



# **VNT9271B6050**

## **USB MODULE SPEC.**

Revision 1.3  
April 27, 2011

**VIA TECHNOLOGIES, INC.**

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## Revision History

Release	Date	Revision	Initials
0.1	2010-08-22	Initial Release	Troy
1.0	2010-09-25	Add Power Consumption	Troy
1.1	2010-11-26	Add "Triangle" mark – stand for USB connector PIN 1	Troy
1.2	2011-4-10	Add USB Cable and Antenna	Troy
1.3	2011-4-27	a. Modify 2.4.2 Mechanical Drawing by pang06 b. Modify 2.7.1 Hardware Pin-Out Definition by page9 c. Add 3.1.1 Antenna MAIN and Antenna AUX function explain by page10 d. Add FCC/CE/NCC certificate by page12/13/14	Weiming. Wang

# Table of Contents

<b>1.0 Scope</b> .....	<b>1</b>
1.1 Document .....	1
1.2 Product Features .....	1
<b>2.0 Requirements</b> .....	<b>2</b>
2.1 Functional Block Diagram.....	2
2.2 General Requirement .....	3
2.2.1 <i>Wireless Parameter</i> .....	3
2.2.2 <i>General Section</i> .....	4
2.3 Software Requirements .....	5
2.3.1 <i>Information</i> .....	5
2.3.2 <i>Configuration</i> .....	5
2.4 Mechanical Requirements .....	6
2.4.1 <i>Information</i> .....	6
2.4.2 <i>Mechanical Drawing</i> .....	6
2.5 Requirements of Reliability, Maintainability and Quality.....	7
2.6 Environmental Requirements .....	8
2.7 Module Pin Definition.....	9
2.7.1 <i>VNT9271B6050</i> .....	9
<b>3.0 Appendix</b> .....	<b>10</b>
3.1 Compliance list of Antenna Kits .....	10
3.1.1 <i>Antenna MAIN and Antenna AUX function explain</i> :.....	10
3.2 Optional accessory .....	11
3.2.1 Optional I (for test) .....	11
3.2.2 Optional II (MP).....	11
3.3 Certificates - FCC/CE/NCC .....	12
3.3.1 <i>FCC certificate</i> .....	12
3.3.2 <i>CE certificate</i> .....	13
3.3.3 <i>NCC certificate</i> .....	14

## 1.0 Scope

### 1.1 Document

This document describe the product requirements for **802.11N** USB module(Model No.: VNT9271B6050). The USB module is based on **Atheros** AR9271 chip solution. The VNT9271B6050 product complied with IEEE 802.11b/g/n standard from 2.4~2.5GHz.

VNT9271B6050 offers absolute interoperability with different vendors' 802.11b/g/n access points through the wireless LAN with seamless roaming, fully interoperability, and advanced security with WEP/WPA/WPA2.0 standard.

