



Report No.: SZEM190101077101

Page: 1 of 19

TEST REPORT

Application No.: SZEM1901010771ET(SGS SZ No.:T51910200165EM)

Applicant: Infora

44 Amity Rd, Warwick, Ny10990 Mailing: Po Box 478, Pine Island, NY **Address of Applicant:**

10969 T +1 845 258 9903 F +1 845 258 2700

Equipment Under Test (EUT):

EUT Name: Air Blower Item No.: BA002 **Country of Origin:** China **Country of Destination:** ΕIJ

EN 61000-6-3:2007 +A1:2011 Standard(s):

EN 61000-6-1:2007

2019-01-28 **Date of Receipt:**

Date of Test: 2019-01-28 to 2019-01-30

2019-01-31 Date of Issue:

Test Result: Pass*

中国・深圳・科技园中区M-10栋一号厂房

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

EMC Laboratory Manager



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^{*} In the configuration tested, the EUT complied with the standards specified above.



Report No.: SZEM190101077101

Page: 2 of 19

	Revision Record							
Version	Chapter	Date	Modifier	Remark				
01		2019-01-31		Original				

Authorized for issue by:		
	Gebin Sun	
	Gebin Sun /Project Engineer	_
	EvicFu	
	Eric Fu /Reviewer	



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Report No.: SZEM190101077101

Page: 3 of 19

Test Summary

Emission Part						
Item	Standard	Method	Requirement	Result		
Radiated Emissions (30MHz-1GHz)	EN 61000-6-3:2007 +A1:2011	CISPR 16-2-3	N/A	Pass		

N/A: Not applicable

Immunity Part					
Item	Standard	Method	Requirement	Result	
Electrostatic	EN 61000 6 1:2007	EN 61000 4 2:2000	4kV Contact Discharge	Page	
Discharge	EN 61000-6-1:2007	EN 61000-4-2:2009	8kV Air Discharge	Pass	
			3V/m, 80%, 1kHz Amp. Mod.		
Radiated Immunity (80MHz-2.7GHz)	EN 61000-6-1:2007	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass	
			1V/m, 80%, 1kHz Amp. Mod.		

N/A: Not applicable



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Report No.: SZEM190101077101

Page: 4 of 19

Contents

			Page
1	COV	/ER PAGE	1
2	TES	ST SUMMARY	3
3	CON	NTENTS	4
4	GEN	NERAL INFORMATION	5
	4.1 4.2 4.3 4.4 4.5 4.6	DETAILS OF E.U.T. DESCRIPTION OF SUPPORT UNITS MEASUREMENT UNCERTAINTY TEST LOCATION. TEST FACILITY. DEVIATION FROM STANDARDS.	5 6
	4.7	ABNORMALITIES FROM STANDARD CONDITIONS	6
	4.8	MONITORING OF EUT FOR ALL IMMUNITY TEST	6
5	EQU	JIPMENT LIST	7
6	EMIS	SSION TEST RESULTS	g
•	6.1	RADIATED EMISSIONS (30MHz-1GHz)	
	6.1.1	·	
	6.1.2	!	
	6.1.3	3 Measurement Data	9
7	IMM	IUNITY TEST RESULTS	12
	7.1	ELECTROSTATIC DISCHARGE	13
	<i>7</i> .1.1		
	7.1.2		
	7.1.3		
	7.2	RADIATED IMMUNITY(80MHz-2.7GHz)	
	7.2.1 7.2.2		
	7.2.2 7.2.3		
8	_	DTOGRAPHS	
O			
	8.1	RADIATED EMISSIONS (30MHz-1GHz) TEST SETUP	
	8.2	ELECTROSTATIC DISCHARGE TEST SETUP	
	8.3 8.4	RADIATED IMMUNITY(80MHz-2.7GHz) TEST SETUPEUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	
	0.4	LUT OUNSTRUCTIONAL DETAILS (LUTT HUTUS)	10-15



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Report No.: SZEM190101077101

Page: 5 of 19

General Information 4

Details of E.U.T.

Power supply:	4.5V DC(1.5V x 3 "AA" Size Batteries)
---------------	---------------------------------------

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radiated Emission	± 4.5dB (30MHz-1GHz)
2	Radiated Immunity	± 1.64dB
3	ESD	± 6 %
4	Temperature test	± 1 ℃
5	Humidity test	± 3%



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Report No.: SZEM190101077101

Page: 6 of 19

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab 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 in the field of testing.

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz. Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC -Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

· Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

4.8 Monitoring of EUT for All Immunity Test

Monitored the movement of the EUT Visual:

Audio: None



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Report No.: SZEM190101077101

Page: 7 of 19

5 **Equipment List**

Radiated Emissions (30MHz-1GHz)								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04			
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM025-01	2018-07-12	2019-07-11			
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2018-09-25	2019-09-24			
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26			
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2018-04-02	2019-04-01			

Electrostatic Discharge							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
ESD Ground Plane	SGS(3m*3m)	N/A	SEN006-01	N/A	N/A		
ESD Generator	TESEQ AG	NSG 437	SEM019-02	2018-04-16	2019-04-15		

Radiated Immunity(80MHz-2.7GHz)								
Equipment	Manufacturer	acturer Model No		Cal Date	Cal Due Date			
Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2017-05-10	2020-05-09			
Measurement Software	Rohde & Schwarz	EMC32 V9.25.00	N/A	N/A	N/A			
Signal Generator	Rohde & Schwarz	SMB100A	SEM006-11	2018-04-02	2019-04-01			
Broadband Amplifier (80MHz-1GHz)	Rohde & Schwarz	BBA150- BC250	SEM005-12	2018-09-25	2019-09-24			
Broadband Amplifier (800MHz-3GHz)	Rohde & Schwarz	BBA150-D110	SEM005-13	2018-04-02	2019-04-01			
Broadband Amplifier (2.5GHz-6GHz)	Rohde & Schwarz	BBA150-E60	SEM005-16	2018-04-13	2019-04-12			
Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	2018-04-02	2019-04-01			
Power Sensor	Rohde & Schwarz	NRP-Z92	SEM009-17	2018-09-25	2019-09-24			
Stacked LogPer Broadband Antenna (70MHz-10GHz)	Schwarzbeck	STLP 9129	SEM003-25	N/A	N/A			
Conditioning Amplifier	Brüel & Kjaer	2690-OS2	SEM005-10	2018-04-20	2019-04-19			
Audio Analyzer	Rohde & Schwarz	UPV	SEM008-03	2018-09-25	2019-09-24			



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Report No.: SZEM190101077101

8 of 19 Page:

General used equipment							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2018-09-27	2019-09-26		
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2018-09-27	2019-09-26		
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2018-09-27	2019-09-26		
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2018-04-08	2019-04-07		



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Report No.: SZEM190101077101

Page: 9 of 19

6 **Emission Test Results**

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN 61000-6-3:2007 +A1:2011

Test Method: CISPR 16-2-3 Frequency Range: 30MHz to 1GHz

Measurement Distance: 3m

Limit:

30MHz-230MHz 40 dB(μV/m) quasi-peak 230MHz-1GHz 47 dB(µV/m) quasi-peak

Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz Detector:

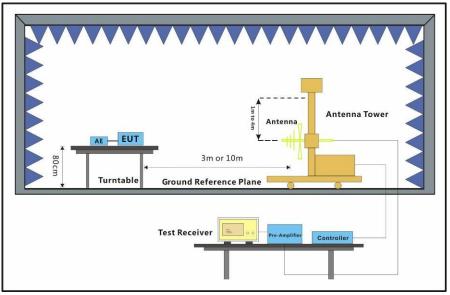
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 59.1 % RH Atmospheric Pressure: 1020 mbar

Test mode a:On mode,keep EUT working normally.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



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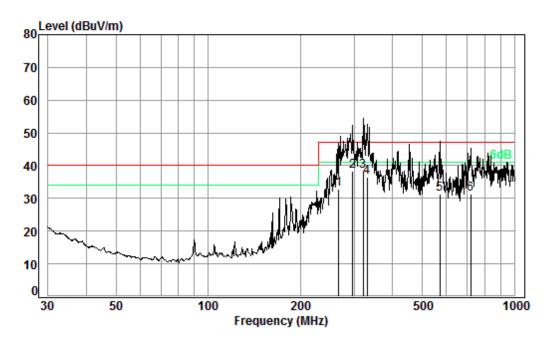
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Report No.: SZEM190101077101

