



TEST REPORT



Certificate No. 952.01/952.02/952.03

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Test Report No. : R141475
Issue Date : January 9, 2004

EUT Information

Applied Standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c)
requirements
Trade Name : RISO
Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

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Scope

This document is a report of the radiated emission and conducted power line tests performed for the Duplicator Model Name: RZ390UI with RFID system.

Certification

Client

Company name : RISO KAGAKU CORPORATION
Address : 127-7, Taninosawa, Fukuda, Ami-machi, Inashiki-gun, Ibaraki-ken 300-1156, Japan
Telephone : +81 29 840 3159
Facsimile : +81 29 840 3164

Equipment Under Test (EUT)

Trade name : RISO
Category : Duplicator with RFID System
Model name : RZ390UI
Serial number : 81340003
Intended environment : Commercial and Light industry area
Date of receipt : December 15, 2003
EUT condition : Production prototype, not damaged
Highest clock frequency : 133MHz

Test Performed

Test started : December 15, 2003
Test completed : December 16, 2003
Location : Abiko Test site, 2971 Nakabyo, Abiko-shi, Chiba-ken, 270-1121, Japan
(A2LA Certificate No.0952-01)

Test Specification

Purpose of the test : Compliance test to the following standard
Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements
(see the table 1 on page 5 for the details.)

Test Results (see the table 1 on page 5 for the details)

Measurement	Results*	Test method
Radiated disturbance	Complies	ANSI C 63.4:2001, EIA/TIA 603, MP-5
Conducted disturbance	Complies	ANSI C 63.4:2001, EIA/TIA 603, MP-5

*: The compliance statement is based on nominal value only.

Measurement uncertainty

Radiated disturbance (30 - 1000MHz) : +4.7 [dB] , -4.7 [dB] (k=2)
Conducted disturbance (0.15 - 30MHz) : +3.5 [dB] , -3.5 [dB] (k=2)

The coverage factor k=2 yields approx. a 95% level of confidence for near-normal distribution typical of most measurement results.

Laboratory's Certificate

Report number : R141475
Issue date : January 9, 2004

This test report is issued under the authority of:

The test has been done by:



Takayuki Okawara, Technical Manager



Misao Hakamazuka, Test Engineer

The results in this report apply only to the sample(s) tested.

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Table 1

47CFR Part #		Result	Comments
	15.15(b)	Pass	The product contains no user accessible controls that increase transmission power above allowable levels.
2.925	15.19	Pass	The label is shown in the label exhibit. (The label exhibit is not part of this test report)
	15.21	Pass	Information to the user is shown in the instruction manual exhibit. (The instruction manual exhibit is not part of this test report)
	15.27	Pass	No special accessories are required for compliance.
15.31(e)	15.225(c)	Test not performed	The frequency tolerance of the carrier signal with 0.01% of the operating frequency was not confirmed. The input power should be varied from its nominal value(120V) to 102V and 138V. The respective radiated power measurement was not performed.
	15.203	Pass	The device utilizes a unique antenna connector, antenna is located inside of the equipment under test and not accessible by the end user.
	15.204	Pass	Refer to antenna description(s). Only the build in antennas are to be used with the equipment under test.
	15.205 15.209	Pass	The fundamental is not in a Restricted band and the spurious emissions in the Restricted bands comply with the general emission limits of 15.209.
	15.207	Pass	Conducted EMI data on AC side of the power supply is provided in this report.
	15.225(a)	Pass	The field strength of emissions within the band of 13.553-13.567MHz is less than 15,848 μ V/m at 30m.

Brief Information**1. Test summary**

Test was done for compliance with FCC Rules & Regulations Part 15C(47CFR 15C) updates as of Dec.8, 2003.

ANSI. C. 63.4: 2001, EIA/TIA 603, MP-5

Frequency range to be scanned : Radiated : 30-1000MHz. 1GHz-2GHz.
Conducted:0.15-30MHz.

Open site: Filed with FCC Authorization and Evaluation division 7435
Oakland Mills Rd Columbia, MD 21046, U.S.A. on Feb.4,
2002. AVAILABLE FOR ANSI C63. 4-2001.

File Refer NO. : 31040/SIT
1300B3

Site location : 2971 Nakabyo,
Abiko-City 270-1121, Japan

Shielded enclosure : 6.3 meter by 5.4 meter and 2.5 meter high in size for AC
powerline conducted measurement.

Detector Function and Selection of Measured by the CISPR quasi-peak function Bandwidth is
Bandwidth : 10kHz in the frequency 0.15MHz to 30MHz and 120kHz in
the frequency 30MHz to 1,000MHz and 1MHz in the
frequency above 1GHz.

A sample calculation : COR. F(correction factor)= Antenna factor+Cable loss-
Amp.gain - Distance correction
Emission Level= meter reading + COR.F

2. Product description

The Equipment under the test is a digital duplicator which is able to make a print by scanning an original or sending image data from PC directly and via network. The printing sizes are up to A3 (US Ledger size) and the printing speeds are variable 60 rpm to 130 rpm. Scan is performed at a resolution D600 dpi and the highest clock frequency used in the EUT is 133MHz, which means that the measurement range for the EUT is up to 2000 MHz according to Section 15.33, FCC part 15 . The electrical rating of the EUT is 120 volt AC which frequency range is 50/60 Hz and 2.5 ampere. 3.0 meter non-shielded AC power cable is provided. The other description for the supported equipment and the cables are mentioned in the cable list on page 6 of this test report. The FRID system is a device which can read the RF-tag pasted on the consumables (Inks and Masters) and set up the EUT condition to process scanning, master-making and printing properly.

3. Test configurations

The EUT was connected to all the expected options as maximized configuration shown as "Configuration of the EUT" on page 5 and also shown as the Photographs on page 76, 77 and 78.

4. Operation

The test was carried out in accordance with the "operating modes of the EUT" on page 12

5. Comment of the Measurement

By the method of MP-5, preliminary consideration are carried out for all available mode and cable layouts for each frequency. Measurement was made maximum configuration for each frequency. The test results were found to be below the limits of FCC part 15 subpart C digital devices. The minimum margins to the limits are 4.0 dBuV/m at 38.41MHz at radiated emission measurement in the I/F parallel print mode and 2.4 dBuV at 1.07 MHz at conducted power line measurement in the stand-by mode. Radiated emission level above 1754MHz of this equipment under test was far below from FCC limits. The test regarding as 15.31(e) and 15.225(c) was not performed. See page5 for the detail.

Test Procedures**LIMITS OF RADIATED EMISSION MEASUREMENT**

Field strength limits are at the distance of 3meters, emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Table 2

Frequencies (MHz)	Field Strength of Fundamental	
	uV/m	dBuV/m
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m)=20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table, on an open area test site, set 3meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
 - b. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
 - c. The frequency range from 0.009 to 30MHz and 30MHz to 2GHz was searched. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4meters and the rotate able table was turned from 0 degrees to 360 degrees to find the maximum reading.
- Photographs of the Test configuration. (Test setup photos depict maximized configuration.)

Conducted Emission Measurement**LIMITS OF CONDUCTED EMISSION MEASUREMENT**

Table 3

Frequency (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15-0.5	79	66	66-56	56-46
0.50-5.0	73	60	56	46
5.0-30.0	73	60	60	50

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

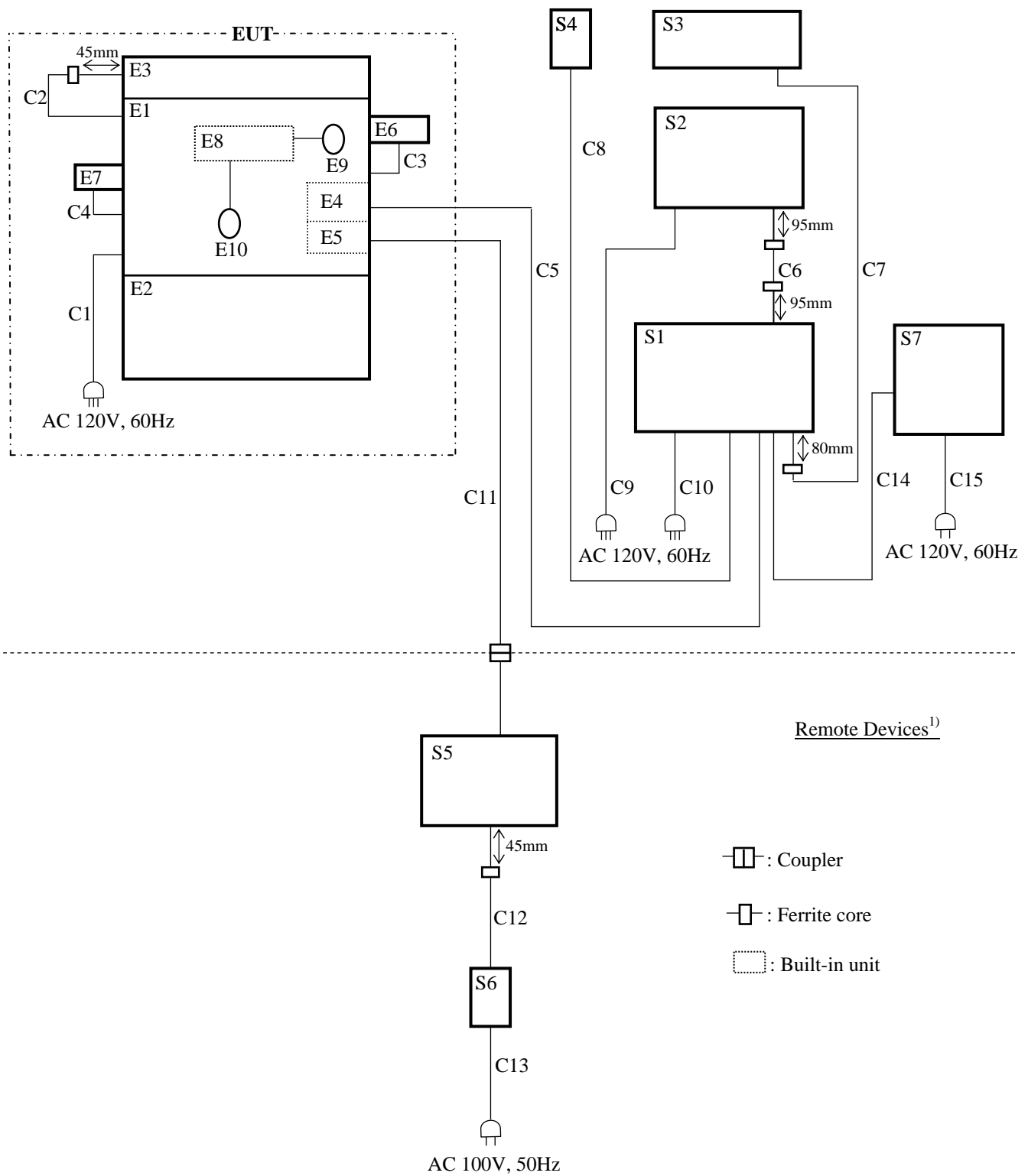
TEST PROCEDURES

a. The EUT was placed 0.4meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50ohm/50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched.

For the actual test configuration, please refer to the related item- Photographs of the Test Configuration. (Test setup photos depict maximized configuration.)

Configuration of the EUT

Note: 1) Placed in Shielded Box for Radiated Disturbance Measurement.

Japan EMC Laboratory Limited**Configuration of the EUT**

Equipment Under Test (EUT)

ID	Category	Model name	Serial number	Manufacturer	Remarks
E1	Duplicator(with RFID System)	RZ390UI	81340003	RISO	-
E2	Exclusive Table	RISO STAND N TYPE	None	RISO	Option
E3	Automatic Document Feeder	AF Unit	15063129	RISO	Option
E4	Printer Controller	Printer Control Board	None	RISO	Option
		RISORINC3n			
E5	Network Interface Card	RISO PRINTER Network Interface Card	None	RISO	Option
		RISORINC-NET-C			
E6	Key/Card Counter	Key/Card Counter	00000000	RISO	Option
E7	Sorter	Job Separator	17320006	RISO	Option
E8	RFID reader/writer (with build in O-and D-shape type antennas)	444-59003	None	RISO	-
E9	O-Shape Antenna	444-59006	None	RISO	-
E10	D-Shape Antenna	444-59002	None	RISO	-

Support Equipment

ID	Category	Model name	Serial number	Manufacturer	Remarks
S1	Personal Computer	HP NetVectra N30	TW01230994	HP	DoC
S2	LCD Monitor	FlexScan L350	93853080 -JA-S	HP	DoC
S3	Keyboard	SK-2501 A	M990800934	HP	FCC ID:GYUR56SK
S4	Mouse	M-S34	LZB00621279	HP	FCC ID:DZL211029
S5	Personal Computer	Gateway SOLO9100LS	BC399160737	Gateway	-
S6	AC Adapter	ADP-50FB	AC299193289	Gateway	-
S7	Printer	C4120A	SGEF085558	HP	DoC

Cable List

ID	Type	Length	Shielding	Remarks
C1	AC Power Cable	3.0 m	No	3-wire
C2	I/F Cable	0.2 m	No	-
C3	I/F Cable	0.2 m	Yes	-
C4	I/F Cable	0.2 m	Yes	-
C5	Parallel Cable	3.0 m	Yes	-
C6	Monitor Cable	1.80 m	Yes	-
C7	Keyboard cable	1.65 m	Yes	-
C8	Mouse Cable	1.85 m	Yes	-
C9	AC Power Cable	2.0 m	No	3-wire
C10	AC Power Cable	2.3 m	No	3-wire
C11	LAN Cable	3.0 m	Yes	-
C12	DC Power Cable	1.8 m	No	2-wire
C13	AC Power Cable	1.8 m	No	2-wire
C14	Serial Cable	1.7 m	Yes	-
C15	AC Power Cable	2.3 m	No	3-wire

Condition of the EUT**Operating Mode of the EUT**

The tests have been conducted with the following operational mode(s) of the EUT.

Name of mode in the report	Description
Stand-by	Waiting for a next operation with all the switches of EUT and peripherals on.
FB Print	The following operations are performed continuously during the test: - scanning an original by moving the mirror of the scanner unit; making a master; printing 10 sheets of paper and sorting them. slipping a tape between printed paper for every 10 sheets by the Sorter(E7).
AF Print	The following operations are performed continuously during the test: - feeding an original by the ADF (E3); making a master; printing 10 sheets of paper and sorting them. slipping a tape between printed paper for every 10 sheets by the Sorter(E7).
I/F Parallel Print	The following operations are performed continuously during the test: - transmitting data from the PC (S1) to EUT via the parallel cable; making a master ; printing 10 sheets of paper and sorting them; slipping a tape between printed paper for every 10 sheets by the Sorter (E7).
Network Print	The following operations are performed continuously during the test: - transmitting data from the PC (S5) to EUT via the LAN cable; making a master ; printing 10 sheets of paper and sorting them; slipping a tape between printed paper for every 10 sheets by the Sorter (E7).

In all modes, the EUT operation is monitored by the PC(S5) via the LAN cable.
The RFID is operating in all modes excluding the "Stand-by" mode.

() : an ID shown in "Configuration of the EUT"

☐ JEL use only

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List of test equipment used for the test (Vol. 93)

Item	Model Name	Serial No.	Manufacturer	Interval	Last Cal.
EMI test receiver	ESVS10	833269002	R&S	1 year	Feb 26, 2003
Spectrum analyzer	TR4173E	85590009	Advantest	1 year	Jun 15, 2003
Pre-amplifier	8447D	2443A03843	HP	1 year	Jun 03, 2003
Biconical antenna	BBA9106	None	Schwarzbeck	1 year	Jul 18, 2003
Log-periodic antenna	USLP9143	121	Schwarzbeck	1 year	Jul 18, 2003
Step Attenuator	8494B	2812A17116	HP	1 year	May 06, 2003
Coaxial Switch	MP59B	M36650	Anritsu	1 year	Sep 11, 2003
Coaxial Switch	MP59B	M69266	Anritsu	1 year	Sep 11, 2003
High frequency fuse holder	MP612A	AN001	Anritsu	1 year	Oct 02, 2003
Thermometer/Hygrometer	3-4110-01	001	Isuzu	1 year	Sep 09, 2003
EMI test receiver	ESHS10	100003	R&S	1 year	May 12, 2003
Spectrum analyzer	TR4135	87800086	Advantest	1 year	Aug 07, 2003
LISN (AMN) for EUT	ESH2-Z5	881492004	R&S	1 year	Jun 10, 2003
LISN (AMN)	ESH2-Z5	892602018	R&S	1 year	Jun 10, 2003
High pass filter	KFL-007	8S-1366-1	Kyoritsu	1 year	Aug 28, 2003
Coaxial Switch	MP59B	M78994	Anritsu	1 year	Jan 28, 2003
High frequency fuse holder	MP612A	AN009	Anritsu	1 year	Oct 02, 2003
Thermometer/Hygrometer	3-4110-01	008	Isuzu	1 year	Sep 09, 2003
Frequency Converter	PCR2000	9020412	Kikusui	1 year	Jul 24, 2003
Frequency Converter	PCR2000	29090539	Kikusui	1 year	Jul 24, 2003
Microwave pre-amplifier	QLW-0118	33603939	Jel	1 year	Feb 03, 2003
Double ridge guide antenna	3115	8906-3186	EMCO	1 year	Oct 30, 2003
Spectrum analyzer	R3271	24640201	Advantest	1 year	May 13, 2003
EMI test receiver	ESH2	879963020	R&S	1 year	May 26, 2003
Spectrum analyzer	TR4173E	05590008	Advantest	1 year	Mar 05, 2003
Rod antenna	MP415B	M10220	Anritsu	1 year	Jul 04, 2003
Band selector	MZ126A	M09563	Anritsu	1 year	N/A
Pre-amplifier	8447D	1937A02558	HP	1 year	Jun 05, 2003
AC source	8467	7348947 84670001	NF elec.	1 year	Sep 29, 2003

Japan EMC Laboratory Limited**Results****Radiated Disturbance Measurements (30MHz to 1000MHz)****Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Stand-by

