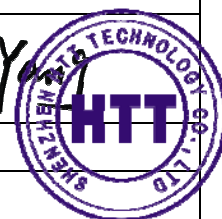




TEST REPORT	
ETSI EN 301 489-1 V2.2.0: 2017-03	
ETSI EN 301 489-3 V2.1.1: 2017-03	
Report Reference No.	HTT191112047E-1
Compiled by (position+printed name+signature)...	Jack Chen 
Supervised by (position+printed name+signature)...	Owen Hu 
Approved by (position+printed name+signature)...	Kevin Yang 
Date of issue	Nov.06,2019
Testing Laboratory Name	Shenzhen HTT Technology Co., Ltd.
Address	1F, B Building, Huaifeng International Robotics Industrial Park, Gushu, Xixiang Street, Bao'an District, Shenzhen
Applicant's name :	
Address	
Test specification	
Standard	ETSI EN 301 489-1 V2.2.0: 2017-03 ETSI EN 301 489-3 V2.1.1: 2017-03
Test item description	Wireless Powerbank
Trade Mark	N/A
Manufacturer	
Model/Type reference.....	
Serial Model.....	N/A
Ratings	Battery size: 10000mAh /37Wh Micro Input:5V== 2A Lighting input:5V== 1A Type Input:5V== 2A Wireless Input: 5V== 0.8A USB output: 5V== 2A Wireless output: 5V== 1A
Result.....	PASS



**TEST REPORT**

Test Report No. :	HTT191112047E-1	Nov.06,2019
		Date of issue

Equipment under Test : Wireless Powerbank

Model Name : W167

Serial Model : N/A

Trade Mark : N/A

Applicant :

Address :

Manufacturer :

Address :

Test Result	PASS
--------------------	-------------

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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1. TEST STANDARDS

The tests were performed according to following standards:

ETSI EN 301 489-1 V2.2.0 (2017-03)–ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;Part 1: Common technical requirements;Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU

ETSI EN 301 489-3 V2.1.1 (2017-03)–ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Oct.31,2019
Testing commenced on	:	Oct.31,2019
Testing concluded on	:	Nov.06,2019

2.2. Product Description

Product Name:	Wireless Powerbank
Model:	W167
Trade Mark:	N/A
Frequency range:	100kHz-205KHz
Antenna Type:	Inductive loop coil antenna
Antenna Gain:	0 dBi
Power Supply:	Battery size: 10000mAh /37Wh Micro Input:5V--- 2A Lighting input:5V--- 1A Type Input:5V--- 2A Wireless Input: 5V--- 0.8A USB output: 5V--- 2A Wireless output: 5V--- 1A

2.3. 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	Normal working Mode

For Conducted Test	
Final Test Mode	Description
Mode 1	Normal working Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	Normal working Mode

Pretest Mode	Description
Mode 1	Normal working Mode

2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

○ /	M/N: /
	Manufacturer: /

2.5. Modifications

No modifications were implemented to meet testing criteria.



3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen HTT Technology Co., Ltd.

1F, B Building, Huafeng International Robotics Industrial Park, Gushu, Xixiang Street, Bao'an District, Shenzhen

3.2. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Lative Humidity	55 %
Air Pressure	989 hPa

3.3. Test Description

Test procedures according to the technical standards:

ETSI EN 301 489-1 V2.2.0: 2017-03

ETSI EN 301 489-3 V2.1.1: 2017-03

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN 55032:2012+AC:2013	Conducted Emission	Class B	N/A	
	Radiated Emission	Class B	PASS	
EN 61000-3-2: 2014	Harmonic Current Emission	Class A or D NOTE (2)	N/A	
EN 61000-3-3: 2013	Voltage Fluctuations & Flicker	-----	N/A	
EMC Immunity				
Section EN 55024: 2010+A1:2015	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN 61000-4-3:2006+A1:2008+A2:2010	RF electromagnetic field	A	PASS	
EN 61000-4-4:2012	Fast transients	B	N/A	
EN 61000-4-5:2014	Surges	B	N/A	
EN 61000-4-6:2014+AC:2015	Injected Current	A	N/A	
EN 61000-4-11:2004+A1:2017	Volt. Interruptions Volt. Dips	B / C / C NOTE (3)	N/A	

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) The power consumption of EUT is less than 75W and no Limits apply.
- (3) Voltage dip: 100% reduction – Performance Criteria **B**
Voltage dip: 30% reduction – Performance Criteria **C**
Voltage Interruption: 100% Interruption – Performance Criteria **C**
- (4) For client's request and manual description, the test will not be executed.



