

EMC TEST REPORT



Report No.: 14021063-FCC-E

Supersede Report No.: N/A

Applicant	Shanghai Smarfid Security Equipment Co.,Ltd	
Product Name	Intelligent Control Egress Device Series	
Model No.	ICED2172-s	
Test Standard	FCC Part 15 Subpart B Class B:2014, ANSI C63.4: 2009	
Test Date	October 24, 2014	
Issue Date	October 28, 2014	
Test Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Equipment complied with the specification		<input checked="" type="checkbox"/>
Equipment did not comply with the specification		<input type="checkbox"/>
AJ.Chen	Alex.Liu	
AJ Chen Test Engineer	Alex Liu Checked By	
<p>This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only</p>		

Issued by:

SIEMIC (Nanjing-China) Laboratories

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Technology Development Park, Nanjing, China

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
14021063-FCC-E	NONE	Original	October 28, 2014

2. Customer information

Applicant Name	Shanghai Smarfid Security Equipment Co.,Ltd
Applicant Add	Room 301,4th Bldg., No.4 TongLi Road, SongJiang District,Shanghai 201615,China
Manufacturer	Shanghai Smarfid Security Equipment Co.,Ltd
Manufacturer Add	Room 301,4th Bldg., No.4 TongLi Road, SongJiang District,Shanghai 201615,China

3. Test site information

Lab performing tests	SIEMIC (Nanjing-China) Laboratories
Lab Address	2-1 Longcang Avenue Yuhua Economic and Technology Development Park, Nanjing, China
FCC Test Site No.	986914
IC Test Site No.	4842B-1
Test Software	Labview of SIEMIC version 1.0

4. Equipment under Test (EUT) Information

Description of EUT: Intelligent Control Egress Device Series

Main Model: ICED2172-s

Serial Model: ICED2112-s, ICED2142-s, ICED2112-i, ICED2142-i, ICED2172-i

Date EUT received: October 17, 2014

Test Date(s): October 24, 2014

Operating Frequency : 433 MHz

Port: N/A

Input Power: DC 12V

Trade Name : N/A

FCC ID: X3A-ICED2USC

Note: the difference between these models please refer to **ANNEX E. DECLARATION OF SIMILARITY**.

5. Test Summary

The product was tested in accordance with the following specifications.
All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§15.107; ANSI C63.4: 2009	AC Power Line Conducted Emissions	Compliance
§15.109; ANSI C63.4: 2009	Radiated Emissions	Compliance

Measurement Uncertainty

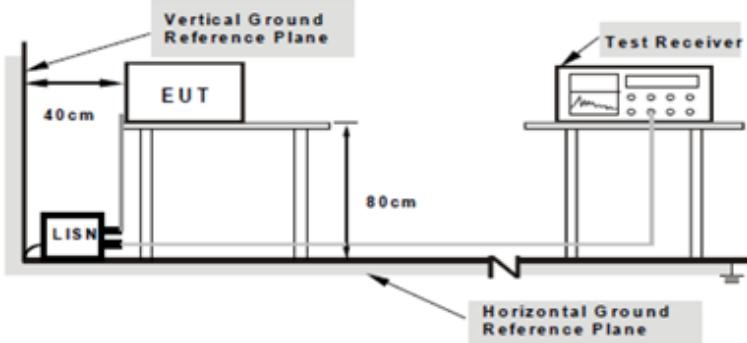
Emissions		
Test Item	Description	Uncertainty
Radiated Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	3.952dB

6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

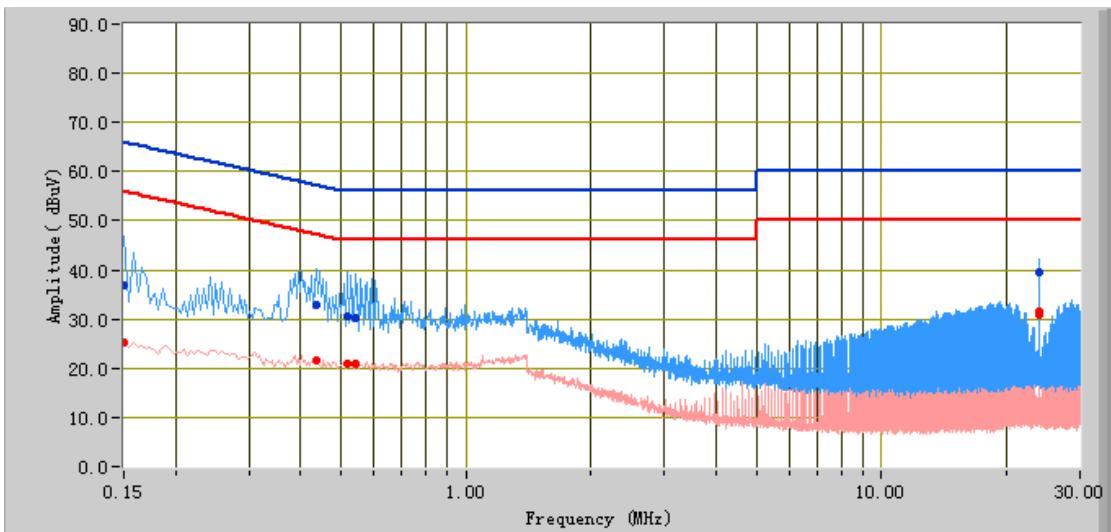
Temperature	24°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
Test date :	October 24, 2014
Tested By :	AJ Chen

Requirement(s):

Spec	Requirement	Applicable														
47CFR §15.107	<p>For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu]H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.</p> <table border="1"> <thead> <tr> <th rowspan="2">Frequency ranges (MHz)</th> <th colspan="2">Limit (dBμV)</th> </tr> <tr> <th>QP</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15 ~ 0.5</td> <td>66 ~ 56</td> <td>56 ~ 46</td> </tr> <tr> <td>0.5 ~ 5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5 ~ 30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency ranges (MHz)	Limit (dB μ V)		QP	Average	0.15 ~ 0.5	66 ~ 56	56 ~ 46	0.5 ~ 5	56	46	5 ~ 30	60	50	<input checked="" type="checkbox"/>
Frequency ranges (MHz)	Limit (dB μ V)															
	QP	Average														
0.15 ~ 0.5	66 ~ 56	56 ~ 46														
0.5 ~ 5	56	46														
5 ~ 30	60	50														
Test Setup	 <p>Note: 1. Support units were connected to second LISN. 2. Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</p>															
Procedure	<ol style="list-style-type: none"> 1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table. 2. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains. 3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal operating condition. 6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver. 7. High peaks, relative to the limit line, were then selected. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10kHz. 8. Steps 6-7 were repeated for the LIVE line (for AC mains) or DC line (for DC power). 															
Remark																
Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail														
Test Data	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> N/A														
Test Plot	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> N/A														

Test Mode: Normal Working Mode

Peak Detector  Quasi Peak Limit 
 Average Detector  Average Limit 

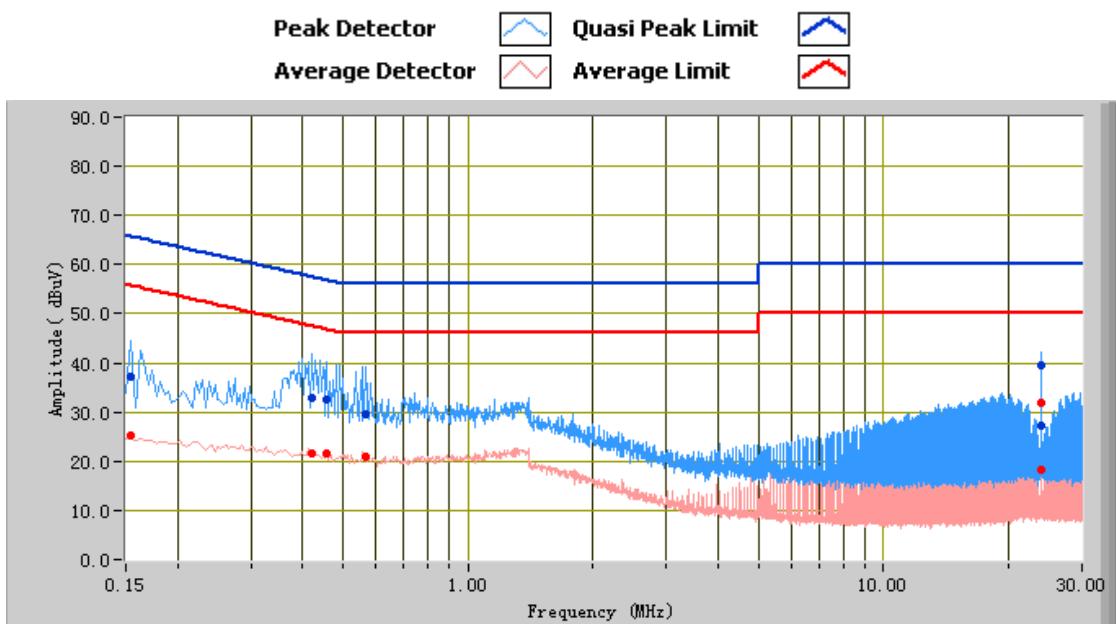


Test Data

Phase Line Plot at 120Vac, 60Hz

Frequency (MHz)	Quasi Peak (dB μ V)	Limit (dB μ V)	Margin (dB)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Factors (dB)
0.52	30.46	56.00	-25.54	20.93	46.00	-25.07	11.07
0.54	30.29	56.00	-25.71	21.01	46.00	-24.99	11.05
0.43	32.75	57.18	-24.43	21.53	47.18	-25.65	11.18
24.01	39.61	60.00	-20.39	31.72	50.00	-18.28	11.67
23.95	39.52	60.00	-20.48	30.93	50.00	-19.07	11.67
0.15	37.00	66.00	-29.00	25.29	56.00	-30.71	12.22

