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[illegible]8030 番地
社団法人 関西電子工業振興センター
生駒試験所

承認	担当

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-C

2. 供試装置 : REMOTE CONTROL LOCATOR
(INTENTIONAL RADIATOR)

商 標 名 : PHILIPS
型式番号 : CCA134AT01

3. 試験内容 : FCC Rule Part 15 Subpart C

4. 試験結果 : 添付 ENGINEERING TEST REPORT の通り

5. その他 1.電界強度測定において、第3高調波(平均値)で許容値に対してマージンがなく、対策後に適合した
2. 情報によりますとFCC申請に当る申請を薦めてくるかも知りません。

Designated by Ministry of International Trade and Industry

KANSAI ELECTRONIC INDUSTRY DEVELOPMENT CENTER

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

KEC

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

Corporate Juridical Person

ENGINEERING TEST REPORT

REPORT NO. A-001-99-C

Issued 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 C Intentional Radiators.

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	: ADTCCAT
Device Name	: REMOTE CONTROL LOCATOR(INTERNATIONAL RADIATOR)
Trade Name	: PHILIPS
Model Number	: CCA134AT01
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
☒ Emission Bandwidth Measurement

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

4. Date

Receipt of Test Sample : December 24, 1998
Test Completed on : January 12, 1998

CERTIFIED BY : _____

Fumitoshi Nagaoka
Associate Director of Ikoma Testing Laboratory

ENGINEERING TEST REPORT

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ENGINEERING TEST REPORT

1. GENERAL INFORMATION

1.1 Product Description

The PHILIPS Model No. : CCA134AT01 (referred to as the EUT in this report) is REMOTE CONTROL LOCATOR (transmitter) built in television.

1) Technical Specifications

- Operating frequency range : 390 MHz ± 200 kHz
- Type of antenna : Built-in antenna
- Emission designator : K1D
- T_x time : 4.9 sec

2) Contained Oscillators

- VCR Micro computer clock : 10.6 MHz
- Chroma(TV and VCR) : 3.58 MHz
- TV Synchronous signal clock : 503 kHz
- Timer clock : 32 kHz

3) Provided Terminals

- Video In terminal : RCA type
- Audio In terminal : RCA type
- Earphone jack : Monaural mini jack
- Ant. In terminal : Typed "F", 75 Ω (unbalanced)

4) Rated Power Supply : AC 120 V, 60 Hz

1.2 Description for Equipment Authorization

1) Rules Part(s) under which Equipment operated

FCC Rule Part 15, Subpart C ; Intentional Radiators,
§ 15.231 Periodic operation in the band 40.66-40.70 MHz and above 70 MHz.

2) Kind of Equipment Authorization
☒ Certification ☐ Verification

3) Procedure of Application
☒ Original Equipment ☐ Modification

4) Highest Frequency used in the Device : 390 MHz ± 200 kHz
Upper Frequency of Radiated measurement Range is
☐ 1000 MHz.
☐ 2000 MHz.
☐ 5000 MHz.
☒ Tenth harmonics of the highest fundamental frequency

ENGINEERING TEST REPORT

1.3 Test Facility

All tests described in this report were performed by:

N a m e : 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 Servuce(GER) and TUV Rheinland(GER) based on their criteria for testing laboratory(EN45001).

ENGINEERING TEST REPORT

2. TESTED SYSTEM

2.1 Test Mode

Continuously transmitted code (data) mode.

2.2 Operation of EUT System

1) Turn on the EUT.
2) Key in the remote controller as following.

   MENU,MUTE, PAUSE, MUTE, MEMORY

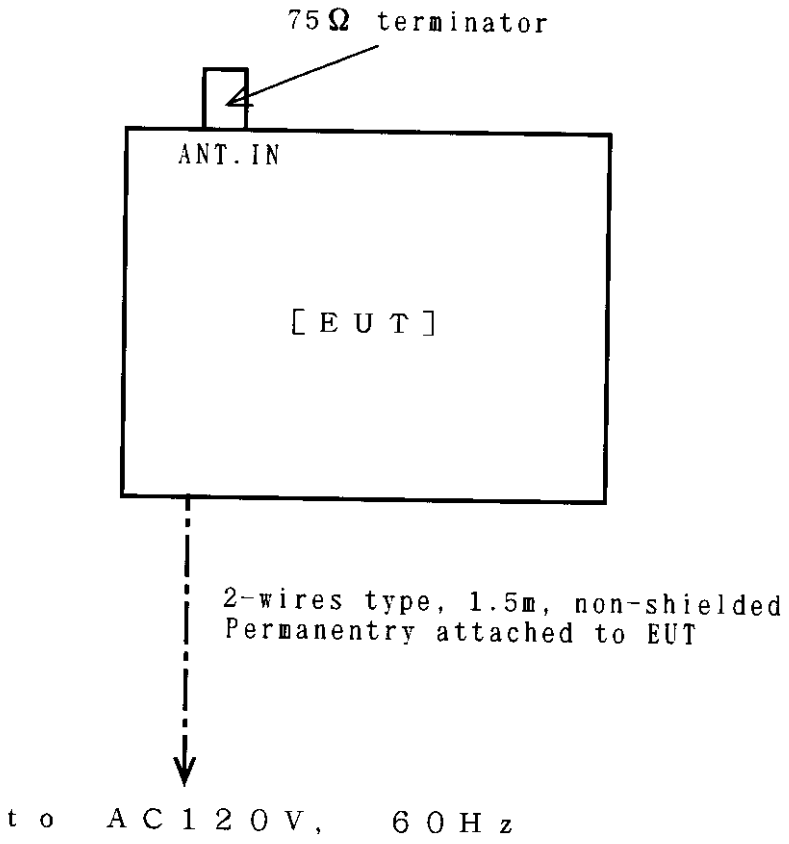
   Then "LOCATE OFF" is appeared on the screen.

3) Key in the remote controller as following.

   MEMORY, MEMORY

   Then "LOCATE CODE" is appeared on the screen and modulated carrier was transmitted continuously.

2.3 Block Diagram of EUT System



ENGINEERING TEST REPORT

3. AC POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1 Reference Rule and Specification

FCC Rule Part 15, Section 15.207.

3.2 Test Procedure

1) Configurate the EUT System in accordance with ANSI C63.4-1992 section 7. See also the block diagram and the photographs of EUT System configuration in this report.

2) Connect the EUT's AC power cord to one Line Impedance Stabilization Network(LISN).

3) Any other equipment power cord are connected to a LISN different from the LISN used for the EUT.

4) Warm up the EUT System.

5) Activate the EUT System and run the software prepared for the test, if require.

6) Using a calibrated coaxial cable, connect the spectrum analyzer(*1) to the measuring port of the LISN for the EUT.

7) 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.

8) The spectrum are scanned from 450 kHz to 30 MHz and collect the minimum six highest emissions on the spectrum analyzer relative to the total limits.

9) The test receiver(*2) is connected to the LISN for the EUT, and the minimum six highest emissions recorded above are measured.

[Note]

(*1) : Spectrum Analyzer Set Up Conditions

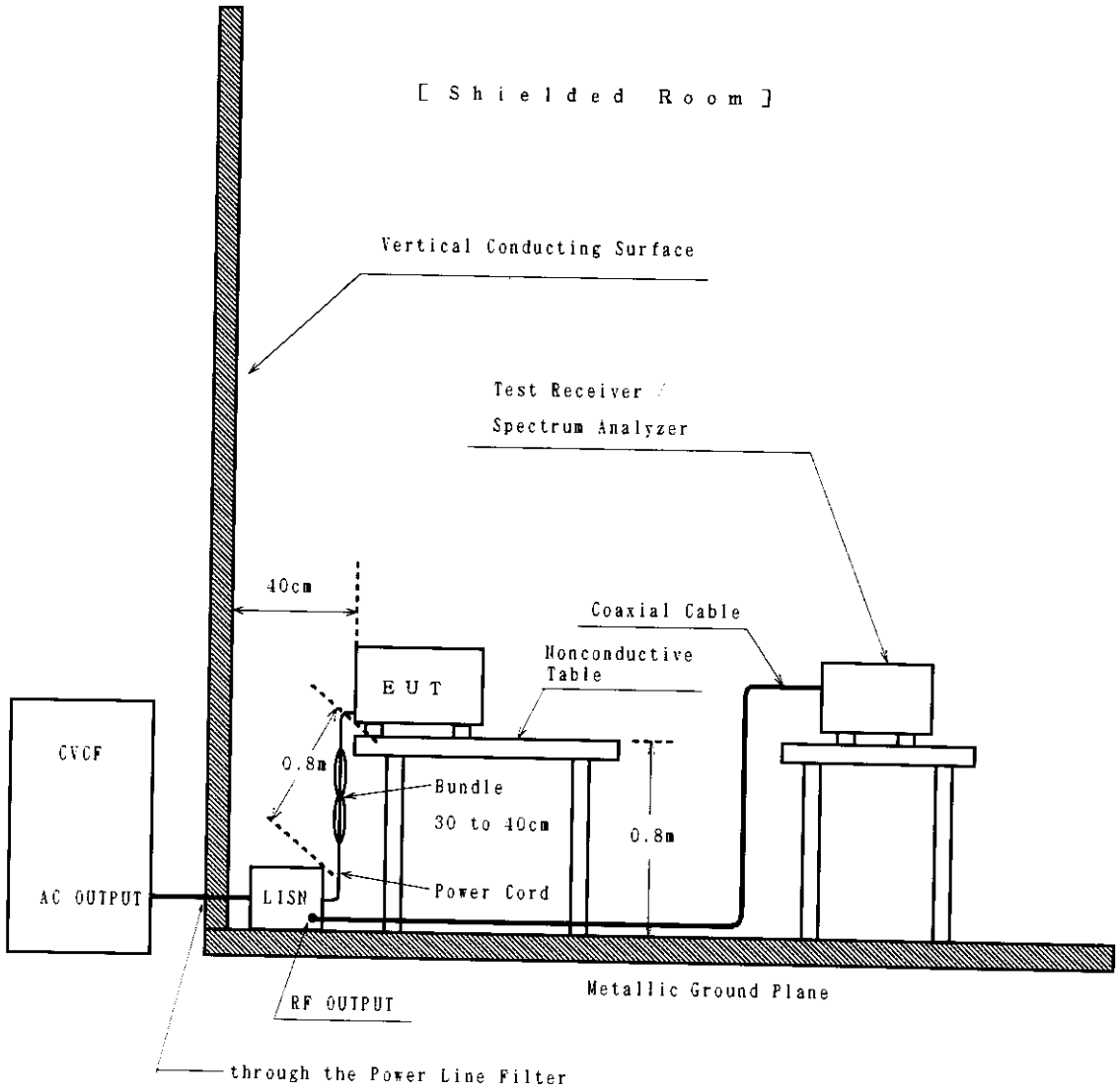
Frequency range	:	450 kHz - 30 MHz
Resolution bandwidth	:	10 kHz
Video bandwidth	:	1 MHz
Detector function	:	Peak mode

(*2) : Test Receiver Set Up Conditions

Detector function	:	Quasi-Peak / Average (if necessary)
IF bandwidth	:	10 kHz

ENGINEERING TEST REPORT

3.3 Test Configuration



ENGINEERING TEST REPORT

3.5 Test Results

Emission Frequency [MHz]	LISN Corr. Factor [dB]	Meter Reading [dBμV]		Maximum RF Voltage [dBμV]	Limit [dBμV]
		One-end to Ground	Other-end to Ground		
0.4537	0.1	40.3	40.3	40.4	48.0
0.4848	0.1	39.5	39.5	39.6	48.0
0.5159	0.1	39.7	39.5	39.8	48.0
0.6880	0.1	37.5	37.3	37.6	48.0
21.20	1.0	42.8	41.6	43.8	48.0
28.64	1.3	32.9	31.7	34.2	48.0

[Note]
LISN Corr. Factor includes the cable loss.

[Environment]
Temperature : 17℃ Humidity : 52%

[Sample Calculation]
Frequency : 0.4537 [MHz]
Meter Reading : 40.3 [dBμV]
LISN Corr. Factor : 0.1 [dB]

Then, RF voltage is calculated as follows.

RF Voltage = 40.3 + 0.1 = 40.4 [dBμV]

[Summary of Test Results]
Minimum margin was 4.2 dB at 21.20 MHz, one-end to ground.

