



JQA Application No. :441-20259
Model No. :NC-400D
Regulation :CFR 47 FCC Rules Part 15

FCC ID :F5GNC-400D
Issue Date :July 9 , 2002
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2. TEST DATA

2.1.1 AC Powerline Conducted Emissions Measurements (0.45 MHz - 30 MHz)

Operating Condition : Stand-by

Date : July 2, 2002
Temp. : 23°C Humi.: 83%

Frequency (MHz)	LISN Factor (dB)	Meter Reading (dBμV)				Limits (dBμV)	Emission Level (dBμV)		Margin (dB)	Comment
		V-A		V-B						
		Q.P	AVE	Q.P	AVE		Q.P	AVE		
0.45	0.1	< 10.0	-	< 10.0	-	48.0	< 10.1	-	> 37.9	
0.49	0.1	19.0	-	16.7	-	48.0	19.1	-	28.9	
0.69	0.1	17.1	-	17.5	-	48.0	17.6	-	30.4	
0.89	0.1	20.9	-	21.7	-	48.0	21.8	-	26.2	
0.99	0.1	21.7	-	21.6	-	48.0	21.8	-	26.2	
1.08	0.1	20.4	-	19.0	-	48.0	20.5	-	27.5	
1.48	0.1	19.4	-	19.9	-	48.0	20.0	-	28.0	
1.58	0.1	20.0	-	19.5	-	48.0	20.1	-	27.9	
2.00	0.1	< 10.0	-	< 10.0	-	48.0	< 10.1	-	> 37.9	
2.50	0.1	12.7	-	15.4	-	48.0	15.5	-	32.5	
3.00	0.1	18.5	-	17.8	-	48.0	18.6	-	29.4	
3.89	0.1	36.0	-	36.0	-	48.0	36.1	-	11.9	
5.00	0.1	23.2	-	22.8	-	48.0	23.3	-	24.7	
7.00	0.1	16.5	-	15.9	-	48.0	16.6	-	31.4	
10.01	0.2	14.3	-	14.2	-	48.0	14.5	-	33.5	
11.73	0.2	28.1	-	28.2	-	48.0	28.4	-	19.6	
15.00	0.3	14.2	-	13.7	-	48.0	14.5	-	33.5	
17.46	0.3	32.2	-	32.9	-	48.0	33.2	-	14.8	
20.00	0.4	14.1	-	16.4	-	48.0	16.8	-	31.2	
25.00	0.5	< 10.0	-	10.1	-	48.0	10.6	-	37.4	
30.00	0.6	< 10.0	-	< 10.0	-	48.0	< 10.6	-	> 37.4	

- Notes:
- 1) Test Location : Shielded Room
 - 2) The spectrum was checked from 0.45 MHz to 30 MHz
 - 3) LISN(Line Impedances Stabilization Network) factor includes the cable loss for 5 meter.
 - 4) The symbol of "<" means "or less".
 - 5) The symbol of ">" means "more than".
 - 6) The symbol of "-" means "Not applicable".
 - 7) V-A : One end & Ground V-B : The other end & Ground
 - 8) Q.P : Quasi-Peak Detector AVE : Average Detector
 - 9) A sample calculation was made at 0.45 MHz
 $Amn + Mr = 0.1 + 10.0 = 10.1 \text{ dBuV}$
Amn : AMN Factor Mr : Meter Reading
 - 10) Setting of measuring instrument :
Detector Function : CISPR Quasi-Peak / Average
IF Bandwidth : 9 kHz / 10 kHz (0.15 MHz - 30 MHz)
 - 11) The following disturbance voltage was defined in accordance with ANSI C63.4-1992 clause 11.5.2

Tested by :

