FCC ID TEST REPORT

REPORT NO.:	091118FIA01
MODEL NO.:	18X
RECEIVED:	Nov. 13, 2009
TESTED:	Nov. 13, 2009
ISSUED:	Nov. 18, 2009

APPLICANT:	Dongguan Wanma Electronic and Technology CO.,LTD
ADDRESS:	No.28, South DongShen Road, Zhangyang Fuda Industry Zone, Zhangmutou Town, Dongguan, Guangdong Province, P.R.C

ISSUED BY:	ADT (Shanghai) Corporation
ADDRESS:	2F, Building C, No.1618, Yishan Rd., 201103, Shanghai, China

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1 CERTIFICATION

PRODUCT:	Radar Detector
BRAND NAME:	NA
MODEL NO.:	18X
APPLICANT:	Dongguan Wanma Electronic and Technology CO.,LTD
TESTED:	Nov. 13, 2009
TEST ITEM:	ENGINEERING SAMPLE
STANDARDS:	FCC Part 15, Subpart B, Class B ANSI C63.4-2003

The above equipment (Model: 18X) has been tested by **ADT (Shanghai) Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Ray Xue , **DATE:** Nov. 18, 2009
(Ray Xue / Project Engineer)

TECHNICAL ACCEPTANCE : Joy Zhu , **DATE:** Nov. 18, 2009
Responsible for EMI
(Joy Zhu / Manager)

APPROVED BY : , **DATE:** Nov. 18, 2009
(Wallace Pan / Director)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Remarks
FCC Part 15, Subpart B, Class B	Conducted Test	NA	NA
	Radiated Test	PASS	Meets Class B Limit Minimum passing margin is –4.42dB at 12057MHz

2.1 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 Ed 1.0.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

This lab's measurement uncertainty U_{Lab}, is low than U_{Cispr} , Table 1 – Values of U_{Cispr} of CISPR 16-4-2 Ed. 1.0, therefore compliance is deemed to occur if no measured disturbance exceeds the disturbance limit.

Measurement	Value
Conducted emissions	2.55 dB
Radiated emissions	3.99 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Radar Detector
MODEL NO.	18X
POWER SUPPLY	12V DC from the power adapter
DATA CABLE SUPPLIED	N/A

NOTE:

1. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

The EUT was tested under the following modes:

- Mode 1: Scanning mode

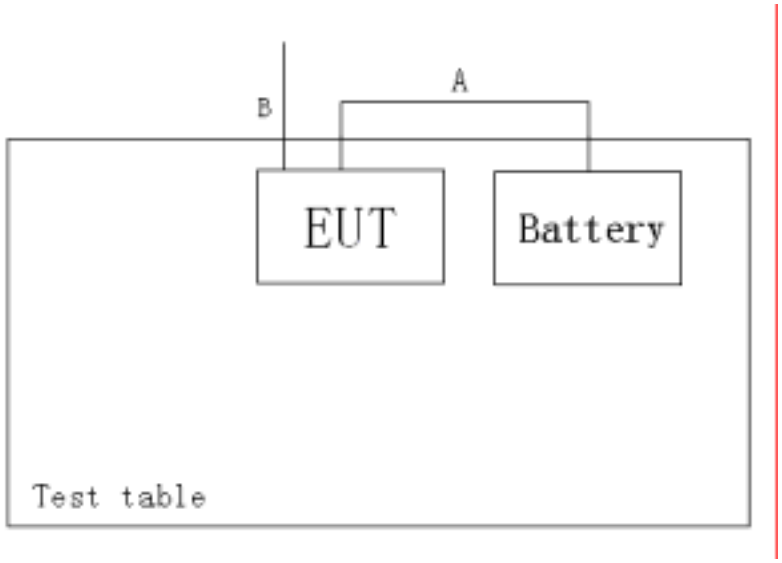
3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent 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	Battery	ACD	78-5MF	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
A	3.0m shielded power cable
B	0.2m shielded mini USB cable

TEST SETUP CHART
MODE 1



4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.107)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTES: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver R&S	ESCS 30	E1R1002	Dec. 31, 2008	Dec. 30, 2010
LISN R&S	ENV 216	E1L1011	Apr. 02, 2009	Apr. 01, 2010

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4-2003 (section 7).

