Certificate of Conformity

Certificate No.: ZKS20001552

Holder of Certificate	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, Maantang Community, Bantian Street, Longgang District, Shenzhen, China
Manufacturer	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, Maantang Community, Bantian Street, Longgang District, Shenzhen, China
Description of Product	:	CoolAir
Model No.	:	Nexfan-01
Trade Name	:	--
Description of Object	:	DC 5V/1.5A by adapter
Test Standards	:	J 55014 (H27)
Report No.	:	ZKS200400476-1

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the license holder's disposal. This to certify that the tested sample is in conformity with the above listed standards.

After preparation of the necessary technical documentation as well as the declaration of conformity the required PSE marking can be affixed on the product. Other relevant standard have to be observed.

PS E

Certification Body

Frank Feng / General Manager

Date: May 6, 2020

Dongguan ZRLK Testing Technology Co., Ltd.

Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China

Tel.: +86-755-33019599 Fax.: +86-755-33019599 Website: www.zrlklab.com

PSE EMC Test Report

Test Standard(s):	J 55014-1 (H27)
Applicant:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Product Name:	CoolAir
Model:	Nexfan-01
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:	

Dongguan ZRLK Testing Technology Co., Ltd.

Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China

Tel.: +86-755-33019599 Fax.: +86-755-33019599 Website: www.zrlklab.com

CONTENTS

1. General Information

1.1 Product Information

Applicant and Manufacturer	
Applicant:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Address of Applicant:	Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing
	Road, Maantang Community, Bantian Street, Longgang District,
	Shenzhen, China
Manufacturer:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Address of Manufacturer:	Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing
	Road, Maantang Community, Bantian Street, Longgang District,
	Shenzhen, China

General Description of EUT	
Product Name:	CoolAir
Model No.:	Nexfan-01
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

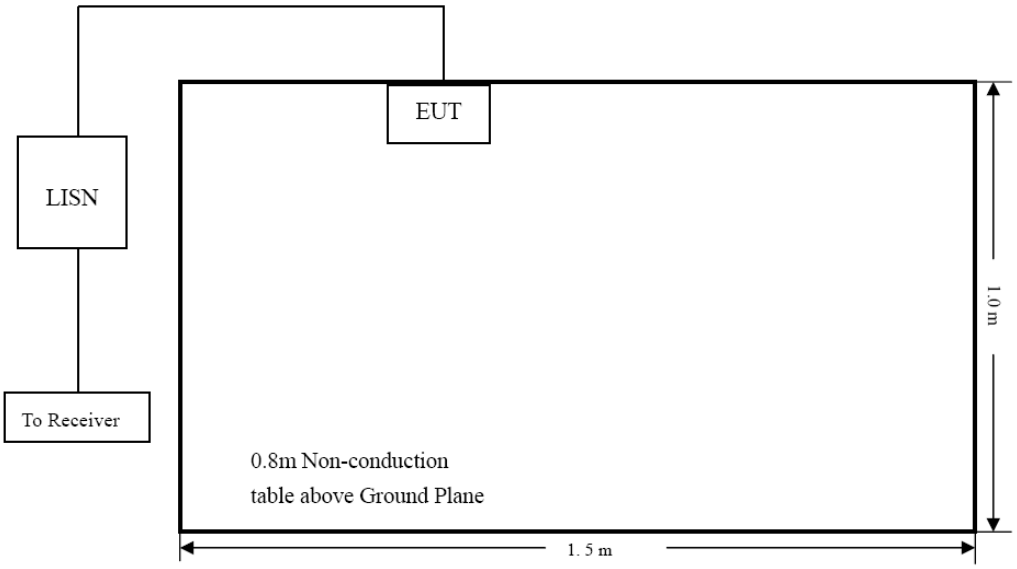
MAINS TERMINALS OF TOOLS

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.

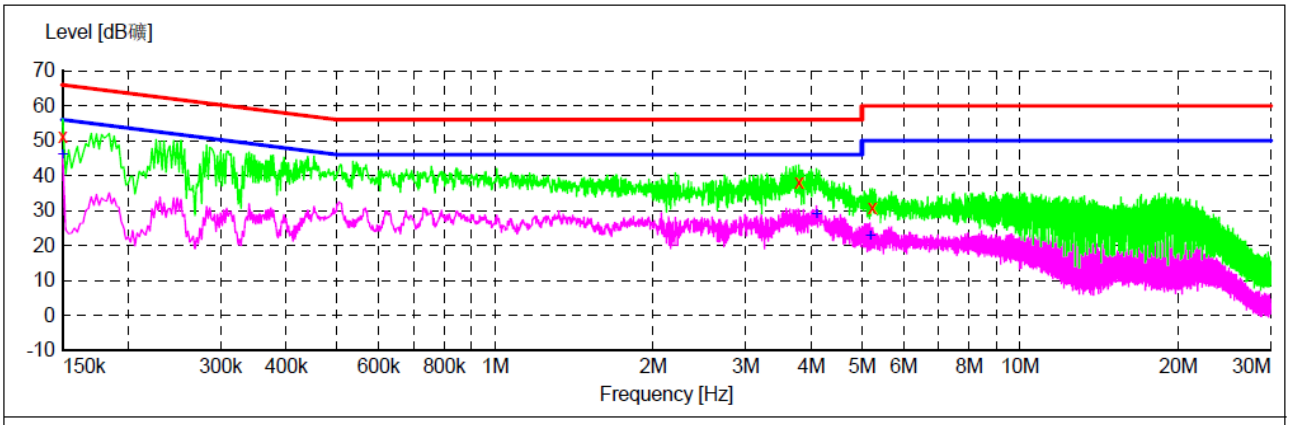


Test Setup Block Diagram

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:

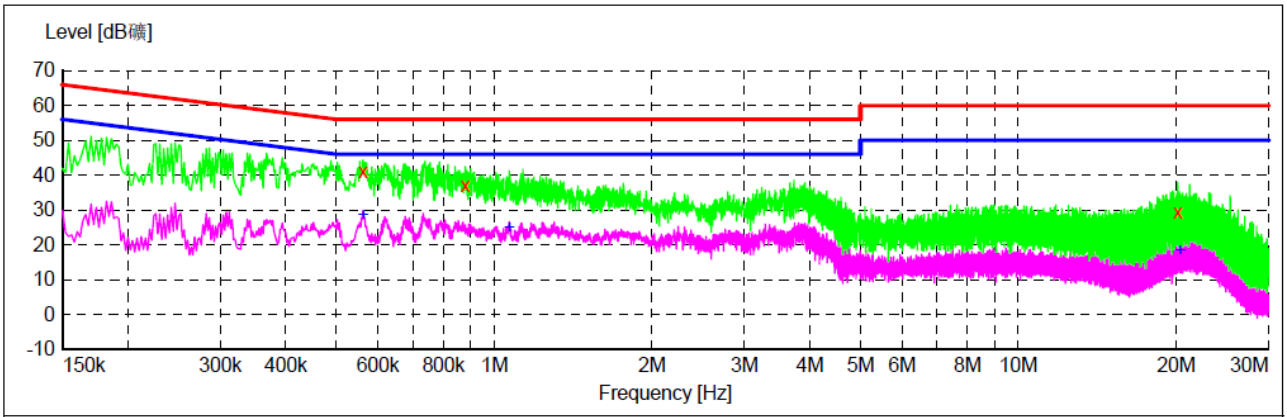
Test Plots and Data of Conducted Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 230V/50Hz
Test Power Line:	Live
Remark:	



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.

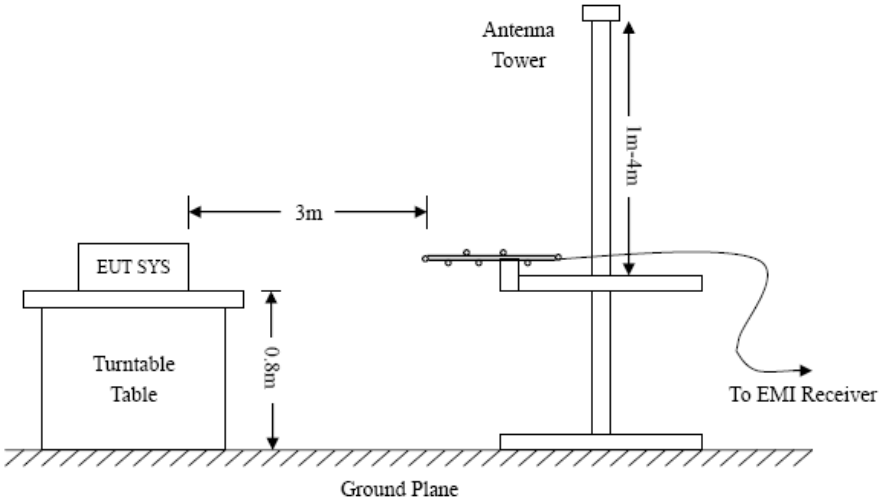
[e] FAR = fully anechoic room. All equipment, including floor-standing equipment, shall be measured within the test volume as described in Figure 6 of CISPR 16-2-3.

[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.

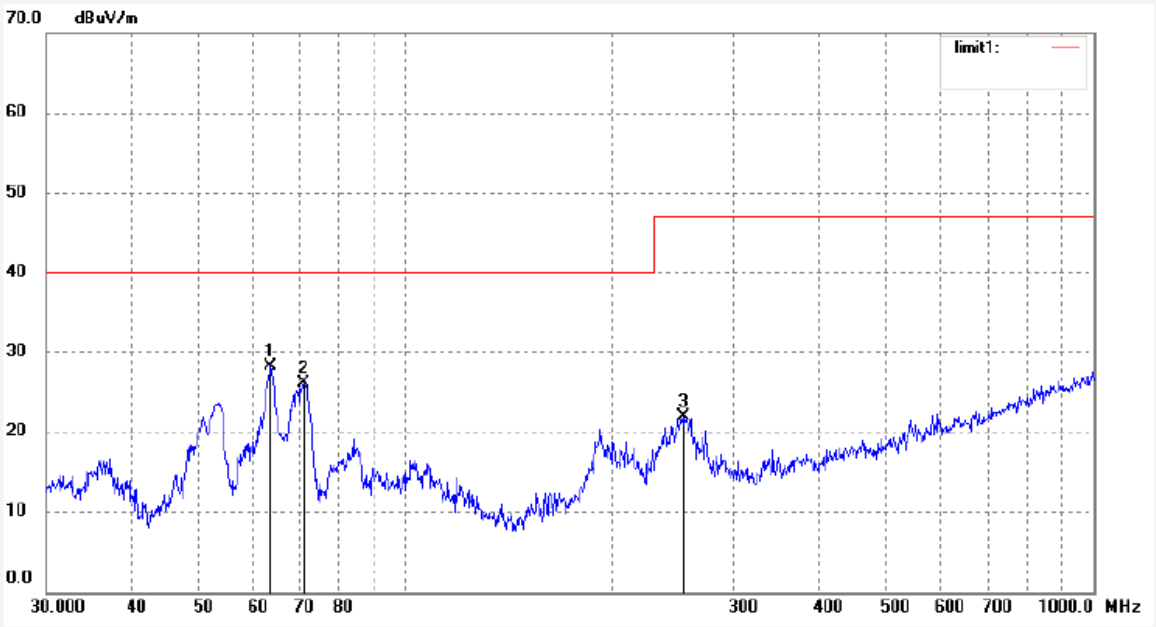


Test Setup Block Diagram

4.3 Test Data and Results

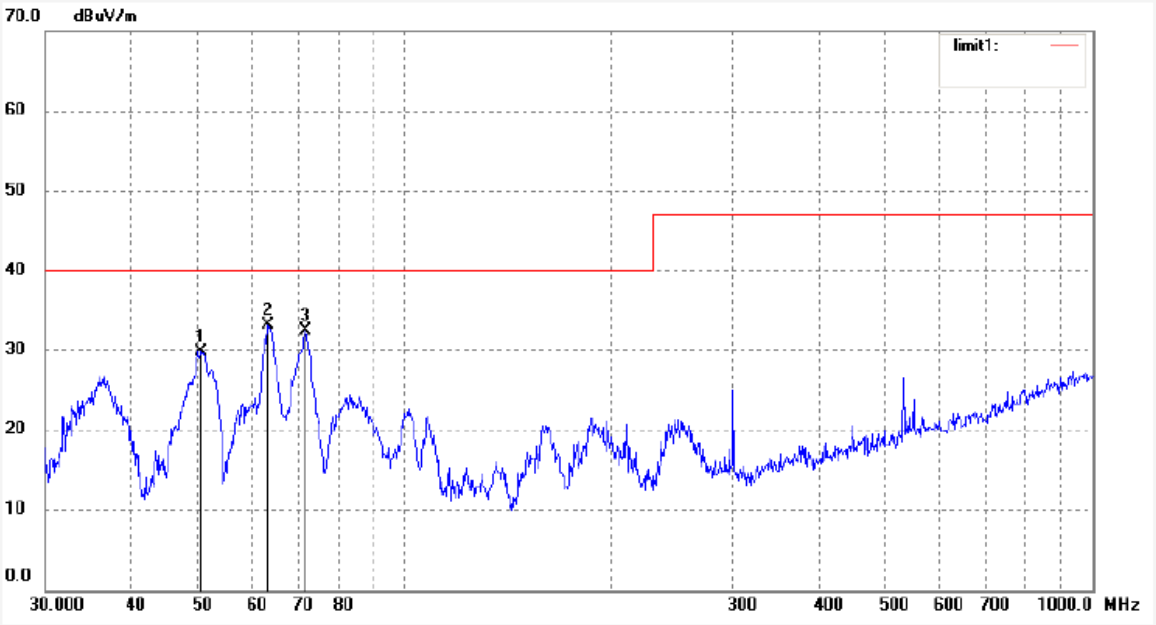
Based on all tested data, the EUT complied with the J 55014-1 standard limit, and with the worst case as below:

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

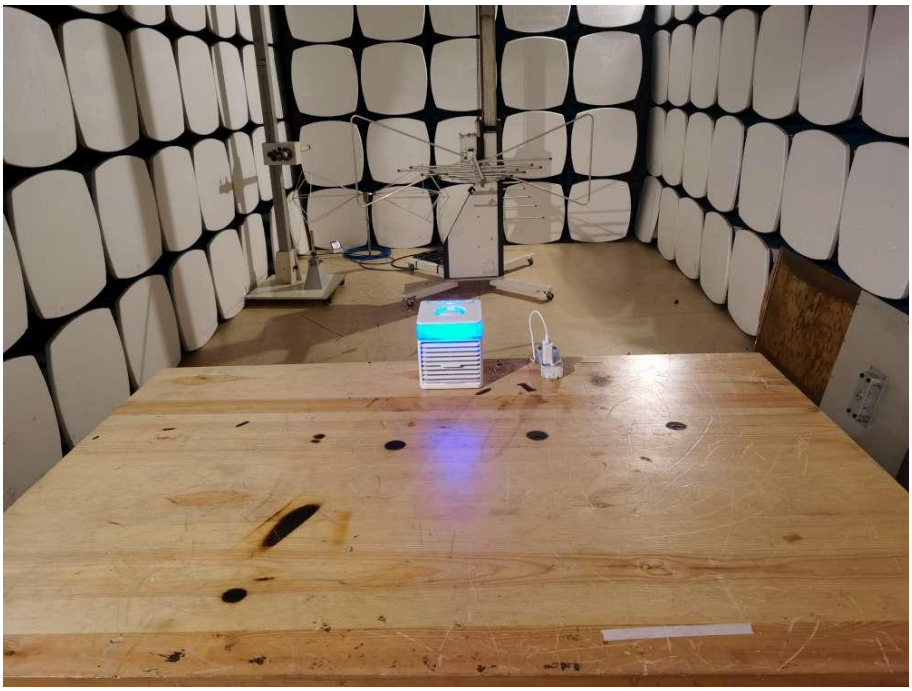
EUT View 4

EUT View 5

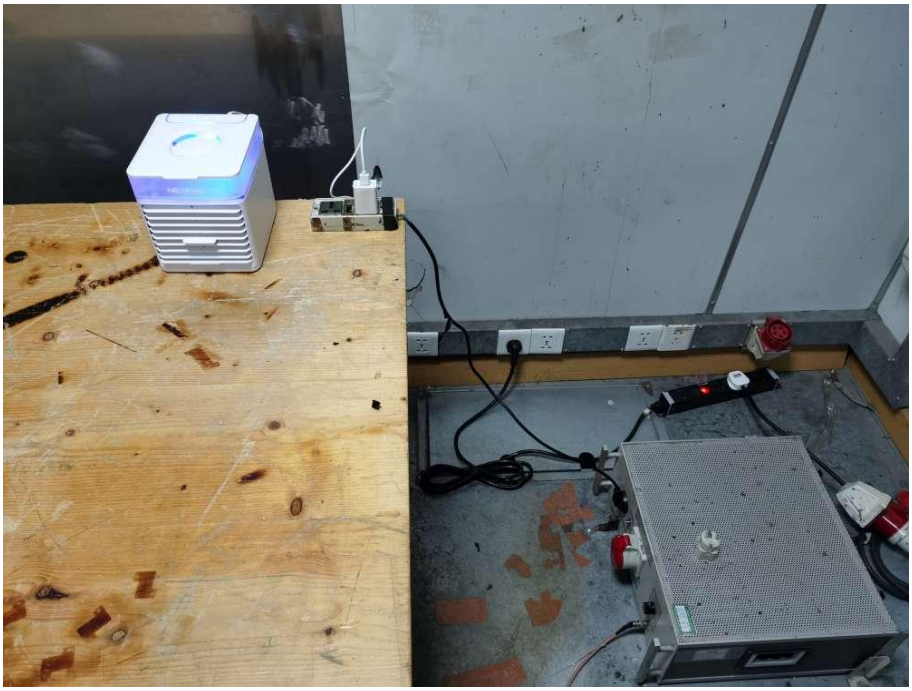
EUT View 6

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 *******

Certification of Compliance

under FCC Supplier's Declaration of Conformity

Certificate No.: ZKS20001551

Holder of Certificate	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, Maantang Community, Bantian Street, Longgang District, Shenzhen, China
Manufacturer	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, Maantang Community, Bantian Street, Longgang District, Shenzhen, China
Description of Product	:	CoolAir
Model No.	:	Nexfan-01
Trade Name	:	--
Description of Object	:	DC 5V/1.5A by adapter
FCC Rules	:	FCC Part 15 Subpart B
Report No.	:	ZKS200400479-1

Based upon the referenced test report(s), sample of the above product have been found to comply with the FCC rules listed on this certificate.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Part 15 Subpart B SDoC

Certification Body

Frank Feng / General Manager

Date: May 6, 2020

Dongguan ZRLK Testing Technology Co., Ltd.
Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China
Tel.: +86-755-33019599 Fax.: +86-755-33019599 Website: www.zrlklab.com

FCC Test Report

FCC Rule(s):	FCC Part 15 Subpart B
Applicant:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Product Name:	CoolAir
Model:	Nexfan-01
Report No.:	ZKS200400479-1
Tested Date:	2020-04-24
Issued Date:	2020-04-29
Tested By :	Lieber Ouyang (Engineer)
Approved By:	Lahm Peng (Manager)
Prepared By:	

Dongguan ZRLK Testing Technology Co., Ltd.

Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China

Tel.: +86-755-33019599 Fax.: +86-755-33019599 Website: www.zrlklab.com

CONTENTS

1. General Information

1.1 Product Information

Applicant and Manufacturer	
Applicant:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Address of Applicant:	Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing
	Road, Maantang Community, Bantian Street, Longgang District,
	Shenzhen, China
Manufacturer:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Address of Manufacturer:	Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing
	Road, Maantang Community, Bantian Street, Longgang District,
	Shenzhen, China

General Description of EUT	
Product Name:	CoolAir
Model No.:	Nexfan-01
Trade Name:	--
Adding Model(s):	--
Class of Equipment:	Class B
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 or Rules	
FCC Part 15 Subpart B	FEDERAL COMMUNICATIONS COMMISSION, RADIO FREQUENCY DEVICES, Unintentional Radiators
The objective of the manufacturer or applicant is to demonstrate compliance with the above standards.	
According to standards for test methodology	
ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.
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
Radiated Disturbance	1Hz ~ 6GHz	±4.93 dB

1.6 List of Test and Measurement Instruments

Description	**Manufacturer**	**Model**	**Serial Number**	**Due. Date**
EMI Test Receiver	Rohde & Schwarz	ESCS30	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
Horn Antenna	Rohde & Schwarz	HF906	100014	2021-04-22

2. Summary of Test Results

FCC Rules	Description of Test Items	Result
FCC Part 15.107	Conducted Emissions	Passed
FCC Part 15.109	Radiated Emissions	Passed
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. Conducted Disturbance

3.1 Standard and Limit

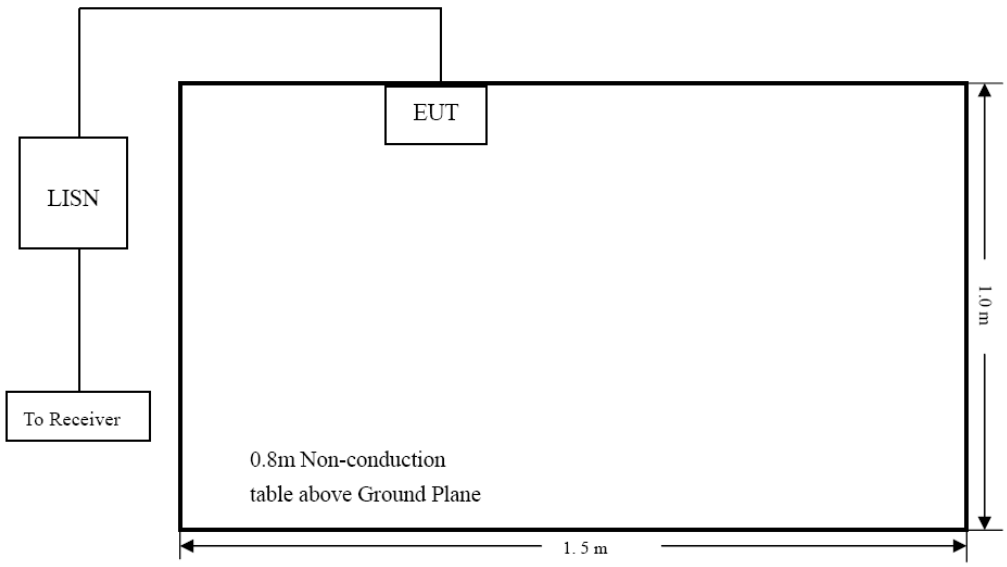
According to the rule FCC Part 15.107, Conducted limit, the limit for a class B device as below:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: Decreases with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz Note 2: The lower limit applies at the band edges		

AC Power Line

3.2 Test Procedure

Test is conducting under the description of ANSI C63.4-2003 American National Standard for Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

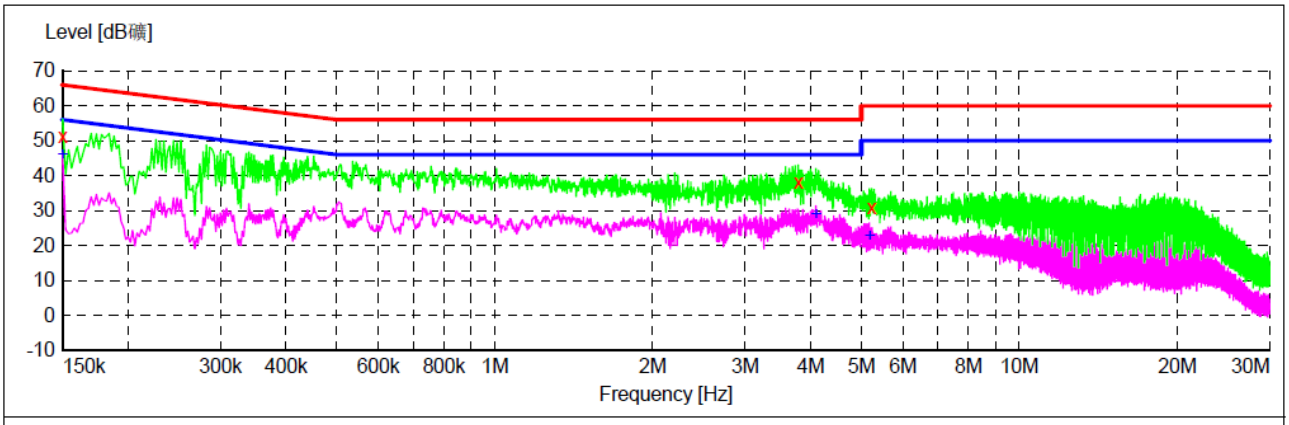


Test Setup Block Diagram

3.3 Test Data and Results

Based on all tested data, the EUT complied with the FCC Part 15.107 standard limit for a Class B device, and with the worst case as below:

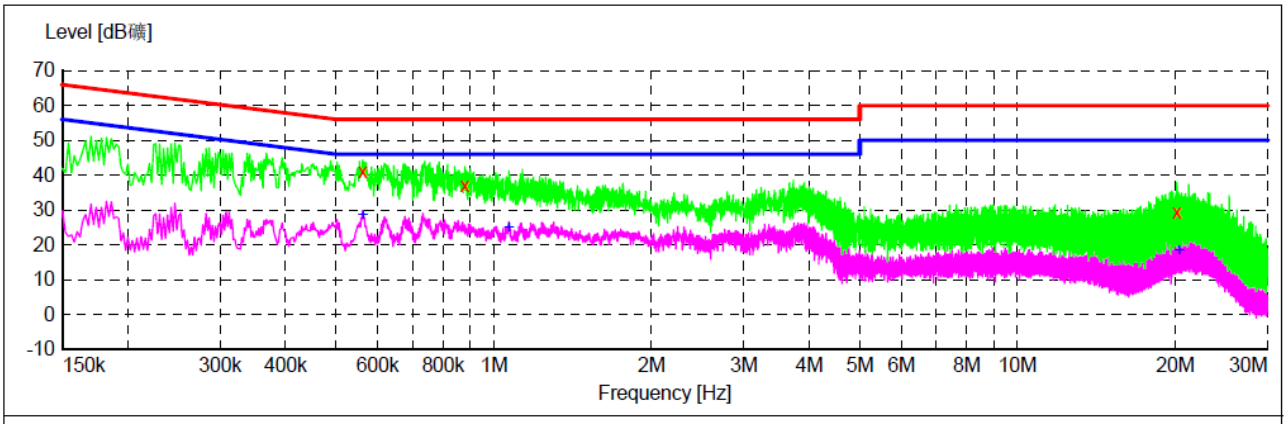
Test Plots and Data of Conducted Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 120V/60Hz
Test Power Line:	Live
Remark:	



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 120V/60Hz
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

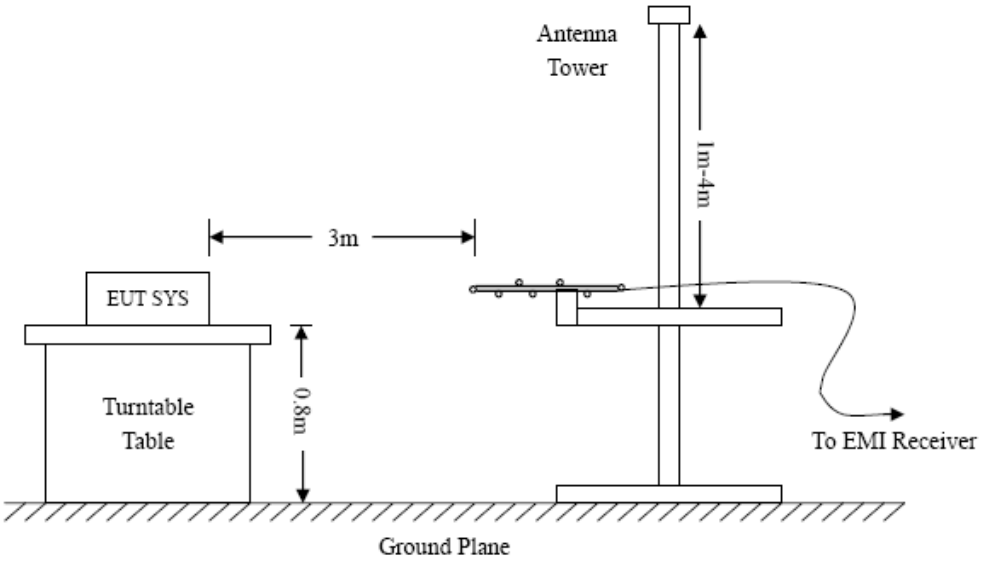
According to the rule FCC Part 15.109, Radiated emission limit, the limit for a class B device as below:

Frequency of Emission (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	
	QP	QP	AV
30-88	100	40	--
88-216	150	43.5	--
216-960	200	46	--
Above 960	500	54	74

Limits at a measurement distance of 3 m

4.2 Test Procedure

Test is conducting under the description of ANSI C63.4-2003 American National Standard for Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

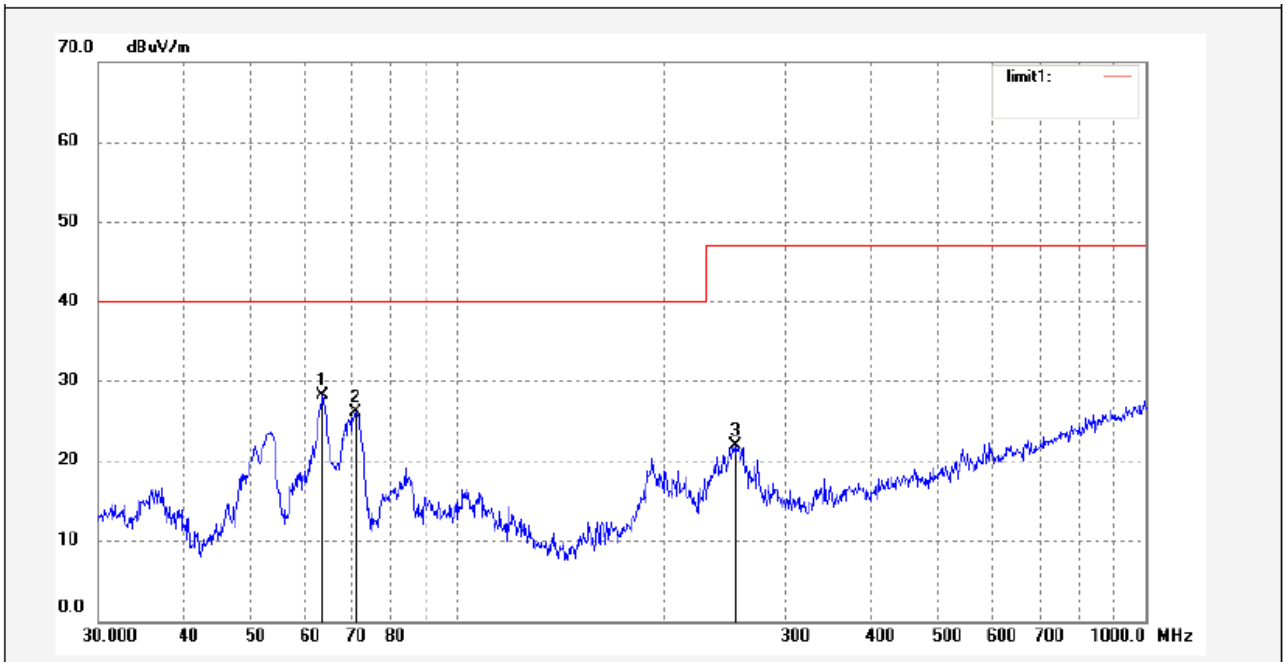


Test Setup Block Diagram

4.3 Test Data and Results

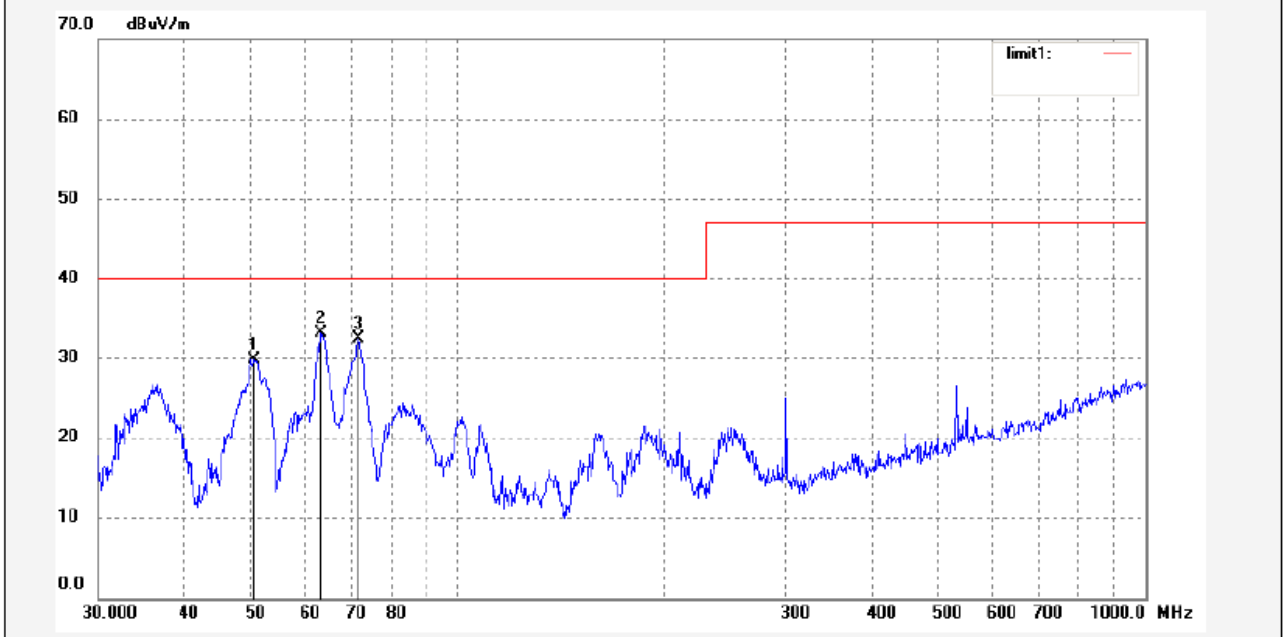
Based on all tested data, the EUT complied with the FCC Part 15.109 standard limit for a Class B device, and with the worst case as below:

Test Plots and Data of Radiated Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 120V/60Hz
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 120V/60Hz
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

