

National Panasonic

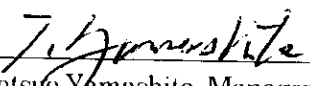
Kyushu Matsushita Electric Co., Ltd.

1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531 Japan Phone: Fukuoka (092) 431-2111

Telex: 723579 "KMEFUK J" Cable Address: "KMEFUKUOKA" FUKUOKA

REPORT OF MEASUREMENT

1. Manufacturer : Kyushu Matsushita Electric Co., Ltd.
1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka, 812-8531, Japan
2. Description Device : Cordless Terminal [Control Console Unit]
Tx: 904.00 ~ 926.04 MHz
 - a) Type of EUT : Desk-top Type
 - b) Category : Intentional Radiator
 - c) FCC Identifier : ACJ96NKX-MC1CS
 - d) Trade Name : Panasonic
 - e) Model Number : KX-MC1CS
 - f) Serial Number : ES1001
 - g) Date of Manufacture : August 1999
 - h) Power Source : AC 120V, 60 Hz
(AC Adaptor, Output rating DC 12V, 500mA)
3. Date of Measurement : August 18 & 19, 1999
4. Regulation Applied : FCC Rules and Regulations Part 15, Subpart C
Intentional Radiator (§ 15.249)
5. Measurement Procedure : ANSI C63.4 - 1992
6. Place of Measurement : IPS Corporation, Nagano
1878-1 Harumiya Ono Tatsuno-machi, Kamiina-gun, Nagano-ken, 399-0601,
Japan
7. Measurement Results : The results obtained from the measuring of the above-mentioned device are
as shown in attached sheets.
8. Summary of Results : Test sample complies with FCC Rules and Regulations Part 15 Subpart C
Intentional Radiators

Signature : 
Tetsuo Yamashita, Manager of
Engineering Section of 4th Division of
Kyushu Matsushita Electric Co., Ltd.

Date: August 31, 1999

TABLE OF CONTENTS

Page 2 of 48

Test Facility	3
Configuration of Tested System	4
List of Test Equipment(s)	5
List of Cable(s)	5
Radiated Emission	6
Test Condition	6
List of the Instrumentation	7
Block Diagram	9
Configuration Photograph(s)	10
Test Data	13
Carrier Frequency[FCC15.249(a)]	13
30MHz to 1000MHz[FCC15.249, 15.209]	22
1GHz to 10GHz[FCC15.249, 15.209]	28
9KHz to 30MHz(Magnetic field)	34
Conducted Emission	40
Test Condition	40
List of the Instrumentation	40
Block Diagram	41
Configuration Photograph(s)	42
Test Data[FCC15.207(a)]	43

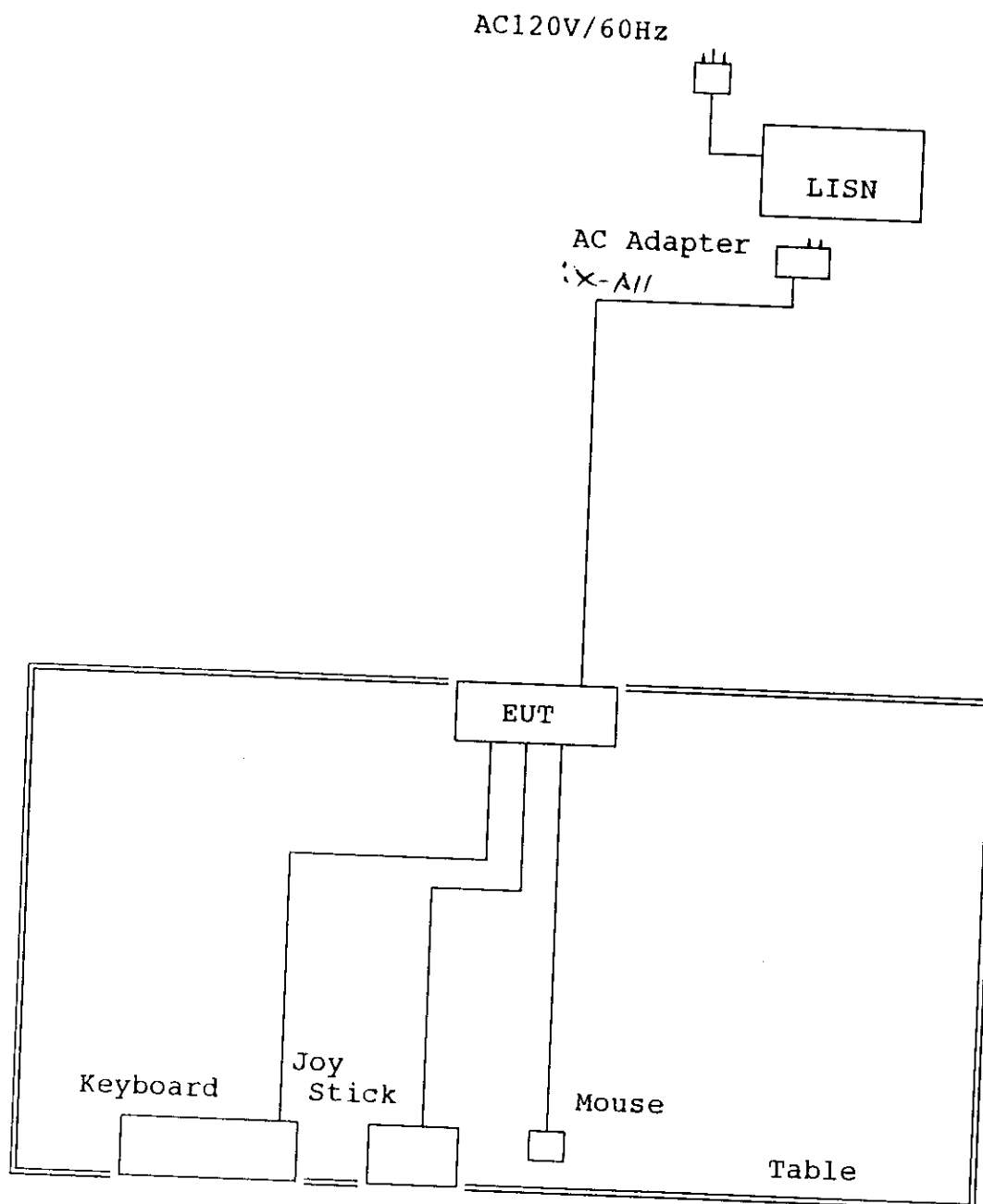
Test Facility

Page 3 of 48

The Test Facility has been certified to Quality System for EMC Testing Service by TUV CERT. Proof has been furnished that the requirements according to DIN EN ISO 9002 / JIS Z 9902 are fulfilled. (Certificate Registration No. 09 100 6813)

Conducted Interference Voltage test was performed on a shielded room and Radiated interference Field Strength test was performed on a 10 meter open filed test site located at IPS Corp. 4593, Hosohora Ono Tatsuno-machi, Kamiina-gun, Nagano-ken, 399-0601, Japan. The spectrum investigation of radiated emission in the range of 30 MHz to 10 GHz (peak detector function) was performed on a 3 m semi-anechoic chamber located at IPS Corp. 1878-1, Harumiya Ono Tatsuno-machi, Kamiina-gun, Nagano-ken, 399-0601, Japan. This Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP) by United States Department of Commerce, National Institute of Standard and Technology (NIST) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO / IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI / ASQC Q92-1987) as suppliers of calibration or test results. Accreditation awarded for specific services, listed on the Scope of Accreditation for: ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS FCC. (NVLAP LAB CODE: 200012-0). And this Laboratory has been fully described in a report November 28, 1998 submitted to Federal Communications Commission Authorization and Evaluation Division, and accepted in a letter dated December 11, 1998 (Registration Number 90676).

This Laboratory is accredited by Japan Accreditation Board for Conformity Assessment for satisfactory compliance with JAB RL100 and RL152-1997 of JAB Regulations. These criteria encompass the requirements of ISO / IEC Guide 25 and the relevant requirements of JIS Z 9325 as suppliers of calibration or test results. Accreditation awarded for specific services, listed on the Scope of Accreditation for : ELECTROMAGNETIC COMPATIBILITY TESTING (JAB Accreditation No.: RTL00010).



List of Test Equipment(s)

No.	Manufacturer	Products	Model No.	Serial No.	Remarks
1	Panasonic	MicroCast	KX-MC1CS	ES1001	EUT
2	Panasonic	AC Adaptor	KX-A11	Date Code: 9847	AC120V, 60Hz
3	Gravis	Joystick	1014-1	REV3 4597	
4	Chicony Electronics	Keyboard	KB-9320	TIM5200558	FCC ID: E8HKB-5323
5	Logitech	Mouse	13H6690	23-G432148	FCC ID: DZL210429

List of Cable(s)

Equip ment	Terminal	Cable	Length	Equip ment	Terminal	Remarks
2		DC Cable <i>No ferrite core</i>	1.9m	1	DC IN	DC12V, 0.5A
3		Joystick Cable	1.7m	1		
4		Keyboard cable	1.5m	1		
5		Mouse Cable	1.8m	1		

RADIATED EMISSION

The test setup was made according to ANSI STD C63.4-1992 clause 8 on a 3 meter anechoic chamber, which allows a 3 m distance measurement. The EUT shall be located on the non-conductive wooden table top and they are all aligned and flush with rear of this table top. The height of this table was 0.8 m and 1.5 m wide x 1.0 m deep size. Spacing between the each equipment maintain 10 cm. Connection of the EUT to the artificial mains network is required and artificial mains network is located under the turn table. The artificial mains network is 50 ohm terminated. The mains flexible cords were dropped to the floor and is routed over to receptacle. Interconnecting cables of table top equipment were shortened to appropriate length on the table. The measurement has been conducted with both horizontal and vertical antenna polarization. The turntable has been fully rotated. The highest radiation of the equipment has been recorded. By varying the configuration of the test sample and the cable routing it was attempted to maximize the radiated emission. For further description of the configuration refer to the pictures of this report.

Distance between equipment and antenna : 3 m
 Height of antenna : 1 m to 4 m

RADIATED EMISSION (9 kHz to 30 MHz)

The test setup for the frequency range 9 kHz to 30 MHz was on a 3 meter anechoic chamber, which allows a 3 m distance measurement. The EUT and peripherals shall be located on the non-conductive wooden table top and they are all aligned and flush with rear of this table top. The height of this table was 0.8 m and 1.5 m wide x 1.0 m deep size. Spacing between the each equipment maintain 10 cm. The mains flexible cords were dropped to the floor and is routed over to receptacle. Interconnecting cables of table top equipment that hang closer than 0.4 m to the ground plane shall be folded back and forth forming a bungle 30 to 40 cm long, hanging approximately in the middle between ground plane and table. The measurement has been conducted with both horizontal and vertical antenna polarization. The turntable has been fully rotated. The highest radiation of the equipment has been recorded. By varying the configuration of the test sample and the cable routing it was attempted to maximize the radiated emission.

