



EMC

TEST REPORT

REPORT NO. : F87072908
MODEL NO. : G2R600A, H2R450A
DATE OF TEST : July 30, 1998

PREPARED FOR : DEXIN CORP.

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PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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**1. CERTIFICATION**

Issue Date: July 31, 1998

Product : MOUSE
Trade Name : DEXIN
Model No. : G2R600A, H2R450A
Applicant : DEXIN CORP.
Standard : FCC Part 15, Subpart B, Class B
ANSI C63.4-1992
CISPR 22:1993+A1+A2

We hereby certify that one sample of the designation has been tested in our facility on July 30, 1998. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

The test results show that the EUT as described in this report is in compliance with the Class B limits of conducted and radiated emission of applicable standards.

TESTED BY: John Liao , DATE: 7/31/98
(John Liao)

CHECKED BY: Sharon Hsiung , DATE: 7/31/98
(Sharon Hsiung)

APPROVED BY: Mike Su , DATE: 7/31/98
(Mike Su)

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	MOUSE
Model No.	:	G2R600A, H2R450A
Power Supply Type	:	DC 5V (from PC)
Data Cable	:	Shielded (1.5m)

Note: The EUT has two models, which are identical to each other in all aspects except for their indexes.

- Model: G2R600A
- Model: H2R450A

From the above models, model G2R600A was selected as the representative during the test and only its data is recorded in this report.

For more detailed features description, please refer to manufacturer's specification or User's Manual.



2.2 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

No.	Product	Brand	Model No.	FCC ID	I/O Cable
1	PERSONAL COMPUTER	HP	D5220	Doc approved	Nonshielded Power (1.8m)
2	MONITOR	ADI	937G	BR8937G	Shielded Signal (1.5m) Nonshielded Power (1.8m)
3	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded signal (1.4m)
4	PRINTER	HP	C2145A	B94C2145X	Shielded Signal (1.2m) Nonshielded Power (1.9m)
5	MODEM	DATATRONICS	1200CK	E2050V1200CK	Shielded signal (1.5m) Nonshielded Power (1.9m)
6	VGA CARD	GORDIA	DSV3365	LUT-DSV3365	N/A

2.3 TEST METHODOLOGY AND CONFIGURATION

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 3m and 10 m on an open area test site. Please refer to the photos of test configuration in Item 5.



3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	E4411A	US37360834	Sept. 28, 1998
CHASE Preamplifier	CPA9231A/4	3215	Oct. 31, 1998
ROHDE & SCHWARZ TEST RECEIVER	ESVS 30	841977/002	Jan. 08, 1999
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 28, 1998
CHASE BiLOG Antenna	CBL6112	2074	Dec. 25, 1998
CHANCE Turn Table & Tower Controller	ACS-I	N/A	N/A
Open Field Test Site	Site 6	ADT-R06	Dec. 23, 1998

Note: 1. The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMA's document NIS81.

2. The calibration interval of the above test instruments is 12 months.

And the calibrations are traceable to NML/ROC and NIST/USA.

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESHS30	828109/007	July 22, 1999
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	892107/003	July 20, 1999
EMCO L.I.S.N.	3825/2	9504-2359	July 20, 1999
Shielded Room	Site 3	ADT-C03	N/A

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMA's document NIS81.

2. The calibration interval of the above test instruments is 12 months.

And the calibrations are traceable to NML/ROC and NIST/USA.



3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 - 230	40	30
230 - 1000	47	37

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
Above 1000	300	49.5	500	54.0

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Frequency Range : 0.15 - 30 MHz (Conducted Emission)
 30 - 1000 MHz (Radiated Emission)

Input Voltage : 120 Vac, 60 Hz

Temperature : 30 °C

Humidity : 56 %

Atmospheric Pressure : 997 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -19.6 dB at 10.527 MHz Minimum passing margin of radiated emission: -3.0 dB at 199.43 MHz

4.1.1 EUT OPERATION CONDITION

1. Turn on the power of all equipments.
2. PC runs a test program to enable all functions.
3. PC reads and writes messages from FDD and HDD.
4. PC sends "H" messages to monitor and monitor displays "H" patterns on screen.
5. PC sends "H" messages to modem.
6. PC sends "H" messages to printer, and the printer prints them on paper.
7. Repeat steps 3-7.



4.2 TEST DATA OF CONDUCTED EMISSION

EUT: **MOUSE**MODEL: **G2R600A**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: *John Liao*

Freq. [MHz]	L Level		N Level		Limit		Margin [dB (μV)]			
	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.153	41.90	-	40.70	-	65.84	55.84	-23.9	-	-25.1	-
0.570	19.70	-	29.00	-	56.00	46.00	-36.3	-	-27.0	-
1.945	25.60	-	30.60	-	56.00	46.00	-30.4	-	-25.4	-
10.527	40.40	-	38.10	-	60.00	50.00	-19.6	-	-21.9	-
20.478	28.80	-	32.20	-	60.00	50.00	-31.2	-	-27.8	-
28.634	31.20	-	31.30	-	60.00	50.00	-28.8	-	-28.7	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 4. The emission level of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value.

ADT CO. Shielded Room 3
 CISPR 22 CLASS B

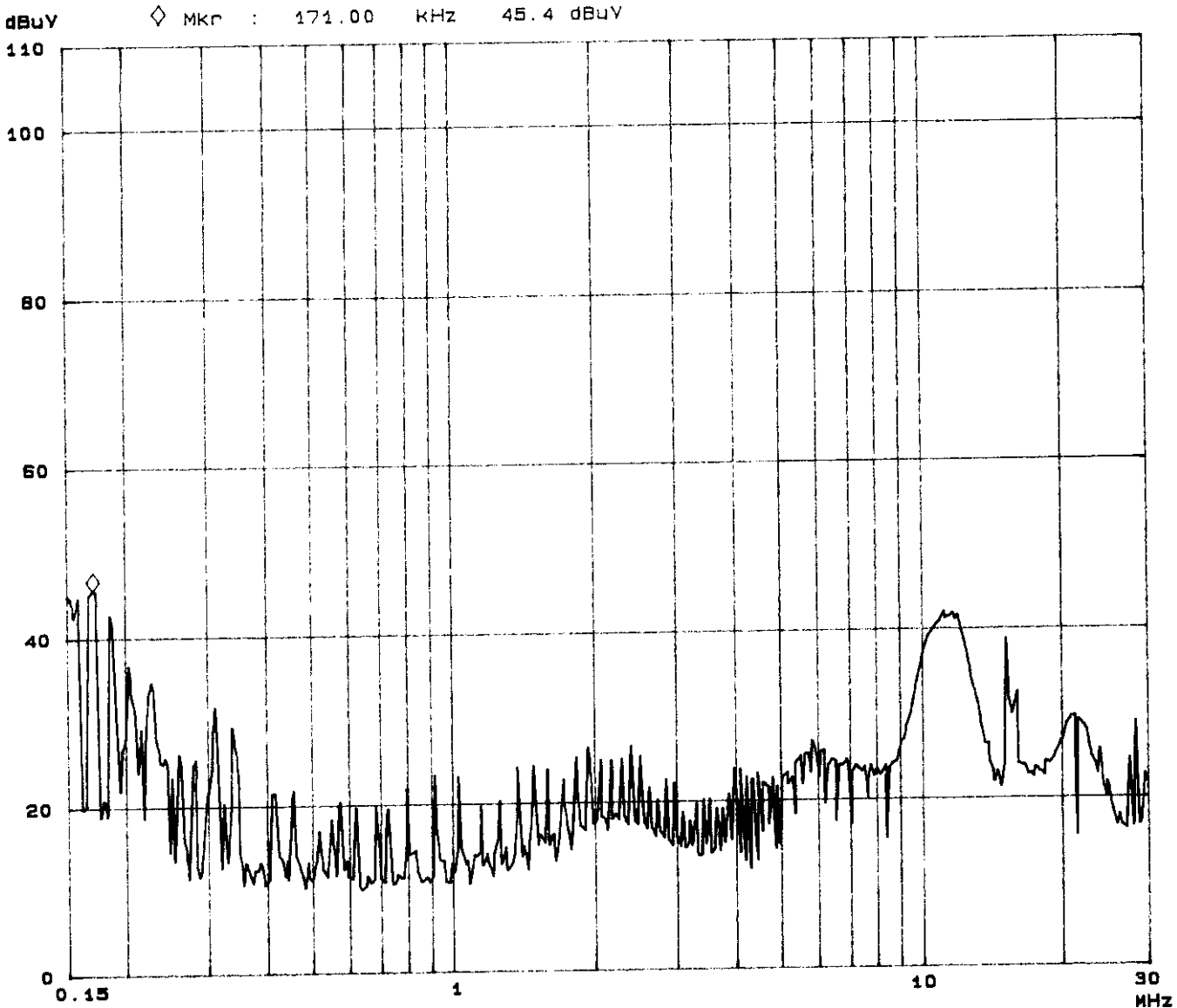
30. Jul 98 20:56

EUT: MODEL: G2P600A
 Test Spec: LISN: L
 Comment: FULL SYSTEM

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Fast Scan Settings (3 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpAge
150k	450k	3k	10k	PK	1ms	10dB	BLN OFF	80dB
450k	5M	3k	10k	PK	1ms	10dB	BLN OFF	80dB
5M	30M	3k	10k	PK	1ms	10dB	BLN OFF	80dB



ADT CO. Shielded Room 3
CISPR 22 CLASS B

30. Jul 98 21:10

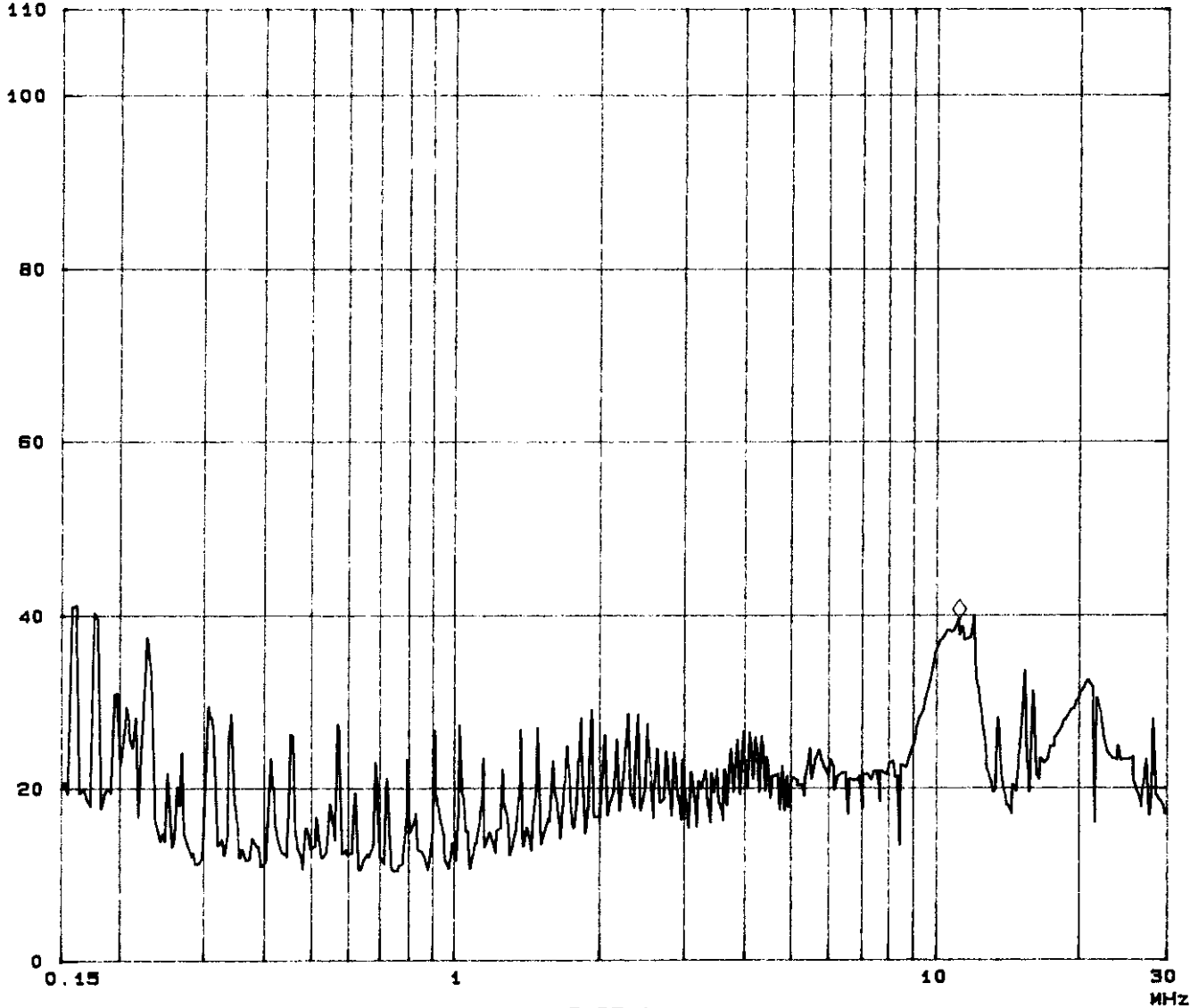
EUT: MODEL: G2P800A
Test Spec: LISN : N
Comment: FULL SYSTEM

epoc No. F87072908
9-2
CISPR by John Liao

Fast Scan Settings (3 Ranges)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpAge	
150k	450k	3k	10k	PK	1ms	10dB	OFF	60dB	
450k	5M	3k	10k	PK	1ms	10dB	OFF	60dB	
5M	30M	3k	10k	PK	1ms	10dB	OFF	60dB	

dBuV ◇ Mkr : 11.10200MHz 39.5 dBuV





4.3 TEST DATA OF RADIATED EMISSION

EUT: **MOUSE**MODEL: **G2R600A**

ANTENNA: CHASE BILOG CBL 6112

POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *Jahn Liao*

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
120.55	15.5	1.6	17.1	30.0	-12.9
171.81	10.9	6.2	17.1	30.0	-12.9
192.25	10.6	12.3	22.9	30.0	-7.1
199.43	10.4	15.7	26.1	30.0	-3.9
216.25	12.0	7.4	19.4	30.0	-10.6
299.14	16.2	8.4	24.6	37.0	-12.4
432.07	19.4	9.5	28.9	37.0	-8.1
764.48	24.0	5.5	29.5	37.0	-7.5

- REMARKS :
1. Emission level (dBuV/m) = Correction Factor(dB/m) + Meter Reading (dBuV).
 2. Correction Factor(dB/m) = Ant. Factor(dB/m)+Cable loss(dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value.



TEST DATA OF RADIATED EMISSION

EUT: **MOUSE**

MODEL: **G2R600A**

ANTENNA: CHASE BILOG CBL 6112

POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *John Liao*

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
49.48	9.9	13.4	23.3	30.0	-6.7
114.54	14.4	5.5	19.9	30.0	-10.1
130.63	13.8	13.0	26.8	30.0	-3.2
199.43	11.8	15.2	27.0	30.0	-3.0
216.06	12.5	6.3	18.8	30.0	-11.2
232.65	13.3	16.7	30.0	37.0	-7.0
432.08	19.2	11.2	30.4	37.0	-6.6

- REMARKS :
1. Emission level (dBuV/m) = Correction Factor(dB/m) + Meter Reading (dBuV).
 2. Correction Factor(dB/m) = Ant. Factor(dB/m)+Cable loss(dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value.