

FCC

EMC

TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
Mobile Phone

ISSUED TO
Shenzhen Huadoo Bright Group Limited

Room 13E, jinsong Buiding, Tai ran 4th Rood, chegong miao, Futian
Distrct, Shenzhen



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Date: *Oct 31, 2014*

Approved by: *Wei Yanguan*
Wei Yanguan
(Chief Engineer)

Date: *Oct 31, 2014*



Report No.: BL-SZ1480032-401

EUT Type: Mobile Phone

Model Name: Huadoo V3

Brand Name: Huadoo

Test Standard: 47 CFR Part 15 Subpart B

FCC ID: 2ACXS-V3

Test conclusion: PASS

Test Date: Sep 4, 2014 ~ Sep 19, 2014

Date of Issue: Oct 31, 2014

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Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Oct 10, 2014</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Oct 31, 2014</u>	<u>The Second Issue</u>

TABLE OF CONTENTS

1	GENERAL INFORMATION	4
1.1	Identification of the Testing Laboratory	4
1.2	Identification of the Responsible Testing Location	4
1.3	Test Environment Condition	4
1.4	Announce	5
2	PRODUCT INFORMATION	6
2.1	Applicant	6
2.2	Manufacturer	6
2.3	General Description for Equipment under Test (EUT)	6
2.4	Ancillary Equipment	6
3	SUMMARY OF TEST RESULTS	7
3.1	Test Standards	7
3.2	Verdict	7
3.3	Test Uncertainty	7
4	GENERAL TEST CONFIGURATIONS	8
4.1	Test Environments	8
4.2	Test Equipment List	8
4.3	Test Enclosure list	9
4.4	Test Configurations	9
4.5	Test Setups	10
4.6	Test Conditions	12
5	TEST ITEMS	13
5.1	Emission Tests	13
ANNEX A	TEST RESULTS	15
A.1	Radiated Emission	15
A.2	Conducted Emission	19

ANNEX B	TEST SETUP PHOTOS	21
B.1	Radiated Field Strength Measurement	21
B.2	Conducted Emission	23
ANNEX C	EUT PHOTOS	24
C.1	Appearance of the EUT	24
C.2	Inside of the EUT	29

1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6683 3402
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	<p>The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1.</p> <p>The laboratory has been listed by US Federal Communications Commission to perform electromagnetic emission measurements. The recognition numbers of test site are 832625.</p> <p>The laboratory has met the requirements of the IAS Accreditation Criteria for Testing Laboratories (AC89), has demonstrated compliance with ISO/IEC Standard 17025:2005. The accreditation certificate number is TL-588.</p> <p>The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.</p>
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Test Environment Condition

Ambient Temperature	15 to 35°C
Ambient Relative Humidity	30 to 60%
Ambient Pressure	86 to 106 kPa

1.4 Announce

- (1) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (2) The test report is invalid if there is any evidence and/or falsification.
- (3) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (4) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

2 PRODUCT INFORMATION

2.1 Applicant

Applicant	Shenzhen Huadoo Bright Group Limited
Address	Room 13E, jinsong Buiding, Tai ran 4th Rood, chegong miao, Futian Distrct, Shenzhen

2.2 Manufacturer

Manufacturer	Shenzhen Huadoo Bright Group Limited
Address	Room 13E, jinsong Buiding, Tai ran 4th Rood, chegong miao, Futian Distrct, Shenzhen

2.3 General Description for Equipment under Test (EUT)

EUT Type	Mobile Phone
The Under Test Model Name	Huadoo V3
Series Model Name	N/A
Hardware Version	GMAL
Software Version	Huadoo V1_Chinas_ENGLISH_13_V0.1_V2_20140708
The Highest Speed of Processor	1.3GHz
Network and Wireless connectivity	2G Network GSM 850/900 / 1800/1900 3G Network WCDMA Band I/ V/IX
About the Product	The equipment is Mobile Phone, intended for used with information technology equipment.

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	N/A
	Model No	V3
	Serial No	(N/A. marked #1 by test site)
	Capacitance	2800mAh
	Rated Voltage	3.7V
	Extreme Voltage	Low: 3.5V / High: 4.2V
Ancillary Equipment 2	AC Adapter	
	Model No	HJ-0501000
	Serial No	(N/A. marked #1 by test site)
	Rated Input	~ 100-240V, 0.15A, 50/60Hz
	Rated Output	= 5V, 1000mA
Ancillary Equipment 3	Earphone	
Ancillary Equipment 4	USB Cable	

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B (10-1-09 Edition)	Unintentional Radiators
2	ANSI C63.4-2009	American National Standard for Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

3.2 Verdict

No.	Description	FCC Rule	Test Verdict	Result
1	Radiated Emission	15.109	PASS	Annex A .1
2	Conducted Emission, AC Ports	15.107	PASS	Annex A .2

3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions (9KHz-30MHz)	1.12 dB
Radiated emissions (30MHz-1GHz)	2.11 dB
Radiated emissions (1GHz-18GHz)	3.31 dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
Normal Temperature, Normal Voltage (NTNV)	23°C~25°C	AC 110V/60Hz	50%-55%

4.2 Test Equipment List

Radiated Emission Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2014.07.07	2015.07.06	<input checked="" type="checkbox"/>
Test Antenna- Loop(9kHz- 30MHz)	SCHWARZBECK	FMZB 1519	1519-037	2013.07.02	2015.07.01	<input checked="" type="checkbox"/>
Test Antenna- Bi-Log(30MHz -3GHz)	SCHWARZBECK	VULB 9163	9163-624	2013.07.03	2015.07.02	<input checked="" type="checkbox"/>
Test Antenna- Horn(1- 18GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2013.07.02	2015.07.01	<input checked="" type="checkbox"/>
Test Antenna- Horn(15- 26.5GHz)	SCHWARZBECK	BBHA 9170	9170-305	2013.07.02	2015.07.01	<input type="checkbox"/>
Anechoic Chamber	RAINFORD	9m*6m*6 m	N/A	2013.10.07	2014.10.06	<input checked="" type="checkbox"/>

Conducted disturbance Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2014.07.07	2015.07.06	<input checked="" type="checkbox"/>
LISN	SCHWARZBECK	NSLK 8127	8127-687	2014.07.07	2015.07.06	<input checked="" type="checkbox"/>
AMN	SCHWARZBECK	NNBM812 4	8124-509	2014.07.07	2015.07.06	<input type="checkbox"/>
AMN	SCHWARZBECK	NNBM812 4	8124-510	2014.07.07	2015.07.06	<input type="checkbox"/>
ISN	TESEQ	ISN T800	34449	2014.07.07	2015.07.06	<input type="checkbox"/>

4.3 Test Enclosure list

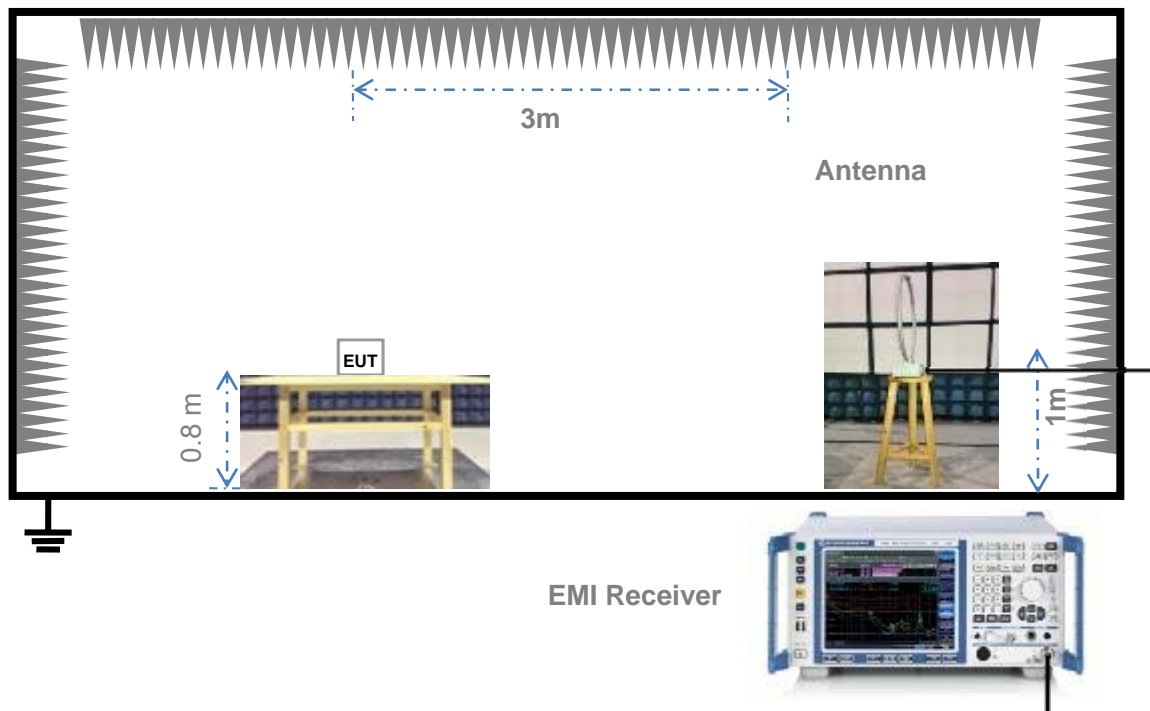
Description	Manufacturer	Model	Serial No.	Length	Description	Use
PC	N/A	N/A	N/A	N/A	Special Handled	<input type="checkbox"/>
Printer	HP	DESKJET 1000	N/A	N/A	N/A	<input type="checkbox"/>
Keyboard	Logitech	Y-BP62a	N/A	N/A	N/A	<input type="checkbox"/>
Mouse	Logitech	M100	N/A	N/A	N/A	<input type="checkbox"/>
USB disk	Kingston	N/A	N/A	N/A	N/A	<input type="checkbox"/>
TF Card	Kingston	N/A	N/A	N/A	N/A	<input type="checkbox"/>
VGA Cable	N/A	N/A	N/A	1.5m	Shielded with core	<input type="checkbox"/>
HDMI Cable	N/A	N/A	N/A	1.5m	Shielded with core	<input type="checkbox"/>
DVI Cable	N/A	N/A	N/A	1.5m	Shielded with core	<input type="checkbox"/>
Coaxial video cable	N/A	N/A	N/A	2m	Shielded with core	<input type="checkbox"/>
Phone	BBK	HCD007TSD	N/A	N/A	N/A	<input type="checkbox"/>
laptop	LENOVO	K29	N/A	N/A	N/A	<input checked="" type="checkbox"/>

4.4 Test Configurations

Test Configurations (TC) No.	Description
TC01	<u>The USB Test mode</u> The EUT configuration of the emission tests is EUT + laptop + USB Cable + earphone. During the measurement, the EUT is connected with the laptop via a USB cable. The data is transmitting between the laptop and the EUT.
TC02	<u>The Charger Test mode</u> The EUT configuration of the emission tests is EUT + earphone + AC Charger During the measurement, the EUT is only charged by the AC power and it is working normally.
TC03	<u>The Camera Test mode</u> The EUT configuration of the emission tests is EUT + earphone + AC Charger During the measurement, the EUT is only charged by the AC power and the camera function is working normally.