Test Mode: Normal Working Mode



Test Data

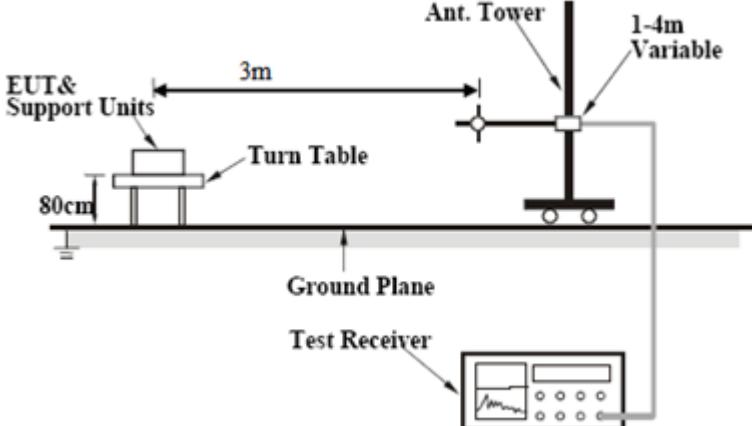
Phase Neutral Plot at 120Vac, 60Hz

Frequency (MHz)	Quasi Peak (dB μ V)	Limit (dB μ V)	Margin (dB)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Factors (dB)
0.42	32.94	57.41	-24.47	21.73	47.41	-25.68	11.18
0.57	29.62	56.00	-26.38	20.80	46.00	-25.20	11.01
0.46	32.45	56.73	-24.28	21.46	46.73	-25.26	11.12
24.01	39.61	60.00	-20.39	31.74	50.00	-18.26	11.70
23.95	27.11	60.00	-32.89	18.14	50.00	-31.86	11.70
0.15	37.07	65.78	-28.71	25.23	55.78	-30.55	12.15

6.2 Radiated Emissions

Temperature	24°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar
Test date :	October 24, 2014
Tested By :	AJ Chen

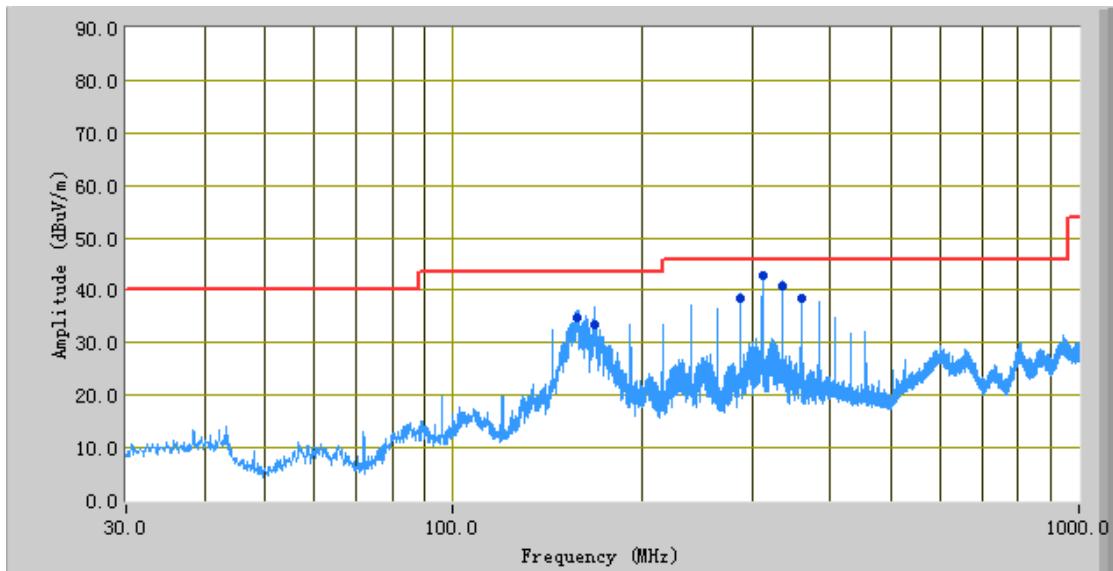
Requirement(s):

Spec	Requirement	Applicable										
47CFR §15.107(d)	Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges	<input checked="" type="checkbox"/>										
<table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength (μV/m)</th> </tr> </thead> <tbody> <tr> <td>30 – 88</td> <td>100</td> </tr> <tr> <td>88 – 216</td> <td>150</td> </tr> <tr> <td>216 – 960</td> <td>200</td> </tr> <tr> <td>Above 960</td> <td>500</td> </tr> </tbody> </table>		Frequency range (MHz)	Field Strength (μ V/m)	30 – 88	100	88 – 216	150	216 – 960	200	Above 960	500	
Frequency range (MHz)	Field Strength (μ V/m)											
30 – 88	100											
88 – 216	150											
216 – 960	200											
Above 960	500											
Test Setup	 <p>The diagram illustrates the test setup for radiated emissions. A 'Turn Table' is positioned on a 'Ground Plane'. A 'EUT & Support Units' is mounted on the turn table. A 'Test Receiver' is connected to the EUT. A vertical 'Ant. Tower' is mounted on the turn table, with a '1-4m Variable' antenna height adjustment. A horizontal distance of '3m' is indicated between the EUT and the Ant. Tower. A vertical distance of '80cm' is indicated between the EUT and the ground plane.</p>											
Procedure	<ol style="list-style-type: none"> 1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: <ol style="list-style-type: none"> a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. For emission frequencies measured below and above 1GHz, set the spectrum analyzer on a 100kHz and 1MHz resolution bandwidth respectively for each frequency measured. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured. 											
Remark												
Result	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail										
Test Data	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> N/A										
Test Plot	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> N/A										

Test Mode:	Normal Working Mode
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(Below 1GHz)

Peak Detector 
 Quasi Peak Limit 



Test Data

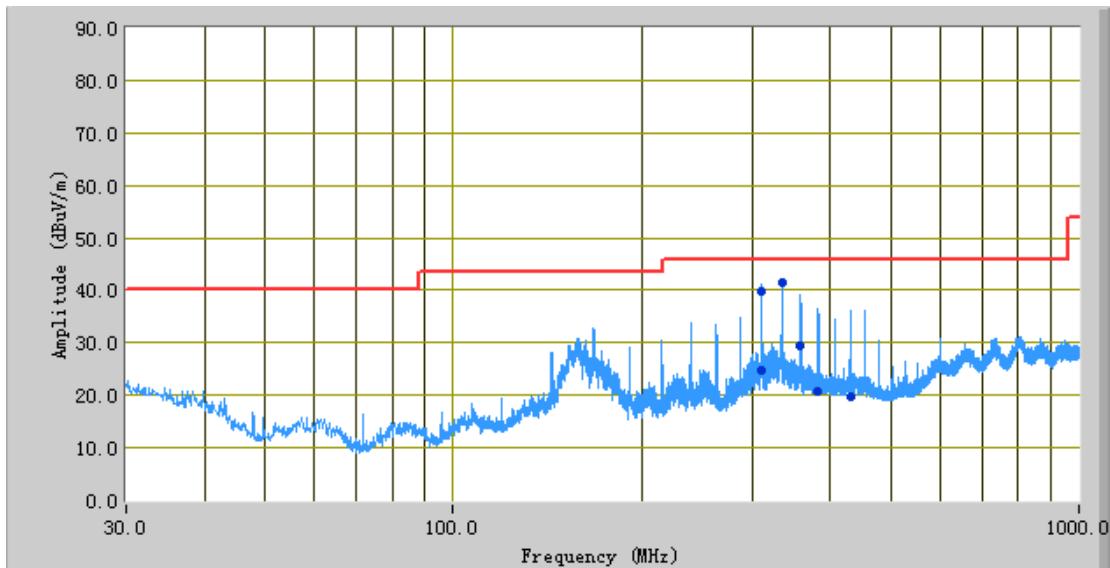
Horizontal Polarity Plot @3m

Frequency (MHz)	Quasi Peak (dB μ V/m)	Azimuth	Polarity (H/V)	Height (cm)	Factors (dB)	Limit (dB μ V/m)	Margin (dB)
311.97	42.73	96.00	H	101.00	-29.41	46.00	-3.27
336.02	40.91	92.00	H	107.00	-29.96	46.00	-5.09
288.04	38.44	90.00	H	100.00	-29.00	46.00	-7.56
168.05	33.54	224.00	H	241.00	-31.49	43.50	-9.96
360.10	38.42	85.00	H	101.00	-29.32	46.00	-7.58
157.76	34.88	206.00	H	158.00	-31.47	43.50	-8.62

