



## Test Report

Product Name : HD Radio

Model No. : H805/VRHDUA100

FCC ID : VXIHDR80508011

Applicant : AEONPOWER INTERNATIONAL CO., LTD.

Address : 9F., No.411, Chung Shan Rd., Sec. 2, Chung Ho  
City, Taipei Hsien, Taiwan, R.O.C.

Date of Receipt : 2007/10/12

Issued Date : 2008/01/07

Report No. : 081070R-ITUSP01V02

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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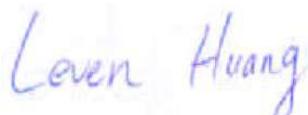
## Test Report Certification

Issued Date : 2008/01/07  
Report No. : 081070R-ITUSP01V02

# QuieTek

Product Name : HD Radio  
Applicant : AEONPOWER INTERNATIONAL CO., LTD.  
Address : 9F., No.411, Chung Shan Rd., Sec. 2, Chung Ho City,  
Taipei Hsien, Taiwan, R.O.C.  
Manufacturer : AEONPOWER INTERNATIONAL CO., LTD.  
Model No. : H805/VRHDUA100  
Rated Voltage : DC 12.6~14.4V  
EUT Voltage : DC 12.6~14.4V  
Trade Name : AEONPOWER  
Applicable Standard : FCC CFR Title 47 Part 15 Subpart B: 2006 Class B  
CISPR 22: 2005, ANSI C63.4: 2003  
Test Result : Complied  
Performed Location : Quietek Corporation (Linkou Laboratory)  
No.5-22,Ruei-Shu Valley, Ruei-Ping Tsuen Lin Kuo Shiang,  
Taipei, 244 Taiwan, R.O.C.  
FCC test firm number : 92195  
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Documented By :



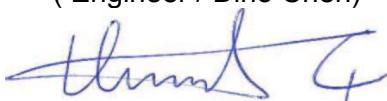
( Adm. Specialist / Leven Huang )

Reviewed By :



( Engineer / Dino Chen )

Approved By :



( Deputy Manager / Vincent Lin )

## Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	:	BSMI, NCC, TAF
Germany	:	TUV Rheinland
Norway	:	Nemko, DNV
USA	:	FCC, NVLAP
Japan	:	VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site :<http://tw.quietek.com/modules/enterprise/services.php?item=100>  
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :  
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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No.75-2, 3rd Lin, Wangye Keng, Yongxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.  
TEL:+886-3-592-8858 / FAX:+886-3-592-8859      E-Mail : [service@quietek.com](mailto:service@quietek.com)



### LinKou Testing Laboratory :

No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen, Lin-Kou Shiang, Taipei, Taiwan, R.O.C.  
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789      E-Mail : [service@quietek.com](mailto:service@quietek.com)



### Reports from Both Laboratories Are Accepted by :



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## 1. General Information

### 1.1. EUT Description

Product Name	HD Radio
Trade Name	AEONPOWER
Model No.	H805/VRHDUA100
FCC ID	VXIHDR80508011
Frequency Range	AM:530-1710KHz FM:87.5-108MHz
Channel Control	Manual

**Note:**

1. The EUT is a HD Radio with a built-in Analog AM/FM/RDS Radio Receiver.
2. Regarding to the operation frequency, the middle frequency are selected to perform the test.
3. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart B Paragraph 15.107, 15.109 for Radio receiver devices.

## **1.2. EUT Description**

The EUT is a HD Radio with a built-in Analog AM/FM/RDS Radio Receiver.

The HD Radio receiver technology enables FM broadcasters to offer several new channels of digital programming in addition to their main station.

The EUT receiver frequency range is 530-1710 KHz (AM) and 87.5-108MHz (FM).