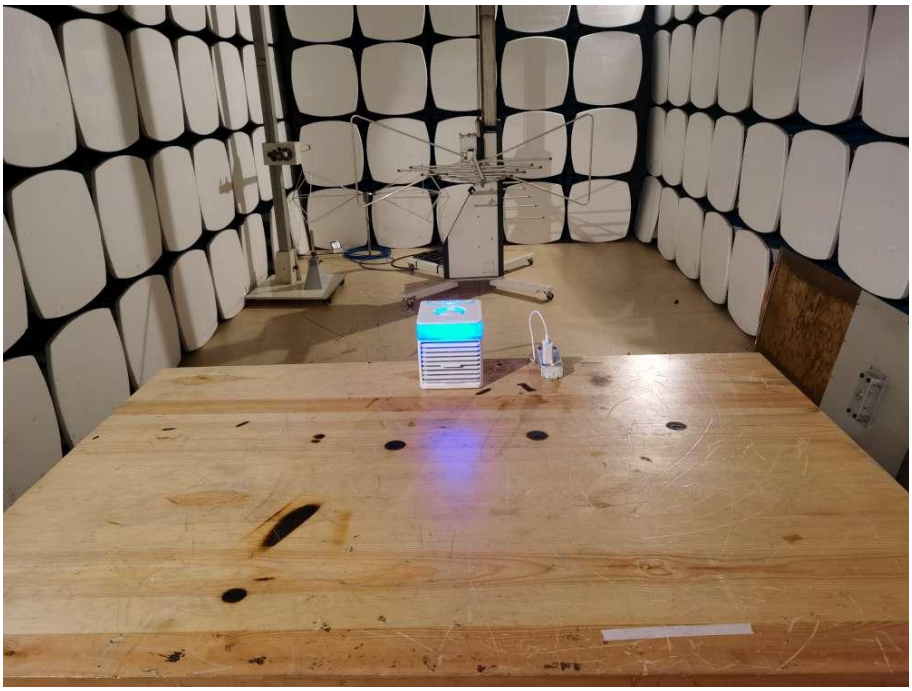
EUT View 4

EUT View 5

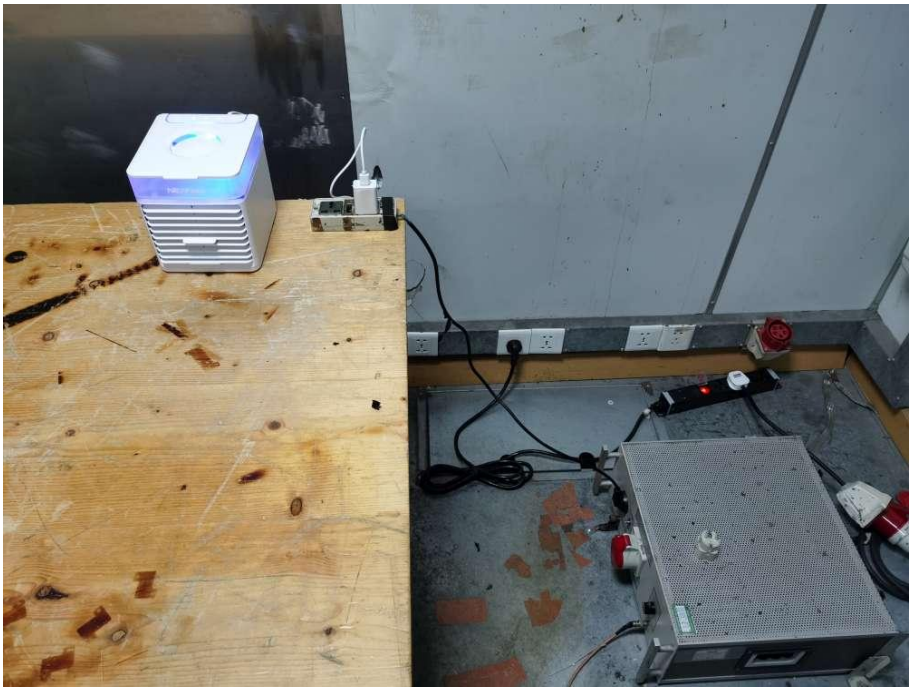
EUT View 6

Annex B. Test Setup Photos

Radiation Emission Test View



Conduction Emission Test View



Annex C. Label and Information

FCC Label Sample

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Label 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. Where the EUT is constructed in two or more sections connected by wires and marketed together, the above statement is required to be affixed only to the main control unit. When the EUT is so small or for such use that it is not practicable to place the statement on it, the above information shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

Information to User

FCC Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

Certificate of Conformity

Certificate No.: ZKS20001550

Holder of Certificate	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, Maantang Community, Bantian Street, Longgang District, Shenzhen, China
Manufacturer	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, Maantang Community, Bantian Street, Longgang District, Shenzhen, China
Description of Product	:	CoolAir
Model No.	:	Nexfan-01
Trade Name	:	--
Description of Object	:	DC 5V/1.5A by adapter
Test Standards	:	EN 55014-1:2017 EN 55014-2:2015 EN 61000-3-2:2014 EN 61000-3-3:2013
Applicable Directives	:	2014/30/EU
Report No.	:	ZKS200400477-1

Based upon the referenced test report(s), sample of the above product have been found to comply with the harmonized standards and directives listed on this certificate. Other standards and directives may be relevant to the product. The manufacturer may indicate compliance by signing a declaration of conformity themselves and applying the mark to product identical to the test sample(s) if the product complies with all relevant CE mark directives requirements.

CE

Certification Body

Frank Feng / General Manager

Date: May 6, 2020

Dongguan ZRLK Testing Technology Co., Ltd.
Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China
Tel.: +86-755-33019599 Fax.: +86-755-33019599 Website: www.zrlklab.com

CE EMC Test Report

Test Standard(s):	EN 55014-1:2017 EN 55014-2:2015 EN 61000-3-2:2014 EN 61000-3-3:2013
Applicant:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Product Name:	CoolAir
Model:	Nexfan-01
Report No.:	ZKS200400477-1
Tested Date:	2020-04-24
Issued Date:	2020-04-29
Tested By :	Lieber Ouyang (Engineer)
Approved By:	Lahm Peng (Manager)
Prepared By:	

Dongguan ZRLK Testing Technology Co., Ltd.

Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China

Tel.: +86-755-33019599 Fax.: +86-755-33019599 Website: www.zrlklab.com

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Dongguan ZRLK Testing Technology Co., Ltd.

CONTENTS

1. General Information

1.1 Product Information

Applicant and Manufacturer	
Applicant:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Address of Applicant:	Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing
	Road, Maantang Community, Bantian Street, Longgang District,
	Shenzhen, China
Manufacturer:	Shenzhen Wonuode Intelligent Technology Co., Ltd
Address of Manufacturer:	Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing
	Road, Maantang Community, Bantian Street, Longgang District,
	Shenzhen, China

General Description of EUT	
Product Name:	CoolAir
Model No.:	Nexfan-01
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
EN 55014-2	Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity – Product family standard
EN 61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤16 A per phase)
EN 61000-3-3	Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection
The objective of the manufacturer or applicant is to demonstrate compliance with the above standards.	
According to standards for test methodology	
IEC 61000-4-2	Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test
IEC 61000-4-3	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test
IEC 61000-4-4	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test
IEC 61000-4-5	Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test
IEC 61000-4-6	Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields
IEC 61000-4-11	Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests
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 Performance Criteria for EMS

All the test data has been collected and analyzed within this report in accordance with Immunity requires the following as specific performance criteria:	
A	The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.
B	The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacture. No change in operating state or loss or data is permitted.
C	Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.

1.7 List of Test and Measurement Instruments

Description	Manufacturer	Model	Serial Number	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESCS30	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
Digital Power Analyzer	California Instrument	5001ix-CTS-400	X71730	2021-04-22
ESD Generator	SCHNAFFNER	NSG 435	2103	2021-04-22
Signal Generator	Rohde & Schwarz	SMT03	100059	2021-04-22
Voltage Probe	Rohde & Schwarz	URV5-Z2	100013	2021-04-22
Power Amplifier	AR	150W1000	300999	2021-04-22
Power Amplifier	AR	25S1G4AM1	305993	2021-04-22
Immunity Simulator	EMTEST	UCS500M4	0800-44	2021-04-22
CS Immunity Tester	EMTEST	CWS500	0900-12	2021-04-22

2. Summary of Test Results

Standards	Description of Test Items	Result
EN 55014-1	Terminal Disturbance Voltages	Passed
	Disturbance Power	N/A
	Radiated Disturbances	Passed
	Discontinuous Disturbance	N/A
EN 61000-3-2	Harmonic Current Emission	Passed
EN 61000-3-3	Voltage Fluctuation and Flicker	Passed
EN 55014-2	Electrostatic Discharge Immunity	Passed
	Radio Frequency Electromagnetic Fields Immunity	N/A
	Fast Transient Immunity	Passed
	Surges Immunity	Passed
	Injected Currents Immunity	Passed
	Voltage Dips/Interruptions Immunity	Passed
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

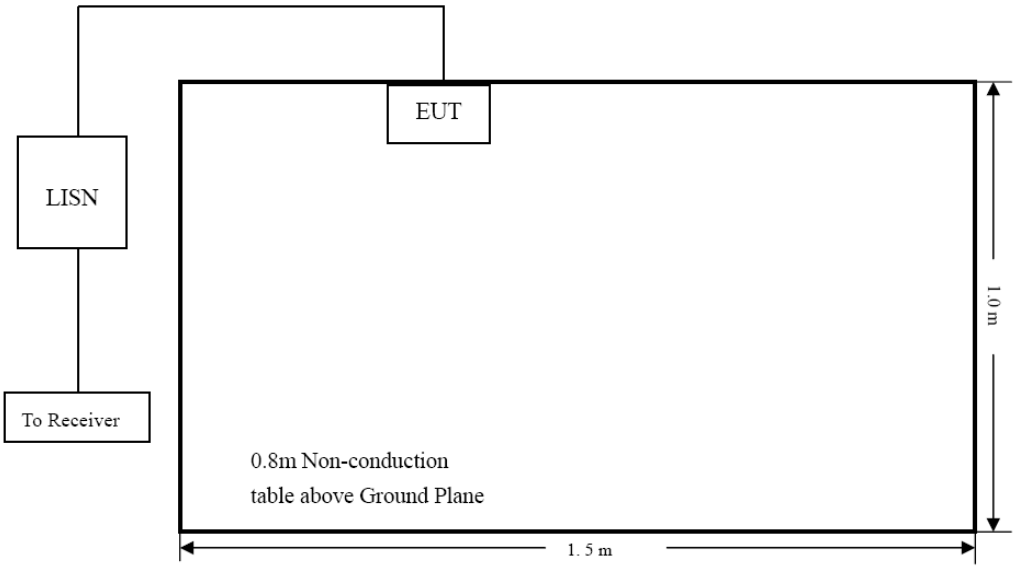
According to the standard EN 55014-1, clause 4.3.3.6 - Limits for conducted disturbance at mains terminals, the limit of conducted disturbance as below:

Frequency range	$P \leq 700$ W		700 W < $P \leq 1\,000$ W		$P > 1\,000$ W	
1	2	3	4	5	6	7
MHz	Quasi-peak dBμV	Average dBμV	Quasi-peak dBμV	Average dBμV	Quasi-peak dBμV	Average dBμV
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
The lower limit applies at the transition frequencies. Key P = rated power of the motor only.						

Main Terminals

3.2 Test Procedure

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

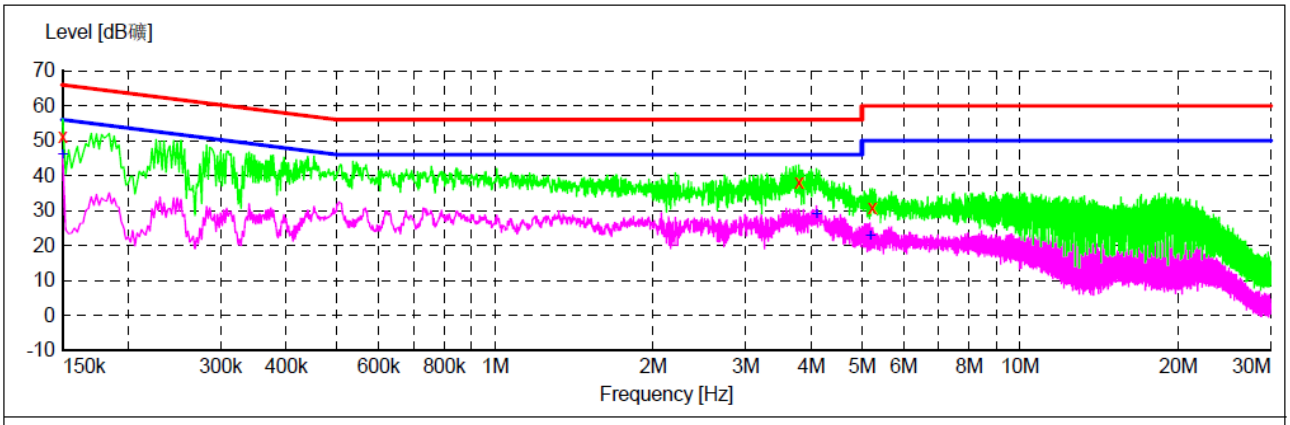


Test Setup Block Diagram

3.3 Test Data and Results

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

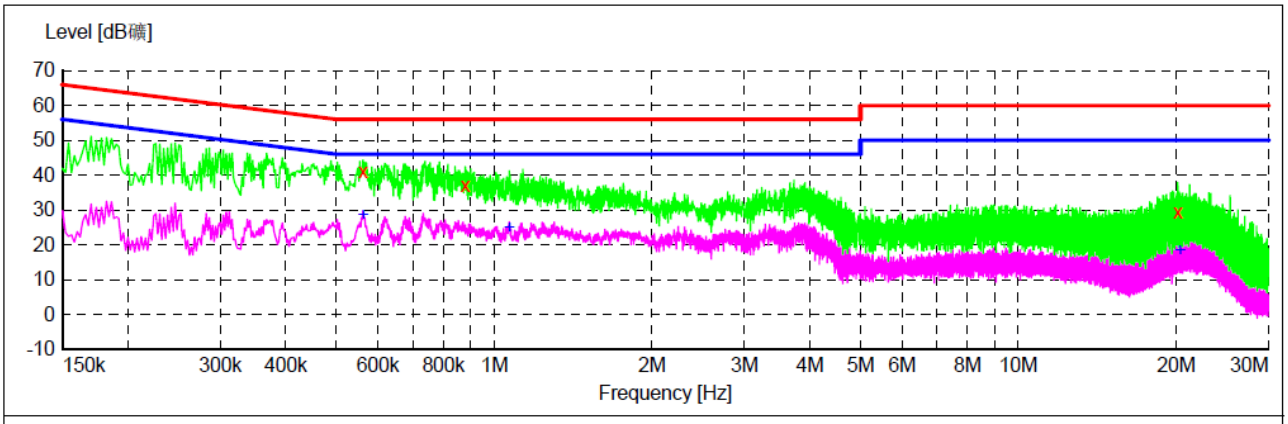
Test Plots and Data of Conducted Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 230V/50Hz
Test Power Line:	Live
Remark:	



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 EN 55014-1, clause 4.3.4.5 - Limits for radiated disturbance, the limit of radiated disturbance as below:

Testing method	Basic standard	Frequency range MHz	Limit [a] Quasi-peak dBμV/m	Remarks
OATS or SAC [b]	CISPR 16-2-3	30 to 230 230 to 1 000	30 37	Measurement distance 10 m
FAR [c]	CISPR 16-2-3	30 to 230 230 to 1 000	42 to 35 [d] 42	Measurement distance 3 m
FAR [c]	IEC 61000-4-22	30 to 230 230 to 1 000	42 to 35 [d] 42	Measurement distance 3 m
TEM-Waveguide [e]	IEC 61000-4-20	30 – 230 230 – 1 000	30 37	–

a The lower limit is applies at the transition frequency.

b 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 the limit. in this case the recommendations of the CISPR basic standards shall be considered when testing large EUT at frequency approaching 30 MHz, due to near field effects.

c All equipment shall be measured within the test volume as described in 5.3.4.3 and shown in Figures 12 to 19.

d Decreasing linearly with the logarithm of the frequency.

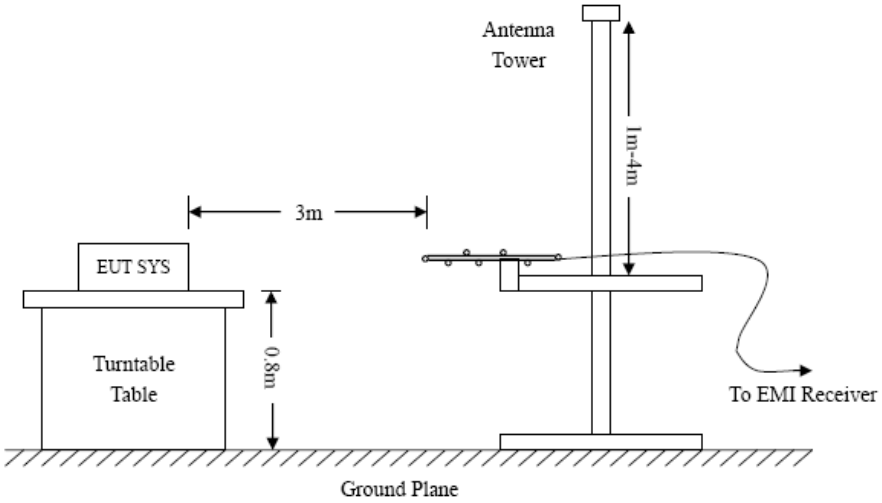
e The TEM waveguide method shall be limited to battery operated EUT without cables attached and with a maximum size according to 6.2 of IEC 61000-4-20:2010 (the largest dimension of the enclosure is equal to the wavelength at the maximum measurement frequency, 300 mm at 1 GHz).

The test report shall state which test method was used and which limits were applied.

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 EN55014-1 clause 5 - Methods of measurement of radiated emission.

