

## **TEST REPORT**

PRODUCT NAME : MP3 Player Series

MODEL NO. : MP-935WD, MP-935WX  
*The "X" behalf of the letter A to Z*

FCC ID : **PY9MP935WD001**

APPLICANT : ELELUX INTERNATIONSL LTD

REGULATION : CFR 47, Part 15.247

TEST SITE : SOLID INDUSTRIAL (SHENZHEN) CO., LTD  
#333, Bulonggong Road, Bantian Village,  
Longgang District, Shenzhen, China

TEST ENGINEER : Wenxiu Liu

TEST DATE : December 10-25, 2006

ISSUED DATE : December 25, 2006

REPORT NO. : SUTF0712051

## DECLARATION

WE HEREBY VERIFY THAT:

The E. U. T. listed below has been completed RFI testing by UNITECH at the test site of SOLID INDUSTRIAL (SHENZHEN) CO., LTD. And the Interference emissions can pass **FCC CLASS B** limitations.

The test configurations and the facility comply with the radiated and AC line conducted test site criteria in **ANSI C63.4-2003**.

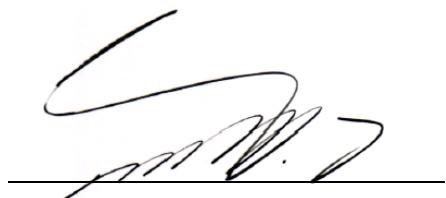
Any data in this RFI report is "reference" only.

APPLICANT : ELELUX INTERNATIONAL LTD

PRODUCT NAME : MP3 Player Series

MODEL NO. : MP-935WD, MP-935WX

FCC ID : PY9MP935WD001



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Jimmy Jiang / Manager

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## 1. GENERAL

### 1.1. General Information:

Product Name : MP3 Player Series

Model No. : MP-935WD, MP-935WX

*The Model MP-935WD Is Similar To The Model Of MP-935WX, They Have No Difference But Appearance. So All The Measurement Are Performed On The Model MP-935WD*

FCC ID : PY9MP935WD001

Applicant : ELELUX INTERNATIONAL LTD  
3f.103 Chow Tze Street, Nei-Hu District(114),  
Taipei Taiwan, R.O.C

Manufacturer : Andah Electronics (Shenzhen) Ltd  
Tong Fuyu Industrial Park, Chongqing Road,  
Fuyong Town, Shenzhen (518103) Guangdong,  
China

Regulation : CFR 47, Part 15.247 Subpart C

### 1.2. Place of Measurement

Name of Firm : SOLID INDUSTRIAL (SHENZHEN) CO., LTD

Site Location : #333, Bulonggong Road, Bantian Village,  
Longgang District, Shenzhen, China

## 2. TECHNICAL TEST

### 2.1. Summary of Test Results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	PASS	Complies
FCC Part 15, Paragraph 15.107, 15.207	Conducted Test	PASS	Complies
FCC Part 15.205	Radiated Emission (Restricted Band Requirements)	PASS	Complies
FCC Part 15.109, 15.209	Radiated Emission (Spurious Emission)	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2)	Spectrum Bandwidth (6dB Bandwidth Measurement)	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(b)(3)	Maximum Peak Power	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(c)	100kHz Bandwidth of Frequency Band Edges	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(d)	Peak Power Spectral Density	PASS	Complies

\*The digital circuit porting of the EUT has been tested and verified to comply with FCC Part 15, Subpart B., Class B Digital Devices and the associated Radio Receiver has also been tested and found to comply with FCC Part 15, Subpart B-Radio Receivers.

### 2.2. Antenna Requirement

#### A. Regulation

FCC section 15.203, An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of Part 15C. The manufacturer may design the unit so that user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

#### B. Result

The antenna type used in this product is Dipole Antenna with UFL antenna connector. And it is considered to meet antenna requirement of FCC.

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### 3. EUT Modulations

No Modification by SOLID INDUSTRIAL (SHENZHEN) CO., LTD.

## 4. Conducted Power Line Test

### 4.1. Test equipment

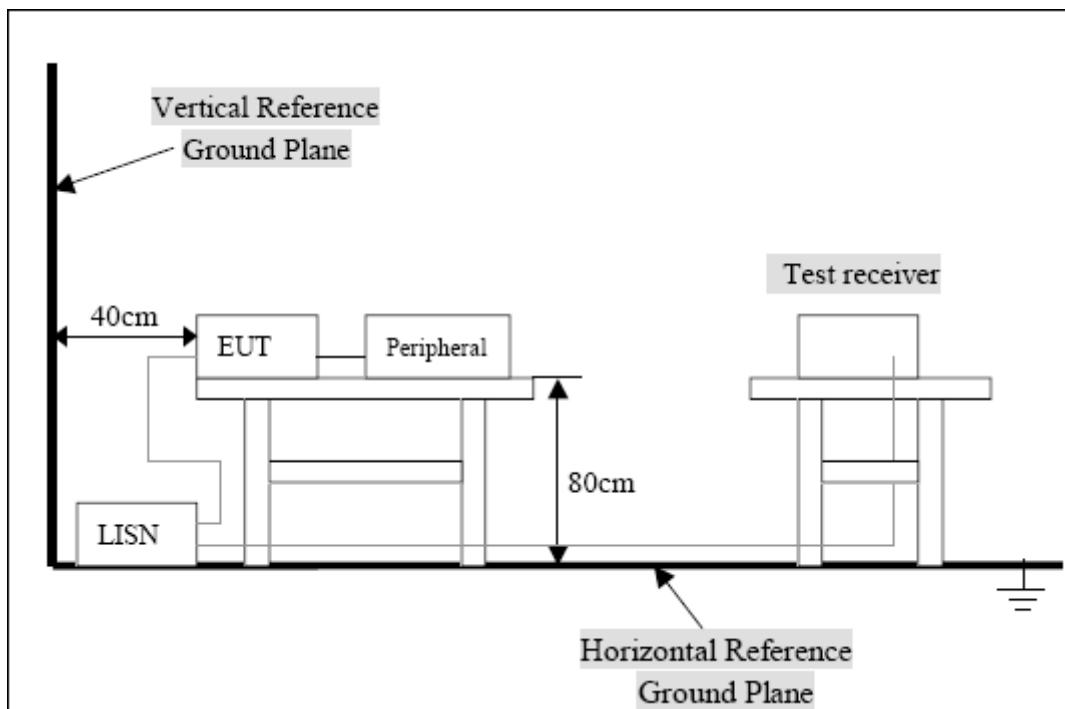
Please refer to section 9 of this report

### 4.2. Test procedure

The EUT is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohms coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs.

Both sides of AC line are checked to find out the maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2003 on conducted measurement. Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using receiver bandwidth of 9 kHz.

### 4.3. Test setup



For the actual configuration, Please refer to the related items - photos of Testing.

#### 4.4. Configuration of the EUT

The EUT was configured according to ANSI C63.4-2003. EUT was used DC5V. The operation frequency is from 2400MHz~2483.5MHz. Enable the signal transmitted from the EUT to Notebook PC. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

Note:

- 1) Operating Modes: Each of lowest, middle and highest channel frequencies transmits continuously for emissions measurements. The EUT operates in normal 802.11b/g for occupancy duration and frequency separation.
- 2) Special Test Software & Hardware: Special firmware and hardware provided by the Applicant are installed to allow the EUT to operate in 802.11b/g or at each channel frequency continuously. For example, the transmitter will be operated at each of lowest, middle and highest frequencies individually continuously during testing.
- 3) Transmitter Test Antenna: The EUT is tested with the antenna fitted in a manner typical of normal intended use as an integral / non-integral antenna equipment as describe with the test results.
- 4) Frequency (ies) Tested: 2412MHz, 2437MHz and 2462MHz were pre-tested, The worst case one, was chosen for conducted emission test.
- 5) Above 1GHz, the 2412MHz, 2437MHz and 2462MHz were tested individually.
- 6) Normal Test Modulation: 802.11b/g
- 7) Modulating Signal Source: Internal

\* Associated Antenna Descriptions: The antenna used in this product is embedded antenna.