3.4. Statement of the measurement uncertainty

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

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Conducted Disturbance	0.15~30MHz	3.39 dB	(1)

3.5. Equipments Used during the Test

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	103710	2019/05/02	2020/05/01
2	LISN	SCHWARZBECK	NSLK 8127	860014/010	2019/05/02	2020/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2019/05/02	2020/05/01

Radiated Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ULTRA-BROADBAND ANTENNA	Sunol Sciences Corp.	JB1 Antenna	A061713	2019/05/02	2020/05/01
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2019/05/02	2020/05/01
3	Horn Antenna	Sunol Sciences Corp	DRH-118	A062013	2019/05/02	2020/05/01
4	Pre-Amplifier	Agilent	8447D	2944A10176	2019/05/02	2020/05/01
5	Pre-Amplifier	Agilent	8449B	3008A02306	2019/05/02	2020/05/01
6	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2019/05/02	2020/05/01



Harmonic Current/ Voltage Fluctuation and Flicker						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Purified Power Source	MToni	PHF 5010	N/A	2019/05/02	2020/05/01
2	Harmonic And Flicker Analyzer	Voltech	PM6000	N/A	2019/05/02	2020/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2019/05/02	2020/05/01

Electrostatic Discharge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ESD Simulator	Schloder GmbH	SESD3000	509325	2019/05/02	2020/05/01
2	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2019/05/02	2020/05/01

Electrical Fast Transient/Surge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EFT Simulator	HTEC INSTRUMENTS	HCWG 51	153702	2019/05/02	2020/05/01
2	Surge Simulator	HTEC INSTRUMENTS	HEFT 51	000211	2019/05/02	2020/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2019/05/02	2020/05/01



RF Field Strength Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	SIGNAL GENERATOR	IFR	2032	203002/100	2019/05/02	2020/05/01
2	AMPLIFIER	AR	150W1000	301584	2019/05/02	2020/05/01
3	DUAL DIRECTIONAL COUPLER	AR	DC6080	301508	2019/05/02	2020/05/01
4	POWER HEAD	AR	PHT2000	301193	2019/05/02	2020/05/01
5	POWER METER	AR	PM2002	302799	2019/05/02	2020/05/01
6	Audio Analyzer	Rohde&Schwarz	UPL	SB3439	2019/05/02	2020/05/01
7	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2019/05/02	2020/05/01

Conducted Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Conducted Disturbances test system	Schloder GmbH	CDG 6000-25	N/A	2019/05/02	2020/05/01
2	Amplifier	SCHLODER	4N100W-6DB	N/A	2019/05/02	2020/05/01
3	EM CLAMP	LÜTHI	EM101	335625	2019/05/02	2020/05/01
4	CDN	SCHLODER	CDN M2+M3	A2210225/2013	2019/05/02	2020/05/01
5	Audio Analyzer	Rohde&Schwarz	UPL	SB3439	2019/05/02	2020/05/01

DIP						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	DIP Simulator	RIMA	DRP61011AG	PR15056303	2019/05/02	2020/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2019/05/02	2020/05/01

The calibration interval is 1 year.

4. TEST CONDITIONS AND RESULTS

4.1. EMISSION

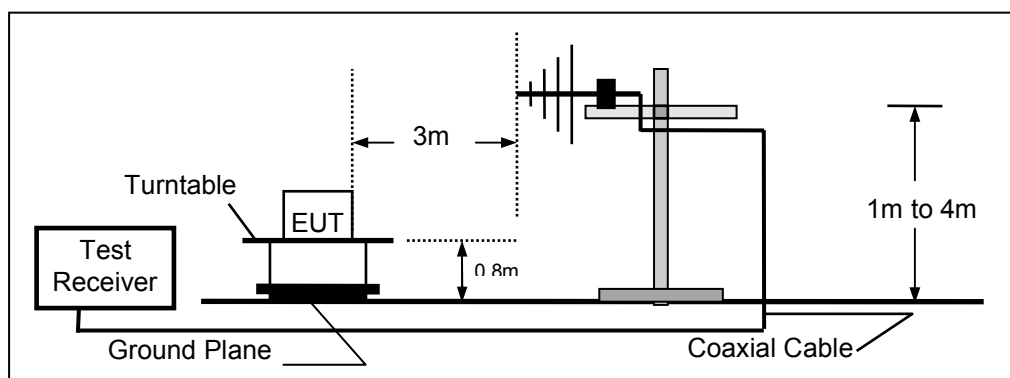
4.1.1. Radiated Emission

LIMIT

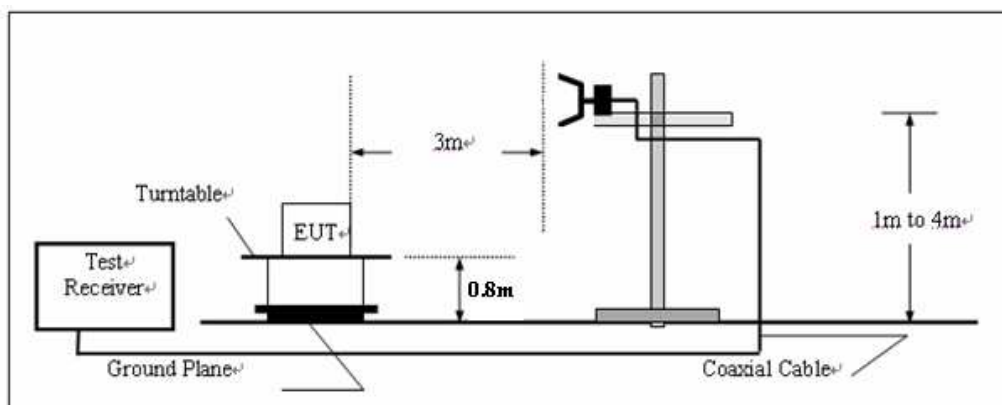
Please refer to ETSI EN301489-1 Clause 8.2.3 and EN55032 annex A .

