



NVLAP LAB CODE 200707-0



## FCC PART 15.227

# EMI MEASUREMENT AND TEST REPORT

For

### Dyna Point Inc.

The Sixth Industrial Park.Shangsha,South Area ChangAn,  
DongGuan,GuangDong,China 523880

**FCC ID: RYLH3V5001**

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Original Report	<b>Equipment Type:</b> Wireless Mouse
<b>Test Engineer:</b> Hansen Hu <i>Hansen Hu</i>	
<b>Report No.:</b> RSZ06120602	
<b>Report Date:</b> 2007-02-01	
<b>Test Date:</b> 2006-12-14 to 2007-02-01	
<b>Reviewed By:</b> EMC Manager: Boni Baniqued <i>Boni Baniqued</i>	
<b>Prepared By:</b> Bay Area Compliance Laboratory Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China. Tel: +86-755-33320018 Fax: +86-755-33320008	

**Note:** This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratory Corp. (Shenzhen). This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government

**TABLE OF CONTENTS**

<b>GENERAL INFORMATION.....</b>	<b>3</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....	3
OBJECTIVE .....	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY .....	3
TEST FACILITY .....	3
<b>SYSTEM TEST CONFIGURATION.....</b>	<b>4</b>
JUSTIFICATION .....	4
EUT EXERCISE SOFTWARE .....	4
SPECIAL ACCESSORIES .....	4
SCHEMATICS AND BLOCK DIAGRAM.....	4
EQUIPMENT MODIFICATIONS .....	4
CONFIGURATION OF TEST SETUP .....	5
BLOCK DIAGRAM OF TEST SETUP .....	5
<b>SUMMARY OF TEST RESULTS .....</b>	<b>6</b>
<b>§15.203 - ANTENNA REQUIREMENT.....</b>	<b>7</b>
STANDARD APPLICABLE .....	7
<b>§15.205, §15.209, §15.227(A) - RADIATED EMISSIONS TEST .....</b>	<b>8</b>
MEASUREMENT UNCERTAINTY .....	8
EUT SETUP .....	8
EMI TEST RECEIVER SETUP.....	8
TEST EQUIPMENT LIST AND DETAILS.....	9
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	9
TEST RESULTS SUMMARY .....	9
TEST DATA .....	9
<b>§15.227(B) - OUT OF BAND EMISSIONS .....</b>	<b>11</b>
TEST EQUIPMENT LIST AND DETAILS.....	11
TEST DATA .....	11

---

## GENERAL INFORMATION

---

### Product Description for Equipment under Test (EUT)

The *Dyna Point Inc.*'s product, model number: *H3V5001* or the "EUT" as referred to in this report is a *Wireless Mouse*. The EUT is measured approximately 9.0 cm L x 5.0 cm W x 3.5 cm H. rated input voltage: DC 3V battery.

*\* The test data gathered are from production sample, serial number: 0612004 provided by the manufacturer, we received EUT on 2006-12-06.*

### Objective

This Type approval report is prepared on behalf of *Dyna Point Inc.* in accordance with Part 2, Subpart J, and Part 15, Subparts A , B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules, sec 15.203, 15.205, 15.209 and sec 15.227.

### Related Submittal(s)/Grant(s)

No Related Submittals.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

### Test Facility

The Test site used by Bay Area Compliance Laboratory Corp. (Shenzhen) to collect radiated and conducted emission measurement data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratory Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179 and Industrial Canada registration test site No.: 5500A. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratory Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>

---

## **SYSTEM TEST CONFIGURATION**

---

### **Justification**

The system was configured for testing in a typical fashion (as normally used by a typical user).

### **EUT Exercise Software**

N/A

### **Special Accessories**

N/A

### **Schematics and Block Diagram**

Please refer to the Exhibit D.