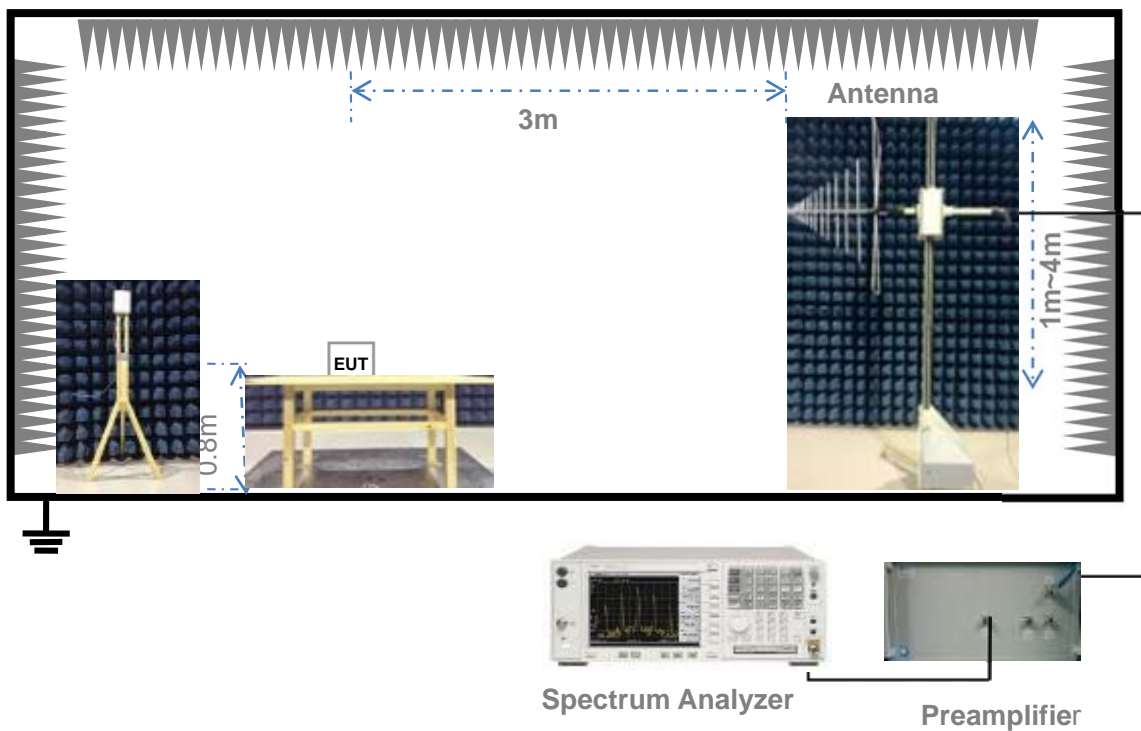
4.5 Test Setups

Test Setup 1



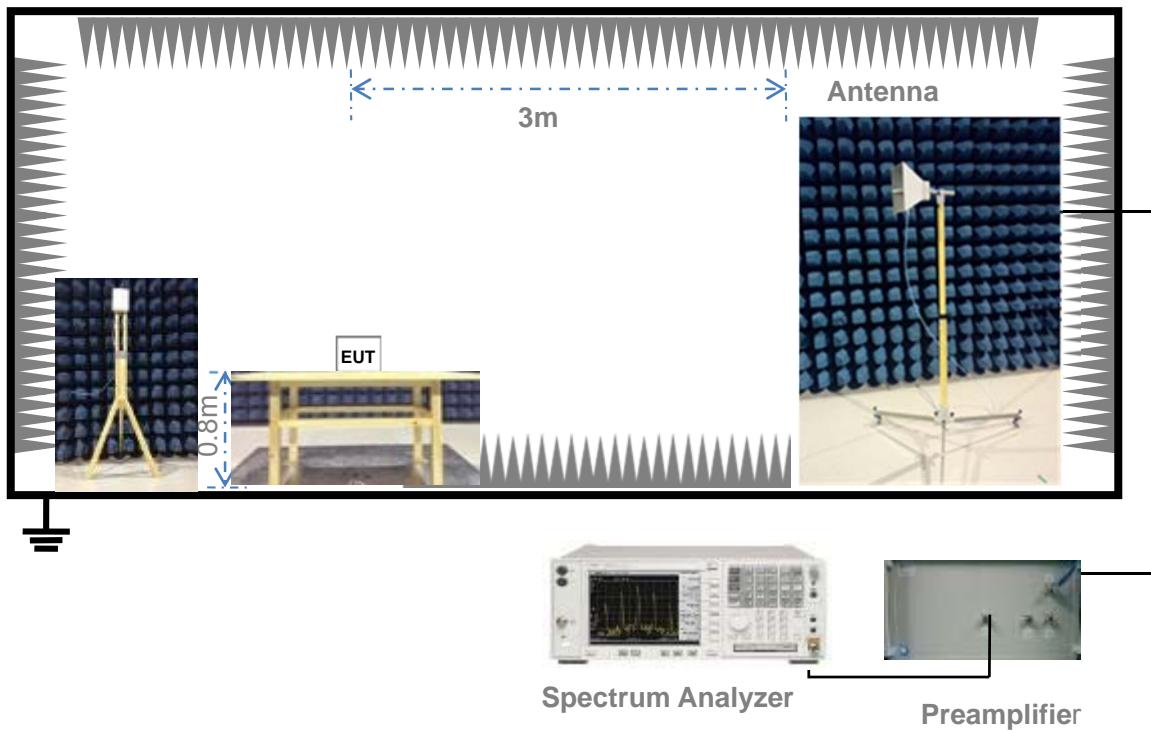
For Radiated Emission Test (Below 30MHz)

Test Setup 2



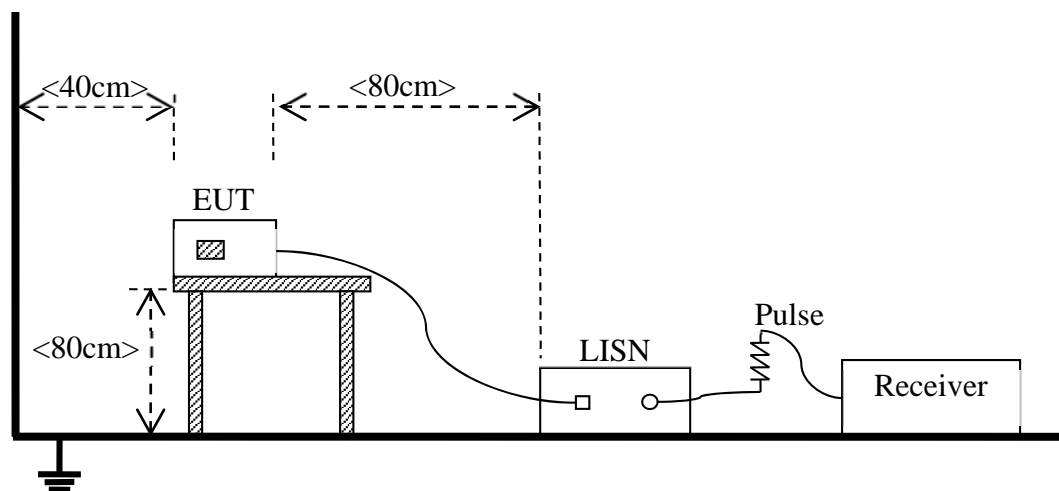
(For Radiated Emission Test (30MHz-1GHz))

Test Setup 3



(For Radiated Emission Test (above 1GHz))

Test Setup 4



(For Conducted Emission, AC Ports Test)

4.6 Test Conditions

Test Case	Test Conditions	
Radiated Emission	Test Env.	NTNV
	Test Setup	Test Setup 1&3
	Test Configuration	TC01~TC03 ^{Note}
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 4
	Test Configuration	TC01~TC03 ^{Note}

Note: Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report. The worst mode is Camera Test Mode.