T. Aoki
Takashi Aoki



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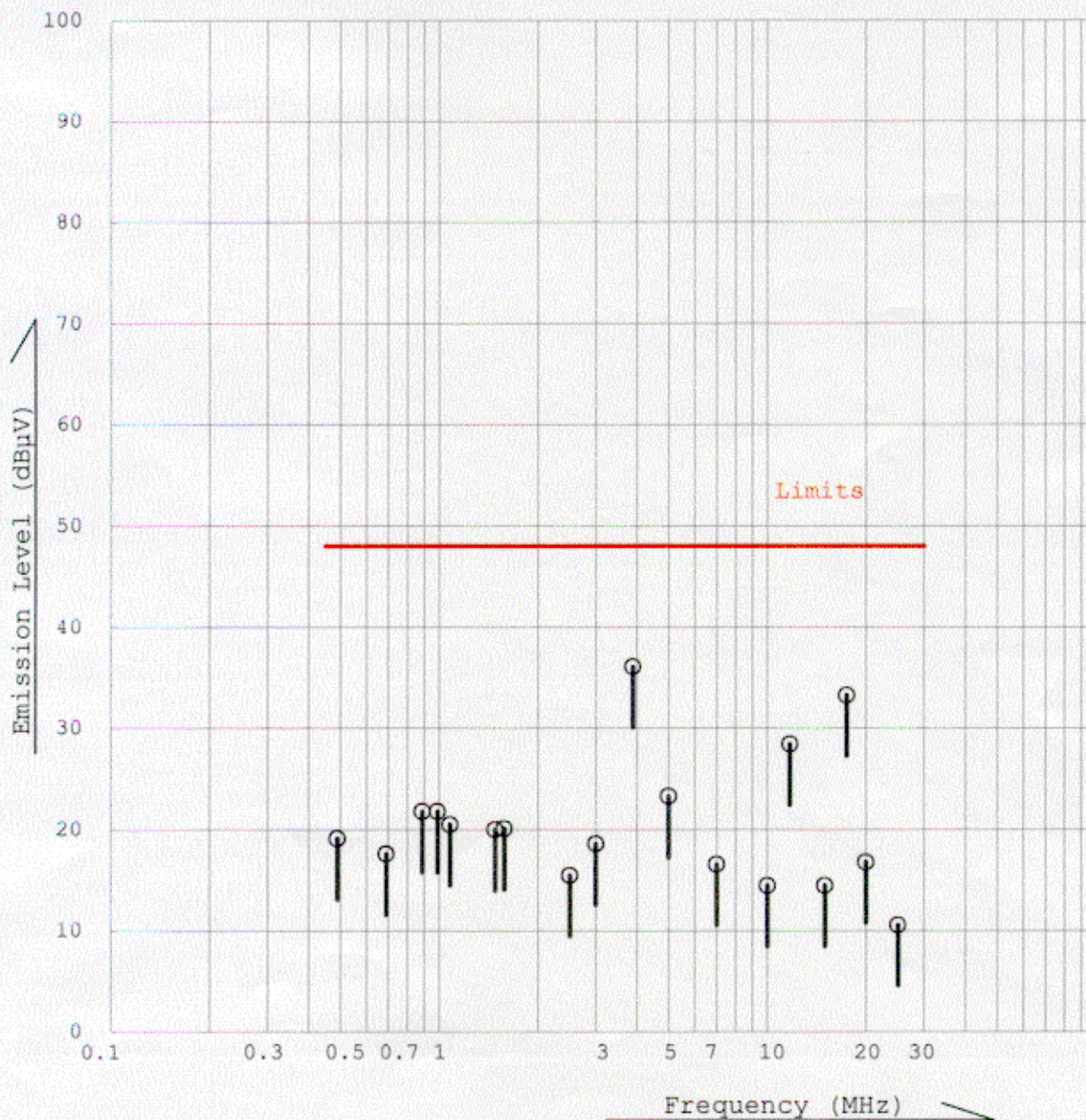
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AC Powerline Conducted Emissions Measurements (0.45 MHz - 30 MHz)

Operating Condition : Stand-by

Classifications : B

○ Q.P Mode
x AVE Mode





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2. TEST DATA

2.1.2 AC Powerline Conducted Emissions Measurements (0.45 MHz - 30 MHz)

Operating Condition : Printing

Date :July 2, 2002
Temp. : 23°C Humi.: 83%

Frequency (MHz)	LISN Factor (dB)	Meter Reading (dBµV)				Limits (dBµV)	Emission Level (dBµV)		Margin (dB)	Comment
		V-A		V-B						
		Q.P	AVE	Q.P	AVE		Q.P	AVE		
0.45	0.1	16.1	-	12.3	-	48.0	16.2	-	31.8	
0.49	0.1	28.3	-	24.7	-	48.0	28.4	-	19.6	
0.79	0.1	21.3	-	22.9	-	48.0	23.0	-	25.0	
0.99	0.1	21.9	-	25.6	-	48.0	25.7	-	22.3	
1.38	0.1	21.8	-	25.0	-	48.0	25.1	-	22.9	
1.48	0.1	22.2	-	24.6	-	48.0	24.7	-	23.3	
1.78	0.1	22.3	-	25.4	-	48.0	25.5	-	22.5	
2.27	0.1	23.6	-	25.0	-	48.0	25.1	-	22.9	
2.99	0.1	37.1	-	37.5	-	48.0	37.6	-	10.4	
3.39	0.1	46.2	-	46.4	-	48.0	46.5	-	1.5	
3.79	0.1	42.9	-	42.8	-	48.0	43.0	-	5.0	
5.09	0.1	33.0	-	31.2	-	48.0	33.1	-	14.9	
7.38	0.1	28.4	-	27.4	-	48.0	28.5	-	19.5	
9.58	0.1	28.5	-	28.5	-	48.0	28.6	-	19.4	
10.85	0.2	30.1	-	31.1	-	48.0	31.3	-	16.7	
14.73	0.3	31.6	-	31.8	-	48.0	32.1	-	15.9	
17.53	0.4	38.3	-	39.2	-	48.0	39.6	-	8.4	
20.00	0.4	28.8	-	29.5	-	48.0	29.9	-	18.1	
23.04	0.5	20.2	-	24.9	-	48.0	25.4	-	22.6	
25.00	0.5	13.7	-	10.6	-	48.0	14.2	-	33.8	
30.00	0.6	12.1	-	13.7	-	48.0	14.3	-	33.7	

