



EUROFINS PRODUCT TESTING SERVICE (SHANGHAI) CO., LTD.

TEST- REPORT

TEST REPORT NUMBER: EFSH15030193-IE-01-E01
FCC 47 CFR PART 15, SUBPART B



Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Zhabei District, Shanghai,
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2 General Information

2.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter "Description of test item" and are not transferable to any other test items.

Eurofins Product Testing Service (Shanghai) is not responsible for any generalisations and conclusions drawn from this report. Any modification of the test item can lead to invalidity of test results and this test report may therefore be not applicable to the modified test item.

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Operator:

2015-03-29

Stefan Zhao



Date

Eurofins-Lab.

Name

Signature

Technical responsibility for area of testing:

2015-03-29

Ken Xu



Date

Eurofins

Name

Signature

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2.2 Testing laboratory

Eurofins Product Testing Service (Shanghai) Co., Ltd.

No.395 West Jiangchang Road, Zhabei District, Shanghai, 200436, P.R. China

Telephone : +86-21-61819181

Telefax : +86-21-61819180

Test location

Subcontractor

Name : Quietek Technology(Suzhou) Co., Ltd.

Address : No.99 Hongye Rd., Suzhou Industrial Park luofeng Hi-Tech
Development Zone, Suzhou, China

Telephone : +86-512-62515088

Fax : +86-512-62515098

Radiated emission test was performed by Stefan Zhao at Quietek Technology(Suzhou) Co., Ltd.

2.3 Details of approval holder

Name : Xindao B.V.
Address : P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands
Telephone : ./.
Fax : ./.

2.4 Application details

Date of receipt of application : 2015-03-05
Date of receipt of test item : 2015-03-06
Date of test : 2015-03-06 to 2015-03-29

2.5 EUT information

Description of test item : Sun Solo solar charger
Type identification : P323.01
Brand Name : ./.
Serial number : ./.
Power supply : DC 5V(USB)
Additional information : The appliance is Sun Solo solar charger. Adapter STC-A22O50USBA was used for test accessory.

2.6 Test standards

Technical standard :

FCC 47 CFR Part 15, Subpart B: 2013

3 Technical test

3.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.



or

The deviations as specified were ascertained in the course of the tests performed.



3.2 Test environment

Eurofins Product Testing Service (Shanghai) Co., Ltd.

Temperature : 20 ... 25°C
 Relative humidity content : 30 ... 60%
 Air pressure : 100 ... 103kPa

Quietek Technology(Suzhou) Co., Ltd.

Temperature : 24°C
 Relative humidity content : 41%
 Air pressure : 101kPa

3.3 Test equipment utilized

Measurement Equipment List				
No.	Name	Model	Manufacturer	Cal. due date
1	EMI test receiver	ESCI	R&S	2015-11-27
2	Artificial mains	ENV216-DCV	R&S	2015-11-27
3	EMI Test Receiver	ESCI	R&S	2015-09-16
4	Bilog Antenna	CBL6112D	Teseq GmbH	2015-10-10
5	Coaxial Cable	SUCOFLEX 106	Huber+Suhner	2016-02-28
6	Temperature/Humidity Meter	N9038A	Zhichen	2016-01-07

3.4 Test results

☒ 1st test

☐ test after modification

☐ production test

Test case	Subclause	Required	Test passed	Test failed
Conducted Emission	Table 2 of FCC part 15.107 ANSI C63.4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission	Table 5 of FCC part 15.109 ANSI C63.4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4 Emission Test