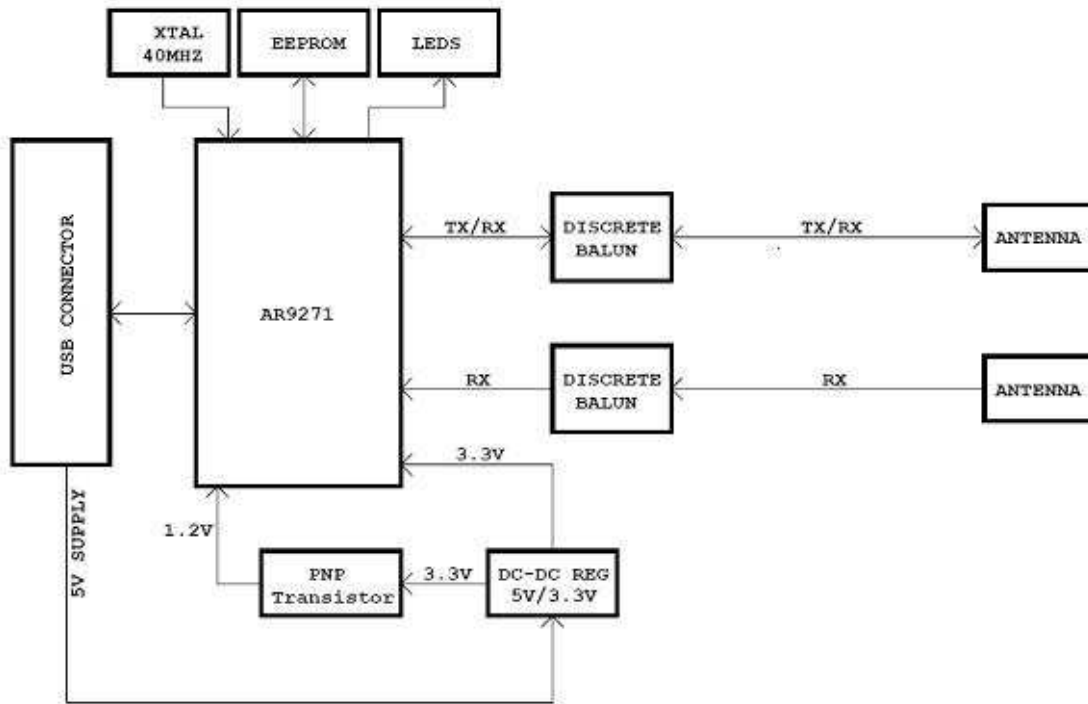
### 1.2 Product Features

- Compatible with IEEE 802.11b/g/n standard
- Operation at 2.4 ~ 2.5GHz frequency band to meet worldwide regulations
- Support 802.11e WMM(WiFi MultiMedia QoS Standard).
- Maximum reliability, throughput and connectivity with automatic data rate switching
- Supports infrastructure networks via Access Point and ad-hoc network via peer-to-peer communication
- Supports WEP, WPA, WPA2 and 802.1X security mode.
- Friendly user configuration and utilities
- Drivers support Windows XP, Win7, Vista and Linux.

## 2.0 Requirements

The following sections identify the detailed requirements of the VNT9271B6050

### 2.1 Functional Block Diagram



## 2.2 General Requirement

### 2.2.1 Wireless Parameter

Item	Feature	Detailed Description
2.2.1	Standard	<ul style="list-style-type: none"> <li>IEEE 802.11b/g/n</li> </ul>
2.2.1.2	Frequency Band	<ul style="list-style-type: none"> <li>2400 ~ 2483.5MHz ISM band</li> </ul>
2.2.1.3	Data Transfer Rates	<ul style="list-style-type: none"> <li>11N: 135/121.5/108/81/54/40.5/27/13.5Mbps</li> <li>130/117/104/78/52/39/26/13Mbps</li> <li>65/58.5/52/39/26/19.5/13/6.5Mbps</li> <li>11g: 54/48/36/24/18/12/9/6 Mbps (Dynamic)</li> <li>11b: 11/5.5/3/2/1 Mbps (Dynamic)</li> </ul>
2.2.1.4	Channel	<ul style="list-style-type: none"> <li>11 Channels fro United State(FCC)</li> <li>13 Channels for Europe(ETSI)</li> <li>13 Channels for Japan(TELEC)</li> </ul>
2.2.1.5	Extend Frequency	<ul style="list-style-type: none"> <li>DSSS</li> </ul>
2.2.1.6	Modulation Type	<ul style="list-style-type: none"> <li>OFDM</li> </ul>
2.2.1.7	RF Power	<ul style="list-style-type: none"> <li>11b : 16.5 +/- 1.5dBm</li> <li>11g : 13.5 +/- 1.5dBm</li> <li>11n : 13.5 +/- 1.5dBm</li> </ul>
2.2.1.8	Receive Sensitivity	<ul style="list-style-type: none"> <li>11b : Typical -80+/- 1.5dBm at 11Mbps @8%PER</li> <li>11g : Typical -69+/- 1.5dBm at 54Mbps @10%PER</li> <li>11n : Typical -67+/- 1.5dBm at 54Mbps @10PER</li> </ul>
2.2.1.9	Wireless Security	<ul style="list-style-type: none"> <li>64/128/152 bit WEP</li> <li>WPA/WPA2, WPA-PSK/WPA2-PSK</li> </ul>

## 2.2.2 General Section

Item	Feature	Detailed Description
2.2.2.1	Antenna connector Type	<ul style="list-style-type: none"><li>Two(2) coaxial cable antenna connector</li></ul>
2.2.2.2	Operating Voltage	<ul style="list-style-type: none"><li>5 VDC +/- 10%</li></ul>
2.2.2.3	Power Consumption	<ul style="list-style-type: none"><li>Full Load(Upload) - 270~300mA</li><li>Full Load(Download) - 150~210mA</li></ul>
2.2.2.4	Form Factor and Interface	<ul style="list-style-type: none"><li>USB 1.1/2.0 Interface</li></ul>

## 2.3 Software Requirements

The Software supports Microsoft Windows XP, Vista and Win7 and includes following functions :

- **Information**  
Information allows you to monitor network status.
- **Security**  
Supports enhanced security WEP, WPA, WPA2.0 and 802.1X.

### 2.3.1 Information

Item	Feature	Detailed Description
2.3.1.1	General Information	<ul style="list-style-type: none"> <li>• General Information shows the name of Wireless Adapter, Adapter MAC Address, Regulatory Domain</li> </ul>
2.3.1.2	Current Link Information	<ul style="list-style-type: none"> <li>• Current Link Information shows the Current Setting ESSID, Channel Number, Associated BSSID, Network Type (infrastructure or Ad-hoc network), WEP Status (enable or disable), Link Status (Connect or Dis-connect), and Link Quality.</li> </ul>
2.3.1.3	Site survey	<ul style="list-style-type: none"> <li>• To search the neighboring access points and display the information of all access points.</li> </ul>

### 2.3.2 Configuration

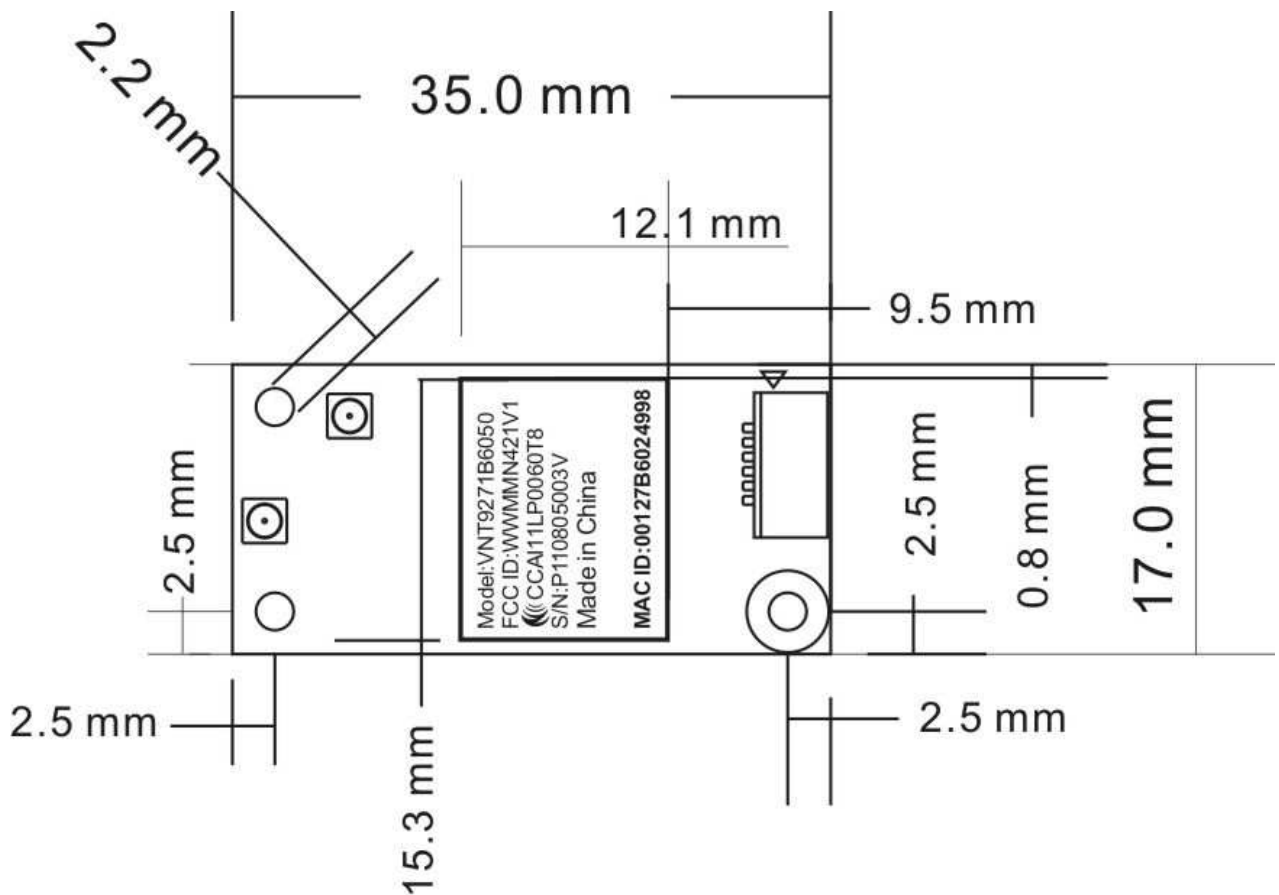
Item	Feature	Detailed Description
2.3.2.1	ESS ID	<ul style="list-style-type: none"> <li>• Supports for ASCII printable characters.</li> </ul>
2.3.2.2	Network Type	<ul style="list-style-type: none"> <li>• Ad-hoc Mode and 802.11 Ad-hoc Mode for network configurations that do not have any access points.</li> <li>• Infrastructure Mode for network configurations with access points.</li> </ul>
2.3.2.3	Power Save	<ul style="list-style-type: none"> <li>• Extend the battery life of clients by allowing the client to sleep for short periods of time while the Access Point buffers the messages.</li> </ul>
2.3.2.4	Roaming	<ul style="list-style-type: none"> <li>• Support Automatic or Manual Rescan to associate with access point.</li> </ul>