- Notes: 1) Test Location : Shielded Room
2) The spectrum was checked from 0.45 MHz to 30 MHz
3) LISN(Line Impedances Stabilization Network) factor includes the cable loss for 5 meter.
4) The symbol of "<" means "or less".
5) The symbol of ">" means "more than".
6) The symbol of "-" means "Not applicable".
7) V-A : One end & Ground V-B : The other end & Ground
8) Q.P : Quasi-Peak Detector AVE : Average Detector
9) A sample calculation was made at 0.45 MHz
$$\text{Amn} + \text{Mr} = 0.1 + 16.1 = 16.2 \text{ dBuV}$$
$$\text{Amn} : \text{AMN Factor} \quad \text{Mr} : \text{Meter Reading}$$

10) Setting of measuring instrument :
Detector Function : CISPR Quasi-Peak / Average
IF Bandwidth : 9 kHz / 10 kHz (0.15 MHz - 30 MHz)
11) The following disturbance voltage was defined in accordance with ANSI C63.4-1992 clause 11.5.2

Tested by : T. Aoki
Takashi Aoki



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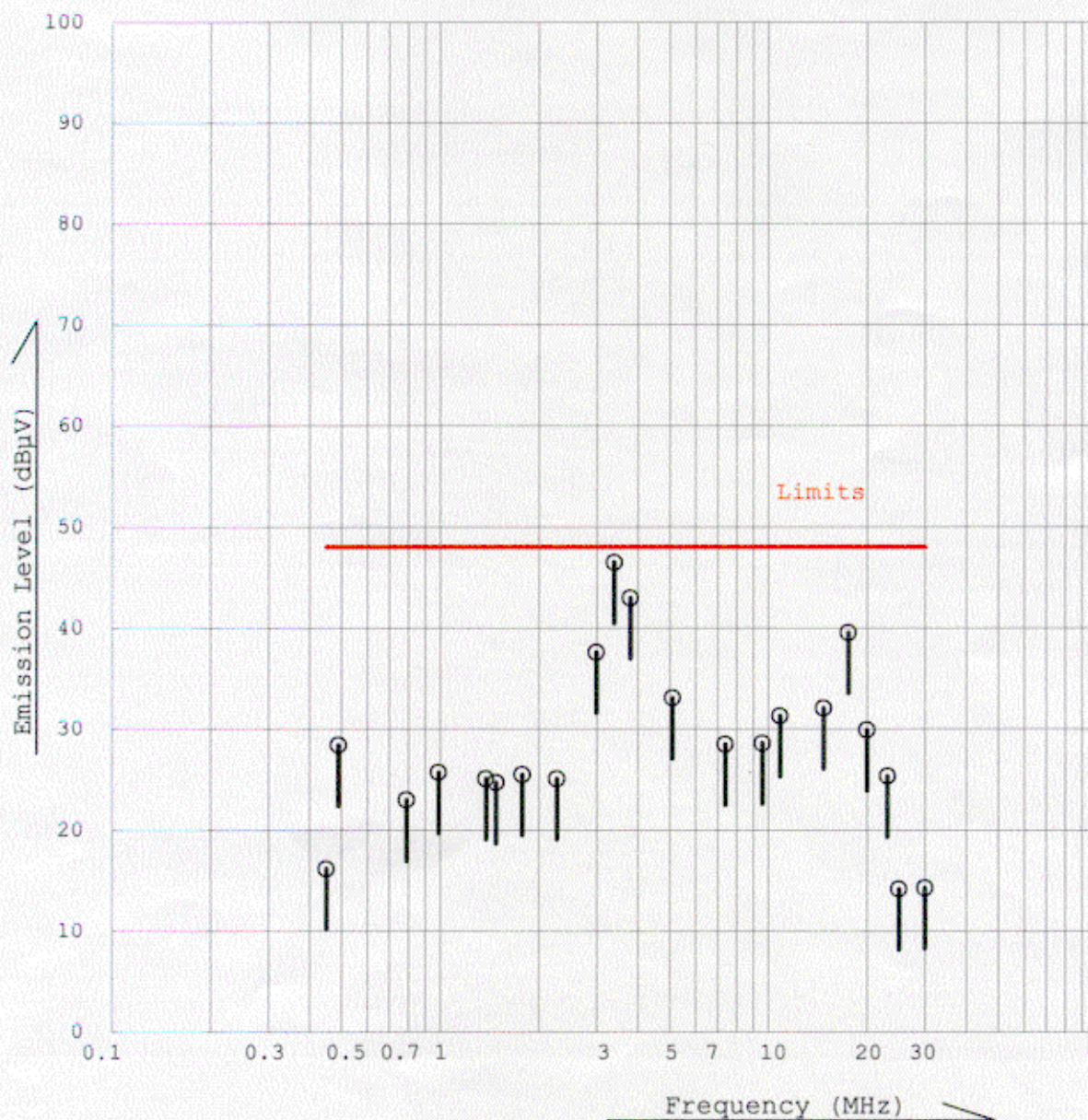
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AC Powerline Conducted Emissions Measurements (0.45 MHz - 30 MHz)