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

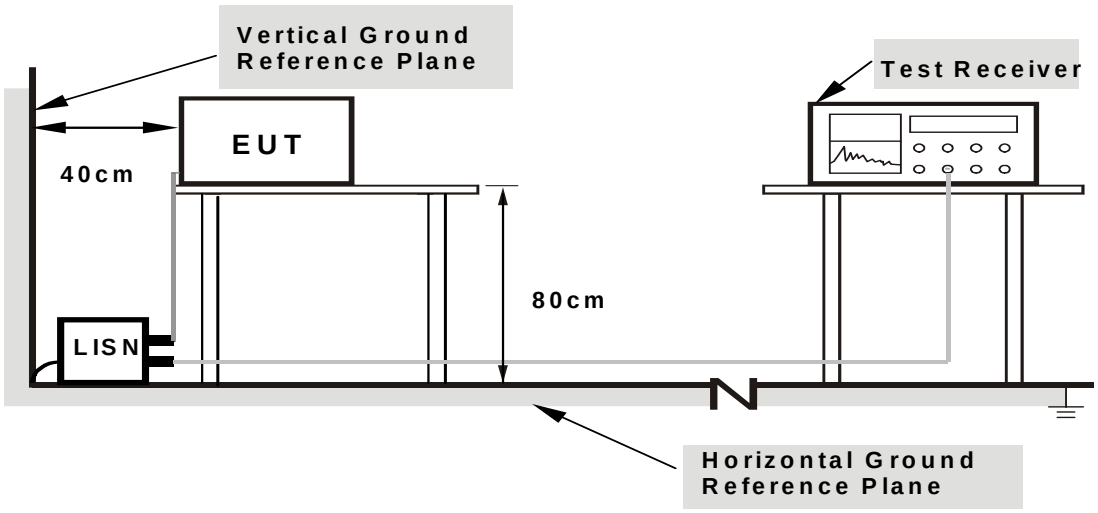
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

Mode 1: a, Put EUT onto the test table.
b, Link EUT to the battery and plug in the mini USB cable while test.
c, Turn on the EUT.

4.1.7 TEST RESULTS

Since the device is only powered by vehicle battery, so this test is no need to do.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.109)

47 CFR 15.109(h) states that “Radar detectors shall comply with the emissions limits…of [section 15.109(a)] over the frequency range of 11.7-12.2GHz.” The applicable limit being 500uV/m measured at a distance of 3m. The EUT has been tested and found to comply with this requirement.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Signal Analyzer R&S	FSP30	E1S1002	Aug. 05, 2009	Aug. 04, 2010
Receiver R&S	ESCS30	E1R1001	Jan. 04, 2009	Jan. 03, 2010
Trilog Broadband Antenna Schwarzbeck	VULB 9168	E1A1001	Aug. 05, 2009	Aug. 04, 2010
Horn Antenna Schwarzbeck	BBHA 9120D	E1A1002	Sep. 09, 2008	Sep. 08, 2010
Preamplifier Agilent	8447D	E1A2001	Sep. 22, 2008	Sep. 21, 2010
Preamplifier Agilent	8449B	E1A2002	Sep. 09, 2008	Sep. 08, 2010
Software ADT	ADT_Radiated_V7.5	N/A	N/A	N/A

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4-2003 (section 8).

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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 antenna is a broadband antenna, and its height is varied from one meter to four 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 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

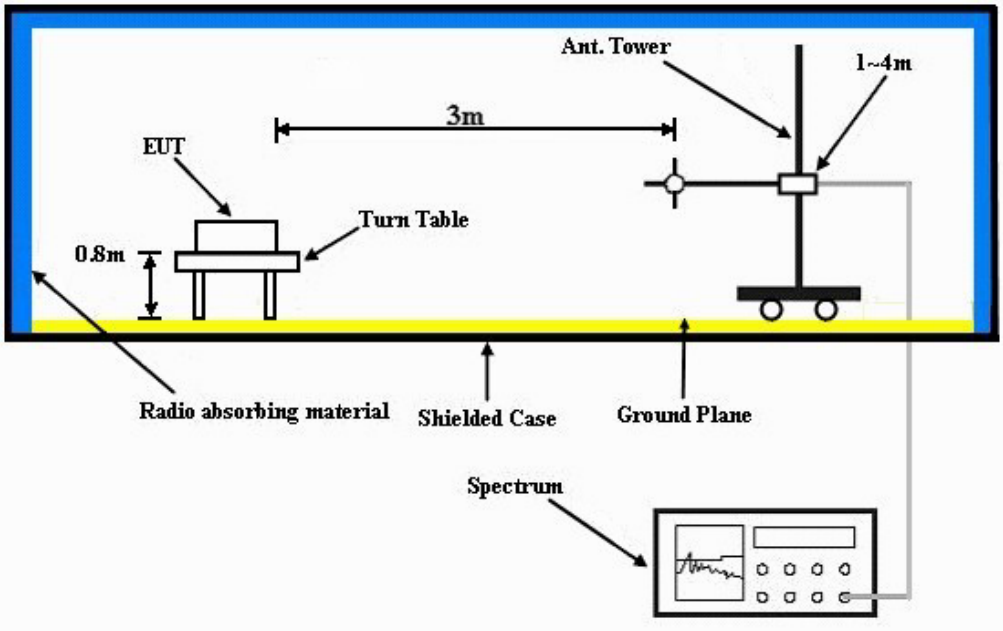
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. 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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

