MEASUREMENT/TECHNICAL REPORT

APPLICTNT: Dexin Corp

MODEL NO.: RFMP0102

FCC ID: NIYRFMP∅1∅2

This report concerns (check one) : **Original Grant** ✓
Class II Change

Equipment type: RF Wireless Mouse

Deferred grant requested per 47CFR 0.457(d)(1)(ii)?
Yes _____ No ____✓____ If yes, defer until: _____ (date)

We, the undersigned, agree to notify the Commission by (date) _____ / _____ / ___
of the intended date of announce ment of the product so that the grant can be issued on that date.

Transiyion Rules Request per 15.37? Yes _____ No ____✓____
If no, assumed Part 15, Subpart B for unintentional radiator the new 47 CFR (10-1-90 Edition) provision.

Report Prepared

by Testing House : Neutron Engineering Inc.

for Company :

Name Dexin Corp

Address 20F-2, No. 37, Sec. 2, San-Ming Rd., Pan-Chiao City, Taipei Hsien, Taiwan,

Applicant Signature ¡ cliff chen

Cliff Chen / Manager of R&D

CERTIFICATION

We hereby certify that:
The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (1992) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15, Subpart C.

Prepared by: Sherry Kuo

Reviewed by: Andy Chiu

Approved by: George Yao

Issued Date : Oct. 28, 1999

Report No. : NEI-FCCB-99175

Company Stamp:

NEUTRON ENGINEERING INC.
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Taipei, Taiwan
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Table of Contents

1. GENERAL INFORMATION

1-1. Product Description

The Dexin Corp Model: RFMP0102 (referred to as the EUT in the report) is a RF wireless mouse that use radio frequency energy to operate a special designed receiver which associated with an IBM compatible PC. Carrier frequency designed for EUT operation is 914.40 MHz (fundamental frequency). It is considered as a low power transmitter.

1-2. Related Submittal(s) / Grant (s)

1-2-1. Models Covered

This submittal(s) (test report) is intended for FCC ID: NIYRFMP∅1∅2 filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules. The receiver in compliance with Subpart B is authorized under a Declaration of Conformity by the Applicant.

1-2-2. Models Difference

N/A

1-3. 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 3 meters.

1-4. Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of No. 132-1, Lane 329, Sec. 2, Palain Road, Shijr Jen, Taipei, Taiwan, R.O.C. of NEUTRON ENGINEERING INC. This site has been fully described in report dated Jun. 4, 1999 Submitted to your office, and accepted in a letter dated Sep. 02, 1999 (Reg. No. 95335).

2. System Test Configuration

2-1. EUT Configuration

The EUT was placed on a turn table which is 0.8m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions. And also, each emission was to be maximized by changing the polarivation of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthognal axies according to the requirements in Section 13.1.4.1 of ANSI C63.4-1992.

2-2. EUT Exercise

The EUT (Transimitter) was operated continuously in its normal operating mode for the purpose of the measurements.

2-3. Test Procedure

2-3-1. Connducted Emissions

(Not applicable in this report)

2-3-2. Radiated Emissions

Radiated emissions from the EUT measured in the **frequency range between 30 MHz and 1000MHz** were made with a **Spectrum Analyzer, HP Model 8568B,** using **CISPR Quasi-Peak detector mode** and appropriate broadband linearly polarized antenna.

Radiated emissions measurement for **frequency above 1000MHz** were made with a **Test Receiver, R&S model ESMI**, plus a **Pre-amplifier R&S model ESMI-Z7**, and a **Horn Antenna, EMCO model 3115** to measure its **Peak Detector Mode** level and **Average Detector Mode** level.

2-4. Limitation

(1) Conducted Emission (Not applicable in this report)

(2) Radiated Emission

According to 15.249, the field strength of emissions from Intentional Radiators operated under this section shall not exceed the following:

Fundamental Frequency	Field Strength of Fundamental		Field Strength of Harmonics	
(MHz)	(dBuV/m)	(mV/m)	(dBuV/m)	(uV/m)
902-928	93.98	50	53.98	500
2400-2483.5	93.98	50	53.98	500
5725-5875	93.98	50	53.98	500
24000-24250	107.96	250	67.96	2500

* Linear Interpolations.

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the colsed point of EUT distance of 3 meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205
4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.109 apply.