Operating Condition : Printing

Classifications : B

○ Q.P Mode
x AVE Mode



2.2.1 Radiated Emissions Measurements (30 MHz - 1000 MHz)

Operating Condition : Stand-by

Date : July 02, 2002
 Temp. : 28°C Humi.: 78%

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading (dBμV)		Limits (dBμV/m)	Emission Level (dBμV/m)		Margin (dB)		Comment
		Horiz.	Ver.		Horiz.	Ver.	Horiz.	Ver.	
32.0	19.0	< -2.0	3.0	40.0	< 17.0	22.0	> 23.0	18.0	
44.0	14.8	11.7	9.5	40.0	26.5	24.3	13.5	15.7	
55.0	11.4	2.0	11.7	40.0	13.4	23.1	26.6	16.9	
61.6	9.6	5.9	14.0	40.0	15.5	23.6	24.5	16.4	
99.9	12.3	9.7	7.5	43.5	22.0	19.8	21.5	23.7	
115.6	14.7	7.0	7.2	43.5	21.7	21.9	21.8	21.6	
150.0	17.6	9.6	10.8	43.5	27.2	28.4	16.3	15.1	
175.0	19.3	1.2	5.7	43.5	20.5	25.0	23.0	18.5	
187.0	19.6	3.0	4.2	43.5	22.6	23.8	20.9	19.7	
225.0	20.8	2.7	5.5	46.0	23.5	26.3	22.5	19.7	
244.0	21.5	3.0	2.5	46.0	24.5	24.0	21.5	22.0	
262.5	22.4	13.3	8.7	46.0	35.7	31.1	10.3	14.9	
299.9	23.9	7.5	8.7	46.0	31.4	32.6	14.6	13.4	
333.1	21.7	11.4	11.5	46.0	33.1	33.2	12.9	12.8	
360.0	22.3	11.2	13.6	46.0	33.5	35.9	12.5	10.1	
407.9	23.0	9.6	7.4	46.0	32.6	30.4	13.4	15.6	
450.0	24.4	8.6	12.6	46.0	33.0	37.0	13.0	9.0	
487.5	25.5	12.8	15.2	46.0	38.3	40.7	7.7	5.3	
525.0	26.4	6.2	11.1	46.0	32.6	37.5	13.4	8.5	
637.5	28.7	4.3	5.5	46.0	33.0	34.2	13.0	11.8	
850.0	32.7	< -2.0	< -2.0	46.0	< 30.7	< 30.7	> 15.3	> 15.3	
1000.0	34.9	< -2.0	< -2.0	54.0	< 32.9	< 32.9	> 21.1	> 21.1	

- Notes:
- 1) Test Location : Open Site No.1
 - 2) Test Distance : 3 m
 - 3) The spectrum was checked from 30 MHz to 1000 MHz.
 - 4) Antenna factor includes the cable loss for 58 meter.
 - 5) The symbol of "<" means "or less".
 - 6) The symbol of ">" means "more than".
 - 7) A sample calculation was made at 32.0 MHz
 $Af + Mr = 19.0 + 3.0 = 22.0 \text{ dB}\mu\text{V/m}$
 Af : Antenna Factor Mr : Meter Reading
 - 8) Setting of measuring instrument :
 Detector Function : CISPR Quasi-Peak
 IF Bandwidth : 120 kHz

