

# RF Exposure Evaluation Declaration

Product Name : WIRELESS-N NETWORK MINI PCI ADAPTER

Model No. : IWAVEPORT WLM200NX

FCC ID : TK4-09-WLM200NX

Applicant : Compex Systems Pte Ltd.

Address : 135 Joo Seng Road, #08-01 PM Industrial Building  
Singapore 368363

Date of Receipt : 2008/09/10

Issued Date : 2008/10/31

Report No. : 089S061R-RF-US

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by CNLA, NVLAP, NIST or any agency of the Government.

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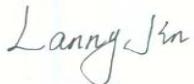
# Test Report Certification

Issued Date : 2008/10/31

Report No. : 089S061R-RF-US

**QuieTek**

Product Name : WIRELESS-N NETWORK MINI PCI ADAPTER  
Applicant : Compex Systems Pte Ltd  
Address : 135 Joo Seng Road, #08-01 PM Industrial Building  
Singapore 368363  
Manufacturer : Compex Systems Pte Ltd  
Address : 135 Joo Seng Road, #08-01 PM Industrial Building  
Singapore 368363  
Model No. : IWAVEPORT WLM200NX  
FCC ID : TK4-09-WLM200NX  
Rated Voltage : AC 120V/60Hz  
EUT Voltage : DC 3.3V  
Trade Name : COMPEX  
Applicable Standard : FCC OET 65  
Test Result : Complied  
Performed Location : SuZhou EMC laboratory  
No.99 Hongye Rd., Suzhou Industrial Park Loufeng  
Hi-Tech Development Zone., SuZhou, China  
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098  
FCC Registration Number: 800392

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## Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited by the following accreditation Bodies in compliance with ISO 17025, EN 45001 and Guide 25:

<b>Taiwan R.O.C.</b>	: BSMI, DGT, CNLA
<b>Germany</b>	: TUV Rheinland
<b>Norway</b>	: Nemko, DNV
<b>USA</b>	: FCC, NVLAP
<b>Japan</b>	: VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>  
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

### HsinChu Testing Laboratory :

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TEL:+886-3-592-8858 / FAX:+886-3-592-8859      E-Mail : [service@quietek.com](mailto:service@quietek.com)



### Linkou Testing Laboratory :

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TEL : +886-2-8601-3788 / FAX : 886-2-8601-3789      E-Mail : [service@quietek.com](mailto:service@quietek.com)



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TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098      E-Mail : [service@quietek.com](mailto:service@quietek.com)



## 1. RF Exposure Evaluation

### 1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (Minutes)
<b>(A) Limits for Occupational/ Control Exposures</b>				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
<b>(B) Limits for General Population/ Uncontrolled Exposures</b>				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$r$  = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance  $r$  where the MPE limit is reached.

## 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

## 1.3. Test Result of RF Exposure Evaluation

Product	:	WIRELESS-N NETWORK MINI PCI ADAPTER
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-4

### Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2dBi or 1.58 in linear scale.

### Output Power into Antenna & RF Exposure Evaluation Distance:

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
802.11b/g/n(20MHz)	2412~2462	154	0.048557
802.11n(40MHz)	2422~2452	117	0.036891
802.11a/n(20MHz)	5745~5825	133	0.041936
802.11n(40MHz)	5755~5795	127	0.040044
802.11a/n(20MHz)	5180~5240	44	0.013873
802.11a/n(20MHz)	5260~5320	181	0.057070
802.11a/n(20MHz)	5500~5700	175	0.055178
802.11n(40MHz)	5190~5230	46	0.014504
802.11n(40MHz)	5270~5310	156	0.049188
802.11n(40MHz)	5510~5670	191	0.060223