



EMC

TEST REPORT

REPORT NO. : F87061205
 MODEL NO. : K3R400A, K2R400A
 DATE OF TEST : June 13, 1998

PREPARED FOR : DEXIN CORP.

ADDRESS : 20F, 37, SEC. 2, SAN-MING RD.,
 PAN-CHIAO CITY, TAIPEI HSIEN, TAIWAN

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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TABLE OF CONTENTS

1. CERTIFICATION.....	3
2. GENERAL INFORMATION	4
2.1 GENERAL DESCRIPTION OF EUT	4
2.2 DESCRIPTION OF SUPPORT UNITS	5
2.3 TEST METHODOLOGY AND CONFIGURATION.....	5
3. TEST INSTRUMENTS	6
3.1 TEST INSTRUMENTS (EMISSION).....	6
3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION.....	7
4. TEST RESULTS (EMISSION)	8
4.1 RADIO DISTURBANCE	8
4.1.1 EUT OPERATION CONDITION	8
4.2 TEST DATA OF CONDUCTED EMISSION	9
4.3 TEST DATA OF RADIATED EMISSION.....	10
5. PHOTOGRAPHS OF THE TEST CONFIGURATION WITH MINIMUM MARGIN.	11



1.

CERTIFICATION

Issue Date: June 20, 1998

Product : MOUSE
Trade Name : DEXIN
Model No. : K3R400A, K2R400A
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 June 13, 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: Johnny Liu , DATE: 6/20/98
(Johnny Liu)

CHECKED BY: Rita Yi , DATE: 6/20/98
(Rita Yi)

APPROVED BY: Mike Su , DATE: 6/20/98
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION**NVLAP[®]**

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	MOUSE
Model No.	:	K3R400A, K2R400A
Power Supply Type	:	DC (from PC)
Data Cable	:	Shielded (1.5m)

Note: The EUT has two models, which are identical to each other in all aspects except for the following:

- MODEL: K3R400A (with three buttons)
- MODEL: K2R400A (with two buttons)

From the above models, model K3R400A 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	D4579A	Doc approved	Nonshielded Power (1.8m)
2	MONITOR	ADI	PD-959	Doc approved	Shielded Signal (1.2m) Nonshielded Power (1.8m)
3	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded signal (1.4m)
4	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.2m) Nonshielded Power (1.8m)
5	MODEM	ASUS	3DP-V3000	Doc approved	Shielded signal (1.2m) Nonshielded Power (1.8m)

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	8590L	3544A01042	April 29, 1999
HP Preamplifier	8447D	2944A08313	Sept. 18, 1998
ROHDE & SCHWARZ TEST RECEIVER	ESVS 30	841977/008	Oct. 5, 1998
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 28, 1998
CHASE BiLOG Antenna	CBL6111A	1647	Aug. 2, 1998
EMCO Turn Table	1016	1722	N/A
EMCO Tower	1051	1263	N/A
Open Field Test Site	Site 4	ADT-R04	Aug. 1, 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	828765/002	July 31, 1998
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	828075/003	July 28, 1998
EMCO-L.I.S.N.	3825/2	90031627	July 28, 1998
Shielded Room	Site 5	ADT-C05	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 - 2000 MHz (Radiated Emission)
Input Voltage : 120 Vac, 60 Hz
Temperature : 29 °C
Humidity : 64 %
Atmospheric Pressure : 1060 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -17.4 dB at 0.277 MHz Minimum passing margin of radiated emission: -4.1 dB at 54.03 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: K3R400A

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: *Johnny Liu*

Freq.	L Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.177	46.30	-	39.70	-	64.63	54.63	-18.3	-	-24.9	-
0.277	2.50	-	43.50	-	60.91	50.91	-58.4	-	-17.4	-
0.696	16.40	-	26.90	-	56.00	46.00	-39.6	-	-29.1	-
2.229	25.80	-	31.00	-	56.00	46.00	-30.2	-	-25.0	-
6.518	25.40	-	26.70	-	60.00	50.00	-34.6	-	-33.3	-
17.963	20.60	-	19.30	-	60.00	50.00	-39.4	-	-40.7	-

- 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. SITE 5
CISPR 22 CLASS B

13. Jun 98 14:58

EUT: K3R400A
Test Spec: LISN : L

Report No. F787061205

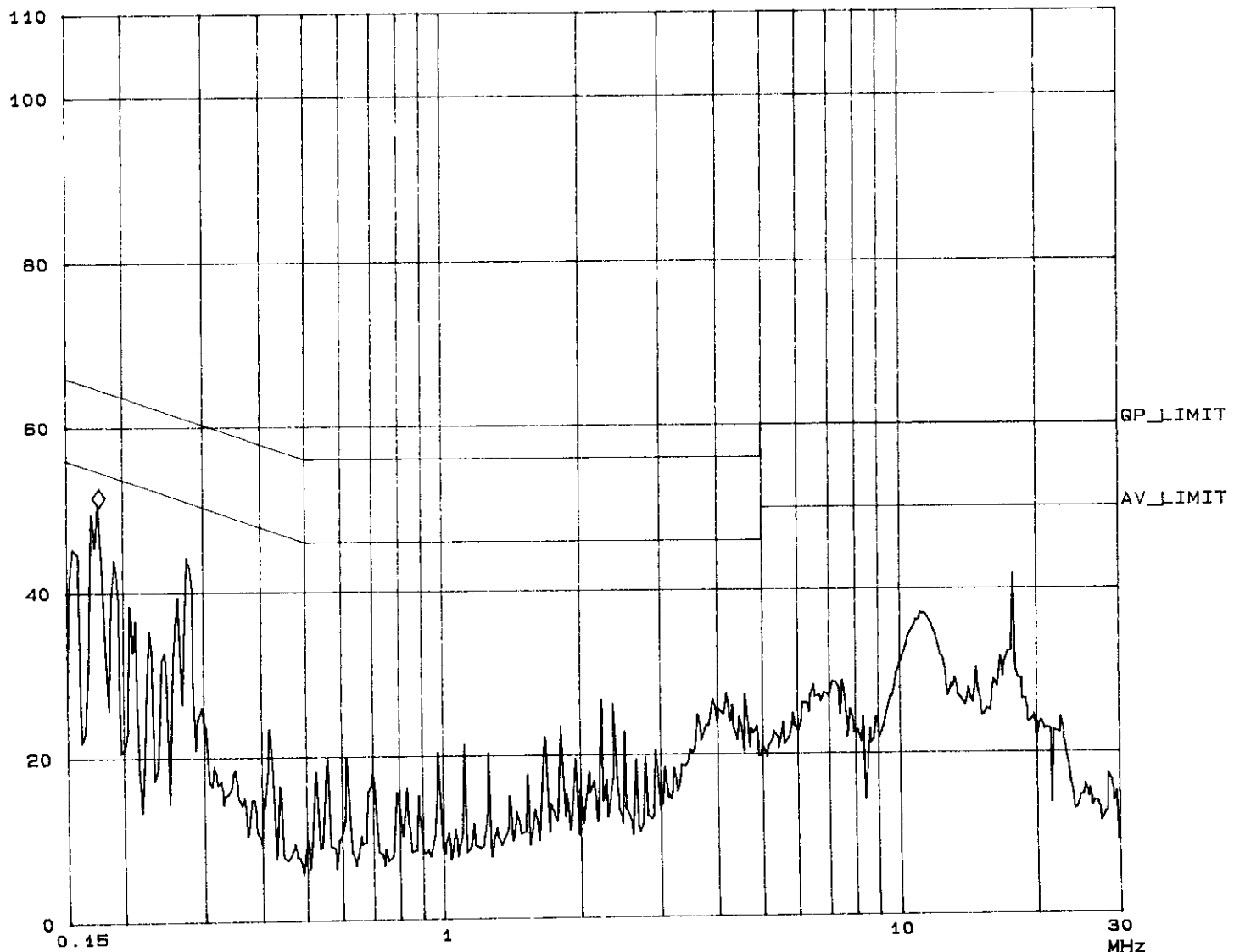
Page 9-1

Tested by Johnny Liu

Fast Scan Settings (3 Ranges)

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

dBuV ◇ Mkr : 177.00 kHz 50.3 dBuV

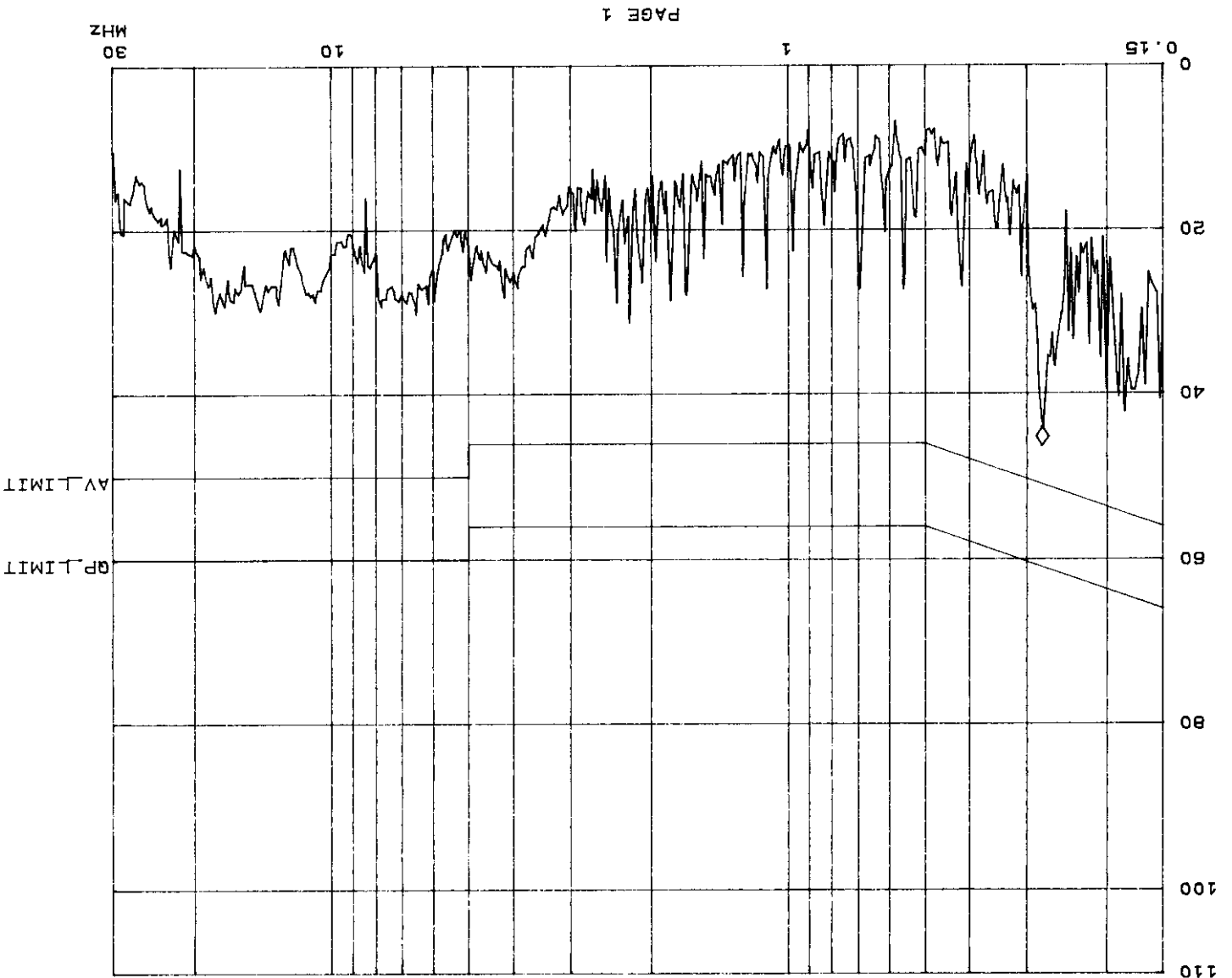


ADT CO. SITE 5
 CISPR 22 CLASS B
 EUT: K3R400A
 Test Spec: LISN : N

Report No. F817061205
 Page 9-2
 Tested by Johnny-Olin

Fast Scan Settings (3 Ranges) -----
 Start Stop IF BW Detector M-Time Atten Preamp OpRge
 150K 450K 3K 10K PK 1ms 10dB LN OFF 60dB
 450K 5M 3K 10K PK 1ms 10dB LN OFF 60dB
 5M 30M 3K 10K PK 1ms 10dB LN OFF 60dB

DBU 110 100 80 60 40 20 0
 MKR : 275.00 KHZ 44.1 DBU





4.3 TEST DATA OF RADIATED EMISSION

EUT: MOUSE

MODEL: K3R400A

ANTENNA: CHASE BILOG CBL 6111A

POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: Johnny-Liu

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
56.28	8.6	12.3	20.9	30.0	-9.1
70.62	7.6	11.9	19.5	30.0	-10.5
114.57	13.8	6.4	20.2	30.0	-9.8
137.74	14.1	6.6	20.7	30.0	-9.3
176.29	11.2	6.1	17.3	30.0	-12.7
206.79	11.9	8.1	20.0	30.0	-10.0
240.06	13.7	10.7	24.4	30.0	-12.6
299.17	15.9	8.1	24.0	30.0	-13.0

- 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: **K3R400A**

ANTENNA: CHASE BILOG CBL 6111A

POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *Johnny Liu*

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
54.06	8.5	17.6	25.9	30.0	-4.1
76.01	7.9	10.6	18.5	30.0	-11.5
114.33	10.5	14.9	25.4	30.0	-4.6
124.61	11.5	9.5	21.0	30.0	-9.0
128.89	11.9	9.9	21.8	30.0	-8.2
144.03	12.5	9.5	22.0	30.0	-8.0
171.87	11.1	8.7	19.8	30.0	-10.2
203.18	11.4	7.8	19.2	30.0	-10.8
225.72	13.5	4.3	17.8	30.0	-12.2
246.87	15.5	11.4	26.9	37.0	-10.1

- 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.