TEST CONFIGURATION

- a) Radiated emission test set-up, frequency below 1000MHz:



- b) Radiated emission test set-up, frequency above 1000MHz



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 8.2.3 and EN 55032 Clause 6 for the measurement methods

TEST RESULTS

Passed

Please refer to the below test data:



30-1000MHz

Test mode:

Mode 1

Polarization

Horizontal



Site LAB

Limit: EN 55032 CLASS B

EUT:

M/N:

Mode:

Note:

Polarization: **Horizontal**

Power:

Distance:

Temperature:

Humidity: %

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		33.6802	40.26	-18.61	21.65	40.00	-18.35	peak		
2		46.0164	38.37	-14.60	23.77	40.00	-16.23	peak		
3		80.0806	40.20	-17.99	22.21	40.00	-17.79	peak		
4		115.3205	37.48	-16.58	20.90	40.00	-19.10	peak		
5	*	200.6881	41.38	-15.10	26.28	40.00	-13.72	peak		
6		239.1473	42.28	-13.57	28.71	47.00	-18.29	peak		



Test mode:

Mode 1

Polarization

Vertical



Site LAB

Polarization: **Vertical**

Temperature:

Limit: EN 55032 CLASS B

Power:

Humidity: %

EUT:

Distance:

M/N:

Mode:

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1	*	33.4449	44.01	-15.27	28.74	40.00	-11.26	peak		
2		38.7518	38.92	-13.81	25.11	40.00	-14.89	peak		
3		80.9275	47.29	-20.92	26.37	40.00	-13.63	peak		
4		128.1130	34.69	-18.18	16.51	40.00	-23.49	peak		
5		191.7450	37.46	-18.86	18.60	40.00	-21.40	peak		
6		241.6763	38.38	-17.77	20.61	47.00	-26.39	peak		



1000-6000 MHz

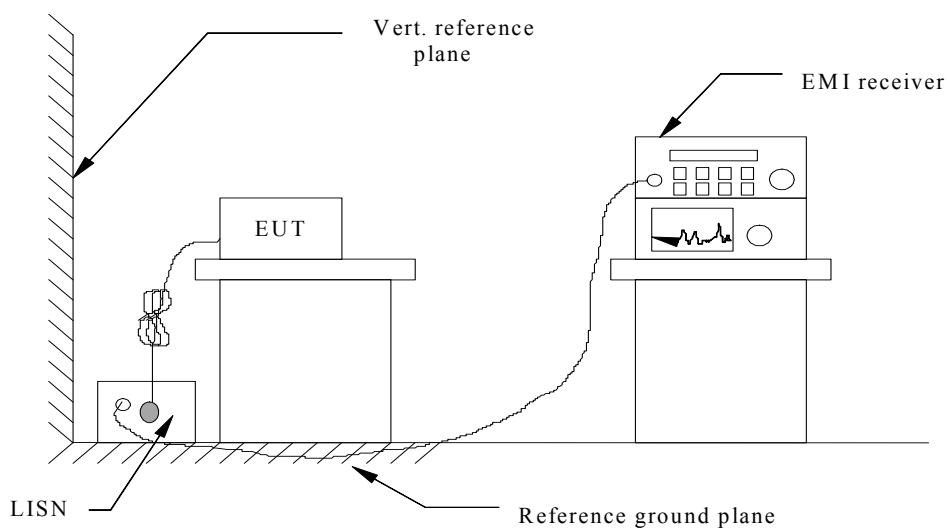
Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
V	1560.41	60.44	-10.87	48.02	70.00	-21.98	peak
V	2033.13	40.31	-7.78	51.22	70.00	-18.78	peak
V	2866.41	58.54	-6.21	49.02	70.00	-20.98	peak
V	3702.43	39.39	-3.82	52.52	74.00	-21.48	peak
V	4731.50	58.51	0.99	54.22	74.00	-19.78	peak
V	5639.01	35.61	-5.17	54.32	74.00	-19.68	peak
H	1151.66	62.26	-10.82	46.32	70.00	-23.68	peak
H	1937.29	44.51	-10.82	49.72	70.00	-20.28	peak
H	2528.97	58.88	-7.50	50.32	70.00	-19.68	peak
H	3140.33	43.19	-7.50	52.52	74.00	-21.48	peak
H	3630.25	56.96	-0.88	56.02	74.00	-17.98	peak
H	4606.13	35.46	-0.88	52.22	74.00	-21.78	peak
Remark: Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit							

