



中国认可
国际互认
检测
TESTING
CNAS L12076

Test Report



Declaration of Conformity

Product: Wireless microphone

Trade Mark: maono

Model Number: PD100W

Prepared for

Shenzhen Maono Technology Co., Ltd.
No. 1307, 13th Floor, Building 4, Phase II of Tianan Yungu
Industrial Park, Gangtou Community, Bantian Street, Longgang District,
Shenzhen, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's Name : Shenzhen Maono Technology Co., Ltd.
No. 1307, 13th Floor, Building 4, Phase II of Tianan Yungu
Address : Industrial Park, Gangtou Community, Bantian Street, Longgang
District, Shenzhen, China
Manufacturer's Name : Shenzhen Maono Technology Co., Ltd.
No. 1307, 13th Floor, Building 4, Phase II of Tianan Yungu
Address : Industrial Park, Gangtou Community, Bantian Street, Longgang
District, Shenzhen, China

Product description

Product name : Wireless microphone
Model Number : PD100W
EN 55032:2015/A1:2020
EN 55035:2017/A11:2020

Standards : EN IEC 61000-3-2:2019/A2:2024
EN 61000-3-3:2013/A2:2021/AC:2022-01

This device described above has been tested by Shenzhen HongBiao Certification& Testing Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

Date of Test

Date (s) of performance of tests : Sept. 15, 2025~Oct. 11, 2025

Test Result..... : **Pass**

Testing Engineer :

Zoe Su
(Z o e S u)

Technical Manager :

Ming Liu
(Ming Liu)

Authorized Signatory :

Leo

(L e o S u)



[illegible]

1 General Description

1.1 Description of EUT

Product name:	Wireless microphone
Model name:	PD100W
Series Model:	PD100W S, PD100W T, PD100W Pro, PD100W Neo, PD100W RGB, PD100W RGB S, PD100W Pro S, PD100W Neo S, PD100W Plus, PD100W Pro T, RC-1, RL-1, RA-1
Different of series model:	All the models are the same circuit and module, except the model No..
Battery:	Dynamic Microphone: DC 3.7V, 1500mAh, 5.55Wh
Power supply:	For Dynamic Microphone: Powered by internal battery For Dynamic Microphone: Input DC 5V/1A For Receiver: Input DC 5V/12mA Battery for Dynamic Microphone: DC 3.7V, 1500mAh, 5.55Wh
Adapter information:	N/A

1.2 Test Mode

Pretest Test Mode	Description of Mode
1	Charging from Adapter (With 230Vac)+USB Cable (A to C)+Wireless Microphone+RX USB-C (Phone Wireless Link)+Wireless Microphone+Earphone (3.5mm AUX Out)
2	Charging from Adapter (With 230Vac)+USB Cable (A to C)+Wireless Microphone+RX iOS (Phone Wireless Link)+Earphone (3.5mm AUX Out)
3	Charging from Adapter (With 230Vac)+USB Cable (A to C)+RX USB-C (Phone Wireless Link)+ Wireless Microphone (Wireless Link)+Earphone (3.5mm AUX Out)
4	Charging from Adapter (With 230Vac)+USB Cable (A to C)+RX iOS (Phone Wireless Link)+ Wireless Microphone (Wireless Link)+Earphone (3.5mm AUX Out)
5	Wireless microphone+USB Cable (A to C)+Phone+Earphone (3.5mm AUX Out)
6	Wireless microphone+USB Cable (A to C)+Notebook+RX iOS (Phone Wireless Link)
7	Wireless microphone+USB Cable (A to C)+Notebook+RX USB-C (Phone Wireless Link)

Test Item	Final Test Mode
Conducted Emission	1
Radiated Emission	2
Harmonic Current Emission	N/A

Voltage Fluctuations & Flicker	1/2/3/4
Electrostatic Discharge	1-7
RF electromagnetic field	1-7
Fast transients	1/2/3/4
Surges	1/2/3/4
Continuous radio frequency disturbances	1/2/3/4
Power Frequency Magnetic Field	N/A
Volt. Interruptions Volt. Dips	1/2/3/4

1.3 Test Setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

1.4 Ancillary Equipment

Equipment	Model	S/N	Manufacturer
Adapter	CD289	35810	Ugreen Group Limited
iPhone16 Pro	MYM93LL/A	HMV3W3W1 9W	Apple Inc.

2 Summary of Test Result

Test procedures according to the technical standards:

EMC Emission					
No.	Standard	Test Item	Limit	Result	Remark
1	EN 55032	Conducted Emission On AC And Telecom Port 150kHz to 30MHz	Class B	Pass	
2		Disturbance Voltage at The Antenna Terminals (30MHz To 2150MHz)	-----	N/A	Note
3		Wanted signal and disturbance voltage at the RF output terminals (30MHz To 2150MHz)	-----	N/A	Note
4		Radiated Emission 30MHz to 1000MHz	Class B	Pass	
5		Radiated Emission 1GHz to 6GHz	Class B	Pass	
6	EN 61000-3-2	Harmonic Current Emission	Class A	N/A	Note
7	EN 61000-3-3	Voltage Fluctuations & Flicker	-----	Pass	
EMC Immunity					
No.	Section: EN 55035	Test Item	PC	Result	Remark
1	IEC/EN 61000-4-2	Electrostatic Discharge	B	Pass	
2	IEC/EN 61000-4-3	RF electromagnetic field	A	Pass	
3	IEC/EN 61000-4-4	Fast transients	B	Pass	
4	IEC/EN 61000-4-5	Surges	B	Pass	
5	IEC/EN 61000-4-6	Continuous radio frequency disturbances	A	Pass	
6	IEC/EN 61000-4-8	Power Frequency Magnetic Field	A	N/A	Note
7	IEC/EN 61000-4-11	Volt. Interruptions Volt. Dips	B / C / C	Pass	Note
Note: 1. "N/A" means the test item not applicable. 2. Voltage Interruption: 100% reduction – Performance Criteria B Voltage dip: 30% reduction – Performance Criteria C Voltage Interruption: 100% Interruption – Performance Criteria C					

3 Test Facilities and Accreditations

3.1 Test Laboratory

Test Site	Shenzhen HongBiao Certification& Testing Co., Ltd
Test Site Location	Room 102, 201, Building 2, Yuanwanggu RFID Industrial Park, Tongguan Road, Tianliao Community, Yutang Street, Guangming District, Shenzhen, China
Telephone:	(86-755) 2998 9321
Fax:	(86-755) 2998 5110
CNAS Registration No.:	L12076

3.2 Environmental Conditions

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

Temperature:	15°C~35°C
Relative Humidity:	20%~75% (30%~60% for ESD)
Air Pressure:	98kPa~101kPa

3.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

A. Conducted Measurement:

Measurement Frequency Range	U, (dB)	Note
150 kHz to 30 MHz	2.5	AC Power Port

B. Radiated Measurement:

Measurement Frequency Range	U, (dB)	Note
30 MHz to 1000 MHz	4.2	/
1 GHz to 6 GHz	4.7	/

3.4 Test Software

Software name	Manufacturer	Model	Version
Conducted Emission test Software	Farad	EZ-EMC	EMC-CON 3A1.1+
Radiated Emission test Software	Farad	EZ-EMC	FA-03A2
Harmonics and flicker test Software	AMETEK	CTS 4	V4.29.0

ESD Test Firmware	Prima	PR220123991	V5.3.7.4.17
Radiated Electromagnetic Field Immunity test Software	Farad	EMC-RS	V2.1.1.6
EFT Test Firmware	Prima	PR211143414	V3.4.14.3.14C
Surge Test Firmware	Prima	PR211255462	V1.11.15.3.11
Conducted immunity test Software	Noyetec	N/A	V4.0
DIPS Test Firmware	Prima	PR21116641	V1.1.9.2.05

4 List of Test Equipment

Radiation emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E001	Horn Antenna	Schwarzbeck	BBHA 9120D	02592	2024-05-18	2026-05-17
2	HB-E002	Biconical log-periodic composite antenna	Schwarzbeck	VULB 9168	01340	2024-05-18	2026-05-17
3	HB-E003	SHF-EHF Horn	Schwarzbeck	BBHA 9170	01193	2024-05-18	2026-05-17
4	HB-E005	Preamplifier	Noyetec	LAN-0118	NYCM1420102	2025-05-07	2026-05-06
5	HB-E006	Preamplifier	Noyetec	LAN-1840	NYCM1420103	2025-05-07	2026-05-06
6	HB-E007	EMI TEST RECEIVER	R&S	ESR7	102520	2025-05-07	2026-05-06
7	HB-E009	POSITINAL COTROLLE R	Noyetec	N/A	N/A	/	/
8	HB-E013	RF switch	Noyetec	NY-RF4	NY0CM1420204	/	/
9	HB-E066	Illuminance Tester	TASI	TA8121	N/A	2025-05-13	2026-05-12
10	HB-E075	Active loop antenna	Schwarzbeck	FMZB 1519B	1519B-245	2024-05-18	2026-05-17
11	HB-E076	Preamplifier	Hewlett Packard	8447D	1937A02278	2025-05-07	2026-05-06
Conduction emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E014	4 Path V-LISN	Schwarzbeck	NNLK 8121	00770	2025-05-07	2026-05-06
2	HB-E015	Pulse Limiter	Schwarzbeck	VTSD 9561-F	00949	2025-05-07	2026-05-06
3	HB-E016	Absorb clamp	ZHINAN	ZN23201	N/A	2025-05-10	2026-05-09
4	HB-E059	Attenuator	Xianghua	TS2-6-1	220215166	2025-05-10	2026-05-09
5	HB-E069	EMI TEST RECEIVER	R&S	ESCI	N/A	2025-05-07	2026-05-06
Harmonic & flicker emissions							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E029	PACS-1	AMETEK	100-CTS-230	2134A00334	2025-05-07	2026-05-06
2	HB-E030	MODEL 5001IX	AMETEK	5001IX-400	2134AOO333	2025-05-07	2026-05-06

Electrostatic discharge immunity							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E025	Electrostatic Discharge Generator	Prima	ESD61002T A	PR220123PPL	2025-05-09	2026-05-08
RS							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E017	Field strength meter support	Noyetec	AA600	NYCF142285	/	/
2	HB-E018	Stacked Double Log.-Per.Antenna	Noyetec	STLP 9128	01164	/	/
3	HB-E020	Power amplifier	Noyetec	NYPA0810-200	MPA2201010	2025-05-08	2026-05-07
4	HB-E021	Electric field probe	Narda	EP601	PFC2101-10367	2025-05-10	2026-05-09
5	HB-E023	E-Series Avg Power Sensor	KEYSIGHT	E9304A	MY60170006	2025-05-08	2026-05-07
6	HB-E062	E-Series Avg Power Sensor	Agilent	E9304A	MY52380012	2025-05-07	2026-05-06
7	HB-E024	EPM Series Power Meter	Agilent	E4419B	MY45100378	2025-05-08	2026-05-07
8	HB-E010	MXG Anaioq Signal Generator	Agilent	N5181A	10149	2025-05-08	2026-05-07

Surge immunity							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E027	Lightning Surge Generator	Prima	SUG61005TB	PR211255462	2025-05-07	2026-05-06

Electrical Fast Transient/Burst immunity							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E026	Fast Transient Burst Simulator	Prima	EFT61004TA	PR211143414	2025-05-07	2026-05-06

CS							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E031	Electromagnetic pliers	ZHINAN	ZN23203	21066	2025-05-07	2026-05-06

2	HB-E032	Impedance matching converter	Schwarzbeck	SR100-6W	00518	2025-05-07	2026-05-06
3	HB-E033	Coupling decoupling network	Schwarzbeck	CDN M2/M3 16A	00089	2025-05-07	2026-05-06
4	HB-E034	Attenuator	Noyetec	ATT01	01220829	2025-05-07	2026-05-06
5	HB-E041	MXG AnaioG Signal Generator	Agilent	N5181A	MY47070421	2025-05-07	2026-05-06
6	HB-E037	RF Power Amplifier	Noyetec	NYP A0140-100	MPA2201011	2025-05-07	2026-05-06
7	HB-E071	USB Average Power Sensor	Agilent	U2004A	MY51050003	2025-05-07	2026-05-06

Voltage dips, short interruptions and voltage variations immunity							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E040	Cryle Sag Simulator	Prima	DRP61011TB	PR21116641	2025-05-07	2026-05-06

Note: the calibration interval of the above test instruments is 12&24 months and the calibrations are traceable to international system unit (SI).

5 EMC Emission Test

5.1 Conducted Emission

5.1.1 Limits

Table A.8 – Requirements for conducted emissions from the AC mains power ports of Class A equipment

Applicable to				
1. AC mains power ports (3.1.1)				
Table clause	Frequency range MHz	Coupling device (see Table A.7)	Detector type / bandwidth	Class A limits dB(μV)
A8.1	0,15 – 0,5	AMN	Quasi Peak / 9 kHz	79
	0,5 – 30			73
A8.2	0,15 – 0,5	AMN	Average / 9 kHz	66
	0,5 – 30			60
Apply A8.1 and A8.2 across the entire frequency range.				

Table A.9 – Requirements for conducted emissions from the AC mains power ports of Class B equipment

Applicable to				
1. AC mains power ports (3.1.1)				
Table clause	Frequency range MHz	Coupling device (see Table A.7)	Detector type / bandwidth	Class B limits dB(μV)
A9.1	0,15 – 0,5	AMN	Quasi Peak / 9 kHz	66 – 56
	0,5 – 5			56
	5 – 30			60
A9.2	0,15 – 0,5	AMN	Average / 9 kHz	56 – 46
	0,5 – 5			46
	5 – 30			50

Apply A9.1 and A9.2 across the entire frequency range.

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.

Table A.10 – Requirements for asymmetric mode conducted emissions from Class A equipment

Applicable to					
1. wired network ports (3.1.30) 2. optical fibre ports (3.1.24) with metallic shield or tension members 3. antenna ports (3.1.3)					
Table clause	Frequency range MHz	Coupling device (see Table A.7)	Detector type / bandwidth	Class A voltage limits dB(μV)	Class A current limits dB(μA)
A10.1	0,15 – 0,5	AAN	Quasi Peak / 9 kHz	97 – 87	n/a
	0,5 – 30			87	
	0,15 – 0,5	AAN	Average / 9 kHz	84 – 74	
	0,5 – 30			74	
A10.2	0,15 – 0,5	CVP and current probe	Quasi Peak / 9 kHz	97 – 87	53 – 43
	0,5 – 30			87	43
	0,15 – 0,5	CVP and current probe	Average / 9 kHz	84 – 74	40 – 30
	0,5 – 30			74	30
A10.3	0,15 – 0,5	Current Probe	Quasi Peak / 9 kHz	n/a	53 – 43
	0,5 – 30				43
	0,15 – 0,5	Current Probe	Average / 9 kHz		40 – 30
	0,5 – 30				30
The choice of coupling device and measurement procedure is defined in Annex C.					
AC mains ports that also have the function of a wired network port shall meet the limits given in Table A.8.					
The test shall cover the entire frequency range.					
The application of the voltage and/or current limits is dependent on the measurement procedure used. Refer to Table C.1 for applicability.					
Testing is required at only one EUT supply voltage and frequency.					
Applicable to ports listed above and intended to connect to cables longer than 3 m.					