Tested Date : January 12, 1999

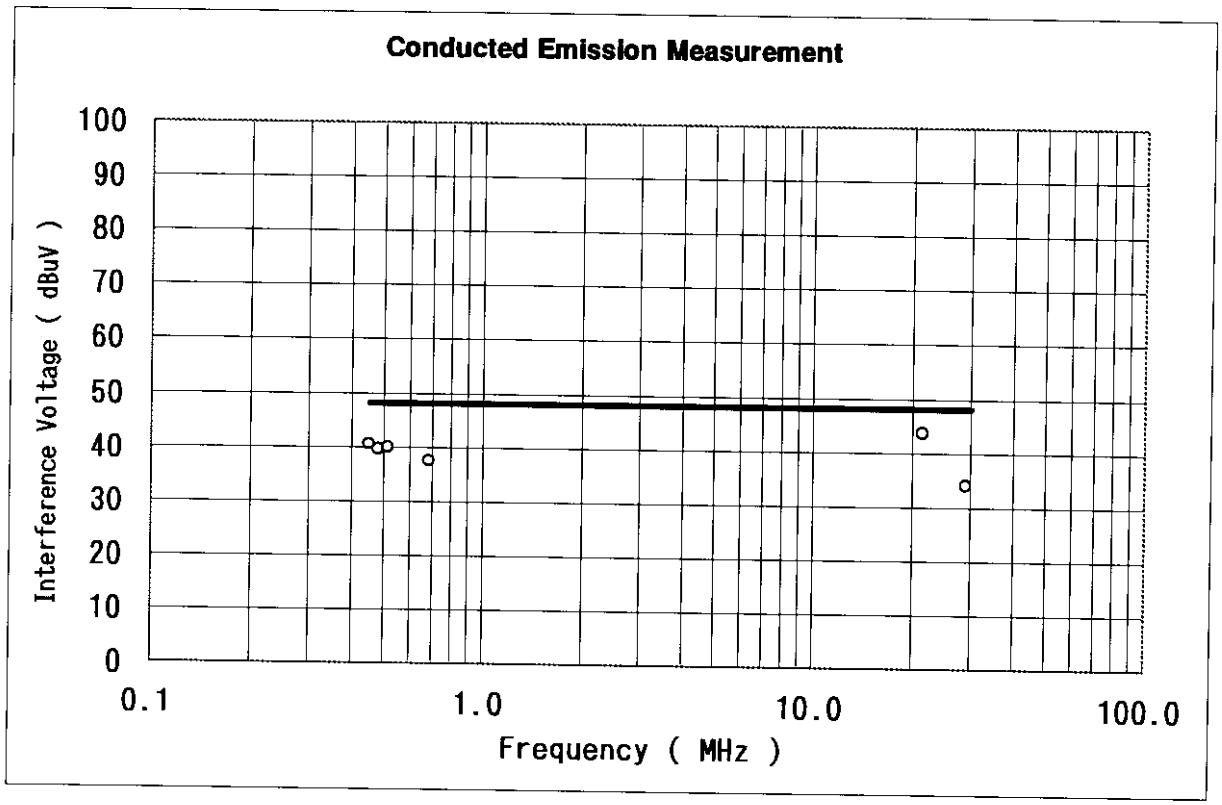
Signature

Ikuya Minematsu

ENGINEERING TEST REPORT

Test Data in Graph

Manufacturer	FUNAI Electric Co. Ltd.
Model No.	CCA134AT01
Serial No.	0001
Reference Rule	FCC Part 15 subpart C
Test Mode	Operation mode
Shield No.	4th Shielded Room
Network Type	KNW-407



[Note]

Detector Function : Q-Peak only

○ : Maximum RF Voltage

——— : Limit Line

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	ESH3	Frequency Range 9 kHz - 30 MHz	FS-38	☒	1998/5	1999/5
Spectrum Analyzer	Hewlett Packard	8568B	Frequency Range 100 Hz - 1.5 GHz	FS-46-3	☒	1998/6	1999/6
Line Impedance Stabiliza -tion Network for EUT	Kyoritsu	KNW-407	Frequency Range 150 kHz - 30 MHz Impedance 50 Ω / 50 μH Capacity AC250V,15A	FL-107	☒	1998/4	1999/4
Line Impedance Stabiliza -tion Network (Second LISN)	Kyoritsu	KNW-242	Frequency Range 10 kHz - 30 MHz Impedance 50Ω/50μH + 5Ω Capacity AC250V,15A	FL-110	☐	1998/4	1999/4

ENGINEERING TEST REPORT

4. RADIATED EMISSION MEASUREMENT

4.1 Reference Rule and Specification

FCC Rule Part 15, Section 15.209 and Section 15.231(b).

4.2 Test Procedure

1) Configurate the EUT System in accordance with ANSI C63.4-1992 section 8. See also the block diagram and the photographs of EUT System configuration in this report.

2) If the EUT system is connected to a public power network, 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 the upper frequency of measurement range, and collect the minimum six highest emissions on the spectrum analyzer relative to the total limits.

8) In final compliance test, the minimum six 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 - Upper frequency of measurement range
Resolution bandwidth : 1 MHz
Video bandwidth : 1 MHz
Attenuator : 10 dB
Detector function : Peak mode