4.1.2. Conducted Emission (AC Mains)

LIMIT

Please refer to ETSI EN301489-1 Clause 8.4.3 and EN55032 annex A

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 8.4.3 and EN 55032 Clause 6 for the measurement methods

TEST RESULTS

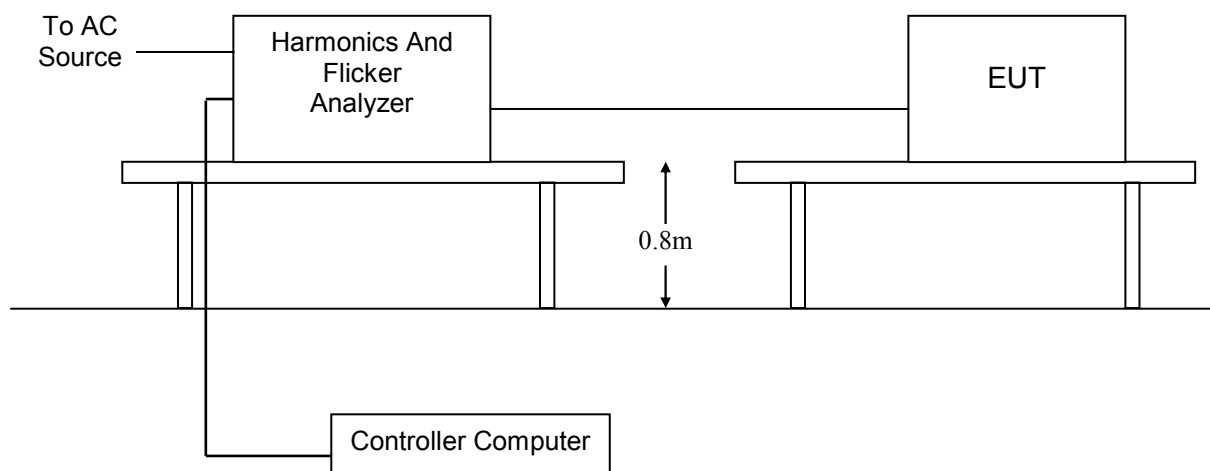
N/A

4.1.3. Harmonic Current Emission

LIMIT

Please refer to EN 61000-3-2

TEST CONFIGURATION



TEST PROCEDURE

Please refer to EN 61000-3-2 for the measurement methods.

TEST RESULTS

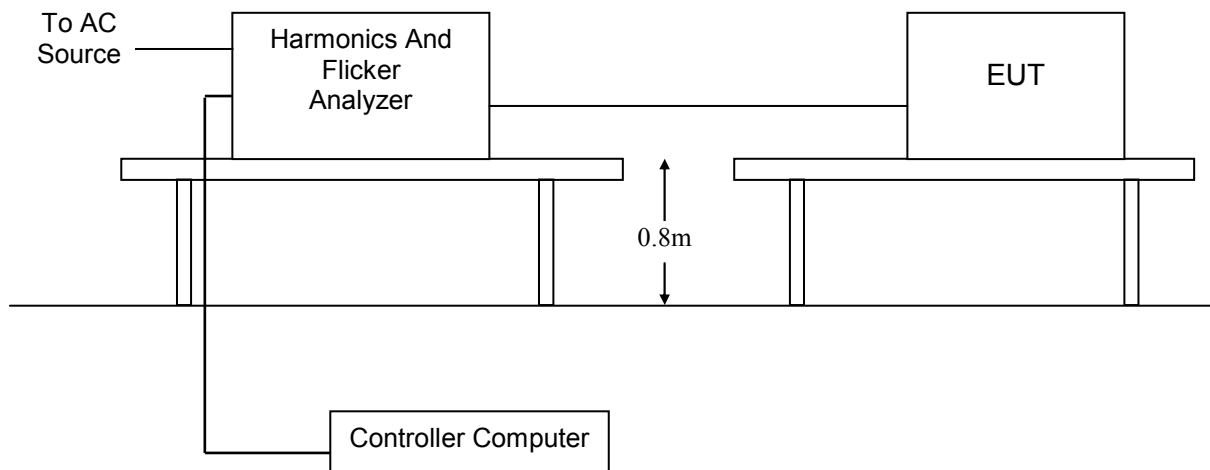
N/A

4.1.4. Voltage Fluctuation and Flicker

LIMIT

Please refer to EN 61000-3-3

TEST CONFIGURATION



TEST PROCEDURE

Please refer to EN 61000-3-3 for the measurement methods.

TEST RESULTS

N/A

4.2. IMMUNITY

4.2.1. Performance criteria

■ ETSI EN301489-3

■ General performance criteria

The performance criteria are used to make an assessment whether a radio equipment passes or fails immunity tests.

In the table below:

- performance criterion A applies for immunity tests with phenomena of a continuous nature;
- performance criterion B applies for immunity tests with phenomena of a transient nature.

Criteria	During Test	After Test
A	Operate as intended No loss of function No unintentional responses	Operate as intended For equipment type II the communication link shall be maintained No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May be loss of function No unintentional responses	Operate as intended Lost function(s) shall be self-recoverable No degradation of performance No loss of stored data or user programmable functions

Where "operate as intended" or "no loss of function" is specified, the EUT shall demonstrate correct functioning as described in clause 5.