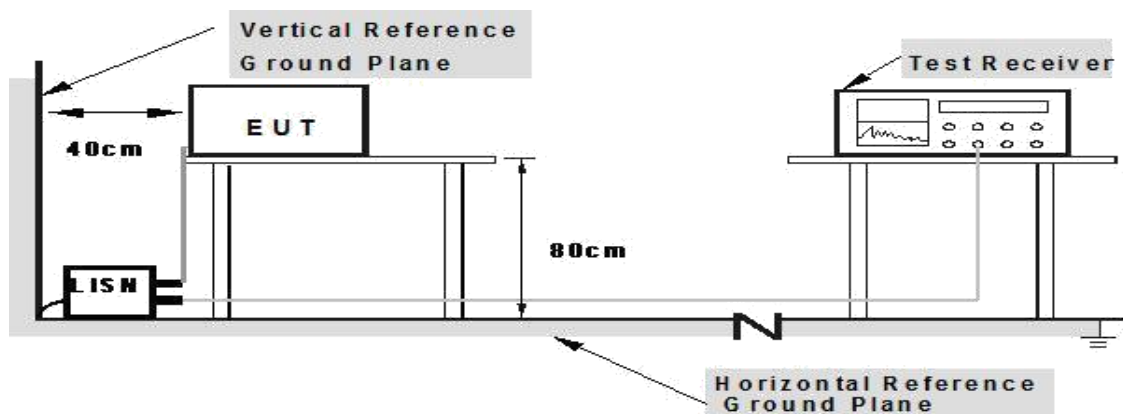
Table A.11 – Requirements for asymmetric mode conducted emissions from Class B equipment

Applicable to					
1. wired network ports (3.1.30) 2. optical fibre ports (3.1.24) with metallic shield or tension members 3. broadcast receiver tuner ports (3.1.8) 4. antenna ports (3.1.3)					
Table clause	Frequency range MHz	Coupling device (see Table A.7)	Detector type / bandwidth	Class B voltage limits dB(μV)	Class B current limits dB(μA)
A11.1	0,15 – 0,5	AAN	Quasi Peak / 9 kHz	84 – 74	n/a
	0,5 – 30			74	
	0,15 – 0,5	AAN	Average / 9 kHz	74 – 64	
	0,5 – 30			64	
A11.2	0,15 – 0,5	CVP and current probe	Quasi Peak / 9 kHz	84 – 74	40 – 30
	0,5 – 30			74	30
	0,15 – 0,5	CVP and current probe	Average / 9 kHz	74 – 64	30 – 20
	0,5 – 30			64	20
A11.3	0,15 – 0,5	Current Probe	Quasi Peak / 9 kHz	n/a	40 – 30
	0,5 – 30				30
	0,15 – 0,5	Current Probe	Average / 9 kHz		30 – 20
	0,5 – 30				20
The choice of coupling device and measurement procedure is defined in Annex C.					
Screened ports including TV broadcast receiver tuner ports are tested with a common-mode impedance of 150 Ω. This is typically accomplished with the screen terminated by 150 Ω to earth.					
AC mains ports that also have the function of a wired network port shall meet the limits given in Table A.9.					
The test shall cover the entire frequency range.					
The application of the voltage and/or current limits is dependent on the measurement procedure used. Refer to Table C.1 for applicability.					
Testing is required at only one EUT supply voltage and frequency.					
Applicable to ports listed above and intended to connect to cables longer than 3 m.					

5.1.2 Test Procedures

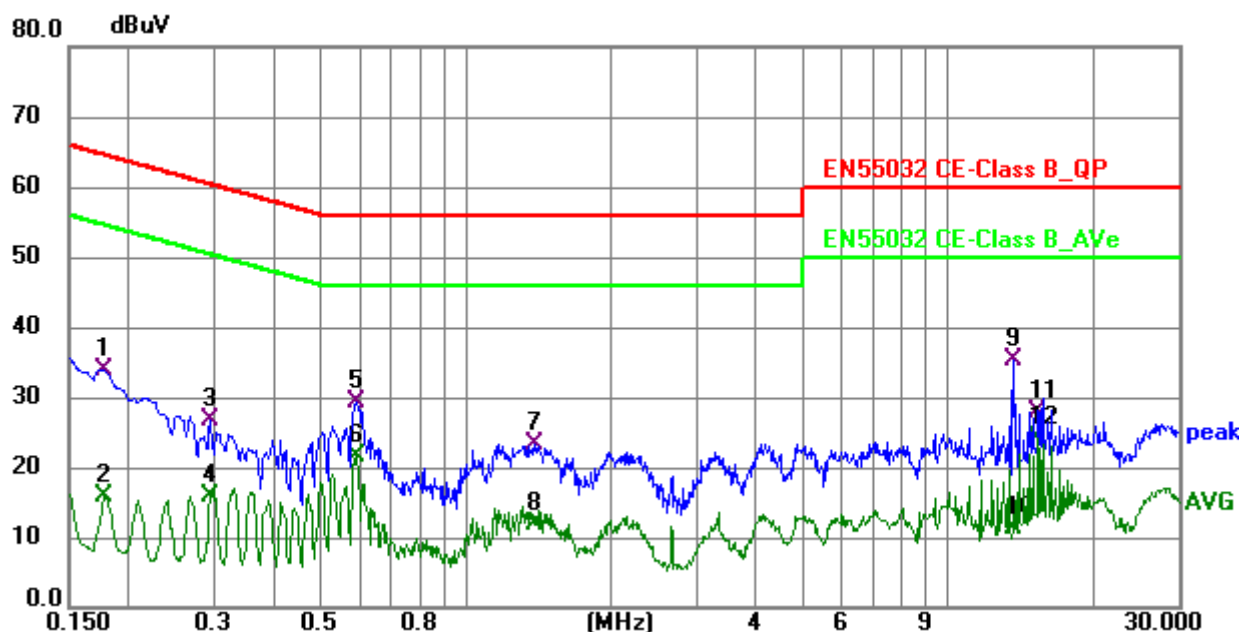
- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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.
- 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.
- LISN is at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item – photographs of the test setup.

5.1.3 Test setup



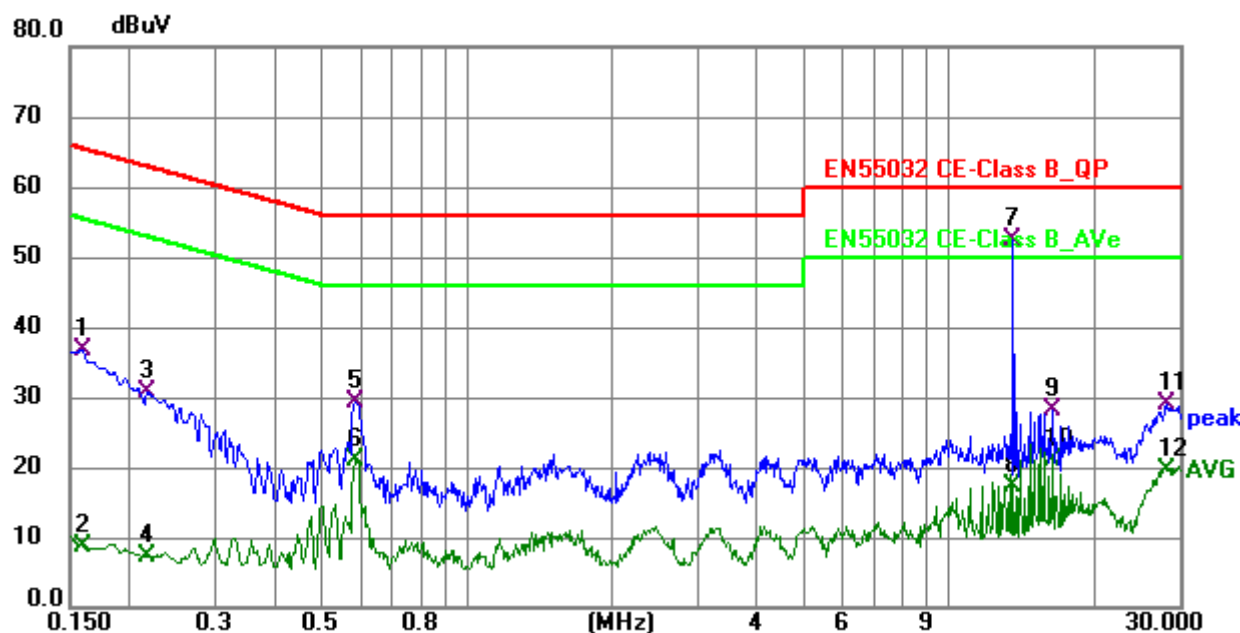
5.1.4 Test Result

EUT:	Wireless microphone	Model Name:	PD100W
Test Mode:	Mode 1	Phase:	L
Test Voltage:	DC 5V from adapter AC 230V/50Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.177	23.62	10.13	33.75	64.63	-30.88	QP
2	0.177	5.82	10.13	15.95	54.63	-38.68	AVG
3	0.294	16.67	10.08	26.75	60.41	-33.66	QP
4	0.294	5.90	10.08	15.98	50.41	-34.43	AVG
5	0.591	19.21	10.11	29.32	56.00	-26.68	QP
6 *	0.591	11.55	10.11	21.66	46.00	-24.34	AVG
7	1.387	13.09	10.22	23.31	56.00	-32.69	QP
8	1.387	1.68	10.22	11.90	46.00	-34.10	AVG
9	13.627	21.21	13.95	35.16	60.00	-24.84	QP
10	13.627	-2.64	13.95	11.31	50.00	-38.69	AVG
11	15.383	13.81	14.14	27.95	60.00	-32.05	QP
12	15.383	9.89	14.14	24.03	50.00	-25.97	AVG

EUT:	Wireless microphone	Model Name:	PD100W
Test Mode:	Mode 1	Phase:	N
Test Voltage:	DC 5V from adapter AC 230V/50Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.159	26.51	10.18	36.69	65.52	-28.83	QP
2	0.159	-1.38	10.18	8.80	55.52	-46.72	AVG
3	0.217	20.66	10.15	30.81	62.93	-32.12	QP
4	0.217	-2.84	10.15	7.31	52.93	-45.62	AVG
5	0.587	19.22	10.12	29.34	56.00	-26.66	QP
6	0.587	11.01	10.12	21.13	46.00	-24.87	AVG
7 *	13.569	38.37	13.98	52.35	60.00	-7.65	QP
8	13.569	3.23	13.98	17.21	50.00	-32.79	AVG
9	16.404	13.98	14.27	28.25	60.00	-31.75	QP
10	16.404	6.62	14.27	20.89	50.00	-29.11	AVG
11	28.316	13.28	15.83	29.11	60.00	-30.89	QP
12	28.316	3.77	15.83	19.60	50.00	-30.40	AVG

5.2 Radiated Emission

5.2.1 Limits

Limits – Class A					
Measurement Facility	Frequency (MHz)	Limit dB (μV/m) at 3 m		Limit dB (μV/m) at 10 m	
OATS ^a or SAC ^b	30 to 230	50 Quasi-Peak		40 Quasi-Peak	
	230 to 1000	57 Quasi-Peak		47 Quasi-Peak	
Limits – Class B					
Measurement Facility	Frequency (MHz)	Limit dB (μV/m) at 3 m		Limit dB (μV/m) at 10 m	
OATS ^a or SAC ^b	30 to 230	40 Quasi-Peak		30 Quasi-Peak	
	230 to 1000	47 Quasi-Peak		37 Quasi-Peak	
Note: The limit of outdoor units of home satellite receiving systems at frequencies up to 1 GHz accords with the limit at frequencies up to 1 GHz for class B equipment.					
Limits - FM Receiver					
Measurement Facility	Frequency (MHz)	Limit dB (μV/m) at 3 m		Limit dB (μV/m) at 10 m	
		Harmonics (QP)	Fundamental (QP)	Harmonics (QP)	Fundamental (QP)
OATS ^a or SAC ^b	30 to 230	52	60	42	50
	230 to 300	52	60	42	50
	300 to 1000	56	60	46	50
FAR ^c	30 to 230	54 to 47	62 to 55	44 to 37	52 to 45
	230 to 300	47	55	37	45
	300 to 1000	51	55	41	45

Limits – Class A			
Measurement Facility	Frequency (MHz)	Detector type/ bandwidth	Limit dB (μV/m) at 3 m
FSOATS	1000 to 6000	Average/1 MHz	60
	1000 to 6000	Peak/1 MHz	80
Limits – Class B			
Measurement Facility	Frequency (MHz)	Detector type/ bandwidth	Limit dB (μV/m) at 3 m
FSOATS	1000 to 6000	Average/1 MHz	54
	1000 to 6000	Peak/1 MHz	74

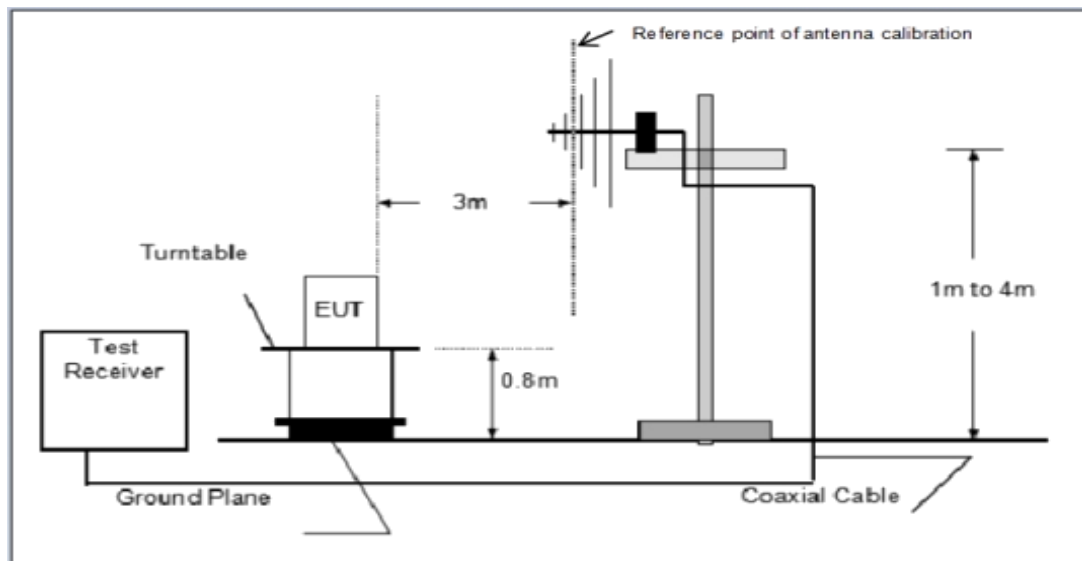
5.2.2 Test Procedures

- The radiated emission tests were performed in the 3 meters.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

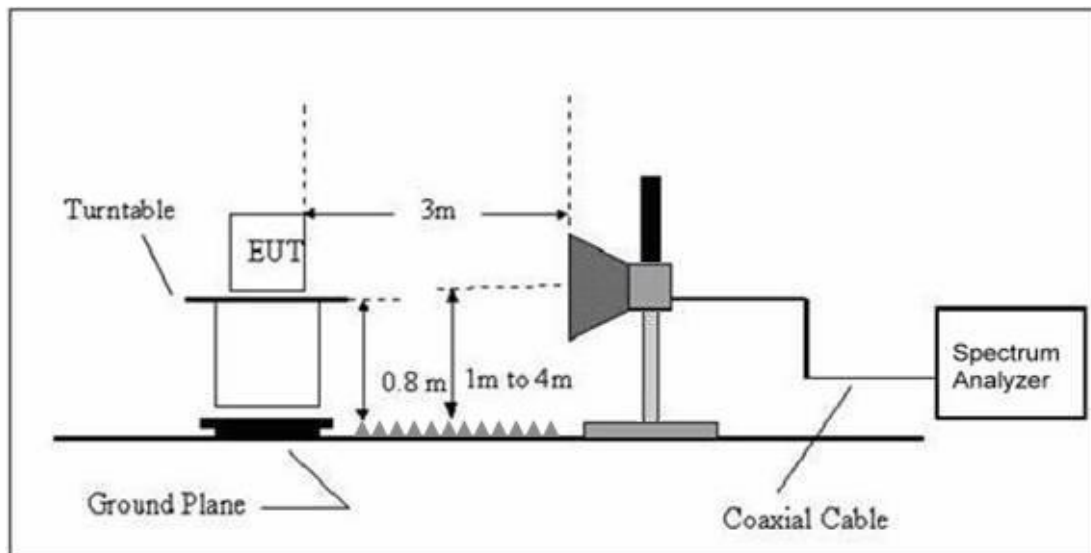
- d) If the peak mode measured value compliance with and lower than quasi peak mode limit, the EUT shall be deemed to meet QP limits and then no additional QP mode measurement performed.
- e) If the peak mode measured value compliance with and lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.
- f) For the actual test configuration, please refer to the related item – EUT test photos.

