



# FCC TEST REPORT

FOR

Applicant

**WUXI CHUANGNENG MACHINERY  
MANUFACTURING CO., LTD.**

**Report No. : STS20160310051R-03**



|                 |   |                                                                                                                |
|-----------------|---|----------------------------------------------------------------------------------------------------------------|
| Product Name    | : | Electric bicycle                                                                                               |
| Model No.       | : | WMM12、WMK9、WMZ12、WMX26、<br>WMX20、WMN26、WMC26、<br>WMC26-1、WMC26-2、WMN20                                         |
| Trademark       | : | WAYMAG 威玛格                                                                                                     |
| Test Laboratory | : | Shenzhen Schbeder Technology Co., Ltd<br>6F, Meinian Building, Nanhai Rd, Nanshan District,<br>Shenzhen, China |
| Test Date       | : | March. 01-10, 2016                                                                                             |
| Date of report  | : | March. 10, 2016                                                                                                |

## TABLE OF CONTENTS

|                                                    |           |
|----------------------------------------------------|-----------|
| <b>TEST REPORT DECLARATION.....</b>                | <b>3</b>  |
| <b>1. TEST RESULTS SUMMARY.....</b>                | <b>4</b>  |
| <b>2. GENERAL INFORMATION.....</b>                 | <b>5</b>  |
| 2.1. Report information .....                      | 5         |
| 2.2. Measurement Uncertainty .....                 | 5         |
| 2.3. Test Facility.....                            | 5         |
| 2.4. Test Uncertainty .....                        | 5         |
| <b>3. PRODUCT DESCRIPTION.....</b>                 | <b>6</b>  |
| 3.1. EUT Description .....                         | 6         |
| 3.2. Block Diagram of EUT Configuration.....       | 6         |
| 3.3. Operating Condition of EUT.....               | 6         |
| 3.4. Test Conditions .....                         | 6         |
| 3.5. Modifications .....                           | 6         |
| <b>4. TEST EQUIPMENT USED .....</b>                | <b>7</b>  |
| 4.1. For Conducted Emission Test .....             | 7         |
| 4.2. For Radiated Emission Measurement.....        | 7         |
| <b>5. POWER LINE CONDUCTED EMISSION TEST .....</b> | <b>8</b>  |
| 5.1. Block Diagram of Test Setup.....              | 8         |
| 5.2. Test Standard.....                            | 8         |
| 5.3. Power Line Conducted Emission Limit .....     | 8         |
| 5.4. EUT Configuration on Test.....                | 8         |
| 5.5. Operating Condition of EUT.....               | 8         |
| 5.6. Test Procedure.....                           | 9         |
| 5.7. Test Result.....                              | 9         |
| <b>6. RADIATED EMISSION TEST.....</b>              | <b>10</b> |
| 6.1. Block Diagram of Test Setup.....              | 10        |
| 6.2. Test Standard.....                            | 10        |
| 6.3. Radiated Emission Limit (Class B).....        | 10        |
| 6.4. EUT Configuration on Test.....                | 10        |
| 6.5. Operating Condition of EUT.....               | 11        |
| 6.6. Test Procedure.....                           | 11        |
| 6.7. Test Data .....                               | 11        |
| 6.8. Test Results .....                            | 11        |
| <b>APPENDIX I.....</b>                             | <b>12</b> |
| <b>APPENDIX II .....</b>                           | <b>14</b> |
| <b>APPENDIX III.....</b>                           | <b>16</b> |

## TEST REPORT DECLARATION

|                 |   |                                                                         |
|-----------------|---|-------------------------------------------------------------------------|
| Applicant       | : | WUXI CHUANGNENG MACHINERY MANUFACTURING CO., LTD.                       |
| Address         | : | MIAOTANGQIAO VILLAGE, QIANQIAO TOWN, HUISHAN DISTRICT, WUXI CITY, CHINA |
| Manufacturer    | : | AIQI INTELLIGENT TECHNOLOGY CO.,LTD                                     |
| Address         | : | NANQIAOXI ROAD NO.6,QIANQIAO STREET,HUISHAN DISTRICT,WUXI,CITY,CHINA    |
| Trade Mark      | : | WAYMAG 威玛格                                                              |
| EUT Description | : | Electric bicycle                                                        |
| Model No.       | : | WMM12、WMK9、WMZ12、WMX26、WMX20、WMN26、WMC26、WMC26-1、WMC26-2、WMN20          |

