Shenzhen Certification Technology 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: RRB-WM-5000GT

Applicant：JWM Hi-tech Development Co.,Ltd

Address: No.22 shiji Road Hunnan National Hi-tech Industrial Zone，Shenyang City Liaoning China

Equipment Under Test(EUT):

Name	:	GUARD TOUR SYSTEM
Model	:	WM-5000P5+;WM-5000PH4+; WM-5000L5; WM-5000L6+

In Accordance with: FCC CFR47 Part 15 Section 15C: 2012

Report No : STE130107009-1

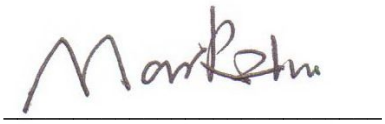
Date of Test : Jan. 23—23. 2013

Date of Issue : Jan .24.2013

Test Result: **PASS**

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature



(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.

Contents

1. General Information

1.1. Description of Device (EUT)

EUT	:	GUARD TOUR SYSTEM
Model No.	:	WM-5000P5+; WM-5000PH4+; WM-5000L5; WM-5000L6+
Difference of model No	:	Only appearance difference.
Power supply	:	DC 3.7V from battery and DC 4.7V from power adapter.
Radio Technology	:	RFID,GPRS/EDGE,UMTS/HSDPA
Operation frequency	:	RFID:125KHz, GPRS/EDGE: Band 850 and Band 1900; WCDMA/HSDPA: Band II and Band V
Antenna Type and Gain	:	RFID: Integrated loop antenna, PK Gain: 0dBi GSM850/WCDMA Band V: Integrated Patch antenna, PK gain -3.82dBi PCS900/WCSMA Band II: Integrated Patch antenna, PK gain -3.85dBi
Applicant	:	JWM Hi-tech Development Co.,Ltd
Address	:	No.22 shiji Road Hunnan National Hi-tech Industrial Zone，Shenyang City Liaoning China
Manufacturer	:	JWM Hi-tech Development Co.,Ltd
Address	:	No.22 shiji Road Hunnan National Hi-tech Industrial Zone，Shenyang City Liaoning China

Note: For GSM, GPRS,EDGE,UMTS/HSDPA function, this device used a module and that module have certificated follow FCC module approval, it's FCC ID number is UDV-1103022011008, report No is: 112S009R-HP-US-P07V01, so this report only for RFID of device.

1.2. Accessories of device (EUT)

Accessories 1	:	Power adapter
M/N	:	HNA047100U
Accessories 2	:	USB cable
Type	:	1m, unshield

1.3. Test Lab information

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
FCC Registered No.:197647

2. Summary of test

2.1. Summary of test result

Description of Test Item	Standard	Results
20dB Bandwidth	FCC Part 15: 15.215 ANSI C63.10 :2009	PASS
Radiated Emission (9KHz-1GHz)	FCC Part 15: 15.209 ANSI C63.10 :2009	PASS
Power Line Conducted Emissions (150KHz-30MHz)	FCC Part 15: 15.207 ANSI C63.10 :2009	PASS

2.2. Assistant equipment used for test

N/A

2.3. Block Diagram

2.4. Test mode

125KHz RFID scanning continue transmit mode.

2.5. Test Conditions

Temperature range	21-25℃
Humidity range	40-75%
Pressure range	86-106kPa

2.6. Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Power line Conduction emission test	2.94dB (9KHz-150KHz)
	2.44dB (150KHz-30MHz)
Uncertainty for disturbance power test (30MHz-300MHz)	2.0dB
Uncertainty for Radiation Emission test (9KHz-150KHz)	3.41dB
Uncertainty for Radiation Emission test (150KHz-30MHz)	3.12dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.14 dB (Antenna Polarize: V)
	3.16 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz to 25GHz)	2.08dB(Antenna Polarize: V)
	2.56dB (Antenna Polarize: H)
Uncertainty for radio frequency	1×10-9
Uncertainty for conducted RF Power	0.65dB

2.7. Test Equipment

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m Semi-Anechoic	ETS-LINDGREN	N/A	SEL0017	05.08, 2012	1Year
Spectrum analyzer	Agilent	E4443A	MY46185649	05.08, 2012	1Year
Receiver	R&S	ESCI	100492	05.08, 2012	1Year
Receiver	R&S	ESCI	101202	05.08, 2012	1Year
Bilog Antenna	Sunol	JB3	A121206	05.08, 2012	1Year
Horn Antenna	EMCO	3115	640201028-06	05.08, 2012	1Year
Power Meter	Anritsu	ML2487A	6K00001491	05.08, 2012	1Year
ETS Horn Antenna	ETS	3160	SEL0076	05.08, 2012	1Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	05.08, 2012	1Year
Cable	Resenberger	N/A	No.1	05.08, 2012	1Year
Cable	SCHWARZBECK	N/A	No.2	05.08, 2012	1Year
Cable	SCHWARZBECK	N/A	No.3	05.08, 2012	1Year
Pre-amplifier	R&S	AFS42-00101800-25-S-42	SEL0081	05.08, 2012	1Year
Pre-amplifier	R&S	AFS33-18002650-30-8P-44	SEL0080	05.08, 2012	1Year
Base station	Agilent	E5515C	GB44300243	05.08, 2012	1 Year
Temperature controller	Terchy	MHQ	120	05.08, 2012	1Year
Power divider	Anritsu	K240C	020346	05.08, 2012	1 Year
Signal Generator	HP	83732B	VS3449051	05.08, 2012	1 Year
Attenuator	Agilent	8491B	MY39262165	05.08, 2012	1 Year

3. 20dB bandwidth

3.1. Limit

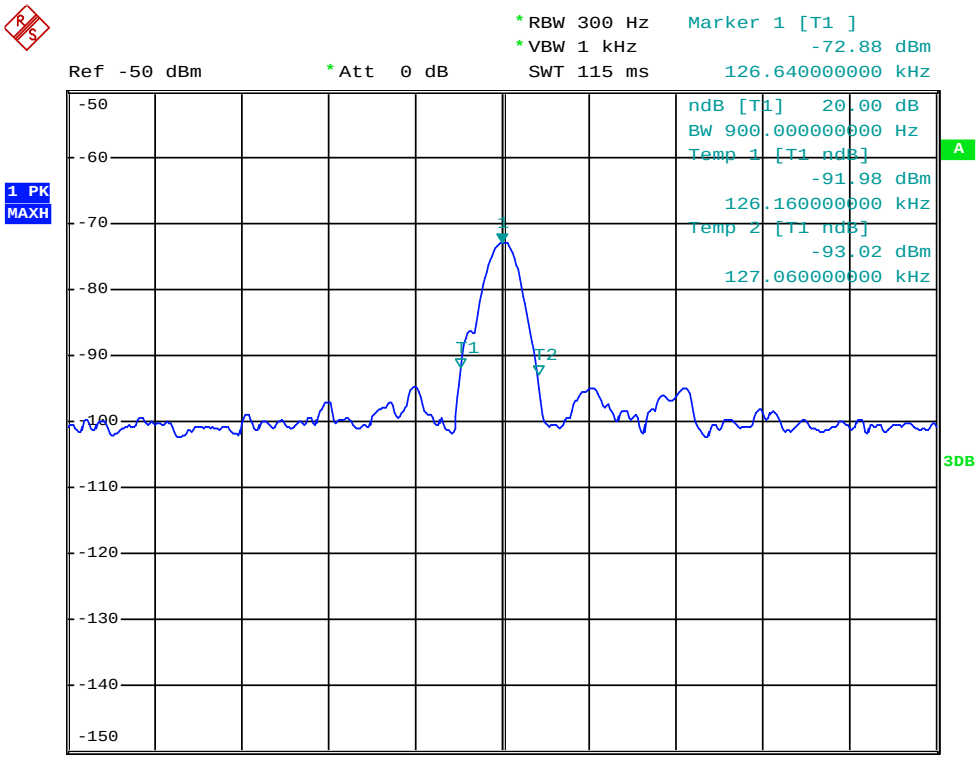
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

3.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300Hz RBW and 1kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

3.3. Test Result

EUT: GUARD TOUR SYSTEM M/N: WM-5000P5+				
Test date: 2013-01-23	Test site: RF site Tested by: TaTa jiang			
Mode	Freq (KHz)	20dB Bandwidth (KHz)	Limit (kHz)	Conclusion
Tx Mode	125	0.9	/	PASS



4. Radiated emissions

4.1. Limit(FCC 15.209)

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

Note:

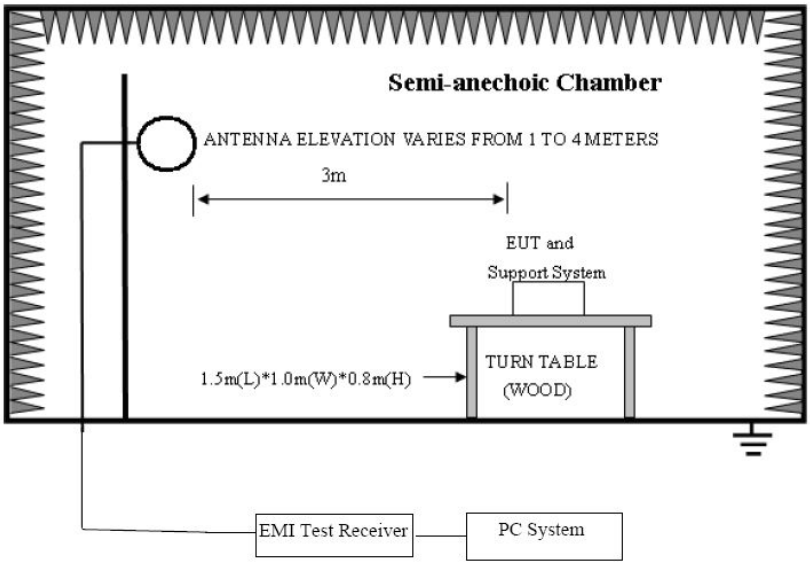
a) The tighter limit applies at the band edges.
For example: F.S limit at 88MHz is 100uV/m

b) If measurement is made at 3m distance, then F.S Limit at 3m distance is adjusted by using the formula of $L_{d1} = L_{d2} * (d2/d1)^2$.
For example:
F.S Limit at 30m(d2) distance is 30uV/m(L_{d2}), then F.S Limit at 3m(d1) distance is
L_{d1} = 30uV/m * $(30/3)^2$ = 100 * 30uV/m = 69.54 dBuV/m

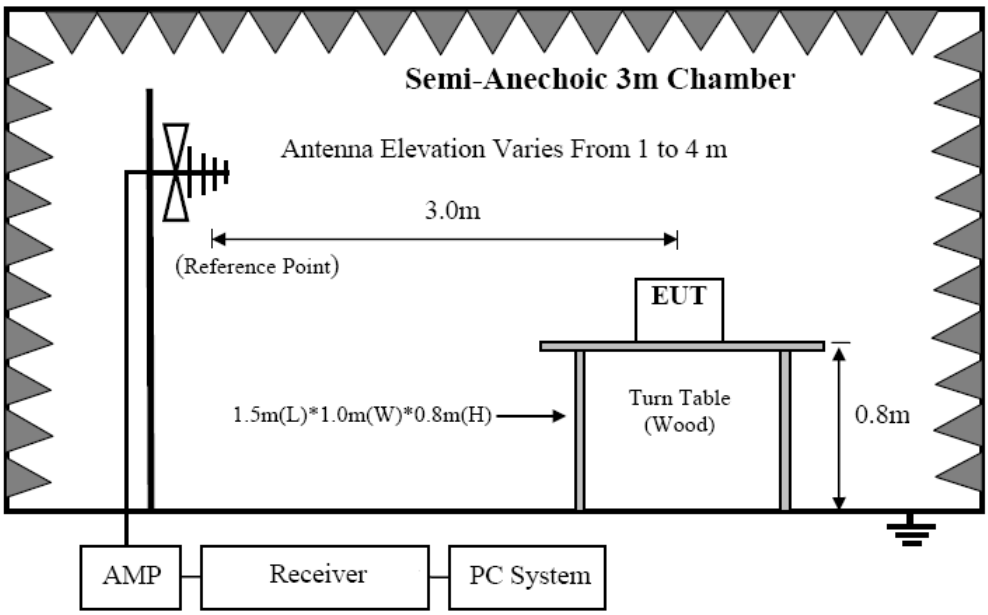
4.2. Block Diagram of Test setup

In 3m Anechoic Chamber Test Setup Diagram for below 30MHz

4.2. Block diagram of test setup



In 3m Anechoic Chamber Test Setup Diagram for frequency 30MHz-1GHz



4.3. Test Procedure

Procedure of Preliminary Test

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 4.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2009.

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable. No extension cords shall be used to mains receptacle.

The antenna was placed at 3 meter away from the EUT as stated in ANSI C63.10:2009. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Receiver quickly scanned from 9KHz to 30MHz and 30MHz to 1GHz The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The test mode(s) described in clause 2.4 were scanned during the preliminary test:

After the preliminary scan, we found the test mode producing the highest emission level. The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.

The Receiver scanned from9KHz to 30MHz and 30MHz to 1GHz. Emissions were scanned and

measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 200Hz for 9 KHz to 150 KHz measure and 10 KHz for 150 KHz to 30MHz measure.

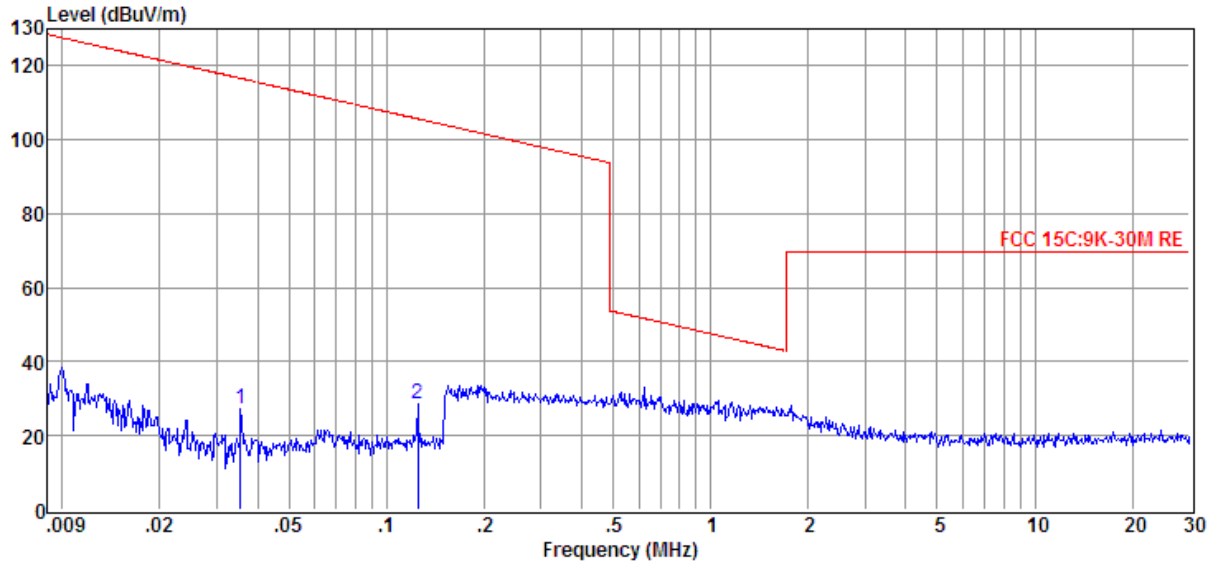
4.4. Test Result

PASS. (See below detailed test result)

Radiated Emission Test Result

Test Site	: 3m Chamber	E:\2013 report data\G\201301010.EM6	
Test Date	: 2013-01-23	**Tested By**	: Jerry
EUT	: EUT: GUARD TOUR SYSTEM	**Model Number**	: WM-5000P5+
Power Supply	: DC 4.7V from adapter 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5'C,Humi:55%	**LISN**	: X
Memo	:		

Data : 15



Item (Mark)	Freq (MHz)	Read Level (dBµV)	Transducer Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Polarization
1	0.04	17.49	9.89	27.38	116.61	-89.23	Average	HORIZONTAL
2	0.125	18.73	9.90	28.63	105.66	-77.03	Average	HORIZONTAL

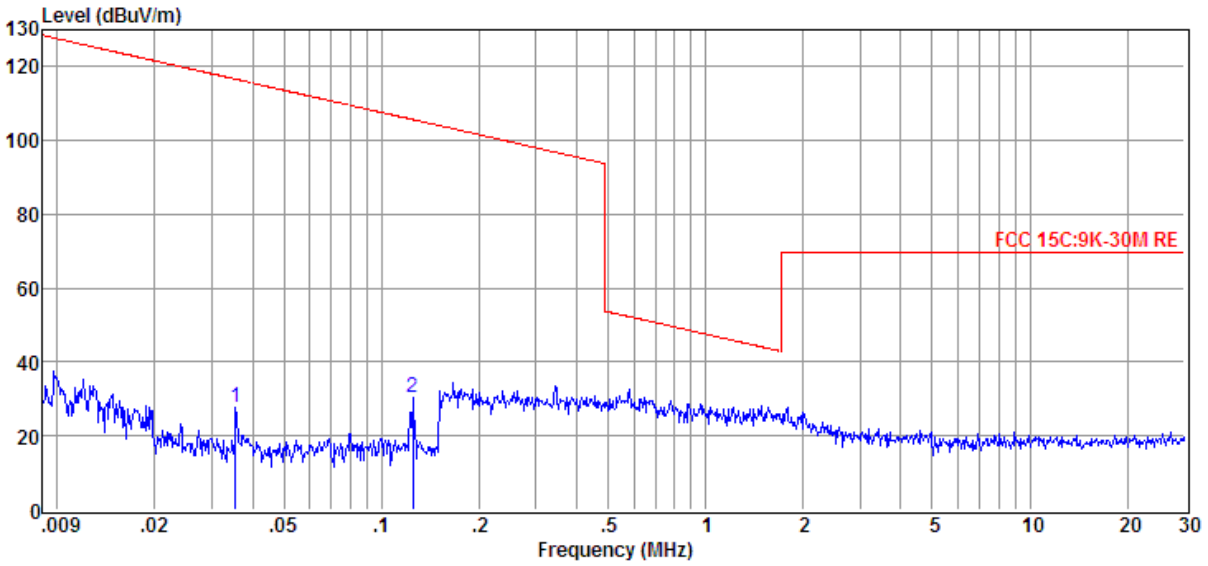
Note: Transducer =Antenna Factor + Cable loss

Level = Read Level + Transducer

Radiated Emission Test Result

Test Site	: 3m Chamber	E:\2013 report data\G\201301010.EM6	
Test Date	: 2013-01-23	**Tested By**	: Jerry
EUT	: EUT: GUARD TOUR SYSTEM	**Model Number**	: WM-5000P5+
Power Supply	: DC 4.7V from adapter 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5'C,Humi:55%	**LISN**	: VERTICAL
Memo	:		

Data : 16



Item (Mark)	Freq (MHz)	Read Level (dBµV)	Transducer Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Polarization
1	0.04	17.78	9.89	27.67	116.61	-88.94	Average	VERTICAL
2	0.13	20.42	9.90	30.32	105.66	-75.34	Average	VERTICAL

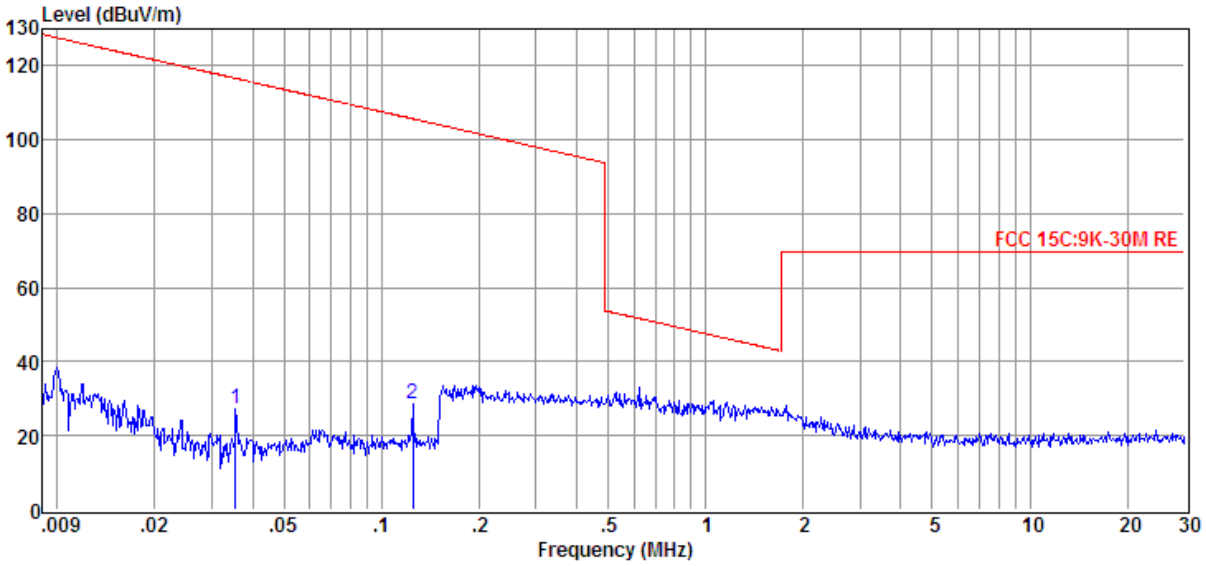
Note: Transducer =Antenna Factor + Cable loss

Level = Read Level + Transducer

Radiated Emission Test Result

Test Site	: 3m Chamber	E:\2013 report data\G\201301010.EM6	
Test Date	: 2013-01-23	**Tested By**	: Jerry
EUT	: EUT: GUARD TOUR SYSTEM	**Model Number**	: WM-5000P5+
Power Supply	: DC 4.7V from adapter 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5'C,Humi:55%	**LISN**	: Z
Memo	:		

Data : 15



Item (Mark)	Freq (MHz)	Read Level (dBµV)	Transducer Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Polarization
1	0.04	17.52	9.89	27.41	116.61	-89.20	Average	HORIZONTAL
2	0.125	18.68	9.90	28.58	105.66	-77.08	Average	HORIZONTAL

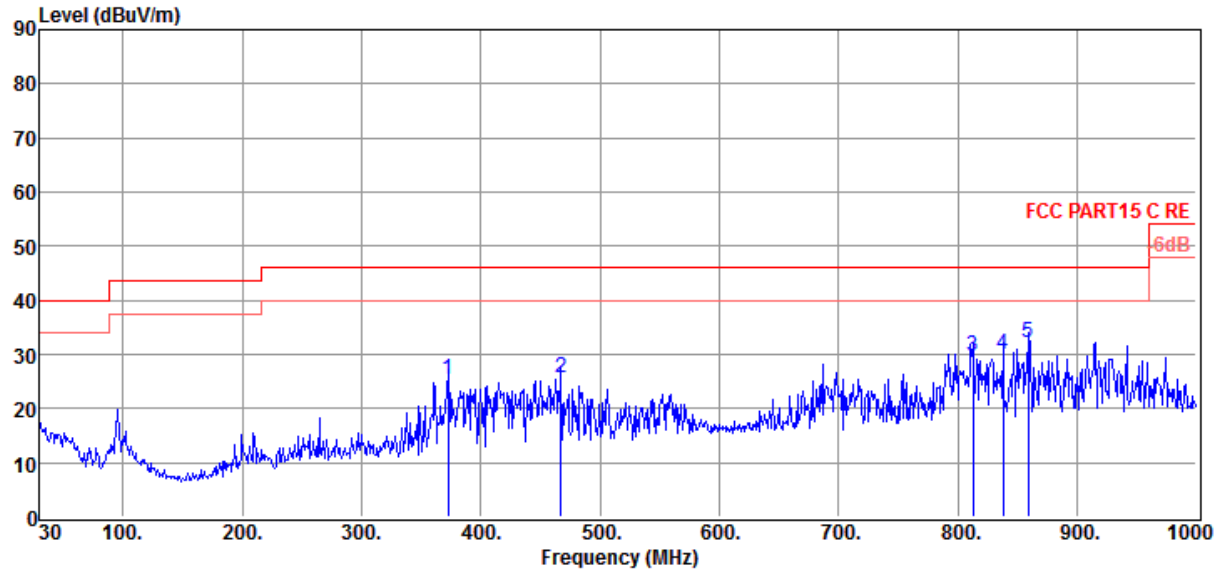
Note: Transducer =Antenna Factor + Cable loss