Page: 10 of 19

Mode:a; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : 10771ET

		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
_								
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	266.61	1.75	19.00	26.72	38.95	32.98	47.00	-14.02
2 pp	296.18	1.88	19.45	26.65	43.70	38.38	47.00	-8.62
3	321.06	1.97	20.26	26.77	42.92	38.38	47.00	-8.62
4	330.19	2.00	20.53	26.82	40.91	36.62	47.00	-10.38
5	570.61	2.67	26.05	27.86	30.56	31.42	47.00	-15.58
6	719.20	2.96	28.02	27.75	28.14	31.37	47.00	-15.63



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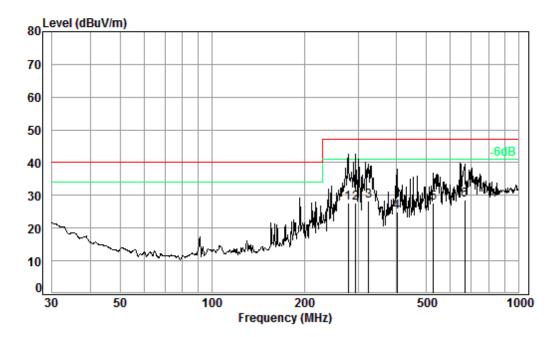
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Report No.: SZEM190101077101

Page: 11 of 19

Mode:a; Polarization:Vertical



Condition: 3m VERTICAL Job No. : 10771ET

	Freq			Preamp Factor				Over Limit
_	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	278.07	1.81	18.83	26.69	33.68	27.63	47.00	-19.37
2	294.11	1.87	19.37	26.65	32.97	27.56	47.00	-19.44
3	324.46	1.98	20.36	26.79	32.71	28.26	47.00	-18.74
4	401.84	2.21	22.45	27.19	27.60	25.07	47.00	-21.93
5	528.25	2.63	25.20	27.71	27.68	27.80	47.00	-19.20
6 рр	668.14	2.84	27.51	27.83	25.93	28.45	47.00	-18.55



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Report No.: SZEM190101077101

Page: 12 of 19

Immunity Test Results

Performance Criteria Description in EN 61000-6-1:2007

Criterion A

The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Criterion B

The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Criterion C

Temporary loss of function is allowed, provided the function is selfrecoverable or can be restored by the operation of the controls.



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Page: 13 of 19

7.1 Electrostatic Discharge

Test Requirement: EN 61000-6-1:2007 Test Method: EN 61000-4-2:2009

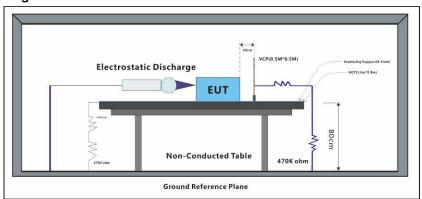
Performance Criterion:

Discharge Impedance: $330\Omega/150pF$

Number of Discharge: Minimum 10 times at each test point

Discharge Mode: Single Discharge Discharge Period: 1 second minimum

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 20.7 °C Humidity: 45.3 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:On mode,keep EUT working normally.

7.1.3 Test Results:

Observations: Test Point:

All insulated enclosure and seams.

All accessible metal parts of the enclosure. 2.

3 All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	Α
Air Discharge	2,4,8	-	1	Α
Contact Discharge	4	+	2	Α
Contact Discharge	4	-	2	Α
Horizontal Coupling	4	+	3	Α
Horizontal Coupling	4	-	3	Α
Vertical Coupling	4	+	3	Α
Vertical Coupling	4	-	3	Α

Results:

A: No degradation in the performance of the EUT was observed.



