EN 55014-1:2006 +A2:2011
EN 55014-2:1997 +A2:2008
EN 61000-3-2:2006 +A2:2009
EN 61000-3-3:2008
MEASUREMENT AND TEST REPORT

For

BioZone Scientific International, Inc.

7751 Kingspointe Parkway, Suite 124, Orlando, FL 32819, United States of America

Model:	**AirCare 05, AirCare 10, AirCare 20, AirCare 30**

November 21,2012

This Report Concerns:	**Equipment Type:**
☒ Original Report	Air Purifier

Test By:	Yang yang/ Yang yang
Report Number:	**BCT12KR-2126E**
Test Date:	November 18~21,2012
Reviewed By:	Kevin Chi/ Kevin chi
Approved By:	Kendy Wang/ Kendy Wang
Prepared By:	**Shenzhen Bontek Compliance Testing LaboratoryCo., Ltd.** 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China Tel : +86-755-86337020 Fax: +86-755-86337028

Note:This test report is limited to the above client company and the product model only.It may not be duplicatedwithout prior written consent of Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.

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1 - GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

Client Information

Applicant:	**BioZone Scientific International, Inc.**
Address of applicant:	7751 Kingspointe Parkway, Suite 124, Orlando, FL 32819, United States of America
Manufacturer:	**BioZone Scientific International, Inc.**
Address of Manufacturer:	7751 Kingspointe Parkway, Suite 124, Orlando, FL 32819, United States of America

General Description of E.U.T

EUT Name:	**Air Purifier**
Trade Mark:	**AirCare**
Model No.:	**AirCare 05, AirCare 10, AirCare 20, AirCare 30**
Test Model No.:	**AirCare 30**
Power Supply:	**Input:100-240Vac, 50-60Hz, 0.22-0.11A**

Remark: ** The test data gathered are from the production sample provided by the manufacturer.*
** Model Difference: The differences between the units are different UV-Lamps used, All lamps are operated same electronic ballast.*

1.2 Test Standards

The following Declaration of Conformity report of EUT is prepared in accordance with

EN 55014-1:2006+A2:2011

EN 55014-2:1997+A2:2008

EN 61000-3-2:2006+A2:2009

EN 61000-3-3:2008

The objective of the manufacturer is to demonstrate compliance with the described standards above.

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1.3 Test Summary

For the EUT described above. This apparatus is subdivided into category II according to the section 4.2 of EN 55014-2:1997+A2:2008. So according to section 7.2.2 of this standard, the immunity test item applicable to this EUT is listed in table 3.

Table 1 : Tests Carried Out Under EN 55014-1:2006+A2:2011

Standard	Test Items	Status
EN 55014-1:2006+A2:2011	Conducted Emission (150kHz to 30MHz)	√
EN 55014-1:2006+A2:2011	Disturbance Power (30MHz To 300MHz)	√
EN 55014-1:2006+A2:2011	Click	√

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

Table 2 : Tests Carried Out Under EN 61000-3-2:2006+A2:2009 / EN 61000-3-3:2008

Standard	Test Items	Status
EN 61000-3-2: 2006 + A2:2009	Harmonic Current Test	√
EN 61000-3-3: 2008	Voltage Fluctuations and Flicker Test	√

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

Table 3 : Tests Carried Out Under EN 55014-2:1997+A2:2008

Standard	Test Items	Status
EN 61000-4-2:2009	Electrostatic discharge Immunity	√
EN 61000-4-3:2006+A2:2010	Radiated Susceptibility (80MHz to 1GHz)	x
EN 61000-4-4:2012	Electrical Fast Transient/Burst Immunity	√
EN 61000-4-5:2006	Surge Immunity	√
EN 61000-4-6:2009	Conducted Susceptibility (150kHz to 230MHz)	√
EN 61000-4-11:2004	Voltage Dips, Short Interruptions Immunity	√

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

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1.4 Test Methodology

All measurements contained in this report were conducted with CISPR 16-1-1: 2006, radio disturbance and immunity measuring apparatus, and CISPR16-2-3: 2010, Method of measurement of disturbances and immunity.

All measurement required was performed at Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. at 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

1.5 Test Facility

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

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

FCC – Registration No.: 338263

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March, 2011

IC Registration No.: 7631A

The 3m alternate test site of Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on January, 2011.The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

CNAS – Registration No.: L3923

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. To ISO/IEC 17025:25 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.The acceptance letter from the CNAS is maintained in our files: Registration: L3923, March, 2012.

TUV – Registration No.: 50203122-0001

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. An assessment of the laboratory was conducted according to the"Procedures and Conditions for EMC Test Laboratories"with reference to EN ISO/IEC 17025 by a TUV Rheinland auditor. Audit Report NO. 17010783-002

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1.6 Test Equipment List and Details

Test equipments list of Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.

No.	Instrument no.	Equipment	Manufacturer	Model No.	S/N	Last Calibration Date	Next Calibration Date
1	BCT-EMC001	EMI Test Receiver	R&S	ESCI	100687	2012-4-17	2013-4-16
2	BCT-EMC002	EMI Test Receiver	R&S	ESPI	100097	2012-11-1	2013-10-31
3	BCT-EMC003	Amplifier	HP	8447D	1937A02492	2012-4-20	2013-4-19
4	BCT-EMC004	Single Power Conductor Module	R&S	NNBM 8124	242	2012-4-20	2013-4-19
5	BCT-EMC005	Single Power Conductor Module	R&S	NNBM 8124	243	2012-4-20	2013-4-19
6	BCT-EMC006	Power Clamp	SCHWARZBECK	MDS-21	3812	2012-11-5	2013-11-4
7	BCT-EMC007	Positioning Controller	C&C	CC-C-1F	MF7802113	N/A	N/A
8	BCT-EMC008	`Electrostatic Discharge Simulator	TESEQ	NSG437	125	2012-11-2	2013-11-1
9	BCT-EMC009	Fast Transient Burst Generator	SCHAFFNER	MODULA615 0	34572	2012-4-17	2013-4-16
10	BCT-EMC010	Fast Transient Noise Simulator	Noiseken	FNS-105AX	10501	2012-6-26	2013-6-25
11	BCT-EMC011	Color TV Pattern Genenator	PHILIPS	PM5418	TM209947	N/A	N/A
12	BCT-EMC012	Power Frequency Magnetic Field Generator	EVERFINE	EMS61000-8K	608002	2012-4-17	2013-4-16
14	BCT-EMC014	Capacitive Coupling Clamp	TESEQ	CDN8014	25096	2012-4-17	2013-4-16
15	BCT-EMC015	High Field Biconical Antenna	ELECTRO-METRICS	EM-6913	166	2011-11-28	2013-11-27
16	BCT-EMC016	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	811	2011-11-28	2013-11-27
17	BCT-EMC017	Remote Active Vertical Antenna	ELECTRO-METRICS	EM-6892	304	2011-11-28	2013-11-27
18	BCT-EMC018	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9163	9163-324	2012-5-19	2014-5-18
19	BCT-EMC019	Horn Antenna	SCHWARZBECK	BBHA9120A	0499	2011-11-28	2013-11-27
20	BCT-EMC020	Teo Line Single Phase Module	SCHWARZBECK	NSLK8128	8128247	2012-11-1	2013-10-31
21	BCT-EMC021	Triple-Loop Antenna	EVERFINE	LLA-2	711002	2012-11-15	2013-11-14
22	BCT-EMC022	Electric bridge	Jhai	JK2812C	803024	N/A	N/A
23	BCT-EMC026	RF POWER AMPLIFIER	FRANKONIA	FLL-75	1020A1109	2012-4-17	2013-4-16

