FCC TEST REPORT

FCC ID: 2AD8TKI-GSM904

Product Name:	Alarm System
Trademark:	N/A
Model Number:	KI-GSM904 U8, U9, U10, U11, A9, N1, N2, N3, G1, G2, G3, KI-PG40W-U2, KI-PG200, KI-PG300, KI-G10S, KI-G60W, KI-2700A
Prepared For: Address:	RF Engineering & Energy Resource, LLC 1821 Vanderbilt Avenue, Portage, MI 49024, United States
Prepared By: Address:	Shenzhen BCTC Technology Co., Ltd. NO.101, Yousong Road, Longhua New District, Shenzhen, Guangdong, P.R.China
Report No.:	BCTC-160506350-2E

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Shenzhen BCTC Technology Co., Ltd.

Applicant	:	RF Engineering & Energy Resource, LLC
Address	:	1821 Vanderbilt Avenue, Portage, MI 49024, United States
Manufacturer	:	King-Eye Security Industry Co.,LTD
Address	:	Hongheda industry zone, Zhongxin, Bantian, Longgang, Shenzhen, China.
EUT	:	Alarm System
Model Number	:	KI-GSM904 U8, U9, U10, U11, A9, N1, N2, N3, G1, G2, G3, KI-PG40W-U2, KI-PG200, KI-PG300, KI-G10S, KI-G60W, KI-2700A
Trademark:	:	N/A
Test Date	:	May 25 - Jun. 12, 2016
Date of Report	:	Jun. 15, 2016
Test Result:	:	The equipment under test was found to be compliance with the requirements of the standards applied.

Test Procedure Used:

FCC Part 15 B

ANSI C63.4:2014

Testing Engineer : Sky Huang

Reviewer (Supervisor) : Jade Yang

Approved & Authorized Signer(Manager): : Carson Zhang

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Alarm System
Model Number	:	KI-GSM904 U8, U9, U10, U11, A9, N1, N2, N3, G1, G2, G3, KI-PG40W-U2, KI-PG200, KI-PG300, KI-G10S, KI-G60W, KI-2700A
Trademark	:	N/A
Model Difference	:	The product's different for model number and outlook color.
Power Supply	:	DC 12V from adapter
Work Frequency	:	433.92MHz
Adapter(provide by test lab)	:	Model:VR-08 I/P:AC 100-240V 50/60Hz 0.4A O/P: DC 12V 1A DC Line: unshielded, undetachable 1.2m

1.2. Tested System Details

TX Part:
Manufacturer: King-Eye Security Industry Co.,LTD
Model: KI-GSM904

1.3. Test Uncertainty

Conducted Emission Uncertainty	:	±2.66dB
Radiated Emission Uncertainty	:	±4.26dB

1.4. Independent Operation Modes

Test Mode	Description
Mode 1	RX Mode(433.92MHz)

This product for 433.92MHz is receiver only.

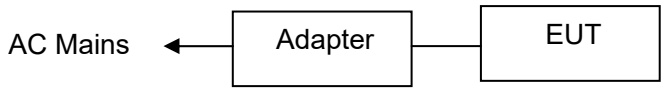
1.5. Test Facility

Site Description

Name of Firm	:	Shenzhen BCTC Technology Co., Ltd.
Site Location	:	NO.101, Yousong Road, Longhua New District, Shenzhen, Guangdong, P.R.China
Lab Qualifications	:	Certificated by Industry Canada Registration No.: 12655A Date of registration: January 19, 2015 Certificated by FCC, USA Registration No.: 187086 Date of registration: November 28, 2014 Certificated by CNAS China Registration No.: CNAS L6046 Date of registration: February 3, 2013

1.6. Block Diagram of Test Set-up

System Diagram of Connections between EUT and Simulators



(EUT: Alarm System)

2. TEST INSTRUMENT USED

For Conducted Emission at the mains terminals Test

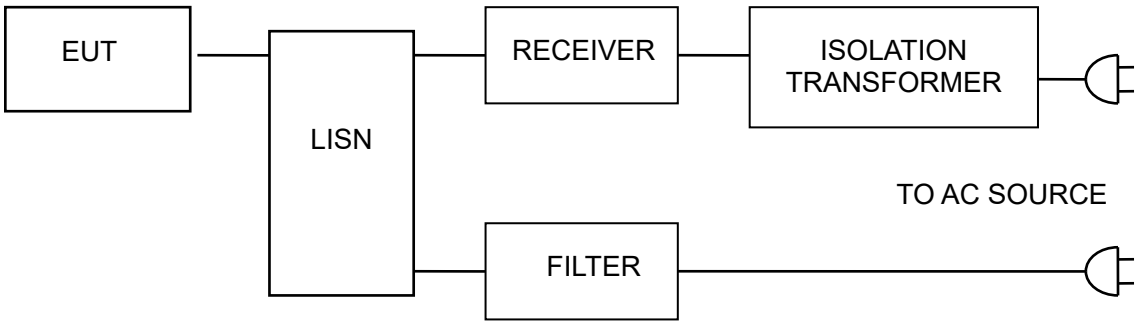
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
843 Shielded Room	ChengYu	843 Room	843	2015.08.24	2016.08.23
EMI Receiver	R&S	ESCI	101421	2015.08.24	2016.08.23
LISN	Schwarzbeck	NSLK8127	8127739	2015.08.24	2016.08.23
Attenuator	R&S	ESH3-Z2	BCTC021E	2015.08.24	2016.08.23
843 Cable 1#	FUJIKURA	843C1#	001	2015.08.24	2016.08.23