##### A. EUT

Device	Manufacturer	Model No.	FCC ID
MP3 Player series	Andah Electronics (Shenzhen) Ltd	MP-935WD	PY9MP935WD001

##### B. Internal Devices

Device	Manufacturer	Model No.	FCC ID
N/A			

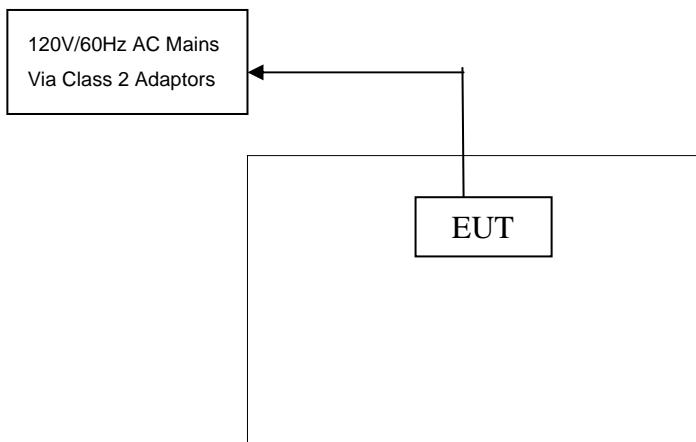
##### C. Peripherals

Device	Manufacturer	Model # Serial #	FCC ID/ DoC	Cable
Printer	HP	3685	DoC	1.5m unshielded power cord 1.2m unshielded data cable.
Modem	GVC	N/A	DoC	1.5m unshielded power cord 1.2m unshielded data cable.
Notebook	DELL	N/A	DoC	1.5m unshielded power cord
PC	Dell	GX260	DoC	1.5m unshielded power cord

#### 4.5. EUT Operating Condition

Operating Condition is according to ANSI C63.4: 2003

- A. Setup the EUT and simulators as shown on follow.
- B. Enable RF signal and confirm EUT active
- C. Modulate output capacity of EUT up to specification



#### 4.6. Conducted power line emission limits

FCC Part 15 Paragraph 15.207 (dBuV)		
Frequency range (MHz)	Class A QP/AV	Class B QP/AV
0.15-0.5	79/66	66-56/56/46
0.5-5.0	73/60	56/46
5.0-30	73/60	60/50

**NOTE:** In the above table, the tighter limit applies at the band edges.

#### 4.7. Conducted Power Line Test Results

Product : MP3 Player series      Test Mode : 802.11-2412MHz  
Test Item : Conducted emission data      Temperature : 27°C  
Test Voltage : DC 5 V      Humidity : 35%RH  
Test Result : **PASS**

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are quasi-peak values with a resolution bandwidth of 9 KHz  
Temperature : 26°C  
Humidity : 35%RH

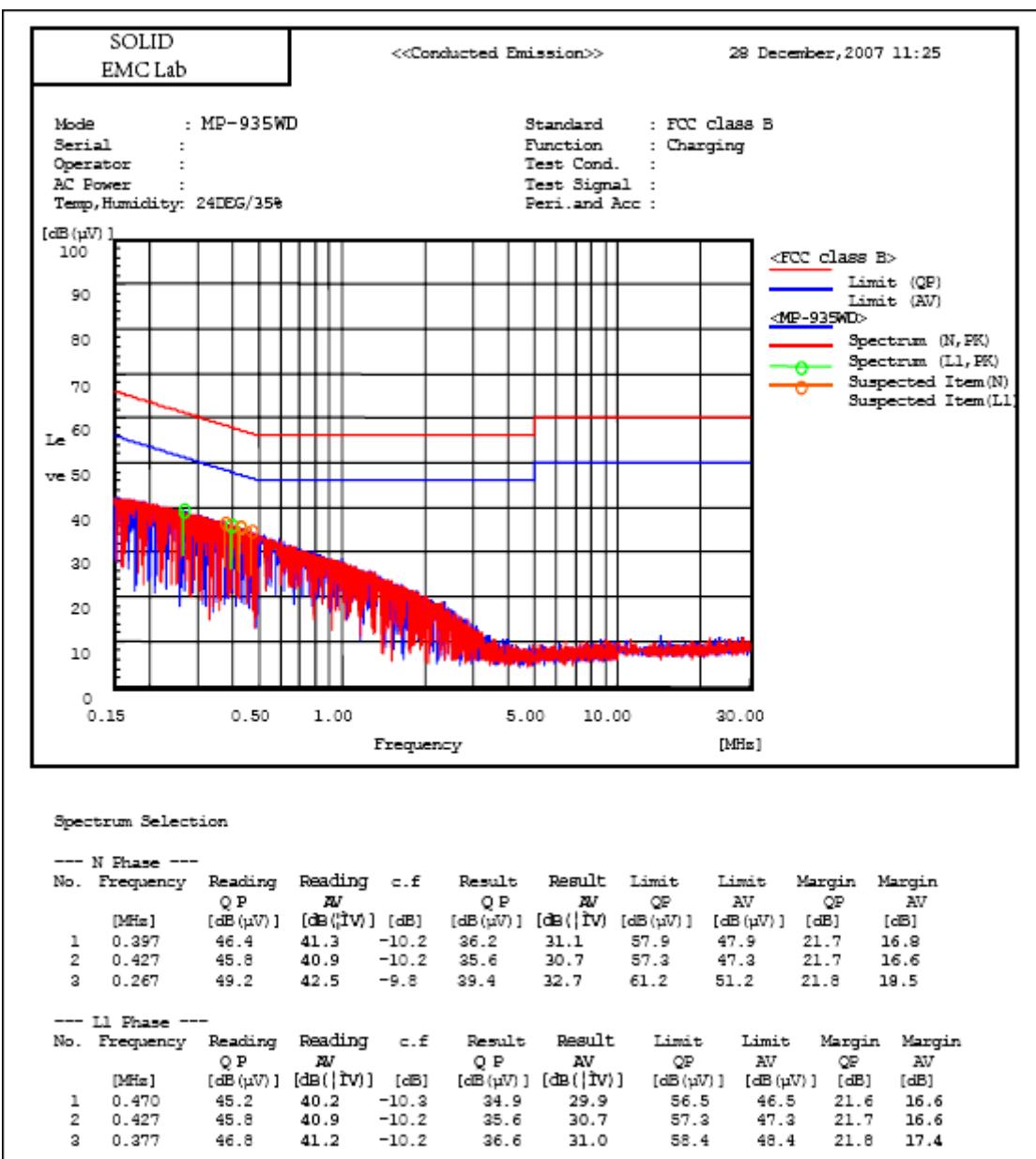
#### FCC Part 15 Paragraph 15.207

Frequency (MHz)	Emission(dBuV)		LINE/ NEUTRAL	Limit(dBuV)		Margin(dB)	
	QP	AV		QP	AV	QP	AV
0.470	34.9	29.9	LINE	56.5	46.5	-21.6	-16.6
0.397	36.2	31.1	NEUTRAL	57.9	47.9	-21.7	-16.8
0.427	35.6	30.7	LINE	57.3	47.3	-21.7	-16.6
0.427	35.6	30.7	NEUTRAL	57.3	47.3	-21.7	-16.6
0.377	36.6	31.0	LINE	58.4	48.4	-21.8	-17.4
0.267	39.4	32.7	NEUTRAL	61.2	51.2	-21.8	-18.5

Note: NF= no significant peak was found

Note:

1. Uncertainty in conducted emission measured is <+/-2dB
2. The emission levels of other frequencies were very low against the limit
3. All reading levels are quasi-peak and average value
4. Emission= meter reading +factor; factor= insertion loss + cable loss
5. Margin value= emission level -limit value



## 5. FCC Part 15.247 Requirements for 802.11B/G Systems

### 5.1. Test Equipment

Please refer to section 9 of this report

### 5.2. Test Procedure

Refer to FCC 15.247(a) (2), ANSI C63.4:2003

#### 6dB Bandwidth

- a. Place the EUT on the table and set it in the transmitting mode
- b. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer
- c. Set the spectrum analyzer as RBW=100kHz, Span=50MHz, Sweep=auto
- d. Mark the peak frequency and -6dB (upper and lower) frequency.
- e. Repeat until all the rest channels are investigated

#### Peak Power:

The transmitter output is connected to the test receiver. The test receiver is set to the peak power detection. The power is equal to the reading level on test receiver plus cable loss at the EUT RF output terminal.

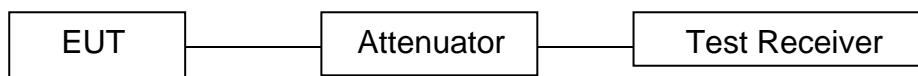
#### Band Edges Measurement:

- a. The transmitter output was connected to the spectrum analyzer via a low loss cable.
- b. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 kHz bandwidth from band edge.
- c. The band edges was measured and recorded.

#### Peak Power Spectral Density:

- a. The transmitter output is connected to a test receiver, The spectrum analyzer's resolution bandwidth was set at 3kHz RBW and 30kHz VBW as that of the fundamental frequency. Set the sweep time=span/3kHz.
- b. The power spectral density was measured and recorded.
- c. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

### 5.3. Test Setup



## 5.4. Configuration of the EUT

Same as section 4.4 of this report

## 5.5. EUT Operating Condition

Same as section 4.5 of this report

## 5.6. Limit

According to §15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

According to §15.247(b)(3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

According to §15.247(b)(4), the conducted output power limit specified in paragraphs(b) of this section is based on the use of antennas with directional gains that do not exceed 6dBi. Except as shown in paragraph(c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Sec. 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a) (see Sec. 15.205(c)).