Where the EUT has more than one mode of operation (see clause 4.5.2), an unplanned transition from one mode to another is considered as an unintentional response. The EUT shall be tested in sufficient modes to confirm there are no such unintentional responses.

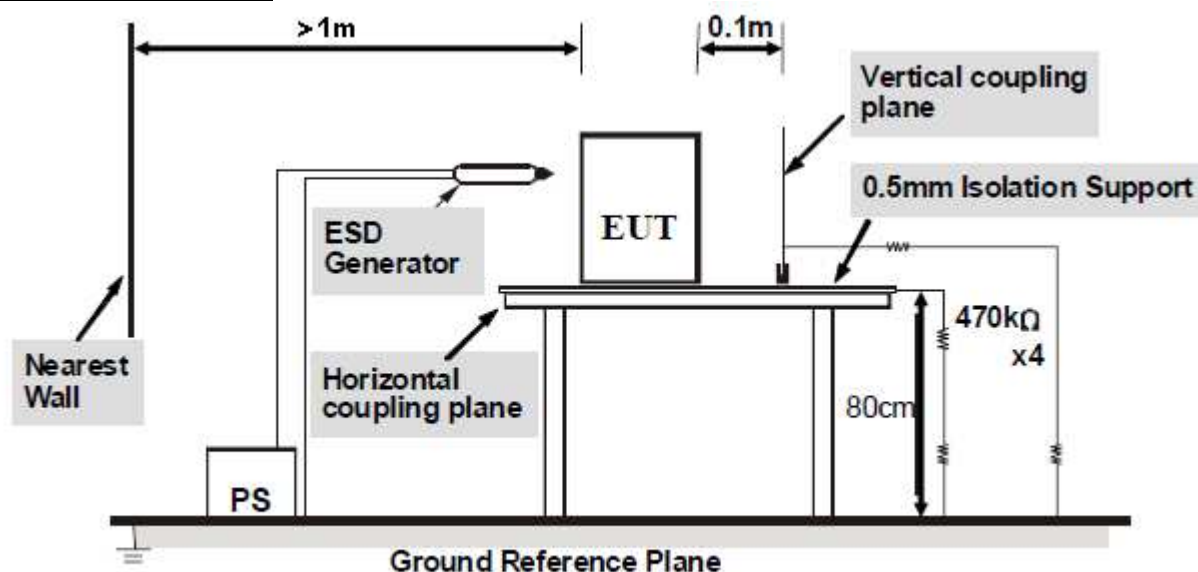
4.2.2. Electrostatic Discharge

LIMIT

SEVERITY LEVELS OF ELECTROSTATIC DISCHARGE

Test level: Contact Discharge at $\pm 2\text{KV}$, $\pm 4\text{KV}$ Air Discharge at $\pm 2\text{KV}$, $\pm 4\text{KV}$, $\pm 8\text{KV}$

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.3.2 , EN 55024 and EN 61000-4-2 for the measurement methods.

Contact Discharge:

The ESD generator is held perpendicular to the surface to which the discharge is applied and the tip of the discharge electrode touch the surface of EUT. Then turn the discharge switch. The generator is then re-triggered for a new single discharge and repeated at least 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Air Discharge:

Air discharge is used where contact discharge can't be applied. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated at least 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Indirect discharge for horizontal coupling plane:

At least 10 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT.

Indirect discharge for vertical coupling plane:

At least 10 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

**TEST MODE**

Please reference to the section 2.3

TEST RESULTS

Direct discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
Contact discharge	±2	No degradation in performance of the EUT was observed (A)	B	Pass
	±4		B	
Air discharge	±2	A	B	
	±4	A	B	
	±8	A	B	
Indirect discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
HCP (6 sides)	±2	A	B	Pass
	±4	A	B	
VCP (4 sides)	±2	A	B	
	±4	A	B	

Remark: The ancillary equipment's specification for an acceptable level of performance or degradation of performance during and/or after the ESD tests.