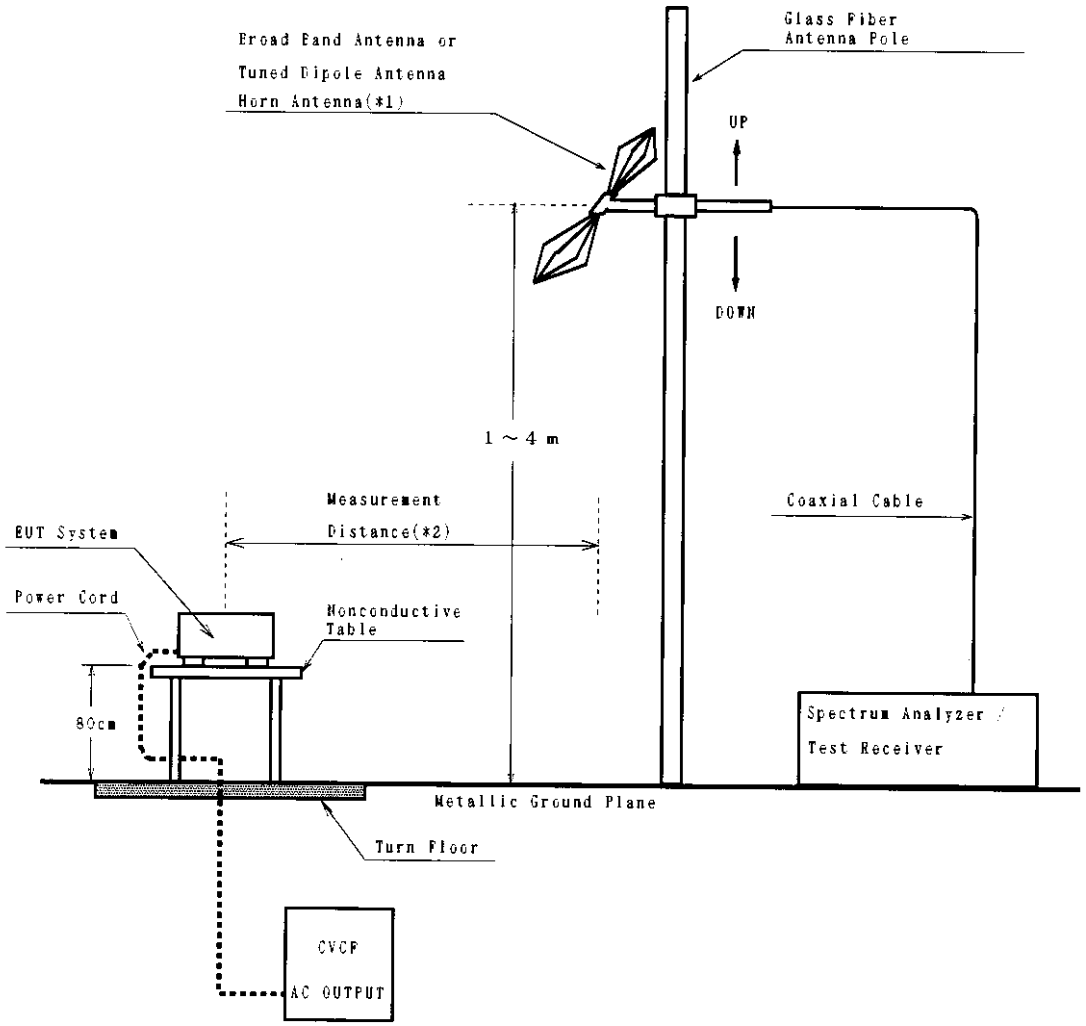
(*3) : Test Receiver Set Up Conditions
Detector function : Quasi-Peak
IF bandwidth : 120 kHz

(*4) : Test Receiver Set Up Conditions
Detector function : Average
IF bandwidth : 1 MHz

ENGINEERING TEST REPORT

4.3 Test Configuration

[Open Site]



[Note]

1) (*1) : In frequency range above 1 GHz use only.
2) (*2) : Measurement distance is shown on 4.5 Test Results in this report.

ENGINEERING TEST REPORT

4.5 Test Results

1)In the frequency range : 30 MHz to 1000 MHz

[Measurement Distance: 3m]

Measured Frequency [MHz]	Antenna Factor [dB]	Conversion Factor Peak to Average [dB](*1)	Meter Reading [dBμV] Horizontal	Meter Reading [dBμV] Vertical	Maximum Field Strength [dBμV/m]	Limits [dBμV/m]
Fundamental						
(1)Peak Detector Measurement						
389.88	19.1	-	61.3	51.5	80.4	99.2
(2)Conversion Peak to Average						
389.88	19.1	-5.1	61.3	51.5	75.3	79.2
Harmonics						
(1)Peak Detector Measurement						
779.78	26.5	-	31.6	31.2	58.1	79.2
(2)Conversion Peak to Average						
779.78	26.5	-5.1	31.6	31.2	53.0	59.2
Other emission						
Quasi-Peak Detector Measurement						
42.40	14.1	-	2.5	17.4	31.5	40.0
59.98	9.3	-	2.0	13.4	22.7	40.0
74.20	8.0	-	9.6	15.0	23.0	40.0
113.25	14.1		12.6	16.0	30.1	43.5
128.22	15.6	-	13.2	16.4	32.0	43.5
135.90	16.3	-	11.6	11.5	27.9	43.5
212.00	19.2	-	6.0	8.2	27.4	43.5
275.60	21.8	-	6.8	5.2	28.6	46.0
594.95	23.5	-	3.6	3.0	27.1	46.0

ENGINEERING TEST REPORT

- Continued -

2)In the frequency range : above 1 GHz

[Measurement Distance: 3m]

Measured Frequency [MHz]	Antenna Factor [dB]	Amp Gain [dB]	Conversion Factor Peak to Average [dB](*1)	Meter Reading [dBμV] Horizontal	Meter Reading [dBμV] Vertical	Maximum Field Strength [dBμV/m]	Limits [dBμV/m]
Harmonics							
(1) Peak Detector Measurement							
1169.08	24.2	37.0	-	64.2	69.3	56.5	74.0
1558.86	22.6	36.4	-	53.8	58.5	44.7	74.0
1948.54	24.3	35.8	-	55.0	58.4	46.9	79.2
2338.55	24.1	35.4	-	55.5	62.3	51.0	74.0
2728.33	25.5	35.2	-	50.9	56.8	47.1	74.0
3118.01	25.9	34.9	-	54.4	57.1	48.1	79.2
3507.76	26.8	34.3	-	50.0	49.2	42.5	79.2
3897.77	28.0	34.1	-	47.8	49.5	43.4	74.0
(2) Conversion Peak to Average							
1169.08	24.2	37.0	-5.1	64.2	69.3	51.4	54.0
1558.86	22.6	36.4	-5.1	53.8	58.5	39.6	54.0
1948.54	24.3	35.8	-5.1	55.0	58.4	41.8	59.2
2338.55	24.1	35.4	-5.1	55.5	62.3	45.9	54.0
2728.33	25.5	35.2	-5.1	50.9	56.8	42.0	54.0
3118.01	25.9	34.9	-5.1	54.4	57.1	43.0	59.2
3507.76	26.8	34.3	-5.1	50.0	49.2	37.4	59.2
3897.77	28.0	34.1	-5.1	47.8	49.5	38.3	54.0

ENGINEERING TEST REPORT

- Continued -

3)In the frequency range : 30 MHz to 1000 MHz (Restricted Bands)

[Measurement Distance: 3m]