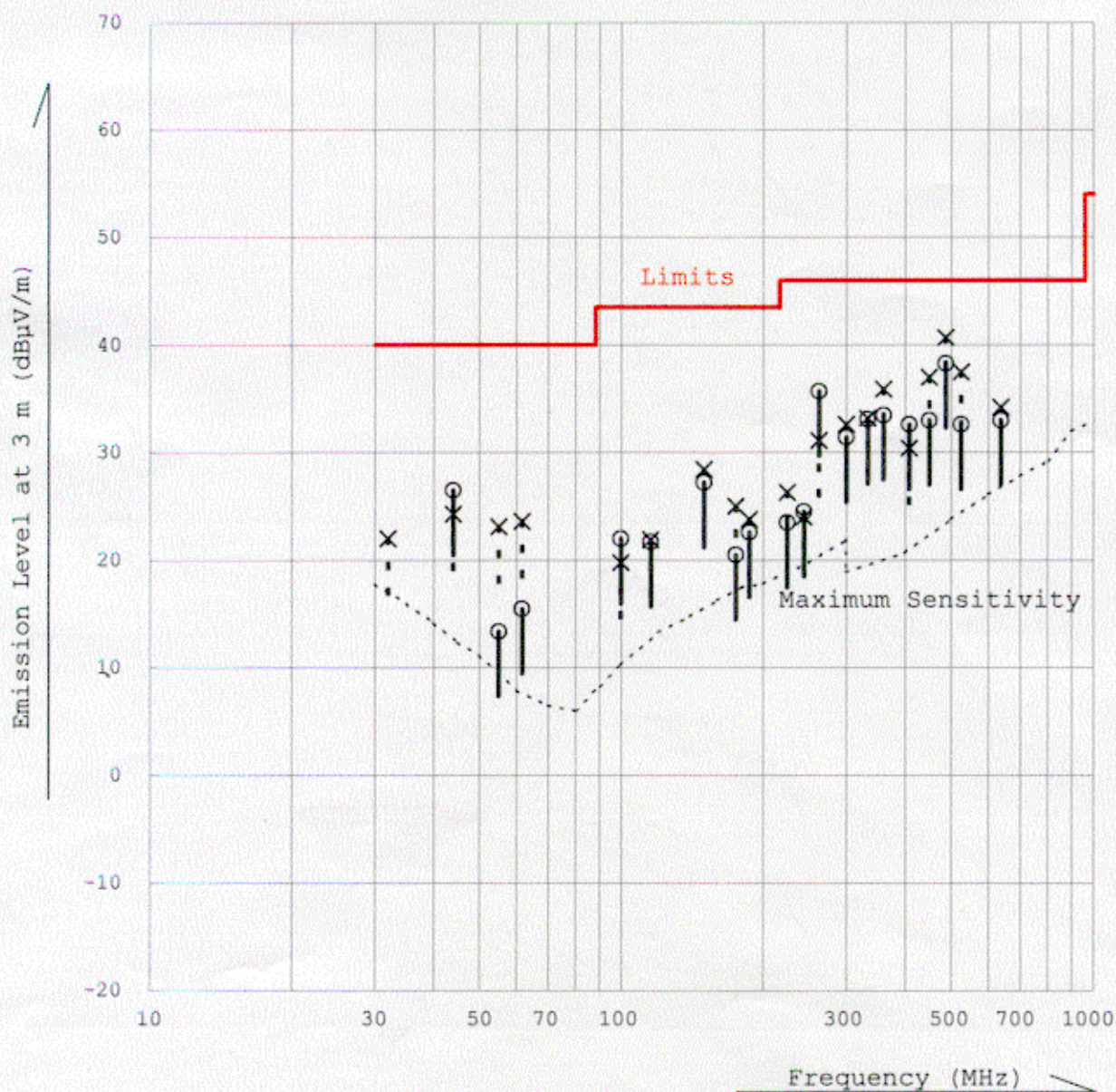
Tested by :

T. Aoki
 Takashi Aoki

Radiated Emissions Measurements (30 MHz - 1000 MHz)

Operating Condition : Stand-by

Measuring Distance : 3 m	⊙	Horizontal
Classifications : B	×	Vertical





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2.2.2 Radiated Emissions Measurements (30 MHz - 1000 MHz)