4.1 Conducted Emission

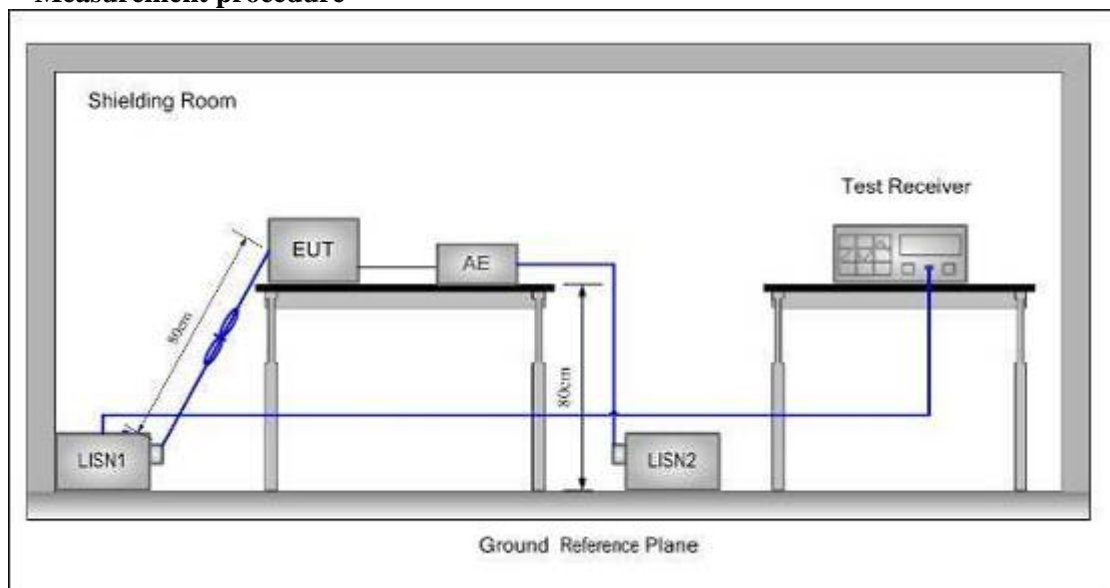
This clause lays down the general requirements for the measurement of disturbance voltage produced at the terminals of apparatus.

4.1.1 Limits

Frequency range MHz	At mains terminals dB (μV)	
	Quasi-peak Limit	Average Limit
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

NOTE 1 The lower limit applies at the boundary between the frequency ranges.
NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.

4.1.2 Measurement procedure



1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
2. The EUT was connected to AC power source through a LISN (Line Impedance Stabilization Network) which provides a $(50 \mu H + 5 \Omega) \parallel 50 \Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. A pre-scan was performed with the peak(PK) detector to find out the maximum emission data plots of the EUT.

4.1.3 Measurement uncertainty

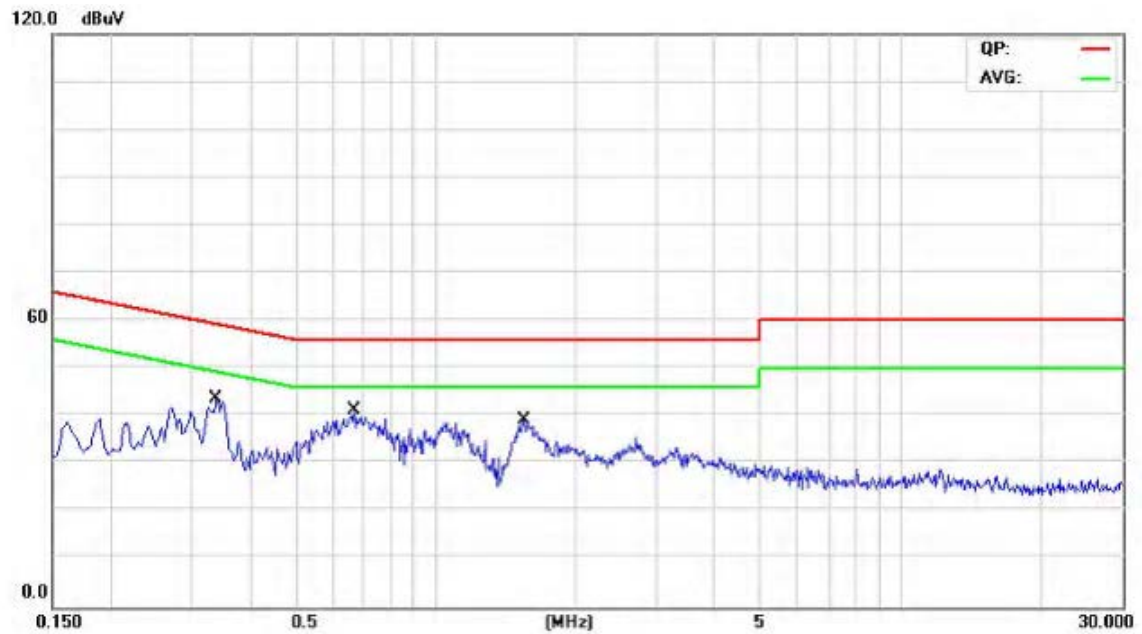
$U_{lab}(cond) = 1.8dB$ at 95% level of confidence, $k=2$