Emission Frequency [MHz]	Antenna Factor [dB]	Meter Reading [dBμV] Horizaontal	Meter Reading [dBμV] Vertical	Maximum Field Strength [dBμV/m]	Limits [dBμV/m]
(1)Quasi-Peak Detector Measurement					
37.50	15.9	<-2.0	7.2	23.1	40.0
38.25	15.7	<-2.0	7.3	23.0	40.0
73.00	8.0	<0.0	<5.0	<13.0	40.0
74.60	8.0	<0.0	<5.0	<13.0	40.0
74.80	8.0	<0.0	<5.0	<13.0	40.0
74.20	8.0	9.6	15.0	23.0	40.0
75.20	8.0	<0.0	<5.0	<13.0	40.0
108.00	13.4	9.3	12.0	25.4	43.5
113.25	14.1	12.6	16.0	30.1	43.5
121.94	15.1	10.2	16.3	31.4	43.5
123.00	15.2	10.4	16.0	31.2	43.5
128.22	15.6	13.2	16.4	32.0	43.5
135.90	16.3	11.6	11.5	27.9	43.5
138.00	16.5	10.0	11.3	27.8	43.5
149.90	17.0	4.3	4.6	21.6	43.5
150.05	17.0	4.2	<0.0	21.2	43.5
156.52	17.4	<0.0	<0.0	<17.4	43.5
156.53	17.4	<0.0	<0.0	<17.4	43.5
156.70	17.4	<0.0	<0.0	<17.4	43.5
156.90	17.4	<0.0	<0.0	<17.4	43.5
162.01	17.6	<3.0	<5.0	<22.6	43.5
167.17	17.8	<0.0	<0.0	<17.8	43.5
167.72	17.9	<0.0	<0.0	<17.9	43.5
173.20	18.1	<5.0	<5.0	<23.1	43.5
240.00	20.1	<0.0	<0.0	<20.1	46.0
275.60	21.8	6.8	5.2	28.6	46.0
285.00	22.4	<5.0	<5.0	<27.4	46.0
322.00	17.4	<0.0	<0.0	<17.4	46.0
335.40	17.7	<0.0	<0.0	<17.7	46.0
399.90	19.3	<0.0	<0.0	<19.3	46.0
410.00	19.5	<0.0	<0.0	<20.5	46.0
608.00	23.7	<0.0	<0.0	<23.7	46.0
614.00	23.8	<0.0	<0.0	<23.8	46.0
960.00	27.8	<0.0	<0.0	<27.8	46.0
1000.00	27.8	<0.0	<0.0	<27.8	54.0

ENGINEERING TEST REPORT

- Continued -

4)In the frequency range : above 1 GHz (Restricted Bands)

[Measurement Distance: 3m]

Measurement Frequency [MHz]	Antenna Factor [dB/m]	Amp Gain [dB]	Conversion Factor Peak to Average [dB](*1)	Meter Reading [dBμV] Horizontal	Meter Reading [dBμV] Vertical	Maximum Field Strength [dBμV/m]	Limits [dBμV/m]
(2) Conversion Peak to Average							
1000.00	25.8	37.2	-5.1	<46.0	<46.0	<29.5	54.0
1169.08	24.2	37.0	-5.1	64.2	69.3	51.4	54.0
1240.00	24.0	36.9	-5.1	<46.0	<46.0	<28.0	54.0
1300.00	23.3	36.8	-5.1	<45.0	<45.0	<26.4	54.0
1427.00	22.7	36.6	-5.1	<45.0	<45.0	<26.0	54.0
1435.00	22.7	36.6	-5.1	<45.0	<45.0	<26.0	54.0
1558.86	22.6	36.4	-5.1	53.8	58.5	39.6	54.0
1626.50	22.3	36.3	-5.1	<45.0	<45.0	<25.9	54.0
1645.50	22.4	36.3	-5.1	<45.0	<45.0	<26.0	54.0
1646.50	22.4	36.3	-5.1	<45.0	<45.0	<26.0	54.0
1660.00	22.4	36.2	-5.1	<45.0	<45.0	<26.1	54.0
1710.00	22.8	36.2	-5.1	<45.0	<45.0	<26.5	54.0
1718.00	23.0	36.1	-5.1	<45.0	<45.0	<26.8	54.0
1722.00	23.1	36.1	-5.1	<45.0	<45.0	<26.9	54.0
2200.00	24.3	35.5	-5.1	<46.0	<46.0	<29.7	54.0
2300.00	24.1	35.4	-5.1	<46.0	<46.0	<29.6	54.0
2310.00	24.1	35.4	-5.1	<46.0	<46.0	<29.6	54.0
2338.55	24.1	35.4	-5.1	55.5	62.3	45.9	54.0
2390.00	24.0	35.4	-5.1	<46.0	<46.0	<29.5	54.0
2483.50	24.3	35.3	-5.1	<46.0	<46.0	<29.9	54.0
2500.00	24.3			<46.0	<46.0	<29.9	
2655.00	25.0	35.3	-5.1	<46.0	<46.0	<30.7	54.0
2728.33	25.5	35.2	-5.1	50.9	56.8	42.0	54.0
2900.00	25.7	35.2	-5.1	<46.0	<46.0	<31.5	54.0
3260.00	26.4	34.7	-5.1	<44.0	<44.0	<30.6	54.0
3267.00	26.5	34.7	-5.1	<44.0	<44.0	<30.7	54.0
3332.00	26.6	34.6	-5.1	<44.0	<44.0	<30.9	54.0
3339.00	26.6	34.6	-5.1	<44.0	<44.0	<30.9	54.0
3600.00	26.8	34.2	-5.1	<44.0	<44.0	<29.5	54.0
3897.77	28.0	34.1	-5.1	47.8	49.5	38.3	54.0
4400.00	29.2	34.0	-5.1	<44.0	<44.0	<32.1	54.0

ENGINEERING TEST REPORT

- Continued -

[Remark]
(*1) : Conversion Factor, See next figure 1 and figure 2 (the picture of spectrum analyzer) and See Page 22, Calculation of Conversion Factor(Peak detector to Average).

[Note]
The cable loss is included in the antenna factor .

[Environment]
Temperature : 18°C Humidity : 62%

[Sample Calculation]
1) Below 1GHz (Peak Detector Measurement and Quasi-peak Detector Measurement)

Frequency	:	389.88	[MHz]
Meter Reading	:	61.3	[dBμV] (at Horizontal Polarization)
Antenna Factor	:	19.1	[dB]

Then, Field Strength is calculated as follows.

Field Strength = 61.3 + 19.1 = 80.4 [dBμV/m]

2) Above 1GHz (Peak Detector Measurement)

Frequency	:	1169.08	[MHz]
Meter Reading	:	69.3	[dBμV] (at Vertical Polarization)
Antenna Factor	:	24.2	[dB]
Amp Gain	:	37.0	[dB]

Then, Field Strength is calculated as follows.