### 1.3. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

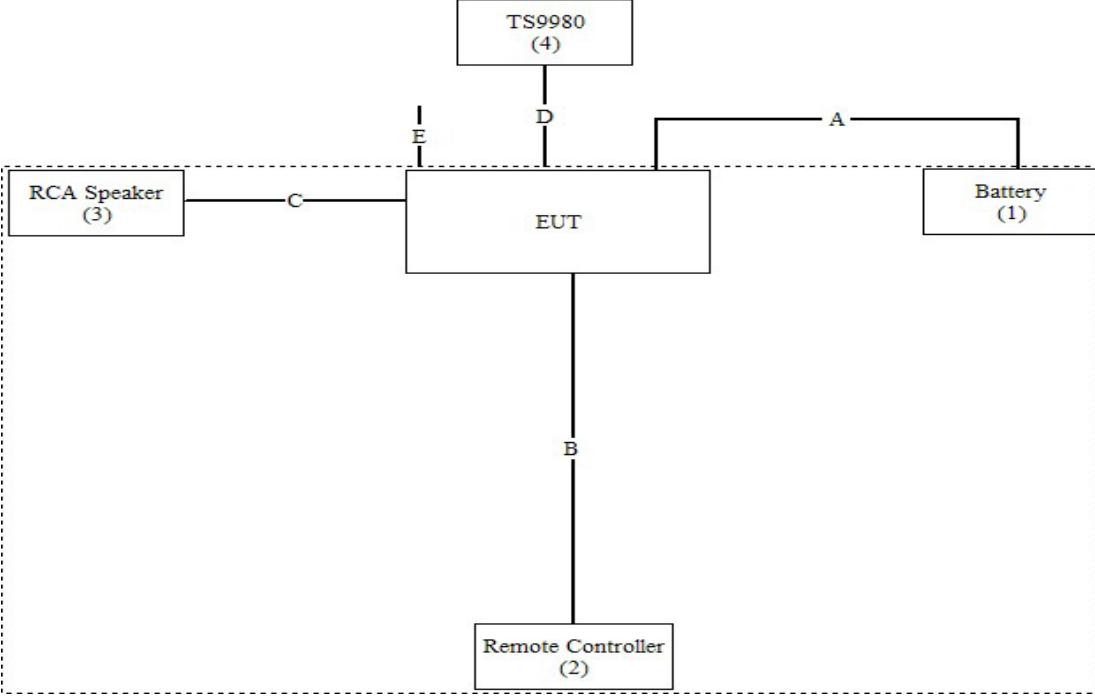
Pre-Test Mode	
Mode 1: Normal Operation (FM 98.1 MHz)	
Final Test Mode	
Emission	Mode 1: Normal Operation (FM 98.1 MHz)

**1.4. Tested System Details**

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Battery	LEPO	75D 23L-MF	N/A	N/A
2	Remote Controller	AEONPOWER	N/A	N/A	N/A
3	RCA Speaker	SANYO	OTTO-301A	JA03243489	Non-Shielded, 1.6m
4	TS9980	R&S	N/A	N/A	N/A

## 1.5. Configuration of Tested System

Connection Diagram	
	
Signal Cable Type	Signal cable Description
A	Car Charge Cable
B	Remote Controller Cable
C	RCA (2 to 2) Cable
D	Coaxial Cable
E	Terminal Cable

**1.6. EUT Exercise Software**

1	Setup the EUT and display as shown on 1.4.
2	Turn on the power of all equipment.
3	Press the BAND button to select FM (98.1MHz).
4	Verify the model operation before the measurement.

## 2. Technical Test

### 2.1. Summary of Test Result

- No deviations from the test standards
- Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart B: 2006 Class B, ANSI C63.4: 2003	No	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2006 Class B, ANSI C63.4: 2003	Yes	No

## 2.2. List of Test Equipment

Section 15.109 Radiated Emission / 9x6x6 Chamber

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
R&S TS 9980	N/A	N/A	N/A	N/A
EMI Test Receiver	R&S	ES126	838786/004	2007/06/19
Bilog Antenna	Schaffner Chase	CBL6112B	2905	2007/12/06
Controller	QuieTek	CL-003-C	N/A	N/A
Pre-Amplifier	QuieTek	AP-025C	N/A	N/A

### **2.3. Measurement Uncertainty**

#### Radiated Emission

The measurement uncertainty is evaluated as  $\pm$  3.19 dB.

**2.4. Test Environment**

Performed Item	Items	Required	Actual
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000

