



Shenzhen Certification Technologh Service Co., Ltd
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China

TEST REPORT

FCC ID: 2ACZNMSR606

Applicant : Shenzhen Unique Electronic Int'l Limited
Address : Rm 1608, Bld B, Zhantao science and Technology, RD MinZhi
Longhua Av., Bao'an, Shenzhen 518131, China

Equipment under Test (EUT):

Name : Magnetic card reader writer

Model : MSR606, MSR605, MSRE206

Standards : FCC PART 15, Subpart B (Class B): 2013
Report No. : STI130812147

Date of Test : August 01- August 06, 2014

Date of Issue : August 07, 2014

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

A handwritten signature in black ink that appears to read "Mark Zhu".

(Mark Zhu)
General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report.

If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Certification Technology Service Co., Ltd. Or test done by Shenzhen Certification Technology Service Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Certification Technology Service Co., Ltd. Approvals in writing.

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TEST REPORT VERIFICATION

Applicant : Shenzhen Unique Electronic Int'l Limited
Manufacturer : Shenzhen Unique Electronic Int'l Limited
EUT Description : Magnetic card reader writer
(A) Model No. : MSR606, MSR605, MSRE206
(B) Trademark : N/A
(C) Power Supply : DC 24V From Adapter
(D) Test Voltage : DC 24V From Adapter With AC
120V/60Hz

Measurement Standard Used:

FCC PART 15, Subpart B (Class B): 2013

The device described above is tested by Shenzhen Certification Technology Service Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Certification Technology Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Certification Technology Service Co., Ltd.

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Power Line Conducted Emission Test	FCC Part 15: 2013 ANSI C63.4: 2003	Class B	PASS
Radiated Emission Test	FCC Part 15: 2013 ANSI C63.4: 2003	Class B	PASS

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description : Magnetic card reader writer

Model Number : MSR606, MSR605, MSRE206

DIFF : All model's the function, software and electric circuit are the same , only with a product model named different, so all the test were performed on the model MSR606

Trademark : N/A

Power Supply : DC 24V From Adapter
Adapter : Manufacturer: Shenzhen Unique Electronic Int'l Limited .
Model: ZF120A-2402500

Applicant : Shenzhen Unique Electronic Int'l Limited
Address : Rm 1608, Bld B, Zhantao science and Technology, RD MinZhi
Longhua Av., Bao'an, Shenzhen 518131, China

Manufacturer : Shenzhen Unique Electronic Int'l Limited
Address : Rm 1608, Bld B, Zhantao science and Technology, RD MinZhi
Longhua Av., Bao'an, Shenzhen 518131, China

Sample Type : Series production

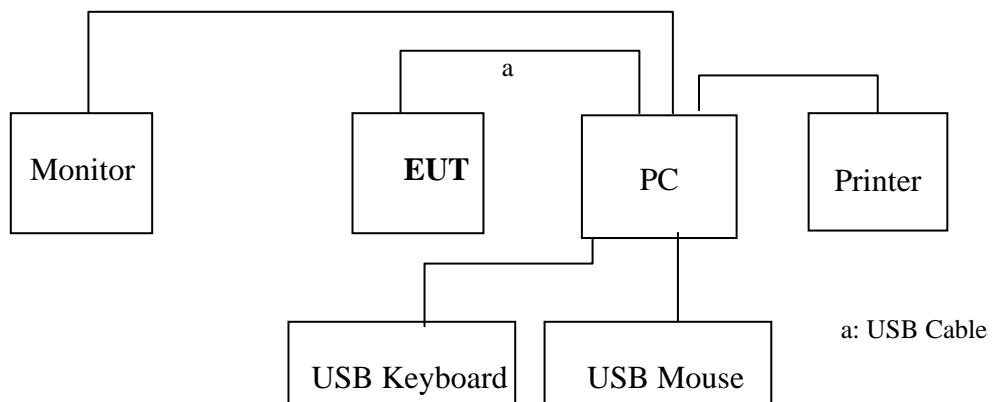
Note: EUT USB interface for data exchange function as a Computer Peripheral.

2.2. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number
1.	Personal Computer	ACER	ASPIRE M1830	PTSF90C00305005CAC3000
2.	Monitor	ACER	G205HV	SNID:10306738385
3.	USB Keyboard	ACER	SK-9625	KBUSB1580500037E0100
4.	USB Mouse	ACER	MS.11200.014	M-UAY-ACR2
5.	Printer	HP	HP1020	CNCJ410726

Note: These equipment has FCC DOC certificate.

2.3. Block Diagram of connection between EUT and simulators



※ EUT: Magnetic card reader writer

2.4. Test Facility

JAN 13, 2012 File on Federal Communication Commission
Registration Number: 197647

October 11, 2011 Certificated by IC
Registration Number: 8528B

2.5. Measurement Uncertainty

(95% confidence levels, k=2)

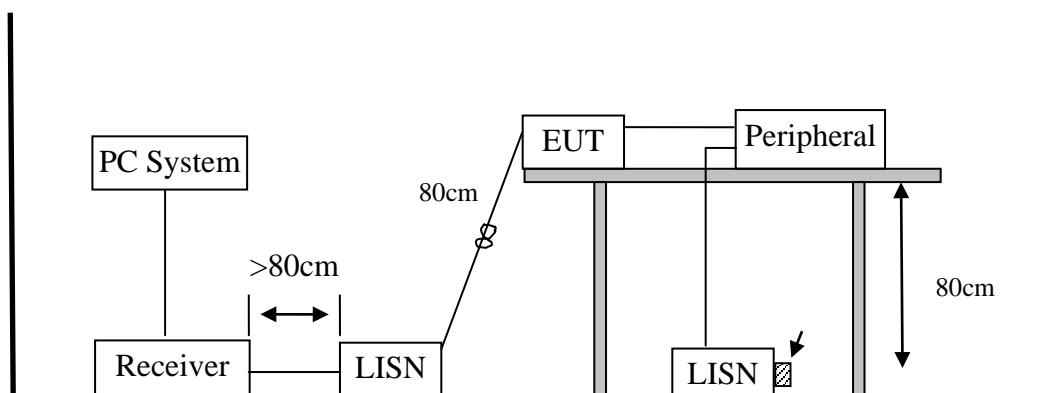
Test Item	Uncertainty
Uncertainty for Conduction emission test	2.50dB
Uncertainty for Radiation Emission test	3.04 dB (Distance: 3m Polarize: V)
	3.02 dB (Distance: 3m Polarize: H)
Uncertainty for test site temperature and humidity	0.6°C
	3%

3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101165	2014.01.20	1 Year
2.	L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2014.01.20	1 Year
3.	L.I.S.N.#2	ROHDE&SCHW ARZ	ENV216	101043	2014.01.20	1 Year
4.	Pulse Limiter	Schwarzbeck	9516F	9618	2014.01.20	1 Year

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. Emission level=Read level+ LISN factor+Preamp factor+ Cable loss

2* Decreasing linearly with logarithm of frequency.

3. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

Support Equipments : As Tested Supporting System Detail, in Section 2.2.

3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT and simulator as shown as Section 3.2.
- 3.5.2. Turn on the power of all equipment.
- 3.5.3. Let the EUT work in test mode (Read and Write Card) and measure it.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N. #2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2003 on conducted Emission test.

The bandwidth of test receiver (R&S TEST RECEIVER ESCI) is set at 10kHz.

The frequency range from 150KHz to 30MHz is checked. The test result are reported on Section 3.7.

3.7. Conducted Disturbance at Mains Terminals Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

The EUT with the following test mode was tested and read Q.P values and average values, the test results are listed in next pages.

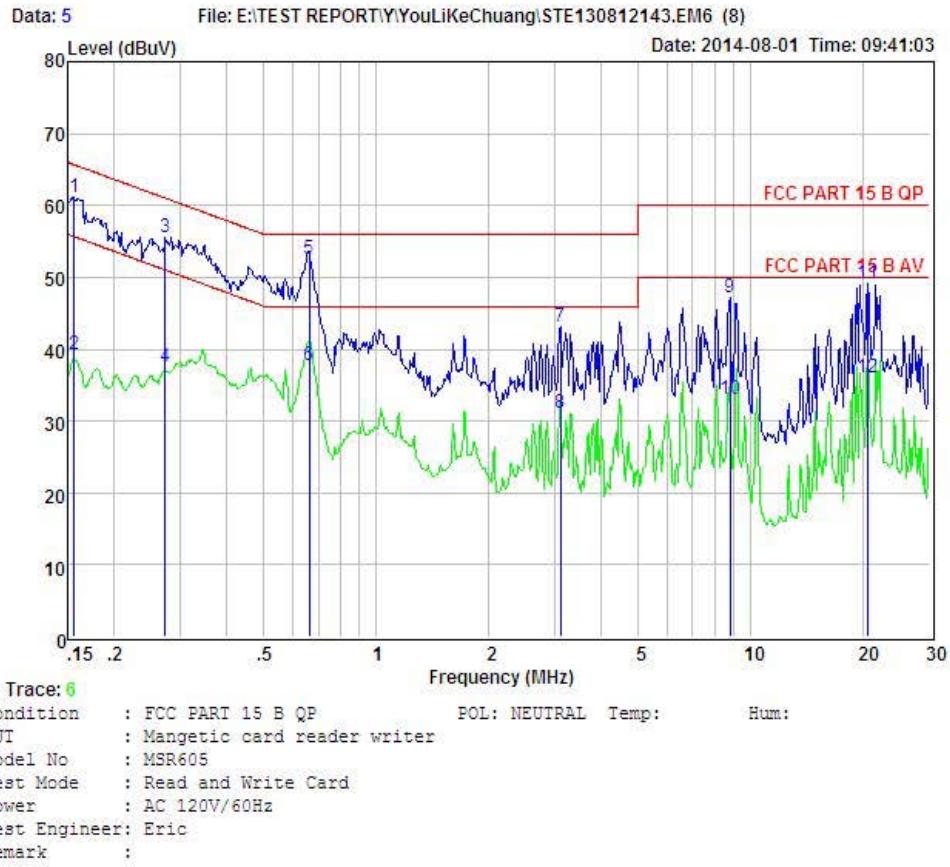
Temperature: 24°C Humidity: 56%

The details of test mode is as follows :

