

Marstech Limited

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Authorized by:
Professional Engineers
Ontario



Engineering &
Administrative



Testing For FCC
Submissions/Verifications

Industry Canada
Industrie Canada
Approved Test Facility



TEST REPORT			
REPORT DATE:		June 5, 1998	
		REPORT NO: 98239D	
CONTENTS:	See Table of Contents		
SUBMITTOR:	TEC CORPORATION 6-78 Minami-Cho, Mishima-Shi Shizuoka-Ken, Japan 411-8520		
SUBJECT:	Model Nos:	Document WorkCentre Pro 545 (Model Tested) and TF 610	
	FCC ID:	BJIOH-98001	
TEST SPECIFICATION	FCC CFR 47 Sections: 15, Subpart B NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	N/A	DATE TESTED:	March 11, 1998
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	None		
Tested By:	Japan Quality Assurance Organization	Approved and Certified by:	<i>Robert G. Marshall</i> Robert G. Marshall, P. Eng.
		Date:	June 15/98
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TECHNICAL REPORT - FCC 2.1033(b)

Applicant

TEC Corporation
6-78 Minami-Cho, Mishima-Shi
Shizuoka-Ken, JAPAN

FCC Identifier

BJIOH-98001

Manufacturer

TEC Corporation
Mishima-Shi, Shizuoka-Ken,
JAPAN

TIM Electronics SDN BHD
Bayan Lepas, Penang,
MALAYSIA

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	Equipment		Exhibit E(2)-1 to -16



JAPAN QUALITY ASSURANCE ORGANIZATION
21-25, KINUTA 1-CHOME, SETAGAYA-KU, TOKYO 157 JAPAN
PHONE (03) 3416-0111, TELEX 242-2531 JQA J FAX (03) 3416-9691

Issue Date : March 19, 1998
Page 1 of 37

EMI TEST REPORT

JQA APPLICATION NO. : 80-71209

Applicant : TEC CORPORATION
: 6-78, Minami cho, Mishima-shi, Shizuoka-ken 411-8520, Japan

Manufacturer : TEC CORPORATION
: 6-78, Minami-cho, Mishima shi, Shizuoka-ken 411-8520, Japan

Description of Equipment : Facsimile(including scanner capability)

Model No. : Document Work Center-PR0545

FCC ID : BJIOH-98001

Regulations Applied : FCC Rules and Regulations Part 15 Subpart B

Total Pages of this Report : 37 Pages (including this page)

Place of Measurement : JQA EMC Engineering Dept. Testing Div.

NVLAP Lab. Code : 200189 0 (Effective through : June 30, 1998)

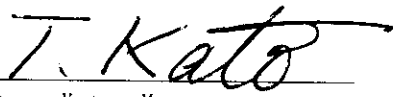
TEST FACILITY : This test facility is recognized the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part285 Code of Federal Regulations.

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

The test results only responds to the tested sample.

It is not allowed to copy this report even partly without the allowance of the JQA EMC Engineering Dept. Testing Div.

Signed: _____


Tetsuo Kato, Manager
JQA EMC Engineering Dept.

This report must not used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

FCC ID: BJIOH-98001
EXHIBIT D(1)
Marstech Report #98239D



GENERAL EQUIPMENT INFORMATION :**DESCRIPTION OF EQUIPMENT:**

- | | |
|-------------------------------------------------------|------------------------------------------------------------|
| 1) Type of Equipment tested | : Pre-Production |
| 2) Category | : Class B Digital device |
| 3) Equipment Authorization | : Certification |
| 4) FCC ID | : BJIOH-98001 |
| 5) Trade Name | : XEROX |
| 6) Model No. | : Document Work Centre-PR0545 |
| 7) Fundamental Frequency
Operated in the Equipment | : 16 MHz, 22.953 MHz, 38.00053 MHz, 18.432 MHz, 32.768 kHz |
| 8) Highest Frequency Used
in the Equipment | : 38.00053 MHz |
| 9) Serial No. | : 98020065 |
| 10) Date of Manufacture | : - |
| 11) Power Rating | : AC 120V 50 Hz |

TEST CONDITION OF EQUIPMENT :

- | | |
|-------------------------------|----------------------------------------------------------|
| 1) Configuration of Equipment | : Refer to Page 5, 6, 17, 18, 19, 20, 31, 32, 33, 34, 35 |
| 2) Operating Condition | : Refer to Page 5 |
| 3) Equipment Grounding | : Grounded at the plug end of the AC power line cord. |
| 4) Equipment Warm-up Time | : 5 minutes |

CONCLUSIONS OF THE TEST RESULTS:

The data shown in this report were made in accordance with the procedures given in ANSI C63.4-1992. And the Equipment Under Test complied with the requirements of FCC Rules Part15 subpart B sec.107 and 109 as detailed from page 3 to page 37.

	Results	Page
AC Powerline Conducted Emissions Measurement	: PASSED	
Minimum margin with respect to the Limits		
(1) Ready Mode	: 13.1 dB at 0.68 MHz	7
(2) Copy Mode	: 3.1 dB at 0.45 MHz	9
(3) Transmitting Mode	: 8.0 dB at 0.55 MHz	11
(4) Receiving Mode	: 5.3 dB at 0.48 MHz	13
(5) Scanning Mode	: 8.3 dB at 0.52 MHz	15
Measurement Uncertainty	: ± 2.2 dB	

Tested by: Y. Nakajima Date: March 11, 1998
 Yoichi Nakajima Temp: 20°C Humi: 40%
 Testing Engineer

Radiated Emissions Measurement	: PASSED	
Minimum margin with respect to the Limits		
(1) Ready Mode	: 4.6 dB at 137.7 MHz	21
(2) Copy Mode	: 3.4 dB at 137.7 MHz	23
(3) Transmitting Mode	: 4.9 dB at 856.1 MHz	25
(4) Receiving Mode	: 3.8 dB at 600.0 MHz	27
(5) Scanning Mode	: 4.5 dB at 600.0 MHz	29
Measurement Uncertainty	: ± 3.2 dB	

Tested by: Y. Nakajima Date: March 11, 1998
 Yoichi Nakajima Temp: 20°C Humi: 60%
 Testing Engineer

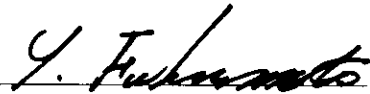
EQUIPMENT(EUT) MODIFICATION:

No modifications were conducted by JQA to achieve compliance to Class B levels.

I HEREBY CERTIFY THAT : The data shown in this report were made in accordance with the procedures Given in ANSI C63.4 1992 and the energy emitted by the equipment was found to be within the limits Applicable.

I assume full responsibility for accuracy and completeness of these data.

Approved Signatory : _____



Yuichi Fukumoto

Deputy Manager

TEST CONDITIONS AND CONFIGURATION OF EUT

1. The equipment under test (EUT) consists of:

<u>Item</u>	<u>Manufacturer</u>	<u>Model No.</u>	<u>FCC ID</u>	<u>Serial No.</u>
A Facsimile	TEC Corp.	Document Work Centre-PR0545	BJ10H-98001	98020065

2. The measurement was carried out with the following equipment and accessories connected:

	<u>Item</u>	<u>Manufacturer</u>	<u>Model No.</u>	<u>FCC ID</u>	<u>Serial No.</u>
B(*1)	Personal Computer	Compaq computer Corporation	Series2820D	CNT75MBZ4D	7408HDJ41440
C	Mouse	IBM	13H6690	DZL210429	23 D418331
D	AC Adaptor	Compaq computer Corporation	Series2822	N/A	40607799
E	External Telephone	-	-	N/A	
F(*2)	HA System Terminal	Toshiba Corp.	THE-105	N/A	7M02806
G(*2)	Facsimile	TEC Corp.	Document Wor	BJ10H 98001	98020065

Note 1. This personal computer was operated with the AC adaptor(Model No. :Series2822,
Input: 100-120/ 220 240VAC 50/60Hz. Output: 18.5VDC by Compaq computer Corporation.).

Note 2. These equipment were placed outside an anechoic chamber.

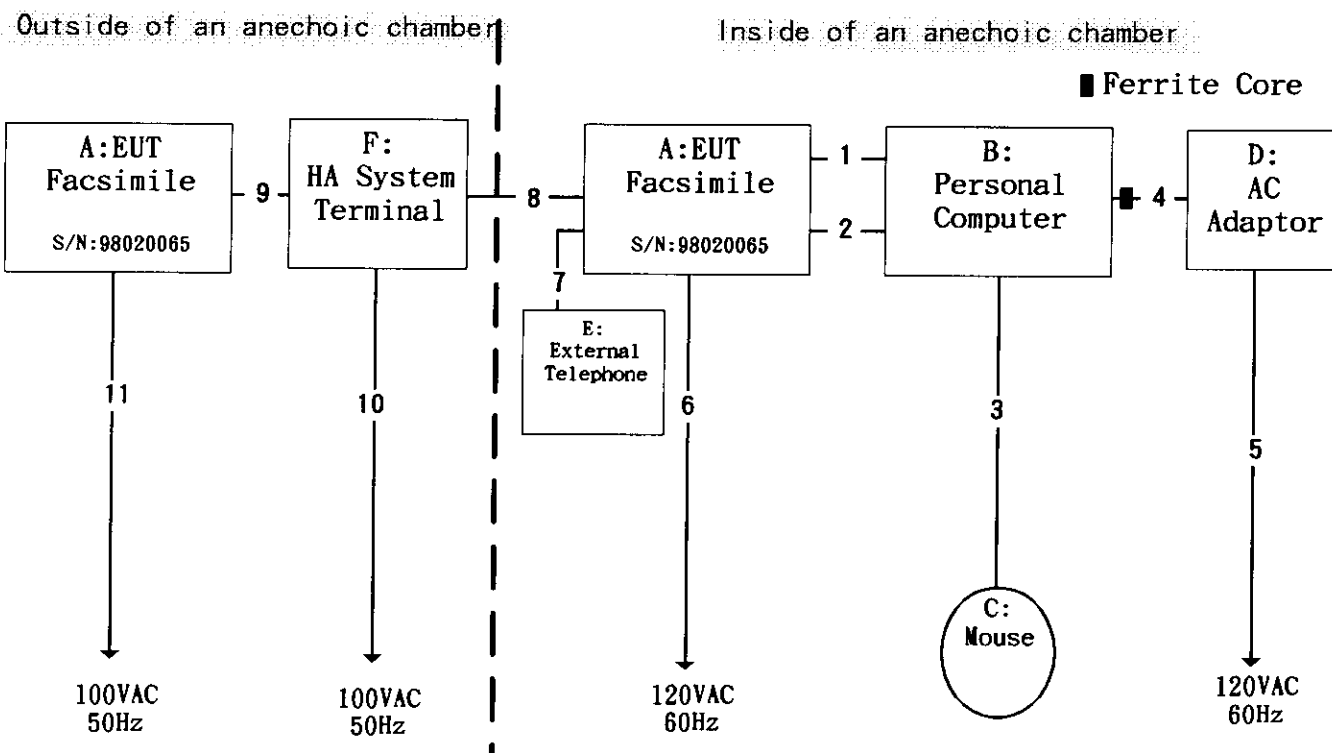
3. Configuration of the equipment under test

AC Power Line Conducted Emissions Measurement	: Refer to page 5, 6, 17, 18, 19, 20
Radiated Emissions Measurement	: Refer to page 5, 6, 31, 32, 33, 34, 35

4. Operating Condition

- Ready Mode
- Copy Mode
- Transmitting Mode
- Receiving Mode
- Scanning Mode

CONFIGURATION OF TESTED SYSTEM



Cable Description:

Cable No.	Description	Manufacturer	Shielded	Ferrite	Length	Connector
1	PC Cable(Serial)	LOROM INDUSTRIES	YES	NO	1.8	Metallic
2	PC Cable(Parallel)		YES	NO	1.8	Non-metallic
3	Mouse Cable	IBM	YES	NO	1.8	Non-metallic
4	AC Adaptor Cable	Compaq computer Corp.	YES	YES	1.0	Non-metallic
5	AC Power Cable(for AC Adaptor)	-	NO	NO	2.0	Non-metallic
6	AC Power Cable(for EUT)	-	NO	NO	1.8	Non-metallic
7	Moduler Cable		NO	NO	1.8	Non-metallic
8	Moduler Cable		NO	NO	10.0	Non-metallic
9	Moduler Cable	-	NO	NO	1.8	Non-metallic
10	AC Power Cable(for HA System)	Toshiba Corp.	NO	NO	1.8	Non-metallic
11	AC Power Cable(for FAX)		NO	NO	1.8	Non-metallic

[Ready Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.7.2.3, the AC power line preliminary conducted emissions measurement were carried out.

The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

Frequency (MHz)	LISN Factor (dB)	Meter Reading		Limits (dB/uV)	Emission Levels		Margins	
		V-A (dB/uV)	V-B (dB/uV)		V-A (dB/uV)	V-B (dB/uV)	V-A (dB)	V-B (dB)
0.57	0.2	22.4	22.8	48.0	22.6	23.0	25.4	25.0
0.68	0.2	34.7	32.9	48.0	34.9	33.1	13.1	14.9
0.85	0.2	32.5	30.8	48.0	32.7	31.0	15.3	17.0
1.20	0.2	26.0	24.7	48.0	26.2	24.9	21.8	23.1
1.37	0.2	26.4	27.3	48.0	26.6	27.5	21.4	20.5
1.88	0.2	23.2	23.6	48.0	23.4	23.8	24.6	24.2
2.39	0.2	20.1	22.2	48.0	20.3	22.4	27.7	25.6
2.90	0.2	24.7	23.0	48.0	24.9	23.2	23.1	24.8
3.35	0.2	23.1	23.6	48.0	23.3	23.8	24.7	24.2
4.61	0.2	11.0	21.1	48.0	11.2	21.3	36.8	26.7
5.13	0.2	17.7	21.8	48.0	17.9	22.0	30.1	26.0
7.69	0.2	21.5	23.3	48.0	21.7	23.5	26.3	24.5
8.55	0.2	18.0	20.5	48.0	18.2	20.7	29.8	27.3
10.71	0.2	21.0	21.3	48.0	21.2	21.5	26.8	26.5
11.94	0.2	18.3	18.6	48.0	18.5	18.8	29.5	29.2
14.37	0.3	20.1	16.5	48.0	20.4	16.8	27.6	31.2
15.92	0.3	22.6	23.8	48.0	22.9	24.1	25.1	23.9
18.00	0.4	32.3	32.4	48.0	32.7	32.8	15.3	15.2
21.79	0.4	26.3	26.6	48.0	26.7	27.0	21.3	21.0
22.45	0.4	29.2	29.4	48.0	29.6	29.8	18.4	18.2
25.31	0.5	27.1	27.2	48.0	27.6	27.7	20.4	20.3
27.65	0.6	27.8	28.2	48.0	28.4	28.8	19.6	19.2
30.00	0.6	29.8	29.8	48.0	30.4	30.4	17.6	17.6

- Notes: 1). The spectrum was checked from 0.45 MHz to 30 MHz.
2). V-A : One end & Ground ; V-B : The other end & Ground
3). The symbol of '<' means 'or less'.
4). The symbol of '>' means 'or greater'.
5). The cable(2.0 m length) loss is included in the LISN factor.
6). See sec.11.5.2 in ANSI C63.4-1992 for the symbol '*'.
7). A sample calculation was made at 0.57 MHz.

$$Lf + Mr = 0.2 + 22.4 = 22.6 \text{ dB/uV}$$

Where,

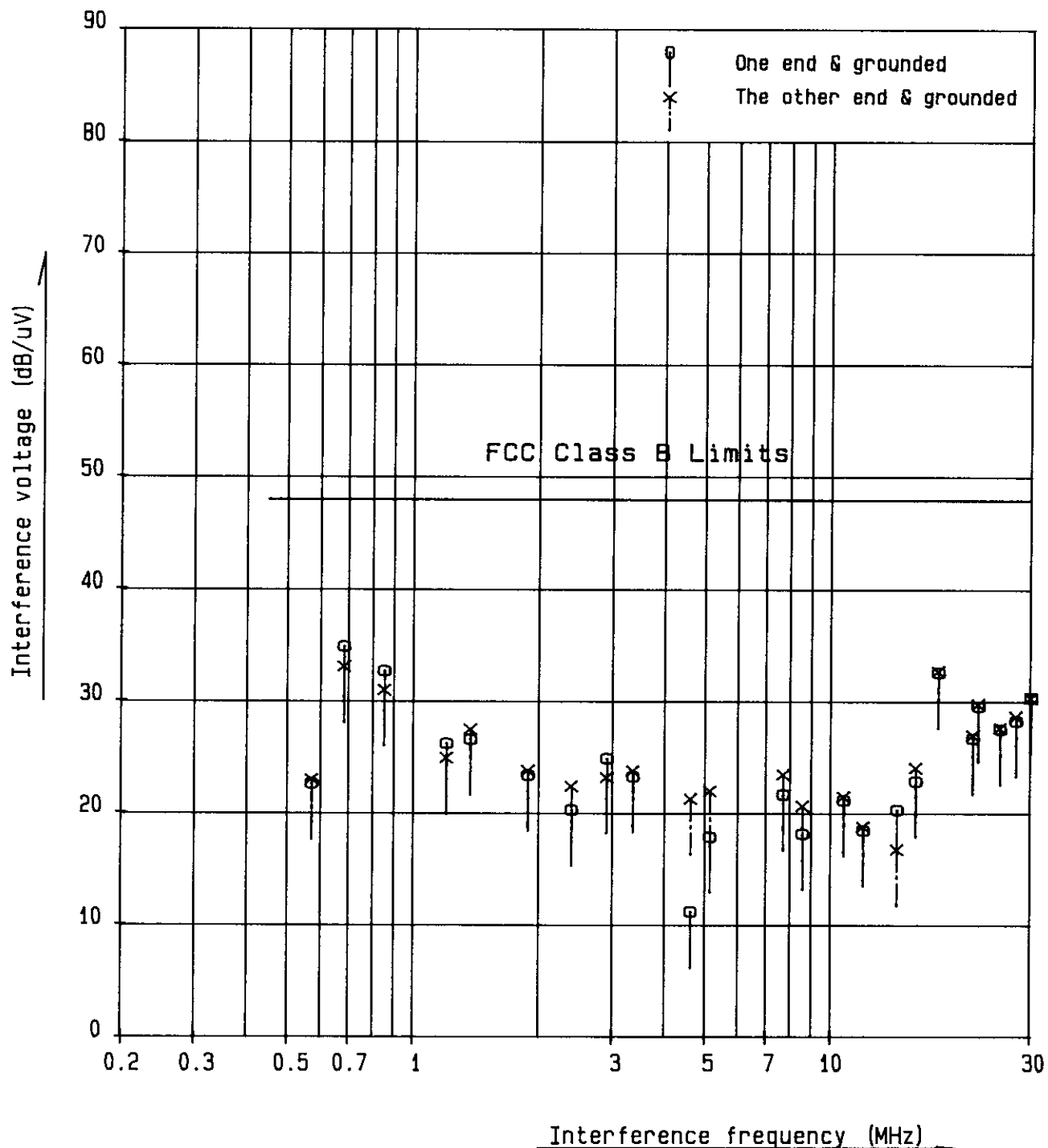
Lf : LISN Factor

Mr : Meter Reading

[Ready Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Copy Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.7.2.3, the AC power line preliminary conducted emissions measurement were carried out.

The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

Frequency (MHz)	LISN Factor (dB)	Meter Reading		Limits (dB/uV)	Emission Levels		Margins	
		V-A (dB/uV)	V-B (dB/uV)		V-A (dB/uV)	V-B (dB/uV)	V-A (dB)	V-B (dB)
0.45	0.2	44.7	42.7	48.0	44.9	42.9	3.1	5.1
0.50	0.2	37.7	37.5	48.0	37.9	37.7	10.1	10.3
0.68	0.2	29.2	28.0	48.0	29.4	28.2	18.6	19.8
0.80	0.2	29.0	28.3	48.0	29.2	28.5	18.8	19.5
1.00	0.2	24.0	26.0	48.0	24.2	26.2	23.8	21.8
1.47	0.2	21.0	23.8	48.0	21.2	24.0	26.8	24.0
2.57	0.2	20.7	22.5	48.0	20.9	22.7	27.1	25.3
2.90	0.2	23.5	24.7	48.0	23.7	24.9	24.3	23.1
3.35	0.2	24.2	24.2	48.0	24.4	24.4	23.6	23.6
5.02	0.2	22.8	23.0	48.0	23.0	23.2	25.0	24.8
7.01	0.2	20.8	21.2	48.0	21.0	21.4	27.0	26.6
8.76	0.2	19.3	23.0	48.0	19.5	23.2	28.5	24.8
10.70	0.2	21.8	21.8	48.0	22.0	22.0	26.0	26.0
12.59	0.3	20.0	20.6	48.0	20.3	20.9	27.7	27.1
15.72	0.3	23.5	24.2	48.0	23.8	24.5	24.2	23.5
18.00	0.4	31.5	31.5	48.0	31.9	31.9	16.1	16.1
20.07	0.4	25.7	25.7	48.0	26.1	26.1	21.9	21.9
21.77	0.4	28.2	28.2	48.0	28.6	28.6	19.4	19.4
22.35	0.4	30.2	30.5	48.0	30.6	30.9	17.4	17.1
25.00	0.5	27.6	28.1	48.0	28.1	28.6	19.9	19.4
27.65	0.6	28.0	28.5	48.0	28.6	29.1	19.4	18.9
30.00	0.6	29.5	30.0	48.0	30.1	30.6	17.9	17.4

- Notes: 1). The spectrum was checked from 0.45 MHz to 30 MHz.
2). V-A : One end & Ground ; V-B : The other end & Ground
3). The symbol of '<' means 'or less'.
4). The symbol of '>' means 'or greater'.
5). The cable(2.0 m length) loss is included in the LISN factor.
6). See sec.11.5.2 in ANSI C63.4-1992 for the symbol '*'
7). A sample calculation was made at 0.45 MHz.

$$Lf + Mr = 0.2 + 44.7 = 44.9 \text{ dB/uV}$$

Where,

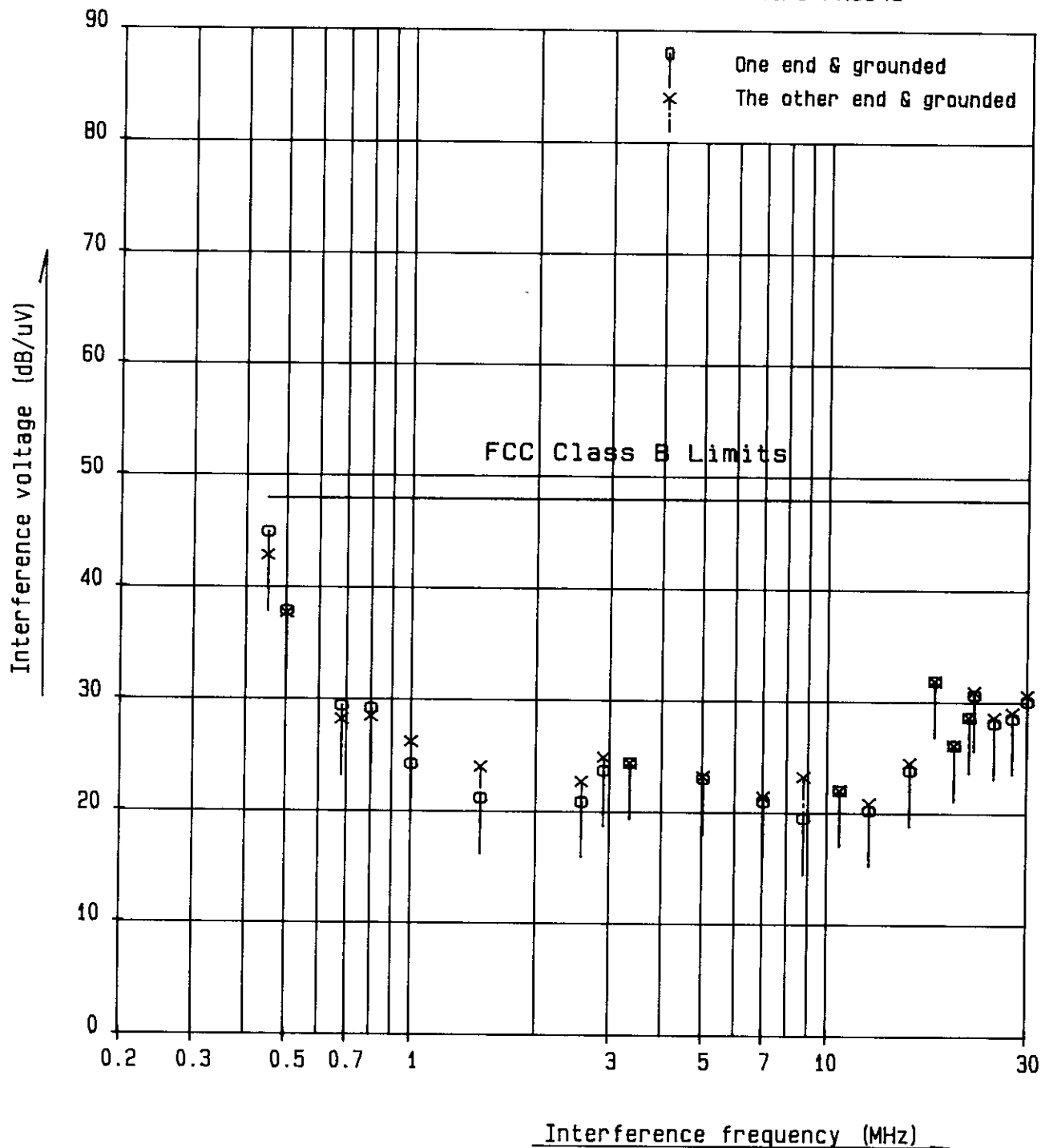
Lf : LISN Factor

Mr : Meter Reading

[Copy Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Transmitting Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.7.2.3, the AC power line preliminary conducted emissions measurement were carried out. The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

Frequency (MHz)	LISN Factor (dB)	Meter Reading		Limits (dB/uV)	Emission Levels		Margins	
		V-A (dB/uV)	V-B (dB/uV)		V-A (dB/uV)	V-B (dB/uV)	V-A (dB)	V-B (dB)
0.45	0.2	39.1	38.2	48.0	39.3	38.4	8.7	9.6
0.55	0.2	39.8	38.4	48.0	40.0	38.6	8.0	9.4
0.70	0.2	32.8	30.0	48.0	33.0	30.2	15.0	17.8
0.80	0.2	30.9	27.4	48.0	31.1	27.6	16.9	20.4
0.99	0.2	26.4	27.2	48.0	26.6	27.4	21.4	20.6
1.41	0.2	22.0	24.1	48.0	22.2	24.3	25.8	23.7
2.27	0.2	20.0	21.0	48.0	20.2	21.2	27.8	26.8
2.90	0.2	24.4	24.3	48.0	24.6	24.5	23.4	23.5
3.35	0.2	25.0	25.2	48.0	25.2	25.4	22.8	22.6
5.02	0.2	20.0	20.0	48.0	20.2	20.2	27.8	27.8
7.01	0.2	20.0	20.7	48.0	20.2	20.9	27.8	27.1
8.62	0.2	19.2	19.8	48.0	19.4	20.0	28.6	28.0
10.70	0.2	21.0	20.9	48.0	21.2	21.1	26.8	26.9
12.59	0.3	18.0	17.0	48.0	18.3	17.3	29.7	30.7
15.72	0.3	21.0	22.0	48.0	21.3	22.3	26.7	25.7
18.00	0.4	30.8	30.8	48.0	31.2	31.2	16.8	16.8
20.07	0.4	23.1	23.2	48.0	23.5	23.6	24.5	24.4
21.77	0.4	28.0	28.8	48.0	28.4	29.2	19.6	18.8
22.82	0.5	29.1	29.8	48.0	29.6	30.3	18.4	17.7
25.00	0.5	26.0	26.4	48.0	26.5	26.9	21.5	21.1
27.65	0.6	27.4	27.4	48.0	28.0	28.0	20.0	20.0
30.00	0.6	24.0	24.2	48.0	24.6	24.8	23.4	23.2

- Notes: 1). The spectrum was checked from 0.45 MHz to 30 MHz.
 2). V-A : One end & Ground ; V-B : The other end & Ground
 3). The symbol of '<' means 'or less'.
 4). The symbol of '>' means 'or greater'.
 5). The cable(2.0 m length) loss is included in the LISN factor.
 6). See sec.11.5.2 in ANSI C63.4-1992 for the symbol '*'.
 7). A sample calculation was made at 0.45 MHz.

$$Lf + Mr = 0.2 + 39.1 = 39.3 \text{ dB/uV}$$

Where,

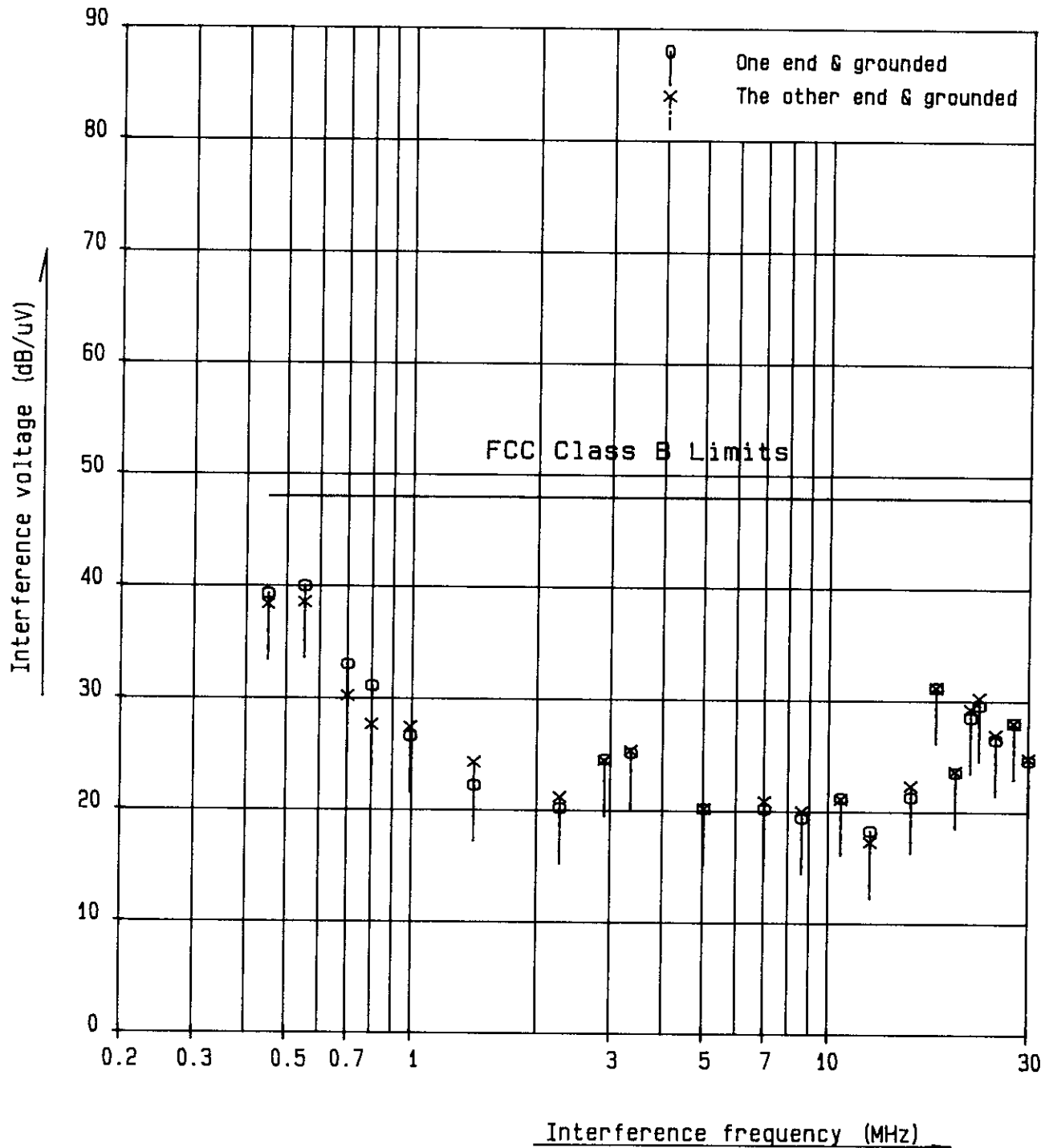
Lf : LISN Factor

Mr : Meter Reading

[Transmitting Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Receiving Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.7.2.3, the AC power line preliminary conducted emissions measurement were carried out. The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

Frequency (MHz)	LISN Factor (dB)	Meter Reading		Limits (dB/uV)	Emission Levels		Margins	
		V-A (dB/uV)	V-B (dB/uV)		V-A (dB/uV)	V-B (dB/uV)	V-A (dB)	V-B (dB)
0.48	0.2	42.5	40.3	48.0	42.7	40.5	5.3	7.5
0.52	0.2	39.0	38.1	48.0	39.2	38.3	8.8	9.7
0.68	0.2	30.2	29.9	48.0	30.4	30.1	17.6	17.9
0.80	0.2	23.1	22.4	48.0	23.3	22.6	24.7	25.4
0.94	0.2	26.4	26.5	48.0	26.6	26.7	21.4	21.3
1.40	0.2	20.0	22.5	48.0	20.2	22.7	27.8	25.3
2.28	0.2	18.8	20.4	48.0	19.0	20.6	29.0	27.4
2.90	0.2	24.0	24.8	48.0	24.2	25.0	23.8	23.0
3.35	0.2	25.0	25.5	48.0	25.2	25.7	22.8	22.3
5.02	0.2	20.2	20.0	48.0	20.4	20.2	27.6	27.8
7.01	0.2	19.8	20.9	48.0	20.0	21.1	28.0	26.9
8.62	0.2	18.8	21.4	48.0	19.0	21.6	29.0	26.4
10.70	0.2	21.0	20.6	48.0	21.2	20.8	26.8	27.2
12.59	0.3	15.9	16.4	48.0	16.2	16.7	31.8	31.3
15.72	0.3	21.0	21.5	48.0	21.3	21.8	26.7	26.2
18.00	0.4	30.5	30.7	48.0	30.9	31.1	17.1	16.9
20.07	0.4	23.0	22.8	48.0	23.4	23.2	24.6	24.8
21.77	0.4	25.0	24.6	48.0	25.4	25.0	22.6	23.0
22.82	0.5	27.4	27.5	48.0	27.9	28.0	20.1	20.0
25.00	0.5	23.6	23.8	48.0	24.1	24.3	23.9	23.7
27.65	0.6	26.5	26.9	48.0	27.1	27.5	20.9	20.5
30.00	0.6	23.8	23.9	48.0	24.4	24.5	23.6	23.5

- Notes: 1). The spectrum was checked from 0.45 MHz to 30 MHz.
2). V-A : One end & Ground ; V-B : The other end & Ground
3). The symbol of '<' means 'or less'.
4). The symbol of '>' means 'or greater'.
5). The cable(2.0 m length) loss is included in the LISN factor.
6). See sec.11.5.2 in ANSI C63.4-1992 for the symbol '*'.
7). A sample calculation was made at 0.48 MHz.

$$L_f + M_r = 0.2 + 42.5 = 42.7 \text{ dB/uV}$$

Where,

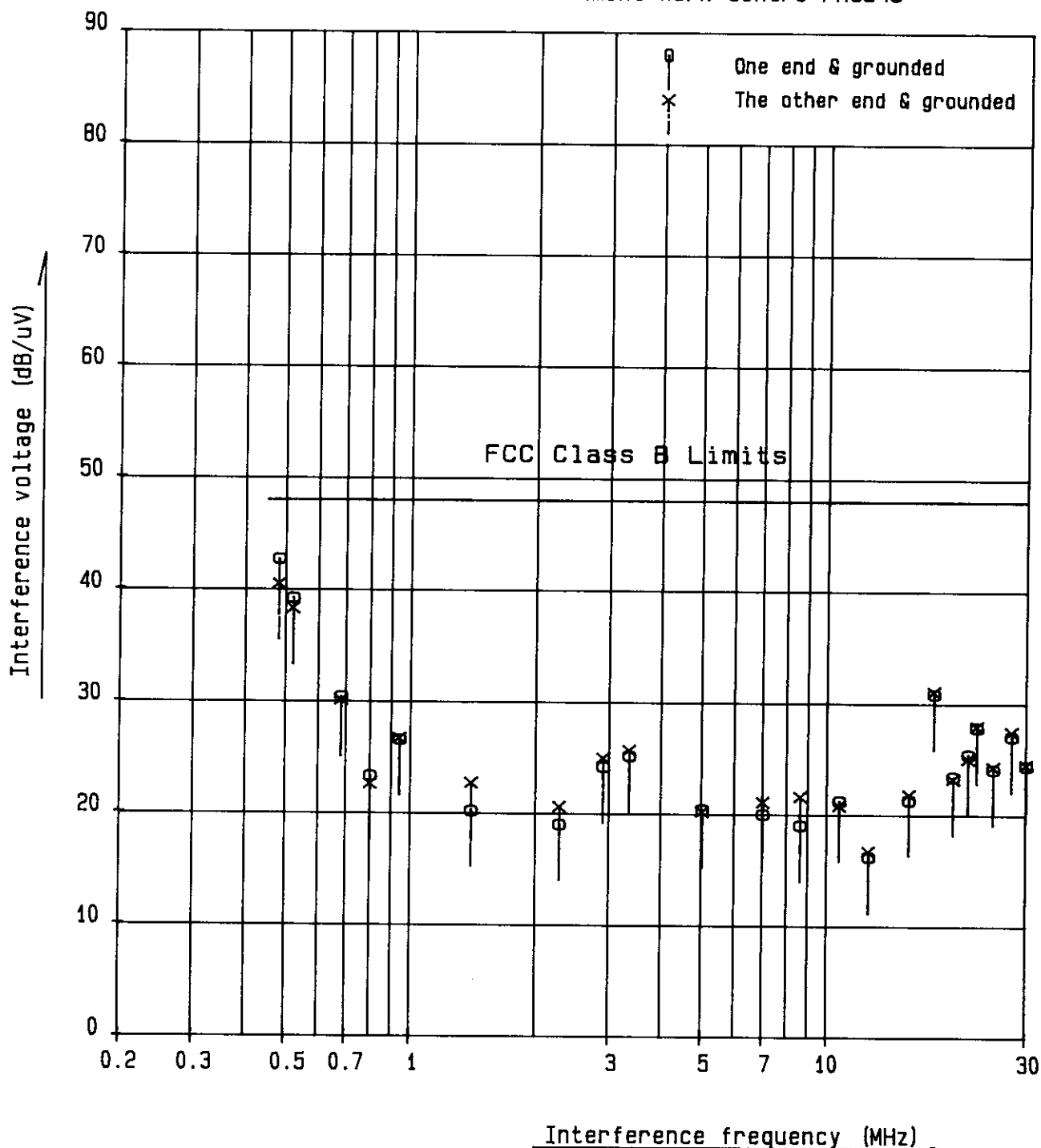
L_f : LISN Factor

M_r : Meter Reading

[Receiving Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Scanning Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.7.2.3, the AC power line preliminary conducted emissions measurement were carried out.

The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

Frequency (MHz)	LISN Factor (dB)	Meter Reading		Limits (dB/uV)	Emission Levels		Margins	
		V-A (dB/uV)	V-B (dB/uV)		V-A (dB/uV)	V-B (dB/uV)	V-A (dB)	V-B (dB)
0.45	0.2	39.4	38.8	48.0	39.6	39.0	8.4	9.0
0.52	0.2	39.5	38.0	48.0	39.7	38.2	8.3	9.8
0.68	0.2	32.3	30.0	48.0	32.5	30.2	15.5	17.8
0.95	0.2	26.2	27.4	48.0	26.4	27.6	21.6	20.4
1.23	0.2	22.5	23.0	48.0	22.7	23.2	25.3	24.8
1.67	0.2	20.0	23.4	48.0	20.2	23.6	27.8	24.4
2.57	0.2	21.5	22.6	48.0	21.7	22.8	26.3	25.2
2.90	0.2	23.5	23.8	48.0	23.7	24.0	24.3	24.0
3.35	0.2	24.1	24.4	48.0	24.3	24.6	23.7	23.4
5.02	0.2	20.9	21.4	48.0	21.1	21.6	26.9	26.4
7.01	0.2	18.8	21.0	48.0	19.0	21.2	29.0	26.8
8.71	0.2	19.0	19.2	48.0	19.2	19.4	28.8	28.6
10.70	0.2	21.8	21.5	48.0	22.0	21.7	26.0	26.3
12.59	0.3	20.0	19.5	48.0	20.3	19.8	27.7	28.2
15.71	0.3	21.2	22.1	48.0	21.5	22.4	26.5	25.6
18.00	0.4	30.5	30.7	48.0	30.9	31.1	17.1	16.9
20.07	0.4	21.9	22.0	48.0	22.3	22.4	25.7	25.6
21.59	0.4	29.0	29.2	48.0	29.4	29.6	18.6	18.4
22.25	0.4	30.5	30.8	48.0	30.9	31.2	17.1	16.8
25.00	0.5	24.8	25.0	48.0	25.3	25.5	22.7	22.5
27.65	0.6	27.8	28.0	48.0	28.4	28.6	19.6	19.4
30.00	0.6	27.9	27.6	48.0	28.5	28.2	19.5	19.8

- Notes: 1). The spectrum was checked from 0.45 MHz to 30 MHz.
2). V-A : One end & Ground ; V-B : The other end & Ground
3). The symbol of '<' means 'or less'.
4). The symbol of '>' means 'or greater'.
5). The cable(2.0 m length) loss is included in the LISN factor.
6). See sec.11.5.2 in ANSI C63.4-1992 for the symbol '*'.
7). A sample calculation was made at 0.45 MHz.

$$L_f + M_r = 0.2 + 39.4 = 39.6 \text{ dB/uV}$$

Where,

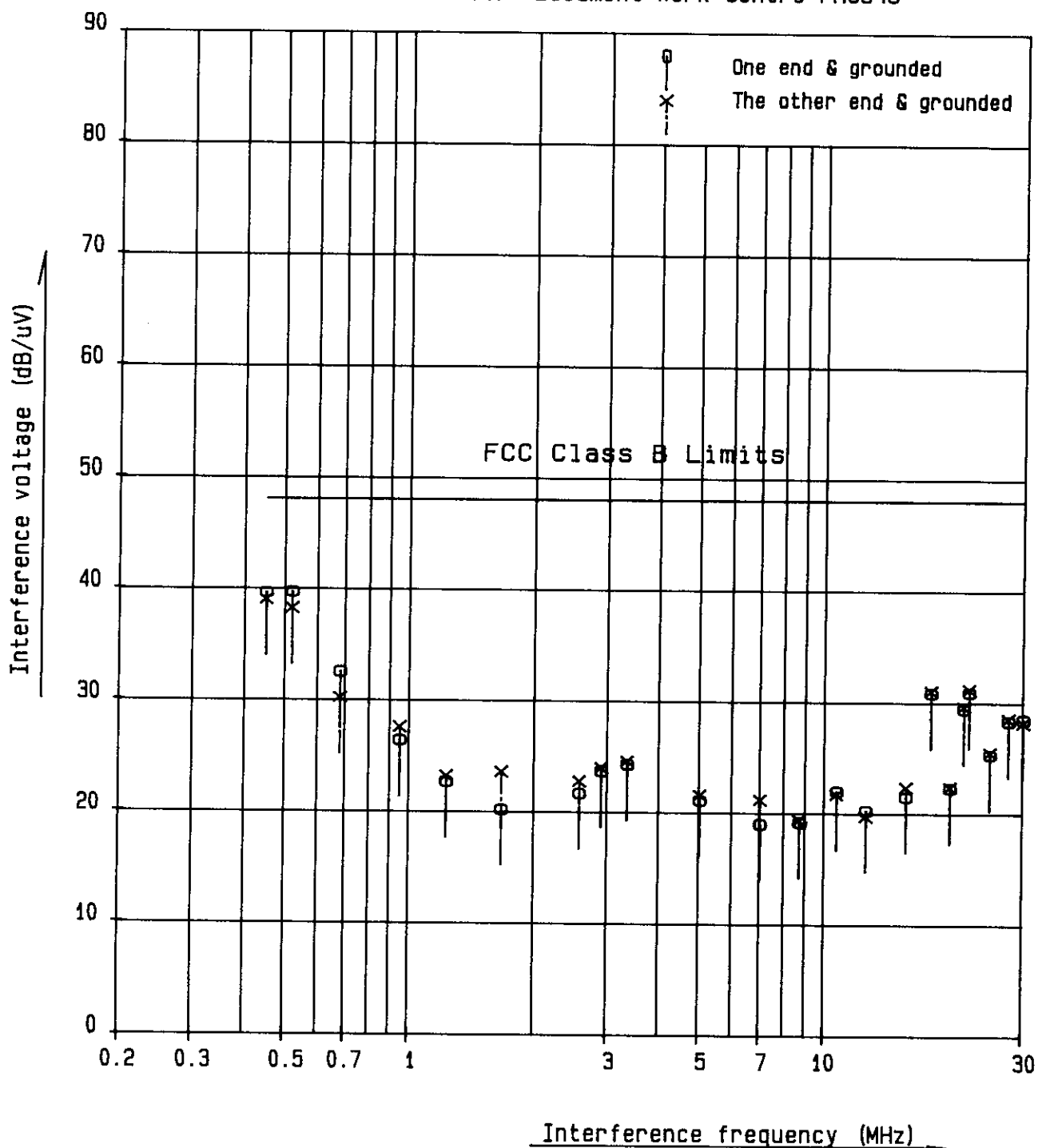
Lf : LISN Factor

Mr : Meter Reading

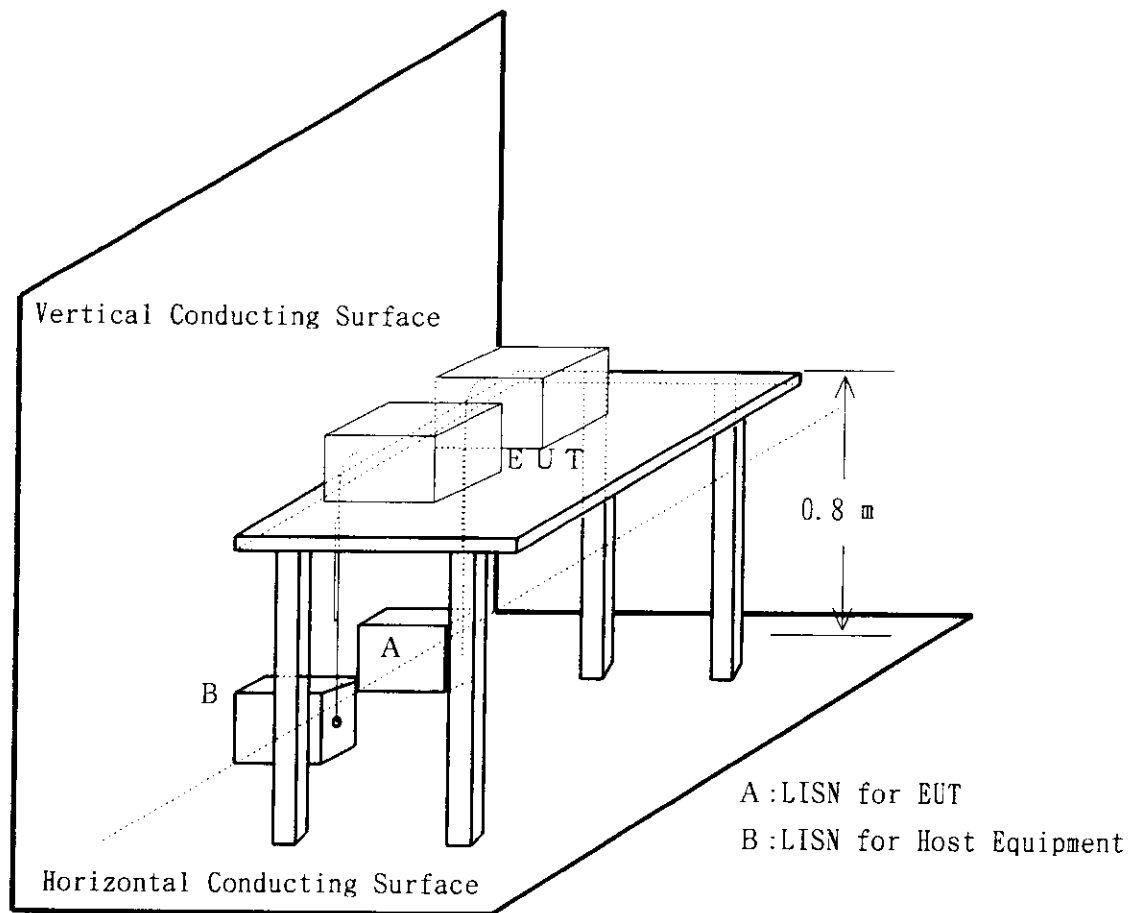
[Scanning Mode]

AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



TEST SET-UP SKETCH FOR AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT



[Ready Mode]

RADIATED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.8.3.1.1, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading at 3 m		Limits (dB/uV/m)	Emission Levels at 3 m		Margins	
		Horiz. (dB/uV)	Vert. (dB/uV)		Horiz. (dB/uV/m)	Vert. (dB/uV/m)	Horiz. (dB)	Vert. (dB)
30.0	-0.5	19.8	28.2	40.0	19.3	27.7	20.7	12.3
38.0	1.6	18.6	27.0	40.0	20.2	28.6	19.8	11.4
48.0	3.8	24.2	24.1	40.0	28.0	27.9	12.0	12.1
55.3	5.1	19.7	25.4	40.0	24.8	30.5	15.2	9.5
76.0	8.2	20.0	18.1	40.0	28.2	26.3	11.8	13.7
96.0	10.5	20.9	14.9	43.5	31.4	25.4	12.1	18.1
120.0	12.7	16.4	15.3	43.5	29.1	28.0	14.4	15.5
137.7	14.1	21.3	24.8	43.5	35.4	38.9	8.1	4.6
150.0	15.0	22.8	21.1	43.5	37.8	36.1	5.7	7.4
176.0	16.7	13.3	16.5	43.5	30.0	33.2	13.5	10.3
200.0	18.0	20.0	14.4	43.5	38.0	32.4	5.5	11.1
228.0	19.4	16.9	13.0	46.0	36.3	32.4	9.7	13.6
240.0	20.0	15.0	11.4	46.0	35.0	31.4	11.0	14.6
288.0	22.0	15.8	12.0	46.0	37.8	34.0	8.2	12.0
320.0	23.1	9.6	10.5	46.0	32.7	33.6	13.3	12.4
384.1	25.2	8.5	10.0	46.0	33.7	35.2	12.3	10.8
400.0	25.6	12.7	11.5	46.0	38.3	37.1	7.7	8.9
432.1	26.5	8.9	7.2	46.0	35.4	33.7	10.6	12.3
480.0	27.7	1.0	4.0	46.0	28.7	31.7	17.3	14.3
504.1	28.3	6.2	6.5	46.0	34.5	34.8	11.5	11.2
600.0	30.5	5.2	10.7	46.0	35.7	41.2	10.3	4.8
768.1	33.8	3.0	4.4	46.0	36.8	38.2	9.2	7.8
856.1	35.3	4.0	6.1	46.0	39.3	41.4	6.7	4.6

- Notes: 1). The spectrum was checked from 30 MHz to 1000 MHz.
2). The symbol of '<' means 'or less'.
3). The symbol of '>' means 'or greater'.
4). The cable(14.0 m length) loss is included in the antenna factor.
5). A sample calculation was made at 30.0 MHz.

$$Af + Mr = -0.5 + 19.8 = 19.3 \text{ dB/uV/m}$$

Where,

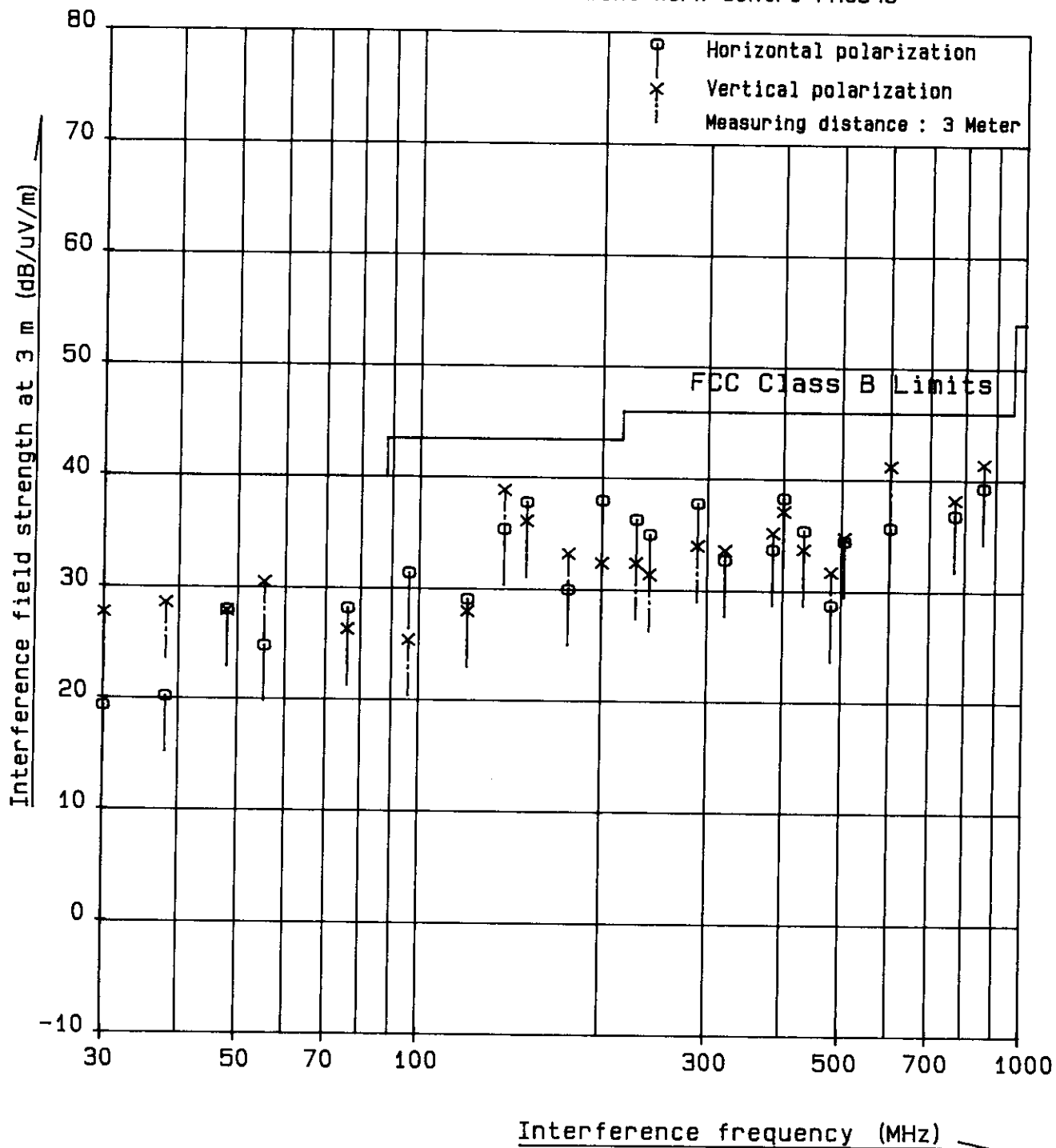
Af : Antenna Factor

Mr : Meter Reading

[Ready Mode]

RADIATED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Copy Mode]

RADIATED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.8.3.1.1, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading at 3 m		Limits (dB/uV/m)	Emission Levels at 3 m		Margins	
		Horiz. (dB/uV)	Vert. (dB/uV)		Horiz. (dB/uV/m)	Vert. (dB/uV/m)	Horiz. (dB)	Vert. (dB)
30.0	-0.5	23.0	31.0	40.0	22.5	30.5	17.5	9.5
38.0	1.6	18.3	25.4	40.0	19.9	27.0	20.1	13.0
48.0	3.8	22.7	23.6	40.0	26.5	27.4	13.5	12.6
55.3	5.1	20.7	16.1	40.0	25.8	21.2	14.2	18.8
76.0	8.2	21.3	20.7	40.0	29.5	28.9	10.5	11.1
96.0	10.5	20.5	14.6	43.5	31.0	25.1	12.5	18.4
120.0	12.7	16.9	14.5	43.5	29.6	27.2	13.9	16.3
137.7	14.1	23.6	26.0	43.5	37.7	40.1	5.8	3.4
147.4	14.9	19.1	17.4	43.5	34.0	32.3	9.5	11.2
175.1	16.6	13.7	14.4	43.5	30.3	31.0	13.2	12.5
192.0	17.6	14.7	15.1	43.5	32.3	32.7	11.2	10.8
221.2	19.1	15.1	11.5	46.0	34.2	30.6	11.8	15.4
240.0	20.0	14.3	10.4	46.0	34.3	30.4	11.7	15.6
288.0	22.0	14.6	10.7	46.0	36.6	32.7	9.4	13.3
315.0	23.0	10.2	7.0	46.0	33.2	30.0	12.8	16.0
352.0	24.2	4.0	7.8	46.0	28.2	32.0	17.8	14.0
400.0	25.6	11.4	10.8	46.0	37.0	36.4	9.0	9.6
480.0	27.7	1.5	3.0	46.0	29.2	30.7	16.8	15.3
528.1	28.9	4.5	4.9	46.0	33.4	33.8	12.6	12.2
600.0	30.5	7.7	11.4	46.0	38.2	41.9	7.8	4.1
736.1	33.3	3.7	2.8	46.0	37.0	36.1	9.0	9.9
900.1	36.0	< 0.0	1.4	46.0	< 36.0	37.4	> 10.0	8.6

- Notes: 1). The spectrum was checked from 30 MHz to 1000 MHz.
2). The symbol of '<' means 'or less'.
3). The symbol of '>' means 'or greater'.
4). The cable(14.0 m length) loss is included in the antenna factor.
5). A sample calculation was made at 30.0 MHz.

$$Af + Mr = -0.5 + 23.0 = 22.5 \text{ dB/uV/m}$$

Where,

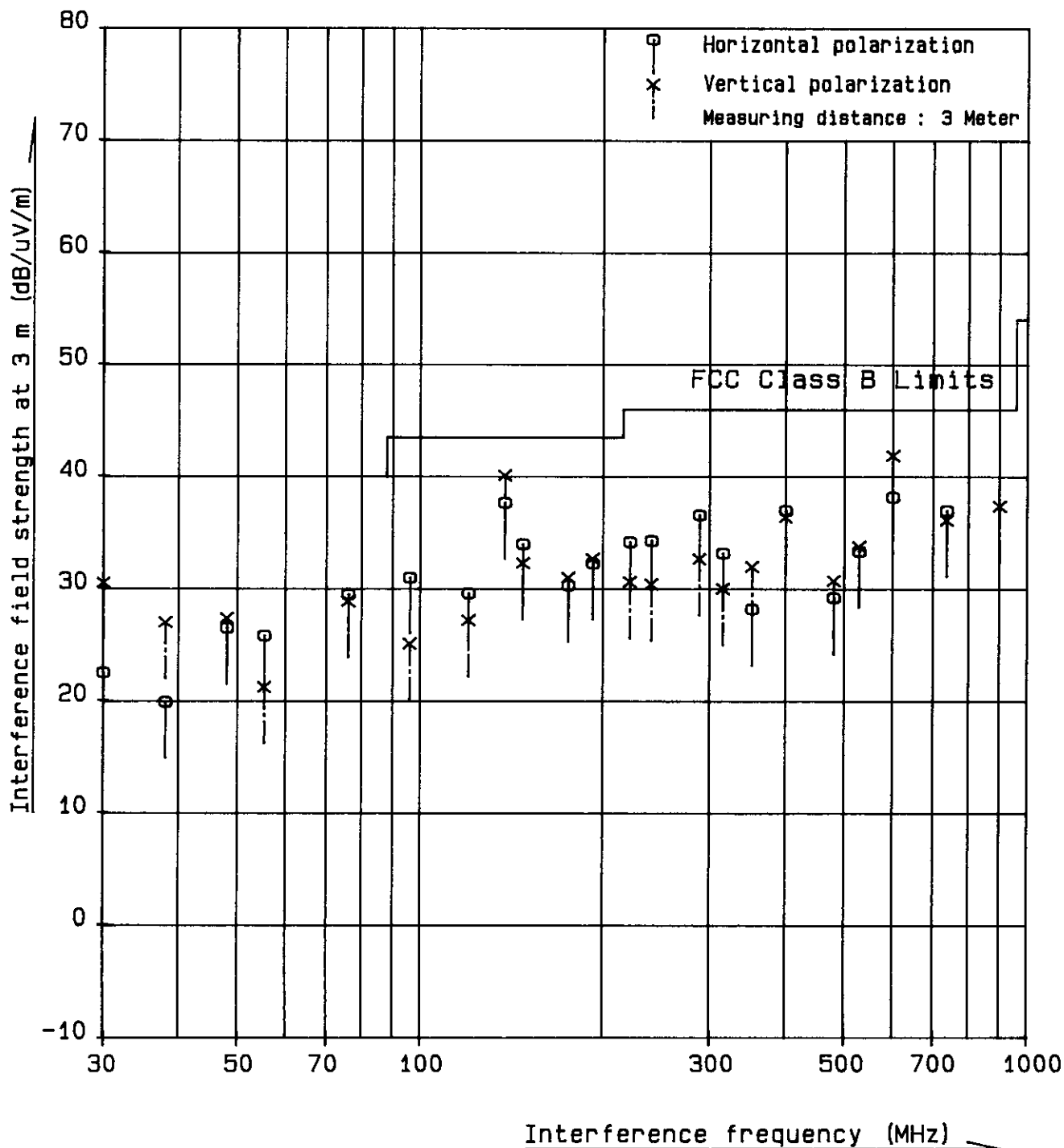
Af : Antenna Factor

Mr : Meter Reading

[Copy Mode]

RADIATED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Transmitting Mode]

RADIATED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.8.3.1.1, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading at 3 m		Limits (dB/uV/m)	Emission Levels at 3 m		Margins	
		Horiz. (dB/uV)	Vert. (dB/uV)		Horiz. (dB/uV/m)	Vert. (dB/uV/m)	Horiz. (dB)	Vert. (dB)
30.0	-0.5	18.6	30.7	40.0	18.1	30.2	21.9	9.8
38.0	1.6	17.0	26.4	40.0	18.6	28.0	21.4	12.0
48.0	3.8	24.0	27.0	40.0	27.8	30.8	12.2	9.2
55.3	5.1	19.7	15.4	40.0	24.8	20.5	15.2	19.5
76.0	8.2	21.7	16.6	40.0	29.9	24.8	10.1	15.2
96.0	10.5	20.3	14.8	43.5	30.8	25.3	12.7	18.2
120.0	12.7	16.3	12.8	43.5	29.0	25.5	14.5	18.0
137.7	14.1	21.7	21.4	43.5	35.8	35.5	7.7	8.0
150.0	15.0	21.9	20.0	43.5	36.9	35.0	6.6	8.5
176.0	16.7	14.0	16.2	43.5	30.7	32.9	12.8	10.6
200.0	18.0	15.8	12.1	43.5	33.8	30.1	9.7	13.4
228.0	19.4	16.1	11.4	46.0	35.5	30.8	10.5	15.2
240.0	20.0	15.0	11.2	46.0	35.0	31.2	11.0	14.8
288.0	22.0	15.6	11.4	46.0	37.6	33.4	8.4	12.6
320.0	23.1	9.0	10.1	46.0	32.1	33.2	13.9	12.8
384.1	25.2	7.2	9.8	46.0	32.4	35.0	13.6	11.0
400.0	25.6	13.3	11.1	46.0	38.9	36.7	7.1	9.3
480.0	27.7	2.4	3.6	46.0	30.1	31.3	15.9	14.7
504.1	28.3	6.8	7.4	46.0	35.1	35.7	10.9	10.3
600.0	30.5	5.5	10.2	46.0	36.0	40.7	10.0	5.3
768.1	33.8	2.8	4.1	46.0	36.6	37.9	9.4	8.1
856.1	35.3	5.1	5.8	46.0	40.4	41.1	5.6	4.9

- Notes: 1). The spectrum was checked from 30 MHz to 1000 MHz.
2). The symbol of '<' means 'or less'.
3). The symbol of '>' means 'or greater'.
4). The cable(14.0 m length) loss is included in the antenna factor.
5). A sample calculation was made at 30.0 MHz.

$$Af + Mr = -0.5 + 18.6 = 18.1 \text{ dB/uV/m}$$

Where,

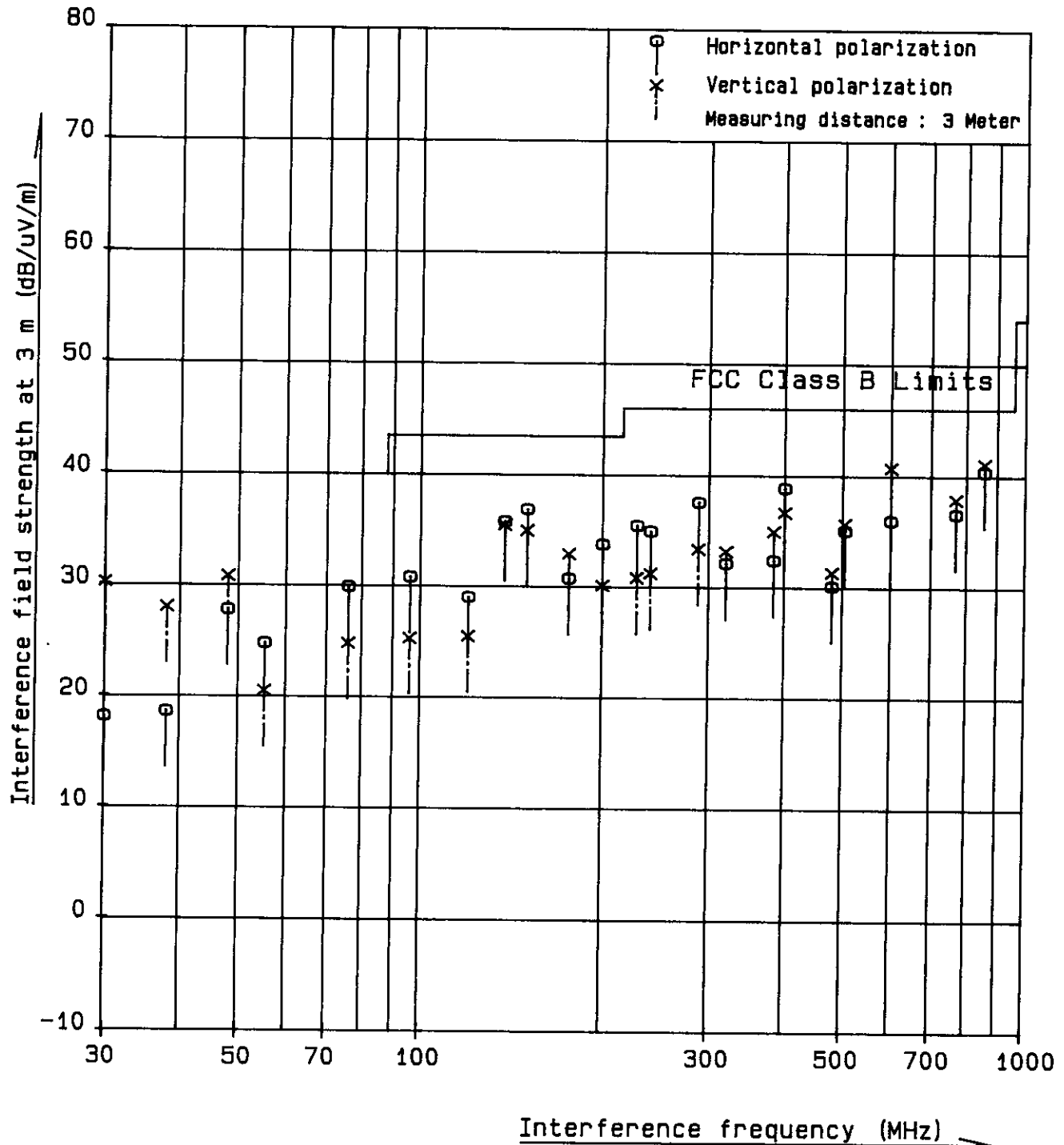
Af : Antenna Factor

Mr : Meter Reading

[Transmitting Mode]

RADIATED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Receiving Mode]

RADIATED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.8.3.1.1, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading at 3 m		Limits (dB/uV/m)	Emission Levels at 3 m		Margins	
		Horiz. (dB/uV)	Vert. (dB/uV)		Horiz. (dB/uV/m)	Vert. (dB/uV/m)	Horiz. (dB)	Vert. (dB)
30.0	-0.5	19.4	28.6	40.0	18.9	28.1	21.1	11.9
38.0	1.6	18.5	25.7	40.0	20.1	27.3	19.9	12.7
48.0	3.8	25.5	25.1	40.0	29.3	28.9	10.7	11.1
55.3	5.1	20.5	16.3	40.0	25.6	21.4	14.4	18.6
76.0	8.2	22.6	21.5	40.0	30.8	29.7	9.2	10.3
96.0	10.5	20.9	14.8	43.5	31.4	25.3	12.1	18.2
137.7	14.1	21.8	23.6	43.5	35.9	37.7	7.6	5.8
150.0	15.0	24.4	21.1	43.5	39.4	36.1	4.1	7.4
176.0	16.7	12.5	15.6	43.5	29.2	32.3	14.3	11.2
192.0	17.6	14.9	14.7	43.5	32.5	32.3	11.0	11.2
228.0	19.4	15.5	12.6	46.0	34.9	32.0	11.1	14.0
240.0	20.0	14.3	10.3	46.0	34.3	30.3	11.7	15.7
288.0	22.0	13.2	8.9	46.0	35.2	30.9	10.8	15.1
315.0	23.0	9.3	5.8	46.0	32.3	28.8	13.7	17.2
384.1	25.2	8.7	10.1	46.0	33.9	35.3	12.1	10.7
400.0	25.6	10.6	10.9	46.0	36.2	36.5	9.8	9.5
432.1	26.5	9.2	8.5	46.0	35.7	35.0	10.3	11.0
480.0	27.7	3.5	4.3	46.0	31.2	32.0	14.8	14.0
528.1	28.9	4.9	5.2	46.0	33.8	34.1	12.2	11.9
600.0	30.5	5.4	11.7	46.0	35.9	42.2	10.1	3.8
736.1	33.3	3.6	3.5	46.0	36.9	36.8	9.1	9.2
856.1	35.3	4.0	5.9	46.0	39.3	41.2	6.7	4.8
900.1	36.0	< 0.0	1.0	46.0	< 36.0	37.0	> 10.0	9.0

- Notes: 1). The spectrum was checked from 30 MHz to 1000 MHz.
2). The symbol of '<' means 'or less'.
3). The symbol of '>' means 'or greater'.
4). The cable(14.0 m length) loss is included in the antenna factor.
5). A sample calculation was made at 30.0 MHz.

$$Af + Mr = -0.5 + 19.4 = 18.9 \text{ dB/uV/m}$$

Where,

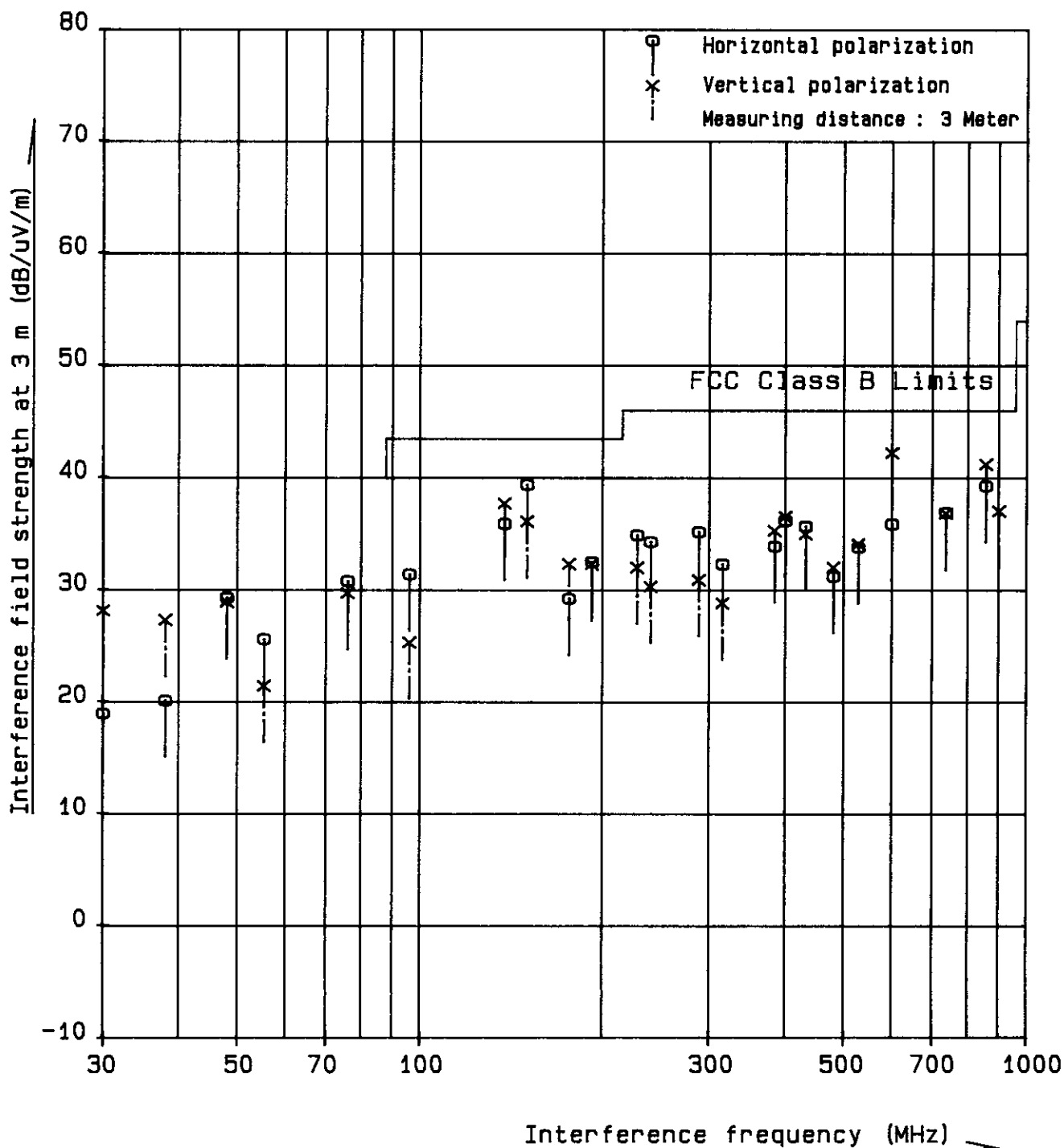
Af : Antenna Factor

Mr : Meter Reading

[Receiving Mode]

RADIATED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



[Scanning Mode]

RADIATED EMISSIONS MEASUREMENT :

According to description of ANSI C63.4-1992 sec.8.3.1.1, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading at 3 m		Limits (dB/uV/m)	Emission Levels at 3 m		Margins	
		Horiz. (dB/uV)	Vert. (dB/uV)		Horiz. (dB/uV/m)	Vert. (dB/uV/m)	Horiz. (dB)	Vert. (dB)
30.0	-0.5	18.7	27.5	40.0	18.2	27.0	21.8	13.0
38.0	1.6	18.6	25.5	40.0	20.2	27.1	19.8	12.9
48.0	3.8	24.0	25.5	40.0	27.8	29.3	12.2	10.7
55.3	5.1	18.4	12.1	40.0	23.5	17.2	16.5	22.8
76.0	8.2	20.0	20.0	40.0	28.2	28.2	11.8	11.8
96.0	10.5	22.0	14.4	43.5	32.5	24.9	11.0	18.6
120.0	12.7	16.2	16.0	43.5	28.9	28.7	14.6	14.8
137.7	14.1	22.4	21.4	43.5	36.5	35.5	7.0	8.0
147.4	14.9	21.3	20.5	43.5	36.2	35.4	7.3	8.1
175.1	16.6	13.3	12.9	43.5	29.9	29.5	13.6	14.0
192.0	17.6	16.3	15.1	43.5	33.9	32.7	9.6	10.8
221.2	19.1	15.0	12.7	46.0	34.1	31.8	11.9	14.2
240.0	20.0	14.3	10.4	46.0	34.3	30.4	11.7	15.6
288.0	22.0	14.6	10.8	46.0	36.6	32.8	9.4	13.2
320.0	23.1	7.0	9.1	46.0	30.1	32.2	15.9	13.8
352.1	24.2	6.6	7.7	46.0	30.8	31.9	15.2	14.1
400.1	25.6	10.9	12.3	46.0	36.5	37.9	9.5	8.1
480.0	27.7	1.4	2.9	46.0	29.1	30.6	16.9	15.4
528.1	28.9	3.8	5.4	46.0	32.7	34.3	13.3	11.7
600.0	30.5	6.0	11.0	46.0	36.5	41.5	9.5	4.5
736.1	33.3	3.4	3.3	46.0	36.7	36.6	9.3	9.4
900.1	36.0	< 0.0	1.2	46.0	< 36.0	37.2	> 10.0	8.8

- Notes: 1). The spectrum was checked from 30 MHz to 1000 MHz.
2). The symbol of '<' means 'or less'.
3). The symbol of '>' means 'or greater'.
4). The cable(14.0 m length) loss is included in the antenna factor.
5). A sample calculation was made at 30.0 MHz.

$$Af + Mr = -0.5 + 18.7 = 18.2 \text{ dB/uV/m}$$

Where,

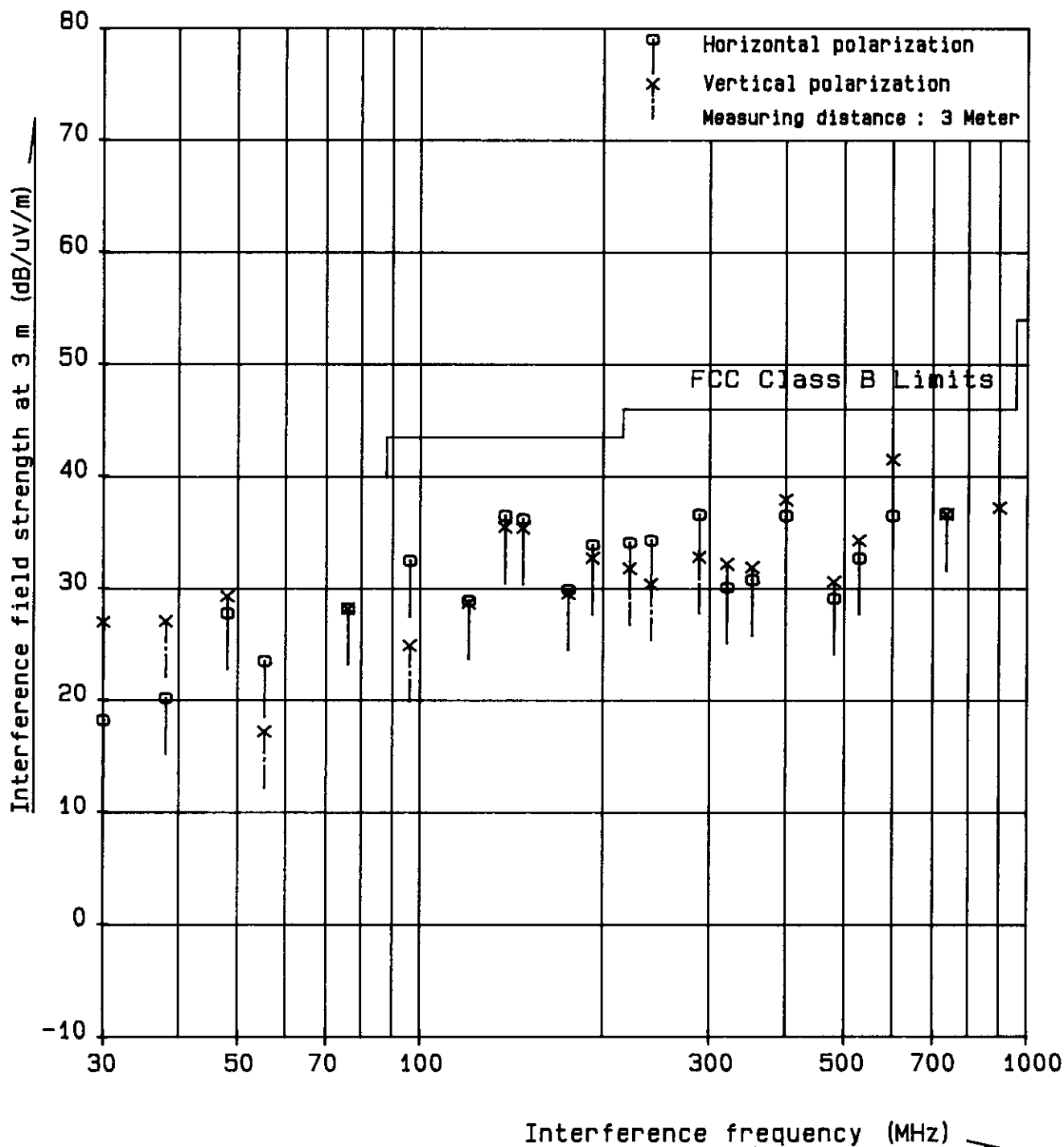
Af : Antenna Factor

Mr : Meter Reading

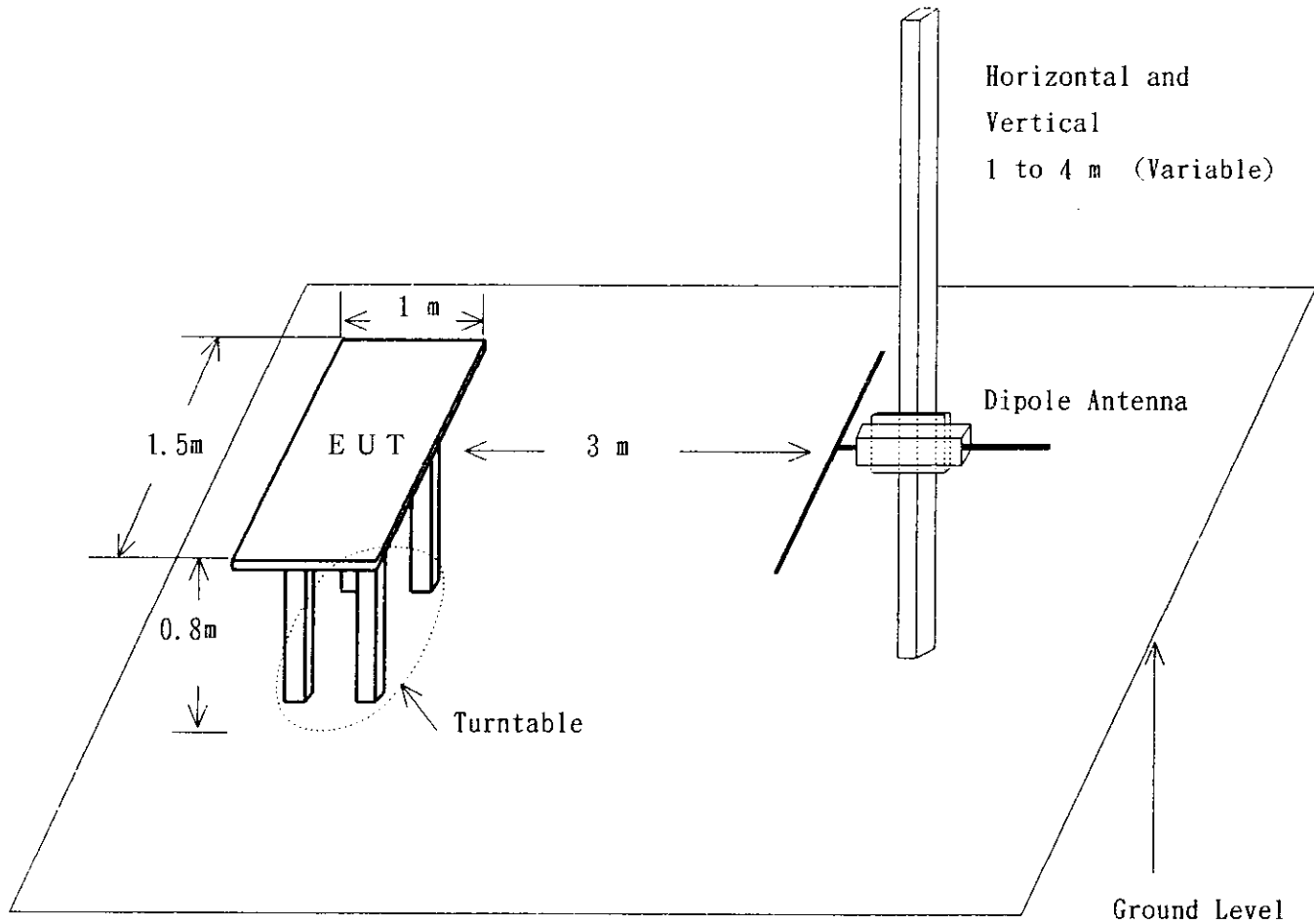
[Scanning Mode]

RADIATED EMISSIONS MEASUREMENT

MODEL NO.: Document Work Centre-PR0545



TEST SET-UP SKETCH FOR RADIATED EMISSIONS MEASUREMENT



Test Instrumentation Used, AC Power Line Conducted Emissions Measurement:

Type	Manufacturer Model No.	Serial No.	Last Cal.	Cal. Interval
Receiver(*)	Rohde & Schwarz ESH 2	880370/016	May 1997	1 year
LISN	Kyoritsu Electrical KNW 407	8 855-2	Apr 1997	1 year
Shield Enclosure	TDK Co., Ltd.	7S	Sep 1997	1 year
RF CABLE	Fujikura 3D-2W	155-21-005	May 1997	1 year

(*) Setting of measuring instrument:

a) Quasi-Peak Mode

Detector Function : CISPR Quasi Peak

IF Bandwidth : 9 kHz (0.15 MHz - 30 MHz)

b) Average Mode

Detector Function : Average

10 kHz (0.15 MHz - 30 MHz)

Test Instrumentation Used, Radiated Emissions Measurement:

Type	Manufacturer Model No.	Serial No.	Last Cal.	Cal. Interval
Receiver(*)	Rohde & Schwarz ESVP	881487/005	May 1997	1 year
Antenna	Kyoritsu Electrical KBA-511A	0-170-1	Nov 1997	1 year
Antenna	Kyoritsu Electrical KBA 611	0-147-14	Nov 1997	1 year
Site	TDK Co., Ltd. Anechoic Chamber	NO. 2	May 1997	1 year
RF Cable	Fujikura 5D2W	155-21-001	May 1997	1 year

(*) Setting of measuring instrument:

Detector Function : CISPR Quasi-Peak

IF Bandwidth : 120 kHz (30 MHz ~ 1000 MHz)

EXHIBIT E

(FCC Ref. 2.1033(b)(7))

"Photographs"