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Shenzhen CTL Testing Technology Co., Ltd.
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TEST REPORT

ETSI EN 301 489-1 V2.2.3 (2019-11)&ETSI EN 301 489-17 V3.2.4 (2020-09)

Report Reference No.	:	**CTL2411217041-WE**
Compiled by: (position+printed name+signature)		Happy Guo (File administrators)
Tested by: (position+printed name+signature)		Jack Wang (Test Engineer)
Approved by: (position+printed name+signature)		Ivan Xie (Manager)

Product Name	:	CORDLESS ROBOTIC POOL CLEANER
Model/Type reference	:	PRT1
List Model(s)	:	N/A
Trade Mark	:	Aiper
Applicant's name	:	**Shenzhen Aiper Intelligent Co.,Ltd.**
Address of applicant	:	32nd floor, Block C, Phase 2 Galaxy World, Minle community, Minzhi street, Longhua district, Shenzhen, China
Test Firm	:	**Shenzhen CTL Testing Technology Co., Ltd.**
Address of Test Firm	:	Zone A, 1/ F, Warehouse 2, Baisha Logistics Company, No. 3011 Shahe West Road, Nanshan District, Shenzhen, Guangdong, China
Test specification	:	
Standard	:	**ETSI EN 301 489-1 V2.2.3 (2019-11)** **ETSI EN 301 489-17 V3.2.4 (2020-09)**
TRF Originator	:	Shenzhen CTL Testing Technology Co., Ltd.
Master TRF	:	Dated 2011-01
Date of receipt of test item	:	November 29, 2024
Date of Test Date	:	December 4, 2024-January 9, 2025
Date of Issue	:	January 14, 2025
Result	:	**Pass**

TEST REPORT

Test Report No. :	CTL2411217041-WE	January 14, 2025 Date of issue

Equipment under Test	:	CORDLESS ROBOTIC POOL CLEANER
Sample No	:	CTL2411217041
Model /Type	:	PRT1
Listed Models	:	N/A
Applicant	:	**Shenzhen Aiper Intelligent Co.,Ltd.**
Address	:	32nd floor, Block C, Phase 2 Galaxy World, Minle community, Minzhi street, Longhua district, Shenzhen, China
Manufacturer	:	**Shenzhen Aiper Intelligent Co.,Ltd.**
Address	:	32nd floor, Block C, Phase 2 Galaxy World, Minle community, Minzhi street, Longhua district, Shenzhen, China

Test result	Pass *

* In the configuration tested, the EUT complied with the standards specified page 5.

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

** Modified History **

Revision	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	January 14, 2025	CTL2411217041-WE	Tracy Qi

Contents

1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

ETSI EN 301 489-1 V2.2.3 (2019-11) —ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU

ETSI EN 301 489-17 V3.2.4 (2020-09) —ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

1.2 Test Description

ETSI EN 301 489-1/ Requirements		
Conducted Emission(AC Mains)	ETSI EN301 489-1 V2.2.3 Clause 8.3	PASS
Radiated Emission	ETSI EN301 489-1 V2.2.3 Clause 8.2	PASS
Harmonic Current Emissions(AC mains input port)	ETSI EN301 489-1 V2.2.3 Clause 8.5	N/A
Voltage Fluctuations and Flicker(AC mains input port)	ETSI EN301 489-1 V2.2.3 Clause 8.6	PASS
Electrostatic Discharge	ETSI EN301 489-1 V2.2.3 Clause 9.3	PASS
RF Electromagnetic Field	ETSI EN301 489-1 V2.2.3 Clause 9.2	PASS
Fast Transients Common Mode	ETSI EN301 489-1 V2.2.3 Clause 9.4	PASS
Surges	ETSI EN301 489-1 V2.2.3 Clause 9.8	PASS
RF Common Mode 0,15 MHz to 80 MHz	ETSI EN301 489-1 V2.2.3 Clause 9.5	PASS
Transients and Surges	ETSI EN301 489-1 V2.2.3 Clause 9.6	N/A
Voltage Dips and Interruptions	ETSI EN301 489-1 V2.2.3 Clause 9.7	PASS

1.3 Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Zone A, 1/ F, Warehouse 2, Baisha Logistics Company, No. 3011 Shahe West Road, Nanshan District, Shenzhen, Guangdong, China.

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd, EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9618B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9618B.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832.

1.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result
in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	±4.08dB	(1)
Radiated Emission	1~12.75GHz	±4.32dB	(1)
Conducted Emission	0.15~30MHz	±3.20dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

Harmonic Current Emission

The measurement uncertainty is evaluated as ± 1.2 %.

Voltage Fluctuations and Flicker

The measurement uncertainty is evaluated as ± 1.5 %.

Electrostatic Discharge

As what is concluded in the document from Note1 of clause 7.6.3 of ISO/IEC 17025: 2017, the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63% and 2.76%.

RF Electromagnetic Field

As what is concluded in the document from Note1 of clause 7.6.3 of ISO/IEC 17025: 2017, the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical filed strength as being 2.72 dB.

Fast Transients Common Mode

As what is concluded in the document from Note1 of clause 7.6.3 of ISO/IEC 17025: 2017, the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage. Frequency and timing as being 1.63% and 2.76%.

Surges

As what is concluded in the document from Note1 of clause 7.6.3 of ISO/IEC 17025: 2017, the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63% and 2.76%.

RF Common Mode

As what is concluded in the document from Note1 of clause 7.6.3 of ISO/IEC 17025: 2017, the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 3.72 dB and 2.78 dB.

Voltage Dips and Interruption

As what is concluded in the document from Note1 of clause 7.6.3 of ISO/IEC 17025: 2017, the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63% and 2.76%.

Transients and Surges

As what is concluded in the document from Note1 of clause 7.6.3 of ISO/IEC 17025: 2017, the requirements for measurement uncertainty in Transients and Surges testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the Transients and Surges system meet the required specifications in ISO 7637-2 through

the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.60% and 2.60%.

2 GENERAL INFORMATION

2.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C -35°C
Relative Humidity	35%-55 %
Air Pressure	101KPa

2.2 General Description of EUT

Product Name:	CORDLESS ROBOTIC POOL CLEANER
Model/Type reference:	PRT1
Power supply:	AC100-240V~50/60Hz 2.5A Max from adapter or DC 21.6V from battery
Adapter information	Model: GM95-252300-2FGN Input: 100-240V~50/60Hz 2.5A Max Output: 25.2V ⎓ 3.0A 75.6W
Bluetooth Low Energy	
Supported type:	Bluetooth Low Energy
Modulation:	GFSK
Operation frequency:	2402MHz~2480MHz
Channel number:	40
Channel separation:	2MHz
Antenna type:	PCB Antenna
Antenna gain:	3.37dBi
2.4G Wi-Fi	
Supported type:	IEEE 802.11 b/g/n
Modulation:	IEEE 802.11 b: DSSS IEEE 802.11 g/IEEE 802.11 n(HT20)/IEEE 802.11 n(HT40): OFDM
Operation frequency:	IEEE 802.11 b/IEEE 802.11 g/IEEE 802.11 n(HT20): 2412MHz~2472MHz IEEE 802.11 n(HT40): 2422MHz~2462MHz
Channel number:	IEEE 802.11 b/IEEE 802.11 g/IEEE 802.11 n(HT20): 13 IEEE 802.11 n(HT40): 11
Channel separation:	5MHz
Antenna type:	PCB Antenna
Antenna gain:	3.37dBi

Note 1: For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

Note 2: Antenna gain provided by the applicant.

2.3 Description of Test Modes

The EUT was tested under typical operating condition. The applicant provides drivers to make it work in general use, and software can obtain data form it to see if it works intended during testing.

2.4 Equipments Used during the Test

Radiated Emission(chamber 2)						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ULTRA-BROADBAND ANTENNA	Schwarzbeck	VULB 9168	824	2023/02/13	2026/02/12
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2024/04/30	2025/04/29
3	Horn Antenna	Sunol Sciences Corp	DRH-118	A062013	2024/11/25	2027/11/24
4	Pre-amplifier	Agilent	8449B	3008A02306	2024/04/30	2025/04/29
6	Ring antenna	BEIJING DAZE TECHNOLOGY CO., LTD	ZN30900A	N/A	2024/04/30	2025/04/29
Software:						
Name of Software:			Version:			
EZ_EMC			V1.1.4.2			

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2024/04/30	2025/04/29
2	LISN	ROHDE & SCHWARZ	ESH2-Z5	860014/010	2024/04/30	2025/04/29
3	Limitator	ROHDE & SCHWARZ	ESH3-Z2	100408	2024/04/30	2025/04/29
4	The Impedance Stability Network ISN	FISCHER CUSTOM COMMUNICATIONS,INC.	F-071115-1057-1-09	112299	2024/04/30	2025/04/29
Software:						
Name of Software:			Version:			
ES-K1			V1.71			

Harmonic Current/ Voltage Fluctuation and Flicker						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Precision Power Analyser	Newtons4th Ltd	5511(HC)	162-06781	2024/09/09	2025/09/08
2	Impedance Network	EMTRACE	IMN 161	2402	2024/09/09	2025/09/08
Software:						

Name of Software:	Version:
IEC Soft	V 2.7.1

Electrostatic Discharge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ESD Simulator	TESEQ AG	NSG 437	1058	2024/08/01	2025/07/31

Electrical Fast Transient/Surge/Dips						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Ultra Compact Simulator	HAEFELY	ECOMPACT 4	174887	2024/08/01	2025/07/31
2	capacitive coupling	HAEFELY	IP4A	211	2024/04/30	2025/04/29
Software:						
Name of Software:			Version:			
EMV Check 2000			V1.27b			

Conducted Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Conducted Disturbances test system	SCHLODER	CDG 6000	N/A	2024/04/30	2025/04/29
2	Attenuator	SCHLODER	4N100W-6DB	N/A	2024/04/30	2025/04/29
3	CDN	SCHLODER	CDN M2+M3	A2210225/2013	2024/04/30	2025/04/29
4	Electromagnetic forceps	SCHLODER	EMCL-20 EM-CLAMP	132A1223/2015	2024/04/30	2025/04/29
Software:						
Name of Software:			Version:			
IEC/EN61000-4-6 Application software 10KHz Version			1.2.0(25.03.2013)			

RF Field Strength Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	SIGNAL GENERATOR	Agilent	N5181A	MY49060125	2024/04/30	2025/04/29
2	Power Amplifier	MicoTop	MPA-80-1000-250	MPA1905162	2024/04/30	2025/04/29
3	Power Amplifier	MicoTop	MPA-1000-6000-100	MPA1906282	2024/04/30	2025/04/29
4	Power Meter	Agilent	E4419B	GB43317877	2024/08/01	2025/07/31

5	Test Antenna-Bi-Log	Schwarzbeck	VULB 9118 E	N/A	2024/08/22	2027/08/21
6	Horn Antenna	Sunol Sciences Corp	DRH-118	A062013	2024/11/25	2027/11/24
7	Power transmitter	HP	8481A	2349A43969	2024/08/01	2025/07/31
8	Power transmitter	Agilent	E9301A	MQ/2217182-2	2024/08/01	2025/07/31

Software:	
Name of Software:	Version:
EM 3	V1.1.7

3 TEST CONDITIONS AND RESULTS

3.1 EMC EMISSION TEST

3.1.1 Conducted Emission (AC Mains)

LIMIT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note: (1)The tighter limit applies at the band edges.

(2)The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

TEST PROCEDURE

a) The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

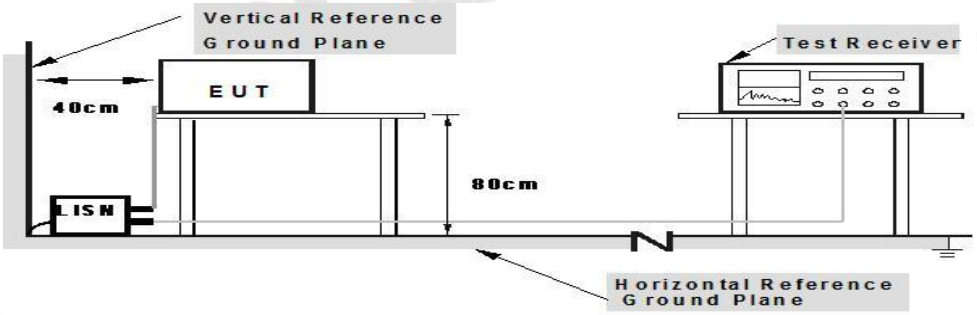
b) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d) LISN at least 80 cm from nearest part of EUT chassis.

e) For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP



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

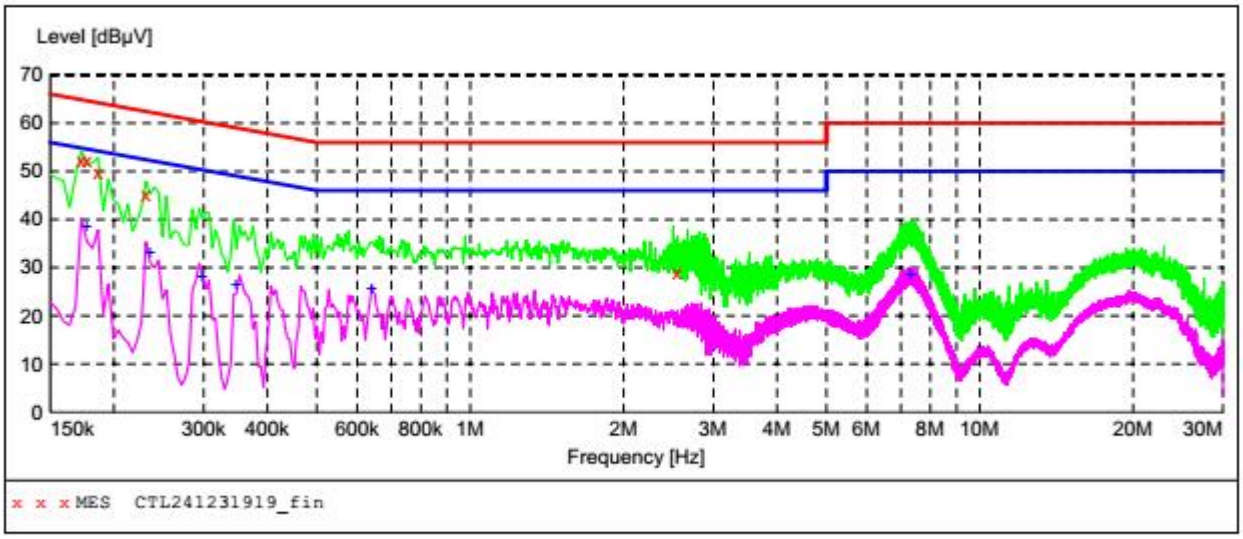
TEST RESULTS

------Passed------

Please refer to the below test data:

Line:	L

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL241231919_fin"

