

## FCC ID TEST REPORT

for

Power Bank with Wifi

Model: JJ-WIFI-002

FCC ID: 2AA8Q-JJWIFI002

Prepared for: Shenzhen Durenergy Battery Co.,Ltd.  
F2, Bldg.1, Quan Yuan Fa Industrial Zone, Zhucun, Guanlan, Longhua  
Dist., Shenzhen, China P.S. 518110

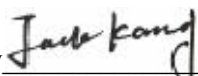
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Report Number: TCT131017008F2-2  
Date of Test: October 15 ~ 30, 2013  
Date of Issue: October 30, 2013

Tested By   
Beryl Zhao

Reviewed By   
Jack Kang

*The results detailed in this test report relate only to the specific sample(s) tested. It is the Application's responsibility to ensure that all production units are manufactured with equivalent EMC characteristics. This report is not to be reproduced except in full, without written approval from TCT Testing Technology*


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**1.0 General Information****1.1 Client Information**

Application:	Shenzhen Durenergy Battery Co.,Ltd.
Address of Application:	F2, Bldg.1, Quan Yuan Fa Industrial Zone, Zhucun, Guanlan, Longhua Dist., Shenzhen, China P.S. 518110
Manufacturer:	Shenzhen Durenergy Battery Co.,Ltd.
Address of Manufacturer:	F2, Bldg.1, Quan Yuan Fa Industrial Zone, Zhucun, Guanlan, Longhua Dist., Shenzhen, China P.S. 518110

**1.2 General Description of E.U.T.**

Product Name:	Power Bank with Wifi
Model No.:	JJ-WIFI-002
Trade Mark:	
Power Supply:	DC 3.7V Via Lithium Battery & DC 5V Via USB line
Test Accessory:	Notebook Computer Trade Mark: Lenovo Model: G485 S/N:LB00402300
Remark:	--
Model Difference:	--

## 1.3 Test Facility:

Name of Test Lab:	Shenzhen Tongce Testing Lab
Address of Test Lab:	1F, Leinu Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China
Telephone:	13410377511
Fax:	--

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

**FCC Registration Number: 572331**

Shenzhen TCT Testing Technology Co., Ltd., Shenzhen EMC Laboratory: Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

Registration Number: 572331

**Industry Canada (IC)**

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

Registration Number IC: 10668A-1

2.0 List of Measurement Equipment					
2.1 Conducted Emission Test					
Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
EMI Test Receiver	ESH3	860905/006	RS	July 08, 2013	July 07, 2014
Spectrum Analyzer	ESA-L1500A	US37451154	HP	July 08, 2013	July 07, 2014
PULSE LIMITER	ESH3-Z2	100281	RS	July 08, 2013	July 07, 2014
LISN	ESH3-Z5	100294	RS	July 08, 2013	July 07, 2014
LISN	ESH3-Z5	100253	RS	July 08, 2013	July 07, 2014
LISN	LS16C	10010947251	AFJ	July 08, 2013	July 07, 2014
LISN (Three Phase)	NSLK 8126	8126453	Schwarebeck	July 08, 2013	July 07, 2014
2.2 Radiated Emission Test					
Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
EMI Test Receiver	ESVD	1026.5506.10	RS	July 08, 2013	July 07, 2014
Coaxial Switch	MP59B	M70585	ANRITSU	N/A	N/A
Spectrum Analyzer	8595E	3441A00893	HP	July 08, 2013	July 07, 2014
Loop antenna	A.R.A.	PLA-1030/B	1029	July 8, 2013	July 7, 2014
Amplifier	8447D	2727A05017	HP	July 08, 2013	July 07, 2014
Bilog Antenna	VULB9163	9163/340	Schwarebeck	July 08, 2013	July 07, 2014
Horn Antenna	BBHA 9120D	9120D-631	Schwarebeck	July 08, 2013	July 07, 2014

### 3.0 Technical Details

#### 3.1 Investigations Requested

Perform Electromagnetic Interference [EMI] tests for FCC Requirement.