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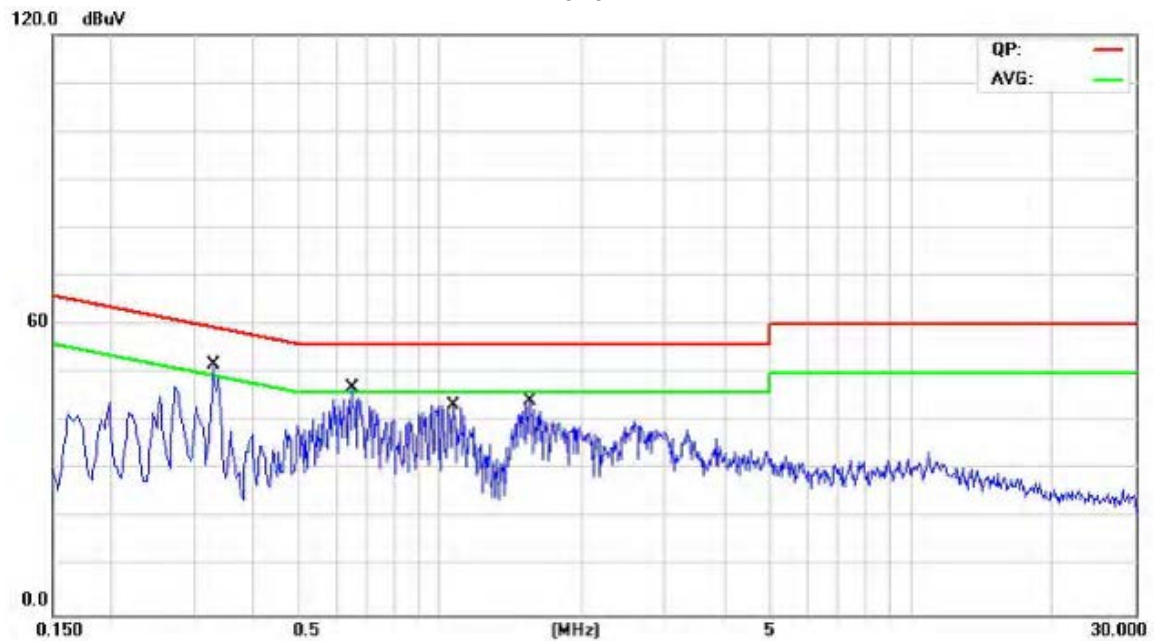
4.1.4 Results -Measurement Data

Live Line:
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.3380	31.50	9.80	41.30	59.25	-17.95	QP
2	*	0.3380	23.84	9.80	33.64	49.25	-15.61	AVG
3		0.6700	25.07	9.74	34.81	56.00	-21.19	QP
4		0.6700	17.03	9.74	26.77	46.00	-19.23	AVG
5		1.5580	24.87	9.77	34.64	56.00	-21.36	QP
6		1.5580	17.13	9.77	26.90	46.00	-19.10	AVG