According to §15.247(e), for digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph(d) of this section

## 5.7. Test Result

### A. 6 dB Bandwidth

Product : MP3 Player series Test Mode : IEEE802.11b/g  
Test Item : 6 dB Bandwidth Temperature : 27°C  
Test Voltage : DC 5 V Humidity : 35%RH  
Test Result : **PASS**

#### IEEE802.11b

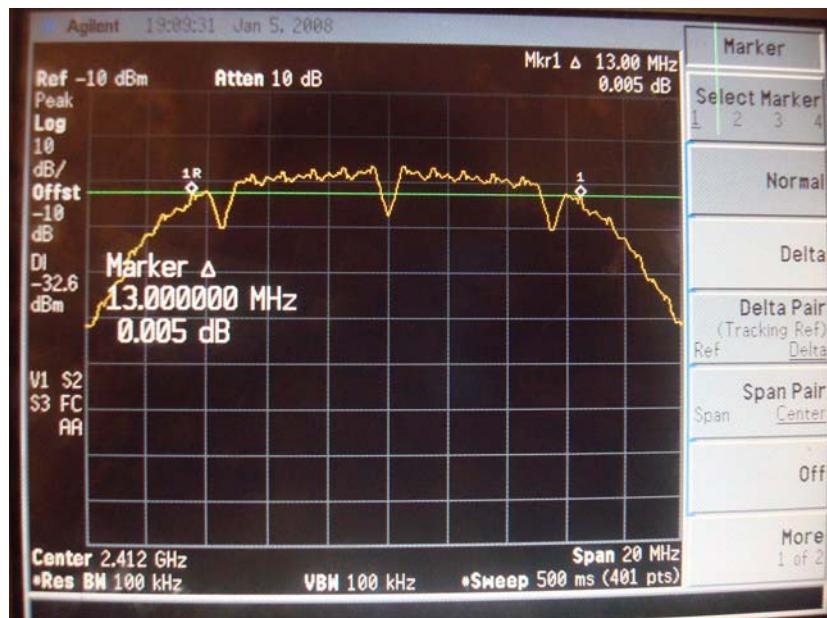
Channel	Frequency (MHz)	Bandwidth (MHz)	FCC Limit (kHz)	Result
Low	2412	13.00	>500kHz	PASS
Mid	2437	12.95		PASS
High	2462	13.05		PASS

#### IEEE802.11g

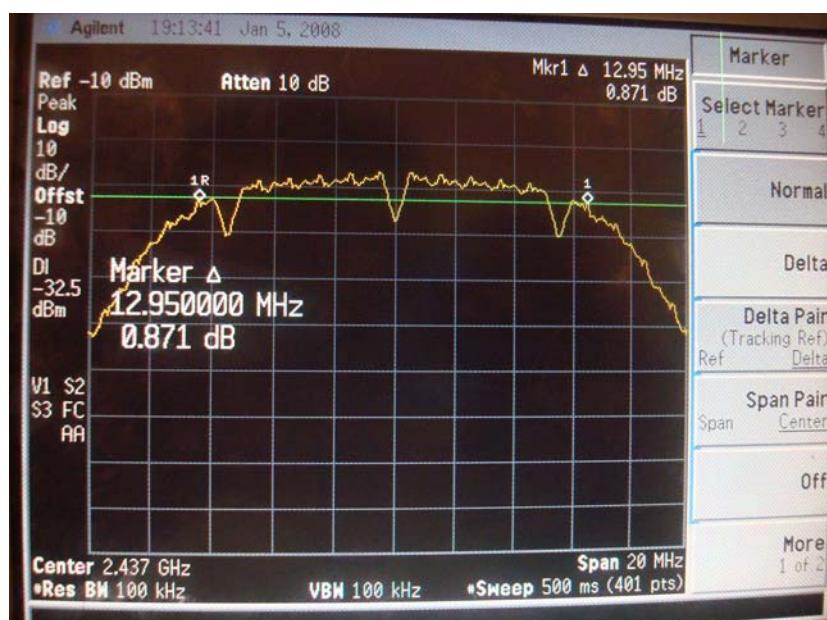
Channel	Frequency (MHz)	Bandwidth (MHz)	FCC Limit (kHz)	Result
Low	2412	16.55	>500kHz	PASS
Mid	2437	16.55		PASS
High	2462	16.50		PASS

**IEEE802.11b**

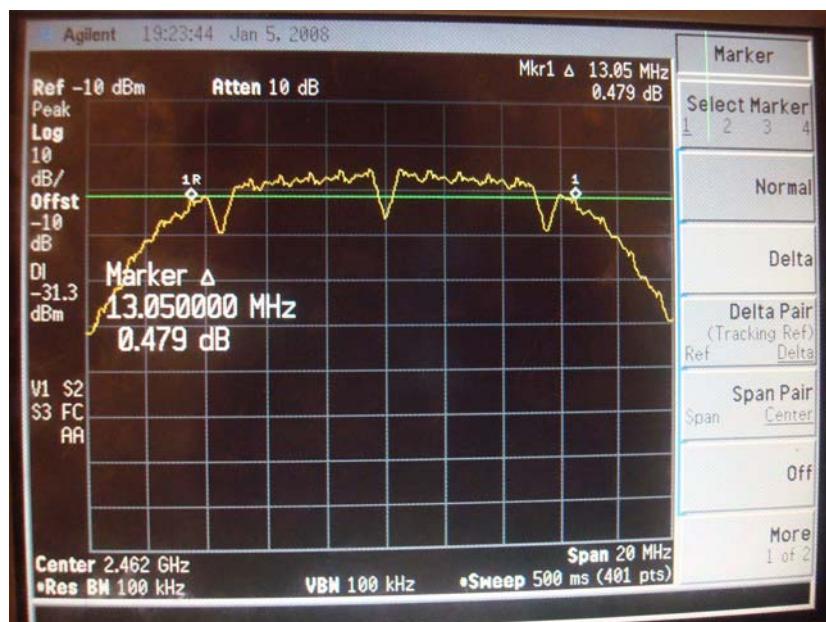
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

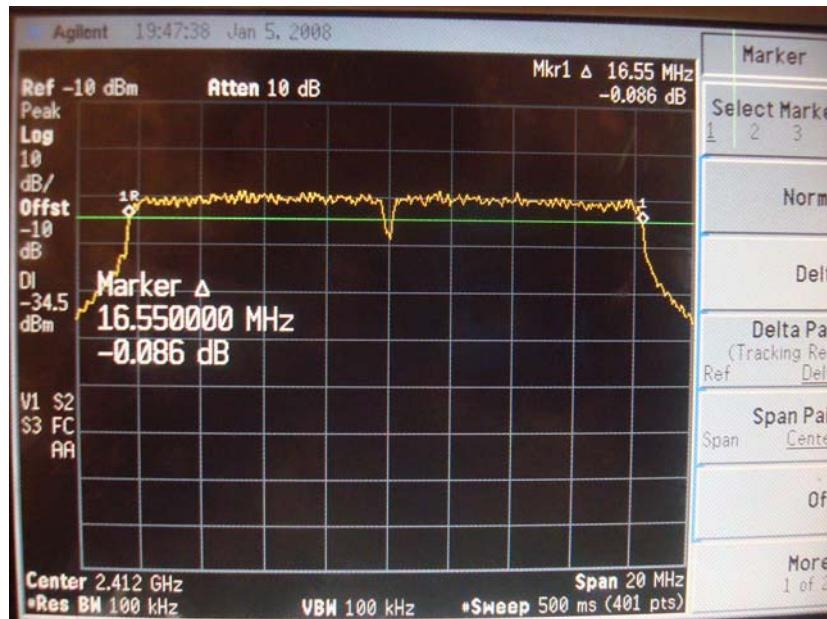


6dB Bandwidth (CH High)