Field Strength = 69.3 + 24.2 - 37.0 = 56.5 [dBμV/m]

[Calculation of Limit (Average detector)]

Fundamental

$L = 20\log\left[\frac{1}{3} \times (125 \times F - 21250)\right]$

where, L: Limit [dBμV/m]
F: Frequency [MHz]
At F = 389.88 [MHz]

L = 79.2 [dBμV/m]

Spurious Emission

L = 79.2 - 20 = 59.2 [dBμV/m]

Limits of peak detector are up to 20 dB from the fundamental and spurious emissions average limits.

[Summary of Test Results]
Minimum margin was 2.6 dB at 1169.08 MHz (3rd harmonics,Average) at vertical polarization.

Tested Date : January 12, 1999

Signature _____
Ikuya Minematsu

ENGINEERING TEST REPORT

The Radiated fundamental emission waveform.

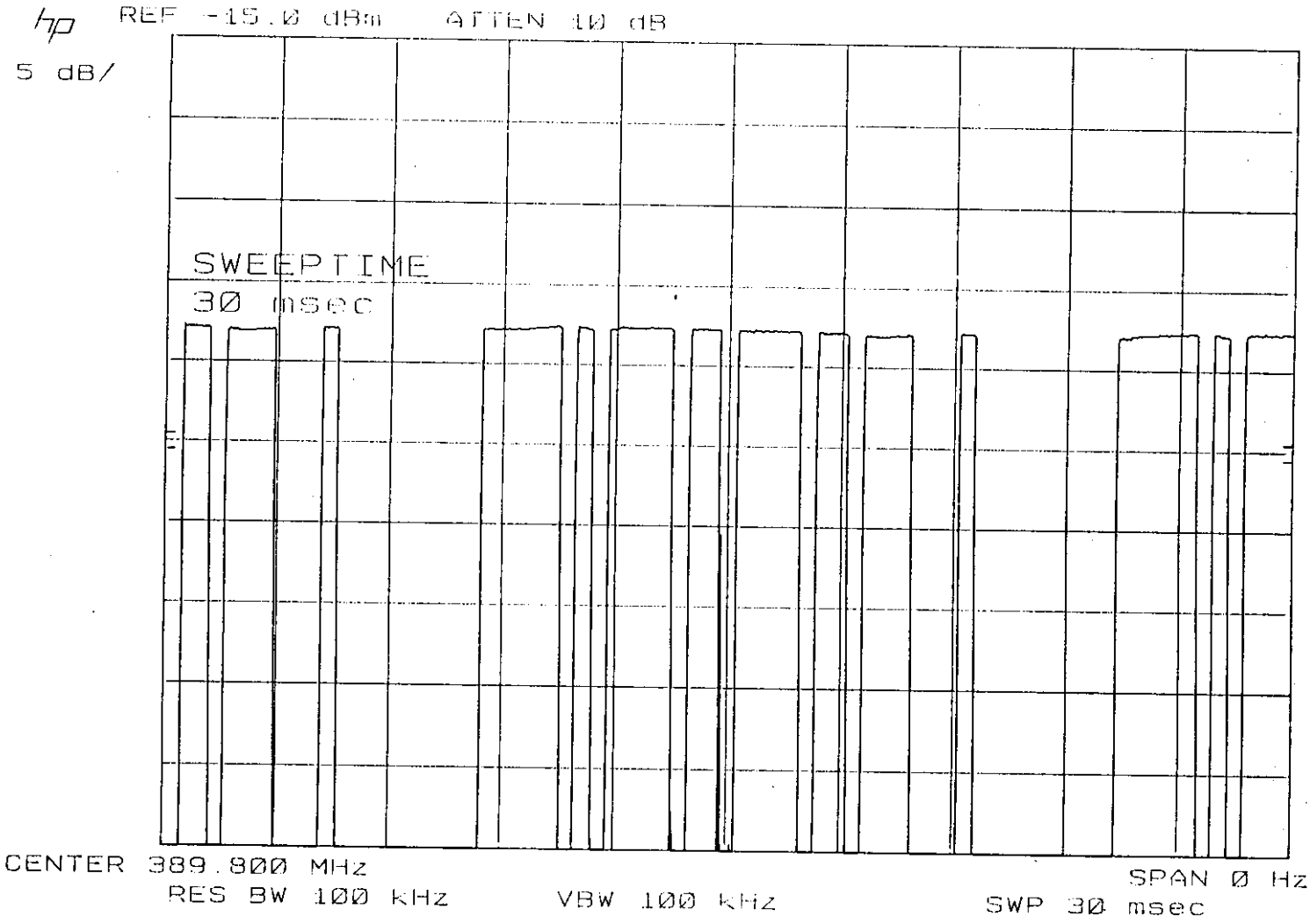


Figure 1

ENGINEERING TEST REPORT

The Radiated fundamental emission waveform.