#### 3.2 Test Standards

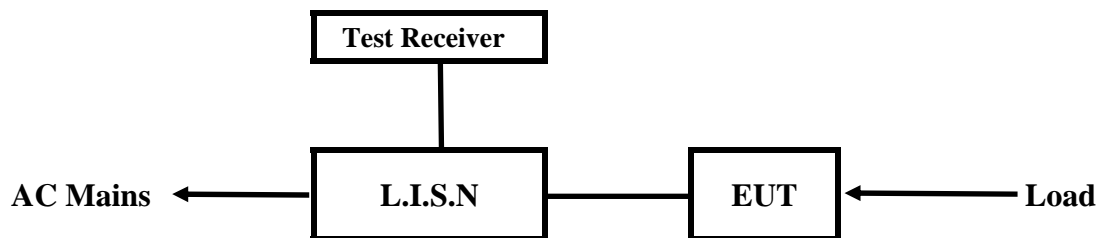
FCC Part 15 Subpart B:2012

#### 3.3 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	MU
1.	Temperature	$\pm 0.1^{\circ}\text{C}$
2.	Humidity	$\pm 1.0\%$
3.	Spurious emissions, conducted	$\pm 3.70\text{dB}$
4.	All emissions, radiated	$\pm 4.50\text{dB}$

#### 4.0 Power Line Conducted Emission Test

### 4.1 Schematics of the test



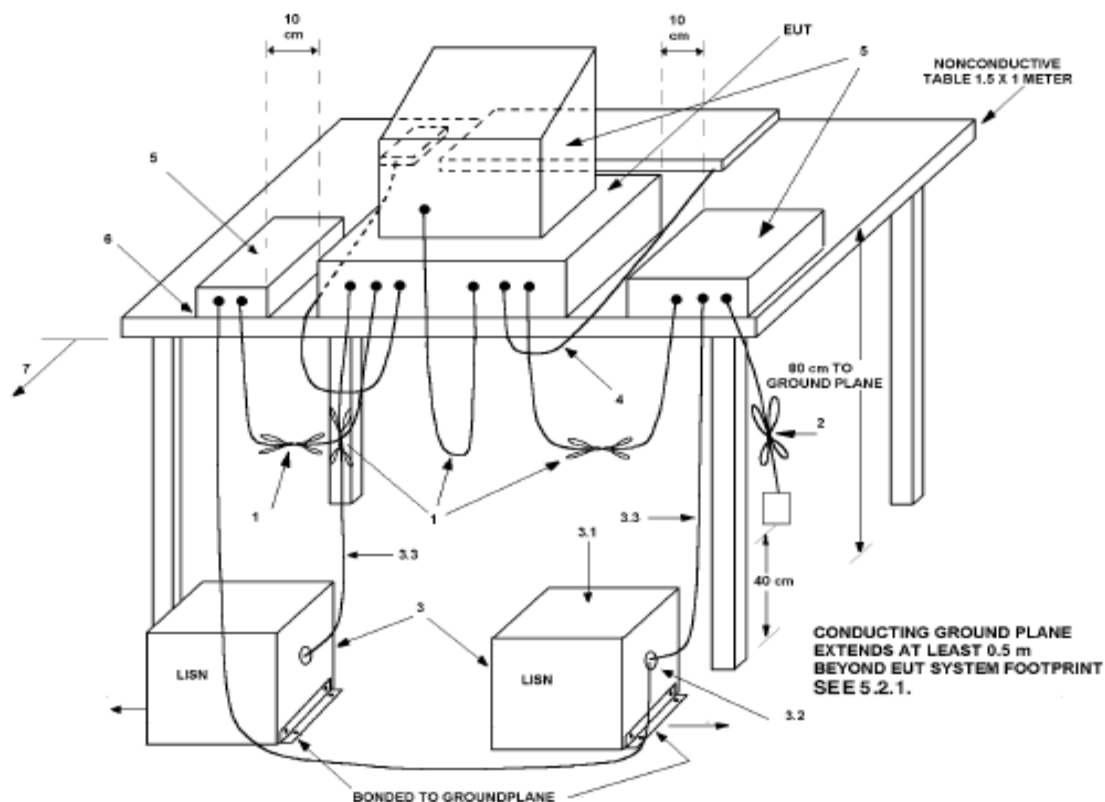
EUT: Equipment Under Test

## 4.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2009. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2009.