NO.	Test Mode
1.	Read and Write Card

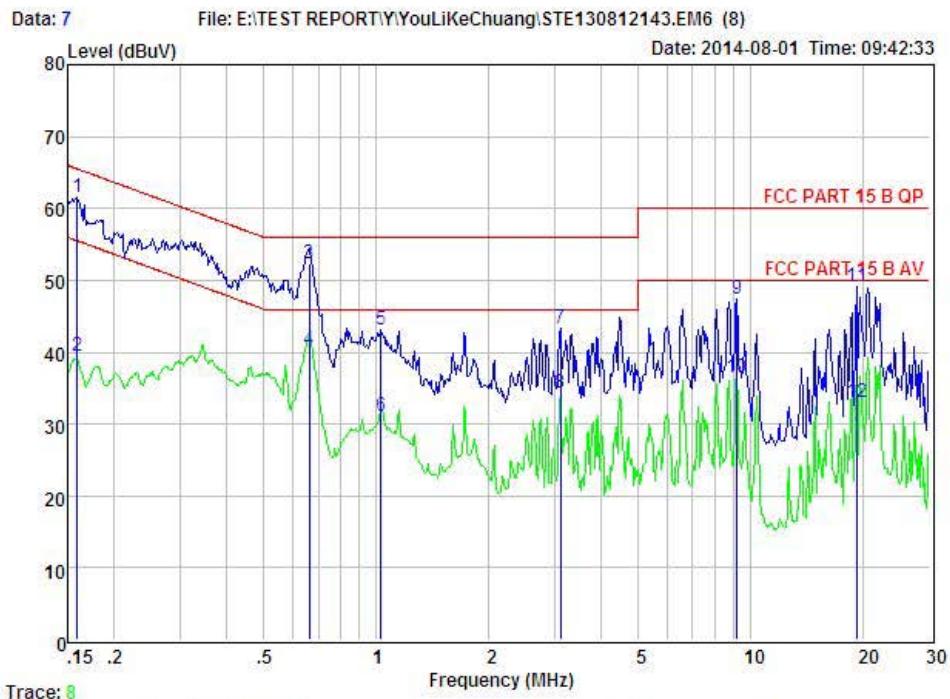


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Item	Freq	Read	LISN	Preamp	Cable	Level	Limit	Margin	Remark
	MHz	dBuV	Factor	Factor	dB	dB	dBuV	dBuV	
1	0.156	51.38	0.03	-9.72	0.10	61.23	65.65	-4.42	QP
2	0.156	29.38	0.03	-9.72	0.10	39.23	55.65	-16.42	Average
3	0.273	45.64	0.03	-9.72	0.10	55.49	61.03	-5.54	QP
4	0.273	27.64	0.03	-9.72	0.10	37.49	51.03	-13.54	Average
5	0.661	42.78	0.04	-9.72	0.10	52.64	56.00	-3.36	QP
6	0.661	27.78	0.04	-9.72	0.10	37.64	46.00	-8.36	Average
7	3.107	33.16	0.07	-9.69	0.12	43.04	56.00	-12.96	QP
8	3.107	21.16	0.07	-9.69	0.12	31.04	46.00	-14.96	Average
9	8.822	37.33	0.16	-9.42	0.18	47.09	60.00	-12.91	QP
10	8.822	23.33	0.16	-9.42	0.18	33.09	50.00	-16.91	Average
11	20.594	38.89	0.33	-9.50	0.36	49.08	60.00	-10.92	QP
12	20.594	25.89	0.33	-9.50	0.36	36.08	50.00	-13.92	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Item	Freq	Read	LISN	Preamp	Cable	Level	Limit	Margin	Remark
	MHz	dBuV	Factor	Factor	dB	dB	dBuV	dBuV	
1	0.159	51.61	0.03	-9.72	0.10	61.46	65.52	-4.06	QP
2	0.159	29.61	0.03	-9.72	0.10	39.46	55.52	-16.06	Average
3	0.661	42.53	0.04	-9.72	0.10	52.39	56.00	-3.61	QP
4	0.661	30.53	0.04	-9.72	0.10	40.39	46.00	-5.61	Average
5	1.032	33.25	0.04	-9.71	0.10	43.10	56.00	-12.90	QP
6	1.032	21.25	0.04	-9.71	0.10	31.10	46.00	-14.90	Average
7	3.107	33.38	0.07	-9.69	0.12	43.26	56.00	-12.74	QP
8	3.107	24.38	0.07	-9.69	0.12	34.26	46.00	-11.74	Average
9	9.204	37.62	0.16	-9.39	0.19	47.36	60.00	-12.64	QP
10	9.204	26.62	0.16	-9.39	0.19	36.36	50.00	-13.64	Average
11	19.224	39.00	0.30	-9.47	0.33	49.10	60.00	-10.90	QP
12	19.224	23.00	0.30	-9.47	0.33	33.10	50.00	-16.90	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

4. RADIATED EMISSION TEST

4.1. Test Equipment

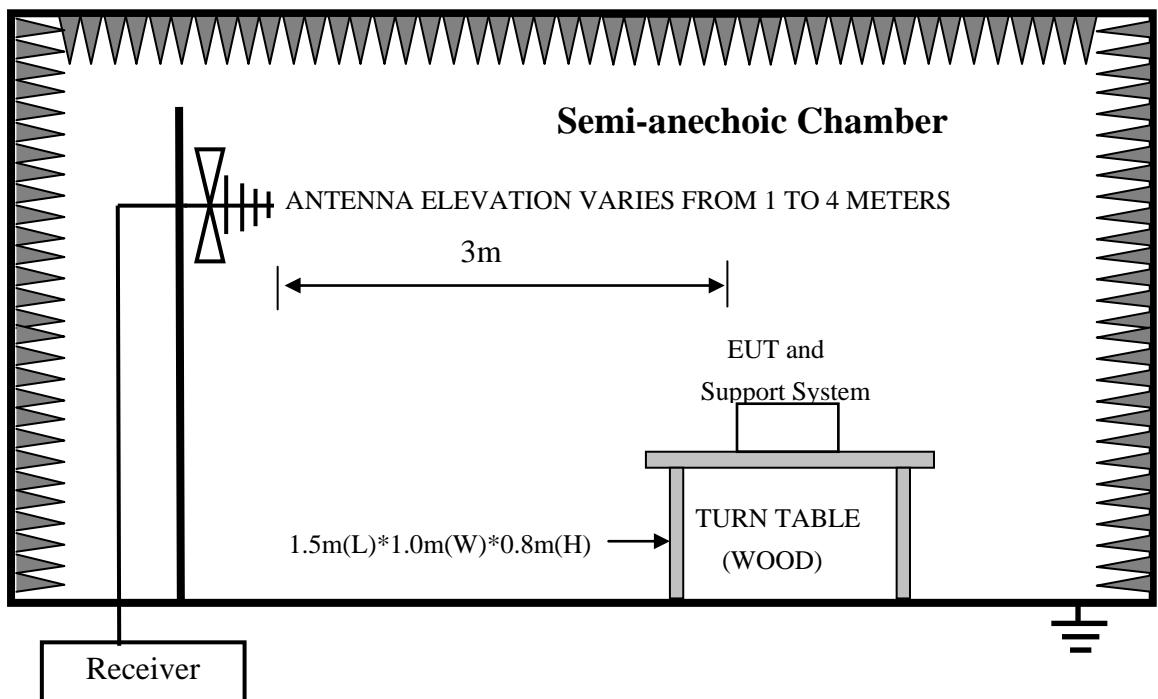
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde&Schwarz	ESCI	101165	2014.01.20	1 Year
2	Amplifier	Schwarzbeck	BBV9743	9743-019	2014.01.20	1 Year
3	Bilog Antenna	Schwarzbeck	VULB 9168	9168-438	2014.01.22	1 Year
4	RF Cable	Schwarzbeck	AK9515E	95891-2m	2014.01.20	1 Year
5	RF Cable	Schwarzbeck	AK9515E	95891-11m	2014.01.20	1 Year
6	RF Cable	Schwarzbeck	AK9515E	95891-0.5m	2014.01.20	1 Year

For frequency range 1GHz~5GHz (At Semi Anechoic Chamber)

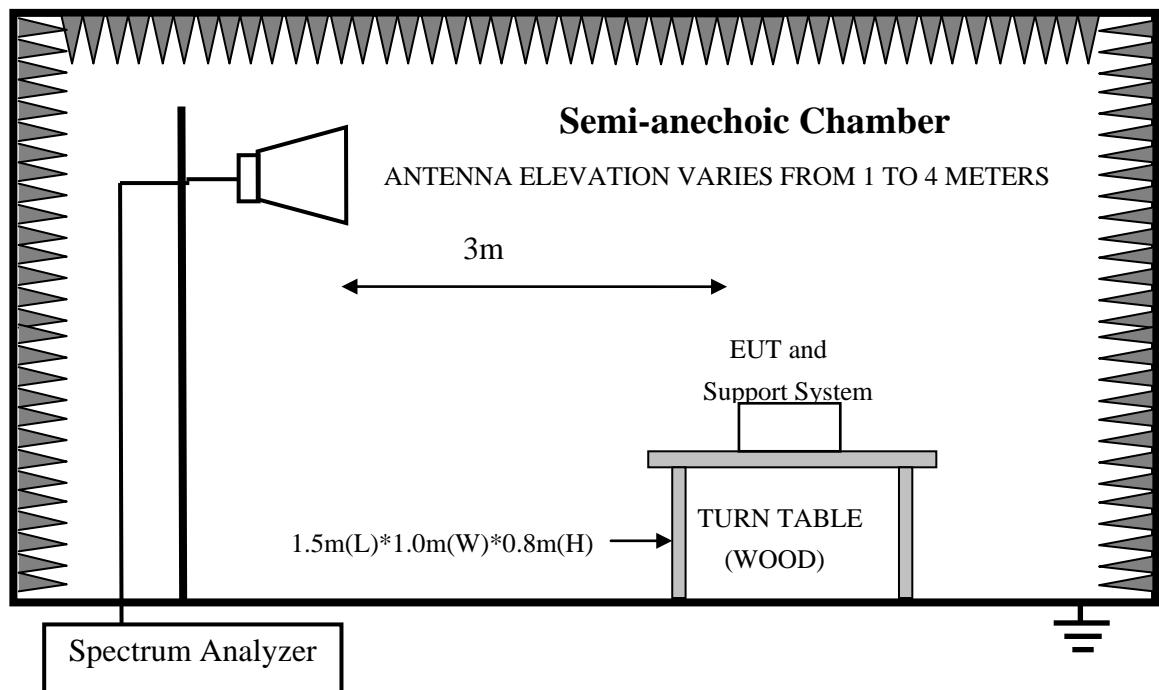
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY4951005 5	2014.01.20	1 Year
2	Horn Antenna	Schwarzbeck	BBHA 9120 D	BBHA 9120 D(1201)	2014.01.22	1 Year
3	Amplifier	Quietek	AP-180C	CHM-06020 12	2014.01.20	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	2014.01.20	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	271471/4	2014.01.20	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX102	29086/2	2014.01.20	1 Year

