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Electronics Research & Service Organization
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ELECTROMAGNETIC INTERFERENCE TEST REPORT

Company : Compeye Corporation
Address : 11, Lane 596, Chien Hsing Road Sec. 2, Hsinfeng, Hsinchu, Taiwan, R.O.C.
Sample Name : SCANNER
Model : DP30A
Data Applies to : DP36A
Date Received : MAY.15, 1998
Date Tested : JUN.04, 1998

MEASUREMENT PORCEDURE USED :
CISPR 22, CLASS B, 1996

WE HEREBY CERTIFY THAT: The measurements shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable. We assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

	Name	Signature	Date
Testing Engineer	C.F.Wu/NVLAP	C. F. Wu	Jul. 03, 1998
Approving Manager	Paul Y. Liau/NVLAP	Paul Y. Liau	Jul. 03, 1998

Notes :
1. This report will be invalid if duplicated or photocopied in part.
2. This report refers only to the specimen(s) submitted to testing, and be invalid as seperately used.
3. This report is invalid without examination stamp and signature of this institute.
4. The tested specimen(s) will be preserved for thirty days from the date issued.
5. This is a NIST/NVLAP accrediated report but not constituted and endorsed by US government.

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1. GENERAL INFORMATION

1.1 DESCRIPTION OF EUT

COMPANY : Compeye Corporation

SAMPLE NAME : SCANNER

MODEL NUMBER : DP30A

SERIAL NO. : ----------

POWER SUPPLY : 120VAC/60Hz

POWER CORD : Unshielded cable

SIGNAL CABLE : Shielded cable (1.5m)

1.2 DESCRIPTION OF PERIPHERALS

(1) PC

MODEL NUMBER : Netserver LD Pro 6/180
SERIAL NUMBER : SG70100107
MANUFACTURER : HP CORP.
FCC ID : B94HPLS107
POWER CORD : Unshielded , Detachable , 1.8m

(2) MONITOR

MODEL NUMBER : JC-1538VMA
SERIAL NUMBER : 5508837EA
MANUFACTURER : HP CORP.
F.C.C. ID : A3DJC-1538VMA
POWER CORD : Unshielded , Detachable , 1.8m

(3) KEYBOARD

PRODUCT NUMBER : C1405C #AB0
MANUFACTURER : HP CORP.
SERIAL NUMBER : 3625M60107
POWER SOURCE : 5VDC（FROM PC）
FCC ID : B94C1405X

(4) MOUSE

MODEL NUMBER : M-S34
MANUFACTURER : HP CORP.
SERIAL NUMBER : LZA65252306
POWER SOURCE : 5VDC（FROM PC）
FCC ID : DZL211029

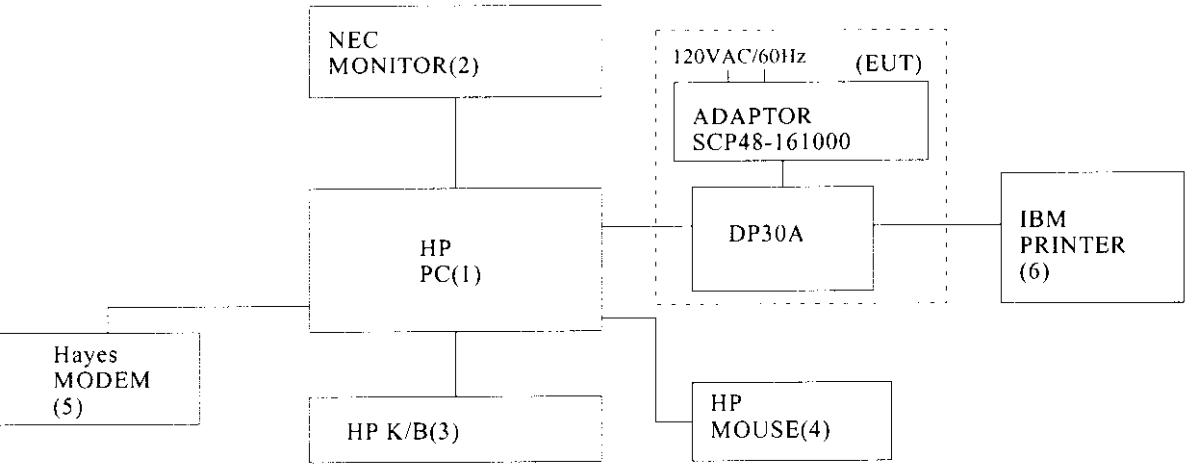
(5) MODEM

MODEL NUMBER : 4007AM
SERIAL NUMBER : A10740073303
MANUFACTURER : Hayes CORP.
FCC ID : BFJ4000AM
POWER SUPPLY : 9 VAC（FROM AC ADAPTOR）

(6) PRINTER

MODEL NUMBER	: 5152-002
SERIAL NUMBER	: 0754365
MANUFACTURER	: IBM CORP.
FCC ID	: BKM9A85152002
POWER CORD	: Shielded , Detachable , 1.8m

1.3 EUT & PERIPHERALS SETUP DIAGRAM



The indicated numbers(1)(2).....,please refer to 1.2

1.4 EUT OPERATING CONDITION

1. Powered on of all equipments.
2. Ran software "Scan 32.EXE" program, it was buile to Win95.
   This scanner would work continuously back and forth.
3. Repeated these procedure untill test ok.

1.5 DESCRIPTION OF OPEN SITE

SITE DESCRIPTION : FCC certificate NO. :31040/SIT
DNV certificate NO. : 510-96-1016
TUV R. certificate NO. :I9664582-9610
Lloyd's certificate NO. :LA003
BCIQ certificate NO. :SL2-IN-E-02
NVLAP Lab code :200118-0
CNLA certificate NO. : CNLA-ZL97018
VCCI certificate NO. :R-629, C-650

NAME OF SITE : Electronics Research & Service Organization
Industrial Technology Research Institute

SITE LOCATION : K500, 195-4 , sec. 4, Chung Hsing Rd.,
Chu-Tung Chen. Hsin-Chu, Taiwan 31015 R.O.C.

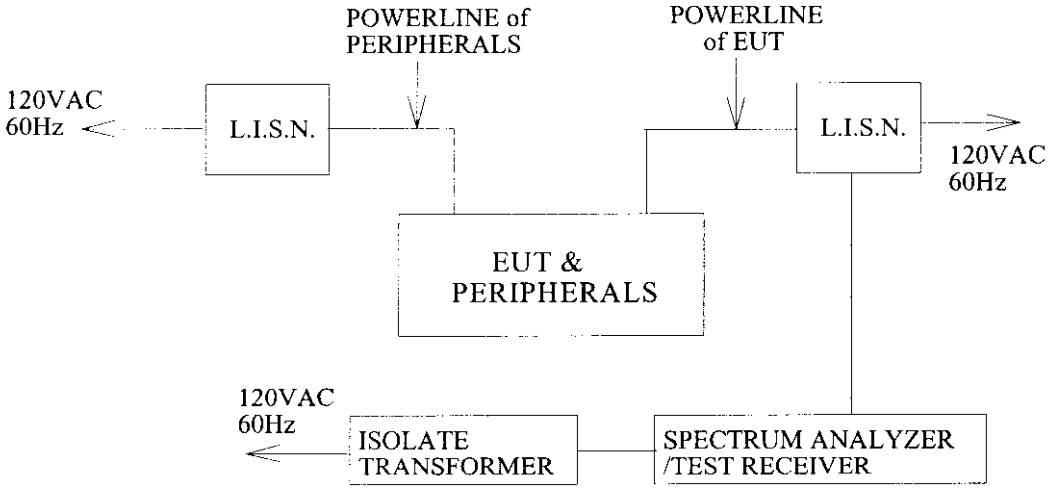
2. CONDUCTED POWERLINE TEST

2.1 TEST EQUIPMENTS

The following test equipments are used during the conducted powerline tests :

MANUFACTURER OR TYPE	MODEL No.	SERIAL No.	DATE OF CALIBRATION
SPECTRUM ANALYZER & DISPLAY	HP 8568A	2235A02320	MAR. 05, 1998
QUASI-PEAK ADAPTER	HP 85650 A	2341A00672	MAR. 05, 1998
ISOLATION TRANSFORMER	SOLAR 7032-1	N/A	N/A
L.I.S.N.	EMCO 3850/2	9311-1025 9401-1028	MAR. 24. 1998
TEST RECEIVER	R/S ESH3	8720791118	MAR. 13, 1998
SHIELDED ROOM	KEENE 5983	N/A	N/A

2.2 TEST SETUP



2.3 CONDUCTED POWER LINE EMISSION LIMIT

FREQUENCY	MAXIMUM RF LINE VOLTAGE (dB μ V)			
	CLASS A		CLASS B	
(MHz)	Q.P	Ave	Q.P	Ave
0.15 - 0.50	79	66	66-56	56-46
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

2.4 TEST PROCEDURE

The test procedure is performed in a 12ft × 12ft × 8ft(L × W × H) shielded room.
the EUT along with its peripherals were placed on a 1.0m(W) × 1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chasis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chasis ground also bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

2.5 UNCERTAINTY OF CONDUCTED EMISSION

The uncertainty of conducted emission is $\pm$1.36dB.

2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are Quasi-peak values.

Temperature : 21.5 ℃ Humidity : 56 % R.H.

FREQUENCY	READING(dB μ V)				LIMITS (dB μ V)	
	ONE END & GRD'D		THE OTHER END & GRD'D			
(MHz)	Q.P.	Ave.	Q.P.	Ave.	Q.P.	Ave.
0.150	57.60	10.40	58.40	15.80	66.00	56.00
0.185	55.70	5.40	55.00	7.20	64.24	54.24
0.229	52.20	3.10	51.00	4.50	62.48	52.48
0.283	47.60	*	46.90	*	60.72	50.72
0.350	43.90	*	42.20	*	58.96	48.96
0.499	41.20	*	*	*	56.01	46.01
0.502	*	*	34.00	*	56.00	46.00
0.617	35.20	*	*	*	56.00	46.00
1.000	43.73	*	*	*	56.00	46.00
1.141	*	*	38.94	*	56.00	46.00
21.600	36.28	*	*	*	60.00	50.00
23.888	*	*	37.59	*	60.00	50.00
30.000	*	*	*	*	60.00	50.00

REMARKS : 1. * Undetectable or the Q.P. value is lower than the limits of Ave.

2. For adaptor model number: DV-151A

2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are Quasi-peak values.

Temperature : 21.5 ℃ Humidity : 56 % R.H.

FREQUENCY	READING(dB μ V)				LIMITS (dB μ V)	
	ONE END & GRD'D		THE OTHER END & GRD'D			
(MHz)	Q.P.	Ave.	Q.P.	Ave.	Q.P.	Ave.
0.150	46.50	*	46.60	*	66.00	56.00
0.185	44.60	*	44.90	*	64.24	54.24
0.229	42.70	*	43.30	*	62.48	52.48
0.283	41.00	*	41.40	*	60.72	50.72
0.350	38.60	*	39.90	*	58.96	48.96
0.433	36.90	*	37.30	*	57.20	47.20
0.535	34.10	*	33.20	*	56.00	46.00
11.257	*	*	35.85	*	60.00	50.00
24.922	36.39	*	39.69	*	60.00	50.00
30.000	*	*	*	*	60.00	50.00

REMARKS : 1. * Undetectable or the Q.P. value is lower than the limits of Ave.

2. For adaptor model number : SCP48-161000

2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are Quasi-peak values.

Temperature : 21.5 ℃ Humidity : 56 % R.H.

FREQUENCY	READING(dB μ V)				LIMITS (dB μ V)	
	ONE END & GRD'D		THE OTHER END & GRD'D			
(MHz)	Q.P.	Ave.	Q.P.	Ave.	Q.P.	Ave.
0.150	45.80	*	46.20	*	66.00	56.00
0.175	44.50	*	*	*	64.72	54.72
0.210	*	*	43.70	*	63.20	53.20
0.390	*	*	50.00	*	58.06	48.06
0.579	48.80	*	46.41	*	56.00	46.00
0.608	48.10	*	45.70	*	56.00	46.00
0.813	*	*	37.72	*	56.00	46.00
0.871	39.53	*	*	*	56.00	46.00
1.071	*	*	35.64	*	56.00	46.00
10.019	34.85	*	33.65	*	60.00	50.00
29.216	27.10	*	28.40	*	60.00	50.00
30.000	*	*	*	*	60.00	50.00

REMARKS : 1. * Undetectable or the Q.P. value is lower than the limits of Ave.

2. For adaptor model number : SCP48-151000

3. RADIATED EMISSION TEST

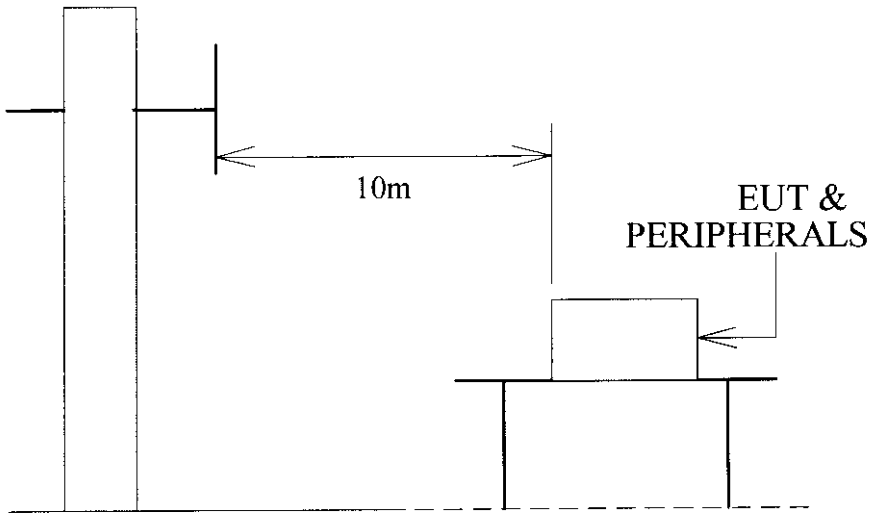
3.1 TEST EQUIPMENTS

The following test equipments are utilized in making the measurements contained in this report.

MANUFACTURER OR TYPE	MODEL No.	SERIAL No.	DATE OF CALIBRATION
CHASE BI-LOG ANTENNA	CBL6111A	1546	MAY.23, 1998
R/S TEST RECEIVER	ESMI	842088/005 841978/008	MAY.29, 1998
OPEN SITE	----------	No.1	JUL. 18, 1997

3.2 TEST SETUP

The diagram below shows the test setup which is utilized to make these measurements.



Antenna Elevation Variable

3.3 RADIATION LIMIT

All emanation from a class B computing device or system , including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below :

FREQUENCY (MHz)	DISTANCE (METERS)	FIELD STRENGTHS(dB μ V/M)	
		CLASS A	CLASS B
30－230	10	40	30
230－1000	10	47	37

Note : (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 closest point of any part of the device or system.

3.4 TEST PROCEDURE

The devices under test were placed on a rotatable table top 0.8 meter above ground. The table was rotated 360 degrees to determine the position of the highest radiation. EUT is set 10 meters from the interference receiving antenna which is mounted on the top of a variable height mast. The antenna height is varied between one meter and four meters above ground to find the maximum value of the field strength Both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
The bandwidth setting on the E.M.I. meter (R/S TEST RECEIVER ESMI) is 120 KHz.
The levels are quasi peak value readings. The frequency spectrum from 30MHz to 1000MHz was investigated.

3.5 UNCERTAINTY OF RADIATED EMISSION

The uncertainty of radiated emission is $\pm$2.72dB.

3.6 RADIATED RF NOISE MEASUREMENT

The frequency spectrum from 30 MHz to 1000 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are quasi-peak values.

Temperature : 30 ℃ Humidity : 86 % RH

FREQ-UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT10m (dB μ V/M)		LIMITS (dB μ V/M)	EMISSION LEVEL AT10m (dB μ V/M)	
			HORIZON-TAL	VERTICAL		HORIZON-TAL	VERTICAL
30.00	*	*	*	*	30.00	*	*
121.14	11.41	2.22	6.16	12.32	30.00	19.79	25.95
140.14	11.70	2.40	*	7.28	30.00	*	21.38
144.15	11.48	2.44	*	10.64	30.00	*	24.56
148.16	11.26	2.48	14.28	10.92	30.00	28.02	24.66
152.15	11.05	2.50	*	9.24	30.00	*	22.79
152.17	11.05	2.50	8.96	*	30.00	22.51	*
153.15	10.99	2.50	*	10.92	30.00	*	24.41
157.16	10.79	2.50	*	10.64	30.00	*	23.93
157.17	10.79	2.50	11.48	*	30.00	24.77	*
164.17	10.31	2.53	*	10.36	30.00	*	23.20
164.18	10.31	2.53	8.96	*	30.00	21.80	*
172.19	9.66	2.58	11.48	*	30.00	23.72	*
179.18	9.08	2.68	*	9.80	30.00	*	21.56
180.18	8.99	2.70	*	15.68	30.00	*	27.37
180.20	8.99	2.70	15.96	*	30.00	27.65	*
192.21	9.12	2.76	7.00	7.56	30.00	18.88	19.44
202.23	9.31	2.81	12.04	*	30.00	24.16	*
216.24	10.09	2.90	15.96	10.92	30.00	28.95	23.91
218.24	10.20	2.91	15.12	7.00	30.00	28.23	20.11
220.25	10.31	2.92	7.84	*	30.00	21.07	*
472.50	16.86	4.09	*	3.92	37.00	*	24.87
472.53	16.86	4.09	4.48	*	37.00	25.43	*
1000.00	*	*	*	*	37.00	*	*

REMARKS : 1. * Undetectable

2. Emission level (dB μ V/M) =Antenna Factor (dB) + Cable loss (dB) + Meter Reading (dB μ V/M).

3. For adaptor model number : SCP48-161000