5 TEST ITEMS

5.1 Emission Tests

5.1.1 Radiated Emission

5.1.1.1 Limit

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

NOTE:

- 1) Field Strength (dB $\mu\text{V/m}$) = $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$.
- 2) In the emission tables above, the tighter limit applies at the band edges.
- 3) For above 1000MHz, limit field strength of harmonics: 54dB $\mu\text{V/m}$ @3m (AV) and 74dB $\mu\text{V/m}$ @3m (PK)

5.1.1.2 Test Procedure

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

5.1.2 Conducted Emission

5.1.2.1 Test Limit

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- 1) The limit is applicable to Class B ITE.
- 2) The lower limit shall apply at the band edges.
- 3) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

5.1.2.2 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50 Ω /50 μ H of coupling impedance for the measuring instrument. The test frequency range is from 150kHz to 30MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

ANNEX A TEST RESULTS

A.1 Radiated Emission

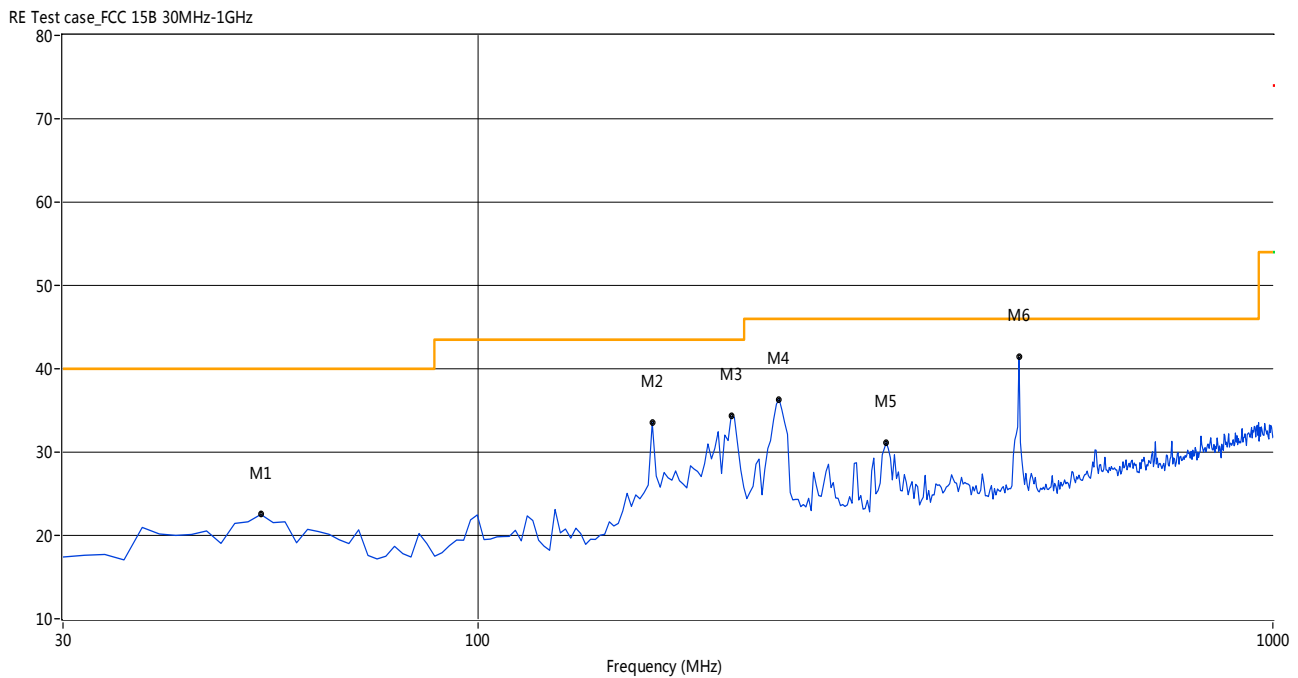
Note 1: The symbol of “--” in the table which means not application.

Note 2: For the test data above 1GHz, According the ANSI C63.4-2009, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Test Data and Plots (Camera Test Mode)

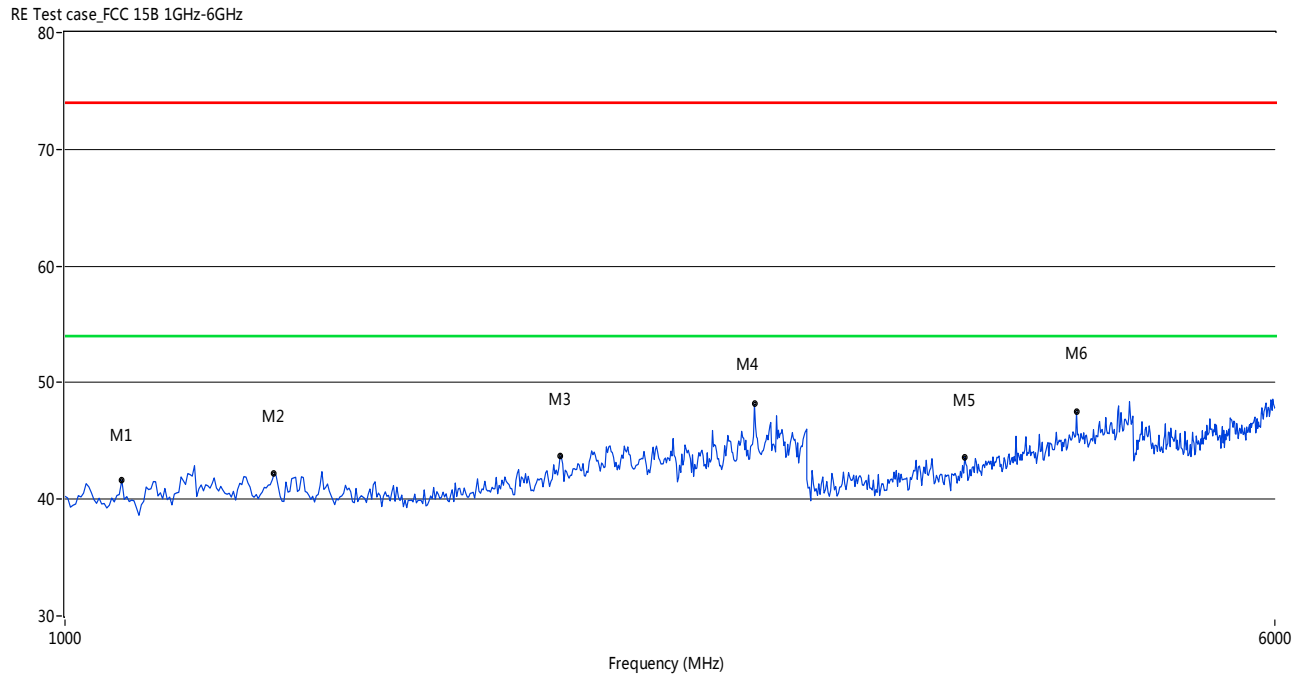
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

A.1.1 Test Antenna Vertical, 30MHz – 1GHz



Frequency (MHz)	Peak (dBuV/m)	Q-peak (dBuV/m)	Average (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Table (o)	Height (cm)	ANT	Verdict
53.23	--	22.52	--	-18.08	--	40.0	--	17.48	76.00	100	Vertical	PASS
165.53	--	33.53	--	-22.21	--	43.5	--	9.97	332.20	100	Vertical	PASS
208.12	--	34.32	--	-19.68	--	43.5	--	9.18	85.60	100	Vertical	PASS
239.10	--	36.34	--	-18.63	--	46.0	--	9.66	146.00	100	Vertical	PASS
326.23	--	31.14	--	-16.36	--	46.0	--	14.86	0.00	100	Vertical	PASS
479.18	--	41.38	--	-13.33	--	46.0	--	4.62	43.80	100	Vertical	PASS

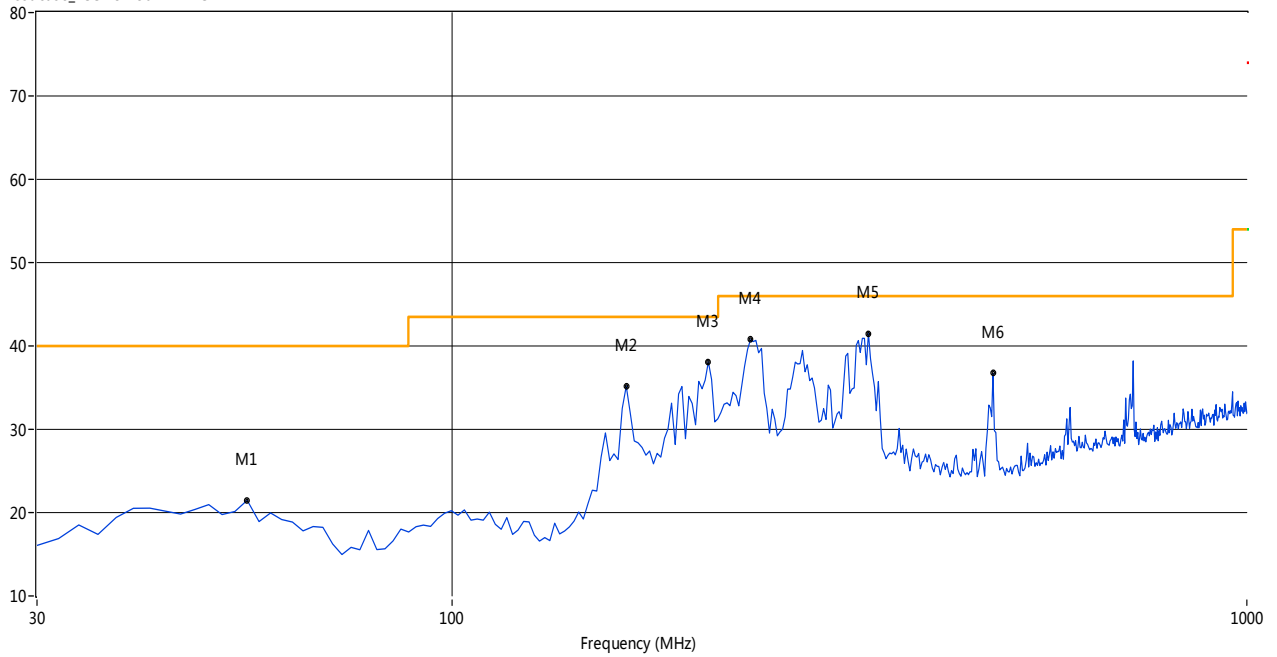
A.1.2 Test Antenna Vertical, 1GHz – 6GHz



Frequency (MHz)	Peak (dBuV/m)	Q-peak (dBuV/m)	Average (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Table (o)	Height (cm)	ANT	Verdict
1087.82	41.64	--	--	-5.17	74.0	--	54.0	12.36	359.70	100	Vertical	PASS
1363.27	42.20	--	--	-4.12	74.0	--	54.0	11.80	262.10	100	Vertical	PASS
2081.84	43.70	--	--	-2.12	74.0	--	54.0	10.30	167.20	100	Vertical	PASS
2776.45	48.15	--	--	2.05	74.0	--	54.0	5.85	16.60	100	Vertical	PASS
3790.42	43.65	--	--	9.42	74.0	--	54.0	10.35	57.60	100	Vertical	PASS
4473.05	47.49	--	--	11.04	74.0	--	54.0	6.51	66.40	100	Vertical	PASS