4.2. Block Diagram of Test Setup

4.2.1. In Semi Anechoic Chamber (3m) Test Setup Diagram for 30MHz~1000MHz



4.2.2. In Semi Anechoic Chamber (3m) Test Setup Diagram for 1-5GHz



4.3. Radiated Emission Limit

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(µV)/m
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0
1000 ~ 6000	3	74(Peak) 54(Average)

Remark: (1) Emission level = Read level+Antenna Factor+Preamplifier Factor +Cable Loss
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner that tends to maximize its emission characteristics in normal application.

4.4.1. Support Equipments : As Tested Supporting System Detail, in Section 2.2.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2.

4.5.2. Turn on the power of all equipment.

4.5.3. Let the EUT work in test mode (Read and Write Card) and test it.

4.6. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2003 on Radiated Emission test.

The bandwidth setting on the test receiver (ROHDE&SCHWARZ TEST RECEIVER ESCI) is 120 kHz.

The resolution bandwidth of the Agilent Spectrum Analyzer E4446A was set at 1MHz. (For above 1GHz)

The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector and all final readings of measurement from Test Receiver are Quasi-Peak values.

The frequency range from 1GHz to 6GHz was checked with peak and average detector, measurement distance is 3m in 3m chamber.

Finally, selected operating situations at Anechoic Chamber measurement, all the test results are listed in section 4.7.

4.7. Radiated Disturbance Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

For frequency range 30MHz~6000MHz

The EUT with the following test mode was tested and read Q.P values, all the test results listed in next pages.

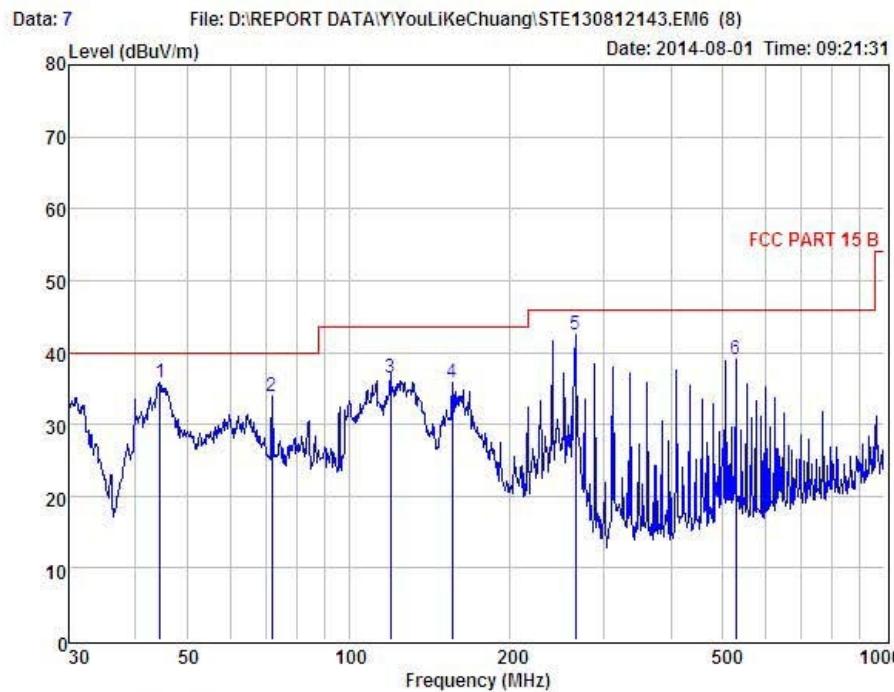
Temperature: 24.2°C Humidity: 54%

The details of test mode is as follows :

NO.	Test Mode
1.	Read and Write Card



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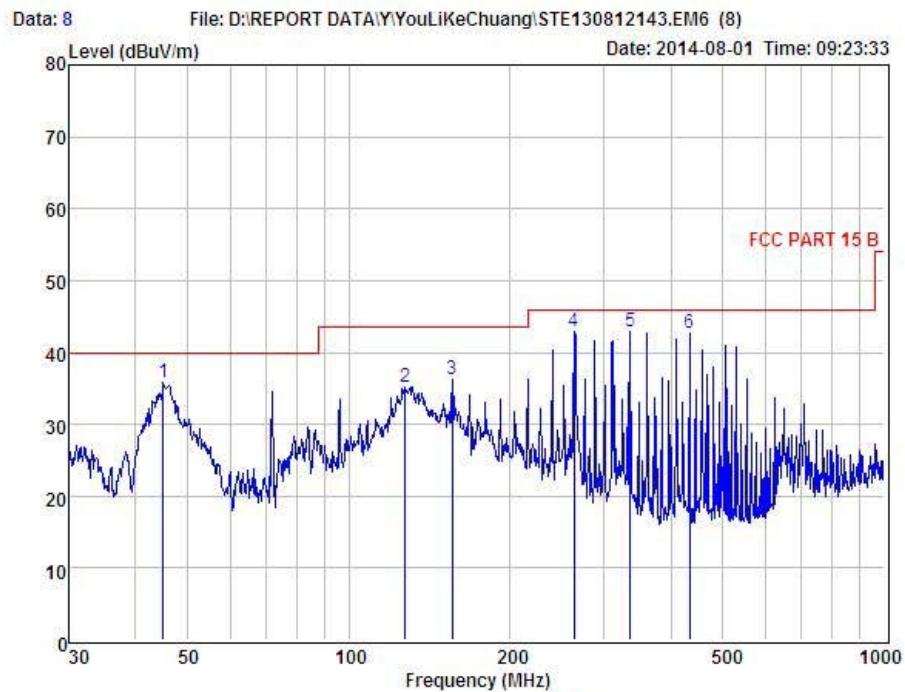
Condition : FCC PART 15 B 3m POL: VERTICAL
 EUT : Magnetic card read writer
 Model No : MAR605
 Test Mode : Read and Write Card
 Power : AC 120V/60Hz
 Test Engineer : Eric
 Remark :
 Temp : 24.2°C
 Hum : 54%

Item	Freq	Read	Antenna	Preamp	Cable	Level	Limit	Margin	Remark
		Level	Factor	Factor	Loss				
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	44.43	49.86	13.79	27.81	0.03	35.87	40.00	-4.13	QP
2	71.83	50.03	10.51	26.77	0.19	33.96	40.00	-6.04	QP
3	119.86	50.82	12.06	26.88	0.36	36.36	43.50	-7.14	QP
4	155.91	48.20	14.15	26.91	0.38	35.82	43.50	-7.68	QP
5	264.75	56.98	11.96	27.13	0.57	42.38	46.00	-3.62	QP
6	528.25	48.71	17.03	27.68	1.07	39.13	46.00	-6.87	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



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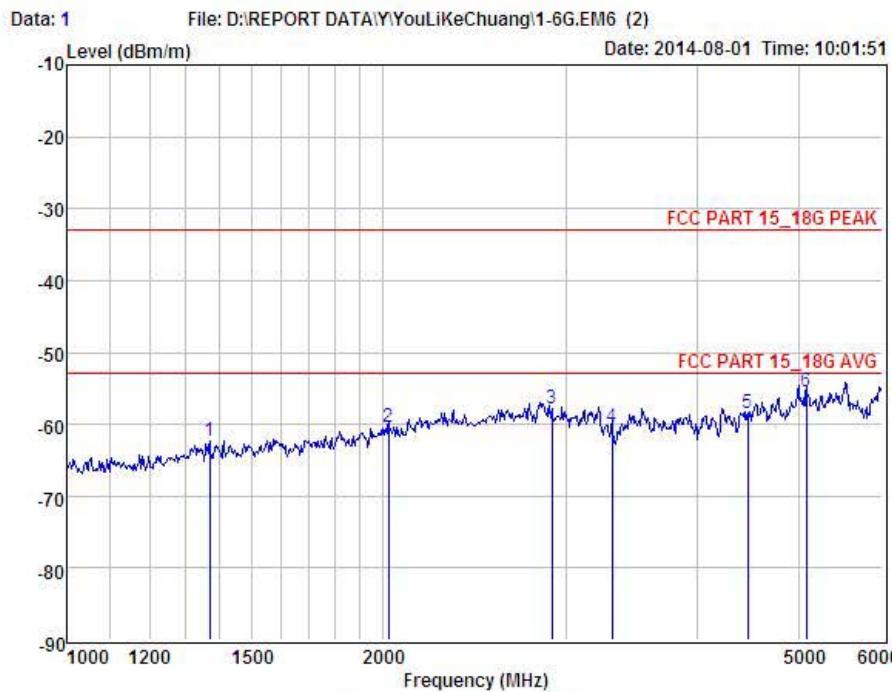
Condition : FCC PART 15 B 3m POL: HORIZONTAL
 EUT : Magnetic card read writer
 Model No : MAR605
 Test Mode : Read and Write Card
 Power : AC 120V/60Hz
 Test Engineer : Eric
 Remark :
 Temp : 24.2°C
 Hum : 54%

Item	Freq	Read	Antenna	Preamp	Cable	Level	Limit	Margin	Remark
		Level	Factor	Factor	Loss	dBuV	dBuV	dBuV	
	MHz	dBuV	dB	dB	dB				
1	45.06	49.92	13.65	27.82	0.05	35.80	40.00	-4.20	QP
2	127.66	49.08	12.57	26.89	0.40	35.16	43.50	-8.34	QP
3	155.91	48.53	14.15	26.91	0.38	36.15	43.50	-7.35	QP
4	263.82	57.45	11.90	27.13	0.65	42.87	46.00	-3.13	QP
5	336.04	55.80	13.61	27.25	0.78	42.94	46.00	-3.06	QP
6	432.55	53.91	15.53	27.46	0.74	42.72	46.00	-3.28	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



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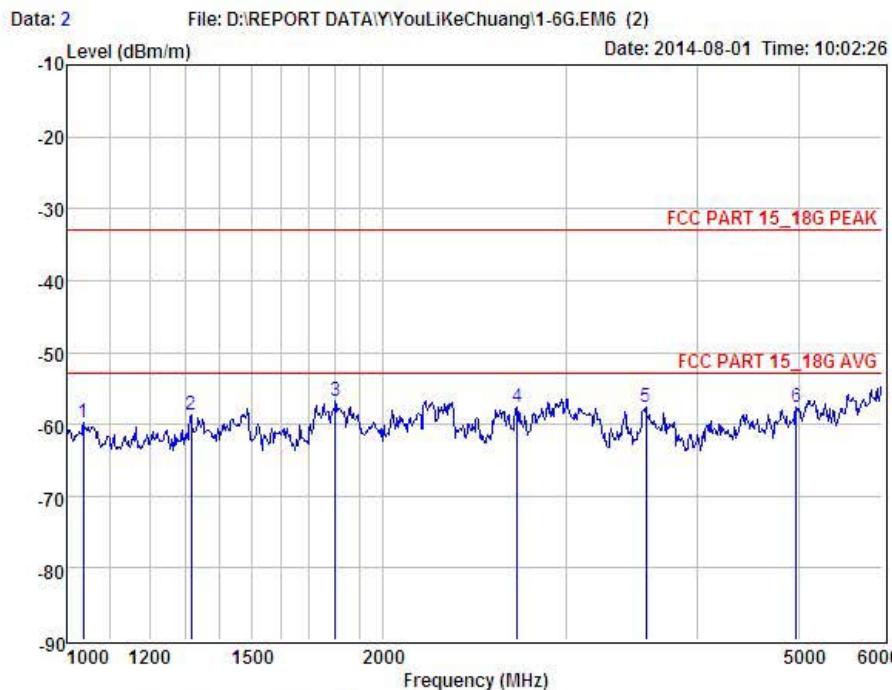
Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
 EUT : Magnetic card read writer
 Model No : MAR605
 Test Mode : Read and Write Card
 Power : AC 120V/60Hz
 Test Engineer : Simple
 Remark :
 Temp : 25.1°C
 Hum : 54%

Item	Freq	Read	Antenna	Preamp	Cable	Level	Limit	Margin	Remark
		Level	Factor	Factor	Loss	dBuV	dBuV	dBuV	
	MHz	dBuV	dB	dB	dB				
1	1368.29	-66.98	25.10	34.84	2.65	-62.23	-32.99	-29.24	Peak
2	2029.41	-67.28	26.31	34.94	3.63	-60.45	-32.99	-27.46	Peak
3	2904.02	-67.10	28.02	34.98	4.35	-57.89	-32.99	-24.90	Peak
4	3315.76	-69.78	27.82	34.93	4.69	-60.39	-32.99	-27.40	Peak
5	4464.33	-71.84	30.54	34.46	5.48	-58.48	-32.99	-25.49	Peak
6	5079.06	-70.83	31.60	33.96	5.87	-55.53	-32.99	-22.54	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



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Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
 EUT : Magnetic card read writer
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 Test Mode : Read and Write Card
 Power : AC 120V/60Hz
 Test Engineer : Simple
 Remark :
 Temp : 25.1°C
 Hum : 54%

Item	Freq	Read	Antenna	Preamp	Cable	Level	Limit	Margin	Remark
		Level	Factor	Factor	Loss	dBuV	dBuV	dBuV	
	MHz	dBuV	dB	dB	dB				
1	1036.49	-63.03	24.22	34.84	2.01	-59.80	-32.99	-26.81	Peak
2	1315.40	-63.21	25.05	34.86	2.54	-58.64	-32.99	-25.65	Peak
3	1803.07	-62.18	24.97	34.84	3.45	-56.77	-32.99	-23.78	Peak
4	2688.68	-66.55	27.86	34.98	4.18	-57.67	-32.99	-24.68	Peak
5	3568.51	-68.09	28.69	34.90	4.90	-57.59	-32.99	-24.60	Peak
6	4971.02	-72.63	31.53	34.05	5.80	-57.55	-32.99	-24.56	Peak

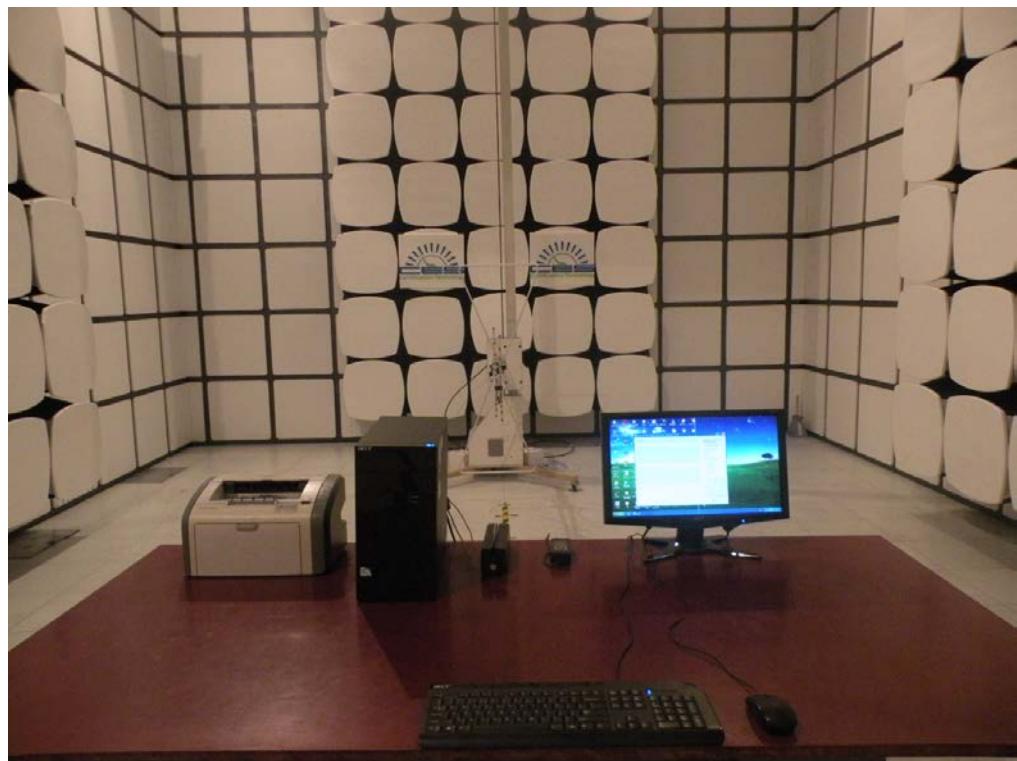
Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

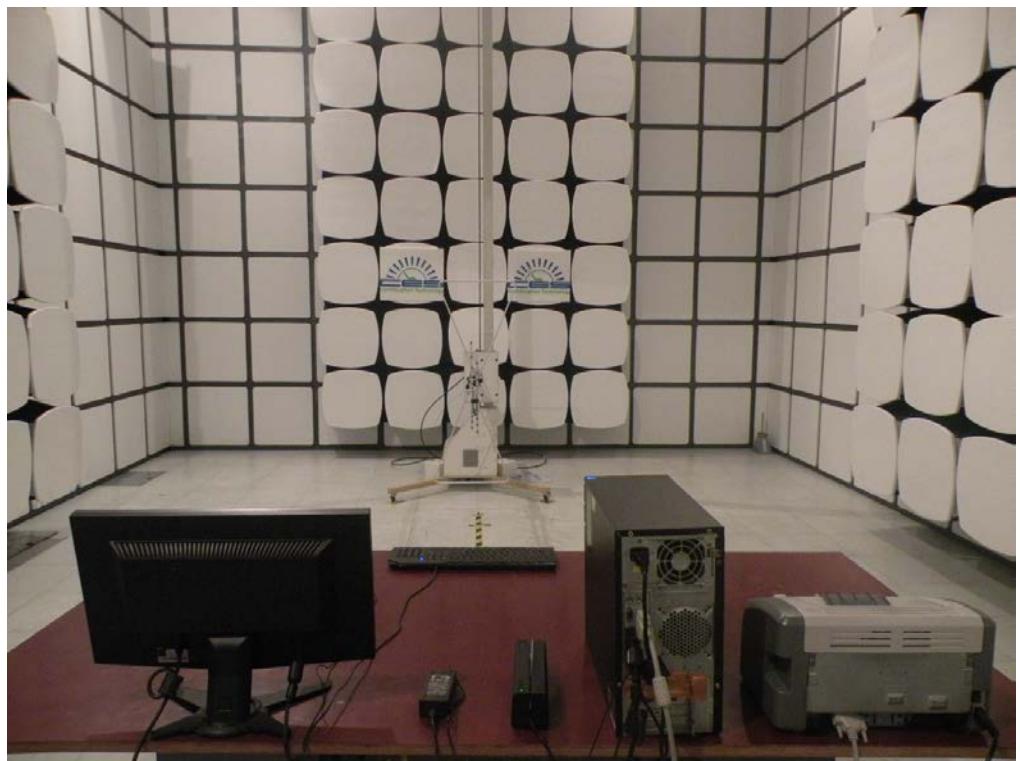
5. PHOTOGRAPH

5.1.Photos of Power Line Conducted Emission Test



5.2.Photos of Radiated Emission Test (In Anechoic Chamber)