For Radiated Emission Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	R&S	ESPI	101318	2015.08.24	2016.08.23
System Simulator	Agilent	E5515C	GB43130252	2015.08.24	2016.08.23
Power Splitter	Weinschel	1506A	NW534	2015.08.24	2016.08.23
Bilog Antenna	TESEQ	CBL6111D	31216	2015.08.24	2016.08.23
Bilog Antenna	TESEQ	CBL6111D	31217	2015.08.24	2016.08.23
Loop antenna	ARA	PLA-1030/B	1029	2015.08.24	2016.08.23
Spectrum Analyzer	Agilent	E4411B	MY4511235	2015.08.24	2016.08.23
Signal Amplifier	SONOMA	313	187022	2015.08.24	2016.08.23
Signal Amplifier	Agilent	8449B	3008A00213	2015.08.24	2016.08.23
RF Cable	R&S	R203	R20X	2015.08.24	2016.08.23
MULTI-DEVICE Controller	ETS-LINDGREEN	31250	126821	N/A	N/A
Horn Antenna	EM	EM-AH-10180	2011071402	2015.08.25	2016.08.24
Horn Antenna	EM	EM-AH-10180	2011071401	2015.08.25	2016.08.24
Horn Antenna	Schwarzbeck	BBHA 9170	9170-181	2015.08.25	2016.08.24
Spectrum Analyzer	Agilent	8593E	3911A03928	2015.08.25	2016.08.24
Spectrum Analyzer	Agilent	E4407B	MY45108040	2015.08.25	2016.08.24
Signal Amplifier	DAZE	ZN3380B	11235	2015.08.25	2016.08.24
High Pass filter	KANGMAI	WHKX1.0/1.5G-10SS	40	2015.08.25	2016.08.24
Filter	COM-MW	ZBSF-C836.5-25-X	BCTC042	2015.08.25	2016.08.24
Filter	COM-MW	ZBSF-C1747.5-75-X2	BCTC045	2015.08.25	2016.08.24
Filter	COM-MW	ZBSF-C1880-60-X2	BCTC047	2015.08.25	2016.08.24
DC Power Supply	LongWei	PS-305D	010965682	2015.08.25	2016.08.24
Constant temperature and humidity box	GF	GTH-800-40-2P	MAA9906-012	2015.08.25	2016.08.24
Universal radio communication tester	R&S	CMU200	115295	2015.08.25	2016.08.24
Splitter	Agilent	11435B	1125162	2015.08.25	2016.08.24

3. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

3.1. Block Diagram Of Test Setup



3.2. Test Standard

FCC PART 15 B

3.3. Power Line Conducted Emission Limit

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC PART 15 B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

3.5.1 Setup the EUT and simulators as shown in Section 3.1.
3.5.2 Turn on the power of all equipments.
3.5.3 Let the EUT work in test modes and test it.

3.6. Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **FCC PART 15 B** regulations during conducted emission test.

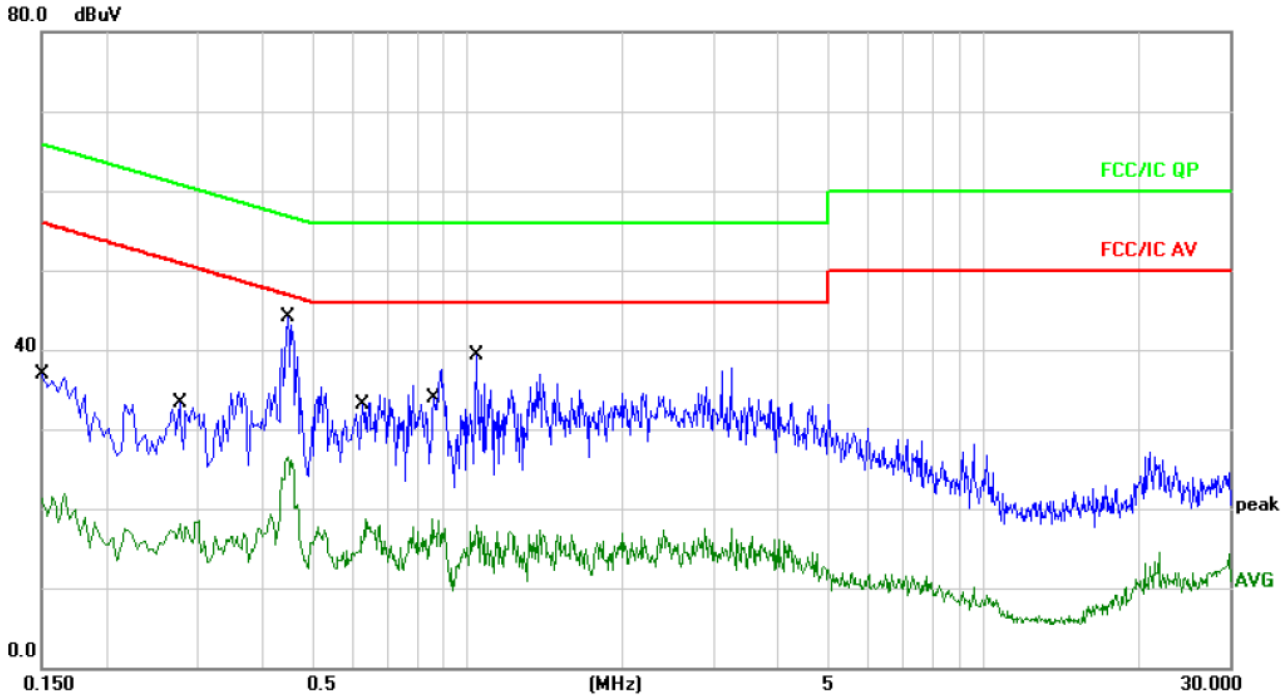
The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 10KHz.