Test Mode:	Normal Working Mode
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(Below 1GHz)

Peak Detector 
 Quasi Peak Limit 



Test Data

Vertical Polarity Plot @3m

Frequency (MHz)	Quasi Peak (dB μ V/m)	Azimuth	Polarity (H/V)	Height (cm)	Factors (dB)	Limit (dB μ V/m)	Margin (dB)
335.42	41.43	231.00	V	182.00	-28.60	46.00	-4.57
311.48	39.67	175.00	V	162.00	-29.30	46.00	-6.33
359.36	29.29	359.00	V	213.00	-28.39	46.00	-16.71
311.32	24.62	283.00	V	242.00	-29.30	46.00	-21.38
383.31	20.78	351.00	V	141.00	-28.30	46.00	-25.22
431.08	19.85	240.00	V	160.00	-28.33	46.00	-26.15

Note: The data above 1 GHz which below 20 dB to the limit was not recorded.

Annex A. TEST INSTRUMENT

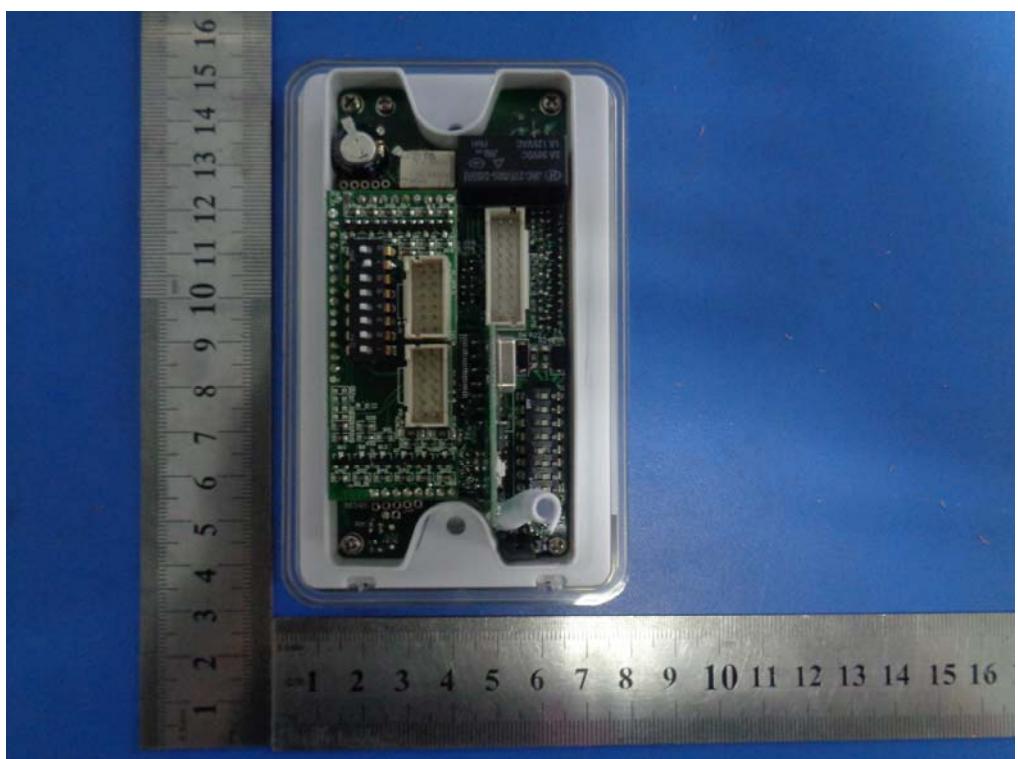
Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
R&S EMI Test Receiver	ESPI3	101216	09/27/2014	09/26/2015	<input checked="" type="checkbox"/>
V-LISN	ESH3-Z5	838979/005	09/27/2014	09/26/2015	<input checked="" type="checkbox"/>
SIEMIC Conducted Emissions software	V1.0	N/A	N/A	N/A	<input checked="" type="checkbox"/>
Radiated Emissions					
Hp Spectrum Analyzer	8563E	3821A09023	09/27/2014	09/26/2015	<input checked="" type="checkbox"/>
R&S EMI Receiver	ESPI3	101216	09/27/2014	09/26/2015	<input checked="" type="checkbox"/>
Antenna (30MHz~6GHz)	JB6	A121411	04/15/2014	04/14/2015	<input checked="" type="checkbox"/>
INFOMW Antenna (1 ~18GHz)	JXTXLB-10180	J2031081120092	10/07/2014	10/06/2015	<input checked="" type="checkbox"/>
Hp Agilent Pre-Amplifier	8447F	1937A01160	10/27/2013	10/26/2014	<input checked="" type="checkbox"/>
MITEQ Pre-Amplifier (0.1 ~ 18GHz)	LPA-6-30	1451709	06/25/2014	06/24/2015	<input checked="" type="checkbox"/>

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph EUT External Photo

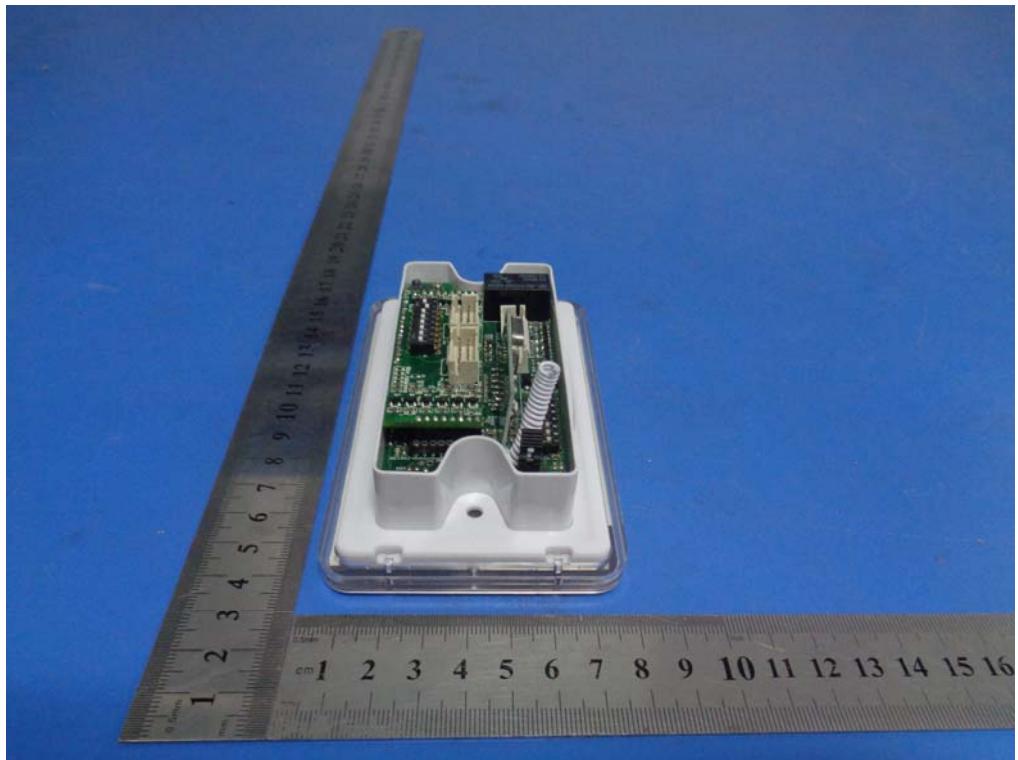


Front View of EUT

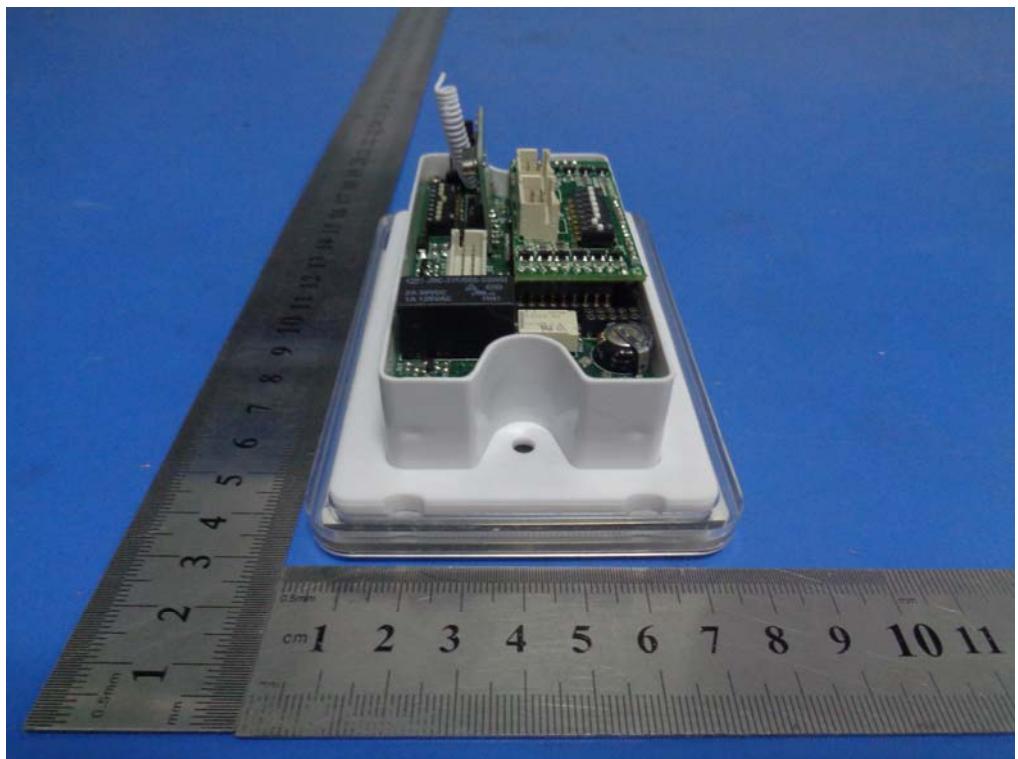


Rear View of EUT

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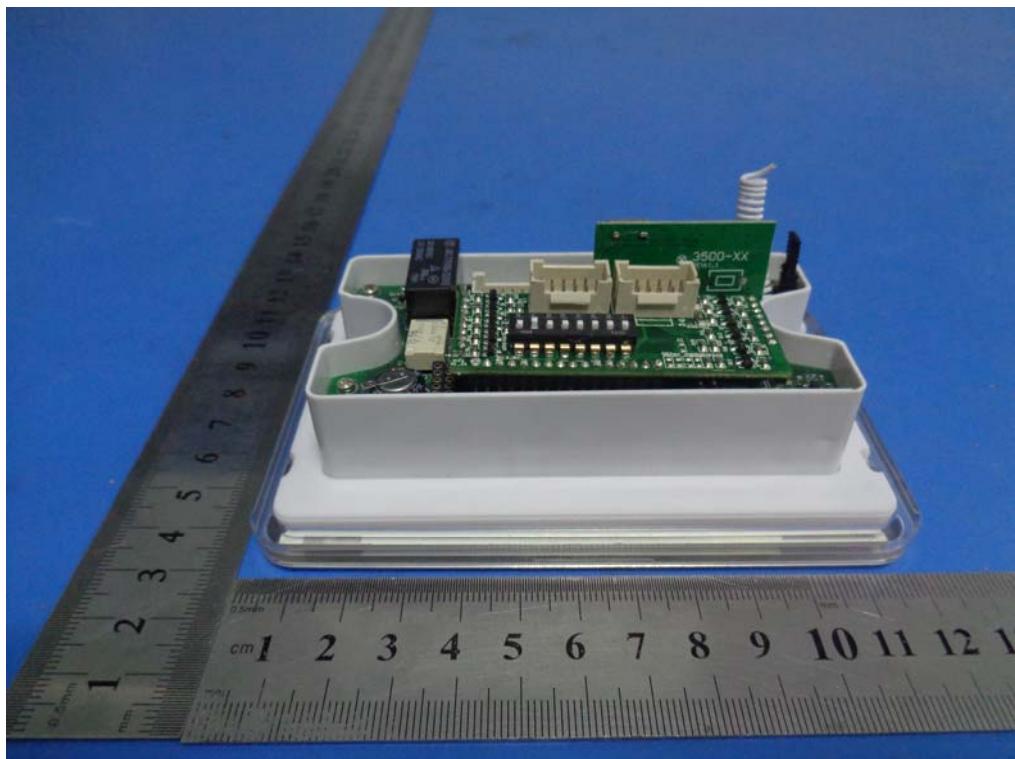
Top View of EUT



Bottom View of EUT

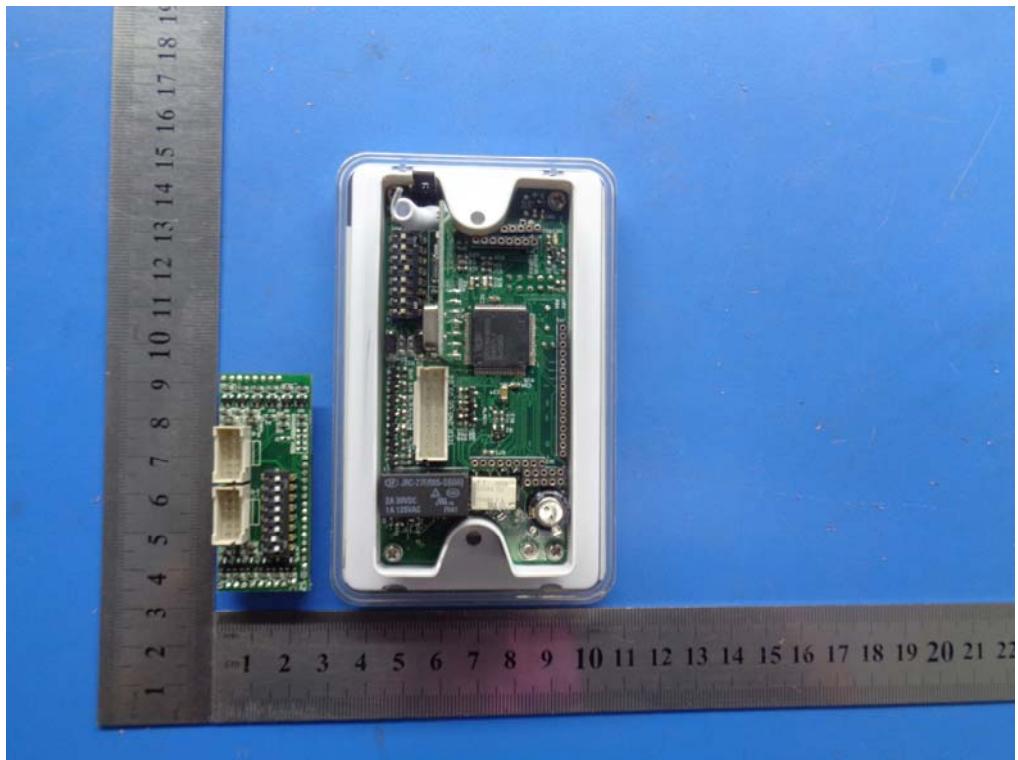


Left View of EUT

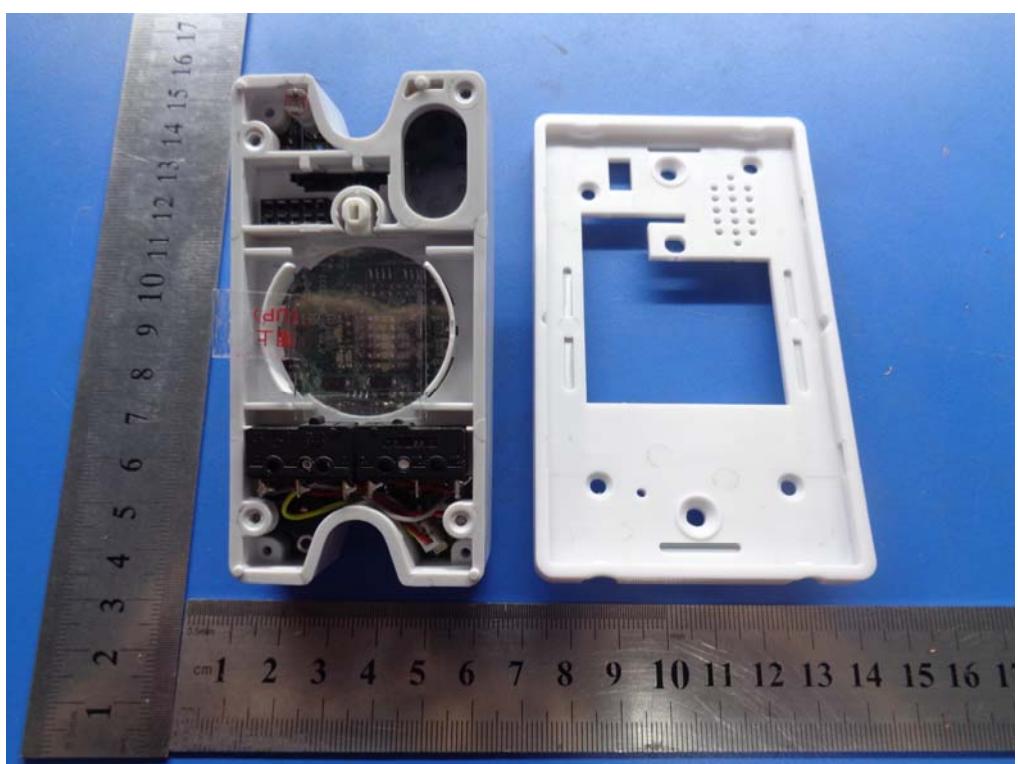


Right View of EUT

Annex B.ii. Photograph EUT Internal Photo

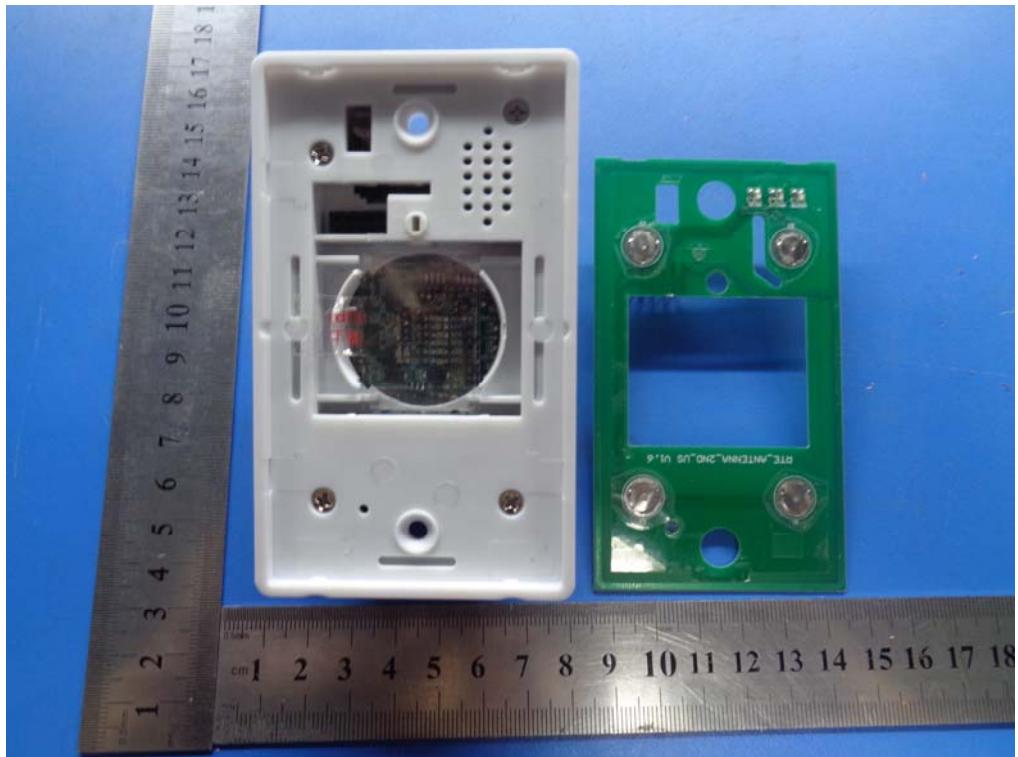