4.2.3. RF Electromagnetic Field

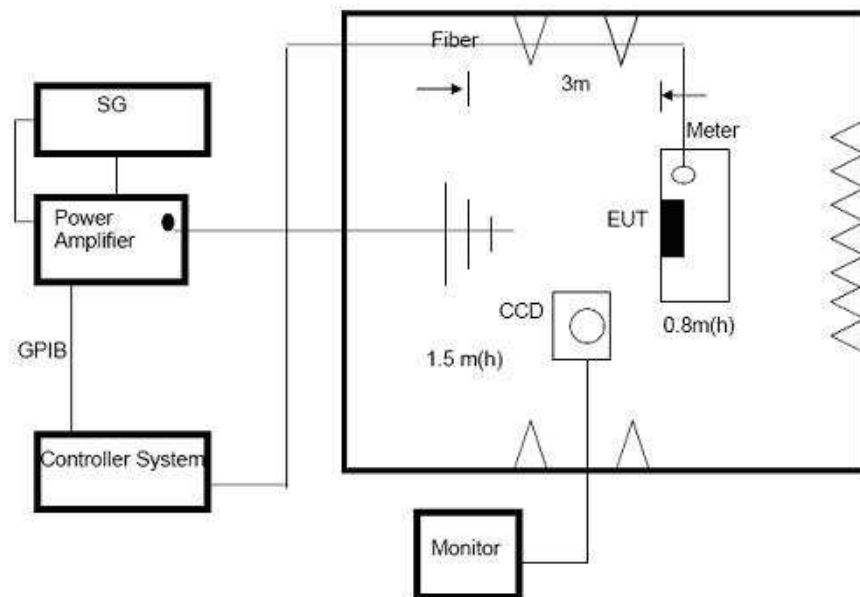
PERFORMANCE CRITERION

Criteria A

TEST LEVEL

3V/m (80%, 1kHz Amplitude Modulation)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.2.2 and EN 61000-4-3 for the measurement methods.

TEST MODE

Please reference to the section 2.3

**TEST RESULTS**

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results
80~1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	CT,CR	A	P
			Rear			
			Left			
			Right			

Note: "A" stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

Note:

- 1) N/A - denotes test is not applicable in this test report.
- 2) There was not any unintentional transmission in standby mode
- 3) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.

4.2.4. Surges

PERFORMANCE CRITERION

Criteria B

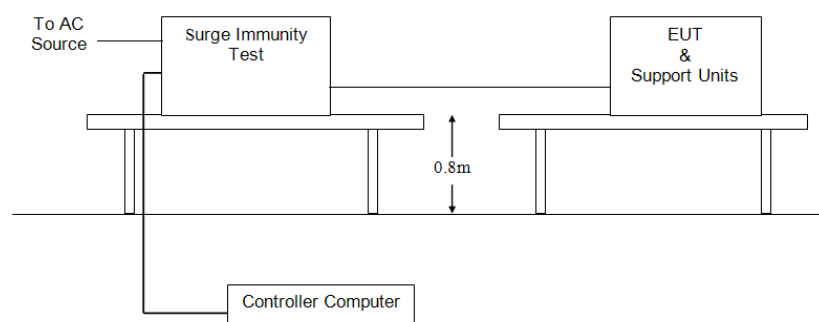
TEST LEVEL

1kV Line to Line: Differential mode

2kV Line to Ground: Common mode

(Voltage Waveform: 1.2/50 us; Current Waveform: 8/20 us)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.8.2 and EN 61000-4-5 for the measurement methods.

TEST MODE

Please reference to the section 2.3

TEST RESULTS

N/A

4.2.5. RF- Common Mode 0.15MHz to 80MHz

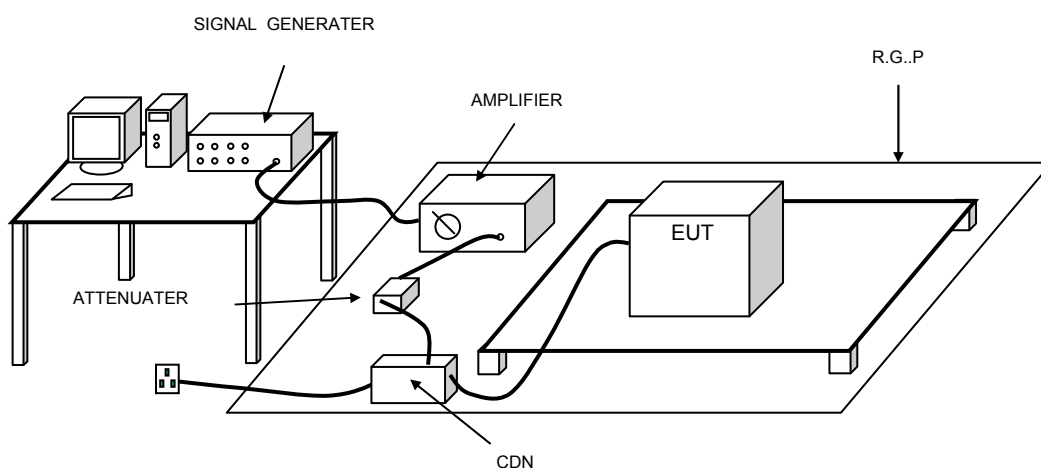
PERFORMANCE CRITERION

Criteria A

TEST LEVEL

3Vrms on AC main port (80%, 1kHz Amplitude Modulation)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.5.2 and EN 61000-4-6 for the measurement methods.