Test Standards:

### FCC Part 15 Subpart B Class B : 2012

The EUT described above is tested by Shenzhen Schbeder Technology Co., Ltd. EMC Laboratory to determine the maximum emissions from the EUT, the maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits. The measurement results are contained in this test report, and Shenzhen Schbeder Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is to be technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Schbeder Technology Co., Ltd.

Test by :

Bill

Check by :

Robert

Approved by :

John





## 1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

| Test Items            | Test Results |
|-----------------------|--------------|
| Conducted Disturbance | Pass         |
| Radiated Emission     | Pass         |

## 2. GENERAL INFORMATION

### 2.1. Report information

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that STS approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that STS in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, STS therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through STS, unless the applicant has authorized STS in writing to do so.

### 2.2. Measurement Uncertainty

Available upon request.

### 2.3. Test Facility

Test Laboratory: Shenzhen Schbeder Technology Co., Ltd

EMC Lab. : Certificated by FCC

### 2.4. Test Uncertainty

Conducted Emission Uncertainty :  $\pm 2.35\text{dB}$

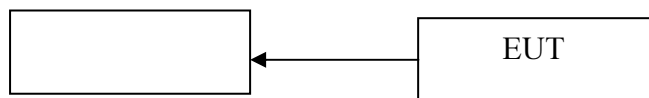
Radiated Emission Uncertainty :  $\pm 2.58\text{dB}$

### 3. PRODUCT DESCRIPTION

#### 3.1. EUT Description

|              |   |                                                                                                                                    |
|--------------|---|------------------------------------------------------------------------------------------------------------------------------------|
| Description  | : | Electric bicycle                                                                                                                   |
| Applicant    | : | WUXI CHUANGNENG MACHINERY<br>MANUFACTURING CO., LTD.<br>MIAOTANGQIAO VILLAGE, QIANQIAO TOWN,<br>HUISHAN DISTRICT, WUXI CITY, CHINA |
| Manufacturer | : | AIQI INTELLIGENT TECHNOLOGY CO.,LTD<br>NANQIAOXI ROAD NO.6,QIANQIAO<br>STREET,HUISHAN DISTRICT,WUXI,CITY,CHINA                     |
| Model Number | : | WMM12                                                                                                                              |

#### 3.2. Block Diagram of EUT Configuration



#### 3.3. Operating Condition of EUT

Test mode 1: TX

#### 3.4. Test Conditions

Temperature: 23-26℃  
Relative Humidity: 55-68 %

#### 3.5. Modifications

No modification was made.

## 4. TEST EQUIPMENT USED

### 4.1. For Conducted Emission Test

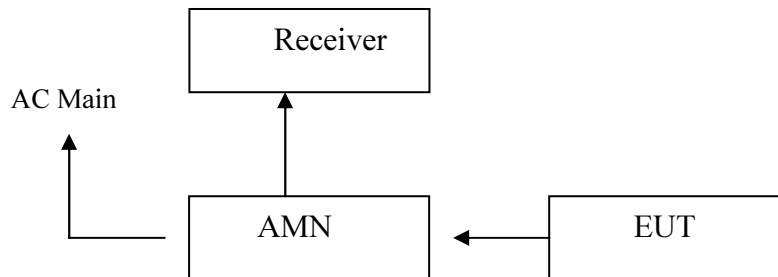
| Item | Equipment      | Manufacturer    | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|----------------|-----------------|-----------|------------|-------------|---------------|
| 1.   | Test Receiver  | Rohde & Schwarz | ESHS30    | 828985/018 | Jun. 01, 15 | 1 Year        |
| 2.   | Pulse Limiter  | Rohde & Schwarz | ESH3-Z2   | 100006     | Jun. 01, 15 | 1 Year        |
| 3.   | AMN            | Rohde & Schwarz | ESH2-Z5   | 834549/005 | Jun. 01, 15 | 1 Year        |
| 4.   | Conical        | Emtek           | N/A       | N/A        | N/A         | N/A           |
| 5.   | Voltage Probe  | Schwarzbeck     | TK9416    | N/A        | Jun. 01, 15 | 1 Year        |
| 6.   | Coaxial Switch | Anritsu         | MP59B     | 6100214550 | Jun. 01, 15 | 1 Year        |