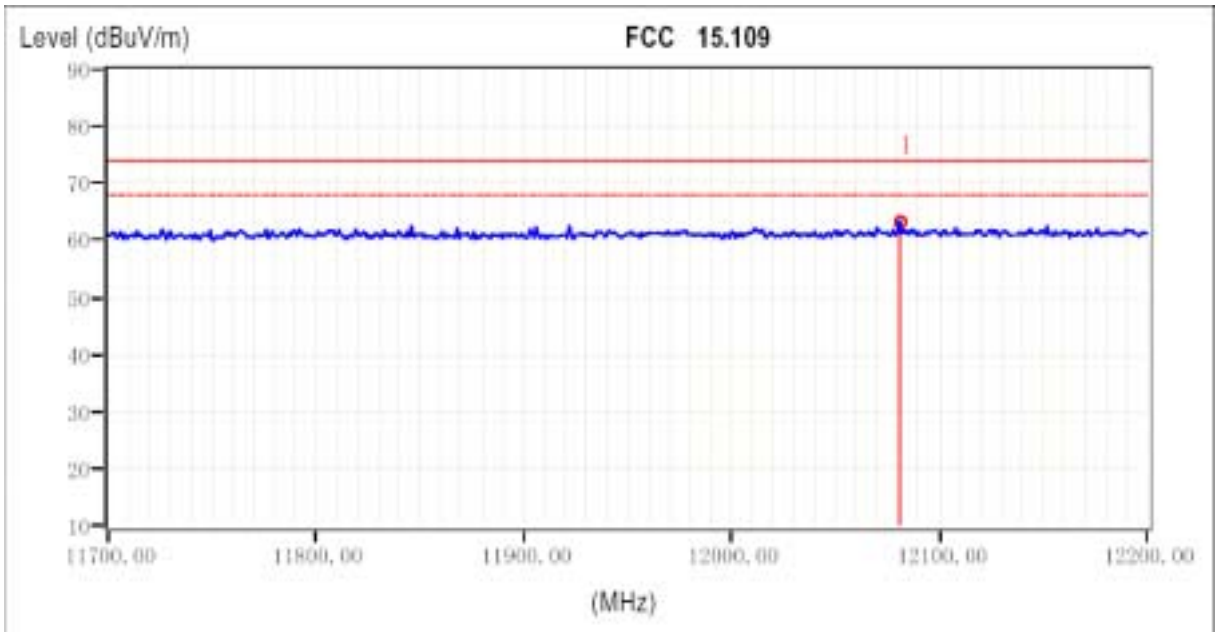
Same as 4.1.6

4.2.7 TEST RESULTS

MODE	Mode 1	INPUT POWER	120Vac, 60Hz
FREQUENCY RANGE	30-1000 MHz	DETECTOR FUNCTION & BANDWIDTH	Peak, 1MHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 50 % RH, 1000 hPa	TESTED BY: John Zhou	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	12081.00	48.21	15.19	63.40	74.00	-10.60	199	0