5.2.3 Test Setup

Radiated emission test-up frequency for 30MHz - 1GHz:



Radiated emission test-up frequency for above 1GHz:



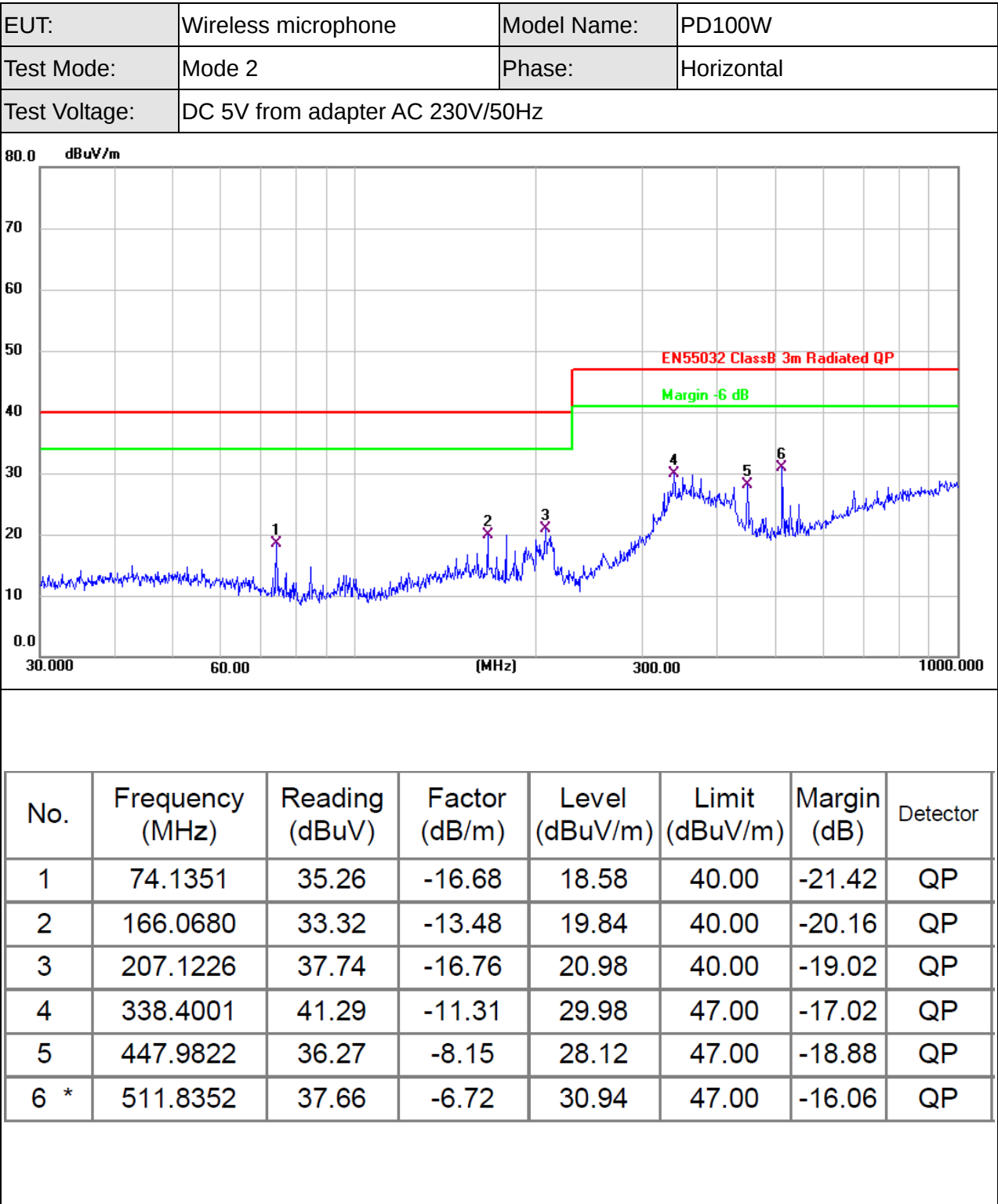
5.2.4 Test Result

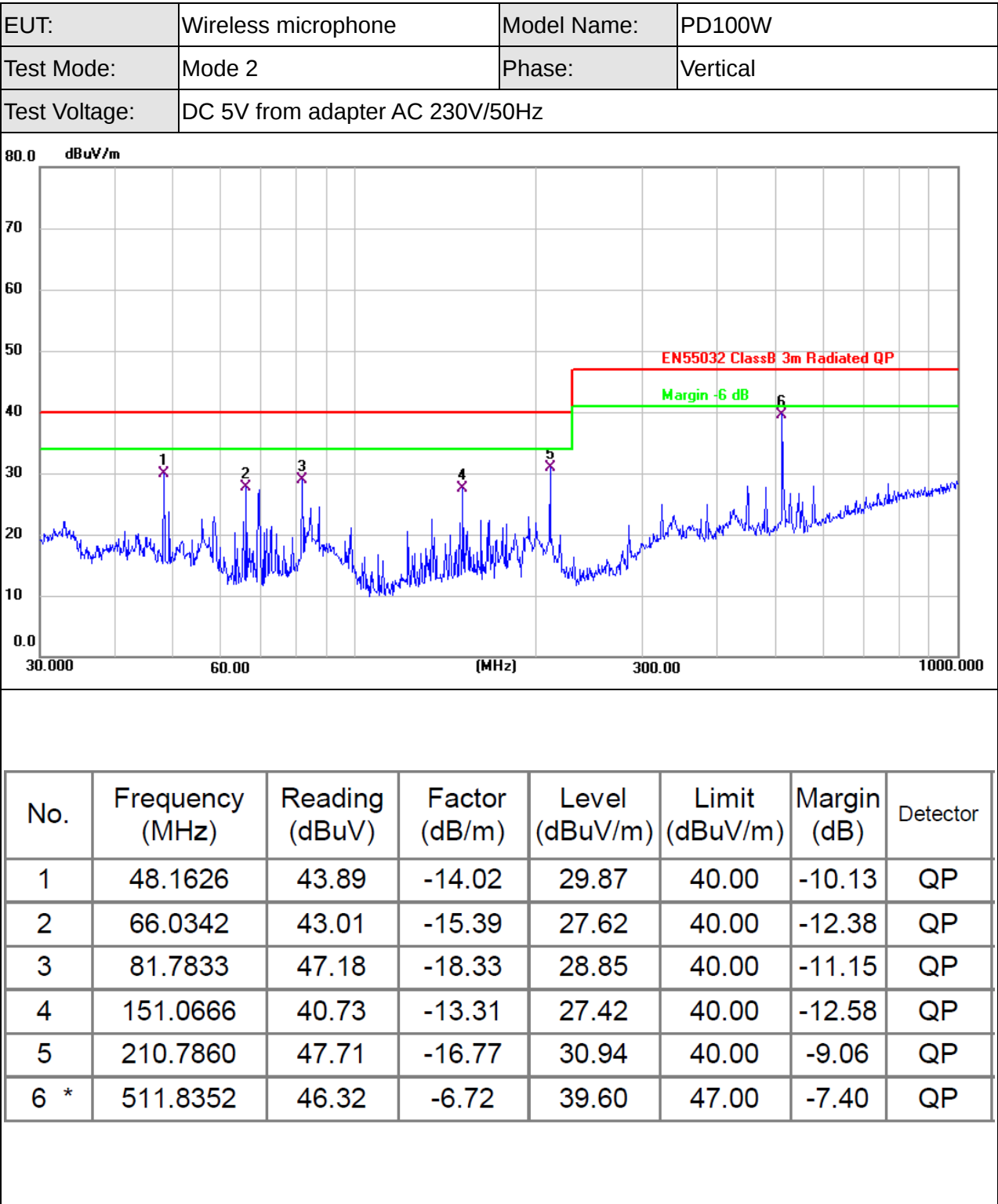
Note: the highest working frequency of EUT is below 108MHz.

Formula:

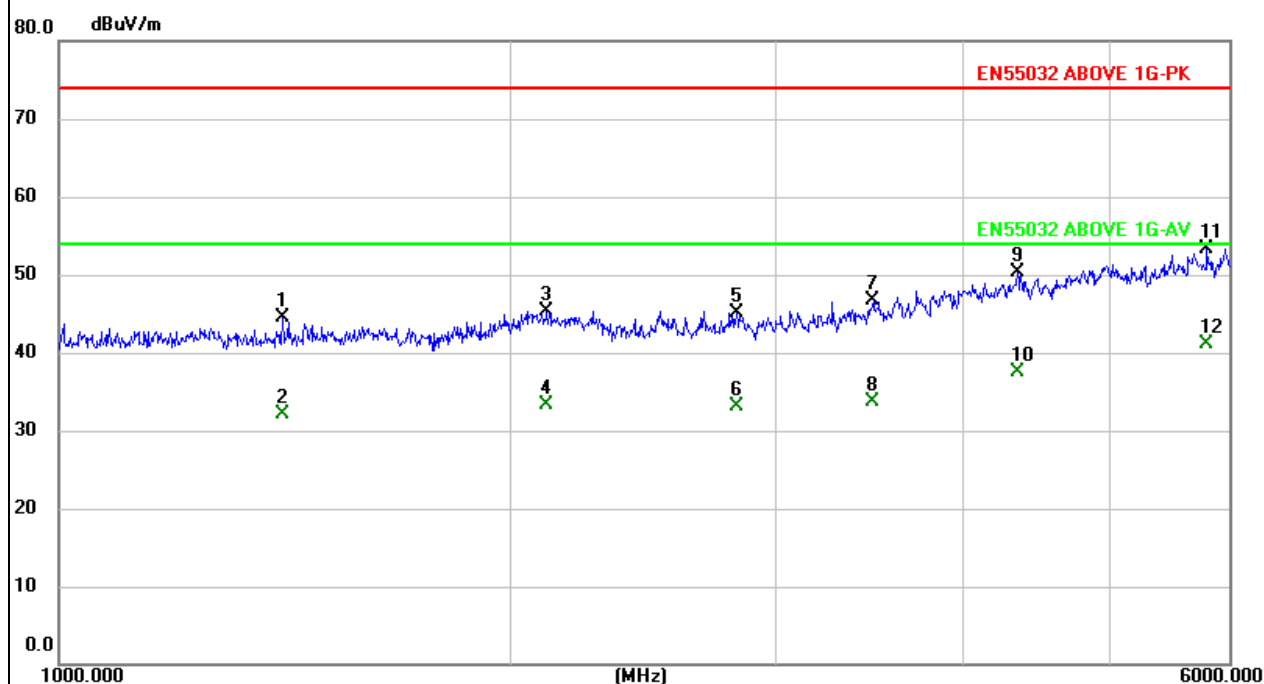
Measurement Level (dBuV/m) = Reading Level (dBuV/m) + Correct Factor (dBuV/m)

Margin Level (dBuV/m) = Measurement Level (dBuV/m) – Limit Level (dBuV/m)



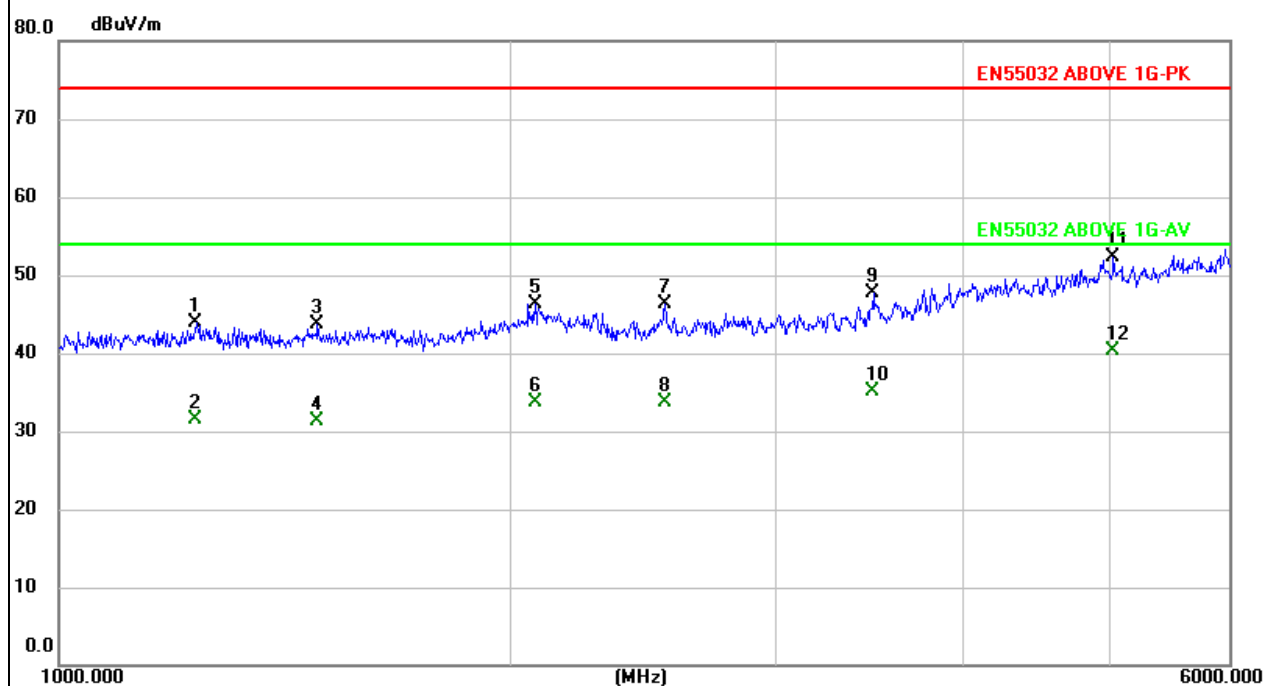


EUT:	Wireless microphone	Model Name:	PD100W
Test Mode:	Mode 2	Phase:	Horizontal
Test Voltage:	DC 5V from adapter AC 230V/50Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1408.079	47.81	-3.38	44.43	74.00	-29.57	peak
2	1408.079	35.58	-3.38	32.20	54.00	-21.80	AVG
3	2111.004	45.52	-0.12	45.40	74.00	-28.60	peak
4	2111.004	33.42	-0.12	33.30	54.00	-20.70	AVG
5	2821.952	45.00	0.09	45.09	74.00	-28.91	peak
6	2821.952	33.01	0.09	33.10	54.00	-20.90	AVG
7	3480.112	44.30	2.45	46.75	74.00	-27.25	peak
8	3480.112	31.35	2.45	33.80	54.00	-20.20	AVG
9	4338.163	43.44	6.82	50.26	74.00	-23.74	peak
10	4338.163	30.78	6.82	37.60	54.00	-16.40	AVG
11	5799.177	44.23	9.03	53.26	74.00	-20.74	peak
12 *	5799.177	32.07	9.03	41.10	54.00	-12.90	AVG

EUT:	Wireless microphone	Model Name:	PD100W
Test Mode:	Mode 2	Phase:	Vertical
Test Voltage:	DC 5V from adapter AC 230V/50Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1235.440	46.76	-2.84	43.92	74.00	-30.08	peak
2	1235.440	34.34	-2.84	31.50	54.00	-22.50	AVG
3	1485.838	46.81	-3.02	43.79	74.00	-30.21	peak
4	1485.838	34.42	-3.02	31.40	54.00	-22.60	AVG
5	2073.517	46.46	-0.17	46.29	74.00	-27.71	peak
6	2073.517	33.97	-0.17	33.80	54.00	-20.20	AVG
7	2529.778	46.65	-0.41	46.24	74.00	-27.76	peak
8	2529.778	34.11	-0.41	33.70	54.00	-20.30	AVG
9	3480.112	45.17	2.45	47.62	74.00	-26.38	peak
10	3480.112	32.75	2.45	35.20	54.00	-18.80	AVG
11	5024.748	43.47	8.88	52.35	74.00	-21.65	peak
12 *	5024.748	31.42	8.88	40.30	54.00	-13.70	AVG

5.3 Harmonic Current Emission

5.3.1 Limit

Table 1 – Limits for Class A equipment

Harmonic order (n)	Maximum permissible harmonic current (A)
Odd harmonics	
3	2.3
5	1.14
7	0.77
9	0.4
11	0.33
13	0.21
$15 \leq n \leq 39$	$0.15 \cdot (15/n)$
Even harmonics	
2	1.08
4	0.43
6	0.30
$8 \leq n \leq 40$	$0.23 \cdot (8/n)$

Table 2 – Limits for Class D equipment

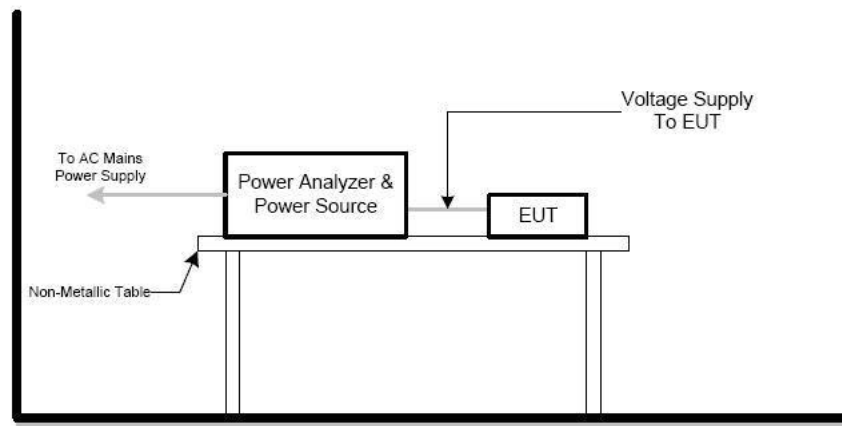
Harmonic order (n)	Maximum permissible harmonic current per watt (mA/W)	Maximum permissible harmonic current (A)
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
$13 \leq n \leq 39$ (odd harmonics only)	$3.85/n$	See table 1

Note: Reference standard of the two tables above: EN61000-3-2.

5.3.2 Test Procedures

- a) The EUT was installed and placed on a non-conductive table and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- b) The correspondent test program of test instrument to measure the current harmonics / voltage fluctuations & flicker emanated from EUT. The measure time shall be not less than the time necessary for the EUT to be exercised.

5.3.3 Test Setup



5.3.4 Test Result

Note: The active input power of the EUT is less than 75W. No limits apply for equipment with an active input power up to and including 75W.

5.4 Voltage Fluctuations & flicker

5.4.1 Limit

Test items	Limits	Descriptions
P_{st}	$\leq 1.0, T_p=10\text{min}$	short-term flicker indicator
P_{lt}	$\leq 0.65, T_p=2\text{h}$	long-term flicker indicator
d_c	$\leq 3.3\%$	relative steady-state voltage change
$d_{\max}$	$\leq 4\%$ (or 6% ^{Note(1)} , 7% ^{Note(2)})	maximum relative voltage change:
$d_{(t)}$	$\leq 3.3\%$, more than 500ms	relative voltage change characteristic

Note:

6 % for equipment which is:

- a. switched manually, or
- b. switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

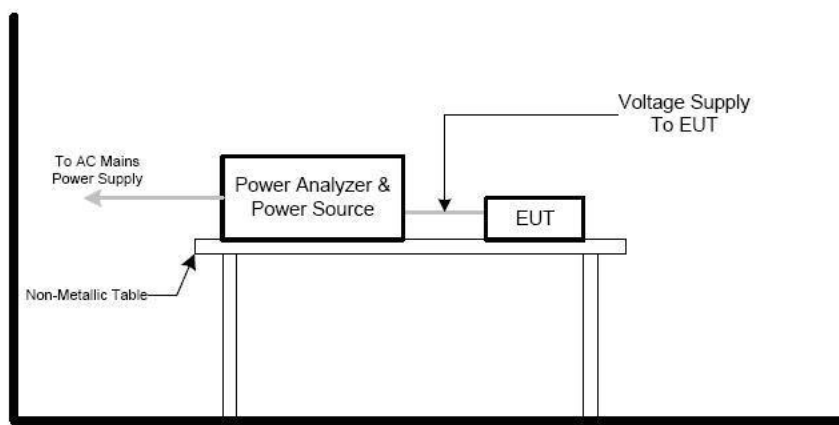
7 % for equipment which is

- a. attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
- b. switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

5.4.2 Test Procedures

- a) The EUT was installed and placed on a non-conductive table and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- b) The correspondent test program of test instrument to measure the current harmonics / voltage fluctuations & flicker emanated from EUT. The measure time shall be not less than the time necessary for the EUT to be exercised.

5.4.3 Test Setup



5.4.4 Test Result

Maximum Flicker results

Test items	EUT values	Limit	Result
Pst	0.188	1.00	Pass
Plt	0.082	0.65	Pass
dc [%]	0.000	3.30	Pass
dmax [%]	0.000	4.00	Pass
Tmax [s]	0.000	0.50	Pass

6 Immunity Test

6.1 Performance Criteria

Performance criteria	
Performance criterion	Description
A	During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.
B	After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.
C	During and after testing, a temporary loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls or cycling of the power to the EUT by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.
Particular performance criteria: The particular performance criteria which are specified in the normative annexes take precedence over the corresponding parts of the general performance criteria. Where particular performance criteria for specific functions are not given, then the general performance criteria shall apply.	

6.2 Electrostatic Discharge (ESD)

6.2.1. Test Specification

Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330ohm / 150pF
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. 20 times at each test point Contact Discharge: min. 200 times in total 50 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

6.2.2. Test Procedures

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

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.

- b) Vertical Coupling Plane (VCP):

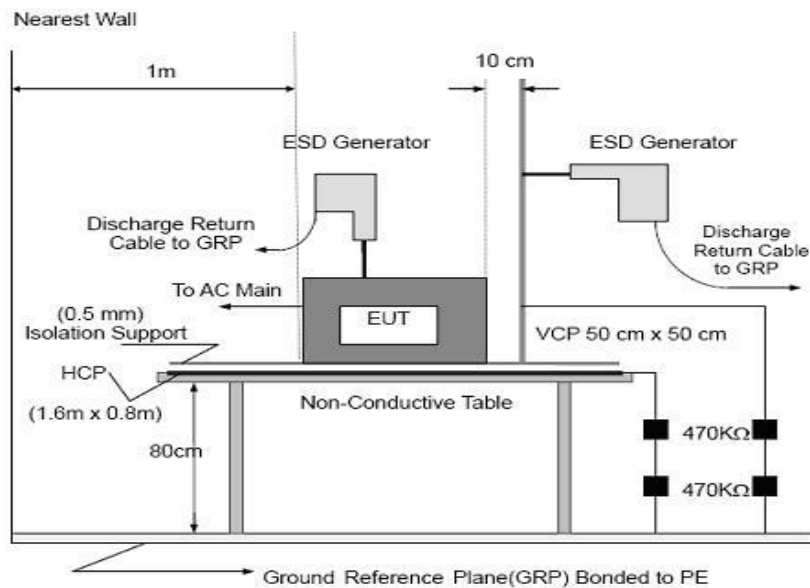
The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.

- c) 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.

Air discharges at insulation surfaces of the EUT. It was at least ten single discharges with positive and negative at the same selected point. For the actual test configuration, please refer to the related Item –EUT Test Photos.

6.2.3. Test Setup



6.2.4. Test Result

EUT:	Wireless microphone	Model Name:	PD100W
Test Voltage:	DC 5V from adapter AC 230V/50Hz or DC 3.7V from battery	Test mode:	Mode 1-7

Indirect discharge

No.	Test Point	Contact discharge level (kV)	Number and polarity	Criterion met	Criterion Required	Result
1	VCP-Front side	☐ ..2 ☒ ..4	10 (+)	A	B	Compliance
		☐ ..6 ☐ ..8	10 (-)	A		
2	VCP-Rear side	☐ ..2 ☒ ..4	10 (+)	A		
		☐ ..6 ☐ ..8	10 (-)	A		
3	VCP-Left side	☐ ..2 ☒ ..4	10 (+)	A		
		☐ ..6 ☐ ..8	10 (-)	A		
4	VCP-Right side	☐ ..2 ☒ ..4	10 (+)	A		
		☐ ..6 ☐ ..8	10 (-)	A		
5	HCP	☐ ..2 ☒ ..4	10 (+)	A		
		☐ ..6 ☐ ..8	10 (-)	A		

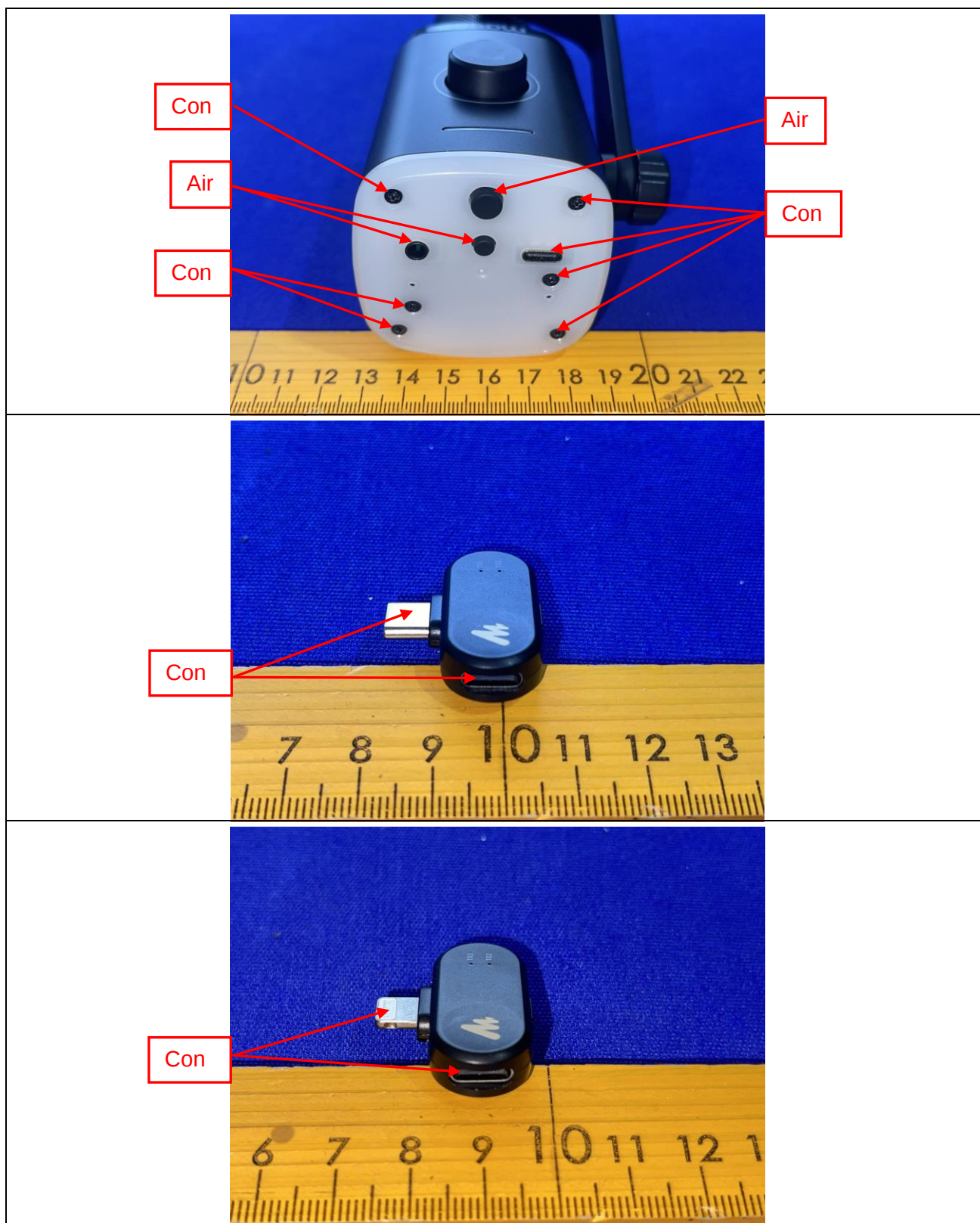
Result: Compliance.

Direct discharge

Test Point	Contact discharge level (kV)	Air discharge level (kV)	Number and polarity	Criterion met	Criterion Required
1. Each non-conductive location touchable by hand	☐ ..2 ☐ ..4	☒ ..2 ☒ ..4	10 (+)	A	B
	☐ ..6 ☐ ..8	☐ ..6 ☒ ..8	10 (-)	A	
2. Each conductive location touchable by hand	☒ ..2 ☒ ..4	☐ ..2 ☐ ..4	10 (+)	A	
	☐ ..6 ☐ ..8	☐ ..6 ☐ ..8	10 (-)	A	

Result: compliance.

Test location:



Note: Air is air discharge and Con is contact discharge.

6.3 Radiated Electromagnetic Field Immunity (RS)

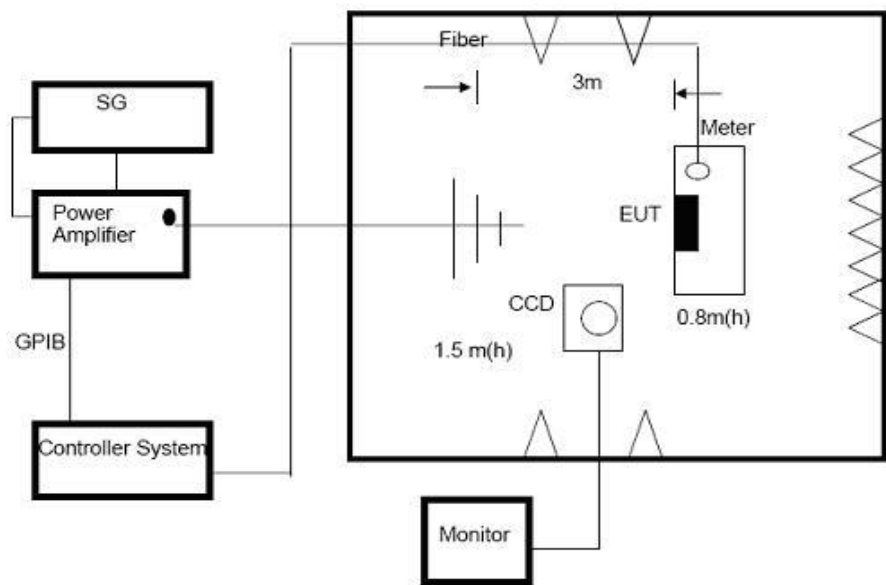
6.3.1. Test Specification

Basic Standard:	IEC/EN 61000-4-3
Required Performance:	A
Frequency Range:	80 MHz - 5000 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:	3 seconds

6.3.2. Test Procedures

- a) The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.
- b) The testing distance from antenna to the EUT was 3 meters.
- c) The other condition as following manner:
 - i. The field strength level was 3V/m.
 - ii. The frequency range is swept from 80 MHz to 5000 MHz with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- 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.

6.3.3. Test Setup



6.3.4. Test Result

EUT:	Wireless microphone	Model Name:	PD100W
Test Voltage:	DC 5V from adapter AC 230V/50Hz or DC 3.7V from battery	Test mode:	Mode 1-7

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Perform. Criteria	Measurement	Result
80- 1000 1800 2600 3500 5000	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	Compliance
			Rear			
			Left			
			Right			

6.4 Electrical Fast Transients/burst (EFT/S)

6.4.1. Test Specification

Basic Standard:	IEC/EN 61000-4-4
Required Performance:	B
Test Voltage:	Power Line: 0.5 kV, 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:	2 minutes

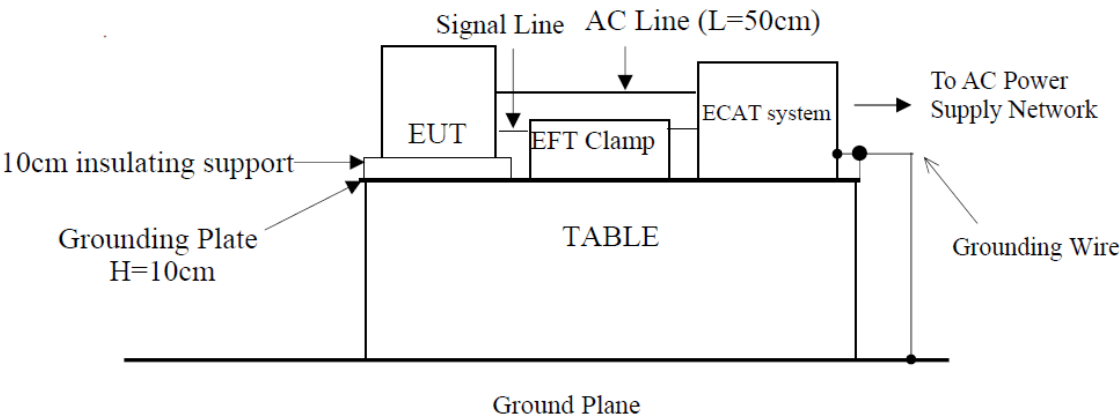
6.4.2. Test Procedures

- a) The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support 0.1m + 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.
- b) For input and AC power ports:

The EUT was connected to the power mains by using a coupling device that couples the EFT interference signal to AC power lines. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 1min.
- c) For signal lines and control lines ports:

Ports which are intended to be connected to telecommunication networks (e.g. public switched telecommunication networks, integrated services digital networks, local area networks and similar networks.)

