TEST REPORT

ETSI EN 301 489-1 V2.2.3 (2019-11)

ETSI EN 301 489-17 V3.3.1 (2024-09)

Product	:	Dash Camera
Model Name	:	S800 PRO
Serial Model	:	please see page 5
Brand	:	imou
Report No.	:	PTC25081318716E-EM01

Prepared for

Hangzhou Huacheng Network Technology Co.,Ltd.

13th Floor, Building 3, No. 582, Liye Road, Changhe Street, Binjiang District, Hangzhou, China (Zhejiang) Pilot Free Trade Zone

Prepared by

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1 TEST RESULT CERTIFICATION

Applicant's name	:	Hangzhou Huacheng Network Technology Co.,Ltd.
Address	:	13th Floor, Building 3, No. 582, Liye Road, Changhe Street, Binjiang District, Hangzhou, China (Zhejiang) Pilot Free Trade Zone
Manufacture's name	:	Hangzhou Huacheng Network Technology Co.,Ltd.
Address	:	13th Floor, Building 3, No. 582, Liye Road, Changhe Street, Binjiang District, Hangzhou, China (Zhejiang) Pilot Free Trade Zone
Product name	:	Dash Camera
Model name	:	S800 PRO
Serial Model	:	(please see page 5.)

This device described above has been tested by PTC and the test results show that the equipment under test (EUT) is in compliance with the Radio equipment Directive - 2014/53/EU requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test

Date (s) of performance of tests	:	Feb. 23, 2025 to Mar. 22, 2025
Date of Issue:		Mar. 23, 2025
Test Result:		**Pass**

Test Engineer:

Jack Zhou / Engineer

Technical Manager:

Simon Pu / Manager

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2 Test Summary

Test procedures according to the technical standards:

ETSI EN 301 489-1 V2.2.3 (2019-11)

ETSI EN 301 489-17 V3.3.1 (2024-09)

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN 55032:2015+A11:2020+A1:2020	Conducted Emission On AC And Telecom Port 150kHz to 30MHz	Class B	N/A	
	Radiated Emission 30MHz to 1000MHz	Class B	PASS	
	Radiated Emission 1GHz to 6GHz	Class B	PASS	
EN IEC 61000-3-2:2019+A1:2021+A2:2024	Harmonic Current Emission	Class A	N/A	
EN 61000-3-3:2013+A1:2019+A2:2021	Voltage Fluctuations & Flicker	------	N/A	
EMC Immunity				
Method	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN 61000-4-3:2006+A1:2008+A2:2020	RF electromagnetic field	A	PASS	
EN 61000-4-4:2012	Fast transients	B	N/A	
EN 61000-4-5:2014/A1:2017	Surges	B	N/A	
EN 61000-4-6:2014	Injected Current	A	N/A	
EN 61000-4-11:2020 + AC:2020	Volt. Interruptions Volt. Dips	B / C / C / C NOTE (3)	N/A	

Note: (1)" N/A" denotes test is not applicable in this Test Report

(2) The power consumption of EUT is less than 75W and no Limits apply.

(3) Voltage dip: 100% reduction – Performance Criteria **B**

Voltage dip: 30% reduction – Performance Criteria **C**

Voltage dip: 40% reduction – Performance Criteria **C**

Voltage Interruption: 100% Interruption – Performance Criteria **C**

(4) For client's request and manual description, the test will not be executed.

3 General Information

3.1 General Description of E.U.T.

Product Name	:	Dash Camera
Model Number	:	S800 PRO
Additional model	:	S1；S1 PRO；S1 PLUS；S1 MAX；S2；S2 PRO；S2 PLUS；S2 MAX；S3；S3 PRO；S3 PLUS；S3 MAX；S4；S4 PRO；S4 PLUS；S4 MAX；S5；S5 PRO；S5 PLUS；S5 MAX；S6；S6 PRO；S6 PLUS；S6 MAX；S7；S7 PRO；S7 PLUS；S7 MAX；S8；S8 PRO；S8 PLUS；S8 MAX；S9；S9 PRO；S9 PLUS；S9 MAX；S10；S10 PRO；S10 PLUS；S10 MAX；S11；S11 PRO；S11 PLUS；S11 MAX；S12；S12 PRO；S12 PLUS；S12 MAX；S13；S13 PRO；S13 PLUS；S13 MAX；S14；S14 PRO；S14 PLUS；S14 MAX；S15；S15 PRO；S15 PLUS；S15 MAX；S100；S100 PRO；S100 PLUS；S100 MAX；S200；S200 PRO；S200 PLUS；S200 MAX；S300；S300 PRO；S300 PLUS；S300 MAX；S400；S400 PRO；S400 PLUS；S400 MAX；S500；S500 PRO；S500 PLUS；S500 MAX；S600；S600 PRO；S600 PLUS；S600 MAX；S700；S700 PRO；S700 PLUS；S700 MAX；S800；S800 PRO；S800 PLUS；S800 MAX； M1；M1 PRO；M1 PLUS；M1 MAX；M2；M2 PRO；M2 PLUS；M2 MAX；M3；M3 PRO；M3 PLUS；M3 MAX；M4；M4 PRO；M4 PLUS；M4 MAX；M5；M5 PRO；M5 PLUS；M5 MAX；M6；M6 PRO；M6 PLUS；M6 MAX；M7；M7 PRO；M7 PLUS；M7 MAX；M8；M8 PRO；M8 PLUS；M8 MAX；M9；M9 PRO；M9 PLUS；M9 MAX；M10；M10 PRO；M10 PLUS；M10 MAX；M11；M11 PRO；M11 PLUS；M11 MAX；M12；M12 PRO；M12 PLUS；M12 MAX；M13；M13 PRO；M13 PLUS；M13 MAX；M14；M14 PRO；M14 PLUS；M14 MAX；M15；M15 PRO；M15 PLUS；M15 MAX；M100；M100 PRO；M100 PLUS；M100 MAX；M200；M200 PRO；M200 PLUS；M200 MAX；M300；M300 PRO；M300 PLUS；M300 MAX；M400；M400 PRO；M400 PLUS；M400 MAX；M500；M500 PRO；M500 PLUS；M500 MAX；M600；M600 PRO；M600 PLUS；M600 MAX；M700；M700 PRO；M700 PLUS；M700 MAX；M800；M800 PRO；M800 PLUS；M800 MAX； T1；T1 PRO；T1 PLUS；T1 MAX；T2；T2 PRO；T2 PLUS；T2 MAX；T3；T3 PRO；T3 PLUS；T3 MAX；T4；T4 PRO；T4

