

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT  
INTENTIONAL RADIATOR CERTIFICATION TO  
FCC PART 15 SUBPART C REQUIREMENT**

*OF*

**Car mp3 transmitter**

**MODEL No.: V-001, V-020, V-080, V-066, V-096, V-098**

**FCC ID: V4IVM-01D**

**REPORT NO: E1001020F**

**ISSUE DATE: January 12, 2010**

*Prepared for*

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*Prepared by*

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**VERIFICATION OF COMPLIANCE**

|                      |  |
|----------------------|--|
| Applicant:           | MODERN VISION TECHNOLOGY ELECTRONIC CO., LIMITED<br>2 BLDG, XIN'ER INDUSTRIAL PARK, SHA JING TOWN, BAO'AN<br>DISTRICT, Shenzhen, China                 |
| Product Description: | Car mp3 transmitter  |
| Brand Name:          | N/A  |
| Model Number:        | V-001, V-020, V-080, V-066, V-096, V-098<br>(Note: The samples are the same only except their appearance and model number. We prepare V-001 for test.) |
| Serial Number:       | N/A  |
| File Number:         | E1001020F  |
| Date of Test:        | January 06, 2010 to January 12, 2010   |

**We hereby certify that:**

The above equipment was tested by SHENZHEN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.239.

The test results of this report relate only to the tested sample identified in this report.

*Approved By*



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*David Lee / Q.A. Manager*  
SHENZHEN EMTEK CO., LTD.

## Table of Contents

|   |           |
|---|-----------|
| <b>1. GENERAL INFORMATION .....</b>                   | <b>4</b>  |
| 1.1 PRODUCT DESCRIPTION.....                          | 4         |
| 1.2 RELATED SUBMITTAL(S) / GRANT (S).....             | 4         |
| 1.3 TEST METHODOLOGY.....                             | 4         |
| 1.4 SPECIAL ACCESSORIES .....                         | 4         |
| 1.5 EQUIPMENT MODIFICATIONS .....                     | 4         |
| 1.6 TEST FACILITY .....                               | 5         |
| <b>2. SYSTEM TEST CONFIGURATION.....</b>              | <b>6</b>  |
| 2.1 EUT CONFIGURATION.....                            | 6         |
| 2.2 EUT EXERCISE.....                                 | 6         |
| 2.3 TEST PROCEDURE.....                               | 6         |
| 2.4 LIMITATION .....                                  | 6         |
| 2.5 CONFIGURATION OF TESTED SYSTEM.....               | 8         |
| <b>3. SUMMARY OF TEST RESULTS .....</b>               | <b>9</b>  |
| <b>4. DESCRIPTION OF TEST MODES .....</b>             | <b>9</b>  |
| <b>5. RADIATED EMISSION TEST .....</b>                | <b>10</b> |
| 5.1 MEASUREMENT PROCEDURE.....                        | 10        |
| 5.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)..... | 11        |
| 5.3 MEASUREMENT EQUIPMENT USED: .....                 | 11        |
| 5.4 MEASUREMENT RESULT.....                           | 12        |
| 5.5 RADIATION MEASUREMENT PHOTOS .....                | 18        |
| <b>6. OCCUPIED BANDWIDTH.....</b>                     | <b>19</b> |
| 6.1 MEASUREMENT PROCEDURE.....                        | 19        |
| 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)..... | 19        |
| 6.3 MEASUREMENT EQUIPMENT USED: .....                 | 19        |
| 6.4 MEASUREMENT RESULTS:.....                         | 19        |

APPENDIX I (4 Pages)

## 1. GENERAL INFORMATION

### 1.1 Product Description

The MODERN VISION TECHNOLOGY ELECTRONIC CO., LIMITED Model: V-001 (referred to as the EUT in this report). The EUT is a Car mp3 transmitter; The actual tuning Controls can be manually adjusted to from 88.1MHz to 107.9MHz.