TEST MODE

Please reference to the section 2.3

TEST RESULTS

N/A

4.2.6. Fast Transients Common Mode

PERFORMANCE CRITERION

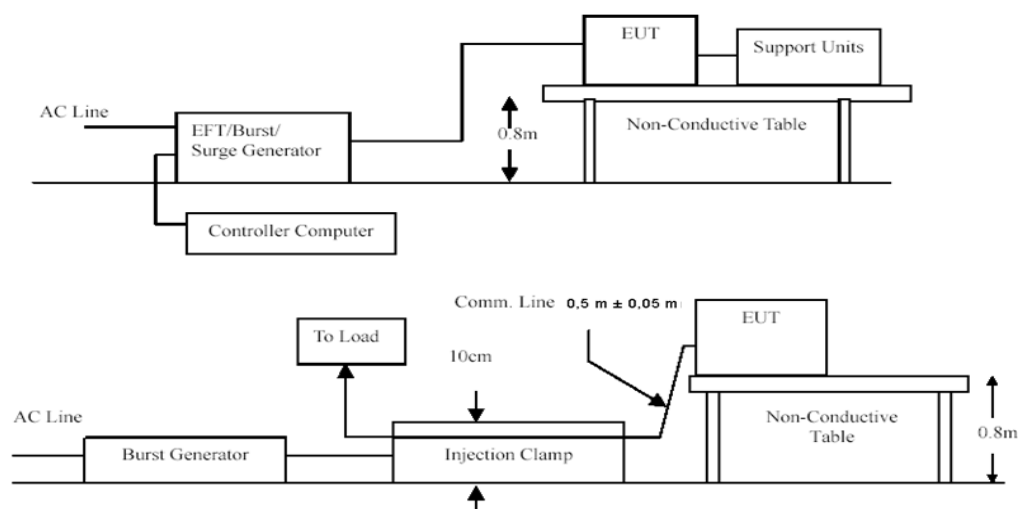
Criteria B

TEST LEVEL

1KV for AC main port

(Impulse Frequency: 5 kHz; Tr/Th: 5/50ns; Burst Duration: 15ms; Burst Period: 3Hz)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.4.2 and EN 61000-4-4 for the measurement methods.

TEST MODE

Please reference to the section 2.3

TEST RESULTS

N/A

4.2.7. Voltage Dips and Interruptions

PERFORMANCE CRITERION

>95% VD, 0.5 period----Performance criterion: B

>95% VD, 1.0 period----Performance criterion: B

30% VD, 25 period----Performance criterion: C

>95% VI, 250 period----Performance criterion: C

TEST LEVEL

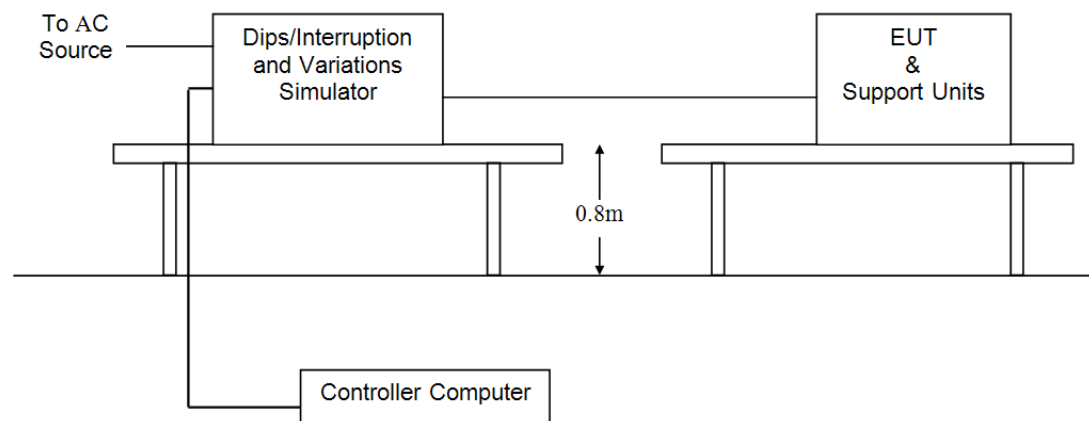
0% of VT(Supply Voltage) for 0.5 period

0% of VT(Supply Voltage) for 1.0 period

70% of VT(Supply Voltage) for 25 period

0% of VT(Supply Voltage) for 250 period

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.7.2 and EN 61000-4-11 for the measurement methods.