1/4/2025 1:59PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.172500	52.30	10.0	65	12.5	QP	L1	GND
0.177000	52.20	10.0	65	12.4	QP	L1	GND
0.186000	49.90	10.0	64	14.3	QP	L1	GND
0.231000	45.20	10.0	62	17.2	QP	L1	GND
2.548500	28.80	10.1	56	27.2	QP	L1	GND

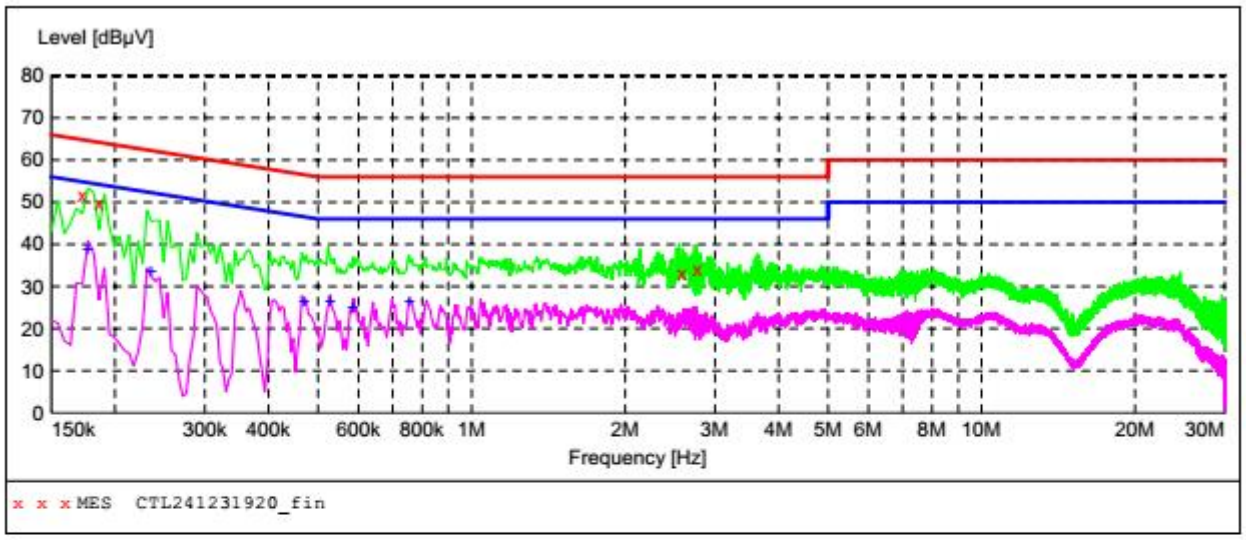
MEASUREMENT RESULT: "CTL241231919_fin2"

1/4/2025 1:59PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.177000	38.50	10.0	55	16.1	AV	L1	GND
0.235500	33.10	10.0	52	19.2	AV	L1	GND
0.298500	28.30	10.0	50	22.0	AV	L1	GND
0.348000	26.60	10.0	49	22.4	AV	L1	GND
0.640500	25.70	10.0	46	20.3	AV	L1	GND
7.336500	28.50	10.4	50	21.5	AV	L1	GND

Line:	N

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL241231920_fin"

1/4/2025 2:02PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.172500	51.40	10.0	65	13.4	QP	N	GND
0.186000	49.60	10.0	64	14.6	QP	N	GND
2.589000	33.00	10.1	56	23.0	QP	N	GND
2.769000	34.10	10.1	56	21.9	QP	N	GND

MEASUREMENT RESULT: "CTL241231920_fin2"

1/4/2025 2:02PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.177000	38.60	10.0	55	16.0	AV	N	GND
0.235500	33.80	10.0	52	18.5	AV	N	GND
0.469500	26.60	10.0	47	19.9	AV	N	GND
0.528000	26.50	10.0	46	19.5	AV	N	GND
0.586500	25.20	10.0	46	20.8	AV	N	GND
0.757500	26.40	10.0	46	19.6	AV	N	GND

3.1.2 Radiated Emission

LIMIT

LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

FREQUENCY (MHz)	Class B(at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 – 230	30	40
230 – 1000	37	47

LIMITS OF RADIATED EMISSION MEASUREMENT(Above 1000MHz)

FREQUENCY (MHz)	Class A (at 10m) dBuV/m		Class B (at 3m) dBuV/m	
	Peak	Avg	Peak	Avg
1000-3000	76	56	70	50
3000-6000	80	60	74	54

Notes: (1)The limit for radiated test was performed according to as following:
ETSI EN 301 489-1/EN 55032
(2)The tighter limit applies at the band edges.

TEST PROCEDURE

a) The EUT was placed on the top of a rotating table 3 meters away from the receiver antenna and 0.8 meters above the ground at a 9X9X6 anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b) The height of the equipment shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

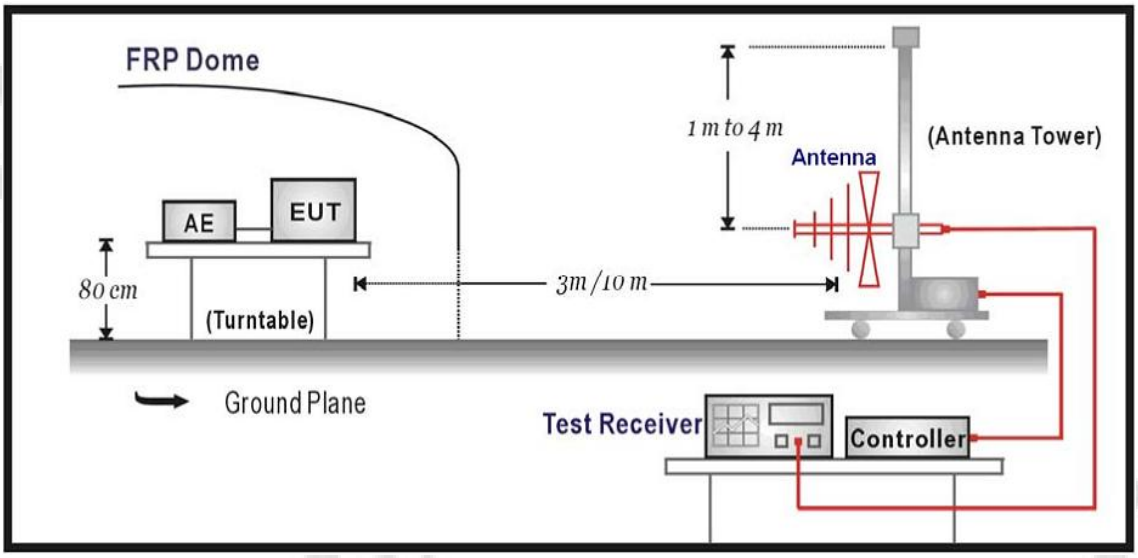
c) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak/Average detector mode re-measured.

d) If the Peak Mode measured value compliance with and lower than Quasi Peak/Average Mode Limit, the EUT shall be deemed to meet QP/AV Limits and then no additional QP/AV Mode measurement performed.

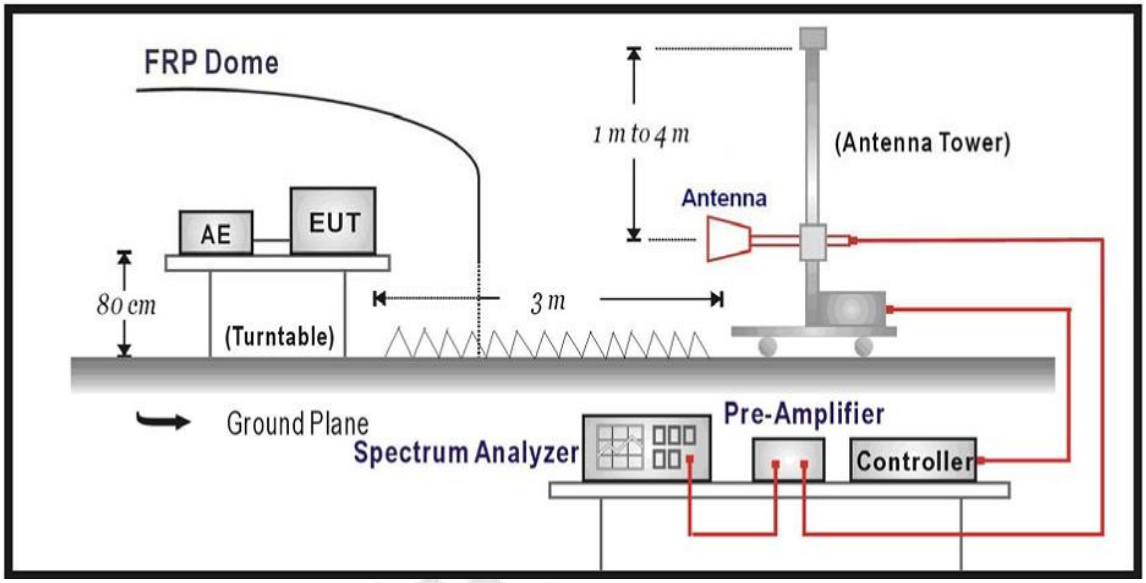
e) For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP

Below 1GHz



Above 1GHz



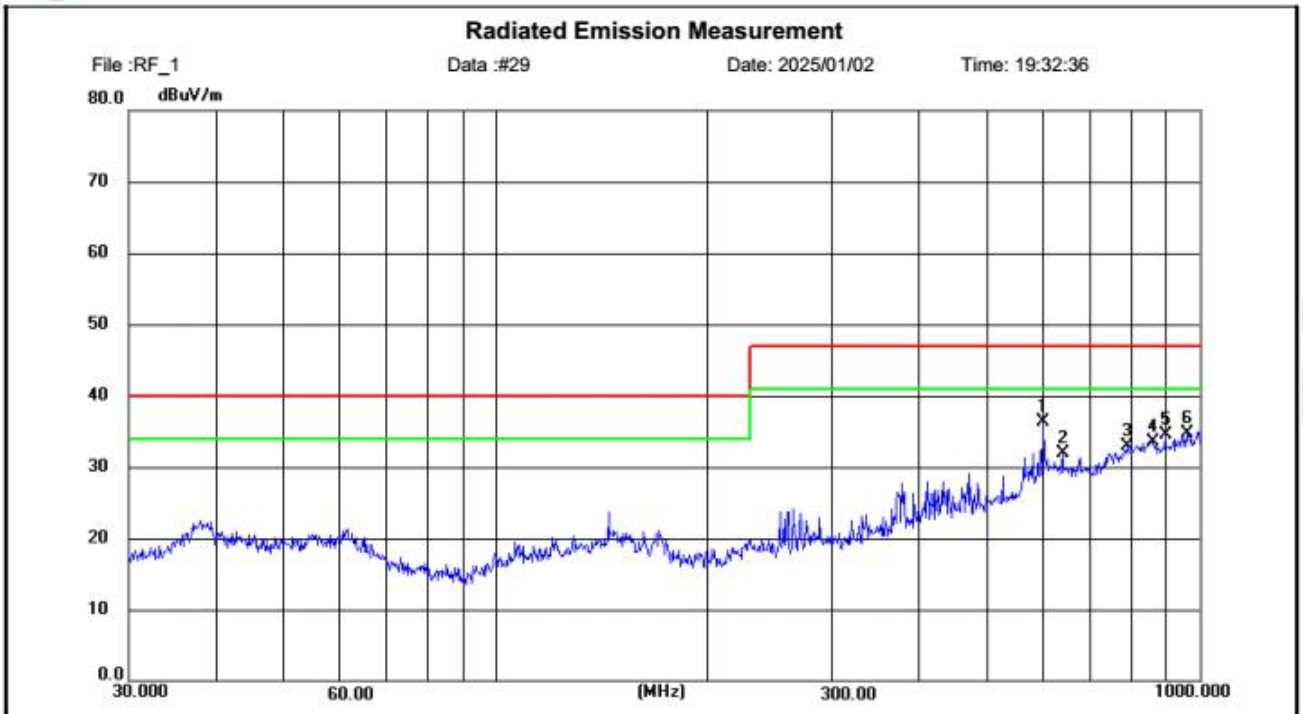
TEST RESULTS

------Passed------

Please refer to the below test data:

Polarization:	Horizontal

Shenzhen CTL Testing Technology Co., Ltd
Tel: +86-755-89486194



Site LAB Chamber 2
Limit: ETSI EN 301 489-1 Class B
EUT:
M/N: PRT1
Mode: CHARGING
Note: Shenzhen Aiper Intelligent Co.,Ltd.

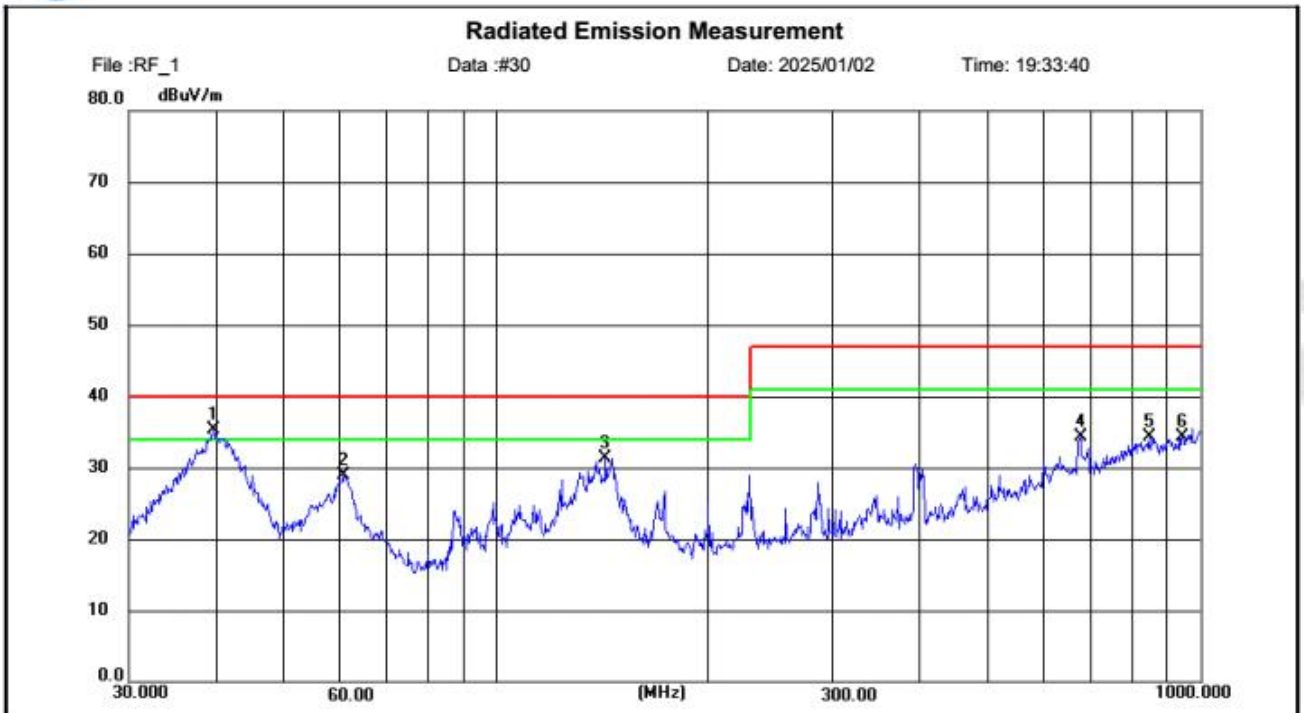
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	601.1630	14.57	21.80	36.37	47.00	10.63	peak	100	179	P	
2	638.6483	9.09	22.77	31.86	47.00	15.14	peak	100	189	P	
3	788.1966	7.57	25.38	32.95	47.00	14.05	peak	100	126	P	
4	862.6780	7.18	26.40	33.58	47.00	13.42	peak	100	326	P	
5	894.2485	8.03	26.39	34.42	47.00	12.58	peak	100	337	P	
6	961.7406	7.57	27.23	34.80	47.00	12.20	peak	100	220	P	

Polarization:	Vertical

Shenzhen CTL Testing Technology Co., Ltd
Tel: +86-755-89486194



Site LAB Chamber 2
Limit: ETSI EN 301 489-1 Class B
EUT:
M/N: PRT1
Mode: CHARGING
Note: Shenzhen Aiper Intelligent Co.,Ltd.

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 25(C)
Humidity: 50 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	39.6799	20.95	14.26	35.21	40.00	4.79	peak	100	339	P	
2	60.5980	14.97	14.02	28.99	40.00	11.01	peak	100	12	P	
3	143.2005	17.78	13.61	31.39	40.00	8.61	peak	100	213	P	
4	676.0964	11.62	22.64	34.26	47.00	12.74	peak	100	276	P	
5	846.9419	8.12	26.22	34.34	47.00	12.66	peak	100	234	P	
6	944.1975	7.24	27.10	34.34	47.00	12.66	peak	100	266	P	

Note: Above 1-6GHz had been tested and found no emission except floor noise

3.1.3 Harmonic Current Emissions

LIMITS

IEC 555-2					
Table - I			Table - II		
Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in Ampers)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in Ampers)
Non Portable Tools or TV Receivers	Odd Harmonics		TV Receivers	Odd Harmonics	
	3	2.30		3	0.80
	5	1.14		5	0.60
	7	0.77		7	0.45
	9	0.40		9	0.30
	11	0.33		11	0.17
	13	0.21		13	0.12
	15≤n≤39	0.15 · 15/n		15≤n≤39	0.10 · 15/n
	Even Harmonics			Even Harmonics	
	2	1.08		2	0.30
	4	0.43		4	0.15
	8	0.30			
	8≤n≤40	0.23 · 8/n		DC	0.05

EN 61000-3-2/IEC 61000-3-2					
Equipment Category	Max. Permissible Harmonic Current (in Ampers)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (in A)	(mA/w)
Class A	Same as Limits Specified in 4-2.1, Table - I, but only odd harmonics required	Class D	3	2.30	3.4
			5	1.14	1.9
			7	0.77	1.0
			9	0.40	0.5
			11	0.33	0.35
			13≤n≤39	see Table I	3.85/n
			only odd harmonics required		

TEST PROCEDURE

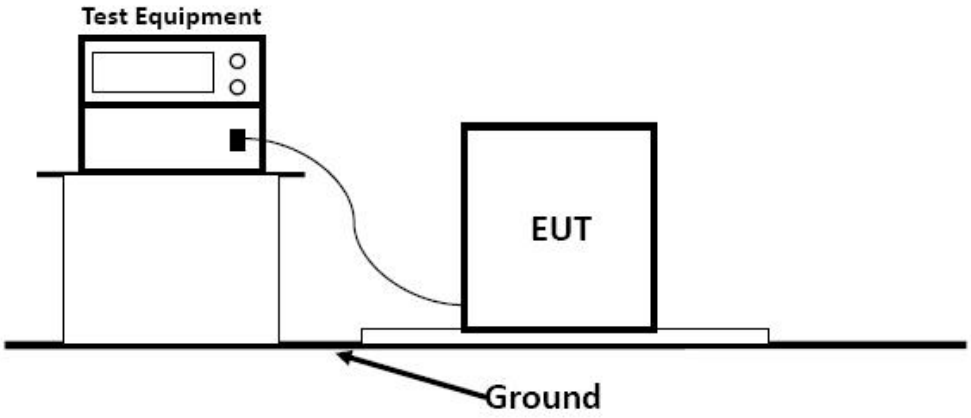
a) The EUT was placed on the top of a wooden table 0.1 meters above the ground and operatedto produce the maximum harmonic components under normal operating conditions.

b) The classification of EUT is according to section 5 of EN 61000-3-2: 2000.The EUT is classified as follows:
Class A: Balanced three-phase equipment, Household appliances excluding equipment asClass D, Tools excluding portable tools, Dimmers for incandescent lamps, audioequipment, equipment not specified in one of the three other classes.
Class B: Portable tools. Portable tools. Arc welding equipment which is not professionalequipment.
Class C: Lighting equipment.
Class D: Equipment having a specified power less than or equal to600 W of the followingtypes: Personal computers and personal computer monitors and televisionreceivers.

c) The correspondent test program of test instrument to measure the current harmonicsemanated from EUT is chosen. The measure time shall be not less than the time necessary forthe EUT to be exercised.

d) For the actual test configuration, please refer to the related item –EUT Test Photos.

TEST SETUP



TEST RESULTS

Not applicable to this device, which output power is less than 75W.

3.1.4 Voltage Fluctuations and Flicker

LIMITS

Tests	Limits		Descriptions
	IEC555-3	IEC/EN 61000-3-3	
Pst	≤ 1.0, Tp= 10 min.	≤ 1.0, Tp= 10 min.	Short Term Flicker Indicator
Plt	N/A	≤ 0.65, Tp=2 hr.	Long Term Flicker Indicator
dc	≤ 3%	≤ 3.3%	Relative Steady-State V-Chang
dmax	≤ 4%	≤ 4%	Maximum Relative V-change
d (t)	N/A	≤ 3.3% for > 500 ms	Relative V-change characteristic

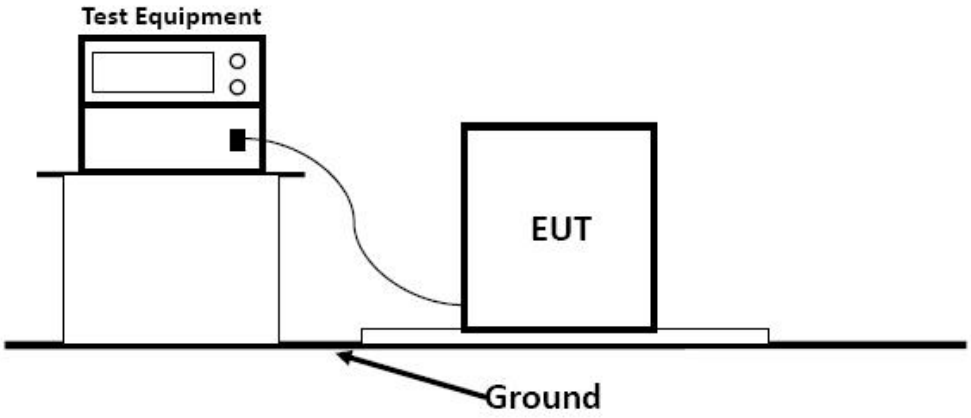
TEST PROCEDURE

a) Fluctuation and Flickers Test:
Tests was performed according to the Test ConditionsAssessment of Voltage Fluctuationsspecified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend onwhich standard adopted for compliance measurement.

b) All types of harmonic current and/or voltage fluctuation in this report are assessed by directmeasurement using flicker-meter.

c) For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP



TEST RESULTS

07th January 2025 - 20:33:30 Ph:1 Page 1 IECSoft v2 7

IEC61000-3-3:2013+AMD1:2017+AMD2:2021+COR1:2022
Flickermeter

Instrument Details	
Instrument Model	PPA5511
Serial Number	162-06781
Firmware Version	2.186.01
N4L Calibration Date	09th September 2024
Instrument Version	Standard

Test Settings	
Class	Voltage
Mode	Normal (4.0%)
Peak Current Range	100A
PST	10 minutes
PLT	1 PSTs

Equipment Under Test	
Brand	N/A
Model	PRT1
Serial	N/A
Impedance Network ID	N/A

Test Conditions	User Entered	Measured
Rated Voltage	N/A	229.676V
Rated Current	N/A	N/A
Rated Frequency	N/A	49.998Hz
Rated Power	N/A	N/A
D max	0.0472% (Limit: 4.0%)	
T max	0.0000 s (Limit: 0.5 s)	
DC max	0.0002% (Limit: 3.3%)	

Additional Test Details	
Operator	Jack Wang
Lab Name	Shenzhen CTL Testing Technology Co., Ltd.
Location	Zone A, 1/ F, Warehouse 2, Baisha Logistics Company, No. 3011 Shahe West Road, Nanshan District, Shenzhen, Guangdong, China
Notes	
Signature	

Results	Phase1: PASS

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IEC61000-3-3:2013+AMD1:2017+AMD2:2021+COR1:2022 Flickermeter

Instrument Details	
Instrument Model	PPA5511
Instrument Serial	162-06781
Instrument Firmware	2.186.01

Equipment Under Test	
Brand	N/A
Model	PRT1
Serial	N/A

Flicker Test Results

PST no.	Status	DC (%)	Dmax (%)	Tmax (s)	PST	PST Lim	PLT	PLT Lim
1	Phase1: PASS	0.00015	0.04718	0.00000	0.08226	1.00000	0.08226	0.65000

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IEC61000-3-3:2013+AMD1:2017+AMD2:2021+COR1:2022 Flickermeter

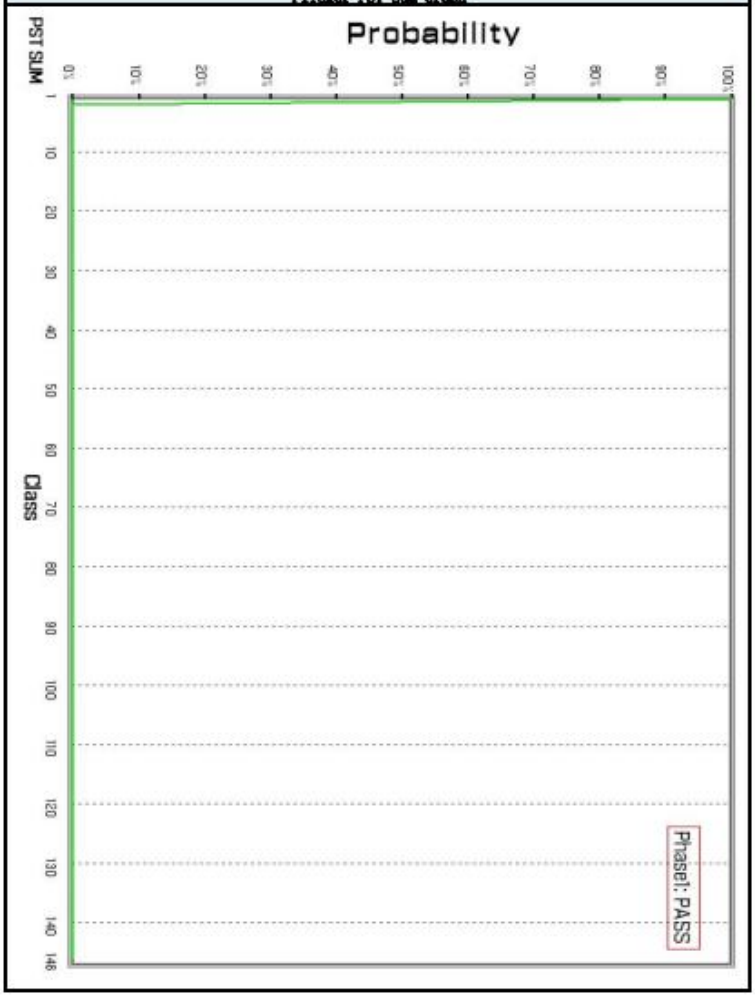
Instrument Details

Instrument Model	PPA5511
Instrument Serial	162-06781
Instrument Firmware	2.186.01

Equipment Under Test

Brand	N/A
Model	PRT1
Serial	N/A

Flicker PST Sum Graph



3.2 EMC IMMUNITY TEST

3.2.1 Immunity Performance criteria

A. General Requirements (ETSI EN 301489-1):

The performance criteria criteria are used to take a decision on whether radio equipment passes or fails immunity tests.

For the purpose of the present document four categories of performance criteria apply:

- Performance criteria for continuous phenomena applied to transmitters and receivers
- Performance criteria for transient phenomena applied to transmitters and receivers
- Performance criteria for equipment which does not provide a continuous communication link
- Performance criteria for ancillary equipment tested on a stand alone basis

(1) Performance criteria for continuous phenomena applied to transmitters and receivers
If no further details are given in the relevant part of ETSI EN 301 489 series [i.13] dealing with the particular type of radio equipment, the following general performance criteria for continuous phenomena shall apply.

During and after the test, the equipment shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer when the equipment is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

During the test the EUT shall not unintentionally transmit or change its actual operating state and stored data.

If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

(2) Performance criteria for transient phenomena applied to transmitters and receivers
If no further details are given in the relevant part of ETSI EN 301 489 series [i.13] dealing with the particular type of radio equipment, the following general performance criteria for transient phenomena shall apply.

For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:

f) For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A SW reboot is not allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

g) For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. A SW reboot is not allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

For all other ports the following applies:

h) After the test, the equipment shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the equipment is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

i) During the EMC exposure to an electromagnetic phenomenon, a degradation of performance is, however, allowed. No change of the actual mode of operation (e.g. unintended transmission) or

stored data is allowed.

j) If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

(3) Performance criteria for equipment which does not provide a continuous communication link

For radio equipment which does not provide a continuous communication link, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account.

The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses 6.1 and 6.2.

(4) Performance criteria for ancillary equipment tested on a stand alone basis

If ancillary equipment is intended to be tested on a stand alone basis, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account.

The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses 6.1 and 6.2.

B. EN301489-17

General performance criteria

• Performance criteria A for immunity tests with phenomena of a continuous nature;

• Performance criteria B for immunity tests with phenomena of a transient nature;

• Performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following.

Criteria	During test	After test
A	Shall operate as intended. (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance (see note 3) Shall be no loss of function. Shall be no loss of stored data or user programmable functions.
B	May show loss of function (one or more). May show degradation of performance (see note 2). Shall be no unintentional transmissions.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3) Shall be no loss of stored data or user programmable functions.
C	May be loss of function (one or more).	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3).
NOTE 1: Operate as intended during the test allows a level of degradation not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance.		