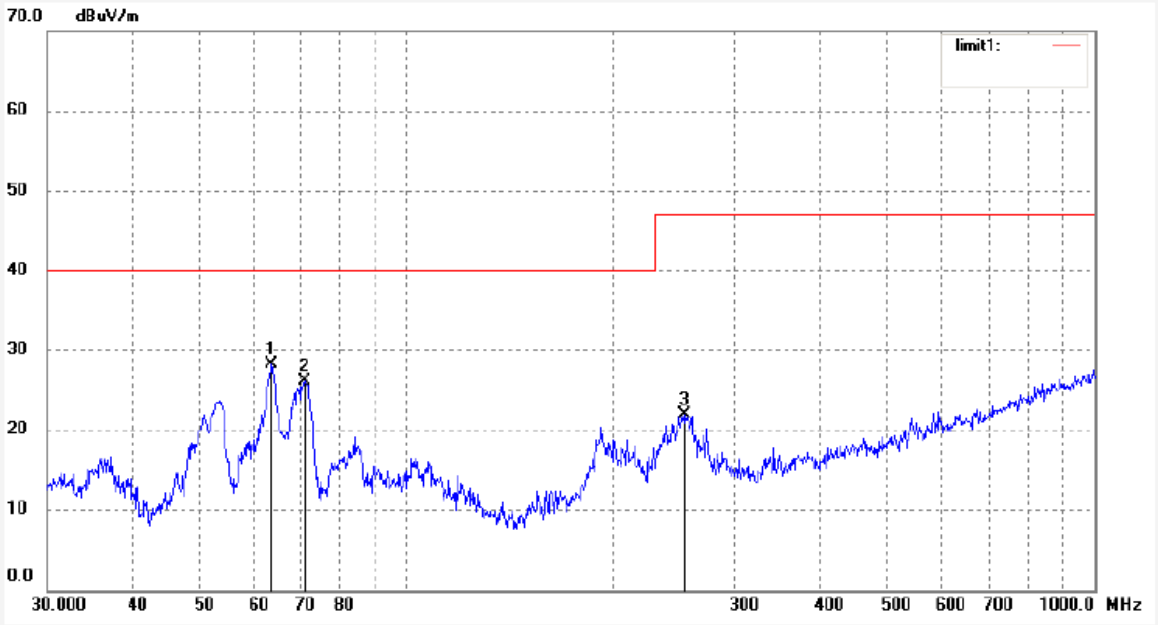


Test Setup Block Diagram

4.3 Test Data and Results

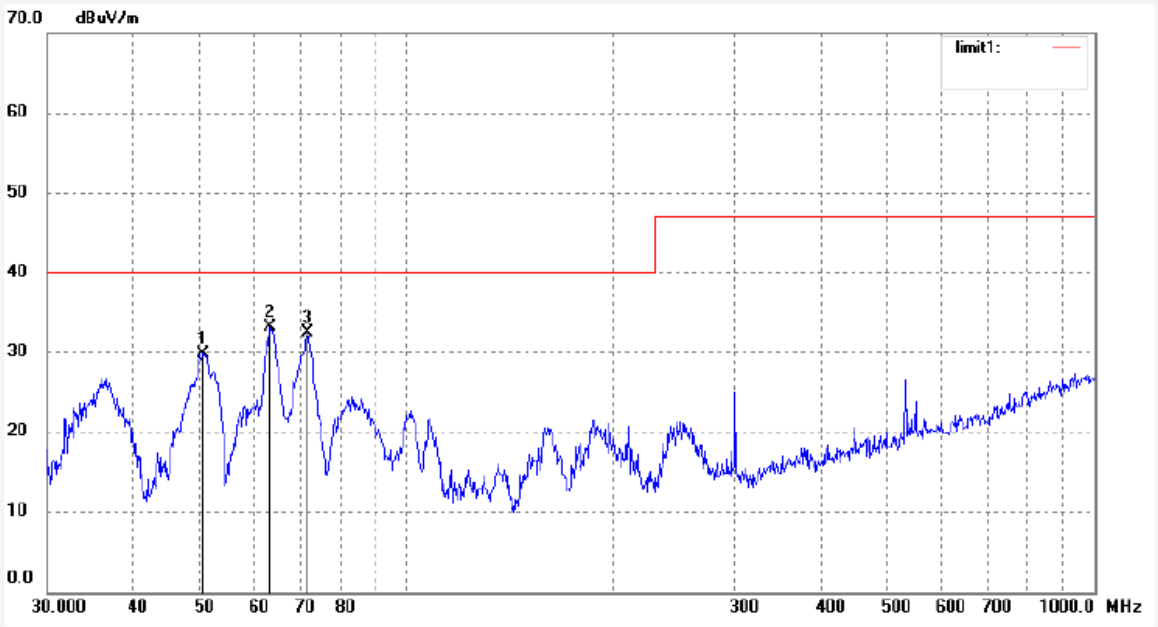
Based on all tested data, the EUT complied with the EN 55014-1 standard limit, and with the worst case as below:

Test Plots and Data of Radiated Emissions	
Tested Model:	Nexfan-01
Tested Mode:	TM1
Test Power Specification:	AC 230V/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 230V/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			

5. Harmonic Current Emissions

5.1 Standard and Limit

According to the standard EN 61000-3-2 Clause 7.1, limits for class A equipment.

5.2 Test Procedure

Test is conducting under the description of EN 61000-3-2.

5.3 Test Data and Results

According to Clause 7 of EN61000-3-2, the rated power of the EUT is less than 75W, belong to ‘equipment with a rated power of 75W or less’, therefore ‘limits are not specified in this edition of the standards’. It is deem to full fit the requirements of the standards.

Result: The EUT is compliance with the requirements of this section.

6. Voltage Fluctuation and Flicker

6.1 Standard and Limit

According to the standard EN 61000-3-3 Clause 5.

6.2 Test Procedure

Test is conducting under the description of EN 61000-3-3.

6.3 Test Data and Results

According to clause 6.1 of EN 61000-3-3, “Tests need not be made on equipment which is unlikely to produce significant voltage fluctuations or flicker.”

The maximum rated input power of the EUTs is about 75W only, which unlikely to produce significant voltage fluctuation. Therefore no test was applied.

Result: The EUT is compliance with the requirements of this section.

7. Electrostatic Discharges (ESD)

7.1 Standard and Limit

According to the standard EN 55014-2 Clause 5.1, Limit as below:

Test Specifications	Test Levels	Performance Criterion
Air Discharge	8kV	B
Contact Discharge	4kV	B

7.2 Test Procedure

Test is conducting under the description of IEC 61000-4-2.

7.3 Test Results

Air Discharge	**Test Levels (kV)**							
Test Points	-2	+2	-4	+4	-8	+8	-15	+15
Surface	A	A	A	A	A	A	--	--
Slots	A	A	A	A	A	A	--	--
LED	A	A	A	A	A	A	--	--
Buttons	A	A	A	A	A	A		

Contact Discharge	**Test Levels (kV)**							
Test Points	-2	+2	-4	+4	-6	+6	-8	+8
Metal Parts	A	A	A	A	--	--	--	--

8. Radio Frequency Electromagnetic Fields (R/S)

8.1 Standard and Limit

According to the standard EN 55014-2 Clause 5.5, Limit as below:

Test Specifications	Test Levels	Performance Criterion
80MHz-1000MHz	3V/m	A

8.2 Test Procedure

Test is conducting under the description of IEC 61000-4-3.

8.3 Test Results

Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth

Frequency Range	EM Field	Polarization	Front	Rear	Left	Right
80MHz-1GHz	3V/m	Horizontal	A	A	A	A
80MHz-1GHz	3V/m	Vertical	A	A	A	A

9. Fast Transients (EFT)

9.1 Standard and Limit

According to the standard EN 55014-2 Clause 5.2, Limit as below:

Test Specifications	Test Levels (5/50ns)	Performance Criterion
AC Power Ports	1kV	B
DC Power Ports	0.5kV	B
Signal Ports	0.5kV	B

9.2 Test Procedure

Test is conducting under the description of IEC 61000-4-4.

9.3 Test Results

EFT Test Ports		**Test Levels (kV)**					
		+0.5	**-0.5**	**+1.0**	**-1.0**	**+2.0**	**-2.0**
Power Port (AC Power Supply)	L (Live)	A	A	A	A	--	--
	N (Neutral)	A	A	A	A	--	--
	G (Ground)	--	--	--	--	--	--
	L + N	A	A	A	A	--	--
	L + G	--	--	--	--	--	--
	N + G	--	--	--	--	--	--
	L + N + G	--	--	--	--	--	--
Power Port (DC Power Supply)	P (Positive)	--	--	--	--	--	--
	N (Negative)	--	--	--	--	--	--
	P + N	--	--	--	--	--	--
Signal Ports	--	--	--	--	--	--	--
	--	--	--	--	--	--	--

10. Surges

10.1 Standard and Limit

According to the standard EN 55014-2 Clause 5.6, Limit as below:

Test Specifications	Test Levels (1.2/50us)	Performance Criterion
Line to Line	2kV	B
Line to Ground	1kV	B

10.2 Test Procedure

Test is conducting under the description of IEC 61000-4-5.

10.3 Test Results

Surges Test Ports		**Test Levels (kV)**					
		+0.5	**-0.5**	**+1.0**	**-1.0**	**+2.0**	**-2.0**
AC Power Port	L – N	A	A	A	A	--	--
	L – G	--	--	--	--	--	--
	N – G	--	--	--	--	--	--

11. Injected Currents (C/S)

11.1 Standard and Limit

According to the standard EN 55014-2 Clause 5.3, Limit as below:

Test Specifications	Test Levels	Performance Criterion
0.15MHz-230MHz	3V	A

11.2 Test Procedure

Test is conducting under the description of IEC 61000-4-6.

11.3 Test Results

Sweep frequency range: 150 kHz ~ 230 MHz
Frequency step: 1% of fundamental
Dwell time: 1 second

C/S Test Ports	Test Levels	Modulation	Result
AC Power Port	3V	AM 80%, 1kHz sinewave	A

12. Voltage Dips and Interruptions

12.1 Standard and Limit

According to the standard EN 55014-2 Clause 5.7, Limit as below:

Test Specifications	Test Periods	Performance Criterion
100% reduction	0.5 periods	B
60% reduction	10 periods	C
30% reduction	25 periods	C

12.2 Test Procedure

Test is conducting under the description of IEC 61000-4-11.

12.3 Test Results

U: Voltage dips in % U_T (U_T is rated voltage for the EUT)
T: Test duration

Dips Test Levels	**U**	**T**	**Phase Angle**	**Result**
1	100%	10ms	0/90/180/270	A
2	60%	200ms	0/90/180/270	B
3	30%	500ms	0/90/180/270	B

Annex A. EUT Photos

EUT View 1

EUT View 2

EUT View 3

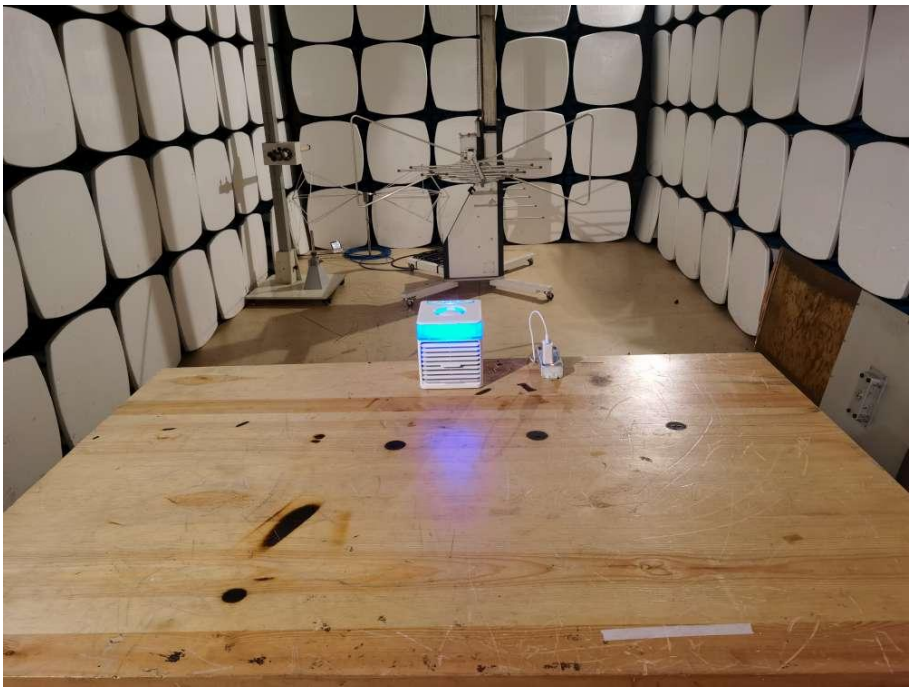
EUT View 4

EUT View 5

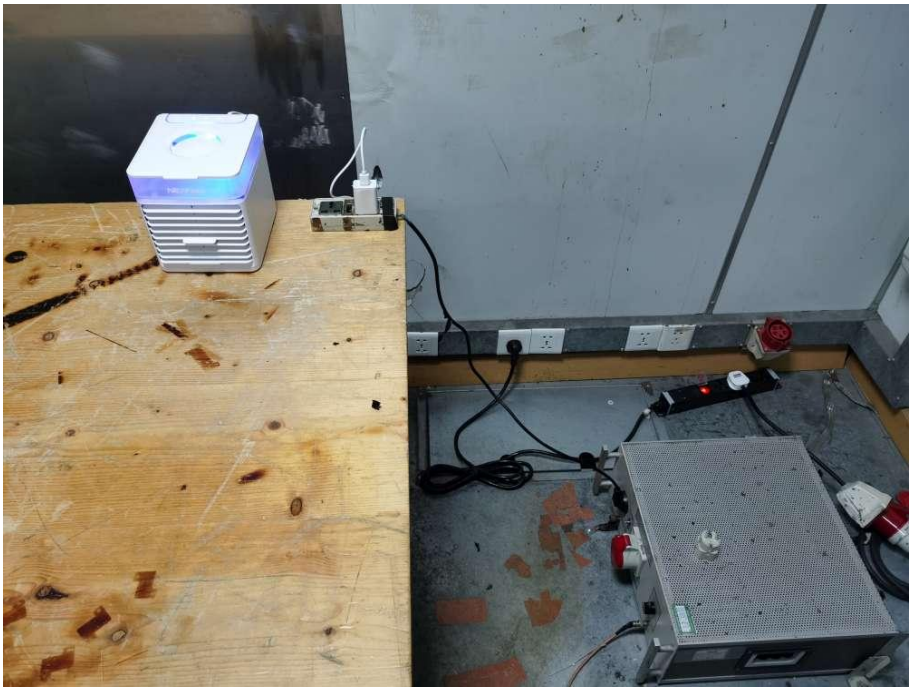
EUT View 6

Annex B. Test Setup Photos

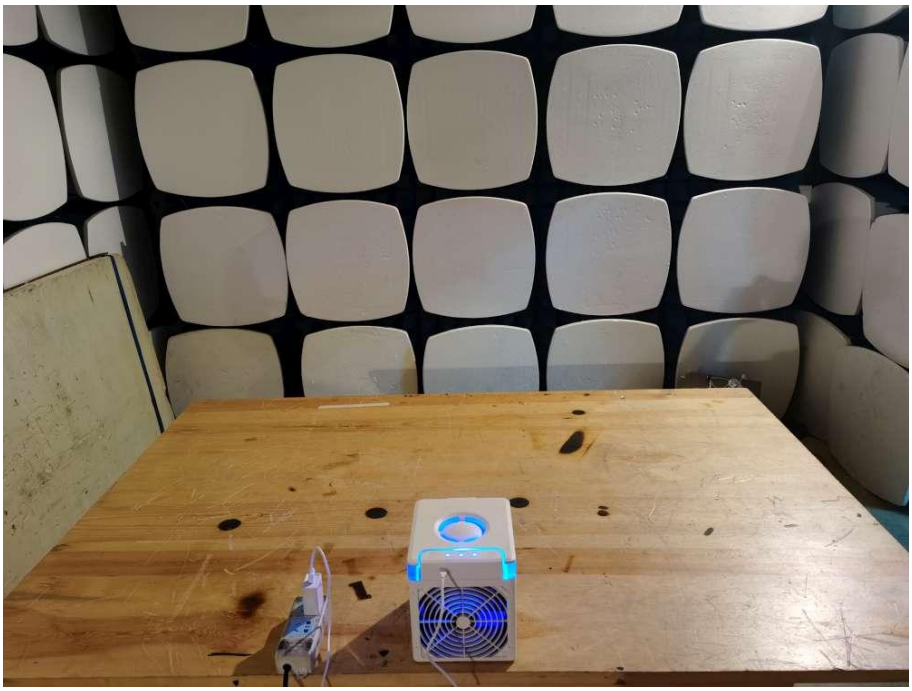
Radiation Emission Test View



Conduction Emission Test View



R/S Test View



Annex C. Label and Information

CE Mark Sample

CE 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 ‘CE’ 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 ‘CE’ marking must have a height of at least 5 mm. If the ‘CE’ marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.

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

CERTIFICATE OF CONFORMITY

Certificate No.:ZKS20001584

The following product has been tested by Dongguan ZRLK Testing Technology Co., Ltd. as specified complied with the requirements of ROHS Directive 2011/65/EU(ROHS 2.0) & Commission Delegated Directive (EU) 2015/863. It is possible to use CE marking to demonstrate the conformity with the ROHS Directive.