## 2.4 Mechanical Requirements

### 2.4.1 Information

Item	Feature	Detailed Description
2.4.1.1	Length	<ul style="list-style-type: none"> <li>35 mm</li> </ul>
2.4.2.1	Width	<ul style="list-style-type: none"> <li>17 mm</li> </ul>

### 2.4.2 Mechanical Drawing



## 2.5 Requirements of Reliability, Maintainability and Quality

Item	Feature	Detailed Description
2.5.1	Maintainability	<ul style="list-style-type: none"><li>There is no scheduled preventive maintenance required</li></ul>
2.5.2	Quality	<ul style="list-style-type: none"><li>The product quality is followed-up by VIA factory quality control system</li></ul>

## 2.6 Environmental Requirements

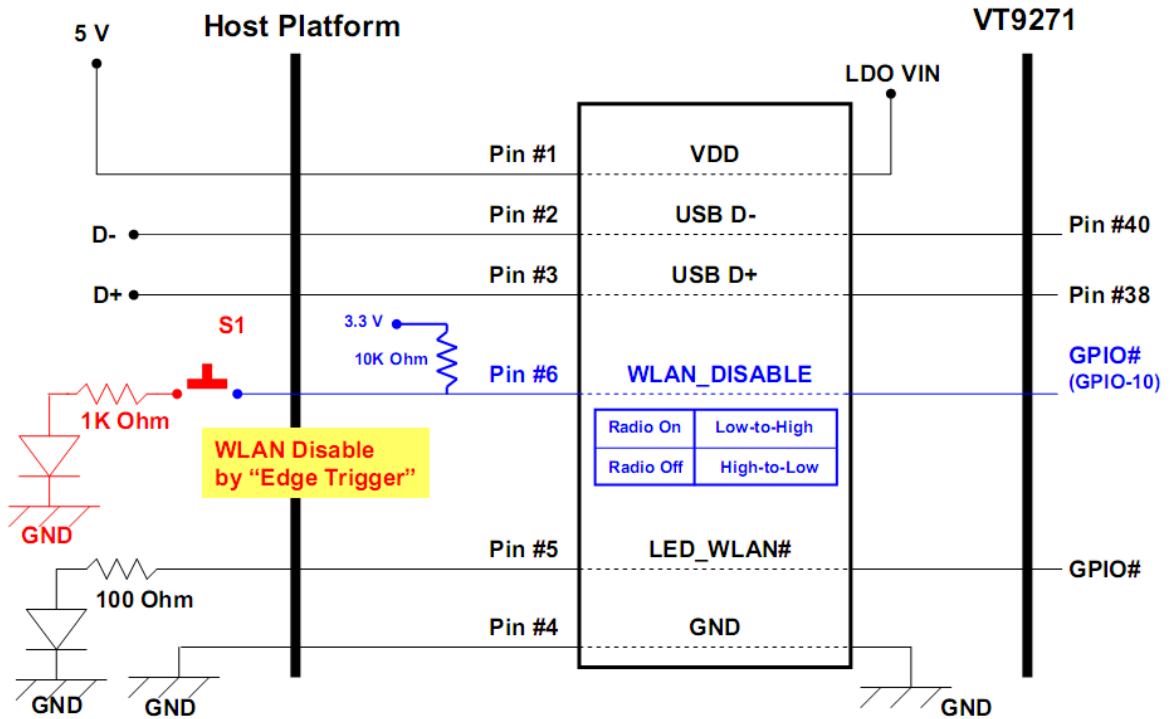
Item	Feature	Detailed Description
2.6.1	Operating Temperature	The product is capable of continuous reliable operation when operating in ambient temperature of 0 °C to 80 °C. <Note> Ambient temperature in immediate (<0.635cm) environment on top of USB Module.
2.6.2	Storage Temperature	-40°C~80°C
2.6.3	Operating Humidity	10%~90% non-condensing
2.6.4	Non-Operating Humidity	5%~90% non-condensing

## 2.7 Module Pin Definition

### 2.7.1 VNT9271B6050

Table 2.7.1 Hardware Pin-Out Definition

On PCB Board, you can see a triangle near USB connector which mean PIN 1 starts here.



PS. For WLAN\_Disable function, Need special driver support. Please contact VIA Local representative

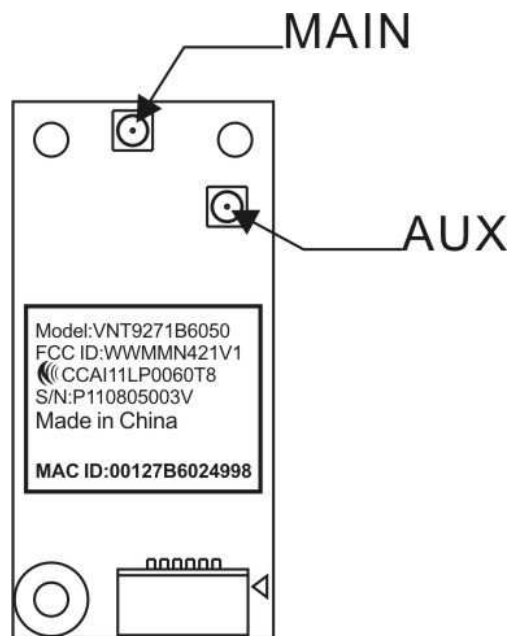
### 3.0 Appendix

#### 3.1 Compliance list of Antenna Kits

Antenna	Brand	Model	Type	Connector	Gain
1	LITE	CAR-ART-187-001	Dipole	I-PEX	1.38dB
2	ARISTOTLE	RFA-02-C2H1-70B-160	Dipole	I-PEX	1.92dB
3	WANSHIH	VAW2516A1	Dipole	I-PEX	1.93dB

The maximum gain was applied to the final test.