A major technical descriptions of EUT is described as following:

- A). Operation Frequency: 88.1MHz~107.9MHz
- B) Step: 100KHz
- C). Antenna Designation: PCB antenna.
- D). Power Supply: DC 9-24V

### 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: V4IVM-01D filing to comply with Section 15.239 of the FCC Part 15, Subpart C Rules.

### 1.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

### 1.4 Special Accessories

Not available for this EUT intended for grant.

### 1.5 Equipment Modifications

Not available for this EUT intended for grant.

## 1.6 Test Facility

### Site Description

EMC Lab. : Accredited by CNAS, 2005.11.02  
The certificate is valid until 2010.11  
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01: 2006(identical to ISO/IEC17025: 2005)  
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Guangzhou, 2008.3  
The Laboratory has been assessed according to the requirements ISO/IEC 17025

Accredited by FCC, March 18, 2008  
The Certificate Registration Number is 709623.

Accredited by Industry Canada, May 24, 2008  
The Certificate Registration Number is 46405-4480

Name of Firm : SHENZHEN EMTEK CO., LTD  
Site Location : Bldg 69, Majialong Industry Zone,  
Nanshan District, Shenzhen, Guangdong, China

## 2. System Test Configuration

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The Tx frequency was 88.1MHz~107.9MHz.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions (Not apply in the report)

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the **frequency range between 0.15 MHz and 30MHz** using **CISPR Quasi-Peak and average detector mode**.

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

### 2.4 Limitation

#### (1) Radiated Emission

- (b) The field strength of any emissions within the permitted 200kHz band shall not exceed 250 microvolts/meter at 3 meters, The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in section 15.35 for limiting peak emissions apply.
- (c) The field strength of any emissions radiated on any frequency outside of the specified 200Khz band shall not exceed the general radiated emission limits in Section 15.209.

Remark: The limit for average field strength dB<sub>uv</sub>/m for the fundamental frequency=48.0 dB<sub>uv</sub>/m.  
And the limit for peak field strength dB<sub>uv</sub>/m for the fundamental frequency=68.0 dB<sub>uv</sub>/m.

Intentional Radiators general limit).as below.

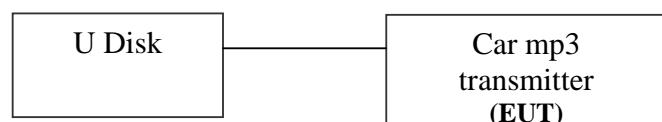
| Frequency<br>(MHz) | Field strength<br>μV/m | Distance(m) | Field strength at 3m<br>dBμV/m |
|--------------------|------------------------|-------------|--------------------------------|
| 1.705-30           | 30                     | 30          | 69.54                          |
| 30-88              | 100                    | 3           | 40                             |
| 88-216             | 150                    | 3           | 43.5                           |
| 216-960            | 200                    | 3           | 46                             |
| Above 960          | 500                    | 3           | 54                             |

## **(2) Occupied Bandwidth**

(a) Emissions from the intentional radiator shall be confined within a band 100kHz wide centered on the operation frequency; The 100kHz band shall lie wholly within the frequency range of 88.1~107.9MHz.

## 2.5 Configuration of Tested System

**Fig. 2-1 Configuration of Tested System**



**Table 2-1 Equipment Used in Tested System**

| Item | Equipment           | Mfr/Brand     | Model/Type No. | FCC ID    | Series No.          | Note       |
|------|---------------------|---------------|----------------|-----------|---------------------|------------|
| 1.   | Car mp3 transmitter | MODERN VISION | V-001          | V4IVM-01D | N/A                 | <b>EUT</b> |
| 2.   | U Disk              | aigo          | L8206          | N/A       | XMD7421<br>74201210 |            |

**Note:**

(1) Unless otherwise denoted as EUT in 『Remark』 column , device(s) used in tested system is a support equipment.