TEST MODE

Please reference to the section 2.3

TEST RESULTS

N/A



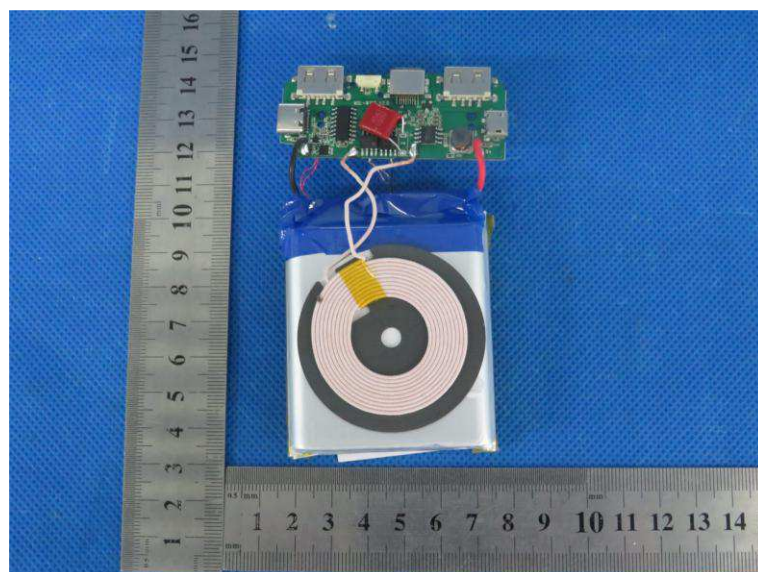
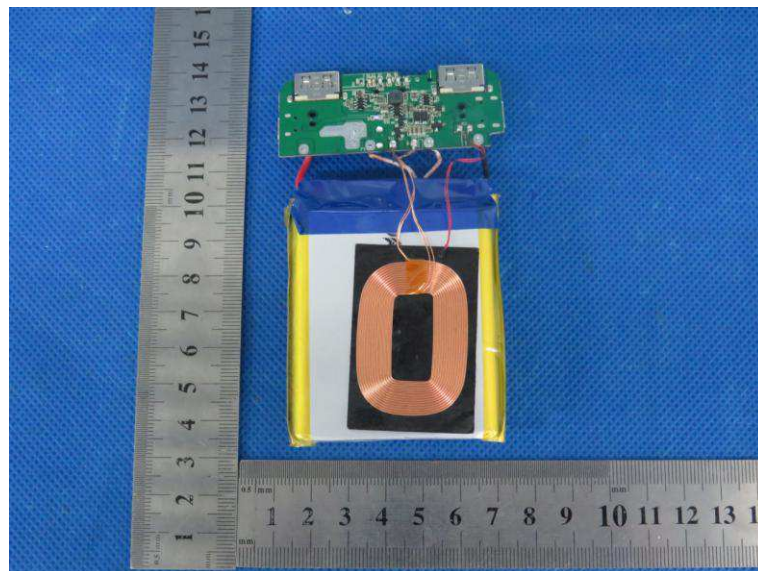
5. Test Setup Photos of the EUT

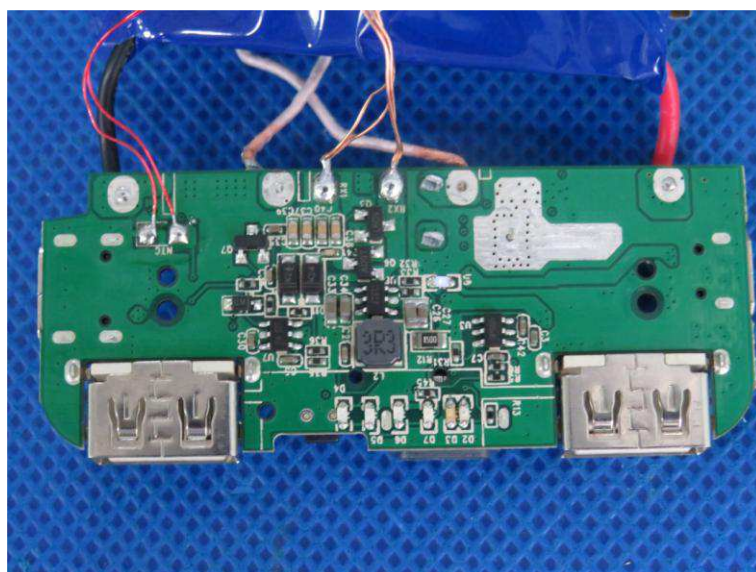
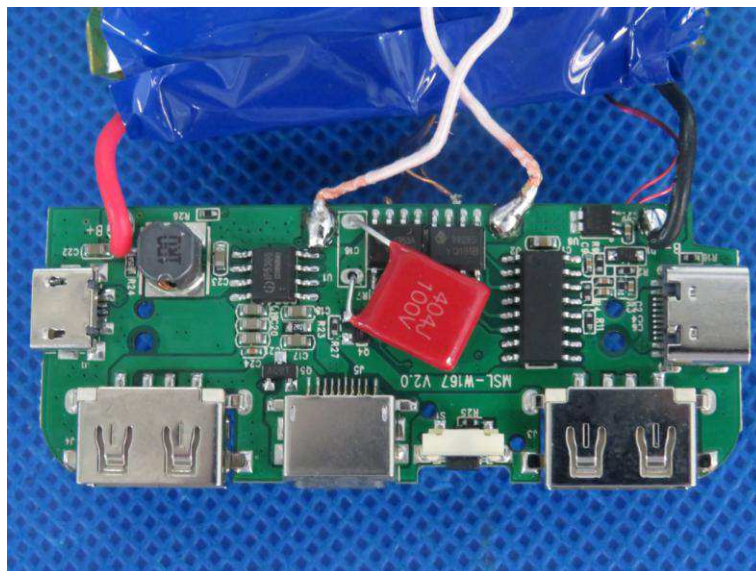


6. External and Internal Photos of the EUT









.....End of Report.....