A.1.3 Test Antenna Horizontal, 30MHz – 1GHz

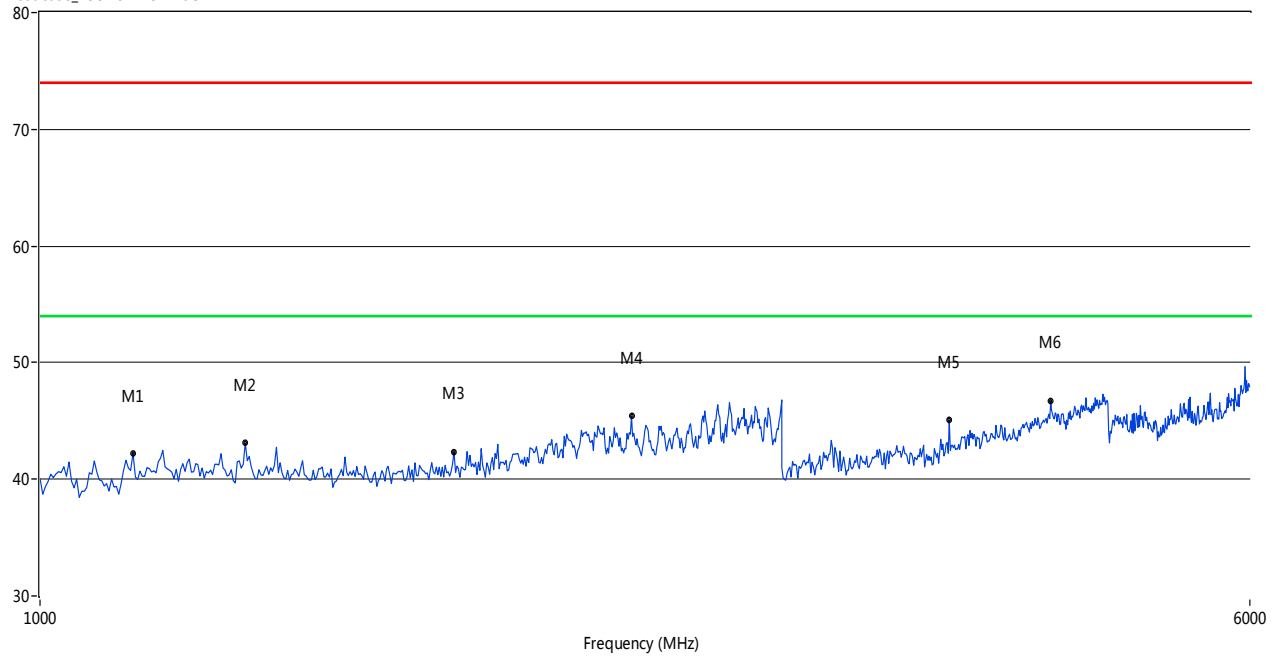
RE Test case_FCC 15B 30MHz-1GHz



Frequency (MHz)	Peak (dBuV/m)	Q-peak (dBuV/m)	Average (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Table (o)	Height (cm)	ANT	Verdict
55.17	--	21.48	--	-18.41	--	40.0	--	18.52	11.10	100	Horizontal	PASS
165.53	--	35.18	--	-22.21	--	43.5	--	8.32	57.80	100	Horizontal	PASS
210.06	--	38.10	--	-19.65	--	43.5	--	5.40	57.80	100	Horizontal	PASS
237.17	--	40.74	--	-18.72	--	46.0	--	5.26	48.50	100	Horizontal	PASS
333.97	--	41.51	--	-16.00	--	46.0	--	4.49	187.00	100	Horizontal	PASS
479.18	--	36.71	--	-13.33	--	46.0	--	9.29	187.00	100	Horizontal	PASS

A.1.4 Test Antenna Horizontal, 1GHz – 6GHz

RE Test case_FCC 15B 1GHz-6GHz

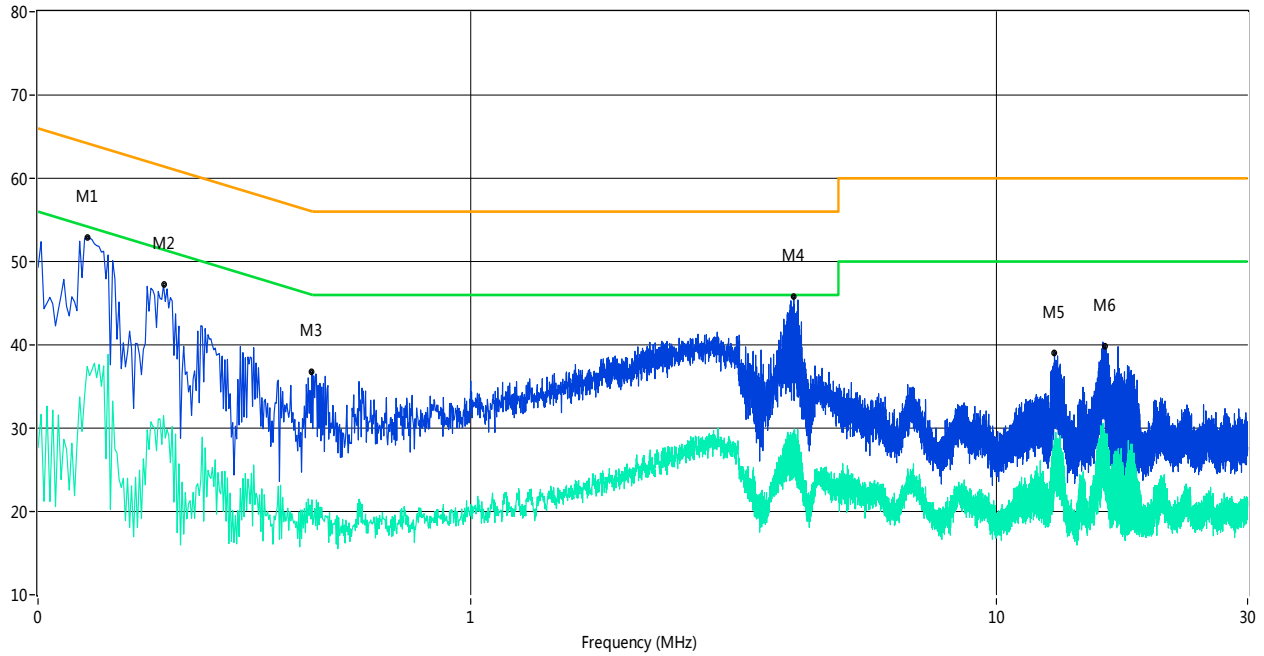


Frequency (MHz)	Peak (dBuV/m)	Q-peak (dBuV/m)	Average (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Table (o)	Height (cm)	ANT	Verdict
1147.70	42.24	--	--	-4.69	74.0	--	54.0	11.76	234.90	100	Horizontal	PASS
1355.29	43.11	--	--	-4.28	74.0	--	54.0	10.89	347.00	100	Horizontal	PASS
1846.31	42.36	--	--	-3.59	74.0	--	54.0	11.64	0.40	100	Horizontal	PASS
2401.20	45.41	--	--	-0.70	74.0	--	54.0	8.59	167.90	100	Horizontal	PASS
3844.31	45.04	--	--	9.95	74.0	--	54.0	8.96	93.50	100	Horizontal	PASS
4467.07	46.73	--	--	11.01	74.0	--	54.0	7.27	201.30	100	Horizontal	PASS

A.2 Conducted Emission

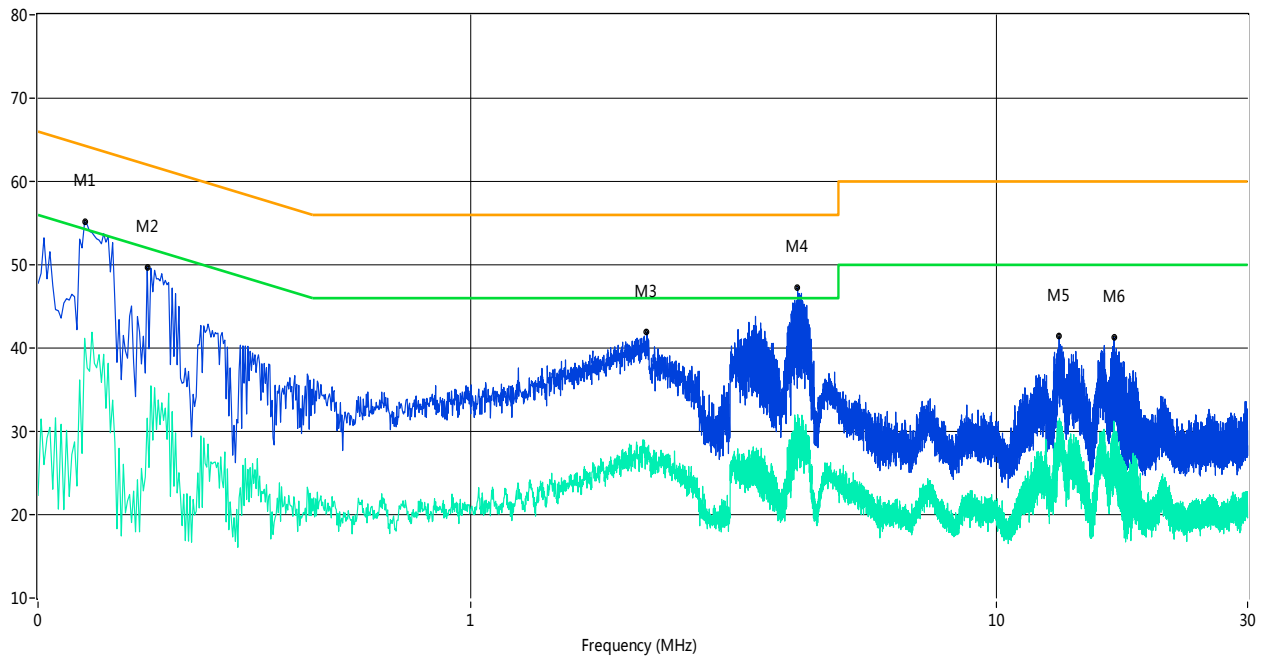
Test Data and Plots (Camera Test Mode)