2-5. Special Accessories

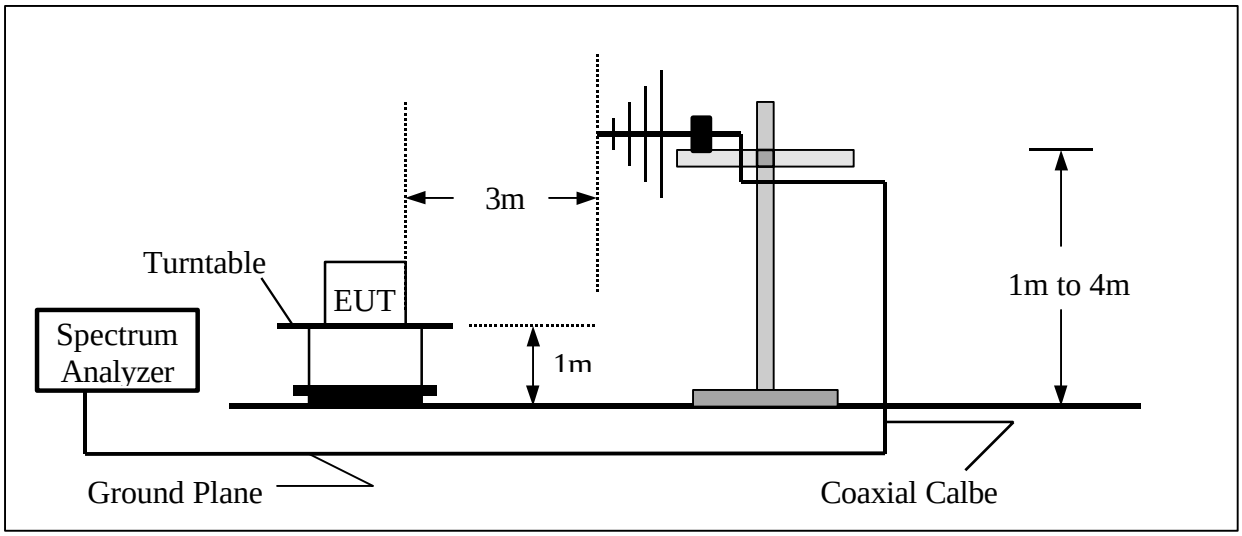
Not available for this EUT intended for grant.

2-6. Equipment Modifications

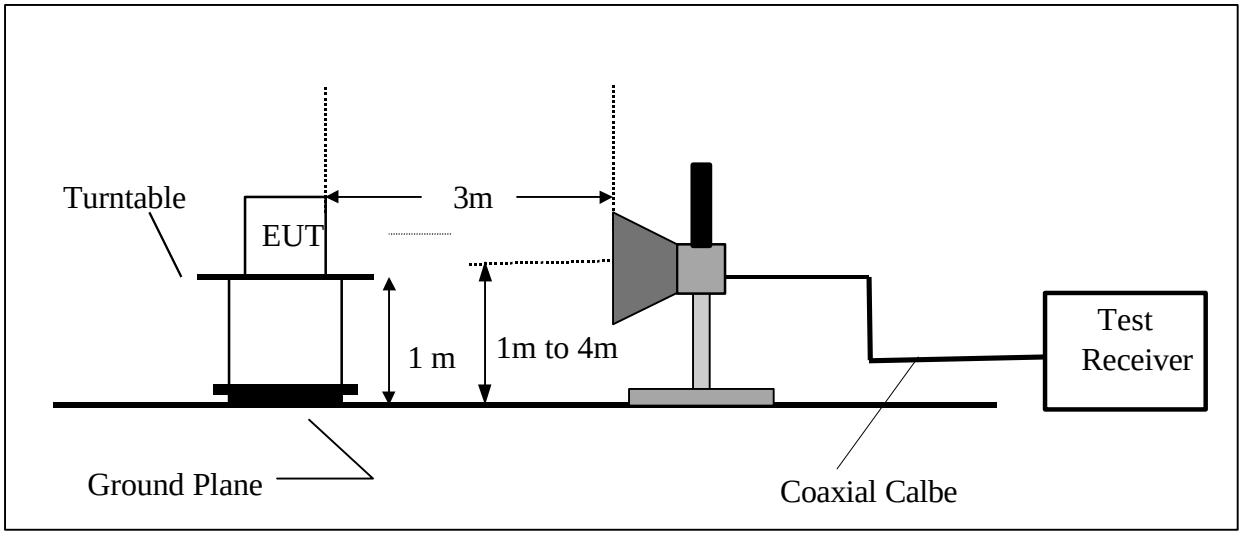
Not available for this EUT intended for grant.