Test Voltage: 120V~, 60Hz

### Block diagram of Test setup



#### 4.3 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2009

- 1) Setup the EUT and simulators as shown on the following
- 2) Enable AF signal and confirm EUT active to normal condition

#### 4.4 Test Equipment

Please refer to the Section 2

#### 4.5 Power line conducted Emission Limit

Frequency(MHz)	Class A Limits (dBμV)		Class B Limits (dBμV)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

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

#### 4.6 Photo documentation of the test set-up

Please refer to the Section 7

#### 4.7 Test specification:

Environmental conditions: Temperature: 24° C Humidity: 51% Atmospheric pressure: 103kPa

Frequency range: 0.15 MHz – 30 MHz

#### 4.8 Test result

Min. limit margin >10dB from 0.15 MHz - 30MHz

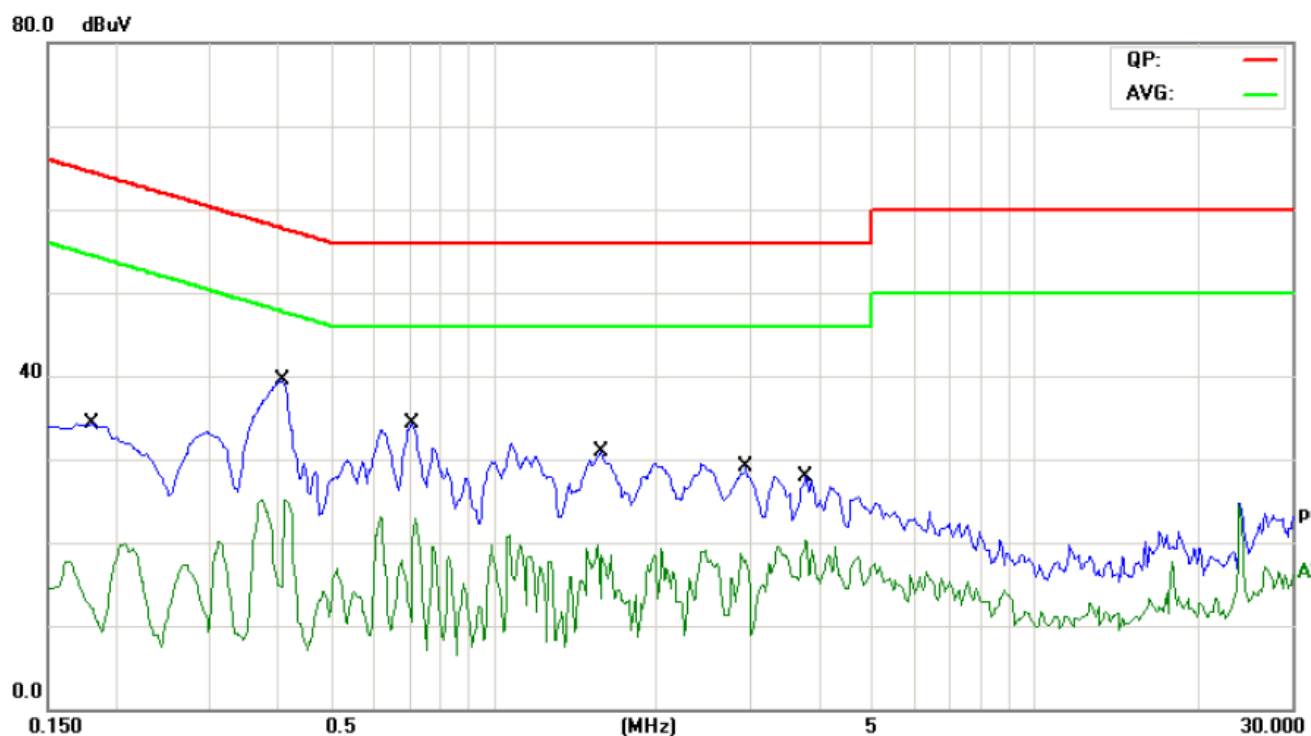
The requirements are FULFILLED

Remarks: According to the FCC part 15 Subpart B:2012

**A Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)**

EUT Description: Power Bank with Wifi  
Operation Mode: Ethernet port mode  
Tested By: Beryl Zhao  
Test date: Oct. 20, 2013  
Test Result: PASS

Start Frequency 0.15MHz Stop Frequency 30MHz Step 4.5KHz IF BW 10KHz Detector QP+AV Final M-Time 1s

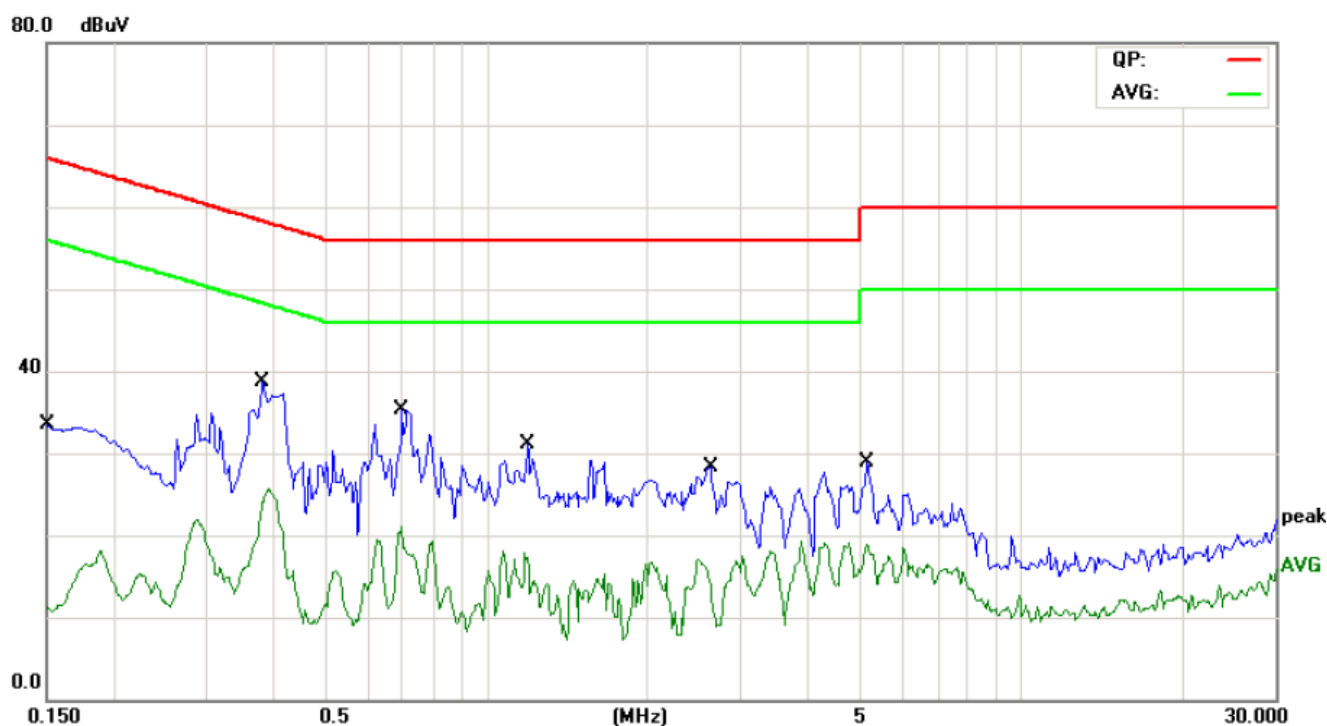


Frequency (MHz)	Reading(dBμV)				Limit (dBμV)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1811	34.25	23.25	--	--	64.43	54.43
0.4077	39.43	26.52	--	--	57.69	47.69
0.7046	34.31	25.20	--	--	56.00	46.00
1.5795	30.91	20.45	--	--	56.00	46.00
2.9351	29.15	20.01	--	--	56.00	46.00
3.7968	27.83	18.88	--	--	56.00	46.00

## B Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT Description: Power Bank with Wifi  
Operation Mode: Ethernet port mode  
Tested By: Beryl Zhao  
Test date: Oct. 20, 2013  
Test Result: PASS