Uncover- Front View

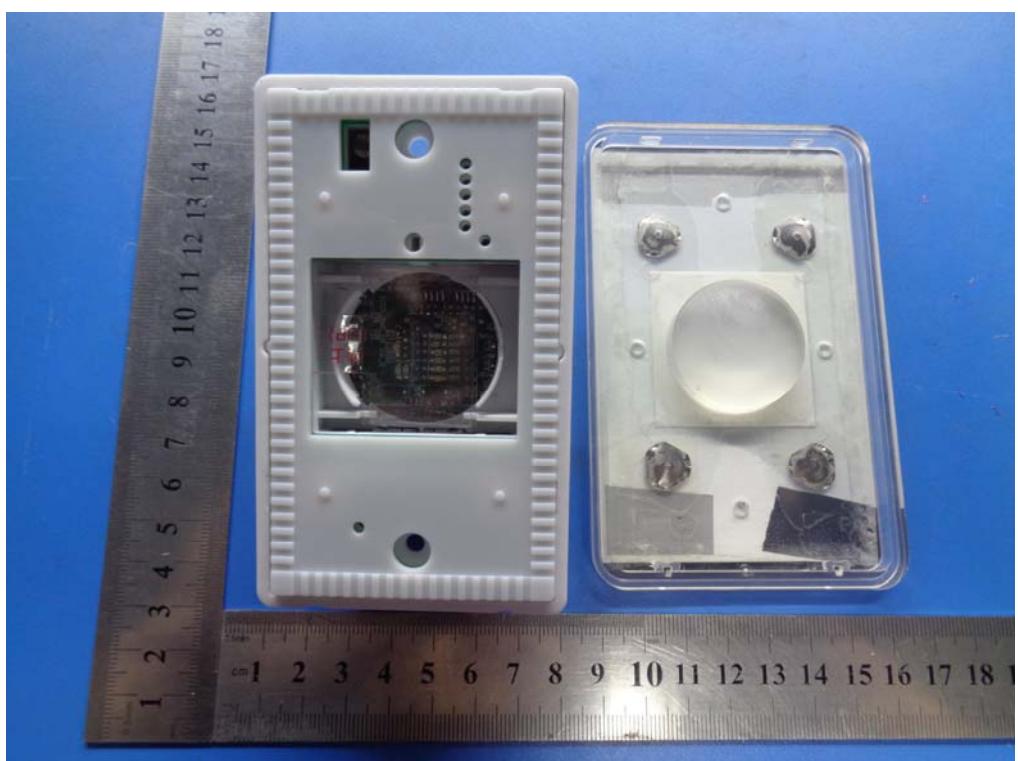


Uncover- Rear View 1

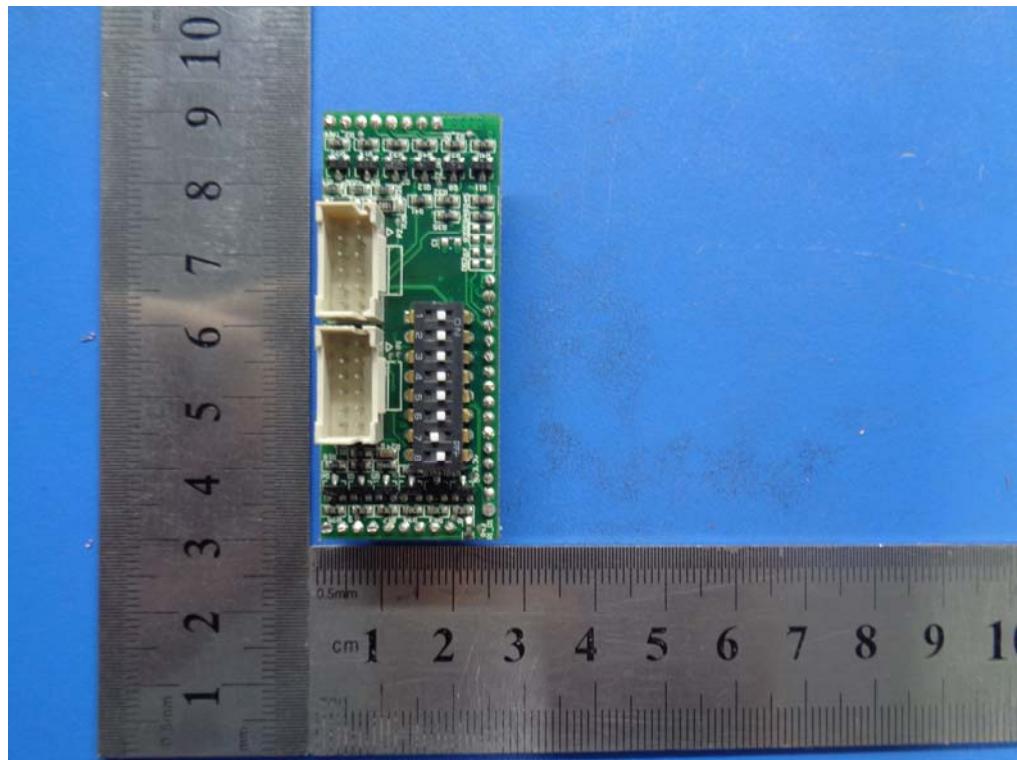
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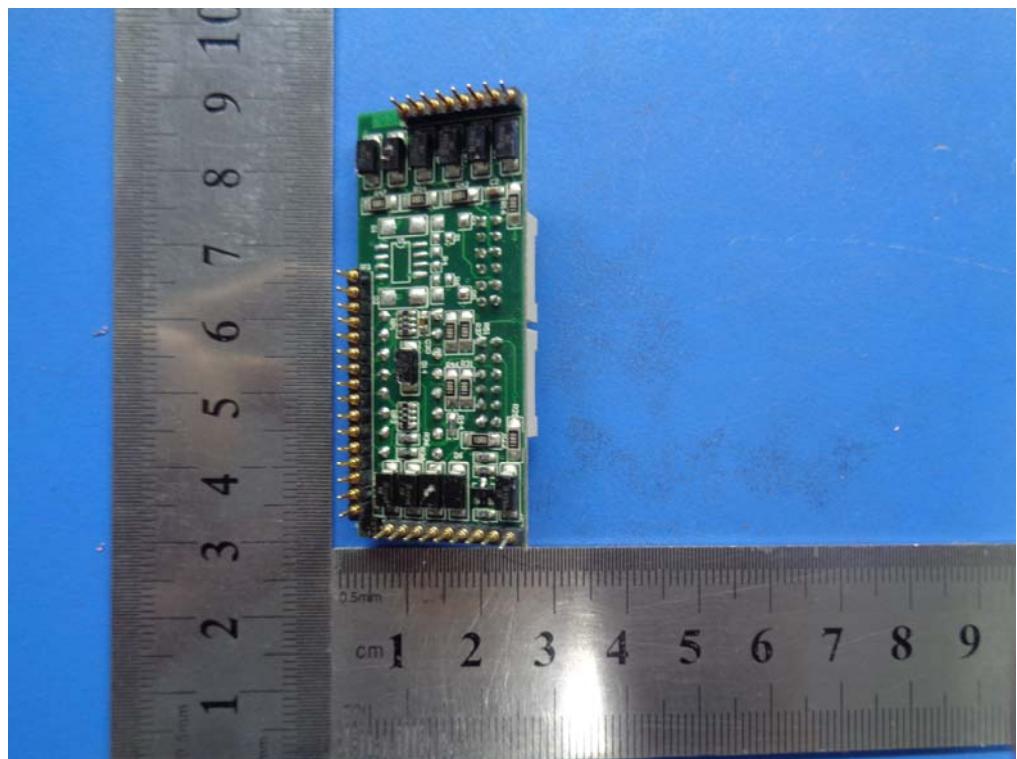
Uncover- Rear View 2