A.2.1 L Phase



Frequency (MHz)	Peak (dBm)	Q-peak (dBμV)	Average (dBμV)	Factor (dB)	QP Limit (dBμV)	AV Limit (dBμV)	Margin (dB)	Line	Verdict
0.19	53.0	--	37.4	10.00	65.0	55.0	17.60	L Line	PASS
0.26	47.2	--	31.5	10.00	62.9	52.9	21.40	L Line	PASS
0.50	36.8	--	21.4	10.00	56.1	46.1	24.70	L Line	PASS
4.11	45.9	--	27.5	10.00	56.0	46.0	18.50	L Line	PASS
12.87	39.1	--	27.6	10.00	60.0	50.0	22.40	L Line	PASS
16.08	39.9	--	29.0	10.00	60.0	50.0	21.00	L Line	PASS

A.2.2 N Phase



Frequency (MHz)	Peak (dBm)	Q-peak (dBuV)	Average (dBuV)	Factor (dB)	QP Limit (dBuV)	AV Limit (dBuV)	Margin (dB)	Line	Verdict
0.18	55.2	--	41.2	10.00	65.0	55.0	13.80	N Line	PASS
0.24	49.7	--	31.6	10.00	63.4	53.4	21.80	N Line	PASS
2.16	41.9	--	28.1	10.00	56.0	46.0	17.90	N Line	PASS
4.18	47.2	--	30.5	10.00	56.0	46.0	15.50	N Line	PASS
13.14	41.4	--	28.4	10.00	60.0	50.0	21.60	N Line	PASS
16.70	41.3	--	31.2	10.00	60.0	50.0	18.80	N Line	PASS

ANNEX B TEST SETUP PHOTOS

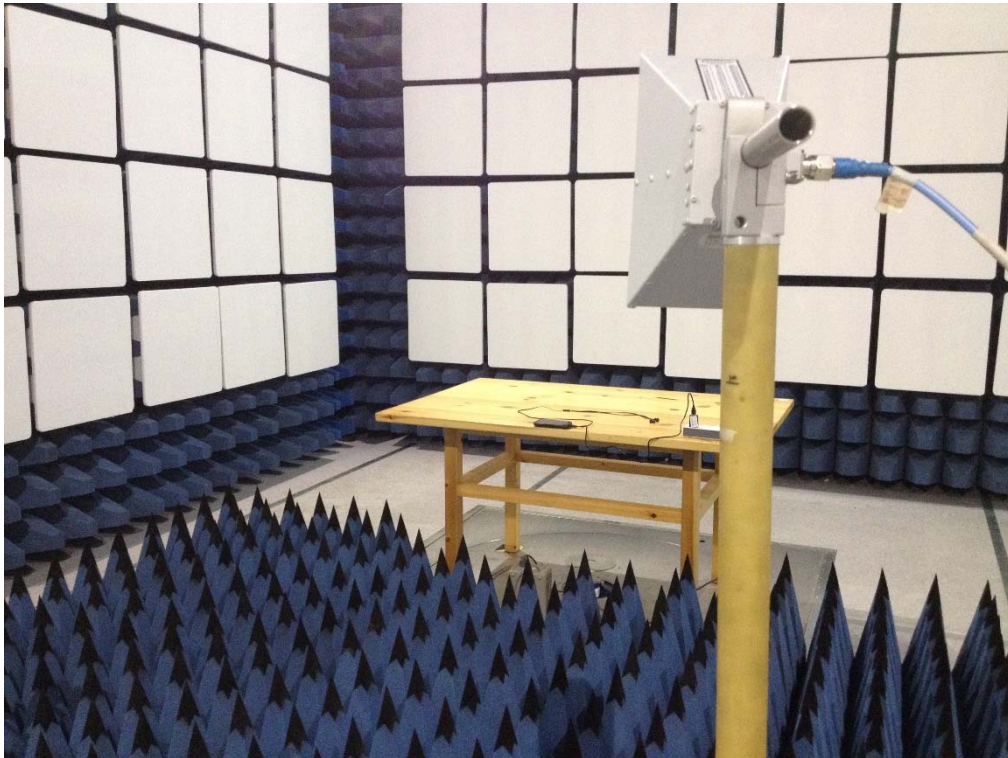
B.1 Radiated Field Strength Measurement



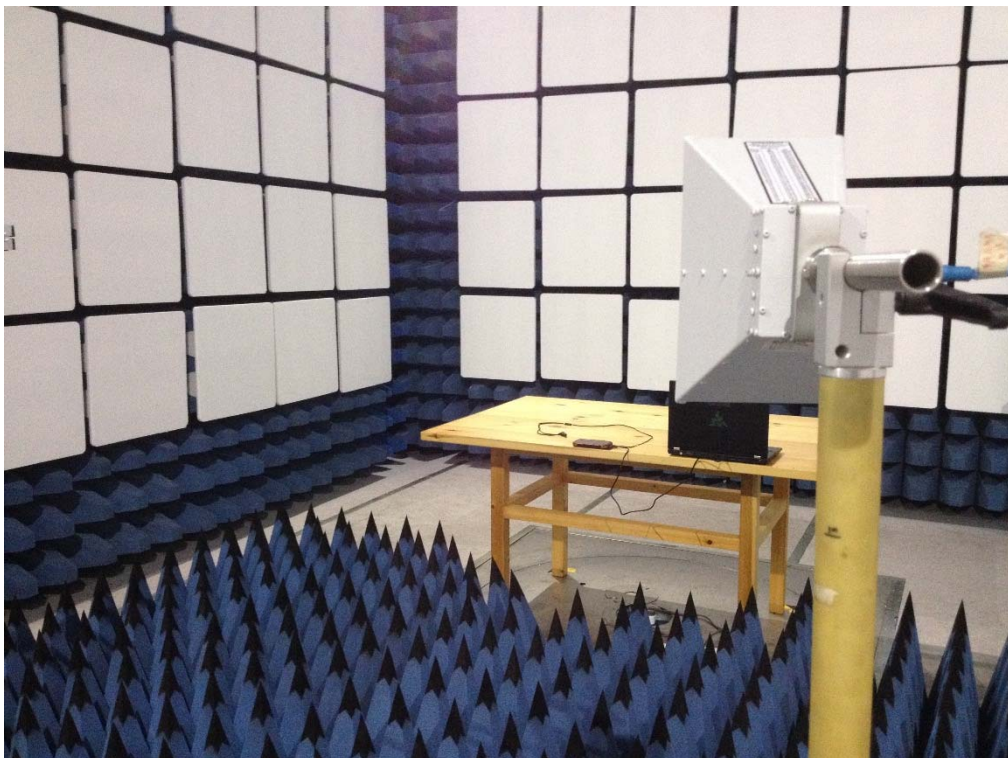
30MHz~1GHz (Camera Test Mode)



30MHz~1GHz (USB Test Mode)

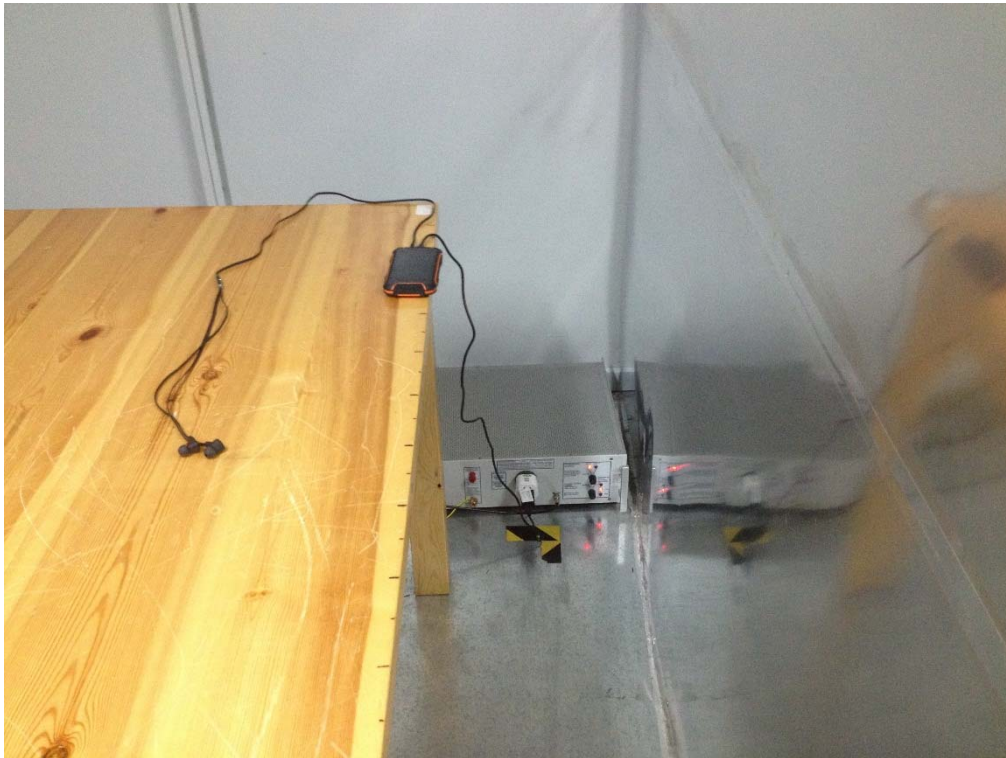


1GHz~6GHz (Camera Test Mode)



1GHz~6GHz (USB Test Mode)