Start Frequency	Stop Frequency	Step	IF BW	Detector	Final M-Time
0.15MHz	30MHz	4.5KHz	10KHz	QP+AV	1s



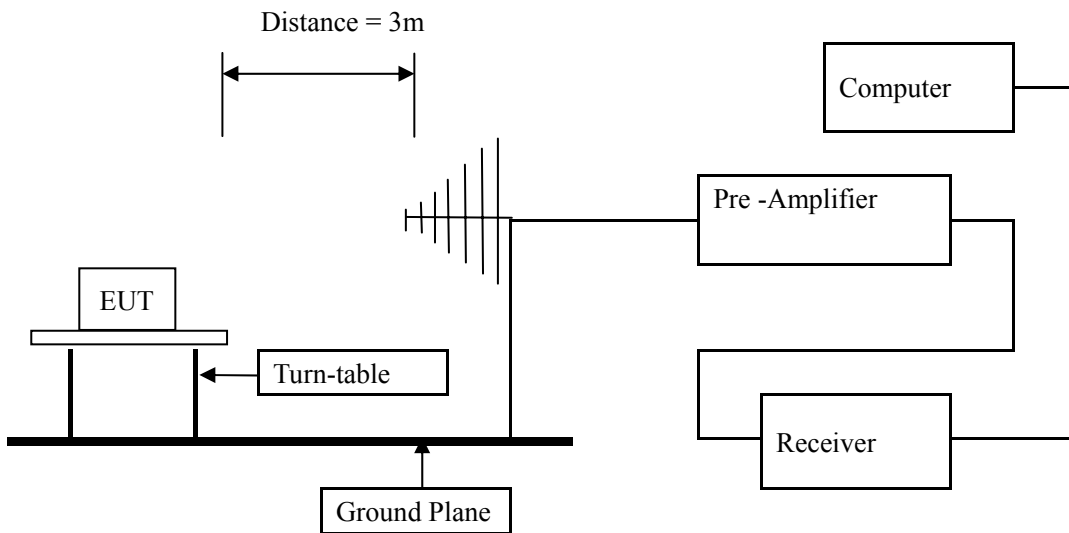
Frequency (MHz)	Reading(dBμV)				Limit (dBμV)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1501	--	--	33.48	23.45	66.00	56.00
0.3803	--	--	38.71	26.67	58.27	48.27
0.6965	--	--	35.35	24.55	56.00	46.00
1.1929	--	--	31.01	20.67	56.00	46.00
2.6225	--	--	28.38	17.55	56.00	46.00
5.1562	--	--	28.90	17.44	60.00	40.00

## 5.0 Radiated Emission Test

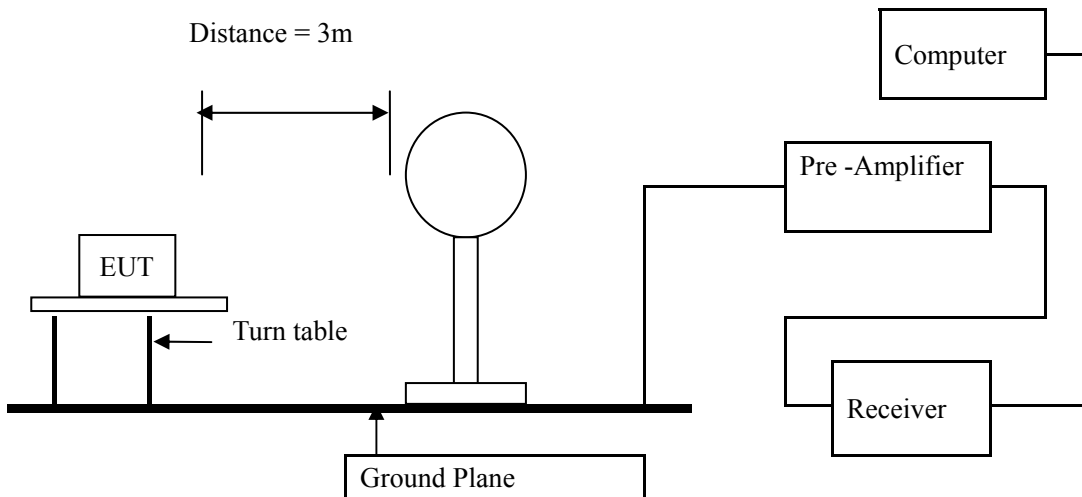
### 5.1 Test Method and test Procedure:

- 1) The EUT was tested according to ANSI C63.4 –2009.
- 2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2009.
- 3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- 4) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup for frequency 30-1000MHz



Block diagram of Test setup for frequency below 30MHz



**5.2 EUT Operating Condition**

Operating condition is according to ANSI C63.4 -2009

**5.3 Radiated Emission Limit**

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequency Range (MHz)	Distance (m)	Field strength (dBμV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1) The frequency spectrum from 30MHz to 8GHz was investigated. All reading from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120KHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK.  
2) Measurements were made at 3 meters.  
3) If measurement is not made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula  $Ld1 = Ld2 * (d2/d1)$

**5.4 Photo documentation of the test set-up**

Please refer to the Section 7

**5.5 Test Equipment:**

Please refer to the Section 2

**5.6 Test specification:**

Environmental conditions: Temperature 26° C Humidity: 56% Atmospheric pressure: 103kPa

**5.7 Test result**

Min. limit margin 4.73dB at 72.7655MHz

The requirements are FULFILLED

Remarks: According to the FCC part 15 Subpart B:2012

**A Radiated Emission (9 kHz----30 MHz)**

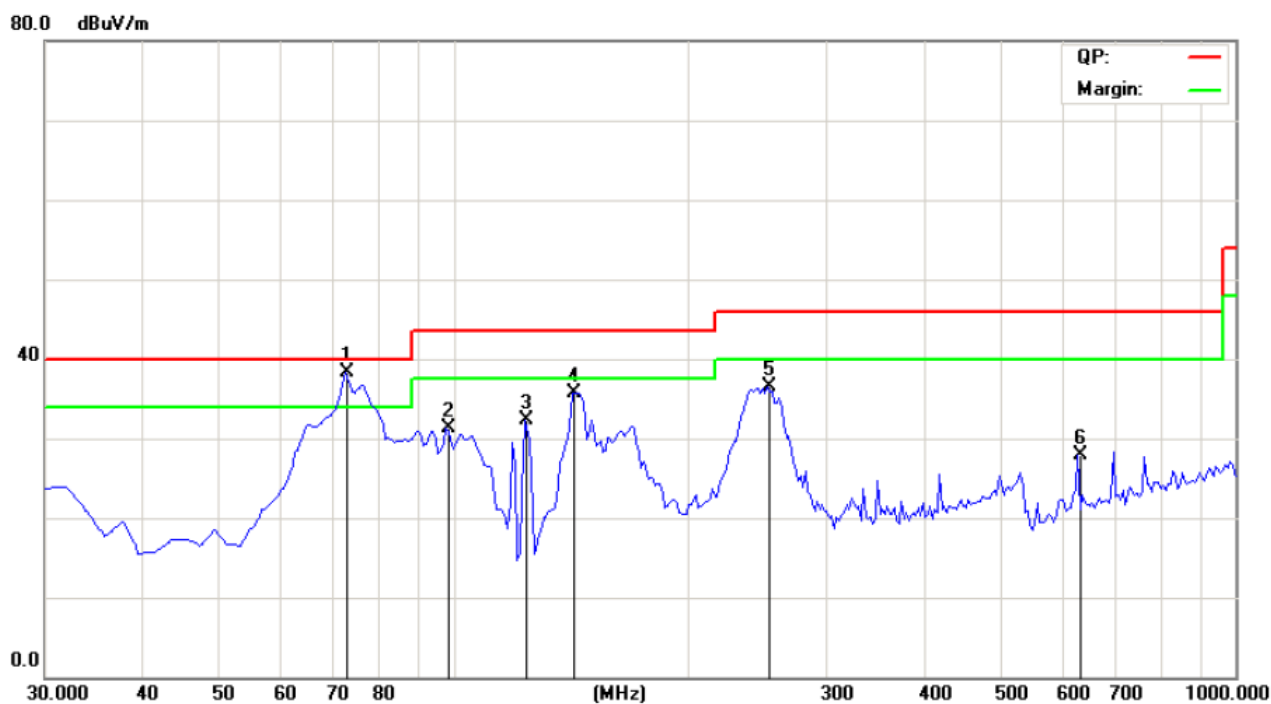
Note: 1) Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor  
2) The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Result: Pass