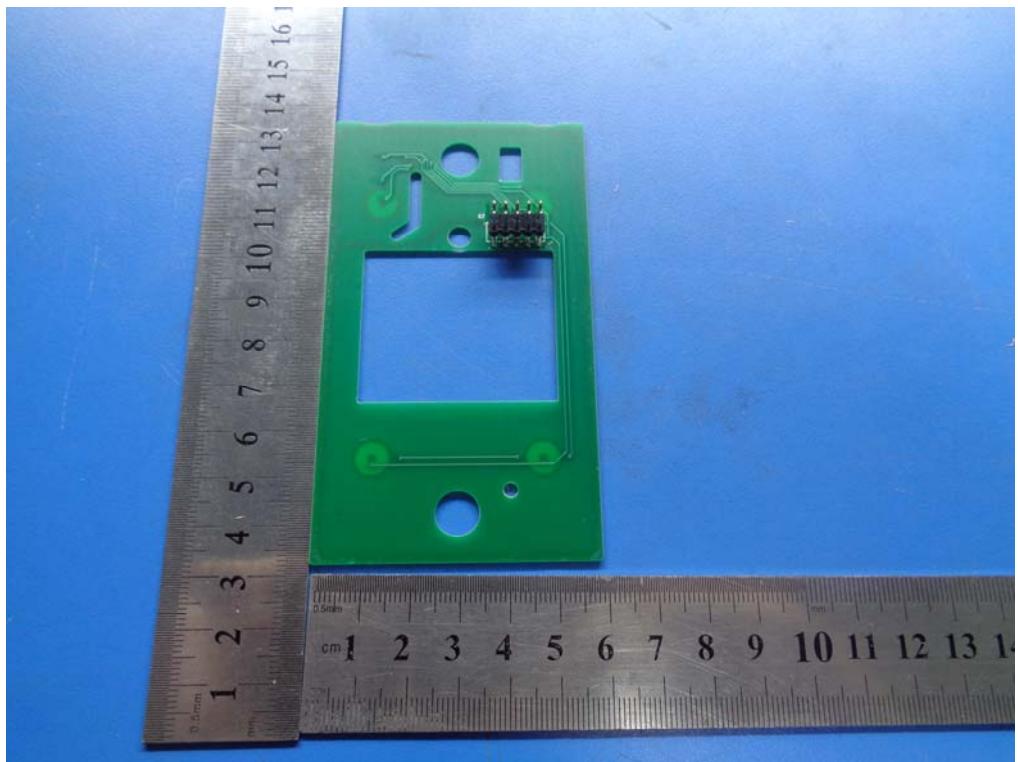
Uncover- Rear View 3



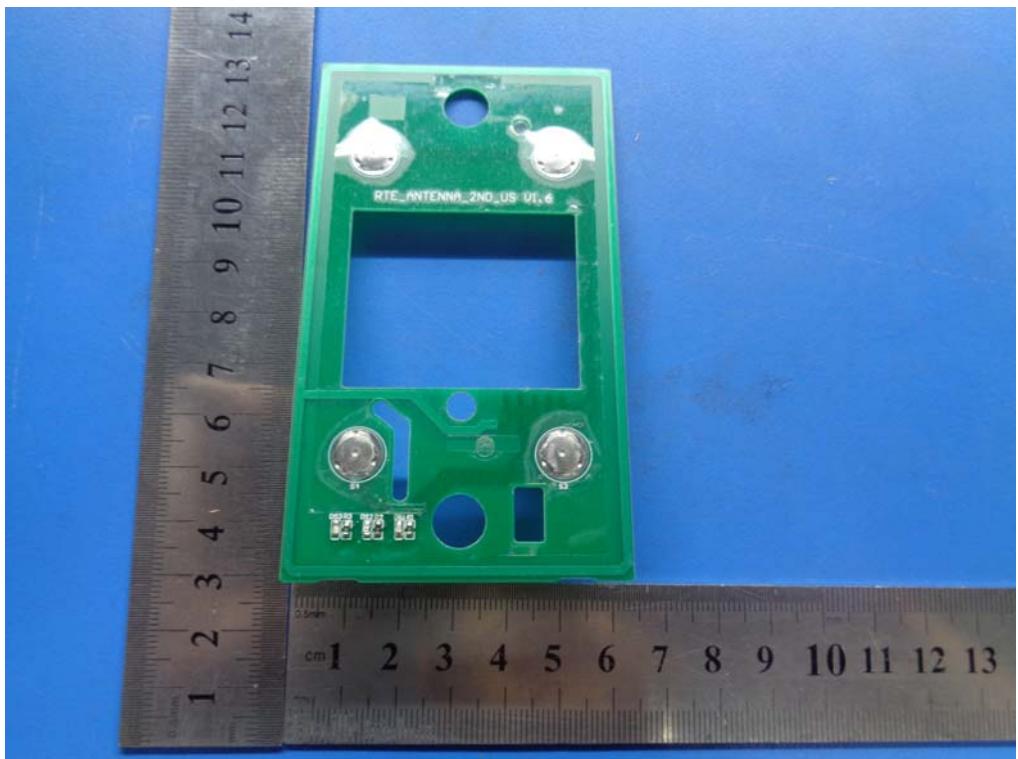
EUT PCB 1- Front View



EUT PCB 1- Rear View

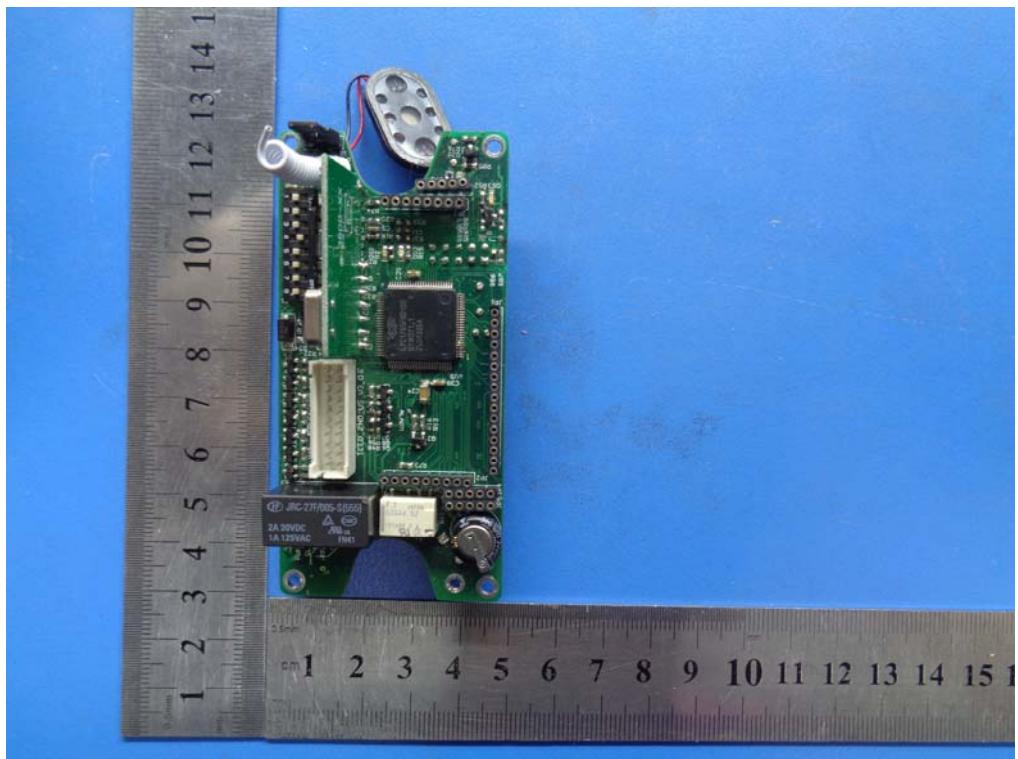


EUT PCB 2- Front View

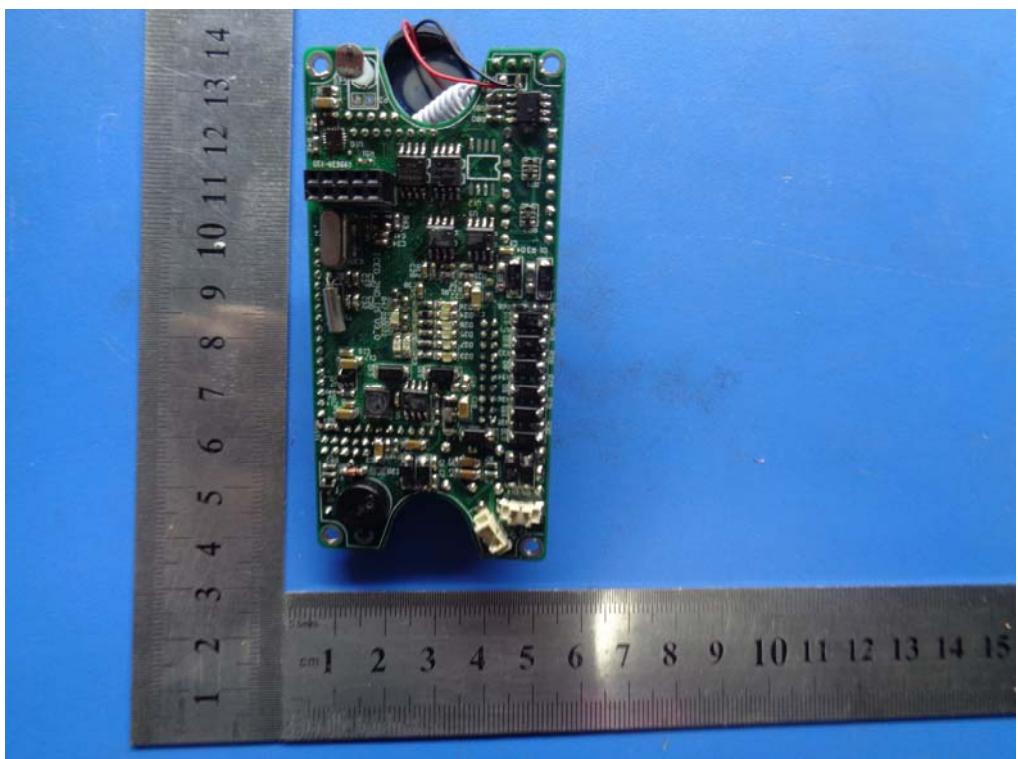


EUT PCB 2- Rear View

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EUT PCB 3- Front View



EUT PCB 3- Rear View

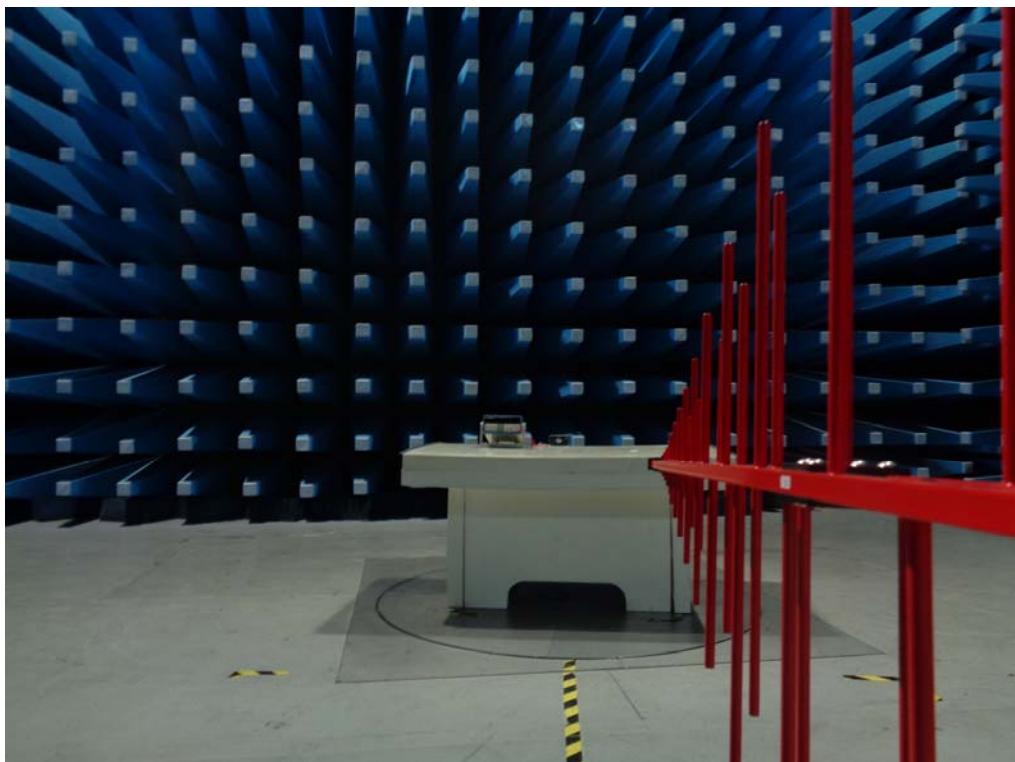
Annex B.iii. Photograph Test Setup Photo