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

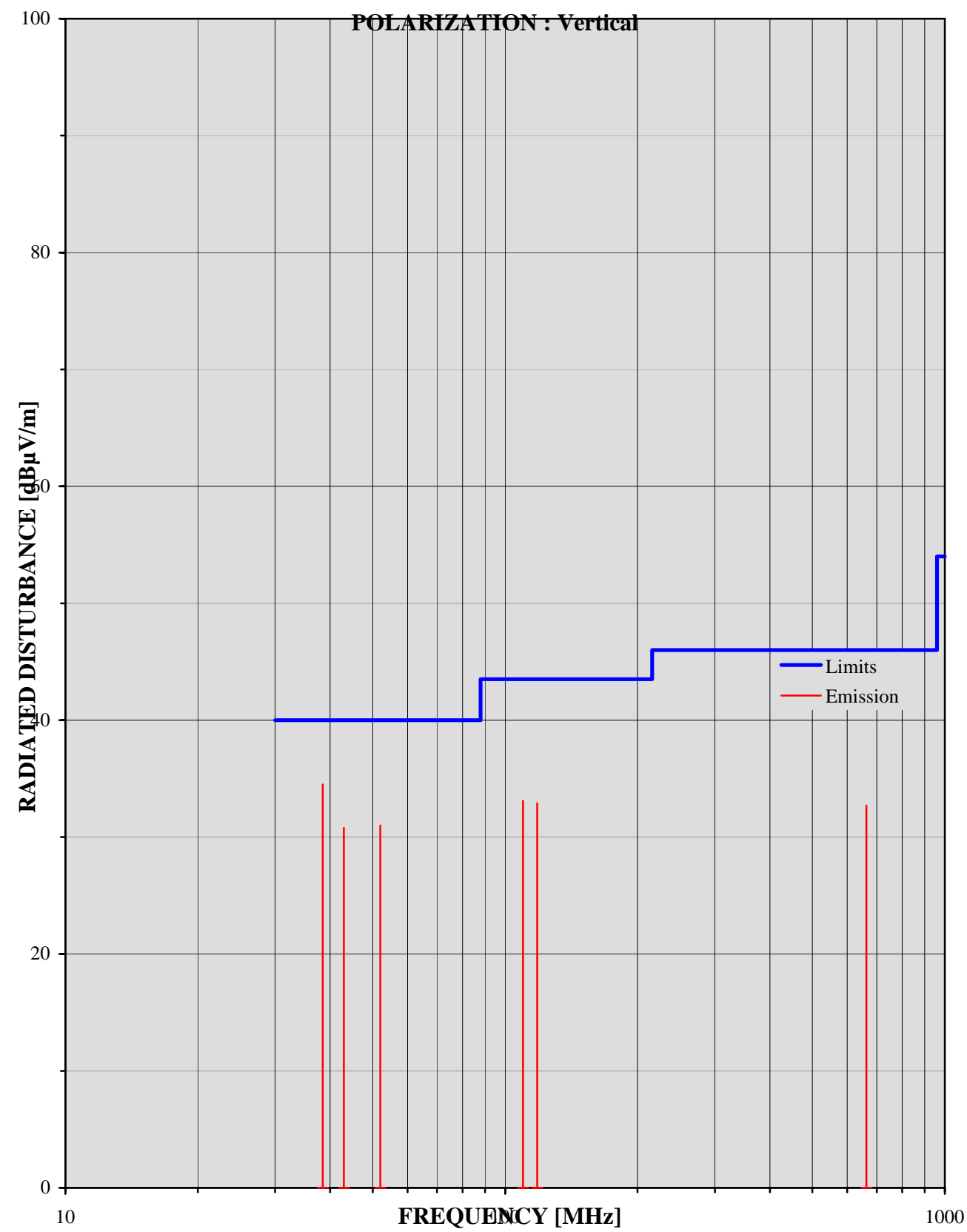
Polarization Vertical

Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 1		(Refer to Graph 1)
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.49	45.4	-10.9	34.5	40.0	5.5
42.96	43.2	-12.4	30.8	40.0	9.2
52.01	46.3	-15.3	31.0	40.0	9.0
109.80	46.7	-13.6	33.1	43.5	10.4
118.25	45.0	-12.1	32.9	43.5	10.6
663.51	34.9	-2.2	32.7	46.0	13.3

Note

- Formula : Result = Reading + Cor.F.
Margin = Limit- Result
- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 1



Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Stand-by

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

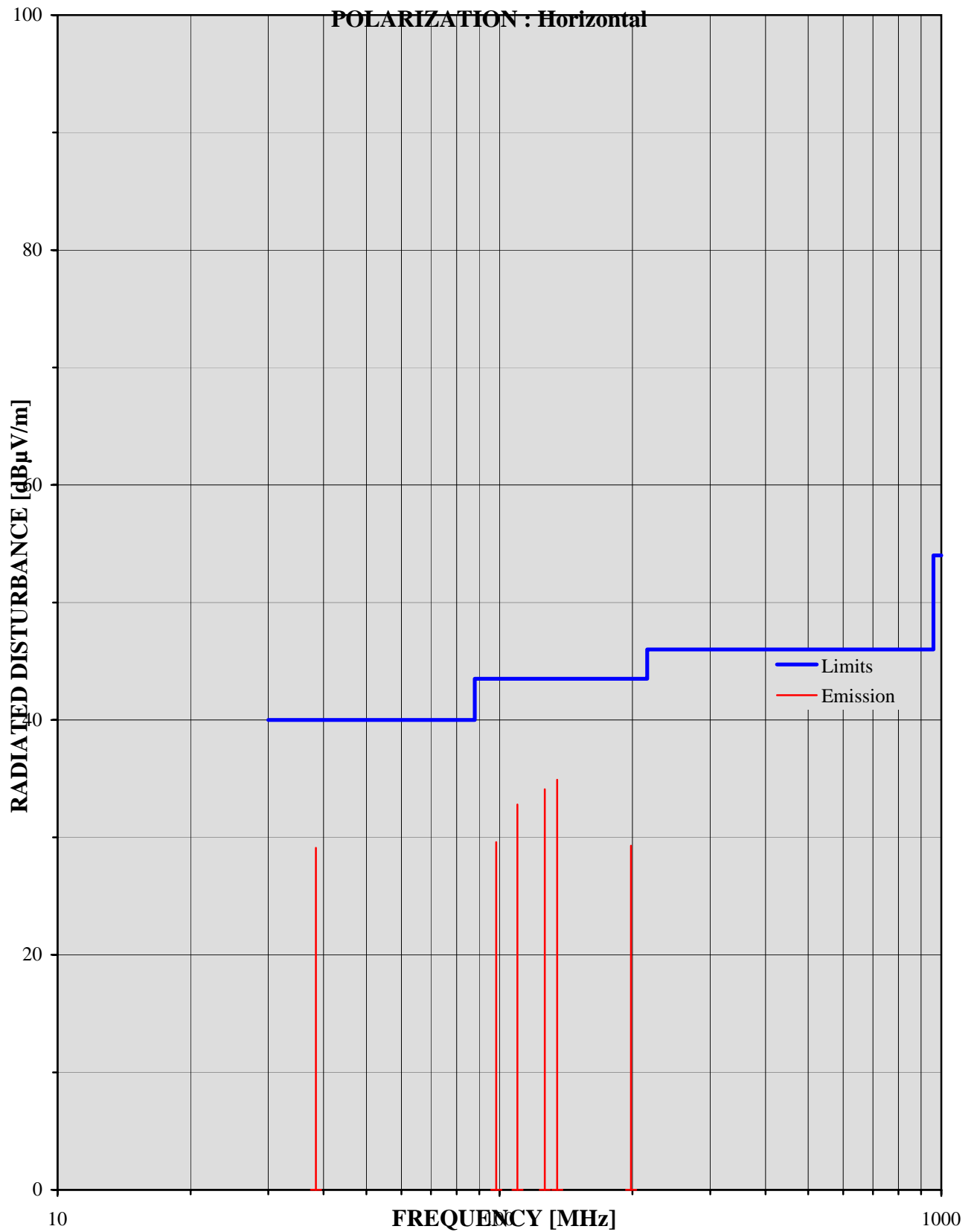
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 2		(Refer to Graph 2)
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.42	39.9	-10.8	29.1	40.0	10.9
98.31	45.4	-15.8	29.6	43.5	13.9
109.79	46.4	-13.6	32.8	43.5	10.7
126.70	45.4	-11.3	34.1	43.5	9.4
135.14	45.7	-10.8	34.9	43.5	8.6
198.48	36.5	-7.2	29.3	43.5	14.2

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 2

Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test**Test Condition**

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

FB Print

Polarization Vertical

			DATA No. 3		(Refer to Graph 3)
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.34	45.0	-10.8	34.2	40.0	5.8
52.01	46.0	-15.3	30.7	40.0	9.3
66.82	49.1	-18.5	30.6	40.0	9.4
71.59	49.0	-19.0	30.0	40.0	10.0
109.79	46.5	-13.6	32.9	43.5	10.6
118.25	44.4	-12.1	32.3	43.5	11.2

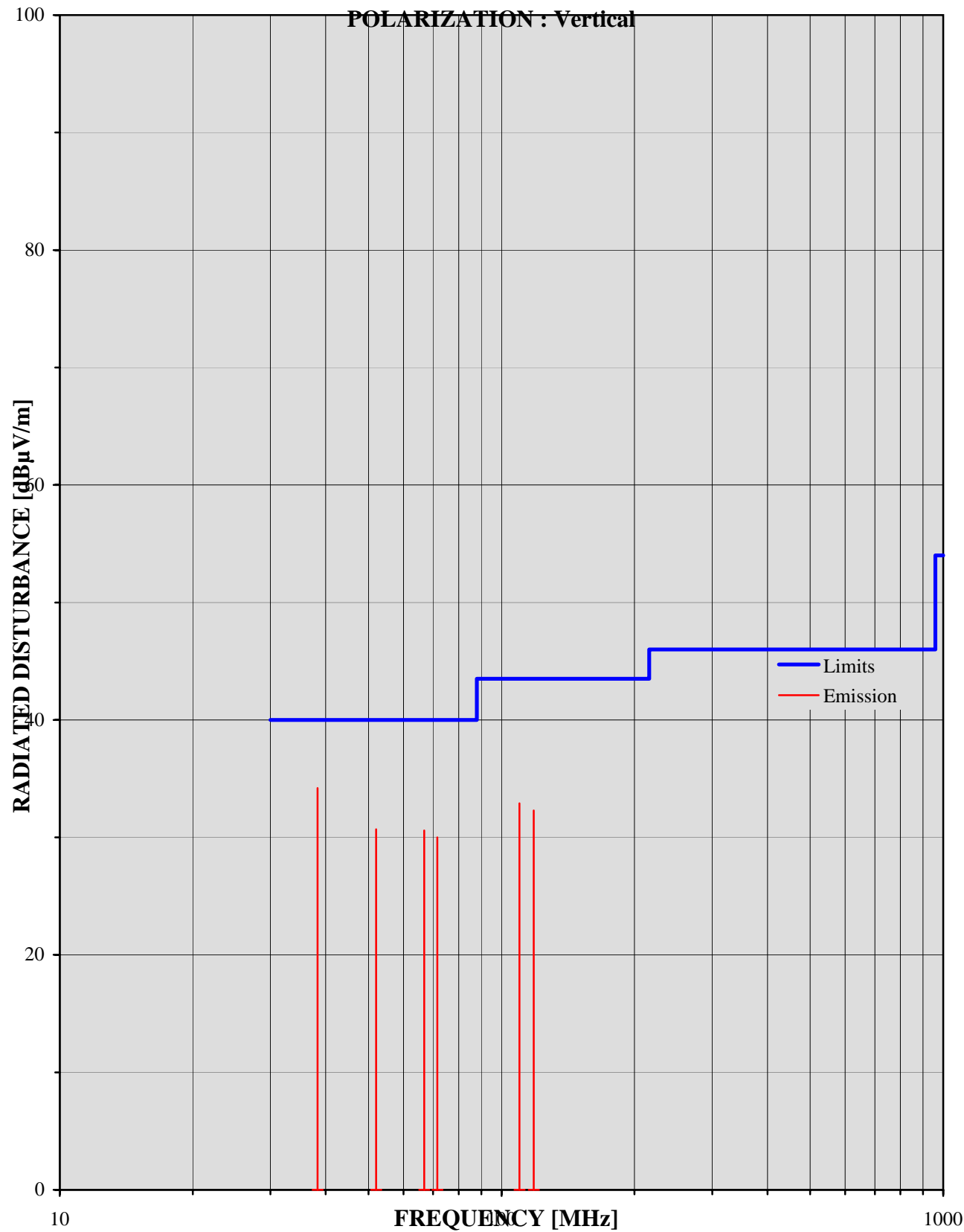
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 3



Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test**Test Condition**

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

FB Print

Polarization Horizontal

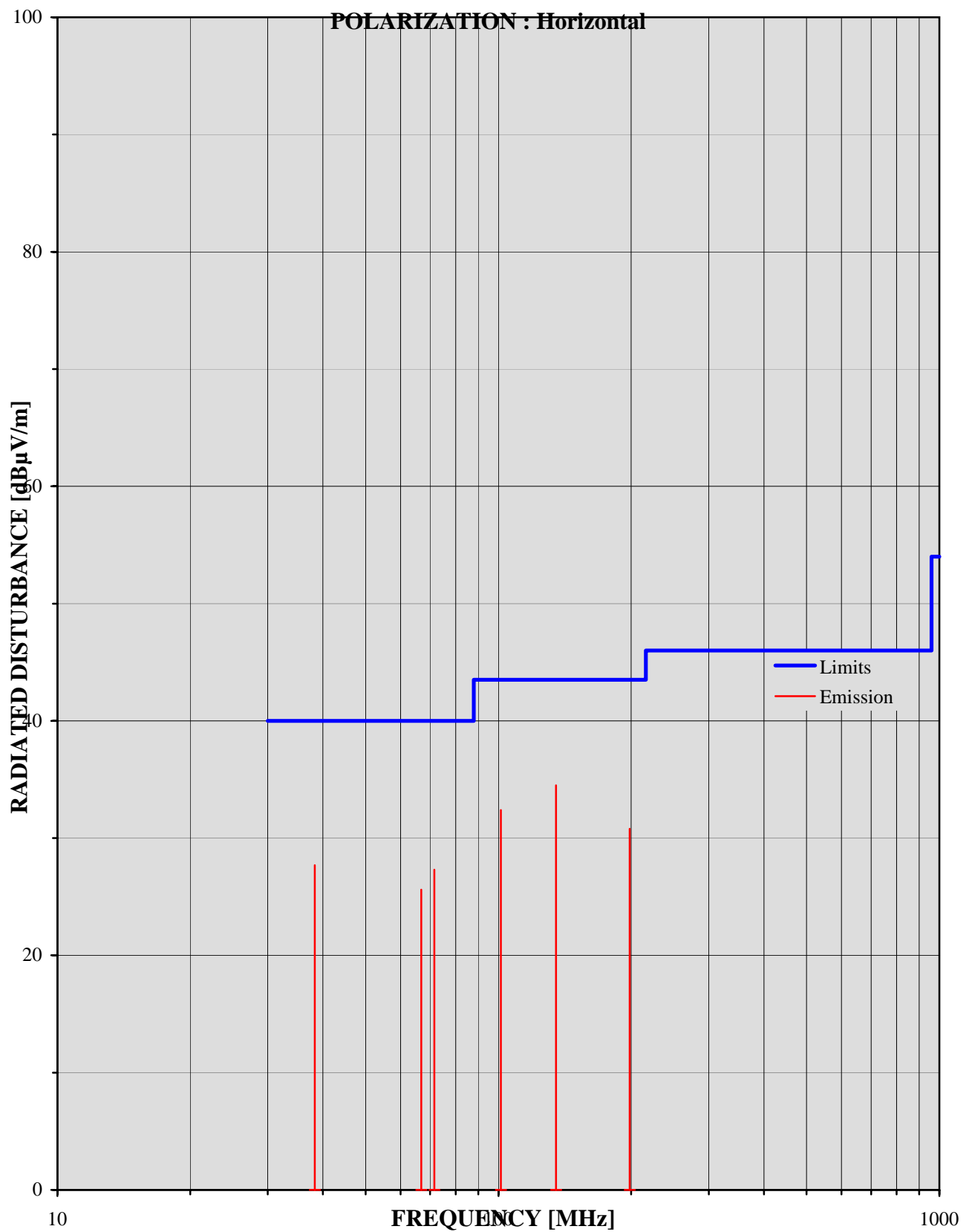
			DATA No. 4		(Refer to Graph 4)
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.36	38.5	-10.8	27.7	40.0	12.3
66.82	44.1	-18.5	25.6	40.0	14.4
71.59	46.3	-19.0	27.3	40.0	12.7
101.36	47.6	-15.2	32.4	43.5	11.1
135.15	45.3	-10.8	34.5	43.5	9.0
198.48	38.0	-7.2	30.8	43.5	12.7

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 4

Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

AF Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

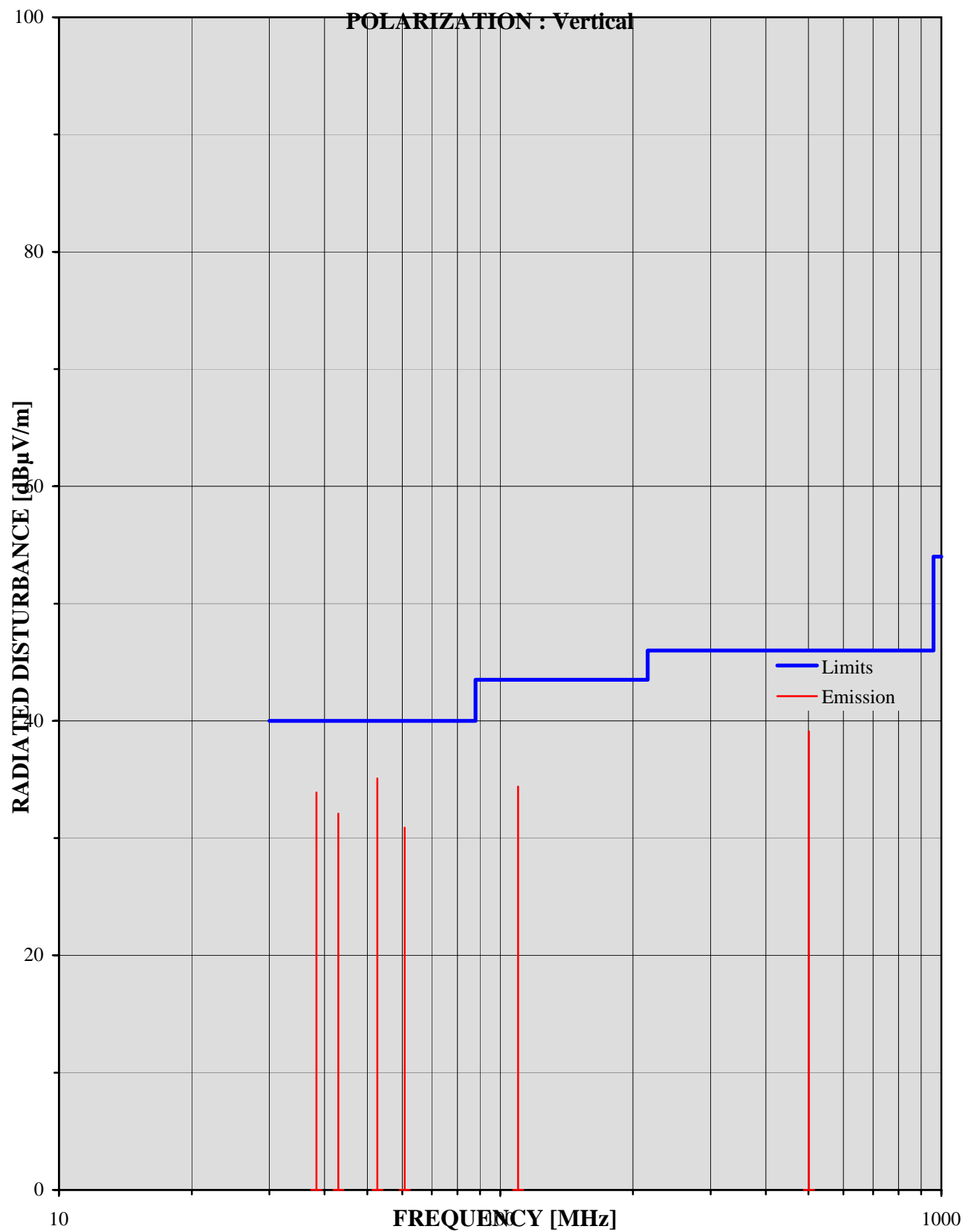
			DATA No. 5		(Refer to Graph 5)
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.33	44.7	-10.8	33.9	40.0	6.1
42.96	44.5	-12.4	32.1	40.0	7.9
52.66	50.6	-15.5	35.1	40.0	4.9
60.75	48.5	-17.6	30.9	40.0	9.1
109.79	48.0	-13.6	34.4	43.5	9.1
501.12	43.5	-4.4	39.1	46.0	6.9