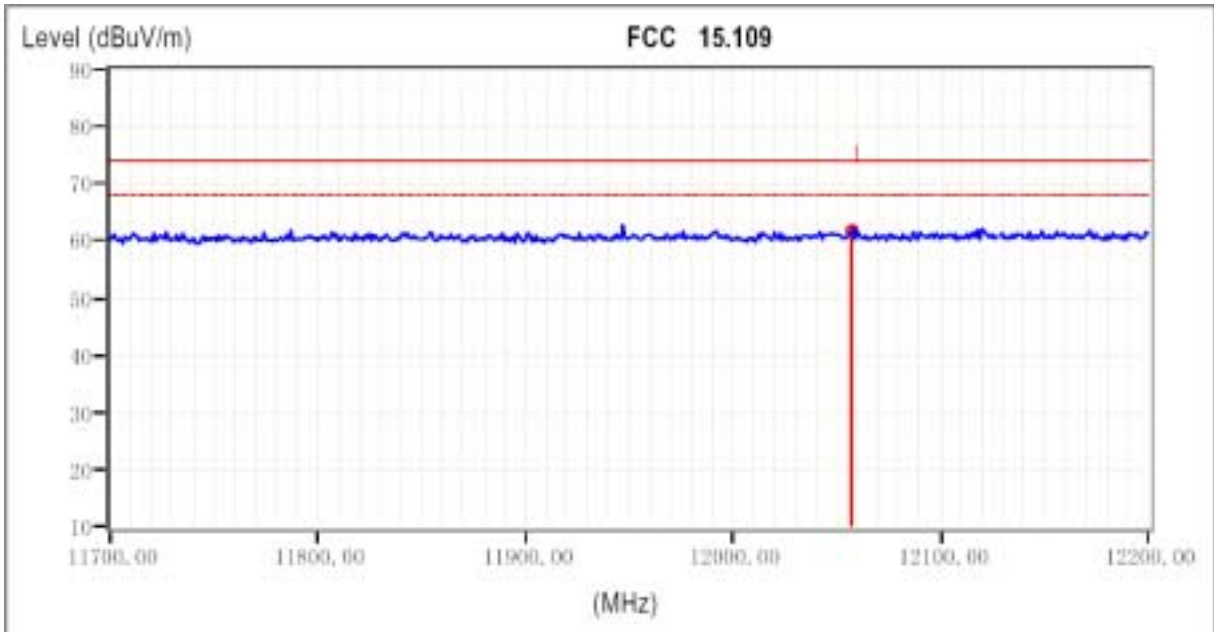
REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



MODE	Mode 1	**INPUT POWER**	120Vac, 60Hz
FREQUENCY RANGE	30-1000 MHz	**DETECTOR FUNCTION & BANDWIDTH**	Peak, 1MHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 50 % RH, 1000 hPa	**TESTED BY**: John Zhou	

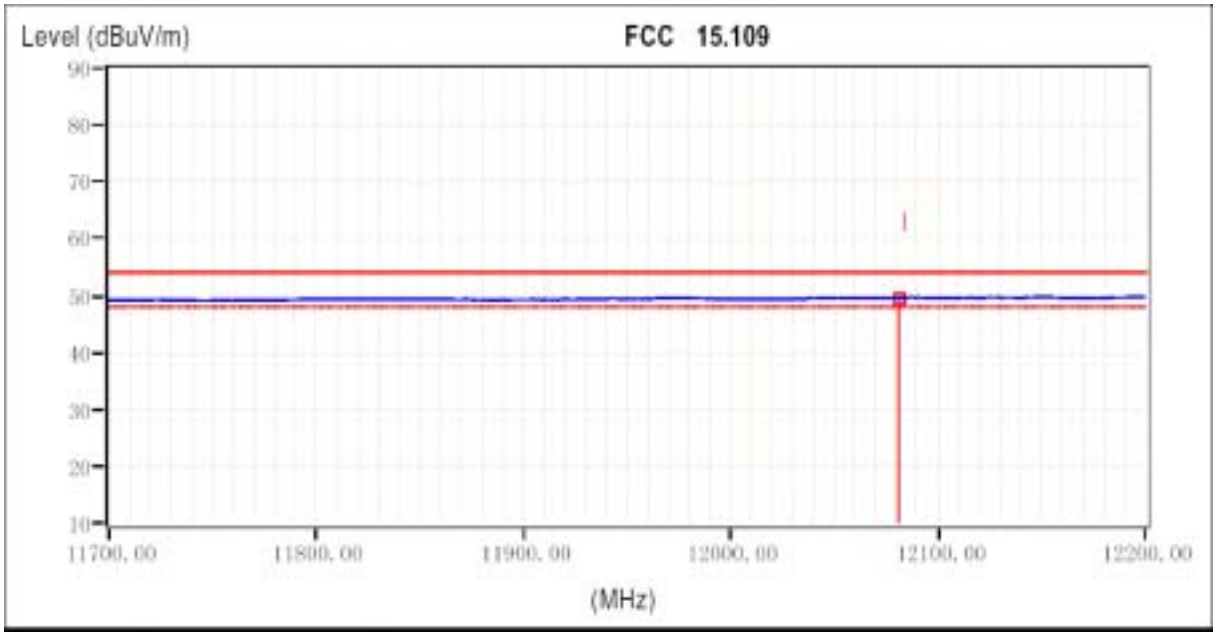
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	12057.00	48.20	13.72	61.92	74.00	-12.08	104	0