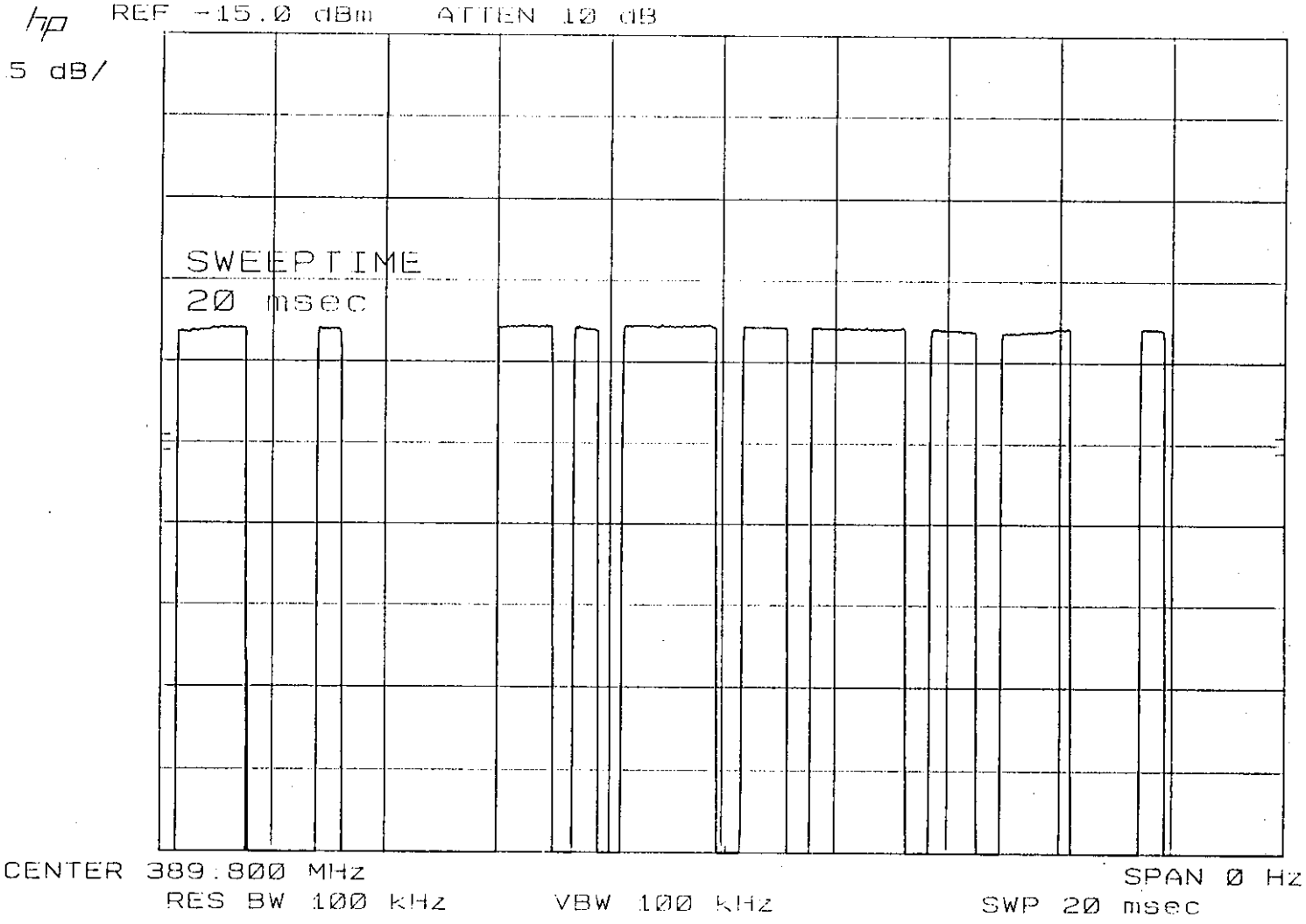


Figure 2

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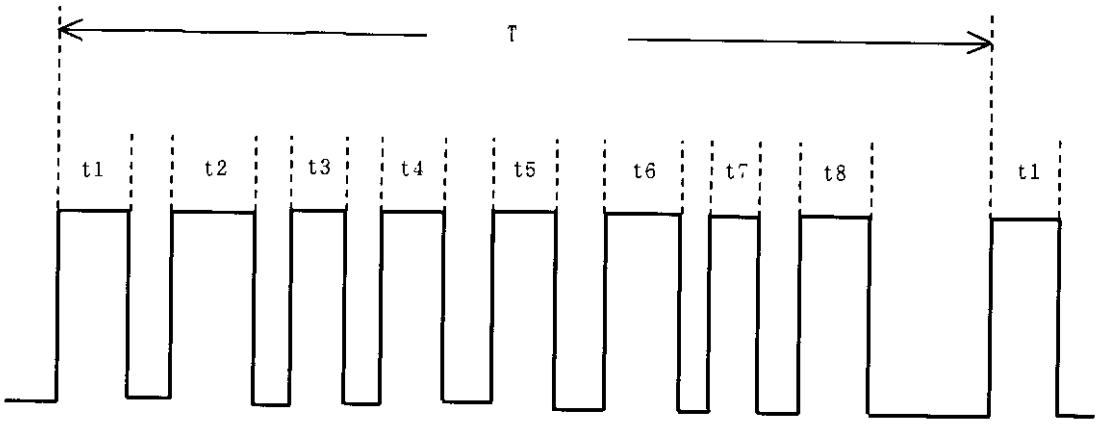
[Calculation of Conversion Factor (Peak detector to Average)]

In accordance with ANSI C63.4-1992 section 13.1.4.2, The EUT's transmitting pulse modulated emissions, therefore the average level of emissions are found by measuring peak level of the emission and correcting them with the duty cycle.

Sample waveform



$$\text{Duty cycle} = \frac{\text{The value of the sum of the pulse widths in one period } \sum_{n=1}^{8} t_n}{\text{The length of period (T)}}$$

From Figure 2.
The value of the sum of the pulse widths in one period : 9.3 [msec]
The length of the period : 16.7 [msec]

Then, Conversion Factor PEAK to AVERAGE is calculated as follows.

Conversion Factor PEAK to AVERAGE (dB) = 20 Log (Duty cycle) = 20 Log $\frac{9.3 \text{ [msec]}}{16.7 \text{ [msec]}}$

= -5.1 (dB)

[Sample Calculation]

Above 1GHz (Conversion Peak to Average).

Frequency	: 1169.08	[MHz]	
Meter Reading	: 69.3	[dBμV]	(at Vertical Polarization)
Antenna Factor	: 24.2	[dB]	
Amp Gain	: 37.0	[dB]	
Conversion Factor	: -5.1	[dB]	

Then, Field Strength is calculated as follows.

Field Strength = 69.3 + 24.2 - 37.0 - 5.1 = 51.4 [dBμV/m]

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4.6 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	Hewlett Packard	8564E	Frequency Range 30 Hz - 40 GHz	SA-39	☒	1998/12	1999/12
Biconical Antenna	Schwarzbeck	BBA9106	Frequency Range 30 MHz - 300 MHz	AN-94	☒	1998/2	1999/2
Log-Periodic Antenna	Schwarzbeck	UHALP 9180A	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
Pre-Amplifier	Hewlett Packard	8449B	Frequency Range 1 GHz - 26.5 GHz	AM-52	☒	1998/4	1999/4
Horn Antenna	Raven	91888-2	Frequency Range 1 GHz - 2 GHz	AN-167	☒	1997/11	1999/11
		91889-2	Frequency Range 2 GHz - 5 GHz	AN-168	☒	1997/11	1999/11

