


# TEST REPORT


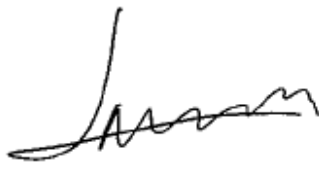
Applicant	Flashbay Electronics
Address	Blgd b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road He Ping, Village, FuYong Town, ShenZhen

Manufacturer or Supplier	Flashbay Electronics	
Address	Blgd b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road He Ping, Village, FuYong Town, ShenZhen	
Product	Car charger	
Brand Name	N/A	
Model	DUO(DU)	
Additional Model & Model Difference	N/A	
Date of tests	Mar. 03, 2017 ~ Mar. 16, 2017	

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

**AS/NZS CISPR 32:2013**

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

Tested by Jerry Fu Project Engineer / EMC Department	Approved by Madison Luo Supervisor / EMC Department
	
Date: Mar. 19, 2017	

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

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**BUREAU  
VERITAS**

Test Report No.: CT170303N018

## RELEASE CONTROL RECORD

Issue No.	Description	Date Issued
CT170303N018	Original release	Mar. 19, 2017



### **1 SUMMARY OF TEST RESULTS**

The EUT has been tested according to the following specifications:

<b>Emission</b>			
<b>Standard</b>	<b>Test Item</b>	<b>Result</b>	<b>Remarks</b>
AS/NZS CISPR 32: 2013	Radiated emission 30-1000 MHz	PASS	Minimum passing Class B margin is -4.58dB at 89.221MHz

#### **1.1 MEASUREMENT UNCERTAINTY**

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

<b>MEASUREMENT</b>	<b>FREQUENCY</b>	<b>UNCERTAINTY</b>
Radiated Disturbance Test	30MHz ~ 1000MHz	+ /-4.06 dB

#### **1.2 MODIFICATION RECORD**

There were no modifications required for compliance.



## 2 GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Car charger
<b>TEST MODEL</b>	DUO(DU)
<b>ADDITIONAL MODEL</b>	N/A
<b>POWER SUPPLY</b>	DC 12/24V
<b>DATA CABLE SUPPLIED</b>	USB Line: Unshielded, Detachable 0.2M
<b>HIGHEST OPERATION FREQUENCY</b>	Below 108MHz

#### NOTE:

1. For the test results, the EUT had been tested with all conditions. But only the worst case was showed in test report.
2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
3. Please refer to the EUT photo document (Reference No.: 170303N018) for detailed product photo.



## 2.2 DESCRIPTION OF TEST MODES

The EUT was tested under the **Charging** mode for all tests

## 2.3 TEST PROGRAM USED AND OPERATION DESCRIPTIONS

- a. Turned on the power of all equipment.
- b. EUT was operated according to the type description in manufacturer's specifications or the User's Manual.

## 2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to the specifications of the manufacturers, the EUT must comply with the requirements of the following standards:

### **AS/NZS CISPR 32:2013**

All applicable tests have been performed and recorded as per the above standards.

## 2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an dependent 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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	iPhone 6s	Apple	ML7F2CH/A	C6KQKXLAGRY8	N/A
2	Mobile Phone	SAMSUNG	GT-S7572	R21D85CCB7N	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A
2	N/A.



### 3 RADIATED EMISSION MEASUREMENT

#### 3.1 LIMITS

#### 3.2 OF RADIATED EMISSION MEASUREMENT

##### FOR FREQUENCY BELOW 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	Quasi-Peak dBuV/m	Quasi-Peak dBuV/m
30 – 230	40	30
230 – 1000	47	37

FREQUENCY (MHz)	Class A (at 3m)	Class B (at 3m)
	Quasi-Peak dBuV/m	Quasi-Peak dBuV/m
30 – 230	50	40
230 – 1000	57	47

#### For FM receivers

Distance (m)	Source	Frequency Range (MHz)	Limits dB (uV/m)	
			Quasi-peak	
10	Local oscillator	≤1000	Fundamental	50
		30 to 300	Harmonics	42
		300 to 1000	Harmonics	46
	Other	30 to 230		30
230 to 1000			37	
3	Local oscillator	≤1000	Fundamental	60
		30 to 300	Harmonics	52
		300 to 1000	Harmonics	56
	Other	30 to 230		40
230 to 1000			47	



### FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	Up to 5 times of the highest frequency or 6 GHz, whichever is less

#### FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
1 to 3	76	56	70	50
3 to 6	80	60	74	54

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
  2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
  3. All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.





### 3.3 TEST INSTRUMENTS

#### FREQUENCY RANGE BELOW 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101564	Feb. 27,17	Feb. 26,18
EMI Test Receiver	Rohde&Schwarz	ESCI	101418	Feb. 27,17	Feb. 26,18
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-555	Nov. 13, 16	Nov. 12, 17
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-554	Dec. 17, 16	Dec. 16, 17
Signal Amplifier	Agilent	8447D	2944A10488	Jun. 25,16	Jun. 24,17
Signal Amplifier	Agilent	8447D	2944A11174	Jun. 25,16	Jun. 24,17
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8.8m	NSEMC006	Mar. 06,17	Mar. 05,18
Test Software	ADT	ADT_Radiated_V8.7.x	N/A	N/A	N/A

- NOTES:** 1. The test was performed in 10m Chamber.  
2. The calibration interval of the above test instruments is 12 or 24 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

#### FREQUENCY RANGE ABOVE 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna	ETS-Lindgren	3117	00085519	Dec. 30, 15	Dec. 29, 17
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170242	Apr. 05,16	Apr. 04,17
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101003	Apr. 05,16	Apr. 04,17
Broadband Preamplifier	SCHWARZBECK	BBV9718	266	Mar. 22,16	Mar. 21,17
Pre-Amplifier (100MHz-26.5GHz)	EMCI	EMC 012645	980077	May 04,16	May 03,17
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Test Software	ADT	ADT_Radiated_V8.7.x	N/A	N/A	N/A

- NOTES:** 1. The test was performed in 10m Chamber.  
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



### 3.4 TEST PROCEDURE

#### <Frequency Range below 1GHz>

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

#### NOTE:

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier).
5. Margin value = Emission level – Limit value.



**<Frequency Range above 1GHz>**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna can be varied from one meter-to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test receiver/spectrum was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

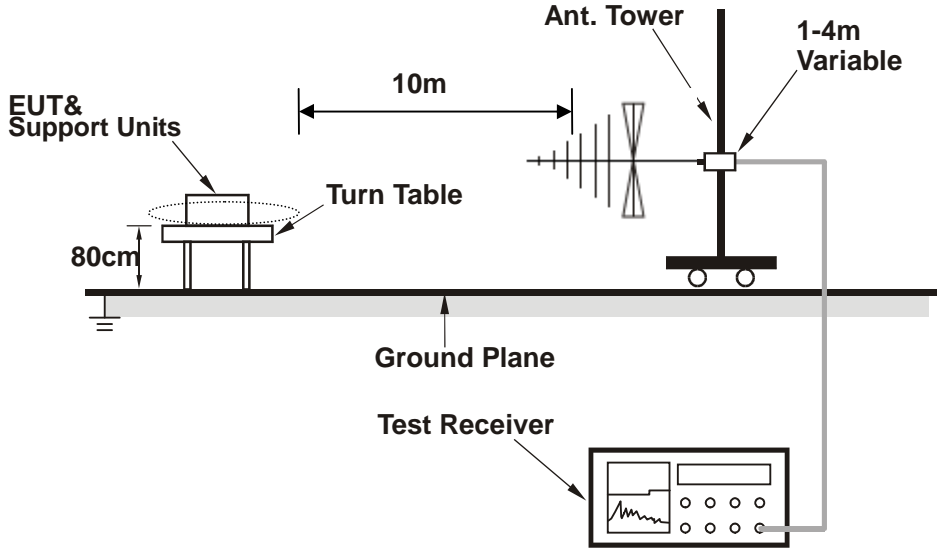
**NOTE:**

1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
3. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
5. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier).
6. Margin value = Emission level – Limit value.

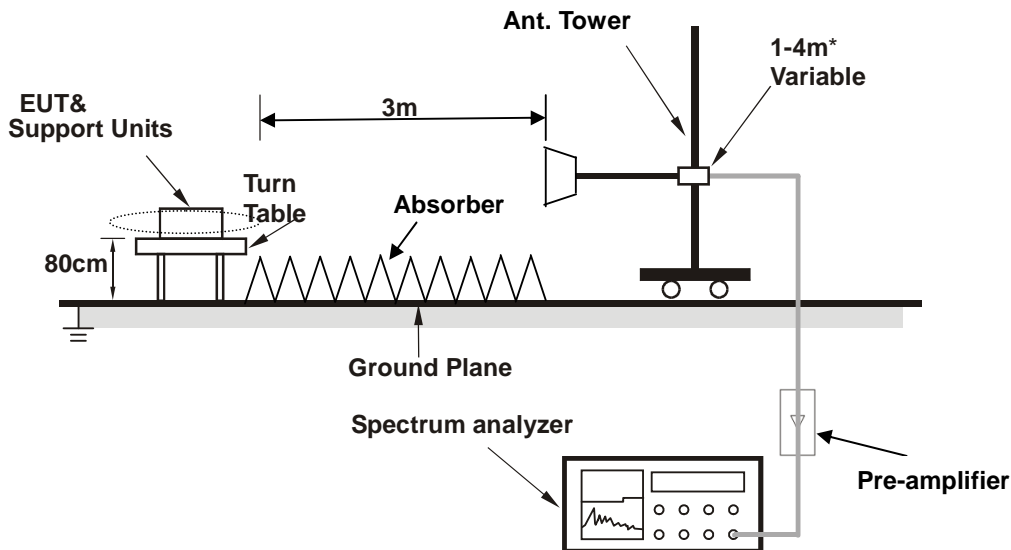


### 3.5 TEST SETUP

#### <Frequency Range below 1GHz>



#### <Frequency Range above 1GHz>



\* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3

### 3.6 SUPPLEMENTARY INFORMATION

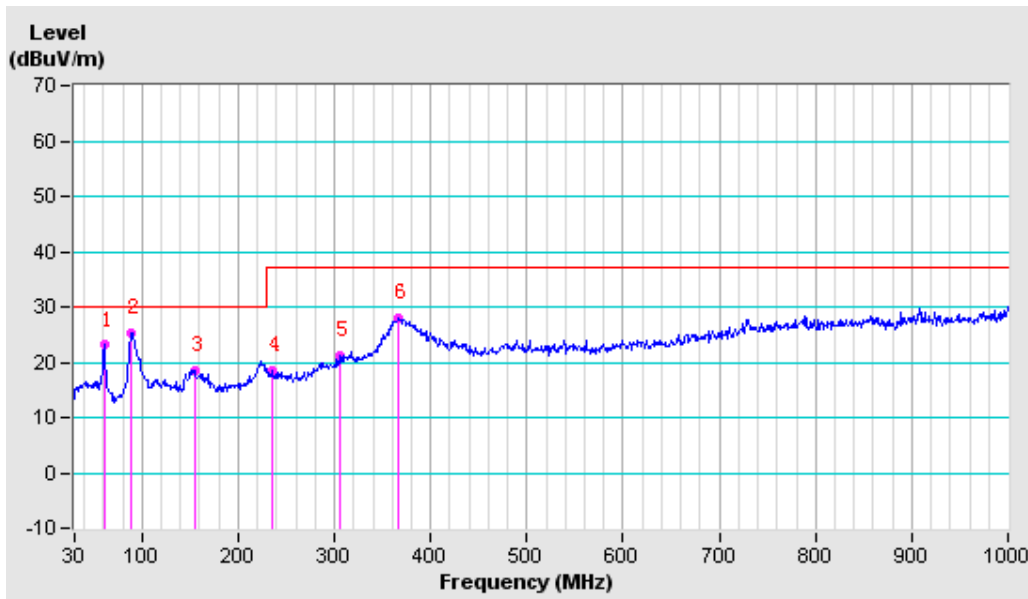
The more stringent measurement method of paragraph 8.3.2.2 in ANSI C63.4:2014 was applied for the test.



### 3.7 TEST RESULTS

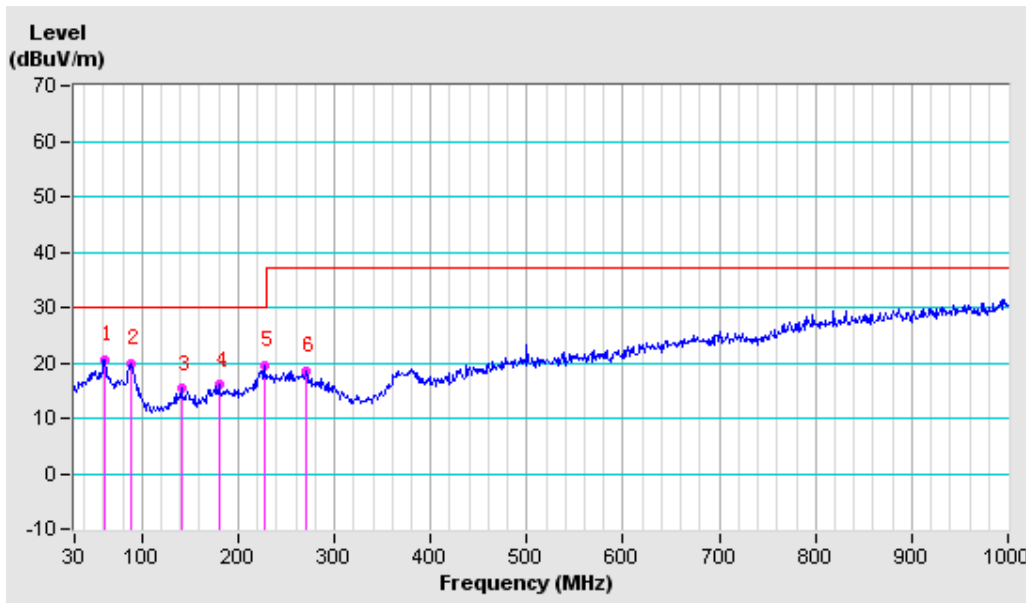
<b>TEST MODE</b>		Charging						
<b>FREQUENCY RANGE</b>		30-1000MHz		<b>DETECTOR FUNCTION &amp; BANDWIDTH</b>		Quasi-Peak, 120kHz		
<b>ENVIRONMENTAL CONDITIONS</b>		22deg. C, 53% RH		<b>TESTED BY:</b> Wang				
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 10 M</b>								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	60.702	-10.47	33.60	23.13	30.00	-6.87	400	43
2	89.221	-13.90	39.32	25.42	30.00	-4.58	400	232
3	154.312	-9.41	27.87	18.46	30.00	-11.54	400	142
4	234.535	-9.80	28.23	18.43	37.00	-18.57	400	81
5	304.960	-7.50	28.66	21.16	37.00	-15.84	200	312
6	366.946	-6.54	34.55	28.01	37.00	-8.99	200	311

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  2. Negative sign (-) in the margin column signify levels below the limit.
  3. Frequency range scanned: 30MHz to 1000MHz.
  4. Only emissions significantly above equipment noise floor are reported.



<b>TEST MODE</b>		Charging						
<b>FREQUENCY RANGE</b>		30-1000MHz			<b>DETECTOR FUNCTION &amp; BANDWIDTH</b>		Quasi-Peak, 120kHz	
<b>ENVIRONMENTAL CONDITIONS</b>		22deg. C, 53% RH			<b>TESTED BY:</b> Wang			
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 10 M</b>								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	60.555	-8.79	29.41	20.62	30.00	-9.38	300	208
2	88.927	-11.58	31.53	19.95	30.00	-10.05	100	271
3	140.580	-11.07	26.39	15.32	30.00	-14.68	300	132
4	180.956	-9.71	25.69	15.98	30.00	-14.02	100	62
5	227.395	-8.03	27.51	19.48	30.00	-10.52	100	154
6	271.409	-7.08	25.60	18.52	37.00	-18.48	300	332

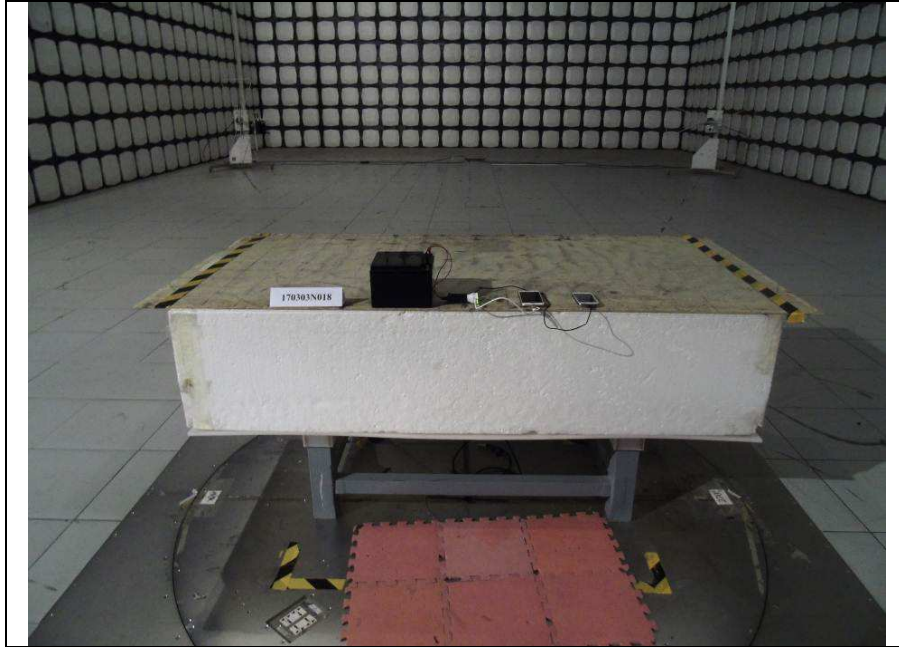
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  2. Negative sign (-) in the margin column signify levels below the limit.
  3. Frequency range scanned: 30MHz to 1000MHz.
  4. Only emissions significantly above equipment noise floor are reported.





#### 4 PHOTOGRAPHS OF THE TEST CONFIGURATION

RADIATED EMISSION TEST <30MHZ-1GHZ>





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Test Report No.: CT170303N018

## **5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications were made to the EUT by the lab during the test.

**END**