If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 2:
Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance.

If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 3:
No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed.

If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

Performance criteria for Continuous phenomena applied to Transmitters (CT)
The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied toTransmitters (TT)
The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Continuous phenomena applied to Receivers (CR)
The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Receivers (TR)
The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test.

In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

3.2.2 Electrostatic Discharge

TEST SPECIFICATION

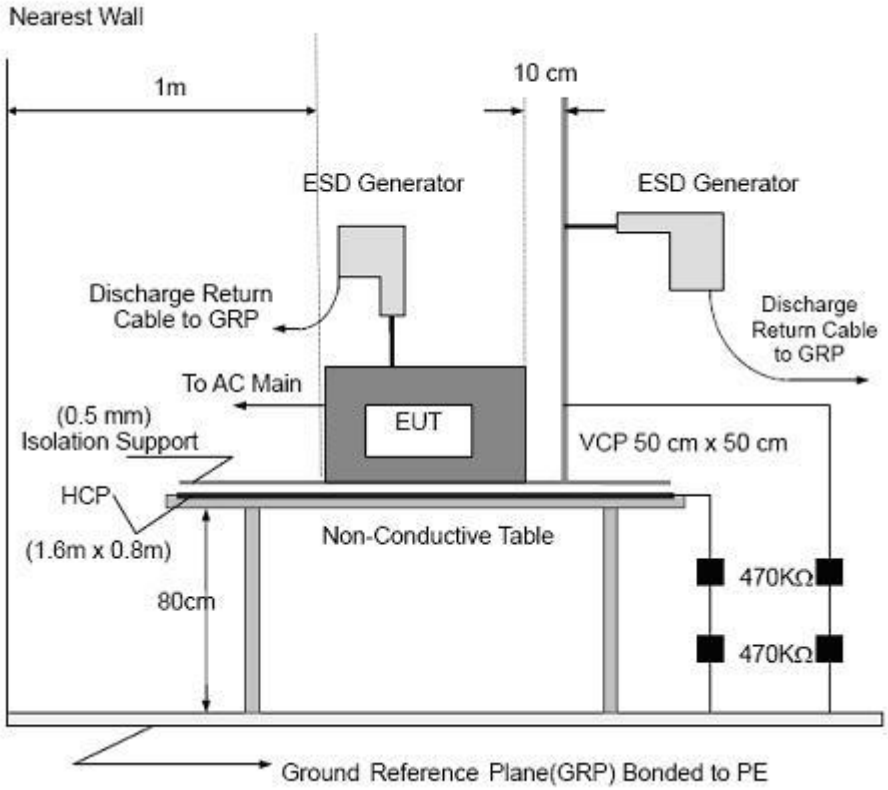
Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance	B
Discharge Voltage:	Air Discharge:2kV/4kV/8kV (Direct) Contact Discharge:2kV/4kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 10 times at each test point Contact Discharge: min. 200 times in total
Discharge Period:	1 second minimum

TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

a) Contact discharge was applied to conductive surfaces and coupling planes of the EUT. During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.
   If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.
   Vertical Coupling Plane (VCP):
   The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.
   Horizontal Coupling Plane (HCP):
   The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.
b) Air discharges at insulation surfaces of the EUT. It was at least ten single discharges with positive and negative at the same selected point.
c) For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

TEST RESULTS

------Passed------

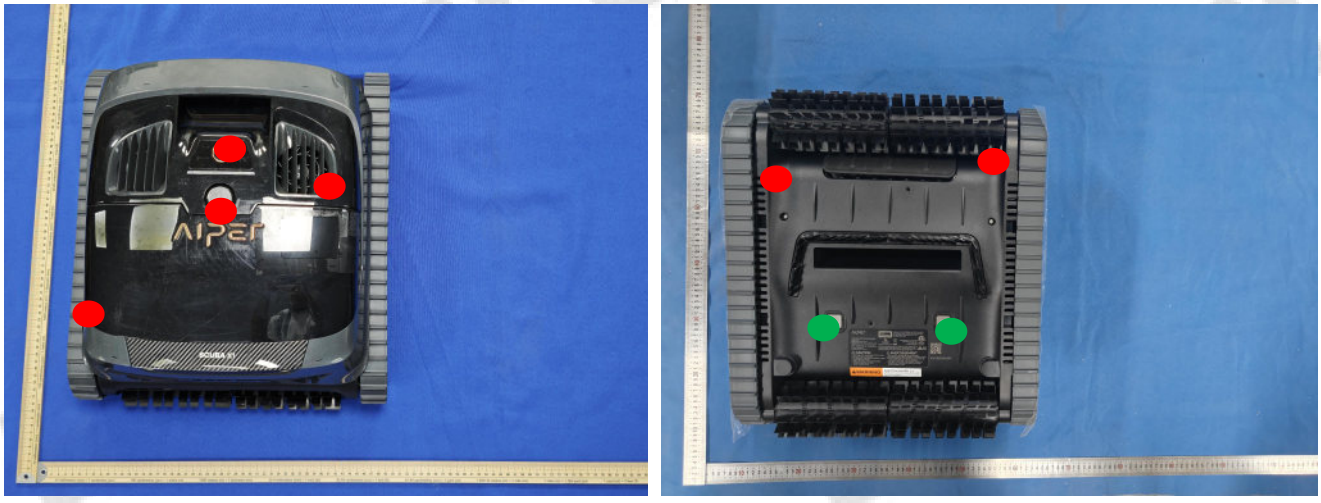
Please refer to the below test data:

Direct discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
Contact discharge	±2	A	B	Pass
	±4	A	B	
Air discharge	±2	A	B	
	±4	A	B	
	±8	B	B	
Indirect discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
HCP (6 sides)	±2	A	B	Pass
	±4	A	B	
VCP (4 sides)	±2	A	B	
	±4	A	B	

Note1: The EUT loss communication link a while and it can self-recoverable after test.

Description of Discharge Point

Remark: CD point- Green AD point - Red



3.2.3 RF Electromagnetic Field

TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-3
Required Performance	A
Frequency Range:	80 MHz - 6000 MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	at least 3 seconds

TEST PROCEDURE

The EUT and support equipment, which are placed on a table that is 0.1 meter above ground and the testing was performed in a fully-anechoic chamber. The testing distance from antenna to the EUT was 3 meters. The other condition as following manner:

a) The field strength level was 3V/m.

b) The frequency range is swept from 80 MHz to 6000 MHz with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.

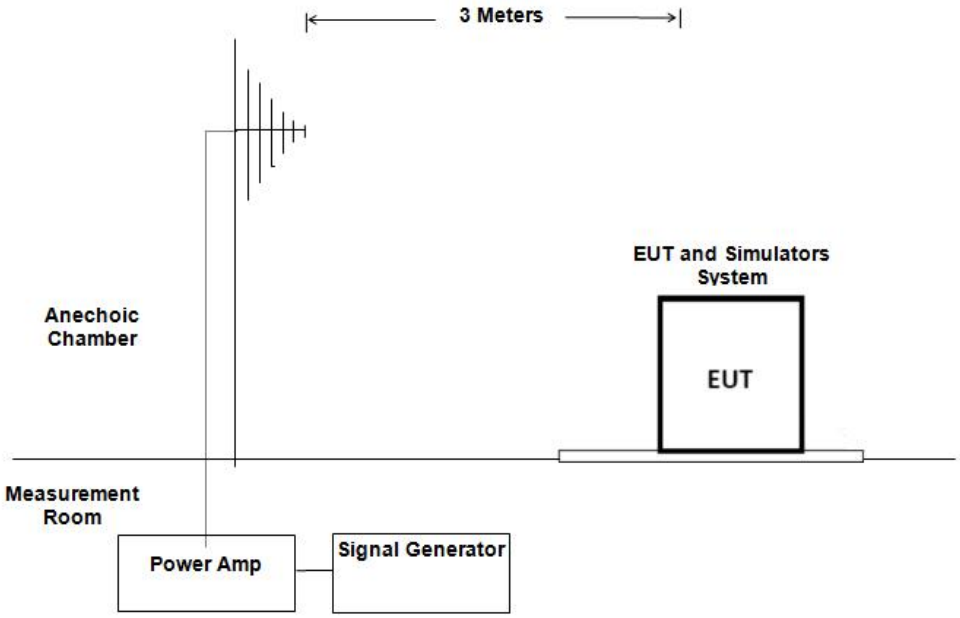
c) Sweep Frequency 900 MHz, with the Duty Cycle:1/8 and Modulation: Pulse 217 Hz(if applicable)

d) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

e) The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

f) For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

TEST RESULTS

------Passed------

Please refer to the below test data:

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observations Performance	Perform. Criteria	Result
80~6000	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Top	A	A	PASS
			Front			
			Rear			
			Left			
			Right			
			Bottom			

Note1: The EUT can maintain communication link and not operate unintentionally during the test also can operate without any loss of user control functions after test.

3.2.4 Fast Transients Common Mode

TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-4
Required Performance	B
Test Voltage:	Power Line:1 kV Signal/Control Line:0.5 KV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave shape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.1 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. The other condition as following manner:

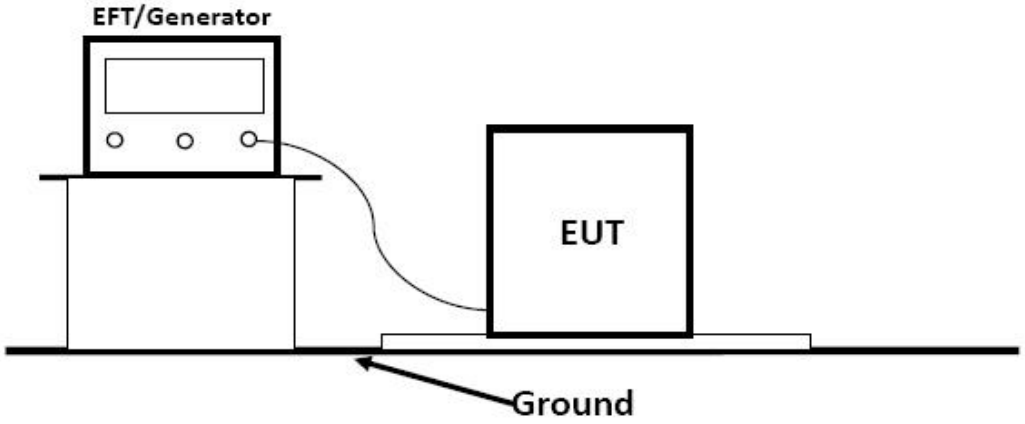
a) The length of power cord between the coupling device and the EUT should not exceed 1 meter.

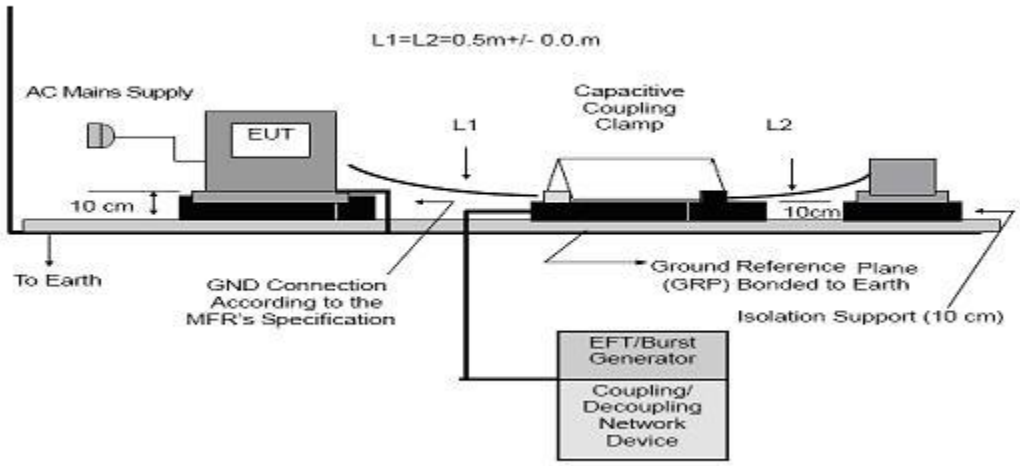
b) Both positive and negative polarity discharges were applied.

c) The duration time of each test sequential was 1 minute

d) For the actual test configuration, please refer to the related Item –EUT Test Photos.

EST SETUP





Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.1m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

TEST RESULTS

------Passed------

Please refer to the below test data:

Lead under Test	Level (±kV)	Coupling Direct/Clamp	Observations (Performance Criterion)	Result
L	±1	Direct	A	Pass
N	±1	Direct	A	Pass
PE	±1	Direct	A	Pass
L+N	±1	Direct	A	Pass
L+PE	±1	Direct	A	Pass
N+PE	±1	Direct	A	Pass
L+N+PE	±1	Direct	A	Pass

Note1: The EUT can maintain communication link and not operate unintentionally during the test also can operate without any loss of user control functions after test.

3.2.5 SURGE Testing

TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-5
Required Performance	B
Wave-Shape:	Combination Wave 1.2/50 us Open Circuit Voltage8 /20 us Short Circuit Current
Test Voltage:	Power Port ~ Line to line: 1kV, Line to ground: 2kV
Surge Input/Output:	L-N, L-PE, N-PE
Generator Source:	2 ohm between networks
Impedance:	12 ohm between network and ground
Polarity:	Positive/Negative
Phase Angle:	0 /90/180/270
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

TEST PROCEDURE

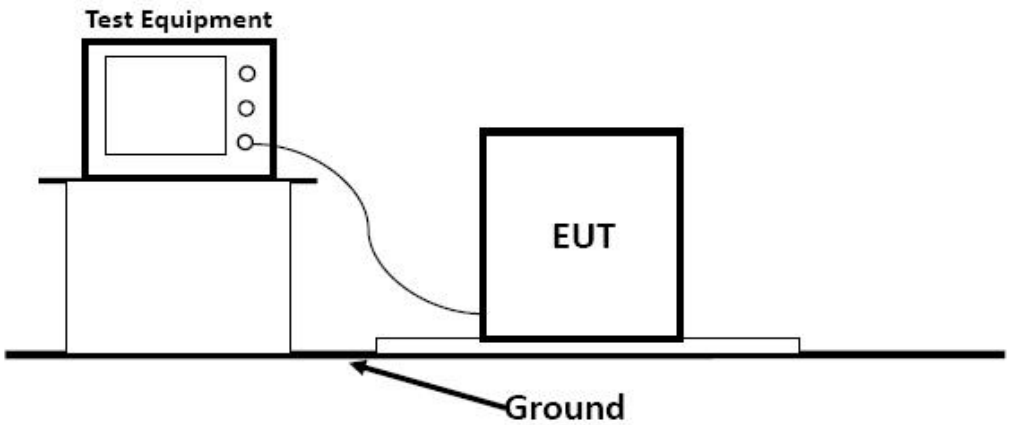
a) For EUT power supply:
The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

b) For test applied to unshielded unsymmetrical operated interconnection lines of EUT:
The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

c) For test applied to unshielded symmetrically operated interconnection /telecommunication lines of EUT: The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

d) For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP



TEST RESULTS

------Passed------

Please refer to the below test data:

Location	Level (kV)	Pulse No	Surge Interval	Phase (deg)	Observations (Performance Criterion)	Result
L-N	± 1	5	60s	0°	A	Pass
				90°	A	Pass
				180°	A	Pass
				270°	A	Pass
L-PE	± 2	5	60s	0°	A	Pass
				90°	A	Pass
				180°	A	Pass
				270°	A	Pass
N-PE	± 2	5	60s	0°	A	Pass
				90°	A	Pass
				180°	A	Pass
				270°	A	Pass

Note1: The EUT can maintain communication link and not operate unintentionally during the test also can operate without any loss of user control functions after test.

3.2.6 RF Common Mode

TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-6
Required Performance	A
Frequency Range:	0.15 MHz - 80 MHz
Field Strength:	3 Vrms
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Dwell Time:	at least 3 seconds

TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.1 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. The other condition as following manner:

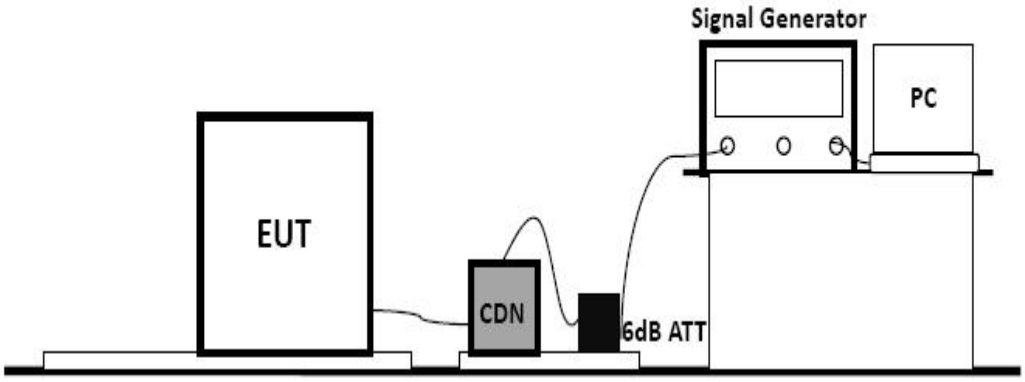
a) The field strength level was 3V.

b) The frequency range is swept from 150 KHz to 80 MHz, with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.

c) The dwell time at each frequency shall be not less than the time necessary for theEUT to be able to respond.

d) For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST SETUP



For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE:

FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

TEST RESULTS

------Passed------

Please refer to the below test data:

Test Ports (Mode)	Freq. Range (MHz)	Field Strength	Coupling type	Observations Performance	Perform. Criteria	Results
Input/ Output AC. Power Port	0.15-80	3V(rms) AM Modulated 1000Hz, 80%	CDN	A	A	PASS
Input/ Output DC. Power Port			CDN	N/A	N/A	N/A
RJ45 LAN LINE			Clamp	N/A	N/A	N/A

Note1: The EUT can maintain communication link and not operate unintentionally during the test also can operate without any loss of user control functions after test.

3.2.7 Voltage Dips and Interruptions

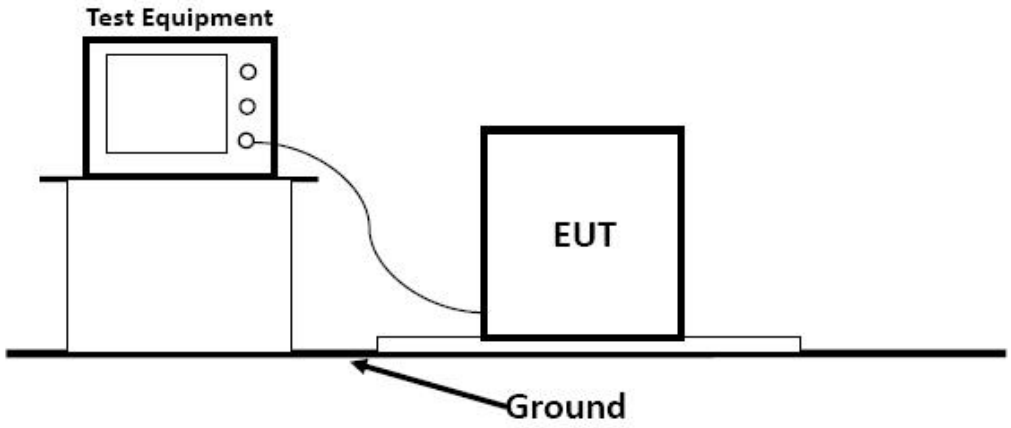
TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-11
Required Performance	B (For 0% Voltage Dips) C (For 70% Voltage Dips) C (For 0% Voltage Interruptions)
Test Duration Time:	Minimum three test events in sequence
Interval between Event:	Minimum ten seconds
Phase Angle:	0°/45°/90°/135°/180°/225°/270°/315°/360°
Test Cycle:	3 times

TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

TEST SETUP



For the actual test configuration, please refer to the related Item –EUT Test Photos.

TEST RESULTS

------Passed------

Please refer to the below test data:

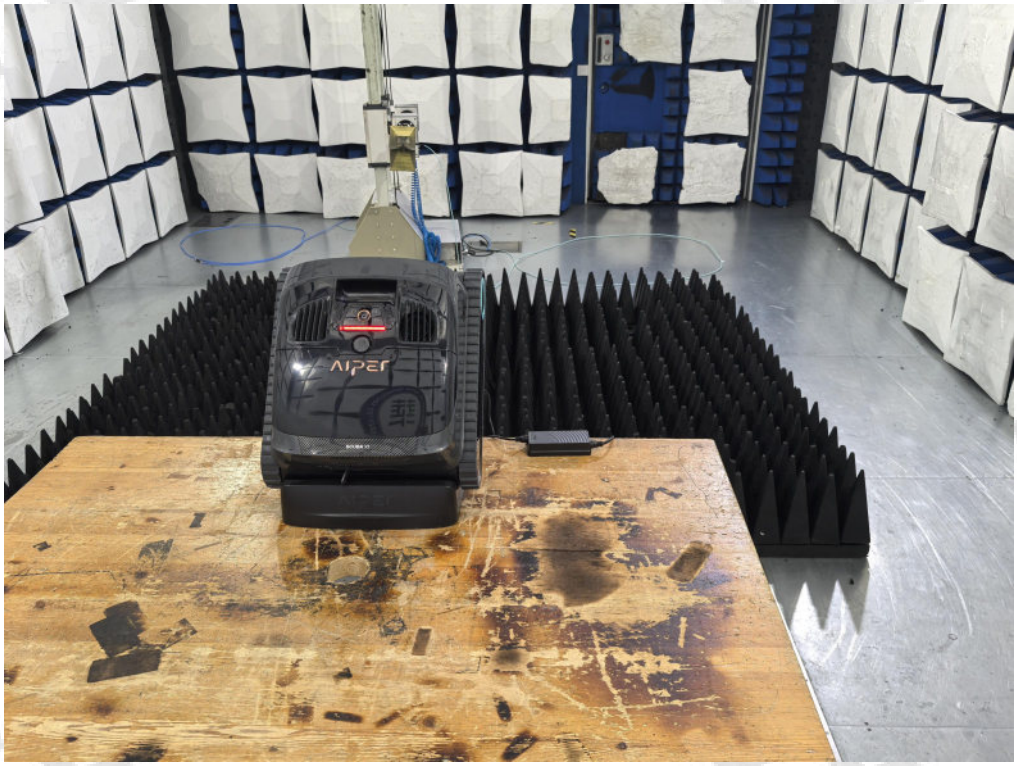
VoltageReduction	Duration (ms)	PerformCriteria	Observations Performance	Results
Voltage dip 0%	10	B	A	PASS
Voltage dip 0%	20	B	A	PASS
Voltage dip 70%	500	C	A	PASS
Voltage interruptions	5000	C	B	PASS

Note1: The EUT loss communication link a while and it can self-recoverable after test.

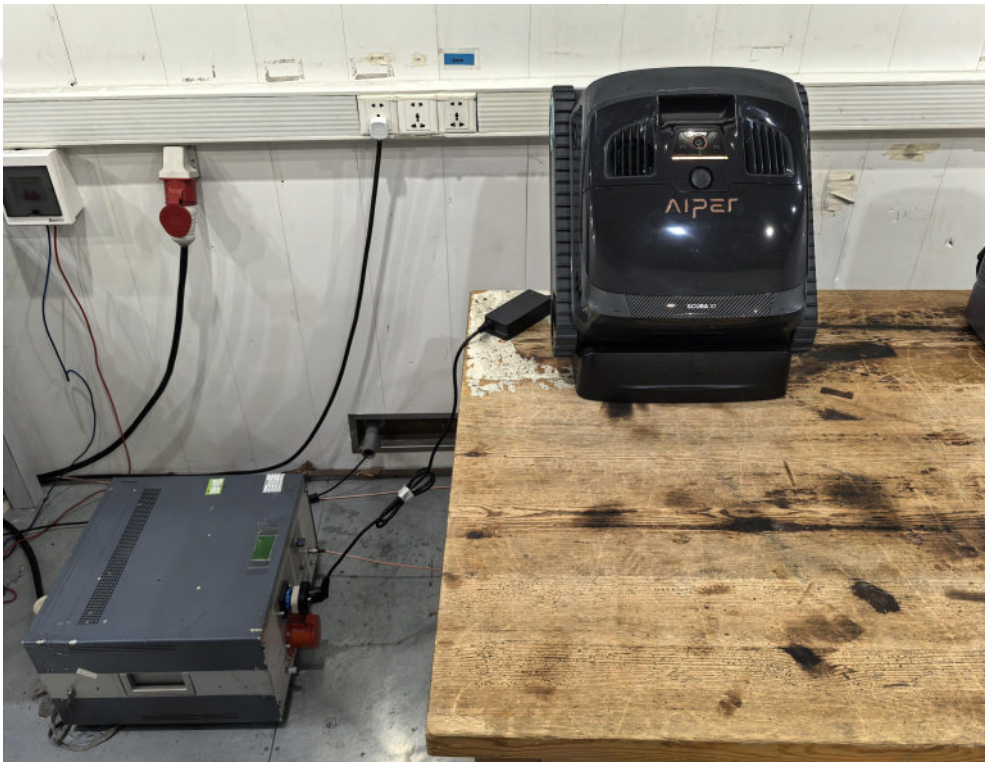
4 FTEST SETUP PHOTOS

Radiated Emission 30MHz-1GHz

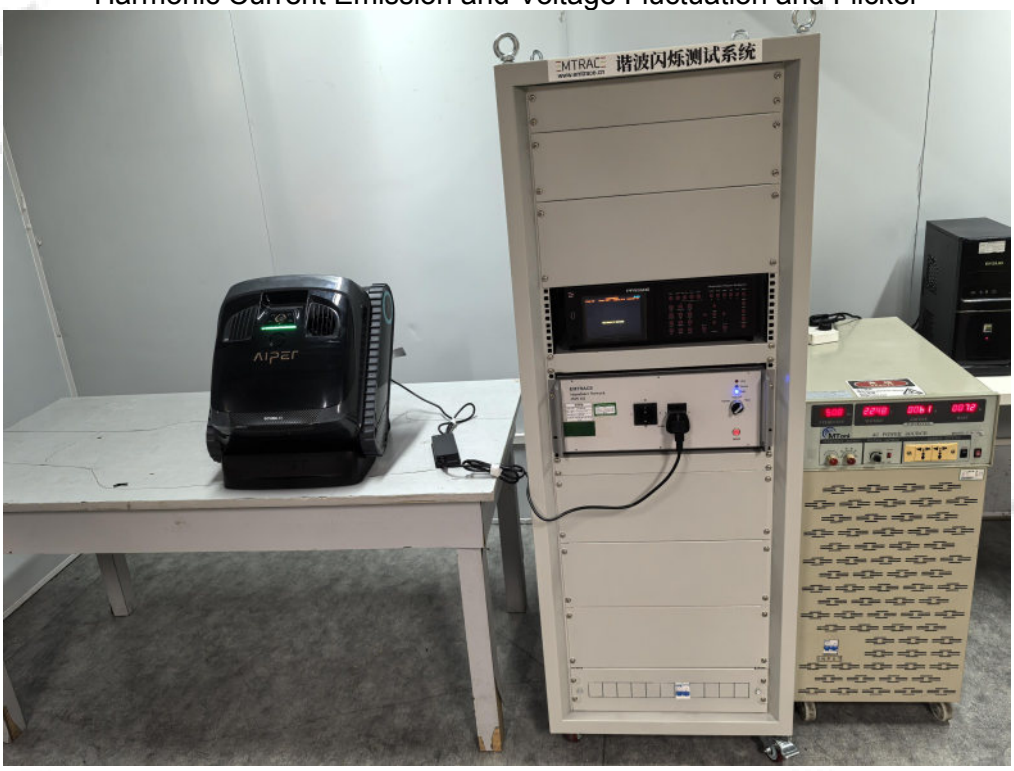
Radiated Emission 1GHz-6GHz



Conducted disturbance

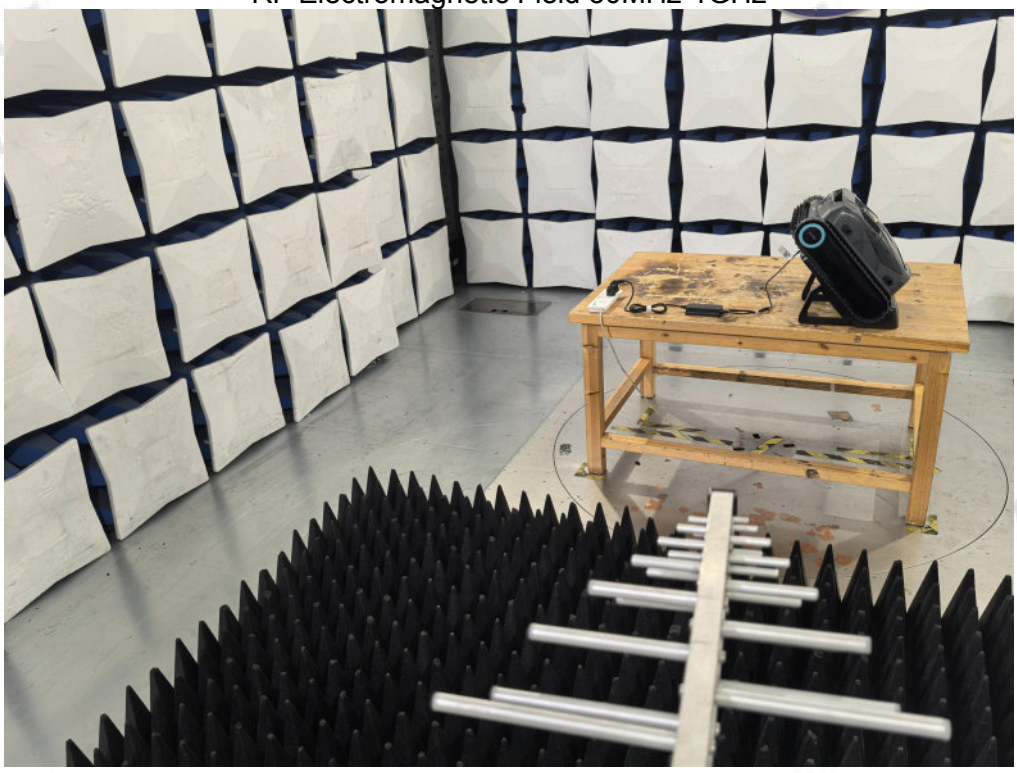


Harmonic Current Emission and Voltage Fluctuation and Flicker

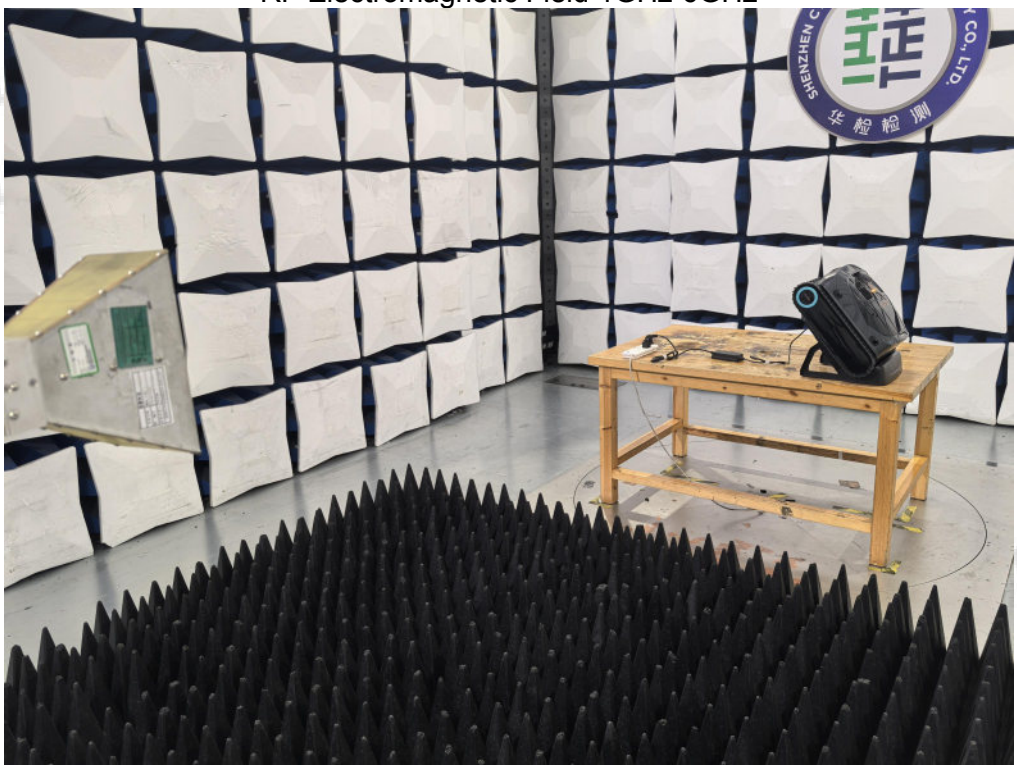


Electrostatic discharge

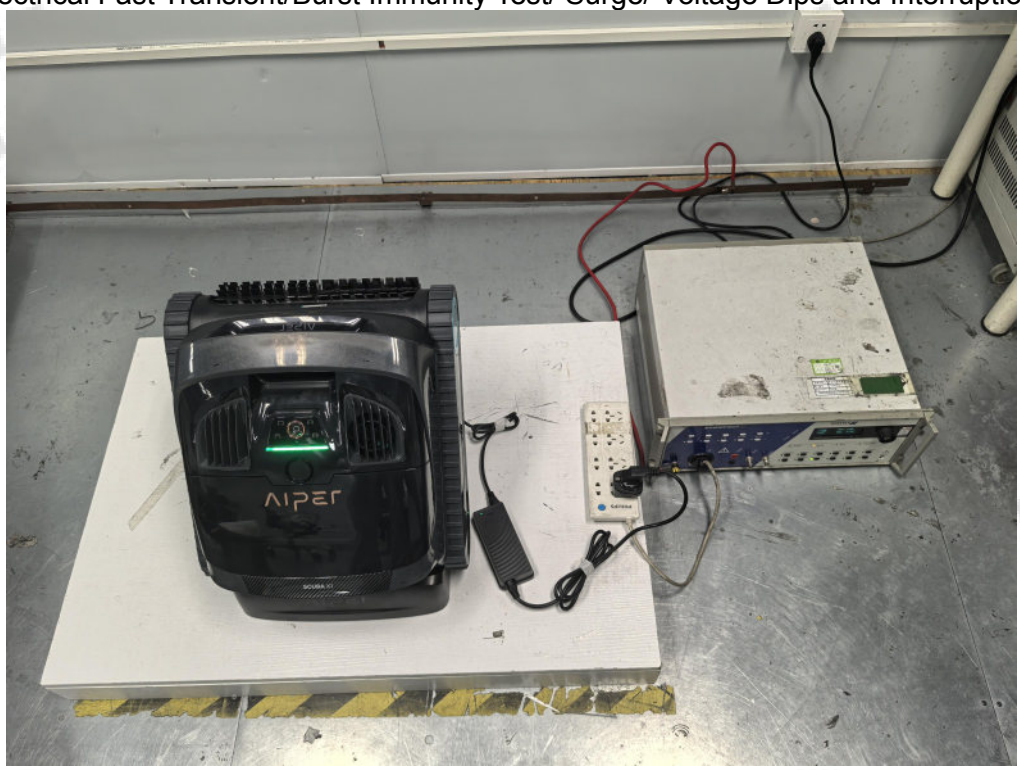
RF Electromagnetic Field 30MHz-1GHz



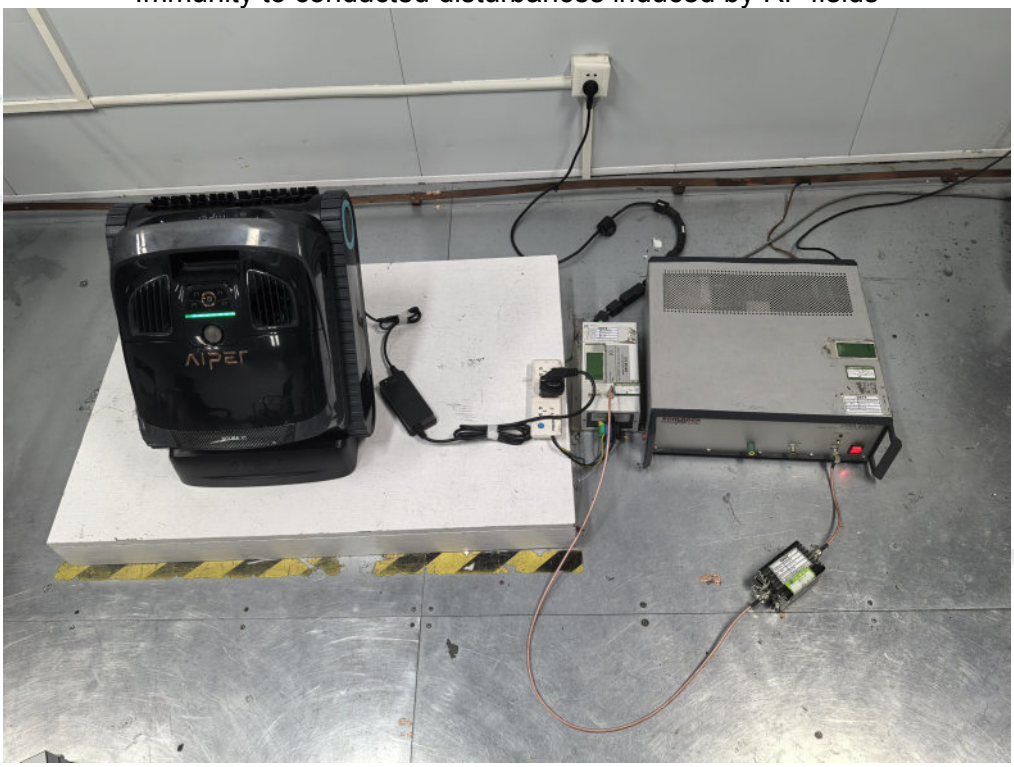
RF Electromagnetic Field 1GHz-6GHz



Electrical Fast Transient/Burst Immunity Test/ Surge/ Voltage Dips and Interruptions