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

## B. Radiated Emission In Horizontal (30MHz----1000MHz)

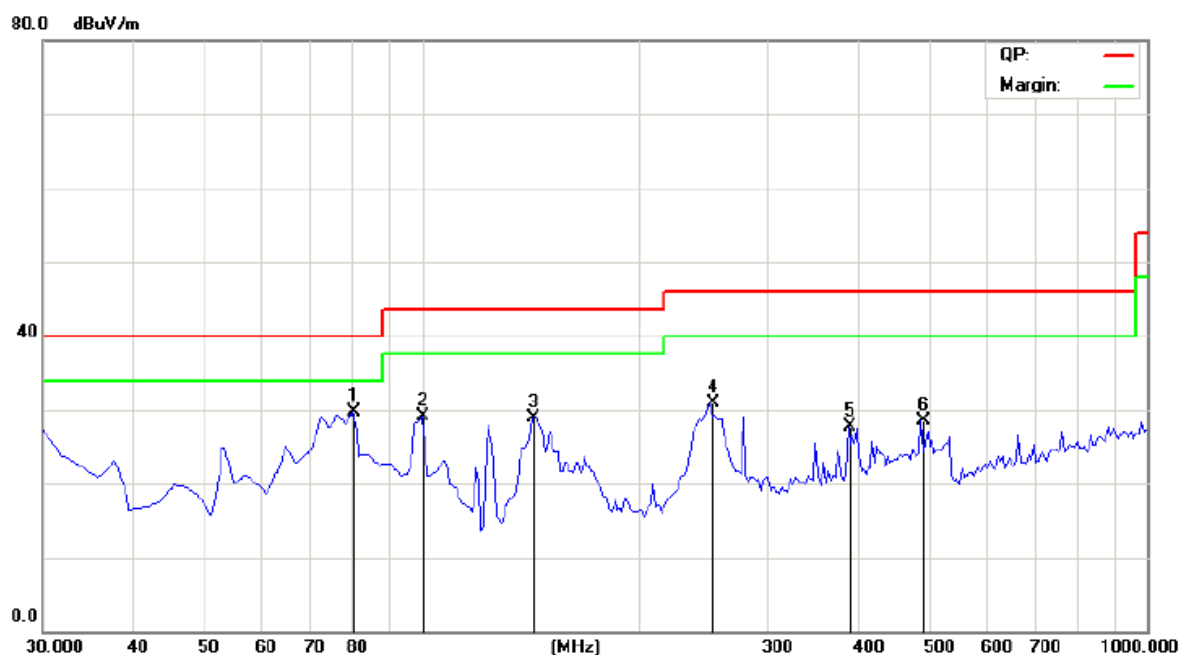
EUT Description: Power Bank with Wifi  
Operation Mode: Ethernet port mode  
Tested By: Beryl Zhao  
Test date: Oct.20, 2013  
Test Result: PASS



Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
72.7655	35.27	H	40.00
98.0361	31.27	H	43.50
123.3066	32.28	H	43.50
142.7692	35.80	H	43.50
253.5471	36.43	H	46.00
630.6613	27.85	H	46.00

### C. Radiated Emission In Vertical (30MHz----1000MHz)

EUT Description: Power Bank with Wifi  
Operation Mode: Ethernet port mode  
Tested By: Beryl Zhao  
Test date: Oct.20, 2013  
Test Result: PASS



Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
80.5411	29.67	V	40.00
99.9800	29.01	V	43.50
142.7692	28.85	V	43.50
251.6032	30.81	V	46.00
389.6192	27.74	V	46.00
490.7014	28.45	V	46.00

## 6.0 FCC Label

### FCC ID: 2AA8Q-JJWIFI002

**This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### Mark Location:

