

EMC TEST REPORT
for
IMAKE INTERNATIONAL CO., LTD.

Product : Fire Strobe Siren
Model No. : YA-81, IM-80, IM-81, IM-82, IM-83, IM-84,
IM-85, IM-86, IM-87, IM-88, IM-89, IM-90

Prepared for : IMAKE INTERNATIONAL CO., LTD.
Address : Building 1, MeLi AAA , West of Renmin Rd, Longhua, Baoan,
Shenzhen, 518109, Guangdong, China

Prepared by : Shenzhen Accurate Technology Co., Ltd.
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Report No. : RTZ210312006-EMA1
Date of Test : Aug. 3, 2018
Date of Report Rev.1 : Aug. 3, 2018
Date of Report Rev.2 : Mar. 15, 2021

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Test Report Declaration

Applicant : IMAKE INTERNATIONAL CO., LTD.
Manufacturer : Shenzhen Usafe Intelligent Technology Co., Ltd
Product : Fire Strobe Siren
Model No. : YA-81, IM-80, IM-81, IM-82, IM-83, IM-84, IM-85, IM-86, IM-87,
IM-88, IM-89, IM-90

Measurement Procedure Used:

EN IEC 61000-6-3: 2021

EN IEC 61000-6-1: 2019 (IEC 61000-4-2: 2008

IEC 61000-4-3: 2006+A1: 2007+ A2: 2010

IEC 61000-4-4: 2012

IEC 61000-4-6: 2013

IEC 61000-4-8: 2009)

EN 50130-4: 2011+A1: 2014 (IEC 61000-4-2: 2008

IEC 61000-4-3: 2006+A1: 2007+ A2: 2010

IEC 61000-4-4: 2012

IEC 61000-4-6: 2013)

The device described above is tested by Shenzhen Accurate Technology 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 Shenzhen Accurate Technology Co., Ltd. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the EN 61000-6-3, EN 50130-4 and EN 61000-6-1 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test : Aug. 3, 2018

Date of Report Rev.1: Aug. 3, 2018

Date of Report Rev.2: Mar. 15, 2021

Prepared by :



(Ting Lü, Engineer)

Approved & Authorized Signer :



(Martin Lü, Manager)

1. TEST RESULTS SUMMARY

Test Items	Test Standard	Test Results
Radiated Emission	EN IEC 61000-6-3: 2021	Pass
Electrostatic Discharge Immunity	EN IEC 61000-6-1: 2019 EN 50130-4: 2011+A1: 2014 (IEC 61000-4-2: 2008)	Pass
Radiated Electromagnetic Fields Immunity	EN IEC 61000-6-1: 2019 EN 50130-4: 2011+A1: 2014 (IEC 61000-4-3: 2006+A1: 2007+ A2: 2010)	Pass
Electrical Fast Transient /Burst Immunity	EN IEC 61000-6-1: 2019 EN 50130-4: 2011+A1: 2014 (IEC 61000-4-4: 2012)	Pass
Injected Current Susceptibility	EN IEC 61000-6-1: 2019 EN 50130-4: 2011+A1: 2014 (IEC 61000-4-6: 2013)	Pass
Magnetic Field Susceptibility	EN IEC 61000-6-1: 2019 (IEC 61000-4-8: 2009)	Pass

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product : Fire Strobe Siren

Model No. : YA-81, IM-80, IM-81, IM-82, IM-83, IM-84, IM-85, IM-86, IM-87, IM-88, IM-89, IM-90
(Note: These samples are same except their appearance is different. So we prepare YA81 for test.)

Rating : DC 24V

Trade Mark : N/A

Applicant : IMAKE INTERNATIONAL CO., LTD.
Address : Building 1, MeLi AAA , West of Renmin Rd,
Longhua, Baoan, Shenzhen, 518109, Guangdong, China

Manufacturer : Shenzhen Usafe Intelligent Technology Co., Ltd
Address : 5th Floor, Building 3, Baolaite Industrial Park, No. 24
Xinbu Road, Tongle, Longgang District, Shenzhen, China

Date of sample : July 30, 2018
receiver

Date of Test : Aug. 3, 2018

Sample Number : 1801174

2.2. Accessory and Auxiliary Equipment

DC Power Supply : Manufacture: UNI-T
Model: UTP3333TD

2.3. Performance criteria

The variety and the diversity of the apparatus within the scope of this standard makes it difficult to define precise criteria for the evaluation of the immunity test results.

If, as a result of the application of the tests defined in this standard, the apparatus becomes dangerous or unsafe, the apparatus shall be deemed to have failed the test.

A functional description and a definition of performance criteria, during or as a consequence of the EMC testing, shall be provided by the manufacturer and noted in the test report, based on one of the following criteria for each test as specified in Tables 1 to 4.