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24	BCT-EMC027	CDN	FRANKONIA	CDN M2+M3	A3027019	2012-4-17	2013-4-16
25	BCT-EMC029	6DB Attenuator	FRANKONIA	N/A	1001698	2012-4-17	2013-4-16
26	BCT-EMC030	EM Injection clamp	FCC	F-203I-23mm	091536	2012-4-17	2013-4-16
27	BCT-EMC031	9kHz-2.4GHz signal generator 2024	MARCONI	10S/6625-99-457-8730	112260/042	2012-4-17	2013-4-16
28	BCT-EMC032	10dB attenuator	ELECTRO-METRICS	EM-7600	836	2012-4-17	2013-4-16
29	BCT-EMC033	ISN	TESEQ	ISN-T800	30301	2012-11-15	2013-11-14
30	BCT-EMC034	10KV surge generator	SANKI	SKS-0510M	048110003E 321	2012-11-01	2013-10-31
31	BCT-EMC035	HRMONICS&FLICK RE ANALYSER	VOLTECH	PM6000	200006700433	2012-11-20	2013-11-19
32	BCT-EMC036	Spectrum Analyzer	R&S	FSP	100397	2012-11-1	2013-10-31
33	BCT-EMC037	Broadband preamplifier	SCH WARZBECK	BBV9718	9718-182	2012-4-20	2013-4-19

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2 - SYSTEM TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

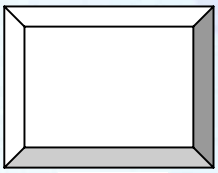
2.2 EUT Exercise Software

The EUT exercising program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software offered by manufacture, can let the EUT being normal operation.

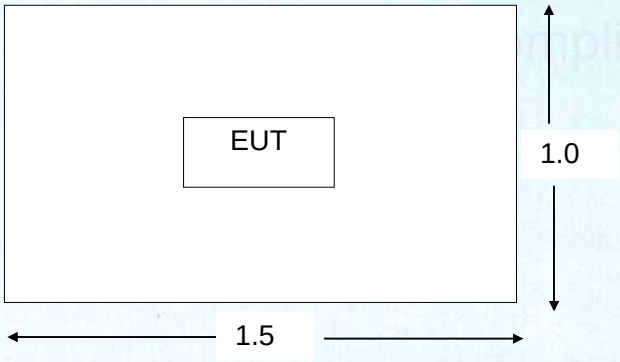
2.3 Equipment Modifications

The EUT tested was not modified by BCT.

2.4 Basic Configuration of Test System



2.5 Test Setup Diagram



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3 - DISTURBANCE VOLTAGE AT THE MAINS TERMINALS

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is 3.4 dB.

3.2 Limit of Disturbance Voltage at The Mains Terminals

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150～0.500	66～56	59～46
0.500～5.000	56	46
5.000～30.00	60	50

Note: (1)The tighter limit shall apply at the edge between two frequency bands.

3.3 EUT Setup

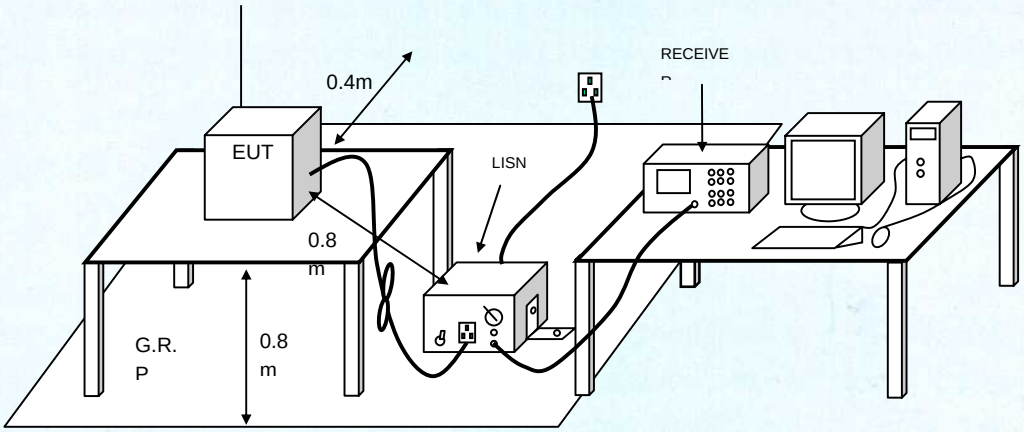
The setup of EUT is according with CISPR 16-1-1: 2006, CISPR16-2-3: 2010 measurement procedure. See following test setup figure. The specification used was the EN 55014-1 limits.

The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.



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3.4 Instruments Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range……150 KHz to 30 MHz
Detector……..Peak & Quasi-Peak & Average
Sweep Speed……Auto
IF Band Width……..9 KHz

3.5 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dBμV of specification limits). Quasi-peak readings are distinguished with a "**QP**". Average readings are distinguished with a "**AV**".

3.6 Summary of Test Results

According to the data in section 3.6, the EUT complied with the EN 55014-1 Conducted margin.

3.7 Disturbance Voltage Test Data

Temperature (℃)	22~25
Humidity (%RH)	50~55
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

Test data see following pages

3.8 Test Result

Pass

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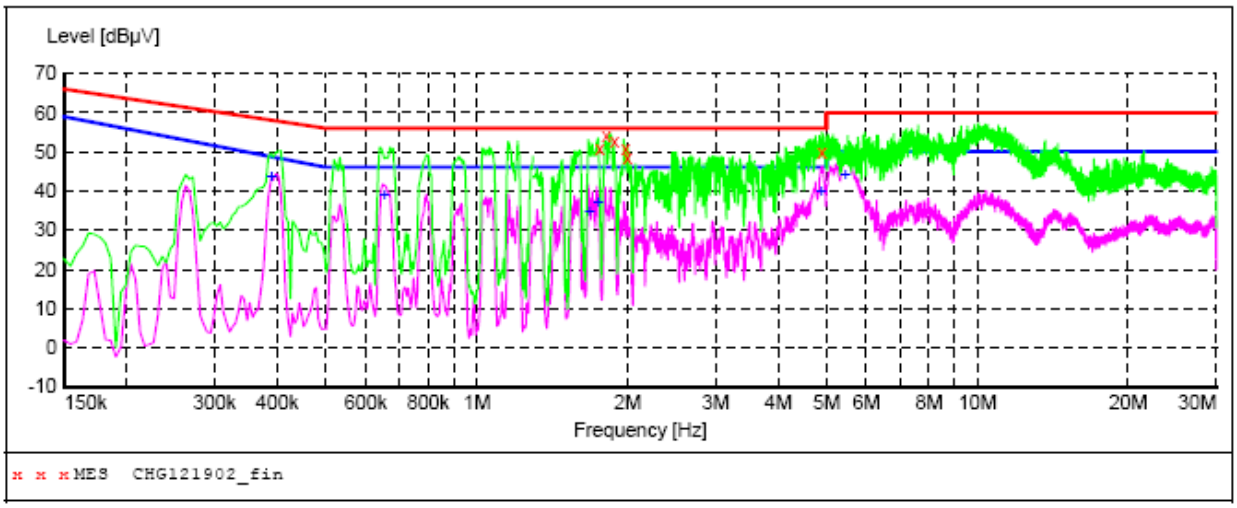
CONDUCTED EMISSION TEST DATA

EUT:	Air Purifier
M/N:	AirCare 30
Operating Condition:	ON
Test Site:	Shielded Room
Operator:	Chen
Test Specification:	AC 253V 50Hz
Comment:	L Line
Start of Test:	11/19/2012 7:58 Tem:24℃ Hum:55%

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



MEASUREMENT RESULT: "CHG121902_fin"

11/19/2012 7:58PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
1.756500	53.40	10.2	56	2.6	QP	L1	GND
1.815000	54.40	10.2	56	1.6	QP	L1	GND
1.882500	53.80	10.2	56	2.2	QP	L1	GND
1.981500	54.20	10.2	56	1.8	QP	L1	GND
1.995000	53.30	10.2	56	2.7	QP	L1	GND
4.893000	54.70	10.4	56	1.3	QP	L1	GND