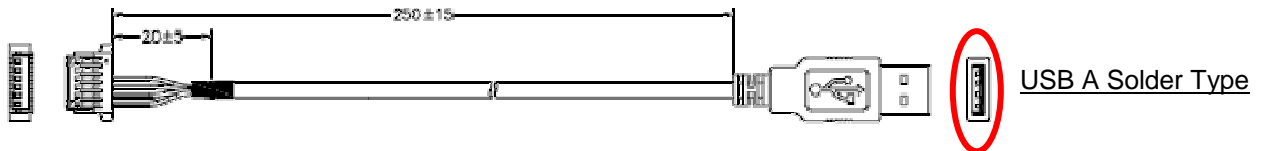
##### 3.1.1 Antenna MAIN and Antenna AUX function explain :



## 3.2 Optional accessory

### 3.2.1 Optional I (for test)

Part No.: 99G33-100166

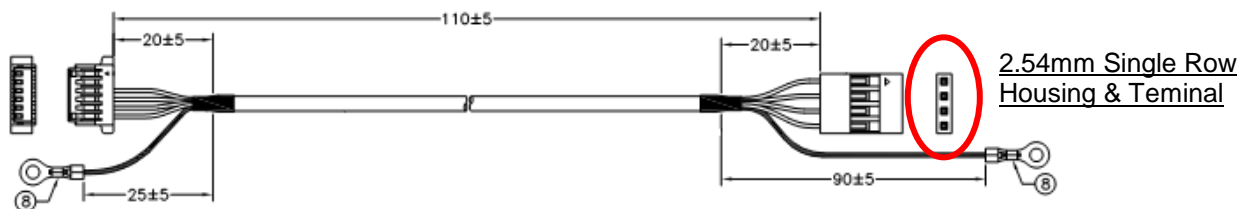


#### Contrast connector vendor information:

- ◆ Supplier's info: Neltron Industrial Co., Ltd. E-mail : neltron@neltron.com.tw
- ◆ Description: USB A Solder Type
- ◆ Part no.: 5075A-02-02-30-F1

### 3.2.2 Optional II (MP)

Part No.: 99G33-100226



⑧ RING TYPE TERMINAL ID:3.2, OD:6.0MM

#### Contrast connector vendor information:

- ◆ Supplier's info: Neltron Industrial Co., Ltd. E-mail : neltron@neltron.com.tw
- ◆ Description: 2.54mm Single Row Housing & Terminal.
- ◆ Part no.: 2226A-04

### 3.3 Certificates - FCC/CE/NCC

#### 3.3.1 FCC certificate

<b>TCB</b>	<p><b>GRANT OF EQUIPMENT AUTHORIZATION</b></p> <p>Certification Issued Under the Authority of the Federal Communications Commission By:</p>	<b>TCB</b>
	<p>ACB, Inc. 6731 Whittier Avenue Suite C110 McLean, VA 22101</p>	<p>Date of Grant: 02/18/2011 Application Dated: 02/17/2011</p>
<p>Proware Technologies Co Ltd. 2nd F1 East Wing, South Section, Factory Building 24, Science &amp; Technology Park, Shennan Shenzhen, 518057 China</p>		
<p>Attention: Yongquan Wang , Product Dept. Manager</p>		
<b>NOT TRANSFERABLE</b>		
<p>EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.</p>		
<p><b>FCC IDENTIFIER:</b> WWMMN421V1</p>		
<p><b>Name of Grantee:</b> Proware Technologies Co Ltd.</p>		
<p><b>Equipment Class:</b> Digital Transmission System</p>		
<p><b>Notes:</b> Wireless Lite-N USB Module</p>		
<p><b>Modular Type:</b> Single Modular</p>		
<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u> <u>Output Watts</u> <u>Frequency Tolerance</u> <u>Emission Designator</u>
	15C	2412.0 - 2462.0    0.0708
	15C	2412.0 - 2452.0    0.0646
<p>Output power is conducted. This device and associated FCC ID label(s) are to be shown in this filing only by OEM or OEM integrators - user installation is prohibited. Instructions on the installation and/or removal of this module may not be provided to the end user. Only the antenna(s) documented in this filing, installed in the manner specified, can be used with this device. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-Users must be provided with transmitter operation conditions for satisfying RF exposure compliance.</p>		

