

**Test Report
Application for Certification
On Behalf Of
Microtek International Inc.**

**PC CAMERA
Model No.: USC-1**

FCC ID:EF9USC-1

**Prepared for:
Microtek International Inc.
No. 6, Industry East Road 3, Science-Based Industrial Park,
Hsinchu, Taiwan, R.O.C**



**Report By : Global EMC Standard Tech. Corp.
No.3 Pau-Tou-Tsuo Valley, Chia-Pau
Tsuen, Lin Kou Hsiang, Taipei Country,
Taiwan, R.O.C.
Tel : (02) 2603-5321
Fax : (02) 2603-5325**

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1. Test Report Certification

Applicant : Microtek International Inc.

Manufacturer : Microtek International Inc.

EUT Description : PC Camera

(A) FCC ID : EF9USC-1

(B) Model No. : USC-1

(C) Serial No. : ProtoType

(D) Test Power Supply : 110V/60Hz

(E) Rating Power Supply: 5V/DC

MEASUREMENT PROCEDURE USED :

CFR 47, Part 15 Radio Frequency Device Subpart B Unintentional Radiators Class **B** :1996

CISPR 22 Limits and methods of measurement of radio disturbance characteristics of information technology equipment: 1993

ANSI C63.4 Methods of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9kHz to 40GHz. :1992

THE MEASUREMENT SHOWN IN THE ATTACHMENT WERE MADE IN ACCORDANCE WITH THE PROCEDURES INDICATED, AND THE MAXIMUM ENERGY EMITTED BY THE EQUIPMENT WAS FOUND TO BE WITHIN THE FCC LIMITS APPLICABLE.



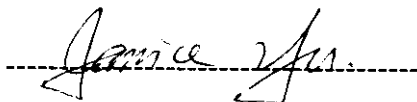
Sample Received Date : Aug. 12, 1998

Final Test Date : Aug. 24, 1998

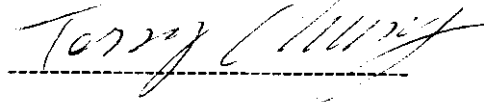
Documented by : Candy Liu

Test Engineer :

Approve & Authorized Signer :



JANICE YU



TERRY CHUNG

This test data shown below is traceable to NIST.

2. General Information

2.1 Production Description

Description	: PC CAMERA
Model Number	: USC-1
Serial Number	: ProtoType
Applicant	: Microtek International Inc.
Address	: No.6, Industry East Road 3, Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C
Manufacturer	: Microtek International Inc.
Address	: No.6, Industry East Road 3, Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C
FCC ID	: EF9USC-1

Test Mode: Display resolution 640*480, H-sync 31.4KHz, V-sync 60Hz, Camera output display on CRT continuously.

Note:

1. The data shown in this test report reflects the worst-case data for each operation mode.
2. The EUT is a digital video camera, use USB interface to connect to PC. Max 24 bit RGB color. O/P resolution can be upto max 704x576. Scanning speed 30 frame/sec. or 15 frame/sec. All different frame/resolution has been investigated to find the maximum emmission situation.

2.2 Tested System Details

☒ Host Personal Computer

PC Chassis : CHENBRO GROUP

Motherboard : Manufacturer: ASUS
M/N: TXP4-X,Rev.3.01
Serial No.:N/A
FCC ID: FCC DoC

CPU : Intel Pentium w/MMX 200MHz,Clock:66.6MHz

Floppy Disk Driver : Manufacturer: TEAC
3.5" #1 Model: FD-235HF
Serial No.:N/A

HDD : Manufacturer: Maxtor
M/N: 90432D3
Serial No.: K30JGCKA

CD-ROM : Manufacturer:Panasonic
Model: CR-583-J
Serial No.: 7307CKA13542
FCC ID: IUO9TB054CRR

ROM X2 : Manufacturer:Panasonic , 16MB

Disk Ctrl Card : On board

USB Card : On board

VGA Card : Manufacturer: Gainward
M/N:S3 Trio32/64
Serial No.:GFE21951
FCC ID: ICUVGA-GW407

