



EMISSION TEST REPORT

Test report file No. : **02-IST-120/FB**Date of issue : Jul. 02, 2002Model / Type No. : TGU001☒ Basic ☐ AlternateKind of product : USB DriveApplicant : TAB Global Co.,Ltd.Manufacturer : TAB Global Co.,Ltd.License holder : TAB Global Co.,Ltd.Address : TAB Global Co.,Ltd.**Test result** according to the regulation(s)☒ Positive ☐ Negative

at page 3.

This test report with appendix consists of 16 pages.

The test result only responds to the tested sample.

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 ~ 13</u>
Radiated emissions	: 30 MHz – 1 GHz	<u>14 ~ 15</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.

EQUIPMENT UNDER TEST

Equipment Description :

Interface :	USB compatible with USB 1.1 spec.
Data Retention :	Up to 10 years
Data Access Rate :	Over 1 MB/sec (read), 800kB/sec (Write)
Storage Temp :	-20□~80□
Weight :	1 ounce/20g
Dimension :	w/cap 74mm x 22mm x 10mm w/o cap 65mm x 22 mm x 10mm
Power Supply :	USB Bus-powered (2.7V ~ 3.3V)

EUT Type :

- ☒ Table-Top.
☐ Floor-Standing.
☐ Table-Top and Floor-Standing(Combination).

Operation – mode of the E.U.T. :

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

- ☐ Standby.
☒ Operational Condition : Files download and upload between EUT and PC

Configuration of the equipment under test :

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

Equipment	Type	Brand	Serial No.
PC	Brio BA600/550	HP	SG01902402
Monitor	523X	Daewoo	Unknown
Keyboard	SK-2502C	HP	M0004102821
Mouse(PS/2)	M-S48A	HP	LZE01251424
Mouse(Serial)	M-M28	Logitech	LCA53305547
Printer(Parallel)	A0302384	Northern Telecom	26633S60168

Connecting Interface Cables :

- Unshielded AC power cable : 1.8 m
- Shielded monitor's signal cable : 1.5 m
- Shielded printer's signal cable : 1.8 m

TEST CONDITIONS

The **measurement of the conducted emissions (Interference voltage)** was performed in a shielded room.

Test location :

☒ Shielded room. No.1

☐ Compact chamber 2

Used testing instruments :

Name	Type	Manufacturer	Calibration. Date	Serial Number
ESH 3	Test Receiver	Rohde & Schwarz	Jul. 16, 2001	861742/015
3725/2	LISN	EMCO	Jul. 30, 2001	9101-2068
KNW-407	LISN	Hyup-Rip	Jul. 26, 2001	8-883-10
ESH 3-Z2	Pulse Limiter	Rohde & Schwarz	Jul. 13, 2001	357.8810.52

Test - accessories :

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

Measurement Procedures :

Conducted emissions measurements were made in accordance with ANSI C-63.4-1992, "Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". The measurement were performed over the frequency range of 0.45MHz to 30MHz using a 50 Ω /50uH LISN as the input transducer to an EMI/Field Intensity Meter. The measurements were made with the detector set for "Peak" amplitude within an IF bandwidth of 10kHz or for "quasi-peak" within a bandwidth of 9kHz.

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

Test engineer :



S. G. Kim / Research Engineer
IST EMC Lab.

The **measurement of the radiated emissions (Electric field)** in the frequency range from 30 MHz to 1GHz was performed in horizontal and vertical antenna polarization at a open-site which meet the site attenuation requirement of ANSI C63.4-1992 and a test distance of :

Location : ☐ Open Site No. 1 ☒ Open Site No. 2 ☐ Open Site No. 3
Distance : ☒ 3 meters ☐ 10 meters

Used testing instruments :

Name	Type	Manufacturer	Calibration. Date	Serial Number
ESVP	Test Receiver	Rohde & Schwarz	Jun. 10, 2002	892111/027
VULB 9160	Antenna	Schwarzbeck	Jun. 07, 2002	3047

Test - accessories :

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

Measurement procedures

Radiated measurements were in accordance with ANSI C63.4-1992 "Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". The measurements were performed over the frequency range of 30MHz to 1GHz using antenna as the input transducer to a EMI/Field Intensity Meter. The measurements were made with the detector set for "quasi-peak" within a bandwidth of 120kHz.

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

Test engineer :

S. G. Kim / Research Engineer
IST EMC Lab.

TEST RESULT

Conducted emissions : 450 kHz - 30 MHz

The requirements are.

☒ KEPT

☐ NOT KEPT

Min. limit margin

6.2 dB at 28.766 MHz

Remarks : See test-graph to be attached at pages 11 ~ 13.

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are.

☒ KEPT

☐ NOT KEPT

Min. limit margin

5.9 dB at 32.1 MHz

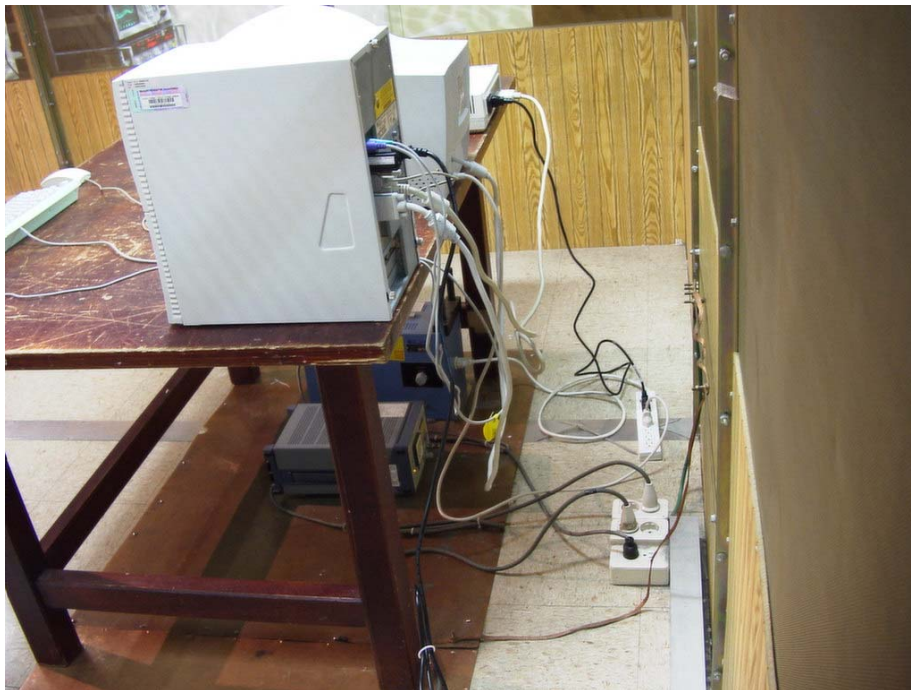
Remarks : See test-data at page 14 ~ 15.

TEST SETUP (Photos)

Type : TGU001



Conducted Emissions 0.15 MHz - 30 MHz

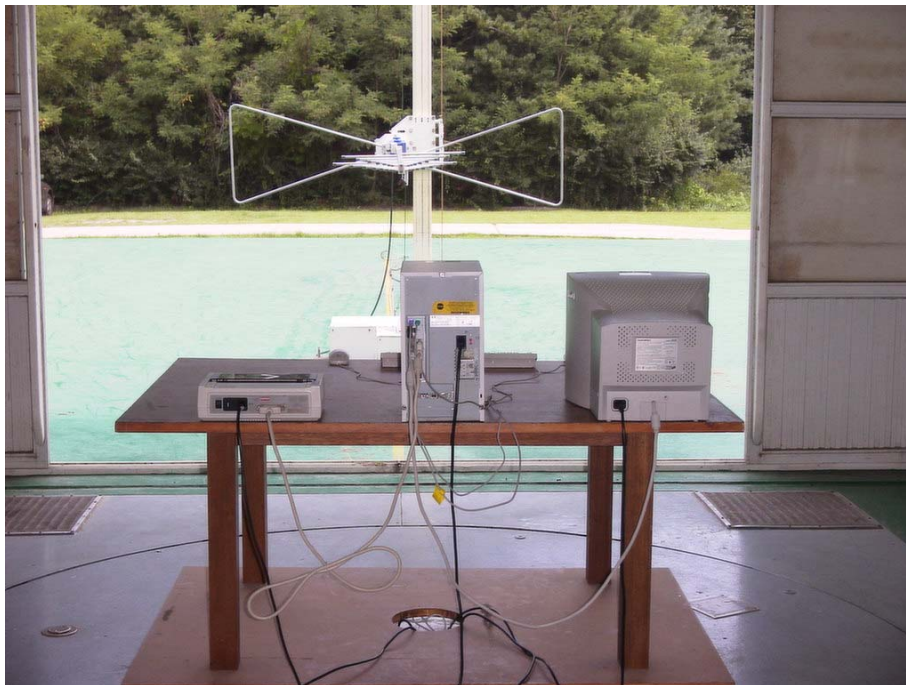


TEST SETUP (Photos)

Type : TGU001

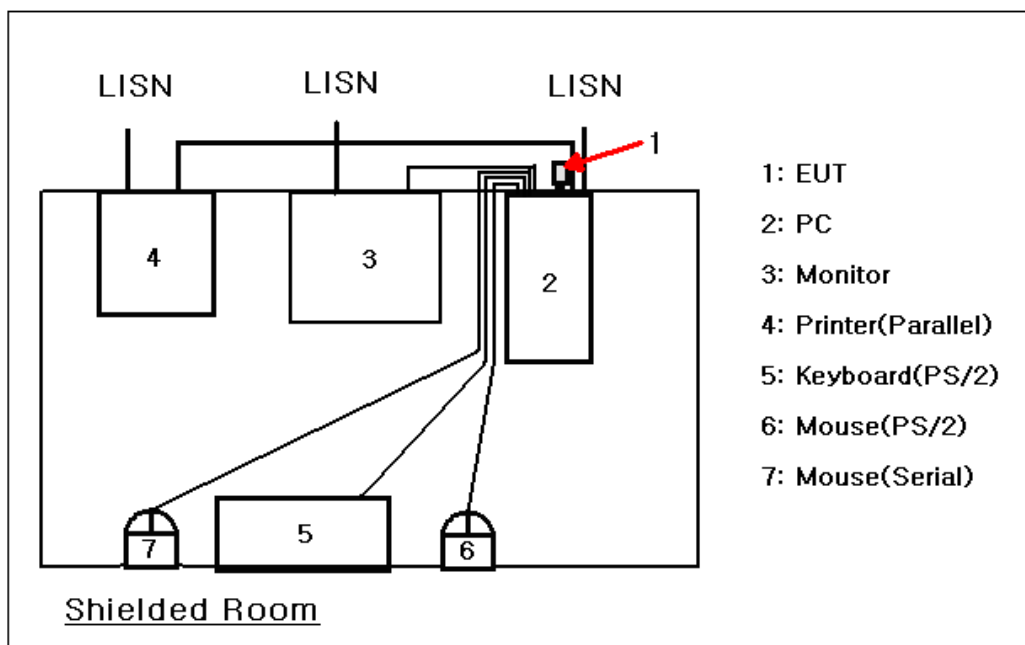


Radiated Emissions 30 MHz - 1000 MHz

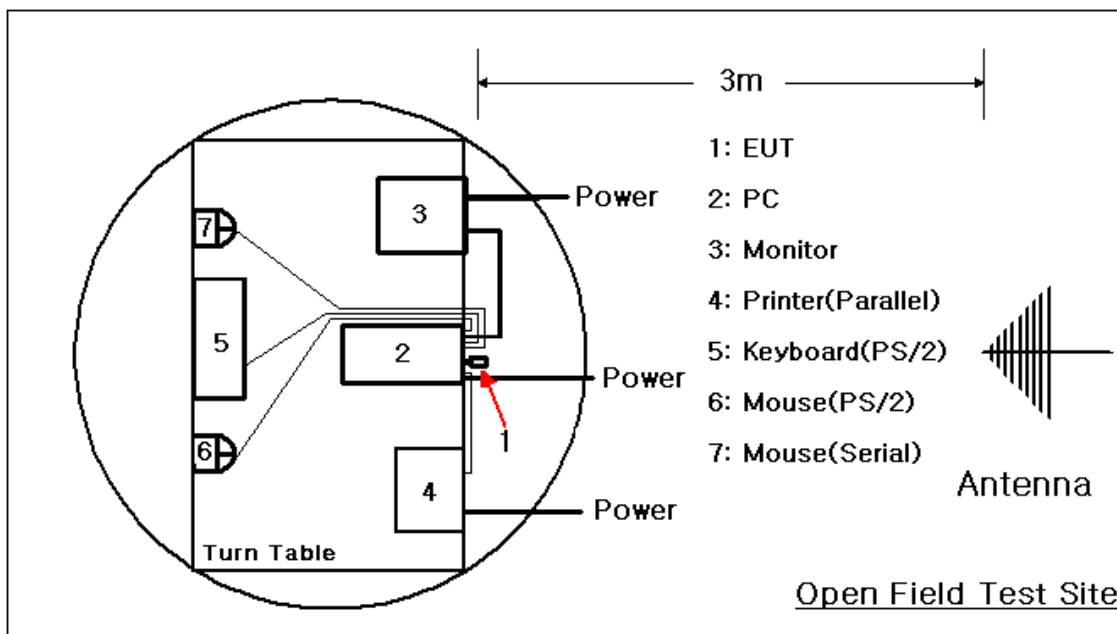


TEST SETUP (Drawings)

Type : TGU001



Conducted Emissions 0.45 MHz - 30 MHz



Radiated Emissions 30 MHz - 1000 MHz

Conducted Emission Test Data

Type TGU001
 Manufacturer TAB Global Co.,Ltd.
 Operation mode File download and upload between EUT and PC
 Environmental Condition Temperature : 25 °C
 Humidity : 43 %
 Atmospheric pressure : 1000 mbar
 Date Jun. 27, 2002

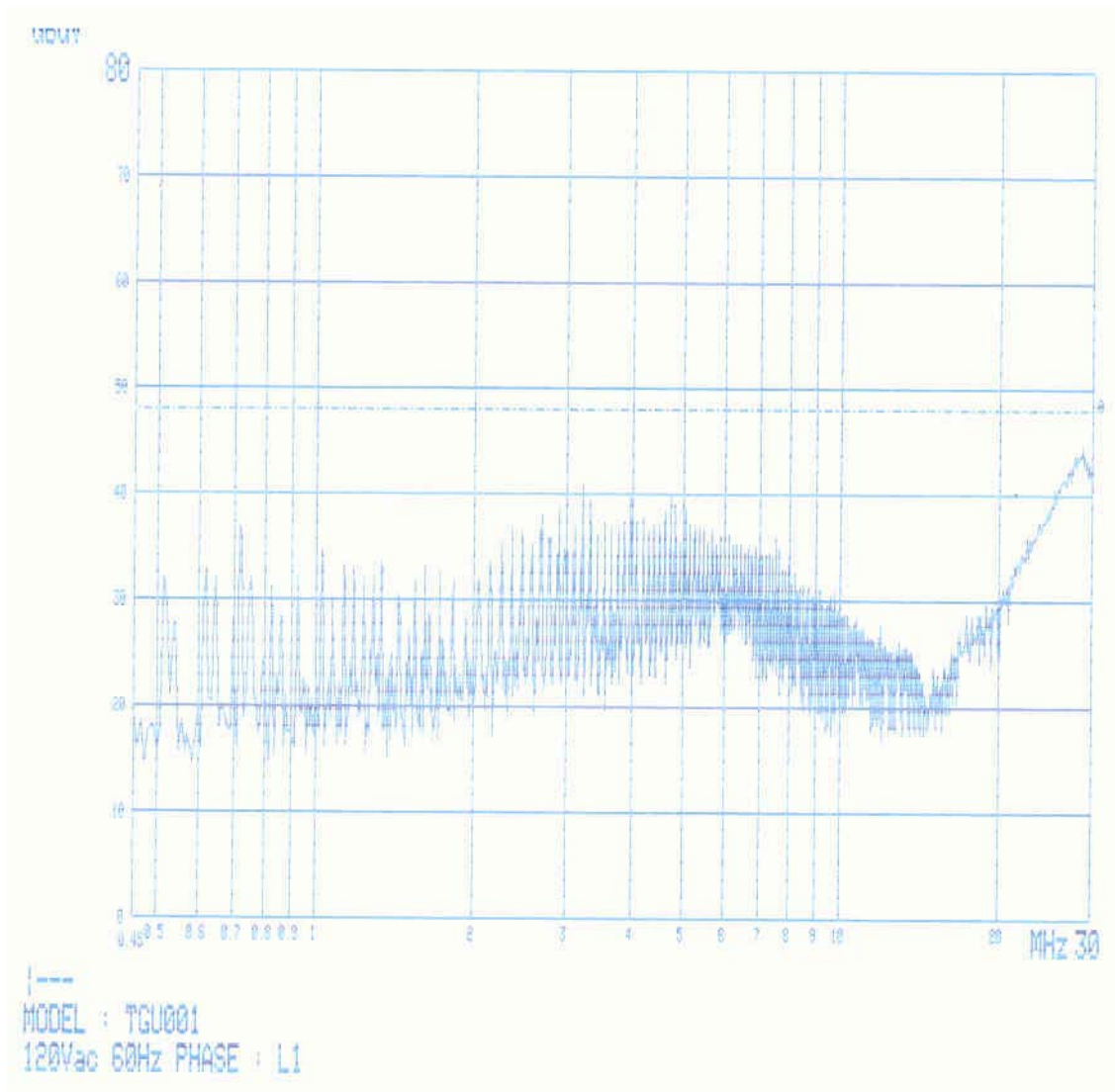
Highest Emissions relative to the limit

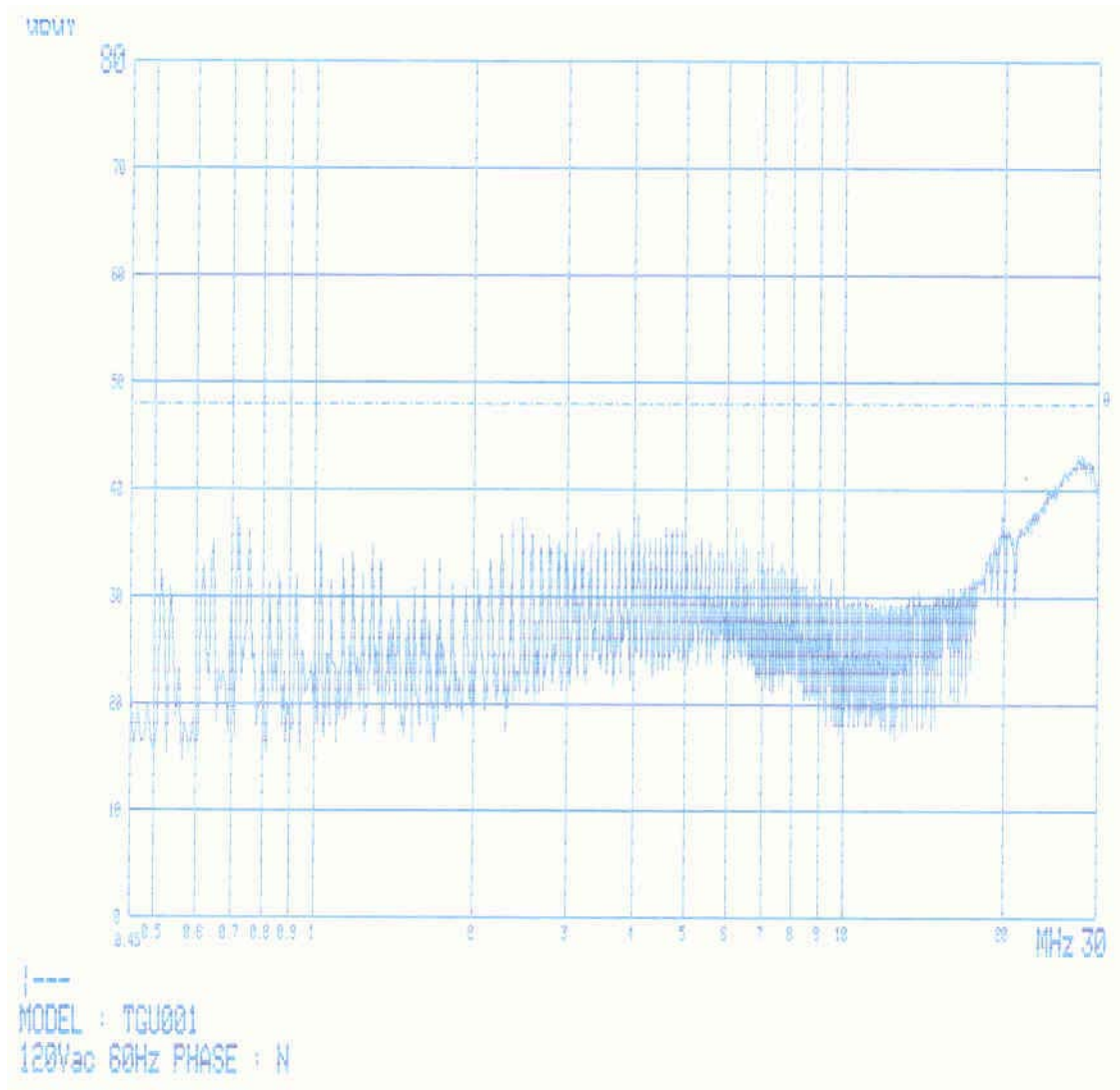
Frequency [MHz]	Reading [dBμV]	Insertion loss [dB]	Phase (L1/N)	Result [dBμV]	Limit [dBμV]	Margin [dB]
0.646	34.2	0.8	L1	35.0	48.0	13.0
0.722	36.5	0.8		37.3	48.0	10.7
2.469	36.3	0.8		37.1	48.0	10.9
4.083	34.9	0.8		35.7	48.0	12.3
19.872	34.2	0.8		35.0	48.0	13.0
27.928	40.7	0.8		41.5	48.0	6.5
0.712	36.2	0.8	N	37.0	48.0	11.0
1.028	34.2	0.8		35.0	48.0	13.0
2.688	33.6	0.8		34.4	48.0	13.6
3.225	38.0	0.8		38.8	48.0	9.2
4.729	37.1	0.8		37.9	48.0	10.1
28.766	41.0	0.8		41.8	48.0	6.2
Cable loss are less than 0.1 dB						

*L1 : Live Line

**N : Neutral Line

*** Please refer to data graphs at page 12 ~ 13.



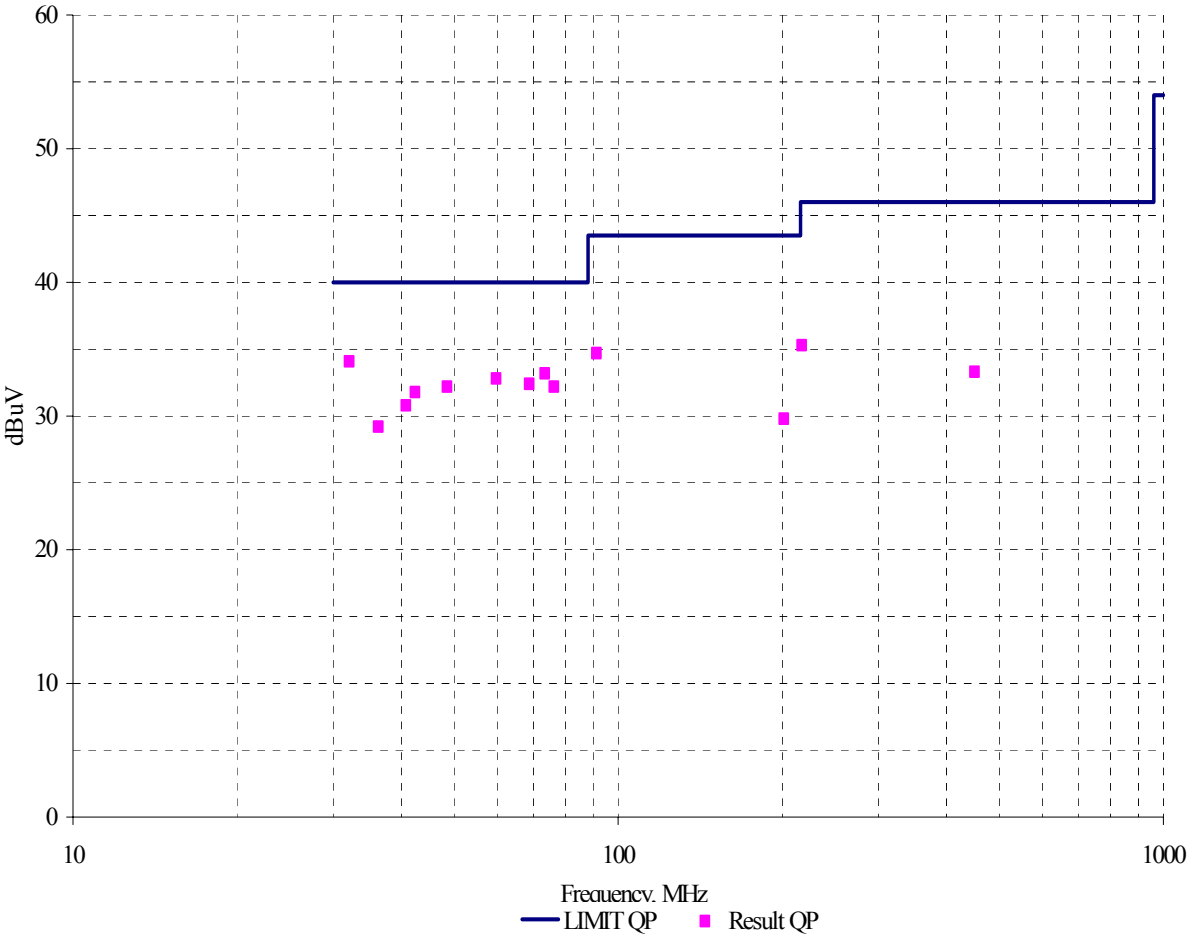


Radiation Test Data

Type	TGU001
Manufacturer	TAB Global Co.,Ltd.
Operation mode	File download and upload between EUT and PC
Environmental Condition	Temperature : 26 °C Humidity : 43 % Atmospheric pressure : 1000 mbar
Test distance	3 m
Antenna	VULB9160
Date	Jun. 28, 2002

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB]	Cable Loss [dB]	Angle [deg]	Height [cm]	Polar [H/V]	Result [dBuV]	Limit [dBuV]	Margin [dB]
32.1	21.5	11.4	1.2	183	100	V	34.1	40.0	5.9
36.3	16.3	11.7	1.2	247	100	V	29.2	40.0	10.8
40.8	17.4	12.1	1.3	239	100	V	30.8	40.0	9.2
42.4	18.4	12.1	1.3	169	100	V	31.8	40.0	8.2
48.5	19.2	11.5	1.5	190	400	H	32.2	40.0	7.8
59.7	19.8	11.3	1.7	172	120	V	32.8	40.0	7.2
68.7	20.5	10.0	1.9	306	100	V	32.4	40.0	7.6
73.3	21.8	9.5	1.9	325	106	V	33.2	40.0	6.8
76.2	21.8	8.4	2.0	324	110	V	32.2	40.0	7.8
91.2	23.7	8.8	2.2	244	122	H	34.7	43.5	8.8
201.3	17.2	9.3	3.3	179	100	V	29.8	43.5	13.7
217.2	22.3	9.5	3.5	172	145	V	35.3	46.0	10.7
450.4	11.7	16.0	5.6	143	100	V	33.3	46.0	12.7

MEASUREMENT OF DISTURBANCE RADIATION



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 : Jun. 27, 2002

End of testing : Jun. 28, 2002

Reviewed by :



Joon H. Lee. EMC Manager
Daewoo EMC Lab.

Approved by :



G, Chung. Chief of EMC Lab.