6.4.3. Test Setup



6.4.4. Test Result

EUT:	Wireless microphone	Model Name:	PD100W
Test Voltage:	DC 5V from adapter AC 230V/50Hz	Test mode:	Mode 1/2/3/4

Port Type	Injected Line	Test Voltage	Criterion met	Criterion Required	Result
AC Mains	L–Gnd	±1kV	A	B	Compliance
	N–Gnd	±1kV	A		
	L+N–Gnd	±1kV	A		
	PE–Gnd	±1kV	/		
	L+PE–Gnd	±1kV	/		
	N+PE–Gnd	±1kV	/		
	L+N+PE–Gnd	±1kV	/		
DC Line	/	/	/		
Signal Line	/	/	/		
Note: +/- 1KV for AC mains port; +/- 0.5KV for analogue digital data ports and DC network power port.					

6.5 Surges

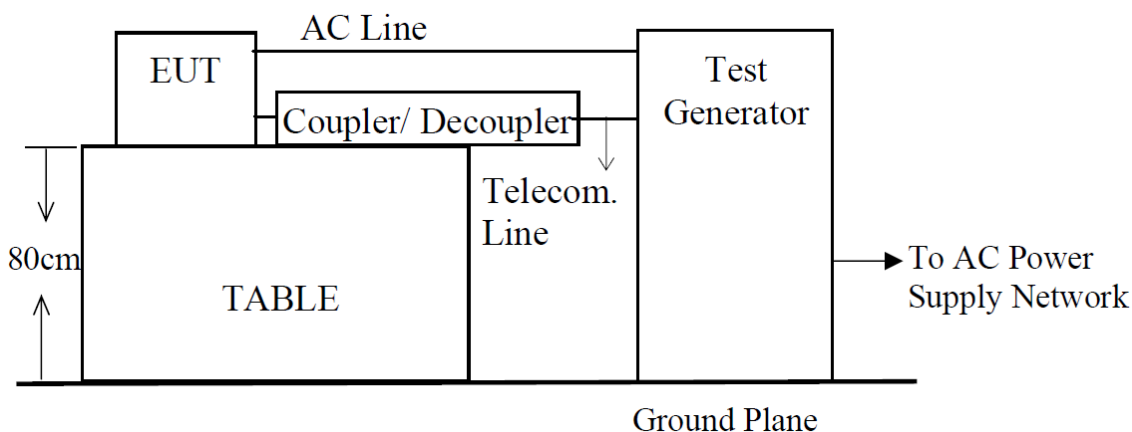
6.5.1. Test Specification

Basic Standard:	IEC/EN 61000-4-5
Required Performance:	B
Wave-Shape:	Combination Wave 1.2/50 us Open Circuit Voltage 8 /20 us Short Circuit Current
Test Voltage:	Power Line: 0.5 kV, 1 kV, 2 kV
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

6.5.2. Test Procedures

- For line-to-line coupling mode, provide a 1kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points, and for active line / neutral lines to ground are same except test level is 2kV.
- At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test.
- Different phase angles are done individually.
- Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

6.5.3. Test Setup



6.5.4. Test Result

EUT:	Wireless microphone	Model Name:	PD100W
Test Voltage:	DC 5V from adapter AC 230V/50Hz	Test mode:	Mode 1/2/3/4

Port Type	Injected Line	Test Voltage	Criterion met	Criterion Required	Result
AC Mains	L – N	±0.5kV, ±1kV	A	B	Compliance
	L – PE	±1kV, ±2kV	/		
	N – PE	±1kV, ±2kV	/		
DC Line	/	/	/		
Signal Line	/	/	/		

6.6 Conducted Disturbances (CS)

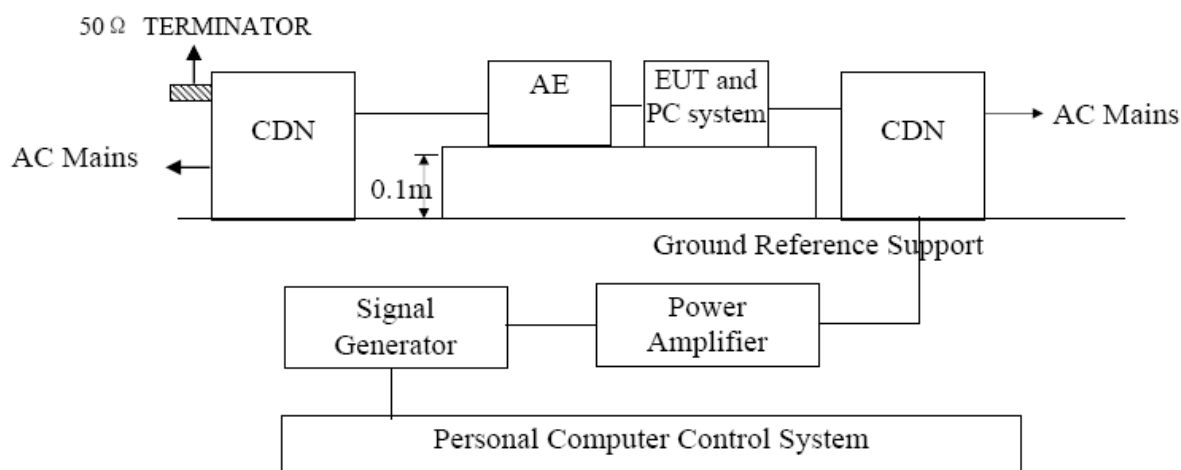
6.6.1. Test Specification

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

6.6.2. Test Procedures

- The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- The disturbance signal described below is injected to EUT through CDN.
- The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- The frequency range is swept from 0.150MHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
- The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

6.6.3. Test Setup



6.6.4. Test Result

EUT:	Wireless microphone	Model Name:	PD100W
Test Voltage:	DC 5V from adapter AC 230V/50Hz	Test mode:	Mode 1/2/3/4

Port Type	Frequency (MHz)	Test Voltage	Criterion met	Criterion Required	Result
AC Mains	0.15 to 10	3 V (rms) AM Modulated 1000Hz, 80%	A	A	Compliance
AC Mains	10 to 30	3 to 1 V (rms) AM Modulated 1000Hz, 80%	A	A	Compliance
AC Mains	30 to 80	1 V (rms) AM Modulated 1000Hz, 80%	A	A	Compliance

6.7 Power Frequency Magnetic Field

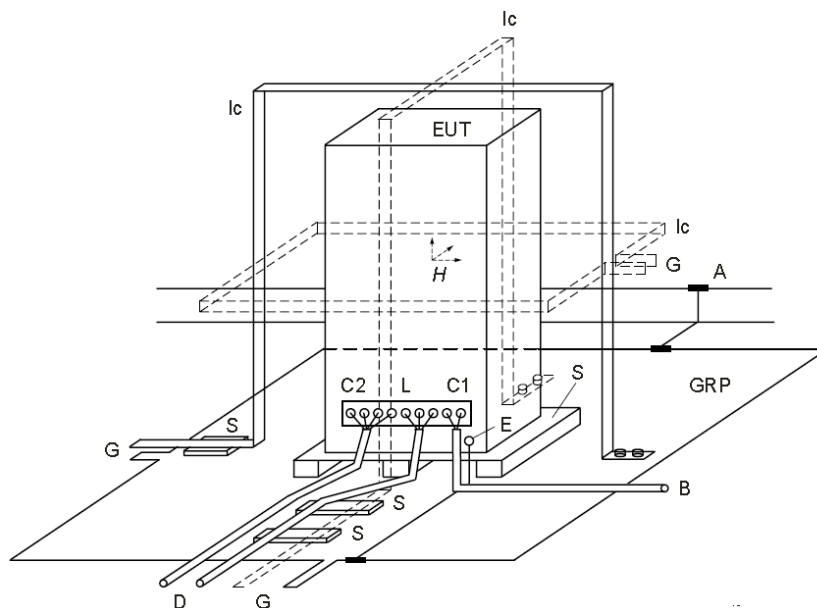
6.7.1. Test Specification

Basic Standard:	IEC/EN 61000-4-8
Required Performance:	A
Frequency Range:	50Hz
Field Strength:	1 A/m
Observation Time:	5 minutes
Inductance Coil:	Rectangular type, 1mx1m

6.7.2. Test Procedures

- EUT connect the wires according to the typical configuration, and switch on the power supply for 15 minutes.
- Turn on the instrument power switch and wait for the instrument to start.
- When the device is started, click the Setup icon to enter the settings screen
- As shown below, for the settings screen, click the test time position and current position to set the test time and current
- Set the correct test time and test current
- Click Start to begin the test, while observing the status of EUT and recording

6.7.3. Test Setup



Components:

GRP	Ground plane	A	Safety earth
C1	Power supply circuit	C2	Signal circuit
S	Insulating support	L	Communication line
EUT	Equipment under test	B	To power supply source
Ic	Inductive coil	D	To signal source, simulator
E	Earth terminal	G	To the test generator

6.7.4. Test Result

Note: This device is not suitable for Power frequency magnetic field.

6.8 Voltage Dips and Interruptions

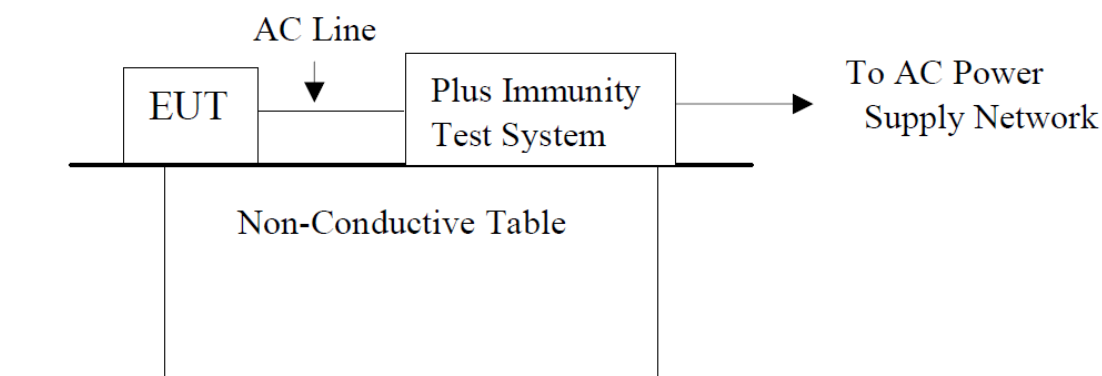
6.8.1. Test Specification

Basic Standard:	IEC/EN 61000-4-11
Required Performance:	B (For 100% Voltage Interruptions) C (For 30% Voltage Dips) C (For 100% 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

6.8.2. Test Procedures

- The interruptions are introduced at selected phase angles with specified duration.
- Record any degradation of performance

6.8.3. Test Setup



6.8.4. Test Result

EUT:	Wireless microphone	Model Name:	PD100W
Test Voltage:	DC 5V from adapter AC 230V/50Hz	Test mode:	Mode 1/2/3/4

Test Level in %UT	Period	Criterion	Result	Result
0%	0.5	B	A	Compliance
70%	25	C	A	Compliance
0%	250	C	B	Compliance