### 3. Summary Of Test Results

| FCC Rules | Description Of Test | Result    |
|-----------|---------------------|-----------|
| § 15.239  | Radiated Emission   | Compliant |
| § 15.239  | Bandwidth Test      | Compliant |

### 4. Description of test modes

The EUT (Car mp3 transmitter) has been tested under normal operating condition.

Four channels of EUT (two channels of 88.1~107.9MHz) have been chosen for testing under Normal Operating condition. In this report, all the measured datum of the three channels have been reported. No software used to control the EUT for staying in continuous transmitting mode for testing.

1. For lowest channel : 88.1MHz
2. For middle channel : 98.1MHz
3. For highest channel: 107.9MHz

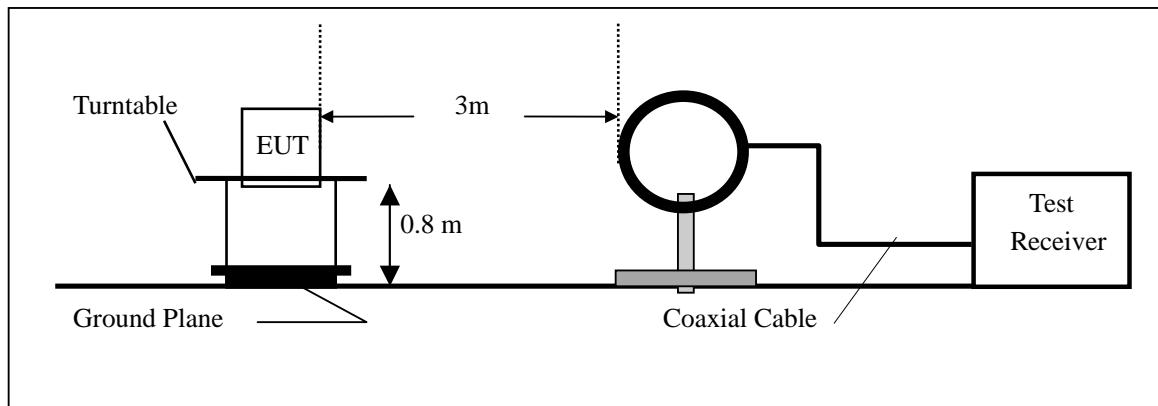
## 5. Radiated Emission Test

### 5.1 Measurement Procedure

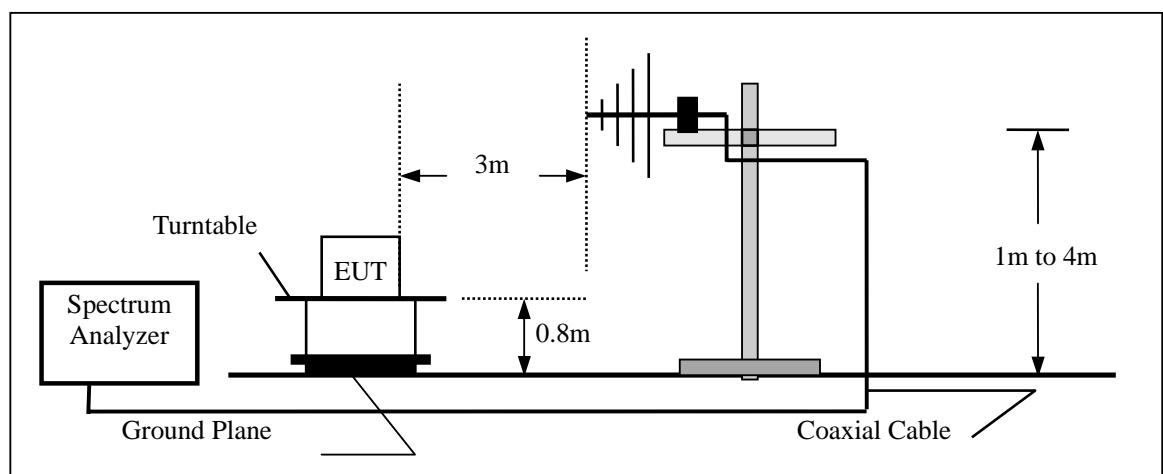
- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