Neutral Line: Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.3300	39.77	9.80	49.57	59.45	-9.88	QP
2	*	0.3300	31.30	9.80	41.10	49.45	-8.35	AVG
3		0.6500	29.79	9.74	39.53	56.00	-16.47	QP
4		0.6500	19.93	9.74	29.67	46.00	-16.33	AVG
5		1.0660	29.92	9.66	39.58	56.00	-16.42	QP
6		1.0660	21.73	9.66	31.39	46.00	-14.61	AVG
7		1.5500	31.00	9.77	40.77	56.00	-15.23	QP
8		1.5500	21.77	9.77	31.54	46.00	-14.46	AVG

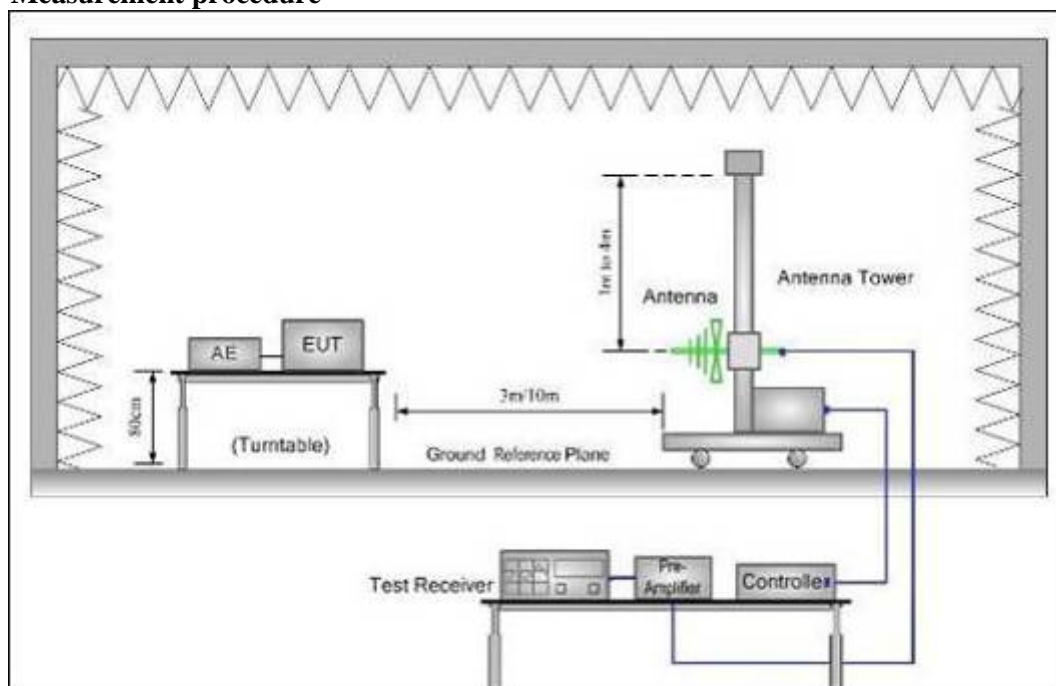
4.2 Radiated emission

This clause lays down the general requirements for the measurement of Radiated disturbance produced at the space of apparatus.

4.2.1 Limits

Frequency range	Limits at 3m
MHz	dB ($\mu\text{V/m}$)
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
Above 960	54.0
The tighter limit applies at the band edges.	

4.2.2 Measurement procedure



1. The radiated emissions test was conducted in a semi-anechoic chamber. The EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
2. Before get the final emission results with quasi-peak(QP) detector, a pre-scan was performed with the peak(PK) detector to find out the maximum emission data plots of the EUT.
3. The frequencies of maximum emission were determined in the final radiated emissions measurement, the physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization. Test was performed at 3 m distance.

