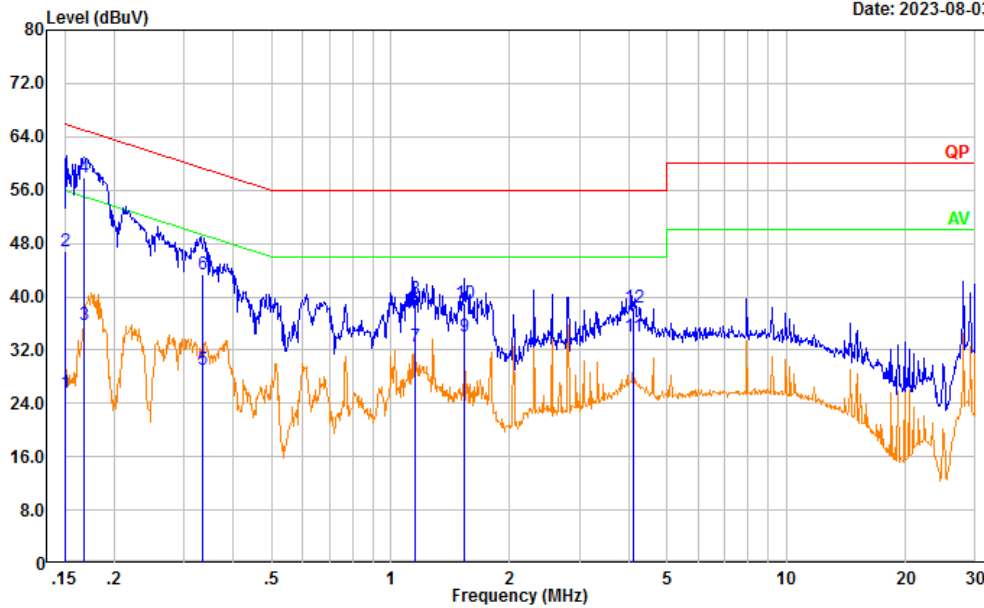
Date: 2023-08-03



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.152	16.02	9.61	25.63	55.88	30.25	Average
2	0.152	37.29	9.61	46.90	65.88	18.98	QP
3	0.170	26.60	9.61	36.21	54.97	18.76	Average
4	0.170	47.15	9.61	56.76	64.97	8.21	QP
5	0.335	19.74	9.61	29.35	49.33	19.98	Average
6	0.335	34.33	9.61	43.94	59.33	15.39	QP
7	1.539	24.84	9.63	34.47	46.00	11.53	Average
8	1.539	29.84	9.63	39.47	56.00	16.53	QP
9	2.306	17.94	9.64	27.58	46.00	18.42	Average
10	2.306	29.04	9.64	38.68	56.00	17.32	QP
11	27.774	12.92	9.83	22.75	50.00	27.25	Average
12	27.774	18.77	9.83	28.60	60.00	31.40	QP

Test Mode: Wireless Charging  
 Port: neutral  
 Note:

Date: 2023-08-03



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.150	15.87	9.61	25.48	56.00	30.52	Average
2	0.150	37.32	9.61	46.93	66.00	19.07	QP
3	0.167	26.06	9.61	35.67	55.08	19.41	Average
4	0.167	48.28	9.61	57.89	65.08	7.19	QP
5	0.335	19.39	9.61	29.00	49.31	20.31	Average
6	0.335	33.67	9.61	43.28	59.31	16.03	QP
7	1.155	22.92	9.62	32.54	46.00	13.46	Average
8	1.155	30.13	9.62	39.75	56.00	16.25	QP
9	1.540	24.38	9.63	34.01	46.00	11.99	Average
10	1.540	29.44	9.63	39.07	56.00	16.93	QP
11	4.102	24.46	9.65	34.11	46.00	11.89	Average
12	4.102	28.70	9.65	38.35	56.00	17.65	QP

**4.2 Radiation Spurious Emissions**

Serial Number:	28ZS-1	Test Date:	2023/8/3
Test Site:	966-2	Test Mode:	Wireless Charging
Tester:	Carl Xue	Test Result:	Pass

**Environmental Conditions:**

Temperature: (°C)	27.6	Relative Humidity: (%)	63	ATM Pressure: (kPa)	99.7
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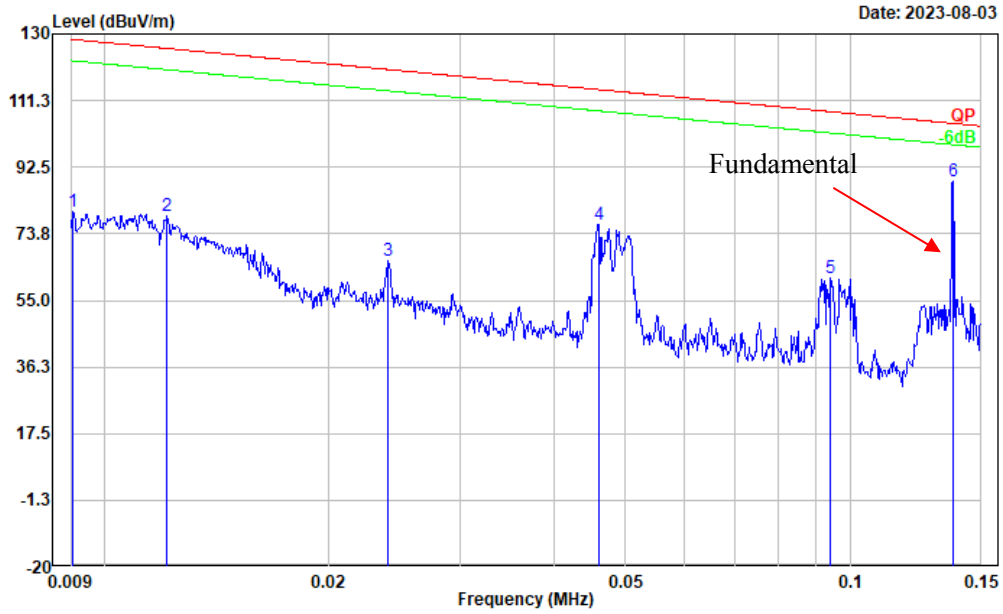
**Test Equipment List and Details:**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMCO	Passive Loop Antenna	6512	9706-1209	2023/2/15	2026/2/14
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A

\* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

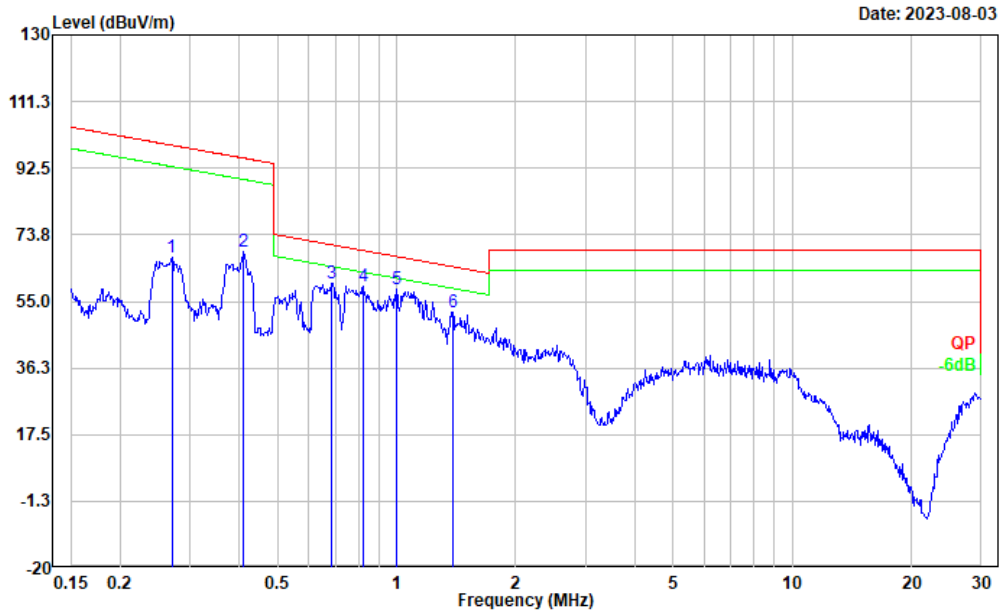
**1) 9k-30MHz:  
Parallel**

Test Mode: Wireless Charging  
Polarization: Parallel  
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.009	21.00	59.01	80.01	128.45	48.44	Peak
2	0.012	22.63	56.16	78.79	125.93	47.14	Peak
3	0.024	18.39	47.80	66.19	119.99	53.80	Peak
4	0.046	33.57	42.81	76.38	114.35	37.97	Peak
5	0.094	25.75	35.54	61.29	108.11	46.82	Peak
6	0.137	55.46	33.12	88.58	104.84	16.26	Peak

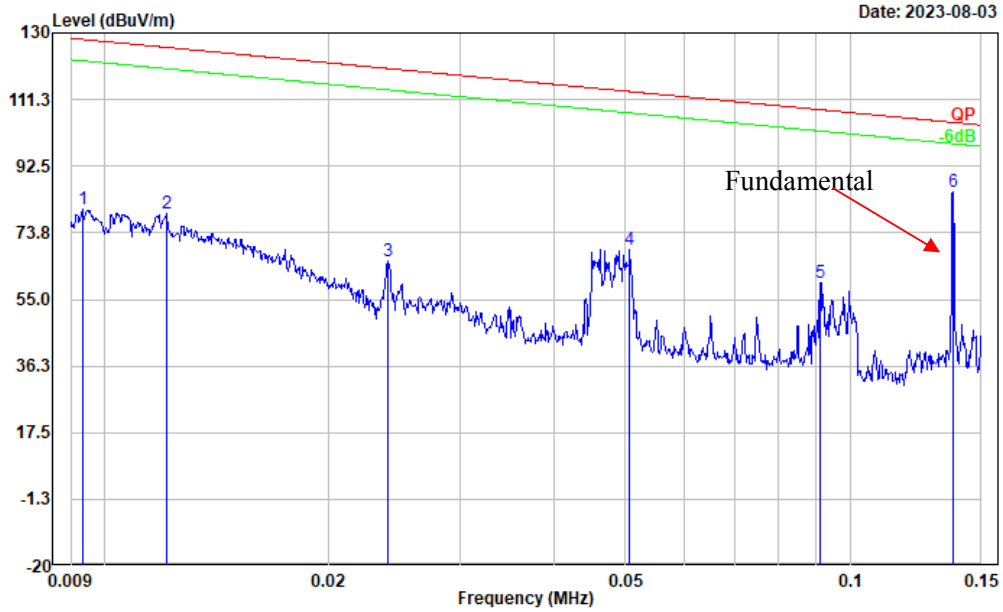
Test Mode: Wireless Charging  
 Polarization: Parallel  
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.270	40.21	27.08	67.29	98.97	31.68	Peak
2	0.408	45.11	23.86	68.97	95.38	26.41	Peak
3	0.686	40.31	19.82	60.13	70.81	10.68	Peak
4	0.822	41.03	18.23	59.26	69.21	9.95	Peak
5	1.000	41.61	16.86	58.47	67.48	9.01	Peak
6	1.388	37.15	14.67	51.82	64.56	12.74	Peak

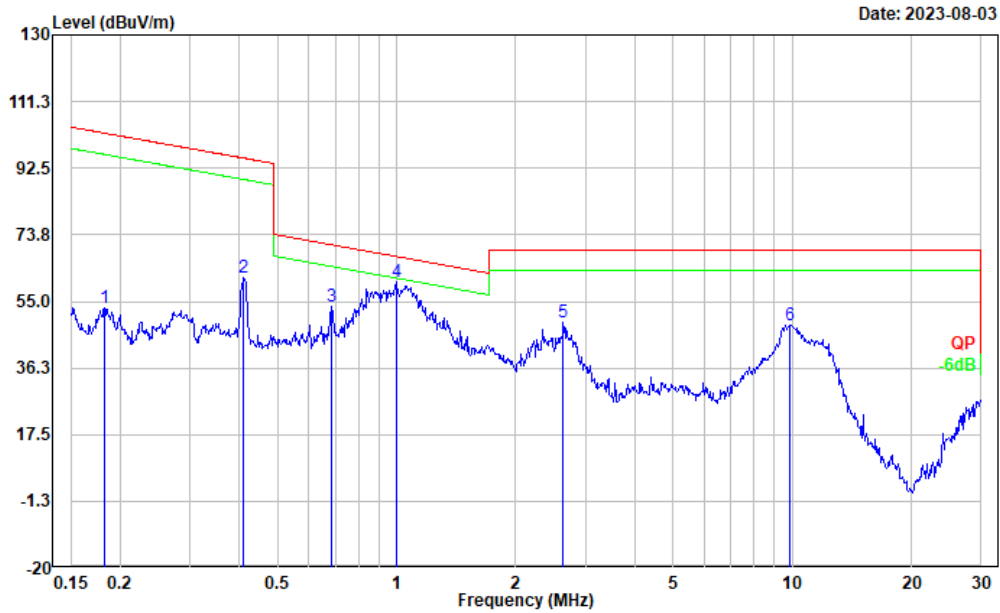
**Perpendicular**

Test Mode: Wireless Charging  
 Polarization: Perpendicular  
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.009	21.57	58.73	80.30	128.20	47.90	Peak
2	0.012	22.88	56.20	79.08	125.95	46.87	Peak
3	0.024	17.96	47.80	65.76	119.99	54.23	Peak
4	0.051	26.85	42.14	68.99	113.52	44.53	Peak
5	0.091	23.96	35.69	59.65	108.41	48.76	Peak
6	0.137	52.20	33.12	85.32	104.84	19.52	Peak

Test Mode: Wireless Charging  
 Polarization: Perpendicular  
 Note:

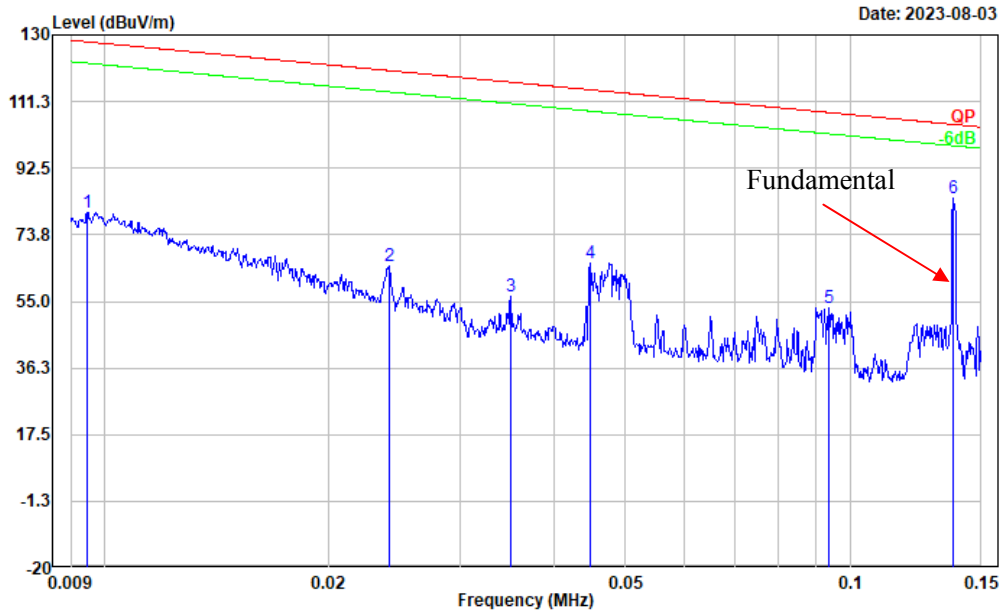


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.182	22.59	30.57	53.16	102.38	49.22	Peak
2	0.410	37.75	23.82	61.57	95.34	33.77	Peak
3	0.683	33.59	19.87	53.46	70.86	17.40	Peak
4	1.000	43.57	16.86	60.43	67.48	7.05	Peak
5	2.636	39.54	9.38	48.92	69.54	20.62	Peak
6	9.861	44.01	4.46	48.47	69.54	21.07	Peak



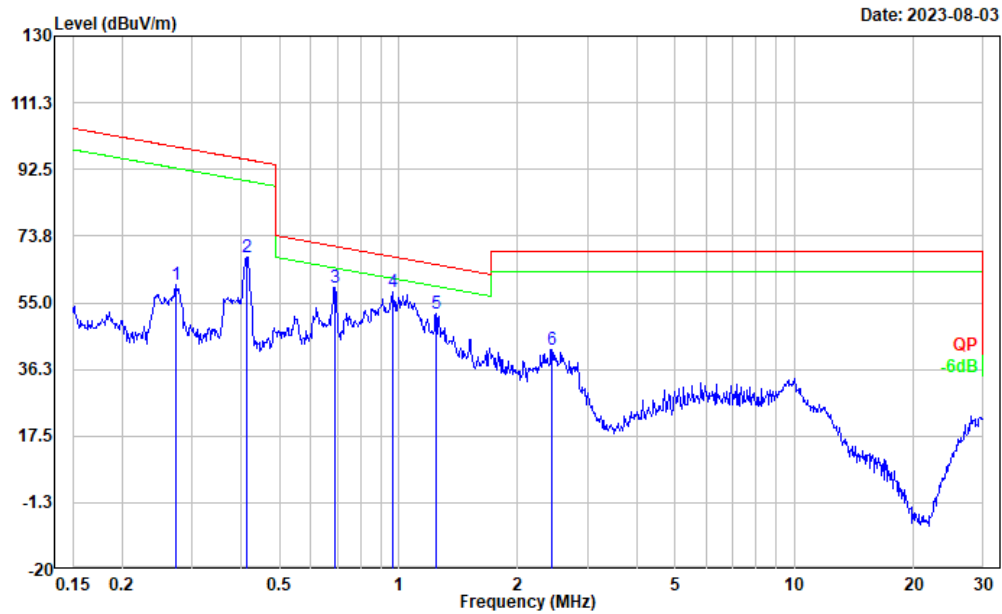
**Ground-parallel**

Test Mode: Wireless Charging  
 Polarization: Ground-parallel  
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.009	21.53	58.59	80.12	128.08	47.96	Peak
2	0.024	17.35	47.78	65.13	119.97	54.84	Peak
3	0.035	11.83	44.59	56.42	116.72	60.30	Peak
4	0.045	22.61	42.97	65.58	114.59	49.01	Peak
5	0.094	17.55	35.56	53.11	108.16	55.05	Peak
6	0.137	51.08	33.12	84.20	104.84	20.64	Peak

Test Mode: Wireless Charging  
 Polarization: Ground-parallel  
 Note:

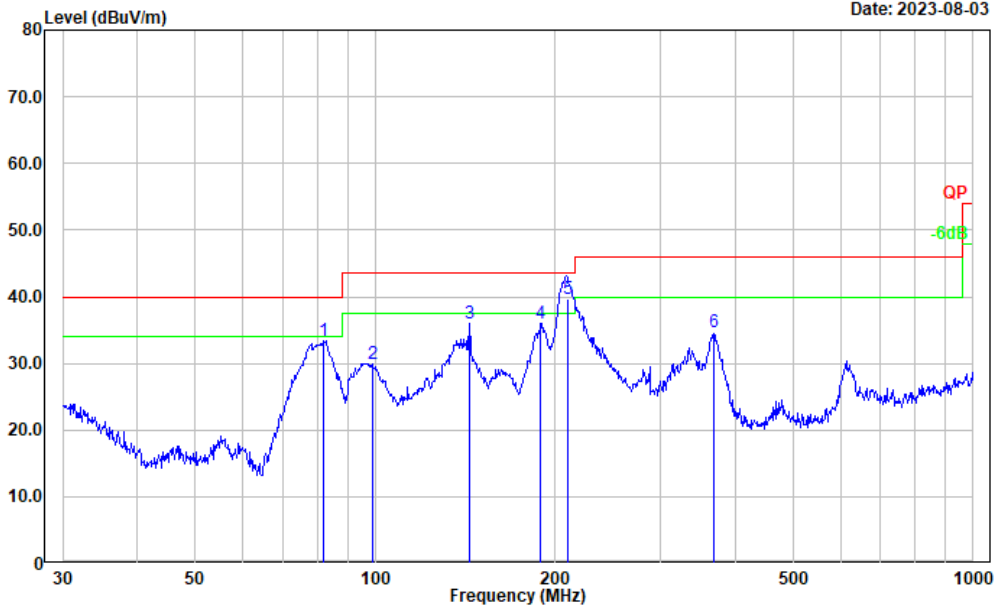


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.274	32.96	26.92	59.88	98.84	38.96	Peak
2	0.413	43.87	23.78	67.65	95.29	27.64	Peak
3	0.690	39.54	19.77	59.31	70.77	11.46	Peak
4	0.963	40.86	17.19	58.05	67.80	9.75	Peak
5	1.242	36.47	15.49	51.96	65.55	13.59	Peak
6	2.435	31.76	9.96	41.72	69.54	27.82	Peak

2)30MHz- 1GHz

Test Mode: Wireless Charging  
 Polarization: horizontal  
 Note:

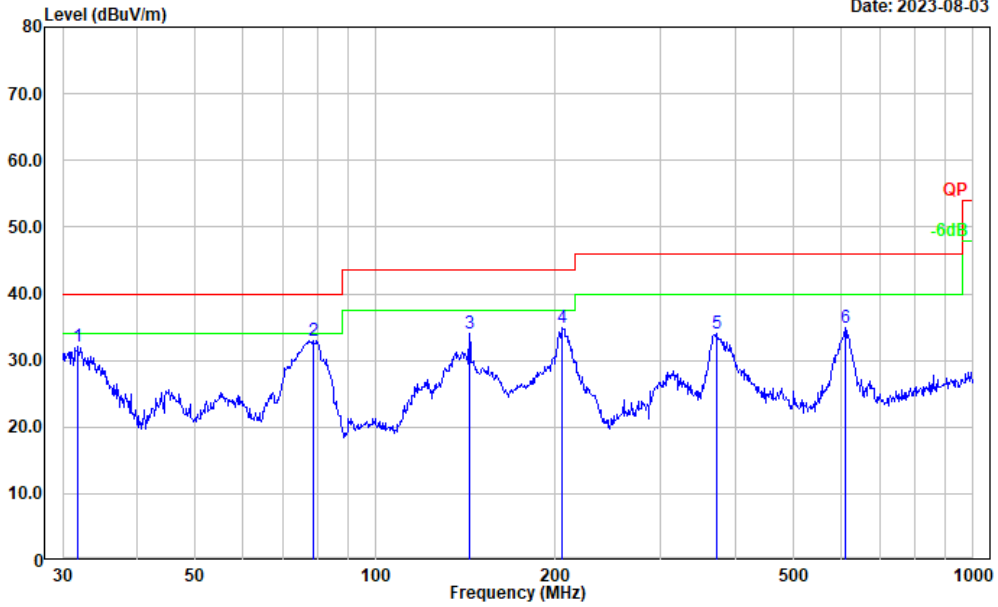
Date: 2023-08-03



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	81.783	50.76	-17.36	33.40	40.00	6.60	Peak
2	98.833	44.61	-14.59	30.02	43.50	13.48	Peak
3	143.830	47.87	-11.96	35.91	43.50	7.59	Peak
4	189.074	49.40	-13.48	35.92	43.50	7.58	Peak
5	210.106	52.14	-12.47	39.67	43.50	3.83	QP
6	368.112	44.15	-9.57	34.58	46.00	11.42	Peak

Test Mode: Wireless Charging  
 Polarization: vertical  
 Note:

Date: 2023-08-03



No.	Frequency (MHz)	Reading (dB $\mu$ V)	Factor (dB/m)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
1	31.843	36.98	-5.00	31.98	40.00	8.02	Peak
2	78.965	50.40	-17.35	33.05	40.00	6.95	Peak
3	143.830	46.06	-11.96	34.10	43.50	9.40	Peak
4	204.955	47.18	-12.36	34.82	43.50	8.68	Peak
5	372.005	43.50	-9.45	34.05	46.00	11.95	Peak
6	609.922	39.74	-4.80	34.94	46.00	11.06	Peak

**4.2 20 dB Emission Bandwidth**

Serial Number:	28ZS-1	Test Date:	2023/8/3
Test Site:	966-2	Test Mode:	Transmitting
Tester:	Carl Xue	Test Result:	Pass

**Environmental Conditions:**

Temperature: (°C)	27.6	Relative Humidity: (%)	63	ATM Pressure: (kPa)	99.7
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**Test Equipment List and Details:**

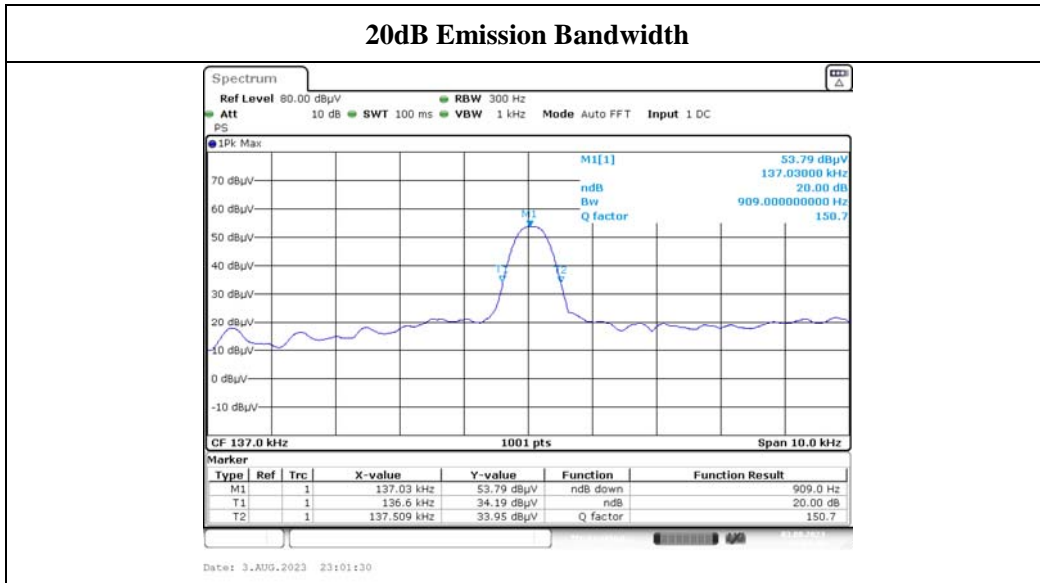
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMCO	Passive Loop Antenna	6512	9706-1209	2023/2/15	2026/2/14
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A

\* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data:**

Test Frequency (kHz)	20 dB Bandwidth (Hz)
137	909

### 20dB Emission Bandwidth



## 5 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### 5.1 Applicable Standard

According to subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (V/m)</b>	<b>Magnetic Field Strength (A/m)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Averaging Time (minutes)</b>
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; \* = Plane-wave equivalent power density;

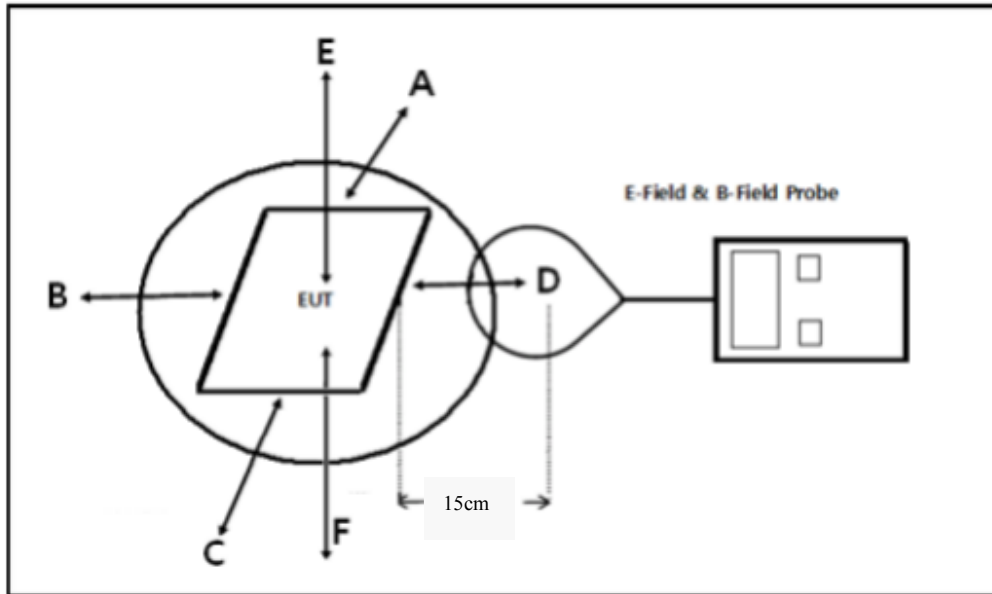
According with KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01 clause 3 c)

- c) For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

According to 680106 D01 RF Exposure Wireless Charging App v03r01 clause 5 b)

- b) Inductive wireless power transfer applications with supporting field strength results and meeting all of the following requirements are not required to submit a KDB inquiry for devices approved using SDoC<sup>2</sup> or a PAG<sup>3</sup> for equipment approved using certification to address RF exposure compliance. However, the responsible party is required to keep a copy of the test report in accordance with KDB 865664 D02. A copy of the test report is to be submitted with the application if the device is approved using certification.
- (1) Power transfer frequency is less than 1 MHz
  - (2) Output power from each primary coil is less than or equal to 15 watts.
  - (3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
  - (4) Client device is placed directly in contact with the transmitter.
  - (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
  - (6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

### 5.2 Block Diagram of Test Setup



Note: 20 cm for Top test.



**5.3 Test Data:**

Serial Number:	28ZS-1	Test Date:	2023/8/3
Test Site:	RF	Test Mode:	Wireless Charging (10Watts)
Tester:	David Huang	Test Result:	Pass

**Environmental Conditions:**

Temperature: (°C)	25.1	Relative Humidity: (%)	51	ATM Pressure: (kPa)	100.4
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**Test Equipment List and Details:**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Narda	Electric and Magnetic Field Probe-Analyzer	EHP-200AC	180ZX10204	2021/6/7	2024/6/6

\* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data:****H-Field Strength**

Frequency Range (kHz)	Position A (A/m)	Position B (A/m)	Position C (A/m)	Position D (A/m)	Position E (A/m)	50% Limit (A/m)	Limit (A/m)
137	0.115	0.3641	0.1211	0.1387	0.5533	0.815	1.63

Note: Test with 15cm distance from the center of the probe(s) to the edge of the device, 20 cm for top test.

**E-Field Strength**

Frequency Range (kHz)	Position A (V/m)	Position B (V/m)	Position C (V/m)	Position D (V/m)	Position E (V/m)	50% Limit (V/m)	Limit (V/m)
137	2.2141	2.2307	2.1044	2.516	3.7295	307	614

Note: Test with 15cm distance from the center of the probe(s) to the edge of the device, 20 cm for top test.

**Considerations of compliance 680106 D01 RF Exposure Wireless Charging App v03r01 clause 5 b:**

(1) Power transfer frequency is less than 1 MHz

Yes, the operation frequency is 137 kHz.

(2) Output power from each primary coil is less than or equal to 15 watts.

Yes, the maximum output power of primary coil is **10 Watts**.

(3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.

The transfer system includes only single primary coil, and system detect and allow coupling only between individual pairs of coils.

(4) Client device is placed directly in contact with the transmitter.

Yes, client device is placed directly in contact with the transmitter

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

Yes, mobile exposure conditions only.

(6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

Yes, the test result for H and E-field strength less than 50% of the MPE limit.

**\*\*\*\*\* END OF REPORT \*\*\*\*\***