



EMISSION TEST REPORT

Test report file No. : **02-IST-036/FB** Date of issue : Mar. 12, 2002

Model / Type No. : EX101G.

Kind of product : PDA (Portable Digital Assistant)

Applicant : HNT CO., LTD.

Manufacturer : HNT CO., LTD.

Address : Sinjoongang B/D, 6F, #646-9, Yeoksam-Dong, Kangnam-Gu, Seoul,
Korea 135-911

Test result according to the regulation(s)

☒ Positive ☐ Negative

at page 3.

This test report without appendix consists of 19 pages.

It is not allowed to copy this report even partly without the allowance of the Test Laboratory.

This equipment is complied with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-1992.

DIRECTORY

A) Documentation.

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B) Test Data.

Conducted emissions (Mains)	: 450 kHz - 30 MHz	<u>11 ~ 16</u>
Radiated emissions	: 30 MHz – 1 GHz	<u>17 ~ 18</u>

C) Appendix

TEST REGULATIONS

The tests were performed according to the following regulations ;

- - FCC Part 15, Subpart B (Unintentional Radiators, Class B)

Information of Test Laboratory

IST EMC Lab.

San 21-8 Goan-Ri, Baekam-Myun, Yongin-Si, Kyunggi-Do, Korea

International - Tel : 82-31 - 333 - 4093. Fax : 82-31 - 333 - 4094.

Domestic - Tel : 031 - 333 - 4093. Fax : 031 - 333 - 4094.

ENVIRONMENTAL CONDITIONS

Temperature	<u>17</u>
Humidity	<u>43</u> %
Atmospheric pressure	<u>1000</u> mbar

- - Open-site 1
- - 3 meters

- - Compact chamber
- - 10 meters

<u>Name</u>	<u>Type</u>	<u>Manufacturer</u>	<u>Calibration. Date</u>	<u>Serial Number</u>
■ ESVP	Test Receiver	Rohde & Schwarz	Jun. 12, 2001	861744/018
■ VULB 9160	Antenna	Schwarzbeck	Jun. 04, 2001	3048

Type	Manufacturer
■ Aneroid Barometer	Sato
■ Hygrometer	Sato

All used test-instruments as well as the test-accessories are calibrated regularly.

J. H. Yeun / Test Engineer
IST EMC Lab.

EQUIPMENT UNDER TEST

Equipment Description

1. CPU : Strong ARM : SA-1110
2. Memory :
SDRAM : 128 Mbits (2 Mbits * 16 bits * 4 banks) * 2
Flash ROM : 128 Mbits * 2
3. Display :
4 inch color TFT LCD : 640 * 480 Resolution, 65535 Color
Touch Panel
CCFL Backlight
4. Interface :
PCMCIA Card
MMC Card
USB Port
IrDA Port
Serial Port : RS-232 2 EA
5. I/O :
Normal Stereo Earphone (Jack)
Internal Microphone
Internal Speaker (Mono)
Key function
 - . Rower switch : Change status between Sleep and Run Mode
 - . Reset switch : System reset
 - . Mp3 Wheel switch : Play/Stop, Forward, Backward
 - . Menu key (4 EA) : Up, Down, Left, Right
 - . SW1(Record) : Voice recording
- LED
 - . Operation LED : Green
 - . Charging LED : Red
6. Power :
Adaptor : DC 5 V , 2800 mA
7. OS :
Embedded Linux

Operation - mode of the E.U.T. :

The equipment under test was operated during the measurement under following conditions :

- ☐ Standby.
- ☒ Operation for Test : Download files from PC to EUT
MP3 Play mode

Configuration of the equipment under test :

Following peripheral devices and interface cables were connected during the measurement :

Equipment	Type	Brand	Serial No
PC	AP200	COMPAQ	Doc
Mouse	M-S38	Logitech	DZL211107
Keyboard	KB-9965	Logitech	Doc
Monitor	529B	Daewoo	Doc

- Unshielded power cable : 1.8m
- Unshielded USB cable : 1.3m
- Earphone cable : 1.2m

TEST RESULT

Files Download mode

Conducted emissions : 450 kHz - 30 MHz

The requirements are. ☒ KEPT ☐ NOT KEPT
Min. limit margin 22.4 dB at 0.9205 MHz
Remarks : See test-graph to be attached at pages 11, 13 ~ 14.

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are ☒ KEPT ☐ NOT KEPT
Min. limit margin 6.7 dB at 48.0 MHz
Remarks : See test-data at page 17.

MP3 Play mode

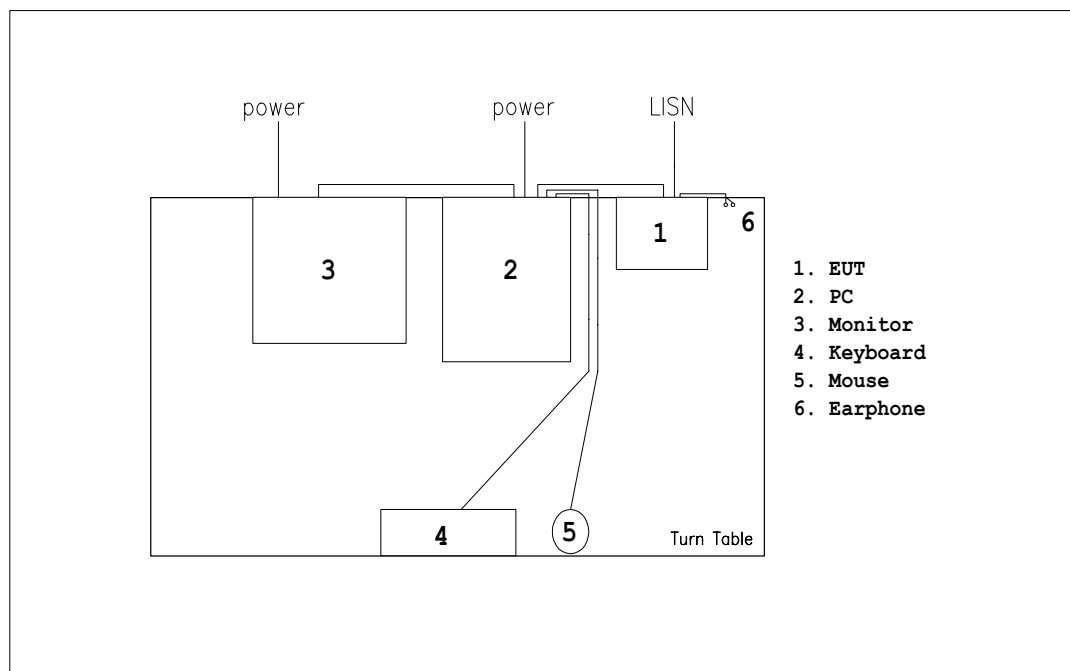
Conducted emissions : 450 kHz - 30 MHz

The requirements are ☒ KEPT ☐ NOT KEPT
Min. limit margin 8.1 dB at 3.0670 MHz
Remarks : See test-graph to be attached at pages 12, 15 ~ 16.

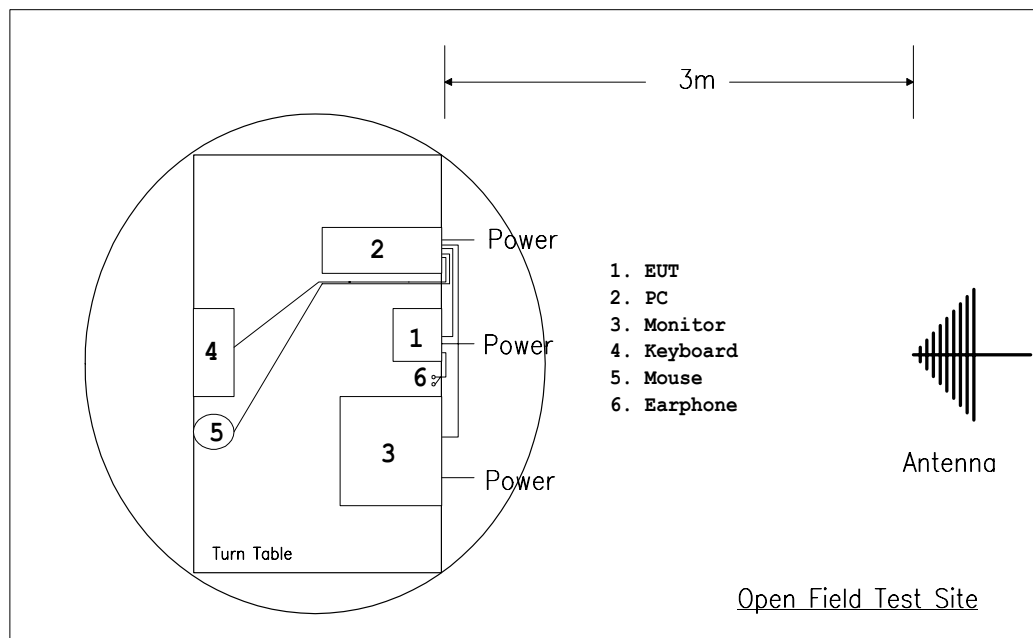
Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are ☒ KEPT ☐ NOT KEPT
Min. limit margin 8.9 dB at 206.4 MHz
Remarks : See test-data at page 18.

Test Set-Up (Type : EX101G)

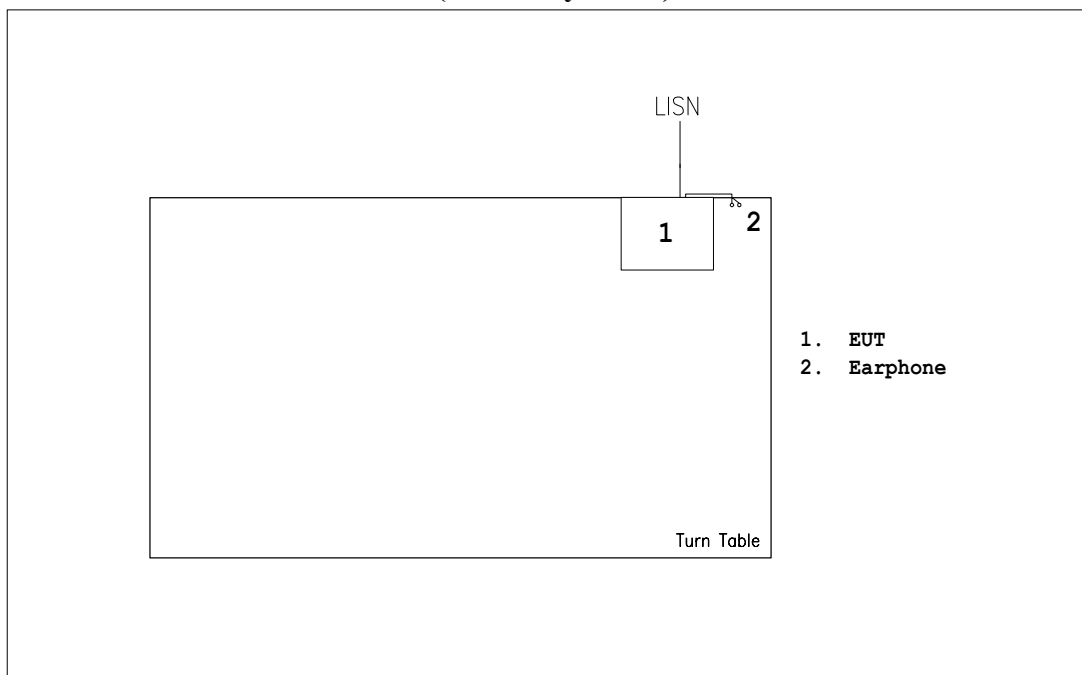
[Files Download mode](#)


Picture 1 : Conducted emission 450kHz ~ 30MHz

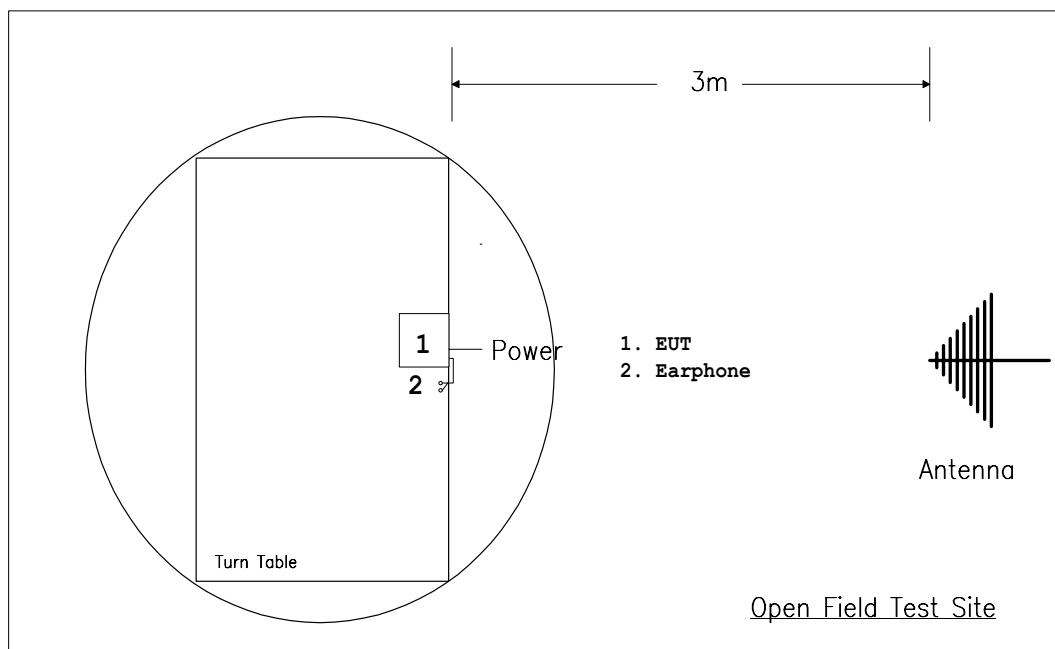


Picture 2 : Radiated emission 30MHz ~ 1000MHz

Test Set-Up (MP3 Play mode)



Picture 1 : Conducted emission 450kHz ~ 30MHz



Picture 2 : Radiated emission 30MHz ~ 1000MHz

Conducted Emission Test Data

Type : EX101G
 Manufacturer : HNT CO., LTD.
 Operation mode : Files Download mode, MP3 Play mode
 Date : Feb. 28, 2002.

Files Download mode

Frequency [MHz]	Reading [dBμV]	Insertion loss [dB]	Phase (L1/N)	Result [dBμV]	Limit [dBμV]	Margin [dB]
0.5395	33.5	0.8	L1	34.3	48.0	13.7
0.6513	34.2	0.8		35	48.0	13.0
2.3115	39.1	0.8		39.9	48.0	8.1
2.5633	39.7	0.8		40.5	48.0	7.5
3.5446	33.1	0.8		33.9	48.0	14.1
5.8796	26.1	0.8		26.9	48.0	21.1
0.6511	35.0	0.8	N	35.8	48.0	12.2
0.7600	33.4	0.8		34.2	48.0	13.8
0.9876	33.9	0.8		34.7	48.0	13.3
2.5308	38.7	0.8		39.5	48.0	8.5
2.7428	33.1	0.8		33.9	48.0	14.1
6.0961	29.4	0.8		30.2	48.0	17.8
Cable loss are less than 0.1 dB						

*L1 : Live Line

**N : Neutral Line

*** Please refer to data graphs at page 13 ~ 14

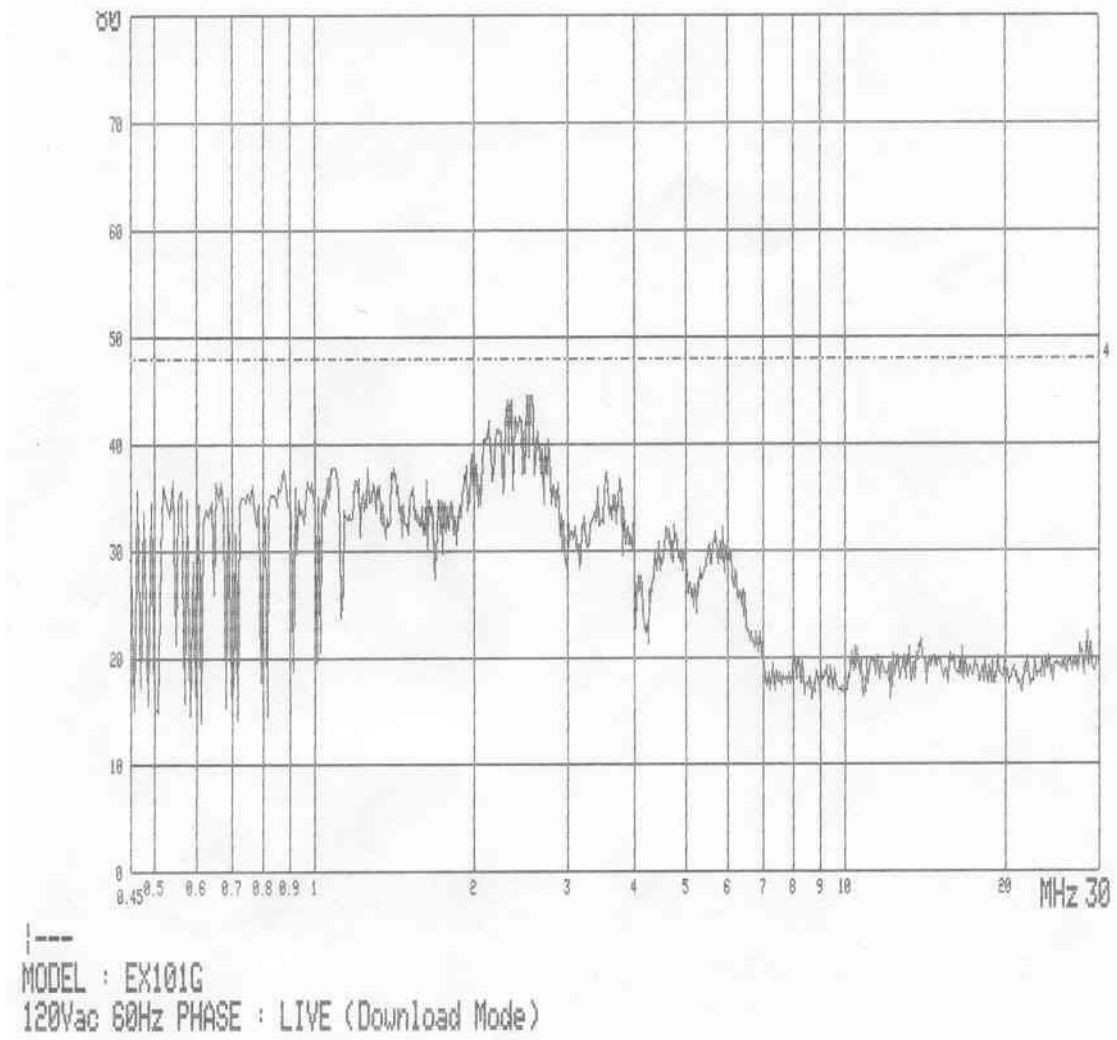
MP3 Play mode

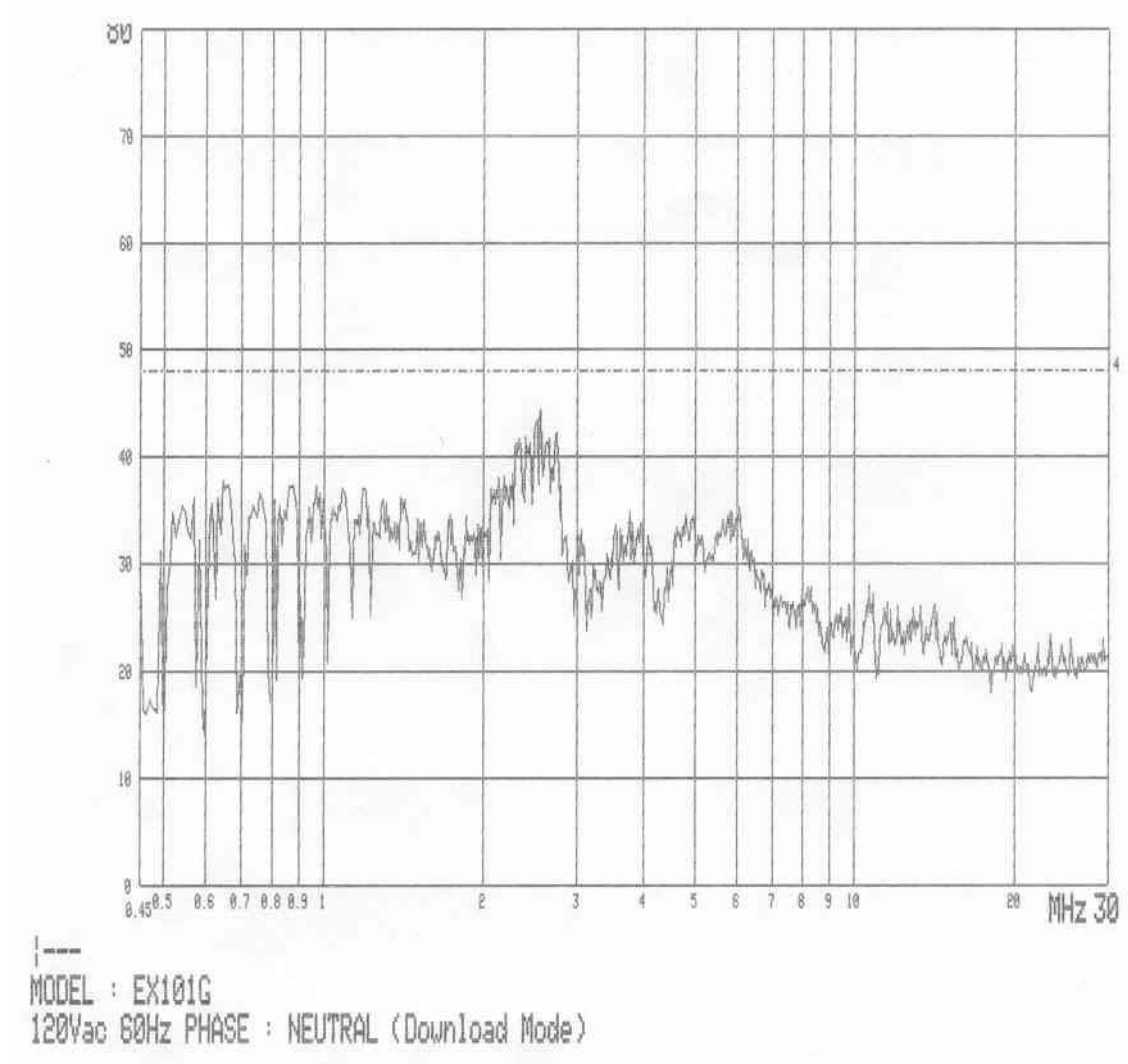
Frequency [MHz]	Reading [dBμV]	Insertion loss [dB]	Phase (L1/N)	Result [dBμV]	Limit [dBμV]	Margin [dB]
0.7135	31.0	0.8	L1	31.8	48.0	16.2
1.0339	37.6	0.8		38.4	48.0	9.6
1.4486	36.4	0.8		37.2	48.0	10.8
1.6543	38.3	0.8		39.1	48.0	8.9
2.8946	35.6	0.8		36.4	48.0	11.6
3.0670	39.1	0.8		39.9	48.0	8.1
0.6288	30.1	0.8	N	30.9	48.0	17.1
0.8283	31.0	0.8		31.8	48.0	16.2
1.0332	33.7	0.8		34.5	48.0	13.5
1.6564	34.7	0.8		35.5	48.0	12.5
2.0700	35.9	0.8		36.7	48.0	11.3
2.6932	31.7	0.8		32.5	48.0	15.5
Cable loss are less than 0.1 dB						

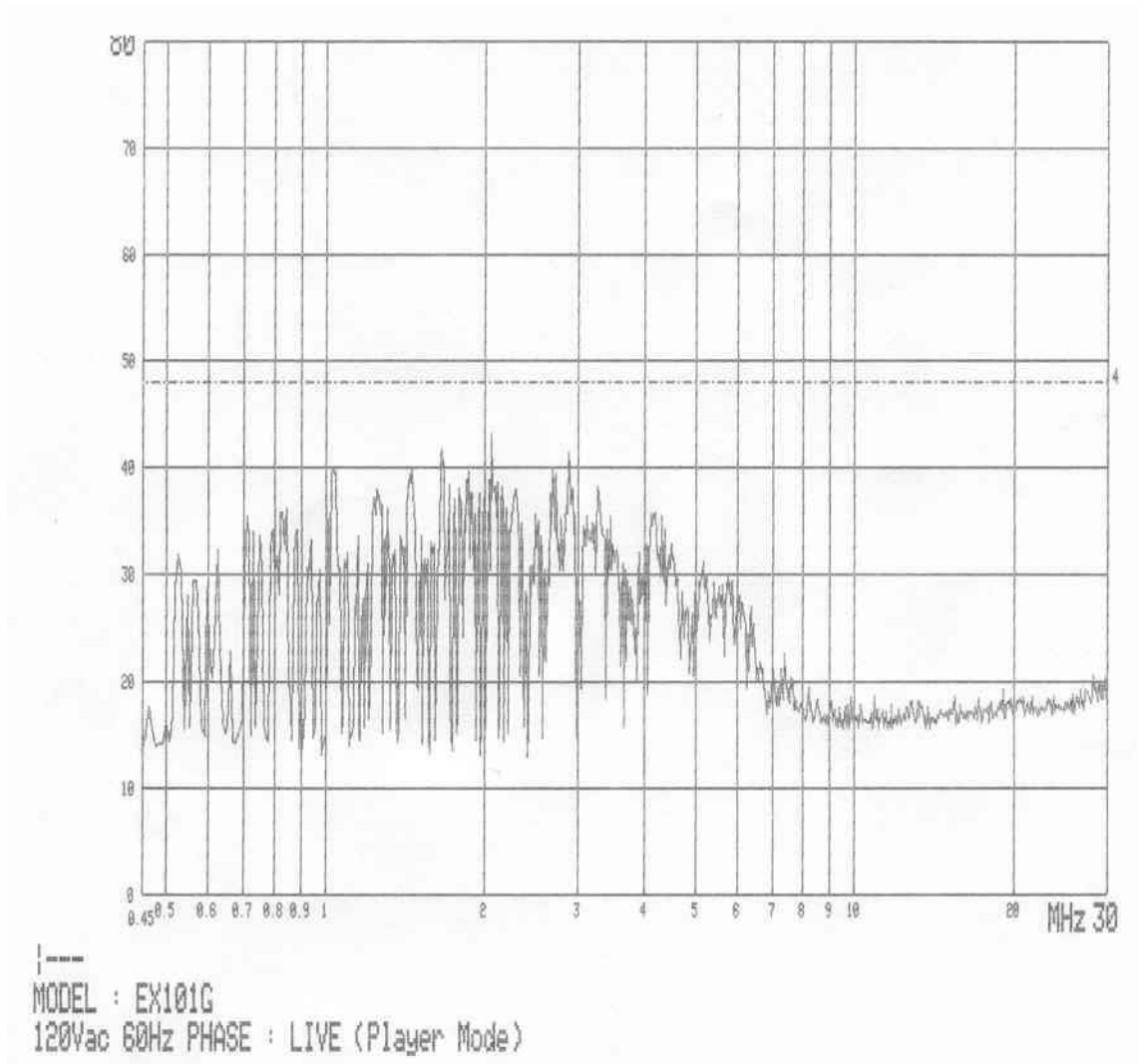
*L1 : Live Line

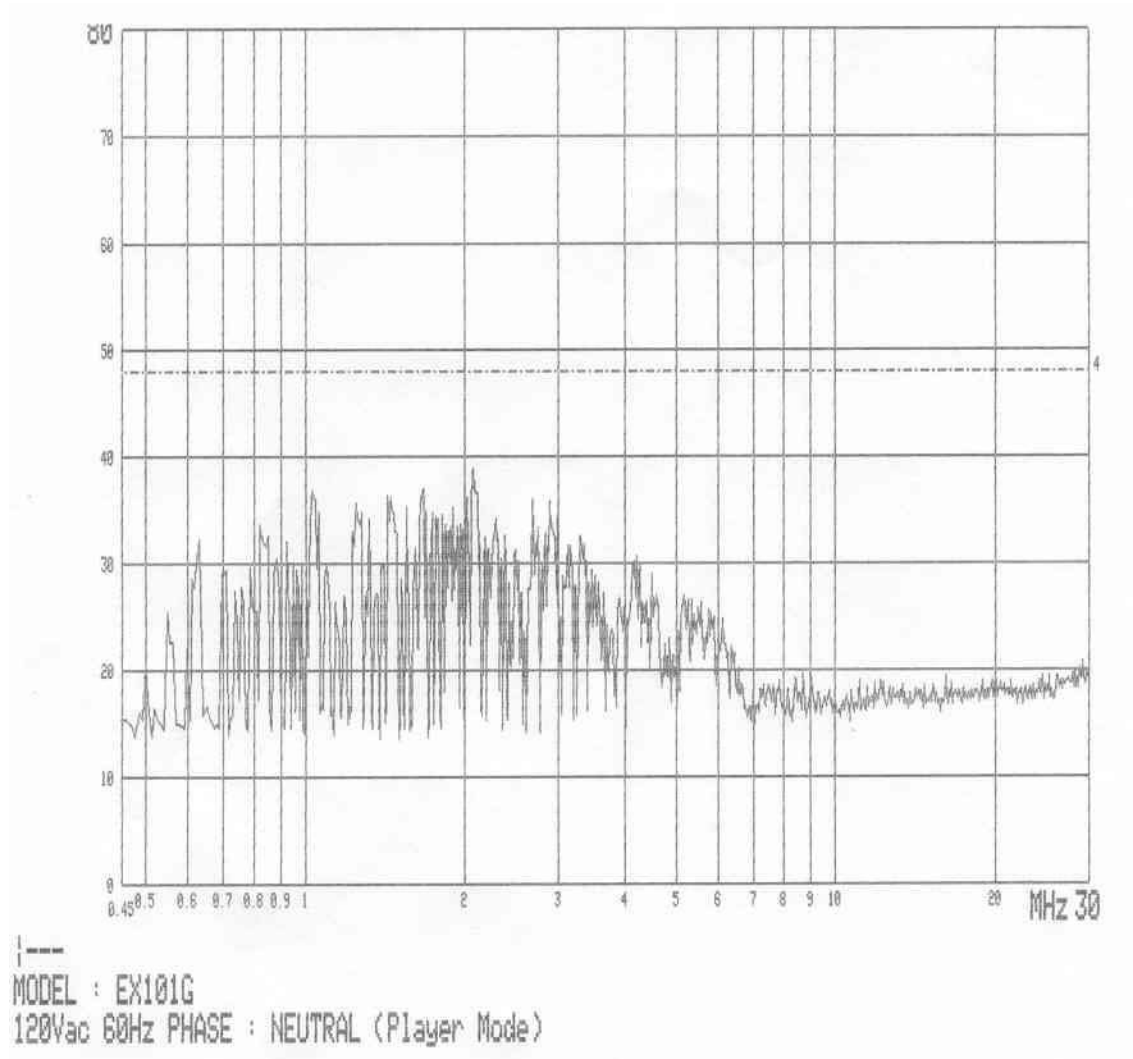
**N : Neutral Line

*** Please refer to data graphs at page 15 ~ 16









Radiation Test Data

Type : EX101G
 Manufacturer : HNT CO., LTD.
 Operation mode : Files Download mode, MP3 Play mode.
 Test distance : 3 m
 Antenna : VULB9160
 Date : Mar. 5, 2002.

Files Download mode

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
48.0	21.8	10.2	1.3	33	100	V	33.3	40.0	6.7
67.2	19.7	10.3	1.5	29	100	V	31.5	40.0	8.5
73.7	21.7	9.2	1.6	159	100	V	32.5	40.0	7.5
122.8	13.2	10.2	2.1	71	110	V	25.5	43.5	18.0
144.0	18.0	11.8	2.2	321	151	V	32.0	43.5	11.5
177.2	11.2	11.2	2.4	323	100	V	24.8	43.5	18.7
183.8	11.3	10.0	2.4	280	100	V	23.7	43.5	19.8
186.9	11.4	9.6	2.5	61	101	V	23.5	43.5	20.0
199.2	21.2	8.6	2.5	322	400	H	32.3	43.5	11.2
206.4	21.5	8.4	2.5	156	400	H	32.4	43.5	11.1
220.9	21.2	8.5	2.8	144	398	H	32.5	46.0	13.5
249.3	14.5	10.7	2.8	42	100	V	28.0	46.0	18.0
281.2	18.4	11.9	3.1	137	101	V	33.4	46.0	12.6
298.9	19.1	11.7	3.2	189	397	H	34.0	46.0	12.0
309.6	19.3	11.7	3.3	178	110	V	34.3	46.0	11.7
338.5	13.5	11.7	3.5	185	111	V	28.7	46.0	17.3
516.1	11.6	15.3	4.8	184	100	V	31.7	46.0	14.3

Radiation Test Data

Type : EX101G
 Manufacturer : HNT CO., LTD.
 Operation mode : Files Download mode, MP3 Play mode.
 Test distance : 3 m
 Antenna : VULB9160
 Date : Mar. 5, 2002.

MP3 Play mode.

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
71.8	19.1	9.4	1.6	30	100	V	30.1	40.0	9.9
143.7	14.0	11.7	2.2	35	100	V	27.9	43.5	15.6
152.6	5.4	12.2	2.3	162	101	V	19.9	43.5	23.6
167.7	10.7	12.3	2.4	39	109	V	25.4	43.5	18.1
172.0	8.9	12.1	2.4	32	143	V	23.4	43.5	20.1
194.2	12.4	8.9	2.5	30	100	V	23.8	43.5	19.7
206.4	23.7	8.4	2.5	41	100	V	34.6	43.5	8.9
215.6	14.7	8.4	2.7	40	101	V	25.8	43.5	17.7
309.7	10.9	11.7	3.3	289	362	H	25.9	46.0	20.1
403.0	17.2	13.3	4.3	294	351	H	34.8	46.0	11.2

SUMMARY

GENERAL REMARKS :

The equipment is not modified anything, mechanical or circuit to improve EMI status during a measurement and complied the regulation "Part 15 subpart B Class B of CFR 47"

FINAL JUDGMENT :

The requirements according to the technical regulations are

☒ KEPT ☐ NOT KEPT

The equipment under test does

- ☒ - Fulfill the general approval requirements mentioned on page 3.
- ☐ - Not fulfill the general approval requirements mentioned on page 3.

Begin of testing : Feb. 28, 2002

End of testing : Mar. 05, 2002

Reviewed by :

Approved by :



Joon H. Lee. EMC Manager
IST EMC Lab.



G. Chung Chief of EMC Lab.