Operating Condition : Printing

Date : July 02, 2002
Temp. : 28°C Humi.: 78%

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading (dBuV)		Limits (dBuV/m)	Emission Level (dBuV/m)		Margin (dB)		Comment
		Horiz.	Ver.		Horiz.	Ver.	Horiz.	Ver.	
32.1	19.0	< -2.0	5.1	40.0	< 17.0	24.1	> 23.0	15.9	
44.0	14.8	11.1	9.4	40.0	25.9	24.2	14.1	15.8	
55.0	11.4	2.0	13.7	40.0	13.4	25.1	26.6	14.9	
61.6	9.6	5.9	15.0	40.0	15.5	24.6	24.5	15.4	
99.9	12.3	10.5	7.8	43.5	22.8	20.1	20.7	23.4	
115.6	14.7	6.9	8.2	43.5	21.6	22.9	21.9	20.6	
150.0	17.6	11.8	10.4	43.5	29.4	28.0	14.1	15.5	
168.0	18.8	12.7	12.2	43.5	31.5	31.0	12.0	12.5	
187.0	19.6	2.8	4.0	43.5	22.4	23.6	21.1	19.9	
225.0	20.8	8.0	14.0	46.0	28.8	34.8	17.2	11.2	
244.0	21.5	5.0	2.5	46.0	26.5	24.0	19.5	22.0	
262.5	22.4	14.5	11.3	46.0	36.9	33.7	9.1	12.3	
299.9	23.9	10.0	9.4	46.0	33.9	33.3	12.1	12.7	
333.1	21.7	10.2	10.3	46.0	31.9	32.0	14.1	14.0	
360.0	22.3	10.0	12.4	46.0	32.3	34.7	13.7	11.3	
407.9	23.0	14.0	10.2	46.0	37.0	33.2	9.0	12.8	
450.0	24.4	10.2	11.1	46.0	34.6	35.5	11.4	10.5	
487.5	25.5	10.0	16.8	46.0	35.5	42.3	10.5	3.7	
525.0	26.4	7.9	14.0	46.0	34.3	40.4	11.7	5.6	
637.5	28.7	5.2	6.5	46.0	33.9	35.2	12.1	10.8	
850.0	32.7	< -2.0	< -2.0	46.0	< 30.7	< 30.7	> 15.3	> 15.3	
1000.0	34.9	< -2.0	< -2.0	54.0	< 32.9	< 32.9	> 21.1	> 21.1	

- Notes: 1) Test Location : Open Site No.1
2) Test Distance : 3 m
3) The spectrum was checked from 30 MHz to 1000 MHz.
4) Antenna factor includes the cable loss for 58 meter.
5) The symbol of "<" means "or less".
6) The symbol of ">" means "more than".
7) A sample calculation was made at 32.1 MHz
 $Af + Mr = 19.0 + 5.1 = 24.1 \text{ dBuV/m}$
Af : Antenna Factor Mr : Meter Reading
8) Setting of measuring instrument :
Detector Function : CISPR Quasi-Peak
IF Bandwidth : 120 kHz

Tested by :

T. Aoki
Takashi Aoki



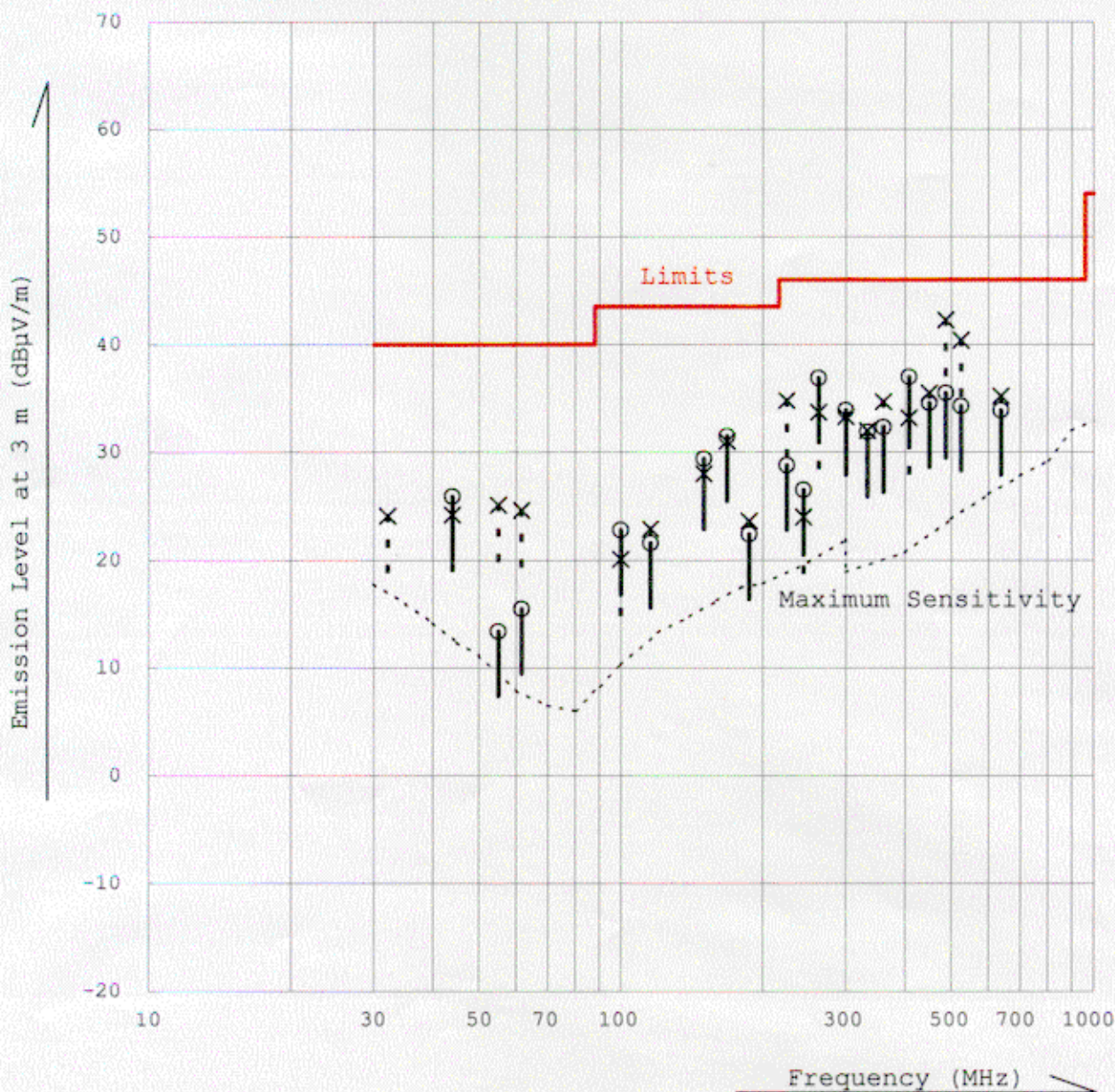
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Radiated Emissions Measurements (30 MHz - 1000 MHz)

Operating Condition : Printing

Measuring Distance : 3 m	⊙	Horizontal
Classifications : B	×	Vertical





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2.3.1 Radiated Emissions Measurements (Above 1000 MHz)

Operating Condition : Stand-by

Date July 2, 2002
Temp. : 28°C Humi.: 78%

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading (dBμV)		Amp Gain (dB)	Limits (dBμV/m)	Emission Level (dBμV/m)		Margin (dB)		Comment
		Horiz.	Ver.			Horiz.	Ver.	Horiz.	Ver.	
1200.0	26.9	< 40.0	< 40.0	47.5	54.0	< 19.4	< 19.4	> 34.6	> 34.6	
1400.0	28.4	< 40.0	< 40.0	47.7	54.0	< 20.7	< 20.7	> 33.3	> 33.3	
1600.0	29.3	< 40.0	< 40.0	48.2	54.0	< 21.1	< 21.1	> 32.9	> 32.9	
1800.0	31.4	< 40.0	< 40.0	47.8	54.0	< 23.6	< 23.6	> 30.4	> 30.4	
2000.0	32.7	< 40.0	< 40.0	47.3	54.0	< 25.4	< 25.4	> 28.6	> 28.6	

- Notes: 1) Test Location : Open Site No.1
2) Test Distance : 3 m
3) The spectrum was checked from 1000 MHz to 2000 MHz.
4) Antenna factor includes the cable loss for 8 meter.
5) The symbol of "<" means "or less".
6) The symbol of ">" means "more than".
7) A sample calculation was made at 1200.0 MHz
$$Af + Mr - Ag = 26.9 + 40.0 - 47.5 = 19.4 \text{ dB}\mu\text{V/m}$$

Af : Antenna Factor
Mr : Meter Reading
Ag : Amp Gain

8) Setting of measuring instrument :
Resolution Bandwidth : 1 MHz
Video Bandwidth : 10 Hz
Detector Function : Peak
Sweep Time : 20 msec

Tested by :

T. Aoki
Takashi Aoki



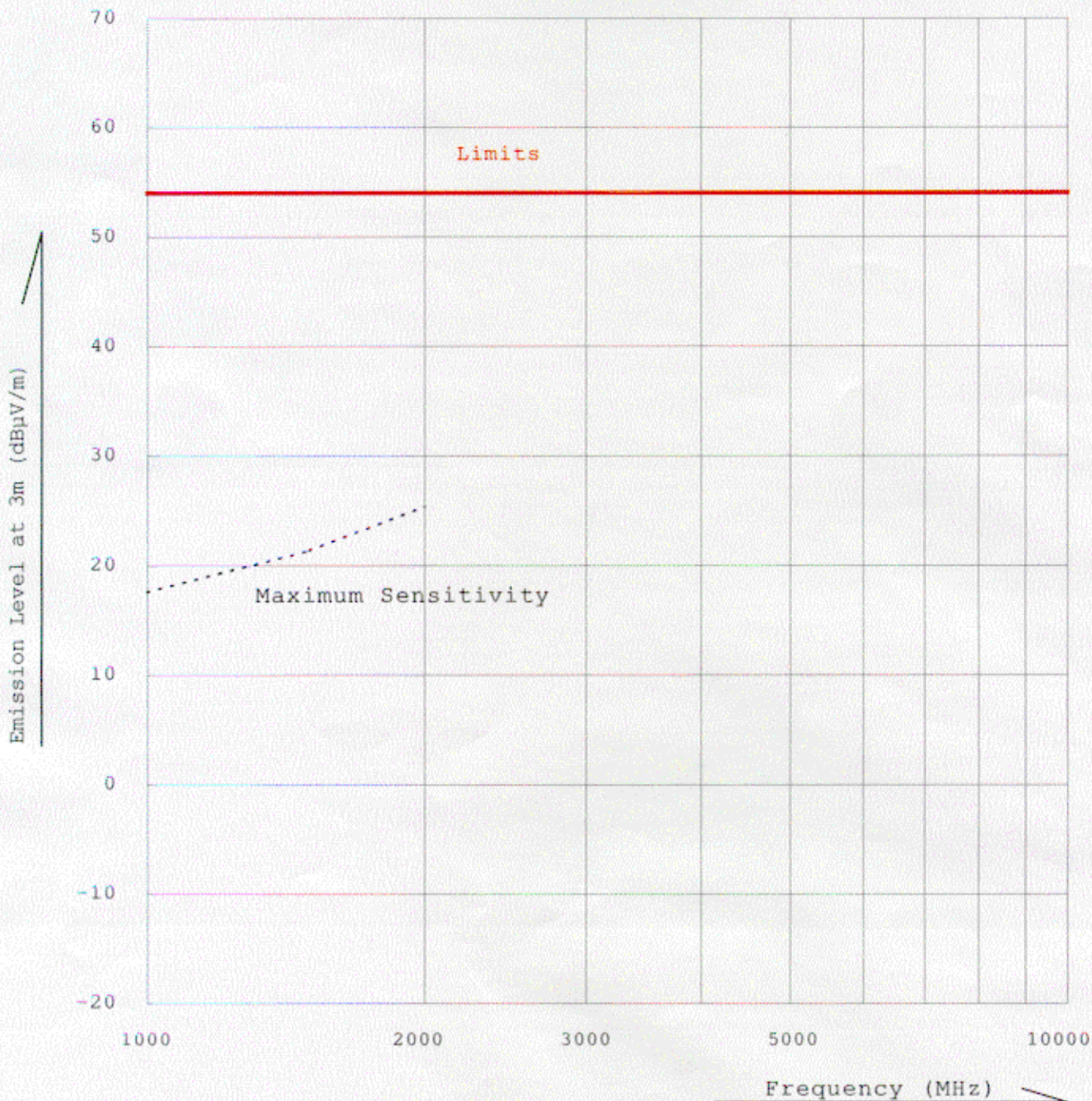
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Radiated Emissions Measurements (Above 1000 MHz)

Operating Condition : Stand-by

Measuring Distance : 3 m	○	Horizontal
Classifications : B	×	Vertical





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2.3.2 Radiated Emissions Measurements (Above 1000 MHz)

Operating Condition : Printing

Date July 2, 2002
Temp. : 28°C Humi.: 78%

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading (dBuV)		Amp Gain (dB)	Limits (dBuV/m)	Emission Level (dBuV/m)		Margin (dB)		Comment
		Horiz.	Ver.			Horiz.	Ver.	Horiz.	Ver.	
1200.0	26.9	< 40.0	< 40.0	47.5	54.0	< 19.4	< 19.4	> 34.6	> 34.6	
1400.0	28.4	< 40.0	< 40.0	47.7	54.0	< 20.7	< 20.7	> 33.3	> 33.3	
1600.0	29.3	< 40.0	< 40.0	48.2	54.0	< 21.1	< 21.1	> 32.9	> 32.9	
1800.0	31.4	< 40.0	< 40.0	47.8	54.0	< 23.6	< 23.6	> 30.4	> 30.4	
2000.0	32.7	< 40.0	< 40.0	47.3	54.0	< 25.4	< 25.4	> 28.6	> 28.6	

- Notes: 1) Test Location : Open Site No.1
2) Test Distance : 3 m
3) The spectrum was checked from 1000 MHz to 2000 MHz.
4) Antenna factor includes the cable loss for 8 meter.
5) The symbol of "<" means "or less".
6) The symbol of ">" means "more than".
7) A sample calculation was made at 1200.0 MHz
$$Af + Mr - Ag = 26.9 + 40.0 - 47.5 = 19.4 \text{ dBuV/m}$$

Af : Antenna Factor
Mr : Meter Reading
Ag : Amp Gain

8) Setting of measuring instrument :
Resolution Bandwidth : 1 MHz
Video Bandwidth : 10 Hz
Detector Function : Peak
Sweep Time : 20 msec

Tested by :

T. Aoki
Takashi Aoki



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Radiated Emissions Measurements (Above 1000 MHz)

Operating Condition : Printing

Measuring Distance : 3 m	⊙	Horizontal
Classifications : B	×	Vertical

