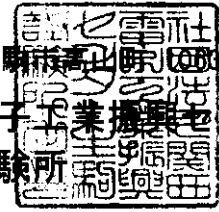


平成 11年 1月 21日

船井電機株式会社 御中

〒630-0101 奈良県生駒市高山町630番地  
社団法人 関西電子工業振興センター  
生駒試験所



## 試験成績について

下記の通り試験結果を御報告申し上げます。

### 記

- 1. 受付番号 :A-001-99-R
- 2. 供試装置 :REMOTE CONTROL LOCATOR (RECEIVER)
- 商標名 :PHILIPS  
型式番号 :N0404UD
- 3. 試験内容 :FCC Part 15 Subpart B Unintentional Radiators
- 4. 試験結果 :添付 ENGINEERING TEST REPORT の通り
- 5. その他 :情報によりますと FCC申請には電子申請を要望してくるかも知れません。

Designated by Ministry of International Trade and Industry

**KANSAI ELECTRONIC INDUSTRY DEVELOPMENT CENTER**

HEAD OFFICE  
6-8-7, NISHITEMMA  
KITA-KU, OSAKA, 530 JAPAN



IKOMA  
TESTING LABORATORY  
10630, TAKAYAMA-CHO  
IKOMA-CITY, NARA, 630-01 JAPAN

Corporate Juridical Person

**ENGINEERING TEST REPORT**REPORT NO. A-001-99-R

Date : January 21, 1999

This test report is to certify that the tested device properly complies with the requirements of:

FCC Rules and Regulations Part 15 Subpart B Unintentional Radiators.

ALL the tests necessary to show compliance to the requirements were performed and these results met the specifications of requirement. The results of this report should not be construed to imply compliance of equipment other than that which was tested. Unless the laboratory permission, this report should not be copied in part.

## 1. Applicant

Company Name : Funai Electric Co., Ltd.

Mailing Address : 7-1, 7-Chome, Nakagaito, Daito-City, Osaka, 574-0013 Japan

## 2. Identification of Tested Device

FCC ID : ADTCCA  
 Device Name : REMOTE CONTROL LOCATOR(RECEIVER)  
 Trade Name : PHILIPS  
 Model Number : N0404UD  
 Serial Number : 0001 :  Prototype  Pre-production  Production  
 Date of Manufacture : December, 1998

## 3. Test Items and Procedure

AC Power Line Conducted Emission Measurement  
 Radiated Emission Measurement

Above all tests were performed under : ANSI C63.4-1992

## 4. Date of Test

Receipt of Test Sample : December 24, 1998  
 Test Completed on : January 11, 1999

CERTIFIED BY :

Fumitoshi Nagaoka  
Associate Director of Ikoma Testing Laboratory

**ENGINEERING TEST REPORT**Table of Contents

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## ENGINEERING TEST REPORT

### 1. GENERAL INFORMATION

#### 1.1 Product Description

The PHILIPS Model No. N0404UD (referred to as the EUT in this report) is a REMOTE CONTROL LOCATOR (RECEIVER).

##### 1) Technical Specifications

Receiving Frequency Range : 390 MHz  
 Type of Circuit : Superregenerative  
 Type of Antenna : Built-in Antenna (unbalanced)

##### 2) Contained Oscillators

Micro computer main clock : 4.0 MHz

##### 3) Rated Power Supply

: DC 4.5 V ("AA" Size Dry Cell Battery × 3)

#### 1.2 Description for Equipment Authorization

##### 1) Rules Part(s) under which Equipment operated

FCC Rule Part 15, Subpart B ; Superregenerative Receiver in Unintentional Radiators.

##### 2) Kind of Equipment Authorization

Certification       Verification

##### 3) Procedure of Application

Original Equipment       Modification

#### 1.3 Test Facility

All tests described in this report were performed by:

Name : KANSAI ELECTRONIC INDUSTRY DEVELOPMENT CENTER ( KEC )  
 IKOMA TESTING LABORATORY

Open Test Site     No.1     No.2     No.3     No.4  
 Shielded Room     No.2     No.4

Address : 10630, Takayama-cho Ikoma-city, Nara, 630-0101 Japan

These test facilities have been filed with the FCC under the criteria of ANSI C63.4-1992. The laboratory has been accredited by the NVLAP(Lab.Code:200207-0) based on ISO/IEC Guide 25. Also the laboratory has been authorized by ITI(Interference Technology International,UK),TUV Product Service(GER) and TUV Rheinland(GER) based on their criteria for testing laboratory(EN45001).

