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FCC Test Report

Applicant : TELEPHONE EST (HK) CO., LTD

Room709,7F, FuLi tianhe commercial

Address : building,Linhe East Road and tianhe district,

Guangzhou, China

Product Name : 3-in-1 15W Magnetic Wireless Charging Stand

Report Date : Aug. 10, 2023

Shenzhen Anbotek Compliance Laboratory Limited







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TEST REPORT

Applicant : TELEPHONE EST (HK) CO., LTD

Manufacturer : Telephone Est Electronics Factory (Zhong Shan)
Product Name : 3-in-1 15W Magnetic Wireless Charging Stand

Test Model No. : 2IHQI2063

Reference Model No. : 2IHQI2063B0L2

Trade Mark : N/A

Input: DC 9V/2A, DC 12V/2A

Output for Phone: 5W/7.5W/10W/15W Max

Rating(s) : Output for Earphone: 5W Max

Output for Smart Watch: 3W Max

Total Output: 15W Max

Test Standard(s) : FCC Part15 Subpart C, Paragraph 15.209

Test Method(s) : ANSI C63.10: 2020

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt Jul. 25, 2023

Date of Test Jul. 25 ~ Aug. 04, 2023

Prepared By

(Nianxiu Chen)

Approved & Authorized Signer

(Edward Pan)



Code:AB-RF-05-b
Hotline
400-003-0500
www.anbotek.com.cn





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Revision History

Report Versio	n D	escription	Issued Date	
R00	Ori	iginal Issue.	Aug. 10,	2023
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1. General Information

1.1. Client Information

Applicant	:	TELEPHONE EST (HK) CO., LTD
Address	:	Room709,7F, FuLi tianhe commercial building,Linhe East Road and tianhe district, Guangzhou, China
Manufacturer	:	Telephone Est Electronics Factory (Zhong Shan)
Address	:	No.2 Heyuan Shengfeng Road,Xiaolan Town, Zhongshan, China
Factory	:	Telephone Est Electronics Factory (Zhong Shan)
Address	:	No.2 Heyuan Shengfeng Road,Xiaolan Town, Zhongshan, China

1.2. Description of Device (EUT)

Product Name	: 3-in-1 15W Magnetic Wireless Charging Stand
Test Model No.	: 2IHQI2063
Reference Model No.	2IHQI2063B0L2 : (Note: All samples are the same except the model number and appearance color, so we prepare "2IHQI2063" for test only.)
Trade Mark	: N/A Anbotek Anbotek Anbotek Anbotek
Test Power Supply	: AC 120V, 60Hz for Adapter
Test Sample No.	: 1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	: N/A Anborek Anborek Anborek Anborek Anborek Anborek Anborek
RF Specification	
Operation Frequency	: 110.1-205KHz
Modulation Type	: FSK Anborek Anborek Anborek Anborek Anborek
Antenna Type	: Inductive loop coil Antenna
Antenna Gain(Peak)	: 0 dBi (Provided by customer)

Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.







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1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
Adapter	Model: MDY-13-ES Input: 100-240V~, 50/60Hz, 1.7A Output: 5V=3A/ 9V=3A/ 11V=6.1A Max 12V=2.25A/ 15V=3A/ 20V=3.25A Max
Mobile Phone	iPhone 12
Apple AirPods	M/N: AirPods Pro
iWatch	M/N: WR-50M

1.4. 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	Charging & Wireless Charging Mode(iPhone12 + AirPods + iWatch)		
Mode 2	Charging & Wireless Charging Mode(iPhone12 + AirPods)		
Mode 3	Charging & Wireless Charging Mode(iPhone12 + iWatch)		
Mode 4	Charging & Wireless Charging Mode(AirPods + iWatch)		
Mode 5	Charging & Wireless Charging Mode(iPhone12)		
Mode 6	Charging & Wireless Charging Mode(AirPods)		
Mode 7	Charging & Wireless Charging Mode(iWatch)		

For Conducted Emission				
Final Test Mode	Description			
Mode 1	Charging & Wireless Charging Mode(iPhone12 + AirPods + iWatch)			
Mode 2	Charging & Wireless Charging Mode(iPhone12 + AirPods)			
Mode 3	Charging & Wireless Charging Mode(iPhone12 + iWatch)			
Mode 4	Charging & Wireless Charging Mode(AirPods + iWatch)			
Mode 5	Charging & Wireless Charging Mode(iPhone12)			
Mode 6	Charging & Wireless Charging Mode(AirPods)			
Mode 7	Charging & Wireless Charging Mode(iWatch)			