MEASUREMENT RESULT: "CHG121902_fin2"

11/19/2012 7:58PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.388500	44.00	10.4	48	4.1	AV	L1	GND
0.654000	38.90	10.2	46	7.1	AV	L1	GND
1.680000	34.70	10.2	46	11.3	AV	L1	GND
1.747500	37.30	10.2	46	8.7	AV	L1	GND
4.870500	41.80	10.4	46	4.2	AV	L1	GND
5.446500	48.90	10.4	50	1.1	AV	L1	GND

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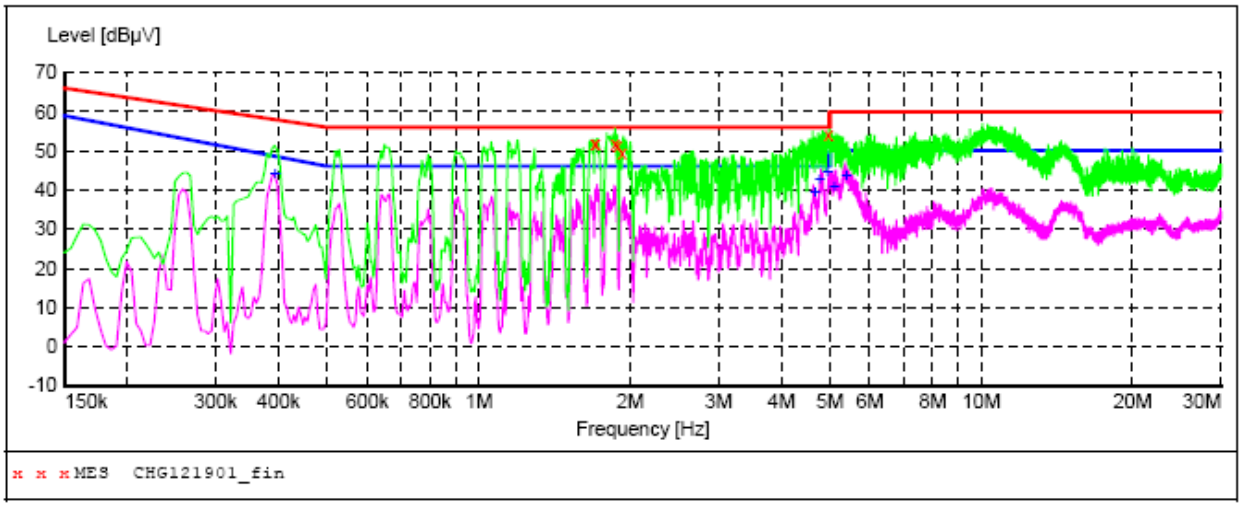
CONDUCTED EMISSION TEST DATA

EUT:	Air Purifier
M/N:	AirCare 30
Operating Condition:	ON
Test Site:	Shielded Room
Operator:	Chen
Test Specification:	AC 253V 50Hz
Comment:	N Line
Start of Test:	11/19/2012 7:47 Tem:24℃ Hum:55%

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



MEASUREMENT RESULT: "CHG121901_fin"

11/19/2012 7:47PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
1.702500	54.10	10.2	56	1.9	QP	N	GND
1.707000	54.30	10.2	56	1.7	QP	N	GND
1.869000	54.30	10.2	56	1.7	QP	N	GND
1.887000	53.80	10.2	56	1.2	QP	N	GND
1.927500	53.50	10.2	56	2.5	QP	N	GND
4.960500	54.30	10.4	56	1.7	QP	N	GND

MEASUREMENT RESULT: "CHG121901_fin2"

11/19/2012 7:47PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.393000	44.30	10.4	48	3.7	AV	N	GND
4.663500	39.80	10.3	46	6.2	AV	N	GND
4.767000	48.60	10.3	46	1.6	AV	N	GND
4.938000	50.40	10.4	46	1.4	AV	N	GND
5.104500	47.10	10.4	50	2.9	AV	N	GND
5.379000	49.80	10.4	50	2.2	AV	N	GND

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4 – DISCONTINUOUS DISTURBANCE (CLICK)

4.1 Limit of Discontinuous Disturbance

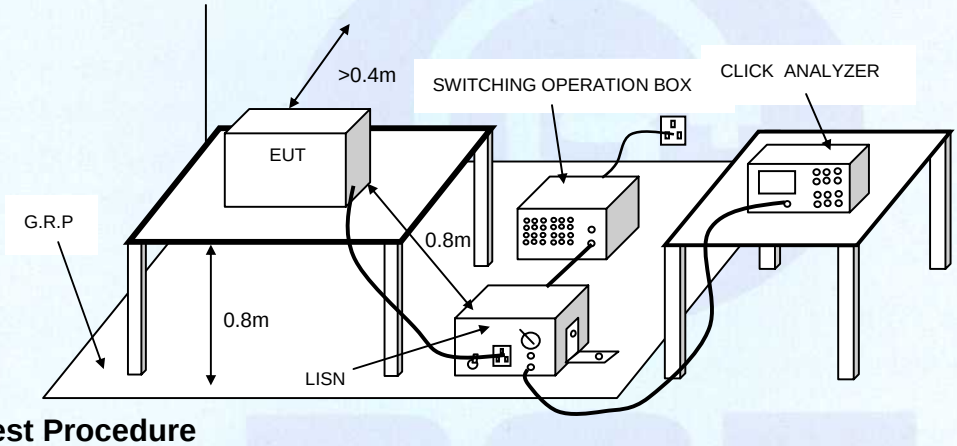
The limits for discontinuous disturbance depend mainly on the character of the disturbance and on the click rate **N** as given in details in clause 4.2.2 and 4.2.3 of the standard of EN 55014-1:2006 + A2:2011.

4.2 EUT Setup

The setup of EUT is according with CISPR 16-1-1: 2006, CISPR16-2: 2002 measurement procedure. See following test setup figure. The specification used was the EN 55014-1 limits.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.



4.3 Test Procedure

During the Click test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains Test Procedure details see clause 7.4.2 of standard EN 55014-1: 2006+A2:2011

4.4 Summary of Test Results

According to the data in section 4.3, the EUT complied with the requirement of Click test of F.

4.5 Disturbance Voltage Test Data

Temperature (℃)	22~23
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

4.6 Test Result

Pass

Please refer to the following page

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Clicks (< 10 ms)	6	Frequency (kHz)	150
Clicks (10ms - 20ms)	1	Duration (h:mm:ss)	2:00:00
Clicks (> 20 ms)	1	Click Rate per Minute	0.07
Clicks > Lq (Number)	0	L (dBμV)	66
Clicks > Lq (Percent)	0	Lq (dBμV)	110
Continuous Disturbances	0	600 ms Rule used ? (See EN55014; 4.2.3.2 or CISPR16-1-1; E2 Page 125)	Yes
Overload Occured ?	NO		
Misrepresented due to Overload ?	NO	Number of Refrigerator Rule Used (See EN55014; 4.2.3.4 or CISPR16-1-1; E4 Page 127)	0

Result
PASSED!

Clicks (< 10 ms)	2	Frequency (kHz)	500
Clicks (10ms - 20ms)	2	Duration (h:mm:ss)	2:00:00
Clicks (> 20 ms)	0	Click Rate per Minute	0.03
Clicks > Lq (Number)	0	L (dBμV)	56
Clicks > Lq (Percent)	0	Lq (dBμV)	100
Continuous Disturbances	0	600 ms Rule used ? (See EN55014; 4.2.3.2 or CISPR16-1-1; E2 Page 125)	Yes
Overload Occured ?	NO		
Misrepresented due to Overload ?	NO	Number of Refrigerator Rule Used (See EN55014; 4.2.3.4 or CISPR16-1-1; E4 Page 127)	0

Result
PASSED!

