FCC TEST REPORT
FCC ID: 2AI6IHV-888

Product： Bluetooth LAN

Trade Name： HAVIT

Model Number： HV-888, HV-WU725,HV-WU720,HV-WU721, HV-WU723, HV-WU726,HV-WU727, HV-WU728,HV-WU729,HV-WU730

Prepared for

Guangzhou Havit Technology Co.,LTD

ROOM 1307,13F,PHASE 2(B,C BUILDING) OF POLY WORLD TRADE CENTER,NO.1000,

XINGANG EAST ROAD, HAIZHU DISTRICT,GUANGZHOU, GUANGDONG, China

Prepared by

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Dongcheng District, Dongguan, Guangdong, China

TEST RESULT CERTIFICATION

Applicant's name ..... : Guangzhou Havit Technology Co.,LTD

Address ..... : ROOM 1307,13F,PHASE 2(B,C BUILDING) OF POLY WORLD TRADE CENTER,NO.1000, XINGANG EAST ROAD, HAIZHU DISTRICT,GUANGZHOU, GUANGDONG, China

Manufacturer's Name ..... : Guangzhou Havit Technology Co.,LTD

Address ..... : ROOM 1307,13F,PHASE 2(B,C BUILDING) OF POLY WORLD TRADE CENTER,NO.1000, XINGANG EAST ROAD, HAIZHU DISTRICT,GUANGZHOU, GUANGDONG, China

Product description

Product name..... : Bluetooth LAN

Standards ..... : FCC Part15B
ANSI C63.4:2014

This device described above has been tested by PTS, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Date of Test ..... :

Date (s) of performance of tests..... : Jul.24,2016 - Aug. 11, 2016

Date of Issue..... : Aug. 12, 2016

Test Result..... : **Pass**

Testing Engineer

August Qiu

Technical Manager

Hack Ye

Authorized Signatory

Chris Du

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1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15B ANSI C63.4: 2014	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report

(2) For client's request and manual description, the test will not be executed.

1.1 TEST FACILITY

Dongguan Precise Testing Service Co., Ltd.

Add.: Building D,Baoding Technology Park,Guangming Road2, Dongcheng District, Dongguan, Guangdong, China, Dongguan, China

FCC-Registration No.: 371540

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
PTS C01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
PTS A01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~6GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Bluetooth LAN</td></tr>
<tr><td>Model Name</td><td>HV-888, HV-WU725,HV-WU720,HV-WU721,HV-WU723, HV-WU726,HV-WU727,HV-WU728,HV-WU729,HV-WU730</td></tr>
<tr><td>Model Difference</td><td>All the same, only the color is different.</td></tr>
<tr><td>Product Description</td><td>The EUT is a Bluetooth LAN.
<table><tr><td>Operating frequency:</td><td>2402-2480MHz</td></tr><tr><td>Connecting I/O port:</td><td>USB</td></tr></table>Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Power Source</td><td>DC Voltage</td></tr>
</table>

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

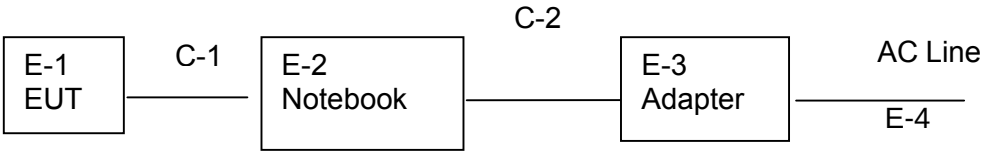
Pretest Mode	Description
Mode 1	BT link and data communication with PC

For Conducted Test	
Final Test Mode	Description
Mode 1	BT link and data communication with PC

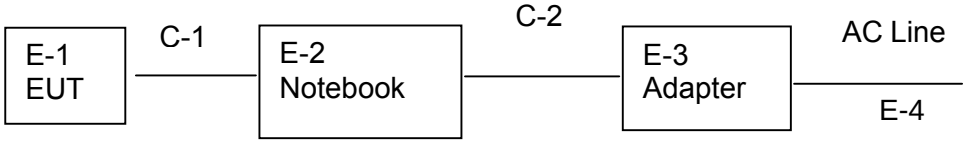
For Radiated Test	
Final Test Mode	Description
Mode 1	BT link and data communication with PC

2.3 DESCRIPTION OF TEST SETUP

Mode 1:
CE:



RE:



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Bluetooth LAN	N/A	HV-888	N/A	EUT
E-2	Notebook Computer	Sony	PCG-51111T	X16-96081	
E-3	Mouse	Sony	T10	N/A	
E-4	Keyboard	Sony	K13	N/A	
E-5	Printer	Sony	DDP-MP1	X12832	
E-6	Adapter	Sony	NSW24063	SNPA-1900-11SY	
E-7	AC power line(1.0m)	Sony	JYD-20	C-2201	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	80cm	
C-2	NO	NO	80cm	

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
(3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

RF Conducted Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	EMC Analyzer (9k~26.5GHz)	Agilent	E4407B	MY45109572	July 15, 2016	July 14, 2017	1 year
2	EXA Signal Analyzer	Keysight	N9010A	MY50520207526B25MPBW7X	July 15, 2016	July 14, 2017	1 year
3	EMI Test Receiver	R&S	ESCI	101155	July 15, 2016	July 14, 2017	1 year

Radiated Emissions

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	EMI Test Receiver	Rohde&Schwarz	ESCI	101417	July 15, 2016	July 14, 2017	1 year
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3355	July 15, 2016	July 14, 2017	1 year
3	Amplifier	EM	EM-30180	060538	July 15, 2016	July 14, 2017	1 year
4	Horn Antenna	SCHWARZBECK	BBHA9120D	9120 D-1246	July 15, 2016	July 14, 2017	1 year
5	Loop Antenna	SCHWARZBECK	FMZB1516	9130 D-1243	July 15, 2016	July 14, 2017	1 year
6	Spectrum Analyzer	Agilent	N9020A	MY49100060	July 15, 2016	July 14, 2017	1 year
7	Horn Antenna	Schwarzbeck	BBHA 9170	9170-0741	July 15, 2016	July 14, 2017	1 year
8	PreAmplifier	Agilent	8449B	Agilent	July 15, 2016	July 14, 2017	1 year
9	Spectrum Analyzer	Agilent	E4407B	MY45108040	July 15, 2016	July 14, 2017	1 year

Conducted Emissions

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	EMI Test Receiver	R&S	ESCI	101155	July 15, 2016	July 14, 2017	1 year
2	LISN	SCHWARZBECK	NSLK 8128	8128-289	July 15, 2016	July 14, 2017	1 year
3	Cable	LARGE	RF300	-	July 15, 2016	July 14, 2017	1 year

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

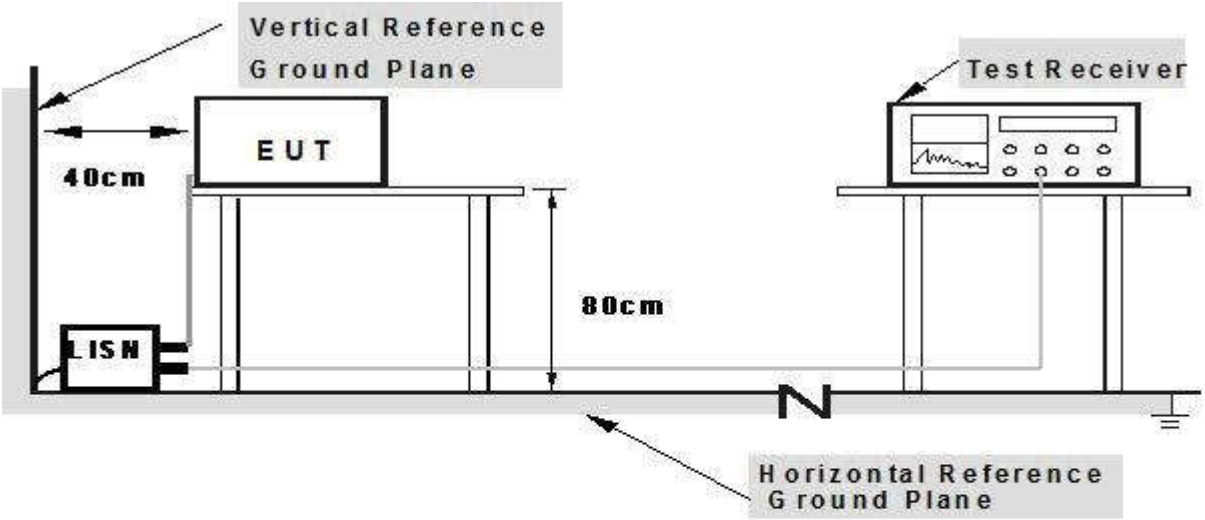
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