		PLUS；T4 MAX；T5；T5 PRO；T5 PLUS；T5 MAX；T6；T6 PRO；T6 PLUS；T6 MAX；T7；T7 PRO；T7 PLUS；T7 MAX；T8；T8 PRO；T8 PLUS；T8 MAX；T9；T9 PRO；T9 PLUS；T9 MAX；T10；T10 PRO；T10 PLUS；T10 MAX；T11；T11 PRO；T11 PLUS；T11 MAX；T12；T12 PRO；T12 PLUS；T12 MAX；T13；T13 PRO；T13 PLUS；T13 MAX；T14；T14 PRO；T14 PLUS；T14 MAX；T15；T15 PRO；T15 PLUS；T15 MAX；T100；T100 PRO；T100 PLUS；T100 MAX；T200；T200 PRO；T200 PLUS；T200 MAX；T300；T300 PRO；T300 PLUS；T300 MAX；T400；T400 PRO；T400 PLUS；T400 MAX；T500；T500 PRO；T500 PLUS；T500 MAX；T600；T600 PRO；T600 PLUS；T600 MAX；T700；T700 PRO；T700 PLUS；T700 MAX；T800；T800 PRO；T800 PLUS；T800 MAX； H1；H1 PRO；H1 PLUS；H1 MAX；H2；H2 PRO；H2 PLUS；H2 MAX；H3；H3 PRO；H3 PLUS；H3 MAX；H4；H4 PRO；H4 PLUS；H4 MAX；H5；H5 PRO；H5 PLUS；H5 MAX；H6；H6 PRO；H6 PLUS；H6 MAX；H7；H7 PRO；H7 PLUS；H7 MAX；H8；H8 PRO；H8 PLUS；H8 MAX；H9；H9 PRO；H9 PLUS；H9 MAX；H10；H10 PRO；H10 PLUS；H10 MAX；H11；H11 PRO；H11 PLUS；H11 MAX；H12；H12 PRO；H12 PLUS；H12 MAX；H13；H13 PRO；H13 PLUS；H13 MAX；H14；H14 PRO；H14 PLUS；H14 MAX；H15；H15 PRO；H15 PLUS；H15 MAX；H100；H100 PRO；H100 PLUS；H100 MAX；H200；H200 PRO；H200 PLUS；H200 MAX；H300；H300 PRO；H300 PLUS；H300 MAX；H400；H400 PRO；H400 PLUS；H400 MAX；H500；H500 PRO；H500 PLUS；H500 MAX；H600；H600 PRO；H600 PLUS；H600 MAX；H700；H700 PRO；H700 PLUS；H700 MAX；H800；H800 PRO；H800 PLUS；H800 MAX； R1；R1 PRO；R1 PLUS；R1 MAX；R2；R2 PRO；R2 PLUS；R2 MAX；R3；R3 PRO；R3 PLUS；R3 MAX；R4；R4 PRO；R4 PLUS；R4 MAX；R5；R5 PRO；R5 PLUS；R5 MAX；R6；R6 PRO；R6 PLUS；R6 MAX；R7；R7 PRO；R7 PLUS；R7 MAX；R8；R8 PRO；R8 PLUS；R8 MAX；R9；R9 PRO；R9 PLUS；R9 MAX；R10；R10 PRO；R10 PLUS；R10 MAX； DH01；DH01PRO；DH01PLUS；DH01MAX；DH02；DH02PRO；DH02PLUS；DH02MAX；DH03；DH03PRO；DH03PLUS；DH03MAX；DH04；DH04PRO；DH04PLUS；DH04MAX；DH05；DH05PRO；

		DH05PLUS；DH05MAX；DH06；DH06PRO；DH06PLUS；DH06MAX；DH07；DH07PRO；DH07PLUS；DH07MAX；DH08；DH08PRO；DH08PLUS；DH08MAX；DH09；DH09PRO；DH09PLUS；DH09MAX；DH10；DH10PRO；DH10PLUS；DH10MAX； P060S；P060V；P060P；P120O；P080S；P080V；P080P；P140O；P100S；P100V；P100P；P160O；P120S；P120V；P120P；P180O；P140S；P140V；P140P；P200O；P160S；P160V；P160P；P220O；P180S；P180V；P180P；P240O；P200S；P200V；P200P；P260O；P220S；P220V；P220P；P280O；P240S；P240V；P240P；P300O；
Power supply	:	DC 3.7V li-on battery or DC 5V 1.5A via adapter DC 12V battery
Hardware version	:	N/A
Software version	:	N/A

4 Equipment During Test

4.1 Equipments List

CONDUCTED EMISSION						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	EMI Test Receiver	Rohde&Schwarz	ESCI3	101417	Aug. 17,2024	1 Year
2	Artificial Mains Network	Rohde&Schwarz	ENV216	102453	Aug. 17,2024	1 Year
RADIATEDEMISSION						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	EMI Test Receiver	Rohde&Schwarz	ESPI7	101671	Aug. 17,2024	1 Year
2	Trilog Broadband	SCHWARZBECK	VULB9160	9160-3355	Aug. 17,2024	1 Year
3	Preamplifier (low frequency)	Rohde&Schwarz	BBV 9475	9745-0013	Aug. 17,2024	1 Year
4	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1246	Aug. 17,2024	1 Year
5	Preamplifier	ZHINAN	ZN3380C	15002	Aug. 17,2024	1 Year
HARMONICS AND FILCK						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	Harmonics & FlickerAnalyzer	California Instruments	CTS/PACS-1-115	1534A00401	Aug. 17,2024	1 Year
2	AC Power Source	California Instruments	3001IX-208-CTS	1534A00401	Aug. 17,2024	1 Year
ESD						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	ESD Generator	SCHLODER	SESD216	606137	Aug. 17,2024	1 Year
RS						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	Vector Signal Generator	Agilent	N5181A	ATO-75100	Aug. 17,2024	1 Year
2	Amplifier	SKET	150W1000M3	201811050	Aug. 17,2024	1 Year

3	Amplifier	SKET	HAP_0103G-75W	201811051	Aug. 17,2024	1 Year
4	Amplifier	SKET	HAP_0306G-50W	201811052	Aug. 17,2024	1 Year
5	Antenna	SKET	ZDSZ-1T6G-232	SKT232079	Aug. 17,2024	1 Year
6	Isotropic Field Probe	NARDA	EP-601	611WX80275	Aug. 17,2024	1 Year
7	Log-periodic Antenna	SKET	ZDSZ-80T1000	SKT231015	Aug. 17,2024	1 Year

CS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	C/S Test System	SCHLODER	CDG-6000-25	126A1279/2014	Aug. 17,2024	1 Year
2	CDN	SCHLODER	CDN-M2+3	A2210251/2013	Aug. 17,2024	1 Year

EFT

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	EFT Generator	HTEC	HCOMPACT52	170901/190901	Aug. 17,2024	1 Year

Surge

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	Surge Generator	HTEC	HCOMB70	142101	Aug. 17,2024	1 Year
2	Surge Generator	HTEC	HTSG71	175002	Aug. 17,2024	1 Year
3	CDN	HTEC	SCDN161P	142102	Aug. 17,2024	1 Year

Dips

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibration Interval
1	Dips Tester	HTEC	HV1P16T	1416009	Aug. 17,2024	1 Year

4.2 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5dB
Power Spectral Density, conducted	±3dB
Unwanted Emissions, conducted	±3dB
All emissions, radiated	±6dB
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conduction disturbance(150kHz~30MHz)	±3.26dB
Radiated Emission(30MHz~1GHz)	±4.73dB
Radiated Emission(1GHz~25GHz)	±5.02dB

5 EMC Requirements for Emissions

(1) Normal Test Conditions:

Ambient Condition: Normal

(2) Extreme Test Conditions:

N/A

(3) Test Configuration

- measurements shall be made in the operational mode producing the largest emission in the frequency band being investigated consistent with normal applications;
- the equipment shall be configured in a manner which is representative for normal/typical operation, where practical;
- where radio equipment is provided with an integral antenna, it shall be tested with the antenna fitted in a manner typical of normal intended use, unless declared as a removable antenna;
- if the equipment is part of a system, or can be connected to ancillary equipment, then it shall be acceptable to test the equipment while connected to the minimum representative configuration of ancillary equipment necessary to exercise the ports;
- if the equipment has a large number of ports, then a sufficient number shall be selected to simulate actual operational conditions and to ensure that all the different types of termination are covered;
- ports, which in normal operation are connected, shall be connected to an ancillary equipment or to are presentative piece of cable terminated to simulate the impedance of the ancillary equipment. RF input/output ports shall be correctly terminated;
- the configuration and mode of operation during the measurements shall be precisely noted in the test report.

