PSE EMC Test Report

Test Standard(s): J 55014-1 (H27)

Applicant:

Product Name: CoolAir

Model: ---

Report No.: ZKS200400476-1

Tested Date: 2020-04-24

Issued Date: 2020-04-29

Tested By : Lieber Ouyang (Engineer)

Approved By: Lahm Peng (Manager)

Prepared By:

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1. General Information

1.1 Product Information

Applicant and Manufacturer	
Applicant:	
Address of Applicant:	
Manufacturer:	
Address of Manufacturer:	

General Description of EUT	
Product Name:	CoolAir
Model No.:	
Trade Name:	--
Adding Model(s):	--
Classification of Apparatus:	Category II
Rated Voltage:	DC 5V/1.5A by adapter
Note 1: The test data is gathered from a production sample, provided by the manufacturer.	

1.2 Compliance Standards

Compliance Standards	
EN 55014-1	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
The objective of the manufacturer or applicant is to demonstrate compliance with the above standards.	
According to standards for test methodology	
EN 55014-1	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
All measurements contained in this report were conducted with all above standards	
Maintenance of compliance is the responsibility of the manufacturer or applicant. Any modification of the product, which result is lowering the emission, should be checked to ensure compliance has been maintained.	

1.3 Test Facilities

Testing Lab: Global United Technology Services Co., Ltd.
All measurement facilities used to collect the measurement data are located at No.301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

1.4 Test Setup Information

List of Test Modes			
Test Mode	Description	Remark	
TM1	Operating	--	
TM2	--	--	
List and Details of Auxiliary Cable			
Description	Length (M)	Shielded/Unshielded	With/Without Ferrite
--	--	--	--
--	--	--	--
List and Details of Auxiliary Equipment			
Description	Manufacturer	Model	Serial Number
--	--	--	--
--	--	--	--
The equipment under test (EUT) was configured to measure its highest possible emission and immunity level. The test modes were adapted according to the operation manual for use.			

1.5 Measurement Uncertainty

Parameter	Conditions	Uncertainty
Conducted Disturbance	9kHz ~30MHz	±2.75 dB
Radiated Disturbance	30MHz ~ 1GHz	±4.89 dB

1.6 List of Test and Measurement Instruments

Description	Manufacturer	Model	Serial Number	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESCNexfan-010	830245/009	2021-04-22
AMN	Rohde & Schwarz	ESH2-Z5	100002	2021-04-22
EMI Test Receiver	Rohde & Schwarz	ESI26	838786/013	2021-04-22
Pre-amplifier	CD	PAP-0118	24004	2021-04-22
Bilog Antenna	Chase	CBL6112B	2591	2021-04-22

2. Summary of Test Results

Standards	Description of Test Items	Result
J 55014-1	Terminal Disturbance Voltages	Passed
	Disturbance Power	N/A
	Radiated Disturbances	Passed
	Discontinuous Disturbance	N/A
Passed: The EUT complies with the essential requirements in the standard Failed: The EUT does not comply with the essential requirements in the standard N/A: Not applicable		

3. Terminal Disturbance Voltage

3.1 Standard and Limit

According to the standard J 55014-1, clause 4.1.1 - Limits for conducted disturbance at mains terminals, the limit of conducted disturbance as below:

Frequency range	At mains terminals		At load terminals and additional terminals	
1	2	3	4	5
(MHz)	dB (µV) Quasi-peak	dB (µV) Average*	dB (µV) Quasi-peak	dB (µV) Average*
0,15 to 0,50	Decreasing linearly with the logarithm of the frequency from: 66 to 56	59 to 46	80	70
0,50 to 5	56	46	74	64
5 to 30	60	50	74	64