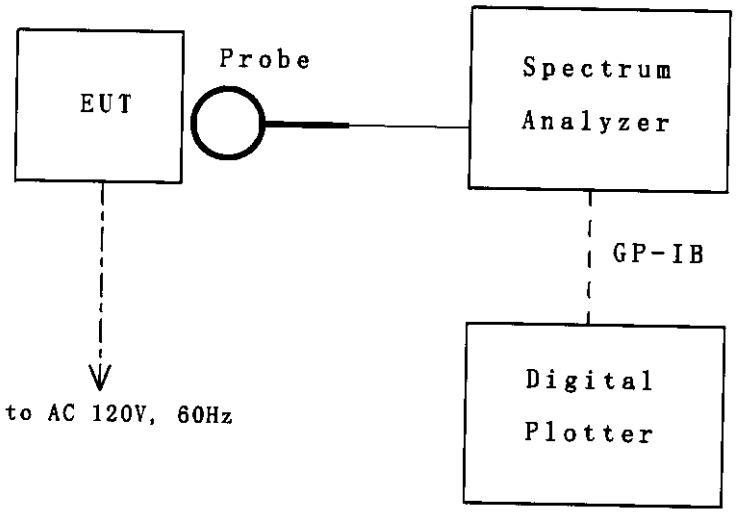
ENGINEERING TEST REPORT

5. EMISSION BANDWIDTH MEASUREMENT

5.1 Reference Rule and Specification

FCC Rule Part 15, Section 15.231(c).

5.2 Test Configuration



5.3 Test Results

Measured emission bandwidth = 422 kHz

See next Figure 3(the picture of spectrum analyzer)

[Note]

Emission Bandwidth was determined at the points 20dB down from the modulated carrier.

Spectrum Analyzer Setting:

Center Frequency	= 389.80 MHz
Frequency Span	= 200 kHz/div.
Resolution Bandwidth	= 100 kHz
Video Bandwidth	= 300 kHz
Sweep Time	= 20 msec
Trace Mode	: MAX. HOLD

[Environment]

Temperature : 17℃ Humidity : 52%

[Calculation of Limit]

Limit of Emission bandwidth = 389.80 MHz × 0.25% = 972.98 kHz

[Summary of Test Resalts]

Minimum margin of emission bandwidth was 583.18 kHz.

Tested Date : January 12, 1998

Signature

Ikuya Minematsu

ENGINEERING TEST REPORT

- Continued -

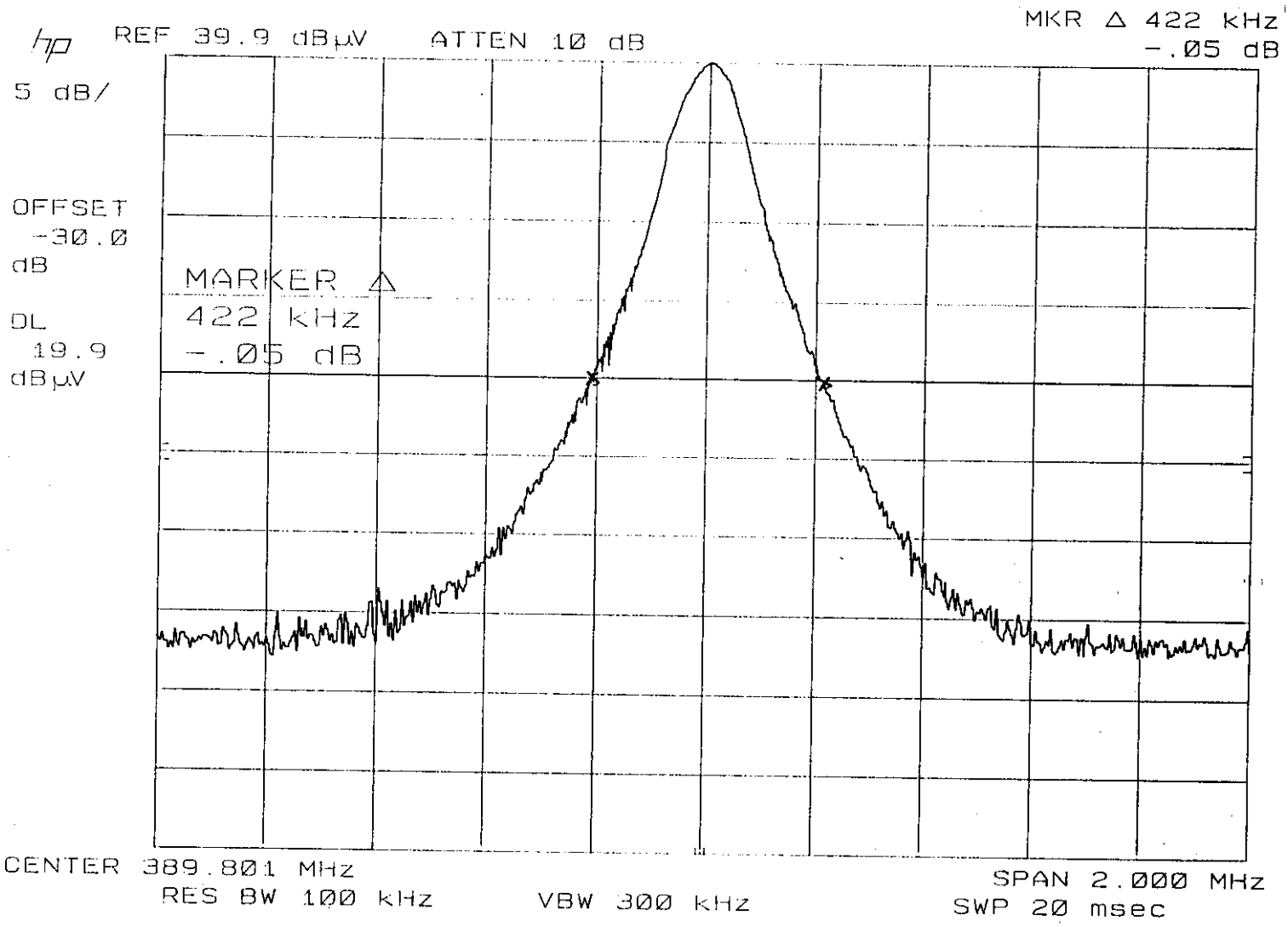


Figure 3

ENGINEERING TEST REPORT

5.4 List of Test Instruments

Instrument	Manufacturer	Model No	Specifications	KEC Control No.	if used, checked by "X".	Last Cal.	Next Cal.
Spectrum Analyzer	Hewlett Packard	8568B	Frequency Range 100 Hz - 1.5 GHz	FS-46.3	☒	1998/6	1999/6
Digital Plotter	Hewlett Packard	7440A	Plot Area A4 size	FS-51-7	-	-	-