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 5

Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

AF Print

Test Condition

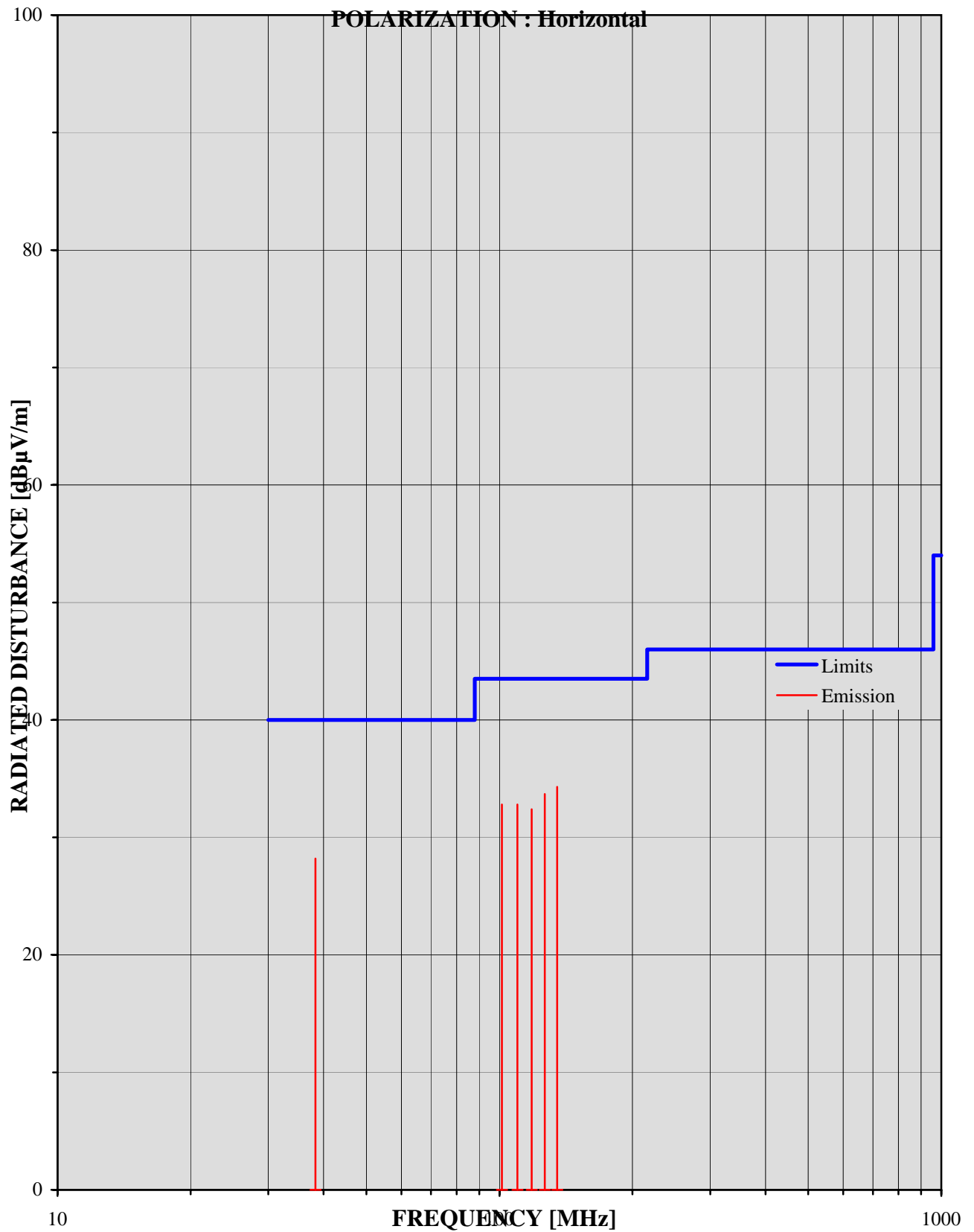
Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

			DATA No. 6		(Refer to Graph 6)
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.36	39.0	-10.8	28.2	40.0	11.8
101.36	48.0	-15.2	32.8	43.5	10.7
109.81	46.4	-13.6	32.8	43.5	10.7
118.25	44.5	-12.1	32.4	43.5	11.1
126.70	45.0	-11.3	33.7	43.5	9.8
135.14	45.1	-10.8	34.3	43.5	9.2

Note

- Formula : Result = Reading + Cor.F.
Margin = Limit- Result
- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 6

Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

I/F Parallel Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

			DATA No. 7		(Refer to Graph 7)
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.41	46.8	-10.8	36.0	40.0	4.0 *
51.31	50.0	-15.1	34.9	40.0	5.1
66.81	49.6	-18.5	31.1	40.0	8.9
71.60	51.0	-19.0	32.0	40.0	8.0
501.13	44.0	-4.4	39.6	46.0	6.4
726.96	38.7	-1.1	37.6	46.0	8.4

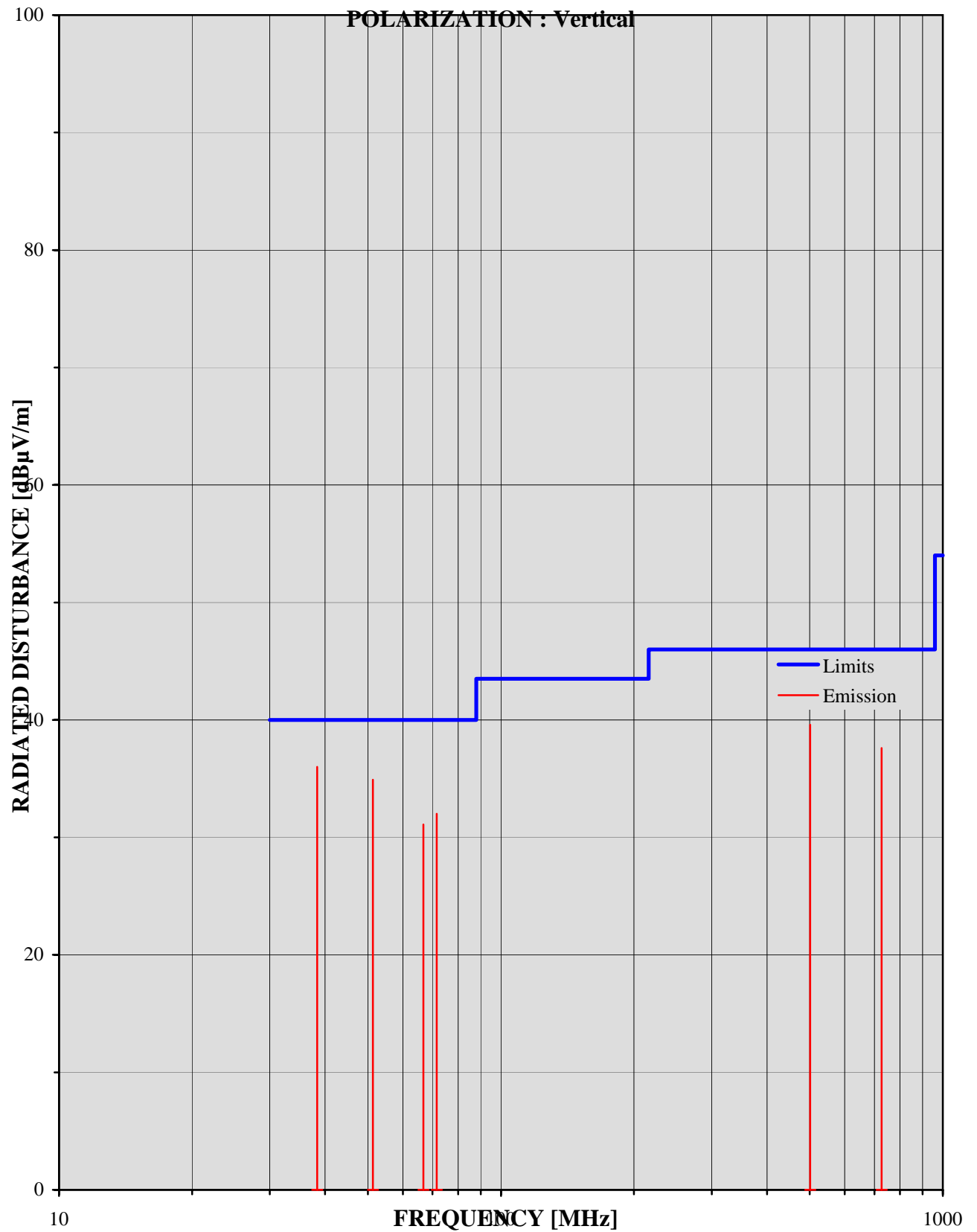
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

* : This value should be taken with the measurement uncertainty.

Graph 7

Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

I/F Parallel Print

Test Condition

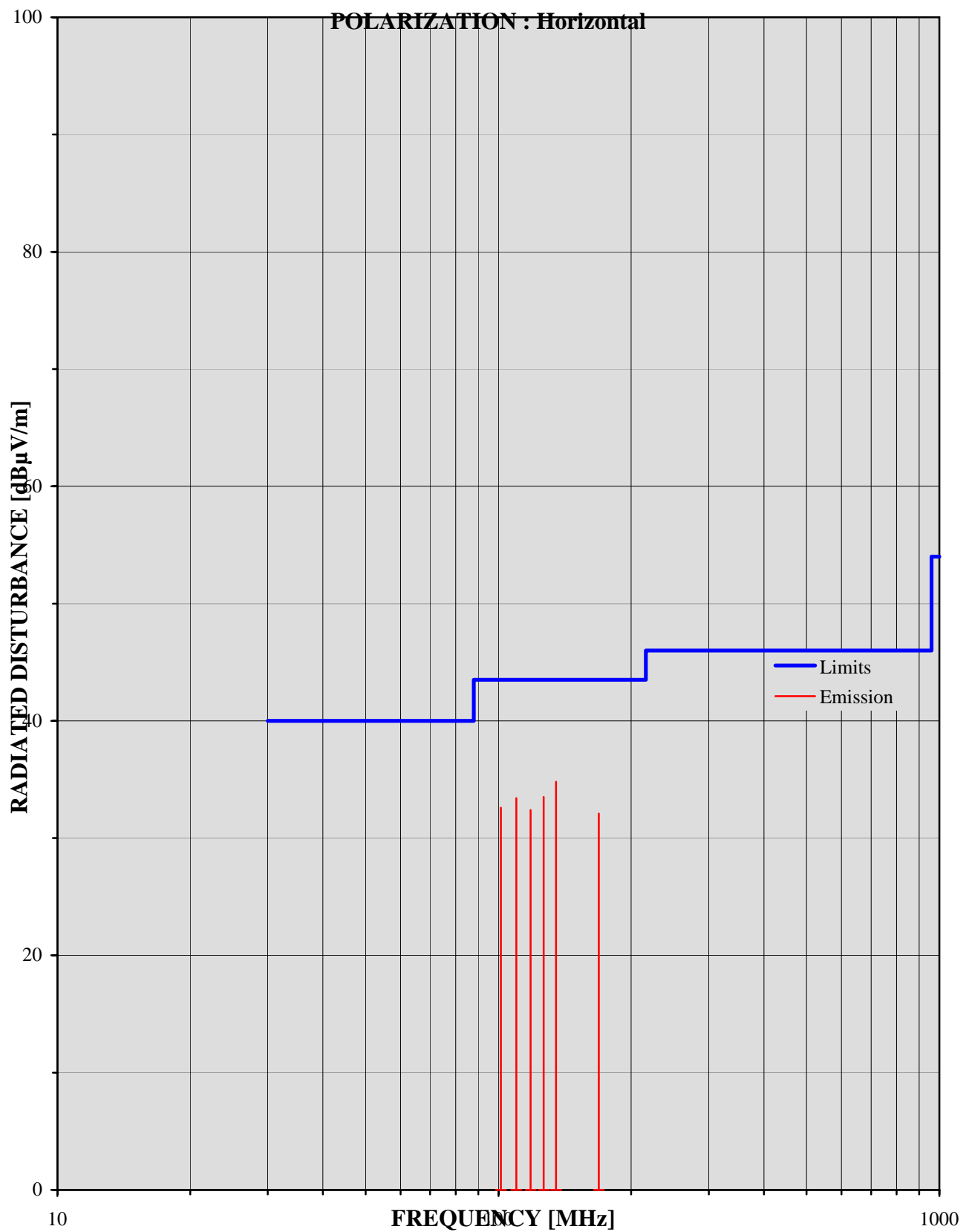
Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 8 (Refer to Graph 8)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
101.35	47.8	-15.2	32.6	43.5	10.9
109.79	47.0	-13.6	33.4	43.5	10.1
118.24	44.5	-12.1	32.4	43.5	11.1
126.68	44.8	-11.3	33.5	43.5	10.0
135.14	45.6	-10.8	34.8	43.5	8.7
168.92	41.0	-8.9	32.1	43.5	11.4

Note

- Formula : Result = Reading + Cor.F.
Margin = Limit- Result
- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 8

Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Network Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

			DATA No. 9		(Refer to Graph 9)
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.39	46.4	-10.8	35.6	40.0	4.4 *
42.96	43.5	-12.4	31.1	40.0	8.9
51.31	47.7	-15.1	32.6	40.0	7.4
109.80	47.0	-13.6	33.4	43.5	10.1
501.12	44.9	-4.4	40.5	46.0	5.5
726.96	39.4	-1.1	38.3	46.0	7.7

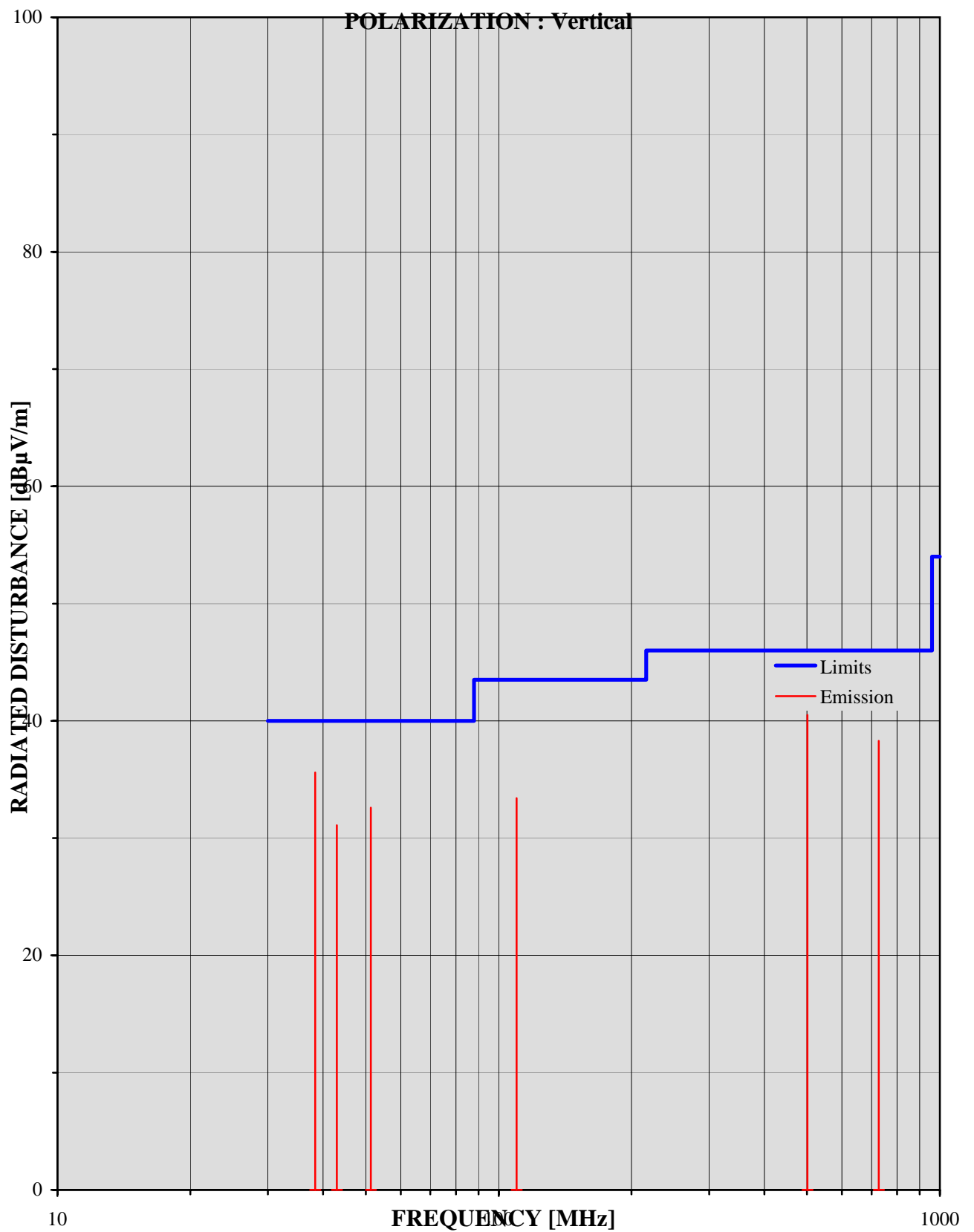
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

* : This value should be taken with the measurement uncertainty.