6. PHOTOS OF THE EUT



Full View



Front View



Rear View



Top View



Bottom View



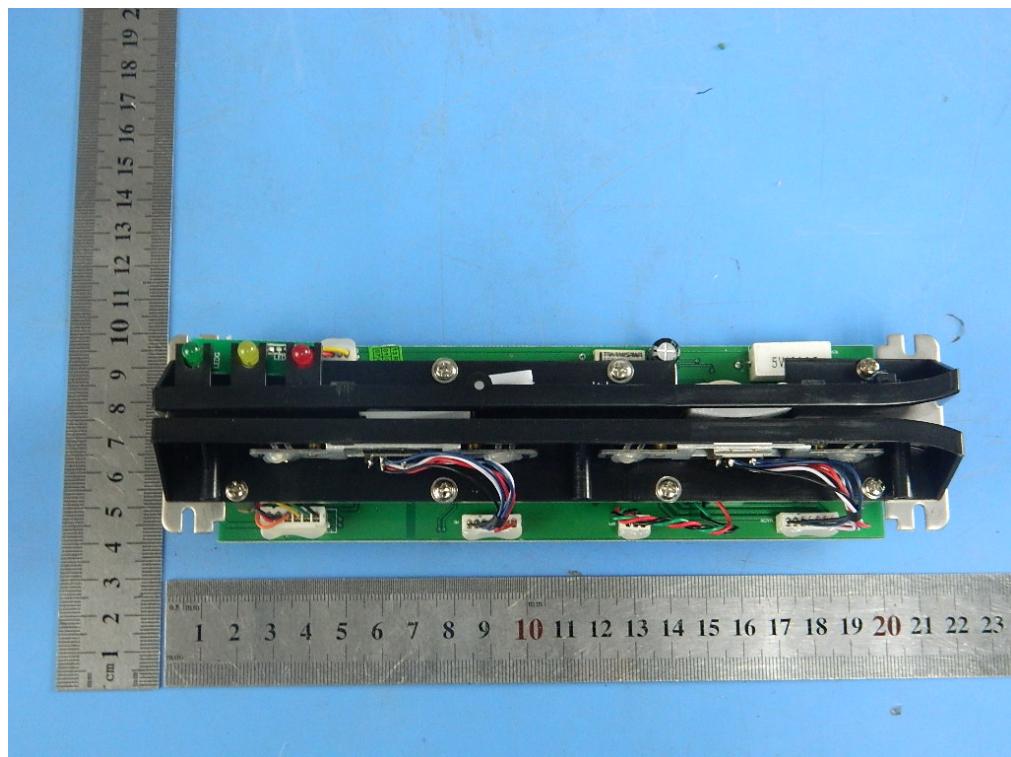
Left View



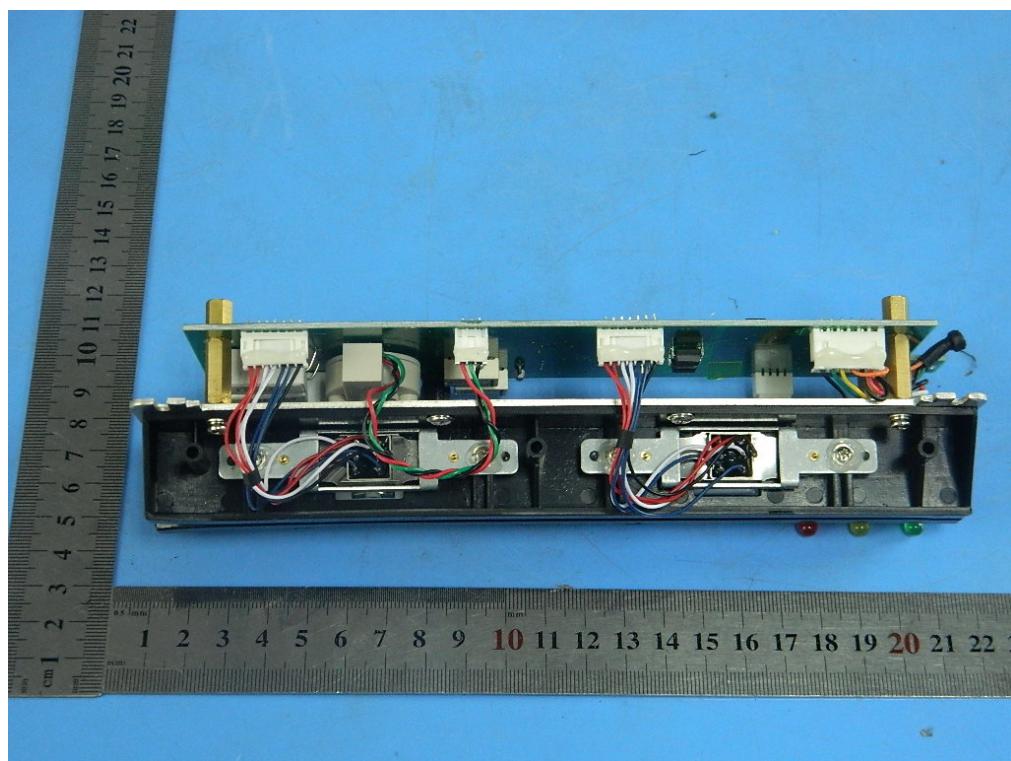
Right View



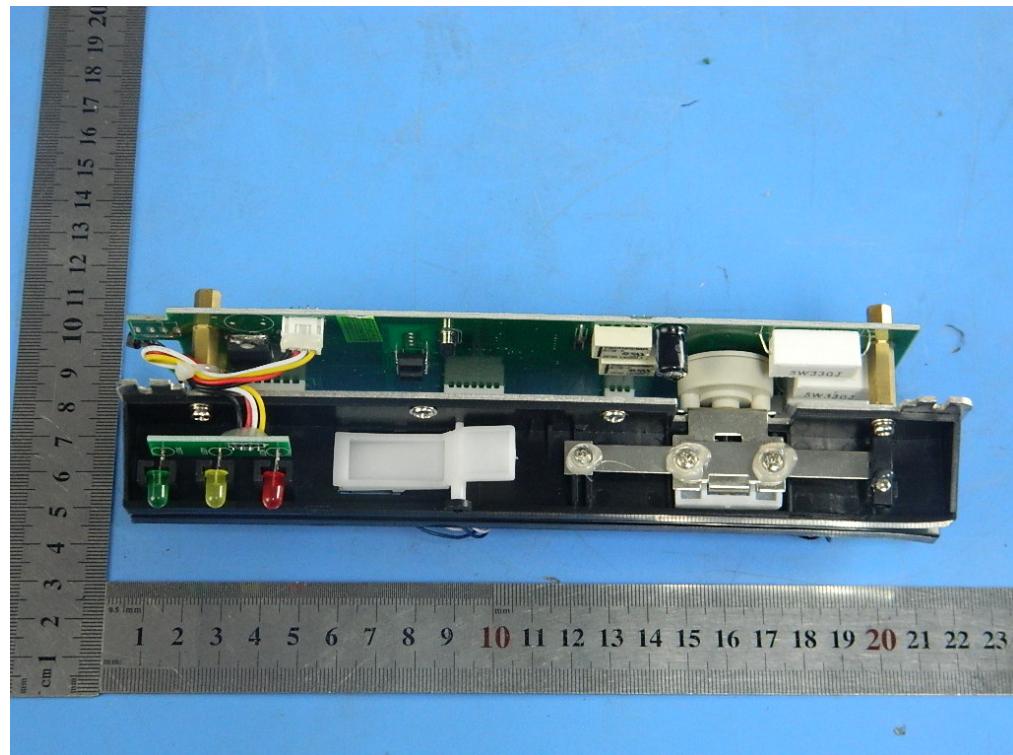
