TEST REPORT

Issue Date: December 17, 2004

Roland Report No.	:	RJA02504
Manufacturer	:	Roland Corporation 5-3, Shinmiyakoda 1-chome, Hamamatsu, Shizuoka, 431-2103 JAPAN PHONE (053) 428-5095, FAX (053) 428-5097
Description of Device	:	Digital Intelligent Piano
a) Category	:	Class B personal computers & peripherals
b) FCC ID	:	SOPHPI-7LE
c) Trade Name	:	Roland
d) Model No.	:	HP-i7LE
e) Serial No.	:	Sample 01
f) Date of Manufacture	:	September 22, 2004
g) Power Supply	:	117 V AC 60 Hz
h) EUT Grounding	:	None
Regulation Applied and Measurement Procedure	:	■ FCC Rules and Regulations Part 15 Subpart B ANSI C63.4-2003
Measurement Results	:	The results obtained from the measuring of the above-mentioned device are as shown in the attached sheets.
Test Result	:	Passed

Approved by:

Keigo Minamiya
Producer
Roland Corp. Piano Development Dept.

Issued by:

Takeshi Mihara
Roland Corp. Piano Development Dept.

1. TEST CONDITIONS

1.1 AC Powerline Conducted Emissions (0.15 – 30 MHz)

1.1.1 Test Location:

Roland Corporation, Miyakoda Testing Laboratory
5-3, Shinmiyakoda 1-chome, Hamamatsu, Shizuoka, 431-2103 JAPAN
PHONE (053) 428-5095, FAX (053) 428-5097

Shielded Room

1.1.2 Measuring Instrument(s) Used:

Description	Manufacturer	Model No.	Serial No.	Last Cal.	Interval
AMN (for EUT)	Kyoritsu	KNW-407	8-532-8	Aug. 9, 2004	1 Year
AMN (for Peripherals)	Kyoritsu	KNW-407	8-1512-2	Aug. 9, 2004	1 Year
Field Strength Meter	Rohde & Schwarz	ESHS10	100002	Aug. 10, 2004	1 Year
Spectrum Analyzer	Hewlett Packard	E7402A	US39150157	Aug. 14, 2004	1 Year
Transient Limiter (for Spectrum Analyzer)	Agilent Technologies	11947A	3107A03236	Aug. 19, 2004	1 Year
Pulse Limiter (for Field Strength Meter)	Rohde & Schwarz	ESH3-Z2	100018	Aug. 19, 2004	1 Year
Termination (50Ω)	Stack Electronics	T1302	-	Aug. 18, 2004	1 Year

1.1.3 Setting of Field Strength Meter:

Quasi-Peak Detector
IF Bandwidth : 10 kHz
Average Detector
IF Bandwidth : 10 kHz

1.1.4 Environmental Conditions:

Temperature : 21.6 ℃
Humidity : 35.1 %

1.1.5 Date of Measurement:

Nov. 30, 2004

1.1.6 Note:

1.2 Radiated Emissions (30 – 1000 MHz)

1.2.1 Test Location:

Roland Corporation, Miyakoda Testing Laboratory
5-3, Shinmiyakoda 1-chome, Hamamatsu, Shizuoka, 431-2103 JAPAN
PHONE (053) 428-5095, FAX (053) 428-5097

Open Field Test Site

1.2.2 Measuring Instrument(s) Used:

Description	Manufacturer	Model No.	Serial No.	Last Cal.	Interval
Field Strength Meter	Rohde & Schwarz	ESCS30	100154	Aug. 10, 2004	1 Year
Spectrum Analyzer	Hewlett Packard	8546A	3807A00432	Aug. 16, 2004	1 Year
Biconical Antenna	Schwarzbeck	BBA9106	2229	Aug. 11, 2004	1 Year
Log-Periodic Antenna	Schwarzbeck	UHALP9108-A	0364	Aug. 11, 2004	1 Year
Pre Amplifier	Hewlett Packard	8447D	2648A04740	Aug. 9, 2004	1 Year
Antenna Pad 6 dB (for Biconical Antenna)	Anritsu	MP721B	6200313790	Aug. 10, 2004	1 Year
Antenna Pad 6 dB (for Log-Periodic Antenna)	Anritsu	MP721B	6200313788	Aug. 10, 2004	1 Year

1.2.3 Setting of Field Strength Meter:

Quasi-Peak Detector
IF Bandwidth : 120 kHz

1.2.4 Environmental Conditions:

Temperature : 22.9 ℃
Humidity : 30.9 %

1.2.5 Date of Measurement:

December 13, 2004

1.2.6 Note:

1.3 Radiated Emissions (1 – 2 GHz)

1.3.1 Test Location:

Roland Corporation, Miyakoda Testing Laboratory
5-3, Shinmiyakoda 1-chome, Hamamatsu, Shizuoka, 431-2103 JAPAN
PHONE (053) 428-5095, FAX (053) 428-5097

Open Field Test Site

1.3.2 Measuring Instrument(s) Used:

Description	Manufacturer	Model No.	Serial No.	Last Cal.	Interval
Field Strength Meter	Rohde & Schwarz	ESCS30	100154	Aug. 10, 2004	1 Year
Spectrum Analyzer	Hewlett Packard	8546A	3807A00432	Aug. 16, 2004	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120A	379	Aug. 12, 2004	1 Year
Pre Amplifier	Agilent Technologies	8449B	3008A01690	Aug. 18, 2004	1 Year

1.3.3 Setting of Spectrum Analyzer:

Peak Detector
IF Bandwidth : 1 MHz
Average Detector
IF Bandwidth : 1 MHz

1.3.4 Environmental Conditions:

Temperature : 22.9 ℃
Humidity : 30.9 %

1.3.5 Date of Measurement:

December 13, 2004

1.3.6 Note:

There was no disturbance noise which could be measured.

2. CONFIGURATION OF EUT

2.1 The Equipment Under Test (EUT) consists of:

Description	Manufacturer	Model No.	Serial No.	FCC ID
Digital Intelligent Piano	Roland	HPI7LE	Sample 01	SOPHPI-7LE
Piano Stand	Roland	KSC-22	Sample 01	N/A

2.2 The measurement was carried out with the following equipment(s) connected:

Description	Manufacturer	Model No.	Serial No.	FCC ID
Monitor Speaker	Roland	MA-12C	ZA92697	N/A
Music Player	Roland	MT-300S	ZP84826	N/A
Headphones	Roland	RH-25	-	N/A
Headphones	Roland	RH-25	-	N/A
Microphone	Roland	DR-10	-	N/A
Display	DELL	E151FPb	CN-04W569-46633-32H-3KLU REV A00	DoC
Personal Computer	DELL	DHP	7W2Y71X	DoC
Display	SAMSUNG	GH15LS	NB15HMEW903485T	DoC
Intelli Mouse	DELL	63618-OEM	1795193-61003	DoC
Keyboard	DELL	SK-8110	CN-07N247-38842-33Q-1H91	DoC
OrCAD Protect Key	Rainbow Technologies	SENTINEL	-	IVZSPRO1188

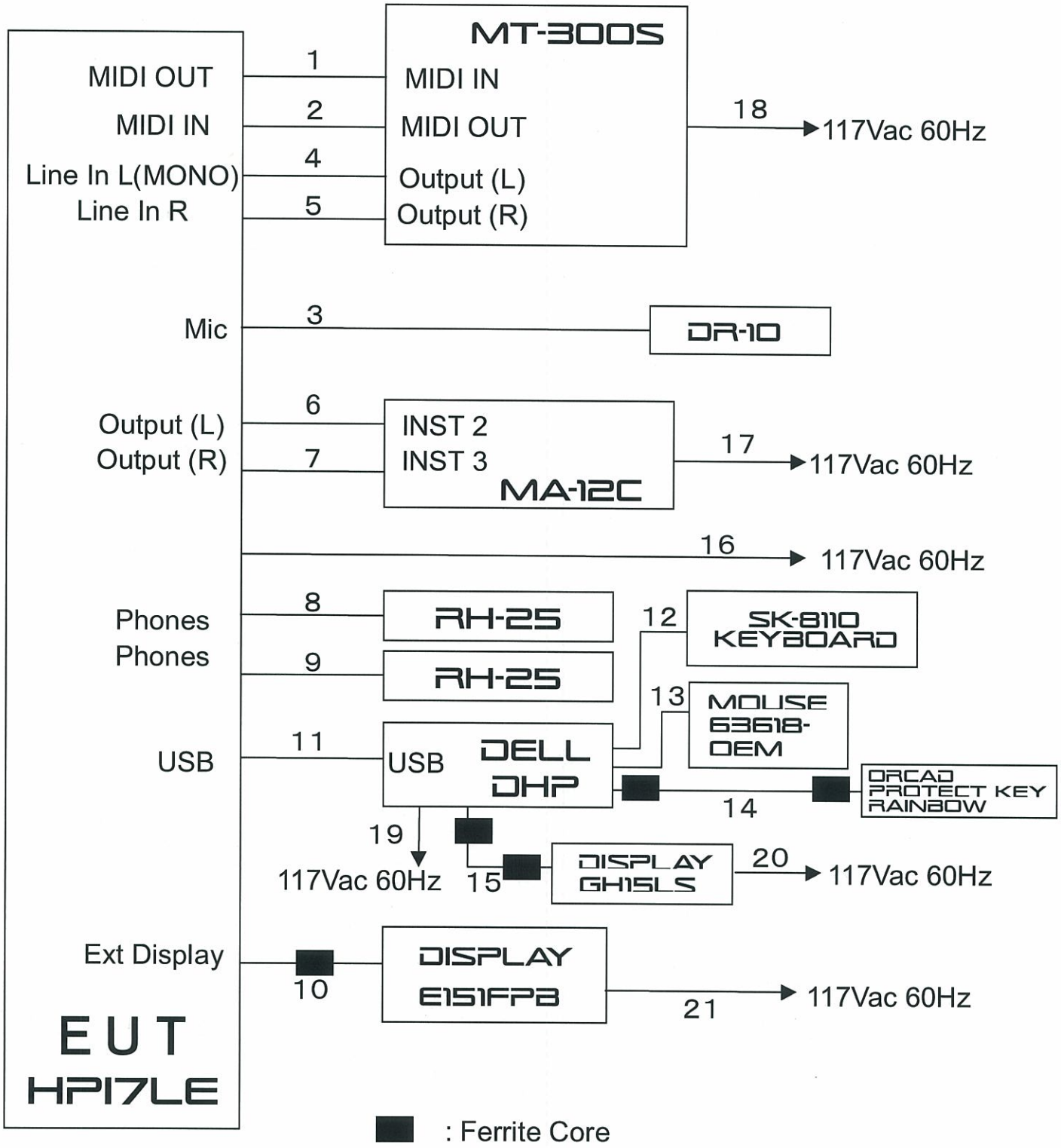
2.3 Operating Conditions of the EUT:

The MIDI data "1_16.mid" played by the Model DHP was inputted into the EUT.
And also the MIDI data "1_16.mid" played by the MT-300S was inputted into the EUT.
The "H" characters, as per ANSI C63.4-1992, was displayed on the screen of the EUT.
And the demo songs which were categorized at "Masterpieces" were played on the EUT.

2.4 Type of Interface Cable(s):

Cable No.	Description	Shielded	Ferrite Core	Connector	Length
1	MIDI Cable	Yes	No	Metal	2.5 m
2	MIDI Cable	Yes	No	Metal	2.5 m
3	Mic Cable	Yes	No	Metal	4.5 m
4	Audio Cable	Yes	No	Metal	2.5 m
5	Audio Cable	Yes	No	Metal	2.5 m
6	Audio Cable	Yes	No	Metal	2.5 m
7	Audio Cable	Yes	No	Metal	2.5 m
8	Phones Cable	Yes	No	Metal	2.5 m
9	Phones Cable	Yes	No	Metal	2.5 m
10	Display Cable	Yes	Yes	Metal	4.7 m
11	USB Cable	Yes	No	Metal	3.0 m
12	Keyboard Cable	Yes	No	Metal	2.1 m
13	Mouse Cable	Yes	No	Metal	1.8 m
14	Display Cable	Yes	Yes	Metal	1.8 m
15	Parallel Cable	Yes	Yes	Metal	0.8 m
16	AC Power Cable (EUT)	No	No	Non-Metal	2.5 m
17	AC Power Cable (Micro Monitor)	No	No	Non-Metal	2.3 m
18	AC Power Cable (Music Player MT-300S)	No	No	Non-Metal	2.4 m
19	AC Power Cable (Personal Computer)	No	No	Non-Metal	1.9 m
20	AC Power Cable (Display)	No	No	Non-Metal	1.9 m
21	AC Power Cable (Display)	No	No	Non-Metal	1.9 m

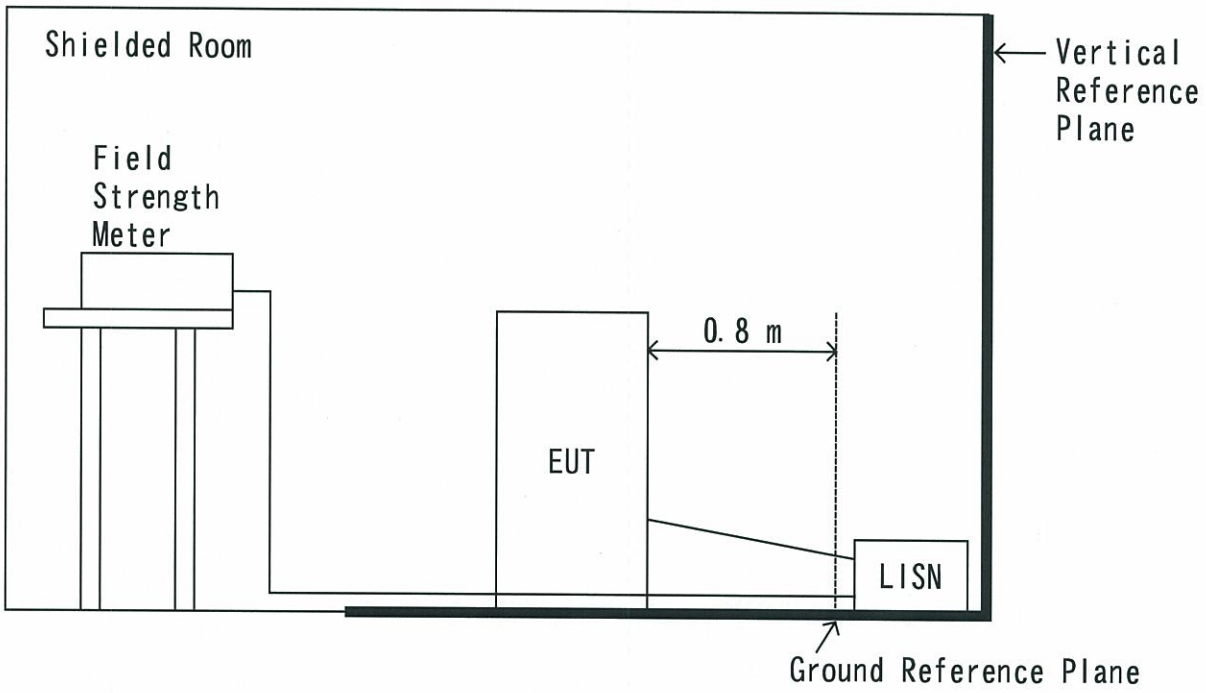
2.5 Arrangement of the Interface Cable(s):



3. TEST SET-UP

3.1 AC Powerline Conducted Emissions (0.15 – 30 MHz)

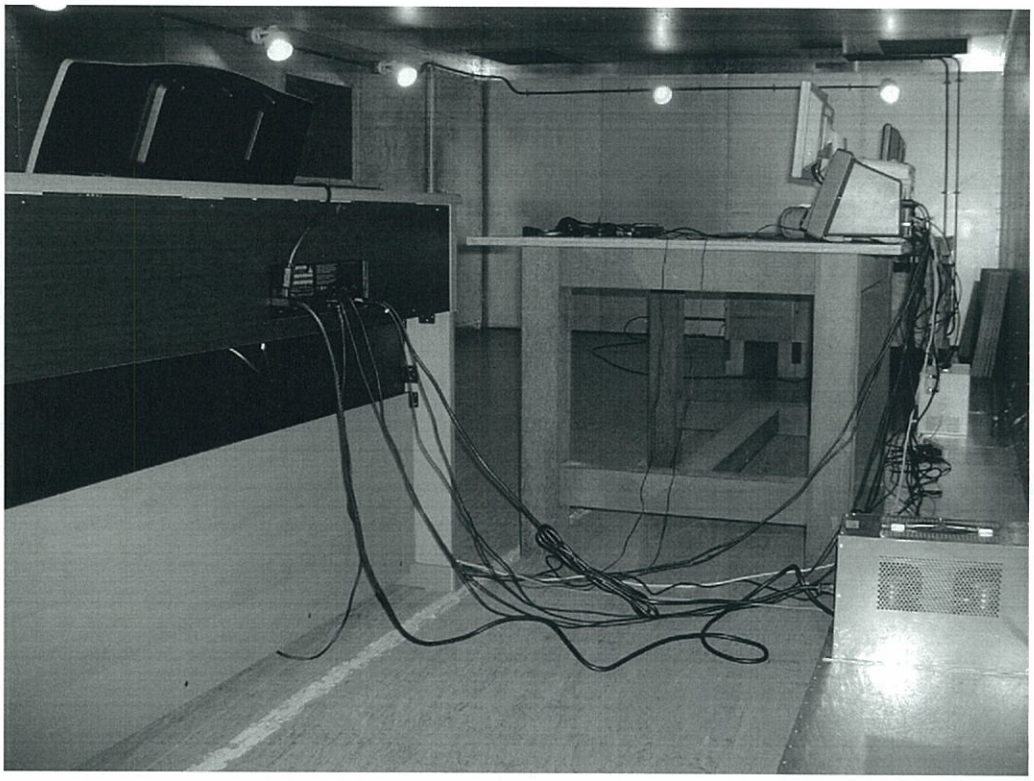
3.1.1 Test Set-up Sketch:



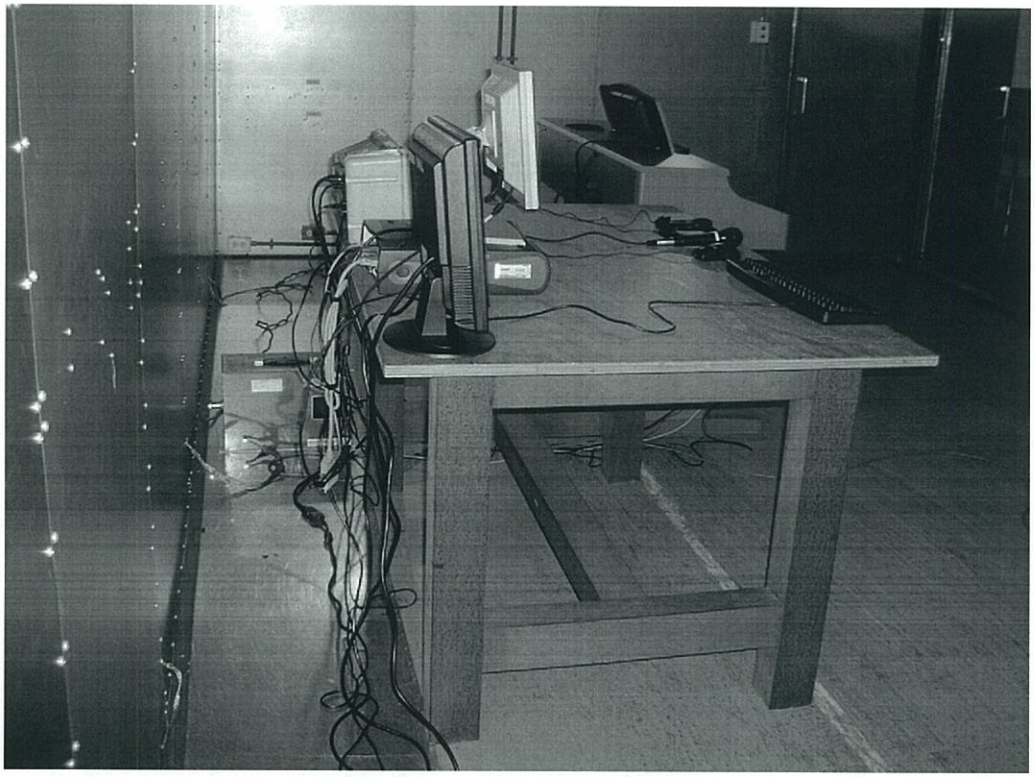
3.1.2 Photograph(s) of Maximum Emission Set-up:

Front View

Rear View

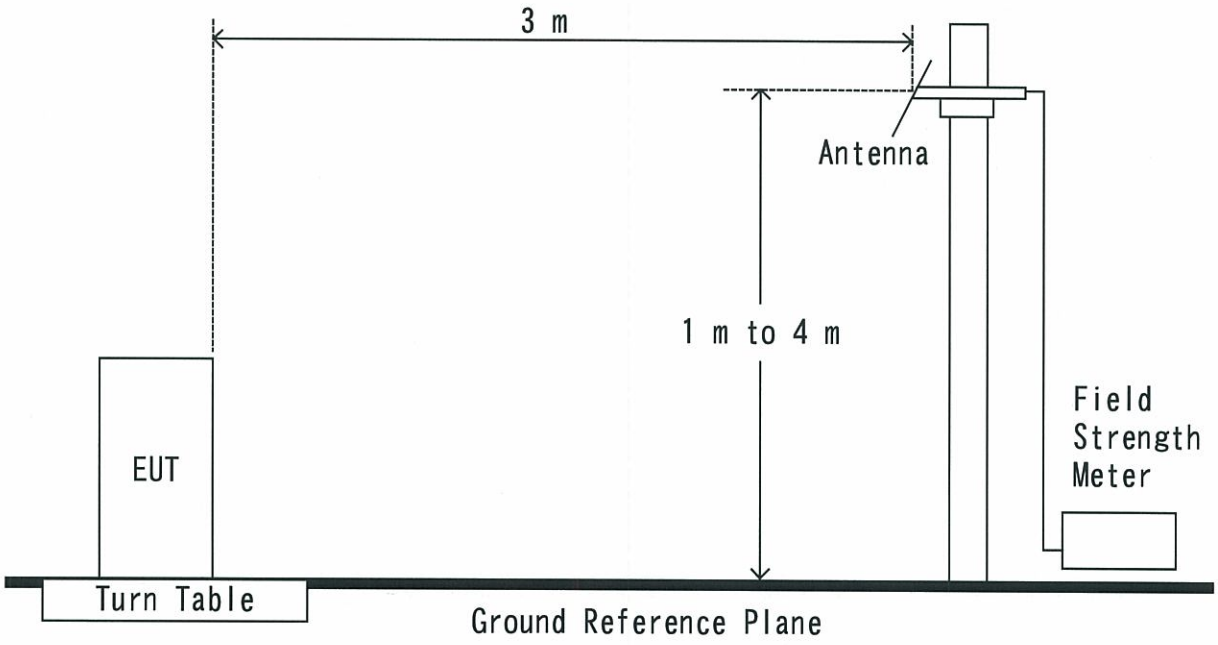


Rear View



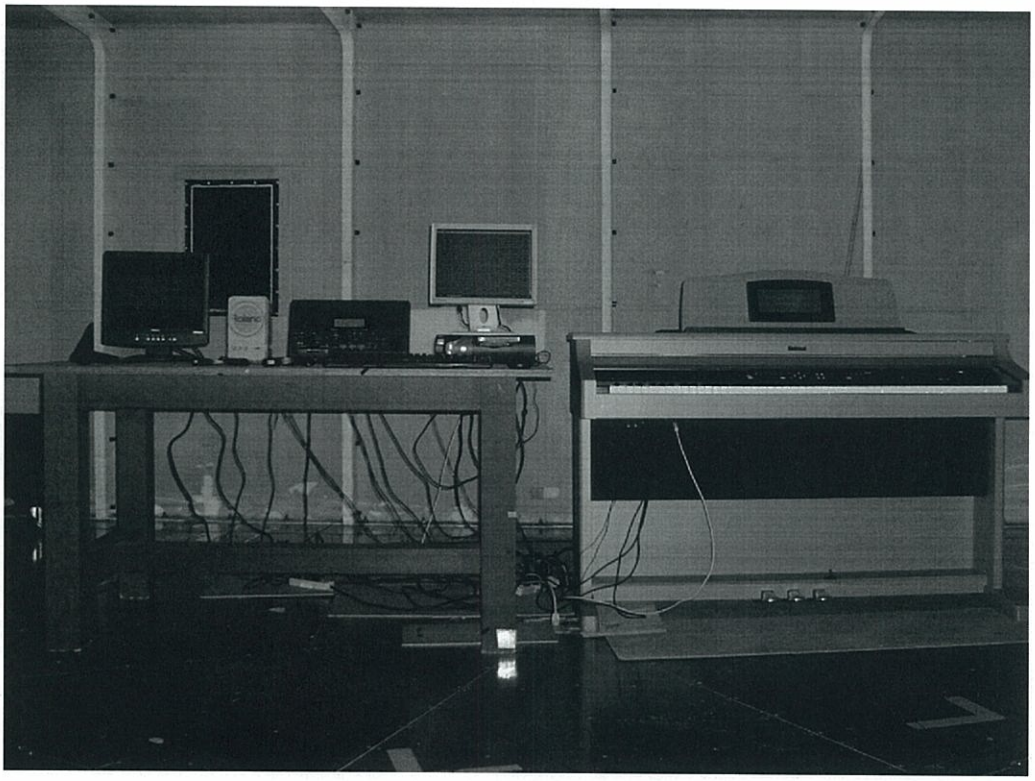
3.2 Radiated Emissions (30 – 1000 MHz)

3.2.1 Test Set-up Sketch:

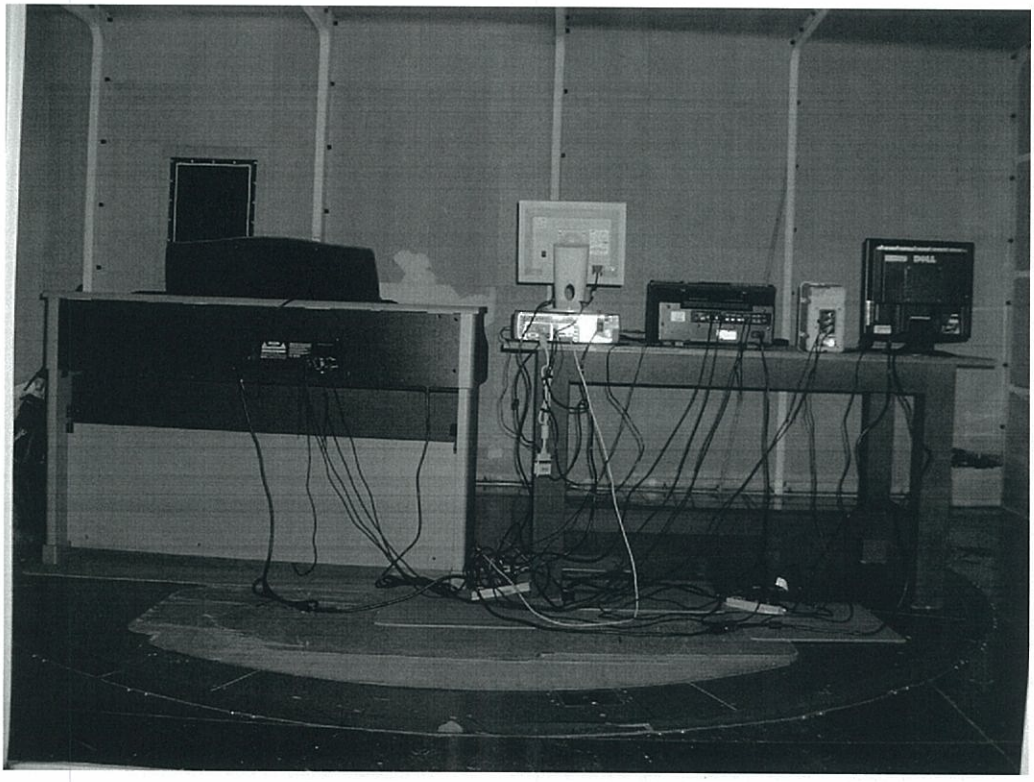


3.2.2 Photograph(s) of Maximum Emission Set-up

Front View



Rear View



AC POWERLINE CONDUCTED EMISSIONS

Model No.: HPI7LE-MH

Date: 2004.11.30

Temp.: 21.6 ℃ Humi.: 35.1 %

Frequency	Correction Factor	Kind of Detector	Meter Reading		Limit	Disturbance Level		Margin	
			V-A	V-B		V-A	V-B	V-A	V-B
MHz	dB	QP/AVE	dB(uV)	dB(uV)	dB(uV)	dB(uV)	dB(uV)	dB	dB
0.16	0.2	QP	23.3	24.9	65.7	23.5	25.1	42.2	40.6
0.21	0.1	QP	24.9	28.9	63.2	25.0	29.0	38.2	34.2
0.26	0.1	QP	25.9	21.2	61.4	26.0	21.3	35.4	40.1
1.74	0.2	QP	29.7	31.1	56.0	29.9	31.3	26.1	24.7
4.72	0.3	QP	35.2	34.1	56.0	35.5	34.4	20.5	21.6
6.29	0.3	QP	41.0	39.3	60.0	41.3	39.6	18.7	20.4
8.11	0.5	QP	39.9	37.6	60.0	40.4	38.1	19.6	21.9
8.63	0.6	QP	41.8	39.2	60.0	42.4	39.8	17.6	20.2
9.44	0.6	QP	45.9	42.4	60.0	46.5	43.0	13.5	17.0
9.44	0.6	AVE	39.7	36.1	50.0	40.3	36.7	9.7	13.3
10.14	0.6	QP	36.4	33.1	60.0	37.0	33.7	23.0	26.3
11.89	0.6	QP	31.9	28.3	60.0	32.5	28.9	27.5	31.1
15.73	0.8	QP	32.2	28.3	60.0	33.0	29.1	27.0	30.9

(Ver. 2004.08.19)

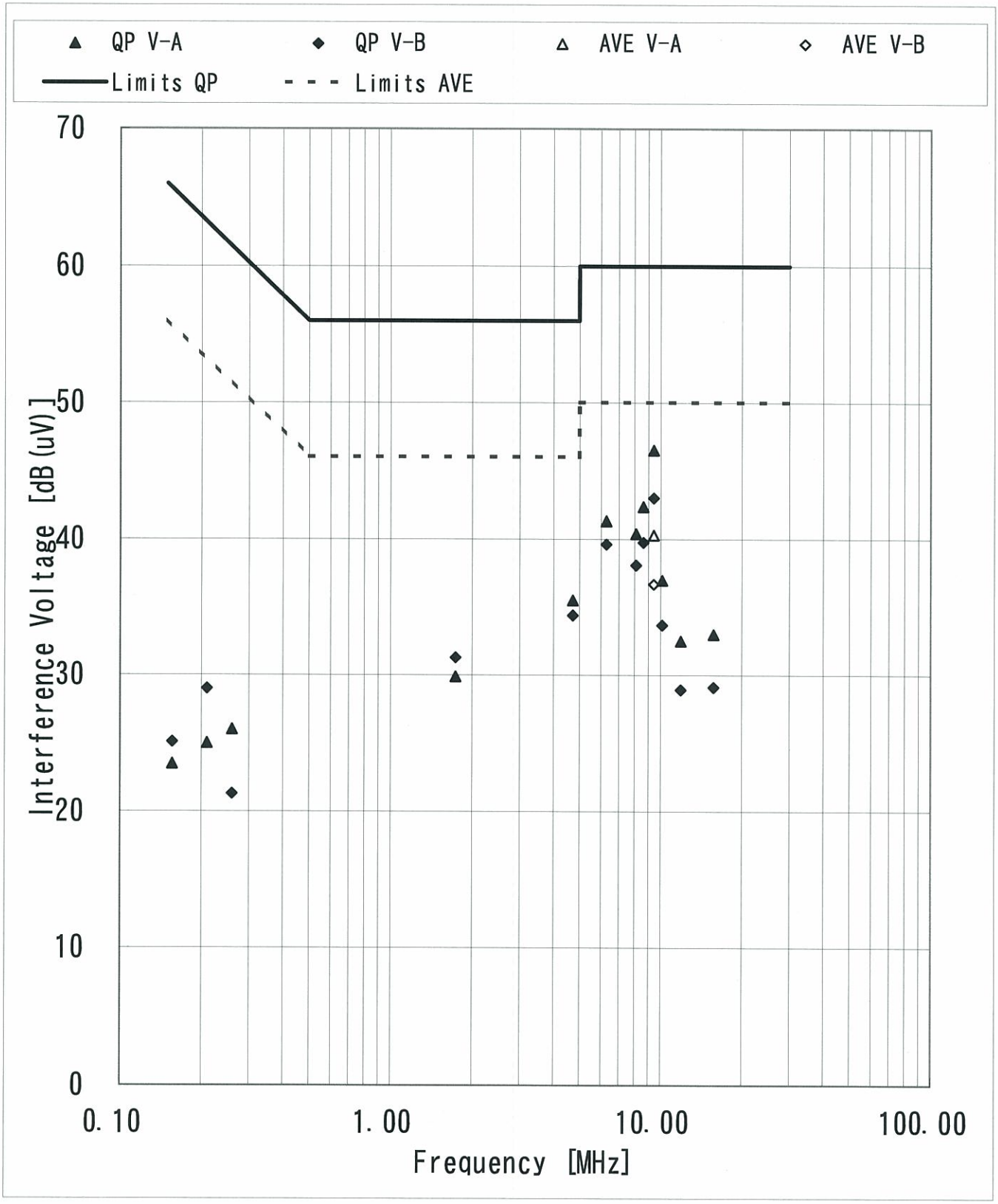
Notes: 1) The correction factor contains the LISN factor, cable loss and insertion loss of pulse limiter.
2) V-A: One end & Ground ; V-B: The other end & Ground
3) QP: Quasi-Peak Detector ; AVE: Average Detector
4) The symbol of (-) means that disturbance voltage could not be measured.
5) Disturbance Level[dBuv]= Meter Reading[dBuV] + Correction Factor[dBuv](LISN ,Cable)

Tested by:

Takeshi Mihara

AC POWERLINE CONDUCTED EMISSIONS

Model No.: HPI7LE-MH



RADIATED EMISSIONS

Model No.: HPI7LE-MH

Date: 2004.12.13
Temp.: 22.9 ℃ Humi.: 30.9 %

Frequency	Corr. Factor	Meter Reading at 3 m		Limit	Emission Level at 3 m		Horizontal		Vertical		Margin	
		Horizontal	Vertical		Horizontal	Vertical	Table Angle	Antenna Height	Table Angle	Antenna Height	Horizontal	Vertical
MHz	dB	dB(uV)	dB(uV)	dB(uV/m)	dB(uV/m)	dB(uV/m)	Deg.	m	Deg.	m	dB	dB
33.04	-3.7	24.0	34.9	40.0	20.3	31.2	180	4.00	80	1.00	19.7	8.8
34.61	-4.3	23.6	32.9	40.0	19.3	28.6	149	4.00	60	1.00	20.7	11.4
49.15	-8.8	30.6	36.1	40.0	21.8	27.3	292	4.00	126	1.00	18.2	12.7
98.30	-10.2	41.1	41.0	43.5	30.9	30.8	256	3.13	168	1.00	12.6	12.7
106.49	-8.5	41.4	45.1	43.5	32.9	36.6	305	2.98	193	1.00	10.6	6.9
131.07	-5.2	38.0	34.5	43.5	32.8	29.3	276	2.41	165	1.00	10.7	14.2
146.76	-4.3	31.6	38.6	43.5	27.3	34.3	6	2.18	45	1.00	16.2	9.2
152.40	-4.1	34.8	40.7	43.5	30.7	36.6	6	2.15	65	1.00	12.8	6.9
158.05	-3.9	34.0	39.4	43.5	30.1	35.5	21	1.84	67	1.00	13.4	8.0
169.34	-3.1	31.1	38.0	43.5	28.0	34.9	344	1.85	68	1.00	15.5	8.6
180.63	-2.4	33.4	37.1	43.5	31.0	34.7	15	1.73	64	1.00	12.5	8.8
191.92	-1.9	33.3	37.0	43.5	31.4	35.1	31	1.80	54	1.00	12.1	8.4
197.99	-1.6	36.7	38.8	43.5	35.1	37.2	130	1.73	302	1.00	8.4	6.3
203.21	-1.5	30.8	36.1	43.5	29.3	34.6	135	1.55	160	1.00	14.2	8.9
263.99	0.0	36.2	35.5	46.0	36.2	35.5	58	1.35	331	1.00	9.8	10.5
287.99	1.5	33.5	32.5	46.0	35.0	34.0	80	1.00	28	1.00	11.0	12.0
338.68	-2.6	39.0	33.4	46.0	36.4	30.8	96	1.00	49	2.00	9.6	15.2
609.63	3.8	29.6	31.9	46.0	33.4	35.7	74	1.64	142	2.00	12.6	10.3
643.50	4.3	27.2	33.0	46.0	31.5	37.3	94	1.82	38	1.15	14.5	8.7
659.99	4.6	28.1	32.1	46.0	32.7	36.7	150	1.79	38	1.08	13.3	9.3
677.36	4.9	24.9	32.9	46.0	29.8	37.8	150	1.79	38	1.08	16.2	8.2
683.01	4.9	22.5	29.7	46.0	27.4	34.6	224	2.00	39	1.21	18.6	11.4
688.65	5.0	22.8	31.2	46.0	27.8	36.2	52	2.10	36	1.22	18.2	9.8
694.30	5.1	23.5	30.6	46.0	28.6	35.7	51	2.11	36	1.00	17.4	10.3
699.94	5.2	24.6	32.2	46.0	29.8	37.4	47	2.14	36	1.14	16.2	8.6
705.59	5.3	23.8	30.0	46.0	29.1	35.3	47	2.17	41	1.00	16.9	10.7
711.23	5.4	26.1	32.6	46.0	31.5	38.0	45	2.37	34	1.09	14.5	8.0
716.88	5.5	23.5	29.8	46.0	29.0	35.3	42	2.50	34	1.07	17.0	10.7
722.52	5.6	22.8	28.8	46.0	28.4	34.4	46	2.39	33	1.08	17.6	11.6
733.80	5.7	28.0	28.7	46.0	33.7	34.4	139	2.66	34	1.00	12.3	11.6
745.10	5.9	28.0	32.9	46.0	33.9	38.8	51	3.35	38	1.00	12.1	7.2

(Ver. 2004.08.19)

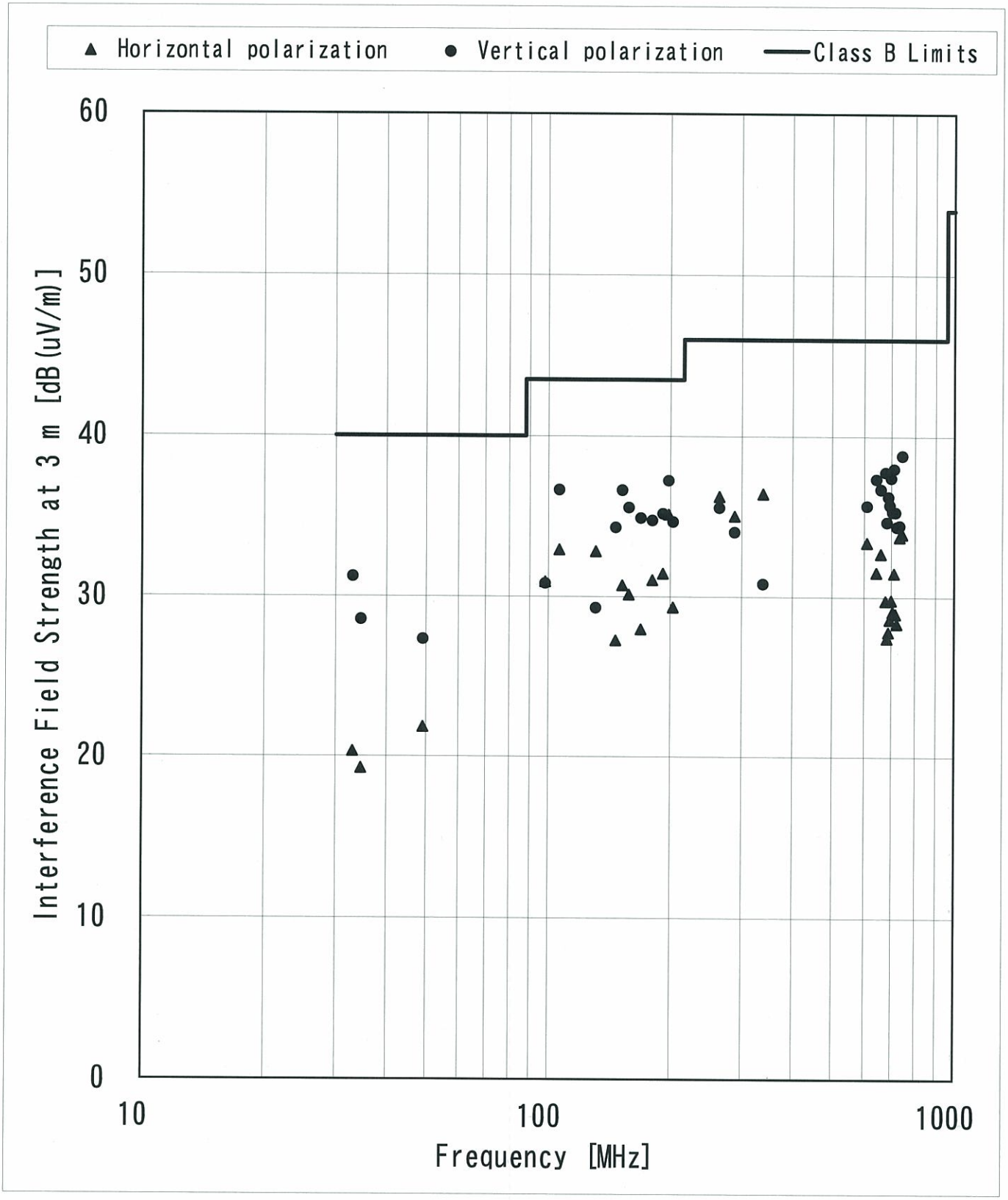
Notes: 1) The correction factor contains the antenna factor, cable loss and any other loss.
2) The symbol of (-) means that disturbance voltage could not be measured.
3) Emission Level[dBuv/m]= Meter Reading[dBuv] + Correction Factor[dBuv](Antenna,Antenna Pad,(

Tested by:

Takeshi Mihara

RADIATED EMISSIONS

Model No.: HPI7LE-MH



RADIATED EMISSIONS

Model No.: HPI7LE-MH