### **Equipment Modifications**

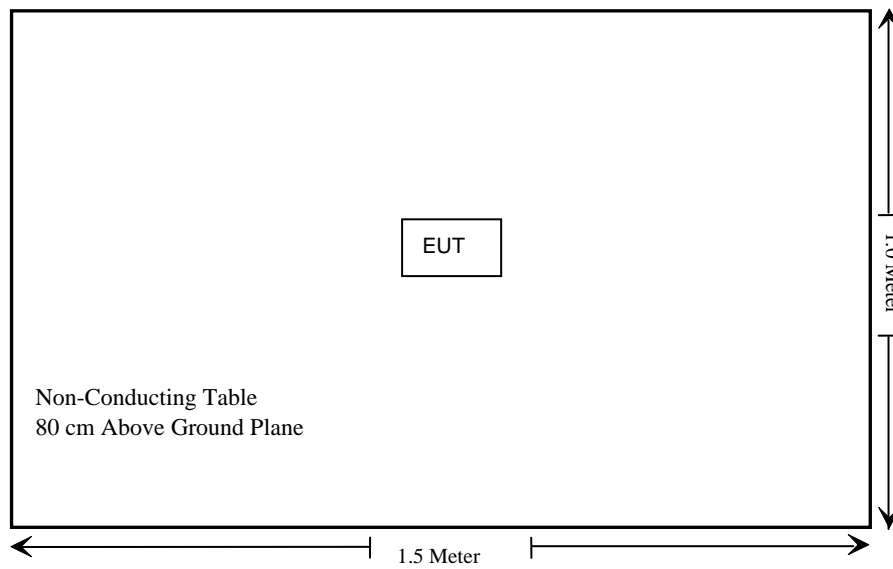
Bay Area Compliance Laboratory Corp. (Shenzhen) has not done any modification on the EUT.

## Configuration of Test Setup



EUT

## Block Diagram of Test Setup



---

**SUMMARY OF TEST RESULTS**

---

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna requirement	Compliant
§15.205	Restricted Band of operation	Compliant
§15.209	Radiated Emissions Limit	Compliant
§15.227(a)	Field Strength	Compliant
§15.227(b)	Out of Band Emissions	Compliant

---

## §15.203 - ANTENNA REQUIREMENT

---

### Standard Applicable

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has a permanent antenna, fulfill the requirement of this section.

**Result:** Compliance.

## §15.205, §15.209, §15.227(a) - RADIATED EMISSIONS TEST

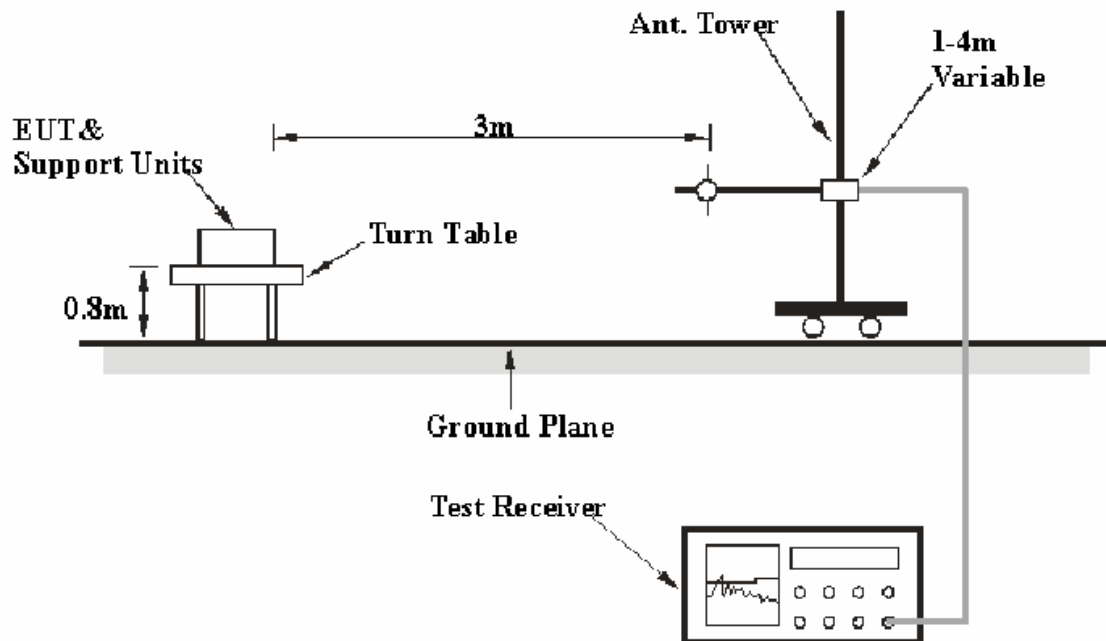
### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is  $\pm 4.0$  dB.