Distance between equipment and antenna : 3 m (9 kHz to 1 GHz)
 * due to Only for the spectrum investigation

Height of antenna : 1 m (9 kHz to 30 MHz)

Number of Channels Tested:

Frequency Band	Number of Channels	Channel Location
Less than 1MHz	1	Middle
1 - 10MHz	2	Top, Bottom
More than 10MHz	3	Top, Middle, Bottom

List of the Instrumentation

Page 7 of 48

1. Radiation(30MHz - 1GHz)

- 1) Equipment : Test Receiver (For the final measurement)
Model No. : HP8546A
S/N : 3807A00432
Manufacture : Hewlett Packard
Frequency Range: 9 kHz to 6.9 GHz
System Bandwidth: 10 kHz
Detector : Quasi-Peak
Last Calibrate : 1998/12/09
Next Calibrate : 1999/12/09
- 2) Equipment : Bilog Antenna (For the spectrum analysis)
Model No. : CBL6140A
S/N : 1124
Manufacture : Chase
Frequency Range: 30 MHz to 1000 MHz
Last Calibrate : 1999/02/01
Next Calibrate : 2000/02/01
- 3) Equipment : Tunable Dipole Antenna
(For the final measurement)
Model No. : VHA9103
S/N : 91031513
Manufacture : Schwarzbeck
Frequency Range: 30 MHz to 300 MHz
Last Calibrate : 1998/10/08
Next Calibrate : 1999/10/08
- 4) Equipment : Tunable Dipole Antenna
(For the final measurement)
Model No. : UHA9105
S/N : 91052108
Manufacture : Schwarzbeck
Frequency Range: 300 MHz to 1000 MHz
Last Calibrate : 1998/10/08
Next Calibrate : 1999/10/08
- 5) Equipment : Attenuator (Connected to the Antenna)
Model No. : MP721A
S/N : M47971
Manufacture : Anritsu
Frequency Range: 30 MHz to 1000 MHz
Calibrated with the Cable system
- 6) Equipment : Step Attenuator (For the Pre-Amp. Saturation)
Model No. : HP8494B
S/N : 3308A37637
Manufacture : Hewlett Packard
Frequency Range: 30 MHz to 1000 MHz
Calibrated with the Cable system

- 7) Equipment : Pre Amplifier
Model No. : HP8347A
S/N : 3307A01779
Manufacture : Hewlett Packard
Frequency Range: 30 MHz to 3000 MHz
Calibrated with the Cable system
- 8) Equipment : Cable System
Consists of : Attenuator, Pre-Amplifier, Switch Unit and cable
Manufacture : IPS Corporation
Frequency Range: 30 MHz to 1000 MHz
Last Calibrate : 1999/02/01
Next Calibrate : 2000/02/01
- 9) Equipment : LISN for EUT & Peripherals
Model No. : A
S/N : 003 / 004
Manufacture : IPS
Frequency Range: 0.15 MHz to 30 MHz
RF Load : 50 ohm 50 micro henry
: 50 ohm terminated
Located under the turn table.
Non calibration equipment.
2. Radiation(1GHz - 10GHz)
- 1) Equipment : Test Receiver (For the final measurement)
Model No. : 2784
S/N : B020190
Manufacture : Textronix
Frequency Range: 9 kHz to 40 GHz
System Bandwidth: 10 kHz
Detector : Quasi-Peak
Last Calibrate : 1999/03/12
Next Calibrate : 2000/03/31
- 2) Equipment : Guide Antenna (For the spectrum analysis)
Model No. : 3115
S/N : 9512-4647
Manufacture : Chase
Frequency Range: 1GHz to 18GHz
Last Calibrate : 1998/08/19
Next Calibrate : 1999/08/31
- 3) Equipment : Pre Amplifier
Model No. : HP83051A
S/N : 3332A00357
Manufacture : Hewlett Packard
Frequency Range: 45 MHz to 50 GHz
Calibrated with the Cable System
- 4) Equipment : 4 m Junflon Cable System (For 1 GHz to 40 GHz)
Consists of : Pre-Amplifier and Cable.
Manufacture : IPS Corporation
Frequency Range: 1 GHz to 40 GHz
Last Calibrated : 1998/11/21
Next Calibrated: 1999/11/21

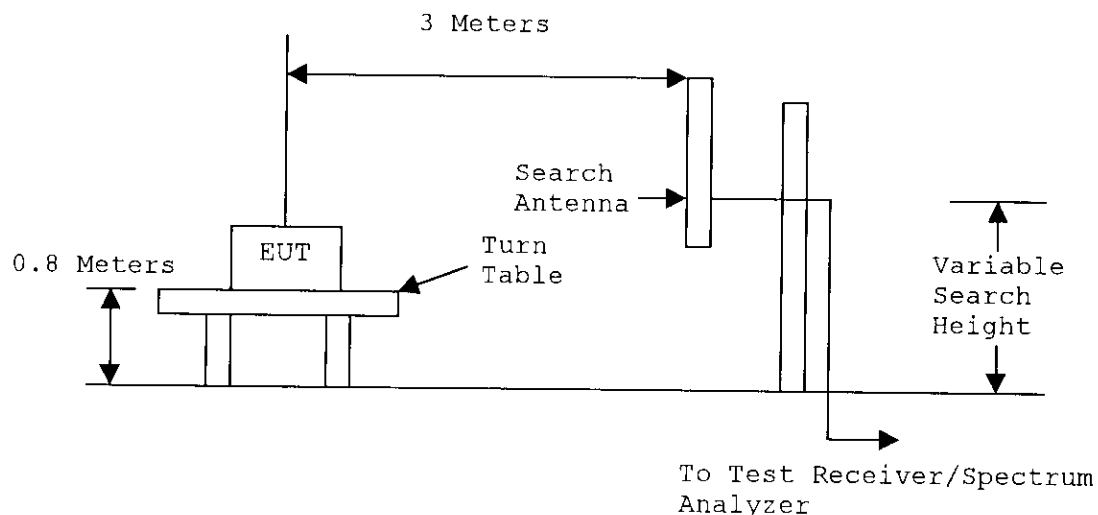
3. Magnetic Field Emission(9kHz - 30MHz)

Page 9 of 48

- 1) Equipment : Test Receiver (For the final measurement)
Model No. : HP8546A
S/N : 3807A00432
Manufacture : Hewlett Packard
Frequency Range: 9 kHz to 6.9 GHz
System Bandwidth: 10 kHz
Detector : Quasi-Peak
Last Calibrate : 1998/12/09
Next Calibrate : 1999/12/09
- 2) Equipment : LoopAntenna (For the spectrum analysis)
Model No. : HLA6120
S/N : 1131
Manufacture : Chase
Frequency Range: 10 KHz to 30 MHz
Last Calibrate : 1999/06/11
Next Calibrate : 2000/06/11
- 3) Equipment : Cable System
Consists of : Attenuator, Pre-Amplifier, Switch Unit and cable
Manufacture : IPS Corporation
Frequency Range: 30 MHz to 1000 MHz
Last Calibrate : 1999/02/01
Next Calibrate : 2000/02/01
- 4) Equipment : LISN for EUT & Peripherals
Model No. : A
S/N : 003 / 004
Manufacture : IPS
Frequency Range: 0.15 MHz to 30 MHz
RF Load : 50 ohm 50 micro henry
: 50 ohm terminated
Located under the turn table.
Non calibration equipment.

BLOCK DIAGRAM

TEST SITE FOR RADIATED EMISSIONS



Configuration Photograph(s)
[30MHz to 1000MHz]

Page 10 of 48



Front View



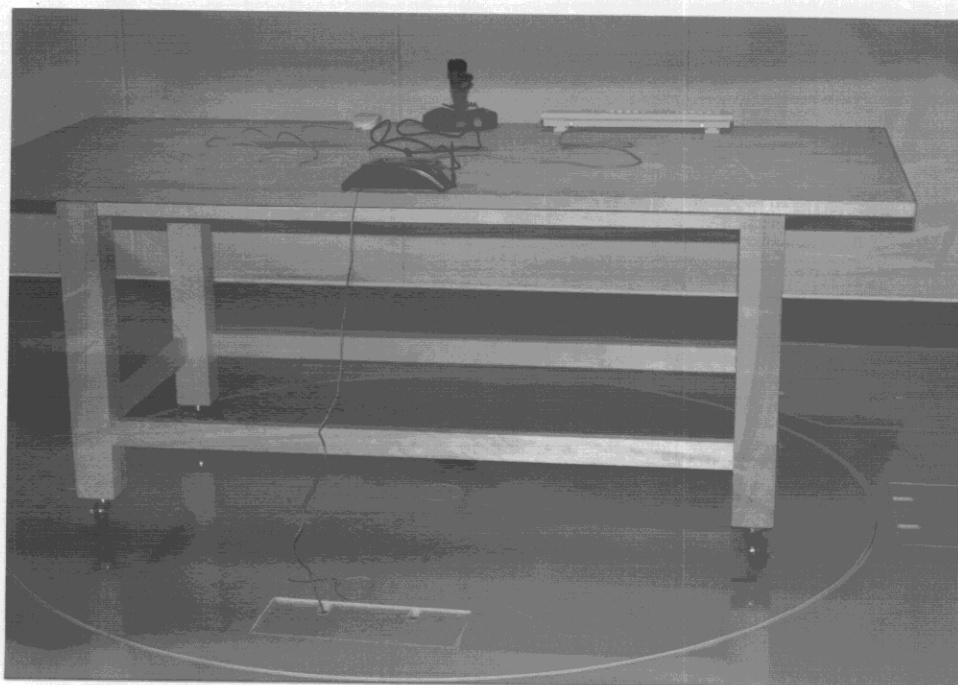
Rear View

Configuration Photograph(s)
[1GHz to 10GHz]

Page 11 of 48



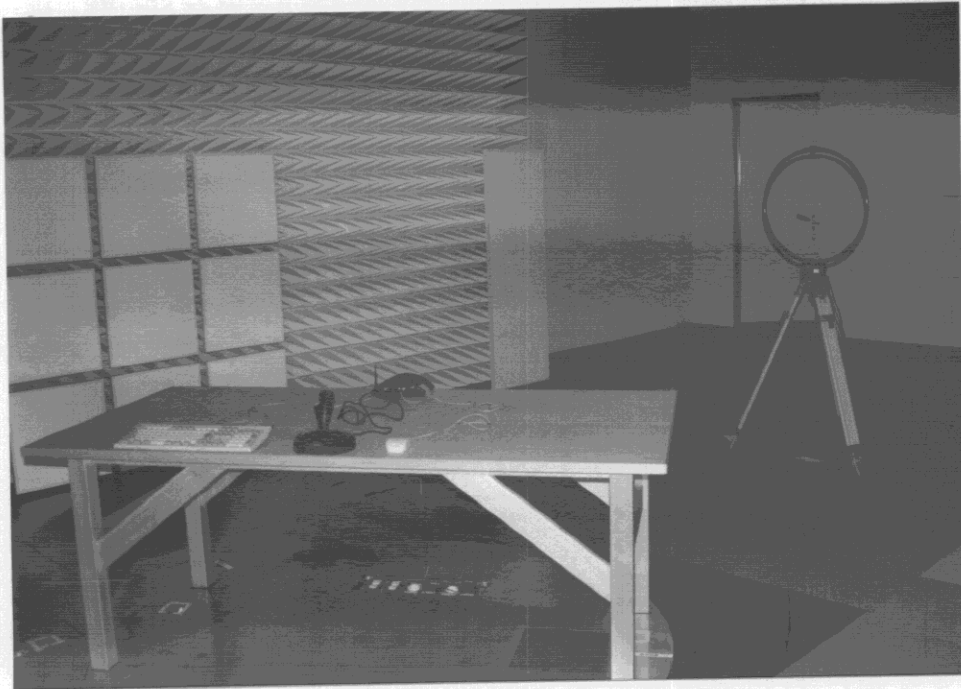
Front View



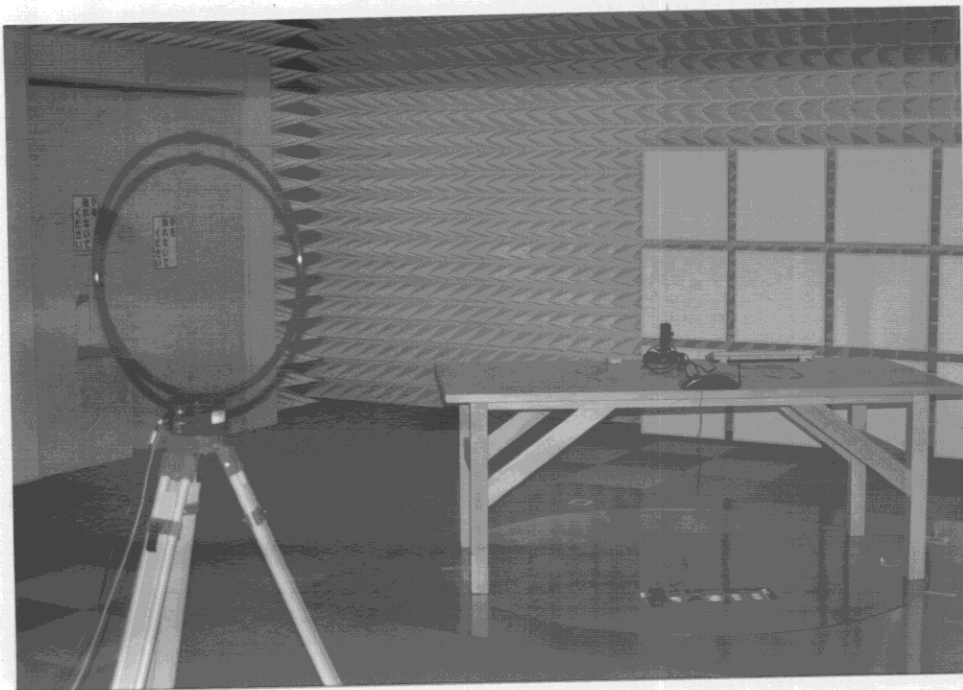
Rear View

Configuration Photograph(s)
[9KHz to 30MHz]