Graph 9

Radiated Disturbance Measurements (30MHz to 1000MHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Network Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Q.P.
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

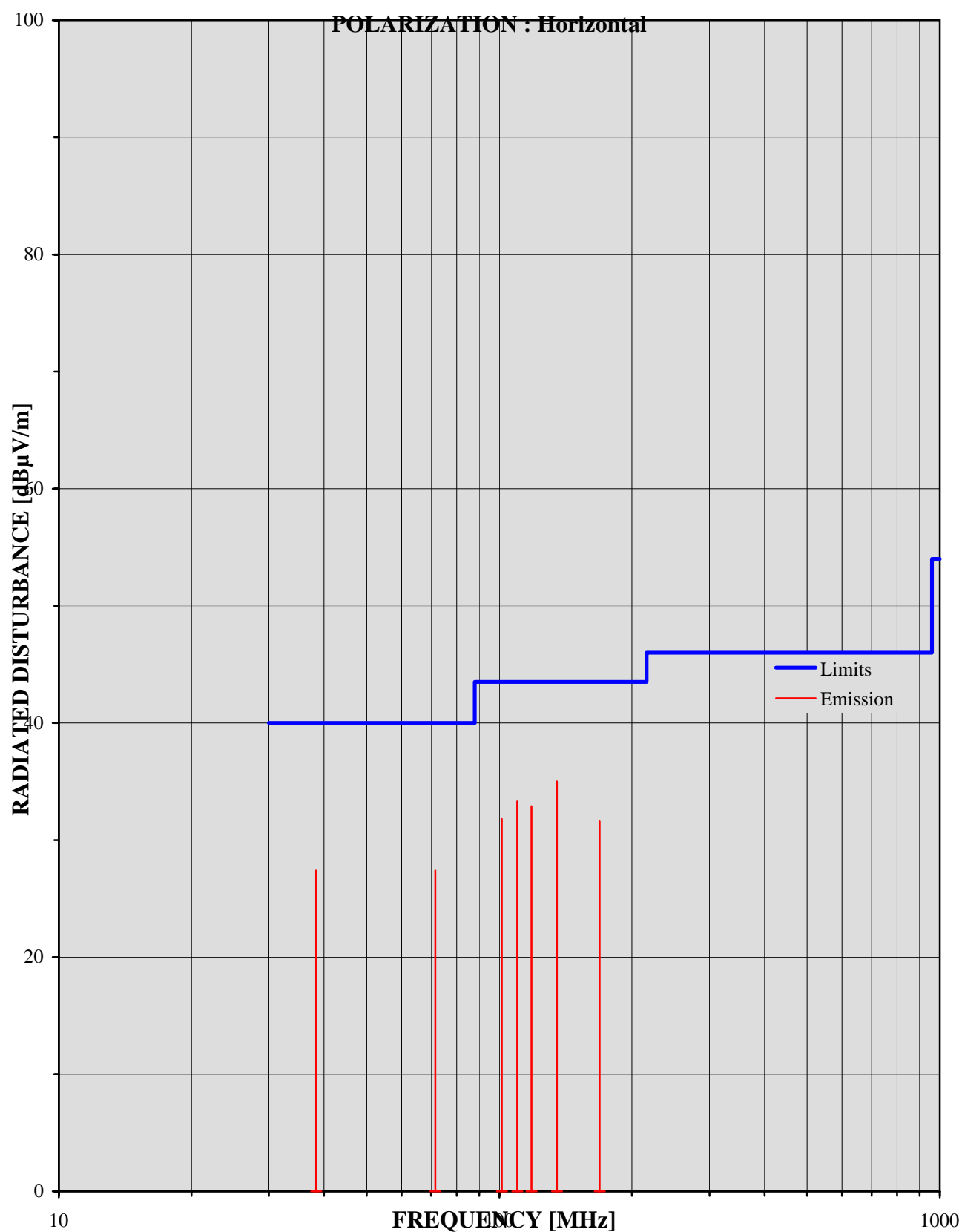
Frequency (MHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 10 (Refer to Graph 10)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
38.37	38.2	-10.8	27.4	40.0	12.6
71.60	46.4	-19.0	27.4	40.0	12.6
101.36	47.0	-15.2	31.8	43.5	11.7
109.81	46.9	-13.6	33.3	43.5	10.2
118.25	45.0	-12.1	32.9	43.5	10.6
135.14	45.8	-10.8	35.0	43.5	8.5
168.93	40.5	-8.9	31.6	43.5	11.9

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 10

Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Stand-by

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 11 (Refer to Graph 11)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	63.5	-21.2	42.3	54.0	11.7
1.200	57.9	-22.7	35.2	54.0	18.8
1.252	67.3	-23.1	44.2	54.0	9.8
1.659	59.5	-24.2	35.3	54.0	18.7

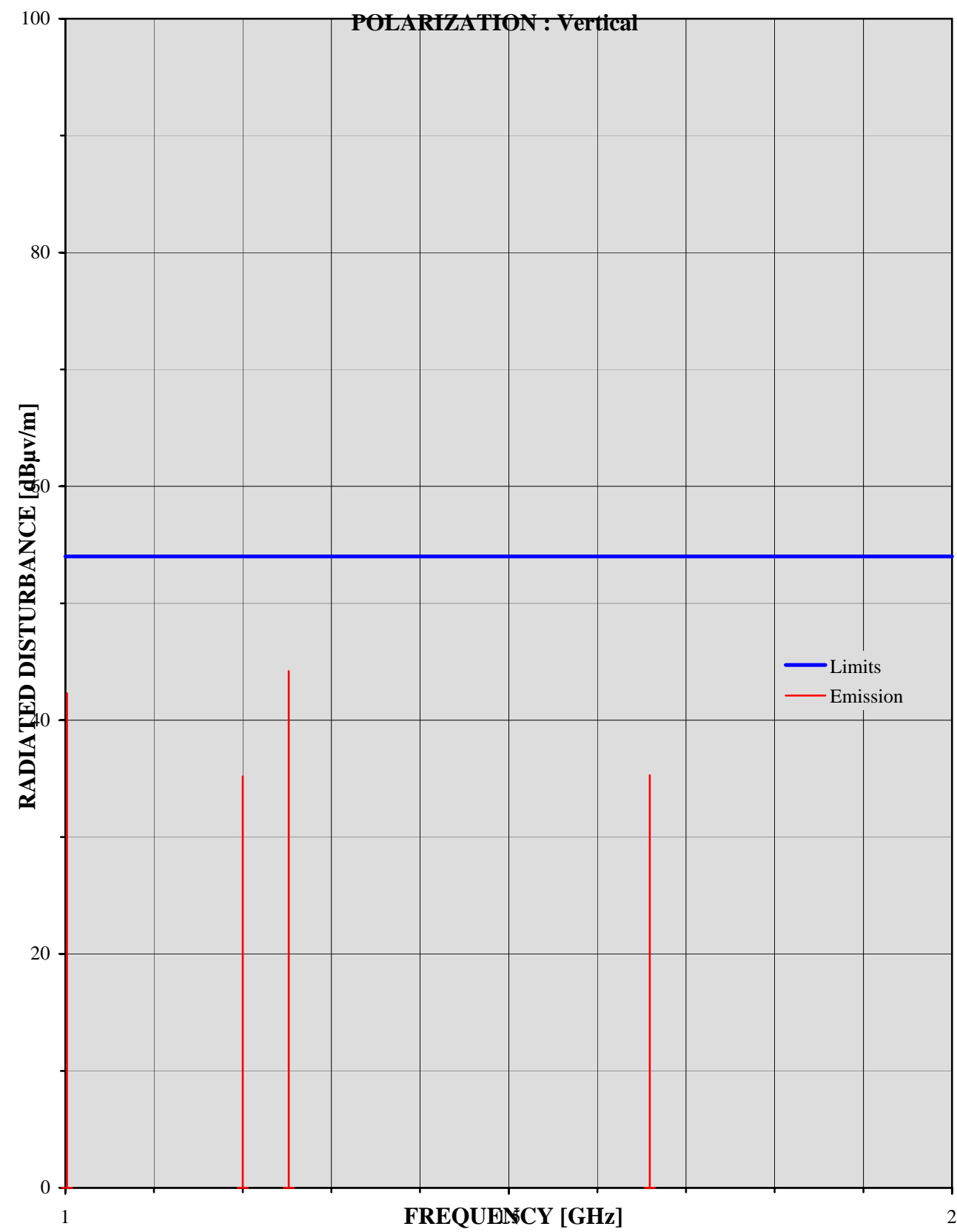
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 11



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Stand-by

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 12 (Refer to Graph 12)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	60.3	-21.2	39.1	54.0	14.9
1.253	64.5	-23.1	41.4	54.0	12.6
1.659	58.3	-24.2	34.1	54.0	19.9
1.754	66.0	-23.7	42.3	54.0	11.7

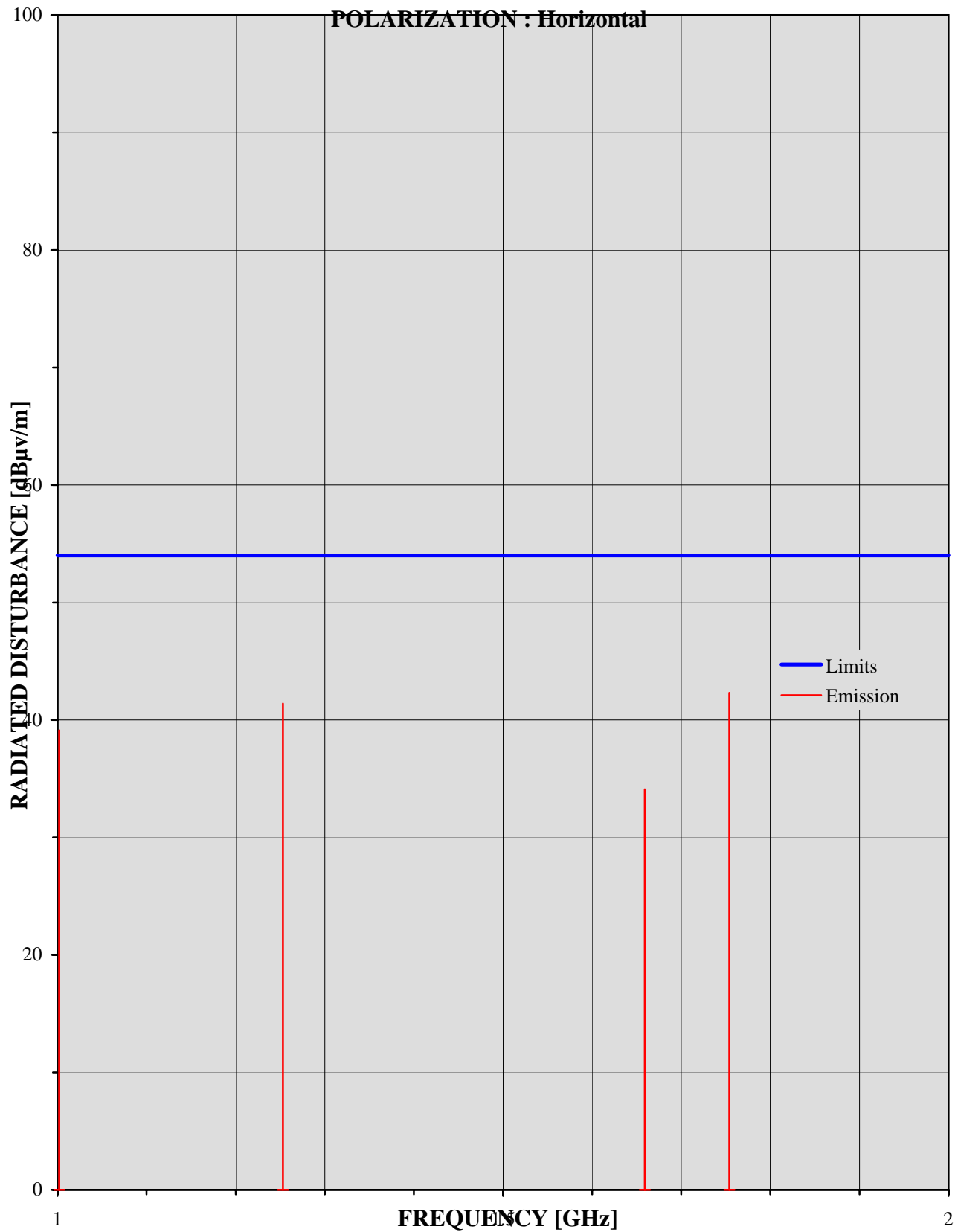
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 12



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

FB Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 13 (Refer to Graph 13)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	62.7	-21.2	41.5	54.0	12.5
1.252	67.0	-23.1	43.9	54.0	10.1
1.659	59.4	-24.2	35.2	54.0	18.8
1.194	56.9	-22.6	34.3	54.0	19.7

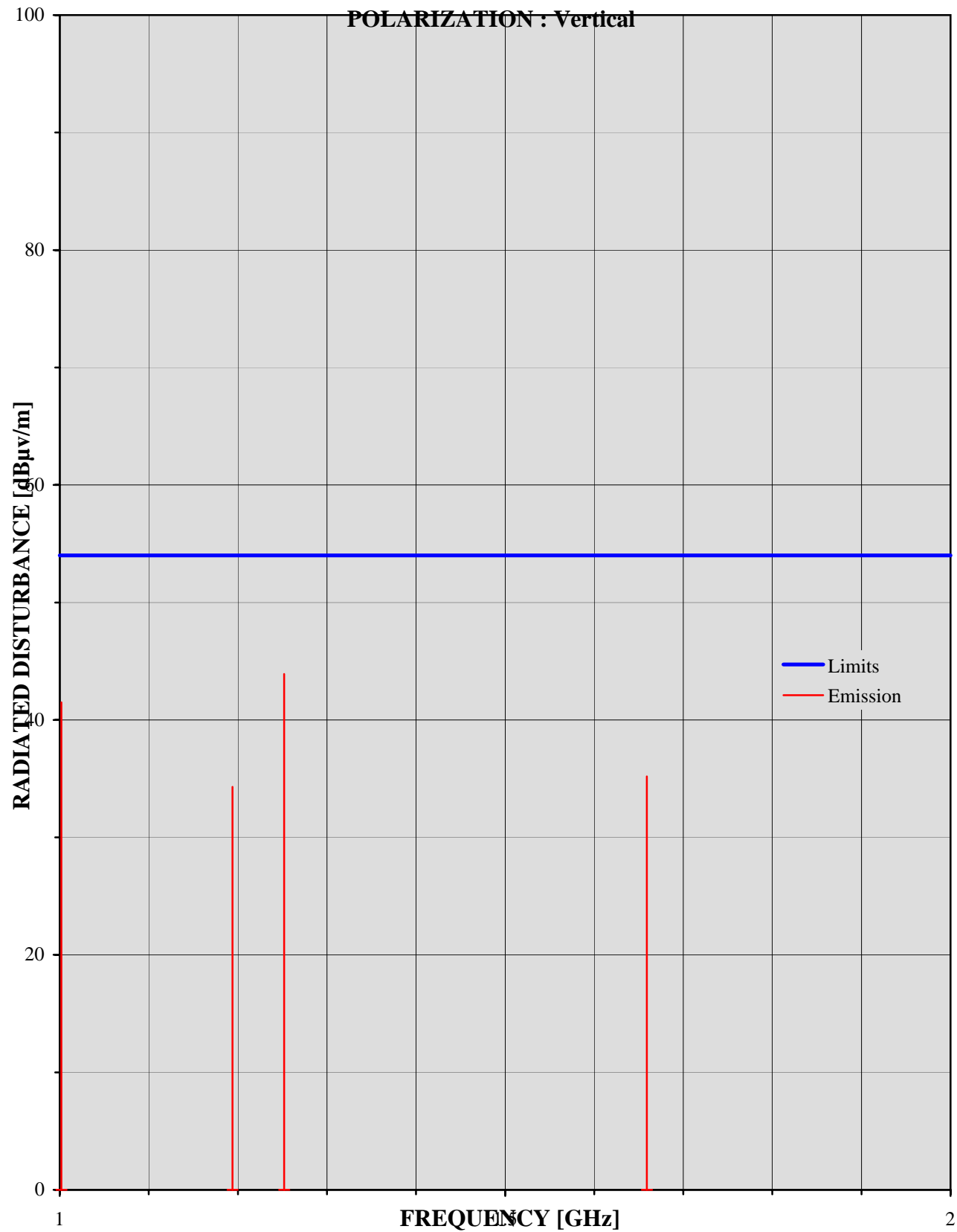
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 13



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

FB Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 14 (Refer to Graph 14)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	60.7	-21.2	39.5	54.0	14.5
1.252	65.3	-23.1	42.2	54.0	11.8
1.659	58.7	-24.2	34.5	54.0	19.5
1.754	65.3	-23.7	41.6	54.0	12.4

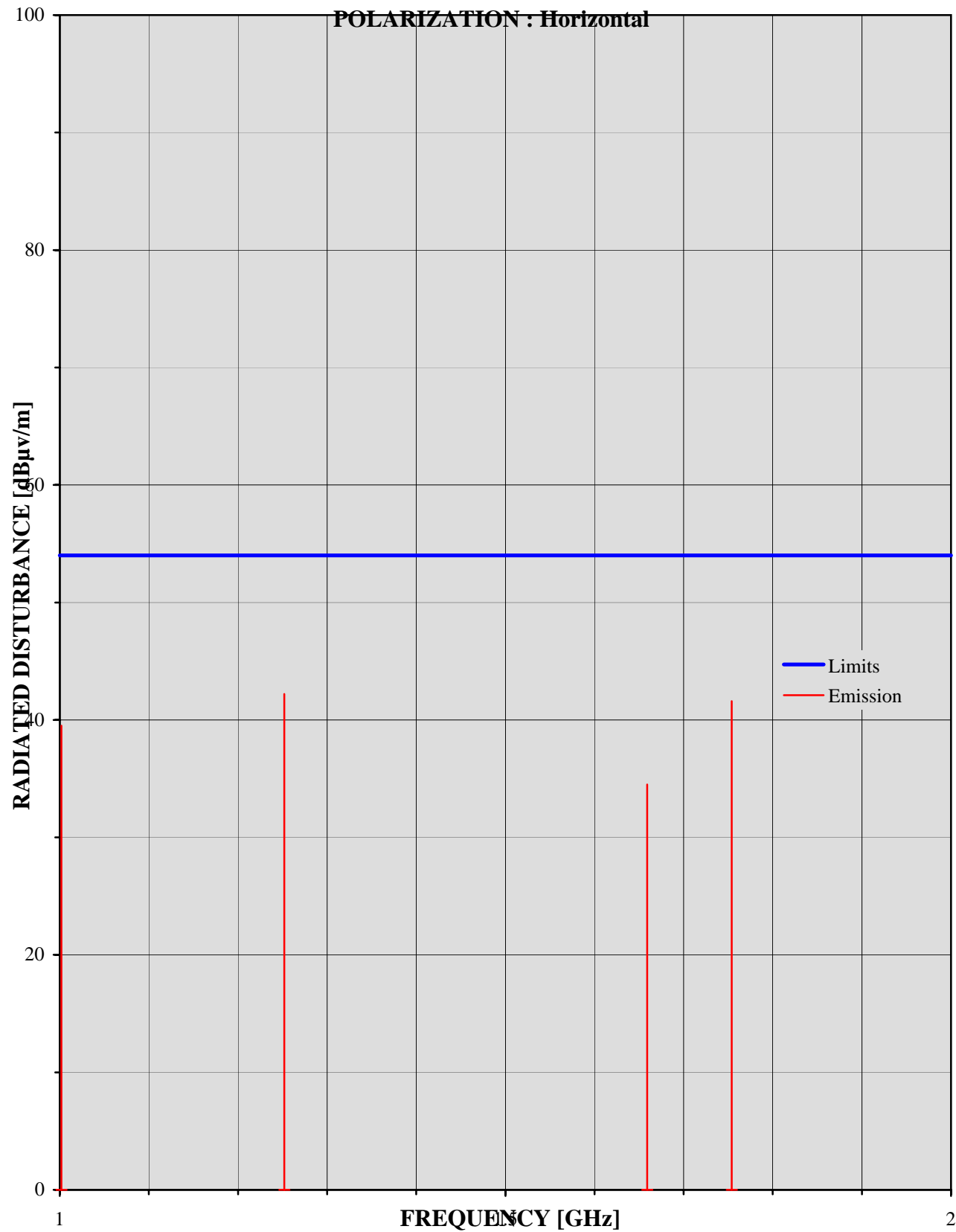
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 14



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

AF Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

			DATA No. 15 (Refer to Graph 15)		
Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	62.8	-21.2	41.6	54.0	12.4
1.194	56.6	-22.6	34.0	54.0	20.0
1.252	72.7	-23.1	49.6	54.0	4.4 *
1.659	58.9	-24.2	34.7	54.0	19.3

Note

- Formula : Result = Reading + Cor.F.

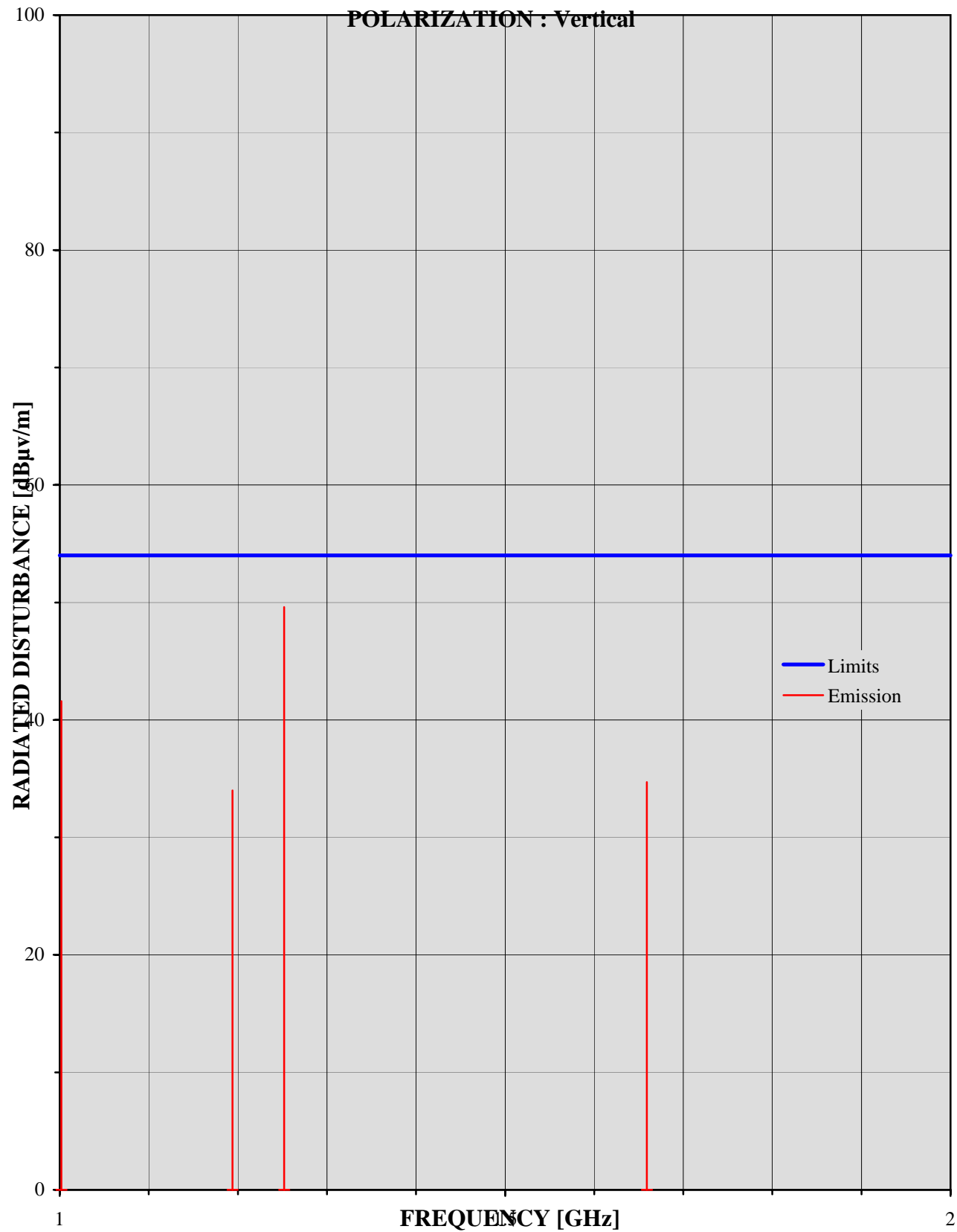
Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

* : This value should be taken with the measurement uncertainty.

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Graph 15



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

AF Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 16 (Refer to Graph 16)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	61.3	-21.2	40.1	54.0	13.9
1.252	70.6	-23.1	47.5	54.0	6.5
1.659	56.8	-24.2	32.6	54.0	21.4
1.754	64.7	-23.7	41.0	54.0	13.0

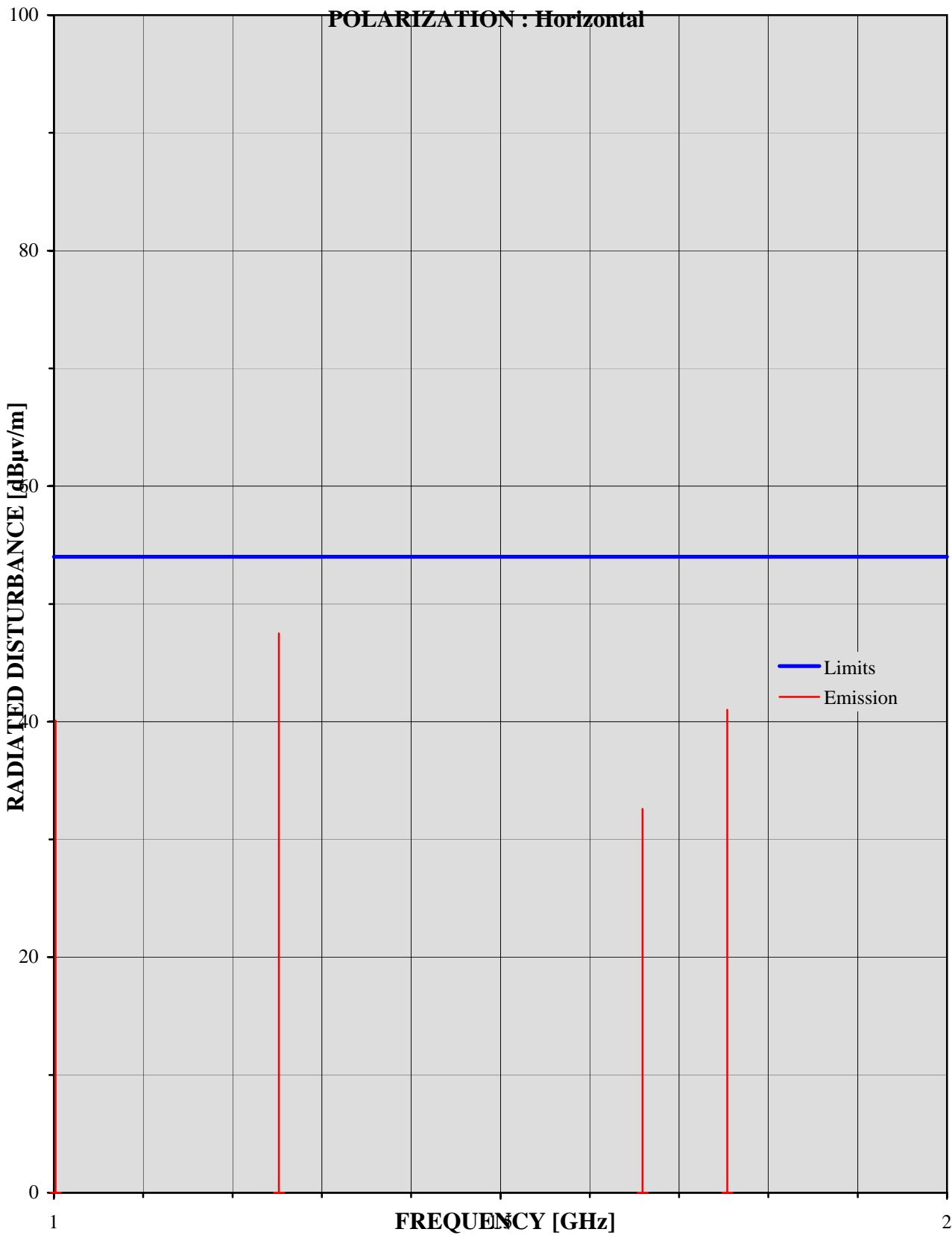
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

Graph 16



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

I/F Parallel Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 17 (Refer to Graph 17)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	62.9	-21.2	41.7	54.0	12.3
1.195	58.8	-22.6	36.2	54.0	17.8
1.252	72.4	-23.1	49.3	54.0	4.7 *
1.629	60.8	-24.3	36.5	54.0	17.5

Note

- Formula : Result = Reading + Cor.F.

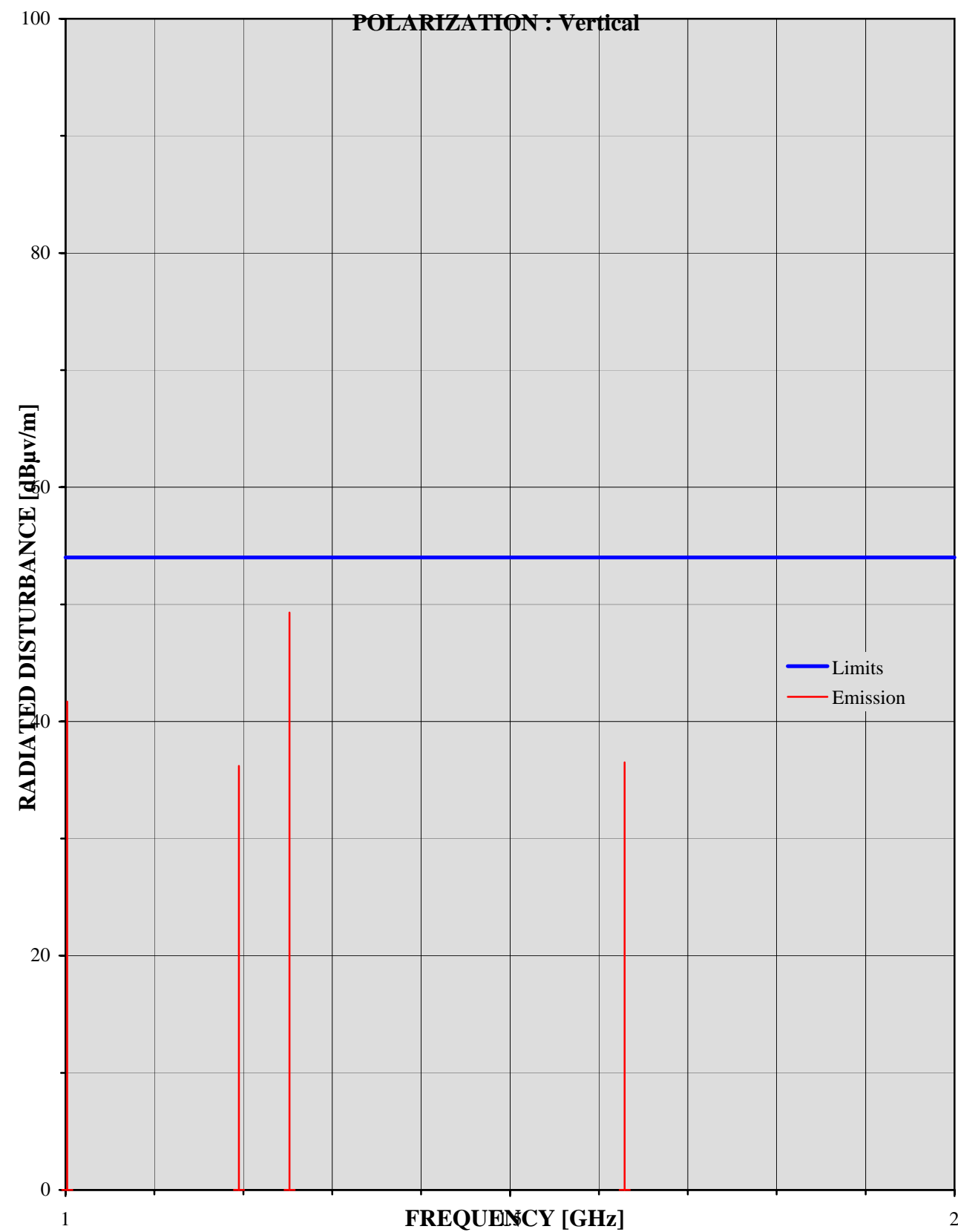
Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

* : This value should be taken with the measurement uncertainty.

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Graph 17



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

I/F Parallel Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 18 (Refer to Graph 18)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	62.1	-21.2	40.9	54.0	13.1
1.252	70.6	-23.1	47.5	54.0	6.5
1.659	56.9	-24.2	32.7	54.0	21.3
1.754	64.8	-23.7	41.1	54.0	12.9

Note

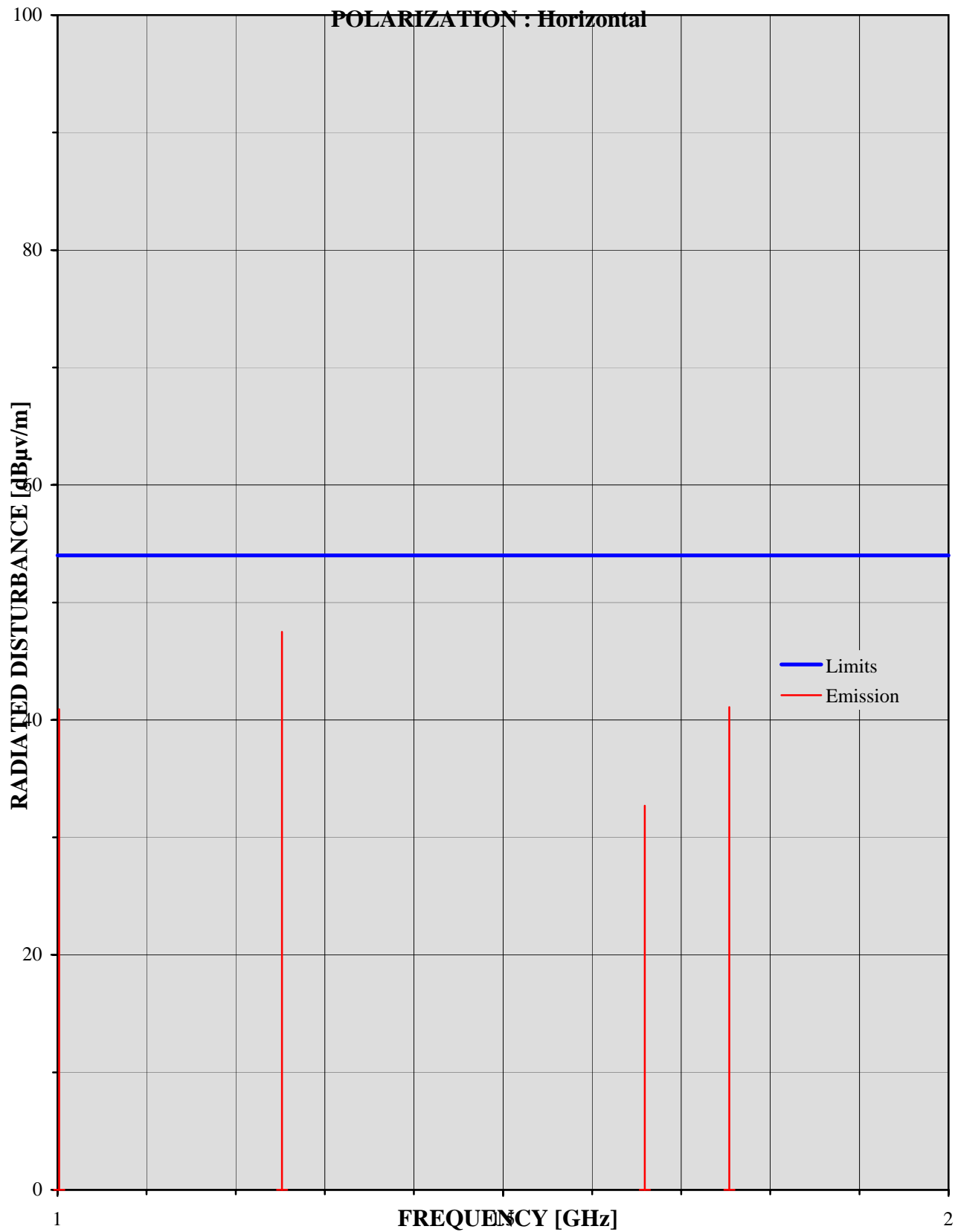
- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

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Graph 18



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Network Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Vertical

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 19 (Refer to Graph 19)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	62.2	-21.2	41.0	54.0	13.0
1.194	59.4	-22.6	36.8	54.0	17.2
1.252	72.7	-23.1	49.6	54.0	4.4 *
1.659	61.0	-24.2	36.8	54.0	17.2

Note

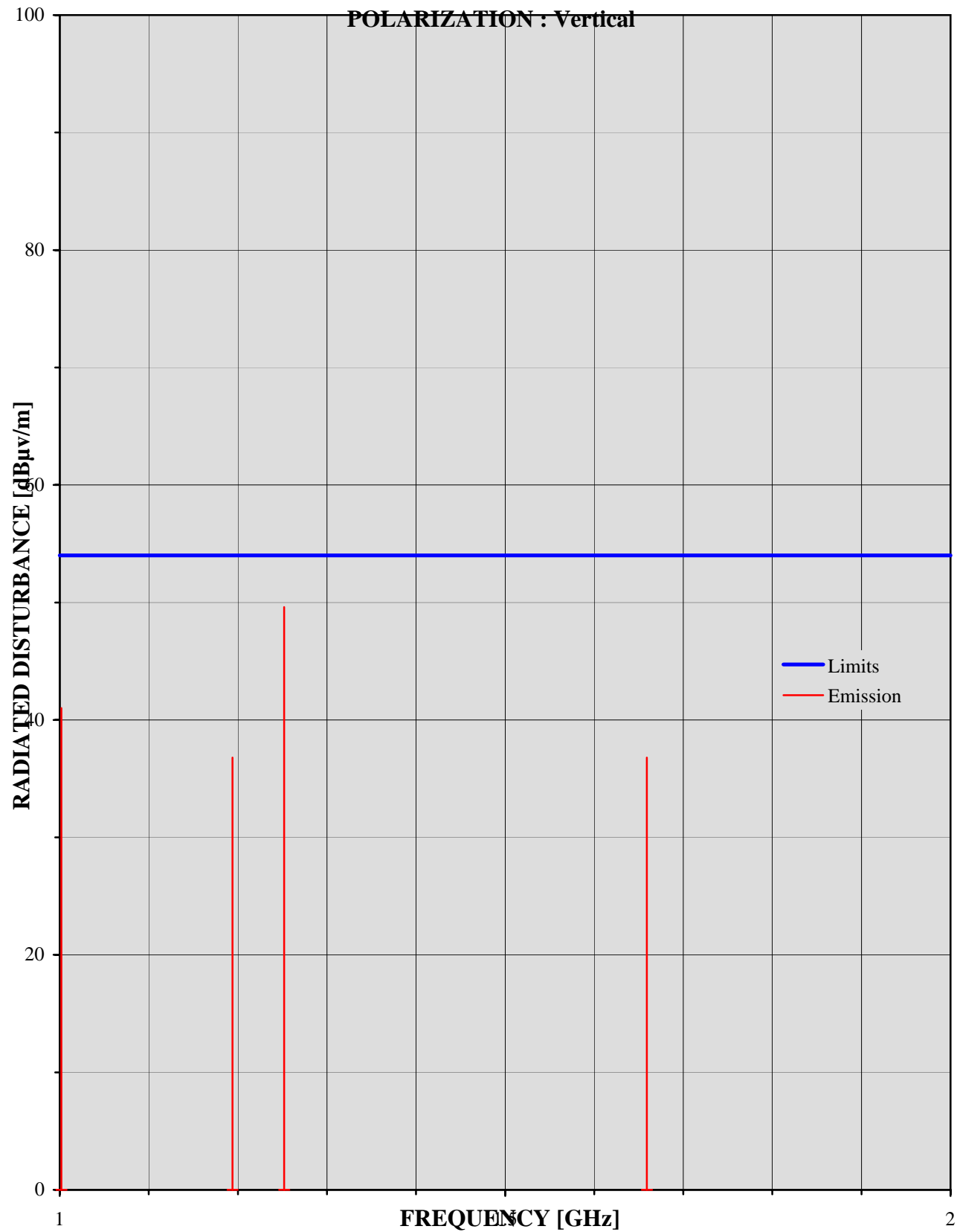
- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

* : This value should be taken with the measurement uncertainty.

Graph 19



Radiated Disturbance Measurements (1GHz to 2GHz)**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

Network Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Open site
Distance : 3m
Detection : Average
Temperature : 11
Humidity : 69%
Operator : M. Hakamazuka

Polarization Horizontal

Frequency (GHz)	Reading (dB μ V)	Cor.F. (dB)	DATA No. 20 (Refer to Graph 20)		
			Result (dB μ V/m)	Limits (dB μ V)	Margin (dB)
1.002	62.8	-21.2	41.6	54.0	12.4
1.252	71.5	-23.1	48.4	54.0	5.6
1.659	56.6	-24.2	32.4	54.0	21.6
1.754	66.7	-23.7	43.0	54.0	11.0

Note

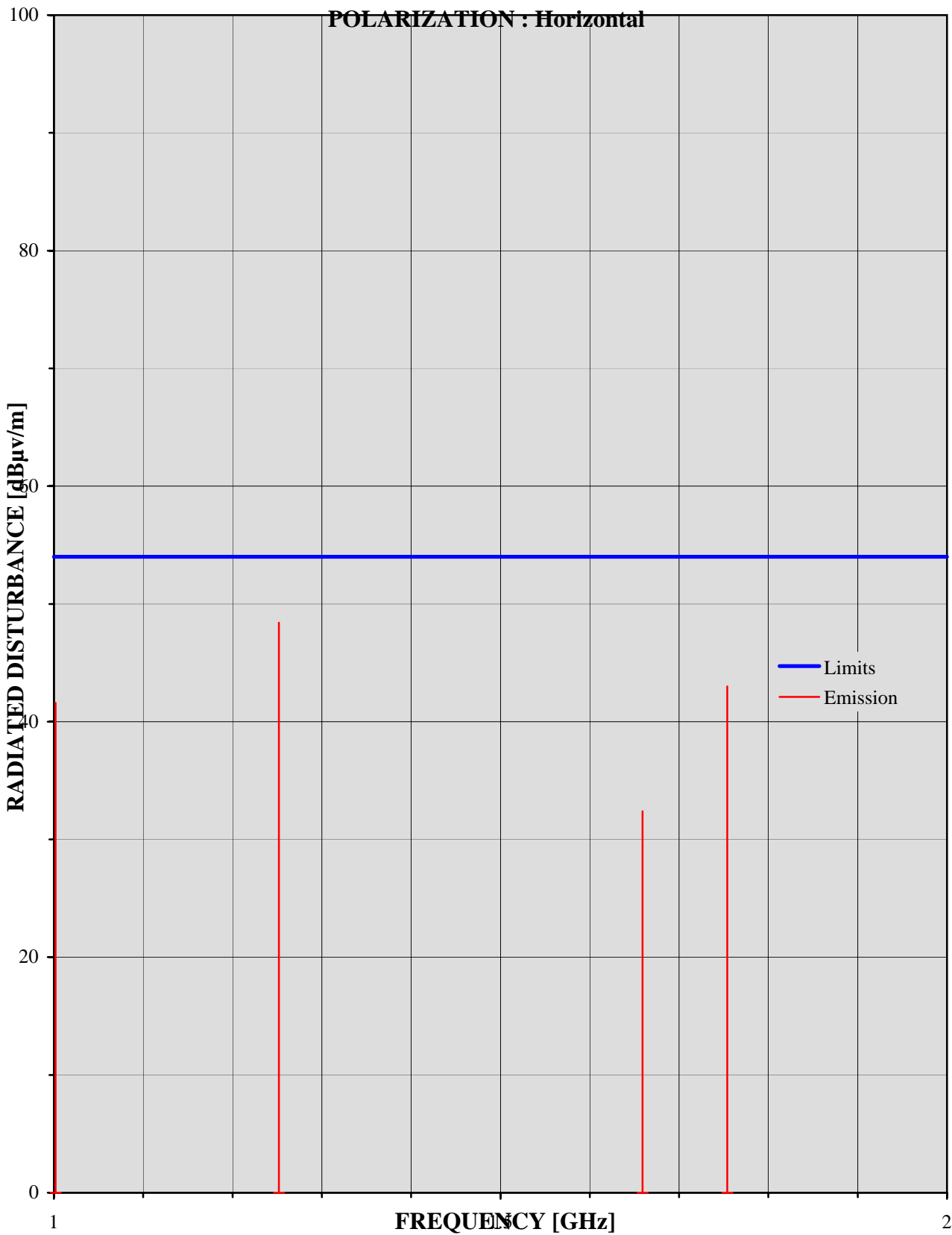
- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.

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Graph 20



Radiated Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Operating mode of EUT during the test

FB Print

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 15, 2003
Test venue : No.8 Open site
Distance : 30m
Detection : Q.P.
Temperature : 21.5
Humidity : 42 %
Operator : M. Hakamazuka

Rod antenna

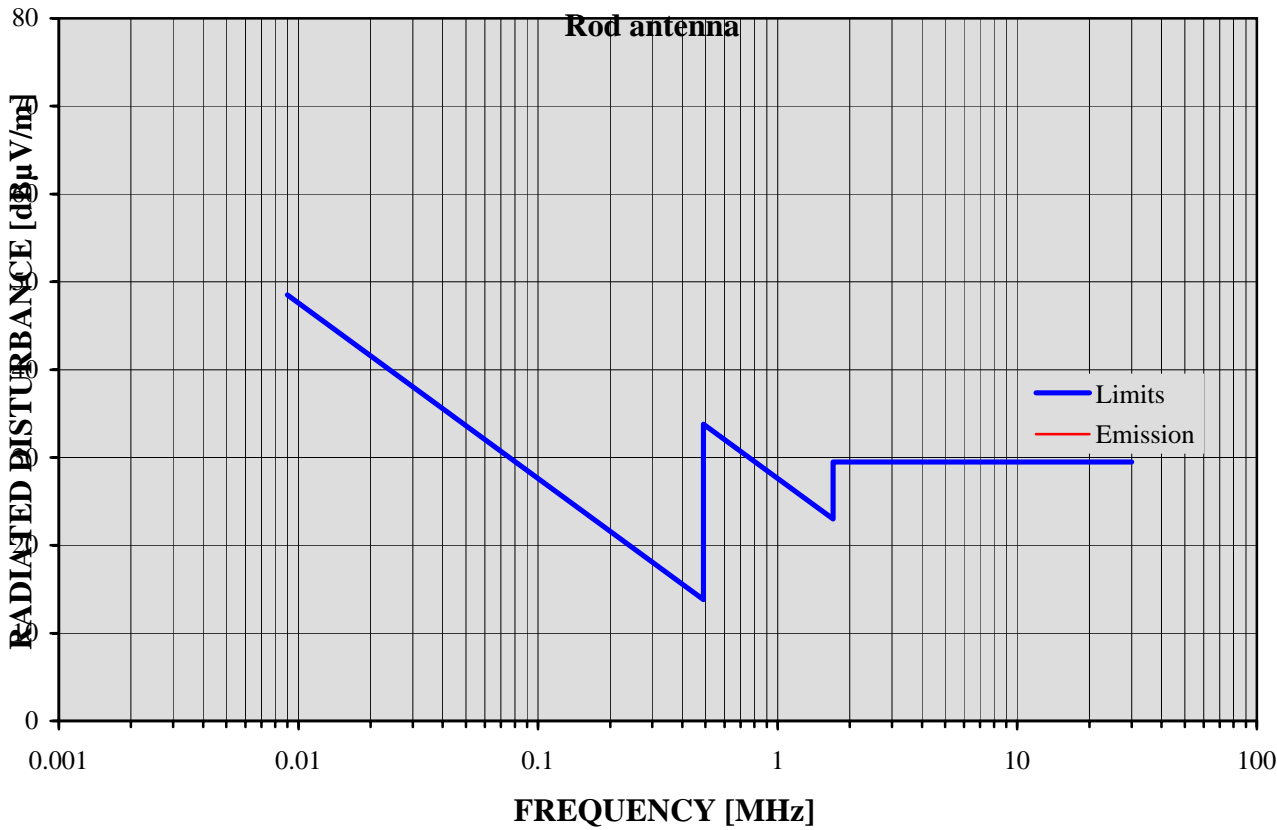
			DATA No. 21	(Refer to Graph 21)	
Frequency	Reading	Cor.F.	Result	Limits	Margin
(MHz)	(dB μ V)	(dB)	(dBμV/m)	(dB μ V)	(dB)

BELOW THE MEASUREMENT LIMIT

Note

- Formula : Result = Reading + Cor.F.
Margin = Limit- Result
- The correction factor (Cor.F.) includes the antenna factor, cable loss and pre-amplifier gain.
- No significant radiated spectrum from EUT was observed.

Graph 21



Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

Stand-by

Detection Q.P.

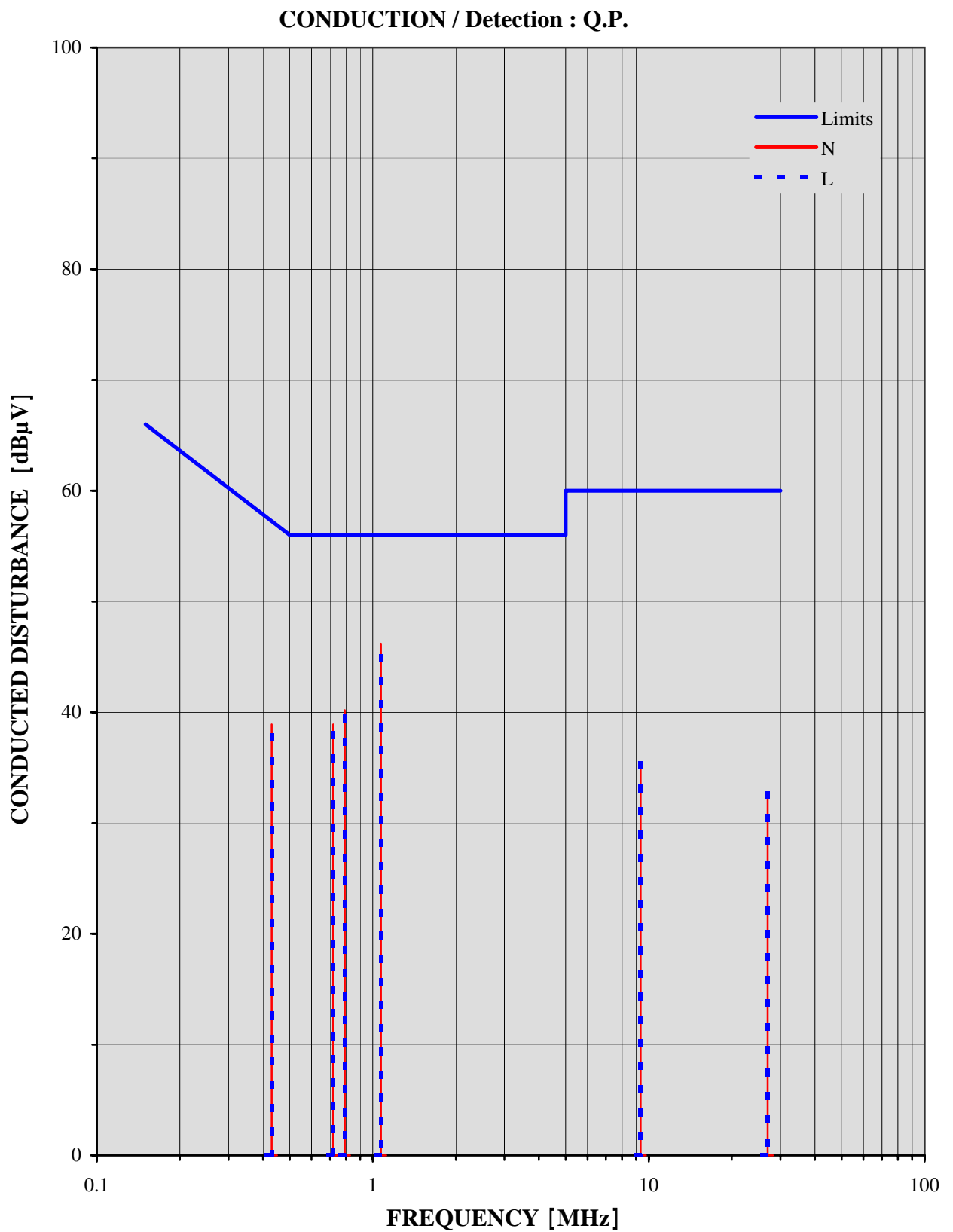
			DATA No. 22			(Refer to Graph 22)		
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dB μ V)	Limits (dB μ V)	Margin (dB)	
	N	L	N	L			N	L
0.430	38.4	37.4	0.5	0.5	38.9	37.9	57.3	18.4 19.4
0.718	38.4	37.5	0.5	0.6	38.9	38.1	56.0	17.1 17.9
0.791	39.7	39.0	0.5	0.6	40.2	39.6	56.0	15.8 16.4
1.070	45.6	44.5	0.6	0.6	46.2	45.1	56.0	9.8 10.9
9.350	35.0	34.9	0.5	0.5	35.5	35.4	60.0	24.5 24.6
27.000	31.7	31.6	0.6	1.1	32.3	32.7	60.0	27.7 27.3

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

Graph 22

Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

Stand-by

Detection		Average				DATA No. 23		(Refer to Graph 23)	
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dB μ V)		Limits (dB μ V)	Margin (dB)	
	N	L	N	L	N	L		N	L
0.430	36.2	35.0	0.5	0.5	36.7	35.5	47.3	10.6	11.8
0.719	37.5	36.8	0.5	0.6	38.0	37.4	46.0	8.0	8.6
0.792	39.2	38.5	0.5	0.6	39.7	39.1	46.0	6.3	6.9
1.070	43.0	42.4	0.6	0.6	43.6	43.0	46.0	2.4	3.0 *
9.350	30.8	31.0	0.5	0.5	31.3	31.5	50.0	18.7	18.5
27.000	30.6	30.6	0.6	1.1	31.2	31.7	50.0	18.8	18.3

Note

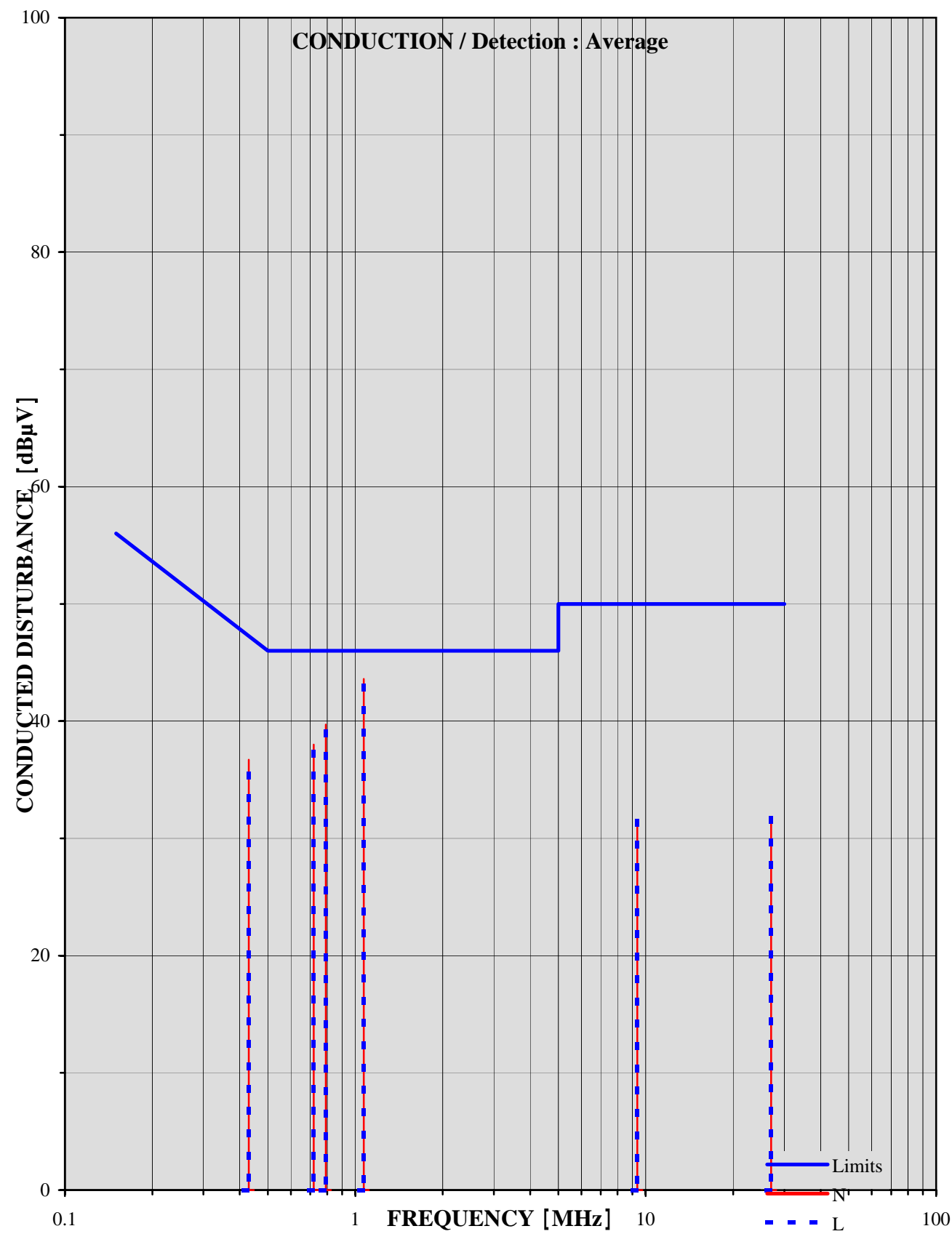
- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

* : This value should be taken with the measurement uncertainty.