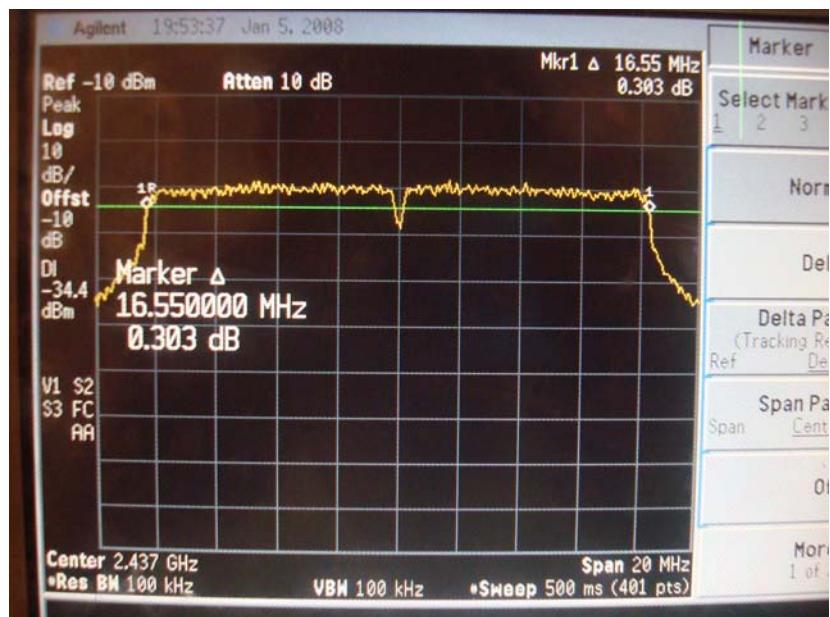


### IEEE802.11g

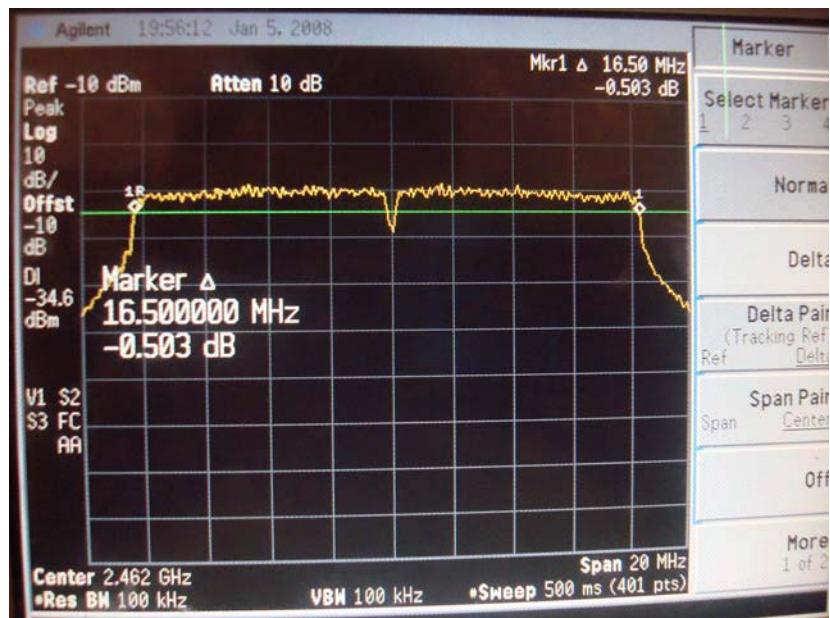
6dB Bandwidth (CH Low)



## 6dB Bandwidth (CH Mid)



## 6dB Bandwidth (CH High)



**B. Peak Power**

Product : MP3 Player series Test Mode : IEEE802.11b/g  
Test Item : Peak Power Temperature : 27°C  
Test Voltage : DC 5 V Humidity : 35%RH  
Test Result : **PASS**

**IEEE802.11b**

Channel	Frequency (MHz)	Peak Power (dBm)	FCC Limit (kHz)	Result
Low	2412	4.10	1.00/30.00	PASS
Mid	2437	3.37		PASS
High	2462	5.13		PASS

**IEEE802.11g**

Channel	Frequency (MHz)	Peak Power (dBm)	FCC Limit (kHz)	Result
Low	2412	4.03	1.00/30.00	PASS
Mid	2437	3.32		PASS
High	2462	3.96		PASS

### C. Band Edges Measurement

Product : MP3 Player series Test Mode : IEEE802.11b/g  
Test Item : Band Edges Measurement Temperature : 27°C  
Test Voltage : DC 5 V Humidity : 35%RH  
Test Result : **PASS**

#### IEEE802.11b

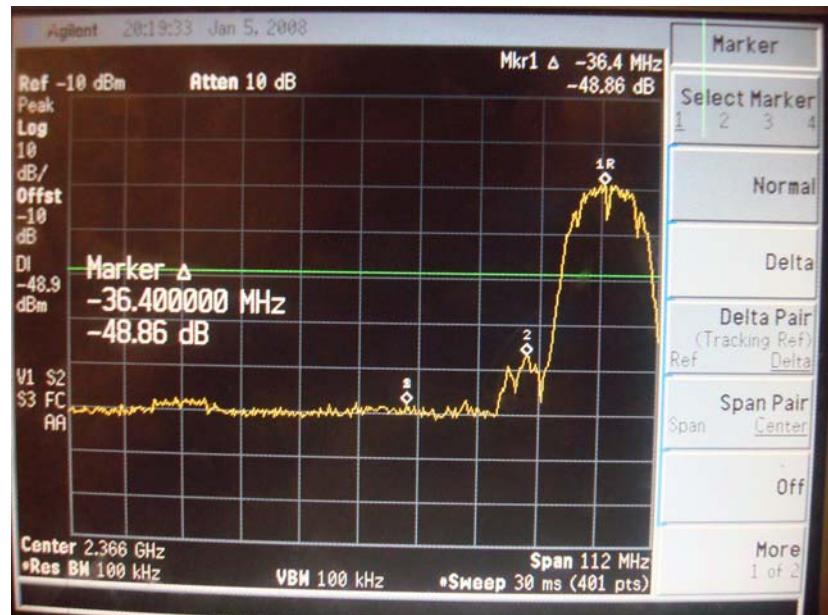
Channel	Detector	Radiated Method Max. Field Strength of Fundamental (dBuV/m)	Conductor Method Between Carrier Max. Power and Local Max. Emission in Restrict Band (dBc)	Thmaxd strength in restrict band(dBuV/m)	Limit @3m(dBuV/m) peak/average	Margin (dB)
Low	peak	99.34	48.86	50.48	74.0/54.0	-23.52
High	peak	100.37	50.67	49.70	74.0/54.0	-24.30

#### IEEE802.11g

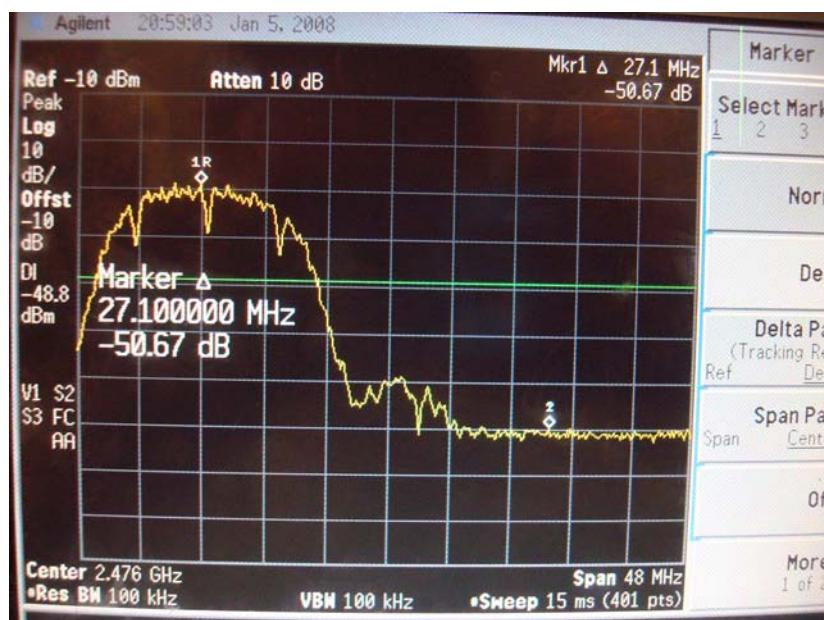
Channel	Detector	Radiated Method Max. Field Strength of Fundamental (dBuV/m)	Conductor Method Between Carrier Max. Power and Local Max. Emission in Restrict Band (dBc)	Thmaxd strength in restrict band(dBuV/m)	Limit @3m(dBuV/m) peak/average	Margin (dB)
Low	peak	99.22	41.9	57.32	74.0/54.0	16.68
High	peak	99.20	48.18	51.02	74.0/54.0	-22.98

Note: (1) According to step 2 of Marker-Delta method DA 00-705 (following plots included)  
(2) According to step 3 of Marker-Delta method  
The Max. Field Strength In Restrict Band=Field Strength of Fundamental-Between Carrier Max Power And Local Max. Emission In Restrict Band  
(3) The average measurement was not performed when the peak measured data under the limit of average detection. If readings given are average, peak measurement should also be supplied

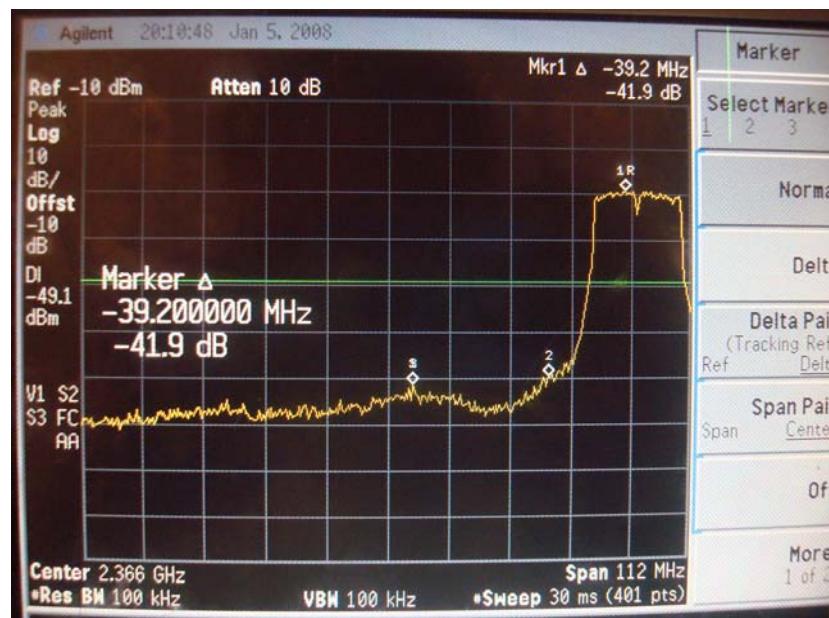
## IEEE802.11b Channel: Low



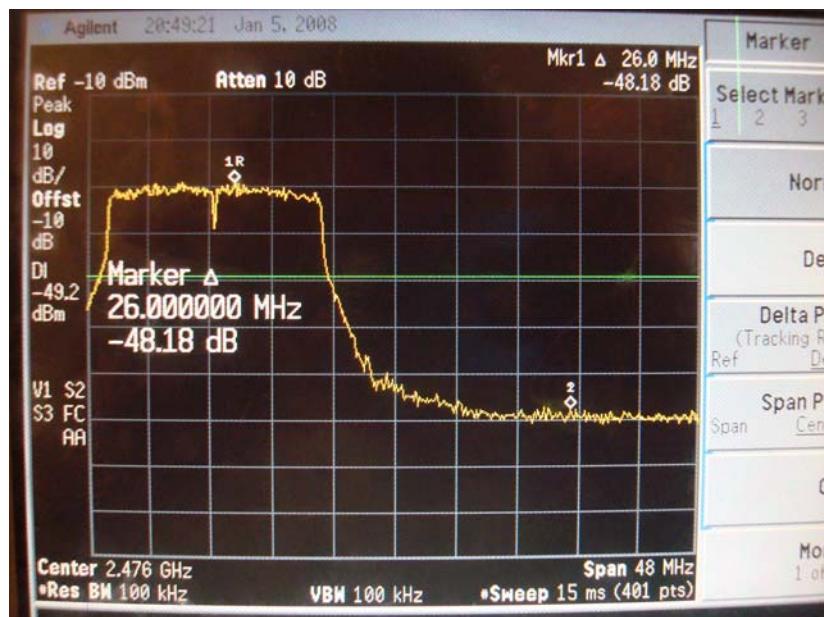
## IEEE802.11b Channel: High



## IEEE802.11g Channel: Low



## IEEE802.11g Channel: High



#### D. Peak Power Spectral Density

Product : MP3 Player series      test Mode : IEEE802.11b/g  
Test Item : Peak Power Spectral      temperatu re : 27°C  
test      Density  
Voltage      : DC 5 V      Humidity : 35%RH  
Test      : **PASS**  
Result

##### IEEE802.11b

Channel	Frequency (MHz)	Density (dBm)	FCC Limit (dBm)	Result
Low	2412	-26.60	8.00	PASS
Mid	2437	-26.50		PASS
High	2462	-25.30		PASS

##### IEEE802.11g

Channel	Frequency (MHz)	Density (dBm)	FCC Limit (dBm)	Result
Low	2412	-28.56	8.00	PASS
Mid	2437	-28.42		PASS
High	2462	-28.58		PASS

## 6. Transmitter Spurious Radiated Emission at 3 Meters

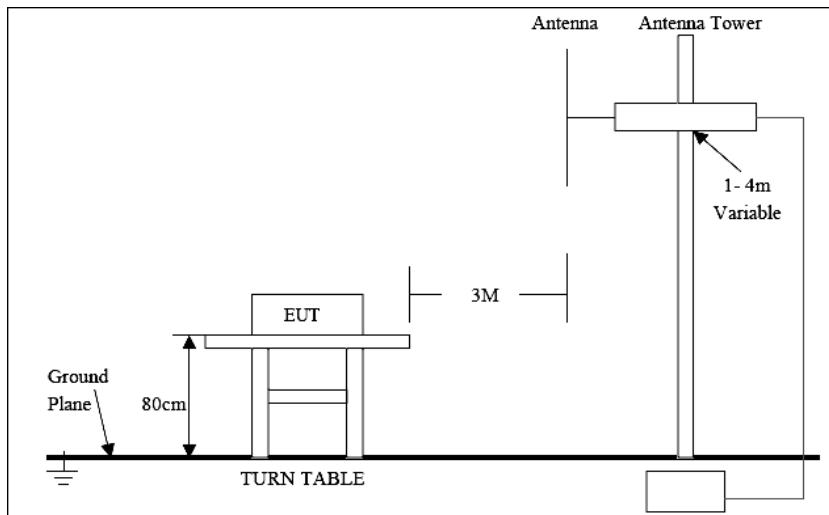
### 6.1. Test Equipment

Please refer to section 9 of this report

### 6.2. Test Procedure

1. The EUT was tested according to ANSI C63.4: 2003. The radiated test was performed at SOLID INDUSTRIAL (SHENZHEN) CO., LTD. This site is on file with the FCC laboratory division, Registration No.: R-1847 / C-1978
2. The EUT, peripherals were put on the turntable which table size is 1m x 1.5m, table high 0.8m. All set is according to ANSI C63.4:2003
3. The frequency spectrum from 30MHz to 1 GHz was investigated. All readings from 30MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
4. The antenna height is varied from 1 m to 4m high to find the maximum emission for each frequency.
5. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4dB of specification limit), and are distinguished with a "QP" in the data table.
6. The antenna polarization: Vertical polarization and Horizontal polarization

### 6.3. Test Setup



For the actual test configuration, please refer to the related items—Photos of Testing

## 6.4.Configuration of the EUT

Same as section 4.4 of this report

## 6.5.EUT Operating Condition

Same as section 4.5 of this report

## 6.6.Limit

In any 100kHz bandwidth outside the operating frequency band, the radio frequency power that is produced by modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20dB below that in any 100KHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in section 15.209(a), which lesser attenuation. All other emissions inside restricted bands specified in section 15.205(a) shall not exceed the general radiated emission limits specified in section 15.209(a).

**Note:**

Applies to harmonics/ spurious emissions that fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

47 CFR § 15.237(C): The emission limits as specified above are based on measurement instrument employing an average detector. The provisions in section 15.35 for limiting peak emissions apply.

### FCC CFR 47, Part 15, Subpart C, Para, 15.205(a)

MHz	MHz	MHz	GHz
0.090-0.110.....	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505.....	16.69475-16.6952 0	608-614	5.35-5.48
2.1735-2.1905.....	16.80425-16.8047 5	960-1240	7.25-7.75
4.125-4.128.....	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775.....	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775.....	73-74.6	1645.5-1646.5	9.3-9.5
6.125-6.128.....	74.8-75.2	1660-1710	10.6-12.7
6.26775-626825.....	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225.....	123-138	2200-2300	14.47-14.5
6.291-8.294.....	149.9-150.05	2310-2390	15.35-16.2
6.362-8.366.....	156.52475-156.52 525	2483.5-2500	17.7-21.4
8.37625-8.37675.....	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475.....	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293.....	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025.....	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725.....	322-335.4	3600-4400	
13.36-13.41.....			

FCC 47 CFR, Part 15.209(a) - Field Strength Limits Within Restricted Frequency Bands

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
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

## 6.7. Test Result

Product : MP3 Player series      Test Mode : IEEE802.11b/g  
Test Item : Peak Power Spectral      temperature : 27°C  
Test Voltage : DC 5 V      Humidity : 35%RH  
Test Result : **PASS**

### IEEE802.11b Channel: Low

Freq.(MHz)	Emission(dBuV/m) Peak Detector	HORIZ/VERT	Limits(dBuV/m) Peak/ Average	Margin (dB)
4824.00	-	HORIZ	74.0/54.0	-
4824.00	-	VERT	74.0/54.0	-
7236.00	-	HORIZ	74.0/54.0	-
7236.00	-	VERT	74.0/54.0	-
9468.00	-	HORIZ	74.0/54.0	-
9468.00	-	VERT	74.0/54.0	-
12060.00	-	HORIZ	74.0/54.0	-
12060.00	-	VERT	74.0/54.0	-
14472.00	-	HORIZ	74.0/54.0	-
14472.00	-	VERT	74.0/54.0	-
16884.00	-	HORIZ	74.0/54.0	-
16884.00	-	VERT	74.0/54.0	-
19296.00	-	HORIZ	74.0/54.0	-
19296.00	-	VERT	74.0/54.0	-
21708.00	-	HORIZ	74.0/54.0	-
21708.00	-	VERT	74.0/54.0	-
24120.00	-	HORIZ	74.0/54.0	-
24120.00	-	VERT	74.0/54.0	-
26532.00	-	HORIZ	74.0/54.0	-
26532.00	-	VERT	74.0/54.0	-

### IEEE802.11b Channel: Mid

Freq.(MHz)	Emission(dBuV/m) Peak Detector	HORIZ/VERT	Limits(dBuV/m) Peak/ Average	Margin (dB)
4874.00	-	HORIZ	74.0/54.0	-
4874.00	-	VERT	74.0/54.0	-
7311.00	-	HORIZ	74.0/54.0	-
7311.00	-	VERT	74.0/54.0	-

9748.00	-	HORIZ	74.0/54.0	-
9748.00	-	VERT	74.0/54.0	-
12185.00	-	HORIZ	74.0/54.0	-
12185.00	-	VERT	74.0/54.0	-
14622.00	-	HORIZ	74.0/54.0	-
14622.00	-	VERT	74.0/54.0	-
17059.00	-	HORIZ	74.0/54.0	-
17059.00	-	VERT	74.0/54.0	-
19496.00	-	HORIZ	74.0/54.0	-
19496.00	-	VERT	74.0/54.0	-
21933.00	-	HORIZ	74.0/54.0	-
21933.00	-	VERT	74.0/54.0	-
24370.00	-	HORIZ	74.0/54.0	-
24370.00	-	VERT	74.0/54.0	-
26807.00	-	HORIZ	74.0/54.0	-
26807.00	-	VERT	74.0/54.0	-

## IEEE802.11b Channel: High

Freq. (MHz)	Emission(dBuV/m) Peak Detector	HORIZ/VERT	Limits(dBuV/m) Peak/ Average	Margin (dB)
4924.00	-	HORIZ	74.0/54.0	-
4924.00	-	VERT	74.0/54.0	-
7386.00	-	HORIZ	74.0/54.0	-
7386.00	-	VERT	74.0/54.0	-
9848.00	-	HORIZ	74.0/54.0	-
9848.00	-	VERT	74.0/54.0	-
12310.00	-	HORIZ	74.0/54.0	-
12310.00	-	VERT	74.0/54.0	-
14772.00	-	HORIZ	74.0/54.0	-
14772.00	-	VERT	74.0/54.0	-
17234.00	-	HORIZ	74.0/54.0	-
17234.00	-	VERT	74.0/54.0	-
19696.00	-	HORIZ	74.0/54.0	-
19696.00	-	VERT	74.0/54.0	-
22158.00	-	HORIZ	74.0/54.0	-
22158.00	-	VERT	74.0/54.0	-
24620.00	-	HORIZ	74.0/54.0	-
24620.00	-	VERT	74.0/54.0	-
27082.00	-	HORIZ	74.0/54.0	-
27082.00	-	VERT	74.0/54.0	-

Note: (1) All reading levels below 1 GHz are quasi-peak, above are peak and average value.

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

(3) Receiver setting (Peak Detector): RBW=1 MHz; VBW= 1MHz; Span=100MHz

(4) Receiver setting (AVG Detector): RBW=1 MHz; VBW= 30MHz; Span=20MHz

(5) The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied

(6) Where an emission level is indicated by a -, levels had a margin greater than 20dB when compared to the limit

## IEEE802.11g Channel: Low

Freq.(MHz)	Emission(dBuV/m) Peak Detector	HORIZ/VERT	Limits(dBuV/m) Peak/ Average	Margin (dB)
4824.00	-	HORIZ	74.0/54.0	-
4824.00	-	VERT	74.0/54.0	-
7236.00	-	HORIZ	74.0/54.0	-
7236.00	-	VERT	74.0/54.0	-
9468.00	-	HORIZ	74.0/54.0	-
9468.00	-	VERT	74.0/54.0	-
12060.00	-	HORIZ	74.0/54.0	-
12060.00	-	VERT	74.0/54.0	-
14472.00	-	HORIZ	74.0/54.0	-
14472.00	-	VERT	74.0/54.0	-
16884.00	-	HORIZ	74.0/54.0	-
16884.00	-	VERT	74.0/54.0	-
19296.00	-	HORIZ	74.0/54.0	-
19296.00	-	VERT	74.0/54.0	-
21708.00	-	HORIZ	74.0/54.0	-
21708.00	-	VERT	74.0/54.0	-
24120.00	-	HORIZ	74.0/54.0	-
24120.00	-	VERT	74.0/54.0	-
26532.00	-	HORIZ	74.0/54.0	-
26532.00	-	VERT	74.0/54.0	-

## IEEE802.11g Channel: Mid

Freq.(MHz)	Emission(dBuV/m) Peak Detector	HORIZ/VERT	Limits(dBuV/m) Peak/ Average	Margin (dB)
4874.00	-	HORIZ	74.0/54.0	-
4874.00	-	VERT	74.0/54.0	-
7311.00	-	HORIZ	74.0/54.0	-
7311.00	-	VERT	74.0/54.0	-
9748.00	-	HORIZ	74.0/54.0	-
9748.00	-	VERT	74.0/54.0	-
12185.00	-	HORIZ	74.0/54.0	-
12185.00	-	VERT	74.0/54.0	-
14622.00	-	HORIZ	74.0/54.0	-
14622.00	-	VERT	74.0/54.0	-
17059.00	-	HORIZ	74.0/54.0	-
17059.00	-	VERT	74.0/54.0	-

19496.00	-	HORIZ	74.0/54.0	-
19496.00	-	VERT	74.0/54.0	-
21933.00	-	HORIZ	74.0/54.0	-
21933.00	-	VERT	74.0/54.0	-
24370.00	-	HORIZ	74.0/54.0	-
24370.00	-	VERT	74.0/54.0	-
26807.00	-	HORIZ	74.0/54.0	-
26807.00	-	VERT	74.0/54.0	-

**IEEE802.11gChannel: High**

Freq. (MHz)	Emission(dBuV/m) Peak Detector	HORIZ/VERT	Limits(dBuV/m) Peak/ Average	Margin (dB)
4924.00	-	HORIZ	74.0/54.0	-
4924.00	-	VERT	74.0/54.0	-
7386.00	-	HORIZ	74.0/54.0	-
7386.00	-	VERT	74.0/54.0	-
9848.00	-	HORIZ	74.0/54.0	-
9848.00	-	VERT	74.0/54.0	-
12310.00	-	HORIZ	74.0/54.0	-
12310.00	-	VERT	74.0/54.0	-
14772.00	-	HORIZ	74.0/54.0	-
14772.00	-	VERT	74.0/54.0	-
17234.00	-	HORIZ	74.0/54.0	-
17234.00	-	VERT	74.0/54.0	-
19696.00	-	HORIZ	74.0/54.0	-
19696.00	-	VERT	74.0/54.0	-
22158.00	-	HORIZ	74.0/54.0	-
22158.00	-	VERT	74.0/54.0	-
24620.00	-	HORIZ	74.0/54.0	-
24620.00	-	VERT	74.0/54.0	-
27082.00	-	HORIZ	74.0/54.0	-
27082.00	-	VERT	74.0/54.0	-

Note: (1) All reading levels below 1 GHz are quasi-peak, above are peak and average value.

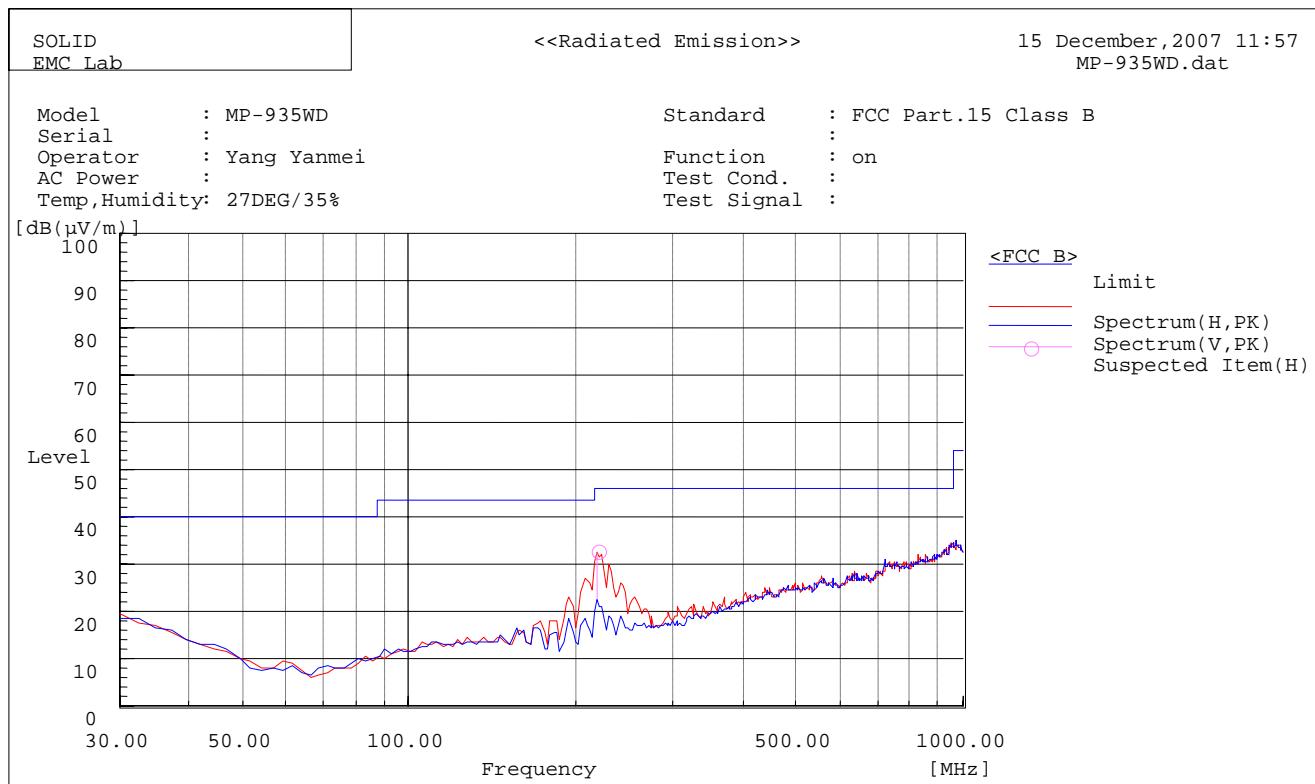
(2) Emission Level=Reading Level +Probe Factor +Cable Loss

(3) Receiver setting (Peak Detector): RBW=1 MHz; VBW= 1MHz; Span=100MHz

(4) Receiver setting (AVG Detector): RBW=1 MHz; VBW= 30MHz; Span=20MHz

(5) The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied

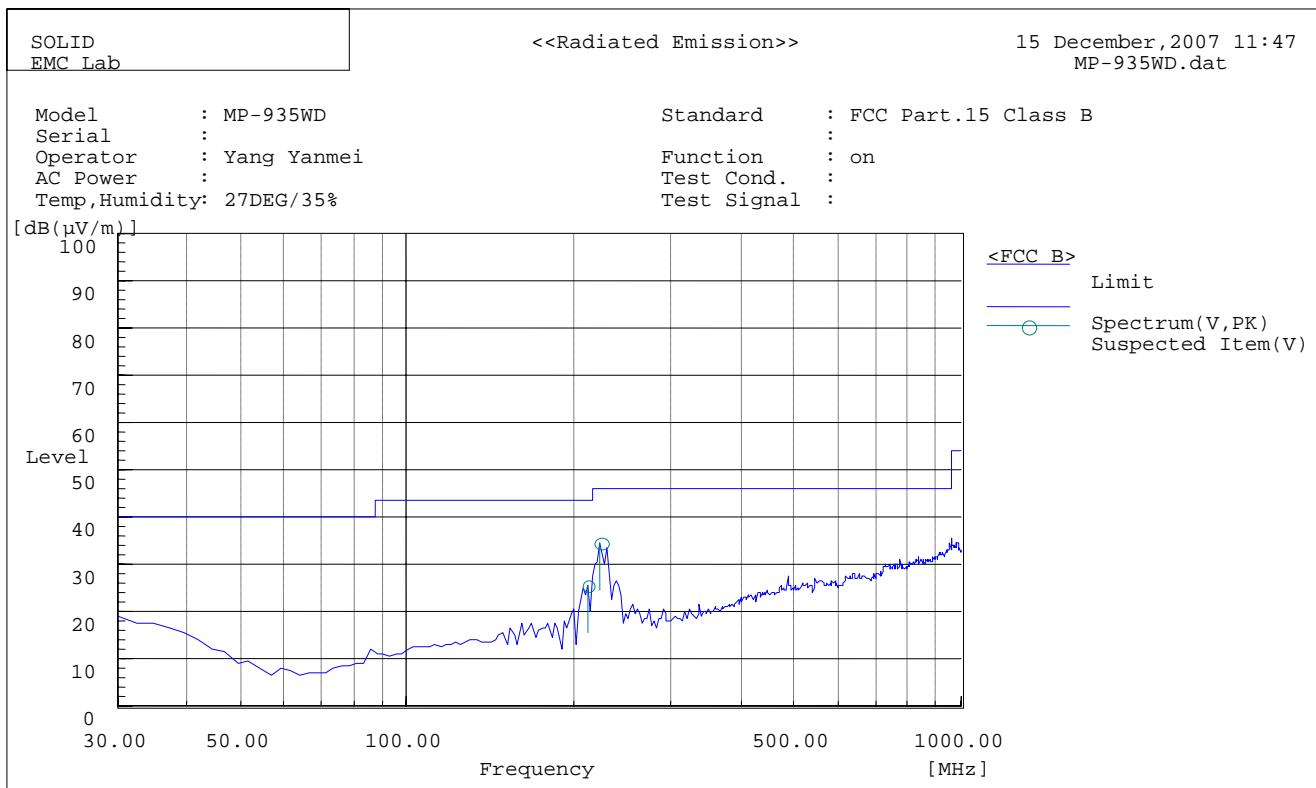
(6) Where an emission level is indicated by a -, levels had a margin greater than 20dB when compared to the limit



## Spectrum Selection

--- Horizontal Polarization ---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f. [dB(1/m)]	Result PK [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Remark
1	219.150	50.8	-18.1	32.7	46.0	13.3	



## Spectrum Selection

--- Vertical Polarization ---

No.	Frequency	Reading	c.f.	Result	Limit		Margin	Remark
					PK	[dB]		
1	211.875	43.9	-18.4	25.5	43.5	18.0		
2	224.000	52.0	-17.6	34.4	46.0	11.6		

## 7. RF Exposure Requirements

### 7.1. Test equipment

Please refer to section 9 of this report

### 7.2. Limit

According FCC 15.247(I), systems operating under provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the commission's guidelines.

FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1310(b)(1) of this chapter.

TABLE 1 ---limits for maximum permissible exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
(A) Limits for occupational/Controlled Exposures				
0.3-3.0.....	614	1.63	*(100)	6
3.0-30.....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300.....	61.4	0.163	1.0	6
300-1500.....	.....	.....	f/300	6
1500-100.000.....	.....	.....	5	6
(B) Limits for general population/uncontrolled exposure				
0.3-1.34.....	614	1.63	*(100)	30
1.34-30.....	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300.....	27.5	0.073	0.2	30
300-1500.....	.....	.....	f/1500	30
1500-100.000.....	.....	.....	1.0	30

f=frequency in MHz

\*=plane wave equivalent power density

Note 1 To Table 1: occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 To Table 1: general population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

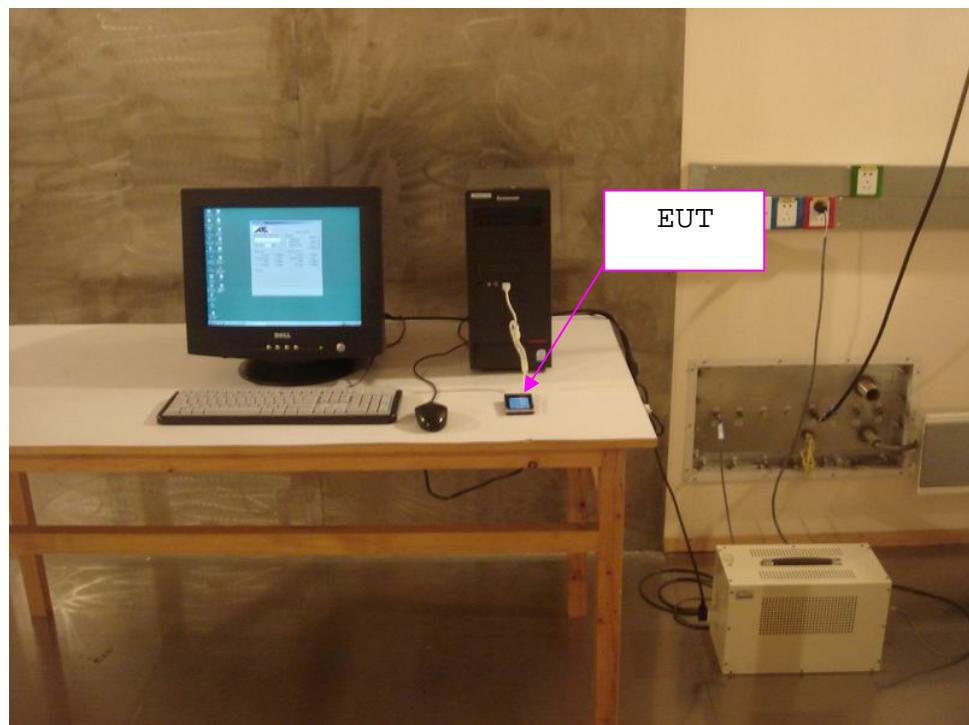
### 7.3. Test Result

Product : MP3 Player series Test Mode : IEEE802.11b/  
g  
Test Item : RF Exposure Temperature : 27°C  
Test Voltage : DC 5 V Humidity : 35%RH  
Result : **PASS**

<b>Evaluation of RF Exposure Compliance Requirements</b> <small>MPE Prediction of MPE according to equation from page 19 of OET Bulletin 65, Edition 97-01</small>	
<b>RF Exposure Requirements</b>	<b>Compliance with FCC Rules</b>
$S = pg / 4\pi R^2$ Where: S=power density P=power input to antenna G=power gain of the antenna relative to an isotropic radiator R=distance to the center of the radiation of the antenna	Maximum output power at antenna input terminal: 5.13dBm = 3.258Mw Prediction distance: 20cm Antenna gain: 1.8dBi or 1.514(numeric) Prediction frequency: 2462MHz MPE limit for uncontrolled exposure at prediction frequency: 1.0Mw/cm <sup>2</sup> Power density at 20cm: Antenna: 0.00117Mw/cm <sup>2</sup>