Page 12 of 48



Front View



Rear View

***** IPS Corporation *****

<<Radiated Emission>>

18 August, 1999 15:48

99623C02.dat

Standard : FCC Part15C.249(a)
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No : 002
 Power Source : AC120V / 60Hz
 Temp /Humi : 24deg / 58 %
 Test Mode : ch=1
 Remarks : f=904MHz
 Operator : H. WAKABAYASHI

林 宏

Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	904.007	86.8	2.7	89.5	94.0	4.5

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	904.006	81.7	2.7	84.4	94.0	9.6

IPS Corporation
EMC Center

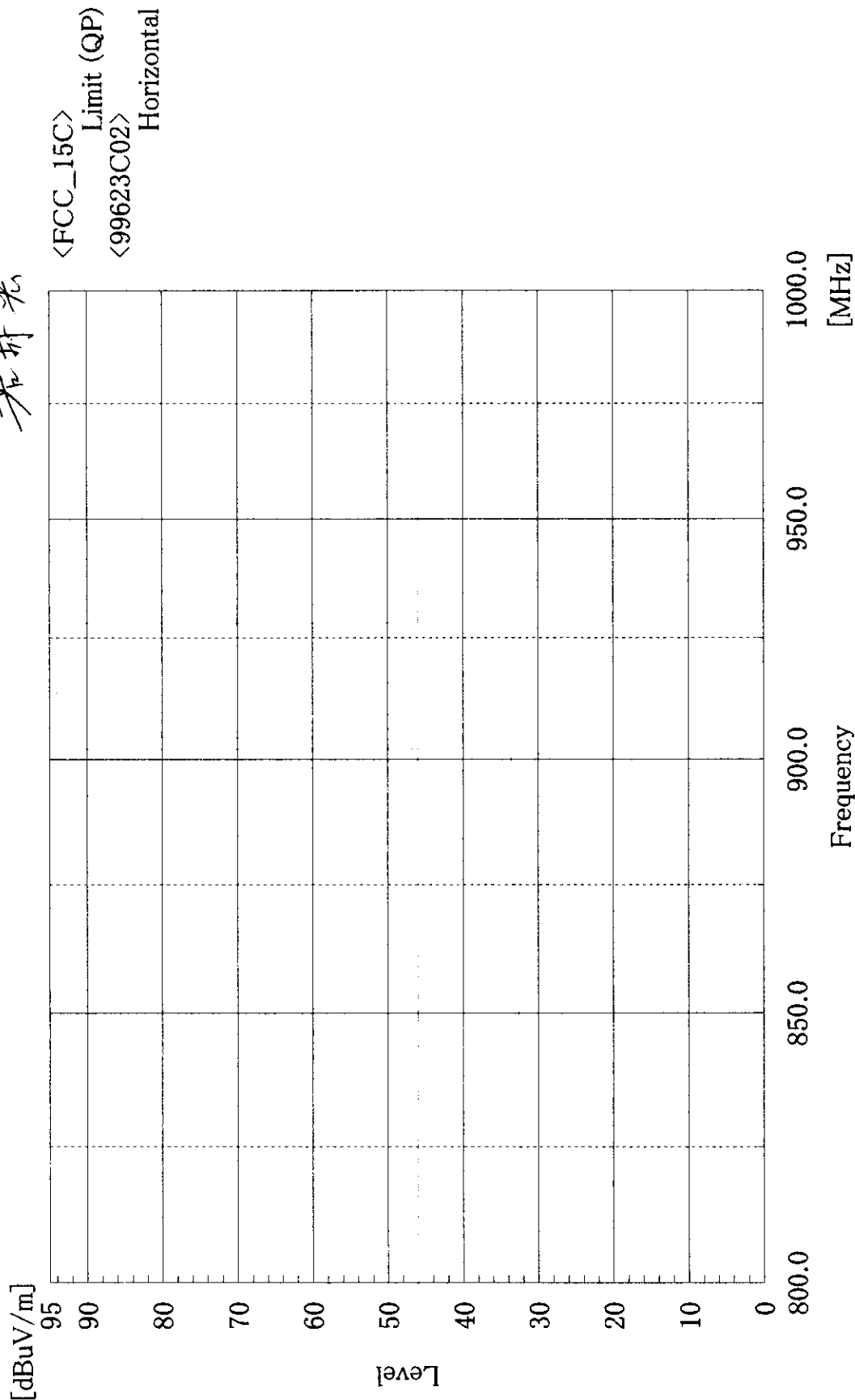
<<Radiated Emission>>

18 Aug, 1999 15:48
99623C02.dat

Model	: KX-MC1CS
S/N	: ES1001
Product Name	: MicroCast
File No	: 002
Power Source	: AC120V / 60Hz

: FCC Part15C.249(a)	
: 24deg / 58 %	
: ch=1	
: f=904MHz	
: H.WAKABAYASHI	

卷五



IPS Corporation
EMC Center

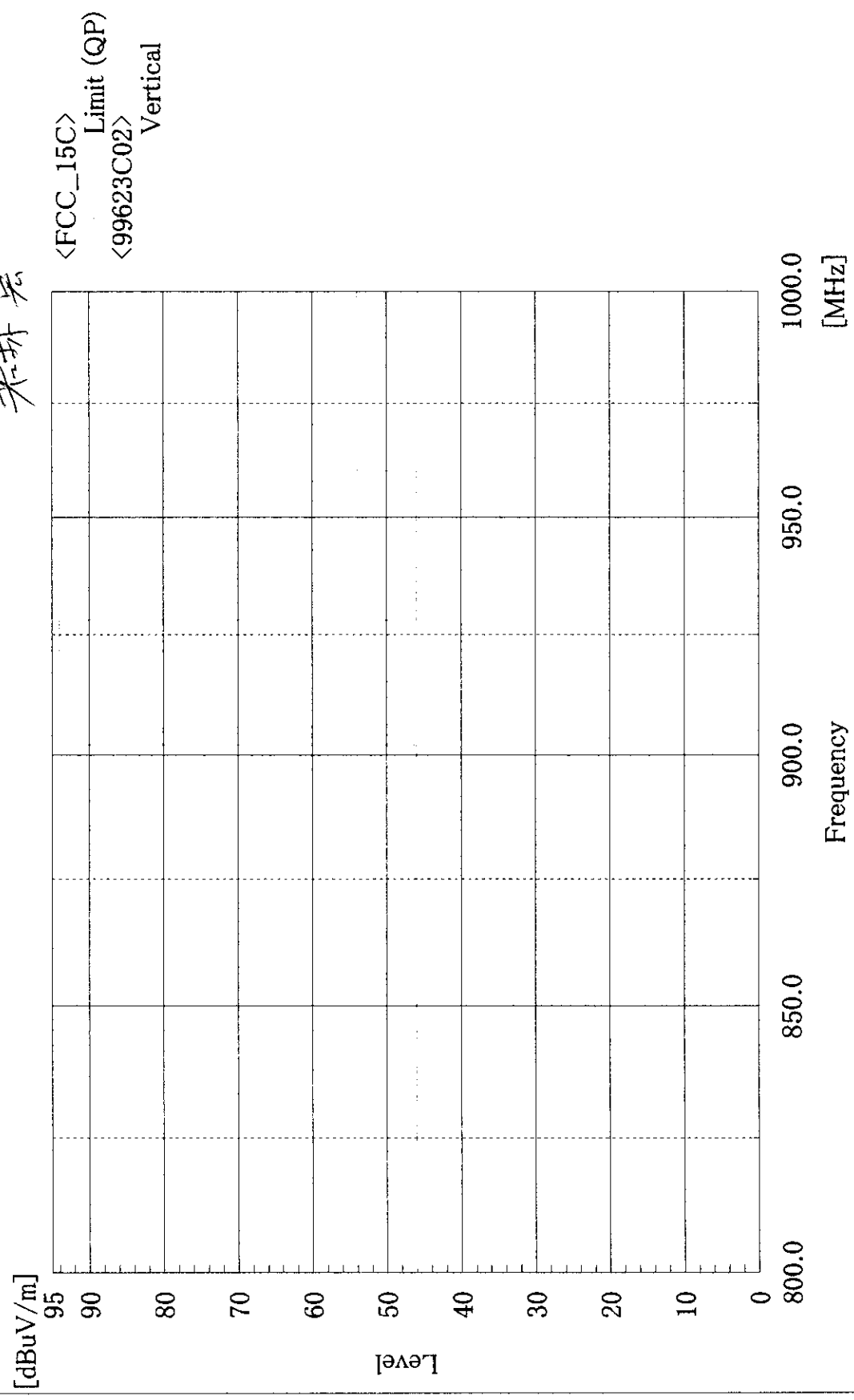
<<Radiated Emission>>

18 August, 1999 15:48
99623C02.dat

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 002
Power Source : AC120V / 60Hz

Standard : FCC Part15C.249(a)
Temp /Humi : 24deg / 58 %
Test Mode : ch=1
Remarks : f=904MHz
Operator : H.WAKABAYASHI

若林 宏



***** IPS Corporation *****
 <<Radiated Emission>> 18 August, 1999 11:17
 99623C03.dat

Standard : FCC Part15C.249(a)
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No : 003
 Power Source : AC120V / 60Hz
 Temp /Humi : 24deg / 58 %
 Test Mode : ch=11
 Remarks : f=915.6MHz
 Operator : H. WAKABAYASHI

若林 宏

 Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	915.601	88.5	2.8	91.3	94.0	2.7

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	915.600	83.2	2.8	86.0	94.0	8.0

IPS Corporation
EMC Center

<<Radiated Emission>>

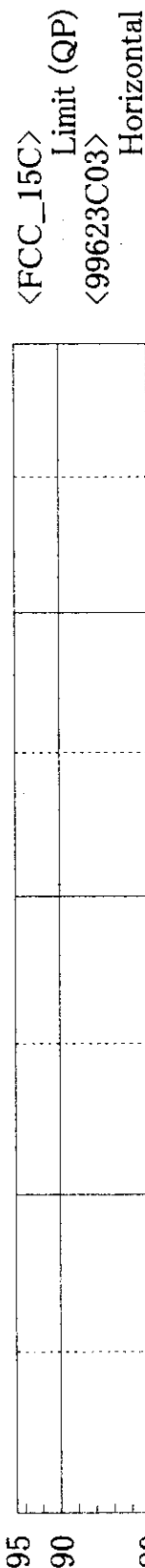
18 August, 1999 11:17
99623C03.dat

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 003
Power Source : AC120V / 60Hz

Standard : FCC Part15C.249(a)
Temp /Humi : 24deg / 58 %
Test Mode : ch=11
Remarks : f=915.6MHz
Operator : H.WAKABAYASHI

基片

[dBuV/m]