Holder of Certificate	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, MAANTANG Community,Bantian Street,Longgang District,Shenzhen,China
Manufacturer	:	Shenzhen Wonuode Intelligent Technology Co., Ltd Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, MAANTANG Community,Bantian Street,Longgang District,Shenzhen,China
Description of Product	:	CoolAir
Model No.	:	Nexfan-01
Test Standards	:	Screening by XRF Spectroscopy and Chemical Confirmation Test for RoHS Directive 2011/65/EU(ROHS 2.0)&(EU)2015/863
Report No.	:	ZKS200400478-1

The Declaration is issued after testing of the named product(s) and audit of the technical documentation and confirms that the tested product complies with the essential protection requirements of the mentioned directives on a voluntary basis; The statement is based on a single evaluation of one sample of above-mentioned products.

CE

Certification Body

Frank Feng / General Manager

Date: May 09, 2020

Dongguan ZRLK Testing Technology Co., Ltd
Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake
High-tech Industrial Development Zone, Dongguan, Guangdong, China
Tel.: +86-0769-26621775 Fax.: +86-0769-26621775 Website: www.zrlklab.com

TEST REPORT

Report No. : ZKS200400478-1 Date: May 09, 2020 Page 1 of 19

Applicant :Shenzhen Wonuode Intelligent Technology Co., Ltd

Address :Room 301, Building B, Shunxing Industrial Zone, No.10 Zhongxing Road, MAANTANG Community, Bantian Street, Longgang District, Shenzhen, China

Report on the submitted sample said to be:

Sample Name : CoolAir

Model No. : Nexfan-01

Sample Received Date : Apr.25, 2020

Test Period : Apr.25, 2020 to May 07, 2020

Test Site : Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China

Test Requested		**Result**
1	As specified by the client, to determine Pb, Cd, Hg, Cr(VI), PBBs & PBDEs, DIBP, BBP, DBP, DEHP content in the submitted sample in accordance with EU Directive 2011/65/EU (ROHS 2.0)&(EU)2015/863	Pass

******FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)******

Tested by: Barry Peng **Reviewed by:** Ailis Ma

Approved by: Ailis Ma **Date :** 2020.05.09

Lab manager

TEST REPORT

Test Result:

1.1 EU Directive 2011/65/EU (RoHS, Previously 2002/95/EC) - XRF

Method: With reference to IEC 62321-3-1:2013
Analysis was performed by X-ray Fluorescence Spectrometry (XRF)

No.	Specimen Description	Result(s)				
		Br	Pb	Hg	Cd	Cr
1	White plastic shell	BL	BL	BL	BL	BL
2	Transparent plastic	BL	BL	BL	BL	BL
3	Black plastic	BL	BL	BL	BL	BL
4	Purple foam	BL	BL	BL	BL	BL
5	Black plastic	BL	BL	BL	BL	BL
6	Golden metal	NC	BL	BL	BL	BL
7	Red electronic wire	BL	BL	BL	BL	BL
8	Black electronic wire	BL	BL	BL	BL	BL
9	Silvery metal	NC	BL	BL	BL	BL
10	White plastic	BL	BL	BL	BL	BL
11	Silvery metal screw	NC	BL	BL	BL	IN
12	White rubber	BL	BL	BL	BL	BL
13	Silvery metal	NC	BL	BL	BL	BL
14	Red electronic wire	BL	BL	BL	BL	BL
15	Black electronic wire	BL	BL	BL	BL	BL
16	Silvery metal	NC	BL	BL	BL	BL
17	White plastic	BL	BL	BL	BL	BL
18	PCB	BL	BL	BL	BL	BL
19	Silvery metal	NC	BL	BL	BL	BL
20	Chip triode	BL	BL	BL	BL	BL
21	LED Light	BL	BL	BL	BL	BL
22	Chip resistor	BL	BL	BL	BL	BL
23	Chip capacitor	BL	BL	BL	BL	BL
24	White plastic	BL	BL	BL	BL	BL
25	luminous diode	BL	BL	BL	BL	BL
26	Inductor	BL	BL	BL	BL	BL
27	Electrolytic capacitor	BL	BL	BL	BL	BL
28	Silvery metal	NC	BL	BL	BL	BL

TEST REPORT

No.	Specimen Description	Result(s)				
		Br	Pb	Hg	Cd	Cr
29	Black plastic	BL	BL	BL	BL	BL
30	Silvery metal pin	NC	BL	BL	BL	BL
31	Chip IC	BL	BL	BL	BL	BL
32	Chip diode	BL	BL	BL	BL	BL
33	Black metal	NC	BL	BL	BL	BL
34	Golden metal	NC	BL	BL	BL	BL
35	White plastic shell	BL	BL	BL	BL	BL
36	Silvery metal	NC	BL	BL	BL	BL
37	PCB	OL	BL	BL	BL	BL
38	Chip IC	BL	BL	BL	BL	BL
39	Chip resistor	BL	BL	BL	BL	BL
40	Chip diode	BL	BL	BL	BL	BL
41	Electrolytic capacitor	BL	BL	BL	BL	BL
42	Capacitor	BL	BL	BL	BL	BL
43	Diode	BL	BL	BL	BL	BL
44	Resistor	BL	BL	BL	BL	BL
45	Silvery metal	NC	BL	BL	BL	BL
46	Silvery metal	NC	BL	BL	BL	BL
47	Blue plastic	BL	BL	BL	BL	BL
48	Silvery metal pin	NC	BL	BL	BL	BL
49	Diode	BL	BL	BL	BL	BL
50	Pink plastic	BL	BL	BL	BL	BL
51	Yellow plastic	BL	BL	BL	BL	BL
52	Black plastic	BL	BL	BL	BL	BL
53	Golden metal	NC	BL	BL	BL	IN
54	Electrolytic capacitor	BL	BL	BL	BL	BL
55	Electrolytic capacitor	BL	BL	BL	BL	BL
56	Silvery metal	NC	BL	BL	BL	BL
57	White plastic	BL	BL	BL	BL	BL
58	Silvery metal pin	NC	BL	BL	BL	IN
59	Silvery metal	NC	BL	BL	BL	IN
60	Black plastic	BL	BL	BL	BL	BL
61	Silvery metal pin	NC	BL	BL	BL	BL

TEST REPORT

No.	Specimen Description	Result(s)				
		Br	Pb	Hg	Cd	Cr
62	White plastic	BL	BL	BL	BL	BL
63	Red electronic wire	BL	BL	BL	BL	BL
64	Black electronic wire	BL	BL	BL	BL	BL
65	Copper wire	NC	BL	BL	BL	BL

Note:
- BL = Below Limit by XRF analysis
- OL = Over Limit by XRF analysis
- IN = Inconclusive (questionable, need further chemical analysis)

  NC = Not Conducted
- 1% = 10000 mg/kg = 10000 ppm

Element	Unit	Polymer	Metal	Composite Material
Cd	mg/kg	BL ≤ (70-3σ) < X < (130+3σ) ≤ OL	BL ≤ (70-3σ) < X < (130+3σ) ≤ OL	LOD < X < (150+3σ) ≤ OL
Pb	mg/kg	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < X < (1500+3σ) ≤ OL
Hg	mg/kg	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < X < (1500+3σ) ≤ OL
Br	mg/kg	BL ≤ (300-3σ) < X	--	BL ≤ (250-3σ) < X
Cr	mg/kg	BL ≤ (700-3σ) < X	BL ≤ (700-3σ) < X	BL ≤ (500-3σ) < X

TEST REPORT

Remark: (1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for CrVI) and GC/MS (for PBBs/PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321: 2013.

BL = Below Limit by XRF analysis

OL = Over Limit by XRF analysis

X = Inconclusive

LOD = Limit of Detection

(2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(3) The maximum permissible limit is quoted from the EU Directive 2011/65/EU Annex II

RoHS Restricted Substances	Maximum Concentration Value (by weight in homogenous materials)
Lead (Pb)	0.1%
Cadmium (Cd)	0.01%
Mercury (Hg)	0.1%
Hexavalent Chromium (Cr VI)	0.1%
Polybrominated biphenyls (PBBs)	0.1%
Polybrominated Diphenylethers (PBDEs)	0.1%

TEST REPORT

1.2 EU Directive 2011/65/EU (RoHS 2.0) - Wet Chemical Hexavalent Chromium Content

Method: With reference to IEC 62321-7-1:2015
Analysis was performed by Ultraviolet Visible Spectrophotometer (UV-Vis)

Test Item(s)	No.11	No.53	No.58	MDL	Permissible Limit
Hexavalent Chromium (CrVI) by boiling water extraction	Negative	Negative	Negative	See Note	#

Test Item(s)	No.59	/	/	MDL	Permissible Limit
Hexavalent Chromium (CrVI) by boiling water extraction	Negative	/	/	See Note	#

Specimen Description:

No.11 Silvery metal screw

No.53 Golden metal

No.58 Silvery metal pin

No.59 Silvery metal

TEST REPORT

Note:
- mg/kg = milligram per kilogram
- 1% = 10000 mg/kg = 10000 ppm
- Negative = Absence of Cr(VI) coating
- Positive = Presence of Cr(VI) coating
  (The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 specimen surface area)
- Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing
- # Positive indicates the presence of Cr(VI) on the tested areas and result be regarded as conflict with RoHS requirement
  Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as no conflict with RoHS requirement
- The maximum permissible limit is quoted from the EU Directive 2011/65/EU Annex II

TEST REPORT

1.3 EU Directive 2011/65/EU (RoHS 2.0) - Wet Chemical PBBs & PBDEs Content

Method: With reference to IEC 62321-6:2015
Analysis was performed by Gas Chromatography Mass Spectrometer (GC-MS)

Test Item(s)	No.37 (%)	/	/	MDL (%)	Permissible Limit (%)
Sum of PBBs	**ND**	/	/	--	0.1
Monobromobiphenyl	ND	/	/	0.0005	--
Dibromobiphenyl	ND	/	/	0.0005	--
Tribromobiphenyl	ND	/	/	0.0005	--
Tetrabromobiphenyl	ND	/	/	0.0005	--
Pentabromobiphenyl	ND	/	/	0.0005	--
Hexabromobiphenyl	ND	/	/	0.0005	--
Heptabromobiphenyl	ND	/	/	0.0005	--
Octabromobiphenyl	ND	/	/	0.0005	--
Nonabromobiphenyl	ND	/	/	0.0005	--
Decabromobiphenyl	ND	/	/	0.0005	--
Sum of PBDEs	**ND**	/	/	--	0.1
Monobromodiphenyl ether	ND	/	/	0.0005	--
Dibromodiphenyl ether	ND	/	/	0.0005	--
Tribromodiphenyl ether	ND	/	/	0.0005	--
Tetrabromodiphenyl ether	ND	/	/	0.0005	--
Pentabromodiphenyl ether	ND	/	/	0.0005	--
Hexabromodiphenyl ether	ND	/	/	0.0005	--
Heptabromodiphenyl ether	ND	/	/	0.0005	--
Octabromodiphenyl ether	ND	/	/	0.0005	--
Nonabromodiphenyl ether	ND	/	/	0.0005	--
Decabromodiphenyl ether	ND	/	/	0.0005	--

TEST REPORT

Specimen Description:

No.37 PCB

Note:
- % = percentage by weight
- MDL = Method Detection Limit
- ND = Not Detected (lower than MDL)
- 1% = 10000 mg/kg = 10000 ppm
- The maximum permissible limit is quoted from the EU Directive 2011/65/EU Annex II

TEST REPORT

1.4 Phthalates Content

Method: With reference to IEC 62321-8-2017
Analysis was performed by Gas Chromatography Mass Spectrometer (GC-MS)

Test Item(s)	No.1	No.2	No.3	No.4	No.5	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Test Item(s)	No.7	No.8	No.10	No.12	No.14	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Test Item(s)	No.15	No.17	No.18	No.20	No.21	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Test Item(s)	No.22	No.23	No.24	No.25	No.26	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

TEST REPORT

Test Item(s)	No.27	No.29	No.31	No.32	No.35	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Test Item(s)	No.37	No.38	No.39	No.40	No.41	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Test Item(s)	No.42	No.43	No.44	No.47	No.49	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Test Item(s)	No.50	No.51	No.52	No.54	No.55	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Test Item(s)	No.57	No.60	No.62	No.63	No.64	MDL	Clent's Limit
Di-iso-butyl ortho-phthalate(DIBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Dibutyl Phthalate (DBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Benzylbutyl Phthalate (BBP)	ND	ND	ND	ND	ND	0.01%	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	ND	ND	ND	ND	0.01%	0.1%

Note:
- % = percentage by weight
- ND = lower than MDL
- MDL = Method Detection Limit
- 1% = 10000 mg/kg = 10000 ppm

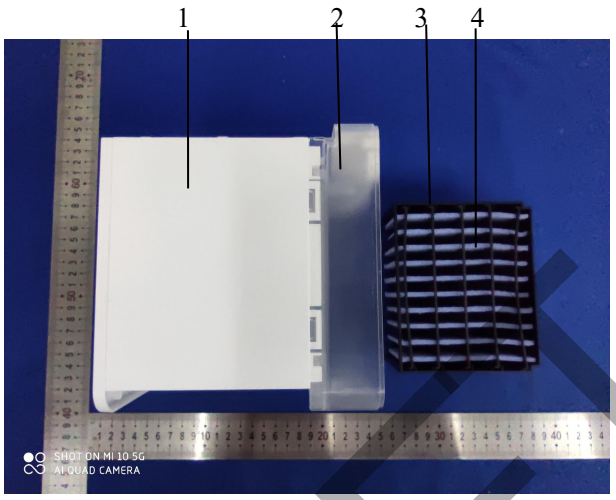
Specimen Description:

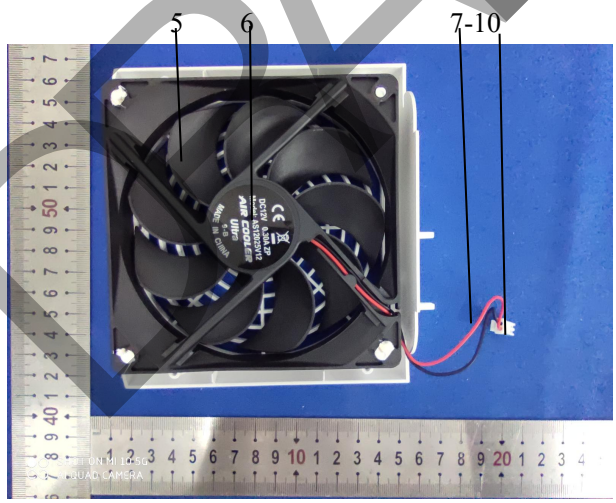
1	White plastic shell
2	Transparent plastic
3	Black plastic
4	Purple foam
5	Black plastic
7	Red electronic wire
8	Black electronic wire
10	White plastic
12	White rubber
14	Red electronic wire
15	Black electronic wire
17	White plastic
18	PCB
20	Chip triode
21	LED Light
22	Chip resistor
23	Chip capacitor
24	White plastic
25	luminous diode
26	Inductor
27	Electrolytic capacitor
29	Black plastic

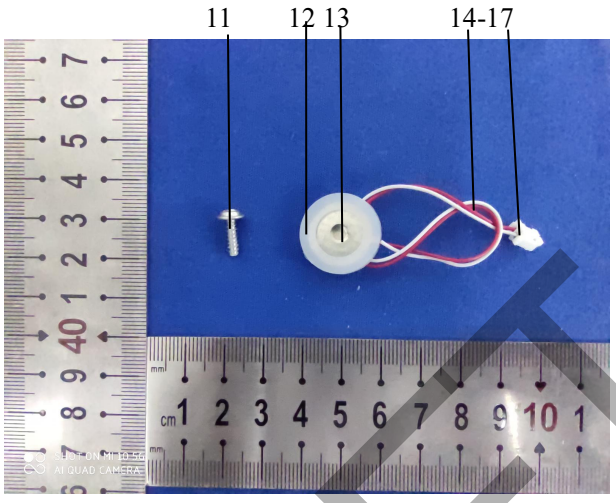
31	Chip IC
32	Chip diode
35	White plastic shell
37	PCB
38	Chip IC
39	Chip resistor
40	Chip diode
41	Electrolytic capacitor
42	Capacitor
43	Diode
44	Resistor
47	Blue plastic
49	Diode
50	Pink plastic
51	Yellow plastic
52	Black plastic
54	Electrolytic capacitor
55	Electrolytic capacitor
57	White plastic
60	Black plastic
62	White plastic
63	Red electronic wire
64	Black electronic wire