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For Radiated Emission				
Final Test Mode Description				
Mode 1	Charging & Wireless Charging Mode(iPhone12 + AirPods + iWatch)			
Mode 2	Charging & Wireless Charging Mode(iPhone12 + AirPods)			
Mode 3 Charging & Wireless Charging Mode(iPhone12 + iWat				
Mode 4	Charging & Wireless Charging Mode(AirPods + iWatch)			
Mode 5	Charging & Wireless Charging Mode(iPhone12)			
Mode 6	Charging & Wireless Charging Mode(AirPods)			
Mode 7	Charging & Wireless Charging Mode(iWatch)			

Note:

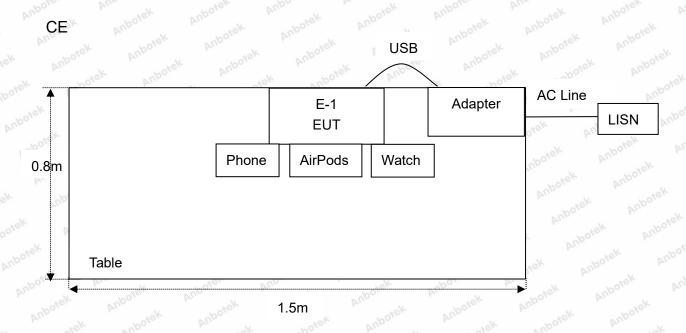
- (1) Test channel is 0.1289MHz.
- (2) All the situation(full load, half load and empty load) has been tested,only the worst situation (full load 15W) was recorded in the report.



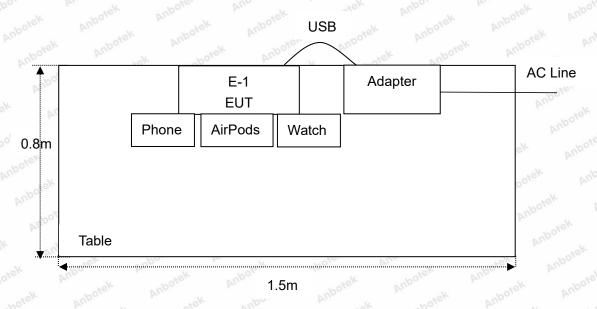


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1.5. Description Of Test Setup



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1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Anbo	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 23, 2022	1 Year
*2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2023	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 13, 2022	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 23, 2022	1 Year
5.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2022	1 Year
6.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 13, 2022	1 Year
7.0	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Oct. 13, 2022	1 Year
8.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	Oct. 23, 2022	3 Year
10.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 23, 2022	1 Year
11.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Oct. 23, 2022	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	Oct. 23, 2022	1 Year
13.	EMI Test Software EZ-EMC	SHURPLE	N/A	nbotel N/A Anbot	N/A	N/A
14.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 13, 2022	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 13, 2022	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 13, 2022	1 Year
17.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2022	1 Year
18.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 19, 2022	1 Year
19.	Power Meter	Agilent	N1914A	MY50001102	Oct.26, 2022	1 Year





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1.7. Measurement Uncertainty

Parameter	Uncertainty		
Conducted emissions (AMN 150kHz~30MHz)	3.8dB		
Radiated spurious emissions (30MHz~1GHz)	Horizontal: 3.92dB; Vertical: 4.52dB		
This uncertainty represents an expanded uncertainty	Vup.		
level using a coverage factor of k=2.	Anborek Anbore		

1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102







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2. Summary of Test Results

Standard Section	Test Item	Result	
15.203	Antenna Requirement	PASS	
15.207	Conducted Emission Test	PASS	
15.205/15.209	Spurious Emission	PASS	





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3. Conducted Emission Test

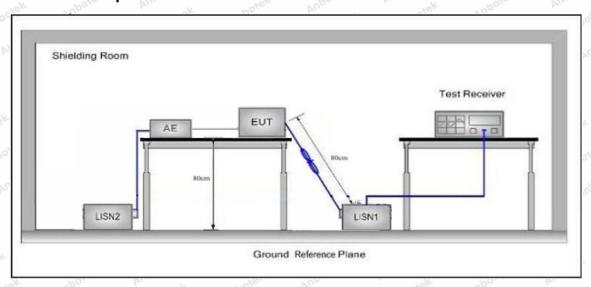
3.1. Test Standard and Limit

FCC Part15 Section 15.2	07	nbotek Anbe		
Fraguenov	Maximum RF Line Voltage (dBuV)			
Frequency	Quasi-peak Level	Average Level		
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *		
500kHz~5MHz	56 Money	46 de la		
5MHz~30MHz	60	50		
	Frequency 150kHz~500kHz 500kHz~5MHz	Quasi-peak Level 150kHz~500kHz 66 ~ 56 * 500kHz~5MHz 56		

Remark: (1) *Decreasing linearly with logarithm of the frequency.

(2) The lower limit shall apply at the transition frequency.

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10: 2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

AC conducted emission pre-test at both at AC 120V/60Hz and AC 240V/60Hz modes, recorded worst case AC 120V/60Hz.

Please to see the following pages:







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Conducted Emission Test Data

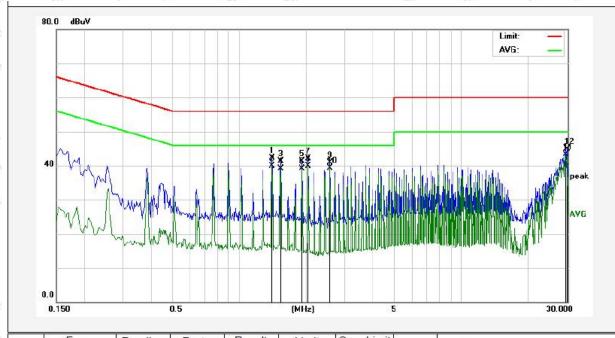
Test Site: 1# Shielded Room

Operating Condition: Mode 1

Test Specification: AC 120V, 60Hz for Adapter

Comment: Live Line

Temp.(°C)/Hum.(%RH): 21.4°C/65%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	1.4100	24.79	17.52	42.31	56.00	-13.69	QP	
2	1.4100	22.40	17.52	39.92	46.00	-6.08	AVG	
3	1.5380	23.74	17.50	41.24	56.00	-14.76	QP	
4	1.5380	21.69	17.50	39.19	46.00	-6.81	AVG	
5	1.9220	23.91	17.47	41.38	56.00	-14.62	QP	
6	1.9220	21.71	17.47	39.18	46.00	-6.82	AVG	
7	2.0500	24.72	17.47	42.19	56.00	-13.81	QP	
8	2.0500	22.43	17.47	39.90	46.00	-6.10	AVG	
9	2.5620	23.52	17.46	40.98	56.00	-15.02	QP	
10	2.5620	21.84	17.46	39.30	46.00	-6.70	AVG	
11	29.6060	25.13	18.17	43.30	50.00	-6.70	AVG	
12	29.9900	26.76	18.19	44.95	60.00	-15.05	QP	





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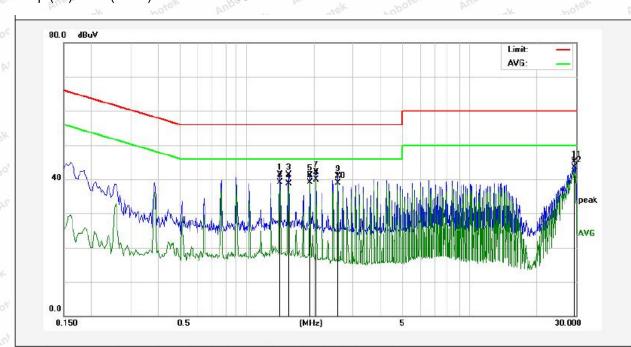
Conducted Emission Test Data