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



MODE	Mode 1	**INPUT POWER**	120Vac, 60Hz
FREQUENCY RANGE	1-10GHz	**DETECTOR FUNCTION & BANDWIDTH**	Average,1MHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 50 % RH, 1000 hPa	**TESTED BY**: John Zhou	

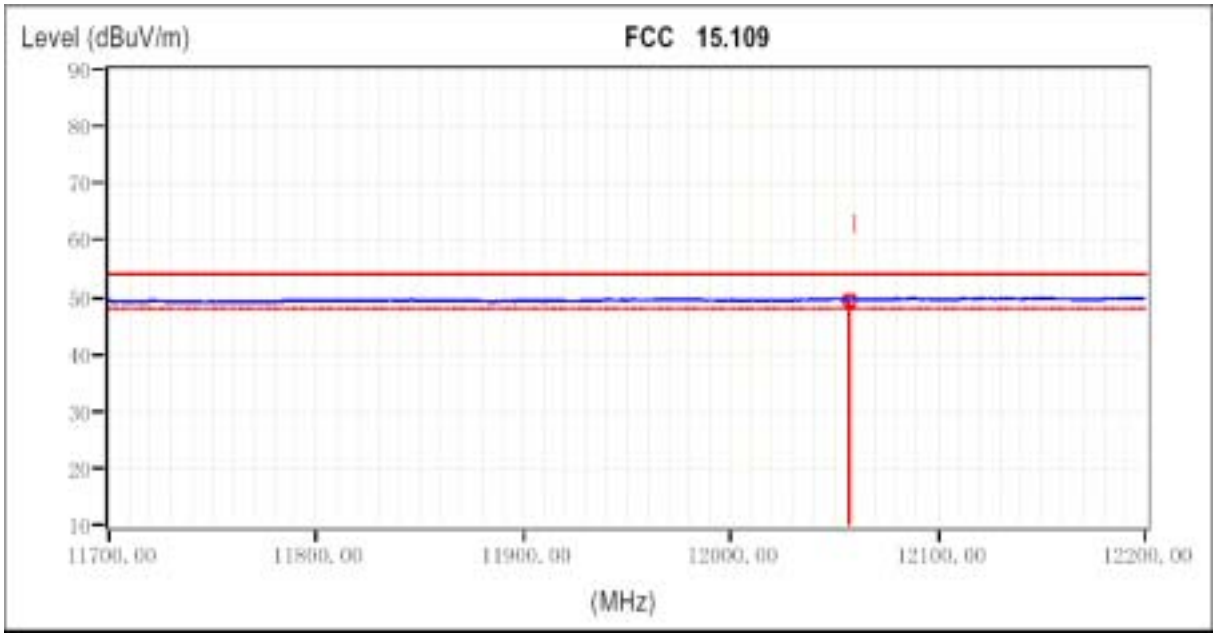
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	12081.00	48.21	1.33	49.54	54.00	-4.46	199	0



REMARKS: 1. Emission level (dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

MODE	1	**INPUT POWER**	120Vac, 60Hz
FREQUENCY RANGE	1-10GHz	**DETECTOR FUNCTION & BANDWIDTH**	Average, 1MHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 50 % RH, 1000 hPa	**TESTED BY**: John Zhou	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	12057.00	48.20	1.37	49.58	54.00	-4.42	104	0