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Clicks (< 10 ms)	2	Frequency (MHz)	1.4
Clicks (10ms - 20ms)	1	Duration (h:mm:ss)	2:00:00
Clicks (> 20 ms)	0	Click Rate per Minute	0.03
Clicks > Lq (Number)	0	L (dBμV)	56
Clicks > Lq (Percent)	0	Lq (dBμV)	100
Continuous Disturbances	0	600 ms Rule used ? (See EN55014; 4.2.3.2 or CISPR16-1-1; E2 Page 125)	Yes
Overload Occured ?	NO		
Misrepresented due to Overload ?	NO	Number of Refrigerator Rule Used (See EN55014; 4.2.3.4 or CISPR16-1-1; E4 Page 127)	0

Result
PASSED!

Clicks (< 10 ms)	0	Frequency (MHz)	30
Clicks (10ms - 20ms)	1	Duration (h:mm:ss)	2:00:00
Clicks (> 20 ms)	0	Click Rate per Minute	0.01
Clicks > Lq (Number)	0	L (dBμV)	60
Clicks > Lq (Percent)	0	Lq (dBμV)	104
Continuous Disturbances	0	600 ms Rule used ? (See EN55014; 4.2.3.2 or CISPR16-1-1; E2 Page 125)	Yes
Overload Occured ?	NO		
Misrepresented due to Overload ?	NO	Number of Refrigerator Rule Used (See EN55014; 4.2.3.4 or CISPR16-1-1; E4 Page 127)	0

Result
PASSED!

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5 – DISTURBANCE POWER

5.1 Limit of Disturbance Power

Frequency Range (MHz)	Limit (dBpW)	
	Quasi-Peak	Average
30～300	45～55	35～45

Note: (1) The limit line is a linear line.

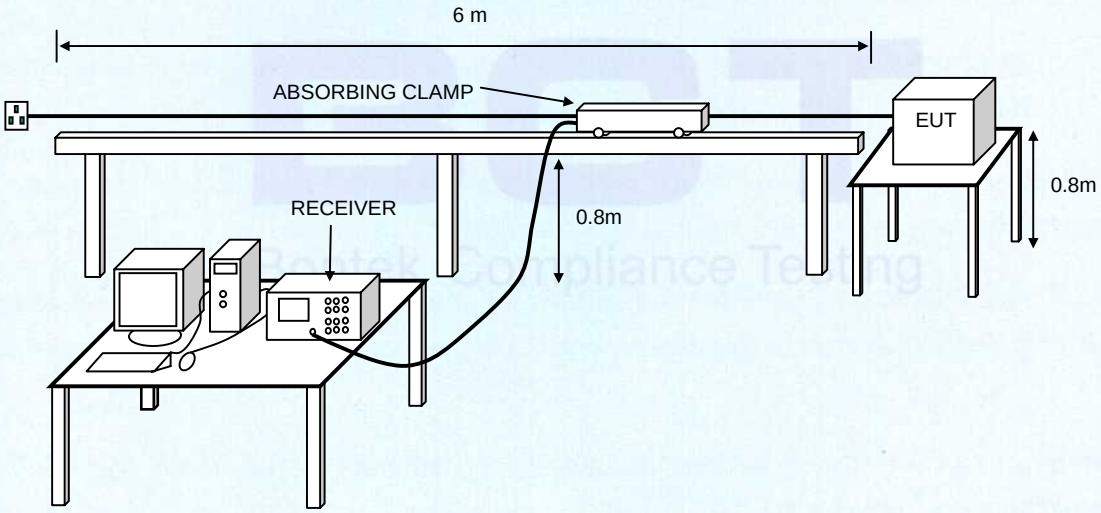
5.2 EUT Setup

The setup of EUT is according with CISPR 16-1-1: 2006, CISPR16-2: 2002 measurement procedure. See following test setup figure. The specification used was the EN 55014-1 limits.

The EUT was placed at the edge of the test table so as to make the end of the lead close to the EUT as short as possible between the power clamp and the EUT.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.



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5.3 Instruments Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range……30 MHz to 300 MHz
Detector……..Peak & Quasi-Peak & Average
Sweep Speed……Auto
IF Band Width……..9 KHz

5.4 Test Procedure

The associated equipment under test is placed on a non-metallic table of 0.8 m of height above the floor and at least 0.4 m from other objects and from any person. The lead to be measured shall be stretched in a straight horizontal line for a length sufficient to accommodate the absorbing clamp and to permit the necessary adjustment of its position for tuning. The absorbing clamp is placed around the lead to be measured, with its current transformer towards the equipment under test, so as to measure a quantity proportional to the disturbance power on the lead.

Any other lead less than that to be measured shall either be disconnected, if mechanically and functionally possible, or fitted with ferrite rings to attenuate RF currents which may affect the measurement results. Such a lead shall be stretched away from the connected unit in a direction perpendicular to the direction of the lead to be measured.

All connectors not used shall be left un-terminated. All connectors having a connected lead shall be terminated in a manner representative of use. If the leads are screened and normally terminated in a screened unit, then the termination shall be screened.

5.5 Disturbance Power Test Data

Temperature (℃)	22~25
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

5.6 Test Plot(s) for Disturbance Power

Plot(s) of Conducted Emissions Test Data is presented hereinafter as reference.

5.7 Test Result

Pass

Please refer to the following page

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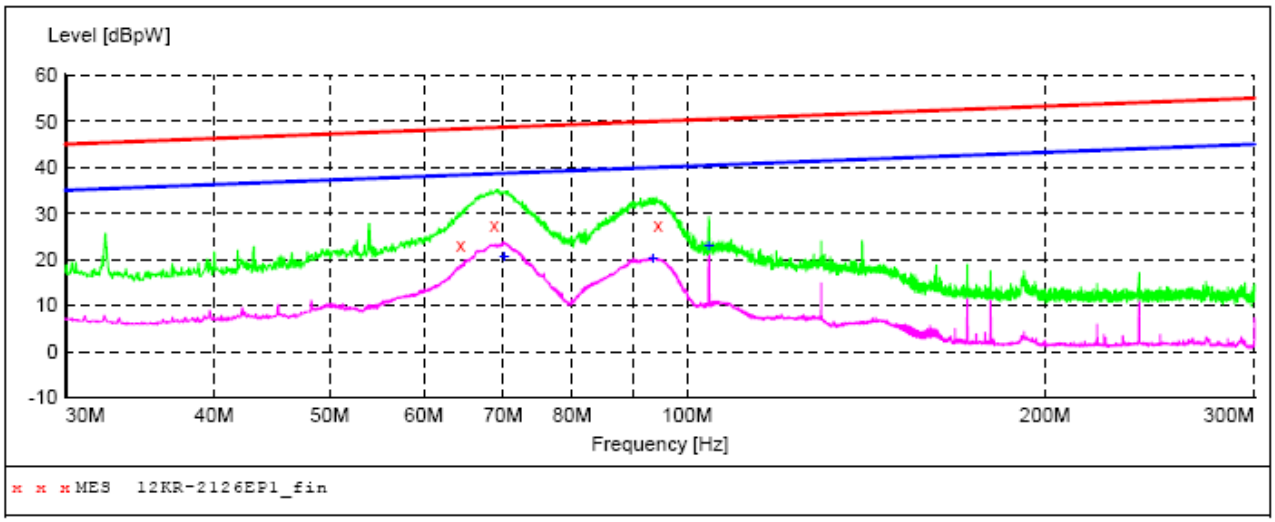
Power Clamp Test of EN55014-1

EUT:	Air Purifier
M/N:	AirCare 30
Operating Condition:	ON
Test Site:	Shielded Room
Operator:	Chen
Test Specification:	AC 253V 50Hz
Comment:	AC Line
Start of Test:	11/20/2012 9:51 Tem:25℃ Hum:55%