### 4.2. For Radiated Emission Measurement

| Item | Equipment         | Manufacturer  | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|-------------------|---------------|-----------|------------|-------------|---------------|
| 1.   | Spectrum Analyzer | ANRITSU       | MS2661C   | 6200140915 | Jun. 01, 15 | 1 Year        |
| 2.   | Test Receiver     | Rohde&Schwarz | ESC830    | 828982/018 | Jun. 01, 15 | 1 Year        |
| 3.   | Bilog Antenna     | Schwarzbeck   | VULB9163  | 142        | Jun. 01, 15 | 1 Year        |
| 4.   | 50 Coaxial Switch | Anritsu Corp  | MP59B     | 6100237248 | Jun. 01, 15 | 1 Year        |
| 5.   | Cable             | Schwarzbeck   | AK9513    | ACRX1      | Jun. 01, 15 | 1 Year        |
| 6.   | Cable             | Rosenberger   | N/A       | FR2RX2     | Jun. 01, 15 | 1 Year        |
| 7.   | Cable             | Schwarzbeck   | AK9513    | CRRX2      | Jun. 01, 15 | 1 Year        |
| 8.   | Cable             | Schwarzbeck   | AK9513    | CRRX2      | Jun. 01, 15 | 1 Year        |
| 9.   | Signal Generator  | HP            | 864A      | 3625U00573 | Jun. 01, 15 | 1 Year        |

## 5. POWER LINE CONDUCTED EMISSION TEST

### 5.1. Block Diagram of Test Setup



### 5.2. Test Standard

FCC Part 15 Subpart B Class B : 2012

### 5.3. Power Line Conducted Emission Limit

| Frequency<br>MHz | Limits dB(μV)    |               |
|------------------|------------------|---------------|
|                  | Quasi-peak Level | Average Level |
| 0.15 ~ 0.50      | 66 ~ 56*         | 56 ~ 46*      |
| 0.50 ~ 5.00      | 56               | 46            |
| 5.00 ~ 30.00     | 60               | 50            |

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

### 5.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet Part 15 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

### 5.5. Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

5.5.2. Turn on the power of all equipments.

5.5.3. Let the EUT work in test modes (EUT WORKING) and test it.



## 5.6. Test Procedure

The EUT is put on the table of non-conducting material which is 0.8 meter high above the reference ground. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission according to the Part 15 regulations during conducted emission test. And the voltage probe had been used for the load terminals test according to the Part 15 standard.

The bandwidth of the test receiver (R&S ESHS30) is set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

All the test results are listed in Table 1. The scanning waveform is put in **Appendix I**.

Tab 1 Conducted Disturbance Test Data

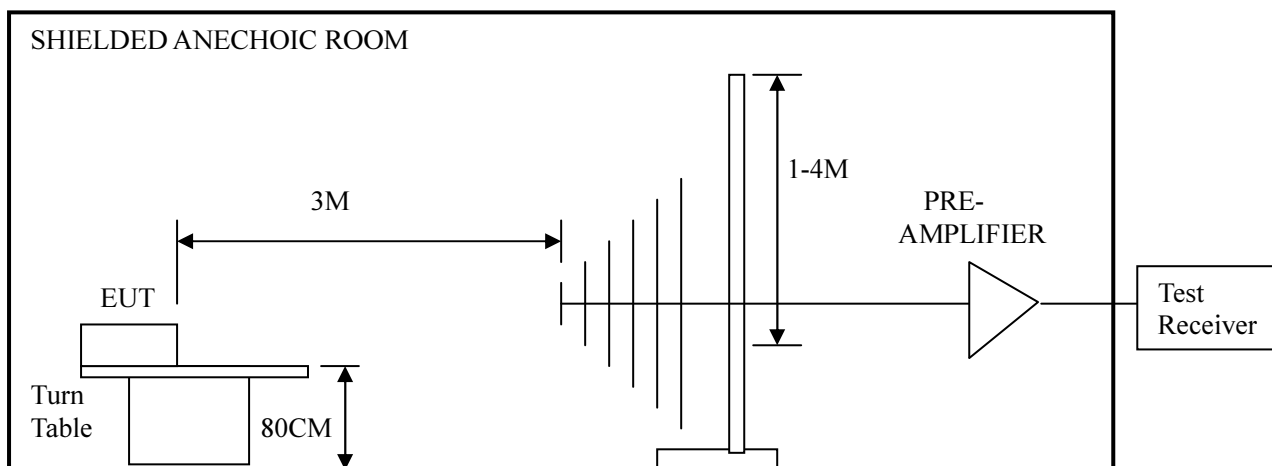
| Model No.<br>WMM12 |                   |                 |                   |                 |                    |                   |                 |                   |                 |
|--------------------|-------------------|-----------------|-------------------|-----------------|--------------------|-------------------|-----------------|-------------------|-----------------|
| Line               |                   |                 |                   |                 | Neutral            |                   |                 |                   |                 |
| Frequency<br>(MHz) | Quasi-Peak        |                 | Average           |                 | Frequency<br>(MHz) | Quasi-Peak        |                 | Average           |                 |
|                    | Reading<br>(dBuV) | Limit<br>(dBuV) | Reading<br>(dBuV) | Limit<br>(dBuV) |                    | Reading<br>(dBuV) | Limit<br>(dBuV) | Reading<br>(dBuV) | Limit<br>(dBuV) |
| 0.24               | 48.03             | 62.11           | 43.01             | 52.11           | 0.21               | 54.23             | 63.22           | 47.38             | 53.22           |
| 1.52               | 44.00             | 56.00           | 41.25             | 46.00           | 1.55               | 43.46             | 56.00           | 35.66             | 46.00           |
| 15.02              | 50.97             | 60.00           | 46.03             | 50.00           | 15.37              | 49.60             | 60.00           | 43.44             | 50.00           |

## 5.7. Test Result

PASS

## 6. RADIATED EMISSION TEST

### 6.1. Block Diagram of Test Setup



### 6.2. Test Standard

FCC Part 15 Subpart B Class B : 2012

### 6.3. Radiated Emission Limit (Class B)

All emanations from a Class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

| FREQUENCY<br>(MHz) | DISTANCE<br>(Meters) | FIELD STRENGTHS LIMITS<br>(dB $\mu$ V/m) |
|--------------------|----------------------|------------------------------------------|
| 30 ~ 88            | 3                    | 40                                       |
| 88 ~ 216           | 3                    | 43.5                                     |
| 216 ~ 960          | 3                    | 46.0                                     |
| 960 ~ 1000         | 3                    | 54.0                                     |

Note:(1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instruments antenna and the closed point of any part of the EUT.

### 6.4. EUT Configuration on Test

The follow equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulation in a manner which tends to maximize its emission characteristics in normal application.

## 6.5. Operating Condition of EUT

6.5.1. Setup the EUT as shown on Section 6.1.

6.5.2. Turn on the power of all equipments.

6.5.3. Let the EUT work in test mode and measure it.

## 6.6. Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth setting on the test receiver (R&S TEST RECEIVER ESCS20) is 120 KHz.

The EUT is tested in Anechoic Chamber.

## 6.7. Test Data

Emissions don't show below are too low against the limits, the test curves are shown in the **Appendix II**

Radiated Disturbance Test Data

| Model No.:<br>WMM12 |                            |              |                           |
|---------------------|----------------------------|--------------|---------------------------|
| Frequency<br>MHz    | Readings<br>dB( $\mu$ V/m) | Polarization | Limits<br>dB ( $\mu$ V/m) |
| 239.52              | 32.90                      | Horizontal   | 46.0                      |
| 239.52              | 38.78                      | Vertical     | 46.0                      |
| 396.52              | 35.57                      | Horizontal   | 46.0                      |
| 264.74              | 37.88                      | Vertical     | 46.0                      |

## 6.8. Test Results

PASS.

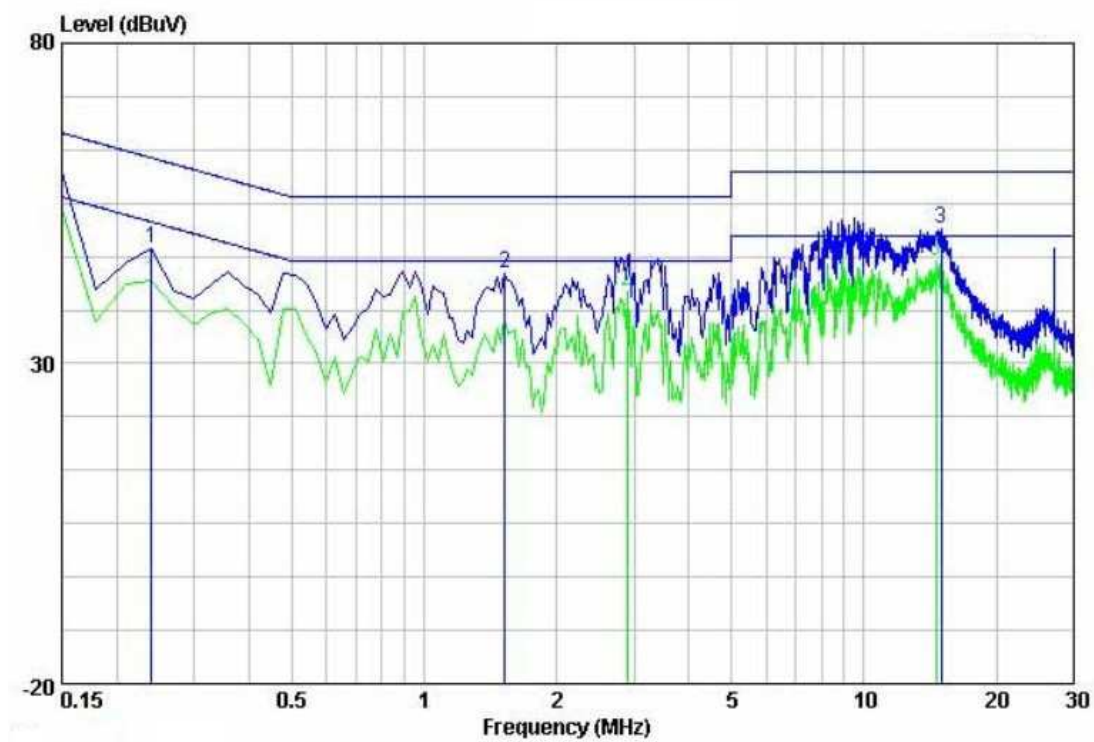