2-7. Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frezuency Over 1 GHz



2-8 Tested Equipments

Item	Instruments	Mfr./Model/Type No.	Serial No.	Calibrated Date	Next Cali. Date	Note#
1	LOGBICON Antenna	VULB 9160	3058	1999-10-29	2000-10-28	
2	LOGBICON Antenna	VULB 9160	3060	1999-10-22	2000-10-21	✓
3	LISN	EMCO 3825/2	9605-2539	1999-06-24	2000-06-23	
4	LISN	Rolf Heine NNB-2/16Z	98083	1998-11-30	1999-11-29	✓
5	LISN	Rolf Heine NNB-2/16Z	98053	1998-11-30	1999-11-29	✓
6	Horm Antenna	EMCO 3115	9605-4803	1999-05-10	2000-05-09	✓
7	Loop Antenna	R&S HFH 2-Z2	830749/20	N/A	N/A	
8	Quasi-Peak Adapter	HP 85650A	2521A00844	1999-09-29	2000-03-28	✓
9	RF Pre-Selector	HP 85685A	2648A00417	1999-09-29	2000-03-28	✓
10	Spectrum Analyzer	HP 85680B	2634A03025	1999-09-29	2000-03-28	✓
11	Spectrum	HP 85662B	2648A13616	1999-09-29	2000-03-28	✓
12	Pre-Amplifier	Anritsu MH648A	M09961	1998-12-06	1999-12-05	✓
13	Test Receiver	R&S ESMI	843977/005	1999-11-02	2000-11-01	✓
14	Pre-Amplifier	R&S ESMI-Z7	1045.5020	1999-06-03	2000-06-02	✓
15	Test Receiver	R&S ESH3	860156/018	1999-10-25	2000-10-24	✓
16	Test Receiver	R&S ESVP	860687/009	1999-10-25	2000-10-24	
17	Test Receiver	MEB SMV41	130	1998-12-22	1999-12-21	✓
18	Antenna Mast	N/A	N/A	N/A	N/A	✓
19	Turn Table	N/A	N/A	N/A	N/A	✓

Remark:

(1) ✓ indicates the instrument used in this test report.

(2) N/A denotes No Brand measurement facility.

3. Radiated Measurement Photos

4. Radiated Emission Data

4.1 The following data lists the significant emission frequencies, measured emission levels, correction factor (including cable loss antenna factor, and if any needed, the duty cycle correction factor), the corrected field strength, as well as the limitation. Explanation of the correction factor is given in 6.2 and 6.3

Judgement¡ Passed by -5.2 dB at 2747.00 MHz Ant.Pol. Vertical

	Freq. (MHz)	Detector Mode (PK/AV)	Reading (dBuV)	Ant/CL/Amp. CF (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)	Note
	914.40	Peak	88.23	-15.88	72.35	93.98	-21.63	F
	1832.00	Peak	34.03	12.51	46.54	73.98	-27.44	H
	1832.00	AV	22.74	12.51	35.25	53.98	-18.73	H
*	2747.00	Peak	44.89	16.03	60.92	73.98	-13.06	H*
*	2747.00	AV	32.75	16.03	48.78	53.98	-5.2	H*
*	3644.00	Peak	31.66	18.61	50.27	73.98	-23.71	H*
*	3664.00	AV	24.50	18.61	43.11	53.98	-10.87	H*
*	4581.00	Peak	33.61	19.86	43.47	73.98	-30.51	H*
*	4581.00	AV	23.45	19.86	43.31	53.98	-10.67	H*
	5493.00	Peak	26.44	21.82	48.26	73.98	-25.72	H
	5493.00	AV	19.64	21.82	41.46	53.98	-12.52	H
	6408.00	Peak	25.21	22.94	48.15	73.98	-25.83	H
	6408.00	AV	16.98	22.94	39.92	53.98	-14.03	H
*	7318.00	Peak	-	25.22	-	73.98	-	H*
*	7318.00	AV	-	25.22	-	53.98	-	H*
*	8234.00	Peak	-	26.79	-	73.98	-	H*
*	8234.00	AV	-	26.79	-	53.98	-	H*
*	9148.00	Peak	-	26.79	-	73.98	-	H*
*	9148.00	AV	-	26.79	-	53.98	-	H*

Remark¡ G

(1) Measuring frequencies from 30 MHz to the 10th harmonic of fundamental frequency of 919.90MHz¡ C

(2) Datas of measurement within this frequency range shown "- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.

(4) Emission frequencies above 1000MHz were measured with an instrument using both Average detector mode and peak detector mode.

(5) Field strength limits for frequency above 1000mhz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB

(6) "F" denotes fundamental frequency; "H" denotes Harmonics frequency.

(7) * denotes emission frequency which appearing within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.109 apply.

(8) Data of spurious emissions frequency weren't attached that were less than 20dB from the limit.

Review: Andy Chiu Test Personnel.: David Date: Oct. 15, 1999

4. Radiated Emission Data

4.1 The following data lists the significant emission frequencies, measured emission levels, correction factor (including cable loss antenna factor, and if any needed, the duty cycle correction factor), the corrected field strength, as well as the limitation. Explanation of the correction factor is given in 6.2 and 6.3

Judgement¡ Passed by -5.26 dB at 2747.00 MHz Ant.Pol. Horizontal

	Freq. (MHz)	Detector Mode (PK/AV)	Reading (dBuV)	Ant/CL/Amp. CF (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)	Note
	914.40	Peak	87.82	-15.88	71.94	93.98	-22.04	F
	1832.00	Peak	32.87	12.51	45.38	73.98	-28.6	H
	1832.00	AV	25.63	12.51	38.14	53.98	-15.84	H
*	2747.00	Peak	44.28	16.03	60.31	73.98	-13.67	H*
*	2747.00	AV	32.69	16.03	48.72	53.98	-5.26	H*
*	3644.00	Peak	32.34	18.61	50.95	73.98	-23.03	H*
*	3664.00	AV	26.56	18.61	45.17	53.98	-8.81	H*
*	4581.00	Peak	33.83	19.86	53.69	73.98	-20.29	H*
*	4581.00	AV	25.25	19.86	45.11	53.98	-8.87	H*
	5493.00	Peak	26.63	21.82	48.45	73.98	-25.53	H
	5493.00	AV	17.36	21.82	39.18	53.98	-14.8	H
	6408.00	Peak	26.22	22.94	49.16	73.98	-24.82	H
	6408.00	AV	17.39	22.94	40.33	53.98	-13.65	H
*	7318.00	Peak	-	25.22	-	73.98	-	H*
*	7318.00	AV	-	25.22	-	53.98	-	H*
*	8234.00	Peak	-	26.79	-	73.98	-	H*
*	8234.00	AV	-	26.79	-	53.98	-	H*
*	9148.00	Peak	-	26.79	-	73.98	-	H*
*	9148.00	AV	-	26.79	-	53.98	-	H*

Remark:

(1) Measuring frequencies from 30 MHz to the 10th harmonic of fundamental frequency of 919.90MHz¡ C

(2) Datas of measurement within this frequency range shown "- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.

(4) Emission frequencies above 1000MHz were measured with an instrument using both Average detector mode and peak detector mode.

(5) Field strength limits for frequency above 1000mhz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB

(6) "F" denotes fundamental frequency; "H" denotes Harmonics frequency.

(7) ***** denotes emission frequency which appearing within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.109 apply.

(8) Data of spurious emissions frequency weren't attached that were less than 20dB from the limit.

Review: Andy Chiu Test Personnel.: David Date: Oct. 15, 1999

4-2. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor (1)

CL = Cable Attenuation Factor (1)

AG = Amplifier Gain (1) (2)

Remark :

(1) The Correction Factor = AF + CF - AG, as shown in the data tables' Correction Factor column.

(2) AG is not available for Neutron's Open Site Facility

Example of Calculation:

Assume a Receiver Reading of 23.7 dBuV is obtained with an Antenna Factor of 7.2 dB and a Cable Factor of 1.1 dBuV. Then:

1. The Correction Factor will be caculated by

Correction Factor = AF + CF - AG = 7.2 + 1.1 - 0 = 8.3 (dB)

as shown in the data tables' Correction Factor column.

2. The Field Strength will be calculated by

FS = RA + Correction Factor = 23.7 + 8.3 = 32 (dBuV/m).

FS is the value shown in the data tables' Corrected Reading column and RA is the value shown in the data tables' Receiver Reading column.The 32 dBuV/m value was mathematically converted to its corresponding level in uV/m as:

Log^{-1} (32.0dBuV/m)/20 ×39.8 (uV/m)

4-3. Correction Factor VS Frequency

Frequency (MHz)	Antenna Factor (Db)	Cable Loss (Db)
30.00	11.10	0.90
35.00	10.80	0.50
40.00	11.20	1.00
45.00	11.50	0.80
50.00	11.30	1.00
55.00	10.50	1.30
60.00	9.90	1.00
65.00	8.70	1.50
70.00	7.60	1.20
75.00	6.40	1.40
80.00	6.10	1.30
85.00	7.00	1.40
90.00	8.00	1.70
95.00	10.00	1.50
100.00	11.20	1.90
110.00	12.60	2.00
120.00	13.00	1.80
130.00	12.50	1.80
140.00	12.00	2.00
150.00	12.00	2.20
160.00	13.20	2.40
170.00	14.80	2.50
180.00	16.30	2.50
190.00	17.00	2.50
200.00	17.30	2.40
225.00	10.50	2.70
250.00	11.70	3.10
275.00	12.80	3.70
300.00	14.50	4.00
325.00	14.00	4.50
350.00	14.20	4.50
375.00	14.60	4.60
400.00	15.10	4.80
450.00	16.20	5.40
500.00	17.60	6.50
550.00	17.80	7.00
600.00	18.40	7.10
650.00	19.50	7.10
700.00	20.80	7.20
750.00	20.50	7.50
800.00	21.10	8.00
850.00	22.40	8.60
900.00	23.50	8.90
950.00	24.00	9.70
1000.00	24.80	10.30