SCAN TABLE: "POWER(30M-300M)FIN"

Short Description: EN 55013 Power



MEASUREMENT RESULT: "12KR-2126EP1_fin"

11/20/2012 9:51AM

Frequency MHz	Level dBpW	Transd dB	Limit dBpW	Margin dB	Det.	Position cm
64.500000	23.30	4.5	48	25.0	QP	0.0
68.820000	27.50	4.3	49	21.1	QP	0.0
94.560000	27.30	5.7	50	22.7	QP	0.0

MEASUREMENT RESULT: "12KR-2126EP1_fin2"

11/20/2012 9:51AM

Frequency MHz	Level dBpW	Transd dB	Limit dBpW	Margin dB	Det.	Position cm
70.140000	20.90	4.2	39	17.8	AV	0.0
93.540000	20.30	5.8	40	19.6	AV	0.0
104.280000	23.10	5.6	40	17.3	AV	0.0

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6 – HARMONIC CURRENT TEST (EN 61000-3-2)

6.1 Application of Harmonic Current Emission

Compliance to these standards ensures that tested equipment will not generate harmonic currents at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

6.2 Measurement Data

Standard used	EN/IEC 61000-3-2 A14 (2006+A2:2009) Quasi-stationary – Equipment class A
Observation time	150s
Windows width:	10 periods – (EN/IEC 61000-4-7 Edition 2000)
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

6.3 Test Results

Pass

This EUT is deemed to comply with the requirements of EN61000-3-2:2006+A2:2009 without test since the power of EUT is less than 75W.

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7 – VOLTAGE FLUCTUATIONS AND FLICKER TEST (EN 61000-3-3)

7.1 Application of Voltage Fluctuations and Flicker Test

Compliance to these standards ensures that tested equipment will not generate flickers and voltage change at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

7.2 Measurement Data

Standard used	EN/IEC 61000-3-3 Flicker
Short time (Pst)	10 min
Observation time	10 min (1 Flicker measurement)
Flickermeter	AC 230V 50Hz
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

7.3 Test Results

Pass

EUT.:	Air Purifier
Test Result	PASS

	Pst	dc (%)	dmax (%)	d(t) > 3.3%(ms)
Limit	1.000	3.300	6.000	500
Reading 1	0.086	0.003	0.194	0

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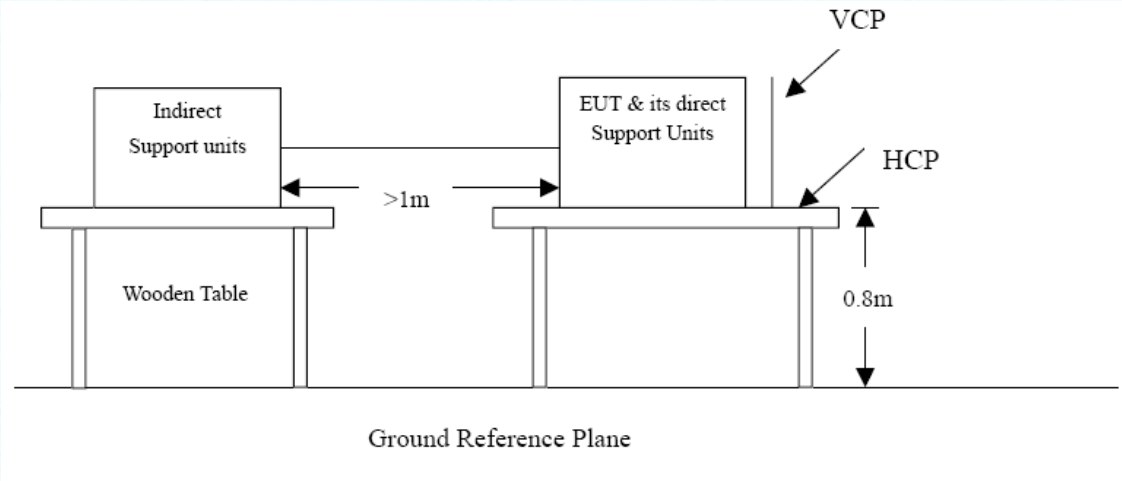
8 – ELECTROSTATIC DISCHARGE IMMUNITY TEST (IEC 61000-4-2)

8.1 Block Diagram of Test Setup



8.2 Test Standard

EN 55014-2: 1997+A2: 2008, (EN61000-4-2: 2009 Severity Level: 3 / Air Discharge: ±8KV Level: 2 / Contact Discharge: ±4KV)

8.3 Severity Levels and Performance Criterion

8.3.1 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

8.3.2 Performance criterion : B

8.4 Operating Condition of EUT

8.4.1 Setup the EUT as shown on Section 8.1.

8.4.2 Turn on the power of all equipments.

8.4.3 Let the EUT work in measuring mode (ON) and measure it.

8.5 Test Procedure

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8.5.1 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.

8.5.2 Contact Discharge:

All the procedure shall be same as Section 8.5.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.5.3 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.

8.5.4 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.

8.6 Test Results

PASS

Please refer to the following pages

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Temperature (℃)	22~23
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

Table 1: Electrostatic Discharge Immunity (Air Discharge)

IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Gap	A	A	A	A	A	A	A	A	/	/
Crust	A	A	A	A	A	A	A	A	/	/
Others	A	A	A	A	A	A	A	A	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Metal	A	A	A	A	/	/	/	/	/	/
Screw	A	A	A	A	/	/	/	/	/	/
Others	A	A	A	A	/	/	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Front Side	A	A	A	A	/	/	/	/	/	/
Back Side	A	A	A	A	/	/	/	/	/	/
Left Side	A	A	A	A	/	/	/	/	/	/
Right Side	A	A	A	A	/	/	/	/	/	/

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Front Side	A	A	A	A	/	/	/	/	/	/
Back Side	A	A	A	A	/	/	/	/	/	/
Left Side	A	A	A	A	/	/	/	/	/	/
Right Side	A	A	A	A	/	/	/	/	/	/

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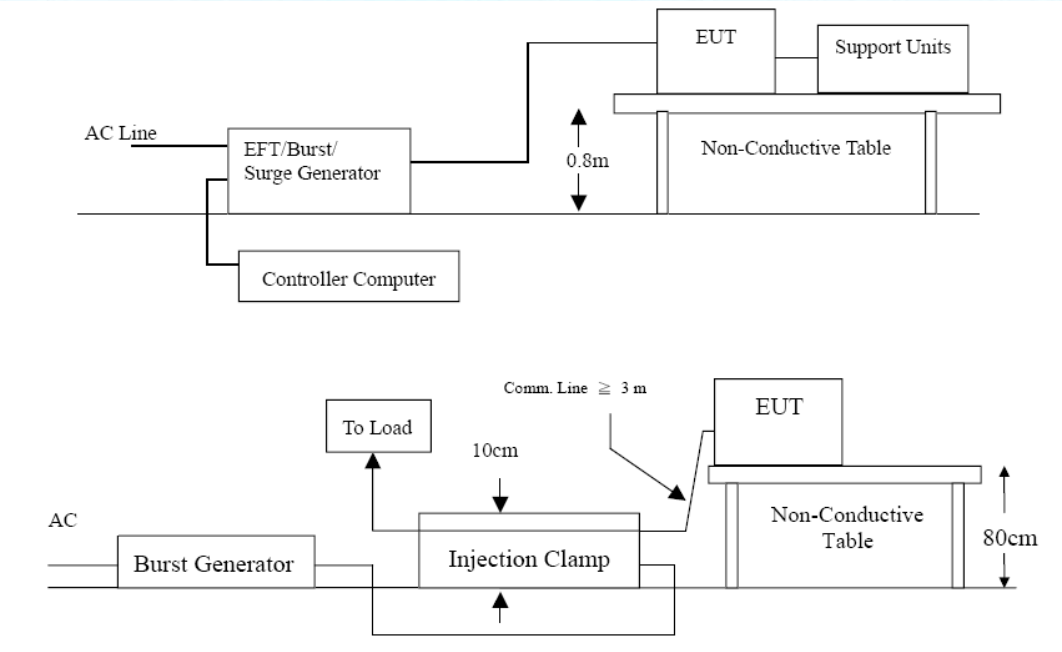
9 - ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (IEC 61000-4-4)

9.1 Block Diagram of Test Setup



9.2 Test Standard

EN 55014-2:1997+A2:2008, (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 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 Operating Condition of EUT

9.4.1 Setup the EUT as shown in Section 9.1.

9.4.2 Turn on the power of all equipments.

9.4.3 Let the EUT work in test mode (ON) and measure it.

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9.5 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.