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

3.7. Test Result

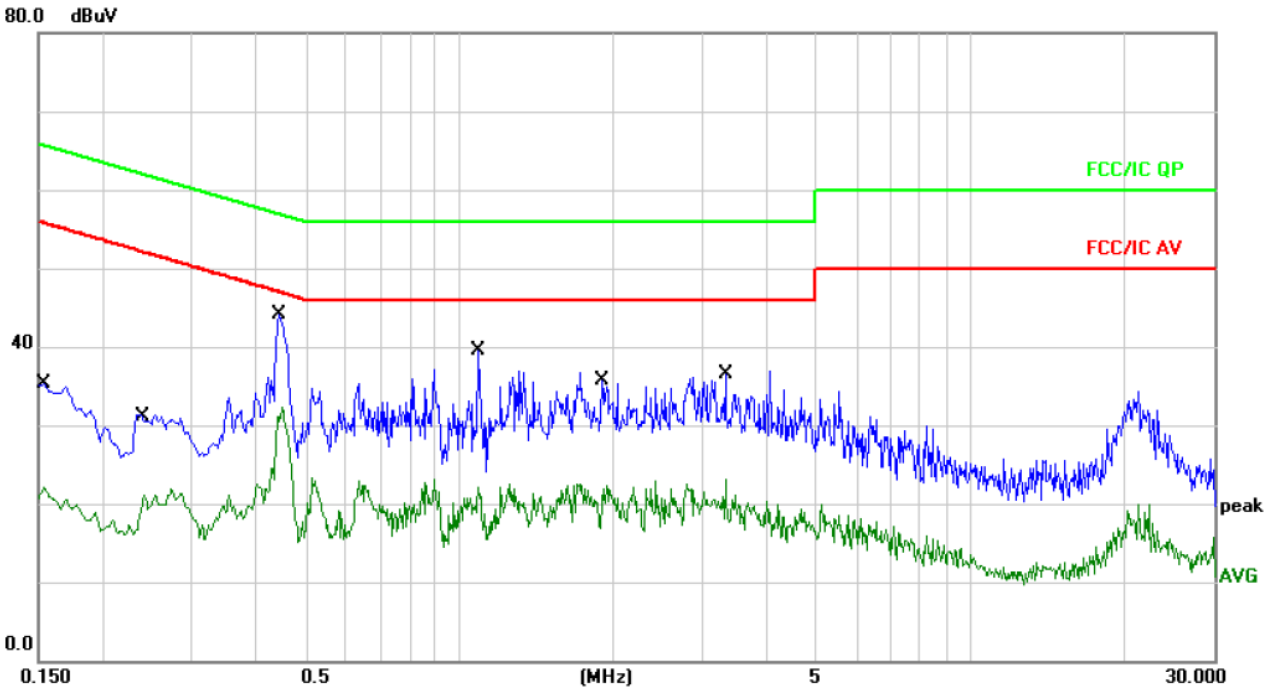
PASS
Please refer to the following page.

Conducted Emission At The Mains Terminals Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Line
Test Voltage :	AC 120V/60Hz	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	26.91	10.05	36.96	55.99	-19.03	QP	
2		0.1500	11.85	10.05	21.90	65.99	-44.09	AVG	
3		0.2779	23.16	10.09	33.25	50.88	-17.63	QP	
4		0.2779	8.37	10.09	18.46	60.88	-42.42	AVG	
5	*	0.4500	33.95	10.11	44.06	46.87	-2.81	QP	
6		0.4500	16.48	10.11	26.59	56.87	-30.28	AVG	
7		0.6340	24.26	10.13	34.39	46.00	-11.61	QP	
8		0.6340	8.65	10.13	18.78	56.00	-37.22	AVG	
9		0.8580	27.44	10.15	37.59	46.00	-8.41	QP	
10		0.8580	8.61	10.15	18.76	56.00	-37.24	AVG	
11		1.0460	29.11	10.17	39.28	46.00	-6.72	QP	
12		1.0460	7.69	10.17	17.86	56.00	-38.14	AVG	

Conducted Emission At The Mains Terminals Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Neutral
Test Voltage :	AC 120V/60Hz	Test Mode:	ON Mode

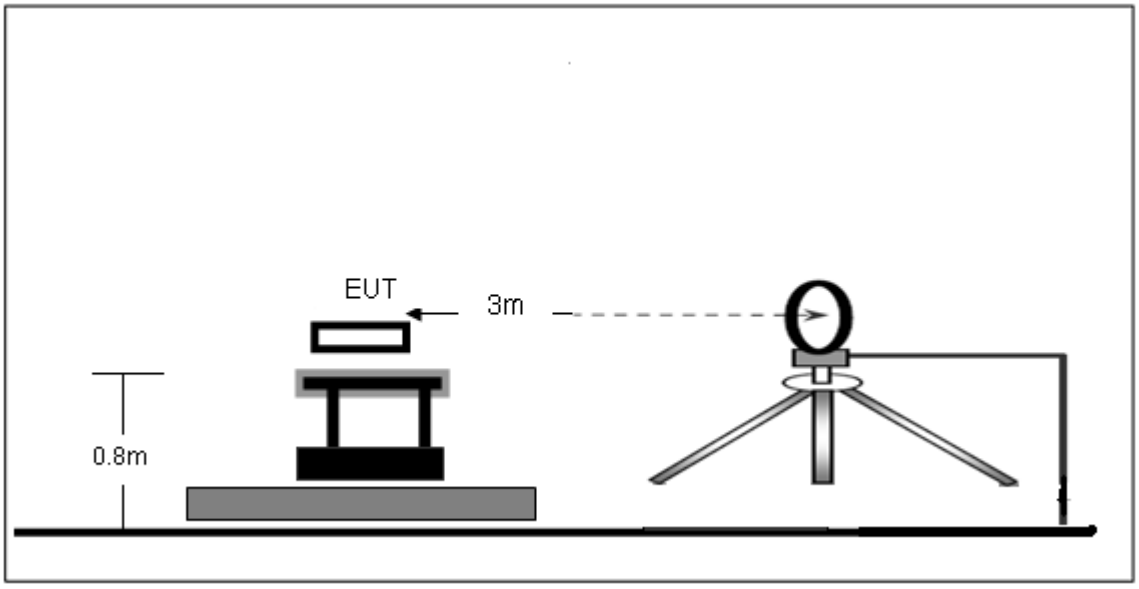


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1539	25.24	10.05	35.29	55.78	-20.49	QP	
2		0.1539	12.05	10.05	22.10	65.78	-43.68	AVG	
3		0.2420	21.26	10.08	31.34	52.02	-20.68	QP	
4		0.2420	11.11	10.08	21.19	62.02	-40.83	AVG	
5	*	0.4460	34.03	10.11	44.14	46.95	-2.81	QP	
6		0.4460	22.23	10.11	32.34	56.95	-24.61	AVG	
7		1.0900	29.30	10.17	39.47	46.00	-6.53	QP	
8		1.0900	12.00	10.17	22.17	56.00	-33.83	AVG	
9		1.9060	25.55	10.18	35.73	46.00	-10.27	QP	
10		1.9060	12.15	10.18	22.33	56.00	-33.67	AVG	
11		3.3180	26.30	10.18	36.48	46.00	-9.52	QP	
12		3.3180	12.86	10.18	23.04	56.00	-32.96	AVG	

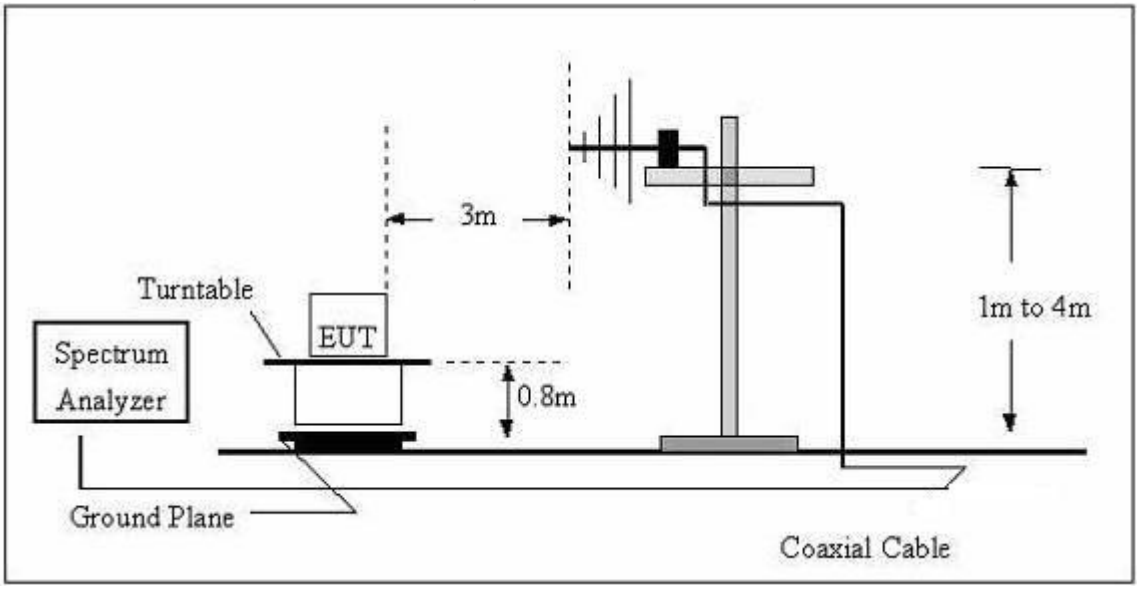
4. RADIATION EMISSION TEST

4.1.Block Diagram of Test Setup

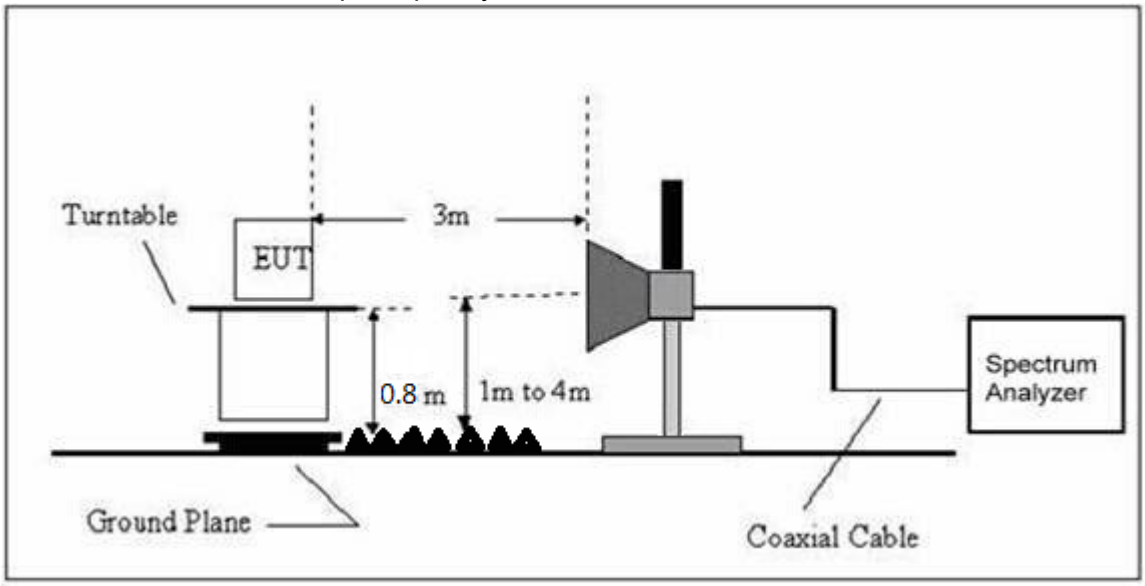
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



4.2. Test Standard

FCC PART 15 B

4.3. Radiation Limit

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

4.4. EUT Configuration on Test

The FCC PART 15 B regulations test method must be used to find the maximum emission during radiated emission test.
The configuration of EUT is the same as used in conducted emission test. Please refer to Section 2.2.

4.5. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.2 except the test set up replaced as Section 4.1.

4.6. Test Procedure

The EUT and its simulators are placed on a turned table that is 0.8 meter above the ground. The turned 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 that is mounted on the antenna tower. The antenna

can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated biconical and log periodical antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on test. In order to find the maximum emission levels, the interface cable must be manipulated according to FCC PART 15 B on radiated emission test.
The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz below 1GHz, set at 1MHz above 1GHz
The frequency range from 30MHz to 1000MHz is checked.

The highest frequency of the internal sources of the EUT was 433MHz, so the measurement was only made up to 6GHz.

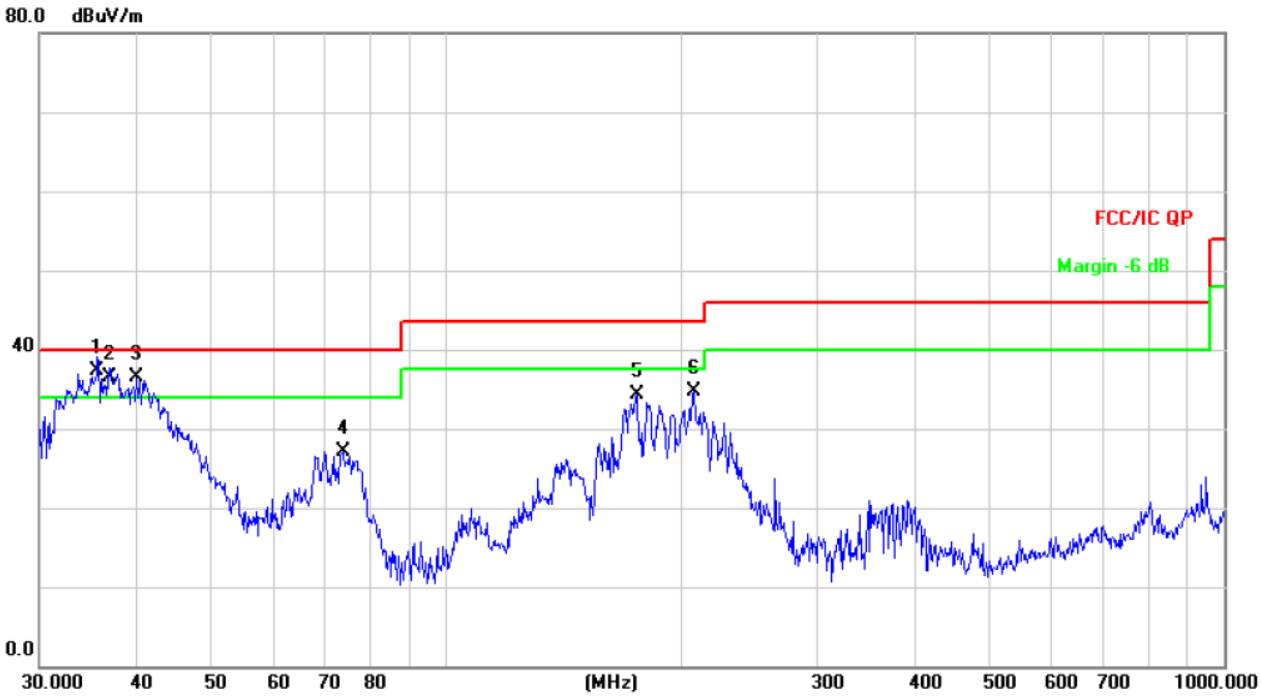
4.7. Test Result

PASS

Please refer to the following page.

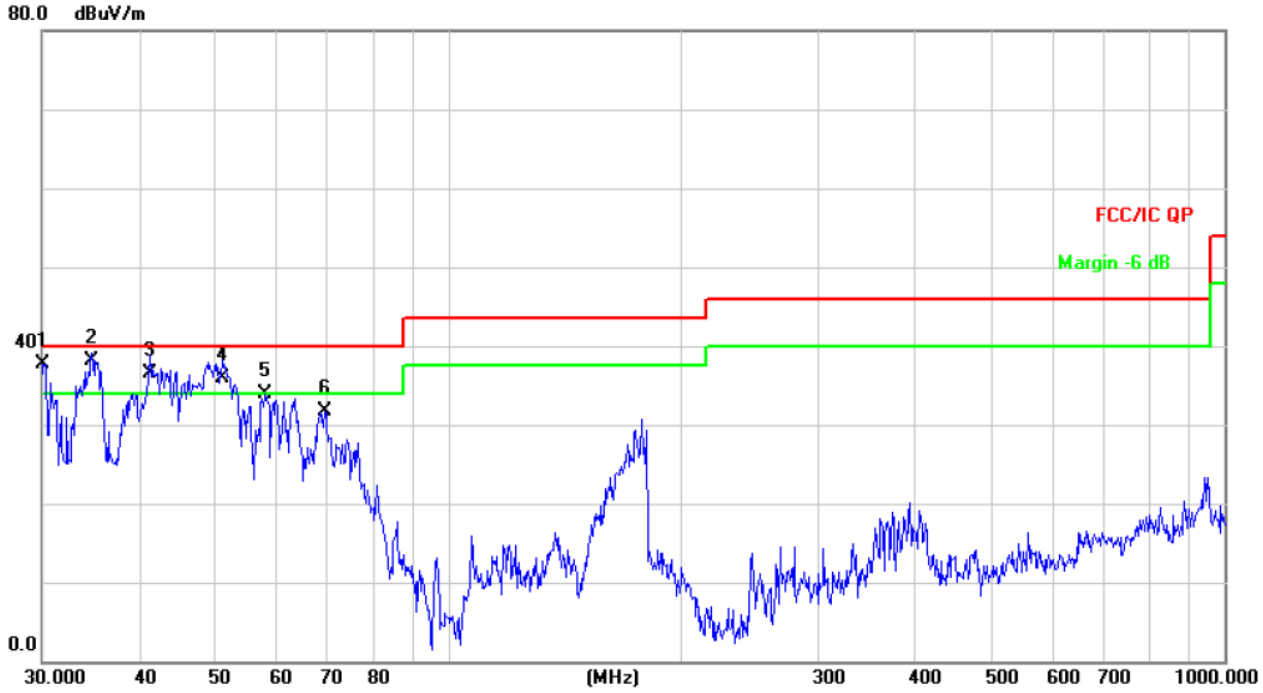
Below 1GHz

Radiation Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Horizontal
Test Voltage :	AC 120V/60Hz	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	35.6240	45.81	-8.56	37.25	40.00	-2.75	QP			
2	!	36.8953	45.18	-8.67	36.51	40.00	-3.49	QP			
3	!	39.9942	45.33	-8.85	36.48	40.00	-3.52	QP			
4		73.6170	42.92	-15.82	27.10	40.00	-12.90	QP			
5		175.6516	48.27	-13.96	34.31	43.50	-9.19	QP			
6		208.5803	50.67	-15.96	34.71	43.50	-8.79	QP			

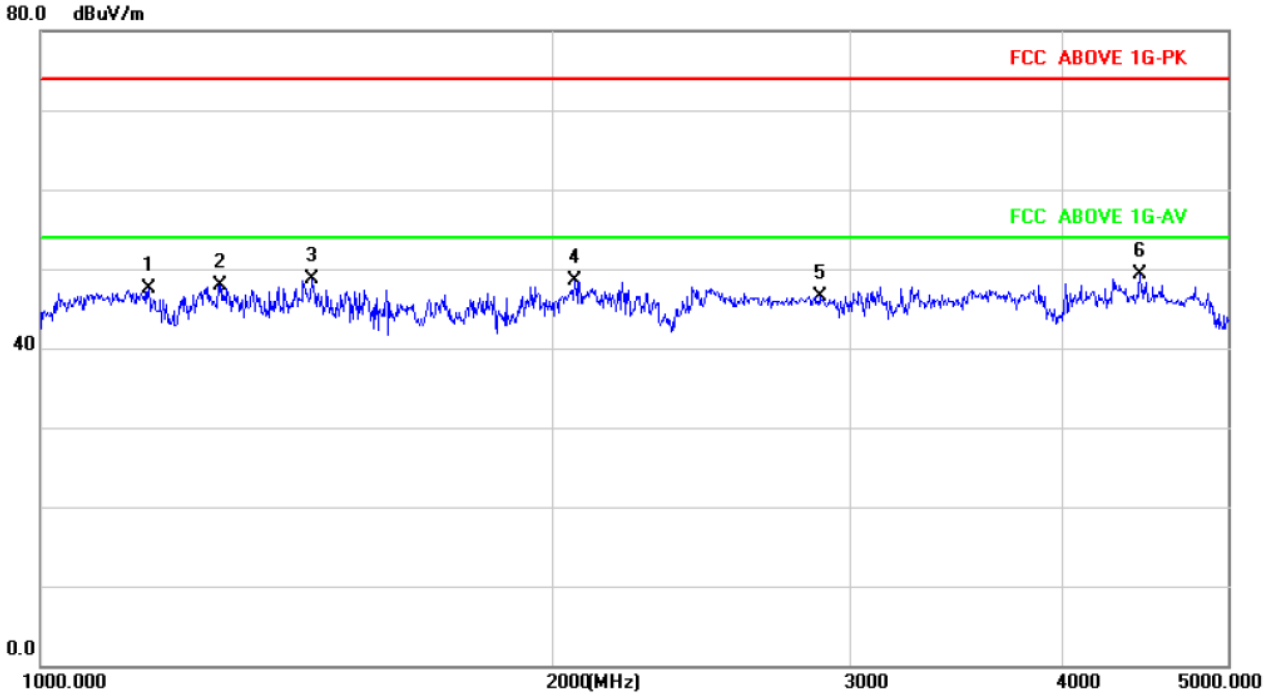
Radiation Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	!	30.1054	45.81	-8.03	37.78	40.00	-2.22	QP			
2	*	34.7602	46.60	-8.49	38.11	40.00	-1.89	QP			
3	!	41.2765	45.57	-9.01	36.56	40.00	-3.44	QP			
4	!	51.3005	46.37	-10.50	35.87	40.00	-4.13	QP			
5		58.2030	45.25	-11.38	33.87	40.00	-6.13	QP			
6		69.3568	46.06	-14.28	31.78	40.00	-8.22	QP			

