APPLICATION FOR CERTIFICATION
On Behalf of
Cybiko Inc.
CyWIG
(Cybiko Wireless Internet Gate)

Model : CyWIG RA508

FCC ID：OU2CY65G41

Prepared for : Cybiko Inc.
1582 Lenox CT. Bartlett,
Illinois 60103, U.S.A.

Prepared By : Taiwan Tokin EMC Eng. Corp.
No. 53-11, Tin-Fu Tsun, Lin-Kou,
Taipei Hsien, Taiwan, R.O.C.

Tel: (02) 2609-9301 / 2609-2133

File Number	:	ATM-G90203
Report Number	:	TTEMC-F21031
Date of Test	:	Mar. 03 ~ 27, 2001
Date of Report	:	Mar. 29, 2001

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TEST REPORT CERTIFICATION

Applicant	:	Cybiko Inc.
Manufacturer	:	Inventec Besta Co., Ltd.
FCC ID	:	OU2CY65G41
EUT Description	:	CyWIG
		(A) MODEL NO. ：CyWIG RA508
		(B) SERIAL NO. ：N/A
		(C) POWER SUPPLY ：60-80mA (via PC, USB Port)

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B & C, JANUARY 2001
AND FCC / ANSI C63.4-1992

The device described above was tested by TAIWAN TOKIN EMC ENG. CORP. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart B & C limits both radiated and conducted emissions.

The measurement results are contained in this test report and TAIWAN TOKIN EMC ENG. CORP. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Taiwan Tokin EMC Eng. corp.

Date of Test : Mar. 03 ~ 27, 2001

Prepared by : _____
(CHERRY WANG)

Test Engineer : _____
(ALLEN WANG)

Approve & Authorized Signer : _____
(JACKIE DENG)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	CyWIG (Cybiko Wireless Internet Gate)
Model Number	:	CyWIG RA508
FCC ID	:	OU2CY65G41
Applicant	:	Cybiko Inc. 1582 Lenox CT. Bartlett, Illinois 60103, U.S.A.
Manufacturer	:	Inventec Besta Co., Ltd. 10FL., No. 36, Lane 513, Rui Guang Road, Nei Hu Dist, Taipei 114, Taiwan, R.O.C.
Fundamental Frequency	:	903.2 ~ 926.8MHz (60 Channels)
USB Interface Cable (Link to PC's USB Port)	:	Non-Shielded, Undetachable, 3.0m Bonded a ferrite core
Date of Receipt of Sample	:	Feb. 26, 2001
Date of Test	:	Mar. 03 ~ 27, 2001

Remark:

The CyWIG (Cybiko Wireless Internet Gate, EUT) is a communication device that transmits and receives short digital messages to and from CYBIKO computers via radio waves and sends them to the main host CYBIKO.COM via Internet. The transmitter operates in the frequency range 903.2-926.8MHz (60 channels).

The CyWIG (EUT) have a USB interface cable, which was connected to USB port of PC.

1.2. Tested Supporting System Details

1.2.1. PERSONAL COMPUTER

Mother Board	:	ASUS(VIA), M/N CUV4X, S/N 07Z7Y24103, FCC by DoC
CPU	:	Intel Pentium III 667MHz
RAM	:	128MB (PC-133)
PC Case	:	Enlight, M/N EN-7105A
S.P.S.	:	FSP, M/N FSP250-60PFN S/N S00769614, BSMI No. 3892B514
Floppy Driver 3.5”	:	Mitsumi, M/N D353M3, S/N 0G07BR0709
Hard Disk Driver	:	Maxtor (10.2GB), M/N 91021U2 S/N 90526177
VGA Card	:	CP, M/N CM64A, S/N C01H011476 FCC by DoC
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.2. COLOR MONITOR

Model Number	:	2248-05N
Serial Number	:	66-70083
FCC ID	:	ARSCM356N
Manufacturer	:	IBM
Data Cable	:	Shielded, Undetachable, 1.5m Boned a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.5m

1.2.3. KEYBOARD

Model Number	:	5121
Serial Number	:	J83300815
FCC ID	:	E5XKBM104M10UC
Manufacturer	:	Behavior Tech Computer Corp.
Data Cable	:	Shielded, Undetachable, 1.0m

1.2.4. PRINTER

Model Number	:	2225C
Serial Number	:	2526S40437
FCC ID	:	BS46XU2225C
Manufacturer	:	Hewlett Packard
Power Cord	:	Non-Shielded, Undetachable, 1.8m
Data Cable	:	Shielded, Detachable, 1.2m

1.2.5. MODEM

Model Number	:	DM-1414
Serial Number	:	980034391
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A Non-Shielded, Undetachable, 1.8m

1.2.6. PS2 MOUSE

Model Number	:	M-S35
Serial Number	:	LZA82103122
FCC ID	:	DZL211029
Manufacturer	:	Logitech
Data Cable	:	Non-Shielded, Undetachable, 1.8m

1.2.7. USB MOUSE

Model Number	:	CREUBB
Serial Number	:	N/A
FCC ID	:	NHM-CREUBE
Manufacturer	:	CRE Technology Co., Ltd.
Data Cable	:	Shielded, Undetachable, 1.8m

1.3. Description of Test Facility

Site Description (No. 6 Open Site)	:	Aug. 10, 2000 File on Federal Communication Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, U.S.A. Registration Number: 98448
Anechoic Chamber Description	:	May 16, 2000 Re-file on Federal Communication Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, U.S.A. Registration Number: 90993
Name of Firm	:	Taiwan Tokin EMC Eng. Corp.
Site Location	:	No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
NVLAP lab. Code	:	200077-0

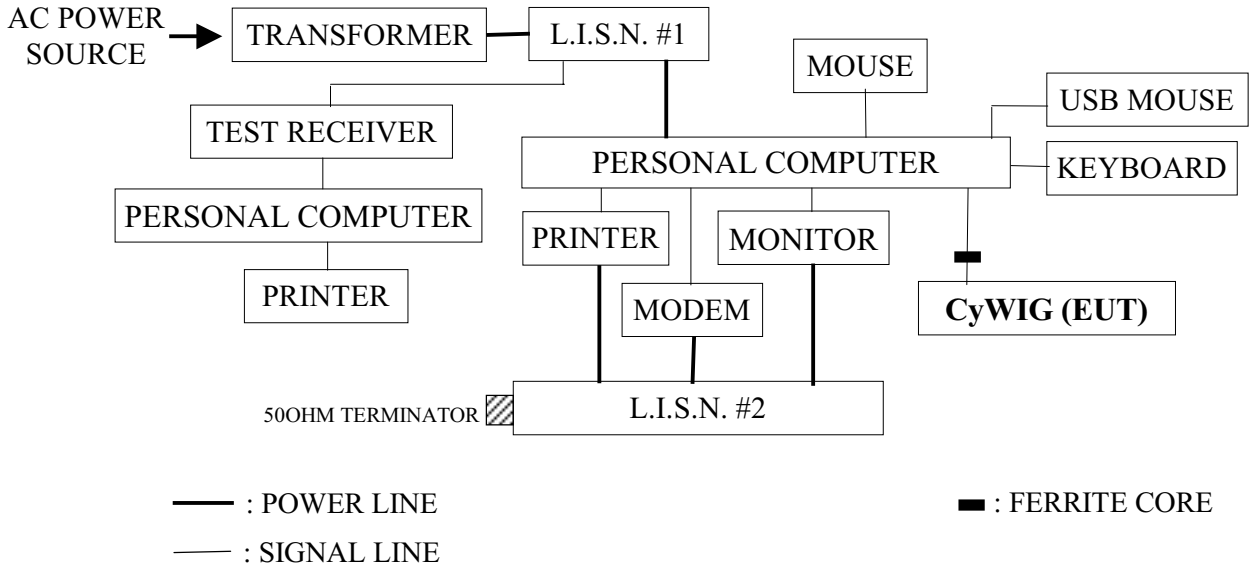
2. POWERLINE CONDUCTED TEST

2.1. Test Equipment

The following test equipment were used during the power line conducted tests：

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	844591/015	Feb. 26, 01’	1 Year
2.	L.I.S.N. #1	Kyoritsu	KNW-407	8-1430-5	Nov.04, 00’	1 Year
3.	L.I.S.N. #2	Kyoritsu	KNW-407	8-1430-6	Nov.04, 00’	1 Year

2.2. Block Diagram of Test Setup



2.3. Powerline Conducted Emission Limit

Frequency	Maximum RF Line Voltage	
	μV	dBμV
0.45MHz ~ 30MHz	250	48

REMARKS：RF LINE VOLTAGE (dBμV) = 20 log RF LINE VOLTAGE (μV)

2.4. EUT's Configuration during Compliance Measurement

The following equipment were installed on RF LINE VOLTAGE measurement to meet the Commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

2.4.1. CyWIG (EUT)

Model Number	:	CyWIG RA508
Serial Number	:	N/A
FCC ID.	:	OU2CY65G41
Manufacturer	:	Inventec Besta Co., Ltd.
USB Interface Cable	:	Non-Shielded, Undetachable, 3.0m
(Link to PS's USB Port)		Bonded a ferrite core

2.4.2. Supporting System : As in Section 1.2

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown on 2.2.

2.5.2. Turned on the power of all equipment.

2.5.3. Personal computer read data from hard disk.

2.5.4. Setup the personal computer to drive the EUT through the Cybiko's CyWIG software driver "CyWIG.EXE".

2.5.5. Data was communicated between host personal computer and CyWIG (EUT) through the USB interface. The CyWIG was sending and receiving an e-mail message during all testing.

2.5.6. Personal Computer displayed the test software image and data to monitor by windows.

2.5.7. The other peripheral devices were driven and operated in turn during all testing.

2.5.8. Repeat above procedures from 2.5.3 to 2.5.7.

2.6. Test Procedure

The EUT connected to PC and then the PC's power was connected to the power mains through a line impedance stabilization network (L.I.S.N.# 1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N. # 2). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to FCC ANSI C63.4-1992 on conducted measurement.

The bandwidth of the R&S Test Receiver ESHS 10 was set at 10KHz.

The frequency range from 450KHz to 30MHz was checked.

EUT connected to PC and with three kinds of operating frequency were done during conducted measurement and all the test results are listed in section 2.7.

2.7. Test Results

PASSED. All the test results are listed in the following pages. (12 Page)

EUT：CyWIG M/N：CyWIG RA508

Test Date：Mar. 20, 2001 Temperature：24℃ Humidity：69%

Operating Frequency of EUT		Reference Data #
1.	Channel 3: 903.2MHz	# 1, (# 2) ; # 3, (# 4).
2.	Channel 32: 914.8MHz	# 7, (# 8) ; # 5, (# 6).
3.	Channel 62: 926.8MHz	# 9, (# 10) ; # 11, (# 12).

Remark： All reading are Quasi-Peak values.

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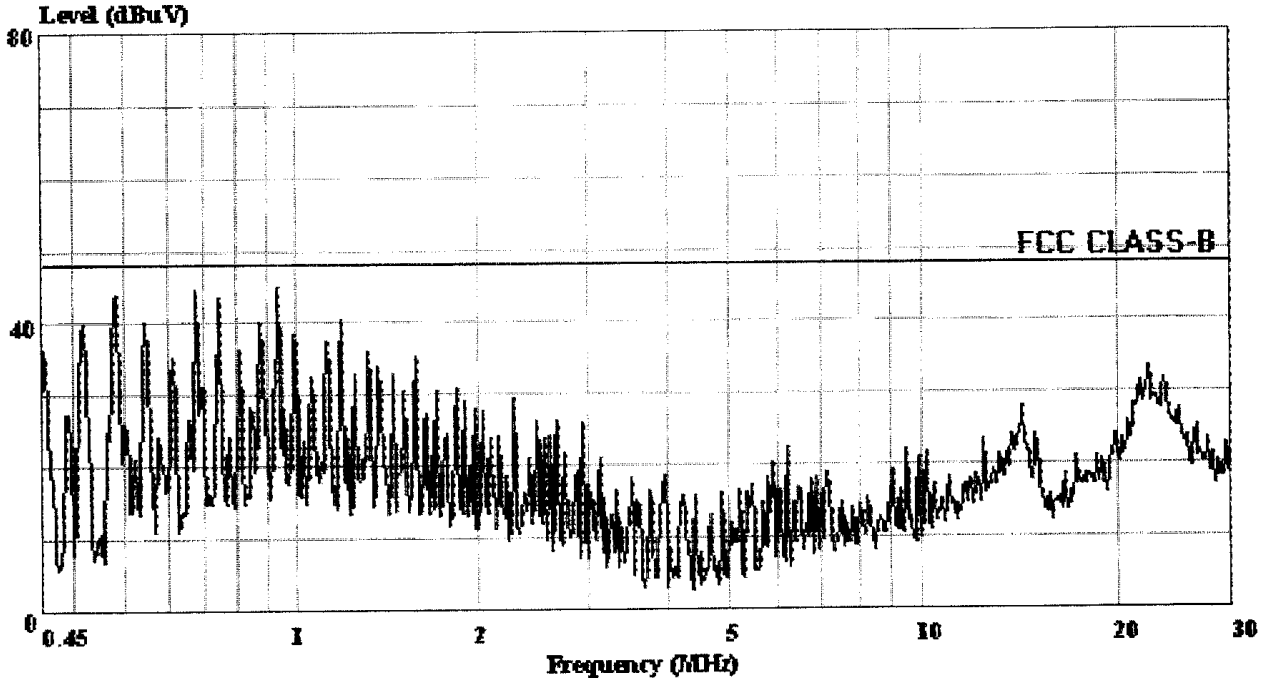
Data#: 1 File#: CYBIKO.EMI Date: 2001-03-05 Time: 14:29:04



TAIWAN TOKIN EMC ENG. CORP. (No.4 Shielded room)

Trace: Ref Trace:

Condition: FCC CLASS-B KNW-407 LINE
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:3)

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Data#: 2 File#: CYBIKO.EMI Date: 2001-03-05 Time: 14:33:13
No.4 Shielded room

Condition: FCC CLASS-B KNW-407 LINE
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:3)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.583	43.74	-4.26	48.00	43.24	0.10	0.40	0.00	QP
2	0.777	44.23	-3.77	48.00	43.73	0.10	0.40	0.00	QP
3	0.841	43.00	-5.00	48.00	42.50	0.10	0.40	0.00	QP
4	1.037	44.65	-3.35	48.00	44.15	0.10	0.40	0.00	QP
5	1.295	40.87	-7.13	48.00	40.37	0.10	0.40	0.00	QP
6	22.437	33.96	-14.04	48.00	32.86	0.40	0.70	0.00	QP

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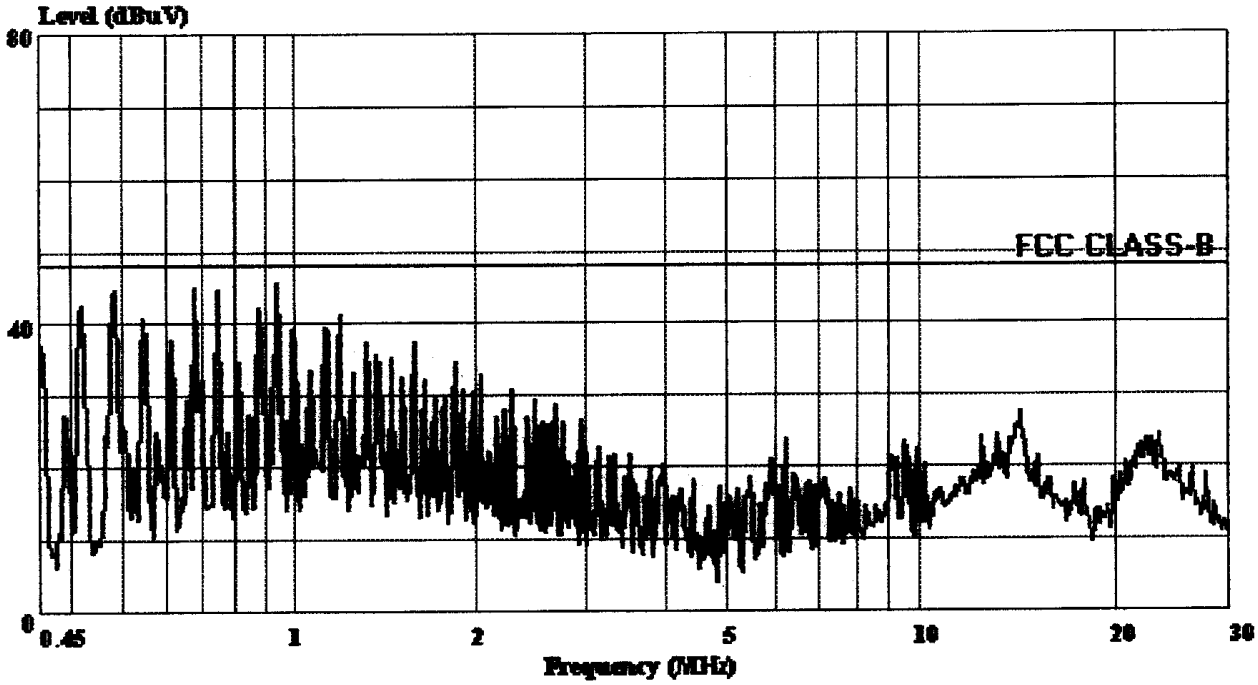
Data#: 3 File#: CYBIKO.EMI Date: 2001-03-05 Time: 14:33:46



TAIWAN TOKIN EMC ENG. CORP. (No.4 Shielded room)

Trace: Ref Trace:

Condition: FCC CLASS-B KNW-407 NEUTRAL
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:3)

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Data#: 4 File#: CYBIKO.EMI Date: 2001-03-05 Time: 14:35:55
No.4 Shielded room

Condition: FCC CLASS-B KNW-407 NEUTRAL
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:3)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.583	43.94	-4.06	48.00	43.44	0.10	0.40	0.00	QP
2	0.779	44.13	-3.87	48.00	43.63	0.10	0.40	0.00	QP
3	0.844	43.76	-4.24	48.00	43.26	0.10	0.40	0.00	QP
4	1.037	44.81	-3.19	48.00	44.31	0.10	0.40	0.00	QP
5	1.296	40.82	-7.18	48.00	40.32	0.10	0.40	0.00	QP
6	14.404	27.94	-20.06	48.00	27.04	0.20	0.70	0.00	QP

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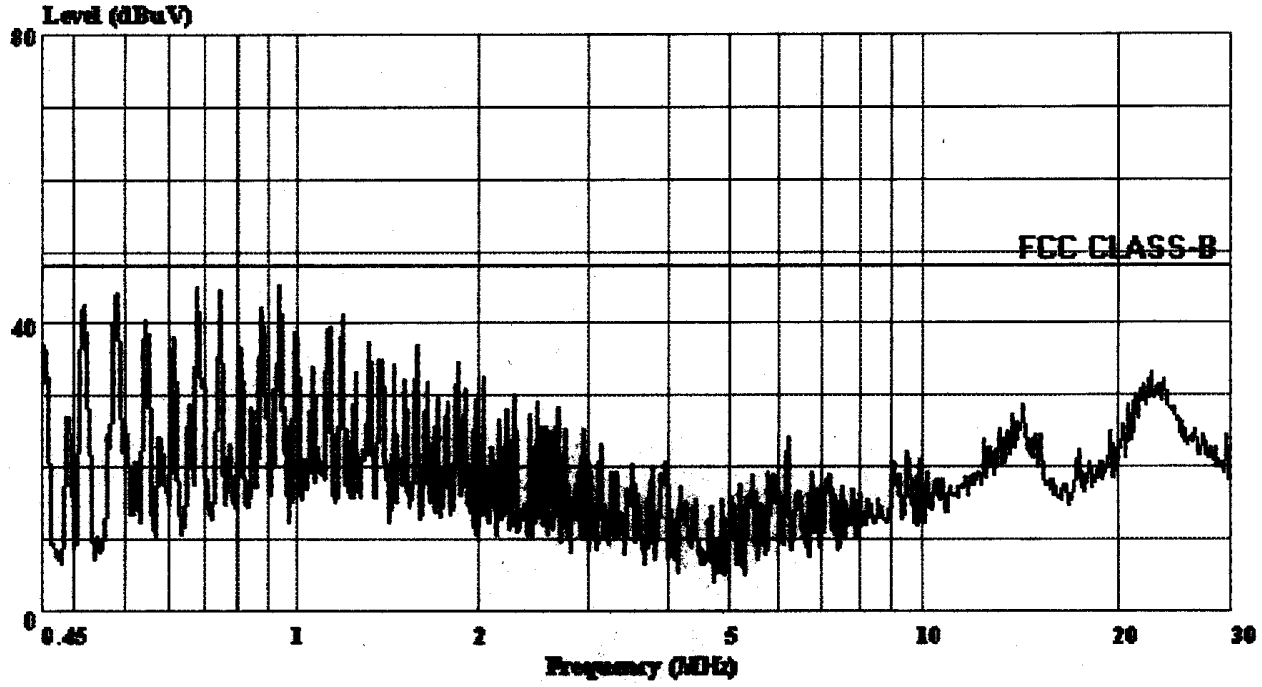
Data#: 7 File#: Cybiko.emi Date: 2001-03-05 Time: 14:49:53



Trace: Ref Trace:

Condition: FCC CLASS-B KNW-407 LINE
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:32)

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Data#: 8 File#: Cybiko.emi Date: 2001-03-05 Time: 14:51:03
No.4 Shielded room

Condition: FCC CLASS-B KNW-407 LINE
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:32)

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.581	43.08	-4.92	48.00	42.58	0.10	0.40	0.00	QP
2	0.776	43.41	-4.59	48.00	42.91	0.10	0.40	0.00	QP
3	0.843	43.28	-4.72	48.00	42.78	0.10	0.40	0.00	QP
4	1.036	44.47	-3.53	48.00	43.97	0.10	0.40	0.00	QP
5	1.299	39.83	-8.17	48.00	39.33	0.10	0.40	0.00	QP
6	22.639	33.06	-14.94	48.00	31.96	0.40	0.70	0.00	QP

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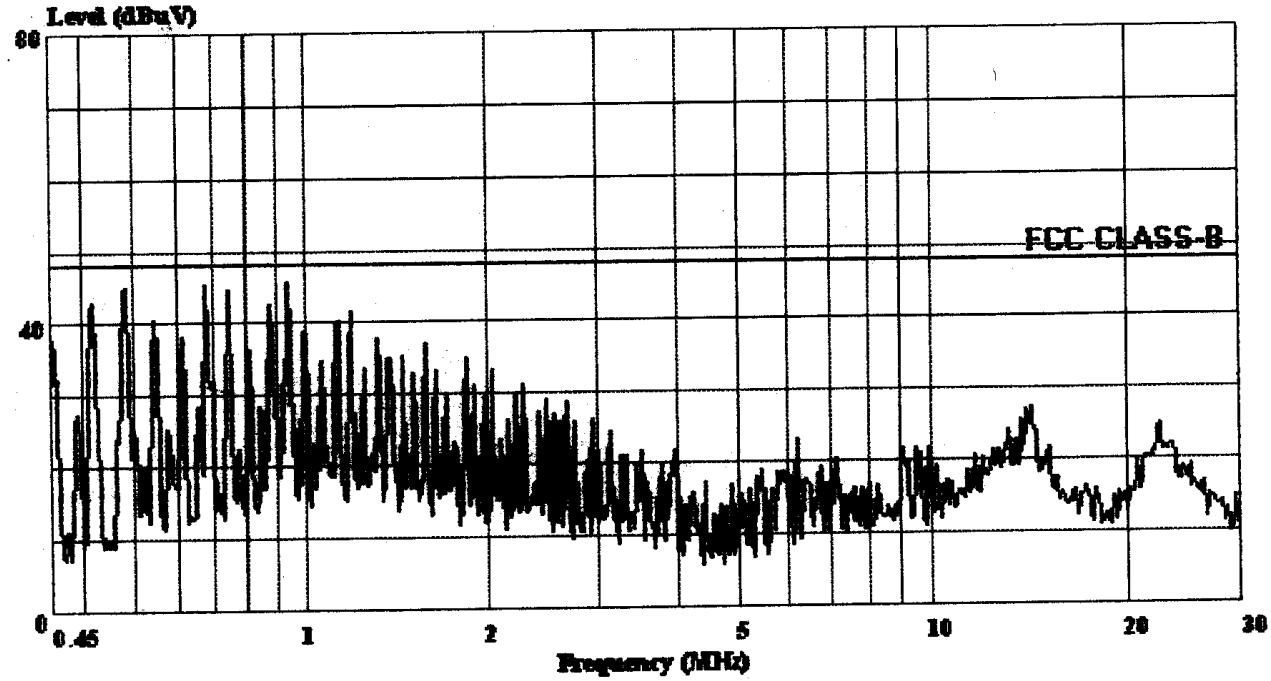

TAIWAN TOKIN EMC ENG. CORP. (No.4 Shielded room)

Trace: Ref Trace:

Condition: FCC CLASS-B KNW-407 NEUTRAL
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:32)

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Data#: 6 File#: Cybiko.emi Date: 2001-03-05 Time: 14:48:37
No.4 Shielded room

Condition: FCC CLASS-B KNW-407 NEUTRAL
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:32)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.582	44.14	-3.86	48.00	43.64	0.10	0.40	0.00	QP
2	0.777	44.63	-3.37	48.00	44.13	0.10	0.40	0.00	QP
3	0.841	44.04	-3.96	48.00	43.54	0.10	0.40	0.00	QP
4	1.035	44.31	-3.69	48.00	43.81	0.10	0.40	0.00	QP
5	1.295	40.80	-7.20	48.00	40.30	0.10	0.40	0.00	QP
6	14.404	27.54	-20.46	48.00	26.64	0.20	0.70	0.00	QP

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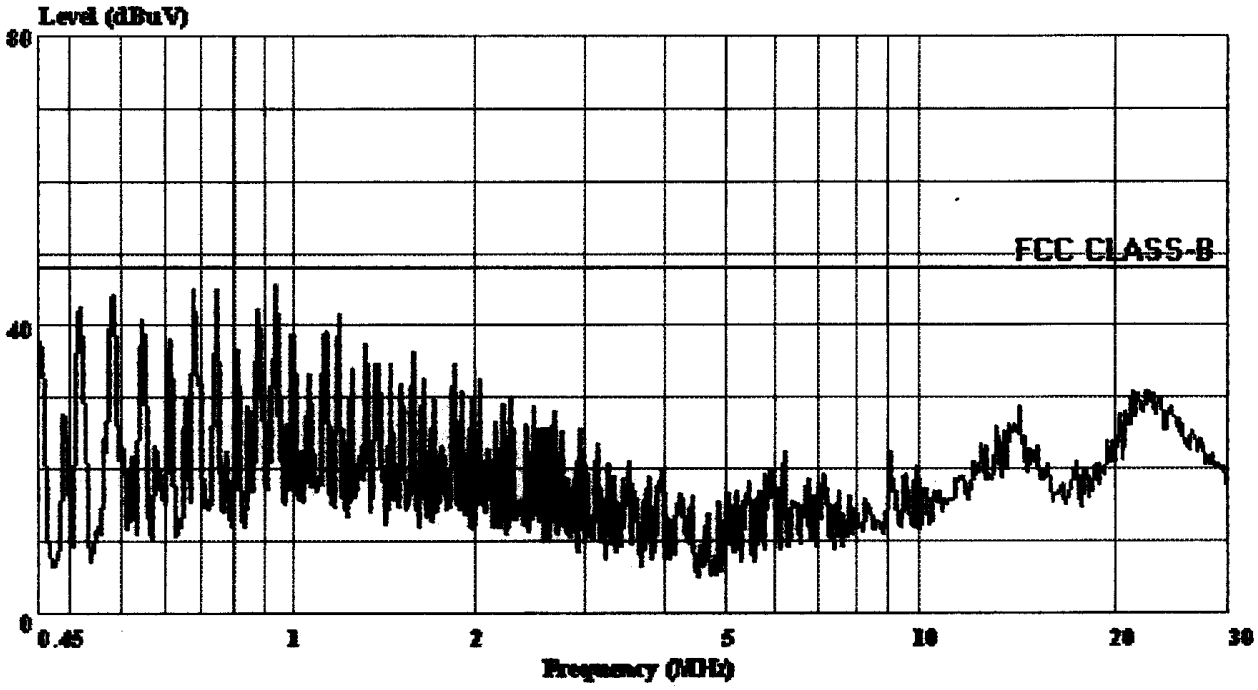

Trace: Ref Trace:

Condition: FCC CLASS-B KNW-407 LINE
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:62)

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Data#: 10 File#: CYBIKO.EMI Date: 2001-03-05 Time: 14:53:44
No.4 Shielded room

Condition: FCC CLASS-B KNW-407 LINE
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:62)

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.586	42.84	-5.16	48.00	42.34	0.10	0.40	0.00	QP
2	0.779	43.73	-4.27	48.00	43.23	0.10	0.40	0.00	QP
3	0.844	44.06	-3.94	48.00	43.56	0.10	0.40	0.00	QP
4	1.037	43.77	-4.23	48.00	43.27	0.10	0.40	0.00	QP
5	1.299	40.07	-7.93	48.00	39.57	0.10	0.40	0.00	QP
6	22.640	33.02	-14.98	48.00	31.92	0.40	0.70	0.00	QP

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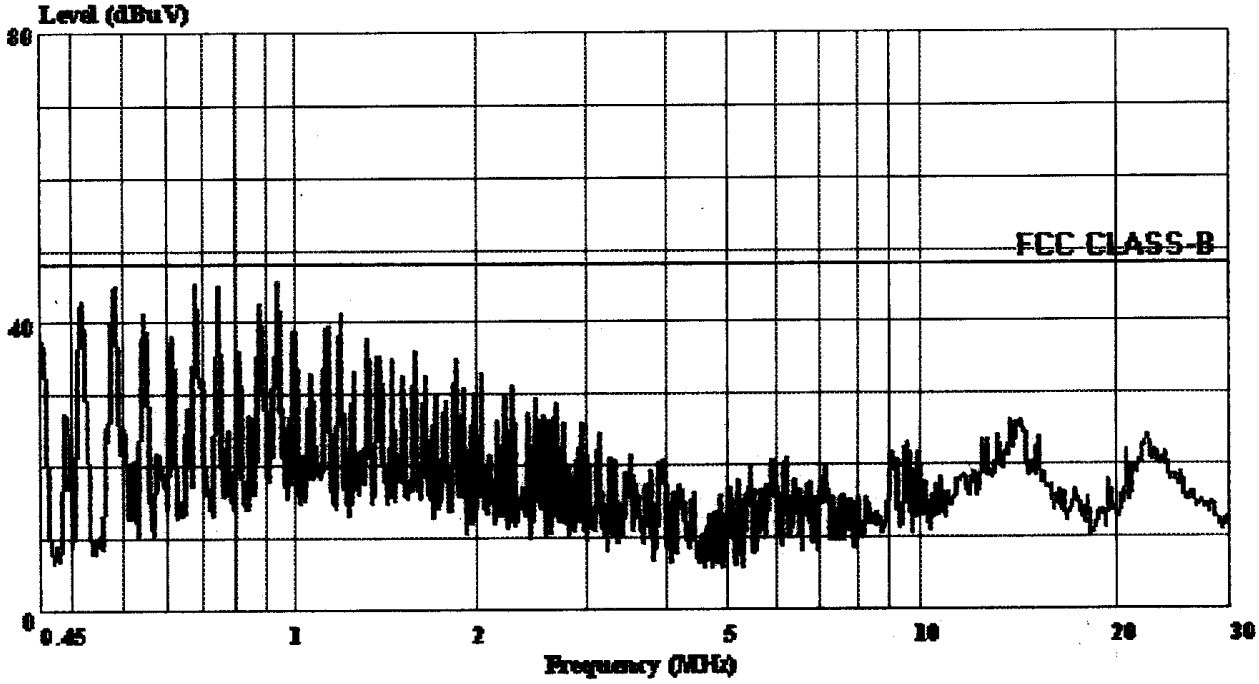

Trace: Ref Trace:

Condition: FCC CLASS-B KNW-407 NEUTRAL
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:62)

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Data#: 12 File#: CYBIKO.EMI Date: 2001-03-05 Time: 14:55:29
No.4 Shielded room

Condition: FCC CLASS-B KNW-407 NEUTRAL
EUT : CyWIG M/N:CyWIG,RA508
POWER: 120Vac/60Hz
MEMO : Link PC(CH:62)

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.583	44.20	-3.80	48.00	43.70	0.10	0.40	0.00	QP
2	0.781	43.35	-4.65	48.00	42.85	0.10	0.40	0.00	QP
3	0.841	44.14	-3.86	48.00	43.64	0.10	0.40	0.00	QP
4	1.040	43.55	-4.45	48.00	43.05	0.10	0.40	0.00	QP
5	1.297	40.74	-7.26	48.00	40.24	0.10	0.40	0.00	QP
6	14.404	29.78	-18.22	48.00	28.88	0.20	0.70	0.00	QP

3. RADIATED EMISSION TEST

3.1. Test Equipment

The following test equipment are used during the radiated emission tests：

3.1.1. For 30MHz~1000MHz at No. 6 Open Test Site

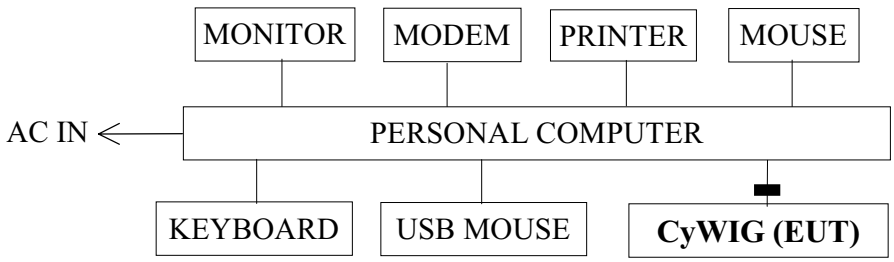
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Anritsu	MS2601A	MT60755	Oct. 30, 00’	1 Year
2.	Test Receiver	R&S	ESVP	879691/036	Jul. 01, 00’	1 Year
3.	Biconical Antenna	Chase	VBA6106A	1262	Ju1. 07, 00’	1 Year
4.	Log Periodic Antenna	Chase	UPA6109	1063	Jul. 07, 00’	1 Year

3.1.2. For Above 1GHz at Anechoic Chamber

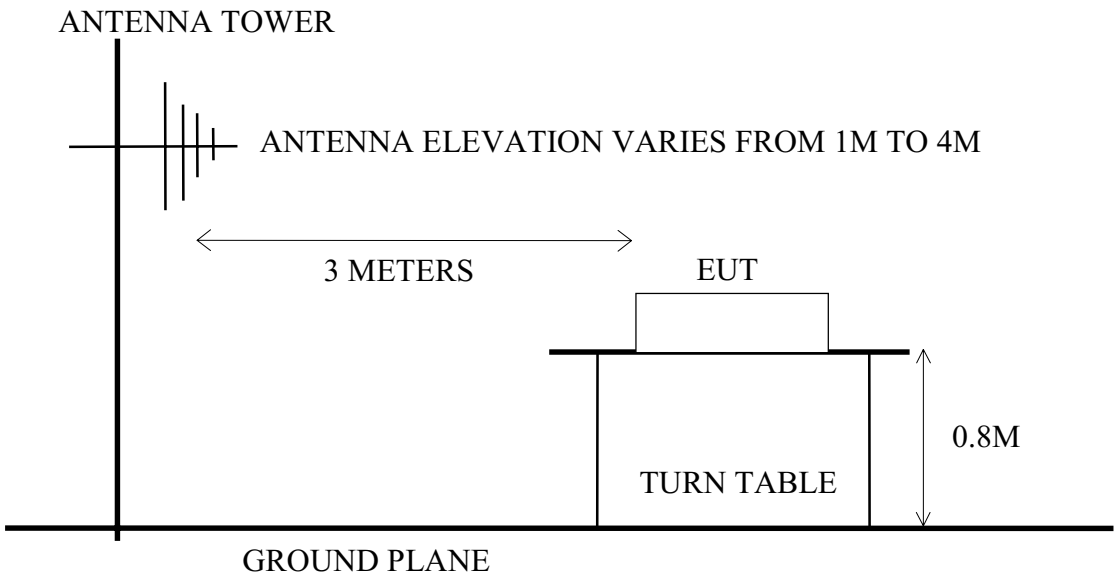
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8593EM	3826A00248	Aug. 30, 00’	1Year
3.	Pre-Amplifier (1GHz~7GHz)	HP	8449B	3008A01284	Jul. 03, 00’	1 Year
4.	Double Ridge Horn. Antenna (1GHz~7GHz)	EMCO	3115	9112-3775	Apr. 13, 00’	1 Year

3.2. Test Setup

3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Anechoic Chamber & Open Field Test Site (3M) Setup Diagram



3.3. Radiation Limit (§15.249 & §15.109)

3.3.1. §15.249 Radiated Emission Limits (Transmitter, Part 15C)

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS	
MHz	Meters	μV/M	dBμV/M
Fundamental Freq.	3	50000	93.97 (Quasi-Peak)
Harmonic Emission	3	500	73.97 (Peak)

Remark: (1) Emission level (dBμV/M) = 20 log Emission level (μV/M)
(2) For frequency above 1000MHz, the limits are based on average limits as description in §15.35(b), and the peak limits shall not exceed the maximum permitted average limits by more than 20dB under any condition of modulation as description in 15.249(b).

3.3.2. §15.109 Radiated Emission Limits (Receiver, Part 15B)

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS	
MHz	Meters	μV/M	dBμV/M
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

Remark： (1) Emission level (dBμV/M) = 20 log Emission level (μV/M)
(2) The tighter limit applies at the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. EUT's Configuration during Compliance Measurement

The configuration of EUT and its simulators were same as those used in conducted measurement. Please refer to 2.4.

3.5. Operating Condition of EUT

Same as conducted measurement which is listed in 2.5., except the test set up replaced by section 3.2.

3.6. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. For 30MHz to 10GHz frequency range, EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 to 4 meters for 30MHz to 10GHz frequency range to find out the maximum emission level. Broadband antenna such as calibrated biconical and log- periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-1992 regulation.

The bandwidth of test receiver was set at 120KHz and resolution bandwidth of spectrum analyzer was set at 1MHz.

The frequency range from 30MHz to 10GHz was checked.

EUT Connected to PC and with ten kinds of test modes were during radiated measurement and all the test results are listed in section 3.8.

The details of test modes are as follows:
(1) EUT on Stand, Channel 3: 903.2MHz
(2) EUT on Side, Channel 3: 903.2MHz
(3) EUT on Lie, Channel 3: 903.2MHz
(4) EUT on Stand, Channel 32: 914.8MHz
(5) EUT on Side, Channel 32: 914.8MHz
(6) EUT on Lie, Channel 32: 914.8MHz
(7) EUT on Stand, Channel 62: 926.8MHz
(8) EUT on Side, Channel 62: 926.8MHz
(9) EUT on Lie, Channel 62: 926.8MHz
(10) EUT Link PC

3.7. Test Results

PASSED. Please refer to the following pages.

3.8. Radiated Emission Noise Measurement Results

The frequency spectrum from 30 MHz to 10GHz is investigated. All the emissions not reported below are too low against the FCC part 15 subpart C limit.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Stand

Fundamental Frequency： 903.2MHz (Channel: 3)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
903.22	22.37	8.09	0.00	54.43	84.89	93.97	9.08
Harmonic (Peak Values)							
1806.40	28.08	6.92	32.16	58.71	61.55	73.97	12.42
2709.60	30.71	8.24	32.24	45.76	52.47	73.97	21.50
3612.80	32.89	9.34	32.33	36.90	46.80	73.97	27.17

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
903.22	22.55	8.09	0.00	57.60	88.24	93.97	5.73
Harmonic (Peak Values)							
1806.40	28.08	6.92	32.16	50.03	52.87	73.97	21.10
2709.60	30.71	8.24	32.24	40.56	47.27	73.97	26.70
3612.80	32.89	9.34	32.33	33.09	42.99	73.97	30.98

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Side

Fundamental Frequency： 903.2MHz (Channel: 3)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
903.22	22.37	8.09	0.00	56.82	87.28	93.97	6.69
Harmonic (Peak Values)							
1806.40	28.08	6.92	32.16	59.82	62.66	73.97	11.31
2709.60	30.71	8.24	32.24	43.53	50.24	73.97	23.73
3612.80	32.89	9.34	32.33	36.79	46.69	73.97	27.28

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
903.22	22.55	8.09	0.00	54.55	85.19	93.97	8.78
Harmonic (Peak Values)							
1806.40	28.08	6.92	32.16	48.74	51.58	73.97	22.39
2709.60	30.71	8.24	32.24	40.49	47.20	73.97	26.77
3612.80	32.89	9.34	32.33	33.75	43.65	73.97	30.32

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Lie

Fundamental Frequency： 903.2MHz (Channel: 3)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
903.22	22.37	8.09	0.00	56.15	86.61	93.97	7.36
Harmonic (Peak Values)							
1806.40	28.08	6.92	32.16	58.67	61.51	73.97	12.46
2709.60	30.71	8.24	32.24	42.75	49.46	73.97	24.51
3612.80	32.89	9.34	32.33	36.58	46.48	73.97	27.49

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
903.22	22.55	8.09	0.00	54.83	85.47	93.97	8.50
Harmonic (Peak Values)							
1806.40	28.08	6.92	32.16	58.01	60.85	73.97	13.12
2709.60	30.71	8.24	32.24	45.53	52.24	73.97	21.73
3612.80	32.89	9.34	32.33	35.70	45.60	73.97	28.37

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Stand

Fundamental Frequency： 914.8MHz (Channel: 32)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
914.85	22.54	8.12	0.00	53.34	84.00	93.97	9.97
Harmonic (Peak Values)							
1829.60	28.23	6.97	32.14	57.28	60.34	73.97	13.63
2709.60	30.83	8.29	32.25	44.69	51.56	73.97	22.41
3659.20	33.09	9.39	32.33	35.69	45.84	73.97	28.13

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
914.85	22.94	8.12	0.00	59.64	90.70	93.97	3.27
Harmonic (Peak Values)							
1829.60	28.23	6.97	32.14	50.94	54.00	73.97	19.97
2709.60	30.83	8.29	32.25	36.98	43.85	73.97	30.12
3659.20	33.09	9.39	32.33	30.54	40.69	73.97	33.28

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Side

Fundamental Frequency： 914.8MHz (Channel: 32)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
914.85	22.54	8.12	0.00	57.91	88.57	93.97	5.40
Harmonic (Peak Values)							
1829.60	28.23	6.97	32.14	60.62	63.68	73.97	10.29
2709.60	30.83	8.29	32.25	44.58	51.45	73.97	22.52
3659.20	33.09	9.39	32.33	35.60	45.75	73.97	28.22

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
914.85	22.94	8.12	0.00	54.49	85.55	93.97	8.42
Harmonic (Peak Values)							
1829.60	28.23	6.97	32.14	57.73	60.79	73.97	13.18
2709.60	30.83	8.29	32.25	43.56	50.43	73.97	23.54
3659.20	33.09	9.39	32.33	35.44	45.59	73.97	28.38

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Lie

Fundamental Frequency： 914.8MHz (Channel: 32)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
914.85	22.54	8.12	0.00	57.57	88.23	93.97	5.74
Harmonic (Peak Values)							
1829.60	28.23	6.97	32.14	59.20	62.26	73.97	11.71
2709.60	30.83	8.29	32.25	42.66	49.53	73.97	24.44
3659.20	33.09	9.39	32.33	35.38	45.53	73.97	28.44

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
914.85	22.94	8.12	0.00	54.37	85.43	93.97	8.54
Harmonic (Peak Values)							
1829.60	28.23	6.97	32.14	63.26	66.32	73.97	7.65
2709.60	30.83	8.29	32.25	47.27	54.14	73.97	19.83
3659.20	33.09	9.39	32.33	35.10	45.25	73.97	28.72

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Stand

Fundamental Frequency： 926.8MHz (Channel: 62)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
926.92	22.53	8.23	0.00	54.47	85.23	93.97	8.74
Harmonic (Peak Values)							
1853.60	28.38	7.01	32.13	48.57	51.83	73.97	22.14
2780.40	30.95	8.33	32.26	43.04	50.06	73.97	23.91
3707.20	33.30	9.45	32.33	35.23	45.65	73.97	28.32

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
926.92	23.00	8.23	0.00	60.28	91.51	93.97	2.46
Harmonic (Peak Values)							
1853.60	28.38	7.01	32.13	51.68	54.94	73.97	19.03
2780.40	30.95	8.33	32.26	38.86	45.88	73.97	28.09
3707.20	33.30	9.45	32.33	29.99	40.41	73.97	33.56

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Side

Fundamental Frequency： 926.8MHz (Channel: 62)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
926.92	22.53	8.23	0.00	56.86	87.62	93.97	6.35
Harmonic (Peak Values)							
1853.60	28.38	7.01	32.13	56.87	60.13	73.97	13.84
2780.40	30.95	8.33	32.26	42.53	49.55	73.97	24.42
3707.20	33.30	9.45	32.33	34.83	45.25	73.97	28.72

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
926.92	23.00	8.23	0.00	59.99	91.22	93.97	2.75
Harmonic (Peak Values)							
1853.60	28.38	7.01	32.13	56.81	60.07	73.97	13.90
2780.40	30.95	8.33	32.26	44.56	51.58	73.97	22.39
3707.20	33.30	9.45	32.33	35.44	45.86	73.97	28.11

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

Date of Test： Mar. 27, 2001 / Mar. 23, 2001 Temperature： 18.9℃ / 24℃

EUT： CyWIG Humidity： 74% / 68%

Test Mode： EUT on Lie

Fundamental Frequency： 926.8MHz (Channel: 62)

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
926.92	22.53	8.23	0.00	58.33	89.09	93.97	4.88
Harmonic (Peak Values)							
1853.60	28.38	7.01	32.13	61.00	64.26	73.97	9.71
2780.40	30.95	8.33	32.26	42.25	49.27	73.97	24.70
3707.20	33.30	9.45	32.33	34.99	45.41	73.97	28.56

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	(Pre-Amp) Factor dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Quasi-Peak Values)							
926.92	23.00	8.23	0.00	53.58	84.81	93.97	9.16
Harmonic (Peak Values)							
1853.60	28.38	7.01	32.13	59.21	62.47	73.97	11.50
2780.40	30.95	8.33	32.26	46.59	53.61	73.97	20.36
3707.20	33.30	9.45	32.33	34.85	45.27	73.97	28.70

Remark：
1. For Fundamental Frequency, Measurement at No. 6 Open Test Site and the readings below 1000MHz are Quasi-Peak values。
2. For Harmonic Frequency, Measurement at Anechoic Chamber and the readings above 1GHz are Peak values.
3. Emission Level = Antenna Factor + Cable Loss + Meter Reading – Pre-Amp Factor.
4. Measurement was up to 10th harmonic (~10GHz), but the emissions level were too low against the official limit and not report.

The frequency spectrum from 30 MHz to 1000GHz is investigated. All the emissions not reported below are too low against the FCC part 15 subpart B limit.

Date of Test：	Mar. 03, 2001	Temperature：	21.4℃
EUT：	CyWIG	Humidity：	50%
Test Mode：	EUT Link PC		

	Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
	72.026	12.18	1.82	13.69	27.69	40.00	12.31
	96.035	16.87	2.14	11.90	30.91	43.50	12.59
	120.043	19.10	2.42	13.40	34.92	43.50	8.58
*	**144.052**	**20.66**	**2.69**	**16.80**	**40.15**	**43.50**	**3.35**
	168.061	20.91	2.91	9.60	33.42	43.50	10.08
	216.078	21.67	3.40	6.90	31.97	46.00	14.03
	240.042	23.01	3.58	9.59	36.18	46.00	9.82
	312.112	13.29	4.23	23.20	40.72	46.00	5.28
	360.130	15.29	4.53	18.70	38.52	46.00	7.48
	444.160	16.40	5.09	5.91	27.40	46.00	18.60
	520.187	17.72	5.66	6.80	30.18	46.00	15.82
	632.228	19.75	6.37	7.40	33.52	46.00	12.48
	672.242	20.08	6.72	6.70	33.50	46.00	12.50
	728.262	20.51	7.09	7.70	35.30	46.00	10.70

Remarks：
1. All readings are Quasi-Peak values.
2. The worst emission was detected at 144.052MHz with corrected signal level of 40.15dBμV/m (limit is 43.50dBμV/m) when the antenna was at horizontal polarization and was at 1.8m high and the turn table was at 325° .
3. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.
4. Measurement at No. 6 Open Test Site with test voltage 120V/60Hz.

Date of Test： Mar. 27, 2001 Temperature： 21.4℃

EUT： CyWIG Humidity： 50%

Test Mode： EUT Link PC

	Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
	84.012	14.44	1.97	12.50	28.91	40.00	11.09
	96.035	16.07	2.14	13.30	31.51	43.50	11.99
	120.043	17.92	2.42	12.40	32.74	43.50	10.76
*	**144.052**	**18.92**	**2.69**	**18.59**	**40.20**	**43.50**	**3.30**
	168.062	20.46	2.91	11.90	35.27	43.50	8.23
	216.078	21.87	3.40	3.40	28.67	46.00	17.33
	240.042	22.65	3.58	6.20	32.43	46.00	13.57
	312.112	13.37	4.23	15.30	32.90	46.00	13.10
	336.121	13.96	4.33	9.40	27.69	46.00	18.31
	360.130	14.43	4.53	11.70	30.66	46.00	15.34
	488.176	17.22	5.48	4.19	26.89	46.00	19.11
	552.199	18.61	5.93	6.00	30.54	46.00	15.46
	584.210	18.86	6.15	4.00	29.01	46.00	16.99
	672.241	20.26	6.72	1.80	28.78	46.00	17.22
	848.305	22.12	7.72	1.20	31.04	46.00	14.96

Remarks：
1. All readings are Quasi-Peak values.
2. The worst emission was detected at 144.052MHz with corrected signal level of 40.20dBμV/m (limit is 43.50dBμV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 275°.
3. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.
4. Measurement at No. 6 Open Test Site with test voltage 120V/60Hz.

4. DEVIATIONS TO TEST SPECIFICATIONS

【NONE】