Test Site: 1# Shielded Room

Operating Condition: Mode 1

Test Specification: AC 120V, 60Hz for Adapter

Comment: Neutral Line Temp.($^{\circ}$)/Hum.(%RH): 21.4 $^{\circ}$ C/65%RH



	No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
	1	1.4100	23.76	17.52	41.28	56.00	-14.72	QP	
	2	1.4100	21.68	17.52	39.20	46.00	-6.80	AVG	
	3	1.5380	23.82	17.50	41.32	56.00	-14.68	QP	
İ	4	1.5380	21.25	17.50	38.75	46.00	-7.25	AVG	
İ	5	1.9220	23.61	17.47	41.08	56.00	-14.92	QP	
İ	6	1.9220	21.63	17.47	39.10	46.00	-6.90	AVG	
Ì	7	2.0500	24.69	17.47	42.16	56.00	-13.84	QP	
İ	8	2.0500	22.38	17.47	39.85	46.00	-6.15	AVG	
İ	9	2.5620	23.47	17.46	40.93	56.00	-15.07	QP	
İ	10	2.5620	21.35	17.46	38.81	46.00	-7.19	AVG	
İ	11	29.6060	27.02	18.17	45.19	60.00	-14.81	QP	
İ	12	29.6060	25.28	18.17	43.45	50.00	-6.55	AVG	
-							•		





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4. Radiation Spurious Emission

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 1	5.209 and 15.205				
	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)	
	0.009MHz~0.490MHz	2400/F(kHz)	Aupo.	Ar. aborek	300	
	0.490MHz-1.705MHz	24000/F(kHz)	Anbor	a nbotek	30	
	1.705MHz-30MHz	30	lek Vupo	ek -nbotel	30	
Test Limit	30MHz~88MHz	100	40.0	Quasi-peak	3 Anbore	
	88MHz~216MHz	150	43.5	Quasi-peak	nbotek 3 Anbi	
	216MHz~960MHz	200	46.0	Quasi-peak	Anborek 3	
	960MHz~1000MHz	500	54.0	Quasi-peak	Anb 3	
	A h a v a 4000 M I I =	500	54.0	Average	A3 Ores	
	Above 1000MHz	And horek An	74.0	Peak	Jek 3 _{Anbore}	

Remark:

- (1)The lower limit shall apply at the transition frequency.
- (2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

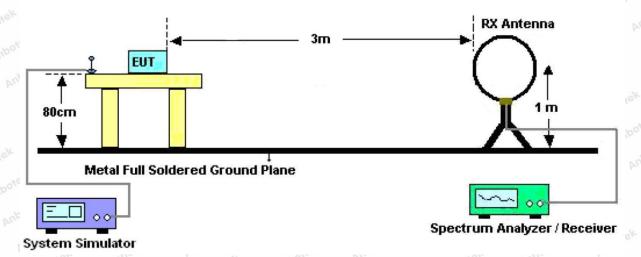


Figure 1. Below 30MHz







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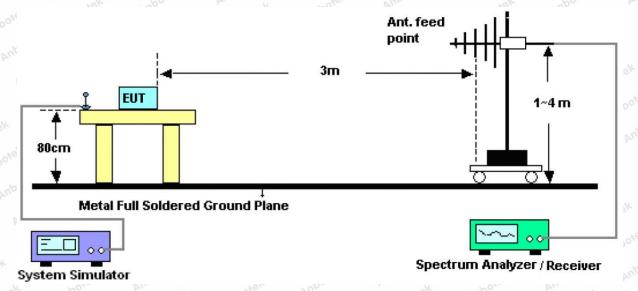


Figure 2. 30MHz to 1GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

The turn 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 which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.







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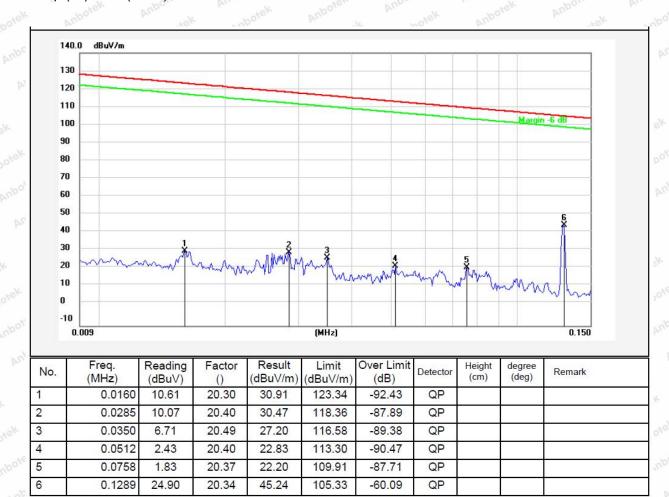
Test Results (Between 9KHz - 150KHz)