9.5.1 For input and output DC power ports:

It's unnecessary to test

9.5.2 For signal lines and control lines ports:

It's unnecessary to test.

9.5.3 For AC Input line ports:

The EUT is connected to the AC 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.

9.6 Test Result

PASS

Temperature (℃)	22~23
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

IEC 61000-4-4 Test Points		Test Levels (kV)							
		+0. 5	-0. 5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC Power Supply Power Line of EUT	L1	A	A	A	A	/	/	/	/
	L2	A	A	A	A	/	/	/	/
	Earth	A	A	A	A	/	/	/	/
	L1+L2	A	A	A	A	/	/	/	/
	L1 + Earth	A	A	A	A	/	/	/	/
	L2 + Earth	A	A	A	A	/	/	/	/
	L1+L2+Earth	A	A	A	A	/	/	/	/

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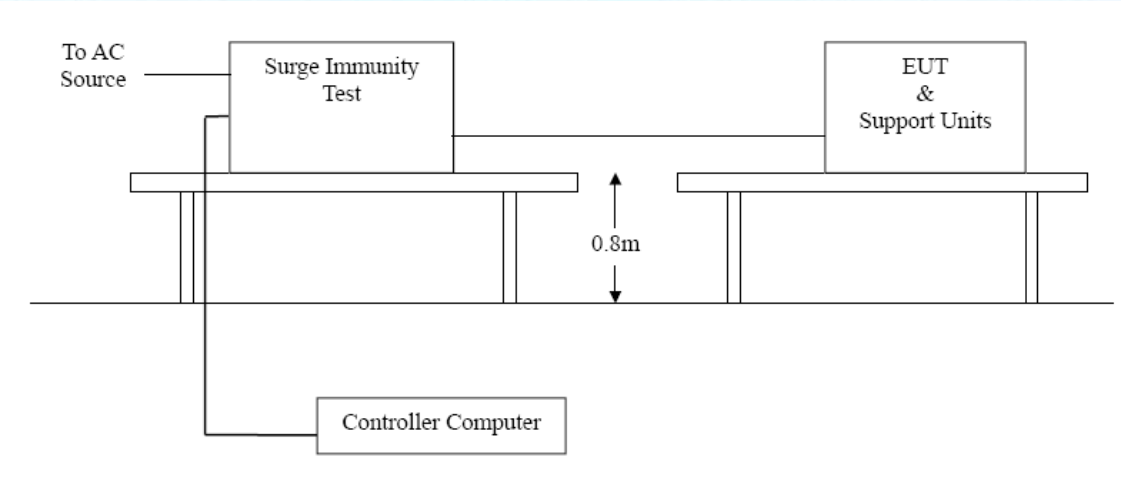
10 - SURGE IMMUNITY TEST (IEC 61000-4-5)

10.1 Block Diagram of Test Setup



10.2 Test Standard

EN 55014-2: 1997+A2:2008, (EN61000-4-5: 2006 Severity Level: Line to Line, Level 2: 1KV,Line to Earth , Level 3: 2KV)

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 Operating Condition of EUT

10.4.1 Setup the EUT as shown in Section 10.1.

10.4.2.Turn on the power of all equipments.

10.4.3.Let the EUT work in test mode (ON) and measure it.

10.5 Test Procedure

1)Set up the EUT and test generator as shown on Section 10.1.
2)For AC port coupling mode, provide a 1 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)Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

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10.6 Test Result

PASS

Temperature (℃)	22~23
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

Surge Power Supply

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	L-N	A	/
2	1kV	±	L-N	A	/
3	2kV	±	L-PE, N-PE	A	/
4	4kV	±	L-N, L-PE, N-PE	/	/

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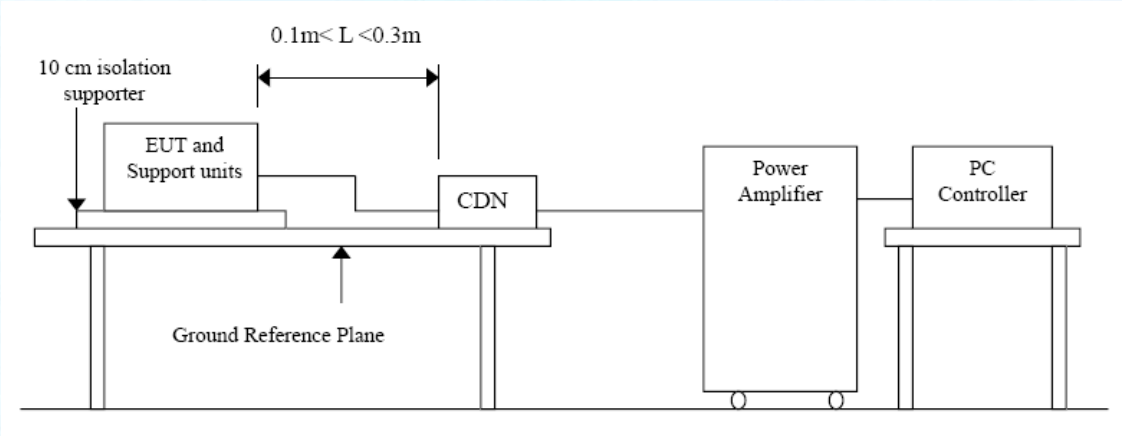
11 - CONDUCTED SUSCEPTIBILITY TEST (IEC 61000-4-6)

11.1 Block Diagram of Test Setup



11.2 Test Standard

EN 55014-2:1997+A2:2008 (EN61000-4-6: 2009, Severity Level 2: 3V (rms)).(0.15MHz ~ 230MHz)

11.3 Severity Levels and Performance Criterion

11.3.1 Severity level

Level	Field Strength V(rms)
1.	1
2.	3
3.	10
X	Special

11.3.2 Performance criterion: A

11.4 Operating Condition of EUT

11.4.1 Setup the EUT as shown in Section 11.1.

11.4.2 Turn on the power of all equipments.

11.4.3 Let the EUT work in test mode (ON) and measure it.

11.5 Test Procedure

11.5.1 For DC Mains
It's unnecessary to test.

11.5.2 For signal lines and control lines ports:

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It's unnecessary to test.

11.5.3 For AC Input line ports:
1) Set up the EUT, CDN and test generators as shown on Section 11.1.
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 network) 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 to 230MHz using 10V 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*10-3decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

11.6 Test Results

PASS

Frequency Range (MHz): 0.15~230MHz
Modulation: Amplitude 80%, 1kHz sinewave
Severity Level: 3Vr.m.s.