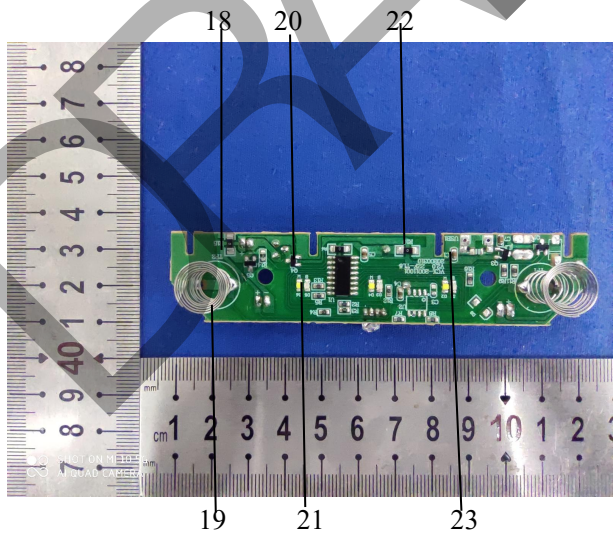
TEST REPORT

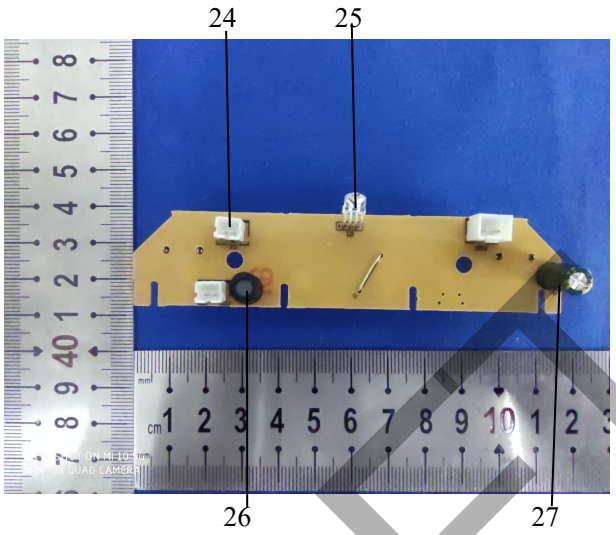
Photo of the sample

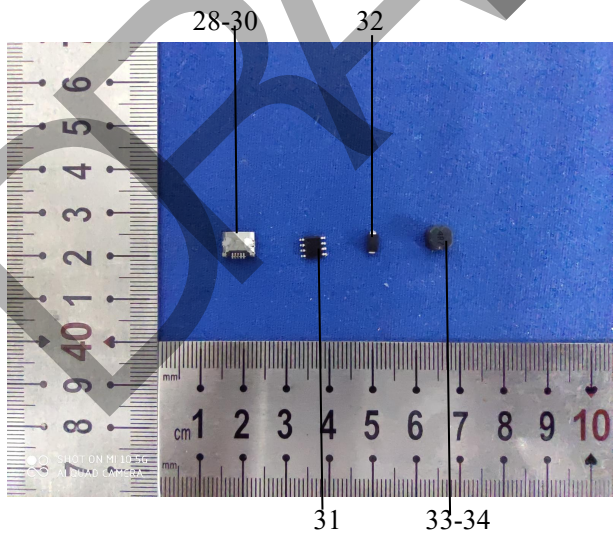


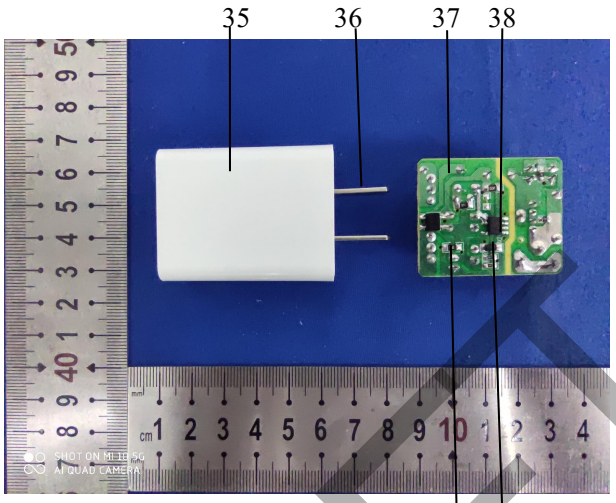


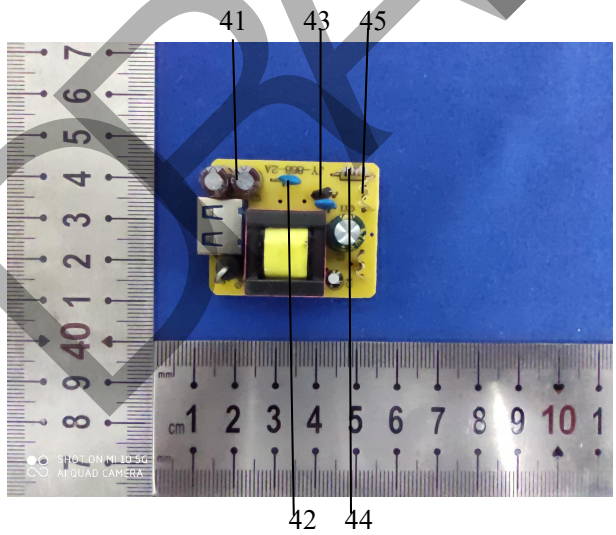


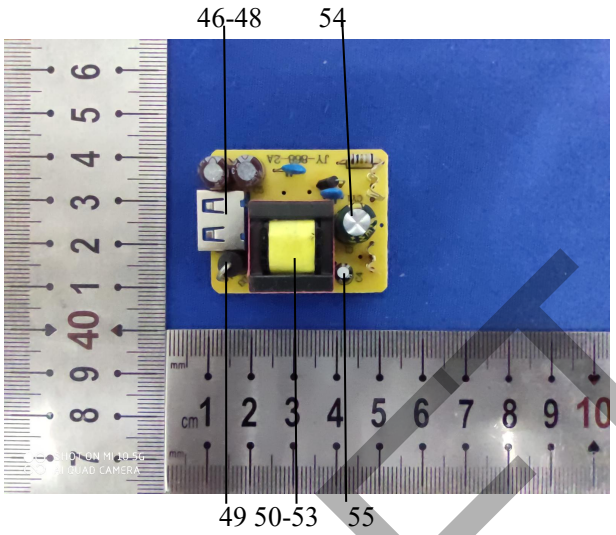


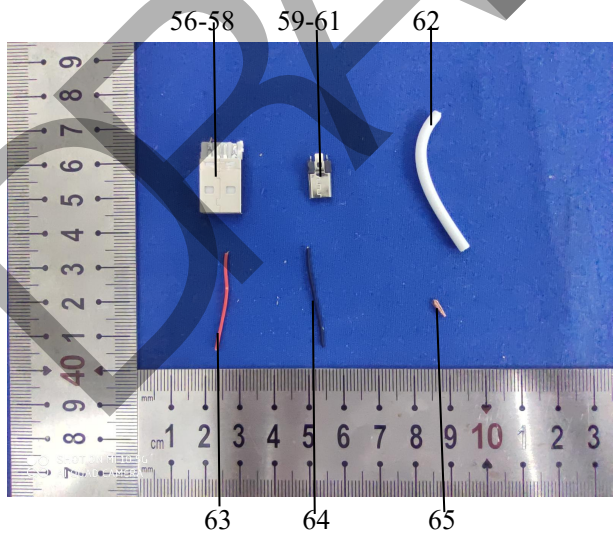












***** End of report *****

Shenzhen POCE Technology Co.,Ltd.

H Building, Hongfa Science and Technology Park,
Tangtou, Shiyan, Bao'an District, Shenzhen, China

CERTIFICATE OF CONFORMITY

Certificate No.	:	POCE210306006VCE
Applicant	:	Shenzhen Wonuode Intelligent Technology Co., Ltd.
Address	:	Floor 3, Bldg. B, Shunxing Ind. Zone, Zhongxing Road, Bantian Street, Longgang Dist., Shenzhen, Guangdong, China
Manufacturer	:	Shenzhen Wonuode Intelligent Technology Co., Ltd.
Address	:	Floor 3, Bldg. B, Shunxing Ind. Zone, Zhongxing Road, Bantian Street, Longgang Dist., Shenzhen, Guangdong, China
Product	:	CoolAir
Trade Name	:	Nexfan
Model(s)	:	Nexfan-01
Test Report No.	:	POCE210306005WRE
Test Standards	:	**BS EN 55014-1:2017** **BS EN 55014-2:2015** **BS EN IEC 61000-3-2:2019** **BS EN 61000-3-3:2013/A1:2019**

The EUT described above has been tested by us with the listed standards and found in compliance with the council Electromagnetic Compatibility Regulations 2016, It is possible to use UKCA marking to demonstrate the compliance with this EMC Directive.

UK CA

SHENZHEN POCE TECHNOLOGY CO.,LTD. APPROVED

For Chief Executive / Munsan Yang
Date: Mar. 06, 2021

This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole production and other relevant directives have to be observed.

EMC TEST REPORT

For

Shenzhen Wonuode Intelligent Technology Co., Ltd.

Product Name: CoolAir

Model No.: Nexfan-01

Prepared for	:	Shenzhen Wonuode Intelligent Technology Co., Ltd.
Address	:	Floor 3, Bldg. B, Shunxing Ind. Zone, Zhongxing Road, Bantian Street, Longgang Dist., Shenzhen, Guangdong, China
Prepared by	:	SHENZHEN POCE TECHNOLOGY CO., LTD.
Address	:	H Building, Hongfa Science and Technology Park,Tangtou, Shiyan, Bao'an District, Shenzhen, China
Report No.	:	POCE210306005WRE
Date of Receiver	:	Feb. 26, 2021
Number of tested samples	:	1
Date of Test	:	Feb. 26, 2021–Mar. 06, 2021
Date of Report	:	Mar. 06, 2021

Note: *This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen POCE Technology Co., Ltd*

TABLE OF CONTENT

Description

Test Report Description Page

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	CoolAir
Trade Name	:	Nexfan
Model	:	Nexfan-01
Supplementary Model	:	N/A
Test Voltage	:	DC 5V
Rating	:	DC 5V, 1.5A
Applicant	:	Shenzhen Wonuode Intelligent Technology Co., Ltd.
Address	:	Floor 3, Bldg. B, Shunxing Ind. Zone, Zhongxing Road, Bantian Street, Longgang Dist., Shenzhen, Guangdong, China
Manufacturer	:	Shenzhen Wonuode Intelligent Technology Co., Ltd.
Address	:	Floor 3, Bldg. B, Shunxing Ind. Zone, Zhongxing Road, Bantian Street, Longgang Dist., Shenzhen, Guangdong, China
Test Standards	:	BS EN 55014-1:2017 BS EN 55014-2:2015 BS EN IEC 61000-3-2:2019 BS EN 61000-3-3:2013/A1:2019
Test Result	:	PASS
Test Engineer	:	
Reviewed By	:	

1.2. Test Standards

√ Indicates that the test is applicable
× Indicates that the test is not applicable

Standard	Test Items	Status
BS BS EN 55014-1:2017	Disturbance Voltage at The Mains Terminals (150KHz To 30MHz)	×
	Radiated Disturbances (30MHz To 1000MHz)	√
BS EN IEC 61000-3-2:2019	Harmonic Current	×
BS EN 61000-3-3:2013/A1:2019	Voltage Fluctuations	×
BS EN 61000-4-2:2009	Electrostatic discharge Immunity	√
BS EN 61000-4-3: 2006/A2:2010	Radiated Susceptibility (80MHz to 1GHz)	√
BS EN 61000-4-4:2012	Electrostatic Fast Transient/Burst Immunity	×
BS EN 61000-4-5:2014/A1:2017	Surge Immunity	×
BS EN 61000-4-6:2014/AC:2015	Conducted Susceptibility (150KHz to 230MHz)	×
BS EN 61000-4-11: 2004/A1:2017	Voltage Dips Short Interruptions Immunity Tests	×

1.3.Test Methodology

All measurements contained in this report were conducted with CISPR 16-1, radio disturbance and immunity measuring apparatus, and CISPR16-2, Method of measurement of disturbances and immunity.
All measurement required was performed at laboratory of Shenzhen POCE Technology Co., Ltd., at H Building, Hongfa Science and Technology Park,Tangtou, Shiyan, Bao'an District, Shenzhen, China

1.4.Test Facility

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

CNAS Registration Number. is L8229

The facility also complies with the radiated and AC line conducted test site criteria set forth in CISPR 16-1, CISPR16-2.

2. MEASURING DEVICE AND TEST EQUIPMENT

2.1.For Power Line Conducted Emission

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K03-102109-MH	Dec. 10, 2020
2.	L.I.S.N	Rohde & Schwarz	ESH3-Z5.831.5518.52	9561-G071	Dec. 10, 2020
3.	50ΩCoaxial Switch	Anritsu	MP59B	M20531	N/A
4.	Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Ateennator	561-G071	Dec. 10, 2020
5.	Cable	SCHWARZ BECK	N/A	N/A	Dec. 10, 2020

2.2.For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K03-102109-MH	Dec. 10, 2020
2.	Bilog Antenna	Sunol Sciences	Model JB6 Antenna	A090414	Dec. 10, 2020
3.	50ΩCoaxial Switch	Anritsu	MP59B	M20531	N/A
4.	control	Positioning Controller	Model MF-7802	MF780208362	Dec. 10, 2020
5.	Cable	SCHWARZ BECK	N/A	N/A	Dec. 10, 2020
6.	Cable	SCHWARZ BECK	N/A	N/A	Dec. 10, 2020

2.3.For Harmonic Current / Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Coupling decoupling network	SCHAFFNER	M016	20812	Dec. 10, 2020
2.	PC	N/A	P2L97	N/A	Dec. 10, 2020

2.4. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	ESD Tester	Prima	ESD61002A	144305	Dec. 10, 2020

2.5. For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Signal Generator	HP	8648A	3625U00573	Dec. 10, 2020
2.	Amplifier	AR	500A100	17034	NCR
3.	Amplifier	AR	100W/1000M1	17028	NCR
4.	Isotropic Field Monitor	AR	FM2000	16829	NCR
5.	Isotropic Field Probe	AR	FP2000	16755	Dec. 10, 2020
6.	Biconic Antenna	EMCO	3108	9507-2534	NCR
7.	Log-periodic Antenna	AR	AT1080	16812	NCR
8.	PC	N/A	486DX2	N/A	N/A

2.6. For Electrical Fast Transient /Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Burst Tester	HTEC	HEFT 51	144303	Dec. 10, 2020
2.	Coupling Clamp	HTEC	IP-4A	147147	Dec. 10, 2020

2.7. For Surge Immunity Test

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Surge Tester	HTEC	HCWG	144302	Dec. 10, 2020

2.8. For Injected Current Susceptibility Test

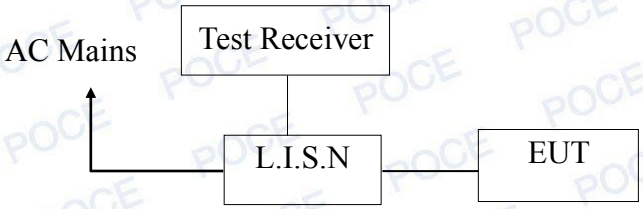
Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Simulator	EMTEST	CWS500C	0900-12	Dec. 10, 2020
2.	CDN	EMTEST	CDN-M2	5Nexfan-0100100	Dec. 10, 2020
3.	CDN	EMTEST	CDN-M3	0900-11	Dec. 10, 2020
4.	Injection Clamp	EMTEST	F-2031-23MM	368	Dec. 10, 2020
5.	Attenuator	EMTEST	ATT6	0010222A	Dec. 10, 2020

2.9. For Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Factory Number	Last Cal.
1.	Dips Tester	HTEC	HPFS	144304	Dec. 10, 2020

3. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1.Block Diagram of Test Setup



(EUT: CoolAir)

3.2.Measuring Standard

BS EN 55014-1:2017

Power Line Conducted Emission Limits

Frequency (MHz)	Limit (dBμV)	
	Quasi-Peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	59.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0
NOTE1-The lower limit shall apply at the transition frequencies. NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

3.3.EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet BS EN55014 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.4.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN55014 regulations during conducted emission measurement.

The bandwidth of the field strength meter (R&S Test Receiver ESNexfan-01) is set at 9KHz in 150KHz~30MHz and 200Hz in 9KHz~150KHz.

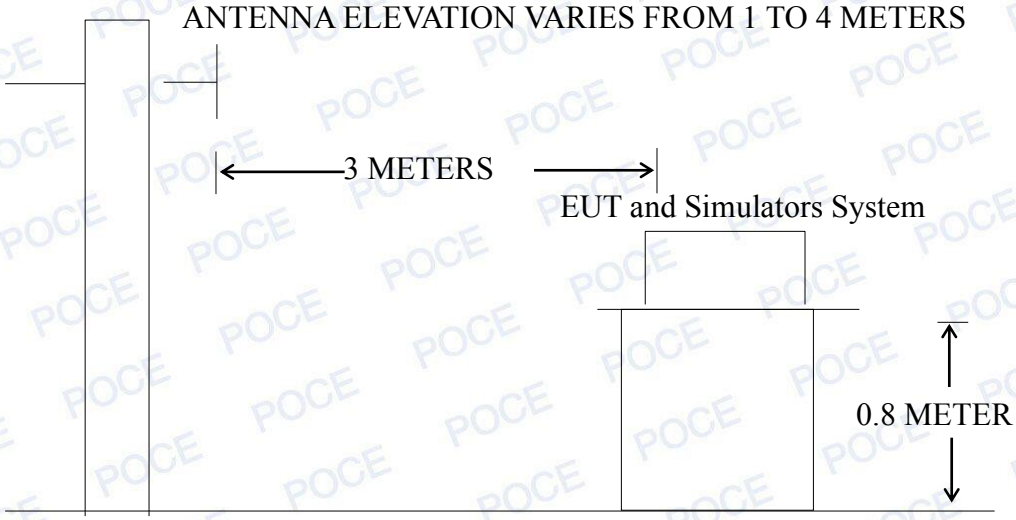
The frequency range from 150kHz to 30MHz is investigated.

Conduction Uncertainty: Uc = ± 2.72 dB

4. RADIATED EMISSION MEASUREMENT

4.1.Block Diagram of Test

4.1.1.Block diagram of test setup (In chamber)



(EUT: CoolAir)

4.2.Measuring Standard

BS EN 55014-1:2017
Radiated Emission Limits
including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

4.3.EUT Configuration on Test

The EN55014 regulations test method must be used to find the maximum emission during radiated emission measurement.