7 Photographs of the Test Setup

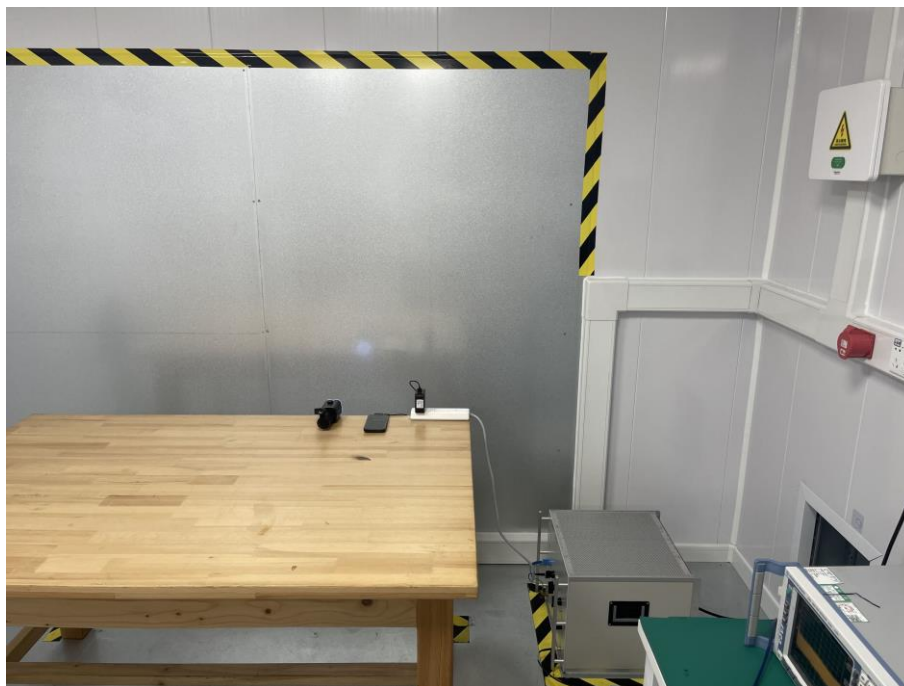
Radiated Emission Below 1GHz



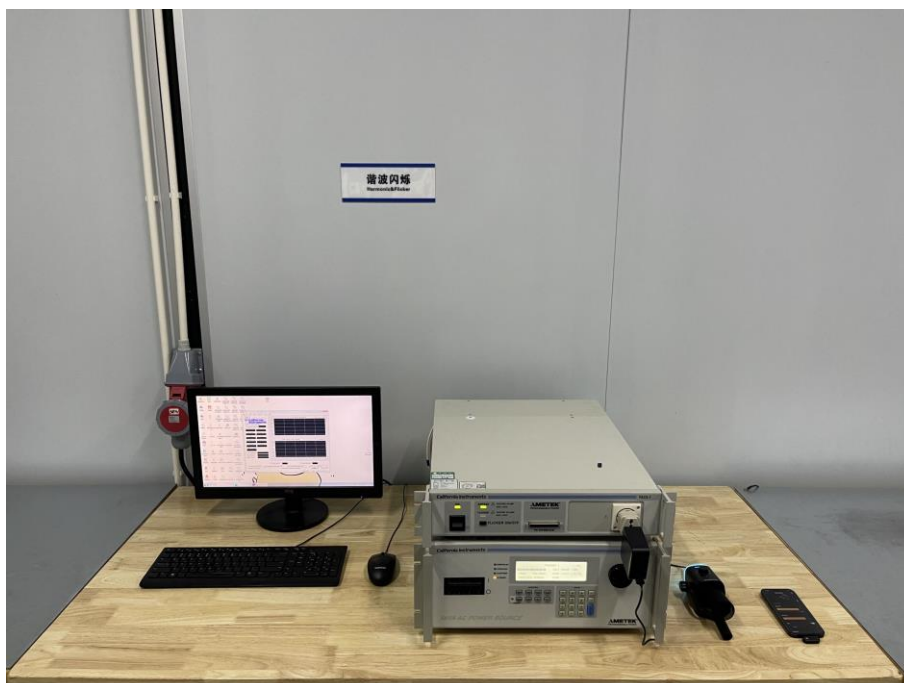
Radiated Emission Above 1GHz



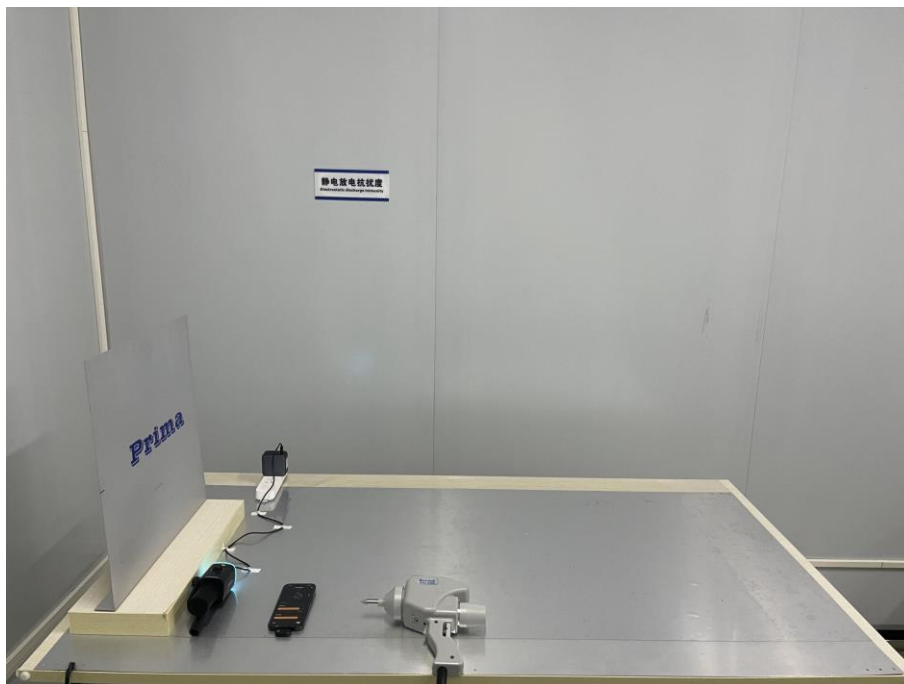
Conducted Emission



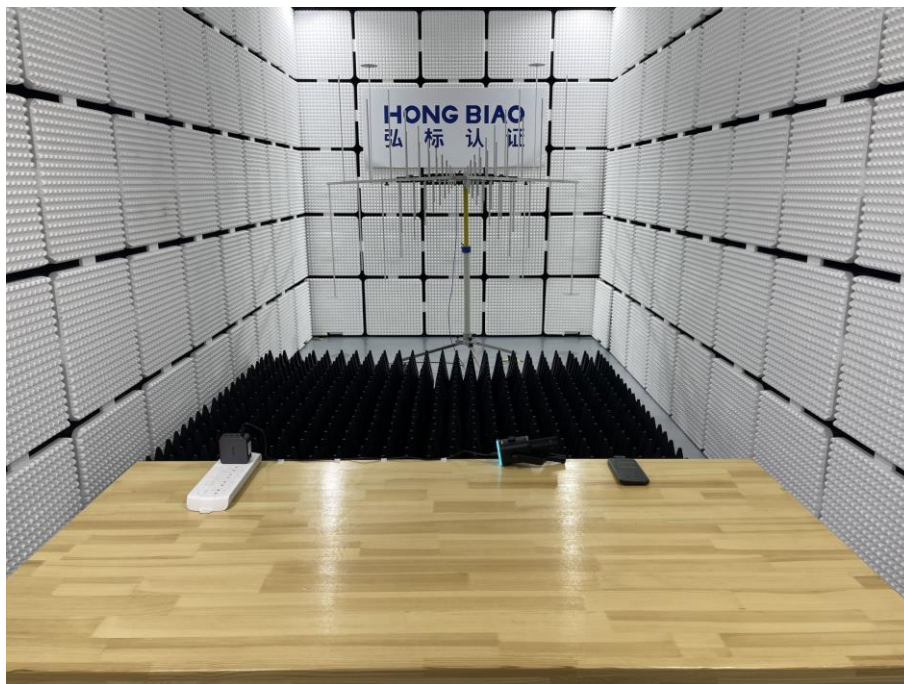
Flicker



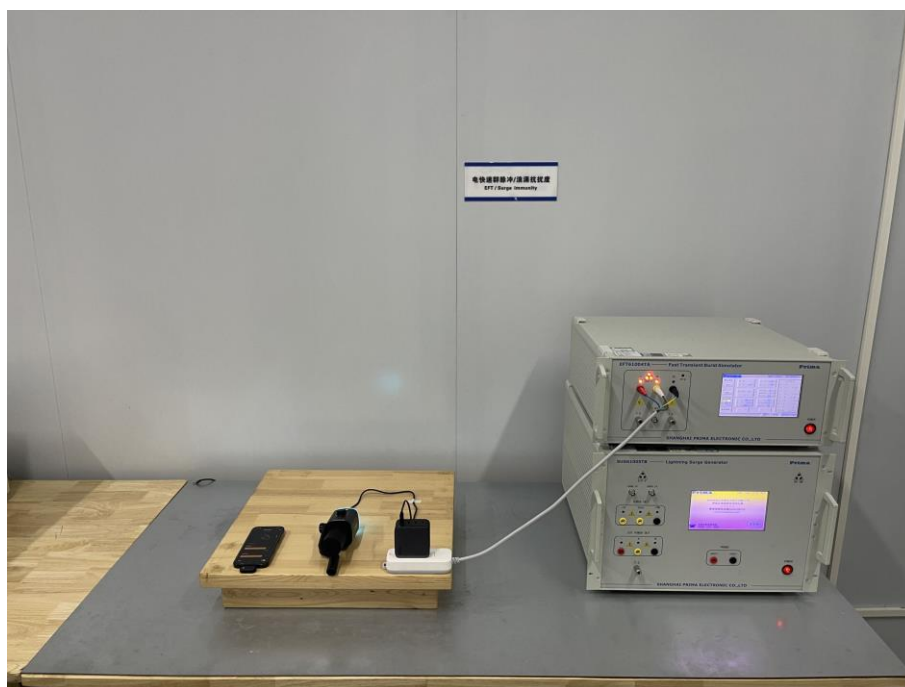
ESD



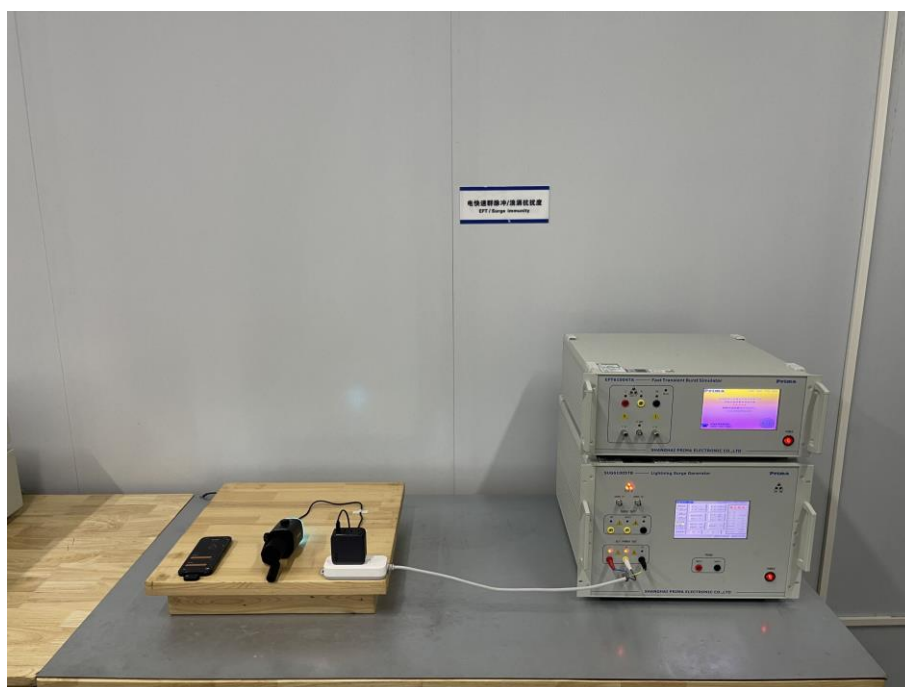
RS



EFT



Surges



CS



Dips



8 Photographs of the EUT

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7

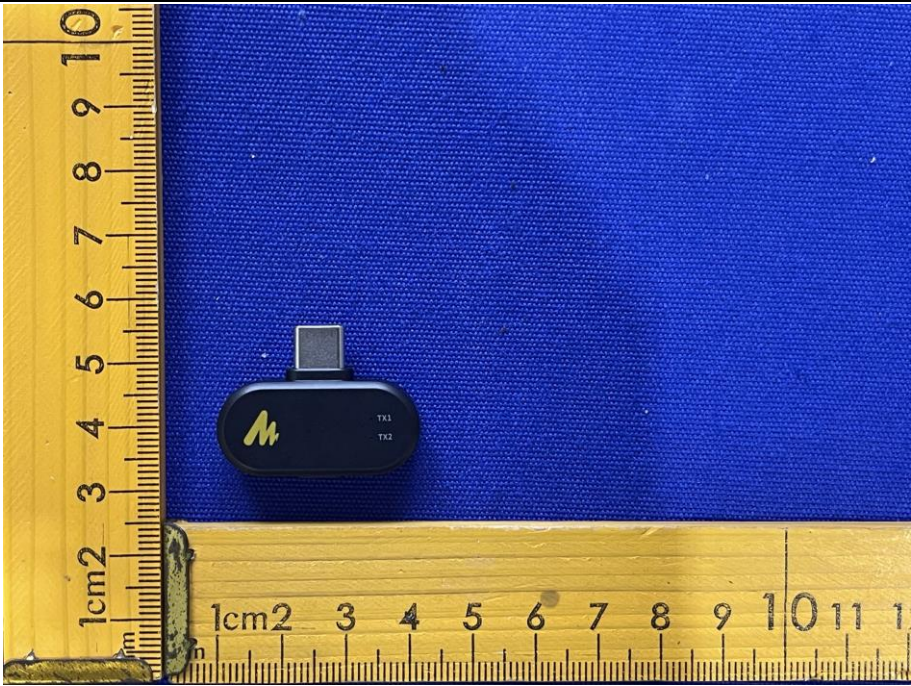


Photo 8