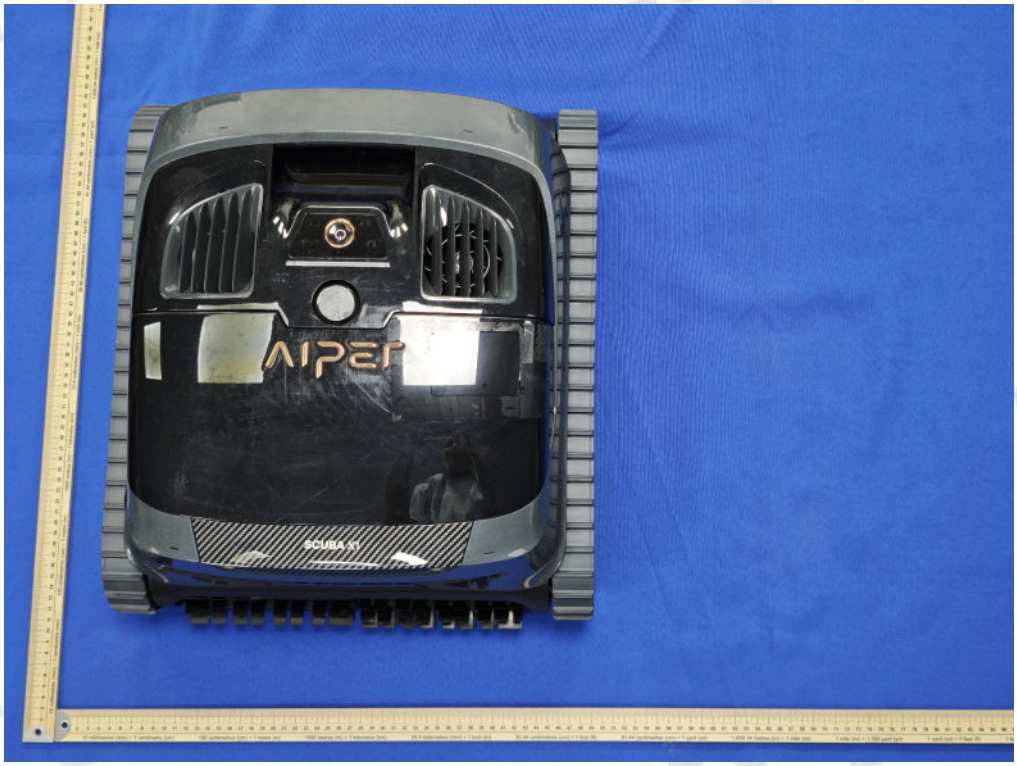


Immunity to conducted disturbances induced by RF fields



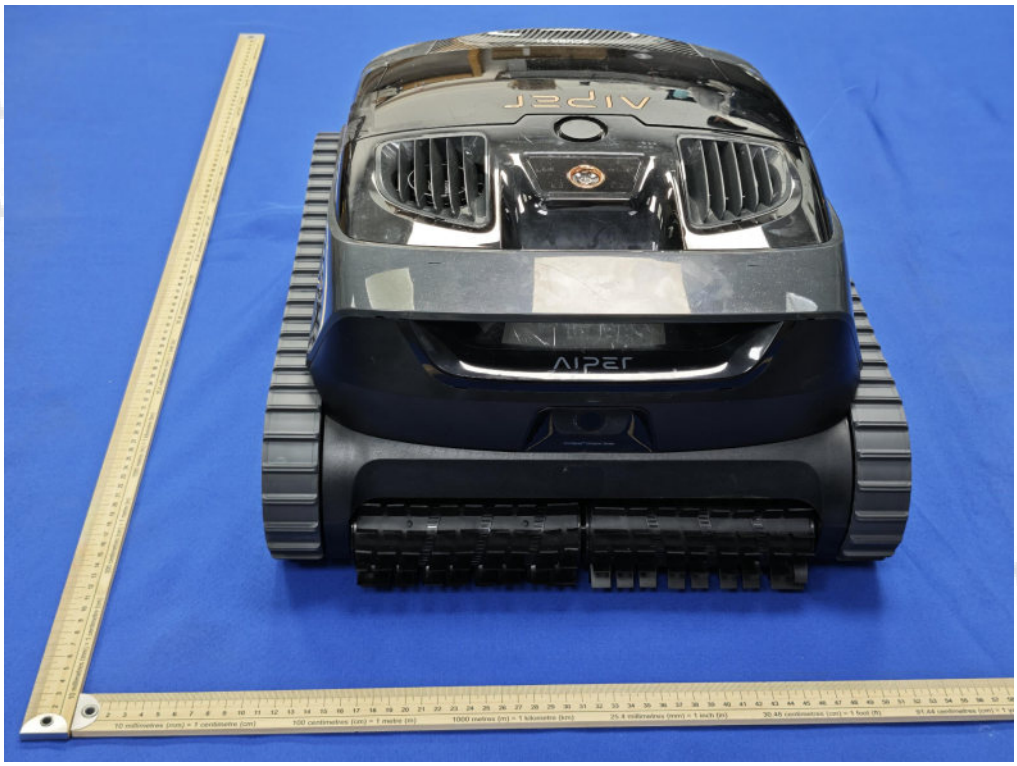
5 PHOTOS OF THE EUT

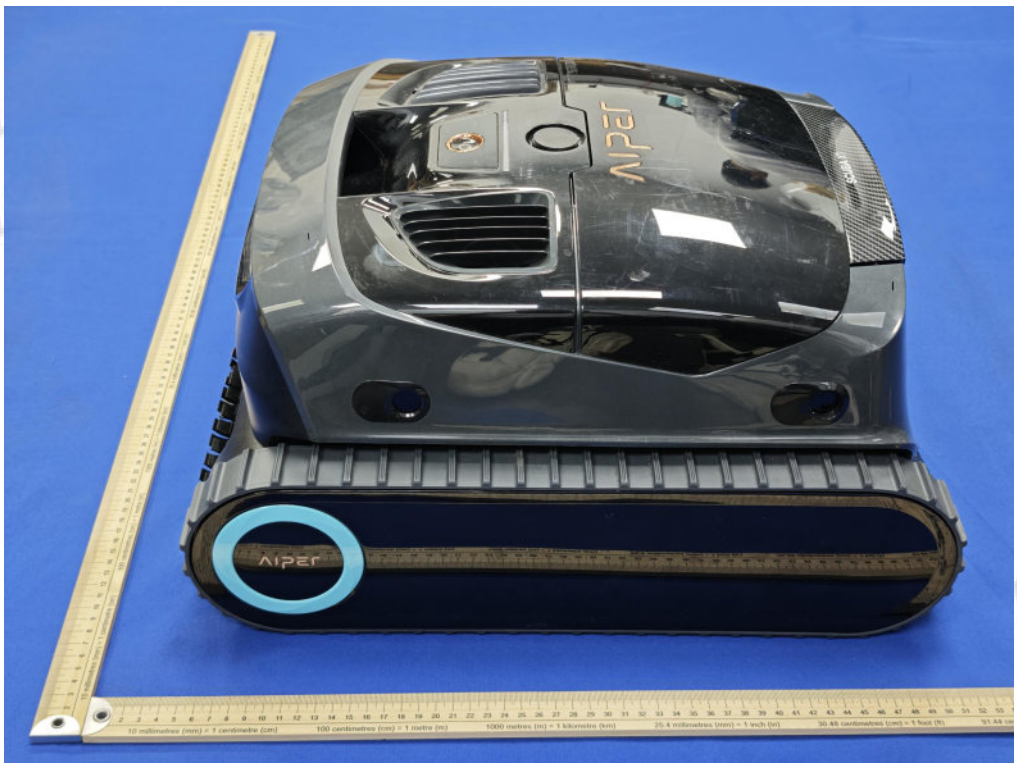
External Photos of EUT




AIPER
CORDLESS ROBOTIC POOL CLEANER
Model: PRT1
Rated Input: 25.2V⎓3.0A
Charger Input: 100-240V~, 50/60Hz, 2.5A
Water Temperature: 50-104°F (10-40°C)
IPX8 Made in China www.aiper.com
IC: 31793-SCUBAX1
FCC ID: 2BD5N-SCUBAX1
S/N:T1B44900570
CLASS 1 LASER PRODUCT
Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019. IEC 60825-1:2014, Ed.3
Energy Verified
Rendement Énergétique Vérifié
CONFORMS TO UL STD. 1081
CERTIFIED TO CSA STD.
C22.2 NO. 218.1
CSA ENCLOSURE 3
Intertek
5031167
This device complies with Part 15 of the FCC rules. Operation of the product is subject to the following: (1) This device may not cause intentional harm. (2) This device accepts any interference received, including interference that may cause undesired operation.
CAUTION
1. FOR USE WITH SWIMMING POOLS ONLY.
2. DO NOT RUN PUMP DRY.
3. TO REDUCE THE RISK OR INJURY, USER MUST READ MANUAL.
4. FOR USE ONLY WITH AUTHORIZED AIPER CHARGER, MODEL: GM95-252300-1FGN.
AVERTISSEMENT
1. UTILISATION RÉSERVÉE AUX PISCINES.
2. NE FAITES PAS FONCTIONNER LA POMPE À SEC.
3. AFIN DE RÉDUIRE LES RISQUES DE BLESSURE, L'UTILISATEUR DOIT LIRE LE MANUEL.
4. UTILISEZ L'APPAREIL UNIQUEMENT AVEC LE MODÈLE DE CHARGEUR AIPER AUTORISÉ GM95-252300-1FGN.


AIPER
AIPER


AIPER
AIPER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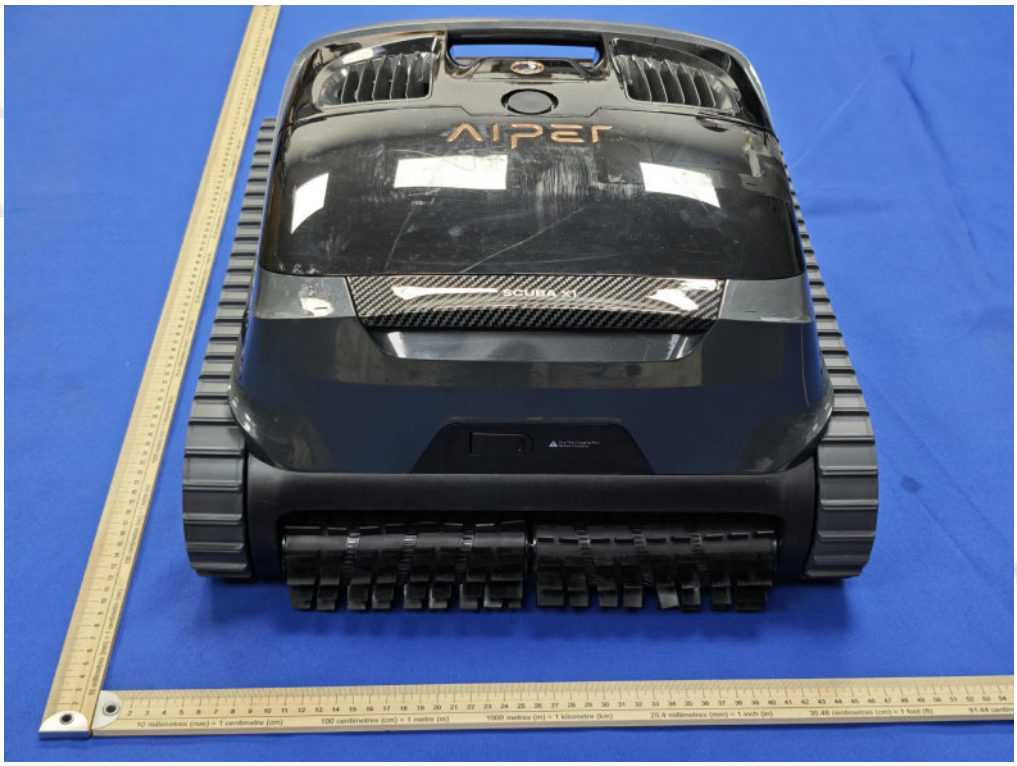
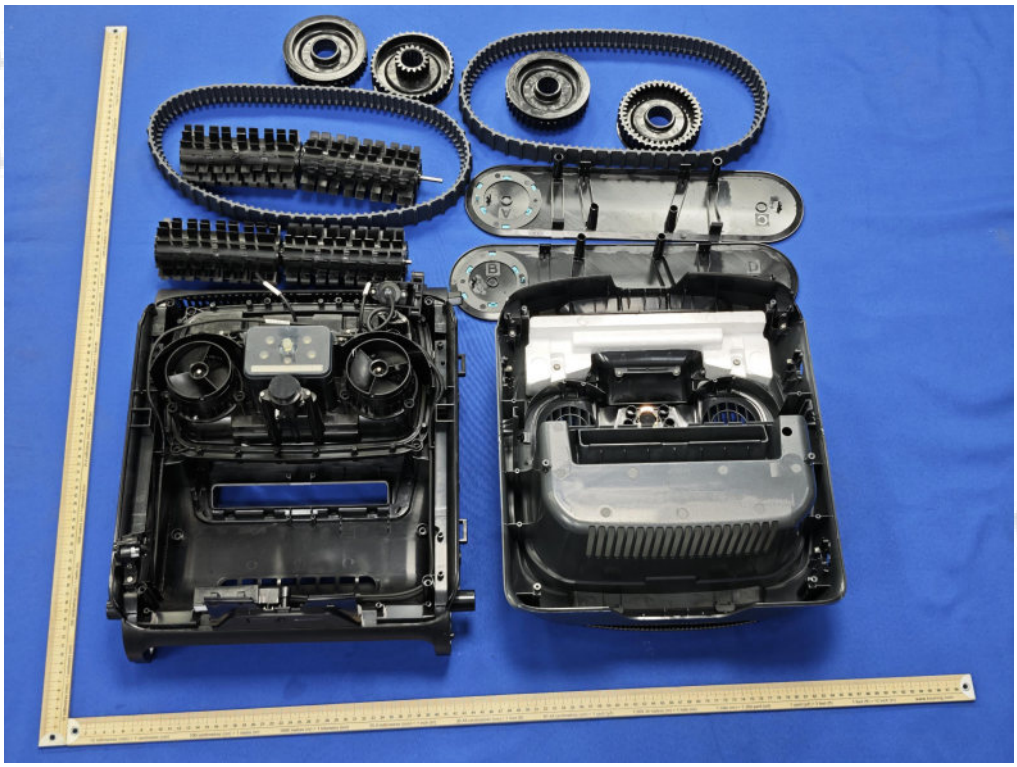
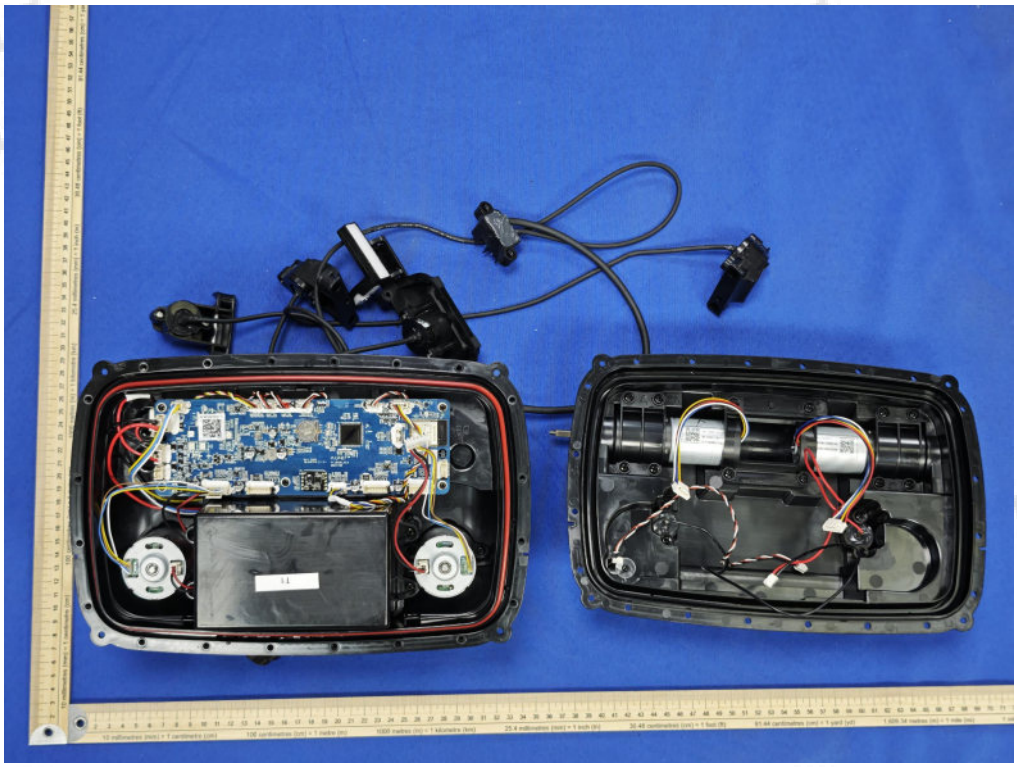

AIPER
SCUBA X1

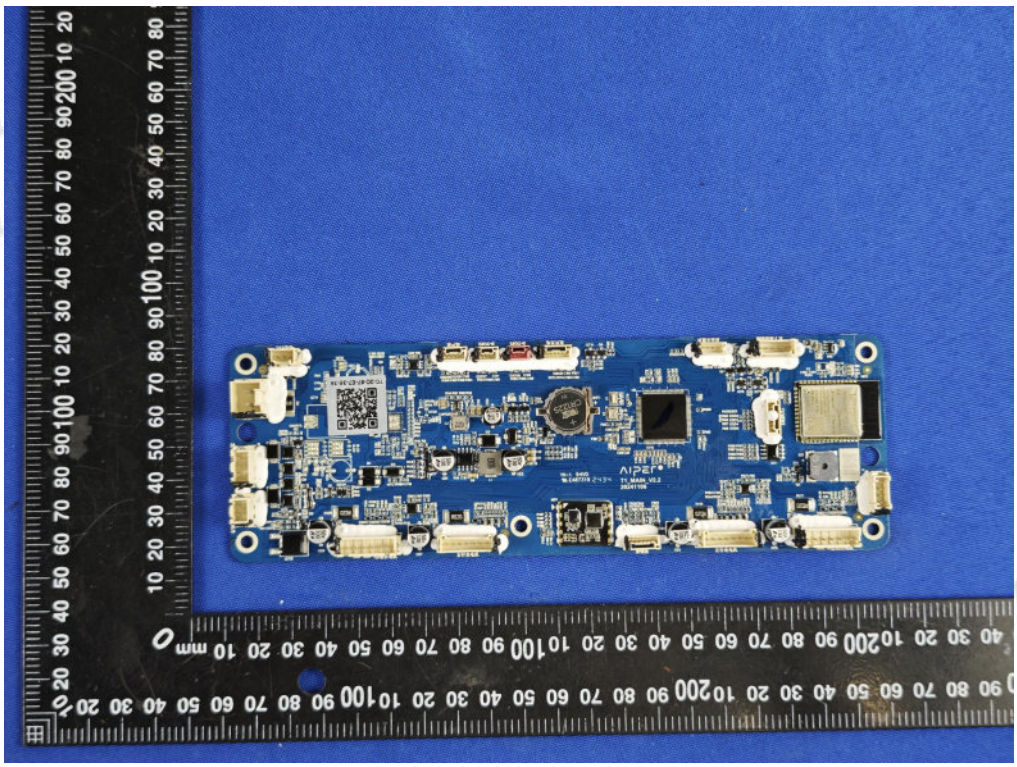

Dry The Charging Port
Before Charging

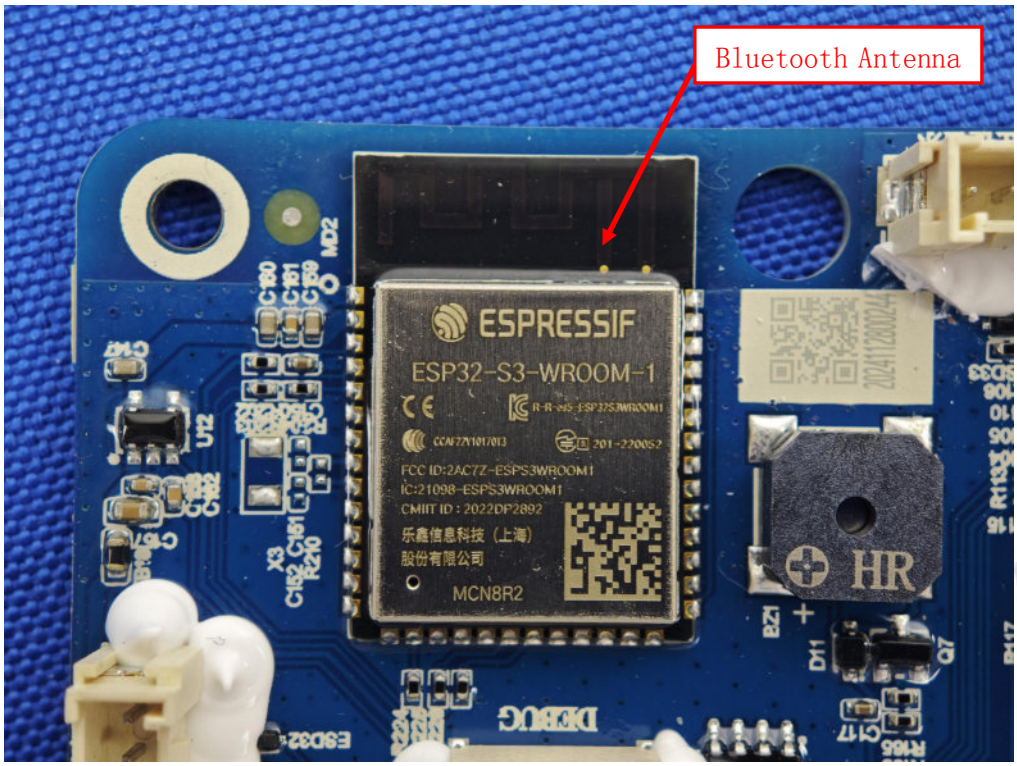

INPUT
GVE AC/DC ADAPTER
MODEL:GM95-252300-2FGN
INPUT:
100-240V~50/60Hz 2.5A
OUTPUT:
25.2V ⎓ 3.0A;75.6W
IP67 for enclosure body only
CAUTION/ACHTUNG:
SN:B2411051974
MADE IN CHINA