B.2 Conducted Emission



The Camera Test Mode

ANNEX C EUT PHOTOS

C.1 Appearance of the EUT



THE FRONT OF EUT



THE BACK OF EUT



THE LEFT OF EUT



THE RIGHT OF EUT



THE UP OF EUT



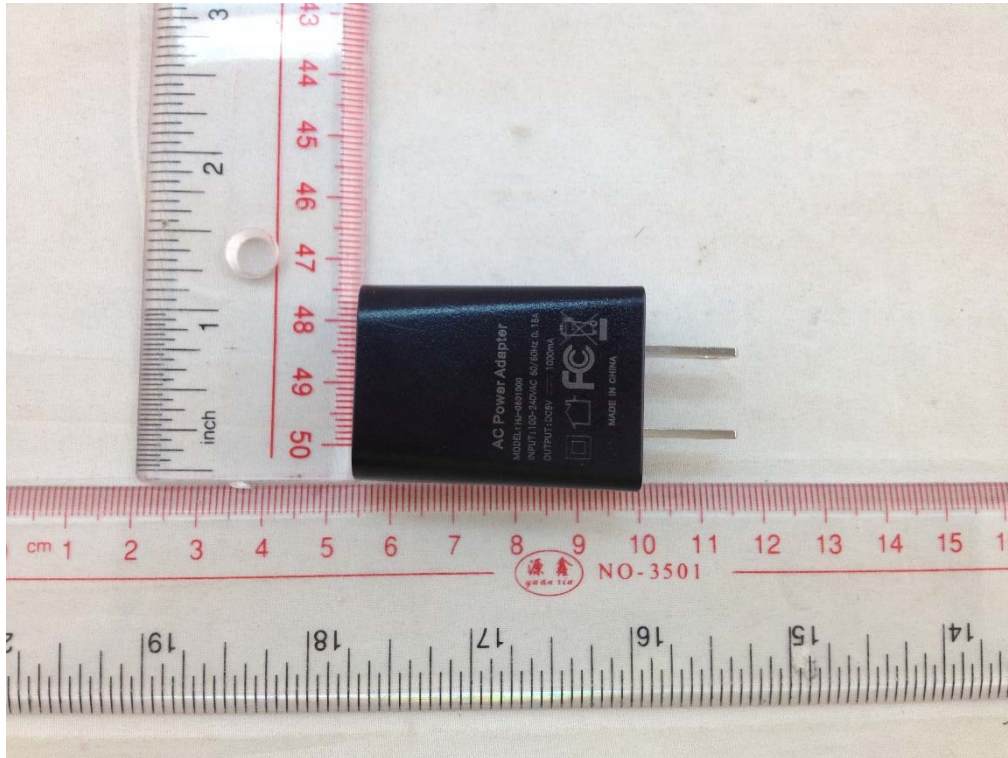
THE DOWN OF EUT



THE EARPHONE



THE USB CABLE



THE CHARGER

C.2 Inside of the EUT



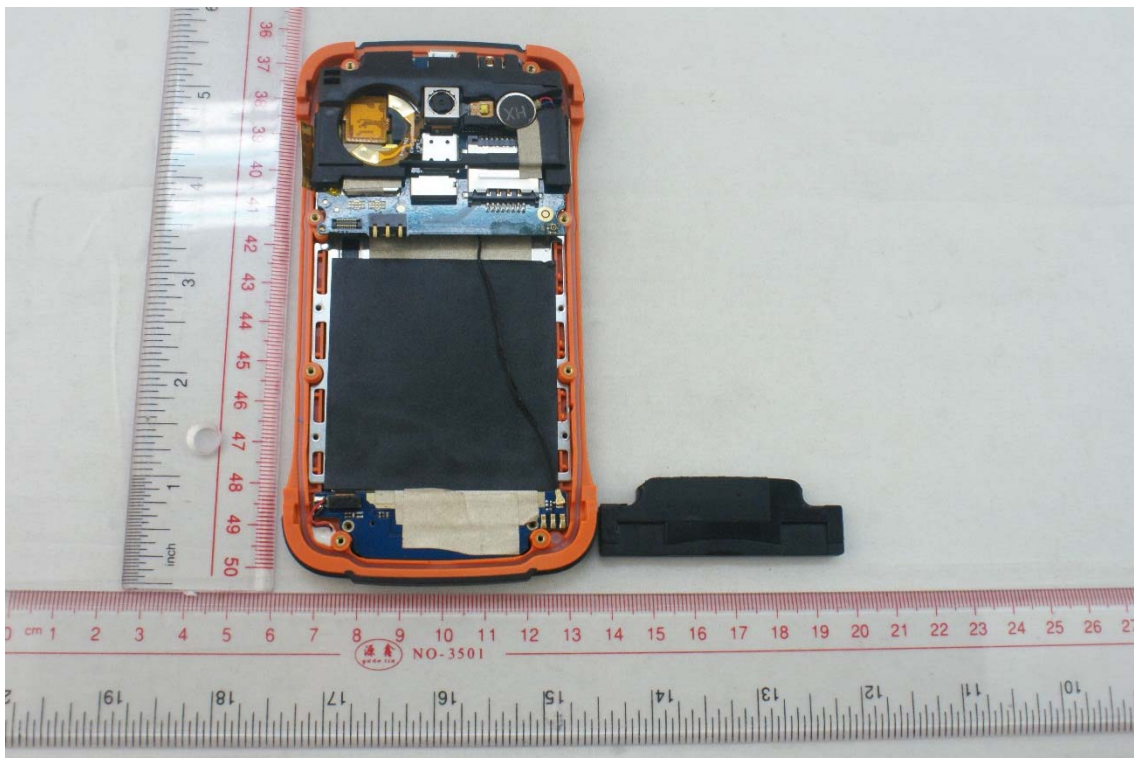
OPEN THE EUT PHOTO 1



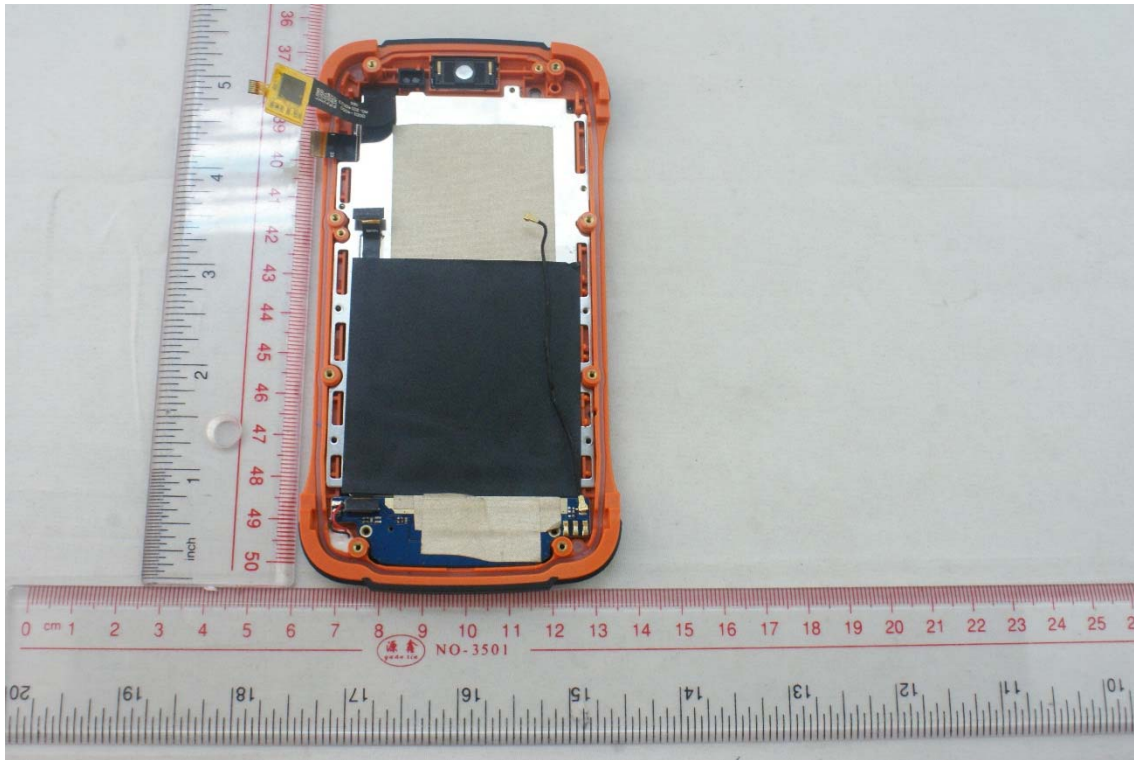