Graph 23



Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

FB Print

Detection Q.P.

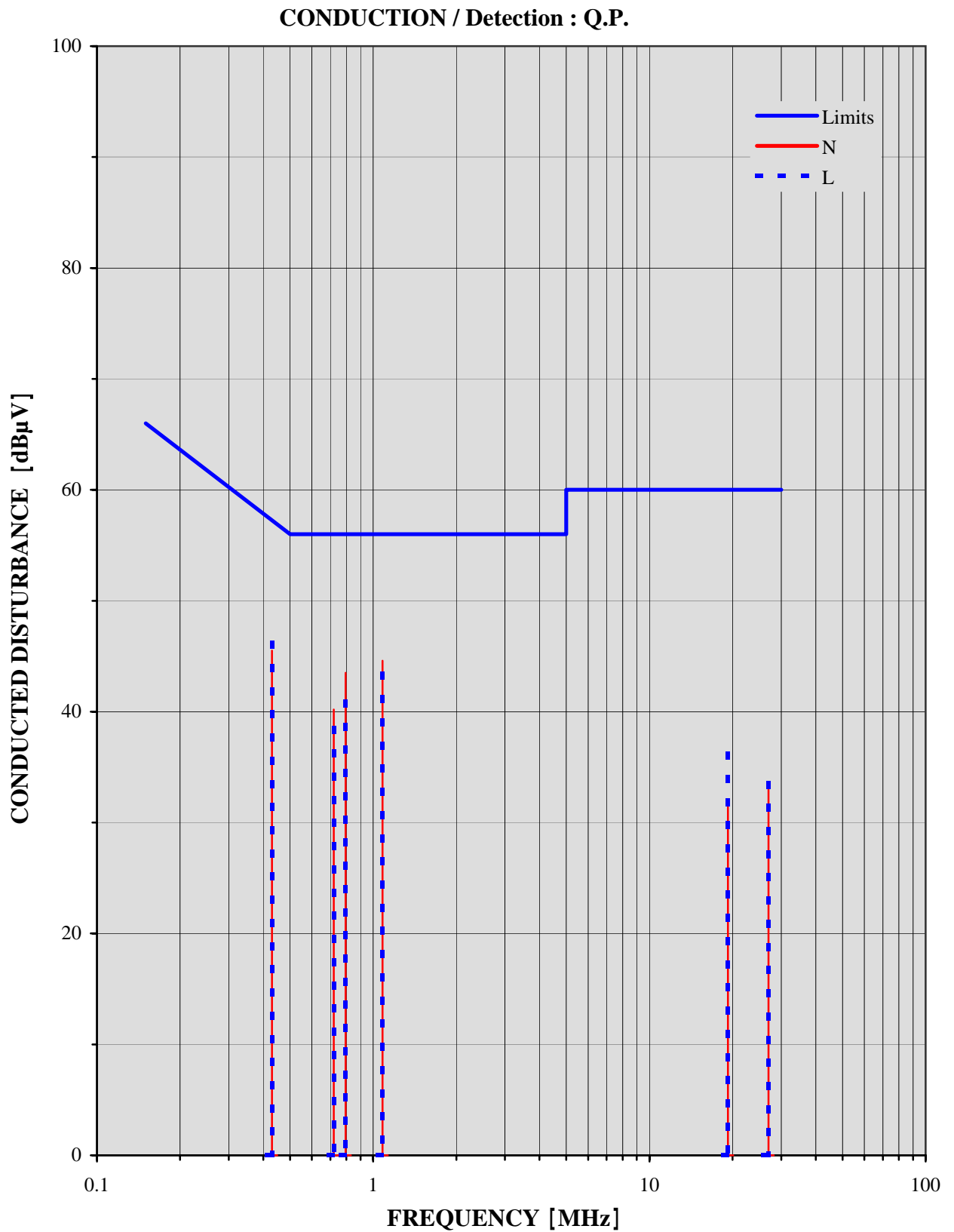
						DATA No. 24			(Refer to Graph 24)	
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dBμV)	Limits (dB μ V)		Margin (dB)		
	N	L	N	L		N	L		N	L
0.430	45.0	45.7	0.5	0.5	45.5	46.2	57.3	11.8	11.1	
0.720	39.7	37.9	0.5	0.6	40.2	38.5	56.0	15.8	17.5	
0.794	43.0	40.3	0.5	0.6	43.5	40.9	56.0	12.5	15.1	
1.080	44.0	42.8	0.6	0.6	44.6	43.4	56.0	11.4	12.6	
19.250	31.0	35.0	1.0	1.2	32.0	36.2	60.0	28.0	23.8	
27.000	32.4	32.5	0.6	1.1	33.0	33.6	60.0	27.0	26.4	

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

Graph 24

Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

FB Print

Detection		Average		DATA No. 25 (Refer to Graph 25)					
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dBμV)		Limits (dB μ V)	Margin (dB)	
	N	L	N	L	N	L		N	L
0.432	38.0	38.5	0.5	0.5	38.5	39.0	47.2	8.7	8.2
0.720	37.6	36.9	0.5	0.6	38.1	37.5	46.0	7.9	8.5
0.794	39.4	38.4	0.5	0.6	39.9	39.0	46.0	6.1	7.0
1.070	42.6	42.2	0.6	0.6	43.2	42.8	46.0	2.8	3.2 *
19.250	26.8	29.0	1.0	1.2	27.8	30.2	50.0	22.2	19.8
27.000	30.0	27.0	0.6	1.1	30.6	28.1	50.0	19.4	21.9

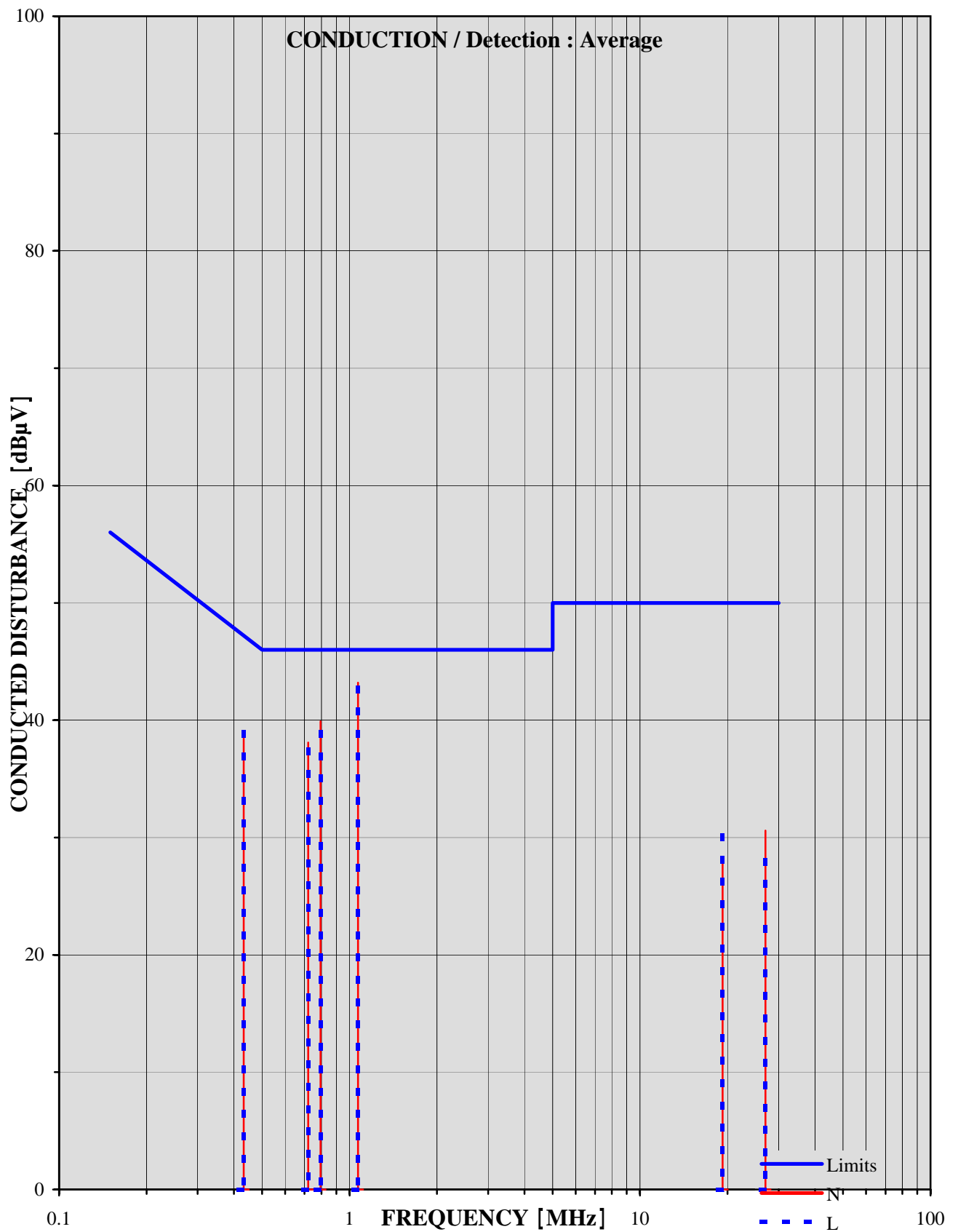
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

* : This value should be taken with the measurement uncertainty.

Graph 25

Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

AF Print

Detection **Q.P.**

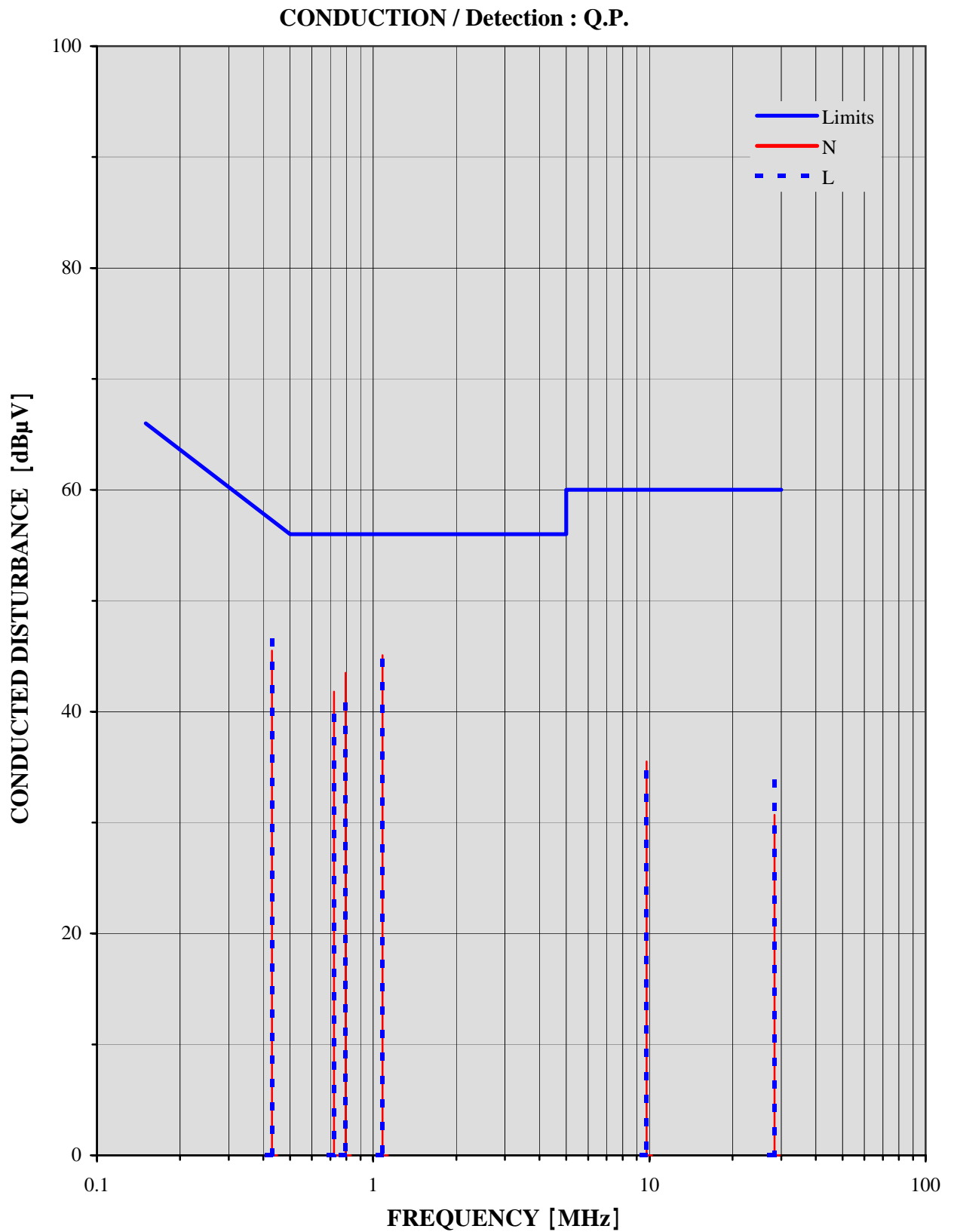
						DATA No. 26		(Refer to Graph 26)	
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dB μ V)	Limits (dB μ V)	Margin (dB)		
	N	L	N	L				N	L
0.430	45.0	45.9	0.5	0.5	45.5	46.4	57.3	11.8	10.9
0.722	41.3	39.0	0.5	0.6	41.8	39.6	56.0	14.2	16.4
0.794	43.0	40.0	0.5	0.6	43.5	40.6	56.0	12.5	15.4
1.080	44.5	44.0	0.6	0.6	45.1	44.6	56.0	10.9	11.4
9.760	35.0	34.0	0.5	0.5	35.5	34.5	60.0	24.5	25.5
28.350	30.0	32.4	0.7	1.3	30.7	33.7	60.0	29.3	26.3

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

Graph 26

Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

AF Print

Detection		Average				DATA No. 27		(Refer to Graph 27)	
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dB μ V)		Limits (dB μ V)	Margin (dB)	
	N	L	N	L	N	L		N	L
0.432	38.2	38.9	0.5	0.5	38.7	39.4	47.2	8.5	7.8
0.722	38.1	37.0	0.5	0.6	38.6	37.6	46.0	7.4	8.4
0.795	39.7	38.9	0.5	0.6	40.2	39.5	46.0	5.8	6.5
1.080	42.5	42.3	0.6	0.6	43.1	42.9	46.0	2.9	3.1 *
9.760	30.1	30.0	0.5	0.5	30.6	30.5	50.0	19.4	19.5
28.340	28.2	30.0	0.7	1.3	28.9	31.3	50.0	21.1	18.7

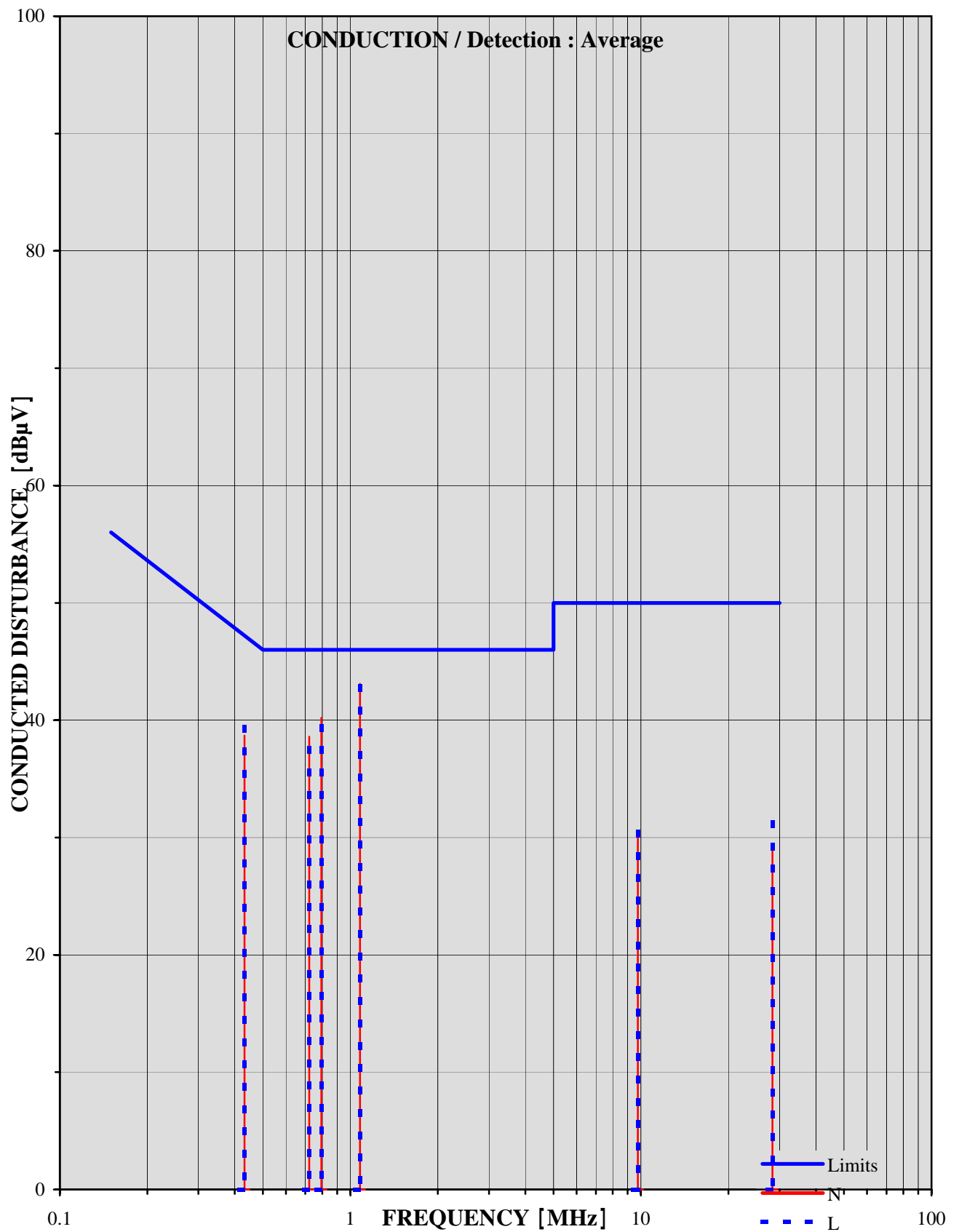
Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

* : This value should be taken with the measurement uncertainty.