(4) Test Mode

TM1	Charging&Working
TM2	WLAN

5.1 Conducted Emissions

Test Method	:	EN 301489-1, EN 55032
Frequency Range	:	150kHz to 30MHz
Class/Severity	:	Class B/ Table 2 of EN55032
Detector	:	Peak for pre-scan(9kHz Resolution Bandwidth)

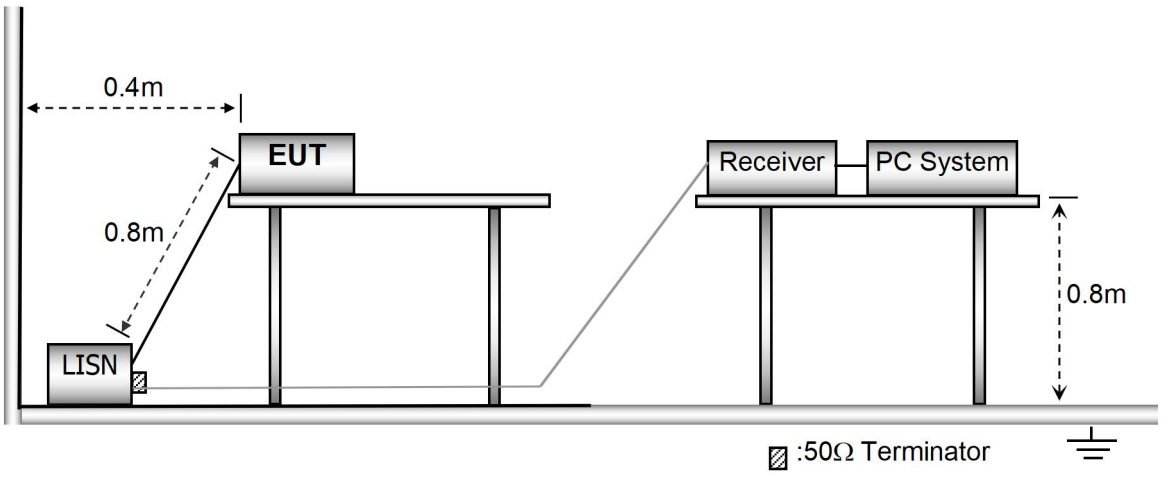
5.1.1. E.U.T. Operation

Operating Environment:

Temperature	:	25.0 °C
Humidity	:	60 % RH
Atmospheric Pressure	:	101.2kPa
Test Mode	:	TM1

5.1.2. Test Setup

The conducted emission tests were performed using the setup accordance with the EN 55032.



5.1.3. Measurement Description

An initial pre-scan was performed on the live and neutral lines.

No futher quasi-peak or average measurements were performed since no peak emissions were detected within 10Db line below the average limit.

Please refer to the following peak scan graph for reference.

5.1.4. Test Results

N/A

5.2 Radiated Emissions

Test Method	:	EN 301489-1, EN 55032
Frequency Range	:	30MHz to 1GHz, 1GHz to 6GHz
Class/Severity	:	Class B/ Table 6 of EN55032 (30MHz to 1GHz) Class B/ Table 8 of EN55032 (1GHz to 6GHz)
Detector	:	Peak for pre-scan (120kHz Resolution Bandwidth Below 1GHz; 1MHz Resolution Bandwidth Above 1GHz)

5.2.1. EUT Operation

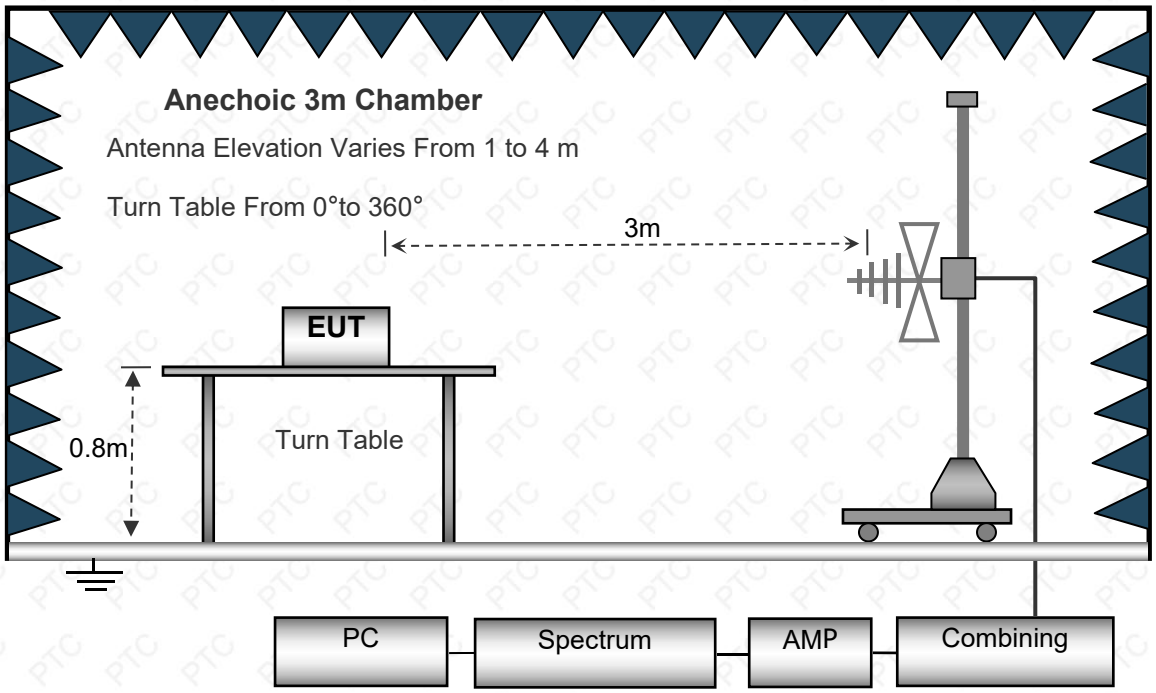
Operating Environment:		
Temperature	:	24.5 °C
Humidity	:	52 % RH
Atmospheric Pressure	:	101.3kPa
EUT Operation:	:	TM1,TM2,

Refer to section 5(4).

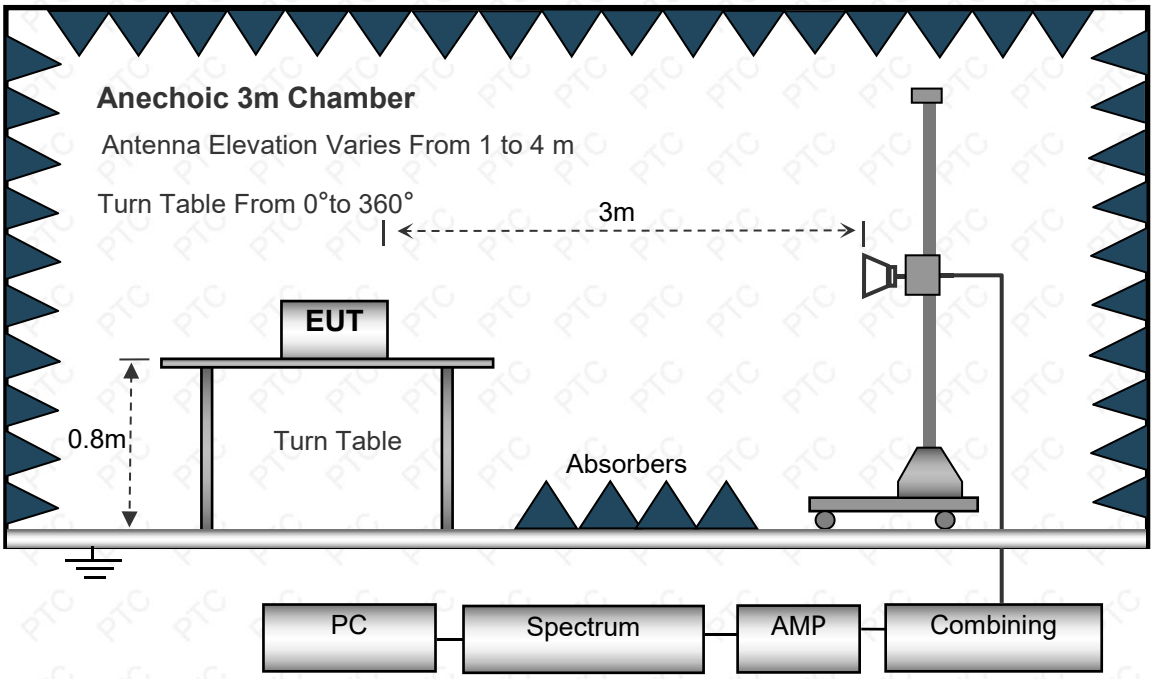
5.2.2. Test Setup

The radiated emission tests were performed using the setup accordance with the EN55032.

Frequency Range: Below 1 GHz



Frequency Range: Above 1 GHz



5.2.3. Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor – Amplifier Gain

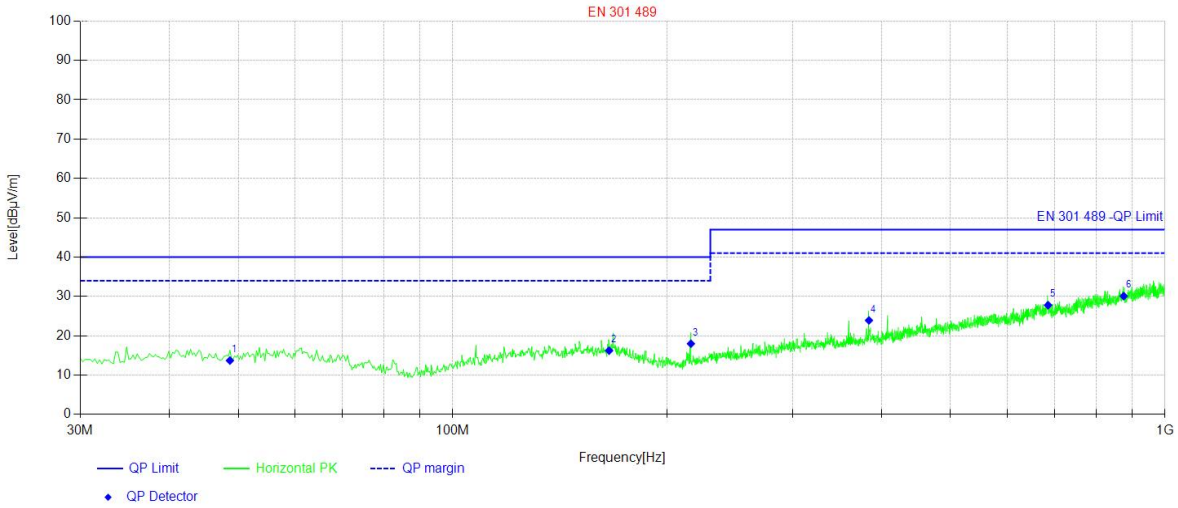
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7Db means the emission is 7Db below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Class B Limit

5.2.4. Test Result

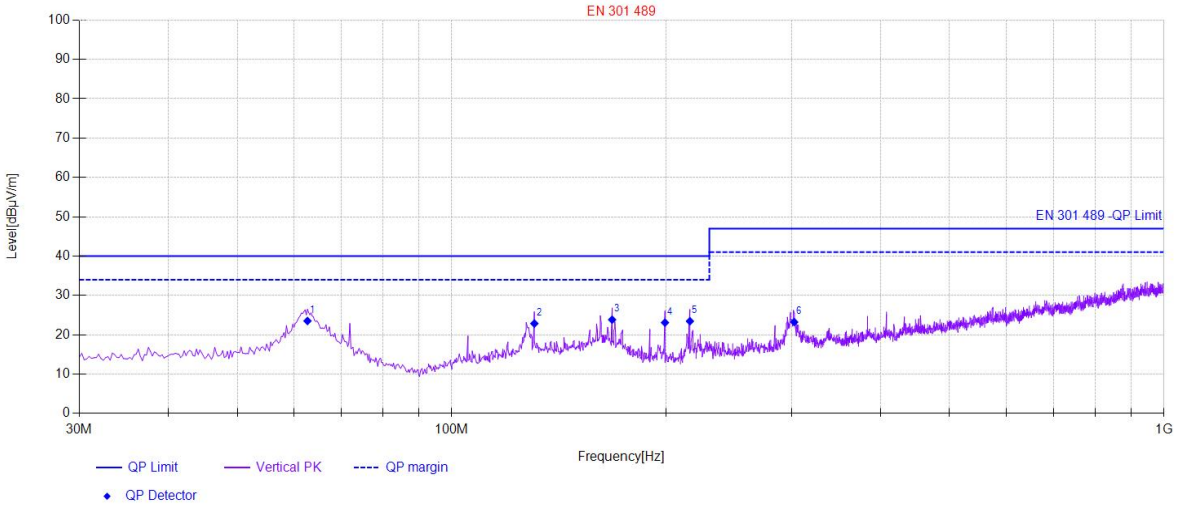
Frequency Range: 30MHz ~ 1000MHz(Worst case:TM2)

Antenna Polarization: Horizontal



Final Data List[QP]								
NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity	Verdict
1	48.67	24.53	-10.81	13.72	40.00	26.28	Horizontal	PASS
2	165.80	25.75	-9.52	16.23	40.00	23.77	Horizontal	PASS
3	216.00	30.71	-12.72	17.99	40.00	22.01	Horizontal	PASS
4	384.05	30.85	-6.93	23.92	47.00	23.08	Horizontal	PASS
5	685.24	27.22	0.56	27.78	47.00	19.22	Horizontal	PASS
6	875.11	26.72	3.36	30.08	47.00	16.92	Horizontal	PASS

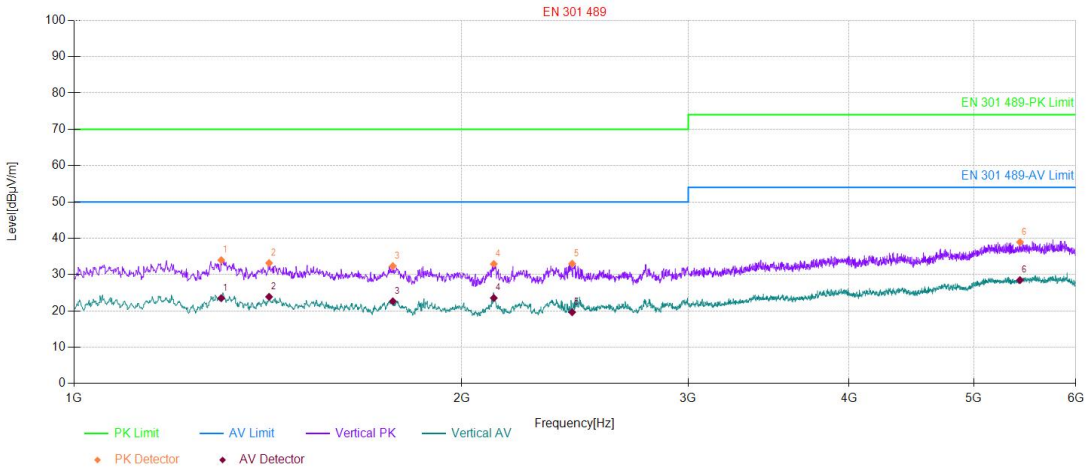
Antenna Polarization: Vertical



Final Data List[QP]								
NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity	Verdict
1	62.74	35.3	-11.78	23.52	40.00	16.48	Vertical	PASS
2	130.64	33.05	-10.19	22.86	40.00	17.14	Vertical	PASS
3	167.98	33.47	-9.63	23.84	40.00	16.16	Vertical	PASS
4	199.27	35.5	-12.40	23.10	40.00	16.90	Vertical	PASS
5	216.00	36.17	-12.72	23.45	40.00	16.55	Vertical	PASS
6	302.57	31.81	-8.57	23.24	47.00	23.76	Vertical	PASS

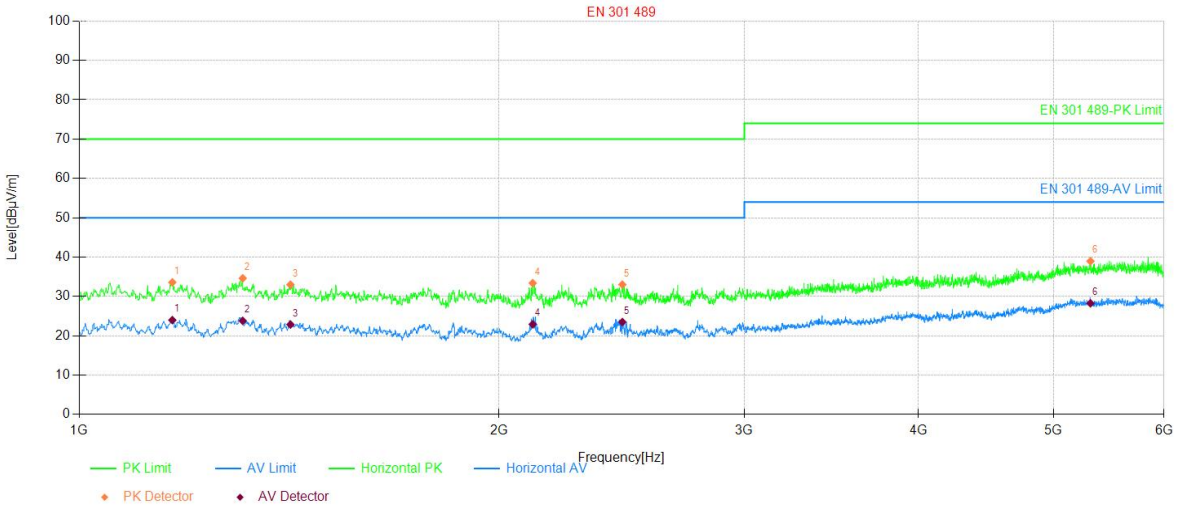
Frequency Range: 1000MHz ~ 6000MHz(Worst case:TM2)

Antenna Polarization: Horizontal& Vertical



PK Final Data List										
NO.	Freq. [MHz]	Factor [dB]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity	Verdict
1	1301.05	-2.84	33.98	70.00	36.02	Peak	100	216	Vertical	PASS
2	1417.50	-2.79	33.18	70.00	36.82	Peak	100	122	Vertical	PASS
3	1768.75	-3.50	32.32	70.00	37.68	Peak	100	292	Vertical	PASS
4	2118.75	-2.52	32.91	70.00	37.09	Peak	100	321	Vertical	PASS
5	2437.50	-0.87	33.00	70.00	37.00	Peak	100	140	Vertical	PASS
6	5430.00	6.88	38.93	74.00	35.07	Peak	100	122	Vertical	PASS

AV Final Data List										
NO.	Freq. [MHz]	Factor [dB]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity	Verdict
1	1301.05	-2.84	23.51	50.00	26.49	AV	100	216	Vertical	PASS
2	1417.50	-2.79	23.88	50.00	26.12	AV	100	122	Vertical	PASS
3	1768.75	-3.50	22.64	50.00	27.36	AV	100	292	Vertical	PASS
4	2118.75	-2.52	23.55	50.00	26.45	AV	100	321	Vertical	PASS
5	2437.50	-0.87	19.64	50.00	30.36	AV	100	140	Vertical	PASS
6	5430.00	6.88	28.48	54.00	25.52	AV	100	122	Vertical	PASS



PK Final Data List										
NO.	Freq. [MHz]	Factor [dB]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity	Verdict
1	1166.[illegible]	-2.92	33.58	70.00	36.42	Peak	100	7	Horizontal	PASS
2	1310.[illegible]	-2.83	34.61	70.00	35.39	Peak	100	260	Horizontal	PASS
3	1417.[illegible]	-2.79	33.00	70.00	37.00	Peak	100	63	Horizontal	PASS
4	2115.[illegible]	-2.54	33.38	70.00	36.62	Peak	100	340	Horizontal	PASS
5	2452.[illegible]	-0.79	33.01	70.00	36.99	Peak	100	281	Horizontal	PASS
6	5313.[illegible]	6.76	38.96	74.00	35.04	Peak	100	340	Horizontal	PASS

AV Final Data List										
NO.	Freq. [MHz]	Factor [dB]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity	Verdict
1	1166.[illegible]	-2.92	23.99	50.00	26.01	AV	100	7	Horizontal	PASS
2	1310.[illegible]	-2.83	23.80	50.00	26.20	AV	100	260	Horizontal	PASS
3	1417.[illegible]	-2.79	22.87	50.00	27.13	AV	100	63	Horizontal	PASS
4	2115.[illegible]	-2.54	22.91	50.00	27.09	AV	100	340	Horizontal	PASS
5	2452.[illegible]	-0.79	23.50	50.00	26.50	AV	100	281	Horizontal	PASS
6	5313.[illegible]	6.76	28.26	54.00	25.74	AV	100	340	Horizontal	PASS

Remark:

Absolute Level= Reading Level+ Factor, Margin= Absolute Level – Limit

5.3 VOLTAGE FLUCTUATION AND FLICKERS

Test Requirement : IEC/EN 61000-3-3

Tests	Measurement Value	Limit	Descriptions
	IEC555-3	IEC/EN 61000-3-3	
P_{st}	≤ 1.0,Tp= 10 min.	≤ 1.0,Tp= 10 min.	Short Term Flicker Indicator
P_{lt}	N/A	≤0.65, Tp=2 hr.	Long Term Flicker Indicator
$T_{dt(s)}$	≤ 3%	≤ 3.3%	Relative Steady-State V-Chang
$d_{max}(\%)$	≤ 4%	≤ 4%	Maximum Relative V-Chang
$d_c(\%)$	N/A	≤ 3.3% for > 500 ms	Relative V-change Characteristic

5.3.1 EUT Operation

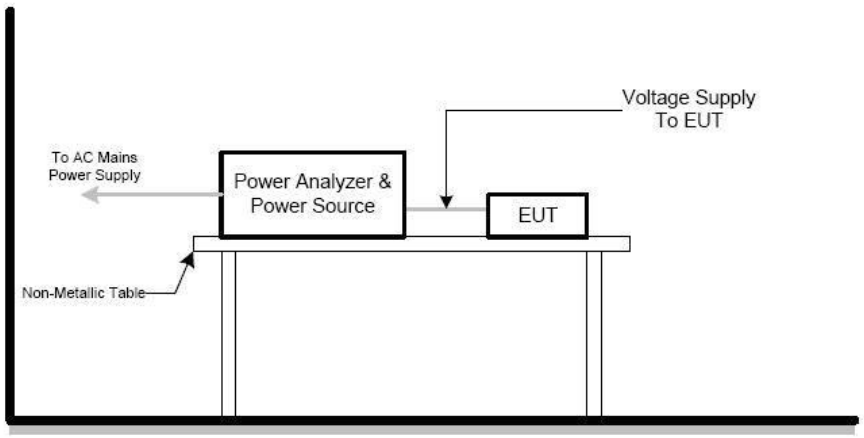
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

Temperature : 25.5 °C

Humidity : 51 % RH

Atmospheric Pressure : 101.2kPa

5.3.2 Test Setup



5.3.3 TEST PROCEDURE

a. Harmonic Current Test:
Test was performed according to the procedures specified in Clause 5.0 of IEC555-2 and/or Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.
b. Fluctuation and Flickers Test:
Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.
c. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

5.3.4 Test Result

N/A

5.4 HARMONICS CURRENT

Test Requirement : EN 61000-3-2

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		

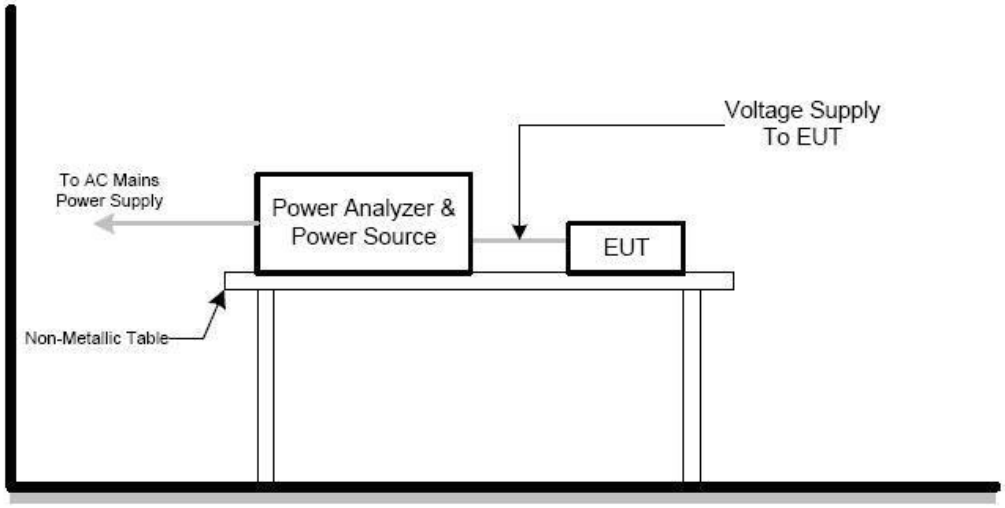
5.4.1 EUT Operation

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

Temperature	:	25.5 °C
Humidity	:	51 % RH
Atmospheric Pressure	:	101.2kPa

Refer to section 5(4).