## 5.2 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



## 5.3 Measurement Equipment Used:

| Test Site # 1     |                 |              |               |            |            |  |
|-------------------|-----------------|--------------|---------------|------------|------------|--|
| EQUIPMENT TYPE    | MFR             | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |  |
| EMI Test Receiver | Rohde & Schwarz | ESU          | 1302.6005.26  | 05/29/2009 | 05/29/2010 |  |
| Pre-Amplifier     | HP              | 8447D        | 2944A07999    | 05/29/2009 | 05/29/2010 |  |
| Bilog Antenna     | Schwarzbeck     | VULB9163     | 142           | 05/29/2009 | 05/29/2010 |  |
| Loop Antenna      | ARA             | PLA-1030/B   | 1029          | 05/29/2009 | 05/29/2010 |  |

## 5.4 Measurement Result

### A. Fundamental Radiated Emission Data

Operation Mode: Transmitting Mode Test Date : January 08, 2010  
Test Item: Fundamental Radiated Emission Data Temperature : 28 °C  
Fundamental Frequency: Lowest channel Humidity : 65 %  
Test Result: PASS Test By: Andy

#### Peak Measurement

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 88.10          | V               | 45.22                    | 68.00                | -22.78         | Peak |
| 88.10          | H               | 43.26                    | 68.00                | -24.74         | Peak |

#### Average Measurement

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 88.10          | V               | 45.22                    | 48.00                | -2.78          | AV   |
| 88.10          | H               | 43.08                    | 48.00                | -6.92          | AV   |

**Note:** (1) All Readings are Peak Value.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode Test Date : January 08, 2010  
Test Item: Fundamental Radiated Emission Data Temperature : 28 °C  
Fundamental Frequency: Middle channel Humidity : 65 %  
Test Result: PASS Test By: Andy

Peak Measurement

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 98.0           | V               | 45.76                    | 68.00                | -22.24         | Peak |
| 98.0           | H               | 43.82                    | 68.00                | -24.18         | Peak |

Average Measurement

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 98.0           | V               | 45.68                    | 48.00                | -2.32          | AV   |
| 98.0           | H               | 43.52                    | 48.00                | -4.48          | AV   |

**Note:** (1) All Readings are Peak Value.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode Test Date : January 08, 2010  
 Test Item: Fundamental Radiated Emission Data Temperature : 28 °C  
 Fundamental Frequency: Highest channel Humidity : 65 %  
 Test Result: PASS Test By: Andy

#### Peak Measurement

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 107.90         | V               | 45.92                    | 68.00                | -22.08         | Peak |
| 107.90         | H               | 44.15                    | 68.00                | -23.85         | Peak |

#### Average Measurement

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 107.90         | V               | 45.28                    | 48.00                | -2.72          | AV   |
| 107.90         | H               | 43.96                    | 48.00                | -4.04          | AV   |

**Note:** (1) All Readings are Peak Value.

(2) Emission Level= Reading Level+Probe Factor +Cable Loss

(3) The average measurement was not performed when the peak measured data under the limit of average detection.

## B. Harmonics Radiated Emission Data

Operation Mode: Transmitting Mode  
Test Item: Radiated Emission Data  
Fundamental Frequency: Lowest channel  
Test Result: PASS

Test Date : January 08, 2010  
Temperature : 28 °C  
Humidity : 65 %  
Test By: Andy

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 76.000         | V               | 35.28                    | 40.00                | -4.72          | Peak |
| 178.300        | V               | 31.52                    | 43.5                 | -11.98         | Peak |
| 264.400        | V               | 30.27                    | 46.00                | -15.73         | Peak |
| 475.500        | V               | 38.17                    | 46.00                | -7.83          | Peak |
| 707.600        | V               | 34.35                    | 46.00                | -11.65         | Peak |
| 958.100        | V               | 30.04                    | 46.00                | -15.96         | Peak |
| 76.000         | H               | 34.34                    | 40.00                | -5.66          | Peak |
| 264.300        | H               | 40.26                    | 46.00                | -5.74          | Peak |
| 475.400        | H               | 39.87                    | 46.00                | -6.13          | Peak |
| 572.500        | H               | 41.35                    | 46.00                | -4.65          | Peak |
| 620.600        | H               | 39.61                    | 46.00                | -6.39          | Peak |
| 684.300        | H               | 37.26                    | 46.00                | -8.74          | Peak |

**No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.239**

**Note:** (1) All Readings are Peak Value.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode  
 Test Item: Radiated Emission Data  
 Fundamental Frequency: Middle channel  
 Test Result: PASS

Test Date : January 08, 2010  
 Temperature : 28 °C  
 Humidity : 65 %  
 Test By: Andy

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 167.200        | V               | 34.63                    | 43.50                | -8.87          | Peak |
| 194.000        | V               | 37.52                    | 43.50                | -5.98          | Peak |
| 298.300        | V               | 33.14                    | 46.00                | -12.86         | Peak |
| 392.000        | V               | 41.20                    | 46.00                | -4.8           | Peak |
| 494.600        | V               | 38.47                    | 46.00                | -7.53          | Peak |
| 648.400        | V               | 29.63                    | 46.00                | -16.37         | Peak |
| 86.300         | H               | 37.46                    | 40.00                | -2.54          | Peak |
| 194.300        | H               | 35.23                    | 43.50                | -8.27          | Peak |
| 298.400        | H               | 38.56                    | 46.00                | -7.44          | Peak |
| 392.000        | H               | 41.37                    | 46.00                | -4.63          | Peak |
| 494.600        | H               | 39.16                    | 46.00                | -6.84          | Peak |
| 714.100        | H               | 31.27                    | 46.00                | -14.73         | Peak |

**No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.239**

**Note:** (1) All Readings are Peak Value.

(2) Emission Level= Reading Level+Probe Factor +Cable Loss

(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: Transmitting Mode      Test Date : January 08, 2010  
Test Item: Radiated Emission Data      Temperature : 28 °C  
Fundamental Frequency: High channel      Humidity : 65 %  
Test Result: PASS      Test By: Andy

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 147.800        | V               | 31.35                    | 43.50                | -12.15         | Peak |
| 323.700        | V               | 42.06                    | 46.00                | -3.94          | Peak |
| 423.000        | V               | 34.81                    | 46.00                | -11.19         | Peak |
| 472.500        | V               | 33.50                    | 46.00                | -12.5          | Peak |
| 537.200        | V               | 36.15                    | 46.00                | -9.85          | Peak |
| 958.100        | V               | 30.29                    | 46.00                | -15.71         | Peak |
| 215.800        | H               | 28.62                    | 43.50                | -14.88         | Peak |
| 323.700        | H               | 42.31                    | 46.00                | -3.69          | Peak |
| 423.000        | H               | 38.45                    | 46.00                | -7.55          | Peak |
| 472.500        | H               | 34.28                    | 46.00                | -11.72         | Peak |
| 537.200        | H               | 33.17                    | 46.00                | -12.83         | Peak |
| 716.300        | H               | 30.01                    | 46.00                | -15.99         | Peak |

**No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.239**

**Note:** (1) All Readings are Peak Value.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

## 5.5 Radiation Measurement Photos



## 6. Occupied Bandwidth

### 6.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation
3. Set SPA Center Frequency = fundamental frequency , RBW = 10KHz, ,VBW= 30KHz
4. Set SPA Max hold. Mark peak.

Note: The EUT can be connected to iPod Player. The input signal of EUT is controlled by iPod Player. So the volume control of iPod Player was set to maximum during the test. It means that the test was performed with the maximum audio input.

### 6.2 Test SET-UP (Block Diagram of Configuration)

Same as 4.2 Radiated Emission Measurement.