OPEN THE EUT PHOTO 2



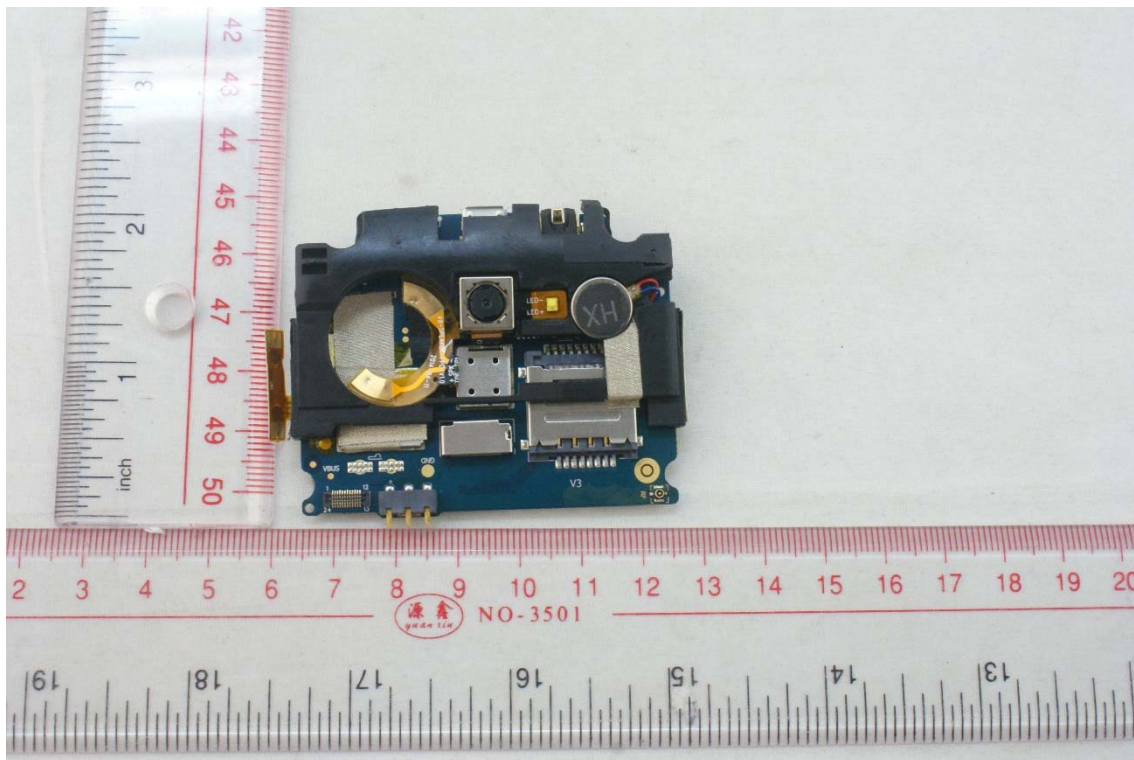
OPEN THE EUT PHOTO 3



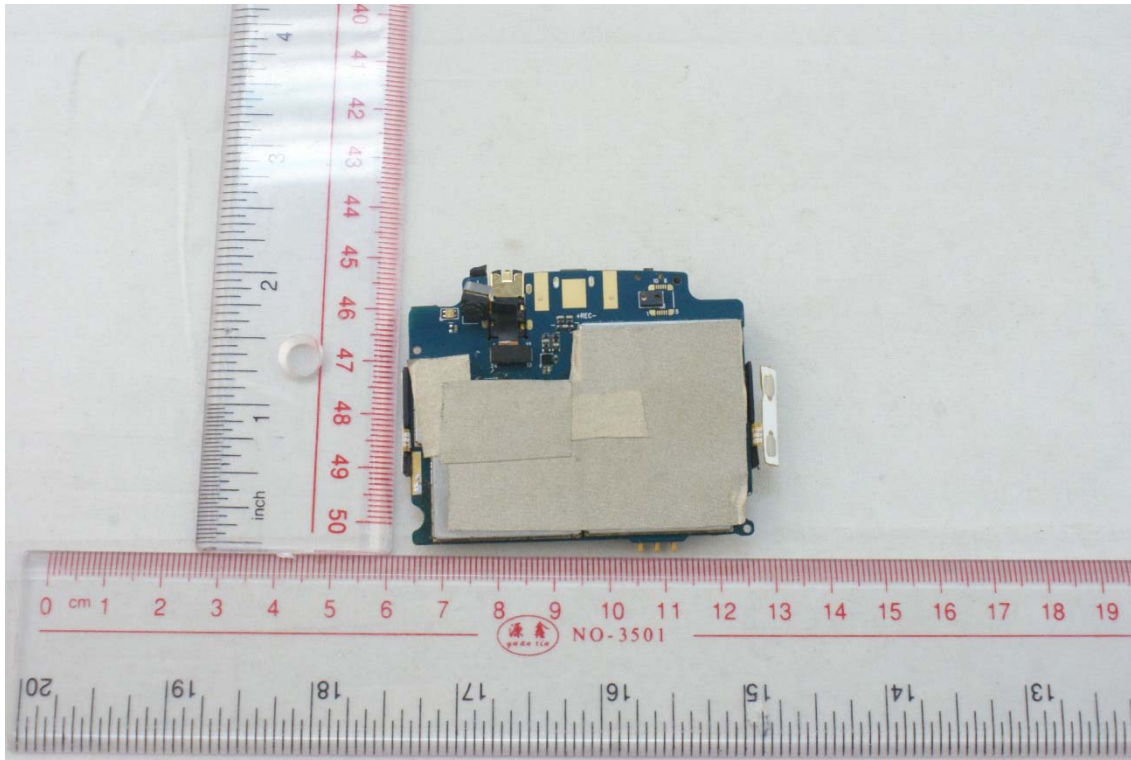
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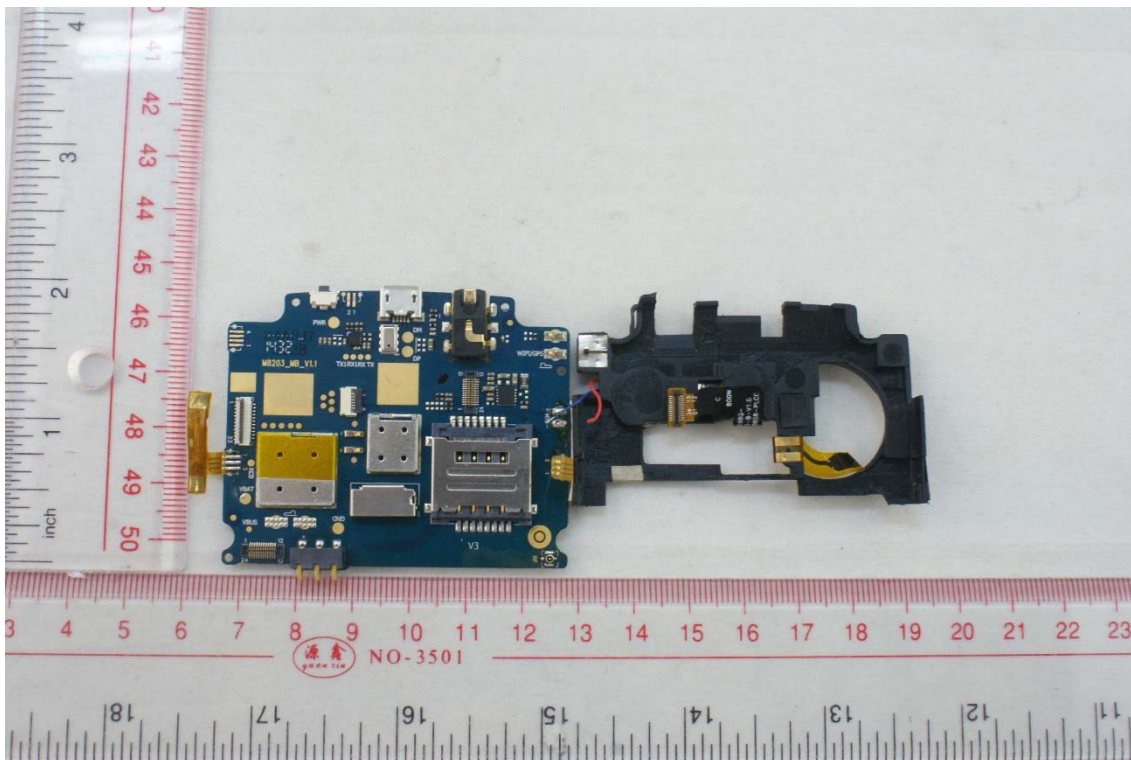
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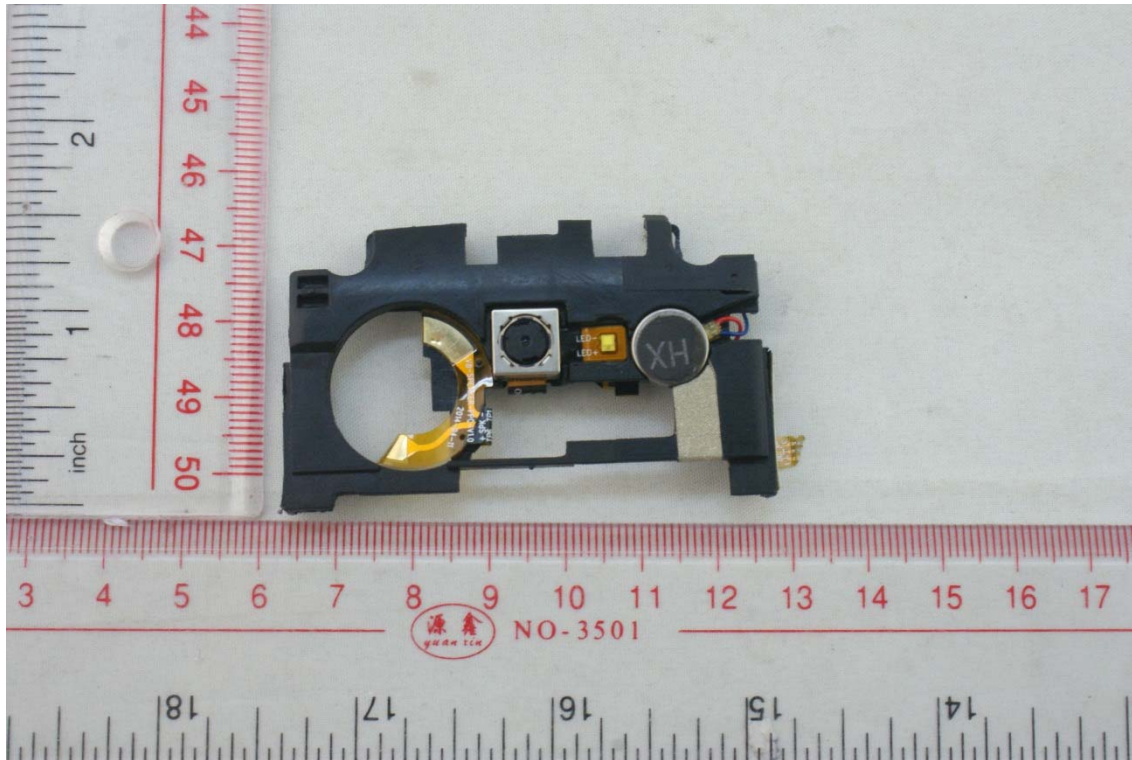
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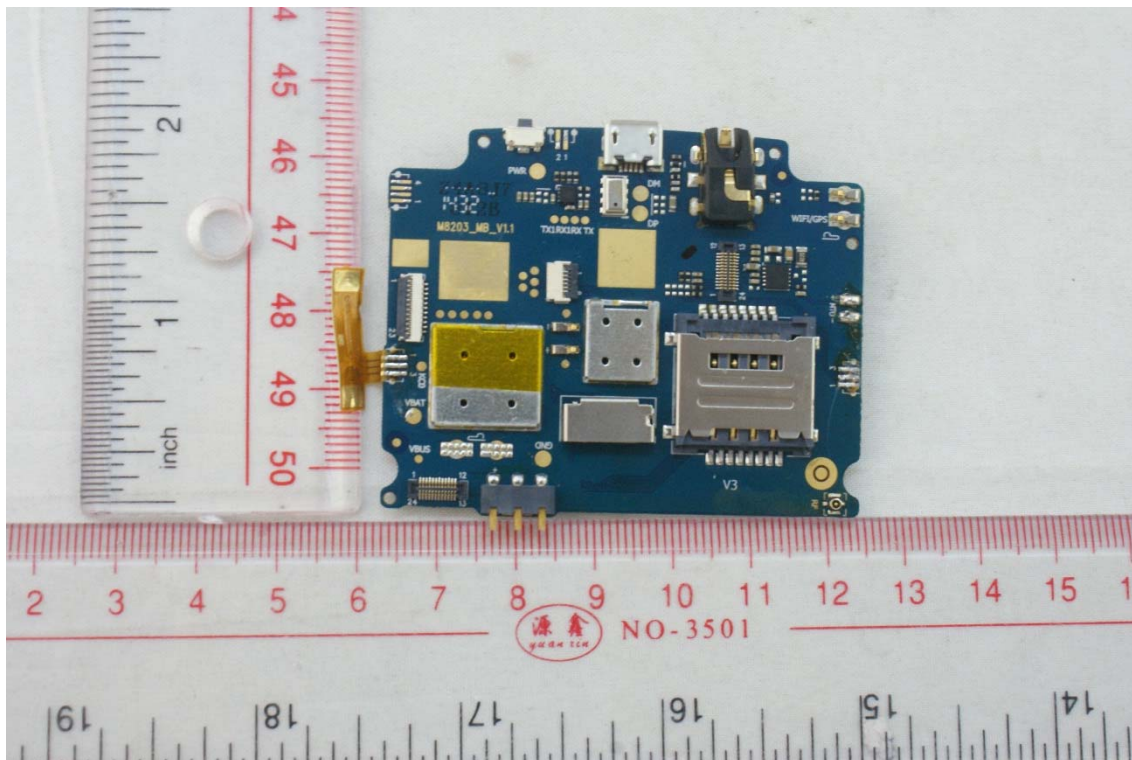
