



FCC/MELLON

DEC 28 1998

Issue Date : December 8, 1998
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EMC ~~EMISSION~~ - TEST REPORT

JQA APPLICATION No. : KL8080540

Model/Type No. : KX-TC1400-B

Name of Product : 900 MHz Cordless Telephone (Base Unit)

FCC ID : ACJ96NKX-TC1400

Applicant : Kyushu Matsushita Electric Co., Ltd.

Address : 1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531, Japan

Manufacturer : Kyushu Matsushita Electric Co., Ltd.

Address : 1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531, Japan

Final Judgement : **Passed**

TEST RESULTS IN THIS REPORT are obtained in use of equipment that is traceable to Electro-technical Lab. of MITI Japan and Communications Research Lab. of PTT Japan.

THE TEST RESULTS only responds to the test sample. This test report shall not be reproduced except in full.

JAPAN QUALITY ASSURANCE ORGANIZATION (JQA)
KITA-KANSAI TESTING CENTER
EMC DIVISION



LAB CODE: 200191-0

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TEST REGULATION

FCC Rules and Regulations Part 15 Subpart A, B and C (April 17, 1997)

- ☐ - Class A Digital Device
- ☐ - Class B Digital Device
- ☒ - Intentional Radiator
- ☒ - Receiver (employing superheterodyne techniques)

Test procedure:

Conducted and radiated emission test were performed according to the procedures in ANSI C63.4-1992.

GENERAL INFORMATION

Test facility:

- 1) Test Facility located at Kita-Kansai : 1st and 2nd Open Sites (3 m Site)
Test Facility located at Kameoka Open Site (3, 10 and 30 m, on common plane)
FCC filing No. : 31040/SIT 1300F2
- 2) KITA-KANSAI TESTING CENTER is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance established in Title 15, Part 285 Code of Federal Regulations.
NAVLAP Lab Code: 200191-0
- 3) Average Measurement Method
FCC filing No. : 950523A 1300F2

Description of the Equipment Under Test (EUT):

- 1) Name : 900 MHz Cordless Telephone (Base Unit)
- 2) Model/Type No. : KX-TC1400-B
- 3) Product Type : Pre-Production
- 4) Category : Intentional Radiator and Receiver
(employing superheterodyne techniques)
- 5) EUT Authorization : ☐ - Verification ☒ - Certification ☐ - D.o.C
- 6) Transmitting Frequency : 902.100 MHz - 903.550 MHz
- 7) Receiving Frequency : 926.100 MHz - 927.550 MHz
- 8) Power Rating : AC 120V 60Hz

Definitions for symbols used in this test report:

- ☒ - Black box indicates that the listed condition, standard or equipment is applicable for this Report.
- ☐ - Blank box indicates that the listed condition, standard or equipment is not applicable for this Report.

TEST CONDITIONS

The measurement of the Conducted Emission (Disturbance Voltage)
was performed in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

● - Shielded room

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - Shielded room

○ - On metal plane of open site

Used test instruments and sites:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
○ - ESH 3	A - 1		
● - ESH 2	A - 2	December, 1997	1 Year
○ - ESH 2	A - 3		
● - KNW-407	D - 6	February, 1998	1 Year
○ - KNW-408	D - 11		
○ - KNW-242	D - 7		
○ - ESH3-Z5	D - 12		
○ - KNW-341C	D - 13		
○ - KNW-408	D - 14		
○ - KNW-244C	D - 77		
○ - KNW-408	D - 78		
○ - ESH2-Z5	D - 10		
○ - ESH2-Z3	D - 17		
○ - 8568B	A - 10		
○ - 8566B	A - 13		
○ - 8593A	A - 15		
● - Cable	H - 8	February, 1998	1 Year

Environmental conditions:

Temperature: 23 °C Humidity: 35 %

The measurement of the Radiated Emission (Magnetic Field)

was performed in the frequency range of 9 kHz - 30 MHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

● - 1st site (3 meters)

○ - 2nd site (3 meters)

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - 3 meters

○ - 10 meters

○ - 30 meters

- Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
○ - ESH 3	A - 1		
● - ESH 2	A - 2	December, 1997	1 Year
○ - ESH 2	A - 3		
● - HFH2-Z2	C - 2	September, 1998	1 Year
○ - HFH2-Z2	C - 3		

Environmental conditions:

Temperature: 16 °C Humidity: 47 %

The measurement of the Radiated Emission (Electric Field)

was performed in horizontal and vertical polarization, in the frequency range of 30 MHz - 1000 MHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

● - 1st site (3 meters)

○ - 2nd site (3 meters)

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - 3 meters

○ - 10 meters

Validation of Site Attenuation:

1) Last Confirmed Date: November 21, 1997

2) Interval : 1 Year

Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
● - ESV/ESV-Z3	A - 7 / A - 17	December, 1997	1 Year
○ - ESV/ESV-Z3	A - 6 / A - 18		
○ - ESV/ESV-Z3	A - 5 / A - 16		
○ - ESV/ESV-Z3	A - 4 / A - 20		
○ - ESV/ESV-Z3	A - 8 / A - 19		
● - KBA-511A	C - 12	December, 1997	1 Year
● - KBA-611	C - 22	December, 1997	1 Year
○ - KBA-511A	C - 13		
○ - KBA-611	C - 19		
○ - KBA-511A	C - 11		
○ - KBA-611	C - 21		
● - Cable	H - 5	November, 1997	1 Year

Environmental conditions:

Temperature: 16 °C Humidity: 47 %

The measurement of the Radiated Emission (Electric Field)

was performed in horizontal and vertical polarization, in the frequency range of 1 GHz - 10 GHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

● - 1st site (3 meters)

○ - 2nd site (3 meters)

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - 3 meters

○ - 10 meters

Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
● - 8566B	A - 13	October, 1998	1 Year
○ - 8593A	A - 15		
○ - ESV	A - 5		
● - 4T-10	D - 73	May, 1998	1 Year
○ - 4T-10	D - 74		
● - WJ-6611-513	A - 23	May, 1998	1 Year
● - WJ-6882-824	A - 21	May, 1998	1 Year
● - DBL-0618N515	A - 33	October, 1998	1 Year
● - 91888-2	C - 41 - 1	May, 1998	1 Year
● - 91889-2	C - 41 - 2	May, 1998	1 Year
● - 94613-1	C - 41 - 3	May, 1998	1 Year
● - 91891-2	C - 41 - 4	May, 1998	1 Year
○ - 94614-1	C - 41 - 5		
○ - 3160-09	C - 48		
○ - TRA-603D	D - 24		
○ - 8494H/8595H	D - 76		
○ - MZ5010C	D - 81		
● - Cable	C - 40 - 11	May, 1998	1 Year
● - Cable	C - 40 - 12	May, 1998	1 Year

Setting of the spectrum analyzer:

RES B.W : 1 MHz Video B.W : 1 MHz
SCALE : LINEAR Sweep Time: 20 msec

Environmental conditions:

Temperature: 16 °C Humidity: 47 %

The measurement of the Emission within the frequency band
was performed in the frequency range of 902 MHz - 928 MHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

- - 1st site
- - 2nd site
- - Shielded room

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

- - Open site
- - Shielded room

Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
● - 8568B	A - 10	May, 1998	1 Year
○ - 8566B	A - 13		
○ - 8593A	A - 15		
○ - 8673D	B - 2	March, 1998	1 Year
● - TR5212	B - 30		
○ - KBA-511A	C - 16		
● - KBA-611	C - 18	November, 1998	1 Year
○ - 2-10	D - 40		
○ - TRA-603D	D - 24		
○ - 8494H/8595H	D - 76		

Setting of the spectrum analyzer:

RES B.W.: 300 Hz Video B.W.: 1 kHz
SCALE : LOG 10dB/div Sweep Time: 10 sec

Environmental conditions:

Temperature: 24 °C Humidity: 46 %

CONFIGURATION OF EUT

The Equipment Under Test (EUT) consists of:

Description	Applicant (Manufacturer)	Model No. (Serial No.)	FCC ID
900 MHz Cordless Telephone (Base Unit)	Kyushu Matsushita Electric Co., Ltd. (Kyushu Matsushita Electric Co., Ltd.)	KX-TC1400-B (--)	ACJ96NKX-TC1400
AC Adapter	Kyushu Matsushita Electric Co., Ltd. (Kyushu Matsushita Electric Co., Ltd.)	KX-TCA1 (--)	N/A

The measurement was carried out with the following equipment connected:

Description	Grantee/Distributor	Model No. (Serial No.)	FCC ID
None			

Type of Interference Cable(s) and the AC Power Cord used with the EUT:

No.	Cable	Shielded	Ferrite Core	Length
1	EUT "LINE" / No termination	NO	NO	2.5m
2	DC Power Cord (EUT / AC Adapter) with 2-pin plug	NO	NO	1.9m

Operation - mode of the EUT:

The EUT was operated during the test under the following specification:

- 1) Conducted and radiated emission measurement:
Communicating (transmitting and receiving) with the Handset.
- 2) Measurement of the emission within the frequency band:
Inputting the 2.5 kHz sine wave from a telephone line terminal.

Test system:

The EUT has a DC terminal and a telephone line terminal.

Special accessories:

None

Detailed Transmitter Portion:

Transmitting frequency : 902.100 MHz - 903.550 MHz

Detailed Receiver Portion:

Receiving frequency : 926.100 MHz - 927.550 MHz

Local frequency : 936.800 MHz - 938.250 MHz

Intermediate frequency : 10.7 MHz (upper side)

EUT Modification

- - No modifications were conducted by JQA to achieve compliance to applied levels.
- - To achieve compliance to applied levels, the following change(s) were made by JQA during the compliance test.

The modification(s) will be implemented in all production models of this equipment.

Applicant : _____ Date :

Typed Name : _____ Position :

Responsible Party

Responsible Party of Test Item(Product) _____

Responsible party :

Contact Person :

Signatory

TEST RESULTS

[Transmitter Portion]

Conducted Emission 450 kHz - 30 MHz

The requirements are

● - KEPT

○ - NOT KEPT

Min. limit margin More than +37.1 dB at 29.90 MHz

Max. limit exceeding _____ dB at _____ MHz

Uncertainty of measurement results + 2.1 dB(2 σ) - 2.1 dB(2 σ)

Remarks: _____

Radiated Emission 9 kHz - 10 GHz

The requirements are

● - KEPT

○ - NOT KEPT

Min. limit margin + 2.4 dB at 903.550 MHz

Max. limit exceeding _____ dB at _____ MHz

Uncertainty of measurement results

9 kHz - 30 MHz	<u>+ 2.5</u>	dB(2 σ)	<u>- 2.5</u>	dB(2 σ)
30 MHz - 1 GHz	<u>+ 4.1</u>	dB(2 σ)	<u>- 4.2</u>	dB(2 σ)
1 GHz - 10 GHz	<u>+ 3.1</u>	dB(2 σ)	<u>- 3.2</u>	dB(2 σ)

Remarks: _____

Emission within the frequency band 902 MHz - 928 MHz

The requirements are

● - KEPT

○ - NOT KEPT

Results Refer to pages 26 - 27

Uncertainty of measurement results ± 0.05 ppm(2 σ)

Remarks: _____

[Receiver Portion]

Conducted Emission 450 kHz - 30 MHz

The requirements are

● - KEPT

○ - NOT KEPT

Min. limit margin More than +37.1 dB at 29.90 MHz

Max. limit exceeding _____ dB at _____ MHz

Uncertainty of measurement results + 2.1 dB(2 σ) - 2.1 dB(2 σ)

Remarks: _____

Radiated Emission 30 MHz - 2 GHz

The requirements are

● - KEPT

○ - NOT KEPT

Min. limit margin +18.7 dB at 469.125 MHz

Max. limit exceeding _____ dB at _____ MHz

Uncertainty of measurement results 30 MHz - 1 GHz + 4.1 dB(2 σ) - 4.2 dB(2 σ)
1 GHz - 2 GHz + 3.1 dB(2 σ) - 3.2 dB(2 σ)

Remarks: _____

SUMMARY

GENERAL REMARKS :

The EUT was tested according to the requirements of FCC Rules and Regulations Part 15 Subpart A, B and C (April 17, 1997) under the test configuration, as shown in page 15.

The conclusion for the test items of which are required by the applied regulation is indicated under the final judgement.

FINAL JUDGEMENT :

The "as received" sample;

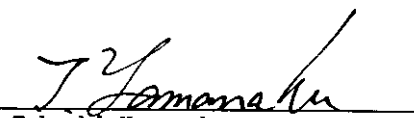
- - fulfill the test requirements of the regulation mentioned on page 3.
- - fulfill the test requirements of the regulation mentioned on page 3, but with certain qualifications.
- - doesn't fulfill the test regulation mentioned on page 3.