4.2.3 Measurement uncertainty

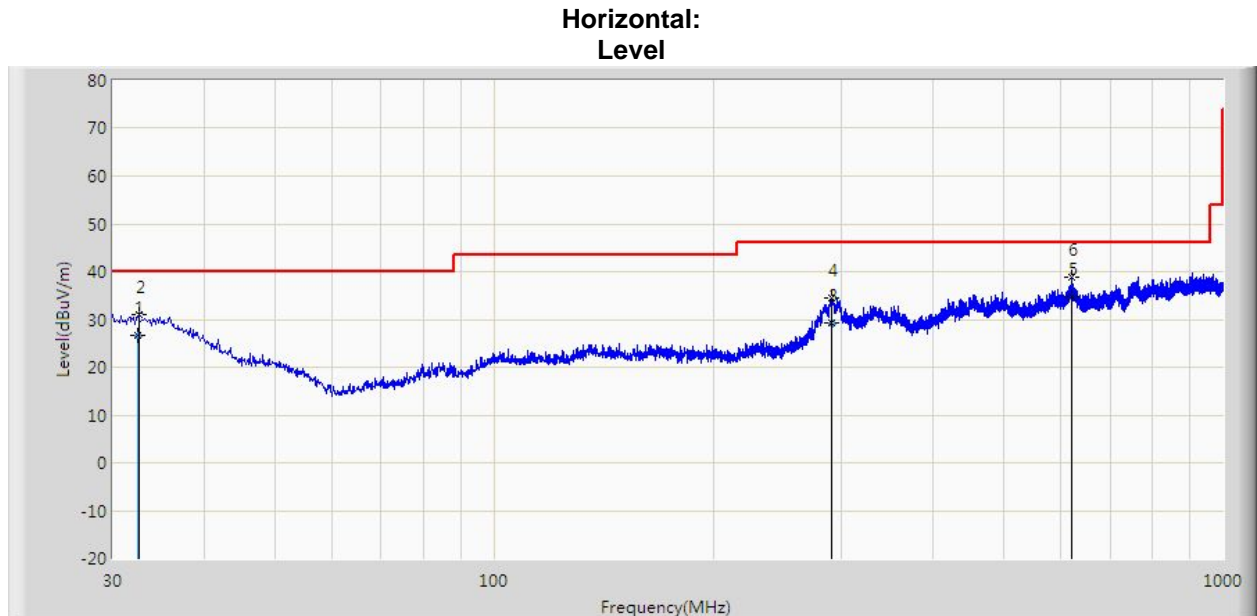
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Ulab(cond) = 3.9dB at 95% level of confidence , k=2

4.2.4 Results

Note: Both operating mode and charging mode were tested and the worst mode(operating mode) was recorded in the report.

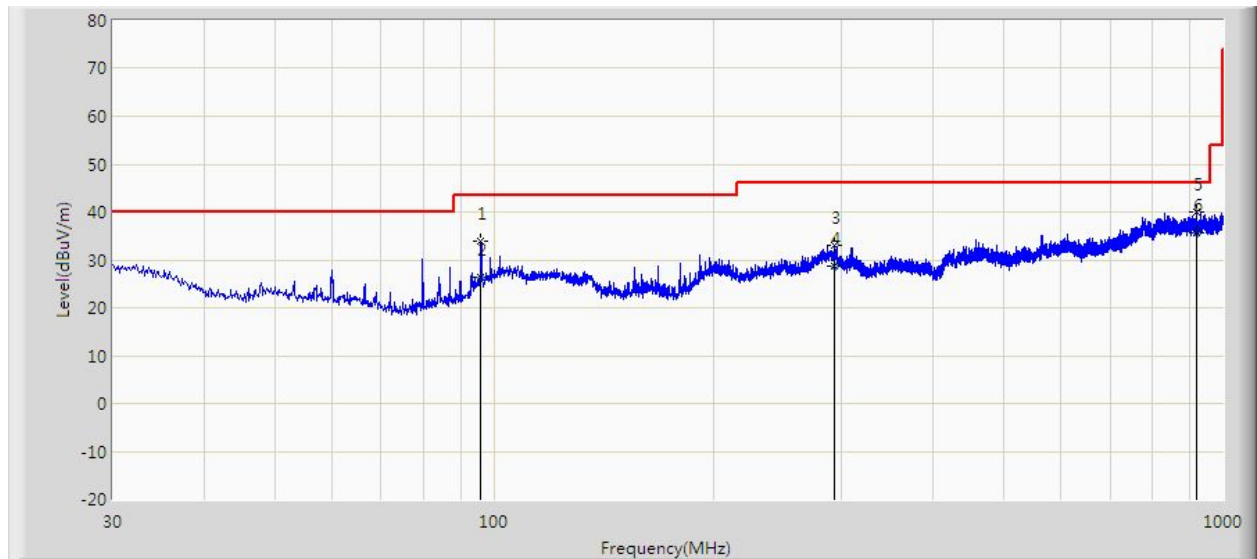


Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Ant Pos (cm)	Table Pos (deg)	Type
32.524	26.677	1.100	-13.323	40.000	19.117	6.460	200	261	QP
290.442	29.307	6.900	-16.693	46.000	14.842	7.565	100	55	QP
619.021	34.696	2.200	-11.304	46.000	24.066	8.430	187	360	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Factor(Probe+Cable).

Vertical



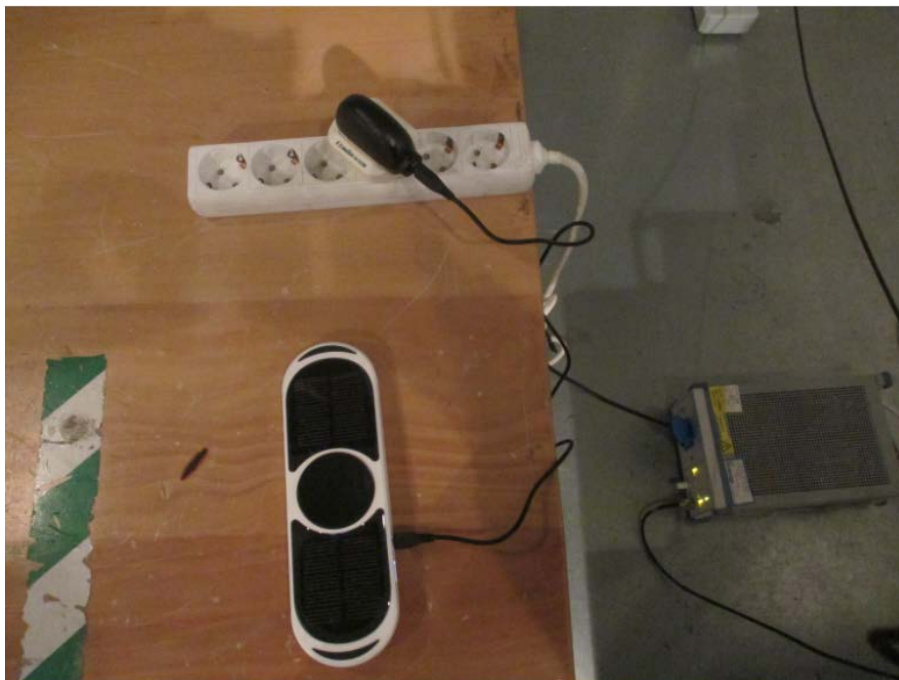
Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Ant Pos (cm)	Table Pos (deg)	Type
95.960	26.291	5.100	-17.209	43.500	14.351	6.840	100	93	QP
293.234	28.574	1.900	-17.426	46.000	19.100	7.574	100	124	QP
918.524	35.722	2.300	-10.278	46.000	24.332	9.090	200	58	QP

Note:

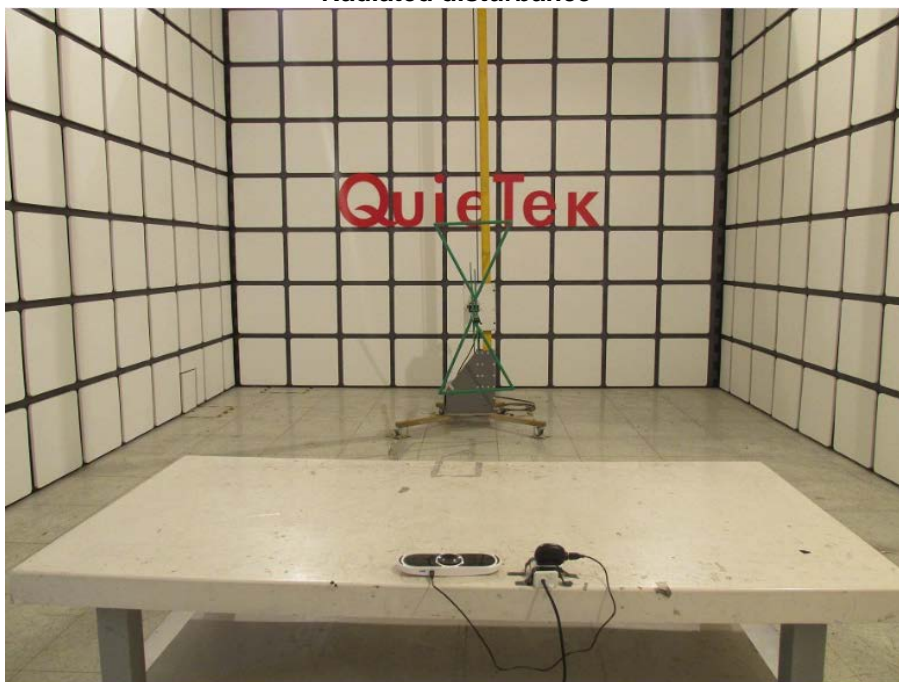
1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Factor(Probe+Cable).

5 Test setup Photos

Conducted disturbance



Radiated disturbance



6 EUT Photos

Overall view



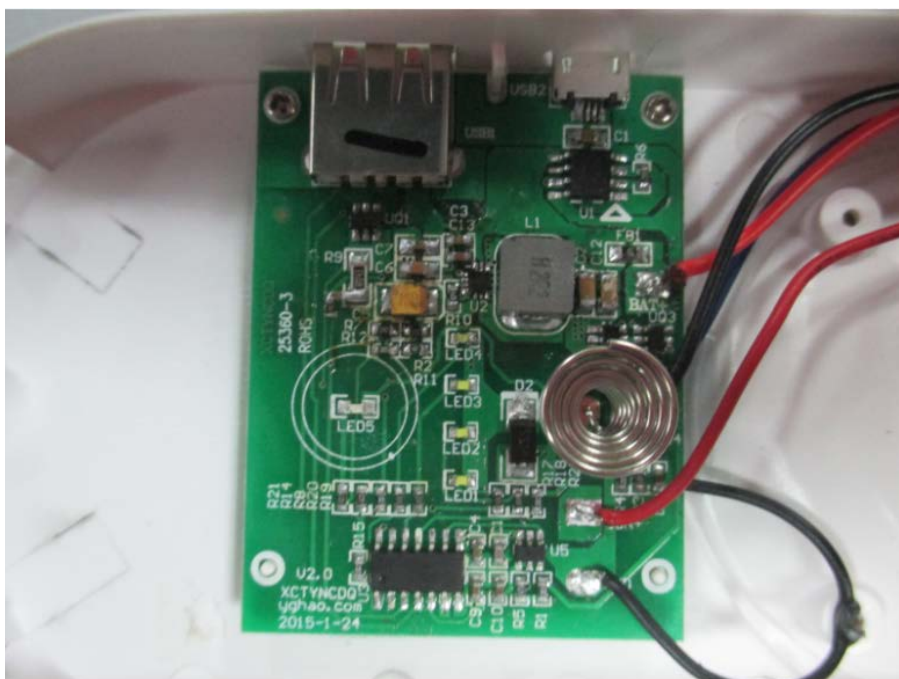
Overall view



Internal view



PCB view



PCB view