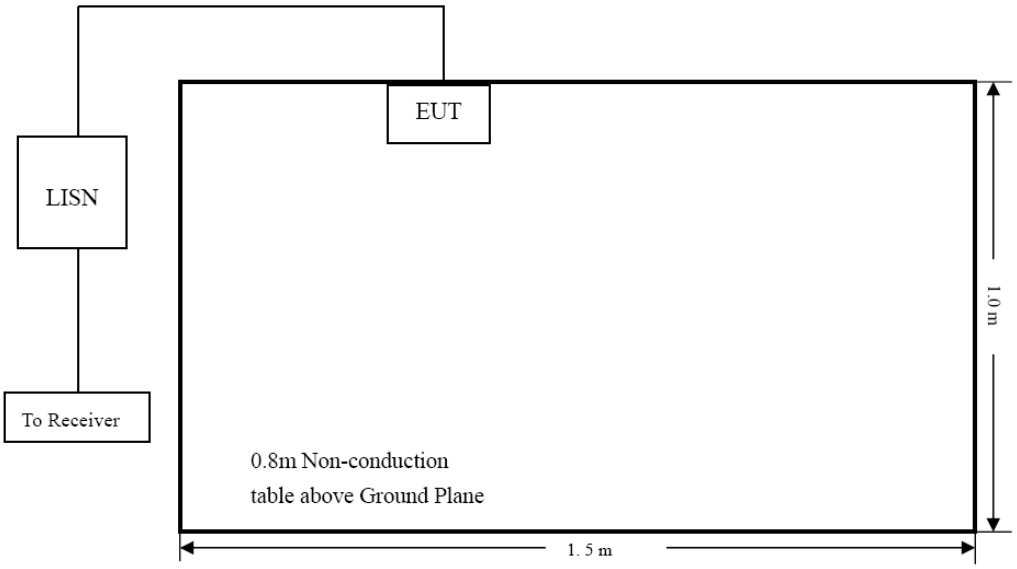
MAINS TERMINALS OF TOOLS

1	6	7	8	9	10	11
Frequency range	Rated motor power not exceeding 700 W		Rated motor power above 700 W and not exceeding 1 000 W		Rated motor power above 1 000 W	
(MHz)	dB (µV) Quasi-peak	dB (µV) Average*	dB (µV) Quasi-peak	dB (µV) Average*	dB (µV) Quasi-peak	dB (µV) Average*
0,15 to 0,35	Decreasing linearly with the logarithm of the frequency from: 66 to 59	59 to 49	70 to 63	63 to 53	76 to 69	69 to 59
0,35 to 5	59	49	63	53	69	59
5 to 30	64	54	68	58	74	64
* If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.						

Main Terminals

3.2 Test Procedure

Test is conducting under the description of J 55014-1 clause 5 - Methods of measurement of terminal disturbance voltages.

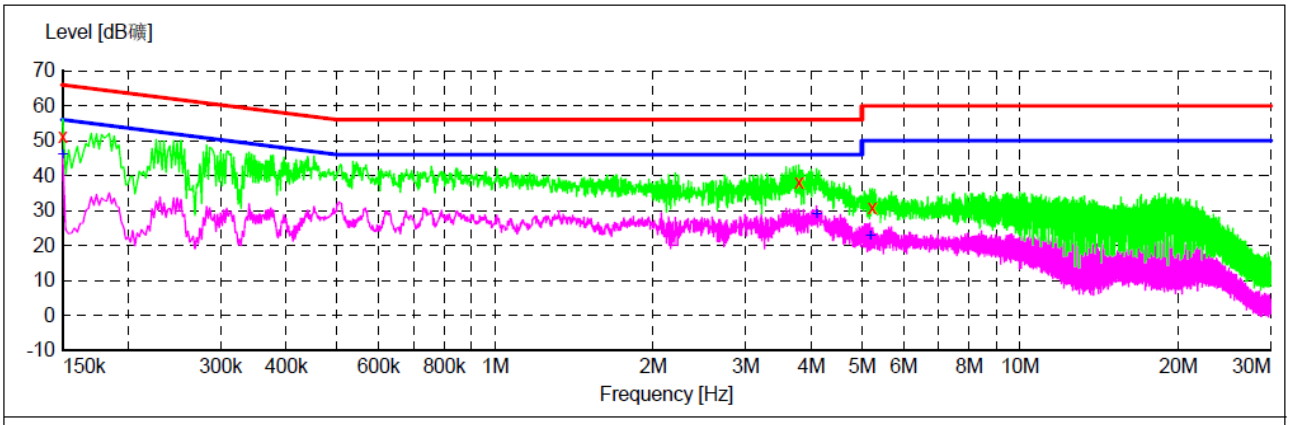


Test Setup Block Diagram

3.3 Test Data and Results

Based on all tested data, the EUT complied with the J 55014-1 standard limit, and with the worst case as below:

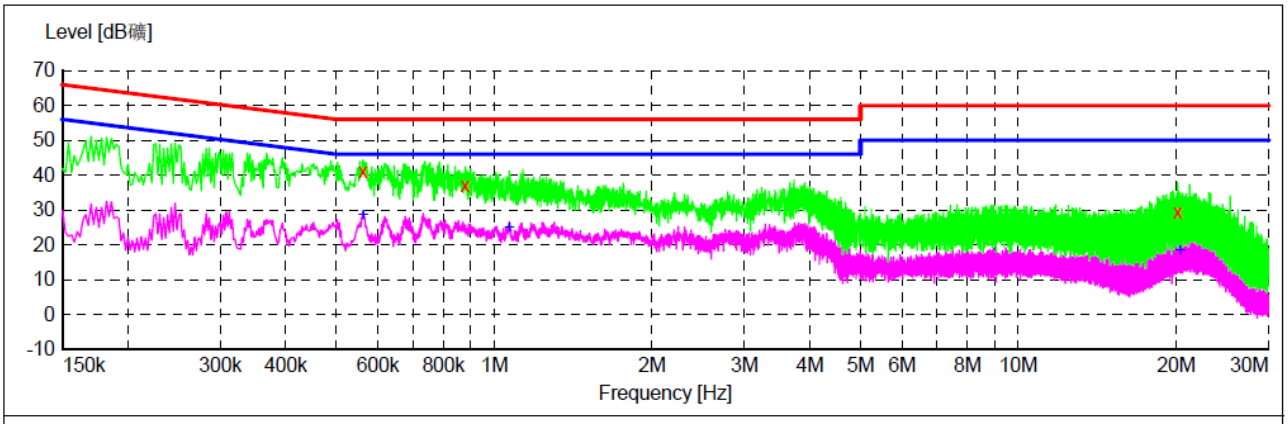
Test Plots and Data of Conducted Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 230V/50Hz
Test Power Line:	Live
Remark:	



Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	51.10	10.8	66	14.9	QP	L1	GND
3.790000	38.00	11.4	56	18.0	QP	L1	GND
5.235000	30.70	11.4	60	29.3	QP	L1	GND

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	46.10	10.8	56	9.9	AV	L1	GND
4.095000	28.90	11.4	46	17.1	AV	L1	GND
5.180000	22.80	11.4	50	27.2	AV	L1	GND

Test Plots and Data of Conducted Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 230V/50Hz
Test Power Line:	Neutral
Remark:	



Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.562000	41.00	11.0	56	15.0	QP	N	GND
0.880000	37.00	11.1	56	19.0	QP	N	GND
20.165000	29.20	11.7	60	30.8	QP	N	GND

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.562000	28.60	11.0	46	17.4	AV	N	GND
1.068000	25.10	11.1	46	20.9	AV	N	GND
20.360000	18.50	11.7	50	31.5	AV	N	GND

4. Radiated Disturbance

4.1 Standard and Limit

According to the standard J 55014-1, clause 4.1.2.2 - Limits for radiated disturbance, the limit of radiated disturbance for a class B device as below:

Testing method	Standard	Frequency range MHz	Limit dBμV/m Quasi-peak	Remark
OATS [a] or SAC [b d]	CISPR 16-2-3	30 – 230	30	Measurement distance 10 m
		230 – 300	37	
		300 – 1 000	37	
FAR [e]	CISPR 16-2-3	30 – 230	42 to 35 [f]	Measurement distance 3 m
		230 – 1 000	42	
TEM-Waveguide[c]	IEC 61000-4-20	30 – 230	30	–
		230 – 1 000	37	

NOTE The lower limit is applicable at the transition frequency.

a OATS = open area test site

b SAC = semi-anechoic chamber

c The TEM-waveguide is limited to devices without cables attached and with a maximum size according to subclause 6.1 of IEC 61000-4-20 (The largest dimension of the enclosure at 1 GHz measuring frequency is one wavelength, 300 mm at 1 GHz)

d Measurements may be made at closer distance, down to 3 m. An inverse proportionality factor of 20 dB per decade shall be used to normalize the measured data to the specified distance for determining compliance.

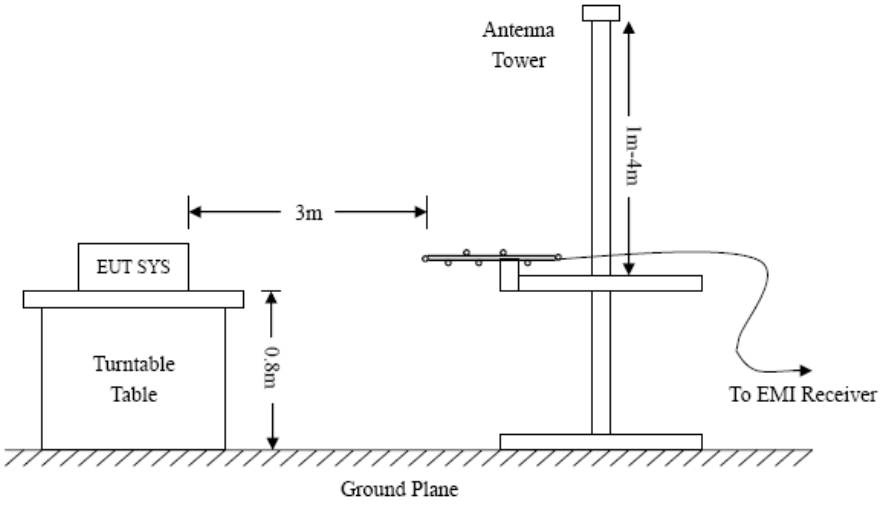
e FAR = fully anechoic room. All equipment, including floor-standing equipment, shall be measured within the test volume as described in Figure 6 of CISPR 16-2-3.

f Decreasing linearly with the logarithm of the frequency.

Limits below 1GHz at a measurement distance of 10 m
(Limit at 3m = limit at 10 m + 10dB)

4.2 Test Procedure

Test is conducting under the description of J 55014-1 clause 9 - Methods of measurement of radiated emission.

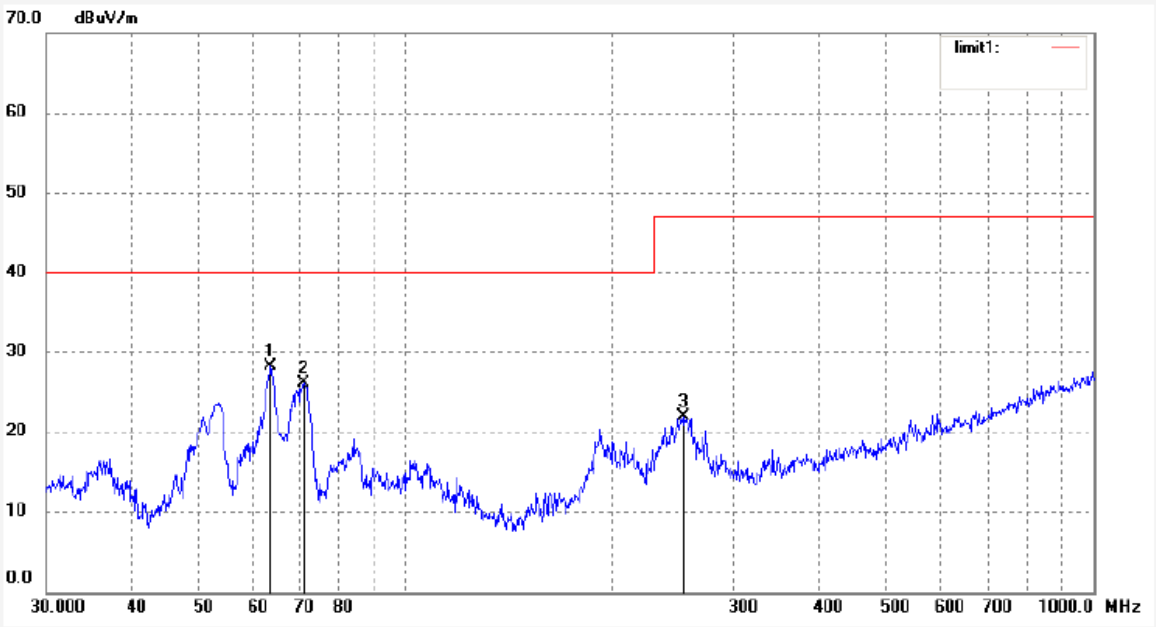


Test Setup Block Diagram

4.3 Test Data and Results

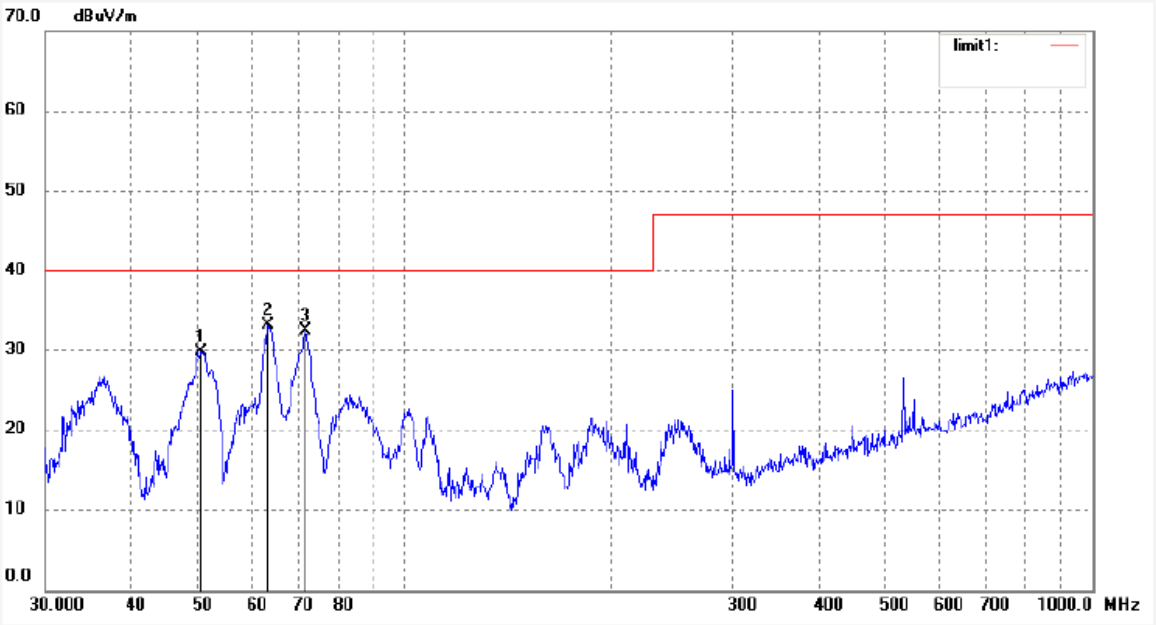
Based on all tested data, the EUT complied with the J 55014-1 standard limit, and with the worst case as below:

Test Plots and Data of Radiated Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 110V/50Hz
Test Antenna Polarization:	Horizontal
Remark:	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	63.6312	55.46	-27.27	28.19	40.00	-11.81	peak			
2	71.2033	53.79	-27.54	26.25	40.00	-13.75	peak			
3	254.0312	45.45	-23.41	22.04	47.00	-24.96	peak			

Test Plots and Data of Radiated Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 110V/50Hz
Test Antenna Polarization:	Vertical
Remark:	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	50.6389	56.18	-26.30	29.88	40.00	-10.12	peak			
2	63.1857	60.35	-27.27	33.08	40.00	-6.92	peak			
3	71.7054	60.01	-27.56	32.45	40.00	-7.55	peak			

Annex A. EUT Photos

EUT View 1

EUT View 2

EUT View 3

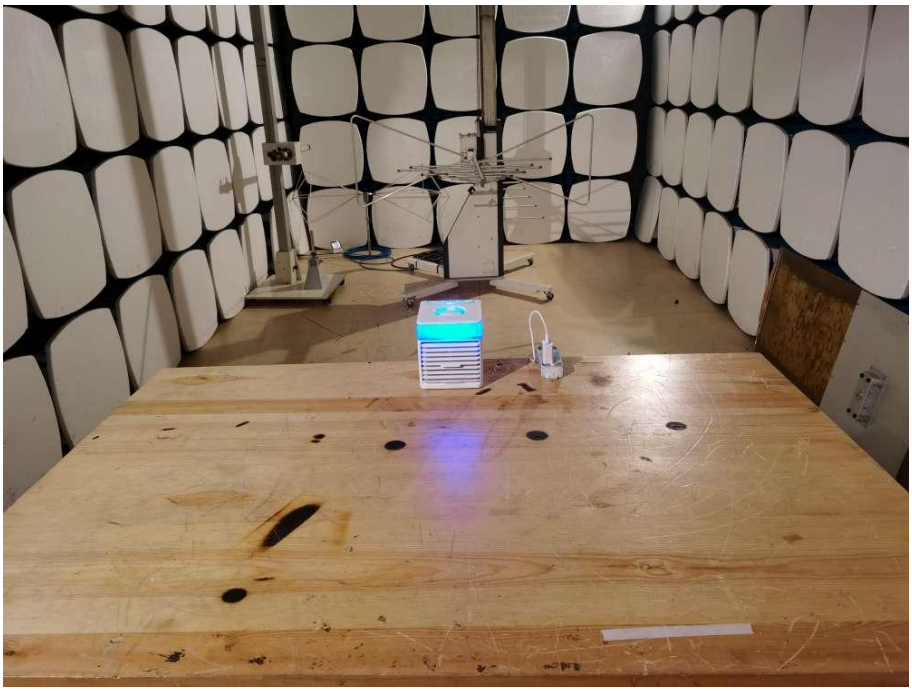
EUT View 4

EUT View 5

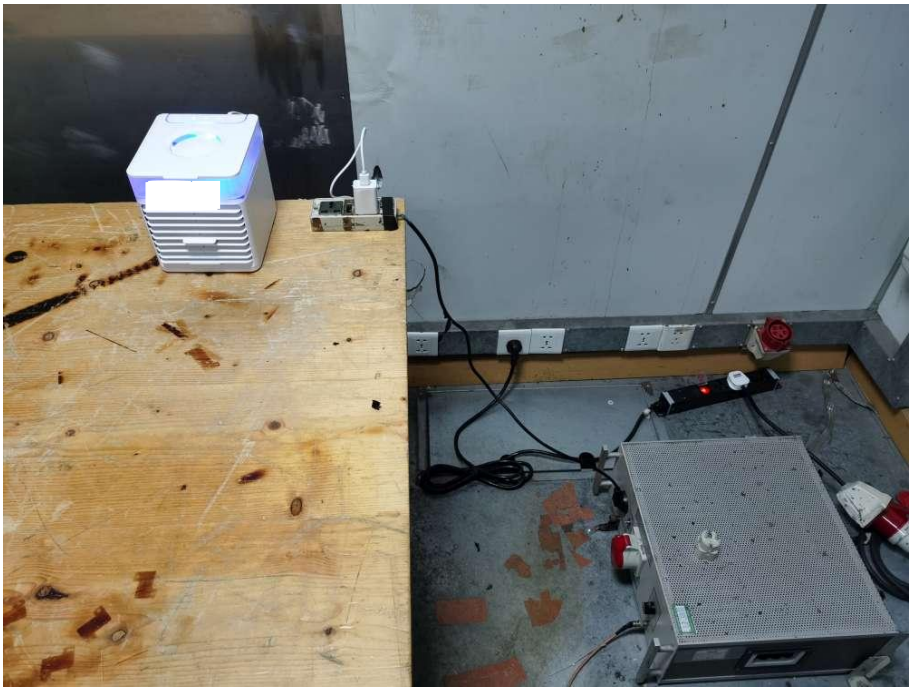
EUT View 6

Annex B. Test Setup Photos

Radiation Emission Test View



Conduction Emission Test View



Annex C. Label and Information

PSE Mark Sample

PSE Mark Specifications

Text is Black in color and is justified. Labels are printed in indelible ink on permanent adhesive backing or silk-screened onto the EUT or shall be affixed at a conspicuous location on the EUT. The ‘PSE’ marking must be affixed to the EUT or to its data plate. Where this is not possible or not warranted on account of the nature of the apparatus, it must be affixed to the packaging, if any, and to the accompanying documents. The ‘PSE’ marking must have a height of at least 5 mm. If the ‘PSE’ marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.

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