### 3.3.2 CE certificate

<h1>CERTIFICATE OF CONFORMITY</h1>		 <b>A D T</b>
<b>Equipment:</b>	<b>Wireless Lite-N USB Module</b>	
<b>Brand Name:</b>	<b>Proware</b>	
<b>Test Model No.:</b>	<b>PW-MN421, VNT9271B6050</b>	
<b>Applicant:</b>	<b>Proware Technologies Co., Ltd.</b>	
<b>Test Report No.:</b>	<b>LD991201C20</b>	
<p>We, <b>Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch</b>, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.</p>		
<p><b>EN 60950-1:2006 + A11: 2009</b></p>		
<p>In accordance with the council directive 2006/95/EC</p>		
 _____ <b>Ted Wu / Manager</b> December 29, 2010		
<p>No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien, 33382, Taiwan, R.O.C. Tel: 886-3-3183232 Fax: 886-3-2115834 <a href="http://www.adt.com.tw">http://www.adt.com.tw</a> E-Mail: <a href="mailto:service@adt.com.tw">service@adt.com.tw</a></p>		

### 3.3.3 NCC certificate

第一頁 / 共一頁



## 香港商立德國際商品試驗有限公司桃園分公司

### 低功率射頻電機型式認證證明

一、申請者：威盛電子股份有限公司  
(新北市新店區中正路535號8樓)

二、製造廠商：Proware Technologies Co., Ltd.

三、器材名稱：802.11bgn Wireless USB Module

四、廠牌型號：VIA / VNT9271B6050

五、發射功率(電場強度)：18.51dBm (IEEE 802.11b Normal mode)；天線規格：1.93dBi  
18.43dBm (IEEE 802.11g Normal mode)；  
18.39dBm (IEEE 802.11n 20MHz BW)；  
18.07dBm (IEEE 802.11n 40MHz BW)

六、工作頻率：2.412GHz ~ 2.462GHz (IEEE 802.11b/g Normal mode：11 Channels；  
IEEE 802.11n 20MHz BW：11 Channels；  
IEEE 802.11n 40MHz BW：7 Channels)

七、審驗日期：100年01月07日

八、審驗合格標籤式樣：





說明：

- 請依上列標籤式樣自製標籤，標貼或印鑄於器材本體明顯處，始得販賣或公開陳列。
- 經型式認證合格之低功率射頻電機，其型號、設計、射頻性能如有變更，應重新申請型式認證。
- 違反低功率電波輻射性電機管理辦法之規定，擅自使用或變更無線電頻率、電功率者，除依電信法規定處罰外，驗證機關(構)並得廢止其型式認證證明或型式認證標籤。
- 送審廠商應保留送審樣品供日後核對。
- 本型式認證證明及其合格標籤使用權專屬取得本證明者。依電信管制射頻器材審驗辦法第15條規定，持有人得經由網際網路申請同意他人於同廠牌同型號之電信管制射頻器材使用型式認證標籤，並於次日起30天內，應檢具「電信管制射頻器材審驗合格標籤或符合性聲明標籤同意使用備查表」送本會備查。

備註：

- 本器材符合低功率射頻電機技術規範LP0002 (3.10.1節)之規定。
- 驗證機構係經國家通訊傳播委員會委託，核發本型式認證證明。
- 本器材之IEEE 802.11n功能為1Tx/1Rx。
- 本器材詳細工作頻率對應如下：IEEE 802.11b/g Normal mode及IEEE 802.11n 20MHz BW：2.412GHz、2.417GHz、2.422GHz、2.427GHz、2.432GHz、2.437GHz、2.442GHz、2.447GHz、2.452GHz、2.457GHz、2.462GHz；IEEE 802.11n 40MHz BW：2.422GHz、2.427GHz、2.432GHz、2.437GHz、2.442GHz、2.447GHz、2.452GHz。
- 本器材屬於模組認證，可安裝於任何「平台」設備內部；「平台」定義：指設備未安裝此無線模組時仍具備其他複合性功能，則該設備得視為平台設備；安裝者或使用者應確保其使用符合國家通訊傳播委員會之規定。
- 本器材限搭配下列天線：

廠牌	型號	天線型式	天線增益	天線端接頭
LITE	CAR-ART-187-001	Dipole Antenna	1.38dBi	IPEX
ARISTOTLE	RFA-02-C2H1-70B-160	Dipole Antenna	1.92dBi	IPEX
WANSIH	VAW0007A1	Dipole Antenna	-2.63dBi	IPEX
WANSIH	VAW2516A1	Dipole Antenna	1.93dBi	IPEX

(以下空白)