## **APPENDIX I**

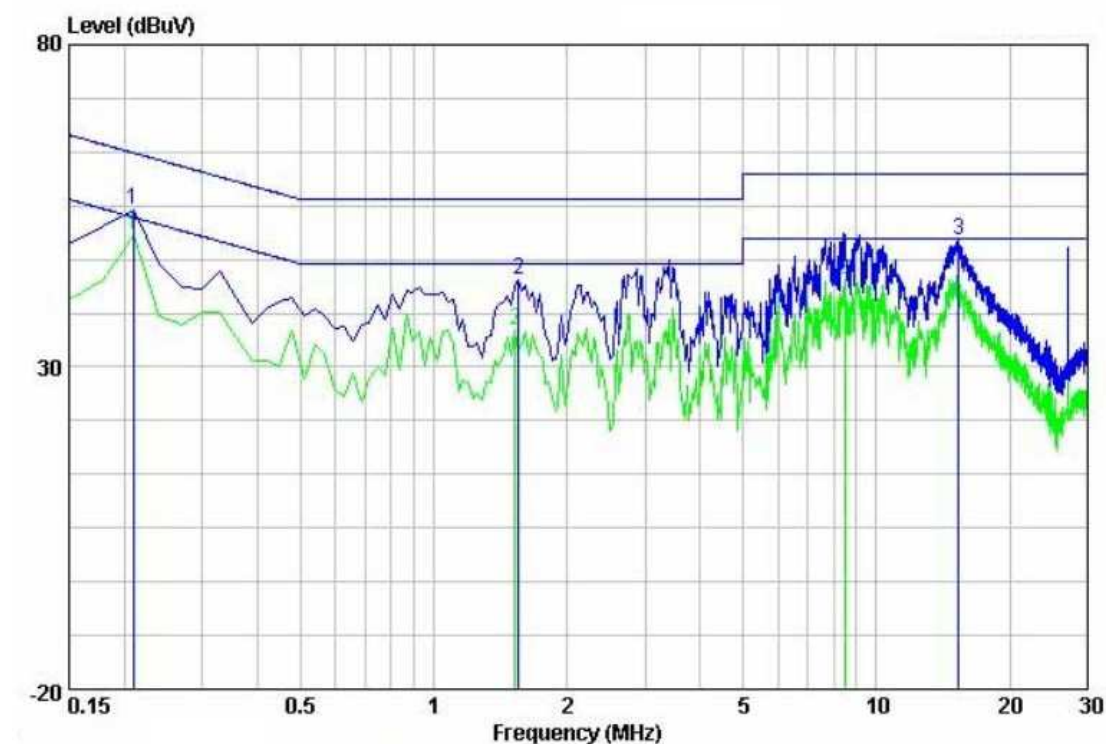


## Power Line Conducted Emission Date

Phase: L



Phase: N



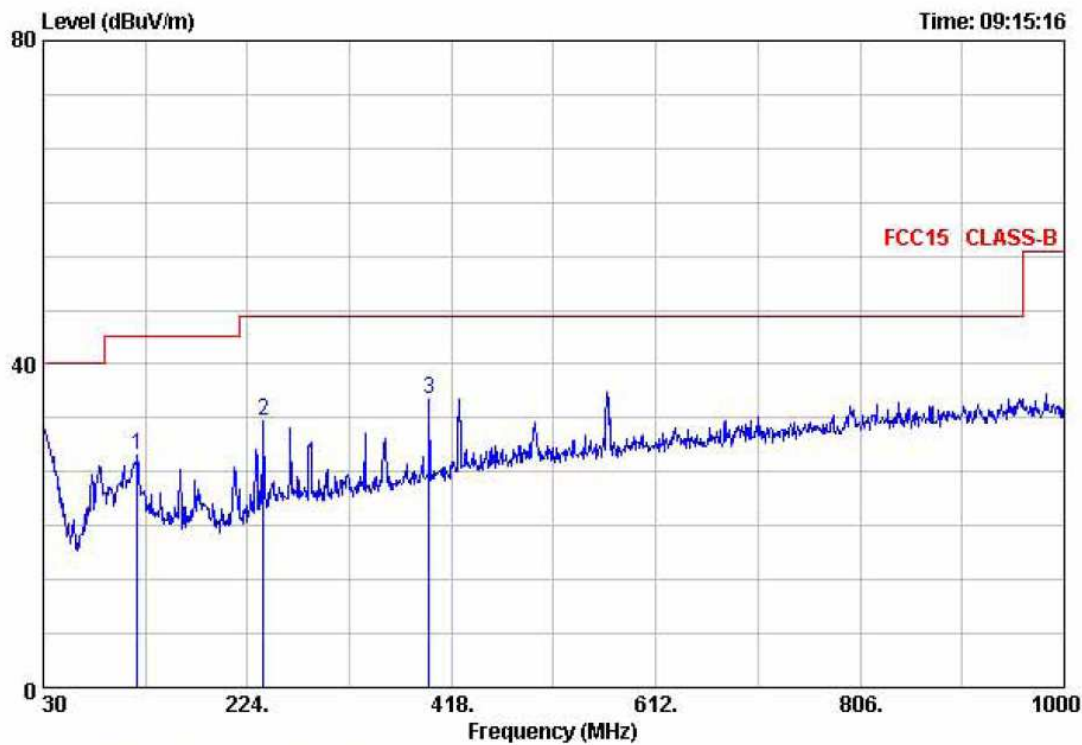


## **APPENDIX II**

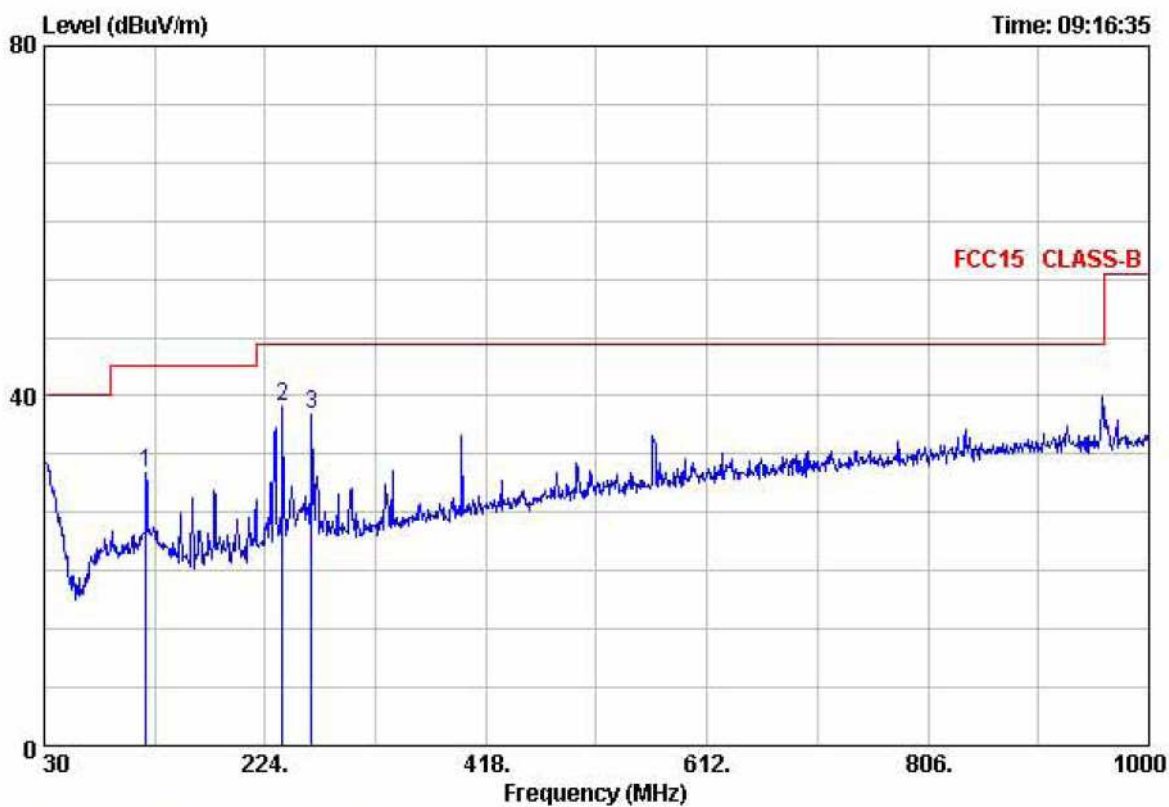


## RADIATED EMISSION DATE

Polarization: Horizontal



Polarization: Vertical





## **APPENDIX III**



**Photo 1 General Appearance of the EUT**



**Photo 2 General Appearance of the EUT**



**Photo 3 General Appearance of the EUT**



**Photo 4 Adaptor**