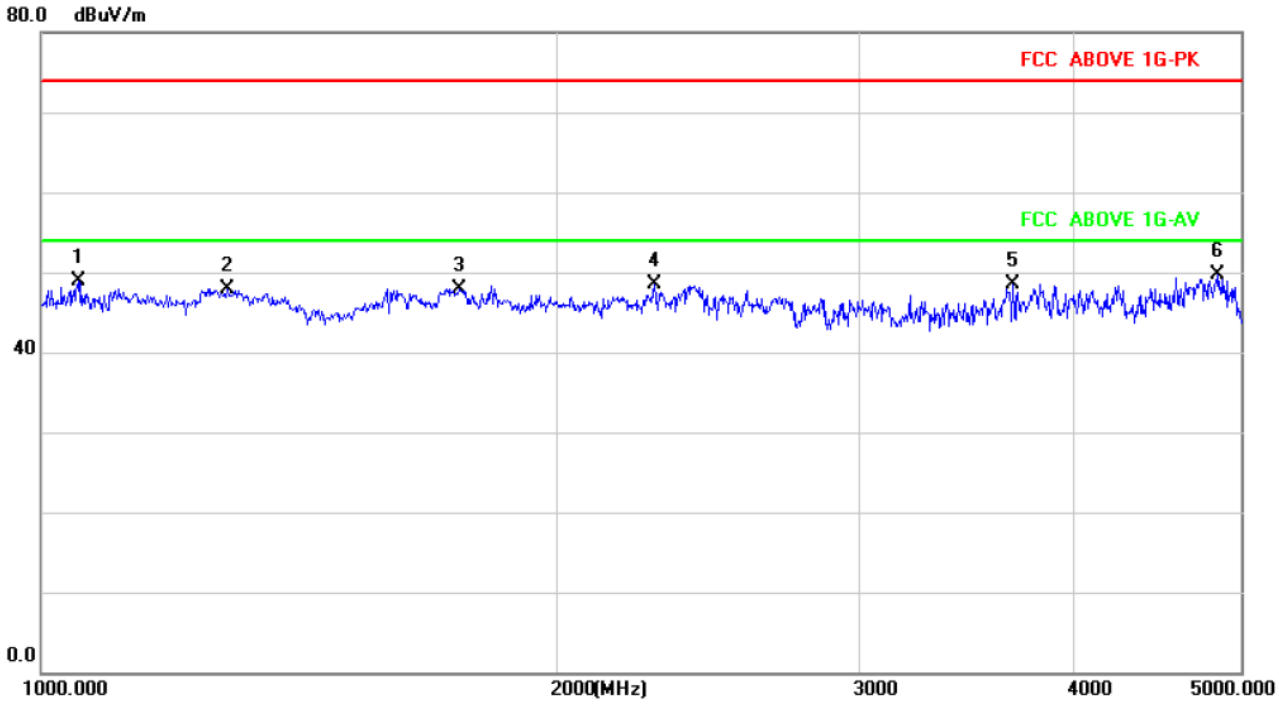
Above1GHz

Radiation Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Horizontal
Test Voltage :	AC 120V/60Hz	Test Mode:	ON Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1157.727	35.11	12.34	47.45	74.00	-26.55	peak			
2		1275.101	35.55	12.43	47.98	74.00	-26.02	peak			
3		1443.328	36.18	12.57	48.75	74.00	-25.25	peak			
4		2063.177	35.33	13.15	48.48	74.00	-25.52	peak			
5		2874.249	31.66	14.83	46.49	74.00	-27.51	peak			
6	*	4438.602	30.43	18.91	49.34	74.00	-24.66	peak			

Radiation Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	ON Mode

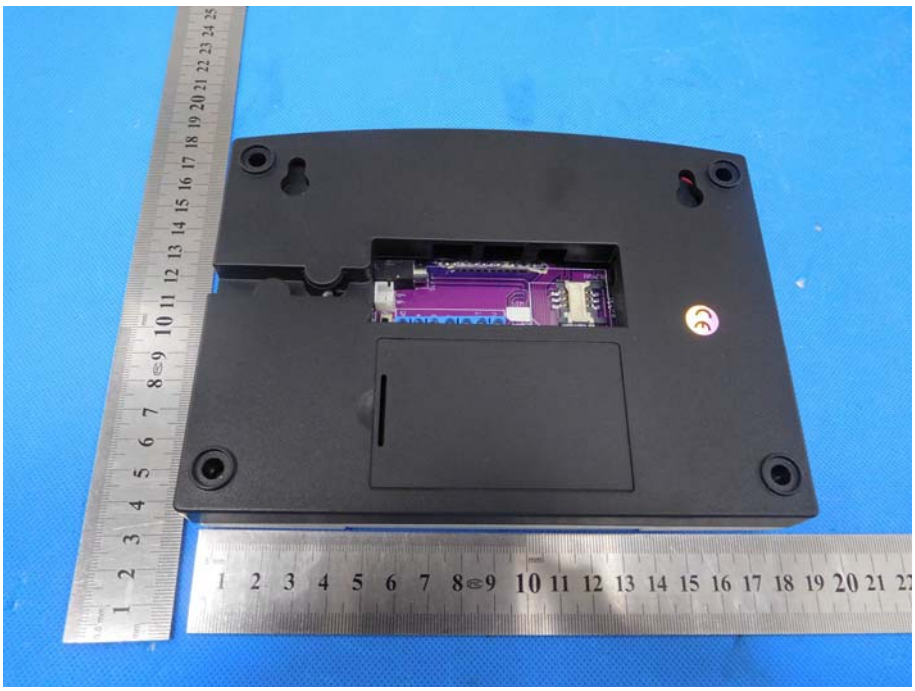


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1051.158	36.61	12.25	48.86	74.00	-25.14	peak			
2		1283.336	35.46	12.44	47.90	74.00	-26.10	peak			
3		1750.820	35.12	12.82	47.94	74.00	-26.06	peak			
4		2276.007	34.92	13.60	48.52	74.00	-25.48	peak			
5		3682.695	31.11	17.36	48.47	74.00	-25.53	peak			
6	*	4849.417	30.40	19.39	49.79	74.00	-24.21	peak			