Graph 27

Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

I/F Parallel Print

Detection**Q.P.**

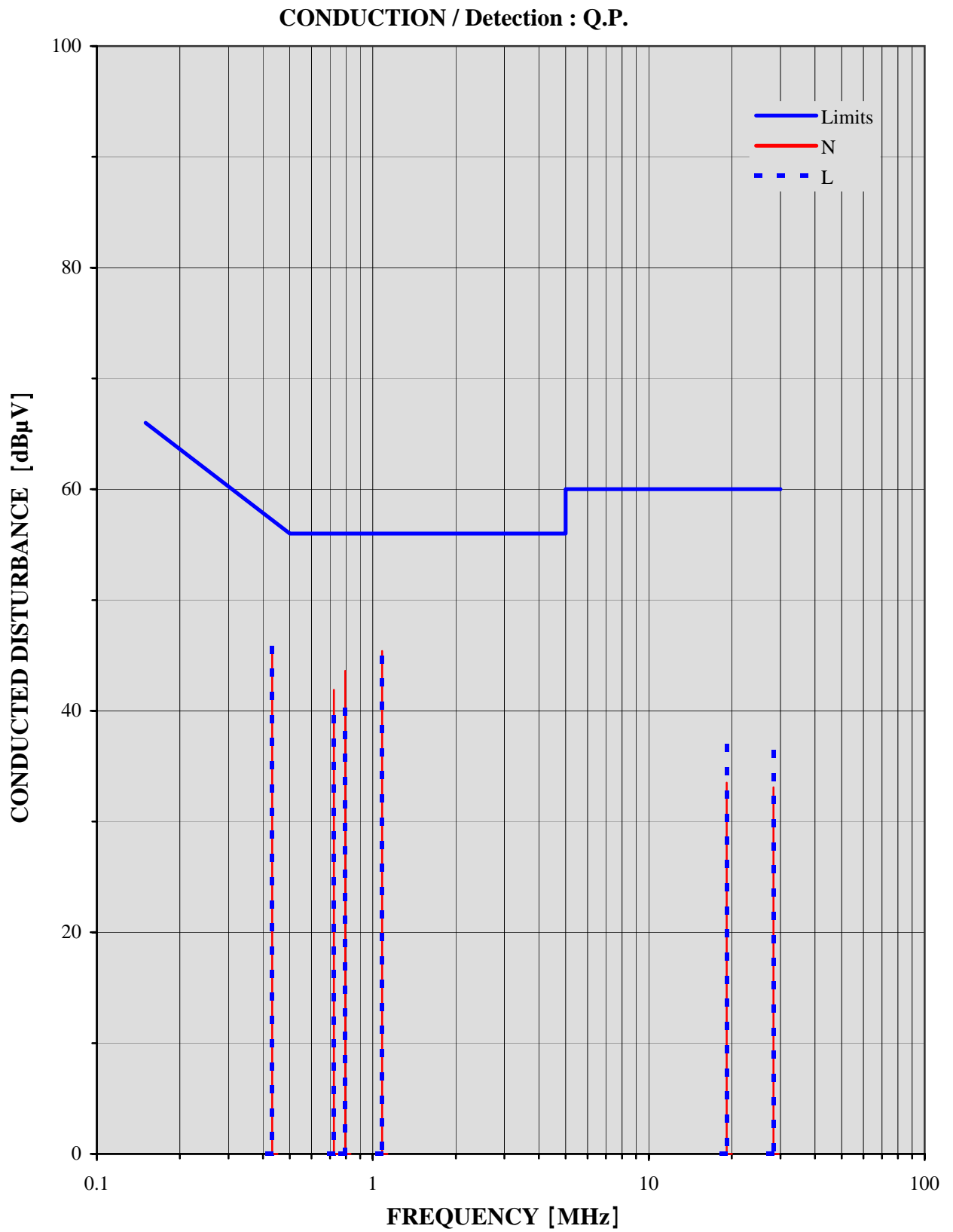
					DATA No. 28		(Refer to Graph 28)		
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dB μ V)		Limits (dB μ V)	Margin (dB)	
	N	L	N	L	N	L		N	L
0.432	45.0	45.2	0.5	0.5	45.5	45.7	57.2	11.7	11.5
0.723	41.4	38.8	0.5	0.6	41.9	39.4	56.0	14.1	16.6
0.795	43.1	39.5	0.5	0.6	43.6	40.1	56.0	12.4	15.9
1.080	44.8	44.2	0.6	0.6	45.4	44.8	56.0	10.6	11.2
19.150	32.5	35.6	1.0	1.2	33.5	36.8	60.0	26.5	23.2
28.340	32.4	35.0	0.7	1.3	33.1	36.3	60.0	26.9	23.7

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

Graph 28

Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

I/F Parallel Print

Detection		Average		DATA No. 29 (Refer to Graph 29)					
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dBμV)		Limits (dB μ V)	Margin (dB)	
	N	L	N	L	N	L		N	L
0.433	38.0	39.0	0.5	0.5	38.5	39.5	47.2	8.7	7.7
0.723	38.4	37.2	0.5	0.6	38.9	37.8	46.0	7.1	8.2
0.796	39.6	38.6	0.5	0.6	40.1	39.2	46.0	5.9	6.8
1.080	42.5	42.1	0.6	0.6	43.1	42.7	46.0	2.9	3.3 *
19.150	26.0	28.0	1.0	1.2	27.0	29.2	50.0	23.0	20.8
28.340	28.0	30.0	0.7	1.3	28.7	31.3	50.0	21.3	18.7

Note

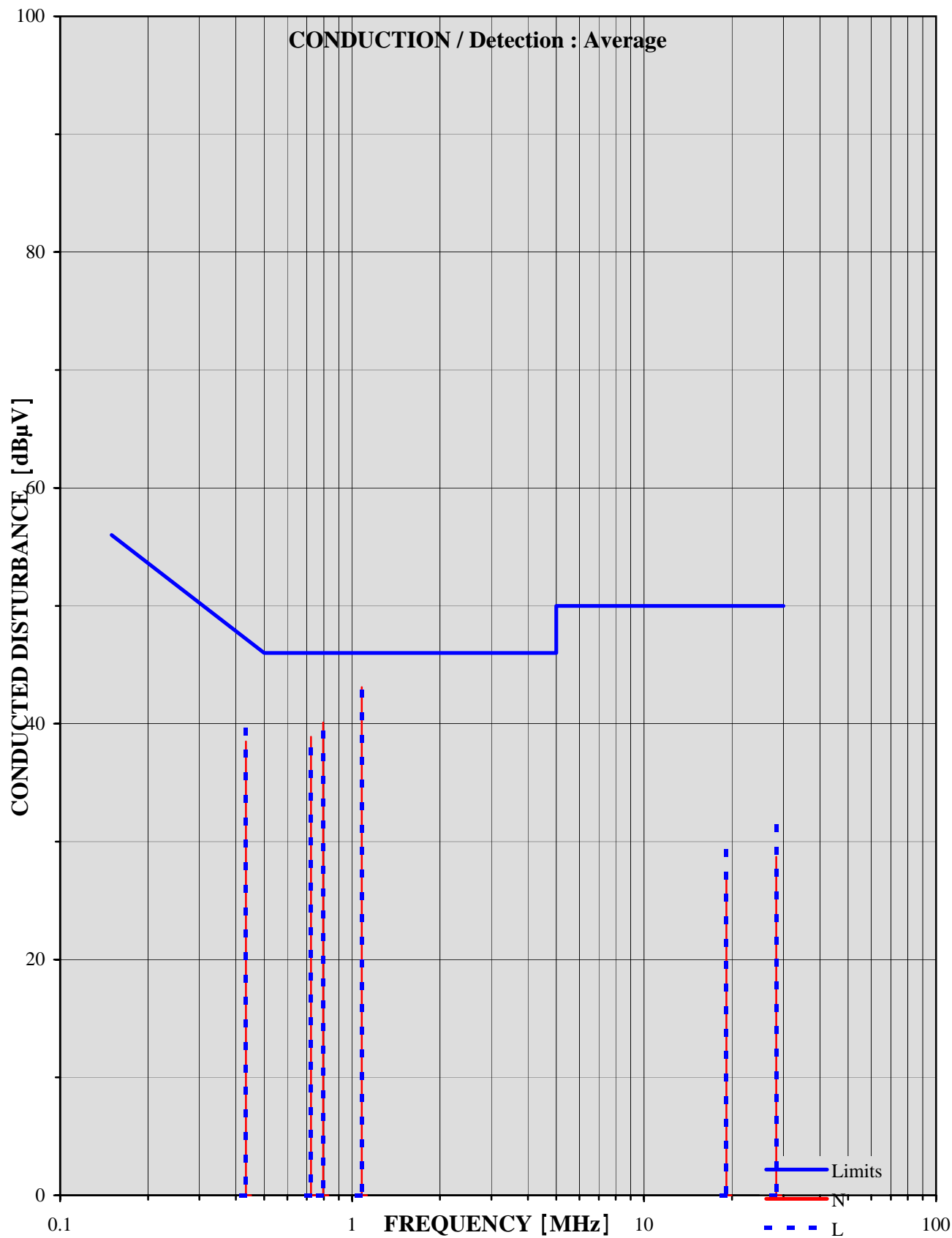
- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

* : This value should be taken with the measurement uncertainty.

Graph 29



Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

Network Print

Detection **Q.P.**

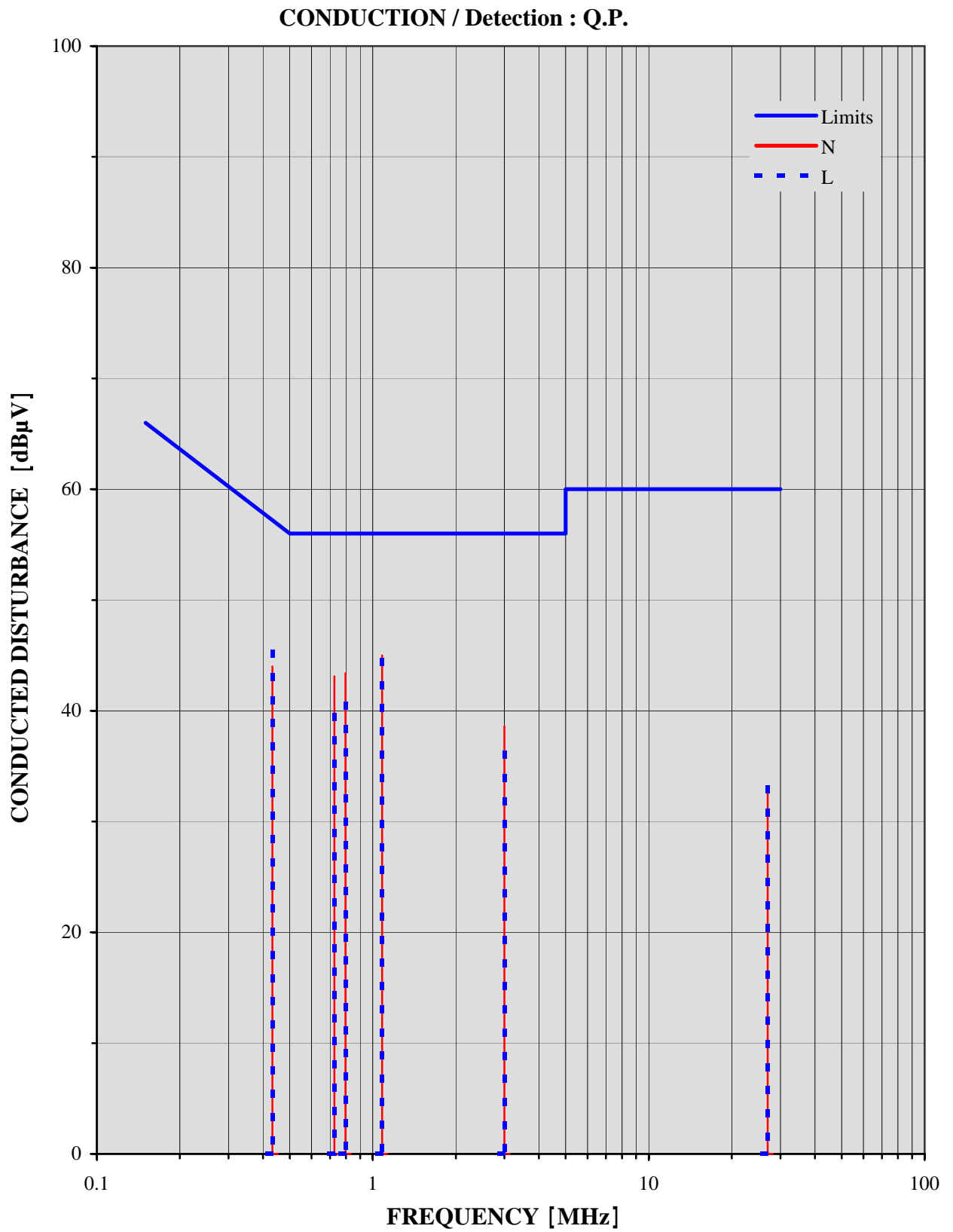
					DATA No. 30		(Refer to Graph 30)	
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dB μ V)		Limits (dB μ V)	Margin (dB)
	N	L	N	L	N	L		N L
0.433	43.5	44.8	0.5	0.5	44.0	45.3	57.2	13.2 11.9
0.725	42.6	39.0	0.5	0.6	43.1	39.6	56.0	12.9 16.4
0.796	42.9	40.0	0.5	0.6	43.4	40.6	56.0	12.6 15.4
1.080	44.4	44.0	0.6	0.6	45.0	44.6	56.0	11.0 11.4
3.000	38.0	35.6	0.6	0.6	38.6	36.2	56.0	17.4 19.8
26.990	32.6	32.0	0.6	1.1	33.2	33.1	60.0	26.8 26.9

Note

- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

Graph 30

Conducted Disturbance Measurements**Test Specification**

Applied standard : FCC CFR 47 Part 15, Subpart C
with exception of 15.31(e) and 15.225(c) requirements

EUT

Category : Duplicator with RFID System
Model Name : RZ390UI
Serial Number : 81340003

Test Condition

Applied Power : AC 120V, 60Hz
Single phase 3-wire
Date : December 16, 2003
Test venue : No.1 Shield room
Temperature : 21.5
Humidity : 42%
Operator : M. Hakamazuka

Operating mode of EUT during the test

Network Print

Detection		Average				DATA No. 31		(Refer to Graph 31)	
Frequency (MHz)	Reading (dB μ V)		Cor.F. (dB)		Result (dB μ V)		Limits (dB μ V)	Margin (dB)	
	N	L	N	L	N	L		N	L
0.434	38.0	36.3	0.5	0.5	38.5	36.8	47.2	8.7	10.4
0.724	38.2	37.1	0.5	0.6	38.7	37.7	46.0	7.3	8.3
0.797	39.6	39.2	0.5	0.6	40.1	39.8	46.0	5.9	6.2
1.080	42.6	42.2	0.6	0.6	43.2	42.8	46.0	2.8	3.2 *
3.010	38.0	36.2	0.6	0.6	38.6	36.8	46.0	7.4	9.2
27.000	31.5	30.8	0.6	1.1	32.1	31.9	50.0	17.9	18.1

Note

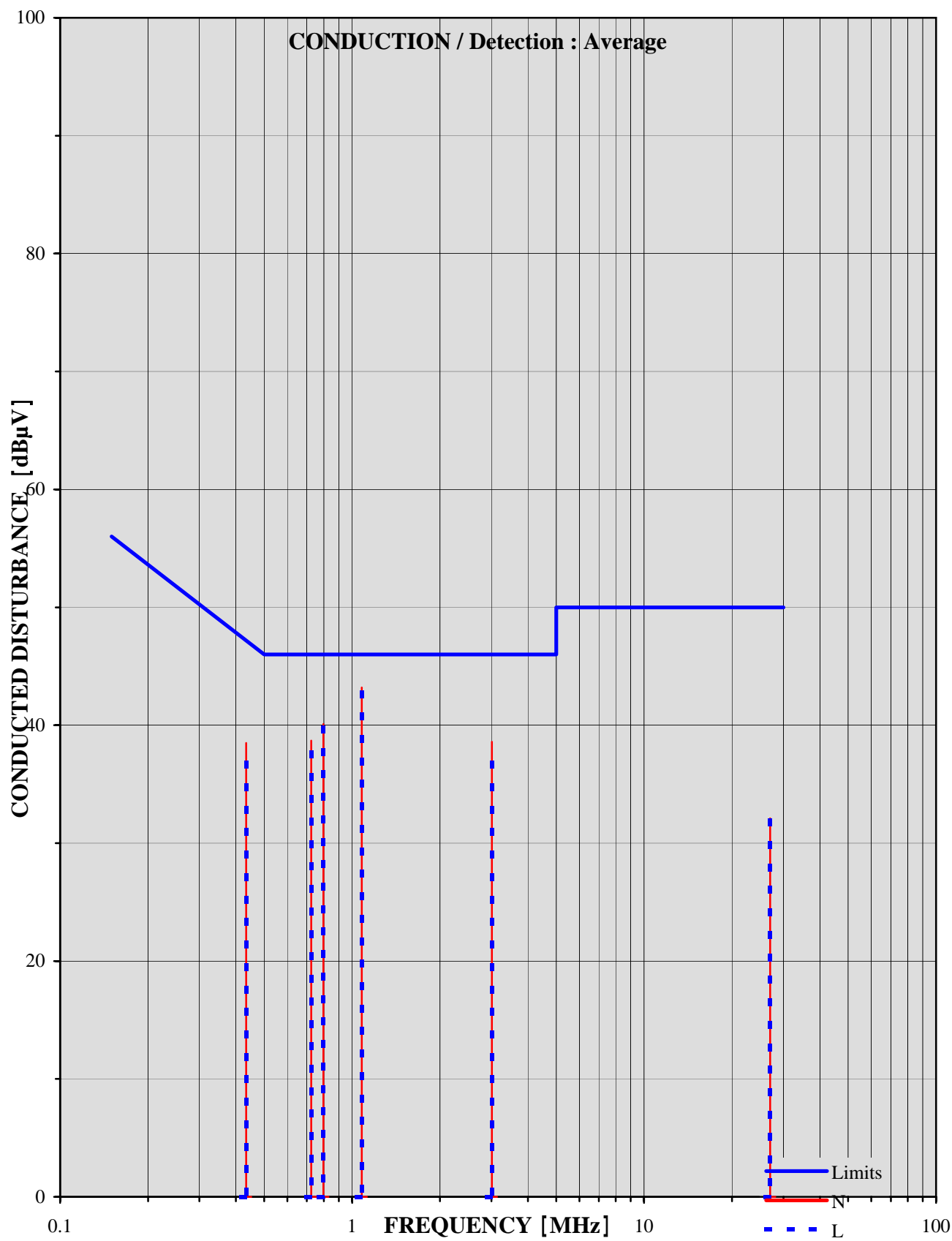
- Formula : Result = Reading + Cor.F.

Margin = Limit- Result

- The correction factor (Cor.F.) includes the LISN(AMN) voltage division factor and cable loss.

* : This value should be taken with the measurement uncertainty.

Graph 31



Photograph of the EUT

Radiated Disturbance Measurements

Biconical antenna (30MHz to 300MHz)

Log-periodic antenna (300MHz to 1000MHz)

Duble ridge guide antenna (1000MHz to 2000MHz)

Front view



Rear view



Photograph of the EUT

Radiated Disturbance Measurements

Rod antenna (0.009MHz to 30MHz)

Front view



Rear view



Photograph of the EUT**Conducted Disturbance Measurement****Front view****Rear view**

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