### 2. TEST MODE

The EUT was placed on the test table. Measurements were made for

- 1) Horizontal places
- 2) Vertical places

## ENGINEERING TEST REPORT

### 3. RADIATED EMISSION MEASUREMENT

#### 3.1 Reference Rule and Specification

FCC Rule Part 15, Section 15.109 (a), (c) and (f).

#### 3.2 Test Procedure

- 1) Configure the EUT System in accordance with ANSI C63.4-1992 section 12.1. See also the block diagram and the photographs of EUT System configuration in this report.
- 2) All power cords for the EUT System are connected the receptacle on the turn floor.
- 3) Warm up the EUT System.
- 4) Activate the EUT System and run the prepared software for the test, if require.
- 5) To find out the emissions of the EUT System, preliminary radiated measurement are performed at a closer distance than that specified for final radiated measurement using the spectrum analyzer(\*1) and the broad band antenna. In the frequency above 1 GHz, it is performed using the spectrum analyzer(\*2) and the horn antenna.
- 6) To find out an EUT System condition produces the maximum emission, the configuration of EUT System, the position of the cables, and the operation mode were changed under normal usage of the EUT.
- 7) The spectrum are scanned from 30 MHz to 2 GHz, and collect the highest emissions on the spectrum analyzer relative to the limit.
- 8) In final compliance test, the highest emissions recorded above are measured at the specified distance using the broad band antenna or the tuned dipole antenna and the test receiver(\*3).  
In the frequency above 1 GHz, the measurements are performed by the horn antenna and  the test receiver(\*4).  
 the spectrum analyzer(\*2) with pre-amplifier.

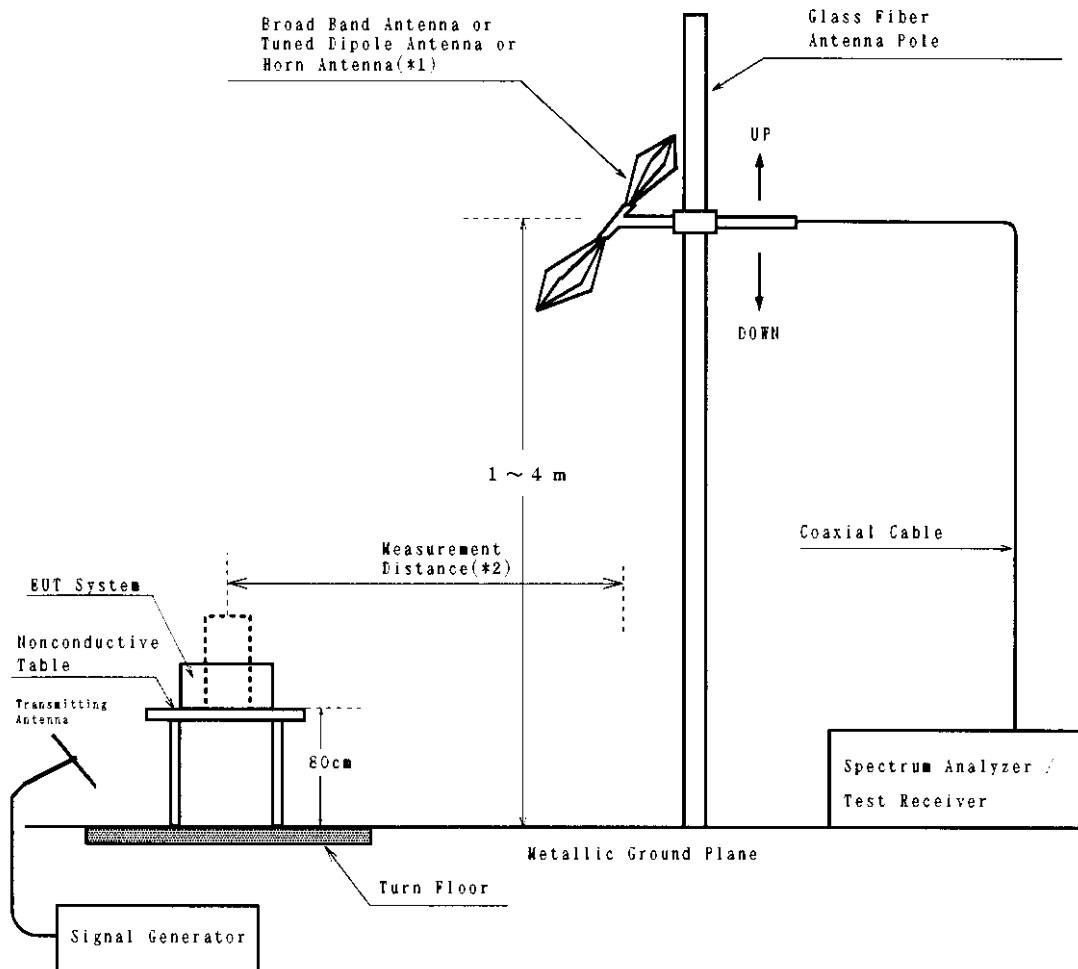
[ Note ]

- (\*1) : Spectrum Analyzer Set Up Conditions  
 Frequency range : 30 - 1000 MHz  
 Resolution bandwidth : 100 kHz  
 Detector function : Peak mode
- (\*2) : Spectrum Analyzer Set Up Conditions  
 Frequency range : 1 GHz - 2 GHz  
 Resolution bandwidth : 1 MHz  
 Video bandwidth : 1 MHz  
 Attenuator : 10 dB  
 Detector function : Peak mode
- (\*3) : Test Receiver Set Up Conditions  
 Detector function : Quasi-Peak  
 IF bandwidth : 120 kHz
- (\*4) : Test Receiver Set Up Conditions  
 Detector function : Average  
 IF bandwidth : 1 MHz

## ENGINEERING TEST REPORT

### 3.3 Test Configuration

[ Open Site ]



[ Note ]

- 1) The signal generator, not the matching transmitter, was used to radiate an unmodulated continuous wave (CW) signal to a superregenerative receiver at its operating frequency in order to "cohere" or resolve the individual components of the characteristics broad band emission from such a receiver.
- 2) (\*1) : In frequency range above 1 GHz use only.
- 3) (\*2) : Measurement distance is shown on 3.5 Test Results in this report.

## ENGINEERING TEST REPORT

### 3.5 Test Results

Test Mode : Horizontal Plances

[Measurement Distance : 3m ]

Emission Frequency [MHz]	Antenna Factor [dB]	Meter Reading [dB $\mu$ V]		Maximum Field Strength [dB $\mu$ V/m]	Limits [dB $\mu$ V/m]
		Horizontal Polarization	Vertical Polarization		
<u>Fundamental</u>					
377.99	23.6	14.6	7.6	38.2	46.0
380.42	23.7	15.4	8.1	39.1	46.0
392.78	24.0	15.3	7.8	39.3	46.0
394.41	24.1	15.9	7.7	40.0	46.0
<u>2nd Harmonics</u>					
728.60	32.3	1.5	1.3	33.8	46.0
762.40	32.8	1.4	1.0	34.2	46.0
781.52	33.1	2.4	1.0	35.5	46.0
794.06	33.2	1.8	1.2	35.0	46.0
<u>3rd Harmonics</u>					
1102.04	23.2	19.4	11.0	42.6	54.0
1172.40	23.9	11.6	8.4	35.5	54.0
<u>4th Harmonics</u>					
1466.70	22.6	19.4	12.5	42.0	54.0
1560.67	22.2	14.6	8.0	36.8	54.0
<u>5th Harmonics</u>					
1828.20	24.1	12.0	7.4	36.1	54.0

[ Note ]

- 1) The measured data below 1GHz with the tured dipole antenna.
- 2) The cable loss is included in the antenna factor.
- 3) Receiving Frequency : 390 MHz
- 4) The emission not reported were less than 10dB $\mu$ V at meter reading.

[ Environment ]

Temperature : 16°C Humidity : 50%

[ Sample Calculation

Frequency : 377.99 [ MHz ]  
 Meter Reading : 14.6 [ dB $\mu$ V ] ( at Horizontal Polarization )  
 Antenna Factor : 23.6 [ dB ]

Then, Field Strength is calculated as follows.

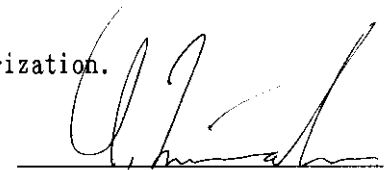
$$\text{Field Strength} = 14.6 + 23.6 = 38.2 \text{ [dB}\mu\text{V/m]}$$

[ Summary of Test Results ]

Minimum margin was 6.0 dB at 394.41 MHz, horizontal polarization.