Test Mode: Mode 1

Distance: 3m

Power Source: AC 120V, 60Hz for Adapter

Temp.(°C)/Hum.(%RH): 25.8°C/55%RH







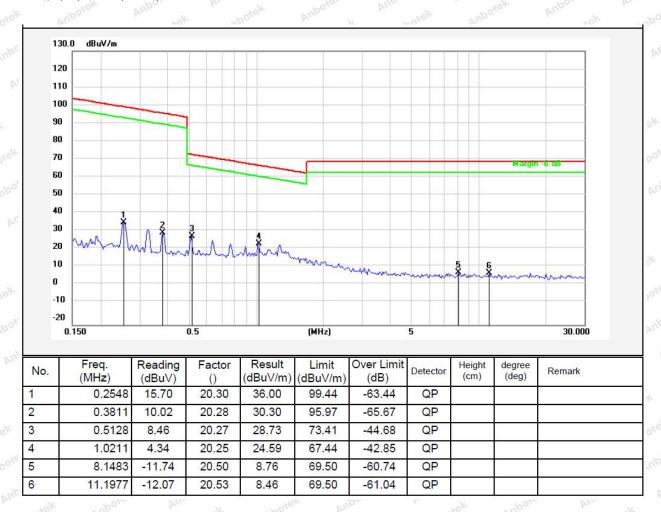
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Test Results (Between 0.15MHz - 30MHz)

Test Mode: Mode 1
Distance: 3m

Power Source: AC 120V, 60Hz for Adapter

Temp.(°C)/Hum.(%RH): 25.8°C/55%RH



Remark: According to FCC PART 15.209 (d), the emission limits for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, Radiated emission limits in these three bands are based on measurements employing an average detector.







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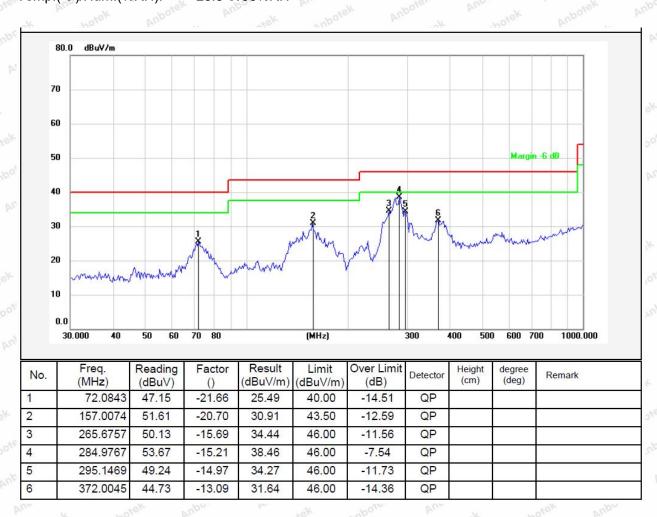
Test Results (Between 30MHz -1000 MHz)

Test Mode: Mode 1
Distance: 3m

Power Source: AC 120V, 60Hz for Adapter

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 25.8°C/55%RH







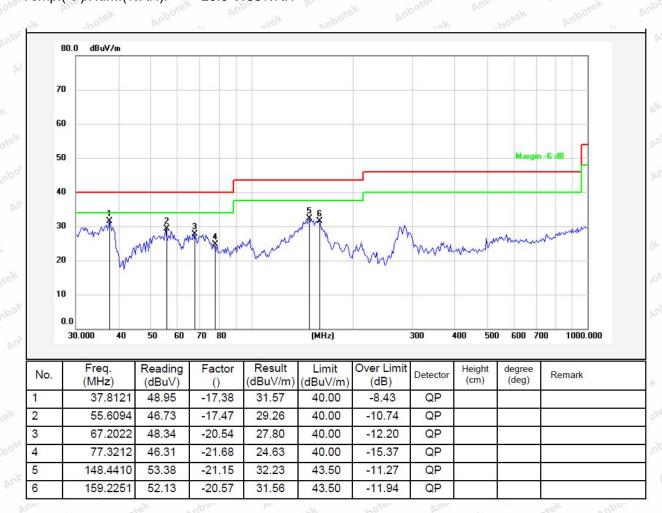
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Test Mode: Mode 1
Distance: 3m

Power Source: AC 120V, 60Hz for Adapter

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 25.8°C/55%RH







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5. Antenna Requirement

5.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	1) 15.203 requirement: 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.2. Antenna Connected Construction

The antenna is a Inductive loop coil Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.





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APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph_RF

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