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Report No.: SZEM190101077101

Page: 14 of 19

7.2 Radiated Immunity(80MHz-2.7GHz)

EN 61000-6-1:2007 Test Requirement:

Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010

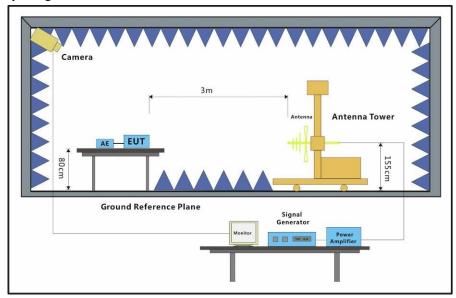
Performance Criterion:

Frequency Range: 80MHz to 1GHz, 1.4GHz to 2GHz, 2GHz to 2.7GHz

Antenna Polarisation: Vertical and Horizontal

Modulation: 1kHz,80% Amp. Mod,1% increment

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 22.9 °C 52.1 % RH Atmospheric Pressure: 1020 mbar Humidity:

Test mode: a:On mode,keep EUT working normally.



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Report No.: SZEM190101077101

Page: 15 of 19

7.2.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	2s	Α
80MHz-1GHz	3	Back	2s	Α
80MHz-1GHz	3	Left	2s	A
80MHz-1GHz	3	Right	2s	A
80MHz-1GHz	3	Тор	2s	A
80MHz-1GHz	3	Underside	2s	A
1.4GHz-2GHz	3	Front	2s	A
1.4GHz-2GHz	3	Back	2s	A
1.4GHz-2GHz	3	Left	2s	A
1.4GHz-2GHz	3	Right	2s	A
1.4GHz-2GHz	3	Тор	2s	A
1.4GHz-2GHz	3	Underside	2s	Α
2GHz-2.7GHz	1	Front	2s	Α
2GHz-2.7GHz	1	Back	2s	Α
2GHz-2.7GHz	1	Left	2s	Α
2GHz-2.7GHz	1	Right	2s	Α
2GHz-2.7GHz	1	Тор	2s	Α
2GHz-2.7GHz	1	Underside	2s	A

Results:

A: No degradation in the performance of the EUT was observed.



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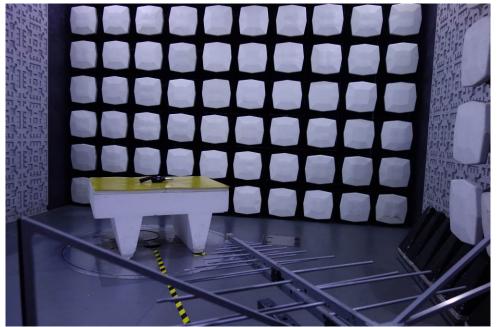


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Page: 16 of 19

8 **Photographs**

Radiated Emissions (30MHz-1GHz) Test Setup



8.2 Electrostatic Discharge Test Setup





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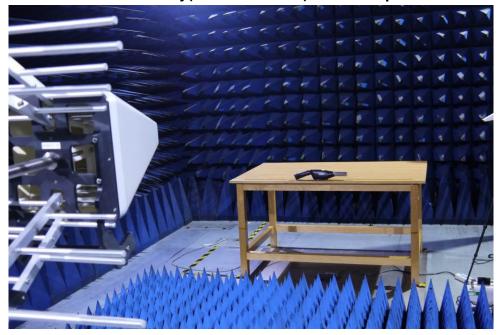
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17 of 19 Page:

8.3 Radiated Immunity(80MHz-2.7GHz) Test Setup





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8.4 EUT Constructional Details (EUT Photos)







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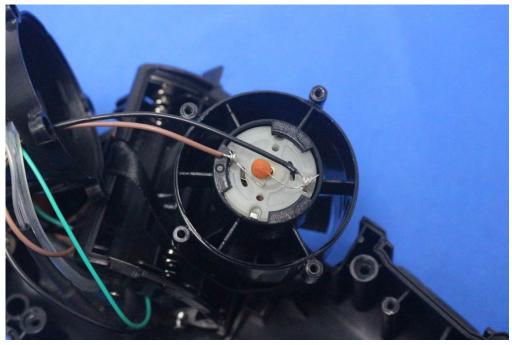
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19 of 19 Page:





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