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# 1. GENERAL INFORMATION

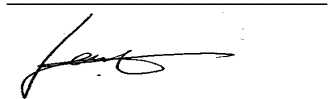
## 1.1 Verification of Compliance

EUT: RF CORDLESS HEADPHONE RECEIVER  
 Model: RP-WF930H  
 Applicant: MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.  
 1-15 MATSUO-CHO, KADOMA CITY, OSAKA, JAPAN  
 Test Type: FCC Part 15 CERTIFICATION  
 Result: PASS  
 Tested by: ADVANCED COMPLIANCE LAB  
 Test Date: December 16, 2003  
 Report Number: 0048-031210-01-RX

The above equipment was tested by Advanced Compliance Laboratory for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

|                                 | Prob. Dist. | Uncertainty(dB) | Uncertainty(dB) | Uncertainty(dB) |
|---------------------------------|-------------|-----------------|-----------------|-----------------|
|                                 |             | 30-1000MHz      | 1-6.5GHz        | Conducted       |
| Combined Std. Uncertainty $u_c$ | norm.       | $\pm 2.36$      | $\pm 2.99$      | $\pm 1.83$      |



Wei Li  
 Lab Manager  
 Advanced Compliance Lab

Date: December 16, 2003

## **1.2 Equipment Modifications**

N/A

### 1.3 Product Information

#### System Configuration

| ITEM            | DESCRIPTION                        | FCC ID       | CABLE |
|-----------------|------------------------------------|--------------|-------|
| Product         | RF Cordless Headphone Receiver     | ACJRP-WF930H |       |
| Housing         | PLASTICS                           |              |       |
| Power Supply    | Rechargeable Ni-MH battery (2.4 V) |              |       |
| Carrier Freq.   | 905-908MHz                         |              |       |
| Clock/OSC Freq. | 10.7MHz, 418 MHz, 906MHz           |              |       |
| Device Type     | SUPERREGENERATIVE RECEIVER         |              |       |

(1) EUT submitted for grant.

### 1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-1992 at an antenna to EUT distance of 3 meters.

### 1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at Somerset, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

### 1.6 Test Equipment

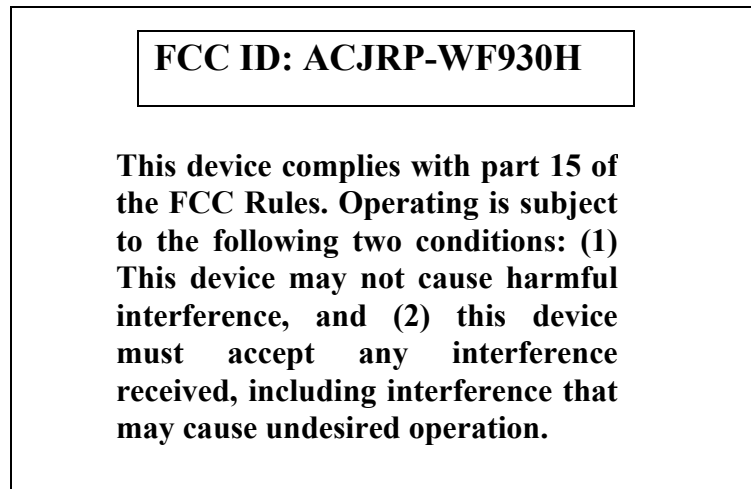
| Manufacture     | Model   | Serial No. | Description                           | Last Cal<br>dd/mm/y | Cal Due<br>dd/mm/y |
|-----------------|---------|------------|---------------------------------------|---------------------|--------------------|
| Hewlett-Packard | HP8546A | 3625A00341 | EMI Receiver                          | 23/10/03            | 23/10/04           |
| EMCO            | 3104C   | 9307-4396  | 20-300MHz Biconical Antenna           | 11/03/03            | 11/03/04           |
| EMCO            | 3146    | 9008-2860  | 200-1000MHz Log-Periodic Antenna      | 11/02/03            | 11/02/04           |
| Fischer Custom  | LISN-2  | 900-4-0008 | Line Impedance Stabilization Networks | 03/07/03            | 03/07/04           |
| Fischer Custom  | LISN-2  | 900-4-0009 | Line Impedance Stabilization Networks | 03/07/03            | 03/07/04           |
| EMCO            | 3115    | 4945       | Double Ridge Guide Horn Antenna       | 15/09/03            | 15/09/04           |

All Test Equipment Used are Calibrated Traceable to NIST Standards.

### **1.7 Statement for the Document Use**

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

## **2. PRODUCT LABELING**



**Figure 2.1 FCC ID Label**



**Figure 2.2 Location of the Label**

### **3. SYSTEM TEST CONFIGURATION**

#### **3.1 Justification**

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT with maximum length, 6 inches.

A ROHDE&SCHWARZ SMH signal generator was used during the test to radiate an unmodulated CW signal to cohered the receiver at 907.3 MHz. The level was adjusted to let this occur.

Testing was performed as EUT was tuned for frequency 905~908MHz transmission.

#### **3.2 Special Accessories**

N/A

#### **3.3 Configuration of Tested System**

Figure 3.1 and Figure 3.2 illustrate this system, which is tested standing along.



**Figure 3.1 Radiated Front**



**Figure 3.2 Radiated Rear**

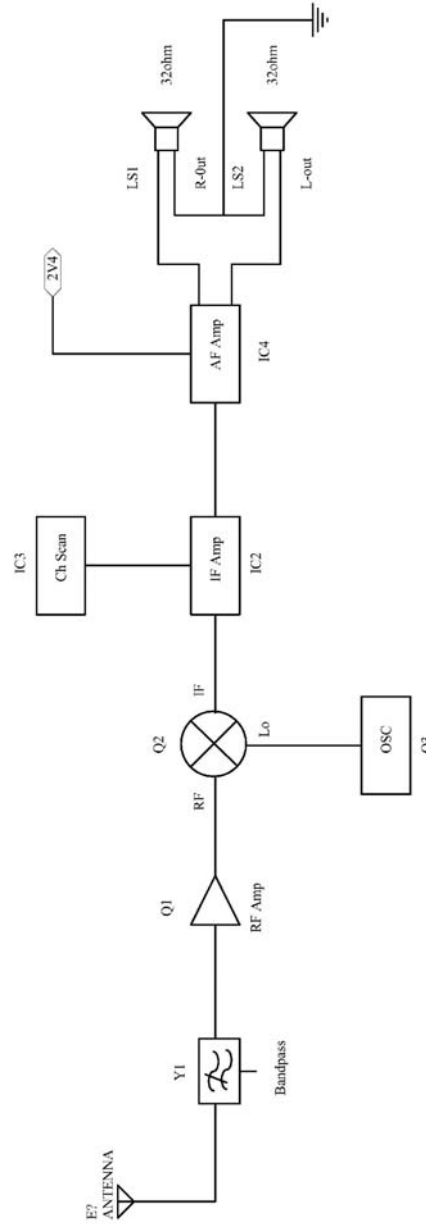


**Figure 3.3 Conducted Front**



**Figure 3.4 Conducted Rear**

### 4. SYSTEM BLOCK DIAGRAM



**Fig. 4.1 System Block Diagram**

## 5. CONDUCTED EMISSION DATA

### 5.1 Test Methods and Conditions

The EUT was under normal operational mode during the conducted emission test. EMI Receiver was scanned from 150KHz to 30MHz with maximum hold mode for maximum emission. Recorded data was sent to the plotter to generate output in linear format. At the input of the spectrum analyzer, a HP transient limiter is inserted for protective purpose. This limiter has a 10 dB attenuation in the range of 150KHz to 30MHz. That factor was automatically compensated by the receiver, so the readings are the corrected readings. The reference of the plot is the CISPR 22 Class B limit in Figure 5.1 through Figure 5.2.