Inside View



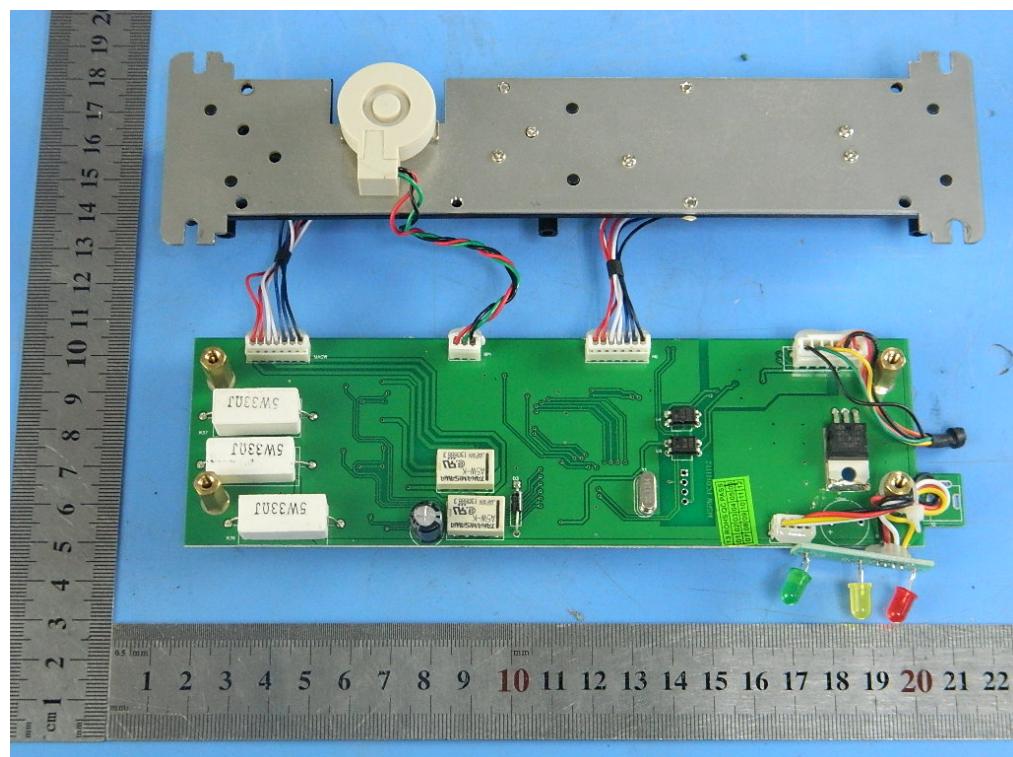
Inside View



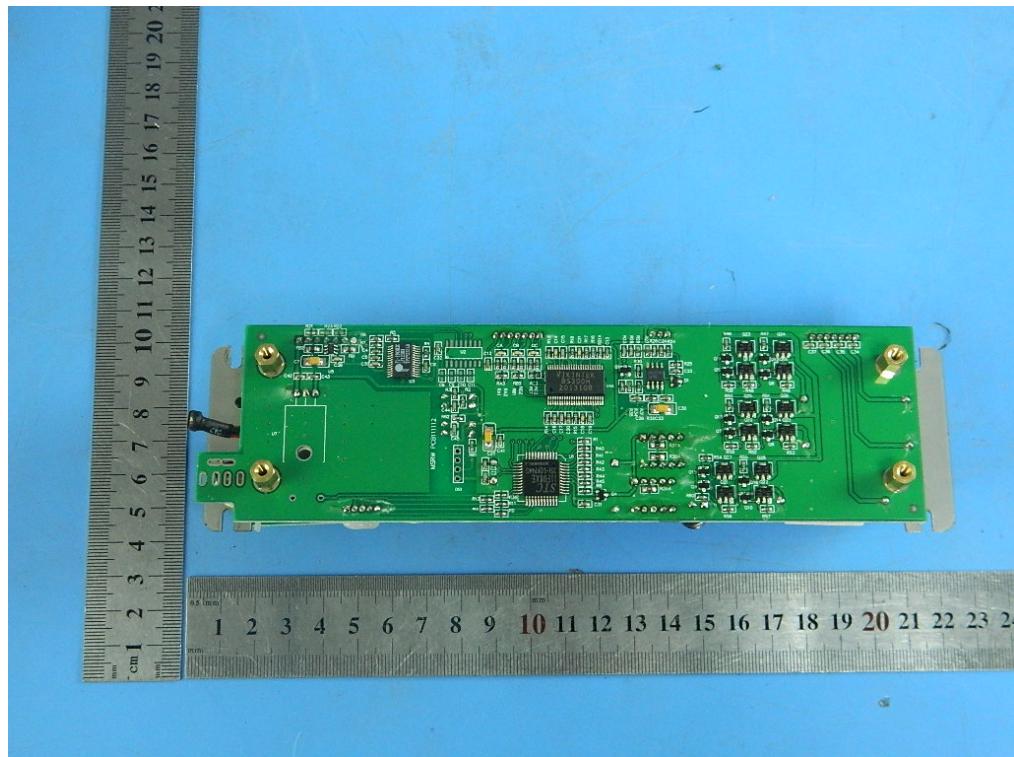
Inside View



Inside View



Inside View



Inside View
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