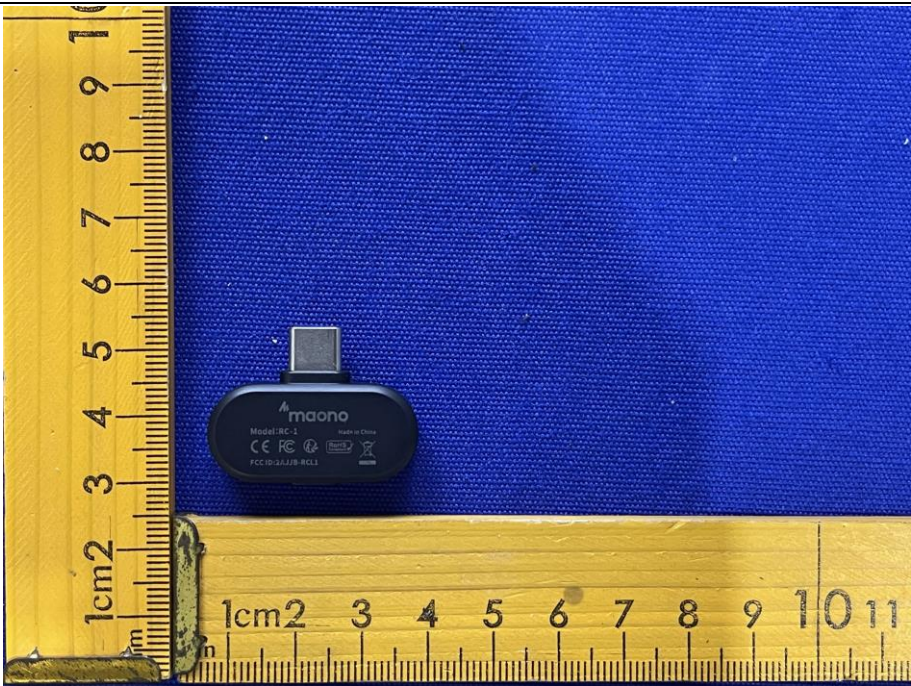


Photo 9



Photo 10



Photo 11



Photo 12



Photo 13

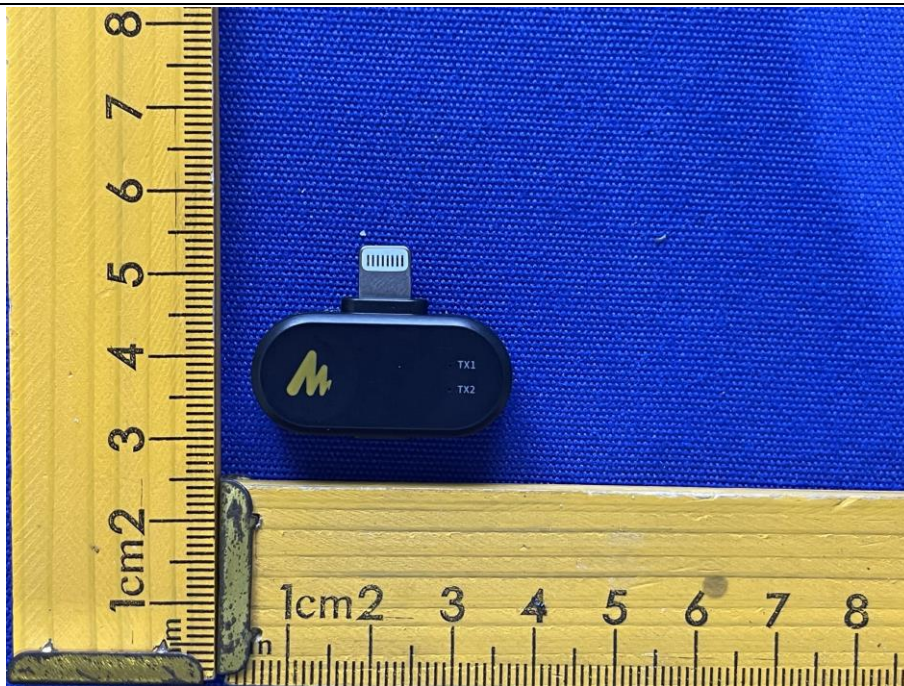


Photo 14

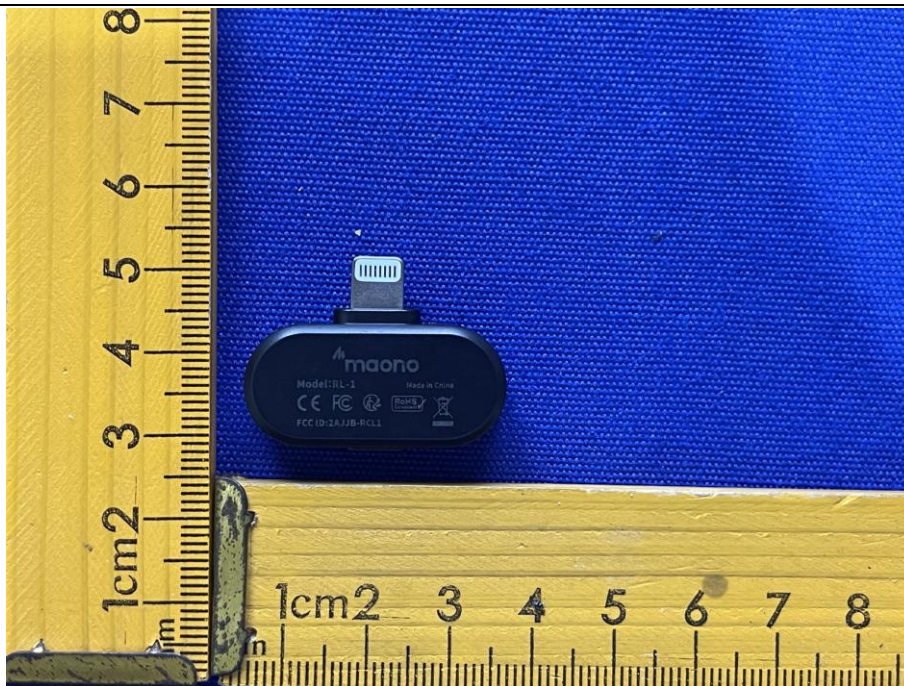


Photo 15

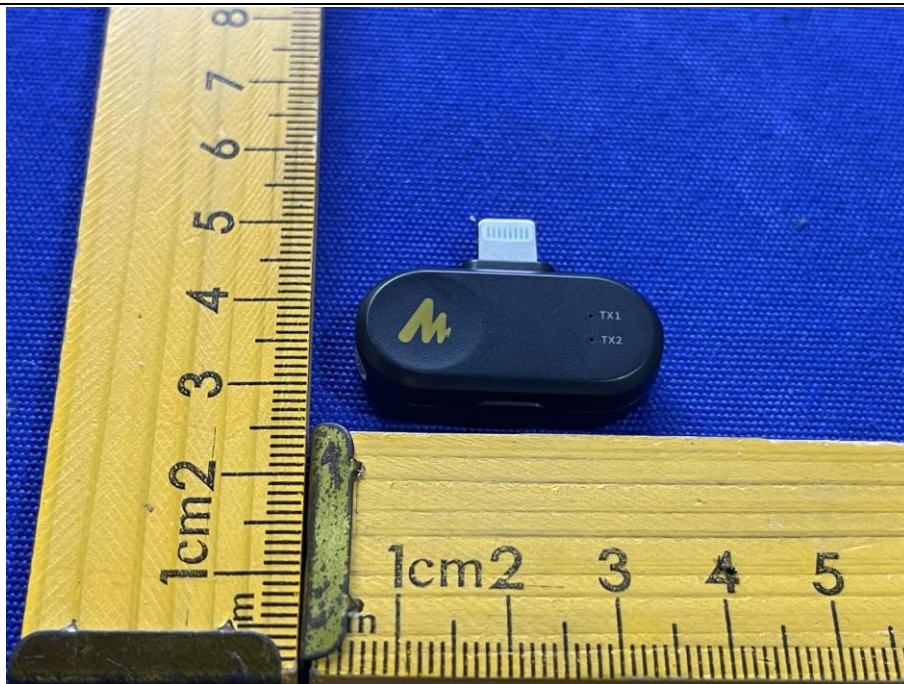


Photo 16



Photo 17



Photo 18



Photo 19



Photo 20

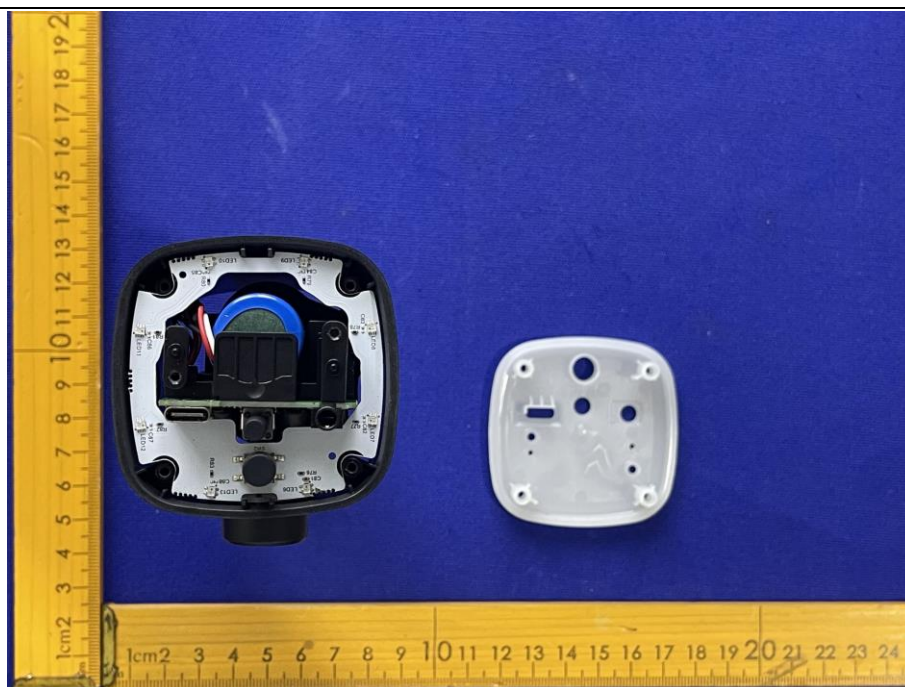


Photo 21



Photo 22

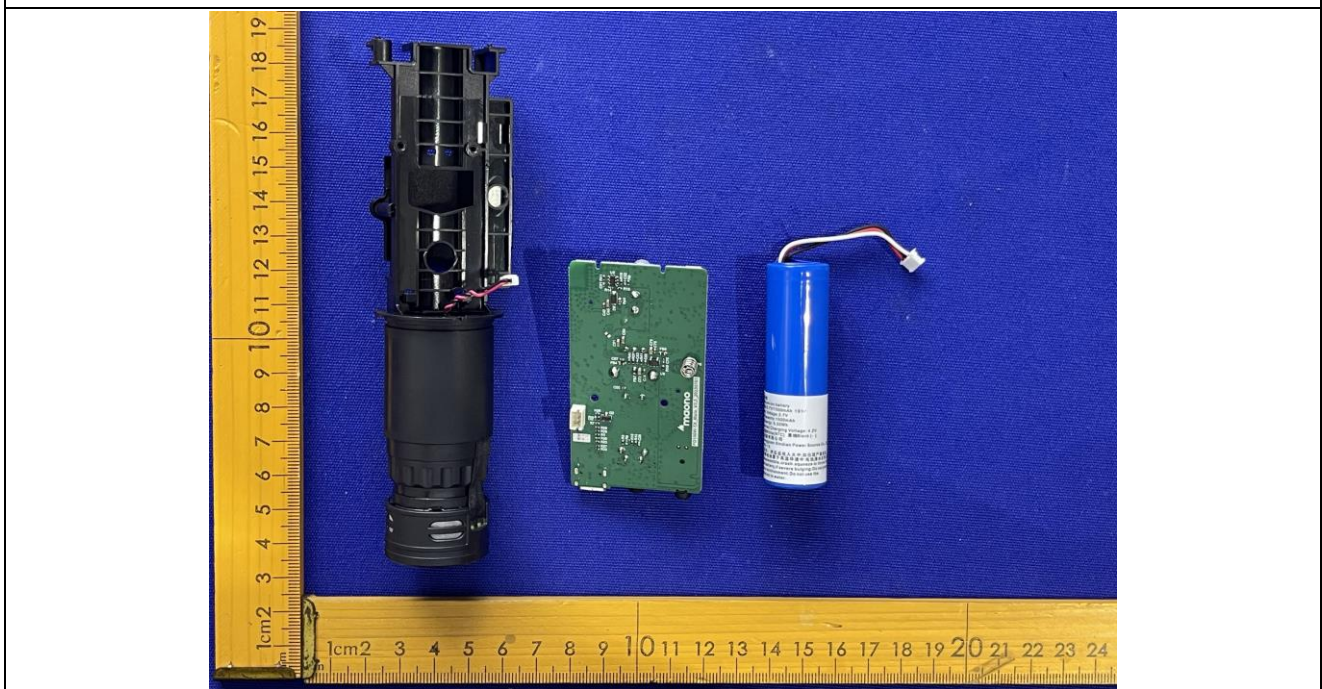


Photo 23



Photo 24

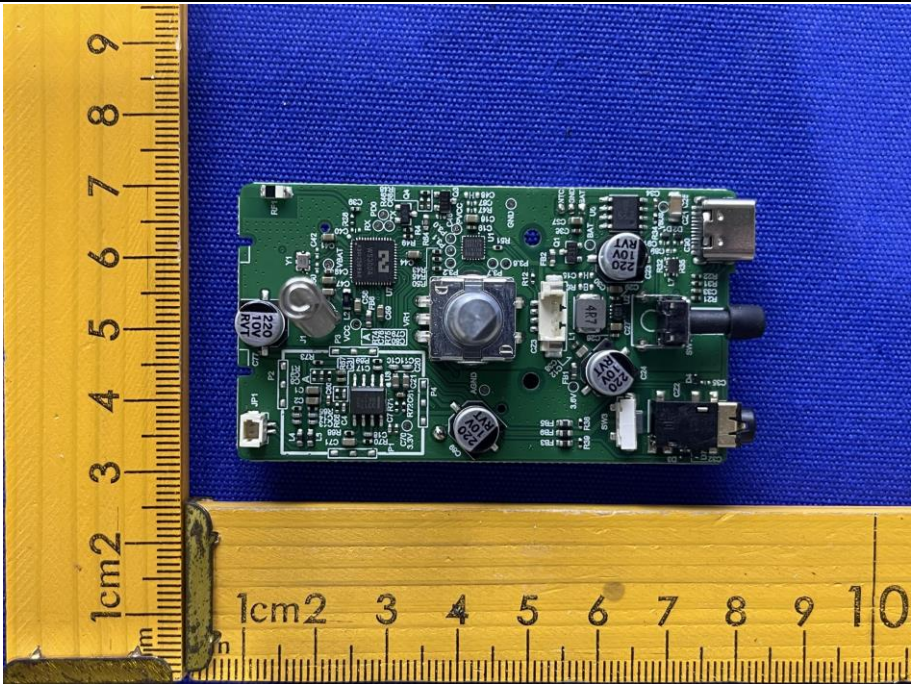


Photo 25

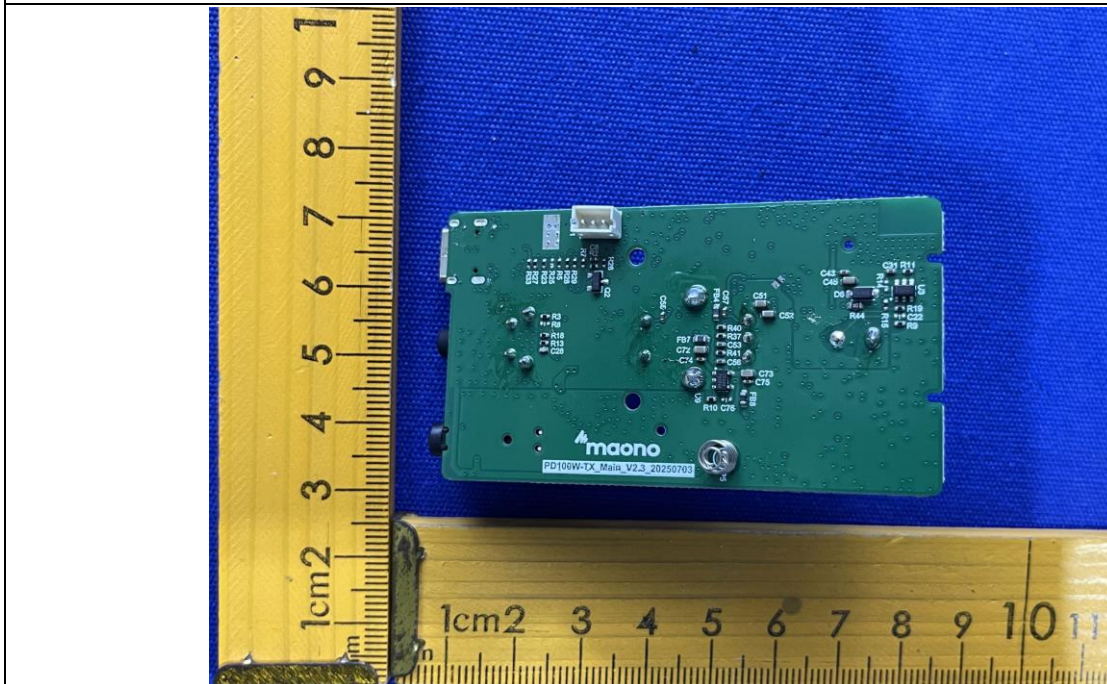


Photo 26