| Conducted Emission Technical Requirements |                 |              |                 |              |
|---|-----------------|--------------|-----------------|--------------|
| Frequency Range                           | Class A         |              | Class B         |              |
|   | Quasi-Peak dBuV | Average dBuV | Quasi-Peak DBuV | Average dBuV |
| 150kHz -0.5MHz                            | 79 (8912uV)     | 66 (1995uV)  | 66-56           | 56-46        |
| 0.5MHz-30MHz                              | 73 (4467uV)     | 60 (1000uV)  | ---             | ---          |
| 0.5MHz- 5MHz                              | ---             | ---          | 56              | 46           |
| 5MHz-30MHz                                | ---             | ---          | 60              | 50           |


Emissions that have peak values close to the specification limit (if any) are also measured in the quasi-peak mode to determine compliance.

### 5.2 Test Data

Figure 5.1 through Figure 5.2 show the neutral and line conducted emissions for the standard operation mode.

| Six Highest Data for AC Line Conducted Emissions |      |      |      |      |       |       |
|--|------|------|------|------|-------|-------|
| Frequency (MHz)                                  | 1.61 | 2.12 | 3.92 | 4.11 | 13.26 | 23.81 |
| Peak Reading (dBuV)                              | 42.5 | 42.7 | 43.0 | 42.8 | 43.4  | 39.7  |

Test Personnel:

Tester Signature: 

Date: December 16, 2003

Typed/Printed Name: Edward Lee

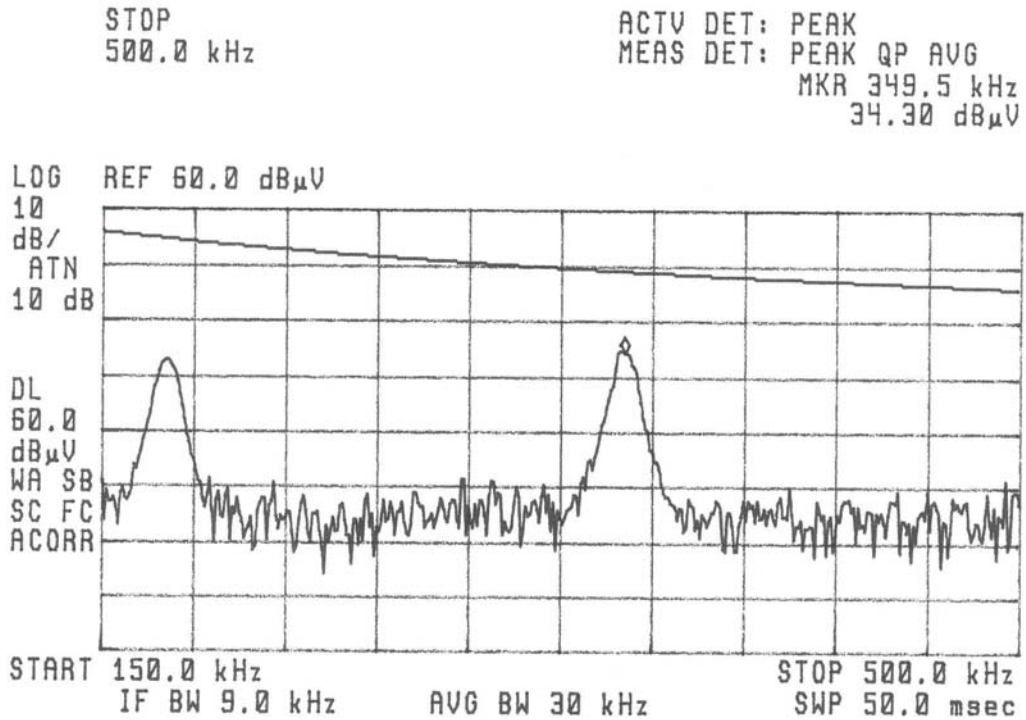
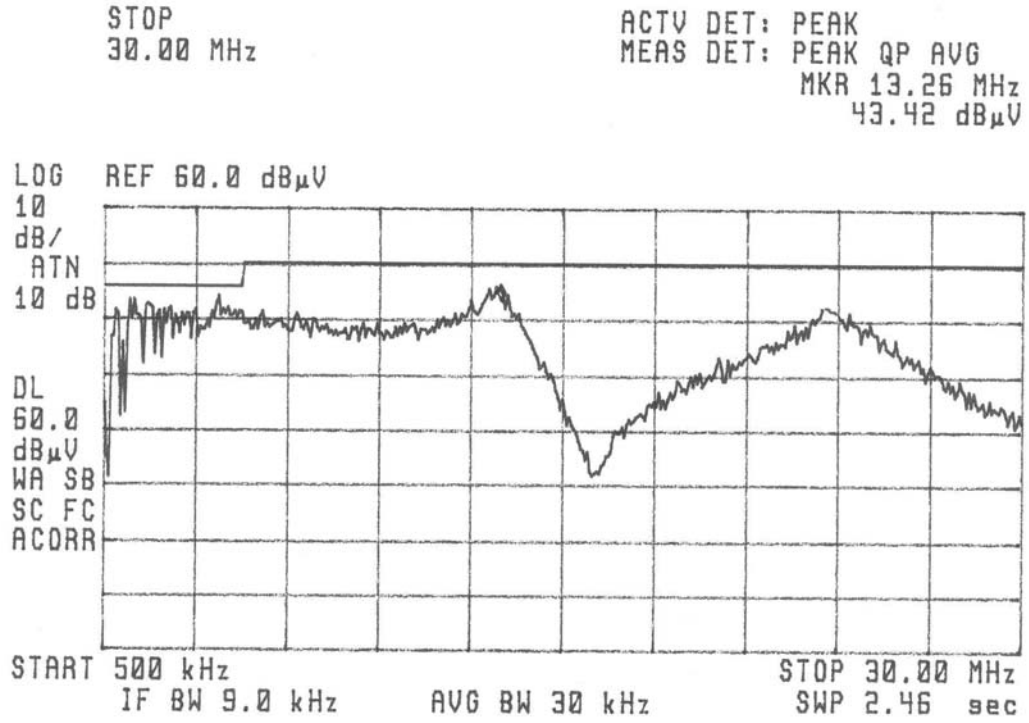