- a) Performance 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.
- b) Performance 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.
- c) Performance criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

2.4. Description of Test Facility

- EMC Lab : Accredited by American Association for Laboratory Accreditation (A2LA)
The Certificate Number is 4297.01
- Listed by Innovation, Science and Economic Development Canada (ISED)
The Registration Number is 5077A-2
- Accredited by China National Accreditation Service for Conformity Assessment (CNAS)
The Registration Number is CNAS L3193
- Name of Firm : Shenzhen Accurate Technology Co., Ltd.
- Site Location : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China
- Subcontracted Items : Radiated RF Electromagnetic Fields
- Subcontractor : Shenzhen Academy of Metrology and Quality Inspection
- Site Location : Bldg. of Metrology & Quality Inspection, Longzhu Road Nanshan District, Shenzhen, Guangdong, China

2.5. Measurement Uncertainty

- Radiated emission expanded uncertainty (30MHz-1000MHz) : $U=4.28dB, k=2$

3. DESCRIPTION OF VERSION

Edition No.	Date of Rev.	Summary	Report No.
Rev.1	Aug. 3, 2018	Original Report	ATE20181420
Rev.2	Mar. 15, 2021	Update Applicant, model number and standard	RTZ210312006-EMA1

Remark for Rev.2

1. REV.1:

Applicant: Shenzhen Usafe Intelligent Technology Co., Ltd
Address: 5th Floor, Building 3, Baolaite Industrial Park, No. 24 Xinbu Road, Tongle, Longgang District, Shenzhen, China

Model Number: YA80, YA81, YA82, YA85, YA86, YA87, YA88, YA89, YA90, YA91, YA92

REV.2:

Applicant: IMAKE INTERNATIONAL CO., LTD.
Address: Building 1, MeLi AAA , West of Renmin Rd, Longhua,Baoan, Shenzhen, 518109, Guangdong, China

Model Number: YA-81, IM-80, IM-81, IM-82, IM-83, IM-84, IM-85, IM-86, IM-87, IM-88, IM-89, IM-90

2. Manufacture and Address: Same
Product: Same

4. MEASURING DEVICE AND TEST EQUIPMENT

4.1. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESR	101817	Dec. 24, 2020	1 Year
2.	Amplifier	SONOMA INSTRUMENT	310 N	186131	Dec. 25, 2020	1 Year
3.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	Dec. 25, 2020	1 Year
4.	Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan.05, 2020	3 Year
5.	Radiated Emission Test Software: EZ_EMV V1.1.4.2					

4.2. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Generator	TESEQ	NSG 437	823	Dec. 26, 2020	1 Year

4.3. For EFT/Bursts Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ULTRA COMPACT SIMULATOR	EM TEST	UCS 500 N5	V0928104968	Dec. 24, 2020	1Year
2.	CAPACITIVE CLAMP	EM TEST	HFK	0509-34	Dec. 24, 2020	1Year
3.	EMCPRO SYSTEM (IMMUNITY TESTER)	THERMO	EMC PRO Plus-BASE	1108237	Dec. 24, 2020	1Year

4.4. For Injected Current Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Conducted Immunity Test System	FRANKONIA	CIT-10	126B1121	Dec. 25, 2020	1Year
2.	CDN	FRANKONIA	CDN-M2/3	A3027020	Dec. 25, 2020	1Year
3.	EM Injection Clamp	FCC	F-203I-23mm	091824	Dec. 25, 2020	1Year
4.	6dB Attenuator	Weinschel	WA59-6-33	A329	/	/
5.	CS Test Software : IEC/EN61000-4-6 V1.1.1					

4.5. For Magnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Magnetic Field Tester	HAEFELY	MAG100	150577	Dec. 25, 2020	1 Year

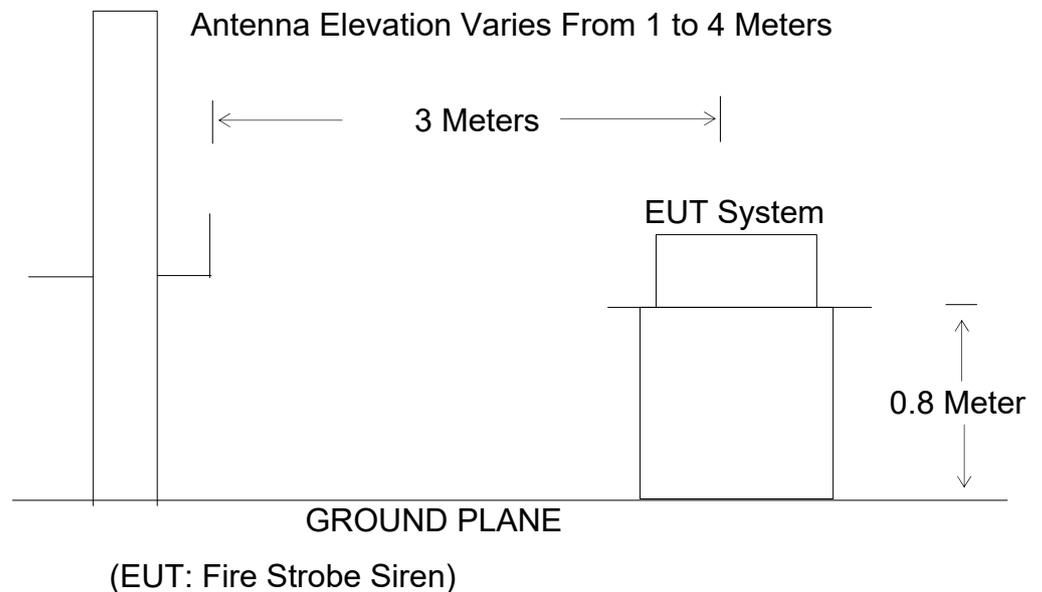
5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test

5.1.1. Block diagram of connection between the EUT and simulators



5.1.2. Block diagram of test setup (In chamber)



5.2. Measuring Standard

EN IEC 61000-6-3: 2021

5.3. Radiated Emission Limits

Frequency (MHz)	Distance (Meters)	Field Strengths Limit dB(μ 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.

5.4. Manufacturer

Test equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.4.1. Fire Strobe Siren (EUT)

Model No.: YA81

Manufacturer: Shenzhen Usafe Intelligent Technology Co., Ltd

5.5. Operating Condition of EUT

5.5.1. Turn on the power.

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

5.6. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable 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 an 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 (ESR) is set at 120 kHz.

5.7.Measuring Results

PASS.

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

Test Mode : ON								
Polarization								
	No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Horizontal	1	103.3353	35.15	-21.83	13.32	40.00	-26.68	QP
	2	220.7241	42.24	-18.40	23.84	40.00	-16.16	QP
	3	308.1862	41.41	-16.11	25.30	47.00	-21.70	QP
Vertical	No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
	1	103.3353	35.88	-21.83	14.05	40.00	-25.95	QP
	2	220.7241	36.70	-18.40	18.30	40.00	-21.70	QP
	3	294.4260	35.58	-16.38	19.20	47.00	-27.80	QP

Note: Emissions attenuated more than 20 dB below the permissible value are not reported.

Margin= Result - Limit

The spectral diagrams are attached as below.



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LSK #806

Standard: EN61000-6-3

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Fire Strobe Siren

Mode: ON

Model: YA81

Manufacturer: Shenzhen Usafe Intelligent Technology Co

Polarization: Horizontal

Power Source: DC 24V

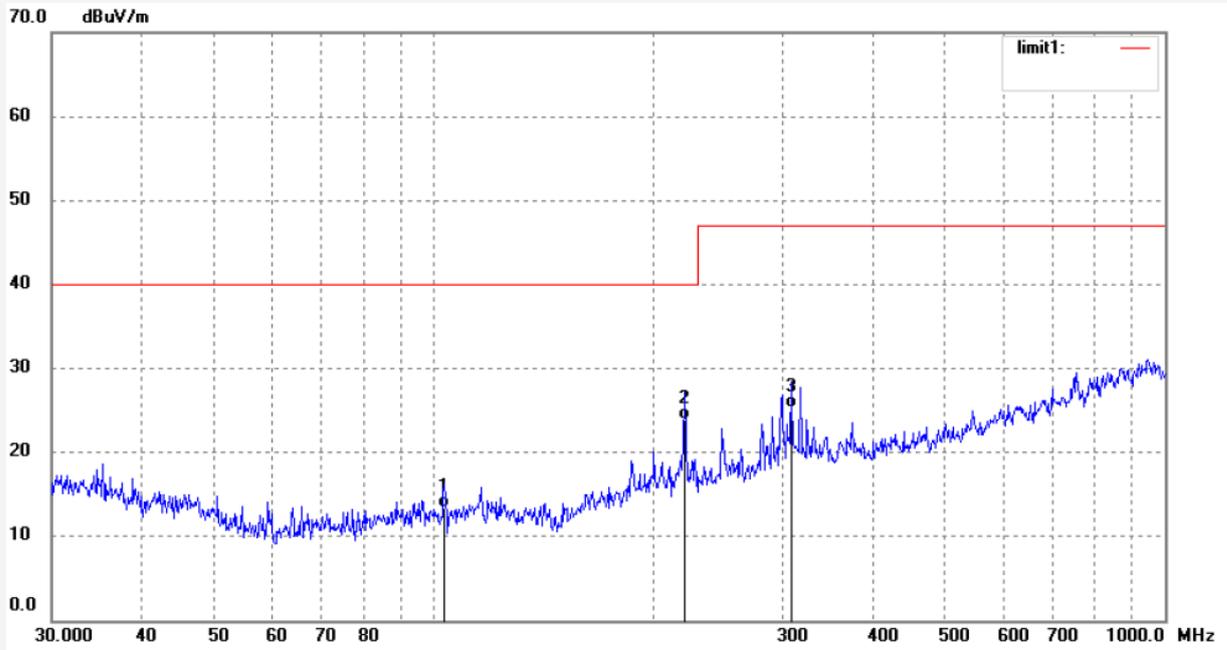
Date: 18/08/03/

Time: 9/07/50

Engineer Signature:Ting

Distance: 3m

Note: Report NO.:ATE20181420



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	103.3353	35.15	-21.83	13.32	40.00	-26.68	QP			
2	220.7241	42.24	-18.40	23.84	40.00	-16.16	QP			
3	308.1862	41.41	-16.11	25.30	47.00	-21.70	QP			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LSK #805

Standard: EN61000-6-3

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Fire Strobe Siren

Mode: ON

Model: YA81

Manufacturer: Shenzhen Usaife Intelligent Technology Co

Polarization: Vertical

Power Source: DC 24V

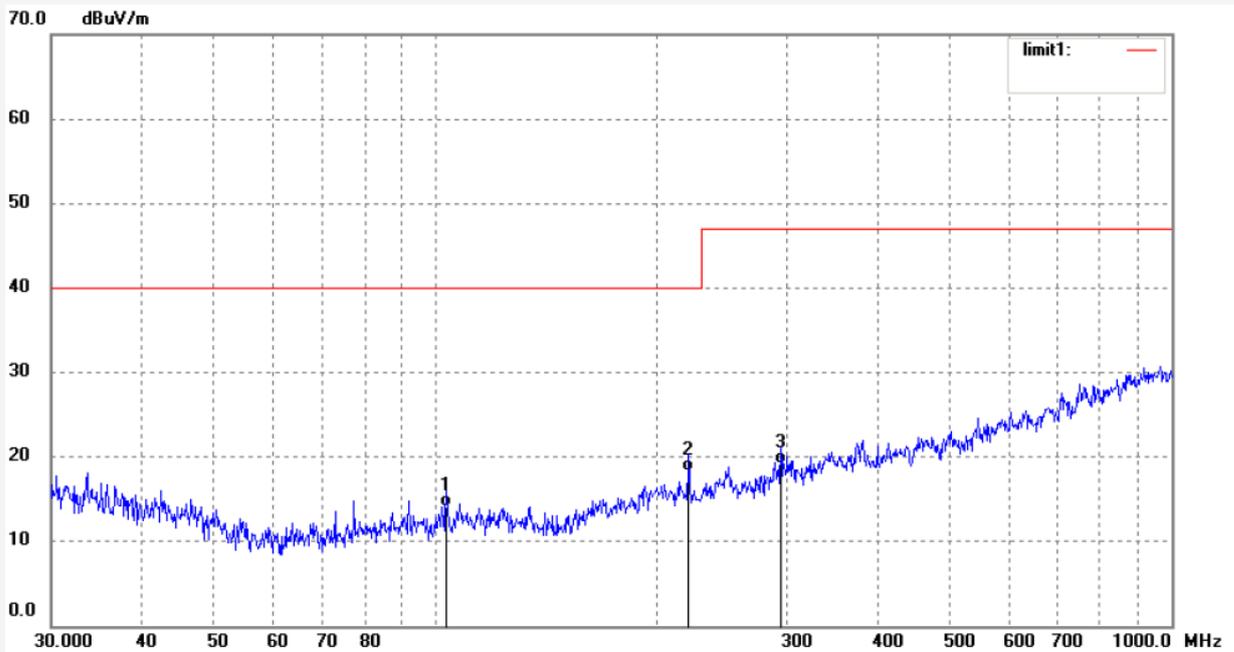
Date: 18/08/03/

Time: 9/07/01

Engineer Signature: Ting

Distance: 3m

Note: Report NO.:ATE20181420



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	103.3353	35.88	-21.83	14.05	40.00	-25.95	QP			
2	220.7241	36.70	-18.40	18.30	40.00	-21.70	QP			
3	294.4260	35.58	-16.38	19.20	47.00	-27.80	QP			

6. ELECTROSTATIC DISCHARGE IMMUNITY TEST

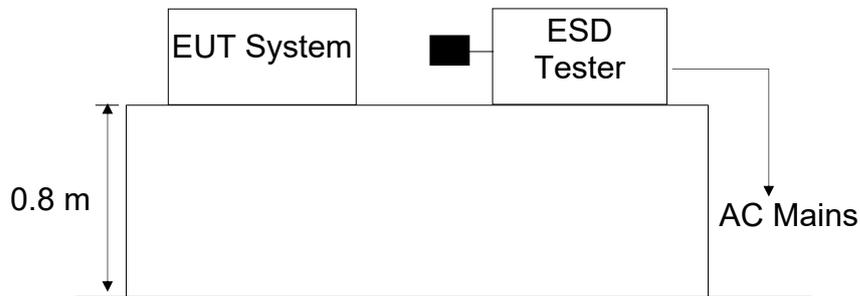
6.1. Block Diagram of Test Setup

6.1.1. Block diagram of connection between the EUT and simulators



(EUT: Fire Strobe Siren)

6.1.2. Block diagram of test setup



(EUT: Fire Strobe Siren)

6.2. Test Standard

EN IEC 61000-6-1: 2019

EN 50130-4: 2011+A1: 2014

(IEC61000-4-2: 2008, Severity Level: 2

Contact Discharge: $\pm 4\text{kV}$, Severity Level: 3/ Air Discharge: $\pm 8\text{kV}$)

Testing shall also be satisfied at the lower levels

6.3. Severity Levels and Performance Criterion

6.3.1. 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

6.3.2. Performance Criterion: **B**

6.4. Manufacturer

The configuration of EUT is listed in Section 5.4.

6.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 5.5 except for the test set up replaced by Section 6.1.

6.6. Test Procedure

6.6.1. Contact discharges to the conductive surfaces and to coupling planes:

The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points (a minimum of 50 discharges at each point). One of the test points shall be subjected to at least 50 indirect discharges (contact) to the centre of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode [see IEC 61000-4-2 for use of the Vertical Conducting Plane (VCP)]. Tests shall be performed at a maximum repetition rate of one discharge per second.

6.6.2. Air discharge at slots and apertures, and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur; examples are openings at edges of keys, or in the cover of keyboards and telephone handsets. Such points are tested using the air discharge method. See also IEC 61000-4-2 regarding painted surfaces. This investigation should be restricted to those areas normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The application of electrostatic discharges to the contacts of open connectors is not required by this publication.

6.7. Test Results

PASS

Please refer to the following page.

Electrostatic Discharge Test Results

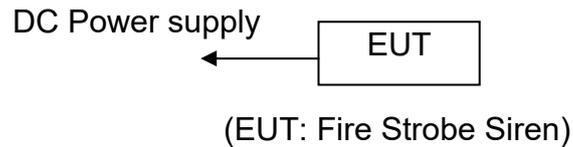
Shenzhen Accurate Technology Co., Ltd.

Manufacturer:	Shenzhen Usafe Intelligent Technology Co., Ltd	Test Date:	Aug. 3, 2018
EUT:	Fire Strobe Siren	Temperature:	25 °C
M/N:	YA81	Humidity:	50%
Air discharge:	± 2kV; ± 4kV; ± 8kV	Criterion:	B
Contact discharge:	± 2kV; ± 4kV	Test Engineer:	LGWADE
Test Mode:	ON		
Location	Kind A-Air Discharge C-Contact Discharge	Result	
Nonconductive Enclosure	A	PASS	
Conductive Enclosure	C	PASS	
HCP	C	PASS	
VCP of front	C	PASS	
VCP of rear	C	PASS	
VCP of left	C	PASS	
VCP of right	C	PASS	
Note:			
Test Equipment: ESD Simulator (TESEQ, NSG 437)			

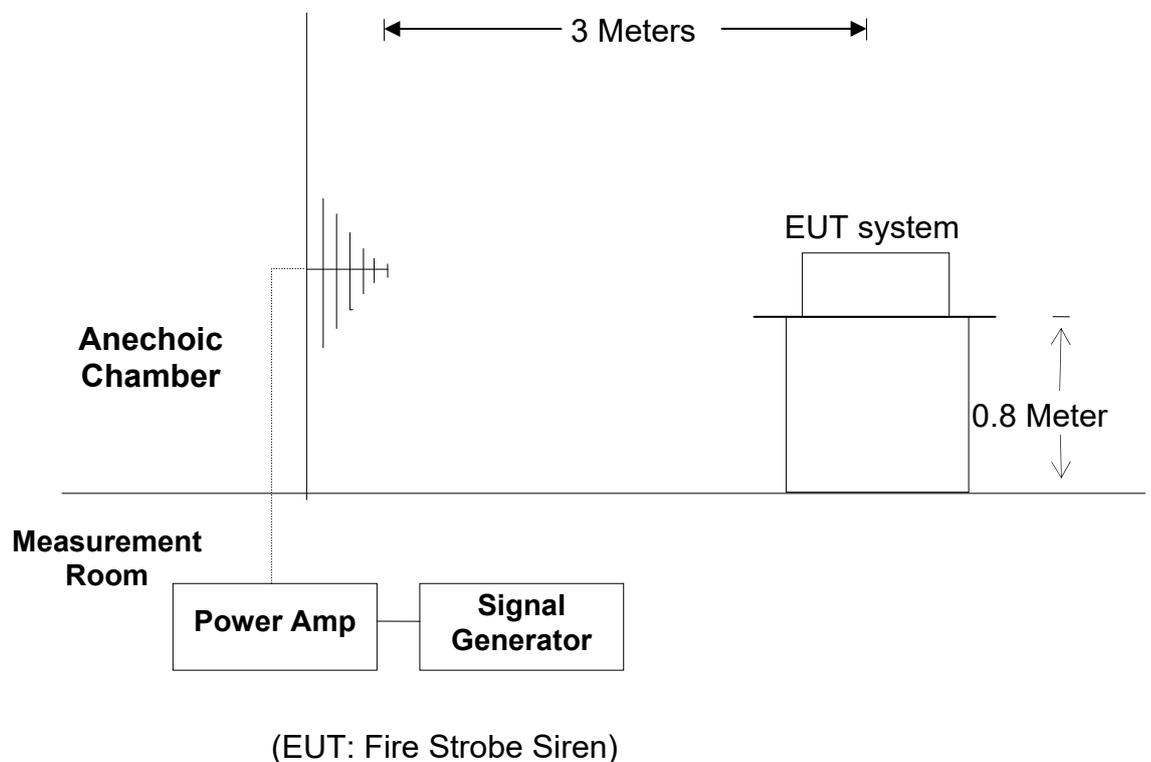
7. RF FIELD STRENGTH SUSCEPTIBILITY TEST

7.1. Block Diagram of Test

7.1.1. Block diagram of connection between the EUT and simulators



7.1.2. Block diagram of R/S test setup



7.2. Test Standard

EN IEC 61000-6-1: 2019(IEC61000-4-3: 2006+A1: 2007+A2: 2010,
Severity Level: 2, 3V / m)

EN 50130-4: 2011+A1: 2014(IEC61000-4-3: 2006+A1: 2007+A2: 2010,
Severity Level: 2, 10V / m)

7.3. Severity Levels and Performance Criterion

7.3.1. Severity Level

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

7.3.2. Performance Criterion: **A**

7.4. Manufacturer

The configuration of the EUT is same as Section 5.4.

7.5. Operating Condition of EUT

7.5.1. Turn on the power.

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

7.6. Test Procedure

The EUT are placed on a table, which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna, which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CCD camera is used to monitor its screen.

All the scanning conditions are as following:

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

7.7. Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

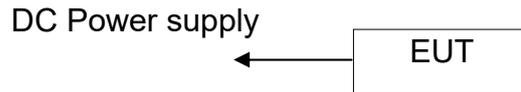
Shenzhen Accurate Technology Co., Ltd.

Manufacturer: Shenzhen Usafe Intelligent Technology Co., Ltd		Test Date: Aug. 3, 2018		
EUT: Fire Strobe Siren		Temperature: 25°C		
M/N: YA81		Humidity: 50%		
Test Mode: ON		Criterion: A		
Rating: DC 24V		Test Engineer: LGWADE		
Modulation: <input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1kHz 80%				
Frequency Range	Field Strength	Antenna polarity	Side	Result
80 MHz to 1000MHz	3 V/m&10 V/m	Horizontal Vertical	Front	PASS
1.4 GHz -2.0 GHz	3 V/m&10 V/m		Right	
2.0 GHz -2.7 GHz	1 V/m		Rear	
		Left		
Test Equipment : 1. Signal Generator : SMB100A (Rohde & Schwarz) 2. Power Amplifier : MT310A (PRANA) 3. Broadband Antenna : HL046E (Rohde & Schwarz)				
Note:				

8. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

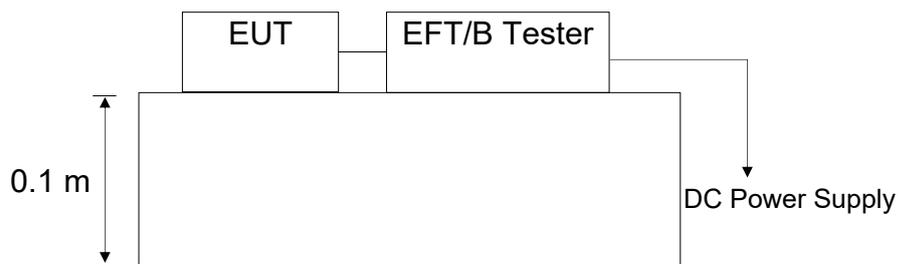
8.1. Block Diagram of Test Setup

8.1.1. Block Diagram of the EUT



(EUT: Fire Strobe Siren)

8.1.2. EFT/B Test Setup



(EUT: Fire Strobe Siren)

8.2. Test Standard

EN IEC 61000-6-1: 2019

(IEC 61000-4-4: 2012 Severity Level, Level 2: 0.5kV)

EN 50130-4: 2011+A1: 2014

(IEC 61000-4-4: 2012 Severity Level, Level 3: 1kV)

8.3. Severity Levels and Performance Criterion

8.3.1. Severity level

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

8.3.2.Performance Criterion: refer to EN 50130-4 section 12.4.

8.4.Manufacturer

The configuration of EUT is listed in Section 5.4.

8.5.Operating Condition of EUT

8.5.1.Setup the EUT as shown in Section 8.1.

8.5.2.Turn on the power of all equipments.

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

8.6.Test Procedure

The EUT is put on the table which is 0.1 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.

8.6.1.For input and output AC power ports:

It's unnecessary to test.

8.6.2.For signal lines and control lines ports:

It's unnecessary to test.

8.6.3.For DC line ports:

It's necessary to test.

8.7.Test Result

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

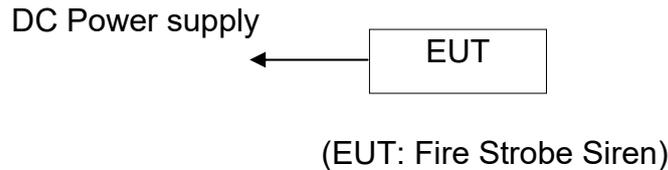
Shenzhen Accurate Technology Co., Ltd.

Standard	IEC 61000-4-4: 2012	Result : <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL	
Manufacturer : <u>Shenzhen Usafe Intelligent Technology Co., Ltd</u> EUT : <u>Fire Strobe Siren</u> M/N : <u>YA81</u> Power Supply : <u>DC 24V</u> Test Mode : <u>ON</u>		Test Date : <u>Aug. 3, 2018</u> Temperature : <u>25°C</u> Humidity : <u>42%</u> Test Engineer : <u>Miller</u> Criterion : <u>B</u>	
Line : <input type="checkbox"/> AC Mains		Line : <input type="checkbox"/> Signal Line <input checked="" type="checkbox"/> DC Line <input type="checkbox"/> Control Line	
Coupling : <input type="checkbox"/> Direct		Coupling : <input type="checkbox"/> Capacitive	
Test Time : 120s			
Line	Test Voltage	Result(+)	Result(-)
DC Line	1KV	PASS	PASS
DC Line	0.5KV	PASS	PASS
Note :			
Test Equipment		Burst Tester Model : ULTRA COMPACT SIMULATOR: UCS 500 N5 (EM TEST) CAPACITIVE CLAMP: HFK (EM TEST) Transformer: V4780S2 (EM TEST)	

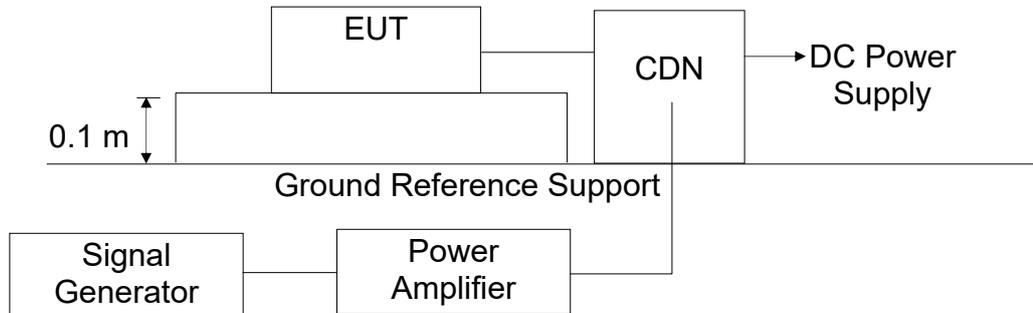
9. INJECTED CURRENTS SUSCEPTIBILITY TEST

9.1. Block Diagram of Test Setup

9.1.1. Block Diagram of the EUT



9.1.2. Block Diagram of DC mains



9.2. Test Standard

EN IEC 61000-6-1: 2019

(IEC 61000-4-6: 2013 Severity Level 2: 3V (rms), 0.15MHz - 80MHz)

EN 50130-4: 2011+A1: 2014

(IEC 61000-4-6: 2013 Severity Level 3: 10V (rms), 0.15MHz - 100MHz)

9.3. Severity Levels and Performance Criterion

9.3.1. Severity level

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

9.3.2. Performance Criterion: refer to EN 50130-4 section 11.4.

9.4.Manufacturer

The configuration of EUT is listed in Section 5.4.

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 (ON) and measure it.

9.6.Test Procedure

9.6.1.For AC Mains

It's unnecessary to test.

9.6.2.For signal lines and control lines ports:

It's unnecessary to test.

9.6.3.For DC line ports:

It's necessary to test.

9.7.Test Results

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

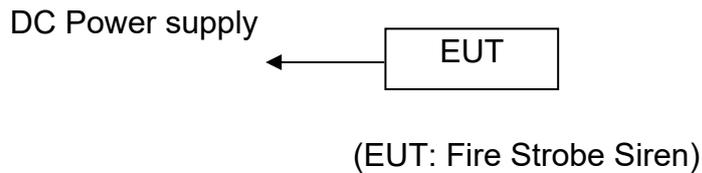
Shenzhen Accurate Technology Co., Ltd.

Manufacturer: <u>Shenzhen Usafe Intelligent Technology Co., Ltd</u> EUT: <u>Fire Strobe Siren</u> M/N: <u>YA81</u> Power Supply: <u>DC 24V</u>			Test Date: <u>Aug. 3, 2018</u> Temperature: <u>25°C</u> Humidity: <u>48%</u> Test Engineer: <u>Tim</u>	
Test Mode : ON				
Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 - 100	DC line	10V	A	PASS
0.15 - 80	DC line	3V	A	PASS
Remark : Modulation Signal: Amplitude modulation: 80%, 1kHz, sinusoidal Pulse modulation: 1 Hz (0.5s ON, 0.5s OFF) Measurement Equipment : Simulator : CWS 500 (SWITZERLAND EMTEST) CDN : <input type="checkbox"/> CDN-M2 (SWITZERLAND EMTEST) <input type="checkbox"/> CDN-M3 (SWITZERLAND EMTEST) <input checked="" type="checkbox"/> Injection Clamp: Injection Clamp-M4 (SWITZERLAND EMTEST)			Note:	

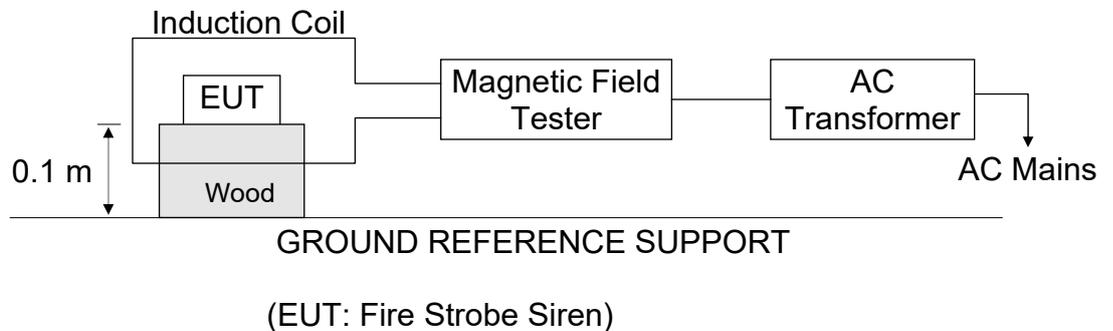
10.MAGNETIC FIELD SUSCEPTIBILITY TEST

10.1.Block Diagram of Test

10.1.1.Block diagram of test setup



10.1.2.Magnetic field test setup



10.2.Test Standard

EN IEC 61000-6-1: 2019
(IEC 61000-4-8: 2009, Severity Level: Level 2, 3A/m)

10.3.Severity Levels and Performance Criterion

10.3.1.Severity Level

Level	Field Strength A/m
1	1
2	3
3	10
4	30
5	100
X	Special

10.3.2.Performance Criterion : A

10.4.EUT Configuration on Test

The configuration of the EUT is same as Section 4.4.

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 (ON) and measure it.

10.6.Test Procedure

The EUT is placed in the middle of an induction coil (1*1m), under which is a 1*1*0.1m (high) table, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarizations of the induction coil are set on test, so that each side of the EUT is affected by the magnetic field. Also can reach the same aim by change the position of the EUT.

10.7.Test Results

PASS.

Please refer to the following page.

11.PHOTOGRAPHS

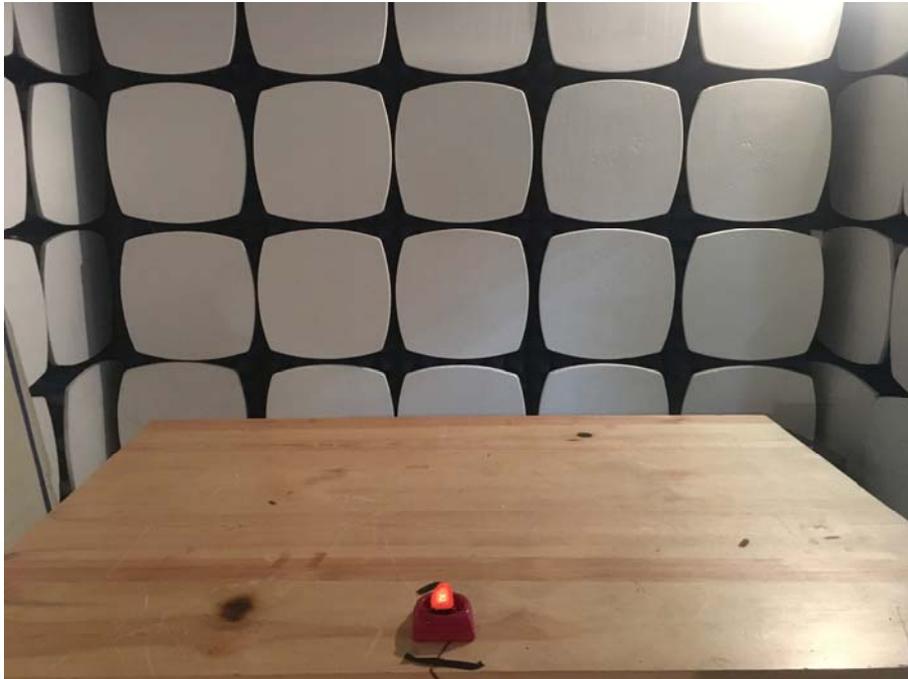
11.1.Photos of Radiated Emission Measurement



11.2.Photo of Electrostatic Discharge Test



11.3.Photo of RF Field Strength Susceptibility Test



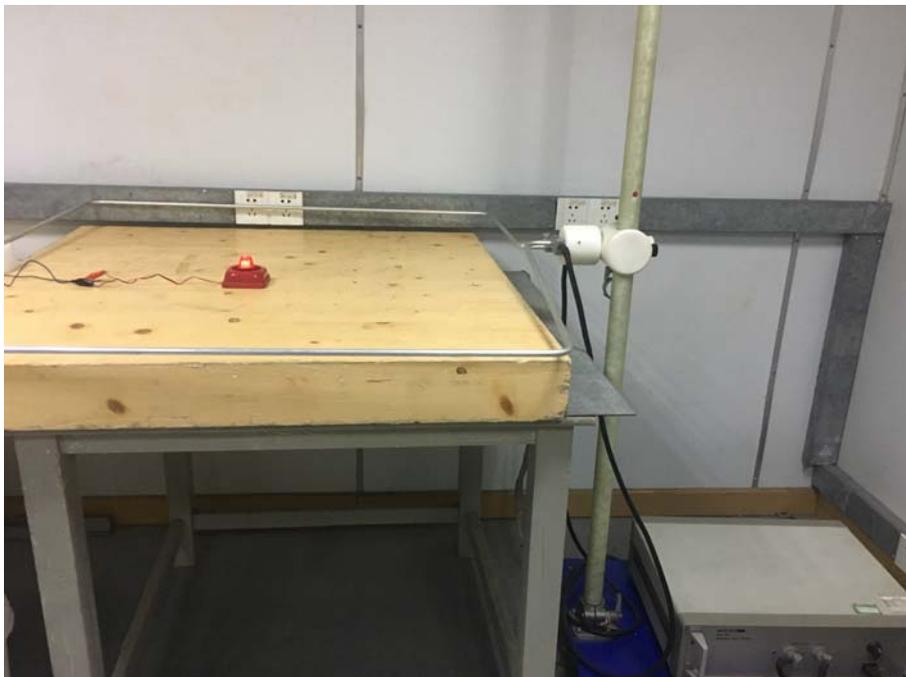
11.4.Photo of Electrical Fast Transient /Burst Test



11.5.Photo of Injected Current Susceptibility Test



11.6.Photo of Magnetic Field Susceptibility Test



11.7.Photo of EUT



