RFI / EMI TEST REPORT

APPLICANT	**:**	CHARM WINNER CO., LTD.
E. U. T.	**:**	RF Wireless Joystick
TRADE NAME	**:**	N/A
FCC ID	**:**	K5MRF-626U27F
Model No.	**:**	RF-626U
REGULATION	**:**	CFR 47 , Part 15, Subpart C , Section 15.227, **Class B**
TEST SITE	**:**	PEP Testing Laboratory
TEST ENGINEER	**:**	2001-07-06
TEST DATE	**:**	Jason Gong
ISSUED DATE	**:**	JULY 20, 2001
REPORT No.	**:**	E900448

VERIFICATION

WE HEREBY VERIFY THAT:

The E. U. T. listed below has completed RFI testing by PEP Testing Laboratory and the interference emissions can pass **FCC Class B** limitations . Subject to FCC Part 15 Section 15.227 .

The tested configurations and the facility complies with the radiated and AC line conducted test site criteria in ANSI C63 . 4 - 1992 .

APPLICANT : CHARM WINNER CO., LTD. *
PRODUCT : RF Wireless Joystick *
FCC ID : K5MRF-626U27F *
MODEL : RF-626U *

M. Y. TSUI / President

PEP Testing Laboratory
12-3FL., NO. 27-1, Lane 169, Kang-Ning St.,
Hsi-Chi, Taipei Hsien, Taiwan, R. O. C.
TEL : 886-2-6922097 FAX : 886-2-6956236

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1. GENERAL

1.1 GENERAL INFORMATION:

APPLICANT : CHARM WINNER CO., LTD.

18F-3, NO. 75, SEC. 1, HSIN TAI WU RD., HIS-CHIH, TAIWAN, R. O. C.

MANUFACTURER : ZHONGSHAN CHARM WINNER CO., LTD.

FIRST INDUSTRIAL DISTRICT TAN ZHOU TOWN, ZHONGSHAN, GUANG DONG, CHINA

MEASUREMENT PROCEDURE : ANSI C63 , 4 - 1992

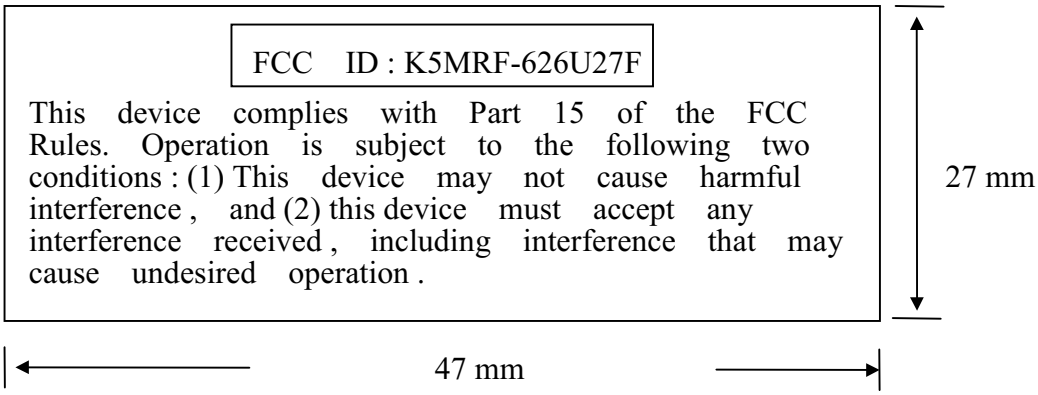
TESTED FOR COMPLIANCE WITH : Title 47 of CFR Part 15 , Subpart C , Section 15.227 Class B

1.2 PLACE OF MEASUREMENT

Name : PEP Testing Laboratory
Registration No. : 97129 & 90868

1.3 LABELING REQUIREMENT

A FCC ID label shall be permanently attached and conspicuously located on the equipment :



1.4 INFORMATION TO THE USER

The following FCC statement should be declared in a conspicuous location in the user's manual .

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device , pursuant to Part 15 of the FCC Rules . These limits are designed to provide reasonable protection against harmful interference in a residential installation . This equipment generates , uses and can radiate radio frequency energy and , if not installed and used in accordance with the instruction, may cause harmful interference to radio communications . However , there is no guarantee that interference will not occur in a particular installation . If this equipment does cause harmful interference to radio or television reception , which can be determined by turning the equipment off and on , the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna .
- Increase the separation between the equipment and receiver .
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected .
- Consult the dealer or an experienced radio / TV technician for help .

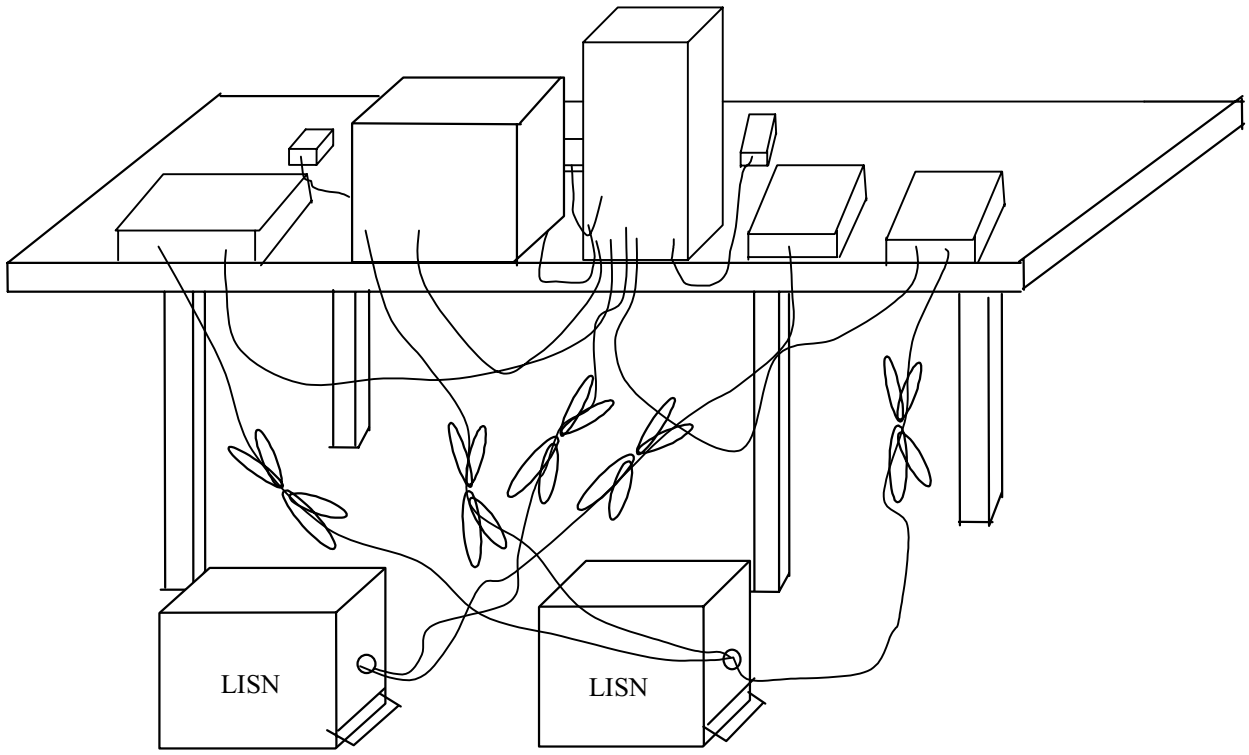
Warning : A shielded- type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception . It is essential that only the supplied power cord be used .

Use only shielded cables to connect I / O devices to this equipment .

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment .

2. CONDUCTION EMISSIONS TEST

2.1 GENERAL SETUP OF THE TEST FACILITIES



2.2 TEST PROCEDURES

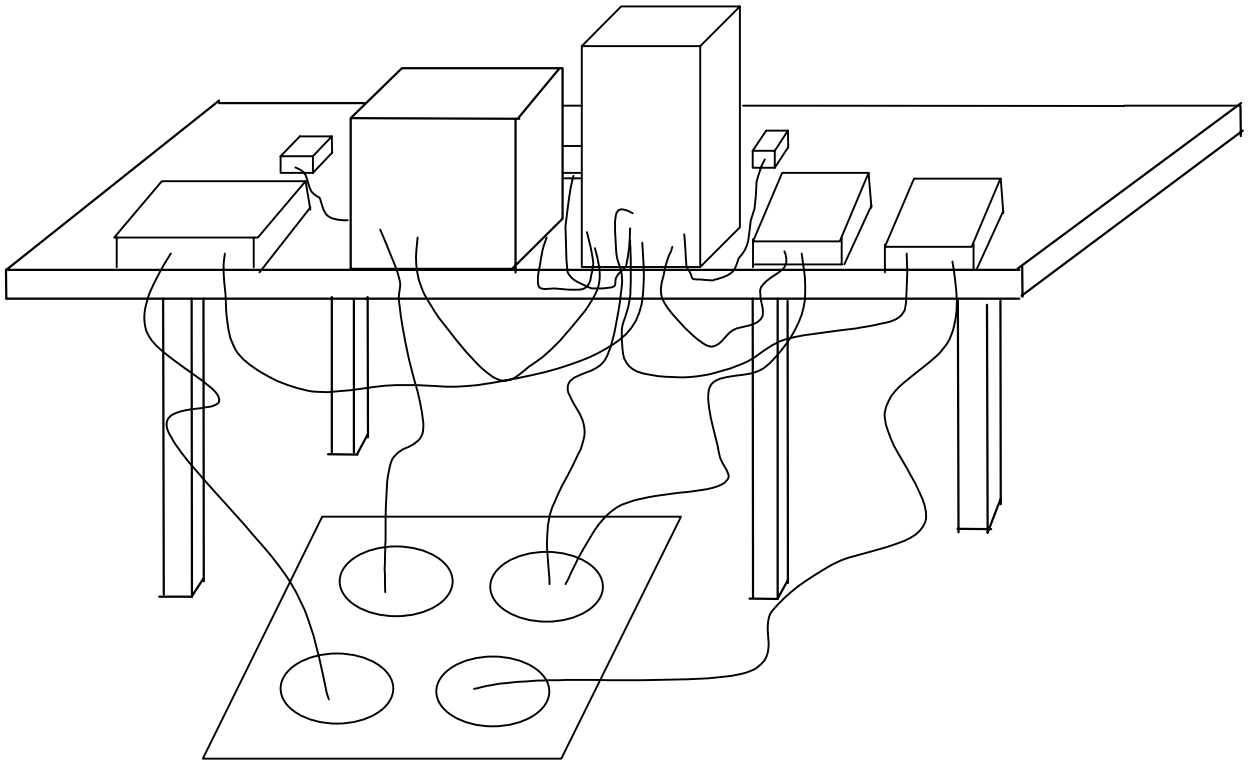
The system was setup as described above , with the EMI diagnostic software .
Both the line of power cord , hot and neutral , were run with the EMI tests software .

To get the maximum power line conducted emission , we changed the configuration by varying the monitor power cord fed from floor outlet and from the outlet on the power supply of this computer .

The highest emissions were recorded in the RFI test report .

3. RADIATED EMISSIONS TEST

3.1 GENERAL SETUP OF THE FACILITIES



3.2 TEST PROCEDURES

Radiated emissions test was carried out by **PEP Testing Laboratory** at the open field test site authorized by FCC .

The EUT and supporting equipments were setup with the EMI diagnostic software .

a. setting up the EUT under normally position , and scanning it from 30 MHz to 1000 MHz , then recording those narrow band noises which cannot be 6 dBuV below lower bound . Both horizontal and vertical antenna are measured from 1 meter height to 4.0 meter height , and turntable rotate 360 degrees .

b. fixing the EUT rear face to antenna and antenna 1.0 meter height . We adjusted I / O cables to find the highest coupling noise and moved the height of antenna from 1 to 4 meters , then rotated the turntable simultaneously .

c. checking following step b. all points which were recorded in step a.

d. changing the peripherals position , and routine steps a. b. c.

The highest emissions were recorded in the RFI test report .

4. DESCRIPTION FOR EUT TESTING CONFIGURATION

** **TEST PROCESURE - - - -**

(A)The EUT is RF Wireless Joystick, FCC ID: K5MRF-626U27F, Model RF-626U, it consists of one wireless transmitter supplied from DC3V (Battery 1.5V x2), and one receiver connected to USB port rated DC5V from PC. The transmitting frequency is operating either 27.145MHz or 27.045MHz which is controlled by one select switch at the bottom of Transmitter unit; we tested both of two frequencies and the worst case testing data of them was provided in this report. The effective transmitting distance of EUT system is more than 3 meters, we located both transmitter and receiver on turntable under test. For more detail information about the EUT, please refer to the user's manual.

(B)Test Method: EUT system including Transmitter and Receiver link with PC system are setup as a complete test system on turn table. The receiver of EUT connected to USB port of PC system, the PC operating system was setup to detect and enable every peripheral devices including EUT. Then, we press one key on the transmitter to enable game controller under Control panel of WIN98 for Tx-On and to run "EMITEST" for Tx-Off Mode, and the worst case testing data as the ANSI C63.4 requirement was recorded and provided in this report

(C) Test Mode: 1> For Conducted EMI---"Tx-Off" Mode
2> For Radiated EMI----"Tx-On" and "Tx-Off" Modes

(D) At the frequencies where the peak values of the emission exceeded the quasi-peak limit, the emissions were also measured with the quasi-peak detectors. The average detector also measured the emission either (A) quasi-peak values were under quasi-peak limit but exceeded average limit, or (B) peak values were under quasi-peak limit but exceeded average limit.

(E) For FCC Certification on this RF Wireless Joystick, we provided both the worst conducted and radiated emission test data for final reviewing

(F) Due to EUT sytem is Desktop type not Handheld type, only one orthogonal plane is tested for detecting the required EMI datas.

(G) EMI Debug Modification: A molding ferrite core is added on the data cable of EUT's receiver

5. SUPPORTING DEVICES TO TEST

1. Personal Computer (PC1)

CPU : Intel PⅢ 733 MHz
FCC ID：Declaration of Conformity(DoC)
Manufacturer：ASUS INC.
Model Number：P2-99
Power Supply：Switching
Power Cord：Non-Shielded, Detachable, 1.8m
Data Cable：1 > Shielded , Detachable,1.2m
2 > Back Shell : Metal

2. Keyboard (KBS1 PS/2)

FCC ID：E5XKB5121WTH0110
Manufacturer：BTC
Model Number： 5121W
Power Supply：+5Vdc from PS2 of PC
Power Cord：N/A
Data Cable：1 > Shielded , Non-detachable,1.6m
2 > Back Shell : Metal

3. Monitor (MON1 15")

FCC ID：Declaration of Conformity(DoC)
Manufacturer：SAMSUNG
Model Number：550S
Power Supply：Switching
Power Cord：Non-Shielded, Detachable, 1.8m
Data Cable：1 > Shielded , Non-detachable,1.2m
2 > Back Shell : Metal

4. Printer (PRN2)

FCC ID：Declaration of Conformity(DoC)
Manufacturer：EPSON
Model Number：P190A
Power Supply：Linear
Power Cable：Non-Shielded , Detachable,1.9m
Data Cable：1 > Shielded , Detachable,1m
2 > Back Shell : Metal

5. Modem (MOD1) × 2

FCC ID：IFAXDM1414
Manufacturer：ACEEX
Model Number：1414
Power Supply：Linear, 9Vac O/P
Power Cable：Non-Shielded , Detachable,1.7
Data Cable：**1 >** Shielded , Detachable,1m
2 > Back Shell : Metal

6. Mouse (MOUS/1 PS/2)

FCC ID：DZL211106
Manufacturer：ACER
Model Number：M-S42
Power Supply：+5Vdc from PS2 of PC
Power Cable：N/A
Data Cable：**1 >** Shielded , Non-detachable,1.8m
2 > Back Shell : Metal

EQUIPMENT UNDER TEST - - - - RF Wireless Joystick

Applicant	**:**	**CHARM WINNER CO., LTD.**
Model Number	**:**	**RF-626U**
Data Cable	**:**	**Shielded, Non-Detachable, 1.2m (Receiver)**
FCC ID	**:**	**K5MRF-626U27F**

6. TEST CONFIGURATION

Radiated emission detector function :

(1) 30MHZ~1GHZ : Quasi-Peak Value
Resolution BW : 120KHZ Video BW : 300KHZ

(2) above 1GHZ : Quasi-Peak value and Average Value
Resolution BW : 1MHZ Video BW : 1MHZ
*** either Q. P. or average value will be recorded in the report**

Conducted emission detector function :

(1) 450KHZ~30MHZ : Quasi-Peak Value
Resolution BW : 9KHZ Video BW : 30KHZ

The else descriptions : both PC systems were enabled by " H " characters pattern .

CONDUCTED TEST CONFIGURATION PHOTO.

< FRONT VIEW >

< REAR VIEW >

CONDUCTED EMISSIONS TEST DATA

Note : HOT LINE TEST

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
2.400	32.44	-15.56	48.00	31.58	0.20	0.66	-10.00
4.853	32.90	-15.10	48.00	31.89	0.22	0.79	-10.00
6.330	37.20	-10.80	48.00	36.25	0.25	0.70	-10.00
7.808	40.75	- 7.25	48.00	39.86	0.27	0.62	-10.00
8.547	39.90	- 8.10	48.00	38.96	0.28	0.66	-10.00
9.285	38.60	- 9.40	48.00	37.64	0.29	0.67	-10.00
11.502	37.58	-10.42	48.00	36.61	0.37	0.60	-10.00
22.672	28.62	-19.38	48.00	27.11	0.91	0.60	-10.00
25.479	39.51	- 8.49	48.00	37.84	1.04	0.63	-10.00
28.641	36.94	-11.06	48.00	34.94	1.30	0.70	-10.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

CONDUCTED EMISSIONS TEST DATA

Note : NEUTRAL LINE TEST

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
1.543	28.04	-19.96	48.00	27.18	0.20	0.66	-10.00
2.489	33.31	-14.69	48.00	32.46	0.20	0.65	-10.00
4.114	30.68	-17.32	48.00	29.77	0.20	0.71	-10.00
4.853	34.65	-13.35	48.00	33.64	0.22	0.79	-10.00
5.592	34.52	-13.48	48.00	33.54	0.24	0.74	-10.00
6.330	36.97	-11.03	48.00	36.02	0.25	0.70	-10.00
7.069	38.01	- 9.99	48.00	37.06	0.26	0.69	-10.00
7.808	40.59	- 7.41	48.00	39.70	0.27	0.62	-10.00
9.285	40.23	- 7.77	48.00	39.27	0.29	0.67	-10.00
17.855	35.35	-12.65	48.00	34.19	0.56	0.60	-10.00
24.799	36.84	-11.16	48.00	35.55	0.69	0.60	-10.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

RADIATED TEST CONFIGURATION PHOTO.

< FRONT VIEW >

< REAR VIEW >

RADIATED EMISSIONS TEST DATA

Transmitter (TX OFF)

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
48.430	24.69	-15.31	40.00	31.61	12.98	0.10	20.00
66.860	29.48	-10.52	40.00	37.62	11.76	0.10	20.00
100.810	21.72	-21.78	43.50	32.02	9.50	0.20	20.00
133.790	25.26	-18.24	43.50	32.33	12.83	0.10	20.00
169.680	23.45	-20.45	43.50	29.68	13.26	0.51	20.00
200.720	24.04	-19.46	43.50	32.21	10.93	0.90	20.00
278.320	26.29	-19.71	46.00	30.99	14.14	0.16	20.00
360.770	23.91	-22.09	46.00	28.25	14.78	0.88	20.00
426.730	23.61	-22.39	46.00	26.96	15.69	0.96	20.00
548.950	29.68	-16.32	46.00	29.66	18.37	1.65	20.00
749.740	38.47	- 7.53	46.00	34.43	22.54	1.50	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

RADIATED EMISSIONS TEST DATA

Transmitter (TX OFF)

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
37.760	30.89	- 9.11	40.00	37.49	13.30	0.10	20.00
48.430	26.16	-13.84	40.00	33.08	12.98	0.10	20.00
66.860	21.85	-18.15	40.00	29.99	11.76	0.10	20.00
135.730	20.83	-22.67	43.50	27.79	12.94	0.10	20.00
147.370	21.43	-22.07	43.50	27.45	13.88	0.10	20.00
250.190	24.89	-21.11	46.00	32.47	11.32	1.10	20.00
335.550	22.49	-23.51	46.00	26.78	14.70	1.01	20.00
427.700	24.95	-21.05	46.00	28.30	15.69	0.96	20.00
473.290	33.88	-12.12	46.00	34.56	17.95	1.37	20.00
866.140	38.62	- 7.38	46.00	33.39	22.70	2.53	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

RADIATED EMISSIONS TEST DATA

Transmitter (TX ON)

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
*27.144	57.77	-22.23	80.00	54.69	22.20	0.88	20.00
54.250	18.15	-21.85	40.00	25.34	12.71	0.10	20.00
67.830	17.70	-22.30	40.00	25.95	11.65	0.10	20.00
82.380	27.61	-12.39	40.00	37.73	9.38	0.20	20.00
94.990	16.55	-26.95	43.50	26.89	9.46	0.20	20.00
108.570	20.04	-23.46	43.50	28.95	10.93	0.16	20.00
123.120	20.83	-22.67	43.50	28.26	12.47	0.10	20.00
135.730	19.71	-23.79	43.50	26.67	12.94	0.10	20.00
162.890	27.75	-15.75	43.50	33.47	13.92	0.36	20.00
176.470	34.73	- 8.77	43.50	41.39	12.70	0.64	20.00
190.050	38.11	- 5.39	43.50	45.81	11.50	0.80	20.00
203.630	24.69	-18.81	43.50	32.71	11.06	0.92	20.00
217.210	25.80	-20.20	46.00	33.15	11.68	0.97	20.00
230.790	24.28	-21.72	46.00	31.38	11.88	1.02	20.00
244.370	25.52	-20.48	46.00	32.98	11.46	1.08	20.00
325.850	28.62	-17.38	46.00	32.86	14.70	1.06	20.00
392.780	30.87	-15.13	46.00	34.89	15.24	0.74	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

*. It is the Emission of Fundamental Freq. (EMCO Antenna Type 3142B rated 26M-2GHz)

RADIATED EMISSIONS TEST DATA

Transmitter (TX ON)

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
*27.144	47.98	-32.02	80.00	44.90	22.20	0.88	20.00
54.250	17.14	-22.86	40.00	24.43	12.71	0.00	20.00
82.380	22.46	-17.54	40.00	32.78	9.68	0.00	20.00
101.780	18.46	-25.04	43.50	28.82	9.64	0.00	20.00
162.890	22.08	-21.42	43.50	28.16	13.92	0.00	20.00
176.470	31.91	-11.59	43.50	39.21	12.70	0.00	20.00
190.050	40.04	- 3.46	43.50	48.54	11.50	0.00	20.00
203.630	25.68	-17.82	43.50	34.62	11.06	0.00	20.00
217.210	25.82	-20.15	46.00	34.17	11.68	0.00	20.00
244.370	24.33	-21.67	46.00	32.87	11.46	0.00	20.00
325.850	23.79	-22.21	46.00	29.09	14.70	0.00	20.00
407.330	23.96	-22.04	46.00	28.48	15.48	0.00	20.00

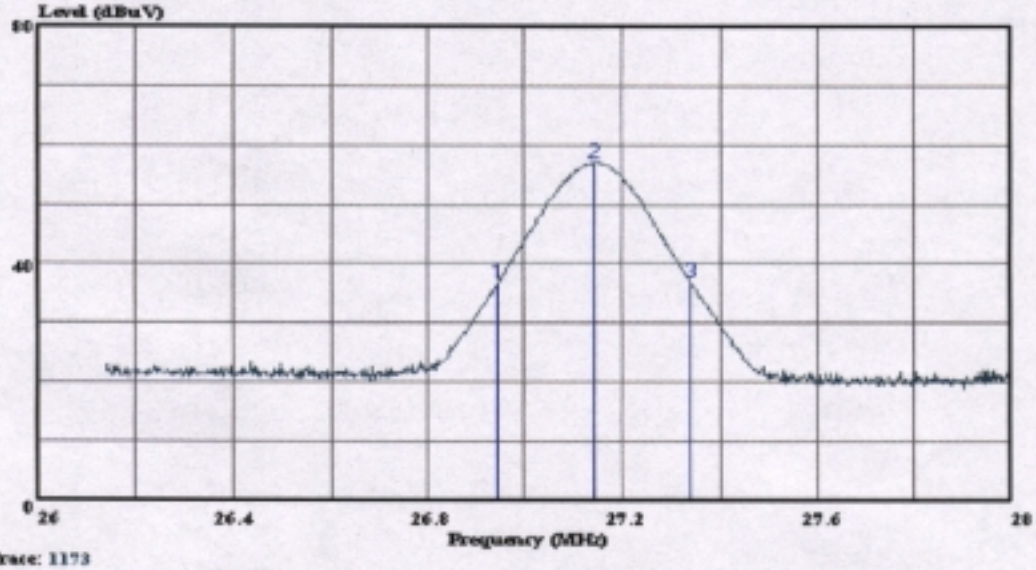
Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line
*. It is the Emission of Fundamental Freq. (EMCO Antenna Type 3142B rated 26M-2GHz)

OCCUPIED BANDWIDTH PLOT DATA

瑋鑫科技有限公司
PEP Testing Laboratory

Data#: 2116 File#: E2000.emi Date: 2001-07-20 Time: 09:40:37



Trace: 1173
Site : Chamber No.3(Jason Gong)-Linko Site
Condition:
eut : RF-626U
power :
memo : Peak Value
: FCC Section 15.227(b)

Page:

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB
1	26.946	36.75	------	------	36.75	0.00	0.00	0.00
2	27.144	57.04	------	------	57.04	0.00	0.00	0.00
3	27.340	36.88	------	------	36.88	0.00	0.00	0.00

APPENDIX A.
PHOTOS OF EUT APPEARANCE
< EUT FRONT VIEW >

< EUT REAR VIEW >

APPENDIX B.
List of Test Equipment

Emission	Instrument	Model No.	Serial No.	Next Cal. Date	Cal. Interval
Conduction (No.2)	HP Spectrum	8591A	3225A03039	Jun. 08, 2002	1Year
	R & S LISN	ESH2-Z5	831886/00A	Jan. 30, 2002	1Year
	Kyoritsu LISN	KNW-242	8-837-7	N/A	N/A
	RF Cable	No.4	N/A	Feb. 20, 2002	1Year
Radiation (OP No.2)	R & S Receiver	ESVS10	826148/012	Apr. 19, 2002	1Year
	Advantest Spectrum	R3261C	81720343	N/A	N/A
	Schaffner Pre-Amp.	CPA-9232	1015	Feb. 25, 2002	1Year
	R & S Pre-Amp.	ESMI-Z7	612278/011	Jun. 01, 2002	1Year
	EMCO Antenna	3142B	9909-1420	Jun. 01, 2002	1Year
	COM-Power Horn Ant.	AH-118	10056	Aug. 24, 2001	1Year
	RF Cable	No.1	N/A	Feb. 20, 2002	1Year
	SCHWARZBECK Precision Dipole Ant.	VHAP	970+971 953+954	Jun. 27, 2003	3Year
	R &S Signal Generator	SMY02	839846/038	Jan. 30, 2002	1Year