4.4. Test Procedure

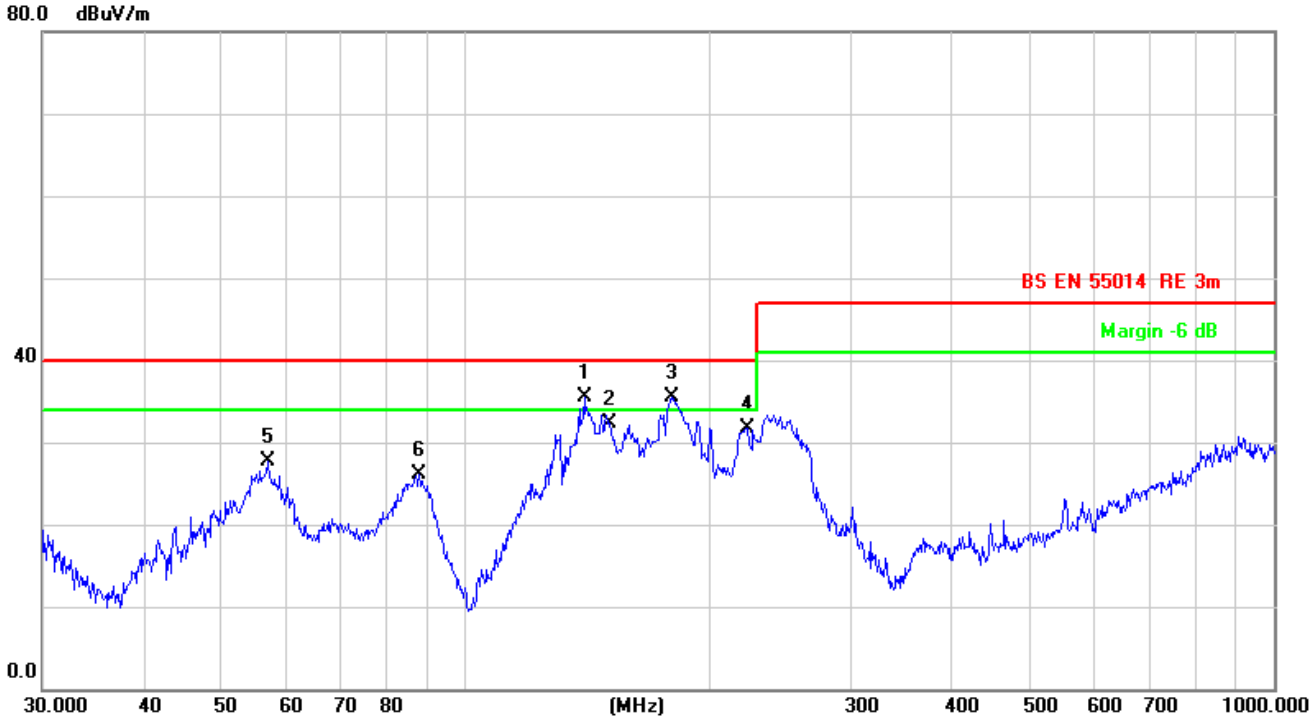
The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the Receiver (ESNexfan-01) is set at 120kHz.
The frequency range from 30MHz to 1000MHz is investigated.

Radiation Uncertainty: Ur = ± 3.84 dB

Radiated Emission Test Data

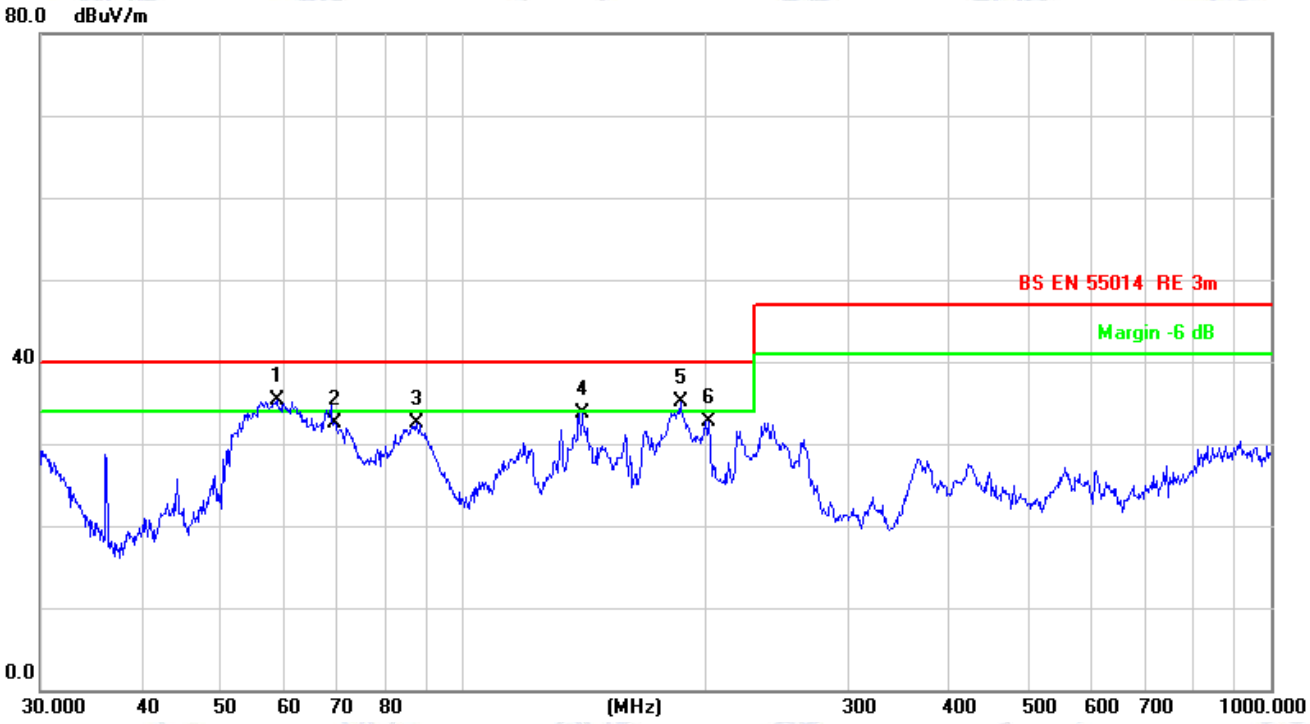
EUT	:	CoolAir	Temperature:	20℃
M/N	:	Nexfan-01	Humidity	:	50％
Test Voltage	:	DC 5V	Test Mode	:	On
Test Engineer	:	Bill	Polarization	:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	140.3420	50.46	-14.89	35.57	40.00	-4.43	peak			
2		151.0665	45.39	-13.05	32.34	40.00	-7.66	QP			
3	!	180.0165	51.32	-15.87	35.45	40.00	-4.55	QP			
4		223.7333	48.45	-16.68	31.77	40.00	-8.23	QP			
5		56.9911	44.46	-16.76	27.70	40.00	-12.30	QP			
6		87.7248	46.12	-20.01	26.11	40.00	-13.89	QP			

Radiated Emission Test Data

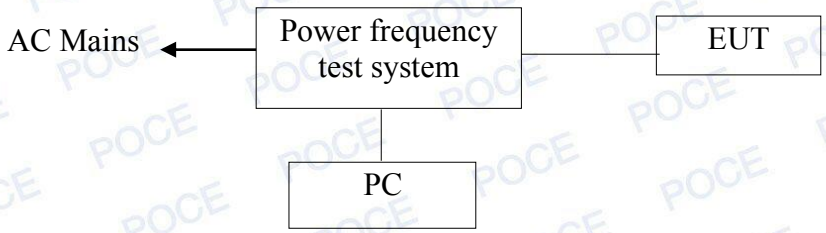
EUT :	CoolAir	Temperature:	20℃
M/N :	Nexfan-01	Humidity :	50%
Test Voltage :	DC 5V	Test Mode :	On
Test Engineer :	Bill	Polarization :	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	58.8185	51.93	-16.66	35.27	40.00	-4.73	QP			
2		69.3568	49.53	-16.95	32.58	40.00	-7.42	QP			
3		87.7248	52.60	-20.01	32.59	40.00	-7.41	QP			
4		140.3420	48.65	-14.89	33.76	40.00	-6.24	QP			
5	!	185.7881	52.61	-17.45	35.16	40.00	-4.84	QP			
6		201.3930	46.71	-14.04	32.67	40.00	-7.33	QP			

5. HARMONIC CURRENT EMISSION MEASUREMENT

5.1Block Diagram of Test Setup



(EUT: CoolAir)

5.2 Measuring Standard

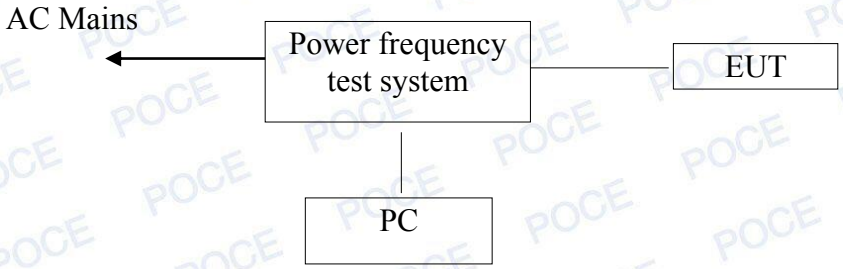
BS EN IEC 61000-3-2: 2019

5.3Description of test Equipment

Note: Equipment is less than 75W, no corresponding harmonic current limit.

6. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

6.1Block Diagram of Test Setup



(EUT: CoolAir)

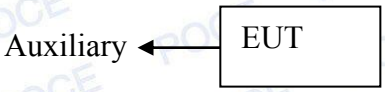
6.2Measuring Standard

BS EN 61000-3-3:2013/A1:2019

7. ELECTROSTATIC DISCHARGE IMMUNITY TEST

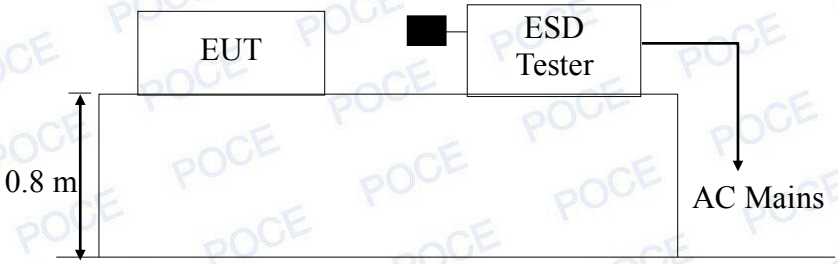
7.1 Block Diagram of Test Setup

7.1.1 Block Diagram of the EUT and the simulators



(EUT: CoolAir)

7.1.2 Block diagram of ESD test setup



(EUT: CoolAir)

7.2 Test Standard

BS EN 55014-2:2015(BS EN61000-4-2: 2009)
Severity Level: 3 / Air Discharge: ±8KV Level: 2 / Contact Discharge: ±4KV)

7.3 Severity Levels and Performance Criterion

7.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

7.3.2Performance criterion: **B**

7.4 Test Procedure

7.4.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

7.4.2 Contact Discharge:

All the procedure shall be same as Section 7.4.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

7.4.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

7.4.4 Indirect discharge for vertical coupling plane

At least 10 single discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

Electrostatic Discharger Test Results

Standard	☐ IEC 61000-4-2 ☑ BS EN 61000-4-2		
EUT	CoolAir	**Temperature**	24℃
M/N	Nexfan-01	**Humidity**	53%
Criterion	B	**Pressure**	1021mbar
Test Mode	Normal	**Test Date**	2021-03-03
Test Engineer	Bill		

Air Discharge

Test Points	Test Levels			Results		
	± 2KV	± 4KV	± 8KV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☒	☐	☐A ☒B
Top	☒	☒	☒	☒	☐	☐A ☒B
Bottom	☒	☒	☒	☒	☐	☐A ☒B

Contact Discharge

Test Points	Test Levels		Results		
	± 2 kV	±4 kV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☐	☐A ☒B
Top	☒	☒	☒	☐	☐A ☒B
Bottom	☒	☒	☒	☐	☐A ☒B

Discharge To Horizontal Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☐	☐A ☒B

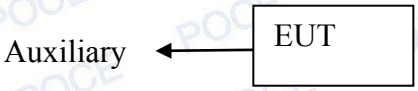
Discharge To Vertical Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 kV	± 4 kV	Passed	Fail	Performance Criterion
Front	☒	☒	☒	☐	☐A ☒B
Back	☒	☒	☒	☐	☐A ☒B
Left	☒	☒	☒	☐	☐A ☒B
Right	☒	☒	☒	☐	☐A ☒B

8. RF FIELD STRENGTH SUSCEPTIBILITY TEST

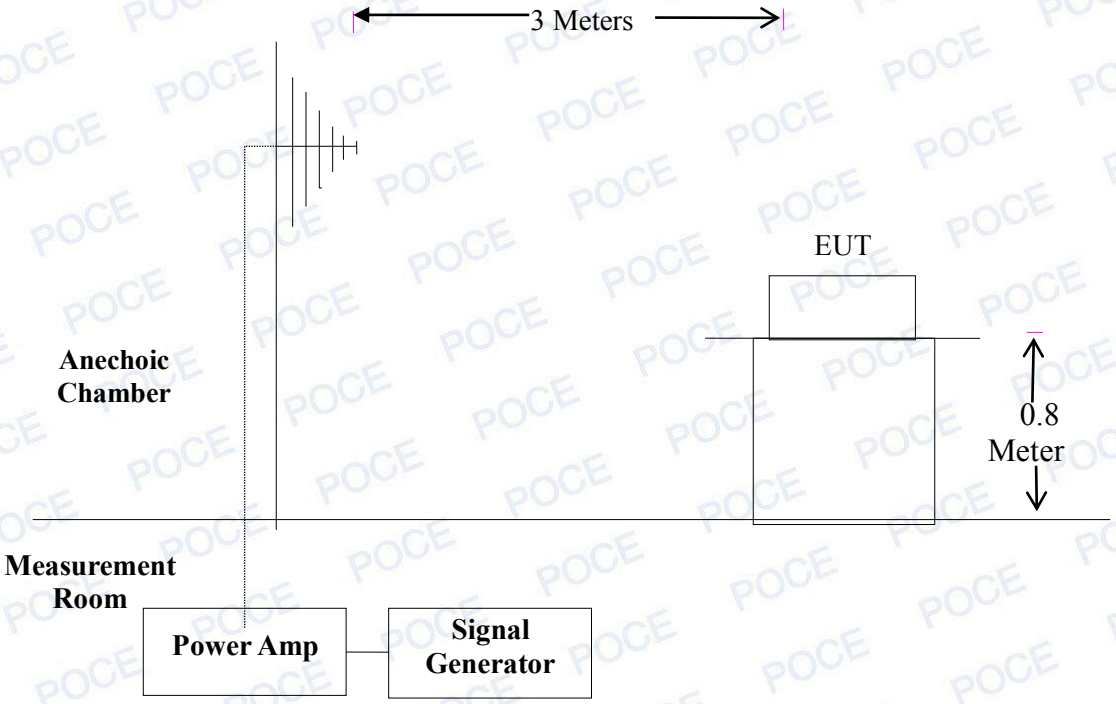
8.1 Block Diagram of Test

8.1.1 Block diagram of connection between the EUT and Load



(EUT: CoolAir)

8.1.2 Block diagram of RS test setup



(EUT: CoolAir)

8.2 Test Standard

BS EN 55014-2:2015(BS EN61000-4-3: 2006/A2:2010 (Severity Level: 2, 3V / m))

8.3 Severity Levels and Performance Criterion

8.3.1 Severity Levels

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

8.3.2 Performance Criterion: **A**

8.4 Test Procedure

The EUT are placed on a table which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor its screen. All the scanning conditions are as following:

Condition of Test	Remark
1. Fielded Strength	3V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80-1000MHz
4. Sweep time of radiated	0.0015 Decade/s
5. Dwell Time	1 Sec.

RF Field Strength Susceptibility Test Results

EUT :	CoolAir	Temperature :	22℃
M/N :	Nexfan-01	Humidity :	50 %
Test Voltage :	DC 5V	Test Mode :	On
Field Strength :	3 V/m	Test Date :	2021-03-03
Test Engineer:	Bill	Frequency Range:	80 MHz to1000 MHz

Modulation:	☐None	☐ Pulse	☑AM 1KHz 80%

	Frequency Rang 1: 80~ 1000MHz			Frequency Rang 2:		
Steps	1	/	%	#	/	%

	Horizontal	Vertical	Horizontal	Vertical
Front	PASS	PASS		
Right	PASS	PASS		
Rear	PASS	PASS		
Left	PASS	PASS		

Test Equipment **:**

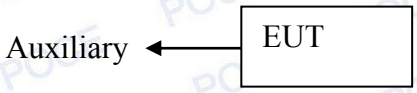
1. Signal Generator : 2031 (MARCONI)
2. Power Amplifier : 500A100 & 100W/1000M1 (A&R)
3. Power Antenna : 3108 (EMCO) & AT1080 (A&R)
4. Field Monitor : FM2000 (A&R)

Note: Note: (The Criterion)
A:Normal performance within the specification limits;
B:Temporary degradation or less of function or performance which is self-recoverable;
C:Temporary degradation or loss of function or performance which requires operator intervention or system reset;

9. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

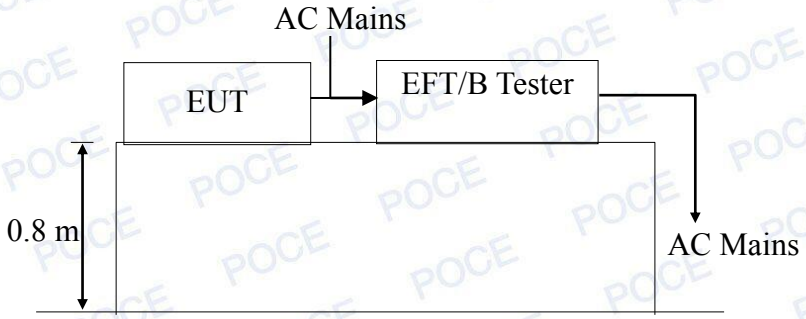
9.1 Block Diagram of Test Setup

9.1.1. Block Diagram of the EUT



(EUT: CoolAir)

9.1.2. EFT Test Setup



(EUT: CoolAir)

9.2 Test Standard

BS EN 55014-2:2015(BS EN61000-4-4:2012, Severity Level, Level 2**:** 1KV)

9.3 Severity Levels and Performance Criterion

9.3.1 Severity level

Open Circuit Output Test Voltage ±10%		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1.	0.5 KV	0.25 KV
2.	1 KV	0.5 KV
3.	2 KV	1 KV
4.	4 KV	2 KV
X	Special	Special

9.3.2 Performance criterion**: B**

9.4 Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall 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 beneath the EUT, shall be more than 0.5m.