Level = Read Level + Transducer

Radiated Emission Test Result

Test Site	:	3m Chamber	E:\2013 report data\G\201301010.EM6		
Test Date	:	2013-01-23	**Tested By**	:	Jerry
EUT	:	EUT: GUARD TOUR SYSTEM	**Model Number**	:	WM-5000P5+
Power Supply	:	DC 4.7V from adapter 120V/60Hz	**Test Mode**	:	Tx Mode
Condition	:	Temp:24.5'C,Humi:55%	**Antenna/Distance**	:	VULB 9163/3m/HORIZONTAL
Memo	:				

Data : 81



Item (Mark)	Freq (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	372.41	50.93	14.53	42.73	2.52	25.25	46.00	-20.75	QP	HORIZONTAL
2	467.47	49.99	15.78	42.99	2.88	25.66	46.00	-20.34	QP	HORIZONTAL
3	812.79	48.90	20.18	43.14	3.90	29.84	46.00	-16.16	QP	HORIZONTAL
4	838.01	48.73	20.47	43.14	3.96	30.02	46.00	-15.98	QP	HORIZONTAL
5	859.35	50.43	20.68	43.14	4.08	32.05	46.00	-13.95	QP	HORIZONTAL

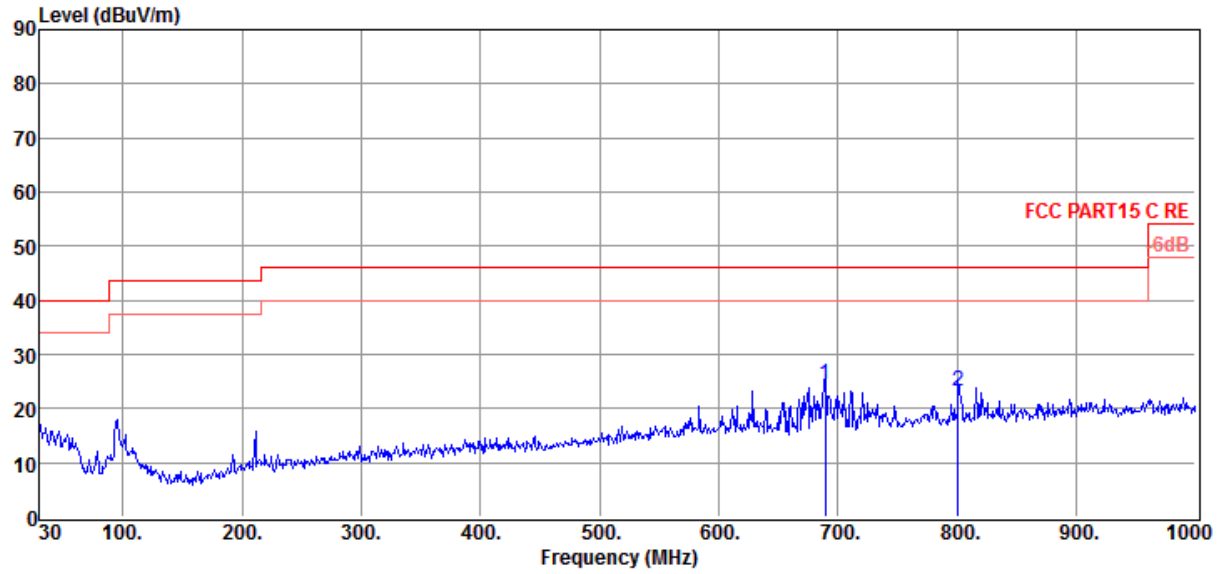
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor

2. If Peak Result comply with QP limit,QP Result is deemed to comply with QP limit

Radiated Emission Test Result

Test Site	: 3m Chamber	E:\2013 report data\G\201301010.EM6	
Test Date	: 2013-01-23	**Tested By**	: Jerry
EUT	: EUT: GUARD TOUR SYSTEM	**Model Number**	: WM-5000P5+
Power Supply	: DC 4.7V from adapter 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5'C,Humi:55%	**Antenna/Distance**	: VULB 9163/3m/VERTICAL
Memo	:		

Data : 82

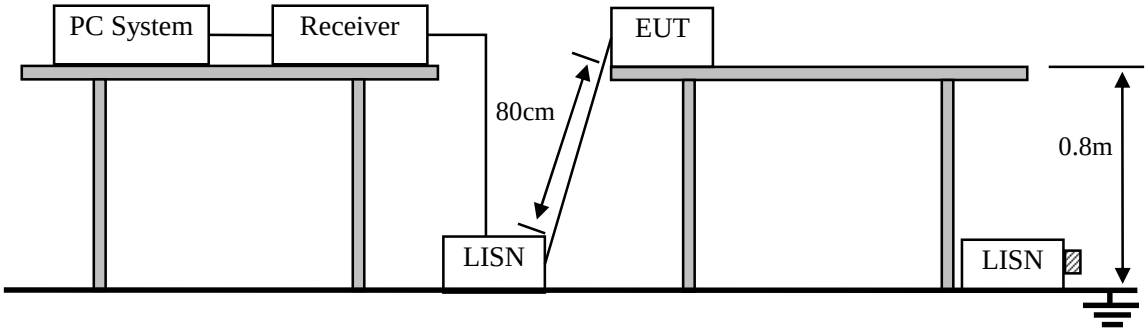


Item (Mark)	Freq (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	689.60	45.17	18.77	43.12	3.57	24.39	46.00	-21.61	QP	VERTICAL
2	801.15	42.54	20.06	43.14	3.88	23.34	46.00	-22.66	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor

2. If Peak Result comply with QP limit,QP Result is deemed to comply with QP limit

5. Power Line Conducted Emissions



5.1. Block Diagram of Test Setup

5.2. Limit

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. * Decreasing linearly with logarithm of frequency.

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

5.3. Test Procedure

(1) The EUT was placed on a non-metallic table, 80cm above the ground plane.

(2) Setup the EUT and simulator as shown in 10.1

(3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N1), 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 2009 and ANSI C64.10:2009 on conducted Emission test.

(4) The bandwidth of test receiver is set at 10KHz.

(5) The frequency range from 150 KHz to 30MHz is checked.

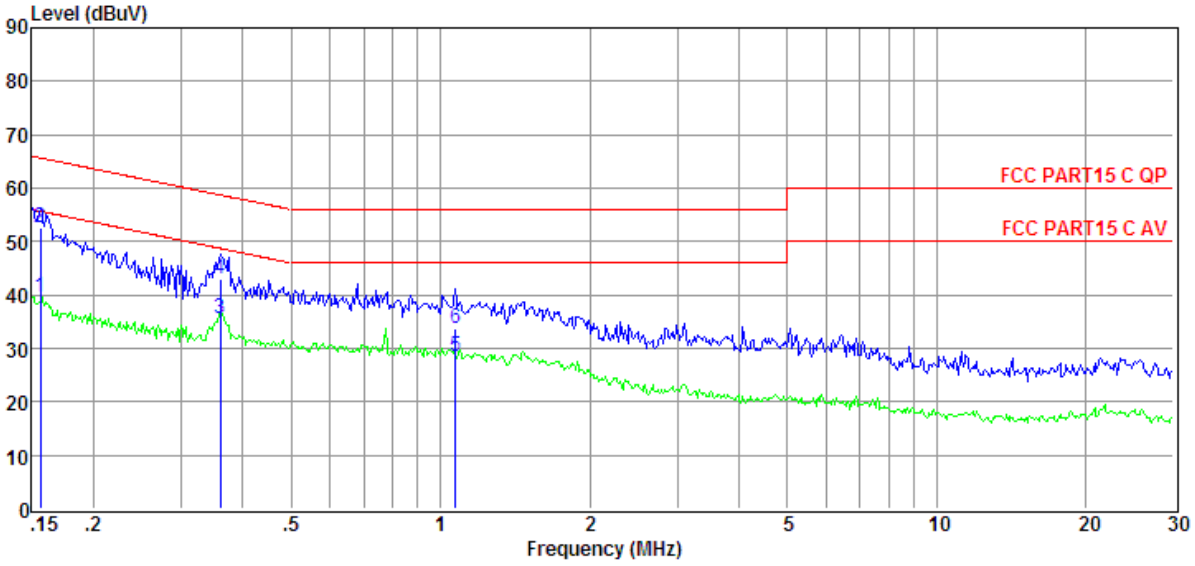
5.4. Test Result

PASS. (See below detailed test data)

Conducted Emission Test Result

Test Site	: 1# Shield Room	E:\2013 report data\G\201301010.EM6	
Test Date	: 2013-01-23	**Tested By**	: Jerry
EUT	: EUT: GUARD TOUR SYSTEM	**Model Number**	: WM-5000P5+
Power Supply	: DC 4.7V from adapter 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5'C,Humi:55%	**LISN**	: ENV216/NEUTRAL
Memo	:		

Data : 3



Item (Mark)	Freq (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pluse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.16	20.11	9.50	0.04	9.90	39.55	55.65	-16.10	Average	NEUTRAL
2	0.16	33.10	9.50	0.04	9.90	52.54	65.65	-13.11	QP	NEUTRAL
3	0.36	16.09	9.65	0.04	9.89	35.67	48.74	-13.07	Average	NEUTRAL
4	0.36	23.32	9.65	0.04	9.89	42.90	58.74	-15.84	QP	NEUTRAL
5	1.07	8.90	9.64	0.05	9.89	28.48	46.00	-17.52	Average	NEUTRAL
6	1.07	14.25	9.64	0.05	9.89	33.83	56.00	-22.17	QP	NEUTRAL

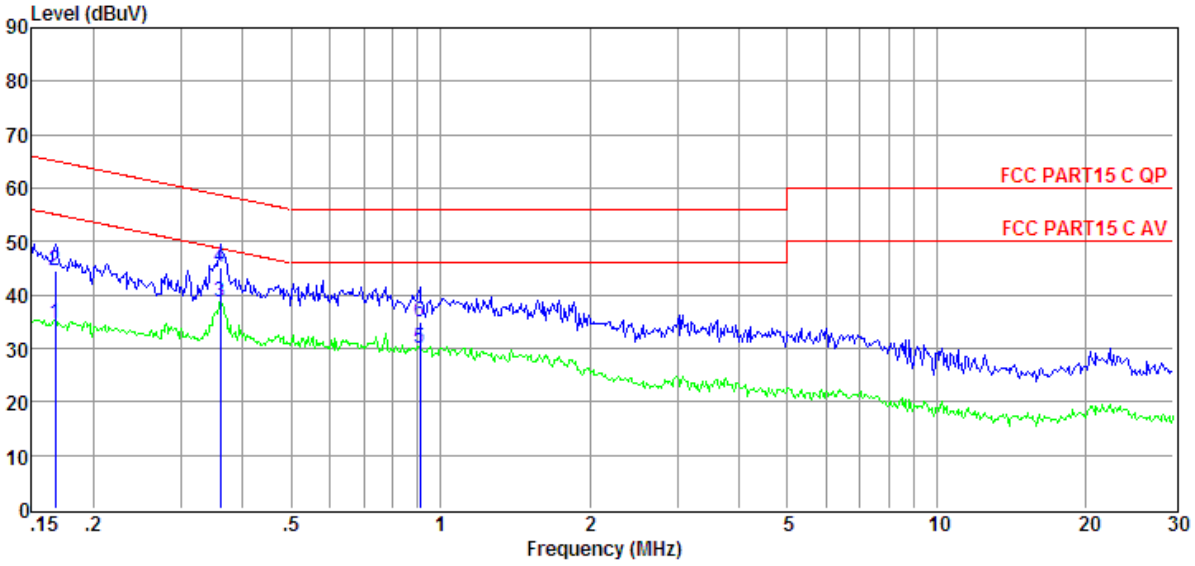
Note: 1. Result Level = Read Level +LISN Factor + Pluse Limiter Factor + Cable loss

2. If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

Conducted Emission Test Result

Test Site	: 1# Shield Room	E:\2013 report data\G\201301010.EM6	
Test Date	: 2013-01-23	**Tested By**	: Jerry
EUT	: EUT: GUARD TOUR SYSTEM	**Model Number**	: WM-5000P5+
Power Supply	: DC 4.7V from adapter 120V/60Hz	**Test Mode**	: Tx Mode
Condition	: Temp:24.5'C,Humi:55%	**LISN**	: ENV216/LINE
Memo	:		

Data : 5



Item	Freq	Read Level	LISN Factor	Cable Loss	Pluse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBµV)	(dB)	(dB)	(dB)	(dBµV)	(dBµV)	(dB)		
1	0.17	15.11	9.68	0.04	9.90	34.73	55.08	-20.35	Average	LINE
2	0.17	24.77	9.68	0.04	9.90	44.39	65.08	-20.69	QP	LINE
3	0.36	19.12	9.61	0.04	9.89	38.66	48.74	-10.08	Average	LINE
4	0.36	25.69	9.61	0.04	9.89	45.23	58.74	-13.51	QP	LINE
5	0.91	10.29	9.64	0.05	9.89	29.87	46.00	-16.13	Average	LINE
6	0.91	15.31	9.64	0.05	9.89	34.89	56.00	-21.11	QP	LINE

Note: 1. Result Level = Read Level +LISN Factor + Pluse Limiter Factor + Cable loss

2. If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

6. Antenna Requirements

6.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.209, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

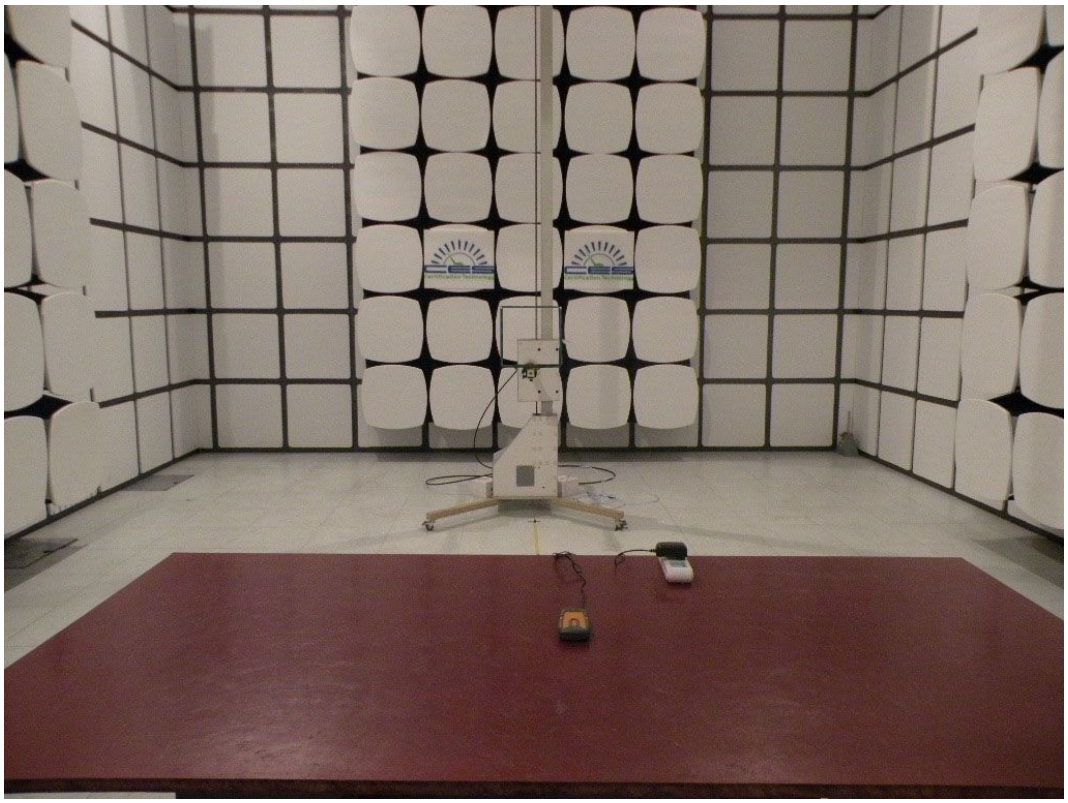
6.2. Result

The antennas used for this product are integral Patch Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi.

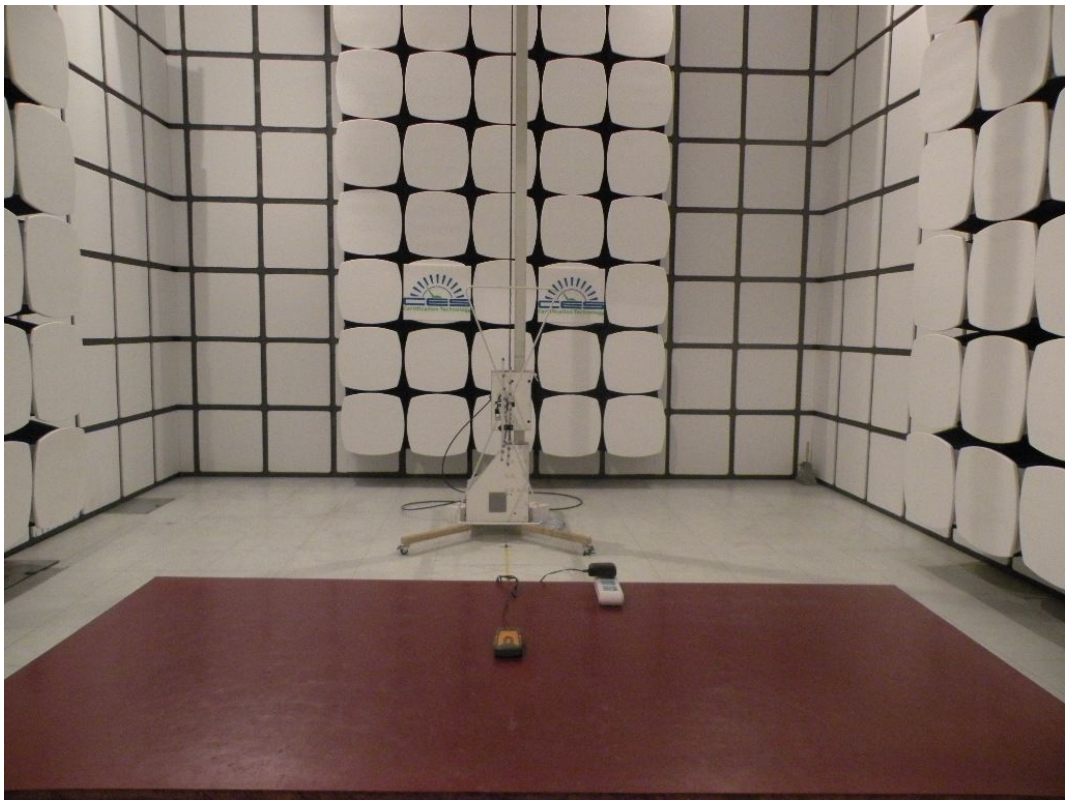
7. Test setup photo

Photographs-Radiated Emission Test Setup in Chamber

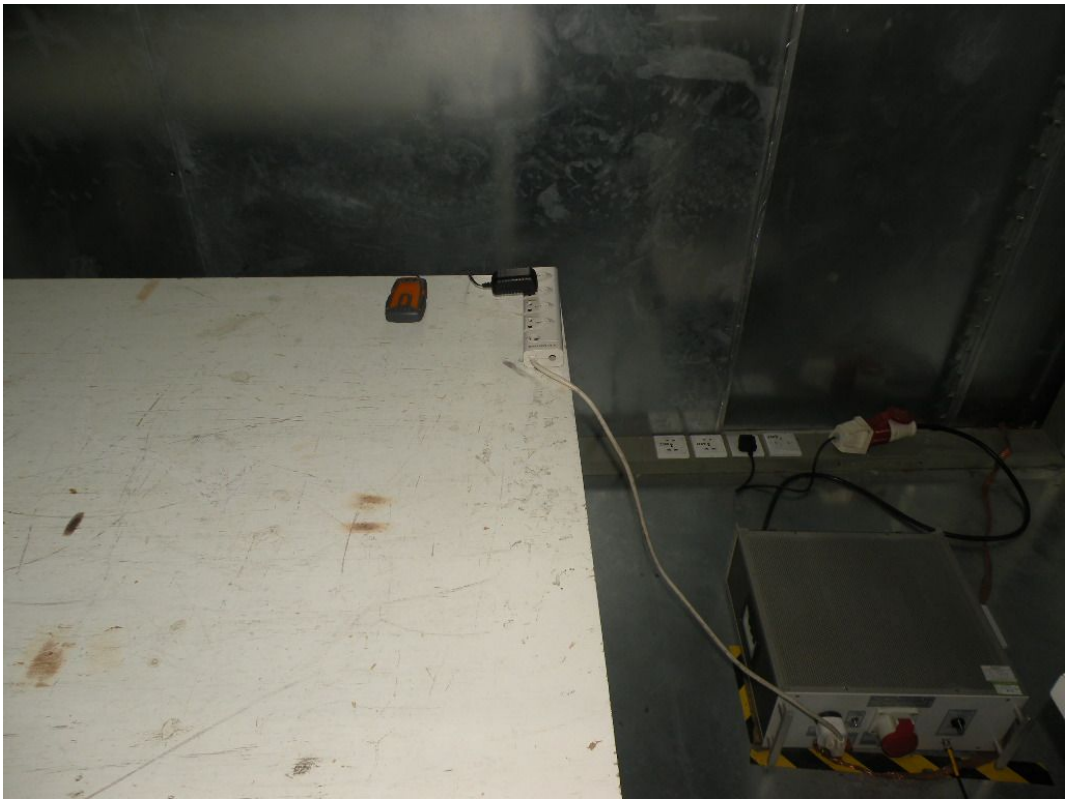
Below 30M



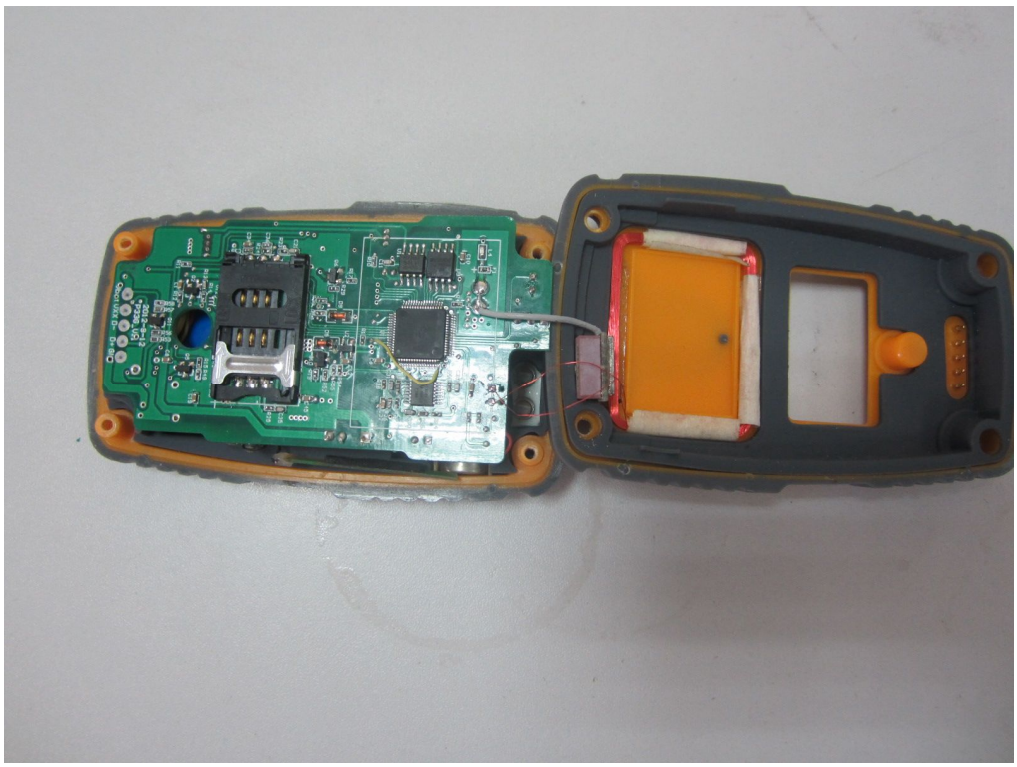
Below 30M-1G

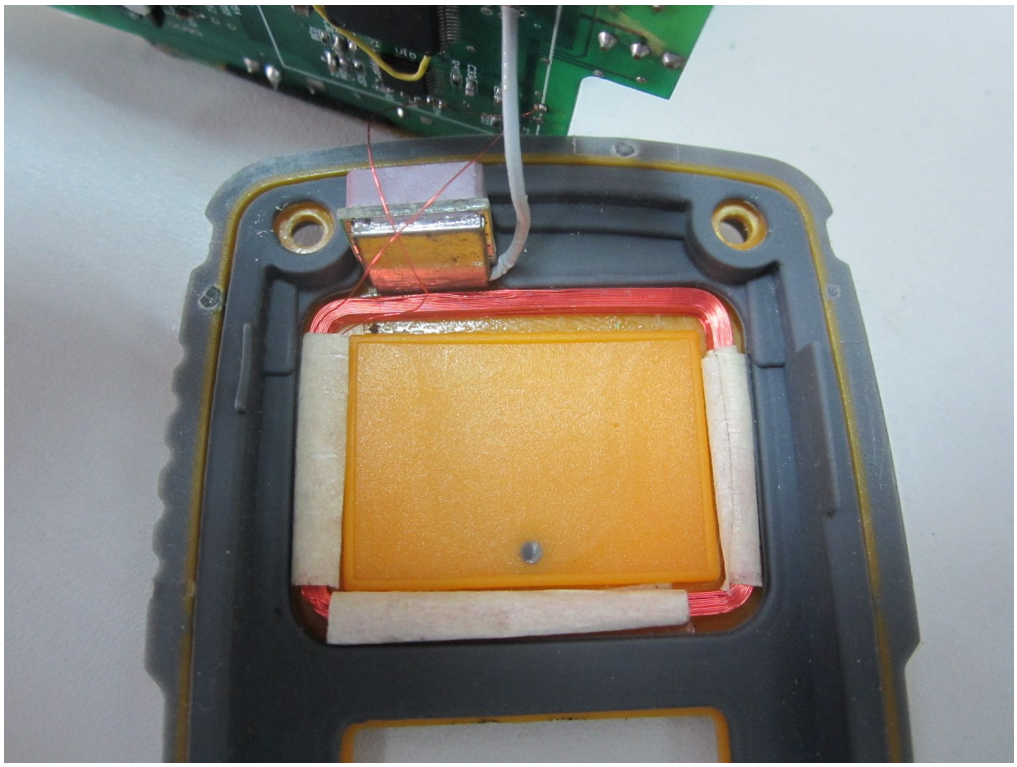


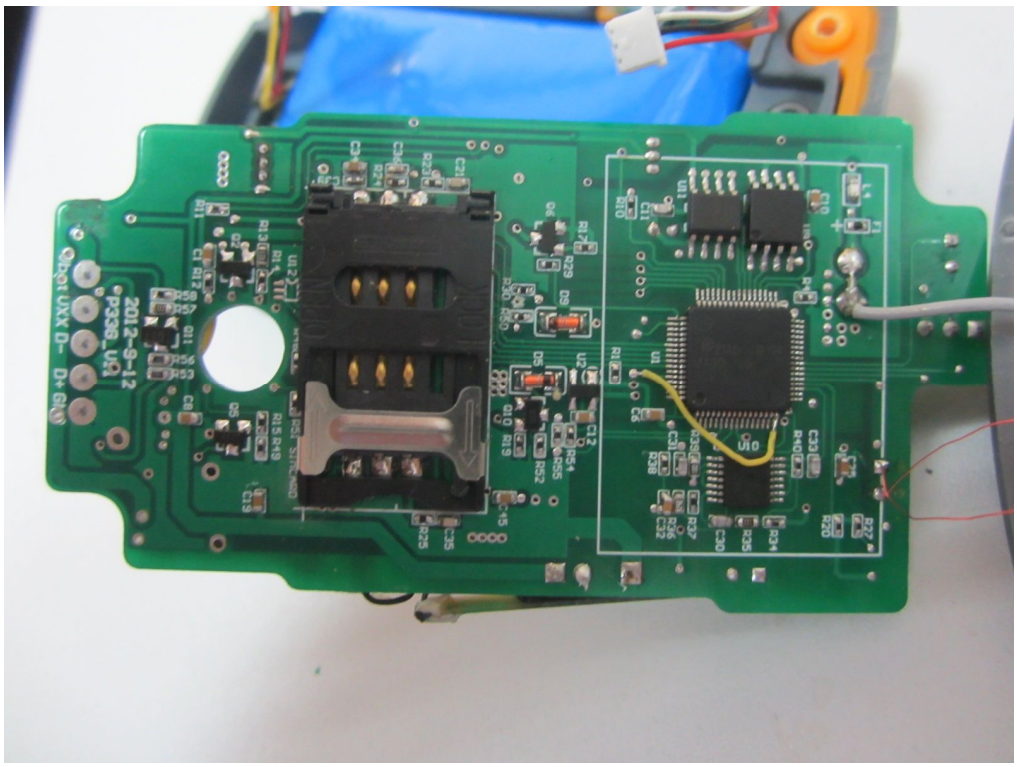
Photographs-Conducted Emission Test Setup

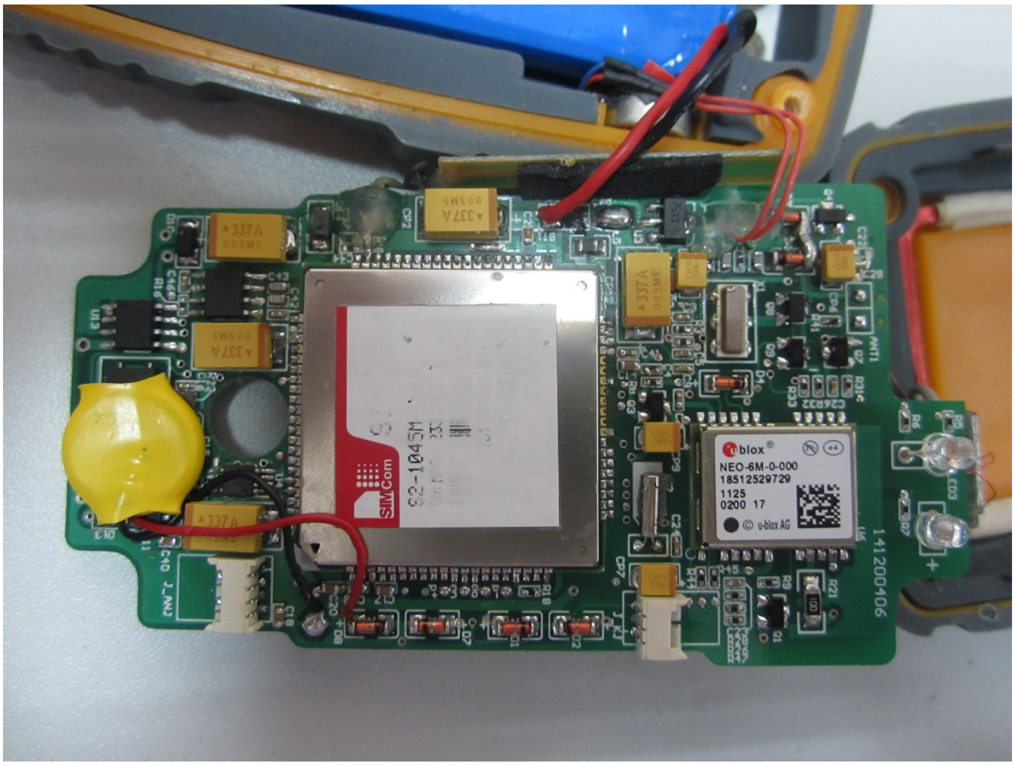


8. Photos of EUT





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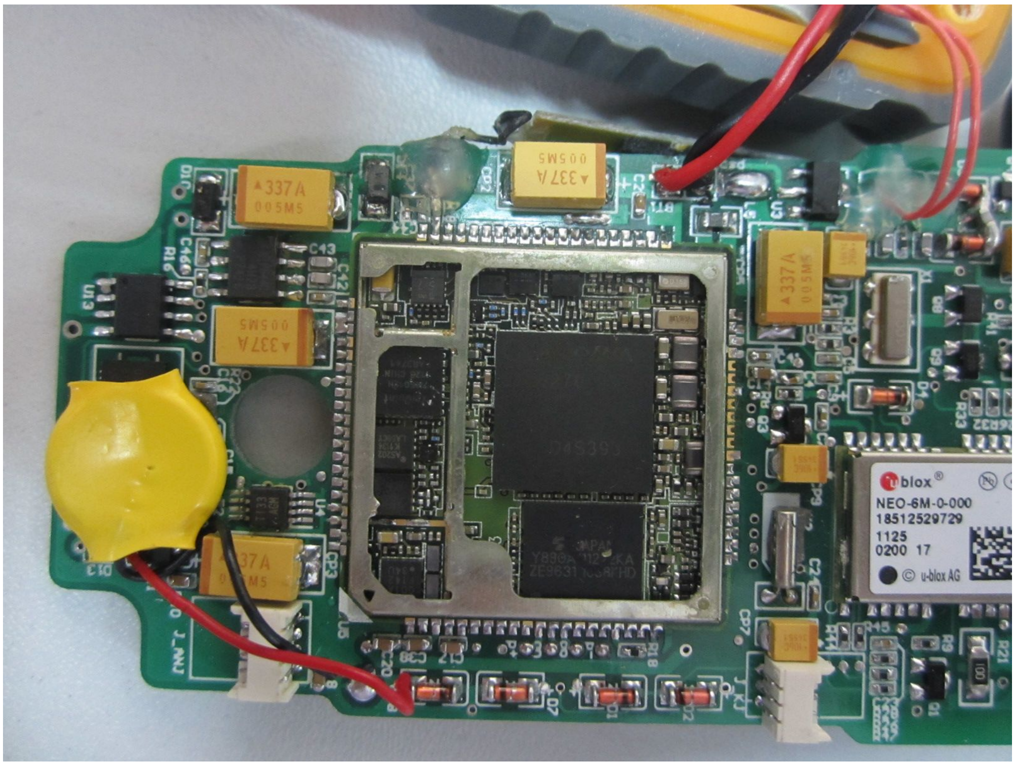
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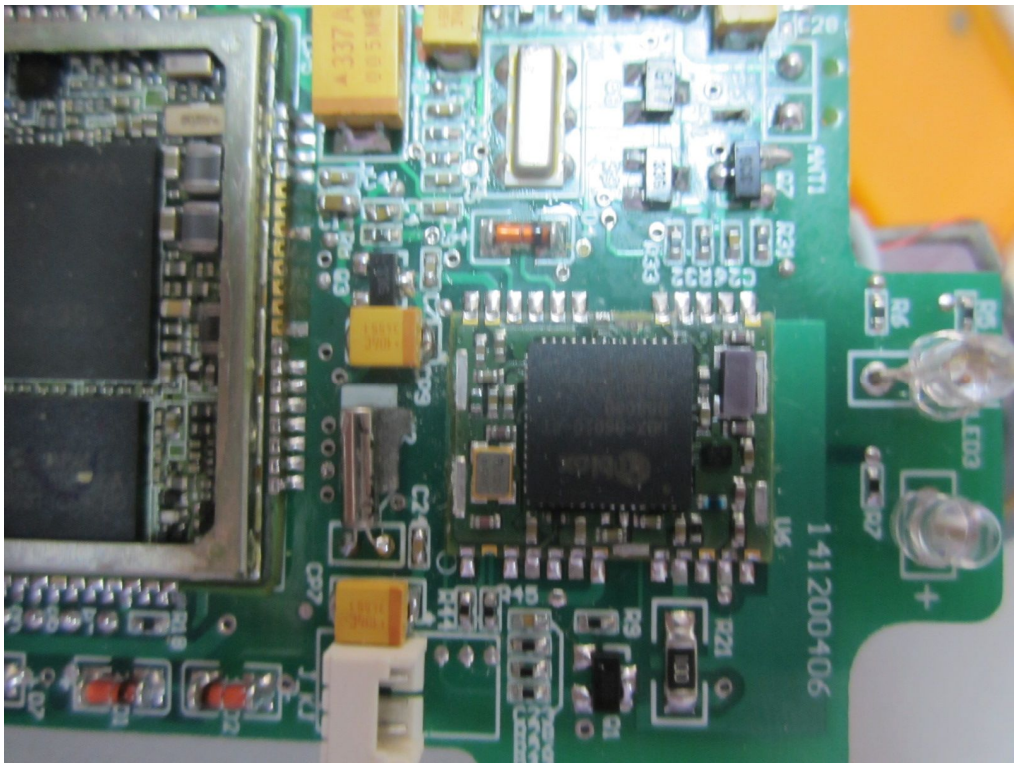
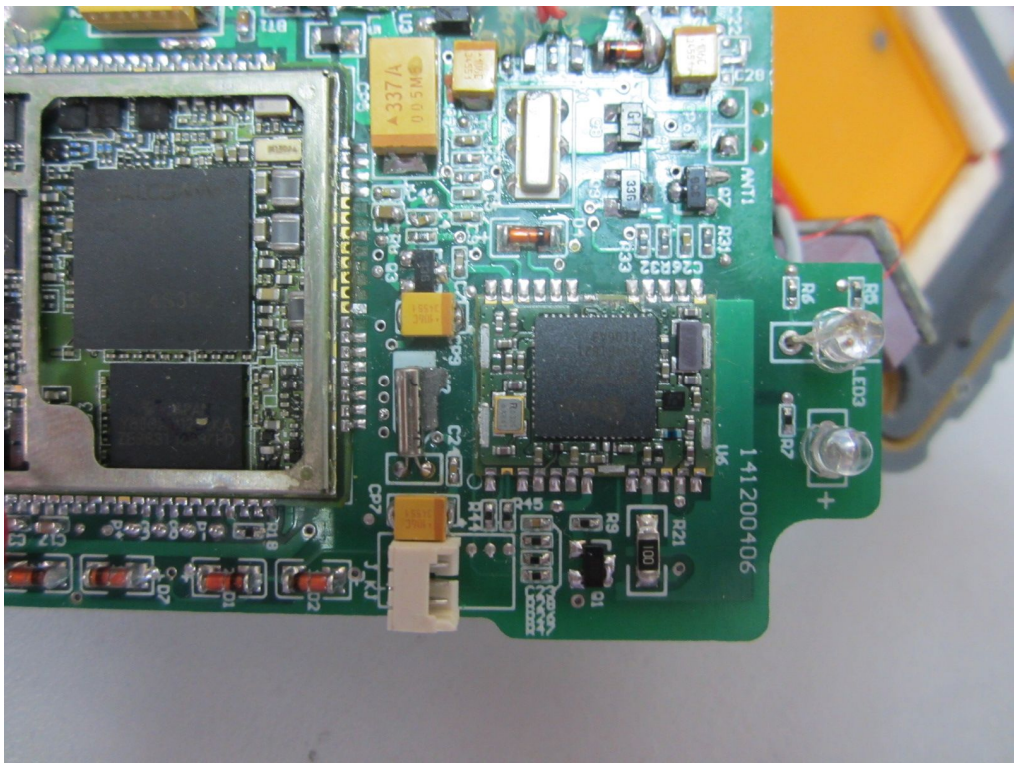
u-blox AG





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