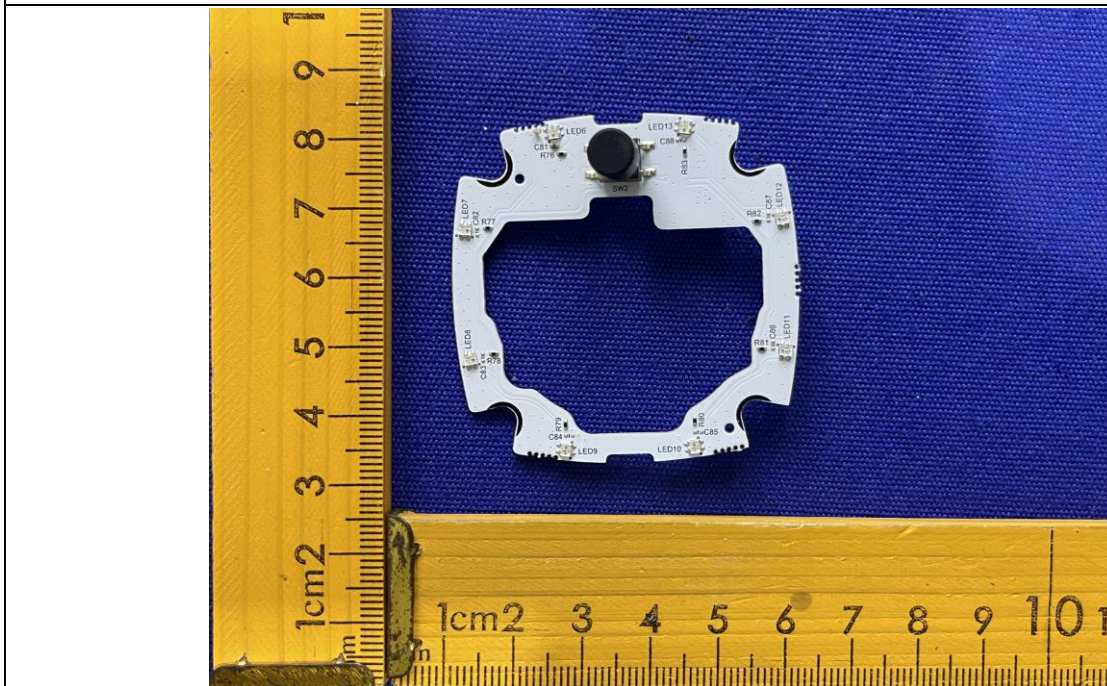


Photo 27

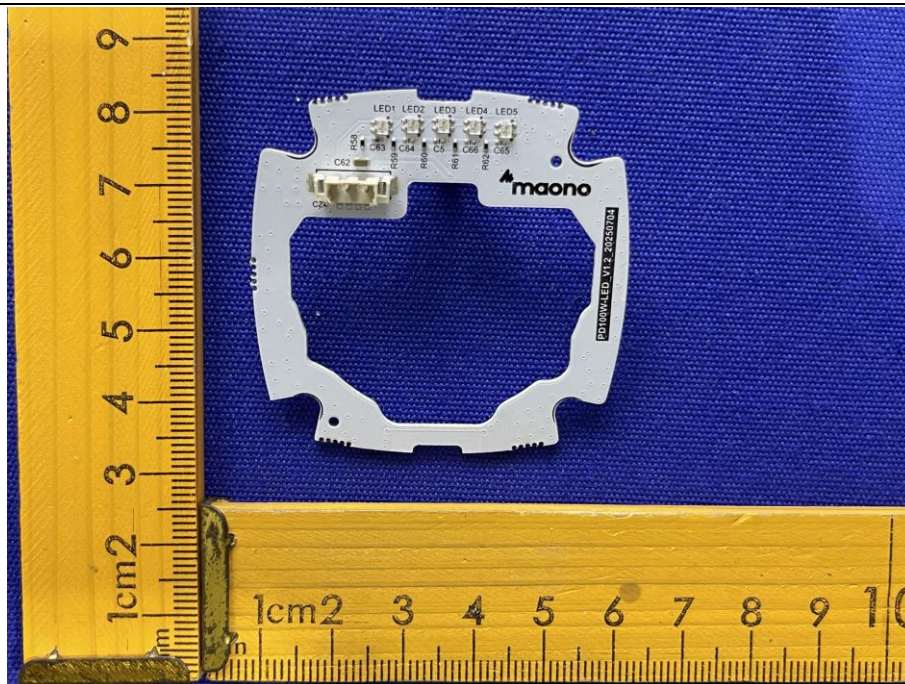


Photo 28

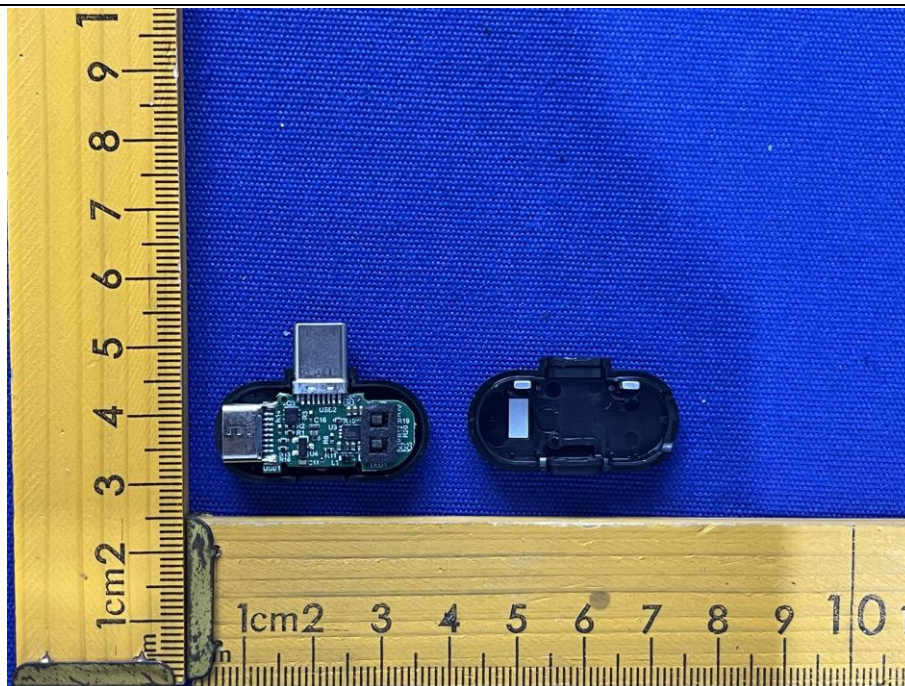


Photo 29

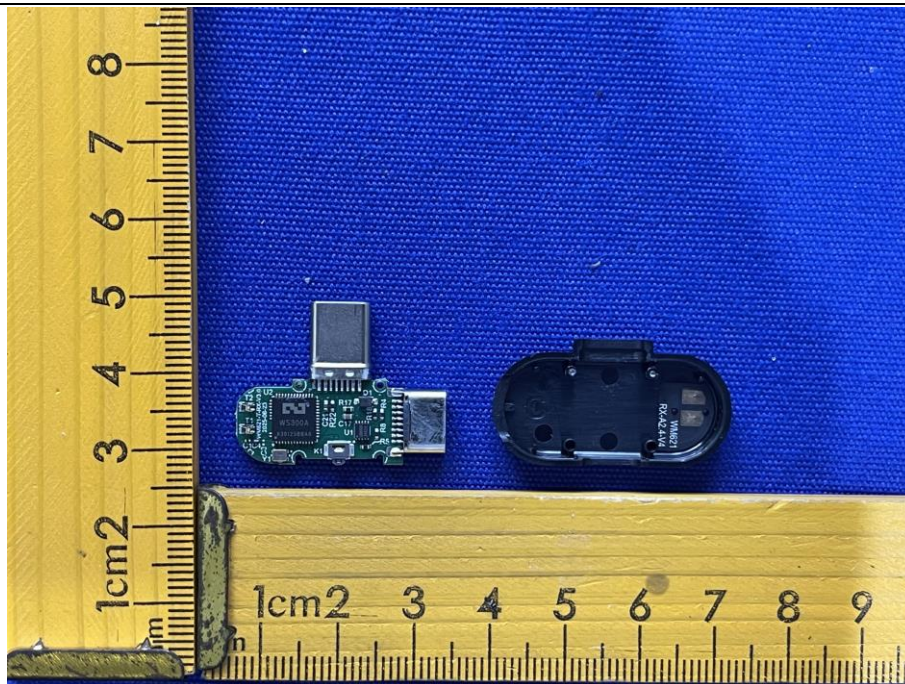


Photo 30

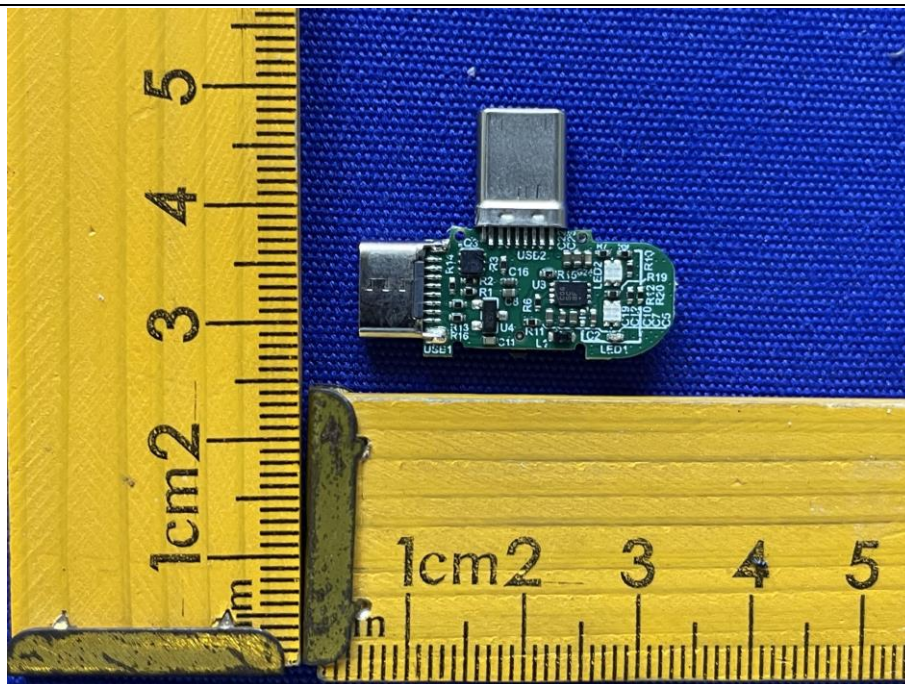


Photo 31

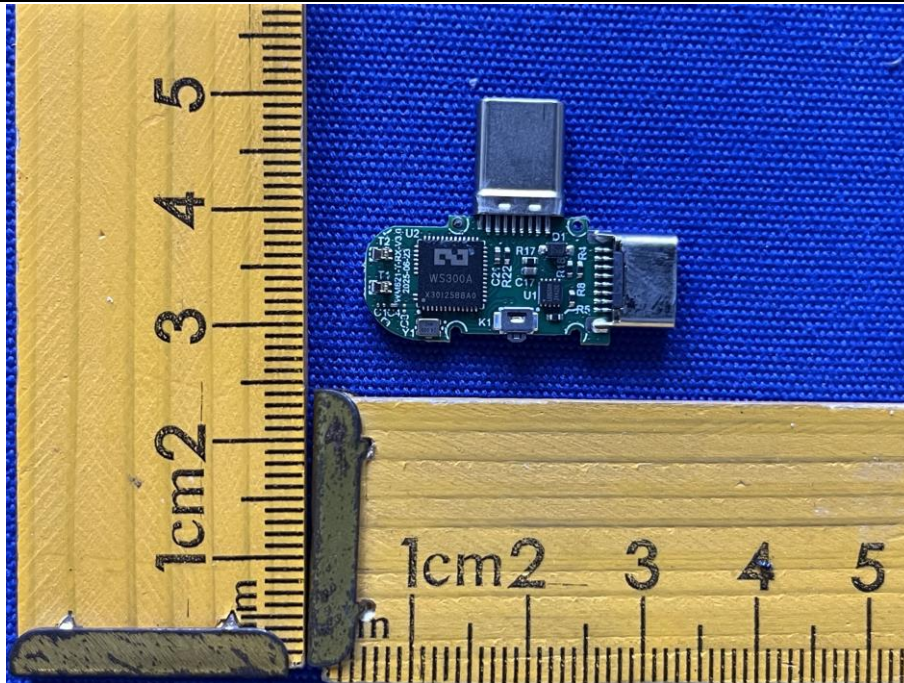


Photo 32

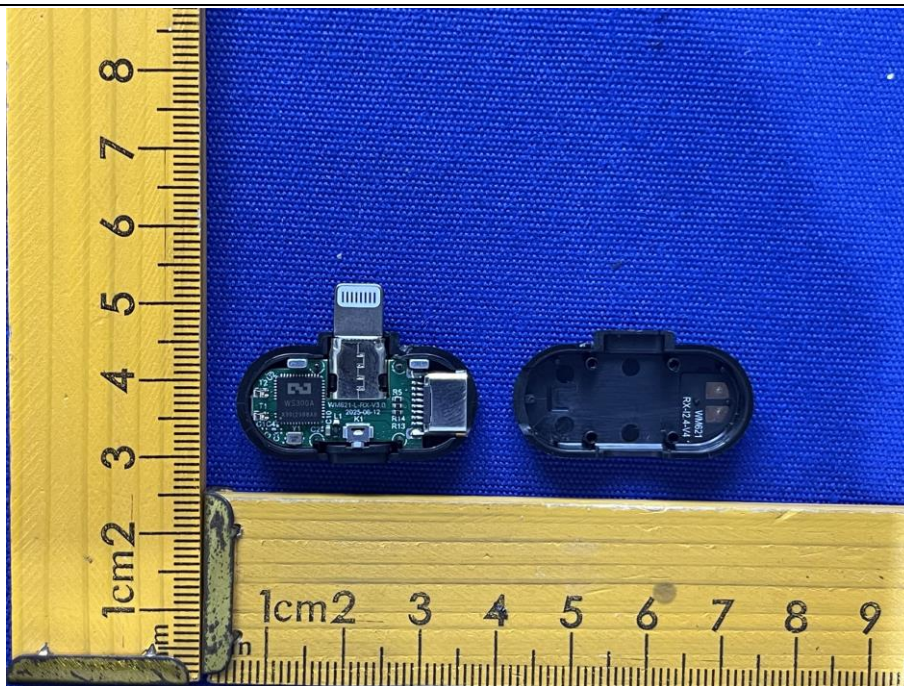


Photo 33

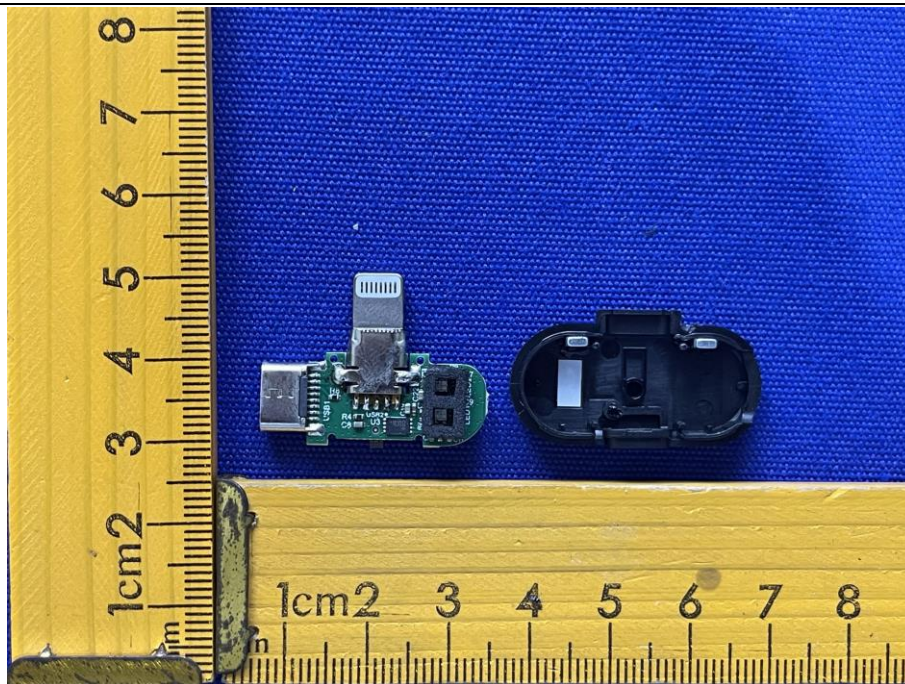


Photo 34

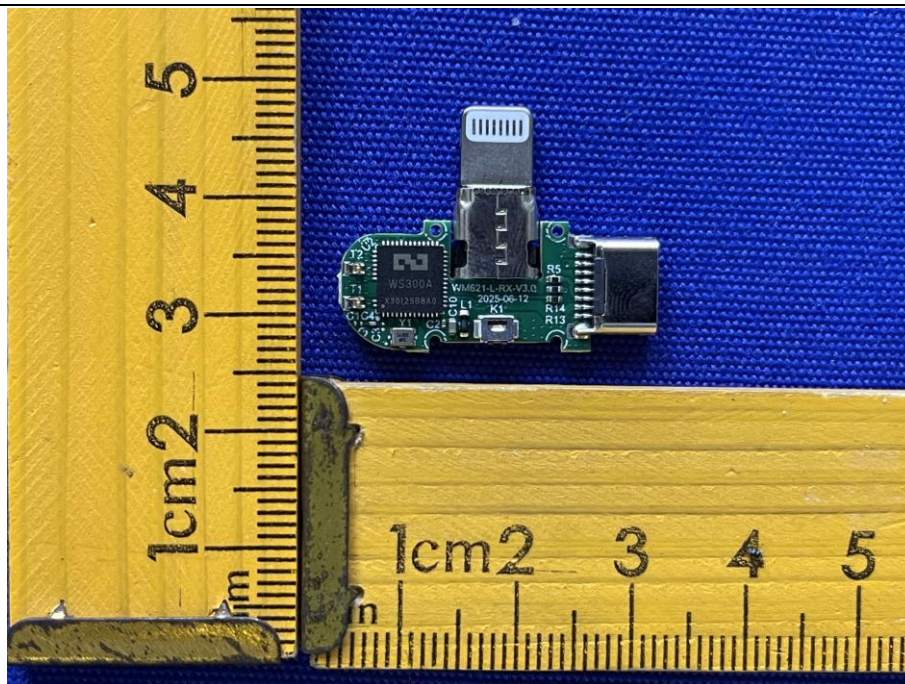
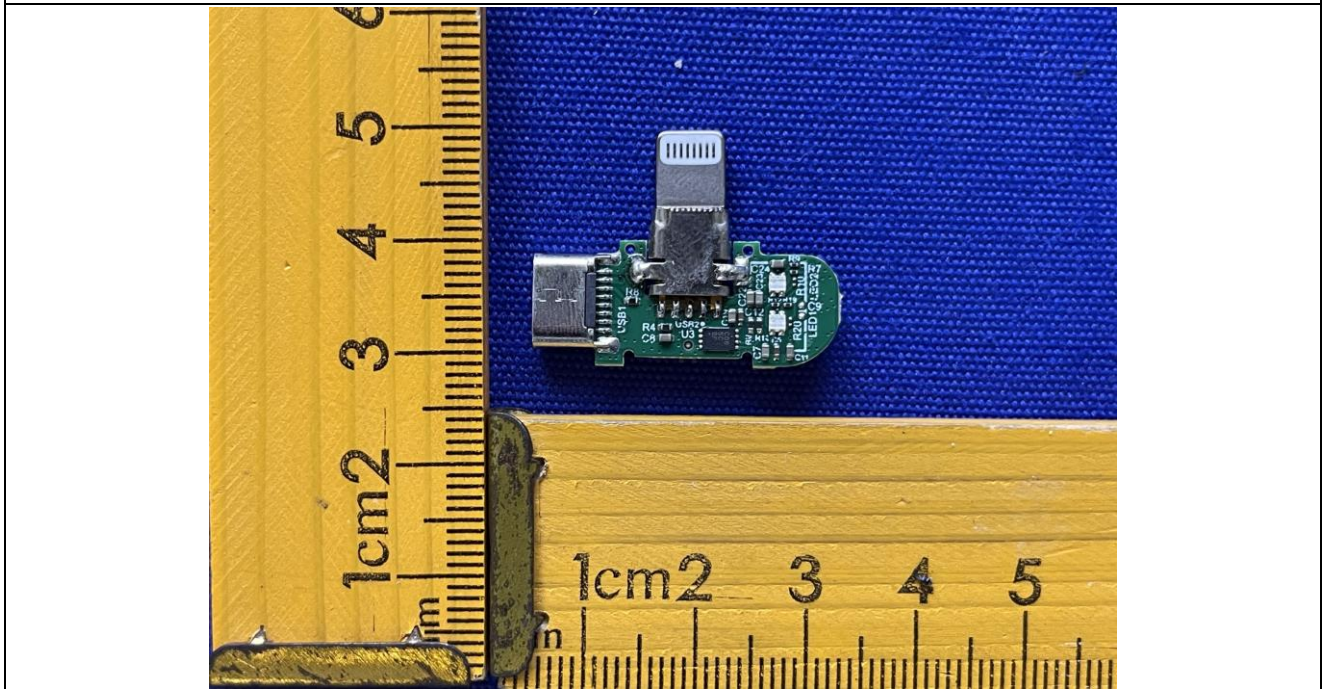


Photo 35



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