9.4.1 For input and output AC power ports**:**

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

9.4.2 For signal lines and control lines ports**:**

No I/O ports. It's unnecessary to test.

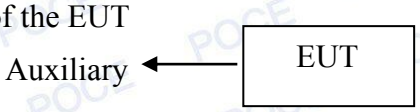
9.4.3 For DC output line ports**:**

It's unnecessary to test.

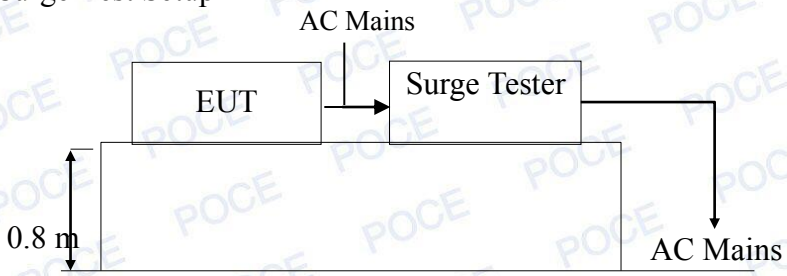
10. SURGE IMMUNITY TEST

10.1 Block Diagram of Test Setup

10.1.1 Block Diagram of the EUT



10.1.2. Surge Test Setup



(EUT: CoolAir)

10.2 Test Standard

BS EN 55014-2:2015 (BS EN61000-4-5: 2014/A1:2017)
Severity Level**:** Line to Line: Level 2, 1.0KV

10.3 Severity Levels and Performance Criterion

10.3.1. Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

10.3.2 Performance criterion**: B**

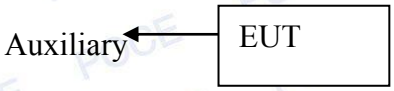
10.4 Test Procedure

1) Set up the EUT and test generator as shown on Section 10.1.2.
2) For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
4) Different phase angles are done individually.
5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11. INJECTED CURRENTS SUSCEPTIBILITY TEST

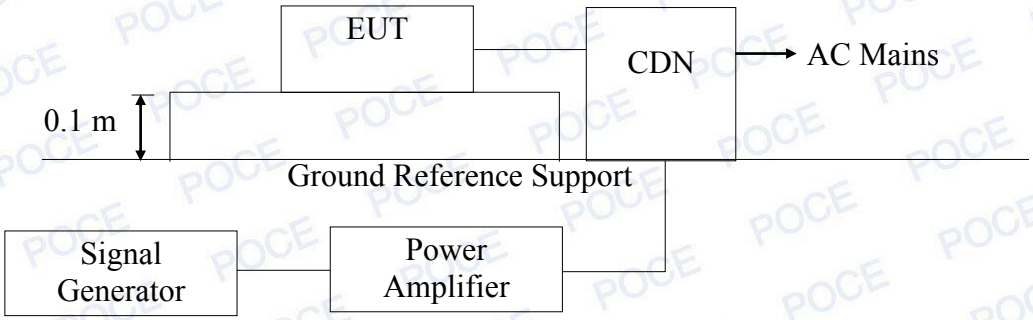
11.1 Block Diagram of Test Setup

11.1.1 Block Diagram of the EUT



(EUT: CoolAir)

11.1.2 Block Diagram of Test Setup



(EUT: CoolAir)

11.2 Test Standard

BS EN 55014-2:2015(BS EN61000-4-6: 2014/AC:2015,
Severity Level: Level 2, 3V (rms), (0.15MHz ~ 80MHz)

11.3 Severity Levels and Performance Criterion

11.3.1 Severity level

Level	Field Strength V
1	1
2	3
3	10
X	Special

11.3.2 Performance criterion: **A**

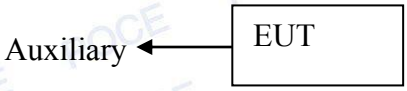
11.4 Test Procedure

1) Set up the EUT, CDN and test generators as shown on Section 11.1.2.
2) Let the EUT work in test mode and measure it.
3) 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).
4) The disturbance signal described below is injected to EUT through CDN.
5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
6) The frequency range is swept from 150KHz to80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
7) 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.
8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12. VOLTAGE DIPS AND INTERRUPTIONS TEST

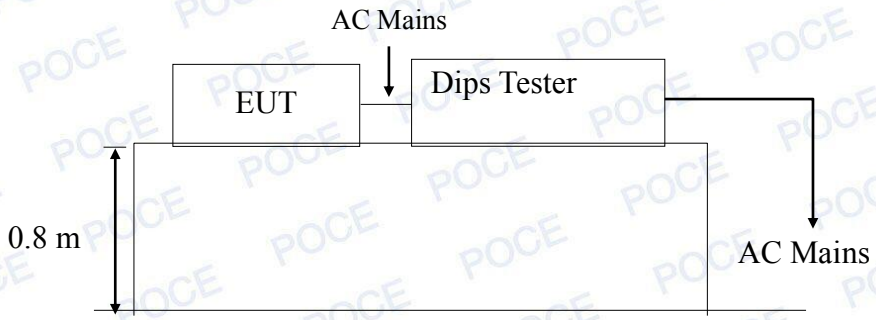
12.1 Block Diagram of Test Setup

12.1.1 Block Diagram of the EUT



(EUT: CoolAir)

12.1.2 Dips Test Setup



(EUT: CoolAir)

12.2 Test Standard

BS EN 55014-2:2015(BS EN 61000-4-11: 2004/AC:2017)

12.3 Severity Levels and Performance Criterion

12.3.1 Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
70	30	25P
40	60	10P
0	100	0.5P

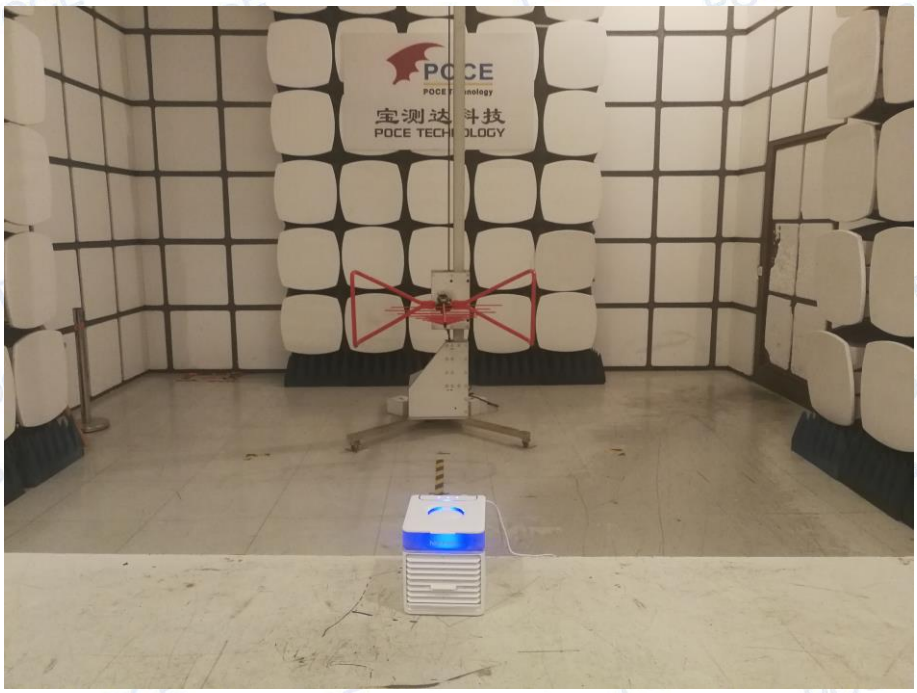
12.3.2 Performance criterion**: C&C&C**

12.4 Test Procedure

1) Set up the EUT and test generator as shown on Section 13.1.2.
2) The interruption is introduced at selected phase angles with specified duration.
3) Record any degradation of performance.

13. TEST PHOTO

13.1 Photo of Radiated Emission Measurement



14. PHOTOGRAPHS OF EUT

Fig.1

Fig.2

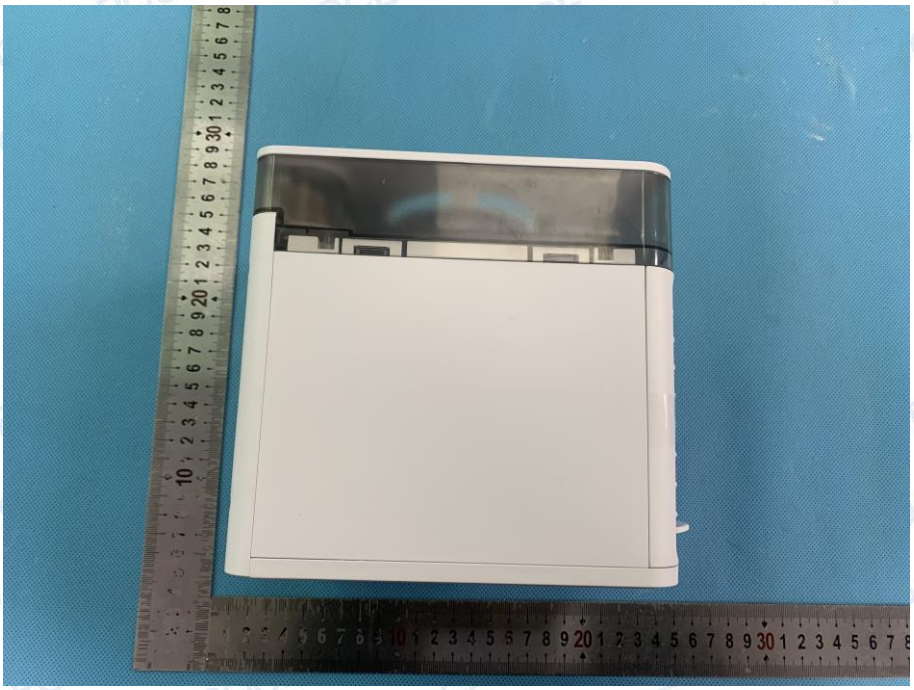


Fig.3

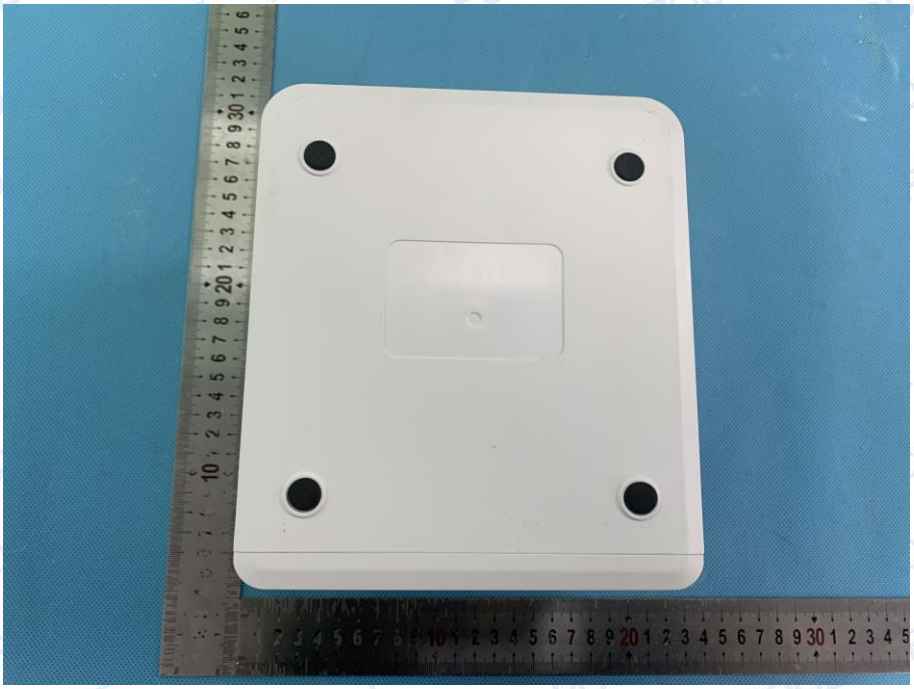


Fig.4

Fig.5

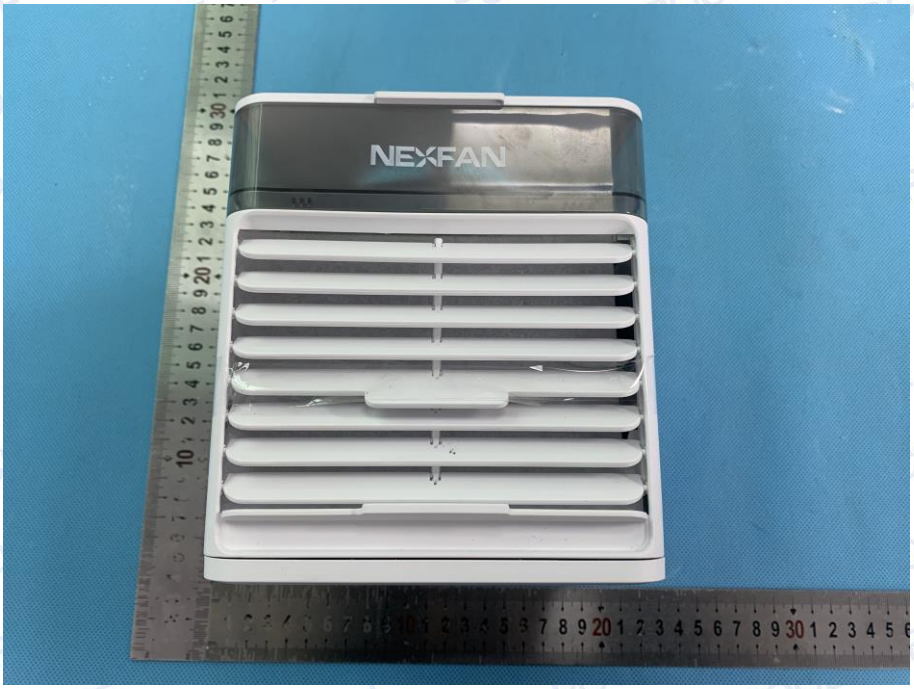


Fig.6

Fig.7

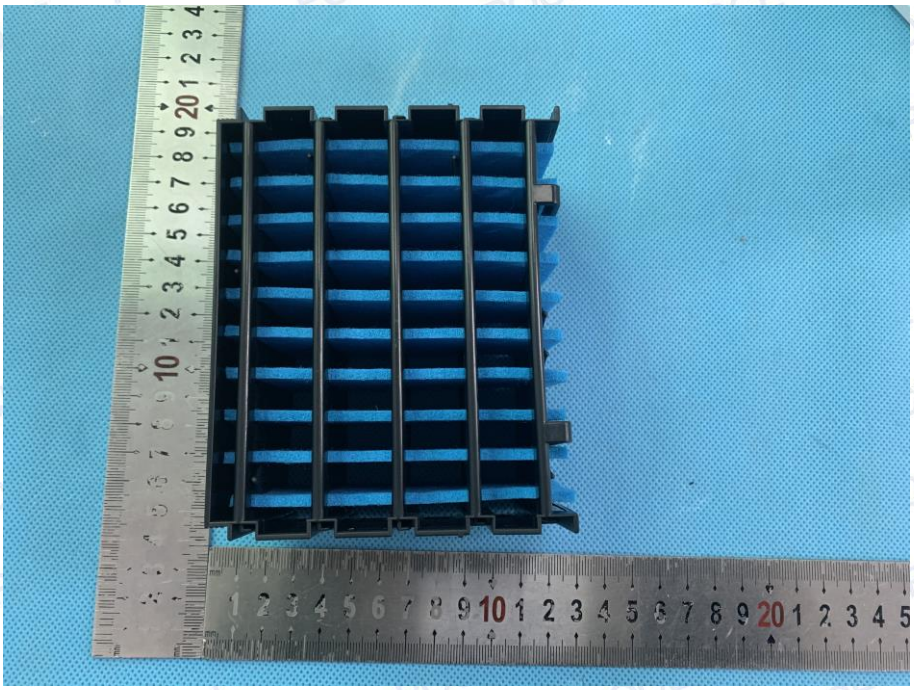


Fig.8

15. MANUFACTURER/ APPROVAL HOLDER DECLARATION

Belong to the tested device:

Product description	:	CoolAir
Model name	:	Nexfan-01

Remark: So no additional models tested.

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