Internal Photos of EUT





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ESP32-S3-WROOM-1
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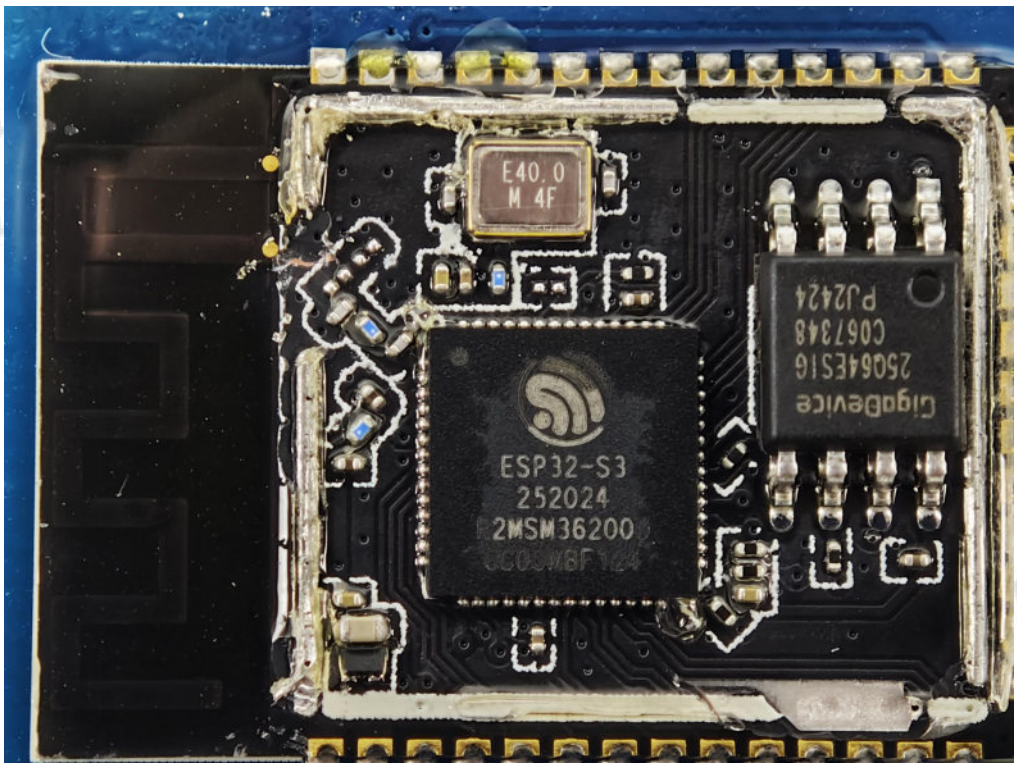
IC:21098-ESPS3WROOM1
CMIIT ID : 2022DP2892
乐鑫信息科技（上海）
股份有限公司
MCN8R2
HR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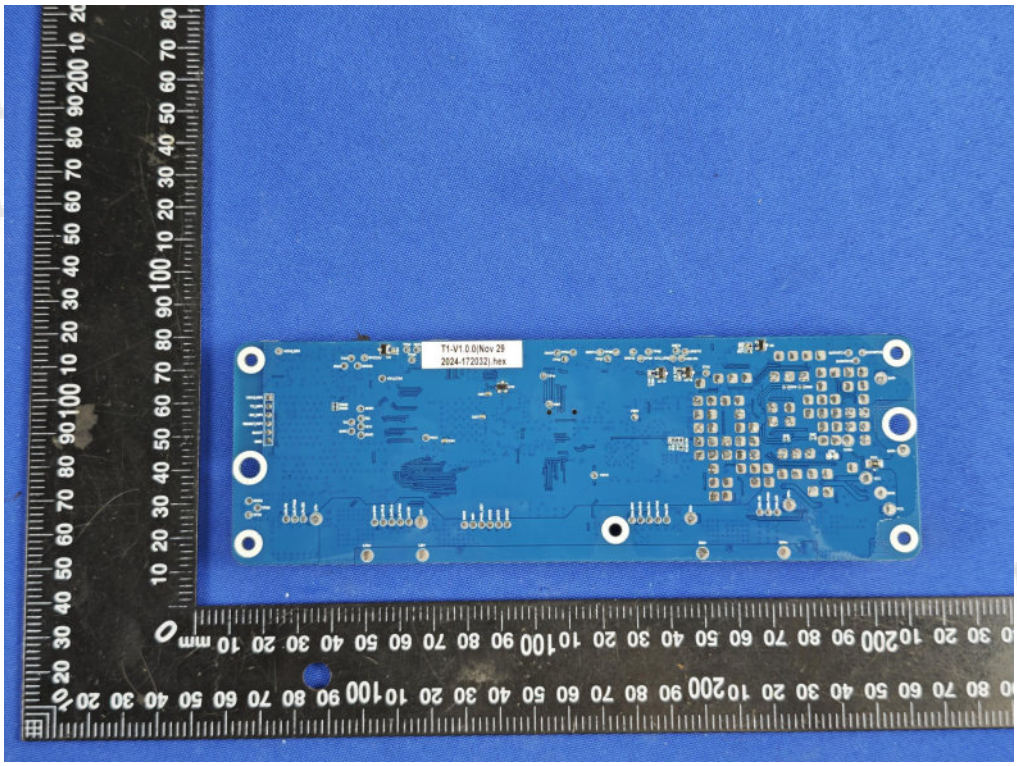
T1-V1.0.0(Nov 29
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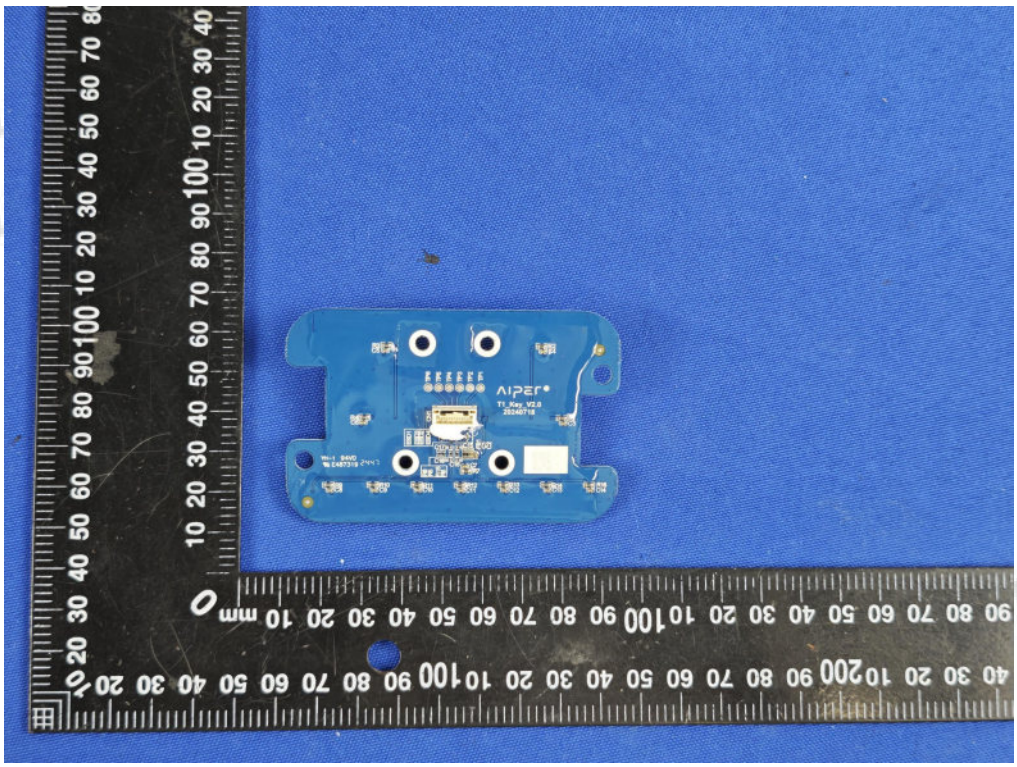

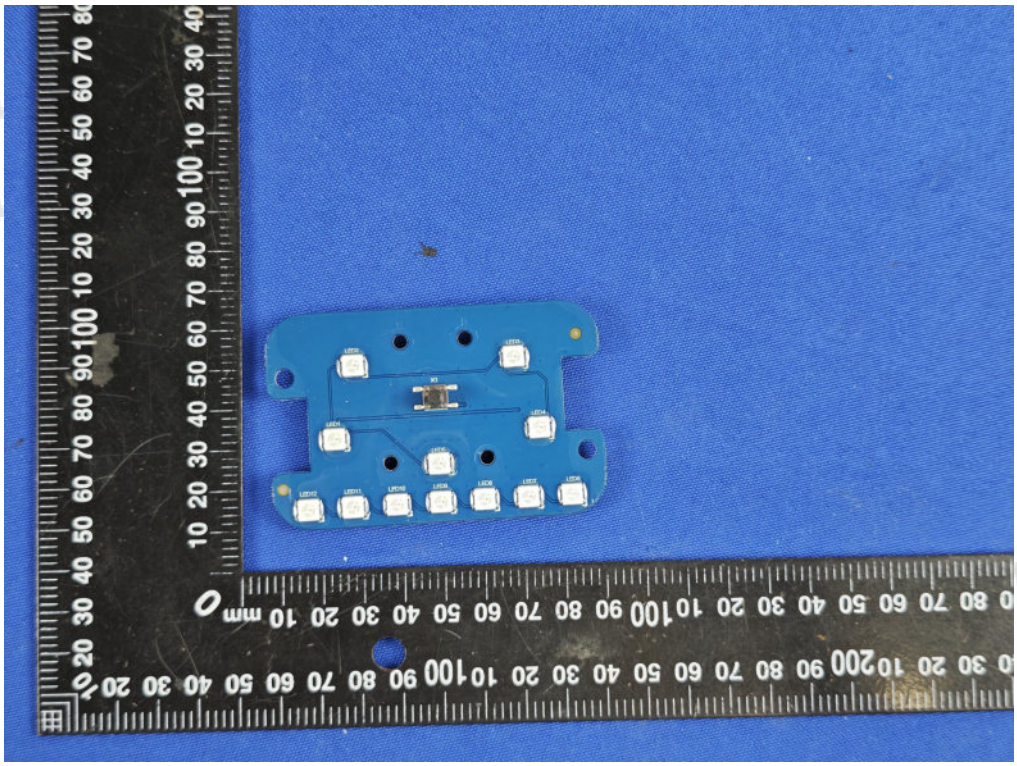

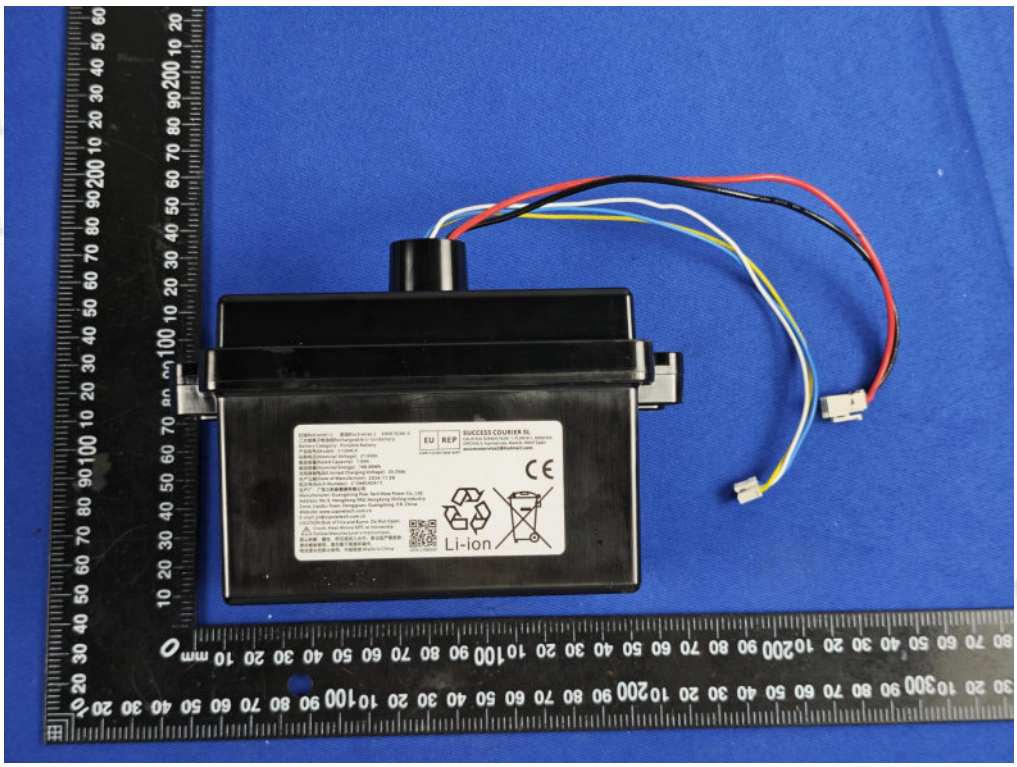

********** End of Report **********