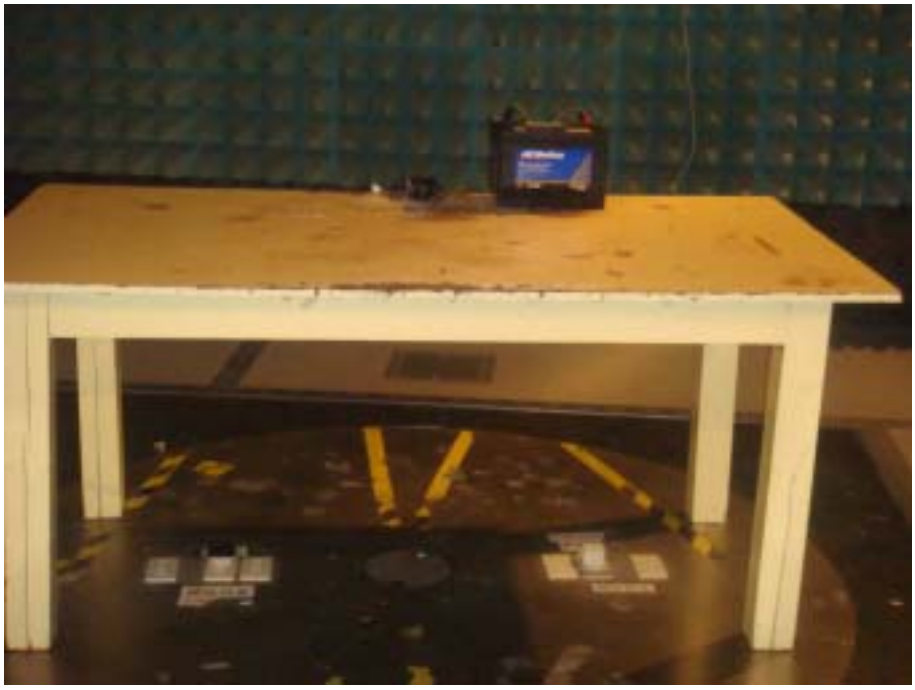


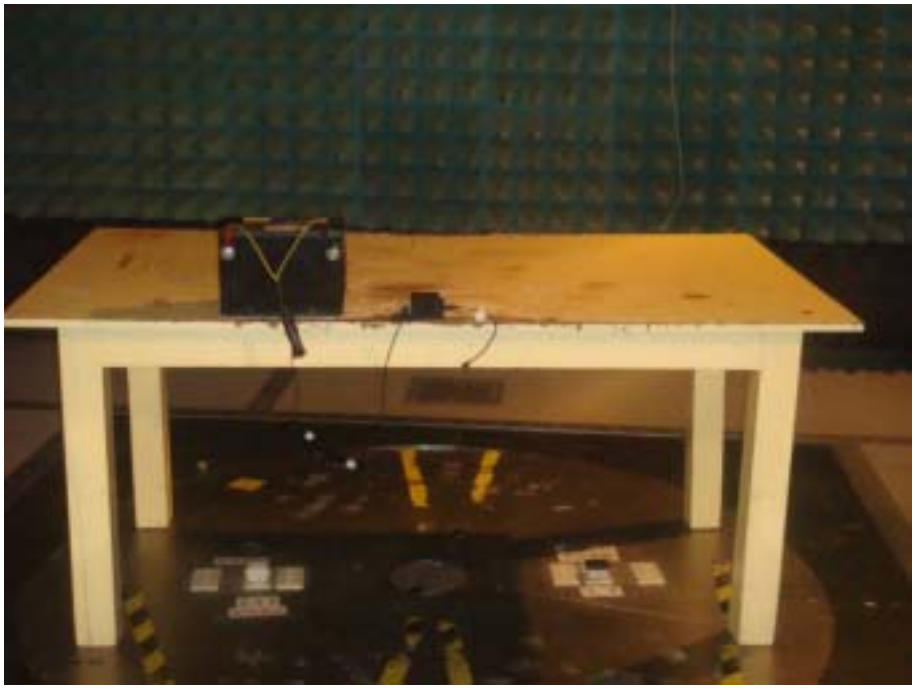
REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

RADIATED EMISSION TEST

MODE 1





6 PHOTOGRAPHS OF THE EUT

7 INFORMATION ON THE TESTING LABORATORIES

We, ADT (Shanghai) Corporation, were founded in 2004 to provide our best service in EMC, Radio and Vehicle consultation. Our laboratories are accredited by the following accreditation bodies according to ISO/IEC 17025 (2005) .

USA	A2LA
	Certificate No.: 2343.01
China	CNAS
	Certificate No.: L2810

Copies of accreditation certificates could be inquired from our office. If you have any comments, please feel free to contact us at the following:

EMC / RF / Vehicle Lab:
Tel: +86 21 6465 9091
Fax:+86 21 6465 9092
Email: bvadtshmail@cn.bureauveritas.com

8 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

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