Switching Power Supply : Manufacturer: MOREX
Model: MXA-200PTFY
Serial No.: N/A
FCC ID: FCC DoC

Power Cord : Non-Shielded, Detachable, 1.5m

☒ Monitor M01-012

Model Number : SyncMaster 700p

Serial Number : H3MH903257V

Manufacturer :SAMSUNG

FCC ID :A3LCGH760

BCIQ ID :3872A230

Data Cable : Shielded, Undetachable, 1.2m

Power Cord : Shielded, Detachable, 2m

☒ Keyboard K01-024

Model Number : 5140
Serial Number : A73281201
FCC ID : E5XKBM10510
Manufacturer : BTC
Data Cable : Sheiled, Undetachable, 1.2 m

☒ Printer P01-011

Model Number : C2642A(DJ-400)
Serial Number : MY7951C4J5
FCC ID : B94C2642X
Manufacturer : HP
Data Cable : Shielded, Detachable, 1.5m
Adaptor & Power Cord : AC 110V, 60Hz To DC 30V
: Non-Shielded, Detachable, 2m

☒ Modem M03-011

Model Number : 1414
Serial Number : 960018041
FCC ID : IFAXDM1414
Manufacturer : ACEEX
Adaptor & Power Cord : Non-Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 2m

☒ Modem M03-009

Model Number : 1414
Serial Number : 960018052
FCC ID : IFAXDM1414
Manufacturer : ACEEX
Adaptor & Power Cord : Non-Shielded, Detachable, 1.2m
Data Cable : Shielded, Undetachable, 2m

☒ Mouse(PS2) M02-027

Model Number : MUS3P
Serial Number :
FCC ID : JKGMUS3P01
Manufacturer : Tremon Enterpnses Co., Ltd.
Data Cable : Shielded, Undetachable, 1.5m

2.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4-1992.

Radiated testing was performed at an antenna to EUT distance of 3 meters.

2.4 Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	23-35
Humidity (%RH)	25-75	50-60
Barometric pressure (mbar)	860-1060	950-1000

FCC Site Description : Aug. 25, 1995 File on
Federal Communication Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2

NVLAP Lab Code : 200085-0
United States Department of commerce
National Institute of Standards and Technology
National Voluntary Laboratory Accreditation Program

Name of firm : Global EMC Standard Tech. Corp.

Site location : No. 3 Pau-Tou Valley, Chia-Pau Tsuen, Lin Kou
Hsiang, Taipei County, Taiwan, R.O.C.

3. Conducted Power Line Test

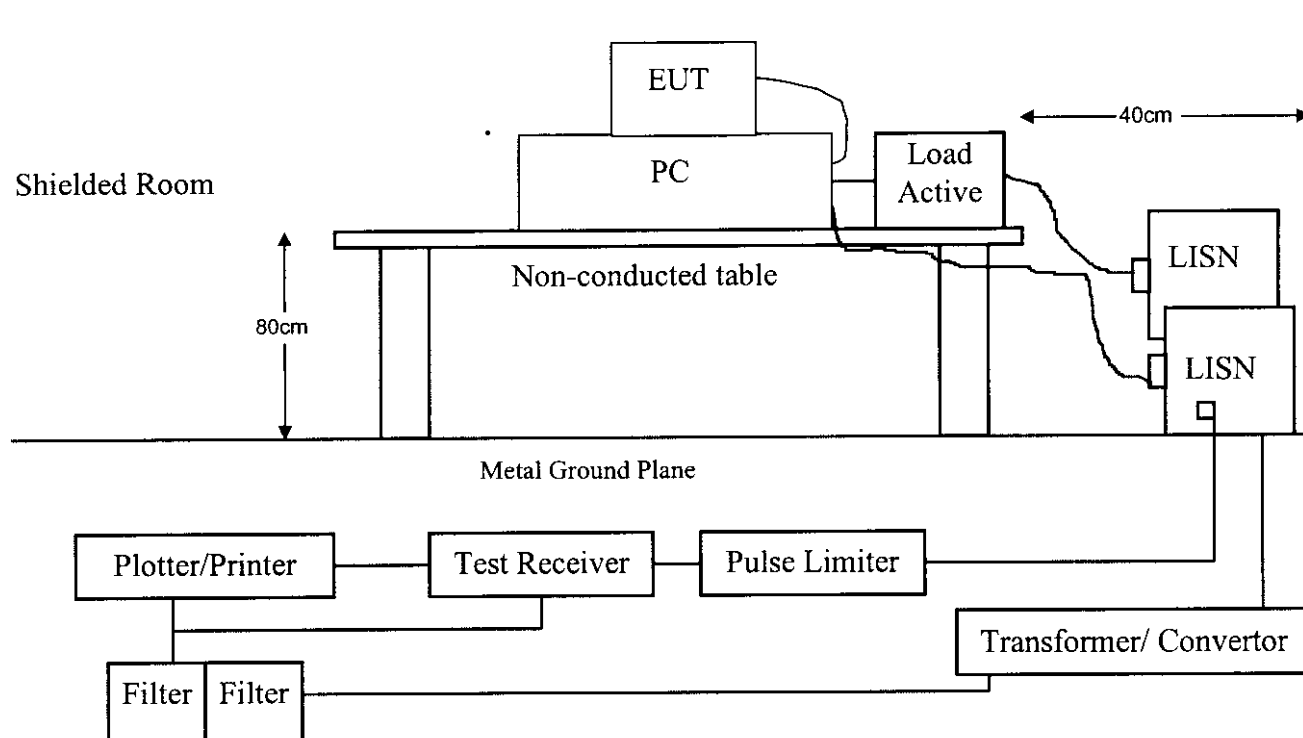
3.1 Test Equipments

The following test equipments are used during the conducted power line tests:

Instrument	Manufacturer	Type /Serial No.	Last Calibration	Location	C.E.
Test Receiver	Rohde & Schwarz	ESHS 30 / 8281091010	Dec. 24, 1997	Shield Room #1	✓
L.I.S.N.	Kyoritsu	KNW-407	Aug.10,1998	Shield Room #1	
L.I.S.N.	Solar	8012-50-R24 / 90038	Jun. 02, 1998	Shield Room #1	✓
L.I.S.N.	EMCO	3825/2 / 91111-1902	Aug.10,1998	Shield Room #1	
L.I.S.N.	Rohde & Schwarz	ESH3-Z5 / 840567/002	Jun. 02, 1998	Shield Room #1	✓
L.I.S.N.	Schwarzbeck	NNLK 8121	Apr. 10, 1998	Shield Room #1	
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	Jan. 11, 1998	Shield Room #1	✓

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2 Block Diagram of Test Setup



3.3 Conducted Powerline Emission Limit

3.3.1 FCC Limits

Frequency	Maximum RF Line Voltage			
	Class A		Class B	
MHz	uV	dBuV	uV	dBuV
0.45 - 1.705	1000	60.0	250	48.0
1.705 - 30	3000	69.5	250	48.0

Remarks : 1. RF Line Voltage (dBuV) = $20 \log$ RF Line Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3.3.2 CISPR Limits

Frequency	Maximum RF Line Voltage dB(uV)			
	Class A		Class B	
MHz	QUASI-PEAK	AVERAGE	QUASI-PEAK	AVERAGE
0.15 - 0.50	79	66	66-56	56-46
0.50-5.0	73	60	56	46
5.0 - 30	73	60	60	50

Remarks : In the Above Table, the tighter limit applies at the band edges.

3.4 EUT Configuration on Measurement

The equipments which is listed 3.2 are installed on Conducted Power Line Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.5 EUT Exercise Software

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to a typical use. The exercise sequence is listed as below:

- 3.5.1 Setup the EUT and simulators as shown on 3.2
- 3.5.2 Turn on the power of all equipments.
- 3.5.3 Run Window 98 to the PC Camera assign program and setup to appropriated resolution
- 3.5.4 The display screens open to the maximum.
- 3.5.5 PC sent "H" pattern to Modem port.
- 3.5.6 PC sent "H" pattern to Printer port.
- 3.5.7 Repeat the above procedure 3.5.5 to 3.5.6

3.6 Conducted Emission Data

The measurement range of conducted emission which is from **0.15 MHz to 30 MHz** was investigated. All readings are quasi-peak and average values with a resolution Bandwidth of 9 KHz. The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range for all the test modes. Then the worst modes were reported the following data pages.

The total uncertainty for this test is as follows:

- Uncertainty in the field strength measured: $< \pm 2.0 \text{ dB}$

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

CONDUCTED EMISSION DATA

Date of Test	: Aug. 17, 1998	Temperature	: 33.5
EUT	: PC Camera	Humidity	: 60 %
Test Mode	: USC-1	Display Pattern	: Video Figure

FREQUENCY	READING LEVEL				LIMITES
	LINE 1		LINE 2		
MHz	dB μ V	μ V	dB μ V	μ V	μ V
0.23002	30.8	34.67	32.0	39.81	250
0.42668	29.3	29.17	29.9	31.26	250
**1.05048	31.0	35.48	29.8	30.90	250
2.91119	26.1	20.18	25.8	19.50	250
12.40521	19.7	9.66	18.3	8.22	250
21.50195	26.0	19.95	24.7	17.18	250

Remarks : 1. All readings are Quasi-peak and average values.

2. “ * ” means that the quasi-peak reading level is lower then the average limits, it is not necessary to measure the average level.

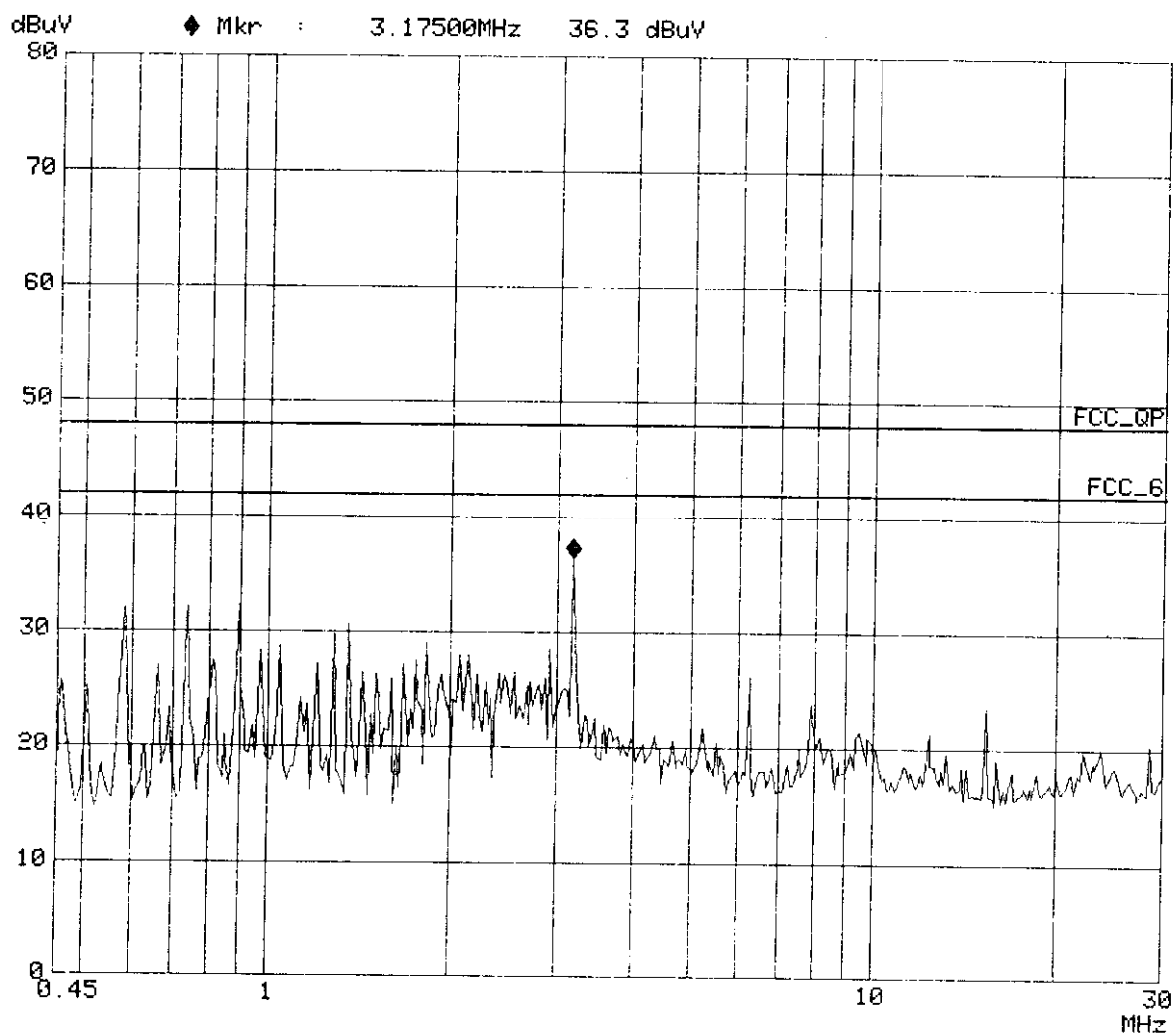
3. “ ** ” means that this data is the worse case emission level.

Attached 2 individual pages of peak scan curve data sheets.

ROHDE & SCHWARZ ESHS 30

GesTek, PowerLine Conducted Emission

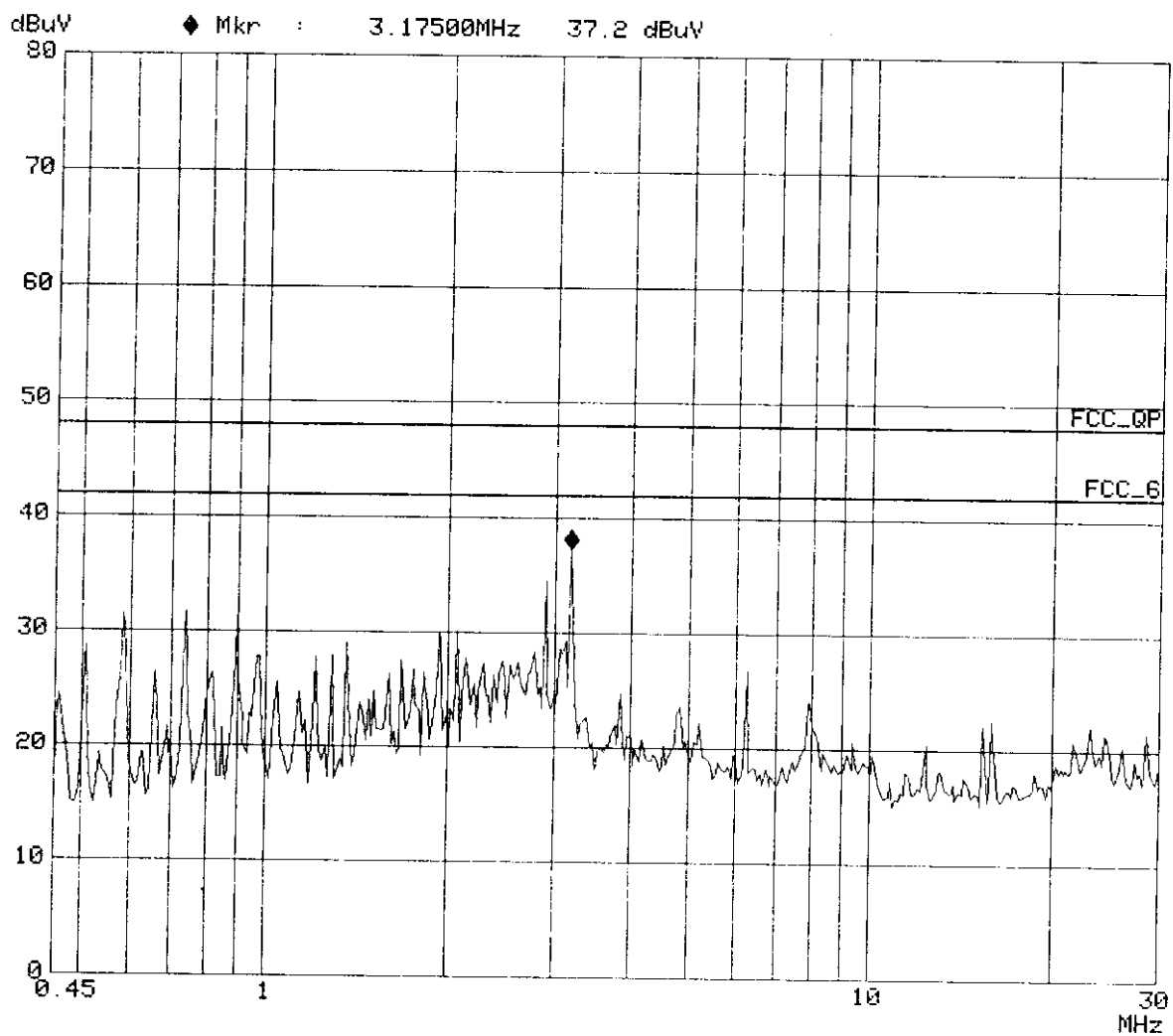
EUT: PC CAMERA
Manuf: MICROTEK INTERNATIONAL INC.
Operator: JANICE
Test Spec: FCC B
Comment: Line 1
M/N: USC-1
Date: 17. Aug 98 15:48



ROHDE & SCHWARZ ESHS 30

GesTek, PowerLine Conducted Emission

EUT: PC CAMERA
Manuf: MICROTEK INTERNATIONAL INC.
Operator: JANICE
Test Spec: FCC B
Comment: Line 2
M/N:USC-1
Date: 17. Aug 98 15:33



4. Radiation Emission Test

4.1 Test Equipment

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

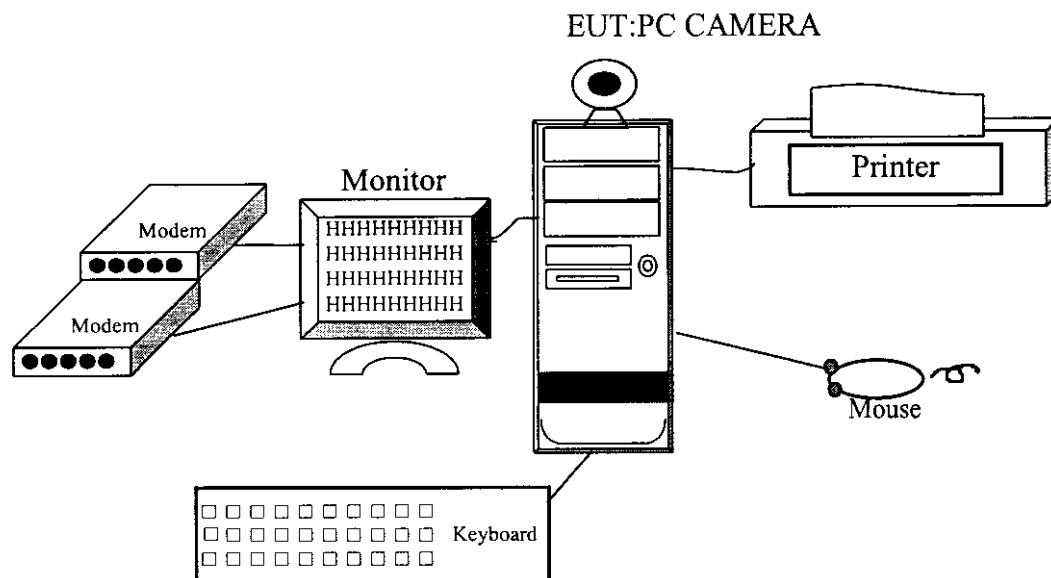
Radiated test was performed on : ☒ Site #1 ☐ Site #2

Instrument	Manufacturer	Type /Serial No.	Last Calibration	Site #1	Site #2
Test Receiver	Rohde & Schwarz	ESVS 30/829007/014	Nov. 15,1997	✓	
Spectrum Analyzer	Anristu	MA2601B/MT16442	Jun. 15,1998	✓	
Pre-Amplifier	HP	7447F/3113A04998	Nov. 16,1997	✓	
Test Receiver	Rohde & Schwarz	ESVS 10/8421122/001	Dec. 26,1997		✓
Spectrum Analyzer	HP	8568B/4315B05847	Jan. 05,1998		✓
Pre Amplifier	HP	8447D/3113A04487	Jan. 05,1998		✓
Antenna 30Mhz-2Ghz	Chase	CBL 6112/2039	May. 16,1998	✓	
Bilog Antenna	Chase	CBL6111/1380	May. 16,1998		✓
Dipole Antenna	Schwarzbeck	VHAP/719,UHAP/736	May.19,1998		

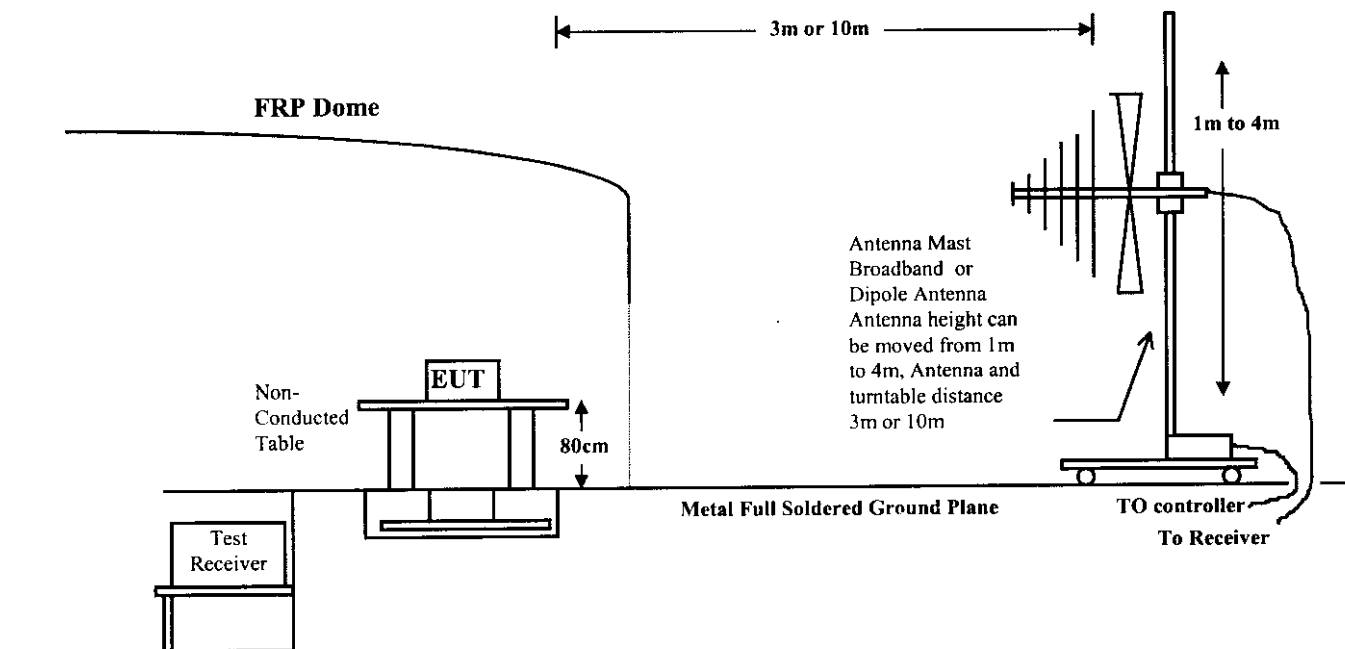
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

4.2 Test Setup

4.2.1 Block Diagram of Connections between EUT and simulators



4.2.2 Open Test Site Setup Diagram



4.3 Radiated Emission Limit

4.3.1 FCC Class B Limits at 3m

Frequency	Distance	Field Strength	
MHz	Meter	uV/M	dBuV/M
30 - 88	3	100	40.0
88 - 216	3	150	43.5
216 - 960	3	200	46.0
960 - 2000	3	500	54.0

