

# 3Dconnexion

## SpaceMouse Pro Wireless

Main Model: 3DX-700049

Serial Model: N/A

June 18, 2014




Report No.: 14070248-FCC-H2

(This report supersedes NONE)



Modifications made to the product : None

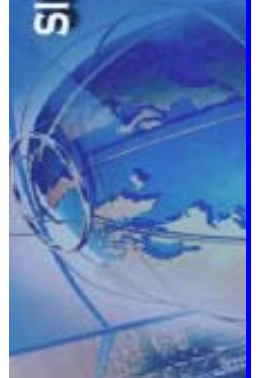
This Test Report is Issued Under the Authority of:

		
<b>Herith Shi</b> Compliance Engineer	<b>Alex Liu</b> Technical Manager	

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Test result presented in this test report is applicable to the representative sample only.

**MPE Calculation Report**  
**To: FCC 2.1093**

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Hong Kong	RF/Wireless ,Telecom
Australia	EMC, RF, Telecom , Safety
Korea	EMI, EMS, RF , Telecom, Safety
Japan	EMI, RF/Wireless, Telecom
Singapore	EMC , RF , Telecom
Europe	EMC, RF, Telecom , Safety



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## **1 EXECUTIVE SUMMARY & EUT INFORMATION**

**The purpose of this test programmers was to demonstrate compliance of the 3Dconnexion, SpaceMouse Pro Wireless and Model: 3DX-700049 against the current Stipulated Standards. The SpaceMouse Pro Wireless has demonstrated compliance with the FCC 2.1093.**

### **EUT Information**

**EUT Description** : **SpaceMouse Pro Wireless**

**Main Model** : **3DX-700049**

**Serial Model** : **N/A**

**Antenna Gain** : **-2.36 dBi**

**Classification Per Stipulated Test Standard** : **Class B Emission Product Per FCC 2.1093**



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## 2 TECHNICAL DETAILS

<b>Purpose</b>	<b>Compliance testing of SpaceMouse Pro Wireless with stipulated standards</b>
<b>Applicant / Client</b>	<b>3Dconnexion 5 Ave. des Citronniers, Monaco</b>
<b>Manufacturer</b>	<b>Xiamen Intretech Inc No. 588, Jiahe road, Xiamen, Fujian, China</b>
<b>Laboratory performing the tests</b>	<b>SIEMIC (Shenzhen-China) Laboratories Zone A, Floor 1, Building 2, Wan Ye Long Technology Park, South Side of Zhoushi Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-0755-2601 4629 / 2601 4953 Fax: +86-0755-2601 4953-810 Email: China@siemic.com.cn</b>
<b>Test report reference number</b>	<b>14070248-FCC-H2</b>
<b>Date EUT received</b>	<b>June 03, 2014</b>
<b>Standard applied</b>	<b>FCC 2.1093</b>
<b>Dates of test (from – to)</b>	<b>June 18, 2014</b>
<b>No of Units</b>	<b>#1</b>
<b>Equipment Category</b>	<b>DXX</b>
<b>Trade Name</b>	<b>3Dconnexion</b>
<b>RF Operating Frequency (ies)</b>	<b>2404-2477 MHz</b>
<b>Number of Channels</b>	<b>5</b>
<b>Modulation</b>	<b>GFSK</b>
<b>FCC ID</b>	<b>2AAHQ-SMPW</b>

### **3 FCC §2.1093 - Maximum Permissible exposure (MPE)**

#### **3.1 Applicable Standard**

According to §15.249 (i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

According to KDB 447498 D01v05r01

##### 1. Extremity exposure conditions

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1-g body and 10-g extremity SAR Test Exclusion Thresholds should be applied to determine SAR test requirements.

##### 2. Standalone SAR test exclusion considerations

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot \sqrt{f_{(\text{GHz})}} \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR,

where

$f$  (GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz

At 100 MHz to 6 GHz and for test separation distances  $> 50$  mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B of KDB 447498 D01 v05r01

$[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW}$ , at 100 MHz to 1500 MHz

$[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW}$  at  $> 1500$  MHz and  $\leq 6$  GHz



## **3.2 Test Data**

Predication of MPE limit at a given distance

One antenna is available for the EUT (FHSS product). The minimum separation distances is 5 mm.  
The maximum average output power(turn-up power) in low channel of product is -4.746 dBm=0.335 mW

The calculation results=  $0.335/5 * \sqrt{2.404}=0.104 < 7.5$

The maximum average output power(turn-up power) in middle channel of product is -3.991dBm=0.399 mW

The calculation results=  $0.399/5 * \sqrt{2.442}=0.125 < 7.5$

The maximum average output power(turn-up power) in high channel of product is -3.607dBm=0.436 mW

The calculation results=  $0.436/5 * \sqrt{2.477}=0.137 < 7.5$

According to KDB 447498, no stand-alone required for FHSS product,

**Result: Pass**