Figure 5.1 Line Conducted

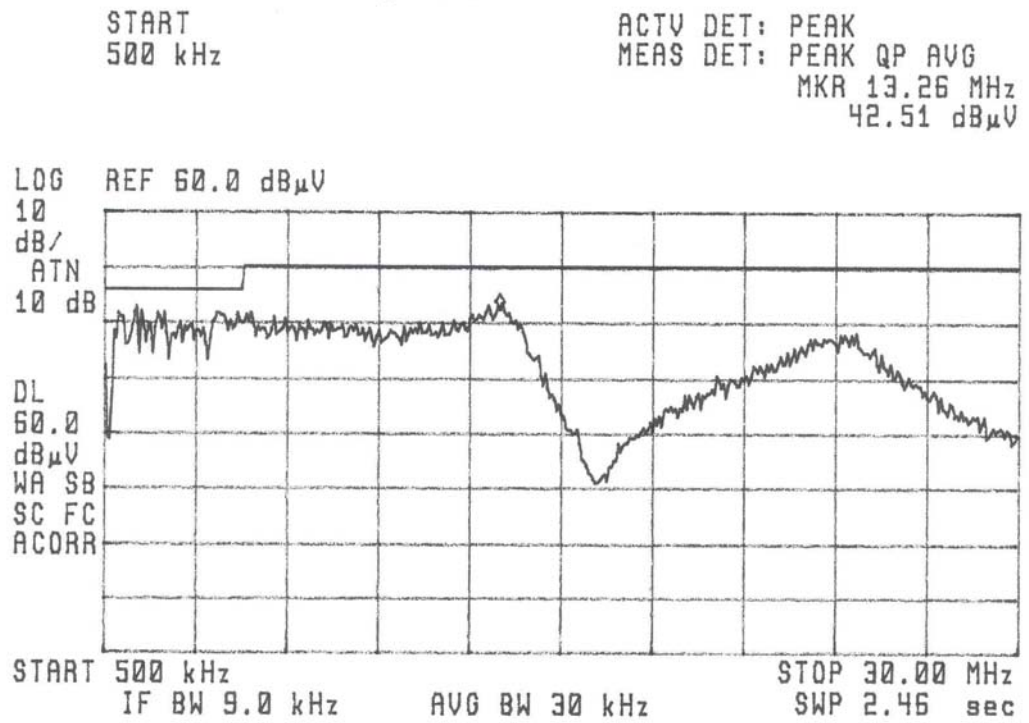
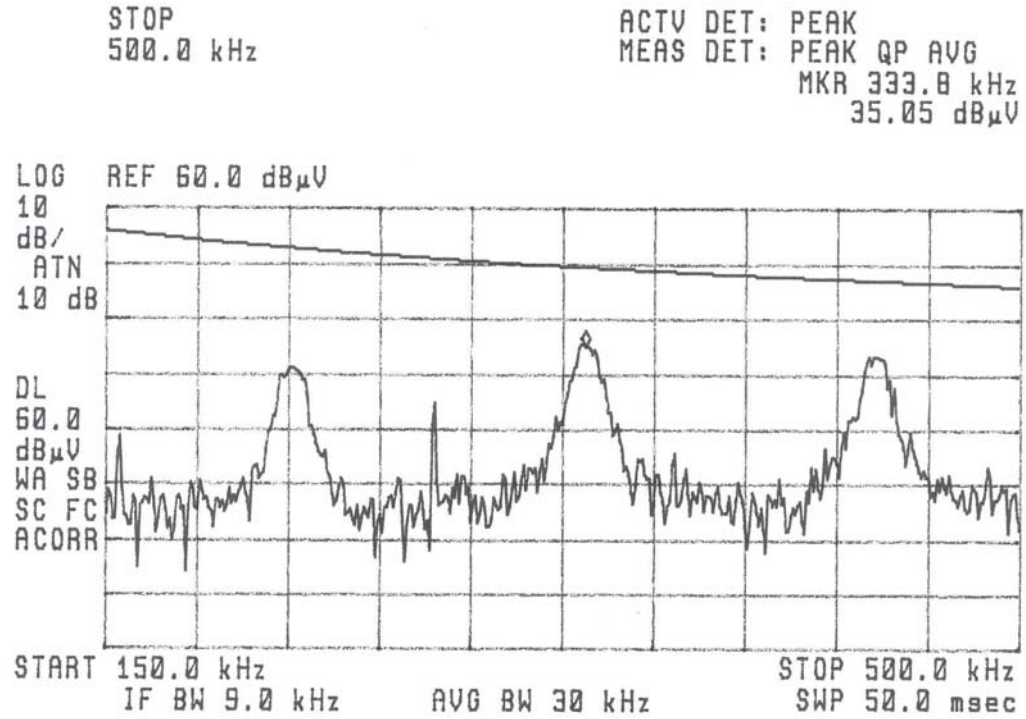


Figure 5.2 Neutral Conducted

## 6. RADIATED EMISSION DATA

### 6.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA + AF + CF + AG$$

where FS: Corrected Field Strength in dB $\mu$ V/m

RA: Amplitude of EMI Receiver before correction in dB $\mu$ V

AF: Antenna Factor in dB/m

CF: Cable Attenuation Factor in dB

AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

### 6.2 Test Methods and Conditions

The initial step in collecting radiated data is a EMI Receiver scan of the measurement range below 30MHz using peak detector and 9KHz IF bandwidth / 30KHz video bandwidth. For the range 30MHz - 10GHz, 120KHz IF bandwidth / 30KHz video bandwidth are used. Both bandwidths are 1MHz for above 1GHz measurement.

### 6.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

The plot shows there was no significant radiated emission points for the range of 30MHz ~ 1GHz. Also up to 5GHz, the emissions were investigated. No significant radiated emission points were found.

Test Personnel:

Tester Signature:



Typed/Printed Name: Edward Lee

Date: December 16, 2003

### Radiated Test Data