4.3.2 CISPR Class B Limits at 10m

Frequency	Distance	Field Strength
MHz	Meter	dB(uV/M)
30 - 230	10	30
230 - 1000	10	37

- Remark :
1. The tighter limit shall apply at the edge between two frequency bands.
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4 EUT Configuration

The equipments which is listed 4.2.1 are installed on Radiated Emission Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

4.5 Operating Condition of EUT

Same as Conducted Power Line Test which is listed in 3.5.

4.6 Radiated Emission Data

The measurement range of radiated emission which is from 30 MHz to 1 GHz was investigated. All readings are quasi-peak values with a resolution Bandwidth of 120 KHz. The initial step in collecting radiated emission data is a spectrum analyzer peak scan of the measurement range for all the test modes. Then the worst modes were reported the following data pages.

The total uncertainty for this test is as follows:

- Uncertainty in the field strength measured (3m antenna distance): $< \pm 4$ dB
- Uncertainty in the field strength measured (10m antenna distance): $< \pm 4$ dB

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

Radiated Emission Data

Date of Test :08-24,1998 Mon Temperature :27 deg/C
 EUT :PC CAMREA Humidity :65 %RH
 Working Cond.:M/N:USC-1 Display Pattern:N/A

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Reading Level Horizontal (dBuV/m)	Emission Level Horizontal (dBuV/m)	(uV/m)	Limits (uV/m)
30.407	0.90	20.10	9.90	30.90	35.08	100
34.752	0.82	17.34	12.85	31.01	35.54	100
66.817	1.20	6.22	17.54	24.96	17.70	100
119.976	1.50	12.35	22.82	36.67	68.15	150
200.452	2.20	10.00	24.34	36.54	67.14	150
214.809	2.29	10.79	21.37	34.45	52.79	150
229.131	2.38	11.48	18.86	32.72	43.24	200
257.773	2.55	12.58	19.53	34.67	54.12	200
*286.415	2.79	13.00	24.05	39.84	98.19	200
300.733	2.91	13.20	22.48	38.59	84.97	200
329.377	3.08	13.85	17.04	33.97	49.95	200
343.699	3.16	14.15	16.60	33.92	49.63	200
372.341	3.37	15.38	15.54	34.29	51.85	200
429.621	3.72	17.02	15.61	36.35	65.67	200
515.545	3.99	17.88	13.44	35.30	58.23	200
544.187	4.17	18.47	10.97	33.60	47.89	200

- Remarks:
1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. " * ", means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss
 4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :08-24,1998 Mon Temperature :27 deg/C
 EUT :PC CAMREA Humidity :65 %RH
 Working Cond.:M/N:USC-1 Display Pattern:N/A

Frequency	Cable	Antenna	Reading Level	Emission Level	Limits	
	Loss	Factor	Vertical	Vertical		
(MHz)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(uV/m)	(uV/m)
66.820	1.20	6.22	20.58	28.00	25.11	100
119.975	1.50	12.35	19.79	33.64	48.08	150
157.532	2.09	10.48	14.05	26.62	21.43	150
200.451	2.20	10.00	25.68	37.88	78.34	150
272.097	2.68	12.80	23.24	38.72	86.32	200
*286.414	2.79	13.00	27.91	43.70	153.13	200
315.055	2.99	13.50	18.67	35.16	57.28	200
343.694	3.16	14.15	21.45	38.77	86.75	200
400.980	3.60	16.80	11.83	32.23	40.90	200
472.582	3.85	17.39	16.47	37.71	76.79	200
529.869	4.08	18.19	12.17	34.44	52.73	200
558.510	4.25	18.66	13.30	36.22	64.68	200
630.111	4.62	19.30	11.27	35.18	57.42	200
658.755	4.77	19.48	8.77	33.02	44.79	200
759.002	5.46	19.86	5.95	31.27	36.59	200

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. “ * ”, means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss
 4. Deviations from the specifications: None.