The fundamental data was recorded in average detection mode: set the VBW AVE on, then record the data.

### EUT Setup



The radiated emission tests were performed in the 3-meter chamber A test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15.227 limits.

### EMI Test Receiver Setup

According to FCC Rules, 47 CFR 15.33, the EUT emissions were investigated from 27 to 1000 MHz.

During the radiated emission test, the EMI test Receiver was set with the following configurations:

<b><i>Frequency Range</i></b>	<b><i>RBW</i></b>	<b><i>Video B/W</i></b>
Below 30 MHz	10 kHz	30 kHz
30 – 1000 MHz	100 kHz	300 kHz



## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447E	1937A01046	2006-11-15	2007-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2006-09-29	2007-09-29
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2006-08-14	2007-08-14
ETS	Passive Loop Antenna	6512	00029604	2006-08-25	2007-08-25

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corr. Ampl.}$$

## Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.227, with the worst margin reading of:

**8.1 dB at 270.45 MHz in the Horizontal polarization.**

## Test Data

### Environmental Conditions

Temperature:	25 °C
Relative Humidity:	53 %
ATM Pressure:	1010 mbar

*The testing was performed by Hansen Hu on 2006-12-14.*

*Test mode: Transmitting*

Indicated		Table	Antenna		Correction Factor			Corr. Ampl. dBμV/m	FCC PART 15.227&15.209		
Frequency ( MHz)	Meter Reading (dBμV/m)	Angle Degree	Height (m)	Polar H/ V	Antenna Factor (dB/m)	Cable Loss (dB)	Amplifier Gain (dB)		Limit dBμV/m	Margin (dB)	Remark
270.45	51.6	210	1.2	h	11.5	2.4	27.6	37.9	46.0	8.1	harmonics
81.135	52.9	60	1.2	h	5.7	1.1	28.4	31.3	40.0	8.7	harmonics
297.495	48.9	160	1.5	h	13.8	1.6	27.6	36.7	46.0	9.3	harmonics
54.090	50.8	60	1.0	h	7.1	0.9	28.6	30.2	40.0	9.8	harmonics
894.500	37.6	60	1.3	h	22.6	3.5	28.1	35.6	46.0	10.4	spurious
243.405	50.8	90	1.0	h	10.0	2.4	27.8	35.4	46.0	10.6	harmonics
351.585	46.2	190	1.1	h	15.0	1.8	27.6	35.4	46.0	10.6	harmonics
469.700	43.2	270	1.4	v	17.4	2.3	28.4	34.5	46.0	11.5	spurious
327.400	45.9	160	1.1	v	14.3	1.7	27.7	34.2	46.0	11.8	spurious
407.500	43.9	180	1.8	v	16.1	2.1	28.3	33.8	46.0	12.2	spurious
162.270	45.2	45	1.2	v	10.6	1.7	28.2	29.3	43.5	14.2	harmonics
135.225	39.9	180	1.2	h	11.7	1.6	28.3	24.9	43.5	18.6	harmonics
189.315	40.0	180	1.2	h	9.8	1.9	28.0	23.7	43.5	19.8	harmonics
54.090	40.3	270	1.0	v	7.1	0.9	28.6	19.7	40.0	20.3	harmonics
81.135	40.1	45	1.2	v	5.7	1.1	28.4	18.5	40.0	21.5	harmonics
216.36	40.3	210	1.5	h	9.4	2.1	27.9	23.9	46.0	22.1	harmonics
162.270	36.7	90	1.0	h	10.6	1.7	28.2	20.8	43.5	22.7	harmonics
108.180	37.5	90	1.2	h	9.8	1.3	28.5	20.1	43.5	23.4	harmonics
351.585	33.2	230	1.2	v	15.0	1.8	27.6	22.4	46.0	23.6	harmonics
135.225	34.7	45	1.2	v	11.7	1.6	28.3	19.7	43.5	23.8	harmonics
297.495	33.3	150	1.4	v	13.8	1.6	27.6	21.1	46.0	24.9	harmonics
189.315	33.9	90	1.1	v	9.8	1.9	28.0	17.6	43.5	25.9	harmonics
270.45	33.4	45	1.3	v	11.5	2.4	27.6	19.7	46.0	26.3	harmonics
243.405	34.7	150	1.4	v	10.0	2.4	27.8	19.3	46.0	26.7	harmonics
108.180	33.7	60	1.0	v	9.8	1.3	28.5	16.3	43.5	27.2	harmonics
216.36	33.0	270	1.1	v	9.4	2.1	27.9	16.6	46.0	29.4	harmonics