5. EUT PHOTOGRAPHS

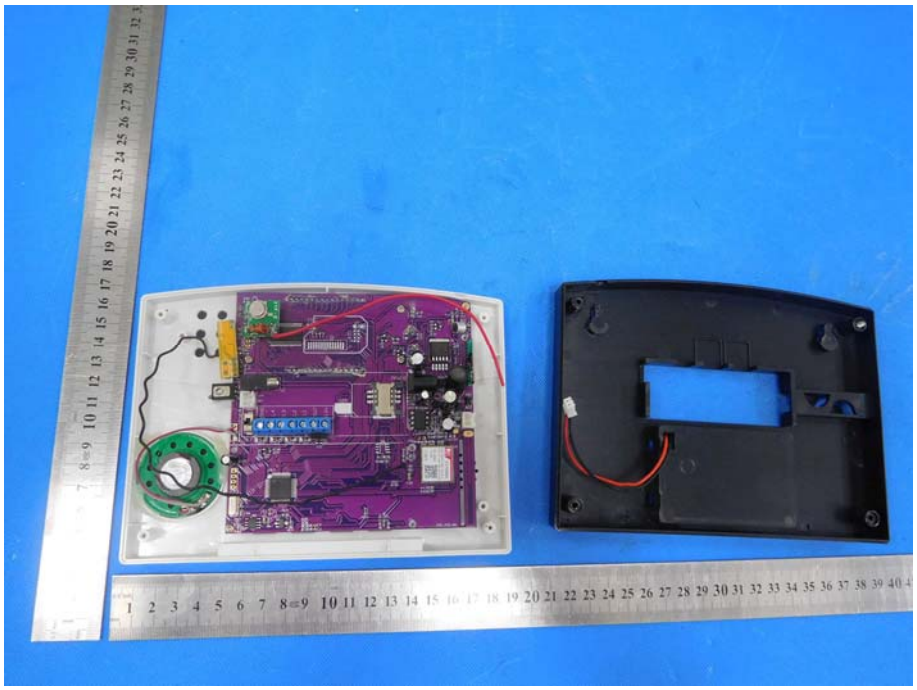
EUT Photo 1

EUT Photo 2



EUT Photo 3

EUT Photo 4



6. EUT TEST PHOTOGRAPHS

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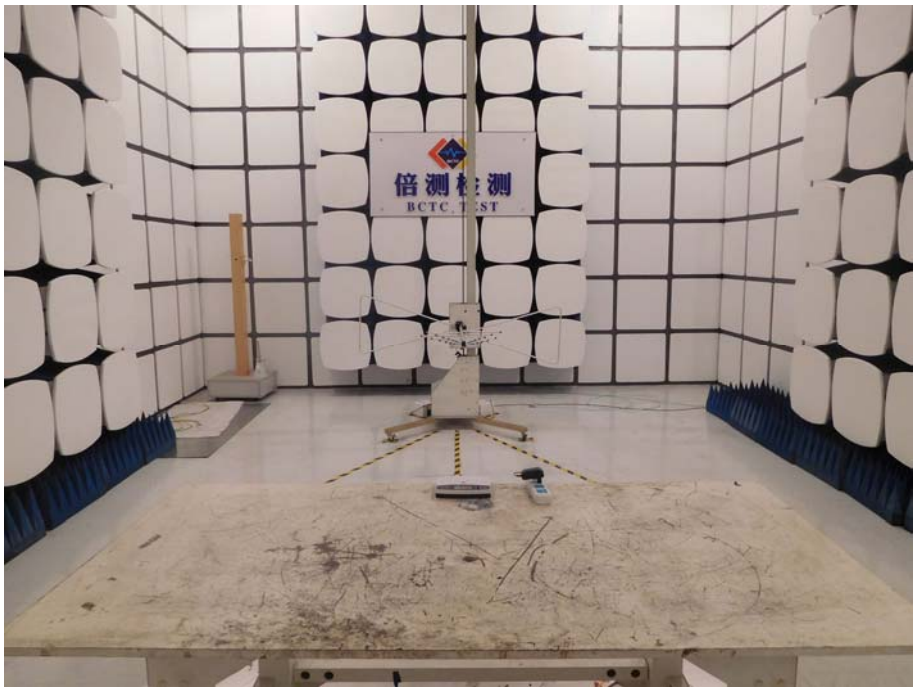

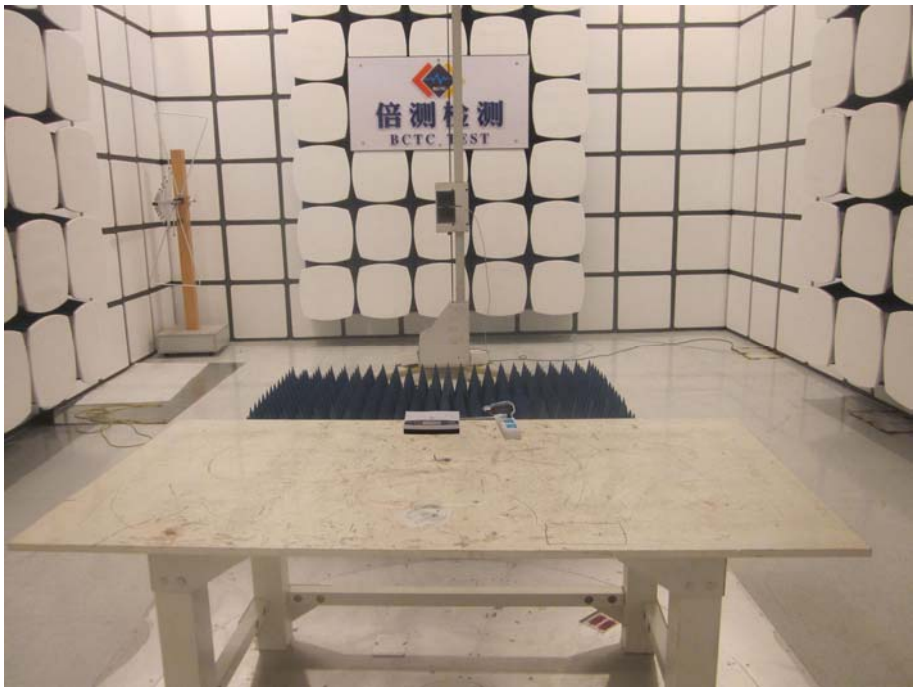

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