5.4.2 Test Setup



5.4.3 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated

to produce the maximum harmonic components under normal operating conditions.

b. The classification of EUT is according to section 5 of EN 61000-3-2. The EUT is

classified as follows:

Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

Class B: Portable tools. Portable tools.; Arc welding equipment which is not professional equipment.

Class C: Lighting equipment.

Class D: Equipment having a specified power less than or equal to 600W of the following types: Personal computers and personal computer monitors and television receivers.

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

5.4.4 Test Result

N/A

6 EMC Requirement for Immunity

(1). Normal Test Conditions:

Ambient Condition: Normal

(2). Test Configuration

• the tests shall be made in the mode(s) of operation specified in clause 4 in the relevant part of the EN 301 489 series [i.13] dealing with the particular type of radio equipment;

• the tests shall be carried out at a point within the specified normal operating environmental range and at the rated supply voltage for the equipment;

• if the equipment is part of a system, or can be connected to ancillary equipment, then it shall be acceptable to test the equipment connected to the minimum representative configuration of ancillary equipment necessary to exercise the ports;

• where radio equipment is provided with an integral antenna, it shall be tested with the antenna fitted in a manner typical of normal intended use, unless declared as a removable antenna;

• for the immunity tests of ancillary equipment, without a separate pass/fail criteria, the receiver or transmitter coupled to the ancillary equipment, shall be used to judge whether the ancillary equipment passes or fails;

• if the equipment has a large number of ports, then a sufficient number shall be selected to simulate actual operational conditions and to ensure that all the different types of termination are covered;

• ports, which in normal operation are connected, shall be connected to an ancillary equipment or to arepresentative piece of cable terminated to simulate the impedance of the ancillary equipment. RF input/outputports shall be correctly terminated;

• ports which are not connected to cables during normal intended operation, e.g. service connectors, programming connectors, temporary connectors etc. shall not be connected to any cables for the purpose of EMC testing. Where cables have to be connected to these ports, or interconnecting cables have to be extended in length in order to exercise the Equipment Under Test (EUT), precautions shall be taken to ensure that the evaluation of the EUT is not affected by the addition or extension of these cables;

• the configuration and mode of operation during the tests shall be precisely noted in the test report.

(4).Test Mode

TM1	Charging&Working
TM2	WLAN

6.1 Performance Criteria Description

EN 301 489-1 Clause 6 requirements:

The performance criteria are used to take a decision on whether a 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(CT);

• performance criteria for transient phenomena applied to transmitters(TT);

• performance criteria for continuous phenomena applied to receivers(CR);

• performance criteria for transient phenomena applied to receivers(TR).

Normally, the performance criteria depend on the type of radio equipment. Thus, the present document only contains general performance criteria commonly used for the assessment of radio equipment. More specific and product-related performance criteria for a dedicated type of radio equipment may be found in the part of EN 301 489 series [i.13]dealing with the particular type of radio equipment.

Performance Criteria	Description
CT,CR	If no further details are given in the relevant part of 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 apparatus 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 apparatus 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 apparatus if used as intended.
TT,TR	If no further details are given in the relevant part of EN 301 489 series [i.13] dealing with the particular type of radio equipment, the following general performance criteria for transient phenomena shall apply. After the test, the

	apparatus shall continue to operate as intended. No degradation of performance or loss of function isallowed below a permissible performance level specified by the manufacturer, when the apparatus is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance. During the EMC exposure to an electromagnetic phenomenon, a degradation of performance is, however, allowed. Nochange of the actual mode of operation (e.g. unintended transmission) or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then eitherof these may be deduced from the product description and documentation and what the user may reasonably expectfrom the apparatus if used as intended.

EN 301 489-17 Clause 6 requirements:

The performance criteria are:

• 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 clauses.

Criteria	During test	After test
A	Shall operate as intended. May show degradation of performance (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 2). 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 1). No unintentional transmissions.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 2). 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 2).
NOTE 1: 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 2: 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	Description
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.
TT	The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 msduration, 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 notoccur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) ornot-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmissionresulting from the application of the test is correctly interpreted.
CR	The performance criteria A shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. Insystems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and stepsshould be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.
TR	The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms durationfor which performance criteria C shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. Insystems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and stepsshould be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

6.2 Electrostatic Discharge(ESD)

Test Method	:	EN 301 489-1, EN 61000-4-2
Discharge Impedance	:	330 Ω / 150 pF
Discharge Voltage	:	Air Discharge: +/-2,4,8 KV Contact Discharge:+/-2,4 kV HCP &VCP: +/-2,4 kV
Polarity	:	Positive & Negative
Discharge Repeat Times	:	At Least 20 times at each test point
Discharge Mode	:	Single Discharge
Discharge Period	:	second minimum

6.2.1E.U.T. Operation

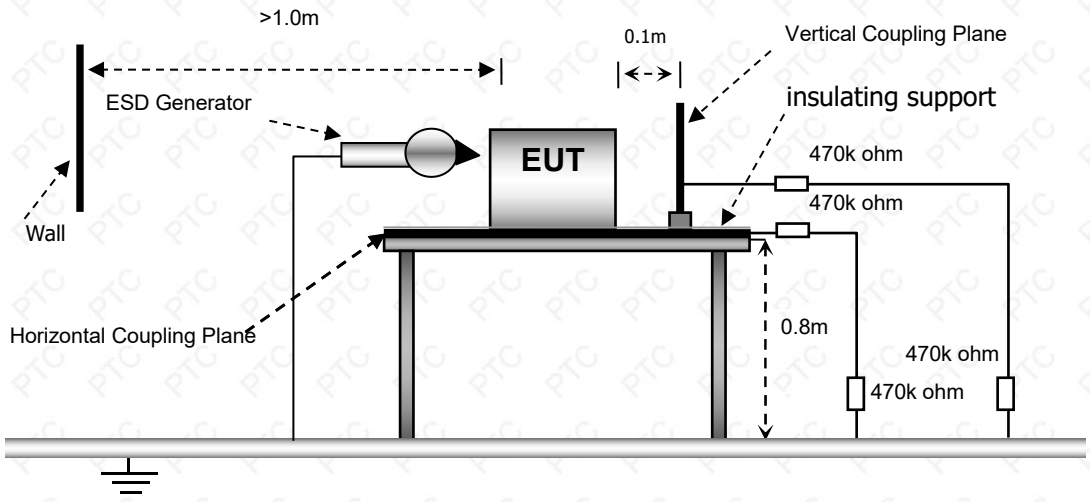
Operating Environment:

Temperature	:	24.3°C
Humidity	:	52.0% RH
Barometric Pressure	:	101.2kPa
EUT Operation	:	TM1,TM2

Refer to section 6(4).

6.2.2Block Diagram of Setup

The ESD test was performed in accordance with the EN 61000-4-2.



6.2.3Test Results

Mode	Air Discharge								Contact Discharge								Observation	Criterion	Result
Test level (KV)	2		4		8		15		2		4		6		8				
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-			
HCP									A	A	A	A					TT,TR	B	PASS
VCP									A	A	A	A							PASS
hull	A	A	A	A	A	A													PASS
Gap	A	A	A	A	A	A													PASS
Button	A	A	A	A	A	A													PASS

6.3 Electrical Fast Transients (EFT)

Test Method	:	EN 301 489-1, EN 61000-4-4
Polarity	:	Positive & Negative
Repetition Frequency	:	5kHz
Burst Duration	:	300ms
Test Duration	:	2 minutes per level & polarity

6.3.1 E.U.T. Operation

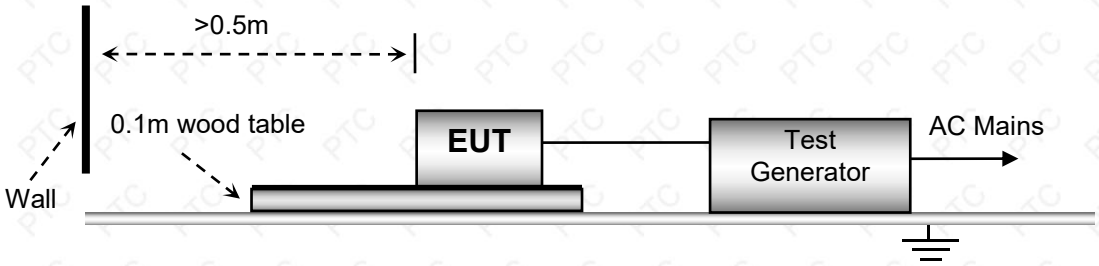
Operating Environment:

Temperature	:	24.3°C
Humidity	:	54% RH
Barometric Pressure	:	101.2kPa

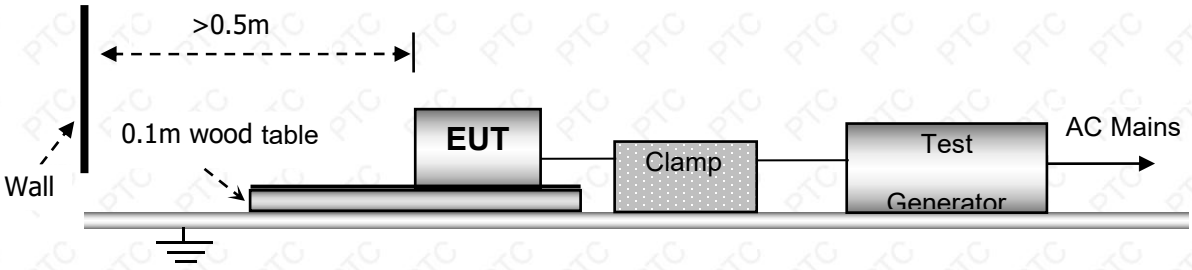
6.3.2 Block Diagram of Test Setup

The Electrical Fast Transients Immunity test was performed in accordance with the EN 61000-4-4.

For AC Mains or DC Ports:



For Signal, Telecommunication or Control Ports:



6.3.3 Test Results

N/A

6.4 Surges

Test Method	:	EN 301 489-1, EN 61000-4-5
Interval	:	60s between each surge
No. of surges	:	5 positive, 5 negative at 0°, 90°, 180°, 270°.

6.4.1 E.U.T. Operation

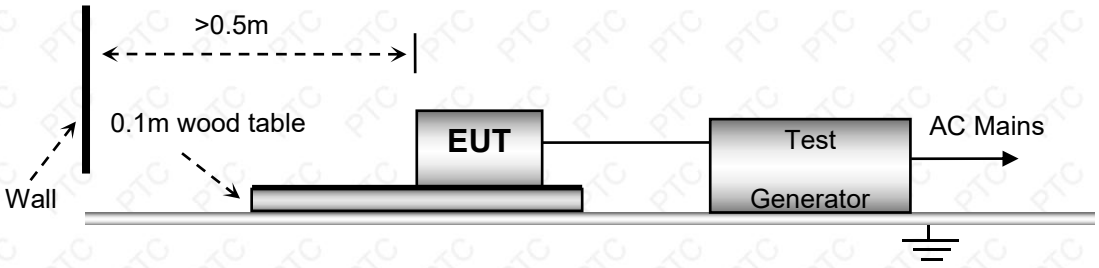
Operating Environment:

Temperature	:	24.3°C
Humidity	:	52% RH
Barometric Pressure	:	101.2kPa
EUT Operation	:	TM1,TM2

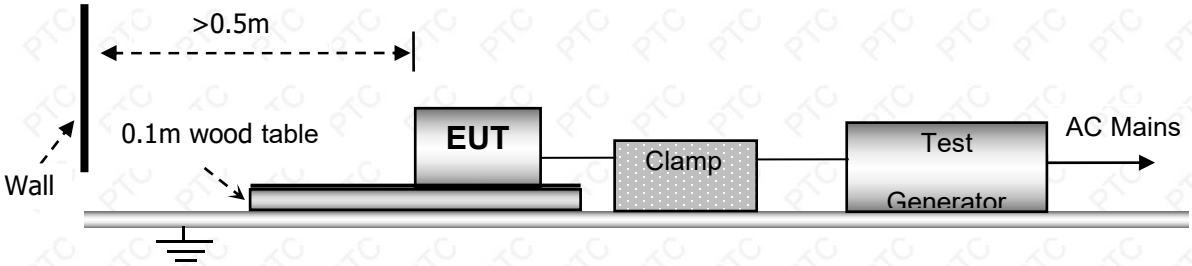
6.4.2 Block Diagram of Test Setup

The Surges Immunity test was performed in accordance with the EN 61000-4-5.

For AC Mains or DC Ports:



For Telecommunication Port:



6.4.3 Test Results

N/A

6.5 Conducted Immunity

Test Method	:	EN 301 489-1, EN 61000-4-6
Test level	:	3V rms (unmodulatedemf into 150 Ω)
Modulation	:	80%, 1kHz Amplitude Modulation.

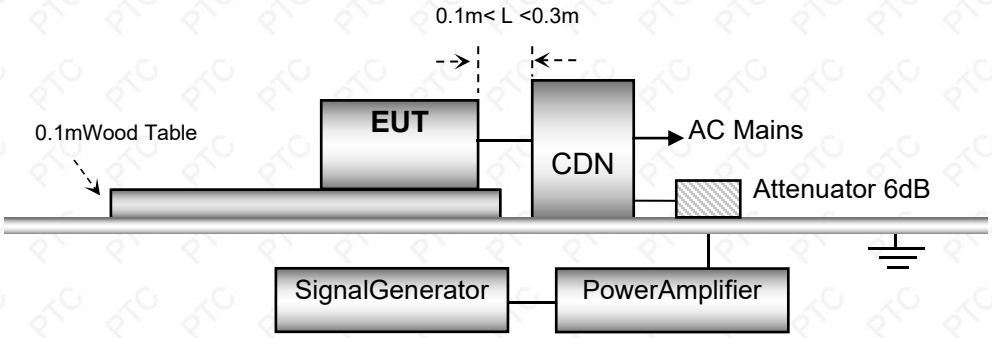
6.5.1 E.U.T. Operation

Temperature	:	23.9°C
Humidity	:	50% RH
Barometric Pressure	:	100.6kPa
EUT Operation	:	TM1,TM2

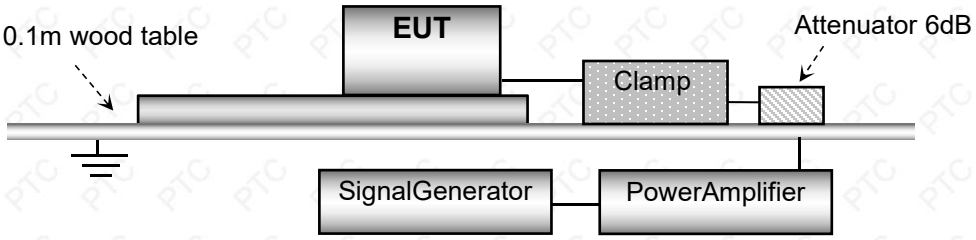
6.5.2 Block Diagram of Test Setup

The Injected Currents Immunity test was performed in accordance with the EN 61000-4-6.

For AC Mains or DC Ports:



For Signal, Telecommunication or Control Ports:



6.5.3 Test Results

N/A

6.6 Voltage Dips and Interruptions

Test Method	:	EN 301 489-1, EN 61000-4-11
No. of Dips / Interruptions	:	3 per Level at 10ms intervals

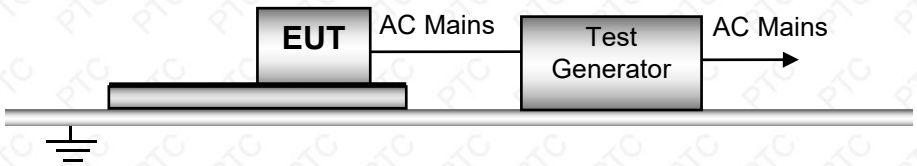
6.6.1 E.U.T. Operation

Operating Environment:

Temperature	:	24.3°C
Humidity	:	54% RH
Barometric Pressure	:	101.2kPa
EUT Operation	:	TM1,TM2

6.6.2 Block Diagram of Setup

The Voltage Dips and Interruptions Immunity test was performed in accordance with the EN 61000-4-11.