INDICATED		TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC PART 15.227		
Frequency ( MHz)	Meter Reading dBμV/m	Angle Degree	Height (m)	Dictator AV/PK	Ant. Factor dB/m	Cable Loss dB	Amplifier Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin (dB)	Remark
27.045	57.64	0	2.4	PK	30.3	0.6	28.8	59.74	100	40.26	Fundamental
27.045	54.84	0	2.6	AV	30.3	0.6	28.8	56.94	80.00	23.06	Fundamental

## §15.227(b) - Out of Band Emissions

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2006-11-15	2007-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2006-09-29	2007-09-29
ETS	Passive Loop Antenna	6512	00029604	2006-08-25	2007-08-25

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

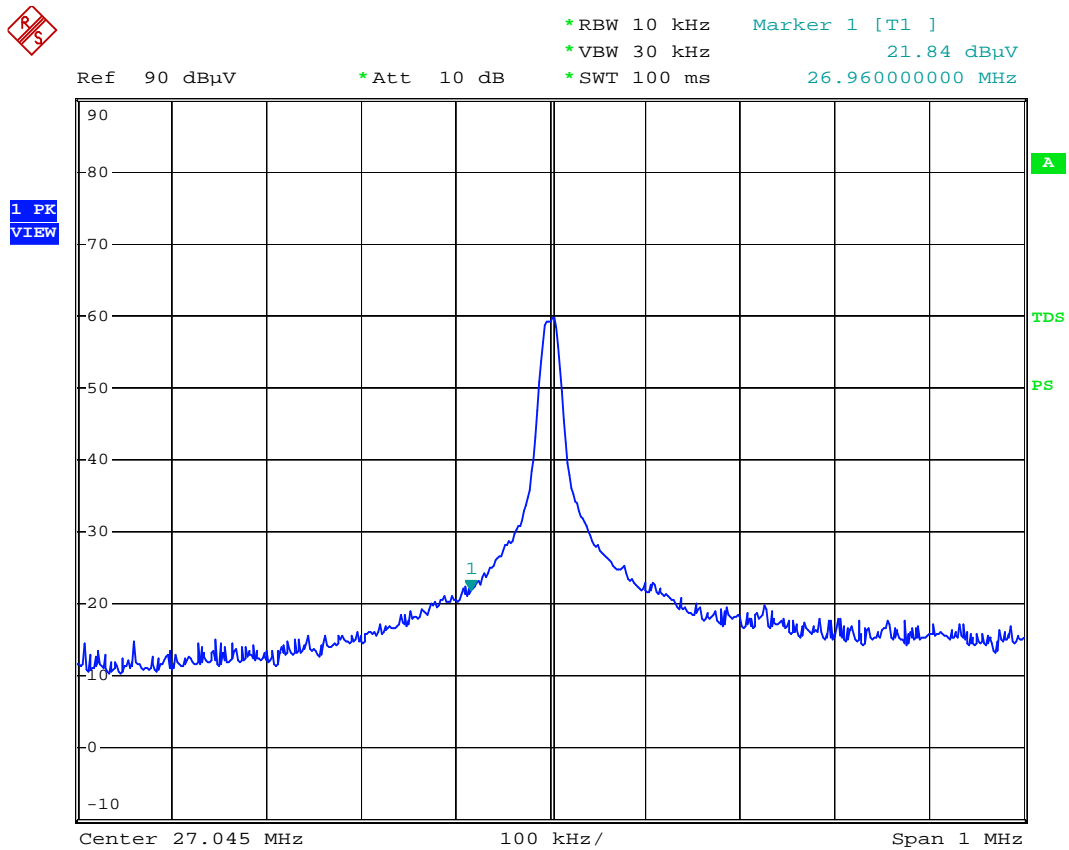
### Test Data

#### Environmental Conditions

Temperature:	25 °C
Relative Humidity:	53 %
ATM Pressure:	1010 mbar

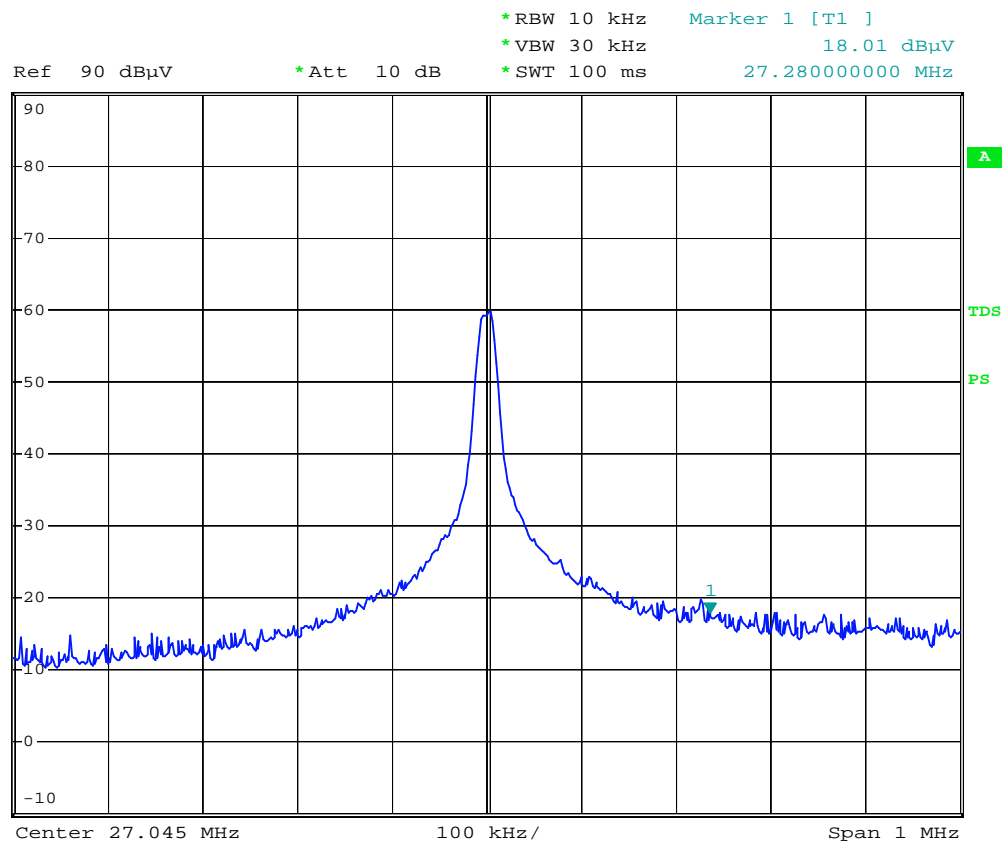
*The testing was performed by Hansen Hu on 2007-02-01.*

The result has been complied with the 15.227(b), see the following plot:



out of band

Date: 1.FEB.2007 09:56:33

1 PK  
VIEW

out of band

Date: 1.FEB.2007 09:56:50