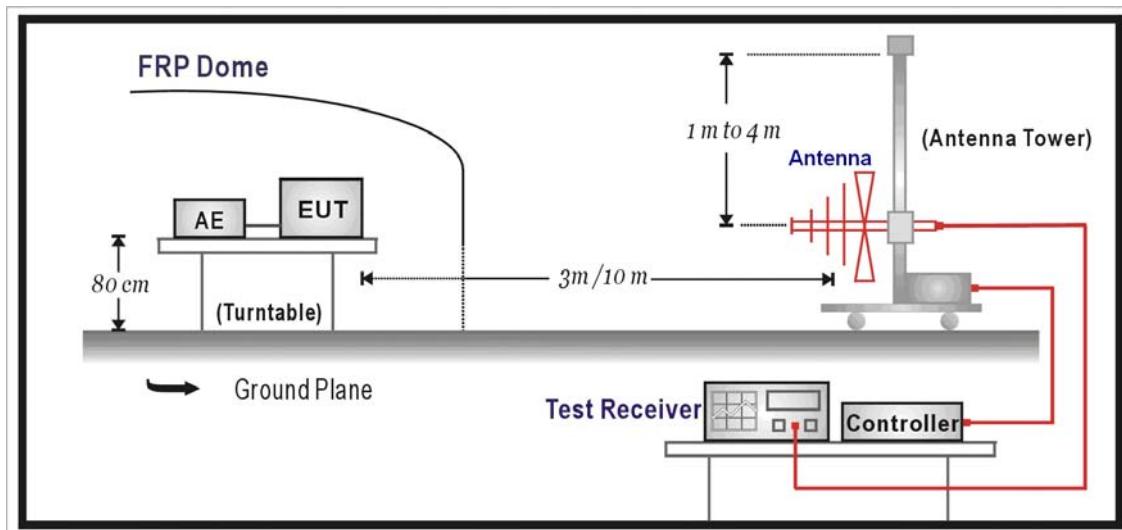
### 3. Radiated Emission

#### 3.1. Test Specification

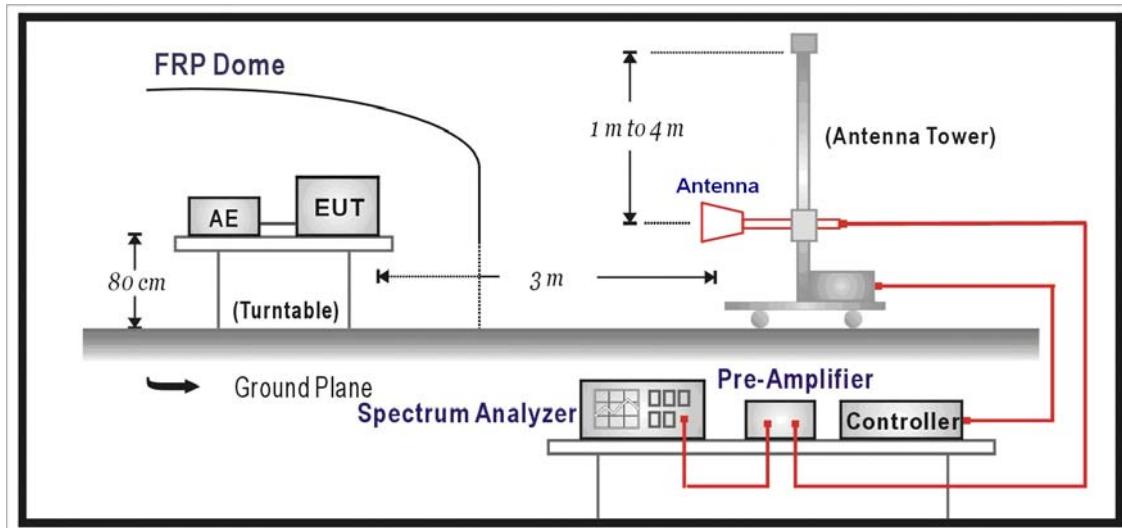
According to EMC Standard : FCC Part 15 Subpart B, ANSI C63.4

#### 3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



### 3.3. Limit

Under 1GHz test shall not exceed the following value:

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	30
230 – 1000	10	37

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)		
Frequency (MHz)	Distance (m)	dBuV/m
30-88	3	40
88-216	3	43.5
216-960	3	46
Above 960	3	54

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. RF Voltage (dBuV/m) =  $20 \log \text{RF Voltage (uV/m)}$

### 3.4. Test Procedure

The EUT and its simulators are 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 and the antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based on measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

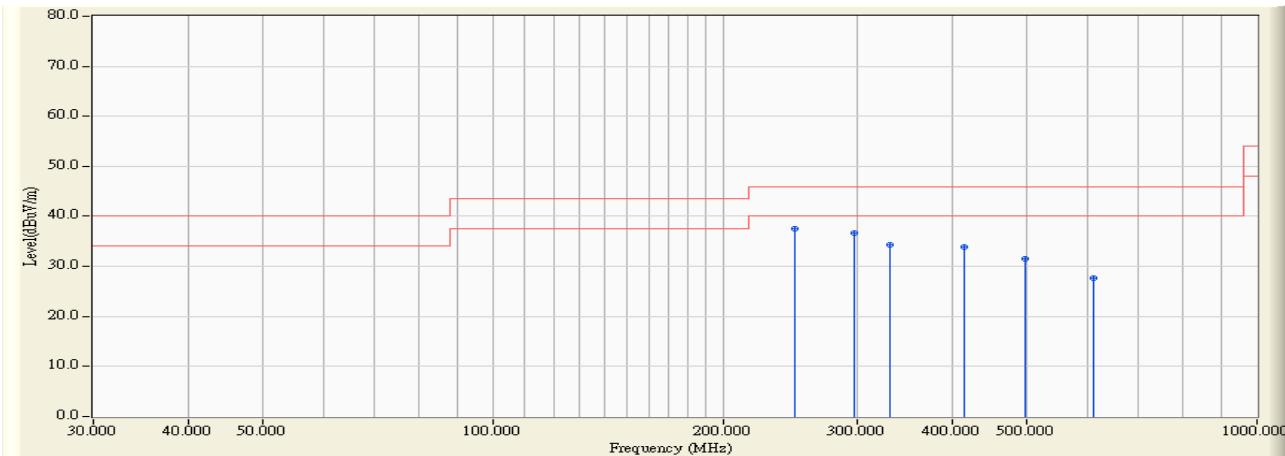
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