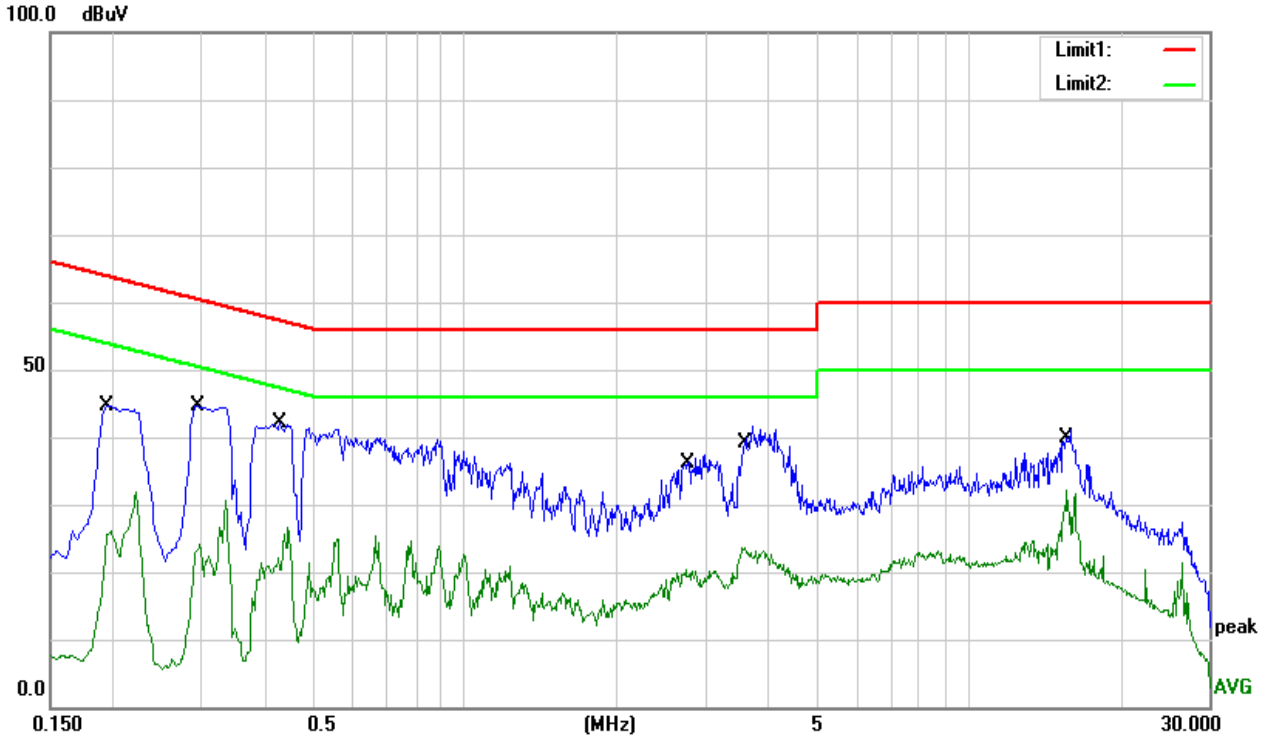
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.1.5 TEST RESULTS

EUT：	Bluetooth LAN	Model Name. ：	HV-888
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2016-8-2
Test Mode：	Mode 1	Phase：	L
Test Voltage ：	DC 5V from PC 120V/60Hz		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1940	35.42	9.23	44.65	63.86	-19.21	QP
0.1940	22.61	9.23	31.84	53.86	-22.02	AVG
0.2940	35.46	9.14	44.60	60.41	-15.81	QP
0.2940	21.41	9.14	30.55	50.41	-19.86	AVG
0.4300	32.72	9.35	42.07	57.25	-15.18	QP
0.4300	17.30	9.35	26.65	47.25	-20.60	AVG
2.7460	28.08	9.26	37.34	56.00	-18.66	QP
2.7460	11.04	9.26	20.30	46.00	-25.70	AVG
3.5500	32.37	9.26	41.63	56.00	-14.37	QP
3.5500	14.38	9.26	23.64	46.00	-22.36	AVG
15.6620	31.70	9.51	41.21	60.00	-18.79	QP
15.6620	22.67	9.51	32.18	50.00	-17.82	AVG

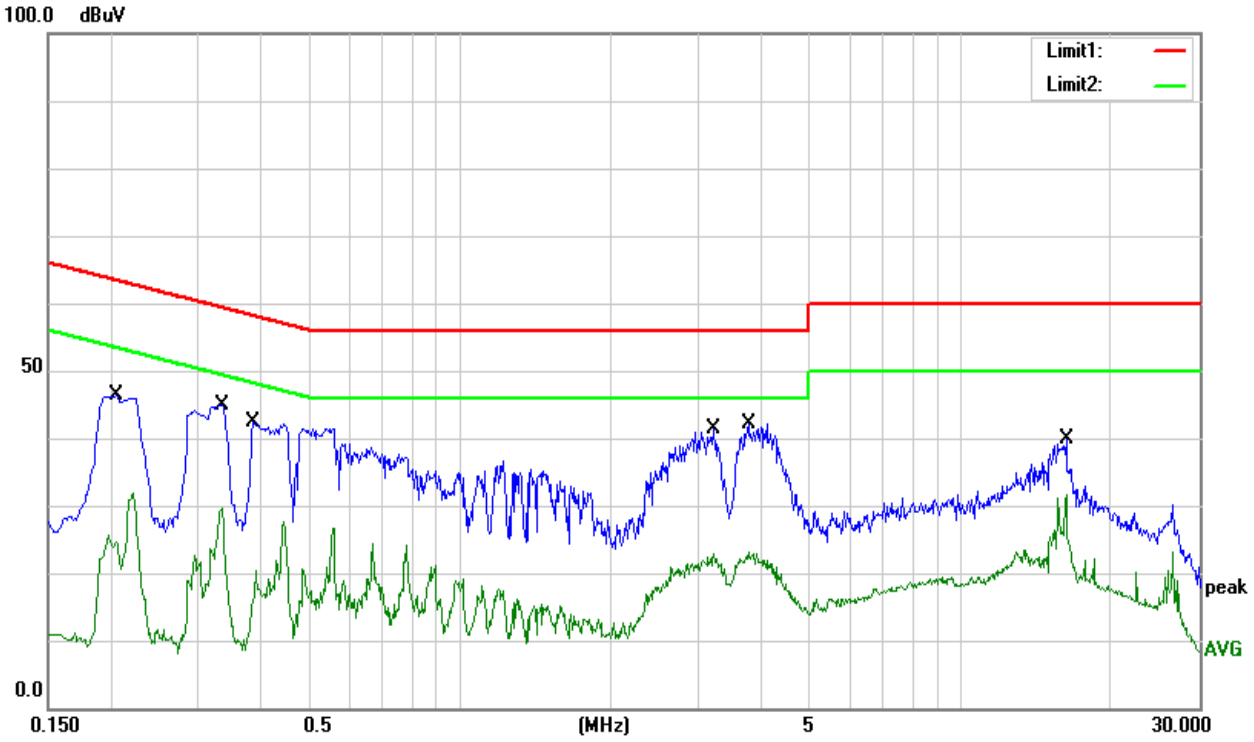
Remark:
1. Margin = Result (Result =Reading + Factor)–Limit



EUT：	Bluetooth LAN	Model Name. ：	HV-888
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2016-8-2
Test Mode：	Mode 1	Phase：	N
Test Voltage ：	DC 5V from PC 120V/60Hz		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.2060	37.03	9.22	46.25	63.37	-17.12	QP
0.2060	22.64	9.22	31.86	53.37	-21.51	AVG
0.3340	35.72	9.16	44.88	59.35	-14.47	QP
0.3340	20.56	9.16	29.72	49.35	-19.63	AVG
0.3860	33.13	9.23	42.36	58.15	-15.79	QP
0.3860	18.32	9.23	27.55	48.15	-20.60	AVG
3.2180	32.03	9.26	41.29	56.00	-14.71	QP
3.2180	13.52	9.26	22.78	46.00	-23.22	AVG
3.7780	32.77	9.26	42.03	56.00	-13.97	QP
3.7780	13.88	9.26	23.14	46.00	-22.86	AVG
16.2300	30.27	9.51	39.78	60.00	-20.22	QP
16.2300	22.03	9.51	31.54	50.00	-18.46	AVG

Remark:
1. Margin = Result (Result =Reading + Factor)–Limit



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

(1) The limit for radiated test was performed according to as following:
FCC PART 15B /ICES-003.

(2) The tighter limit applies at the band edges.

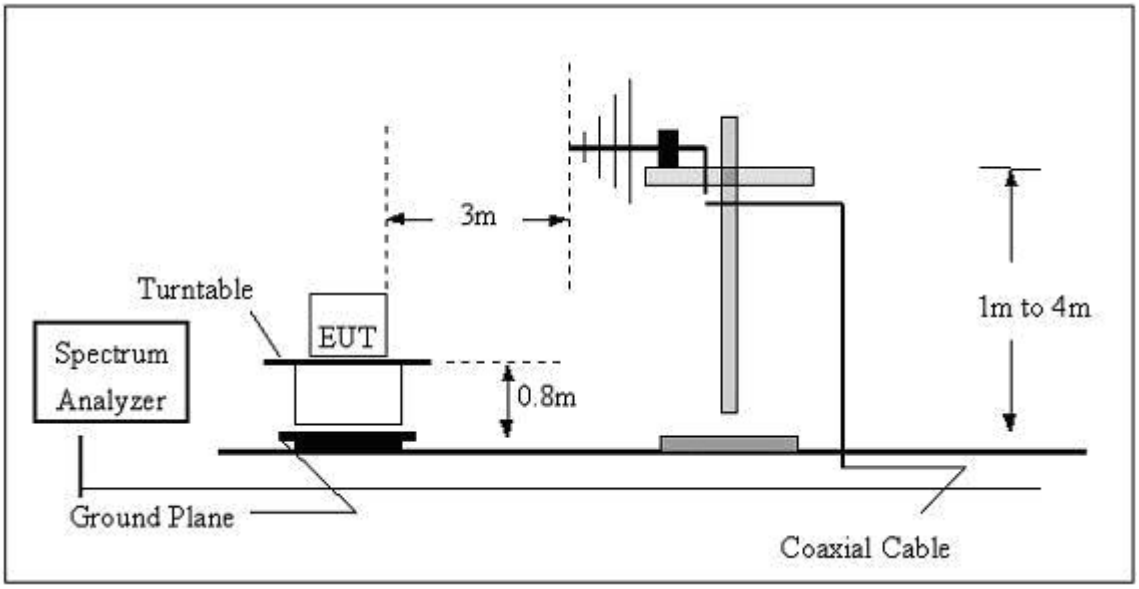
(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

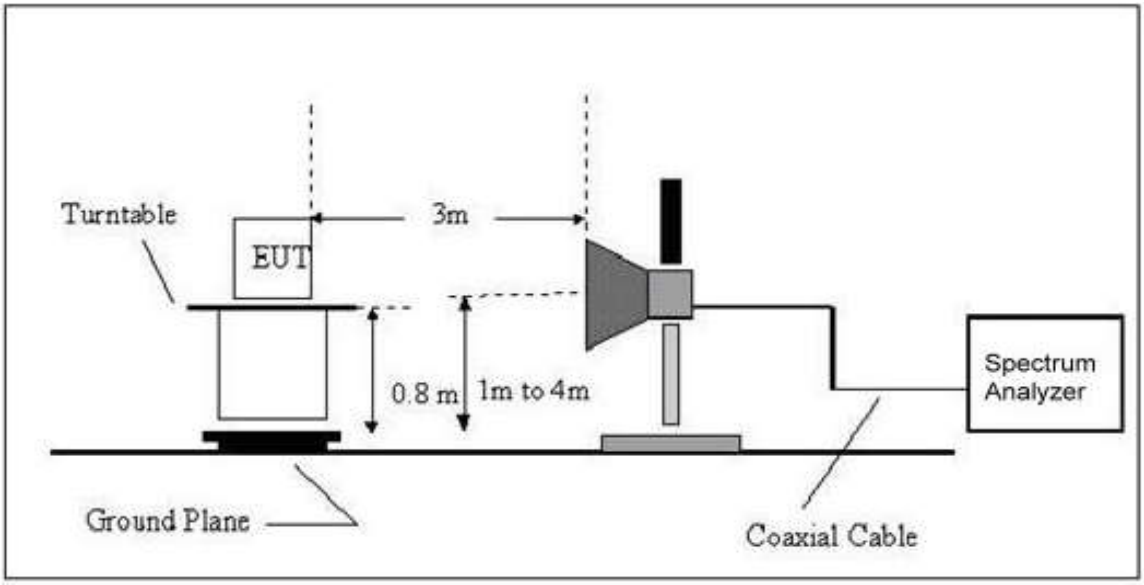
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

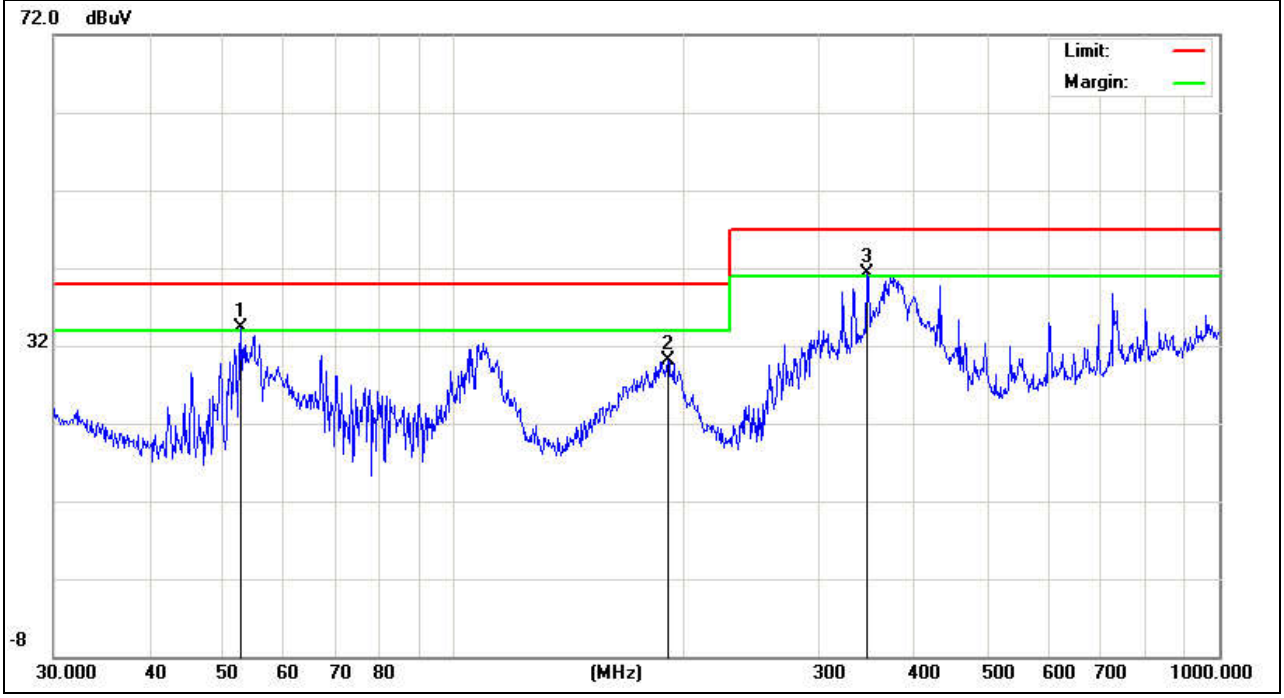
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 TEST RESULTS

EUT：	Bluetooth LAN	Model Name ：	HV-888
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2016-8-2
Test Mode ：	Charging and discharging	Polarization：	Horizontal
Test Power ：	DC 5V from PC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
52.7599	27.30	6.92	34.22	40.00	-5.78	QP
190.4050	21.46	8.74	30.20	40.00	-9.80	QP
346.8091	26.05	15.28	41.33	47.00	-5.67	QP

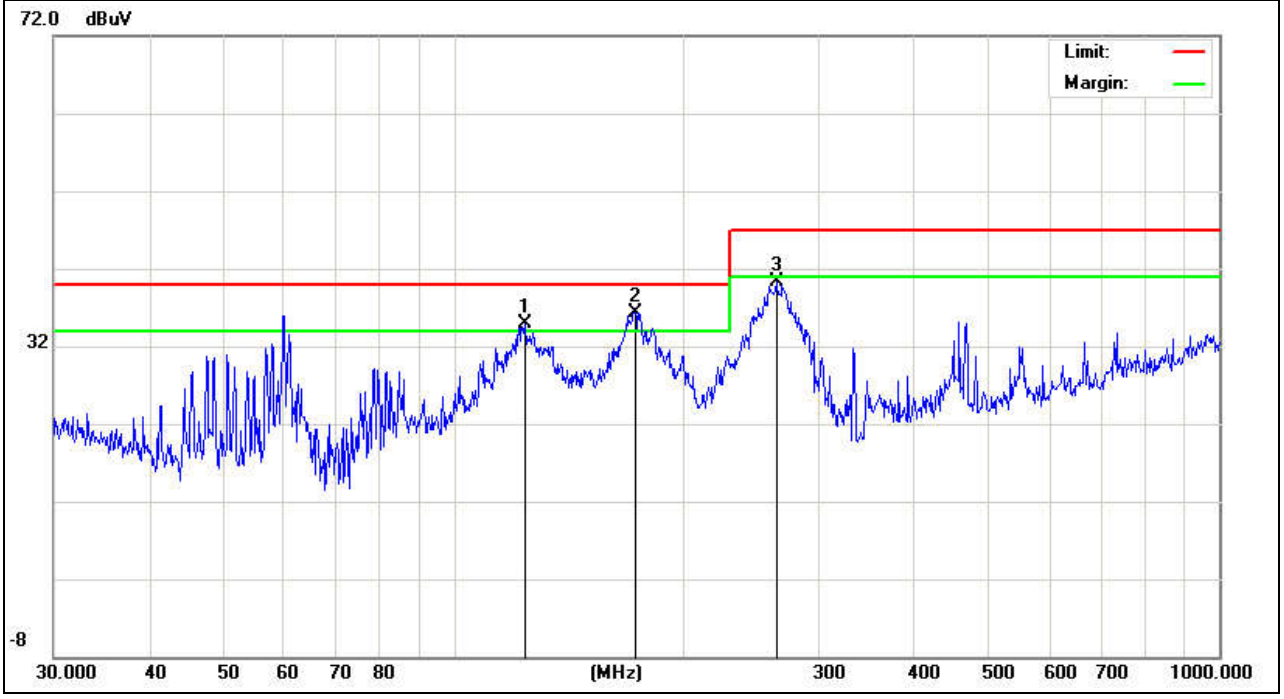
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Bluetooth LAN	Model Name ：	HV-888
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2016-8-2
Test Mode ：	Charging and discharging	Polarization：	Vertical
Test Power ：	DC 5V from PC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
123.6984	23.03	11.87	34.90	40.00	-5.10	QP
172.5988	26.55	9.85	36.40	40.00	-3.60	QP
263.8190	26.41	13.99	40.40	47.00	-6.60	QP

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



3.2.6 TEST RESULTS(1-6GHz)

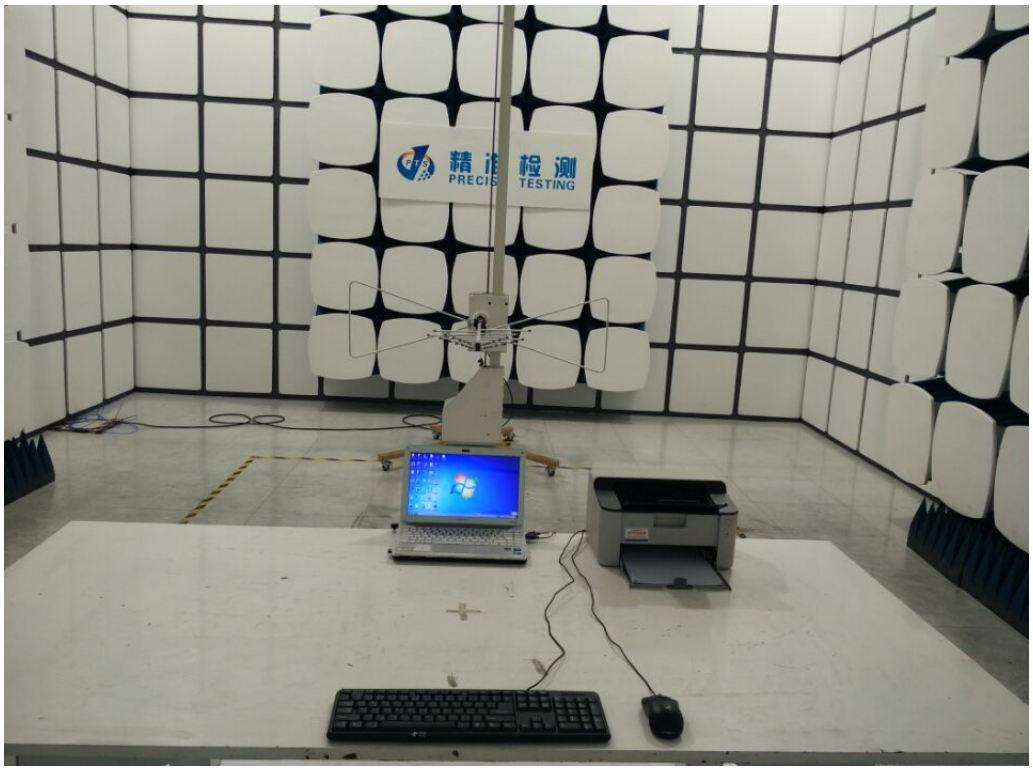
EUT：	Bluetooth LAN	Model Name ：	HV-888
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2016-8-2

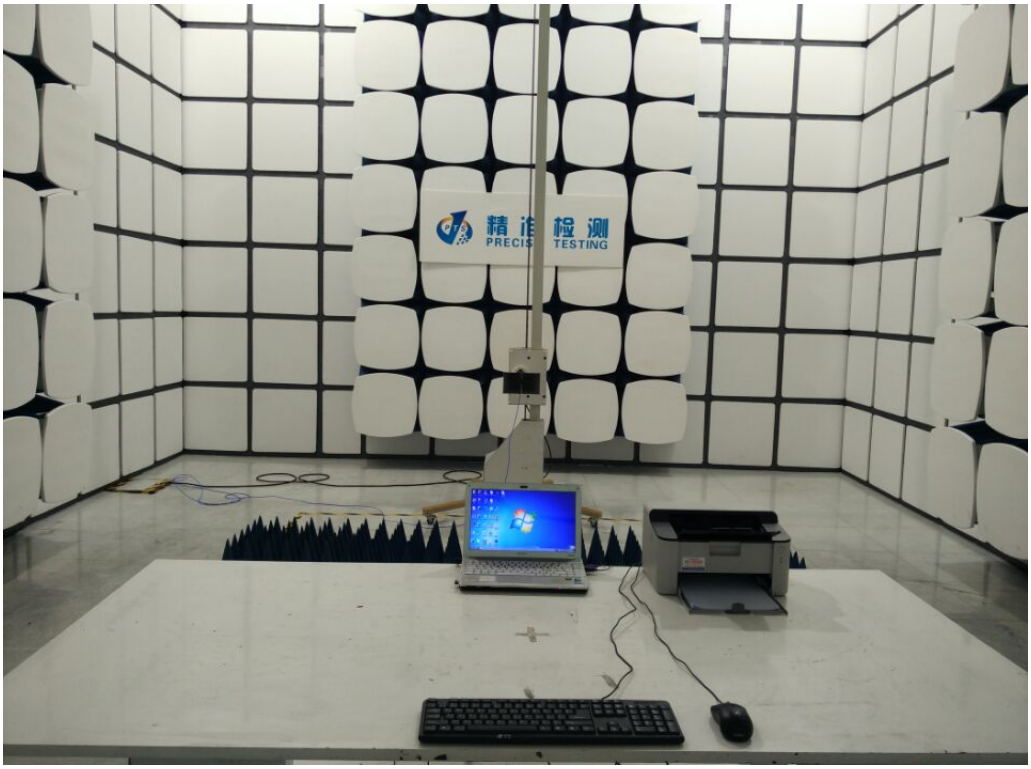
Freq.	Ant. Pol	Peak	Amplifier	Loss	Antenna Factor	Orrected Factor	Actual Fs	Peak	Peak
(MHz)	H/V	Reading (dBuV)	(dB)	(dB)	(dB/m)	(dB)	Peak (dBuV/m)	Limit (dBuV/m)	margin (dBuV/m)
1097.45	H	57.54	44.70	5.15	28.20	-11.35	46.19	74.00	-27.81
2866.31	H	52.23	44.30	9.45	30.40	-4.45	47.78	74.00	-26.22
N/A									
1097.45	V	52.33	44.70	5.15	28.20	-11.35	40.98	74.00	-33.02
2866.31	V	49.21	44.30	9.45	30.40	-4.45	44.76	74.00	-29.24
N/A									

Not: Peak value is below than avg limit,So avg value is not required

4.EUT TEST PHOTO

Radiated Measurement Photos





Conducted Measurement Photos

********THE END REPORT********