Temperature (℃)	22~23
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

1. AC POWER SUPPLY

Level	Voltage Level (e.m.f.) U_0	Pass	Fail
1	1	/	/
2	3	A	/
3	10	/	/
X	Special	/	/

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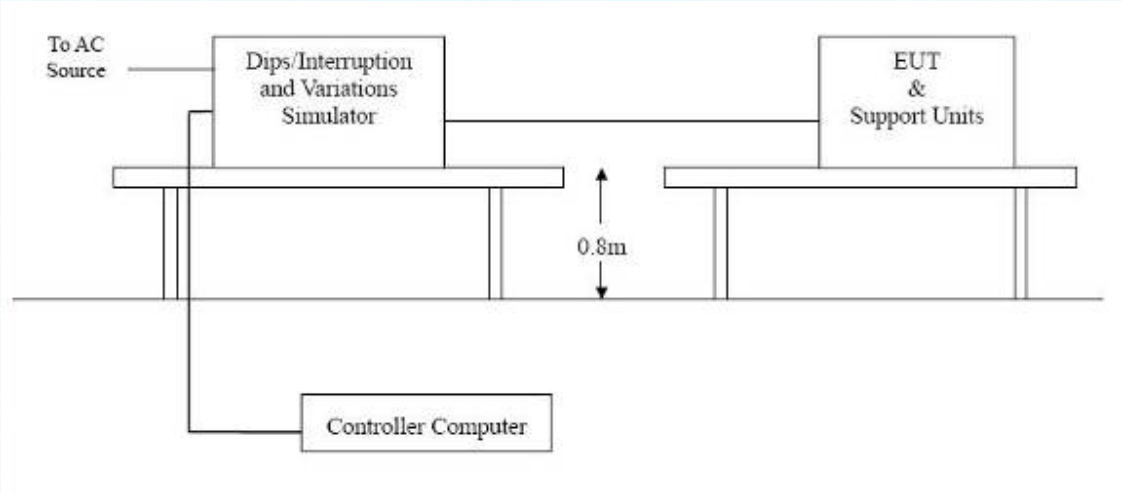
12 - VOLTAGE DIPS, SHORT INTERRUPTIONS IMMUNITY TESTS

12.1 Block Diagram of Test Setup



12.2 Test Standard

EN 55014-2: 1997+A2:2008(EN61000-4-11: 2004)

12.3 Severity Levels and Performance Criterion

12.3.1 Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5 1 5 10 25 50 *
40	60	
70	30	

12.3.2 Performance criterion : C

12.4 EUT Configuration

The configuration of EUT is listed in Section12.1.

12.5 Operating Condition of EUT

12.5.1 Turn on the power of all equipments.

12.5.2 Let the EUT work in test mode (ON) and measure it.

12.6 Test Procedure

1)Set up the EUT and test generator as shown on Section 12.1.
2)The interruption is introduced at selected phase angles with specified duration.
3)Record any degradation of performance.

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12.7 Test Result

PASS

Temperature (℃)	22~23
Humidity (%RH)	50~54
Barometric Pressure (mbar)	950~1000
EUT	Air Purifier
M/N	AirCare 30
Operating Mode	ON

Level	U2	td	Phase Angle	N	Pass	Fail
1	100%	10ms	0/90/180/270	3	C	/
2	60%	200ms	0/90/180/270	3	C	/
3	30%	500ms	0/90/180/270	3	C	/

Note:

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.

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13- TEST RESULTS

The following tests were performed on the EUT supplied by the applicant; the actual test results are contained within the Test Data section of this report.

13.1 IEC 61000-4-2 Electrostatic Discharge Immunity Test Configuration

The EUT was subjected to the electrostatic discharge tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-2.

The EUT continued to perform as intended during and after the application of the ESD. Test setup photographs presented in Appendix C.

13.2 IEC 61000-4-4 Electrical Fast Transient/Burst Immunity Test Configuration

The EUT was subjected to the electrical fast transient tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-4.

The EUT continued to perform as intended during and after the application of the EFT/B. Test setup photographs presented in Appendix C.

13.3 IEC 61000-4-5 Surge Immunity Test Configuration

The EUT was subjected to the Surge Immunity tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-5.

The EUT continued to perform as intended during and after the application of the Surge Immunity Test. Test setup photographs presented in Appendix C.

13.4 IEC 61000-4-6 Conducted Susceptibility Test Configuration

The EUT was subjected to the Conducted Susceptibility tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-6.

The EUT continued to perform as intended during and after the application of the Conducted Susceptibility Test. Test setup photographs presented in Appendix C.

13.5 IEC 61000-4-11 Voltage Dips, Short Interruptions Immunity Tests Configuration

The EUT was subjected to the Voltage Dips/Interruptions tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-11.

The EUT continued to perform as intended during and after the application of the Voltage Dips/Interruptions Test. Test setup photographs presented in Appendix C.

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APPENDIX A - PRODUCT LABELING

CE Marking Label Specification

Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

Proposed Label Location on EUT

Proposed CE Marking Location

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APPENDIX B - EUT PHOTOGRAPHS

EUT–Front View

EUT– Rear View

EUT– Open View

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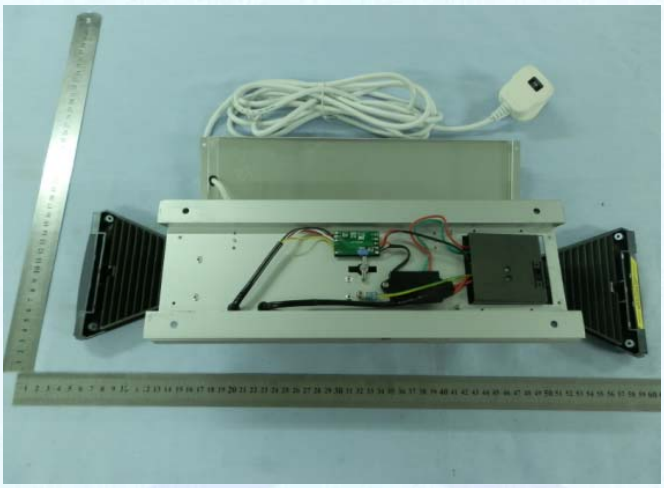
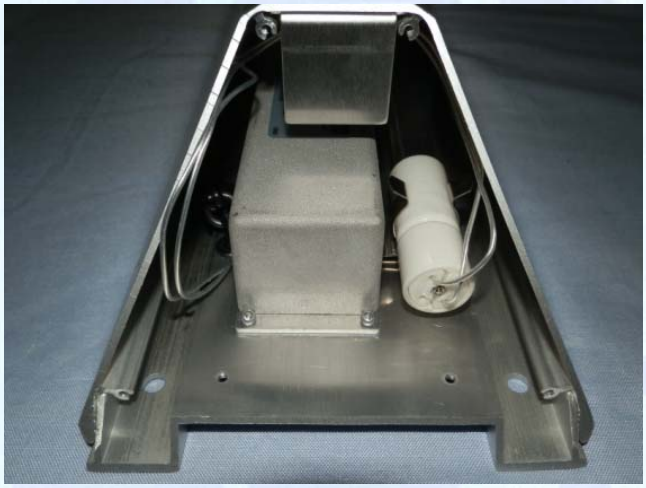
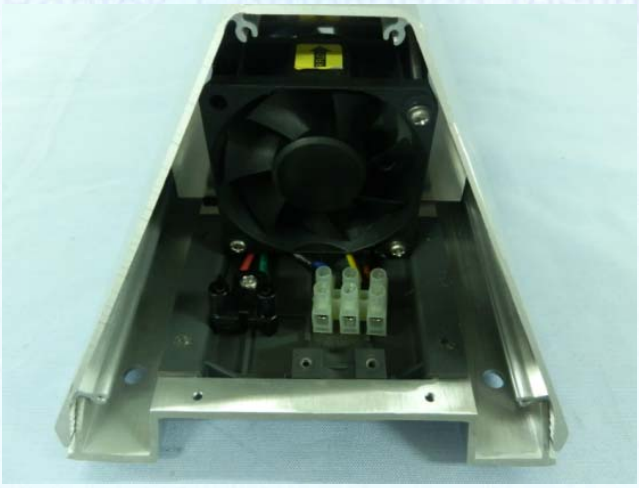
EUT– Open View