### 3.5. Test Result

Site : 9x6x6_Chamber	Time : 2007/10/16 - 15:36
Limit : FCC_CLASS_B_03M_QP	Margin : 6
EUT : HD Radio	Probe : 9x6x6-2007-06-01 - HORIZONTAL
Power : AC 120V/60Hz	Note : MODE 1 , FM 98.1MHz

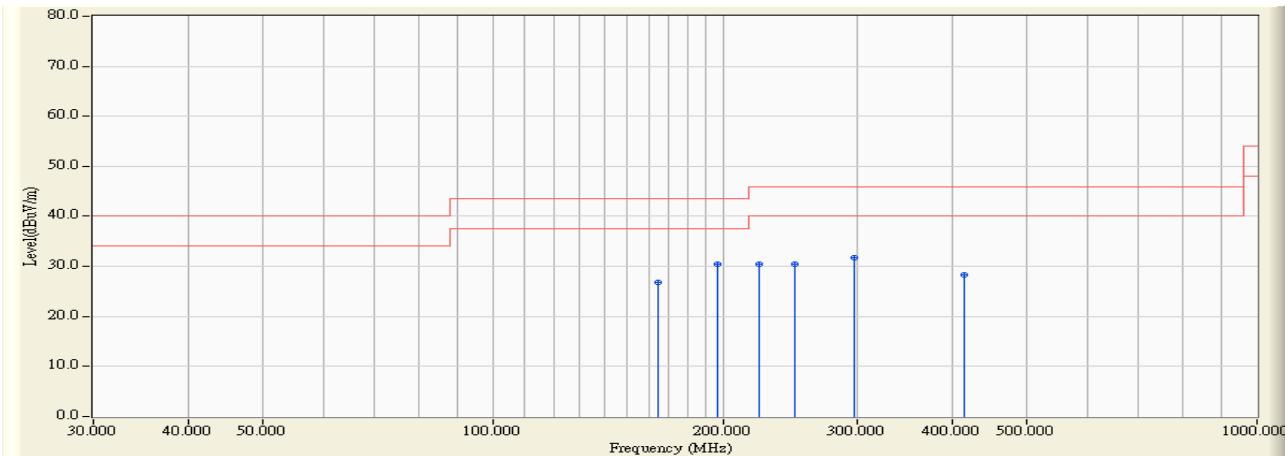


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	
1	*	248.384	-8.306	45.740	37.434	-8.566	46.000	QUASIPEAK
2		297.666	-7.840	44.510	36.671	-9.329	46.000	QUASIPEAK
3		331.174	-5.817	40.200	34.383	-11.617	46.000	QUASIPEAK
4		413.939	-1.284	35.200	33.916	-12.084	46.000	QUASIPEAK
5		496.765	-0.578	32.100	31.522	-14.478	46.000	QUASIPEAK
6		609.672	4.170	23.500	27.670	-18.330	46.000	QUASIPEAK

#### Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : 9x6x6_Chamber	Time : 2007/10/16 - 15:40
Limit : FCC_CLASS_B_03M_QP	Margin : 6
EUT : HD Radio	Probe : 9x6x6-2007-06-01 - VERTICAL
Power : AC 120V/60Hz	Note : MODE 1 , FM 98.1MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	164.150	-7.793	34.620	26.827	-16.673	43.500	QUASIPEAK
2 *	197.100	-2.807	33.200	30.393	-13.107	43.500	QUASIPEAK
3	223.291	-2.784	33.150	30.365	-15.635	46.000	QUASIPEAK
4	248.399	-3.202	33.620	30.419	-15.581	46.000	QUASIPEAK
5	297.673	-8.833	40.520	31.687	-14.313	46.000	QUASIPEAK
6	413.972	-2.122	30.510	28.388	-17.612	46.000	QUASIPEAK

#### Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor