

5. CONDUCTED POWER LINE TEST

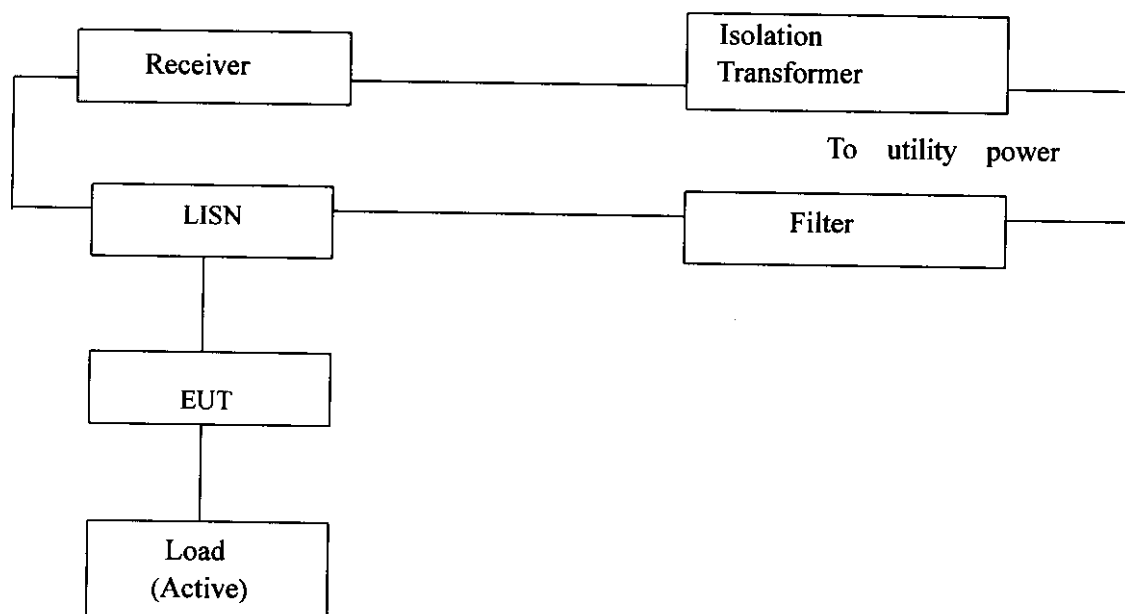
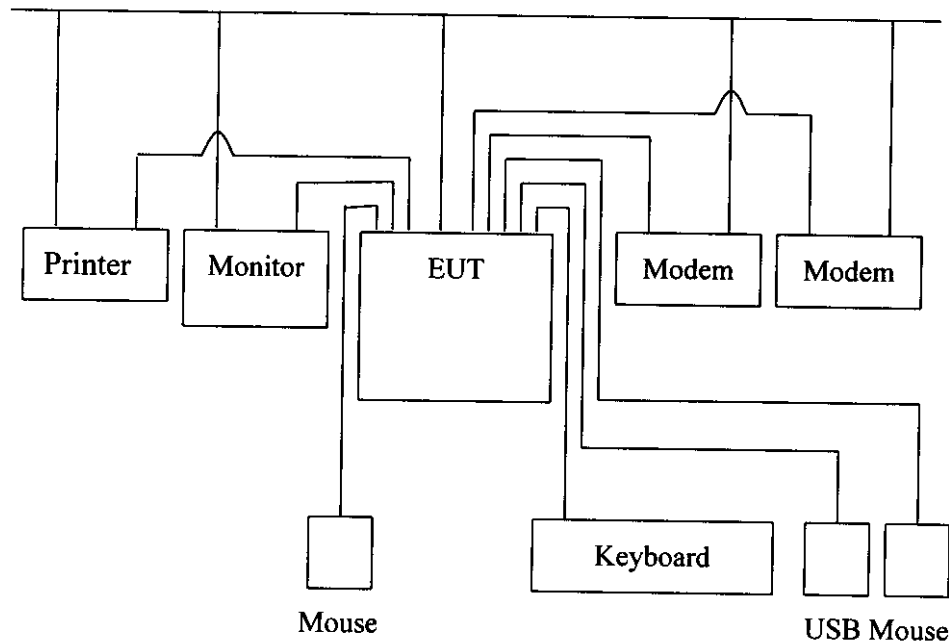
5.1 TEST EQUIPMENT

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

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
SPECTRUM ANALYZER	9 KHz TO 1 GHz	HP	8590L/ 3624A01317	AUGUST 1998 ETC	1Y	
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	AUGUST 1998 ETC	1Y	
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50- R24-BNC/ 951315	AUGUST 1998 ETC	1Y	
LISN	50uH, 50 ohm	SOLAR ELECTRONICS	9252-50- R24-BNC/ 951318	AUGUST 1998 ETC	1Y	
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1999 ETC	1Y	
POWER CONVERTER	0 TO 300 VAC VAC 47-500 Hz	AFC	AFC-1KW/ 850510	MARCH 1999 ETC	1Y	

5.2 TEST PROCEDURE

The EUT was tested according to ANSI C63.4-1992. The frequency spectrum from 0.45 MHz to 30 MHz was investigated. The LISN used was 50 ohm/50 uHenry as specified by section 5.1 of ANSI C63.4-1992. Cables and peripherals were moved to find the maximum emission levels for each frequency.

5.3 TEST SETUP

5.4 CONFIGURATION OF THE EUT

The EUT was configured according to ANSI C63.4 - 1992. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

DEVICE	MANUFACTURER	MODEL #	FCC ID / DoC
PC SYSTEM	TURBO GUIDE INC.	P2-BX	ONBP2-BX

B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	FCCID / DoC
MAIN BOARD	TURBO GUIDE	P2-BX	DoC
POWER SUPPLY	DTK	PTP-3018	DoC
VGA CARD	ASUS	V3000	DoC
HDD	MAXTOR	K20CKJ4A	N/A
FDD(3.5")	PANASONIC	JU-257A606P	N/A

C. PERIPHERALS

DEVICE	MANUFACTURER	MODEL #	FCC ID / DoC	CABLE
MONITOR	PHILIPS	14B1320W	A3KM064	1.8m unshielded power cord 1.5m shielded data cable(S2)
PRINTER	HP	2225C	BS46XU225C	1.8m unshielded power cord 1.2m shielded data cable
MODEM	SMARTEAM	103/212A	EF56A5103/212/A	1.8m unshielded power cord 1.2m shielded data cable(S2)
MODEM	SMARTEAM	103/212A	EF56A5103/212A	1.8m unshielded power cord 1.2m shielded data cable(S2)
KEYBOARD	HP	SK-2502	GYUR41SK	1.8m unshielded data cable
MOUSE	HP	M-S34	DZL211029	1.8m unshielded data cable
USB MOUSE	ABIT	97M32U	M5497M32U	1.5m shielded data cable
USB MOUSE	ABIT	97M32U	M5497M32U	1.5m shielded data cable

- REMARK :

- (1). Cable - S1 : Single point shielding.
S2 : 360° shielding.
S3 : Double point shielding
- (2). Cables - All 1m or greater in length - bundled according to regulations.

5.5 EUT OPERATING CONDITION

Operating condition is according to ANSI C63.4 - 1992.

1. EUT power on.
2. "H" pattern sent to the following peripherals :
 - printer
 - monitor
 - modem * 2
3. Test with CPU
CPU : Intel Pentium III 500MHz
Clock chip : 100MHz

5.6 CONDUCTED POWER LINE EMISSION LIMITS

FREQUENCY RANGE (MHz)	CLASS A	CLASS B
0.45 - 1.705	1000 uV	250 uV
1.705 - 30	3000 uV	250 uV

NOTE : In the above table, the tighter limit applies at the band edges.

5.7 CONDUCTED POWER LINE TEST RESULTS

The frequency spectrum from 0.45 MHz to 30 MHz was investigated. All readings are quasi-peak values with a resolution bandwidth of 9 KHz.

Temperature : 23 °C

Humidity : 30 %RH

QUASI-PEAK

FREQUENCY (MHz)	LINE1 (uV)	LINE2 (uV)	LIMIT (uV)
0.50	173.78	171.79	250
0.77	101.15	108.39	250
1.38	101.15	*	250
2.39	56.88	66.83	250
3.87	*	50.11	250
9.00	41.20	*	250
18.29	*	21.37	250

- REMARKS :** (1). * = Measurement does not apply for this frequency
(2). Uncertainty in conducted emission measured is <+/-2dB
(3). Any departure from specification : N/A
(4). CPU : Intel Pentium III 500MHz, clock chip: 100MHz

SIGNED BY TESTING ENGINEER :

Charge

6. RADIATED EMISSION TEST**6.1 TEST EQUIPMENT**

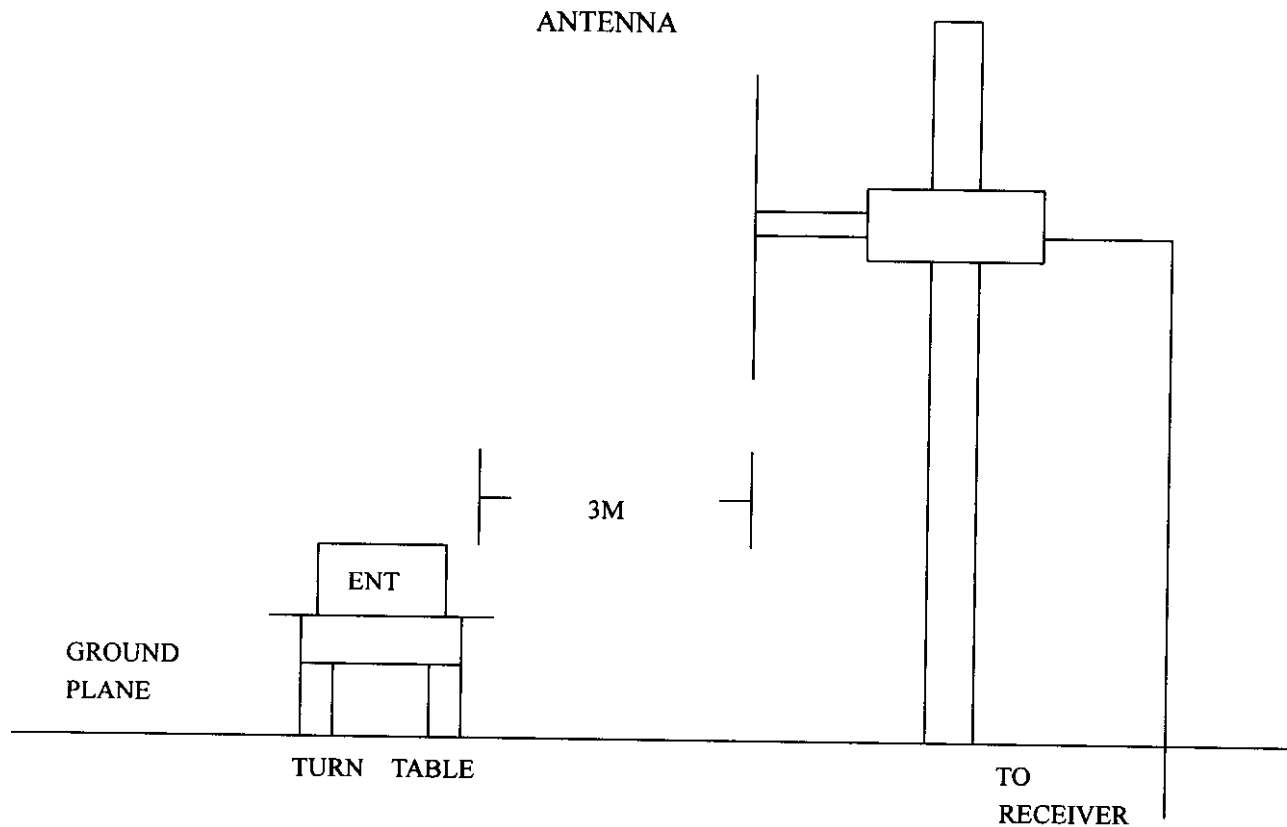
The following test equipments were used during the radiated emission test :

EQUIPMENT / FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL # / SERIAL #	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS30/841977/003	APRIL 1999 ETC	1Y	
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/3019A05294	OCT. 1998 ETC	1Y	
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/3322A00670	MAY 1999 ETC	1Y	
SPECTRUM ANALYZER	100 Hz TO 1000 MHz	IFR	A-7550/2684/1248	JULY 1999 ETC	1Y	
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/841104/019	APRIL 1999 ETC	1Y	
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/9003-534	MAR. 1999 SRT	1Y	
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/9611-1239	SEP. 1998 SRT	1Y	
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/9608-1073	SEP. 1998 SRT	1Y	
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/9509-1152	SEP. 1998 SRT	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/2944A08402	APRIL 1999 ETC	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/2944A06412	AUGUST 1998 ETC	1Y	
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/9012-3619	JAN. 1999 EMCO	1Y	

6.2 TEST PROCEDURE

- (1).The EUT was tested according to ANSI C63.4-1992. The radiated test was performed at SRT lab's open site. this site is on file with the FCC laboratory division, reference 31040/SIT.
- (2).The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-1992.
- (3).The frequency spectrum from 30 MHz to 2 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
- (4). The antenna high were varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5). The antenna polarization : Vertical polarization and horizontal polarization.

6.3 RADIATED TEST SET-UP

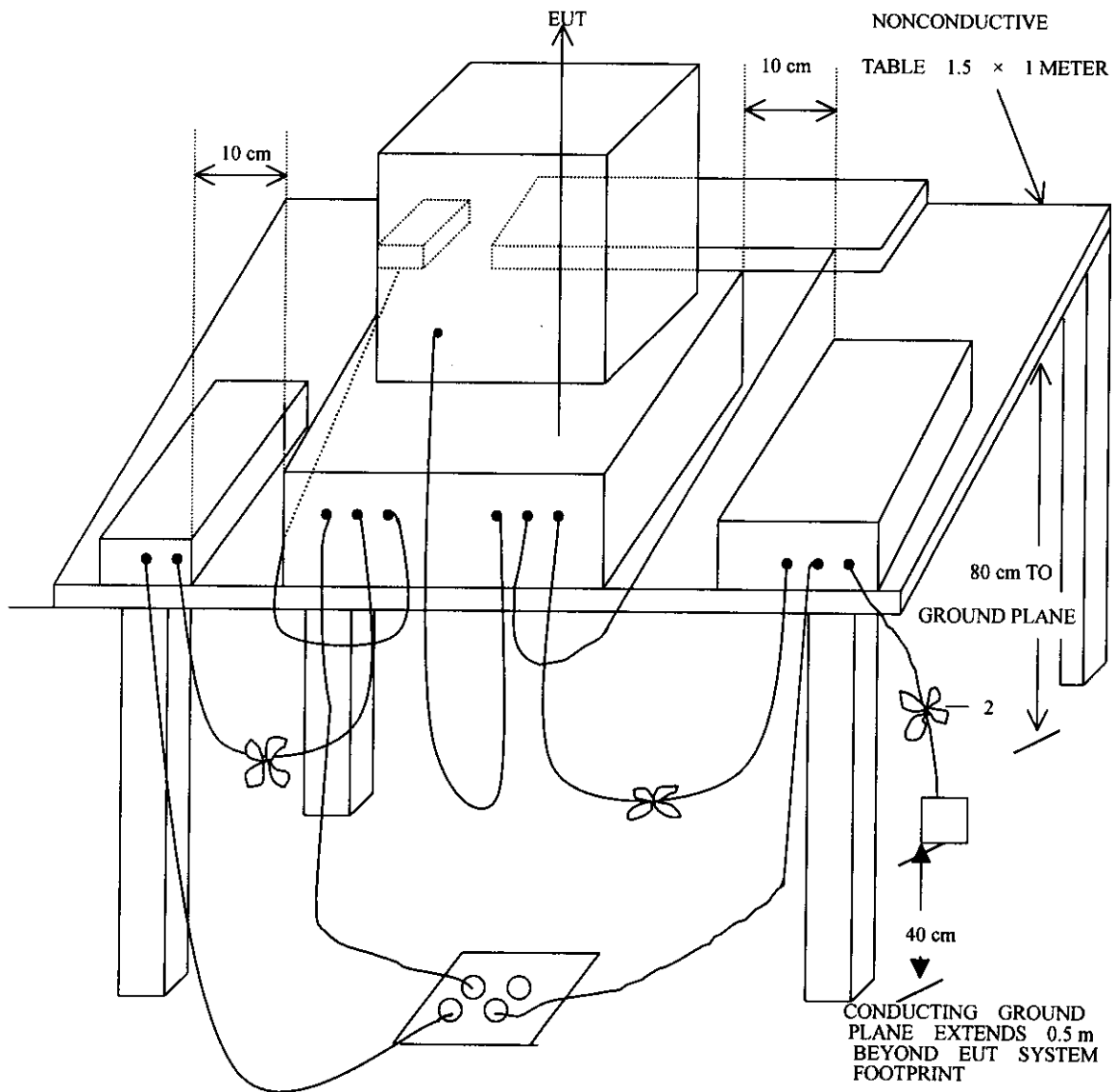


6.3 RADIATED TEST SET-UP

ANSI

ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE RANGE IN THE RANGE OF 9 KHz TO 40 GHz

C63.4-1992



6.4 CONFIGURATION OF THE THE EUT

Same as section 4.4 of this report

6.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.

6.6 RADIATED EMISSION LIMITS

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below :

CLASS B

FREQUENCY (MHz)	DISTANCE (m)	FIELDS STRENGTH (uV/m)
30 - 88	3	100
88 - 216	3	150
216 - 960	3	200
ABOVE 960	3	500

CLASS B (OPEN CASE)

FREQUENCY (MHz)	DISTANCE (m)	FIELDS STRENGTH (uV/m)
30 - 88	3	199.5
88 - 216	3	298.5
216 - 960	3	398.1

CLASS A

FREQUENCY (MHz)	DISTANCE (m)	FIELDS STRENGTH (uV/m)
30 - 88	3	316.3
88 - 216	3	473.2
216 - 960	3	613.0
ABOVE 960	3	1000.0

- NOTE :** 1. In the emission tables above, the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

6.7 RADIATED EMISSION TEST RESULTS

The frequency spectrum from 30 MHz to 2 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.

Temperature : 35 °CHumidity : 50 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (uV/m)		LIMITS (uV/m)
			HORIZ	VERT	HORIZ	VERT	
40.37	0.5	12.4	*	22.8	*	60.9	100
48.20	0.5	10.7	*	24.1	*	58.2	100
85.11	0.8	8.3	*	22.5	*	38.0	100
85.47	0.8	8.3	27.3	*	66.0	*	100
160.83	1.1	10.7	22.0	*	48.9	*	150
199.39	1.2	12.2	21.1	*	53.0	*	150
224.10	1.2	13.4	19.8	*	52.4	*	200

- REMARKS :** (1). *= Measurement does not apply for this frequency.
 (2). Uncertainty in radiated emission measured is <+/-4dB
 (3). Any departure from specification : N/A
 (4). Factor will include cable loss and correction factor.
 (5). Sample calculation

$$20 \log (\text{emission}) \text{ uV/m} = \text{Factor (dB)} + \text{Ant. Factor (dB/m)} + \text{reading (dBuV)}$$

 (6). CPU: Intel Pentium III 500 MHz, clock chip : 100 MHz

SIGNED BY TESTING ENGINEER :

Charge