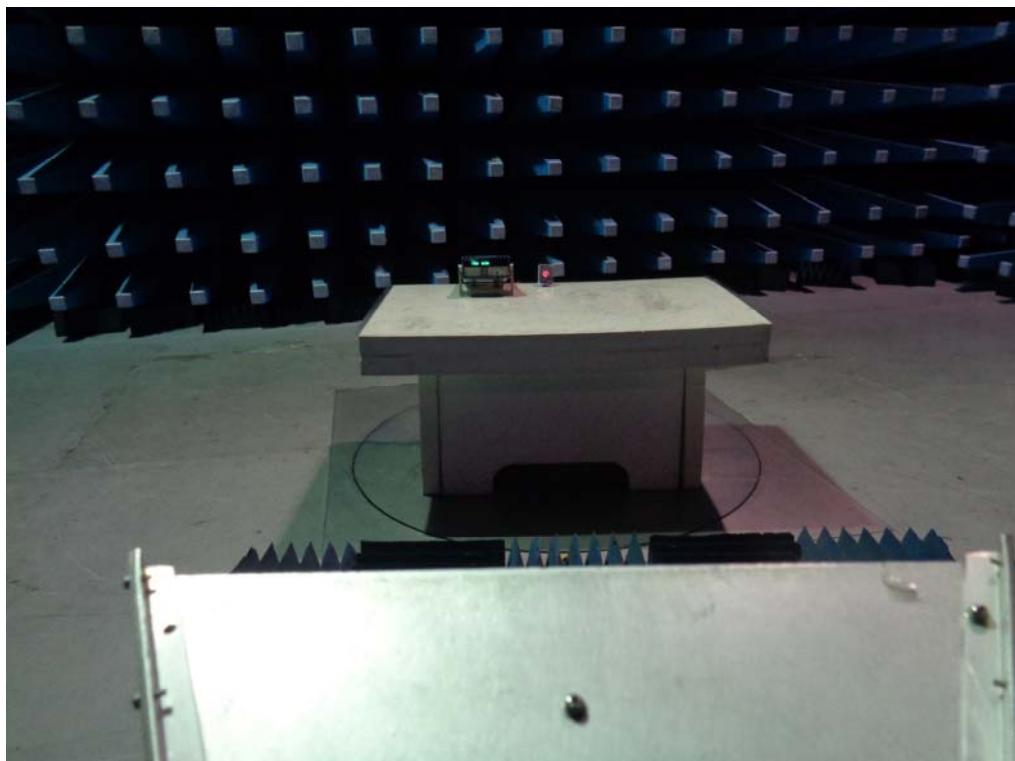
Conducted Emissions Setup Front View



Conducted Emissions Setup Side View



Radiated Emissions Setup Below 1GHz Front View

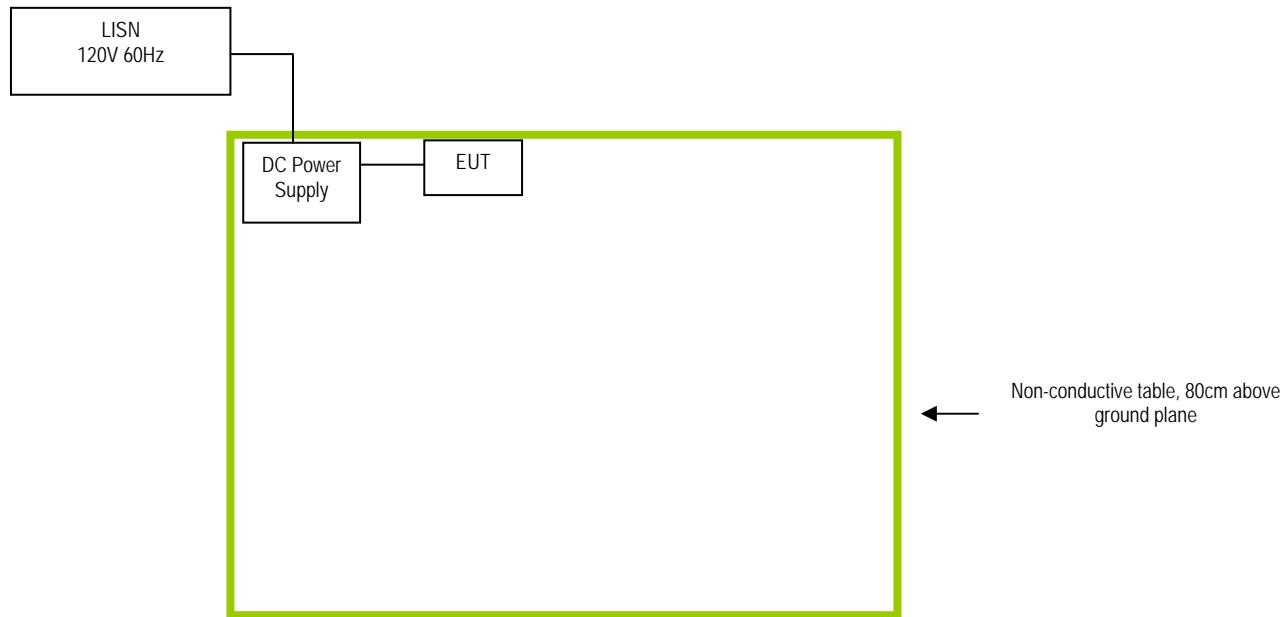


Radiated Emissions Setup Above 1GHz Front View

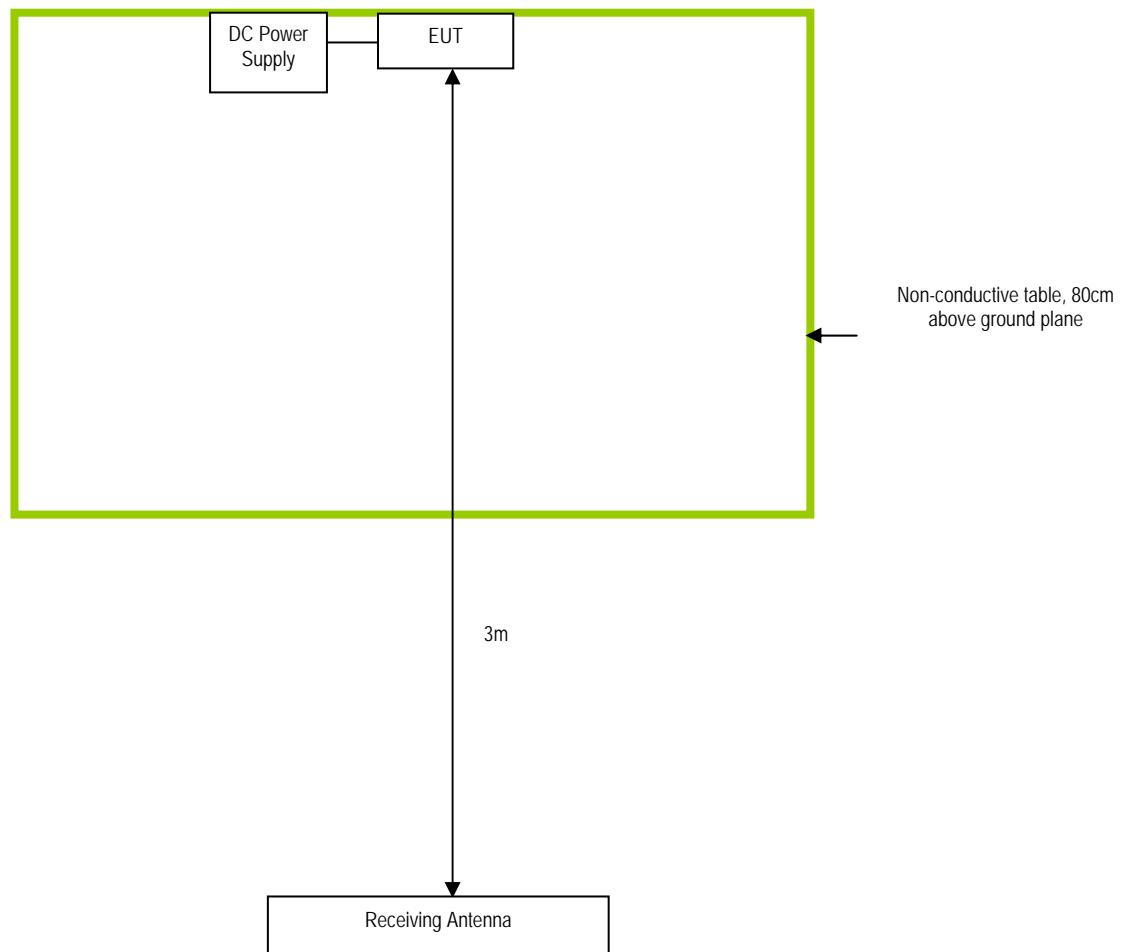
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.i. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for Radiated Emissions



Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Manufacturer	Equipment Description	Model	Calibration Date
BK PRECISION	DC Power Supply	1786B	N/A

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Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see Attachment

Annex E. DECLARATION OF SIMILARITY

SMARFID

Shanghai Smarfid Security Equipment Co., Ltd.
Add: Room 301, 4th Bldg., No.4 TongLi Road, SongJiang District, Shanghai 201615,
China
Tel: (86-21) 54260103, 54260132 ext.215 Fax: (86-21) 54260132 ext.222

To: SIEMIC (NANJUNG-CHINA) LABORATORIES

Declaration letter

Dear :

For our business issue and marketing requirement, we would like to list different models numbers on the FCC certificates and reports, as following:

FCC ID:X3A-ICED2U3C

Model No.: ICED2172-s

ICED2112-i, ICED2142-i, ICED2172-i, ICED2112-s, ICED2142-s

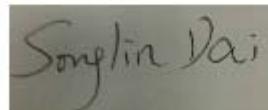
The six models have the same Circuits, components, appearance and color.

The difference of these models ICED2172-s,ICED2112-i, ICED2142-i, ICED2172-i, ICED2112-s,ICED2142-s are have different model name.

NOTE:ICED2-i does not support break glass emergency function . ICED2-S is support break glass emergency.

Thank you!

Signature:



Printed name/title: songlindai