Tested Date : January 11, 1999

Signature

  
 Ikuya Minematsu

## ENGINEERING TEST REPORT

- Continued -

Test Mode : Verticaly Places

[ Measurement Distance : 3m ]

Emission Frequency [MHz]	Antenna Factor [dB]	Meter Reading [dB $\mu$ V]		Maximum Field Strength [dB $\mu$ V/m]	Limits [dB $\mu$ V/m]
		Horizontal Polarization	Vertical Polarization		
<u>Fundamental</u>					
372.81	23.4	9.4	12.3	35.7	46.0
377.28	23.6	9.5	12.4	36.0	46.0
392.25	24.0	8.7	12.8	36.8	46.0
393.85	24.1	8.6	13.3	37.4	46.0
394.25	24.1	8.8	13.4	37.5	46.0
<u>2nd Harmonics</u>					
732.30	32.3	2.0	1.6	34.3	46.0
733.53	32.4	1.8	1.4	34.2	46.0
742.66	32.5	1.4	1.4	33.9	46.0
<u>3rd Harmonics</u>					
1099.84	23.2	4.8	17.0	40.2	54.0
1156.65	23.8	4.8	11.4	35.2	54.0
<u>4th Harmonics</u>					
1467.30	22.6	9.0	15.5	38.1	54.0
1541.34	22.4	8.2	12.0	34.4	54.0
<u>5th Harmonics</u>					
1836.40	24.0	5.2	8.4	32.4	54.0

[ Note ]

- 1) The measured data below 1GHz with the tured dipole antenna.
- 2) The cable loss is included in the antenna factor.
- 3) Receiving Frequency : 390 MHz
- 4) The emission not reported were less than 10dB $\mu$ V at meter reading.

[ Environment ]

Temperature : 16°C Humidity : 50%

[ Sample Calculation

Frequency : 372.81 [ MHz ]  
 Meter Reading : 12.3 [ dB $\mu$ V ] ( at Vertical Polarization )  
 Antenna Factor : 23.4 [ dB ]

Then, Field Strength is calculated as follows.


$$\text{Field Strength} = 12.3 + 23.4 = 35.7 \text{ [dB}\mu\text{V/m]}$$

[ Summary of Test Results ]

Minimum margin was 8.5 dB at 394.25 MHz, vertical polarization.

Tested Date : January 11, 1999

Signature

  
 Ikuya Minematsu



## ENGINEERING TEST REPORT

### 3.6 List of Test Instruments

Instrument	Manufacturer	Model No	Specifications	KEC Control No.	if used, checked by "X".	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESVS10	Frequency Range 20 MHz - 1000 MHz	FS-82	☒	1998/2	1999/2
Spectrum Analyzer	Advantest	R3261C	Frequency Range 9 kHz - 2.6 GHz	SA-41	☒	1998/8	1999/8
Biconical Antenna	Schwarzbeck	BBA9106	Frequency Range 30 MHz - 300 MHz	AN-94	☒	1998/2	1999/2
Log-Periodic Antenna	Schwarzbeck	UHALP 9108A	Frequency Range 300 MHz - 1 GHz	AN-217	☒	1998/2	1999/2
Tuned Dipole Antenna	Kyoritsu	KBA-511AS	Frequency Range 25 MHz - 500 MHz	AN-135	☒	1998/2	1999/2
	Kyoritsu	KBA-611S	Frequency Range 500 MHz - 1 GHz	AN-137	☒	1998/2	1999/2

[ Above 1 GHz ]

Instrument	Manufacturer	Model No	Specifications	KEC Control No.	if used, checked by "X".	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESVD	Frequency Range 20 MHz - 2050 MHz	FS-79	☒	1998/2	1999/2
Spectrum Analyzer	Hewlett Packard	8564E	Frequency Range 30 Hz - 40 GHz	SA-39	☒	1998/12	1999/12
Pre-Amplifier	Hewlett Packard	8449B	Frequency Range 1 GHz - 26.5 GHz	AM-52	☒	1997/4	1998/4
Horn Antenna	Raven	91888-2	Frequency Range 1 GHz - 2 GHz	AN-167	☒	1997/11	1999/11