

# EMC TEST REPORT

For

USC056

BALI Portable Humidifier

Model No.: CC178152, HW102

Prepared for : USC056  
Address :

Prepared By : EMTEK(DONGGUAN) CO., LTD.  
Address : No.281, Guantai Road, Nancheng District, Dongguan,  
Guangdong, China.  
Tel : +86-769-22807078  
Fax: +86-769-22807079

Report Number : ED171031956E  
Date of Test : October 31, 2017 to November 16, 2017  
Date of Report : November 17, 2017

**TABLE OF CONTENTS**

Test Report Description	Page
<b>1. MDESCRIPTION OF STANDARDS AND RESULTS (EUT)</b> .....	<b>6</b>
<b>2. GENERAL INFORMATION</b> .....	<b>7</b>
2.1. Description of Device (EUT) .....	7
2.2. Description of Support Device .....	7
2.3. Description of Test Facility .....	8
2.4. Measurement Uncertainty .....	8
<b>3. MEASURING DEVICES AND TEST EQUIPMENT</b> .....	<b>9</b>
3.1. For Power Line Conducted Emission .....	9
3.2. For Disturbance Power Measurement .....	9
3.3. For Radiated Emission Measurement .....	9
3.4. For Harmonic / Flicker Measurement .....	9
3.5. For Electrostatic Discharge Test .....	10
3.6. For Electrical Fast Transient/Burst Immunity Test .....	10
3.7. For Surge Test .....	10
3.8. For Injected Currents Susceptibility Test .....	10
3.9. For Voltage Dips and Interruptions Test .....	10
<b>4. POWER LINE CONDUCTED MEASUREMENT</b> .....	<b>11</b>
4.1. Block Diagram of Test Setup .....	11
4.2. Conducted Power Line Emission Measurement Standard and Limits .....	11
4.3. EUT Configuration on Measurement .....	11
4.4. Operating Condition of EUT .....	12
4.5. Test Procedure .....	12
4.6. Measurement Results .....	12
<b>5. DISTURBANCE POWER MEASUREMENT</b> .....	<b>15</b>
5.1. Block Diagram of Test Setup .....	15
5.2. Measuring Standard .....	15
5.3. Disturbance Power Limits .....	15
5.4. EUT Configuration on Measurement .....	16
5.5. Operating Condition of EUT .....	16
5.6. Test Procedure .....	16
5.7. Measuring Results .....	16
<b>6. RADIATED EMISSION MEASUREMENT</b> .....	<b>21</b>
6.1. Block Diagram of Test .....	21
6.2. Measuring Standard .....	21
6.3. Radiated Emission Limits .....	22
6.4. EUT Configuration on Test .....	22
6.5. Operating Condition of EUT .....	22
6.6. Test Procedure .....	22
6.7. Measuring Results .....	22
<b>7. HARMONIC CURRENT MEASUREMENT</b> .....	<b>23</b>
7.1. Block Diagram of Test Setup .....	23
7.2. Measuring Standard .....	23
7.3. Operating Condition of EUT .....	23
7.4. Test Results .....	23
<b>8. VOLTAGE FLUCTUATIONS &amp; FLICKER MEASUREMENT</b> .....	<b>24</b>
8.1. Block Diagram of Test Setup .....	24
8.2. Measuring Standard .....	24

8.3. Operating Condition of EUT .....	24
8.4. Test Results .....	24
<b>9. ELECTROSTATIC DISCHARGE TEST .....</b>	<b>26</b>
9.1. Block Diagram of Test Setup .....	26
9.2. Test Standard .....	26
9.3. Severity Levels and Performance Criterion .....	27
9.4. EUT Configuration .....	27
9.5. Operating Condition of EUT .....	27
9.6. Test Procedure .....	28
9.7. Test Results .....	28
<b>10. ELECTRICAL FAST TRANSIENT/BURST TEST .....</b>	<b>30</b>
10.1. Block Diagram of Test Setup .....	30
10.2. Test Standard .....	30
10.3. Severity Levels and Performance Criterion .....	31
10.4. EUT Configuration .....	31
10.5. Operating Condition of EUT .....	31
10.6. Test Procedure .....	32
10.7. Test Results .....	32
<b>11. SURGE IMMUNITY TEST .....</b>	<b>34</b>
11.1. Block Diagram of Test Setup .....	34
11.2. Test Standard .....	34
11.3. Severity Levels and Performance Criterion .....	35
11.4. EUT Configuration .....	35
11.5. Operating Condition of EUT .....	35
11.6. Test Procedure .....	35
11.7. Test Results .....	35
<b>12. INJECTED CURRENTS SUSCEPTIBILITY TEST .....</b>	<b>37</b>
12.1. Block Diagram of Test Setup .....	37
12.2. Test Standard .....	37
12.3. Severity Levels and Performance Criterion .....	38
12.4. EUT Configuration .....	38
12.5. Operating Condition of EUT .....	38
12.6. Test Procedure .....	38
12.7. Test Results .....	39
<b>13. VOLTAGE DIPS AND INTERRUPTIONS TEST .....</b>	<b>41</b>
13.1. Block Diagram of Test Setup .....	41
13.2. Test Standard .....	41
13.3. Severity Levels and Performance Criterion .....	42
13.4. EUT Configuration .....	42
13.5. Operating Condition of EUT .....	42
13.6. Test Procedure .....	42
13.7. Test Results .....	42
<b>14. PHOTOGRAPH .....</b>	<b>44</b>
14.1. Photo of Conducted Emission Measurement .....	44
14.2. Photo of Disturbance Power Measurement .....	44
14.3. Photo of Harmonic/Flicker Measurement .....	45
14.4. Photo of Electrostatic Discharge Test .....	45
14.5. Photo of Electrical Fast Transient /Burst Test .....	46
14.6. Photo of Surge Test .....	46

APPENDIX (Photos of EUT) (3 pages)

## TEST REPORT VERIFICATION

Applicant : USC056  
Manufacturer : USC056  
EUT : BALI Portable Humidifier  
Model No. : CC178152, HW102  
Input Rating : DC 5V from adapter

### Measurement Procedure Used:

EN 55014-1: 2017  
EN 61000-3-2: 2014, EN 61000-3-3: 2013  
EN 55014-2: 2015  
(IEC 61000-4-2: 2008, IEC 61000-4-4: 2012, IEC 61000-4-5: 2014, IEC 61000-4-6: 2013, IEC 61000-4-11: 2004)

The device described above is tested by EMTEK(DONGGUAN) CO., LTD. and EMTEK(SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK(DONGGUAN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the EN 55014-1, EN 61000-3-2, EN 61000-3-3 and EN 55014-2 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK(DONGGUAN) CO., LTD.

Date of Test : October 31, 2017 to November 16, 2017

*Lizzy Li*

Prepared by :

Lizzy Li/ Editor

*Rance Ye*

Reviewer :

Rance Ye/ Supervisor

Approved & Authorized Signer :

*Sam Lv*  
  
Sam Lv/ Manager

## Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	ED171031956E

## 1. MDESCRIPTION OF STANDARDS AND RESULTS (EUT)

<b>EMISSION</b>			
Description of Test Item	Standard	Limits	Results
Disturbance Voltage at the Mains Terminal	EN 55014-1: 2017	Table 1	Pass
Clicks measurement	EN 55014-1: 2017	Clause 4.2	N/A
Disturbance Power	EN 55014-1: 2017	Table 2a	Pass
Radiated Disturbance	EN 55014-1: 2017	--	N/A
Harmonic Current Emissions	EN 61000-3-2: 2014	Class A	N/A
Voltage Fluctuation and Flicker	EN 61000-3-3: 2013	Clause 5	Pass
<b>IMMUNITY</b>			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic Discharge (ESD)	IEC 61000-4-2: 2008	B	Pass
RF Strength Susceptibility Test	IEC 61000-4-3: 2006: A1: 2007+A2: 2010	A	N/A
Electro Fast Transient (EFT)	IEC 61000-4-4: 2012	B	Pass
Surge (Input AC Power Port)	IEC 61000-4-5: 2014	B	Pass
Radio-Frequency, Continuous Conducted Disturbance	IEC 61000-4-6: 2013	A	Pass
Voltage Dips, 100%	IEC 61000-4-11: 2004	C	Pass
Voltage Dips, 60%		C	Pass
Voltage Dips, 30%		C	Pass
Note: N/A is an abbreviation for Not Applicable.			

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

EUT : BALI Portable Humidifier

Model Number : CC178152, HW102  
(Note: The samples are the same except appearance and model number. So CC178152 was selected for full tested.)

Trade Mark : N/A

Power Supply For Test : AC 230V/50Hz for adapter

Operate Mode : MIST

Applicant : USC056

Address :

Manufacturer : USC056

Address :

Date of sample receiver : October 31, 2017

Date of Test : October 31, 2017 to November 16, 2017

### 2.2. Description of Support Device

Adapter : Model : YSV6-0501000  
Input: AC 100-240V, 50/60Hz  
Output: DC 5V, 1000mA

### 2.3. Description of Test Facility

Site Description  
EMC Lab : Accredited by CNAS, 2015.09.24  
The certificate is valid until 2018.07.03  
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2006  
The Certificate Registration Number is L3150

Registered on Industry Canada, January 13, 2017  
The Certificate Number is 9444A.

Name of Firm : EMTEK(DONGGUAN) CO., LTD.  
Site Location : No.281, Guantai Road, Nancheng District, Dongguan, Guangdong, China.

### 2.4. Measurement Uncertainty

Test Item	Uncertainty
Conducted Emission Uncertainty	: 2.8dB
Power clamp	: 2.6dB
Radiated Emission Uncertainty (3m Chamber)	: 3.3dB (30M~1GHz Polarize: H) 3.2dB (30M~1GHz Polarize: V)
Uncertainty for Flicker test	: 0.25%
Uncertainty for Harmonic test	: 0.014%
Uncertainty for R/S Test	: 2.10dB(80MHz-200MHz) 1.76dB(200MHz-1000MHz)
Uncertainty for C/S Test	: 1.45(Using CDN Test) 2.37(Using EM Clamp Test)
Uncertainty for test site temperature and humidity	: 0.6°C 4%



### 3. MEASURING DEVICES AND TEST EQUIPMENT

#### 3.1. For Power Line Conducted Emission

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde&Schwarz	ESCI	100137	May 16, 2017	1 Year
2.	L.I.S.N.	Schwarzbeck	NNLK8121	8121-641	May 16, 2017	1 Year
3.	Pulse Limiter with 10dB Attenuation	Schwarzbeck	VTSD 9561-F	9561-F028	May 16, 2017	1 Year

#### 3.2. For Disturbance Power Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	100137	May 16, 2017	1 Year
2.	Power Clamp	Rohde & Schwarz	MDS21	100220	May 16, 2017	1Year
3.	RF Switching Unit	CDS	RSU-M2	38401	May 16, 2017	1 Year

#### 3.3. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	1166.5950.03	May 16, 2017	1 Year
2.	Bilog Antenna	Schwarzbeck	VULB9163	000141	May 16, 2017	1 Year
3.	Power Amplifier	CDS	RSU-CC1781 5252	818	May 16, 2017	1 Year
4.	Power Amplifier	HP	8447F	OPT H64	May 16, 2017	1 Year
5.	Color Monitor	SUNSPO	SP-140A	N/A	May 16, 2017	1 Year
6.	Single Line Filter	JIANLI	XL-3	N/A	May 16, 2017	1 Year
7.	Single Phase Power Line Filter	JIANLI	DL-2X100B	N/A	May 16, 2017	1 Year
8.	3 Phase Power Line Filter	JIANLI	DL-4X100B	N/A	May 16, 2017	1 Year
9.	DC Power Filter	JIANLI	DL-2X50B	N/A	May 16, 2017	1 Year
10.	Cable	Schwarzbeck	PLF-100	519489	May 16, 2017	1 Year
11.	Cable	Rosenberger	CIL02	A0783566	May 16, 2017	1 Year
12.	Cable	Rosenberger	RG 233/U	525178	May 16, 2017	1 Year

#### 3.4. For Harmonic / Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Power Frequency Test System	EMTEST	DPA500	U0526100506	May 16, 2017	1 Year
2.	AC Frequency Conversion Power	EMTEST	ACS 500	V526100507	May 16, 2017	1 Year
3.	PC	LENOVO	T2900D	SS12485803	May 16, 2017	1 Year

### 3.5. For Electrostatic Discharge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	SCHAFFNER	NSG432	1285	May 16, 2017	1 Year

### 3.6. For Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	EM TEST	UCS500M6B	V0526100502	May 16, 2017	1 Year
2.	Coupling Clamp	EM TEST	HFK	0605-10	May 16, 2017	1 Year

### 3.7. For Surge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Surge Generator	EM TEST	VCS 500M6T	V0526100503	May 16, 2017	1 Year

### 3.8. For Injected Currents Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Simulator	EM TEST	CWS500C	0900-12	May 17, 2017	1 Year
2.	CDN	EM TEST	CDN-M2	5100100100	May 17, 2017	1 Year
3.	CDN	EM TEST	CDN-CC17815 2	0900-11	May 17, 2017	1 Year
4.	Injection Clamp	EM TEST	F-2031-23MM	368	May 17, 2017	1 Year
5.	Attenuator	EM TEST	ATT6	0010222A	May 17, 2017	1 Year

### 3.9. For Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Dips Tester	HAEFELY	Pline1610	083732-12	May 17, 2017	1 Year

## 4. POWER LINE CONDUCTED MEASUREMENT

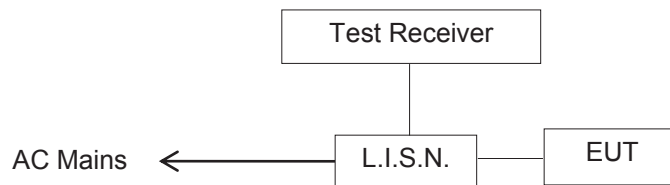
### 4.1. Block Diagram of Test Setup

4.1.1. Block diagram of connection between the EUT and simulators



(EUT: BALI Portable Humidifier)

4.1.2. Block Diagram of Test Setup



(EUT: BALI Portable Humidifier)

### 4.2. Conducted Power Line Emission Measurement Standard and Limits

4.2.1. Standard:

EN 55014-1: 2017

4.2.2. Limits

Frequency (MHz)	Limit (dB $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56 *	59 ~ 46 *
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

1. At the transition frequency the lower limit applies.
2. \* decreasing linearly with logarithm of the frequency.

### 4.3. EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet EN55014-1 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

EUT : BALI Portable Humidifier  
 Model Number : CC178152  
 Manufacturer : USC056

#### 4.4. Operating Condition of EUT

4.4.1. Setup the EUT as shown in Section 4.1.

4.4.2. Turn on the power of all equipments.

4.4.3. Let the EUT work in measuring mode (MIST) and measure it.

#### 4.5. Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground and connected to the AC mains through a Line Impedance Stabilization Network (L.I.S.N.). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission according to the EN55014-1 regulations during conducted emission measurement.

The bandwidth of the test receiver (ESCI) is set at 200Hz in 9KHz~150KHz range and 9KHz in 150KHz~30MHz range.

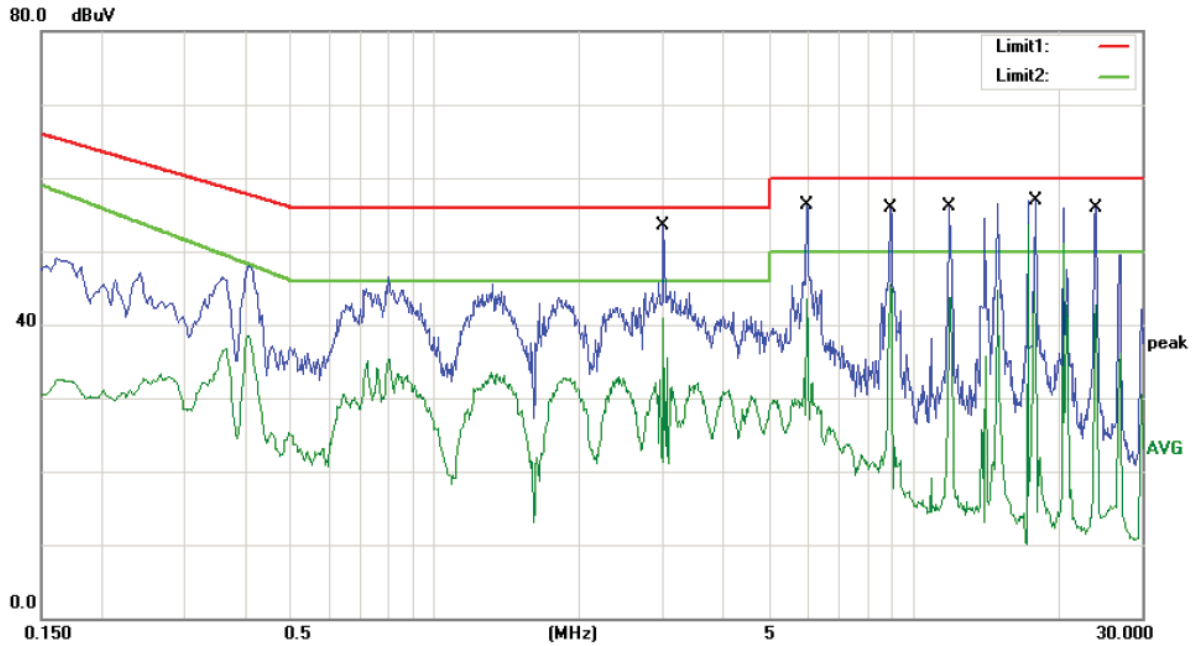
The frequency range from 150KHz to 30MHz is checked.

#### 4.6. Measurement Results

**PASS.**

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

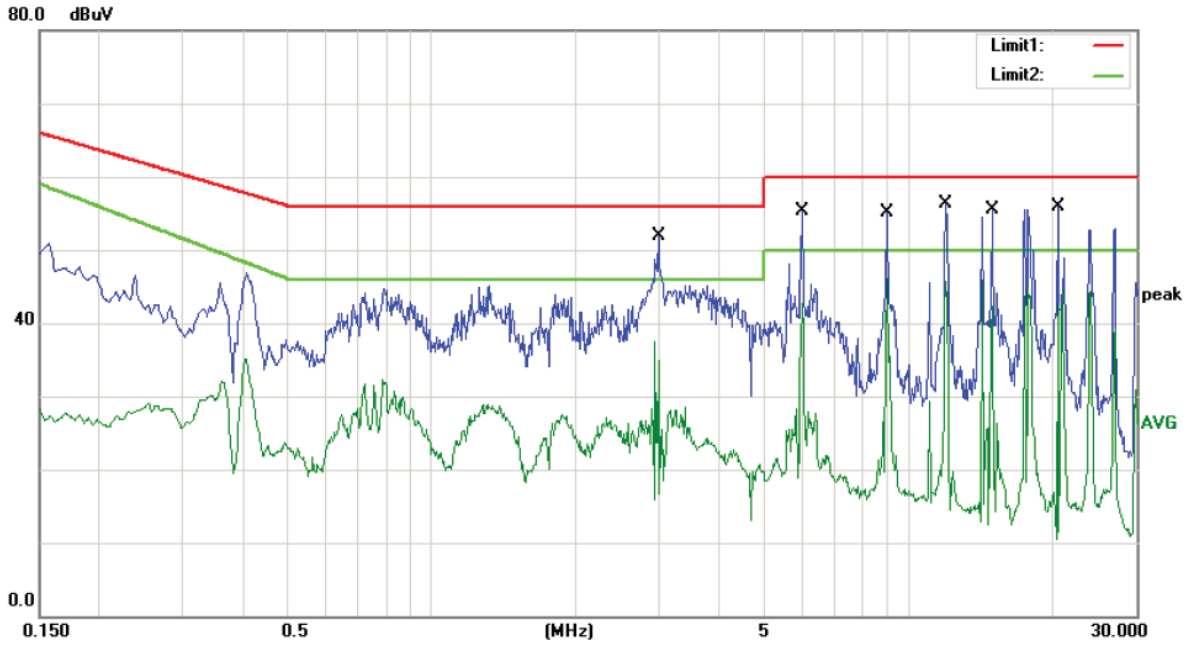
The data of the worst test mode are attached the following pages.



Site site #1 Phase: **L1** Temperature: 25  
 Limit: (CE)EN55014-1\_QP Power: AC 230V/50Hz Humidity: 55 %  
 Mode: MIST  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		3.0020	41.58	9.85	51.43	56.00	-4.57	QP	
2		3.0020	31.12	9.85	40.97	46.00	-5.03	AVG	
3		5.9860	44.45	9.88	54.33	60.00	-5.67	QP	
4		5.9860	33.63	9.88	43.51	50.00	-6.49	AVG	
5		8.9580	44.04	9.95	53.99	60.00	-6.01	QP	
6	*	8.9580	35.54	9.95	45.49	50.00	-4.51	AVG	
7		11.9220	44.11	10.03	54.14	60.00	-5.86	QP	
8		11.9220	33.73	10.03	43.76	50.00	-6.24	AVG	
9		17.9740	44.71	10.19	54.90	60.00	-5.10	QP	
10		17.9740	34.34	10.19	44.53	50.00	-5.47	AVG	
11		24.0380	43.66	10.34	54.00	60.00	-6.00	QP	
12		24.0380	32.43	10.34	42.77	50.00	-7.23	AVG	

\*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: washington



Site site #1 Phase: **N** Temperature: 25  
 Limit: (CE)EN55014-1\_QP Power: AC 230V/50Hz Humidity: 55 %  
 Mode: MIST  
 Note:

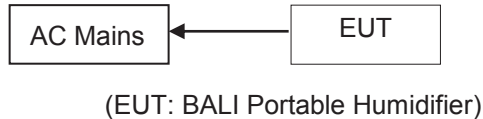
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		2.9860	39.96	9.85	49.81	56.00	-6.19	QP	
2		2.9860	27.56	9.85	37.41	46.00	-8.59	AVG	
3		5.9700	43.34	9.88	53.22	60.00	-6.78	QP	
4		5.9700	32.86	9.88	42.74	50.00	-7.26	AVG	
5		9.0100	43.06	9.95	53.01	60.00	-6.99	QP	
6	*	9.0100	36.09	9.95	46.04	50.00	-3.96	AVG	
7		11.9860	44.24	10.03	54.27	60.00	-5.73	QP	
8		11.9860	35.60	10.03	45.63	50.00	-4.37	AVG	
9		14.9500	43.39	10.11	53.50	60.00	-6.50	QP	
10		14.9500	32.14	10.11	42.25	50.00	-7.75	AVG	
11		20.5660	43.63	10.25	53.88	60.00	-6.12	QP	
12		20.5660	34.29	10.25	44.54	50.00	-5.46	AVG	

\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: washington

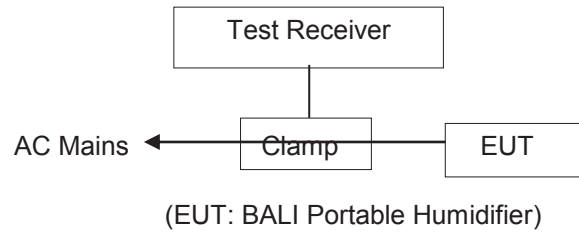
## 5. DISTURBANCE POWER MEASUREMENT

### 5.1. Block Diagram of Test Setup

#### 5.1.1. Block diagram of connection between the EUT and simulators



#### 5.1.2. Block Diagram of Test Setup



### 5.2. Measuring Standard

EN 55014-1: 2017

### 5.3. Disturbance Power Limits

All emanations from devices or system shall not exceed the level of field strengths specified below:

#### 5.3.1. (Table A)

Frequency MHz	Limits dB(pW)	
	Quasi-peak Value	Average Value
30 ~ 300	45 Increasing Linearly with Frequency to 55	35 Increasing Linearly with Frequency to 45

#### 5.3.2. (Table B)

Frequency MHz	Limits dB(pW)	
	Quasi-peak Value	Average Value
200 ~ 300	0 to 10 dB	-

#### 5.4. EUT Configuration on Measurement

The EN55014-1 Regulations test method must be used to find the maximum emission during radiated emission measurement. The configuration of the EUT is the same as used in conducted emission measurement.

#### 5.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.4 except the test set up replaced as Section 5.1.

#### 5.6. Test Procedure

The EUT is placed on the plane 0.8m high above the ground by insulating support and away from other metallic surface at least 0.4m. It is connected to the power mains through an extension cord of 6m min. The absorber clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord.

The bandwidth of the field strength meter (ESCI) is set at 120kHz.

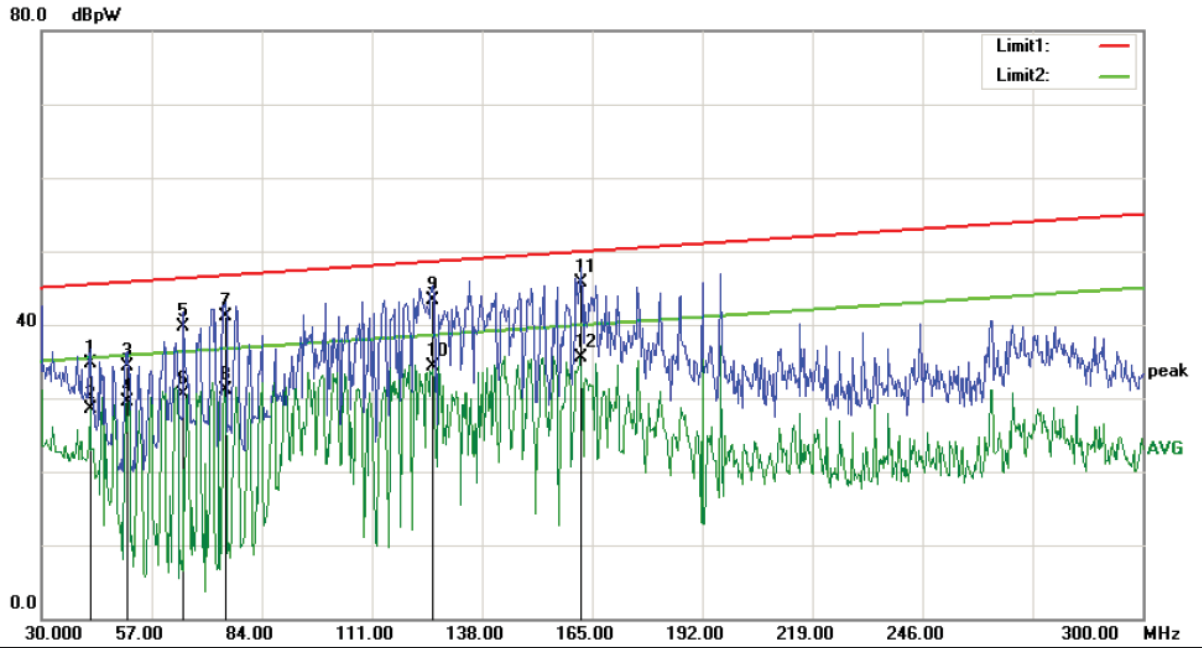
#### 5.7. Measuring Results

**PASS.**

The frequency spectrum from 30 MHz to 300 MHz is investigated.

The data of the test mode are attached the following pages.

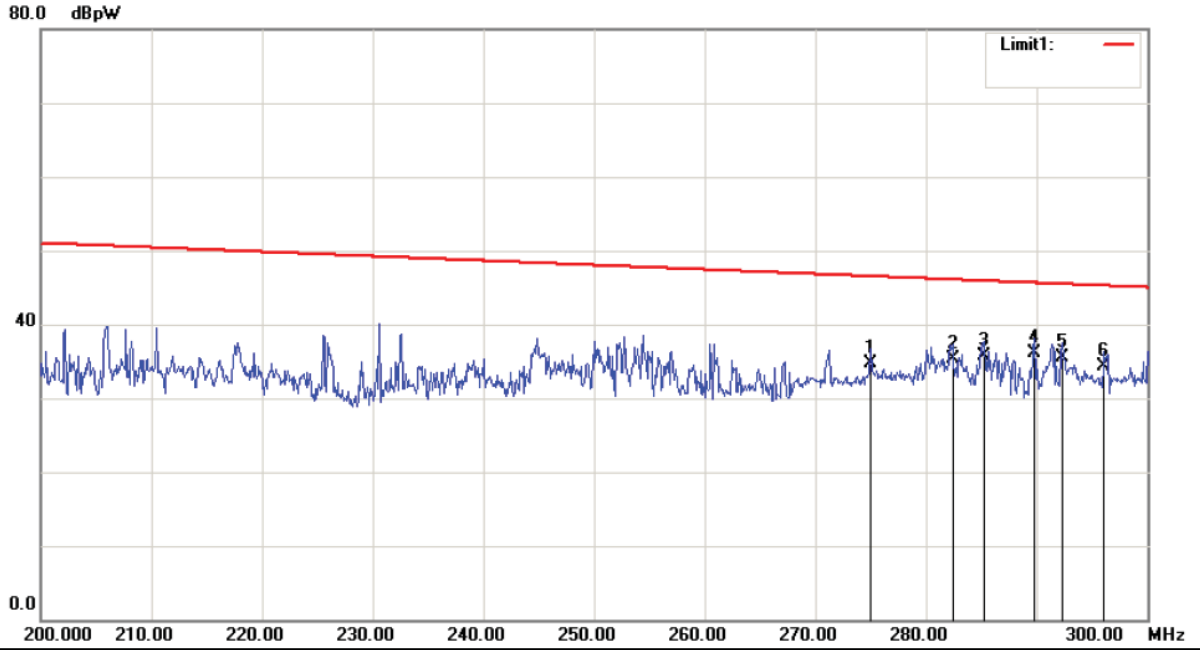




Site site #1 **AC Mains** Temperature: 25  
 Limit: (Clamp)EN55014-1\_QP Power: AC 230V/50Hz Humidity: 55 %  
 Mode: MIST  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBpW	Final Correct dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector	Position cm	Comment
1		41.8800	12.21	22.52	34.73	45.44	-10.71	QP	0	
2		41.8800	5.91	22.52	28.43	35.44	-7.01	AVG	0	
3		51.0600	11.93	22.37	34.30	45.78	-11.48	QP	0	
4		51.0600	7.13	22.37	29.50	35.78	-6.28	AVG	0	
5		64.8300	19.63	20.05	39.68	46.29	-6.61	QP	0	
6		64.8300	10.37	20.05	30.42	36.29	-5.87	AVG	0	
7		75.0900	21.67	19.41	41.08	46.67	-5.59	QP	0	
8		75.0900	11.76	19.41	31.17	36.67	-5.50	AVG	0	
9		125.8500	23.88	19.35	43.23	48.55	-5.32	QP	0	
10	*	125.8500	14.99	19.35	34.34	38.55	-4.21	AVG	0	
11		162.3000	27.47	18.19	45.66	49.90	-4.24	QP	0	
12		162.3000	17.31	18.19	35.50	39.90	-4.40	AVG	0	

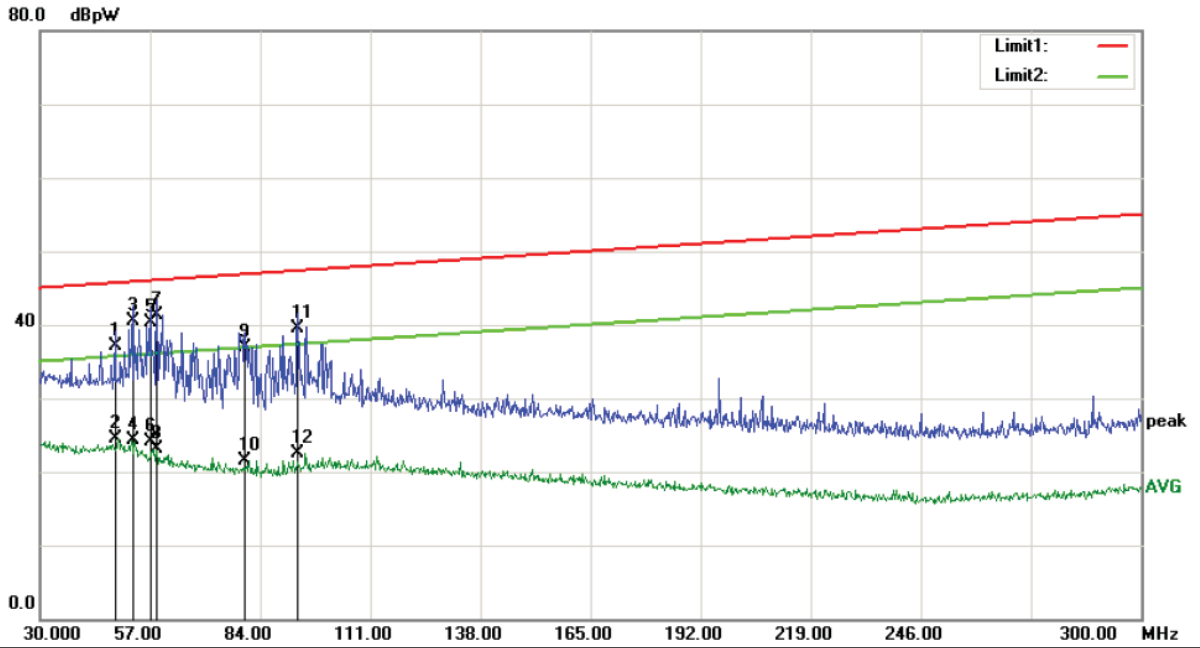
\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: washington



Site site #1 **AC Mains** Temperature: 25  
 Limit: (Clamp)EN55014-1\_QP(200M-300M) Power: AC 230V/50Hz Humidity: 55 %  
 Mode: MIST  
 Note:

No.	Mk.	Freq.	Reading Level	Final Correct	Measurement	Limit	Over	Detector	Position	Comment
		MHz	dBpW	dB	dBpW	dBpW	dB		cm	
1		275.0000	18.19	16.45	34.64	46.50	-11.86	QP	0	
2		282.4000	18.65	16.65	35.30	46.06	-10.76	QP	0	
3		285.2000	18.99	16.73	35.72	45.89	-10.17	QP	0	
4	*	289.8000	19.23	16.86	36.09	45.61	-9.52	QP	0	
5		292.3000	18.62	16.93	35.55	45.46	-9.91	QP	0	
6		296.1000	17.34	17.03	34.37	45.23	-10.86	QP	0	

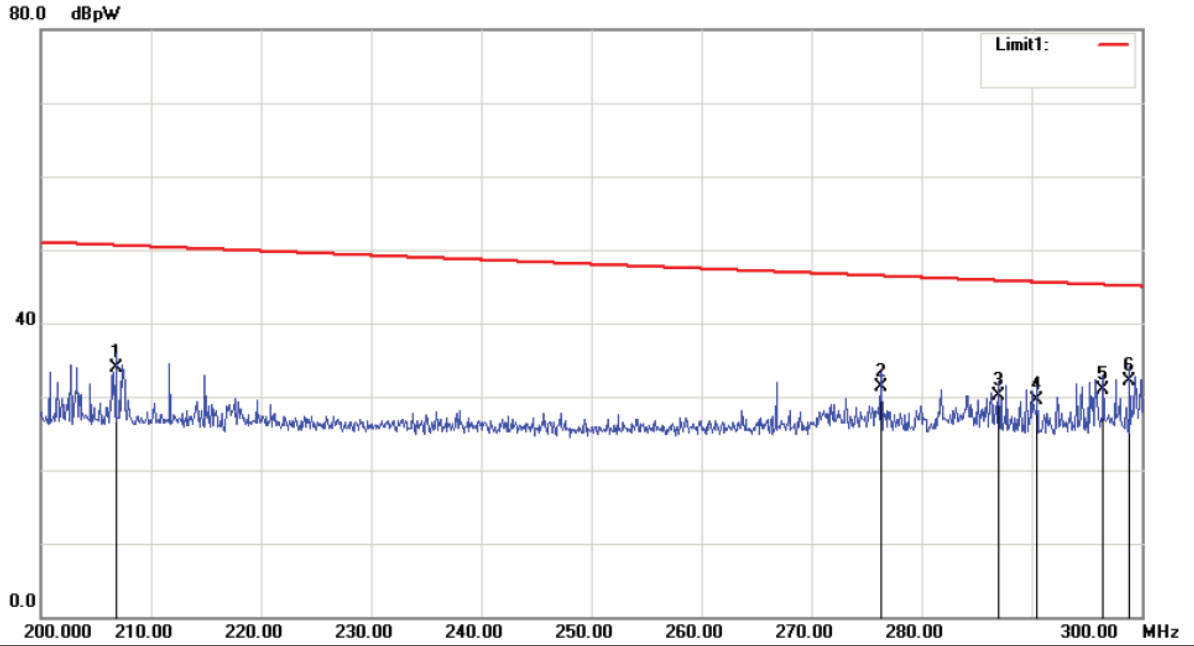
\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: washington



Site site #1 DC Line Temperature: 25  
 Limit: (Clamp)EN55014-1\_QP Power: AC 230V/50Hz Humidity: 55 %  
 Mode: MIST  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBpW	Final Correct dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector	Position cm	Comment
1		48.3600	14.44	22.59	37.03	45.68	-8.65	QP	0	
2		48.3600	1.90	22.59	24.49	35.68	-11.19	AVG	0	
3		52.6800	18.59	22.00	40.59	45.84	-5.25	QP	0	
4		52.6800	2.36	22.00	24.36	35.84	-11.48	AVG	0	
5		57.0000	19.21	21.01	40.22	46.00	-5.78	QP	0	
6		57.0000	3.01	21.01	24.02	36.00	-11.98	AVG	0	
7	*	58.6200	20.67	20.64	41.31	46.06	-4.75	QP	0	
8		58.6200	2.38	20.64	23.02	36.06	-13.04	AVG	0	
9		80.2200	17.85	19.09	36.94	46.86	-9.92	QP	0	
10		80.2200	2.47	19.09	21.56	36.86	-15.30	AVG	0	
11		93.1800	19.94	19.54	39.48	47.34	-7.86	QP	0	
12		93.1800	3.05	19.54	22.59	37.34	-14.75	AVG	0	

\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: washington



Site site #1 *DC Line* Temperature: 25  
 Limit: (Clamp)EN55014-1\_QP(200M-300M) Power: AC 230V/50Hz Humidity: 55 %  
 Mode: MIST  
 Note:

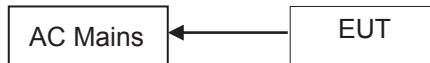
No.	Mk.	Freq. MHz	Reading Level dBpW	Final Correct dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector	Position cm	Comment
1		206.8000	17.02	16.82	33.84	50.59	-16.75	QP	0	
2		276.3000	14.76	16.49	31.25	46.42	-15.17	QP	0	
3		287.0000	13.33	16.78	30.11	45.78	-15.67	QP	0	
4		290.5000	12.61	16.88	29.49	45.57	-16.08	QP	0	
5		296.5000	13.93	17.04	30.97	45.21	-14.24	QP	0	
6	*	298.9000	14.94	17.11	32.05	45.07	-13.02	QP	0	

\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: washington

## 6. RADIATED EMISSION MEASUREMENT

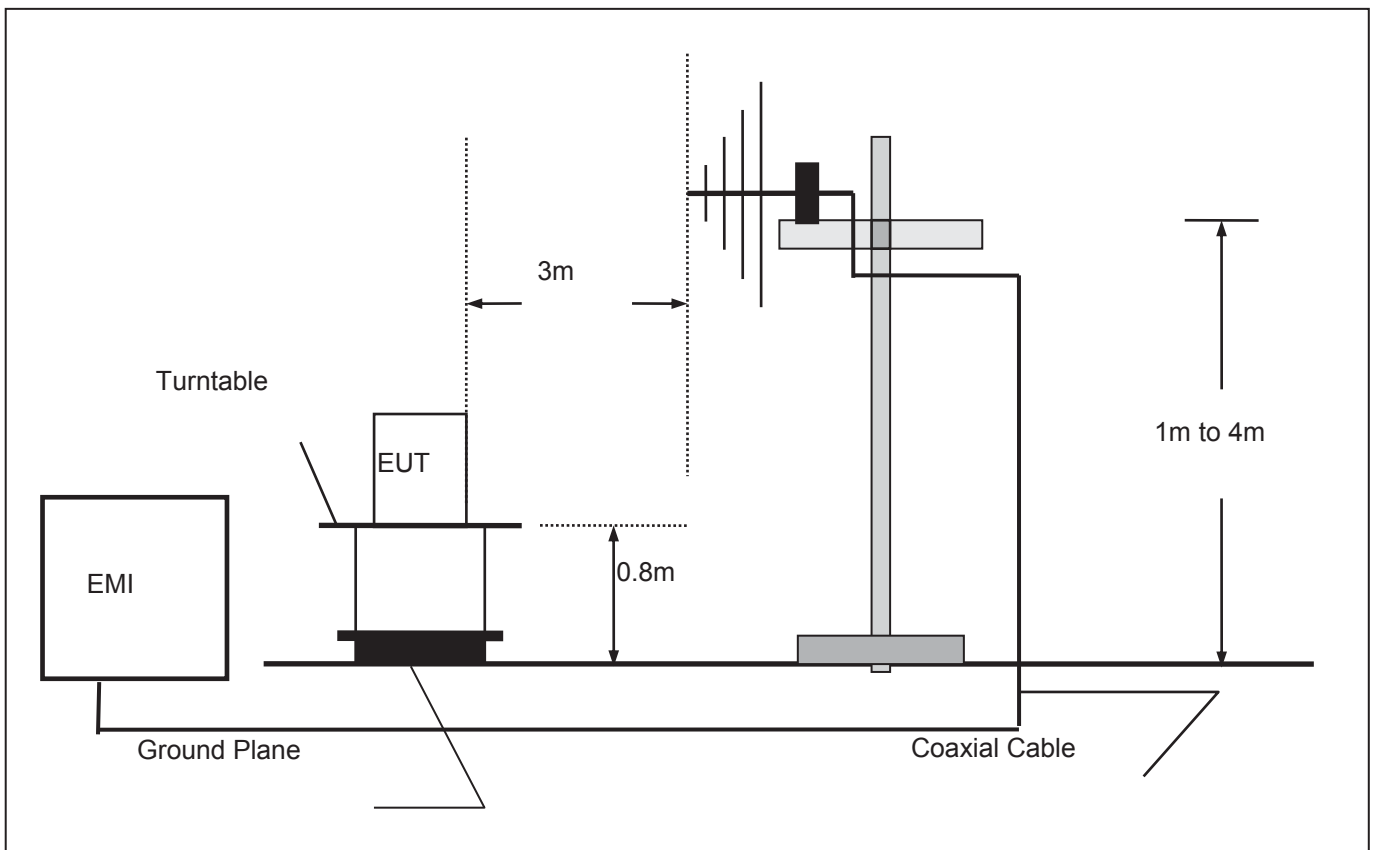
### 6.1. Block Diagram of Test

#### 6.1.1. Block diagram of connection between the EUT and simulators



(EUT: BALI Portable Humidifier)

#### 6.1.2. Block diagram of test setup (In chamber)



(EUT: BALI Portable Humidifier)

### 6.2. Measuring Standard

EN 55014-1: 2017

### 6.3. Radiated Emission Limits

All emanations from devices or system shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB $\mu$ V/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.

### 6.4. EUT Configuration on Test

The EN55014-1 regulations test method must be used to find the maximum emission during radiated emission measurement.

### 6.5. Operating Condition of EUT

6.5.1. Turn on the power.

6.5.2. After that, let the EUT work in test mode(MIST)and measure it.

### 6.6. 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 polarizations of the antenna are set on test.

The bandwidth of the Receiver (ESCI) is set at 120kHz.

### 6.7. Measuring Results

The frequency spectrum from 30 MHz to 1000 MHz is investigated.

For the test data of disturbance power is lower than the applicable limits (Table A) reduced by the margin (Table B), and the maximum clock frequency is less than 30 MHz. so the radiated measurements in the frequency range from 300 MHz to 1000 MHz shall not be tested.

## 7. HARMONIC CURRENT MEASUREMENT

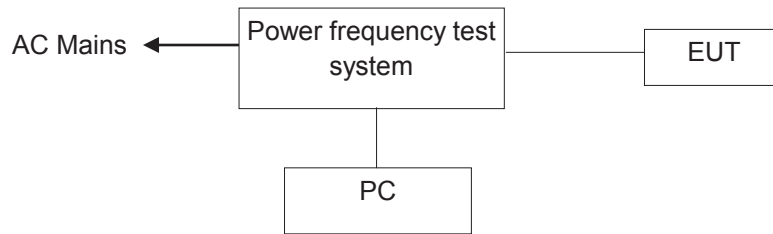
### 7.1. Block Diagram of Test Setup

#### 7.1.1. Block Diagram of connection between the EUT and simulators



(EUT: BALI Portable Humidifier)

#### 7.1.2. Block Diagram of Test Setup



(EUT: BALI Portable Humidifier)

### 7.2. Measuring Standard

EN 61000-3-2: 2014

Class A Power  $\leq$  75W

### 7.3. Operating Condition of EUT

Same as Section 4.4 except that the test setup replaced by Section 7.1.

### 7.4. Test Results

**Not Applicable.**

Because power of EUT is less than 75W, according to standard EN61000-3-2, Harmonics Current is not required.

## 8. VOLTAGE FLUCTUATIONS & FLICKER MEASUREMENT

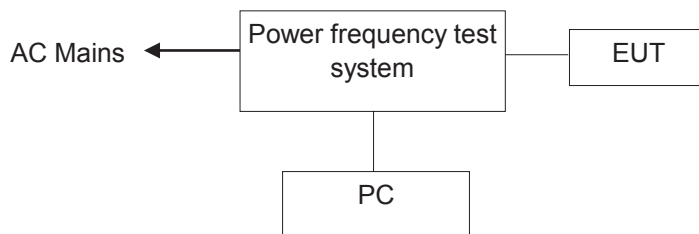
### 8.1. Block Diagram of Test Setup

#### 8.1.1. Block Diagram of connection between the EUT and simulators



(EUT: BALI Portable Humidifier)

#### 8.1.2. Block Diagram of Test Setup



(EUT: BALI Portable Humidifier)

### 8.2. Measuring Standard

EN 61000-3-3: 2013

### 8.3. Operating Condition of EUT

8.3.1. Setup the EUT as shown Section 8.1.

8.3.2. Turn on the power of all equipments.

8.3.3. Let EUT work in test mode(MIST) and measure it.

### 8.4. Test Results

**PASS.**

Please refer to the following page.



## Test Report

Report title:	Flicker
Company Name:	EMTEK
Date of test:	9:49 2.Nov 2017
Tester:	Alan
Standard used:	EN/IEC 61000-3-3 Flicker
Short time (Pst):	10 min
Observation time:	10 min (1 Flicker measurement)
Flickermeter:	230V / 50Hz
Flicker Impedance:	Zref (IEC 60725)
Customer:	USC056
E. U. T.:	BALI Portable Humidifier
M/N:	CC178152
Mode:	MIST

Test Result	PASS
-------------	------

### Maximum Flicker results

	<b>EUT values</b>	<b>Limit</b>	<b>Result</b>
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.005	3.30	PASS
dmax [%]	0.299	4.00	PASS
dt [s]	0.000	0.50	PASS

## 9. ELECTROSTATIC DISCHARGE TEST

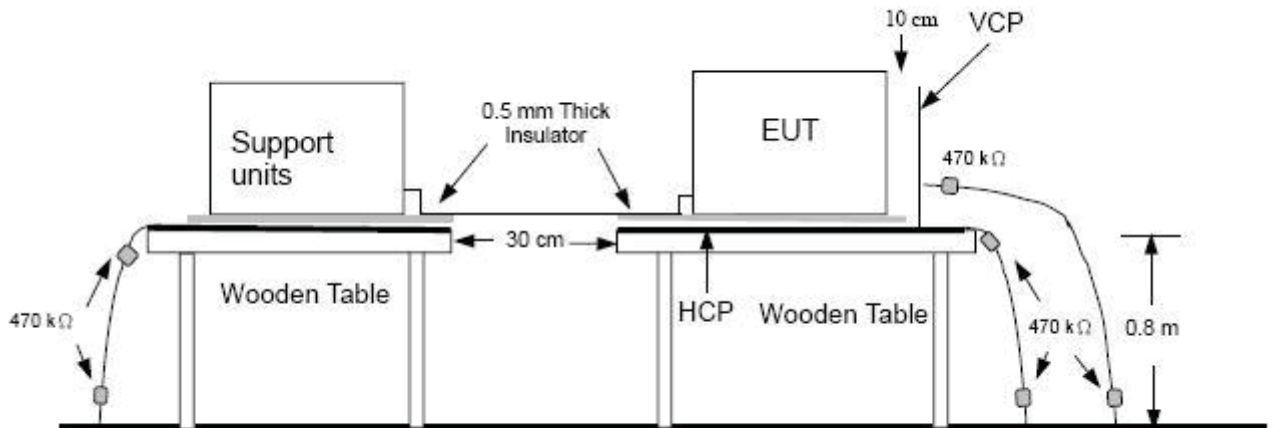
### 9.1. Block Diagram of Test Setup

#### 9.1.1. Block Diagram of connection between the EUT and simulators



(EUT: BALI Portable Humidifier)

#### 9.1.2. Block Diagram of ESD Test Setup



### Ground Reference Plane

(EUT: BALI Portable Humidifier)

### 9.2. Test Standard

EN 55014-2: 2015

(IEC 61000-4-2: 2008 (Severity Level: 2 / Contact Discharge:  $\pm 4\text{KV}$   
Severity Level: 3 / Air Discharge:  $\pm 8\text{KV}$ ))

### 9.3. Severity Levels and Performance Criterion

#### 9.3.1. 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

#### 9.3.2. Performance criterion: **B**

### 9.4. EUT Configuration

The configuration of EUT is listed in Section 2.1

### 9.5. Operating Condition of EUT

9.5.1. Setup the EUT as shown in Section 9.1.

9.5.2. Turn on the power of all equipments.

9.5.3. Let the EUT work in test mode(MIST) and measure it.

## 9.6. Test Procedure

### 9.6.1. 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.

### 9.6.2. Contact Discharge:

All the procedure shall be same as Section 9.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

### 9.6.3. Indirect discharge for horizontal coupling plane:

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

### 9.6.4. Indirect discharge for vertical coupling plane:

At least 20 single discharge 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.

## 9.7. Test Results

**PASS.**

Please refer to the following page.

## Electrostatic Discharge Test Results

EMTEK(DONGGUAN) CO., LTD.

Applicant : USC056	Test Date : November 02, 2017
EUT : BALI Portable Humidifier	Temperature : 24°C
M/N : CC178152	Humidity : 54%
Power Supply : AC 230V/50Hz	Test Engineer: YE
Test Mode : MIST	Criterion : B
Air Discharge: ±2, 4, 8KV	
Contact Discharge: ±2, 4KV # For each point positive 10 times and negative 10 times	
<b>Location</b>	<b>Kind</b> A-Air Discharge C-Contact Discharge
Slot of EUT                          5 points	A
I/O Port                                    1 points	A
HCP	C
VCP	C
Remark :	Test Equipment : ESD Tester (TESEQ AG, NSG437)

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

## 10. ELECTRICAL FAST TRANSIENT/BURST TEST

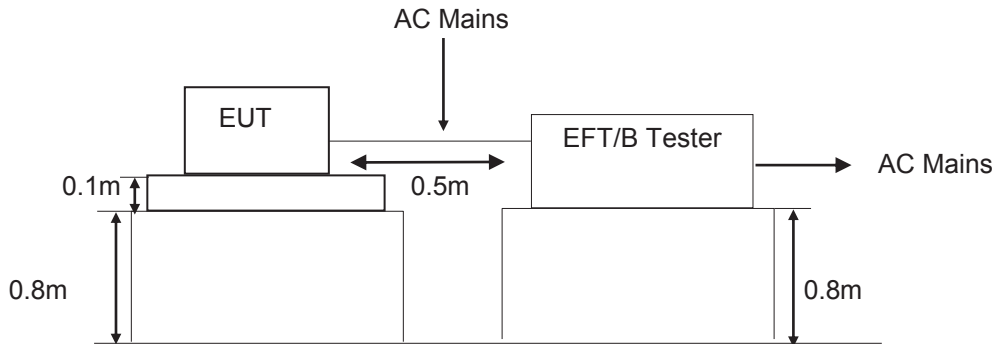
### 10.1. Block Diagram of Test Setup

#### 10.1.1. Block Diagram of connection between the EUT and simulators



(EUT: BALI Portable Humidifier)

#### 10.1.2. Block Diagram of EFT Test Setup



(EUT: BALI Portable Humidifier)

### 10.2. Test Standard

EN 55014-2: 2015  
(IEC 61000-4-4: 2012, Severity Level, Level 2: 1KV)

### 10.3. Severity Levels and Performance Criterion

#### 10.3.1. Severity level

Open circuit output test voltage and repetition rate of the impulses				
Level	On power port, PE		On I/O (Input/Output) Signal data and control ports	
	Voltage peak KV	Repetition rate KHz	Voltage peak KV	Repetition rate KHz
1.	0.5 KV	5 or 100	0.25 KV	5 or 100
1.	1 KV	5 or 100	0.5 KV	5 or 100
2.	2 KV	5 or 100	1 KV	5 or 100
4.	4 KV	5 or 100	2 KV	5 or 100
X	Special	Special	Special	Special

NOTE 1 Use of 5 KHz repetition rates is traditional; however, 100 KHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types.

NOTE 2 With some products, there may be no clear distinction, between power ports and I/O ports, in which case it is up to product committees to make this determination for test purposes.

“X” is an open level. The level has to be specified in the dedicated equipment specification.

#### 10.3.2. Performance criterion: **B**

### 10.4. EUT Configuration

The configurations of EUT are listed in Section 2.1.

### 10.5. Operating Condition of EUT

10.5.1. Setup the EUT as shown in Section 10.1.

10.5.2. Turn on the power of all equipments.

10.5.3. Let the EUT work in test mode(MIST) and measure it.

## 10.6. 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.

### 10.6.1. 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.

### 10.6.2. For signal lines and control lines ports:

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

### 10.6.3. For DC output line ports:

No DC ports. It's unnecessary to test.

## 10.7. Test Results

**PASS.**

Please refer to the following page.



## Electrical Fast Transient/Burst Test Results

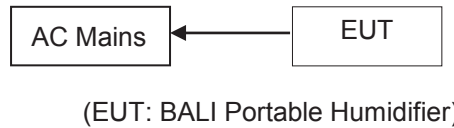
EMTEK(DONGGUAN) CO., LTD.

Standard :	<input checked="" type="checkbox"/> IEC 61000-4-4 <input type="checkbox"/> EN 61000-4-4	Result : <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL	
Applicant : <u>USC056</u>			
EUT : <u>BALI Portable Humidifier</u>			
M/N : <u>CC178152</u>			
Input Voltage: <u>AC 230V/50Hz</u>			
Criterion : <u>B</u>			
Ambient Condition : <u>25 °C</u> <u>50% RH</u>			
Operation Mode : MIST			
Line : <input checked="" type="checkbox"/> AC Mains	Line : <input type="checkbox"/> Signal <input type="checkbox"/> I/O Cable		
Coupling : <input checked="" type="checkbox"/> Direct	Coupling : <input type="checkbox"/> Capacitive		
Test Time : 120s			
Line	Test Voltage	Result (+)	Result (-)
L	1KV	PASS	PASS
N	1KV	PASS	PASS
P			
L、N	1KV	PASS	PASS
L、PE			
N、PE			
L、N、PE			
Signal Line			
DC Line			
Note:			
Test Equipment		Burst Tester Model : UCS500M6B	

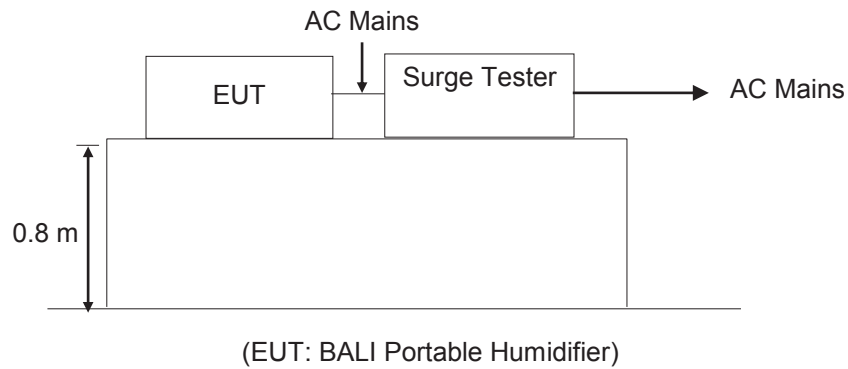
## 11. SURGE IMMUNITY TEST

### 11.1. Block Diagram of Test Setup

#### 11.1.1. Block Diagram of connection between the EUT and simulators



#### 11.1.2. Surge Test Setup



### 11.2. Test Standard

EN 55014-2: 2015  
(IEC 61000-4-5: 2014, Severity Level: Line to Line: Level 2, 1.0KV)

### 11.3. Severity Levels and Performance Criterion

#### 11.3.1. Severity level

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

#### 11.3.2. Performance criterion: **B**

### 11.4. EUT Configuration

The configurations of EUT are listed in Section 2.1.

### 11.5. Operating Condition of EUT

11.5.1. Setup the EUT as shown in Section 11.1.

11.5.2. Turn on the power of all equipments.

11.5.3. Let the EUT work in test mode(MIST) and measure it.

### 11.6. Test Procedure

- 1) Set up the EUT and test generator as shown on Section 11.1.2.
- 2) For line to line coupling mode, respectively provide a 1.0KV 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.

### 11.7. Test Results

**PASS.**

Please refer to the following page.

## Surge Immunity Test Results

EMTEK(DONGGUAN) CO., LTD.

Applicant : <u>USC056</u> EUT : <u>BALI Portable Humidifier</u> M/N : <u>CC178152</u> Power Supply : <u>AC 230V/50Hz</u> Test Mode : <u>MIST</u>					Test Date : <u>November 02, 2017</u> Temperature : <u>20°C</u> Humidity : <u>50%</u> Test Engineer : <u>YE</u> Criterion : <u>B</u>
Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (KV)	Result
L-N	+	90 <sup>0</sup>	5	1.0	PASS
	-	270 <sup>0</sup>	5	1.0	PASS
L-PE					
N-PE					
Remark:				Test Equipment : Surge Tester Psurge4.1	

## 12. INJECTED CURRENTS SUSCEPTIBILITY TEST

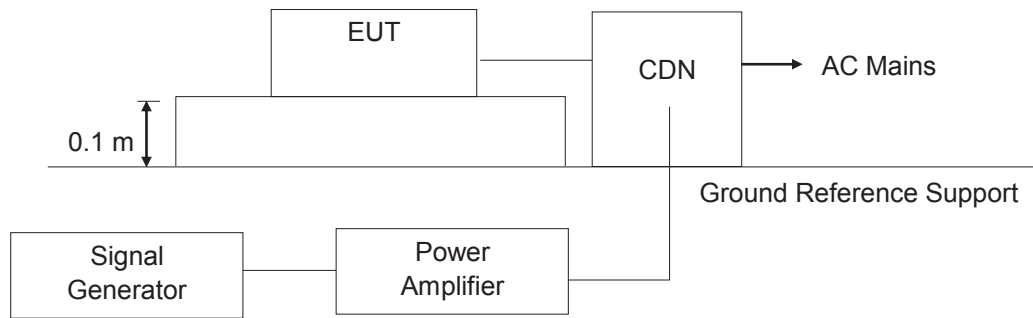
### 12.1. Block Diagram of Test Setup

#### 12.1.1. Block Diagram of connection between the EUT and simulators



(EUT: BALI Portable Humidifier)

#### 12.1.2. Block Diagram of Test Setup



(EUT: BALI Portable Humidifier)

### 12.2. Test Standard

EN 55014-2: 2015  
(IEC 61000-4-6: 2013, Severity Level: 3V (rms), 0.15MHz ~ 230MHz)

## 12.3. Severity Levels and Performance Criterion

### 12.3.1. Severity level

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

### 12.3.2. Performance criterion: **A**

## 12.4. EUT Configuration

The configurations of EUT are listed in Section 2.1.

## 12.5. Operating Condition of EUT

12.5.1. Setup the EUT as shown in Section 12.1.

12.5.2. Turn on the power of all equipments.

12.5.3. Let the EUT work in test mode(MIST) and measure it.

## 12.6. Test Procedure

- 1) Set up the EUT, CDN and test generators as shown on Section 12.1.2.
- 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 to 230MHz 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  $1.5 \cdot 10^{-3}$  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.

## 12.7. Test Results

**PASS.**

These test result outsourced to EMTEK(SHENZHEN) CO., LTD.

Please refer to the following page.

## Injected Currents Susceptibility Test Results

EMTEK(SHENZHEN) CO., LTD.

Applicant : USC056			Test Date : <u>November 13, 2017</u>	
EUT : <u>BALI Portable Humidifier</u>			Temperature : <u>25°C</u>	
M/N : <u>CC178152</u>			Humidity : <u>50%</u>	
Power Supply : <u>AC 230V/50Hz</u>			Test Engineer : <u>YE</u>	
Test Mode : <u>MIST</u>				
Frequency Range (MHz)	Injected Position	Strength	Criterion	Result
0.15 ~ 230	AC Mains	3V(rms)	A	PASS
Test Mode : _____				
Frequency Range (MHz)	Injected Position	Strength	Criterion	Result
Remark : 1. Modulation Signal:1KHz 80% AM Measurement Equipment : Simulator: CWS 500C (SWITZERLAND EMTEST) CDN : <input checked="" type="checkbox"/> CDN-M2 (SWITZERLAND EMTEST) <input type="checkbox"/> CDN-M3 (SWITZERLAND EMTEST)			Note:	



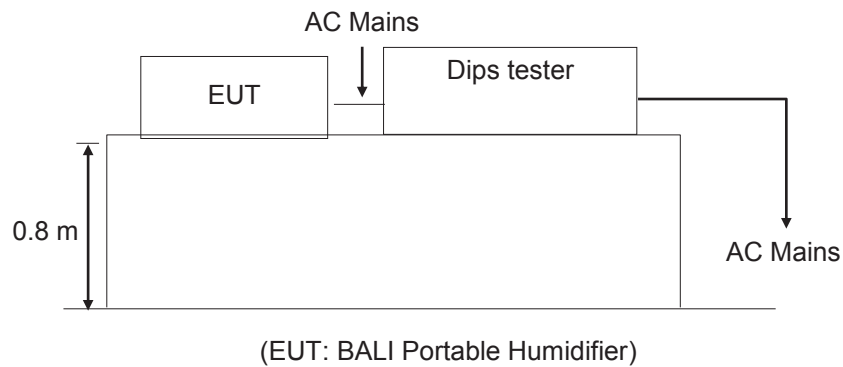
## 13. VOLTAGE DIPS AND INTERRUPTIONS TEST

### 13.1. Block Diagram of Test Setup

#### 13.1.1. Block Diagram of connection between the EUT and simulators



#### 13.1.2. Dips Test Setup



### 13.2. Test Standard

EN 55014-2: 2015  
(IEC 61000-4-11: 2004)

### 13.3. Severity Levels and Performance Criterion

#### 13.3.1. Severity level

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

#### 13.3.2. Performance criterion: **C**

### 13.4. EUT Configuration

The configurations of EUT are listed in Section 2.1.

### 13.5. Operating Condition of EUT

13.5.1. Setup the EUT as shown in Section 13.1.

13.5.2. Turn on the power of all equipments.

13.5.3. Let the EUT work in test mode(MIST) and measure it.

### 13.6. Test Procedure

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

### 13.7. Test Results

**PASS.**

These test result outsourced to EMTEK(SHENZHEN) CO., LTD.

Please refer to the following page.

## Voltage Dips And Interruptions Test Results

EMTEK(SHENZHEN) CO., LTD.

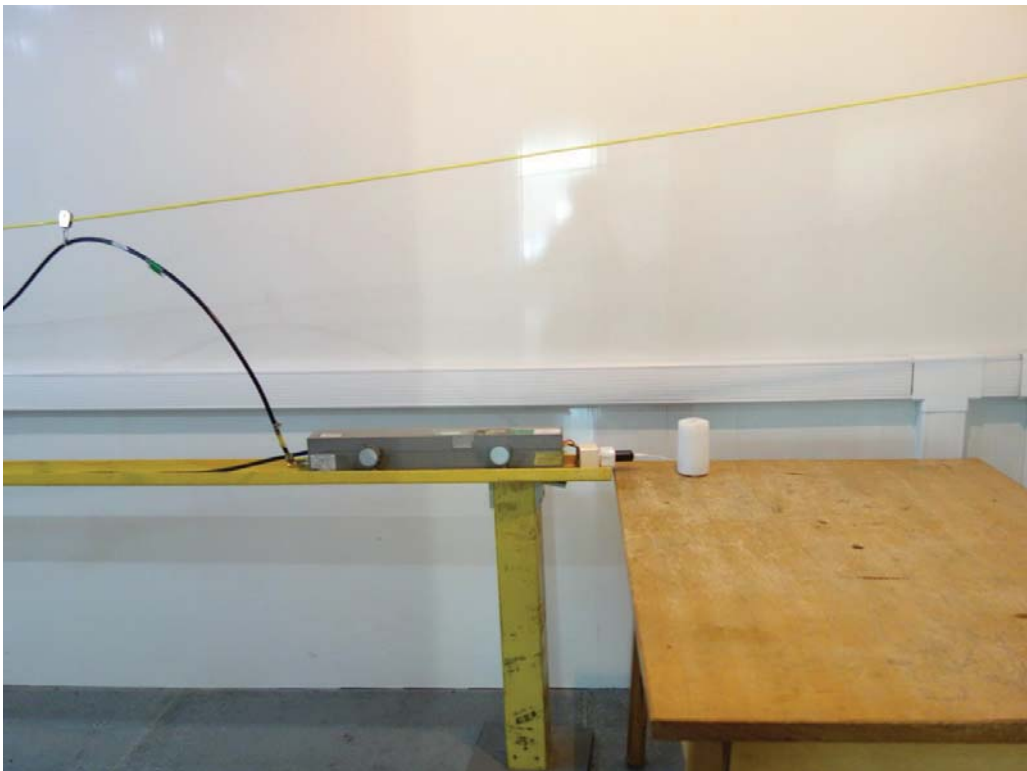
Applicant : <u>USC056</u>			Test Date : <u>November 13, 2017</u>	
EUT : <u>BALI Portable Humidifier</u>			Temperature : <u>20°C</u>	
M/N : <u>CC178152</u>			Humidity : <u>50%</u>	
Power Supply : <u>AC 230V/50Hz</u>			Test Engineer : <u>YE</u>	
Test Mode : <u>MIST</u>				
Test Level % U <sub>T</sub>	Voltage Dips & Short Interruptions % U <sub>T</sub>	Duration (in period)  50 Hz	Criterion  <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	Result
0	100	0.5 P	C	PASS
40	60	10 P	C	PASS
70	30	25 P	C	PASS
Test Mode : <u>MIST</u>				
Test Level % U <sub>T</sub>	Voltage Dips & Short Interruptions % U <sub>T</sub>	Duration (in period)	Criterion  <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	Result
Remark: U <sub>T</sub> is the rated voltage for the equipment.			Test Equipment : Dips Tester PLINE1610	

## 14. PHOTOGRAPH

### 14.1. Photo of Conducted Emission Measurement



### 14.2. Photo of Disturbance Power Measurement



14.3. Photo of Harmonic/Flicker Measurement



14.4. Photo of Electrostatic Discharge Test



14.5.Photo of Electrical Fast Transient /Burst Test



14.6.Photo of Surge Test



**APPENDIX**  
**(Photos of EUT)**