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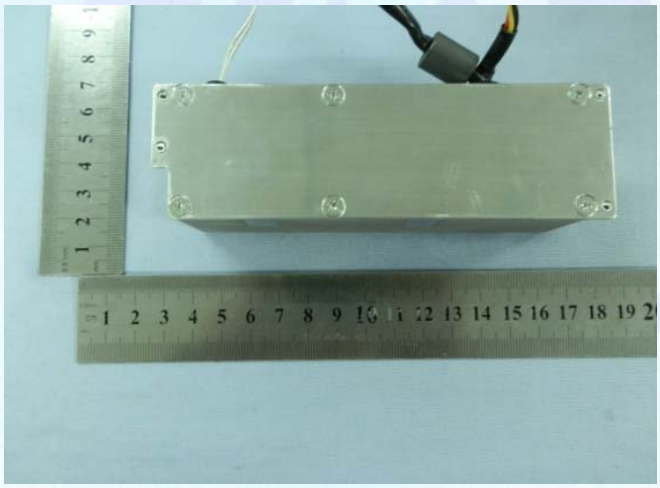
EUT –Parts View

EUT– Rear View



EUT– Open View

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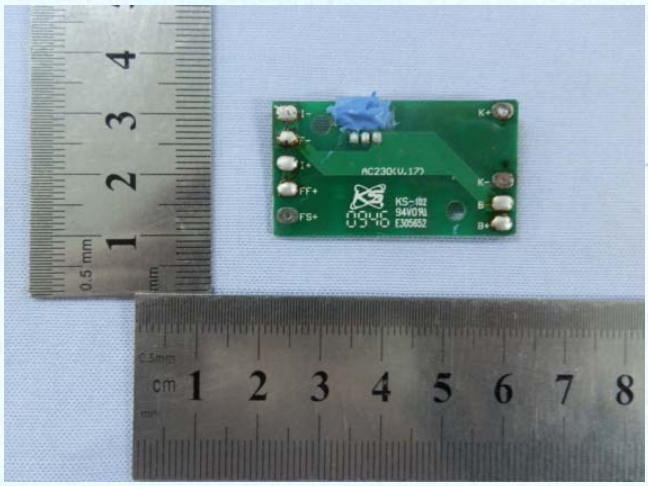
EUT–Parts View

EUT– PCB View



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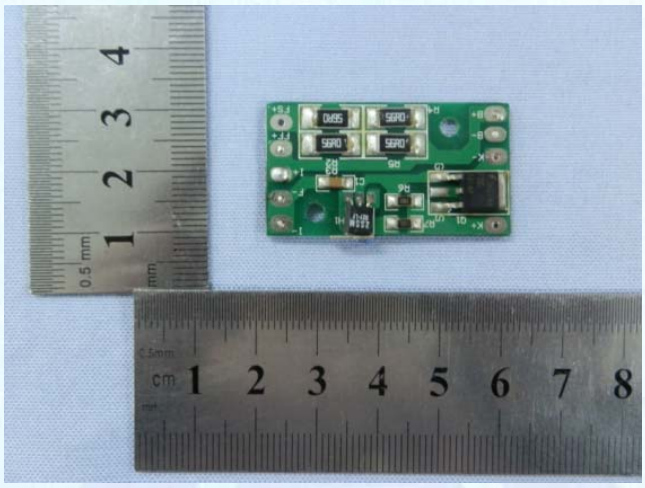
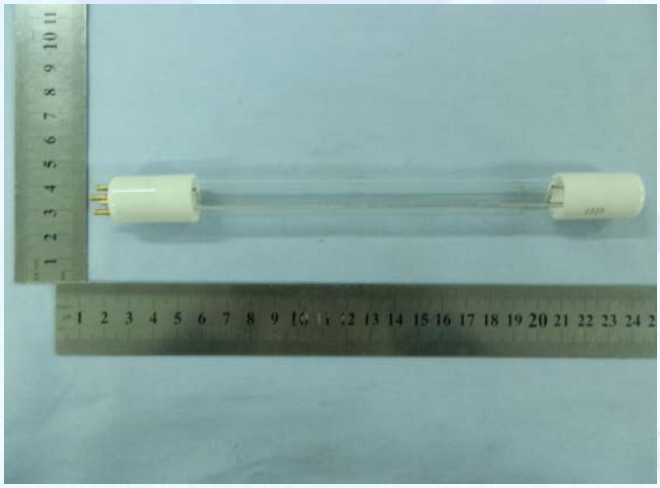
EUT– PCB View



EUT– Light View



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APPENDIX C - TEST SETUP PHOTOGRAPHS

Disturbance Voltage at the Mains Terminals

Disturbance Power Test

Electrical Fast Transient/Surge Immunity Test (IEC 61000-4-4/-4-5)

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Conducted Susceptibility Test (IEC 61000-4-6)

Electrostatic Discharge Immunity Test(IEC 61000-4-2)

Voltage Dips, Short Interruptions Immunity Test (IEC 61000-4-11)

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APPENDIX D - BONTEK ACCREDITATION CERTIFICATES

ilac-MRA CNAS

China National Accreditation Service for Conformity Assessment

LABORATORY ACCREDITATION CERTIFICATE

(Registration No. CNAS L3923)

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.

1/F., Block East H-3, OCT Eastern Ind. Zone, the 1st Road,
Xiangshan East Street, Nanshan District, Shenzhen, Guangdong, China

is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) *for the competence of testing.*

The scope of accreditation is detailed in the attached appendices bearing the same registration number as above. The appendices form an integral part of this certificate.

Date of Issue: 2012-03-22
Date of Expiry: 2015-03-21
Date of Initial Accreditation: 2009-02-27
Date of Update: 2012-03-22

Signed on behalf of China National Accreditation Service for Conformity Assessment

China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC MRA) and Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC MRA).

No.CNAS AL 2 0003595

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.
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TÜVRheinland®

Certificate

of

Appointment

No. UA 50203122-0001

The Applicant

Bontek Compliance Testing Laboratory Ltd
1/F, Block East H-3, OCT Eastern Industrial Zone, Qiaocheng East Rd.
Nanshan, Shenzhen, Guangdong
P.R. China

has been authorized to carry out EMC tests
by order and under supervision of TÜV Rheinland according to

EN55011,EN55012,EN55013,EN55014-1,EN55014-2,EN55015,EN55020
CISPR11,CISPR12,CISPR13,CISPR14-1,CISPR14-2,CISPR15,EN55022
EN55024,EN55025,CISPR20,CISPR22,CISPR24,CISPR25
EN/IEC61000-3-2/-3,EN/IEC61000-4-2/-4/-5/-6/-8/-11
EN/IEC61547,EN/IEC62040-2,EN/IEC61000-6-1
EN/IEC61000-6-2,EN/IEC61000-6-3,EN/IEC61000-6-4
EN/IEC60601-1-2,EN/IEC61326-1,EN/IEC61326-x(x=2,3,4, or 5)

An assessment of the laboratory was conducted according to the "Procedures and Conditions for Appointments of EMC Test Laboratories" with reference to EN ISO/IEC 17025 by a TÜV Rheinland auditor.
Audit Report No. 17010783-002
This certificate is valid until the next scheduled audit or up to 18 months, at the discretion of TÜV Rheinland.

Date of issue: 06.05.2011

Certification Body

TÜV Rheinland | CCIC (Qingdao) Co., Ltd. TÜVRheinland® Certification Body

Shawn Peng

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FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

March 03, 2011

Registration Number: 338263

Bontek Compliance Testing Laboratory Ltd
1/F, Block East H-3, OCT Eastern Ind. Zone,
Qiaocheng East Road, Nanshan,
Shenzhen,
China

Attention: Tony Wu, General Manager

Re: Measurement facility located at Hua Qiao Cheng East Ind. Area,Shenzhen,China
Anechoic chamber (3 meter)
Date of Renewal: March 03, 2011

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Phyllis Parrish
Industry Analyst

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