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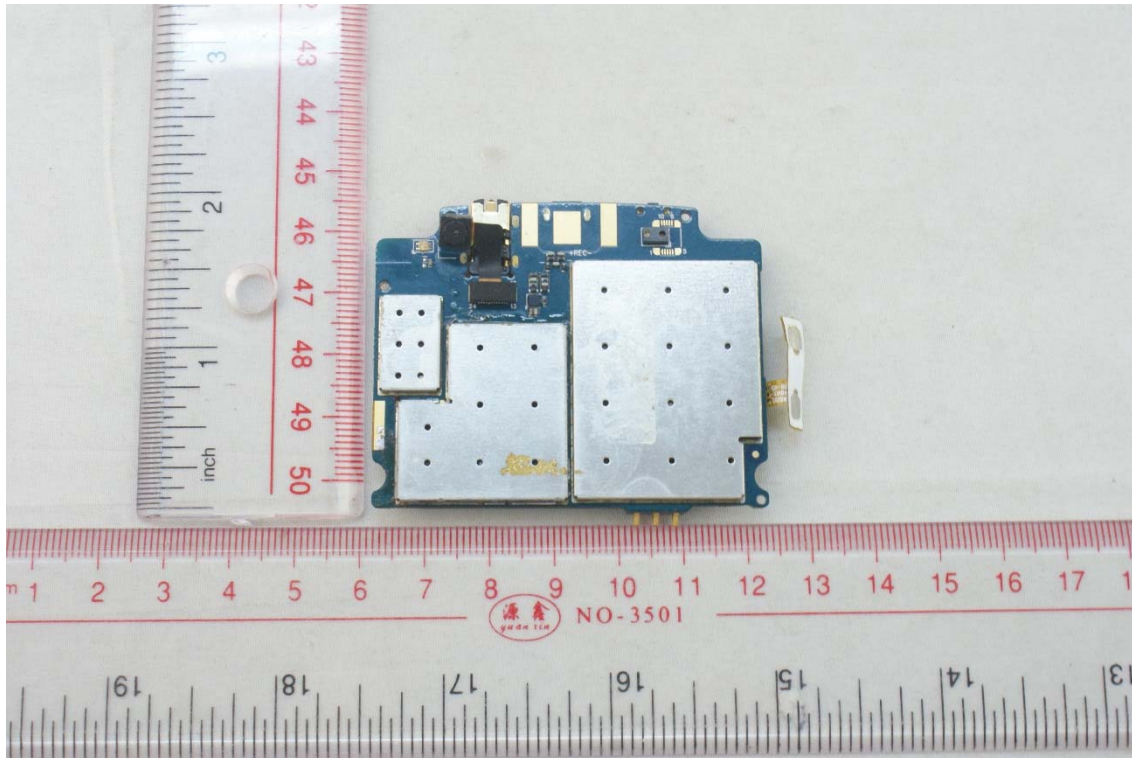
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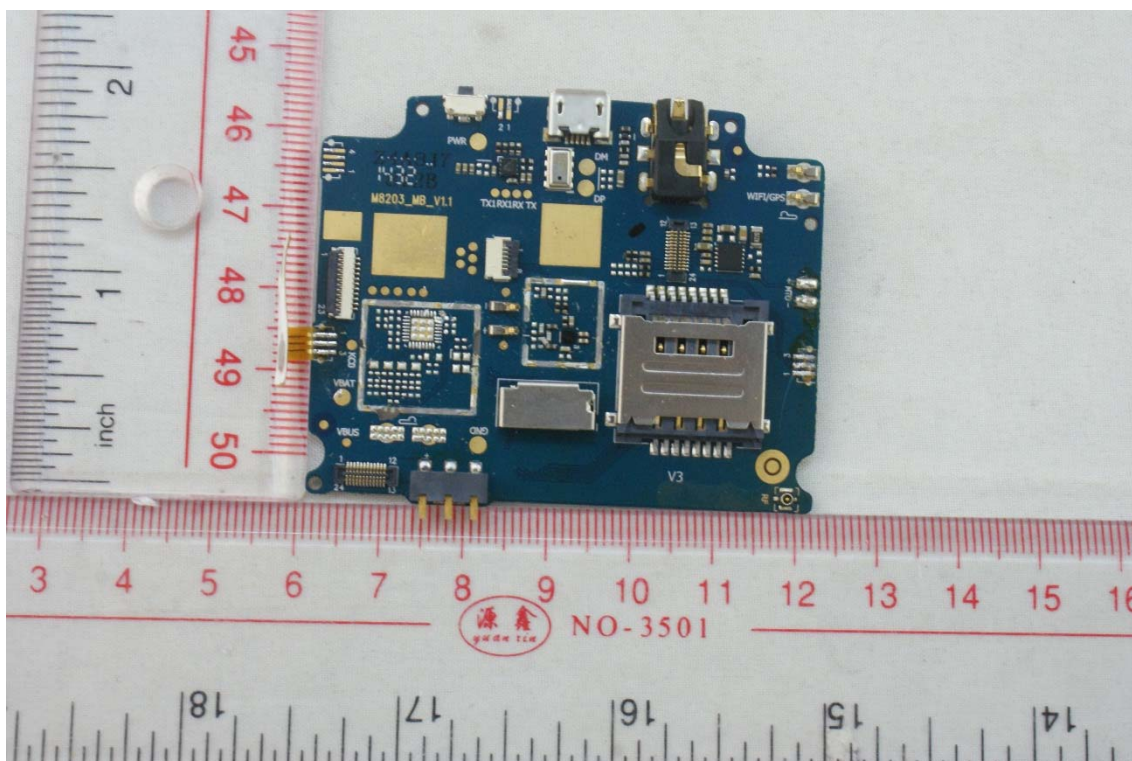
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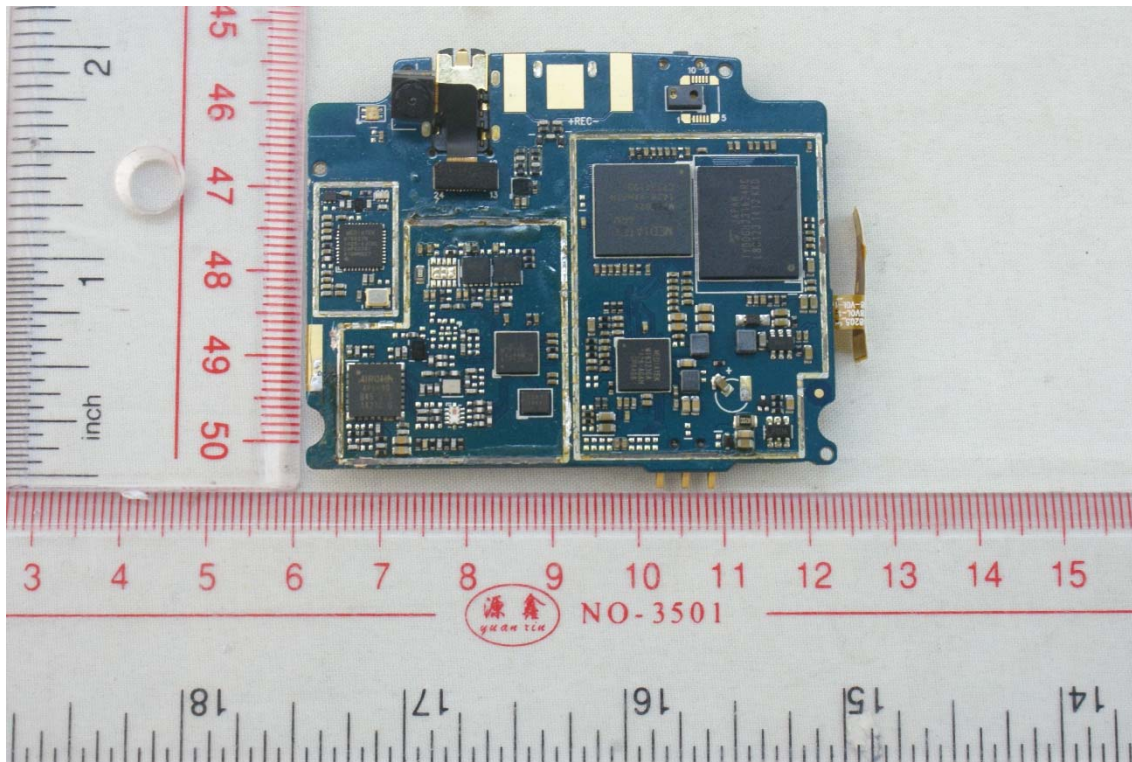
EUT INTERNAL BOARD 5



EUT INTERNAL BOARD 6



EUT INTERNAL BOARD 7



EUT INTERNAL BOARD8



BATTERY

--END OF REPORT--