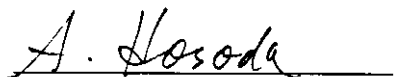
Begin of testing : November 20, 1998

End of testing : November 30, 1998

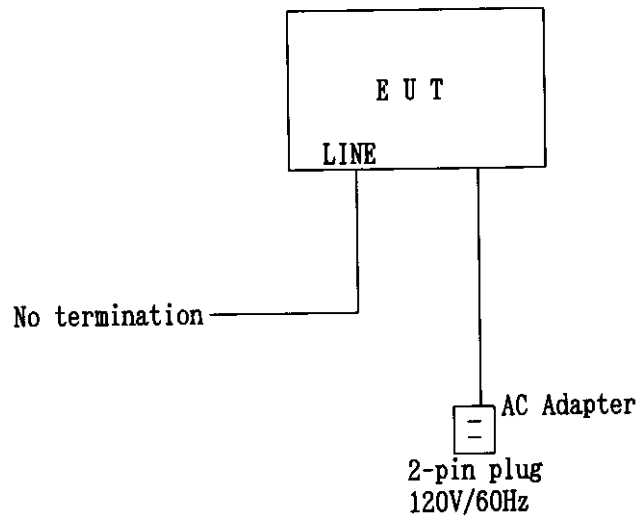
- JAPAN QUALITY ASSURANCE ORGANIZATION -

Approved Signatory :


Takashi Yamanaka
Manager
EMC Div.
JQA KITA-KANSAI Testing Center


Akio Hosoda
Project Manager
EMC Div.
JQA KITA-KANSAI Testing Center

Test System-Arrangement (Drawings)



The preliminary test was performed according to the description of ANSI C63.4-1992 Sec.13.1.3.1 (or Sec.7.2.3) and Sec.13.1.2 (or Sec.11.2), the preliminary test was carried out to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions, and a typical system configuration. In order to find out to the maximum emission, the preliminary test and a final test were performed in accordance with the following steps.

Step 2: Using both of a spectrum analyzer and a test receiver, the emission's circumstance from the system was monitored in one of ten divided frequency bands of the specified frequency range (450 kHz - 30 MHz). The maximum emission in the band was found by selecting of current-carrying conductor. The level and the frequency at the one point which are regarded as relative high emission in the band was measured and recorded. This step was repeated until the ending frequency band.

Step 4: Based on the collected results, the operation mode produced the maximum emission was selected. The final test on the selected operation mode was performed. But if it was difficult to select the operation mode, the final tests on all operation modes were performed.

The diagram illustrates a Shielded Enclosure setup. On the left, a Vertical Metal Plane is shown. A distance of 0.4 m is indicated from this plane to the EUT. The EUT is positioned on a stand at a height of 0.8 m. A LISN is connected to the EUT and the ground plane, with an arrow pointing down labeled 'to AC Power'. On the right, a Test Receiver and a Spectrum Analyzer are connected via a Coaxial Switch. The Test Receiver is connected to the EUT and the LISN. The Spectrum Analyzer is connected to the Test Receiver via the Coaxial Switch.

Radiated Emission (Magnetic Field) 9 kHz - 30 MHz:

The preliminary test was performed according to the description of ANSI C63.4-1992 Sec.13.1.4.1 (Preliminary Radiated Emissions Tests) and Sec.13.1.2 (Equipment Configurations), the preliminary test was carried out to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions and a typical system configuration. In order to find out to the maximum emission, the preliminary test and a final test were performed in accordance with the following steps.

Step 1: One operation mode of the test system was setting.

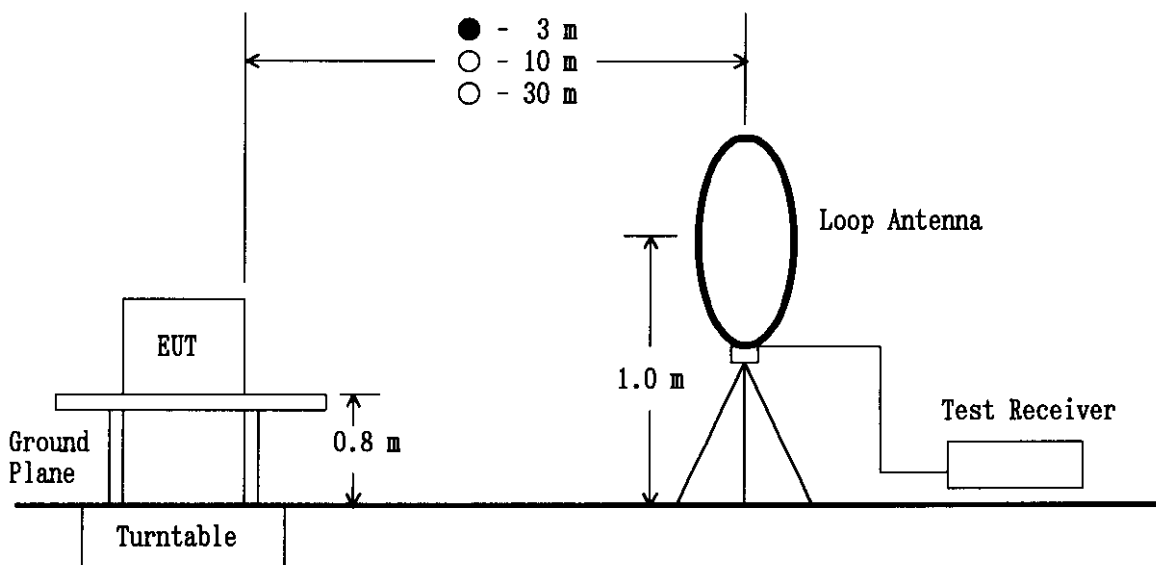
Step 2: In order to investigate the frequencies of maximum emissions, the loop antenna position was approached to the EUT and the significant frequency of the emission's circumstance from the test system were investigated. These data were recorded in the specified frequency band (9 kHz - 30 MHz).

Step 3: Using a test receiver and a loop antenna, the emission's circumstance from the test system was measured in according with ANSI C63.4-1992 Sec.13.1.4.2 (Final Radiated Emissions Tests) at each frequency which was found the higher emission referred to level vs. frequency on the list and which was measured by the loop antenna. The maximum emission was found by rotating three orthogonal axes under a typical system configuration.

Step 4: Return to step 1, if the other operation mode was possible to be setting.

Step 5: The worst result was reported arranging data of which was obtained and performed by one or plural operation modes as the final test.

At the worst point that has the highest amplitude relative to the limit the repeatability of the level was reconfirmed. The photographs of the tests system setup on the worst point were taken and recorded.



Radiated Emission (Electric Field) 30 MHz - 1000 MHz:

The preliminary test was performed according to the description of ANSI C63.4-1992 Sec.13.1.4.1 (or Sec.8.3.1.1) and Sec.13.1.2 (or Sec.11.2), the preliminary test was carried out to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions, and a typical system configuration. In order to find out to the maximum emission, the preliminary test and a final test were performed in accordance with the following steps.

Step 1: One operation mode of the test system was setting.

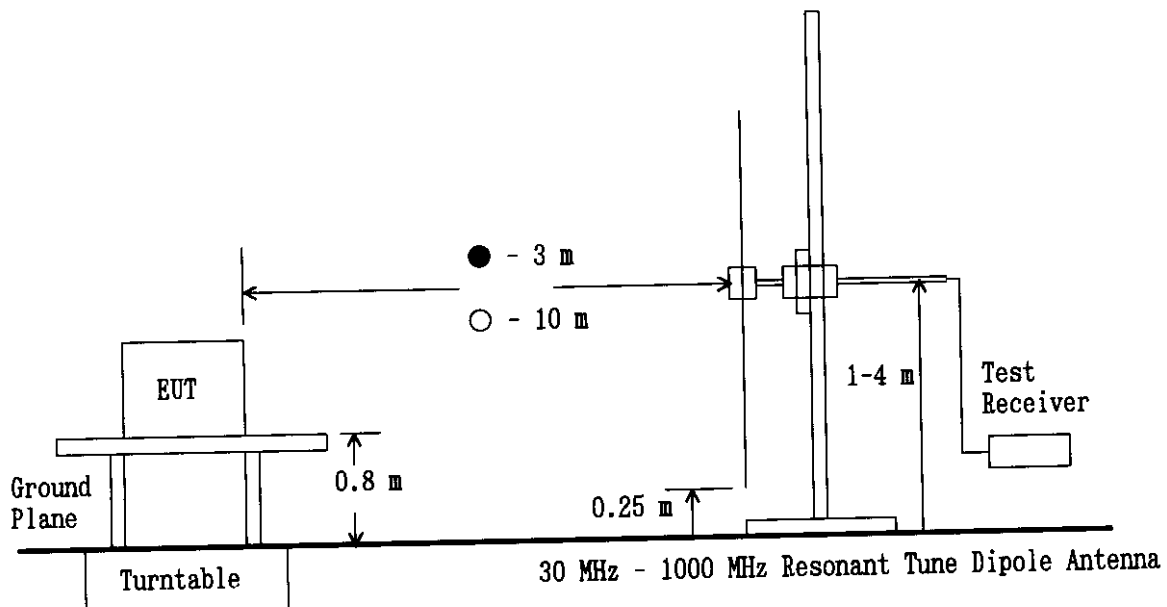
Step 2: Using a test receiver and a test antenna probe, the significant frequency of the emission's circumstance from the test system were investigated. These data were recorded every one of 22 divided bands in the specified frequency band (30 MHz - 1000 MHz).

Step 3: Using a test receiver and a resonant tuned dipole antenna, the emission's circumstance from the test system was measured in according with ANSI C63.4-1992 Sec.13.1.4.2 (or Sec.8.3.1.2) at each frequency which was found the higher emission referred to level vs. frequency on the list and which was measured by the resonant tuned dipole antenna. The maximum emission was found by rotating three orthogonal axes under a typical system configuration.

Step 4: Return to step 1, if the other operation mode was possible to be setting.

Step 5: The worst result was reported arranging data of which was obtained and performed by one or plural operation modes as the final test.

At the worst point that has the highest amplitude relative to the limit the repeatability of the level was reconfirmed. The photographs of the tests system setup on the worst point were taken and recorded.



Radiated Emission (Electric Field) 1 GHz - 10 GHz (or 2 GHz):

The preliminary test was performed according to the description of ANSI C63.4-1992 Sec.13.1.4.1 (or Sec.8.3.1.1) and Sec.13.1.2 (or Sec.11.2), the preliminary test was carried out to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions, and a typical system configuration. In order to find out to the maximum emission, the preliminary test and a final test were performed in accordance with the following steps.

Step 1: One operation mode of the test system was setting.

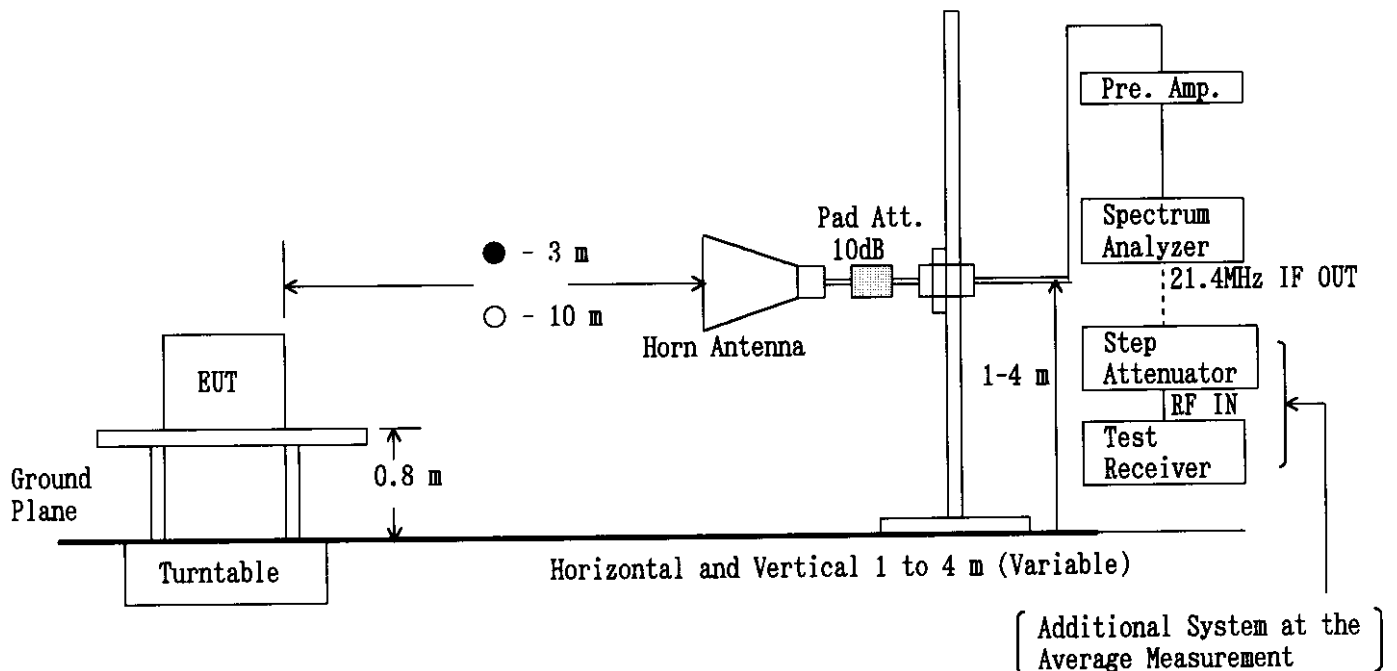
Step 2: In order to investigate the frequencies of maximum emissions, the horn antenna position was approached to the EUT and the significant frequency of the emission's circumstance from the test system were investigated. These data were recorded in the specified frequency band (1 GHz - 10 GHz (or 2 GHz)).

Step 3: The emission's circumstance from the test system was measured in accordance with ANSI C63.4-1992, Sec.13.1.4.2 (or Sec.8.3.1.2) at each frequency which was found higher emission referred to level vs. frequency on the list and which was measured in the specified distance using the horn antenna. The maximum emission was found by rotating three orthogonal axes under a typical system configuration.

Step 4: Return to step 1, if the other operation mode was possible to be setting.

Step 5: The worst result was reported arranging data of which was obtained and performed by one or plural operation modes as the final test.

At the worst point that has the highest amplitude relative to the limit the repeatability of the level was reconfirmed. The photographs of the tests system setup on the worst point were taken and recorded.



Spectrum Analyzer Setting:

Detector	Peak	*)Average
RES BW	1 MHz	3 MHz
VIDEO BW	1 MHz	3 MHz
SPAN	0 Hz	0 Hz

Test Receiver Setting:

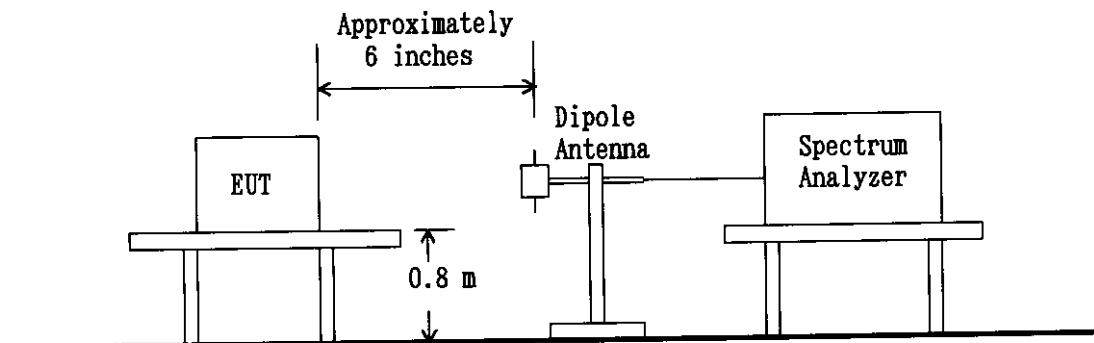
SCALE	LINEAR
I.F.B.W.	1 MHz
Detector	Average

*) For the average measurement, it is made using a test receiver and a step attenuator.

Emission within the Frequency Band 902 MHz - 928 MHz:

The measurement of emission within the band 902 MHz - 928 MHz were made by a spectrum analyzer with a resonant tuned dipole antenna under the following modulation conditions of the transmitter under test.

Input Terminal : Telephone line
Input Signal : 2.5 kHz sine wave
Input Level : 0.0 dBV

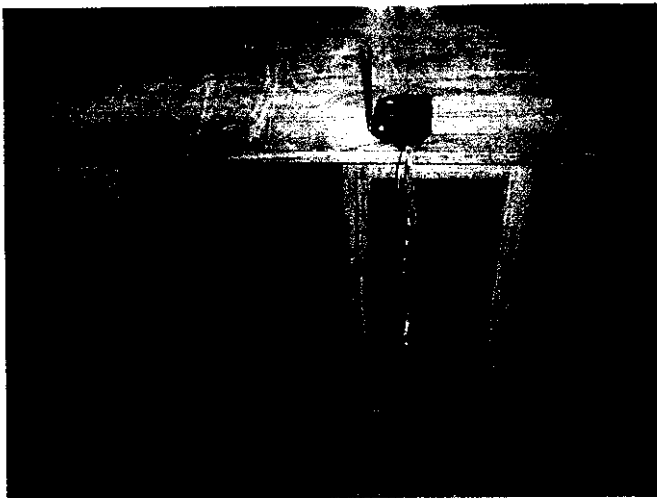


Test-Setup (Photographs) at worst case

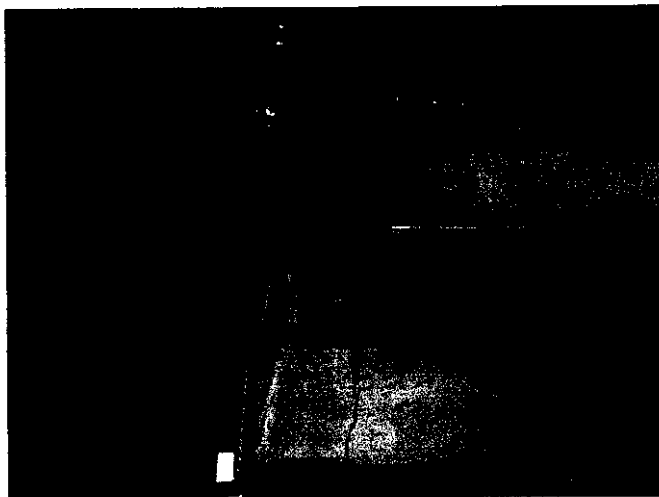
Conducted Emission 450kHz - 30MHz:



Front View

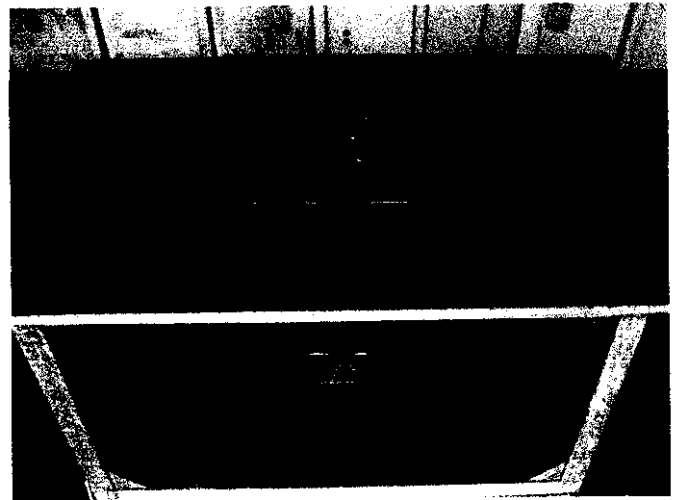


Rear View

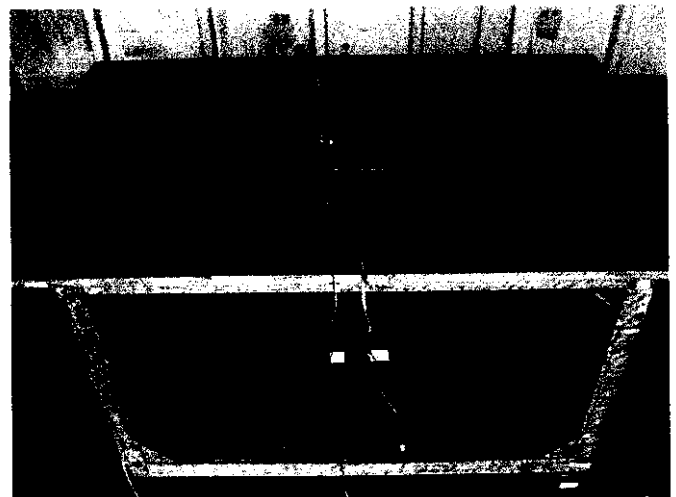


Side View

Radiated Emission 9kHz - 10GHz:



Front View



Rear View

Mains terminal Disturbance Measurement

Intentional Radiator

Based on the test result of every test mode, the mode of operation that produce the conducted emission that has the highest amplitude is shown as follows:

Operating Frequency : 902.100 MHz

Test Date: November 25, 1998
 Temp.: 23 °C ; Humi.: 35 %

Frequency [MHz]	Correction Factor [dB]	Meter Readings dB(μV)				Limits dB(μV)	Results dB(μV)		Margin [dB]	Remarks (Note 2)
		VA-QP	VA-AV	VB-QP	VB-AV		QP	AV		
0.45	0.1	< 10.0	-	< 10.0	-	48.0	< 10.1	-	>+37.9	A
1.00	0.1	< 10.0	-	< 10.0	-	48.0	< 10.1	-	>+37.9	A
1.40	0.2	< 10.0	-	< 10.0	-	48.0	< 10.2	-	>+37.8	A
2.00	0.2	< 10.0	-	< 10.0	-	48.0	< 10.2	-	>+37.8	A
3.50	0.3	< 10.0	-	< 10.0	-	48.0	< 10.3	-	>+37.7	A
6.00	0.4	< 10.0	-	< 10.0	-	48.0	< 10.4	-	>+37.6	A
10.80	0.5	< 10.0	-	< 10.0	-	48.0	< 10.5	-	>+37.5	A
13.30	0.6	< 10.0	-	< 10.0	-	48.0	< 10.6	-	>+37.4	A
22.00	0.8	< 10.0	-	< 10.0	-	48.0	< 10.8	-	>+37.2	A
29.90	0.9	< 10.0	-	< 10.0	-	48.0	< 10.9	-	>+37.1	A

Sample of calculated result at 29.90 MHz, as the Minimum Margin point:

Correction Factor = 0.9 dB

+) Meter Reading = <10.0 dB(μV)

Result = <10.9 dB(μV)

Minimum Margin : 48.0 - <10.9 = >37.1(dB)

The point shown on "___" is the Minimum Margin Point.

Note 1:

1. The correction factors includes the LISN insertion loss and the cable loss.

Remarks:

Note 2	Detector Function	IF Bandwidth
A	CISPR QP	9 kHz
B	Average	10 kHz

Tester Signature : A. Hosoda
 Type Name : Akio Hosoda

Electromagnetic Radiation Disturbance Measurement

Intentional Radiator

Based on the test result of every test mode, the mode of operation that produce the conducted emission that has the highest amplitude is shown as follows:

Operating Frequency : 902.100 MHz

Test Date: November 20, 1998
 Temp.: 16 °C ; Humi.: 47 %

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μV)		Limits dB(μV/m)	Results dB(μV/m)		Margin [dB]	Remarks (Note 2)
			Hori.	Vert.		Hori.	Vert.		
Fundamental									
902.100	28.9	6.7	56.0	56.0	94.0	91.6	91.6	+ 2.4	A
Harmonics									
1804.200	21.8	-38.8	53.0	48.0	54.0	36.0	31.0	+18.0	B
2706.300	21.5	-31.7	< 30.0	< 30.0	54.0	< 19.8	< 19.8	>+34.2	B
3608.400	34.1	-31.0	< 30.0	< 30.0	54.0	< 33.1	< 33.1	>+20.9	B
4510.500	35.9	-31.1	< 30.0	< 30.0	54.0	< 34.8	< 34.8	>+19.2	B
5412.600	36.8	-31.2	< 30.0	< 30.0	54.0	< 35.6	< 35.6	>+18.4	B
6314.700	36.6	-30.3	< 30.0	< 30.0	54.0	< 36.3	< 36.3	>+17.7	B
7216.800	36.7	-29.8	< 30.0	< 30.0	54.0	< 36.9	< 36.9	>+17.1	B
8118.900	41.1	-37.7	< 30.0	< 30.0	54.0	< 33.4	< 33.4	>+20.6	B
9021.000	40.4	-37.9	< 30.0	< 30.0	54.0	< 32.5	< 32.5	>+21.5	B
Spurious									
451.050	22.3	4.5	7.0	3.0	46.0	33.8	29.8	+12.2	A
1353.150	21.5	-35.1	< 30.0	< 30.0	54.0	< 16.4	< 16.4	>+37.6	B
2255.250	21.4	-31.8	< 30.0	< 30.0	54.0	< 19.6	< 19.6	>+34.4	B
3157.350	22.0	-31.2	< 30.0	< 30.0	54.0	< 20.8	< 20.8	>+33.2	B
4059.450	34.7	-30.8	< 30.0	< 30.0	54.0	< 33.9	< 33.9	>+20.1	B
4961.550	36.6	-31.5	< 30.0	< 30.0	54.0	< 35.1	< 35.1	>+18.9	B
5863.650	36.9	-30.5	< 30.0	< 30.0	54.0	< 36.4	< 36.4	>+17.6	B
6765.750	36.5	-30.2	< 30.0	< 30.0	54.0	< 36.3	< 36.3	>+17.7	B
7667.850	40.6	-38.1	< 30.0	< 30.0	54.0	< 32.5	< 32.5	>+21.5	B
8569.950	41.0	-37.7	< 30.0	< 30.0	54.0	< 33.3	< 33.3	>+20.7	B

Operating Frequency : 903.550 MHz

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μV) Hori. Vert.	Limits dB(μV/m)	Results dB(μV/m) Hori. Vert.	Margin [dB]	Remarks (Note 2)
Fundamental							
903.550	28.9	6.7	56.0 56.0	94.0	91.6 91.6	+ 2.4	A
Harmonics							
1807.100	21.8	-38.8	52.0 45.0	54.0	35.0 28.0	+19.0	B
2710.650	21.5	-31.6	< 30.0 < 30.0	54.0	< 19.9 < 19.9	>+34.1	B
3614.200	34.1	-31.0	< 30.0 < 30.0	54.0	< 33.1 < 33.1	>+20.9	B
4517.750	35.9	-31.1	< 30.0 < 30.0	54.0	< 34.8 < 34.8	>+19.2	B
5421.300	36.8	-31.2	< 30.0 < 30.0	54.0	< 35.6 < 35.6	>+18.4	B
6324.850	36.6	-30.3	< 30.0 < 30.0	54.0	< 36.3 < 36.3	>+17.7	B
7228.400	36.7	-29.8	< 30.0 < 30.0	54.0	< 36.9 < 36.9	>+17.1	B
8131.950	41.1	-37.7	< 30.0 < 30.0	54.0	< 33.4 < 33.4	>+20.6	B
9035.500	40.3	-37.8	< 30.0 < 30.0	54.0	< 32.5 < 32.5	>+21.5	B
Spurious							
451.775	22.3	4.5	7.0 2.0	46.0	33.8 28.8	+12.2	A
1355.325	21.6	-35.1	< 30.0 < 30.0	54.0	< 16.5 < 16.5	>+37.5	B
2258.875	21.4	-31.8	< 30.0 < 30.0	54.0	< 19.6 < 19.6	>+34.4	B
3162.425	22.0	-31.2	< 30.0 < 30.0	54.0	< 20.8 < 20.8	>+33.2	B
4065.975	34.7	-30.8	< 30.0 < 30.0	54.0	< 33.9 < 33.9	>+20.1	B
4969.525	36.6	-31.5	< 30.0 < 30.0	54.0	< 35.1 < 35.1	>+18.9	B
5873.075	36.9	-30.5	< 30.0 < 30.0	54.0	< 36.4 < 36.4	>+17.6	B
6776.625	36.5	-30.2	< 30.0 < 30.0	54.0	< 36.3 < 36.3	>+17.7	B
7680.175	40.6	-38.1	< 30.0 < 30.0	54.0	< 32.5 < 32.5	>+21.5	B
8583.725	40.9	-37.7	< 30.0 < 30.0	54.0	< 33.2 < 33.2	>+20.8	B

Sample of calculated result at 903.550 MHz, as the Minimum Margin point:

Antenna Factor = 28.9 dB(1/m)

Corr. Factor = 6.7 dB

+) Meter Reading = 56.0 dB(μ V/m)

Result = 91.6 dB(μ V/m)

Minimum Margin : 94.0 - 91.6 = 2.4(dB)

The point shown on "___" is the Minimum Margin Point.

Note 1:

1)The highest frequency generated or used in the EUT: 903.550 MHz

2)The upper frequency of measurement range : 9035.500 MHz

3)The spectrum was scanned 9 kHz to 9035.5 MHz and all emissions not reported were more than 20dB below the applied limits.

4)Corr. Factor (30 MHz - 1 GHz) : Cable Loss(dB)

Corr. Factor (1 GHz - 10 GHz) : Cable Loss(dB) + 10dB Pad Attenuator(dB) - Pre-Amplifier Gain(dB)

Remarks:

Note 2	Detector Function	IF Bandwidth
A	CISPR QP	120 KHz

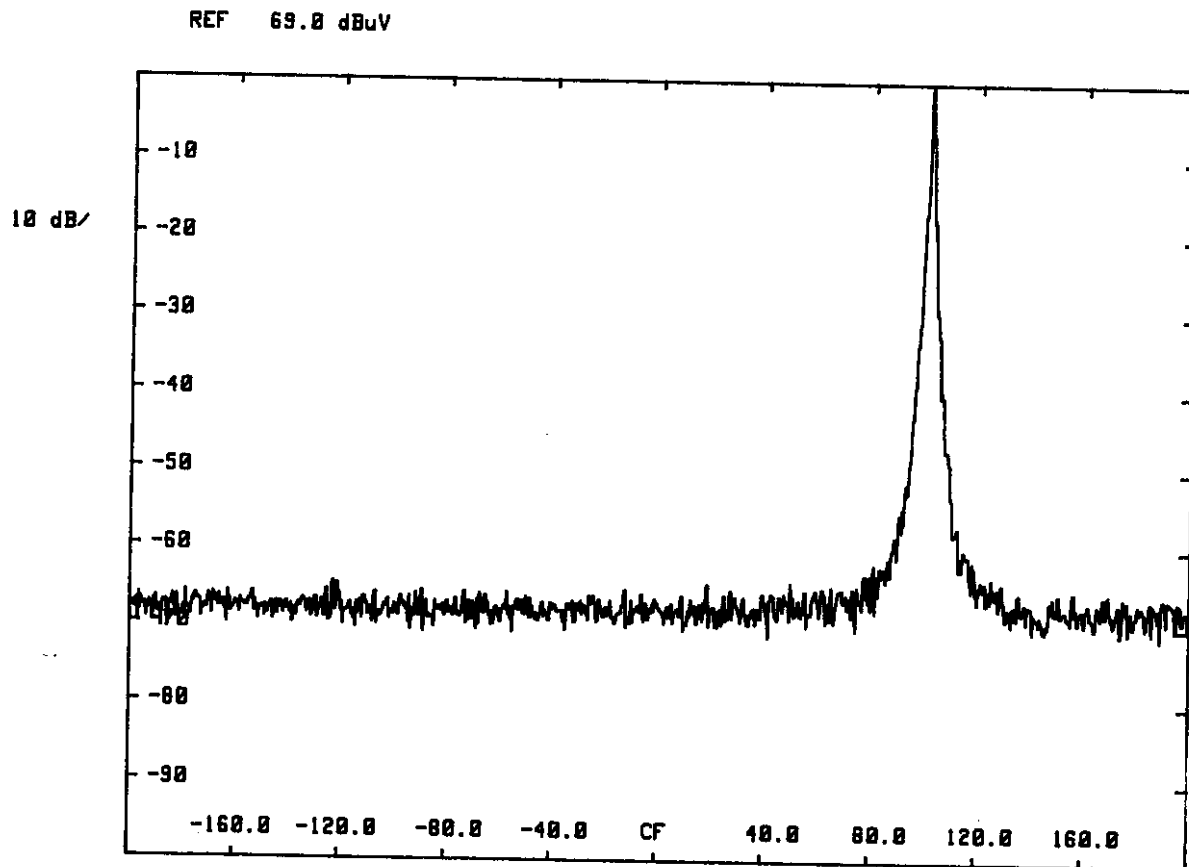
Note 2	Detector Function	RES. B.W	V.B.W	Sweep T	Span
B	Peak (SP)	1 MHz	1 MHz	20 msec	0 Hz
C	Peak (SP)	100 kHz	100 kHz	20 msec	0 Hz
*) D	Average (ESV)	1 MHz (3 MHz)	3 MHz	20 msec	0 Hz

():Setting of spectrum analyzer

*)For the average measurement method, it is made measurement using a test receiver, a step attenuator and a spectrum analyzer.

Tester Signature : A. Hosoda
Type Name : Akio Hosoda

EMISSION LIMITATION



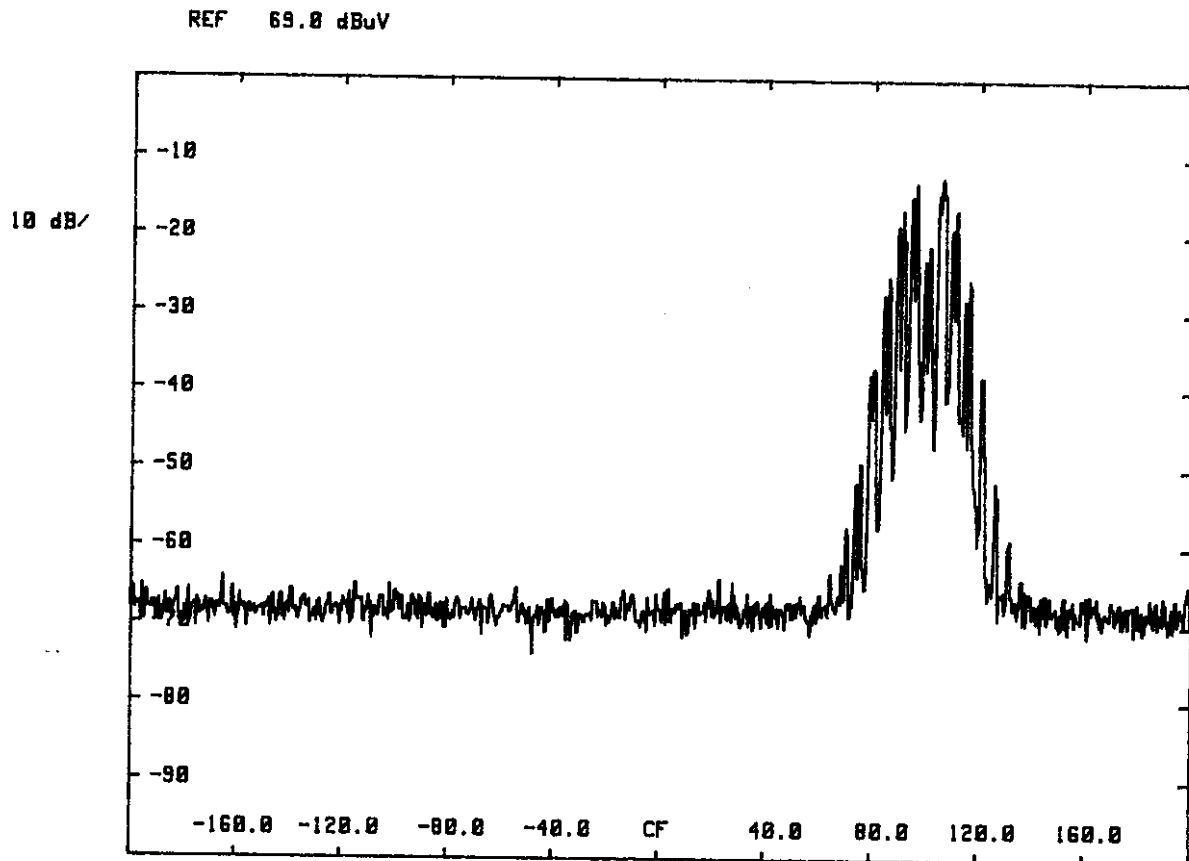
CENTER 902.0000 MHz
RES BW .3 kHz

VBW 1 kHz

SPAN 400.0 kHz
SWP 10.0 sec

Reference Carrier Level

EMISSION LIMITATION



CENTER 982.0000 MHz

SPAN 400.0 kHz

RES BW .3 kHz

VBW 1 kHz

SWP 10.0 sec

Modulation: External Sine Wave from Telephone Line

Mains terminal Disturbance Measurement

Receiver (employing superheterodyne techniques)

Based on the test result of every test mode, the mode of operation that produce the conducted emission that has the highest amplitude is shown as follows:

Tuning Frequency : 926.100 MHz

Test Date: November 25, 1998

Temp.: 23 °C ; Humi.: 35 %

Frequency [MHz]	Correction Factor [dB]	Meter Readings dB(μV)				Limits dB(μV)	Results dB(μV)		Margin [dB]	Remarks (Note 2)
		VA-QP	VA-AV	VB-QP	VB-AV		QP	AV		
0.45	0.1	< 10.0	-	< 10.0	-	48.0	< 10.1	-	>+37.9	A
1.00	0.1	< 10.0	-	< 10.0	-	48.0	< 10.1	-	>+37.9	A
1.40	0.2	< 10.0	-	< 10.0	-	48.0	< 10.2	-	>+37.8	A
2.00	0.2	< 10.0	-	< 10.0	-	48.0	< 10.2	-	>+37.8	A
3.50	0.3	< 10.0	-	< 10.0	-	48.0	< 10.3	-	>+37.7	A
6.00	0.4	< 10.0	-	< 10.0	-	48.0	< 10.4	-	>+37.6	A
10.80	0.5	< 10.0	-	< 10.0	-	48.0	< 10.5	-	>+37.5	A
13.30	0.6	< 10.0	-	< 10.0	-	48.0	< 10.6	-	>+37.4	A
22.00	0.8	< 10.0	-	< 10.0	-	48.0	< 10.8	-	>+37.2	A
29.90	0.9	< 10.0	-	< 10.0	-	48.0	< 10.9	-	>+37.1	A

Sample of calculated result at 29.90 MHz, as the Minimum Margin point:

Correction Factor = 0.9 dB

+) Meter Reading = <10.0 dB(μV)

Result = <10.9 dB(μV)

Minimum Margin : 48.0 - <10.9 = >37.1(dB)

The point shown on "____" is the Minimum Margin Point.

Note 1:

1. The correction factors includes the LISN insertion loss and the cable loss.

Remarks:

Note 2	Detector Function	IF Bandwidth
A	CISPR QP	9 kHz
B	Average	10 kHz

Tester Signature :

A. Hosoda

Type Name

: Akio Hosoda

Electromagnetic Radiation Disturbance Measurement

Receiver (employing superheterodyne techniques)

Based on the test result of every test mode, the mode of operation that produce the conducted emission that has the highest amplitude is shown as follows:

Tuning Frequency : 926.100 MHz

Test Date: November 20, 1998

Temp.: 16 °C ; Humi.: 47 %

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μV)		Limits dB(μV/m)	Results dB(μV/m)		Margin [dB]	Remarks (Note 2)
			Hori.	Vert.		Hori.	Vert.		
468.400	22.7	4.6	0.0	< -5.0	46.0	27.3	< 22.3	+18.7	A
936.800	29.3	6.9	<-10.0	<-10.0	46.0	< 26.2	< 26.2	>+19.8	A
1405.200	21.7	-34.7	< 30.0	< 30.0	54.0	< 17.0	< 17.0	>+37.0	B
1873.600	21.6	-38.5	< 30.0	< 30.0	54.0	< 13.1	< 13.1	>+40.9	B

Tuning Frequency : 927.550 MHz

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μV)		Limits dB(μV/m)	Results dB(μV/m)		Margin [dB]	Remarks (Note 2)
			Hori.	Vert.		Hori.	Vert.		
469.125	22.7	4.6	0.0	< -5.0	46.0	27.3	< 22.3	+18.7	A
938.250	29.3	6.9	<-10.0	<-10.0	46.0	< 26.2	< 26.2	>+19.8	A
1407.375	21.7	-34.7	< 30.0	< 30.0	54.0	< 17.0	< 17.0	>+37.0	B
1876.500	21.6	-38.4	< 30.0	< 30.0	54.0	< 13.2	< 13.2	>+40.8	B

Sample of calculated result at 469.125 MHz, as the Minimum Margin point:

Antenna Factor = 22.7 dB(1/m)

Corr. Factor = 4.6 dB

+) Meter Reading = 0.0 dB(μ V/m)

Result = 27.3 dB(μ V/m)

Minimum Margin : 46.0 - 27.3 = 18.7(dB)

The point shown on "___" is the Minimum Margin Point.

Note 1:

1)The highest frequency generated or used in the EUT: 938.250 MHz

2)The upper frequency of measurement range : 1876.500 MHz

3)The spectrum was scanned 30 MHz to 1876.5 MHz and all emissions not reported were more than 20dB below the applied limits.

4)Corr. Factor (30 MHz - 1GHz) : Cable Loss(dB)

Corr. Factor (1GHz - 2 GHz) : Cable Loss(dB) + 10dB Pad Attenuator(dB) - Pre-Amplifier Gain(dB)

Remarks:

Note 2	Detector Function	IF Bandwidth
A	CISPR QP	120 KHz

Note 2	Detector Function	RES. B.W	V.B.W	Sweep T	Span
B	Peak (SP)	1 MHz	1 MHz	20 msec	0 Hz
C	Peak (SP)	100 kHz	100 kHz	20 msec	0 Hz
*) D	Average (ESV)	1 MHz (3 MHz)	3 MHz	20 msec	0 Hz

():Setting of spectrum analyzer

*)For the average measurement method, it is made measurement using a test receiver, a step attenuator and a spectrum analyzer.

Tester Signature : A. Hosoda

Type Name : Akio Hosoda



JAPAN QUALITY ASSURANCE ORGANIZATION

KITA-KANSAI TESTING CENTER

7-7, Ishimaru 1-Chome, Minoh-shi, Osaka 562 Japan. Phone. +81-727-29-2243/Facsimile. +81-727-28-6848

Issue Date : December 8, 1998

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EMC ~~division~~ - TEST REPORT

JQA APPLICATION No. : KL8080539

Model/Type No. : KX-TC1400-B

Name of Product : 900 MHz Cordless Telephone (Handset)

FCC ID : ACJ96NKX-TC1400

Applicant : Kyushu Matsushita Electric Co., Ltd.

Address : 1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531, Japan

Manufacturer : Kyushu Matsushita Electric Co., Ltd.

Address : 1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531, Japan

Final Judgement : **Passed**

TEST RESULTS IN THIS REPORT are obtained in use of equipment that is traceable to Electro-technical Lab. of MITI Japan and Communications Research Lab. of PTT Japan.

THE TEST RESULTS only responds to the test sample. This test report shall not be reproduced except in full.

JAPAN QUALITY ASSURANCE ORGANIZATION (JQA)
KITA-KANSAI TESTING CENTER
EMC DIVISION



LAB CODE: 200191-0

DIRECTORY

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B) Test data	
Transmitter Portion	
Conducted Emission	450 kHz - 30 MHz <u>N/A</u>
Radiated Emission	9 kHz - 10 GHz <u>21 - 23</u>
Emission within the Frequency Band	902 MHz - 928 MHz <u>24 - 25</u>
Receiver Portion	
Conducted Emission	450 kHz - 30 MHz <u>N/A</u>
Radiated Emission	30 MHz - 2 GHz <u>26 - 27</u>

TEST REGULATION

FCC Rules and Regulations Part 15 Subpart A, B and C (April 17, 1997)

- ☐ - Class A Digital Device
- ☐ - Class B Digital Device
- ☒ - Intentional Radiator
- ☒ - Receiver (employing superheterodyne techniques)

Test procedure:

Radiated emission test was performed according to the procedures in ANSI C63.4-1992.

GENERAL INFORMATION

Test facility:

- 1) Test Facility located at Kita-Kansai : 1st and 2nd Open Sites (3 m Site)
Test Facility located at Kameoka Open Site (3, 10 and 30 m, on common plane)
FCC filing No. : 31040/SIT 1300F2
- 2) KITA-KANSAI TESTING CENTER is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance established in Title 15, Part 285 Code of Federal Regulations.
NAVLAP Lab Code: 200191-0
- 3) Average Measurement Method
FCC filing No. : 950523A 1300F2

Description of the Equipment Under Test (EUT):

- 1) Name : 900 MHz Cordless Telephone (Handset)
- 2) Model/Type No. : KX-TC1400-B
- 3) Product Type : Pre-Production
- 4) Category : Intentional Radiator and Receiver
(employing superheterodyne techniques)
- 5) EUT Authorization : ☐ - Verification ☒ - Certification ☐ - D.o.C
- 6) Transmitting Frequency : 926.100 MHz - 927.550 MHz
- 7) Receiving Frequency : 902.100 MHz - 903.550 MHz
- 8) Power Rating : DC 3.6V (Ni-Cd Battery Pack : Model No. KX-A36)

Definitions for symbols used in this test report:

- ☒ - Black box indicates that the listed condition, standard or equipment is applicable for this Report.
- ☐ - Blank box indicates that the listed condition, standard or equipment is not applicable for this Report.

JQA Application No. : KL8080539
Model No. : KX-TC1400-B
FCC ID : ACJ96NKX-TC1400

Regulation : CFR 47 FCC Rules Part 15
Issue Date : December 8, 1998

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TEST CONDITIONS

The measurement of the Conducted Emission (Disturbance Voltage)
was performed in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

○ - Shielded room

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - Shielded room

○ - On metal plane of open site

Used test instruments and sites:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
○ - ESH 3	A - 1		
○ - ESH 2	A - 2		
○ - ESH 2	A - 3		
○ - KNW-407	D - 6		
○ - KNW-408	D - 11		
○ - KNW-242	D - 7		
○ - ESH3-Z5	D - 12		
○ - KNW-341C	D - 13		
○ - KNW-408	D - 14		
○ - KNW-244C	D - 77		
○ - KNW-408	D - 78		
○ - ESH2-Z5	D - 10		
○ - ESH2-Z3	D - 17		
○ - 8568B	A - 10		
○ - 8566B	A - 13		
○ - 8593A	A - 15		
○ - Cable	H - 8		

Environmental conditions:

Temperature: _____ °C Humidity: _____ %

JQA Application No. : KL8080539
Model No. : KX-TC1400-B
FCC ID : ACJ96NKX-TC1400

Regulation : CFR 47 FCC Rules Part 15
Issue Date : December 8, 1998

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The measurement of the Radiated Emission (Magnetic Field)

was performed in the frequency range of 9 kHz - 30 MHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

● - 1st site (3 meters)

○ - 2nd site (3 meters)

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - 3 meters

○ - 10 meters

○ - 30 meters

Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
○ - ESH 3	A - 1		
● - ESH 2	A - 2	December, 1997	1 Year
○ - ESH 2	A - 3		
● - HFH2-Z2	C - 2	September, 1998	1 Year
○ - HFH2-Z2	C - 3		

Environmental conditions:

Temperature: 16 °C Humidity: 47 %

The measurement of the Radiated Emission (Electric Field)

was performed in horizontal and vertical polarization, in the frequency range of 30 MHz - 1000 MHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

● - 1st site (3 meters)

○ - 2nd site (3 meters)

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - 3 meters

○ - 10 meters

Validation of Site Attenuation:

1) Last Confirmed Date: November 21, 1997

2) Interval : 1 Year

Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
● - ESV/ESV-Z3	A - 7 / A - 17	December, 1997	1 Year
○ - ESV/ESV-Z3	A - 6 / A - 18		
○ - ESV/ESV-Z3	A - 5 / A - 16		
○ - ESV/ESV-Z3	A - 4 / A - 20		
○ - ESV/ESV-Z3	A - 8 / A - 19		
● - KBA-511A	C - 12	December, 1997	1 Year
● - KBA-611	C - 22	December, 1997	1 Year
○ - KBA-511A	C - 13		
○ - KBA-611	C - 19		
○ - KBA-511A	C - 11		
○ - KBA-611	C - 21		
● - Cable	H - 5	November, 1997	1 Year

Environmental conditions:

Temperature: 16 °C Humidity: 47 %

The measurement of the Radiated Emission (Electric Field)

was performed in horizontal and vertical polarization, in the frequency range of 1 GHz - 10 GHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

● - 1st site (3 meters)

○ - 2nd site (3 meters)

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - 3 meters

○ - 10 meters

Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
● - 8566B	A - 13	October, 1998	1 Year
○ - 8593A	A - 15		
○ - ESV	A - 5		
● - 4T-10	D - 73	May, 1998	1 Year
○ - 4T-10	D - 74		
● - WJ-6611-513	A - 23	May, 1998	1 Year
● - WJ-6882-824	A - 21	May, 1998	1 Year
● - DBL-0618N515	A - 33	October, 1998	1 Year
● - 91888-2	C - 41 - 1	May, 1998	1 Year
● - 91889-2	C - 41 - 2	May, 1998	1 Year
● - 94613-1	C - 41 - 3	May, 1998	1 Year
● - 91891-2	C - 41 - 4	May, 1998	1 Year
○ - 94614-1	C - 41 - 5		
○ - 3160-09	C - 48		
○ - TRA-603D	D - 24		
○ - 8494H/8595H	D - 76		
○ - MZ5010C	D - 81		
● - Cable	C - 40 - 11	May, 1998	1 Year
● - Cable	C - 40 - 12	May, 1998	1 Year

Setting of the spectrum analyzer:

RES B.W : 1 MHz Video B.W : 1 MHz
SCALE : LINEAR Sweep Time: 20 msec

Environmental conditions:

Temperature: 16 °C Humidity: 47 %

The measurement of the Emission within the frequency band

was performed in the frequency range of 902 MHz - 928 MHz, in the following test site.

Test location:

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Minoh-Shi, Osaka, 562-0027, Japan

○ - 1st site

○ - 2nd site

● - Shielded room

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - Open site

○ - Shielded room

Used test instruments:

Model No.	Device I.D No.	Last Cal. Date	Cal. Interval
● - 8568B	A - 10	May, 1998	1 Year
○ - 8566B	A - 13		
○ - 8593A	A - 15		
○ - 8673D	B - 2		
● - TR5212	B - 30	March, 1998	1 Year
○ - KBA-511A	C - 16		
● - KBA-611	C - 18	November, 1998	1 Year
○ - 2-10	D - 40		
○ - TRA-603D	D - 24		
○ - 8494H/8595H	D - 76		

Setting of the spectrum analyzer:

RES B.W.: 300 Hz Video B.W.: 1 kHz
SCALE : LOG 10dB/div Sweep Time: 10 sec

Environmental conditions:

Temperature: 24 °C Humidity: 46 %

CONFIGURATION OF EUT

The Equipment Under Test (EUT) consists of:

Description	Applicant (Manufacturer)	Model No. (Serial No.)	FCC ID
900 MHz Cordless Telephone (Handset)	Kyushu Matsushita Electric Co., Ltd. (Kyushu Matsushita Electric Co., Ltd.)	KX-TC1400-B (--)	ACJ96NKX-TC1400

The measurement was carried out with the following equipment connected:

Description	Grantee/Distributor	Model No. (Serial No.)	FCC ID
None			

Type of Interference Cable(s) and the AC Power Cord used with the EUT:

No.	Cable	Shielded	Ferrite Core	Length
	None			

Operation - mode of the EUT:

The EUT was operated during the test under the following specification:

- 1) Radiated emission measurement:
Communicating (transmitting and receiving) with the Base Unit.
- 2) Measurement of the emission within the frequency band:
Inputting the 2.5 kHz sine wave from a microphone terminal.

Test system:

There is not any interface port on the EUT.

Special accessories:

None

Detailed Transmitter Portion:

Transmitting frequency : 926.100 MHz - 927.550 MHz

Detailed Receiver Portion:

Receiving frequency : 902.100 MHz - 903.550 MHz

Local frequency : 891.400 MHz - 892.850 MHz

Intermediate frequency : 10.7 MHz (lower side)

JQA Application No. : KL8080539
Model No. : KX-TC1400-B
FCC ID : ACJ96NKX-TC1400

Regulation : CFR 47 FCC Rules Part 15
Issue Date : December 8, 1998

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EUT Modification

- - No modifications were conducted by JQA to achieve compliance to applied levels.
- - To achieve compliance to applied levels, the following change(s) were made by JQA during the compliance test.

The modification(s) will be implemented in all production models of this equipment.

Applicant : _____ Date :

Typed Name : _____ Position :

Responsible Party

Responsible Party of Test Item(Product) _____

Responsible party :

Contact Person :

Signatory

TEST RESULTS

[Transmitter Portion]

Conducted Emission 450 kHz - 30 MHz

The requirements are	○ - KEPT	○ - NOT KEPT
Min. limit margin	_____ dB	at _____ MHz
Max. limit exceeding	_____ dB	at _____ MHz
Uncertainty of measurement results	_____ dB(2 σ)	_____ dB(2 σ)

Remarks: Not Applicable

Radiated Emission 9 kHz - 10 GHz

The requirements are	● - KEPT	○ - NOT KEPT
Min. limit margin	<u>+ 2.0</u> dB	at <u>926.100</u> MHz
Max. limit exceeding	_____ dB	at _____ MHz
Uncertainty of measurement results		
9 kHz - 30 MHz	<u>+ 2.5</u> dB(2 σ)	<u>- 2.5</u> dB(2 σ)
30 MHz - 1 GHz	<u>+ 4.1</u> dB(2 σ)	<u>- 4.2</u> dB(2 σ)
1 GHz - 10 GHz	<u>+ 3.1</u> dB(2 σ)	<u>- 3.2</u> dB(2 σ)

Remarks: _____

Emission within the frequency band 902 MHz - 928 MHz

The requirements are	● - KEPT	○ - NOT KEPT
Results	Refer to pages <u>24 - 25</u>	
Uncertainty of measurement results	<u>±0.05</u> ppm(2 σ)	

Remarks: _____

[Receiver Portion]

Conducted Emission 450 kHz - 30 MHz

The requirements are	☐ - KEPT	☐ - NOT KEPT
Min. limit margin	_____ dB at _____ MHz	
Max. limit exceeding	_____ dB at _____ MHz	
Uncertainty of measurement results	_____ dB(2 σ)	_____ dB(2 σ)
Remarks: <u>Not Applicable</u>		

Radiated Emission 30 MHz - 2 GHz

The requirements are	☒ - KEPT	☐ - NOT KEPT
Min. limit margin	More than <u>+20.5</u> dB at <u>892.850</u> MHz	
Max. limit exceeding	_____ dB at _____ MHz	
Uncertainty of measurement results		
30 MHz - 1 GHz	<u>+ 4.1</u> dB(2 σ)	<u>- 4.2</u> dB(2 σ)
1 GHz - 2 GHz	<u>+ 3.1</u> dB(2 σ)	<u>- 3.2</u> dB(2 σ)
Remarks: _____		

SUMMARY

GENERAL REMARKS :

The EUT was tested according to the requirements of FCC Rules and Regulations Part 15 Subpart A, B and C (April 17, 1997) under the test configuration, as shown in page 15.

The conclusion for the test items of which are required by the applied regulation is indicated under the final judgement.

FINAL JUDGEMENT :

The "as received" sample;

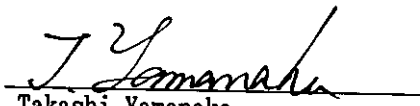
- - fulfill the test requirements of the regulation mentioned on page 3.
- - fulfill the test requirements of the regulation mentioned on page 3, but with certain qualifications.
- - doesn't fulfill the test regulation mentioned on page 3.

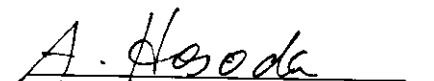
Begin of testing : November 20, 1998

End of testing : November 30, 1998

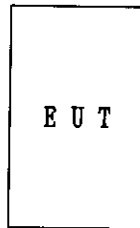
- JAPAN QUALITY ASSURANCE ORGANIZATION -

Approved Signatory :


Takashi Yamanaka
Manager
EMC Div.
JQA KITA-KANSAI Testing Center


Akio Hosoda
Project Manager
EMC Div.
JQA KITA-KANSAI Testing Center

Test System-Arrangement (Drawings)



Power Supply : DC 3.6V (Ni-Cd Battery Pack KX-A36)

Preliminary Test and Test-setup(Drawings)

Radiated Emission (Magnetic Field) 9 kHz - 30 MHz:

The preliminary test was performed according to the description of ANSI C63.4-1992 Sec.13.1.4.1 (Preliminary Radiated Emissions Tests) and Sec.13.1.2 (Equipment Configurations), the preliminary test was carried out to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions and a typical system configuration. In order to find out to the maximum emission, the preliminary test and a final test were performed in accordance with the following steps.

Step 1: One operation mode of the test system was setting.

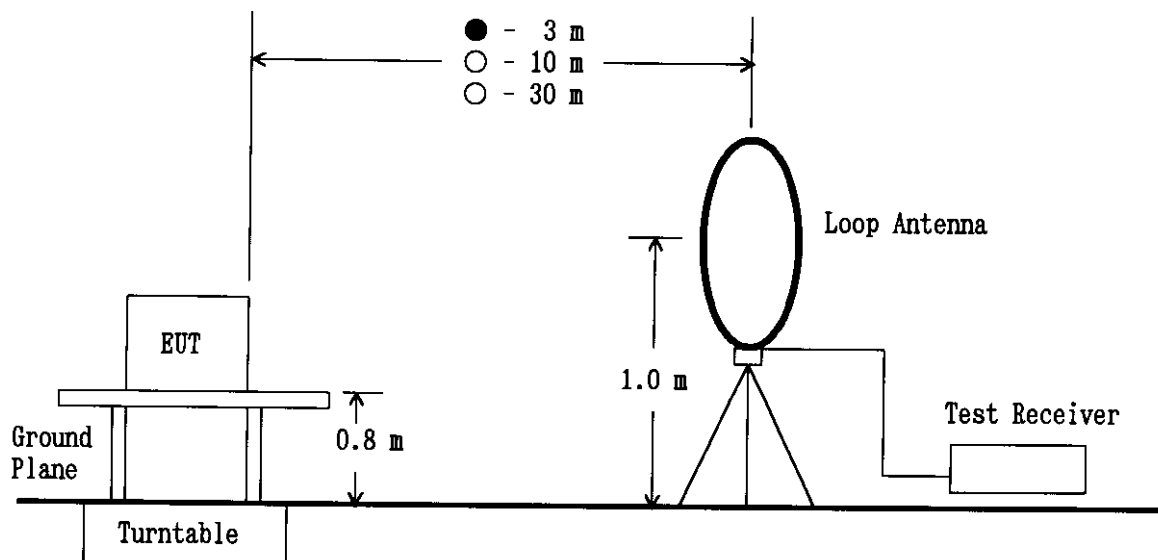
Step 2: In order to investigate the frequencies of maximum emissions, the loop antenna position was approached to the EUT and the significant frequency of the emission's circumstance from the test system were investigated. These data were recorded in the specified frequency band (9 kHz - 30 MHz).

Step 3: Using a test receiver and a loop antenna, the emission's circumstance from the test system was measured in according with ANSI C63.4-1992 Sec.13.1.4.2 (Final Radiated Emissions Tests) at each frequency which was found the higher emission referred to level vs. frequency on the list and which was measured by the loop antenna. The maximum emission was found by rotating three orthogonal axes under a typical system configuration.

Step 4: Return to step 1, if the other operation mode was possible to be setting.

Step 5: The worst result was reported arranging data of which was obtained and performed by one or plural operation modes as the final test.

At the worst point that has the highest amplitude relative to the limit the repeatability of the level was reconfirmed. The photographs of the tests system setup on the worst point were taken and recorded.



Radiated Emission (Electric Field) 30 MHz - 1000 MHz:

The preliminary test was performed according to the description of ANSI C63.4-1992 Sec.13.1.4.1 (or Sec.8.3.1.1) and Sec.13.1.2 (or Sec.11.2), the preliminary test was carried out to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions, and a typical system configuration. In order to find out to the maximum emission, the preliminary test and a final test were performed in accordance with the following steps.

Step 1: One operation mode of the test system was setting.

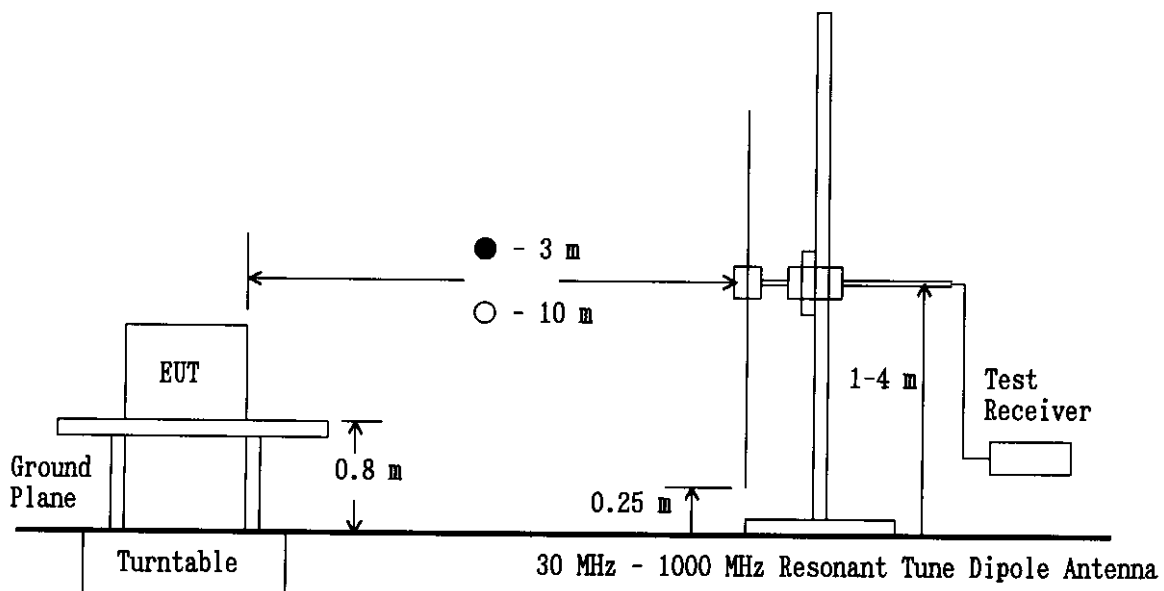
Step 2: Using a test receiver and a test antenna probe, the significant frequency of the emission's circumstance from the test system were investigated. These data were recorded every one of 22 divided bands in the specified frequency band (30 MHz - 1000 MHz).

Step 3: Using a test receiver and a resonant tuned dipole antenna, the emission's circumstance from the test system was measured in according with ANSI C63.4-1992 Sec.13.1.4.2 (or Sec.8.3.1.2) at each frequency which was found the higher emission referred to level vs. frequency on the list and which was measured by the resonant tuned dipole antenna. The maximum emission was found by rotating three orthogonal axes under a typical system configuration.

Step 4: Return to step 1, if the other operation mode was possible to be setting.

Step 5: The worst result was reported arranging data of which was obtained and performed by one or plural operation modes as the final test.

At the worst point that has the highest amplitude relative to the limit the repeatability of the level was reconfirmed. The photographs of the tests system setup on the worst point were taken and recorded.



Radiated Emission (Electric Field) 1 GHz - 10 GHz (or 2 GHz):

The preliminary test was performed according to the description of ANSI C63.4-1992 Sec.13.1.4.1 (or Sec.8.3.1.1) and Sec.13.1.2 (or Sec.11.2), the preliminary test was carried out to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions, and a typical system configuration. In order to find out to the maximum emission, the preliminary test and a final test were performed in accordance with the following steps.

Step 1: One operation mode of the test system was setting.

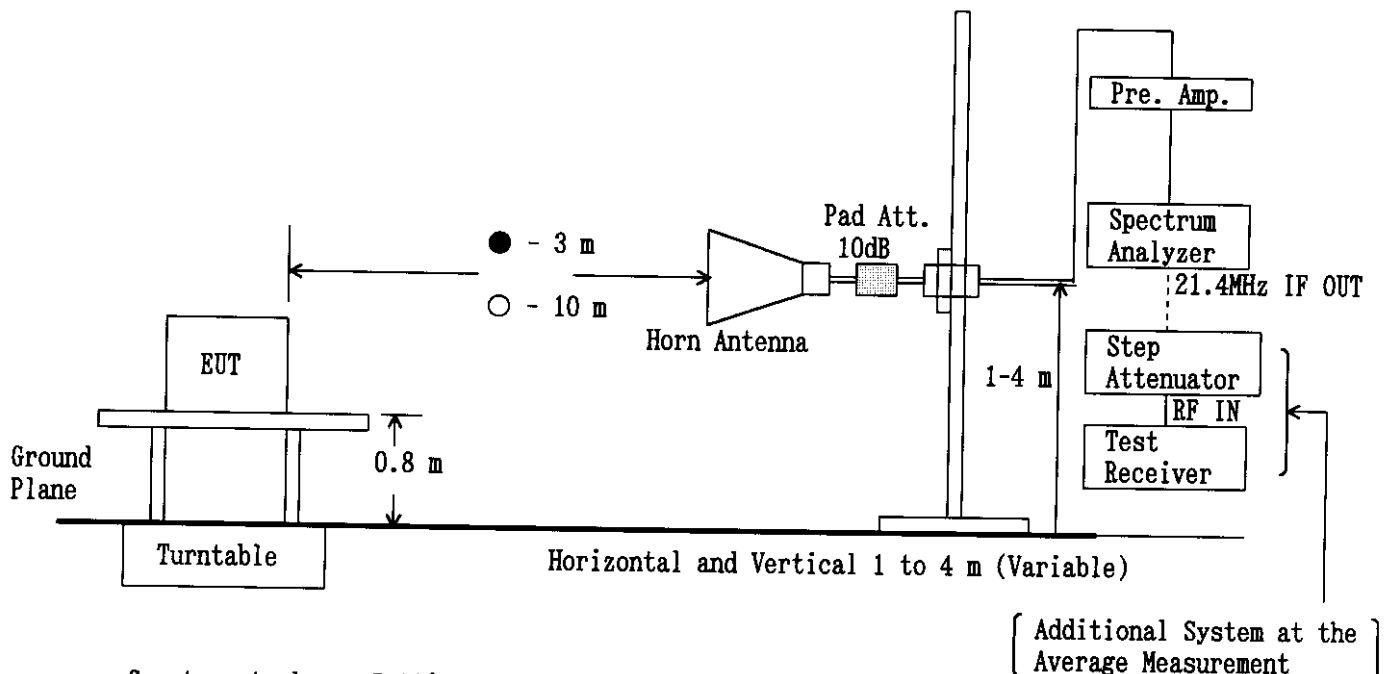
Step 2: In order to investigate the frequencies of maximum emissions, the horn antenna position was approached to the EUT and the significant frequency of the emission's circumstance from the test system were investigated. These data were recorded in the specified frequency band (1 GHz - 10 GHz (or 2 GHz)).

Step 3: The emission's circumstance from the test system was measured in accordance with ANSI C63.4-1992, Sec.13.1.4.2 (or Sec.8.3.1.2) at each frequency which was found higher emission referred to level vs. frequency on the list and which was measured in the specified distance using the horn antenna. The maximum emission was found by rotating three orthogonal axes under a typical system configuration.

Step 4: Return to step 1, if the other operation mode was possible to be setting.

Step 5: The worst result was reported arranging data of which was obtained and performed by one or plural operation modes as the final test.

At the worst point that has the highest amplitude relative to the limit the repeatability of the level was reconfirmed. The photographs of the tests system setup on the the worst point were taken and recorded.



Spectrum Analyzer Setting:

Detector	Peak	*)Average
RES BW	1 MHz	3 MHz
VIDEO BW	1 MHz	3 MHz
SPAN	0 Hz	0 Hz

Test Receiver Setting:

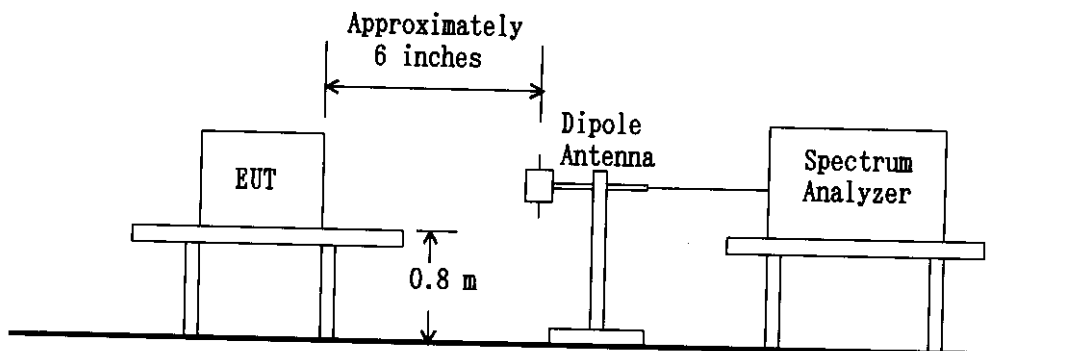
SCALE	LINEAR
I.F.B.W.	1 MHz
Detector	Average

*) For the average measurement, it is made using a test receiver and a step attenuator.

Emission within the Frequency Band 902 MHz - 928 MHz:

The measurement of emission within the band 902 MHz - 928 MHz were made by a spectrum analyzer with a resonant tuned dipole antenna under the following modulation conditions of the transmitter under test.

Input Terminal : Microphone
Input Signal : 2.5 kHz sine wave
Input Level : 0.0 dBV

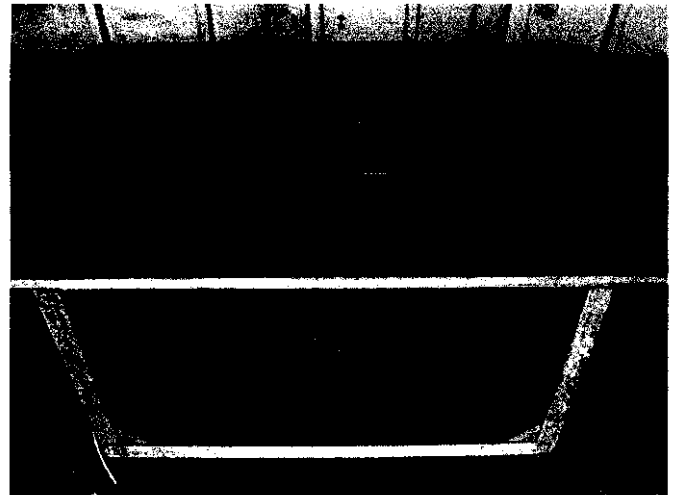


Test-Setup (Photographs) at worst case

Conducted Emission 450kHz - 30MHz:

Radiated Emission 9kHz - 10GHz:

Not Applicable



Electromagnetic Radiation Disturbance Measurement

Intentional Radiator

Based on the test result of every test mode, the mode of operation that produce the conducted emission that has the highest amplitude is shown as follows:

Operating Frequency : 926.100 MHz

Test Date: November 20, 1998

Temp.: 16 °C ; Humi.: 47 %

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μV)		Limits dB(μV/m)	Results dB(μV/m)		Margin [dB]	Remarks (Note 2)
			Hori.	Vert.		Hori.	Vert.		
Fundamental									
926.100	29.2	6.8	56.0	54.0	94.0	92.0	90.0	+ 2.0	A
Harmonics									
1852.200	21.7	-38.6	58.0	44.0	54.0	41.1	27.1	+12.9	B
2778.300	21.6	-31.6	< 30.0	< 30.0	54.0	< 20.0	< 20.0	>+34.0	B
3704.400	34.2	-31.0	< 30.0	< 30.0	54.0	< 33.2	< 33.2	>+20.8	B
4630.500	35.9	-31.2	< 30.0	< 30.0	54.0	< 34.7	< 34.7	>+19.3	B
5556.600	36.9	-31.0	< 30.0	< 30.0	54.0	< 35.9	< 35.9	>+18.1	B
6482.700	36.4	-30.3	< 30.0	< 30.0	54.0	< 36.1	< 36.1	>+17.9	B
7408.800	37.6	-29.5	< 30.0	< 30.0	54.0	< 38.1	< 38.1	>+15.9	B
8334.900	41.3	-37.7	< 30.0	< 30.0	54.0	< 33.6	< 33.6	>+20.4	B
9261.000	39.9	-37.7	< 30.0	< 30.0	54.0	< 32.2	< 32.2	>+21.8	B
Spurious									
463.050	22.5	4.5	2.0	3.0	46.0	29.0	30.0	+16.0	A
1389.150	21.7	-34.8	< 30.0	< 30.0	54.0	< 16.9	< 16.9	>+37.1	B
2315.250	21.4	-31.8	< 30.0	< 30.0	54.0	< 19.6	< 19.6	>+34.4	B
3241.350	22.1	-31.2	< 30.0	< 30.0	54.0	< 20.9	< 20.9	>+33.1	B
4167.450	34.8	-30.9	< 30.0	< 30.0	54.0	< 33.9	< 33.9	>+20.1	B
5093.550	36.7	-31.4	< 30.0	< 30.0	54.0	< 35.3	< 35.3	>+18.7	B
6019.650	36.8	-30.3	< 30.0	< 30.0	54.0	< 36.5	< 36.5	>+17.5	B
6945.750	36.6	-30.1	< 30.0	< 30.0	54.0	< 36.5	< 36.5	>+17.5	B
7871.850	40.8	-37.9	< 30.0	< 30.0	54.0	< 32.9	< 32.9	>+21.1	B
8797.950	40.2	-37.8	< 30.0	< 30.0	54.0	< 32.4	< 32.4	>+21.6	B

Operating Frequency : 927.550 MHz

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μ V)		Limits dB(μ V/m)	Results dB(μ V/m)		Margin [dB]	Remarks (Note 2)
			Hori.	Vert.		Hori.	Vert.		
Fundamental									
927.550	29.2	6.8	55.0	53.0	94.0	91.0	89.0	+ 3.0	A
Harmonics									
1855.100	21.7	-38.6	58.0	42.0	54.0	41.1	25.1	+12.9	B
2782.650	21.6	-31.6	< 30.0	< 30.0	54.0	< 20.0	< 20.0	>+34.0	B
3710.200	34.2	-31.0	< 30.0	< 30.0	54.0	< 33.2	< 33.2	>+20.8	B
4637.750	35.9	-31.2	< 30.0	< 30.0	54.0	< 34.7	< 34.7	>+19.3	B
5565.300	36.9	-31.0	< 30.0	< 30.0	54.0	< 35.9	< 35.9	>+18.1	B
6492.850	36.4	-30.3	< 30.0	< 30.0	54.0	< 36.1	< 36.1	>+17.9	B
7420.400	37.6	-29.5	< 30.0	< 30.0	54.0	< 38.1	< 38.1	>+15.9	B
8347.950	41.3	-37.7	< 30.0	< 30.0	54.0	< 33.6	< 33.6	>+20.4	B
9275.500	39.9	-37.7	< 30.0	< 30.0	54.0	< 32.2	< 32.2	>+21.8	B
Spurious									
463.775	22.6	4.5	1.0	3.0	46.0	29.0	30.0	+16.0	A
1391.325	21.7	-34.7	< 30.0	< 30.0	54.0	< 17.0	< 17.0	>+37.0	B
2318.875	21.4	-31.8	< 30.0	< 30.0	54.0	< 19.6	< 19.6	>+34.4	B
3246.425	22.1	-31.2	< 30.0	< 30.0	54.0	< 20.9	< 20.9	>+33.1	B
4173.975	34.9	-30.9	< 30.0	< 30.0	54.0	< 34.0	< 34.0	>+20.0	B
5101.525	36.7	-31.4	< 30.0	< 30.0	54.0	< 35.3	< 35.3	>+18.7	B
6029.075	36.8	-30.3	< 30.0	< 30.0	54.0	< 36.5	< 36.5	>+17.5	B
6956.625	36.6	-30.1	< 30.0	< 30.0	54.0	< 36.5	< 36.5	>+17.5	B
7884.175	40.8	-37.8	< 30.0	< 30.0	54.0	< 33.0	< 33.0	>+21.0	B
8811.725	40.2	-37.8	< 30.0	< 30.0	54.0	< 32.4	< 32.4	>+21.6	B

Sample of calculated result at 926.100 MHz, as the Minimum Margin point:

Antenna Factor = 29.2 dB(1/m)
Corr. Factor = 6.8 dB
+) Meter Reading = 56.0 dB(μ V/m)
Result = 92.0 dB(μ V/m)

Minimum Margin : 94.0 - 92.0 = 2.0(dB)

The point shown on "____" is the Minimum Margin Point.

Note 1:

- 1)The highest frequency generated or used in the EUT: 927.550 MHz
- 2)The upper frequency of measurement range : 9275.500 MHz
- 3)The spectrum was scanned 9 kHz to 9275.5 MHz and all emissions not reported were more than 20dB below the applied limits.
- 4)Corr. Factor (30 MHz - 1 GHz) : Cable Loss(dB)
Corr. Factor (1 GHz - 10 GHz) : Cable Loss(dB) + 10dB Pad Attenuator(dB) - Pre-Amplifier Gain(dB)

Remarks:

Note 2	Detector Function	IF Bandwidth
A	CISPR QP	120 KHz

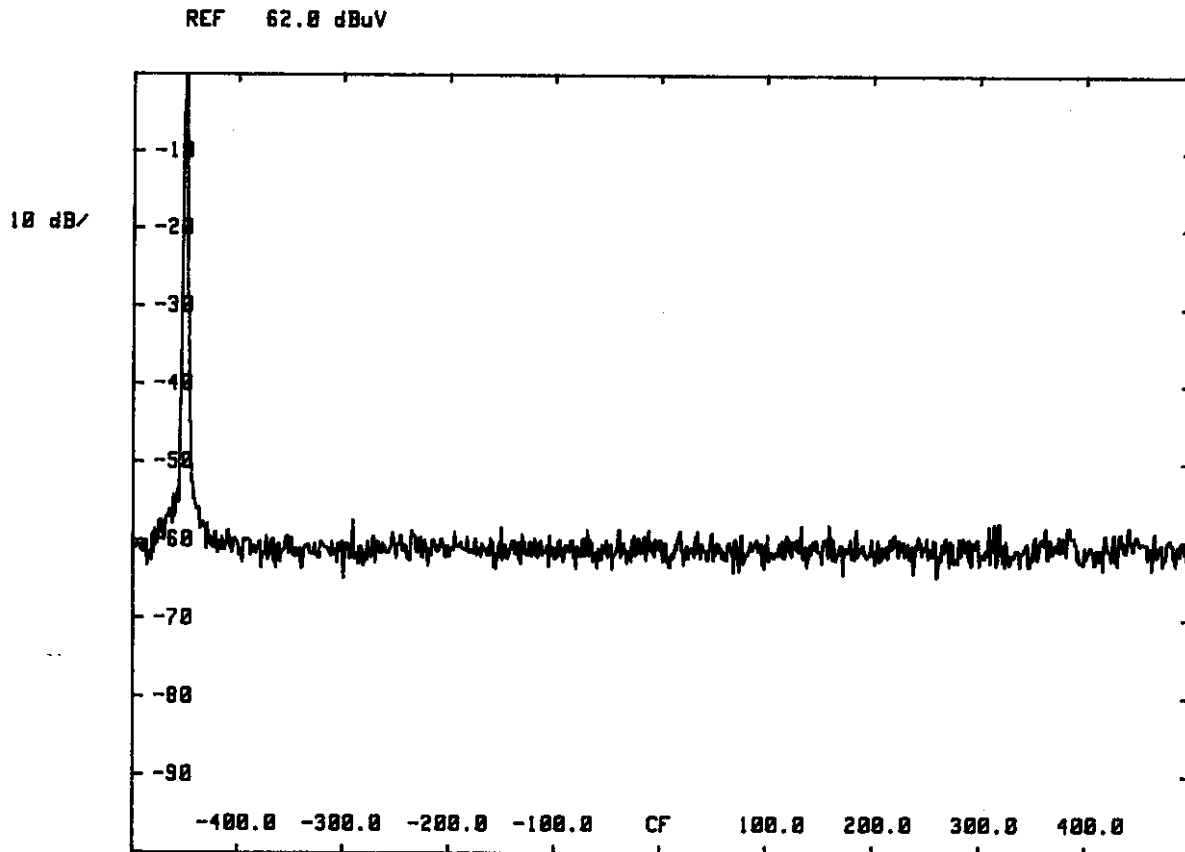
Note 2	Detector Function	RES. B.W	V.B.W	Sweep T	Span
B	Peak (SP)	1 MHz	1 MHz	20 msec	0 Hz
C	Peak (SP)	100 kHz	100 kHz	20 msec	0 Hz
*) D	Average (ESV)	1 MHz (3 MHz)	3 MHz	20 msec	0 Hz

():Setting of spectrum analyzer

*)For the average measurement method, it is made measurement using a test receiver, a step attenuator and a spectrum analyzer.

Tester Signature : A - Hosoda
Type Name : Akio Hosoda

EMISSION LIMITATION



CENTER 928.0000 MHz

RES BW .3 kHz

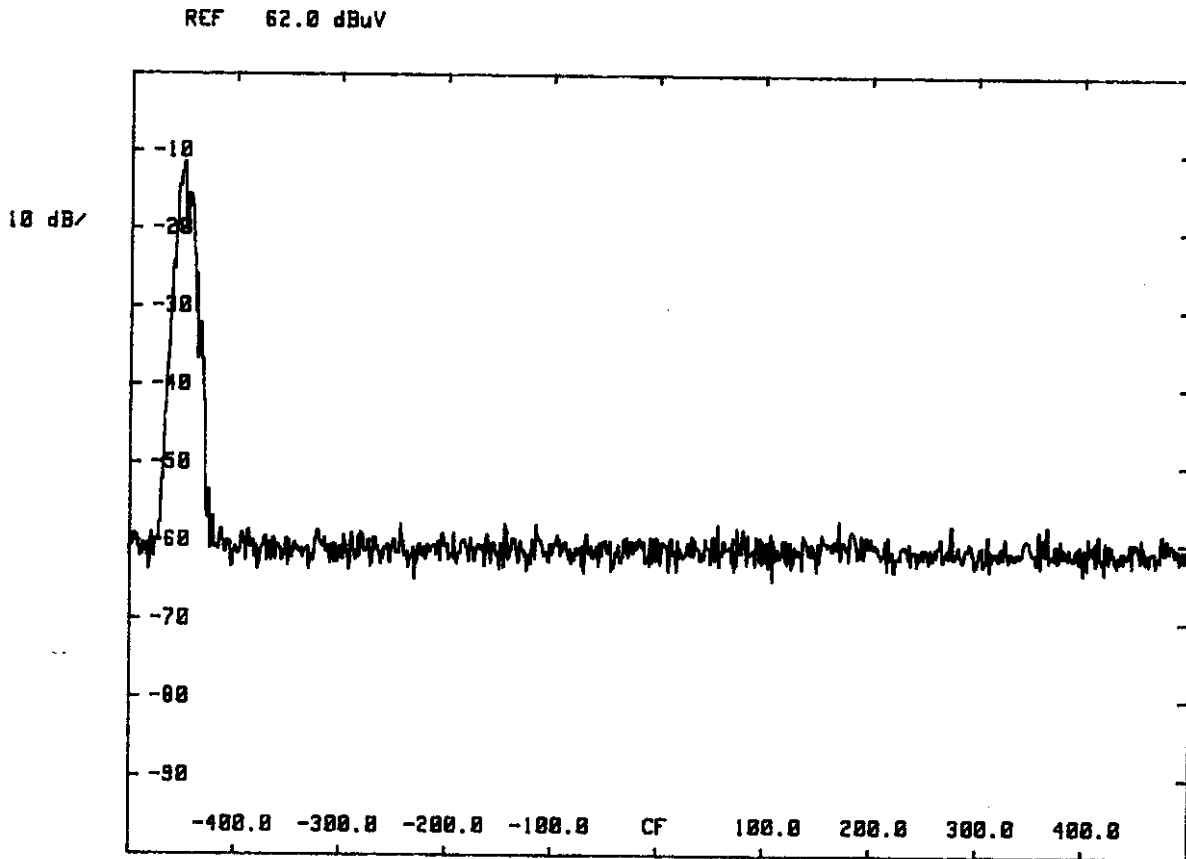
VBW 1 kHz

SPAN 1000.0 kHz

SWP 10.0 sec

Reference Carrier Level

EMISSION LIMITATION



CENTER 920.0000 MHz

RES BW .3 kHz

VBW 1 kHz

SPAN 1000.0 kHz

SWP 10.0 sec

Modulation: 2.5kHz TONE

Electromagnetic Radiation Disturbance Measurement

Receiver (employing superheterodyne techniques)

Based on the test result of every test mode, the mode of operation that produce the conducted emission that has the highest amplitude is shown as follows:

Test Date: November 20, 1998
 Temp.: 16 °C ; Humi.: 47 %

Tuning Frequency : 902.100 MHz

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μV)		Limits dB(μV/m)	Results dB(μV/m)		Margin [dB]	Remarks (Note 2)
			Hori.	Vert.		Hori.	Vert.		
445.700	22.2	4.4	< -5.0	< -5.0	46.0	< 21.6	< 21.6	>+24.4	A
891.400	28.8	6.6	< -10.0	< -10.0	46.0	< 25.4	< 25.4	>+20.6	A
1337.100	21.5	-35.2	< 30.0	< 30.0	54.0	< 16.3	< 16.3	>+37.7	B
1782.800	21.9	-38.7	< 30.0	< 30.0	54.0	< 13.2	< 13.2	>+40.8	B

Tuning Frequency : 903.550 MHz

Frequency [MHz]	Antenna Factor dB(1/m)	Corr. Factor [dB]	Meter Readings dB(μV)		Limits dB(μV/m)	Results dB(μV/m)		Margin [dB]	Remarks (Note 2)
			Hori.	Vert.		Hori.	Vert.		
446.425	22.2	4.4	< -5.0	< -5.0	46.0	< 21.6	< 21.6	>+24.4	A
892.850	28.8	6.7	< -10.0	< -10.0	46.0	< 25.5	< 25.5	>+20.5	A
1339.275	21.5	-35.2	< 30.0	< 30.0	54.0	< 16.3	< 16.3	>+37.7	B
1785.700	21.9	-38.7	< 30.0	< 30.0	54.0	< 13.2	< 13.2	>+40.8	B

Sample of calculated result at 892.850 MHz, as the Minimum Margin point:

Antenna Factor = 28.8 dB(1/m)
Corr. Factor = 6.7 dB
+) Meter Reading = < -10.0 dB(μV/m)
Result = < 25.5 dB(μV/m)

Minimum Margin : 46.0 - <25.5 = >20.5(dB)

The point shown on "___" is the Minimum Margin Point.

Note 1:

- 1) The highest frequency generated or used in the EUT: 892.850 MHz
- 2) The upper frequency of measurement range : 1785.700 MHz
- 3) The spectrum was scanned 30 MHz to 1785.7 MHz and all emissions not reported were more than 20dB below the applied limits.
- 4) Corr. Factor (30 MHz - 1GHz) : Cable Loss(dB)
Corr. Factor (1GHz - 2 GHz) : Cable Loss(dB) + 10dB Pad Attenuator(dB) - Pre-Amplifier Gain(dB)

Remarks:

Note 2	Detector Function	IF Bandwidth
A	CISPR QP	120 KHz

Note 2	Detector Function	RES. B.W	V.B.W	Sweep T	Span
B	Peak (SP)	1 MHz	1 MHz	20 msec	0 Hz
C	Peak (SP)	100 kHz	100 kHz	20 msec	0 Hz
*) D	Average (ESV)	1 MHz (3 MHz)	3 MHz	20 msec	0 Hz

(): Setting of spectrum analyzer

*) For the average measurement method, it is made measurement using a test receiver, a step attenuator and a spectrum analyzer.

Tester Signature : A. Hosoda

Type Name : Akio Hosoda