IPS Corporation
EMC Center

<<Radiated Emission>>

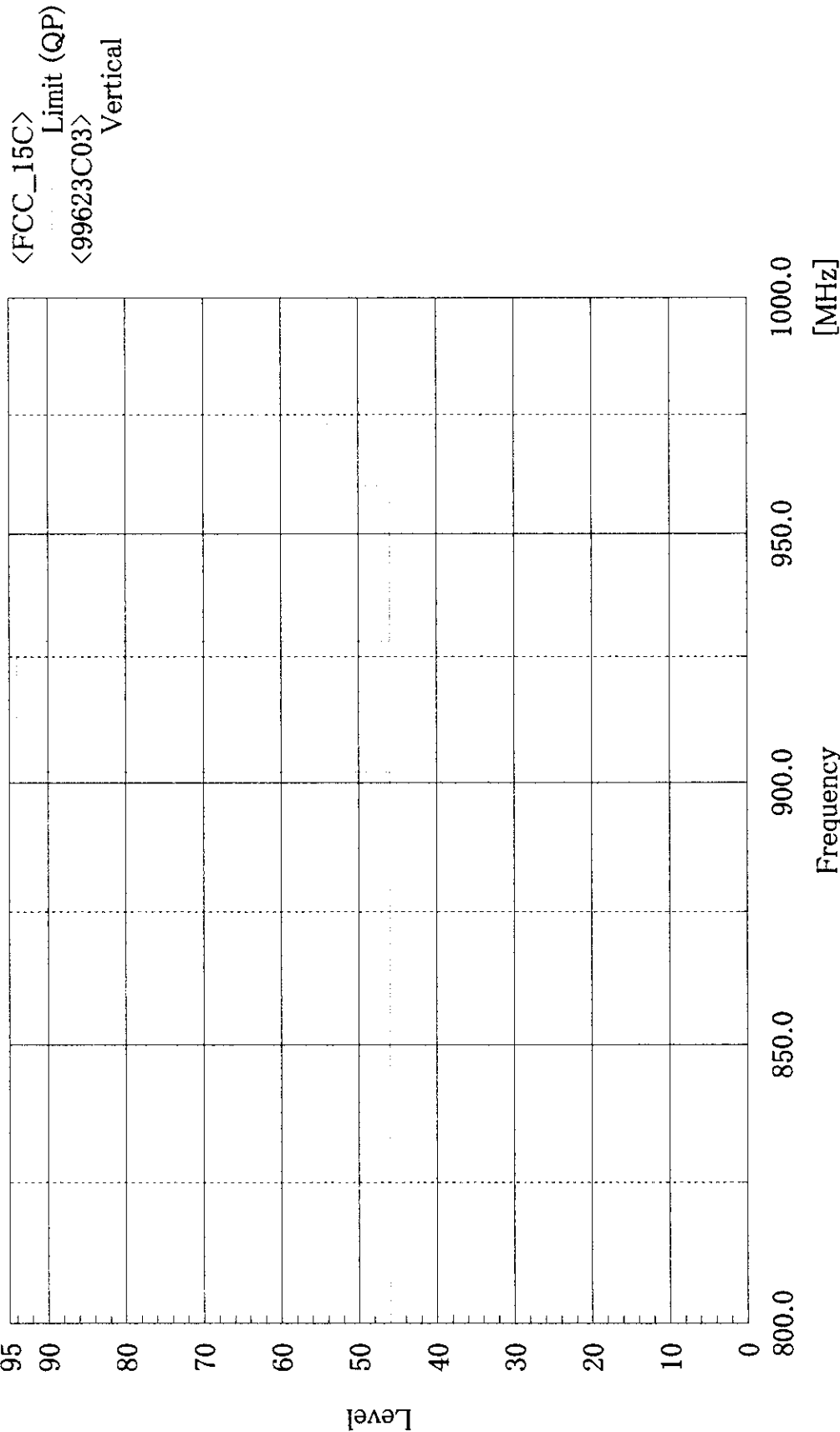
18 August, 1999 11:17
99623C03.dat

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 003
Power Source : AC120V / 60Hz

Standard : FCC Part15C.249(a)
Temp / Humi : 24deg / 58 %
Test Mode : ch=11
Remarks : f=915.6MHz
Operator : H.WAKABAYASHI

花井 宏

[dBuV/m]



Standard : FCC Part15C.249(a)
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No : 001
 Power Source : AC120V / 60Hz
 Temp /Humi : 24deg / 58 %
 Test Mode : ch=20
 Remarks : f=926.04MHz
 Operator : H. WAKABAYASHI

Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	926.046	88.8	2.9	91.7	94.0	2.3

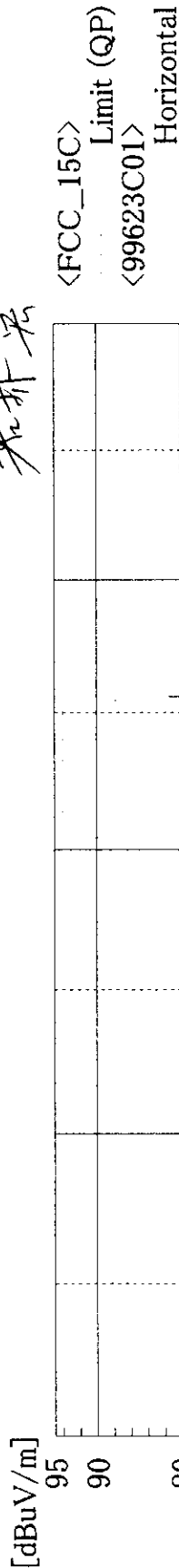
--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	926.043	83.6	2.9	86.5	94.0	7.5

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 001
Power Source : AC120V / 60Hz

Standard : FCC Part15C.249(a)
Temp / Humi : 24deg / 58 %
Test Mode : ch=20
Remarks : f=926.04MHz
Operator : H.WAKABAYASHI

花井 宏



IPS Corporation
EMC Center

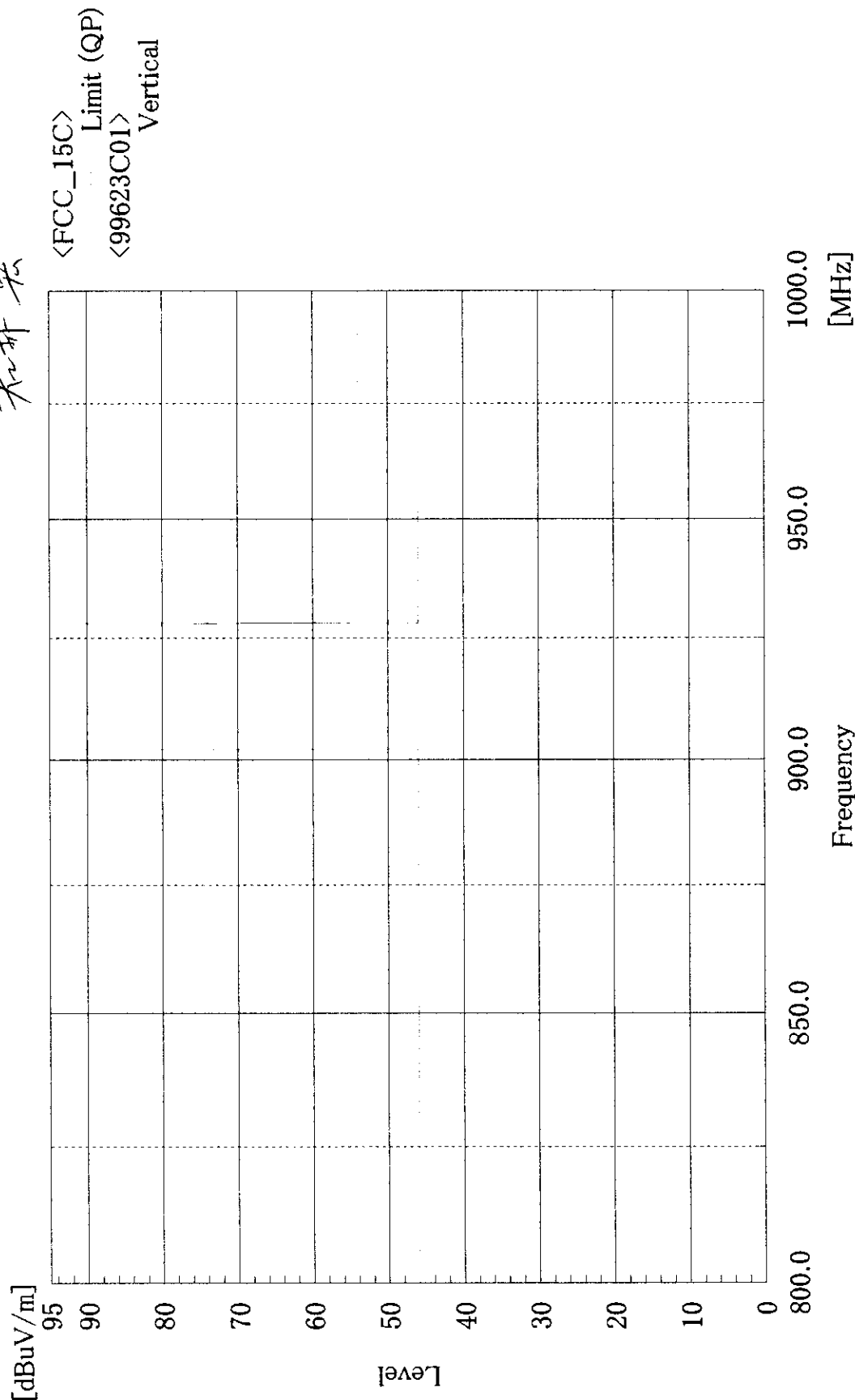
<<Radiated Emission>>

18 August, 1999 15:40
99623C01.dat

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 001
Power Source : AC120V / 60Hz

Standard : FCC Part15C.249(a)
Temp / Humi : 24deg / 58 %
Test Mode : ch=20
Remarks : f=926.04MHz
Operator : H.WAKABAYASHI

井 宏



***** IPS Corporation *****
 <<Radiated Emission>> 18 August, 1999 10:47
 99623002.dat

Standard : FCC Part15C
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No : 002
 Power Source : AC120V / 60Hz
 Temp /Humi : 24deg / 58 %
 Test Mode : ch=1
 Remarks : f=904MHz
 Operator : H. WAKABAYASHI

 Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	63.913	48.9	-17.8	31.1	40.0	8.9
2	223.684	53.5	-12.4	41.1	46.0	4.9
3	287.591	52.6	-9.9	42.7	46.0	3.3

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	31.968	33.6	-4.8	28.8	40.0	11.2
2	63.908	45.6	-17.8	27.8	40.0	12.2
3	191.729	48.1	-13.9	34.2	43.5	9.3

IPS Corporation
EMC Center

<<Radiated Emission>>

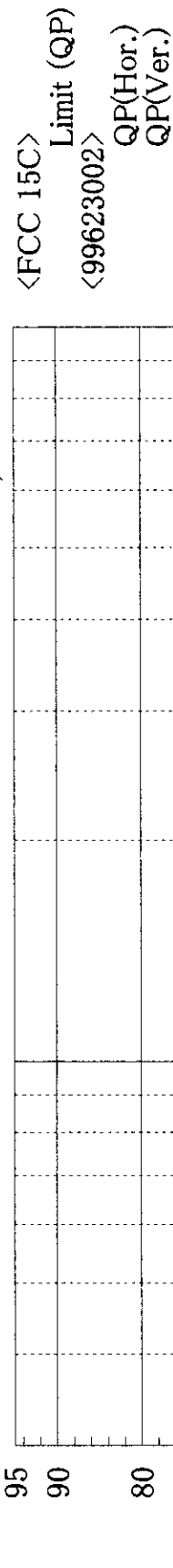
18 August, 1999 10:47
99623002.dat

Model : KX-MCICS
S/N : ES1001
Product Name : MicroCast
File No : 002
Power Source : AC120V / 60Hz

Standard : FCC Part15C
Temp /Humi : 24deg / 58 %
Test Mode : ch=1
Remarks : f=904MHz
Operator : H.WAKABAYASHI

若林 宏

[dBuV/m]



***** IPS Corporation *****
 <<Radiated Emission>> 18 August, 1999 11:17
 99623003.dat

Standard : FCC Part15C
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No : 003
 Power Source : AC120V / 60Hz
 Temp /Humi : 24deg / 58 %
 Test Mode : ch=11
 Remarks : f=915.6MHz
 Operator : H. WAKABAYASHI

 Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c. f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	63.918	49.0	-17.8	31.2	40.0	8.8
2	223.690	53.6	-12.4	41.2	46.0	4.8
3	287.597	52.7	-9.9	42.8	46.0	3.2

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c. f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	31.958	34.0	-4.8	29.2	40.0	10.8
2	63.915	45.5	-17.8	27.7	40.0	12.3
3	191.736	48.0	-13.9	34.1	43.5	9.4

IPS Corporation
EMC Center

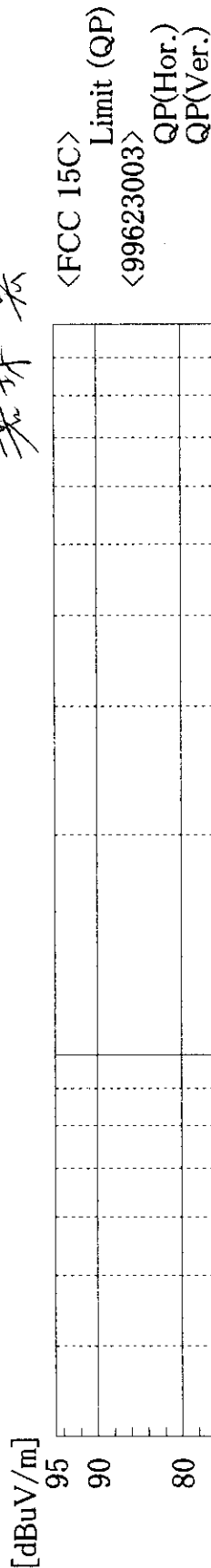
<<Radiated Emission>>

18 August, 1999 11:17
99623003.dat

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 003
Power Source : AC120V / 60Hz

Standard : FCC Part15C
Temp / Humi : 24deg / 58 %
Test Mode : ch=11
Remarks : f=915.6MHz
Operator : H.WAKABAYASHI

花井 宏



***** IPS Corporation *****
 <<Radiated Emission>> 18 August, 1999 10:54
 99623001.dat

Standard : FCC Part15C
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No : 001
 Power Source : AC120V / 60Hz
 Temp /Humi : 24deg / 58 %
 Test Mode : ch=20
 Remarks : f=926.04MHz
 Operator : H. WAKABAYASHI

 Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	63.917	49.3	-17.8	31.5	40.0	8.5
2	223.686	53.6	-12.4	41.2	46.0	4.8
3	255.641	49.3	-11.1	38.2	46.0	7.8
4	287.592	52.6	-9.9	42.7	46.0	3.3

--- Vertical Polarization (QP)---

No.	Frequency [MHz]	Reading [dBuV]	c.f [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	32.035	33.1	-4.8	28.3	40.0	11.7
2	63.922	45.9	-17.8	28.1	40.0	11.9
3	191.730	47.9	-13.9	34.0	43.5	9.5

IPS Corporation
EMC Center

<<Radiated Emission>>

18 August, 1999 10:54
99623001.dat

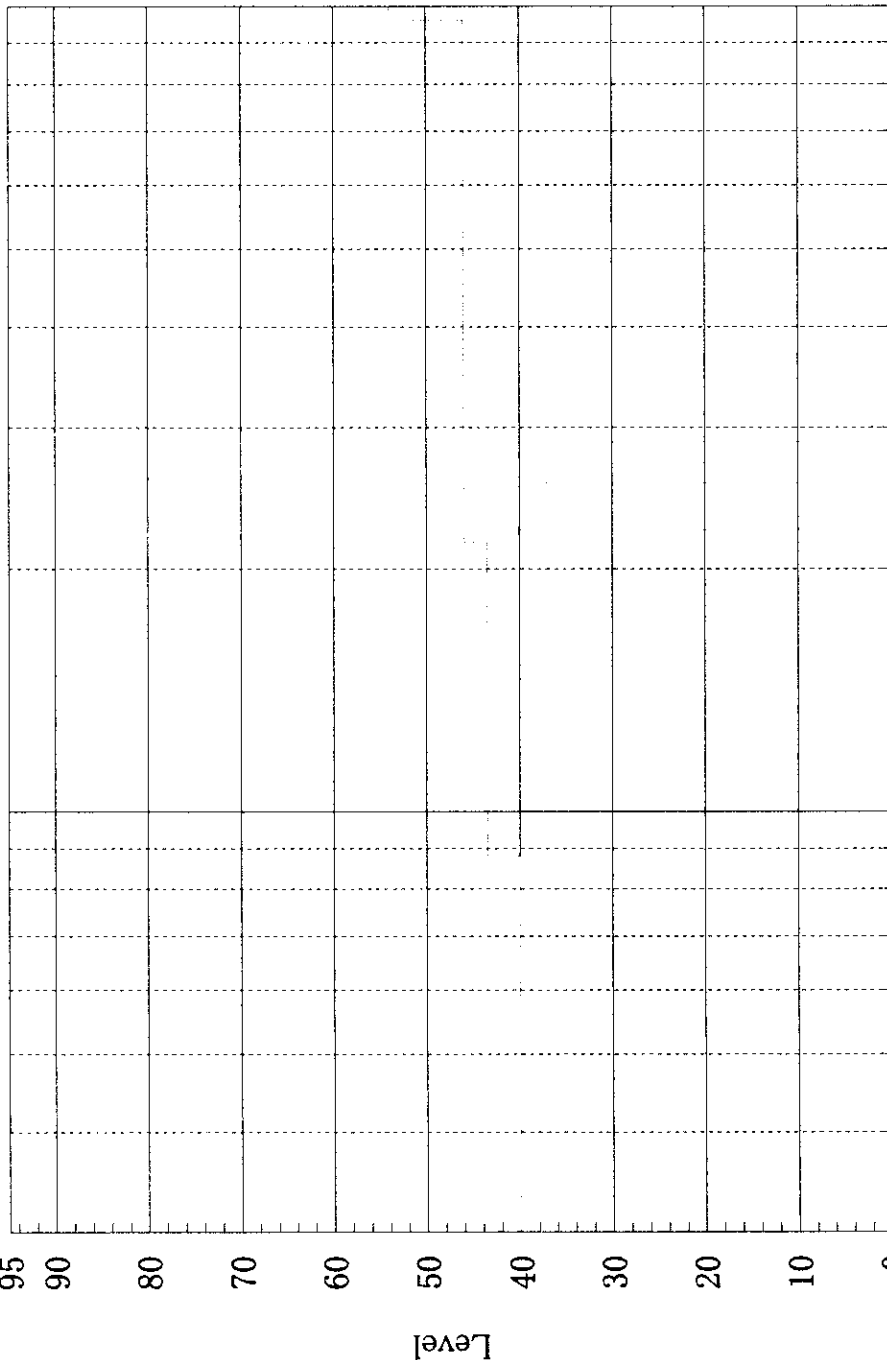
Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 001
Power Source : AC120V / 60Hz

Standard : FCC Part15C
Temp /Humi : 24deg / 58 %
Test Mode : ch=20
Remarks : f=926.04MHz
Operator : H.WAKABAYASHI

基排 法

[dBuV/m]

<FCC 15C>
Limit (QP)
<99623001>
QP(Hor.)
QP(Ver.)



Frequency
[MHz]

Model : KX-MC1CS
Serial No. : ES1001
Standard : FCC Part15C
Condition File : C210Gtk
Condition :
Remarks : EUT NAME : MicroCast
 : ch=1 , f=904MHz
 : FILE No. : 002
AC Power : 120 V 60 Hz
Temperature : 26 deg.
Humidity : 58 %
Operator : T.YAMAGUCHI



----- Spectrum Selection -----

- Horizontal Polarization -

No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	1810.275	32.6	1.3	33.9	54.0	20.1

- Vertical Polarization -

No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
2	1810.275	38.9	1.3	40.2	54.0	13.8

< I P S Corporation >

<<< RADIATED EMISSION >>>

Date/Time : 19 August, 1999 10:49

I P S EMC SITE

Model : KX-MC1CS

Standard : FCC Part15C

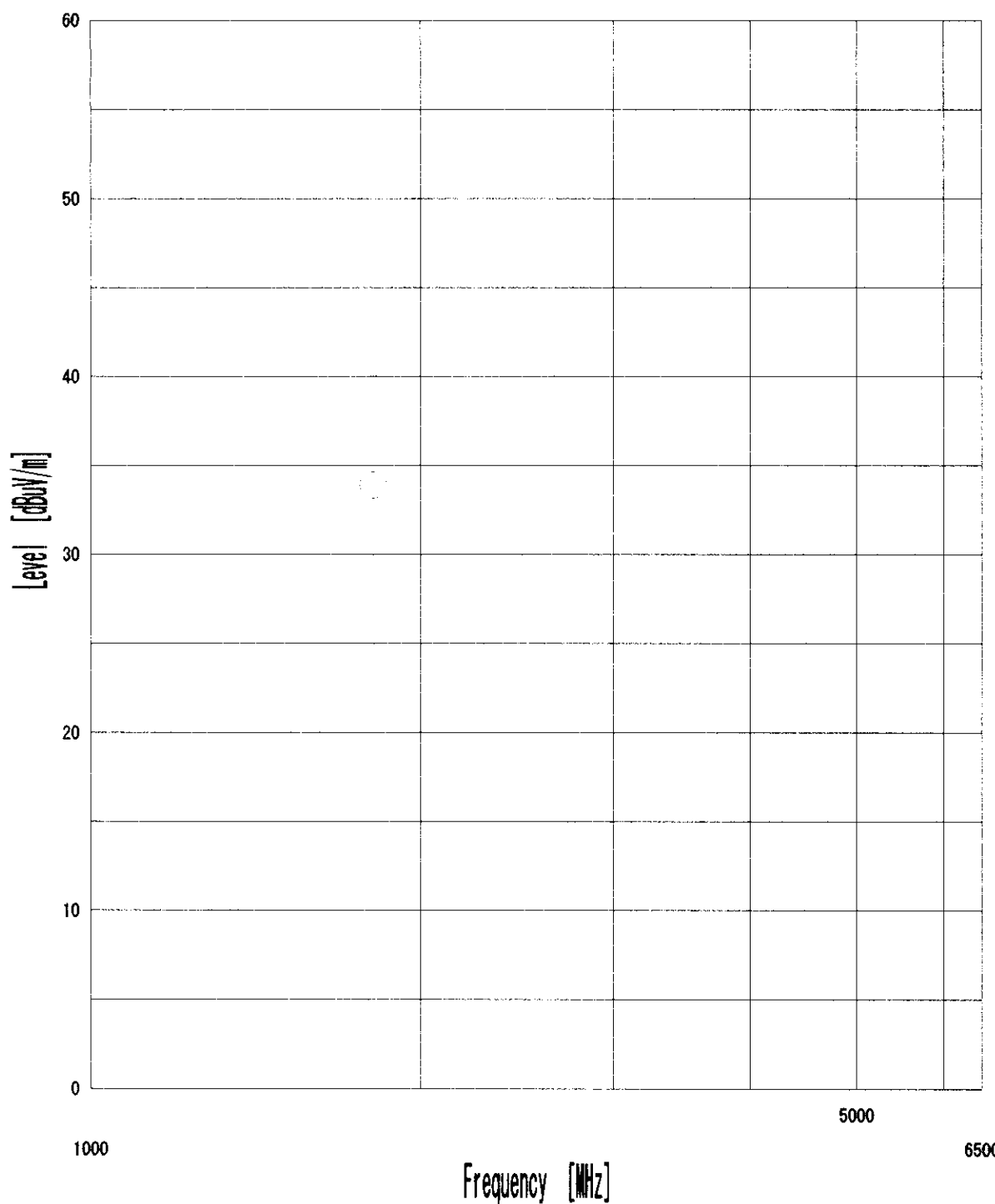
Serial No. : ES1001

Operator : T. YAMAGUCHI

Remarks : EUT NAME : MicroCast

ch=1, f=904MHz

FILE No. : 002

<peak>

<Limit Line>

Insert

Limit:
FCC_C

<Data>

○ : Horizontal

× : Vertical

Model : KX-MC1CS
 Serial No. : ES1001
 Standard : FCC Part15C
 Condition File : C210Gtk
 Condition :
 Remarks : EUT NAME : MicroCast
 : ch=11 , f=915.6MHz
 : FILE No. : 003
 AC Power : 120 V 60 Hz
 Temperature : 26 deg.
 Humidity : 58 %
 Operator : T.YAMAGUCHI

T. Yamaguchi

----- Spectrum Selection -----

- Horizontal Polarization -

No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	1833.375	37.1	1.6	38.7	54.0	15.3

- Vertical Polarization -

No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
2	1833.375	35.3	1.6	36.9	54.0	17.1

< I P S Corporation >

<<< RADIATED EMISSION >>>

Date/Time : 19 August, 1999 09:44

I P S EMC SITE

Model : KX-MC1CS

Standard : FCC Part15C

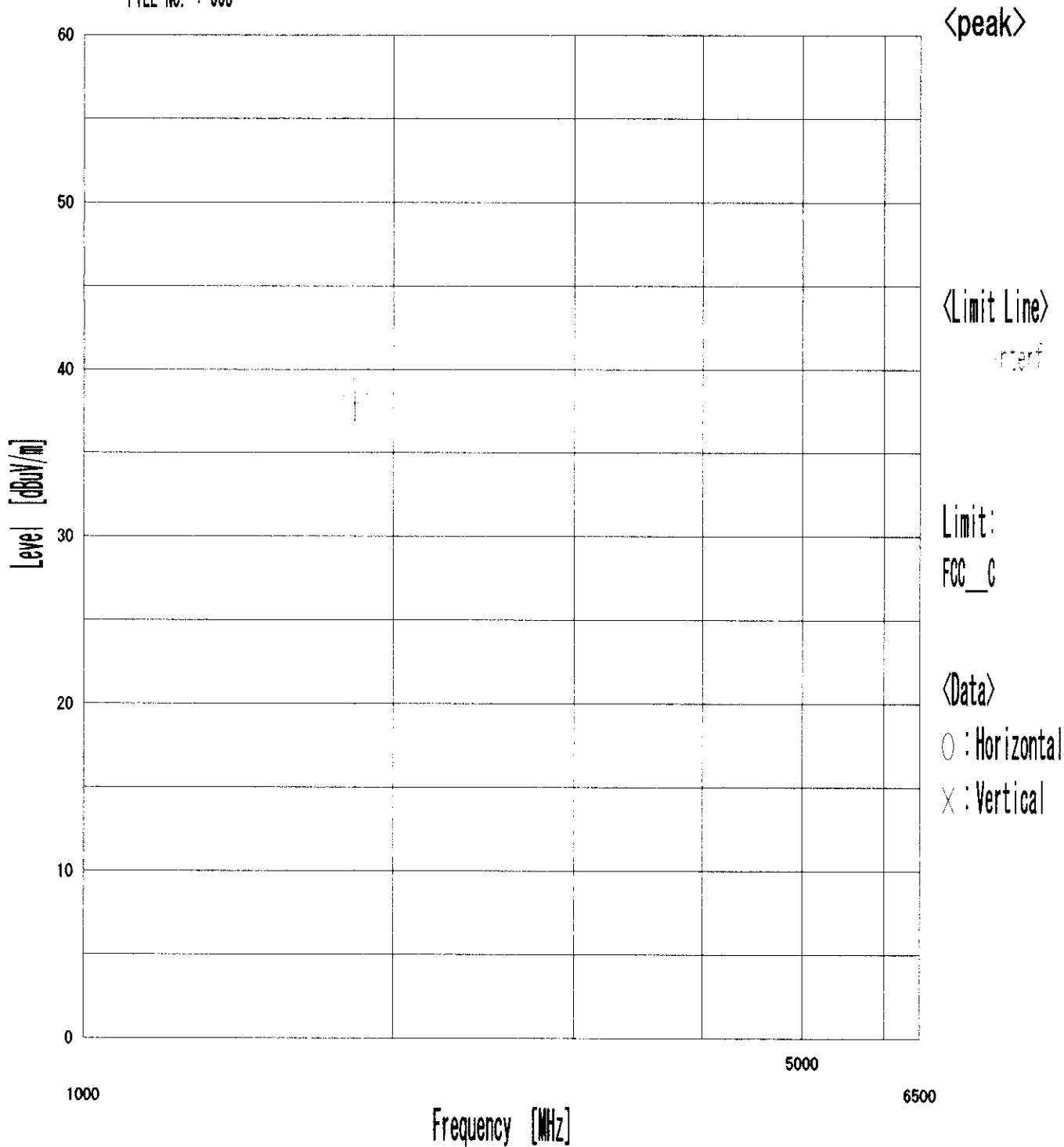
Serial No. : ES1001

Operator : T. YAMAGUCHI

Remarks : EUT NAME : MicroCast

ch=11, f=915.6MHz

FILE No. : 003

T. Yamaguchi

*****<I P S Corporation>*****
<<< RADIATED EMISSION >>>

19 August,1999 10:11
Page 1

Model : KX-MC1CS
Serial No. : ES1001
Standard : FCC Part15C
Condition File : C210Gtk
Condition :
Remarks : EUT NAME : MicroCast
 : ch=20 , f=926.04MHz
 : FILE No. : 001
AC Power : 120 V 60 Hz
Temperature : 26 deg.
Humidity : 58 %
Operator : T.YAMAGUCHI



----- Spectrum Selection -----

- Horizontal Polarization -

No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
1	1854.375	33.0	2.0	35.0	54.0	19.0

- Vertical Polarization -

No.	Frequency [MHz]	Reading [dBuV]	c.f. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]
2	1854.375	34.5	2.0	36.5	54.0	17.5

< I P S Corporation >

<<< RADIATED EMISSION >>>

Date/Time : 19 August, 1999 10:11

I P S EMC SITE

Model : KX-MC1CS

Standard : FCC Part15C

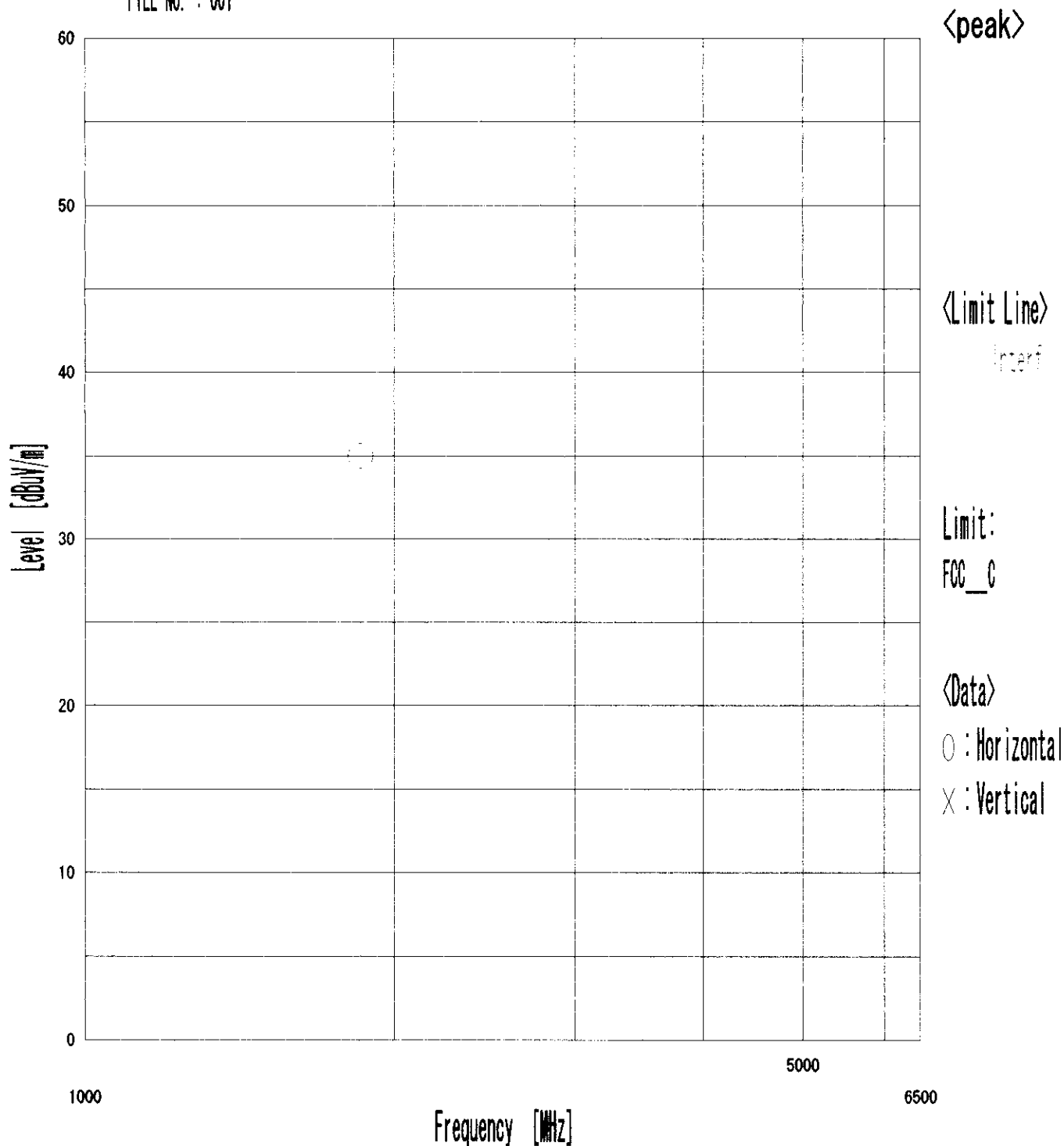
Serial No. : ES1001

Operator : T. YAMAGUCHI

Remarks : EUT NAME : MicroCast

ch=20, f=926.04MHz

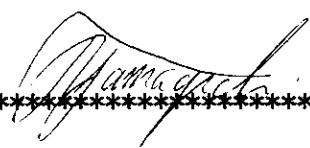
FILE No. : 001

T. Yamaguchi

***** IPS Corporation *****
<<Magnetic Field Emission>>

19 August, 1999 14:04
99623M02. dat

Standard : FCC Part15C
Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 002
Power Source : AC 120V / 60Hz
Temp/Humi : 24deg / 52%
Test Mode : ch=1
Remarks : f=904MHz
Operator : T. YAMAGUCHI



Final Result

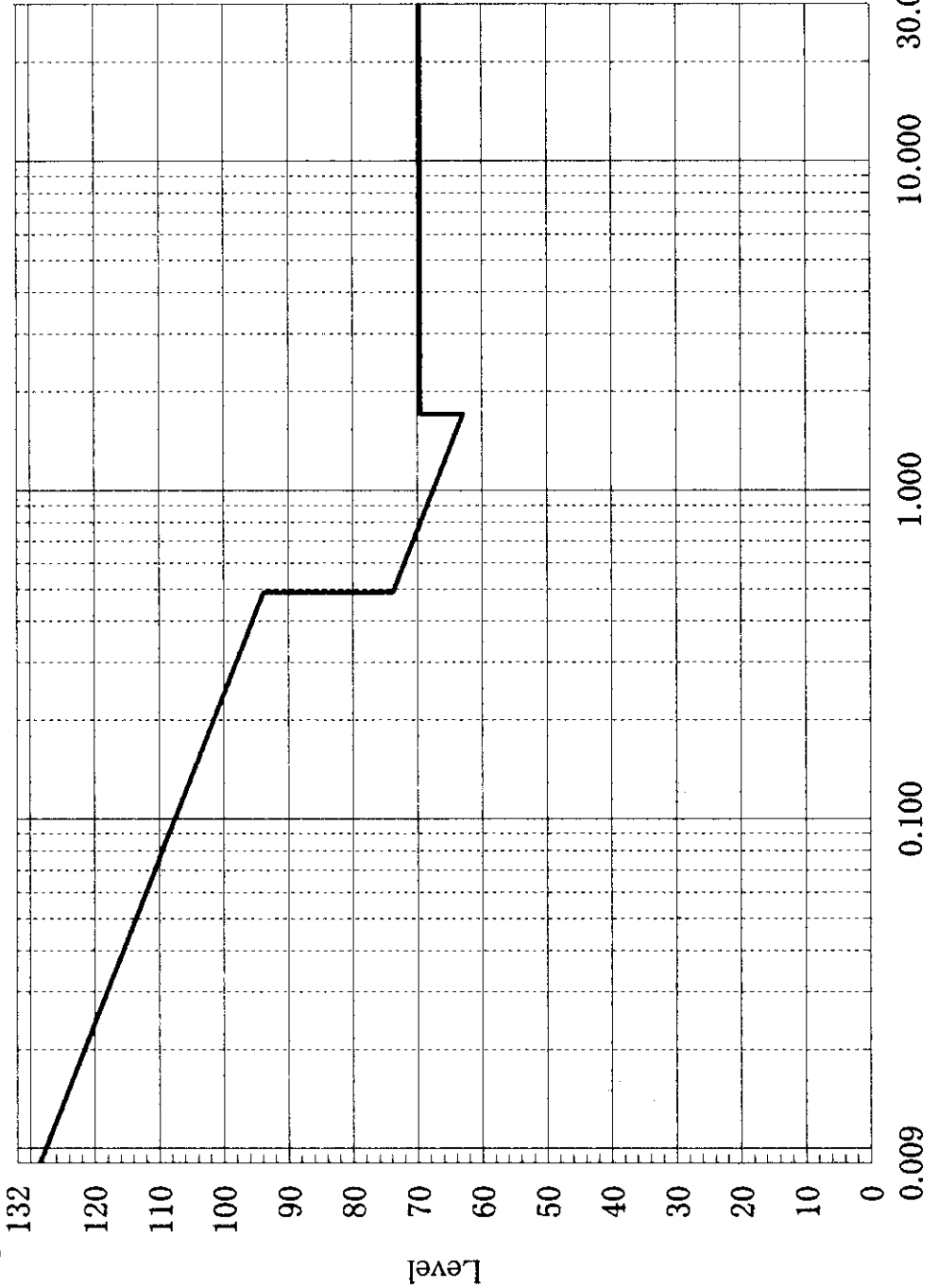
No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]
1	0.014	13.8	21.3	35.1	124.7	89.6
2	0.016	19.2	21.3	40.5	123.5	83.0
3	0.031	10.8	20.9	31.7	117.8	86.1
4	0.047	8.7	20.9	29.6	114.2	84.6
5	0.121	9.1	21.1	30.2	105.9	75.7
6	1.333	5.9	20.5	26.4	65.1	38.7

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 002
Power Source : AC 120V / 60Hz

Standard : FCC Part15C
Temp/Humi : 24deg / 52%
Test Mode : ch=1
Remarks : f=904MHz
Operator : T.YAMAGUCHI

T. Yamaguchi

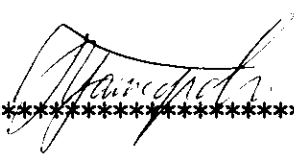
[dBuV/m]



<FCC C_MAG>
Limit (QP)
<99623M02>
QP

19 August, 1999 14:33
99623M03.dat

Standard : FCC Part15C
Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 003
Power Source : AC 120V / 60Hz
Temp/Humi : 24deg / 52%
Test Mode : ch=11
Remarks : f=915.6MHz
Operator : T. YAMAGUCHI



Final Result

--- N Phase ---

No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]
1	0.016	18.8	21.3	40.1	123.5	83.4
2	0.026	9.0	20.9	29.9	119.3	89.4
3	0.047	7.9	20.9	28.8	114.2	85.4
4	0.056	6.3	20.9	27.2	112.6	85.4
5	0.121	9.1	21.1	30.2	105.9	75.7
6	1.381	6.0	20.5	26.5	64.7	38.2

IPS Corporation
EMC Center

<<Magnetic Field Emission>>

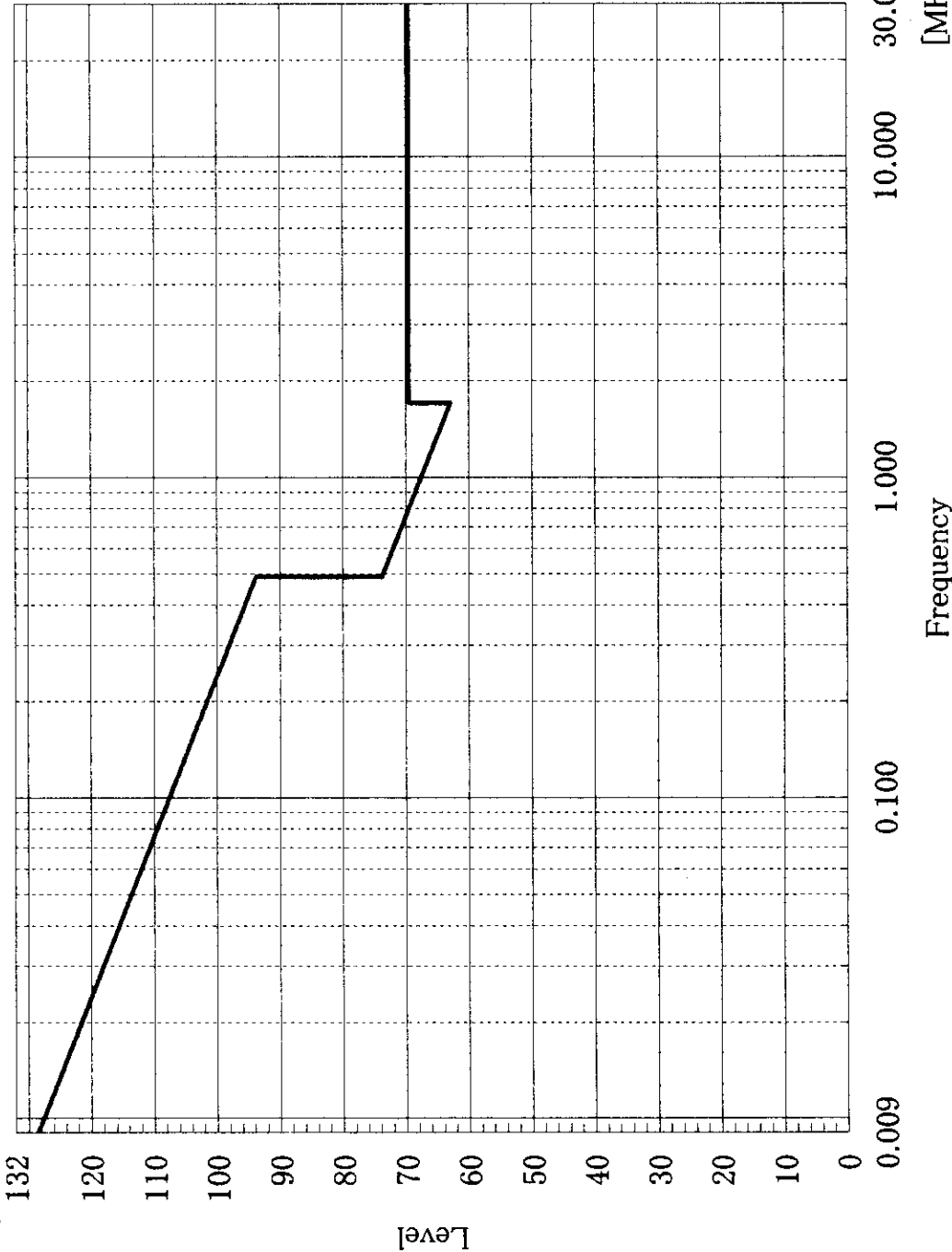
19 August, 1999 14:33
99623M03.dat

Model : KX-MCICS
S/N : ES1001
Product Name : MicroCast
File No : 003
Power Source : AC 120V / 60Hz

Standard : FCC Part15C
Temp/Humi : 24deg / 52%
Test Mode : ch=11
Remarks : f=915.6MHz
Operator : T.YAMAGUCHI

T. Yamaguchi

[dBuV/m]



***** IPS Corporation *****
 <<Magnetic Field Emission>>

19 August, 1999 13:26
 99623M01.dat

Standard : FCC Part15C
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No : 001
 Power Source : AC 120V / 60Hz
 Temp/Humi : 24deg / 52%
 Test Mode : ch=20
 Remarks : f=926.04MHz
 Operator : T. YAMAGUCHI

 Final Result

No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]
1	0.010	17.8	21.4	39.2	128.0	88.8
2	0.016	20.1	21.3	41.4	123.5	82.1
3	0.023	8.9	21.0	29.9	120.4	90.5
4	0.032	10.2	20.9	31.1	117.5	86.4
5	0.063	5.1	20.9	26.0	111.6	85.6
6	0.120	9.9	21.1	31.0	106.0	75.0

19 August, 1999 13:26
99623M01.dat

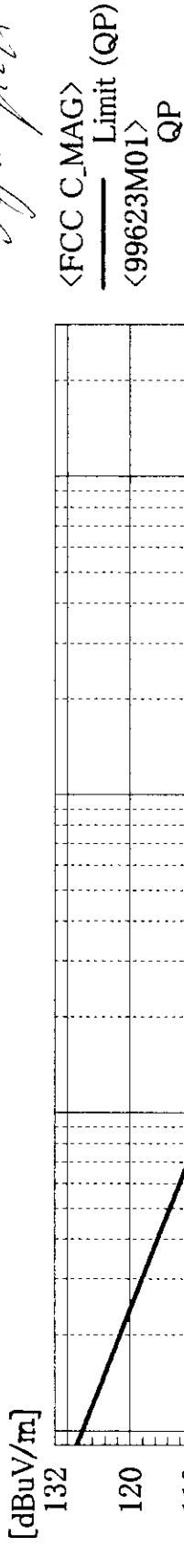
<<Magnetic Field Emission>>

IPS Corporation
EMC Center

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No : 001
Power Source : AC 120V / 60Hz

Standard : FCC Part15C
Temp/Humi : 24deg / 52%
Test Mode : ch=20
Remarks : f=926.04MHz
Operator : T.YAMAGUCHI

T. Yamaguchi



TEST CONDITION

CONDUCTED EMISSION TEST

The test setup was made according to ANSI STD C63.4-1992 clause 7 on a shielded room. The EUT, PC and peripherals were located on the non-conductive wooden table top. Rear of EUT shall be all aligned and flush with rear of this wooden table top. The height of this table was 0.8 m and 1.5 m wide x 1.0 m deep size. Rear of table top was 40 cm removed from a vertical wall of the shielded room. (conducting plane that is bonded to the floor ground plane) Spacing between the each equipment maintain 10 cm. The keyboard and Joy-Stick were flushed with front of table top and Mouse was flushed with back of keyboard. Connection of the EUT is located so that the distance between the boundary of the EUT and the closet surface of the artificial mains network is 0.8 m. Where a mains flexible cord is provided by the manufacture this is 1.9 m long and excess length of the EUT mains flexible cord was bundled to 0.8 m. Interconnecting cables of table top equipment were shortened to appropriate length on the table. The measurement has been conducted with both line and neutral power supply polarization. The highest voltage of the EUT has been recorded. By varying the configuration of the test sample and the cable routing it was attempted to maximize the voltage emission. For further description of the configuration refer to the pictures of this report.

Number of Channels Tested:

Frequency Band	Number of Channels	Channel Location
Less than 1MHz	1	Middle
1 - 10MHz	2	Top, Bottom
More than 10MHz	3	Top, Middle, Bottom

List of the Instrumentation

4. Conducted Emission(450kHz-30MHz)

- 1) Equipment : Test Receiver
 - Model No : HP8546A
 - S/N : 3807A00432
 - Manufacture : Hewlett Packard
 - Frequency Range: 9 kHz to 6.9 GHz
 - System Bandwidth: 10 kHz
 - Detector : Quasi-Peak
 - Last Calibrate : 1998/12/09
 - Next Calibrate : 1999/12/09
- 2) Equipment : LISN for EUT
 - Model No : ESH2-Z5
 - S/N : 846953/003
 - Manufacture : Rhode & Schwarz
 - Frequency Range: 0.15 MHz to 30 MHz
 - RF Load : 50 ohm 50 micro henry
 - Last Calibrate : 1999/04/14
 - Next Calibrate : 2000/04/14

3) Equipment : LISN for Peripherals
Model No : KNW-407
S/N : 8-1420-14
Manufacture : Kyoritsu
Frequency Range : 0.15 MHz to 30 MHz
RF Load : 50 ohm 50 micro henry
Last Calibrate : 1999/04/14
Next Calibrate : 2000/04/14

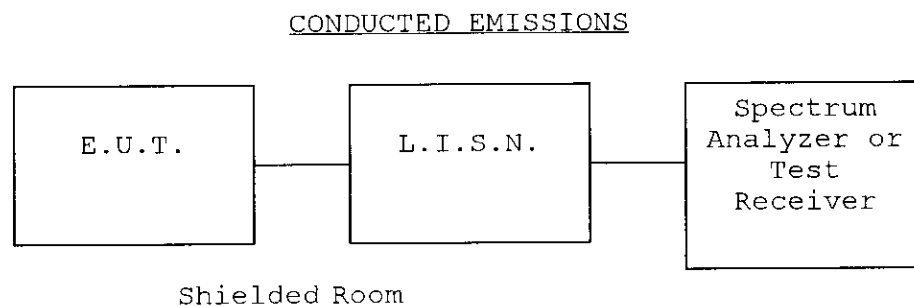
Page 41 of 48

4) Equipment : 50 ohm Terminator for Second LISN
Model No : CT-10BP
S/N : 211542
Manufacture : Tamagawa Electronics
Last Calibrate : 1999/08/28
Next Calibrate : 1999/08/28

5) Equipment : Transient Limiter
Model No : 11947A
S/N : 3107A02621
Manufacture : Hewlett Packard
Last Calibrate : 1999/02/01
Next Calibrate : 2000/02/01

6) Equipment : Cable System
Consists of : Attenuator, Pre-Amplifier, Switch Unit and cable
Manufacture : IPS Corporation
Frequency Range : 0.15 MHz to 30 MHz
Last Calibrate : 1999/02/01
Next Calibrate : 2000/02/01

BLOCK DIAGRAM

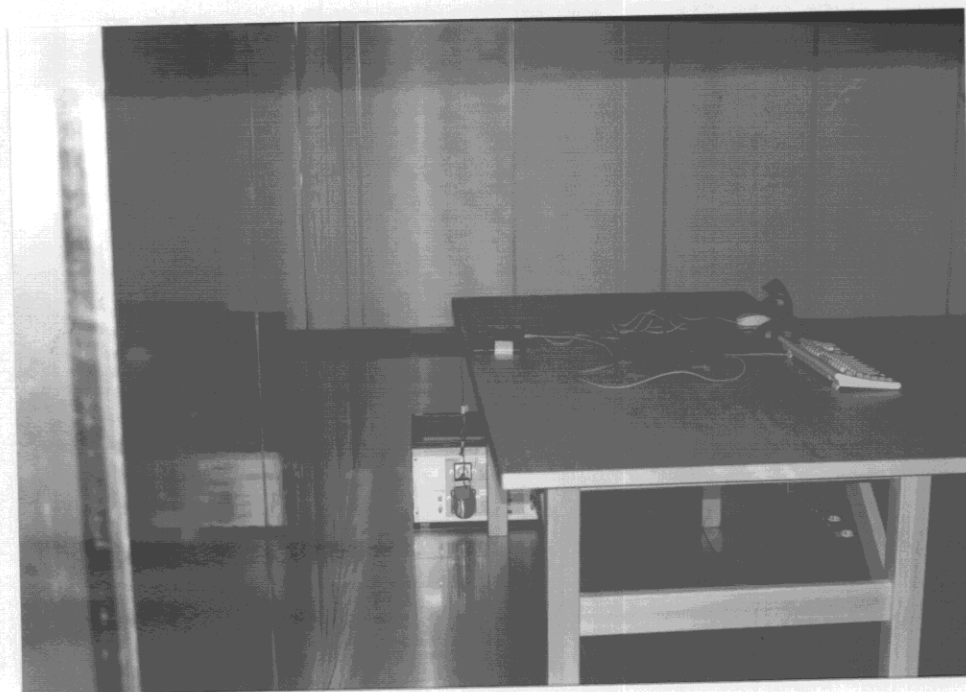


Configuration Photograph(s)
[Conducted Emission]

Page 42 of 48



Front View



Rear View

***** IPS Corporation *****
 <<Conducted Emission>>

18 August, 1999 16:19
 99623C02.dat

Standard : FCC Part15C
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No. : 002
 Power Source : AC 120 V / 60 Hz
 Temp/Humi : 23deg / 57%
 Test Mode : ch=1
 Remarks : f=904MHz
 Operator : T. YAMAGUCHI

 Final Result

--- N Phase ---

No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dB]
1	7.989	5.5	10.6	16.1	48.0	31.9
2	12.042	7.9	10.7	18.6	48.0	29.4
3	27.579	14.1	11.0	25.1	48.0	22.9

--- L1 Phase ---

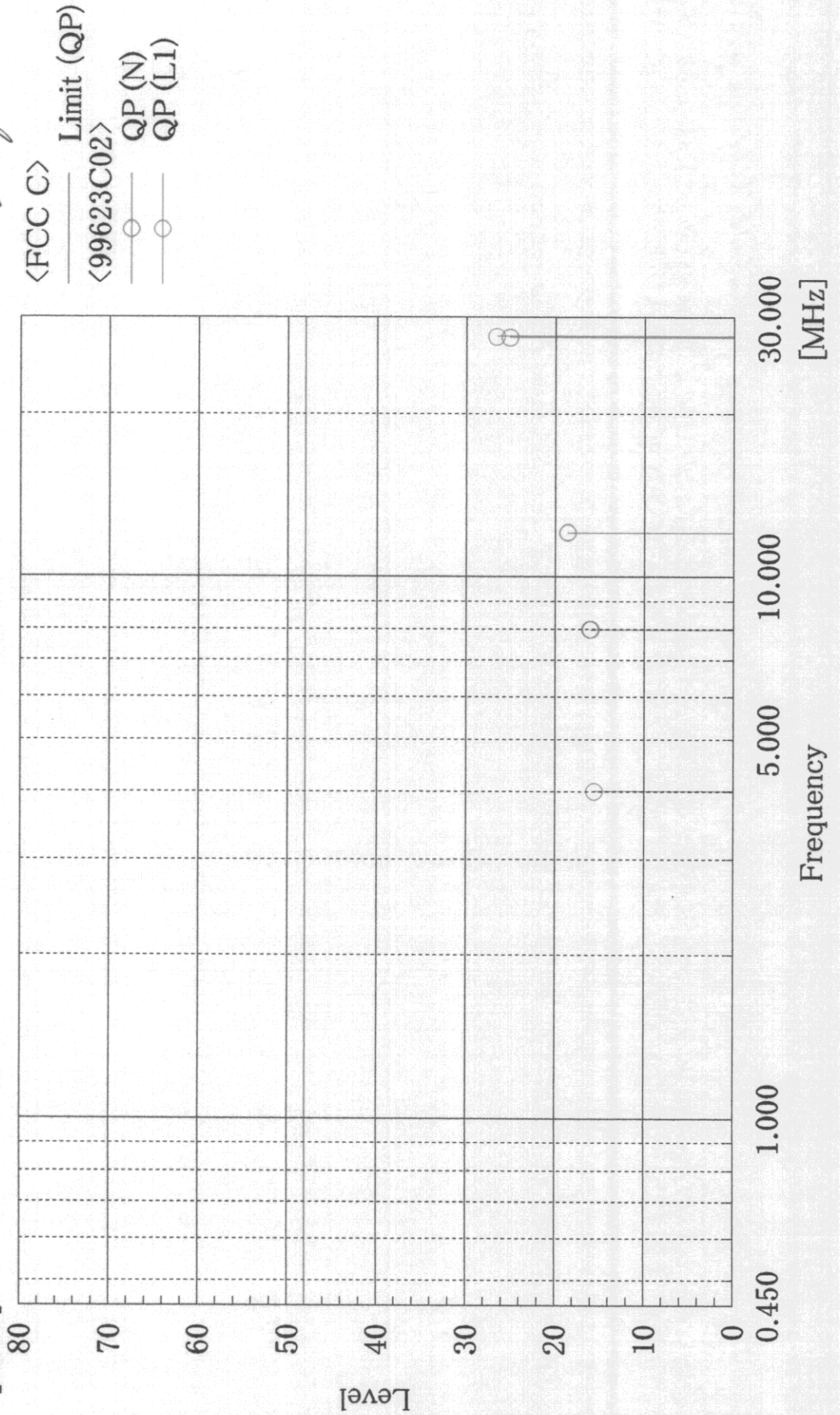
No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dB]
1	4.013	5.2	10.4	15.6	48.0	32.4
2	7.988	5.4	10.6	16.0	48.0	32.0
3	27.696	14.9	11.7	26.6	48.0	21.4

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No. : 002
Power Source : AC 120 V / 60 Hz

Standard : FCC Part15C
Temp/Humi : 23deg / 57%
Test Mode : ch=1
Remarks : f=904MHz
Operator : T.YAMAGUCHI

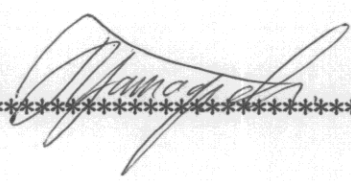
T. Yamaguchi

[dBuV]



18 August, 1999 17:00
99623C03.dat

Standard : FCC Part15C
Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No. : 003
Power Source : AC 120 V / 60 Hz
Temp/Humi : 24deg / 57%
Test Mode : ch=11
Remarks : f=915.6MHz
Operator : T. YAMAGUCHI



Final Result

--- N Phase ---

No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dB]
1	7.988	6.7	10.6	17.3	48.0	30.7
2	12.041	7.1	10.7	17.8	48.0	30.2
3	27.236	14.9	11.0	25.9	48.0	22.1

--- L1 Phase ---

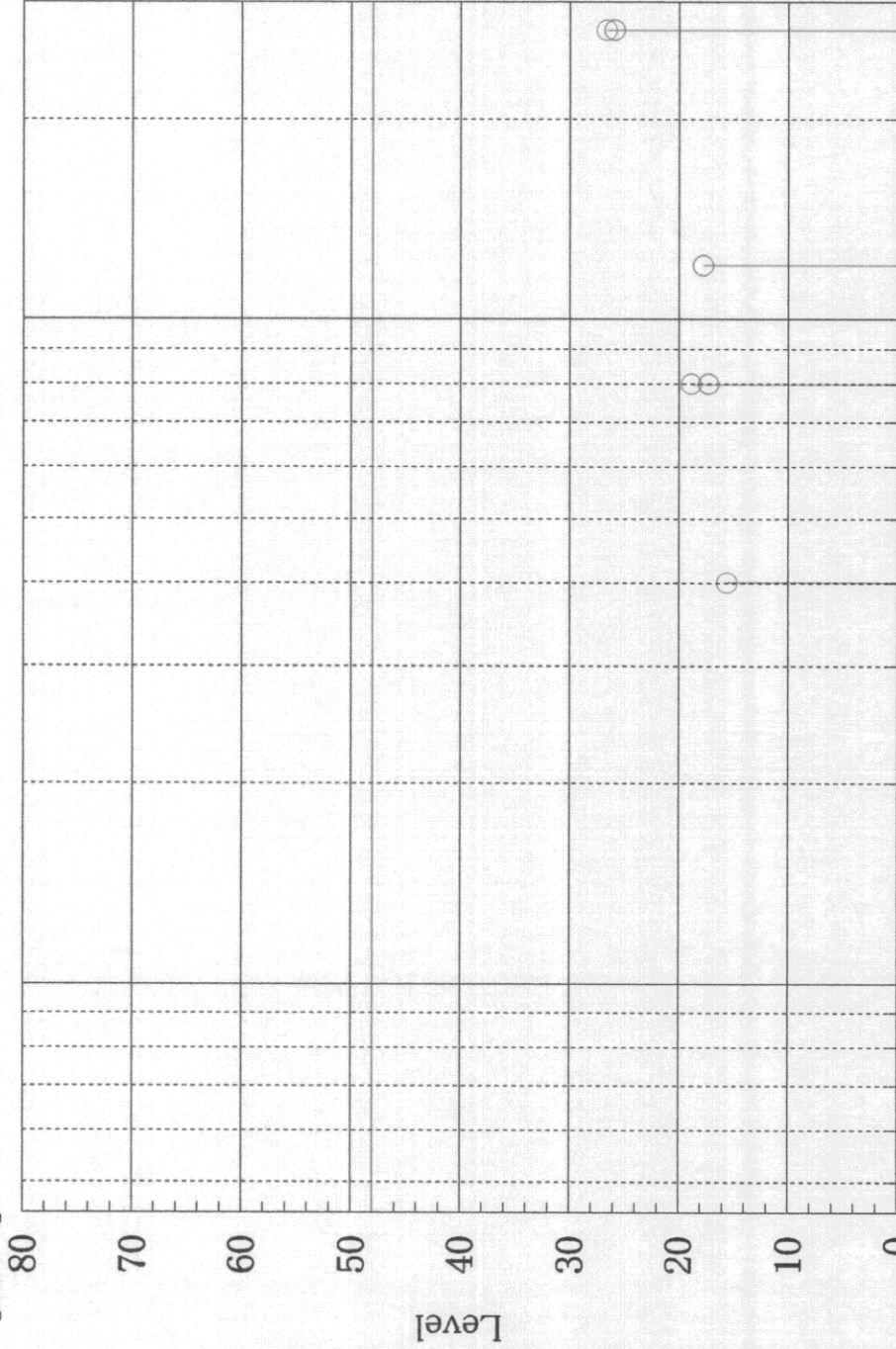
No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dB]
1	4.013	5.2	10.4	15.6	48.0	32.4
2	7.989	8.3	10.6	18.9	48.0	29.1
3	27.235	14.9	11.7	26.6	48.0	21.4

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No. : 003
Power Source : AC 120 V / 60 Hz

Standard : FCC Part15C
Temp/Humi : 24deg / 57%
Test Mode : ch=11
Remarks : f=915.6MHz
Operator : T.YAMAGUCHI

T. Yamaguchi

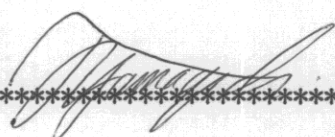
[dBuV]



<FCC C>
— Limit (QP)
<99623C03>
— QP (N)
— QP (L1)

18 August, 1999 15:41
 99623C01.dat

Standard : FCC Part15C
 Model : KX-MC1CS
 S/N : ES1001
 Product Name : MicroCast
 File No. : 001
 Power Source : AC 120 V / 60 Hz
 Temp/Humi : 24deg / 58%
 Test Mode : ch=20
 Remarks : f=926.04MHz
 Operator : T. YAMAGUCHI



 Final Result

--- N Phase ---

No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dB]
1	3.999	4.5	10.4	14.9	48.0	33.1
2	12.041	6.0	10.7	16.7	48.0	31.3
3	27.424	15.0	11.0	26.0	48.0	22.0

--- L1 Phase ---

No.	Frequency	Reading	c. f	Result	Limit	Margin
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dB]
1	4.013	5.0	10.4	15.4	48.0	32.6
2	7.989	5.3	10.6	15.9	48.0	32.1
3	27.544	15.9	11.7	27.6	48.0	20.4

IPS Corporation
EMC Center

<<Conducted Emission>>

18 August, 1999 15:41
99623C01.dat

Model : KX-MC1CS
S/N : ES1001
Product Name : MicroCast
File No. : 001
Power Source : AC 120 V / 60 Hz

Standard : FCC Part15C
Temp/Humi : 24deg / 58%
Test Mode : ch=20
Remarks : f=926.04MHz
Operator : T.YAMAGUCHI

T. Yamaguchi

[dBuV]