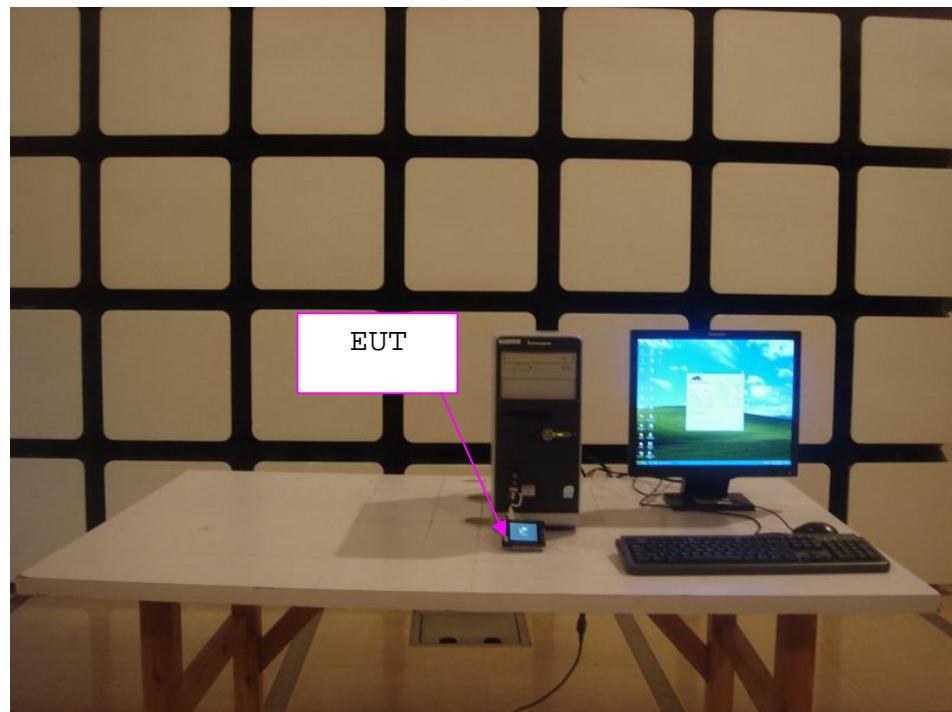
## 8. PHOTO OF TESTING

### 8.1. Conducted Emission Test Photos

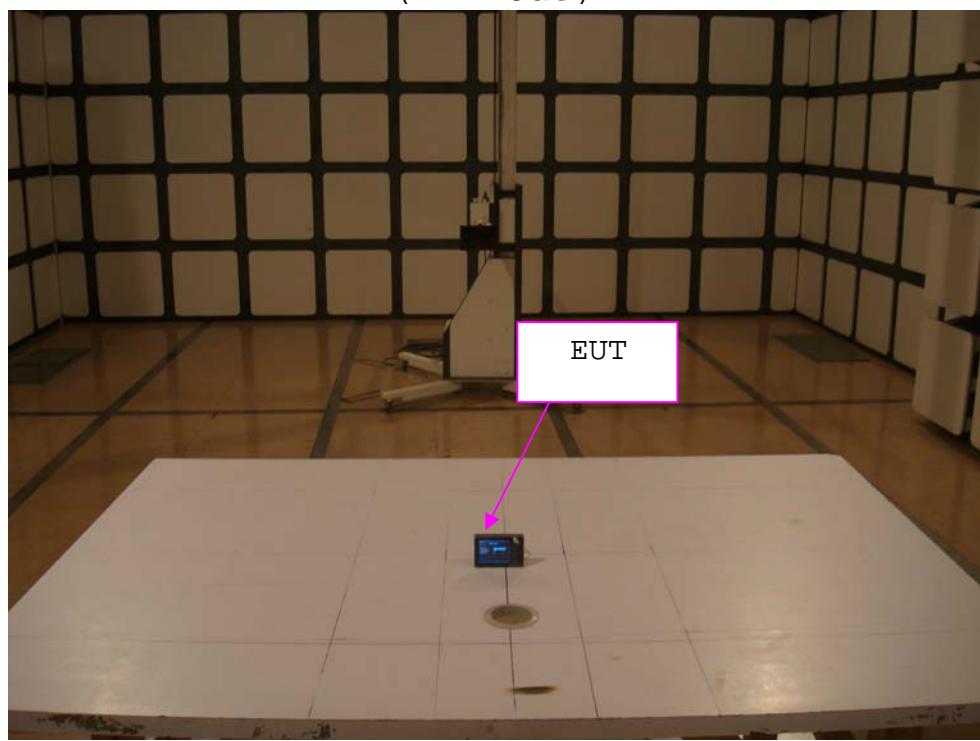


## 8.2. Radiated Emission Test Photos

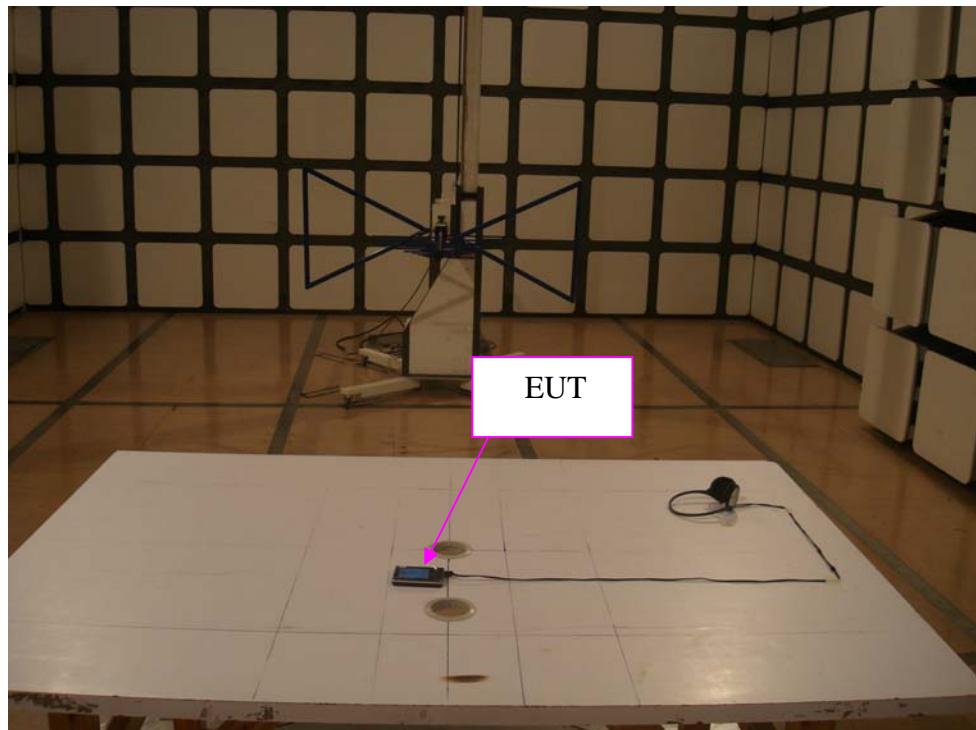
Radiated Emission Test View  
(USB mode)



Radiated Emission Test View  
(FM mode)



Radiated Emission Test View  
(Playing mode)



## 9. Test Equipment

The following test equipments were used during the radiated & conducted emission test:

Item	English Name	Band	Type Name	Serial No.	Cal. Interval
1.	Spectrum Analyzer	ADVANTEST	E7402A	US41110270	1 Year
2.	EMI Test Receiver	R&S	ESS	837010/012	1 Year
3.	RF Selector	TOYO	NS4000	9507001	1 Year
4.	AM/FM Stereo Signal Generator	Panasonic	VP-8122A	4D0461C125	1 Year
5.	LISN	Kyoritsu	KNW-242C	8-1594-5	1 Year
6.	AC Power Supply	KIKUSUI	PCR-4000L	CL001356	1 Year
7.	Computer	DELL	GX260	89WR91X	1/2 Year
8.	Software	TOYO	CE	/	1 Year
9.	Printer	HP	3658	CN3513DIQX	1/2 Year
10.	EMI Test Receiver	R&S	ESS	837010/013	1 Year
11.	EMC Analyzer	Agilent	E7402A	US41110270	1 Year
12.	RF Selector	TOYO	NS4901A	9507004	1 Year
13.	Pre Amplifier	ANRITSU	MH648A	M92249	1 Year
14.	AM/FM Stereo Signal Generator	Panasonic	VP-8122A	730969C125	1 Year
15.	AC Power Supply	KIKUSUI	PCR-4000L	CL001357	1 Year
16.	Computer	DELL	GX260	89WR91X	1 Year
17.	Software	TOYO	RE	/	1 Year
18.	Printer	HP	3658	CN38R3F3FQ	1 Year