### 6.3 Measurement Equipment Used:

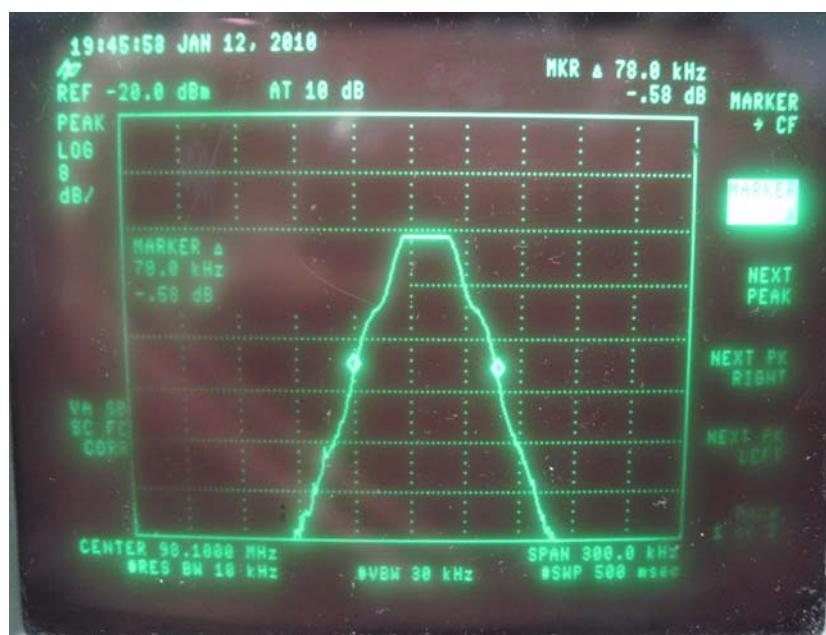
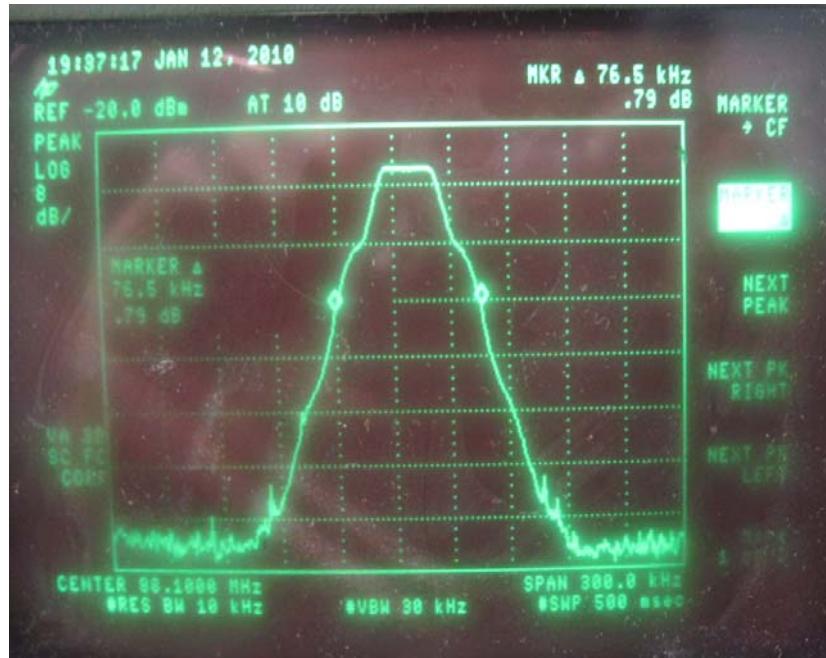
Same as 4.2 Radiated Emission Measurement.

### 6.4 Measurement Results:

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209.

Refer to attached data chart.

## Band Width Test Data



SHENZHEN EMTEK CO., LTD.

REPORT NO: E1001020F

FCC ID: V4IVM-01D

DATE: 01/12/2010