6.6.3 Test Results

N/A

6.7 Radiated Immunity(R/S)

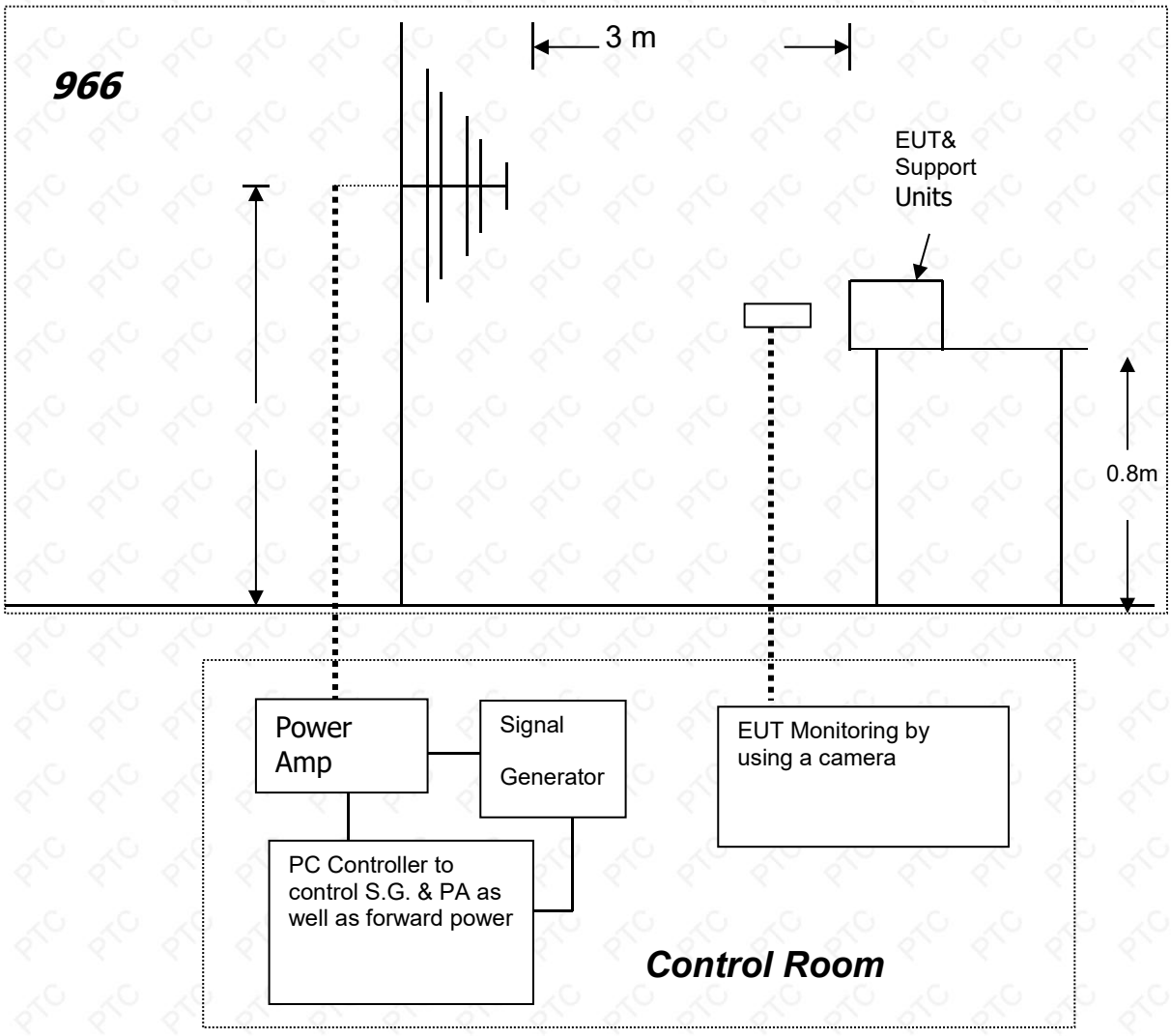
Test Method	:	EN 301 489-1, EN 61000-4-3
Face Under Test	:	Three Mutually Orthogonal Faces
Severity	:	3V/m, 1kHz, 80% Amp. Mod. from 80MHz to 6GHz
Test Result	:	PASS

6.7.1 E.U.T. Operation

Temperature	:	24.1°C
Humidity	:	53% RH
Barometric Pressure	:	101.1kPa
EUT Operation	:	TM1,TM2

6.7.2Block Diagram of Setup

The Radiated Immunity test was performed in accordance with the EN 61000-4-3.



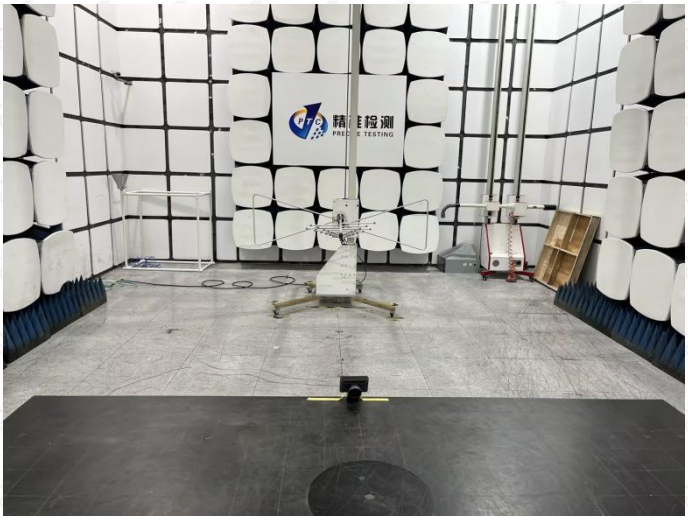
6.7.3Test Results

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results	Judgment
80-6000	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	**CT,CR**	**A**	**A**	**PASS**
			Rear				
			Left				
			Right				
			Top				
			underside				

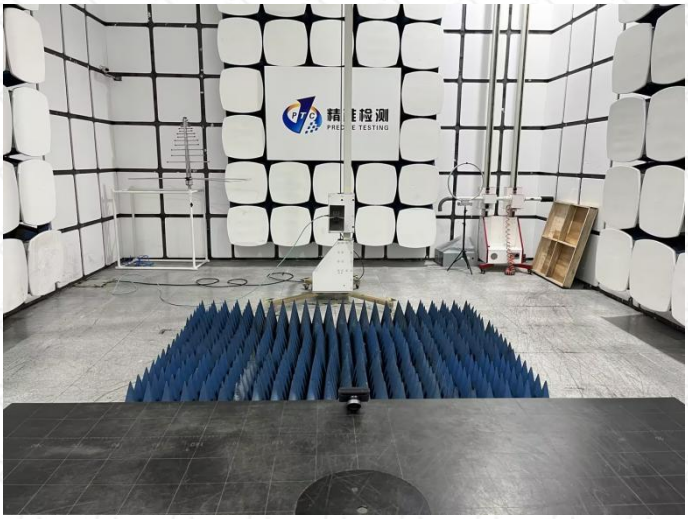
Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

7 Test Setup

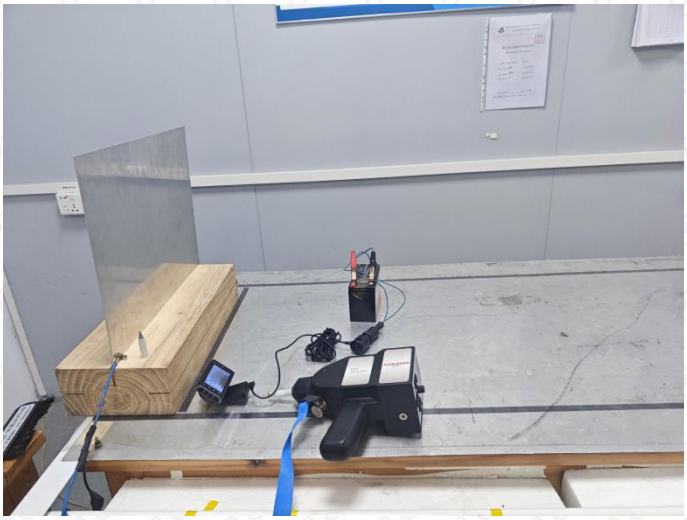
RADIATED EMISSION TEST



RADIATED EMISSION TEST above 1G



ESD TEST



8 Photo Of The EUT

********THE END REPORT********